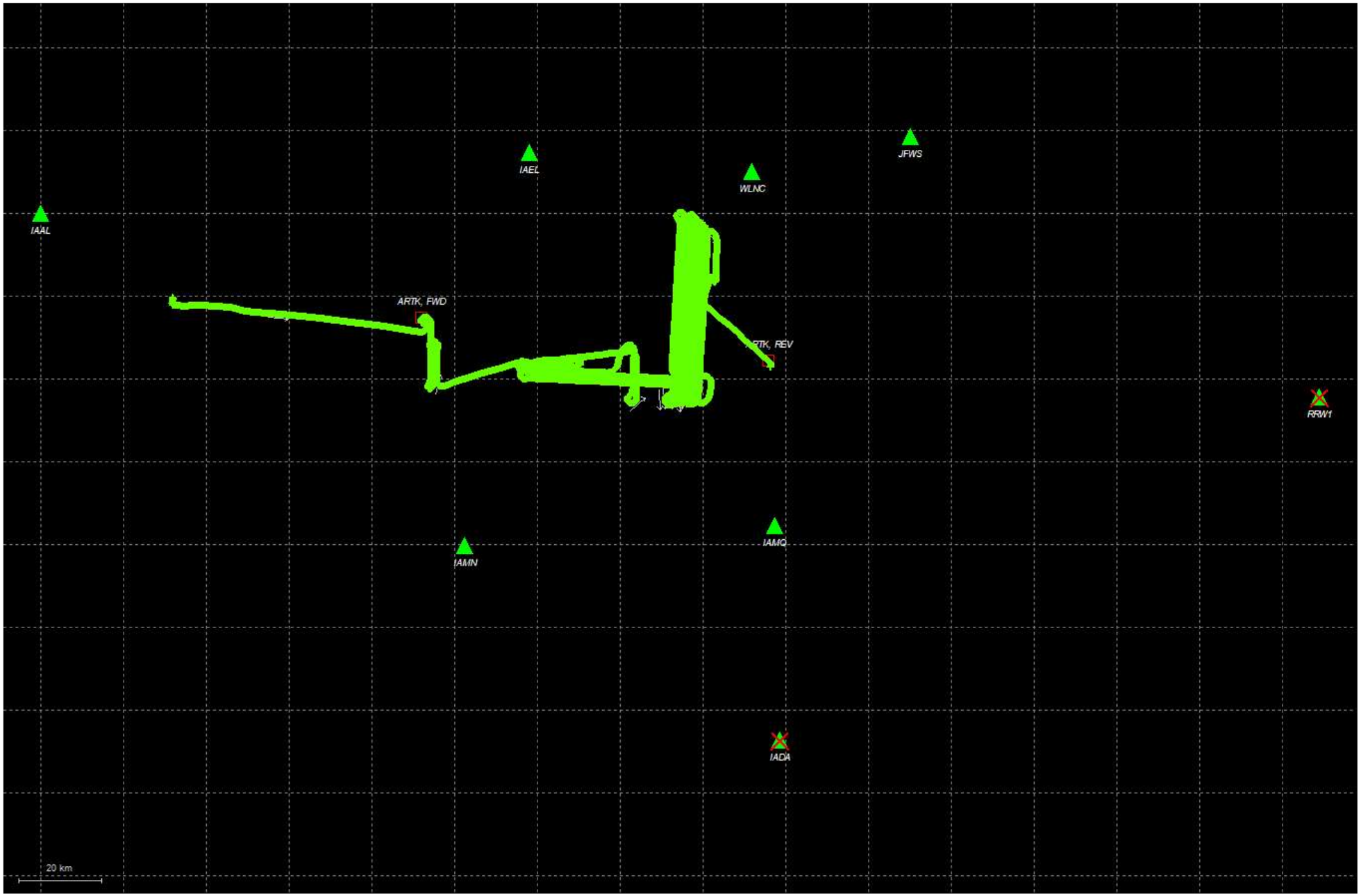
Output Results for 20201113_191321

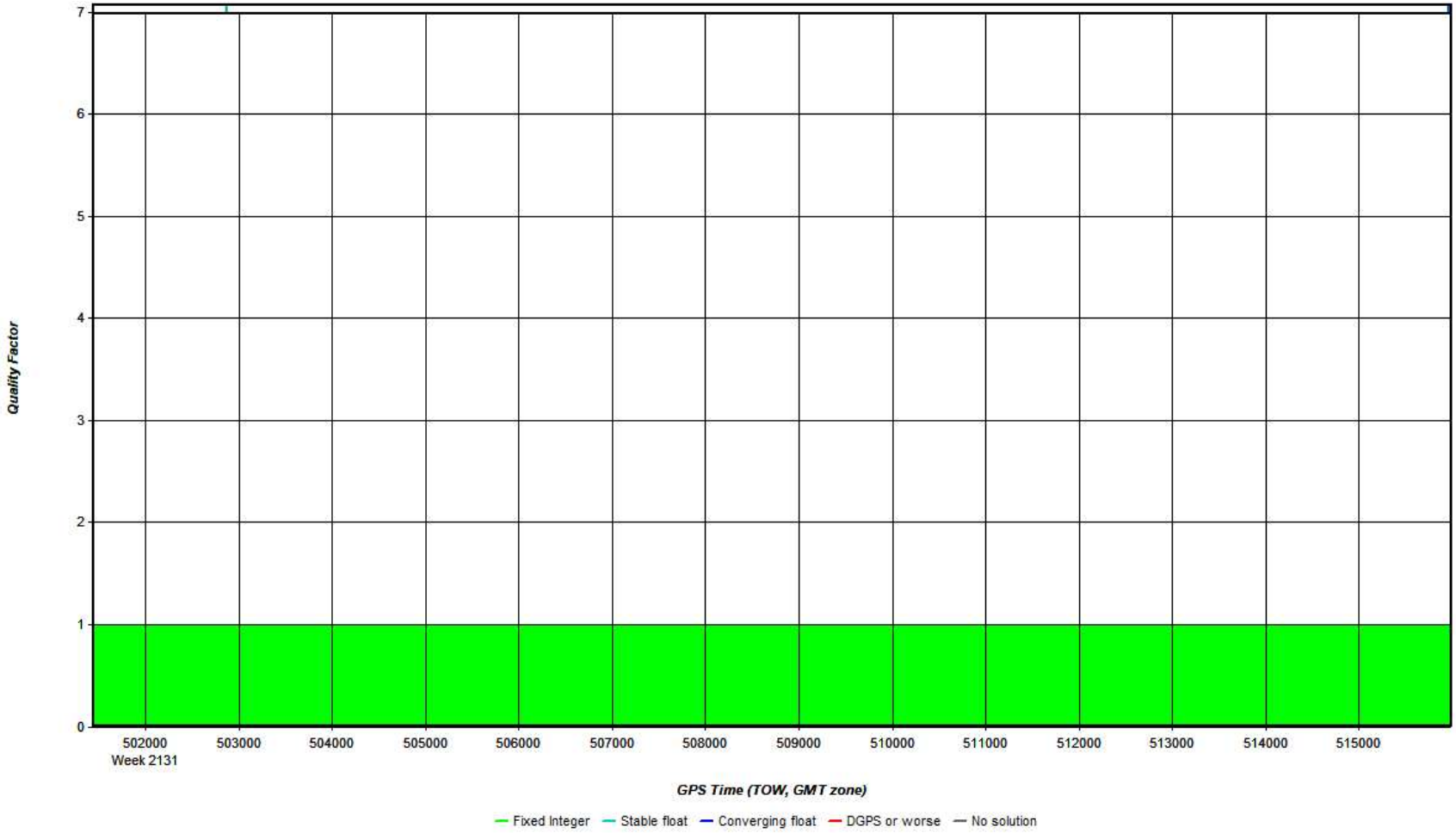
Inertial Explorer Version 8.80.2305
11/16/2020

Figure 1: Smoothed TC Combined - Map



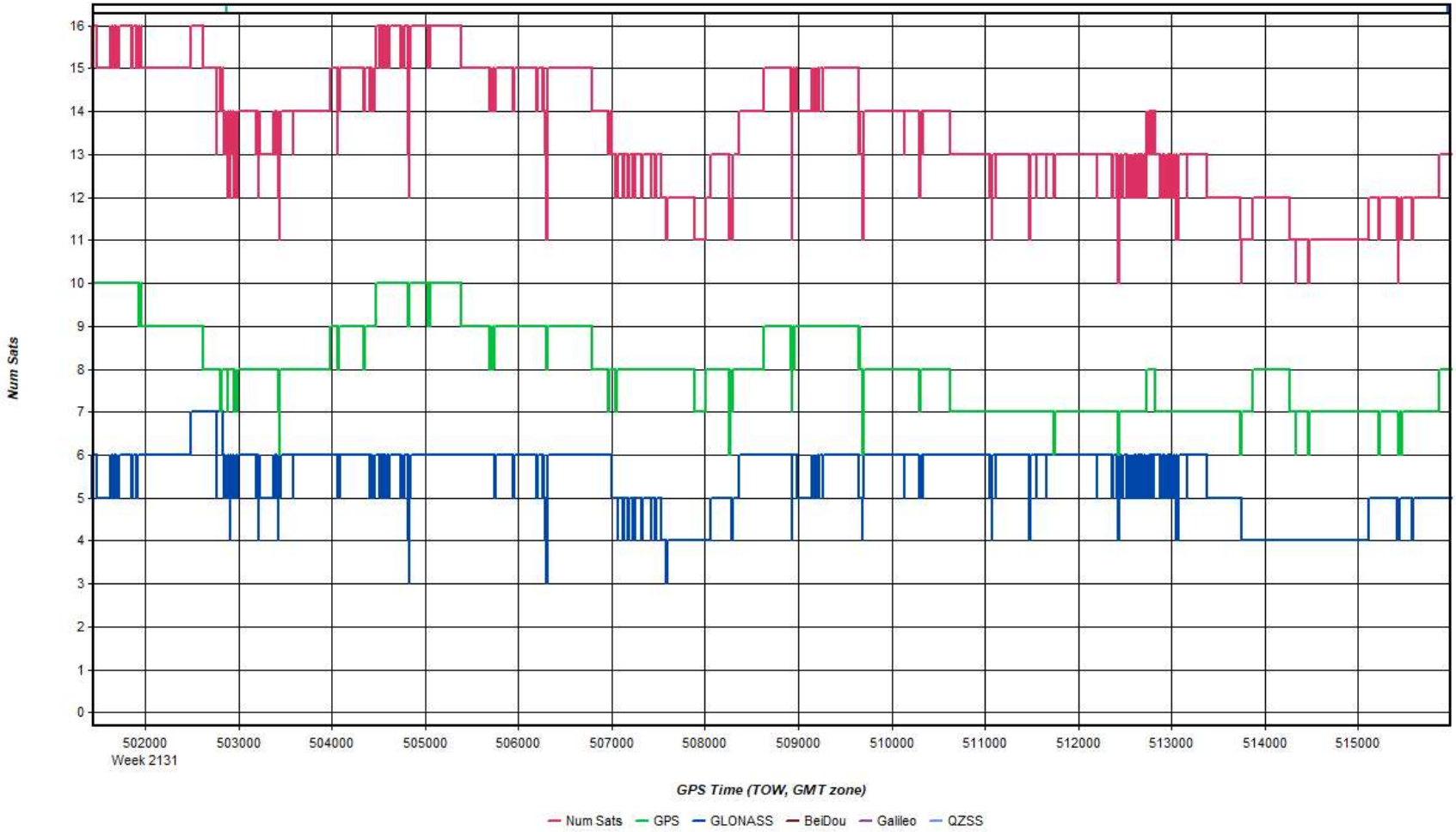
Process	20201113_191321	by Unknown	on 11/16/2020	at 10:35:21

Figure 2: 20201113_191321 [Smoothed TC Combined] - Quality Factor Plot



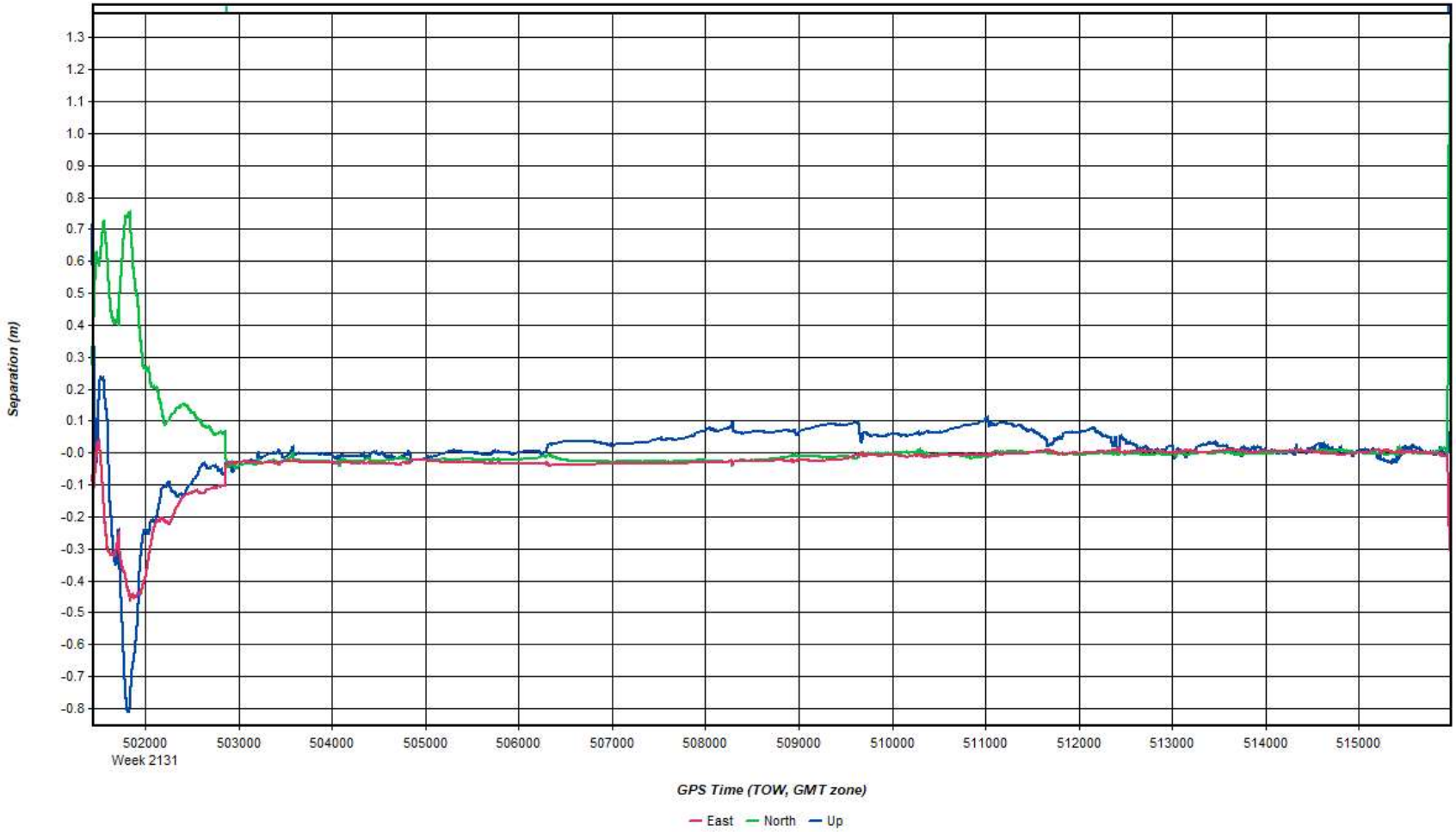
Process	20201113_191321	by Unknown	on 11/16/2020	at 10:35:21

Figure 3: 20201113_191321 [Smoothed TC Combined] - Number of Satellites Line Plot



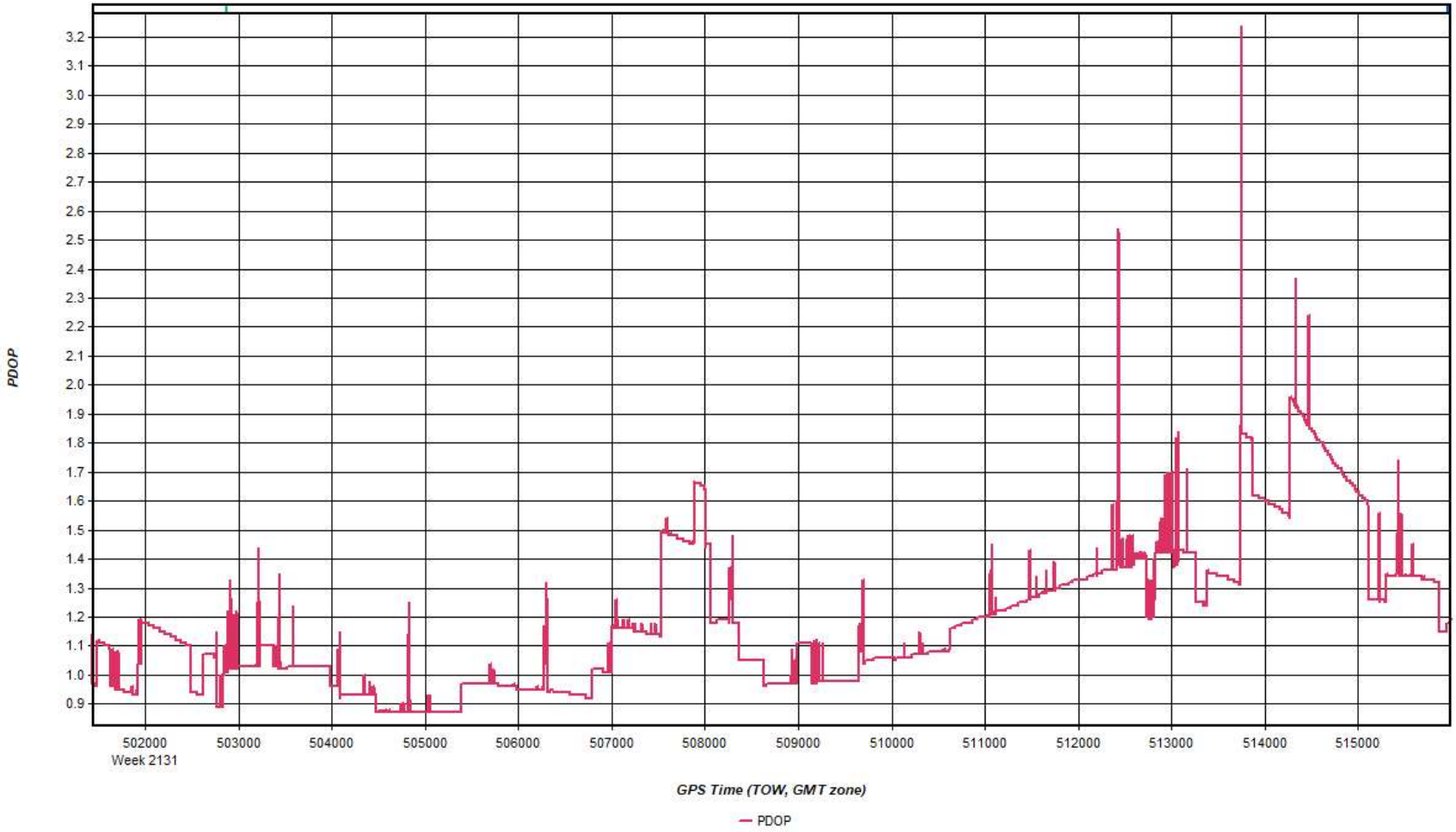
Process	20201113_191321	by Unknown	on 11/16/2020	at 10:35:21

Figure 4: 20201113_191321 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20201113_191321	by Unknown	on 11/16/2020	at 10:35:21

Figure 5: 20201113_191321 [Smoothed TC Combined] - PDOP Plot

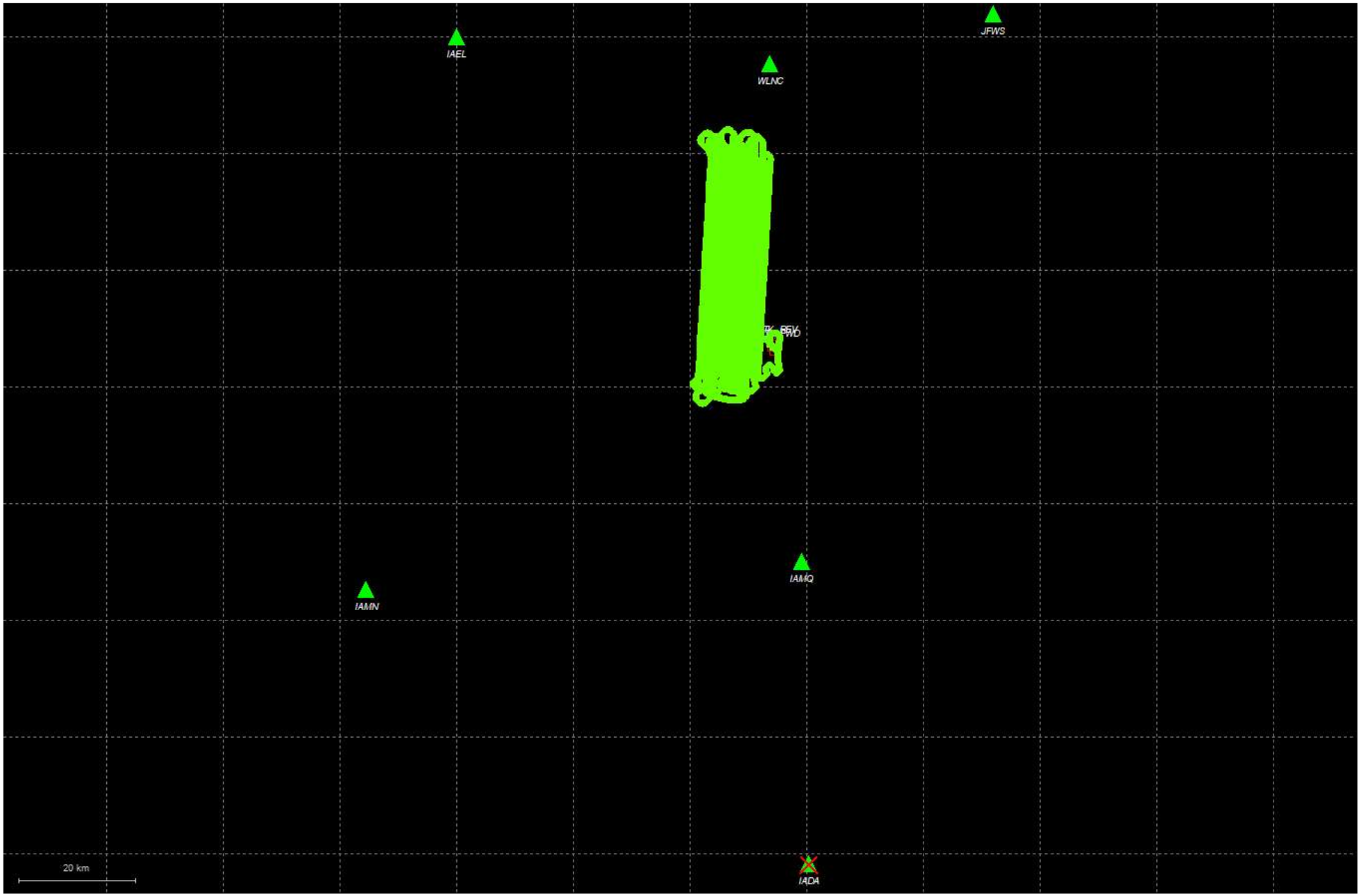


Process	20201113_191321	by Unknown	on 11/16/2020	at 10:35:21

Output Results for 20201114_000742

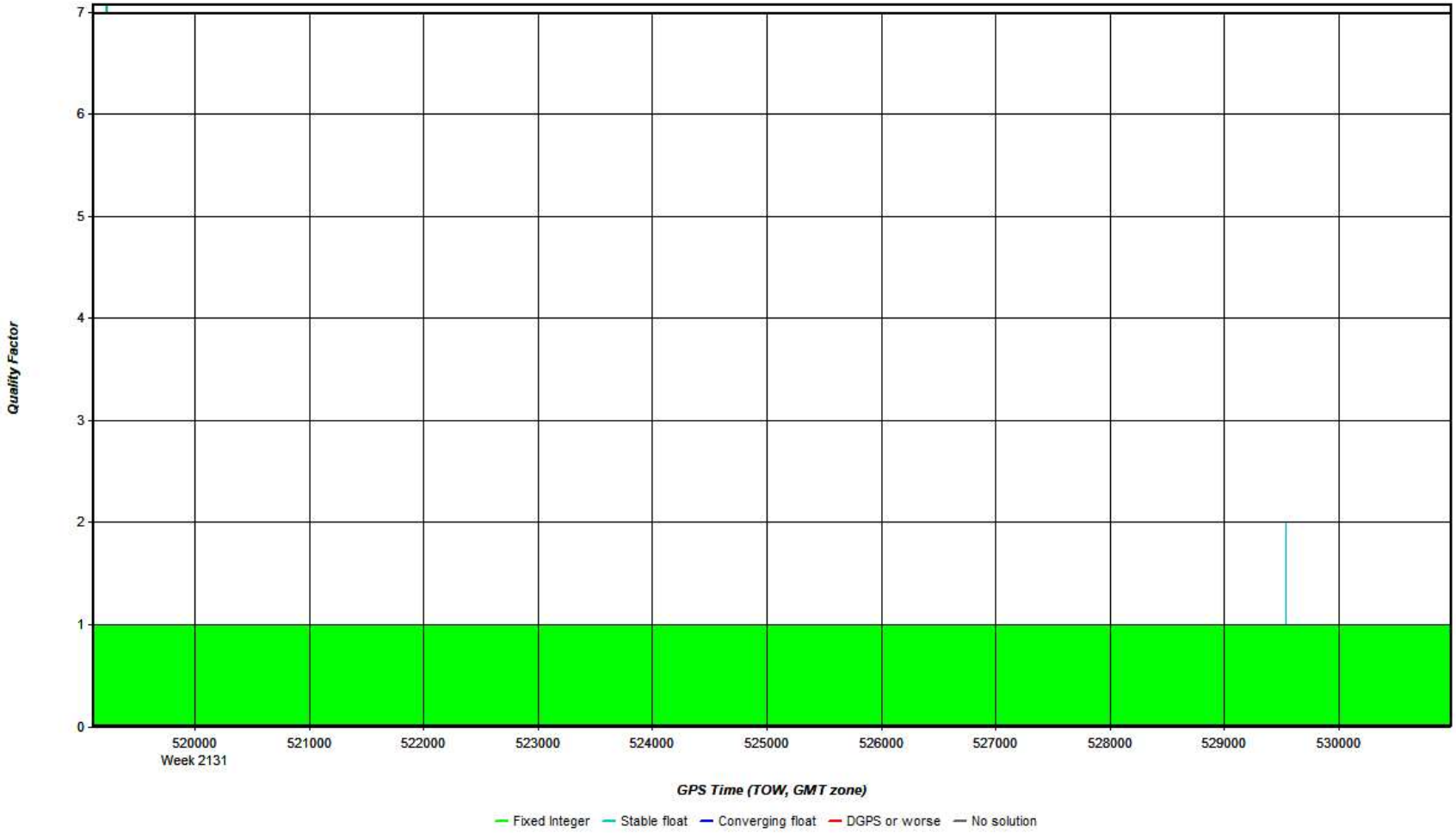
Inertial Explorer Version 8.80.2305
11/16/2020

Figure 1: Smoothed TC Combined - Map



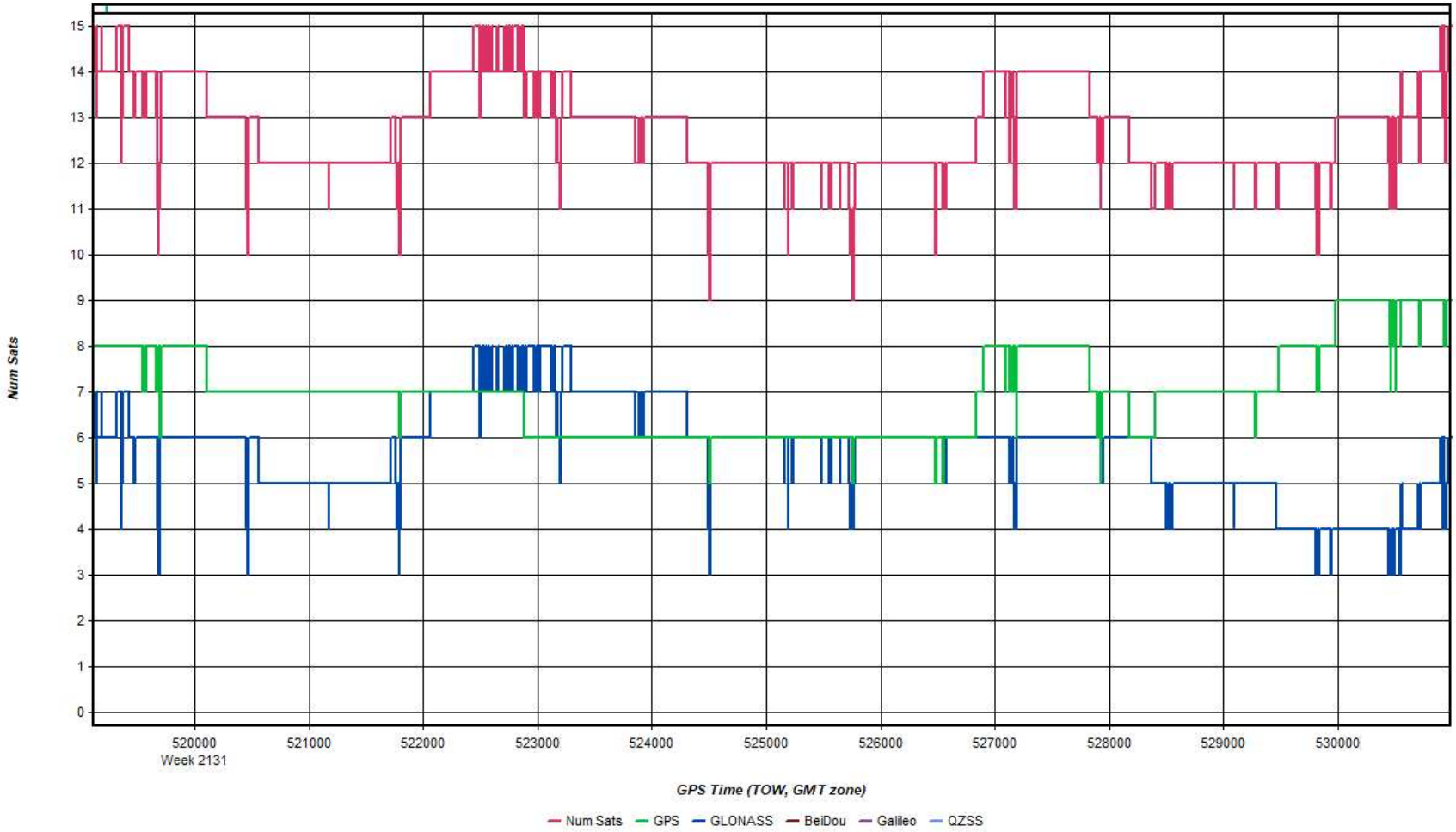
Process	20201114_000742	by Unknown	on 11/16/2020	at 12:04:51

Figure 2: 20201114_000742 [Smoothed TC Combined] - Quality Factor Plot



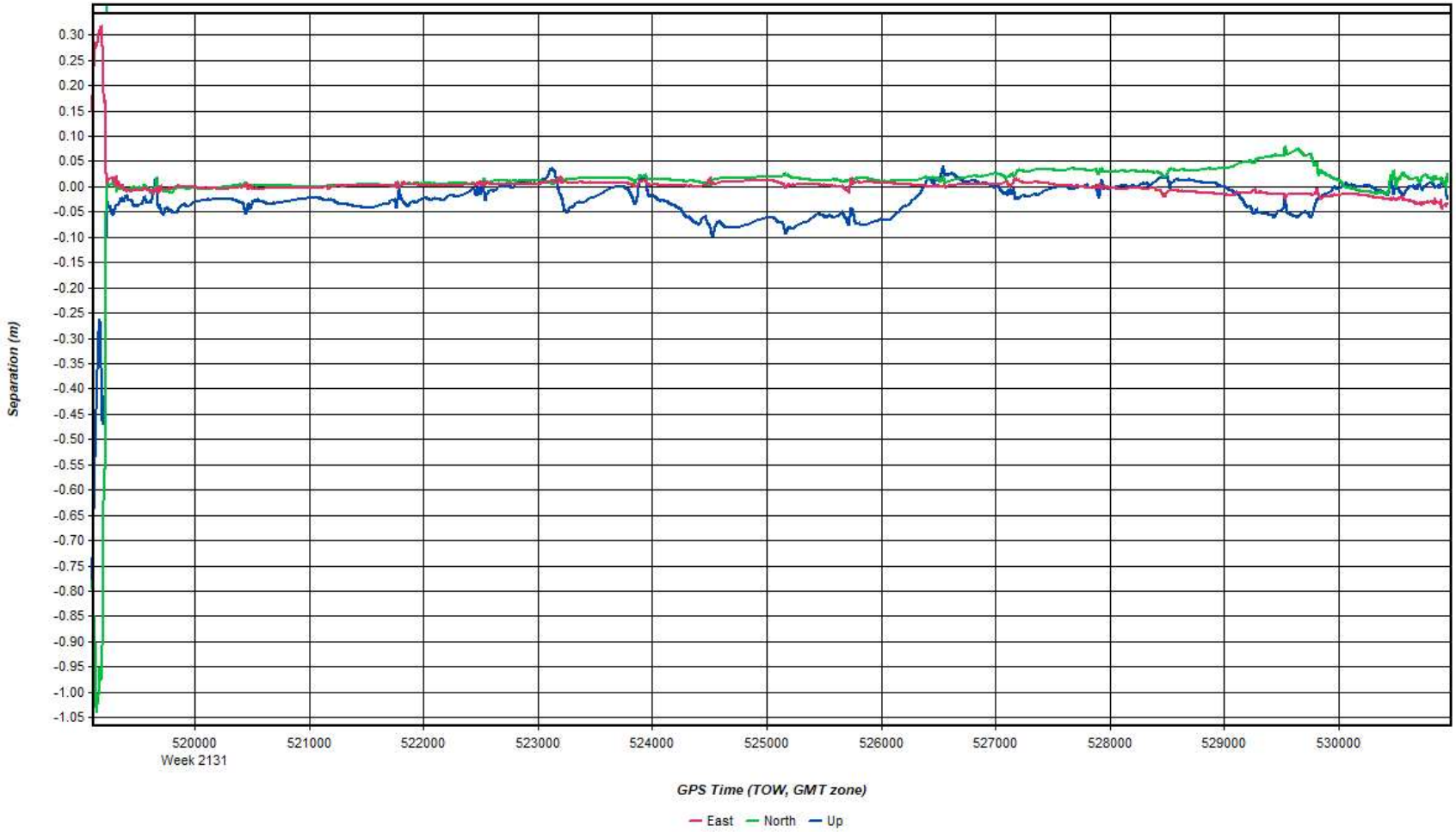
Process	20201114_000742	by Unknown	on 11/16/2020	at 12:04:51

Figure 3: 20201114_000742 [Smoothed TC Combined] - Number of Satellites Line Plot



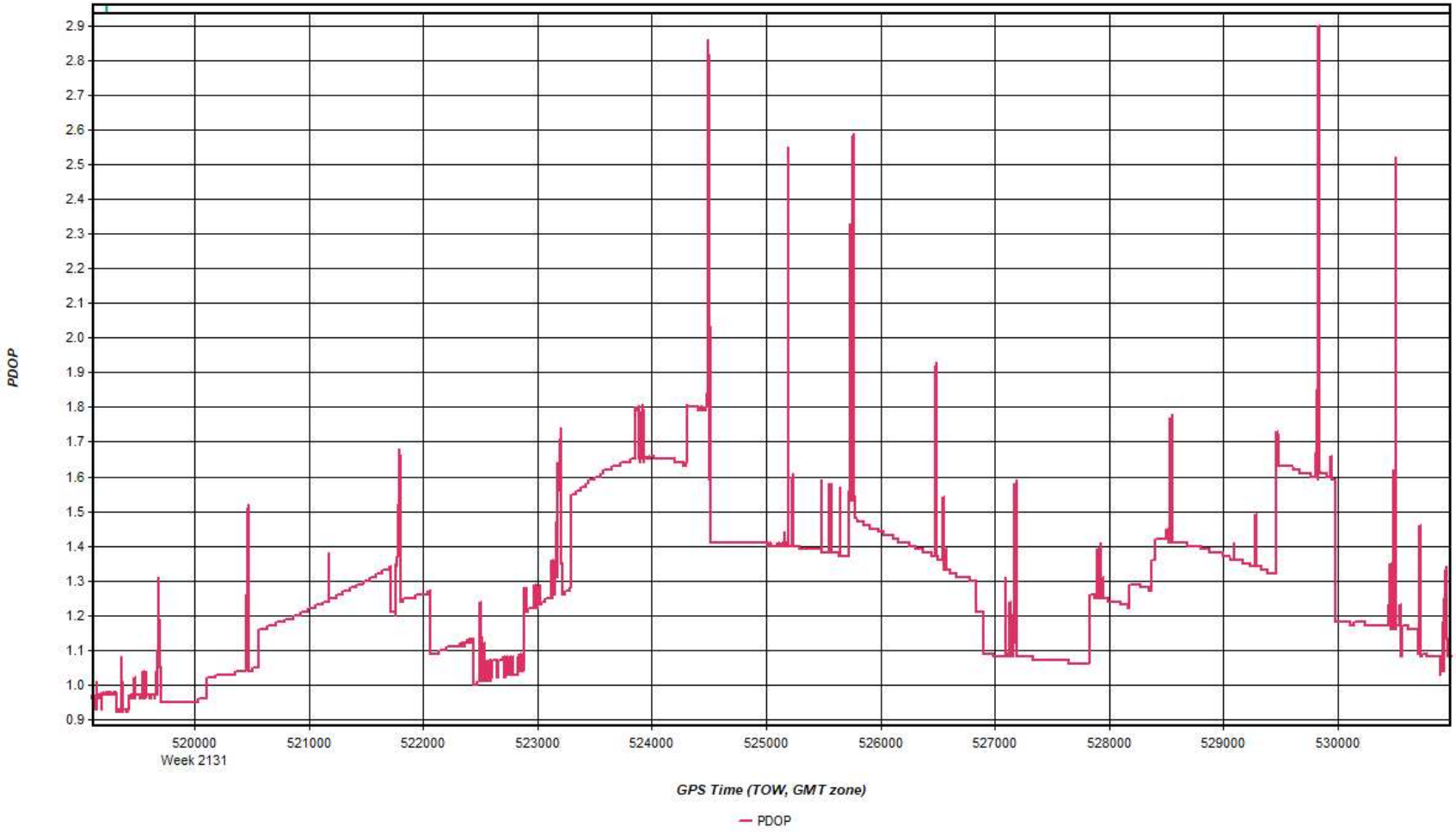
Process	20201114_000742	by Unknown	on 11/16/2020	at 12:04:51

Figure 4: 20201114_000742 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20201114_000742	by Unknown	on 11/16/2020	at 12:04:51

Figure 5: 20201114_000742 [Smoothed TC Combined] - PDOP Plot

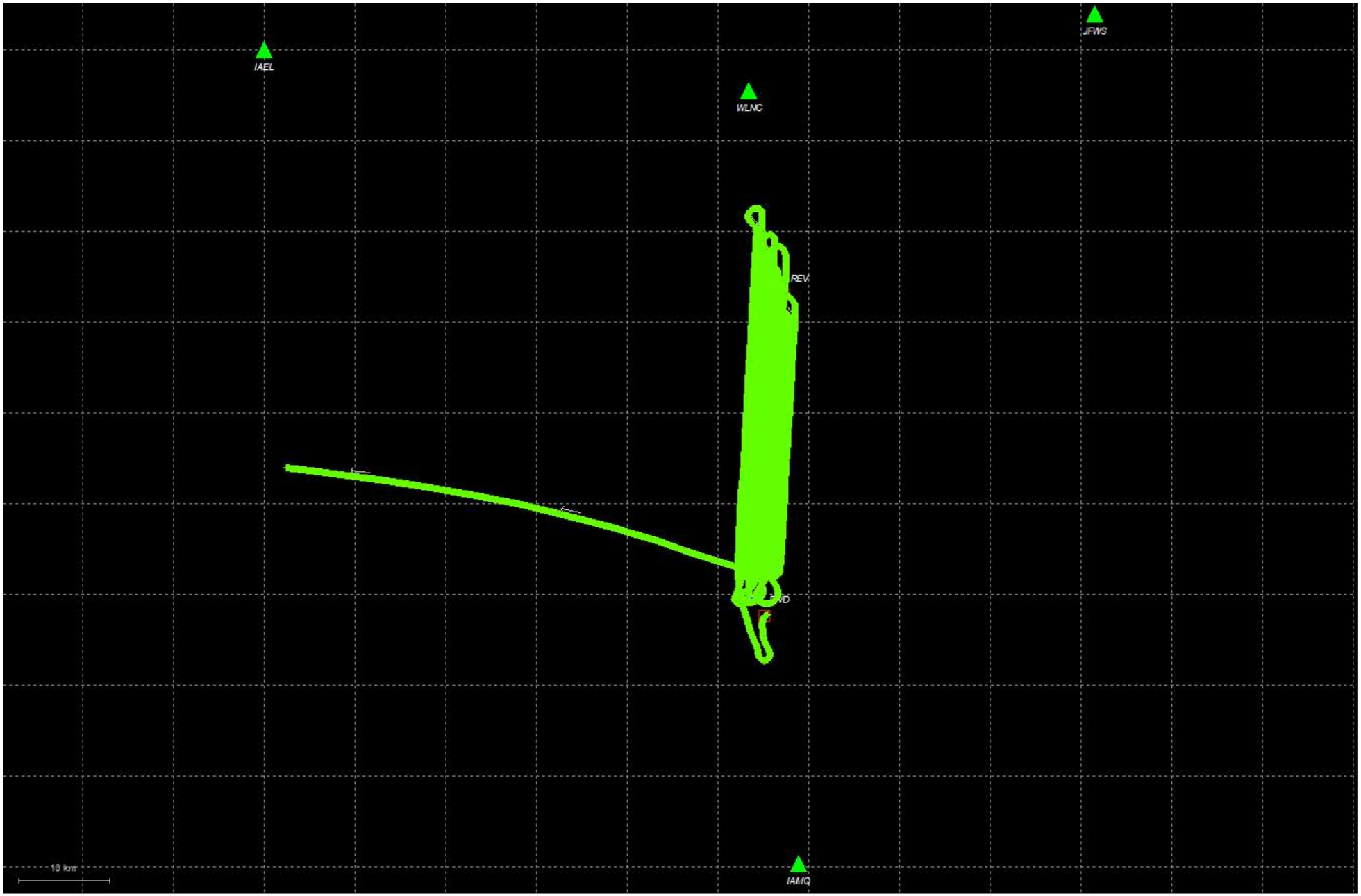


Process	20201114_000742	by Unknown	on 11/16/2020	at 12:04:51

Output Results for 20201114_040227

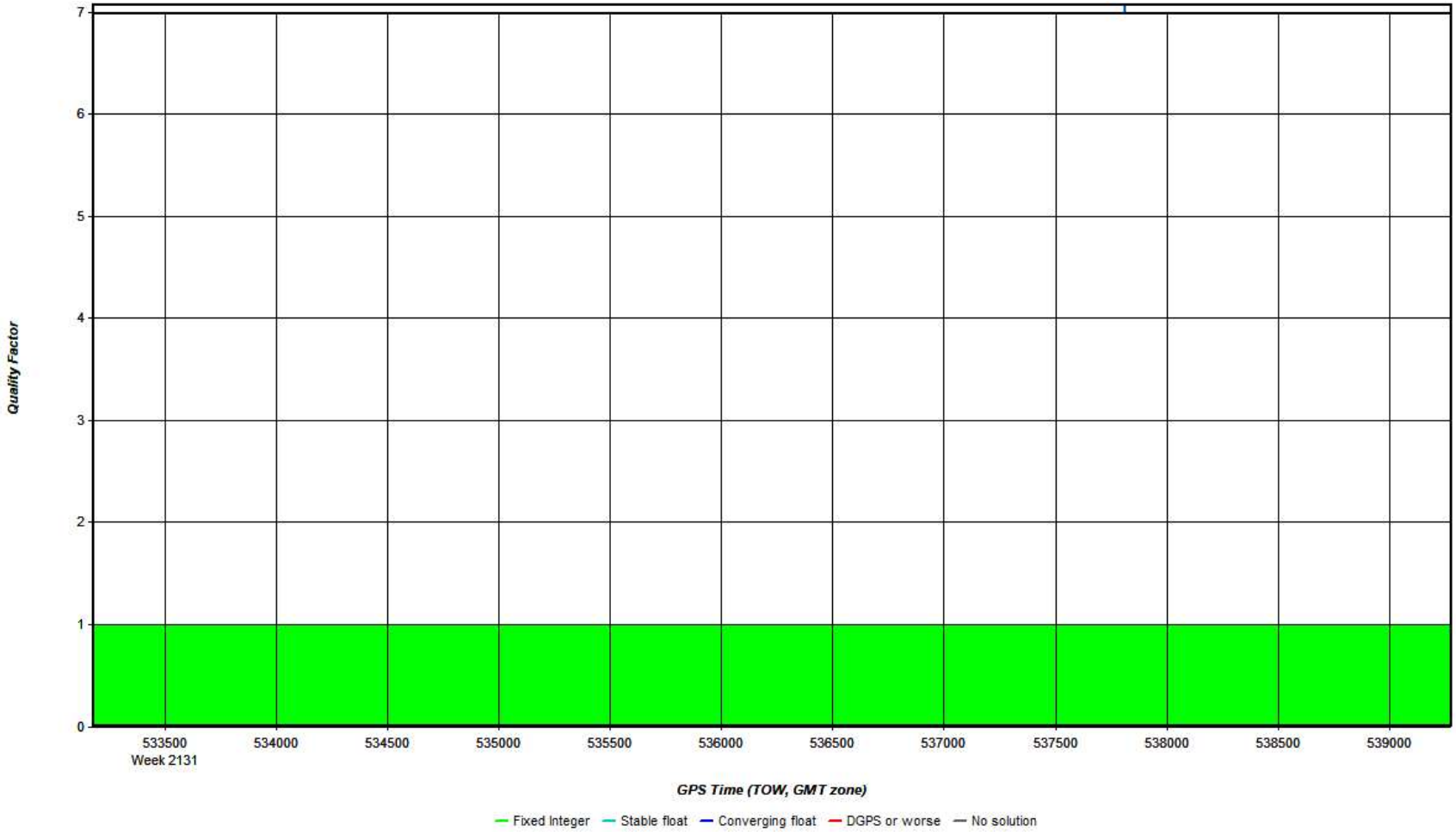
Inertial Explorer Version 8.80.2305
11/16/2020

Figure 1: Smoothed TC Combined - Map



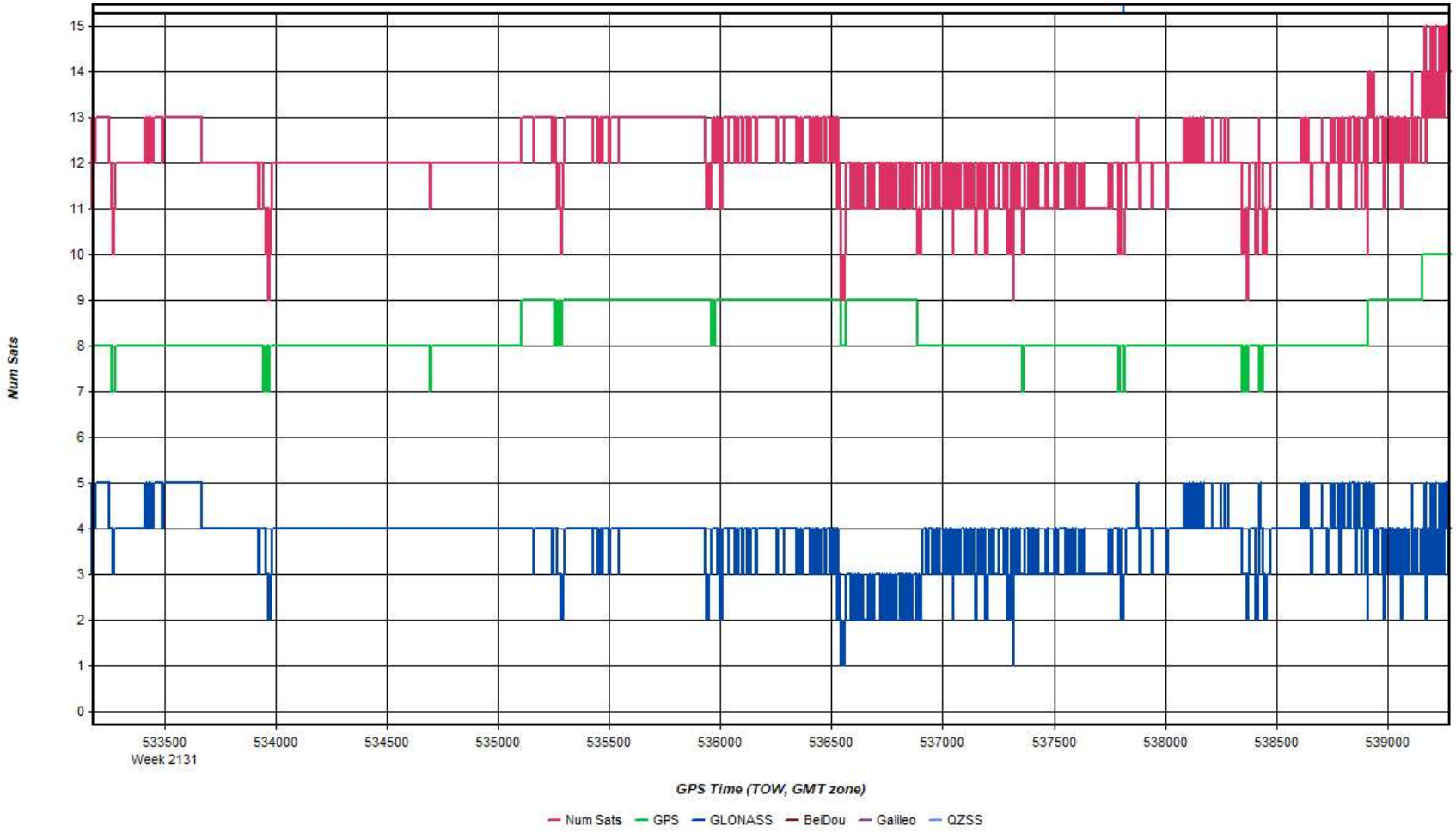
Process	20201114_040227	by Unknown	on 11/16/2020	at 12:43:09

Figure 2: 20201114_040227 [Smoothed TC Combined] - Quality Factor Plot



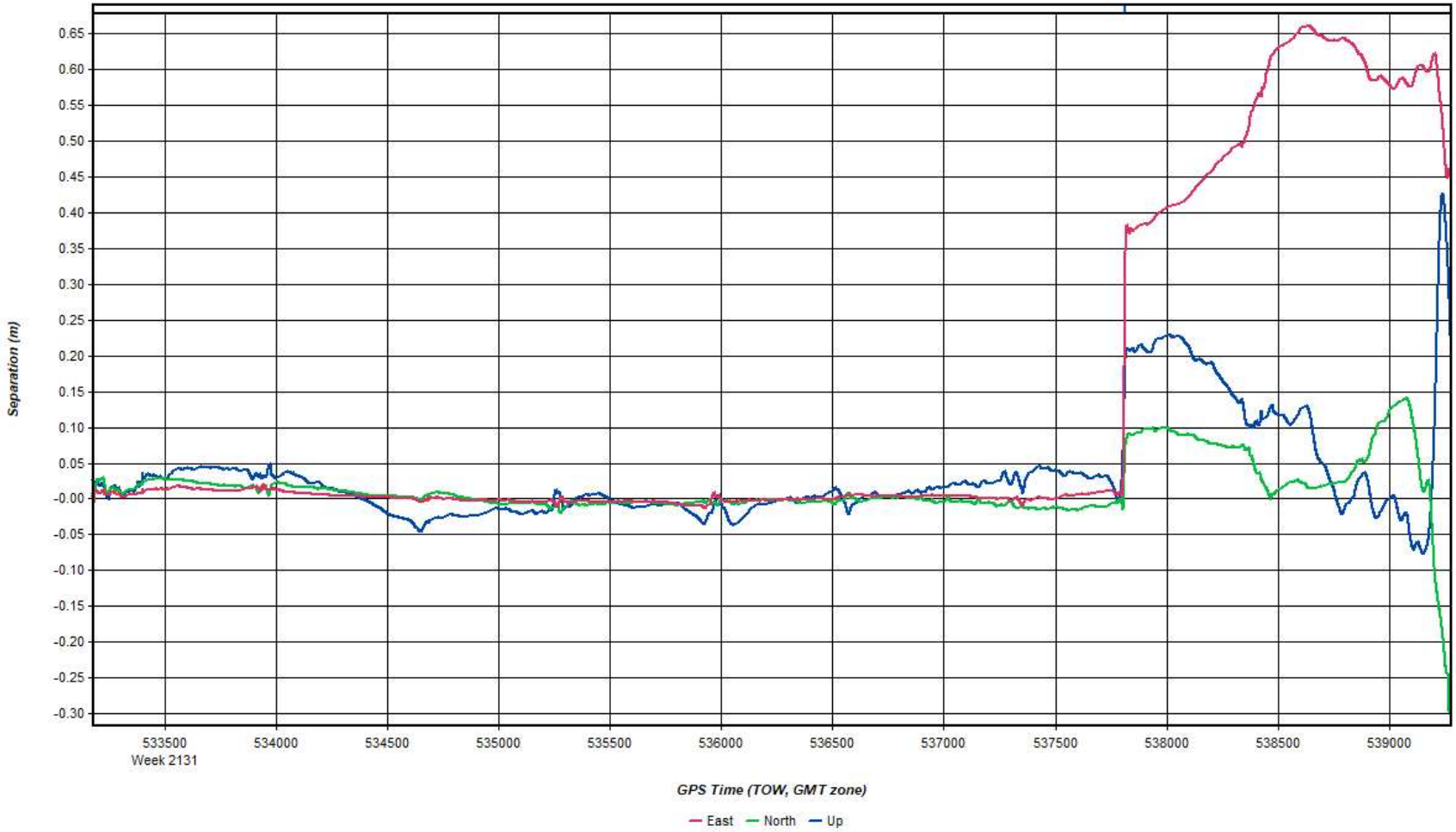
Process	20201114_040227	by Unknown	on 11/16/2020	at 12:43:09

Figure 3: 20201114_040227 [Smoothed TC Combined] - Number of Satellites Line Plot



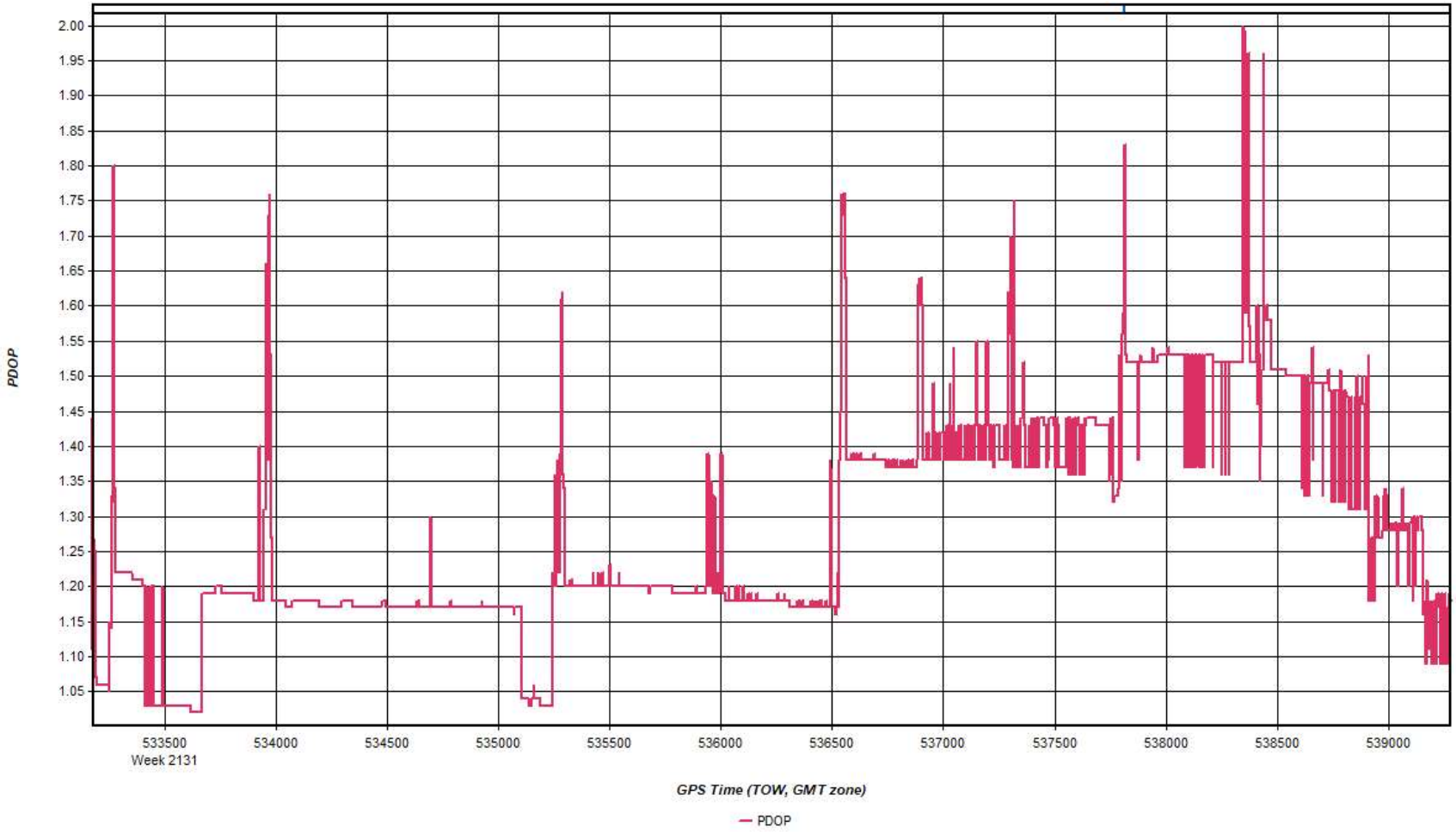
Process	20201114_040227	by Unknown	on 11/16/2020	at 12:43:09

Figure 4: 20201114_040227 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20201114_040227	by Unknown	on 11/16/2020	at 12:43:09

Figure 5: 20201114_040227 [Smoothed TC Combined] - PDOP Plot

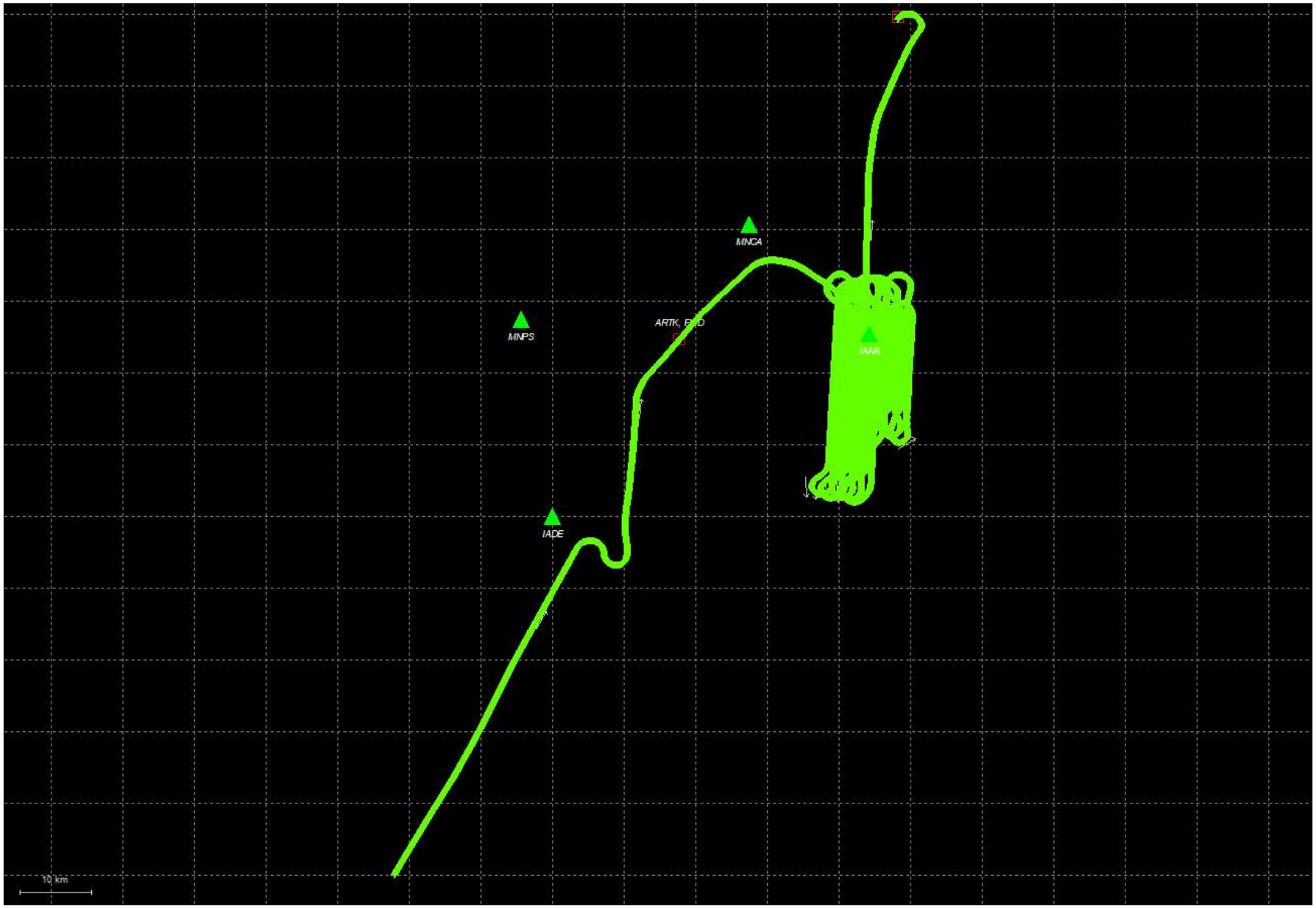


Process	20201114_040227	by Unknown	on 11/16/2020	at 12:43:09

Output Results for 20201117_202049

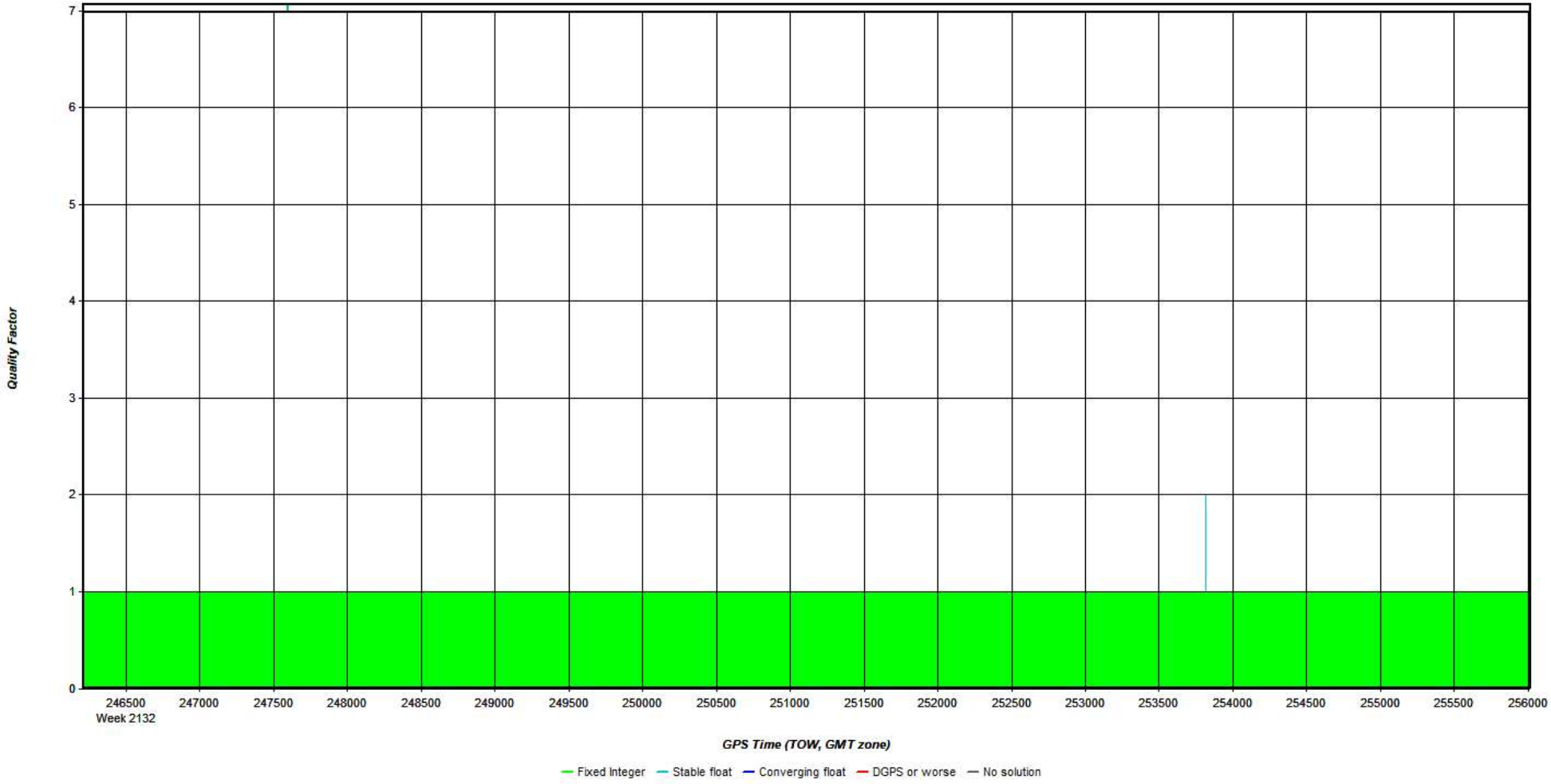
Inertial Explorer Version 8.80.2305
11/18/2020

Figure 1: Smoothed TC Combined - Map



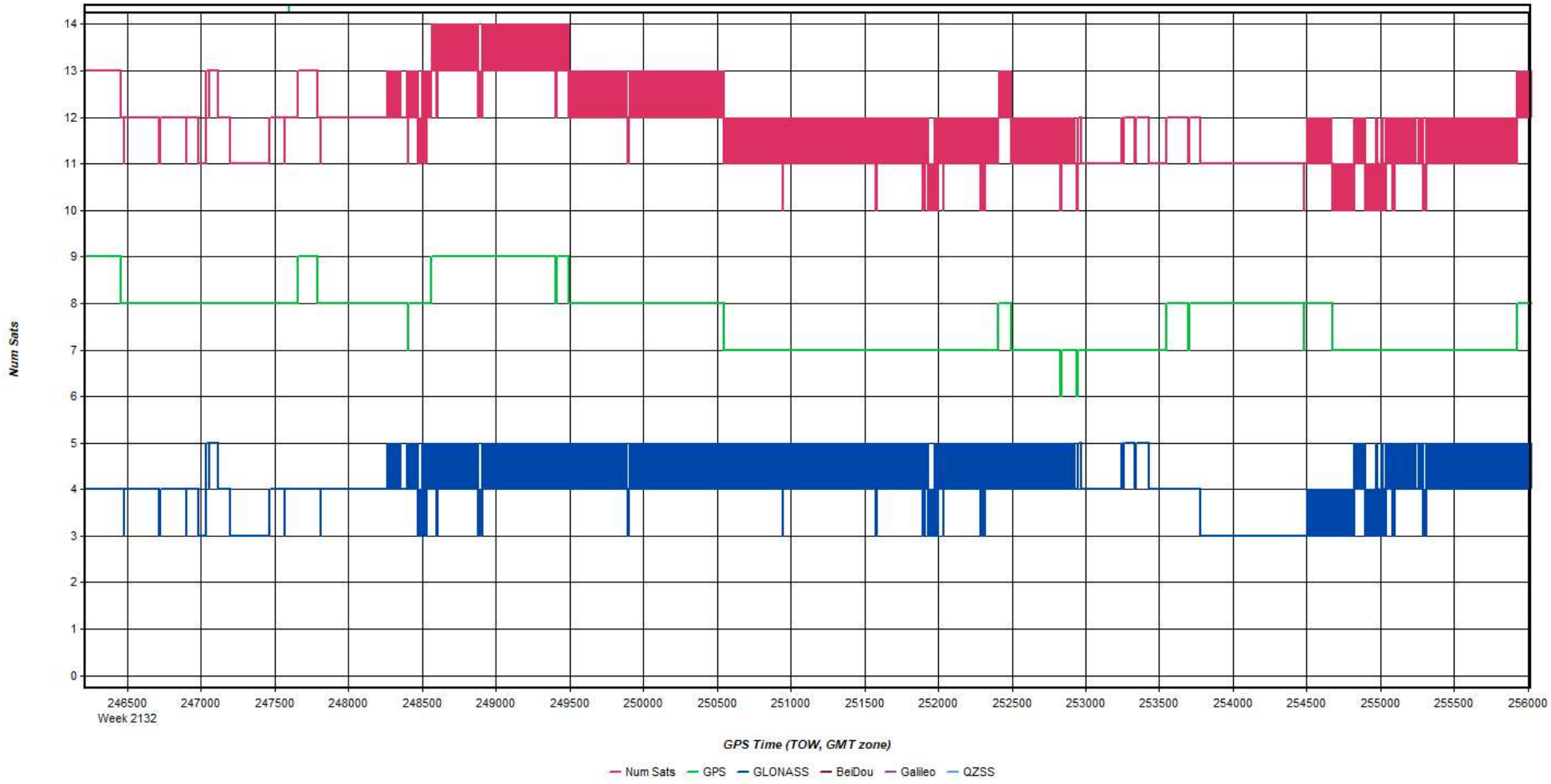
Process	20201117_202049	by Unknown	on 11/18/2020	at 09:44:55

Figure 2: 20201117_202049 [Smoothed TC Combined] - Quality Factor Plot



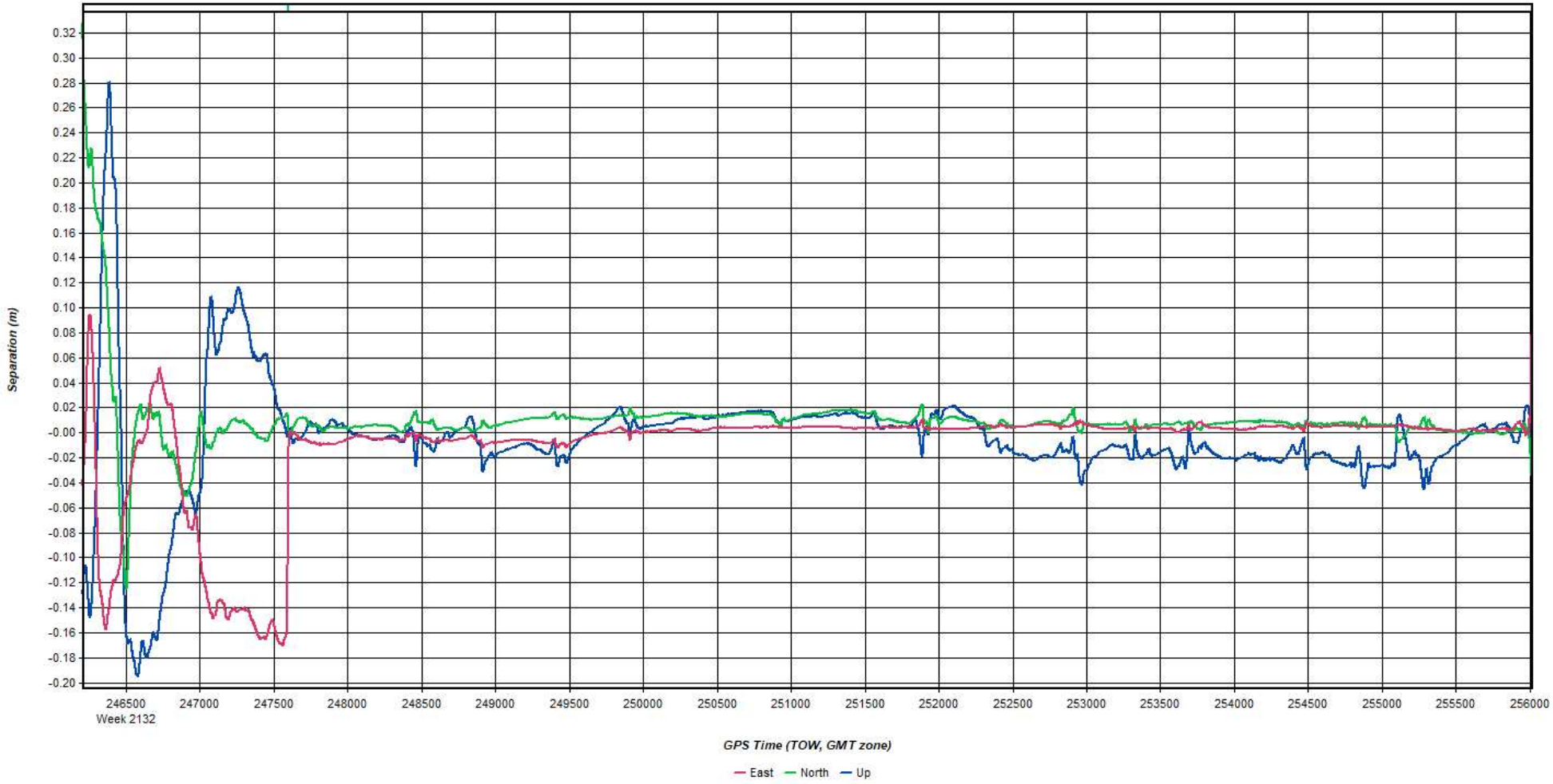
Process	20201117_202049	by Unknown	on 11/18/2020	at 09:44:55

Figure 3: 20201117_202049 [Smoothed TC Combined] - Number of Satellites Line Plot



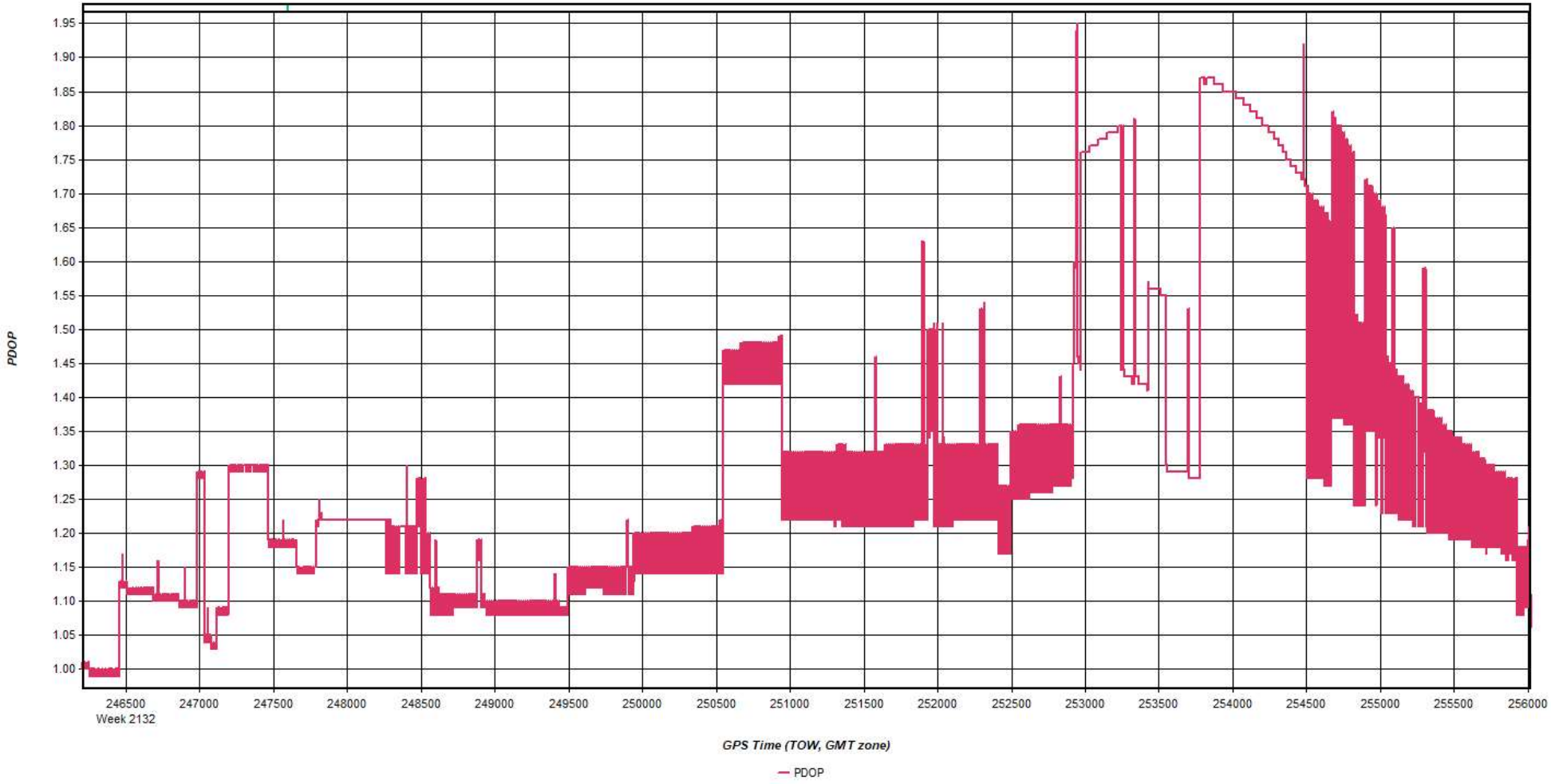
Process	20201117_202049	by Unknown	on 11/18/2020	at 09:44:55

Figure 4: 20201117_202049 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20201117_202049	by Unknown	on 11/18/2020	at 09:44:55

Figure 5: 20201117_202049 [Smoothed TC Combined] - PDOP Plot

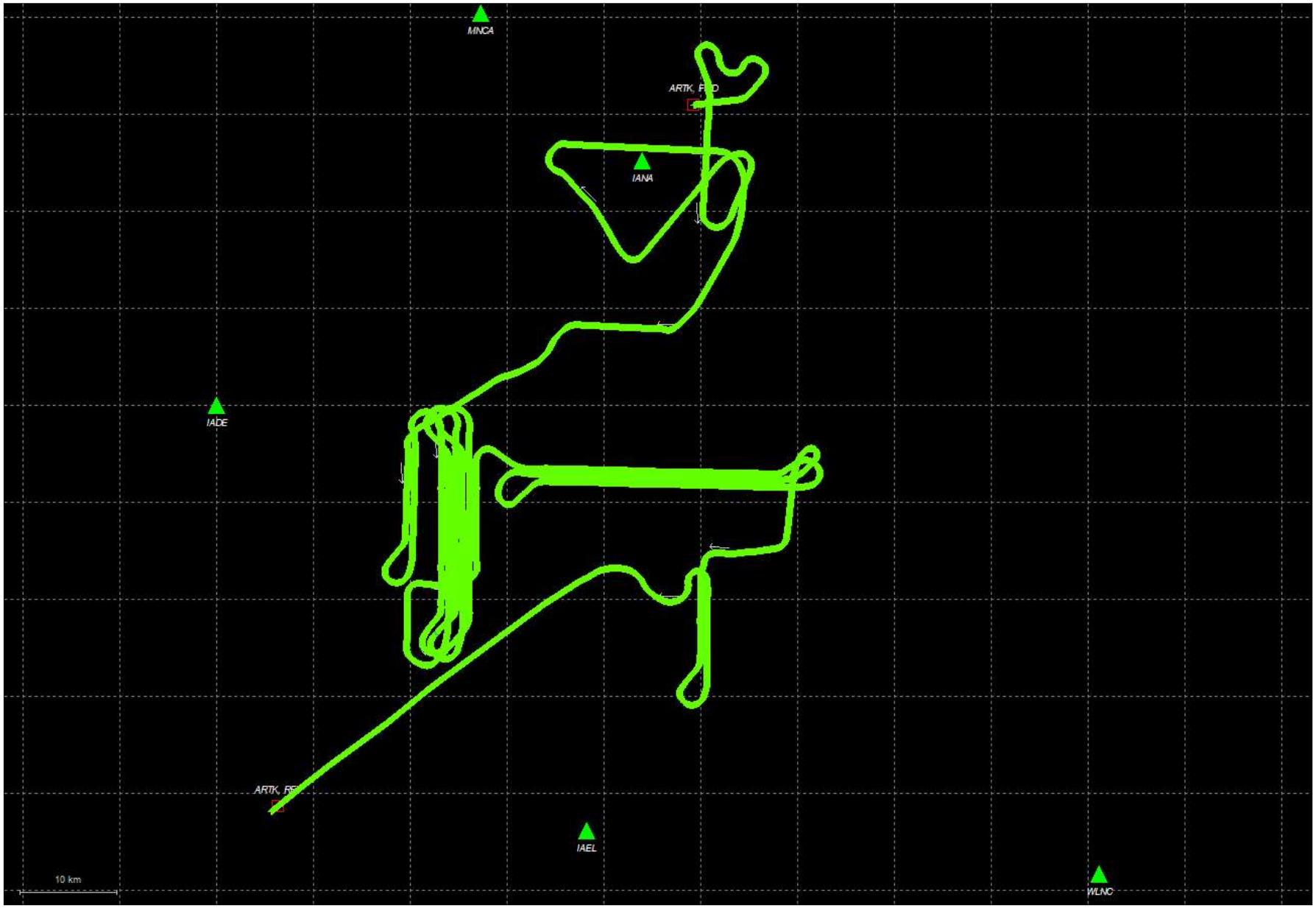


Process	20201117_202049	by Unknown	on 11/18/2020	at 09:44:55

Output Results for 20201117_235207

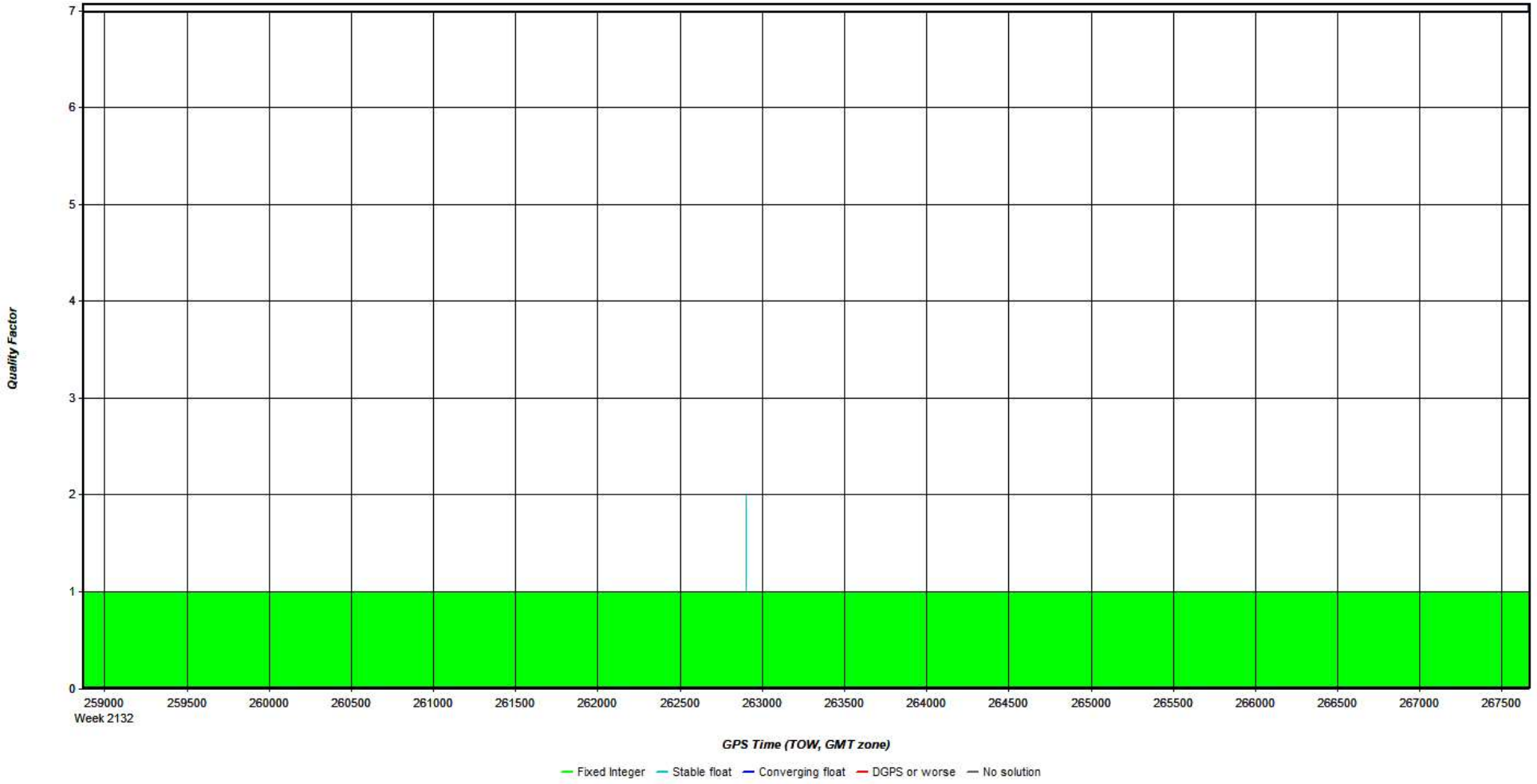
Inertial Explorer Version 8.80.2305
11/18/2020

Figure 1: Smoothed TC Combined - Map



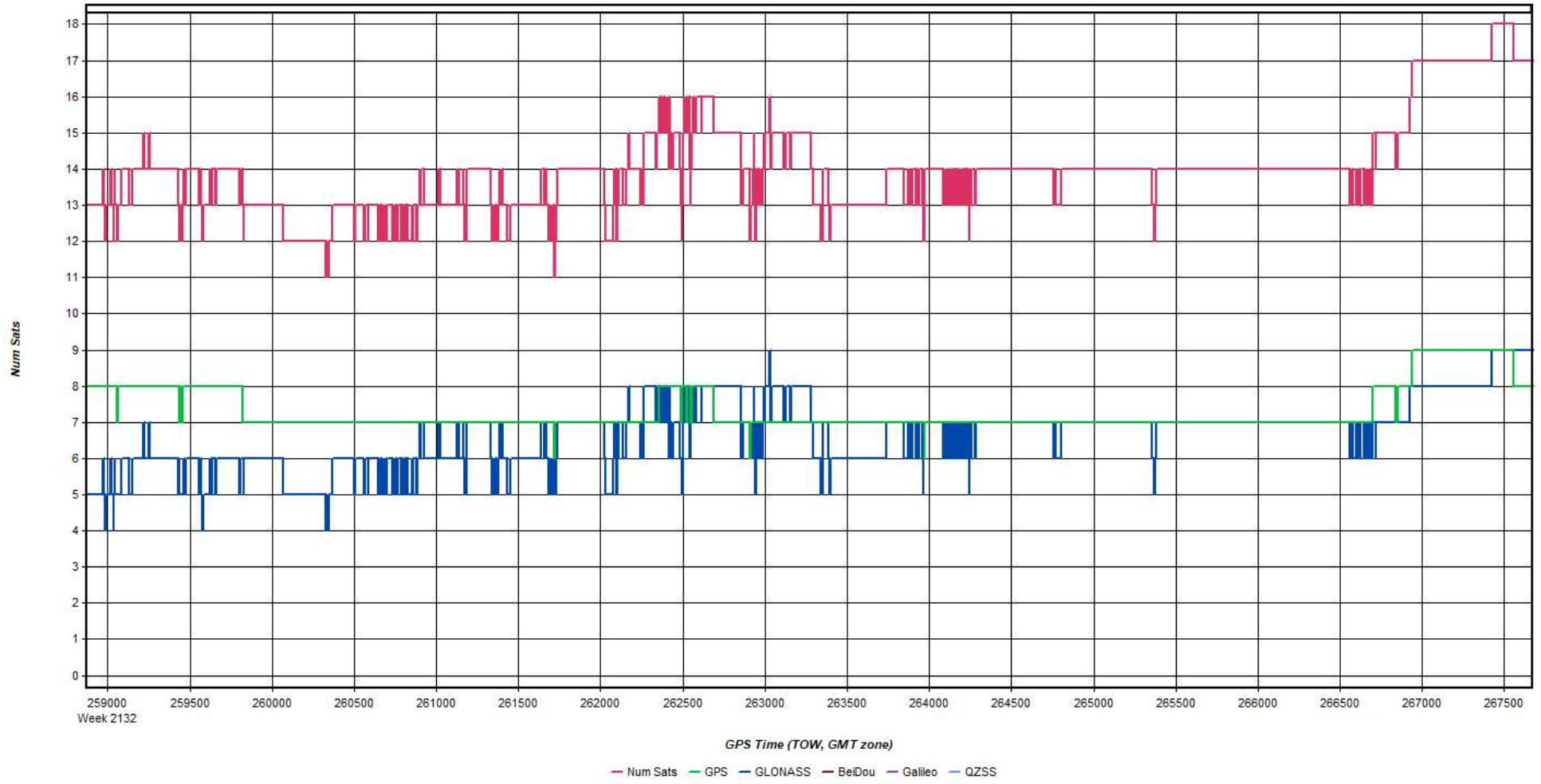
Process	20201117_235207	by Unknown	on 11/18/2020	at 10:40:10

Figure 2: 20201117_235207 [Smoothed TC Combined] - Quality Factor Plot



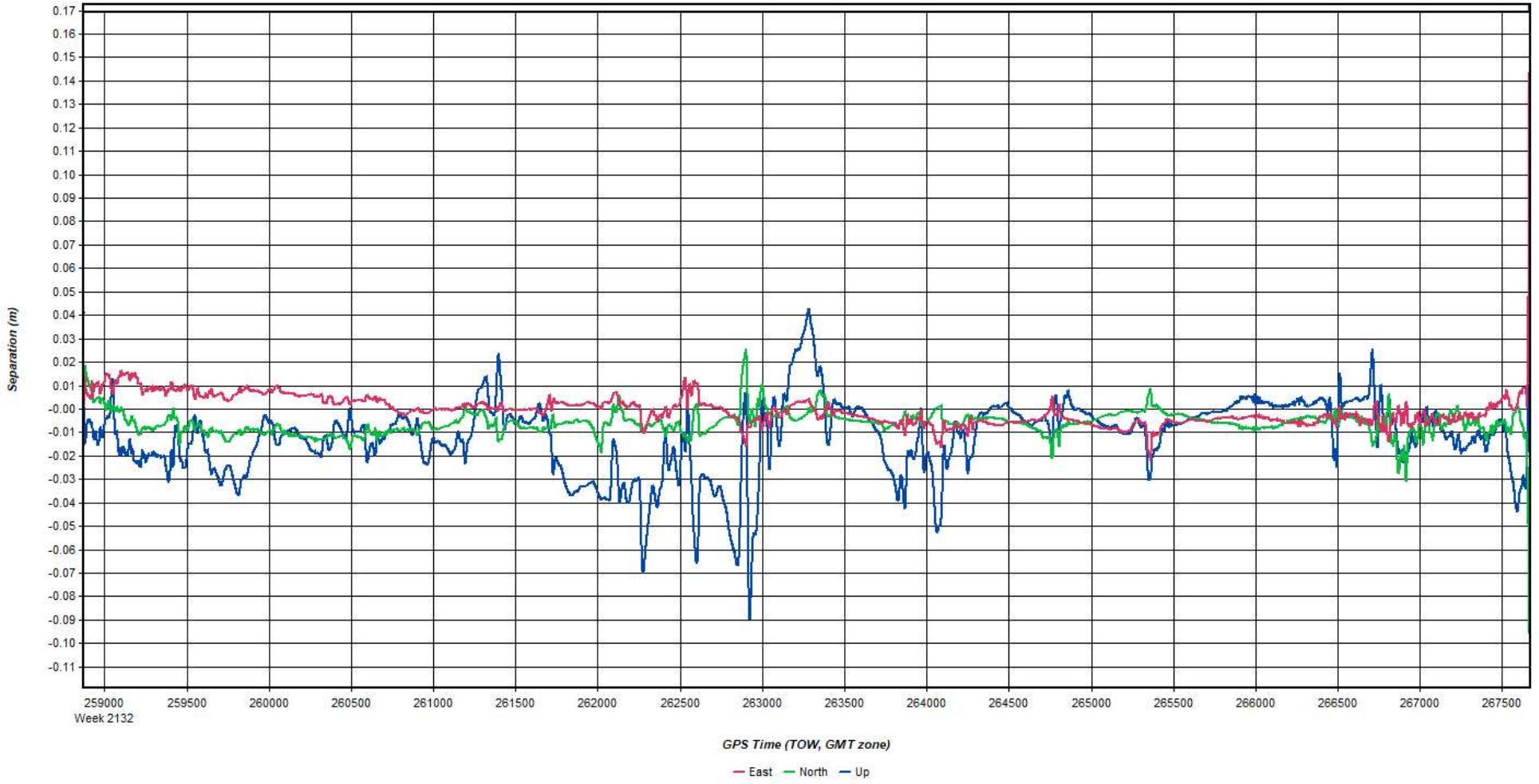
Process	20201117_235207	by Unknown	on 11/18/2020	at 10:40:10

Figure 3: 20201117_235207 [Smoothed TC Combined] - Number of Satellites Line Plot



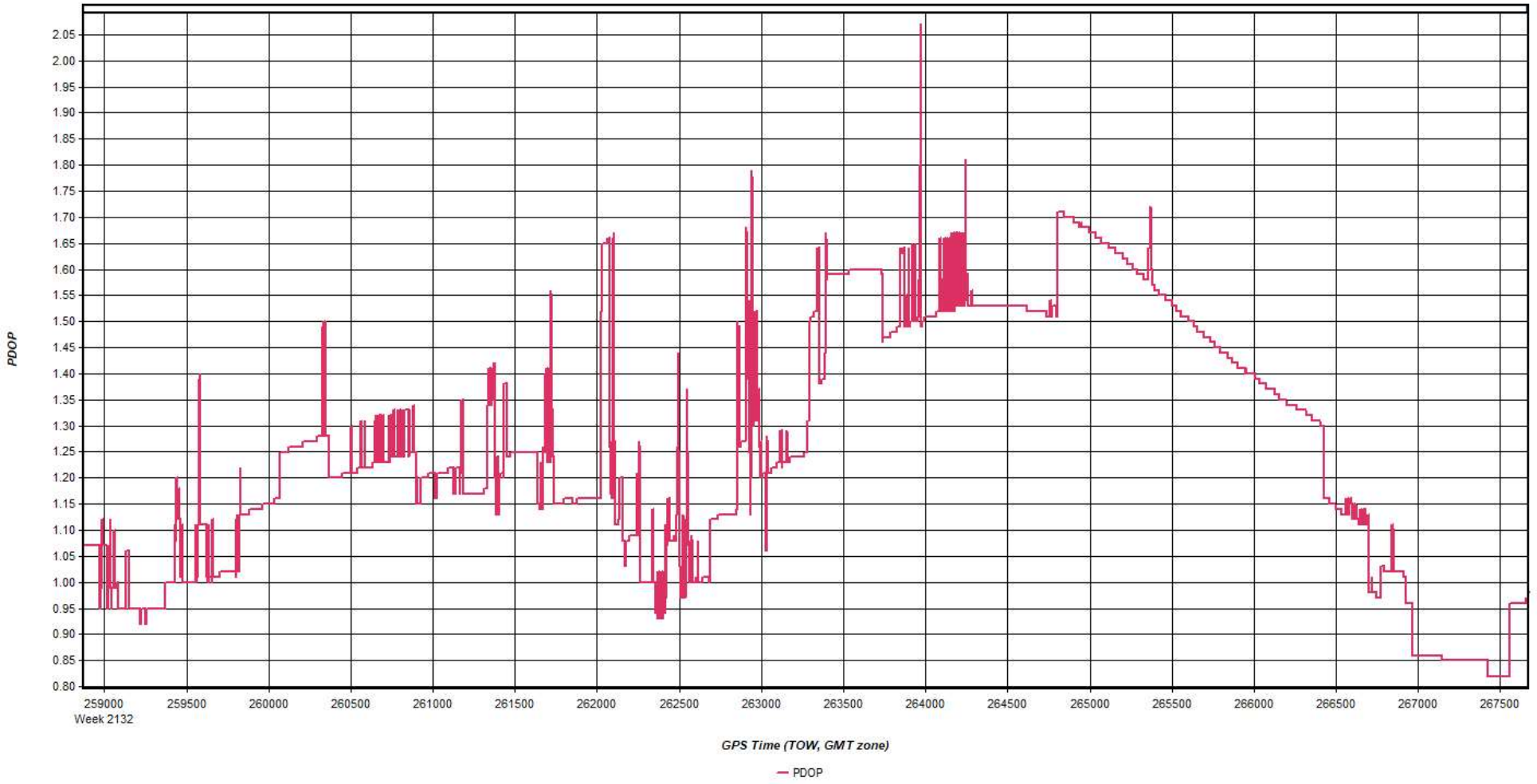
Process	20201117_235207	by Unknown	on 11/18/2020	at 10:40:10

Figure 4: 20201117_235207 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20201117_235207	by Unknown	on 11/18/2020	at 10:40:10

Figure 5: 20201117_235207 [Smoothed TC Combined] - PDOP Plot

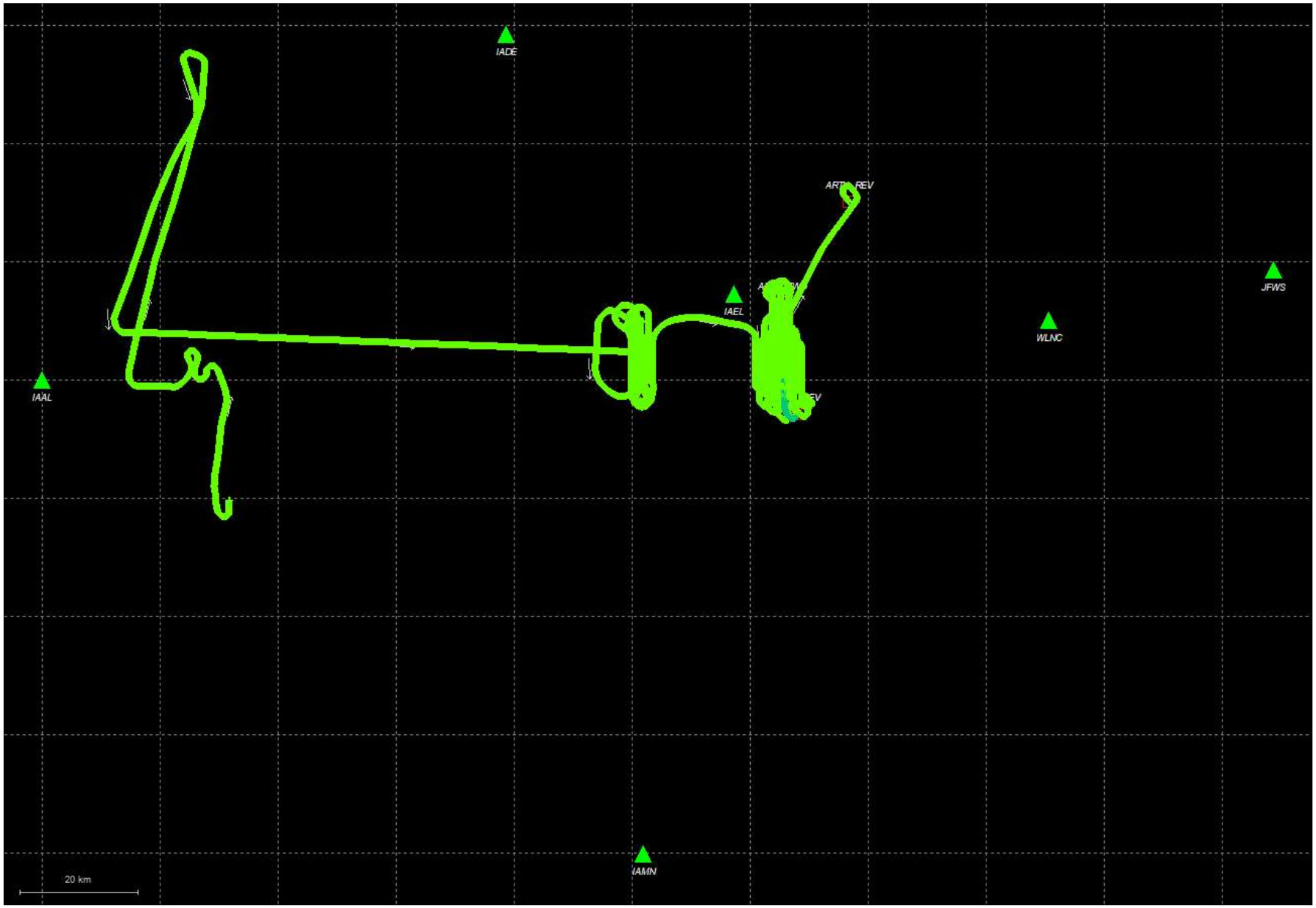


Process	20201117_235207	by Unknown	on 11/18/2020	at 10:40:10

Output Results for 20201119_152839

Inertial Explorer Version 8.80.2305
11/20/2020

Figure 1: Smoothed TC Combined - Map



Process	20201119_152839	by Unknown	on 11/20/2020	at 09:37:16

Figure 2: 20201119_152839 [Forward] - MB C/A Code RMS

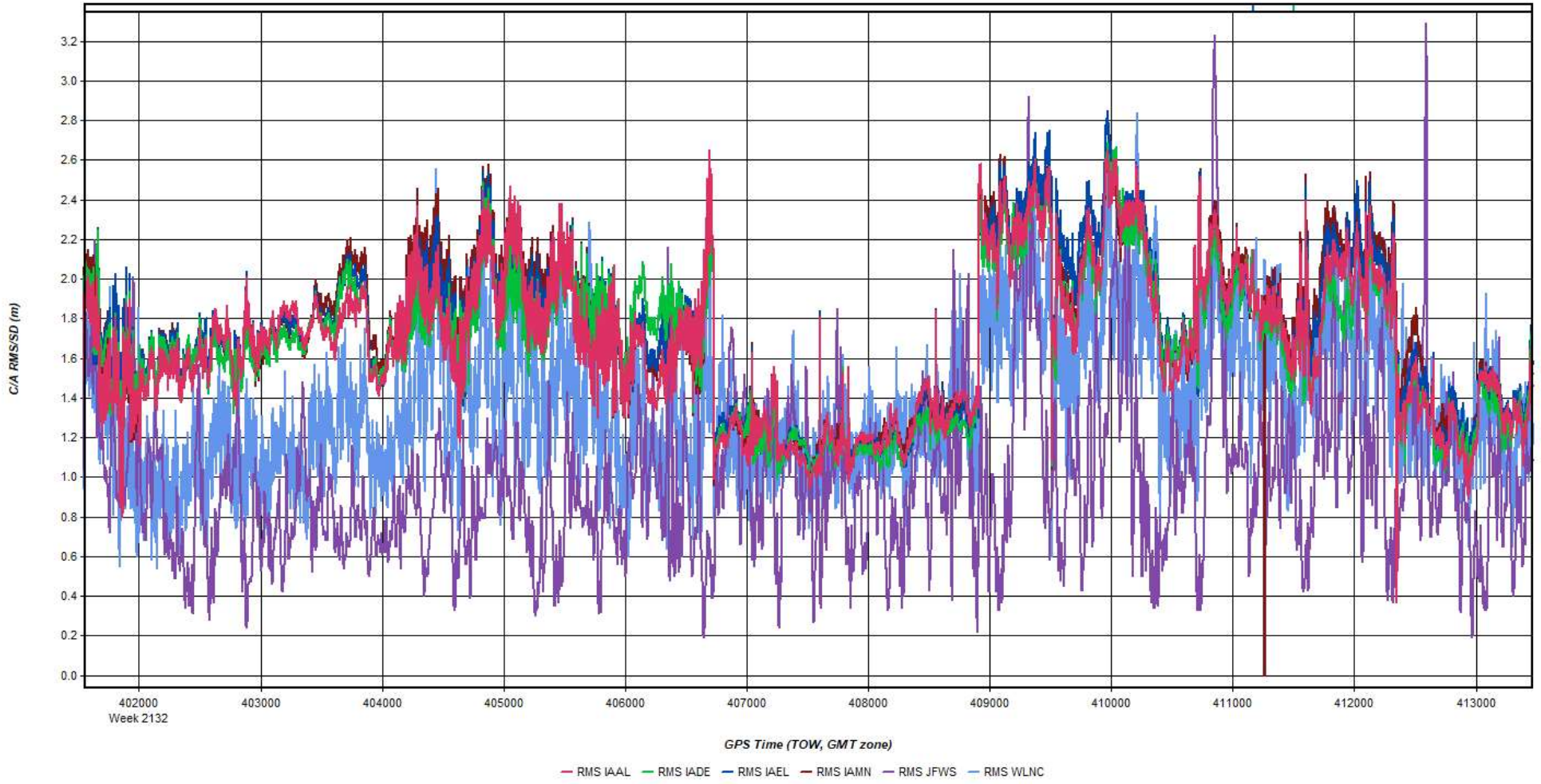


Figure 3: 20201119_152839 [Reverse] - MB C/A Code RMS

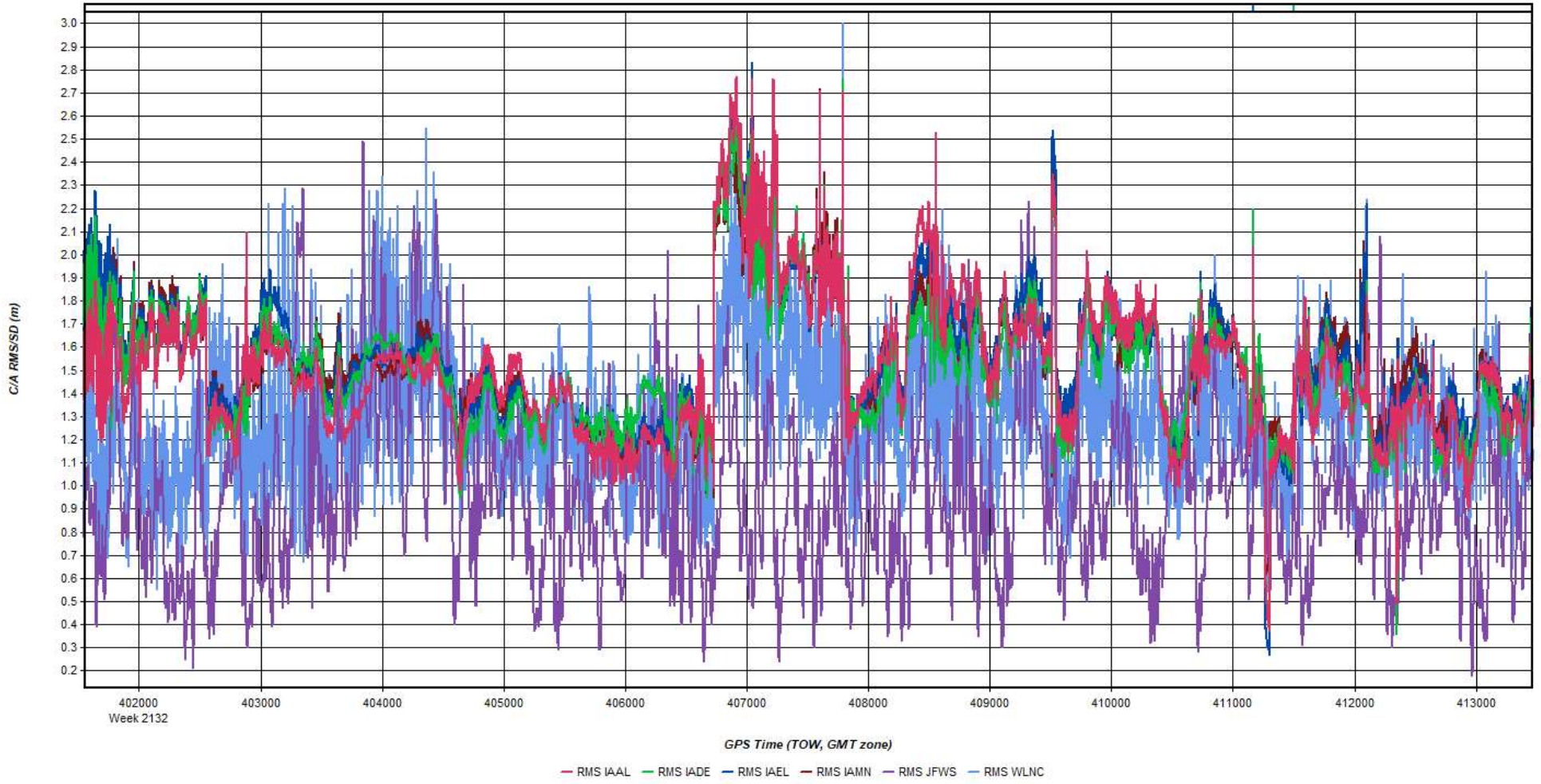


Figure 4: 20201119_152839 [Forward] - MB Phase RMS

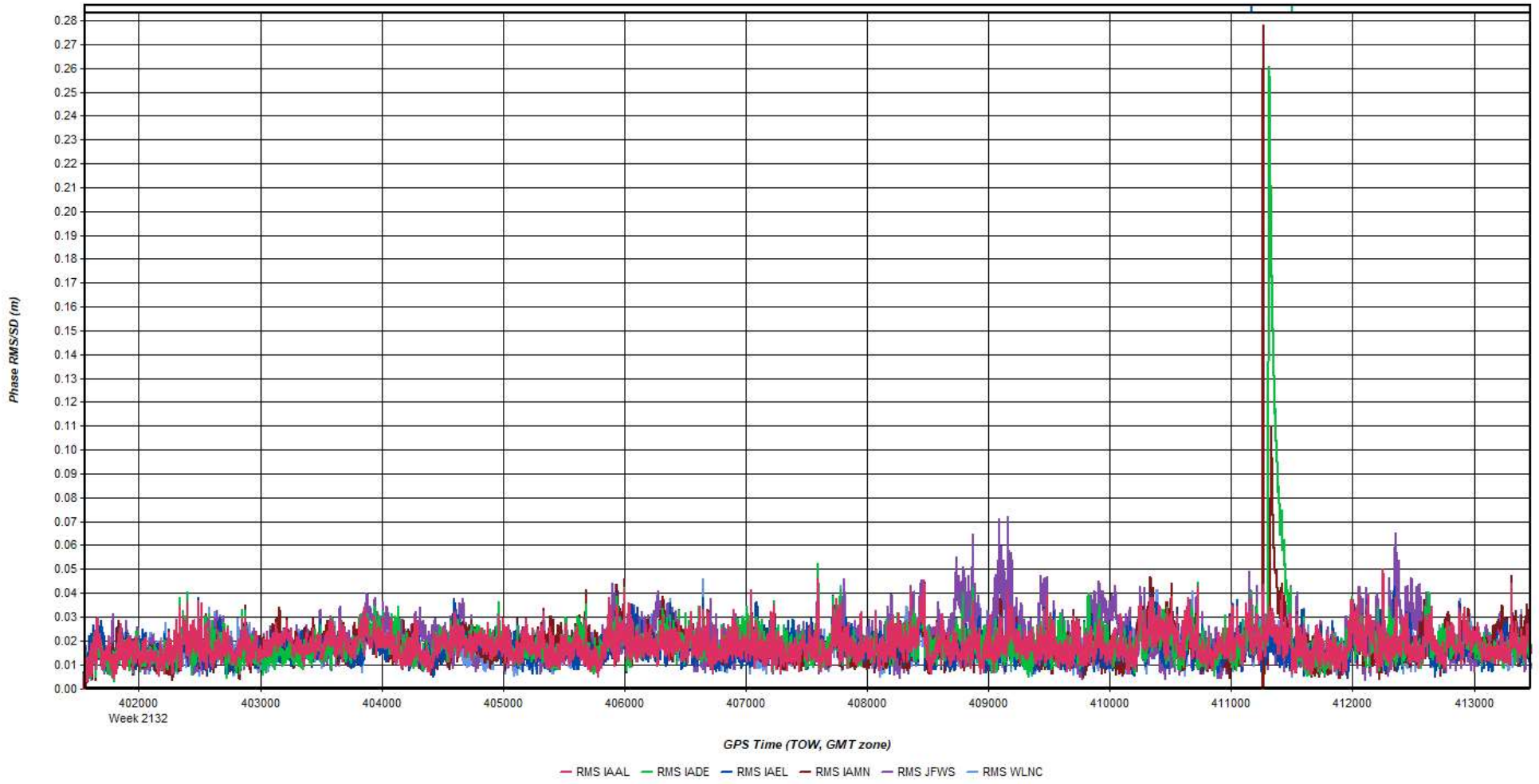


Figure 5: 20201119_152839 [Reverse] - MB Phase RMS

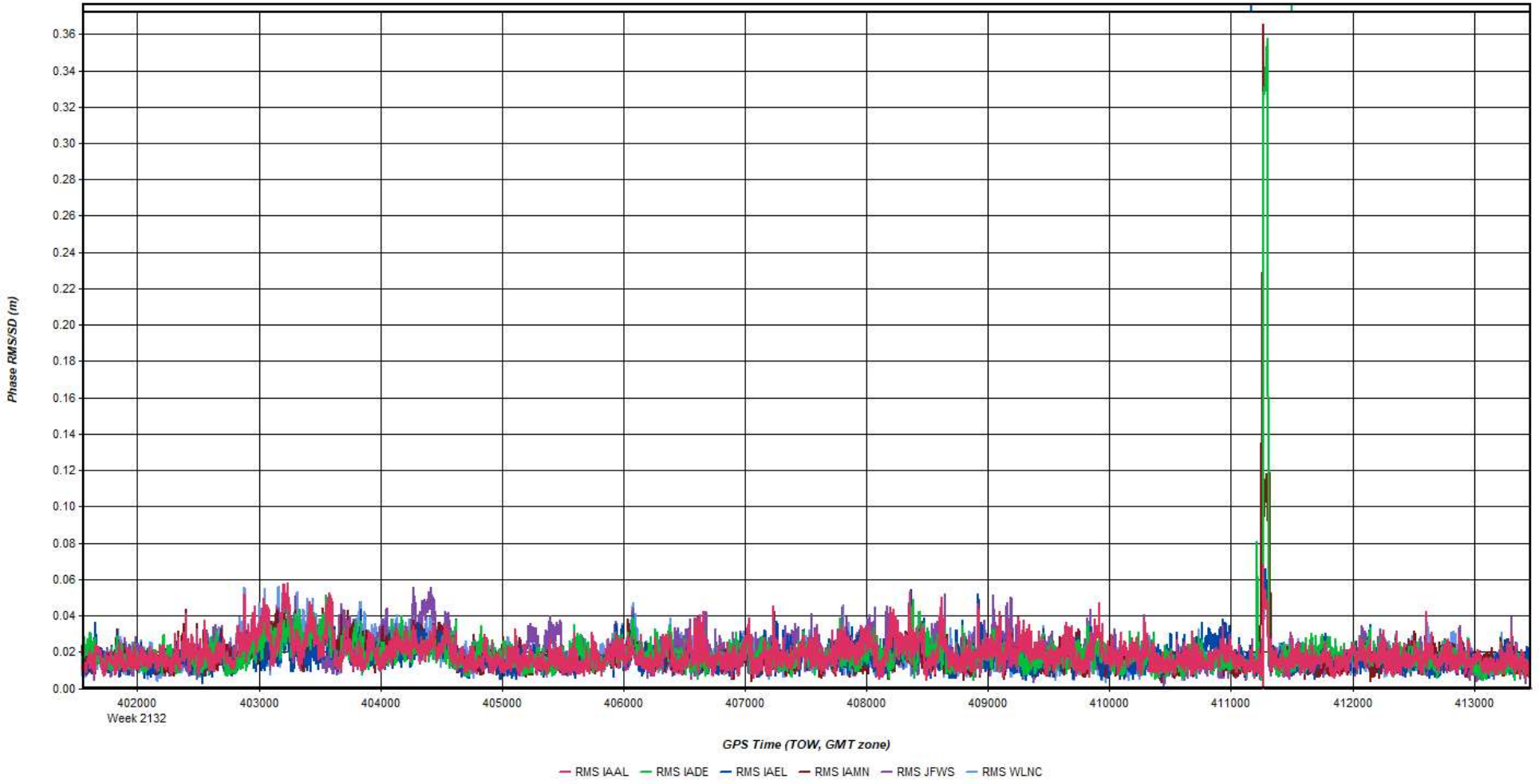


Figure 6: 20201119_152839 [Forward] - MB Doppler RMS

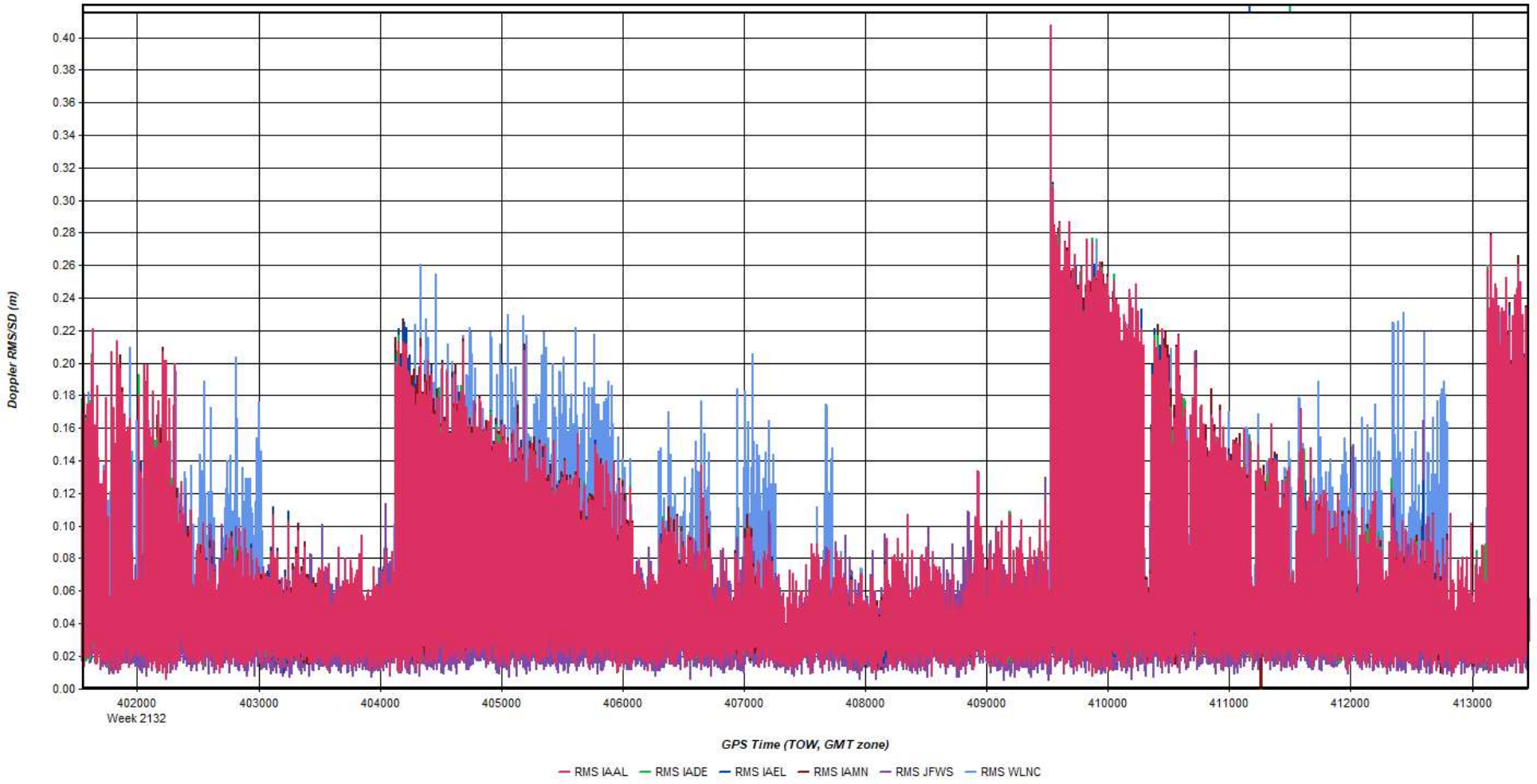


Figure 7: 20201119_152839 [Reverse] - MB Doppler RMS

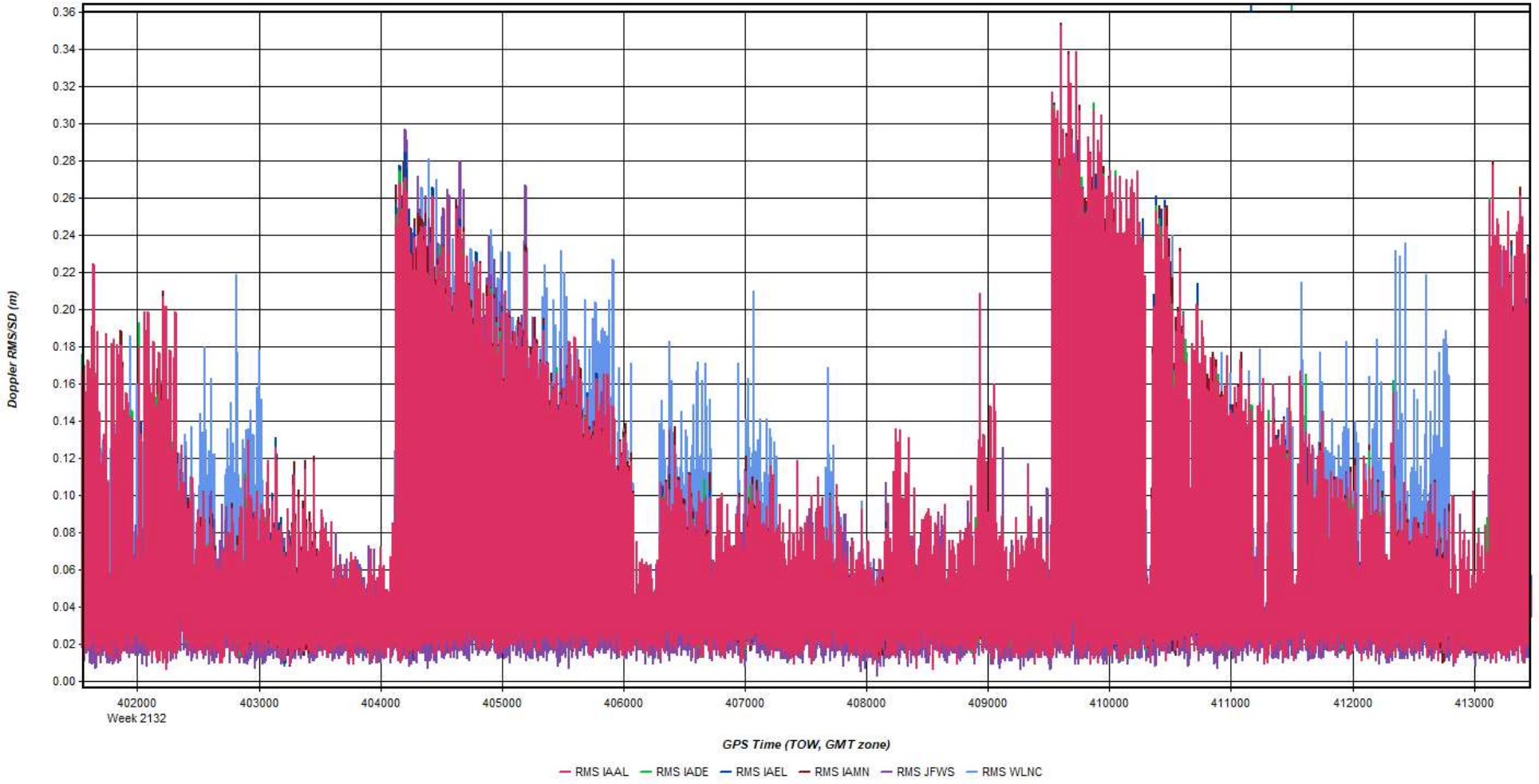


Figure 8: 20201119_152839 [Forward] - MB PDOP Value

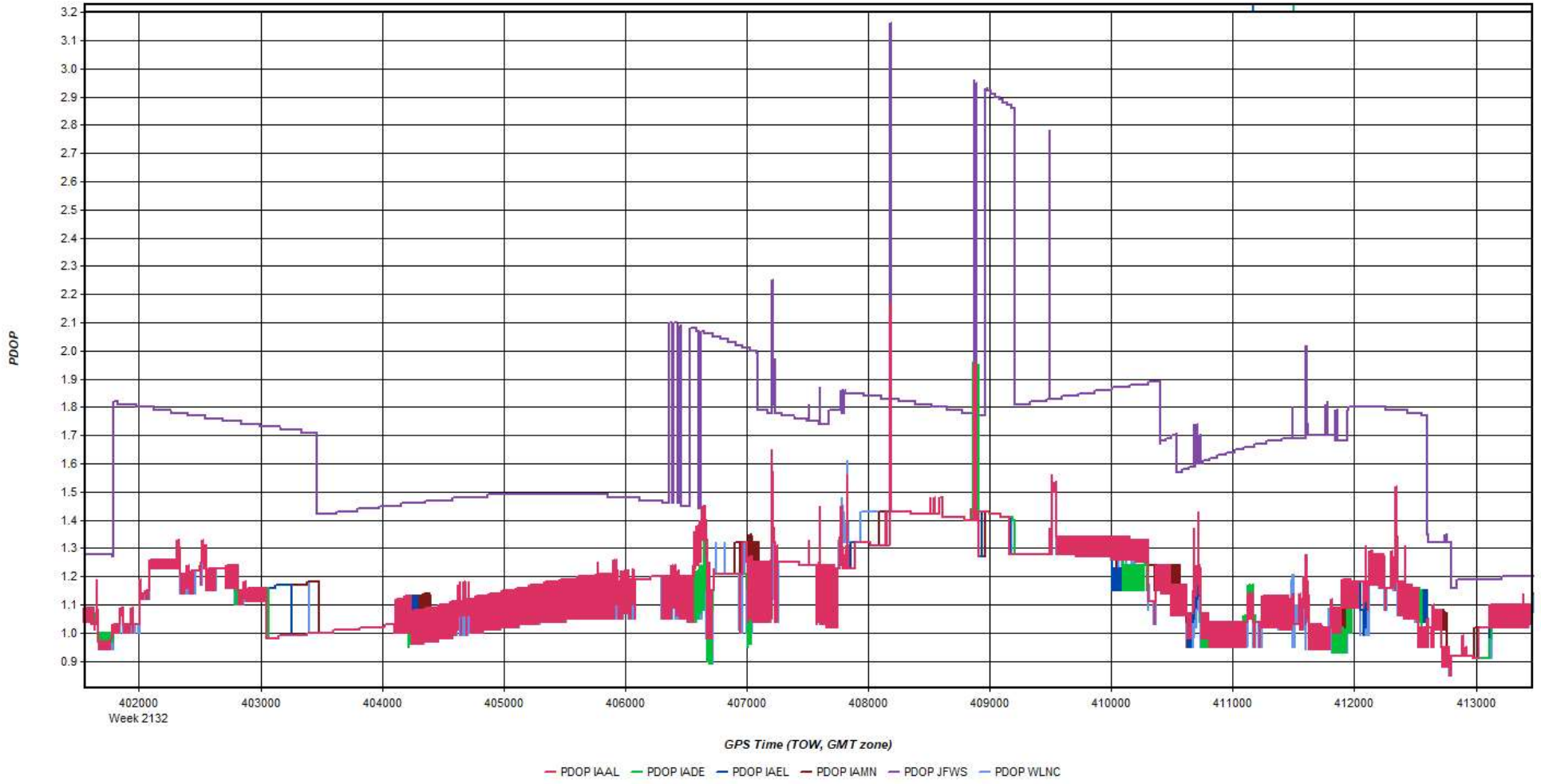
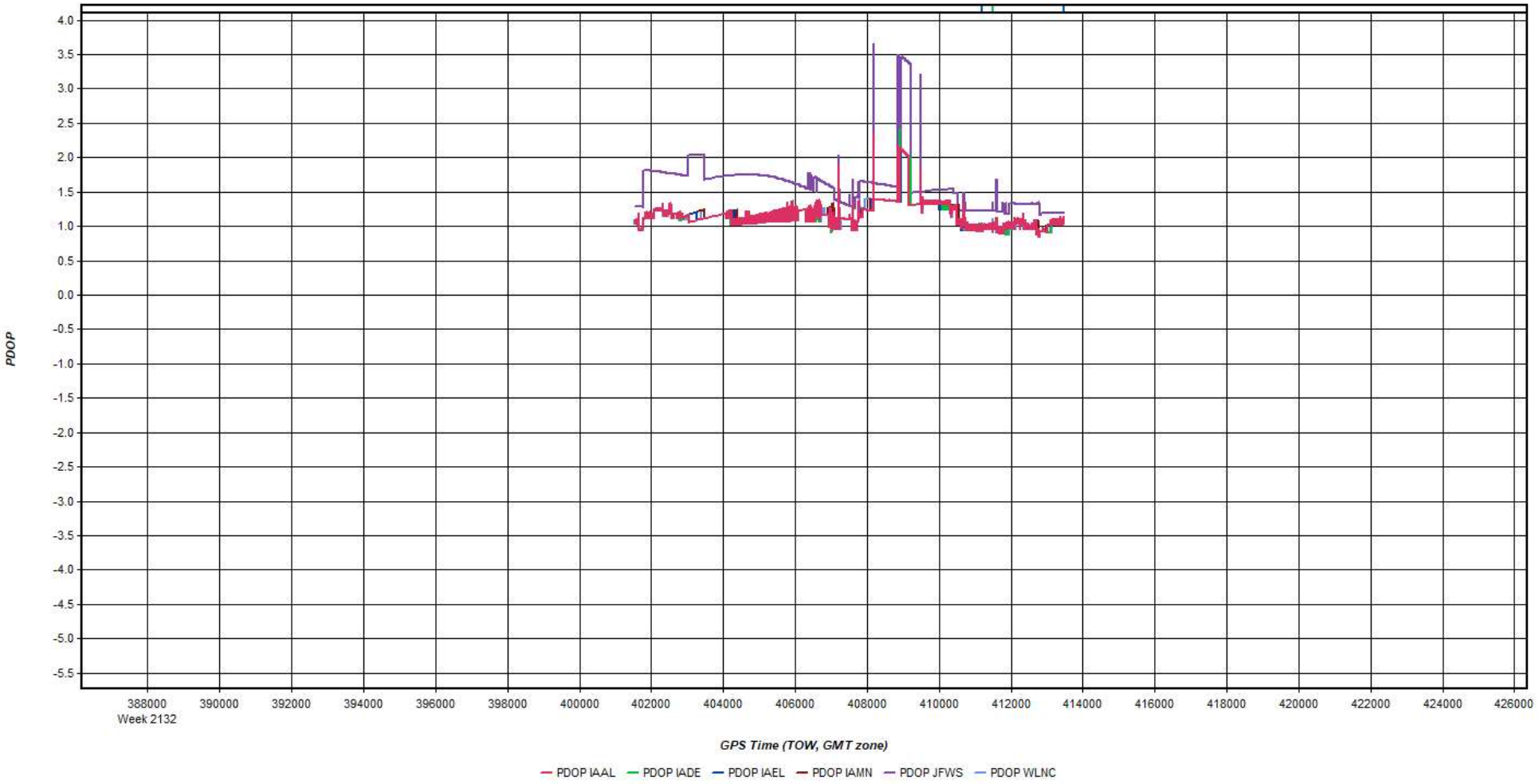


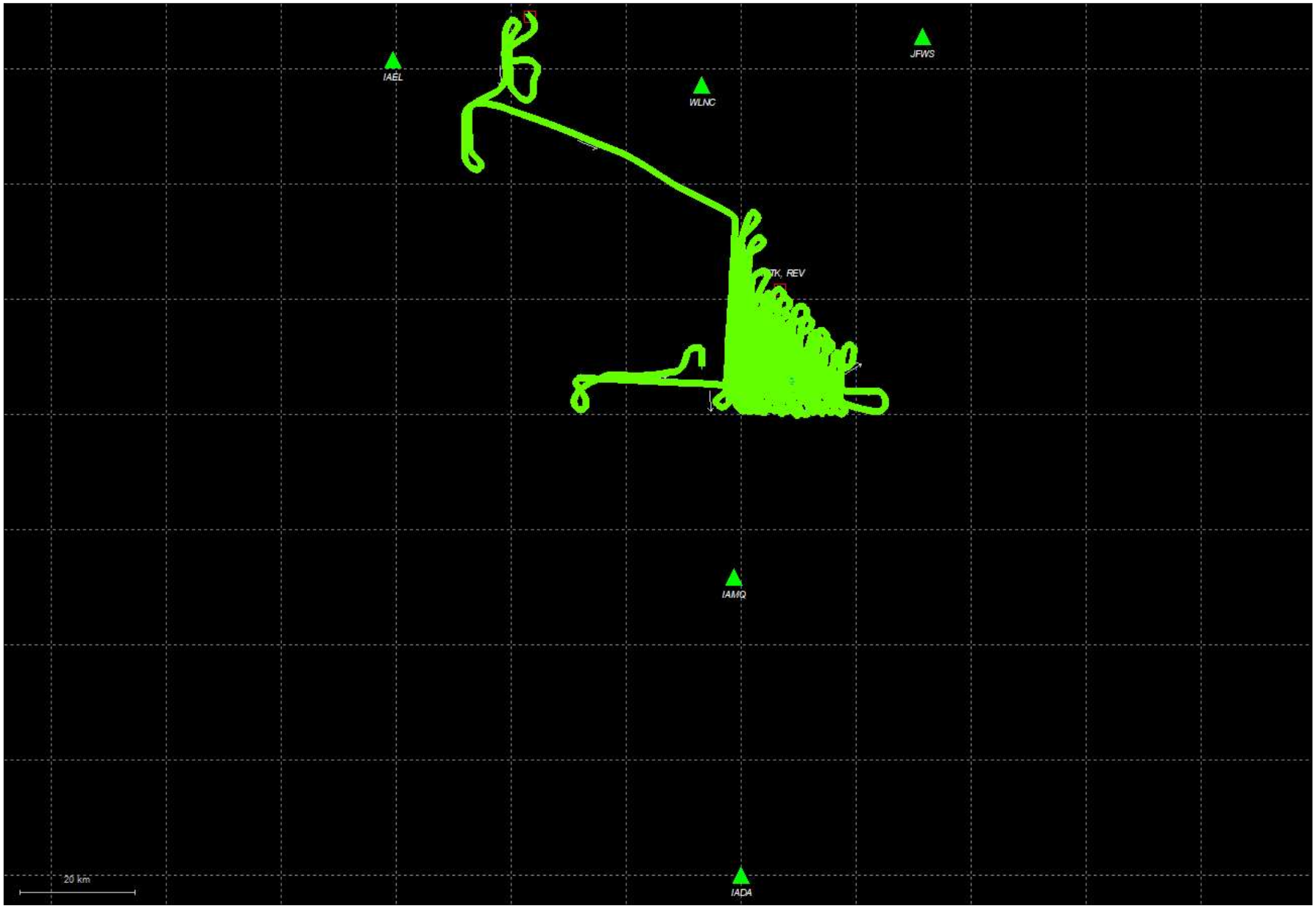
Figure 9: 20201119_152839 [Reverse] - MB PDOP Value


PDOP
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-5.5
388000
Week 2132
390000
392000
394000
396000
398000
400000
402000
404000
406000
408000
410000
412000
414000
416000
418000
420000
422000
424000
426000
GPS Time (TOW, GMT zone)
PDOP IAAL
PDOP IADE
PDOP IAEL
PDOP IAMN
PDOP JFWS
PDOP WLNC

Output Results for 20201119_191743

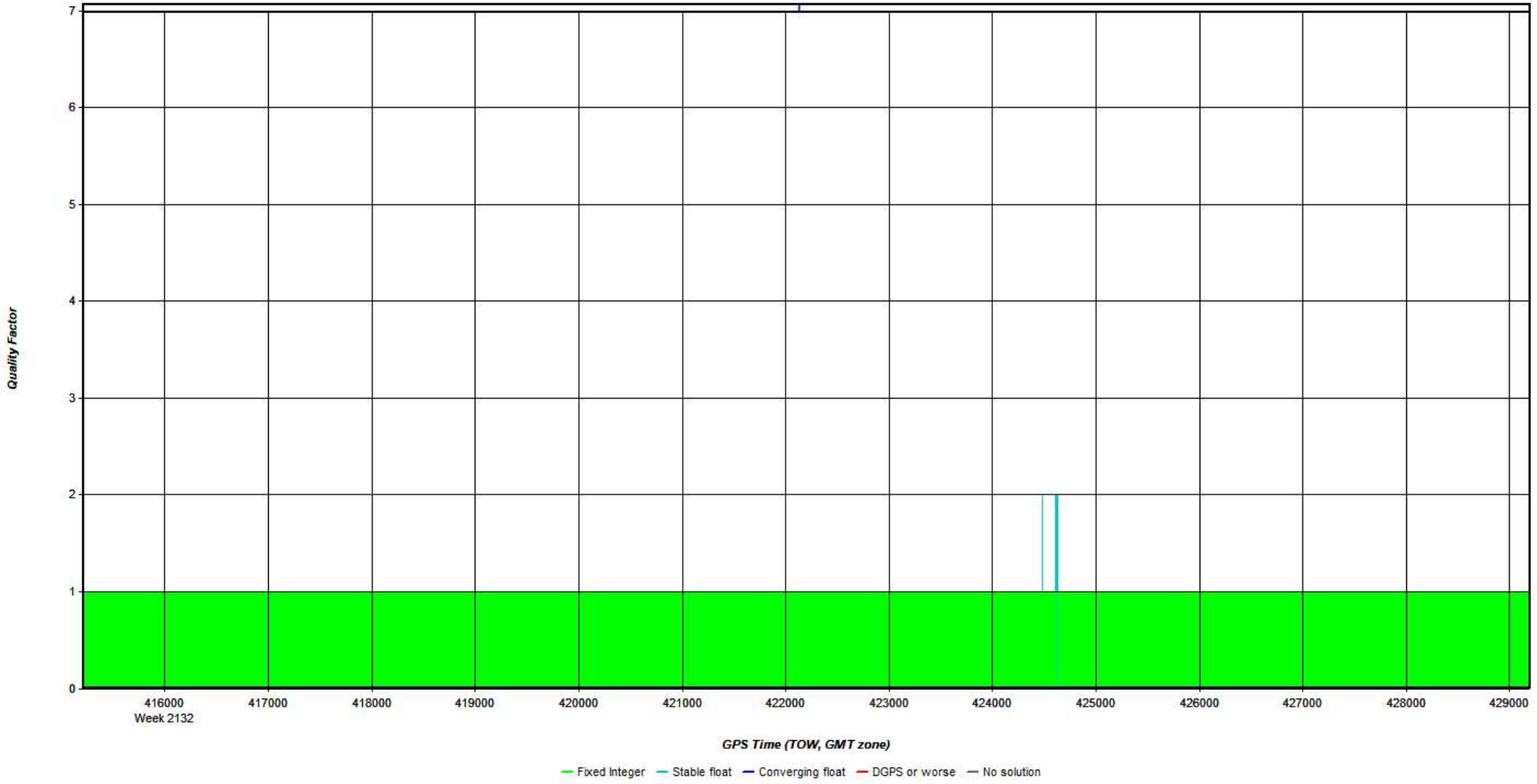
Inertial Explorer Version 8.80.2305
11/20/2020

Figure 1: Smoothed TC Combined - Map



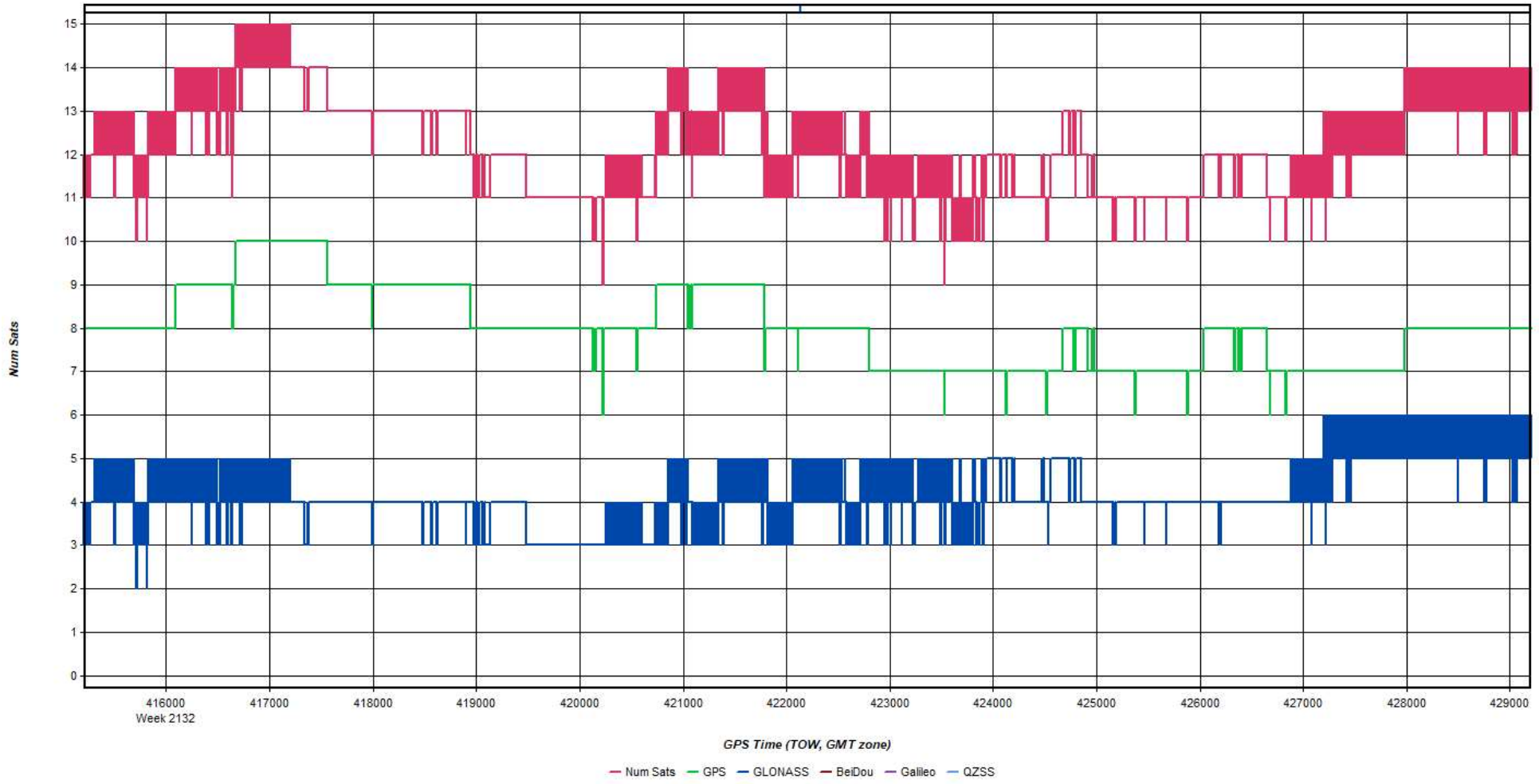
Process	20201119_191743	by Unknown	on 11/20/2020	at 10:41:21

Figure 2: 20201119_191743 [Smoothed TC Combined] - Quality Factor Plot



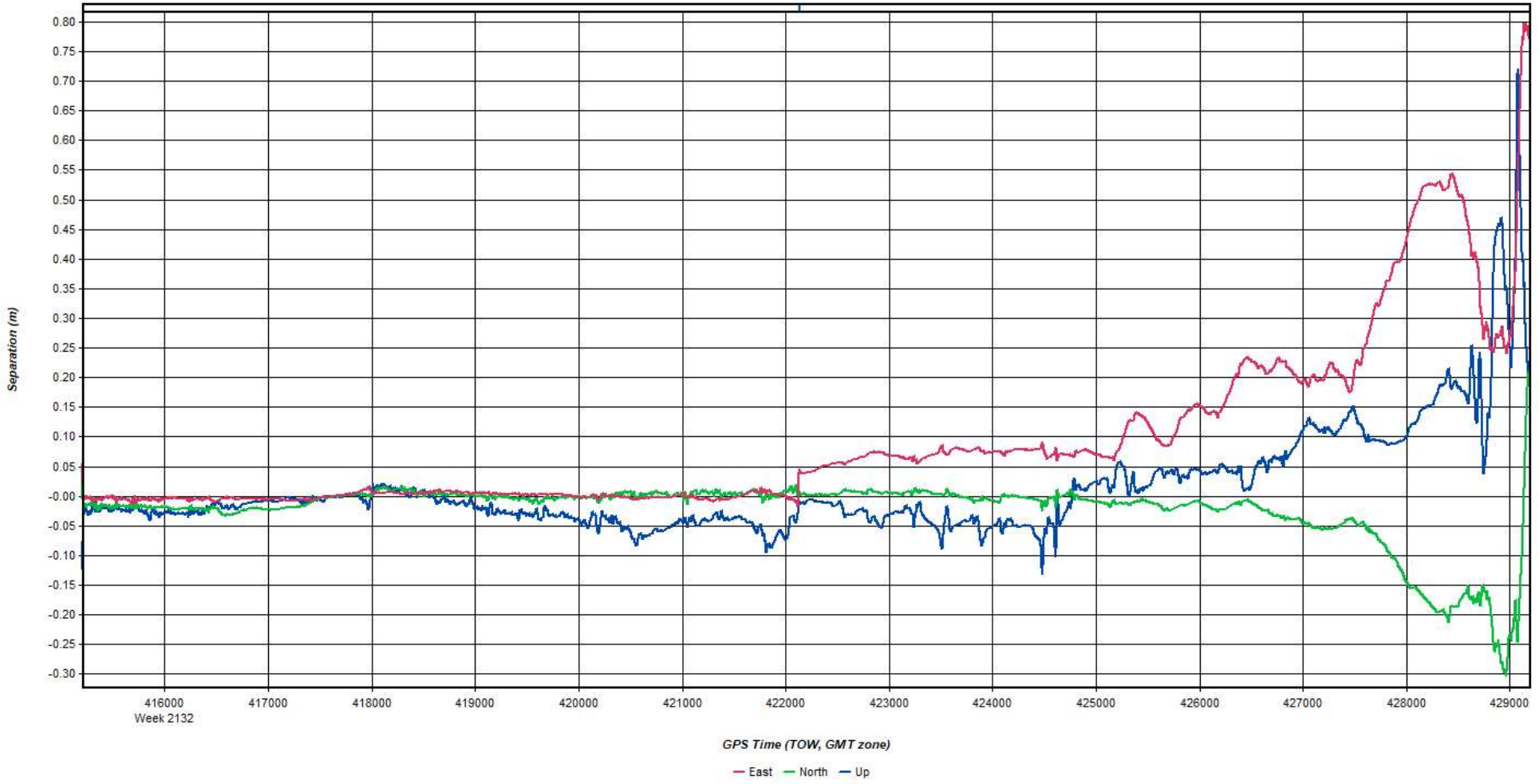
Process	20201119_191743	by Unknown	on 11/20/2020	at 10:41:21

Figure 3: 20201119_191743 [Smoothed TC Combined] - Number of Satellites Line Plot



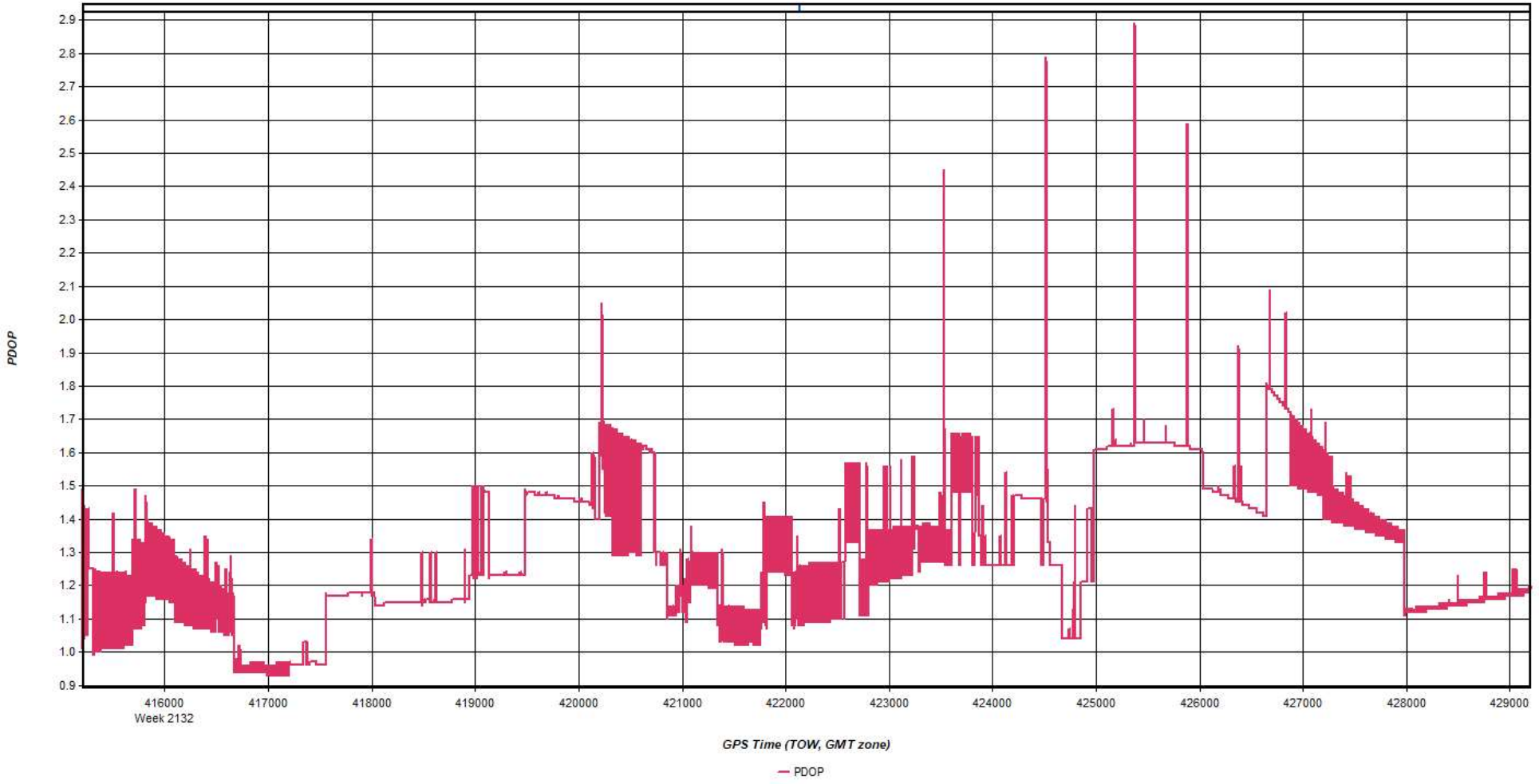
Process	20201119_191743	by Unknown	on 11/20/2020	at 10:41:21

Figure 4: 20201119_191743 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



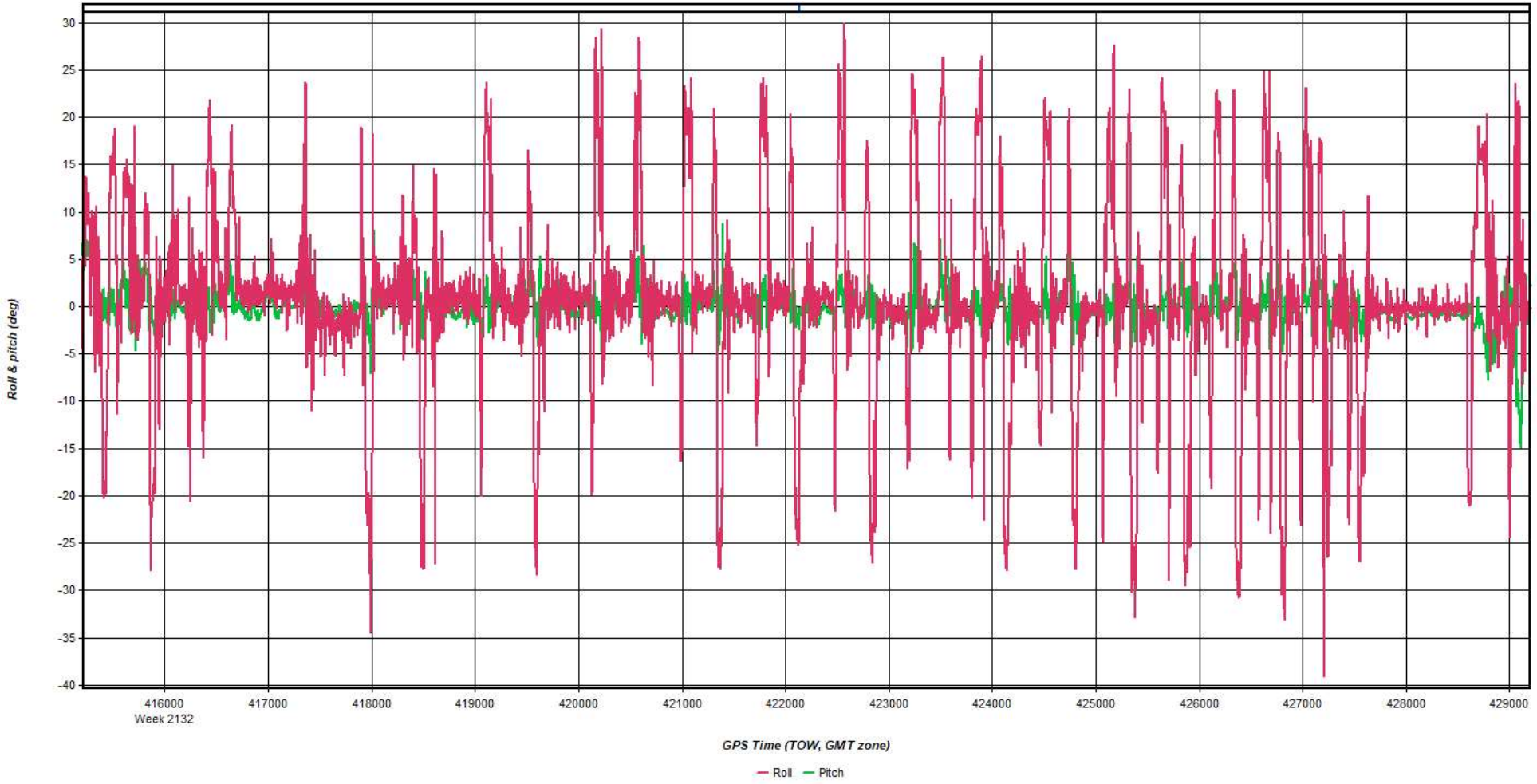
Process	20201119_191743	by Unknown	on 11/20/2020	at 10:41:21

Figure 5: 20201119_191743 [Smoothed TC Combined] - PDOP Plot



Process	20201119_191743	by Unknown	on 11/20/2020	at 10:41:21

Figure 6: 20201119_191743 [Smoothed TC Combined] - Roll & Pitch Plot

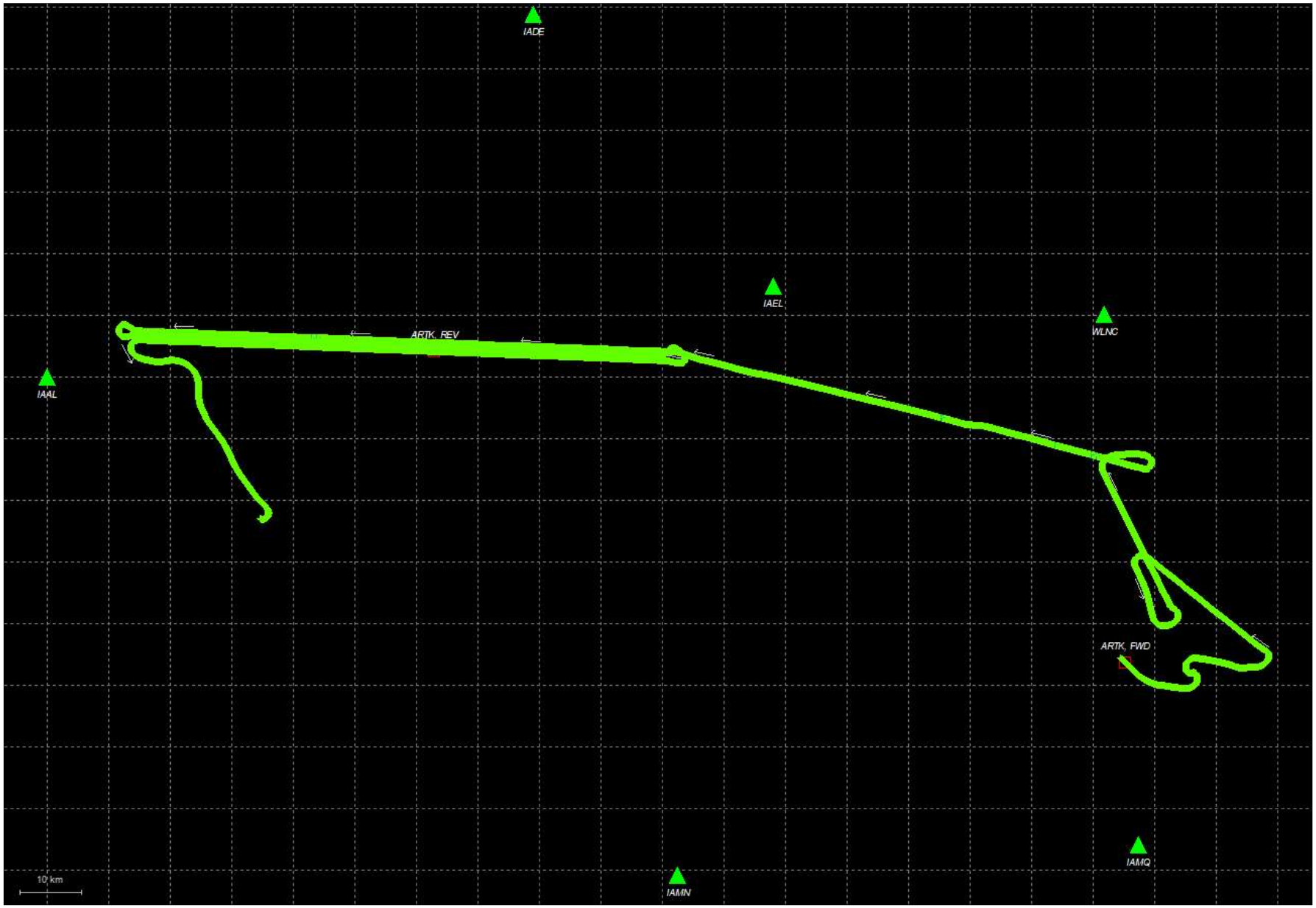


Process	20201119_191743	by Unknown	on 11/20/2020	at 10:41:21

Output Results for 20201119_233921

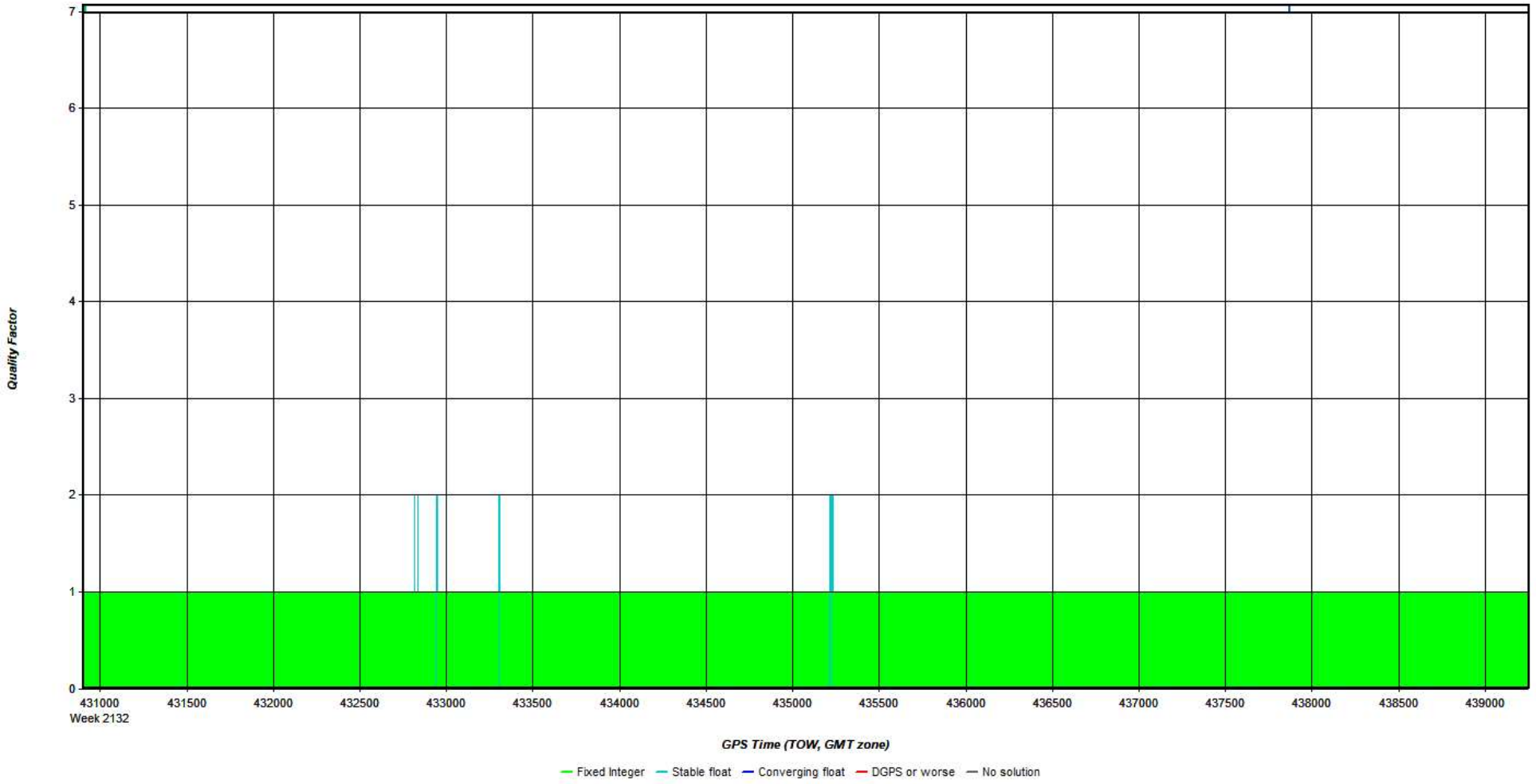
Inertial Explorer Version 8.80.2305
11/20/2020

Figure 1: Smoothed TC Combined - Map



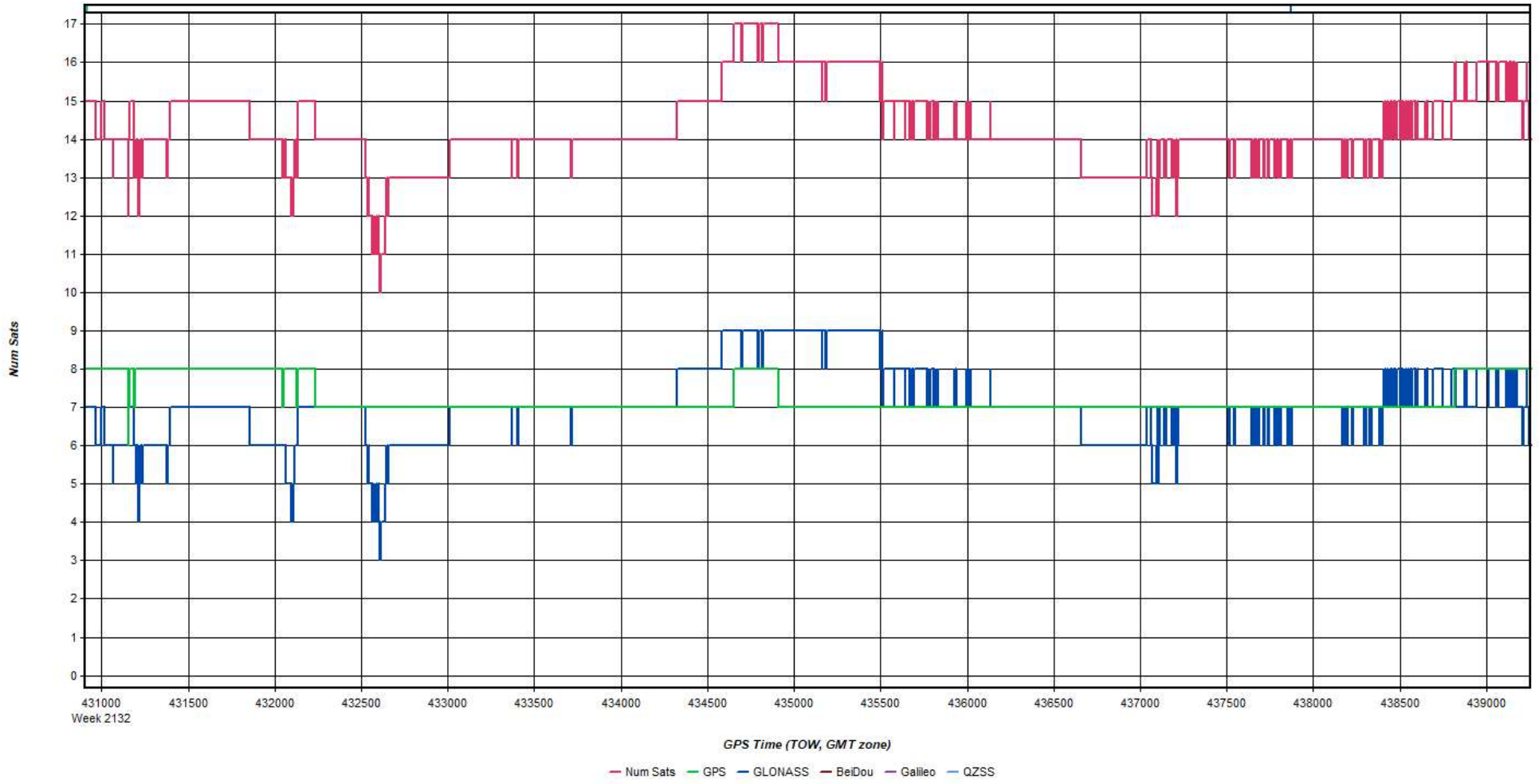
Process	20201119_233921	by Unknown	on 11/20/2020	at 11:48:58

Figure 2: 20201119_233921 [Smoothed TC Combined] - Quality Factor Plot



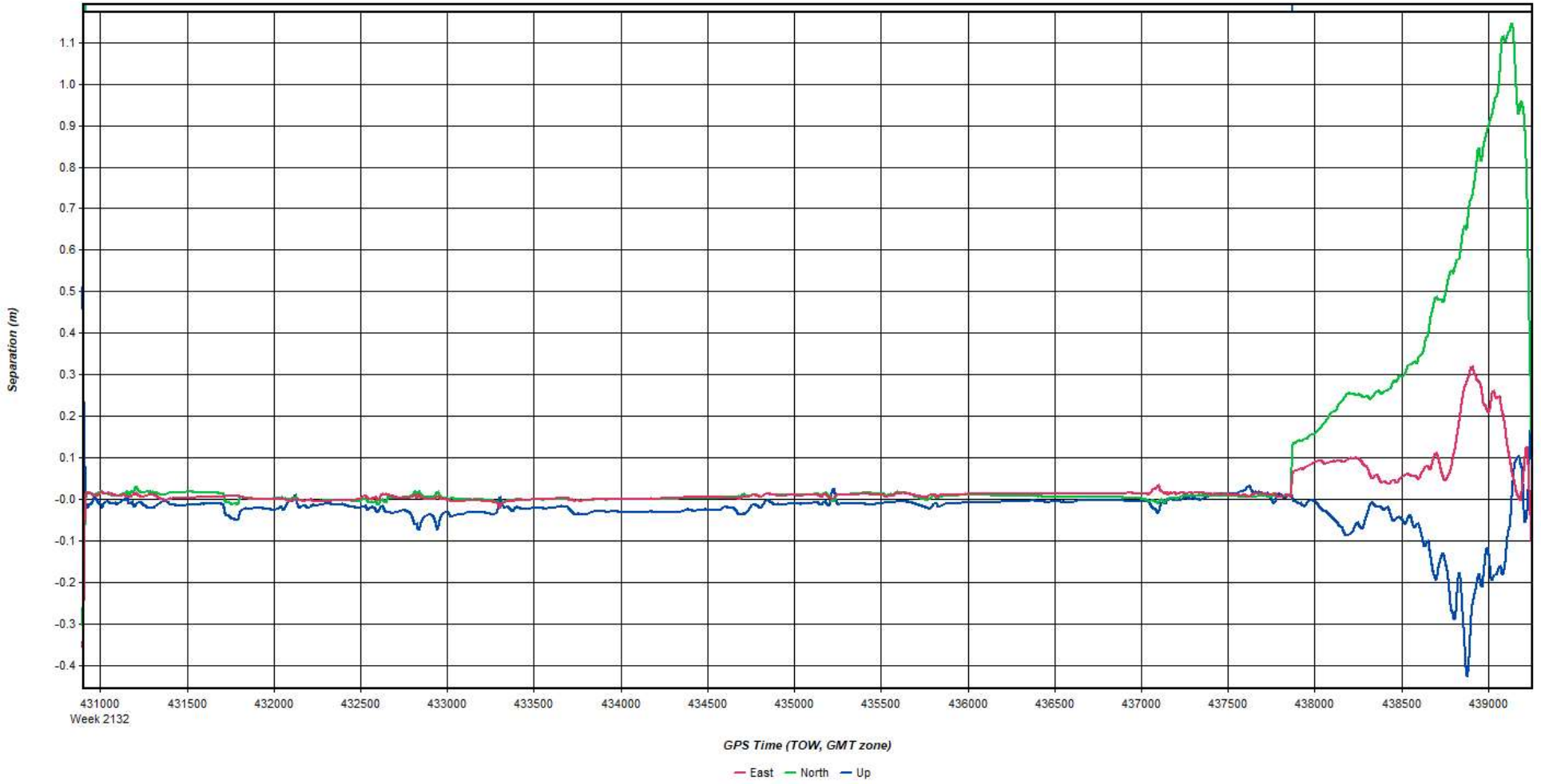
Process	20201119_233921	by Unknown	on 11/20/2020	at 11:48:58

Figure 3: 20201119_233921 [Smoothed TC Combined] - Number of Satellites Line Plot



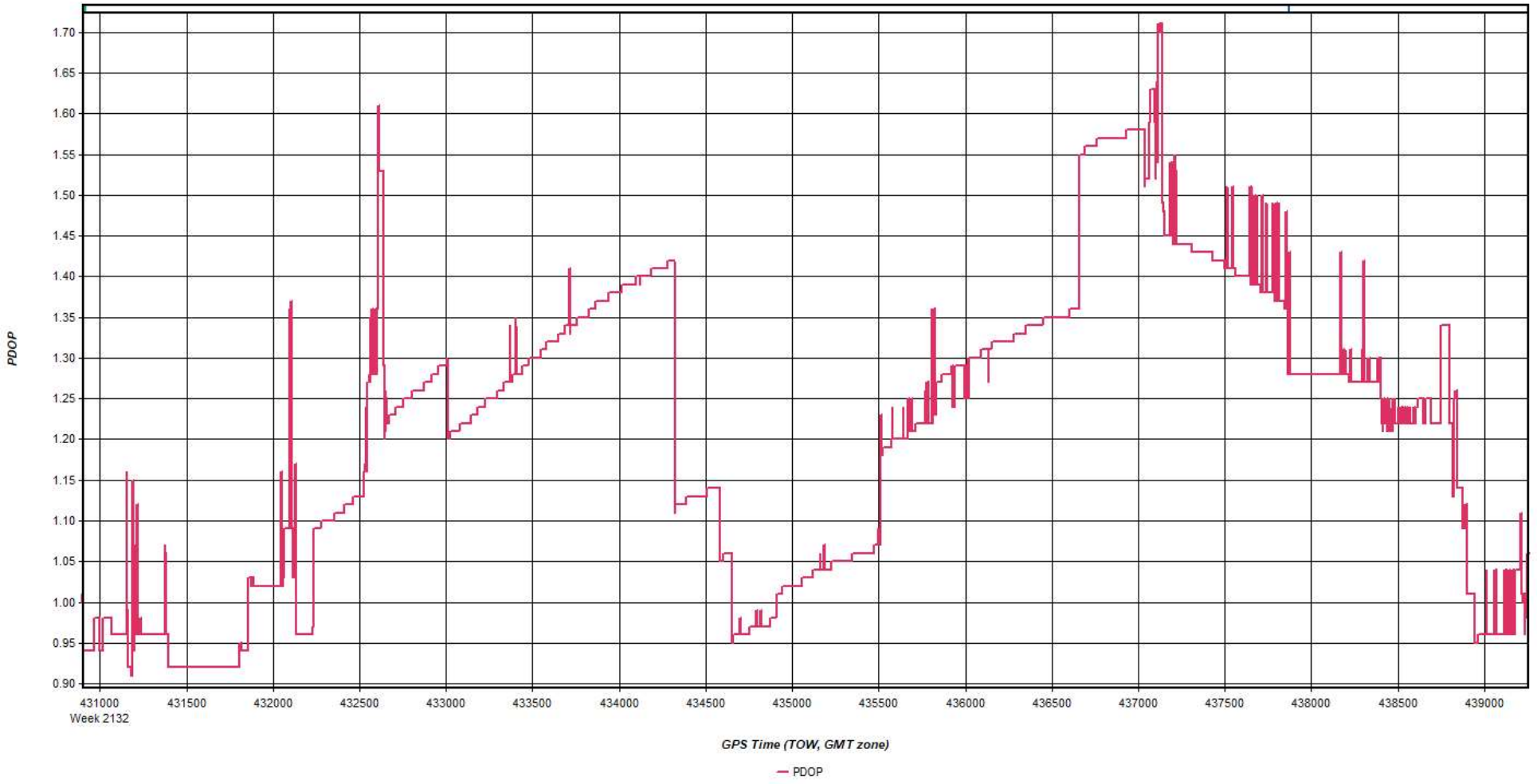
Process	20201119_233921	by Unknown	on 11/20/2020	at 11:48:58

Figure 4: 20201119_233921 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



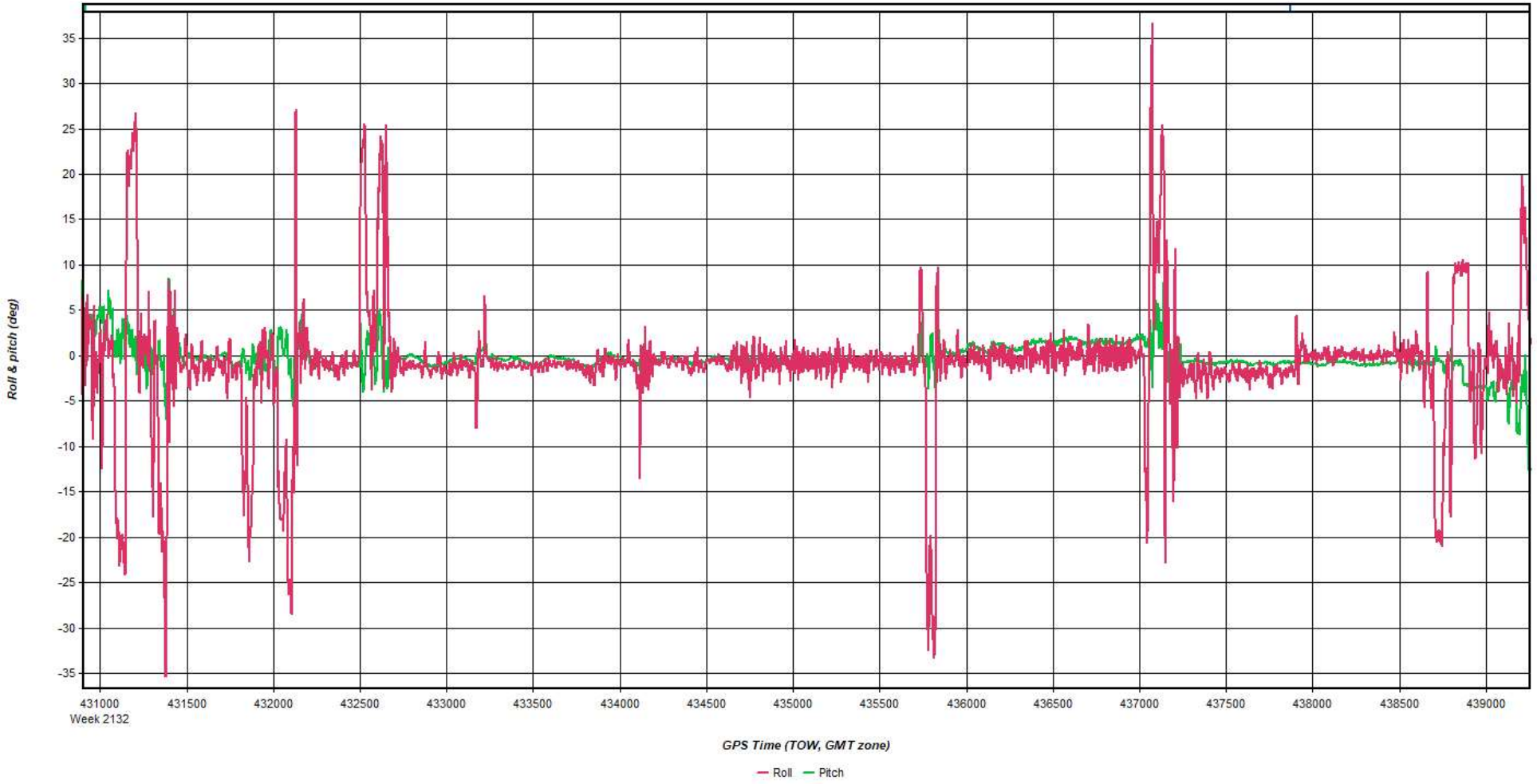
Process	20201119_233921	by Unknown	on 11/20/2020	at 11:48:58

Figure 5: 20201119_233921 [Smoothed TC Combined] - PDOP Plot



Process	20201119_233921	by Unknown	on 11/20/2020	at 11:48:58

Figure 6: 20201119_233921 [Smoothed TC Combined] - Roll & Pitch Plot



Process	20201119_233921	by Unknown	on 11/20/2020	at 11:48:58

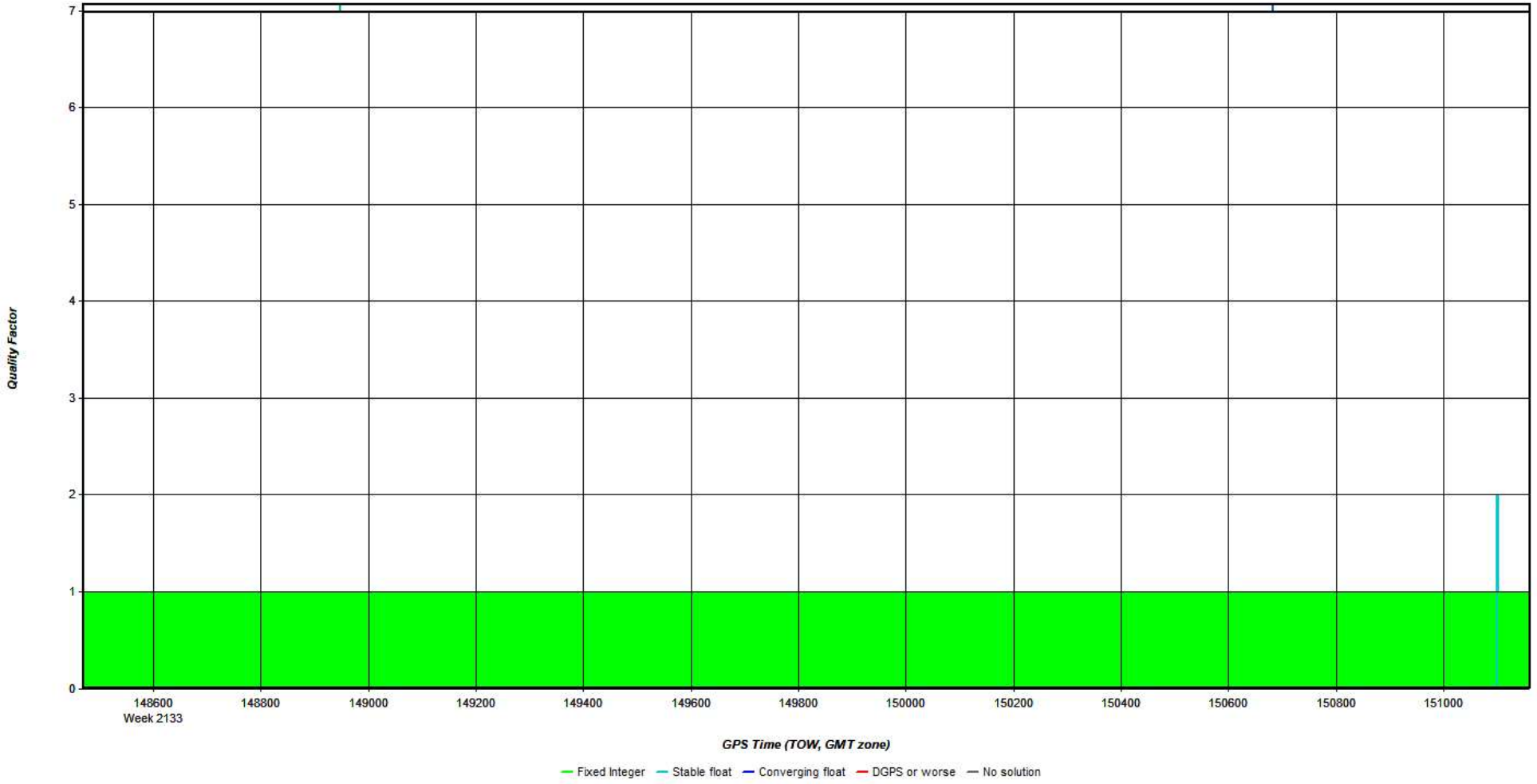
Output Results for 20201123_171022

Inertial Explorer Version 8.80.2305
11/24/2020

Figure 1: Smoothed TC Combined - Map

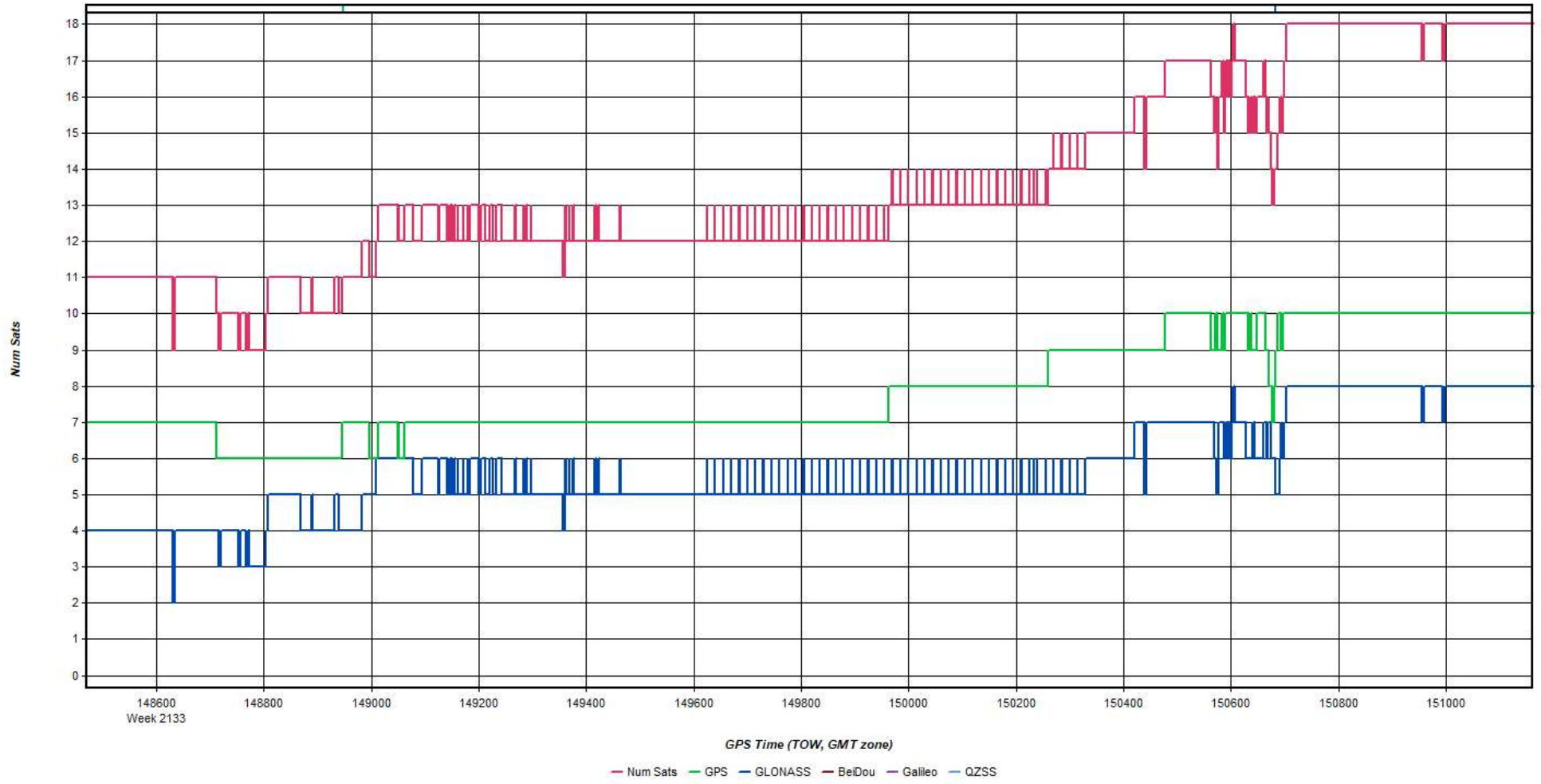
Process	20201123_171022	by Unknown	on 11/24/2020	at 11:28:31

Figure 2: 20201123_171022 [Smoothed TC Combined] - Quality Factor Plot



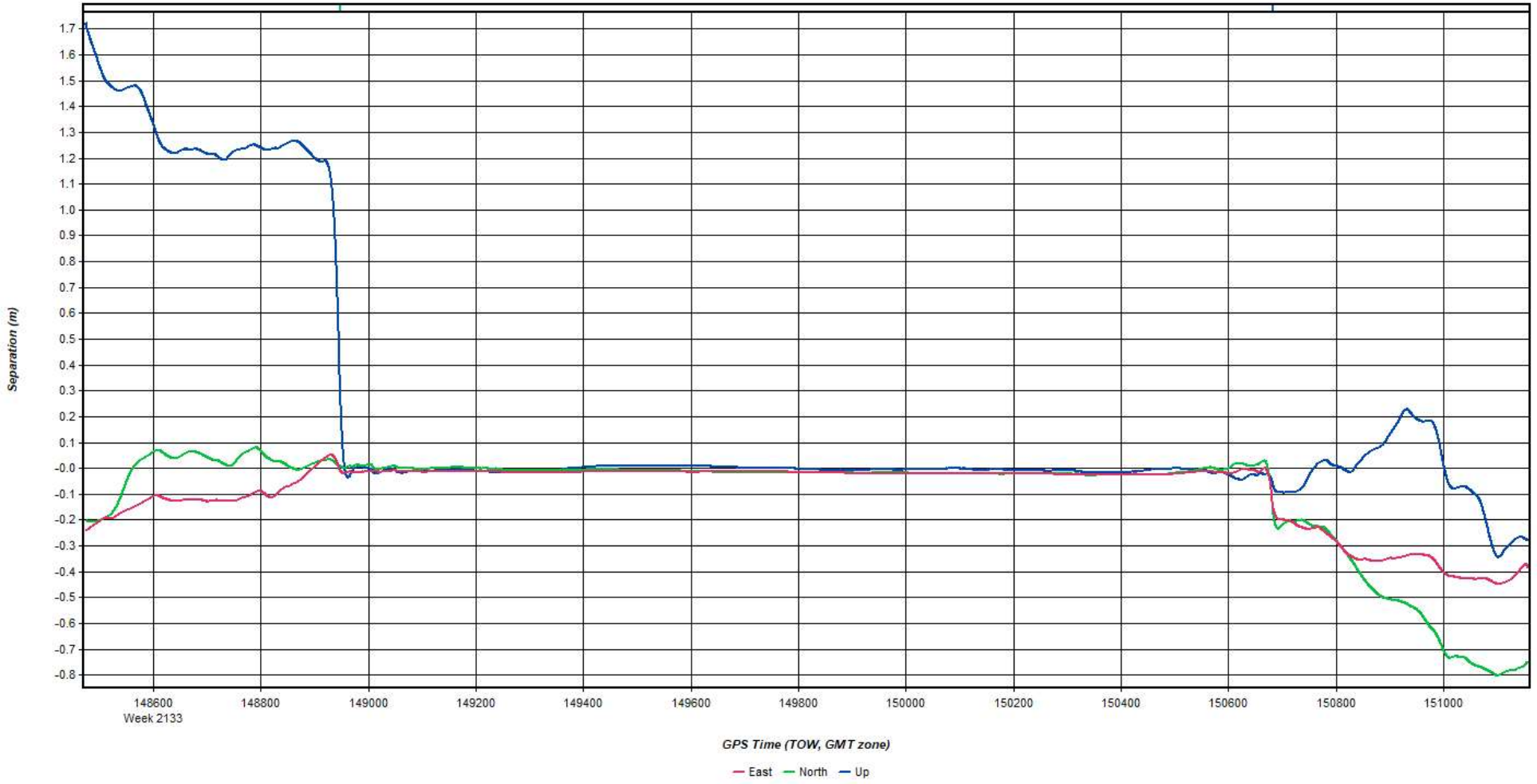
Process	20201123_171022	by Unknown	on 11/24/2020	at 11:28:31

Figure 3: 20201123_171022 [Smoothed TC Combined] - Number of Satellites Line Plot



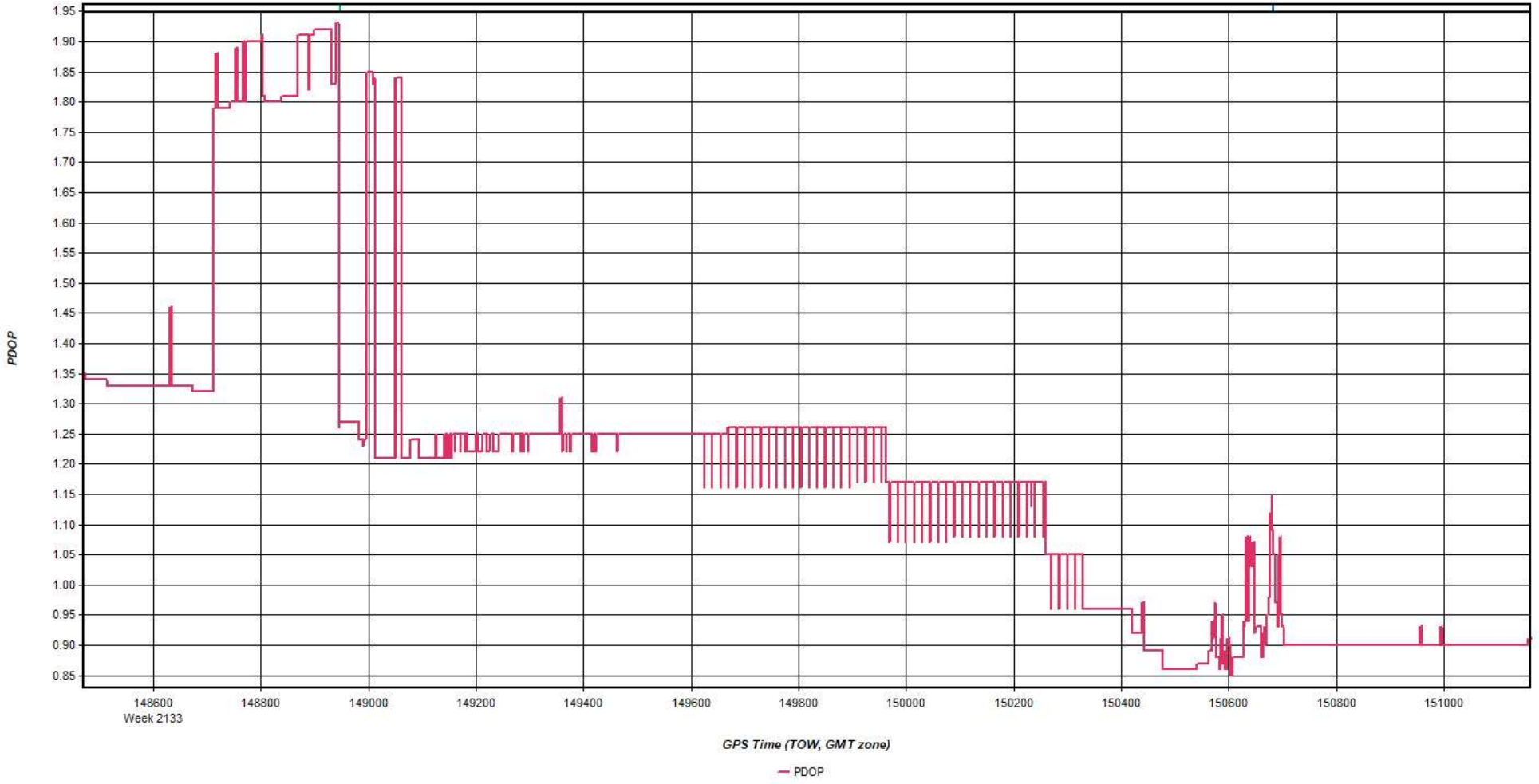
Process	20201123_171022	by Unknown	on 11/24/2020	at 11:28:31

Figure 4: 20201123_171022 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



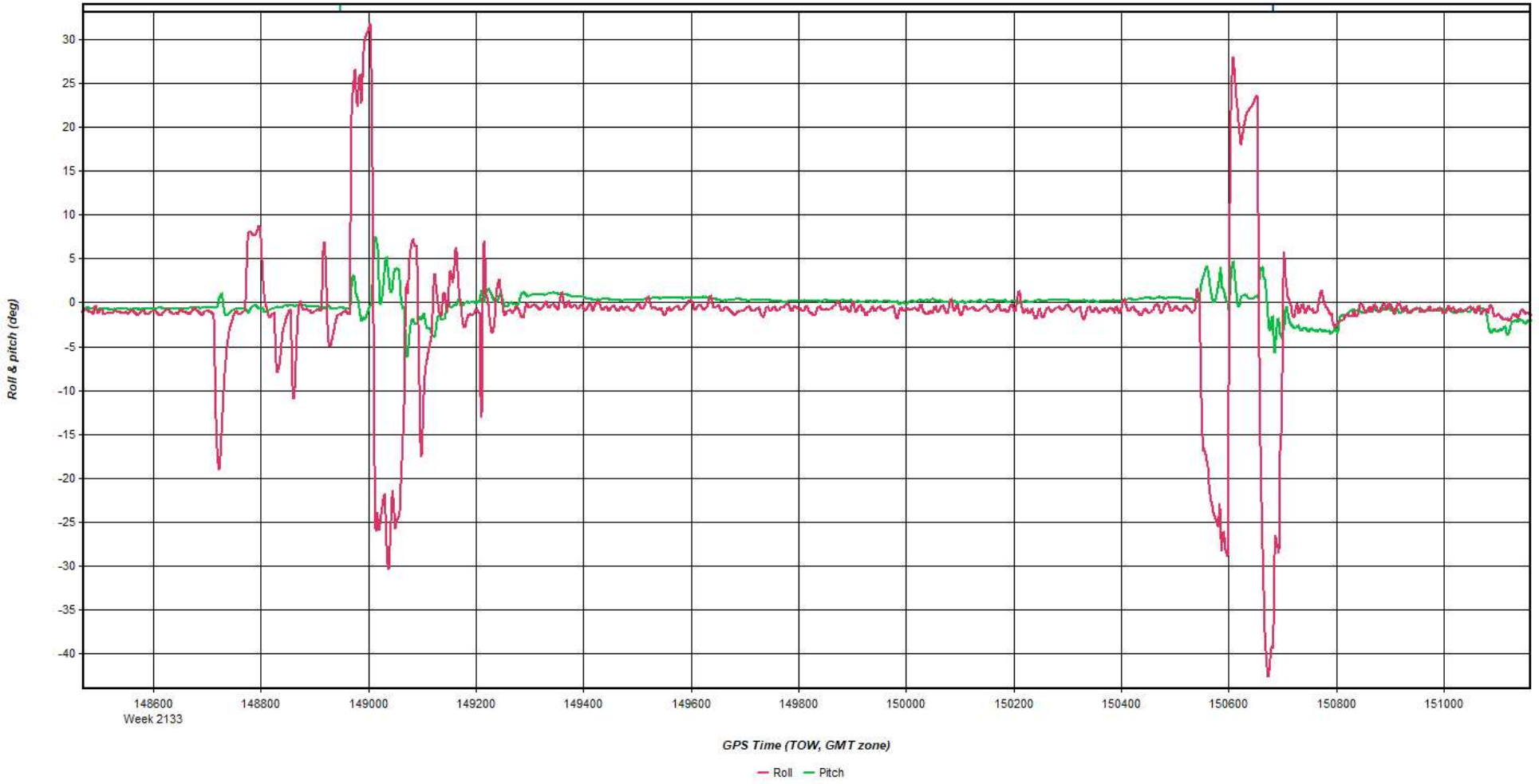
Process	20201123_171022	by Unknown	on 11/24/2020	at 11:28:31

Figure 5: 20201123_171022 [Smoothed TC Combined] - PDOP Plot



Process	20201123_171022	by Unknown	on 11/24/2020	at 11:28:31

Figure 6: 20201123_171022 [Smoothed TC Combined] - Roll & Pitch Plot

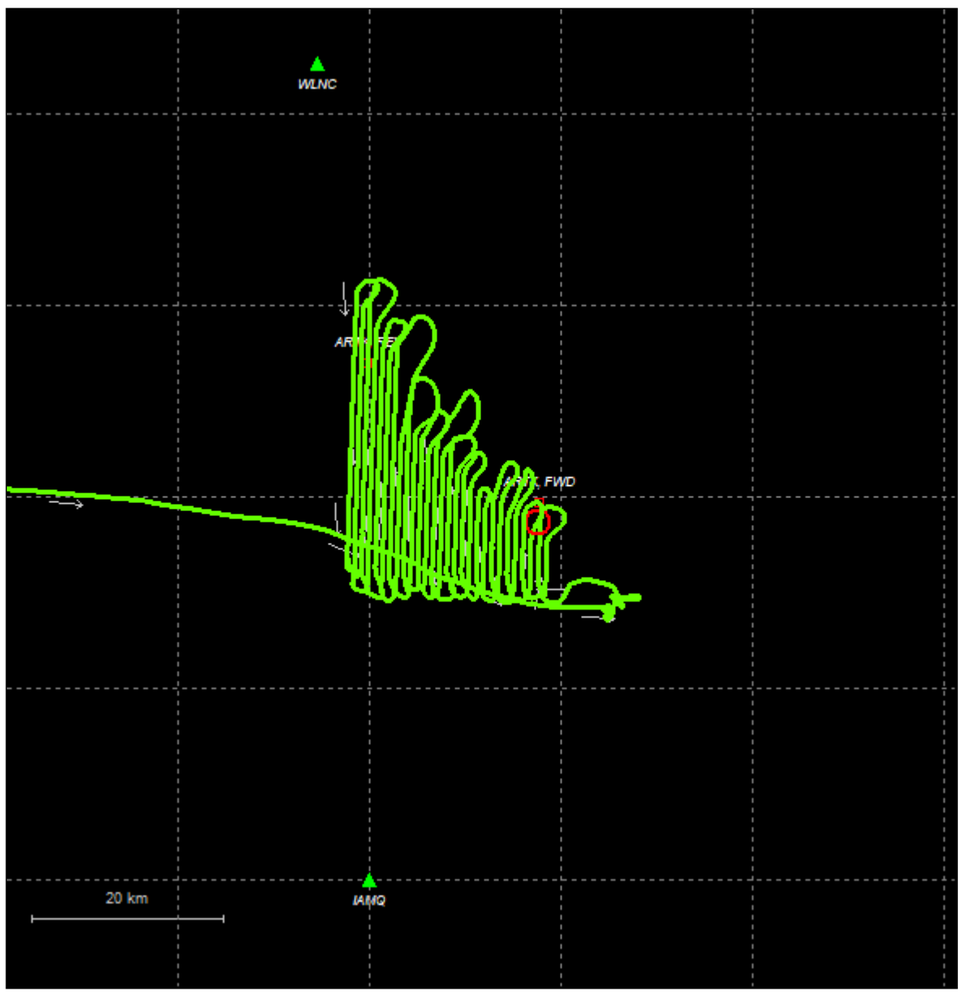


Process	20201123_171022	by Unknown	on 11/24/2020	at 11:28:31

Output Results for Dewberry_IA_3DEP_20191208_045831

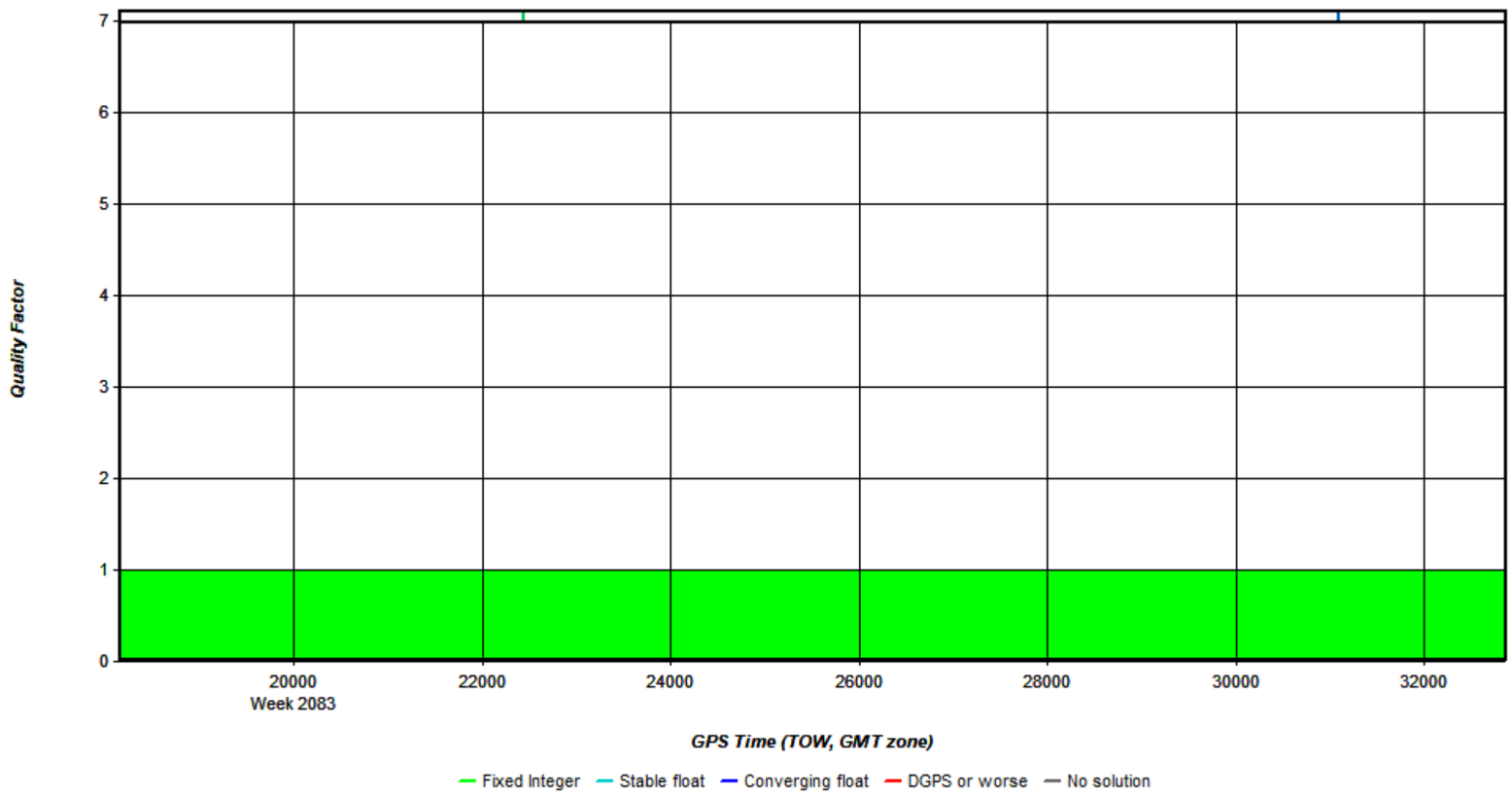
Inertial Explorer Version 8.80.2503
03/23/2020

Figure 1: Smoothed TC Combined - Map



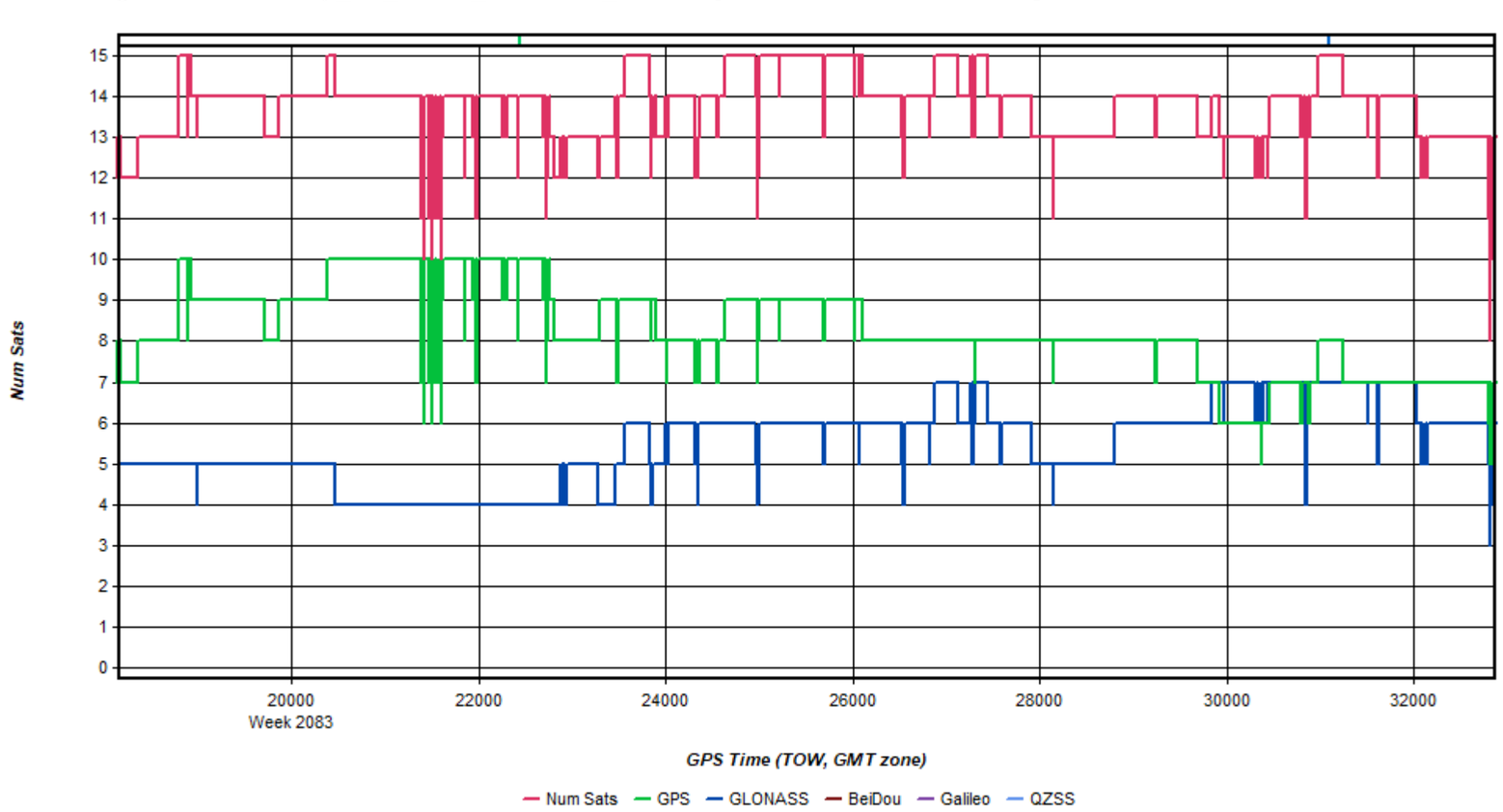
Process	Dewberry_IA_3DEP_20191208_045831	by Unknown	on 3/23/2020	at 13:00:05

Figure 2: Dewberry_IA_3DEP_20191208_045831 [Smoothed TC Combined] - Quality Factor Plot



Process	Dewberry_IA_3DEP_20191208_045831	by Unknown	on 3/23/2020	at 13:00:05

Figure 3: Dewberry_IA_3DEP_20191208_045831 [Smoothed TC Combined] - Number of Satellites Line Plot

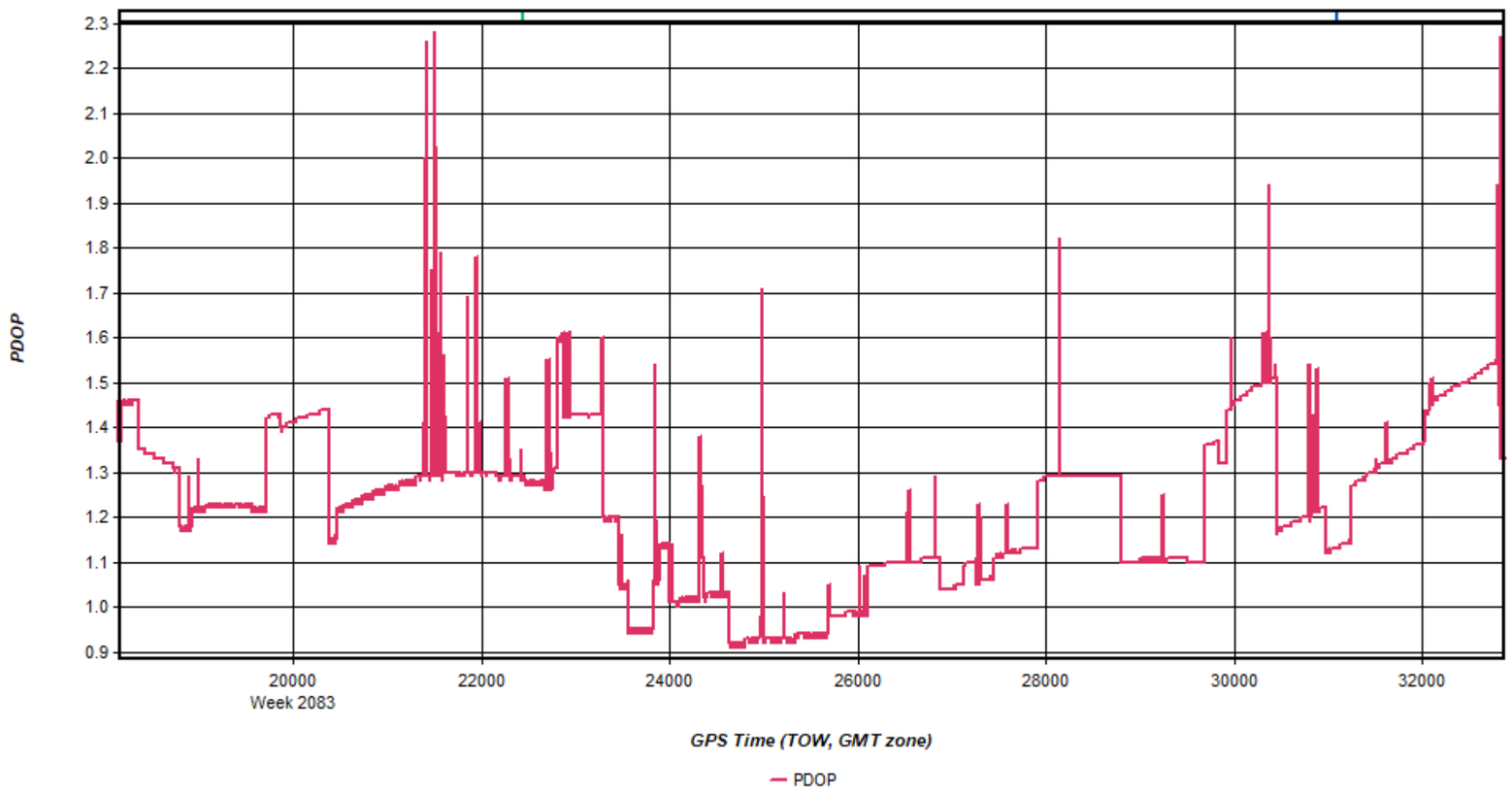


Process	Dewberry_IA_3DEP_20191208_045831	by Unknown	on 3/23/2020	at 13:00:05

Figure 4: Dewberry_IA_3DEP_20191208_045831 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot

Process	Dewberry_IA_3DEP_20191208_045831	by Unknown	on 3/23/2020	at 13:00:05

Figure 5: Dewberry_IA_3DEP_20191208_045831 [Smoothed TC Combined] - PDOP Plot

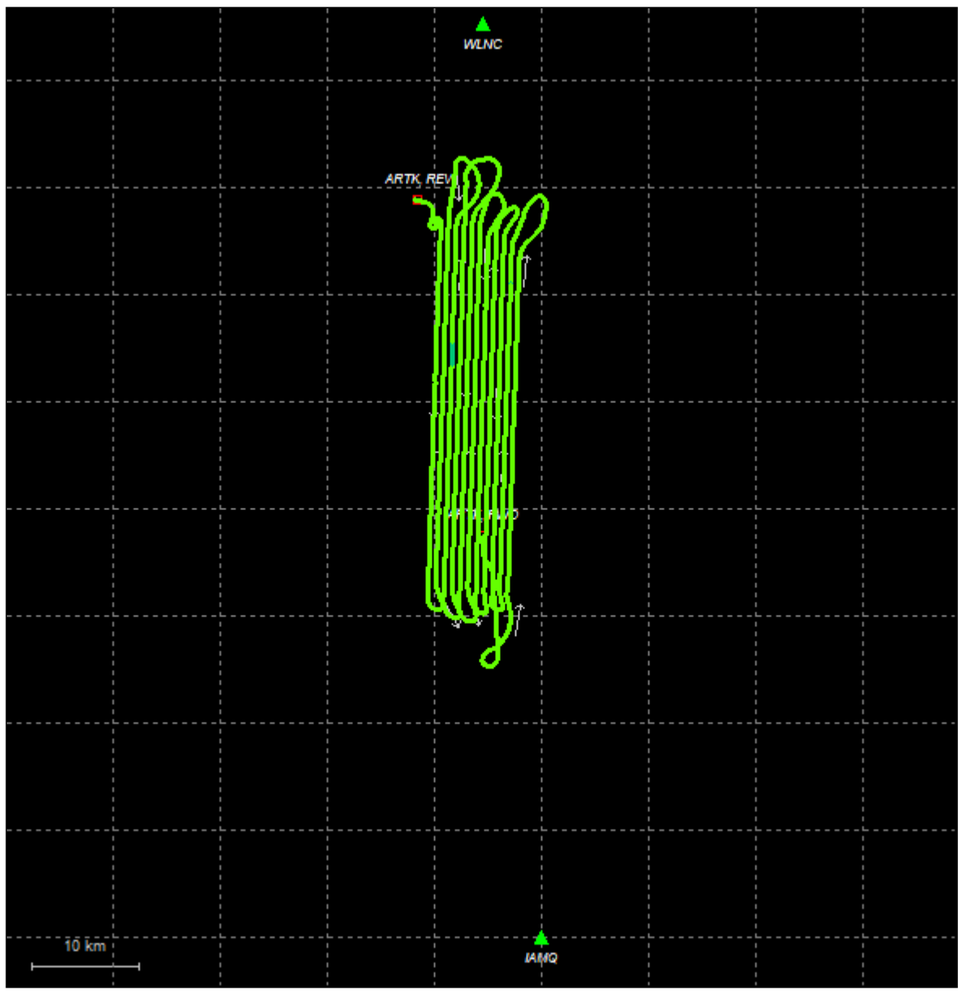


Process	Dewberry_IA_3DEP_20191208_045831	by Unknown	on 3/23/2020	at 13:00:05

Output Results for Dewberry_IA_3DEP_20191208_093337

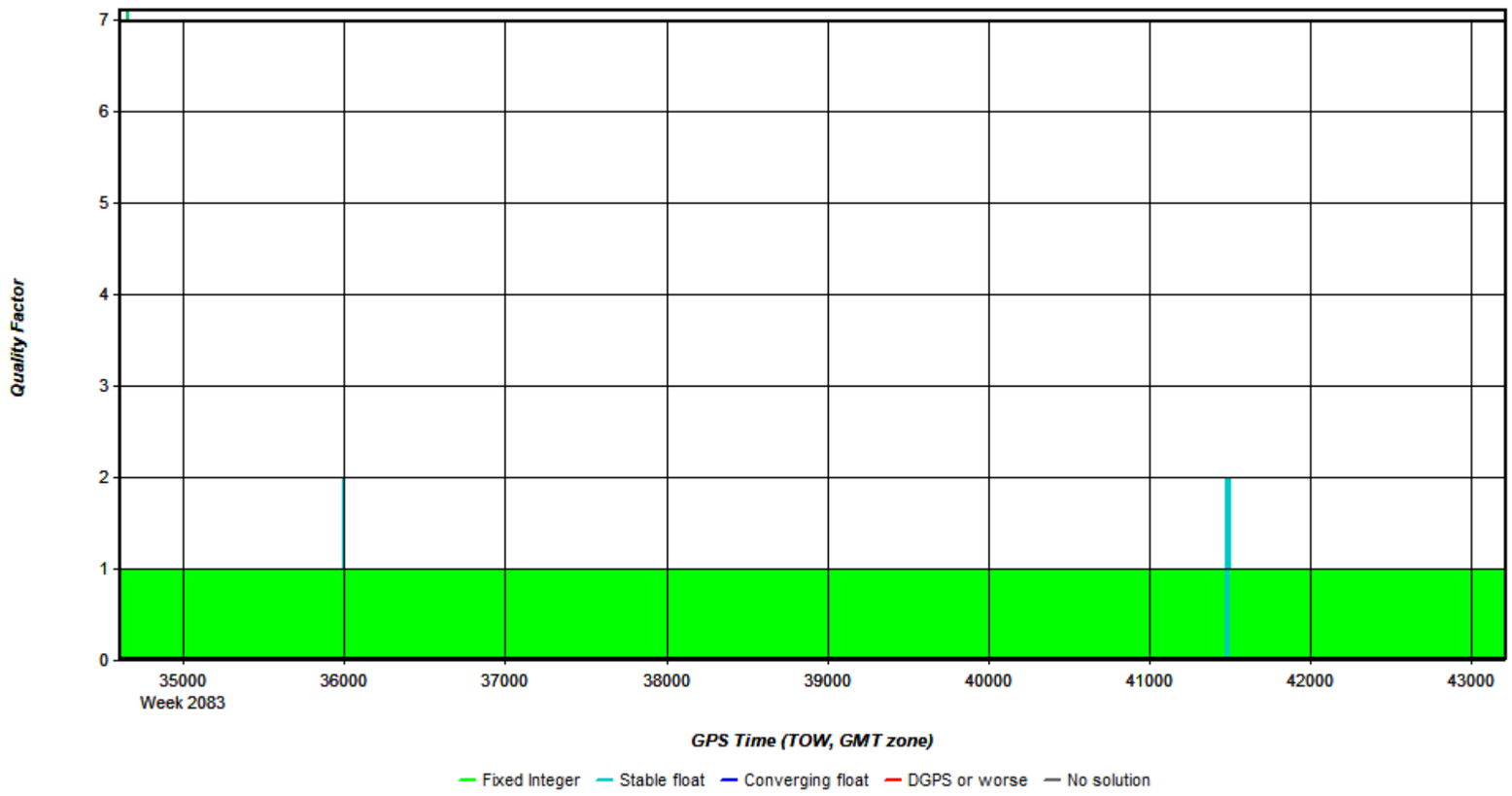
Inertial Explorer Version 8.80.2503
03/23/2020

Figure 1: Smoothed TC Combined - Map



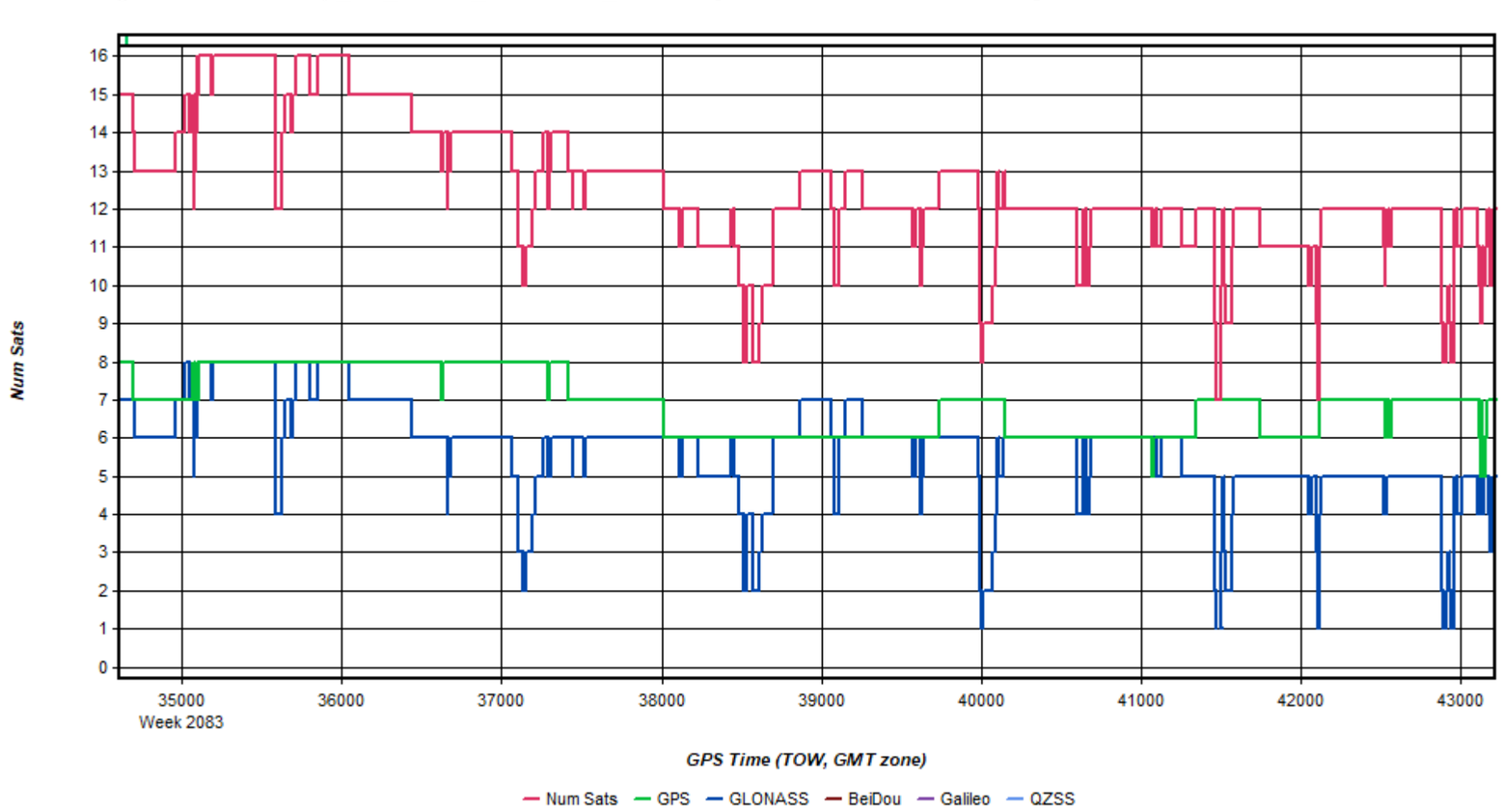
Process	Dewberry_IA_3DEP_20191208_093337	by Unknown	on 3/23/2020	at 13:19:28

Figure 2: Dewberry_IA_3DEP_20191208_093337 [Smoothed TC Combined] - Quality Factor Plot



Process	Dewberry_IA_3DEP_20191208_093337	by Unknown	on 3/23/2020	at 13:19:28

Figure 3: Dewberry_IA_3DEP_20191208_093337 [Smoothed TC Combined] - Number of Satellites Line Plot

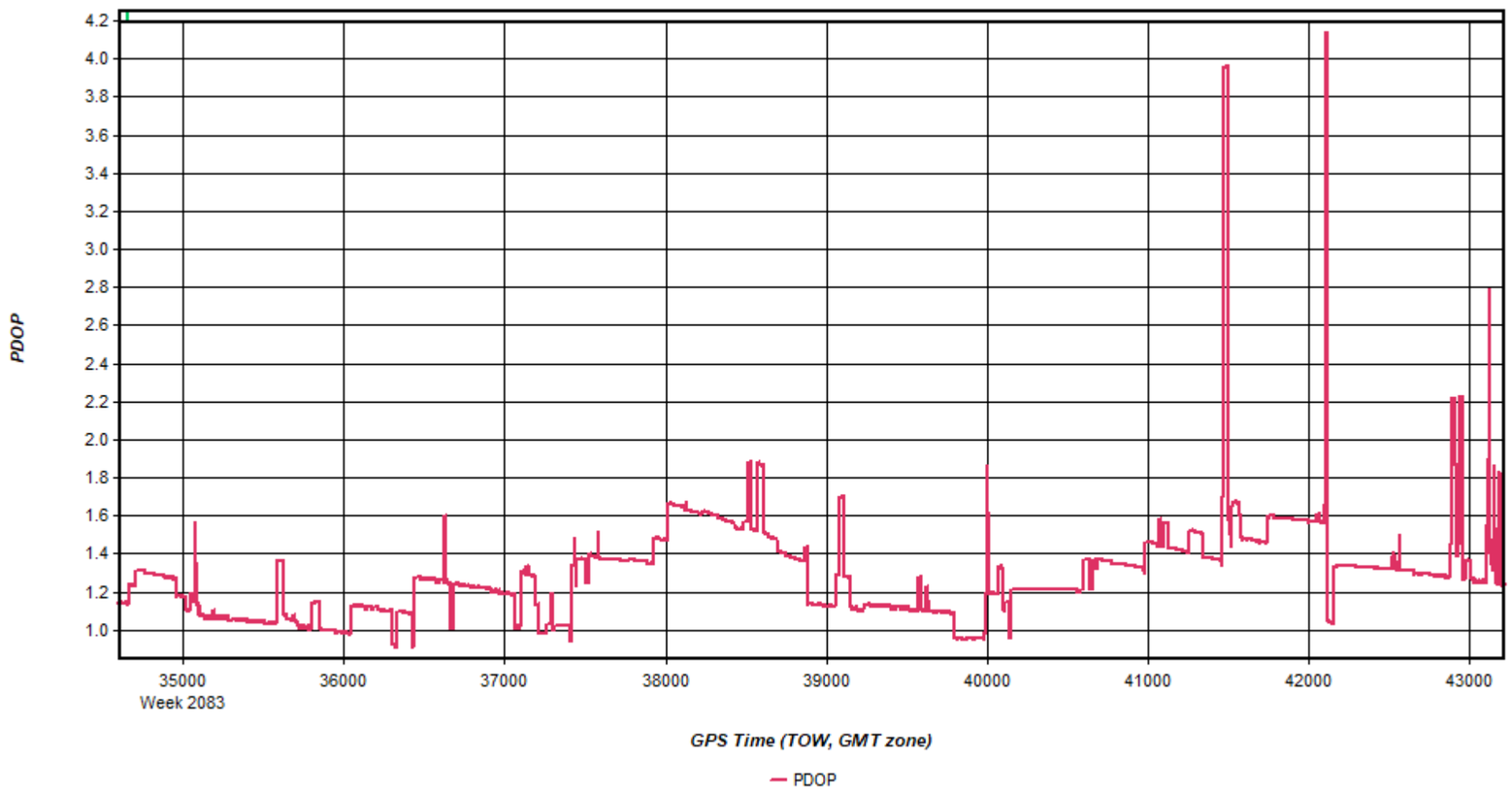


Process	Dewberry_IA_3DEP_20191208_093337	by Unknown	on 3/23/2020	at 13:19:28

Figure 4: Dewberry_IA_3DEP_20191208_093337 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot

Process	Dewberry_IA_3DEP_20191208_093337	by Unknown	on 3/23/2020	at 13:19:28

Figure 5: Dewberry_IA_3DEP_20191208_093337 [Smoothed TC Combined] - PDOP Plot

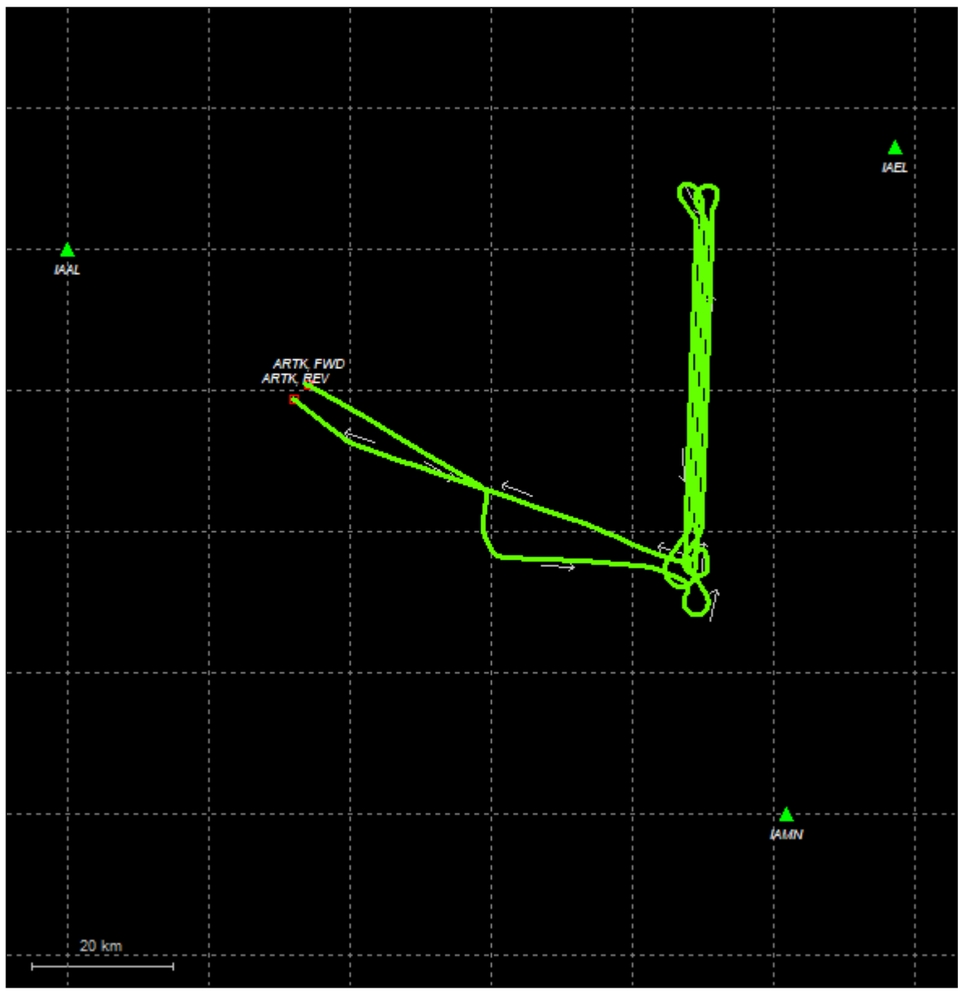


Process	Dewberry_IA_3DEP_20191208_093337	by Unknown	on 3/23/2020	at 13:19:28

Output Results for Dewberry_IA_3DEP_20200314_020523

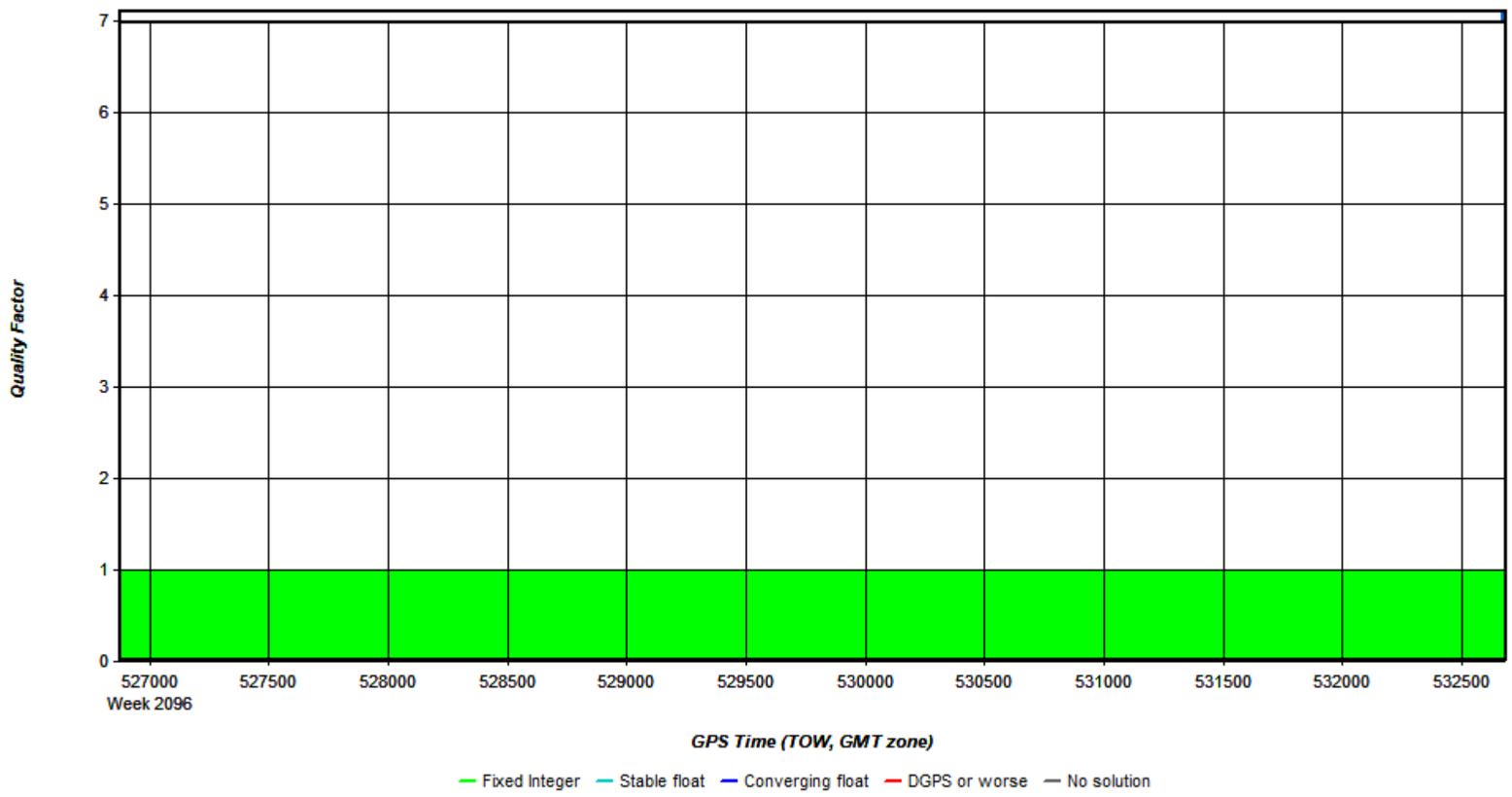
Inertial Explorer Version 8.80.2503
03/23/2020

Figure 1: Smoothed TC Combined - Map



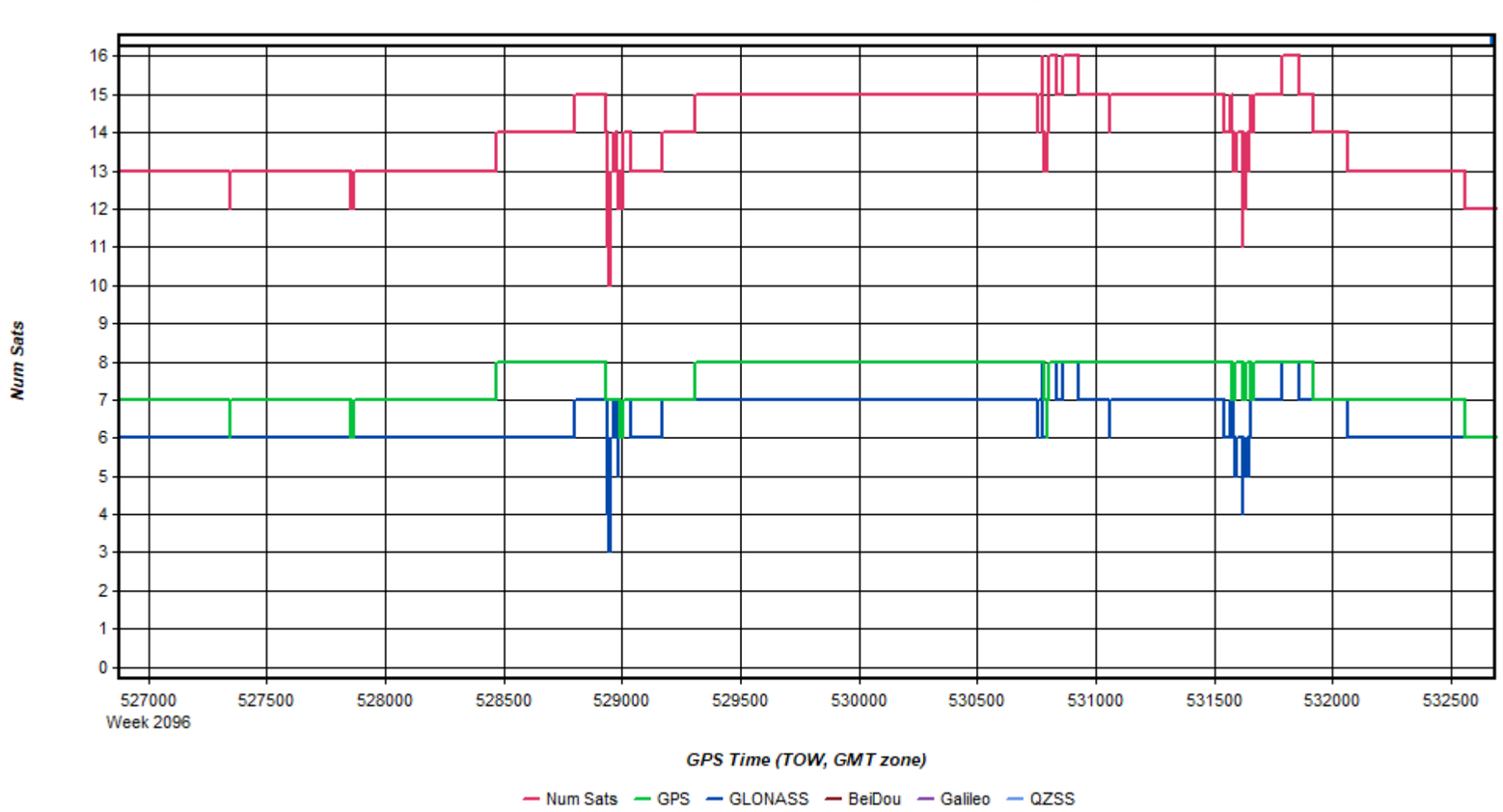
Process	Dewberry_IA_3DEP_20200314_020523	by Unknown	on 3/23/2020	at 14:51:04

Figure 2: Dewberry_IA_3DEP_20200314_020523 [Smoothed TC Combined] - Quality Factor Plot



Process	Dewberry_IA_3DEP_20200314_020523	by Unknown	on 3/23/2020	at 14:51:04

Figure 3: Dewberry_IA_3DEP_20200314_020523 [Smoothed TC Combined] - Number of Satellites Line Plot



Process	Dewberry_IA_3DEP_20200314_020523	by Unknown	on 3/23/2020	at 14:51:04

Figure 4: Dewberry_IA_3DEP_20200314_020523 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot

Process	Dewberry_IA_3DEP_20200314_020523	by Unknown	on 3/23/2020	at 14:51:04

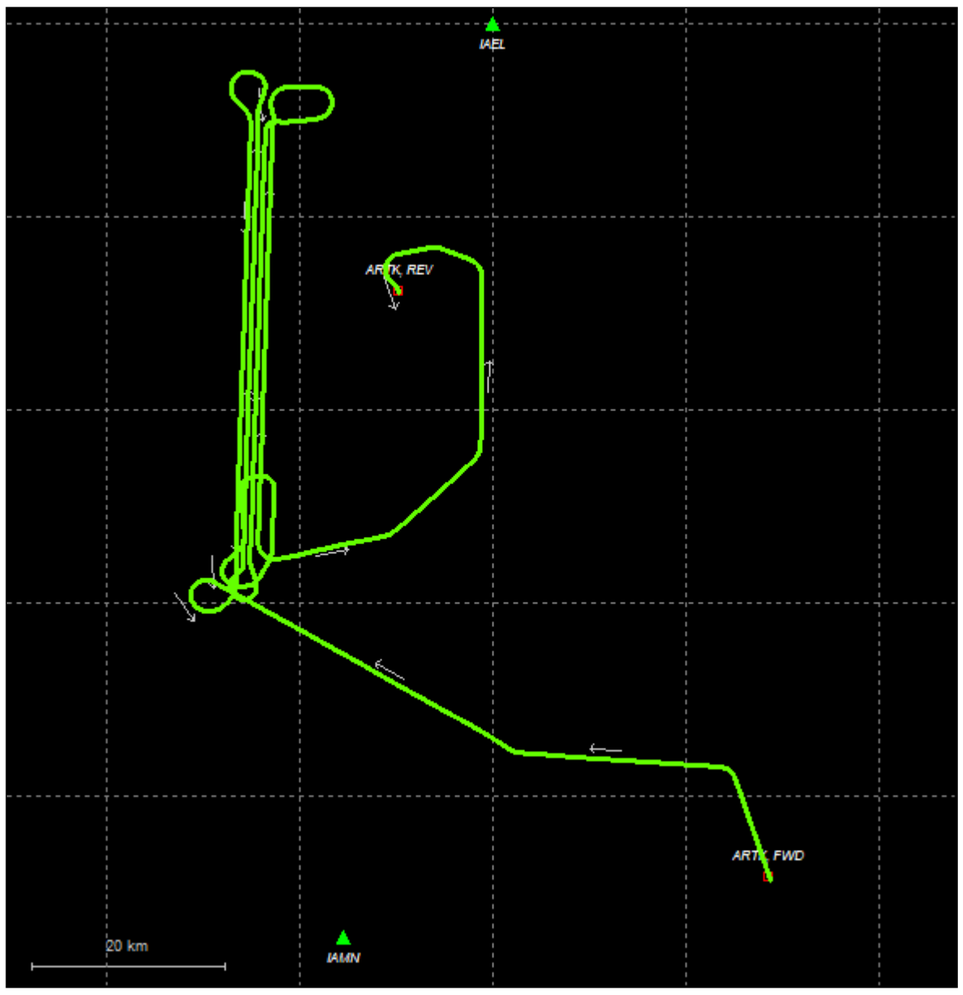
Figure 5: Dewberry_IA_3DEP_20200314_020523 [Smoothed TC Combined] - PDOP Plot

Process	Dewberry_IA_3DEP_20200314_020523	by Unknown	on 3/23/2020	at 14:51:04

Output Results for Dewberry_IA_3DEP_20200321_135155

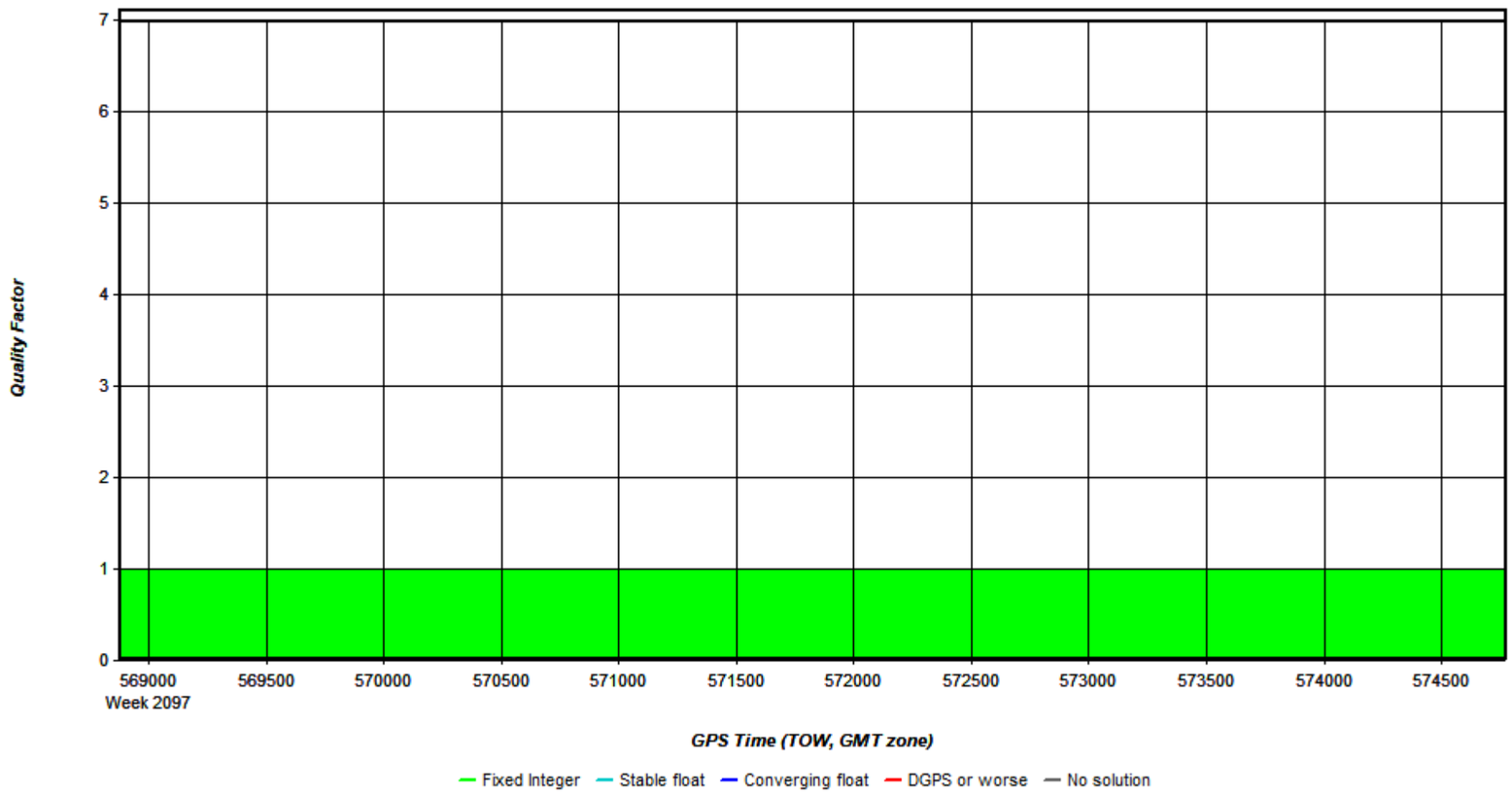
Inertial Explorer Version 8.80.2503
03/23/2020

Figure 1: Smoothed TC Combined - Map



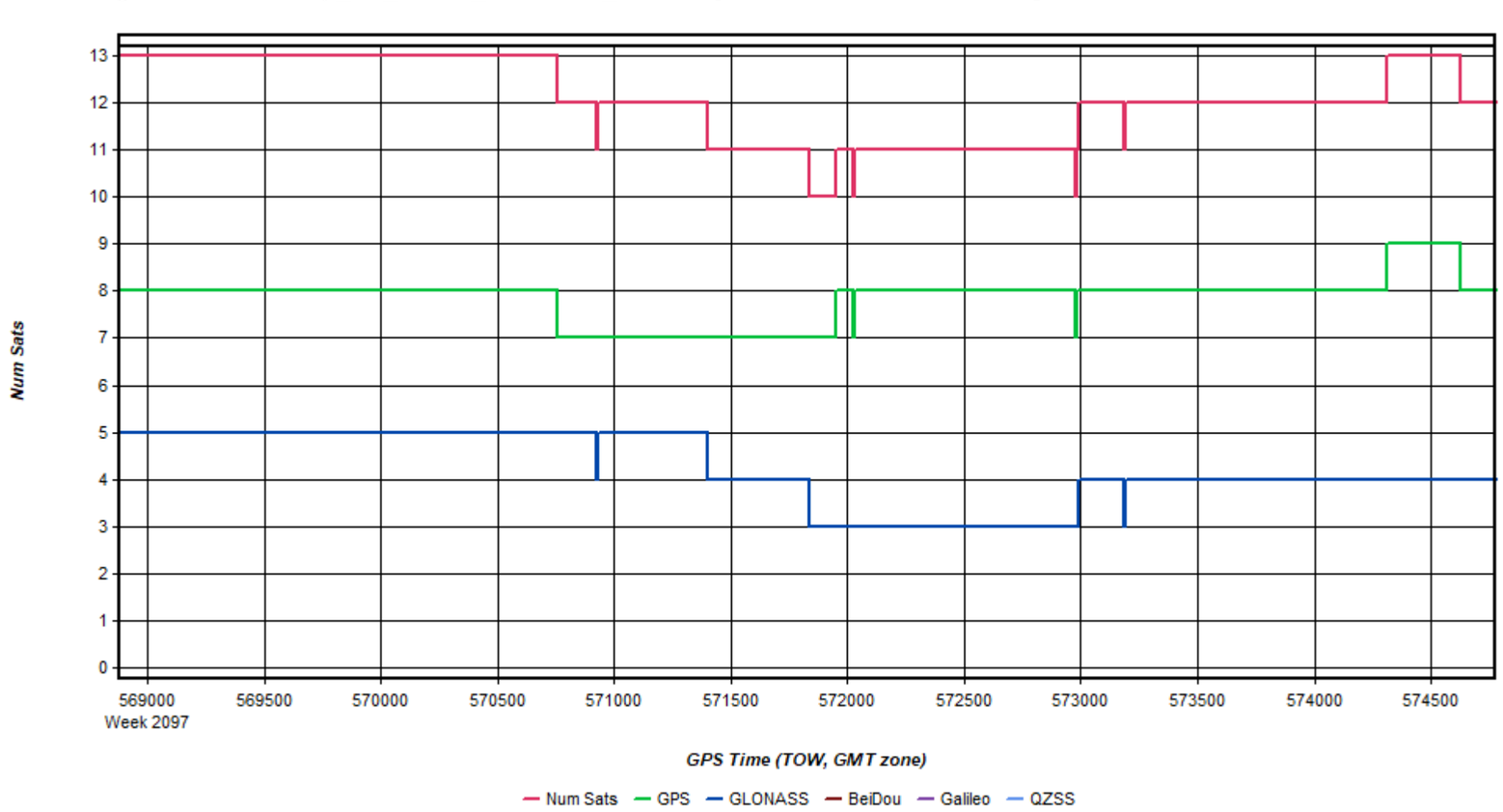
Process	Dewberry_IA_3DEP_20200321_135155	by Unknown	on 3/23/2020	at 15:16:14

Figure 2: Dewberry_IA_3DEP_20200321_135155 [Smoothed TC Combined] - Quality Factor Plot



Process	Dewberry_IA_3DEP_20200321_135155	by Unknown	on 3/23/2020	at 15:16:14

Figure 3: Dewberry_IA_3DEP_20200321_135155 [Smoothed TC Combined] - Number of Satellites Line Plot

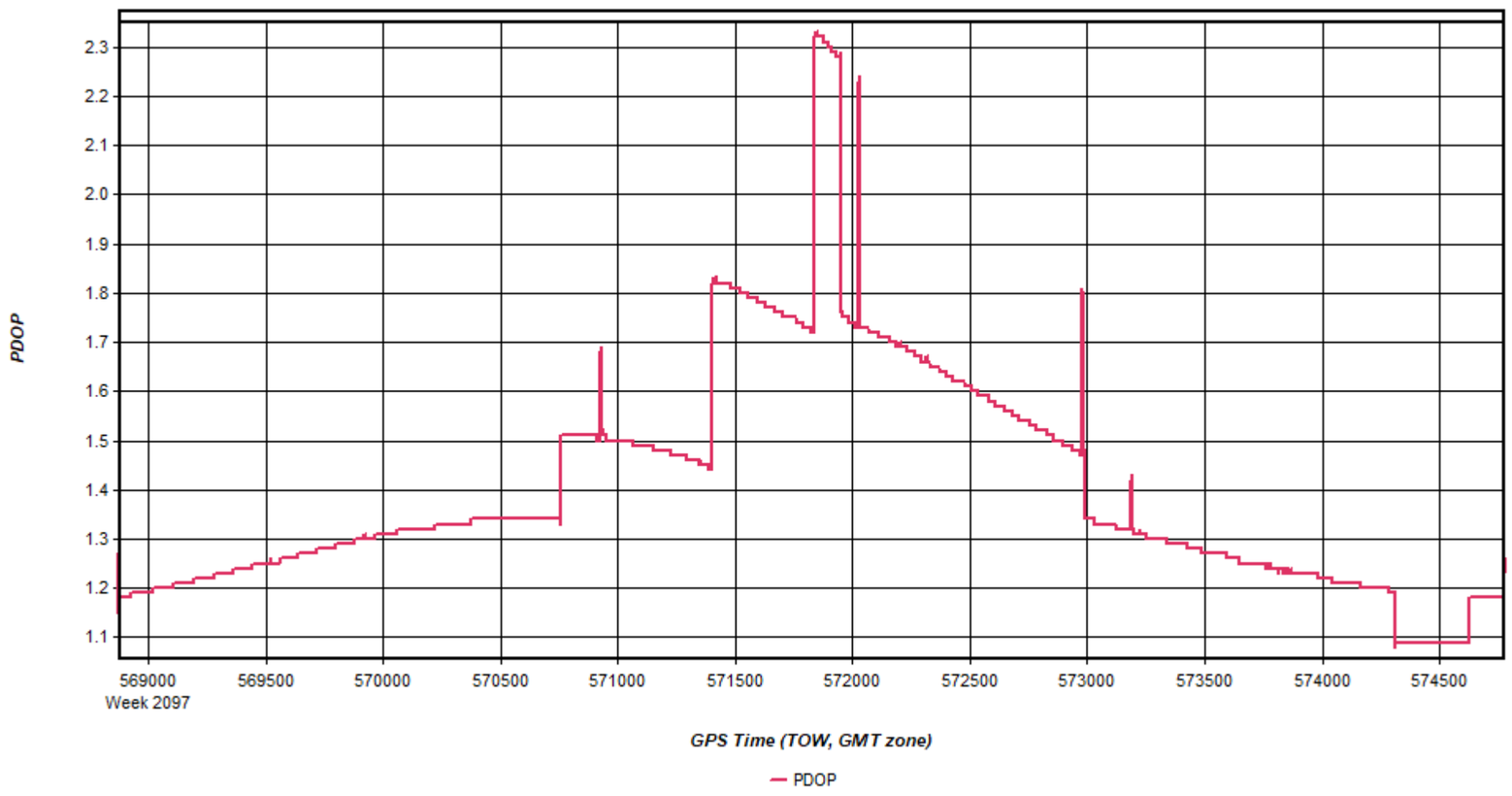


Process	Dewberry_IA_3DEP_20200321_135155	by Unknown	on 3/23/2020	at 15:16:14

Figure 4: Dewberry_IA_3DEP_20200321_135155 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot

Process	Dewberry_IA_3DEP_20200321_135155	by Unknown	on 3/23/2020	at 15:16:14

Figure 5: Dewberry_IA_3DEP_20200321_135155 [Smoothed TC Combined] - PDOP Plot

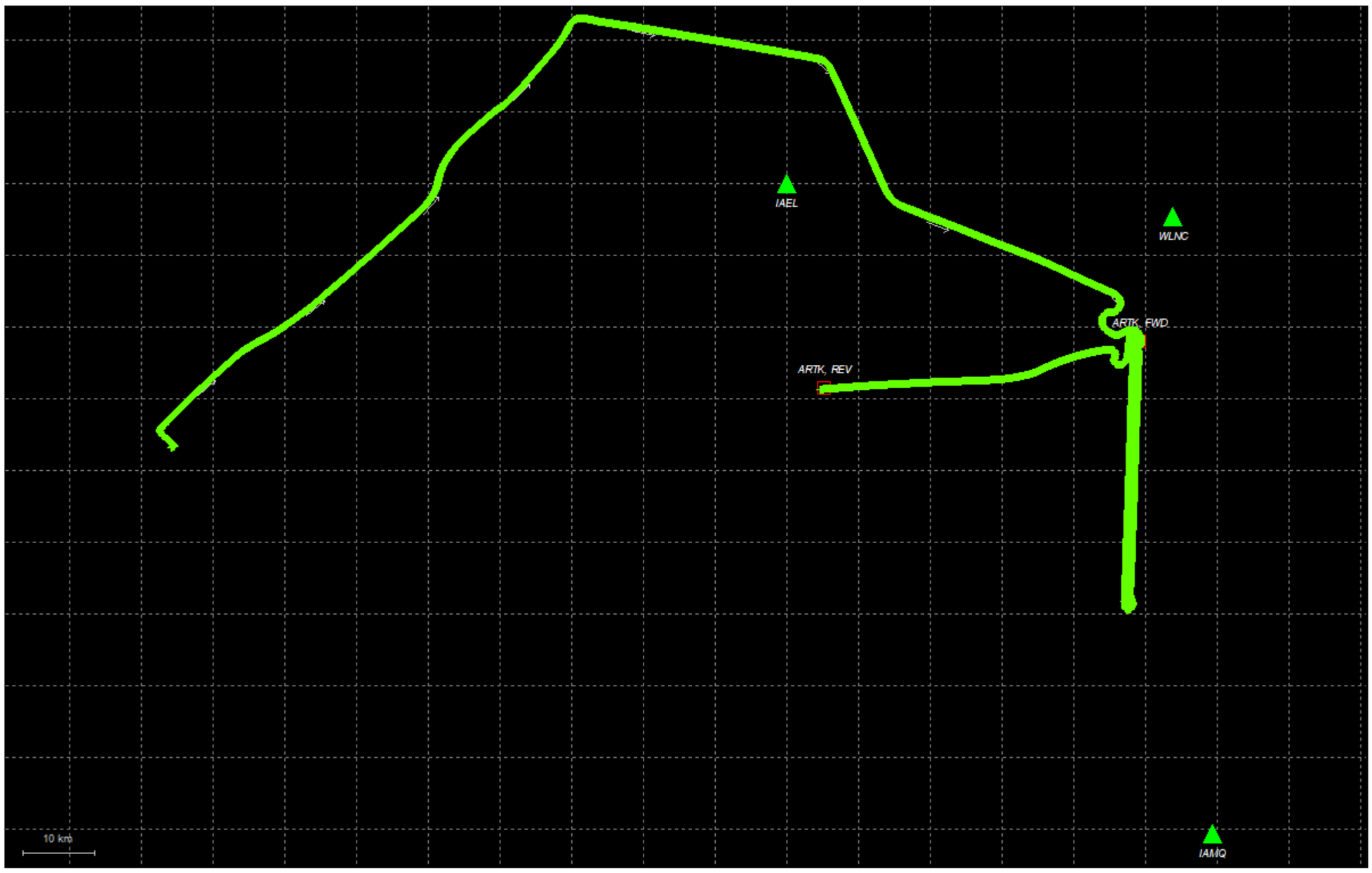


Process	Dewberry_IA_3DEP_20200321_135155	by Unknown	on 3/23/2020	at 15:16:14

Output Results for 20200330_124031

Inertial Explorer Version 8.80.2720
03/31/2020

Figure 1: Smoothed TC Combined - Map



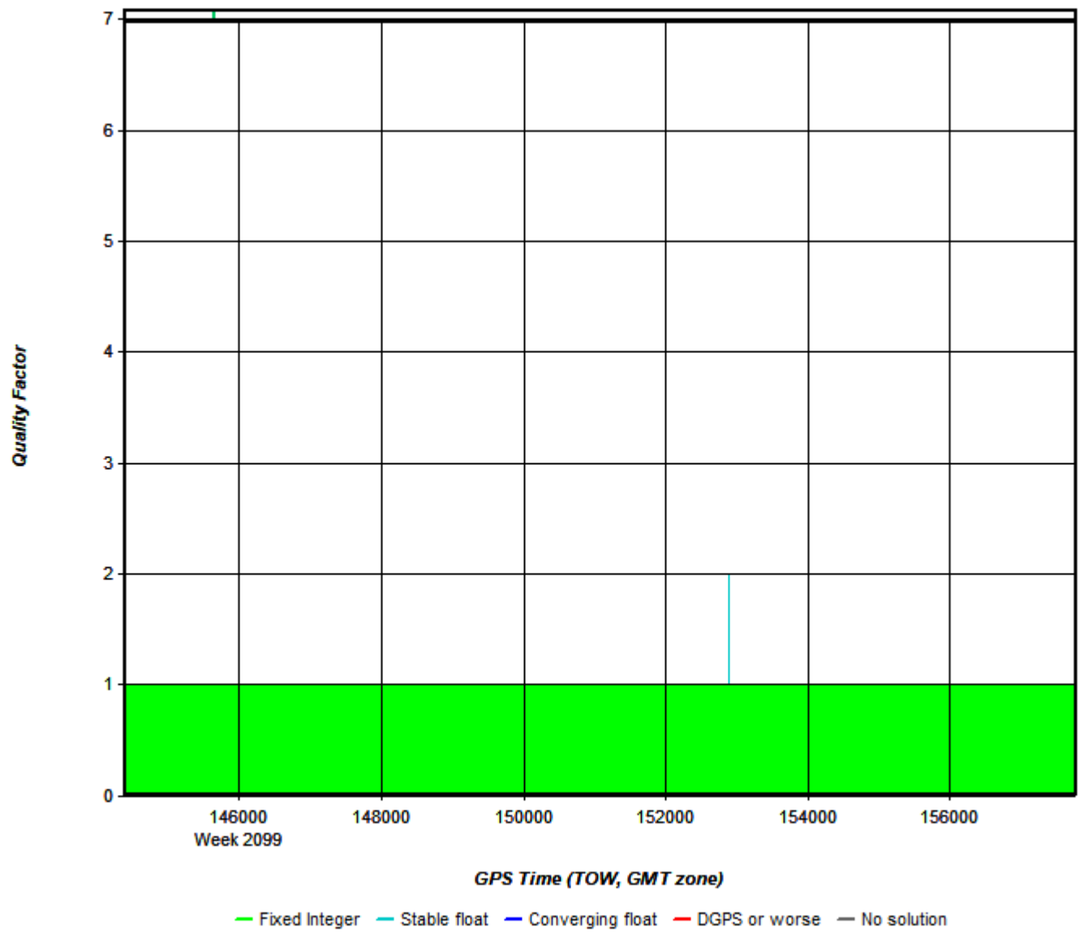
Process	20200330_124031	by Unknown	on 3/31/2020	at 16:25:04

Output Results for 20200330_154956

Inertial Explorer Version 8.80.2720
03/31/2020

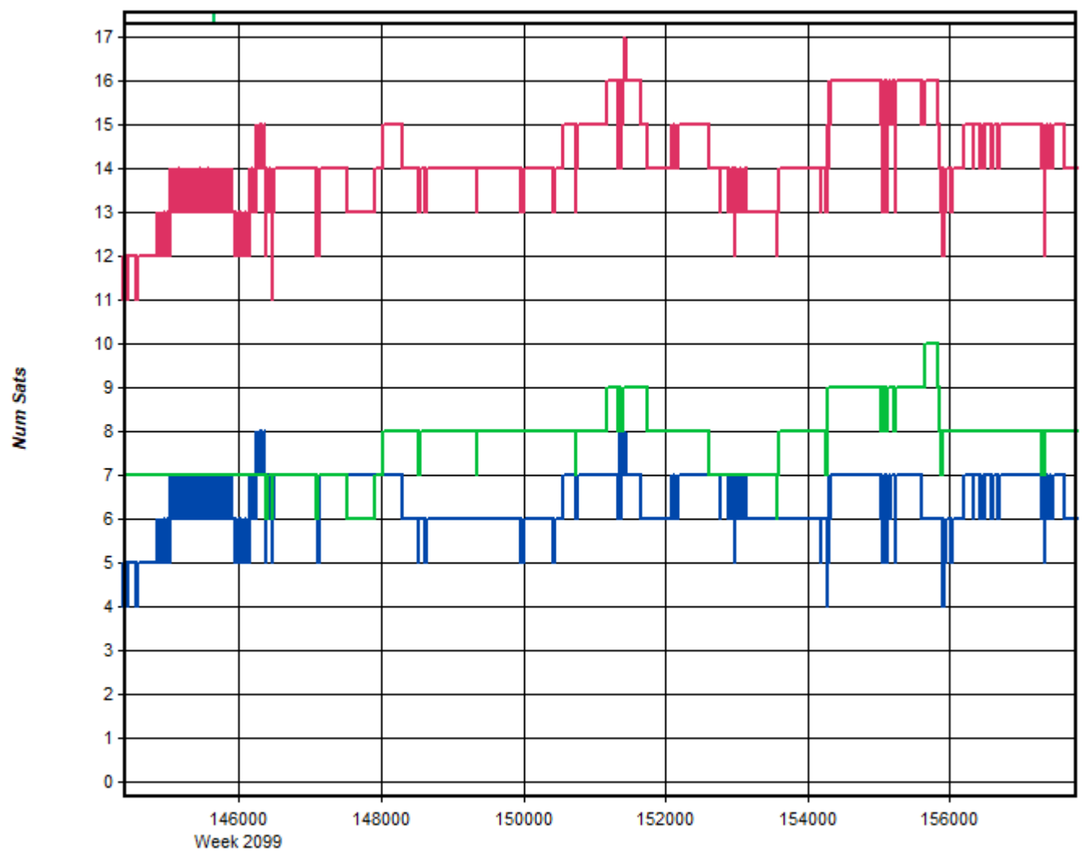
Object Smoothed TC Combined - Map failed--NULL bitmap handle

Figure 1: 20200330_154956 [Smoothed TC Combined] - Quality Factor Plot



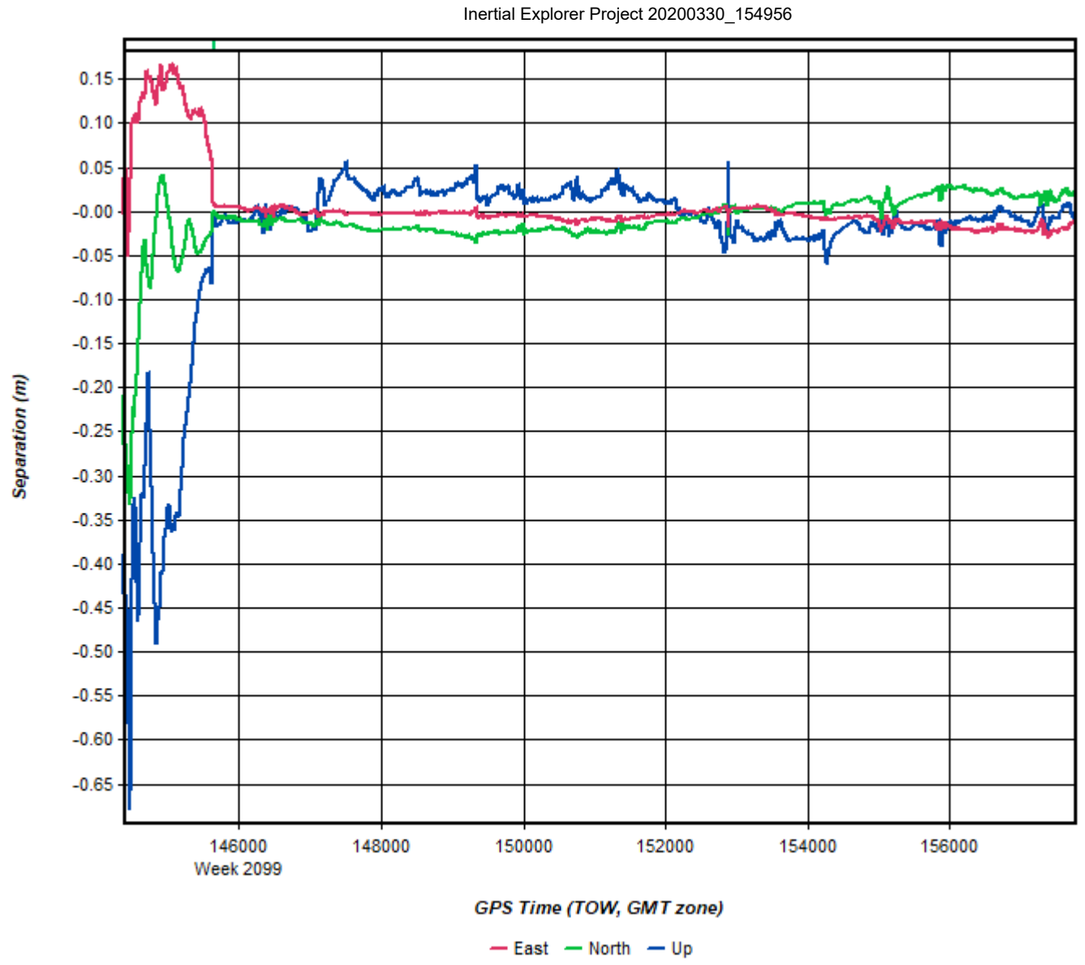
Process	20200330_154956	by Unknown	on 3/31/2020	at 16:01:54

Figure 2: 20200330_154956 [Smoothed TC Combined] - Number of Satellites Line Plot



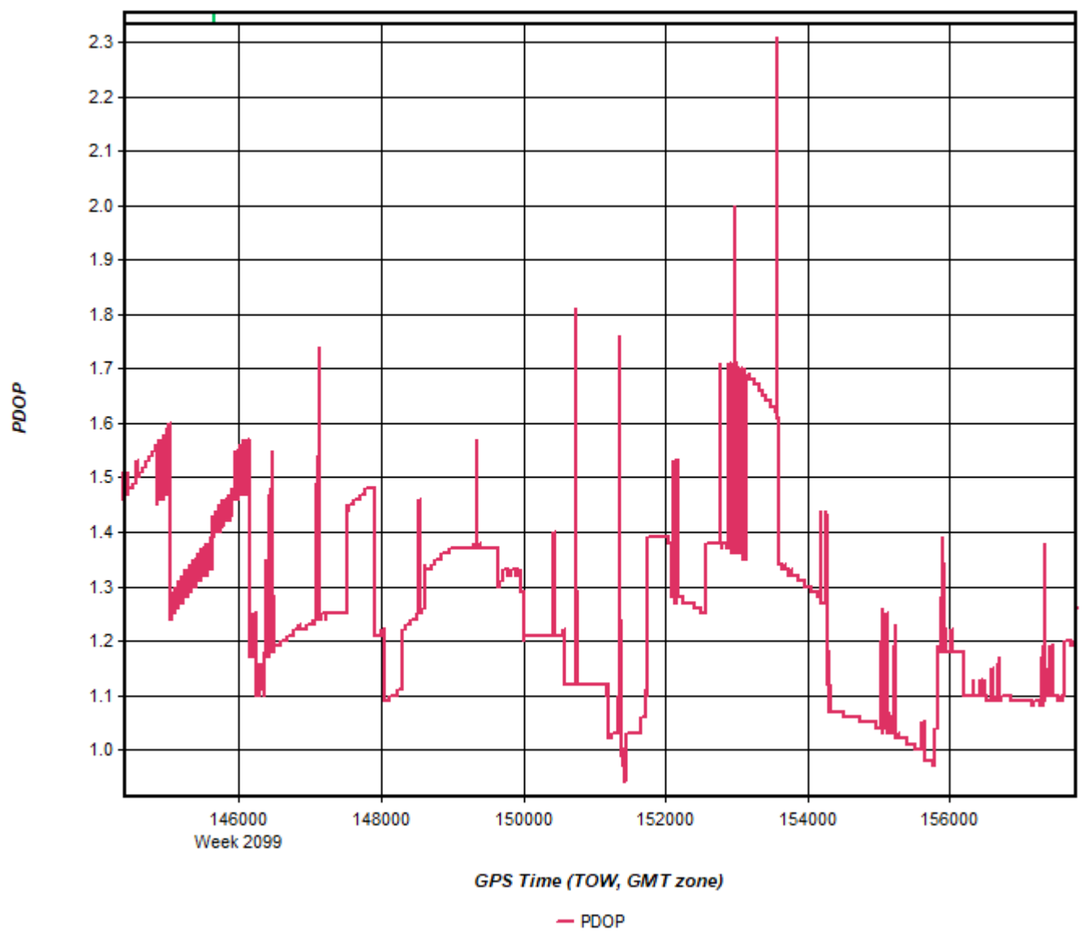
Process	20200330_154956	by Unknown	on 3/31/2020	at 16:01:54

Figure 3: 20200330_154956 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200330_154956	by Unknown	on 3/31/2020	at 16:01:54

Figure 4: 20200330_154956 [Smoothed TC Combined] - PDOP Plot

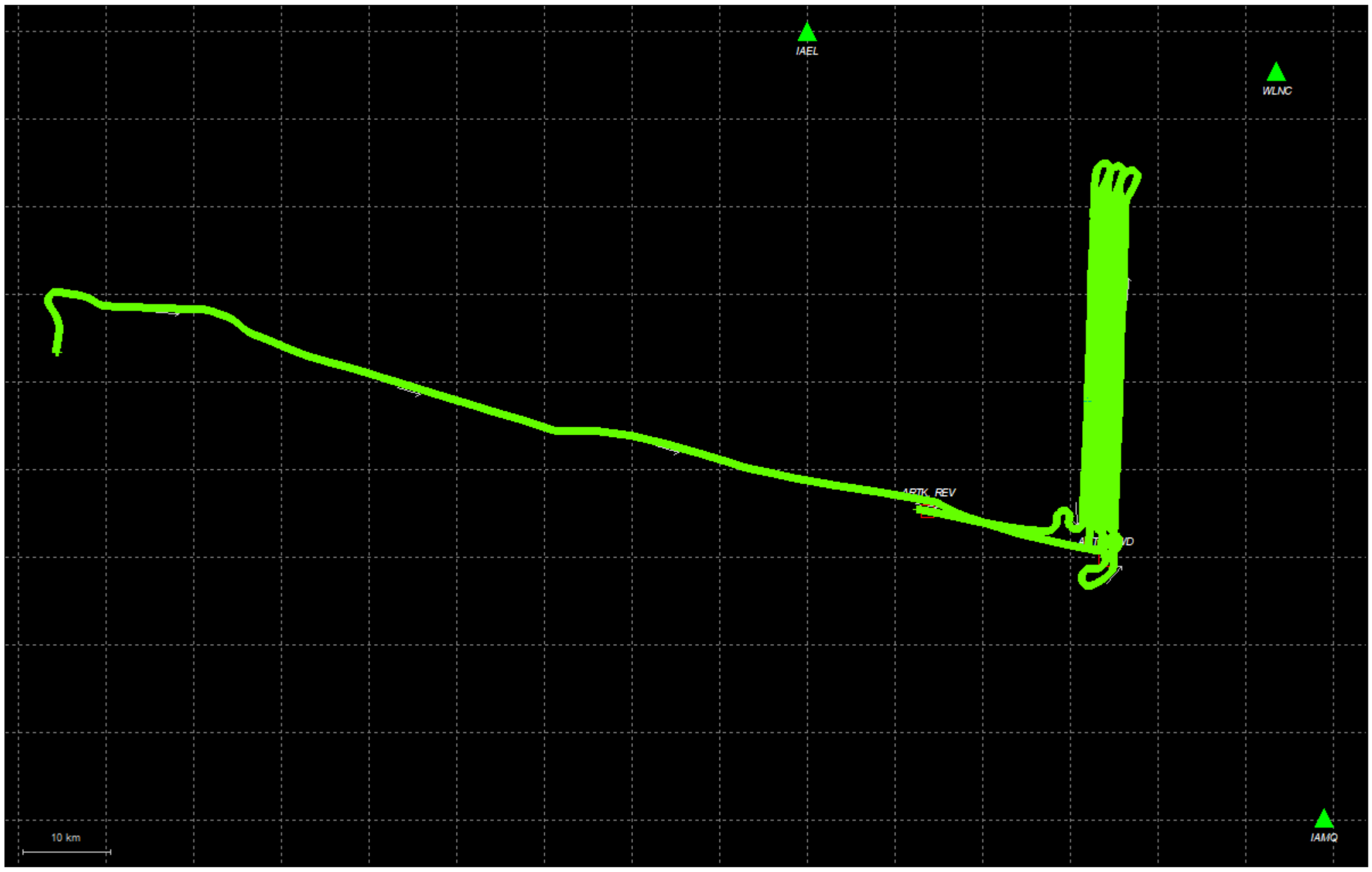


Process	20200330_154956	by Unknown	on 3/31/2020	at 16:01:54

Output Results for 20200330_213831

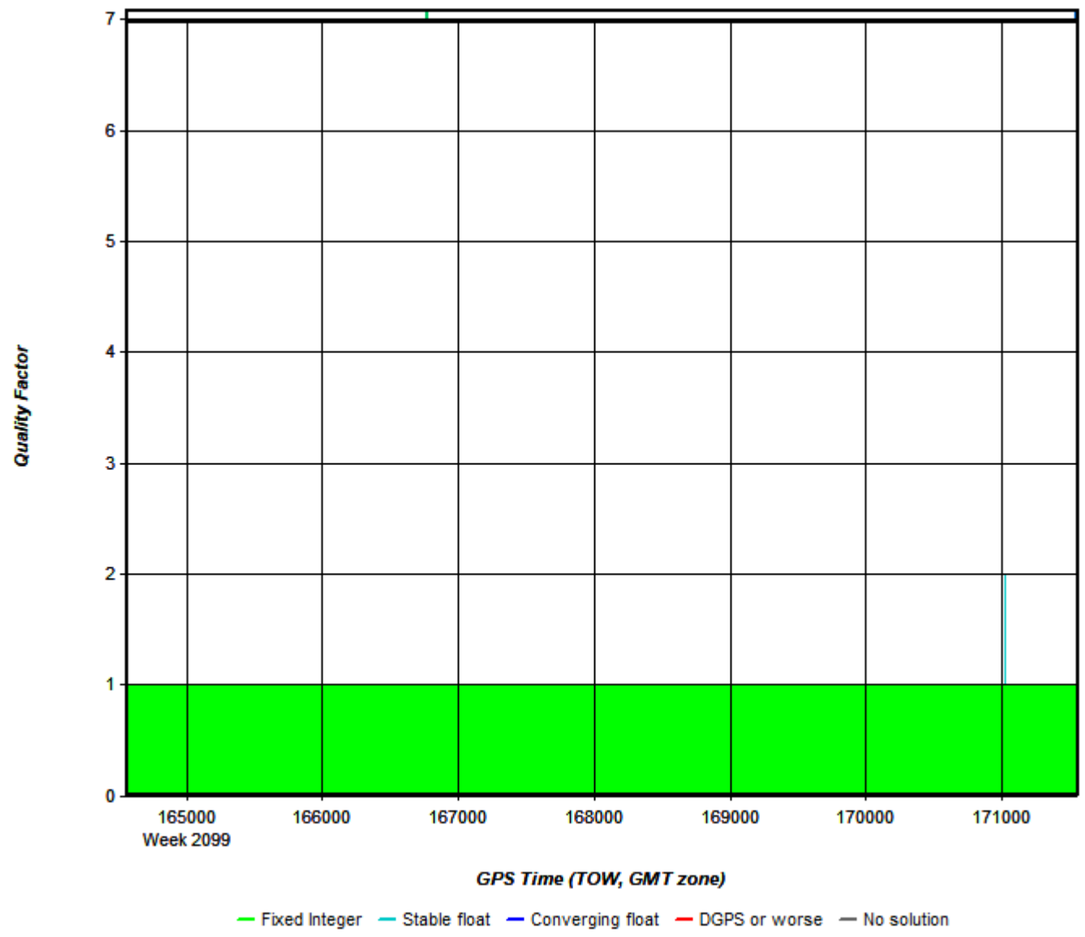
Inertial Explorer Version 8.80.2720
03/31/2020

Figure 1: Smoothed TC Combined - Map



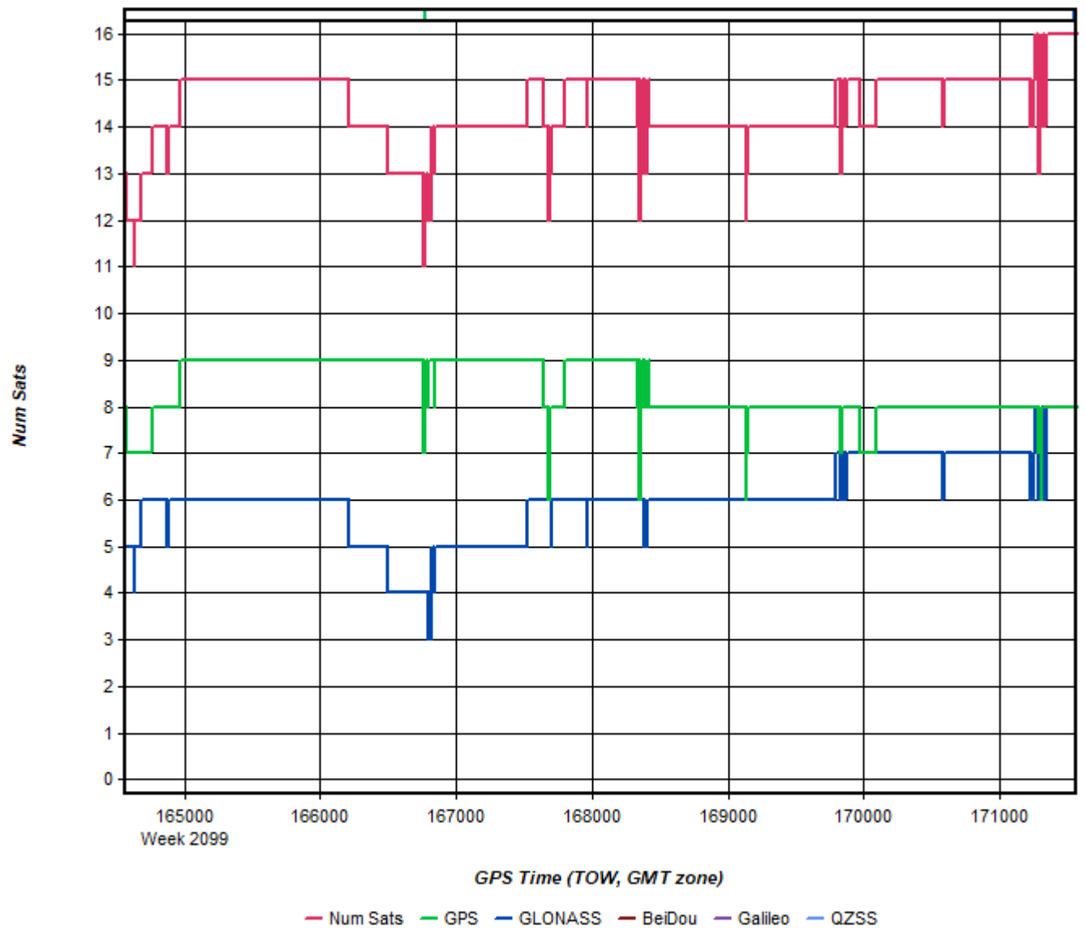
Process	20200330_213831	by Unknown	on 3/31/2020	at 17:14:29

Figure 2: 20200330_213831 [Smoothed TC Combined] - Quality Factor Plot



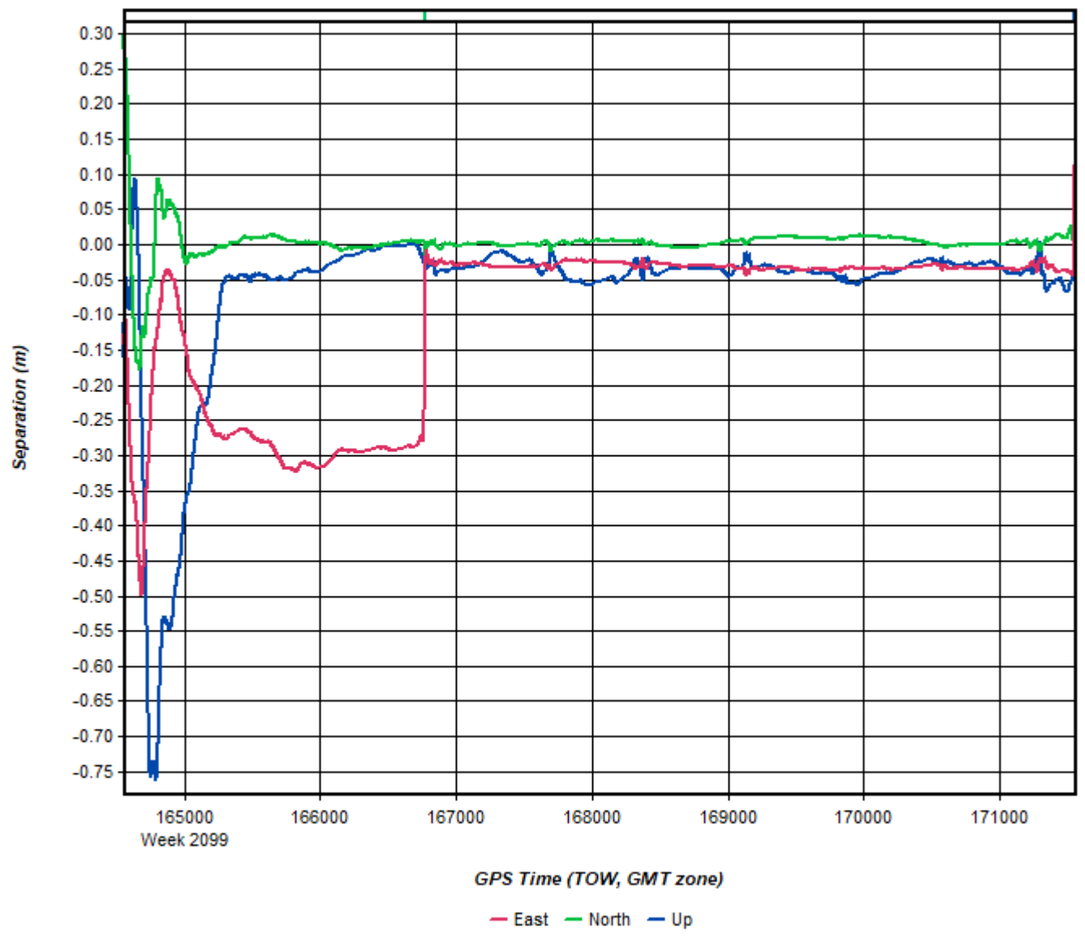
Process	20200330_213831	by Unknown	on 3/31/2020	at 17:14:29

Figure 3: 20200330_213831 [Smoothed TC Combined] - Number of Satellites Line Plot



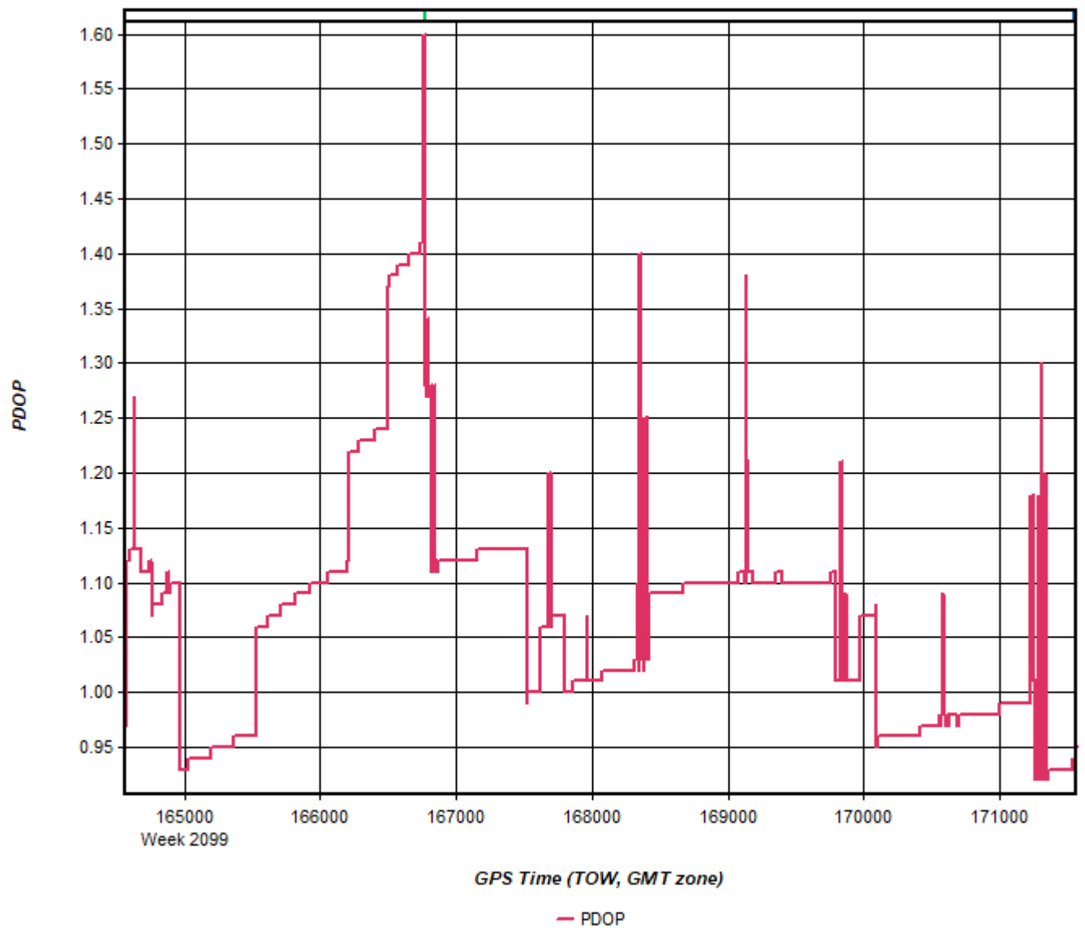
Process	20200330_213831	by Unknown	on 3/31/2020	at 17:14:29

Figure 4: 20200330_213831 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200330_213831	by Unknown	on 3/31/2020	at 17:14:29

Figure 5: 20200330_213831 [Smoothed TC Combined] - PDOP Plot

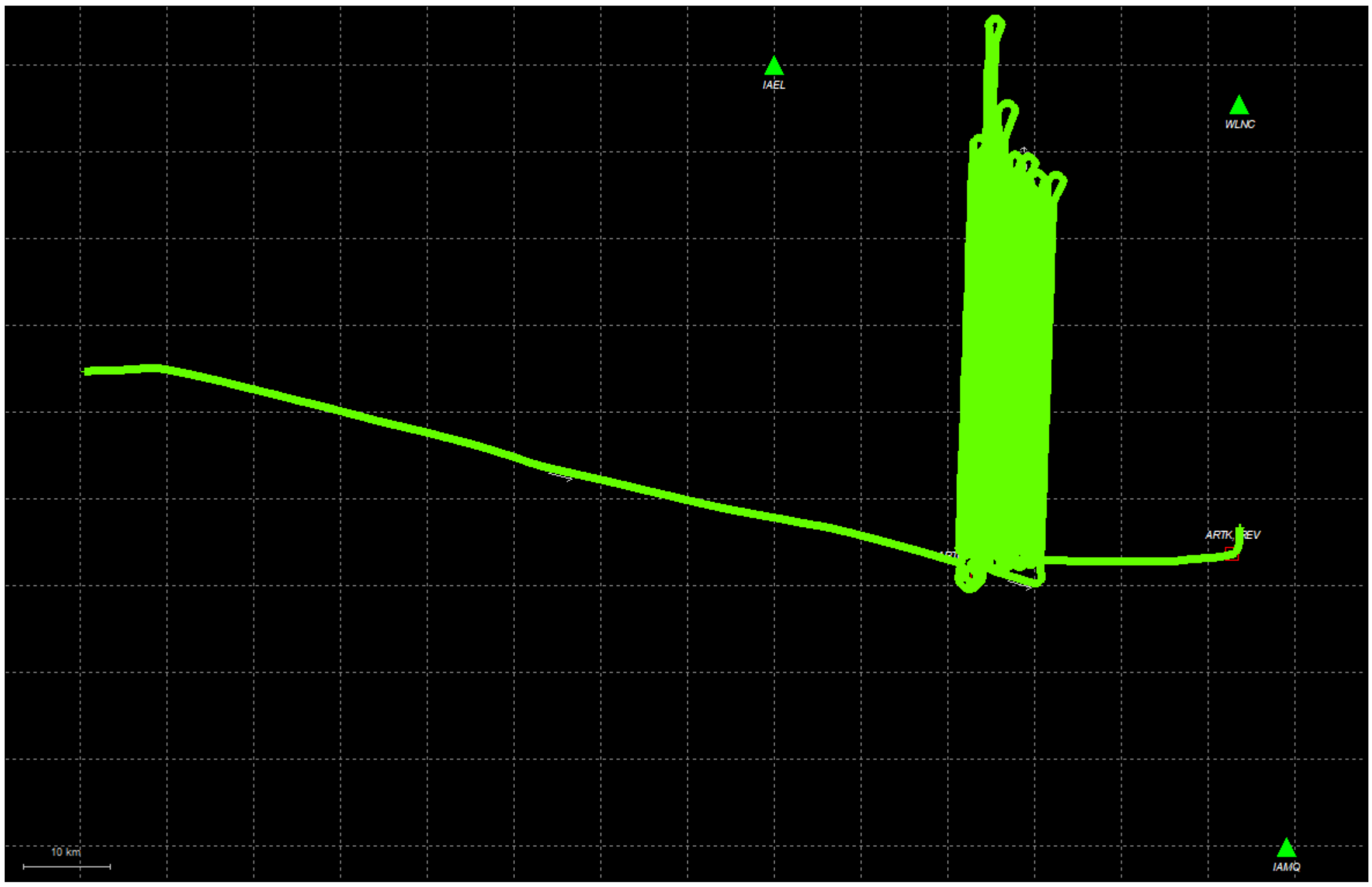


Process	20200330_213831	by Unknown	on 3/31/2020	at 17:14:29

Output Results for 20200331_015033

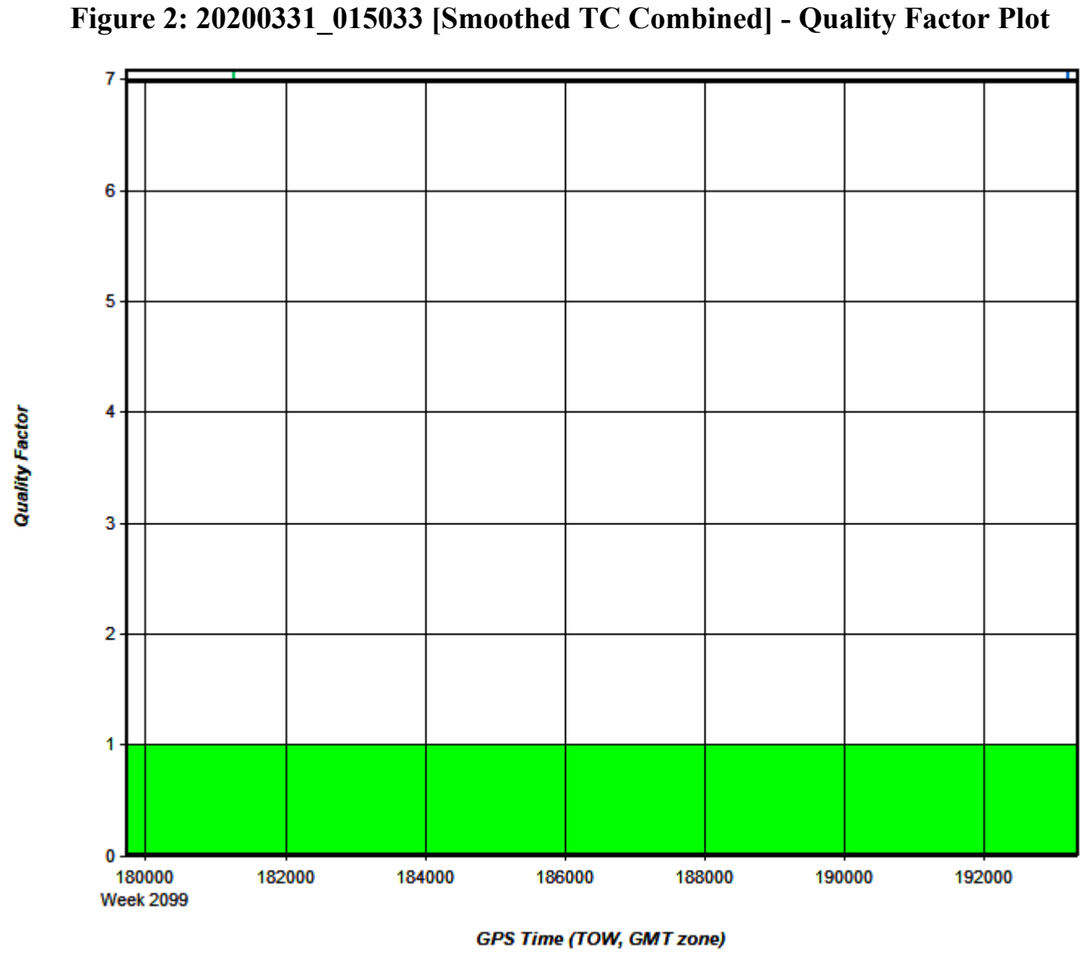
Inertial Explorer Version 8.80.2720
04/01/2020

Figure 1: Smoothed TC Combined - Map



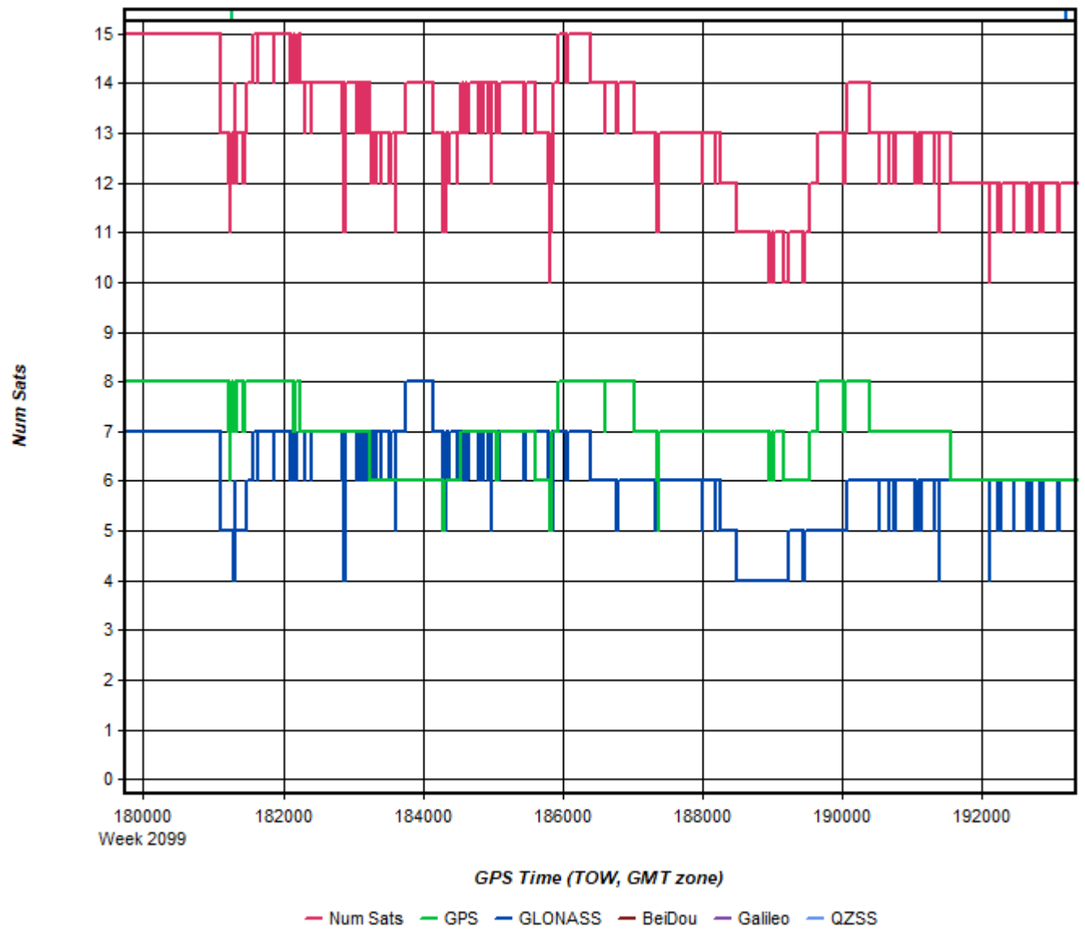
Process	20200331_015033	by Unknown	on 4/1/2020	at 07:36:58

Figure 2: 20200331_015033 [Smoothed TC Combined] - Quality Factor Plot



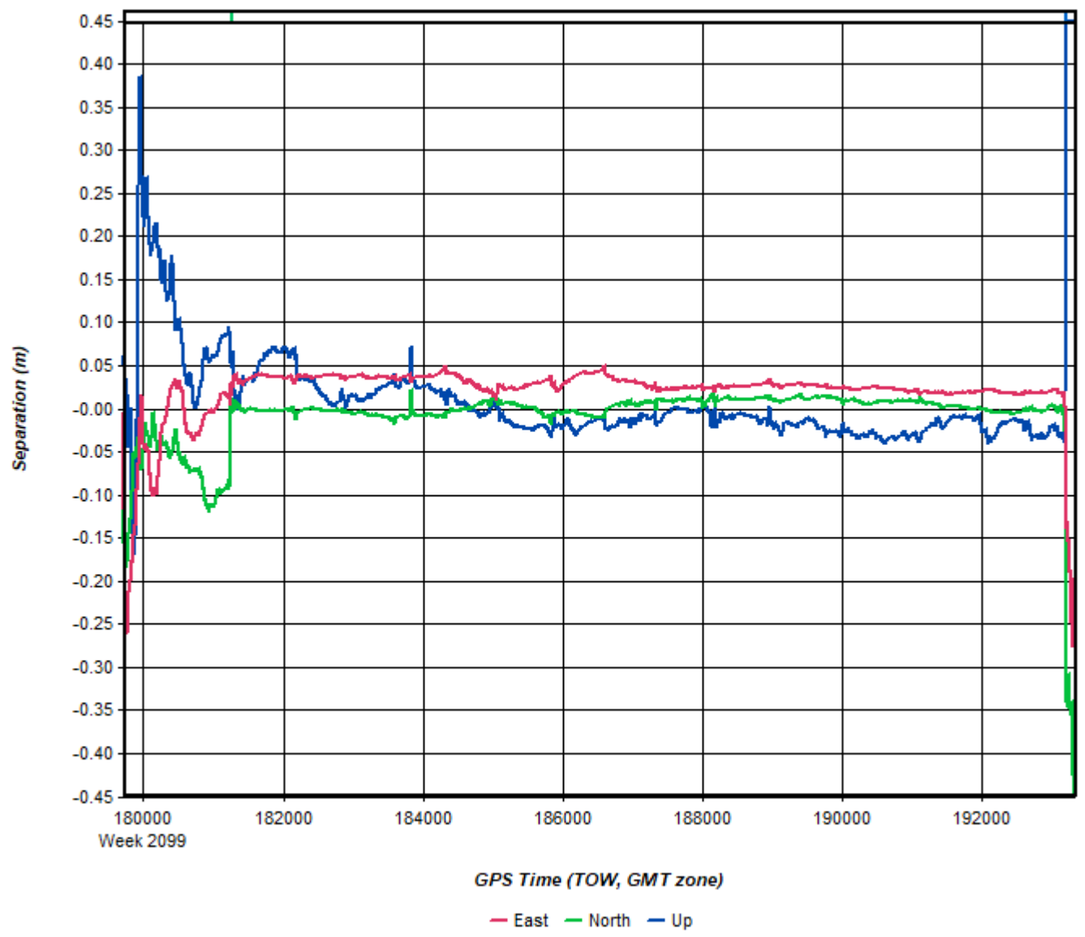
Process	20200331_015033	by Unknown	on 4/1/2020	at 07:36:58

Figure 3: 20200331_015033 [Smoothed TC Combined] - Number of Satellites Line Plot



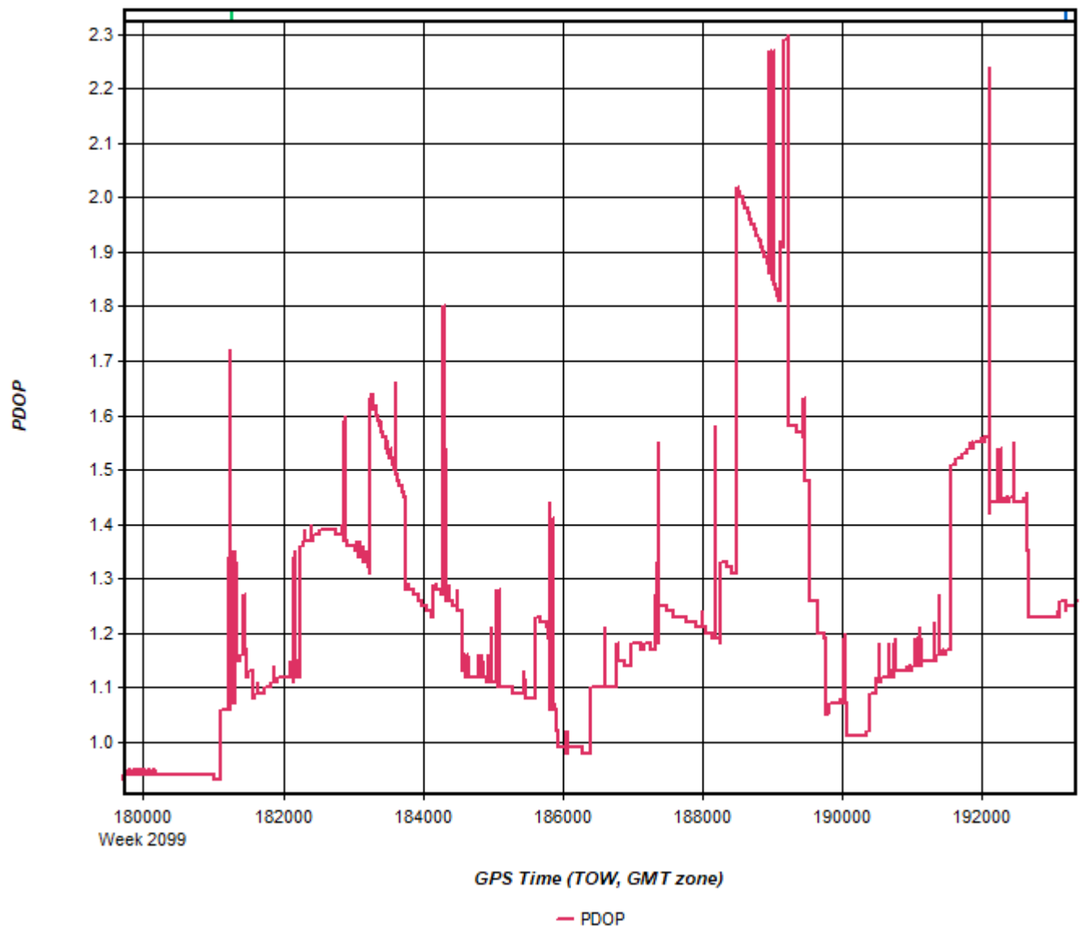
Process	20200331_015033	by Unknown	on 4/1/2020	at 07:36:58

Figure 4: 20200331_015033 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200331_015033	by Unknown	on 4/1/2020	at 07:36:58

Figure 5: 20200331_015033 [Smoothed TC Combined] - PDOP Plot

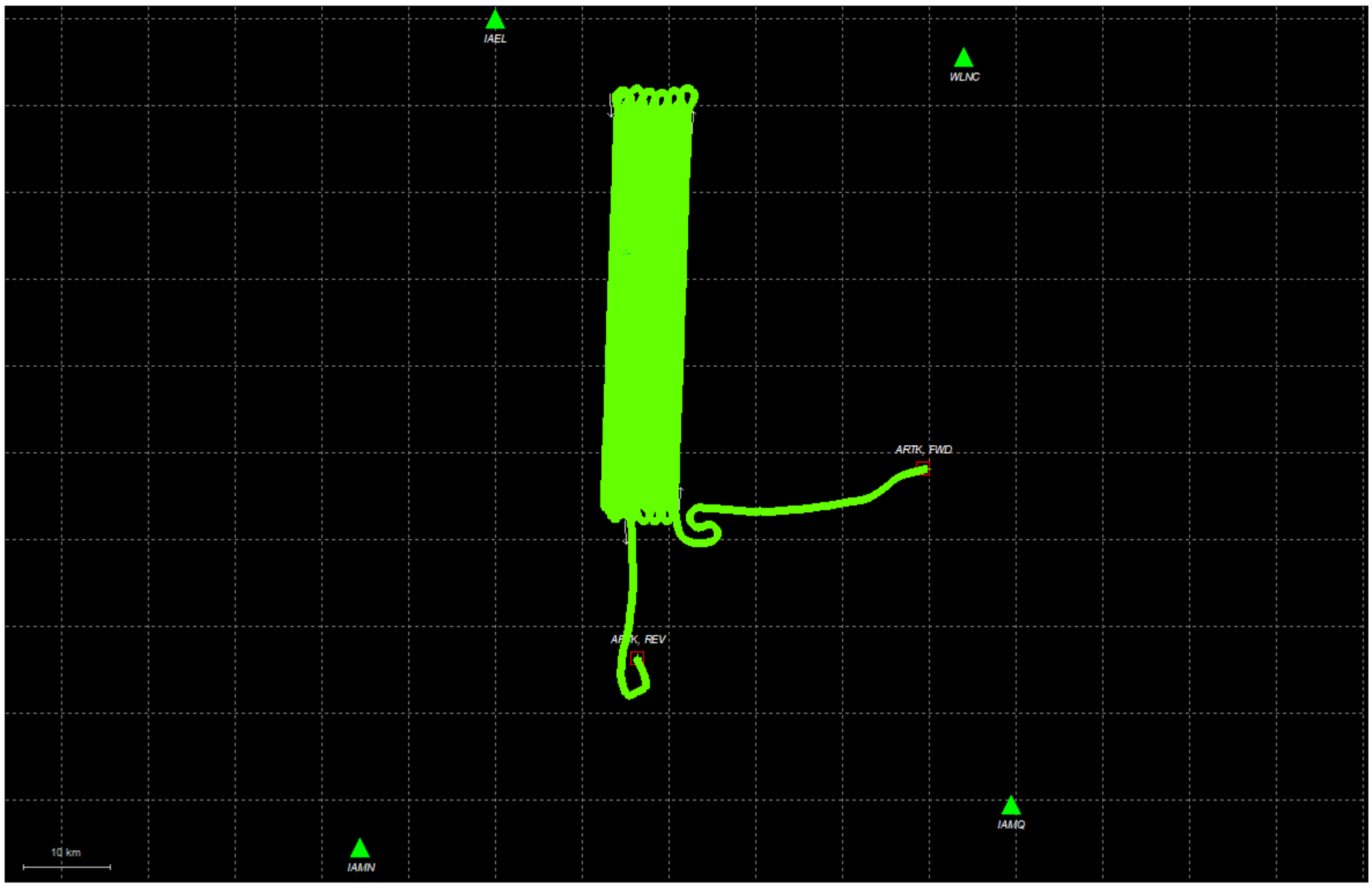


Process	20200331_015033	by Unknown	on 4/1/2020	at 07:36:58

Output Results for 20200331_061935

Inertial Explorer Version 8.80.2720
04/01/2020

Figure 1: Smoothed TC Combined - Map

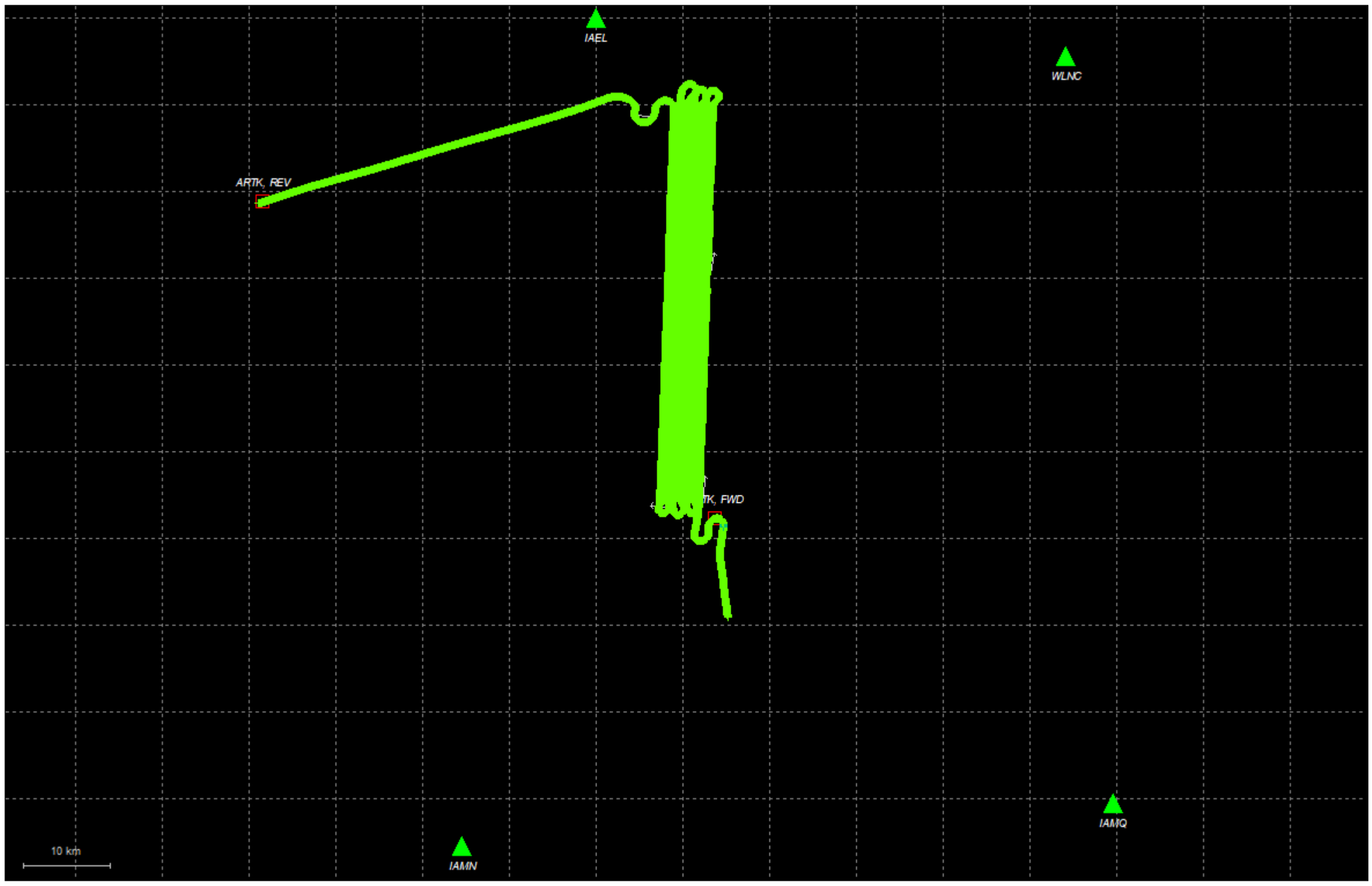


Process	20200331_061935	by Unknown	on 4/1/2020	at 08:33:25

Output Results for 20200331_095250

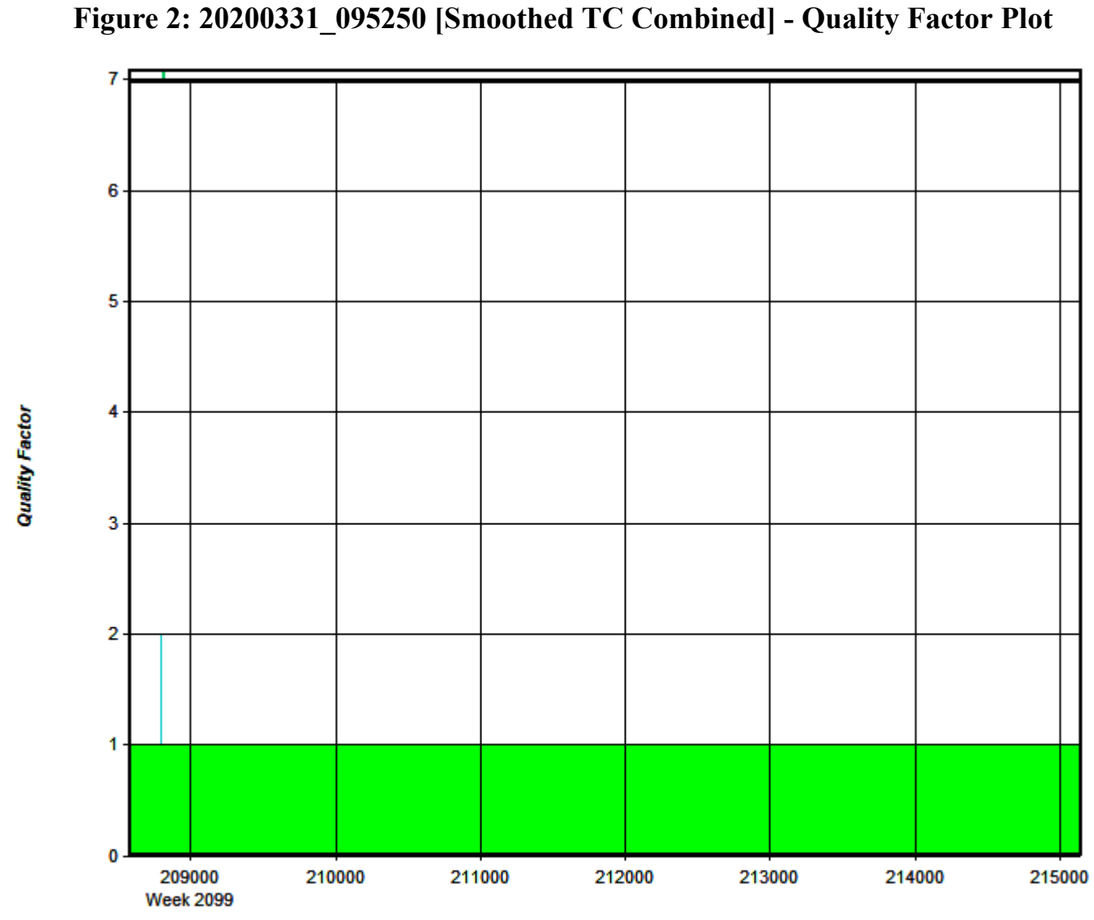
Inertial Explorer Version 8.80.2720
04/01/2020

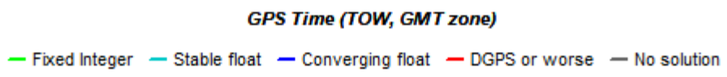
Figure 1: Smoothed TC Combined - Map



Process	20200331_095250	by Unknown	on 4/1/2020	at 09:17:28

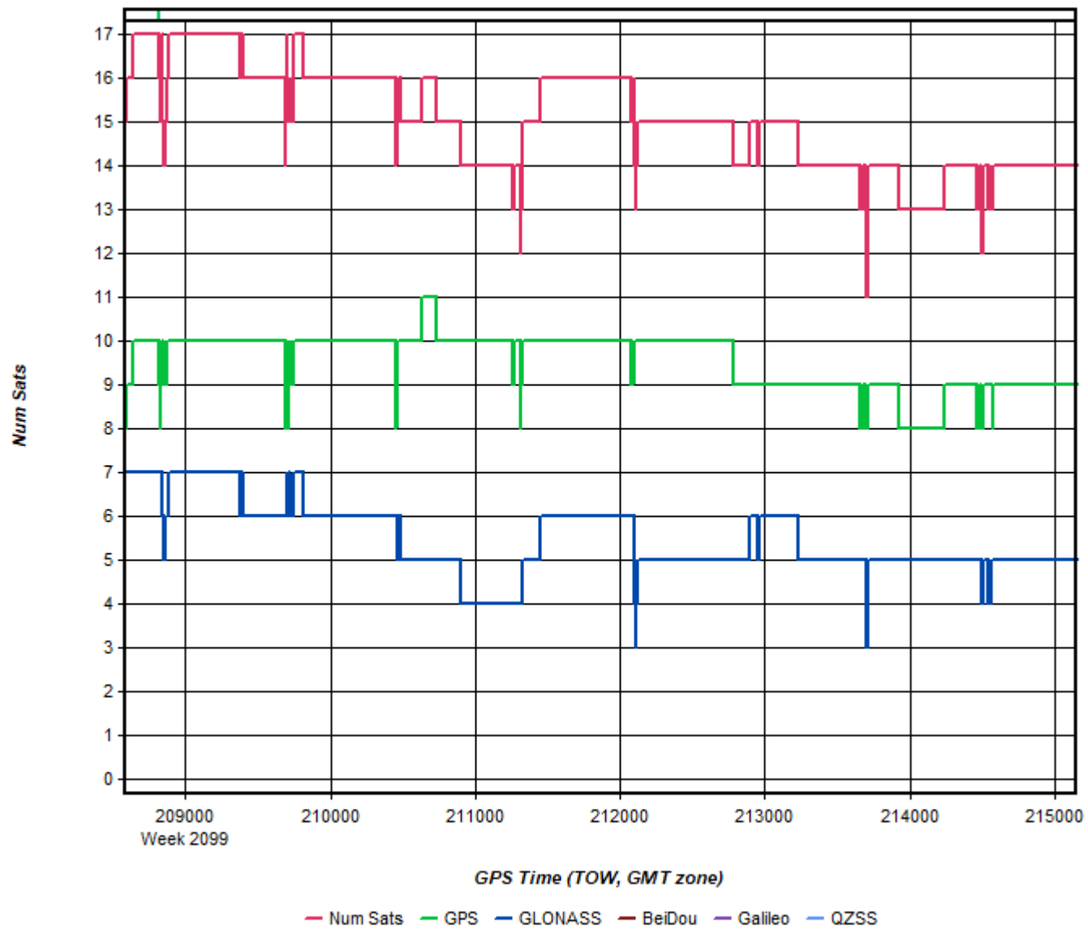
Figure 2: 20200331_095250 [Smoothed TC Combined] - Quality Factor Plot





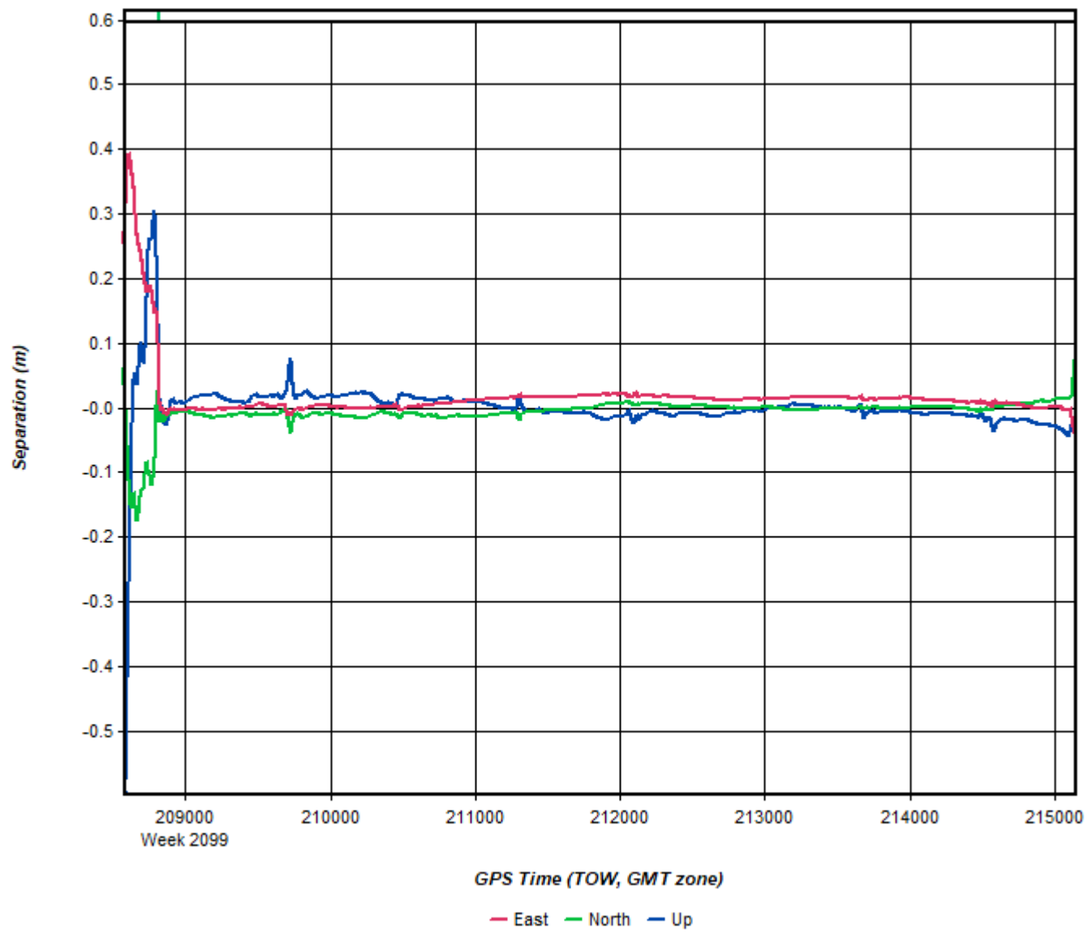
Process	20200331_095250	by Unknown	on 4/1/2020	at 09:17:28

Figure 3: 20200331_095250 [Smoothed TC Combined] - Number of Satellites Line Plot



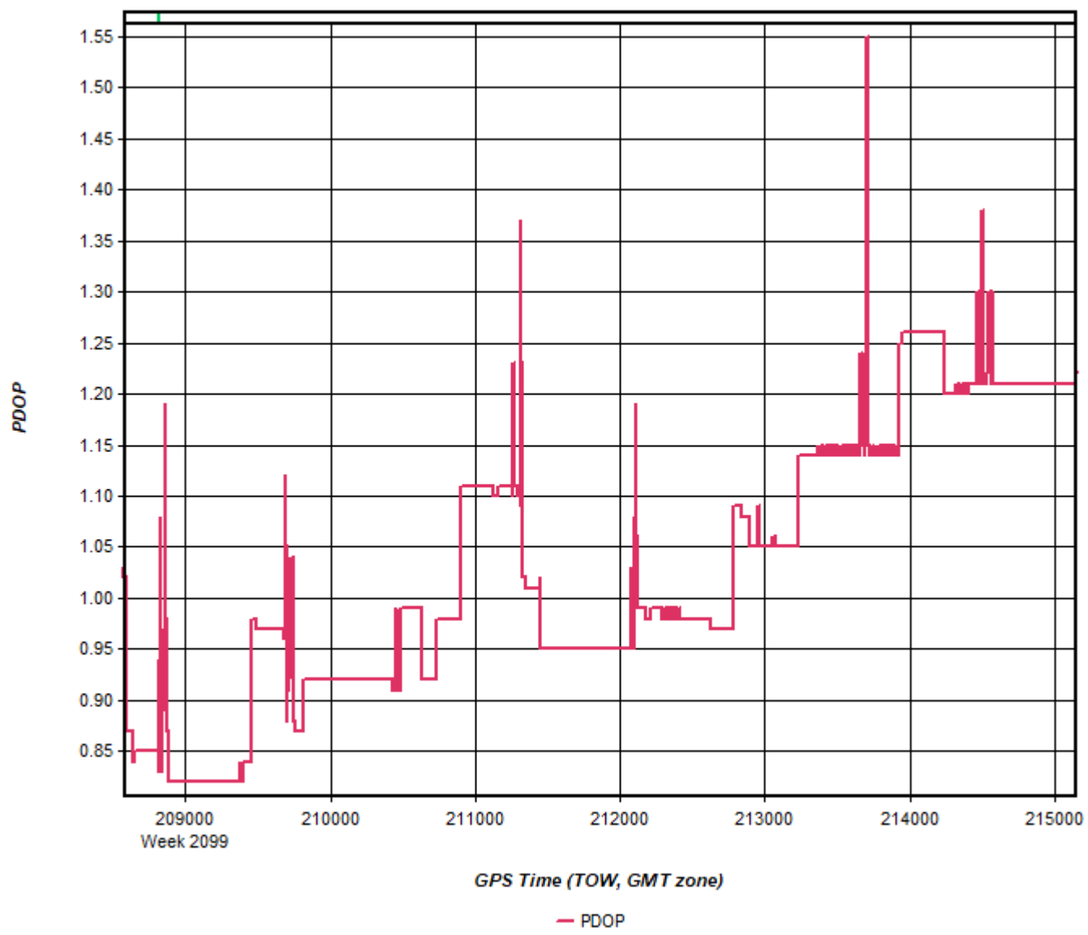
Process	20200331_095250	by Unknown	on 4/1/2020	at 09:17:28

Figure 4: 20200331_095250 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200331_095250	by Unknown	on 4/1/2020	at 09:17:28

Figure 5: 20200331_095250 [Smoothed TC Combined] - PDOP Plot

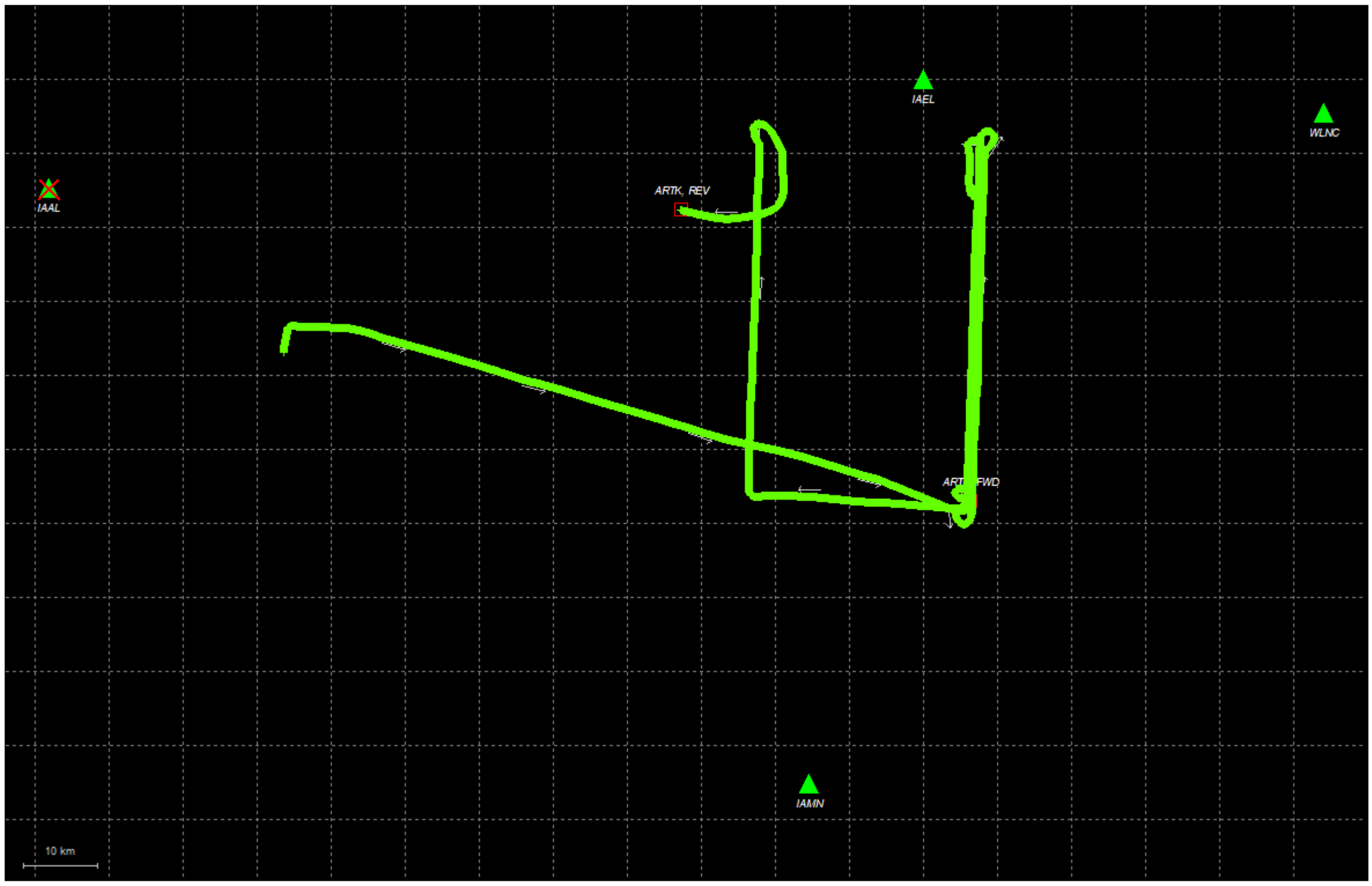


Process	20200331_095250	by Unknown	on 4/1/2020	at 09:17:28

Output Results for 20200331_130503

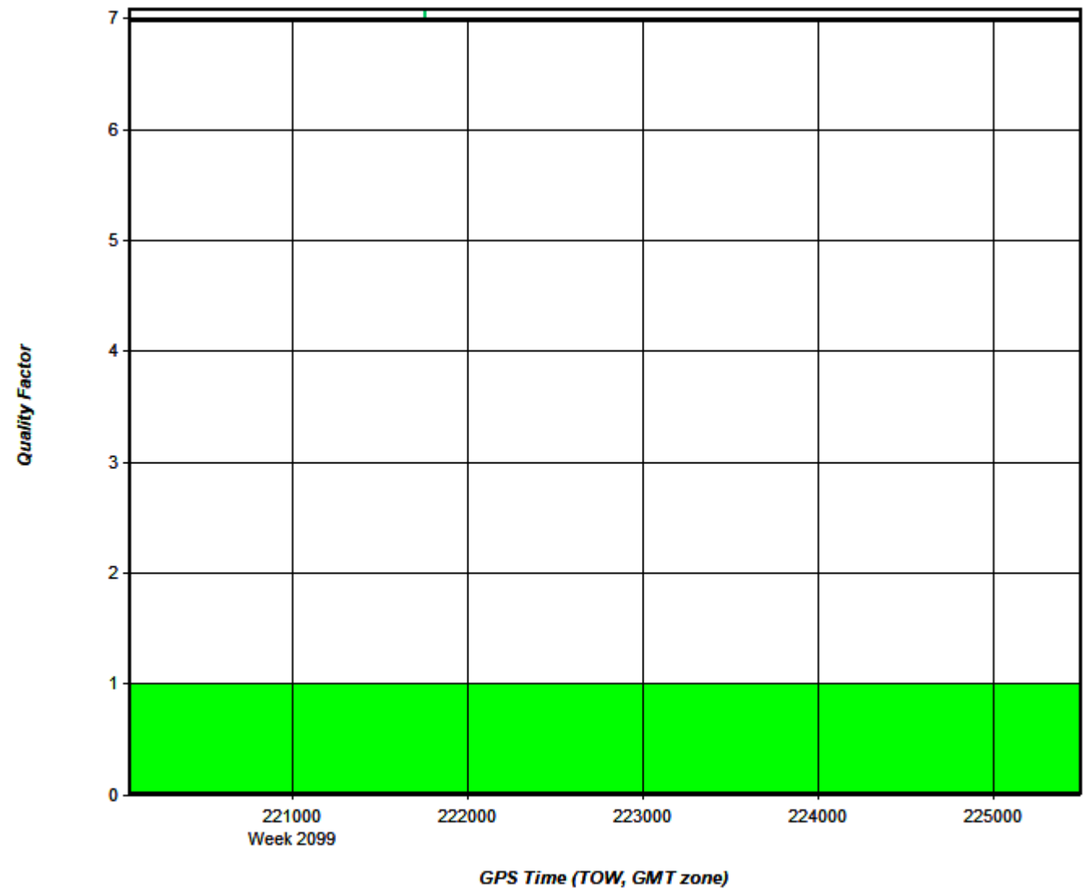
Inertial Explorer Version 8.80.2720
04/01/2020

Figure 1: Smoothed TC Combined - Map



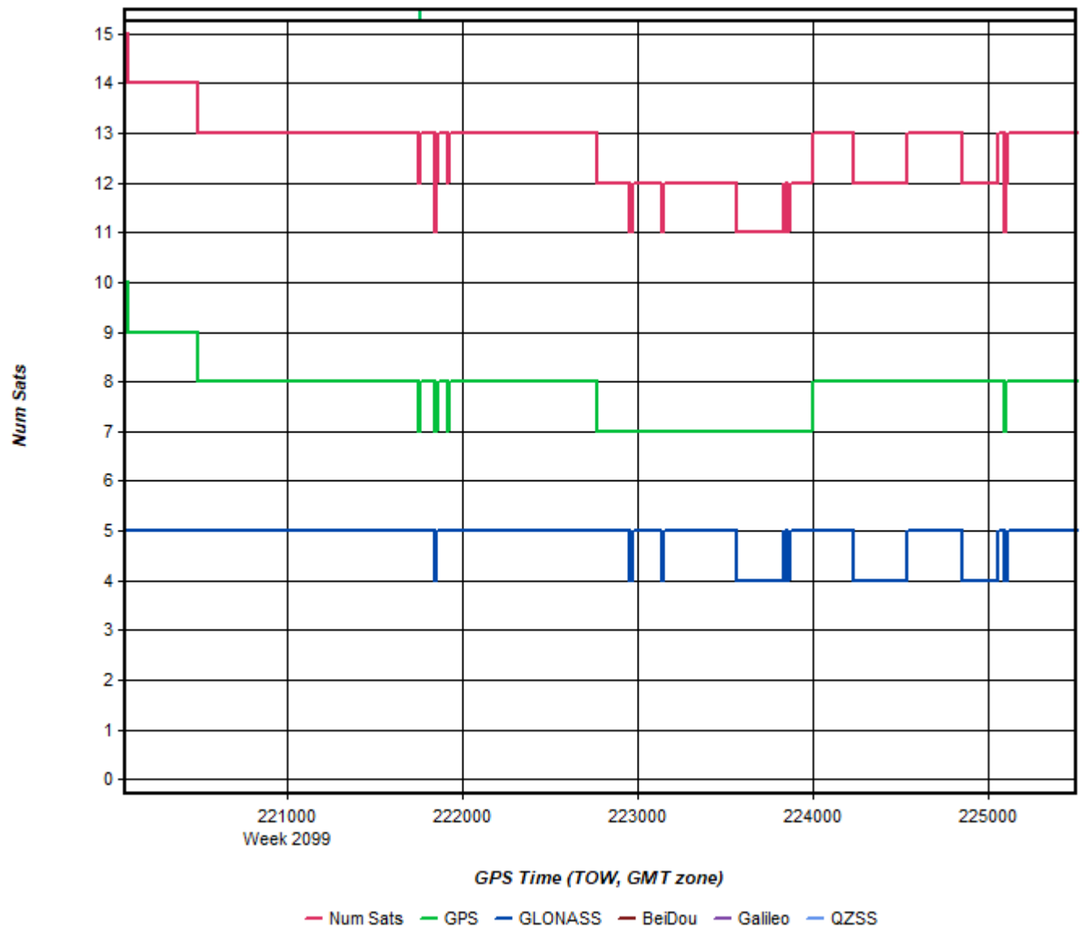
Process	20200331_130503	by Unknown	on 4/1/2020	at 10:15:24

Figure 2: 20200331_130503 [Smoothed TC Combined] - Quality Factor Plot



Process	20200331_130503	by Unknown	on 4/1/2020	at 10:15:24

Figure 3: 20200331_130503 [Smoothed TC Combined] - Number of Satellites Line Plot



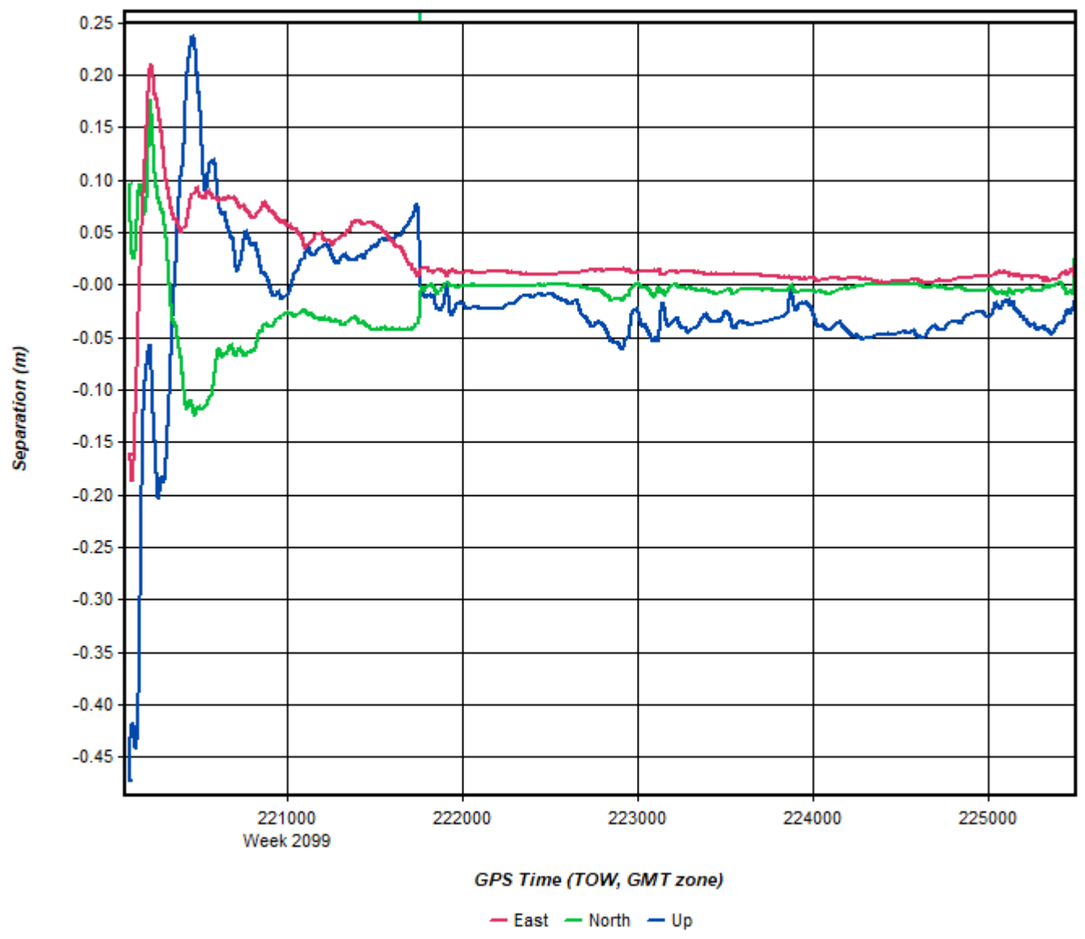
Process	20200331_130503	by Unknown	on 4/1/2020	at 10:15:24

Figure 4: 20200331_130503 [TC Combined] - Forward/Reverse or Combined Separation Plot

.

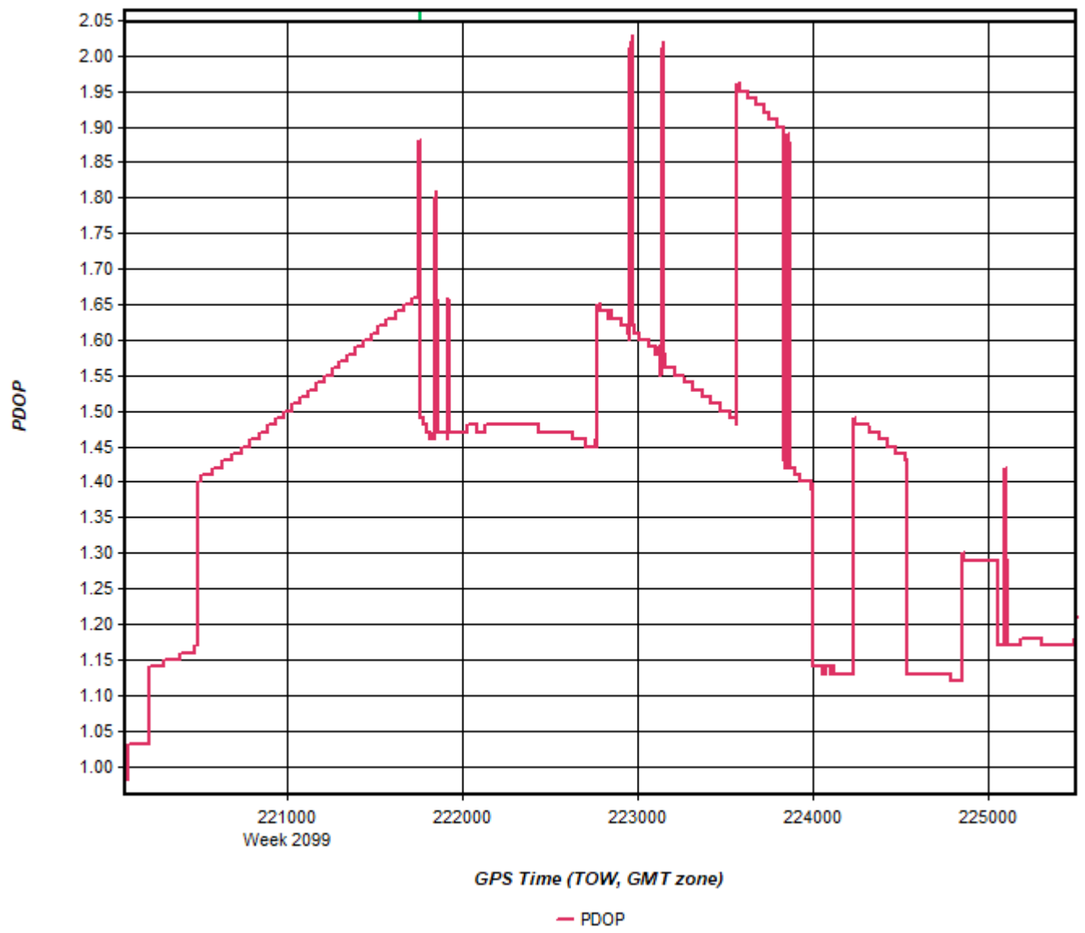
Process	20200331_130503	by Unknown	on 4/1/2020	at 09:45:42

Figure 5: 20200331_130503 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200331_130503	by Unknown	on 4/1/2020	at 10:15:24

Figure 6: 20200331_130503 [Smoothed TC Combined] - PDOP Plot

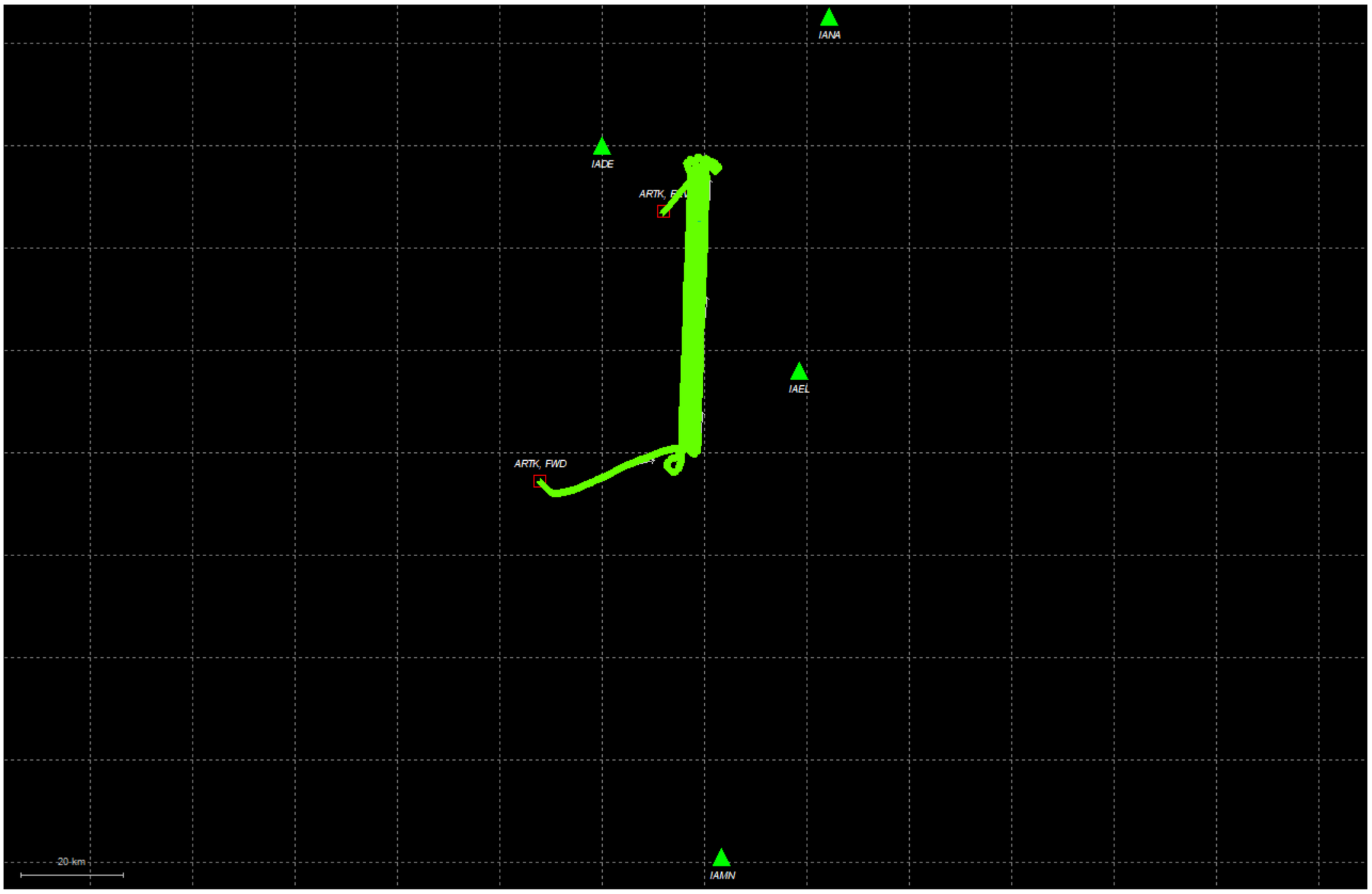


Process	20200331_130503	by Unknown	on 4/1/2020	at 10:15:24

Output Results for 20200331_151604

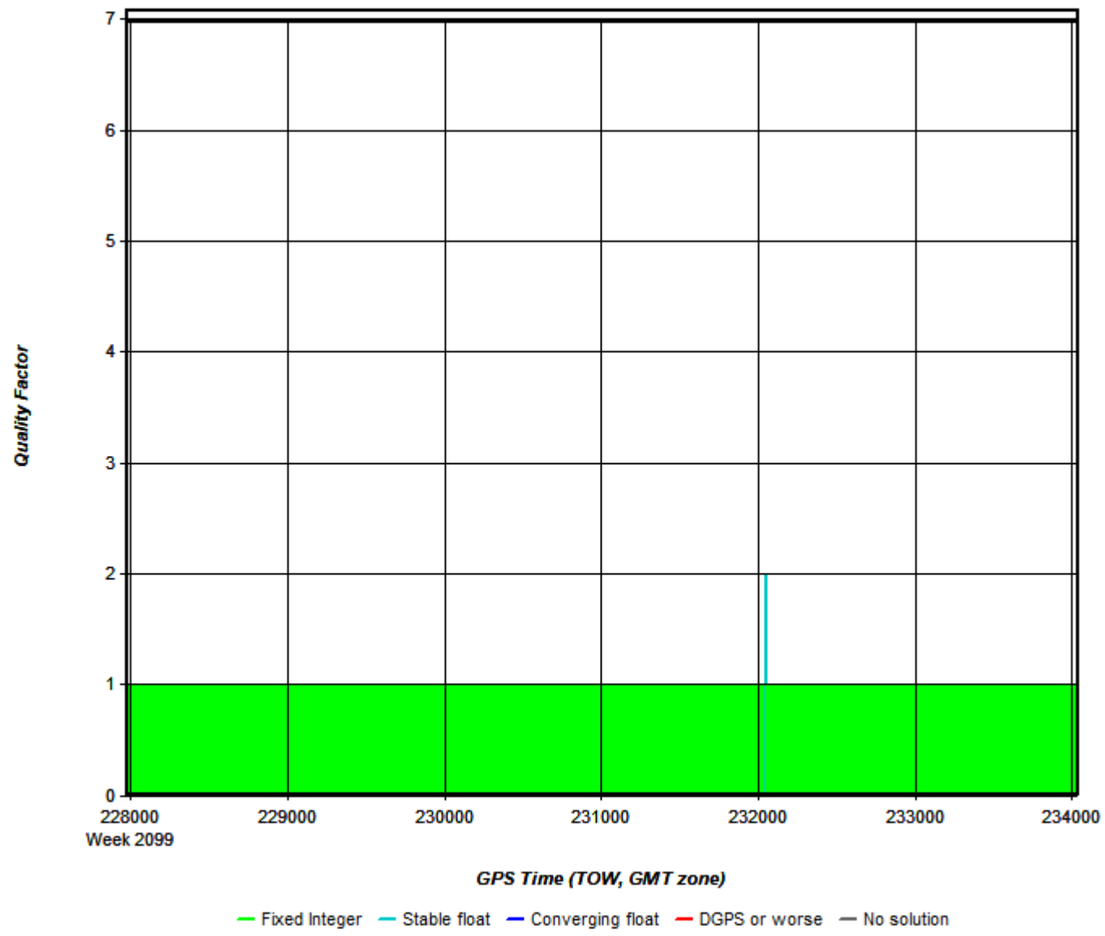
Inertial Explorer Version 8.80.2720
04/01/2020

Figure 1: Smoothed TC Combined - Map



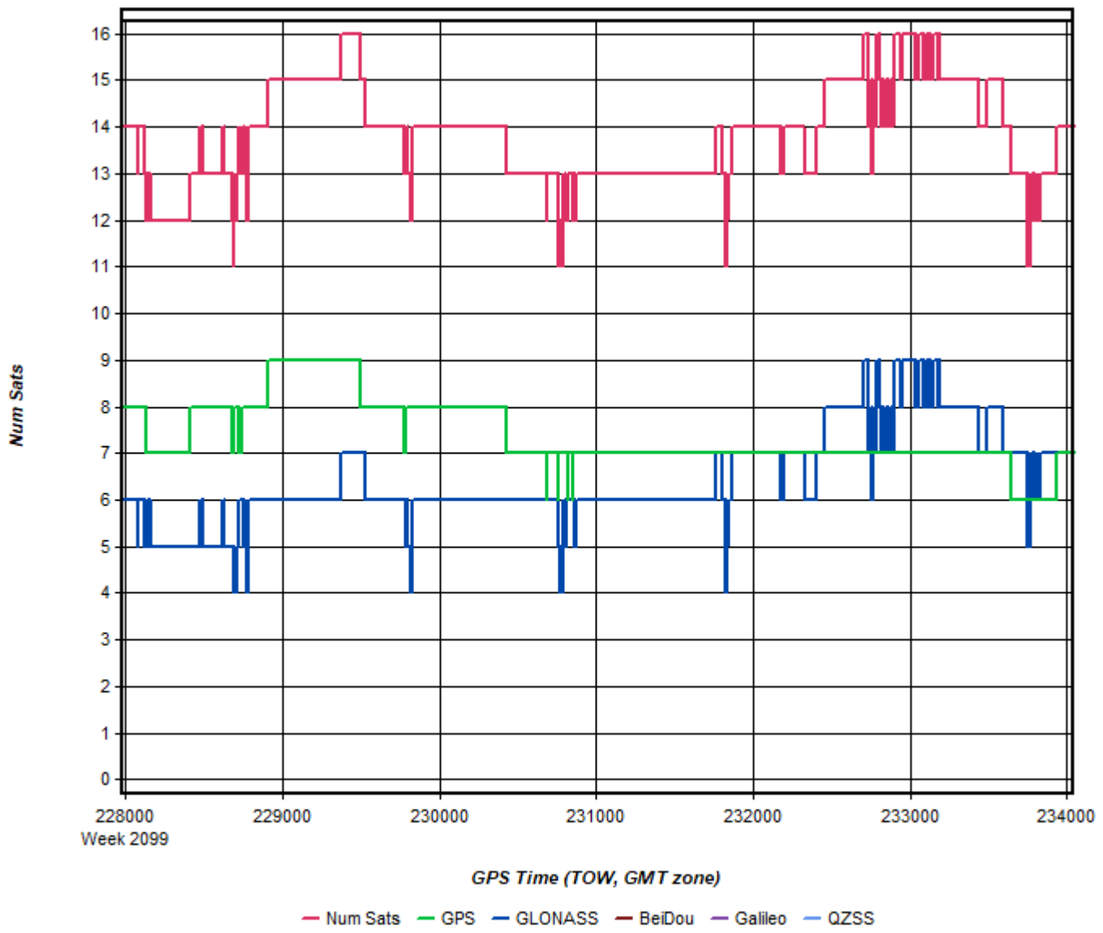
Process	20200331_151604	by Unknown	on 4/1/2020	at 11:41:15

Figure 2: 20200331_151604 [Smoothed TC Combined] - Quality Factor Plot



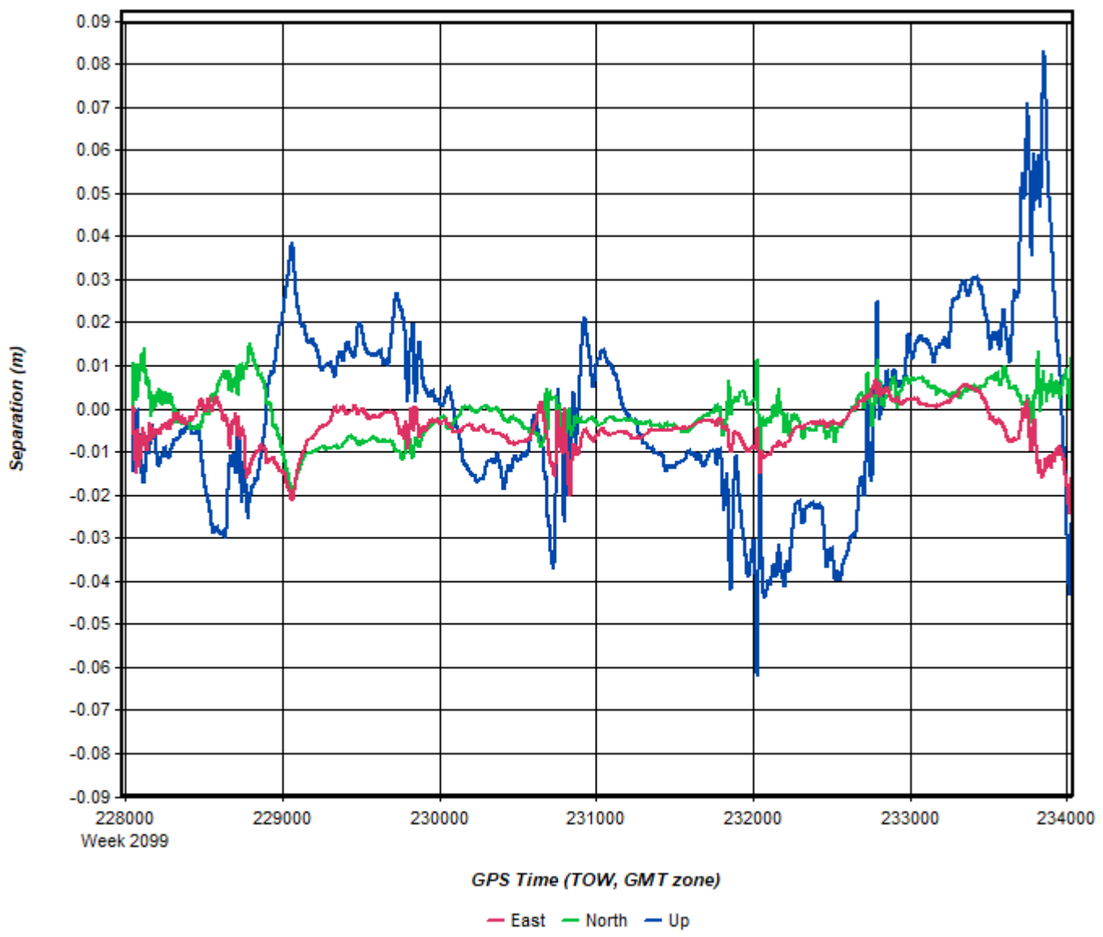
Process	20200331_151604	by Unknown	on 4/1/2020	at 11:41:15

Figure 3: 20200331_151604 [Smoothed TC Combined] - Number of Satellites Line Plot



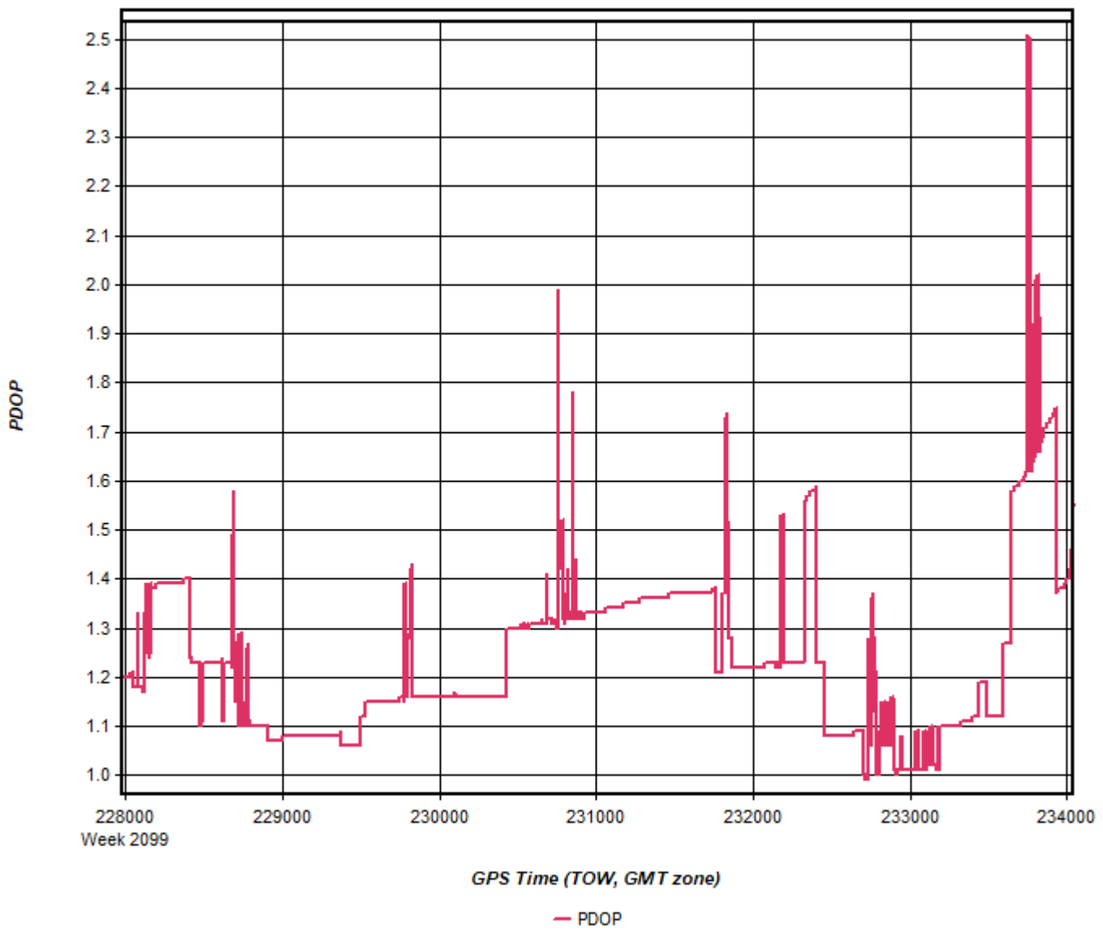
Process	20200331_151604	by Unknown	on 4/1/2020	at 11:41:15

Figure 4: 20200331_151604 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200331_151604	by Unknown	on 4/1/2020	at 11:41:15

Figure 5: 20200331_151604 [Smoothed TC Combined] - PDOP Plot

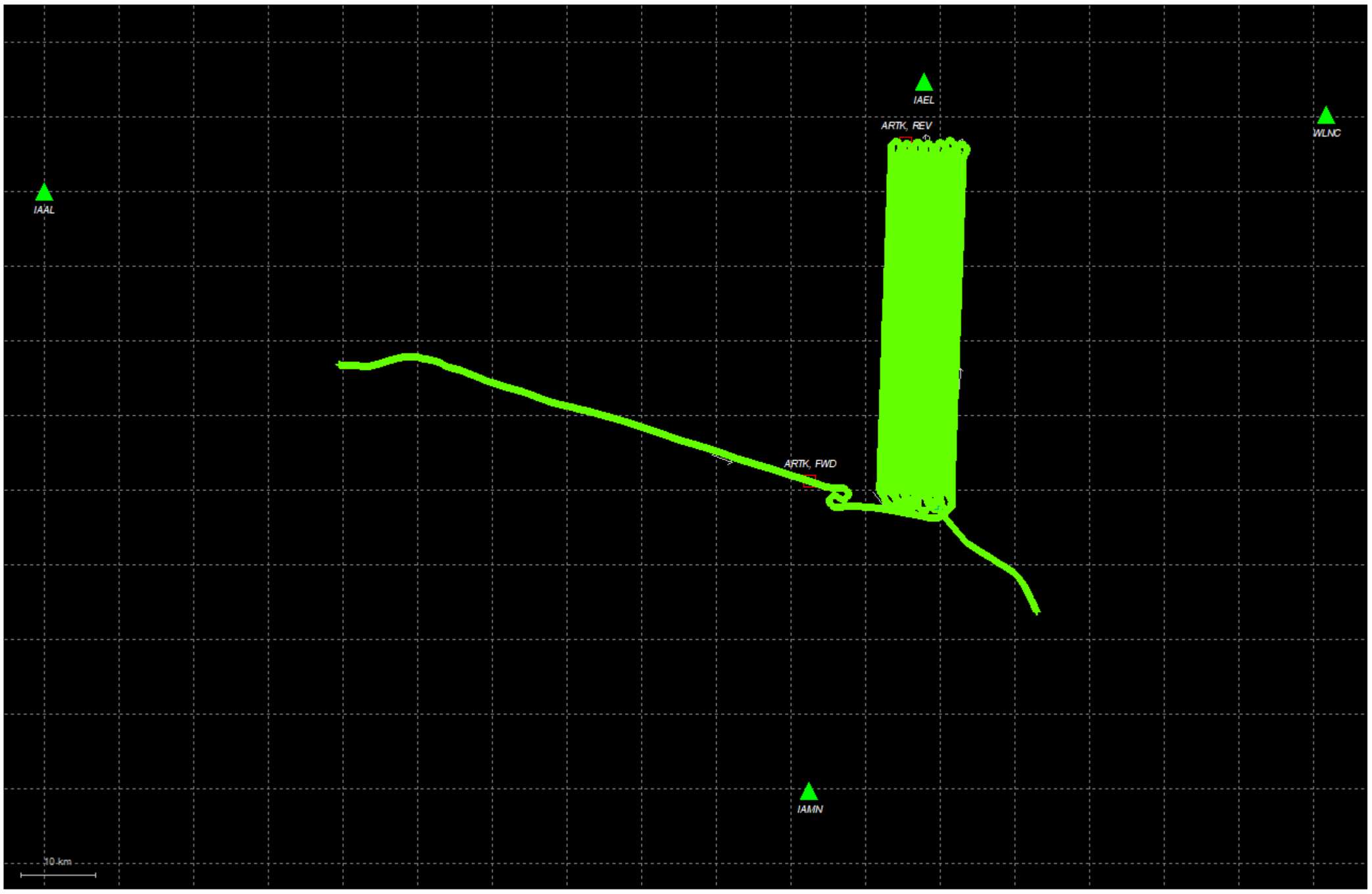


Process	20200331_151604	by Unknown	on 4/1/2020	at 11:41:15

Output Results for 20200402_022254

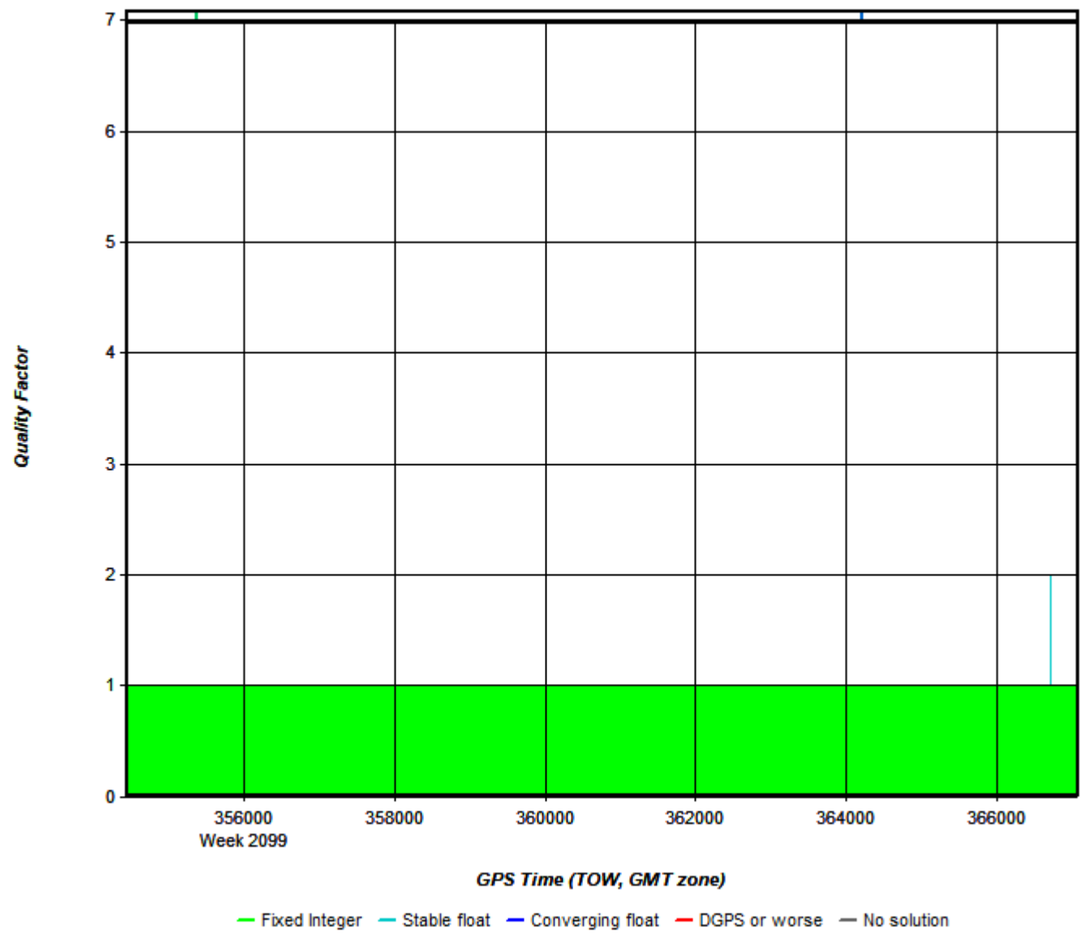
Inertial Explorer Version 8.80.2720
04/03/2020

Figure 1: Smoothed TC Combined - Map



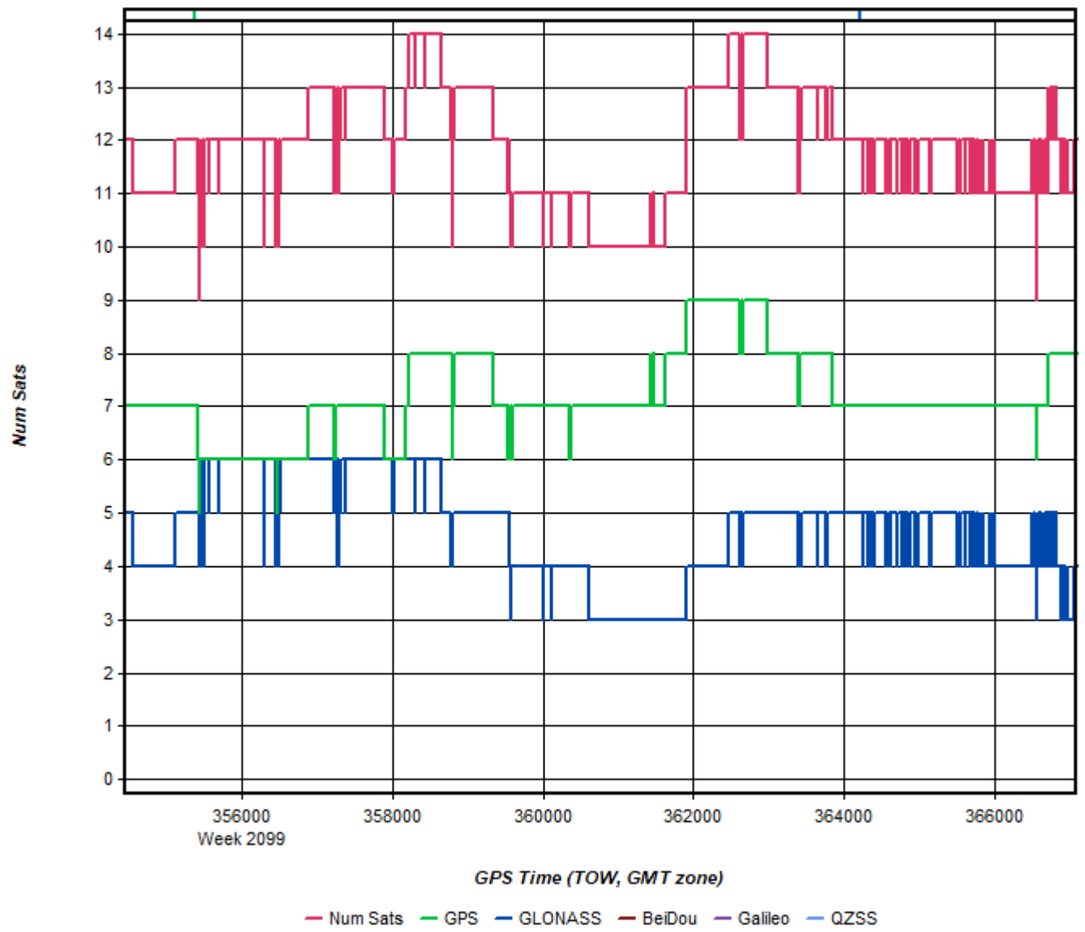
Process	20200402_022254	by Unknown	on 4/3/2020	at 07:55:22

Figure 2: 20200402_022254 [Smoothed TC Combined] - Quality Factor Plot



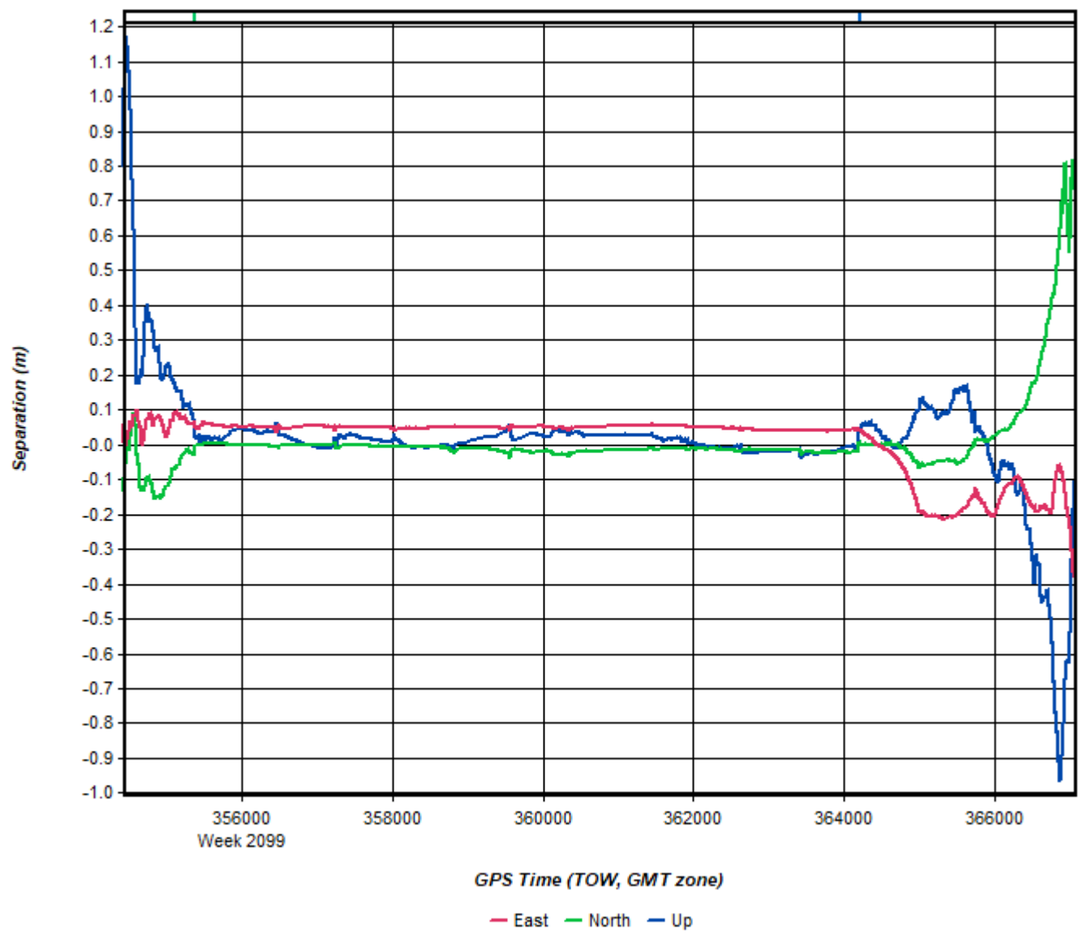
Process	20200402_022254	by Unknown	on 4/3/2020	at 07:55:22

Figure 3: 20200402_022254 [Smoothed TC Combined] - Number of Satellites Line Plot



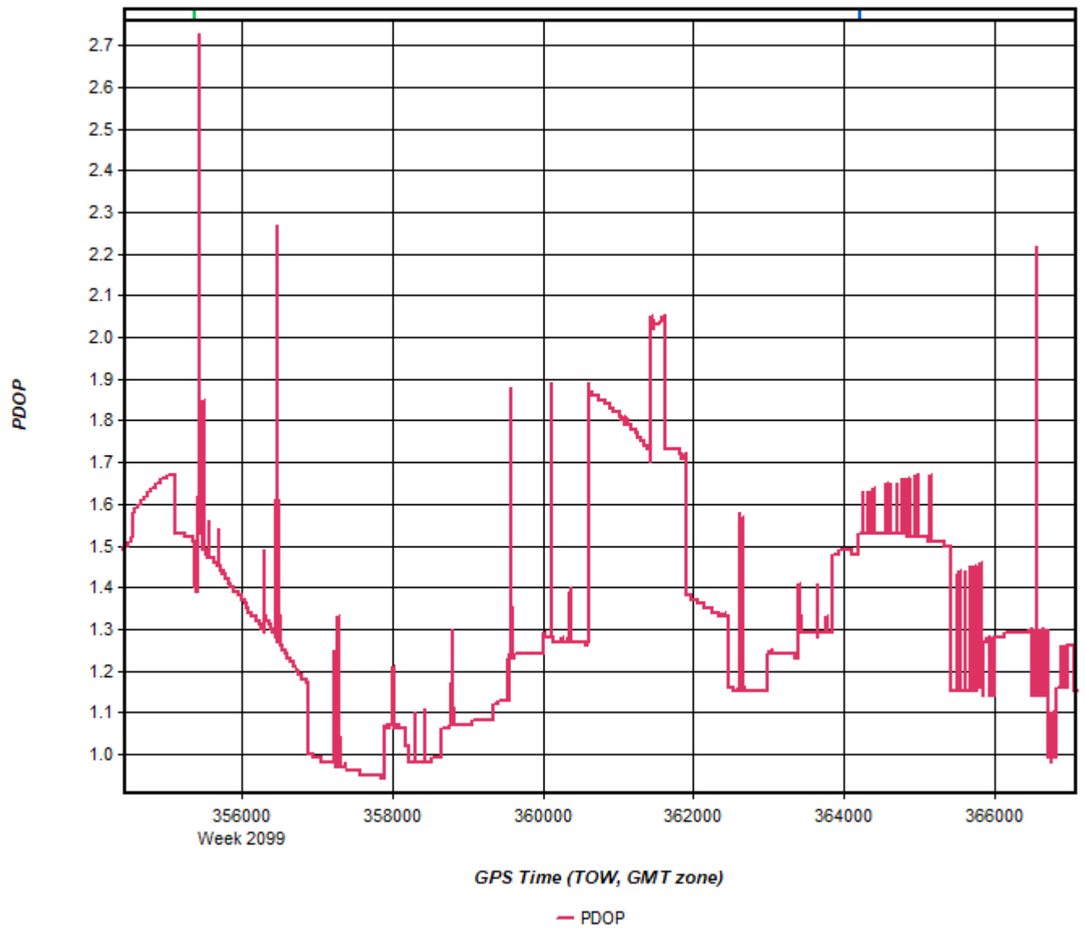
Process	20200402_022254	by Unknown	on 4/3/2020	at 07:55:22

Figure 4: 20200402_022254 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200402_022254	by Unknown	on 4/3/2020	at 07:55:22

Figure 5: 20200402_022254 [Smoothed TC Combined] - PDOP Plot

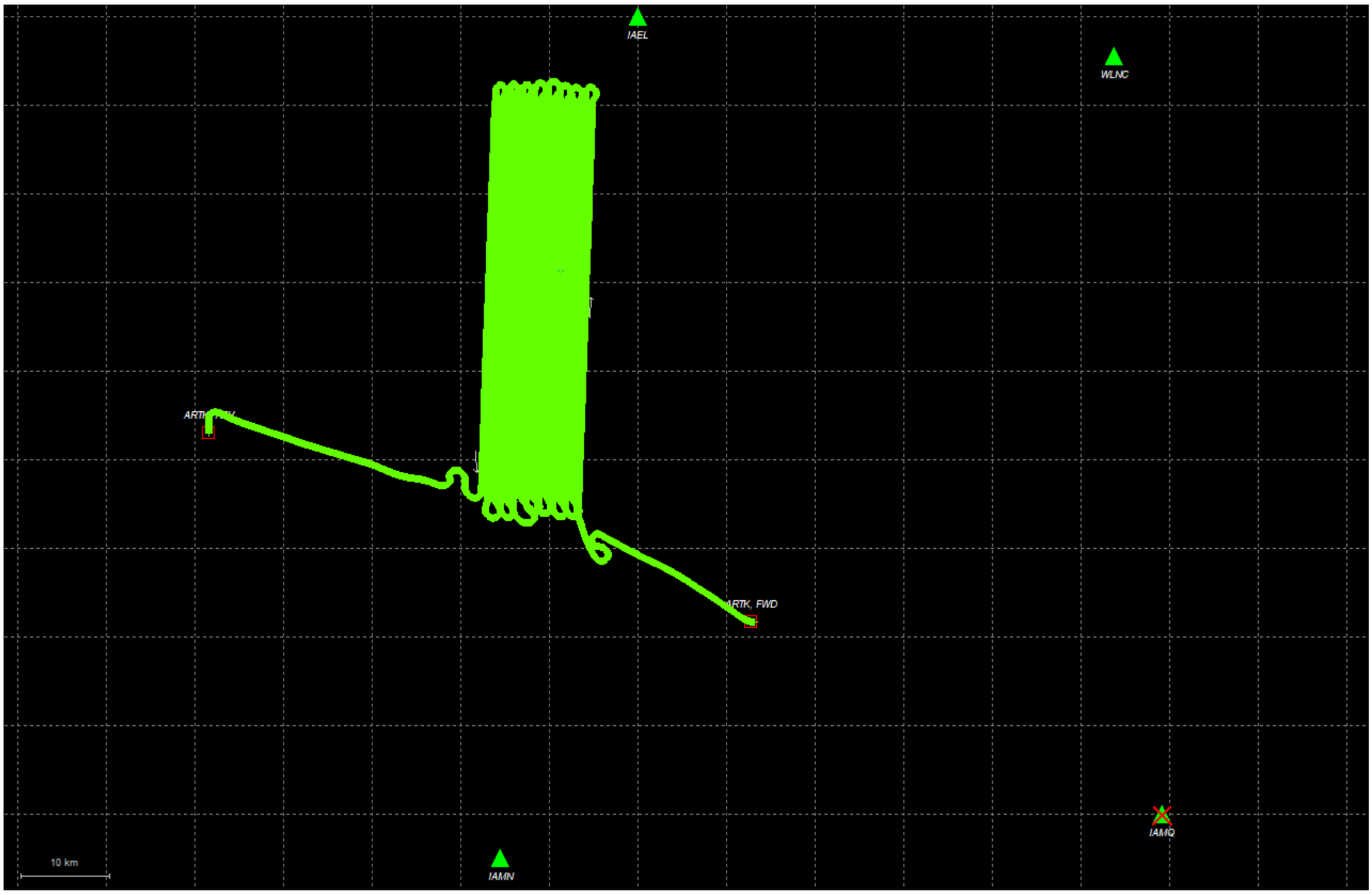


Process	20200402_022254	by Unknown	on 4/3/2020	at 07:55:22

Output Results for 20200402_062814

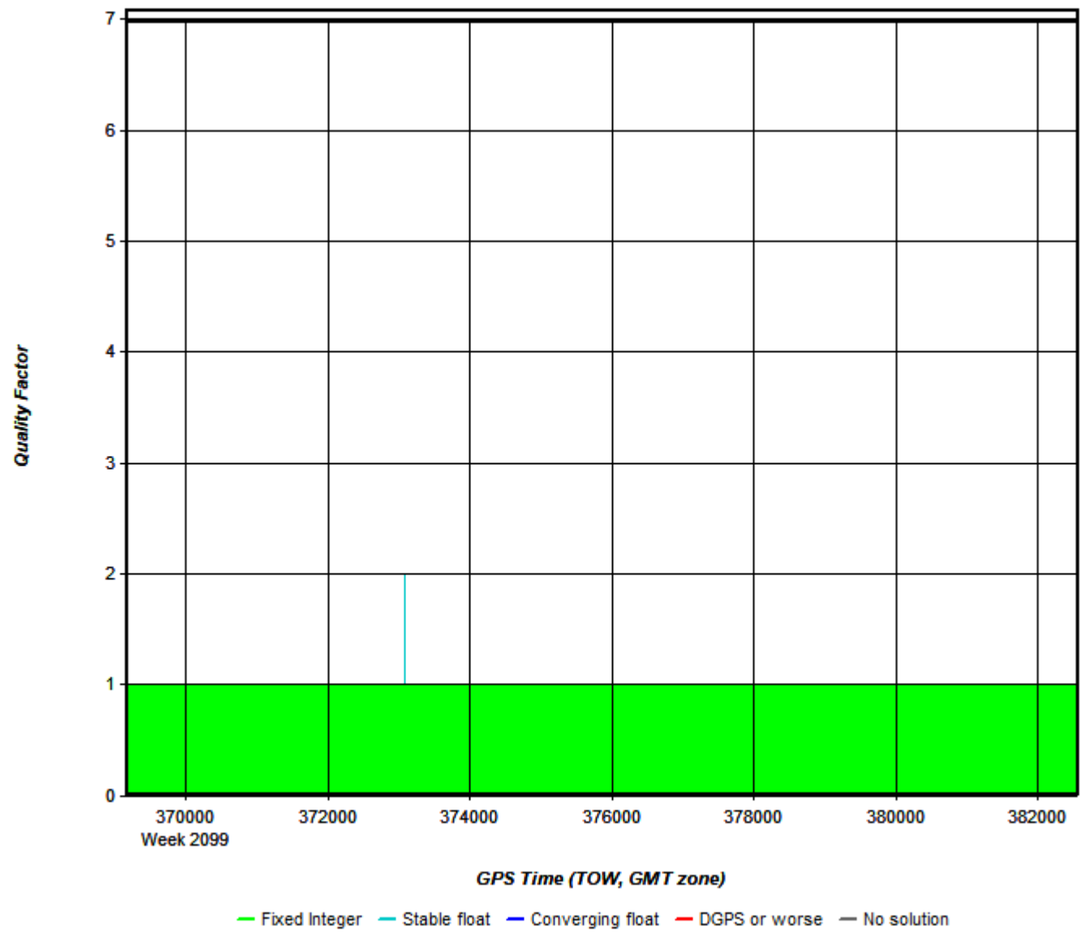
Inertial Explorer Version 8.80.2720
04/03/2020

Figure 1: Smoothed TC Combined - Map



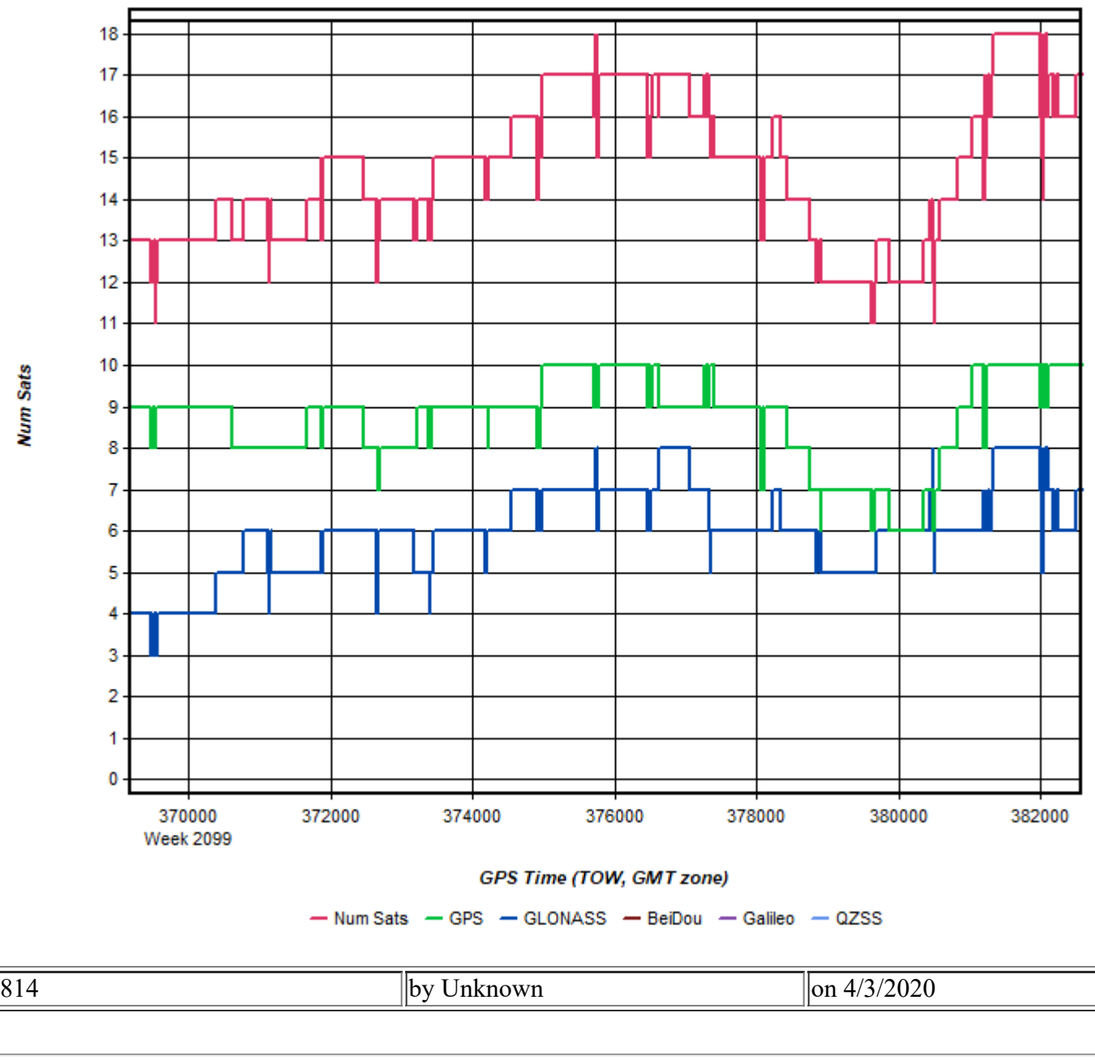
Process	20200402_062814	by Unknown	on 4/3/2020	at 09:06:39

Figure 2: 20200402_062814 [Smoothed TC Combined] - Quality Factor Plot



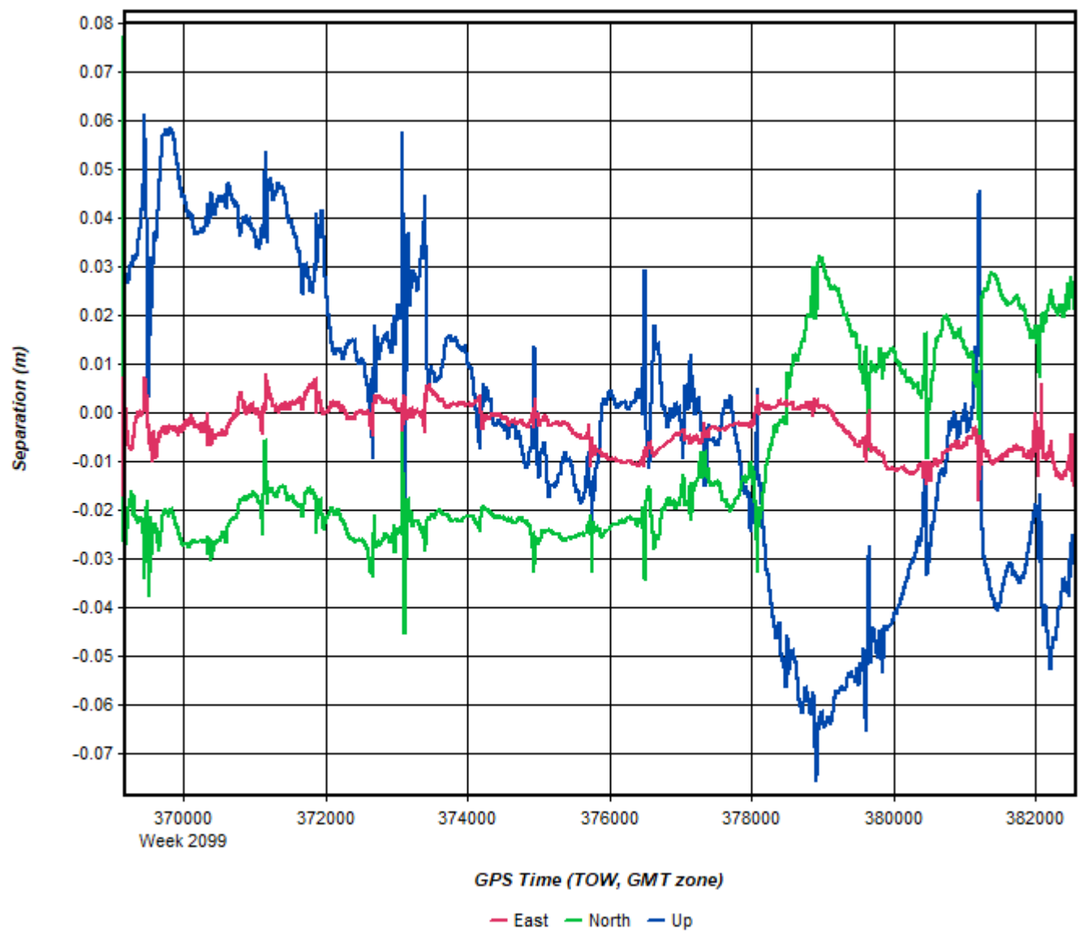
Process	20200402_062814	by Unknown	on 4/3/2020	at 09:06:39

Figure 3: 20200402_062814 [Smoothed TC Combined] - Number of Satellites Line Plot



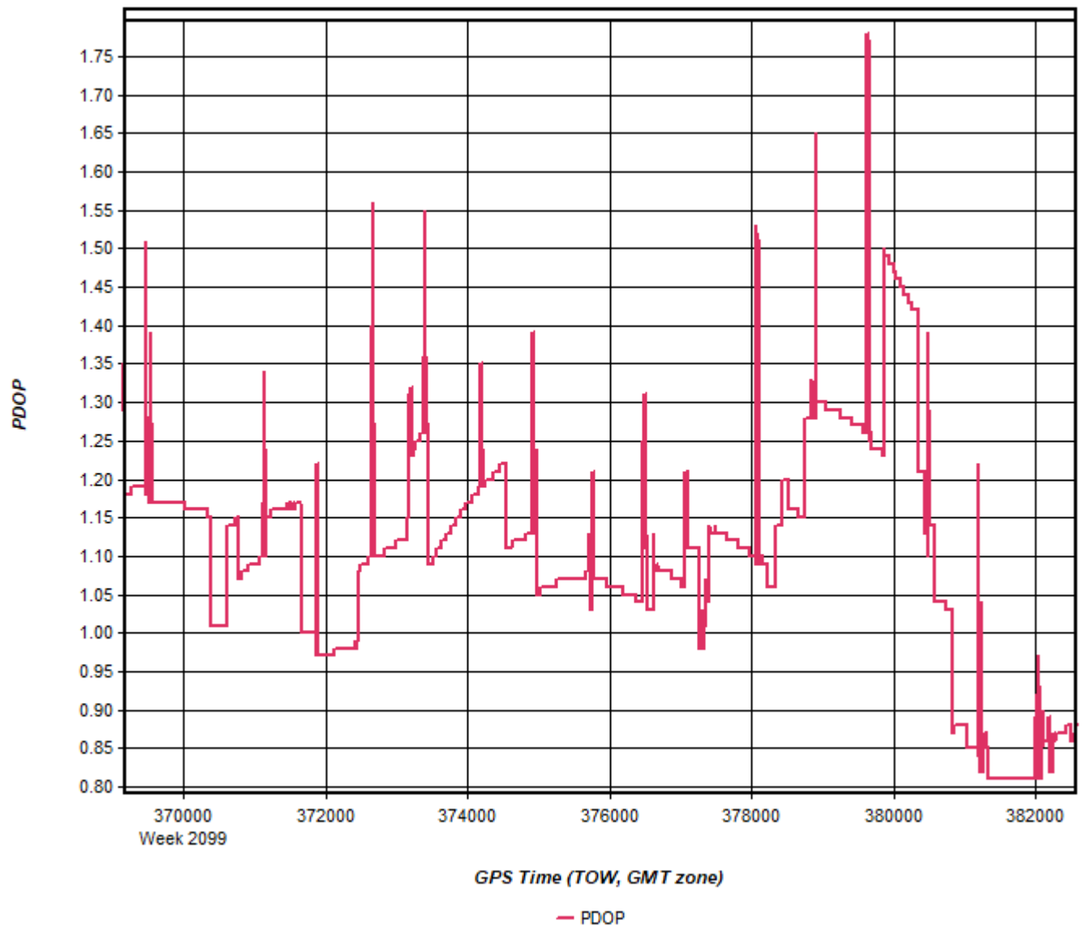
Process	20200402_062814	by Unknown	on 4/3/2020	at 09:06:39

Figure 4: 20200402_062814 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200402_062814	by Unknown	on 4/3/2020	at 09:06:39

Figure 5: 20200402_062814 [Smoothed TC Combined] - PDOP Plot

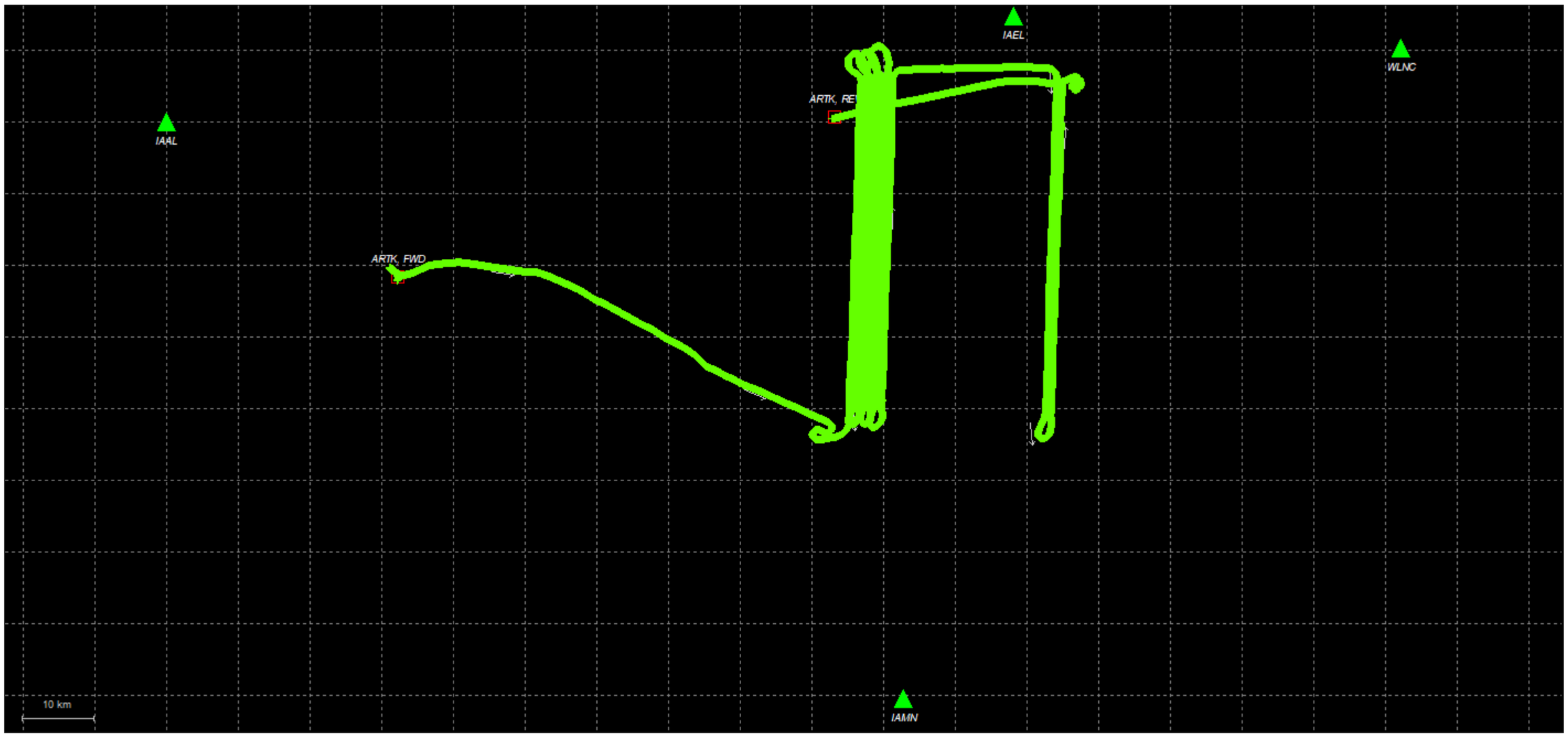


Process	20200402_062814	by Unknown	on 4/3/2020	at 09:06:39

Output Results for 20200402_133733

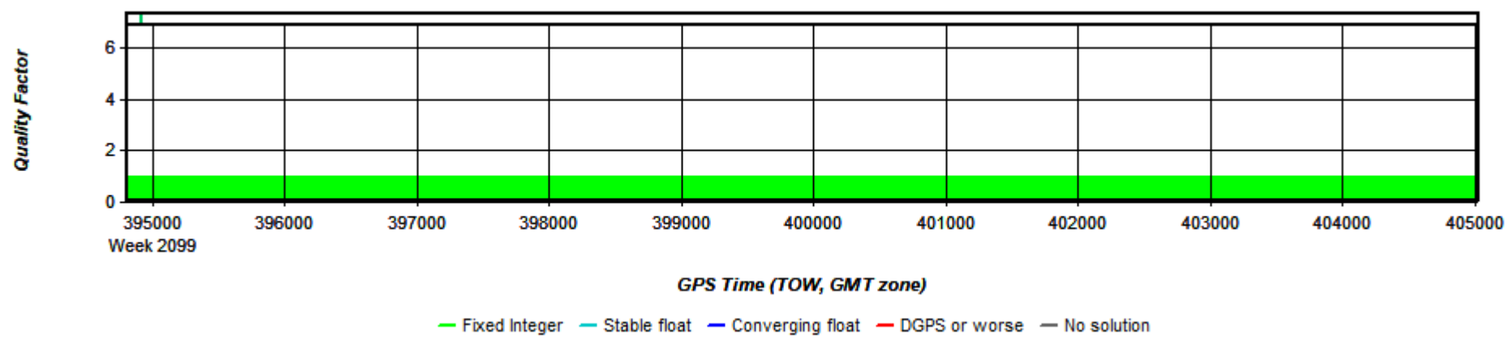
Inertial Explorer Version 8.80.2720
04/06/2020

Figure 1: Smoothed TC Combined - Map



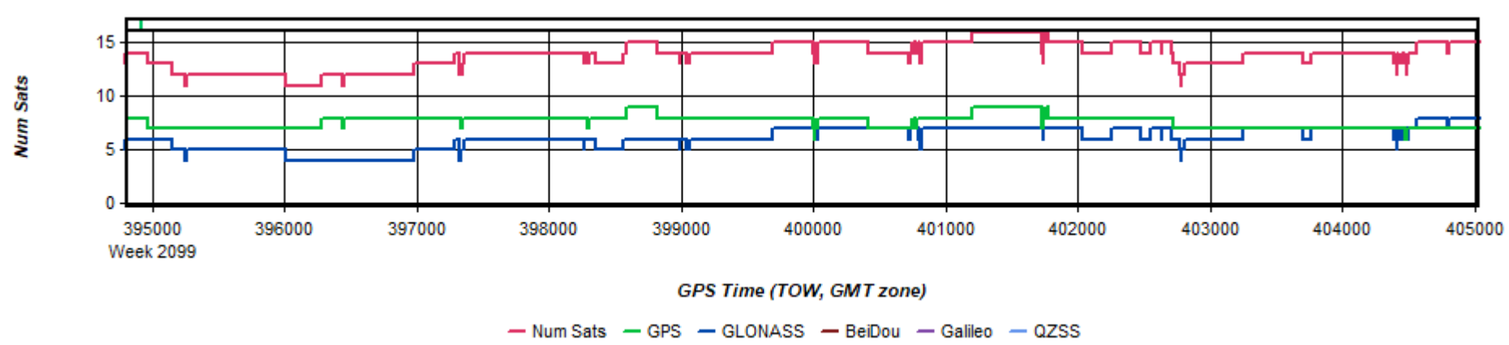
Process	20200402_133733	by Unknown	on 4/6/2020	at 07:33:34

Figure 2: 20200402_133733 [Smoothed TC Combined] - Quality Factor Plot



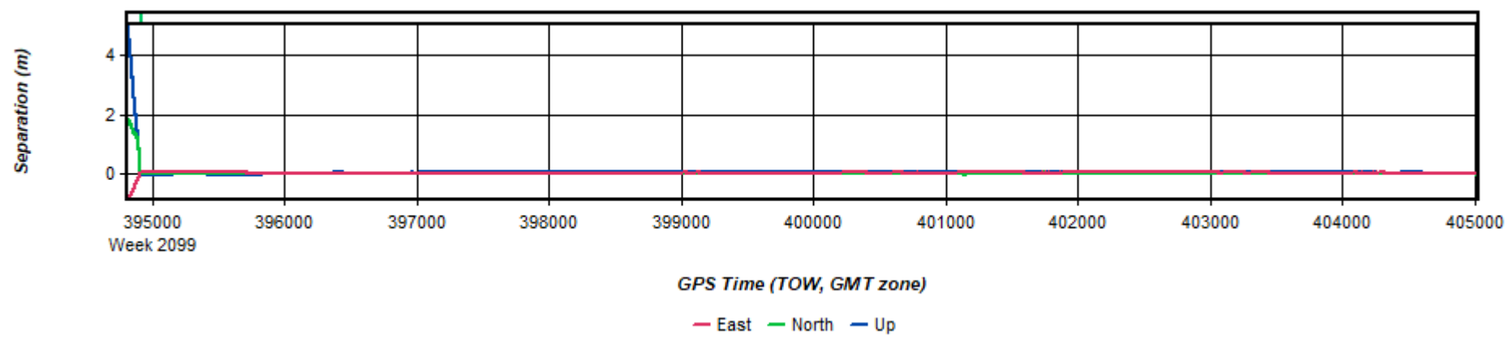
Process	20200402_133733	by Unknown	on 4/6/2020	at 07:33:34

Figure 3: 20200402_133733 [Smoothed TC Combined] - Number of Satellites Line Plot



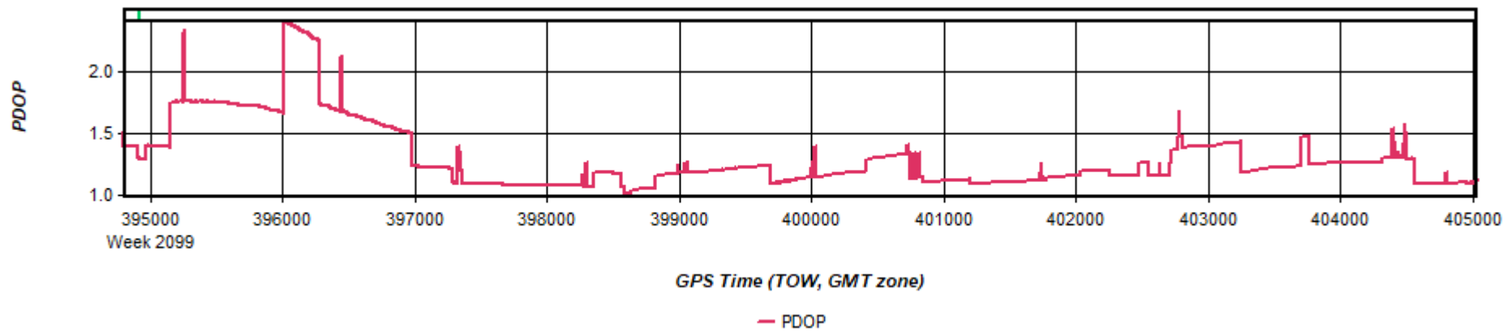
Process	20200402_133733	by Unknown	on 4/6/2020	at 07:33:34

Figure 4: 20200402_133733 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200402_133733	by Unknown	on 4/6/2020	at 07:33:34

Figure 5: 20200402_133733 [Smoothed TC Combined] - PDOP Plot

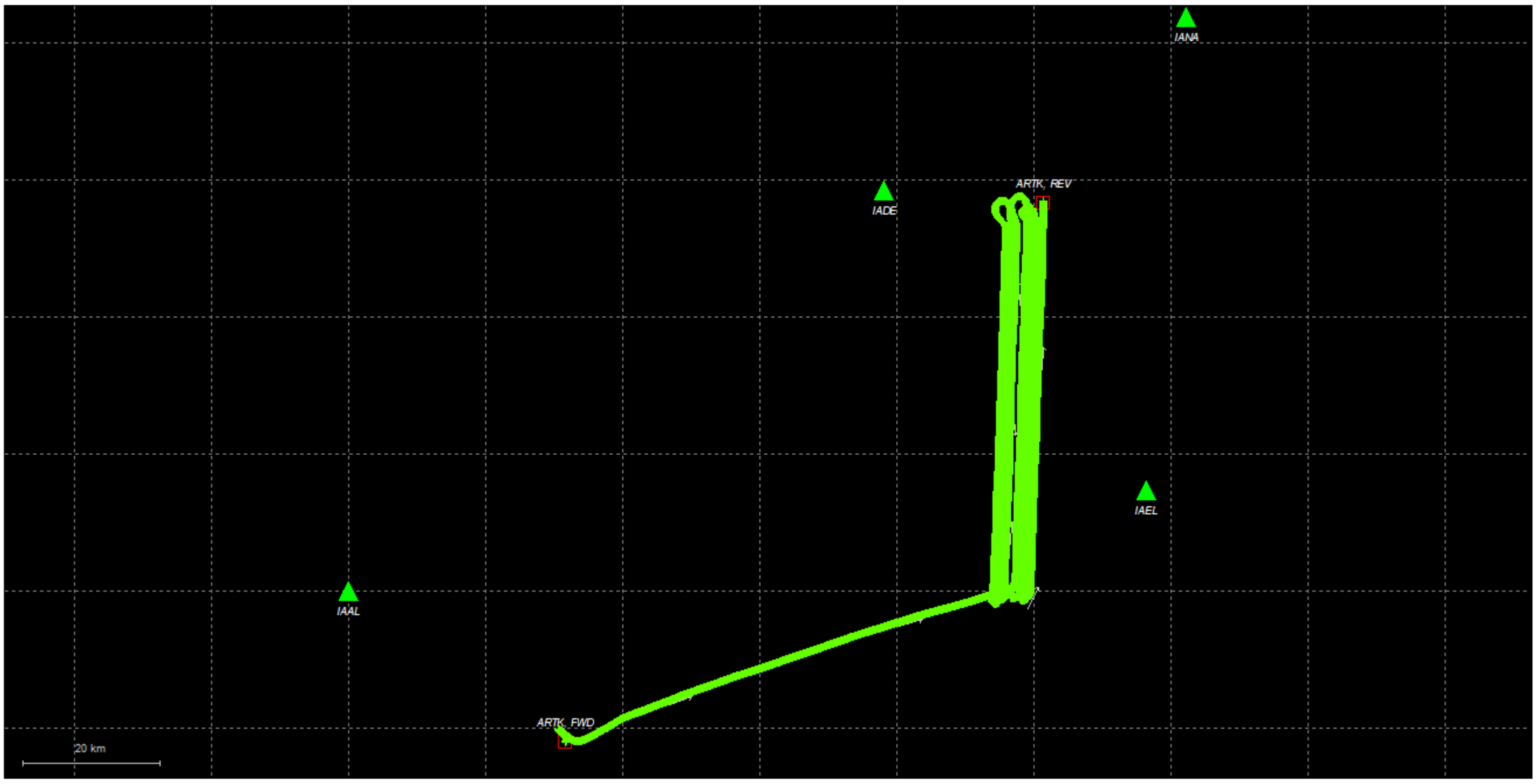


Process	20200402_133733	by Unknown	on 4/6/2020	at 07:33:34

Output Results for 20200402_171718

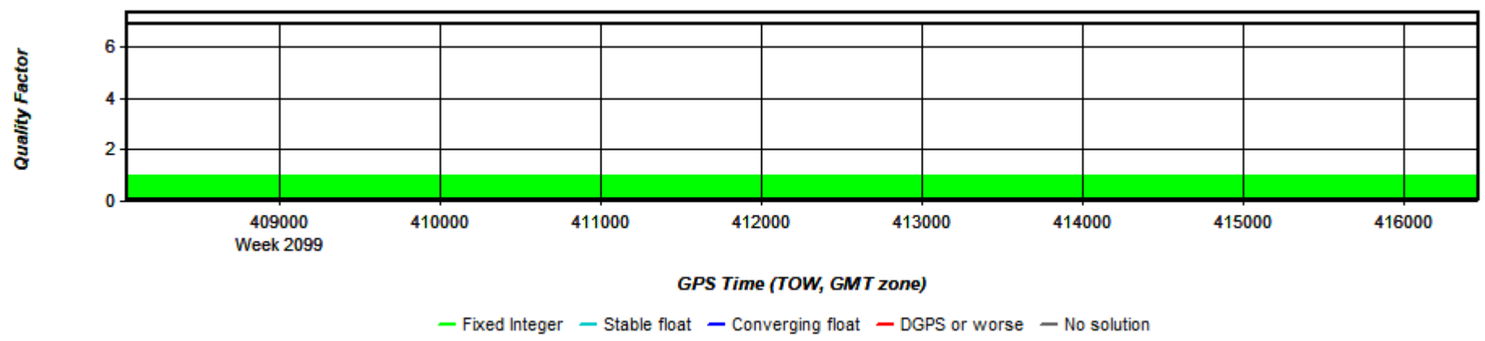
Inertial Explorer Version 8.80.2720
04/06/2020

Figure 1: Smoothed TC Combined - Map



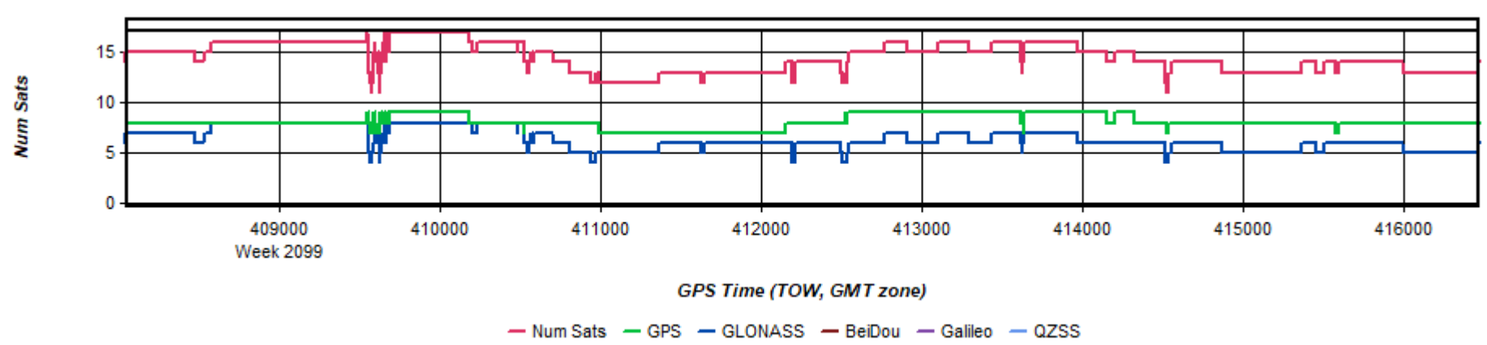
Process	20200402_171718	by Unknown	on 4/6/2020	at 08:26:16

Figure 2: 20200402_171718 [Smoothed TC Combined] - Quality Factor Plot



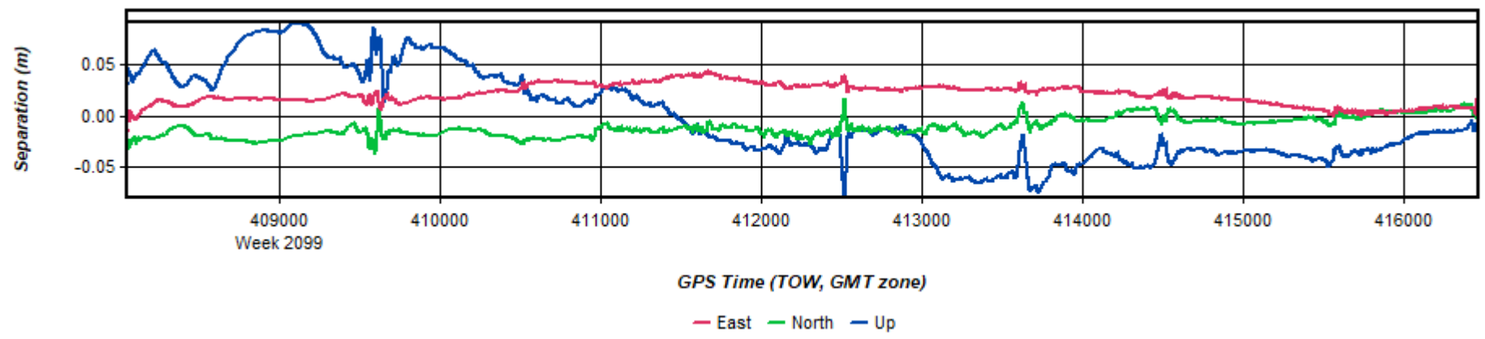
Process	20200402_171718	by Unknown	on 4/6/2020	at 08:26:16

Figure 3: 20200402_171718 [Smoothed TC Combined] - Number of Satellites Line Plot



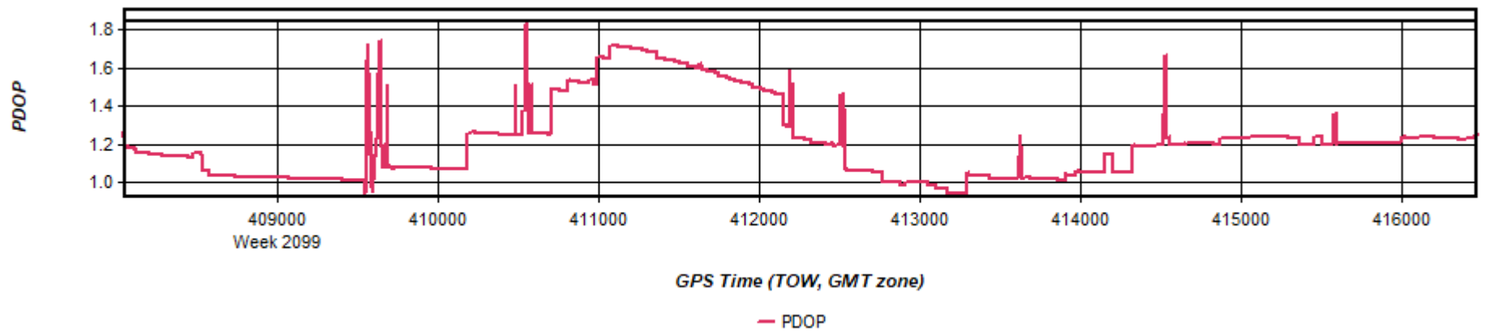
Process	20200402_171718	by Unknown	on 4/6/2020	at 08:26:16

Figure 4: 20200402_171718 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200402_171718	by Unknown	on 4/6/2020	at 08:26:16

Figure 5: 20200402_171718 [Smoothed TC Combined] - PDOP Plot

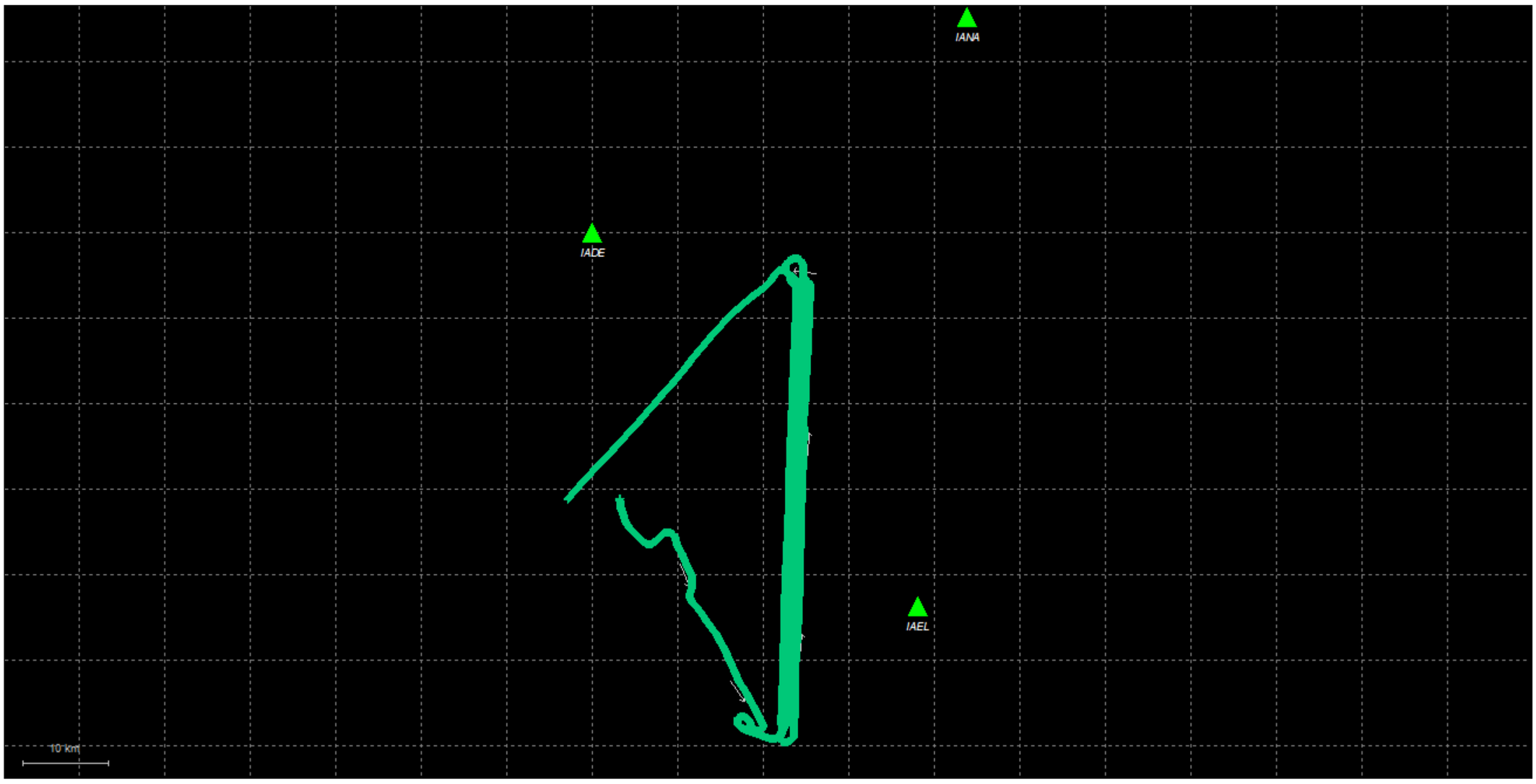


Process	20200402_171718	by Unknown	on 4/6/2020	at 08:26:16

Output Results for 20200402_201240-PPP

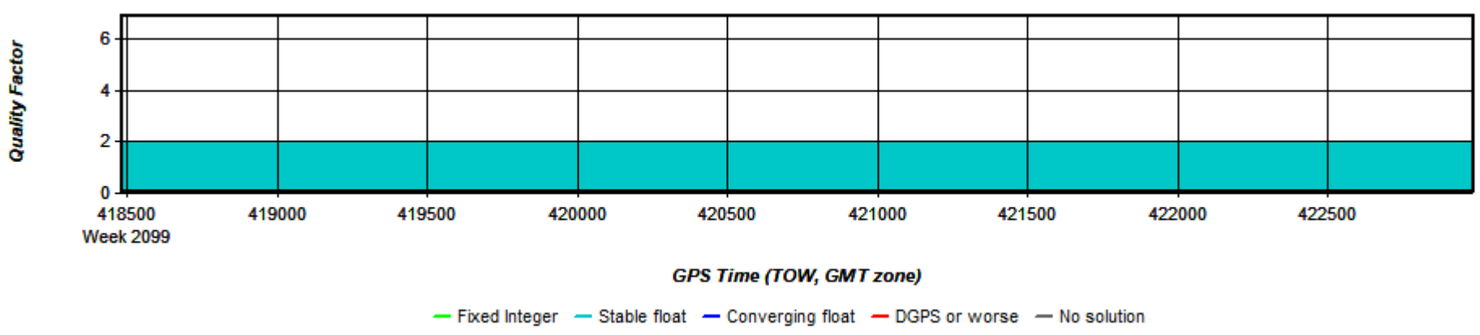
Inertial Explorer Version 8.80.2720
04/06/2020

Figure 1: Smoothed TC Combined - Map



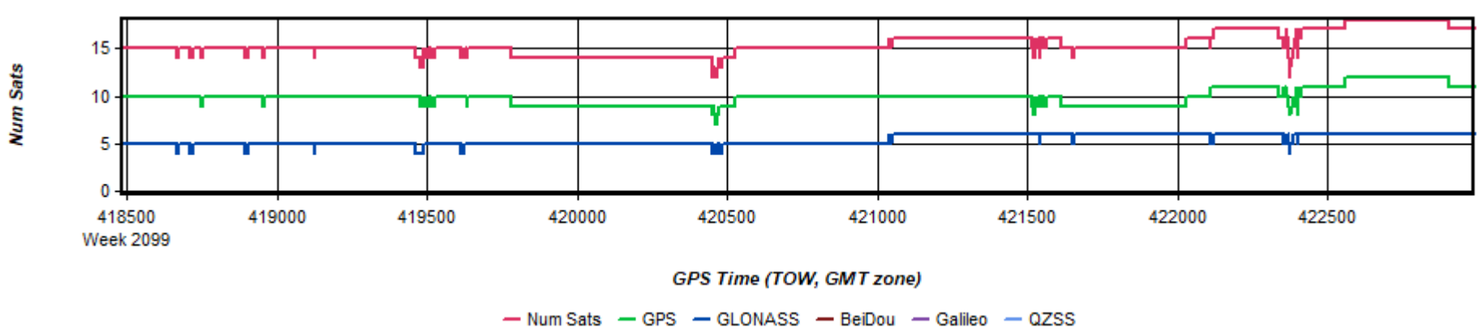
Process	20200402_201240-PPP	by Unknown	on 4/6/2020	at 09:16:22

Figure 2: 20200402_201240-PPP [Smoothed TC Combined] - Quality Factor Plot



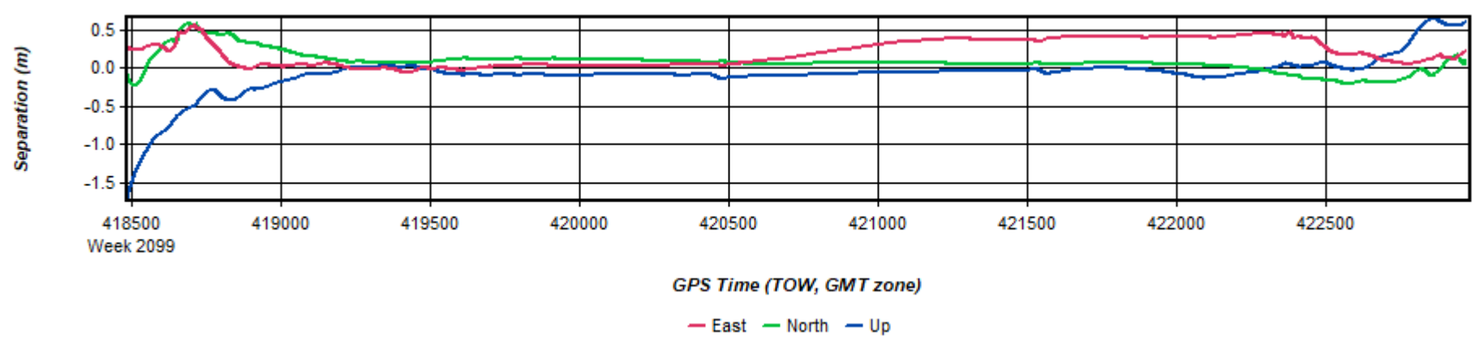
Process	20200402_201240-PPP	by Unknown	on 4/6/2020	at 09:16:22

Figure 3: 20200402_201240-PPP [Smoothed TC Combined] - Number of Satellites Line Plot



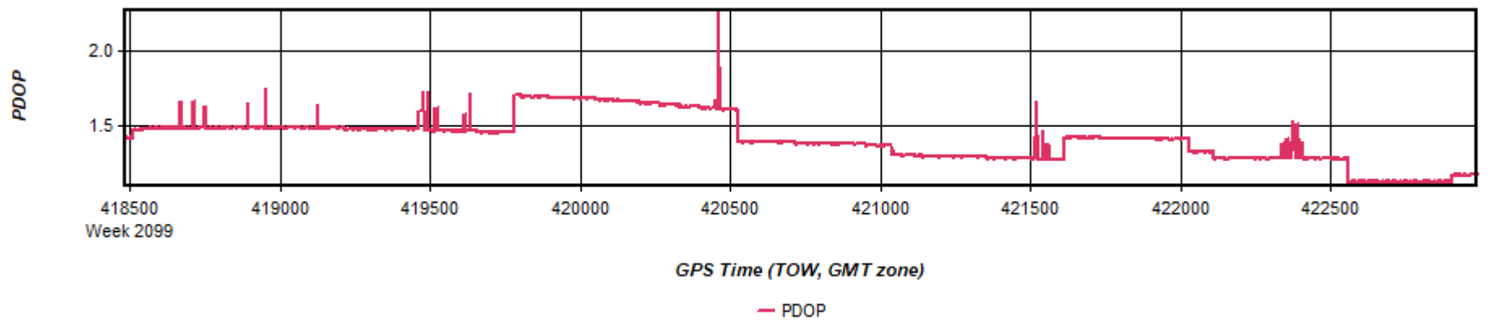
Process	20200402_201240-PPP	by Unknown	on 4/6/2020	at 09:16:22

Figure 4: 20200402_201240-PPP [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200402_201240-PPP	by Unknown	on 4/6/2020	at 09:16:22

Figure 5: 20200402_201240-PPP [Smoothed TC Combined] - PDOP Plot

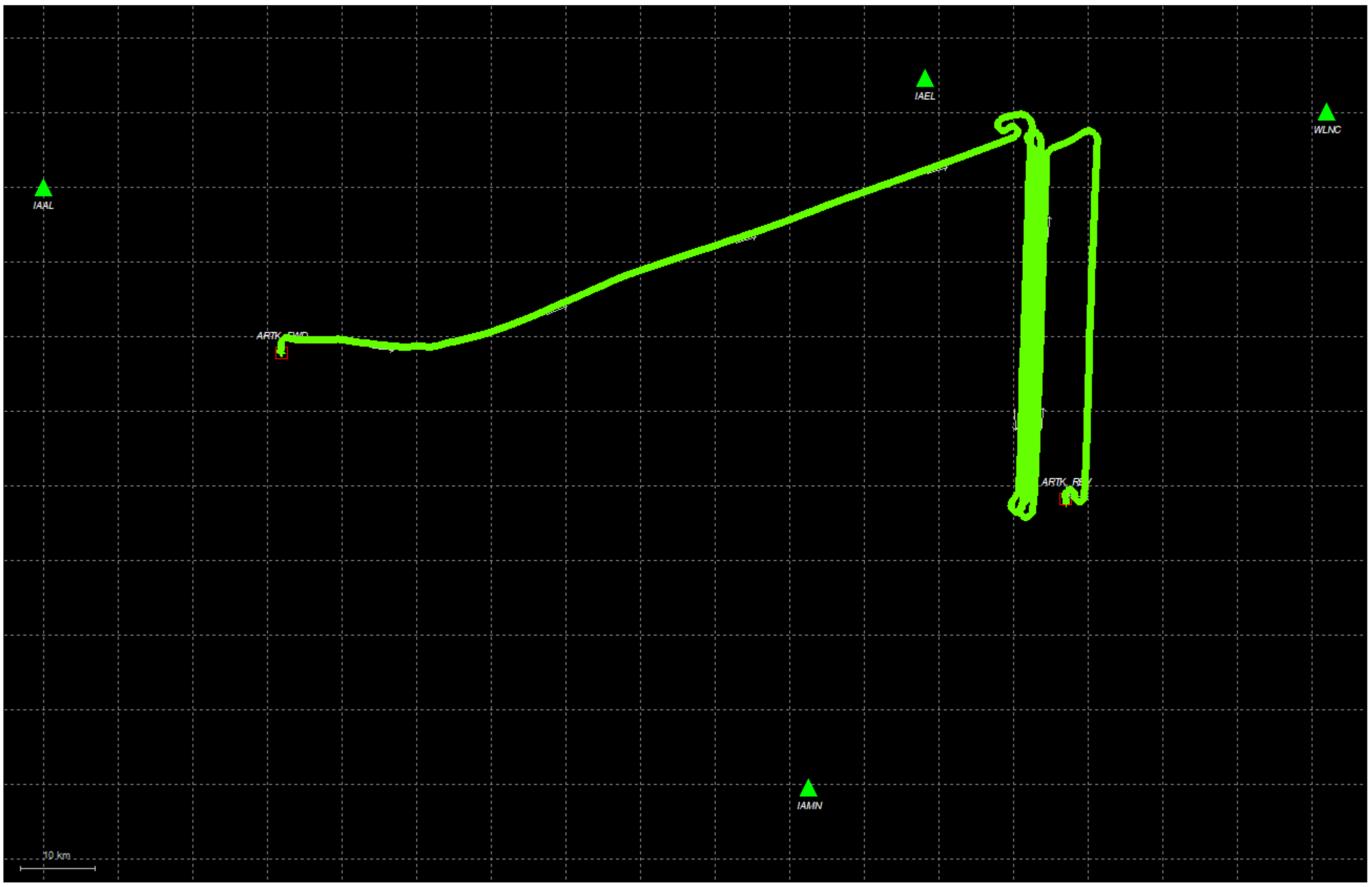


Process	20200402_201240-PPP	by Unknown	on 4/6/2020	at 09:16:22

Output Results for 20200405_131044

Inertial Explorer Version 8.80.2720
04/06/2020

Figure 1: Smoothed TC Combined - Map

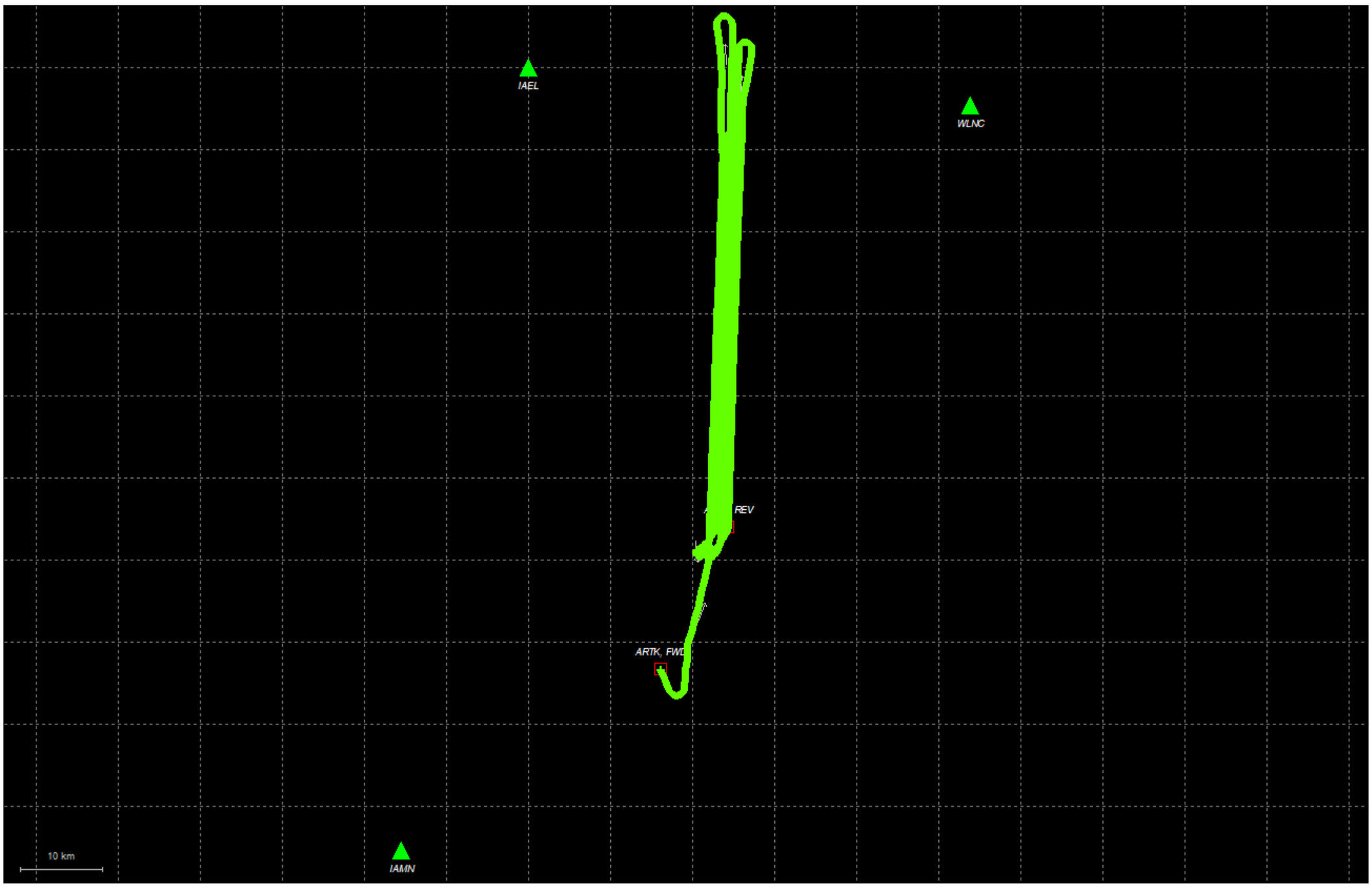


Process	20200405_131044	by Unknown	on 4/6/2020	at 16:46:34

Output Results for 20200405_152058

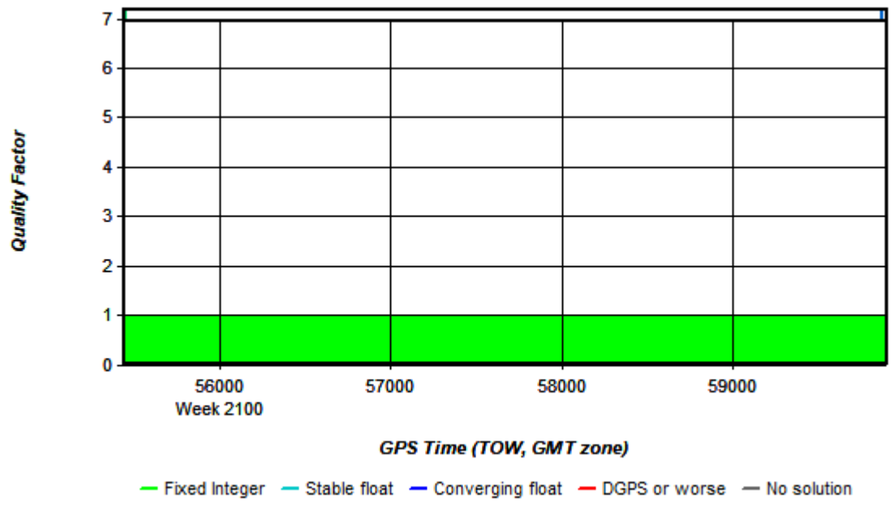
Inertial Explorer Version 8.80.2720
04/06/2020

Figure 1: Smoothed TC Combined - Map



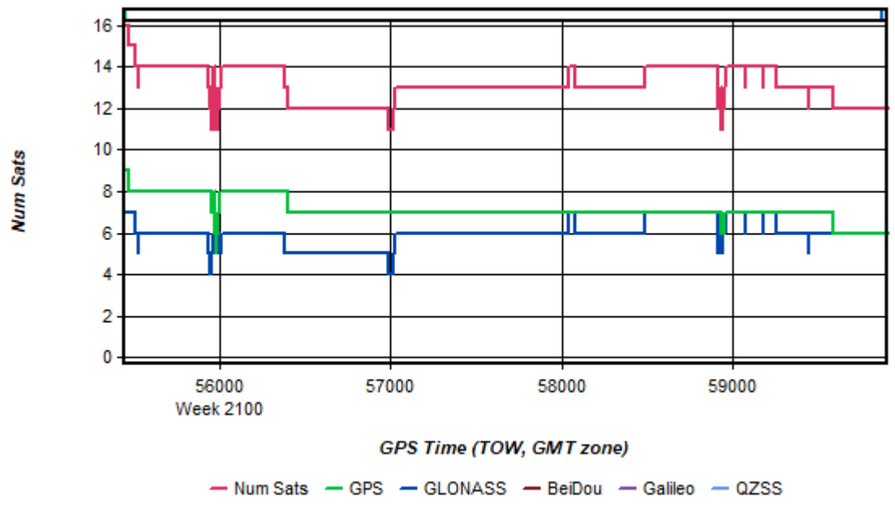
Process	20200405_152058	by Unknown	on 4/6/2020	at 16:27:46

Figure 2: 20200405_152058 [Smoothed TC Combined] - Quality Factor Plot



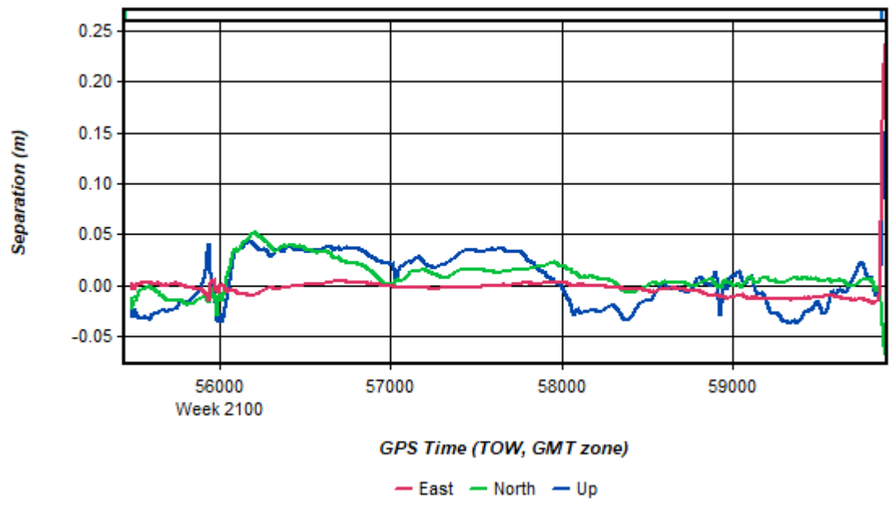
Process	20200405_152058	by Unknown	on 4/6/2020	at 16:27:46

Figure 3: 20200405_152058 [Smoothed TC Combined] - Number of Satellites Line Plot



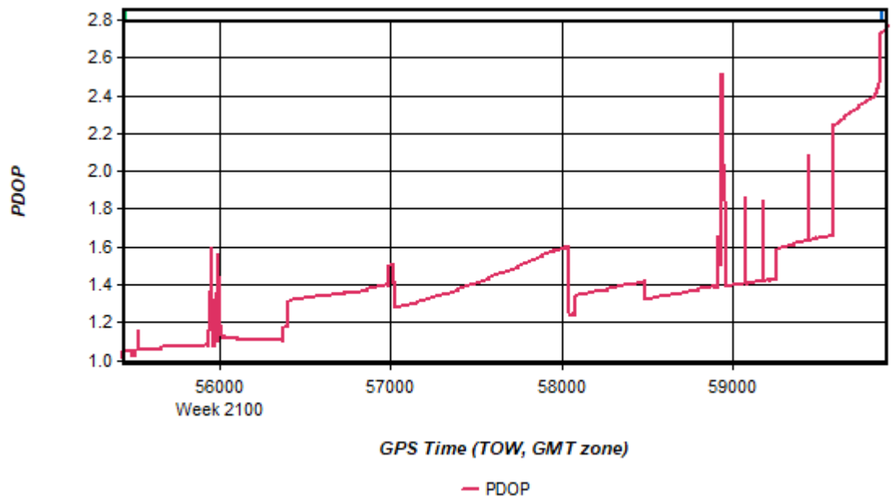
Process	20200405_152058	by Unknown	on 4/6/2020	at 16:27:46

Figure 4: 20200405_152058 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200405_152058	by Unknown	on 4/6/2020	at 16:27:46

Figure 5: 20200405_152058 [Smoothed TC Combined] - PDOP Plot

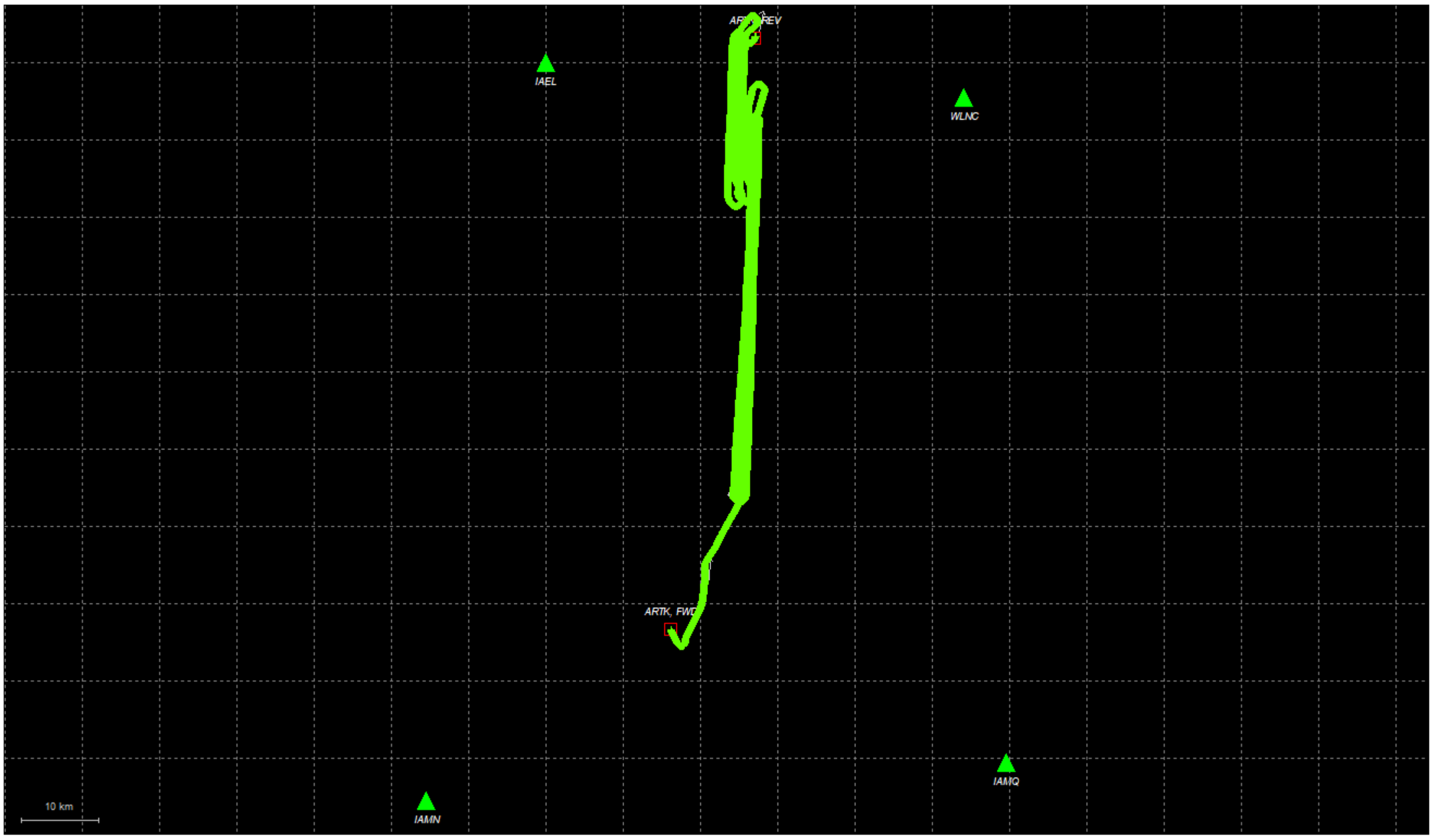


Process	20200405_152058	by Unknown	on 4/6/2020	at 16:27:46

Output Results for 20200405_165921

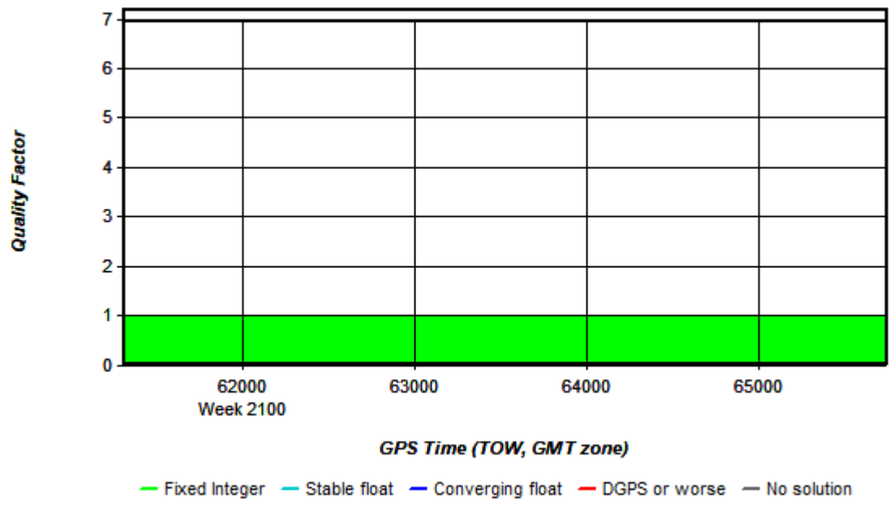
Inertial Explorer Version 8.80.2720
04/07/2020

Figure 1: Smoothed TC Combined - Map



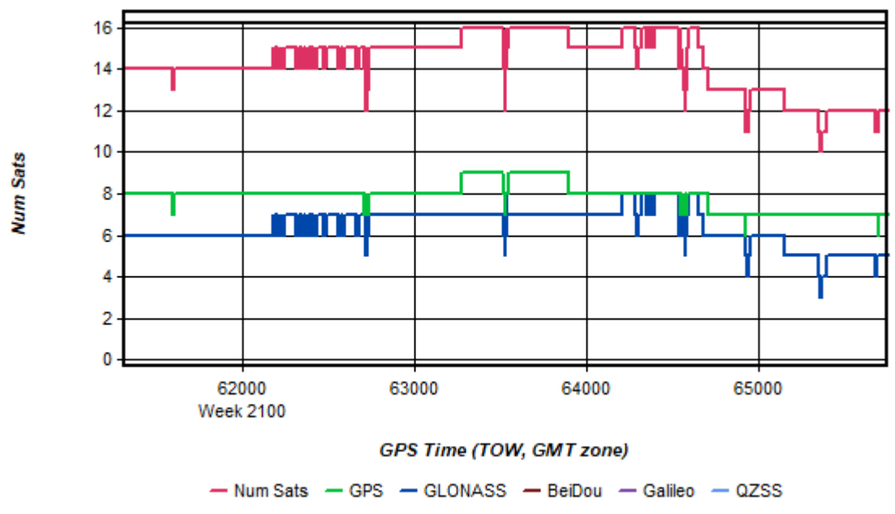
Process	20200405_165921	by Unknown	on 4/7/2020	at 07:17:28

Figure 2: 20200405_165921 [Smoothed TC Combined] - Quality Factor Plot



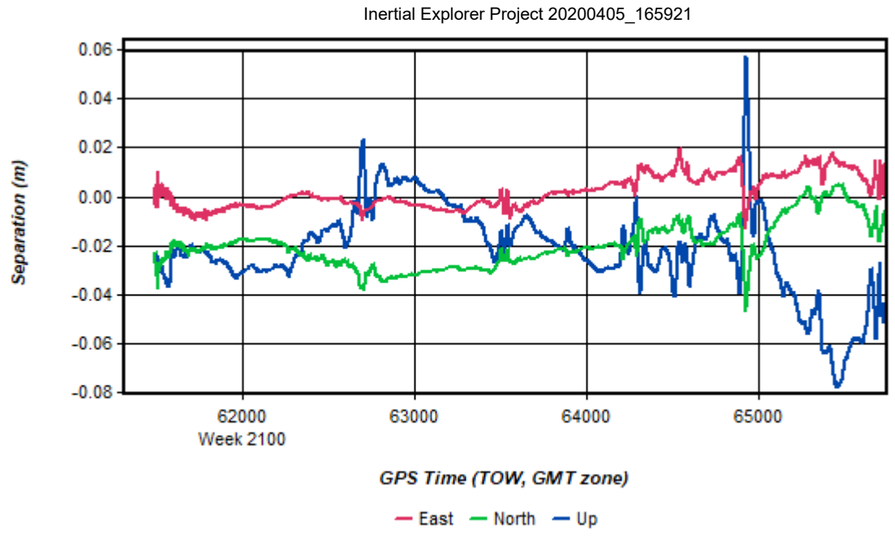
Process	20200405_165921	by Unknown	on 4/7/2020	at 07:17:28

Figure 3: 20200405_165921 [Smoothed TC Combined] - Number of Satellites Line Plot



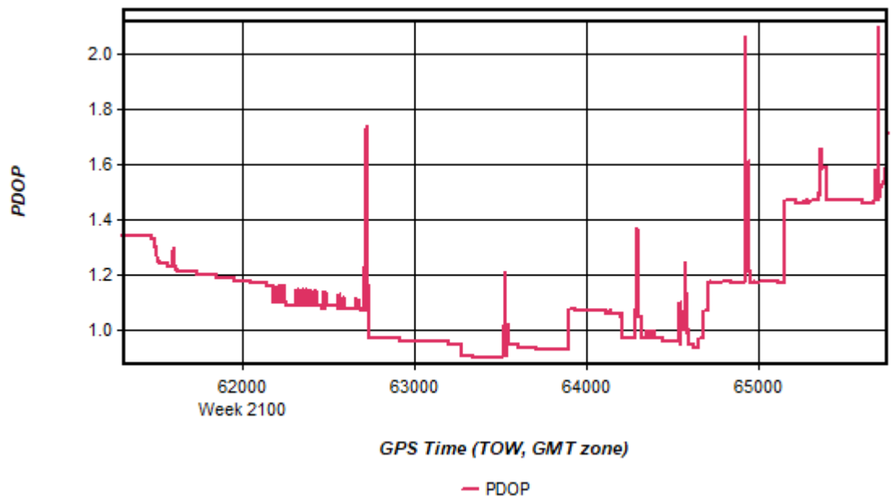
Process	20200405_165921	by Unknown	on 4/7/2020	at 07:17:28

Figure 4: 20200405_165921 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200405_165921	by Unknown	on 4/7/2020	at 07:17:28

Figure 5: 20200405_165921 [Smoothed TC Combined] - PDOP Plot

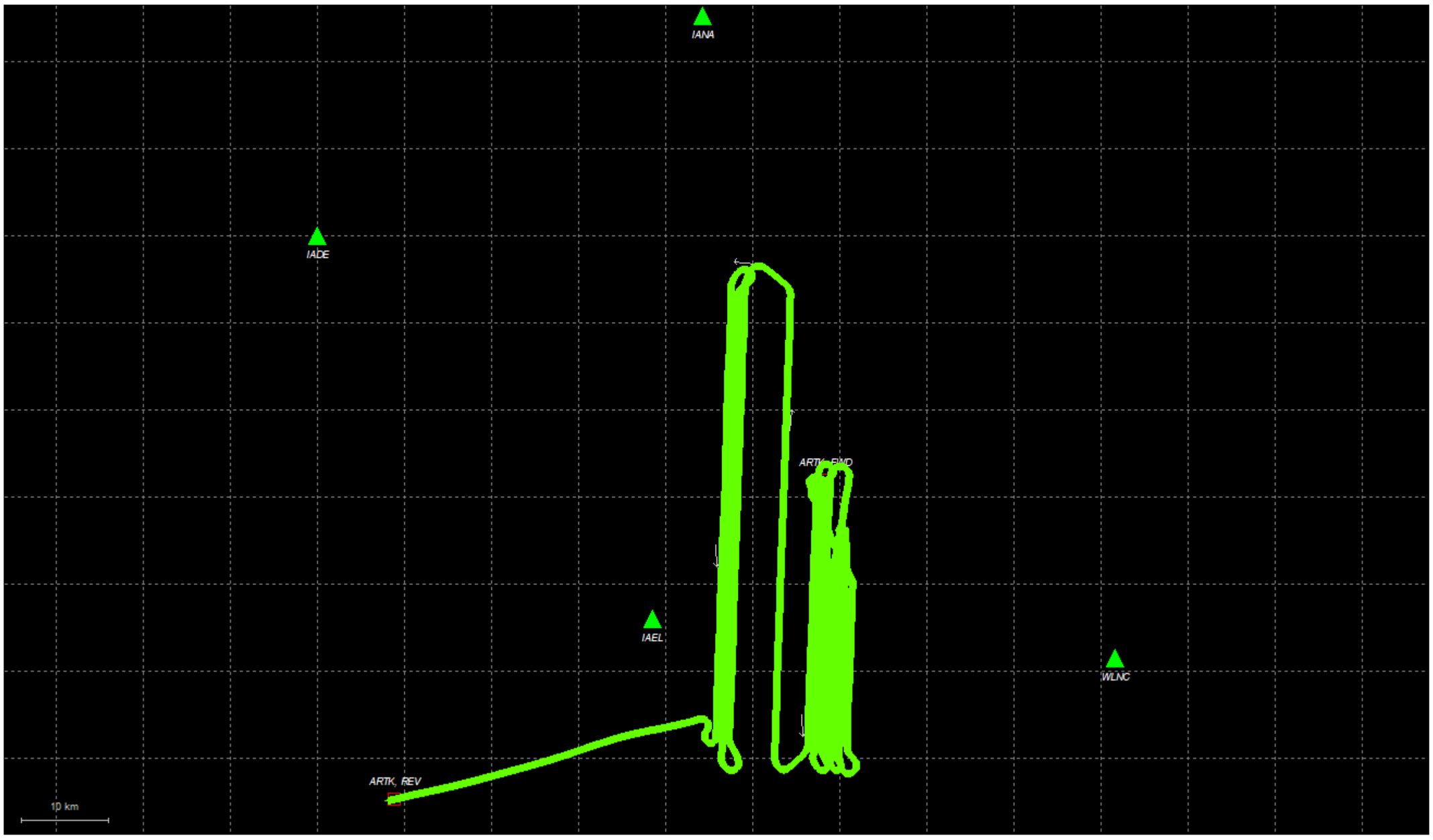


Process	20200405_165921	by Unknown	on 4/7/2020	at 07:17:28

Output Results for 20200405_185311

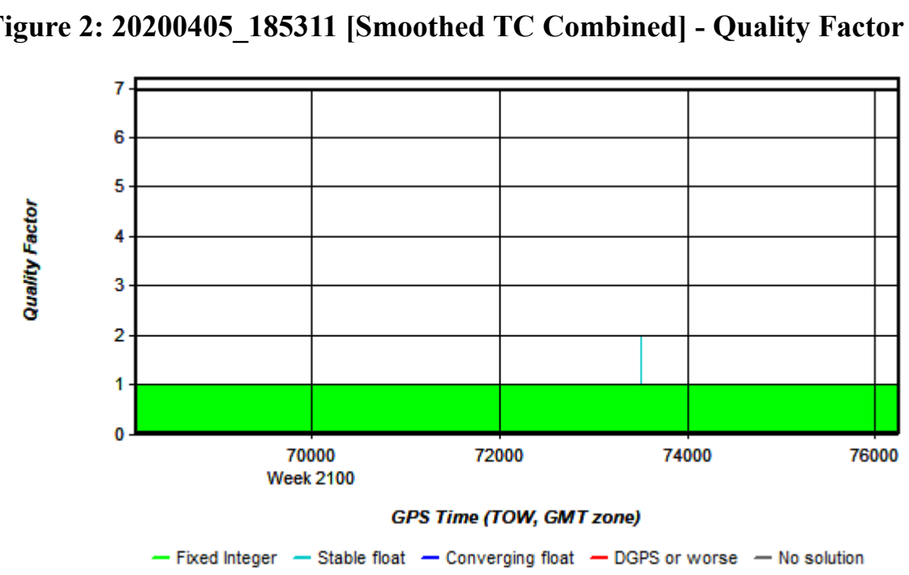
Inertial Explorer Version 8.80.2720
04/07/2020

Figure 1: Smoothed TC Combined - Map



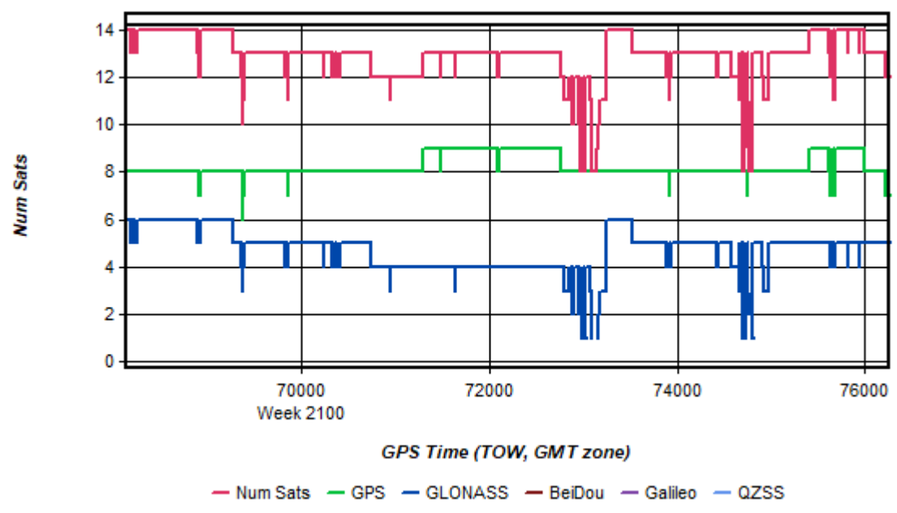
Process	20200405_185311	by Unknown	on 4/7/2020	at 07:45:14

Figure 2: 20200405_185311 [Smoothed TC Combined] - Quality Factor Plot



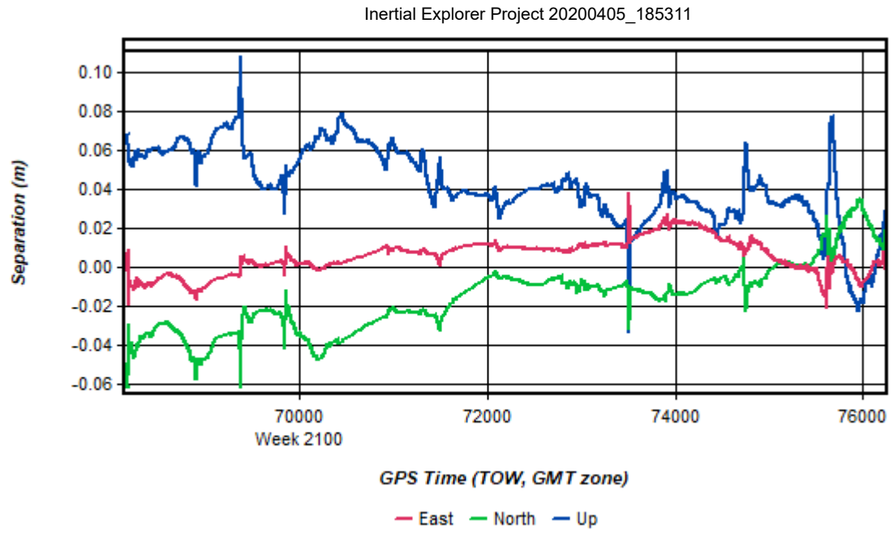
Process	20200405_185311	by Unknown	on 4/7/2020	at 07:45:14

Figure 3: 20200405_185311 [Smoothed TC Combined] - Number of Satellites Line Plot



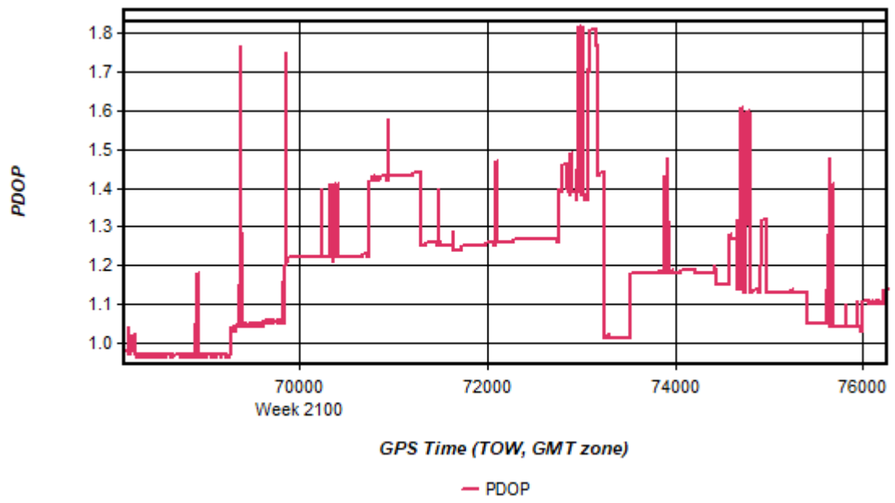
Process	20200405_185311	by Unknown	on 4/7/2020	at 07:45:14

Figure 4: 20200405_185311 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200405_185311	by Unknown	on 4/7/2020	at 07:45:14

Figure 5: 20200405_185311 [Smoothed TC Combined] - PDOP Plot

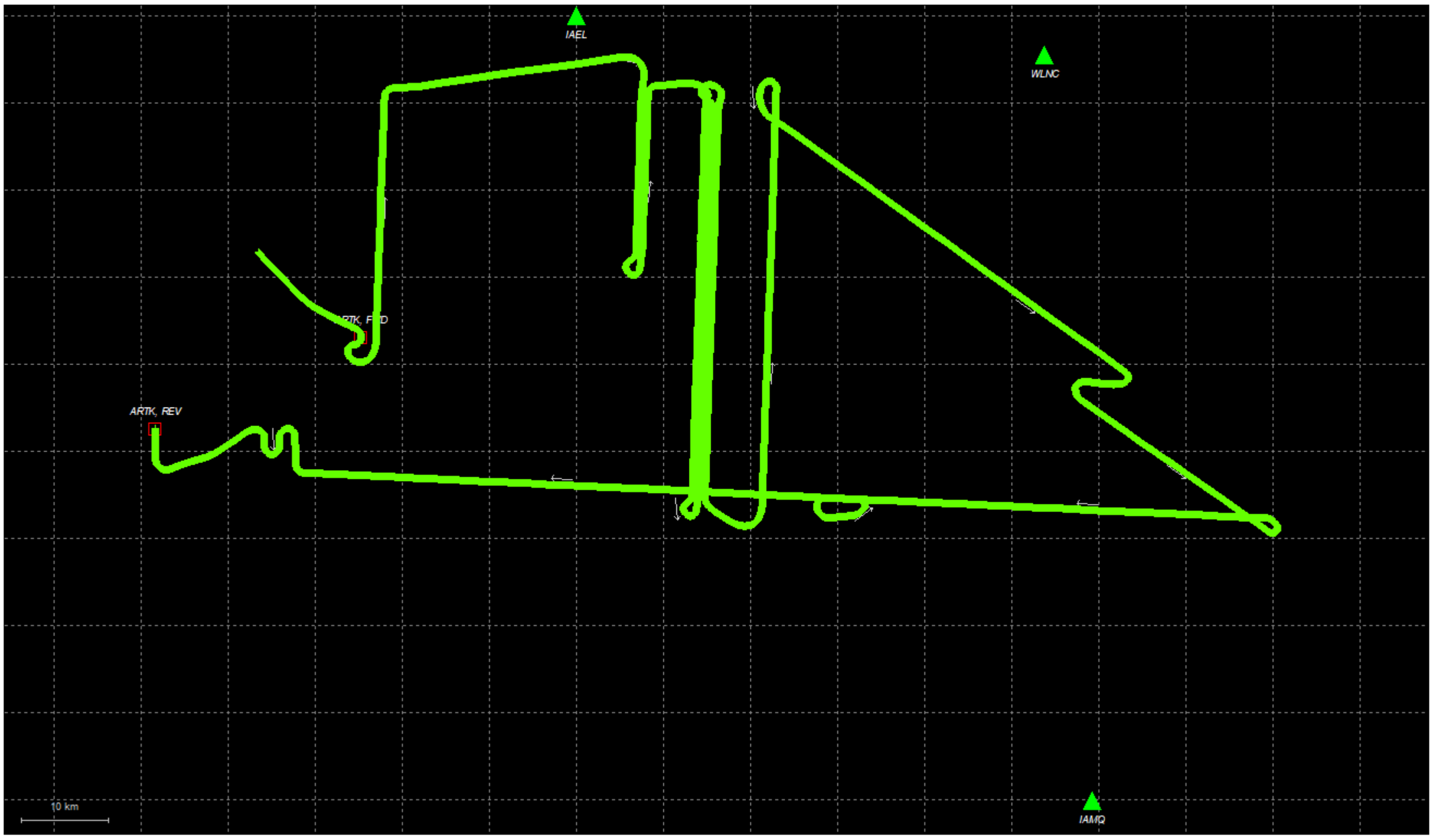


Process	20200405_185311	by Unknown	on 4/7/2020	at 07:45:14

Output Results for 20200408_020026

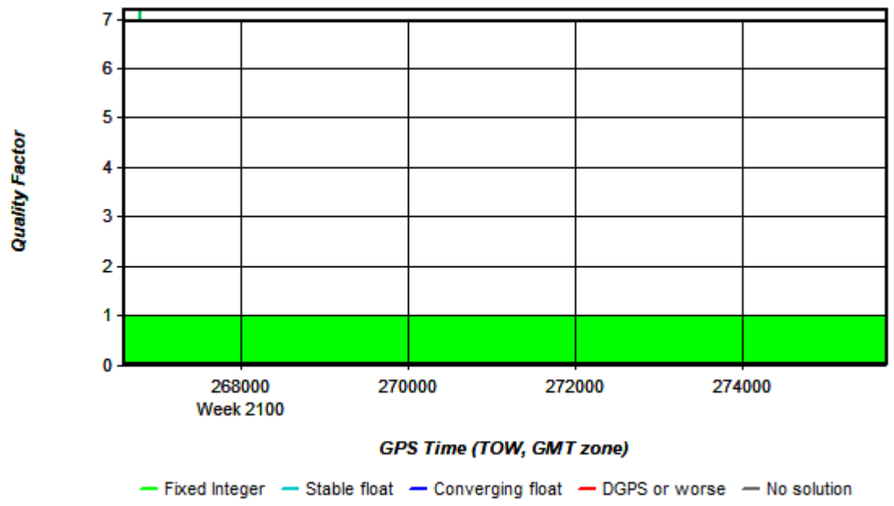
Inertial Explorer Version 8.80.2720
04/08/2020

Figure 1: Smoothed TC Combined - Map



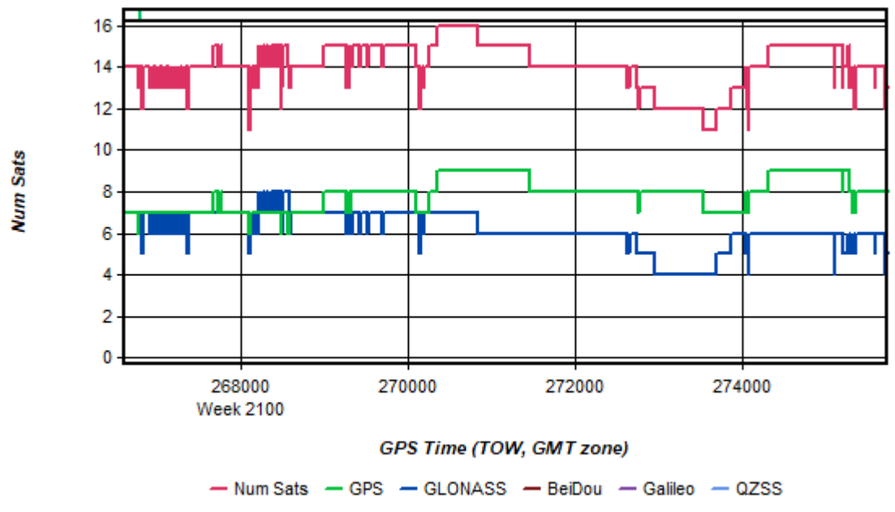
Process	20200408_020026	by Unknown	on 4/8/2020	at 11:15:15

Figure 2: 20200408_020026 [Smoothed TC Combined] - Quality Factor Plot



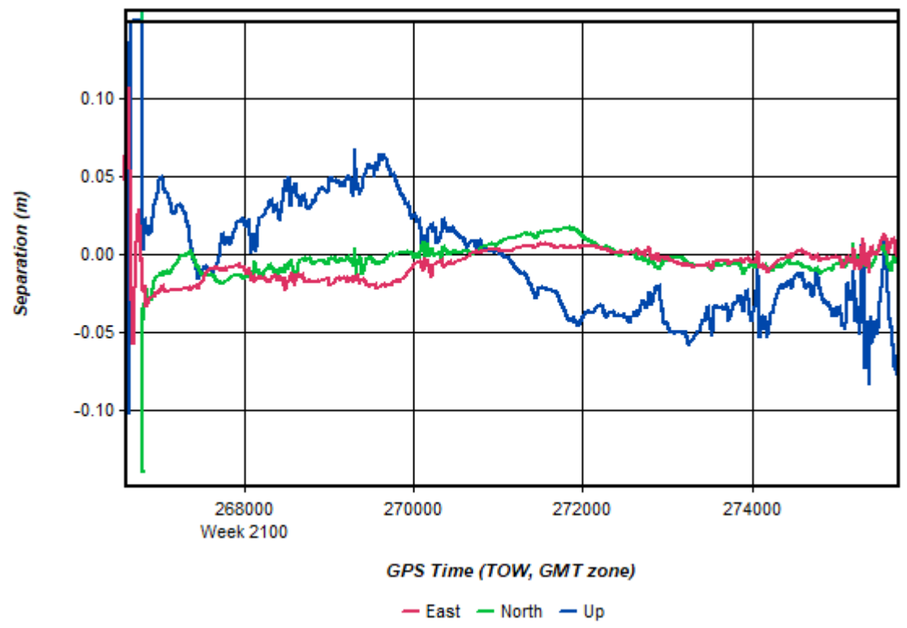
Process	20200408_020026	by Unknown	on 4/8/2020	at 11:15:15

Figure 3: 20200408_020026 [Smoothed TC Combined] - Number of Satellites Line Plot

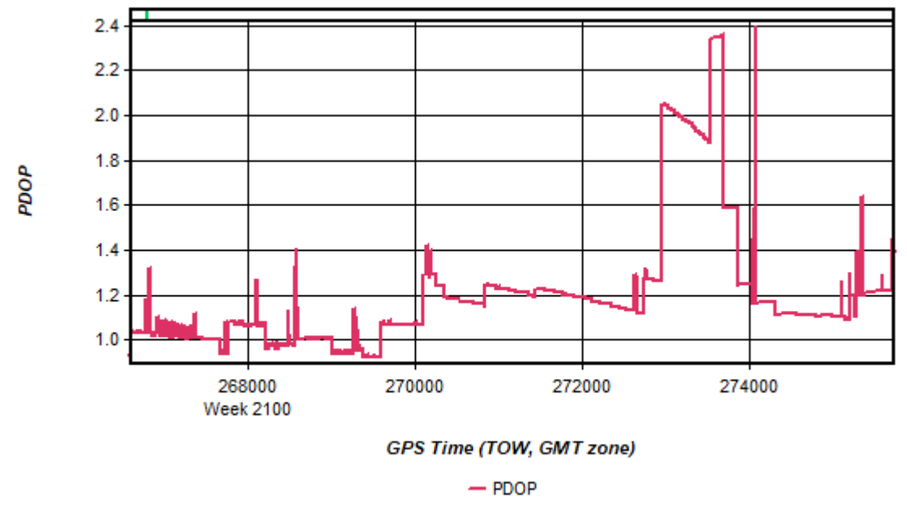


Process	20200408_020026	by Unknown	on 4/8/2020	at 11:15:15

Figure 4: 20200408_020026 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200408_020026	by Unknown	on 4/8/2020	at 11:15:15



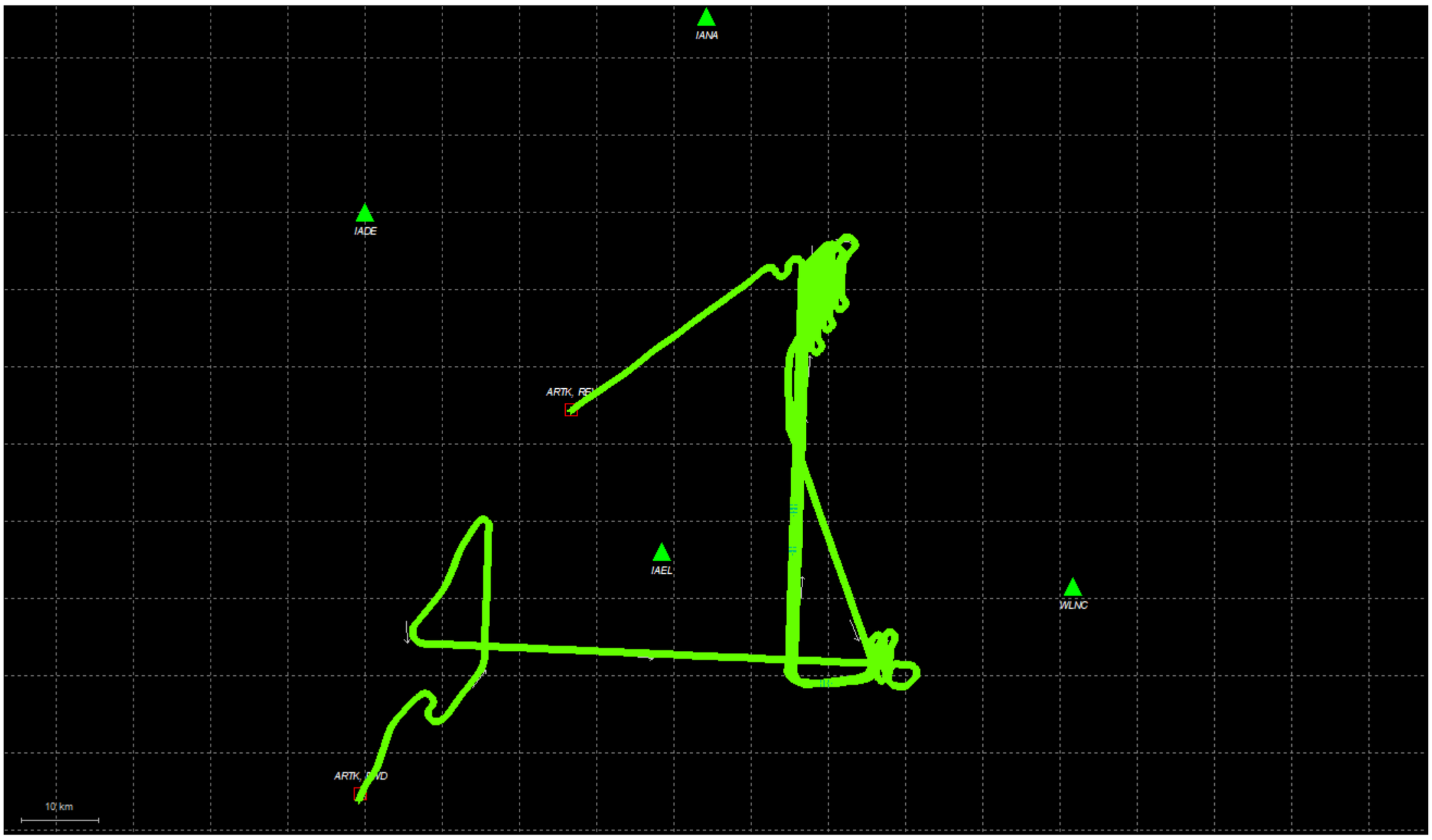
Process	20200408_020026	by Unknown	on 4/8/2020	at 11:15:15

Figure 5: 20200408_020026 [Smoothed TC Combined] - PDOP Plot

Output Results for 20200408_050813

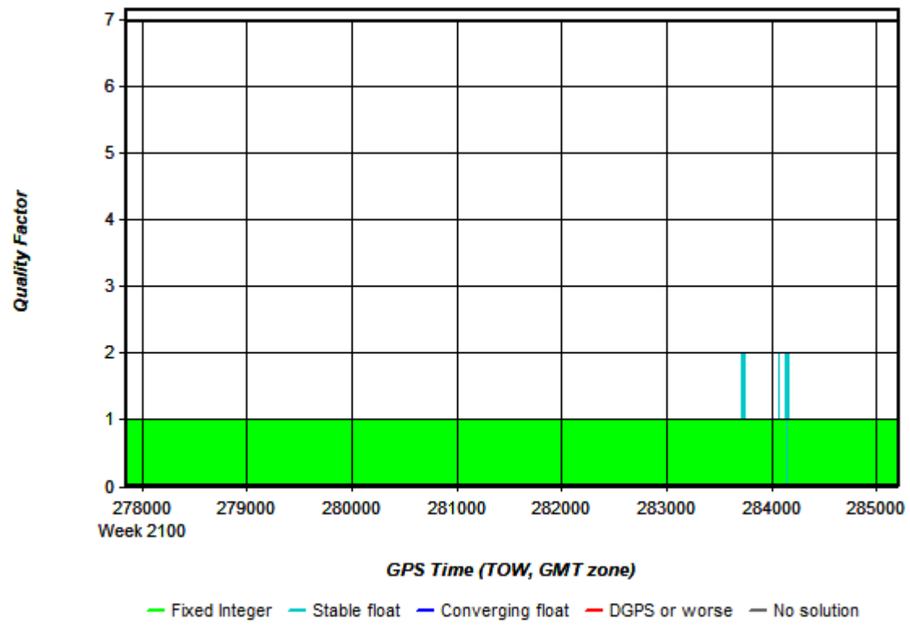
Inertial Explorer Version 8.80.2720
04/08/2020

Figure 1: Smoothed TC Combined - Map



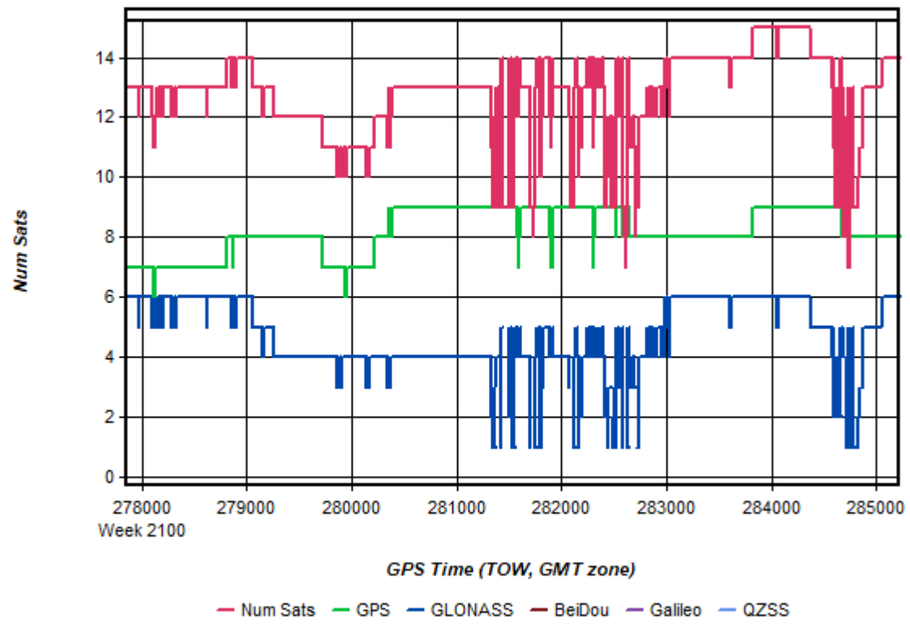
Process	20200408_050813	by Unknown	on 4/8/2020	at 11:49:51

Figure 2: 20200408_050813 [Smoothed TC Combined] - Quality Factor Plot



Process	20200408_050813	by Unknown	on 4/8/2020	at 11:49:51

Figure 3: 20200408_050813 [Smoothed TC Combined] - Number of Satellites Line Plot



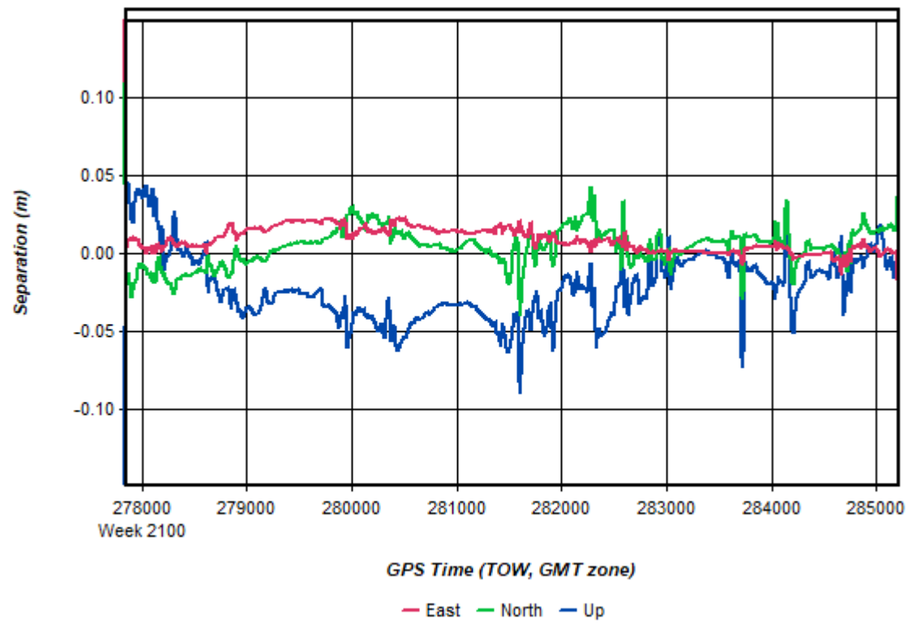
Process	20200408_050813	by Unknown	on 4/8/2020	at 11:49:51

Figure 4: 20200408_050813 [TC Combined] - Forward/Reverse or Combined Separation Plot

.

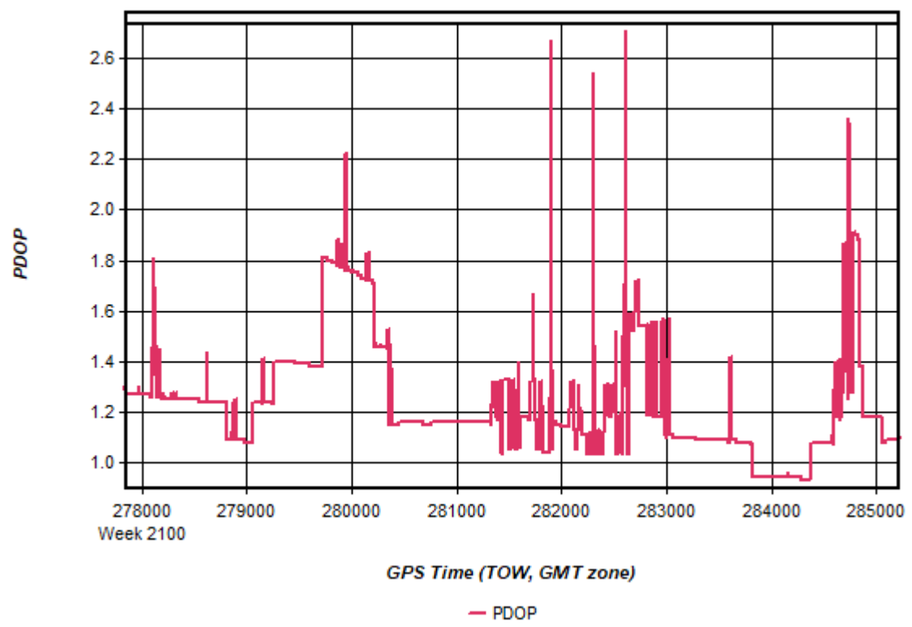
Process	20200408_050813	by Unknown	on 4/8/2020	at 11:44:45

Figure 5: 20200408_050813 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200408_050813	by Unknown	on 4/8/2020	at 11:49:51

Figure 6: 20200408_050813 [Smoothed TC Combined] - PDOP Plot

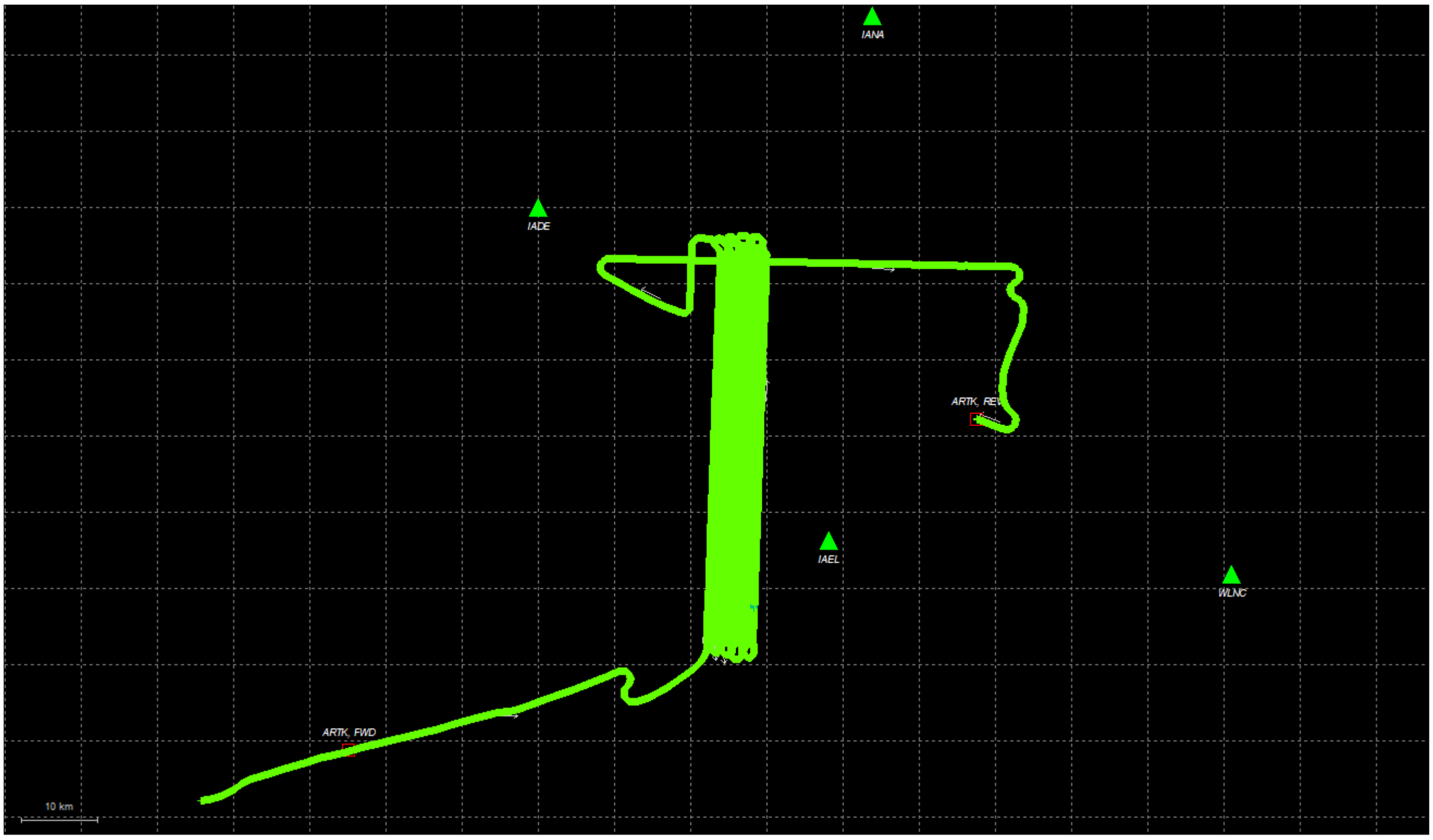


Process	20200408_050813	by Unknown	on 4/8/2020	at 11:49:51

Output Results for 20200410_043423

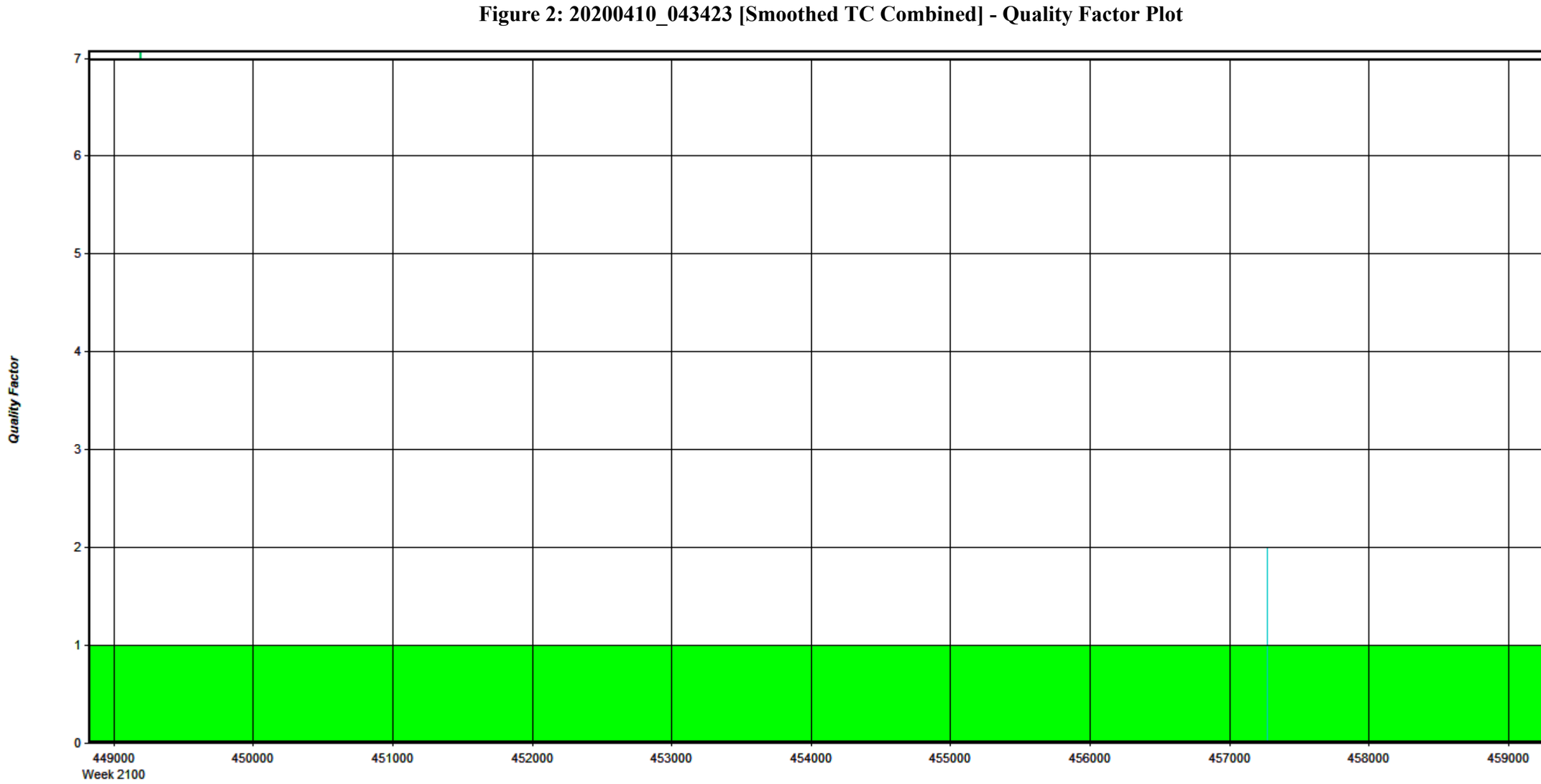
Inertial Explorer Version 8.80.2720
04/10/2020

Figure 1: Smoothed TC Combined - Map



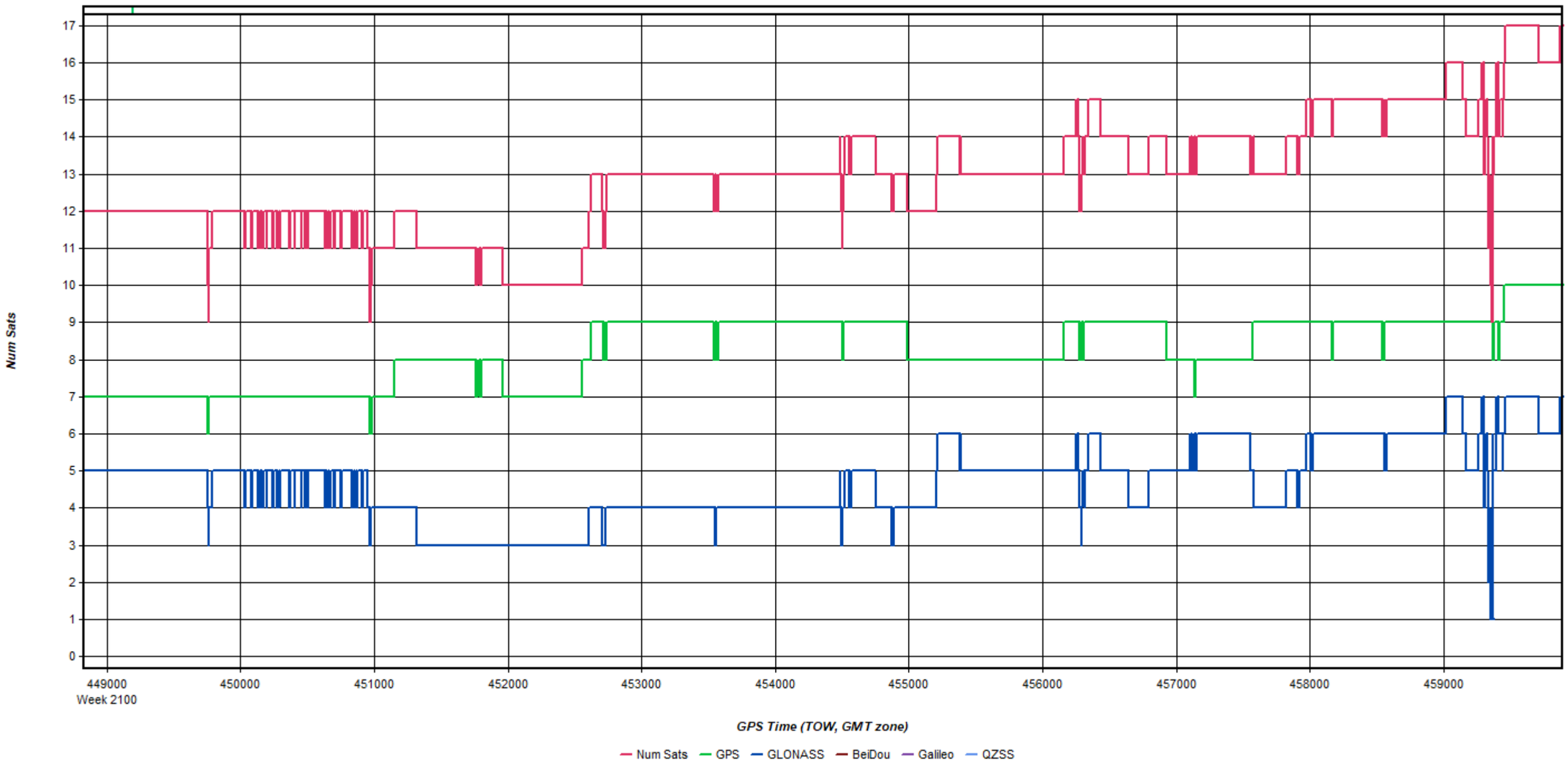
Process	20200410_043423	by Unknown	on 4/10/2020	at 15:52:38

Figure 2: 20200410_043423 [Smoothed TC Combined] - Quality Factor Plot



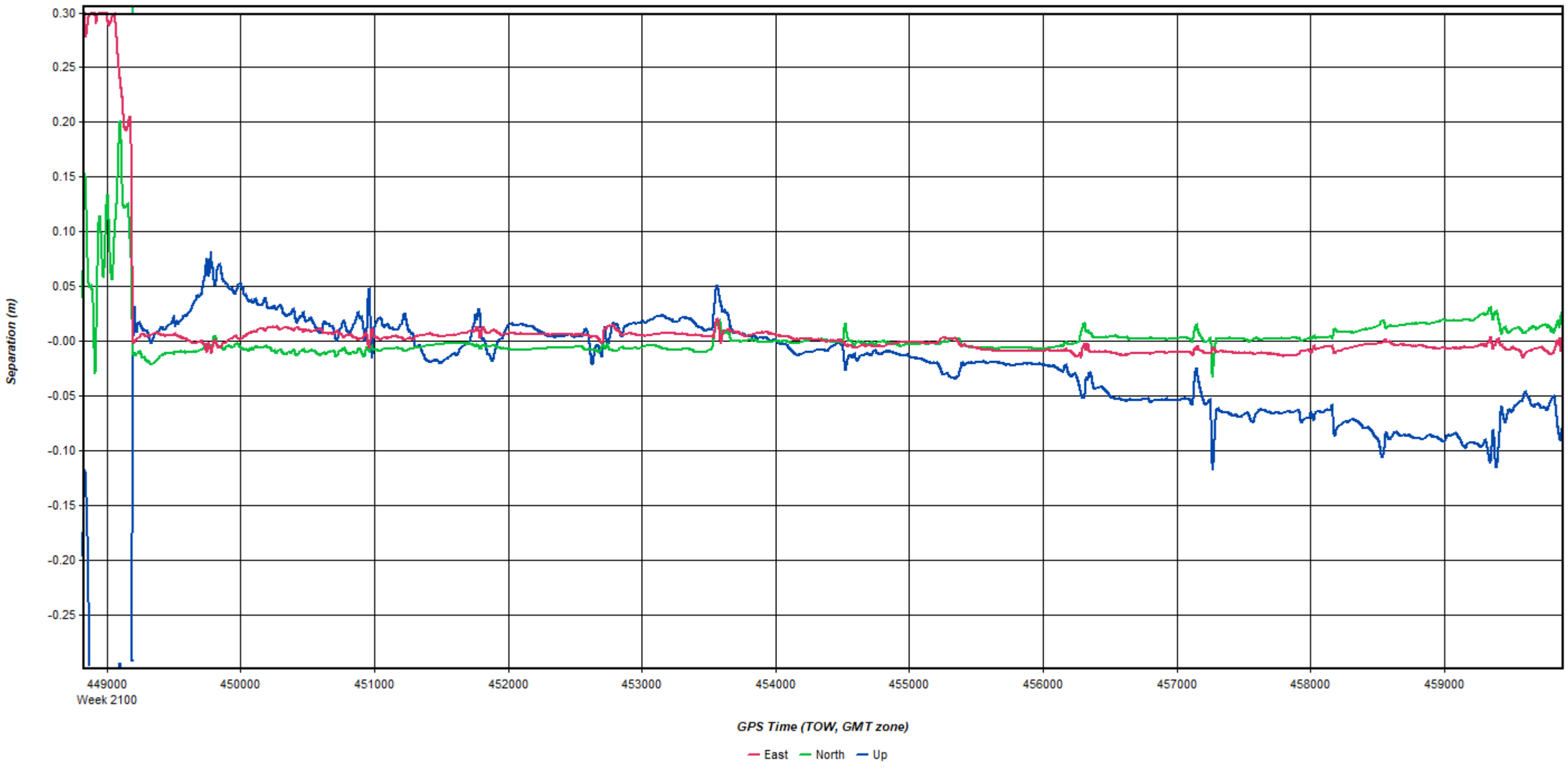
Process	20200410_043423	by Unknown	on 4/10/2020	at 15:52:38

Figure 3: 20200410_043423 [Smoothed TC Combined] - Number of Satellites Line Plot



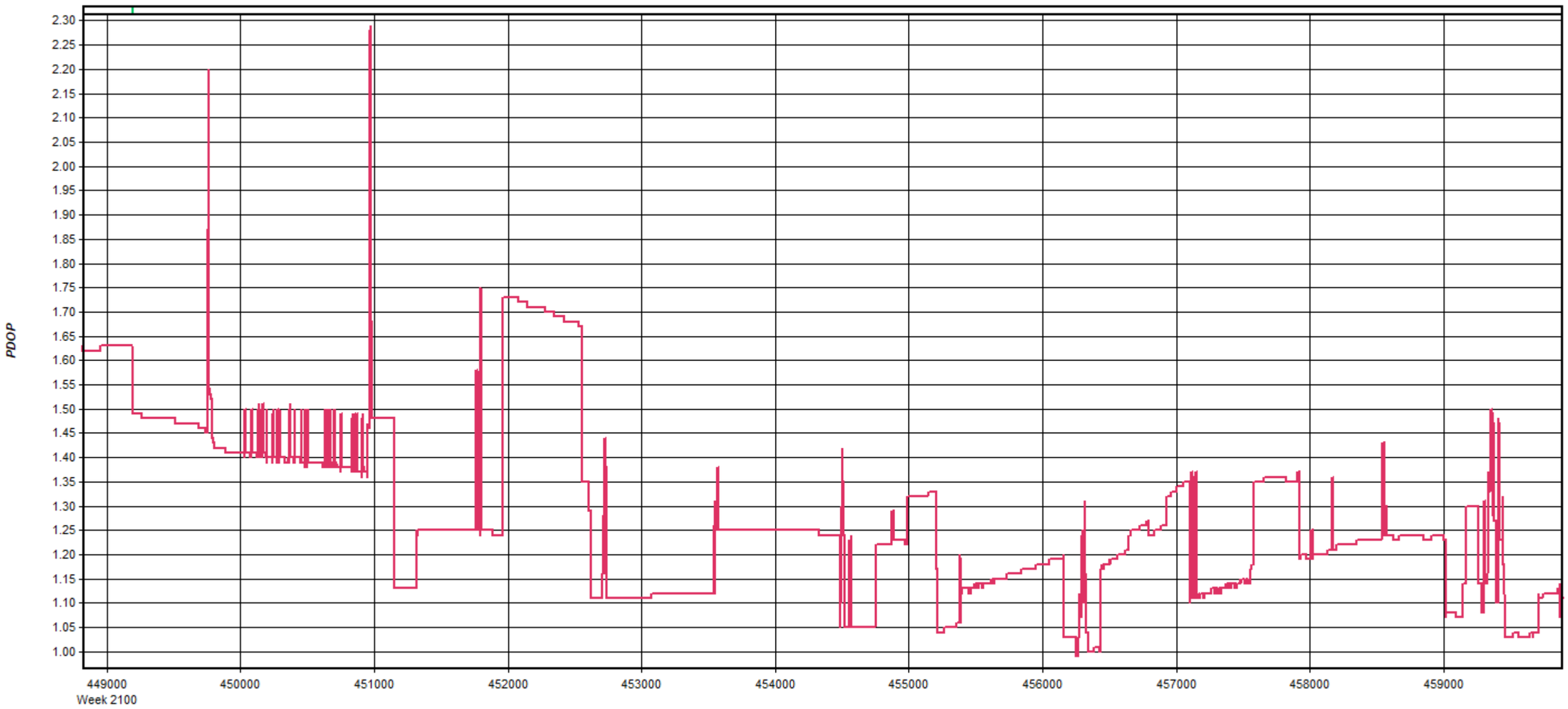
Process	20200410_043423	by Unknown	on 4/10/2020	at 15:52:38

Figure 4: 20200410_043423 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200410_043423	by Unknown	on 4/10/2020	at 15:52:38

Figure 5: 20200410_043423 [Smoothed TC Combined] - PDOP Plot

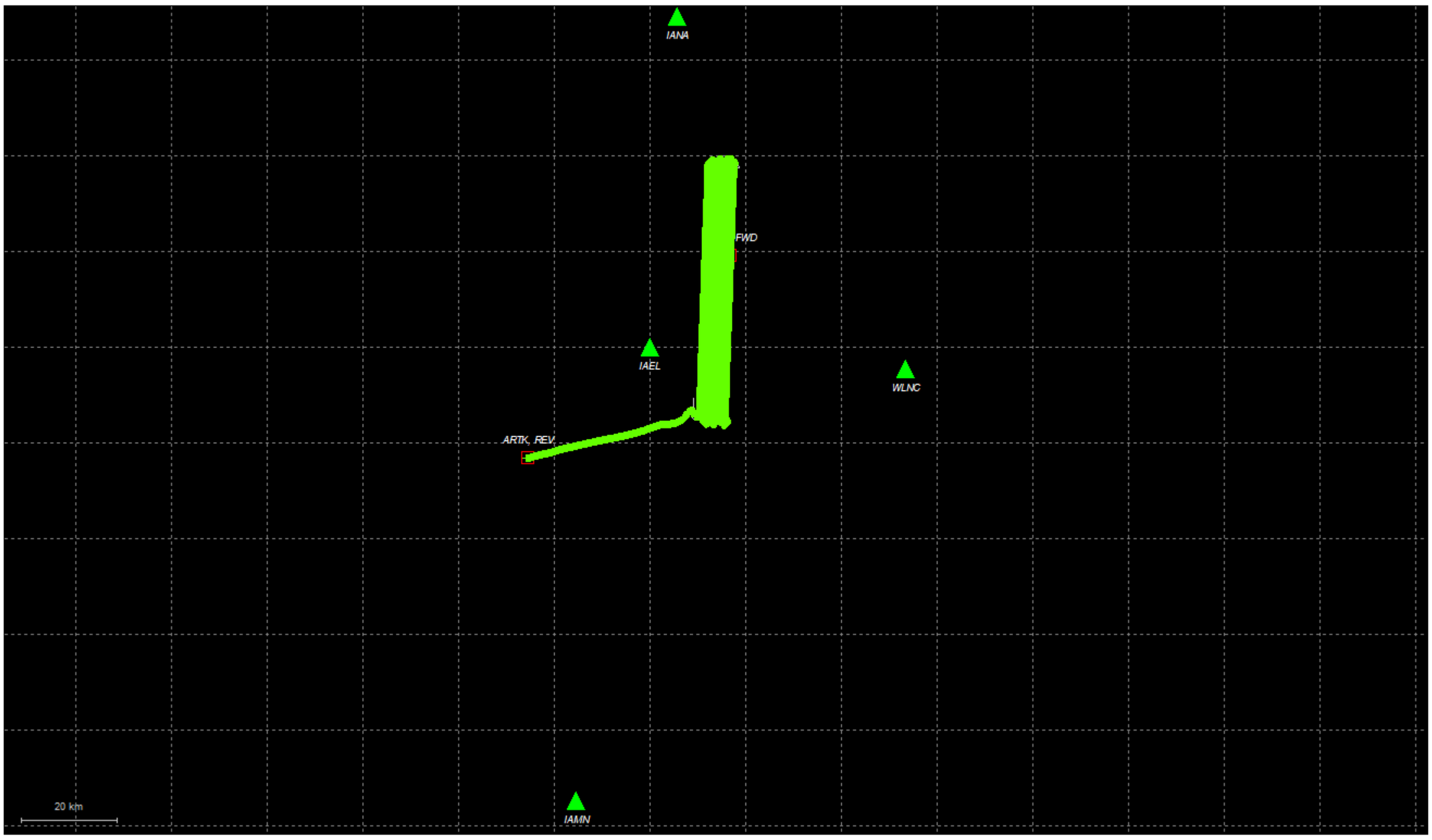


Process	20200410_043423	by Unknown	on 4/10/2020	at 15:52:38

Output Results for 20200410_082100

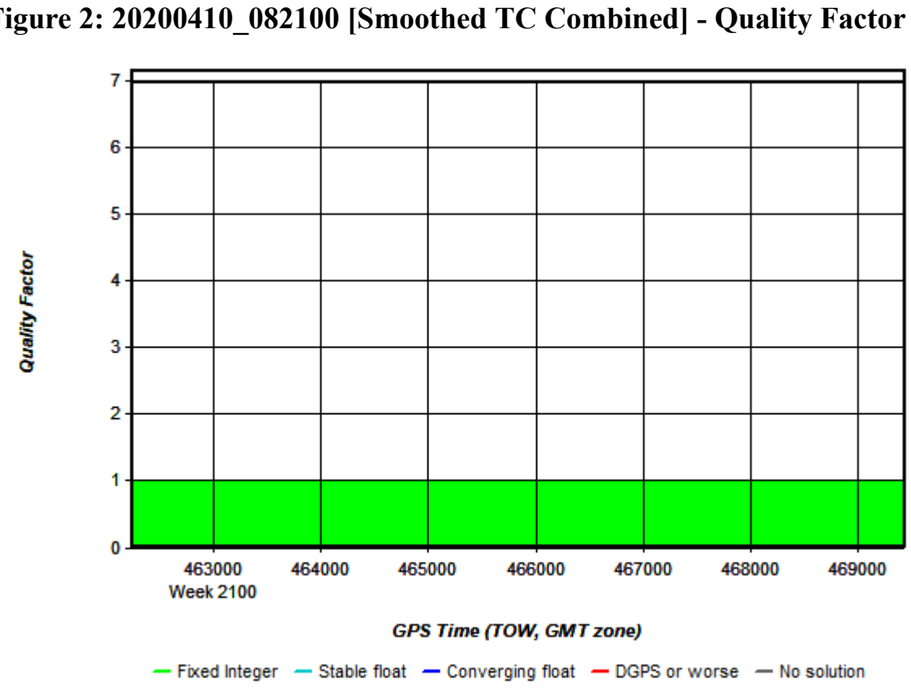
Inertial Explorer Version 8.80.2720
04/10/2020

Figure 1: Smoothed TC Combined - Map



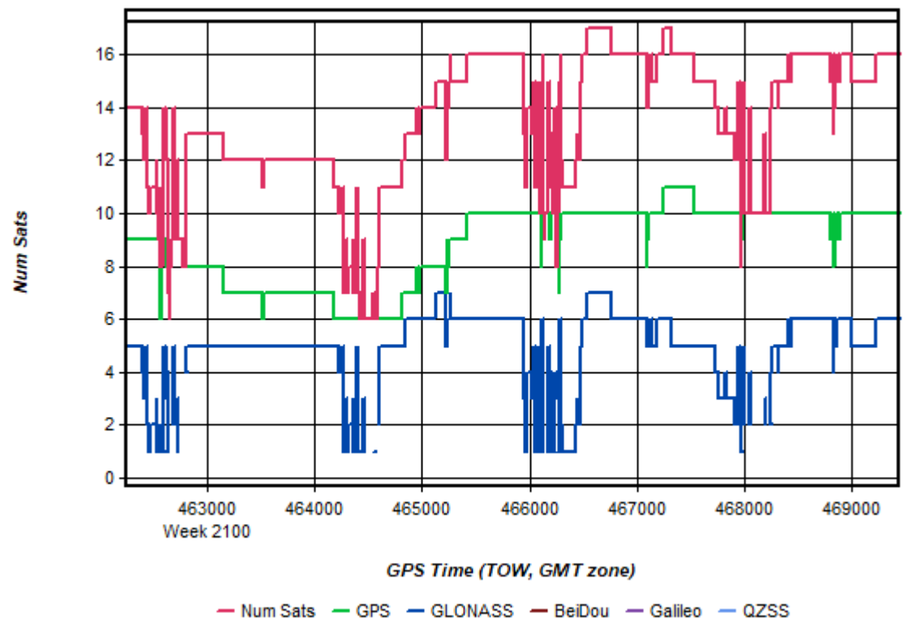
Process	20200410_082100	by Unknown	on 4/10/2020	at 14:35:41

Figure 2: 20200410_082100 [Smoothed TC Combined] - Quality Factor Plot



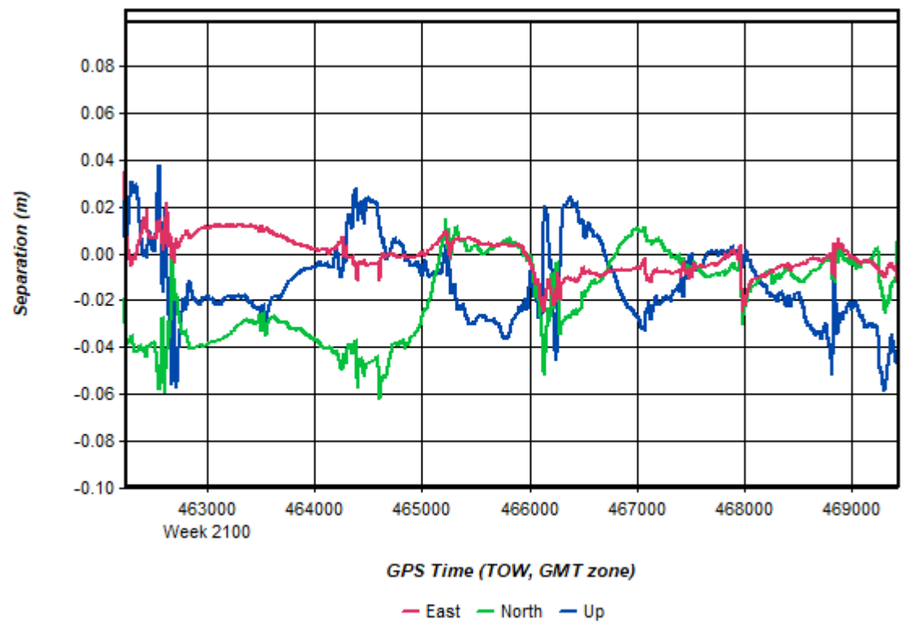
Process	20200410_082100	by Unknown	on 4/10/2020	at 14:35:41

Figure 3: 20200410_082100 [Smoothed TC Combined] - Number of Satellites Line Plot

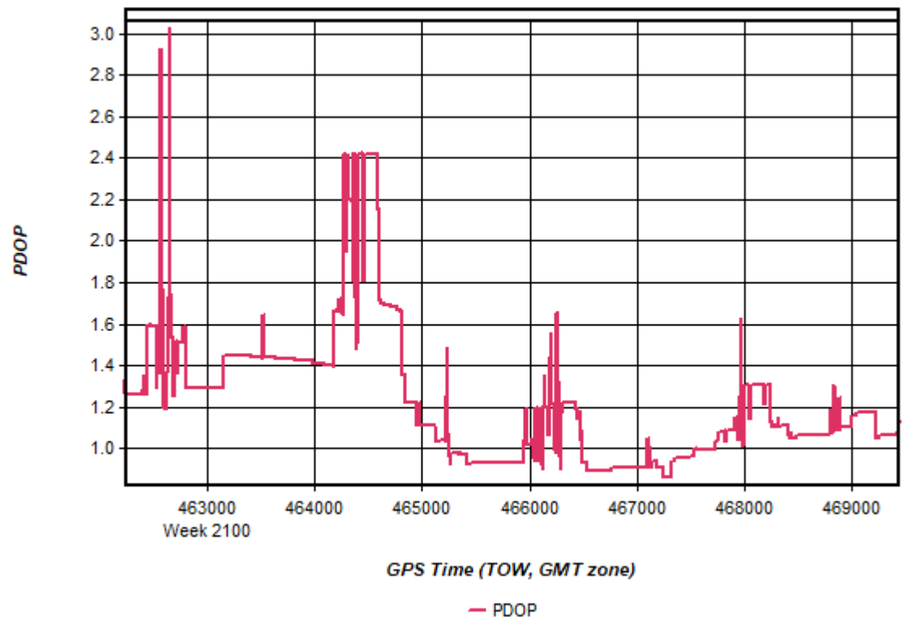


Process	20200410_082100	by Unknown	on 4/10/2020	at 14:35:41

Figure 4: 20200410_082100 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200410_082100	by Unknown	on 4/10/2020	at 14:35:41



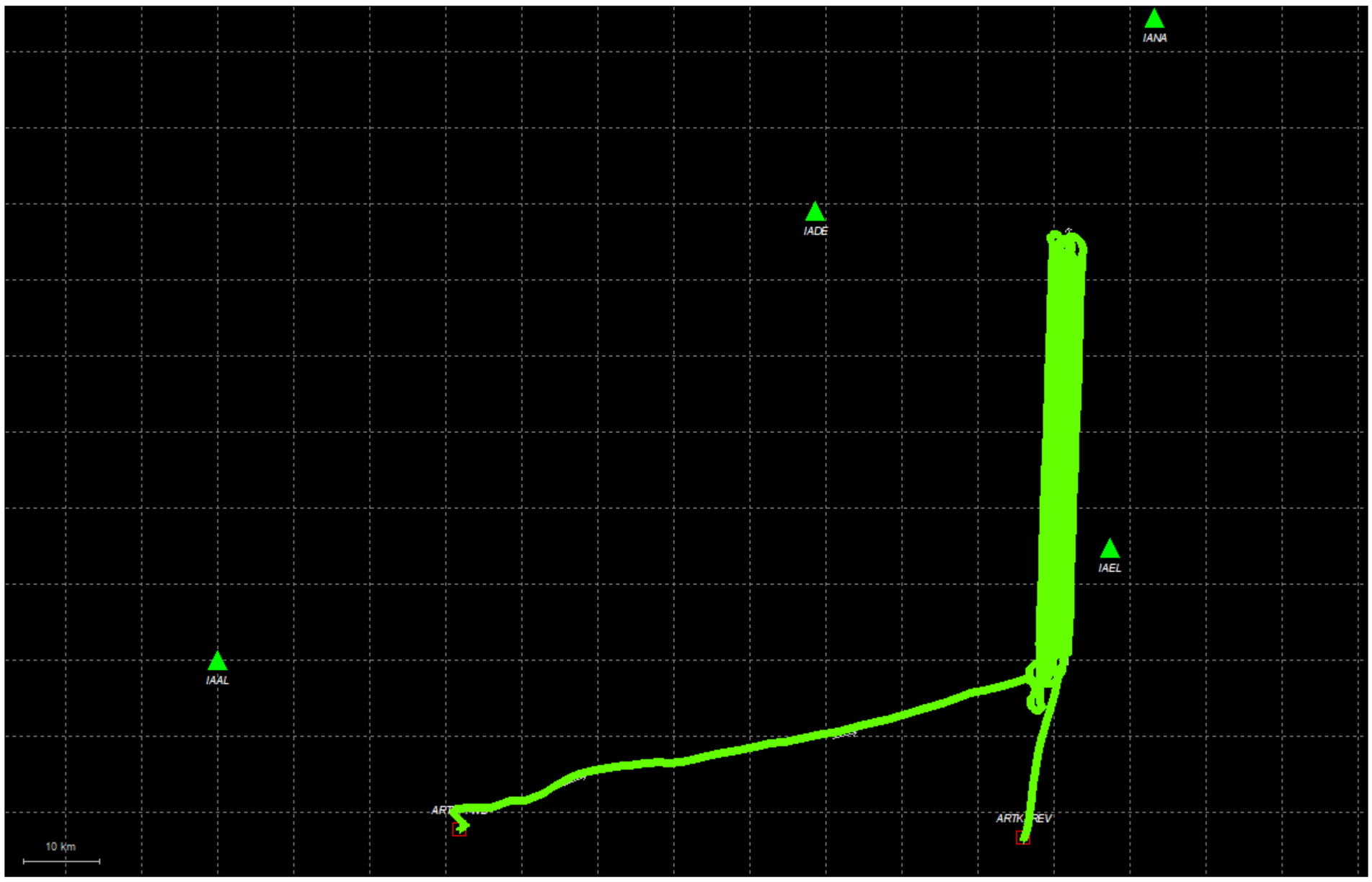
Process	20200410_082100	by Unknown	on 4/10/2020	at 14:35:41

Figure 5: 20200410_082100 [Smoothed TC Combined] - PDOP Plot

Output Results for 20200410_114159

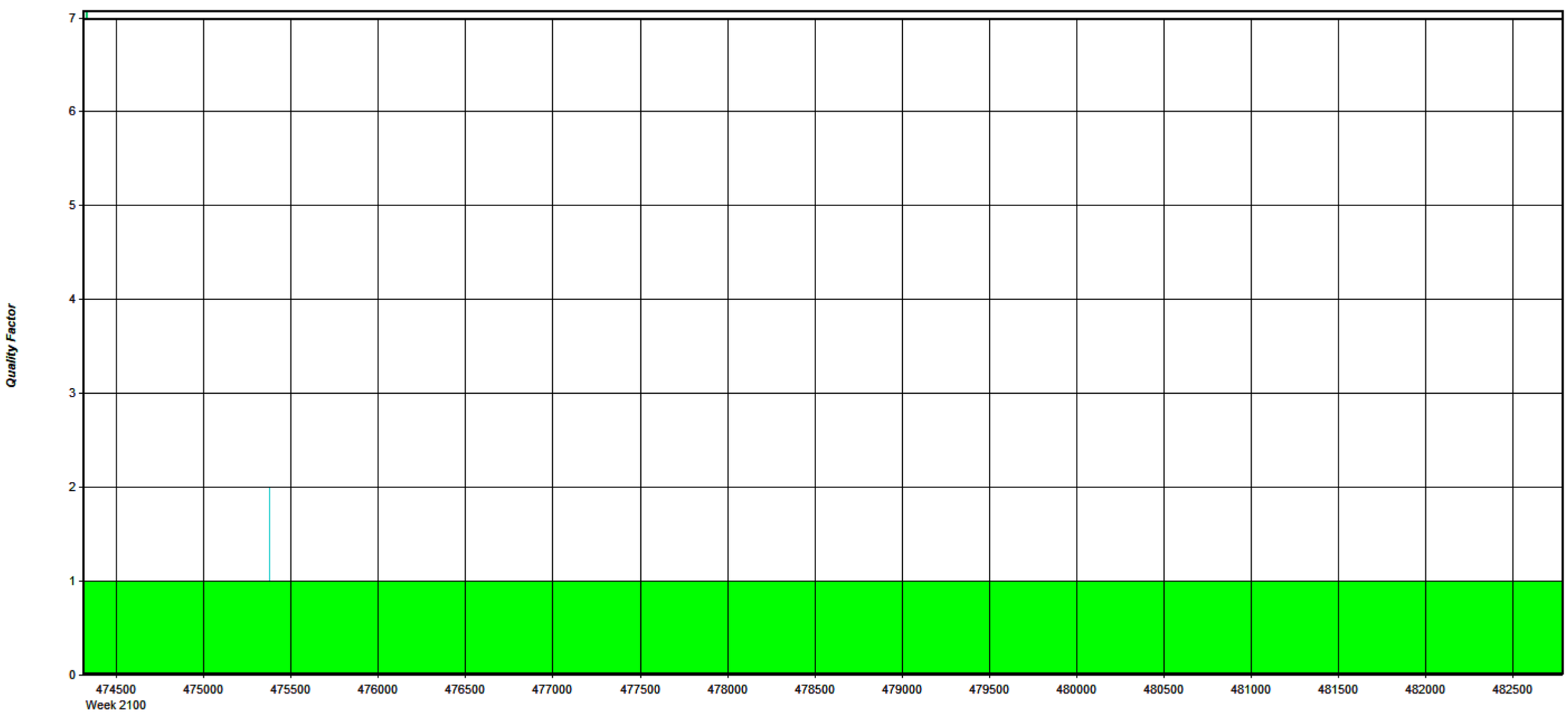
Inertial Explorer Version 8.80.2720
04/13/2020

Figure 1: Smoothed TC Combined - Map



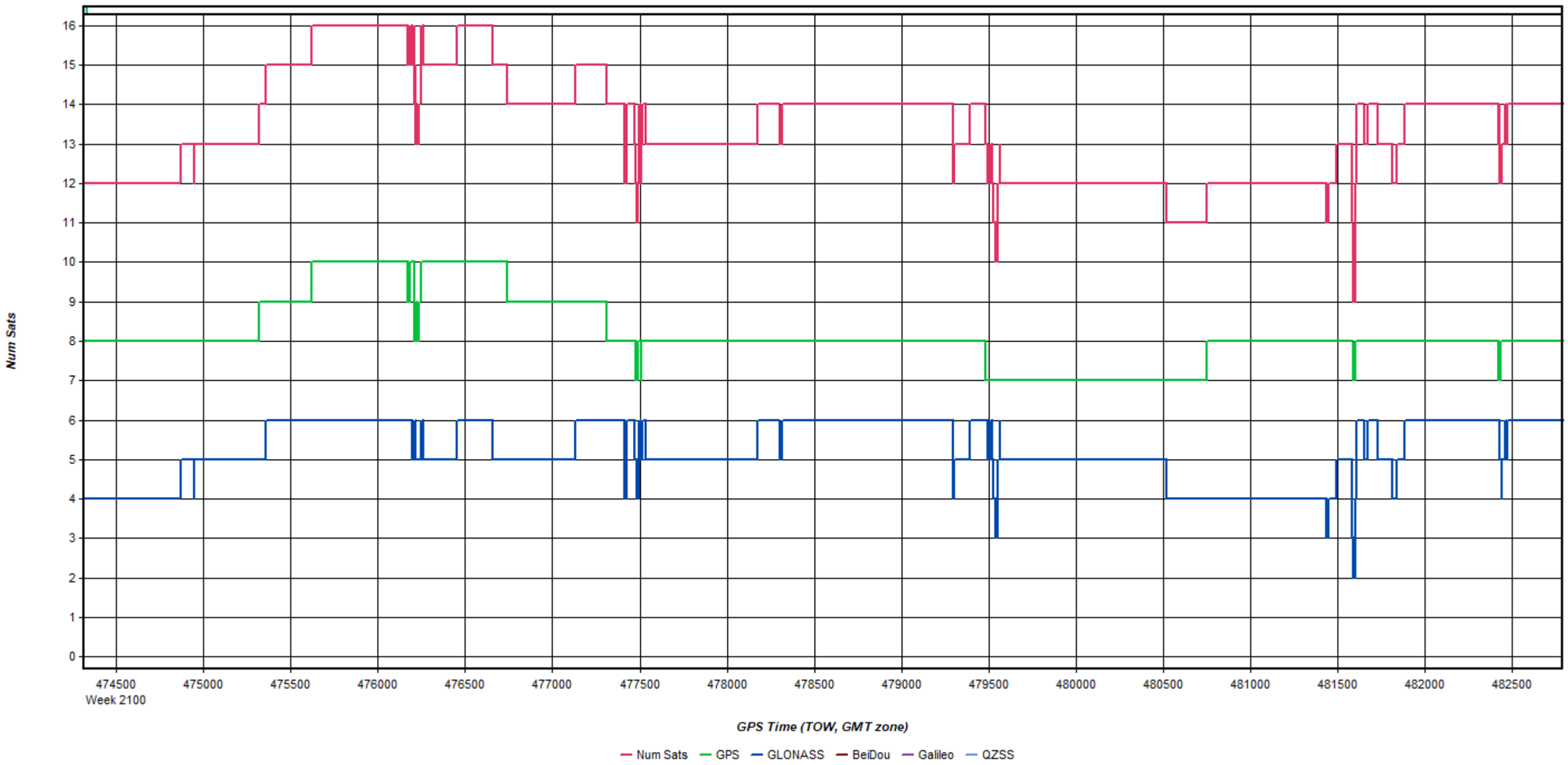
Process	20200410_114159	by Unknown	on 4/13/2020	at 07:28:58

Figure 2: 20200410_114159 [Smoothed TC Combined] - Quality Factor Plot



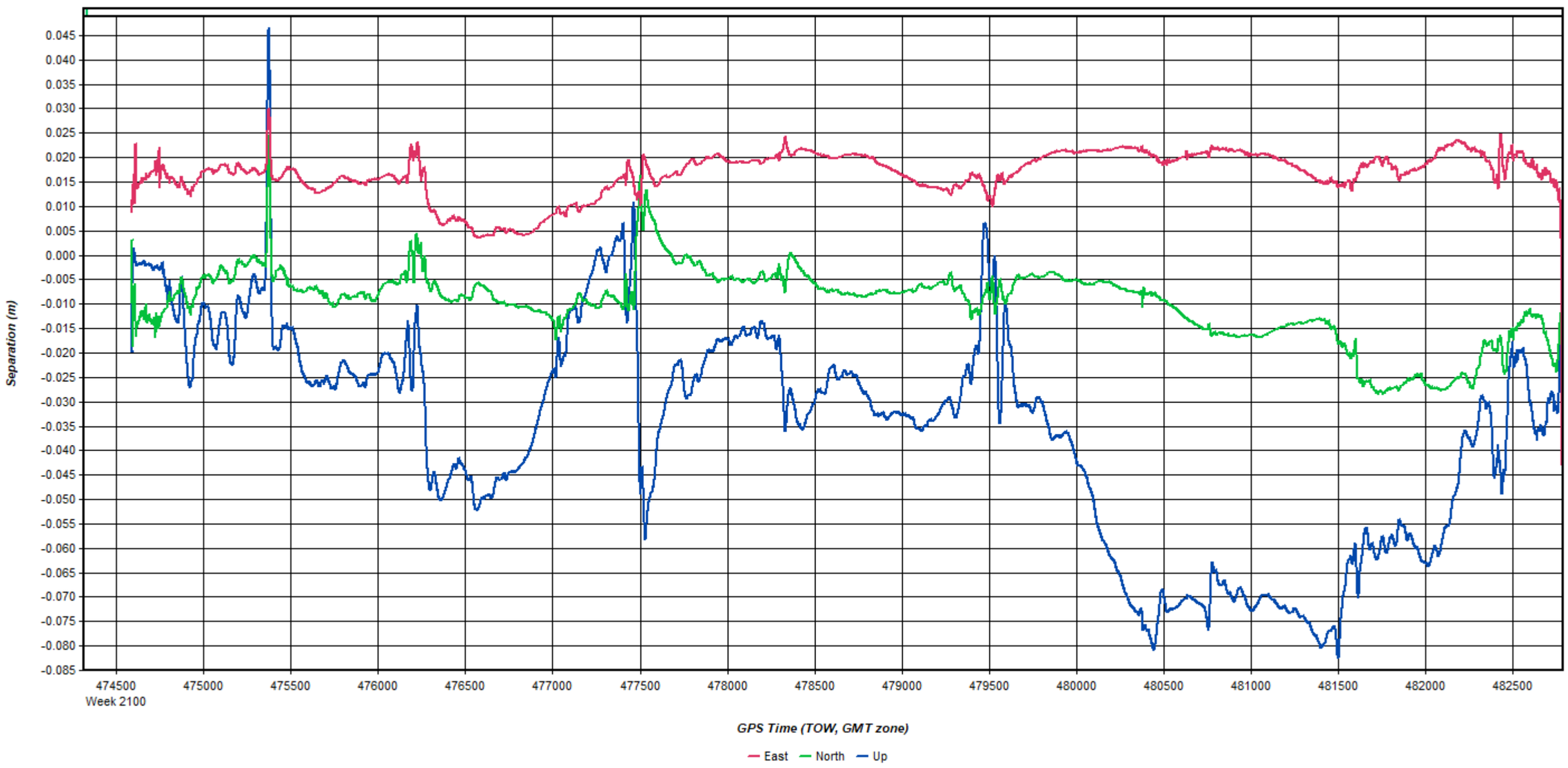
Process	20200410_114159	by Unknown	on 4/13/2020	at 07:28:58

Figure 3: 20200410_114159 [Smoothed TC Combined] - Number of Satellites Line Plot



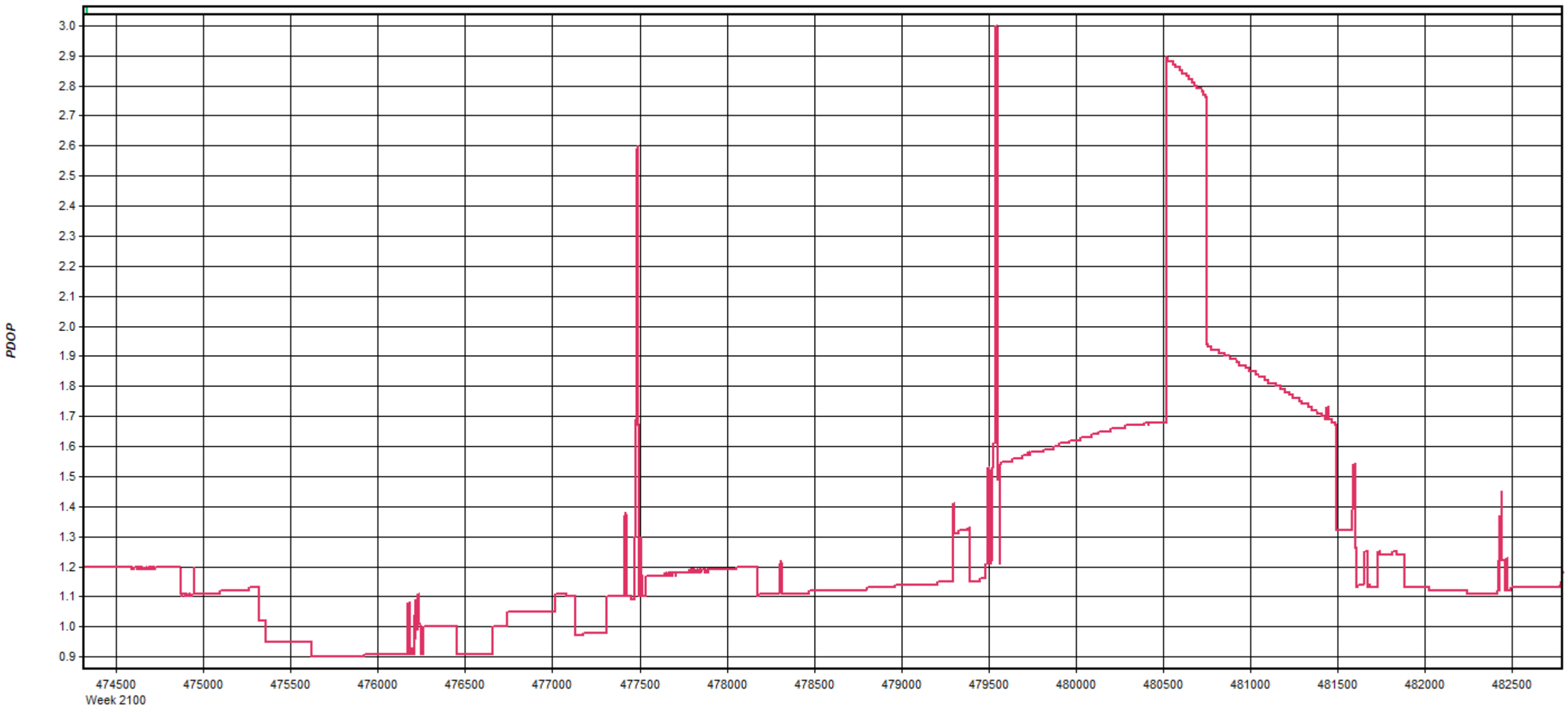
Process	20200410_114159	by Unknown	on 4/13/2020	at 07:28:58

Figure 4: 20200410_114159 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200410_114159	by Unknown	on 4/13/2020	at 07:28:58

Figure 5: 20200410_114159 [Smoothed TC Combined] - PDOP Plot

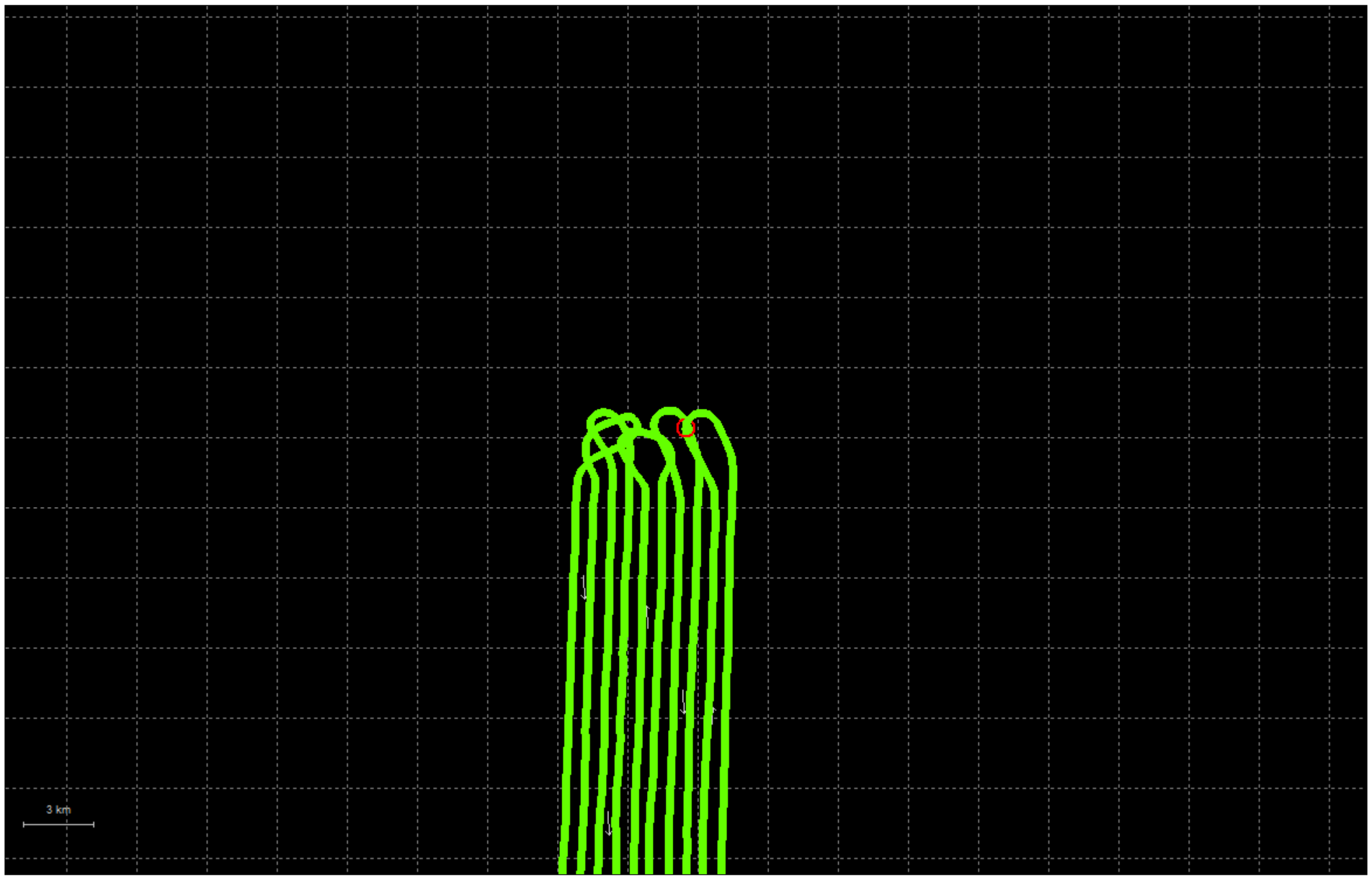


Process	20200410_114159	by Unknown	on 4/13/2020	at 07:28:58

Output Results for 20200410_171937

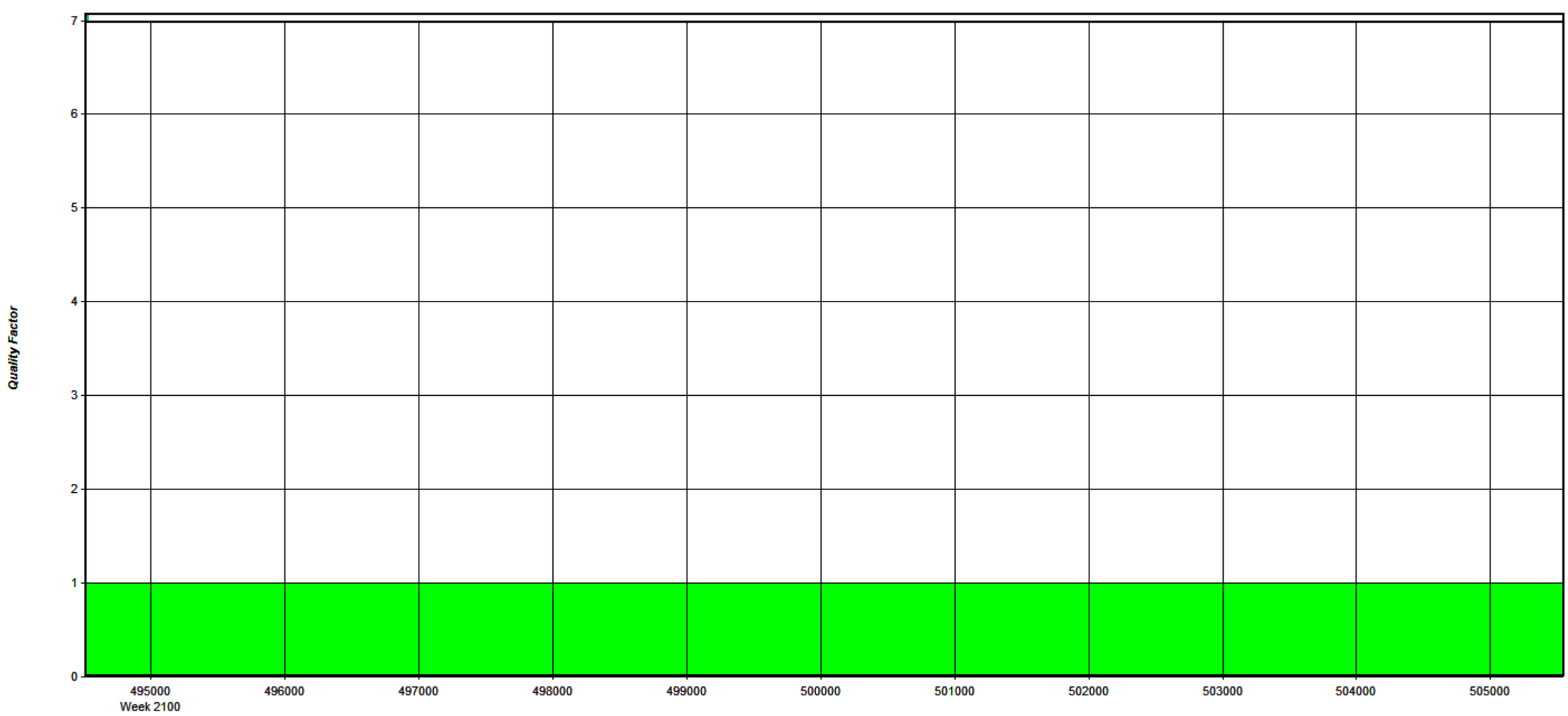
Inertial Explorer Version 8.80.2720
04/13/2020

Figure 1: Smoothed TC Combined - Map



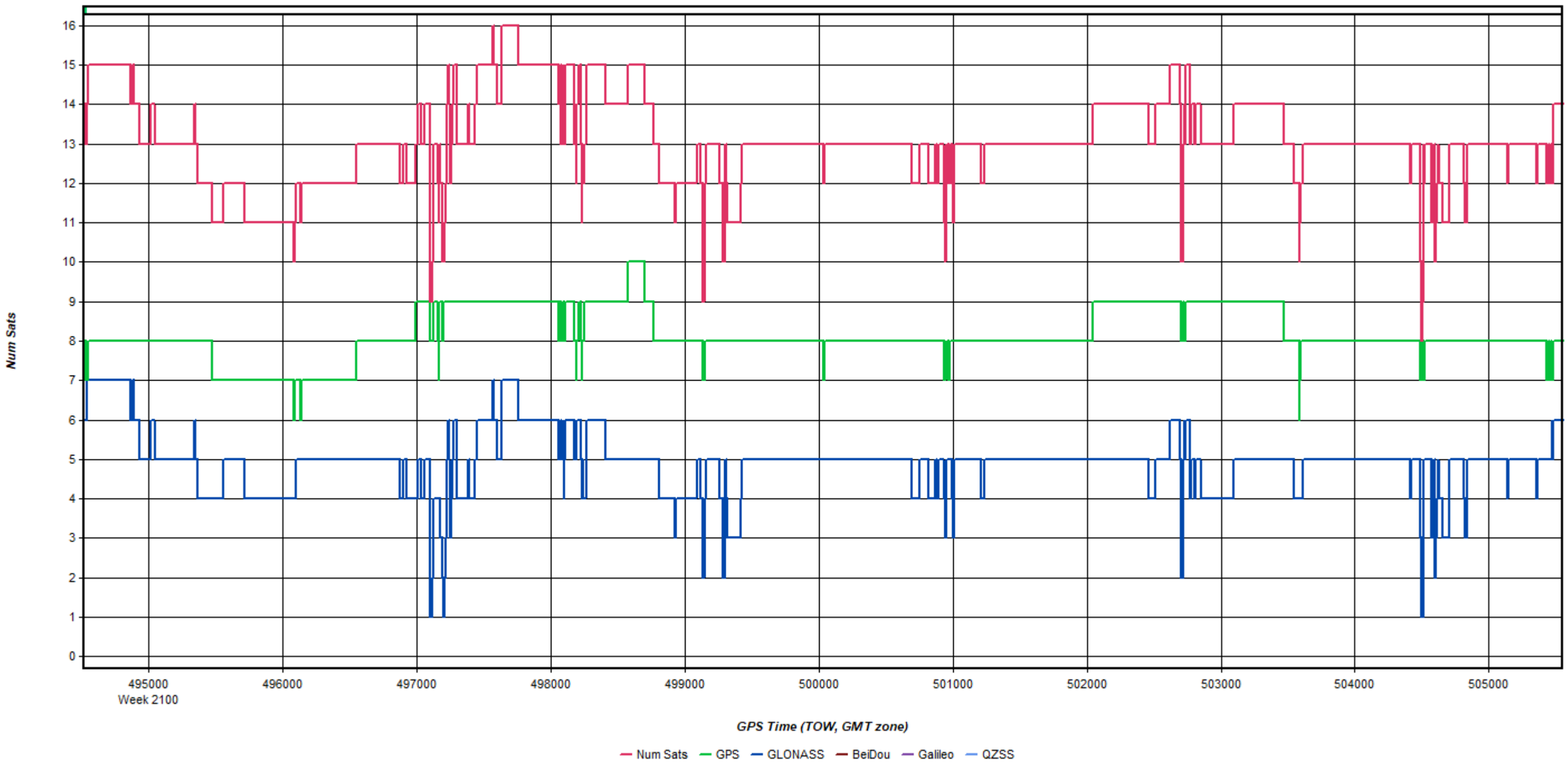
Process	20200410_171937	by Unknown	on 4/13/2020	at 08:01:09

Figure 2: 20200410_171937 [Smoothed TC Combined] - Quality Factor Plot



Process	20200410_171937	by Unknown	on 4/13/2020	at 08:01:09

Figure 3: 20200410_171937 [Smoothed TC Combined] - Number of Satellites Line Plot



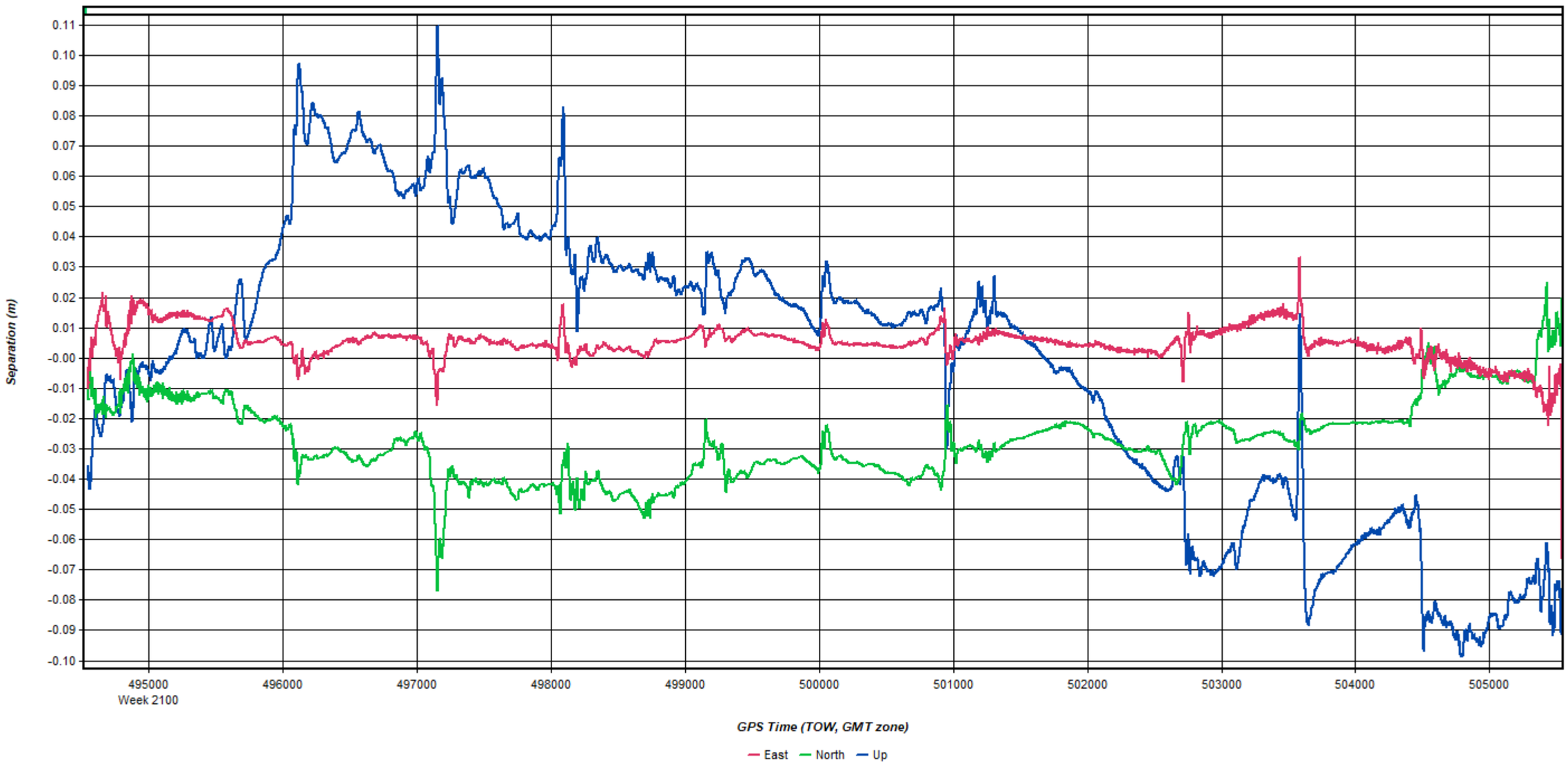
Process	20200410_171937	by Unknown	on 4/13/2020	at 08:01:09

Figure 4: 20200410_171937 [TC Combined] - Forward/Reverse or Combined Separation Plot

.

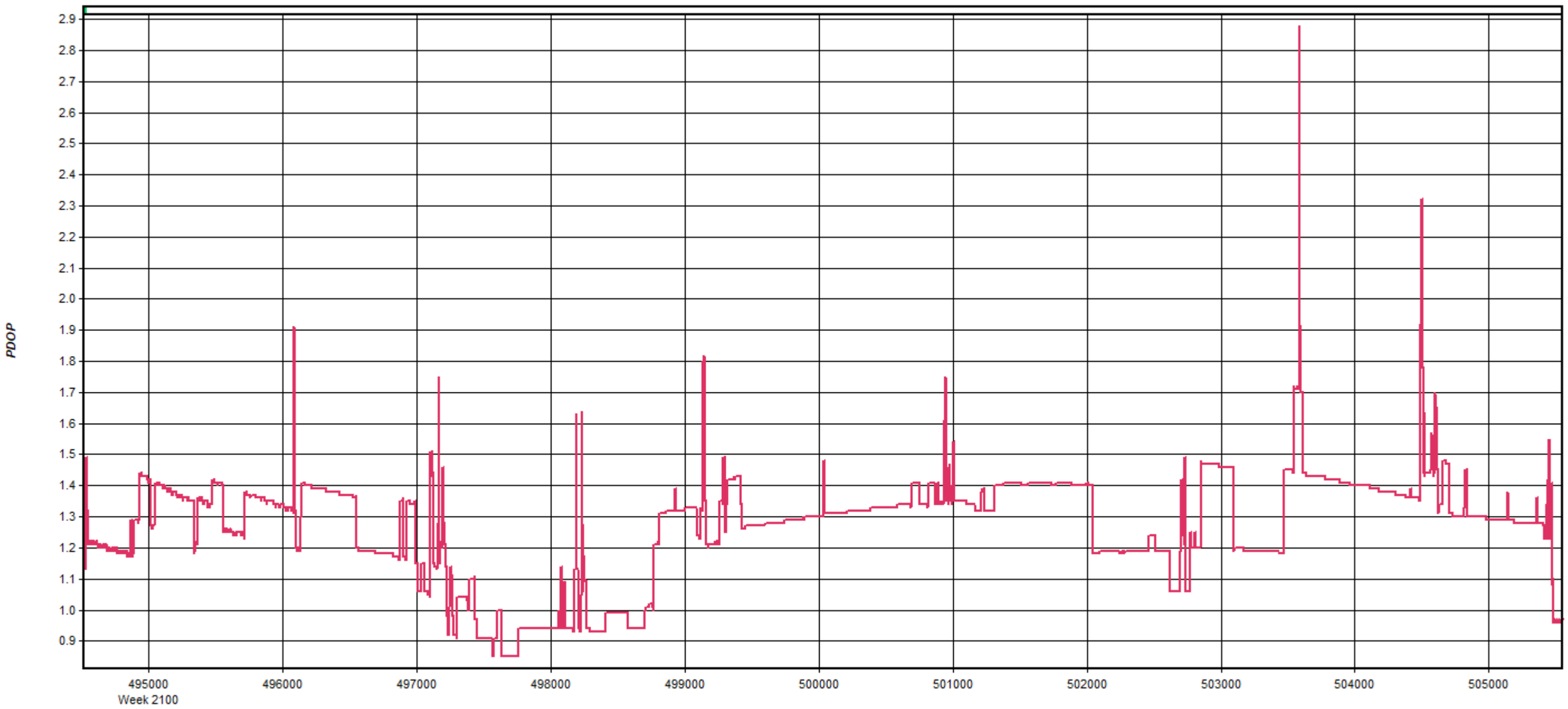
Process	20200410_171937	by Unknown	on 4/13/2020	at 07:54:38

Figure 5: 20200410_171937 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200410_171937	by Unknown	on 4/13/2020	at 08:01:09

Figure 6: 20200410_171937 [Smoothed TC Combined] - PDOP Plot

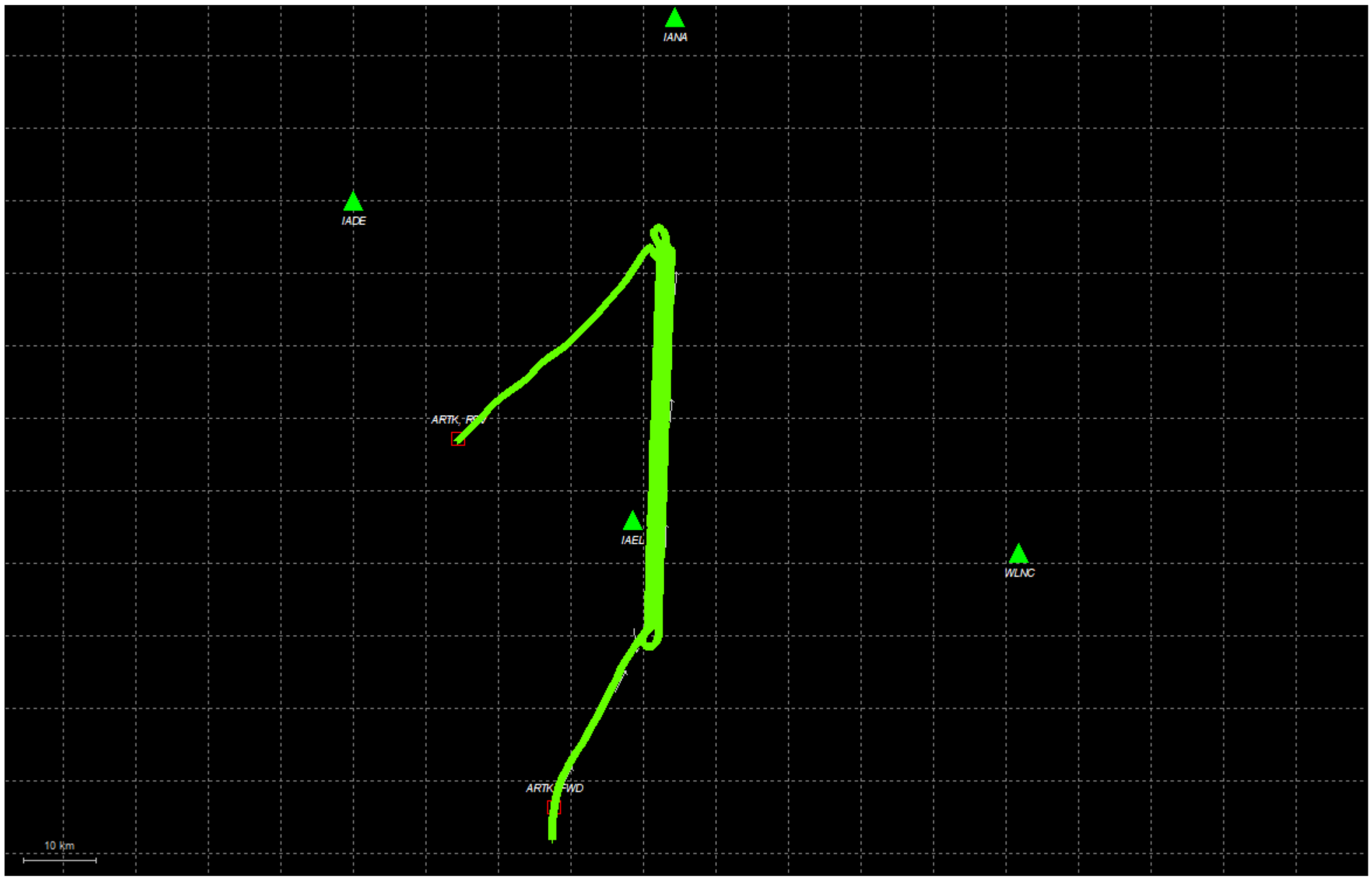


Process	20200410_171937	by Unknown	on 4/13/2020	at 08:01:09

Output Results for 20200410_210304

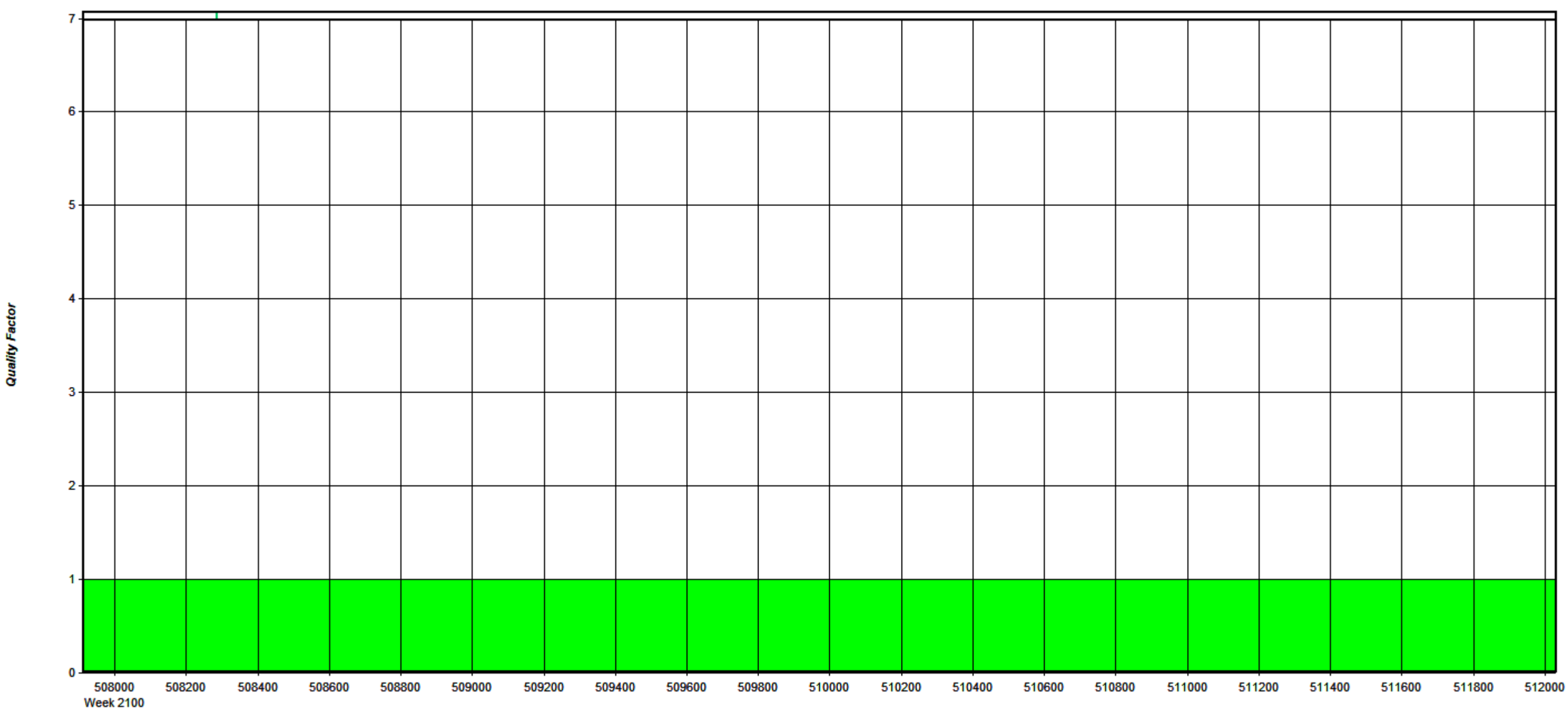
Inertial Explorer Version 8.80.2720
04/13/2020

Figure 1: Smoothed TC Combined - Map



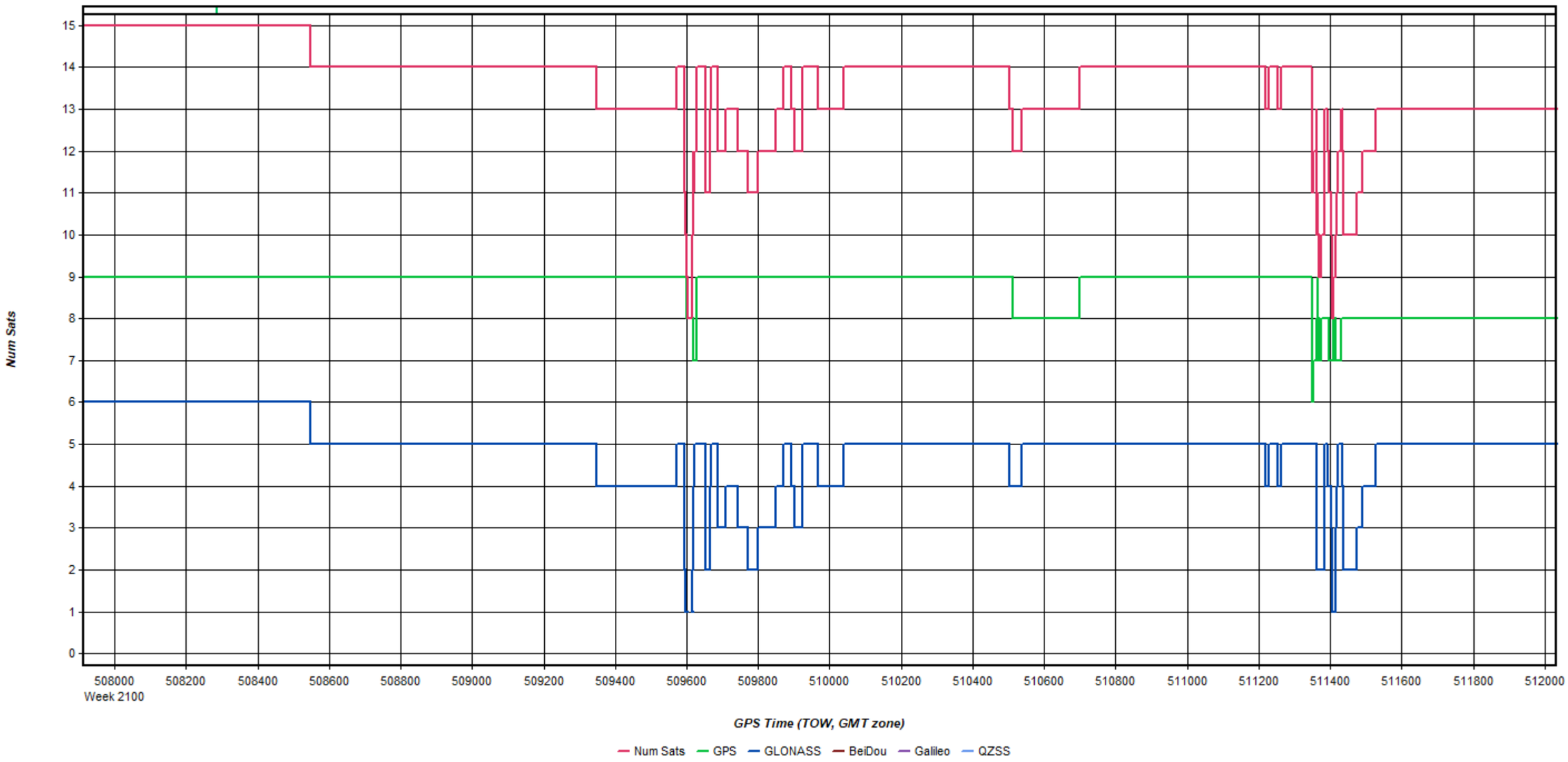
Process	20200410_210304	by Unknown	on 4/13/2020	at 08:41:34

Figure 2: 20200410_210304 [Smoothed TC Combined] - Quality Factor Plot



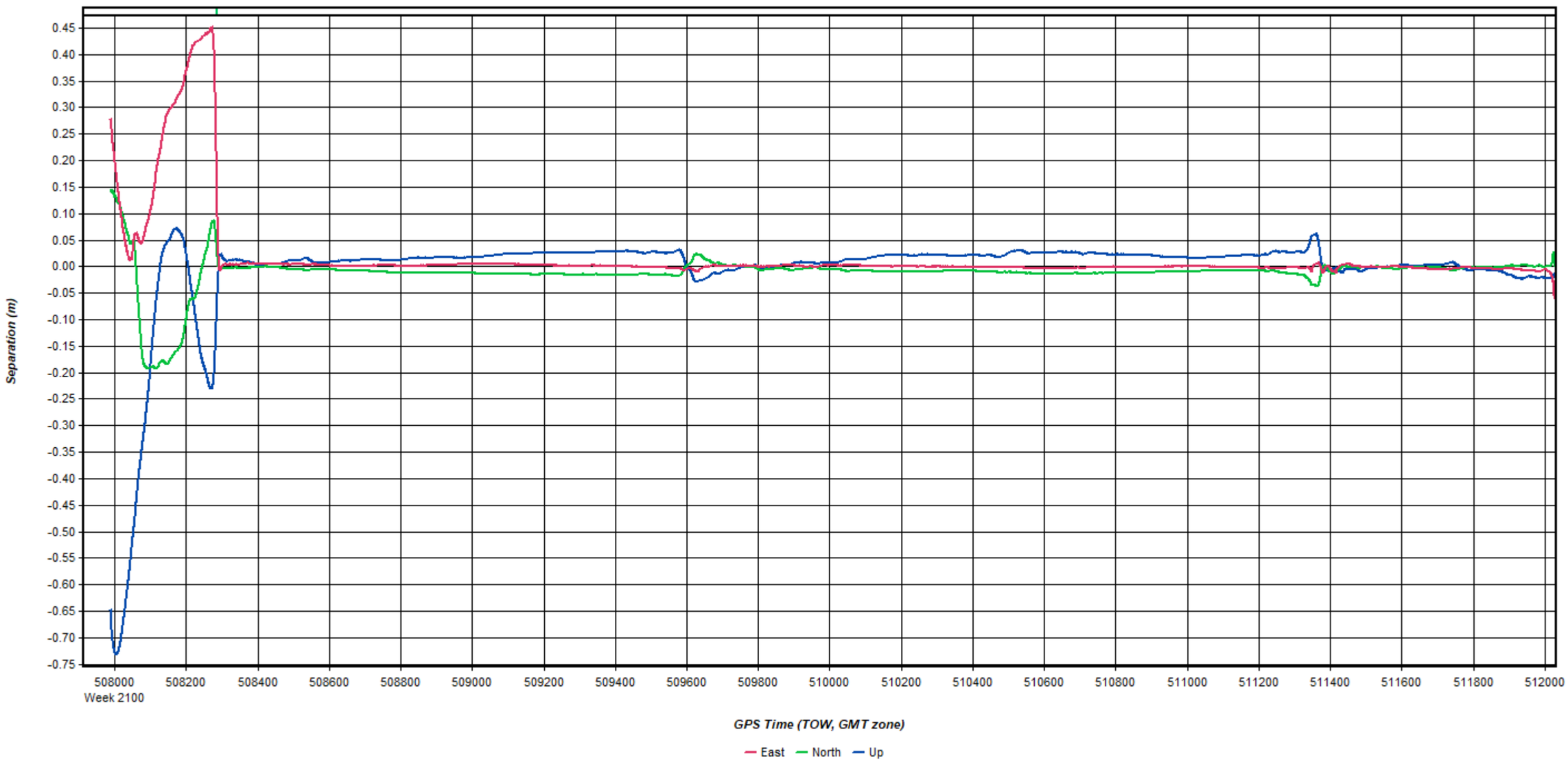
Process	20200410_210304	by Unknown	on 4/13/2020	at 08:41:34

Figure 3: 20200410_210304 [Smoothed TC Combined] - Number of Satellites Line Plot



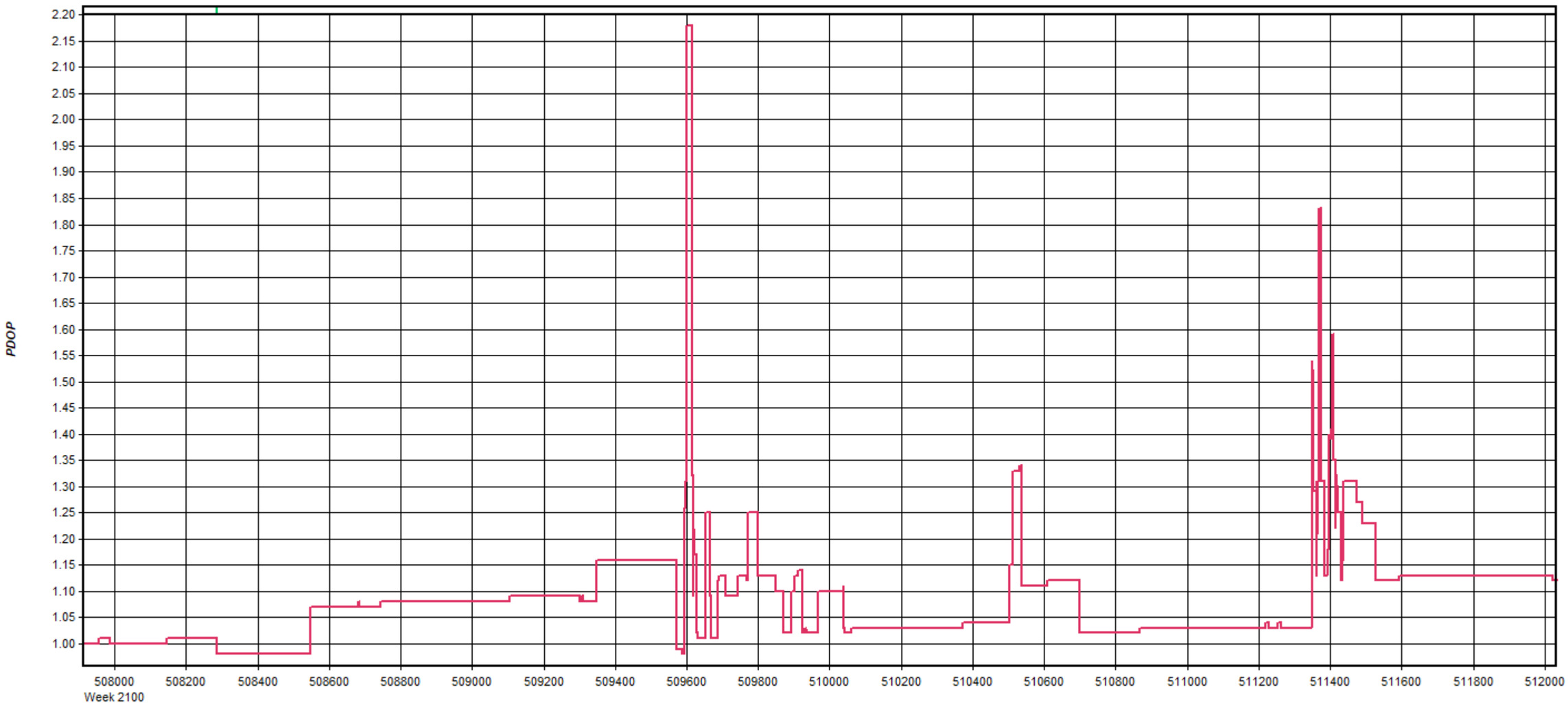
Process	20200410_210304	by Unknown	on 4/13/2020	at 08:41:34

Figure 4: 20200410_210304 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200410_210304	by Unknown	on 4/13/2020	at 08:41:34

Figure 5: 20200410_210304 [Smoothed TC Combined] - PDOP Plot

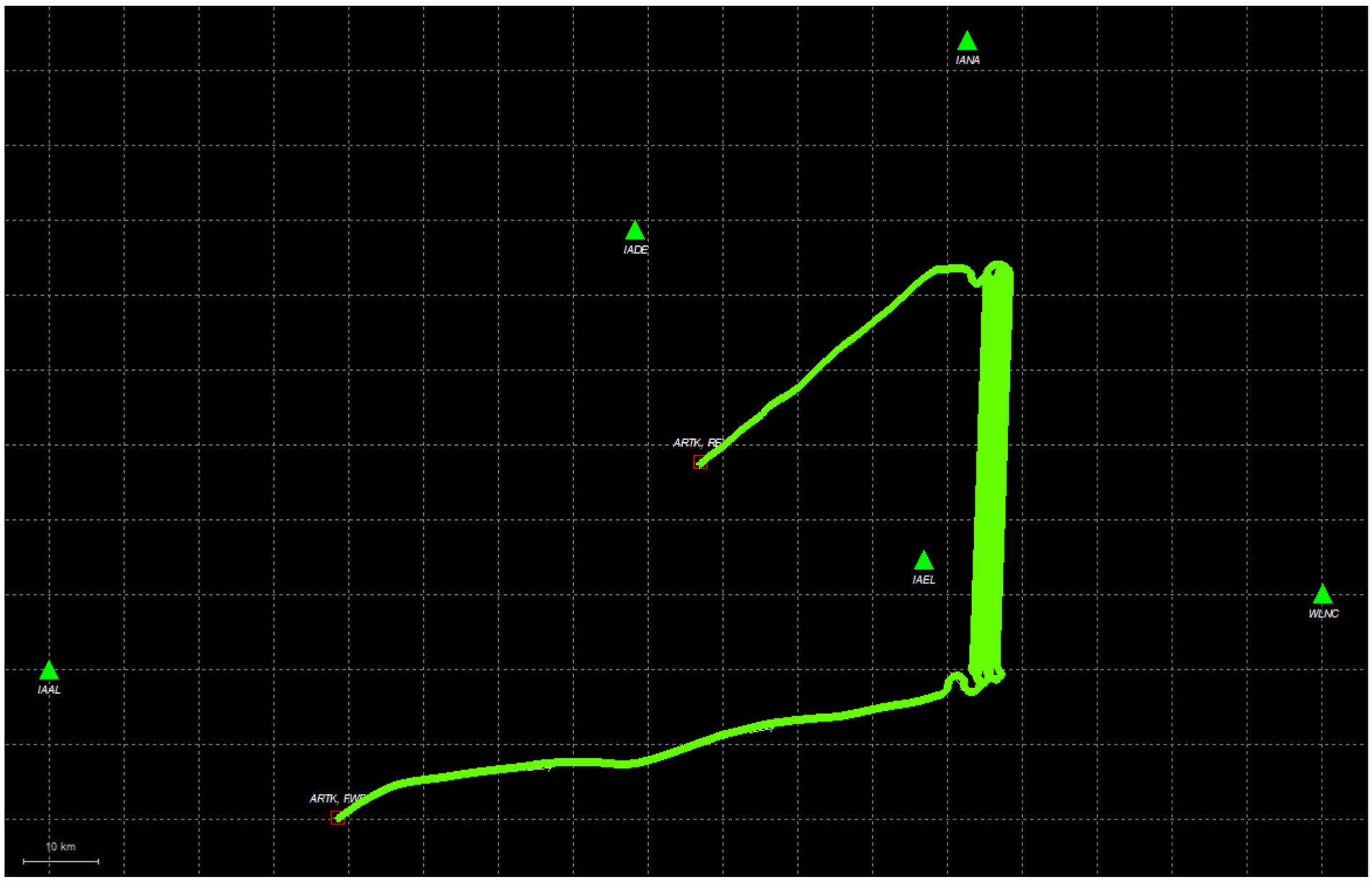


Process	20200410_210304	by Unknown	on 4/13/2020	at 08:41:34

Output Results for 20200411_032615

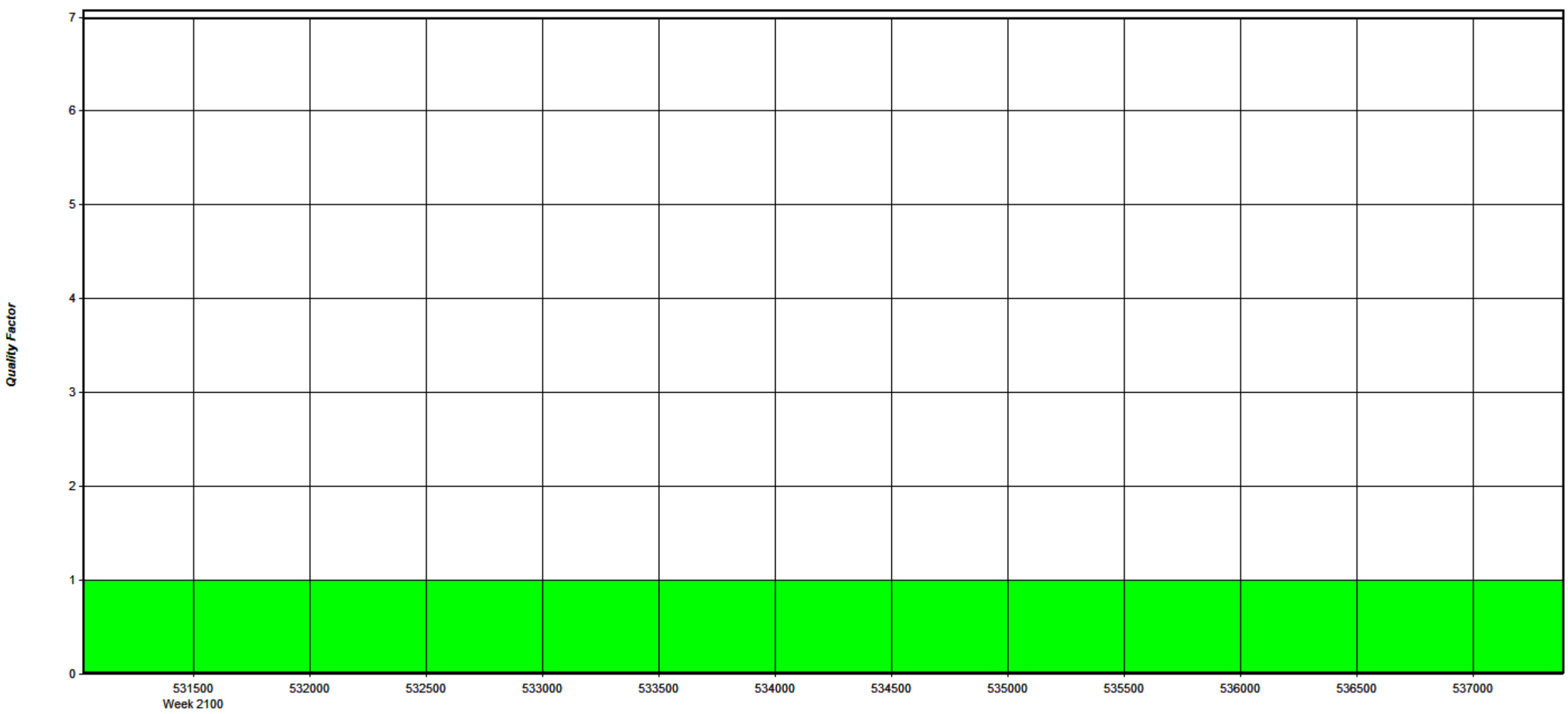
Inertial Explorer Version 8.80.2720
04/13/2020

Figure 1: Smoothed TC Combined - Map



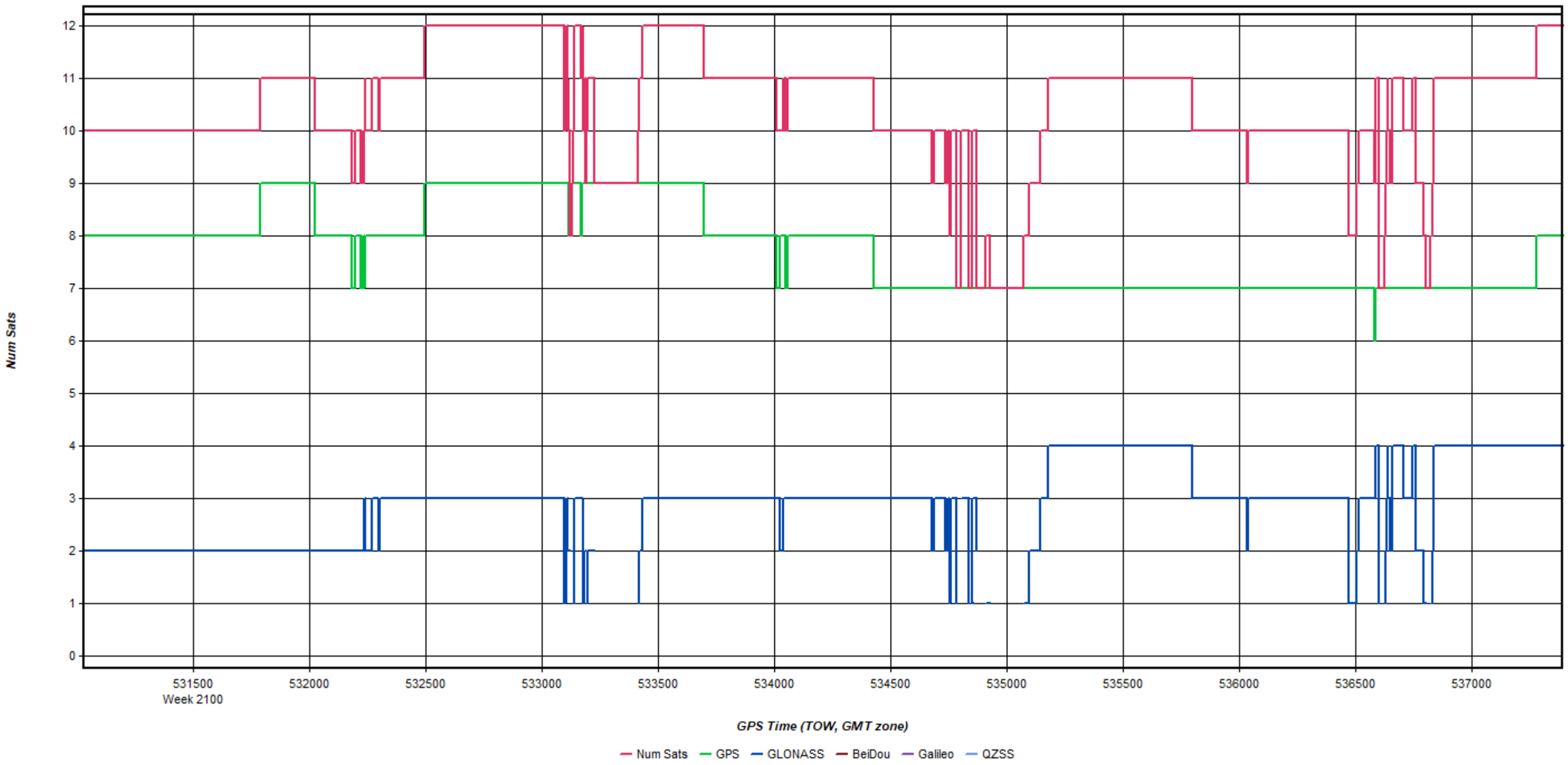
Process	20200411_032615	by Unknown	on 4/13/2020	at 09:17:27

Figure 2: 20200411_032615 [Smoothed TC Combined] - Quality Factor Plot



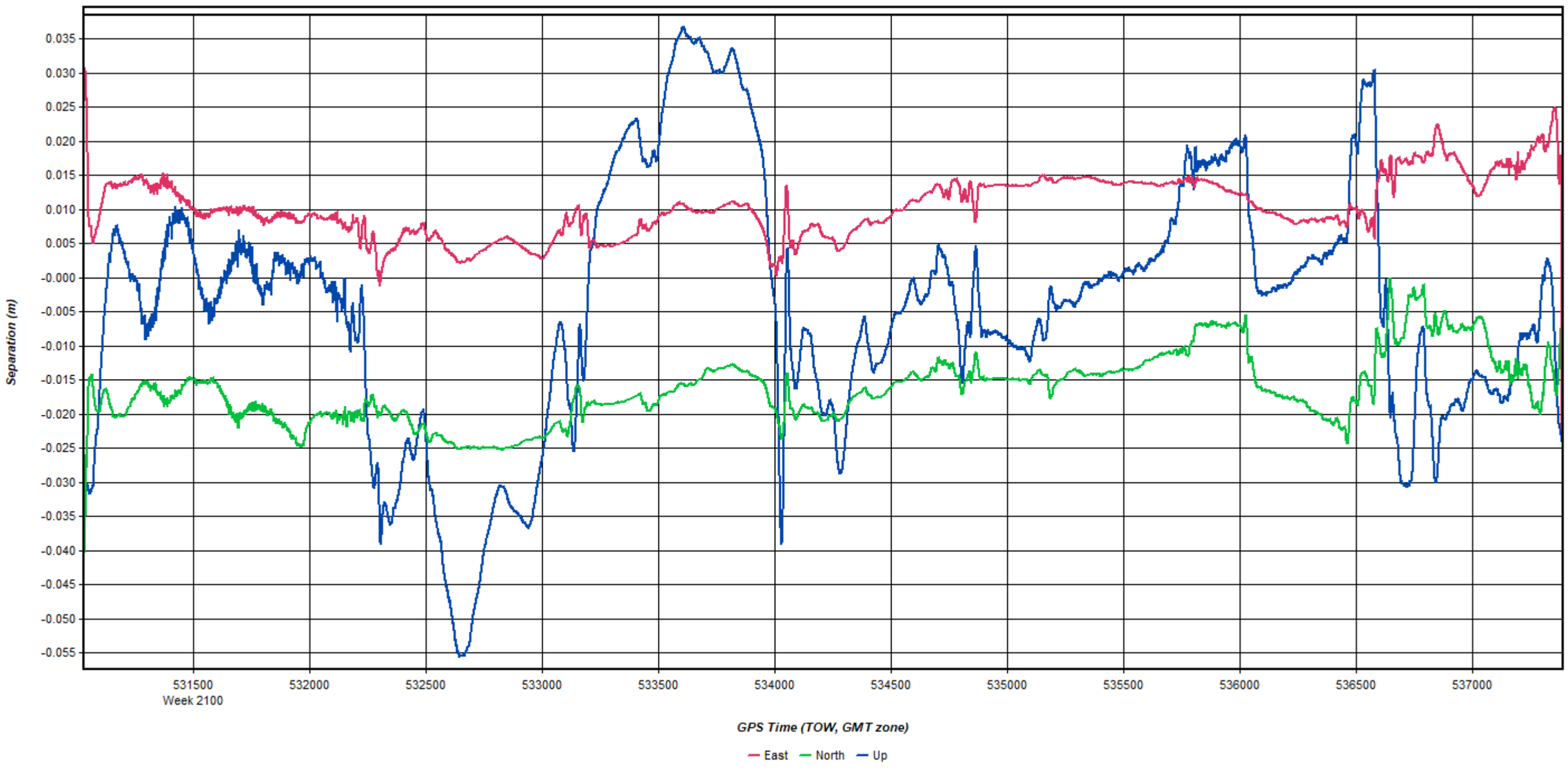
Process	20200411_032615	by Unknown	on 4/13/2020	at 09:17:27

Figure 3: 20200411_032615 [Smoothed TC Combined] - Number of Satellites Line Plot



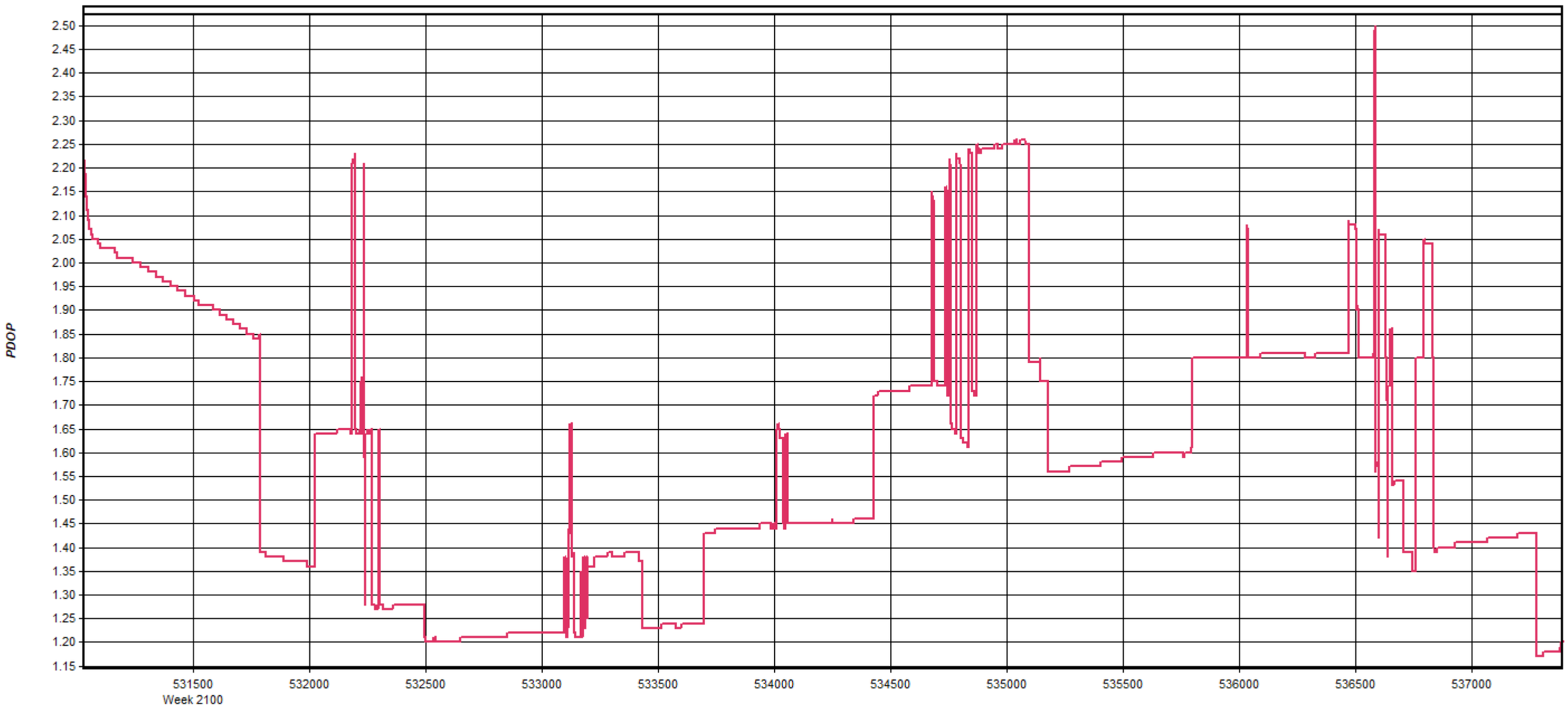
Process	20200411_032615	by Unknown	on 4/13/2020	at 09:17:27

Figure 4: 20200411_032615 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200411_032615	by Unknown	on 4/13/2020	at 09:17:27

Figure 5: 20200411_032615 [Smoothed TC Combined] - PDOP Plot

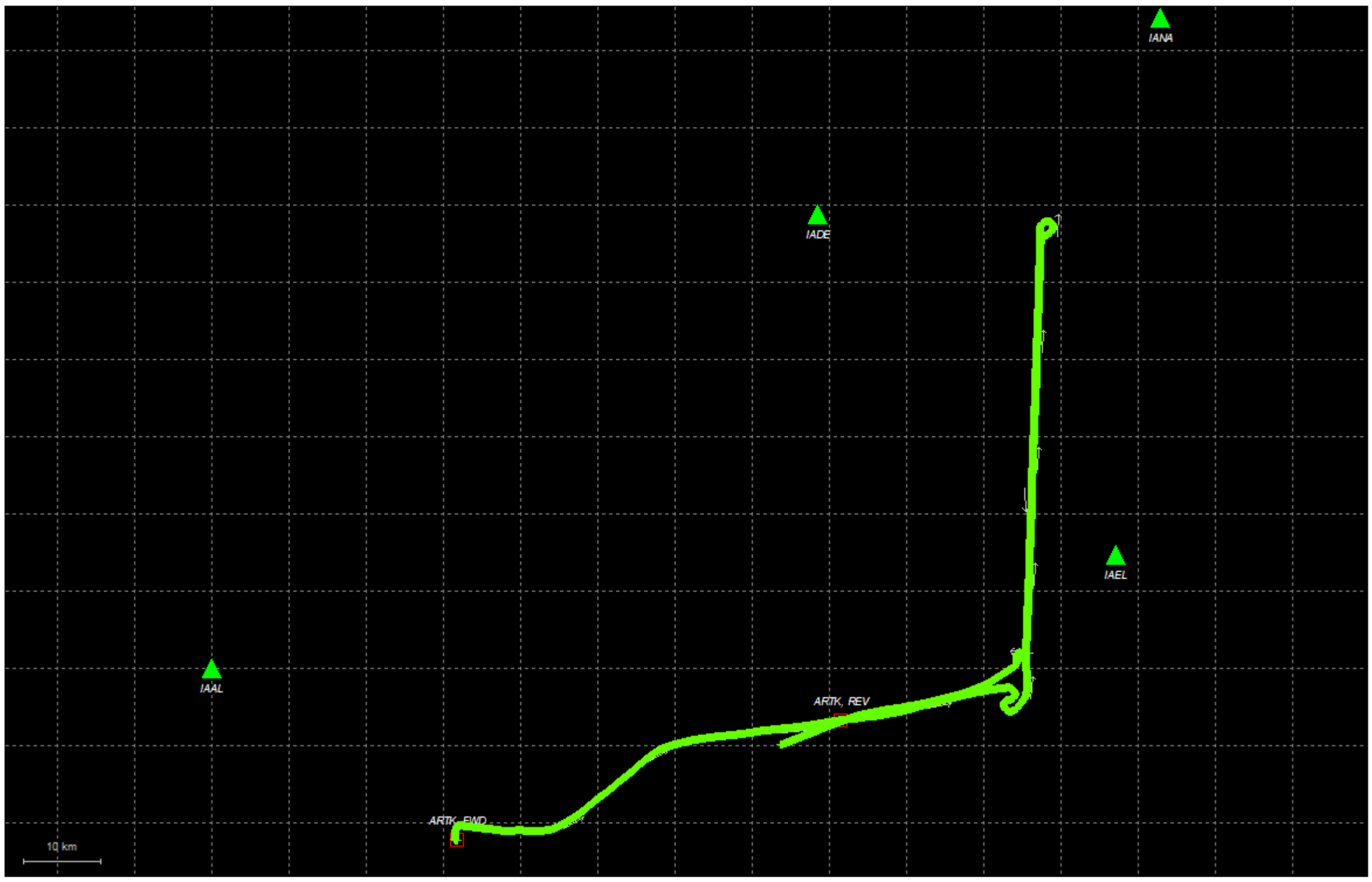


Process	20200411_032615	by Unknown	on 4/13/2020	at 09:17:27

Output Results for 20200415_111206

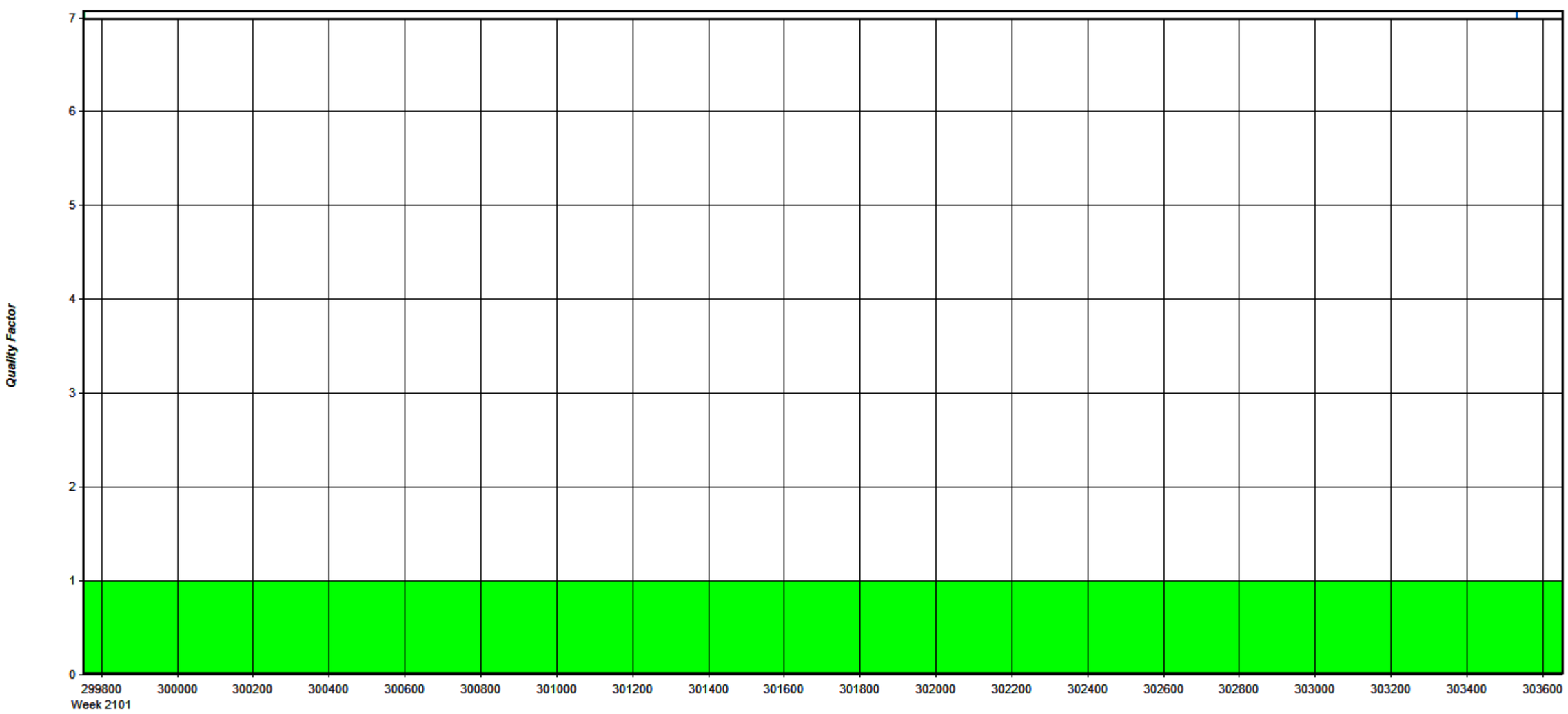
Inertial Explorer Version 8.80.2720
04/15/2020

Figure 1: Smoothed TC Combined - Map



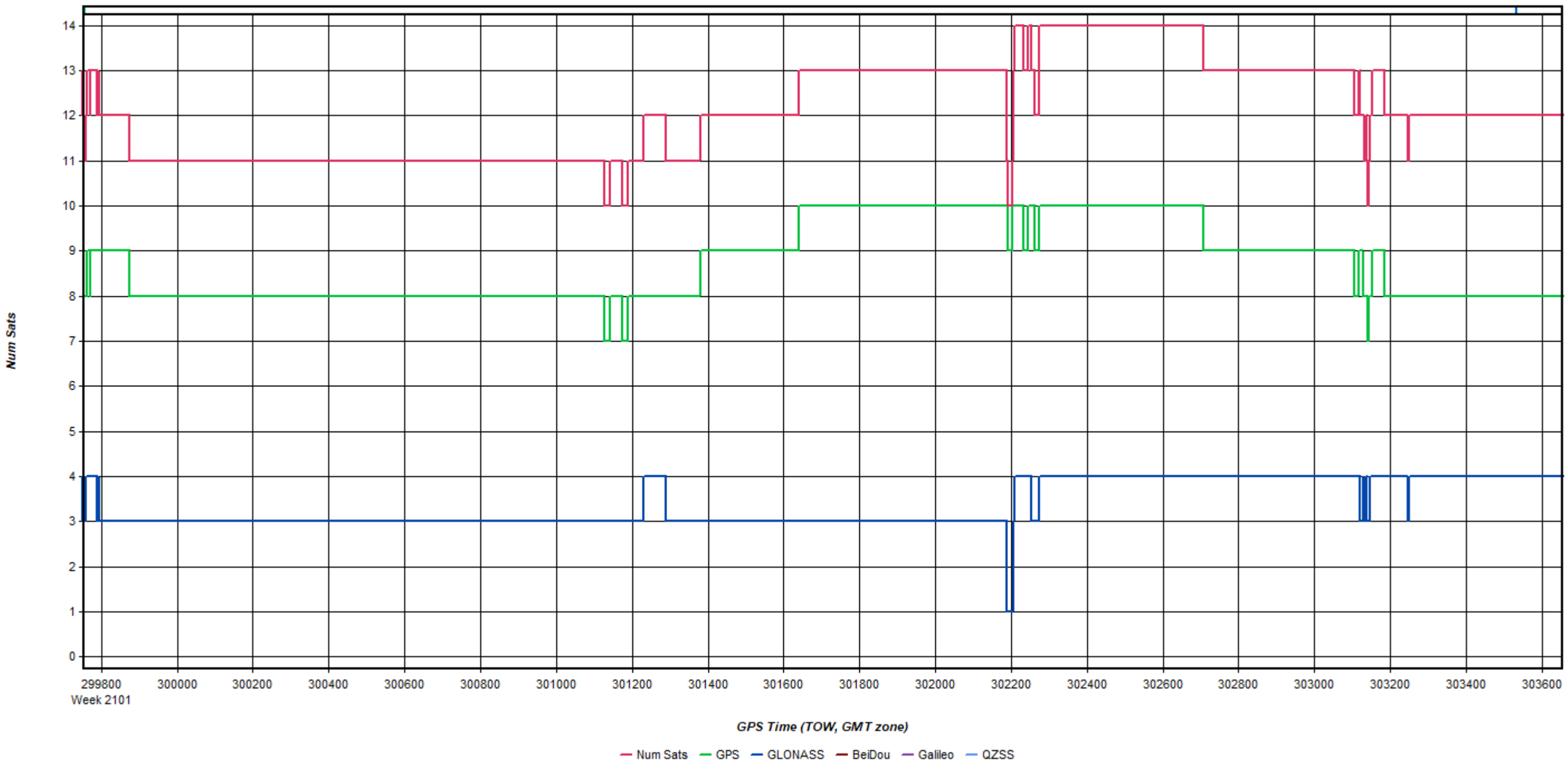
Process	20200415_111206	by Unknown	on 4/15/2020	at 14:25:52

Figure 2: 20200415_111206 [Smoothed TC Combined] - Quality Factor Plot



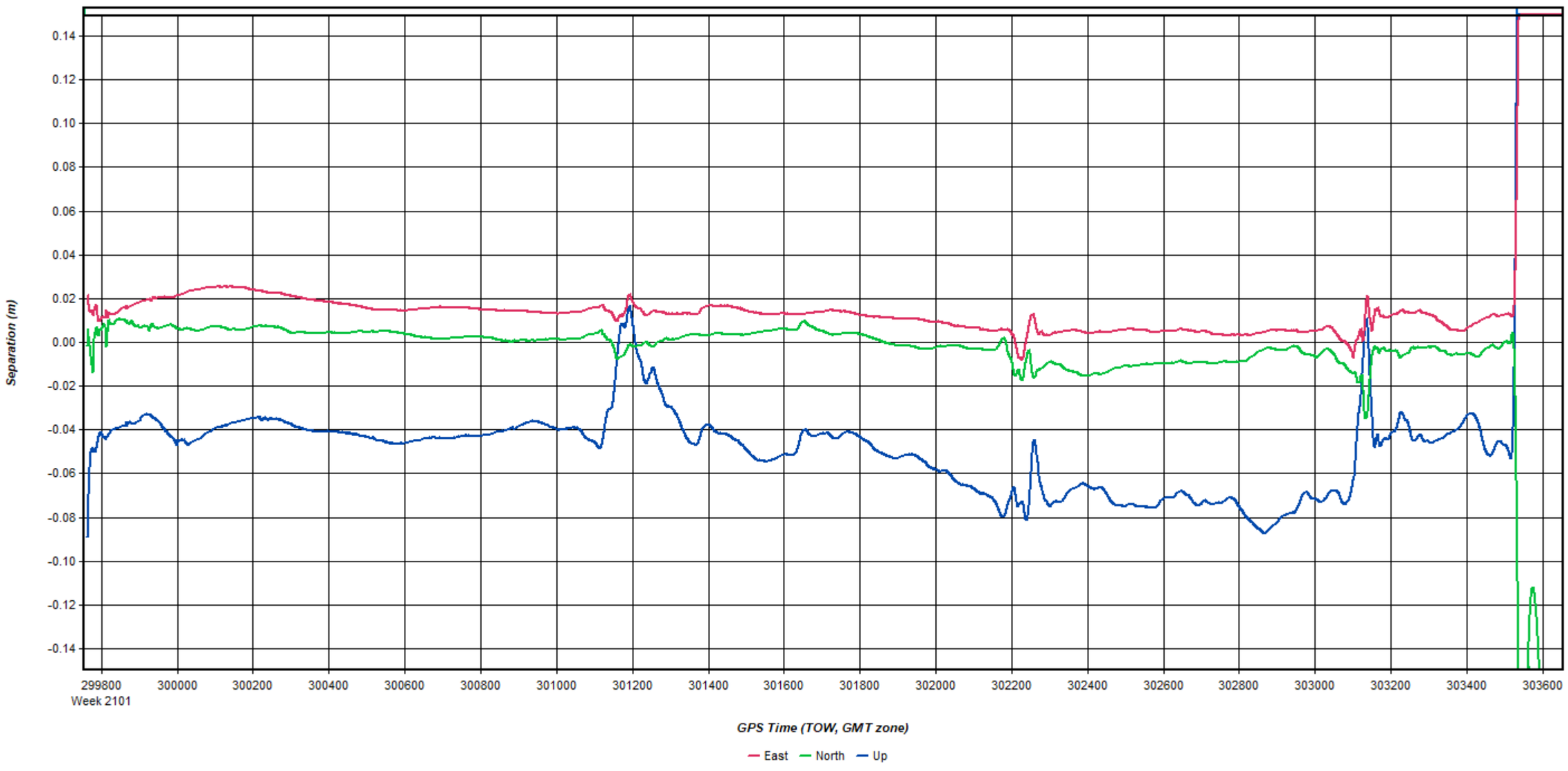
Process	20200415_111206	by Unknown	on 4/15/2020	at 14:25:52

Figure 3: 20200415_111206 [Smoothed TC Combined] - Number of Satellites Line Plot



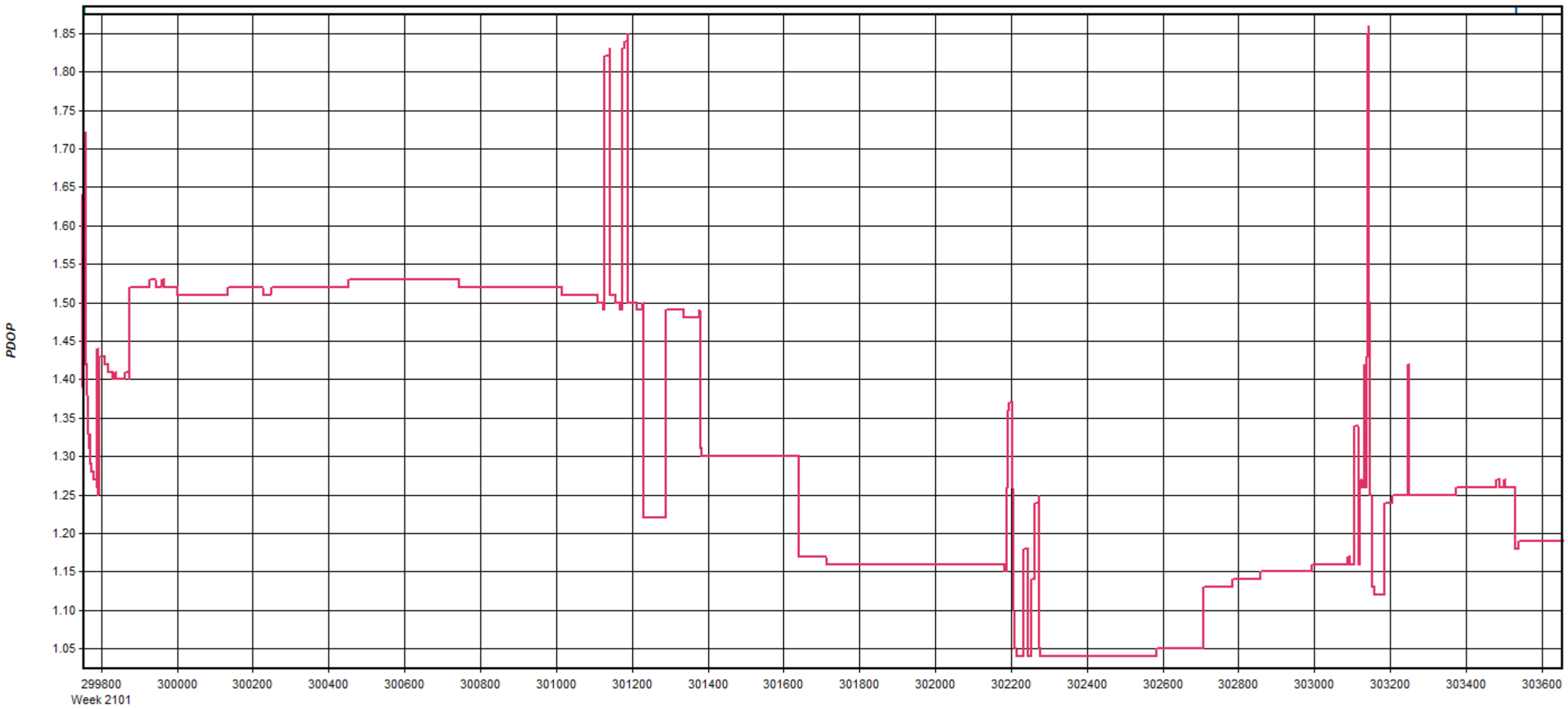
Process	20200415_111206	by Unknown	on 4/15/2020	at 14:25:52

Figure 4: 20200415_111206 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200415_111206	by Unknown	on 4/15/2020	at 14:25:52

Figure 5: 20200415_111206 [Smoothed TC Combined] - PDOP Plot

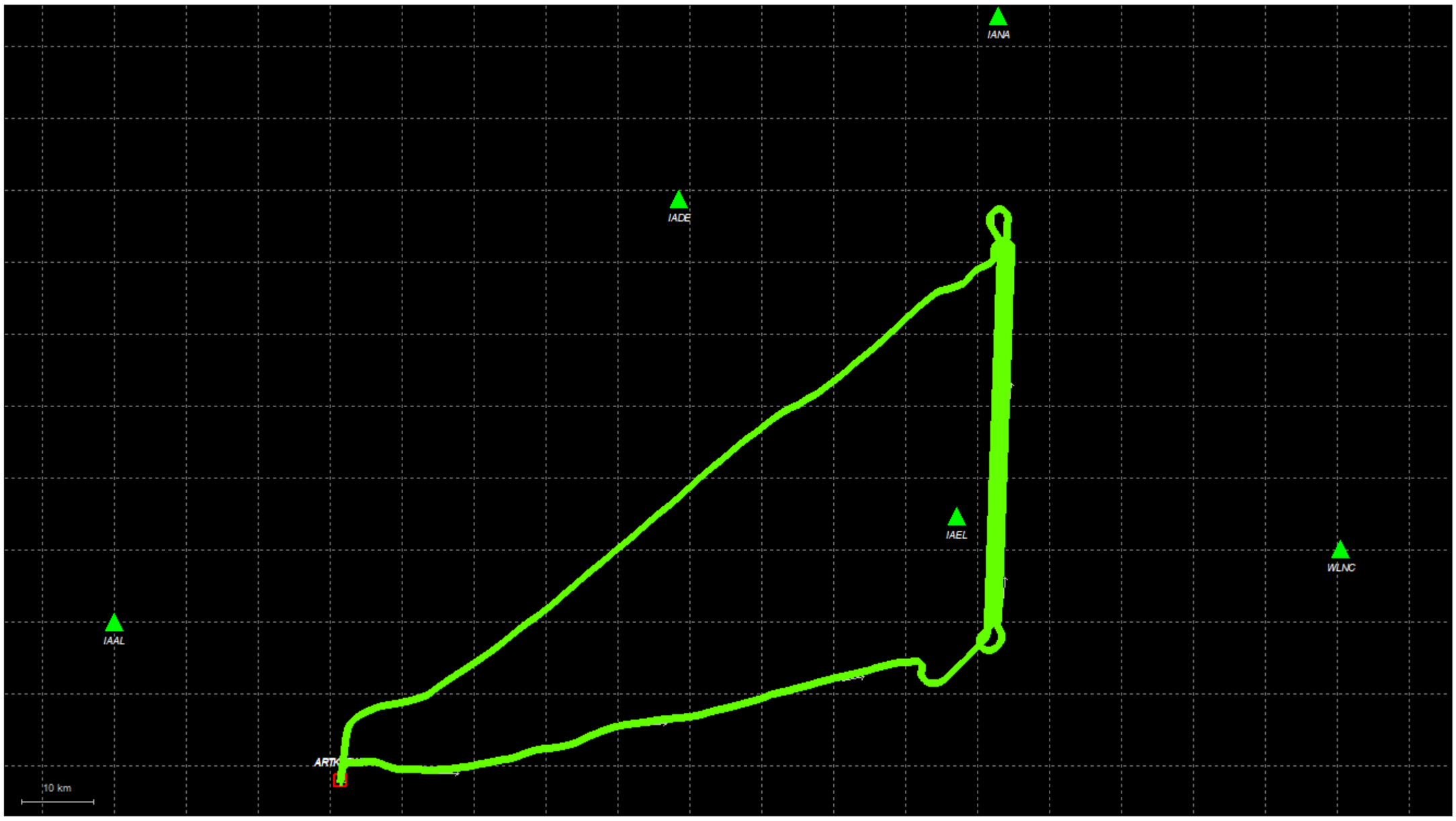


Process	20200415_111206	by Unknown	on 4/15/2020	at 14:25:52

Output Results for 20200416_204134

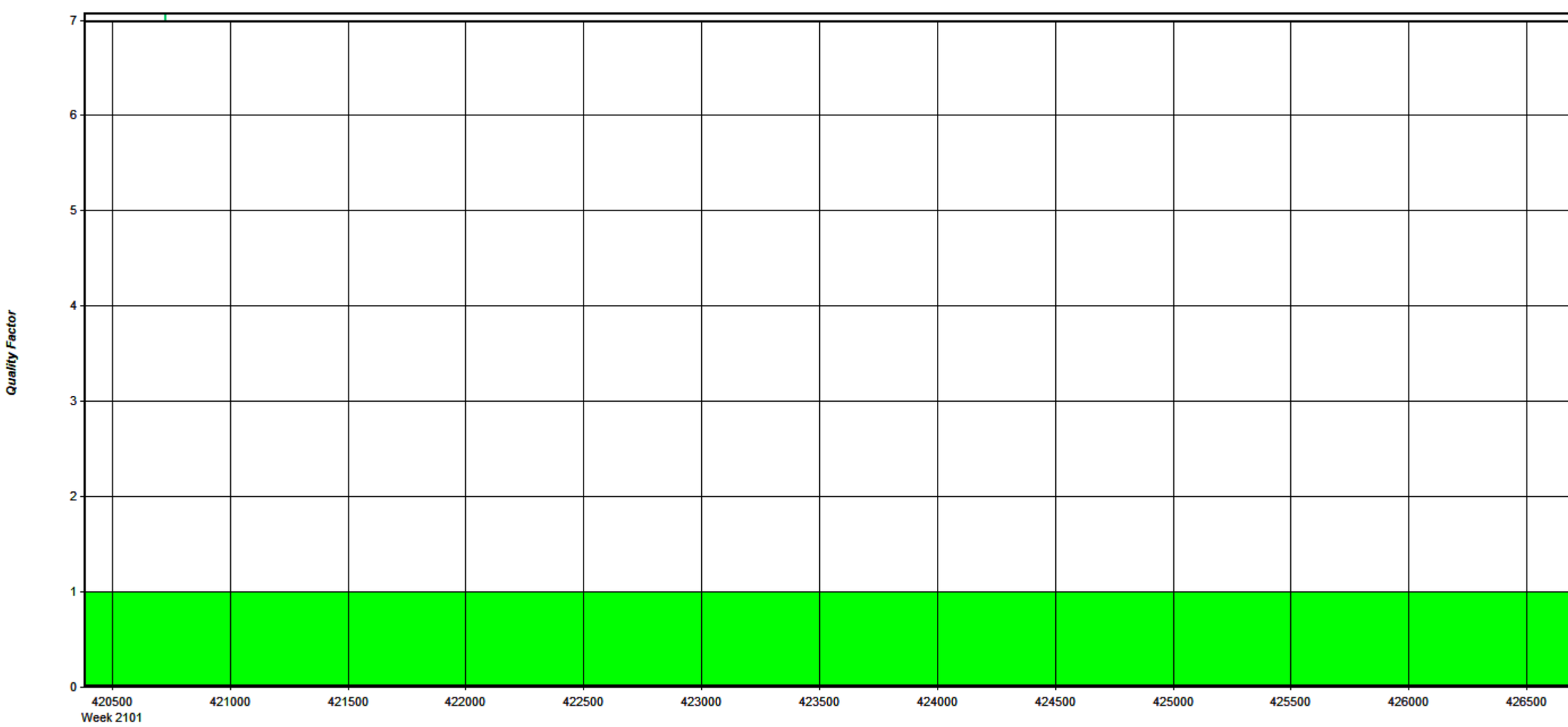
Inertial Explorer Version 8.80.2720
04/17/2020

Figure 1: Smoothed TC Combined - Map



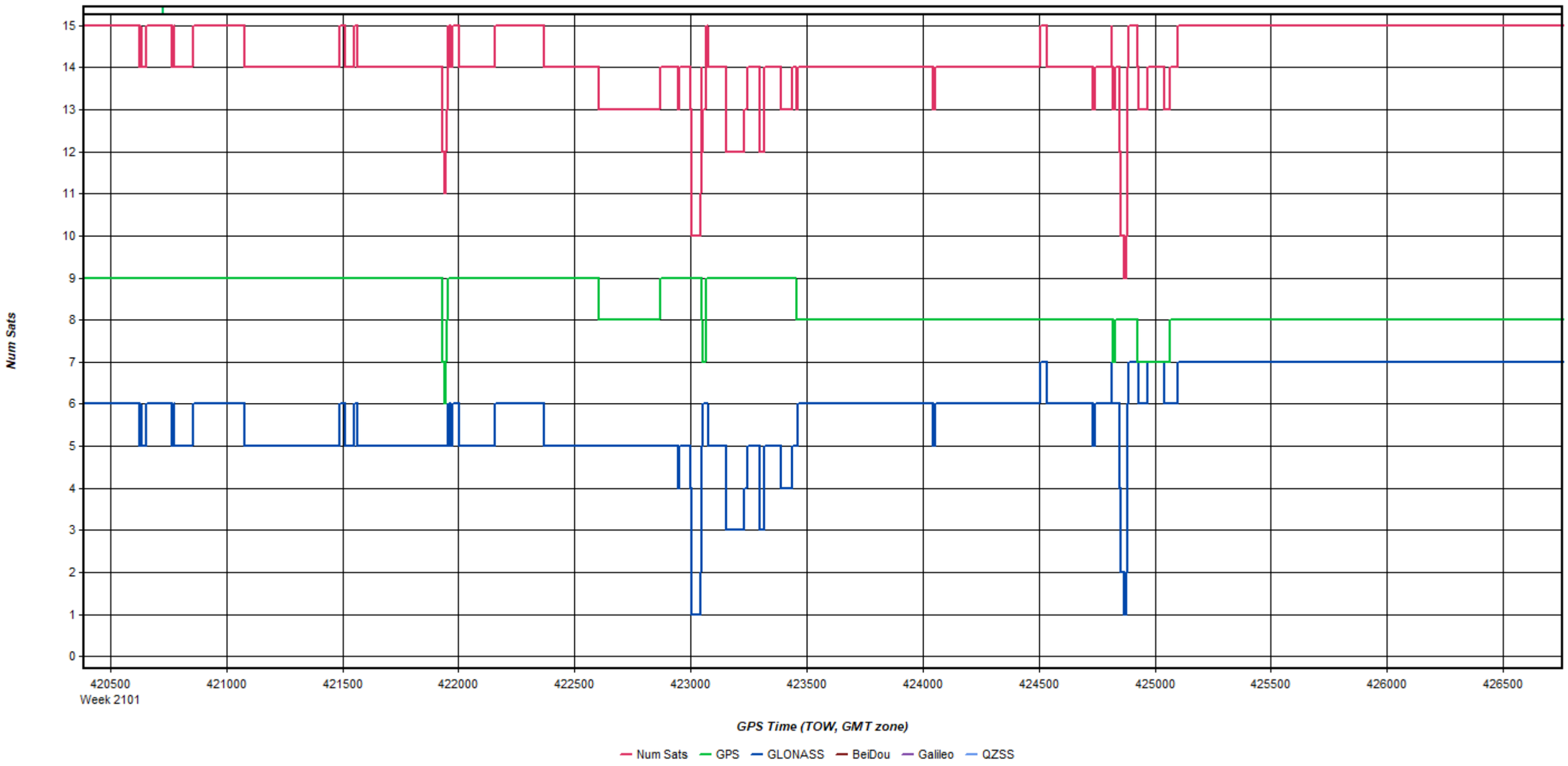
Process	20200416_204134	by Unknown	on 4/17/2020	at 08:34:18

Figure 2: 20200416_204134 [Smoothed TC Combined] - Quality Factor Plot



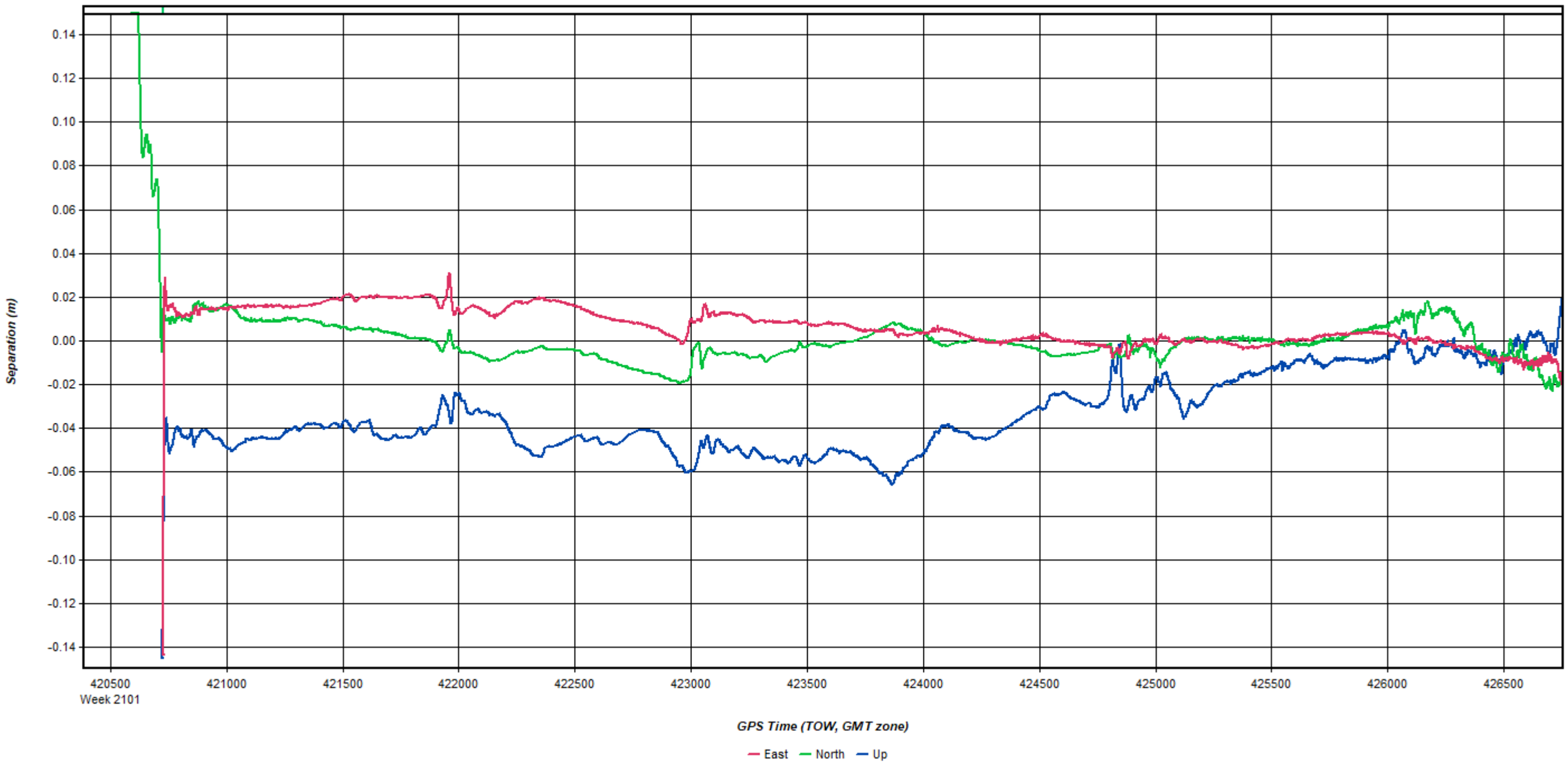
Process	20200416_204134	by Unknown	on 4/17/2020	at 08:34:18

Figure 3: 20200416_204134 [Smoothed TC Combined] - Number of Satellites Line Plot



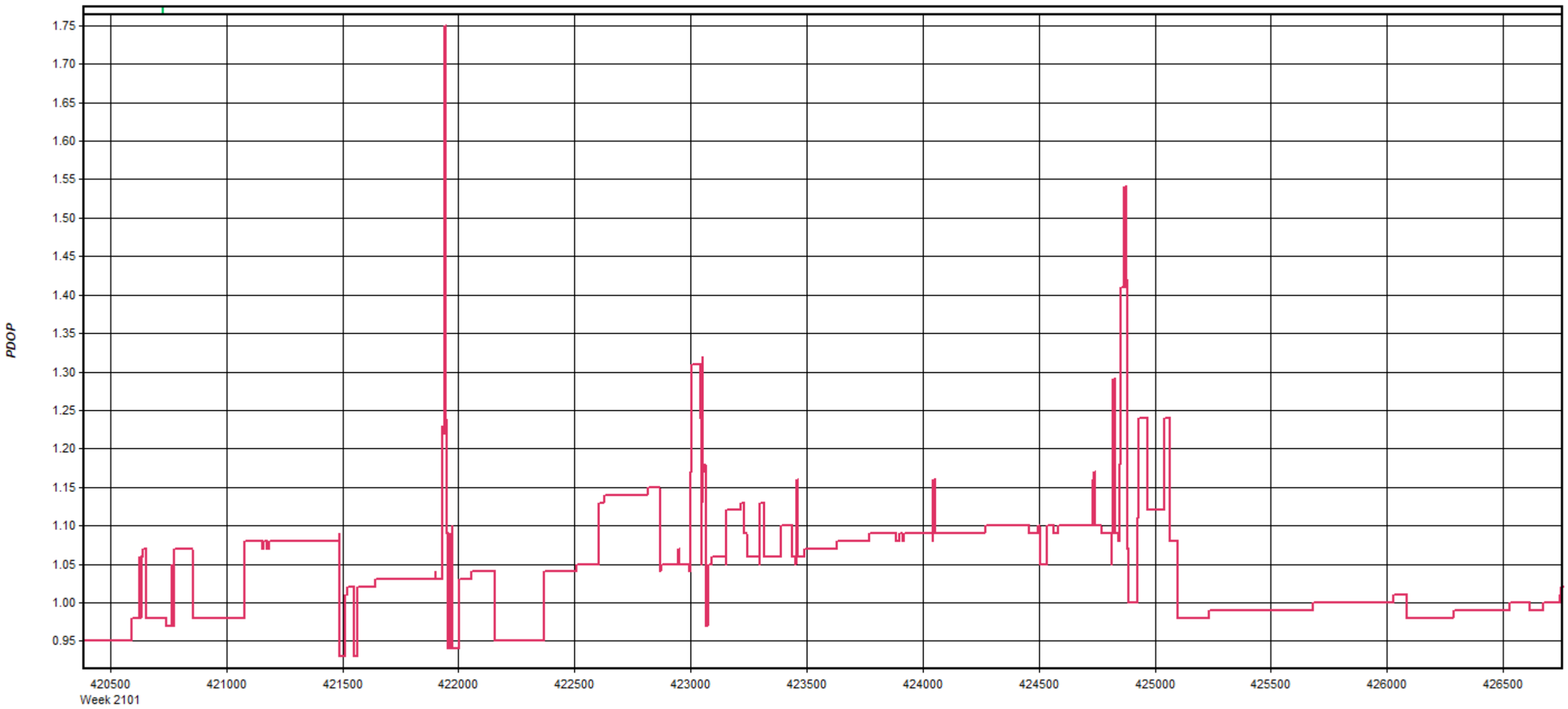
Process	20200416_204134	by Unknown	on 4/17/2020	at 08:34:18

Figure 4: 20200416_204134 [Smoothed TC Combined] - Forward/Reverse or Combined Separation Plot



Process	20200416_204134	by Unknown	on 4/17/2020	at 08:34:18

Figure 5: 20200416_204134 [Smoothed TC Combined] - PDOP Plot



Process	20200416_204134	by Unknown	on 4/17/2020	at 08:34:18

General Information

Mission Information

Project name	19-6648-01_IA3DEP_USGS_20200330A
Processing date	2021-01-18 21:53:42
Mission date	2020-03-30 12:53:03
Mission duration	03:44:41.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.180	POS Data
ALS.181	POS Data
ALS.182	POS Data
ALS.183	POS Data
ALS.184	POS Data
ALS.185	POS Data
ALS.186	POS Data
ALS.187	POS Data
ALS.188	POS Data
ALS.189	POS Data
ALS.190	POS Data
ALS.191	POS Data
ALS.192	POS Data
ALS.193	POS Data
ALS.194	POS Data
ALS.195	POS Data
ALS.196	POS Data
ALS.197	POS Data
ALS.198	POS Data
ALS.199	POS Data
ALS.200	POS Data

Input Files

File Name	File Type
Ephm0900.20g	GLONASS Broadcast Ephemeris
Ephm0900.20n	GPS Broadcast Ephemeris
igu20990_18.sp3	GPS Precise Ephemeris
igu20991_18.sp3	GPS Precise Ephemeris
igu20992_18.sp3	GPS Precise Ephemeris
iaal0900.20o	GNSS SingleBase
iade0900.20o	GNSS SingleBase
iael0900.20o	GNSS SingleBase
iana0900.20o	GNSS SingleBase
mnca0900.20o	GNSS SingleBase
mney0900.20o	GNSS SingleBase
mnps0900.20o	GNSS SingleBase
mnsv0900.20o	GNSS SingleBase
winl0900.20o	GNSS SingleBase

Output Files

Filename	File type
sbet_19-6648-01_Mission A_033020.out	SBET Trajectory File
SBET_19-6648-01_Mission A_033020.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.180		
Last raw data file	ALS.200		
Start GPS week	2099		
Start time	22.387 (3/29/2020 12:00:22 AM)		
End time	146247.837 (3/30/2020 4:37:27 PM)		
Start of fine alignment	133190.068 (3/30/2020 12:59:50 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

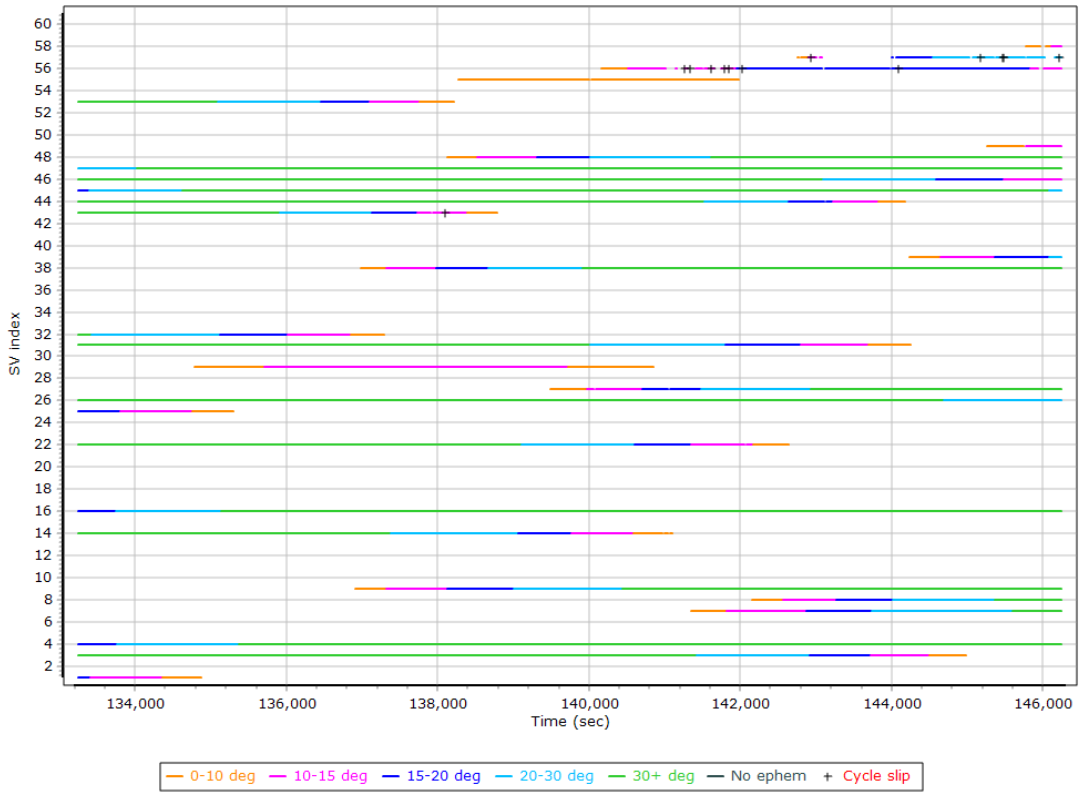
Rover Data QC

Raw IMU Import QC Summary

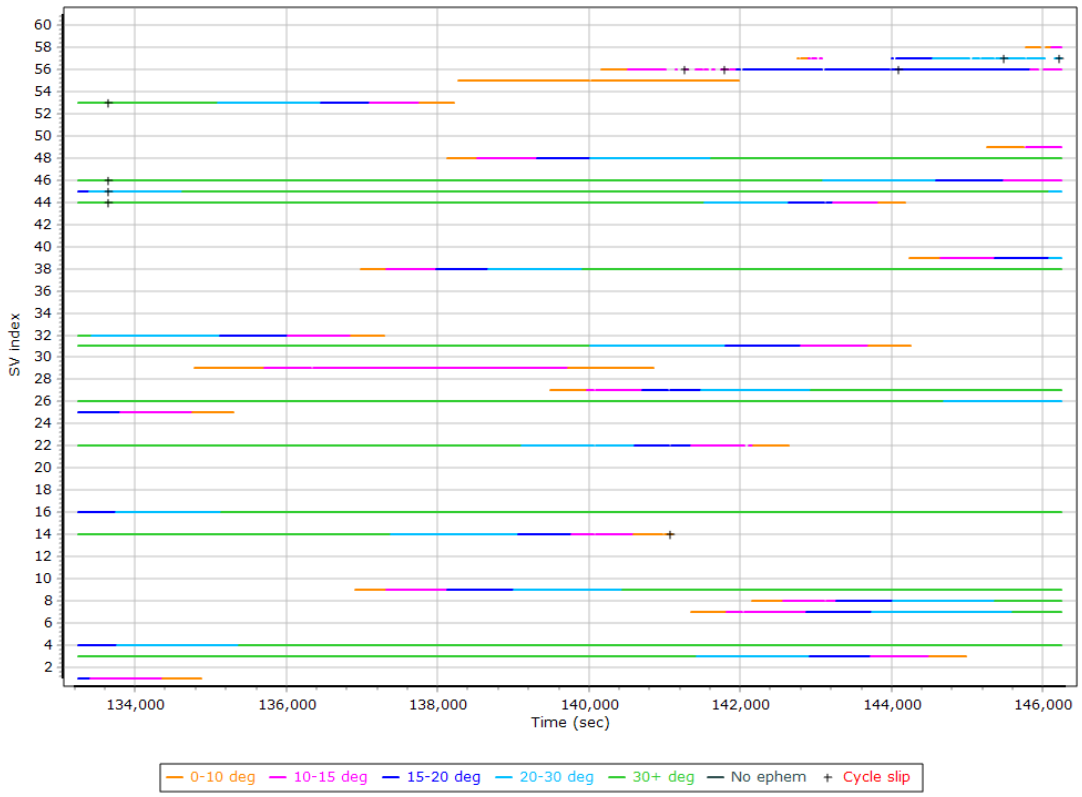
IMU data input file	imu_19-6648-01_Mission A_033020.dat
IMU data check log file	imudt_19-6648-01_Mission A_033020.log
IMU Records Processed	2699057
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
132777.945 : WARNING : Gap of 132753.9588 seconds in CHECKDT input data	

Primary Observables & Satellite Data

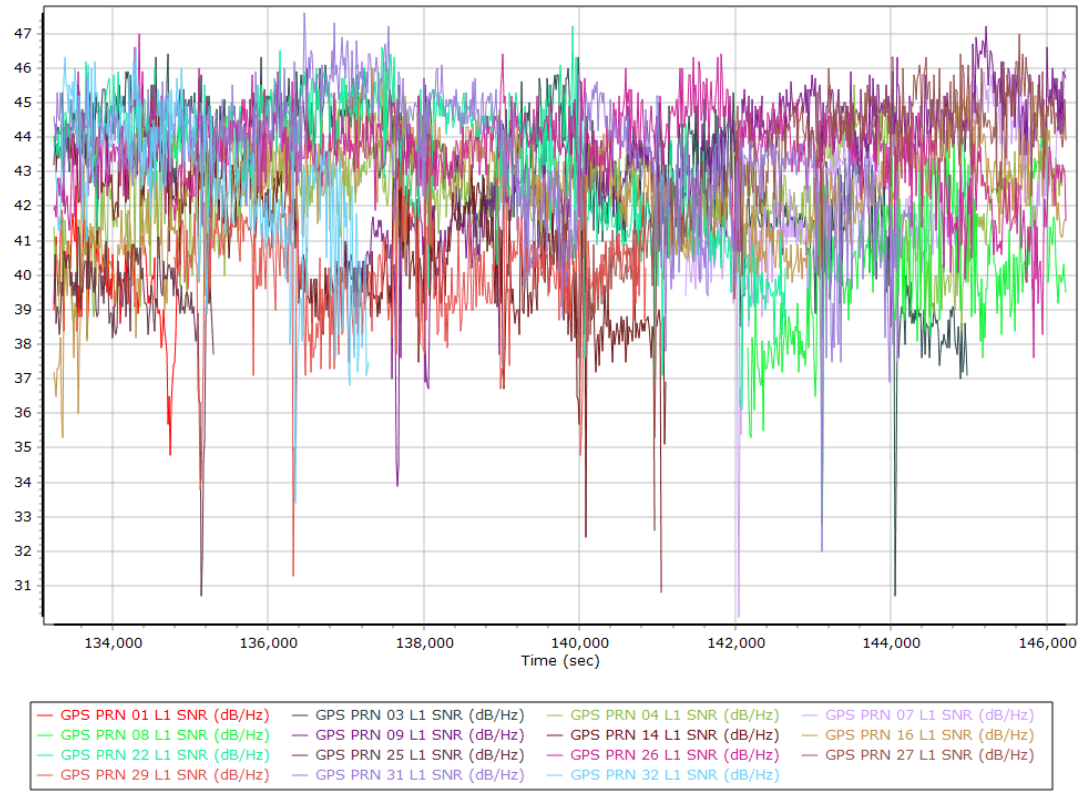
L1 Satellite Lock/Elevation



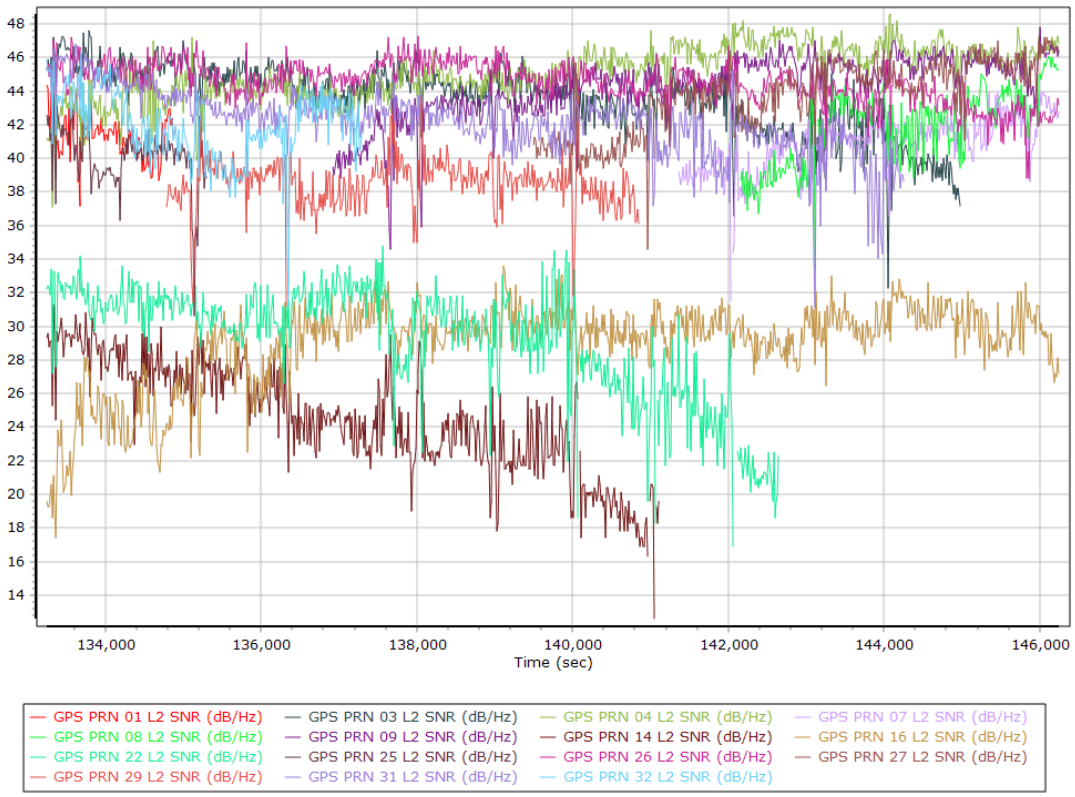
L2 Satellite Lock/Elevation



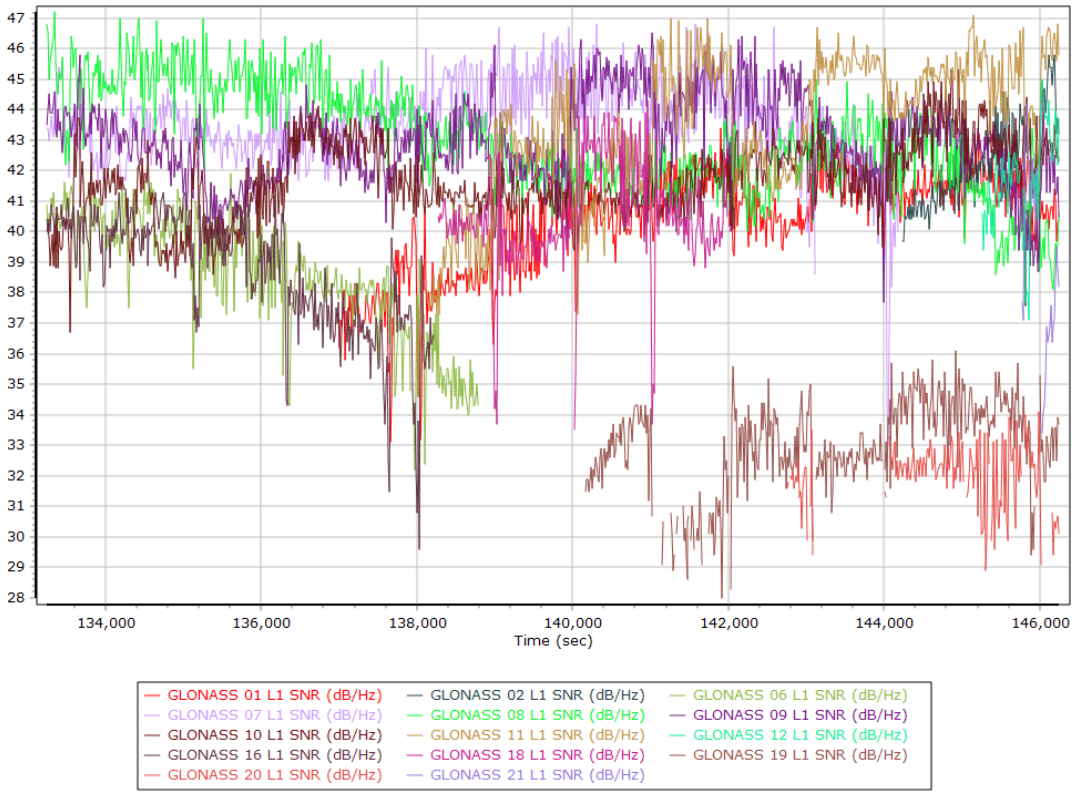
GPS L1 SNR



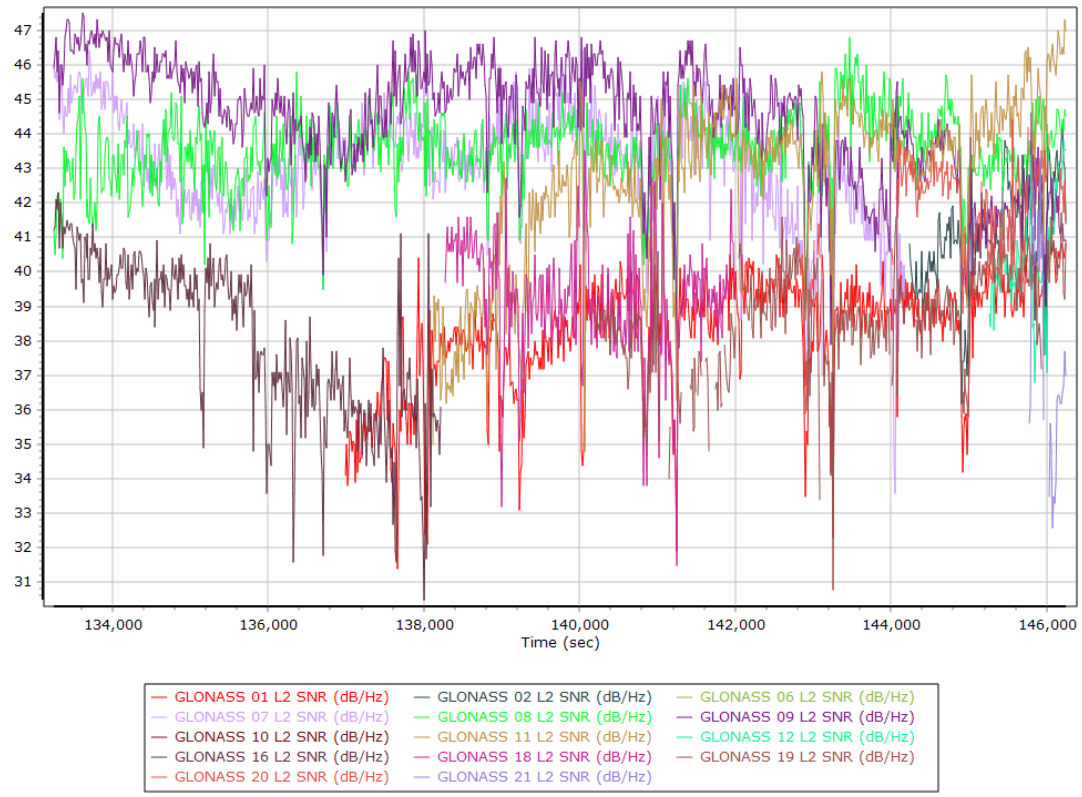
GPS L2 SNR



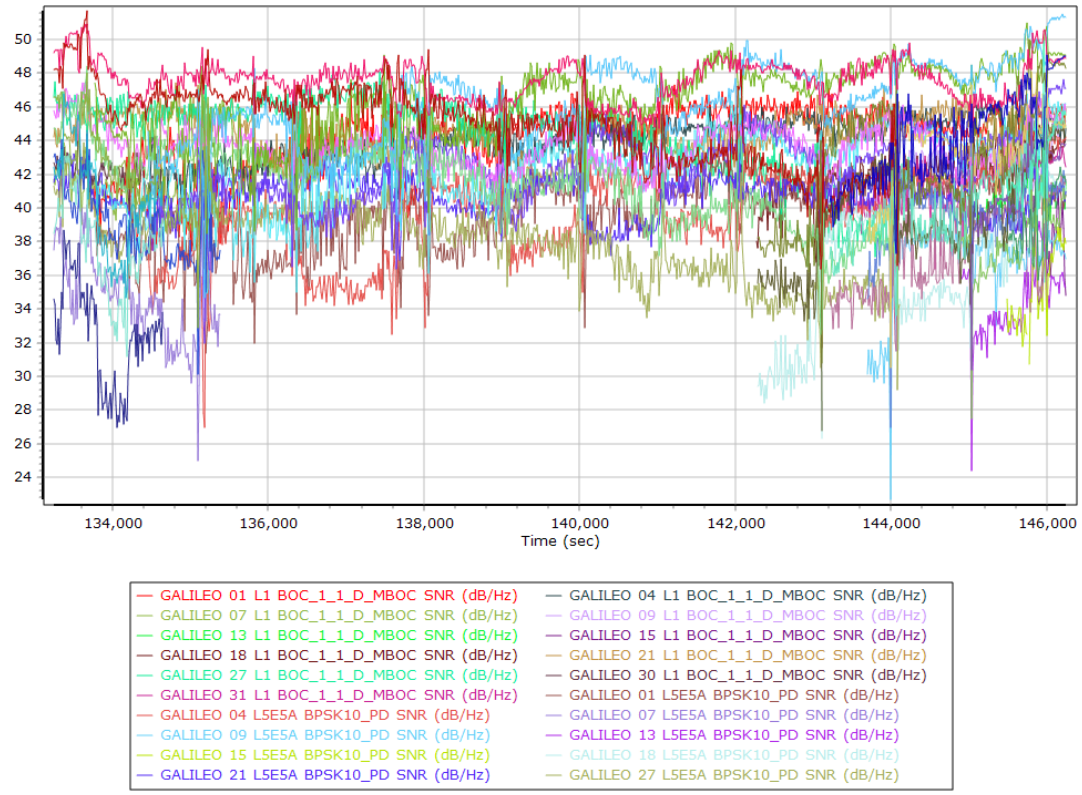
GLONASS L1 SNR



GLONASS L2 SNR

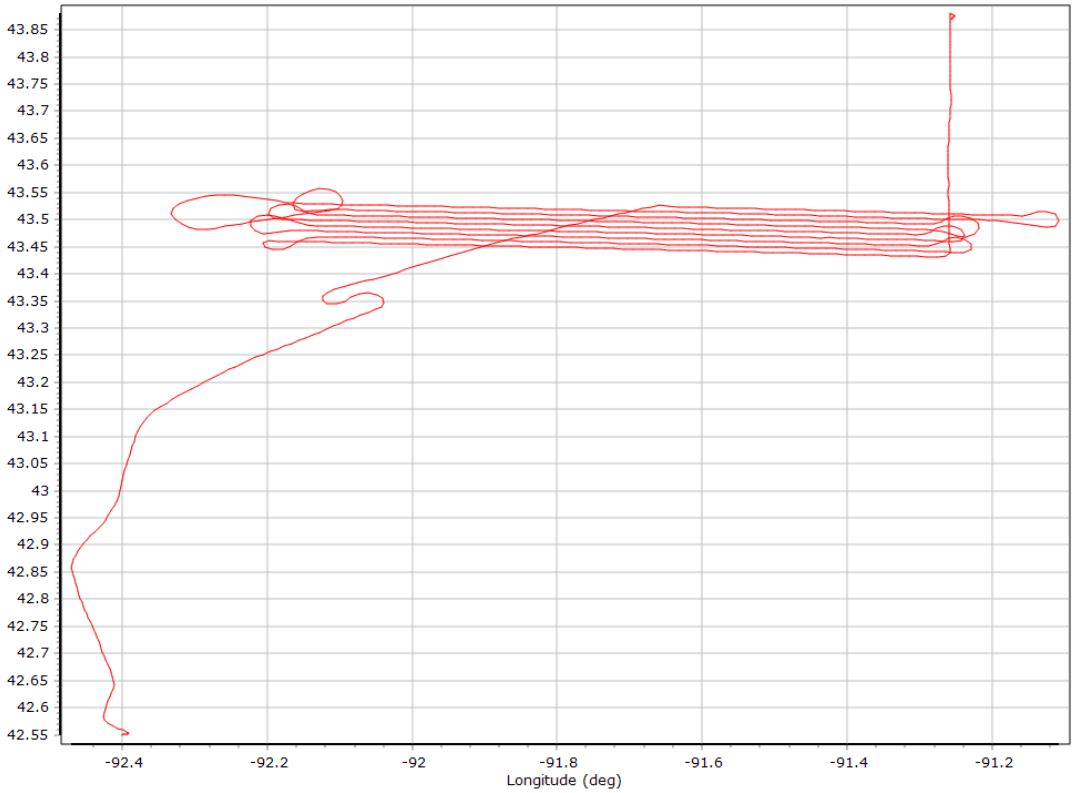


GALILEO SNR

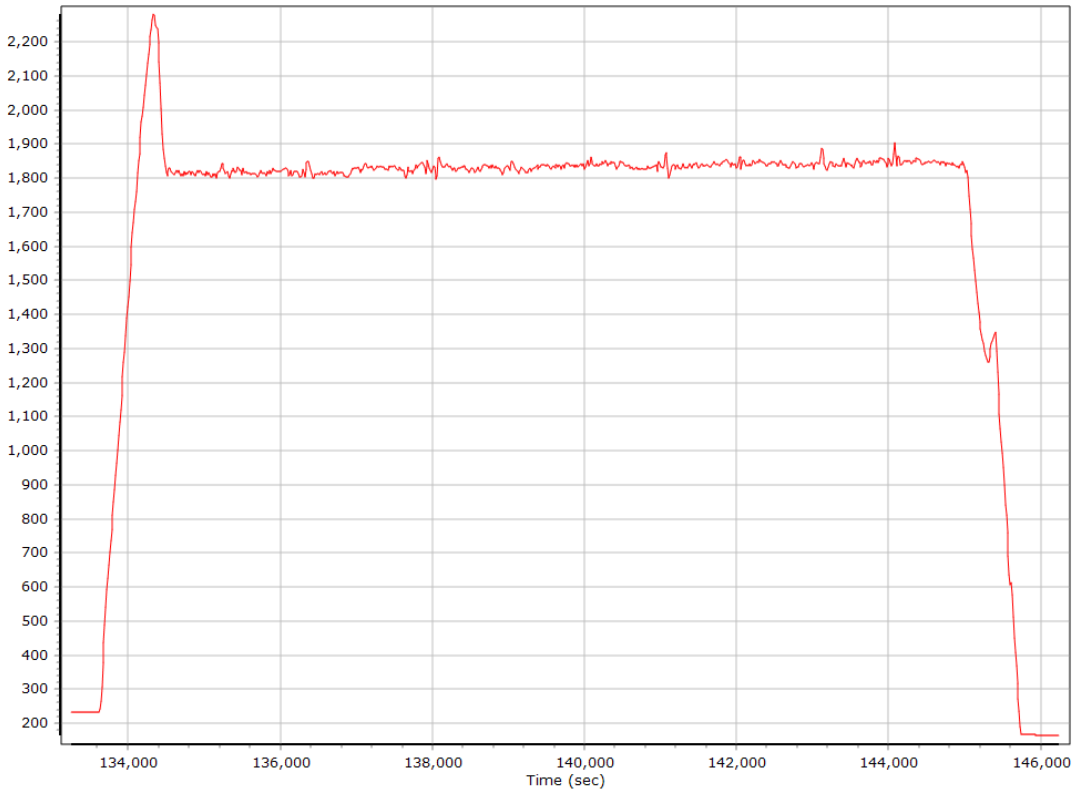


Smoothed Trajectory Information

Top View

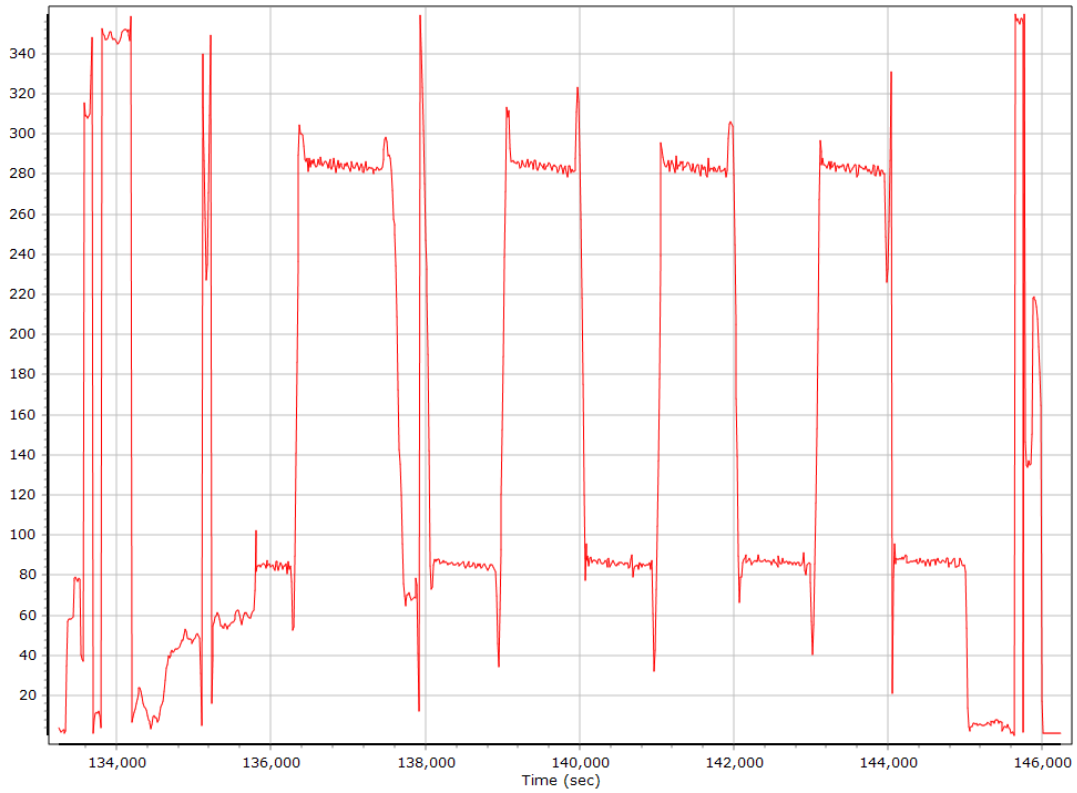


Altitude

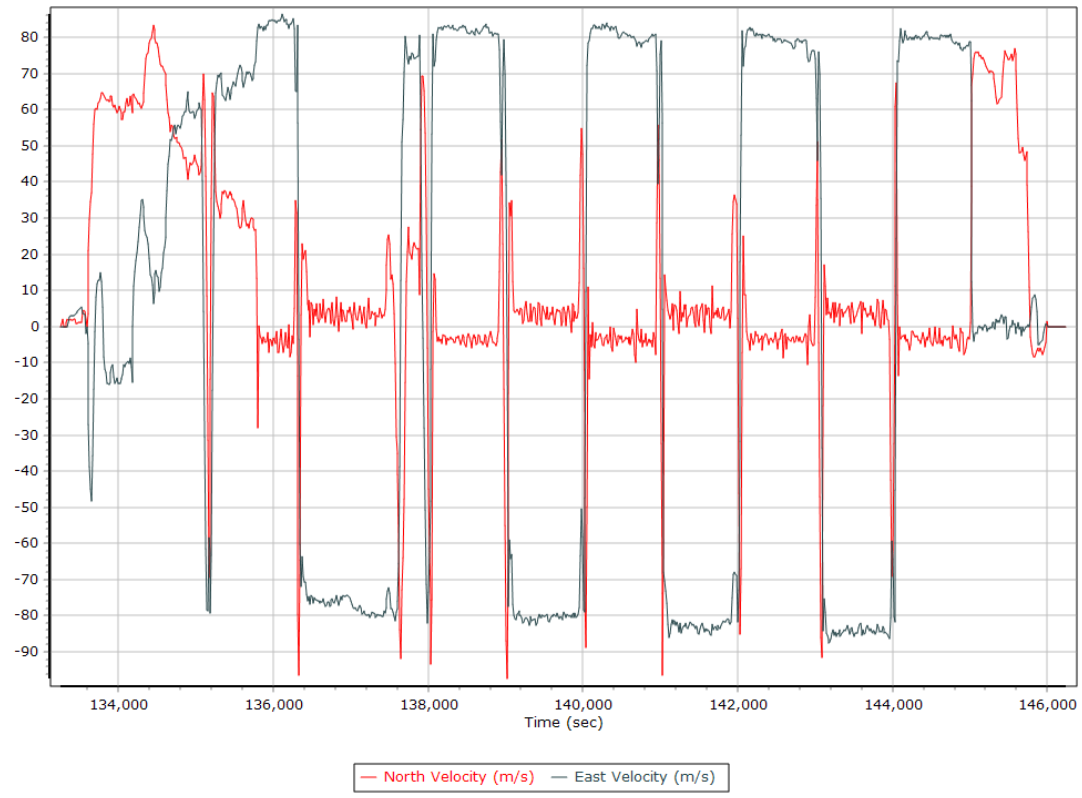


Roll/Pitch

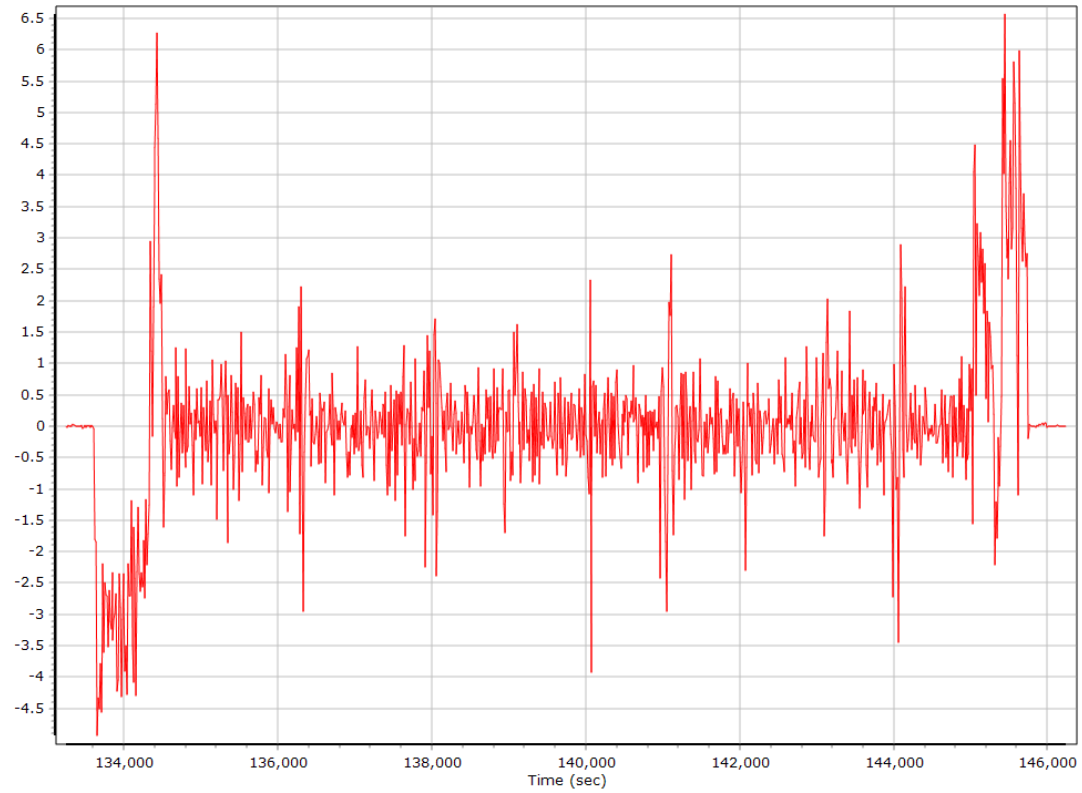
Heading



North/East Velocity



Down Velocity

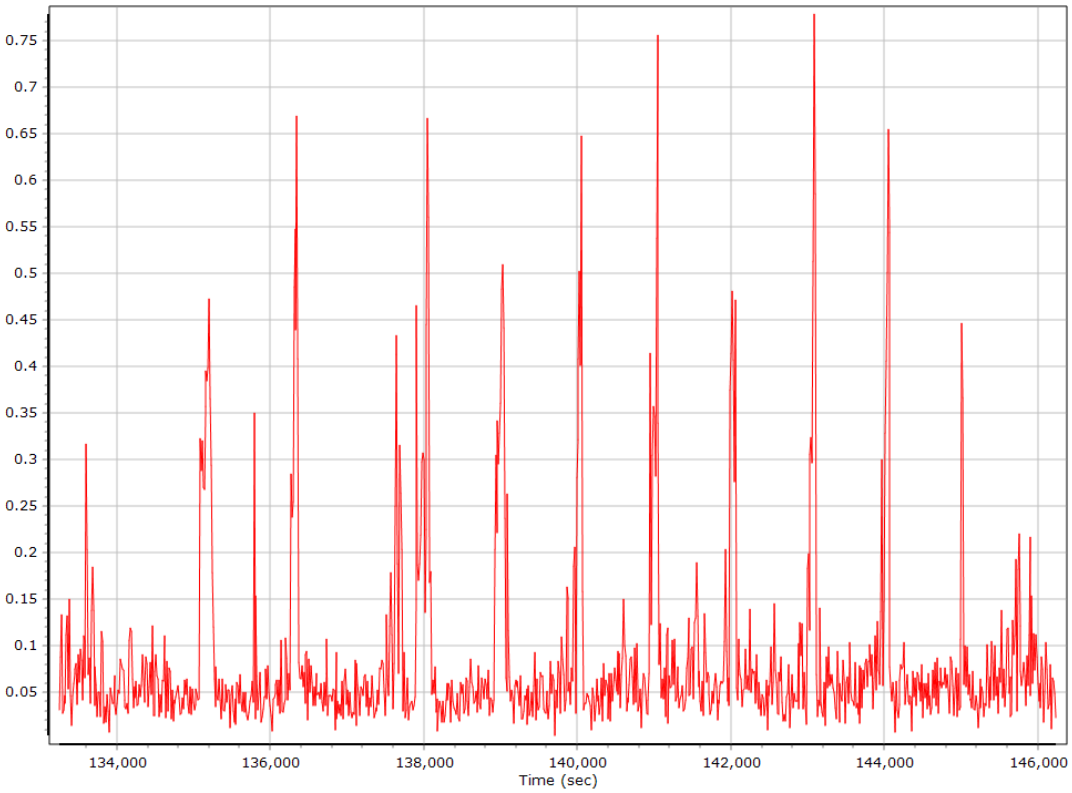


Total Speed

Ground Speed

Body Acceleration

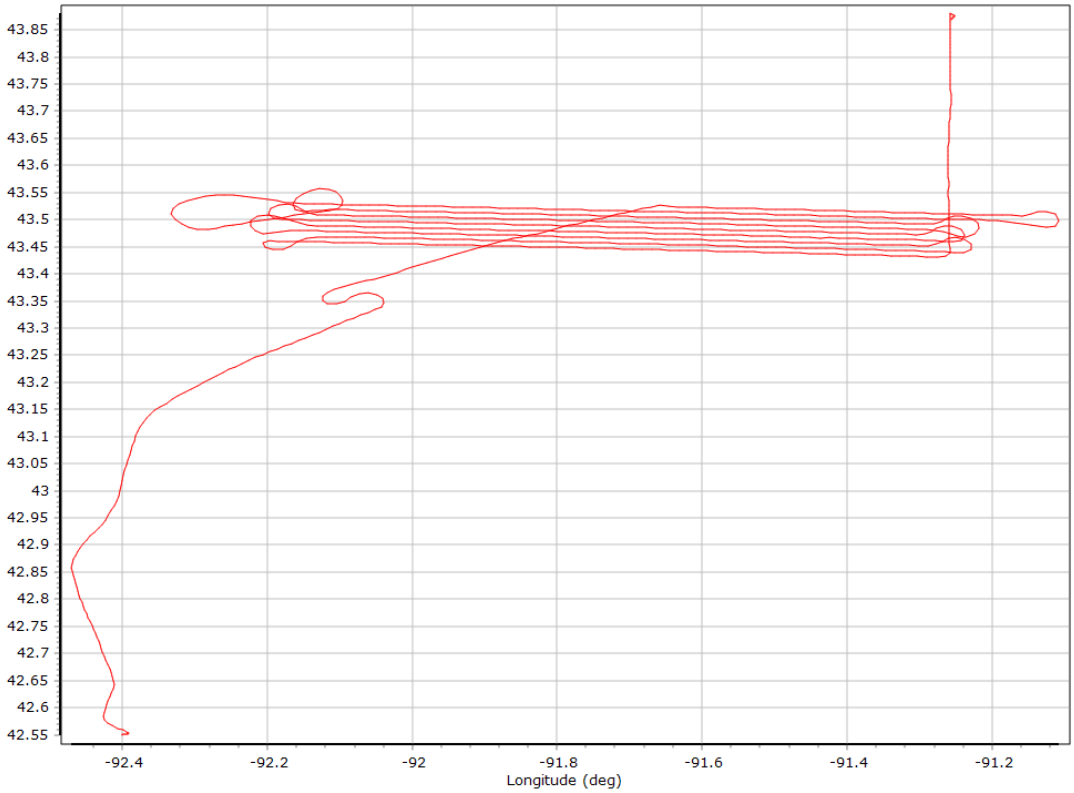
Total Body Acceleration



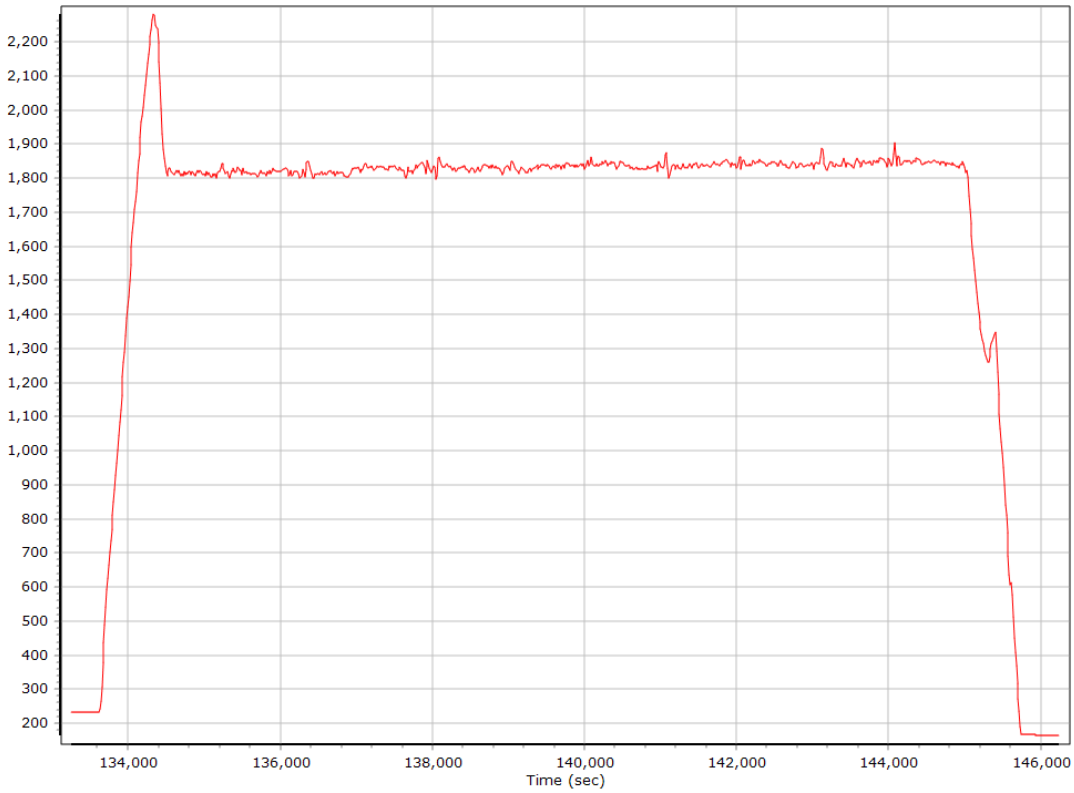
Body Angular Rate

Forward Processed Trajectory Information

Top View

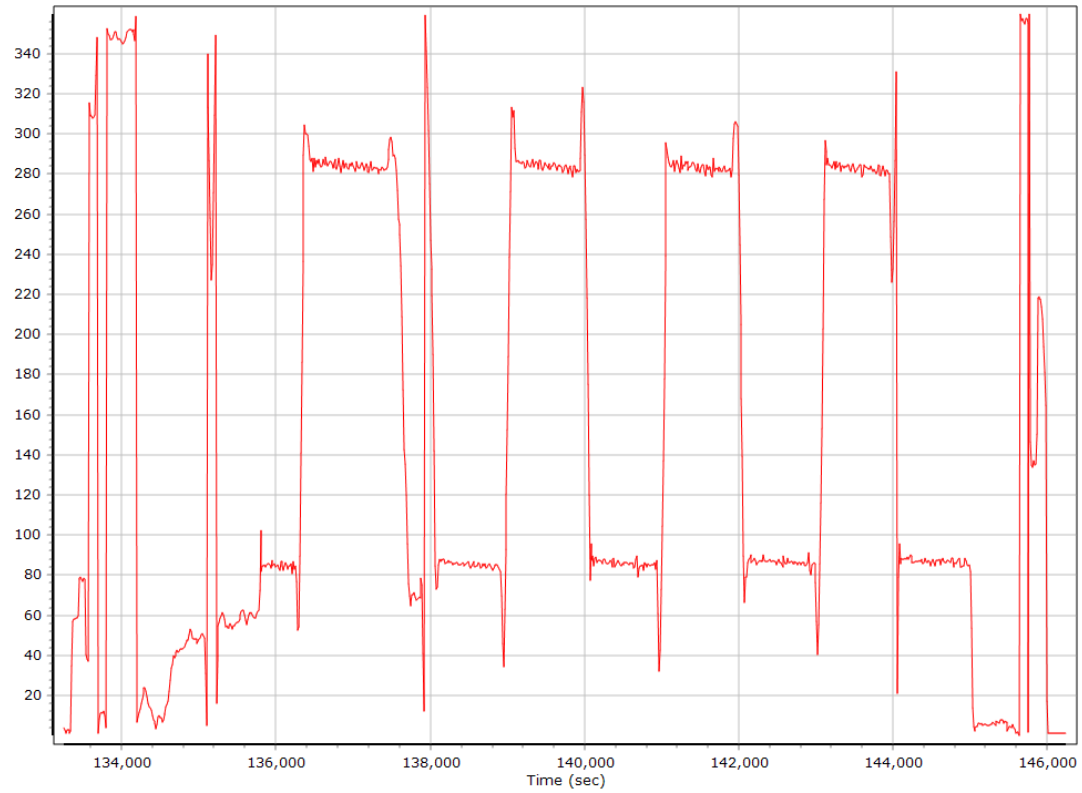


Altitude

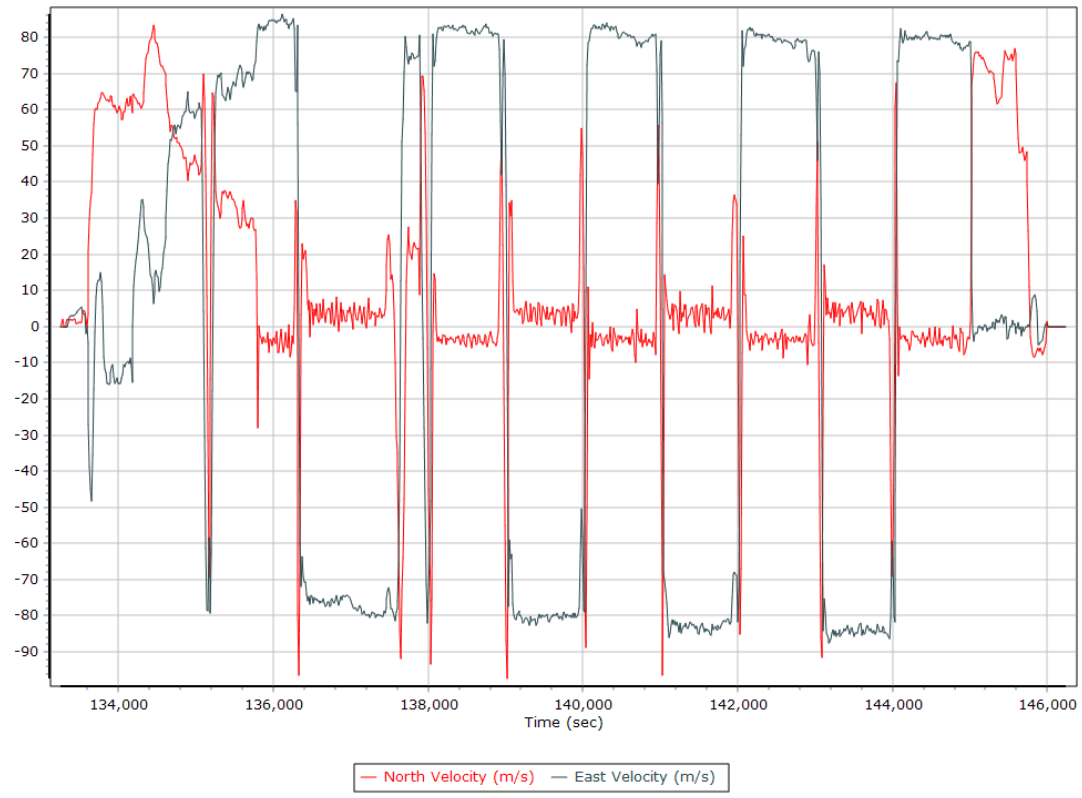


Roll/Pitch

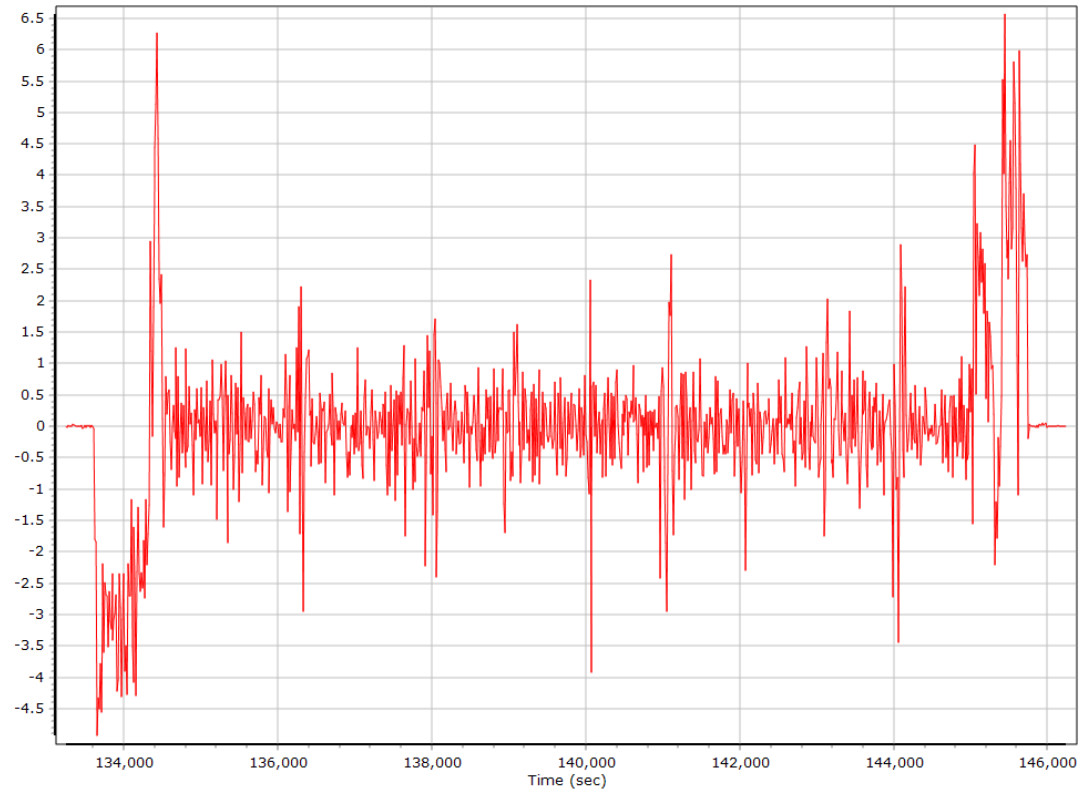
Heading



North/East Velocity



Down Velocity

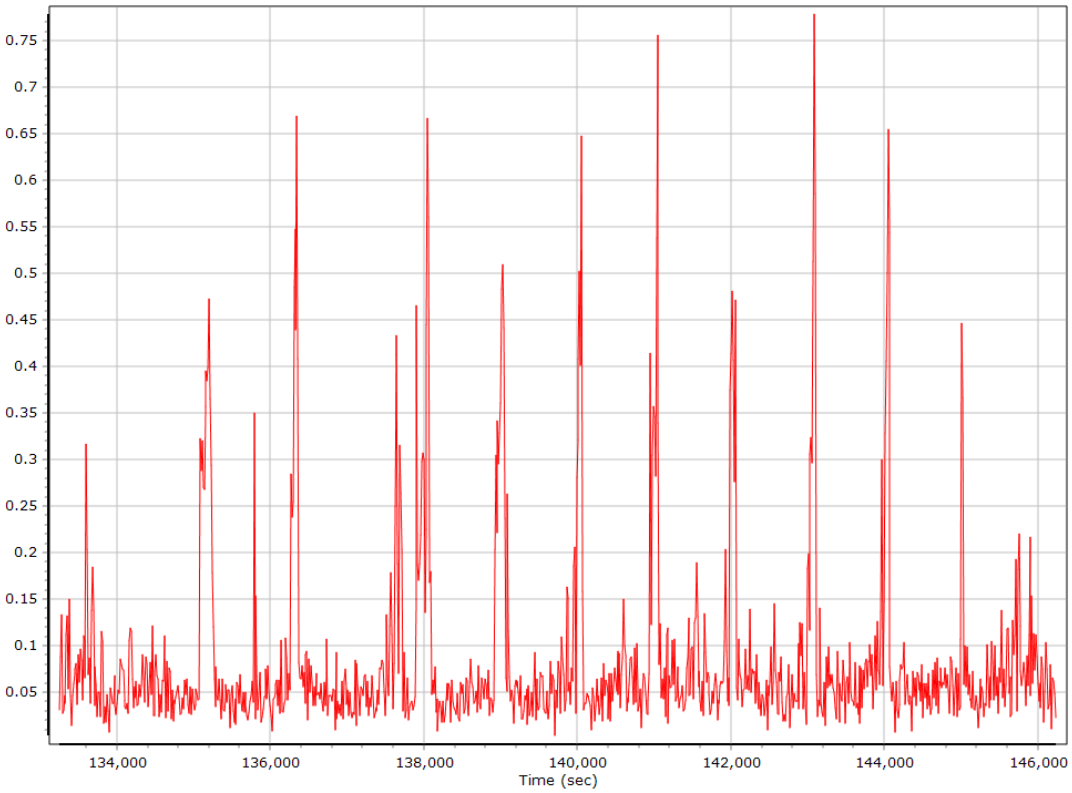


Total Speed

Ground Speed

Body Acceleration

Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
03/30/2020	IADE	13.53	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNPS	15.59	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNCA	36.49	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IANA	42.88	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IAEL	67.13	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNEY	70.90	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNSV	79.27	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IAAL	107.62	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	WINL	142.87	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	13481 s (2099 132783 - 2099 146264)
Number of reference stations	9
Primary station GPS measurement usage (%)	99.9
Primary station GLONASS measurement usage (%)	71.2
Average number of satellites per epoch	13.1
Max number of GPS stations used	6
Min number of GPS stations used	4
Max number of GLONASS stations used	6
Min number of GLONASS stations used	4
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	24972
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - WINL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°50'27.42791"	W90°08'31.59805"	243.634
Adjusted		N43°50'27.42801"	W90°08'31.59743"	243.637
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.014	0.004	0.015

Base Station Information

Station ID	WINL		
Filename	winl0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5503R50037
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°50'27.42791"		
Longitude	W90°08'31.59805"		
Ellipsoidal height (m)	243.63364		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24721"	291.092
Adjusted		N42°44'49.40394"	W92°47'14.24712"	291.118
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.025	0.026

Base Station Information

Station ID	IAAL		
Filename	iaal0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24721"		
Ellipsoidal height (m)	291.09236		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNSV

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°54'09.07390"	W92°28'55.97411"	361.226
Adjusted		N43°54'09.07413"	W92°28'55.97391"	361.219
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.007	0.011

Base Station Information

Station ID	MNSV		
Filename	mnsv0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	Alloy	5829R40031
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°54'09.07390"		
Longitude	W92°28'55.97411"		
Ellipsoidal height (m)	361.22648		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNEY

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°57'20.27378"	W92°12'19.44384"	370.916
Adjusted		N43°57'20.27376"	W92°12'19.44357"	370.902
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.015	0.016

Base Station Information

Station ID	MNEY		
Filename	mney0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5426R48922
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°57'20.27378"		
Longitude	W92°12'19.44384"		
Ellipsoidal height (m)	370.91641		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.76	**Output Coordinates**	Original	
Solution Epochs	2851	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52983"	298.980
Adjusted		N42°52'40.47656"	W91°21'41.52968"	298.985
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.005	0.007

Base Station Information

Station ID	IAEL		
Filename	iael0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52983"		
Ellipsoidal height (m)	298.98033		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.0	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54030"	172.253
Adjusted		N43°29'49.47913"	W91°17'26.53949"	172.226
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.019	0.027	0.033

Base Station Information

Station ID	IANA		
Filename	iana0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54030"		
Ellipsoidal height (m)	172.25325		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64528"	W91°29'46.51634"	339.589
Adjusted		N43°37'58.64530"	W91°29'46.51589"	339.594
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.005	0.011

Base Station Information

Station ID	MNCA		
Filename	mnca0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64528"		
Longitude	W91°29'46.51634"		
Ellipsoidal height (m)	339.58853		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2865	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52630"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52630"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52630"		
Ellipsoidal height (m)	316.51621		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86726"	380.908
Adjusted		N43°30'53.84824"	W91°53'06.86719"	380.913
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.006	0.007

Base Station Information

Station ID	MNPS		
Filename	mnps0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86726"		
Ellipsoidal height (m)	380.90782		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	6.53	105.58	
Number of GPS SV	6	10	8
Number of GLONASS SV	0	6	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	7	15	13
PDOP	1.26	3.67	1.58
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	13422.00	0.00	1.00
Percentage	99.99	0.00	0.01

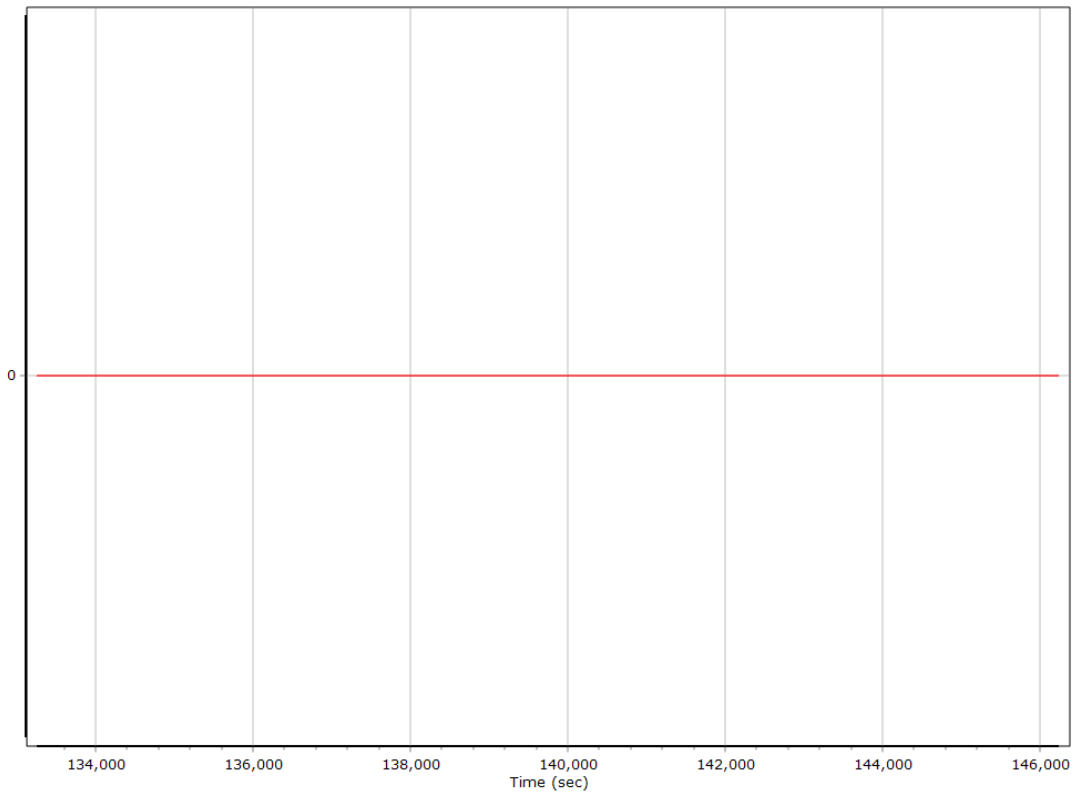
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	132765.000 (3/30/2020 12:52:45 PM)		
Processing end time	146246.000 (3/30/2020 4:37:26 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

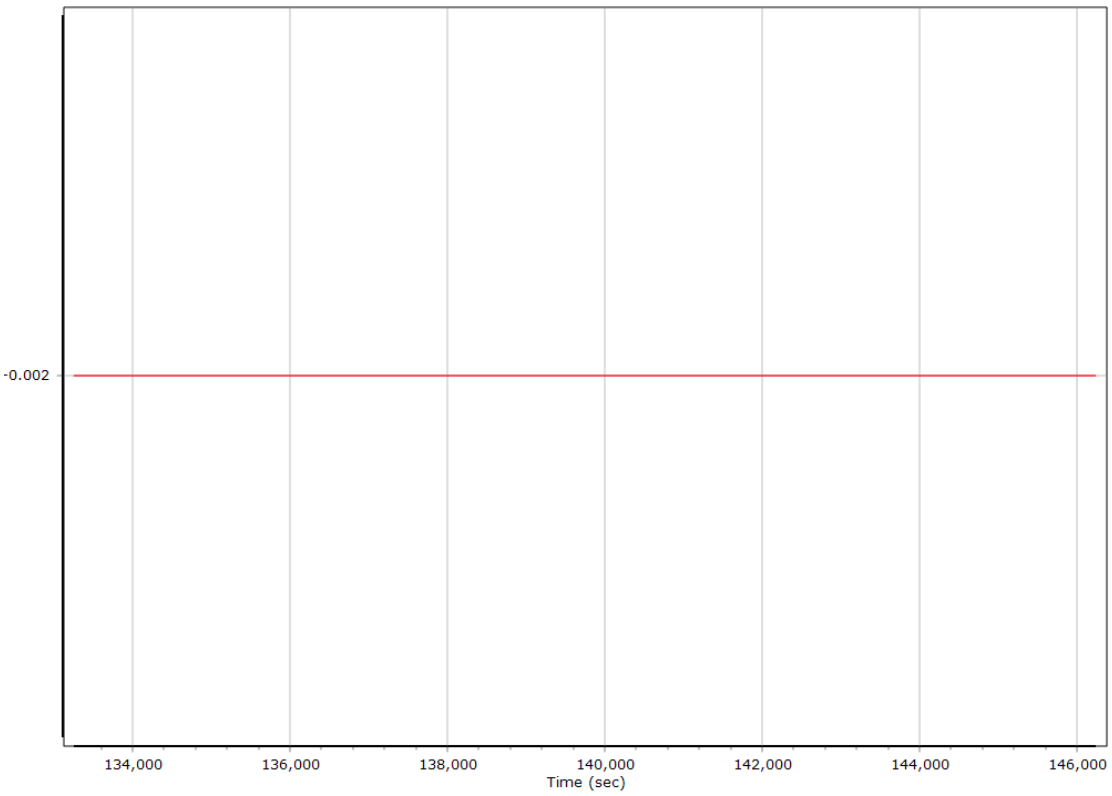
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

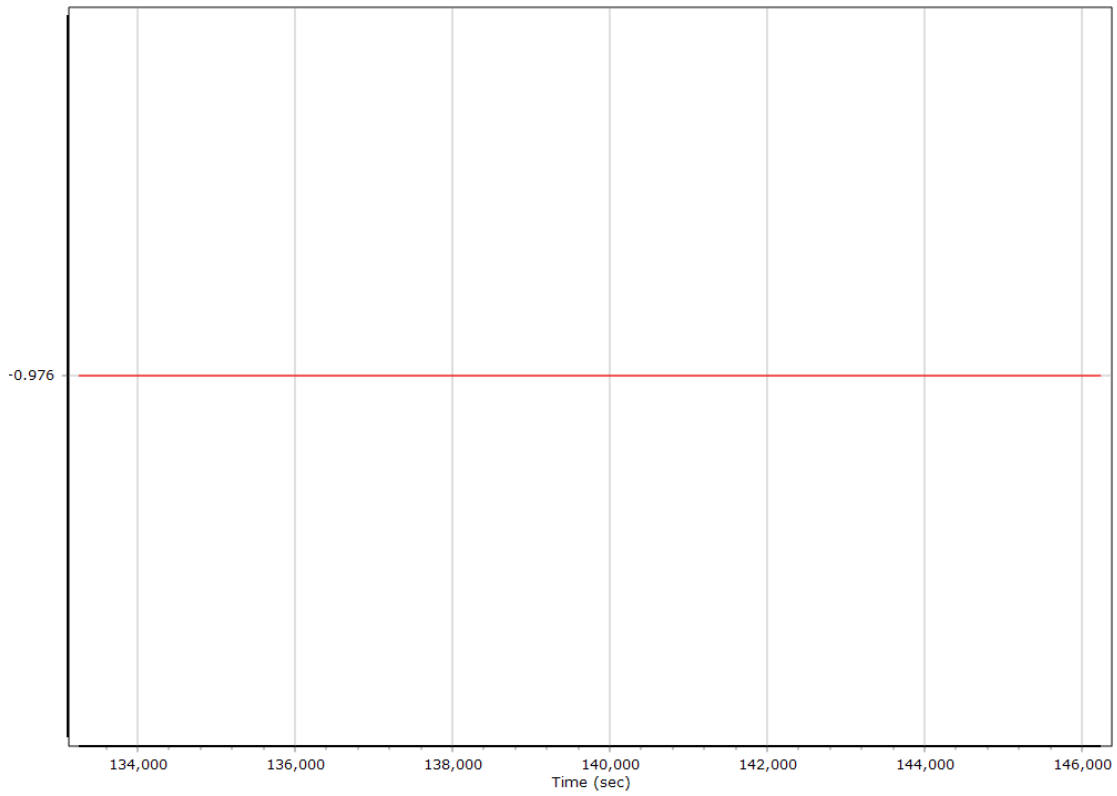
X Reference-Primary GNSS Lever Arm (m)



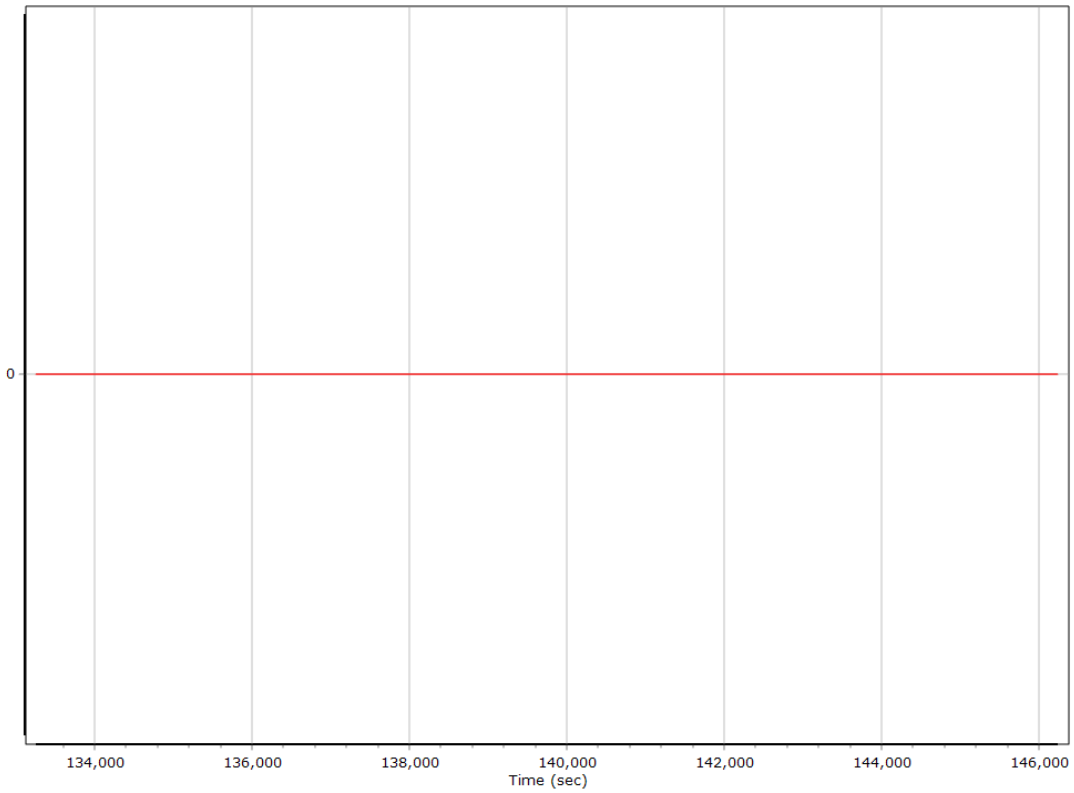
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



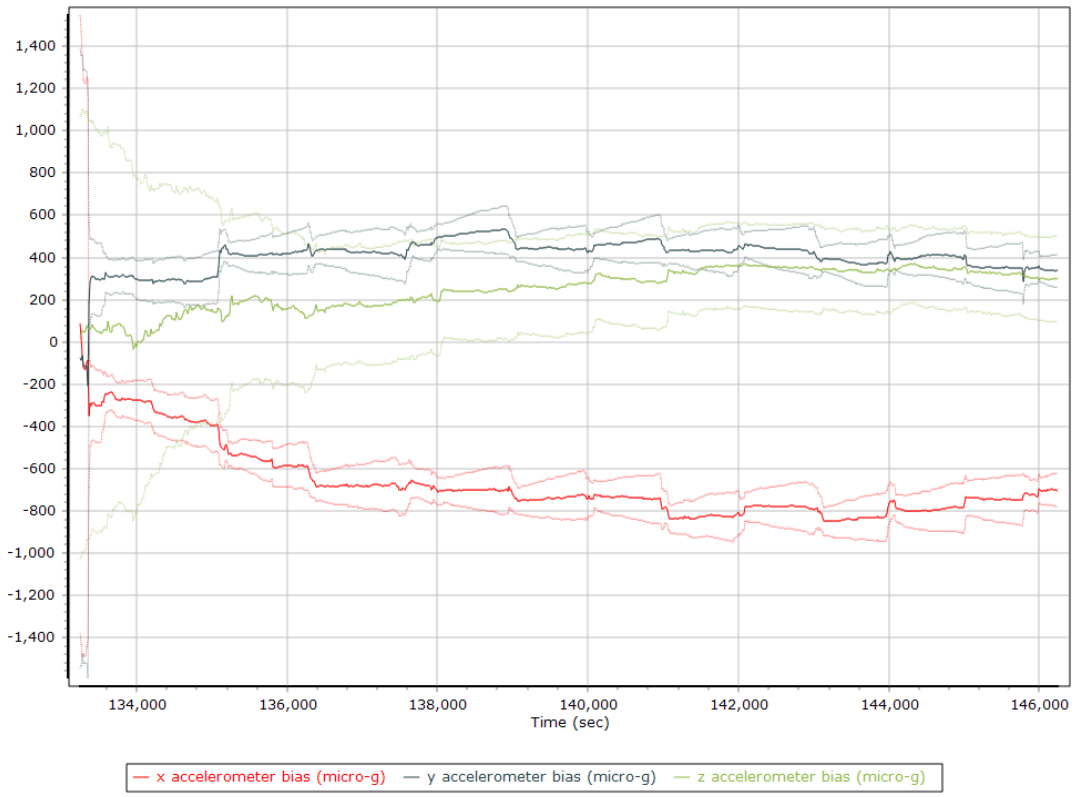
Reference-Primary GNSS Lever Arm Figure of Merit



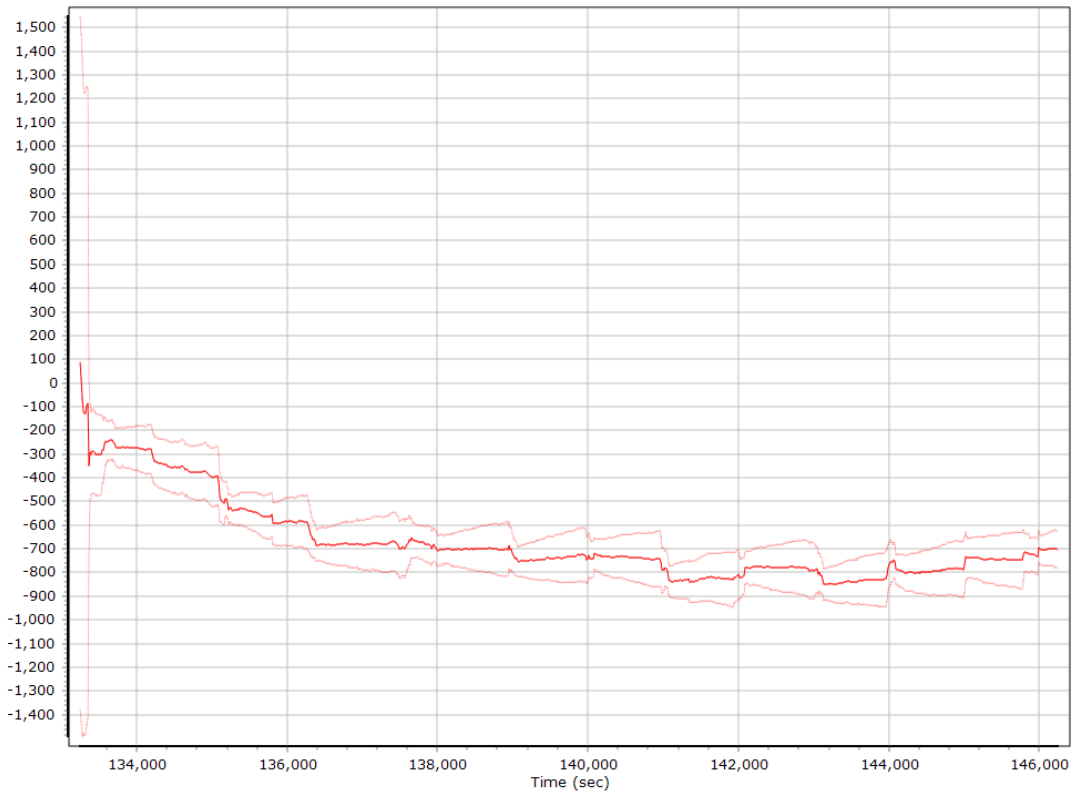
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

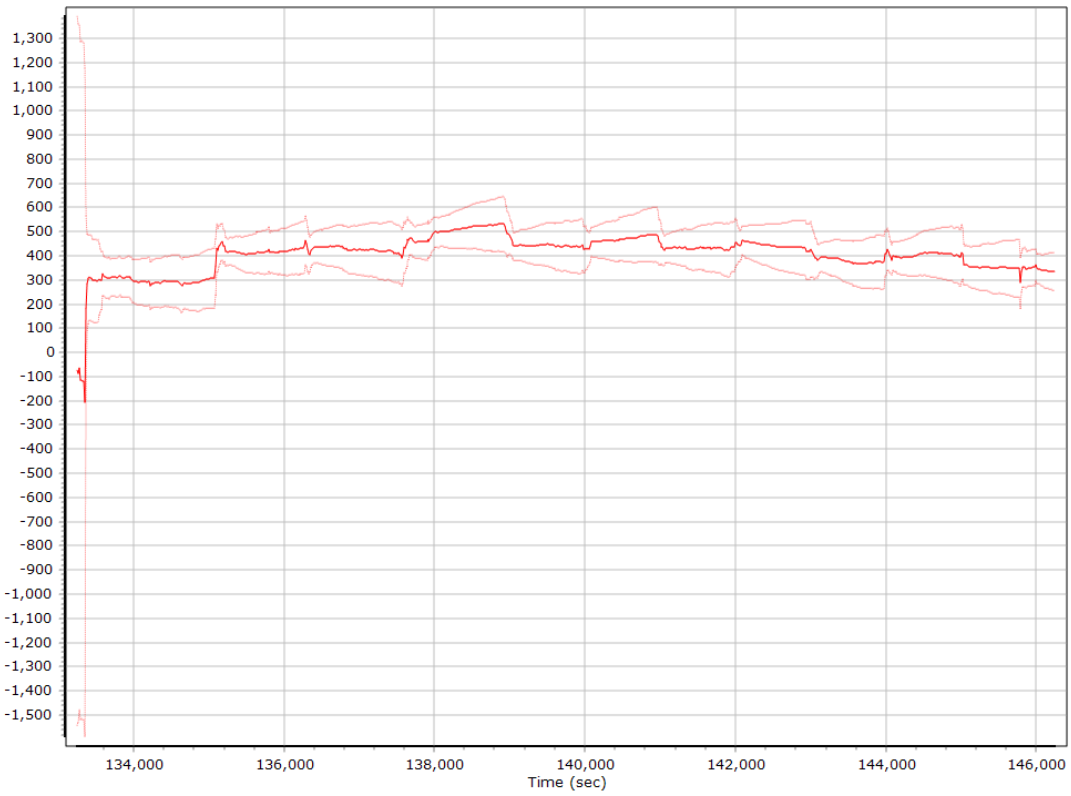
Accelerometer Bias (micro-g)



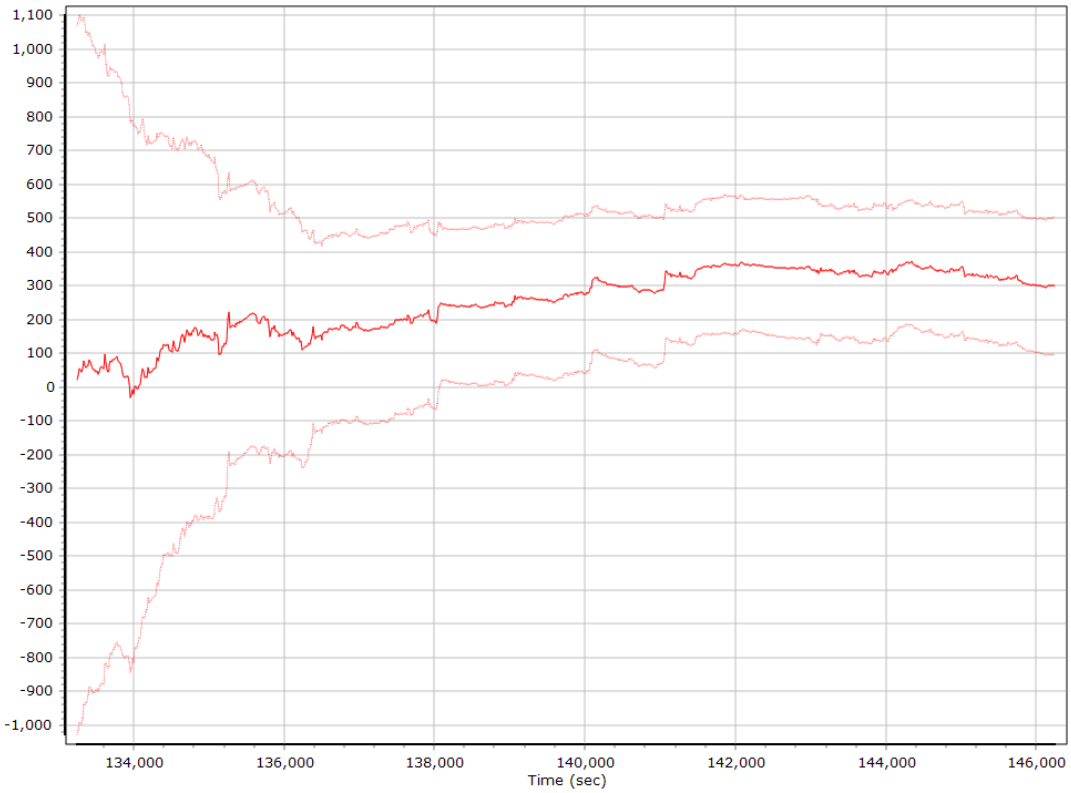
X Accelerometer Bias (micro-g)



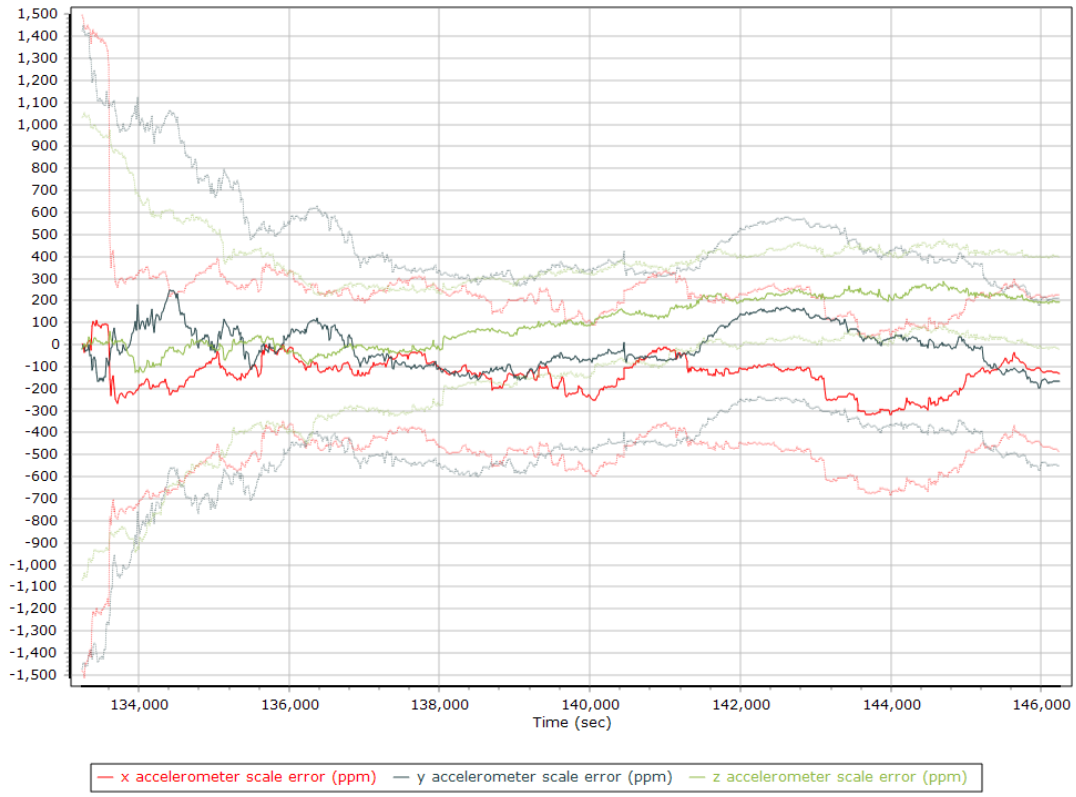
Y Accelerometer Bias (micro-g)



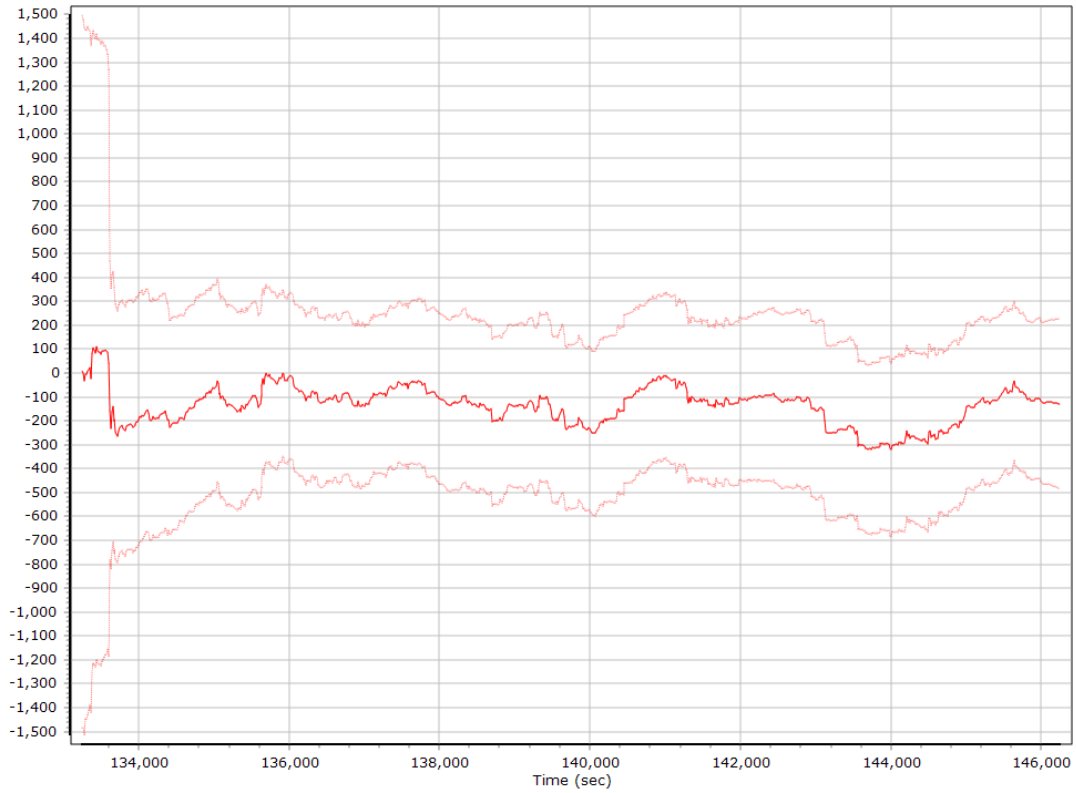
Z Accelerometer Bias (micro-g)



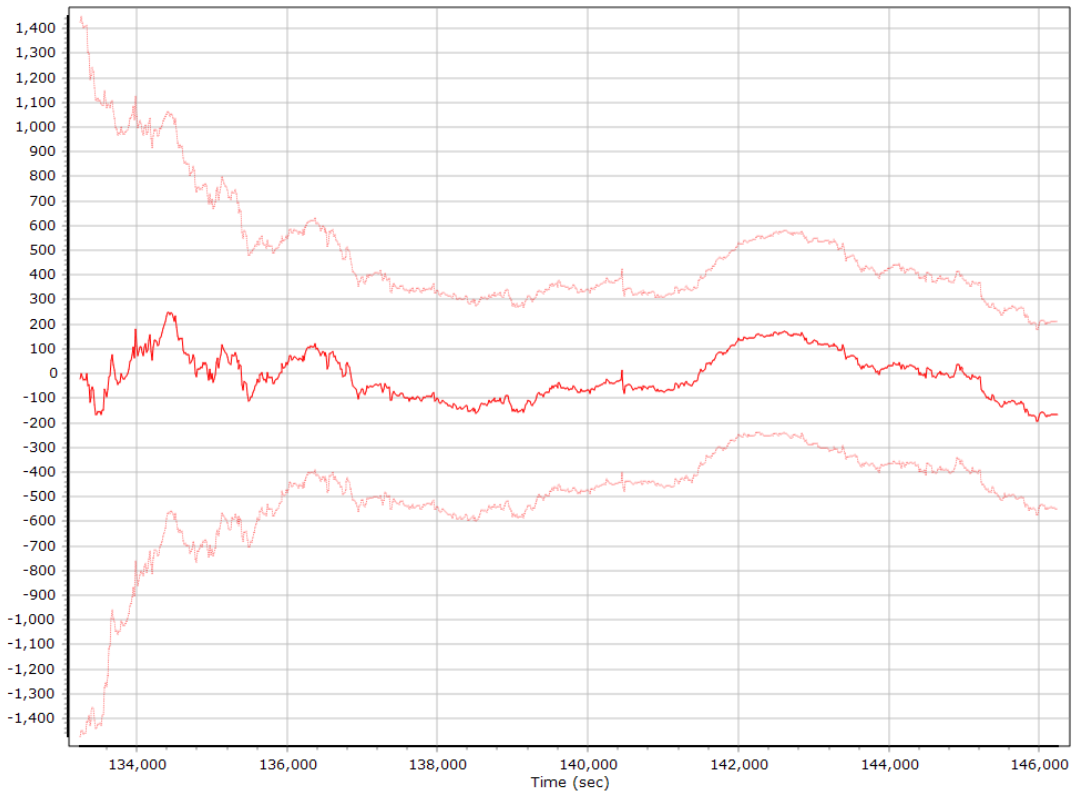
Accelerometer Scale Error (ppm)



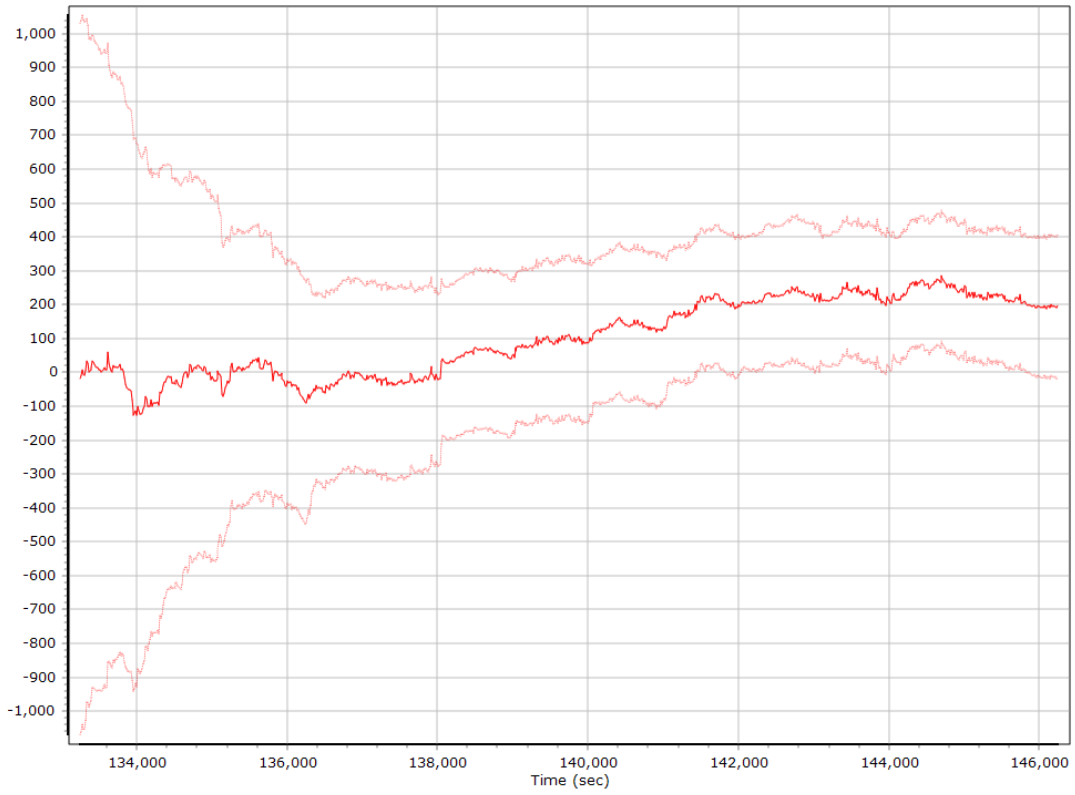
X Accelerometer Scale Error (ppm)



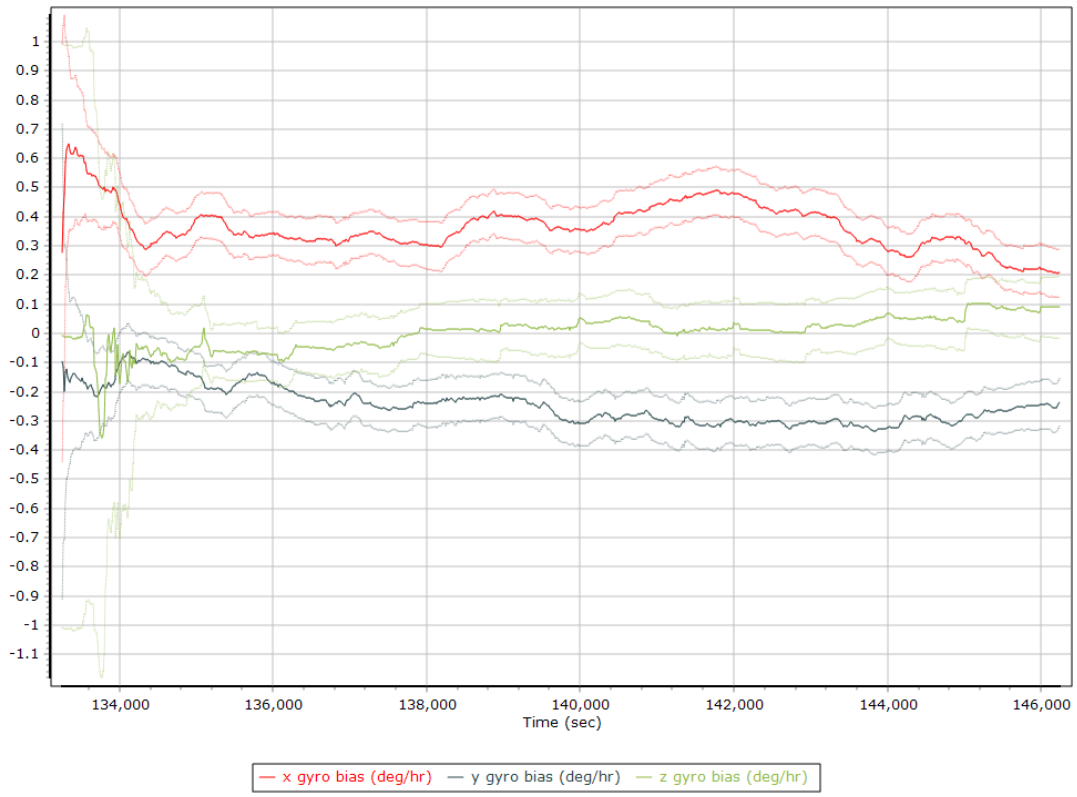
Y Accelerometer Scale Error (ppm)



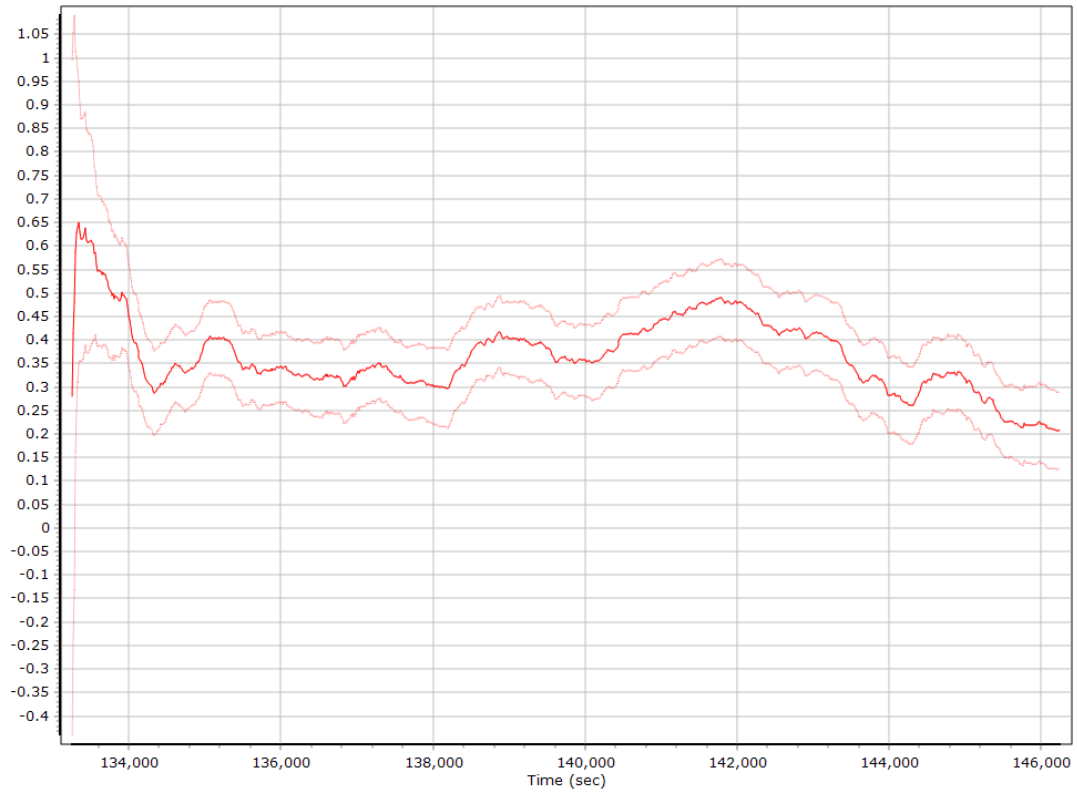
Z Accelerometer Scale Error (ppm)



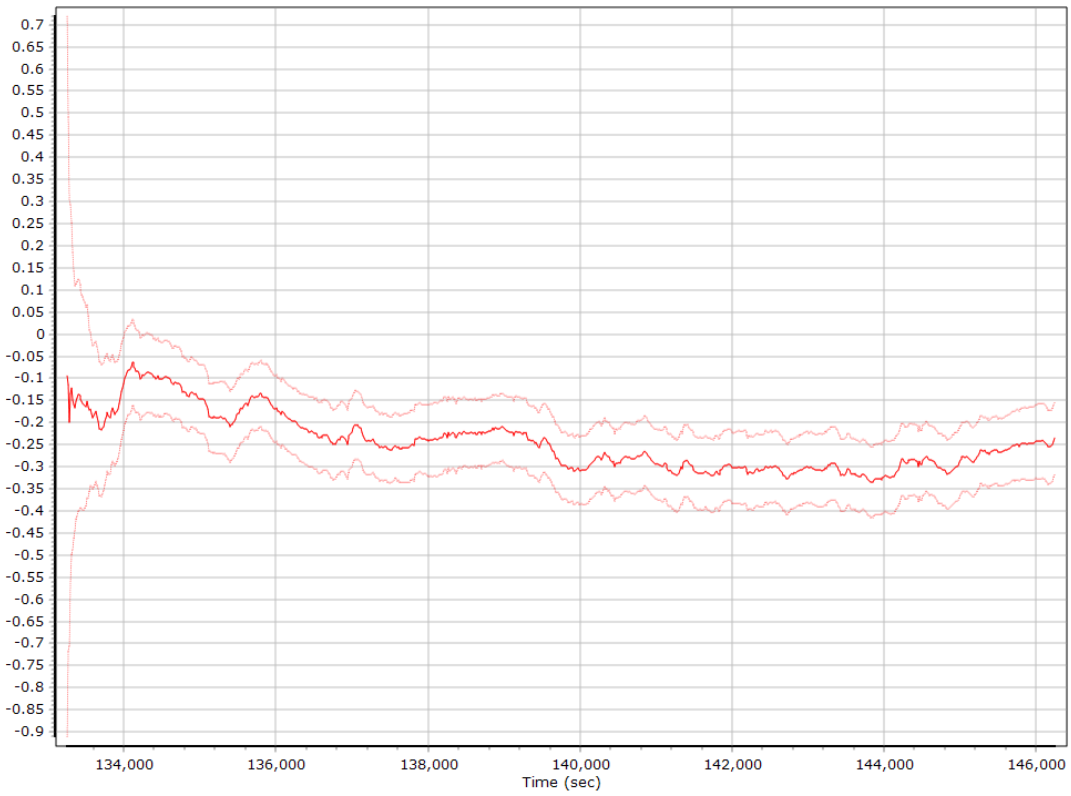
Gyro Bias (deg/h)



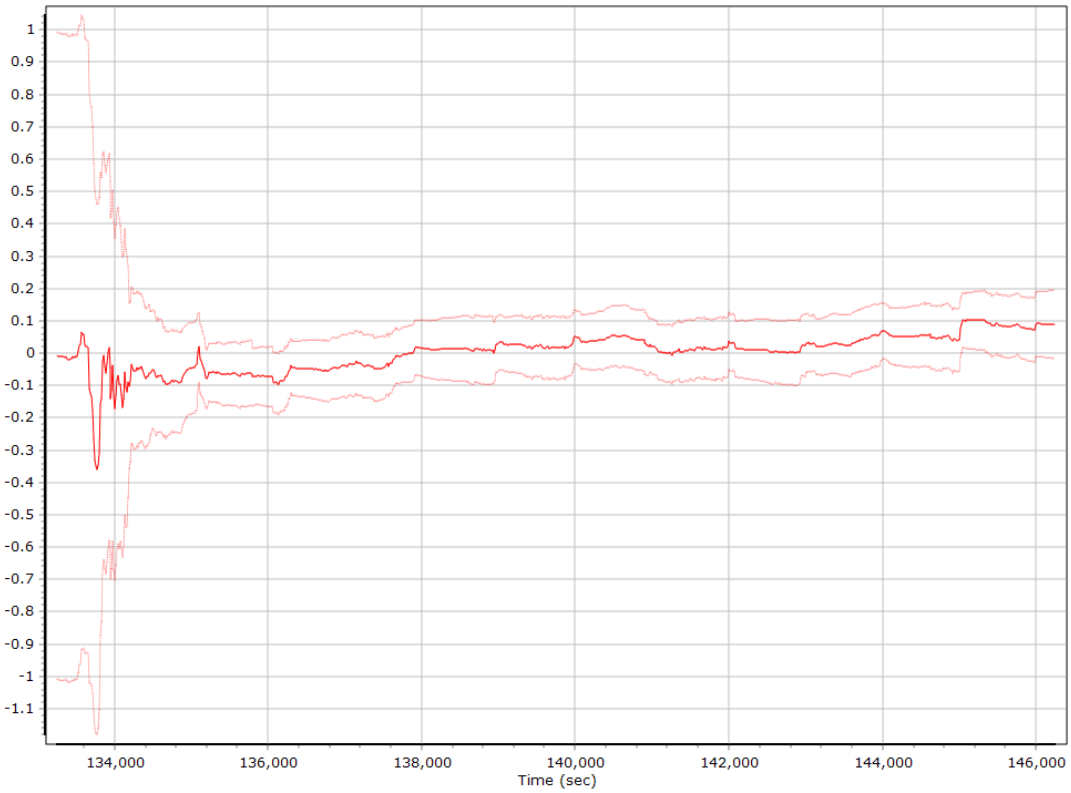
X Gyro Bias (deg/h)



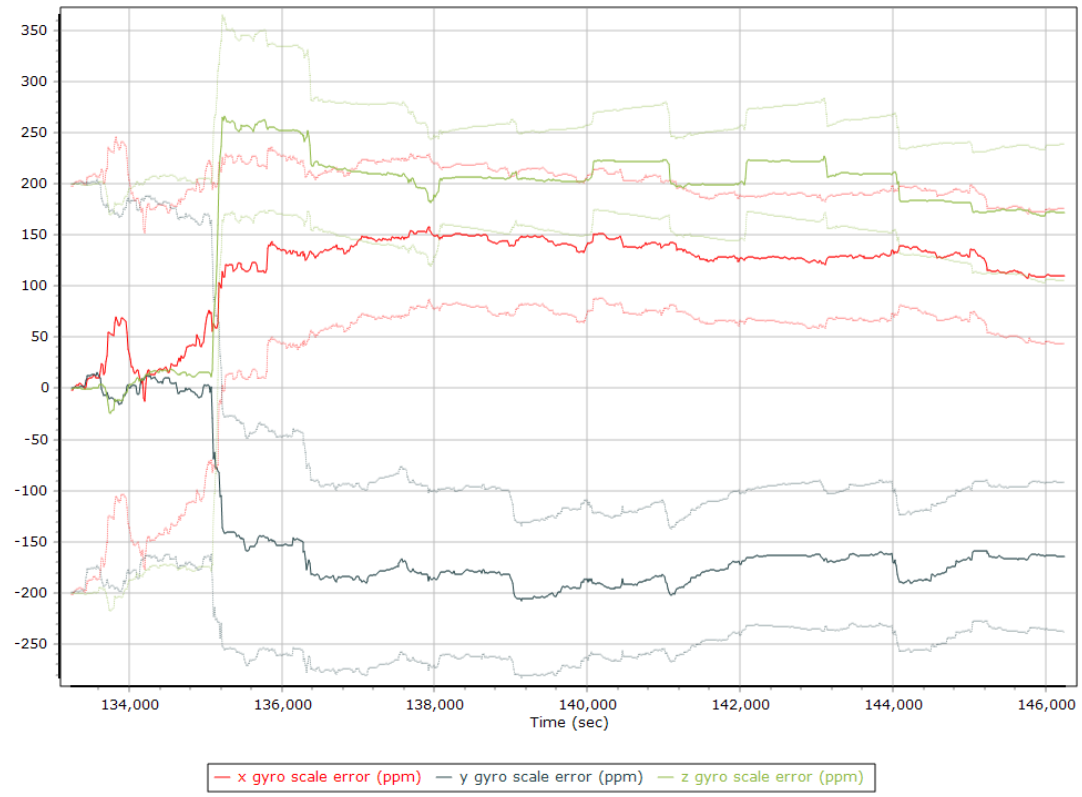
Y Gyro Bias (deg/h)



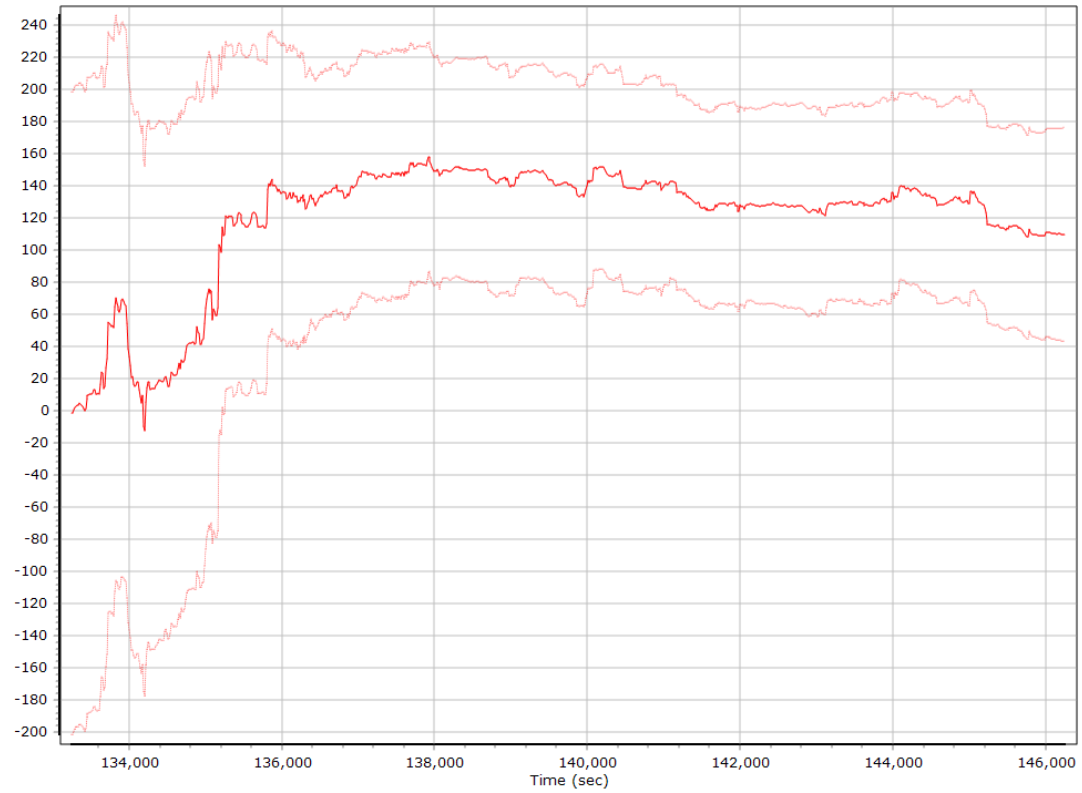
Z Gyro Bias (deg/h)



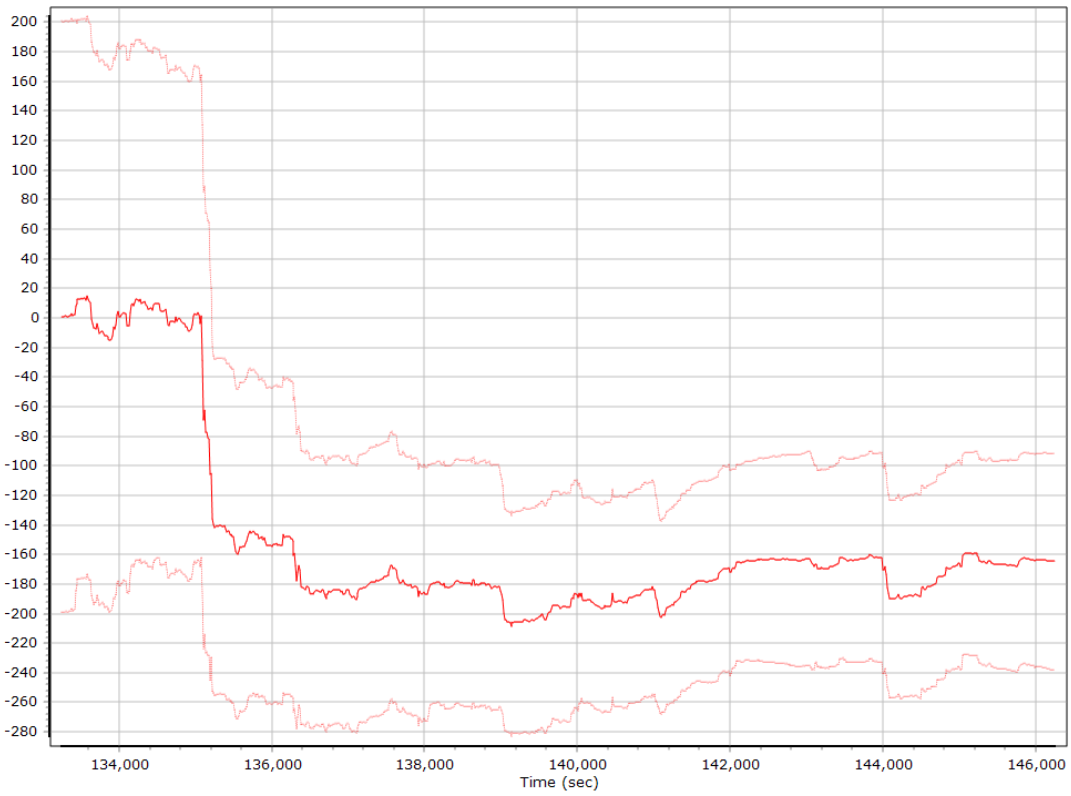
Gyro Scale Error (ppm)



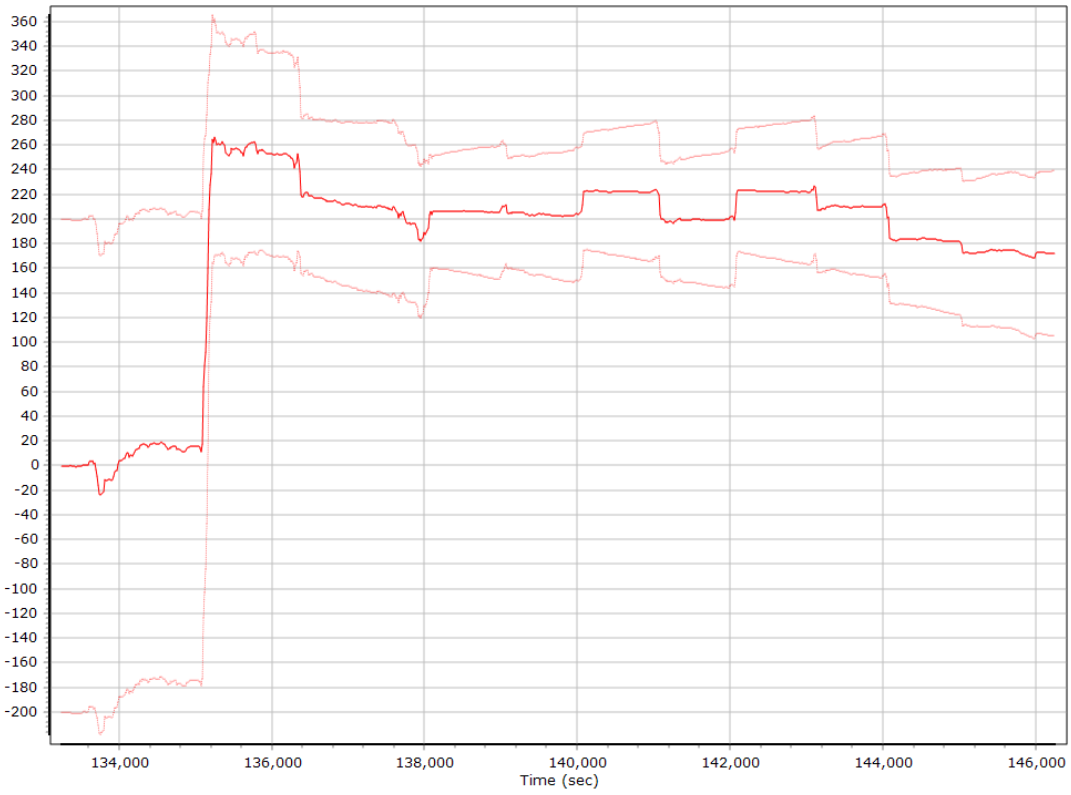
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

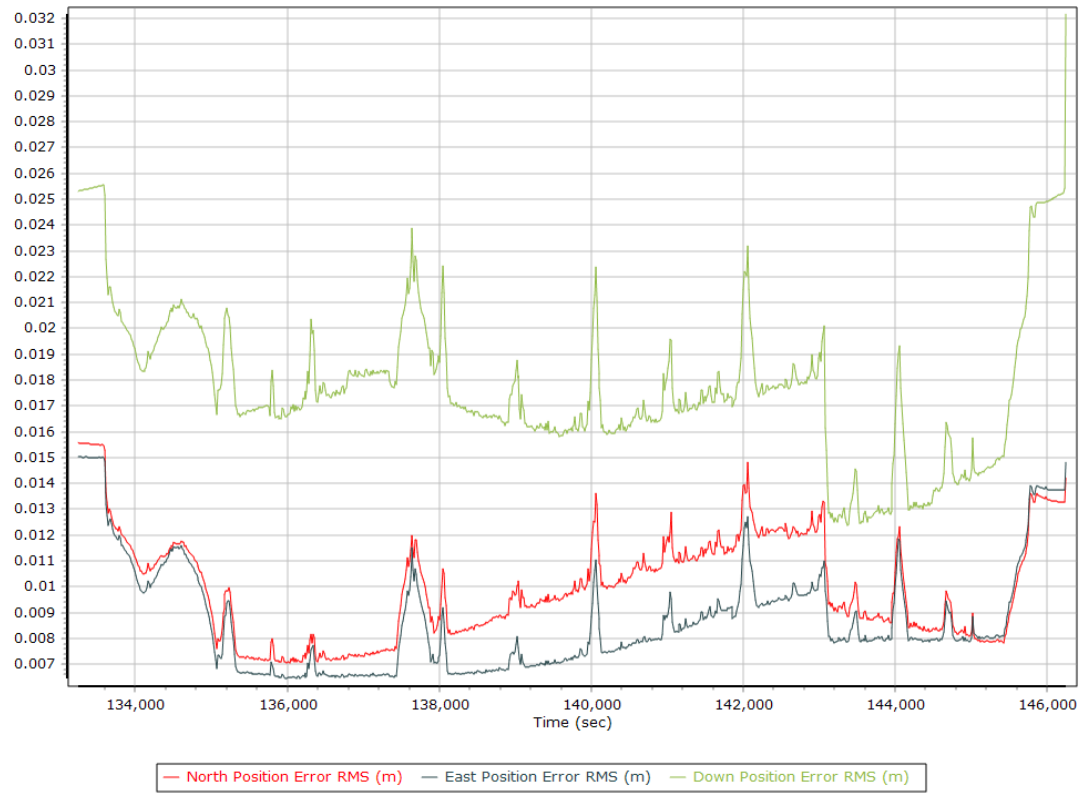


Z Gyro Scale Error (ppm)

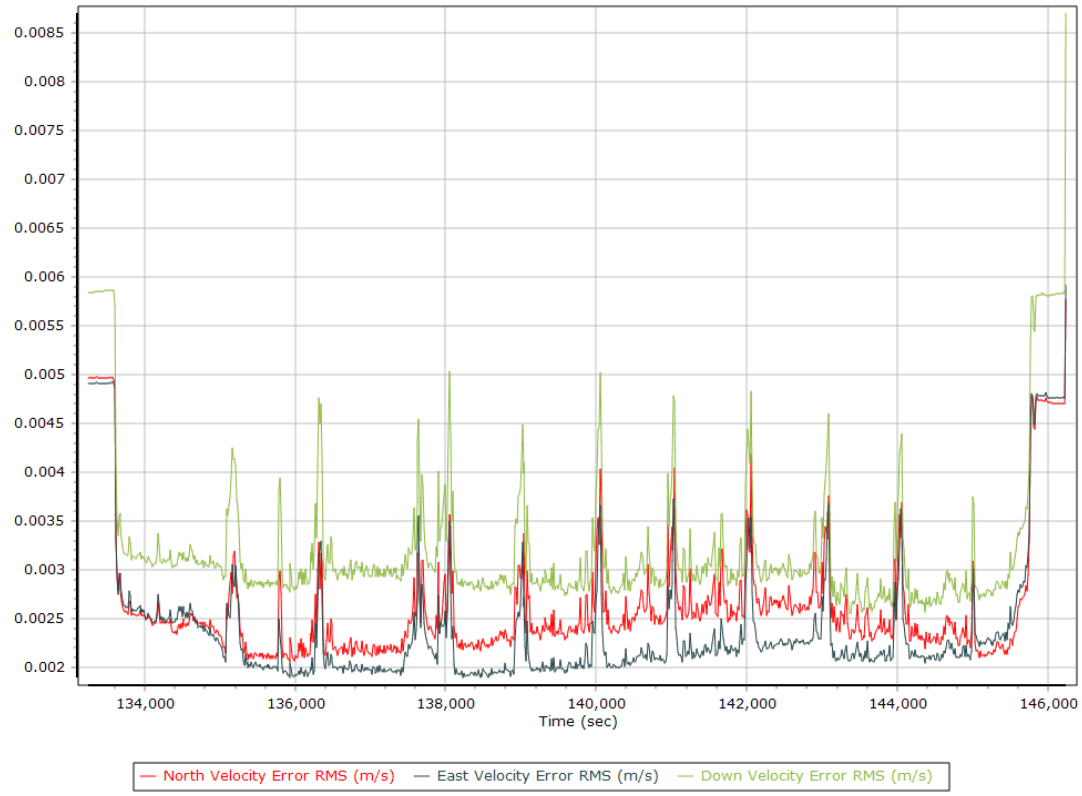


Smoothed Performance Metrics

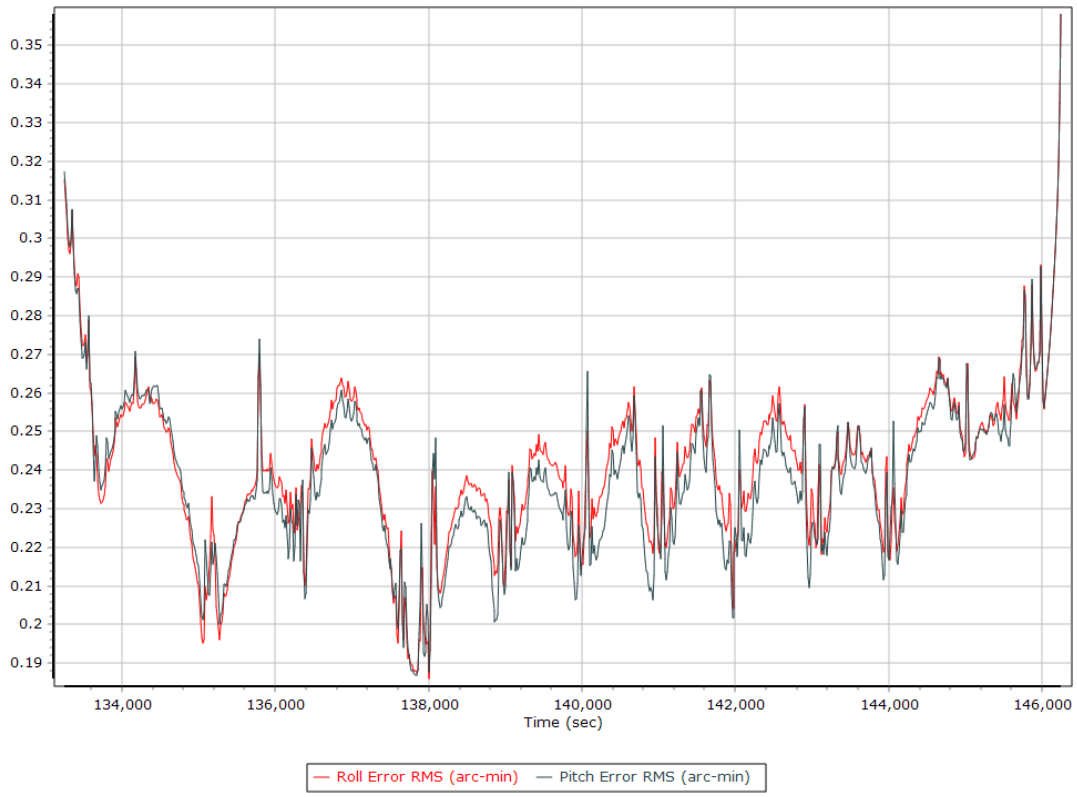
Position Error RMS (m)



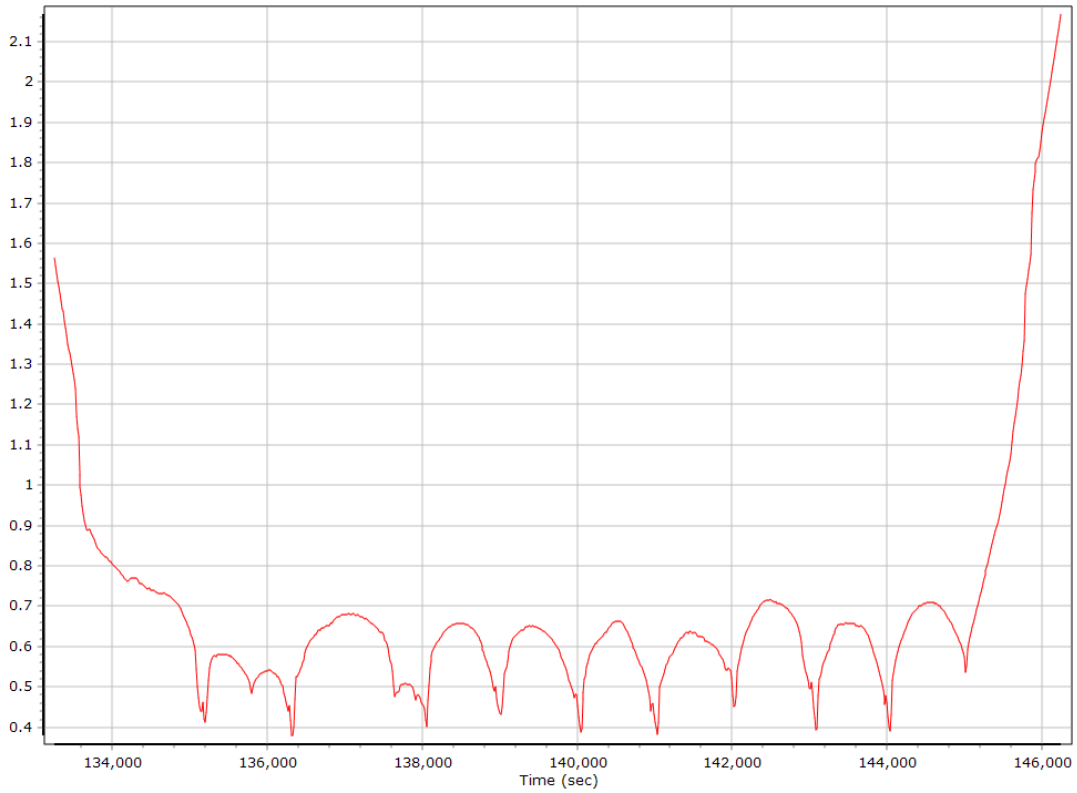
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

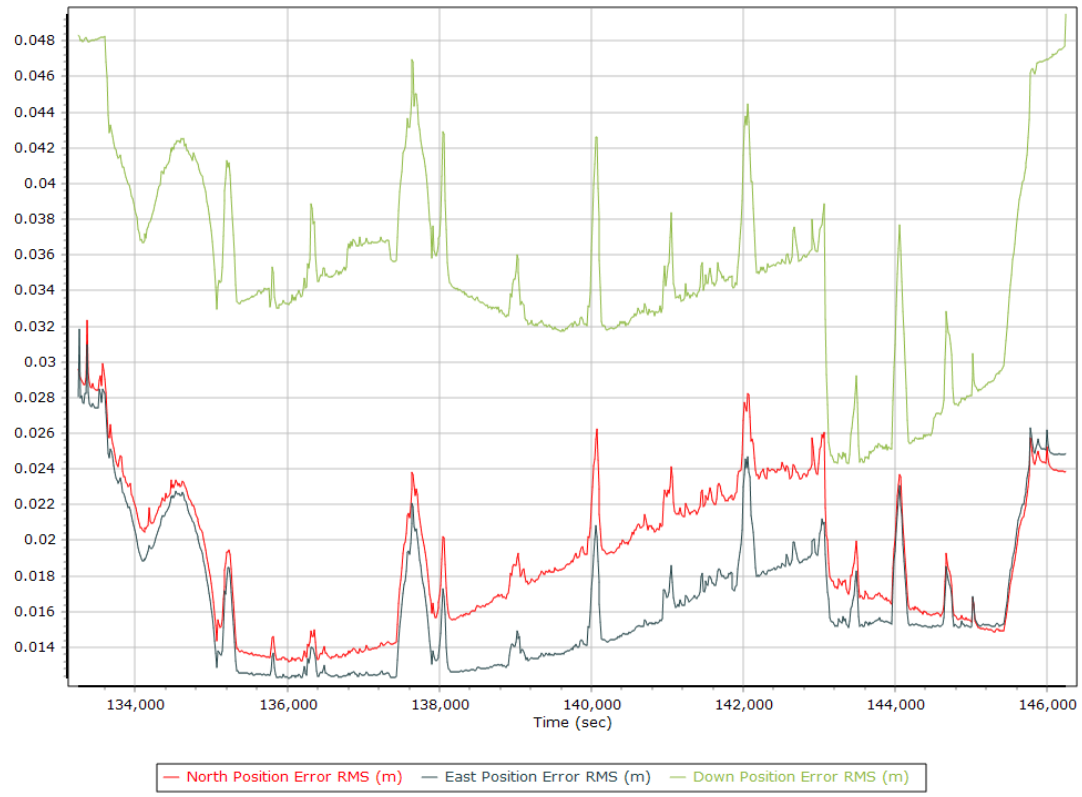


Heading Error RMS (arc-min)

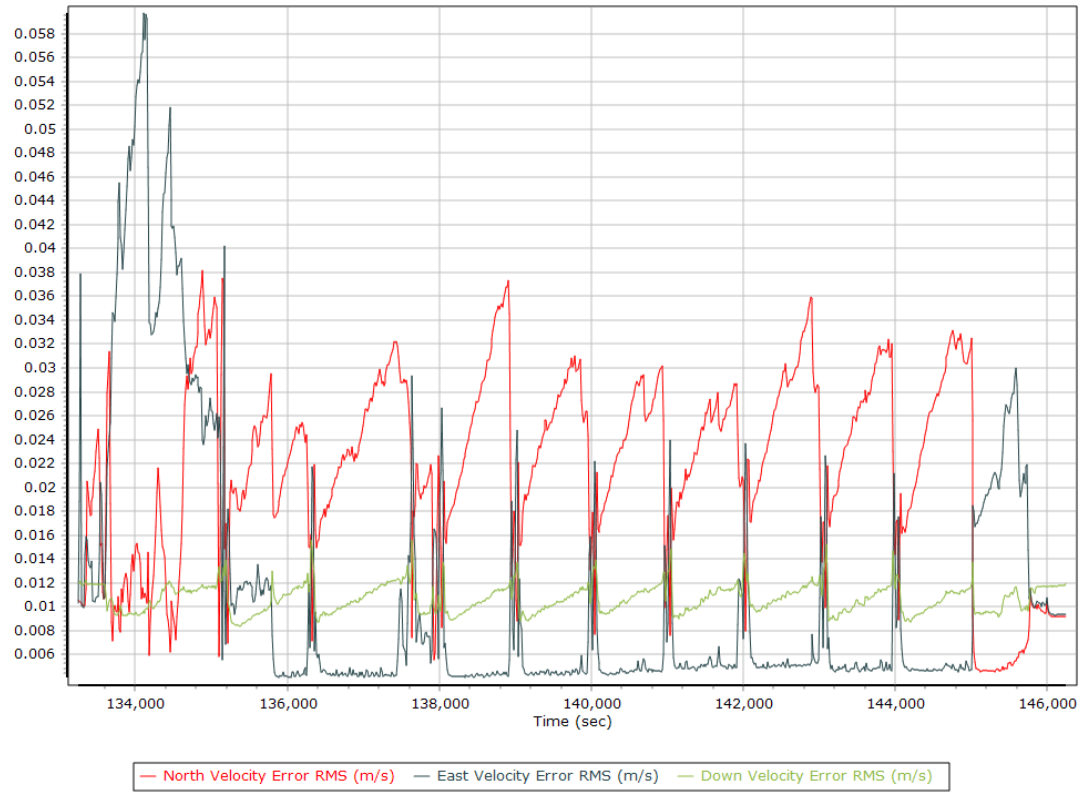


Forward Processed Performance Metrics

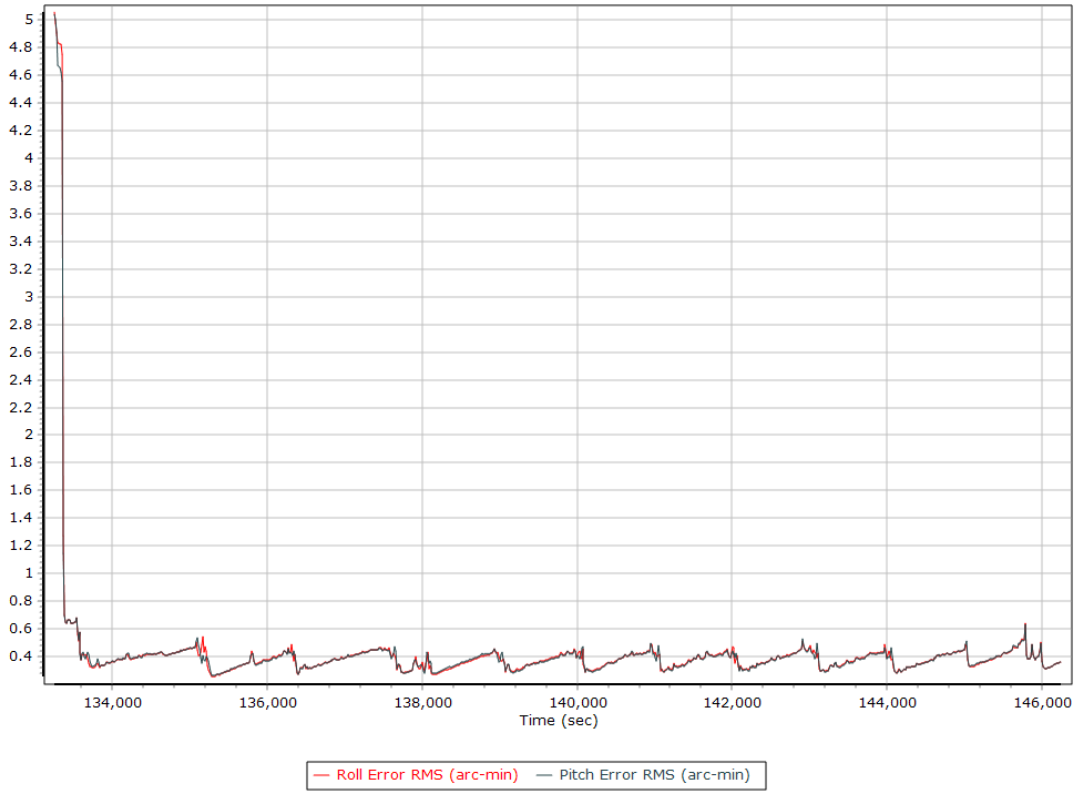
Position Error RMS (m)



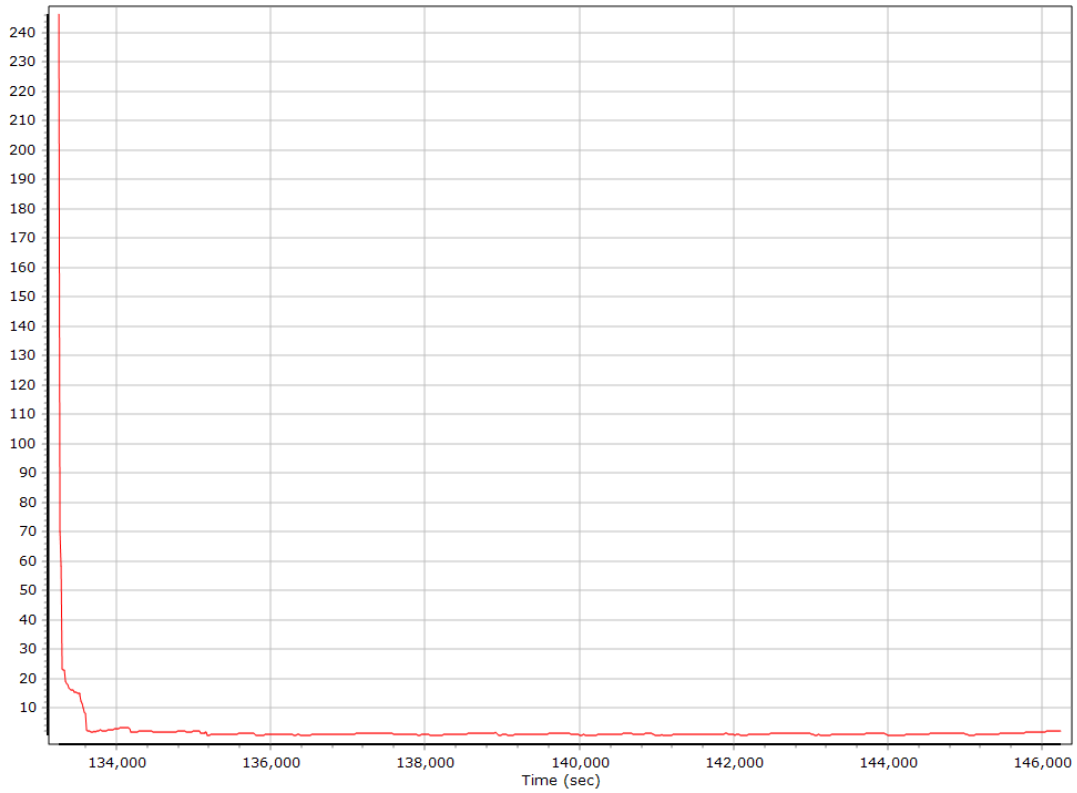
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

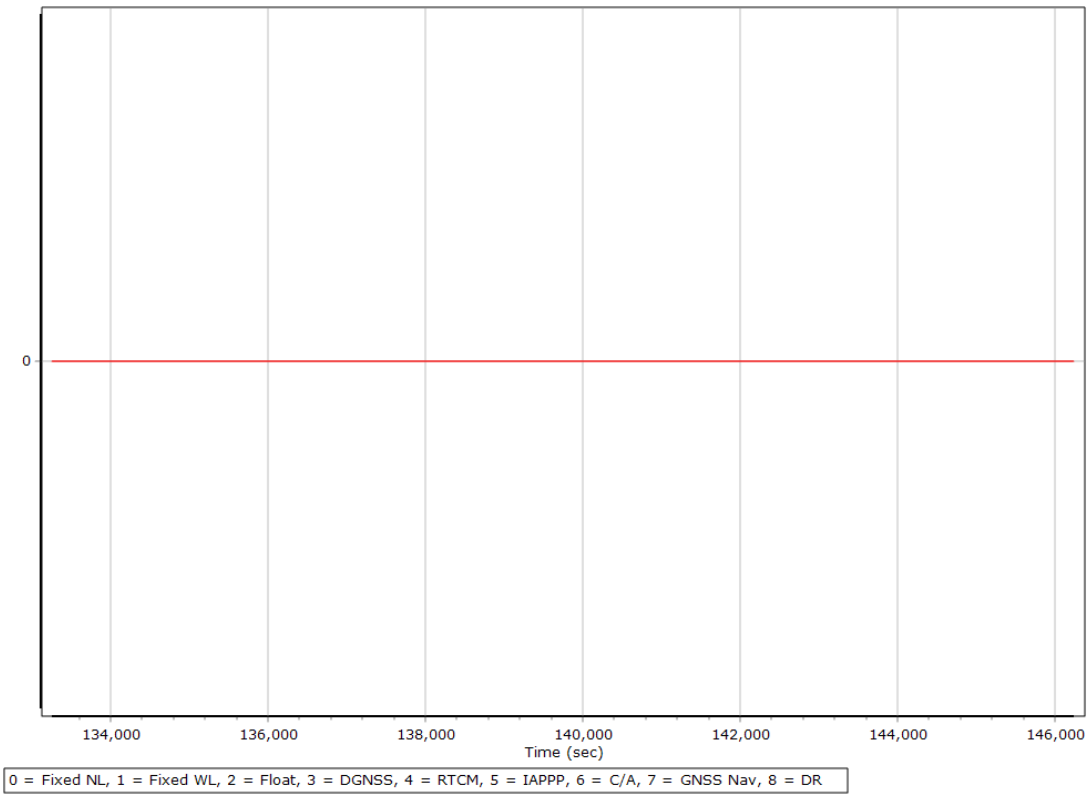


Heading Error RMS (arc-min)

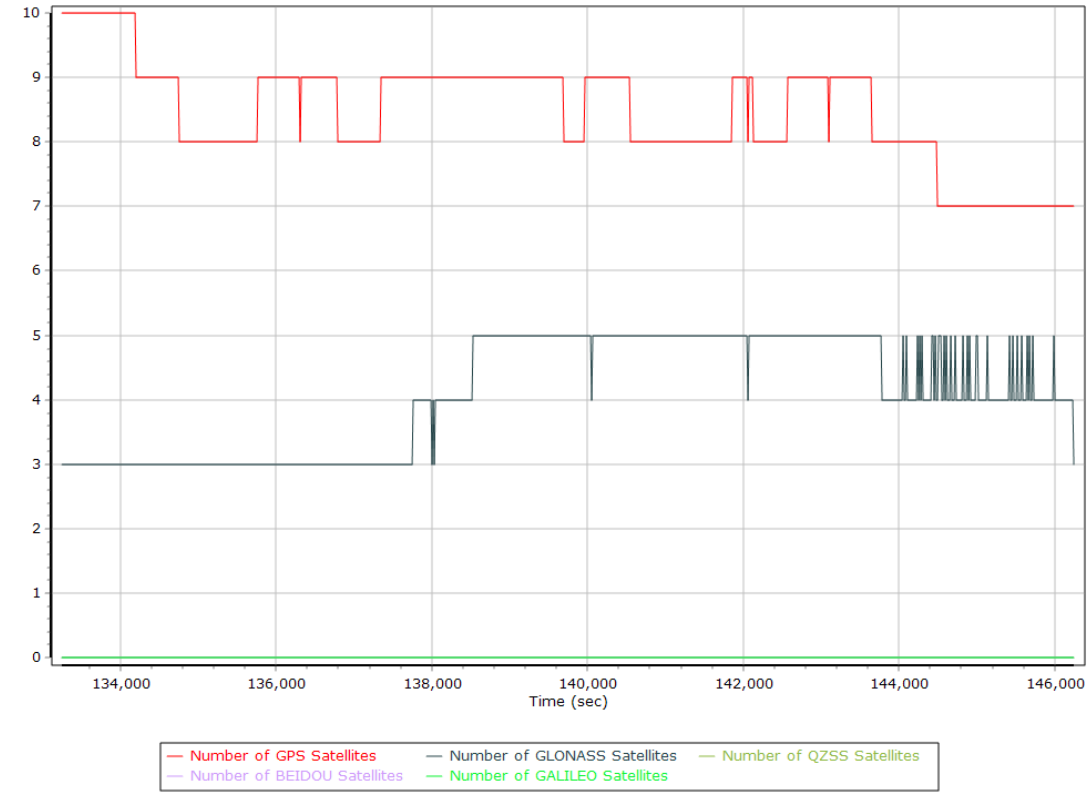


Smoothed Solution Status

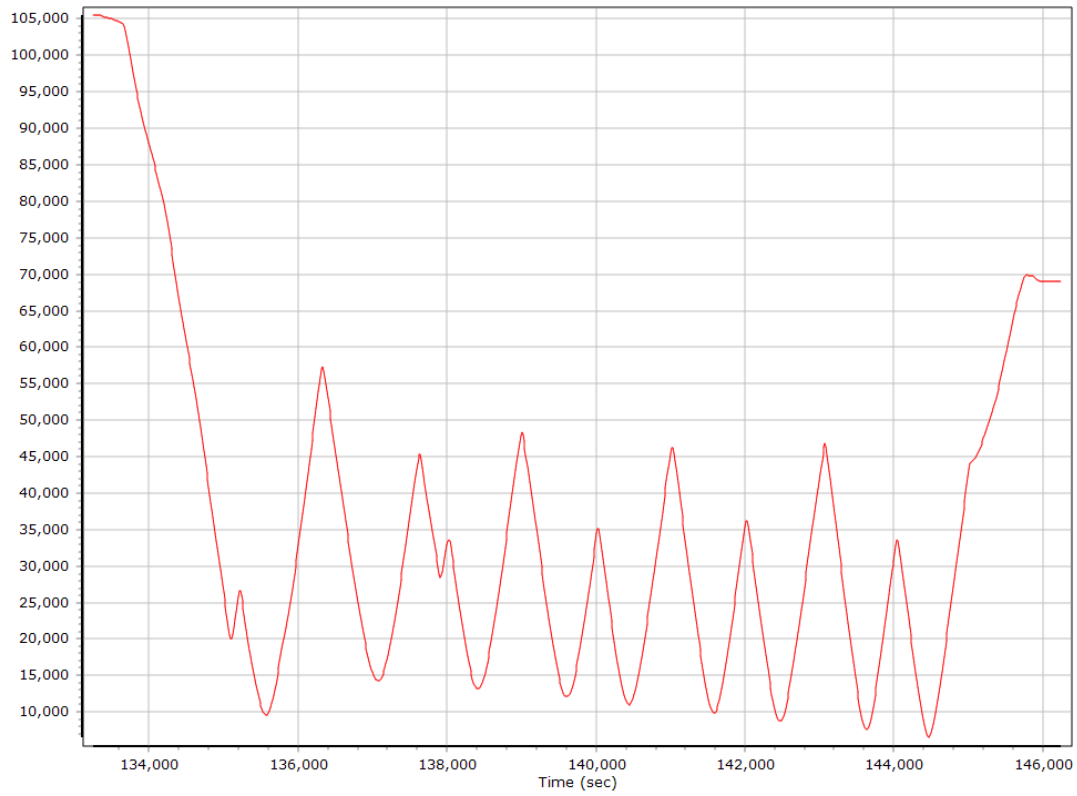
Processing Mode



Number of Satellites

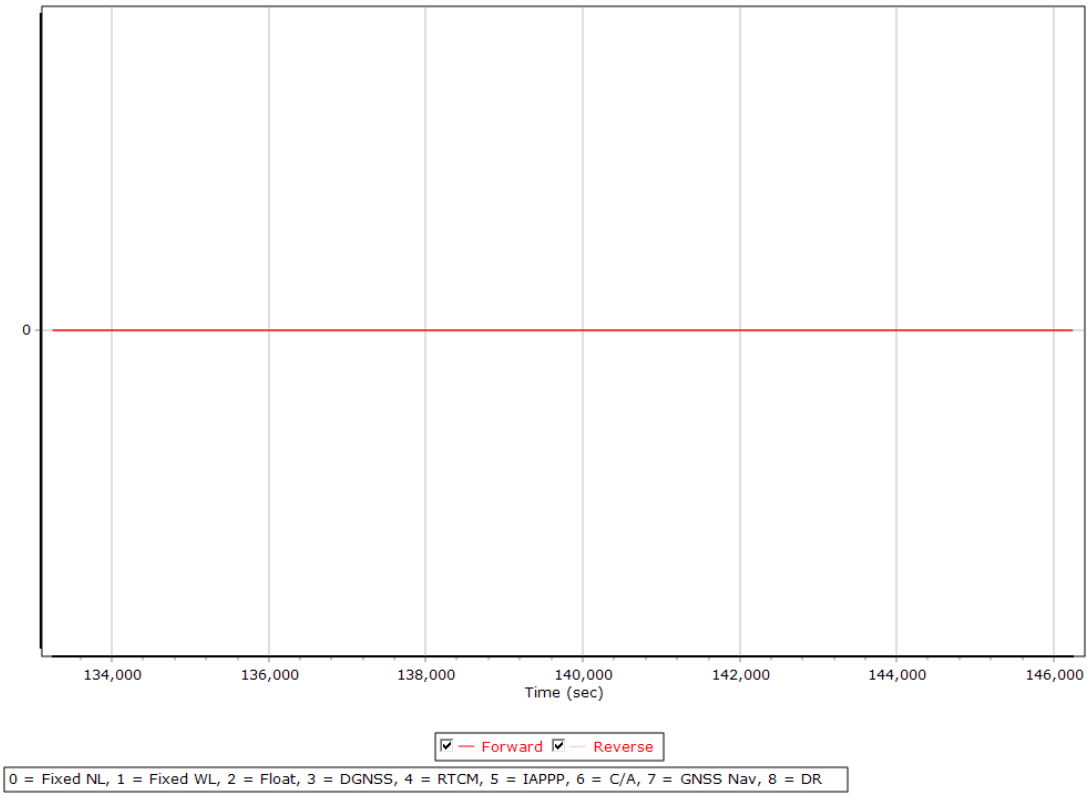


Baseline Length

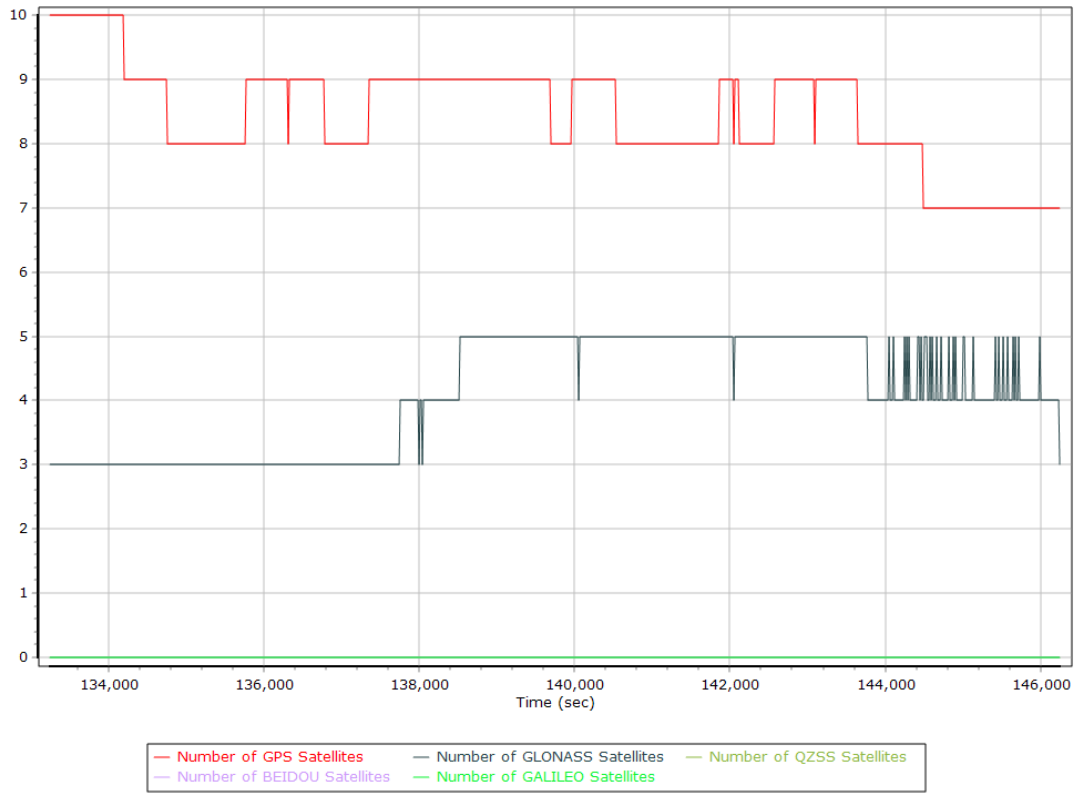


Forward Processed Solution Status

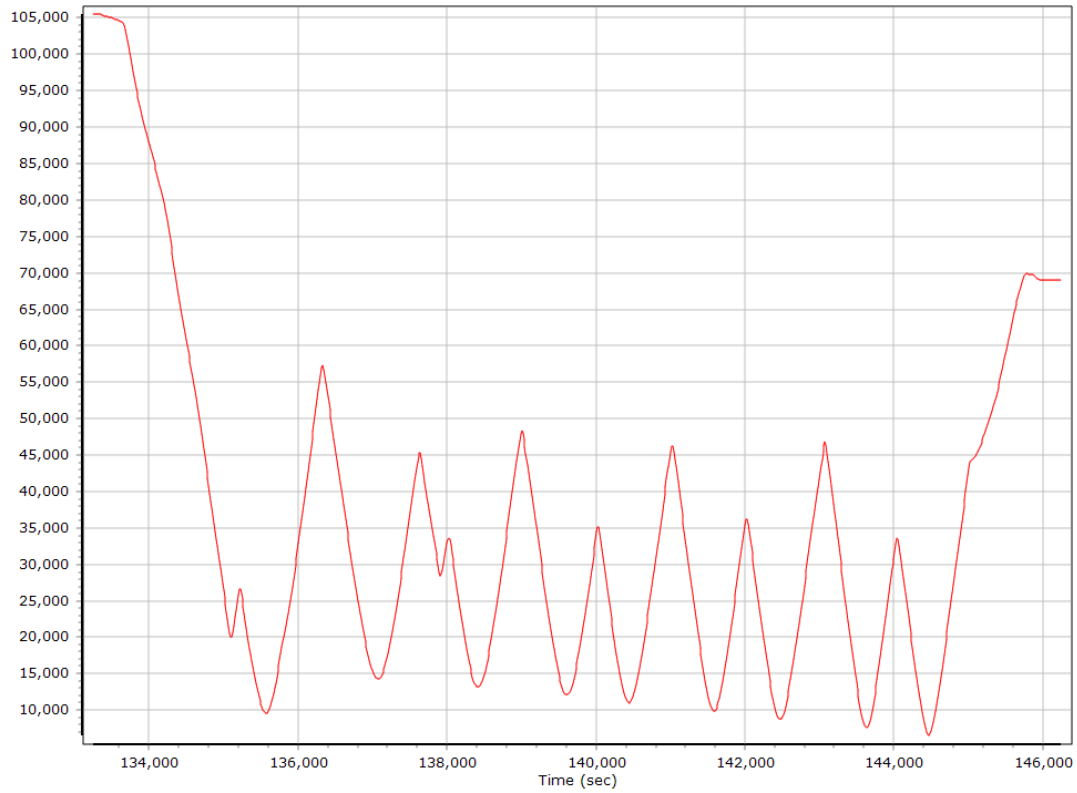
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

Export Summary

Export file	SBET_19-6648-01_Mission A_033020.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	133192.003 (3/30/2020 12:59:52 PM)		
Export end time	146246.002 (3/30/2020 4:37:26 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	19-6648-01_IA3DEP_USGS_20200331A
Processing date	2021-01-19 01:16:52
Mission date	2020-03-31 14:48:15
Mission duration	01:35:10.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.038	POS Data
ALS.039	POS Data
ALS.040	POS Data
ALS.041	POS Data
ALS.042	POS Data
ALS.043	POS Data
ALS.044	POS Data
ALS.045	POS Data
ALS.046	POS Data

Input Files

File Name	File Type
Ephm0910.20g	GLONASS Broadcast Ephemeris
Ephm0910.20n	GPS Broadcast Ephemeris
iaal0910.20o	GNSS SingleBase
iade0910.20o	GNSS SingleBase
iael0910.20o	GNSS SingleBase
iana0910.20o	GNSS SingleBase
mnca0910.20o	GNSS SingleBase
mney0910.20o	GNSS SingleBase
mnps0910.20o	GNSS SingleBase
mnsv0910.20o	GNSS SingleBase
igu20991_18.sp3	GPS Precise Ephemeris
igu20992_18.sp3	GPS Precise Ephemeris
igu20993_12.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_19-6648-01_MissionA-033120.out	SBET Trajectory File
SBET_19-6648-01_MissionA-033120.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.038		
Last raw data file	ALS.046		
Start GPS week	2099		
Start time	226076.692 (3/31/2020 2:47:56 PM)		
End time	231787.069 (3/31/2020 4:23:07 PM)		
Start of fine alignment	226096.035 (3/31/2020 2:48:16 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

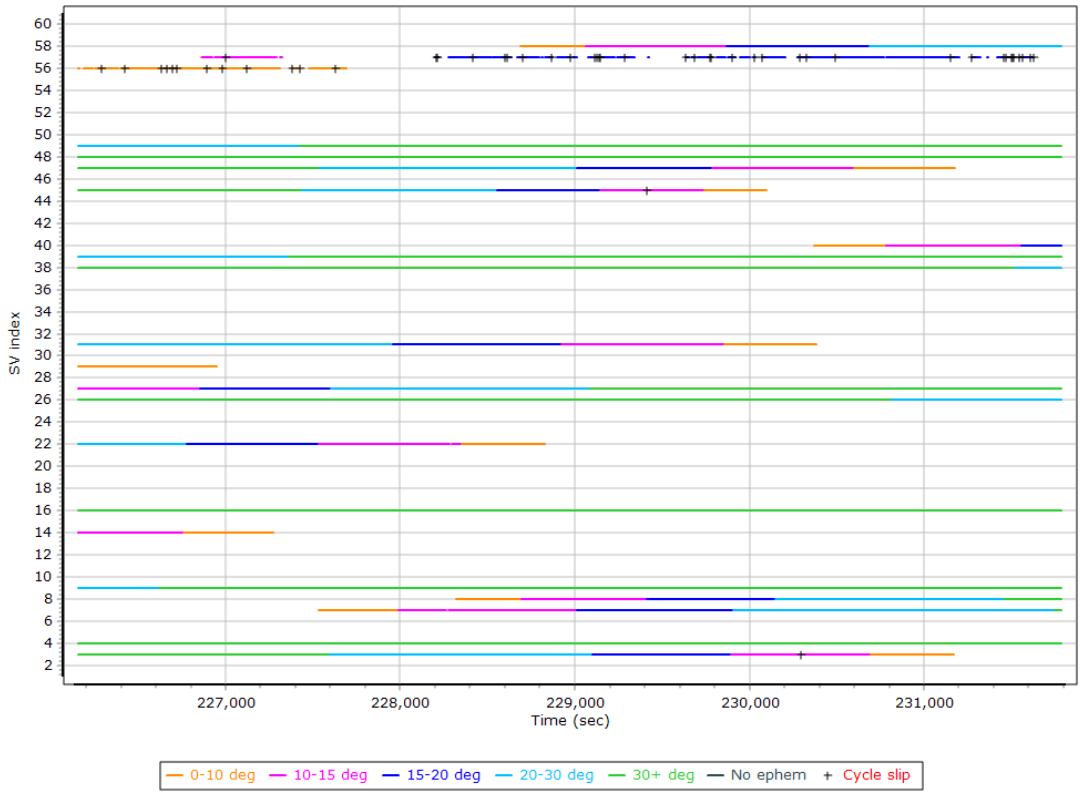
Rover Data QC

Raw IMU Import QC Summary

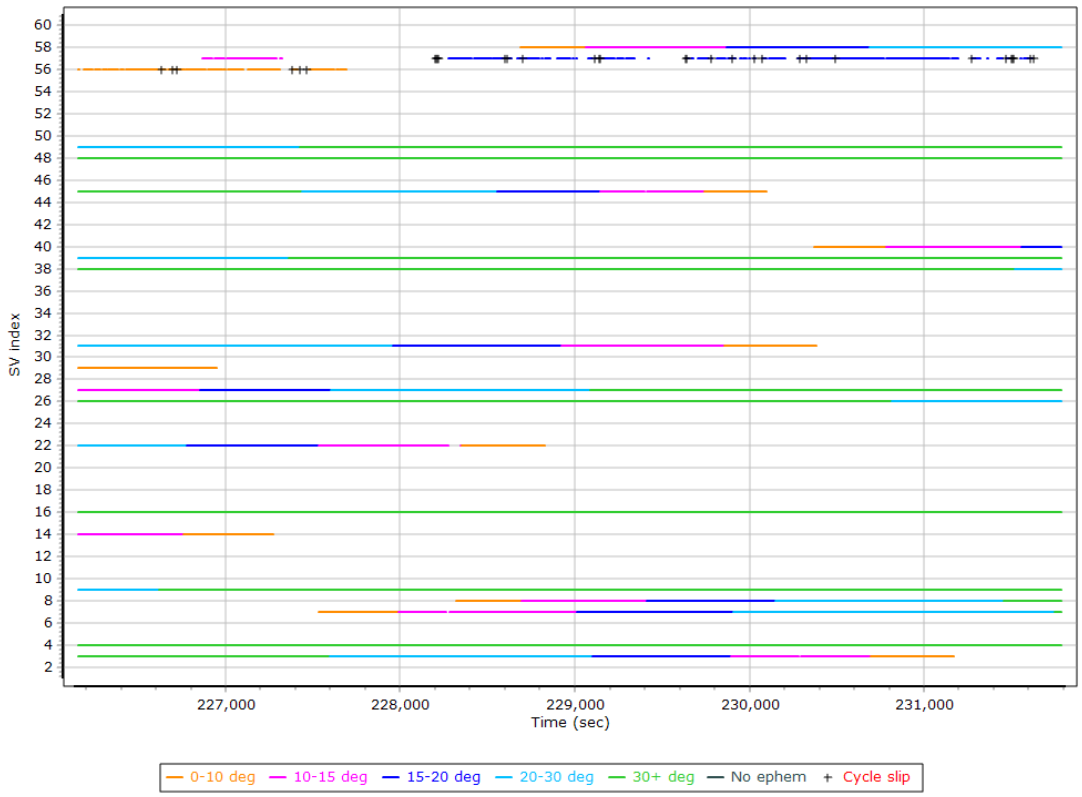
IMU data input file	imu_19-6648-01_MissionA-033120.dat
IMU data check log file	imudt_19-6648-01_MissionA-033120.log
IMU Records Processed	1142517
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

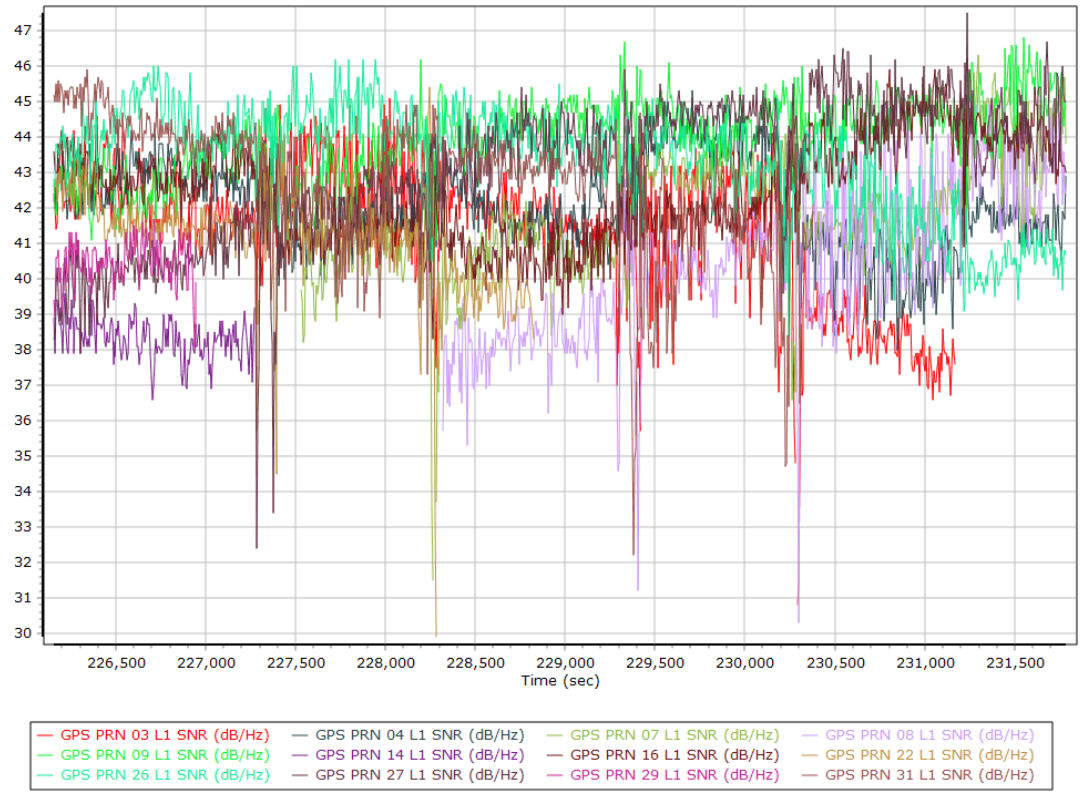
L1 Satellite Lock/Elevation



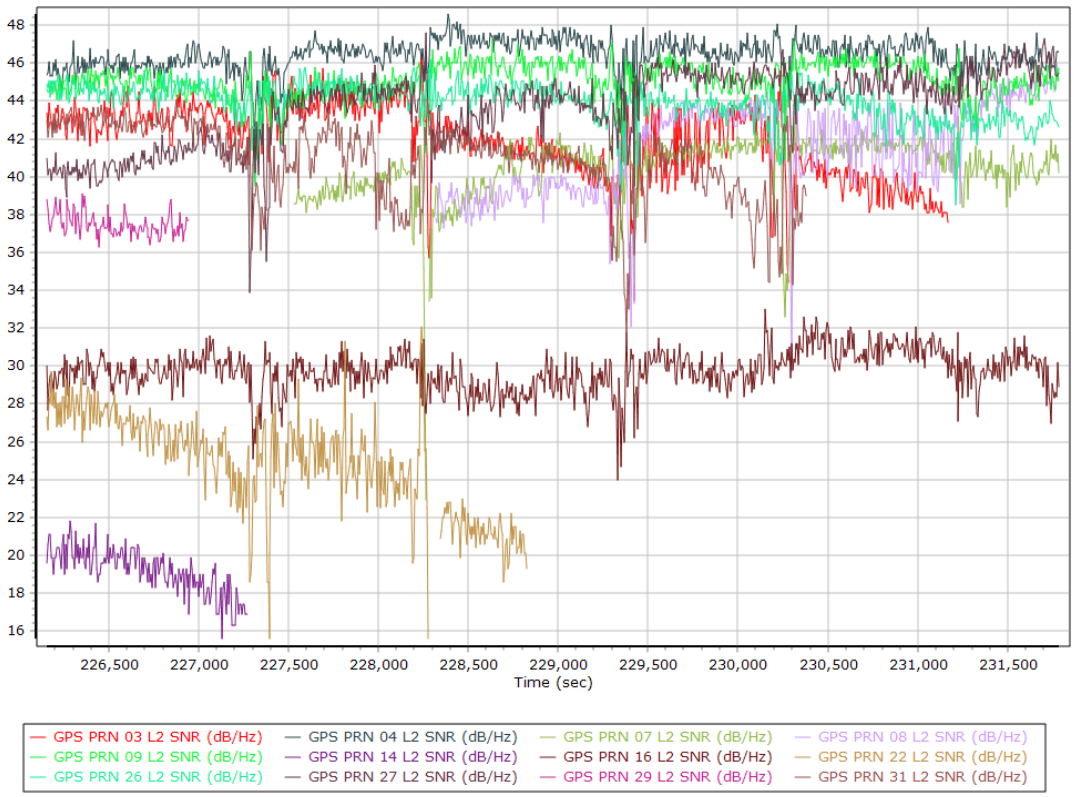
L2 Satellite Lock/Elevation



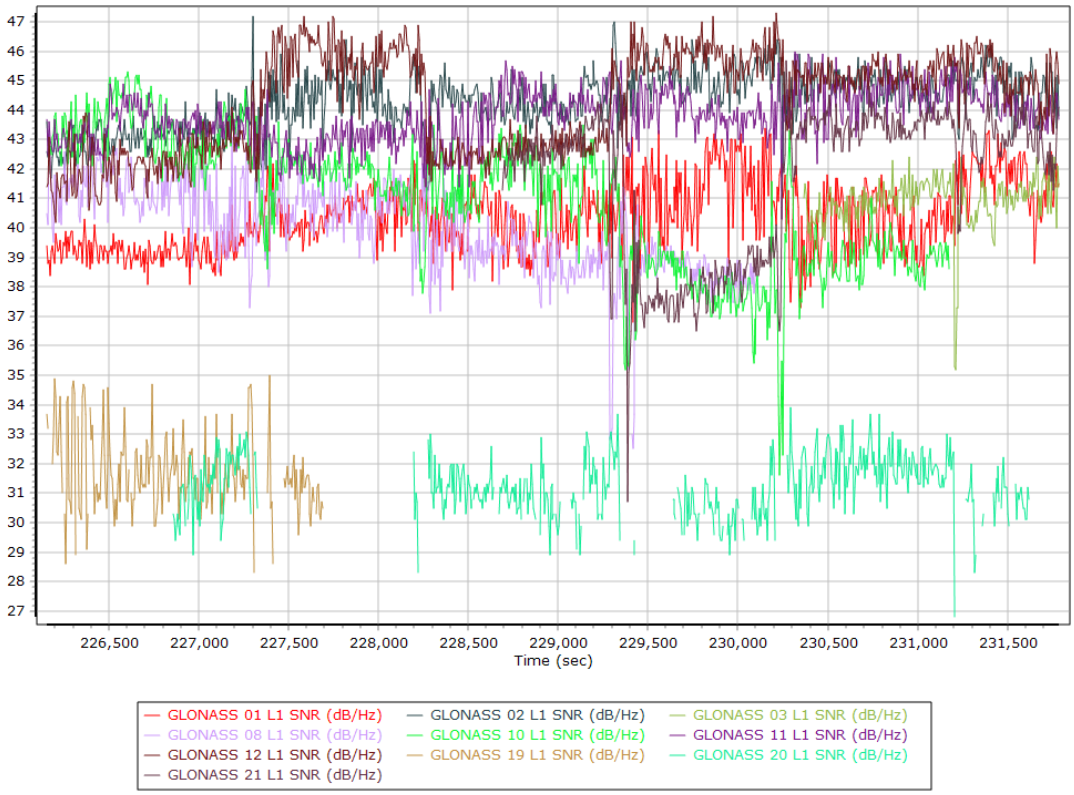
GPS L1 SNR



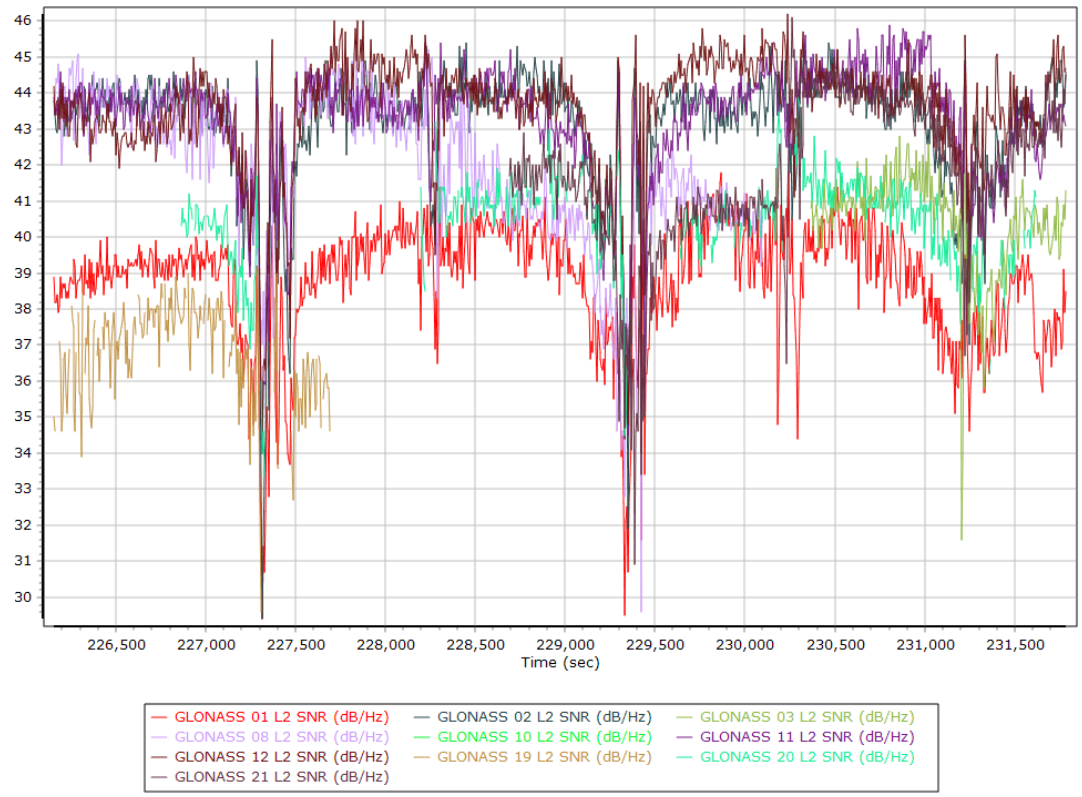
GPS L2 SNR



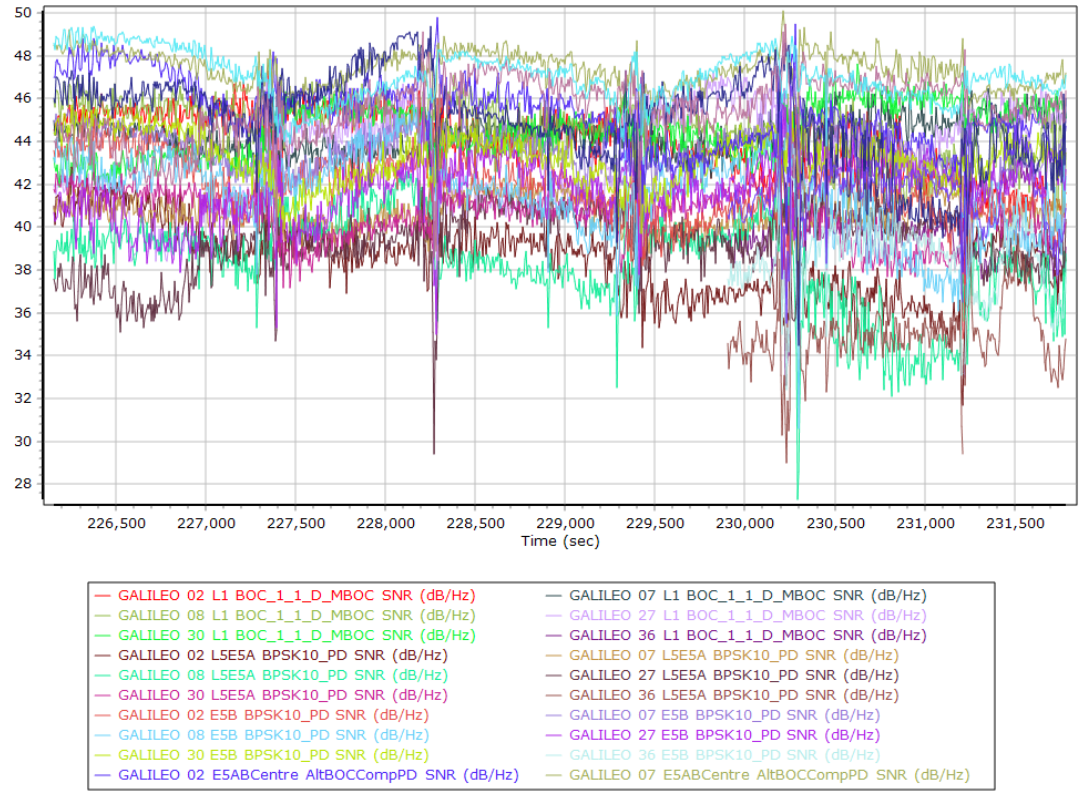
GLONASS L1 SNR



GLONASS L2 SNR

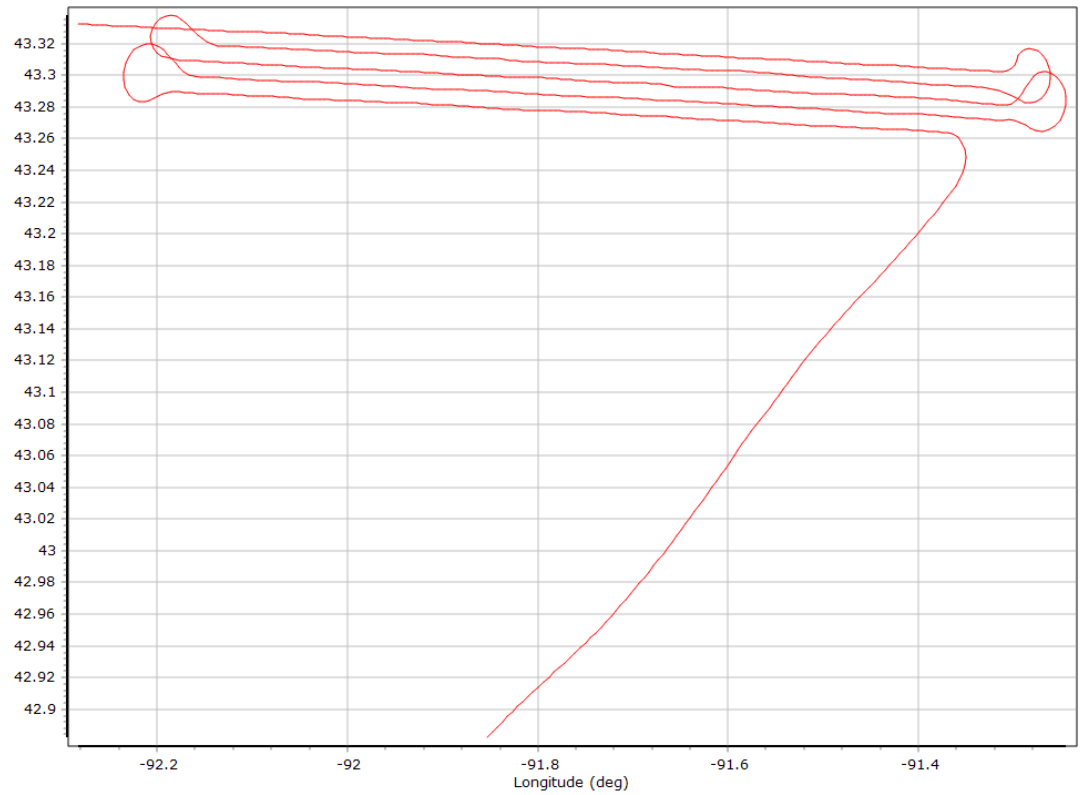


GALILEO SNR

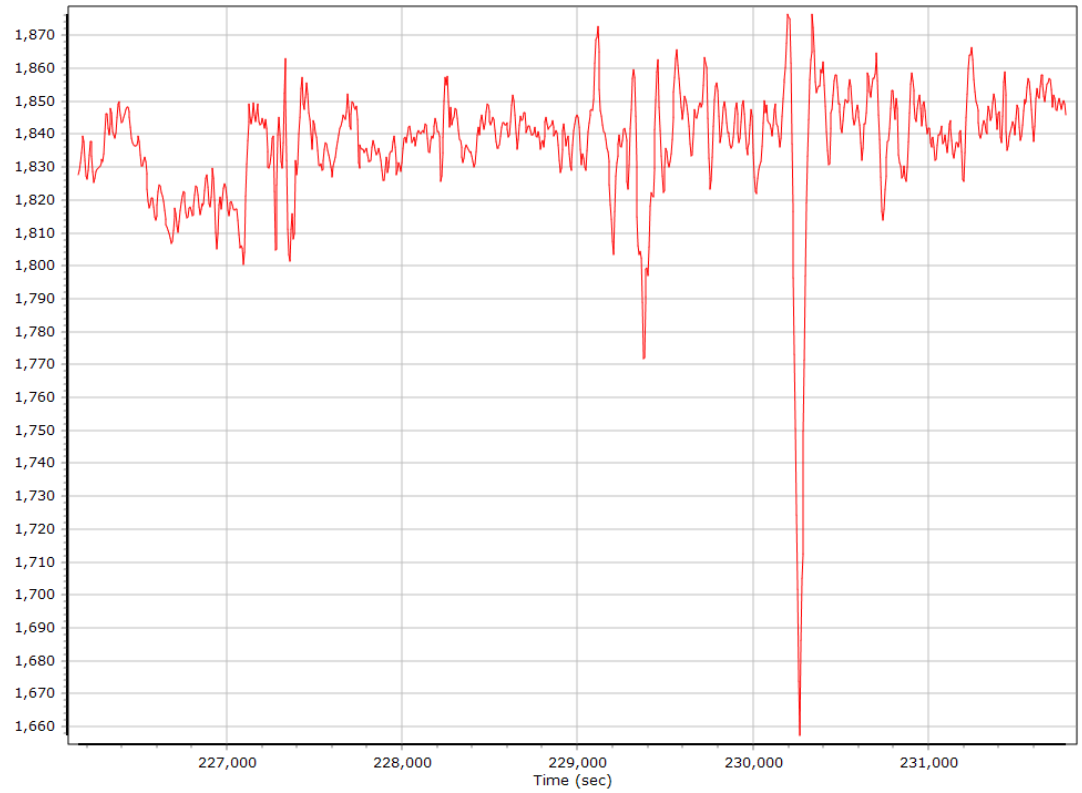


Smoothed Trajectory Information

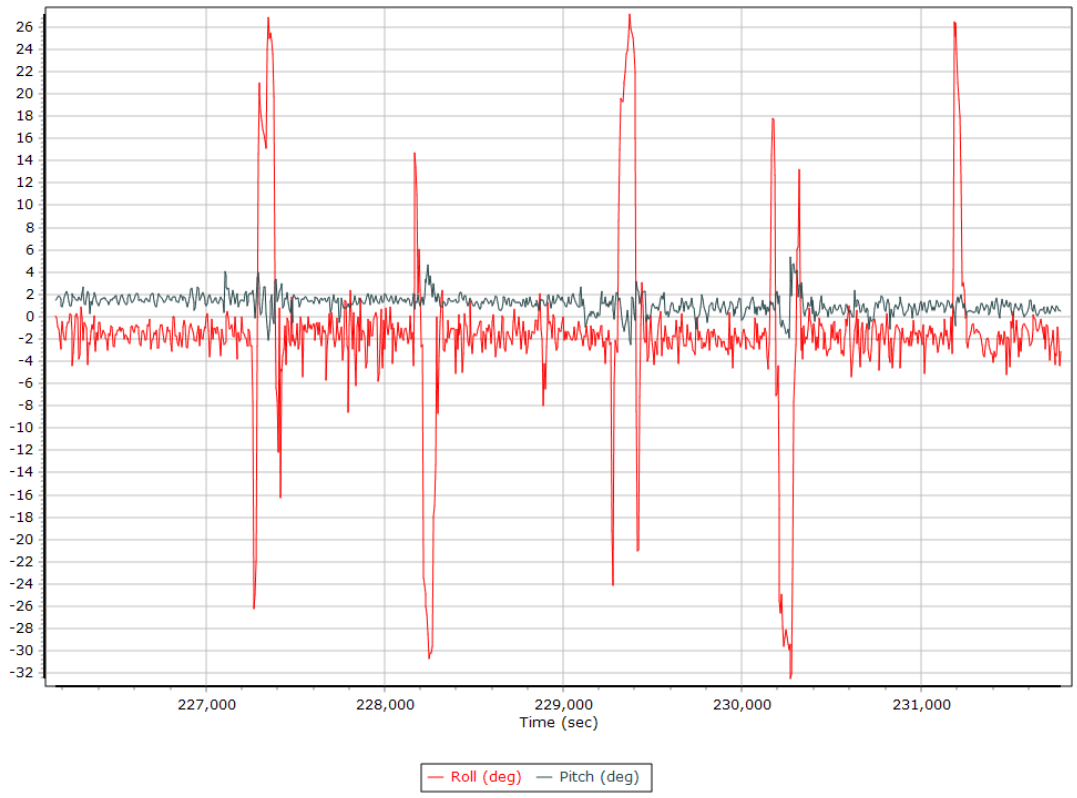
Top View



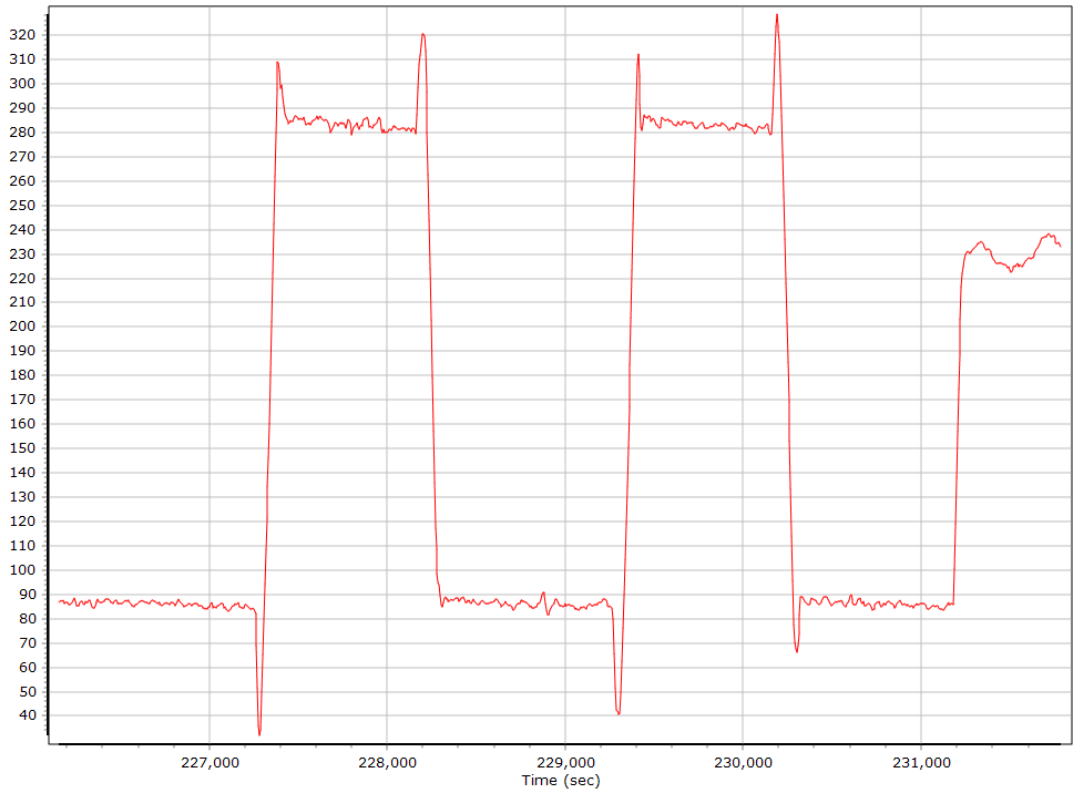
Altitude



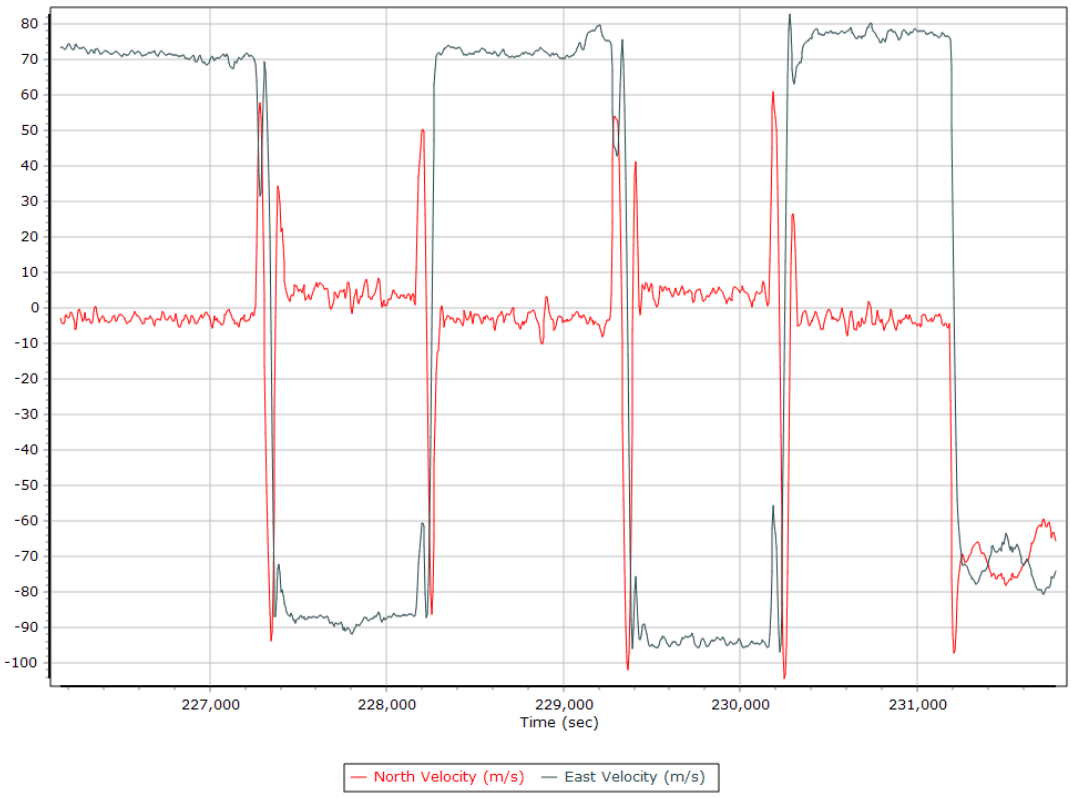
Roll/Pitch



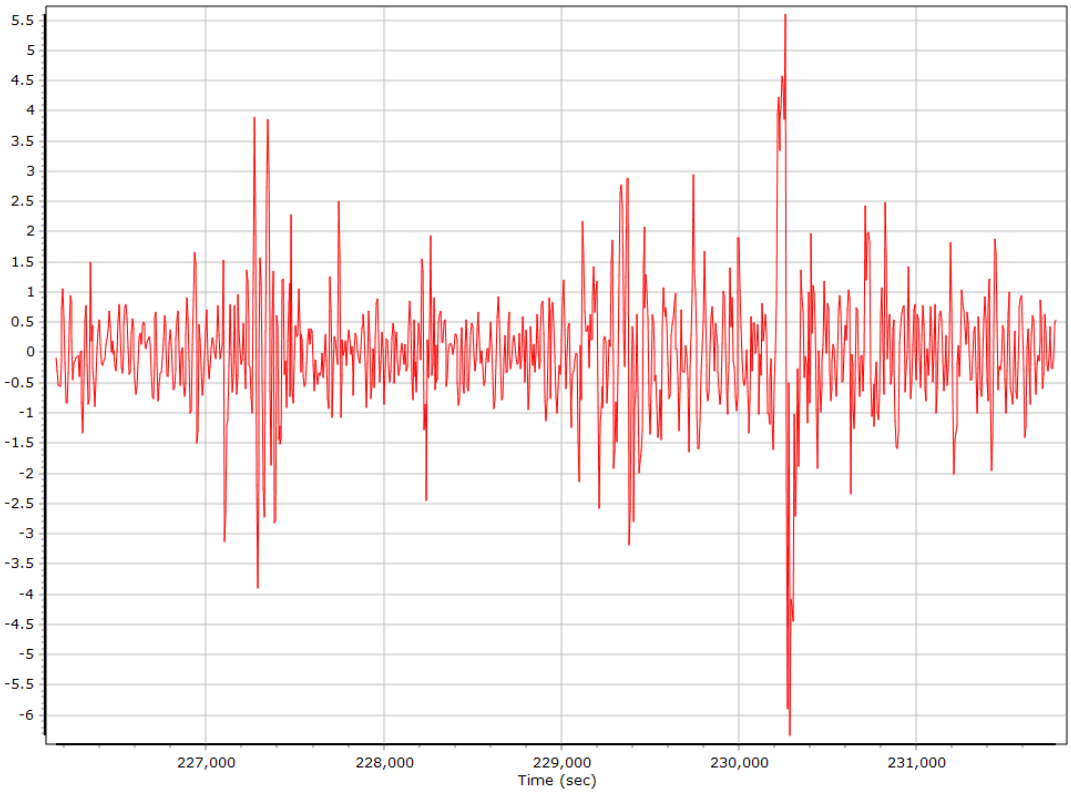
Heading



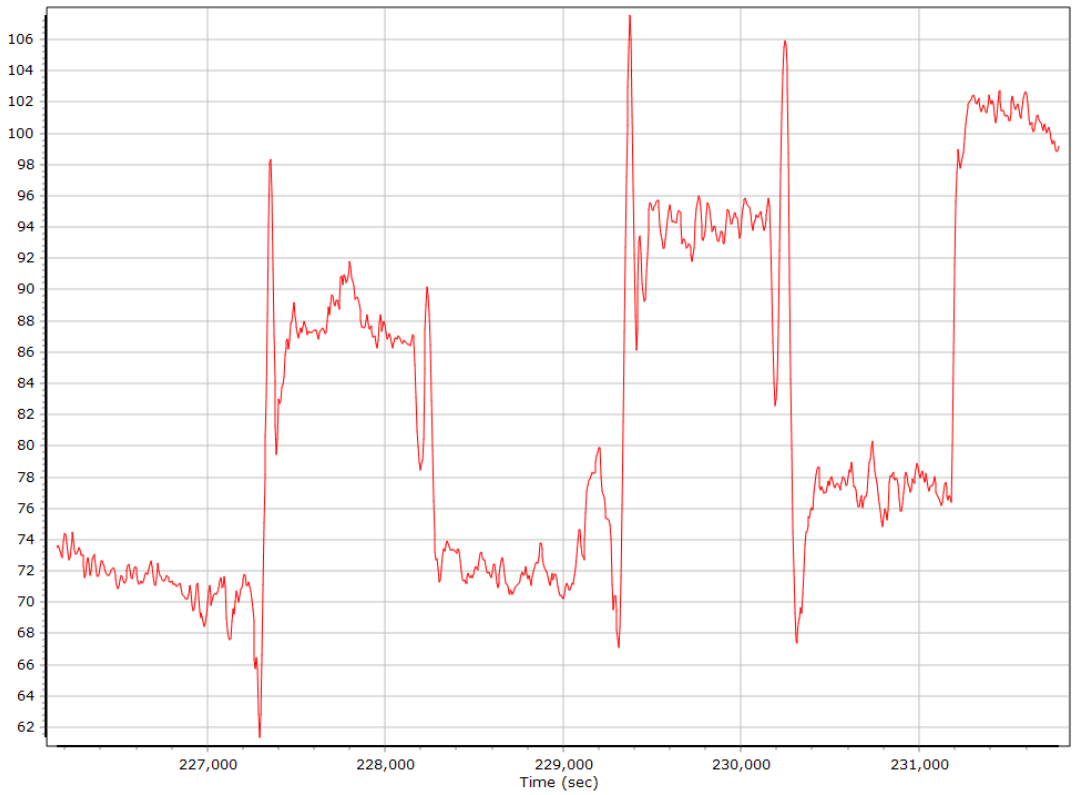
North/East Velocity



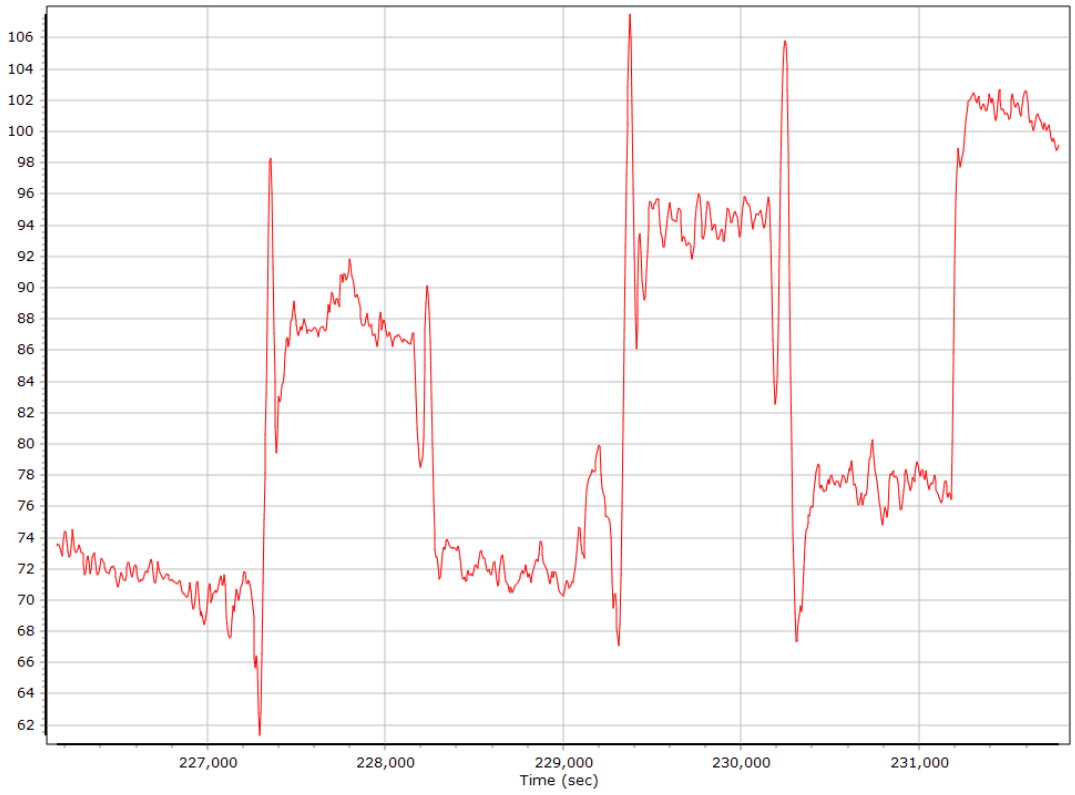
Down Velocity



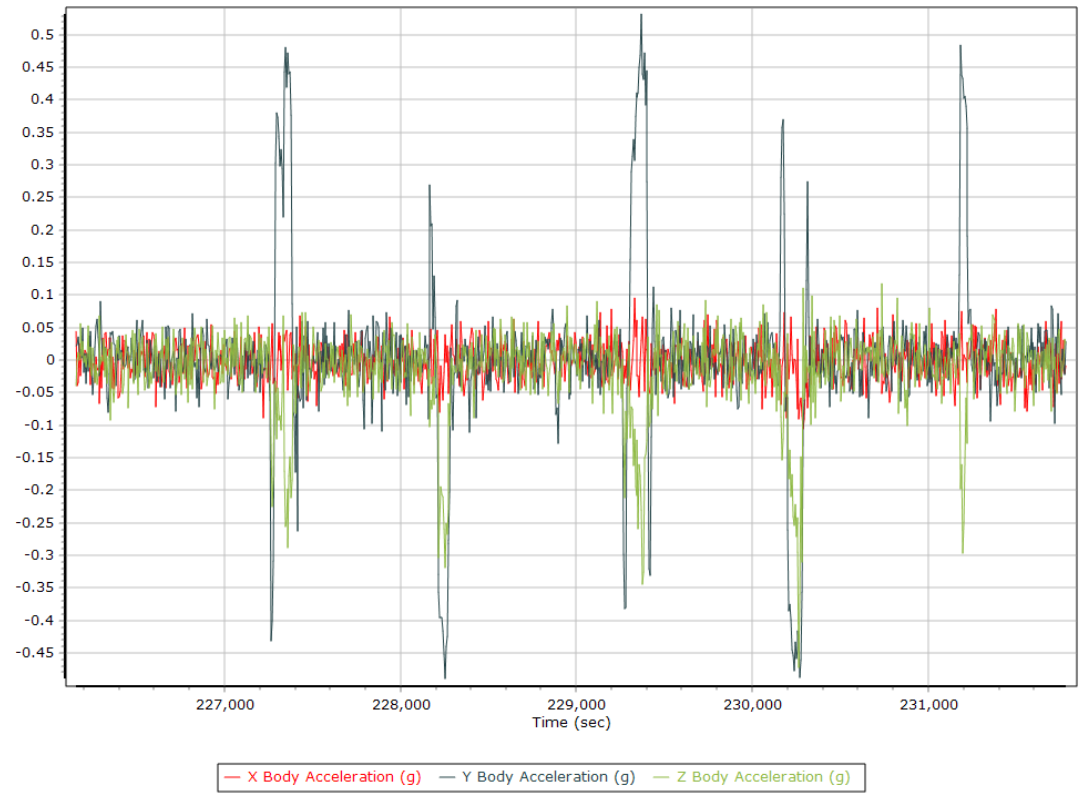
Total Speed



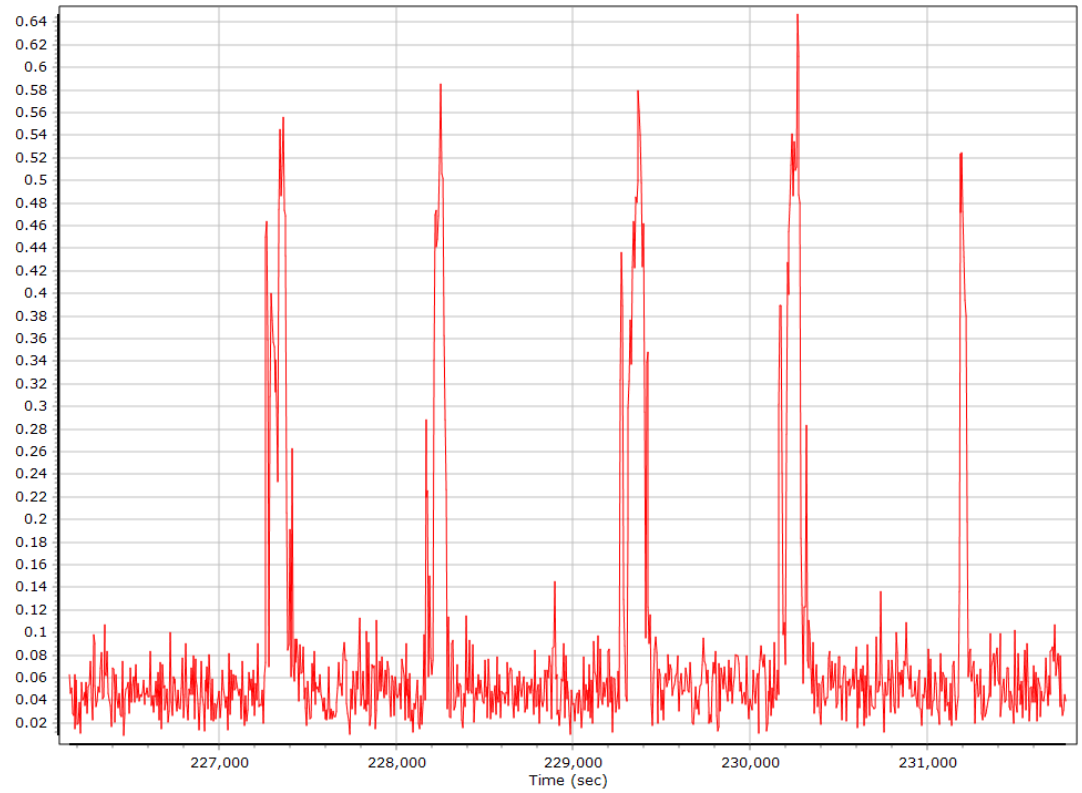
Ground Speed



Body Acceleration



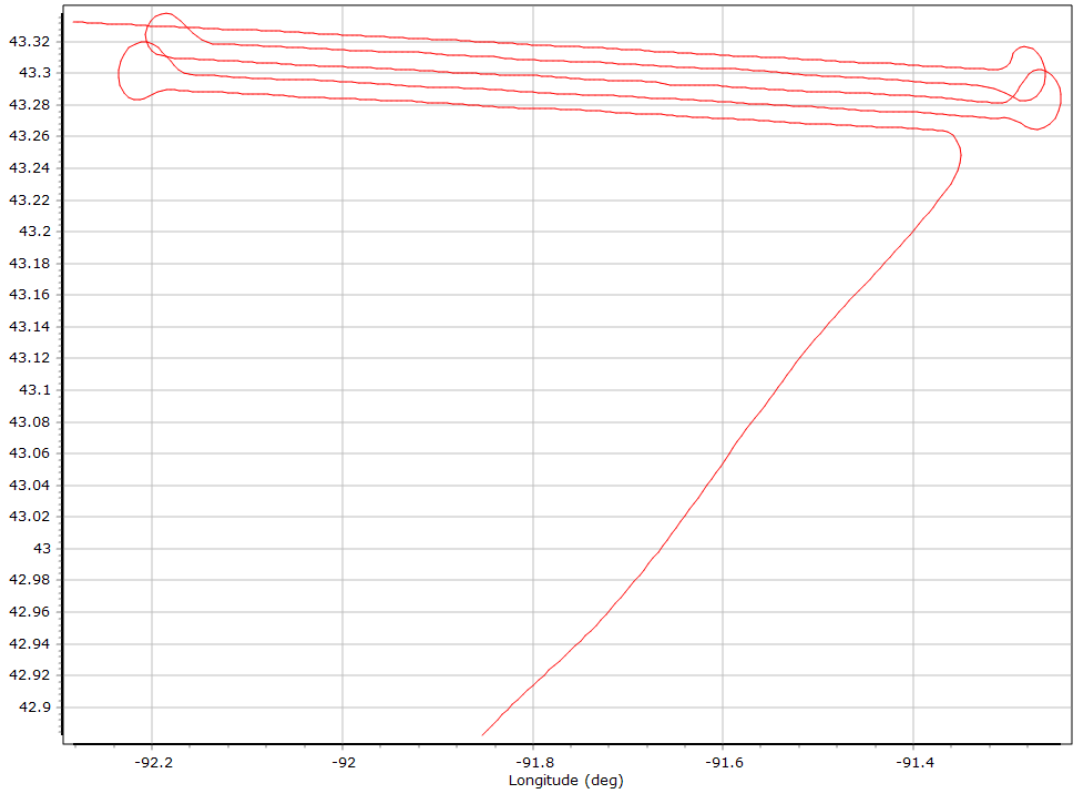
Total Body Acceleration



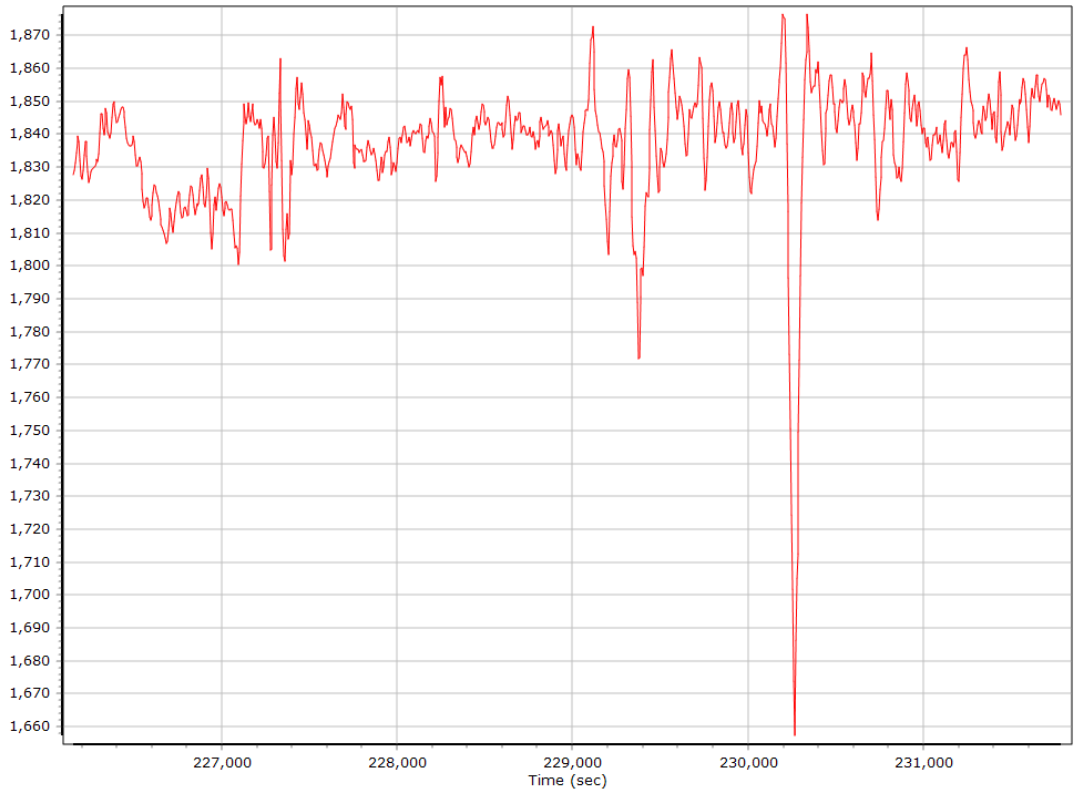
Body Angular Rate

Forward Processed Trajectory Information

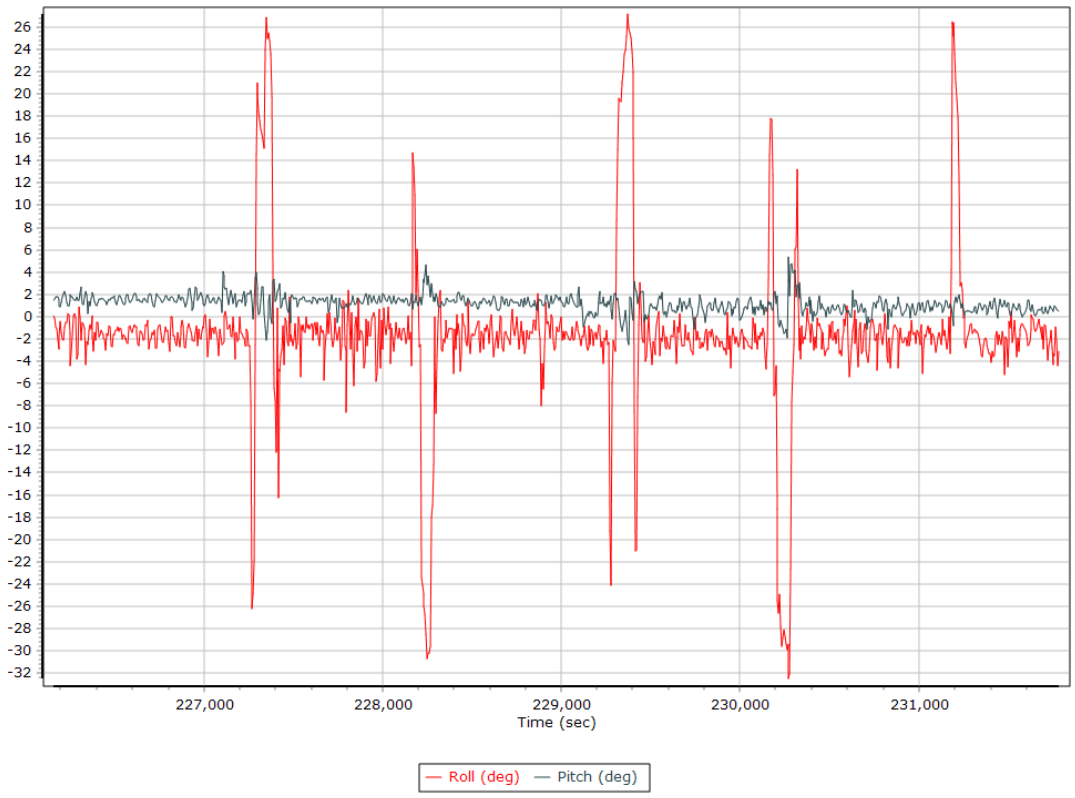
Top View



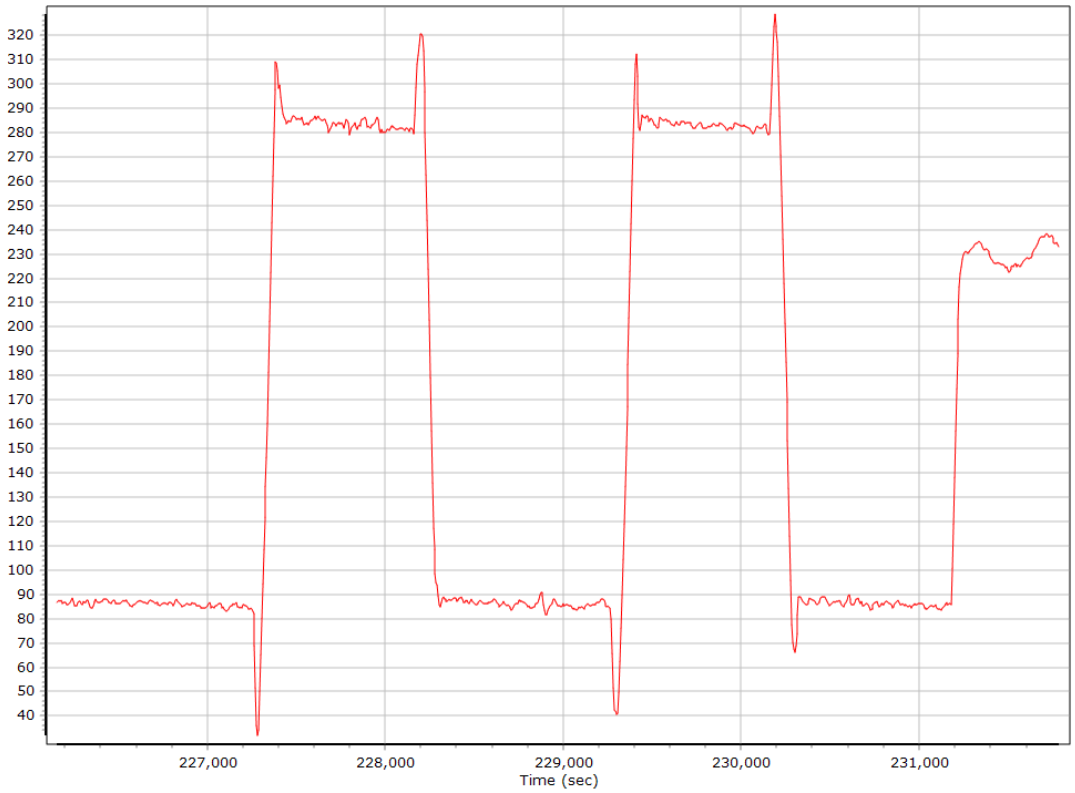
Altitude



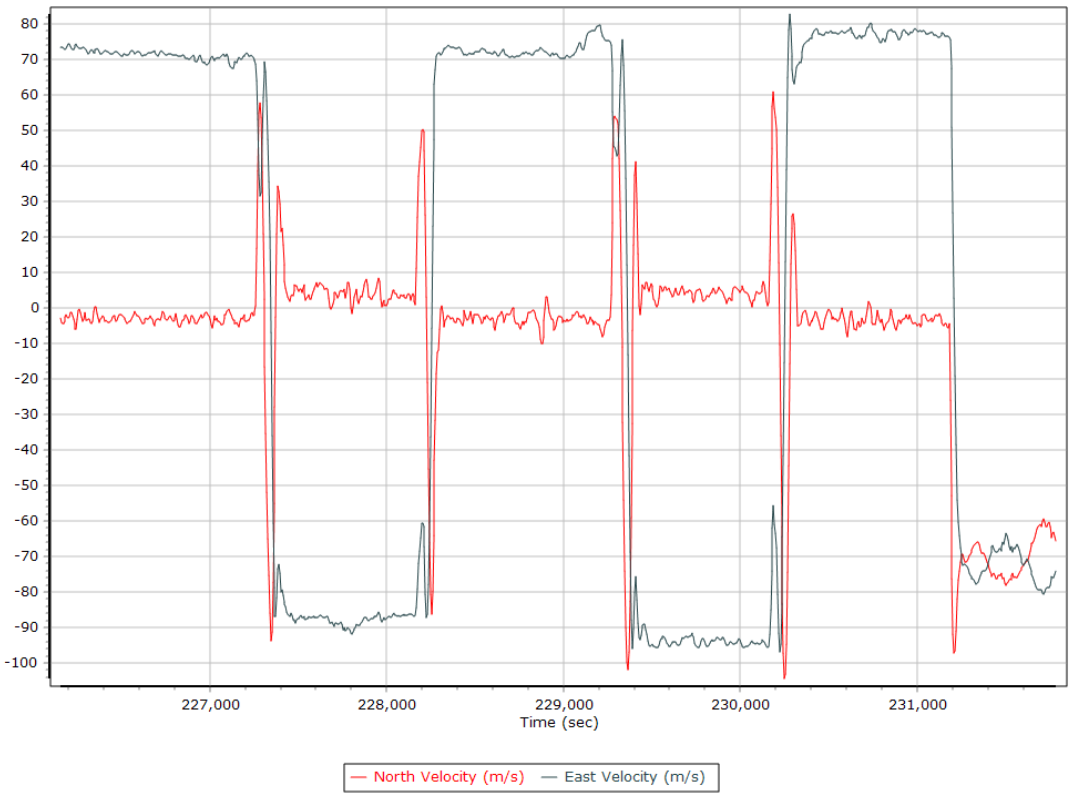
Roll/Pitch



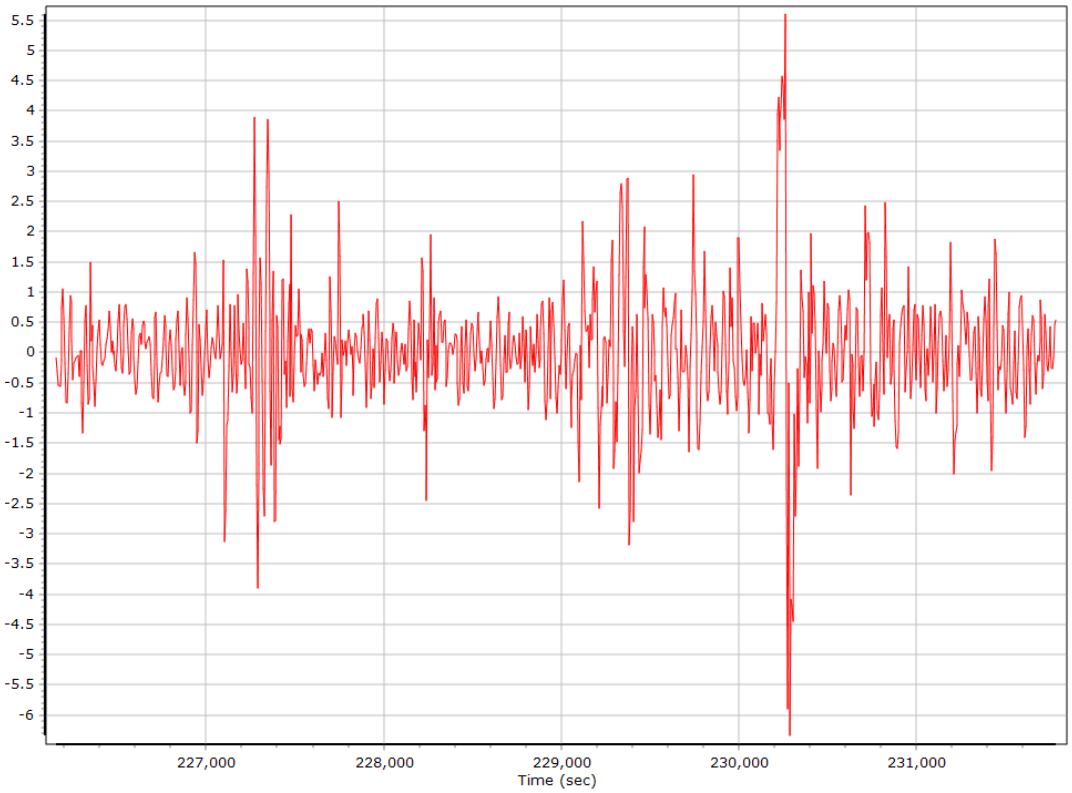
Heading



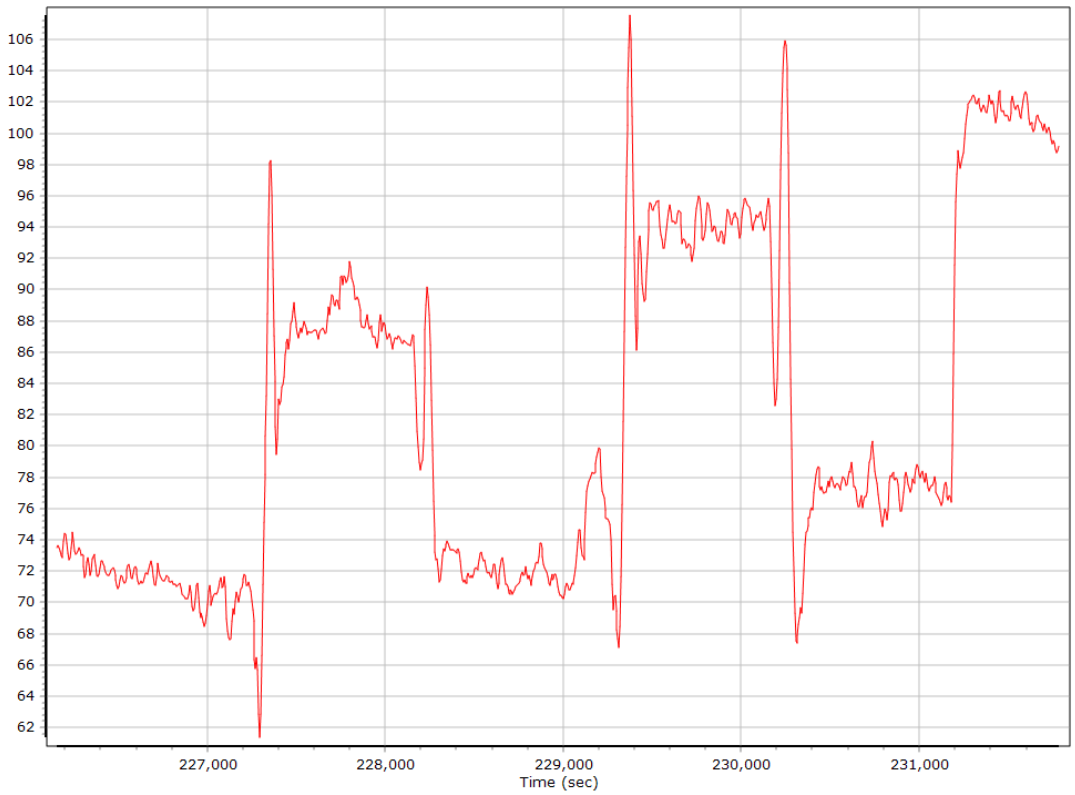
North/East Velocity



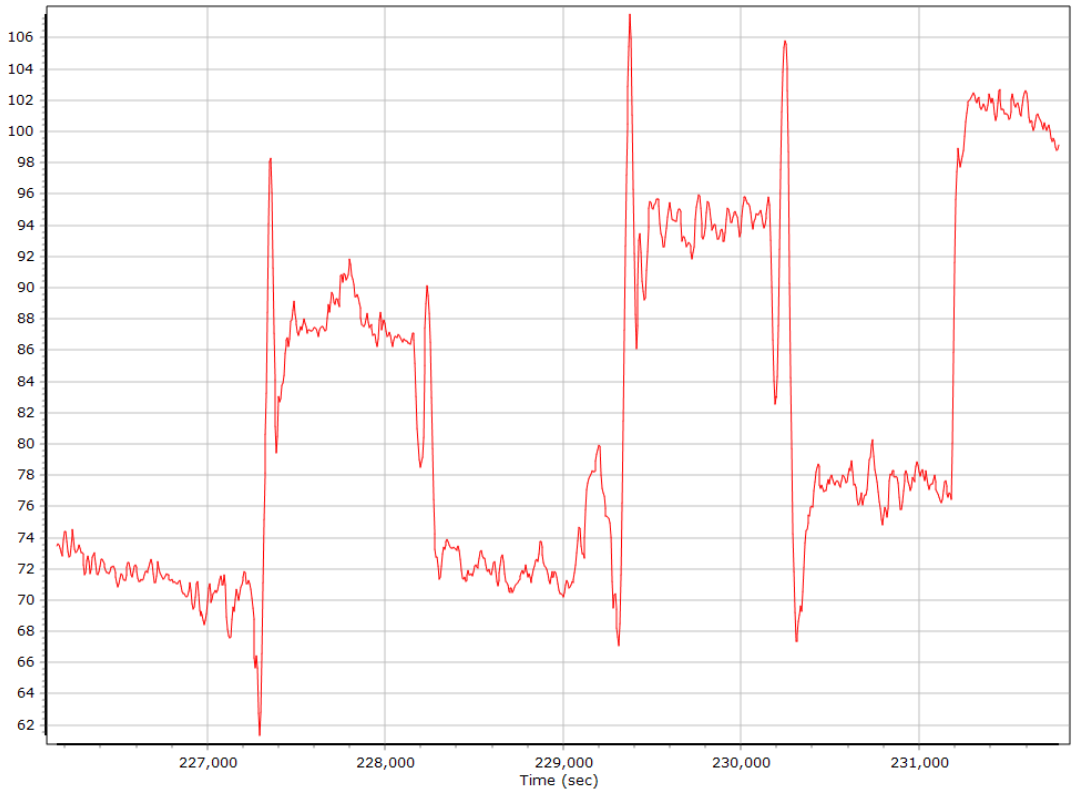
Down Velocity



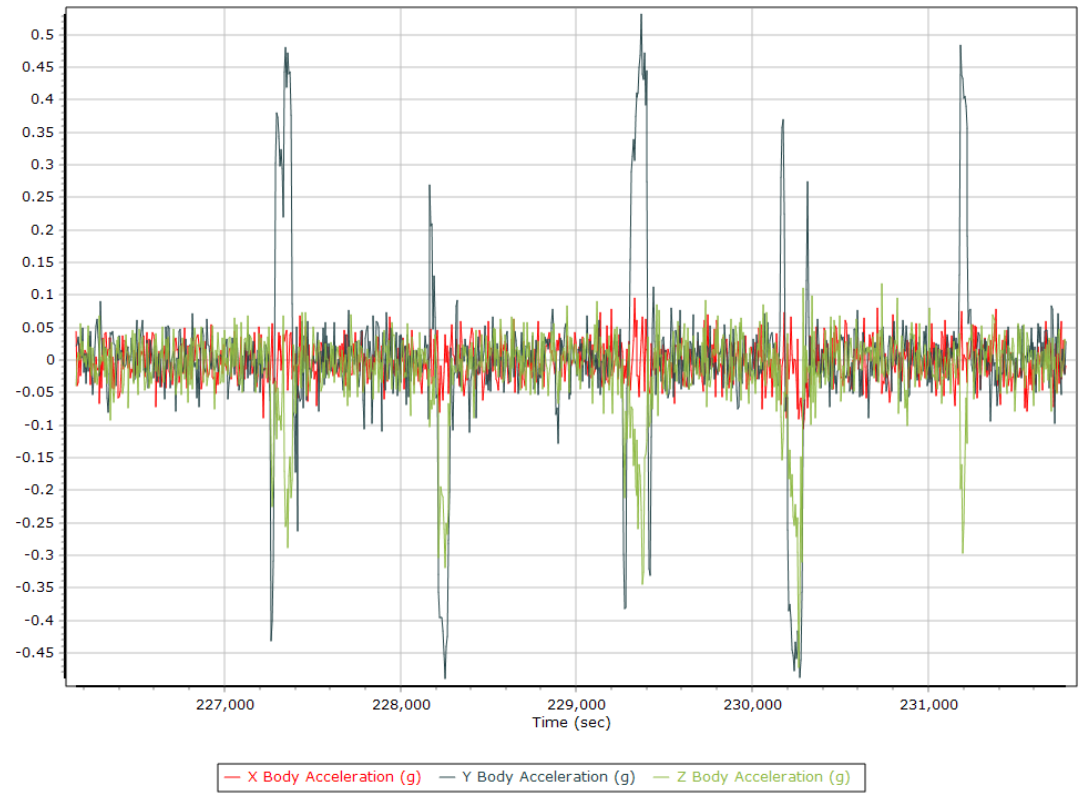
Total Speed



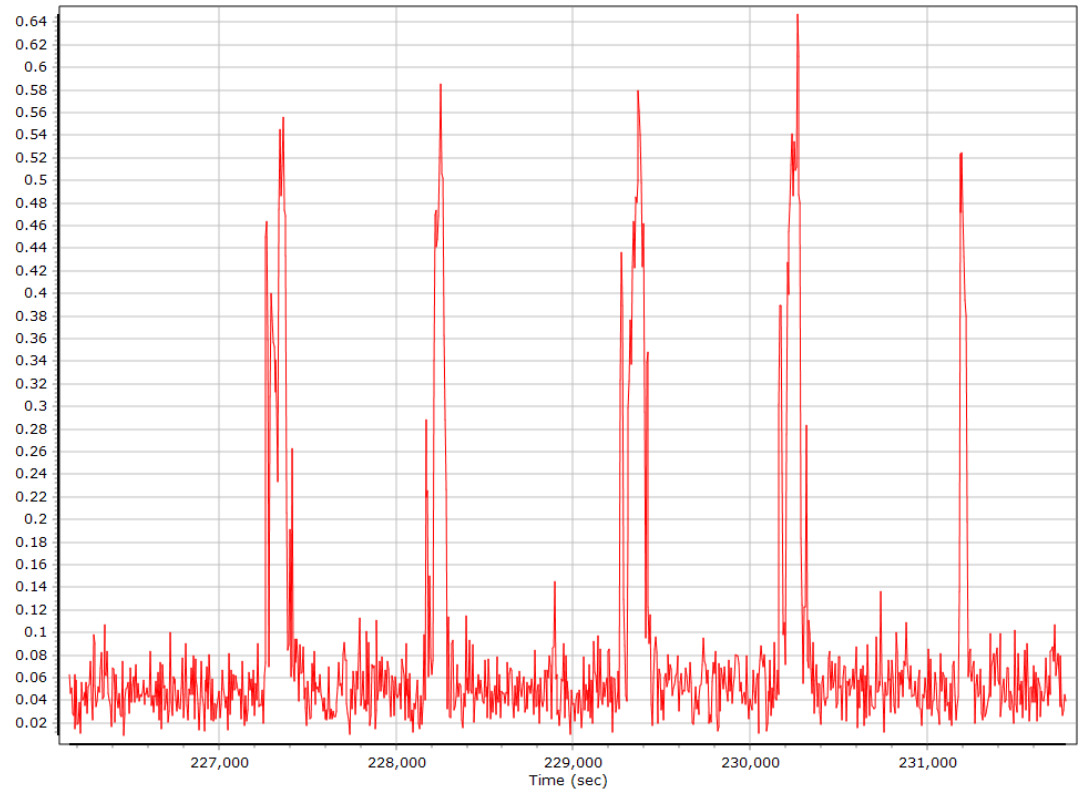
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
03/31/2020	IADE	7.36	GNSS	30	CORS (daily)	Smart Base	Imported
03/31/2020	MNPS	29.02	GNSS	30	CORS (daily)	Smart Base	Imported
03/31/2020	IANA	44.18	GNSS	30	CORS (daily)	Smart Base	Imported
03/31/2020	MNCA	44.48	GNSS	30	CORS (daily)	Smart Base	Imported
03/31/2020	IAEL	54.05	GNSS	30	CORS (daily)	Smart Base	Imported
03/31/2020	MNEY	84.29	GNSS	30	CORS (daily)	Smart Base	Imported
03/31/2020	MNSV	91.76	GNSS	30	CORS (daily)	Smart Base	Imported
03/31/2020	IAAL	103.45	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	5710 s (2099 226095 - 2099 231805)
Number of reference stations	8
Primary station GPS measurement usage (%)	99.8
Primary station GLONASS measurement usage (%)	70.4
Average number of satellites per epoch	12.4
Max number of GPS stations used	6
Min number of GPS stations used	4
Max number of GLONASS stations used	6
Min number of GLONASS stations used	4
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	10372
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24721"	291.092
Adjusted		N42°44'49.40394"	W92°47'14.24737"	291.120
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.028	0.029

Base Station Information

Station ID	IAAL		
Filename	iaal0910.20o		
Start date	3/31/2020 12:00:00 AM		
End date	3/31/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24721"		
Ellipsoidal height (m)	291.09236		
Frame	ITRF00		
Epoch	2020.245902		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNSV

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°54'09.07390"	W92°28'55.97411"	361.226
Adjusted		N43°54'09.07421"	W92°28'55.97421"	361.223
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.003	0.010

Base Station Information

Station ID	MNSV		
Filename	mnsv0910.20o		
Start date	3/31/2020 12:00:00 AM		
End date	3/31/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	Alloy	5829R40031
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°54'09.07390"		
Longitude	W92°28'55.97411"		
Ellipsoidal height (m)	361.22648		
Frame	ITRF00		
Epoch	2020.245902		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNEY

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	7.9	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°57'20.27378"	W92°12'19.44384"	370.916
Adjusted		N43°57'20.27387"	W92°12'19.44374"	370.904
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.013	0.013

Base Station Information

Station ID	MNEY		
Filename	mney0910.20o		
Start date	3/31/2020 12:00:00 AM		
End date	3/31/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5426R48922
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°57'20.27378"		
Longitude	W92°12'19.44384"		
Ellipsoidal height (m)	370.91641		
Frame	ITRF00		
Epoch	2020.245902		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52984"	298.980
Adjusted		N42°52'40.47654"	W91°21'41.52981"	298.988
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.008	0.009

Base Station Information

Station ID	IAEL		
Filename	iael0910.20o		
Start date	3/31/2020 12:00:00 AM		
End date	3/31/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52984"		
Ellipsoidal height (m)	298.98032		
Frame	ITRF00		
Epoch	2020.245902		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	7.9	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64528"	W91°29'46.51634"	339.589
Adjusted		N43°37'58.64537"	W91°29'46.51622"	339.596
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.008	0.009

Base Station Information

Station ID	MNCA		
Filename	mnca0910.20o		
Start date	3/31/2020 12:00:00 AM		
End date	3/31/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64528"		
Longitude	W91°29'46.51634"		
Ellipsoidal height (m)	339.58852		
Frame	ITRF00		
Epoch	2020.245902		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	7.8	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54030"	172.253
Adjusted		N43°29'49.47914"	W91°17'26.53971"	172.230
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.014	0.024	0.028

Base Station Information

Station ID	IANA		
Filename	iana0910.20o		
Start date	3/31/2020 12:00:00 AM		
End date	3/31/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54030"		
Ellipsoidal height (m)	172.25325		
Frame	ITRF00		
Epoch	2020.245902		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52630"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52630"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade0910.20o		
Start date	3/31/2020 12:00:00 AM		
End date	3/31/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52630"		
Ellipsoidal height (m)	316.51621		
Frame	ITRF00		
Epoch	2020.245902		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	7.9	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86727"	380.908
Adjusted		N43°30'53.84828"	W91°53'06.86725"	380.920
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.012	0.013

Base Station Information

Station ID	MNPS		
Filename	mnps0910.20o		
Start date	3/31/2020 12:00:00 AM		
End date	3/31/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86727"		
Ellipsoidal height (m)	380.90782		
Frame	ITRF00		
Epoch	2020.245902		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.12	49.99	
Number of GPS SV	7	9	8
Number of GLONASS SV	3	5	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	11	14	12
PDOP	1.35	1.91	1.51
QC Solution Gaps	0.00	0.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	5687.00	0.00	0.00
Percentage	100.00	0.00	0.00

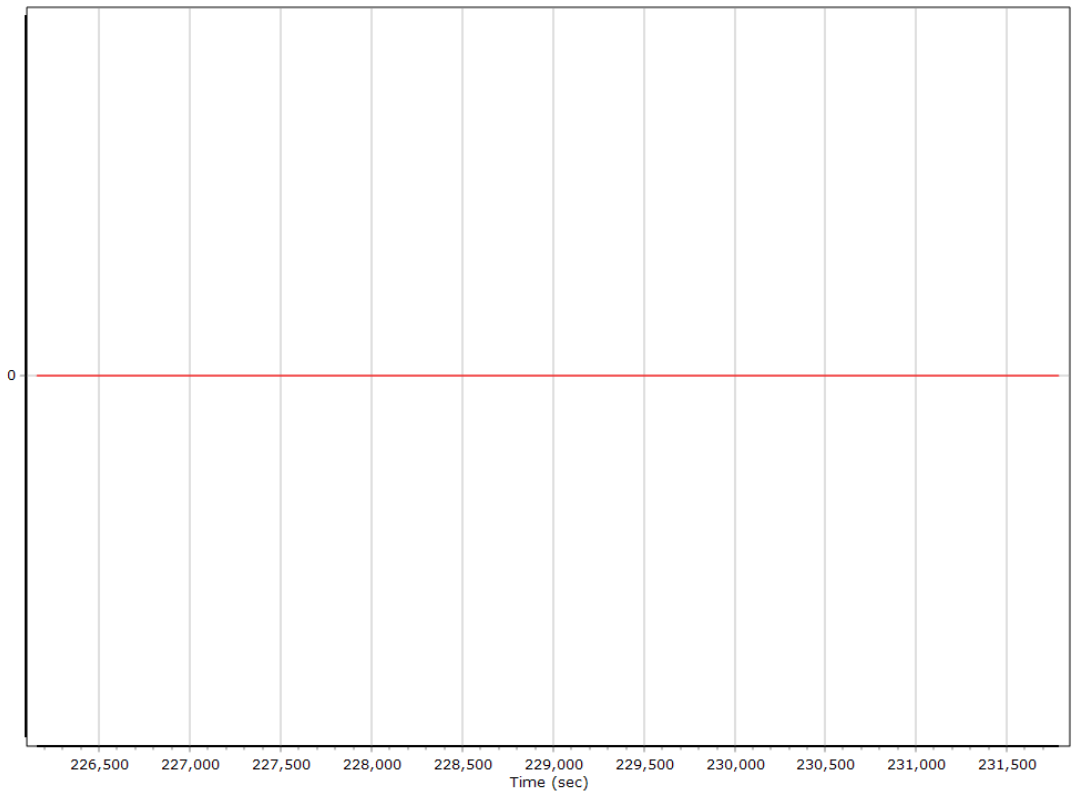
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	226077.000 (3/31/2020 2:47:57 PM)		
Processing end time	231787.000 (3/31/2020 4:23:07 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

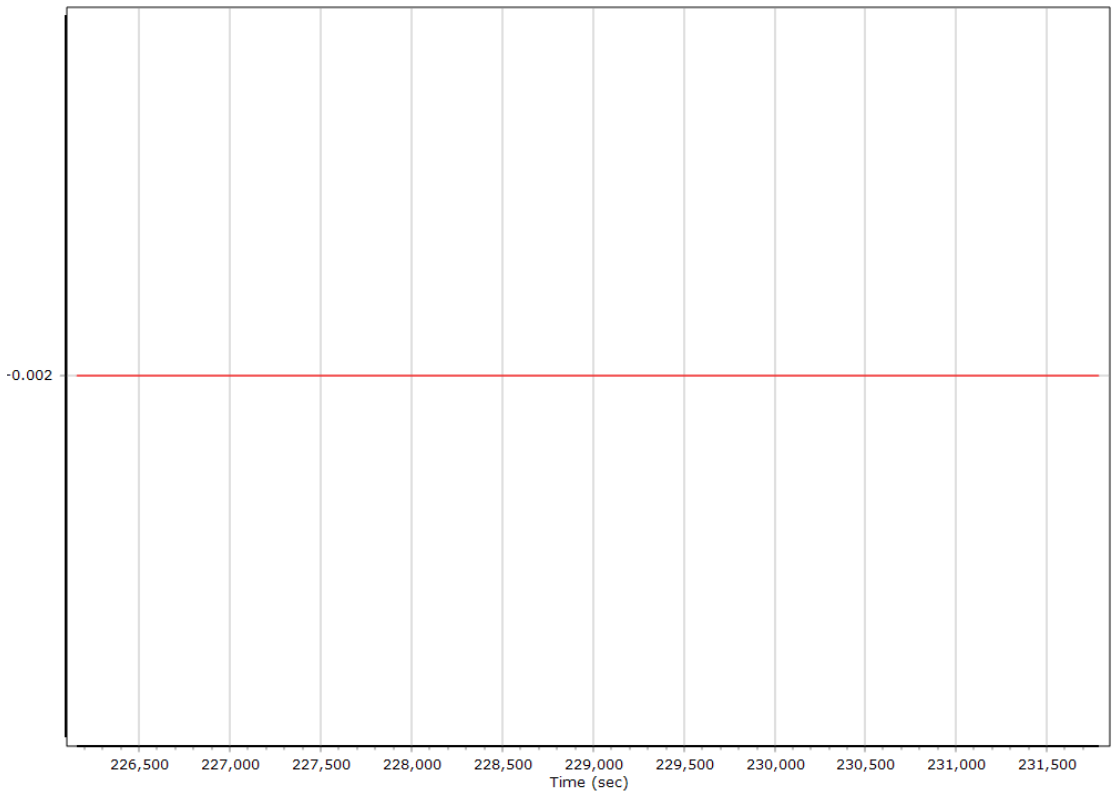
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

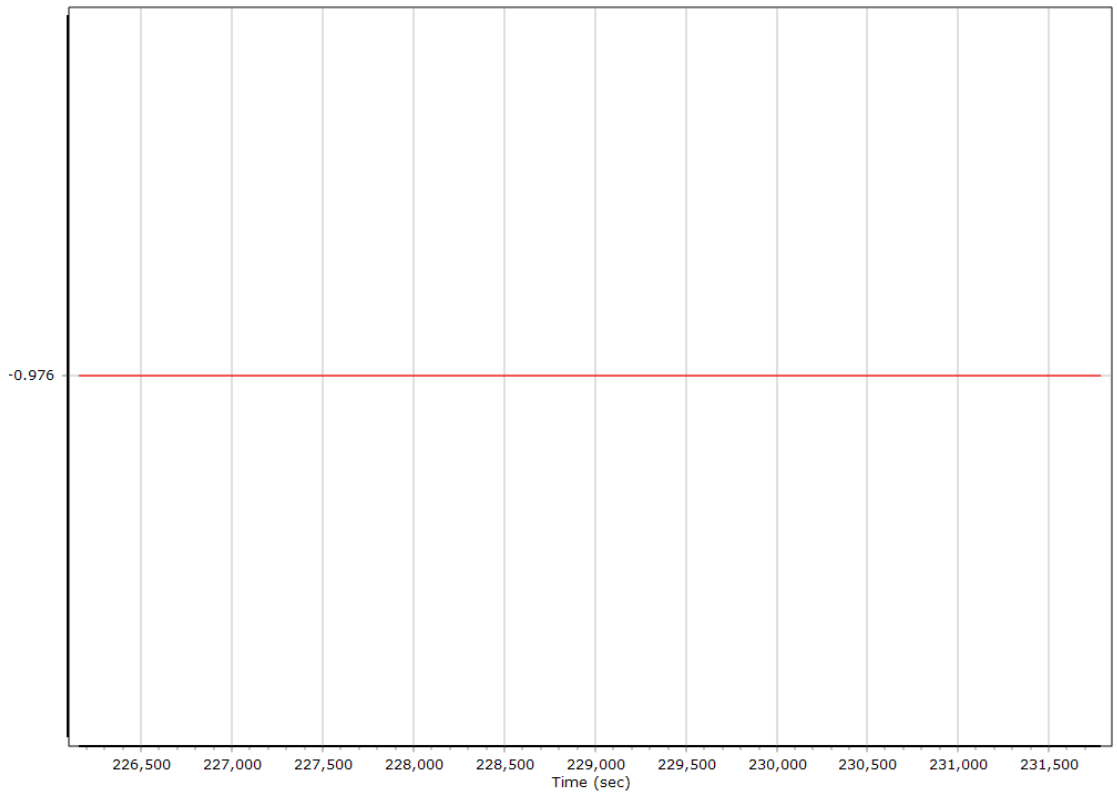
X Reference-Primary GNSS Lever Arm (m)



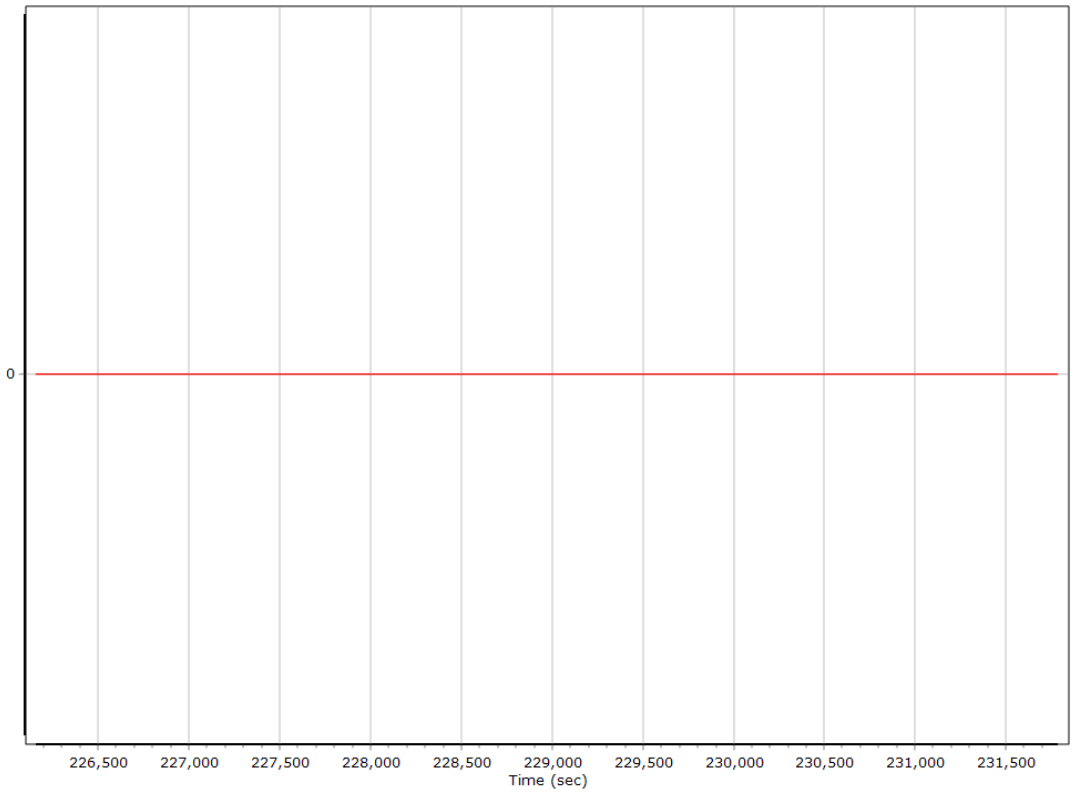
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



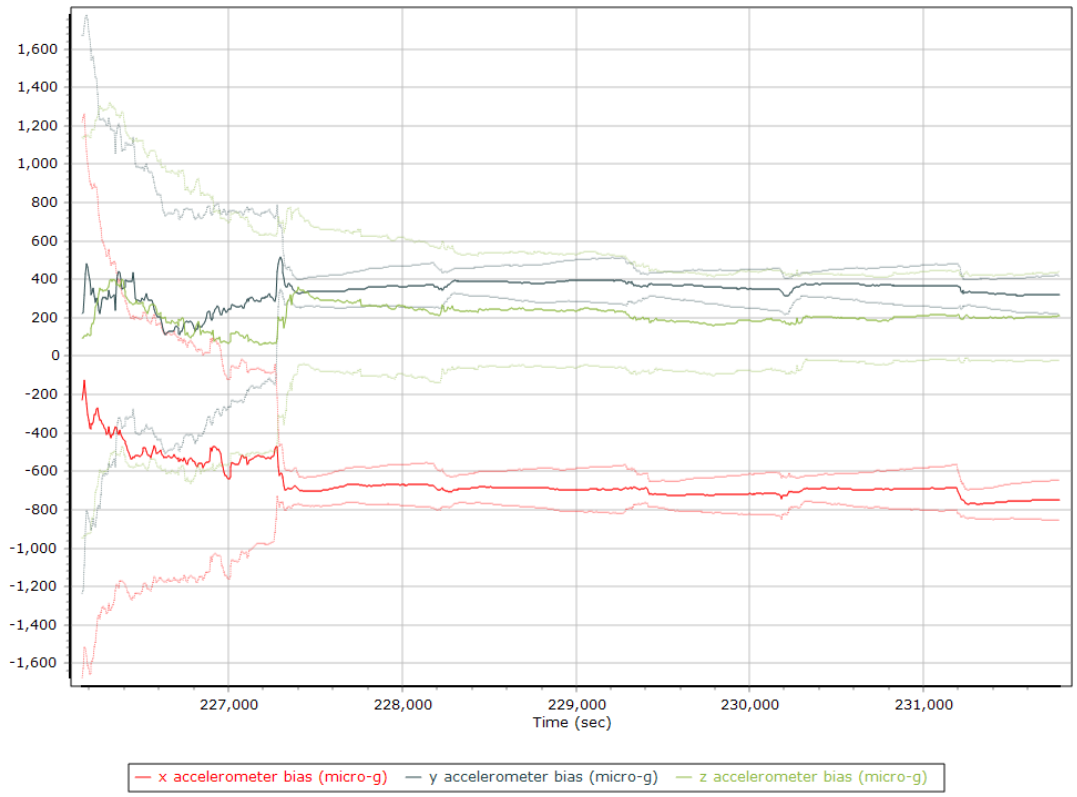
Reference-Primary GNSS Lever Arm Figure of Merit



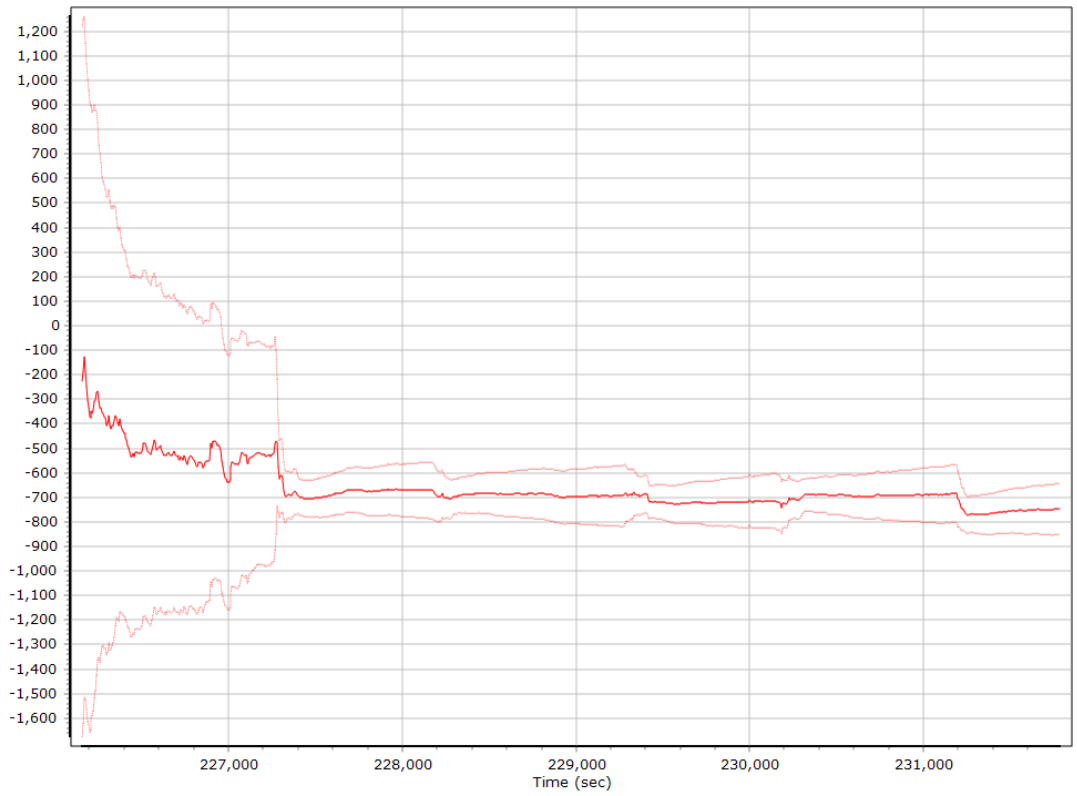
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

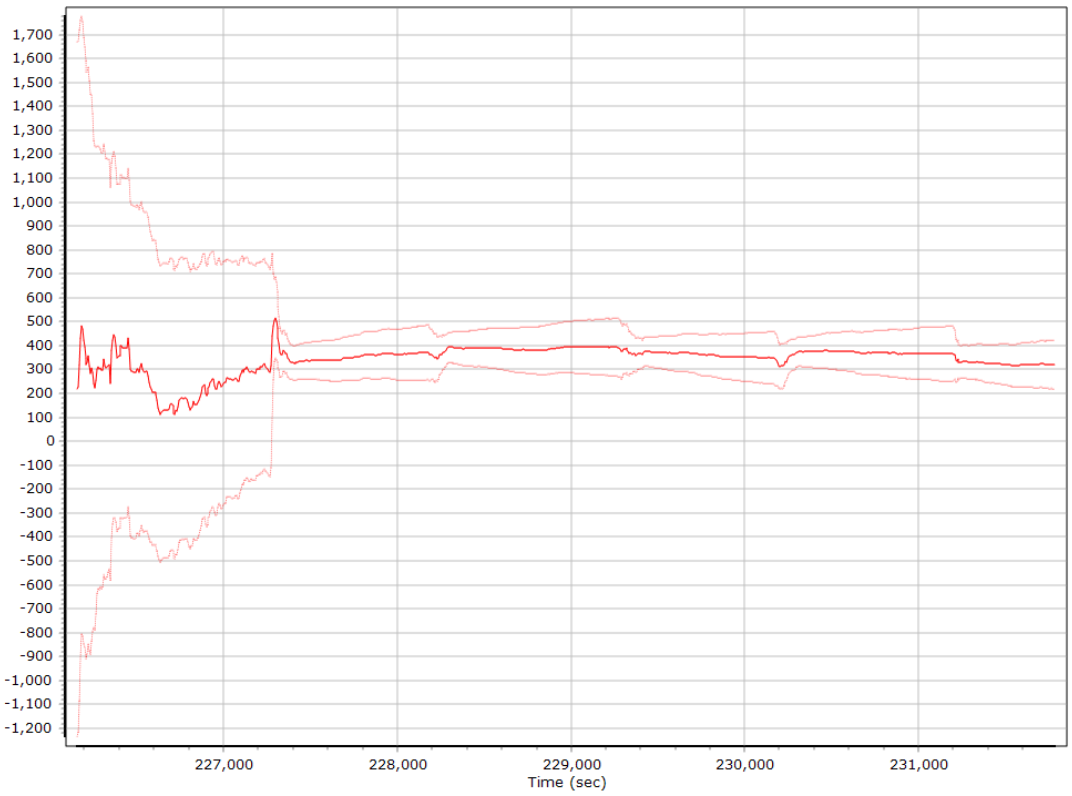
Accelerometer Bias (micro-g)



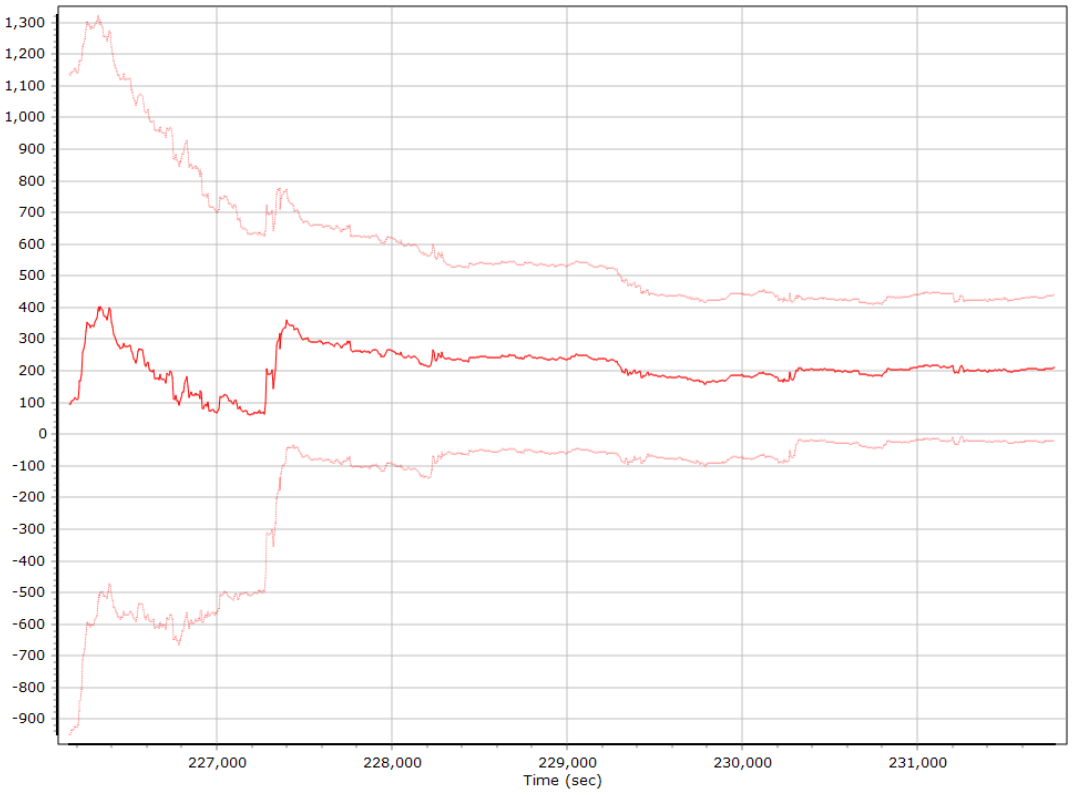
X Accelerometer Bias (micro-g)



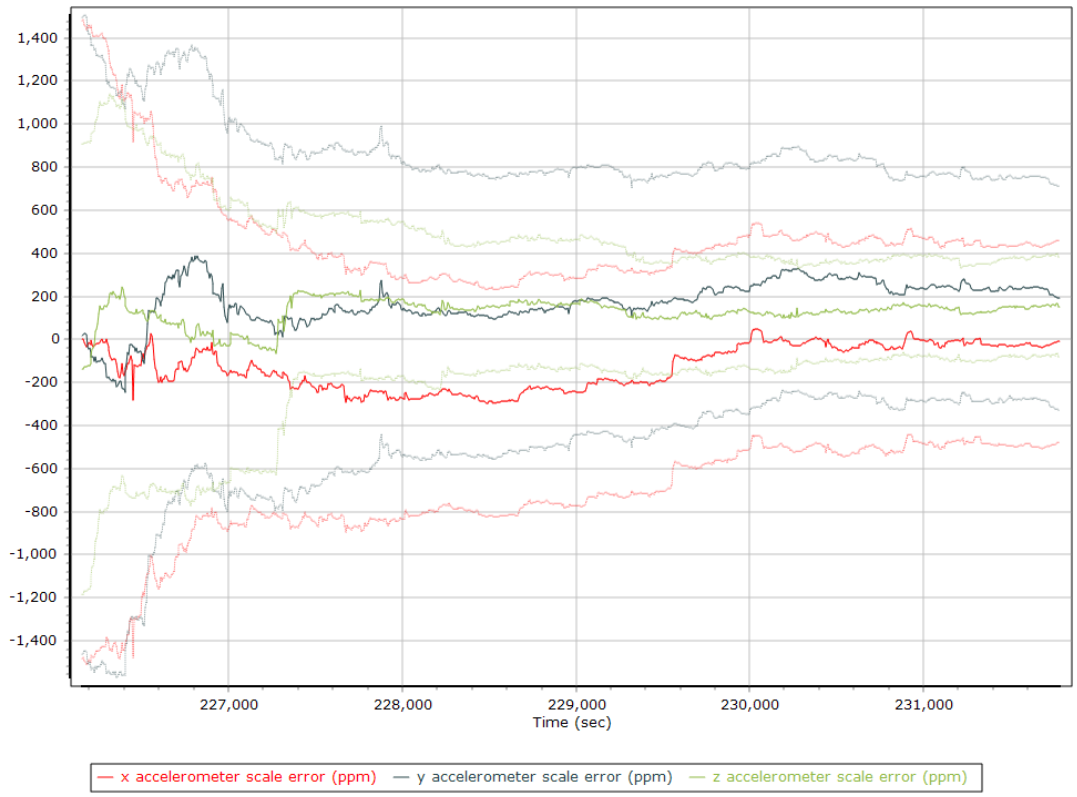
Y Accelerometer Bias (micro-g)



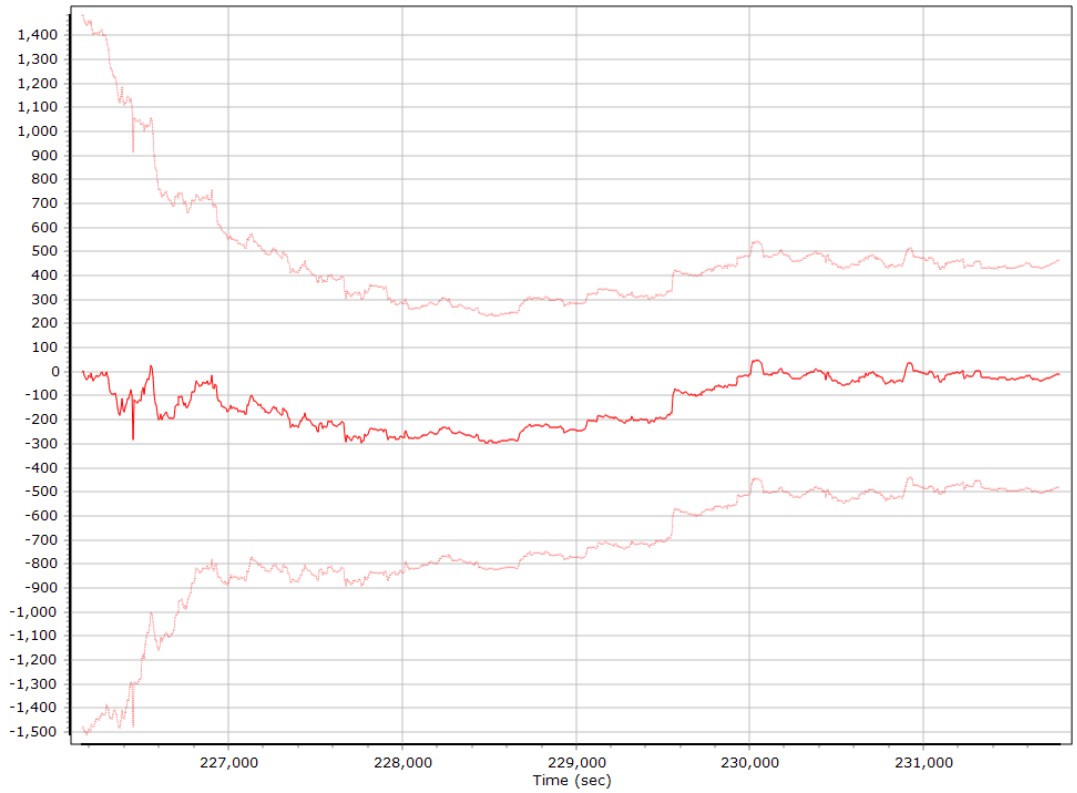
Z Accelerometer Bias (micro-g)



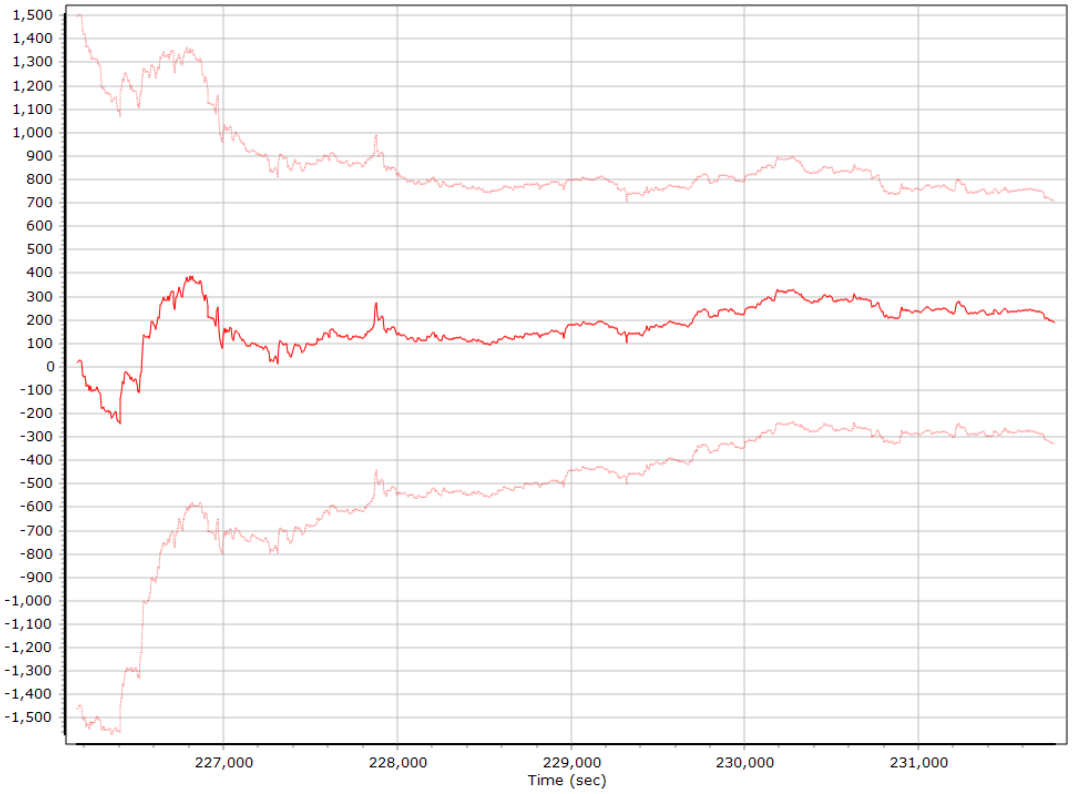
Accelerometer Scale Error (ppm)



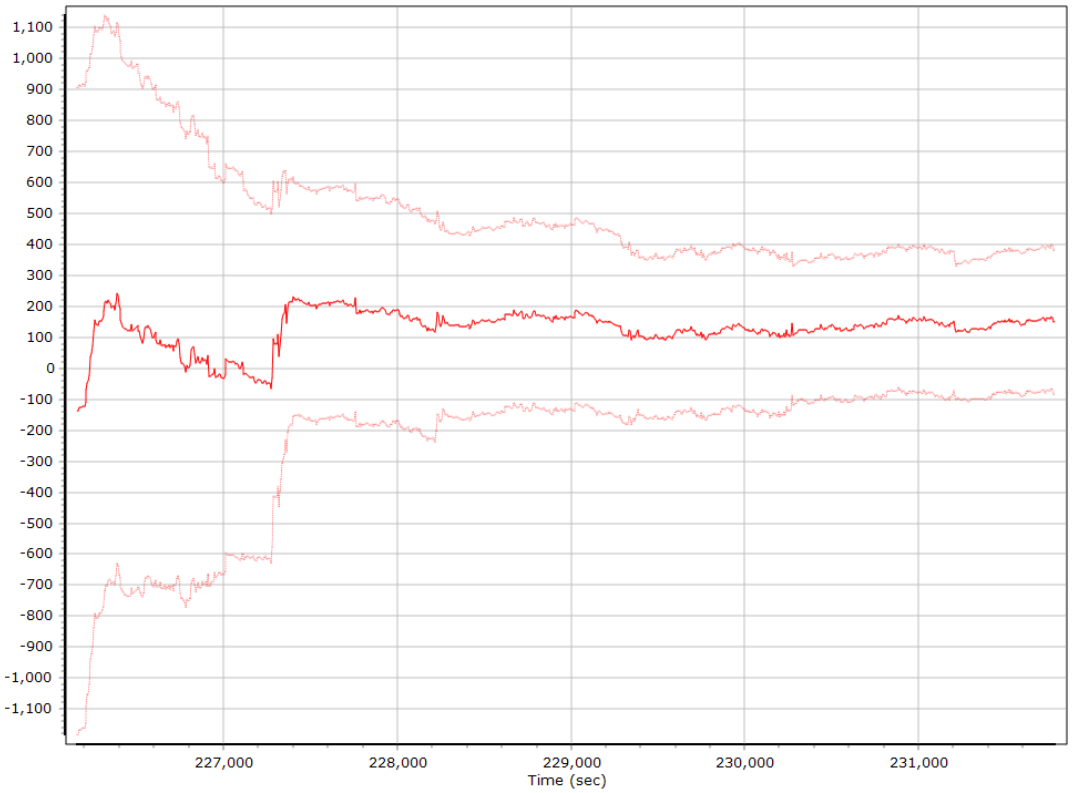
X Accelerometer Scale Error (ppm)



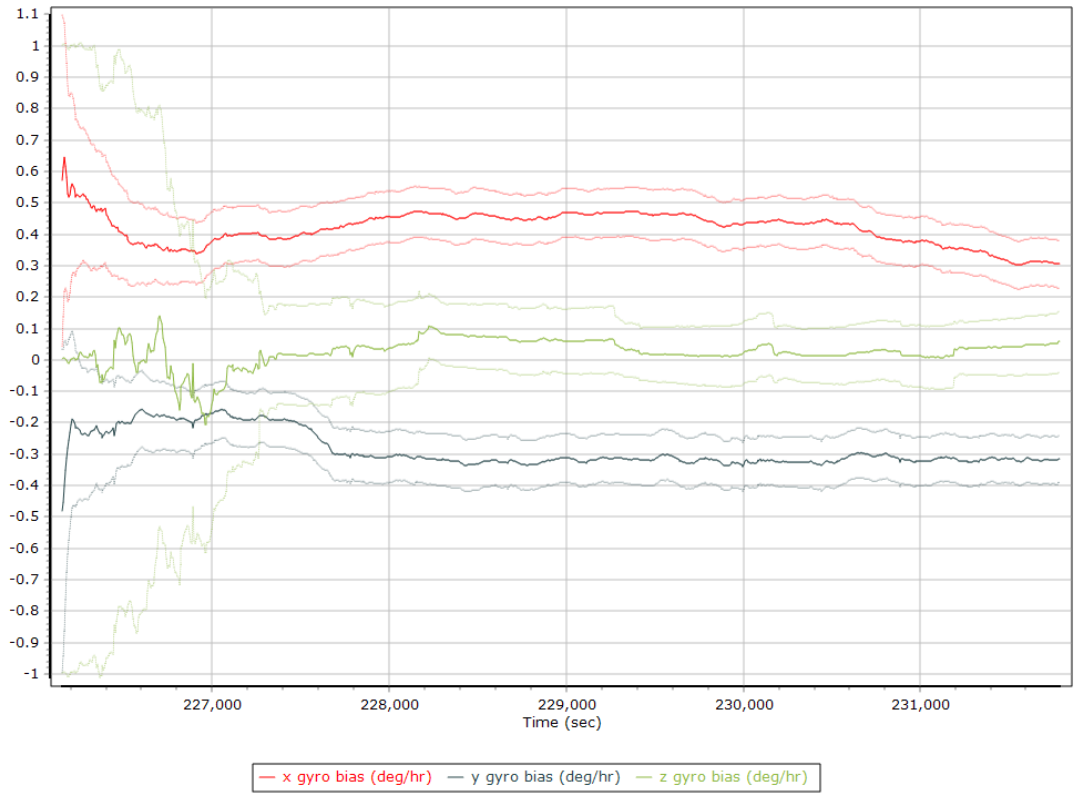
Y Accelerometer Scale Error (ppm)



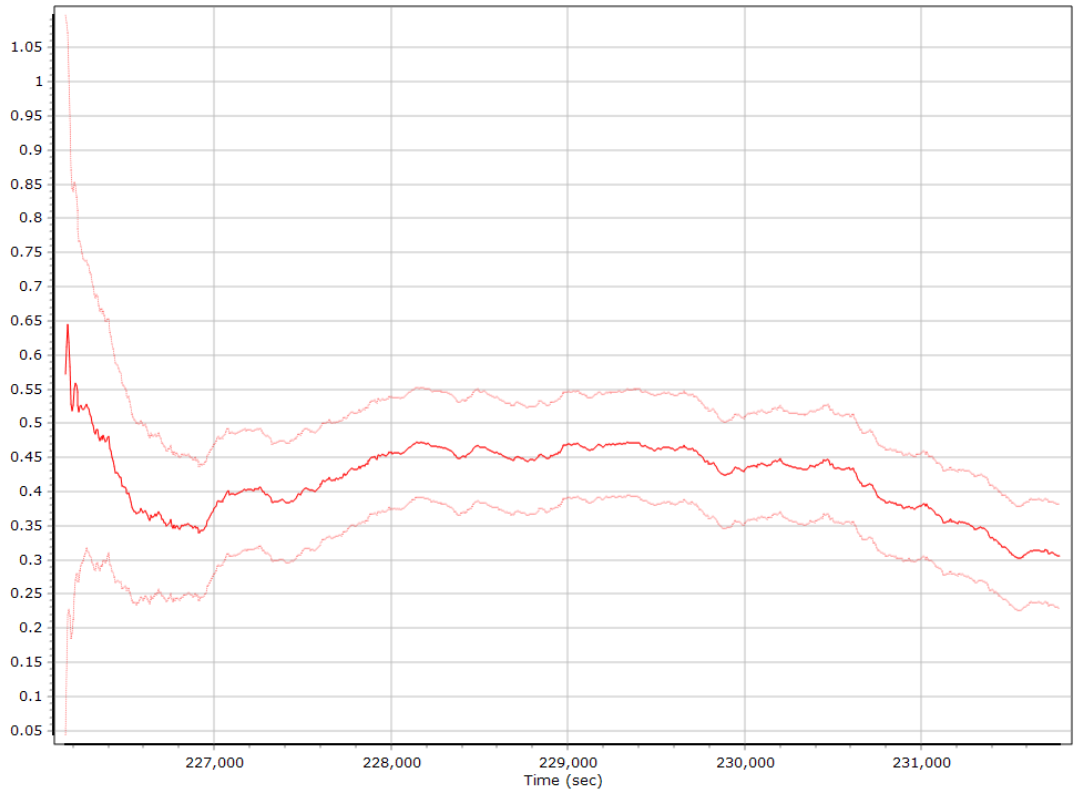
Z Accelerometer Scale Error (ppm)



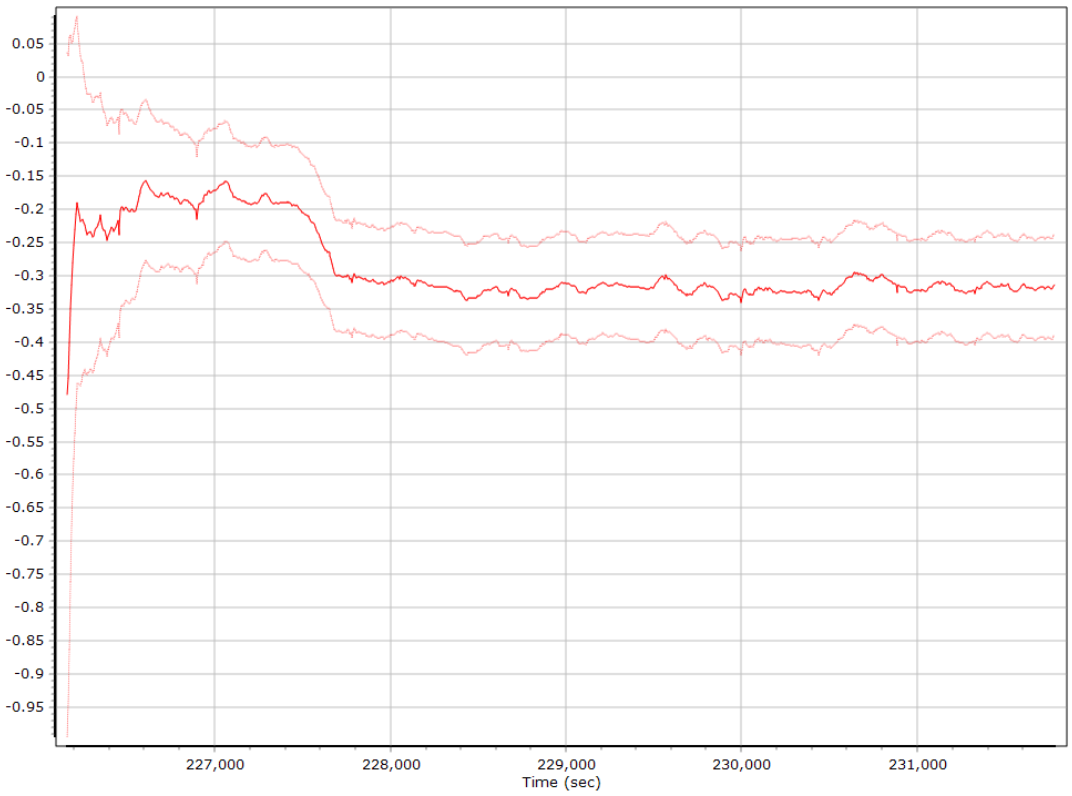
Gyro Bias (deg/h)



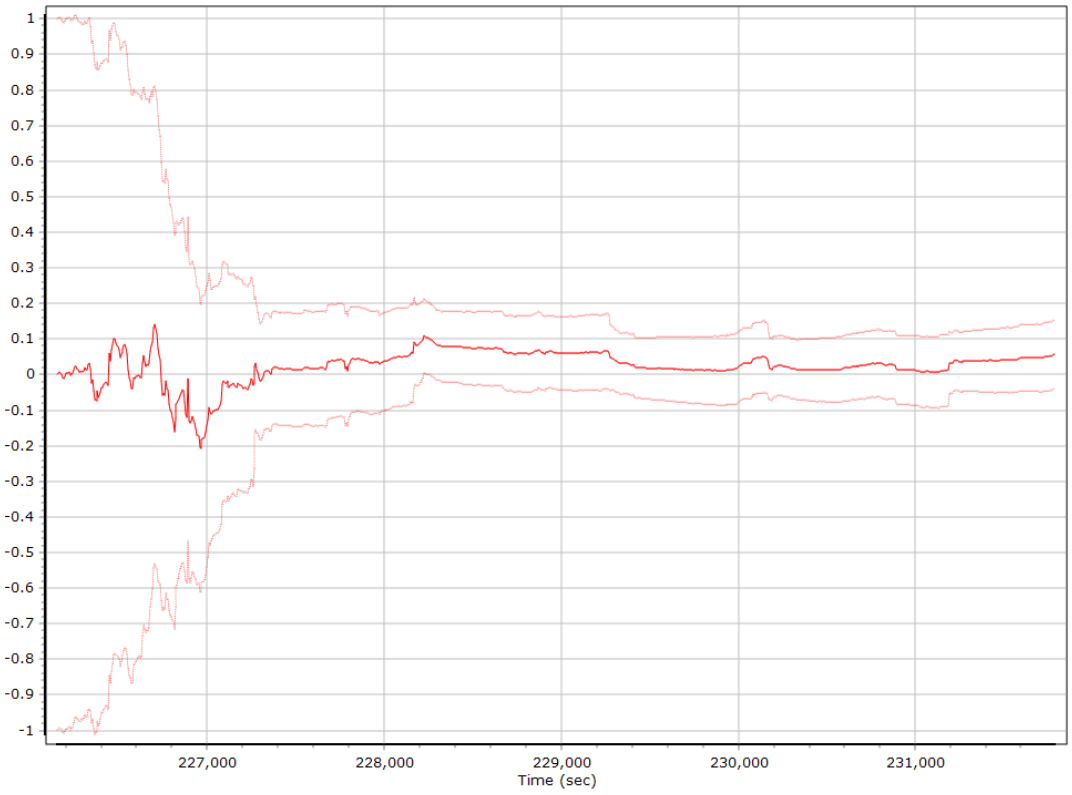
X Gyro Bias (deg/h)



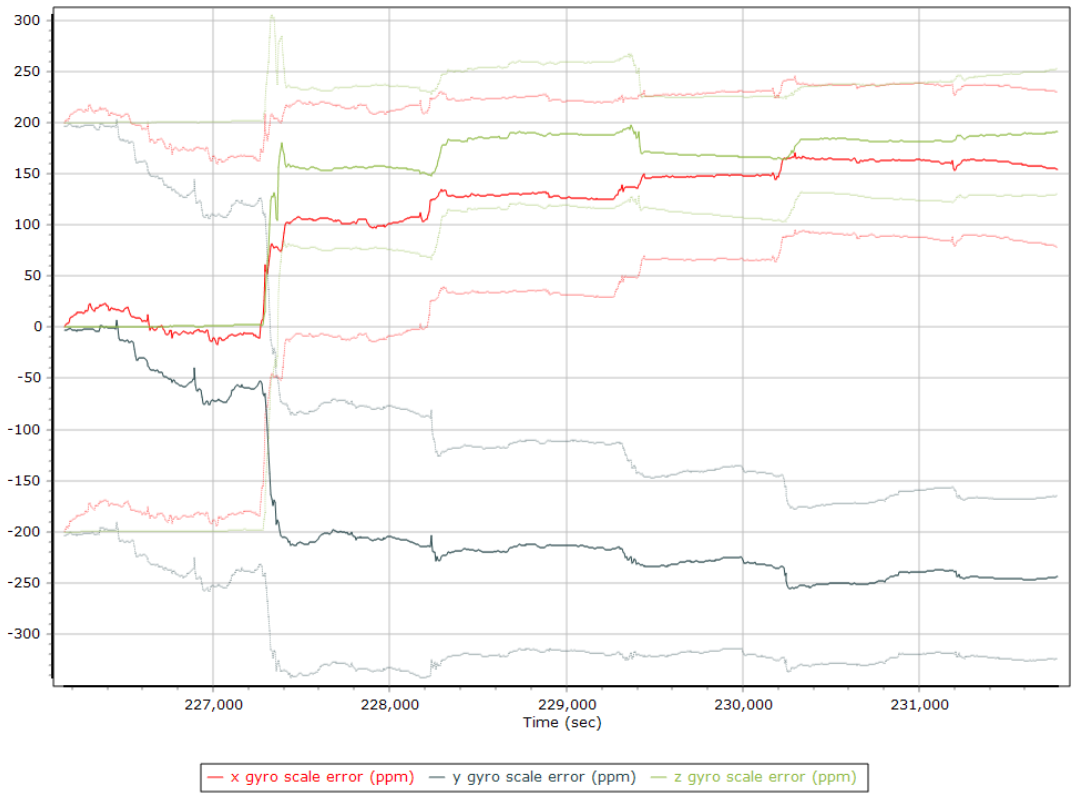
Y Gyro Bias (deg/h)



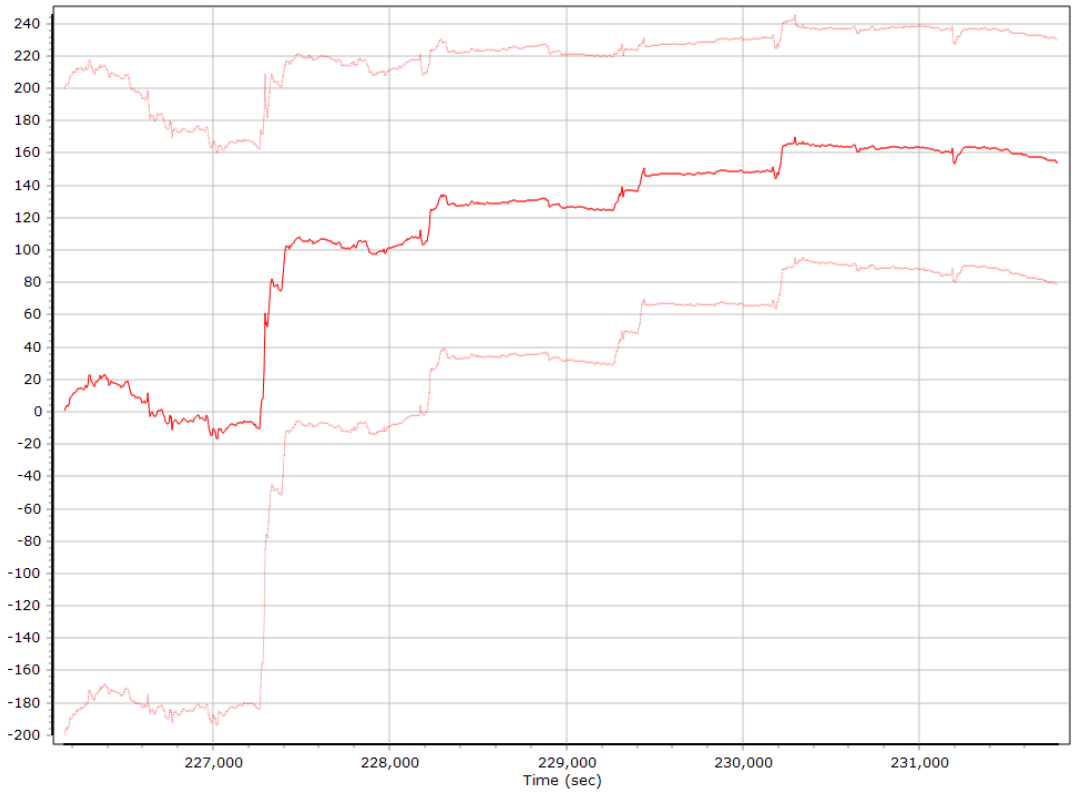
Z Gyro Bias (deg/h)



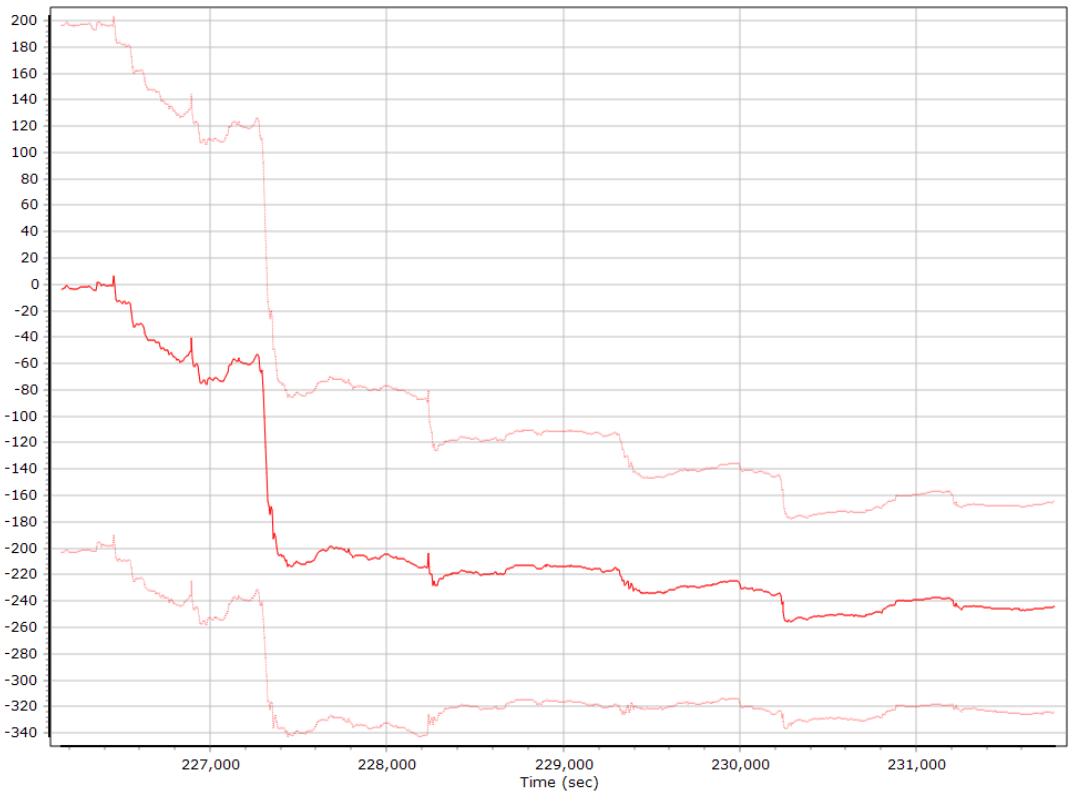
Gyro Scale Error (ppm)



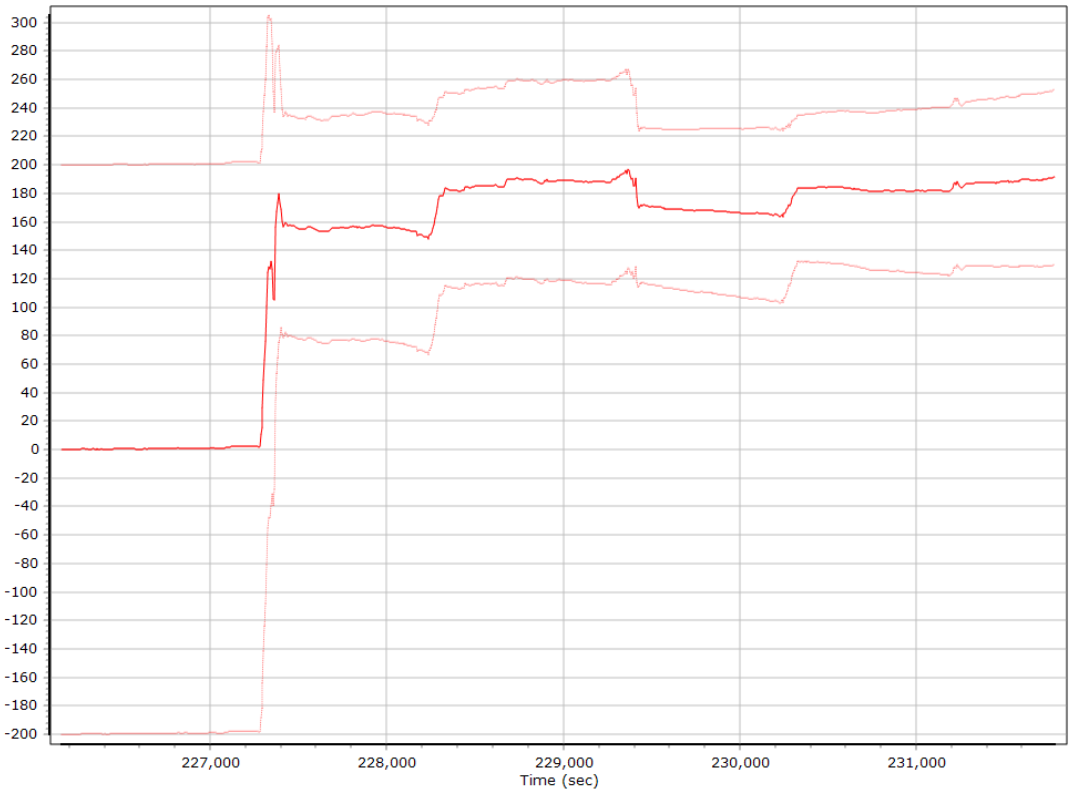
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

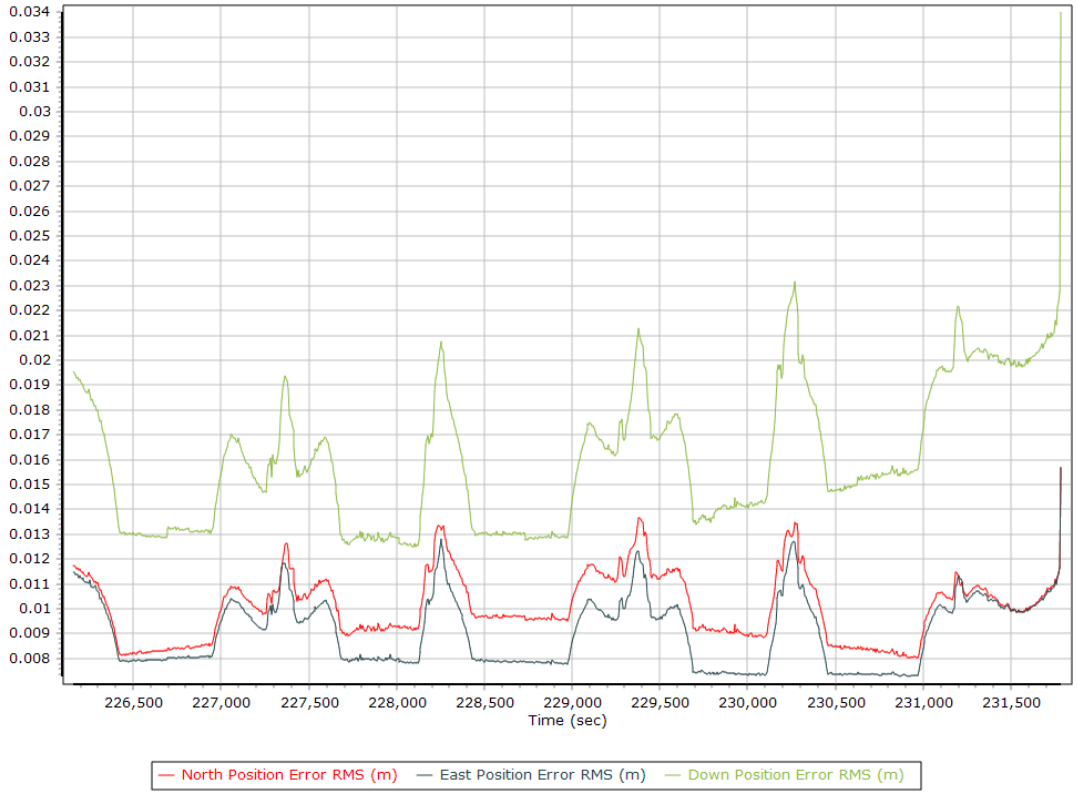


Z Gyro Scale Error (ppm)

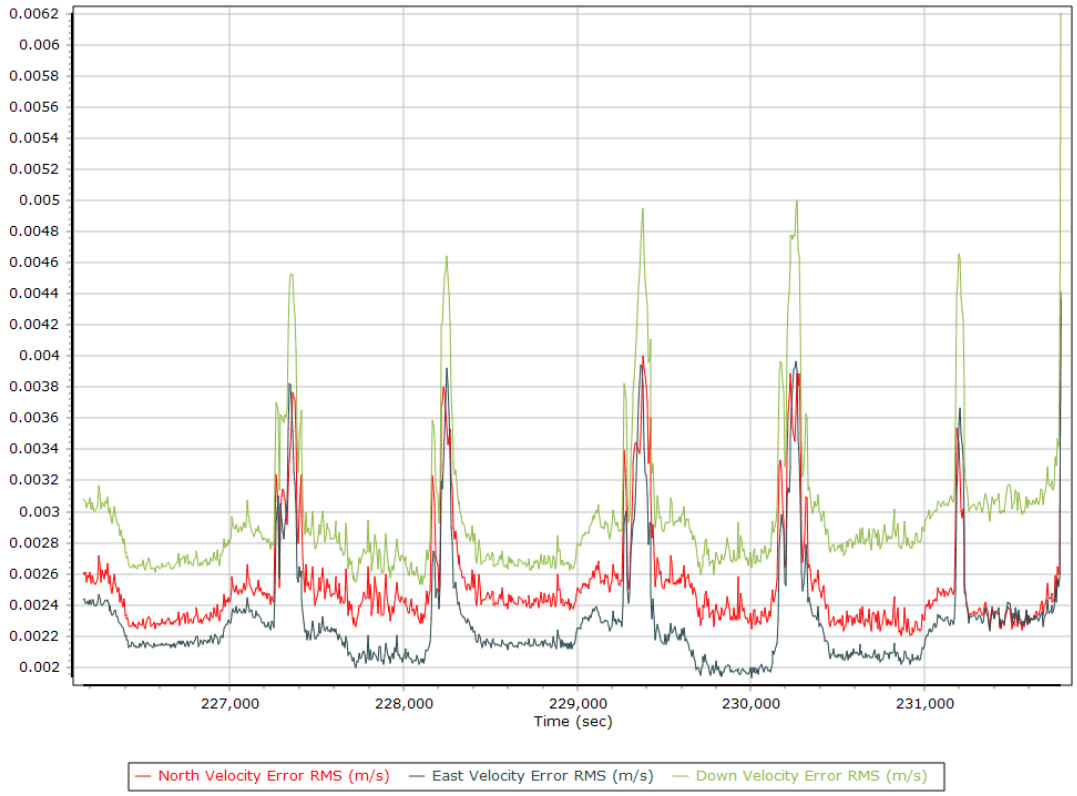


Smoothed Performance Metrics

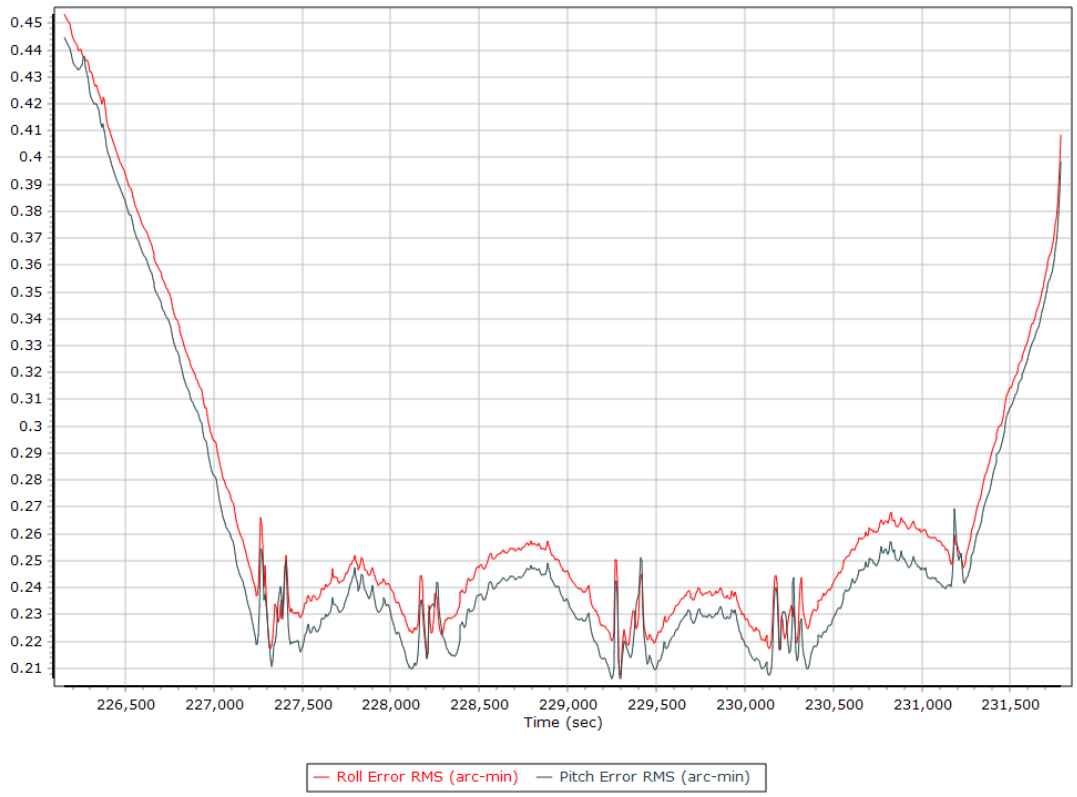
Position Error RMS (m)



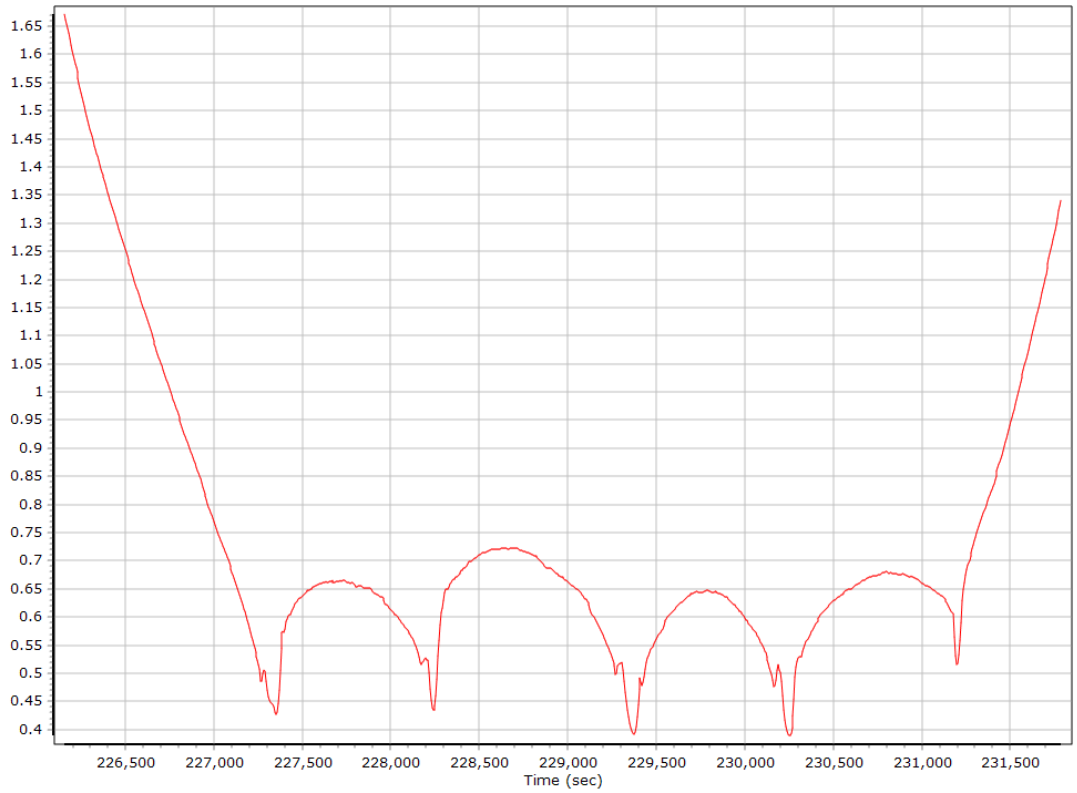
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

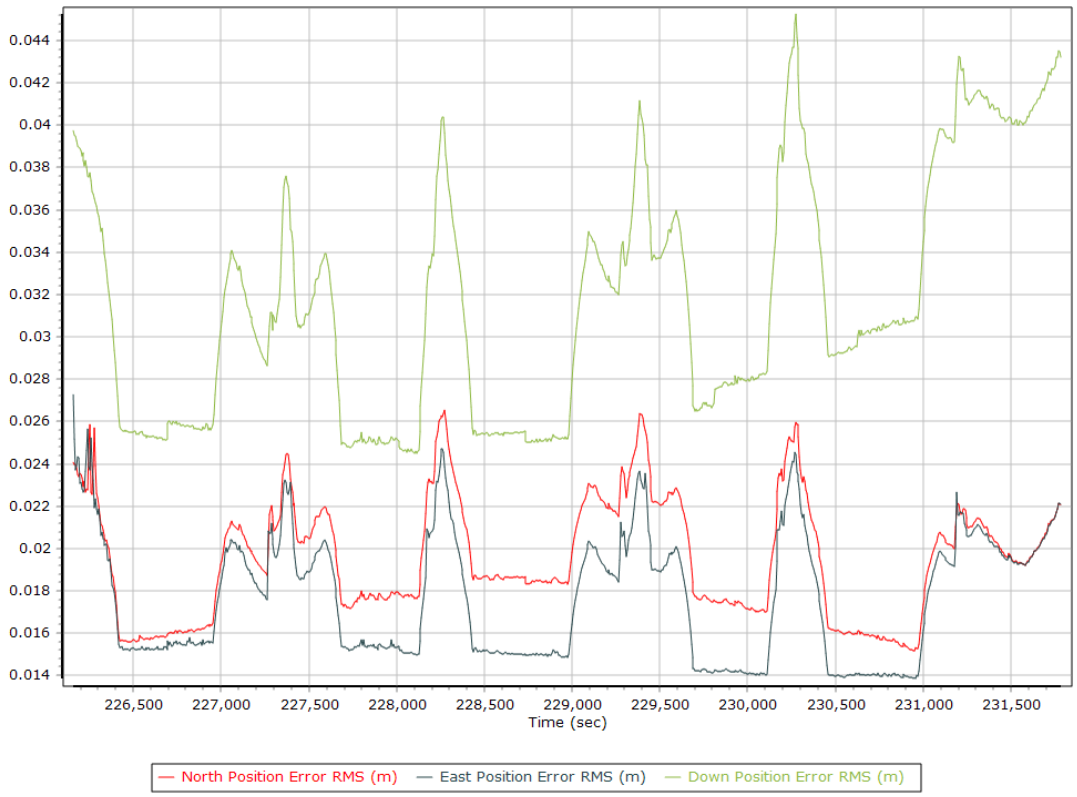


Heading Error RMS (arc-min)

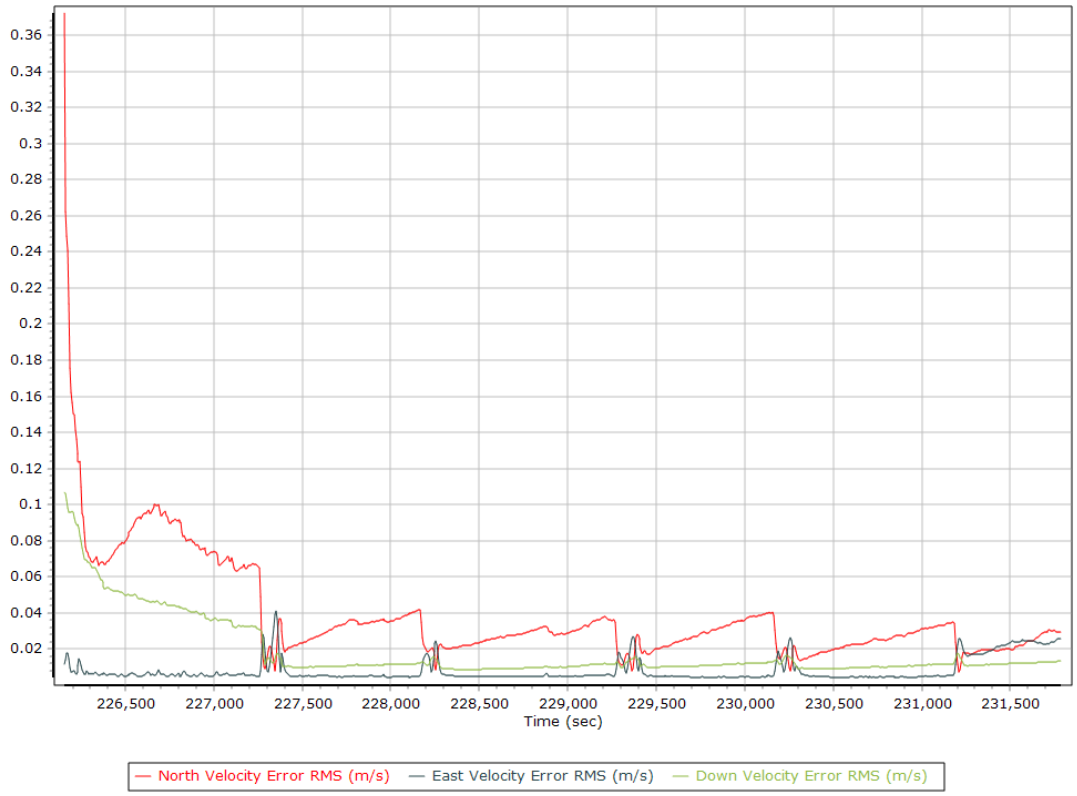


Forward Processed Performance Metrics

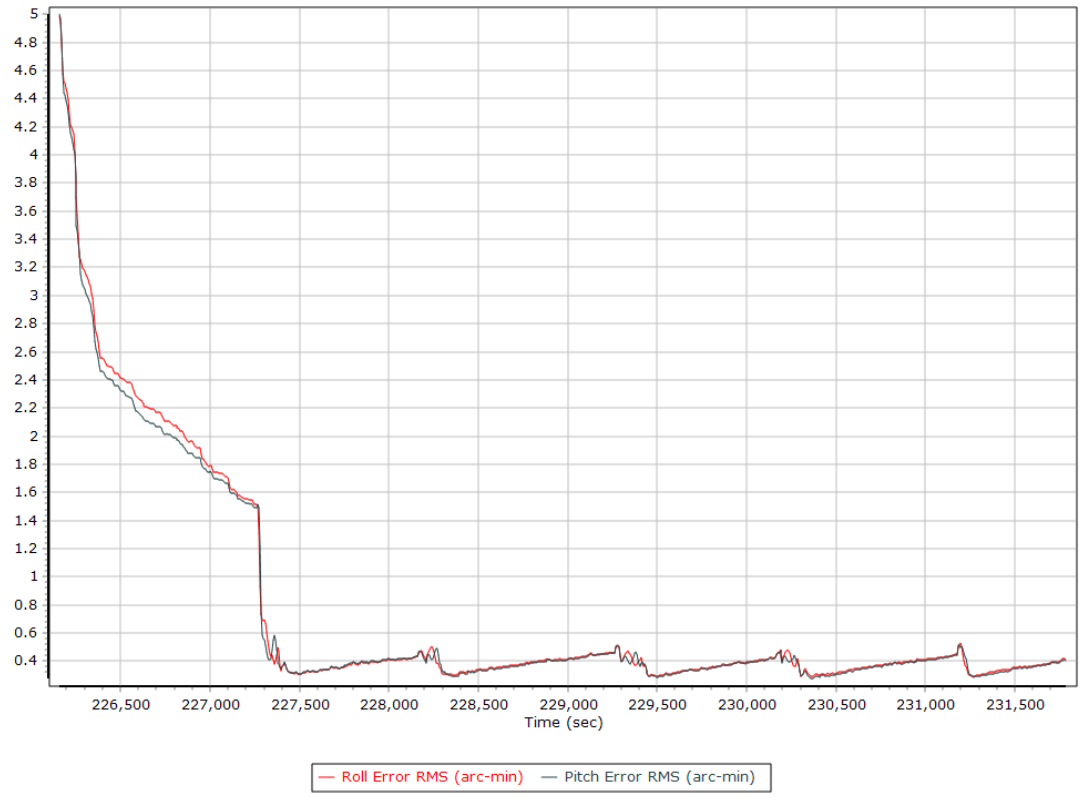
Position Error RMS (m)



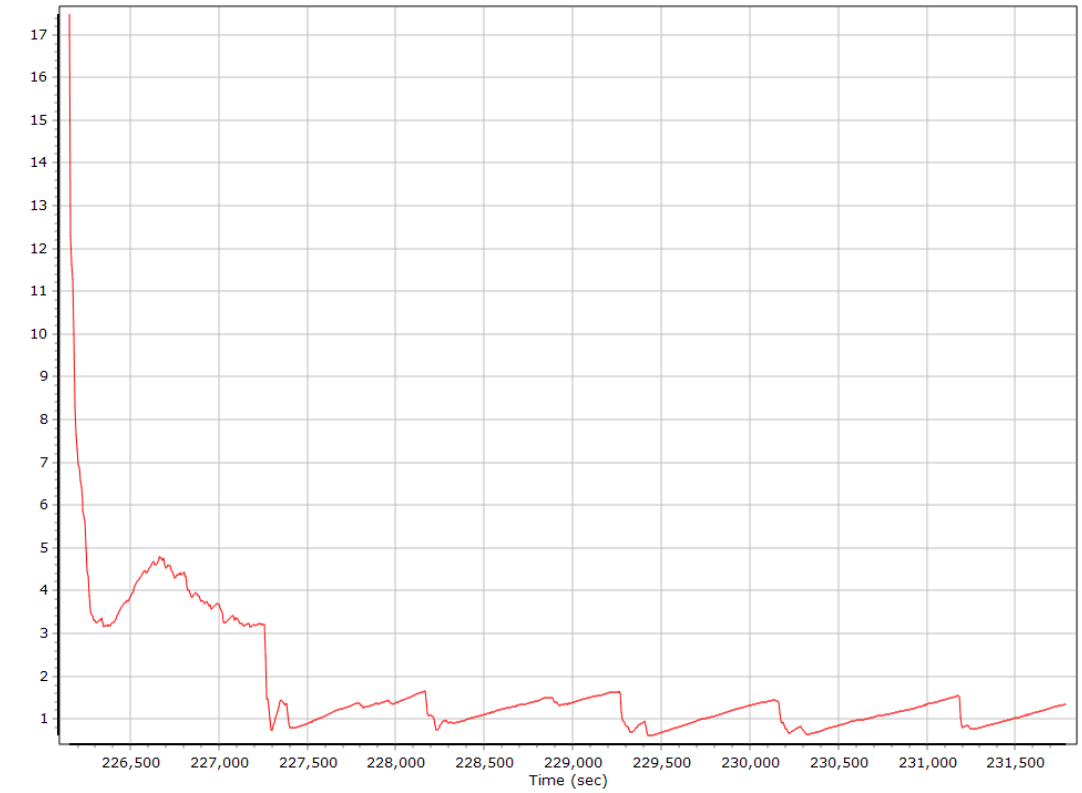
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

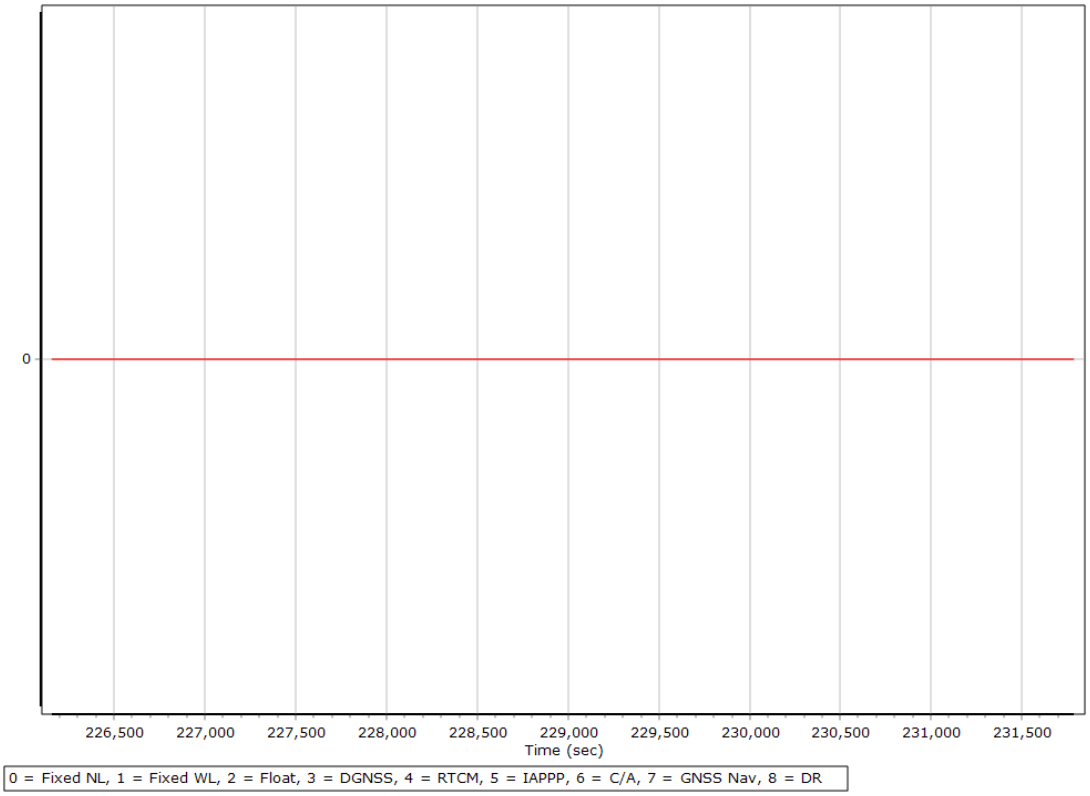


Heading Error RMS (arc-min)

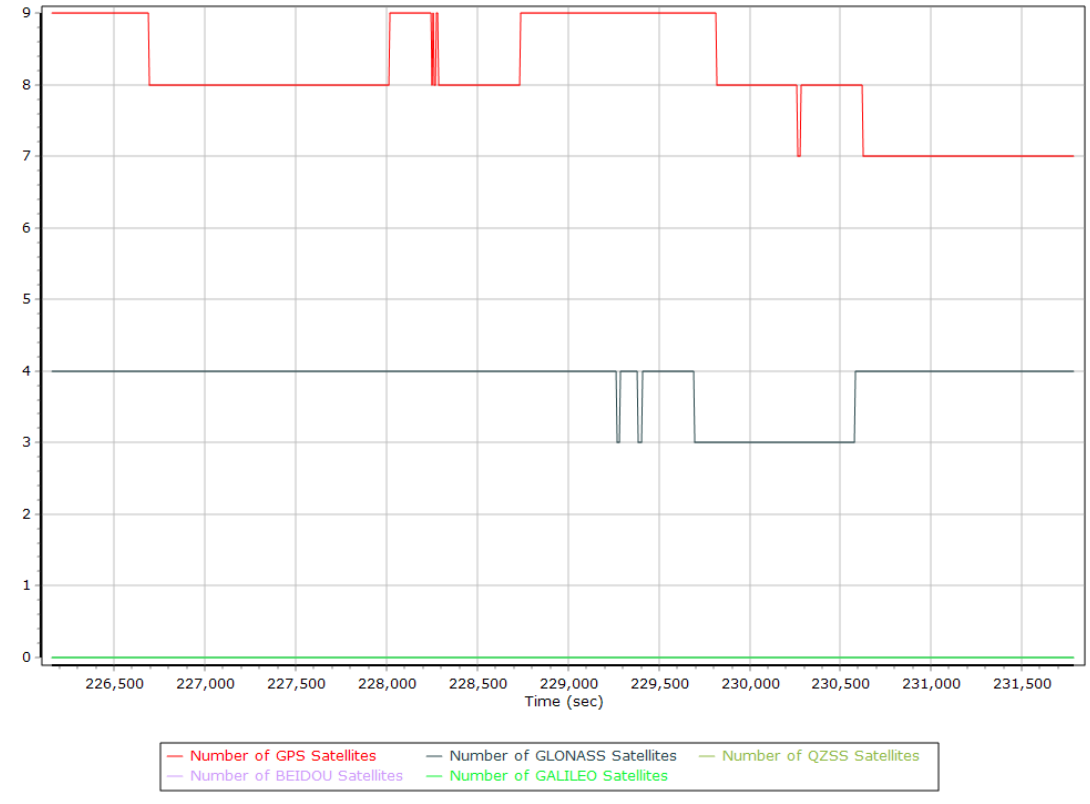


Smoothed Solution Status

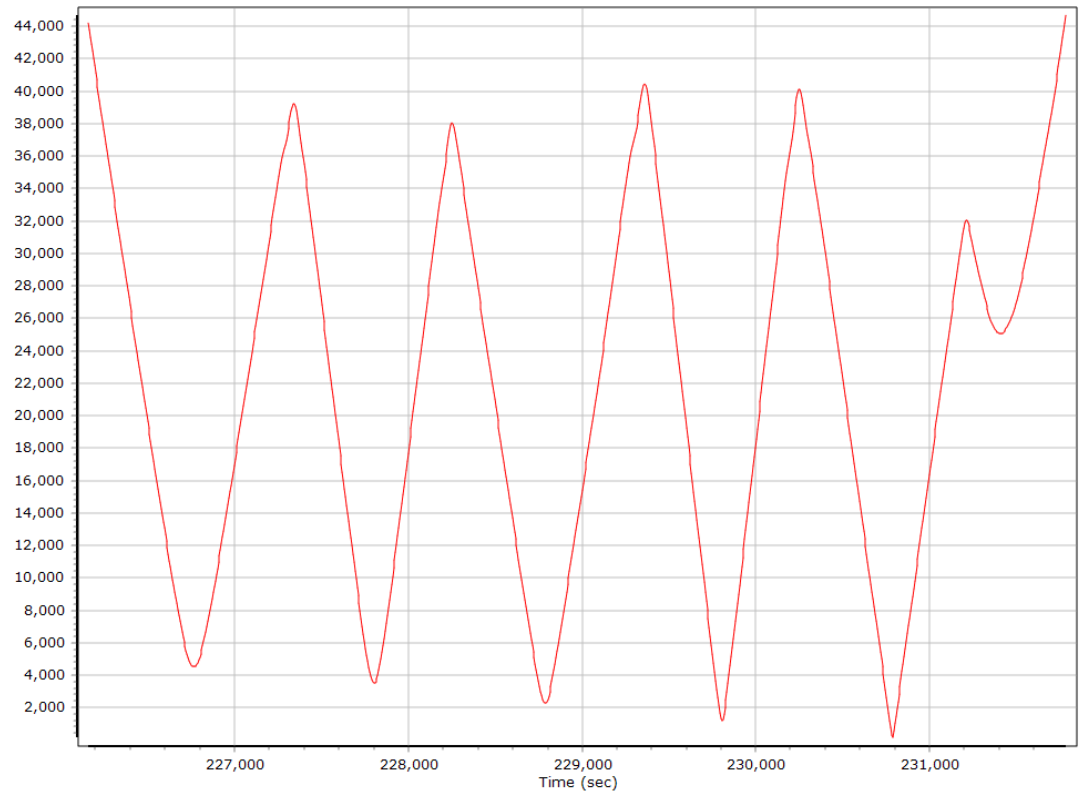
Processing Mode



Number of Satellites

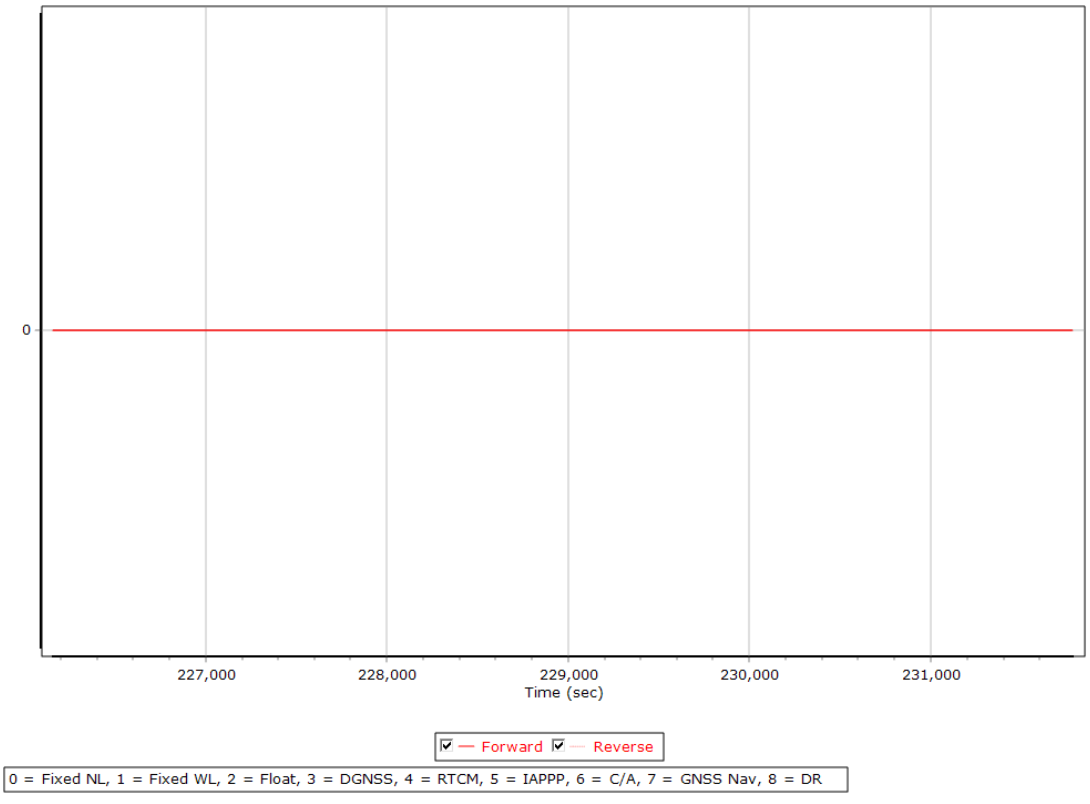


Baseline Length

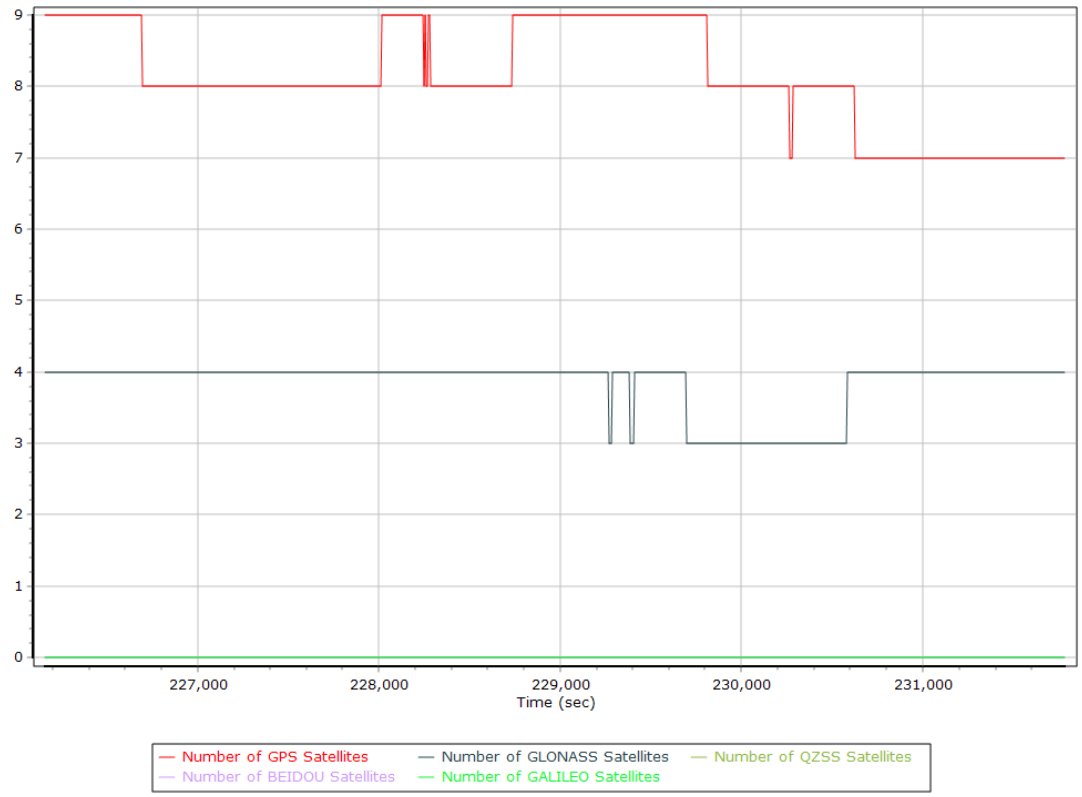


Forward Processed Solution Status

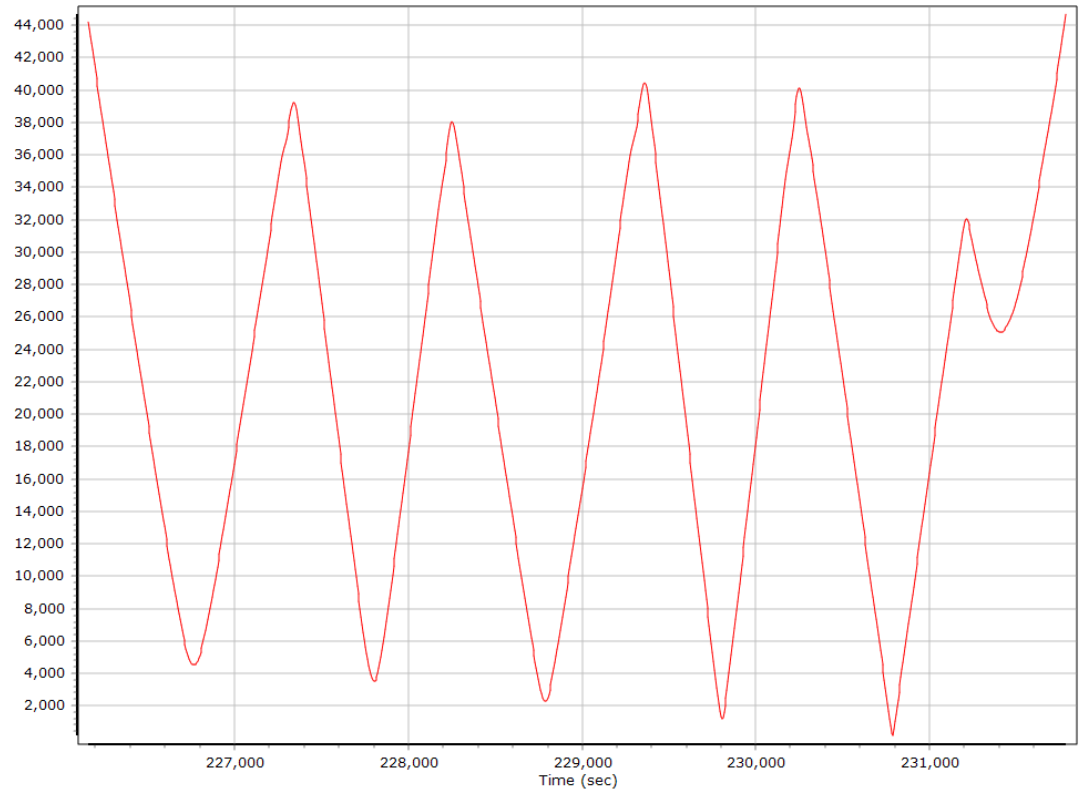
Processing Mode



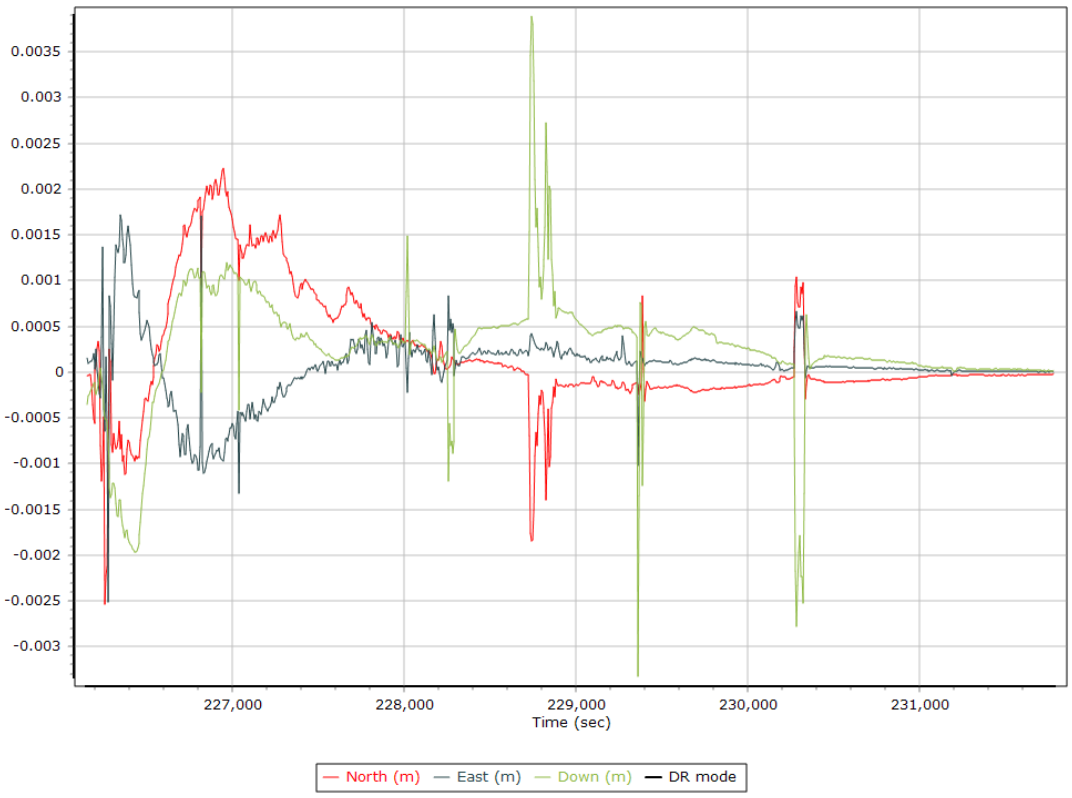
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_19-6648-01_MissionA-033120.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	226097.005 (3/31/2020 2:48:17 PM)		
Export end time	231787.004 (3/31/2020 4:23:07 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	19-6648-01_IA3DEP_USGS_20200330B
Processing date	2021-01-18 22:15:56
Mission date	2020-03-30 17:49:44
Mission duration	03:19:31.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.000	POS Data
ALS.001	POS Data
ALS.002	POS Data
ALS.003	POS Data
ALS.004	POS Data
ALS.005	POS Data
ALS.006	POS Data
ALS.007	POS Data
ALS.008	POS Data
ALS.009	POS Data
ALS.010	POS Data
ALS.011	POS Data
ALS.012	POS Data
ALS.013	POS Data
ALS.014	POS Data
ALS.015	POS Data
ALS.016	POS Data
ALS.017	POS Data
ALS.018	POS Data

Input Files

File Name	File Type
Ephm0900.20g	GLONASS Broadcast Ephemeris
Ephm0900.20n	GPS Broadcast Ephemeris
iaal0900.20o	GNSS SingleBase
iade0900.20o	GNSS SingleBase
iael0900.20o	GNSS SingleBase
iana0900.20o	GNSS SingleBase
mnca0900.20o	GNSS SingleBase
mney0900.20o	GNSS SingleBase
mnps0900.20o	GNSS SingleBase
mnsv0900.20o	GNSS SingleBase
winl0900.20o	GNSS SingleBase
igu20990_18.sp3	GPS Precise Ephemeris
igu20991_18.sp3	GPS Precise Ephemeris
igu20992_18.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_19-6648-01_MissionB_33020.out	SBET Trajectory File
20200330B.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.000		
Last raw data file	ALS.018		
Start GPS week	2099		
Start time	150565.558 (3/30/2020 5:49:25 PM)		
End time	162537.371 (3/30/2020 9:08:57 PM)		
Start of fine alignment	151196.899 (3/30/2020 5:59:56 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

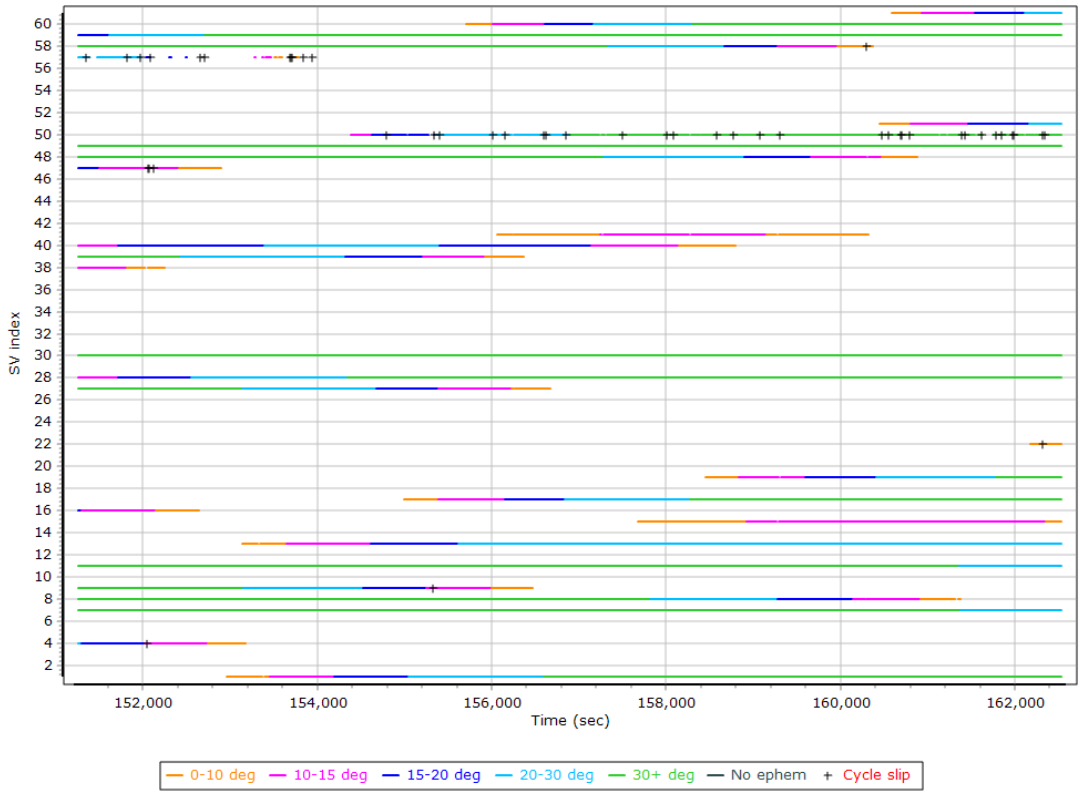
Rover Data QC

Raw IMU Import QC Summary

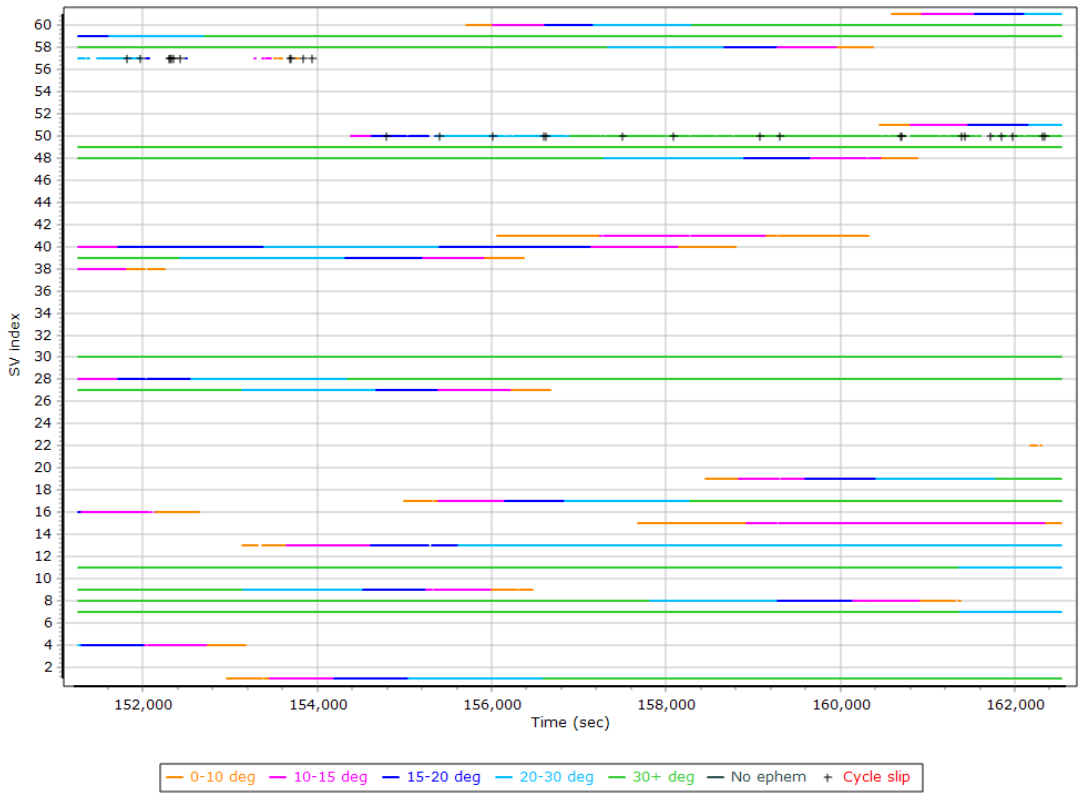
IMU data input file	imu_19-6648-01_MissionB_33020.dat
IMU data check log file	imudt_19-6648-01_MissionB_33020.log
IMU Records Processed	2394931
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

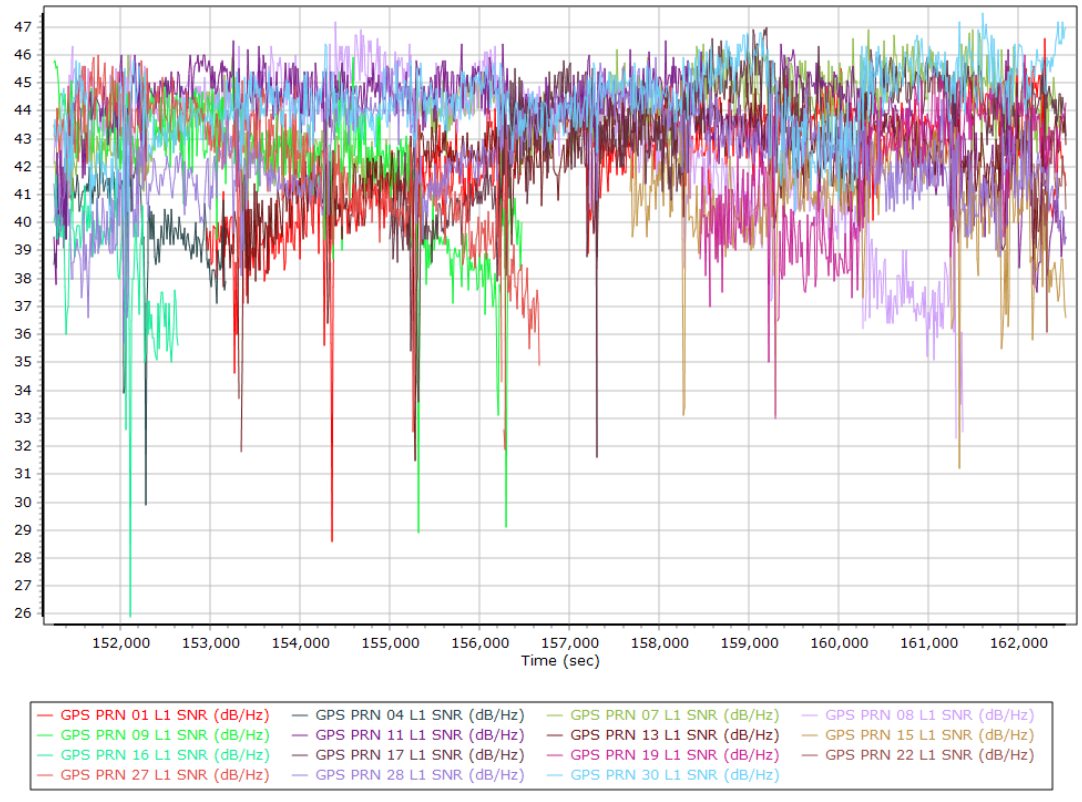
L1 Satellite Lock/Elevation



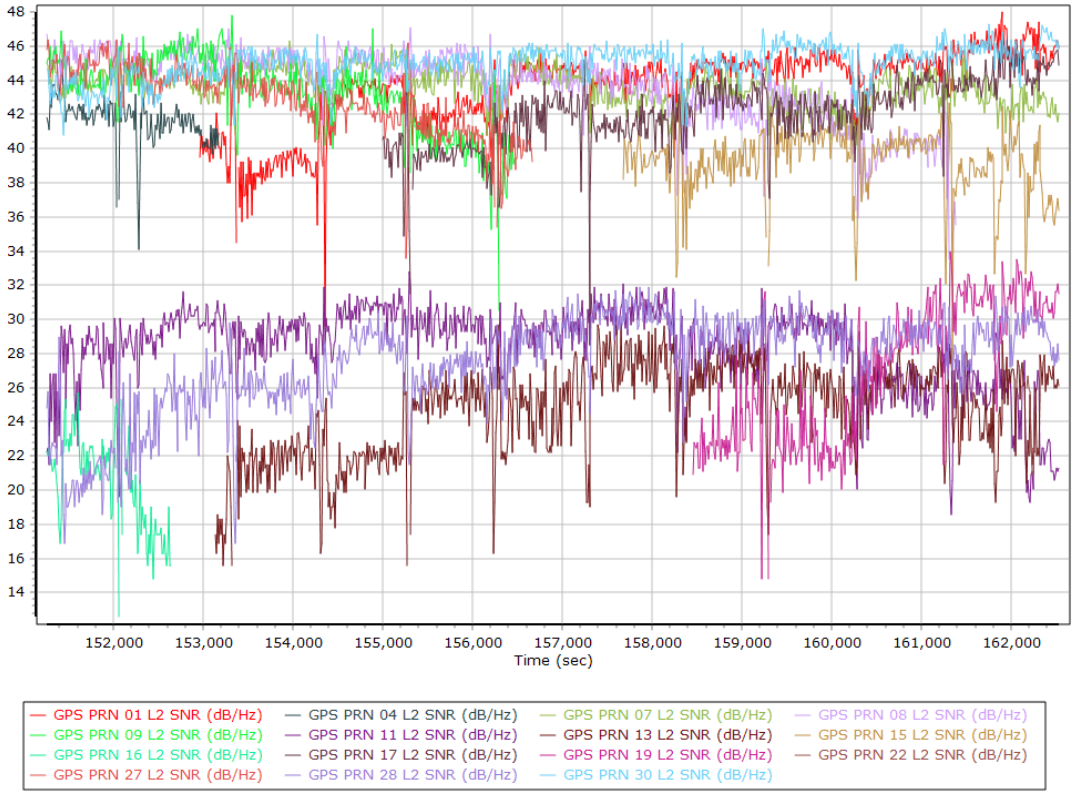
L2 Satellite Lock/Elevation



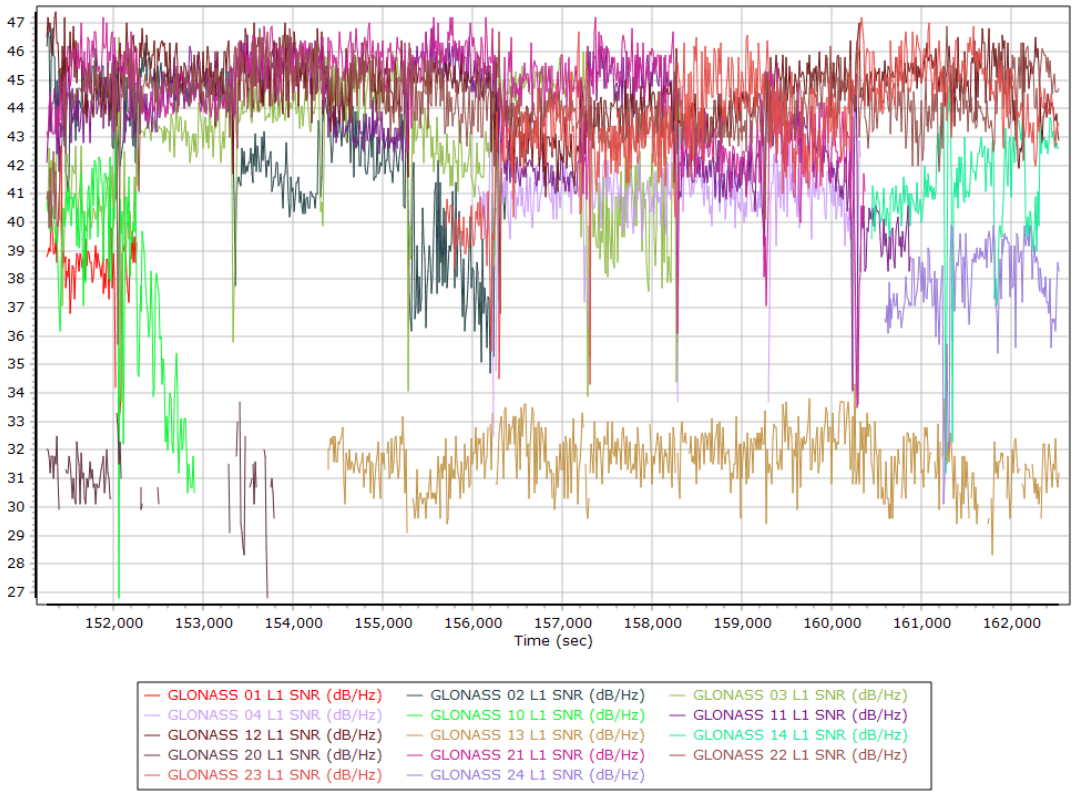
GPS L1 SNR



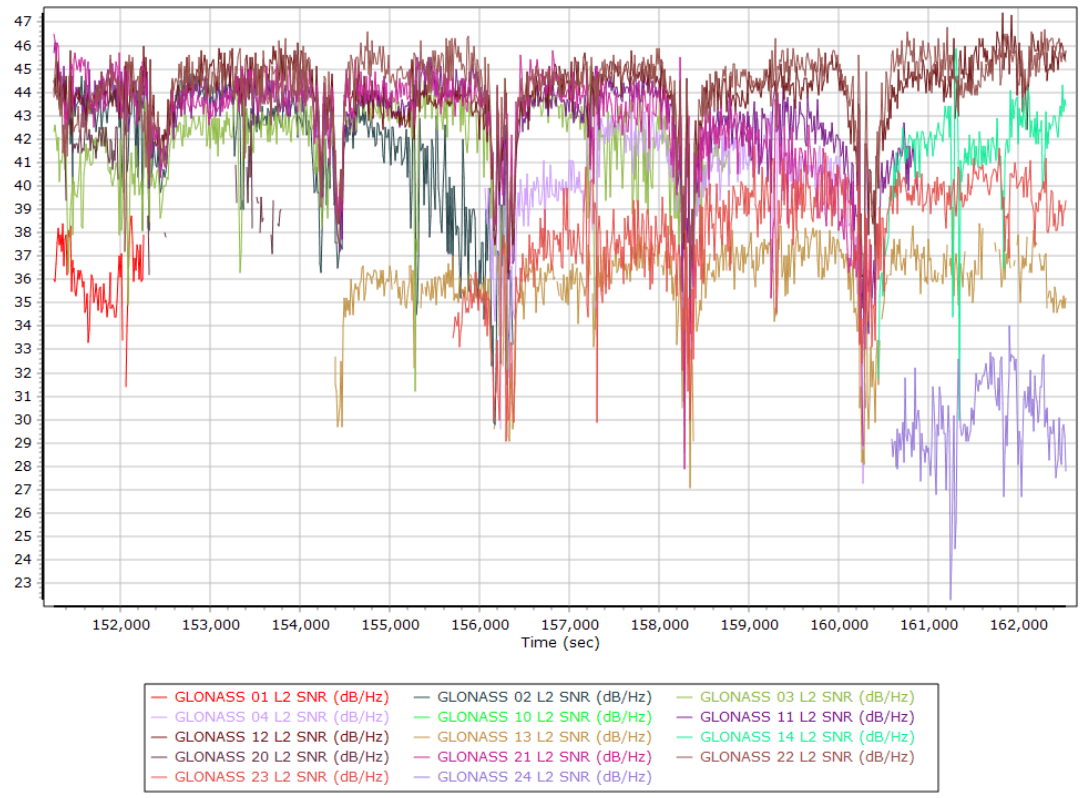
GPS L2 SNR



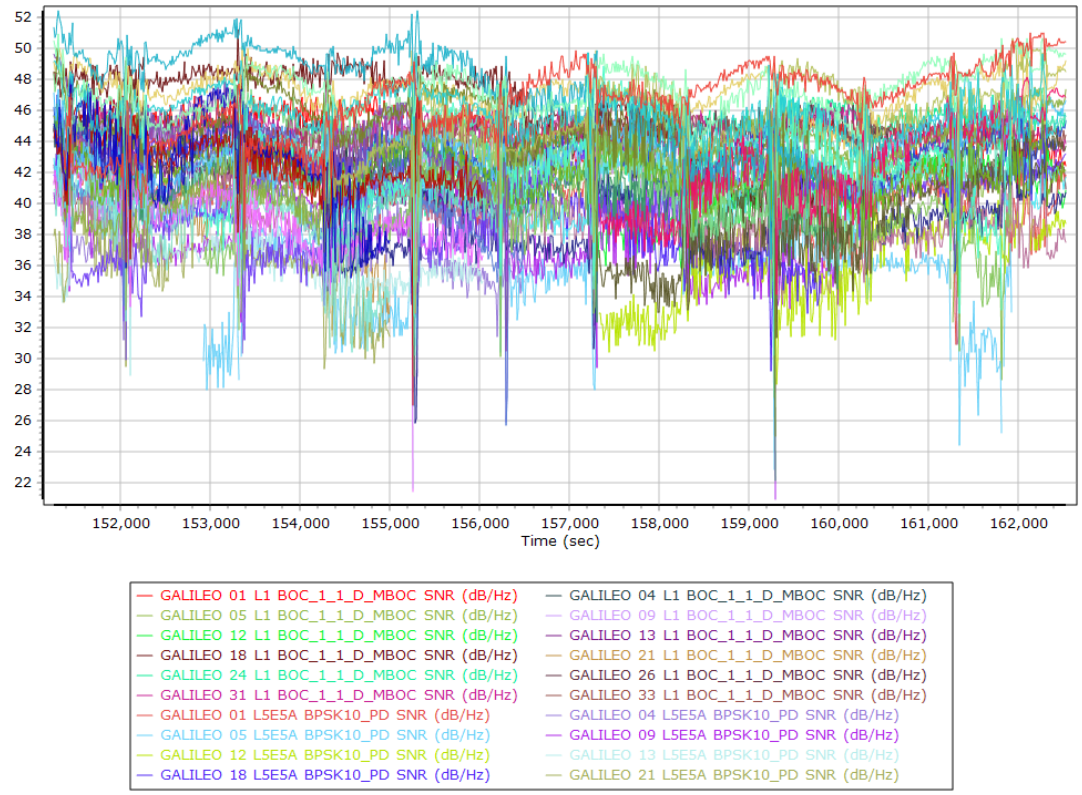
GLONASS L1 SNR



GLONASS L2 SNR

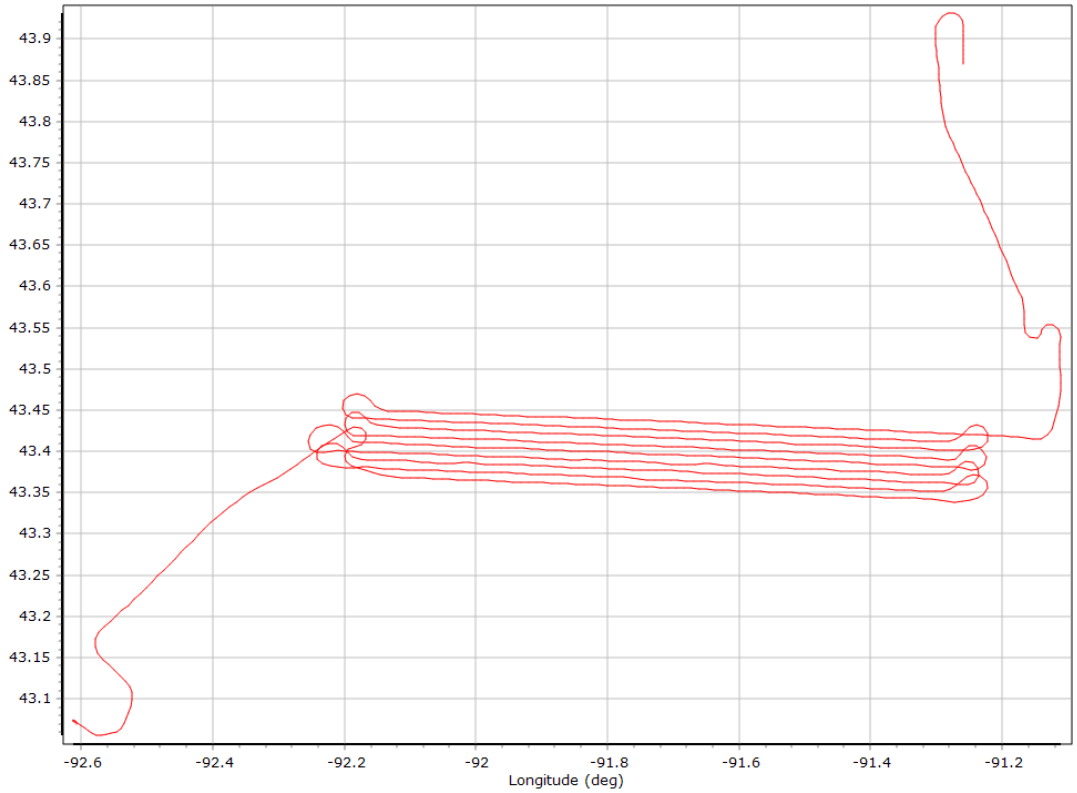


GALILEO SNR

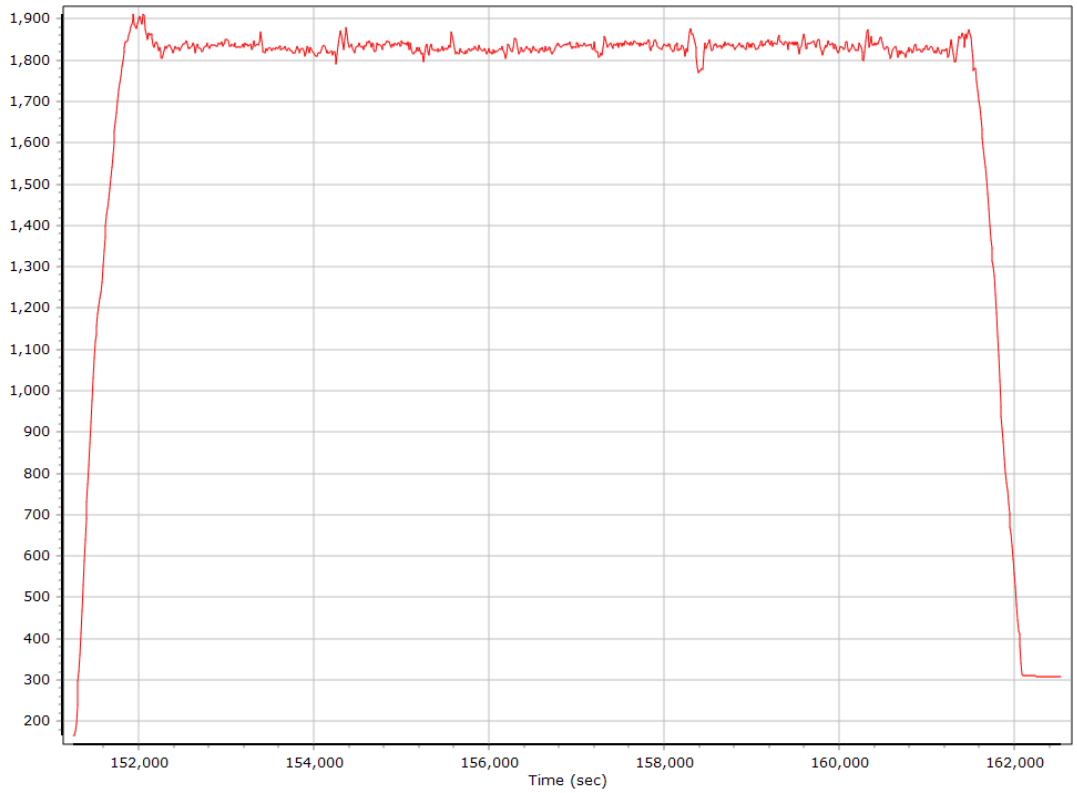


Smoothed Trajectory Information

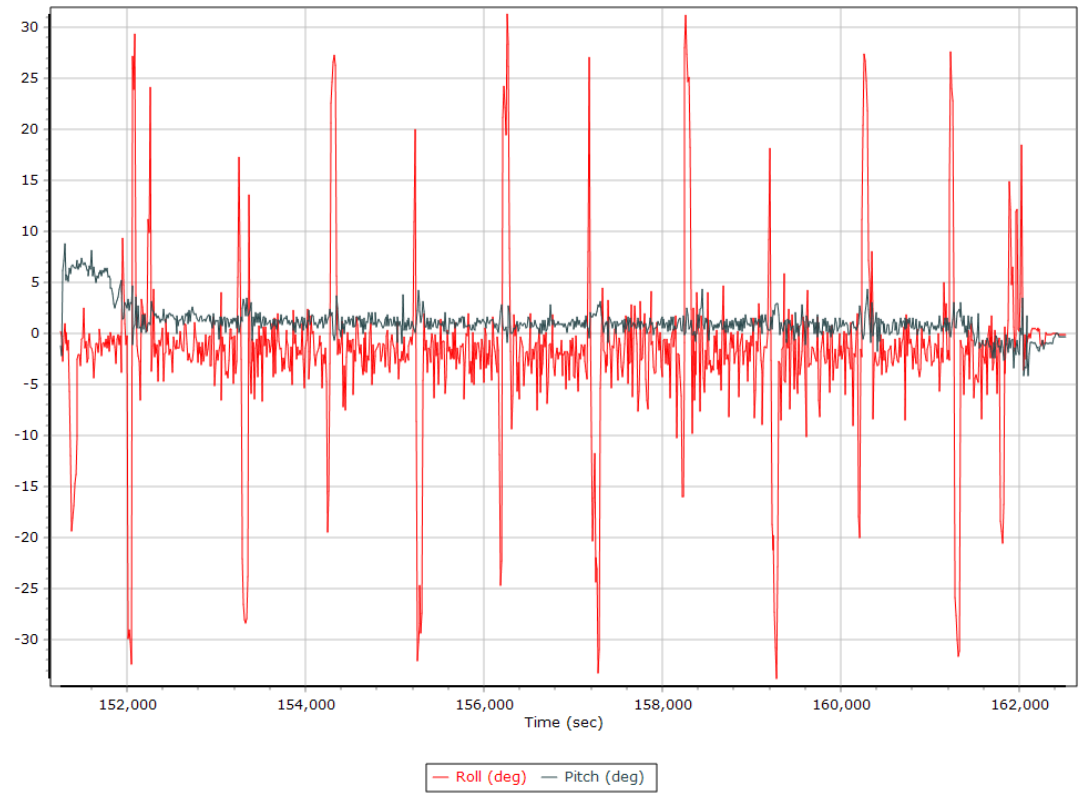
Top View



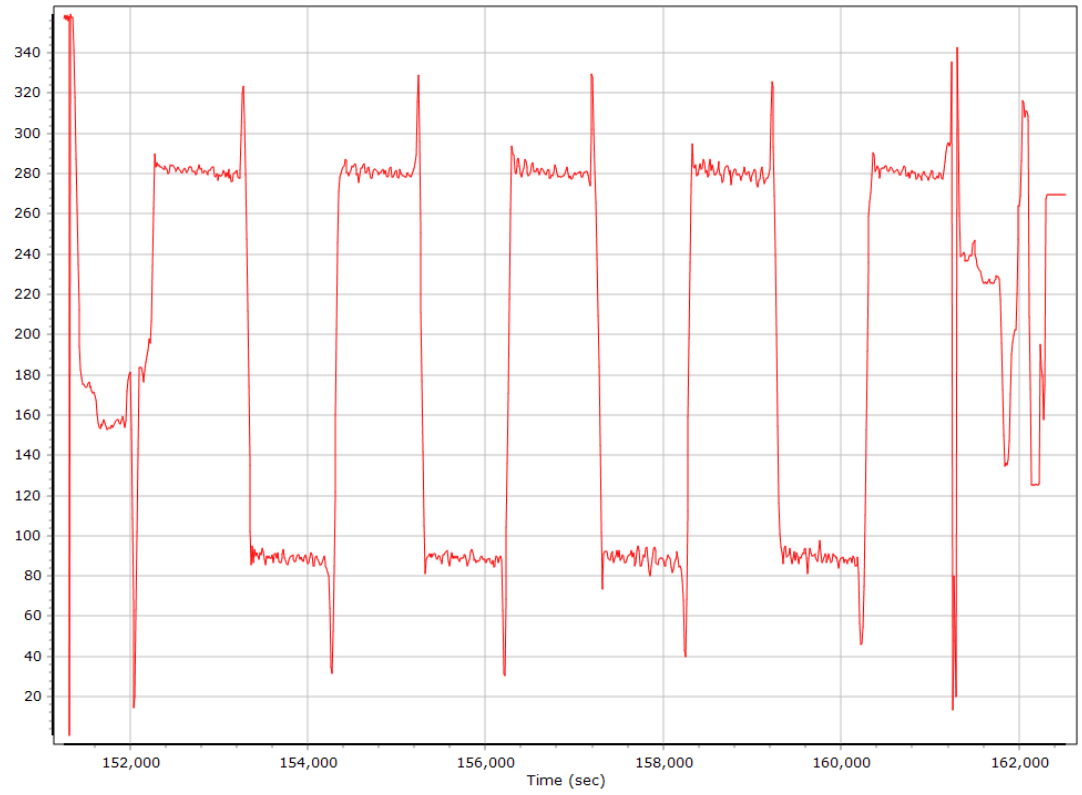
Altitude



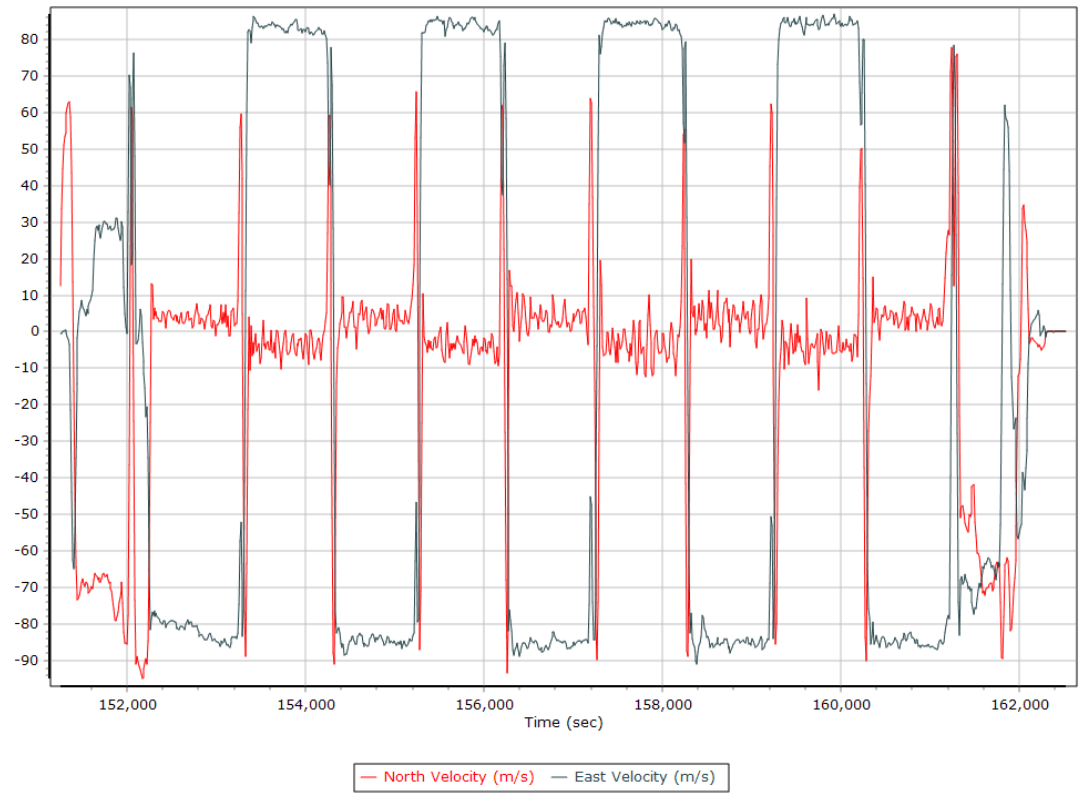
Roll/Pitch



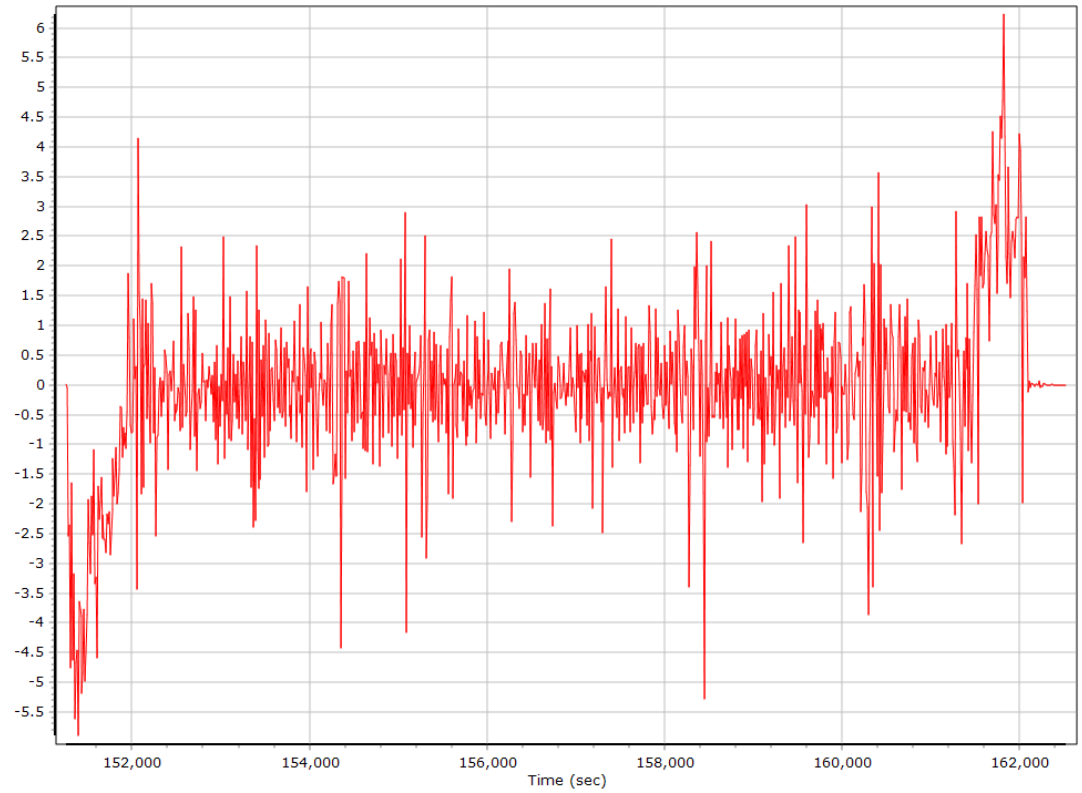
Heading



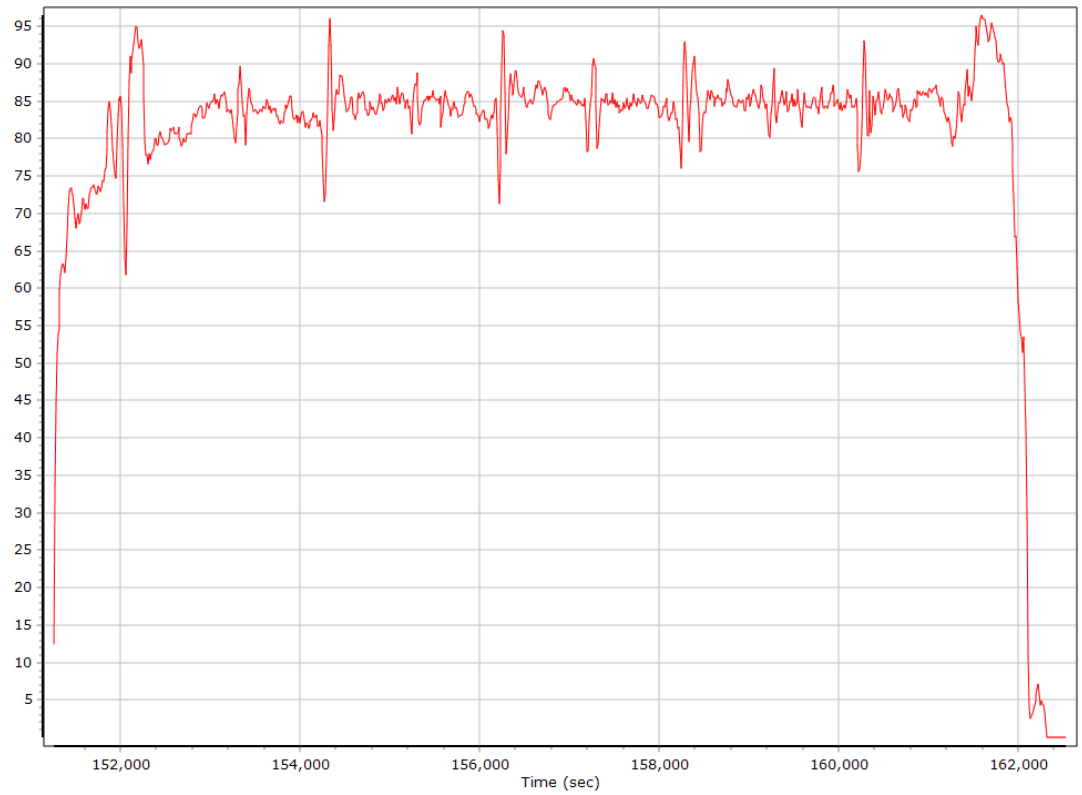
North/East Velocity



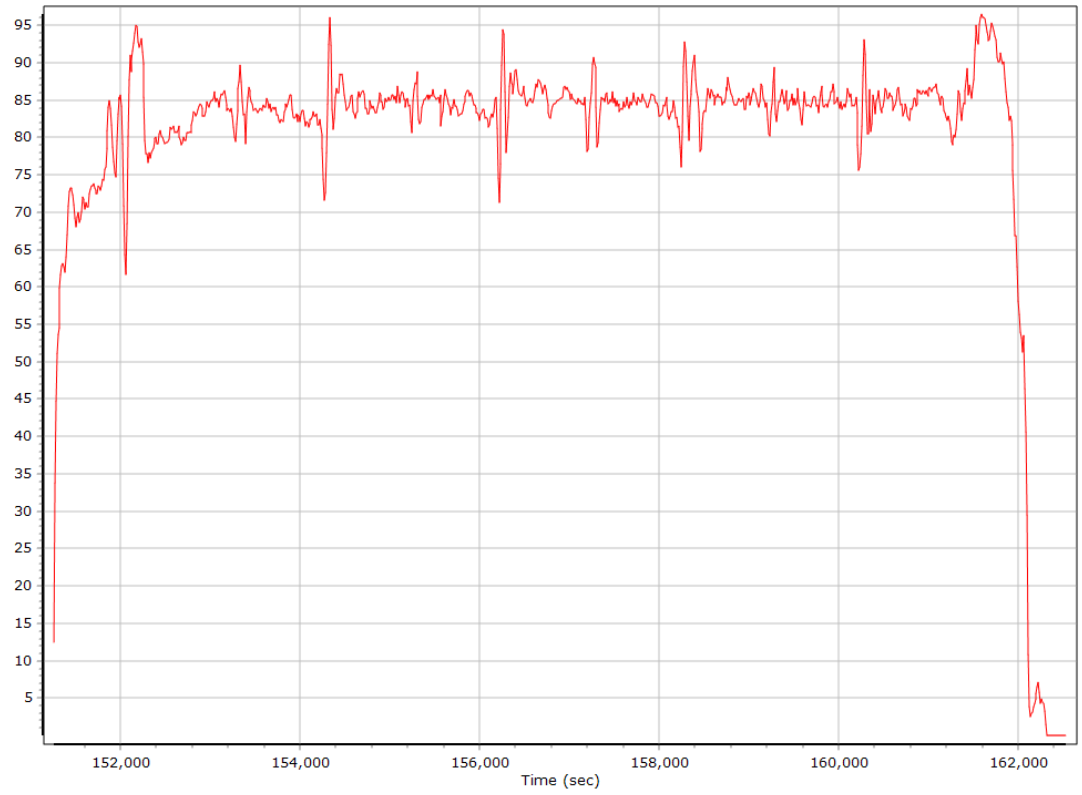
Down Velocity



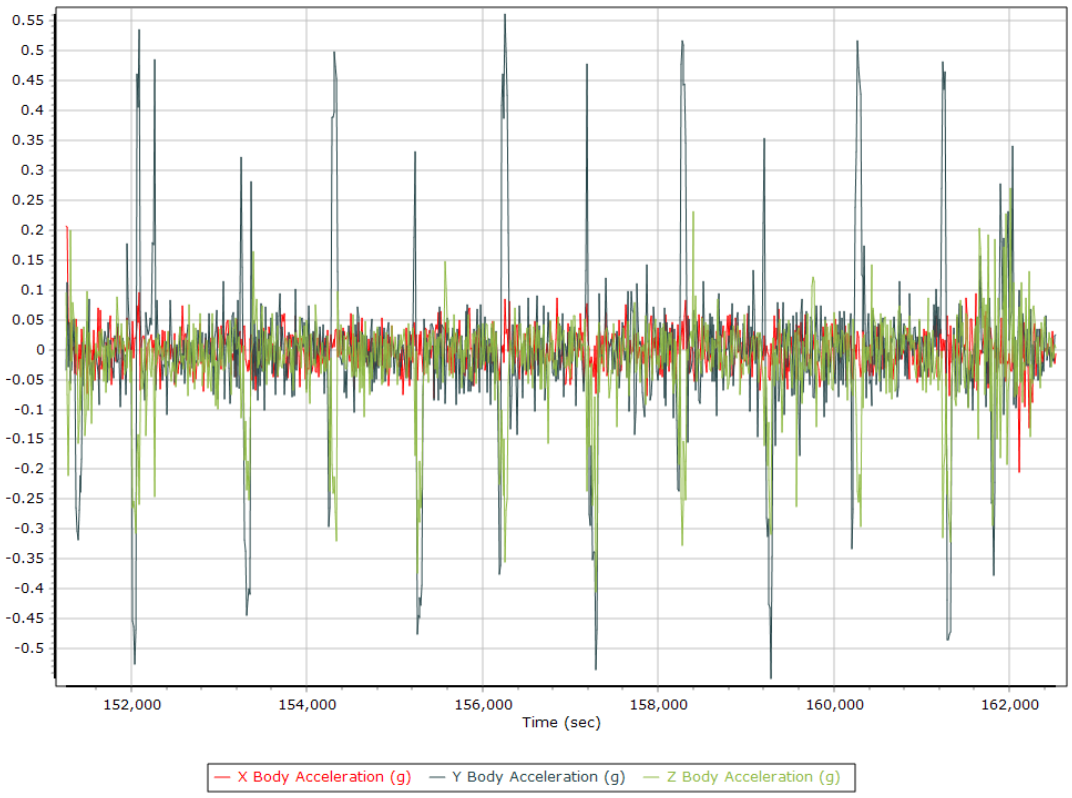
Total Speed



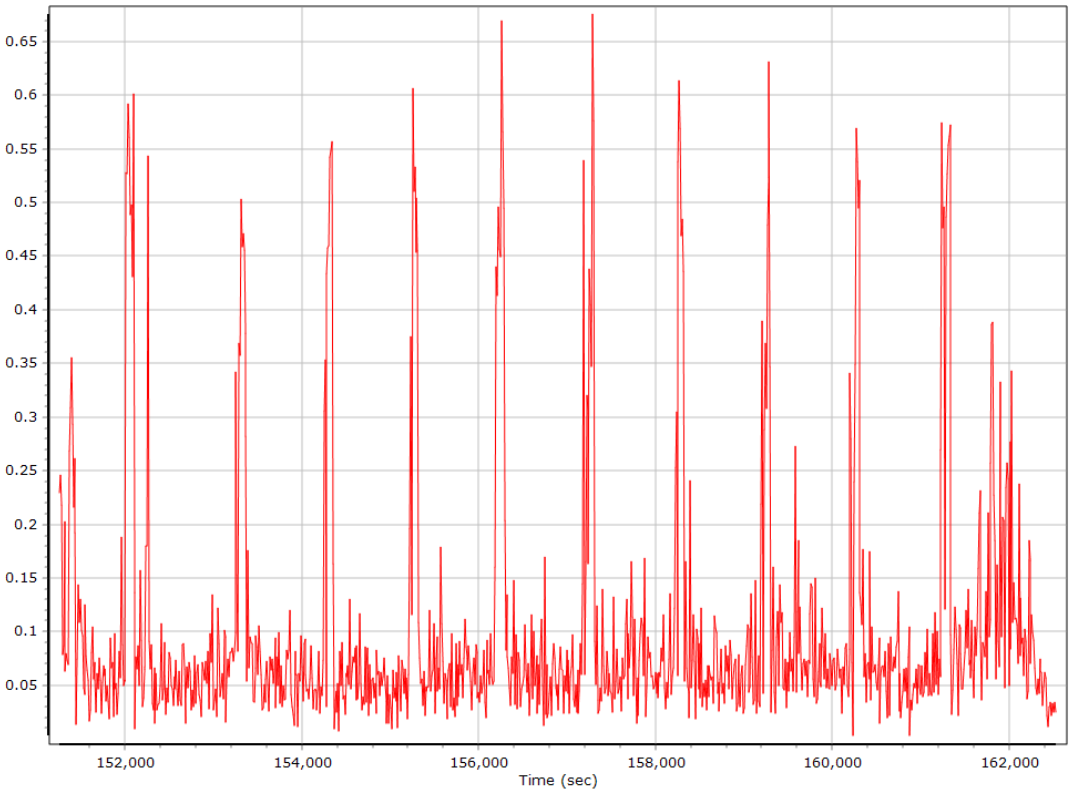
Ground Speed



Body Acceleration



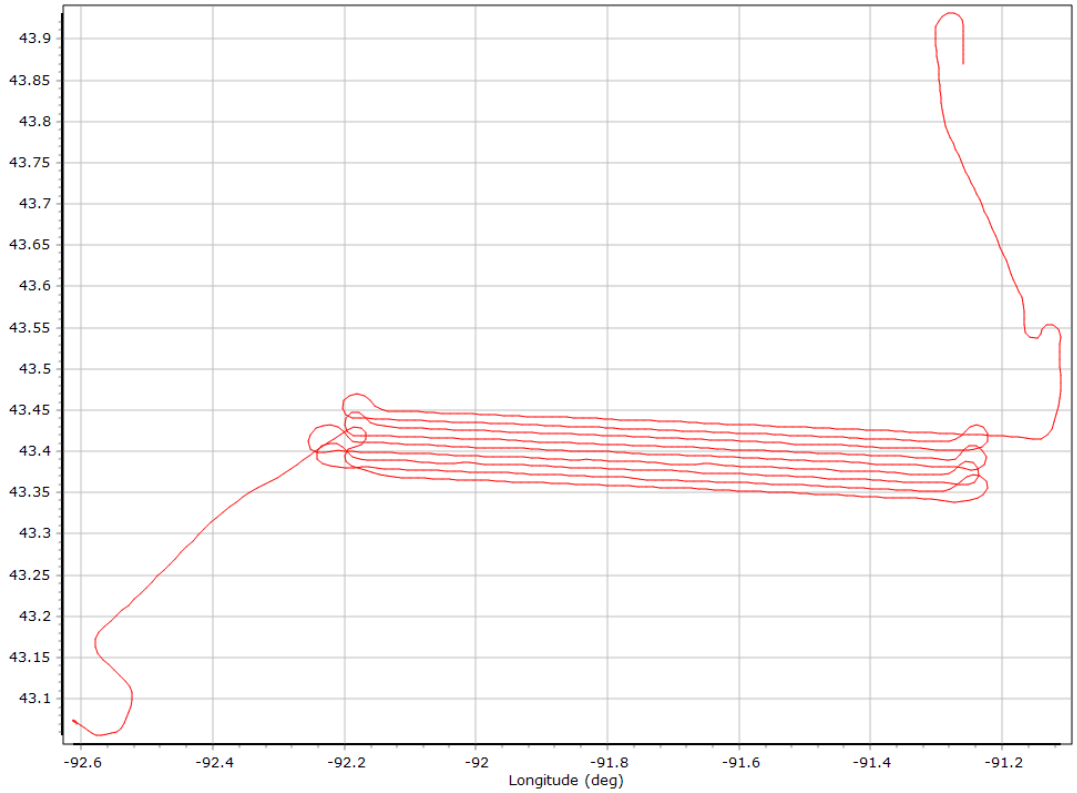
Total Body Acceleration



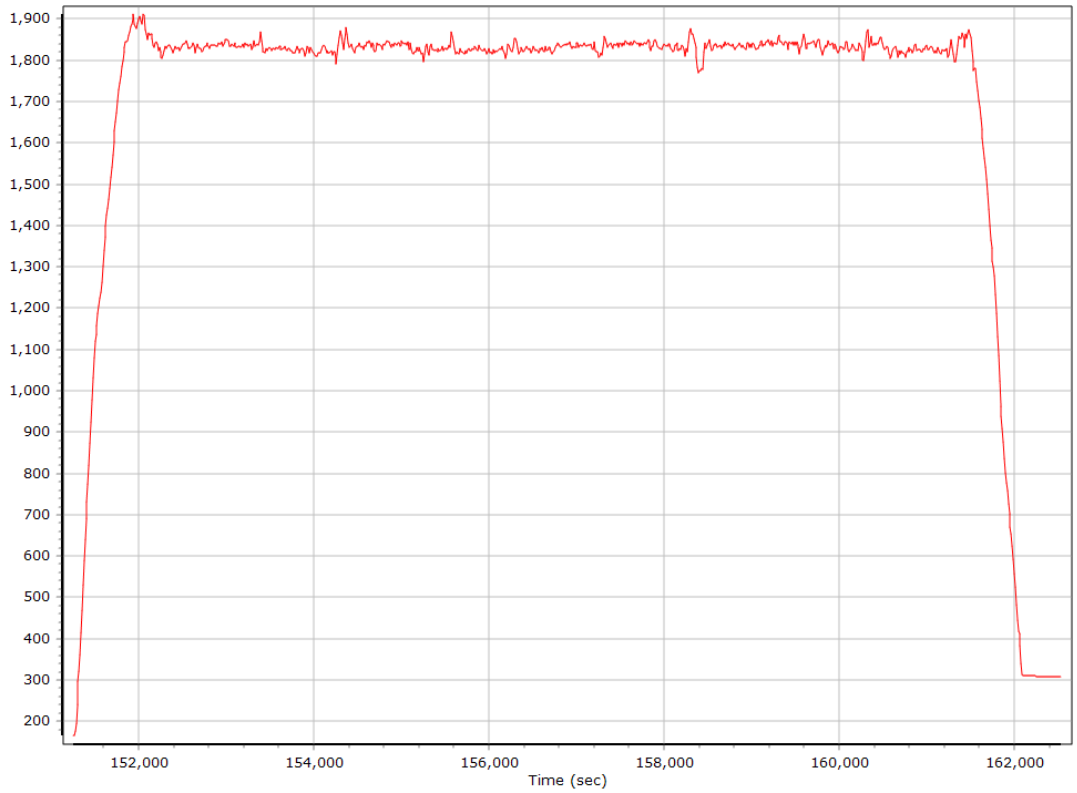
Body Angular Rate

Forward Processed Trajectory Information

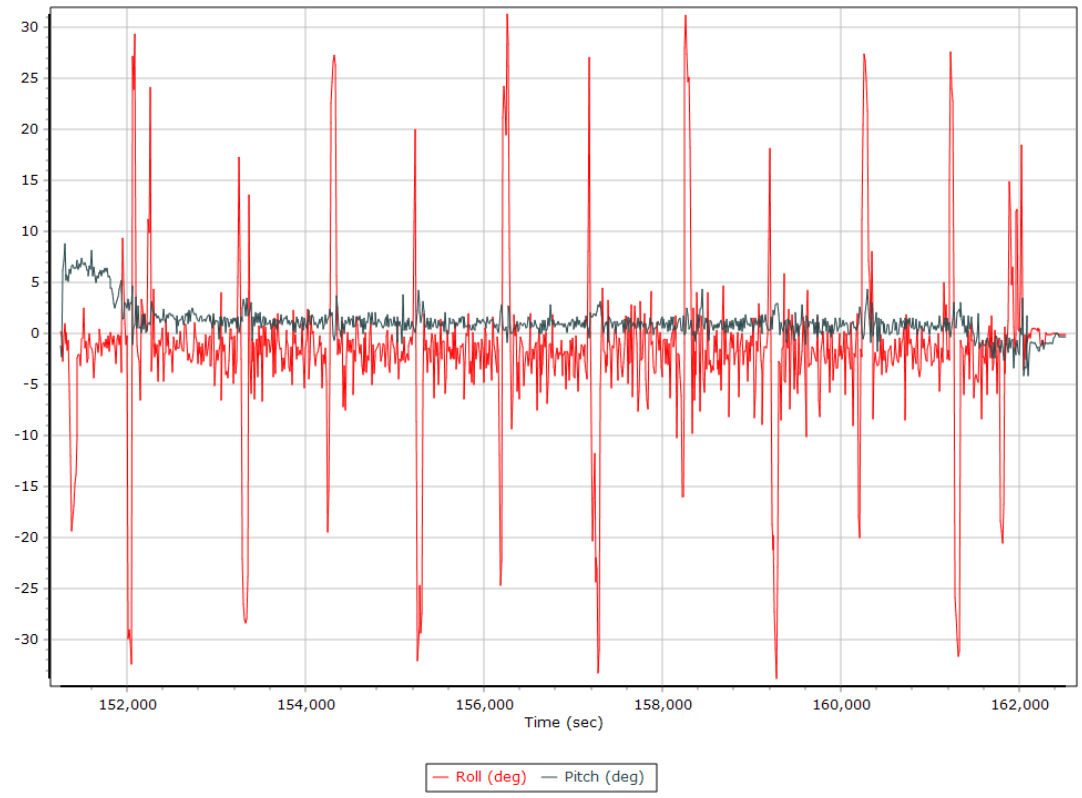
Top View



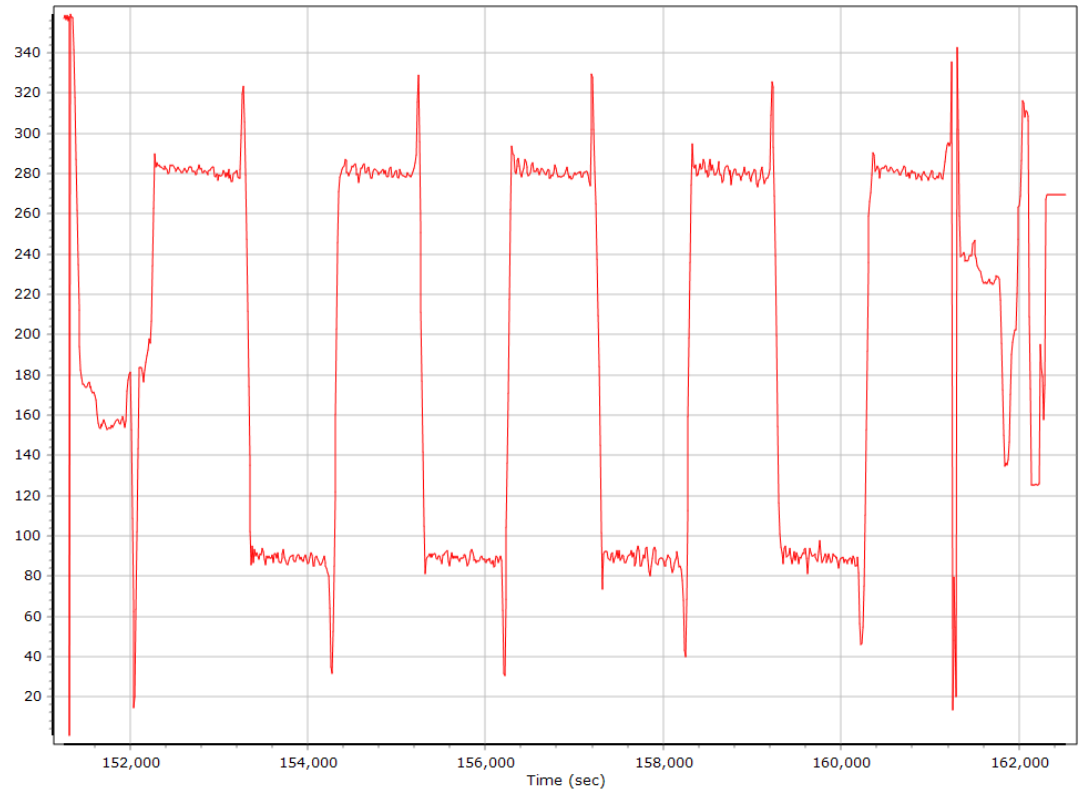
Altitude



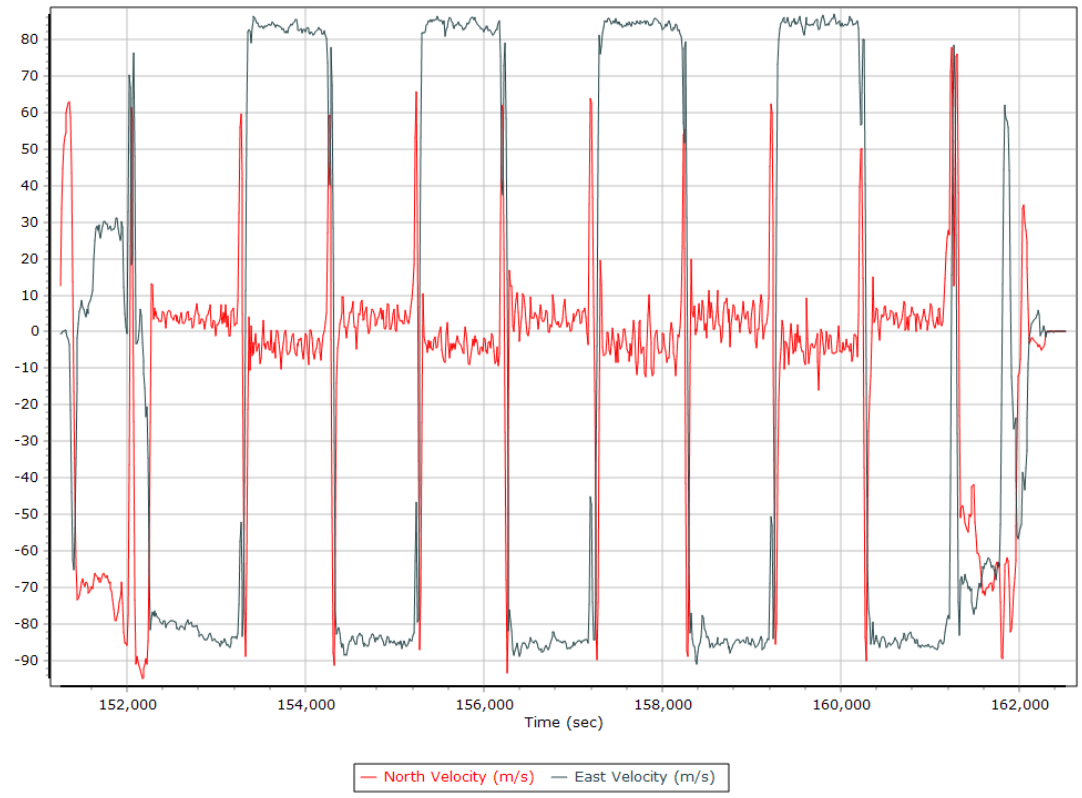
Roll/Pitch



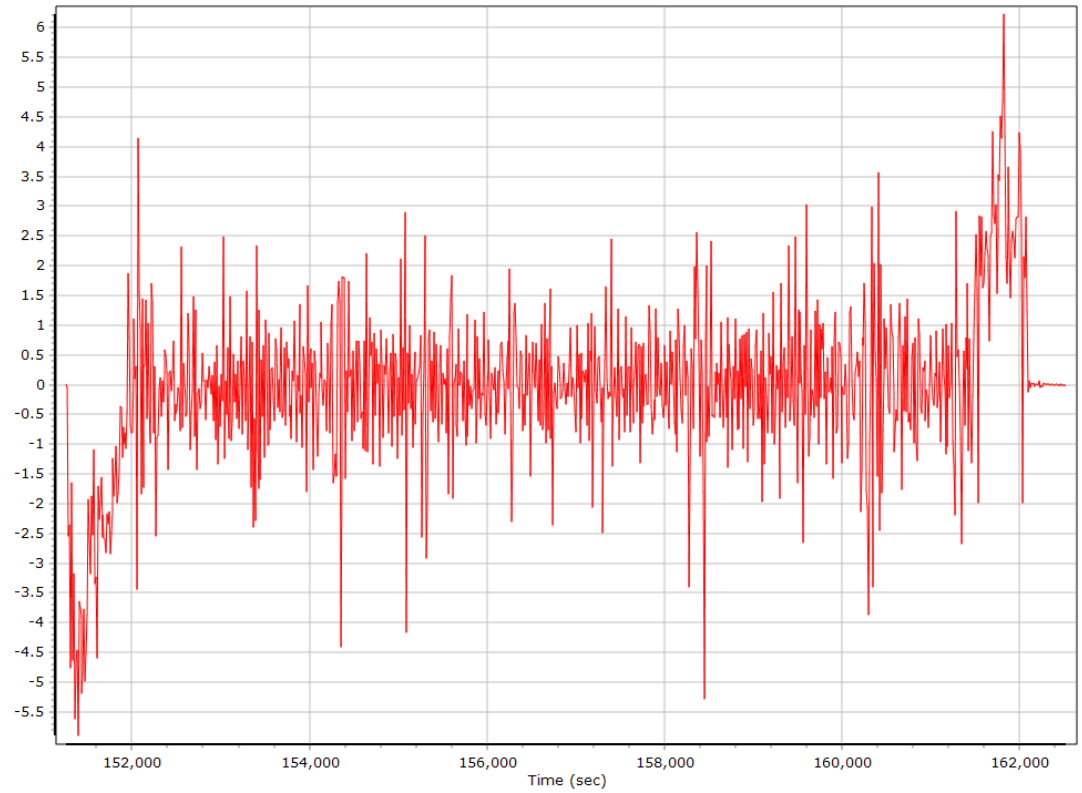
Heading



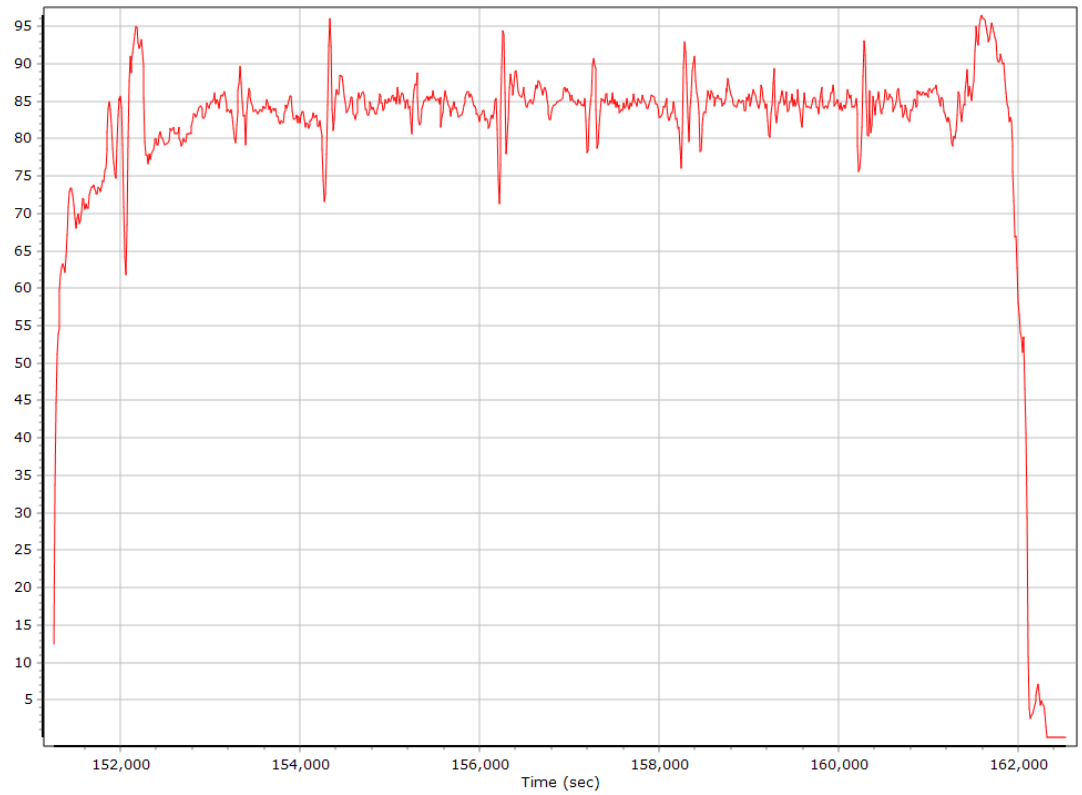
North/East Velocity



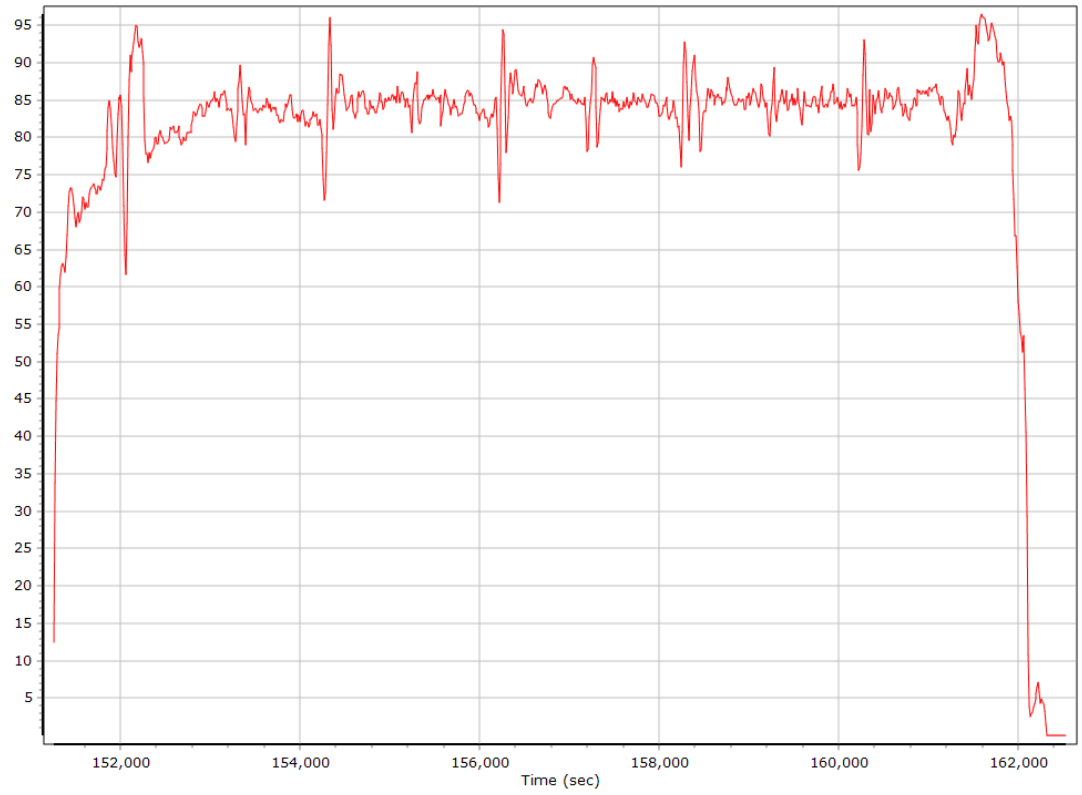
Down Velocity



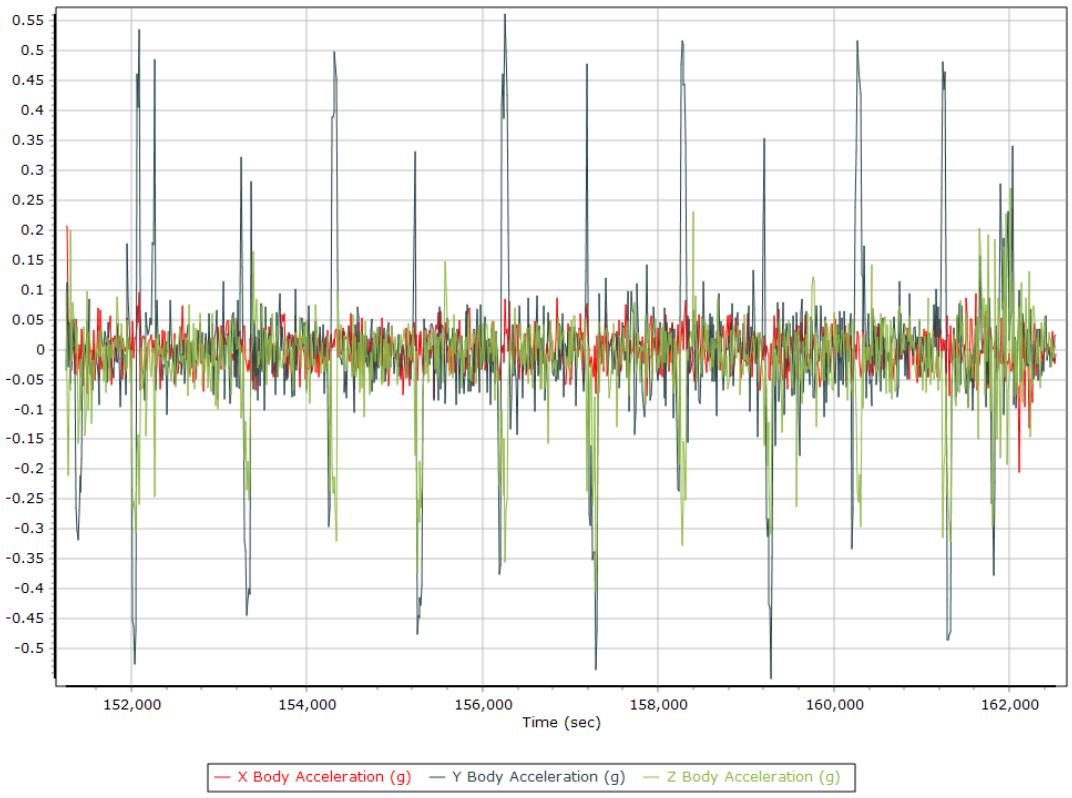
Total Speed



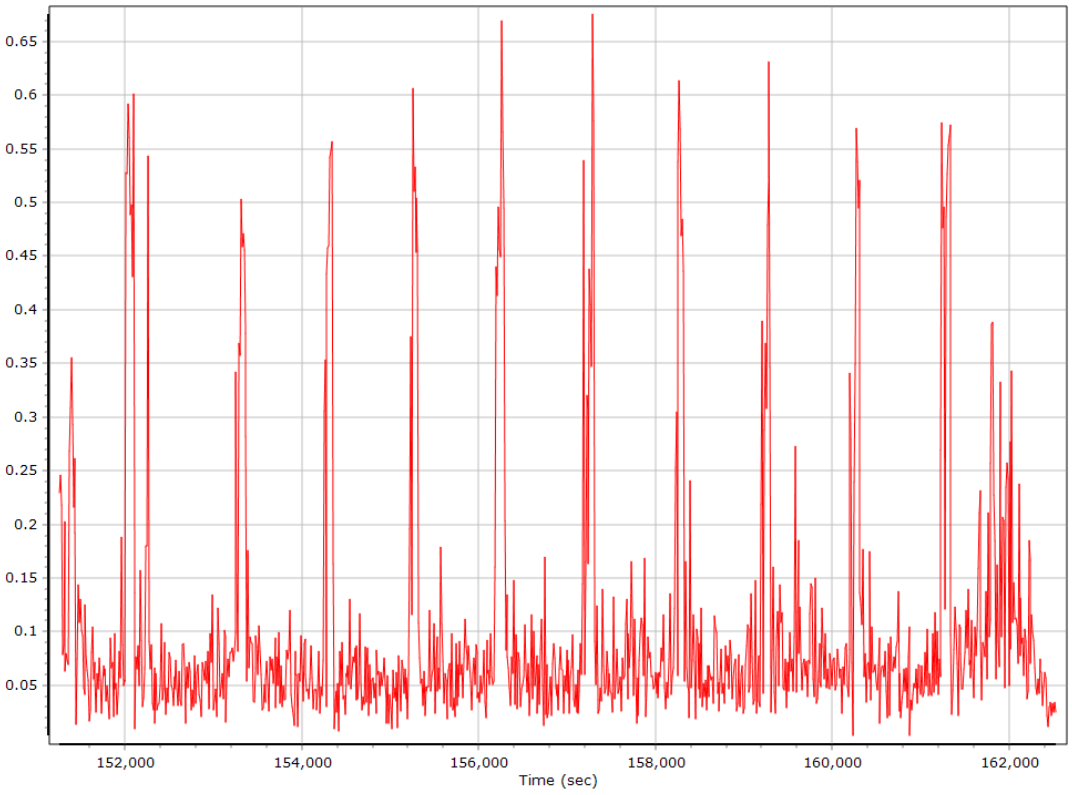
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
03/30/2020	MNPS	15.81	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IADE	19.32	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNCA	29.65	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IANA	36.48	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IAEL	68.16	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNEY	69.99	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNSV	80.31	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IAAL	114.58	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	WINL	136.19	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	11971 s (2099 150584 - 2099 162555)
Number of reference stations	9
Primary station GPS measurement usage (%)	99.8
Primary station GLONASS measurement usage (%)	80.6
Average number of satellites per epoch	13.7
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	14435
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - WINL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°50'27.42791"	W90°08'31.59805"	243.634
Adjusted		N43°50'27.42790"	W90°08'31.59751"	243.632
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.012	0.002	0.012

Base Station Information

Station ID	WINL		
Filename	winl0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5503R50037
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°50'27.42791"		
Longitude	W90°08'31.59805"		
Ellipsoidal height (m)	243.63364		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24721"	291.092
Adjusted		N42°44'49.40383"	W92°47'14.24720"	291.112
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.020	0.023

Base Station Information

Station ID	IAAL		
Filename	iaal0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24721"		
Ellipsoidal height (m)	291.09236		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNSV

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°54'09.07390"	W92°28'55.97411"	361.226
Adjusted		N43°54'09.07401"	W92°28'55.97398"	361.213
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.013	0.014

Base Station Information

Station ID	MNSV		
Filename	mnsv0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	Alloy	5829R40031
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°54'09.07390"		
Longitude	W92°28'55.97411"		
Ellipsoidal height (m)	361.22648		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNEY

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°57'20.27378"	W92°12'19.44384"	370.916
Adjusted		N43°57'20.27365"	W92°12'19.44365"	370.896
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.020	0.021

Base Station Information

Station ID	MNEY		
Filename	mney0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5426R48922
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°57'20.27378"		
Longitude	W92°12'19.44384"		
Ellipsoidal height (m)	370.91641		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.76	**Output Coordinates**	Original	
Solution Epochs	2851	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52983"	298.980
Adjusted		N42°52'40.47644"	W91°21'41.52975"	298.980
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.001	0.007

Base Station Information

Station ID	IAEL		
Filename	iael0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52983"		
Ellipsoidal height (m)	298.98033		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.0	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54030"	172.253
Adjusted		N43°29'49.47902"	W91°17'26.53956"	172.221
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.017	0.032	0.036

Base Station Information

Station ID	IANA		
Filename	iana0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54030"		
Ellipsoidal height (m)	172.25325		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64528"	W91°29'46.51634"	339.589
Adjusted		N43°37'58.64519"	W91°29'46.51597"	339.588
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.009	0.000	0.009

Base Station Information

Station ID	MNCA		
Filename	mnca0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64528"		
Longitude	W91°29'46.51634"		
Ellipsoidal height (m)	339.58853		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52630"	316.516
Adjusted		N43°16'15.83198"	W91°49'53.52637"	316.511
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.006	0.007

Base Station Information

Station ID	IADE		
Filename	iade0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52630"		
Ellipsoidal height (m)	316.51621		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86726"	380.908
Adjusted		N43°30'53.84813"	W91°53'06.86726"	380.908
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	MNPS		
Filename	mnps0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86726"		
Ellipsoidal height (m)	380.90782		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.27	81.70	
Number of GPS SV	6	10	9
Number of GLONASS SV	0	6	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	9	15	14
PDOP	1.23	2.13	1.48
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	11944.00	0.00	1.00
Percentage	99.99	0.00	0.01

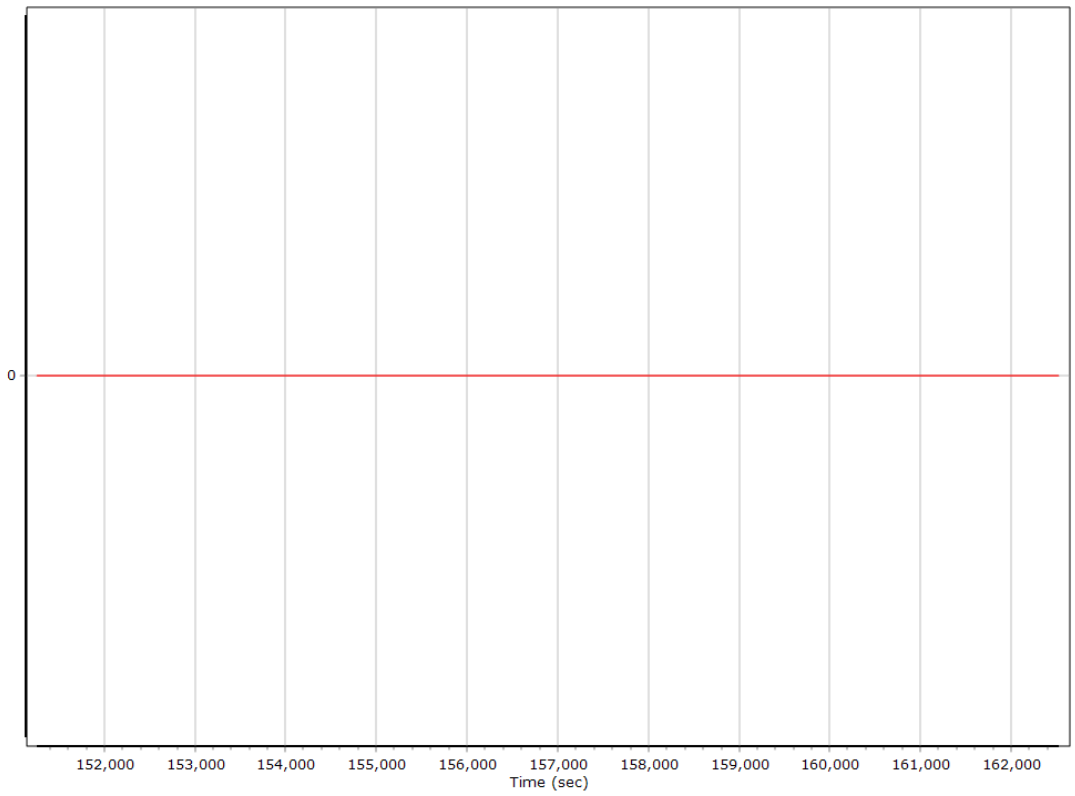
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	150566.000 (3/30/2020 5:49:26 PM)		
Processing end time	162537.000 (3/30/2020 9:08:57 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

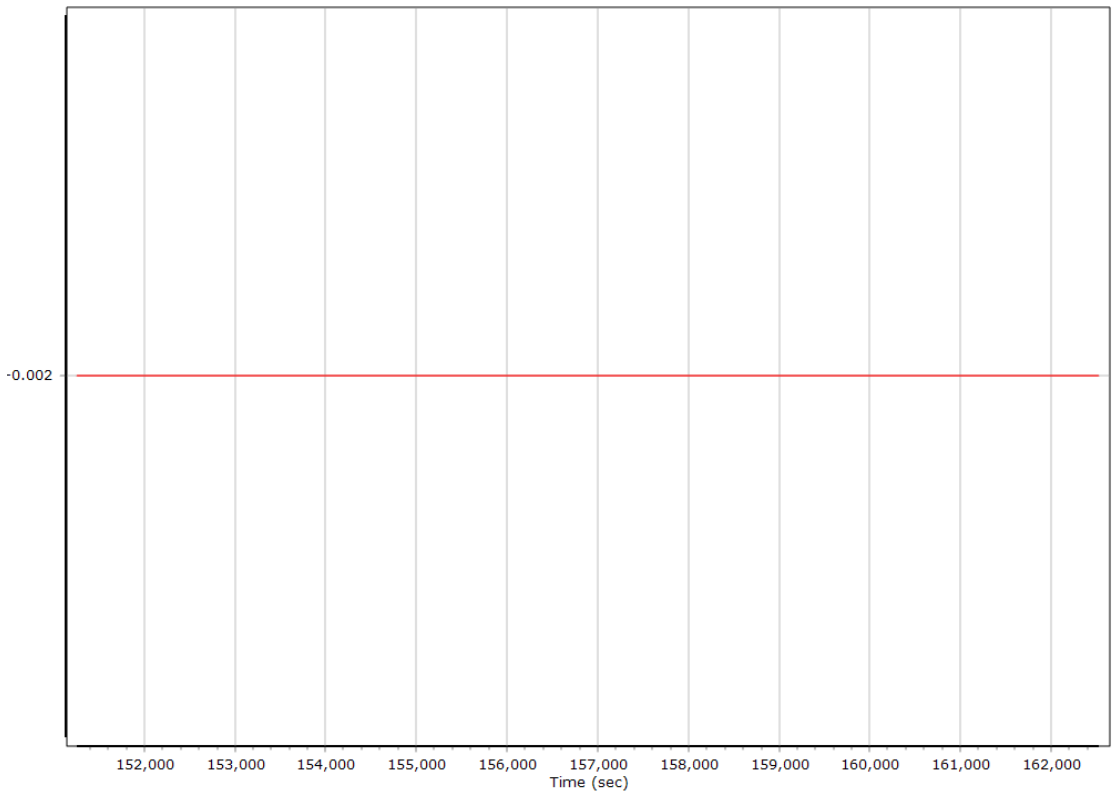
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

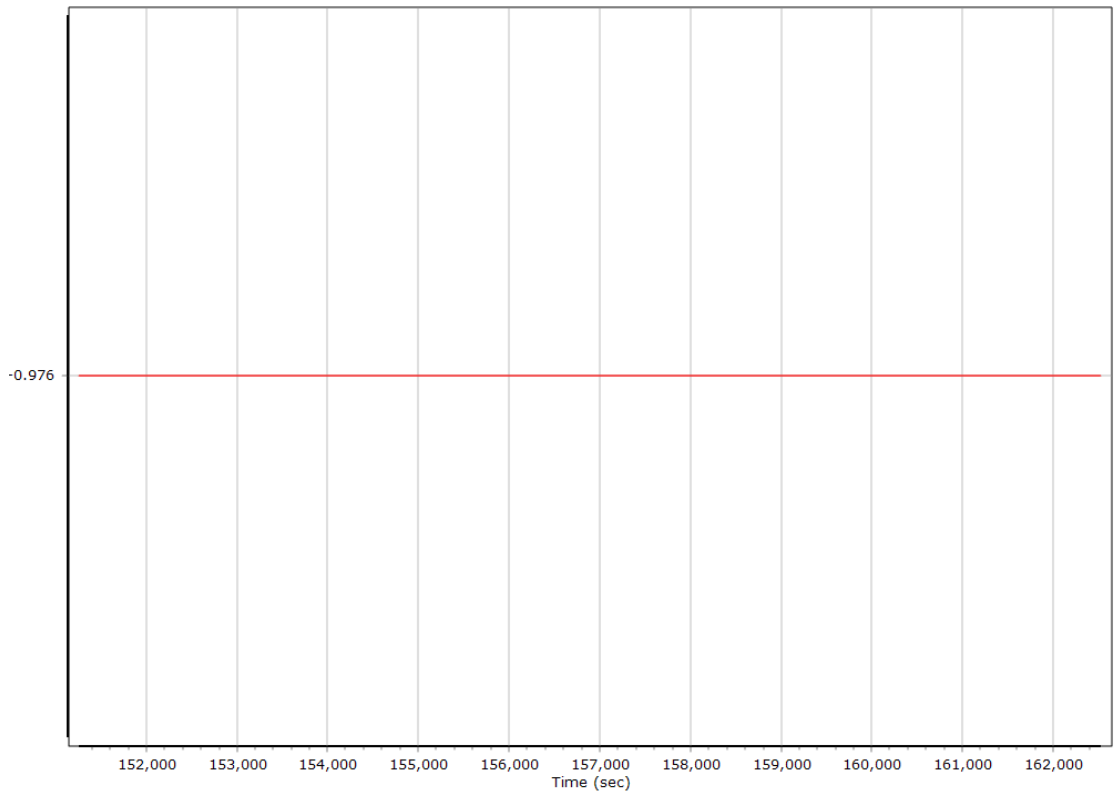
X Reference-Primary GNSS Lever Arm (m)



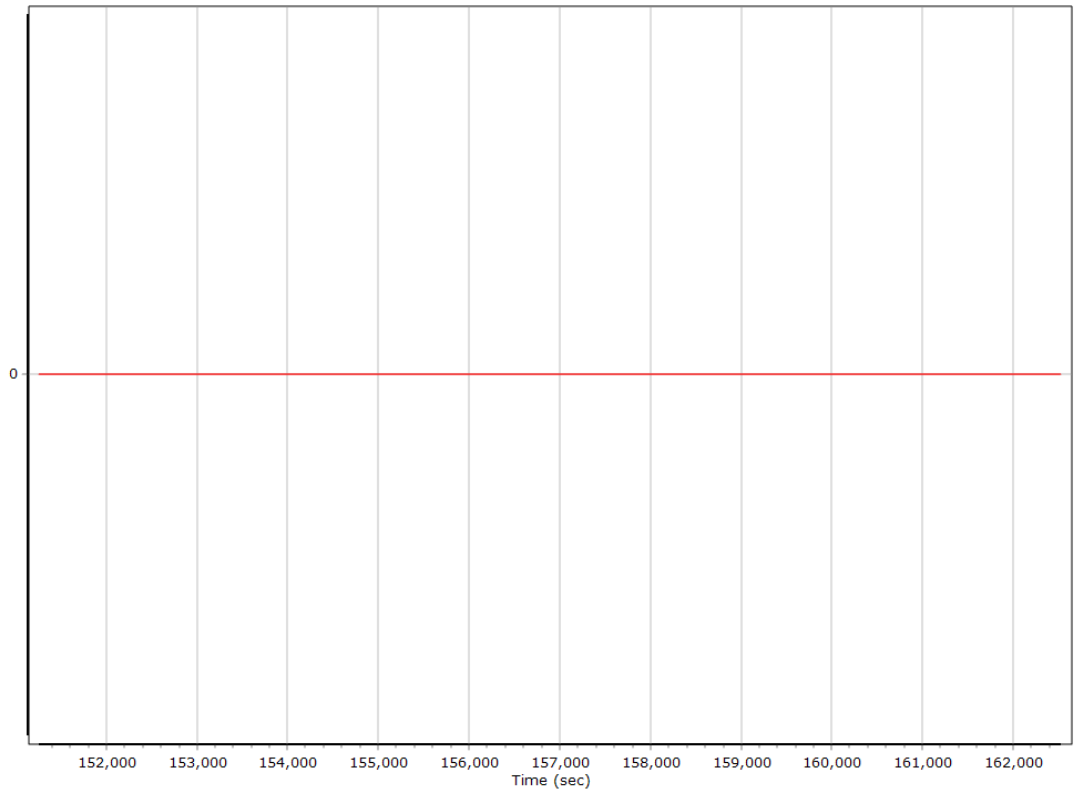
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



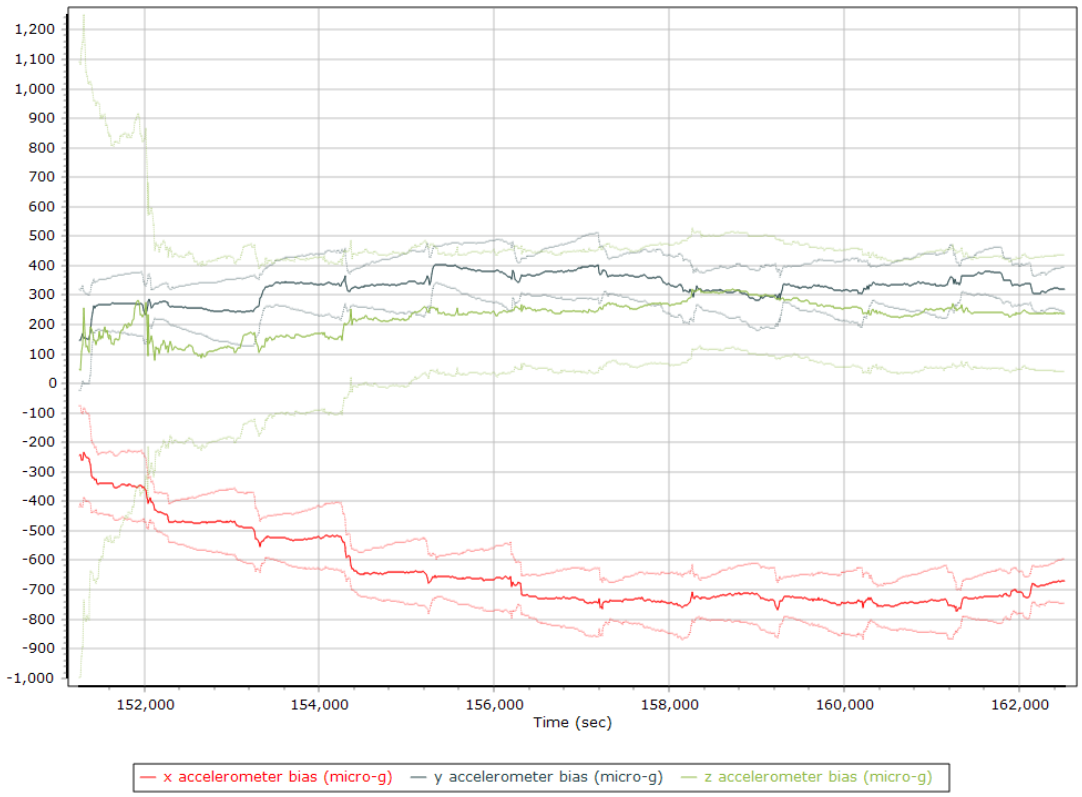
Reference-Primary GNSS Lever Arm Figure of Merit



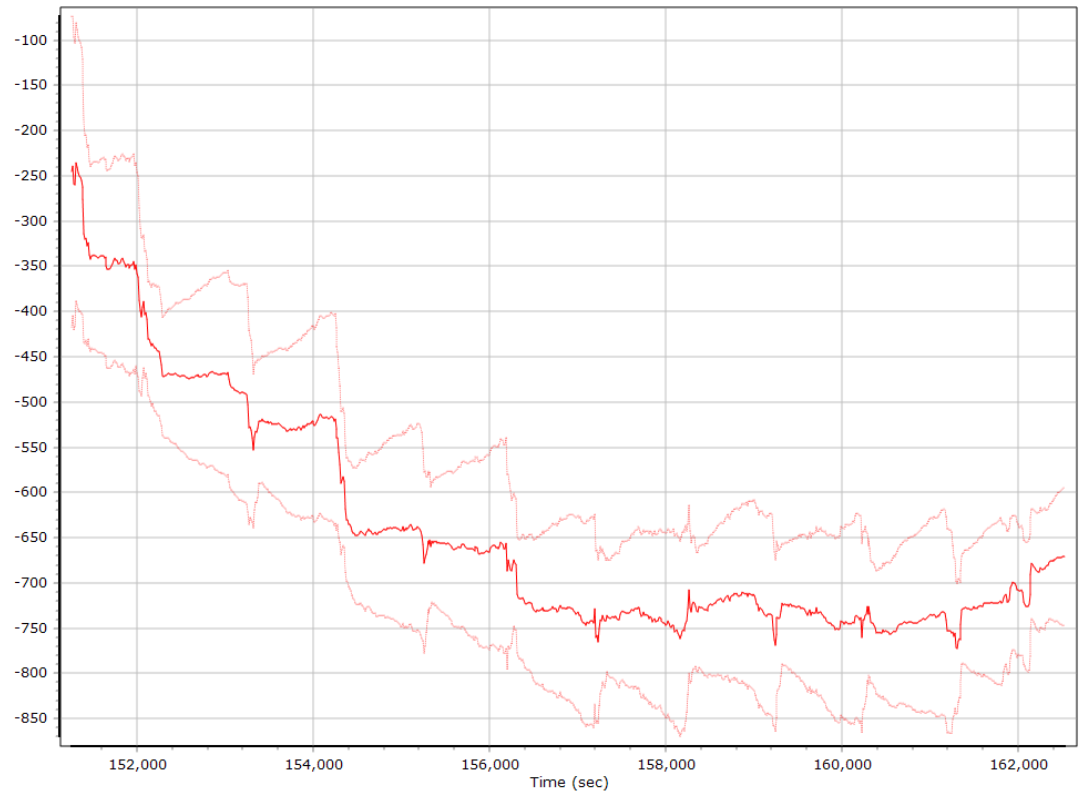
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

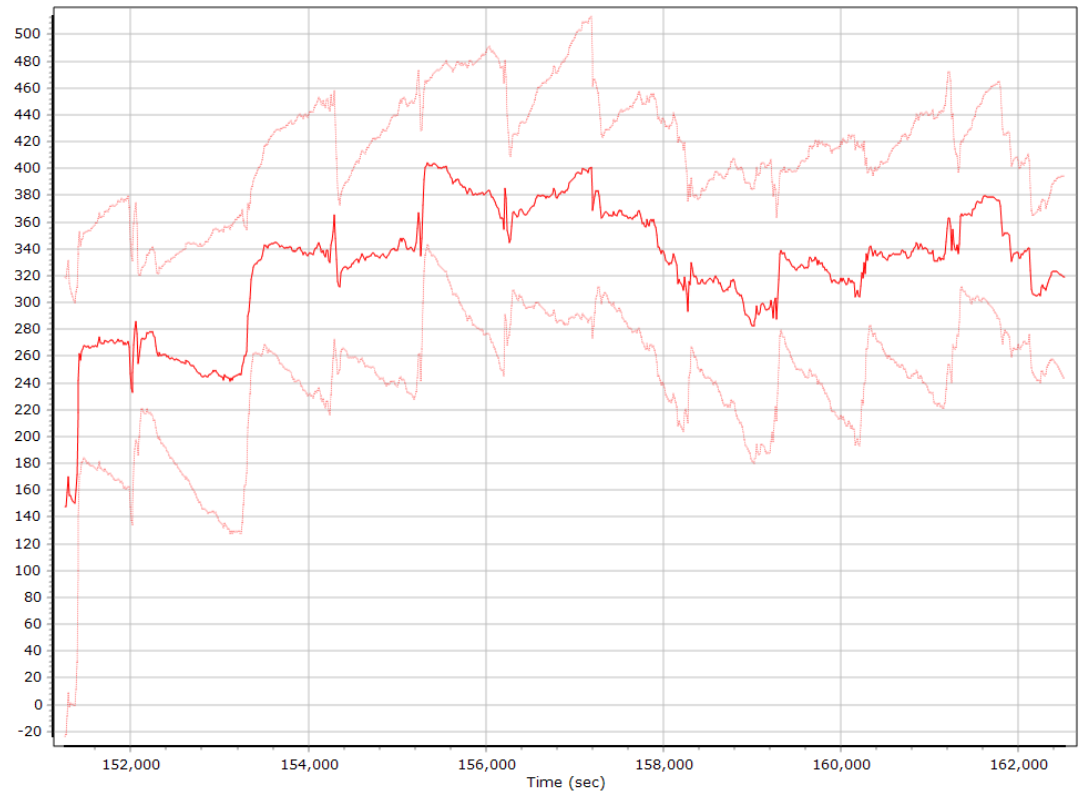
Accelerometer Bias (micro-g)



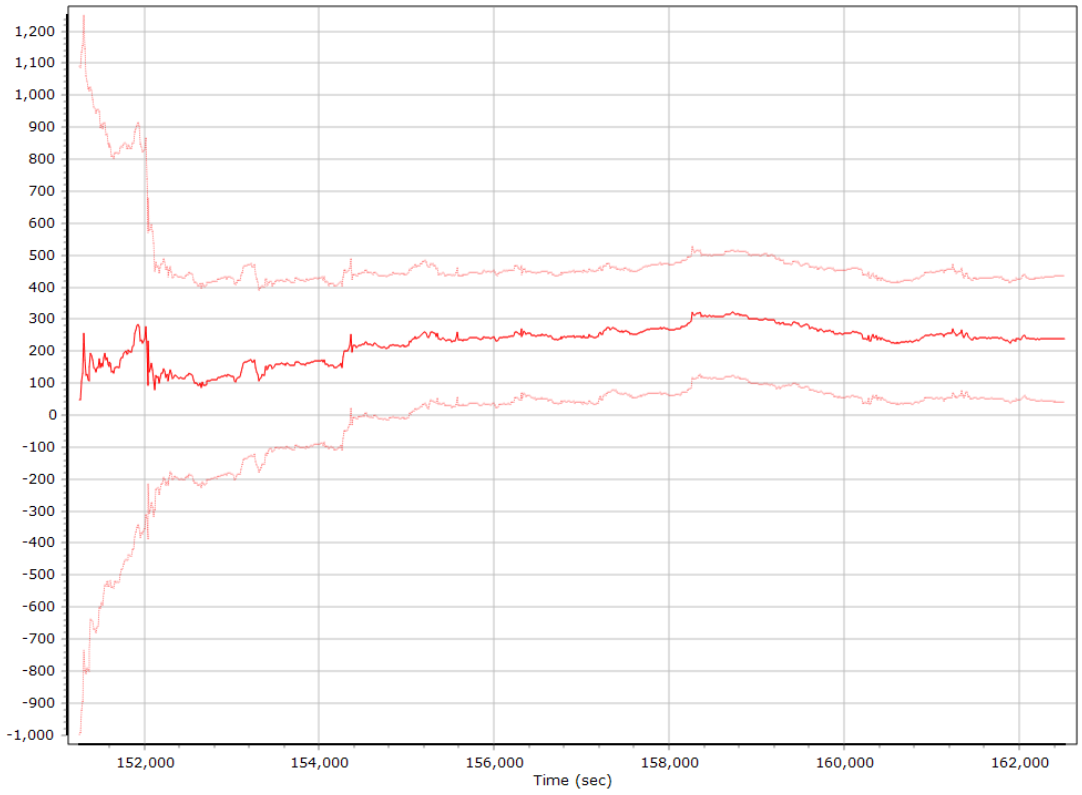
X Accelerometer Bias (micro-g)



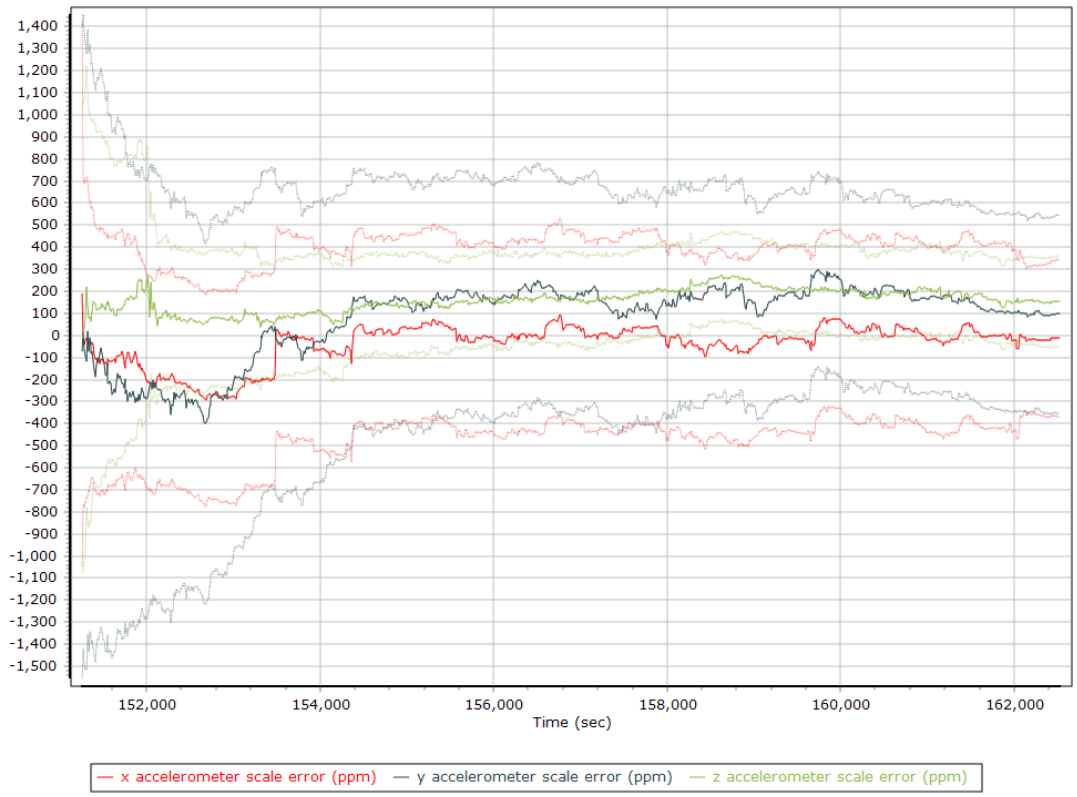
Y Accelerometer Bias (micro-g)



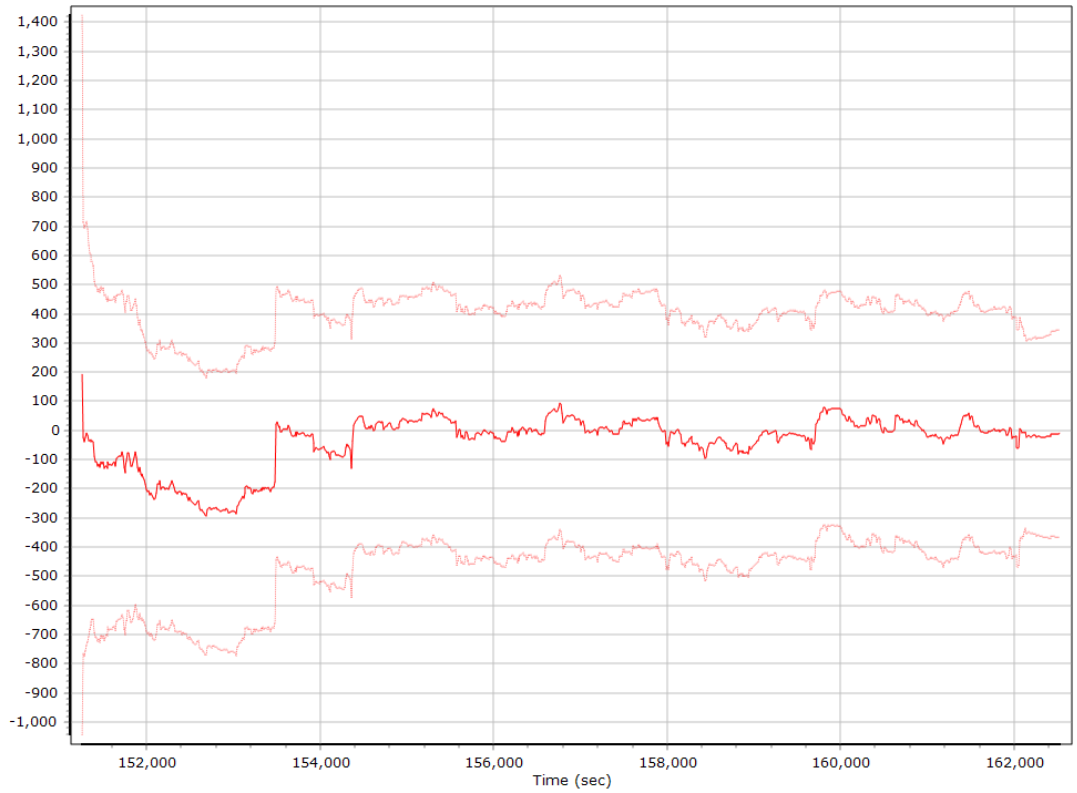
Z Accelerometer Bias (micro-g)



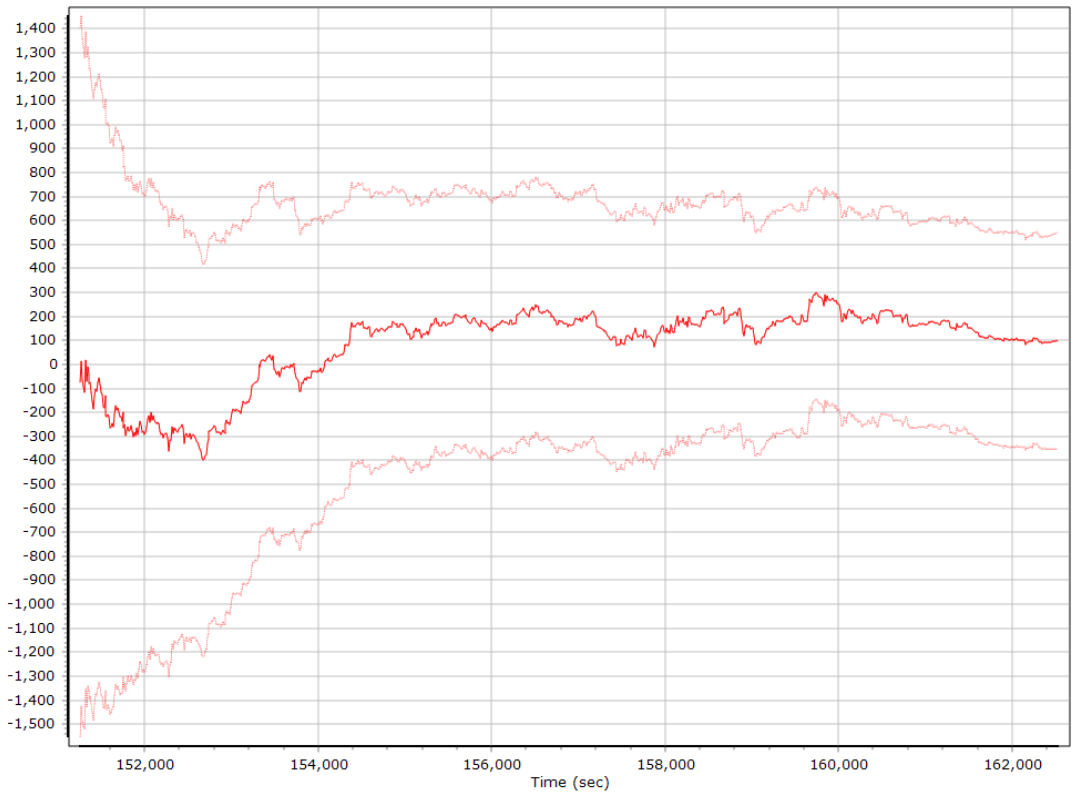
Accelerometer Scale Error (ppm)



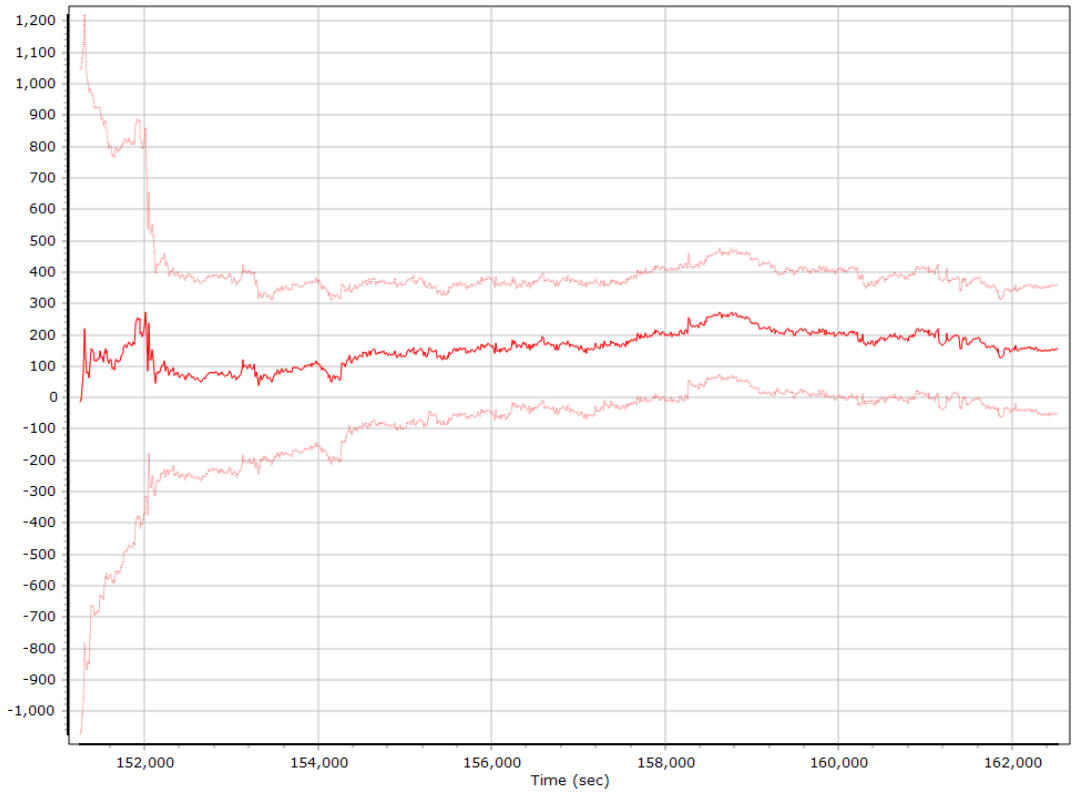
X Accelerometer Scale Error (ppm)



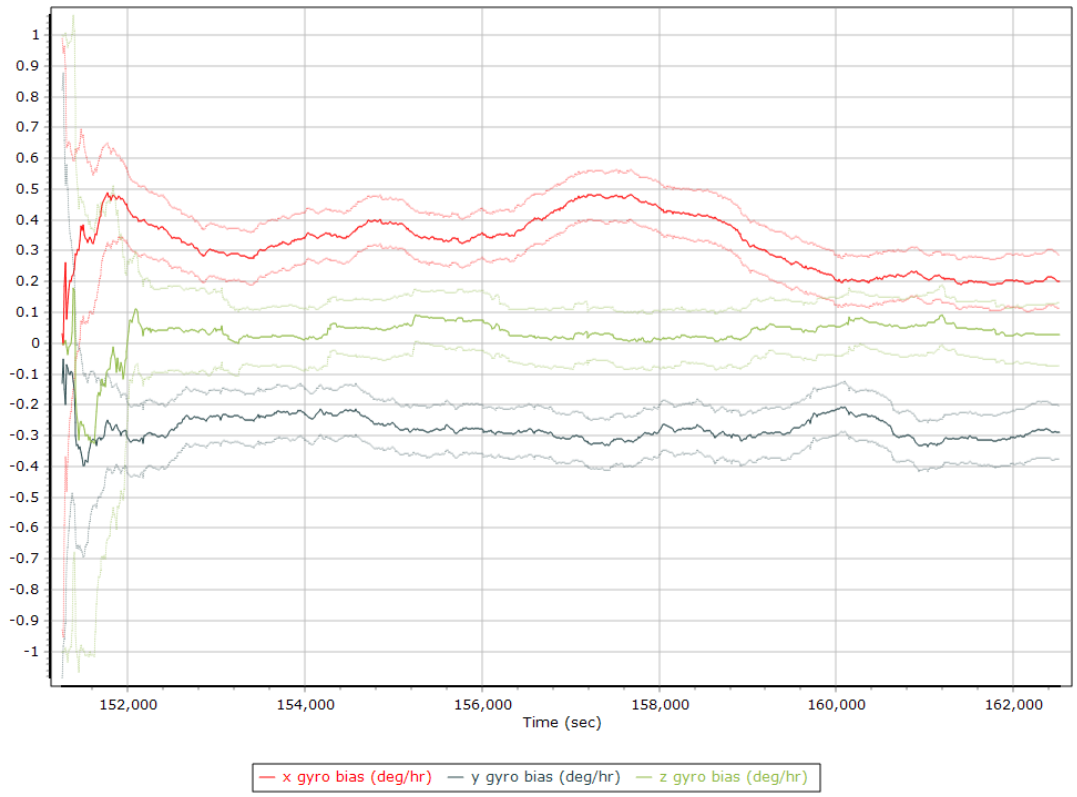
Y Accelerometer Scale Error (ppm)



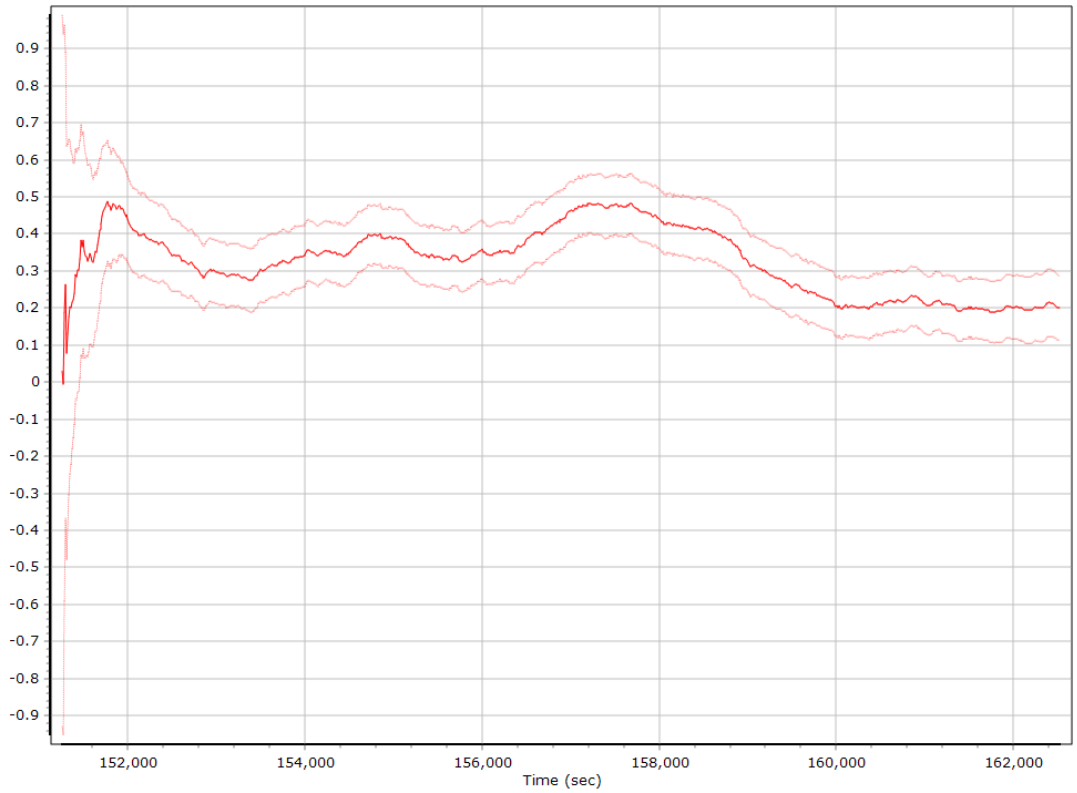
Z Accelerometer Scale Error (ppm)



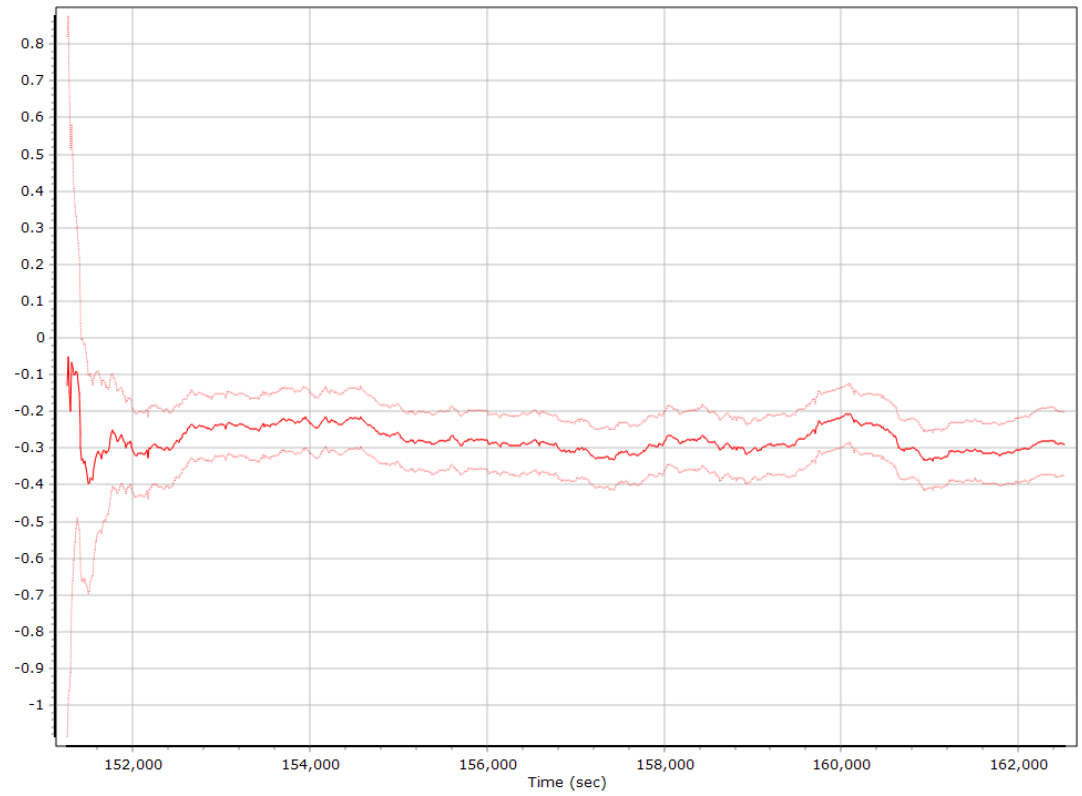
Gyro Bias (deg/h)



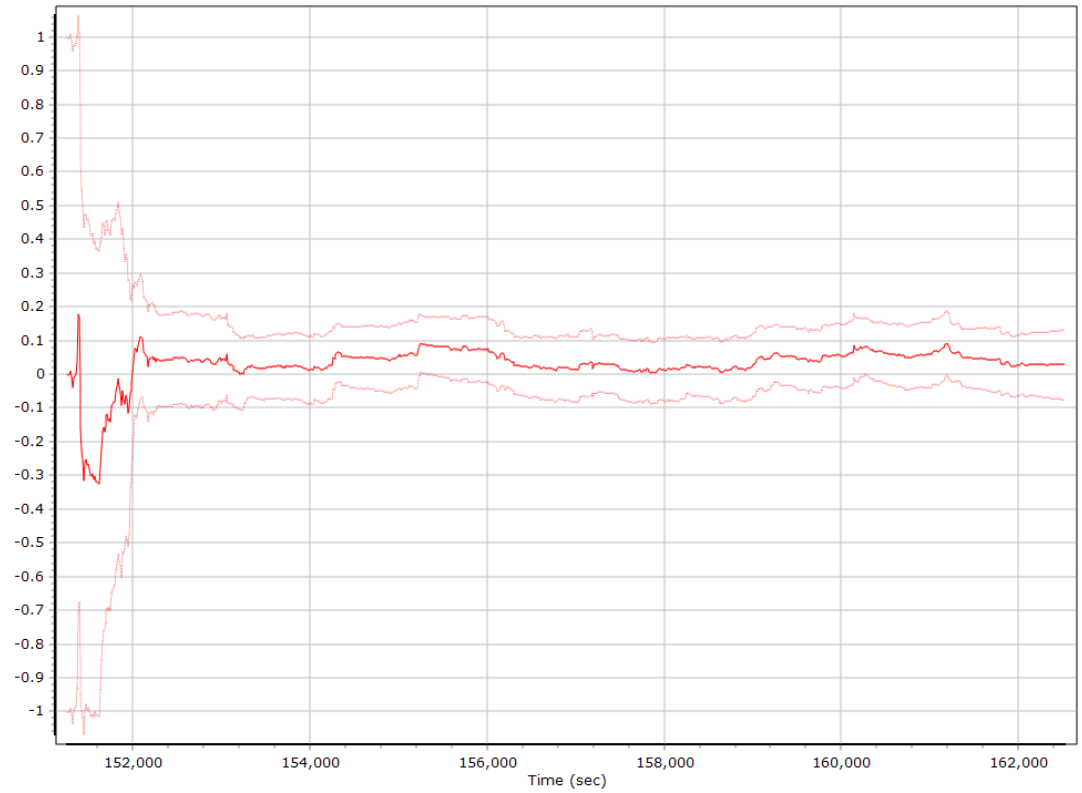
X Gyro Bias (deg/h)



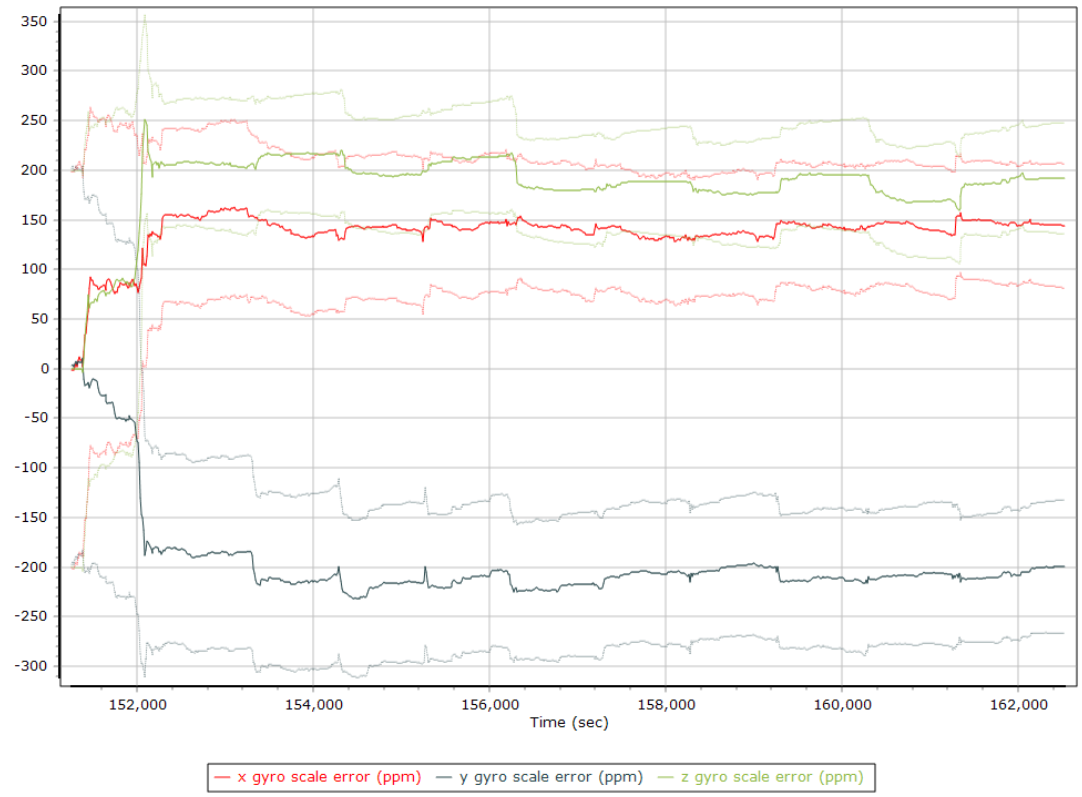
Y Gyro Bias (deg/h)



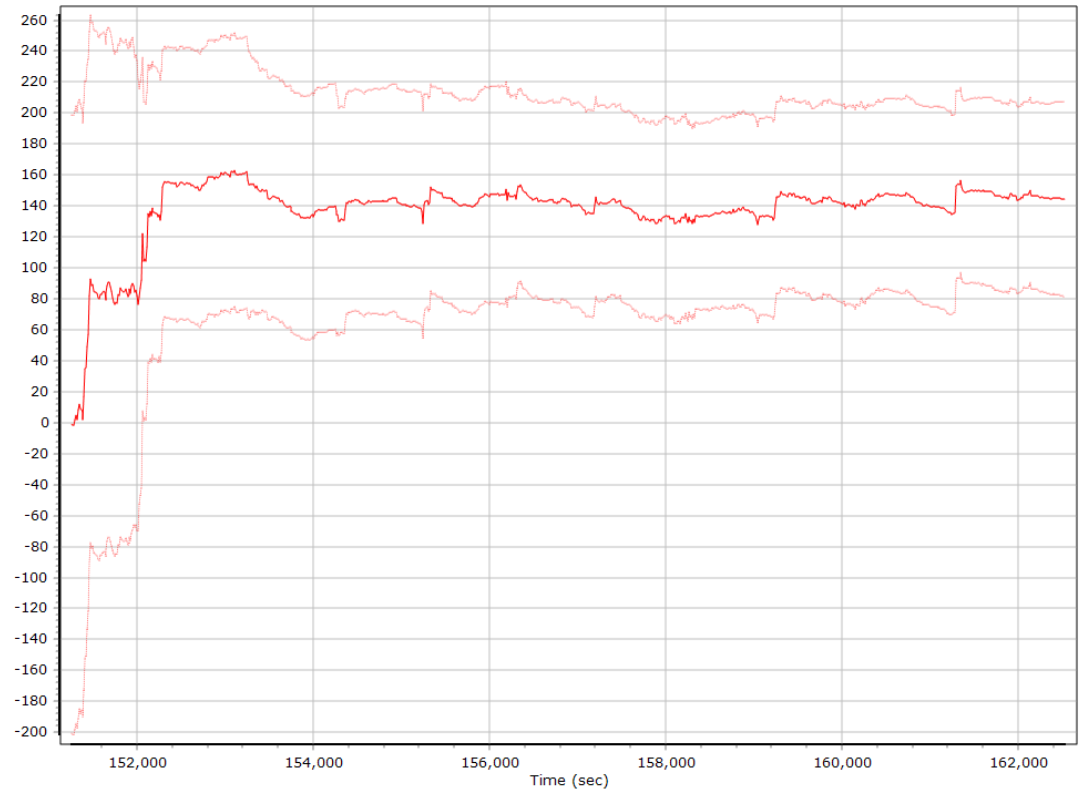
Z Gyro Bias (deg/h)



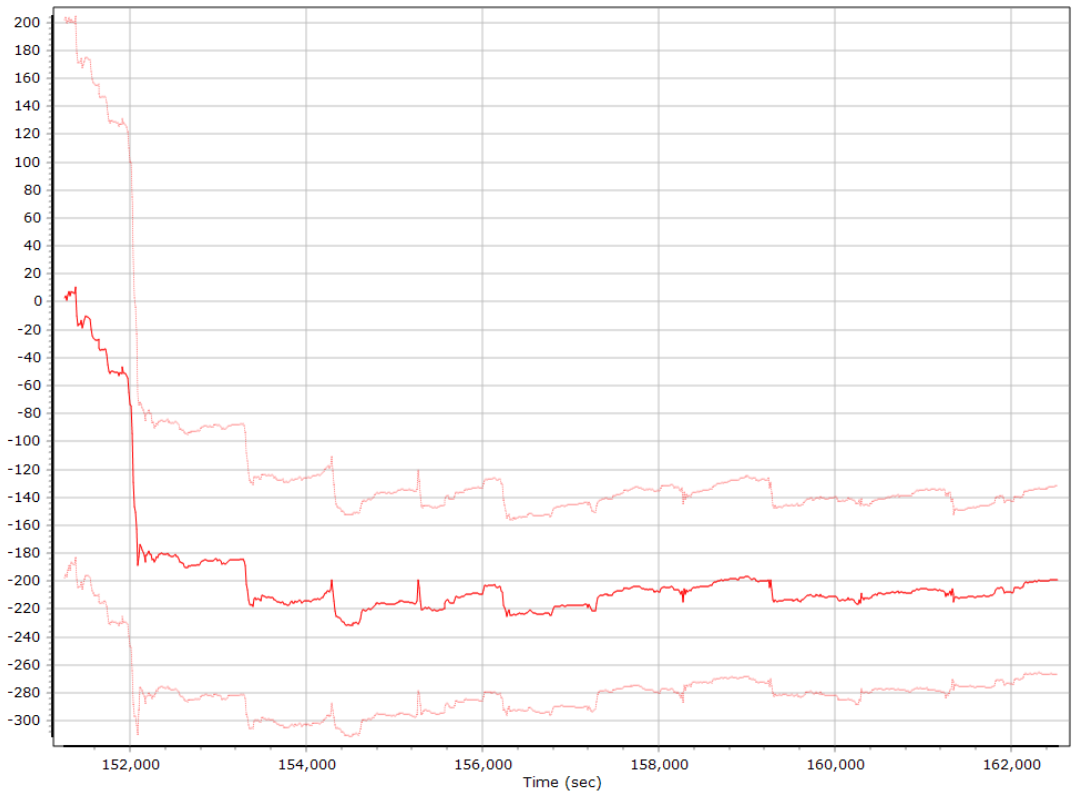
Gyro Scale Error (ppm)



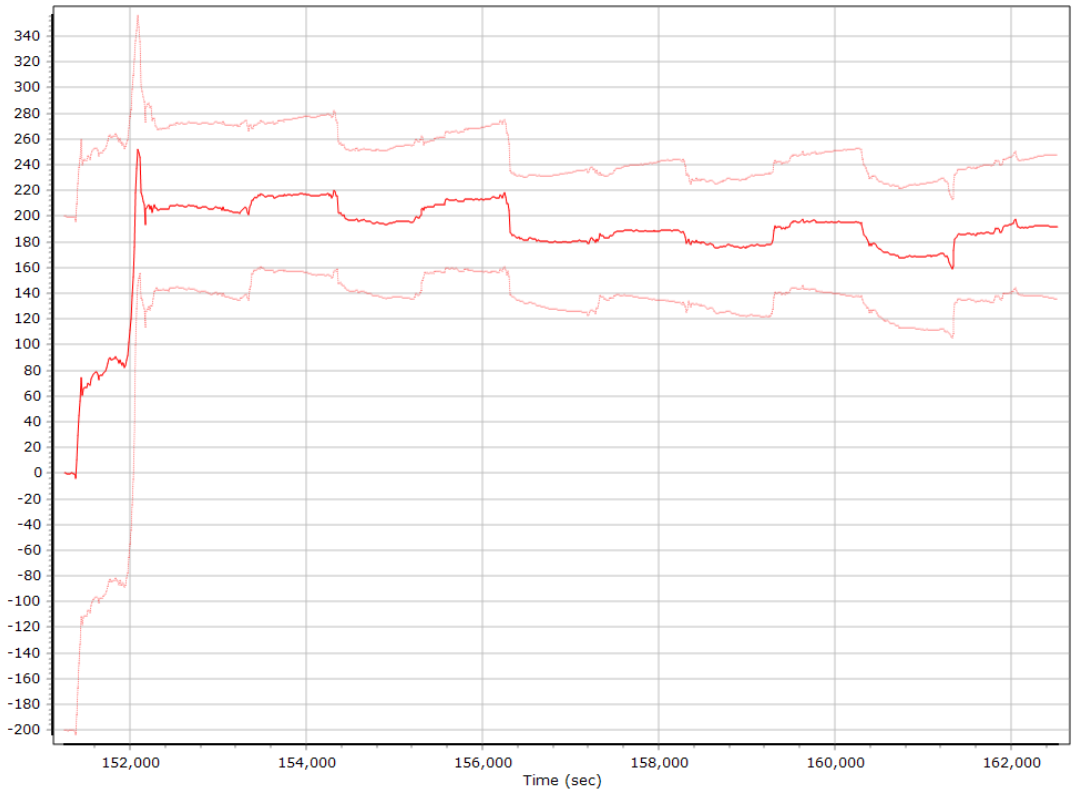
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

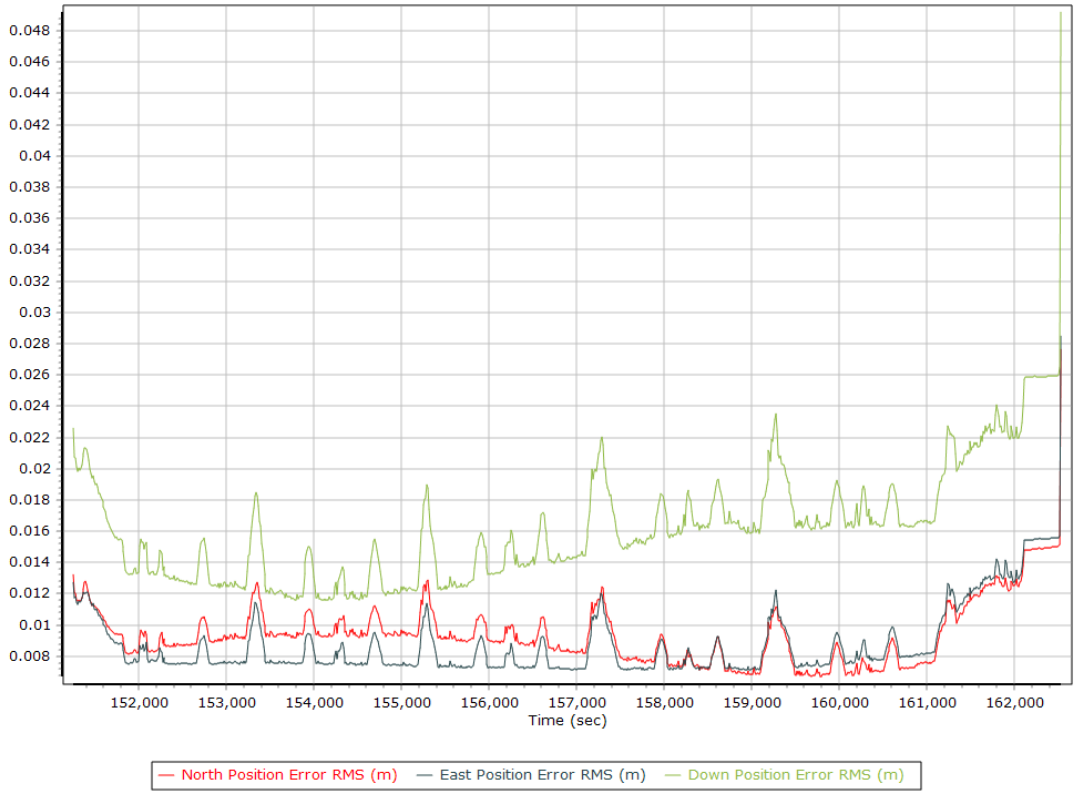


Z Gyro Scale Error (ppm)

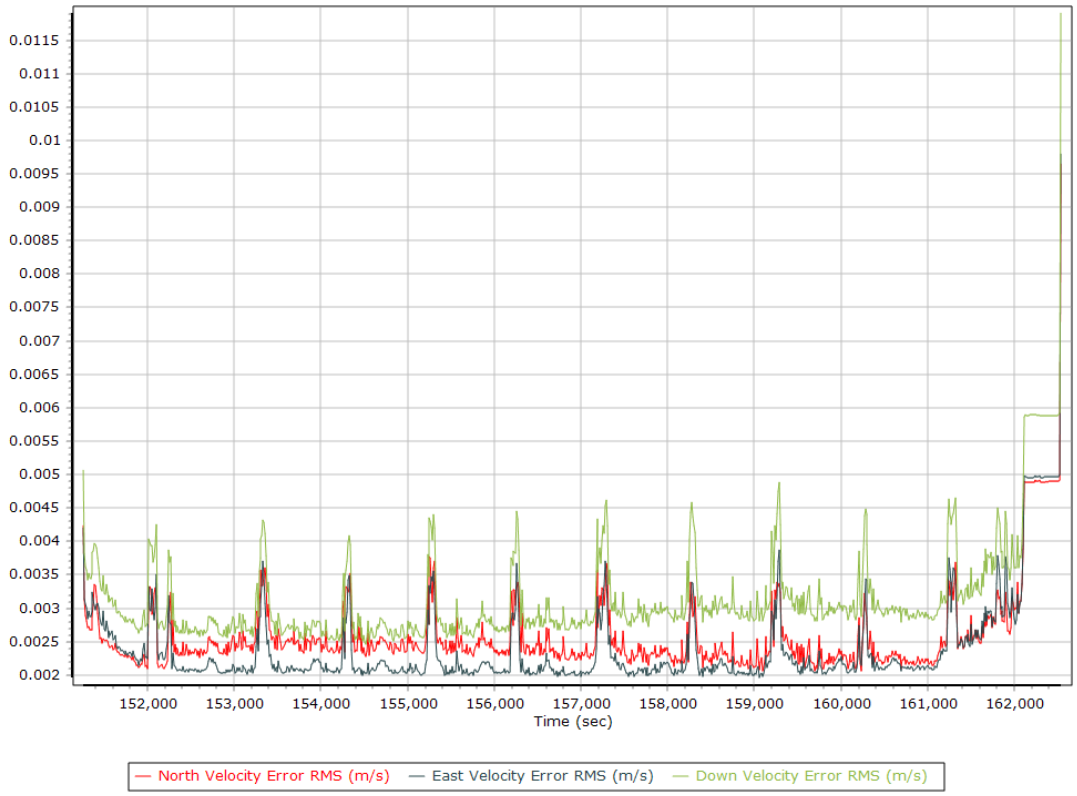


Smoothed Performance Metrics

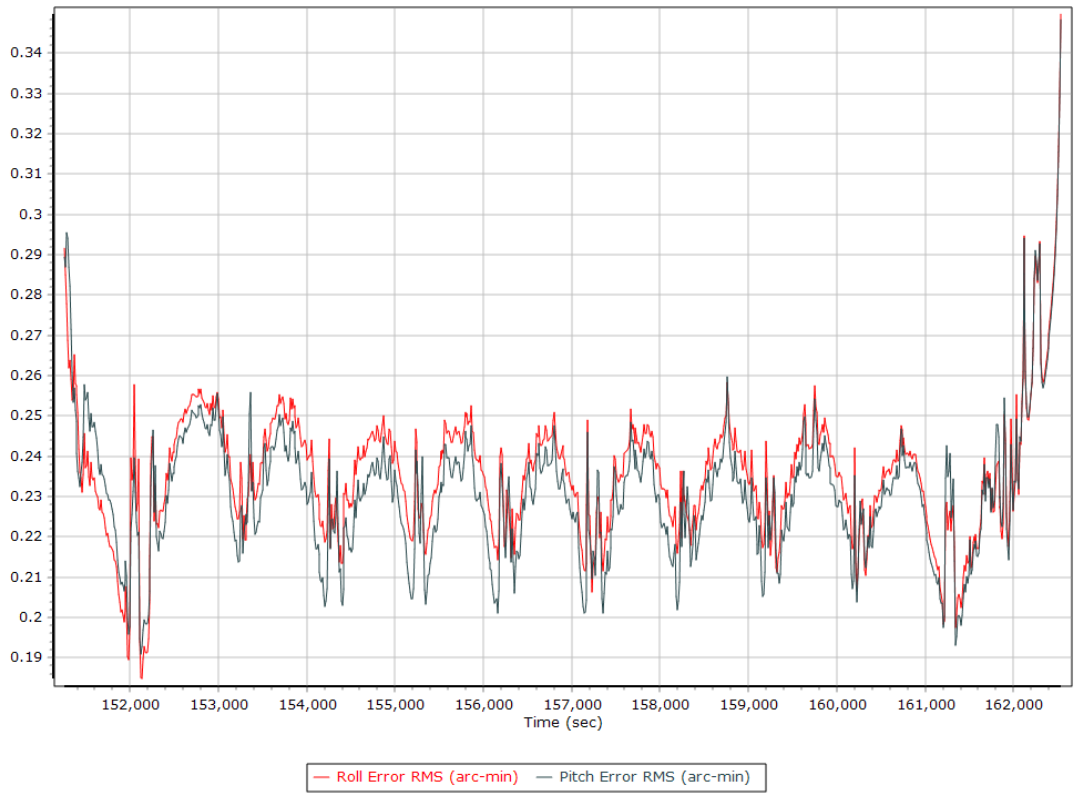
Position Error RMS (m)



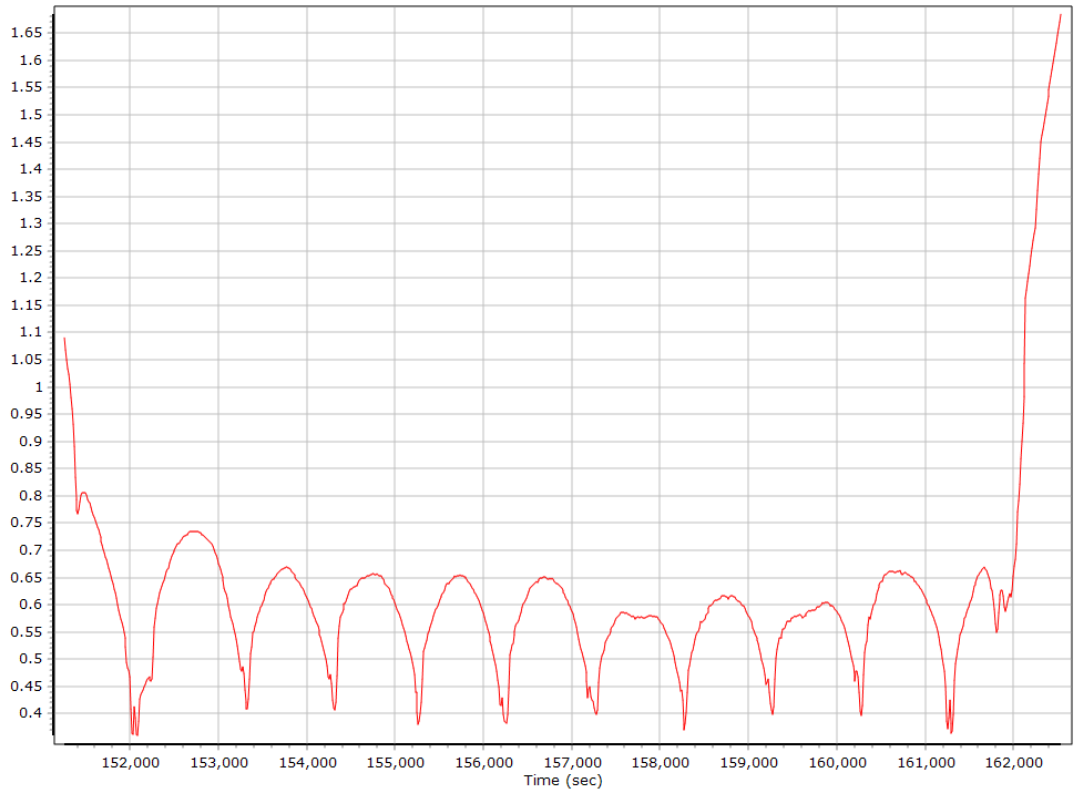
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

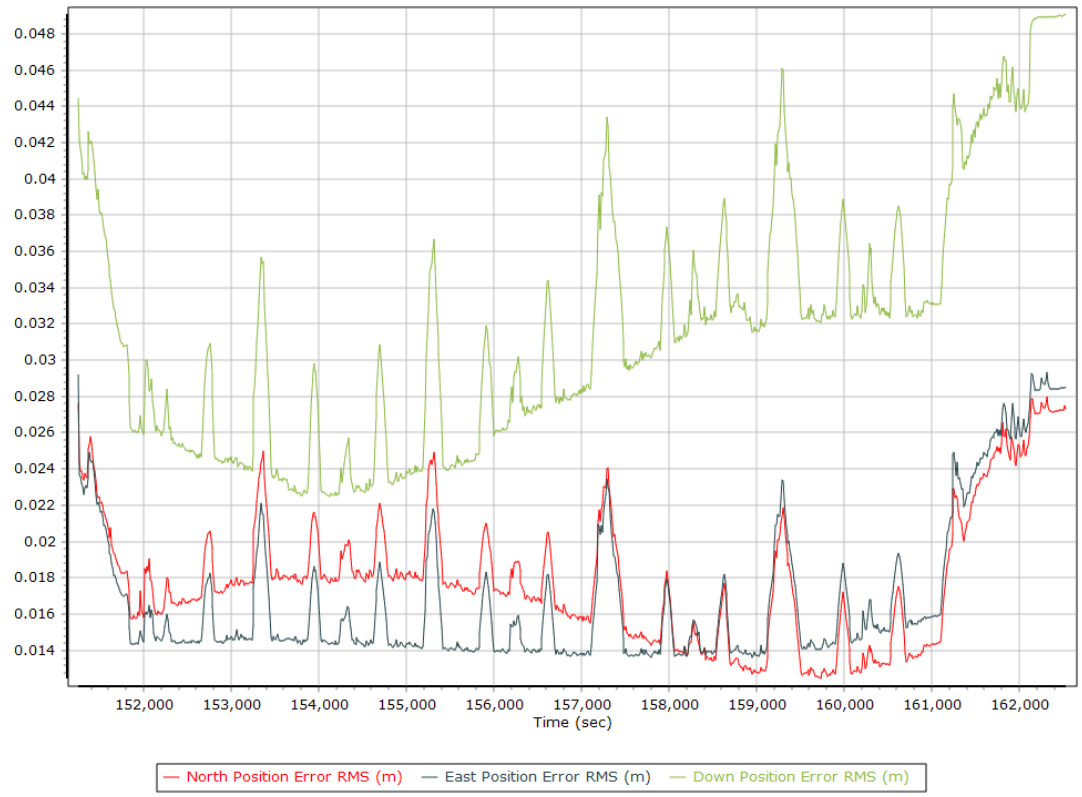


Heading Error RMS (arc-min)

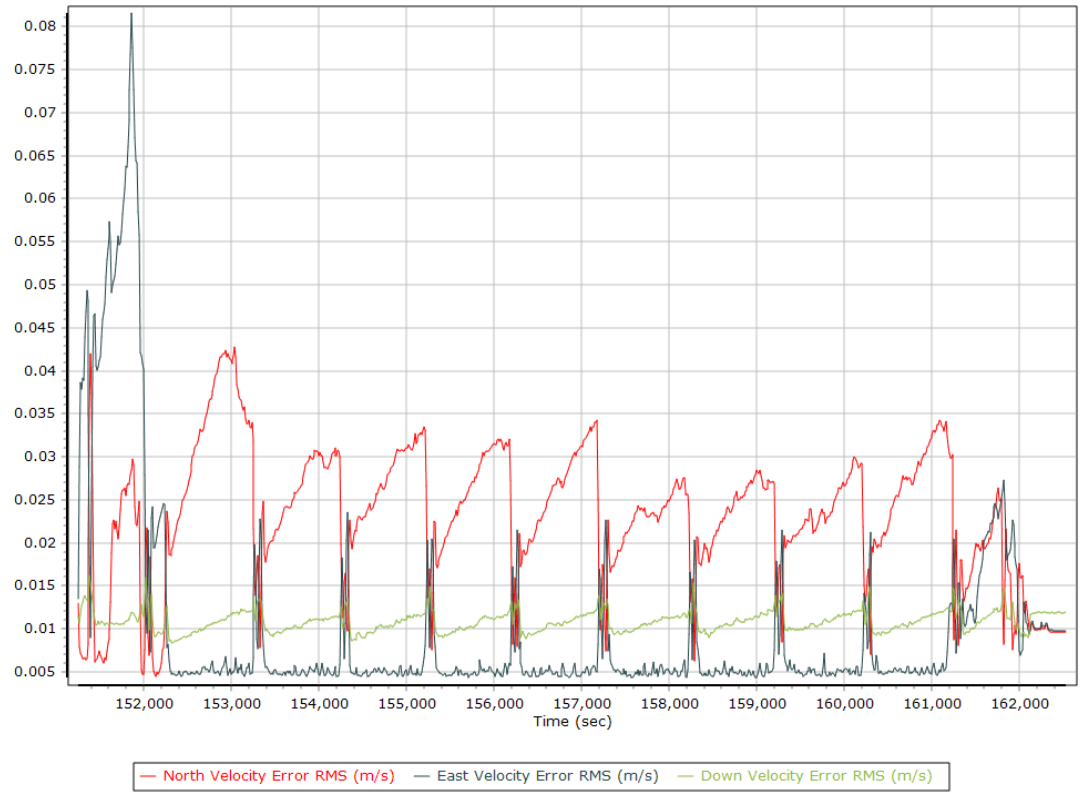


Forward Processed Performance Metrics

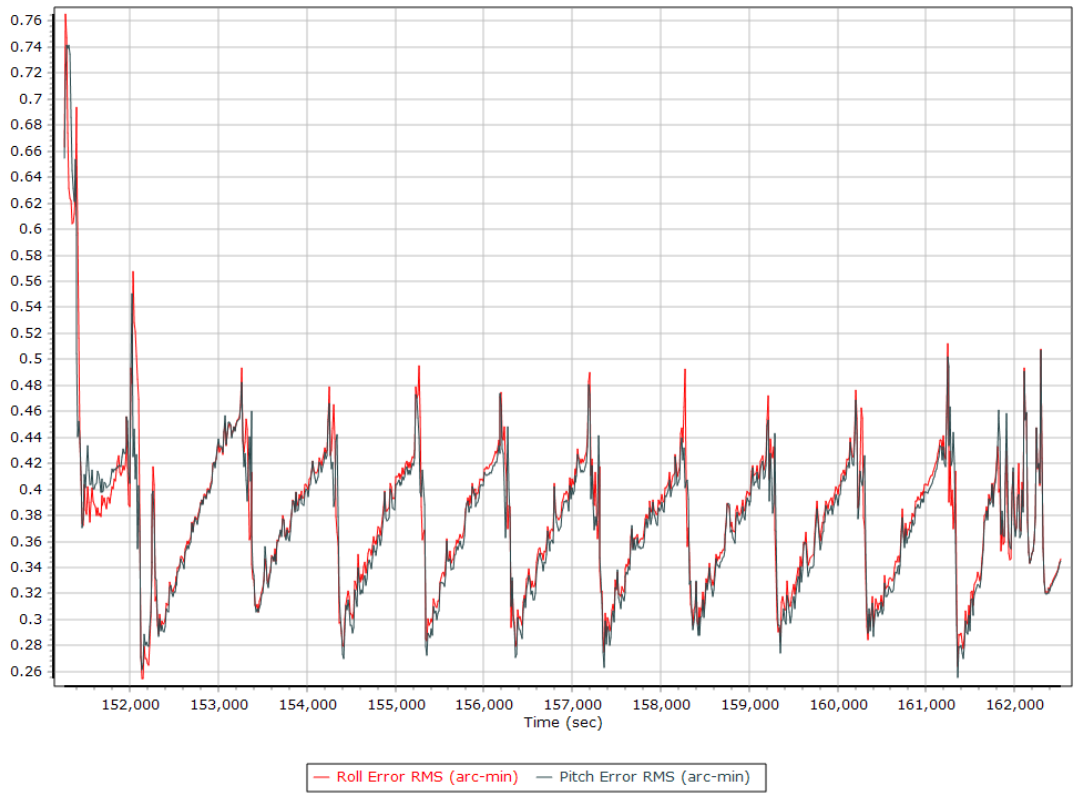
Position Error RMS (m)



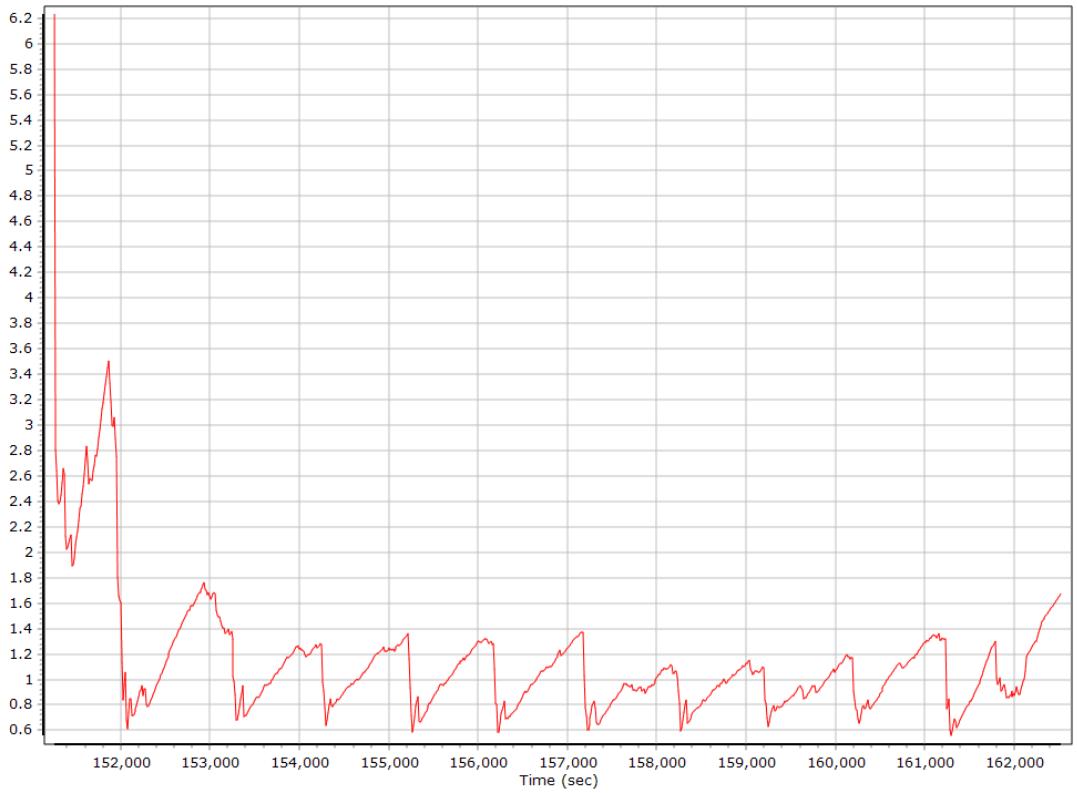
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

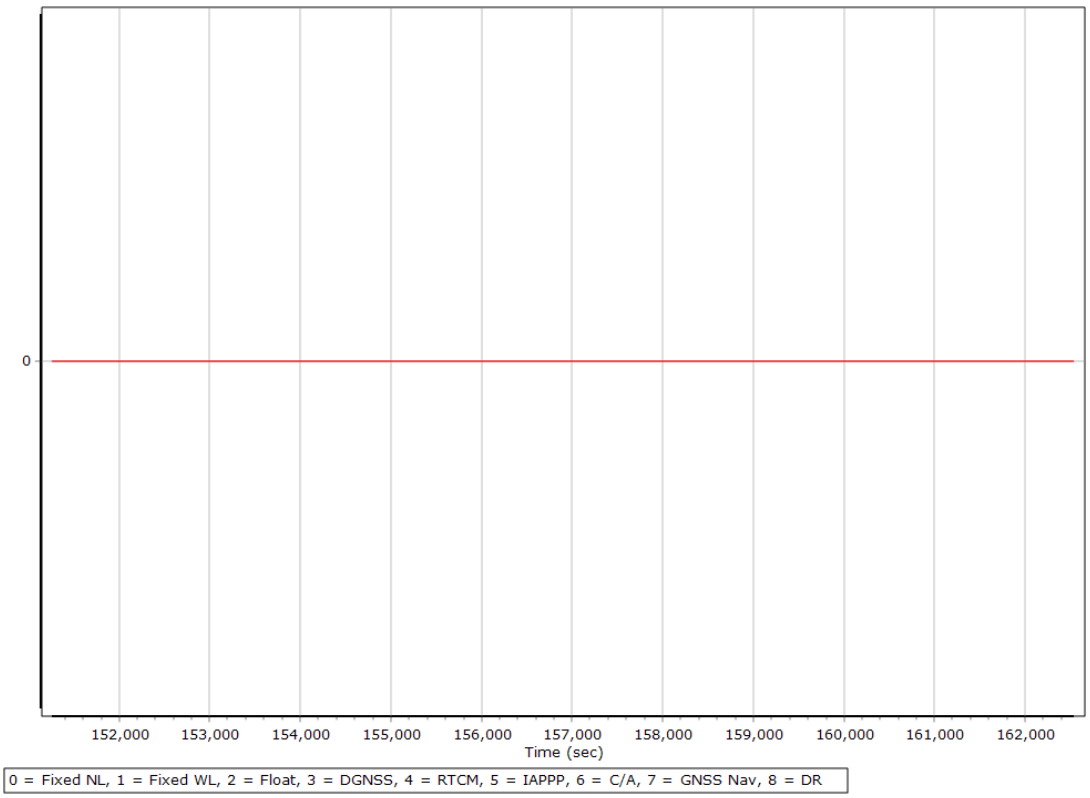


Heading Error RMS (arc-min)

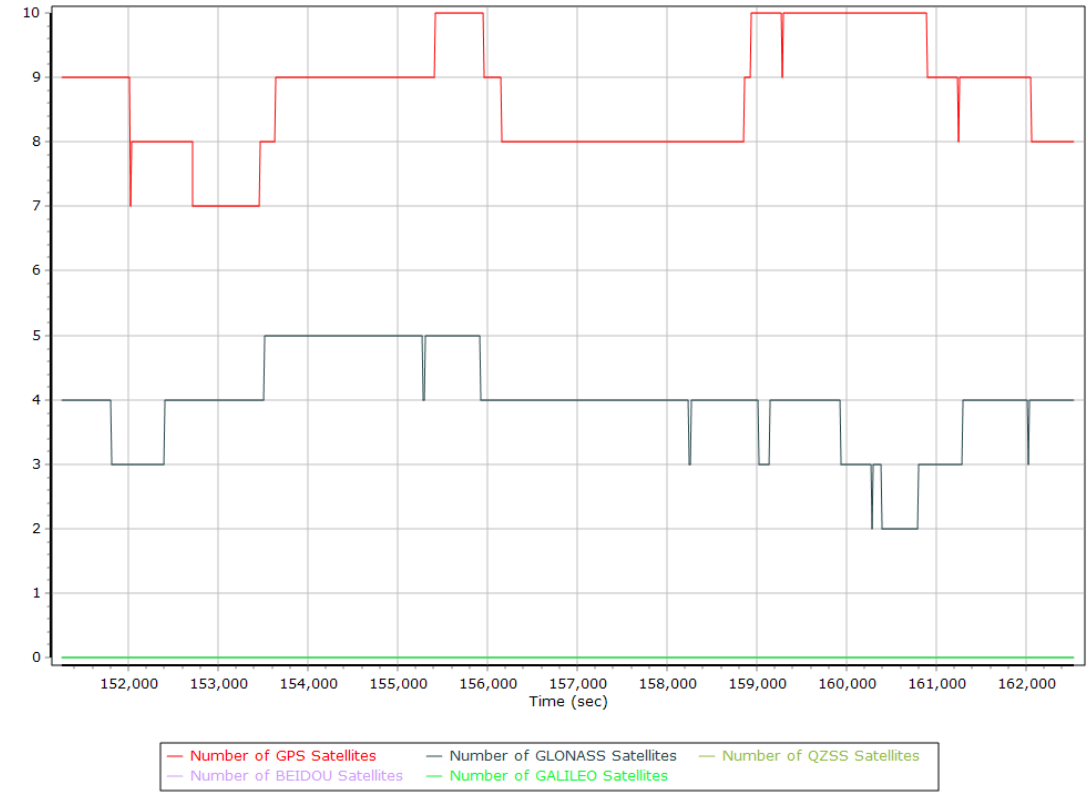


Smoothed Solution Status

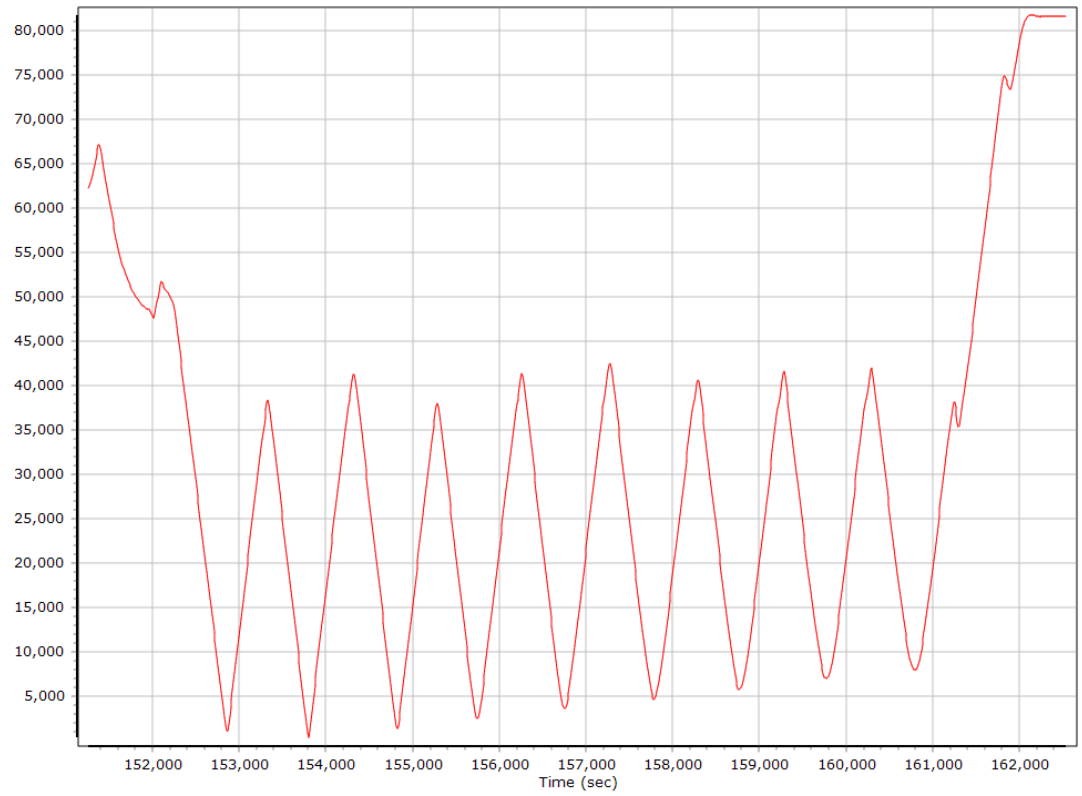
Processing Mode



Number of Satellites

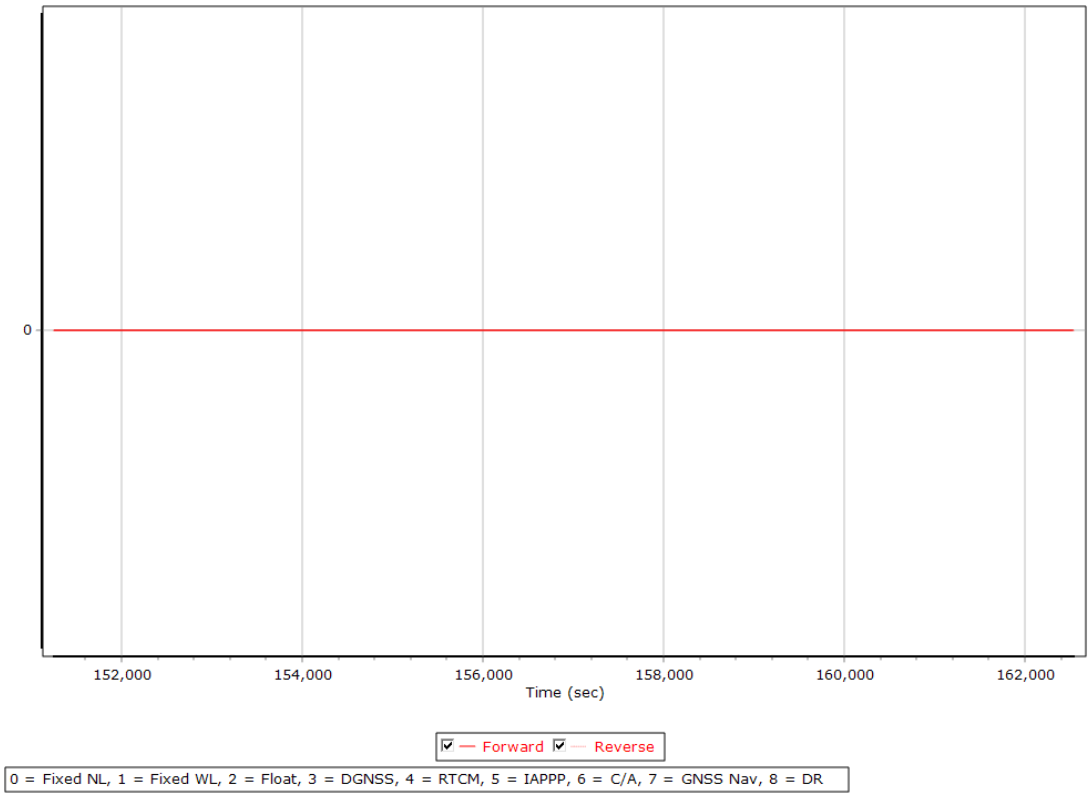


Baseline Length

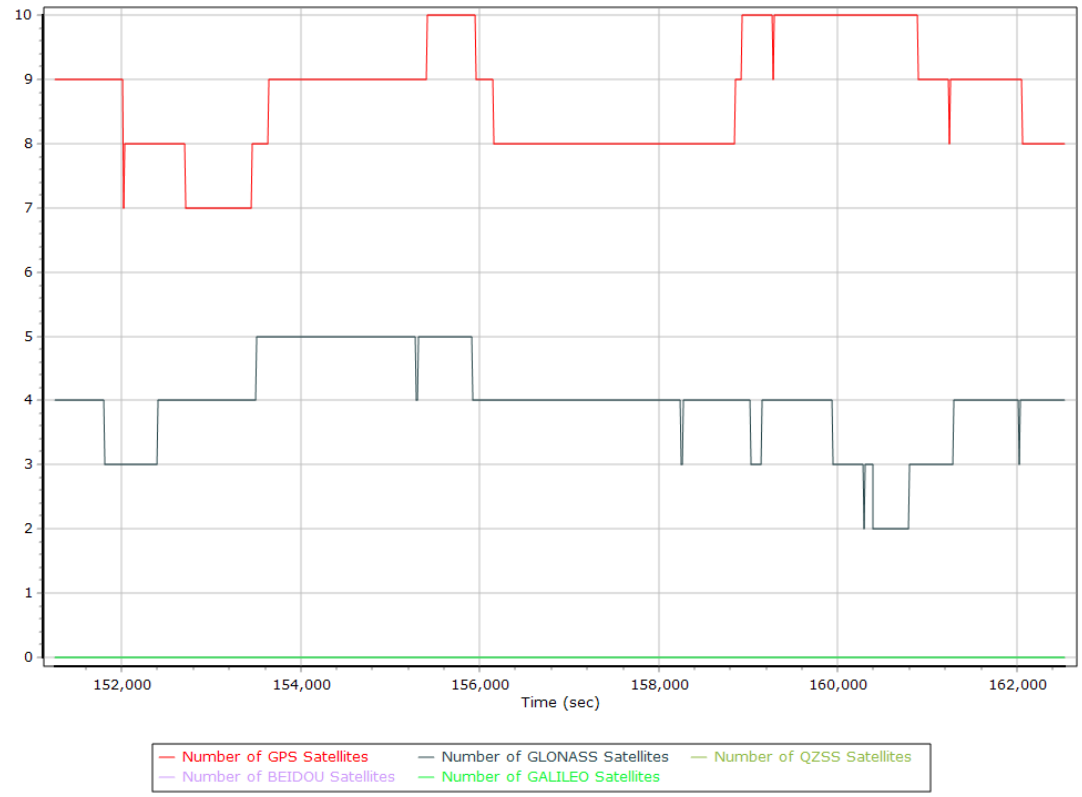


Forward Processed Solution Status

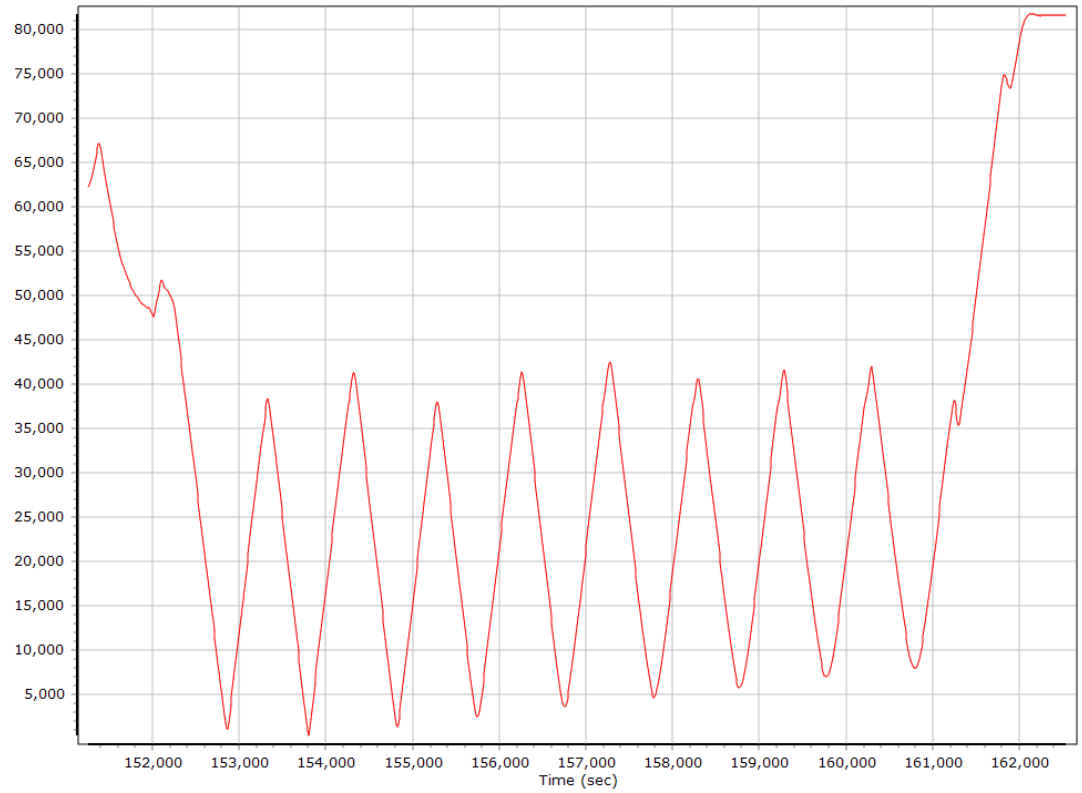
Processing Mode



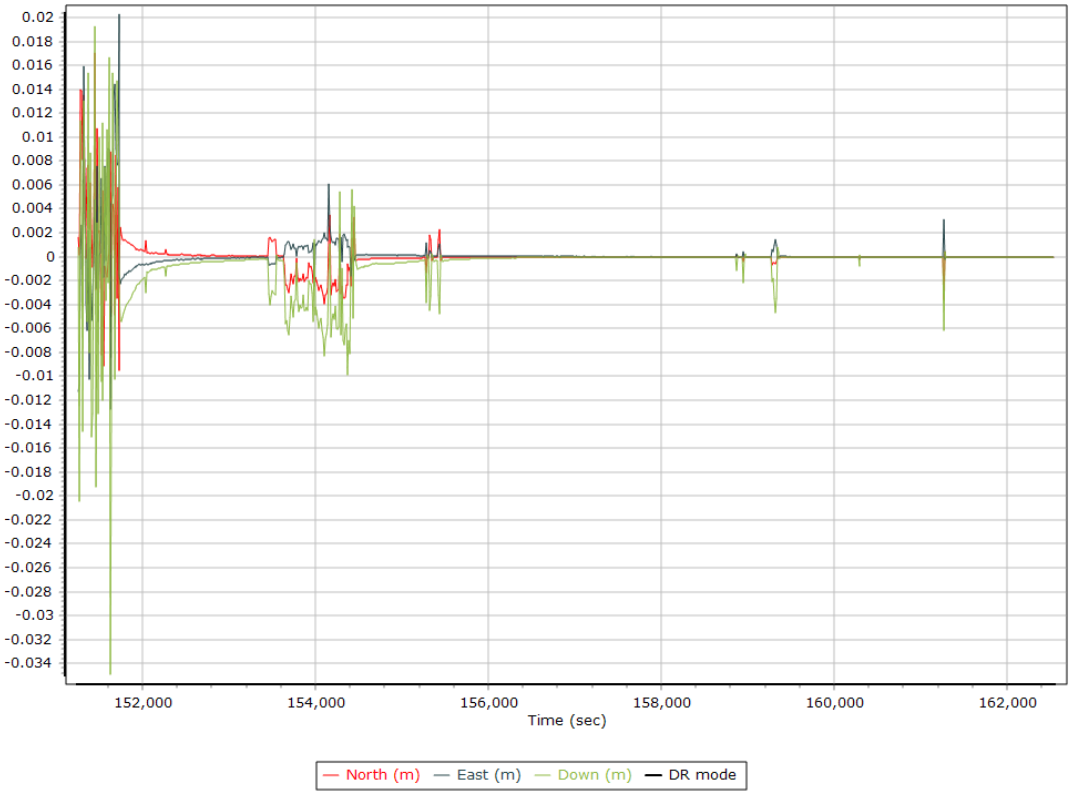
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	20200330B.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	151198.004 (3/30/2020 5:59:58 PM)		
Export end time	162537.001 (3/30/2020 9:08:57 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	19-6648-01_IA3DEP_USGS_20200330C
Processing date	2021-01-18 22:18:18
Mission date	2020-03-30 22:00:49
Mission duration	01:42:41.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.019	POS Data
ALS.020	POS Data
ALS.021	POS Data
ALS.022	POS Data
ALS.023	POS Data
ALS.024	POS Data
ALS.025	POS Data
ALS.026	POS Data
ALS.027	POS Data
ALS.028	POS Data

Input Files

File Name	File Type
Ephm0900.20g	GLONASS Broadcast Ephemeris
Ephm0900.20n	GPS Broadcast Ephemeris
iaal0900.20o	GNSS SingleBase
iade0900.20o	GNSS SingleBase
iael0900.20o	GNSS SingleBase
iana0900.20o	GNSS SingleBase
mnca0900.20o	GNSS SingleBase
mney0900.20o	GNSS SingleBase
mnps0900.20o	GNSS SingleBase
mnsv0900.20o	GNSS SingleBase
mnwn0900.20o	GNSS SingleBase
wlnc0900.20o	GNSS SingleBase
igu20990_18.sp3	GPS Precise Ephemeris
igu20991_18.sp3	GPS Precise Ephemeris
igu20992_18.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_19-6648-01_MissionC-33020.out	SBET Trajectory File
SBET_19-6648-01_MissionC-33020.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.019		
Last raw data file	ALS.028		
Start GPS week	2099		
Start time	165642.722 (3/30/2020 10:00:42 PM)		
End time	171793.040 (3/30/2020 11:43:13 PM)		
Start of fine alignment	166243.363 (3/30/2020 10:10:43 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

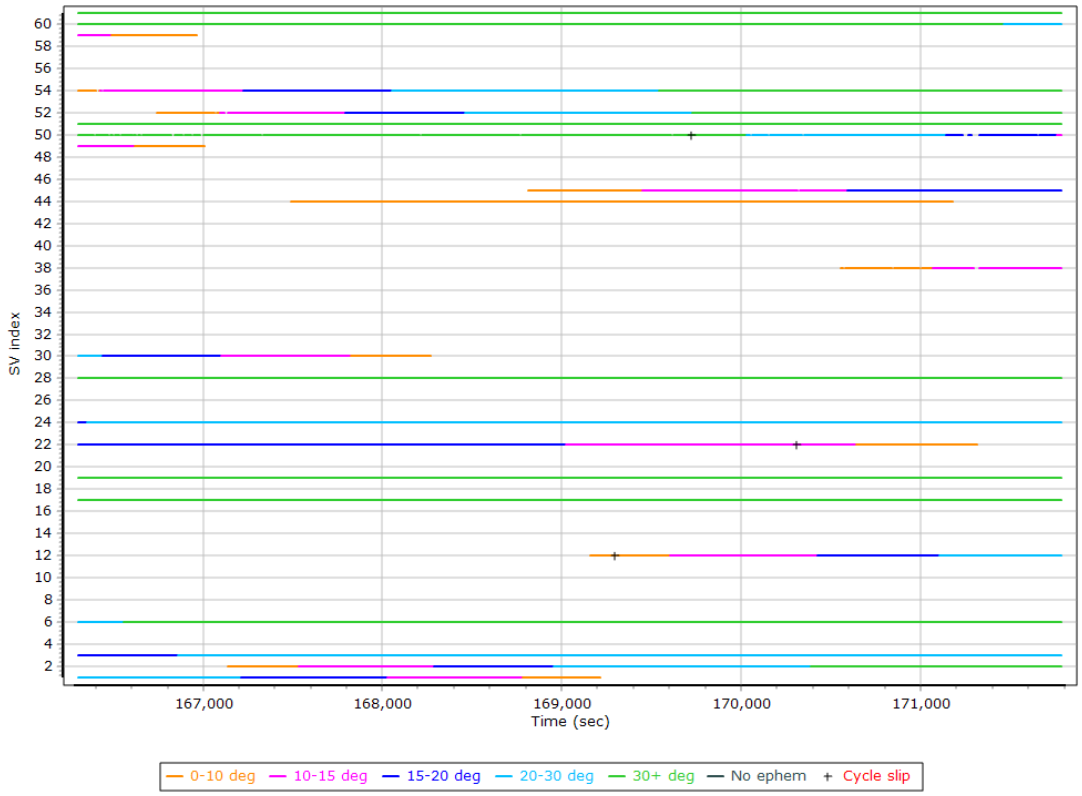
Rover Data QC

Raw IMU Import QC Summary

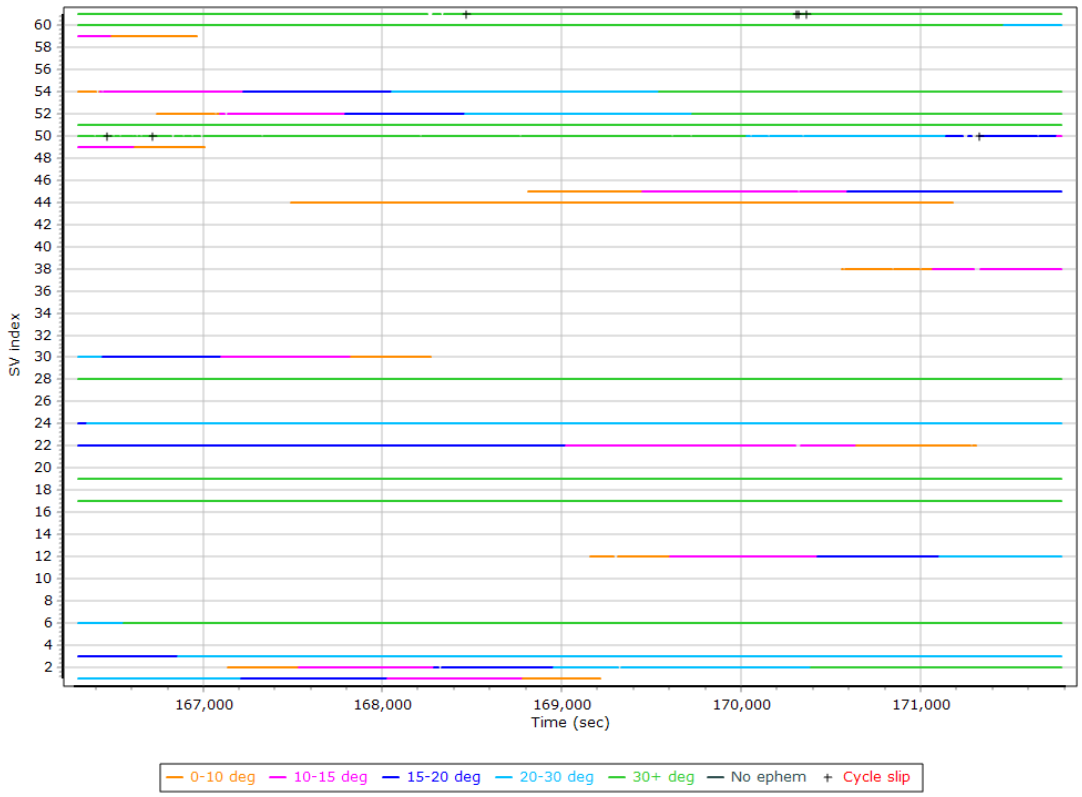
IMU data input file	imu_19-6648-01_MissionC-33020.dat
IMU data check log file	imudt_19-6648-01_MissionC-33020.log
IMU Records Processed	1234793
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
165642.322 : WARNING : Gap of 165620.3406 seconds in CHECKDT input data	

Primary Observables & Satellite Data

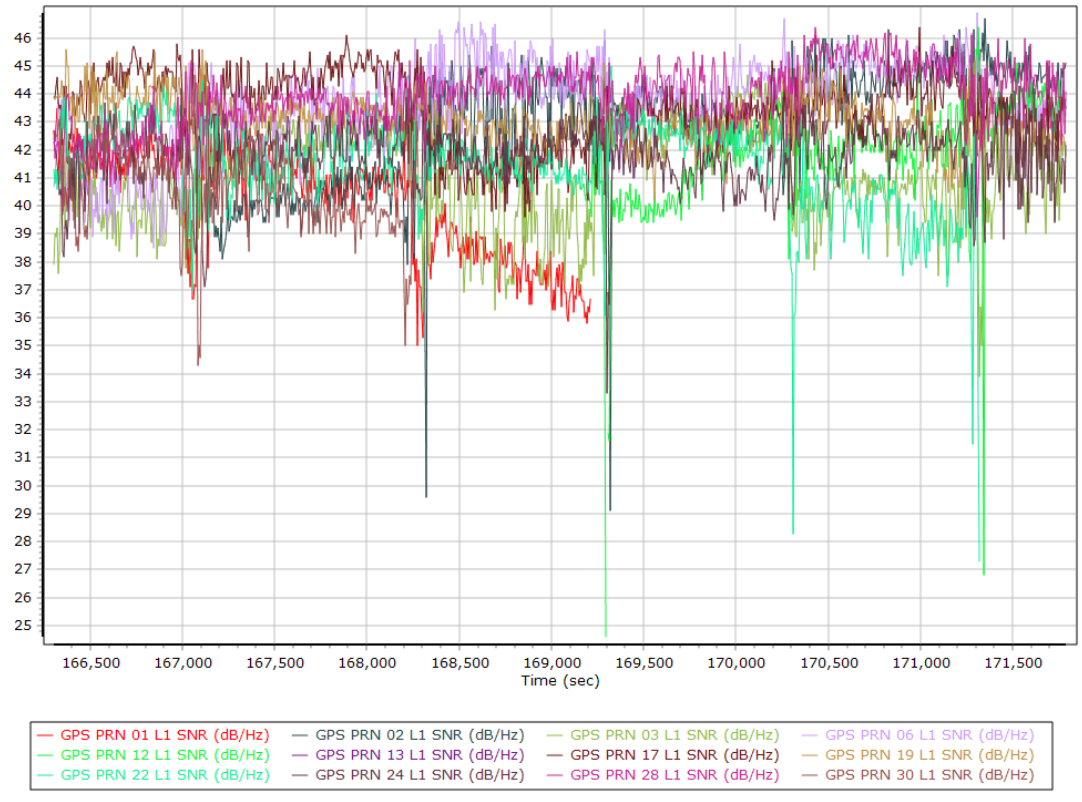
L1 Satellite Lock/Elevation



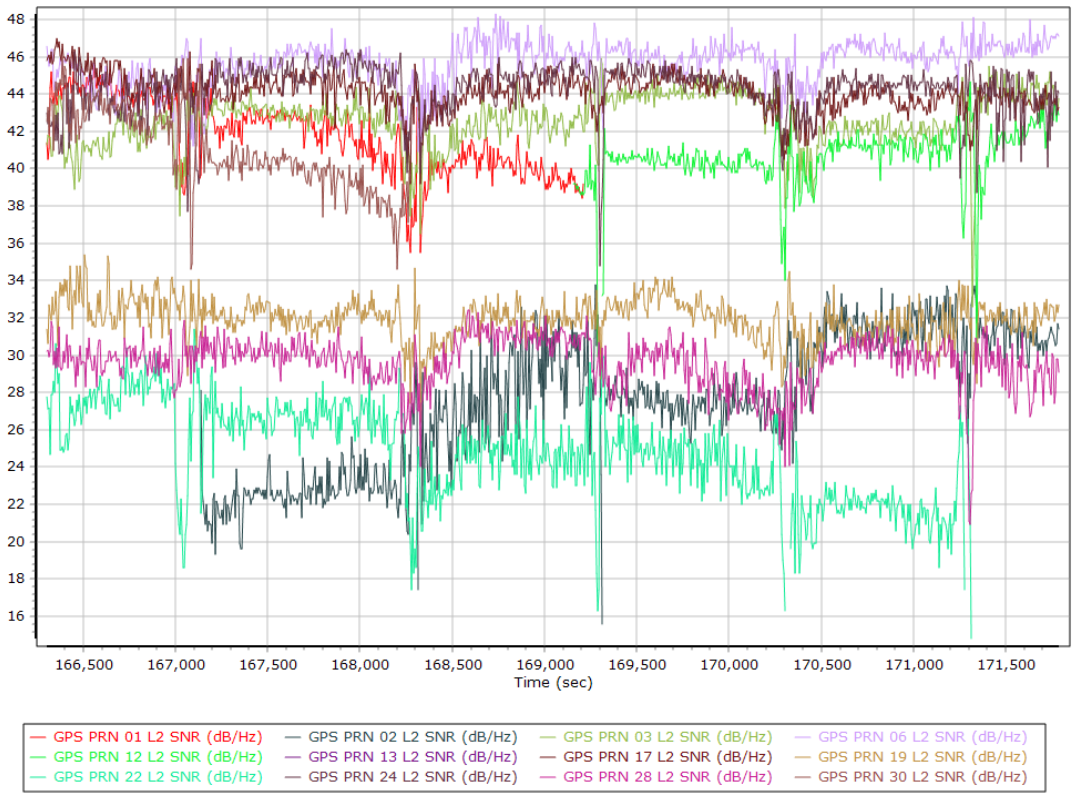
L2 Satellite Lock/Elevation



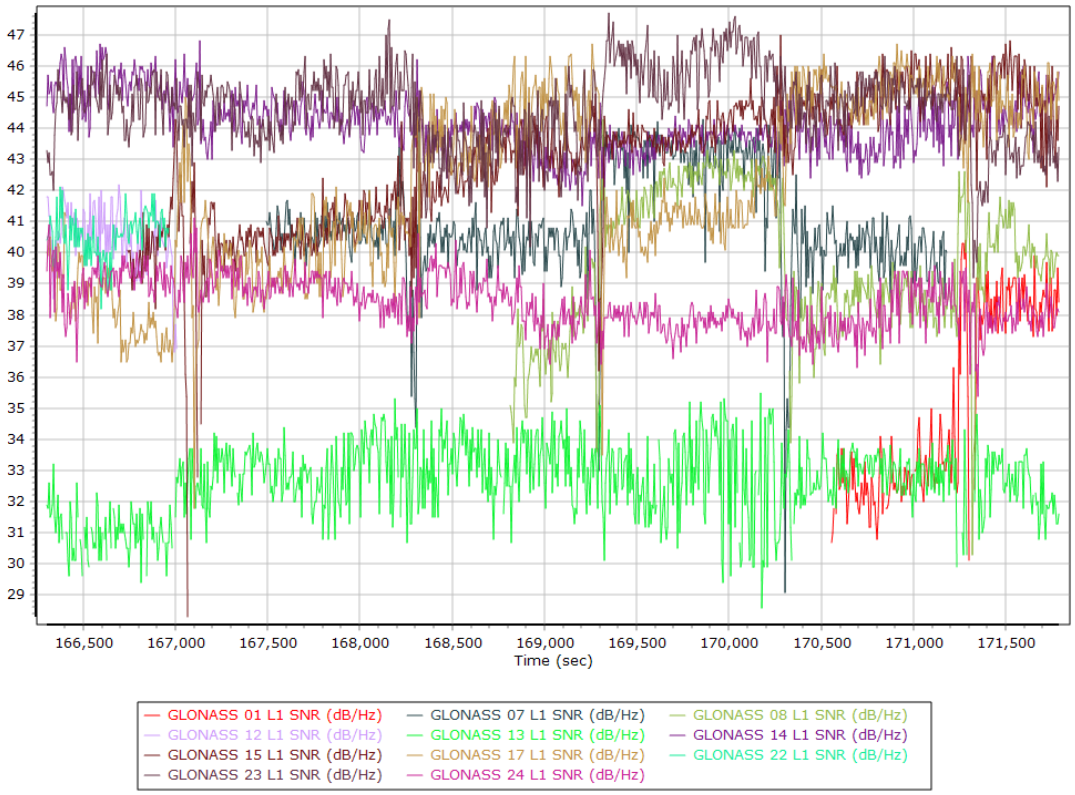
GPS L1 SNR



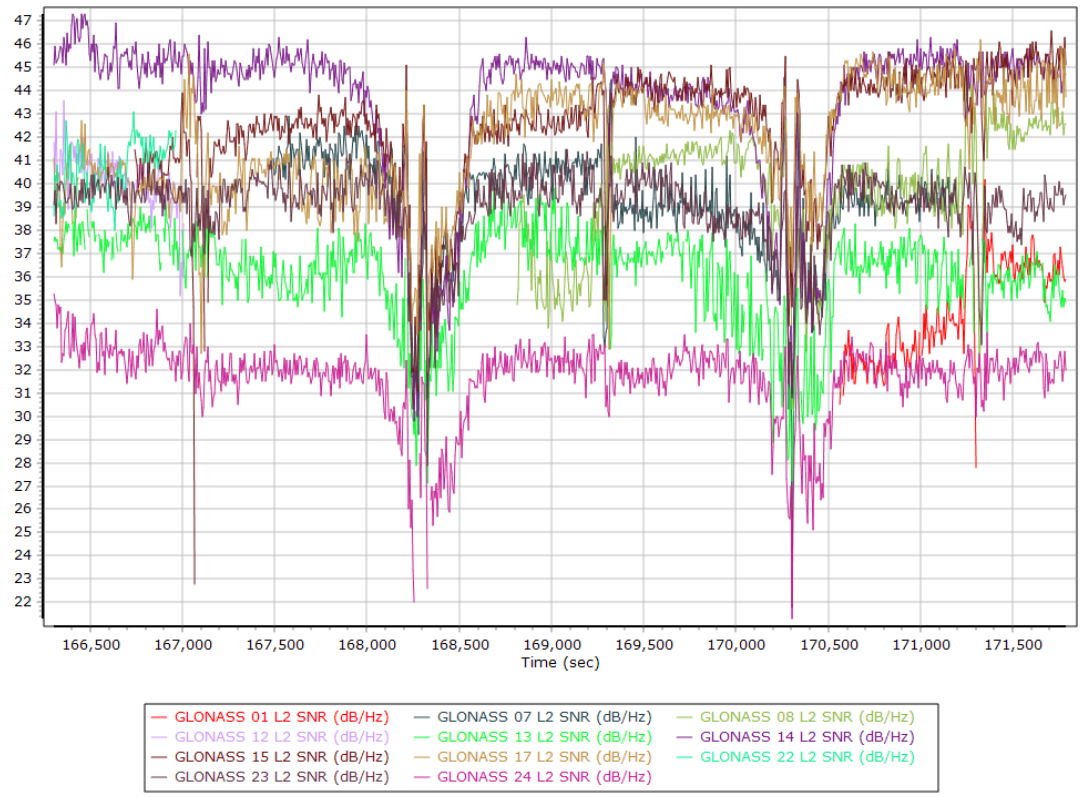
GPS L2 SNR



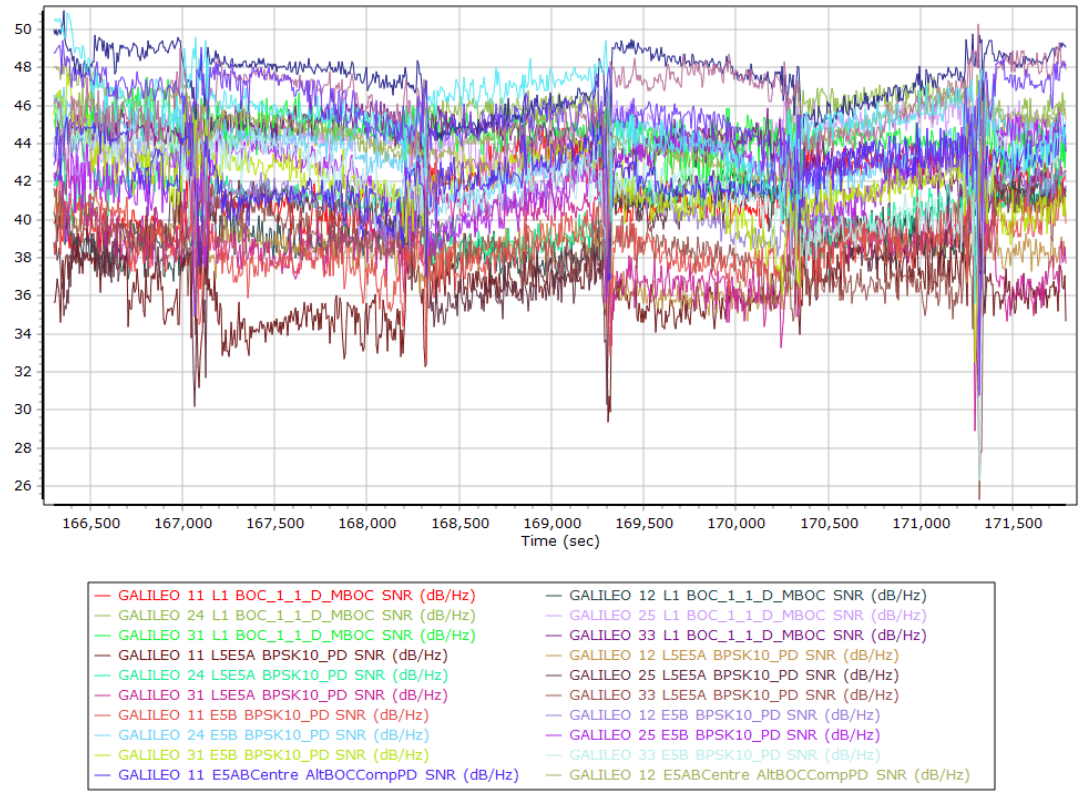
GLONASS L1 SNR



GLONASS L2 SNR

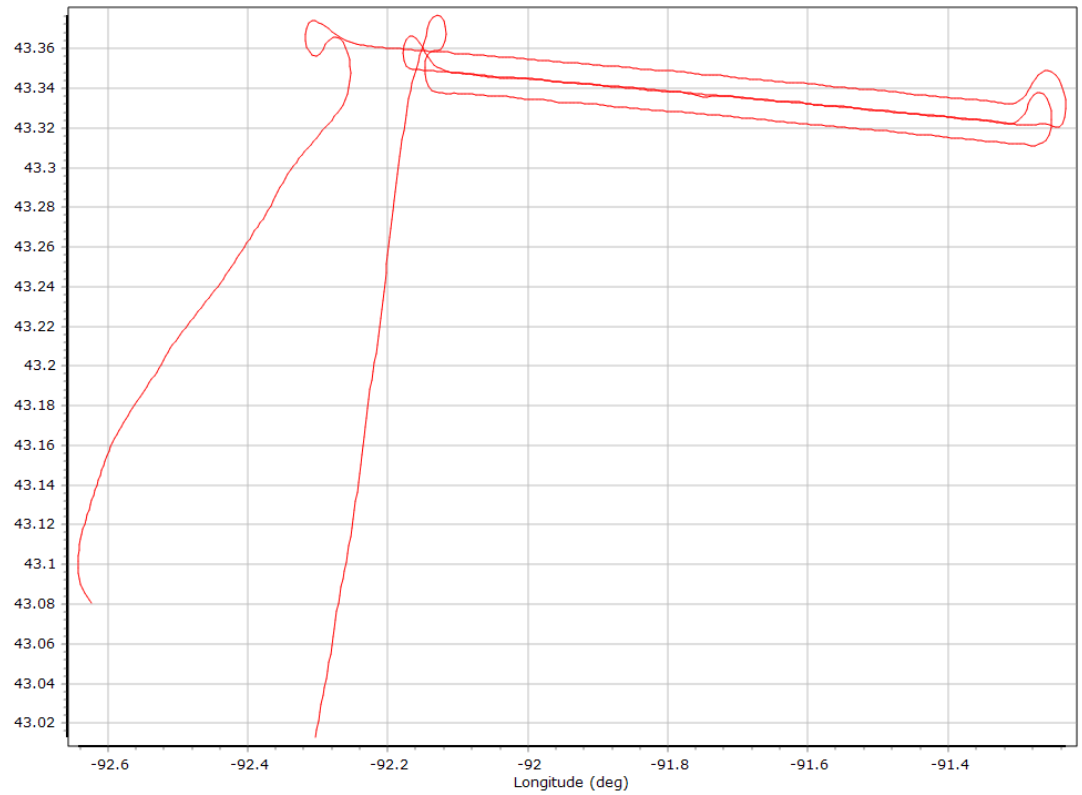


GALILEO SNR

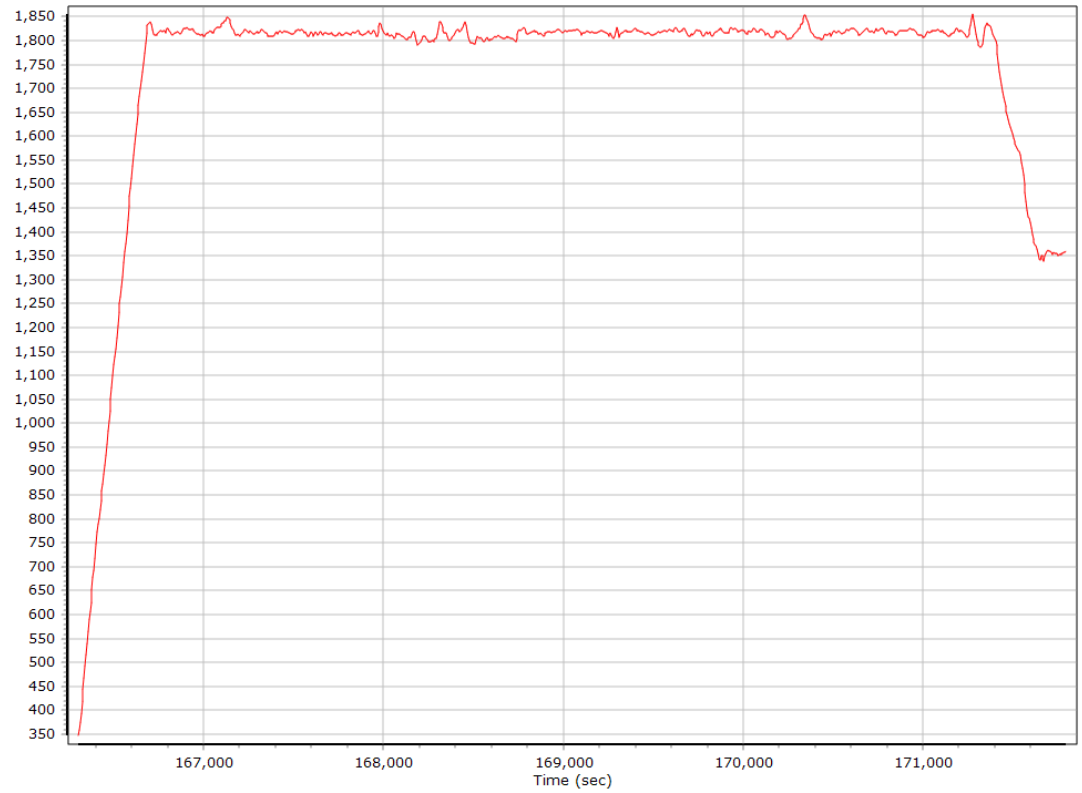


Smoothed Trajectory Information

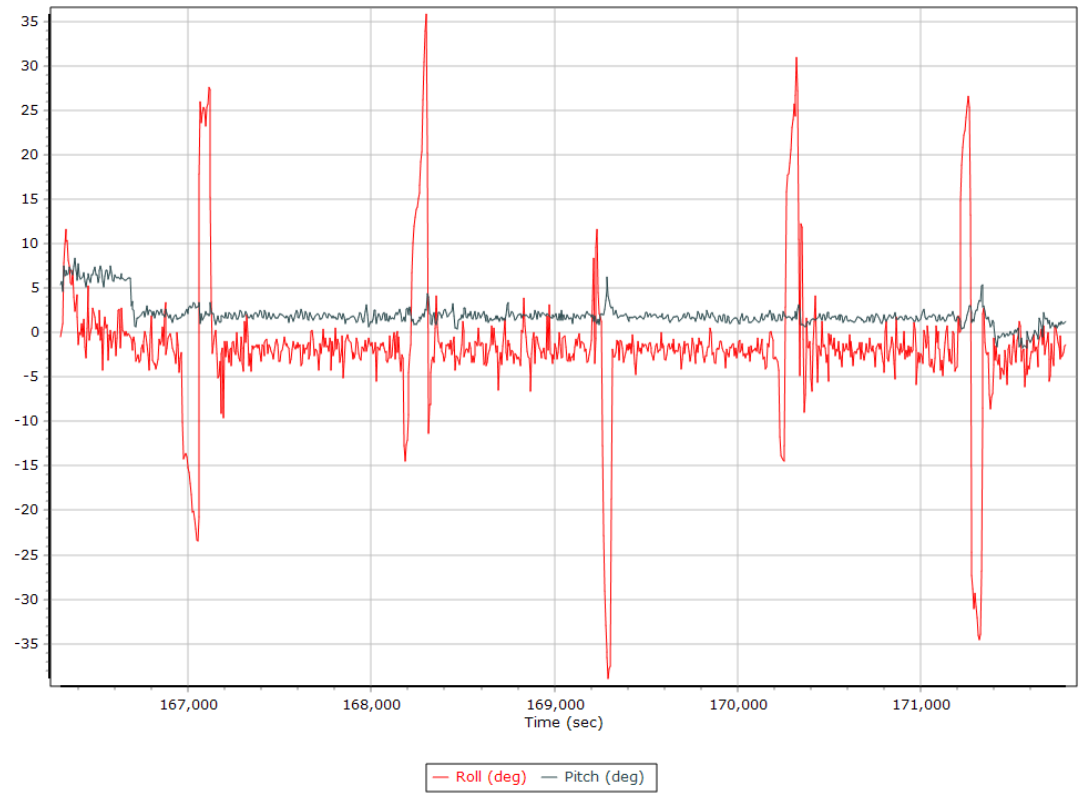
Top View



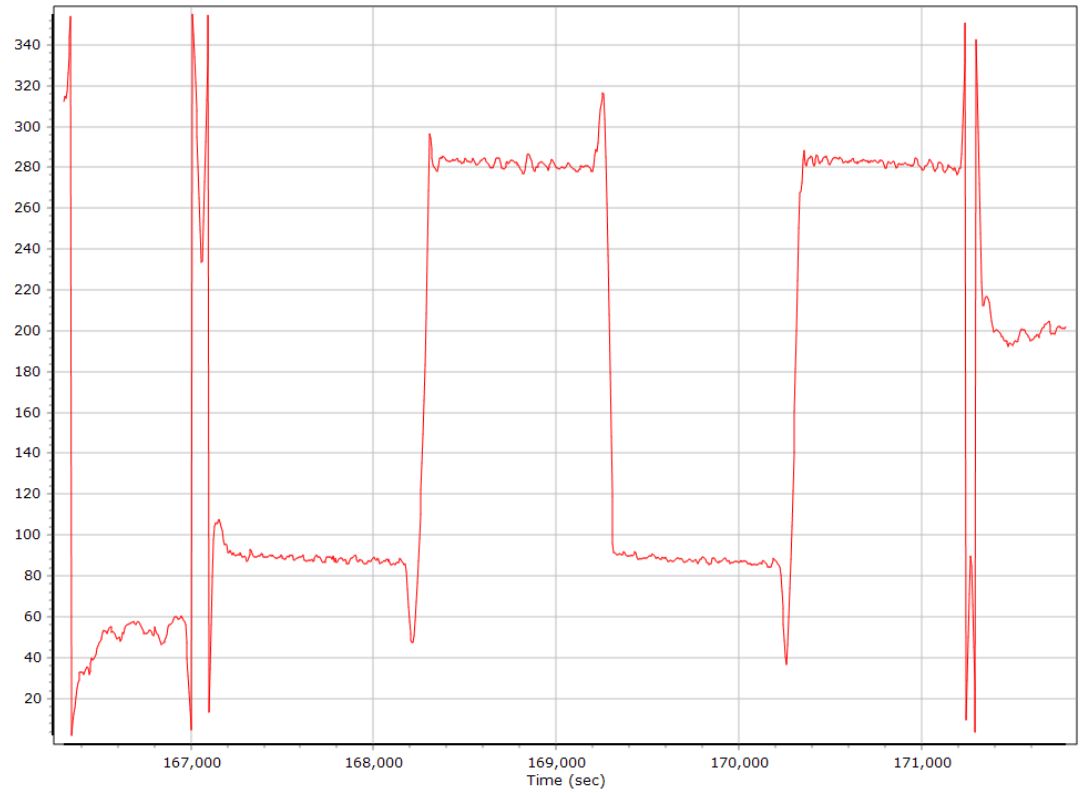
Altitude



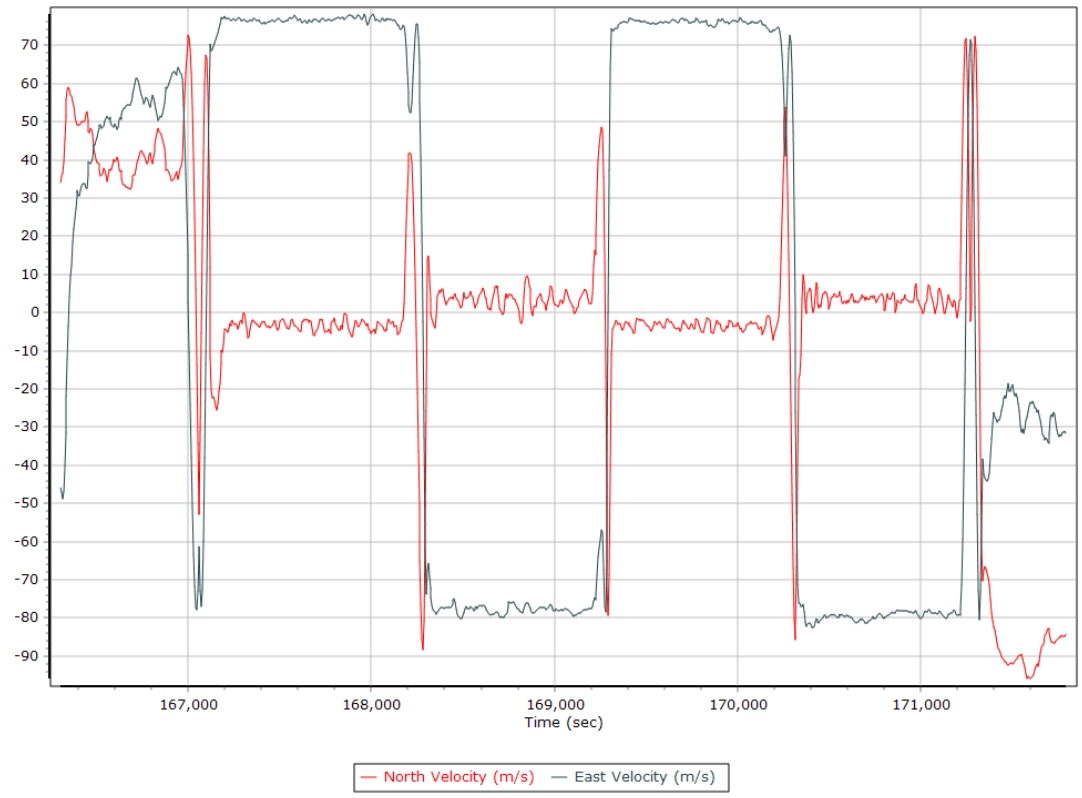
Roll/Pitch



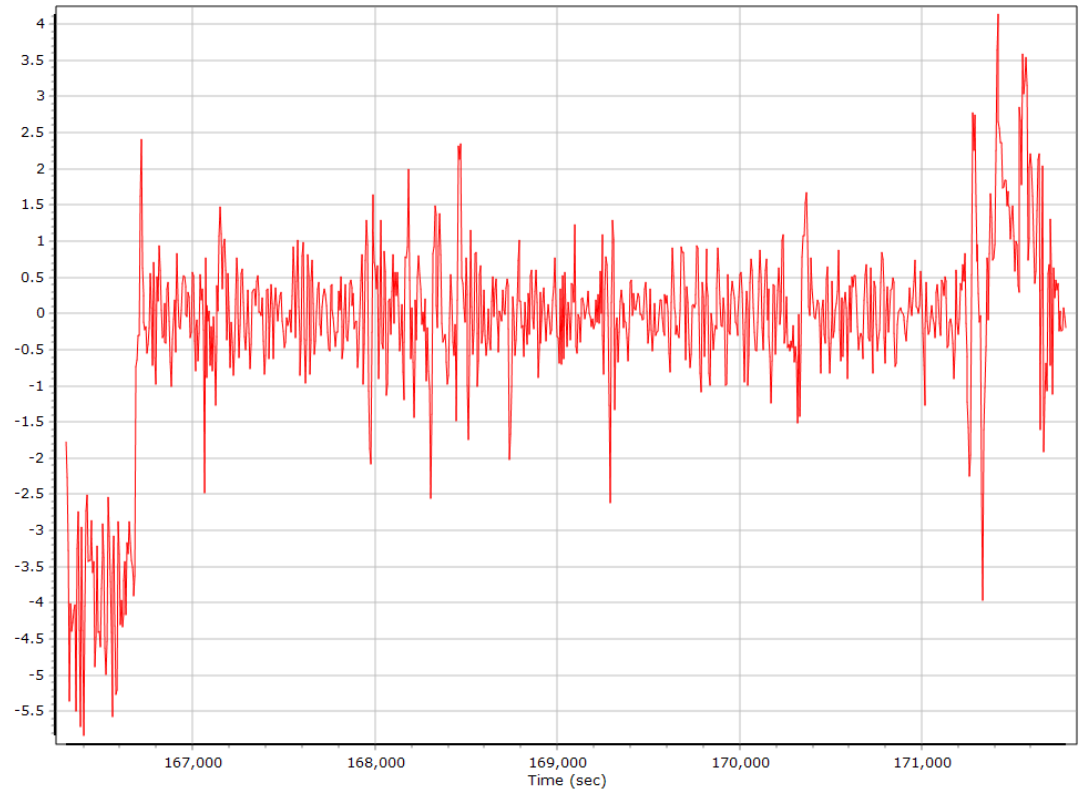
Heading



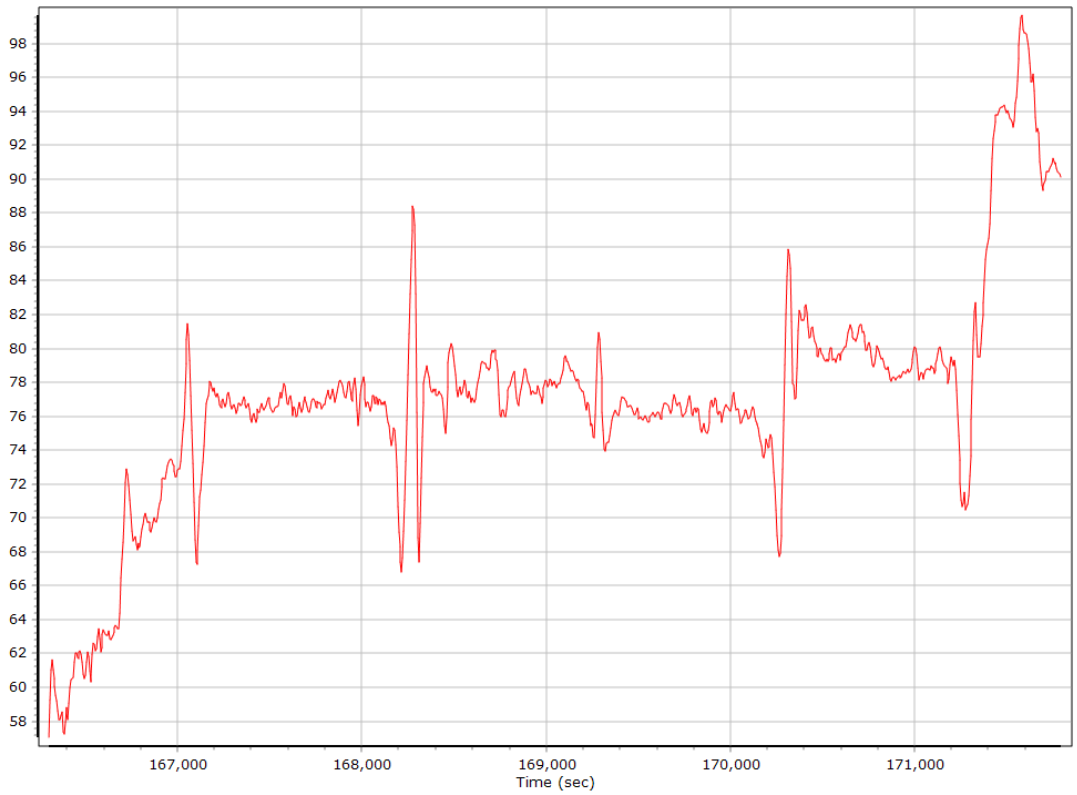
North/East Velocity



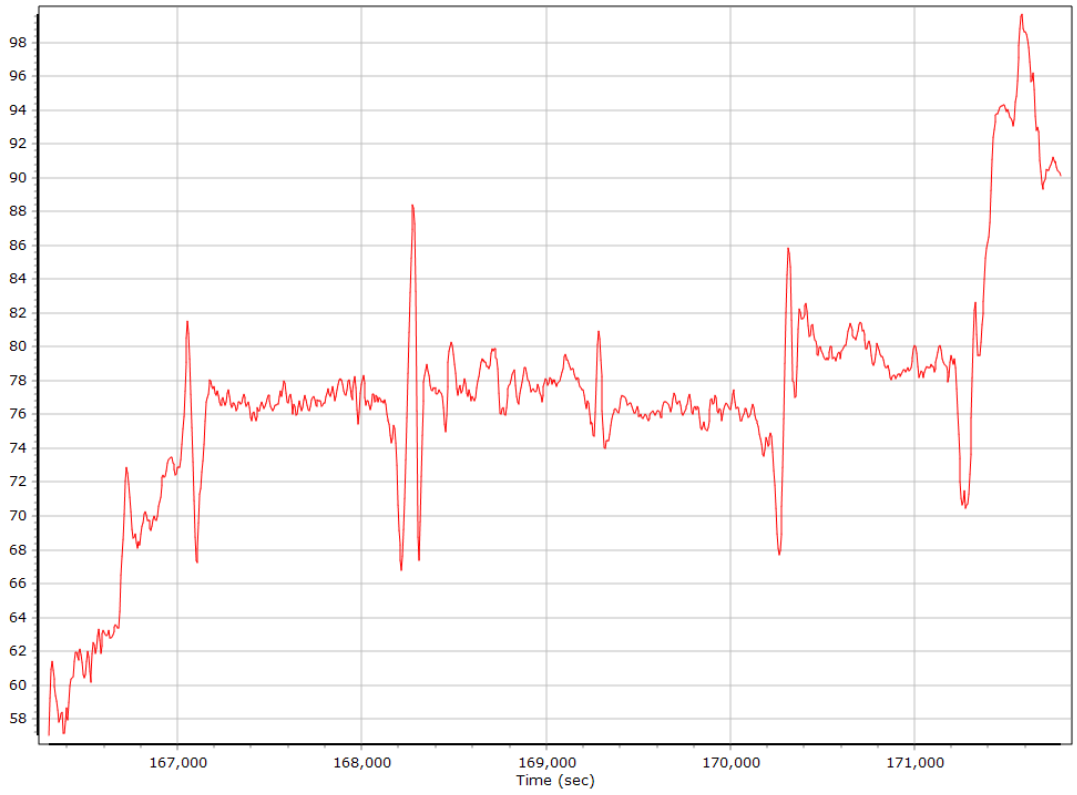
Down Velocity



Total Speed

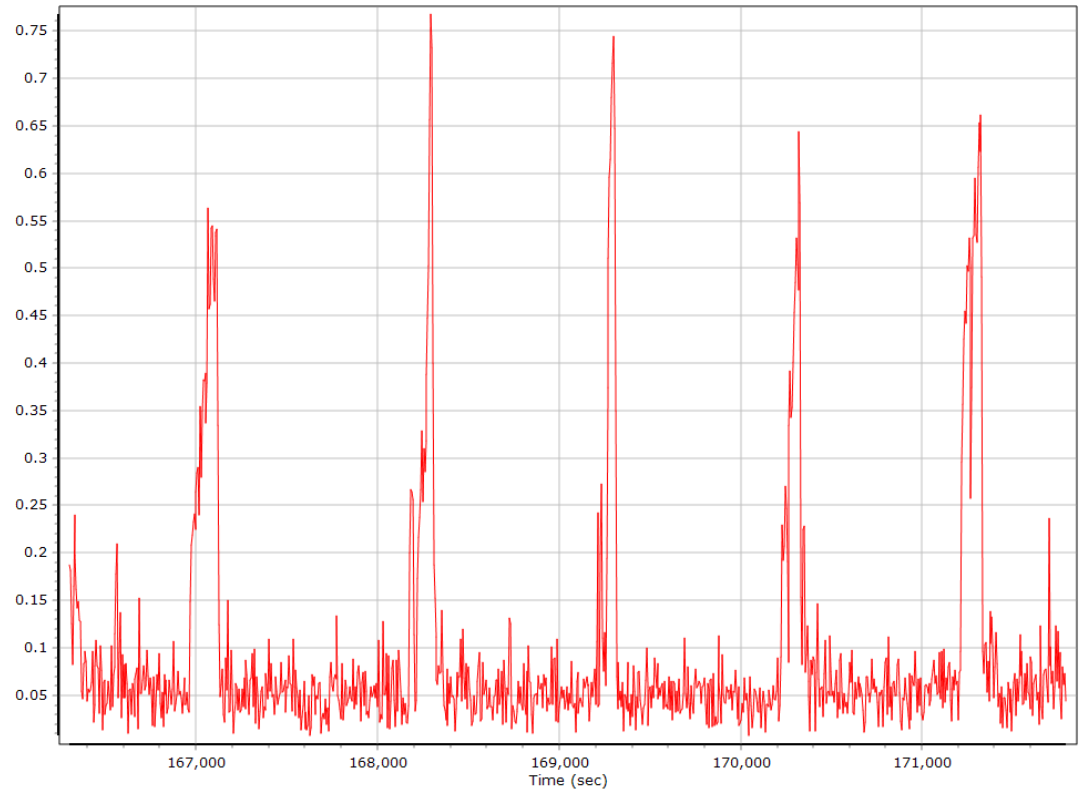


Ground Speed



Body Acceleration

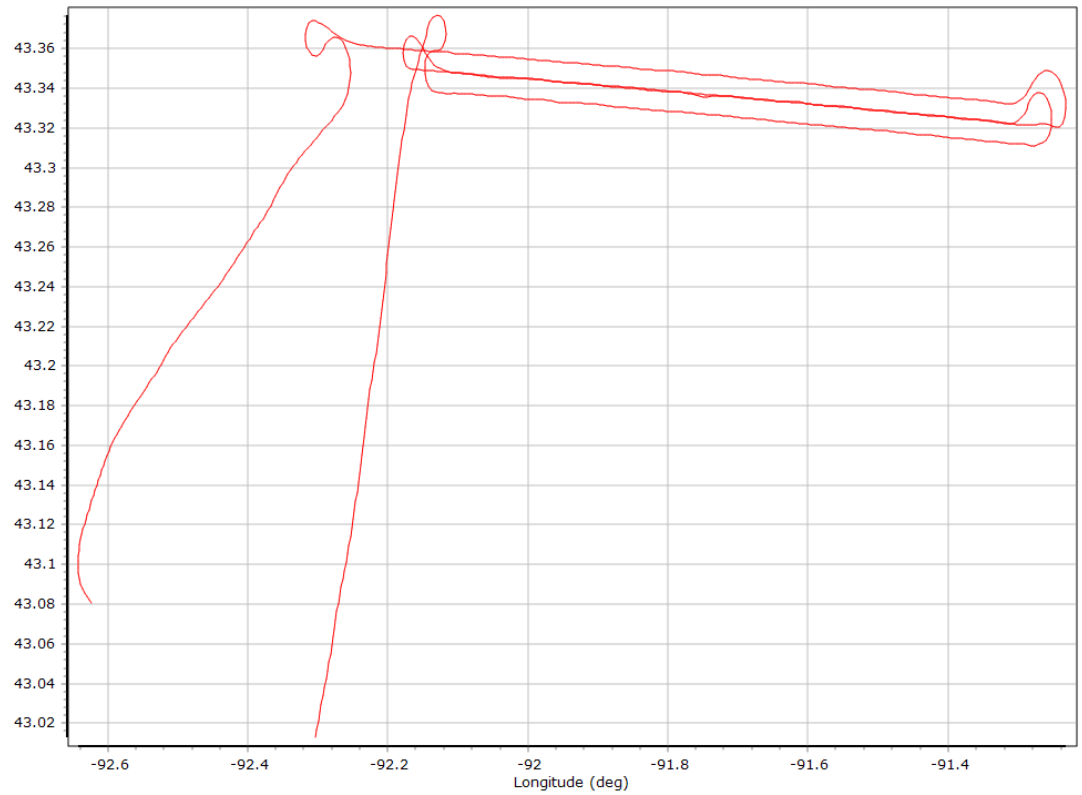
Total Body Acceleration



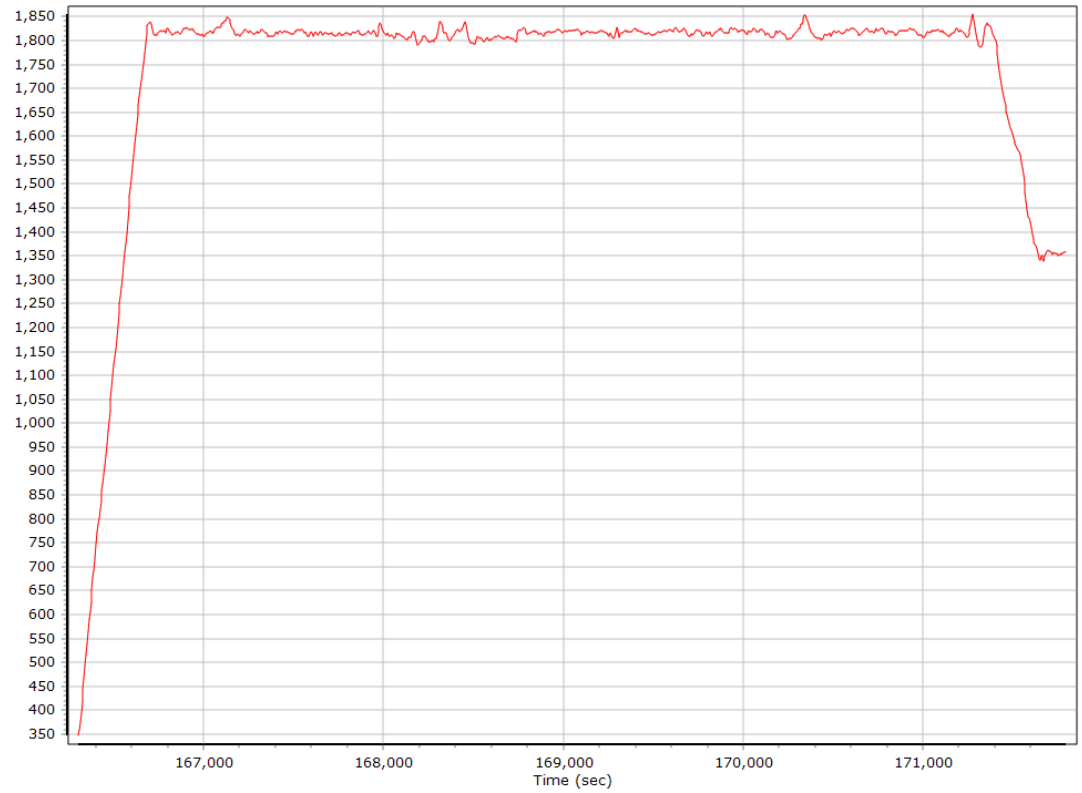
Body Angular Rate

Forward Processed Trajectory Information

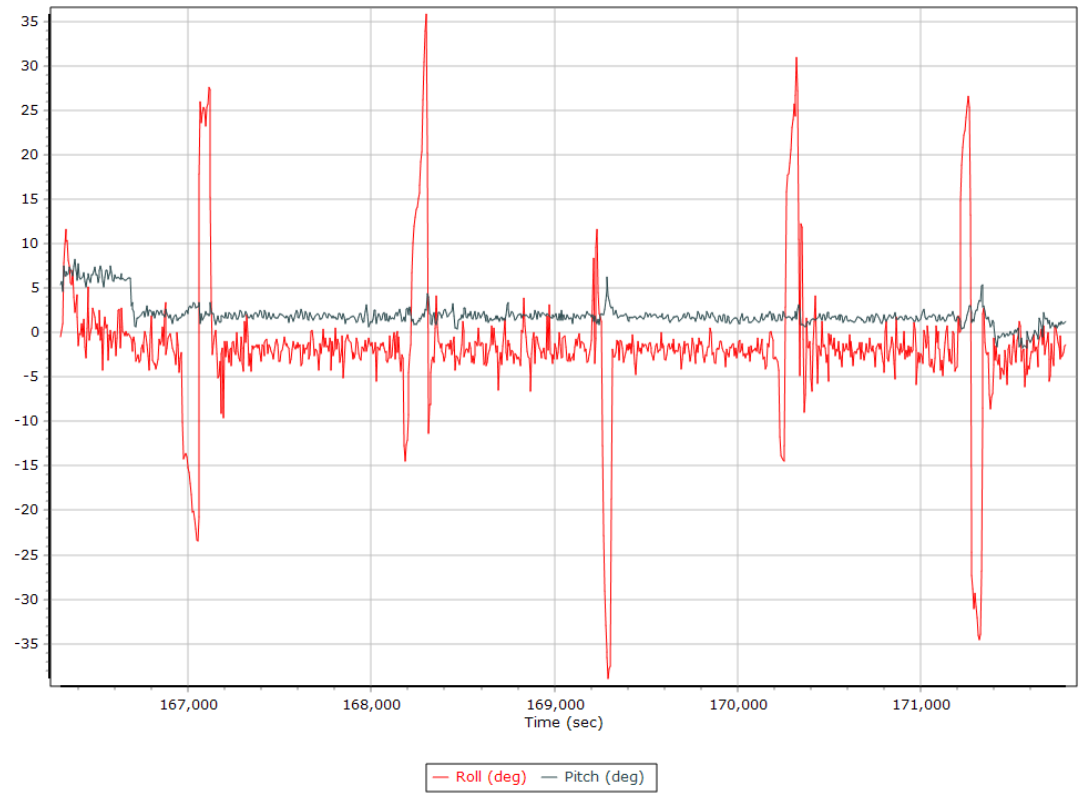
Top View



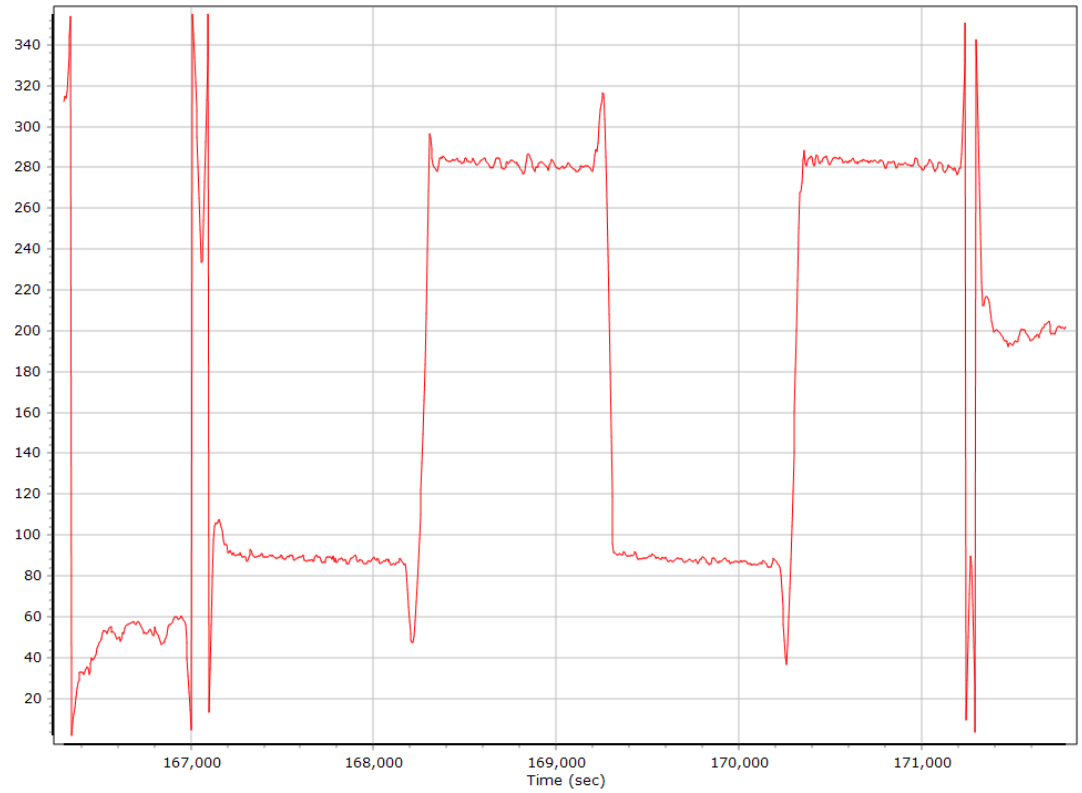
Altitude



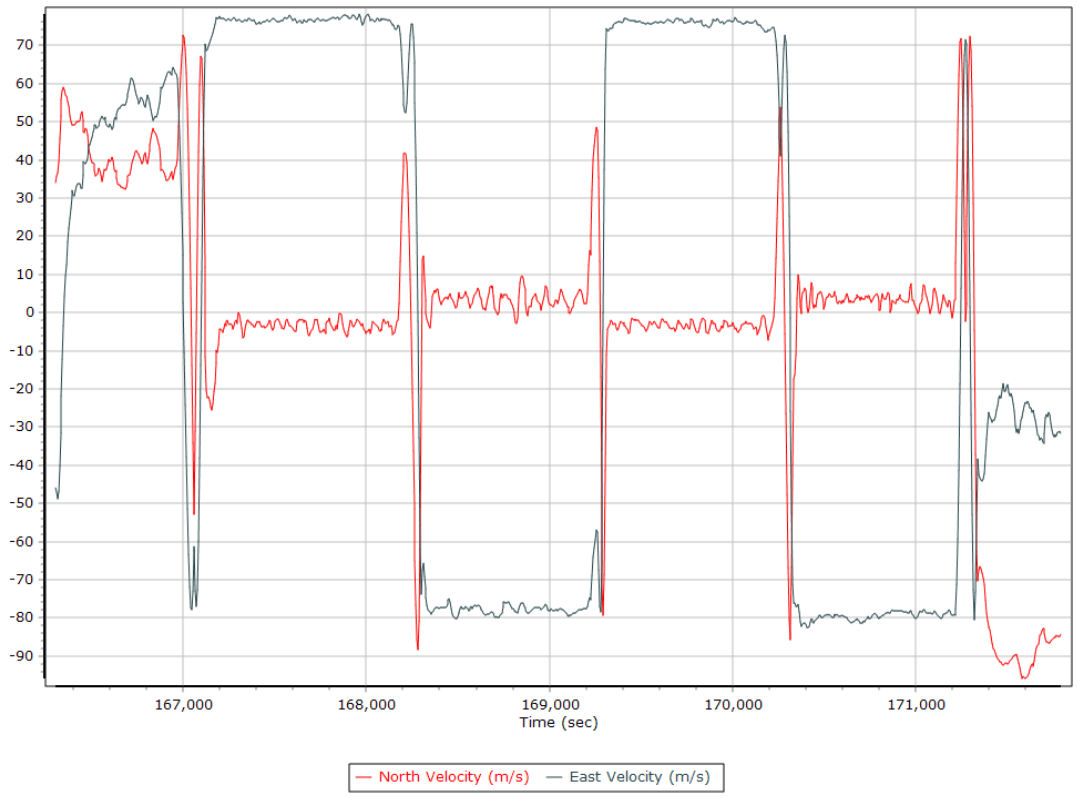
Roll/Pitch



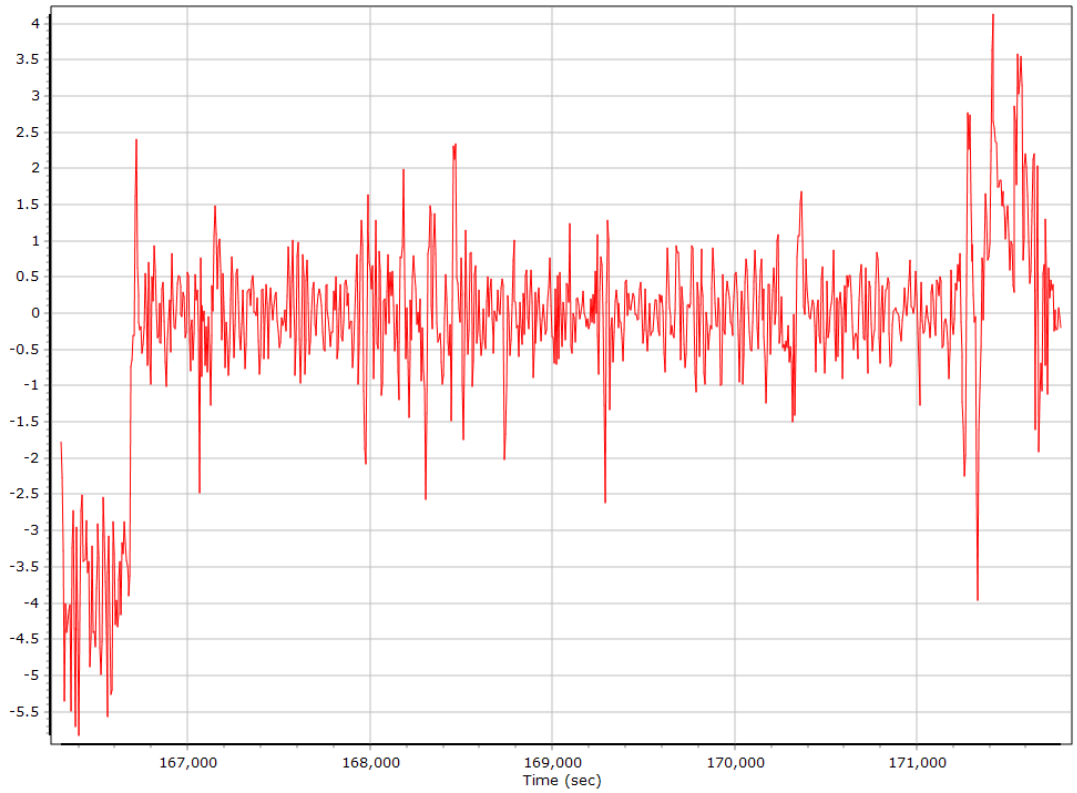
Heading



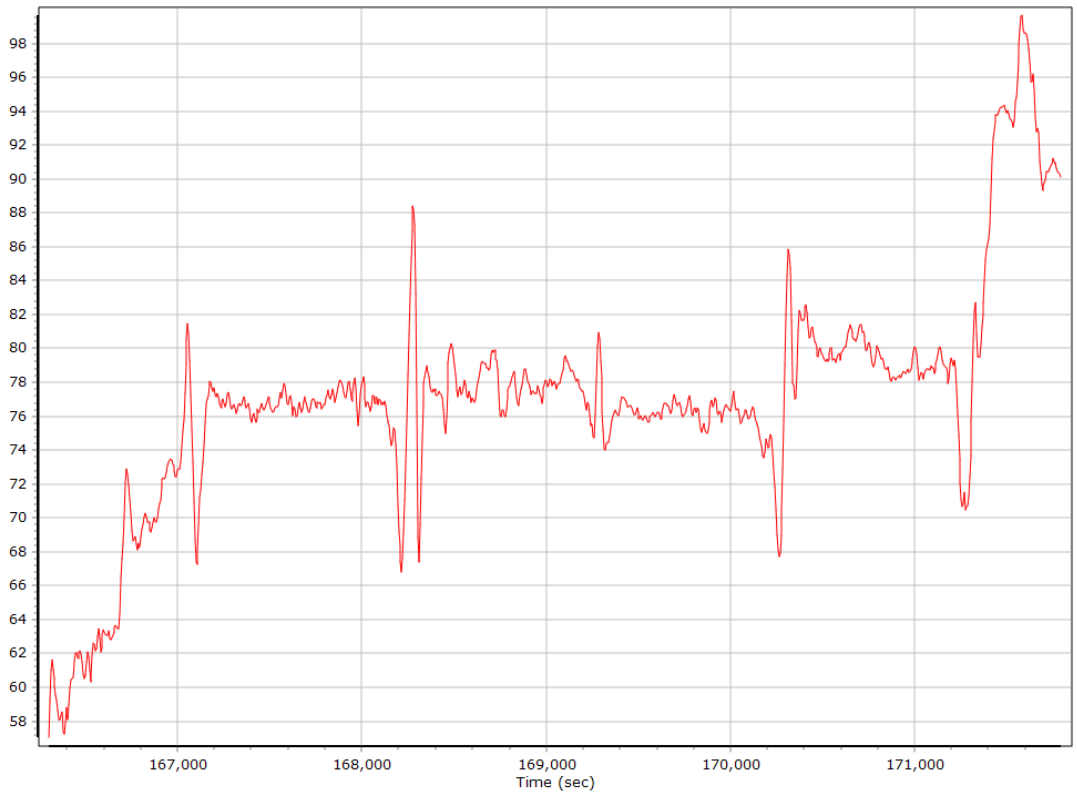
North/East Velocity



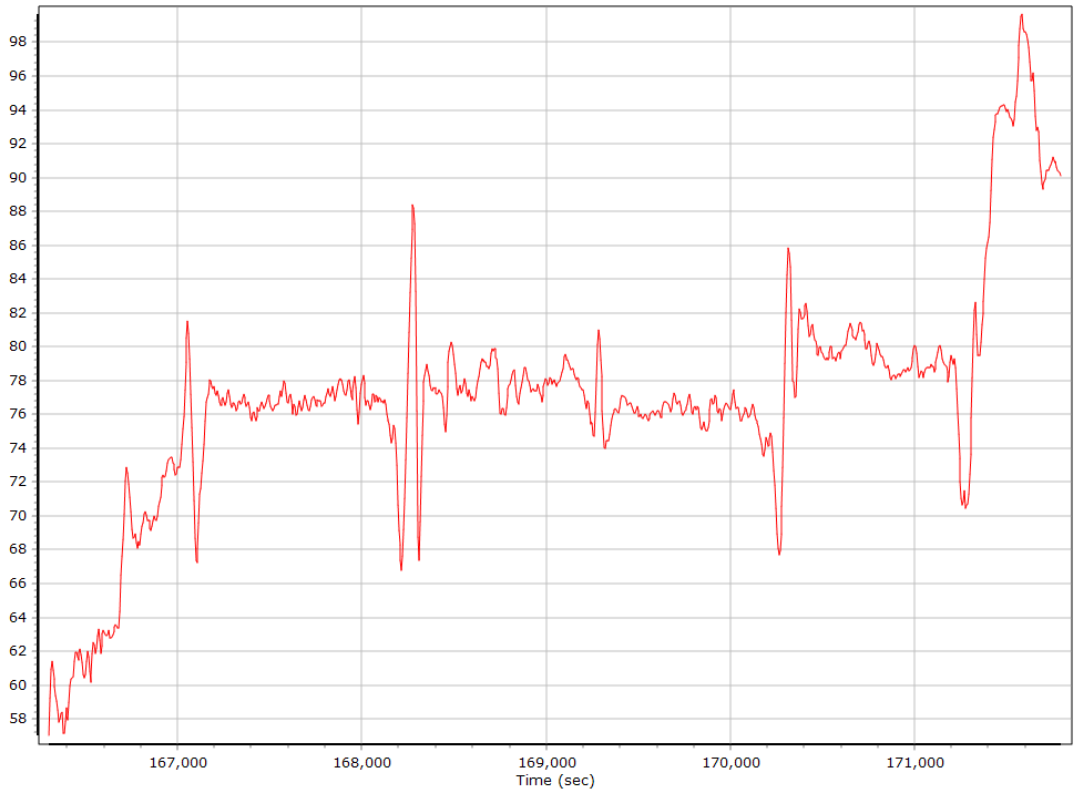
Down Velocity



Total Speed

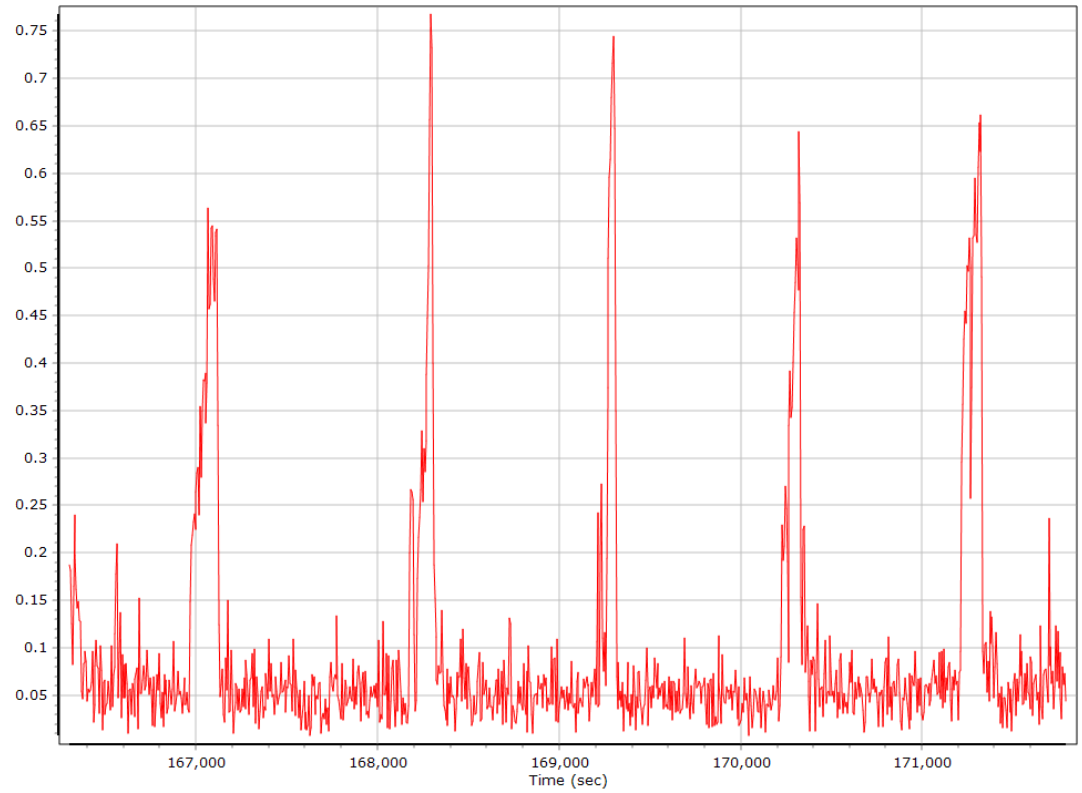


Ground Speed



Body Acceleration

Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
03/30/2020	IADE	10.38	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNPS	26.20	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNCA	53.70	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IANA	58.91	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IAEL	66.35	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNEY	77.15	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNSV	80.65	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	MNWN	88.86	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	IAAL	90.34	GNSS	30	CORS (daily)	Smart Base	Imported
03/30/2020	WLNC	113.01	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	6161 s (2099 165649 - 2099 171810)
Number of reference stations	10
Primary station GPS measurement usage (%)	99.9
Primary station GLONASS measurement usage (%)	97.3
Average number of satellites per epoch	15.0
Max number of GPS stations used	6
Min number of GPS stations used	5
Max number of GLONASS stations used	6
Min number of GLONASS stations used	5
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	1116
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - WLNC

Status	OK	**SBQI**	9	
Duration (Hours)	23.73	**Output Coordinates**	Original	
Solution Epochs	2848	**Mean Epoch SVs**	8.0	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°50'15.66938"	W90°42'41.07303"	280.855
Adjusted		N42°50'15.66931"	W90°42'41.07285"	280.852
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.003	0.006

Base Station Information

Station ID	WLNC		
Filename	wlnc0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72957
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N42°50'15.66938"		
Longitude	W90°42'41.07303"		
Ellipsoidal height (m)	280.85487		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24721"	291.092
Adjusted		N42°44'49.40393"	W92°47'14.24713"	291.118
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.026	0.027

Base Station Information

Station ID	IAAL		
Filename	iaal0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24721"		
Ellipsoidal height (m)	291.09236		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNWN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N44°03'54.03515"	W91°42'45.52413"	178.655
Adjusted		N44°03'54.03532"	W91°42'45.52343"	178.647
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.016	0.008	0.018

Base Station Information

Station ID	MNWN		
Filename	mnwn0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5443R50018
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N44°03'54.03515"		
Longitude	W91°42'45.52413"		
Ellipsoidal height (m)	178.65536		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNSV

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°54'09.07390"	W92°28'55.97411"	361.226
Adjusted		N43°54'09.07413"	W92°28'55.97392"	361.217
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.010	0.013

Base Station Information

Station ID	MNSV		
Filename	mnsv0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	Alloy	5829R40031
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°54'09.07390"		
Longitude	W92°28'55.97411"		
Ellipsoidal height (m)	361.22648		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNEY

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°57'20.27378"	W92°12'19.44384"	370.916
Adjusted		N43°57'20.27377"	W92°12'19.44356"	370.902
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.014	0.015

Base Station Information

Station ID	MNEY		
Filename	mney0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5426R48922
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°57'20.27378"		
Longitude	W92°12'19.44384"		
Ellipsoidal height (m)	370.91641		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.76	**Output Coordinates**	Original	
Solution Epochs	2851	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52983"	298.980
Adjusted		N42°52'40.47656"	W91°21'41.52967"	298.985
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.005	0.007

Base Station Information

Station ID	IAEL		
Filename	iael0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52983"		
Ellipsoidal height (m)	298.98033		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.0	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54030"	172.253
Adjusted		N43°29'49.47914"	W91°17'26.53950"	172.228
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.019	0.025	0.032

Base Station Information

Station ID	IANA		
Filename	iana0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54030"		
Ellipsoidal height (m)	172.25325		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64528"	W91°29'46.51634"	339.589
Adjusted		N43°37'58.64530"	W91°29'46.51590"	339.595
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.006	0.012

Base Station Information

Station ID	MNCA		
Filename	mnca0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64528"		
Longitude	W91°29'46.51634"		
Ellipsoidal height (m)	339.58853		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2865	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52630"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52630"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52630"		
Ellipsoidal height (m)	316.51621		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86726"	380.908
Adjusted		N43°30'53.84825"	W91°53'06.86719"	380.913
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.005	0.007

Base Station Information

Station ID	MNPS		
Filename	mnps0900.20o		
Start date	3/30/2020 12:00:00 AM		
End date	3/30/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86726"		
Ellipsoidal height (m)	380.90782		
Frame	ITRF00		
Epoch	2020.243169		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	5.30	59.58	
Number of GPS SV	4	10	9
Number of GLONASS SV	0	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	8	16	15
PDOP	1.13	3.23	1.30
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	6142.00	0.00	1.00
Percentage	99.98	0.00	0.02

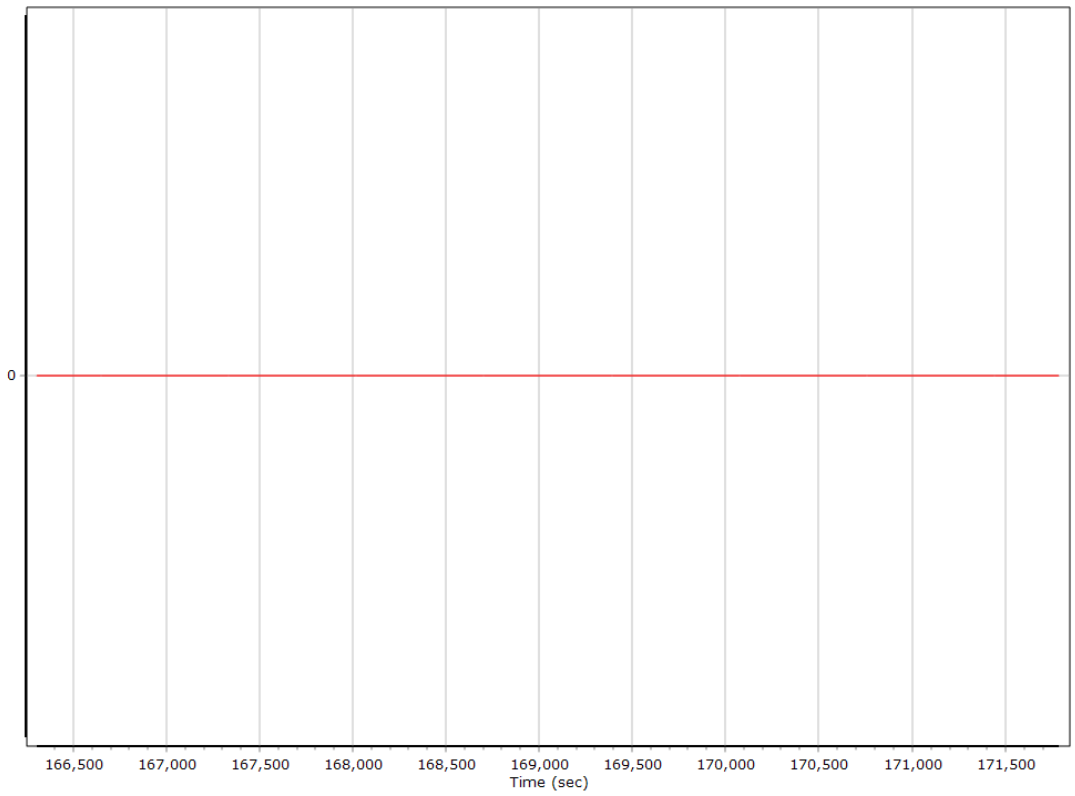
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	165631.000 (3/30/2020 10:00:31 PM)		
Processing end time	171792.000 (3/30/2020 11:43:12 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

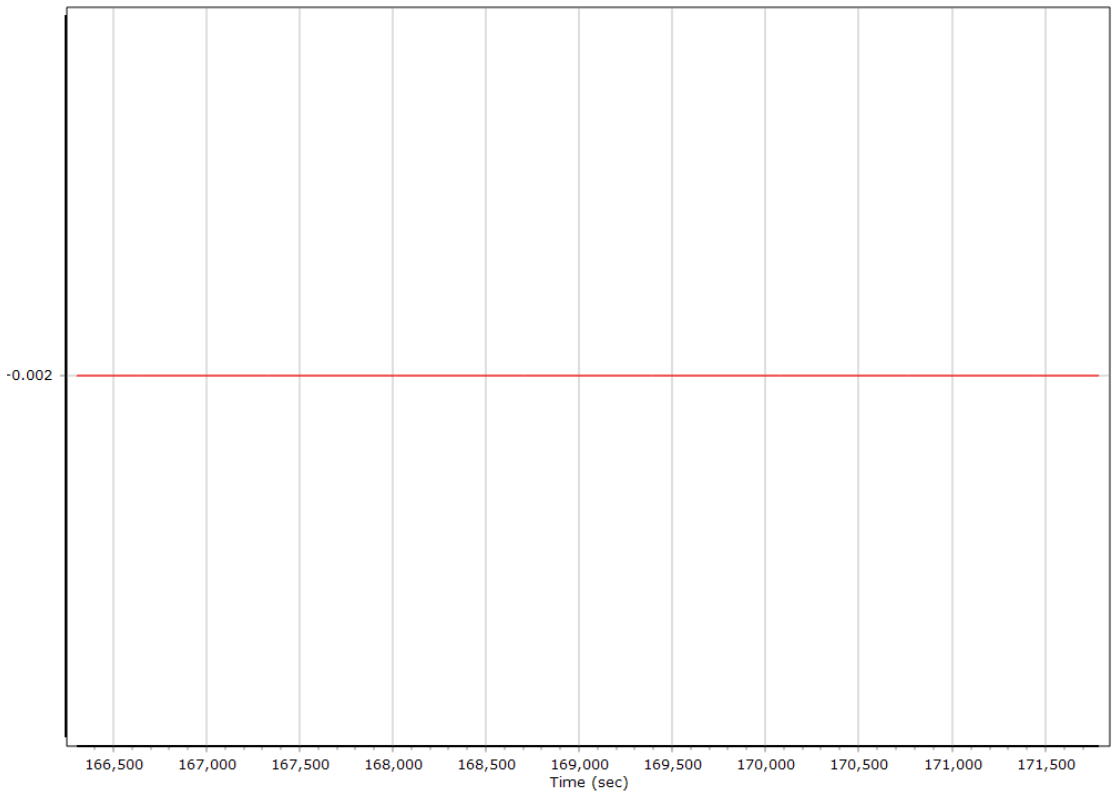
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

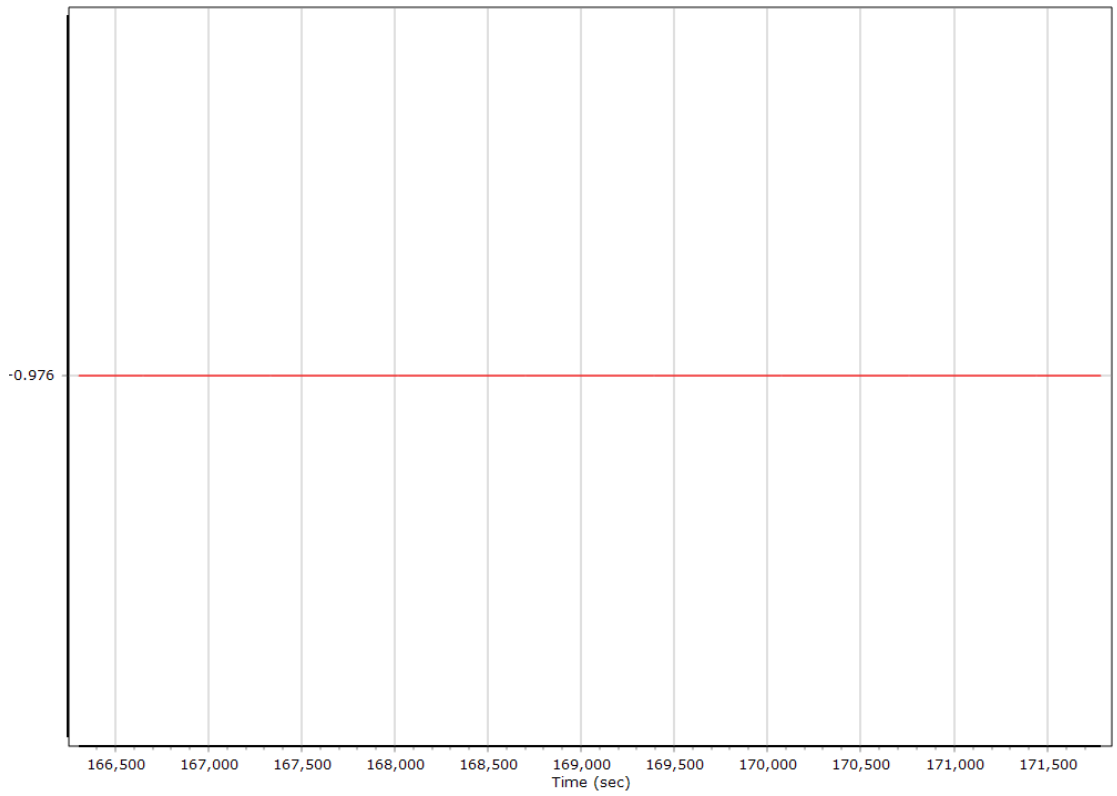
X Reference-Primary GNSS Lever Arm (m)



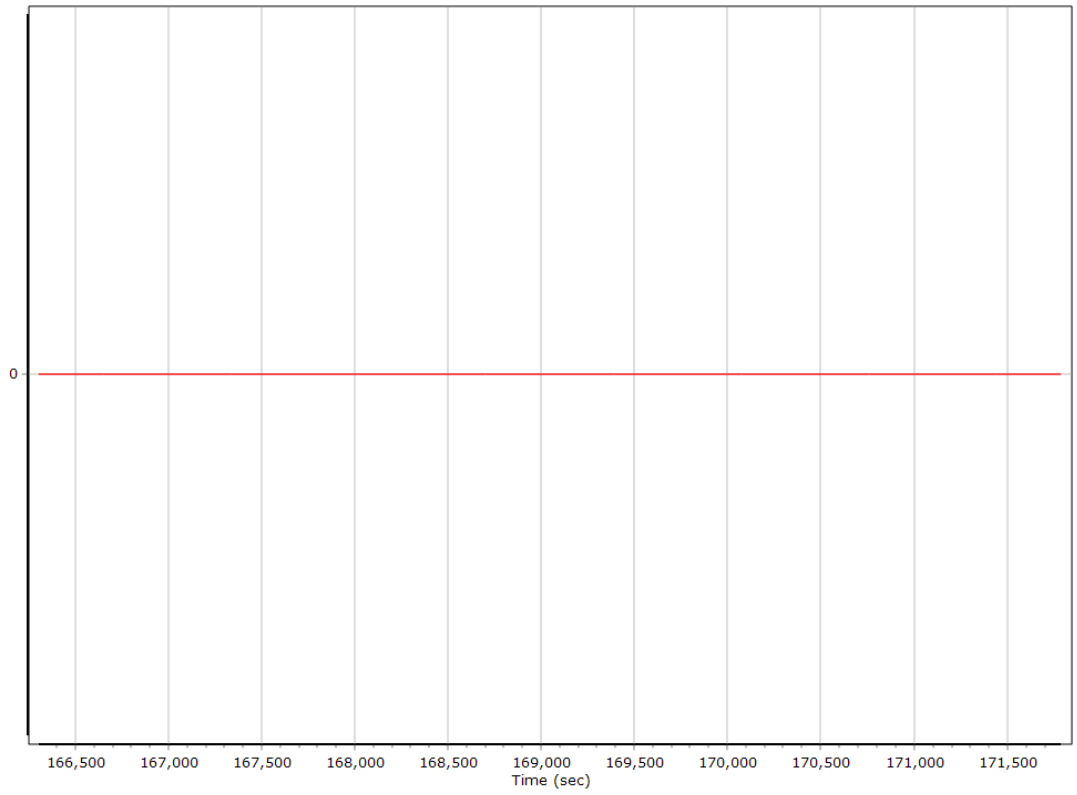
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



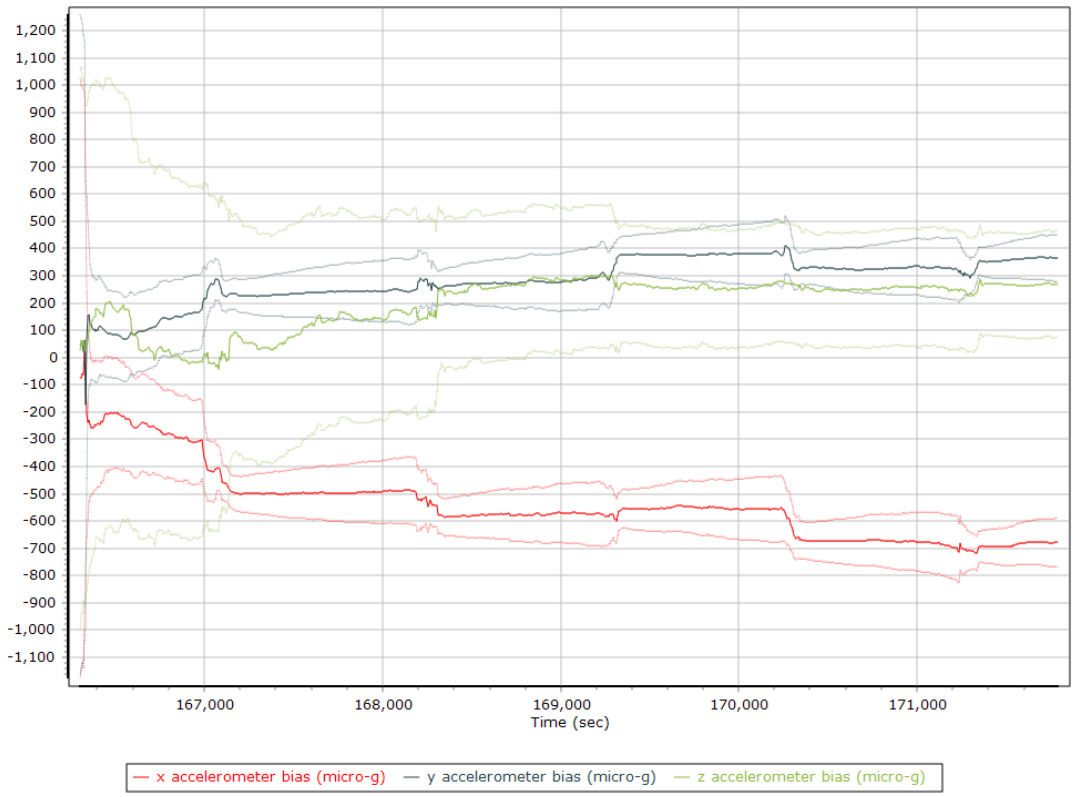
Reference-Primary GNSS Lever Arm Figure of Merit



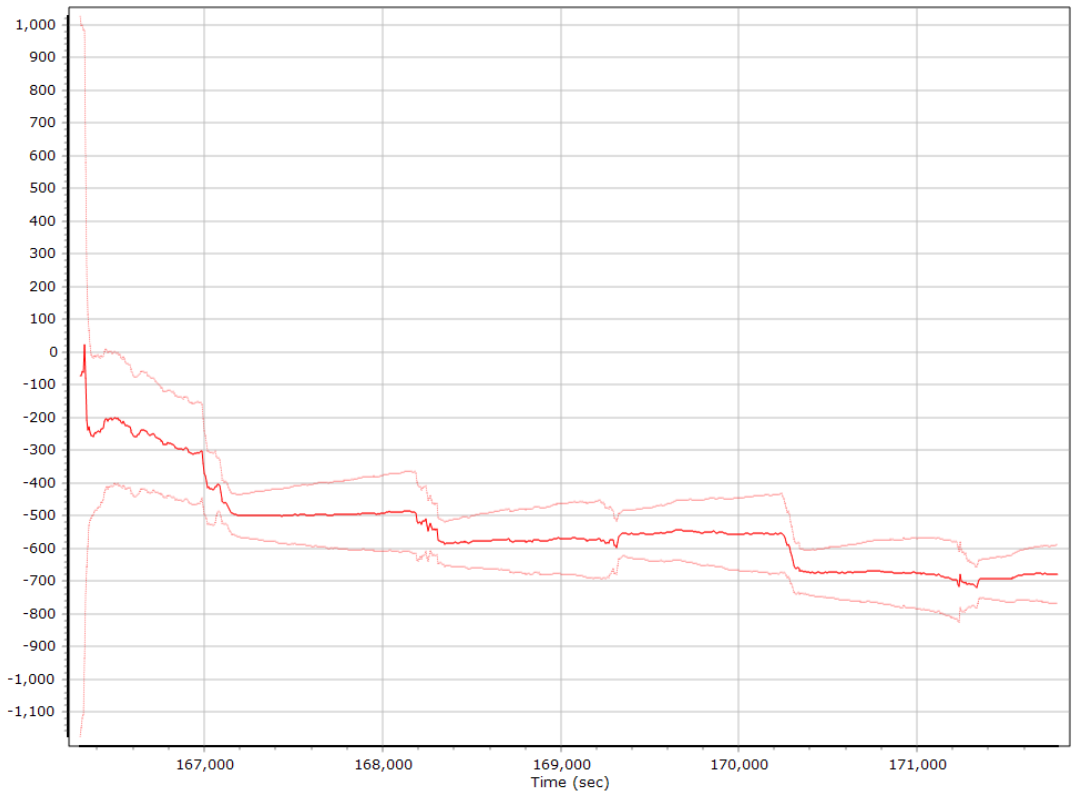
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

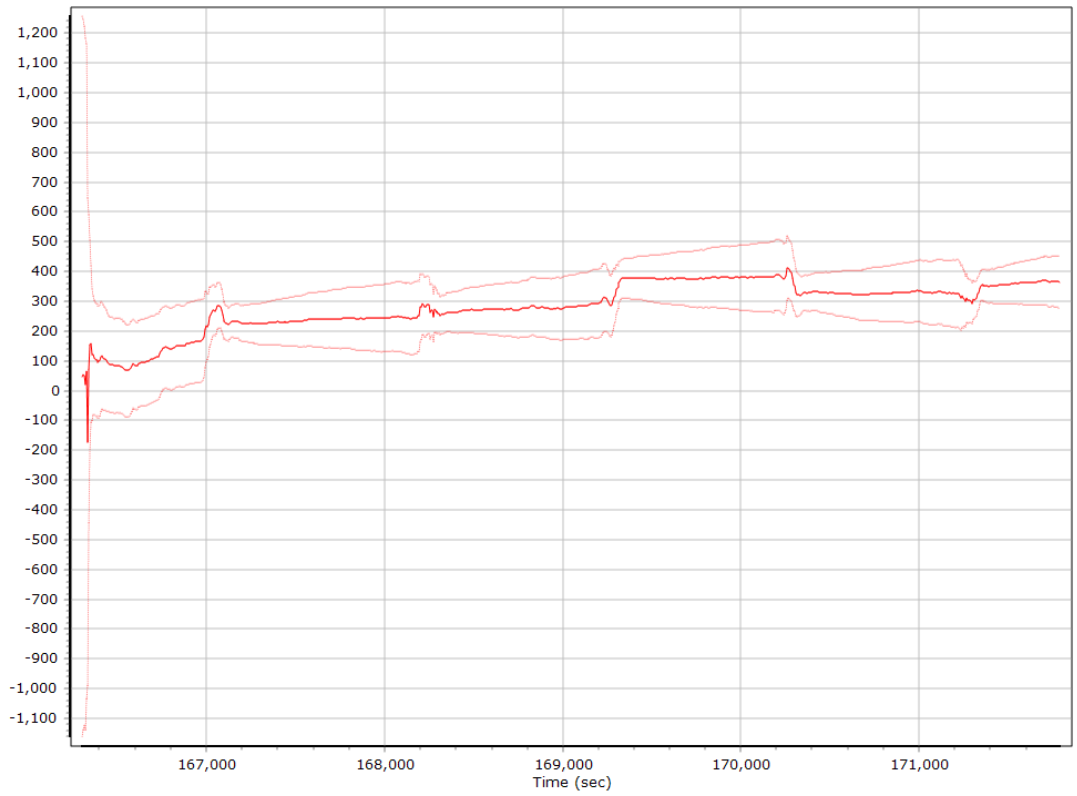
Accelerometer Bias (micro-g)



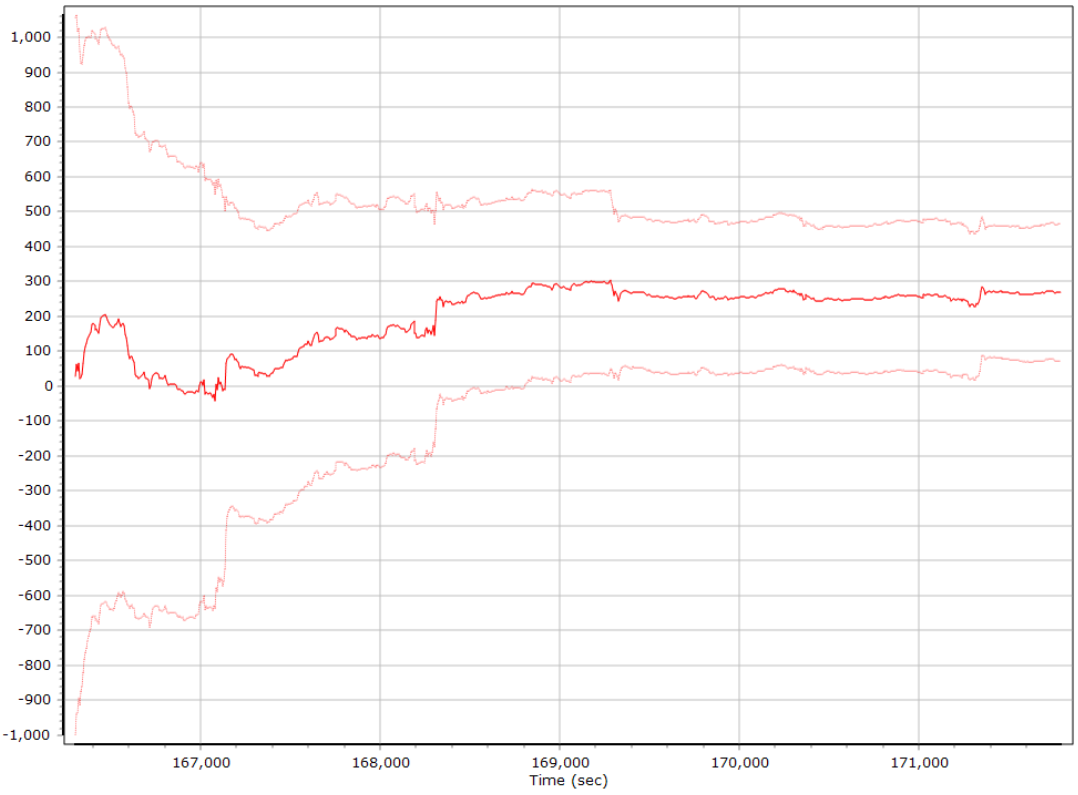
X Accelerometer Bias (micro-g)



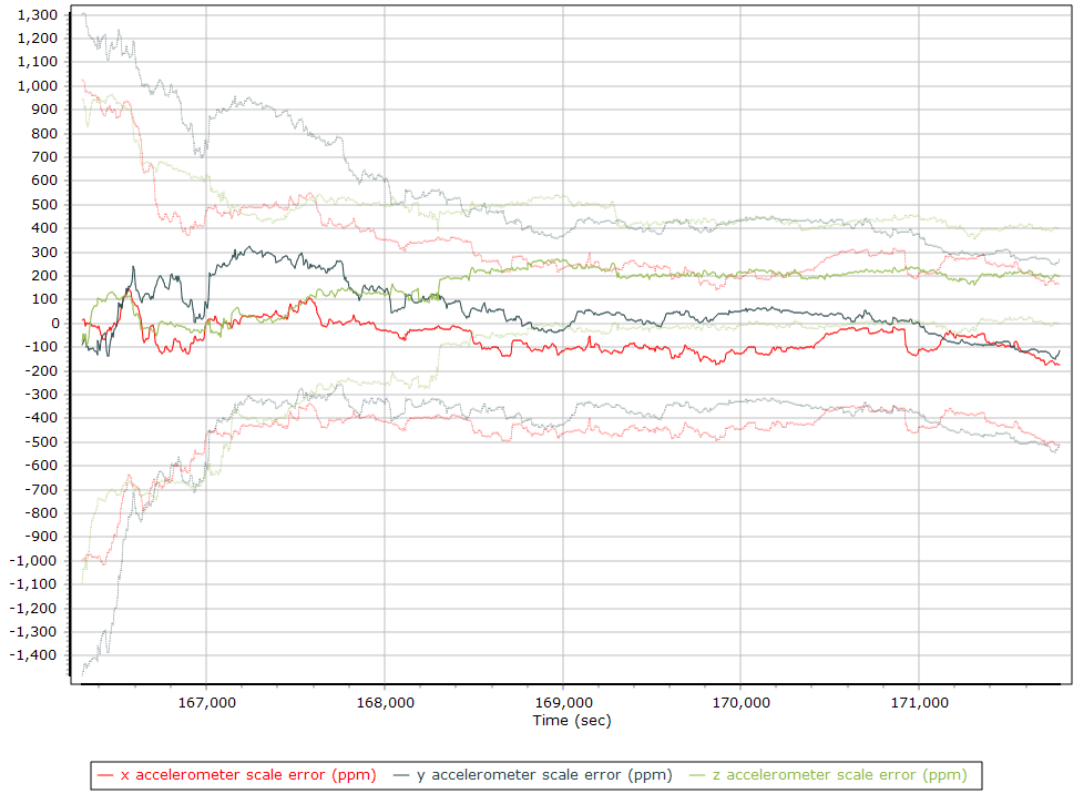
Y Accelerometer Bias (micro-g)



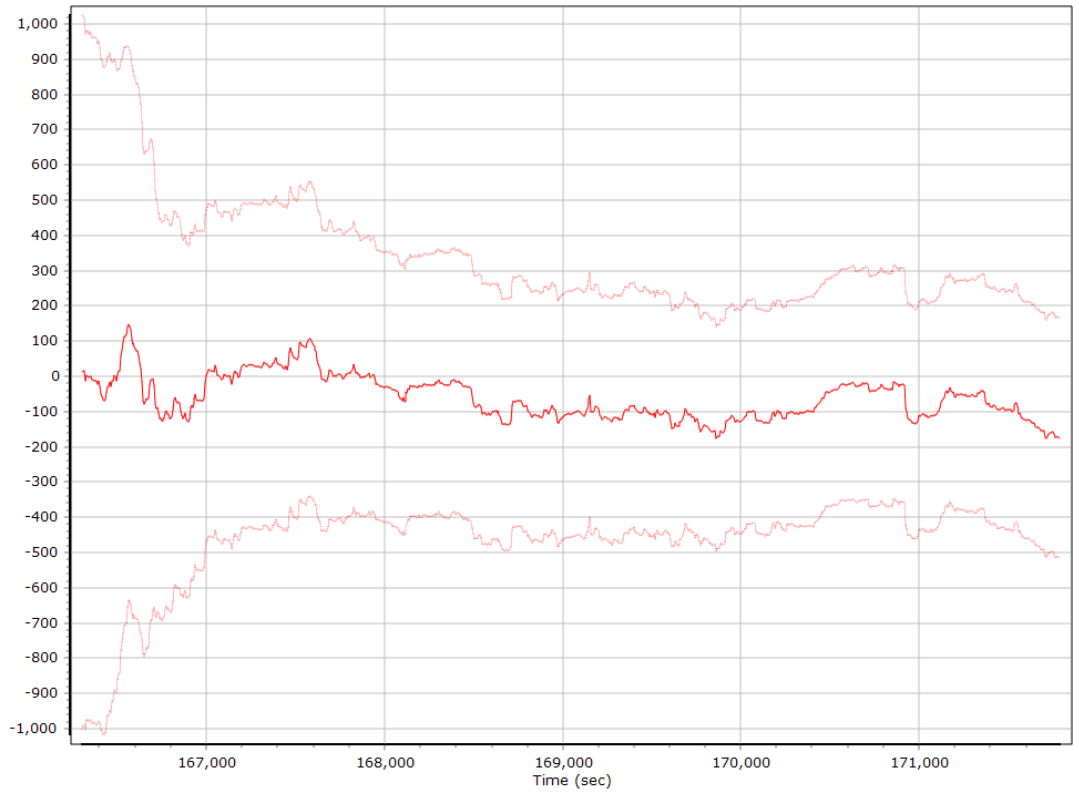
Z Accelerometer Bias (micro-g)



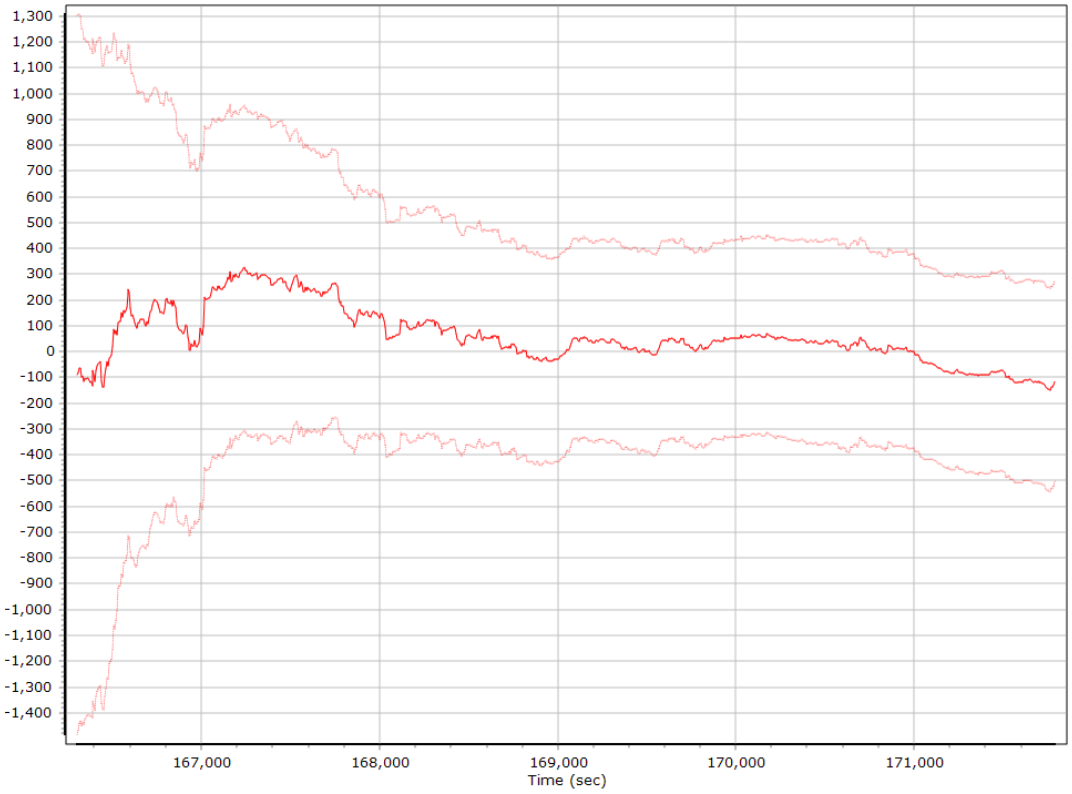
Accelerometer Scale Error (ppm)



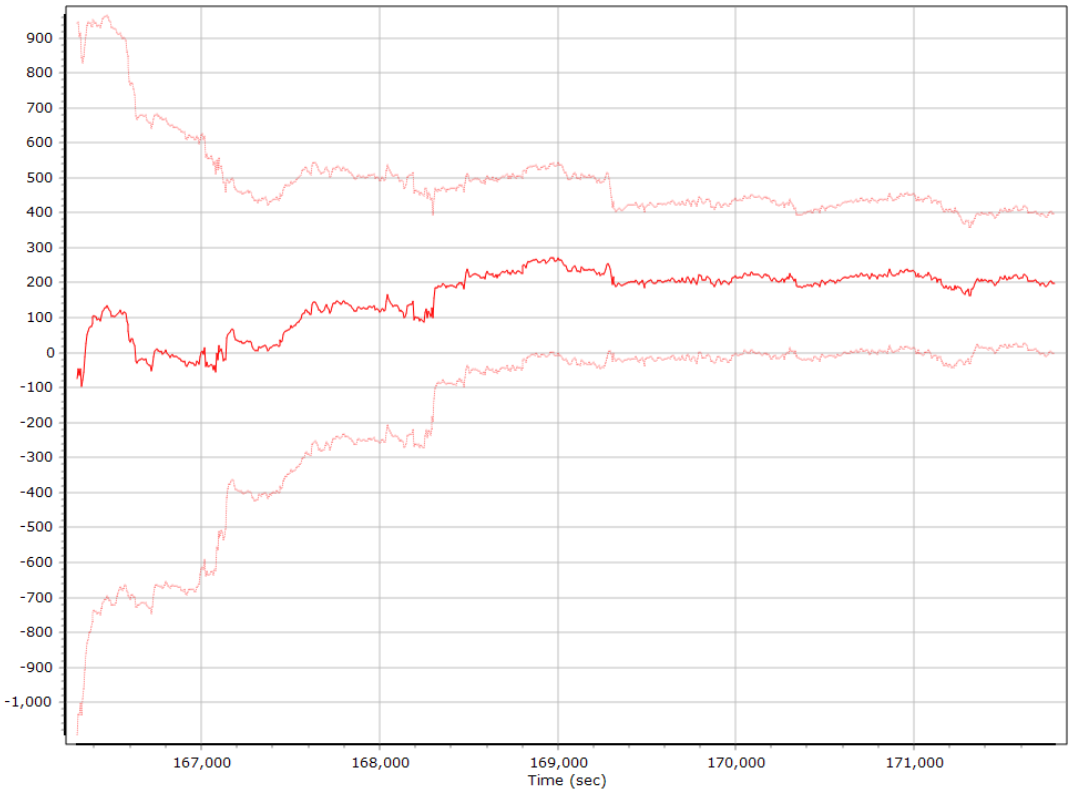
X Accelerometer Scale Error (ppm)



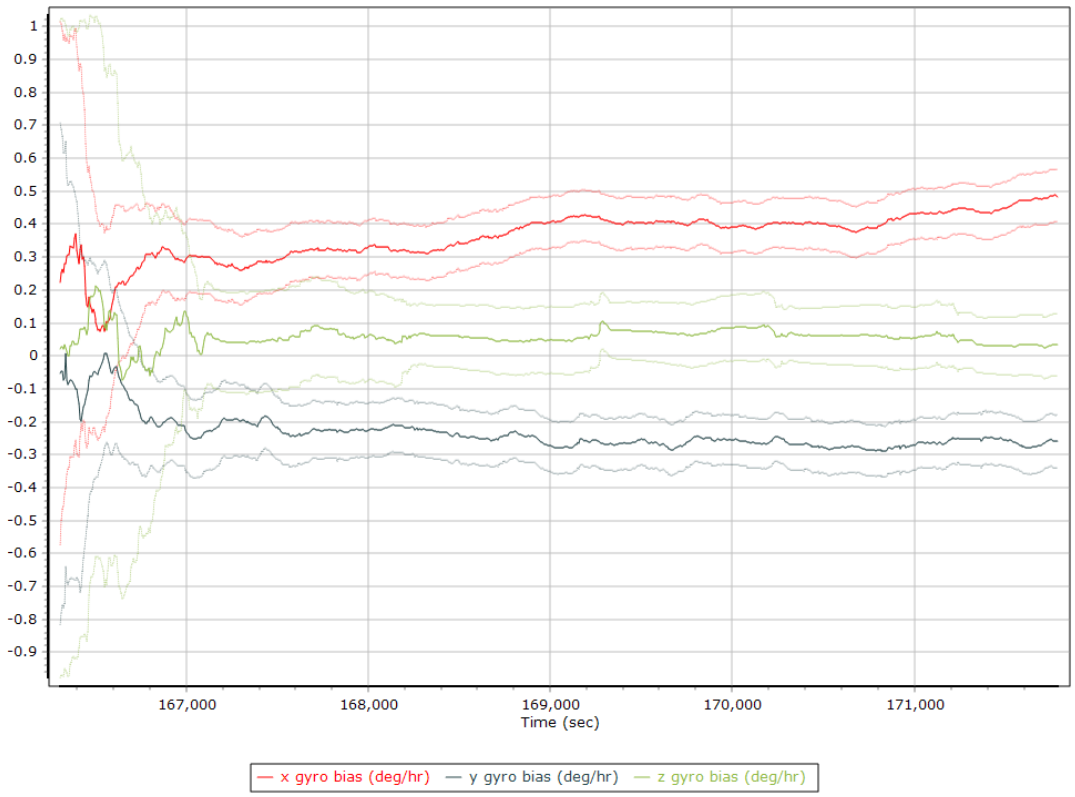
Y Accelerometer Scale Error (ppm)



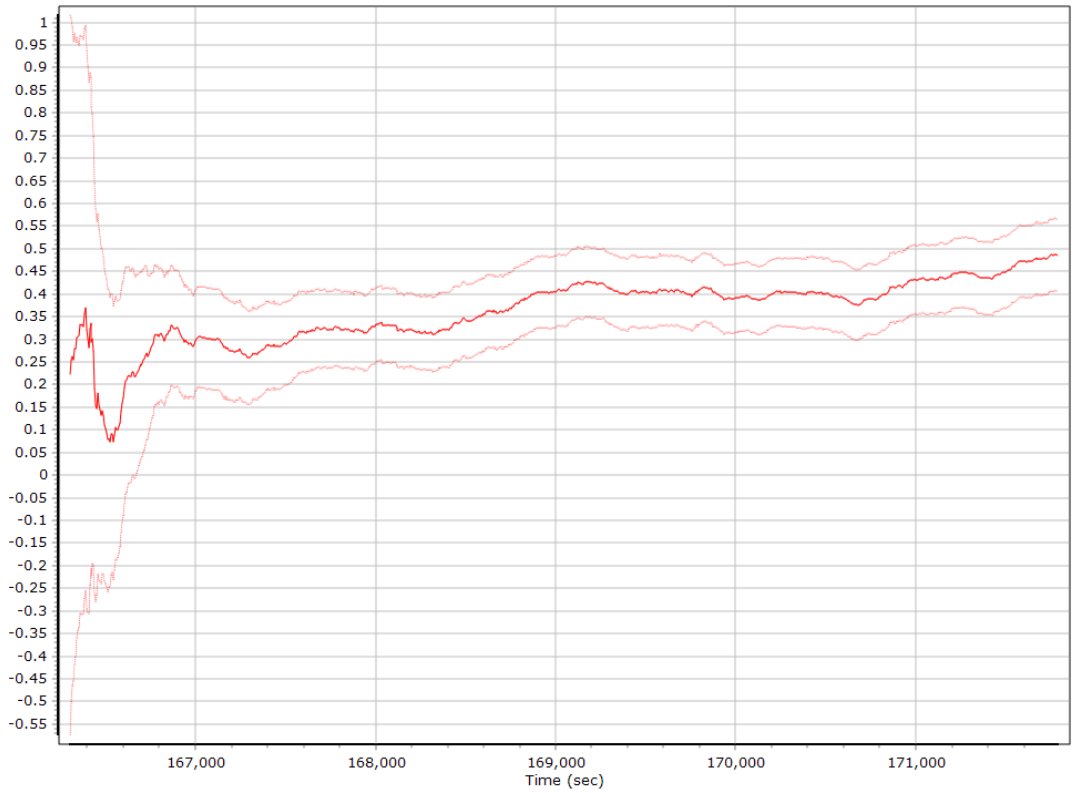
Z Accelerometer Scale Error (ppm)



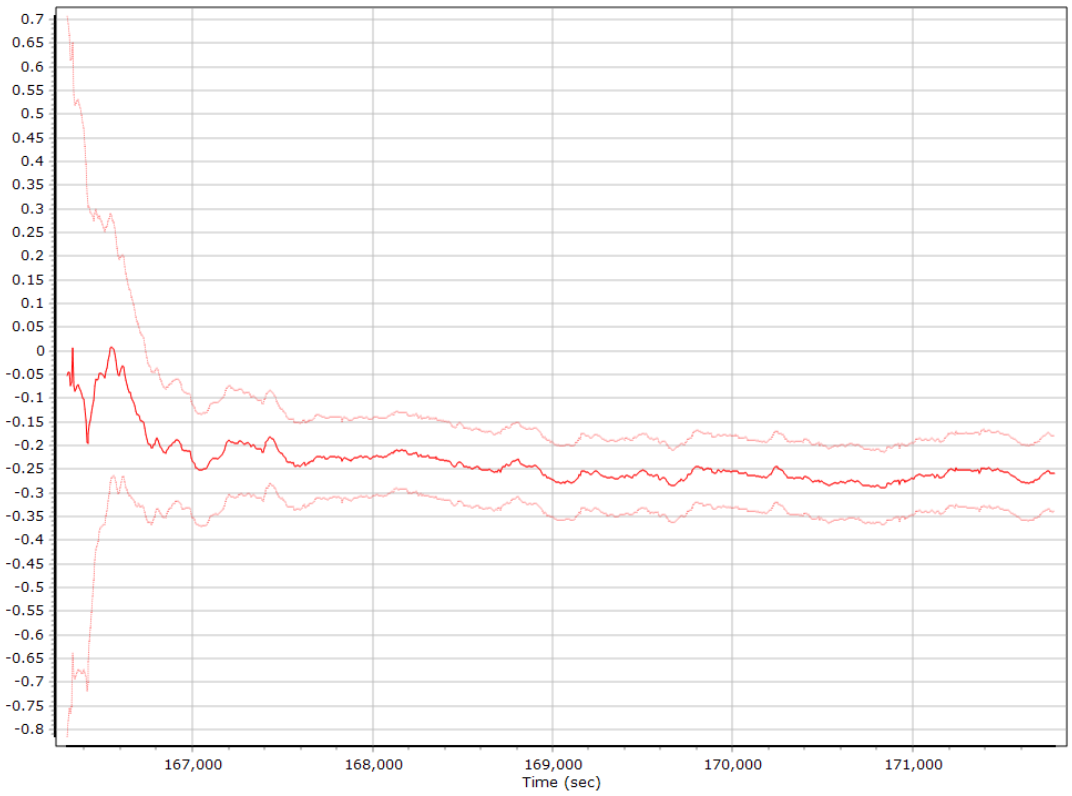
Gyro Bias (deg/h)



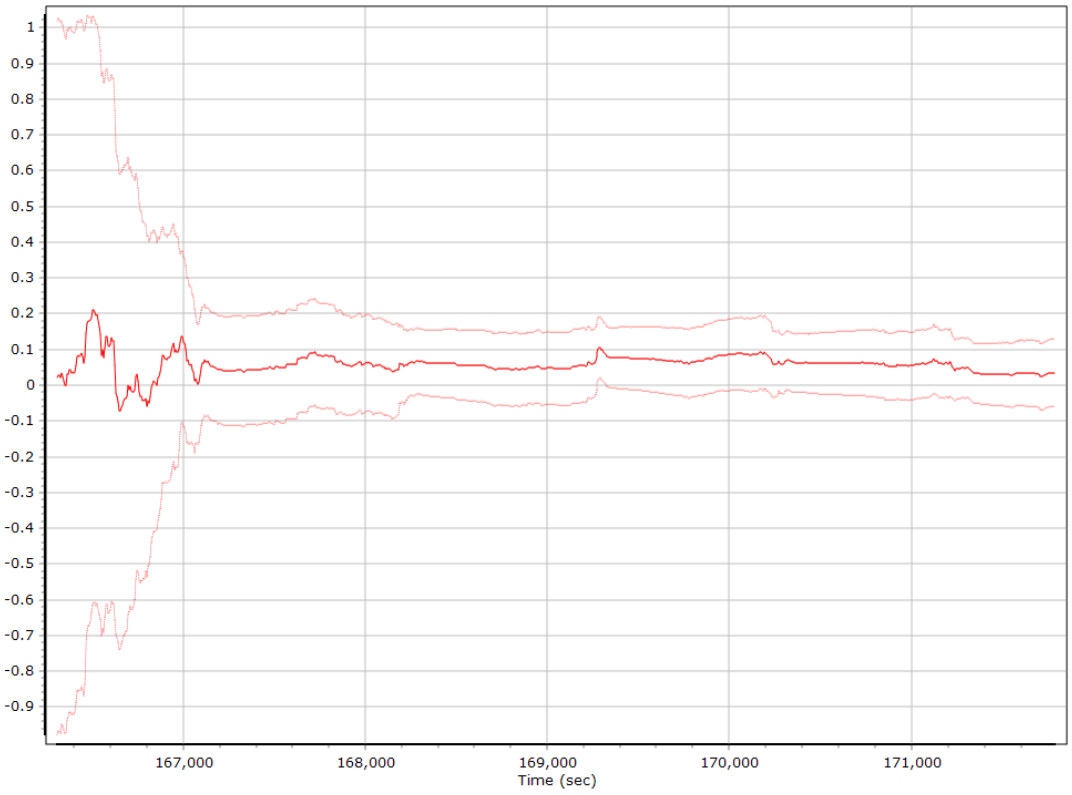
X Gyro Bias (deg/h)



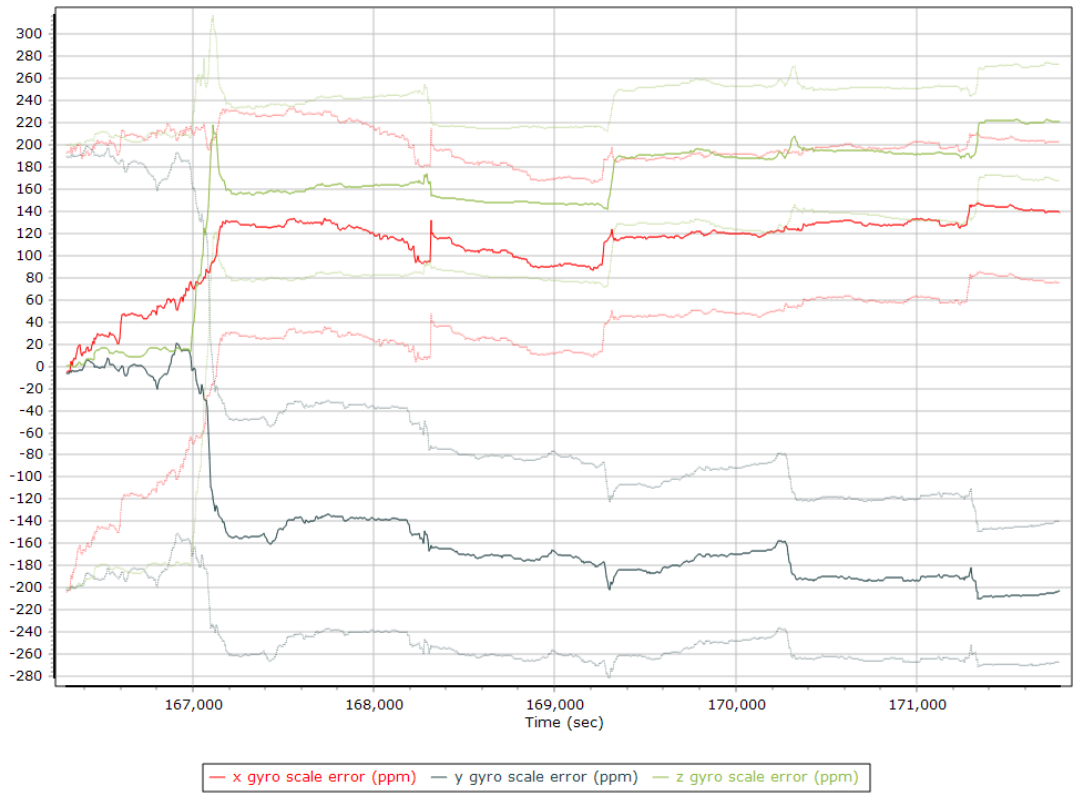
Y Gyro Bias (deg/h)



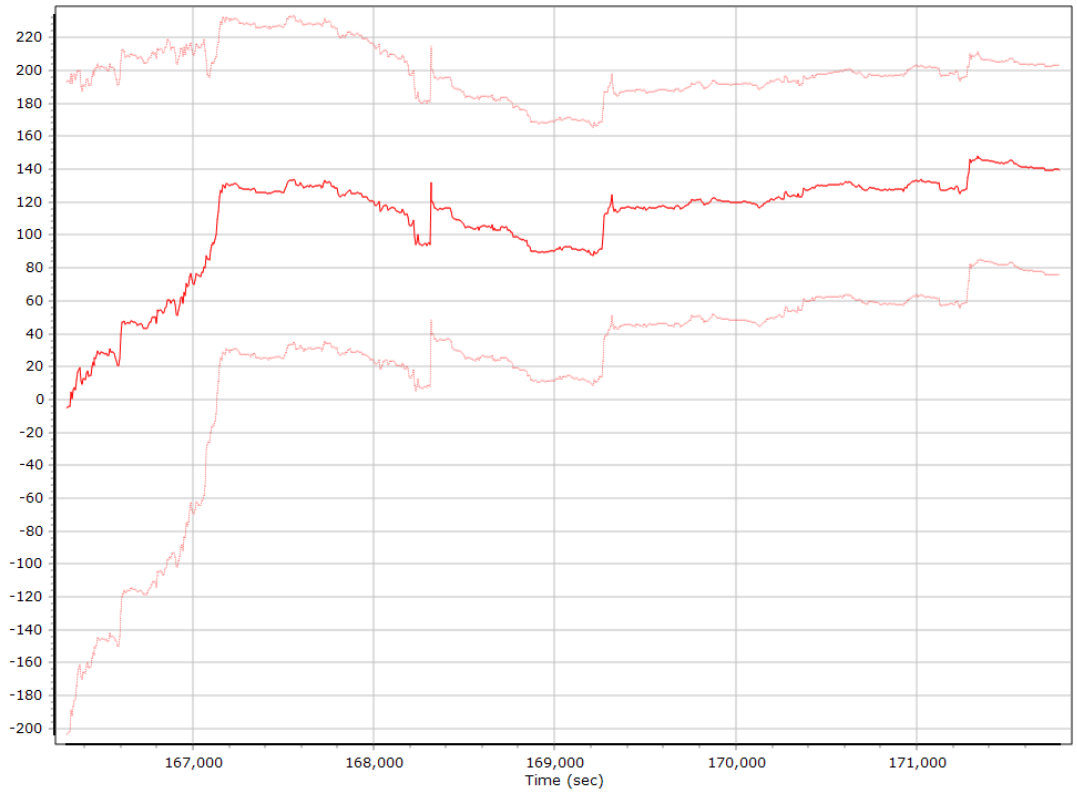
Z Gyro Bias (deg/h)



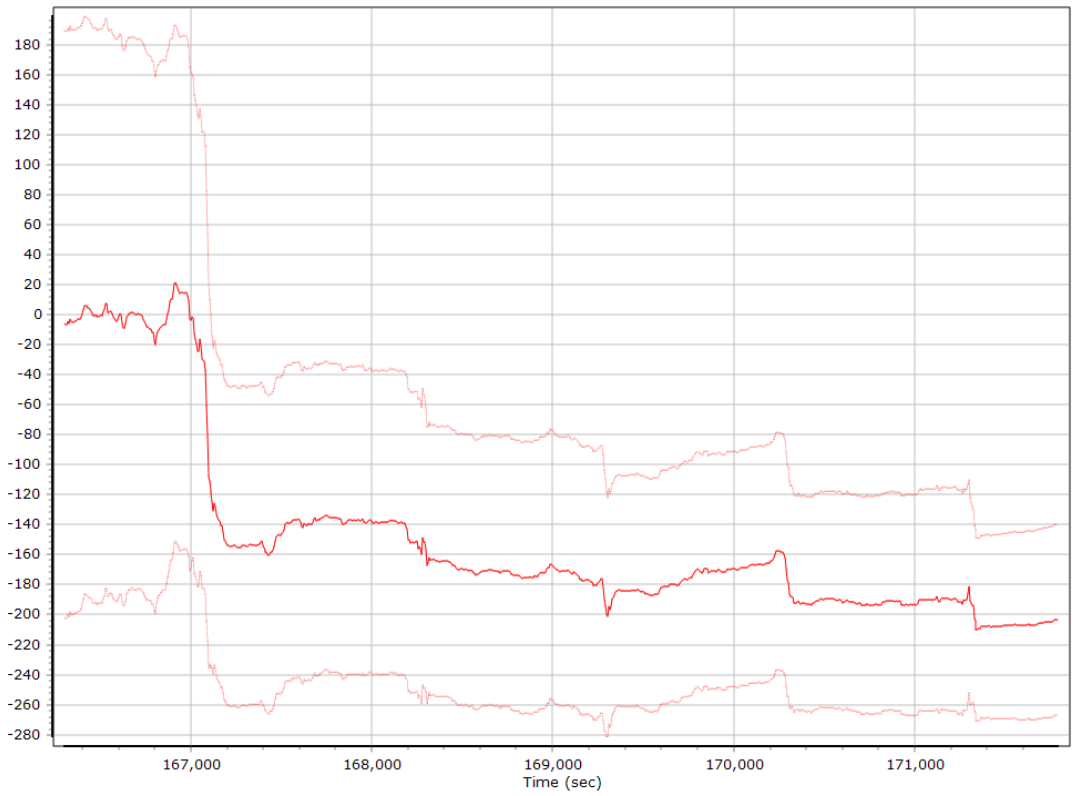
Gyro Scale Error (ppm)



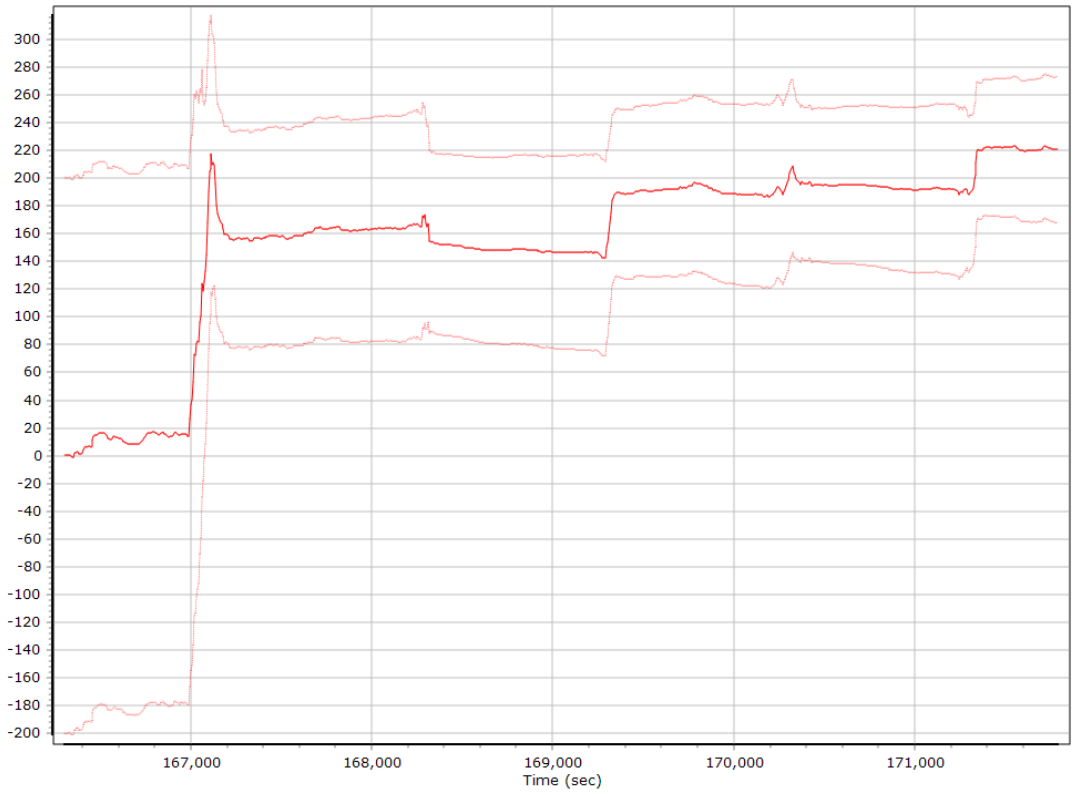
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

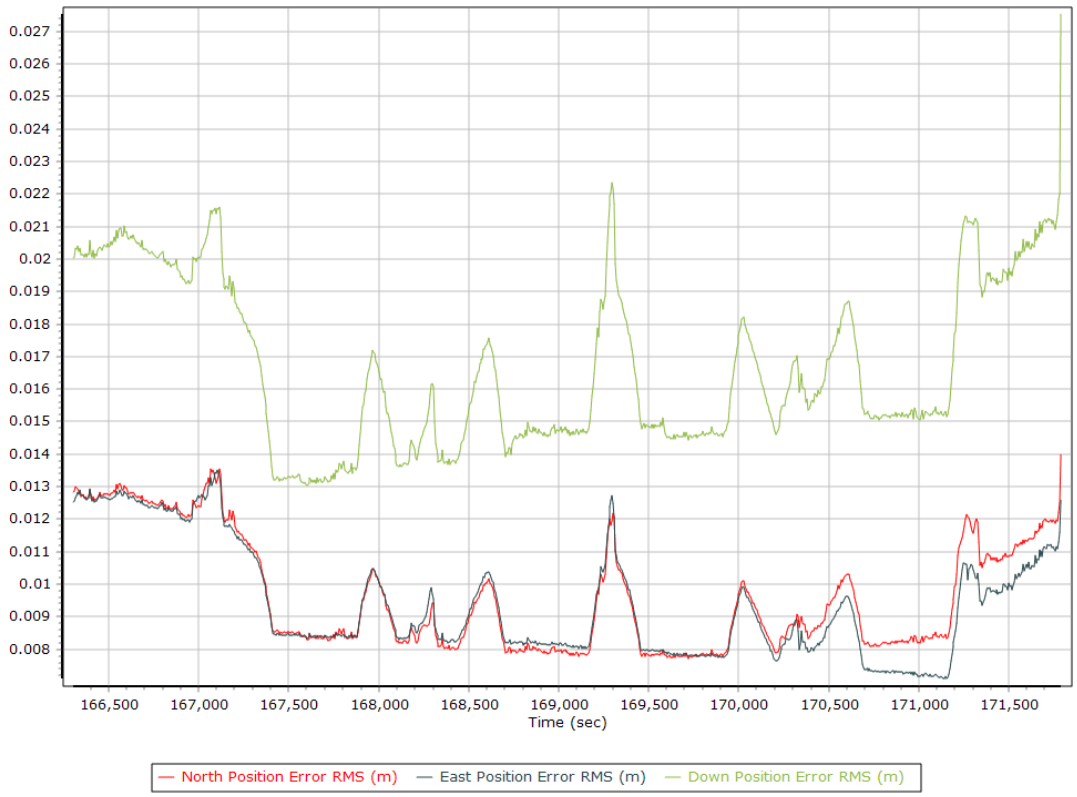


Z Gyro Scale Error (ppm)

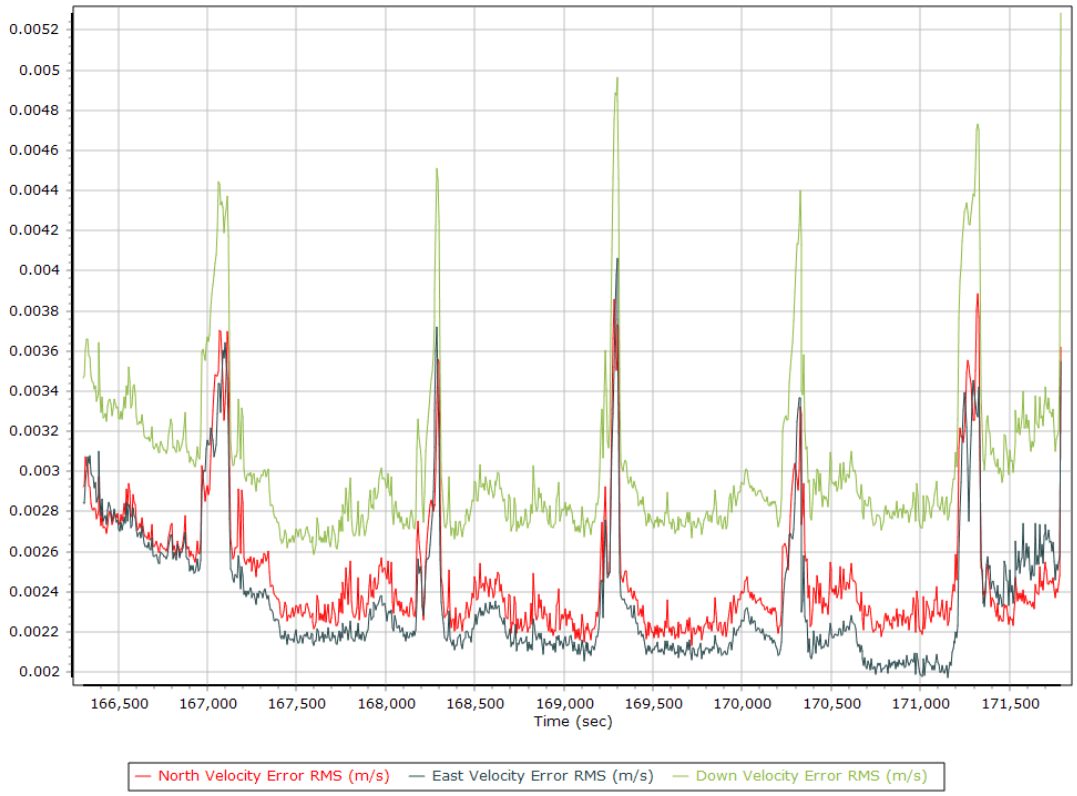


Smoothed Performance Metrics

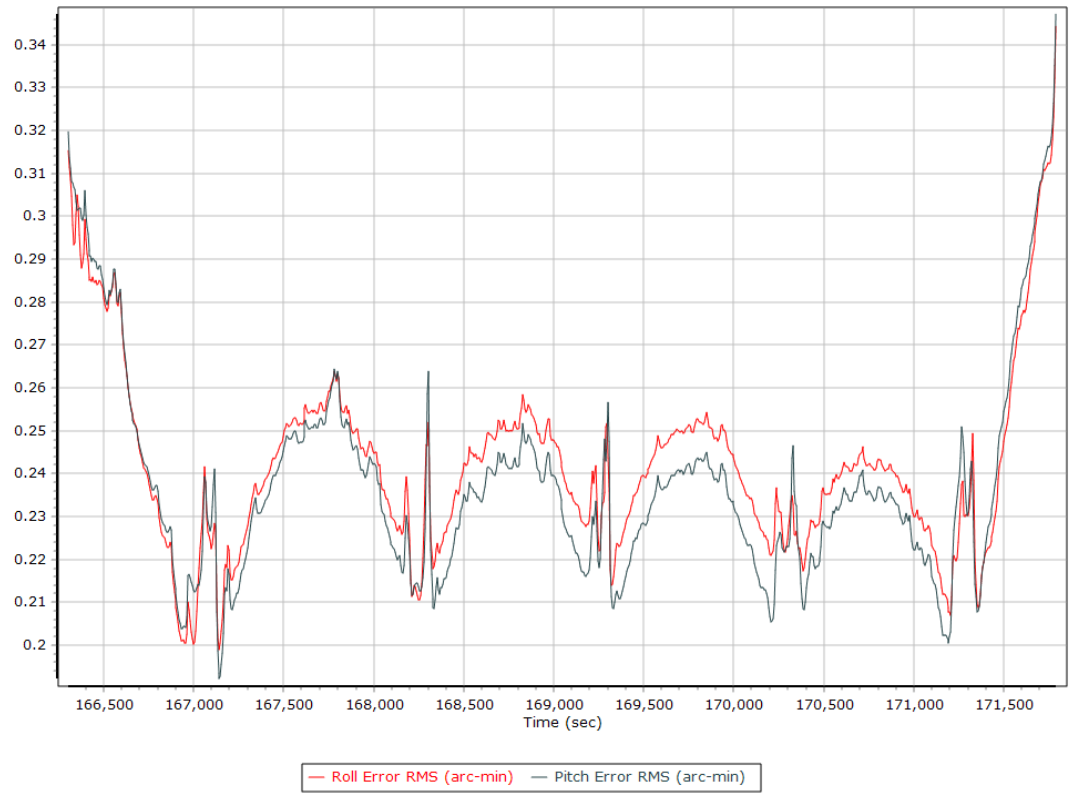
Position Error RMS (m)



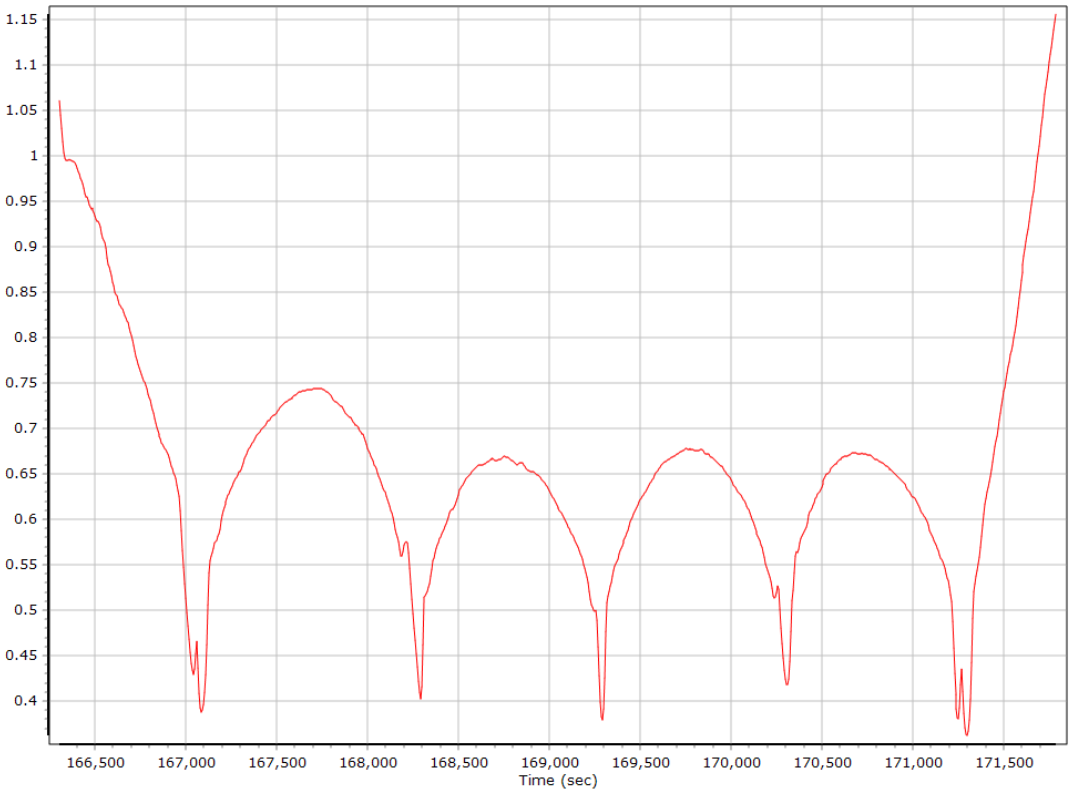
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

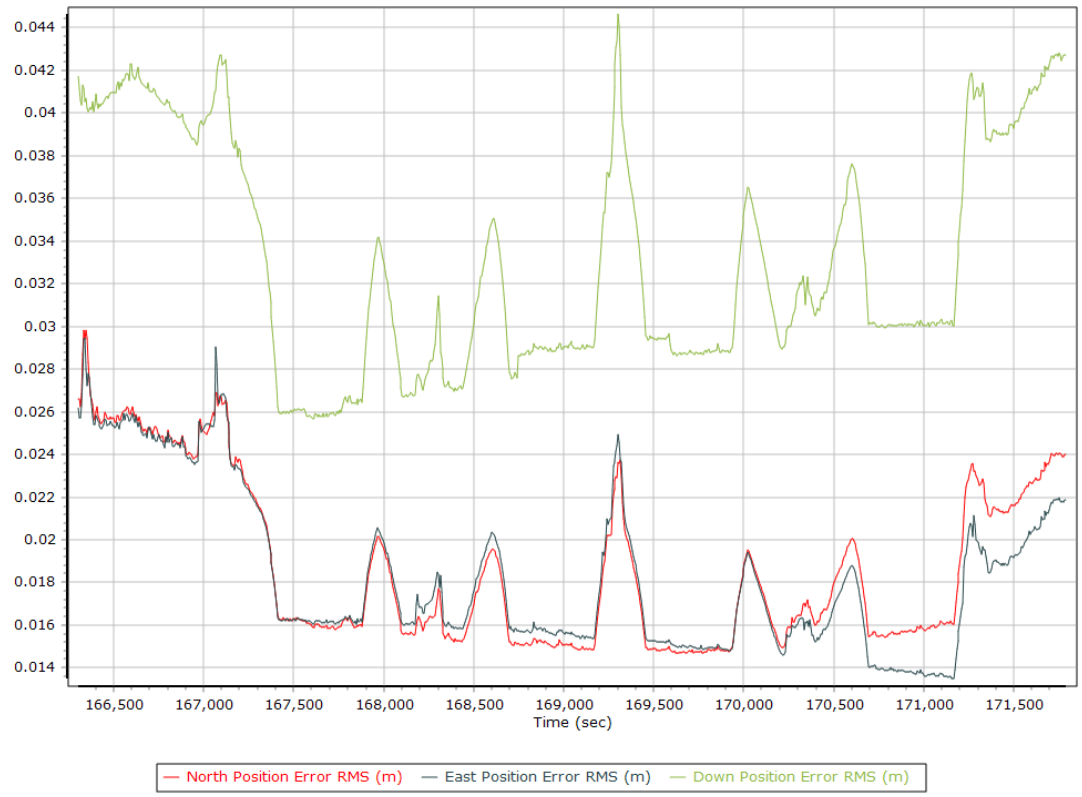


Heading Error RMS (arc-min)

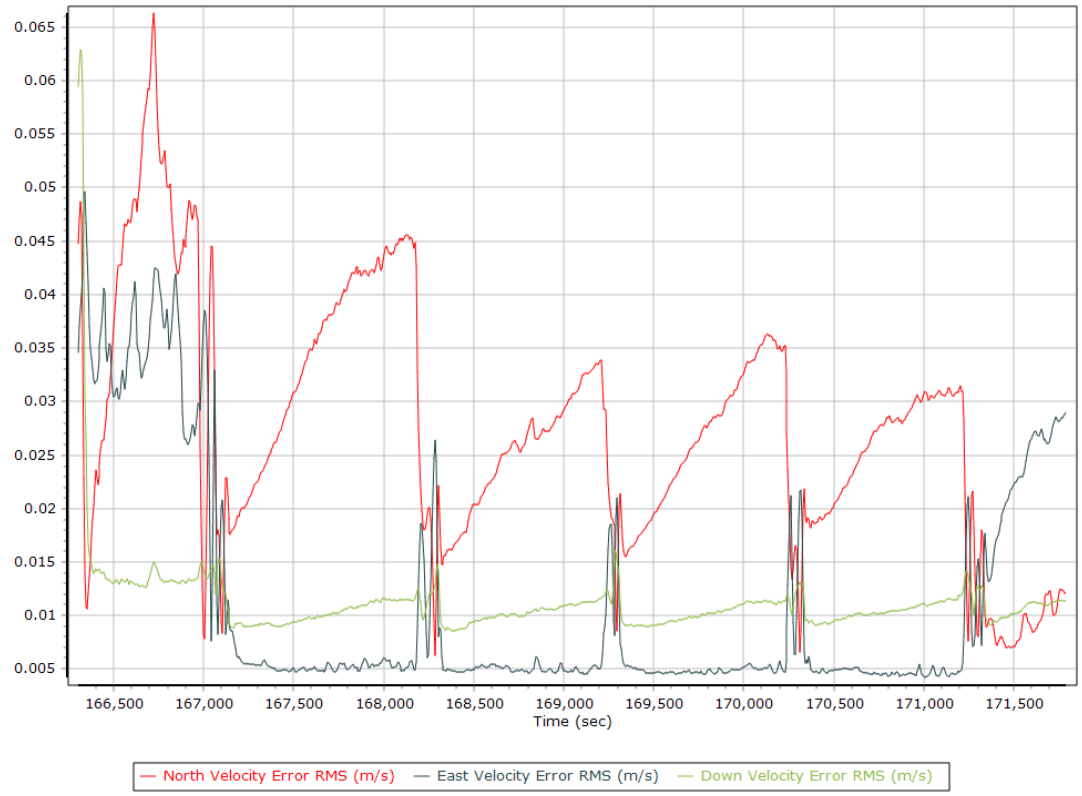


Forward Processed Performance Metrics

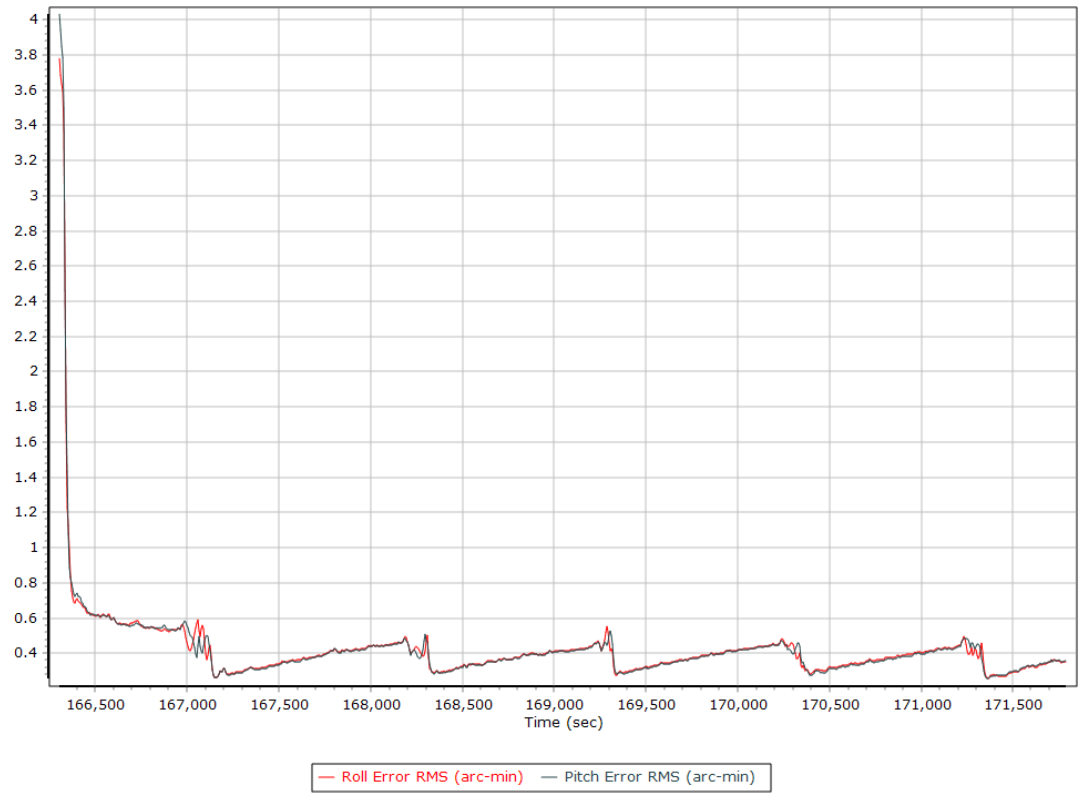
Position Error RMS (m)



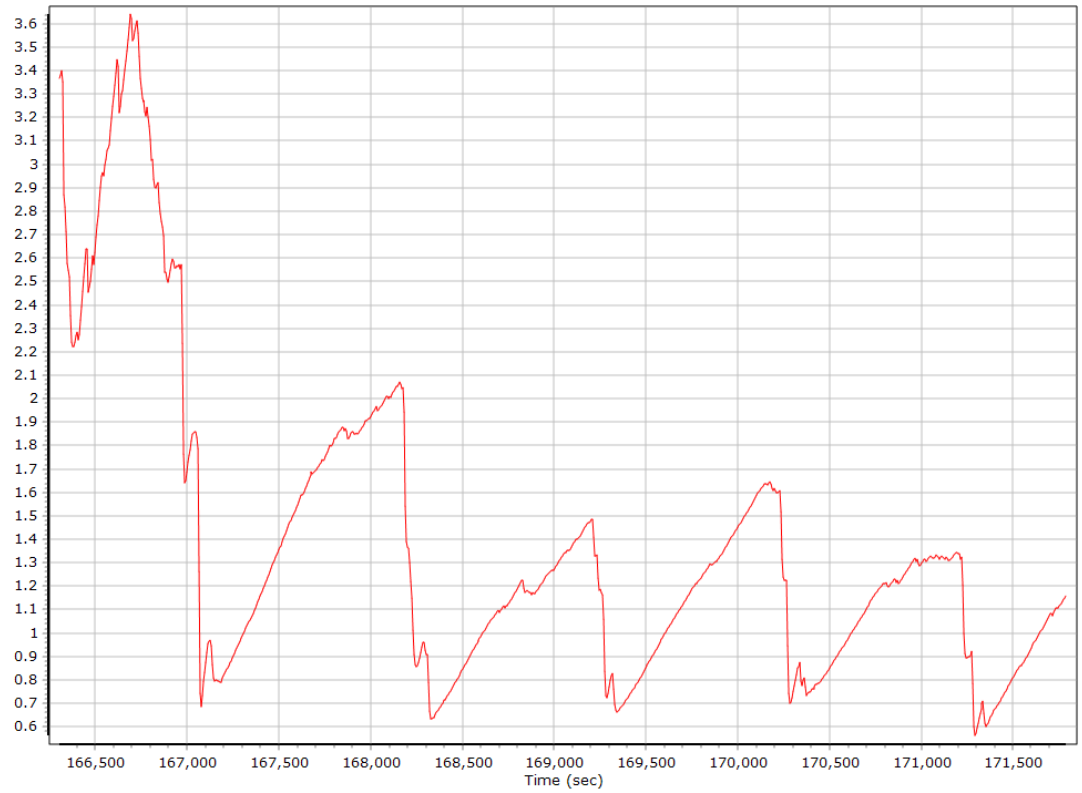
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

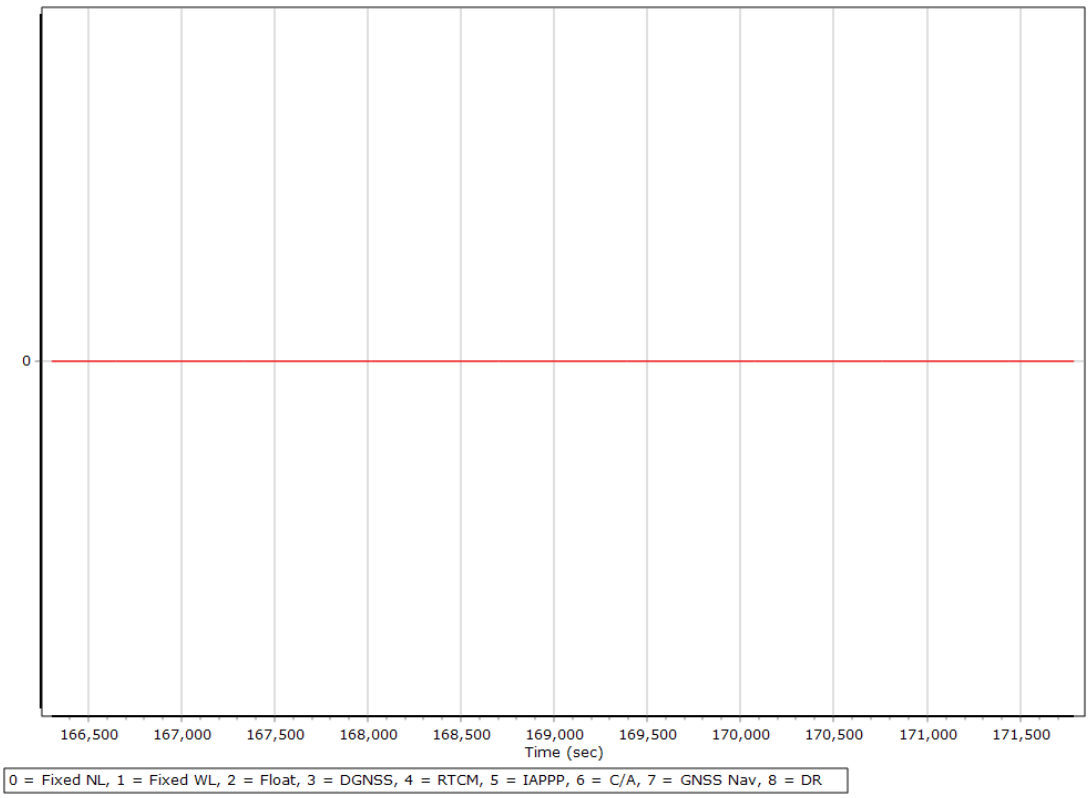


Heading Error RMS (arc-min)

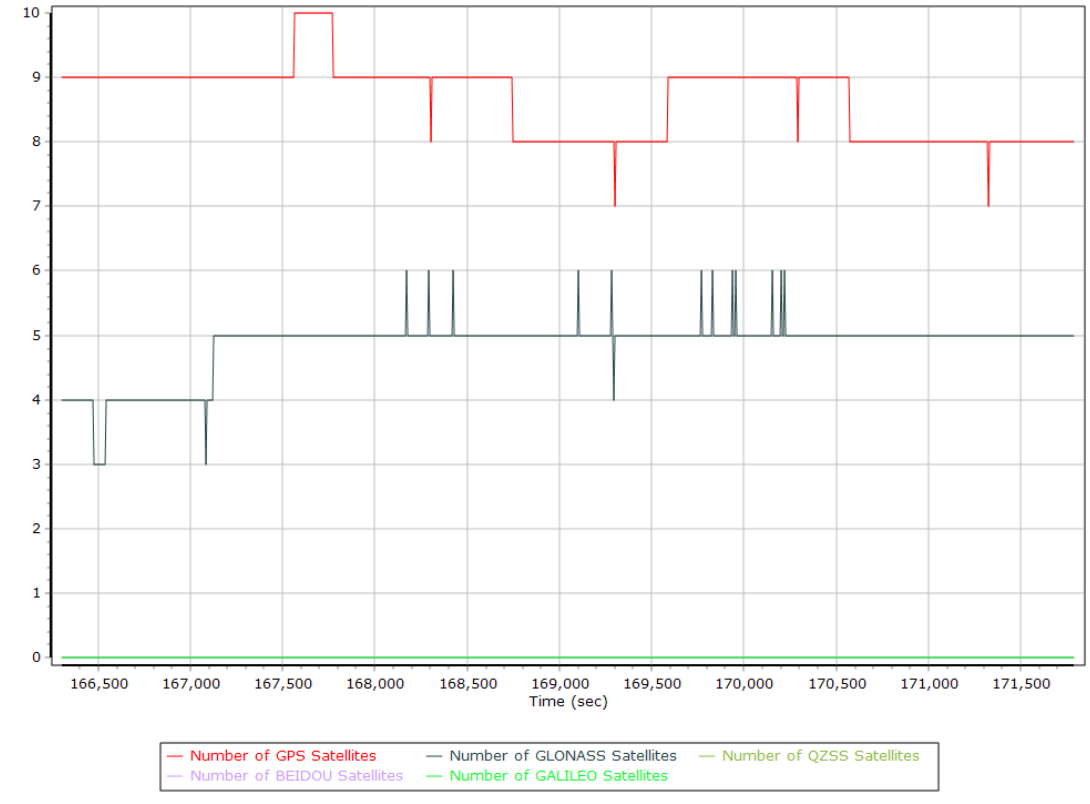


Smoothed Solution Status

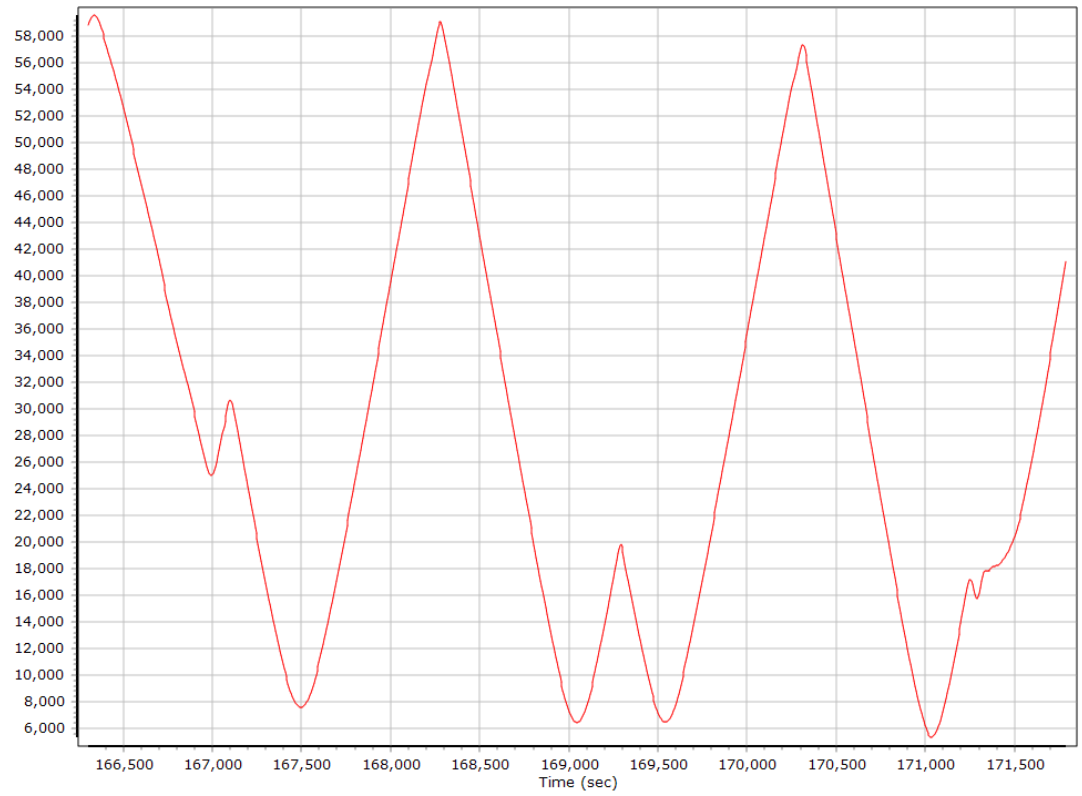
Processing Mode



Number of Satellites

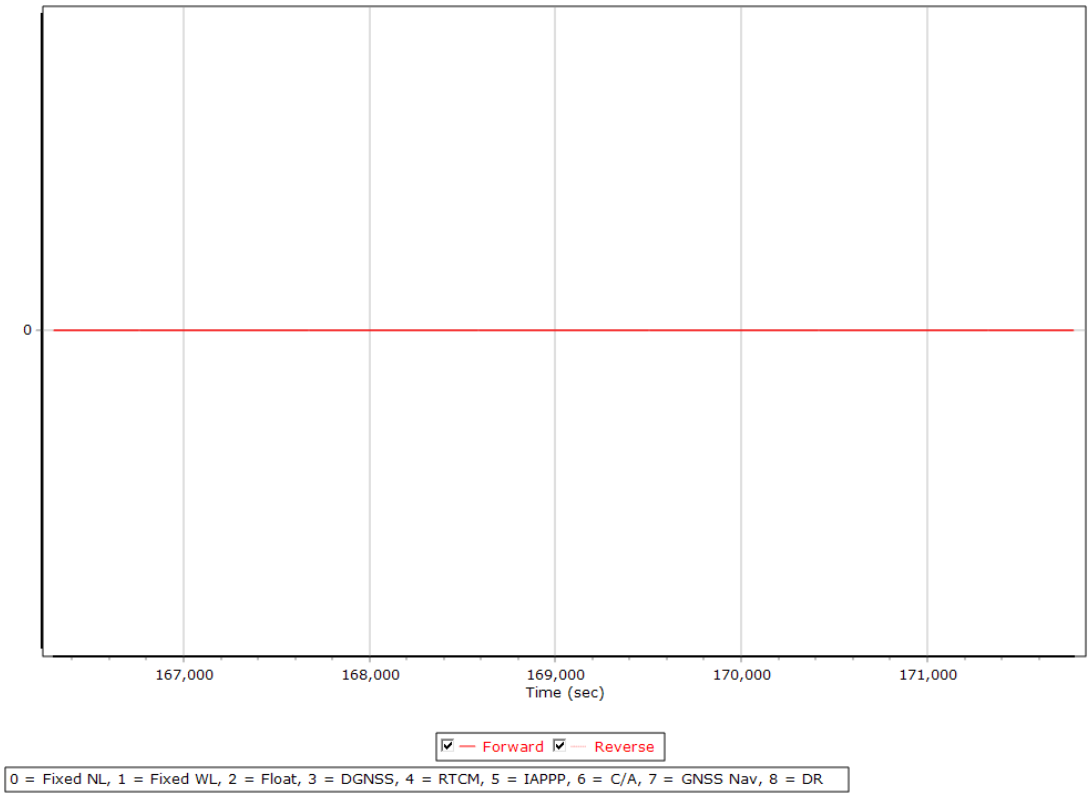


Baseline Length

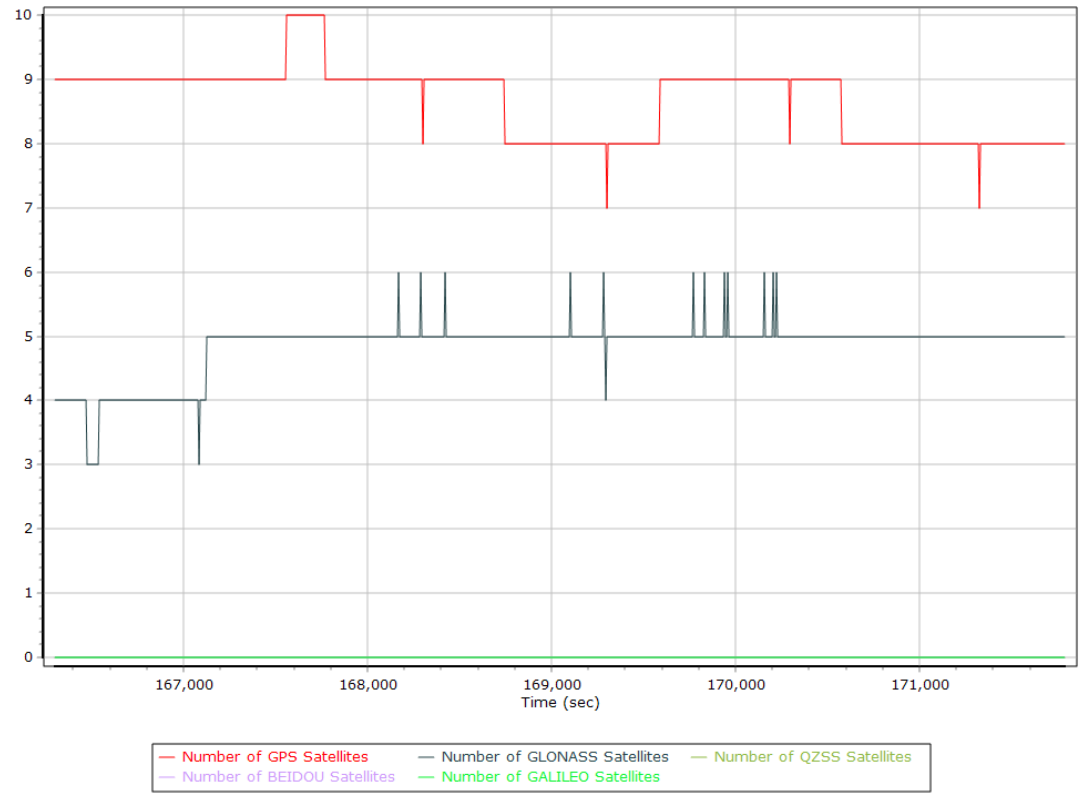


Forward Processed Solution Status

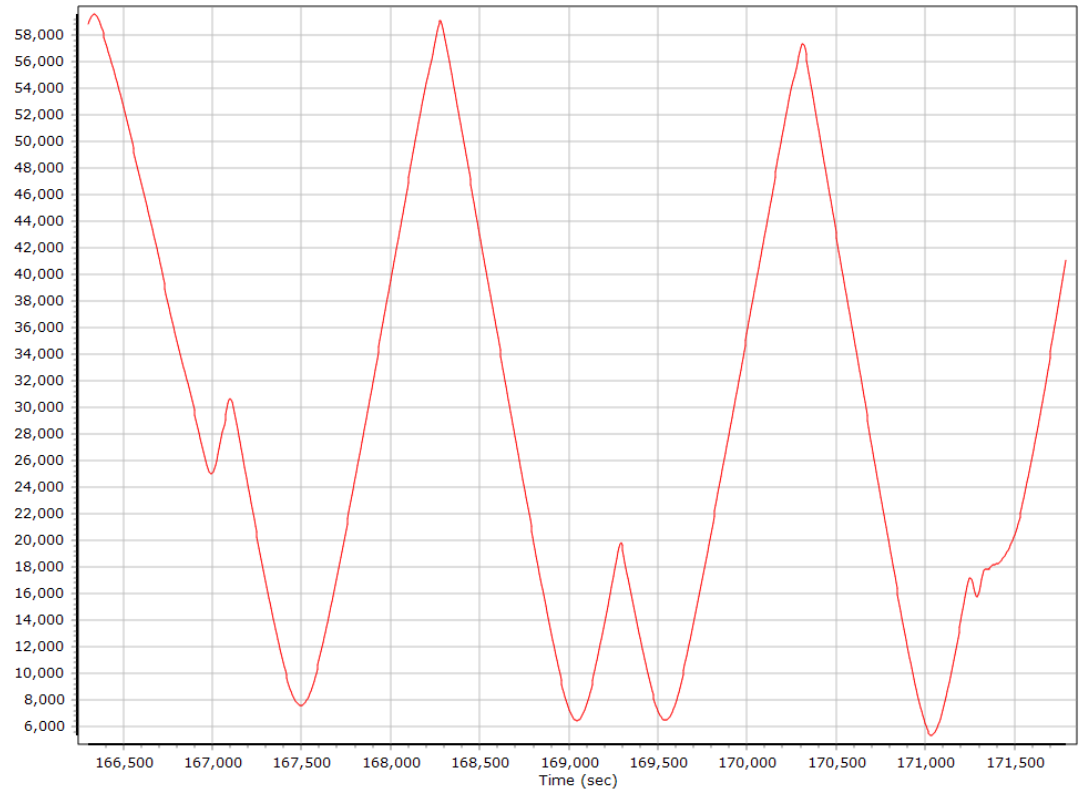
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

Export Summary

Export file	SBET_19-6648-01_MissionC-33020.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	166245.003 (3/30/2020 10:10:45 PM)		
Export end time	171792.000 (3/30/2020 11:43:12 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	196648_01_20200402B
Processing date	2021-01-18 22:21:55
Mission date	2020-04-02 15:59:35
Mission duration	03:18:20.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.070	POS Data
ALS.071	POS Data
ALS.072	POS Data
ALS.073	POS Data
ALS.074	POS Data
ALS.075	POS Data
ALS.076	POS Data
ALS.077	POS Data
ALS.078	POS Data
ALS.079	POS Data
ALS.080	POS Data
ALS.081	POS Data
ALS.082	POS Data
ALS.083	POS Data
ALS.084	POS Data
ALS.085	POS Data
ALS.086	POS Data
ALS.087	POS Data
ALS.088	POS Data

Input Files

File Name	File Type
Ephm0930.20g	GLONASS Broadcast Ephemeris
Ephm0930.20n	GPS Broadcast Ephemeris
iana0930.20o	GNSS SingleBase
jfws0930.20o	GPS SingleBase
mnca0930.20o	GNSS SingleBase
mney0930.20o	GNSS SingleBase
mnps0930.20o	GNSS SingleBase
mnsv0930.20o	GNSS SingleBase
mnwn0930.20o	GNSS SingleBase
wlnc0930.20o	GNSS SingleBase
igu20993_18.sp3	GPS Precise Ephemeris
igu20994_18.sp3	GPS Precise Ephemeris
nlib0930.20o	GNSS SingleBase
winl0930.20o	GNSS SingleBase

Output Files

Filename	File type
sbet_196648_01_20200402B.out	SBET Trajectory File
SBET_196648_01_20200402B.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.070		
Last raw data file	ALS.088		
Start GPS week	2099		
Start time	23.392 (3/29/2020 12:00:23 AM)		
End time	415058.143 (4/2/2020 7:17:38 PM)		
Start of fine alignment	403648.290 (4/2/2020 4:07:28 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

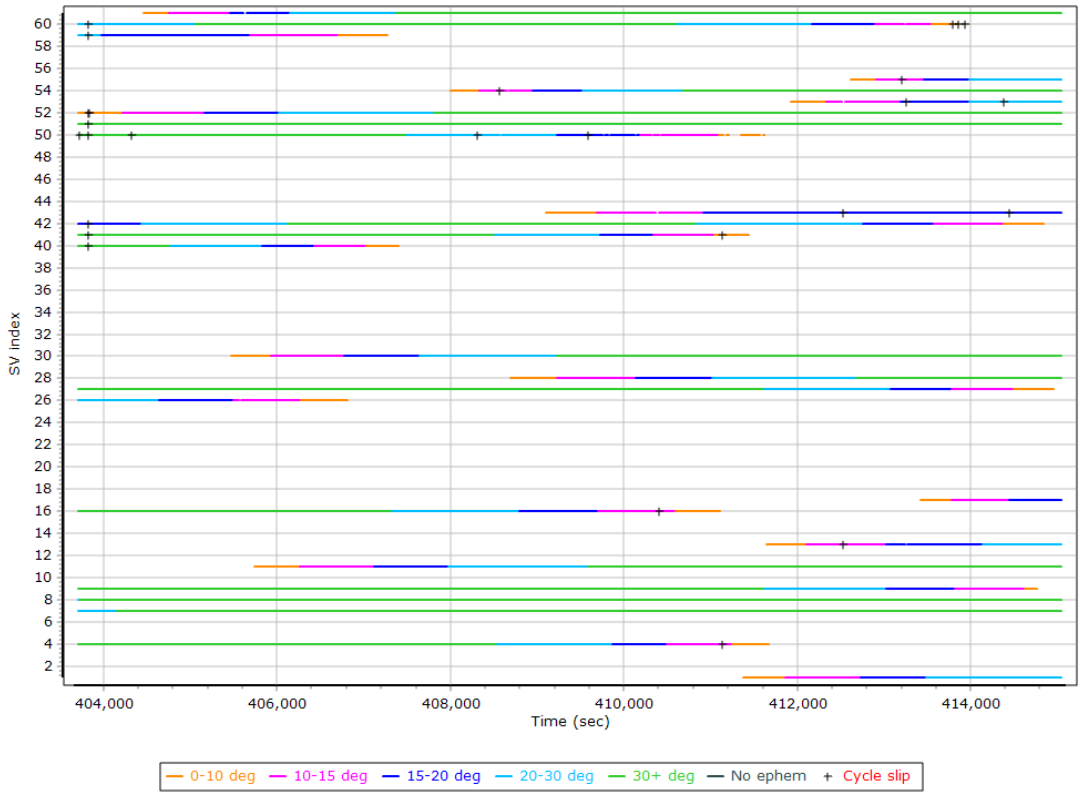
Rover Data QC

Raw IMU Import QC Summary

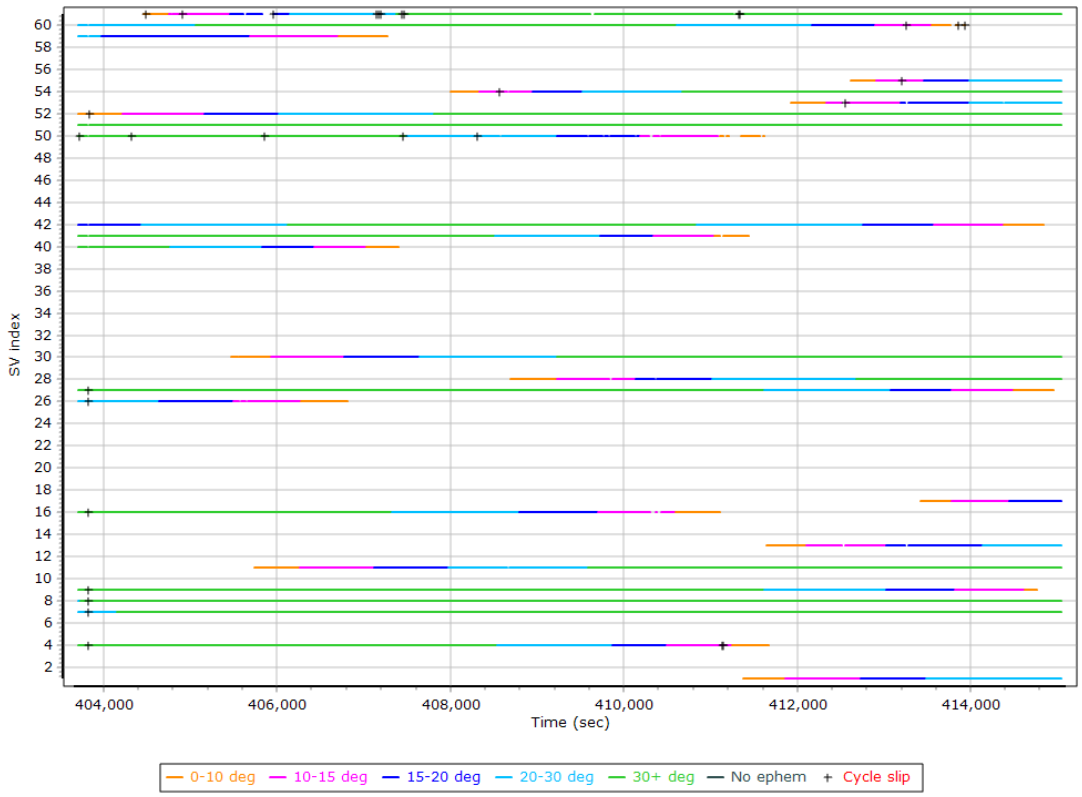
IMU data input file	imu_196648_01_20200402B.dat
IMU data check log file	imudt_196648_01_20200402B.log
IMU Records Processed	2382697
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
403169.840 : WARNING : Gap of 403145.8532 seconds in CHECKDT input data	

Primary Observables & Satellite Data

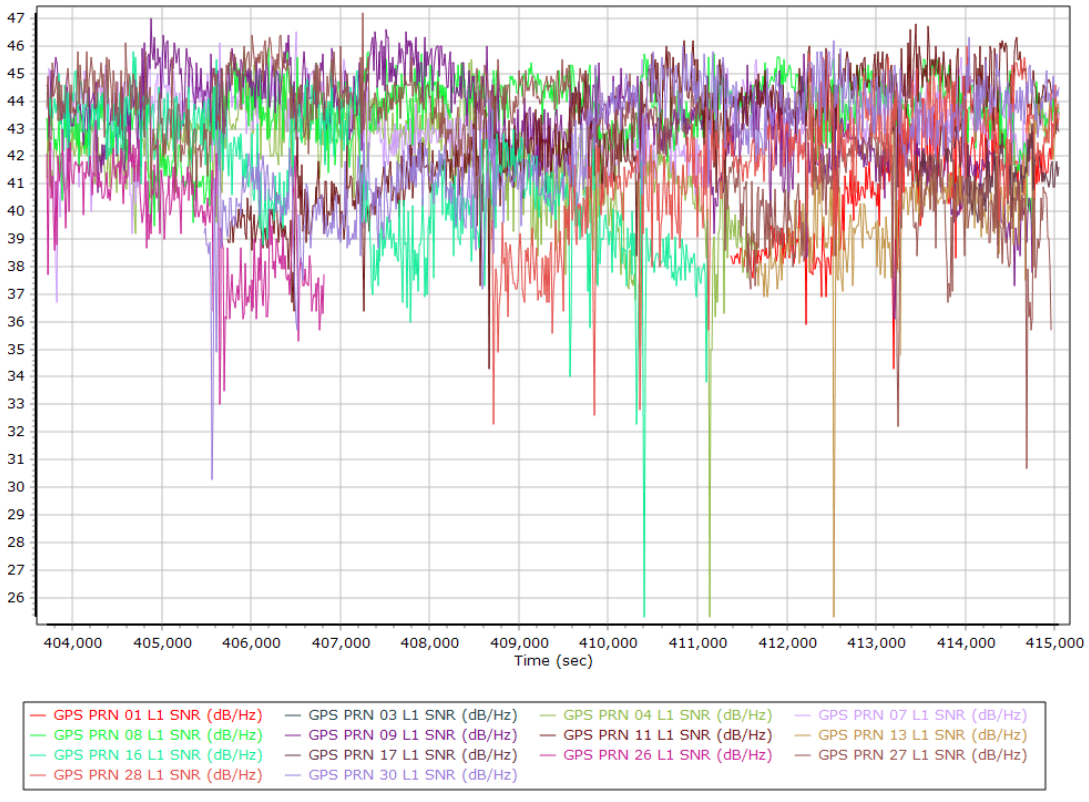
L1 Satellite Lock/Elevation



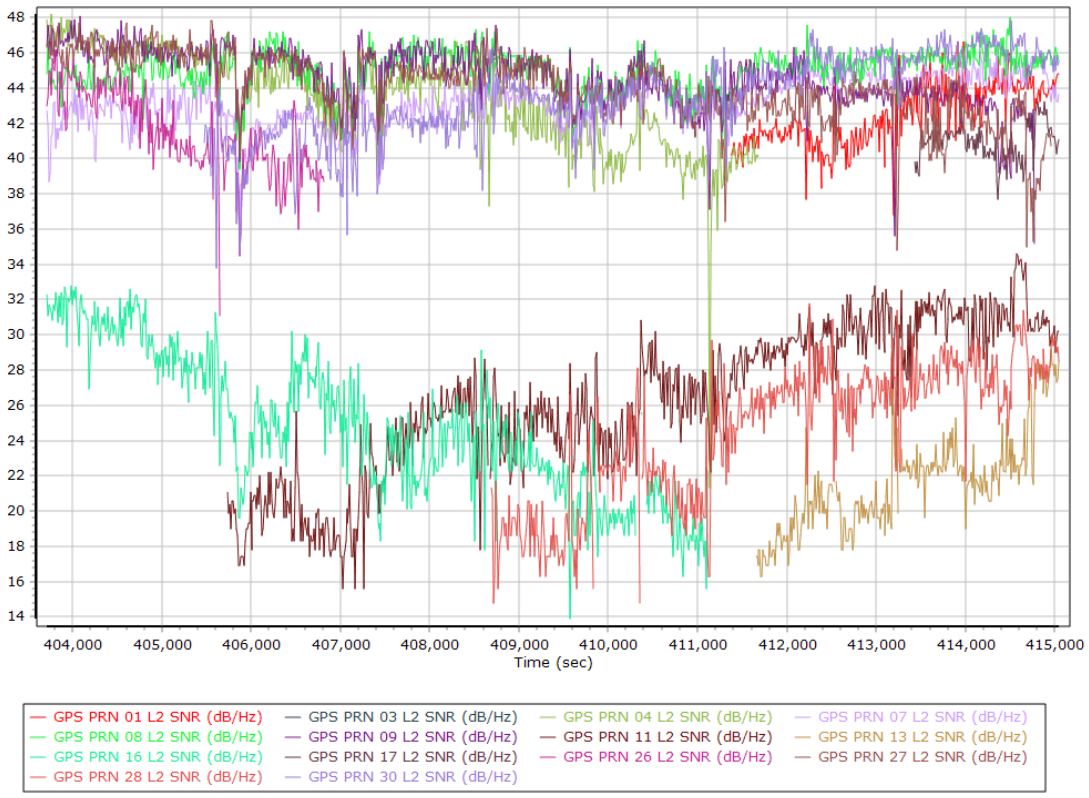
L2 Satellite Lock/Elevation



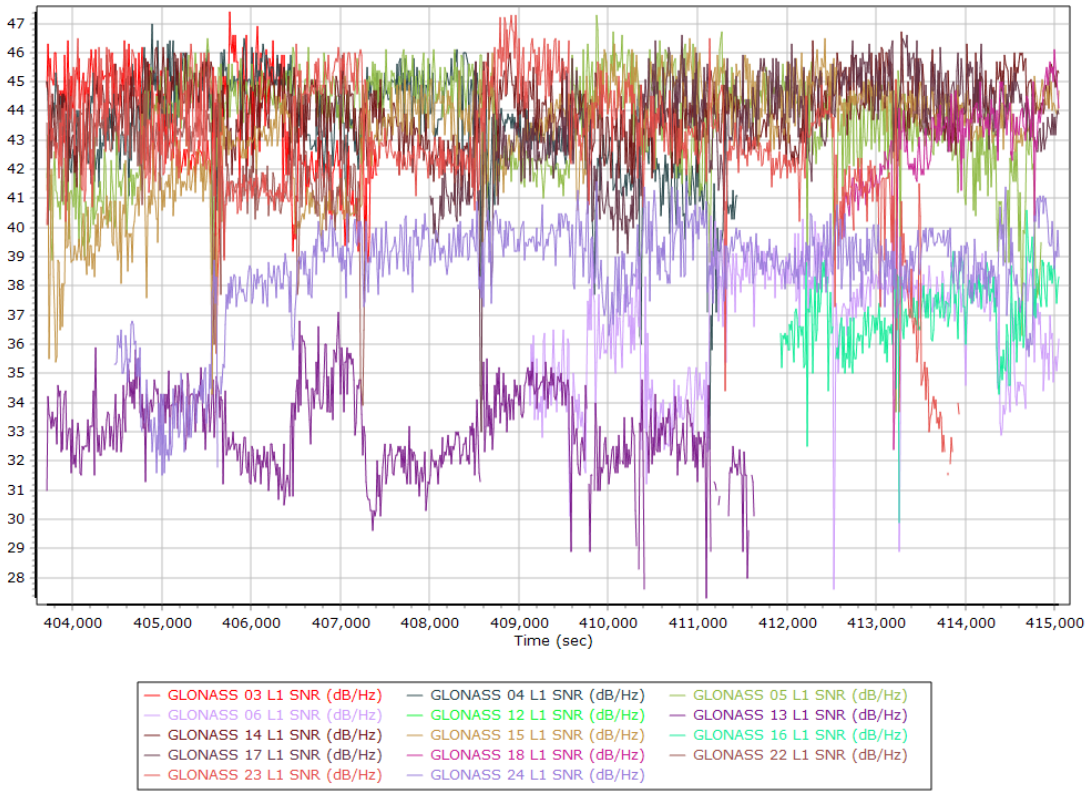
GPS L1 SNR



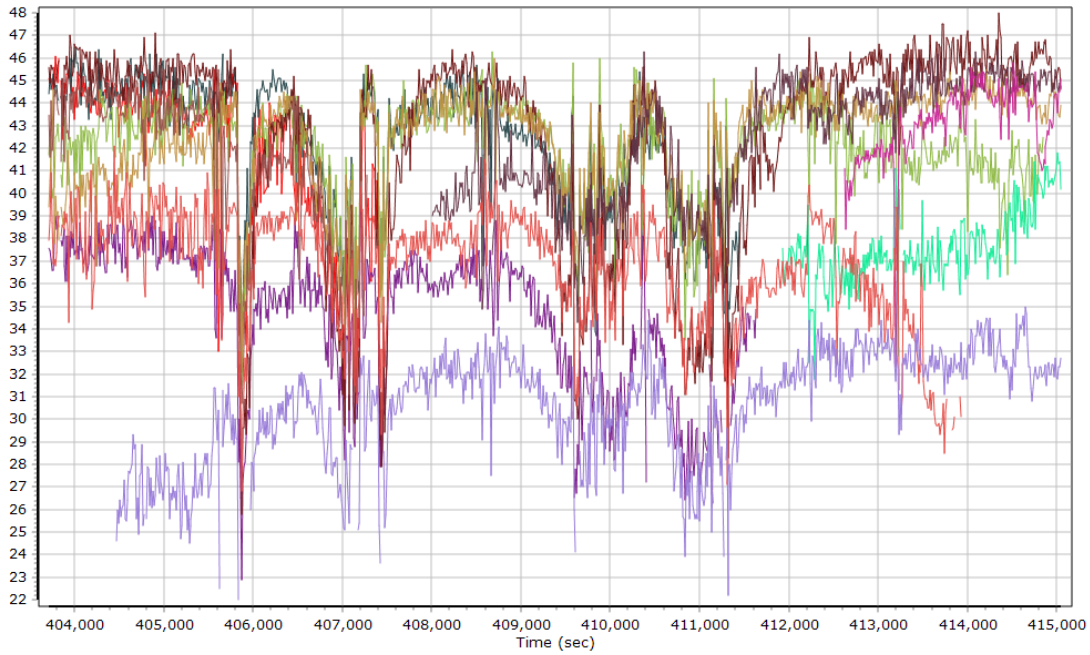
GPS L2 SNR



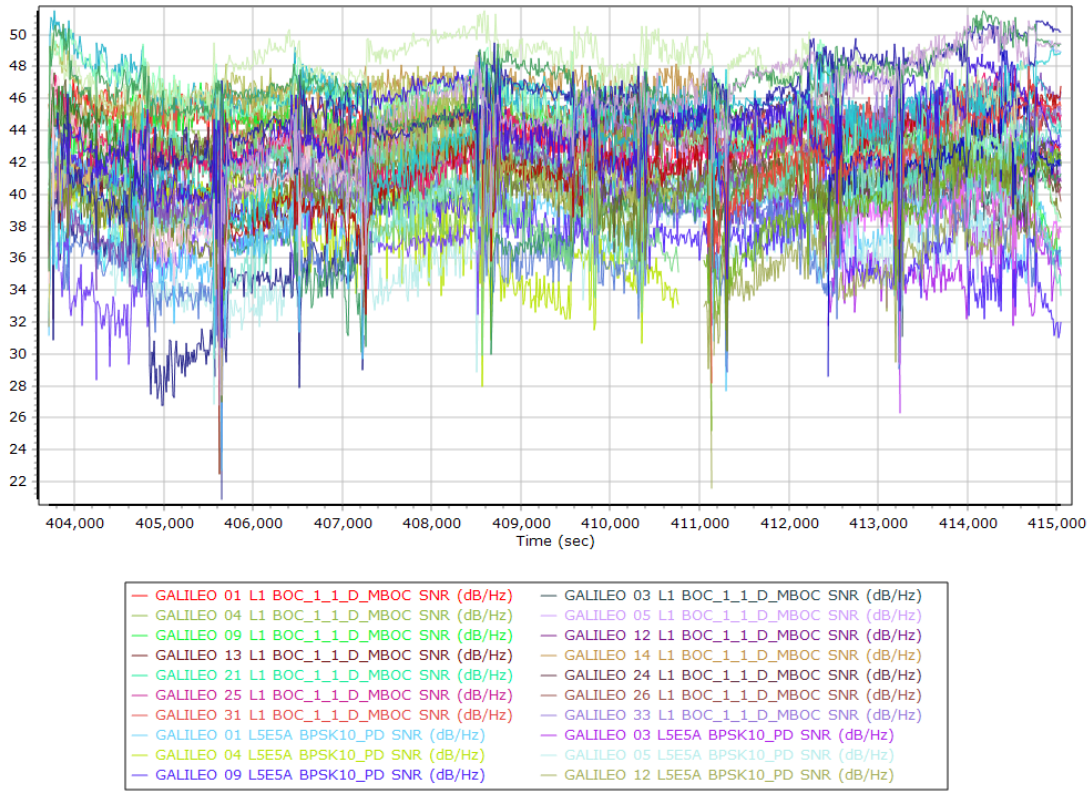
GLONASS L1 SNR



GLONASS L2 SNR

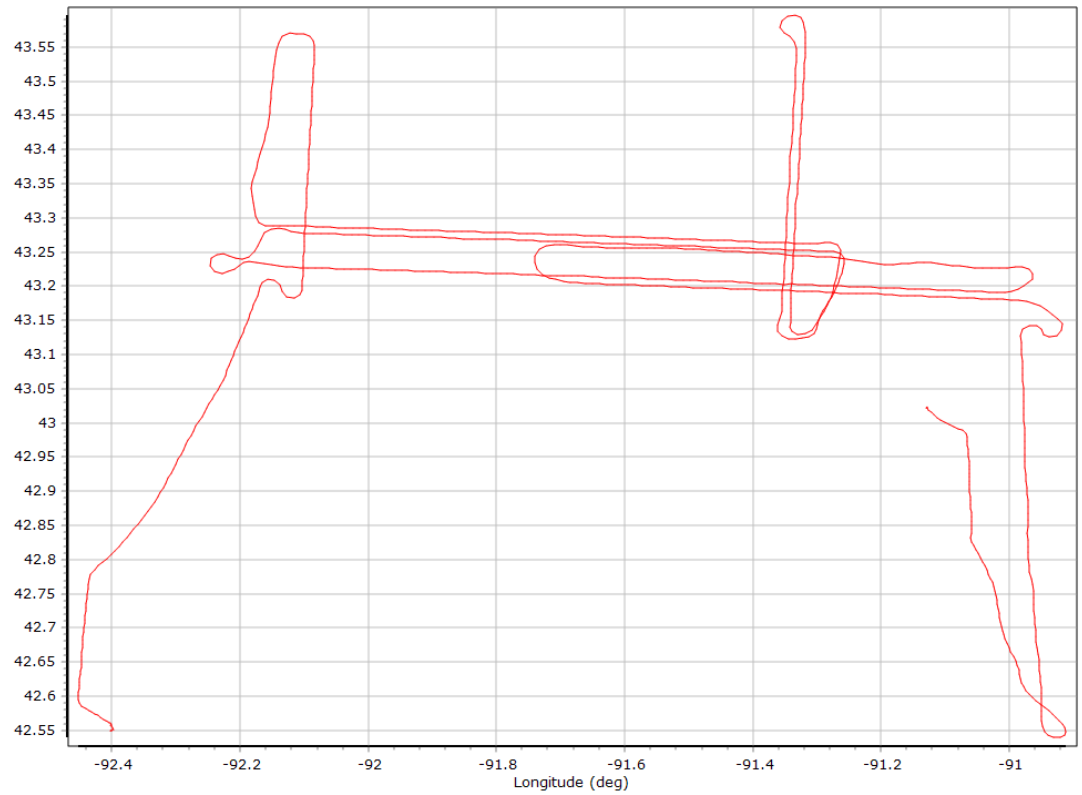


GALILEO SNR

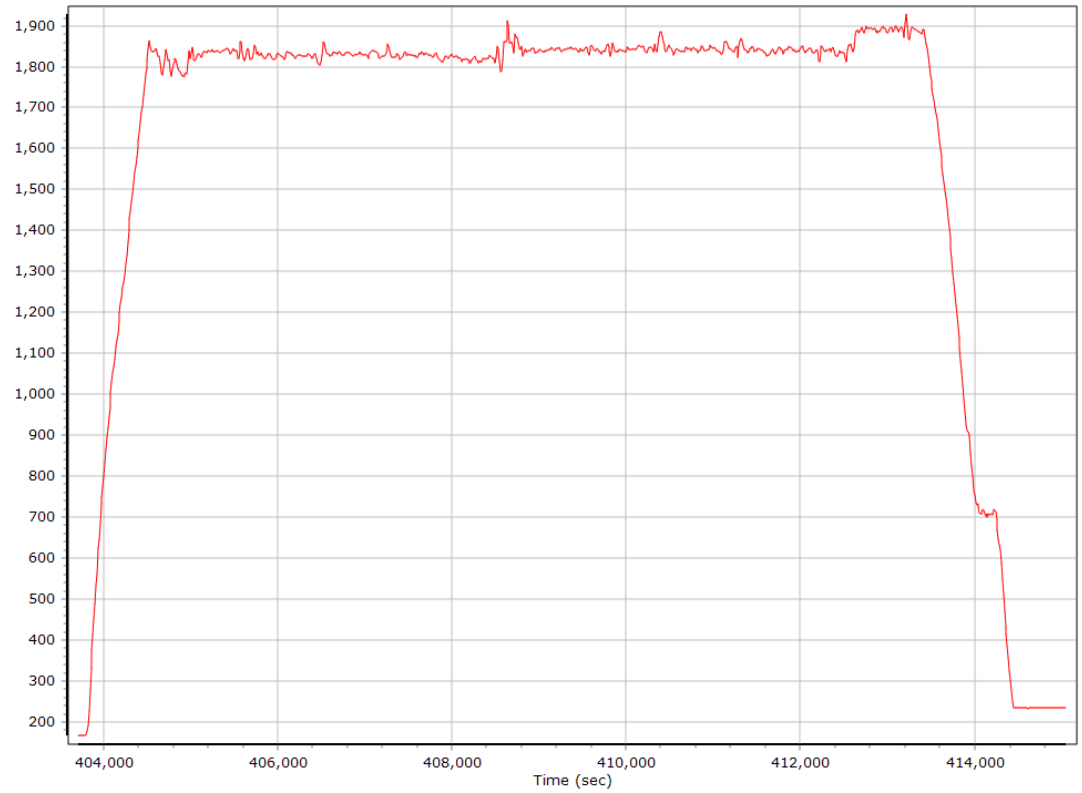


Smoothed Trajectory Information

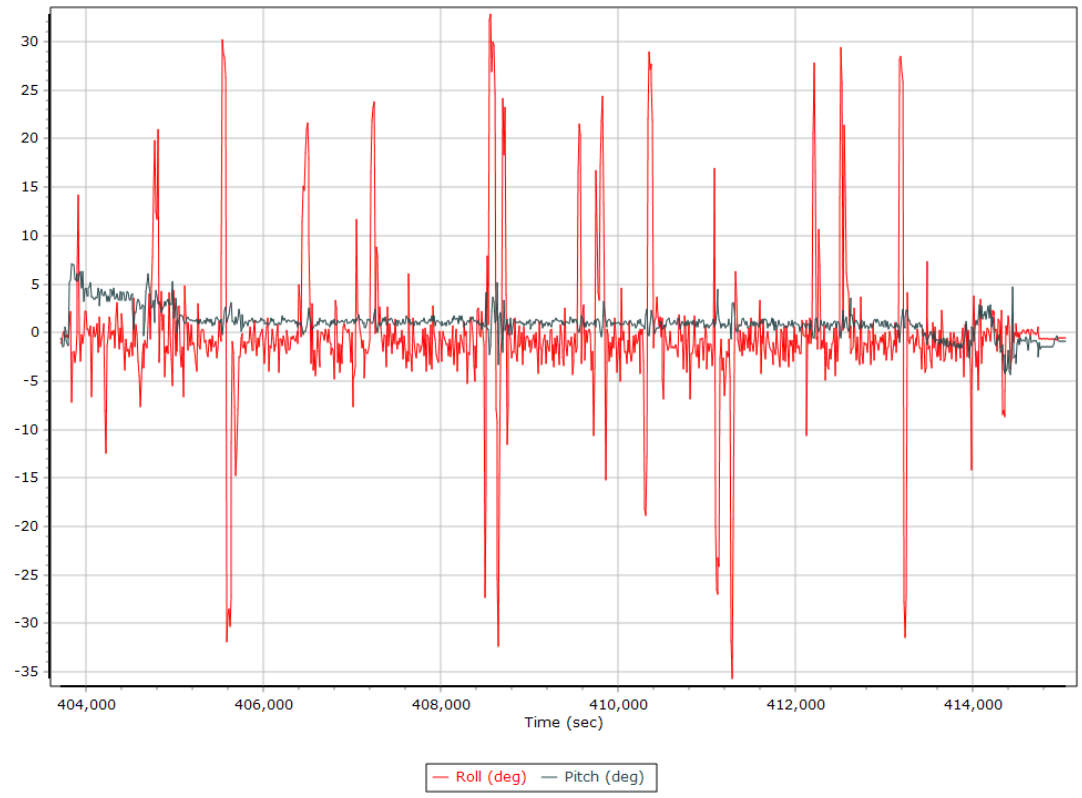
Top View



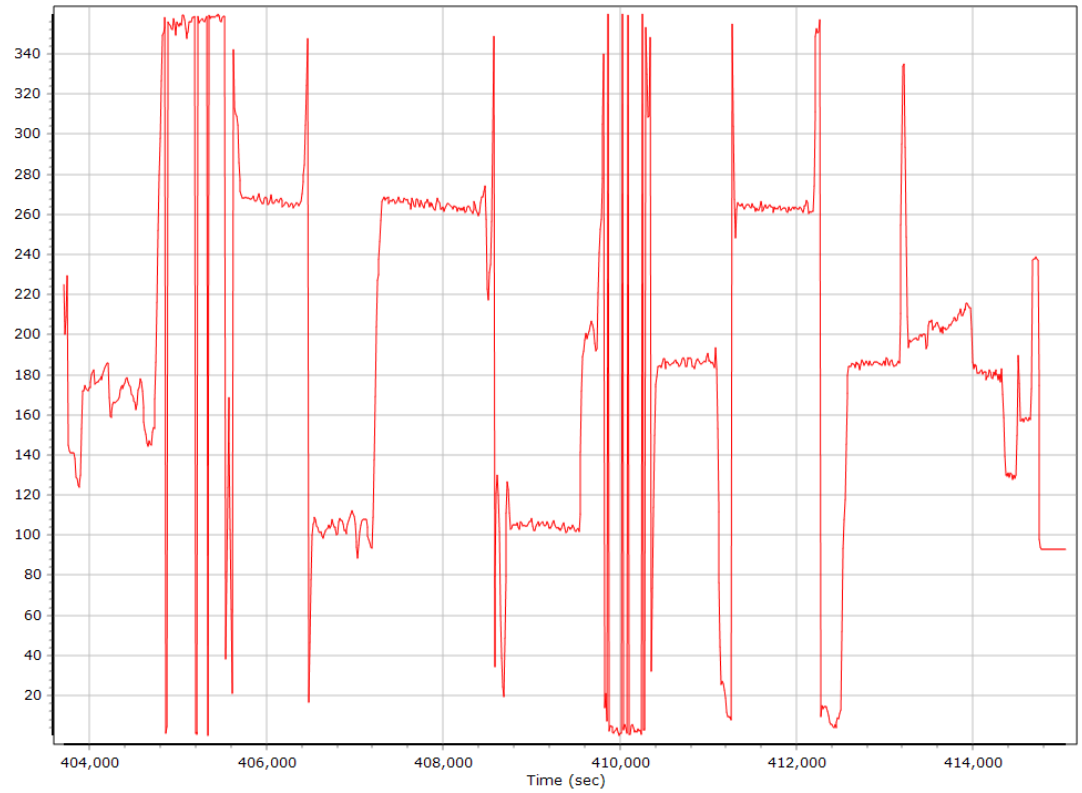
Altitude



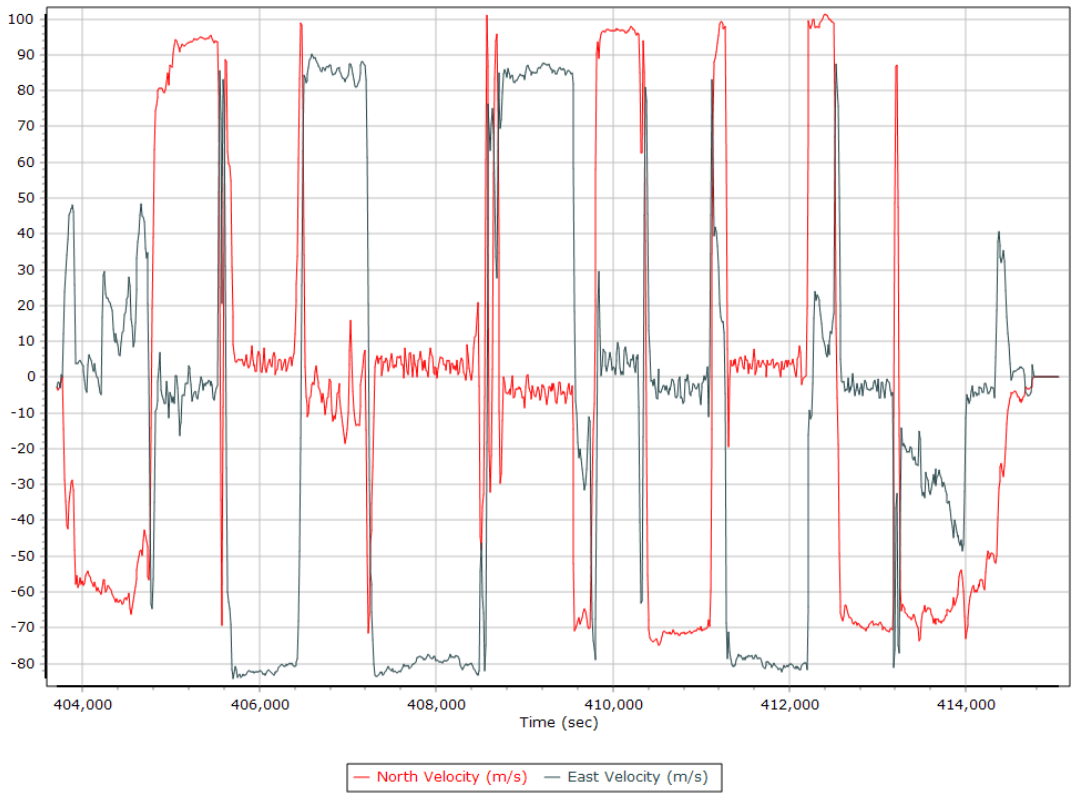
Roll/Pitch



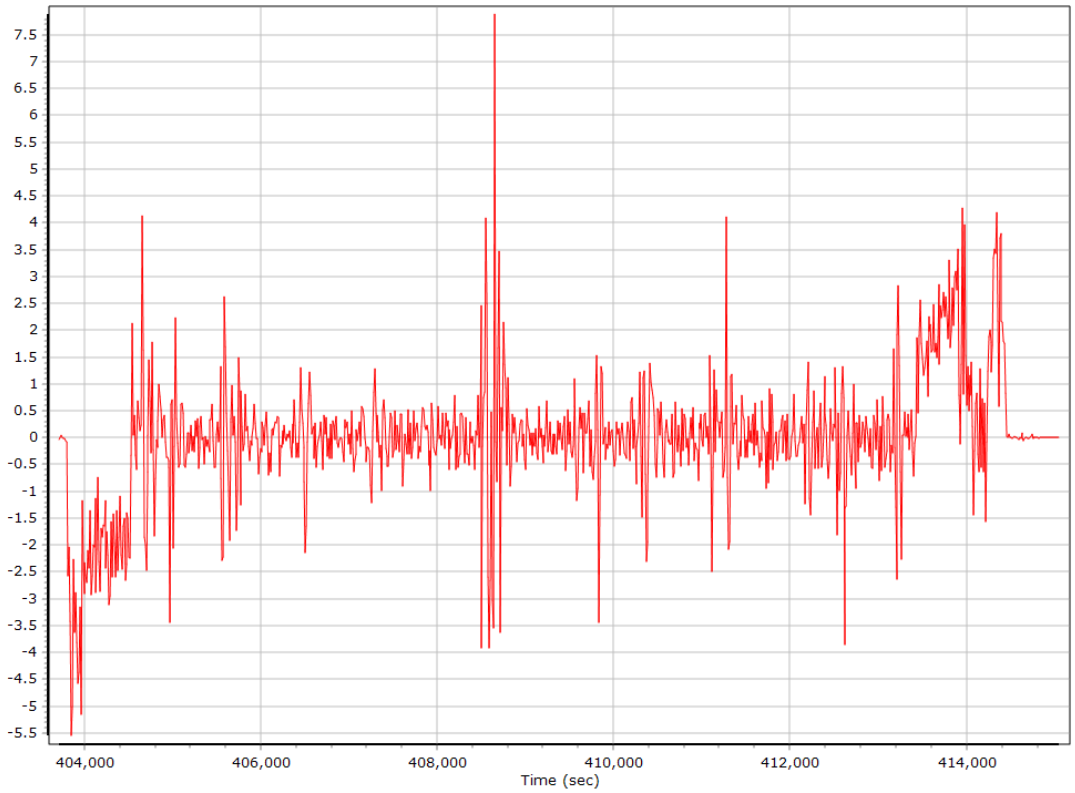
Heading



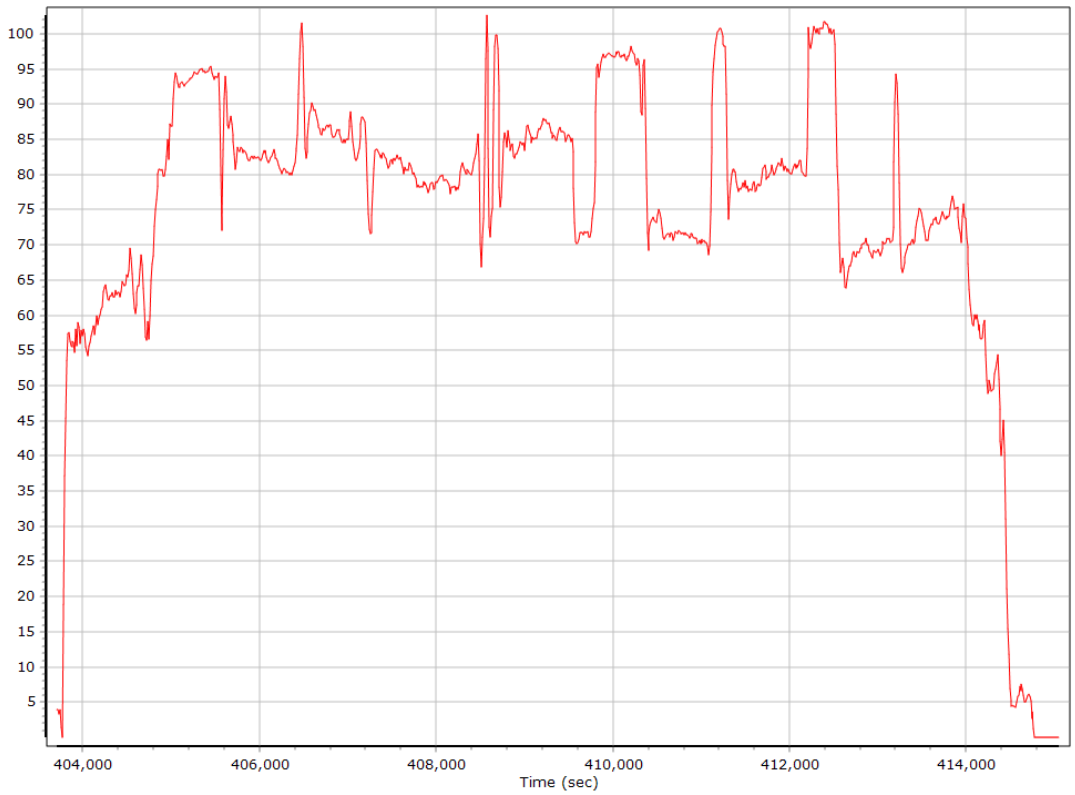
North/East Velocity



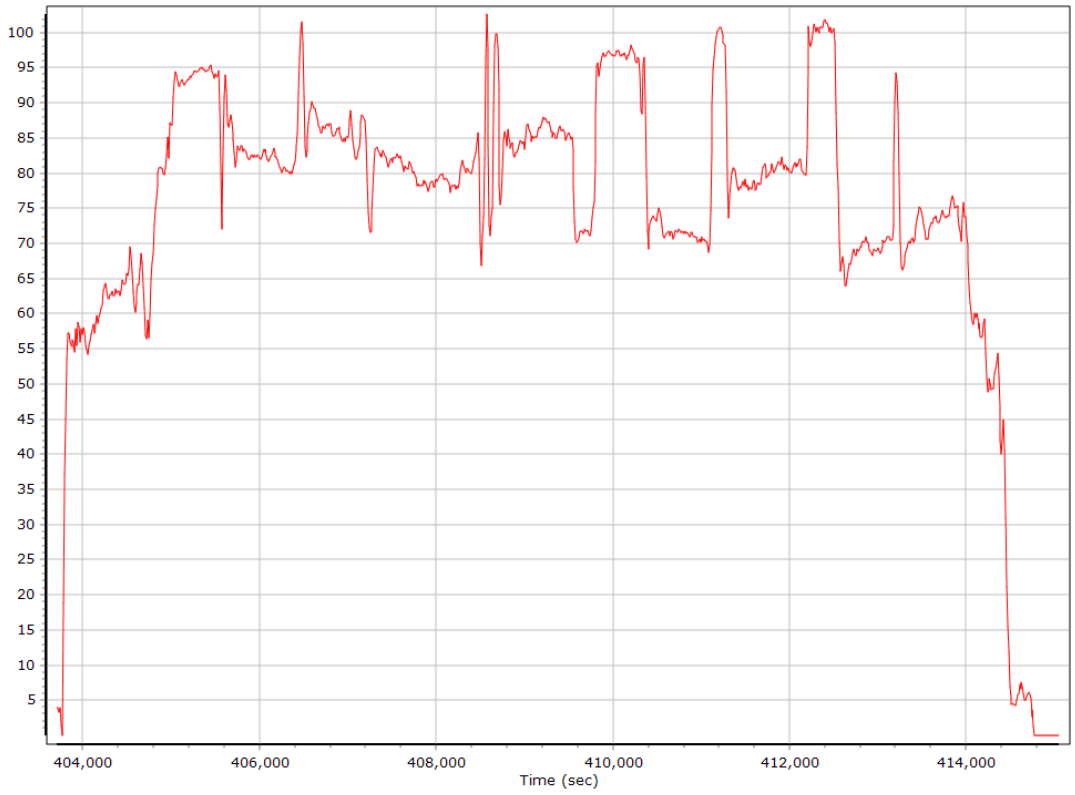
Down Velocity



Total Speed

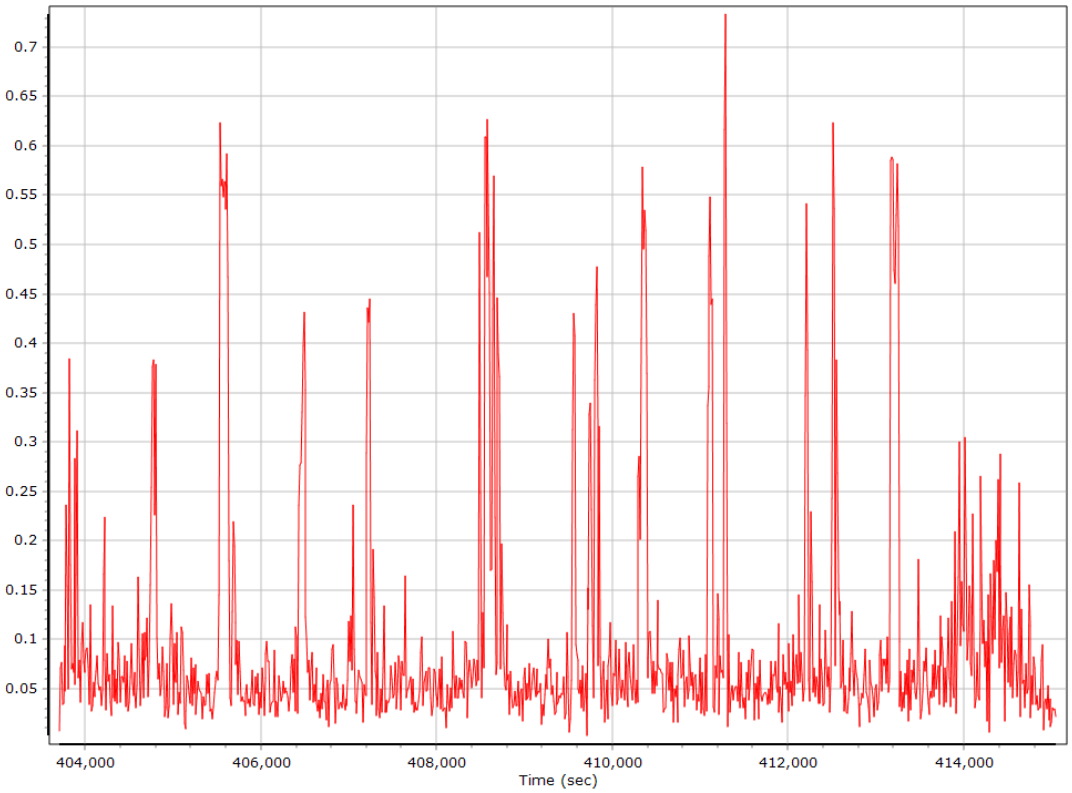


Ground Speed



Body Acceleration

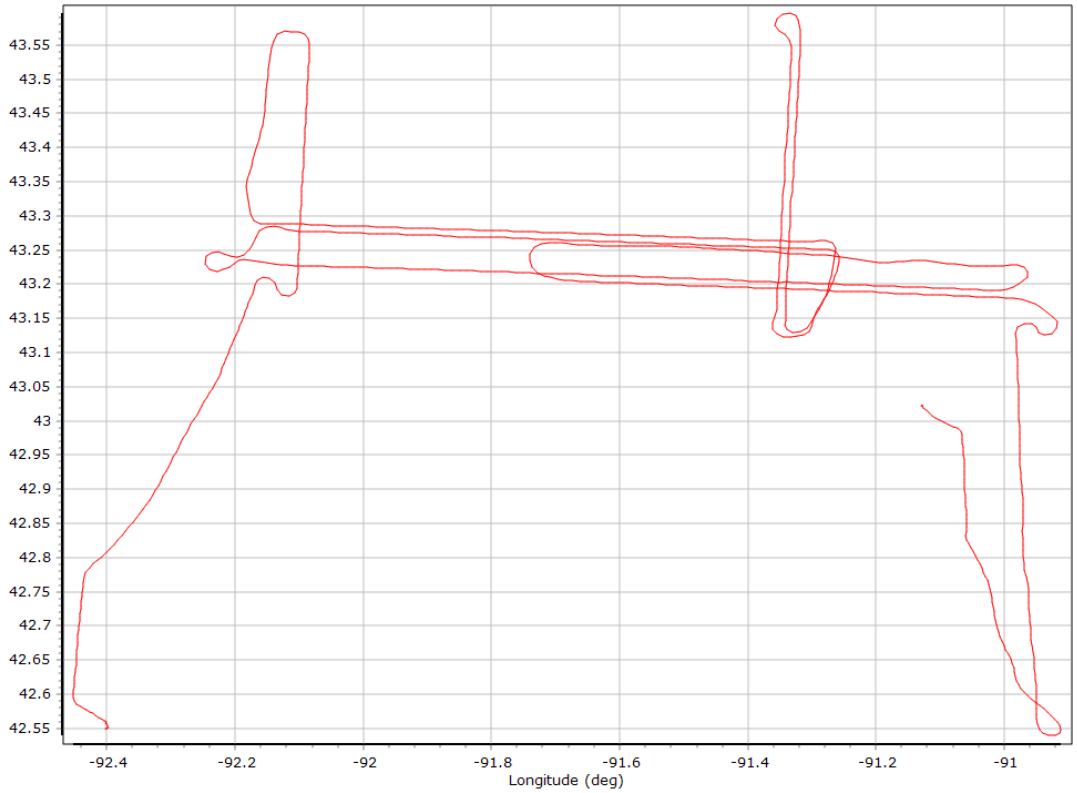
Total Body Acceleration



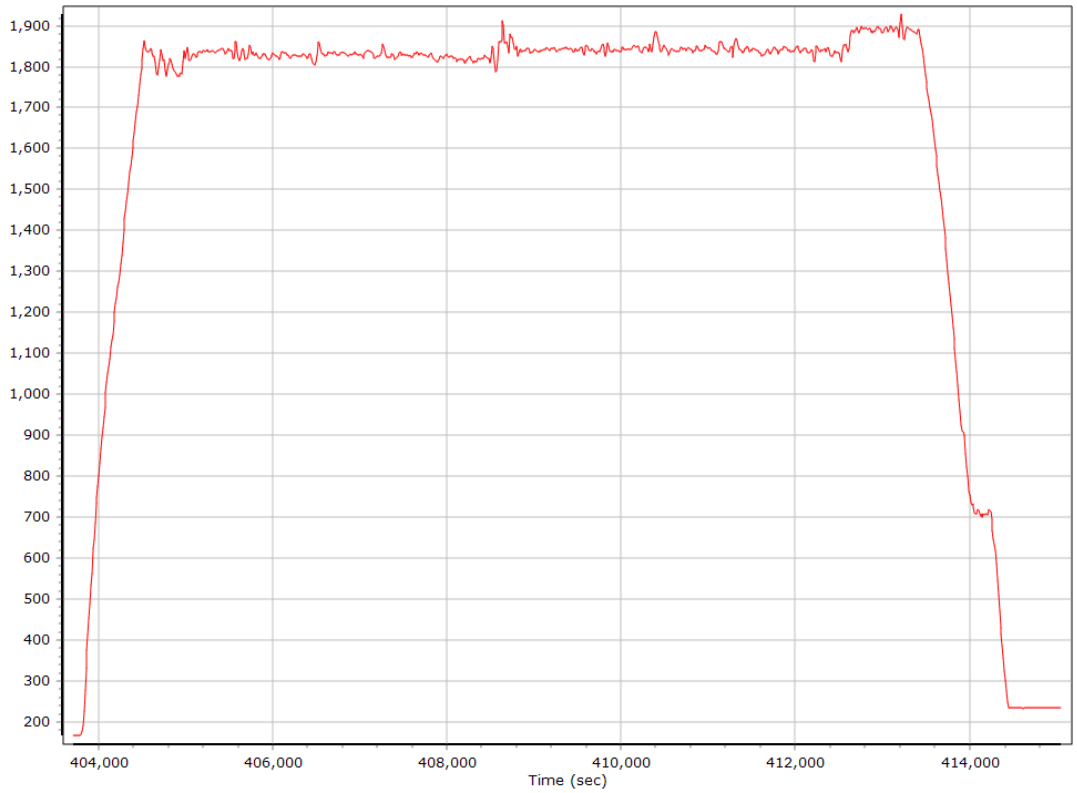
Body Angular Rate

Forward Processed Trajectory Information

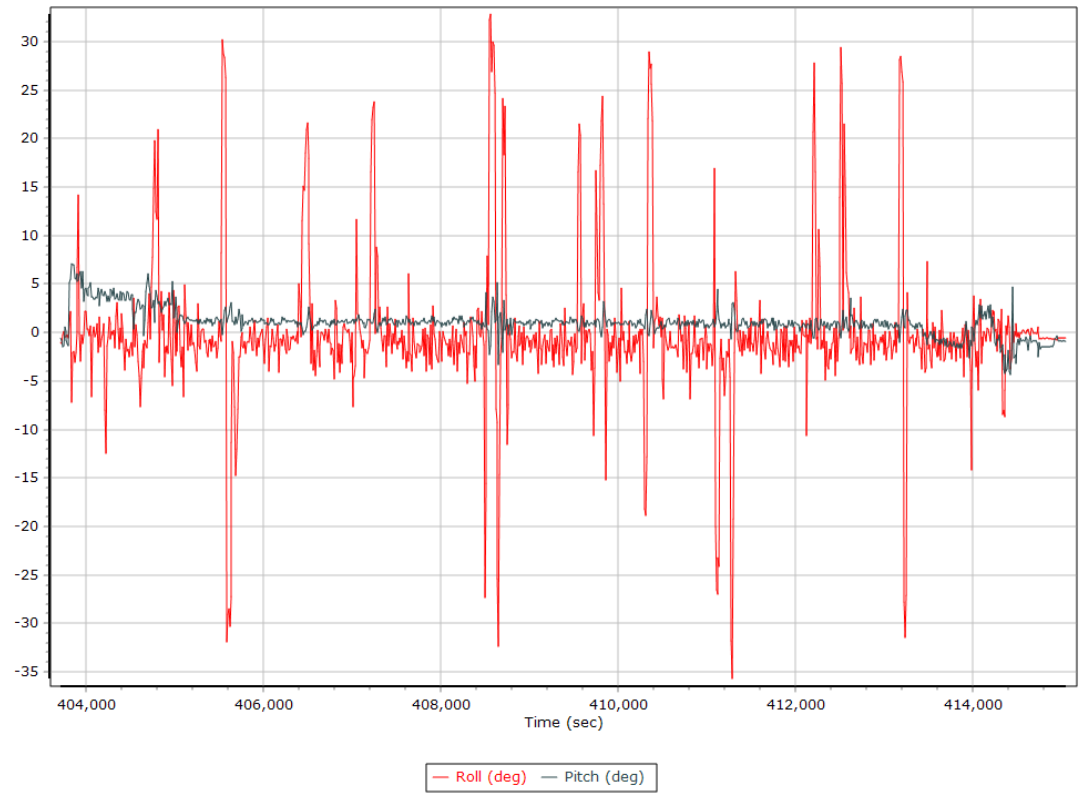
Top View



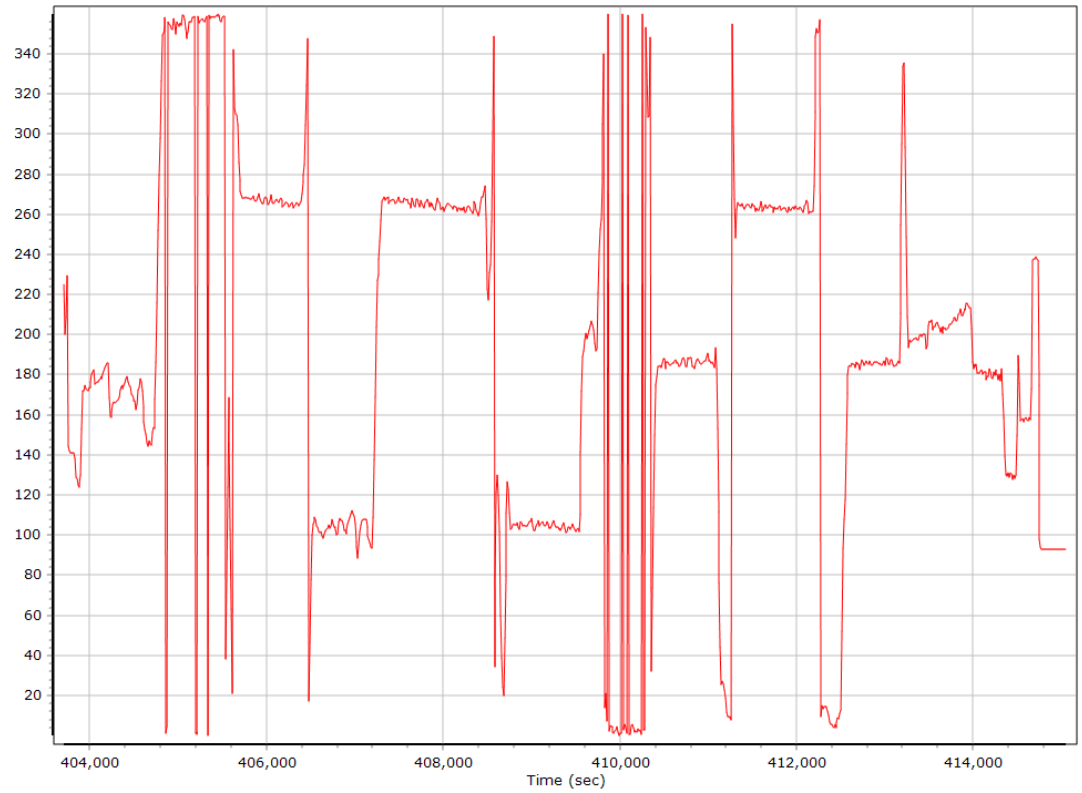
Altitude



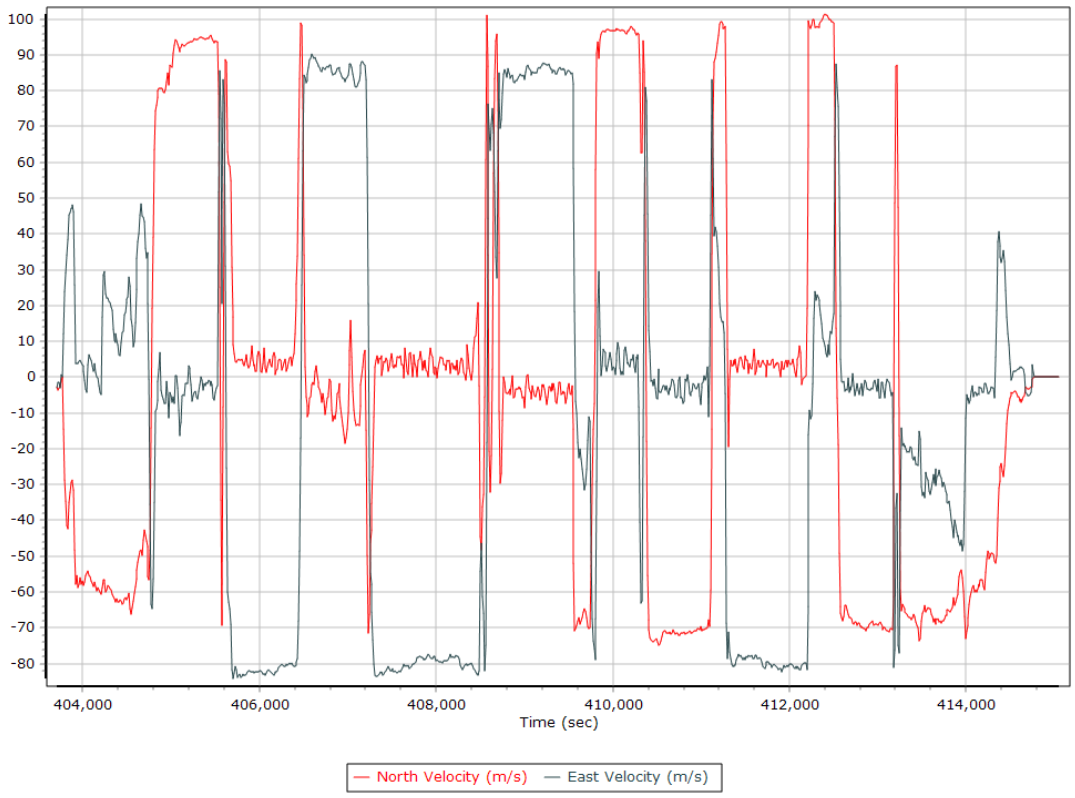
Roll/Pitch



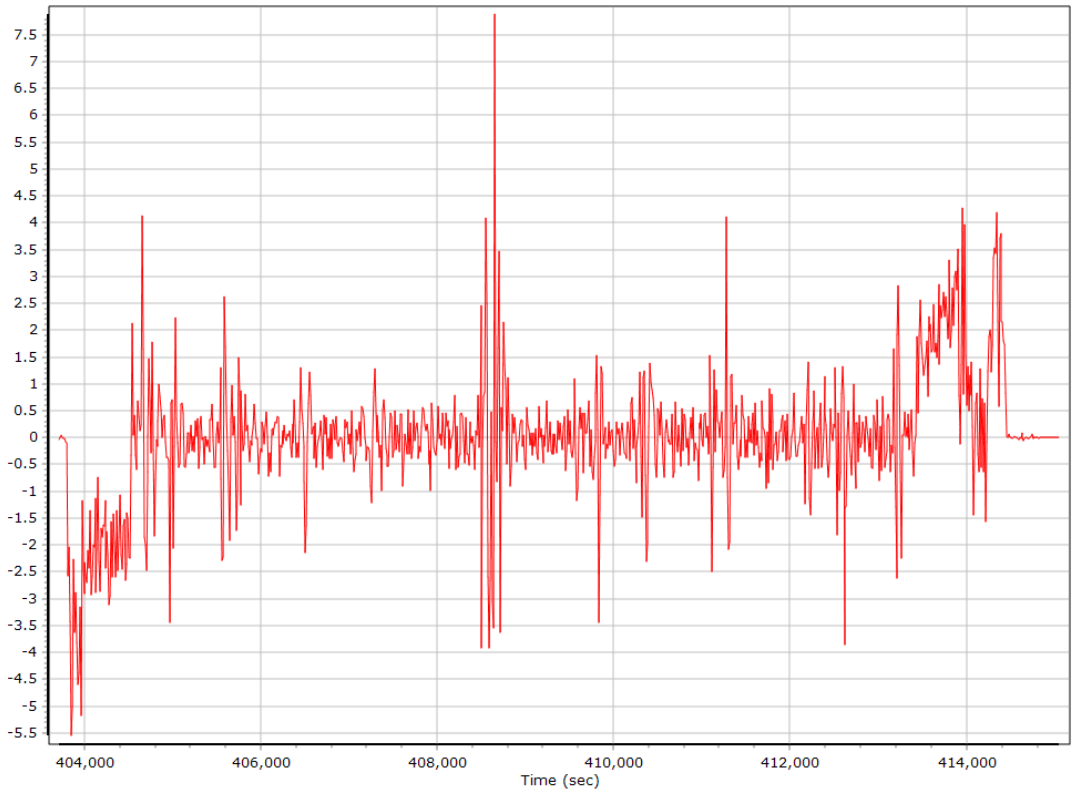
Heading



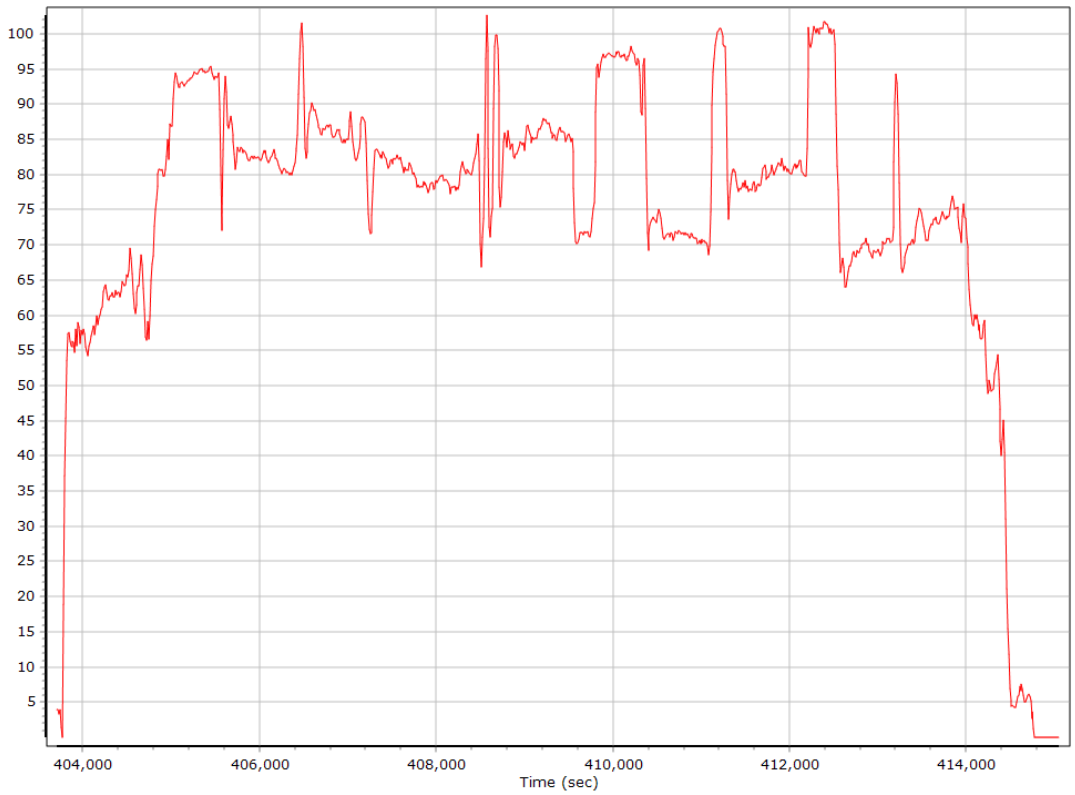
North/East Velocity



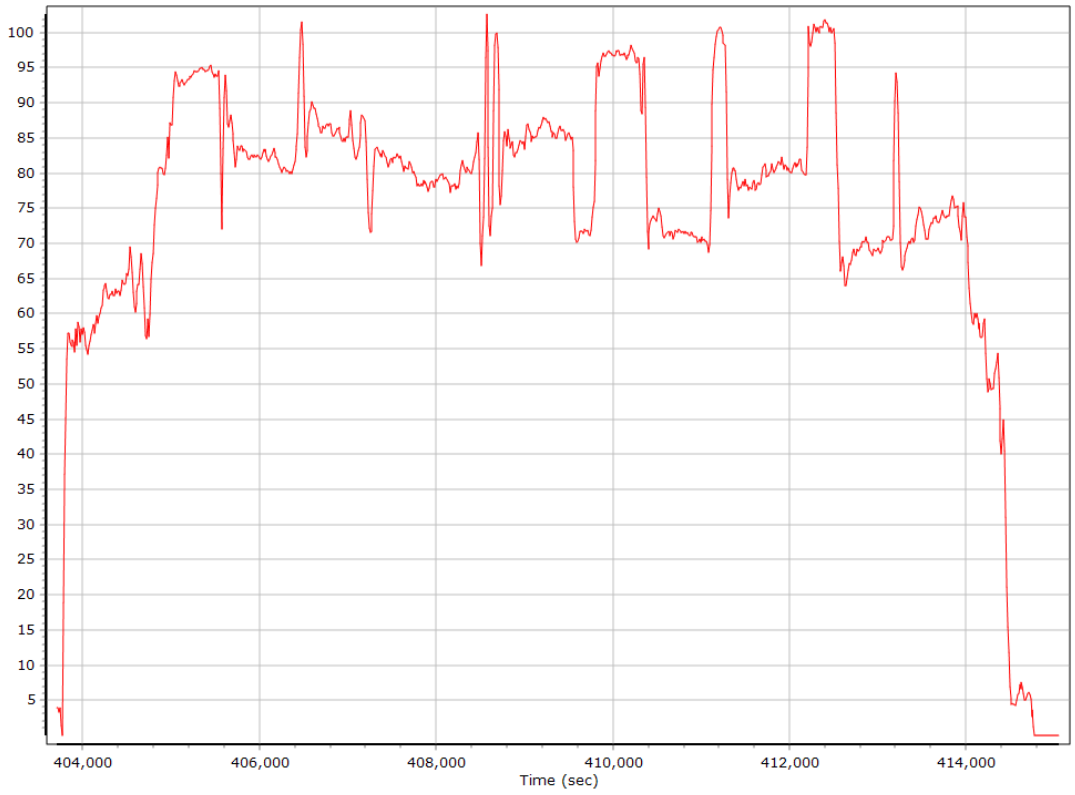
Down Velocity



Total Speed

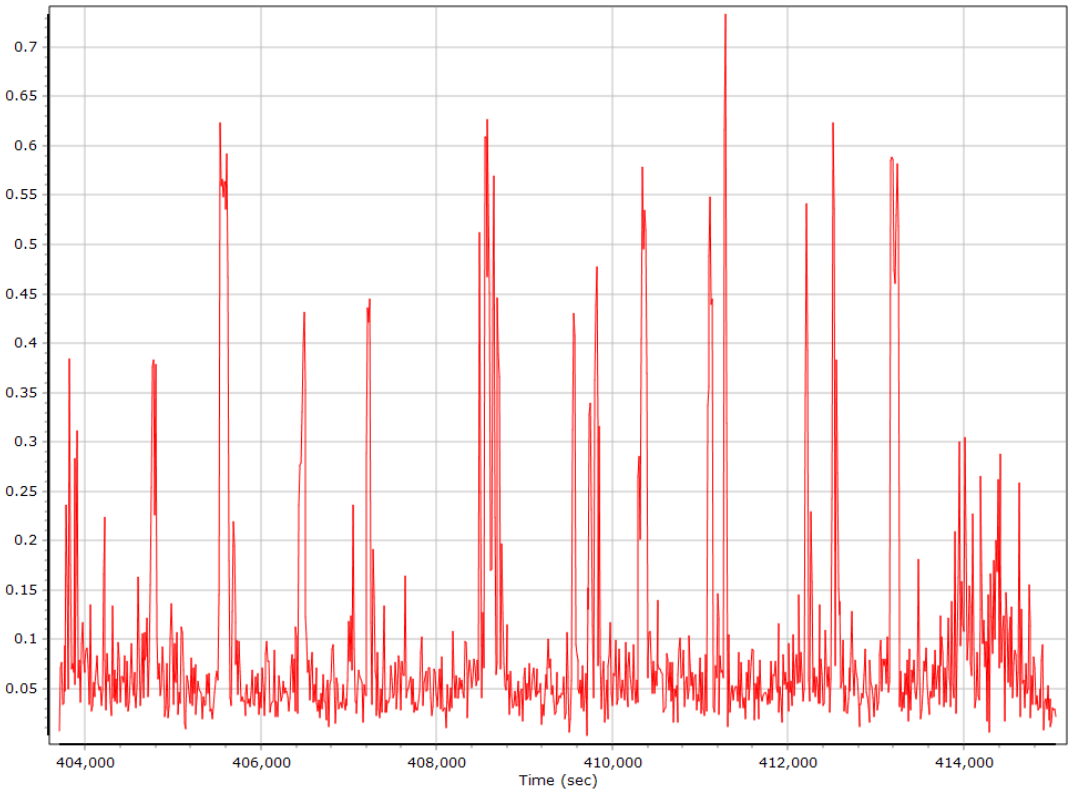


Ground Speed



Body Acceleration

Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/02/2020	IADE	26.28	GNSS	30	CORS (daily)	Smart Base	Failed Validation
04/02/2020	IAEL	32.21	GNSS	30	CORS (daily)	Smart Base	Failed Validation
04/02/2020	IANA	49.07	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	MNPS	50.60	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	MNCA	58.21	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	WLNC	78.02	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IAAL	105.86	GNSS	30	CORS (daily)	Smart Base	Failed Validation
04/02/2020	MNEY	105.93	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	MNWN	106.17	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	JFWS	111.69	GPS	30	CORS (daily)	Smart Base	Imported
04/02/2020	MNSV	113.50	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IAMN	120.43	GNSS	30	CORS (daily)	Smart Base	Failed Validation
04/02/2020	IAMQ	139.21	GNSS	30	CORS (daily)	Smart Base	Failed Validation
04/02/2020	WINL	142.36	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IAHT	145.76	GNSS	30	CORS (daily)	Smart Base	Failed Validation
04/02/2020	NLIB	149.12	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IATA	149.87	GNSS	30	CORS (daily)	Smart Base	Failed Validation

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IANA
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	11900 s (2099 403175 - 2099 415075)
Number of reference stations	10
Primary station GPS measurement usage (%)	99.8
Primary station GLONASS measurement usage (%)	90.9
Average number of satellites per epoch	15.2
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	8708
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - NLIB

Status	OK	**SBQI**	9	
Duration (Hours)	23.50	**Output Coordinates**	Original	
Solution Epochs	2820	**Mean Epoch SVs**	6.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°46'17.72572"	W91°34'29.63330"	206.992
Adjusted		N41°46'17.72581"	W91°34'29.63379"	207.024
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.012	0.032	0.034

Base Station Information

Station ID	NLIB		
Filename	nlib0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Unknown	Unknown	3013995
Antenna manufacturer, model	Javad GNSS	JAV RINGANT-DM w/SCIS	
Antenna height [m]	0.613		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1067		
Latitude	N41°46'17.72572"		
Longitude	W91°34'29.63330"		
Ellipsoidal height (m)	206.99223		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WINL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°50'27.42791"	W90°08'31.59806"	243.634
Adjusted		N43°50'27.42788"	W90°08'31.59834"	243.666
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.032	0.033

Base Station Information

Station ID	WINL		
Filename	winl0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5503R50037
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°50'27.42791"		
Longitude	W90°08'31.59806"		
Ellipsoidal height (m)	243.63363		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNSV

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°54'09.07390"	W92°28'55.97411"	361.226
Adjusted		N43°54'09.07396"	W92°28'55.97466"	361.252
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.012	0.025	0.028

Base Station Information

Station ID	MNSV		
Filename	mnsv0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	Alloy	5829R40031
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°54'09.07390"		
Longitude	W92°28'55.97411"		
Ellipsoidal height (m)	361.22647		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - JFWS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°54'51.37587"	W90°14'53.19177"	293.597
Adjusted		N42°54'51.37603"	W90°14'53.19178"	293.614
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.017	0.018

Base Station Information

Station ID	JFWS		
Filename	jfws0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GPS		
Receiver manufacturer, model, serial no.	Trimble	NetRS	4532254621
Antenna manufacturer, model	Trimble	Choke Ring w/SCIT Dome	
Antenna height [m]	0.008		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.11		
Latitude	N42°54'51.37587"		
Longitude	W90°14'53.19177"		
Ellipsoidal height (m)	293.59680		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNWN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N44°03'54.03515"	W91°42'45.52413"	178.655
Adjusted		N44°03'54.03513"	W91°42'45.52436"	178.677
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.022	0.022

Base Station Information

Station ID	MNWN		
Filename	mnwn0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5443R50018
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N44°03'54.03515"		
Longitude	W91°42'45.52413"		
Ellipsoidal height (m)	178.65536		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNEY

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°57'20.27378"	W92°12'19.44384"	370.916
Adjusted		N43°57'20.27360"	W92°12'19.44405"	370.930
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.007	0.013	0.015

Base Station Information

Station ID	MNEY		
Filename	mney0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5426R48922
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°57'20.27378"		
Longitude	W92°12'19.44384"		
Ellipsoidal height (m)	370.91640		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WLNC

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°50'15.66938"	W90°42'41.07303"	280.855
Adjusted		N42°50'15.66922"	W90°42'41.07360"	280.874
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.014	0.020	0.024

Base Station Information

Station ID	WLNC		
Filename	wlnc0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72957
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N42°50'15.66938"		
Longitude	W90°42'41.07303"		
Ellipsoidal height (m)	280.85487		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	8	
Duration (Hours)	23.68	**Output Coordinates**	Original	
Solution Epochs	2841	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64528"	W91°29'46.51634"	339.589
Adjusted		N43°37'58.64518"	W91°29'46.51648"	339.626
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.037	0.038

Base Station Information

Station ID	MNCA		
Filename	mnca0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64528"		
Longitude	W91°29'46.51634"		
Ellipsoidal height (m)	339.58850		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86727"	380.908
Adjusted		N43°30'53.84812"	W91°53'06.86765"	380.943
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.036	0.037

Base Station Information

Station ID	MNPS		
Filename	mnps0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86727"		
Ellipsoidal height (m)	380.90781		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54030"	172.253
Adjusted		N43°29'49.47896"	W91°17'26.54030"	172.253
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IANA		
Filename	iana0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54030"		
Ellipsoidal height (m)	172.25325		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	9.77	91.29	
Number of GPS SV	6	10	8
Number of GLONASS SV	0	9	7
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	7	17	15
PDOP	1.15	2.29	1.49
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	11886.00	0.00	1.00
Percentage	99.99	0.00	0.01

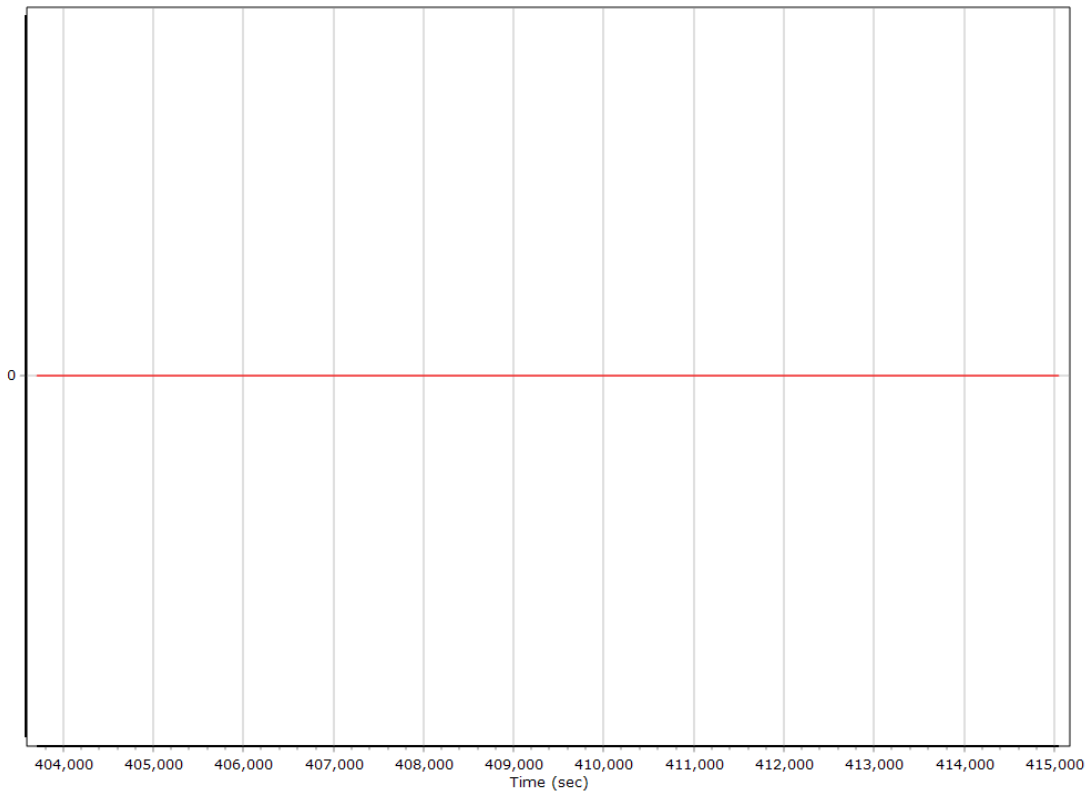
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	403157.000 (4/2/2020 3:59:17 PM)		
Processing end time	415057.000 (4/2/2020 7:17:37 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

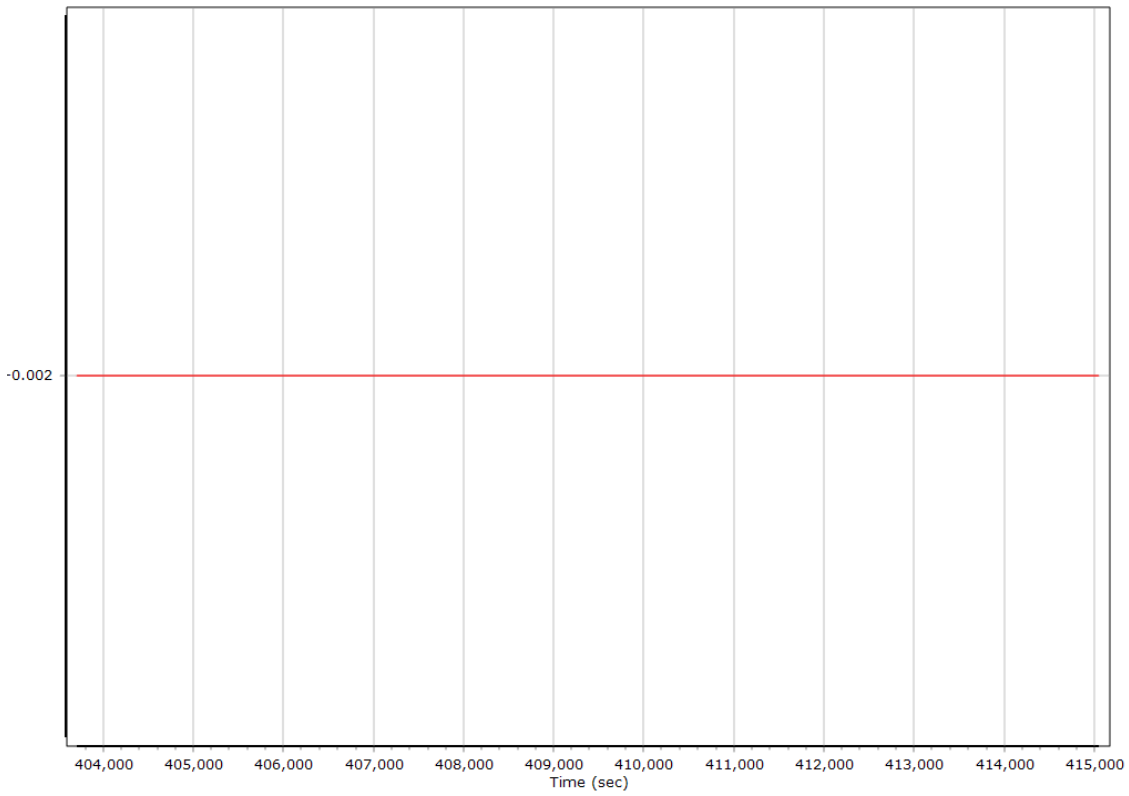
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

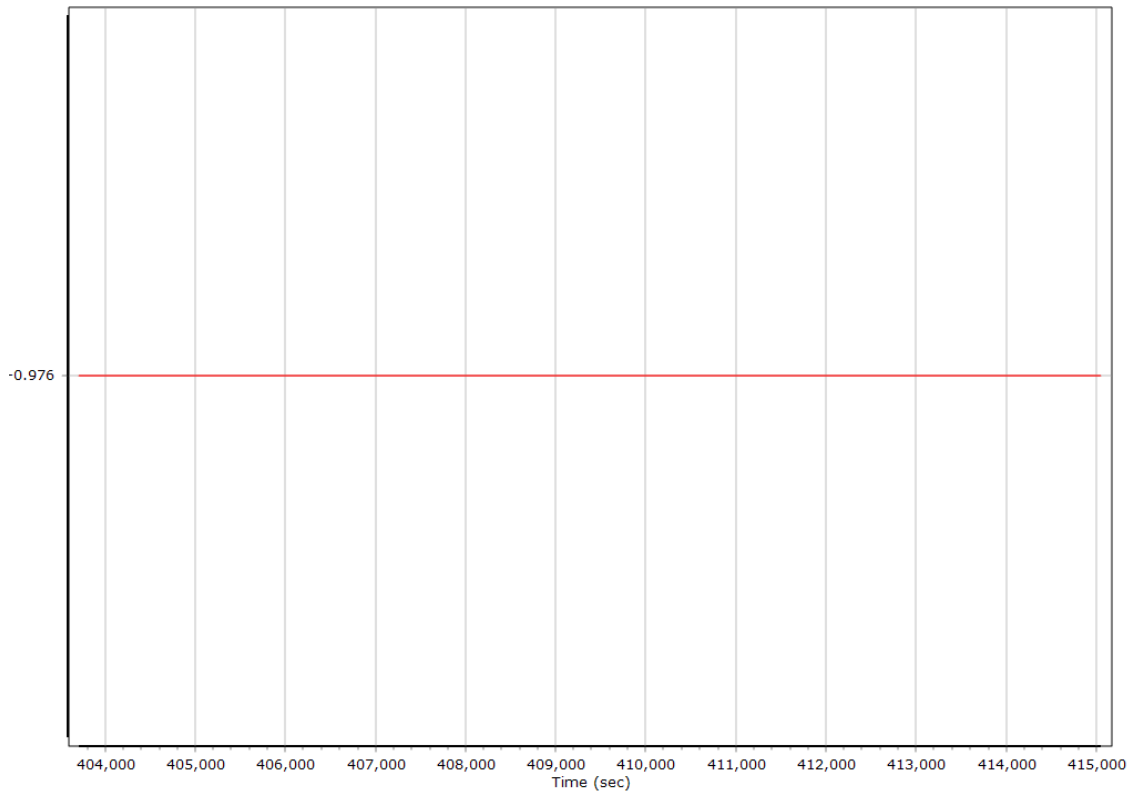
X Reference-Primary GNSS Lever Arm (m)



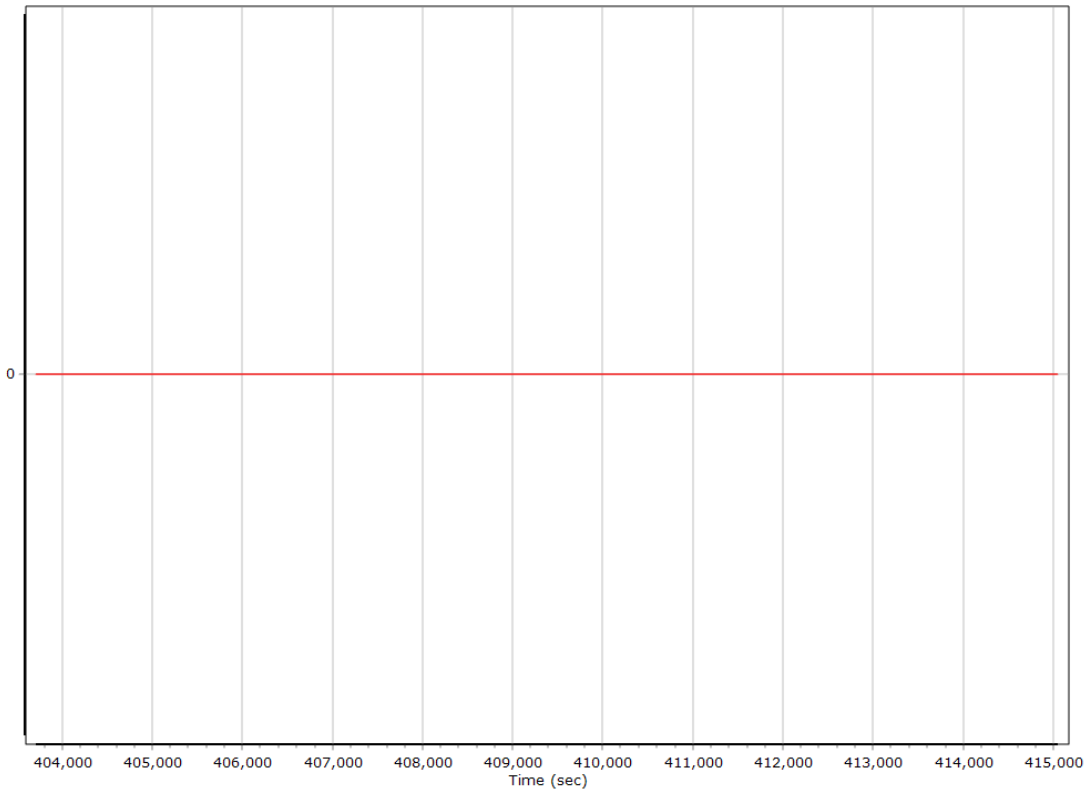
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



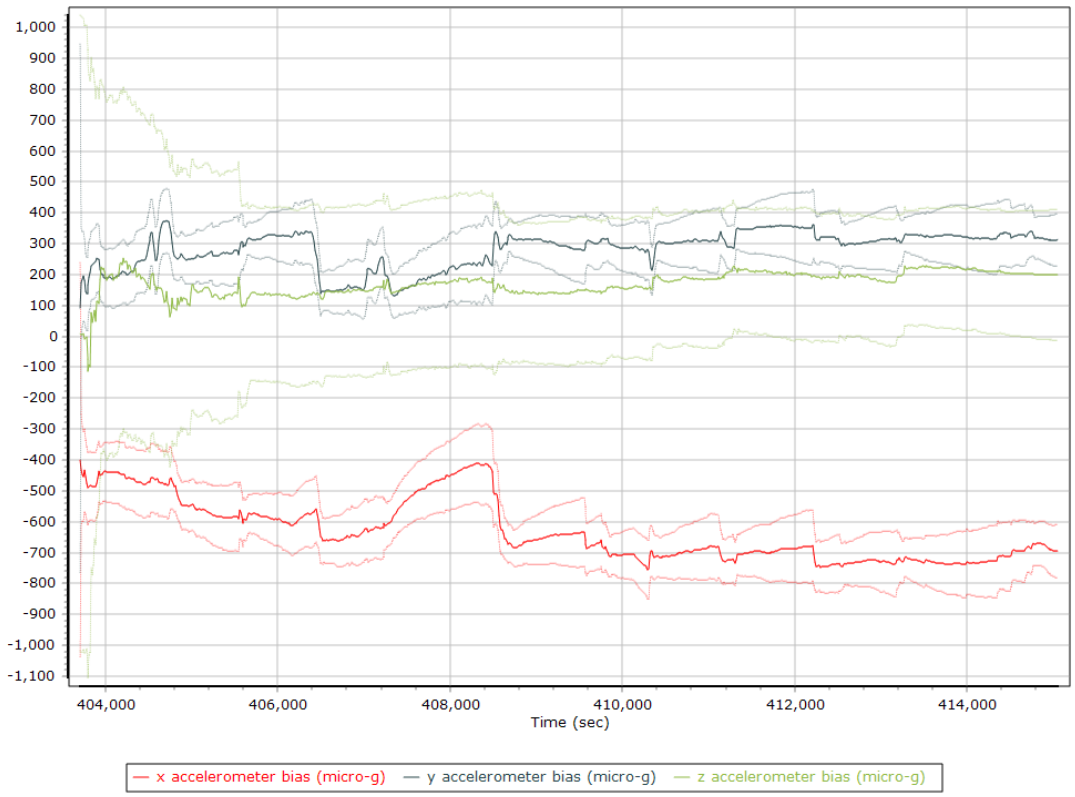
Reference-Primary GNSS Lever Arm Figure of Merit



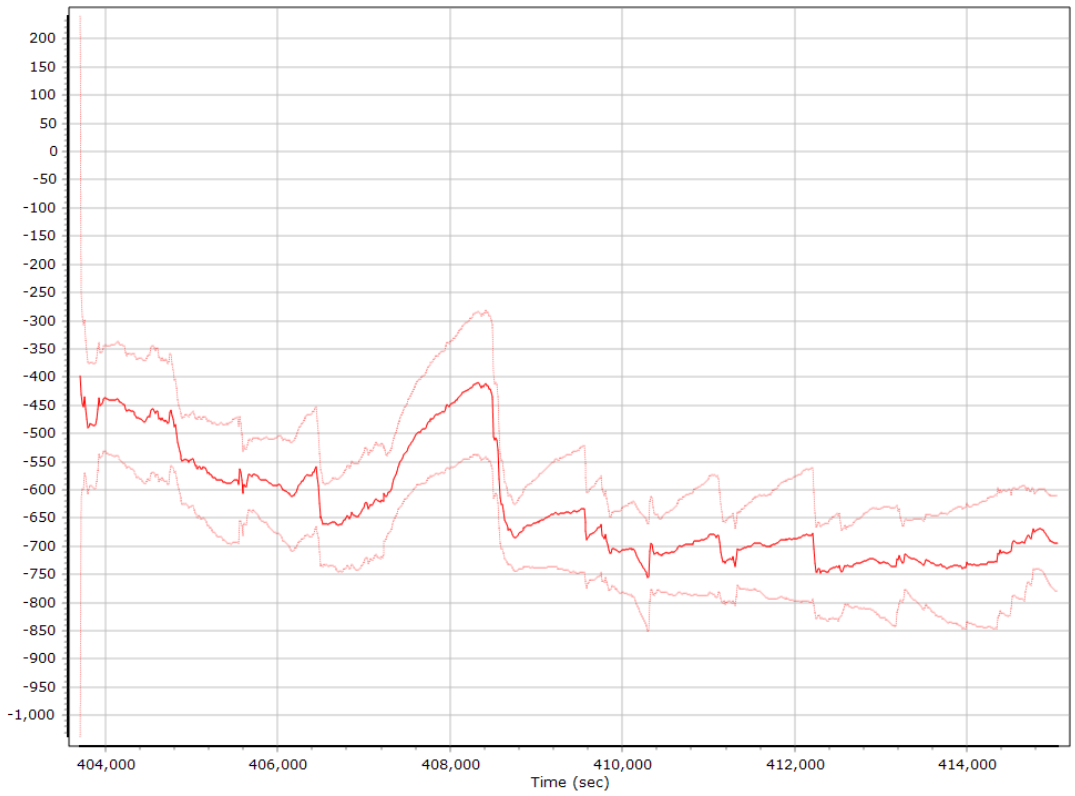
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

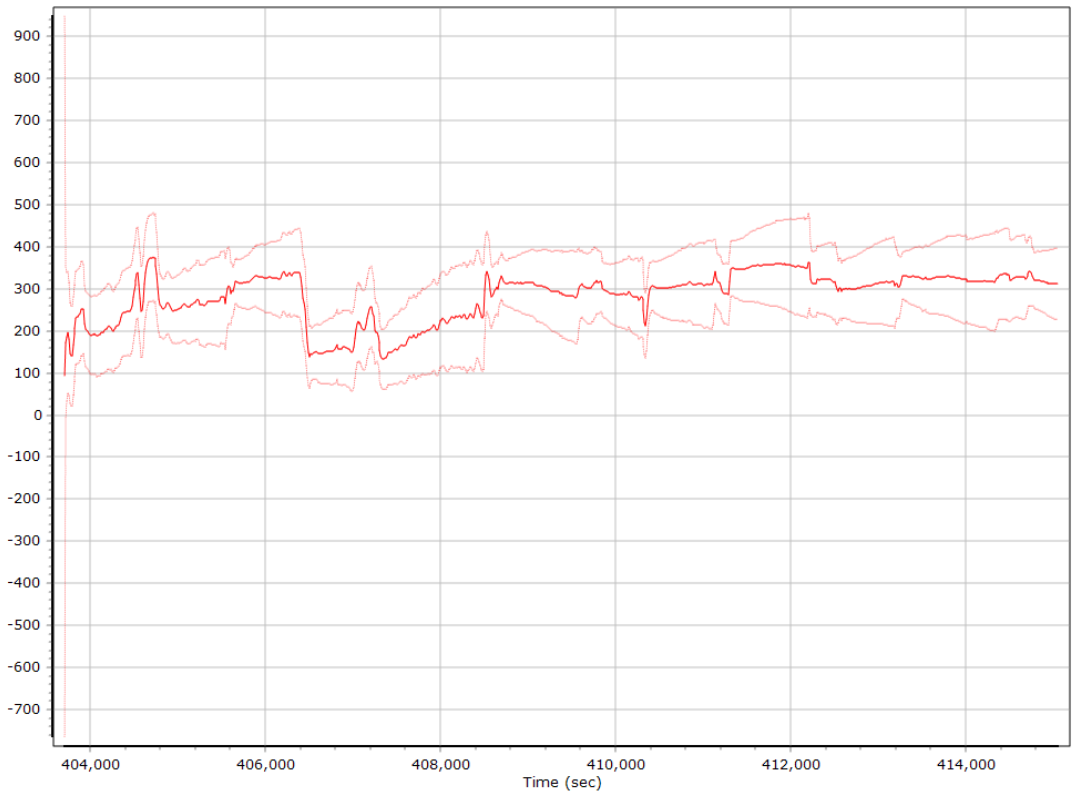
Accelerometer Bias (micro-g)



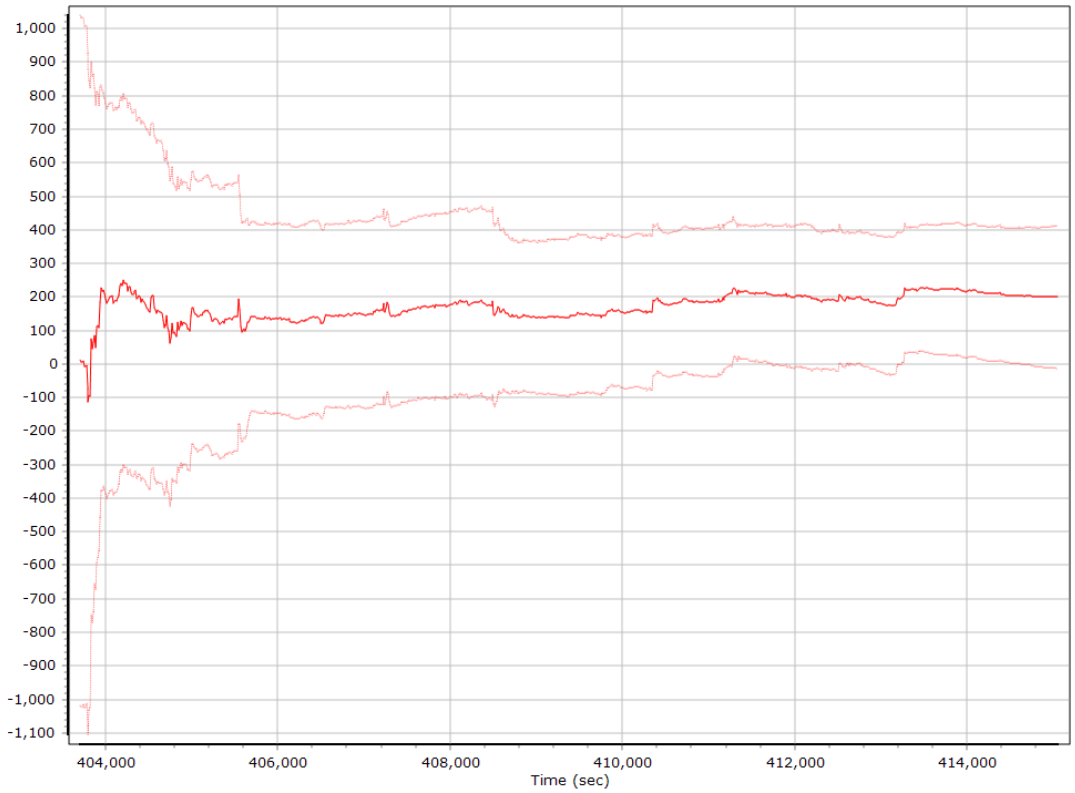
X Accelerometer Bias (micro-g)



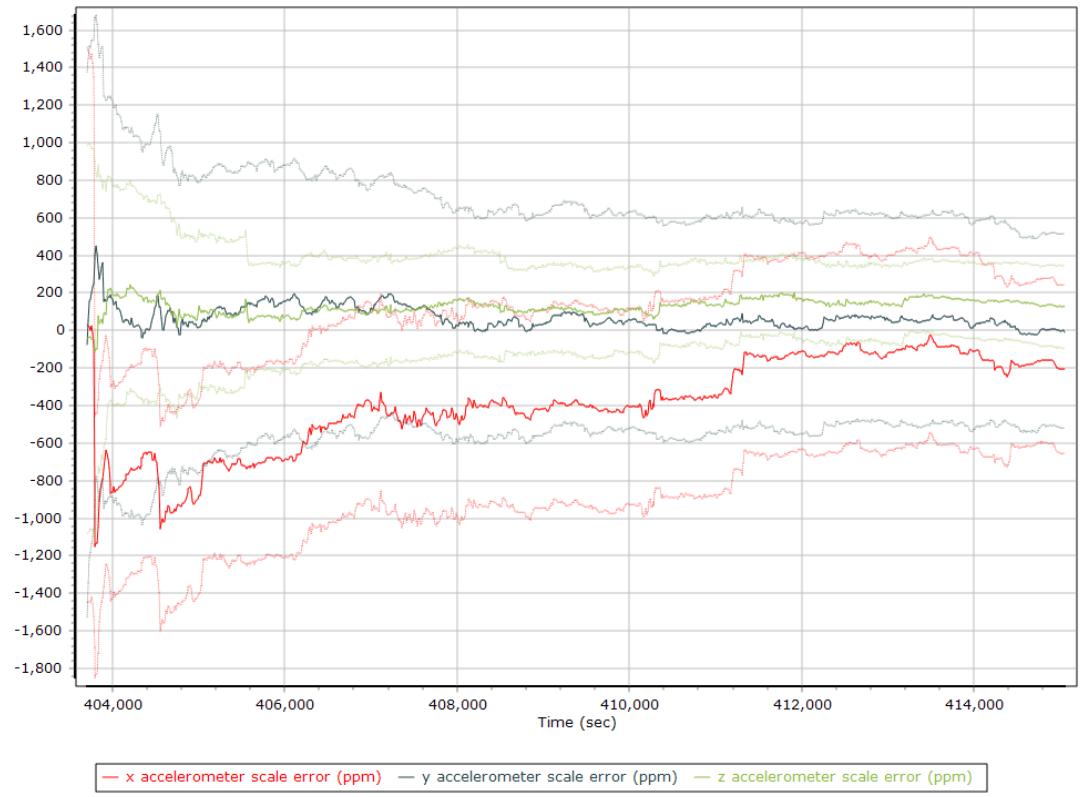
Y Accelerometer Bias (micro-g)



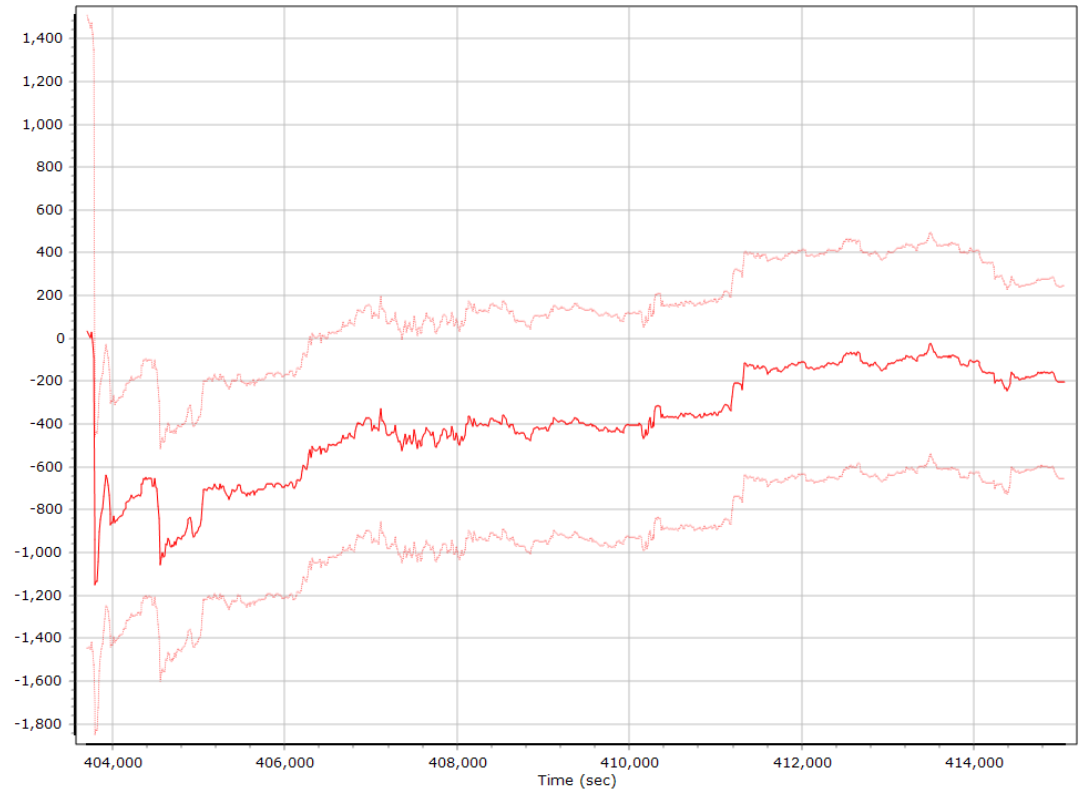
Z Accelerometer Bias (micro-g)



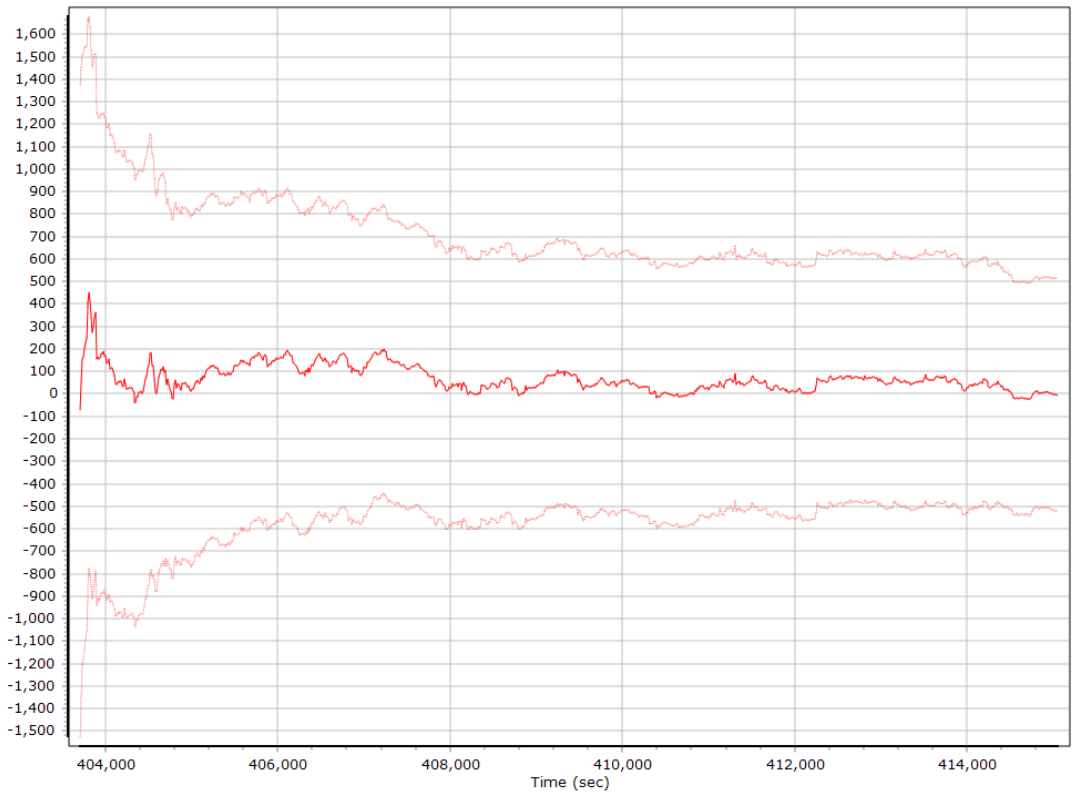
Accelerometer Scale Error (ppm)



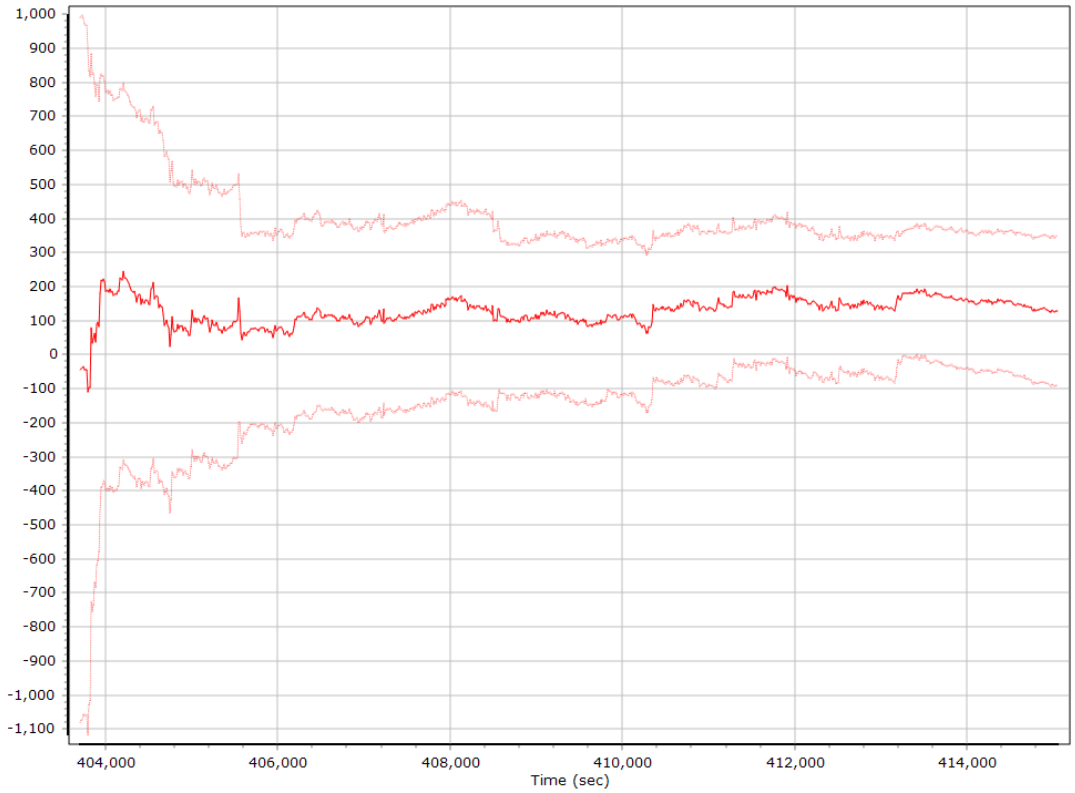
X Accelerometer Scale Error (ppm)



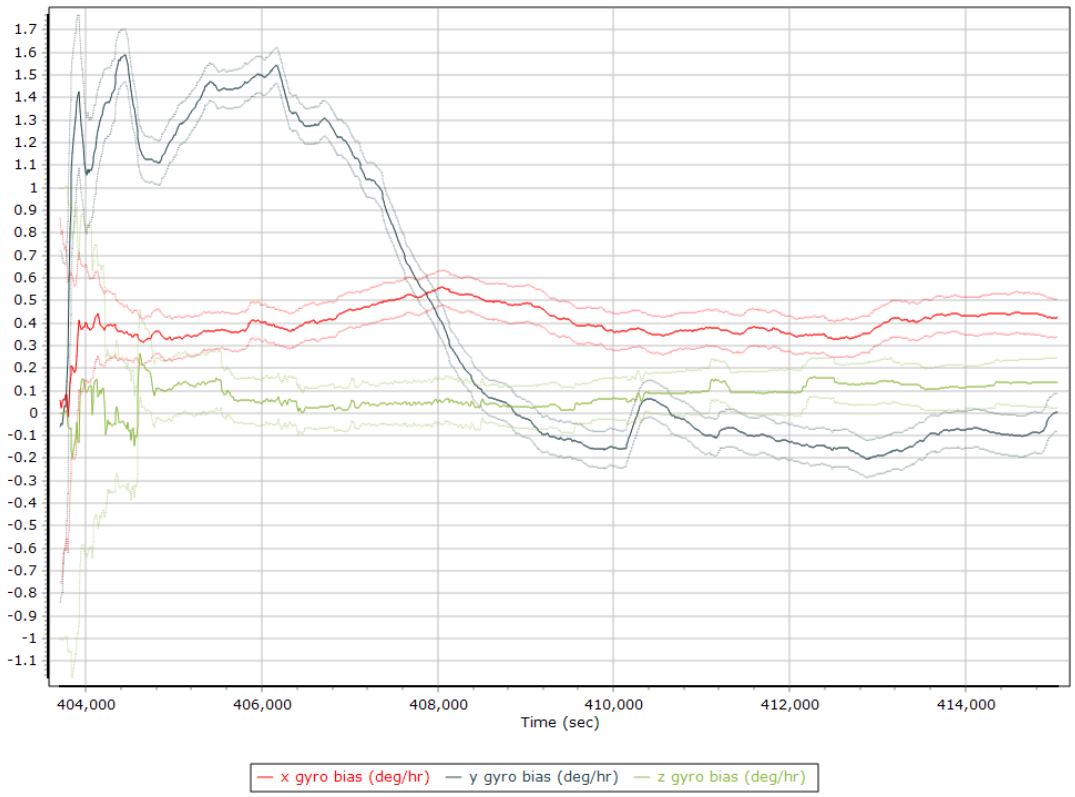
Y Accelerometer Scale Error (ppm)



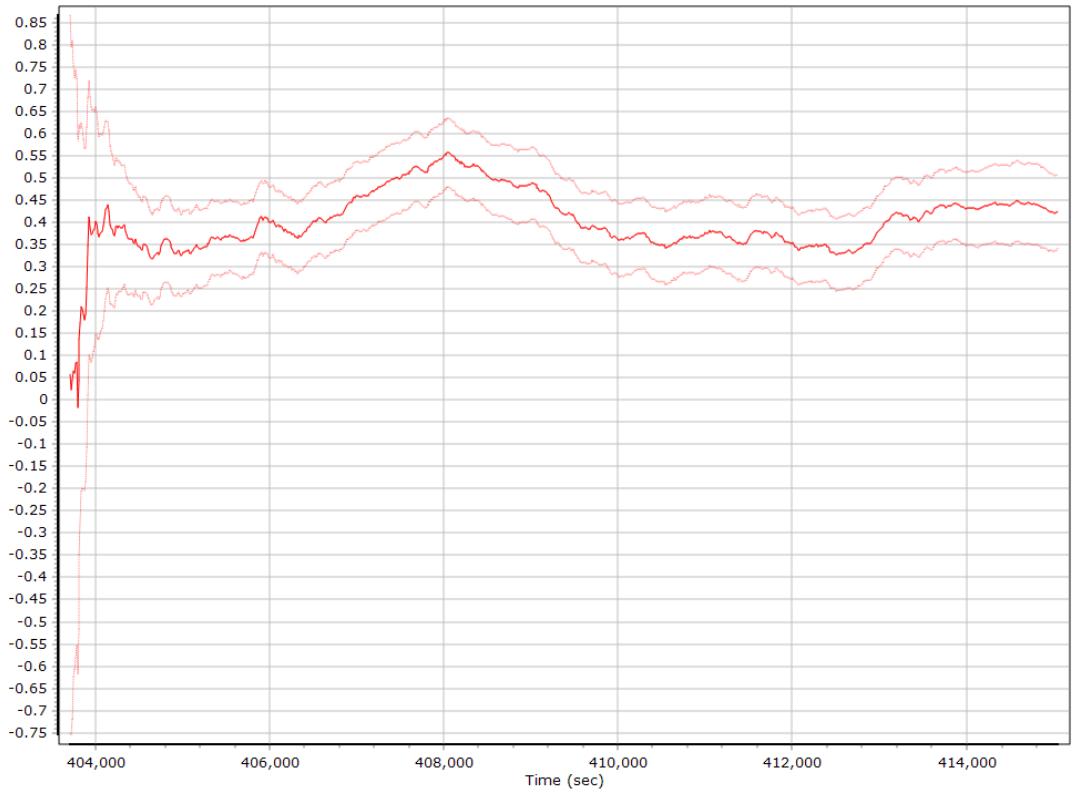
Z Accelerometer Scale Error (ppm)



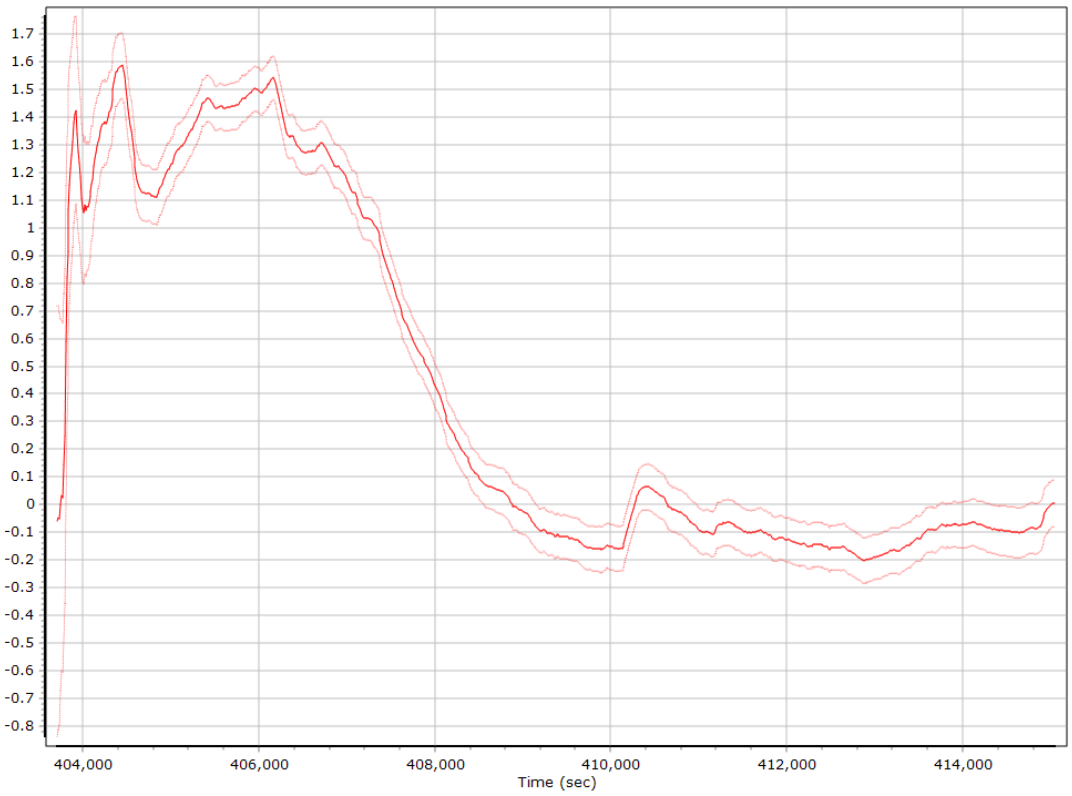
Gyro Bias (deg/h)



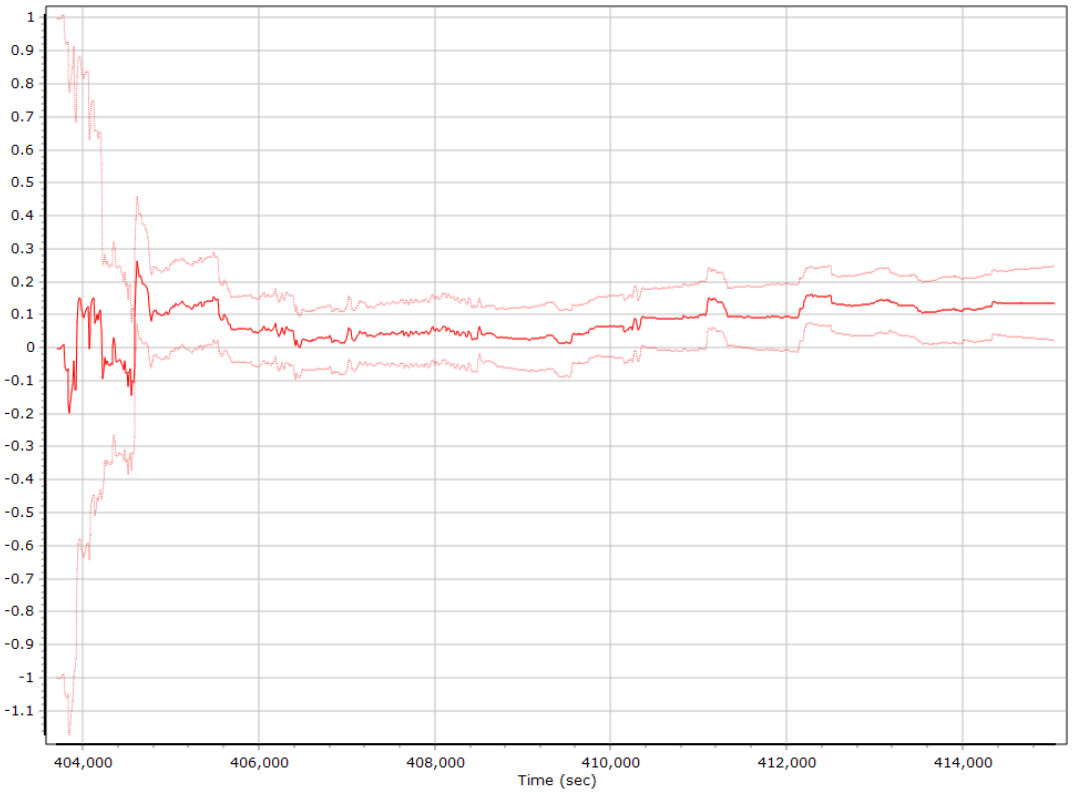
X Gyro Bias (deg/h)



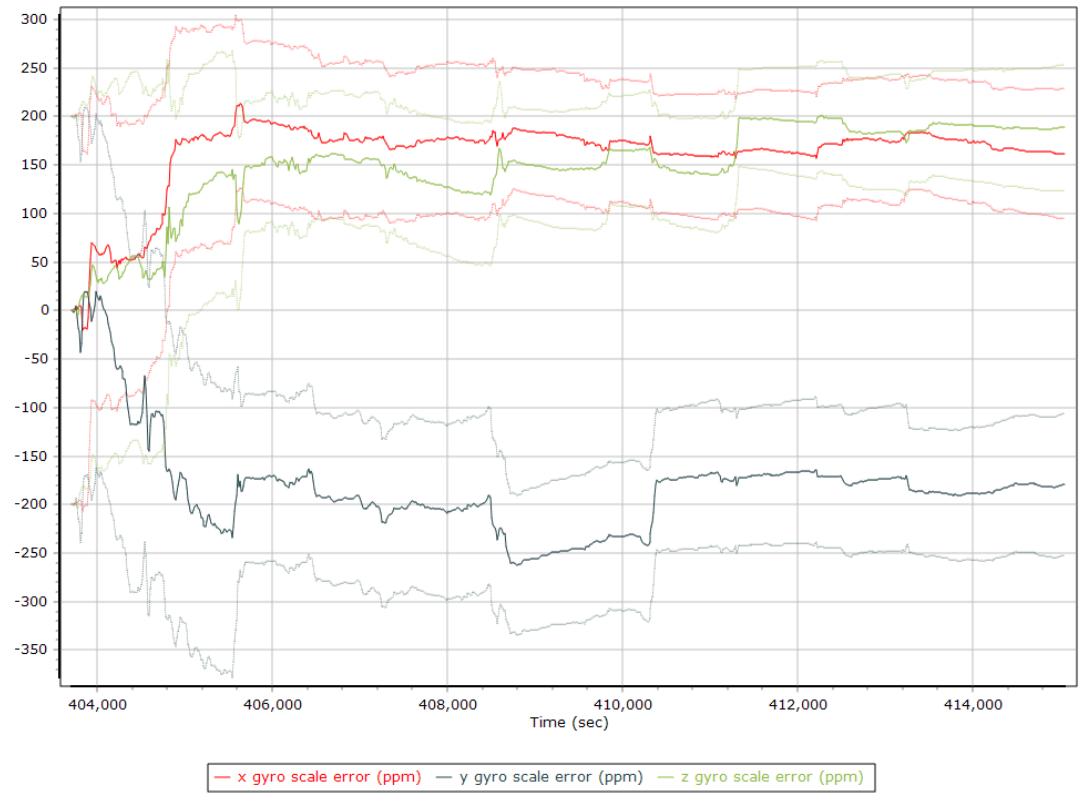
Y Gyro Bias (deg/h)



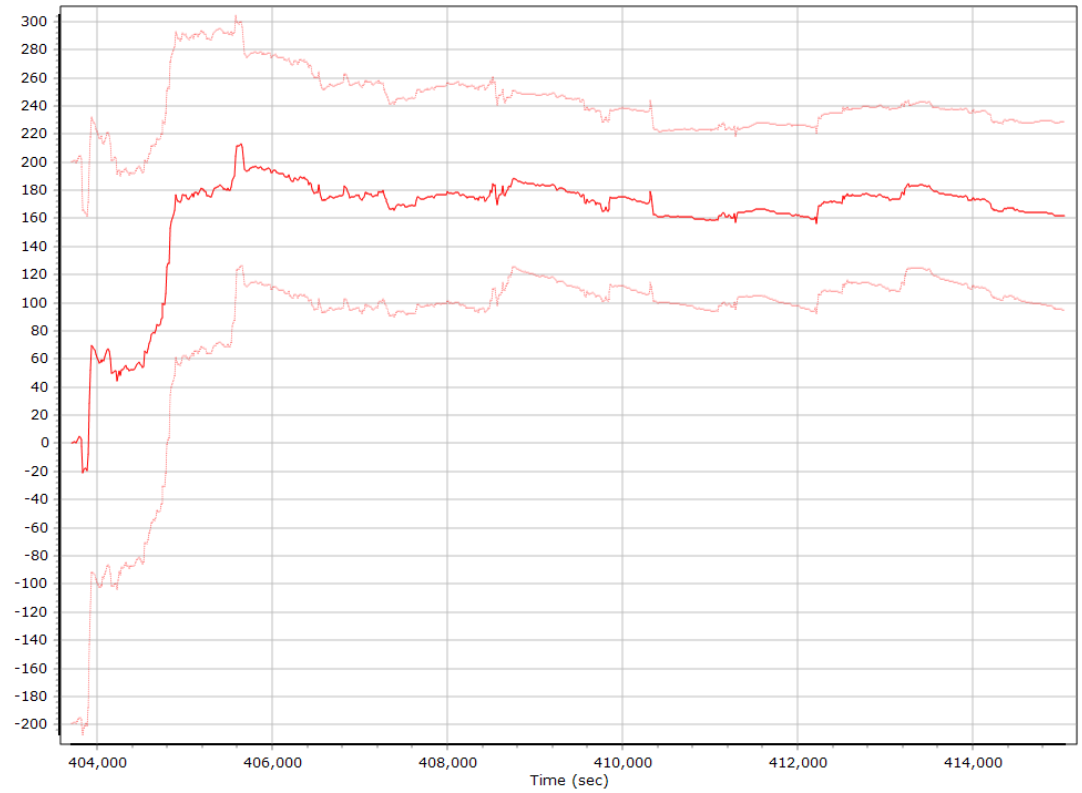
Z Gyro Bias (deg/h)



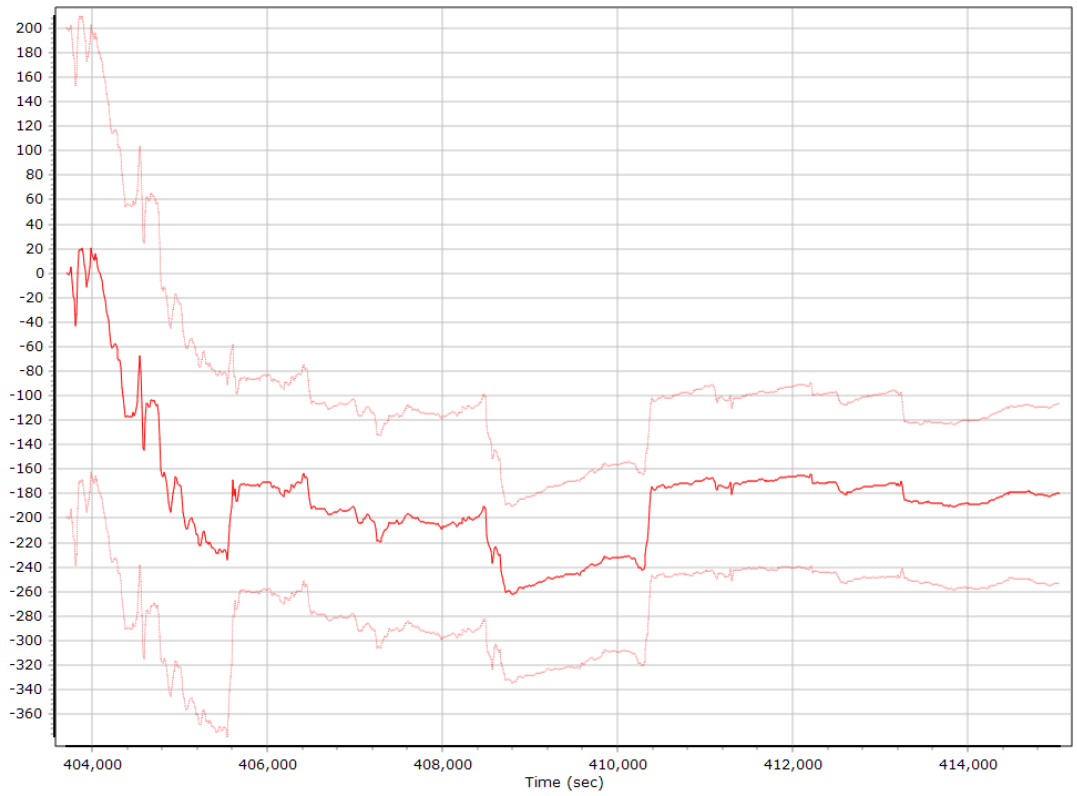
Gyro Scale Error (ppm)



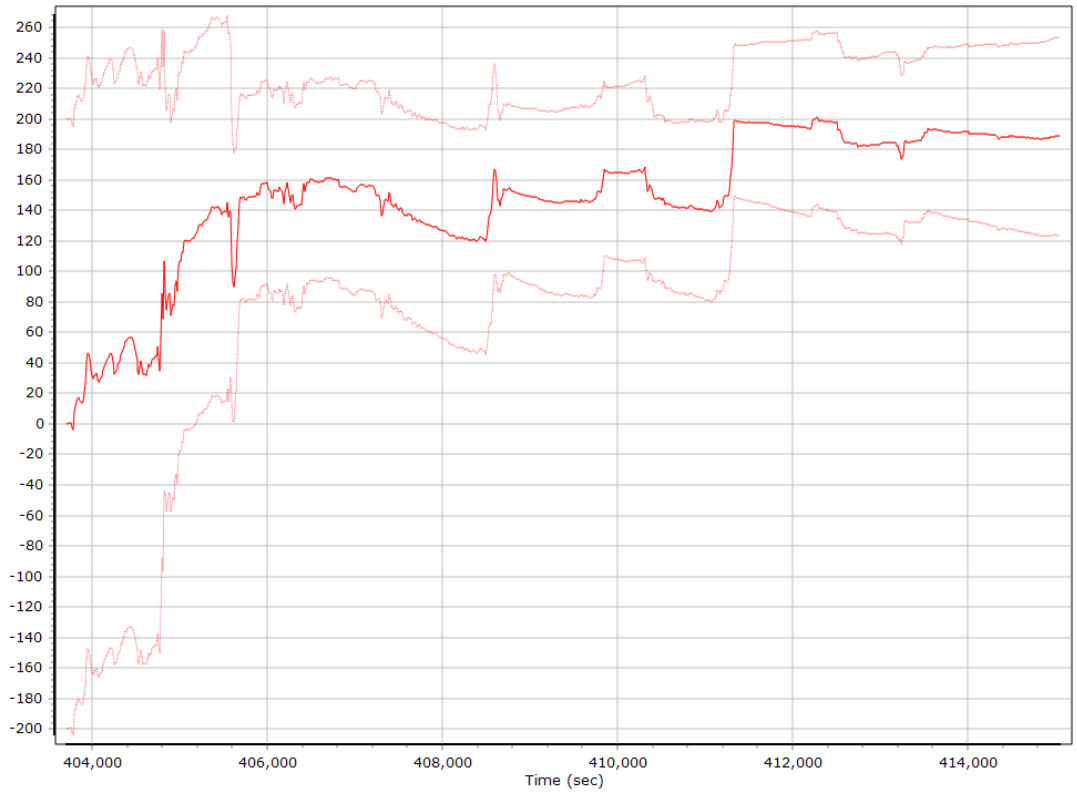
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

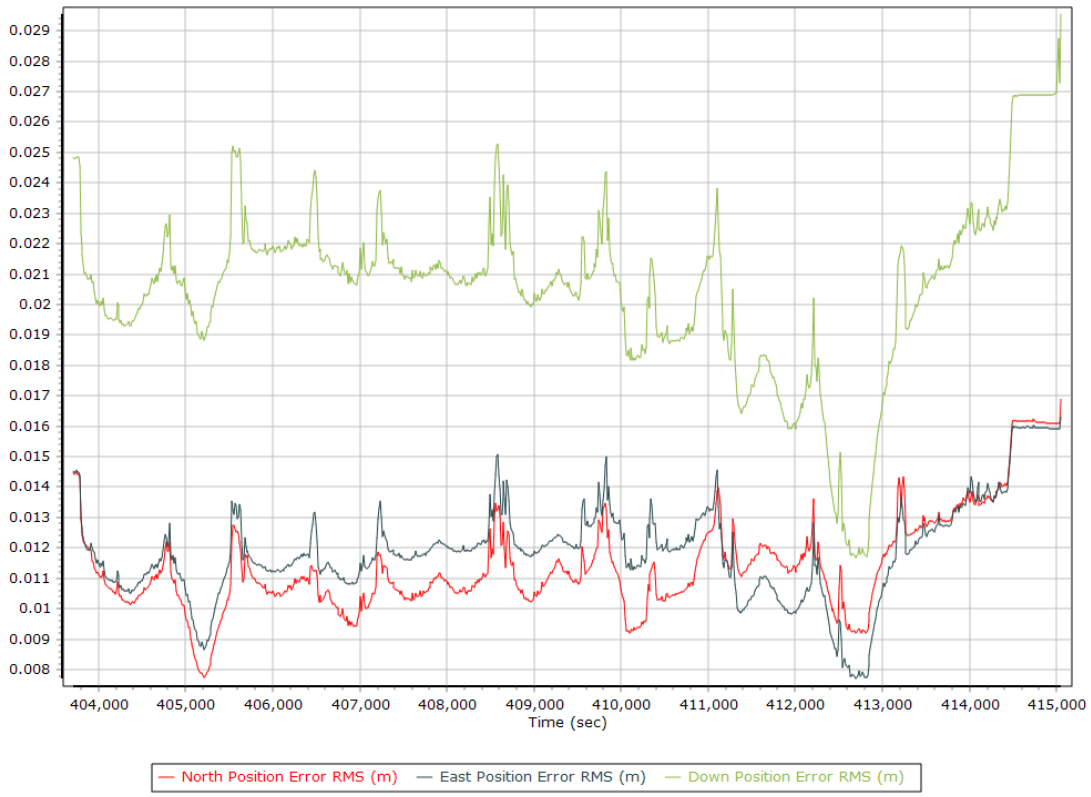


Z Gyro Scale Error (ppm)

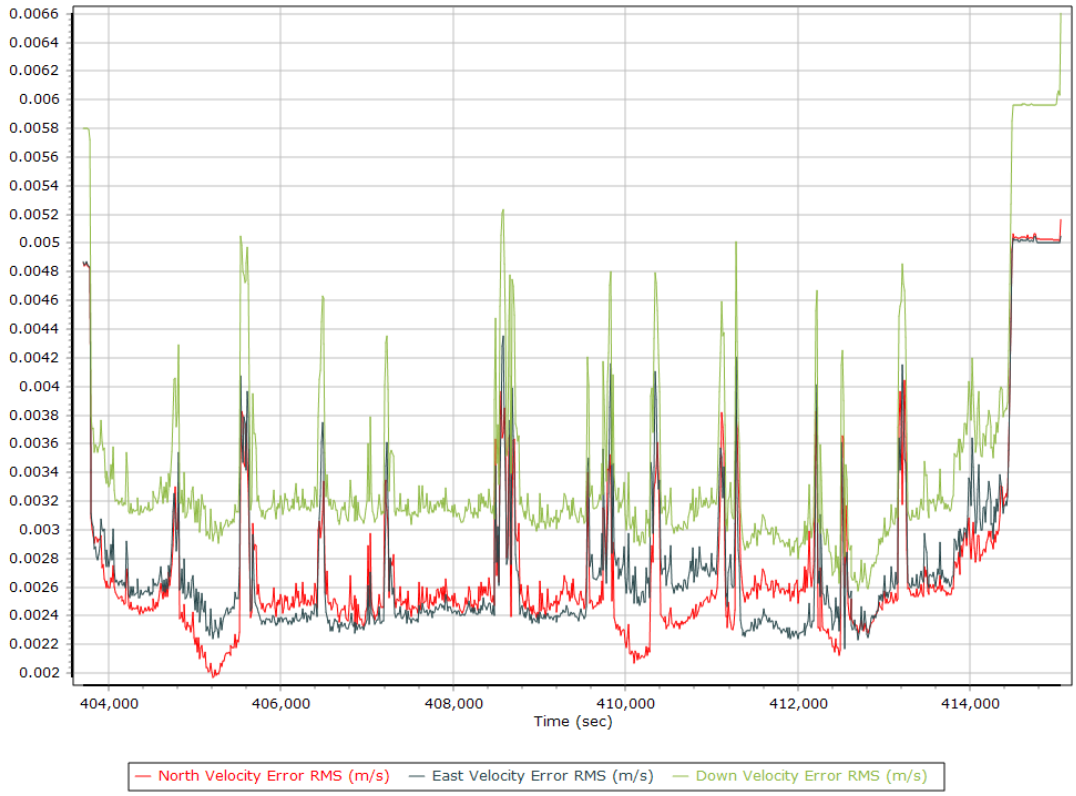


Smoothed Performance Metrics

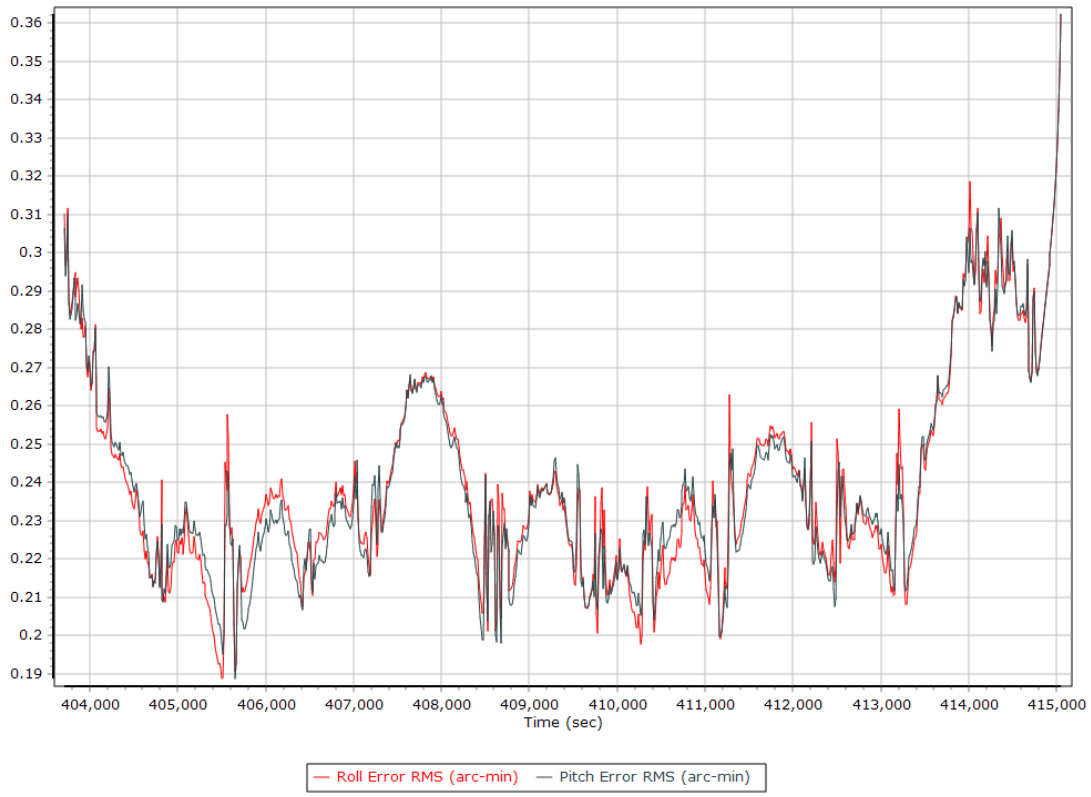
Position Error RMS (m)



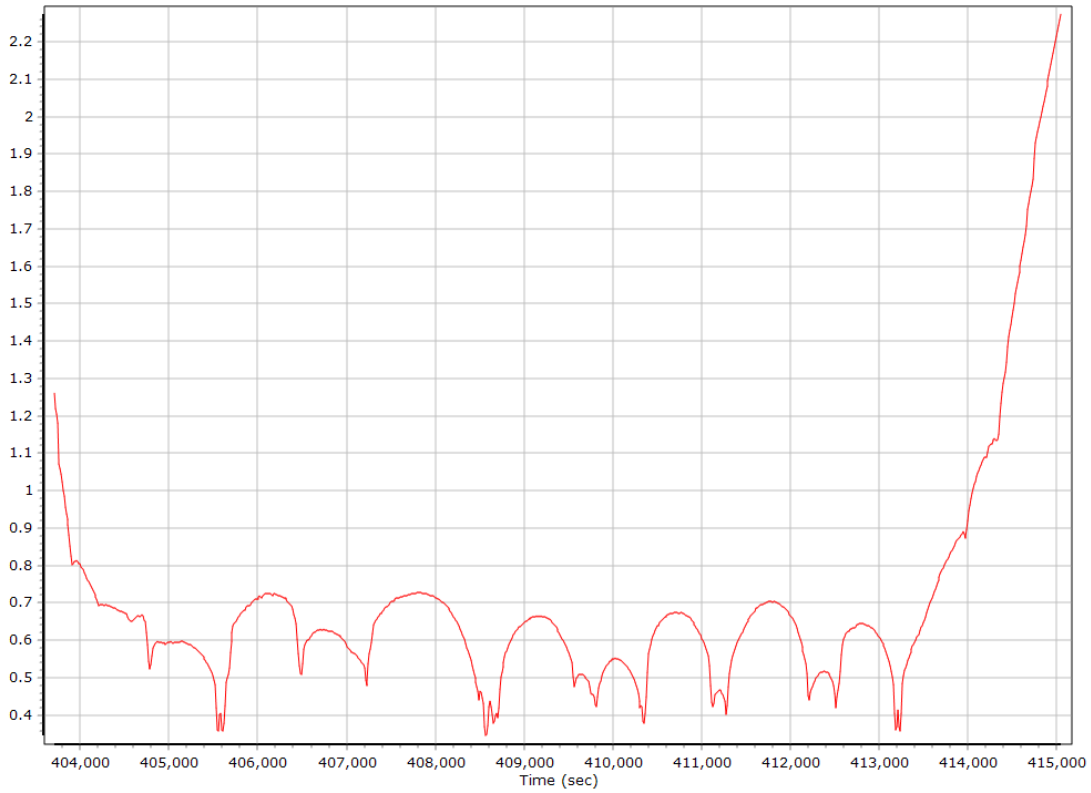
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

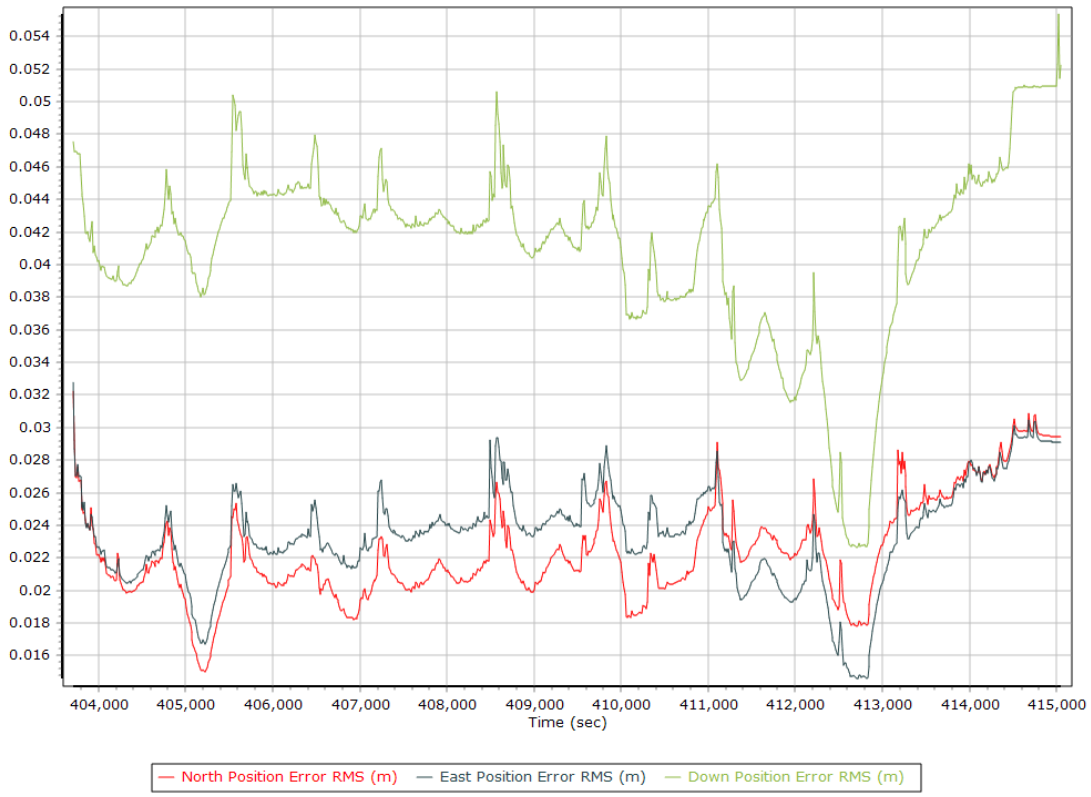


Heading Error RMS (arc-min)

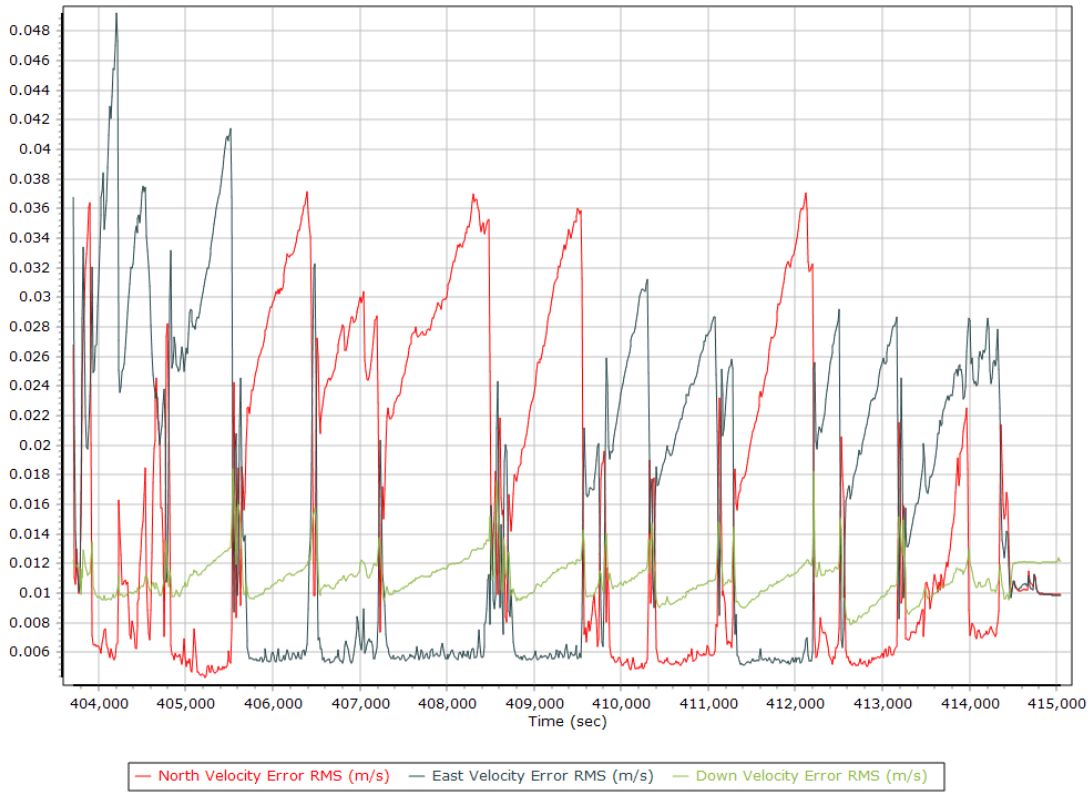


Forward Processed Performance Metrics

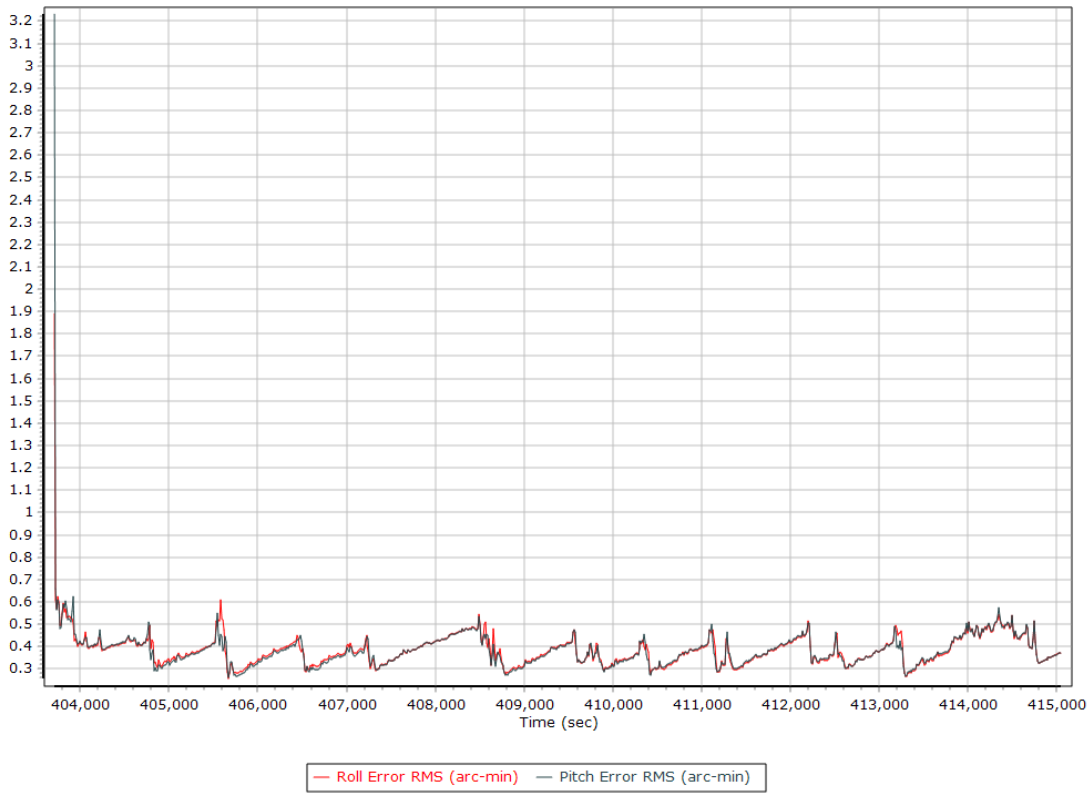
Position Error RMS (m)



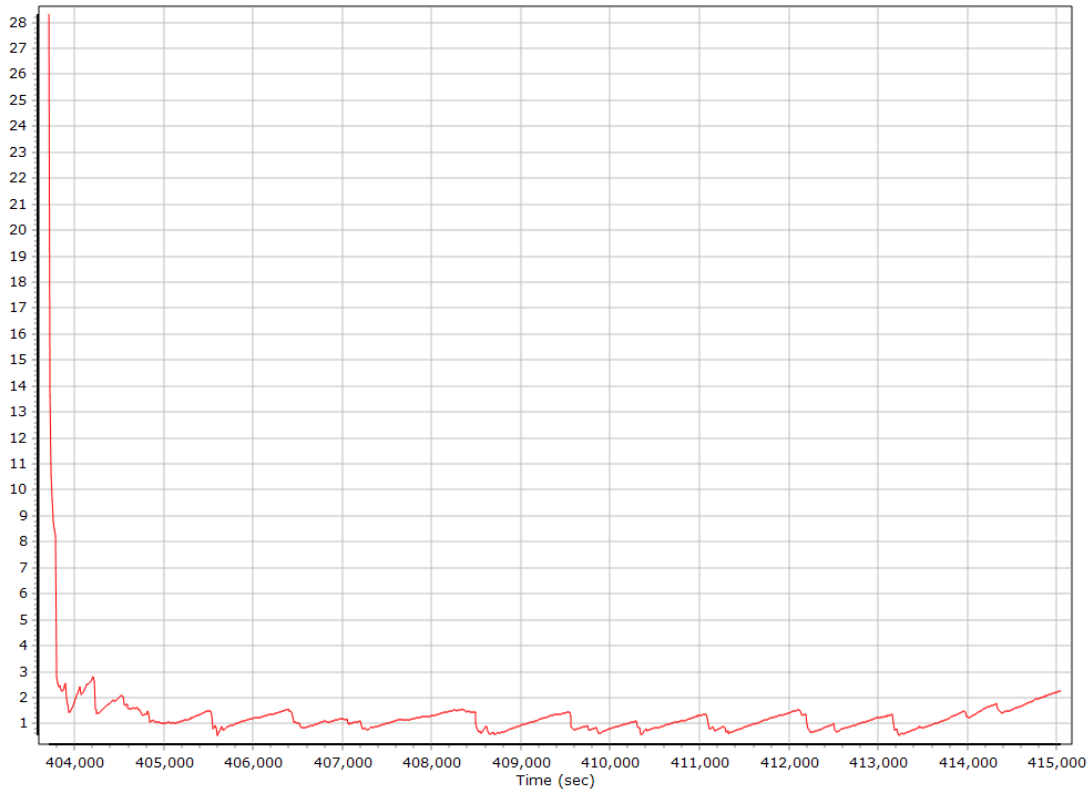
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

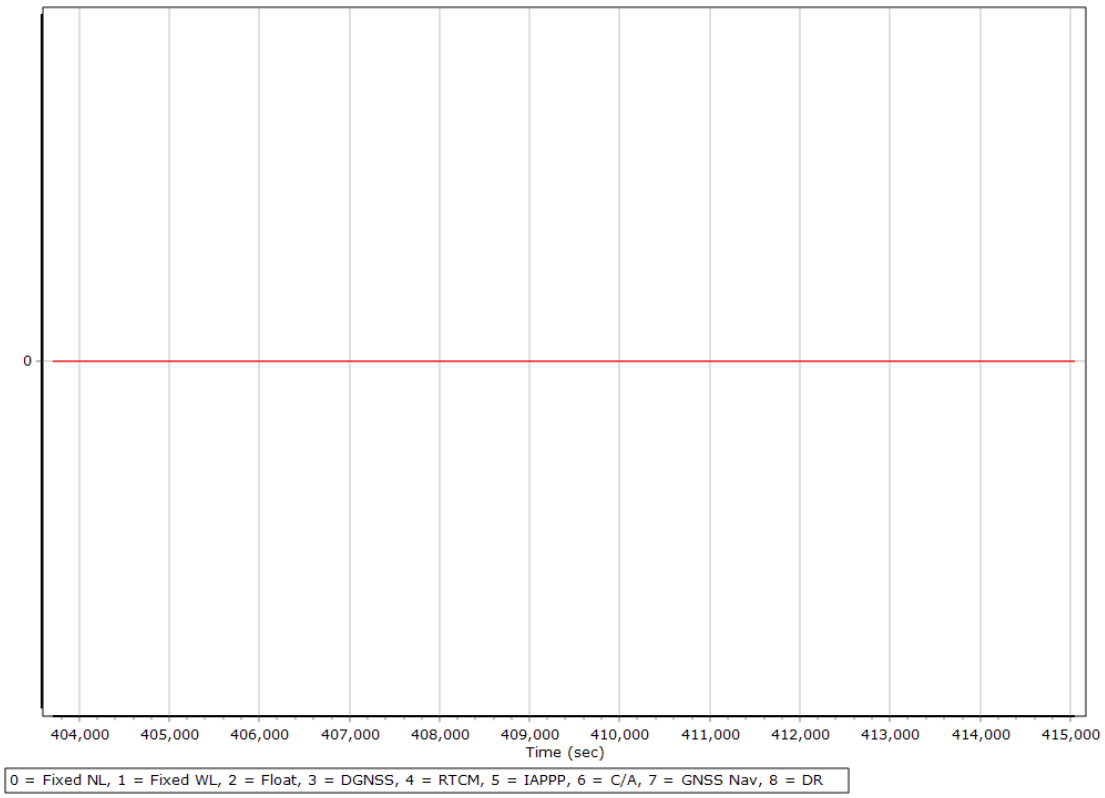


Heading Error RMS (arc-min)

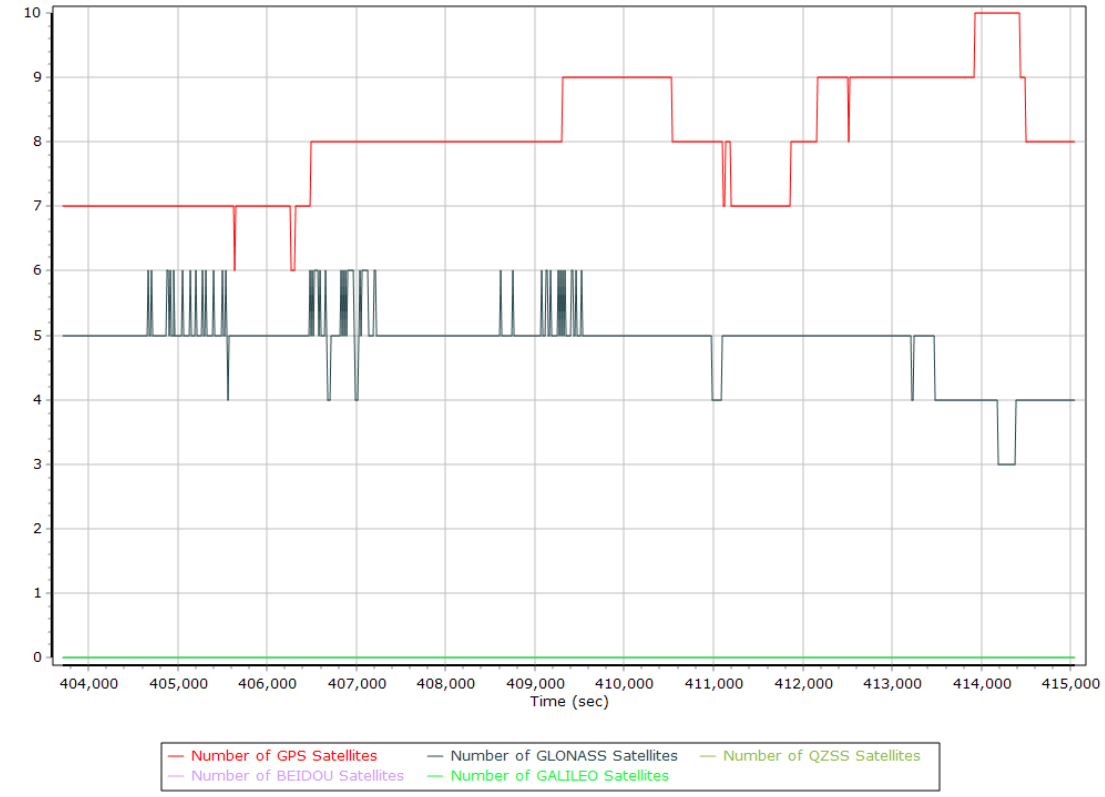


Smoothed Solution Status

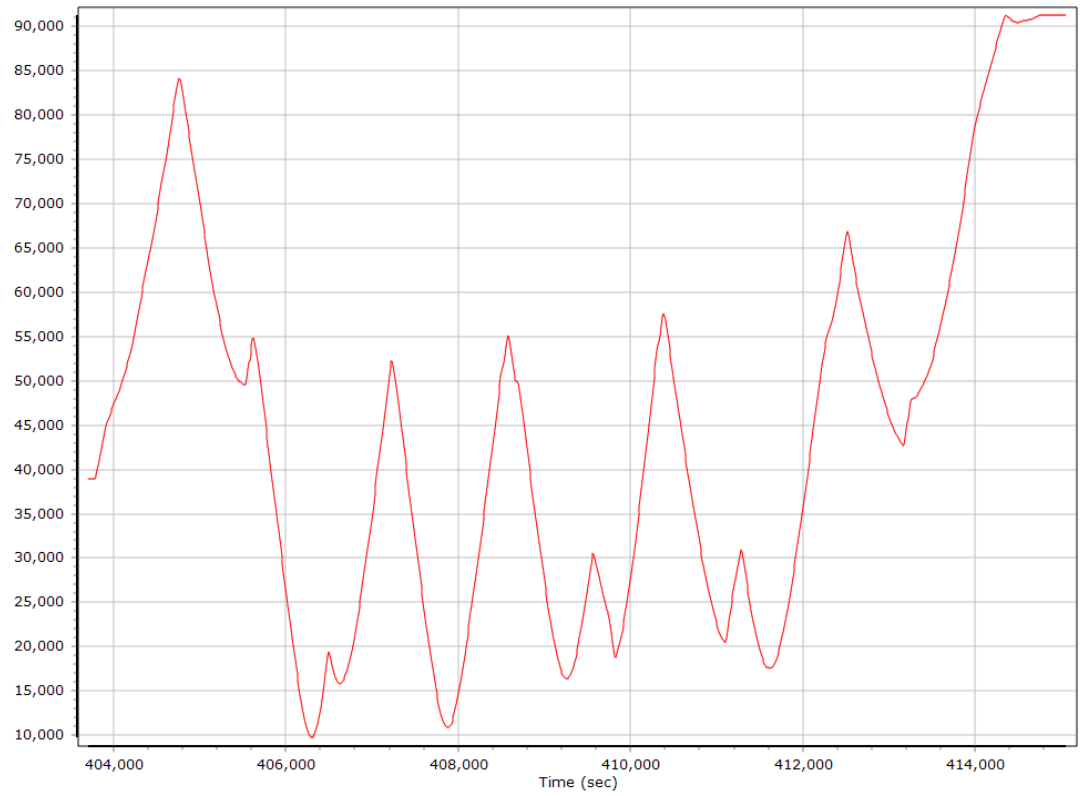
Processing Mode



Number of Satellites

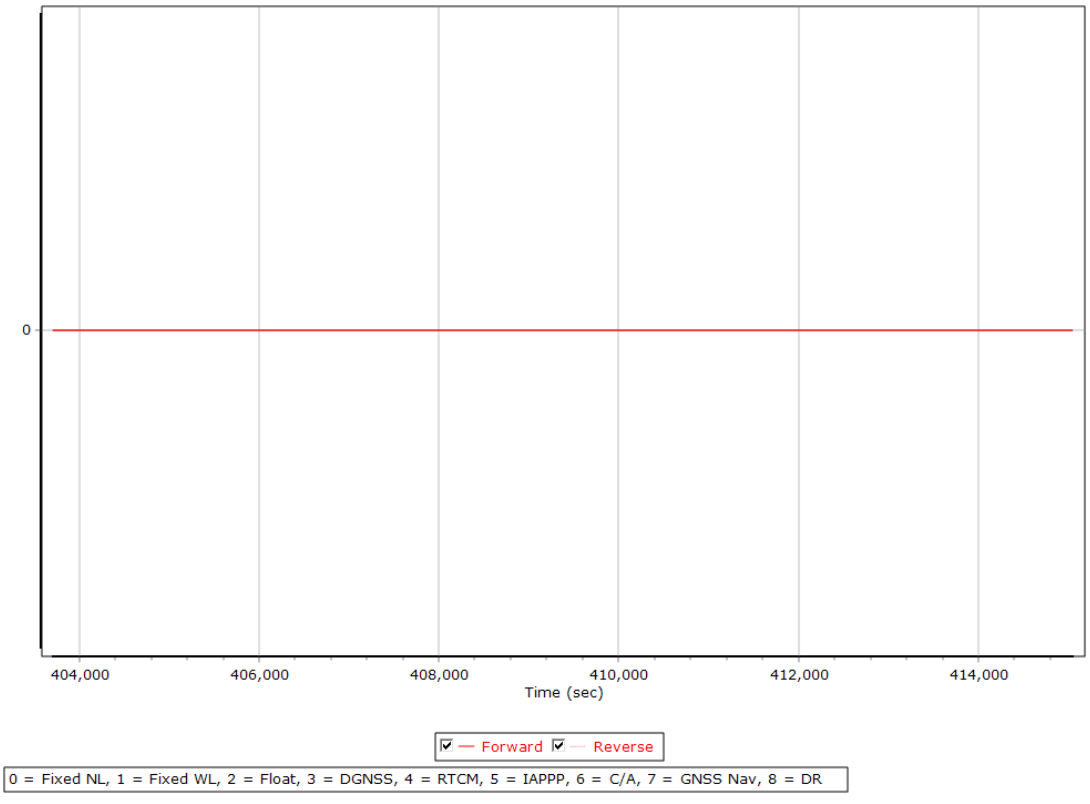


Baseline Length

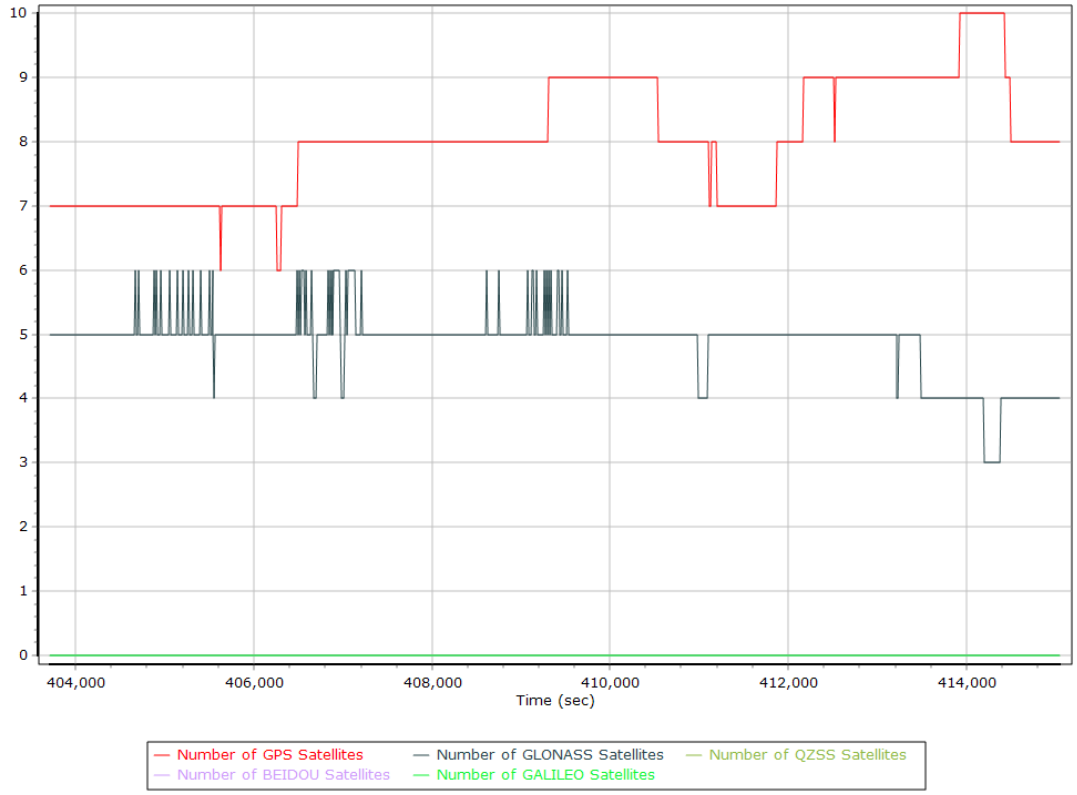


Forward Processed Solution Status

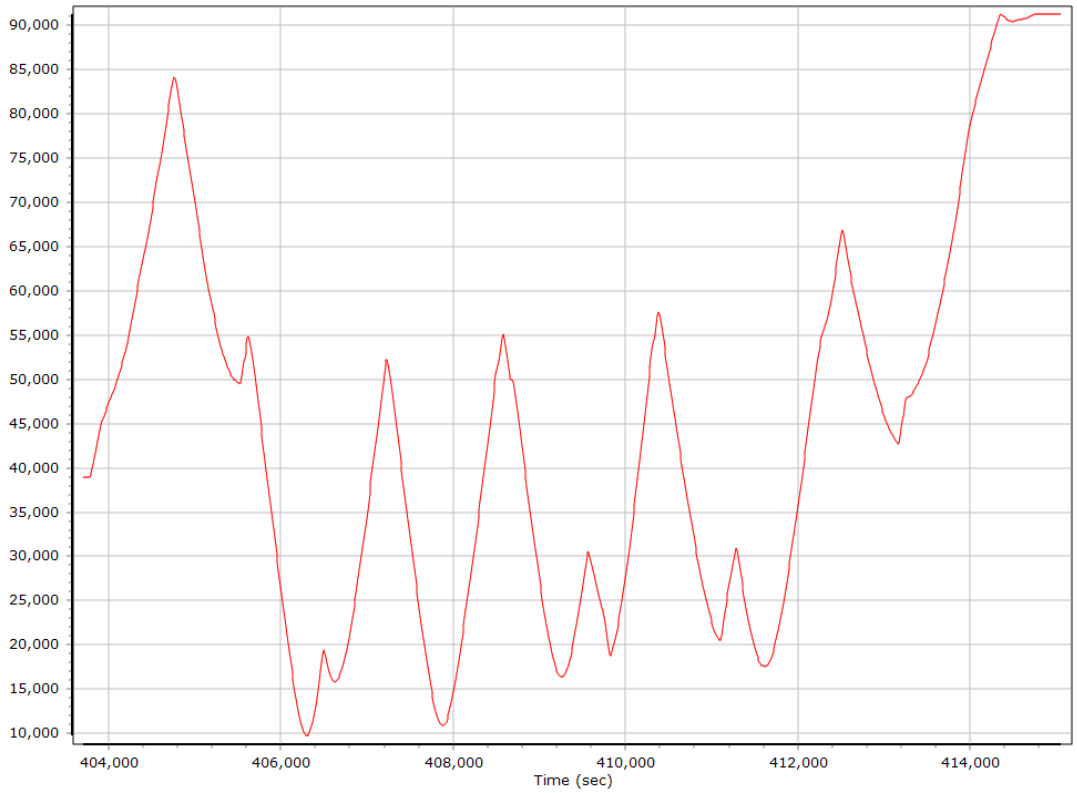
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

Export Summary

Export file	SBET_196648_01_20200402B.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	403650.005 (4/2/2020 4:07:30 PM)		
Export end time	415057.003 (4/2/2020 7:17:37 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	196648_01_20200402A
Processing date	2021-01-18 22:21:05
Mission date	2020-04-02 11:37:08
Mission duration	03:42:19.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.048	POS Data
ALS.049	POS Data
ALS.050	POS Data
ALS.051	POS Data
ALS.052	POS Data
ALS.053	POS Data
ALS.054	POS Data
ALS.055	POS Data
ALS.056	POS Data
ALS.057	POS Data
ALS.058	POS Data
ALS.059	POS Data
ALS.060	POS Data
ALS.061	POS Data
ALS.062	POS Data
ALS.063	POS Data
ALS.064	POS Data
ALS.065	POS Data
ALS.066	POS Data
ALS.067	POS Data
ALS.068	POS Data
ALS.069	POS Data

Input Files

File Name	File Type
Ephm0930.20g	GLONASS Broadcast Ephemeris
Ephm0930.20n	GPS Broadcast Ephemeris
iaal0930.20o	GNSS SingleBase
iade0930.20o	GNSS SingleBase
iael0930.20o	GNSS SingleBase
iaht0930.20o	GNSS SingleBase
iamn0930.20o	GNSS SingleBase
iana0930.20o	GNSS SingleBase
iata0930.20o	GNSS SingleBase
mnca0930.20o	GNSS SingleBase
mney0930.20o	GNSS SingleBase
mnps0930.20o	GNSS SingleBase
mnsv0930.20o	GNSS SingleBase
mnwn0930.20o	GNSS SingleBase
wlnc0930.20o	GNSS SingleBase
igu20993_18.sp3	GPS Precise Ephemeris
igu20994_18.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_196648_01_Misson04020A.out	SBET Trajectory File
SBET_196648_01_Misson04020A.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.048		
Last raw data file	ALS.069		
Start GPS week	2099		
Start time	387421.673 (4/2/2020 11:37:01 AM)		
End time	400749.986 (4/2/2020 3:19:09 PM)		
Start of fine alignment	388150.938 (4/2/2020 11:49:10 AM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

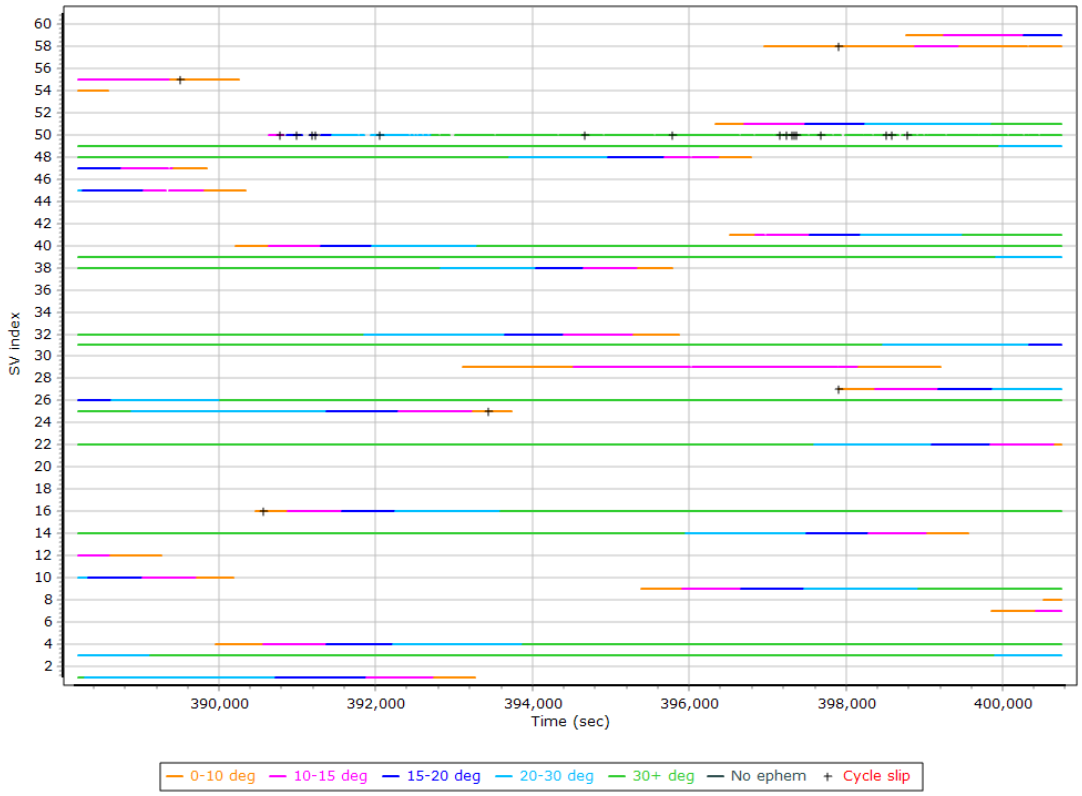
Rover Data QC

Raw IMU Import QC Summary

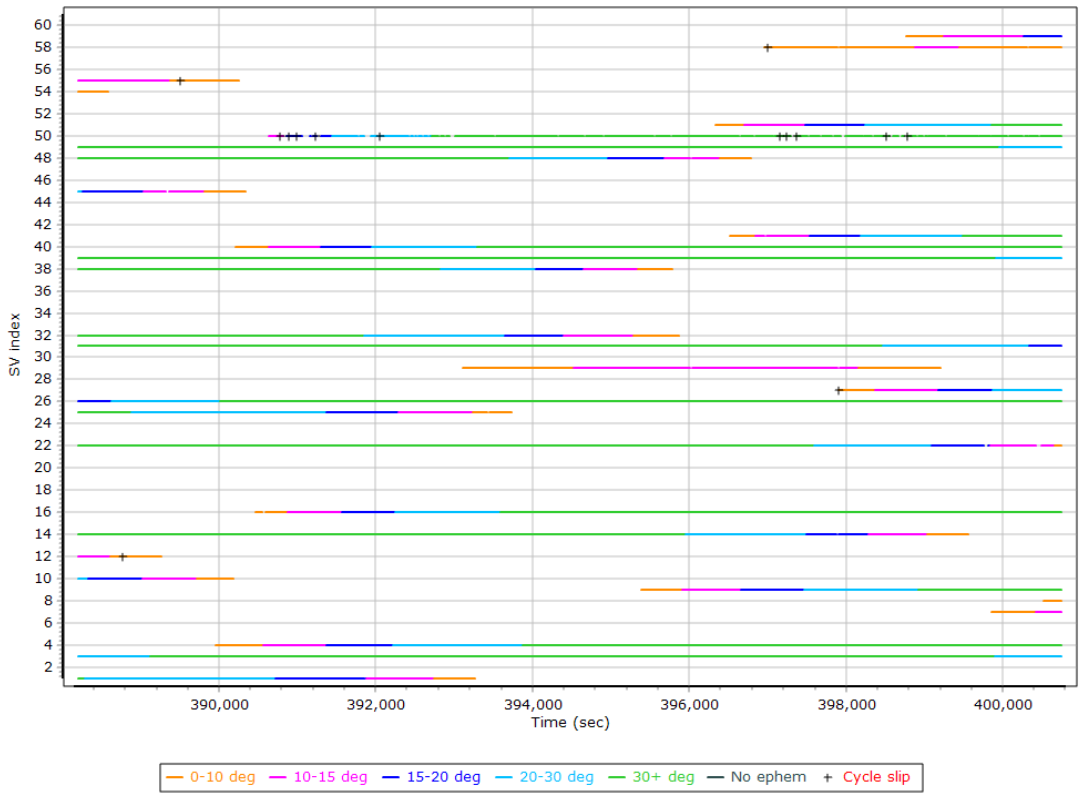
IMU data input file	imu_196648_01_Misson04020A.dat
IMU data check log file	imudt_196648_01_Misson04020A.log
IMU Records Processed	2711614
Termination Status	Warnings
IMU Anomalies	2
IMU Failure Messages	
387421.283 : WARNING : Gap of 387399.2968 seconds in CHECKDT input data	

Primary Observables & Satellite Data

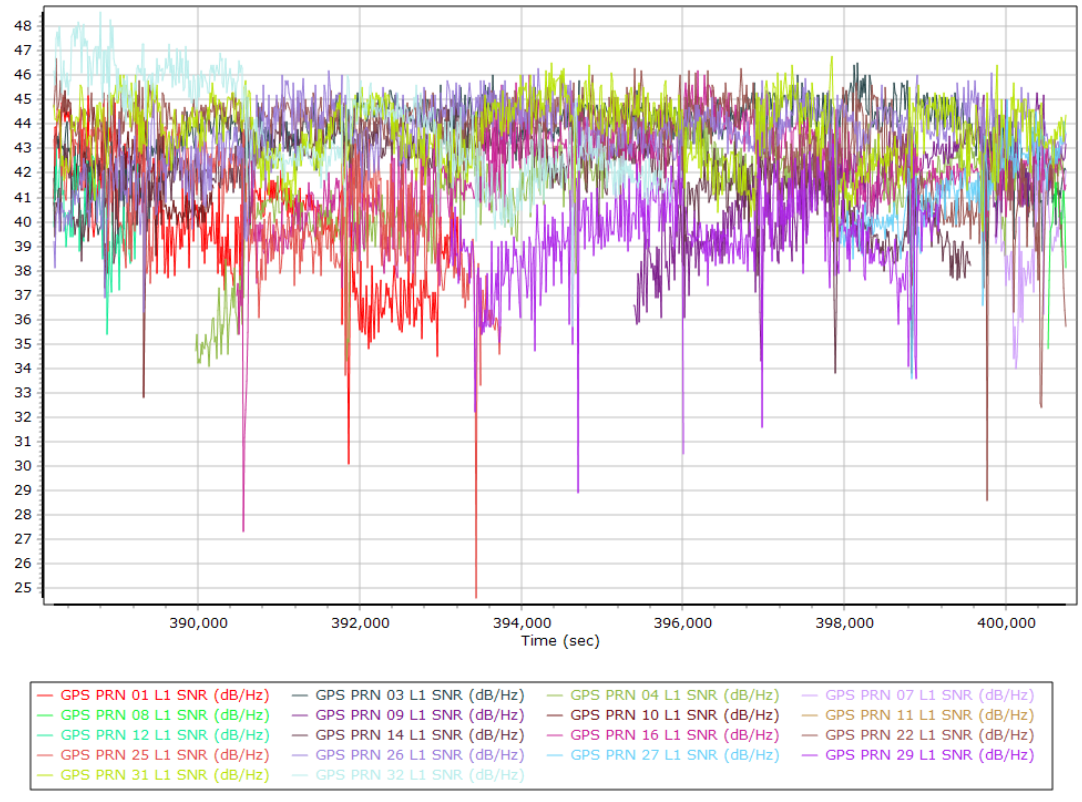
L1 Satellite Lock/Elevation



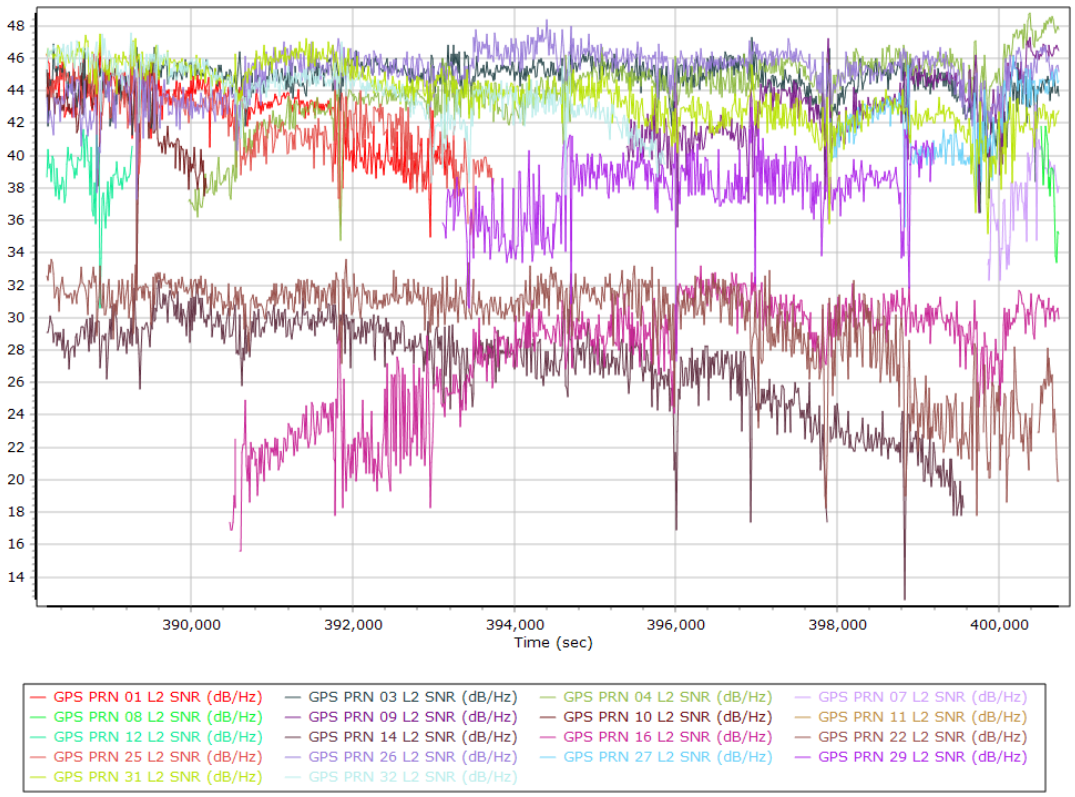
L2 Satellite Lock/Elevation



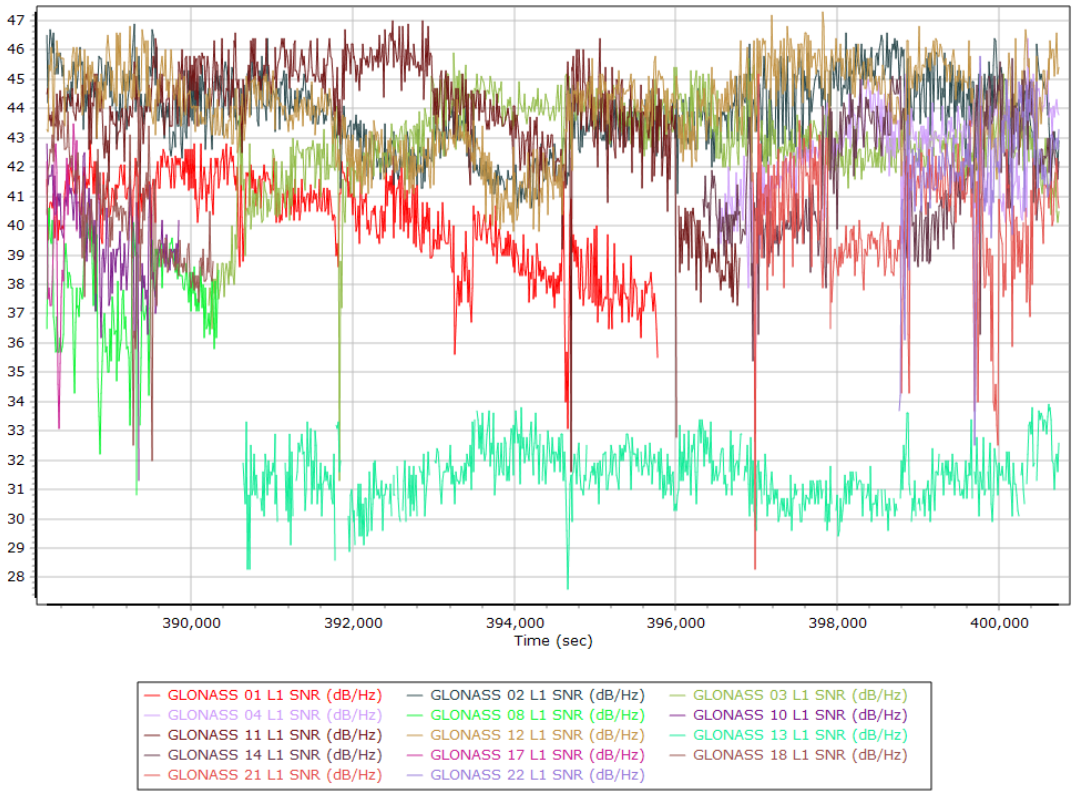
GPS L1 SNR



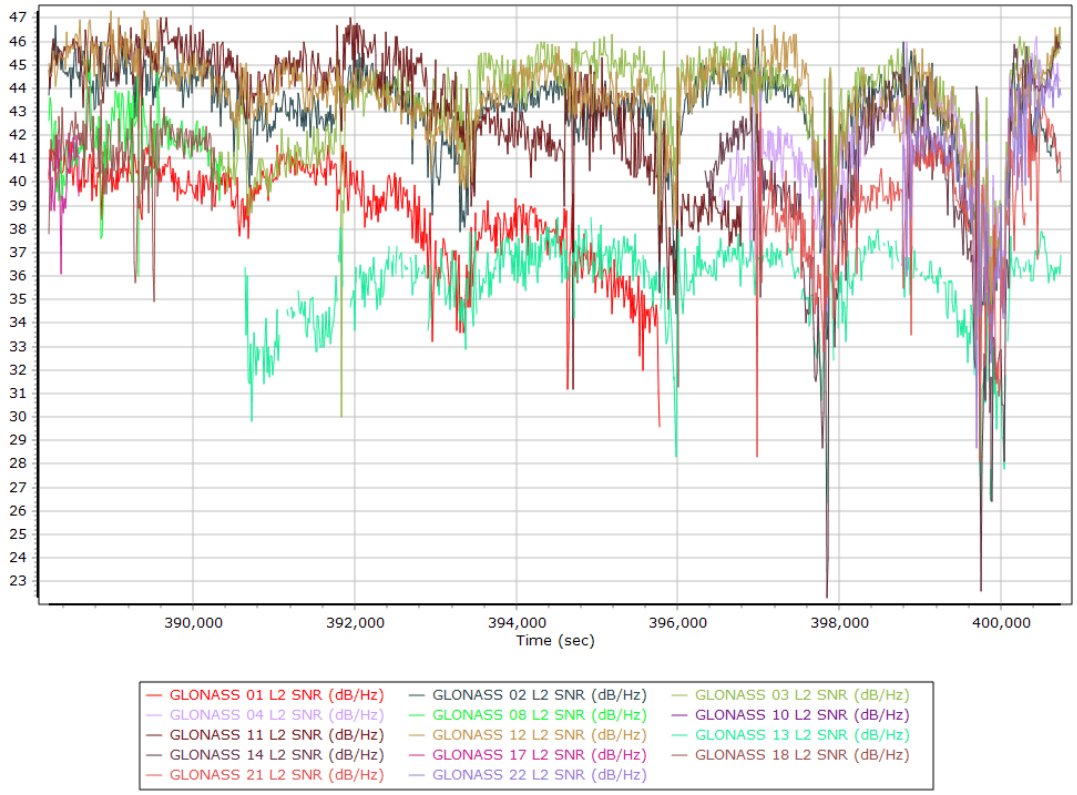
GPS L2 SNR



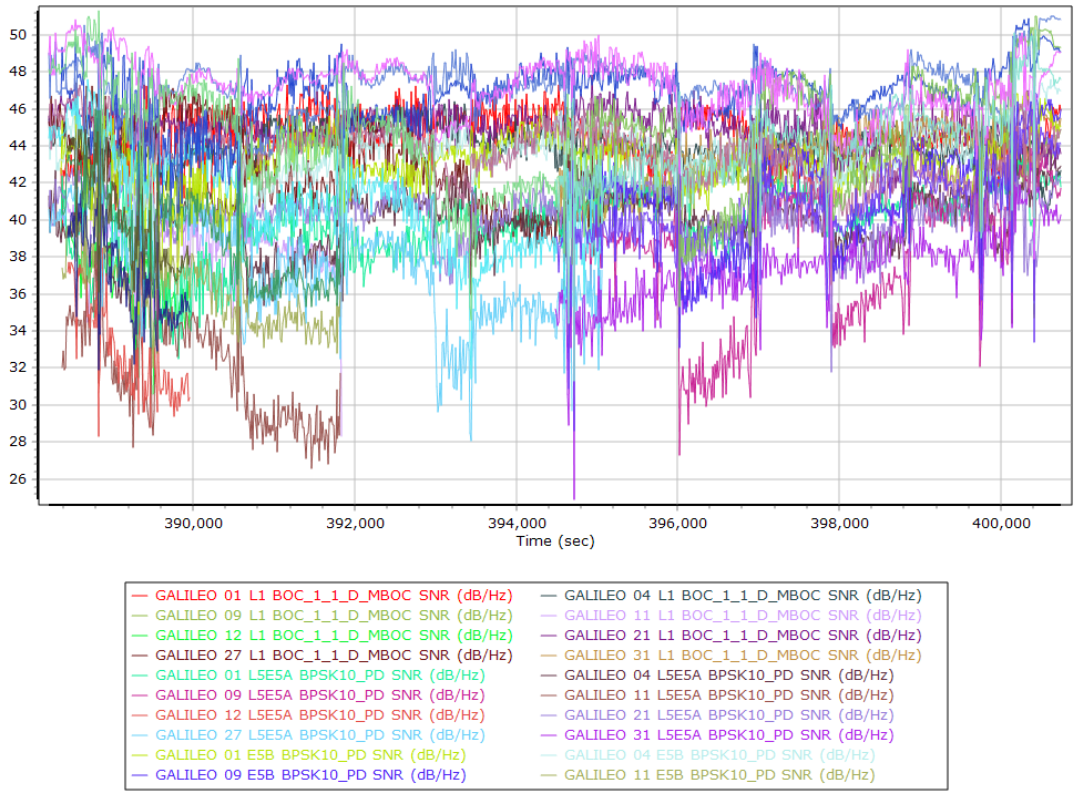
GLONASS L1 SNR



GLONASS L2 SNR

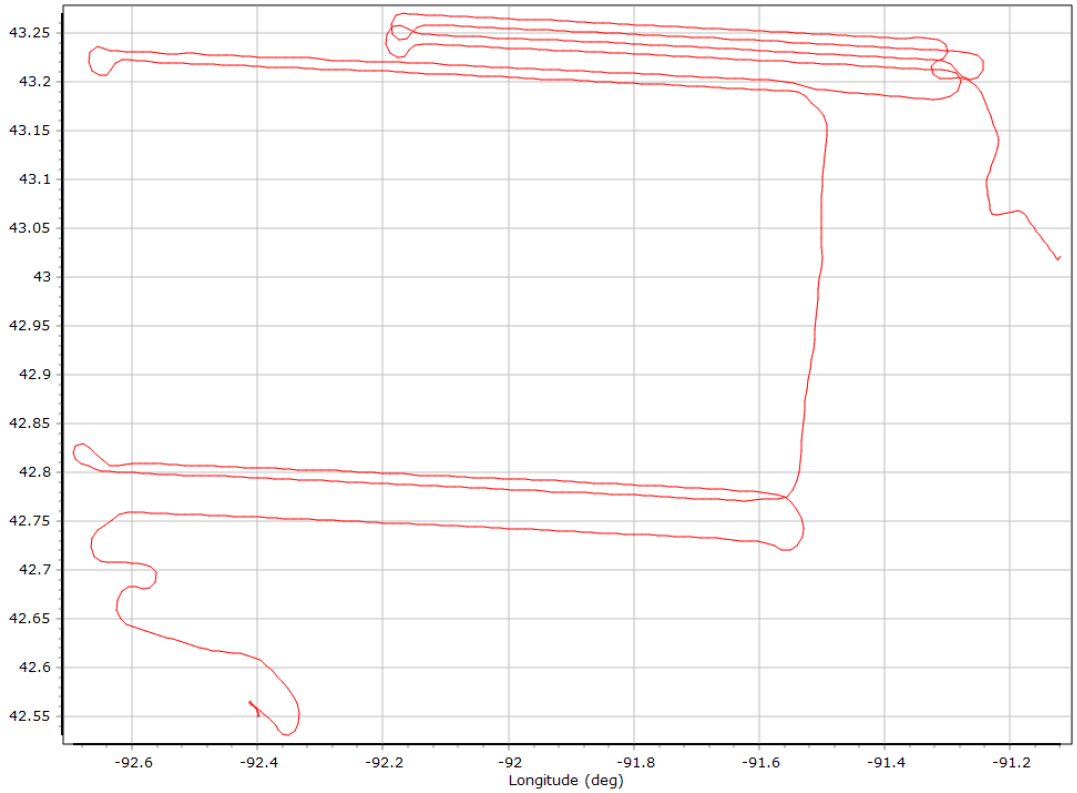


GALILEO SNR

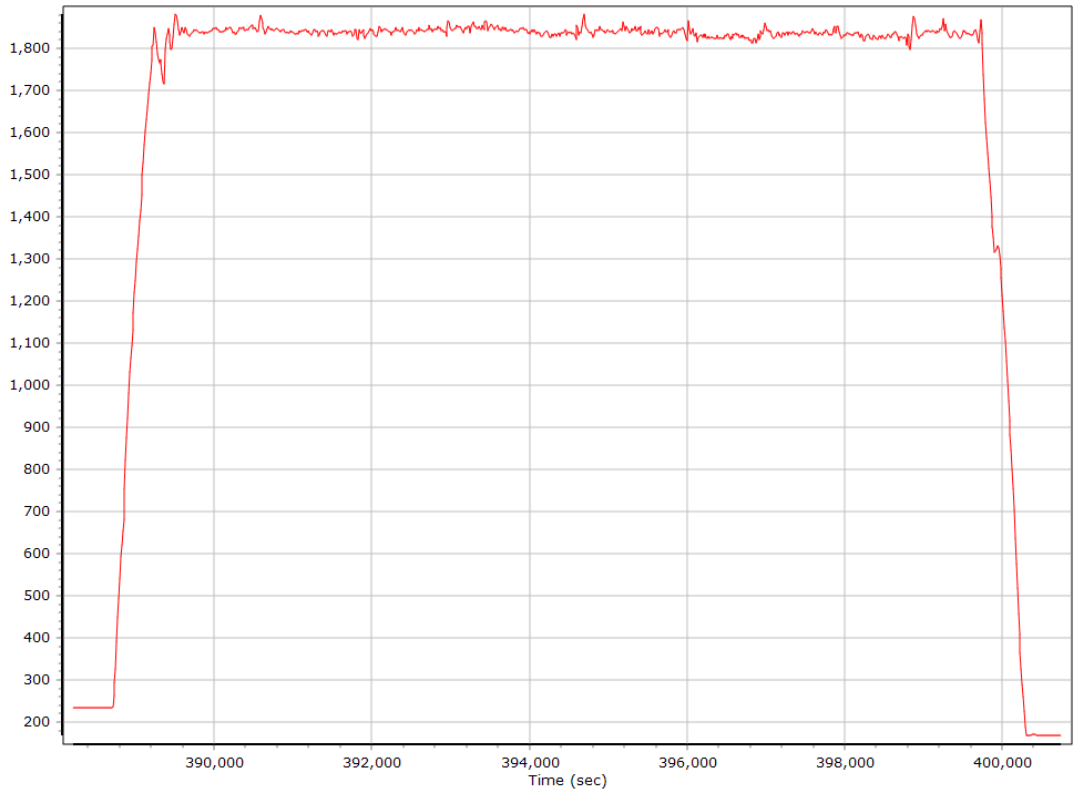


Smoothed Trajectory Information

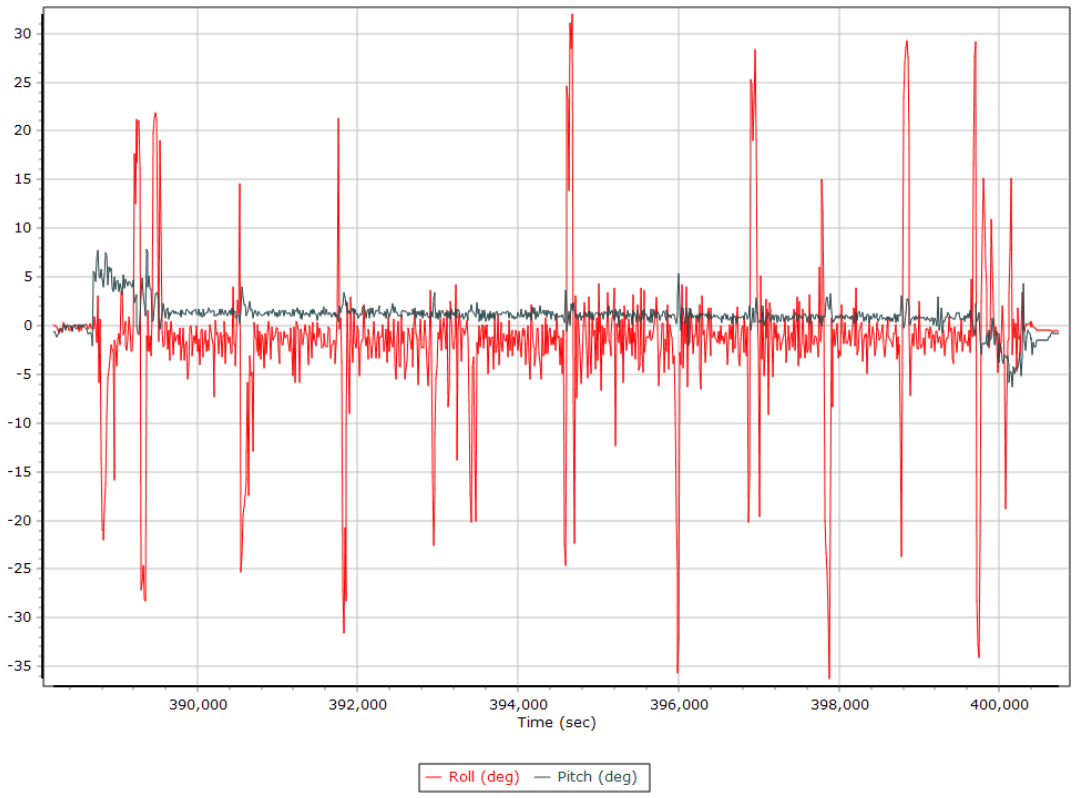
Top View



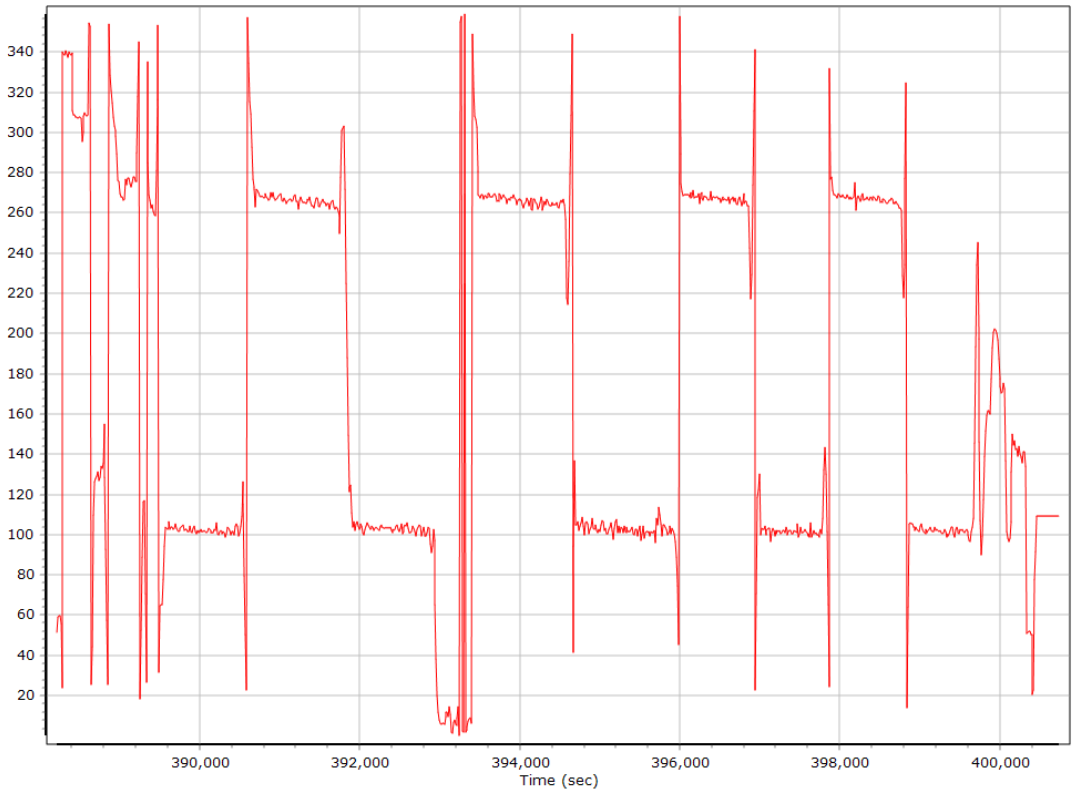
Altitude



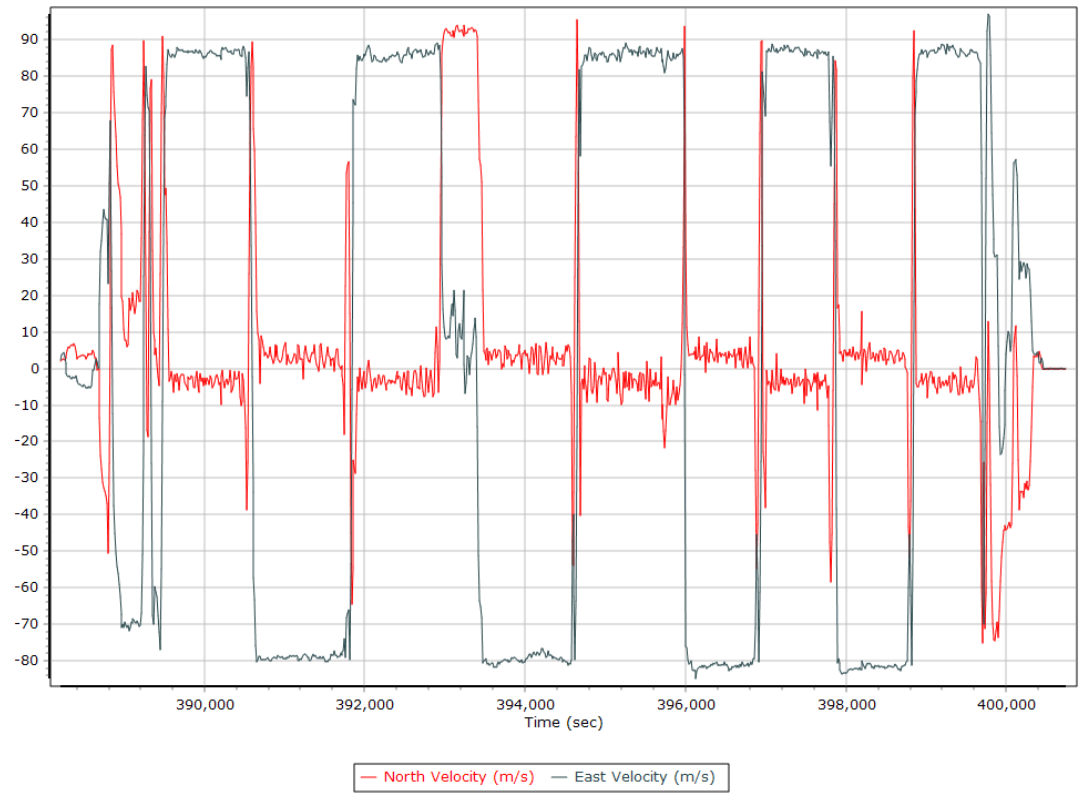
Roll/Pitch



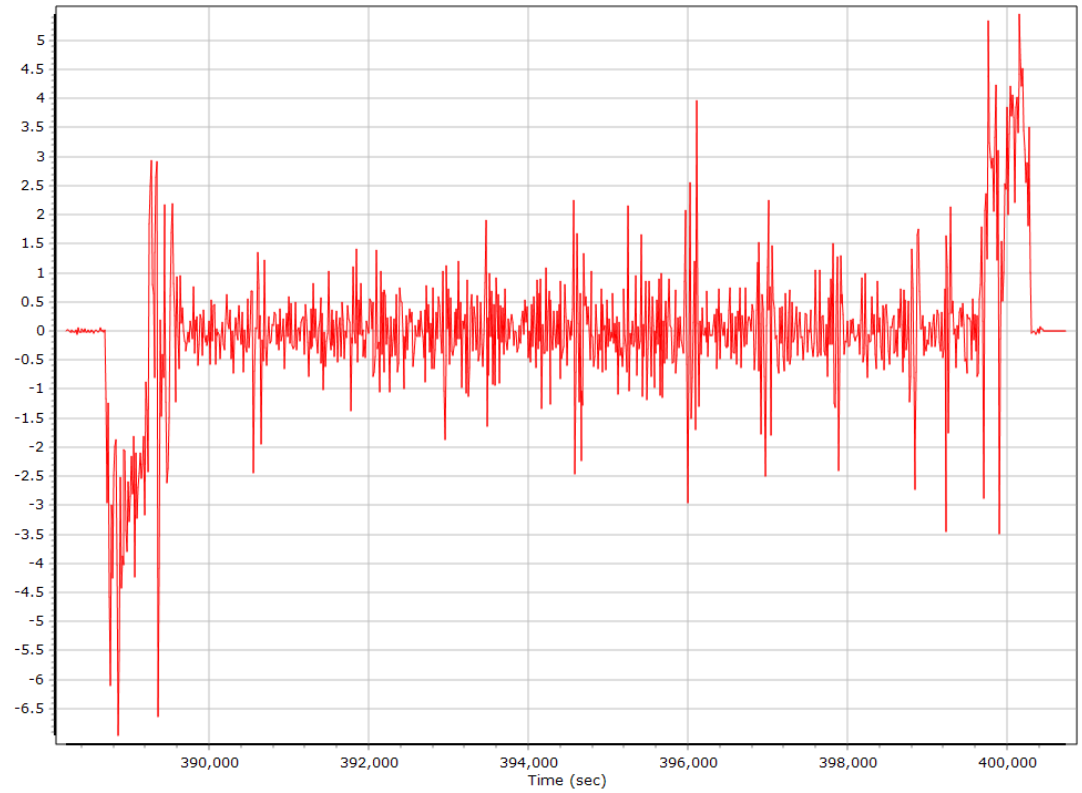
Heading



North/East Velocity



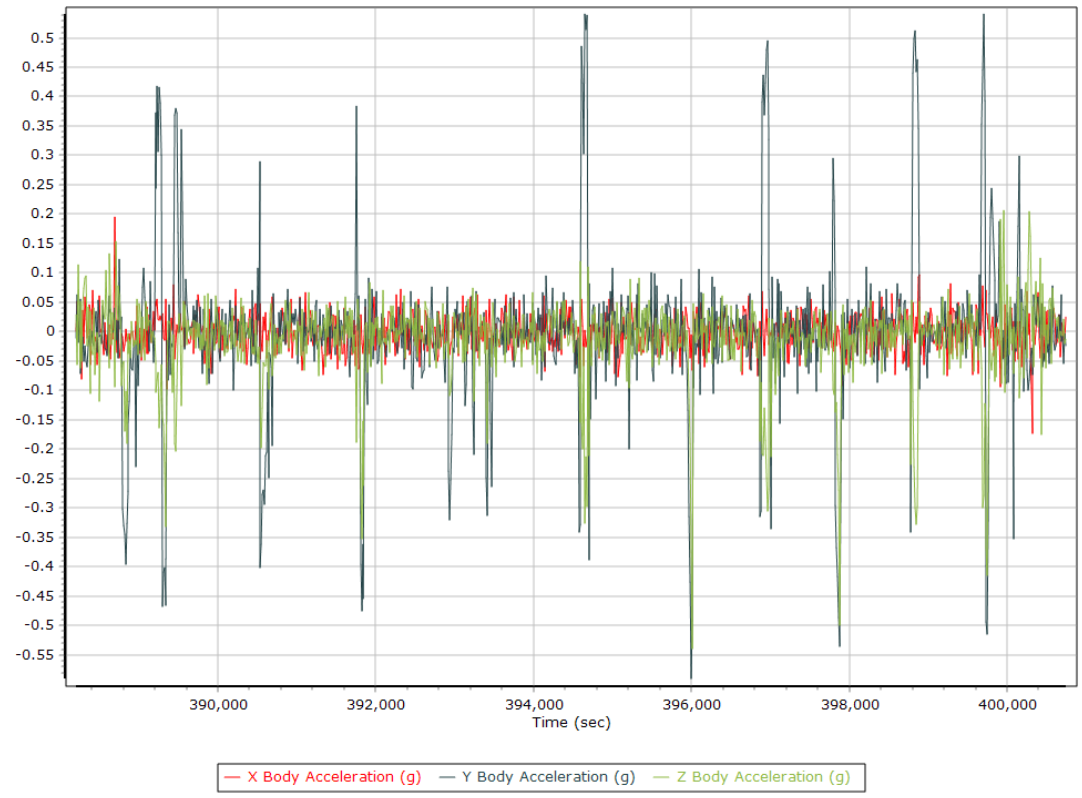
Down Velocity



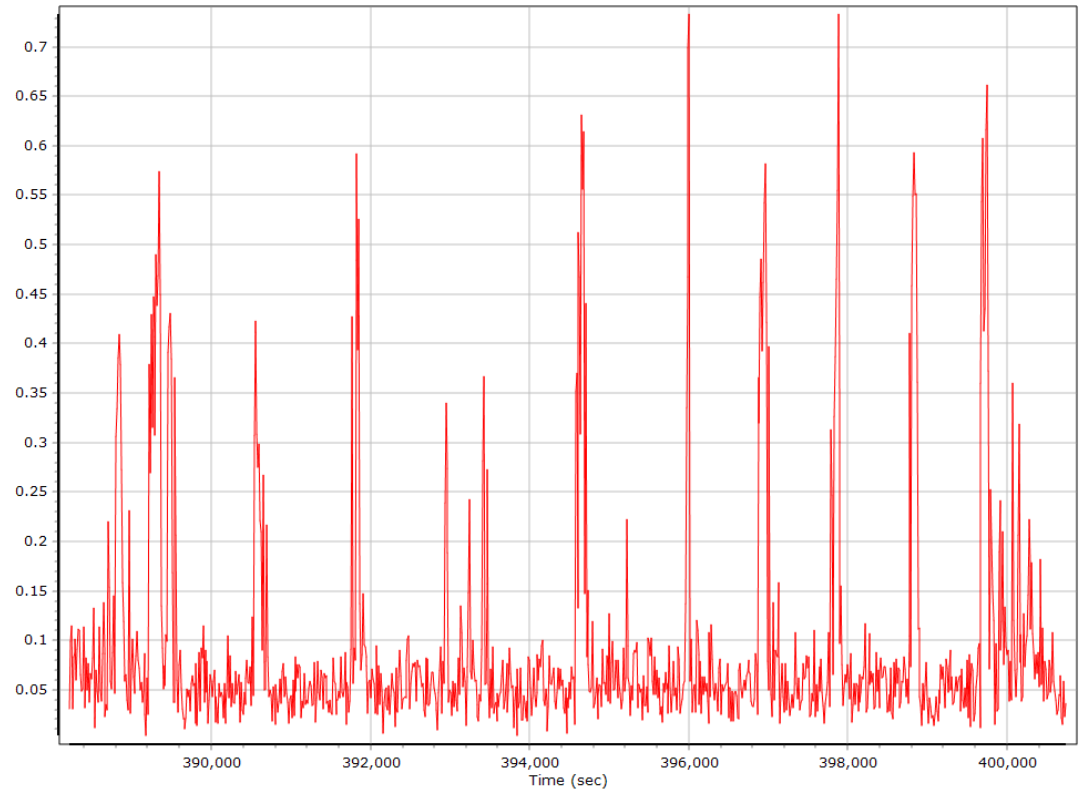
Total Speed

Ground Speed

Body Acceleration



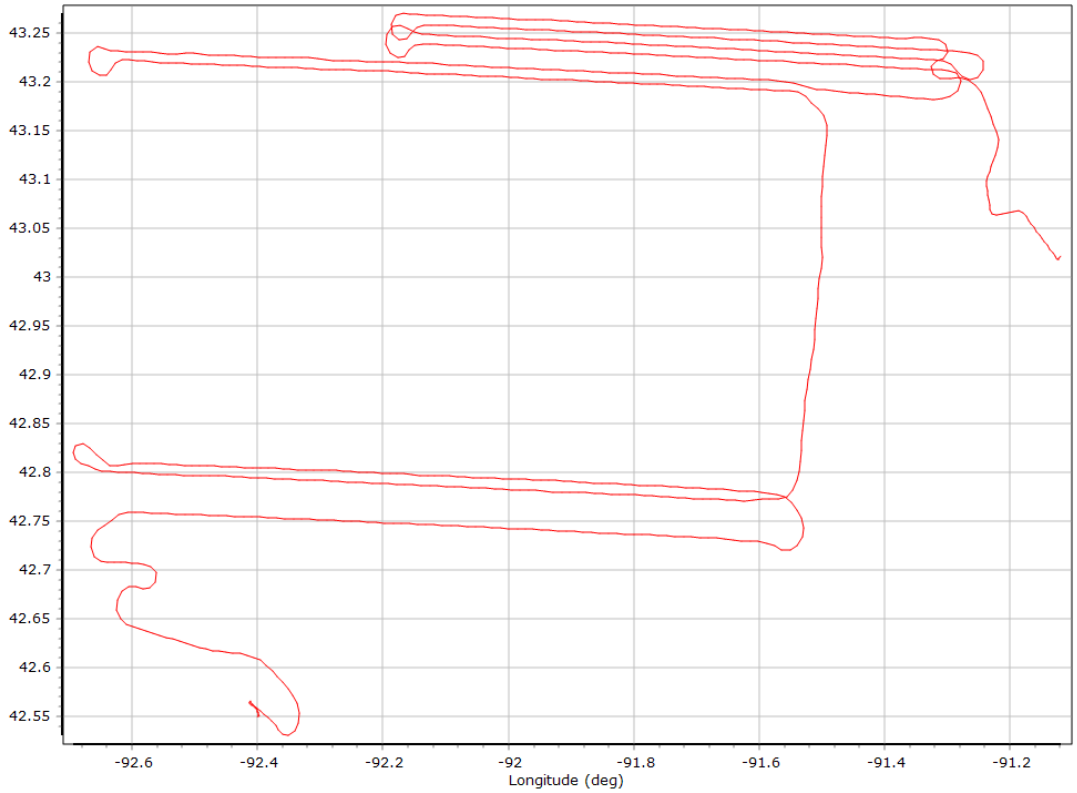
Total Body Acceleration



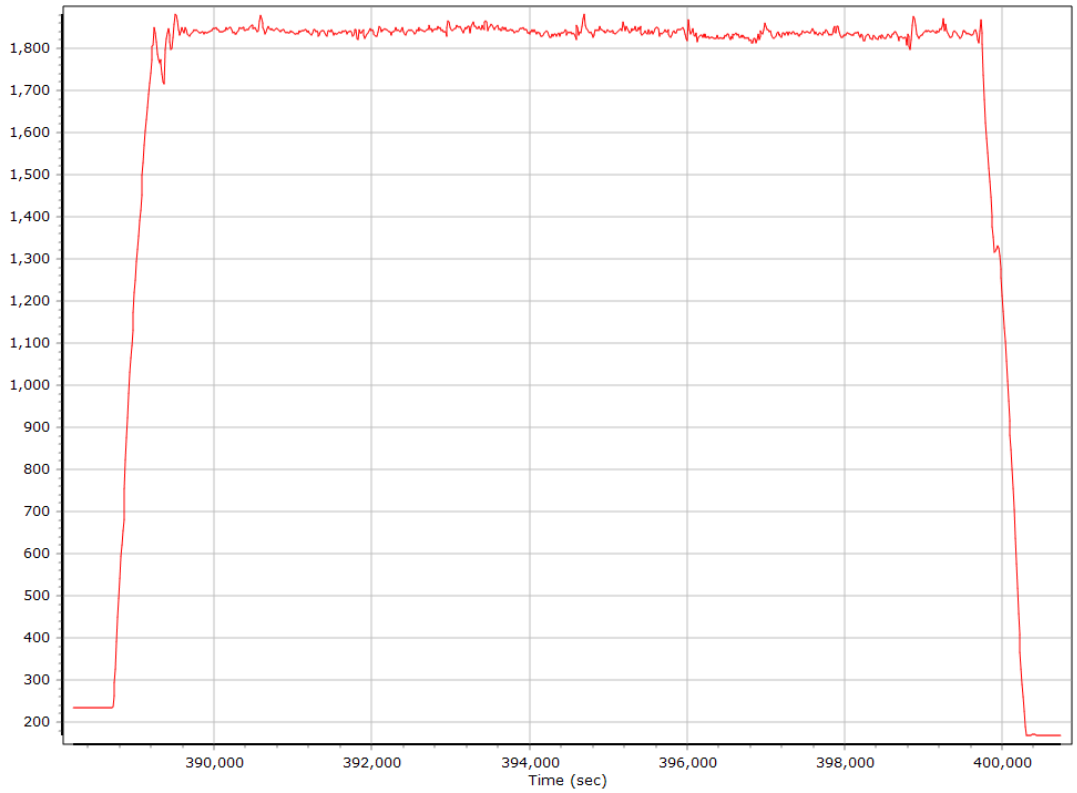
Body Angular Rate

Forward Processed Trajectory Information

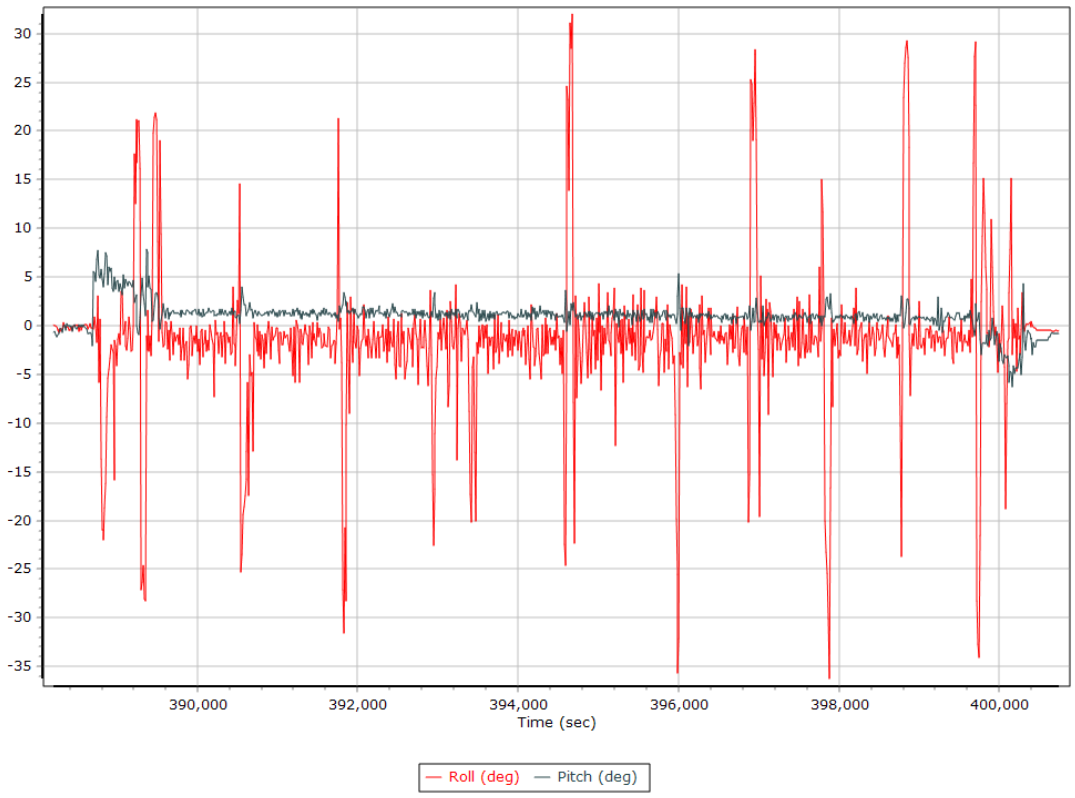
Top View



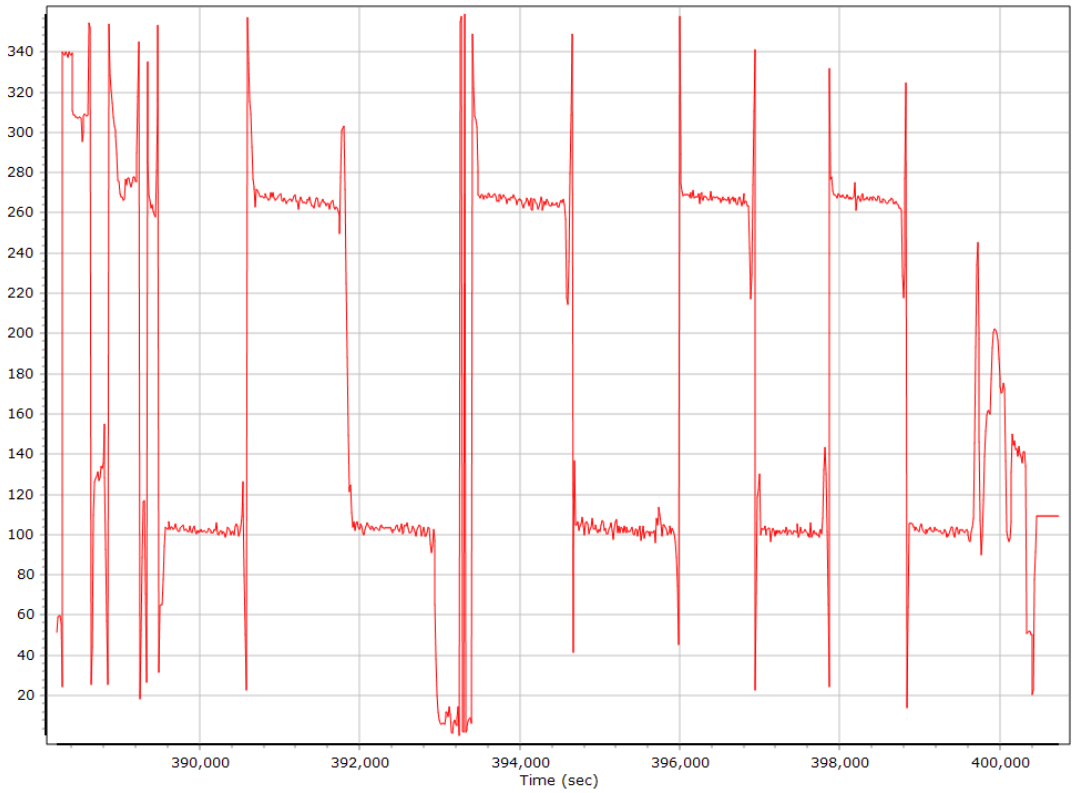
Altitude



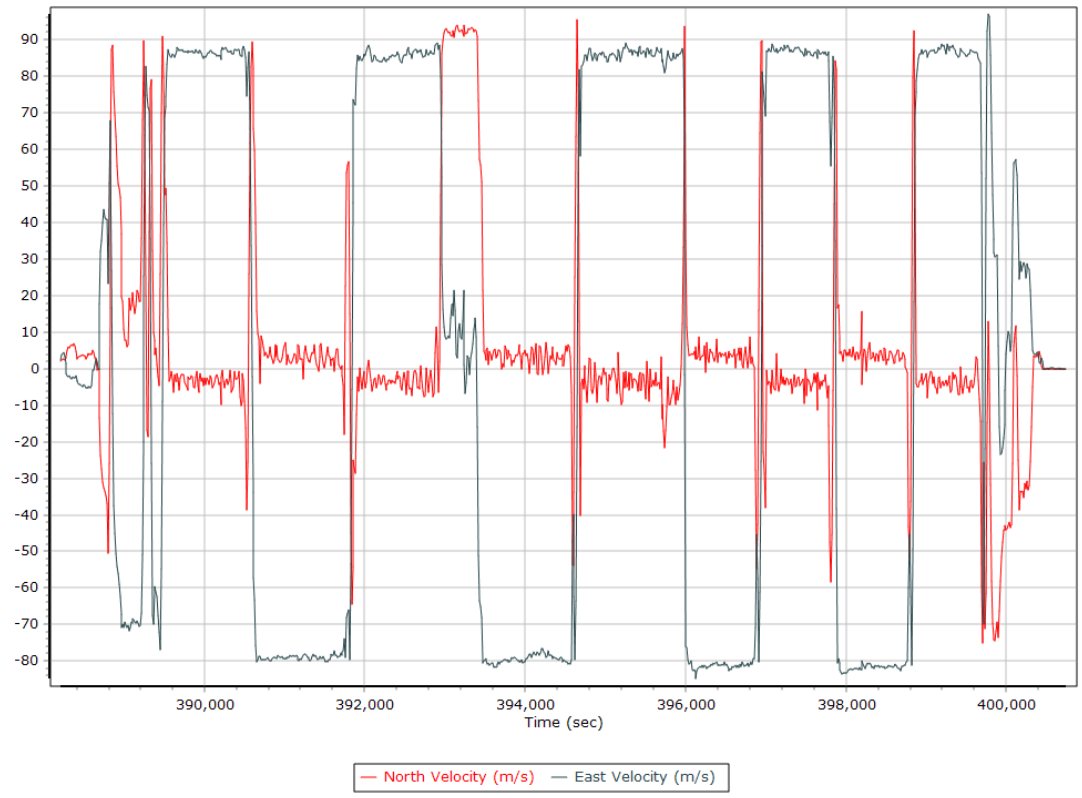
Roll/Pitch



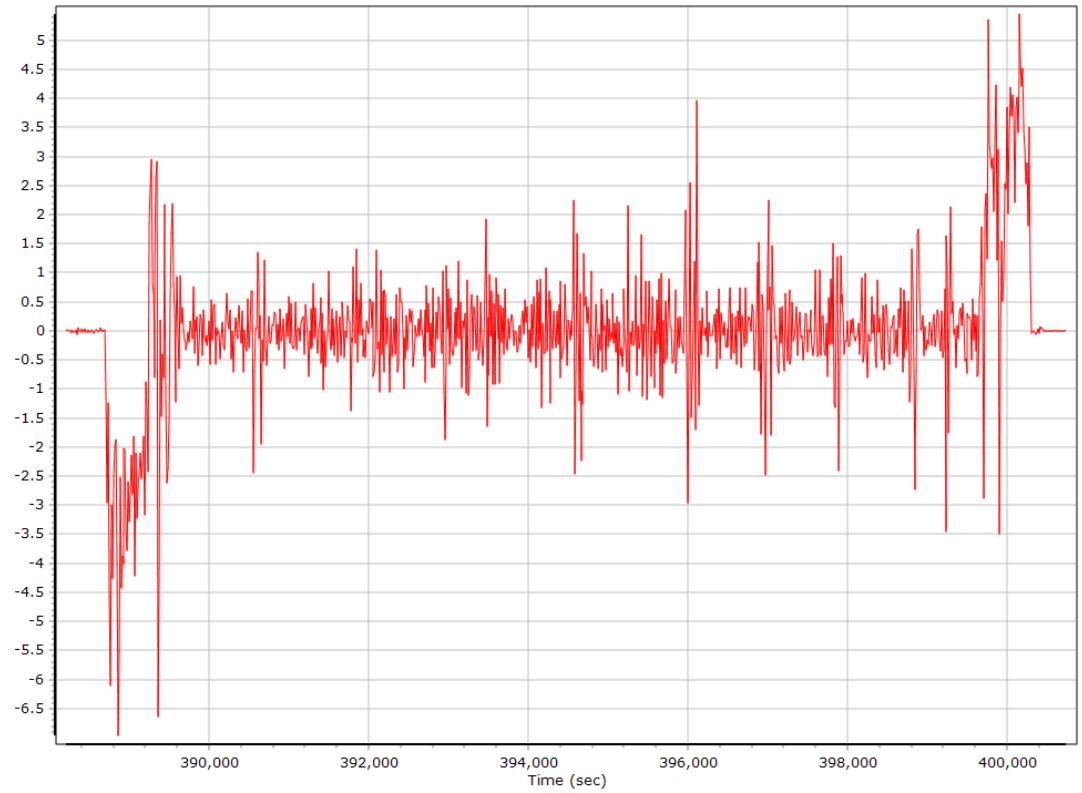
Heading



North/East Velocity



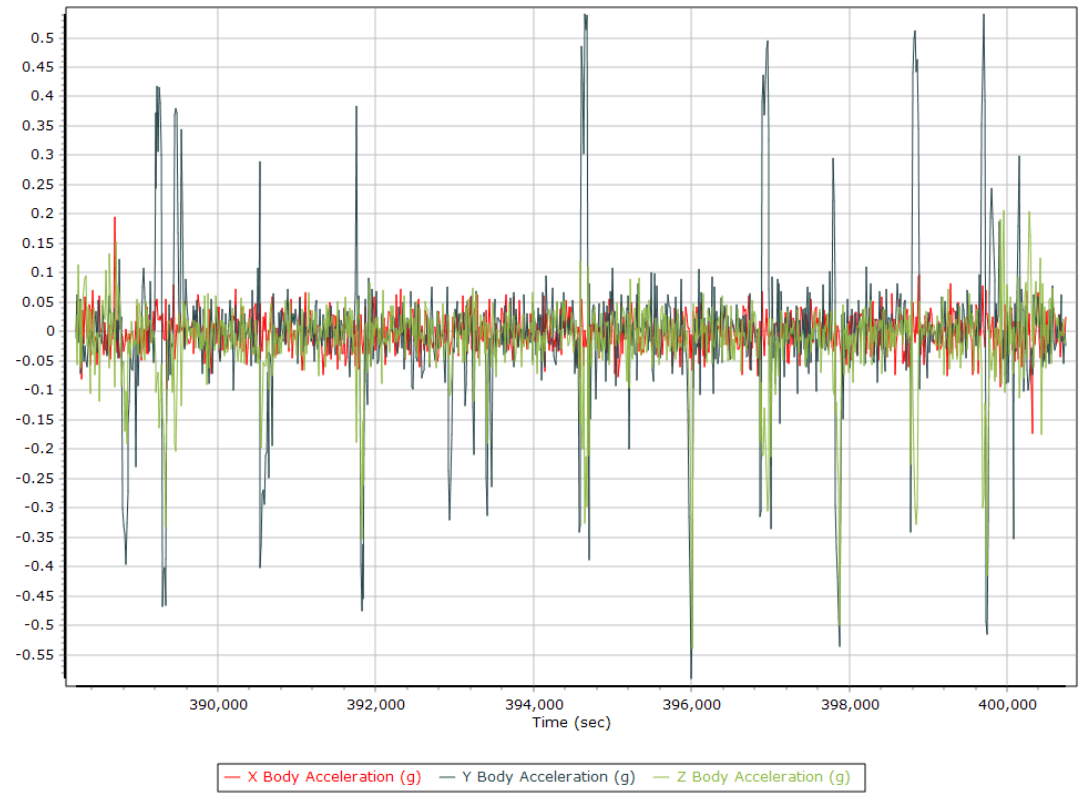
Down Velocity



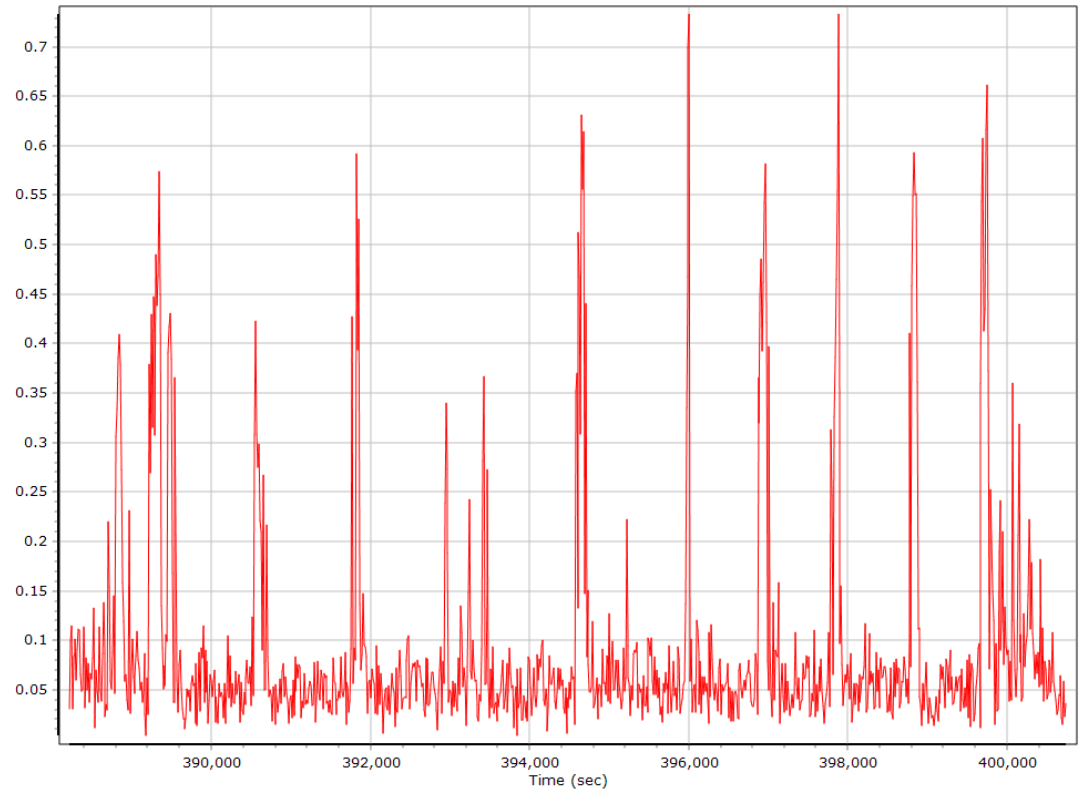
Total Speed

Ground Speed

Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/02/2020	IADE	32.82	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IAEL	49.42	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	MNPS	58.74	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IAAL	73.68	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IANA	77.75	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	MNCA	80.45	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	WLNC	102.35	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	MNEY	109.49	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	MNSV	110.42	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IAMN	111.38	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IAHT	120.20	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	MNWN	121.14	GNSS	30	CORS (daily)	Smart Base	Imported
04/02/2020	IATA	123.85	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	13339 s (2099 387428 - 2099 400767)
Number of reference stations	13
Primary station GPS measurement usage (%)	99.9
Primary station GLONASS measurement usage (%)	77.8
Average number of satellites per epoch	13.2
Max number of GPS stations used	6
Min number of GPS stations used	6
Max number of GLONASS stations used	6
Min number of GLONASS stations used	5
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	16649
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67189"	W92°33'05.07499"	247.334
Adjusted		N41°58'01.67181"	W92°33'05.07511"	247.351
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.017	0.017

Base Station Information

Station ID	IATA		
Filename	iata0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 6:59:30 PM		
Duration	18:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67189"		
Longitude	W92°33'05.07499"		
Ellipsoidal height (m)	247.33439		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNWN

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N44°03'54.03515"	W91°42'45.52413"	178.655
Adjusted		N44°03'54.03521"	W91°42'45.52391"	178.654
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.002	0.005

Base Station Information

Station ID	MNWN		
Filename	mnwn0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5443R50018
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N44°03'54.03515"		
Longitude	W91°42'45.52413"		
Ellipsoidal height (m)	178.65536		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38125"	W93°22'06.68786"	344.482
Adjusted		N43°17'02.38117"	W93°22'06.68769"	344.488
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.006	0.007

Base Station Information

Station ID	IAHT		
Filename	iaht0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 6:59:30 PM		
Duration	18:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38125"		
Longitude	W93°22'06.68786"		
Ellipsoidal height (m)	344.48179		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59747"	228.904
Adjusted		N42°01'49.10891"	W91°32'55.59757"	228.882
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.002	0.022	0.022

Base Station Information

Station ID	IAMN		
Filename	iamn0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 6:59:30 PM		
Duration	18:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59747"		
Ellipsoidal height (m)	228.90419		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNSV

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°54'09.07390"	W92°28'55.97411"	361.226
Adjusted		N43°54'09.07404"	W92°28'55.97420"	361.224
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.002	0.005

Base Station Information

Station ID	MNSV		
Filename	mnsv0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	Alloy	5829R40031
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°54'09.07390"		
Longitude	W92°28'55.97411"		
Ellipsoidal height (m)	361.22647		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNEY

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°57'20.27378"	W92°12'19.44384"	370.916
Adjusted		N43°57'20.27367"	W92°12'19.44367"	370.904
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.012	0.013

Base Station Information

Station ID	MNEY		
Filename	mney0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5426R48922
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°57'20.27378"		
Longitude	W92°12'19.44384"		
Ellipsoidal height (m)	370.91640		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WLNC

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°50'15.66938"	W90°42'41.07303"	280.855
Adjusted		N42°50'15.66930"	W90°42'41.07316"	280.850
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.005	0.006

Base Station Information

Station ID	WLNC		
Filename	wlnc0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72957
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N42°50'15.66938"		
Longitude	W90°42'41.07303"		
Ellipsoidal height (m)	280.85487		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	18.78	**Output Coordinates**	Original	
Solution Epochs	2253	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64528"	W91°29'46.51634"	339.589
Adjusted		N43°37'58.64524"	W91°29'46.51609"	339.603
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.014	0.016

Base Station Information

Station ID	MNCA		
Filename	mnca0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64528"		
Longitude	W91°29'46.51634"		
Ellipsoidal height (m)	339.58850		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54030"	172.253
Adjusted		N43°29'49.47902"	W91°17'26.53983"	172.229
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.024	0.027

Base Station Information

Station ID	IANA		
Filename	iana0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54030"		
Ellipsoidal height (m)	172.25325		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24722"	291.092
Adjusted		N42°44'49.40398"	W92°47'14.24757"	291.120
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.028	0.030

Base Station Information

Station ID	IAAL		
Filename	iaal0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 6:59:30 PM		
Duration	18:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24722"		
Ellipsoidal height (m)	291.09235		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	18.77	**Output Coordinates**	Original	
Solution Epochs	2252	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52984"	298.980
Adjusted		N42°52'40.47654"	W91°21'41.52964"	298.987
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.007	0.009

Base Station Information

Station ID	IAEL		
Filename	iael0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 6:59:30 PM		
Duration	18:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52984"		
Ellipsoidal height (m)	298.98032		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Control	
Solution Epochs	2266	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52630"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52630"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 6:59:30 PM		
Duration	18:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52630"		
Ellipsoidal height (m)	316.51620		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	18.88	**Output Coordinates**	Original	
Solution Epochs	2266	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86727"	380.908
Adjusted		N43°30'53.84823"	W91°53'06.86716"	380.918
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.010	0.011

Base Station Information

Station ID	MNPS		
Filename	mnps0930.20o		
Start date	4/2/2020 12:00:00 AM		
End date	4/2/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86727"		
Ellipsoidal height (m)	380.90781		
Frame	ITRF00		
Epoch	2020.251366		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	21.75	67.70	
Number of GPS SV	7	10	9
Number of GLONASS SV	0	6	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	7	15	13
PDOP	1.20	2.24	1.53
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	13308.00	0.00	1.00
Percentage	99.99	0.00	0.01

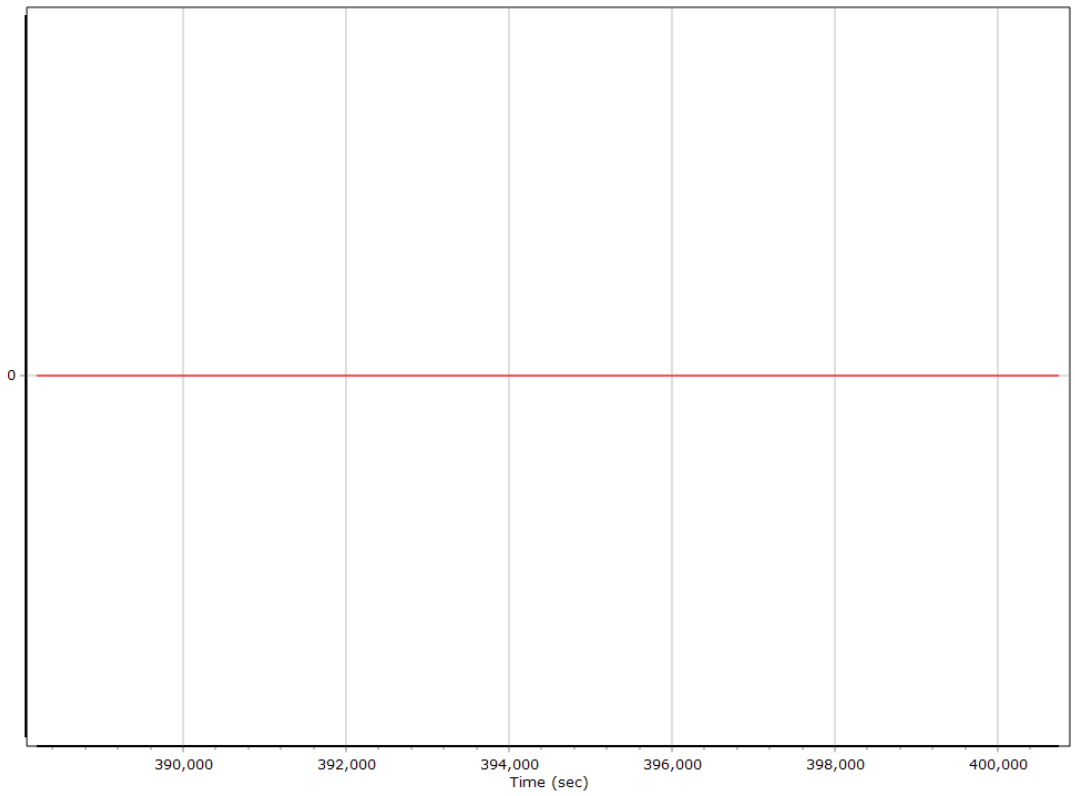
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	387410.000 (4/2/2020 11:36:50 AM)		
Processing end time	400749.000 (4/2/2020 3:19:09 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

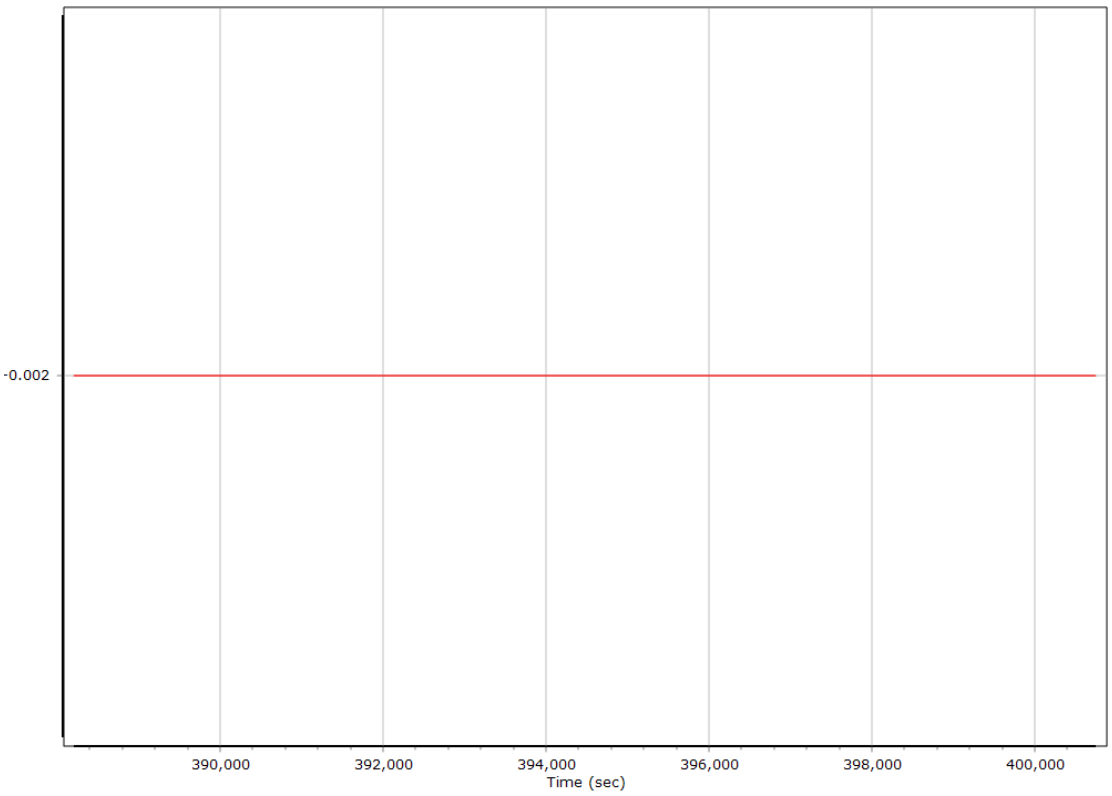
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

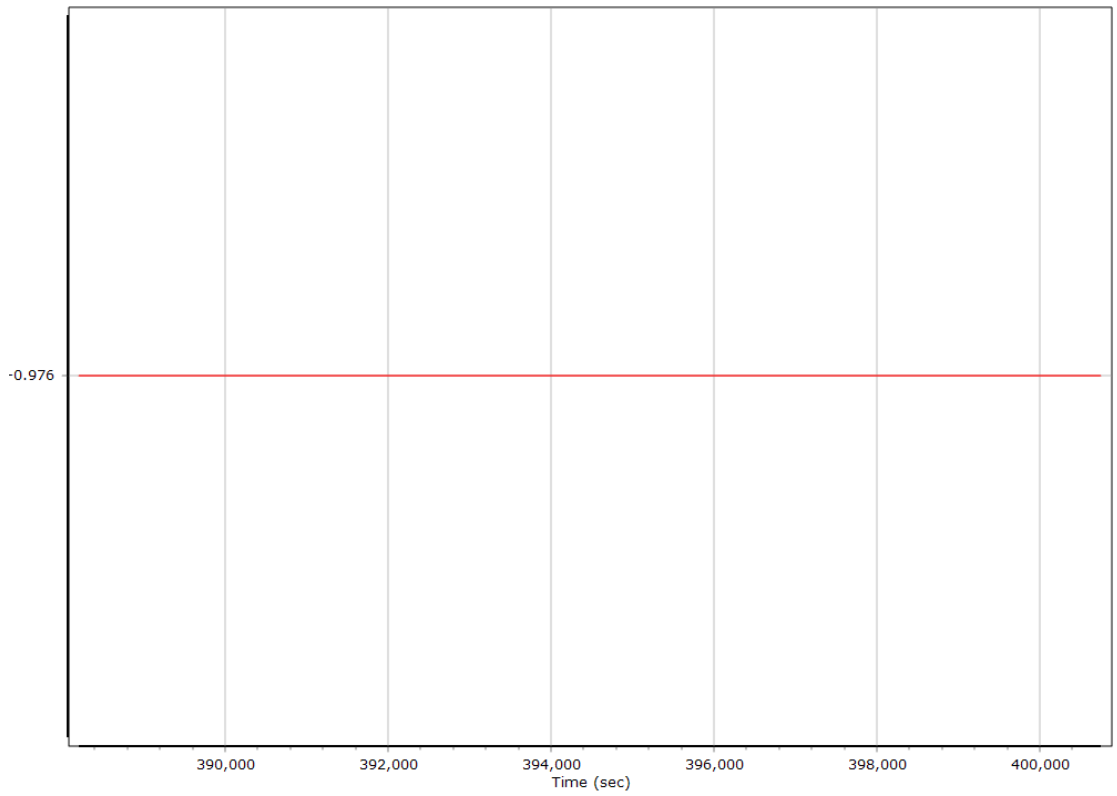
X Reference-Primary GNSS Lever Arm (m)



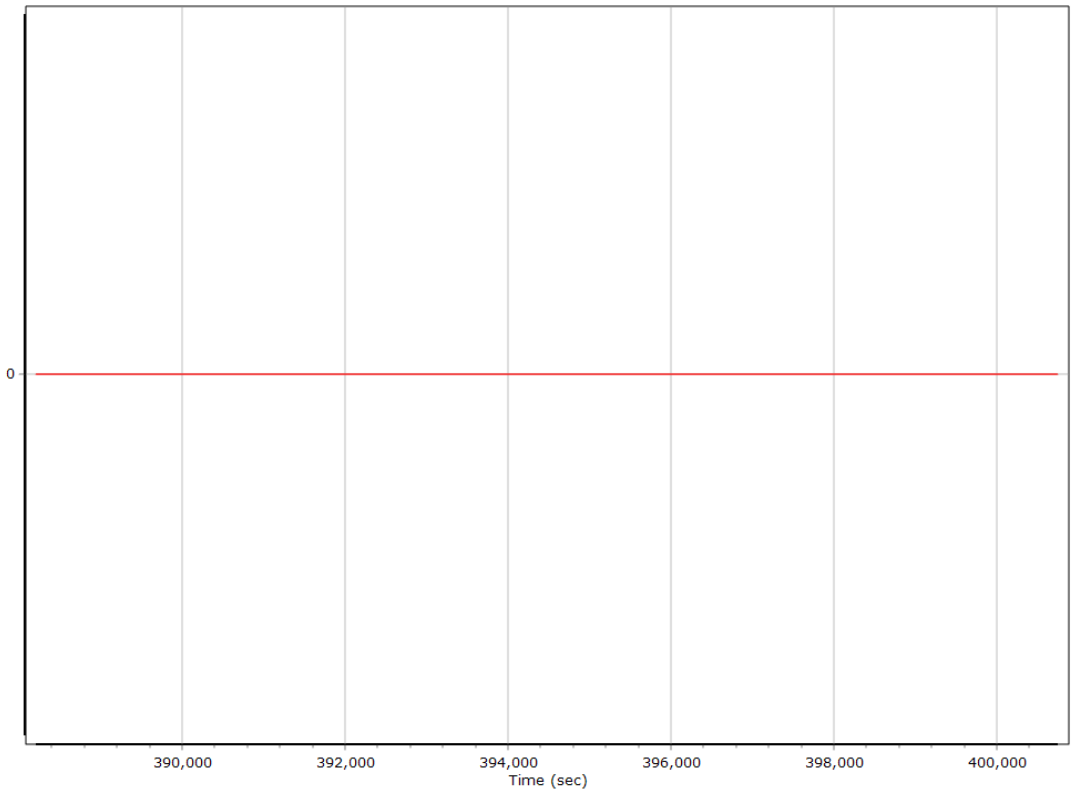
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



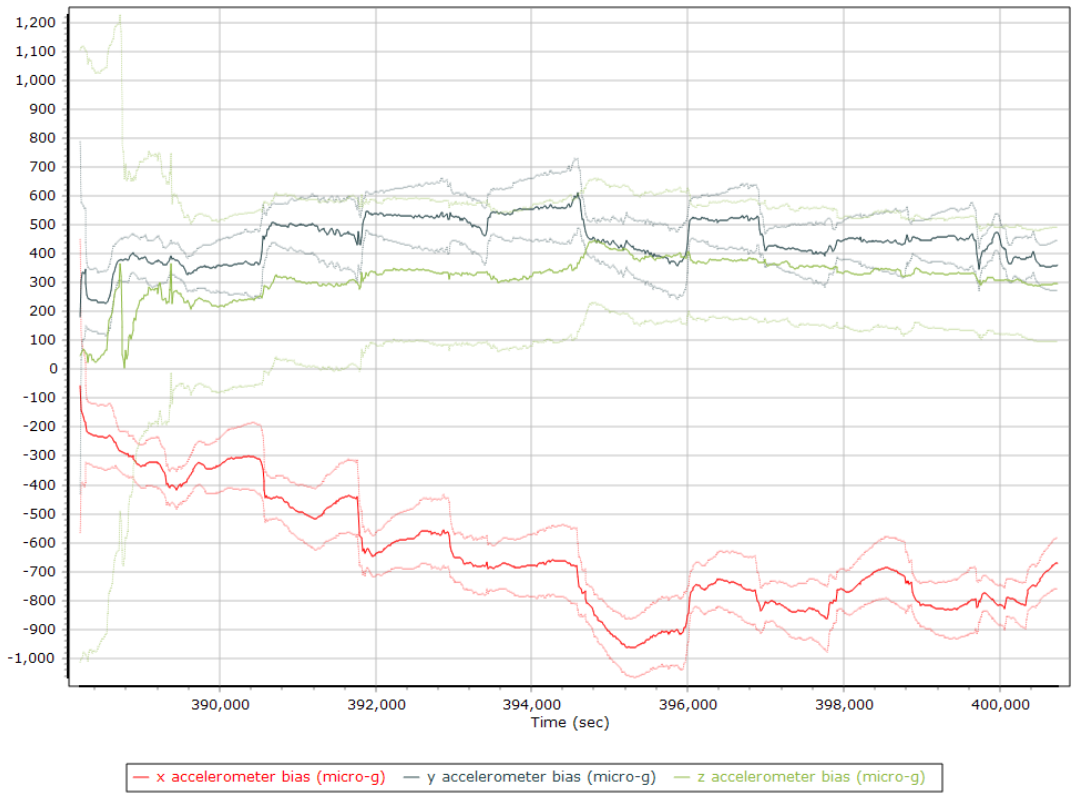
Reference-Primary GNSS Lever Arm Figure of Merit



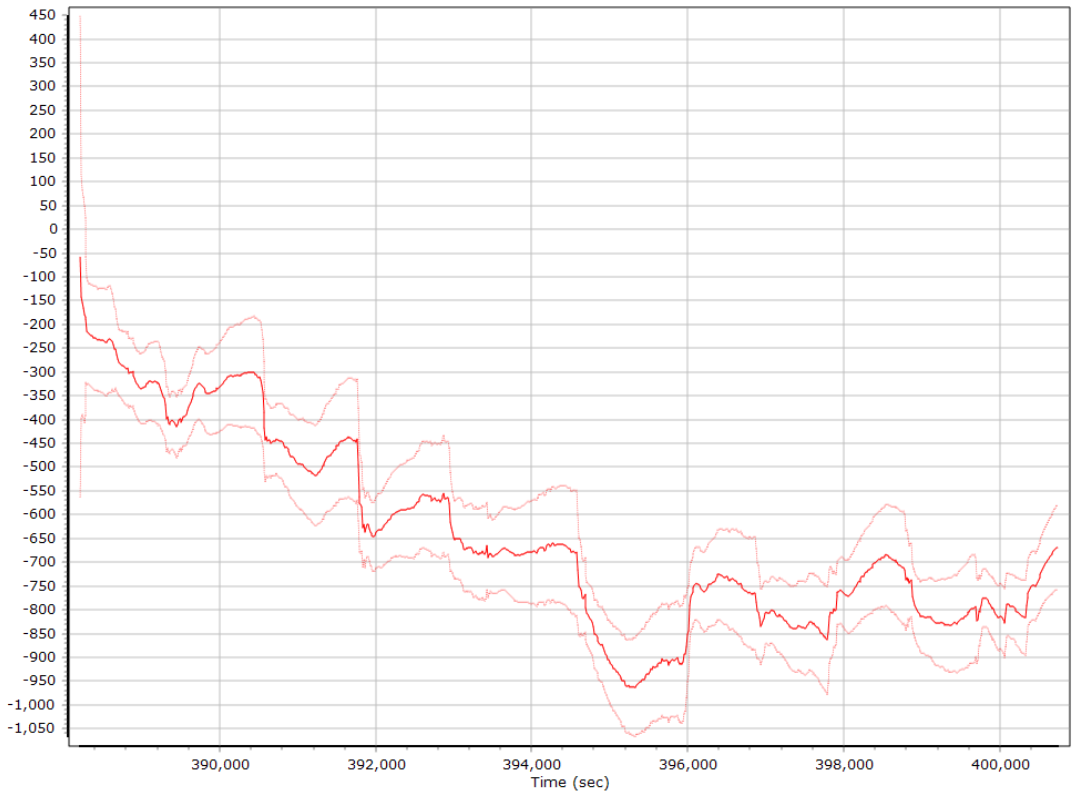
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

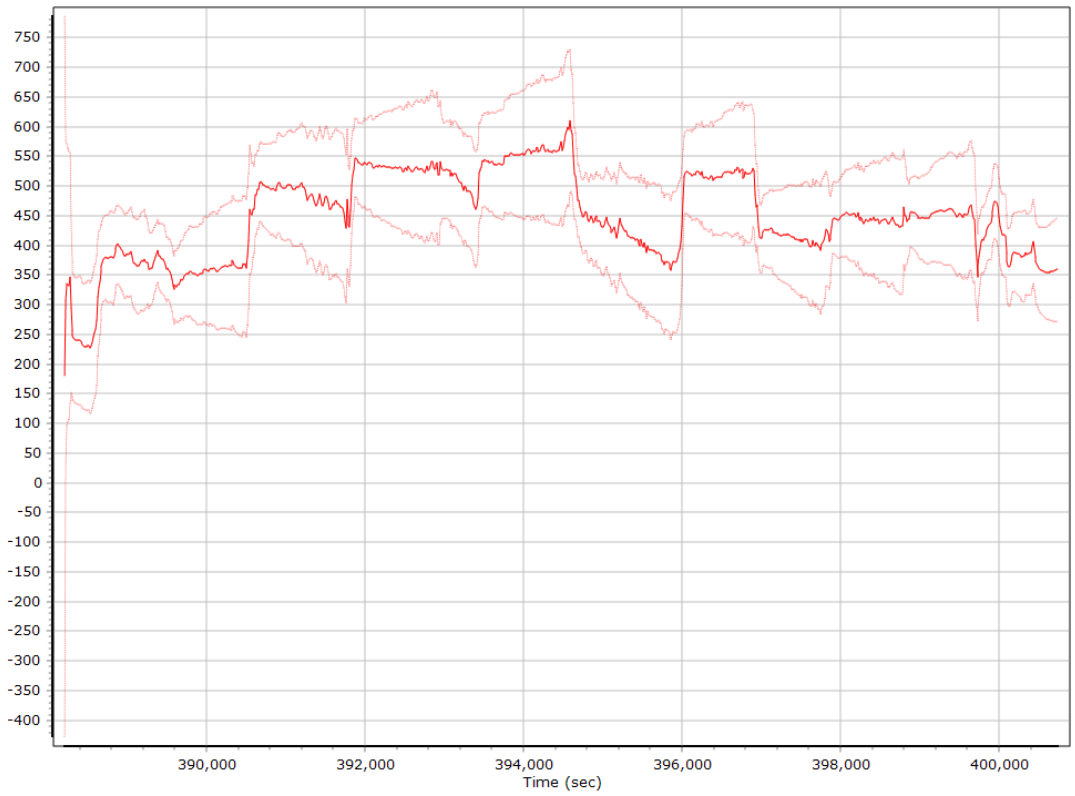
Accelerometer Bias (micro-g)



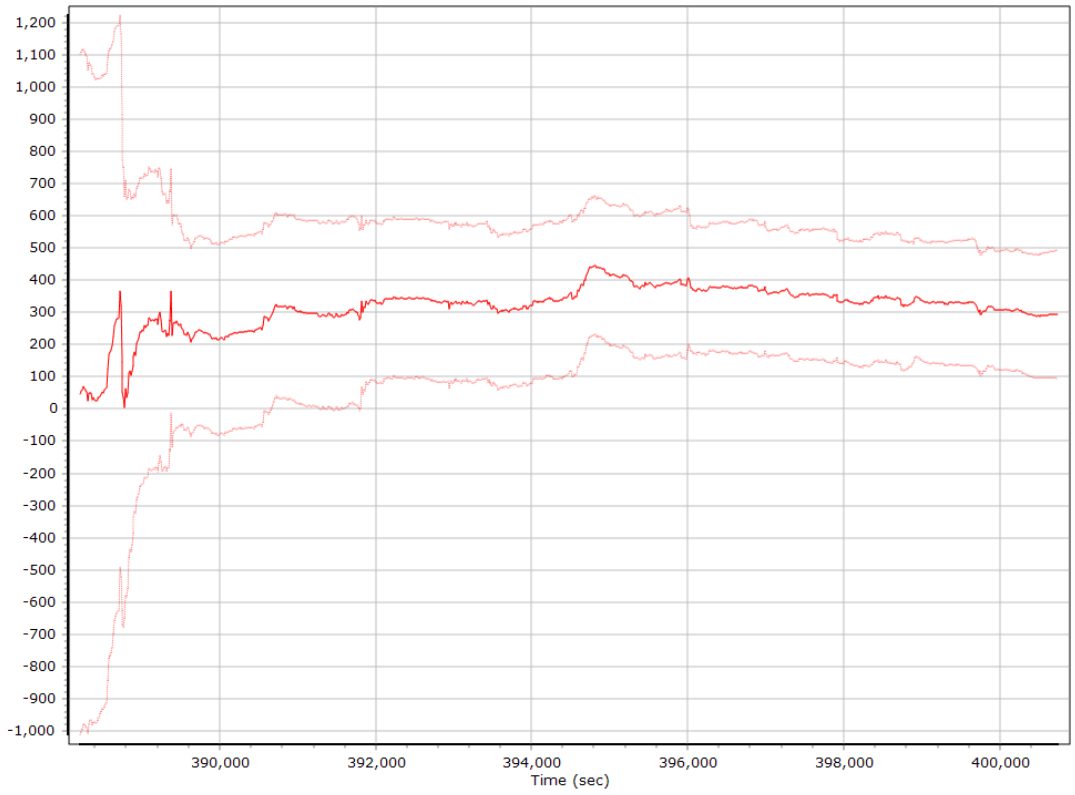
X Accelerometer Bias (micro-g)



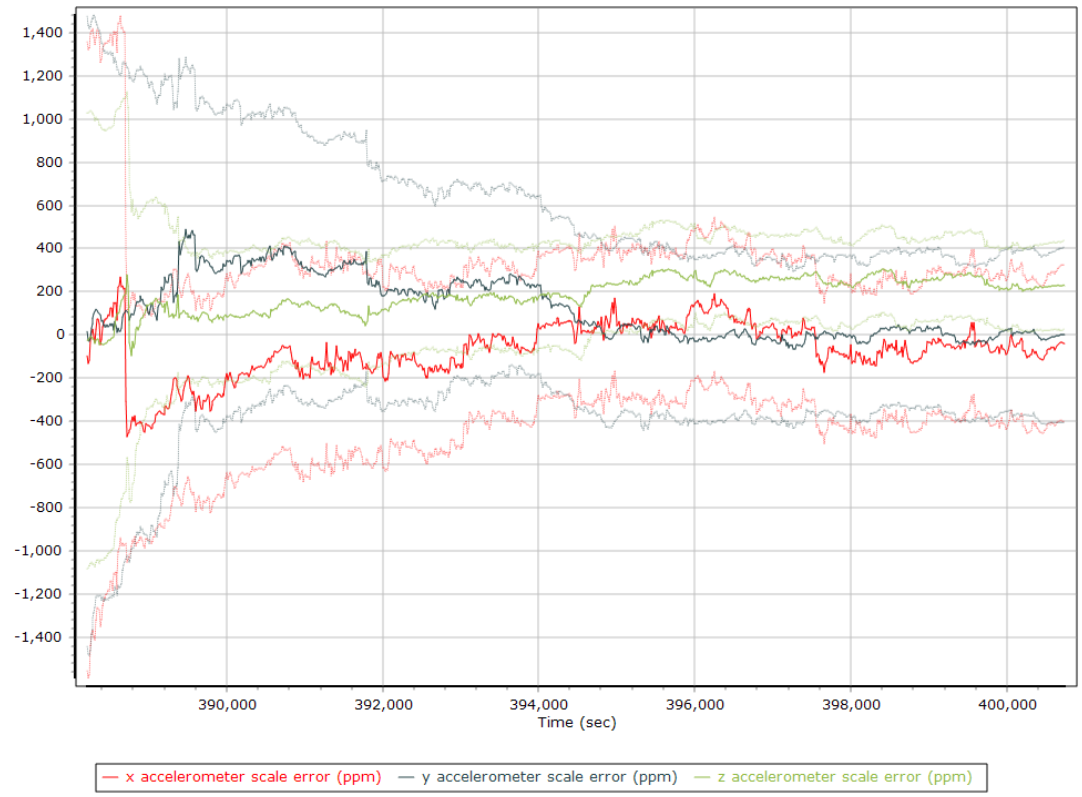
Y Accelerometer Bias (micro-g)



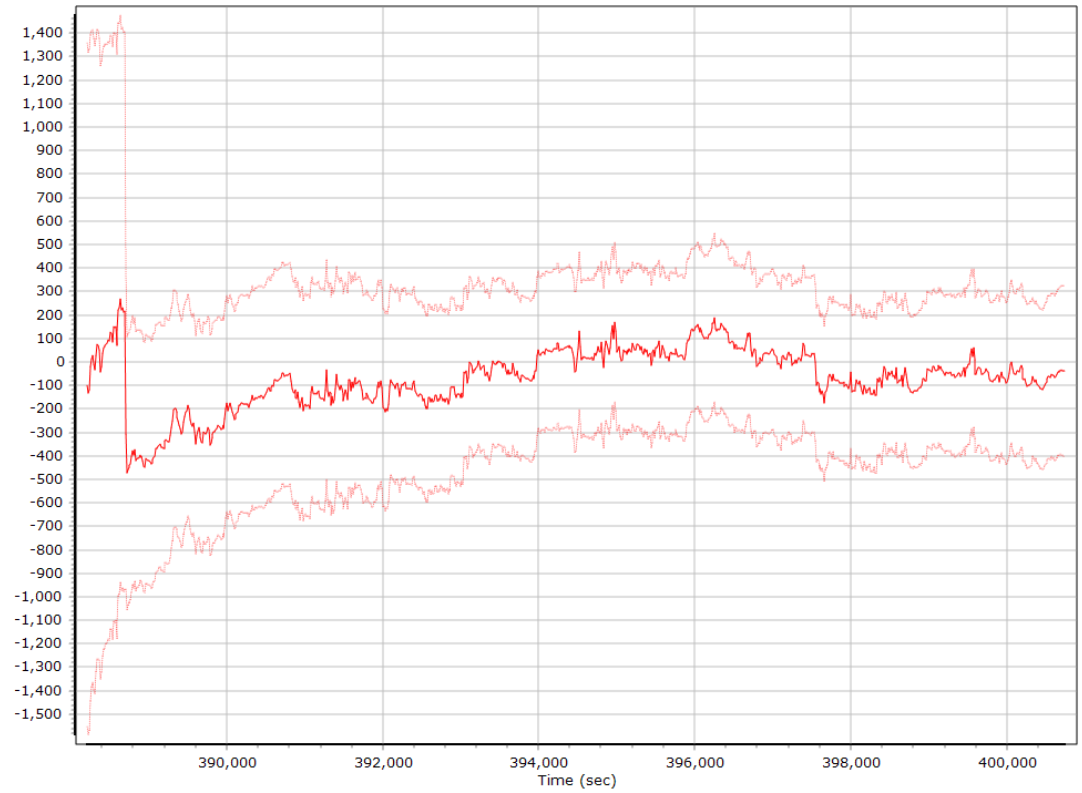
Z Accelerometer Bias (micro-g)



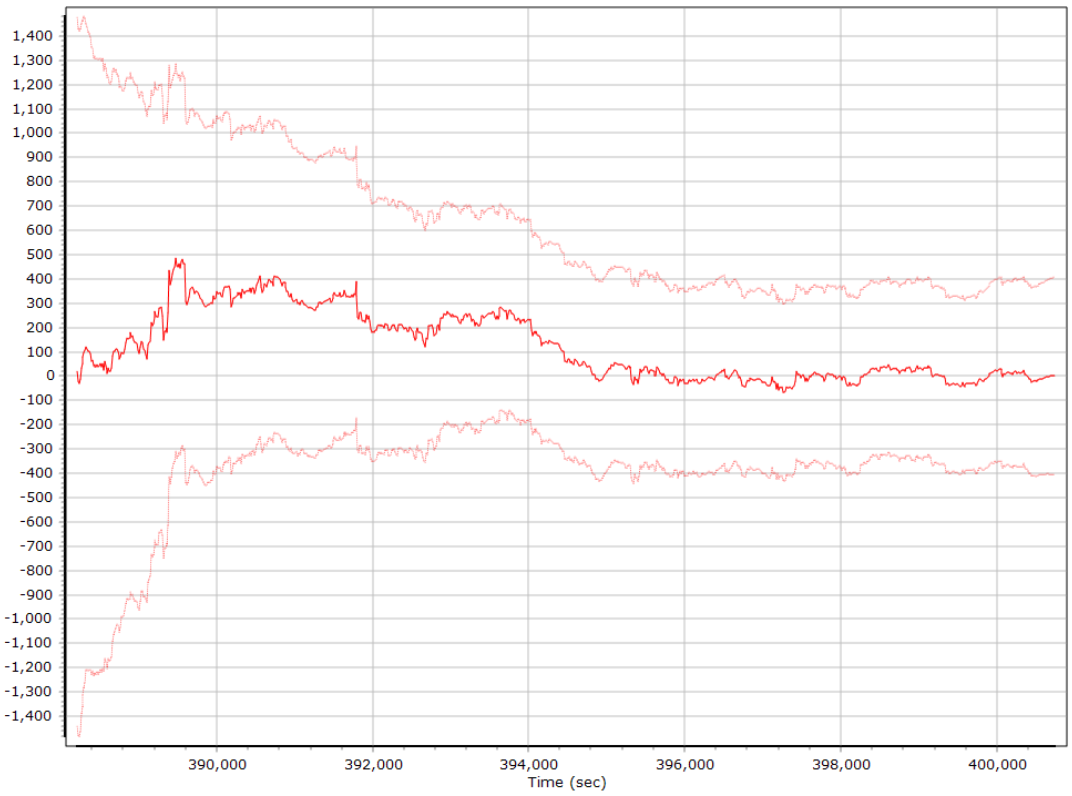
Accelerometer Scale Error (ppm)



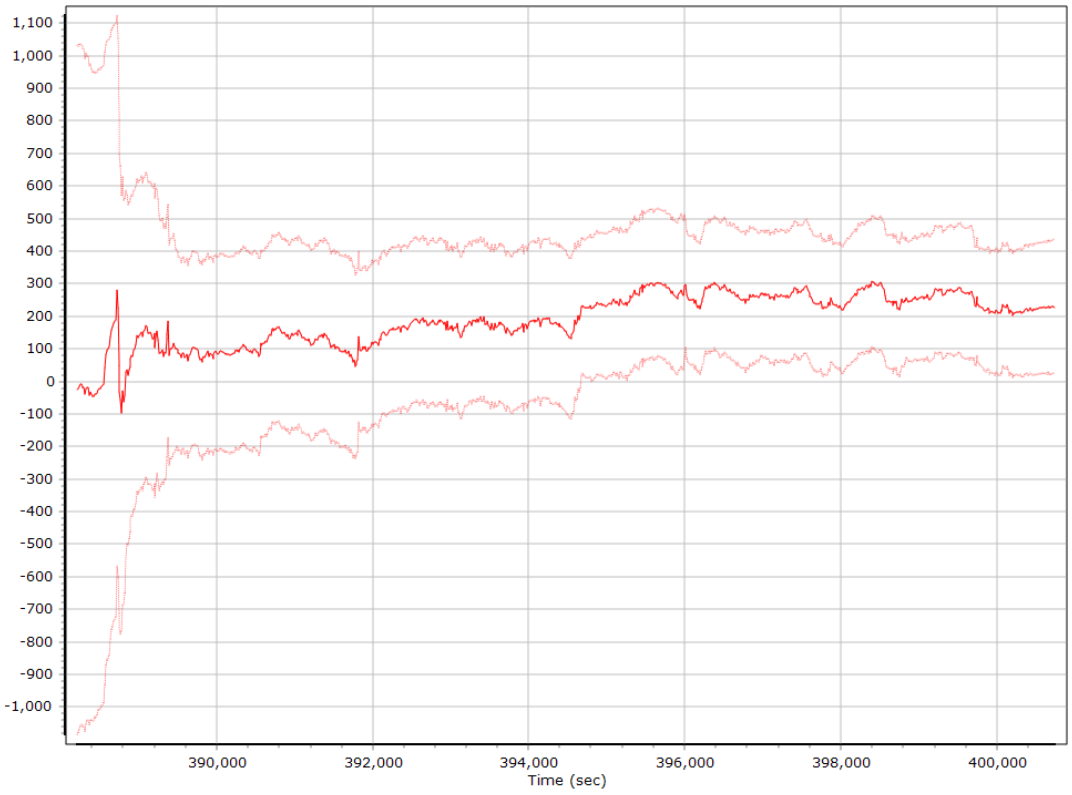
X Accelerometer Scale Error (ppm)



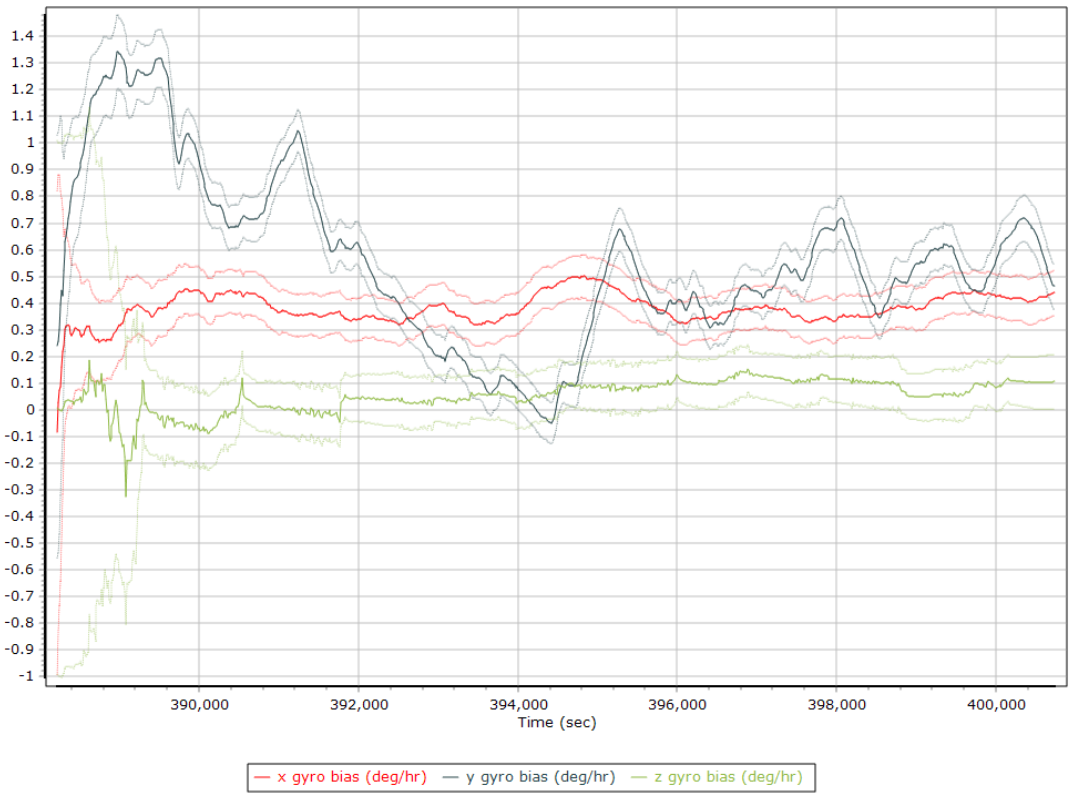
Y Accelerometer Scale Error (ppm)



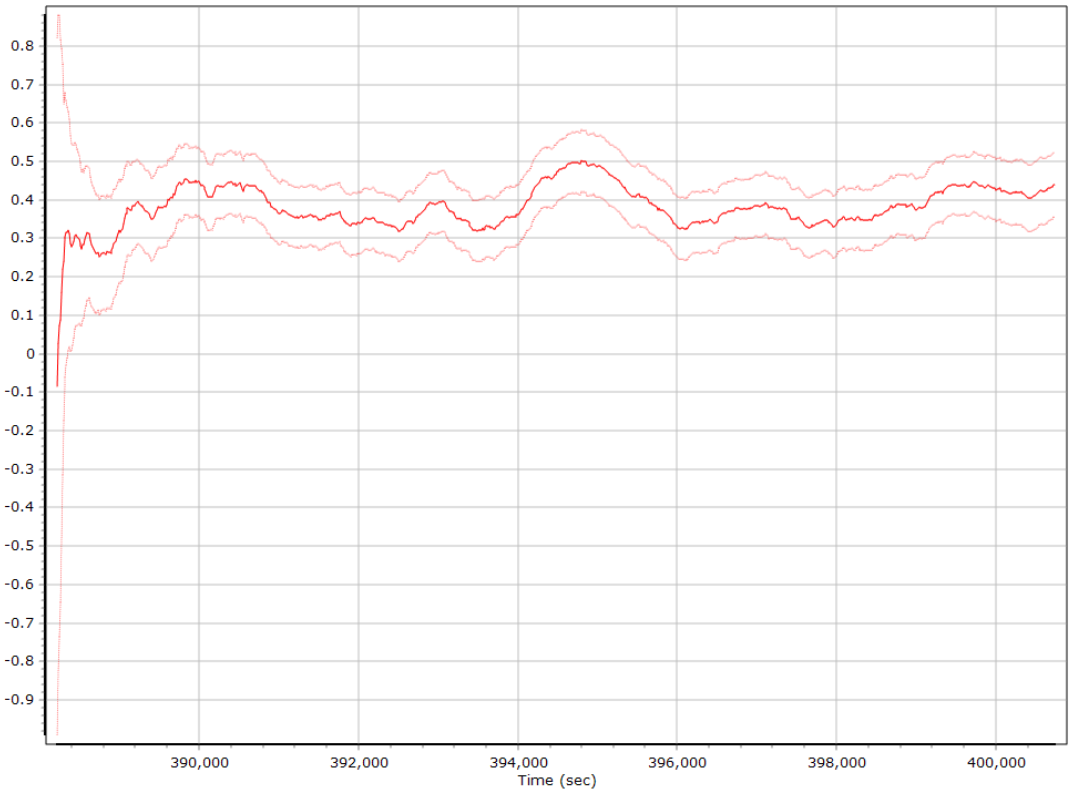
Z Accelerometer Scale Error (ppm)



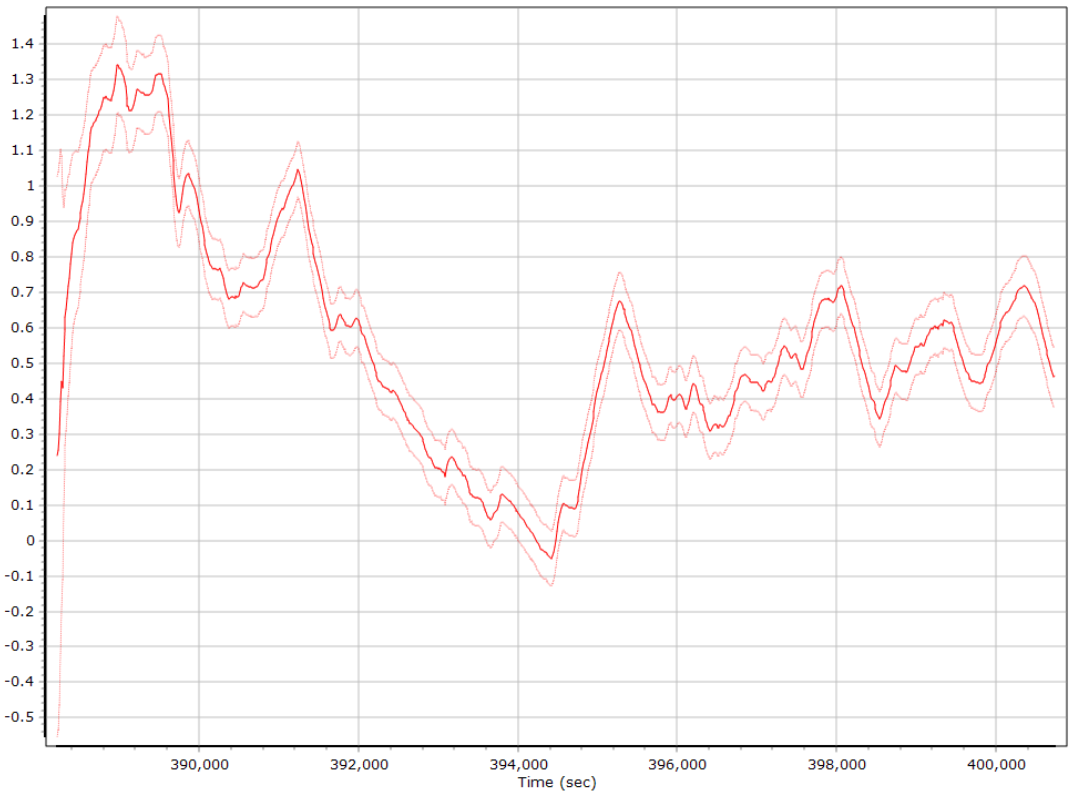
Gyro Bias (deg/h)



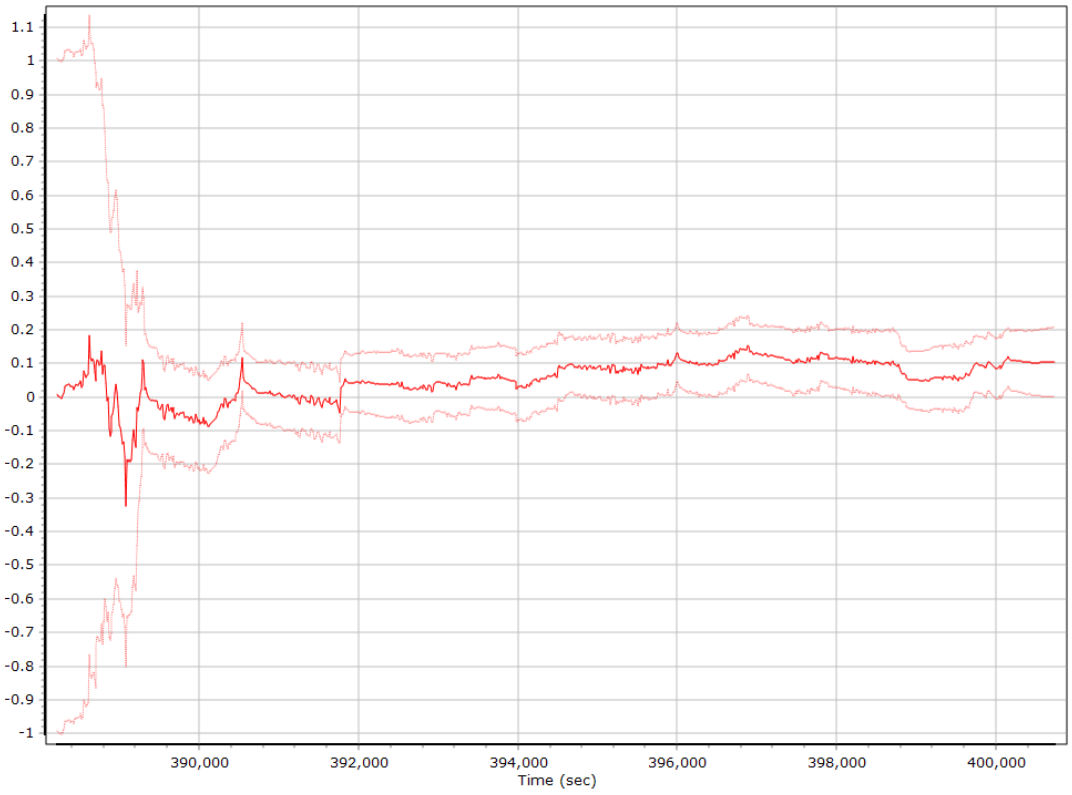
X Gyro Bias (deg/h)



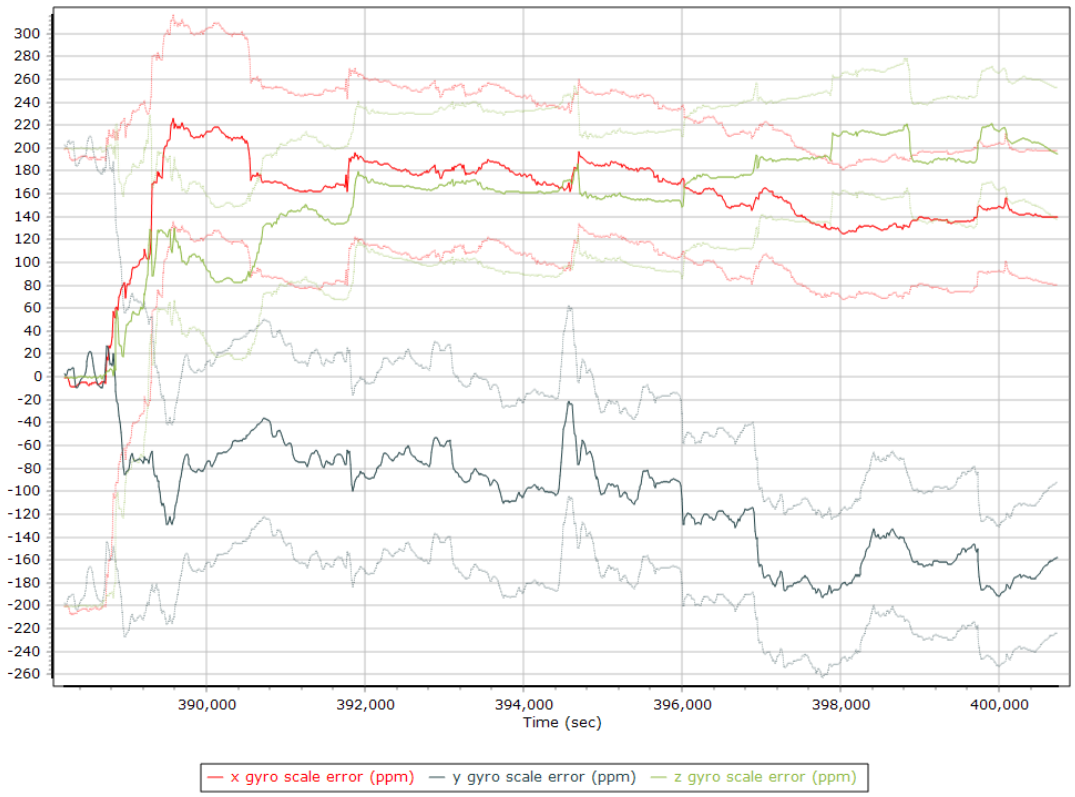
Y Gyro Bias (deg/h)



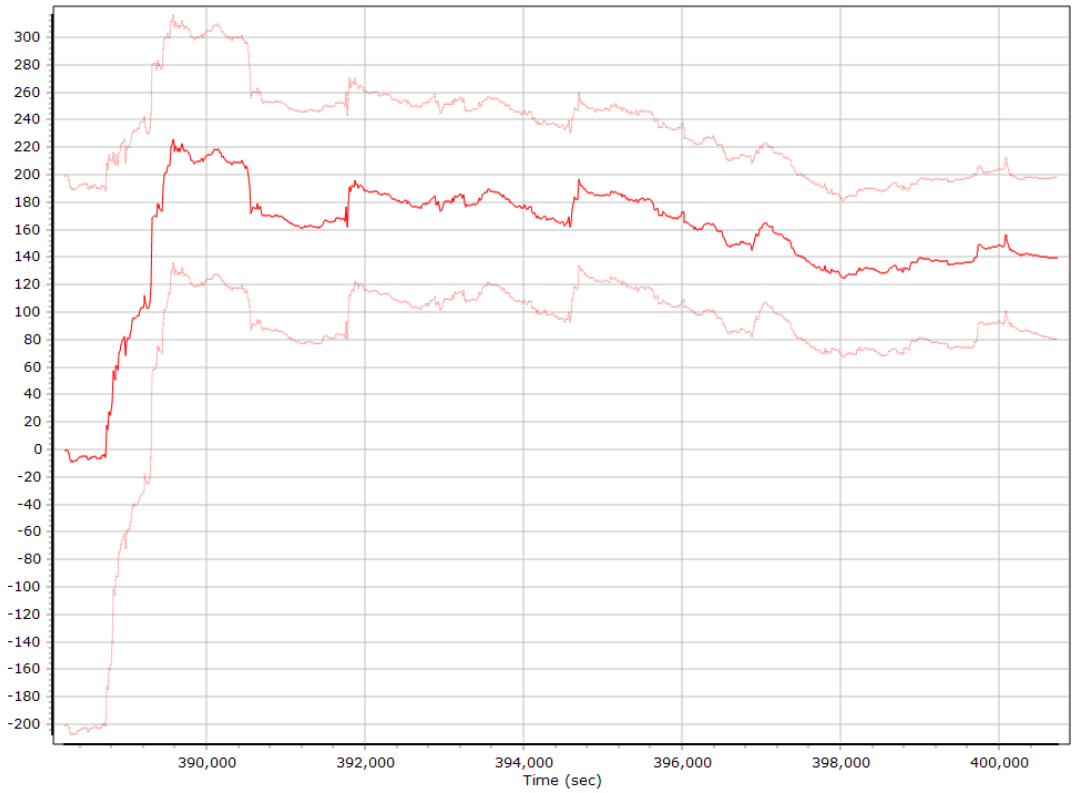
Z Gyro Bias (deg/h)



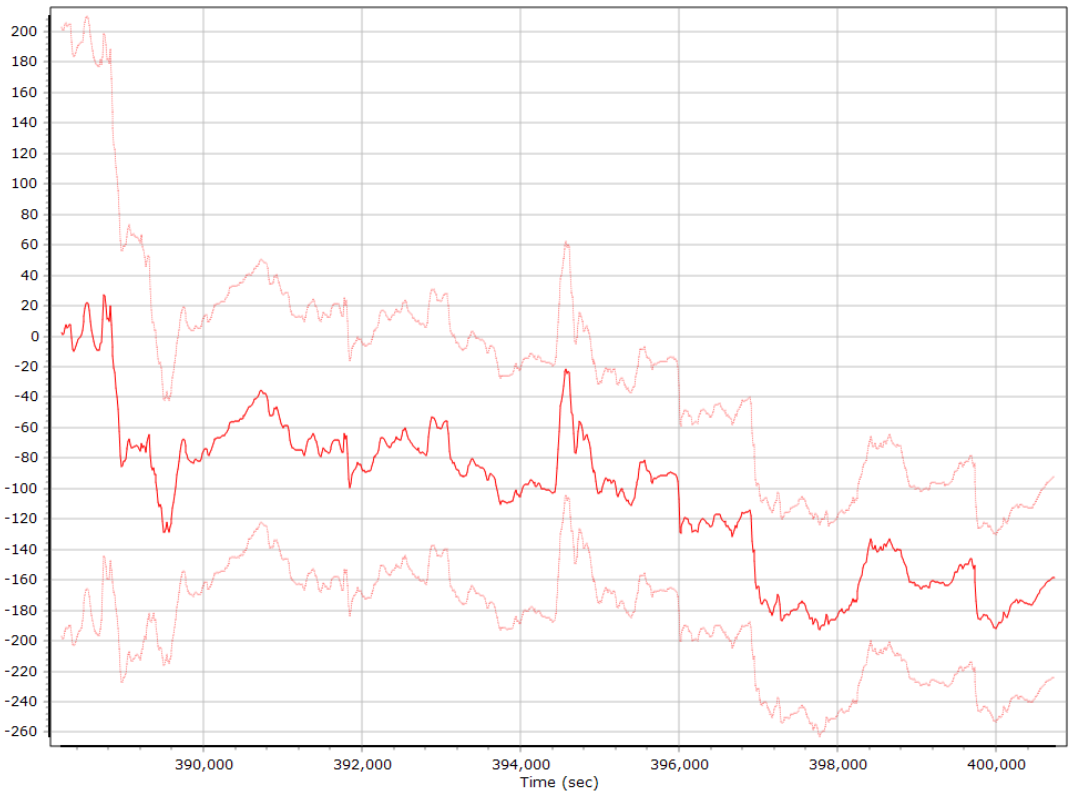
Gyro Scale Error (ppm)



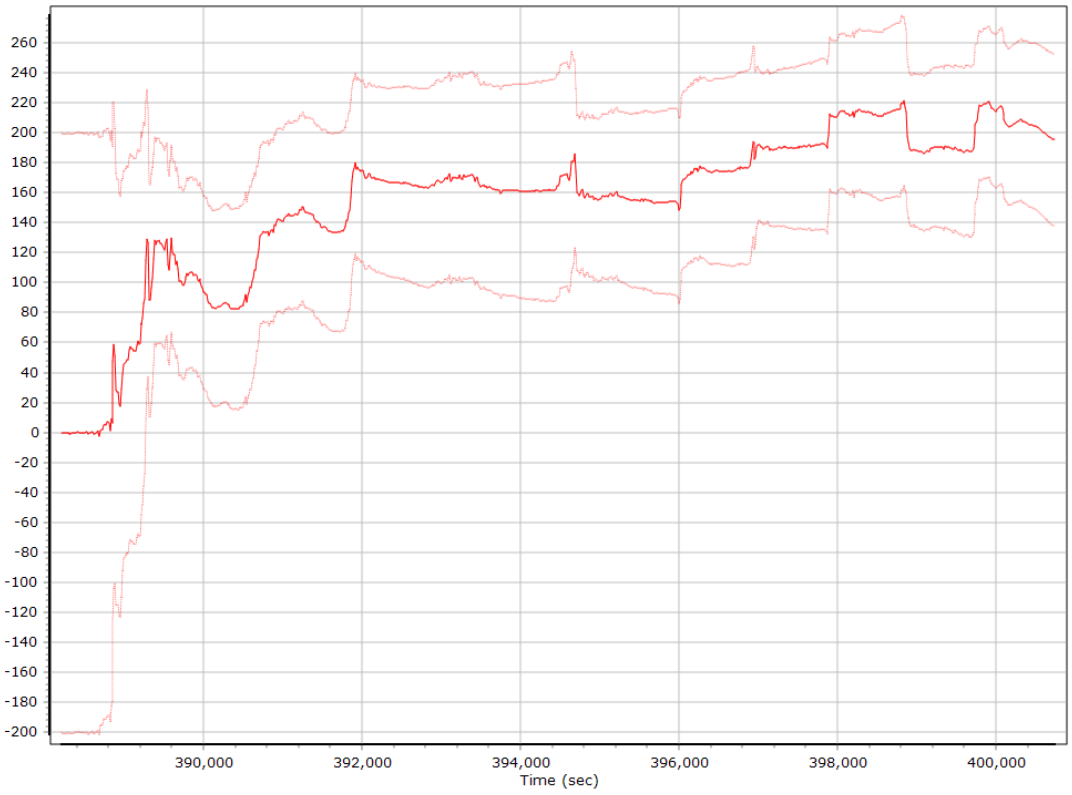
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

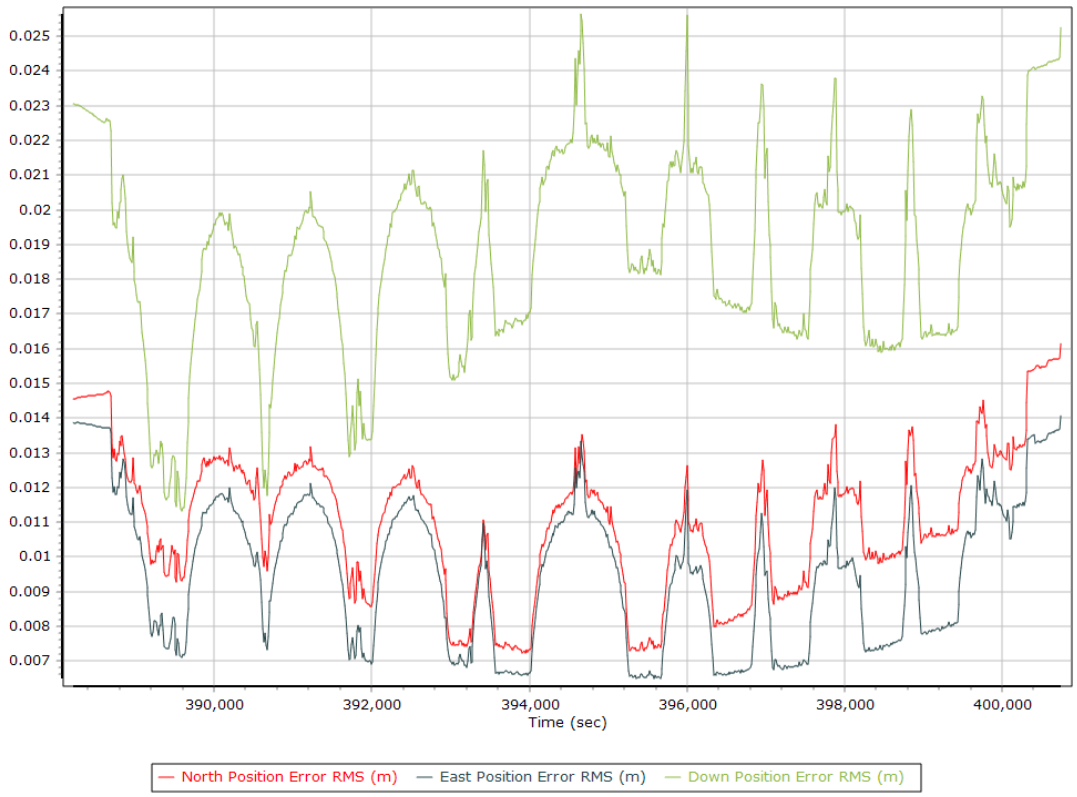


Z Gyro Scale Error (ppm)

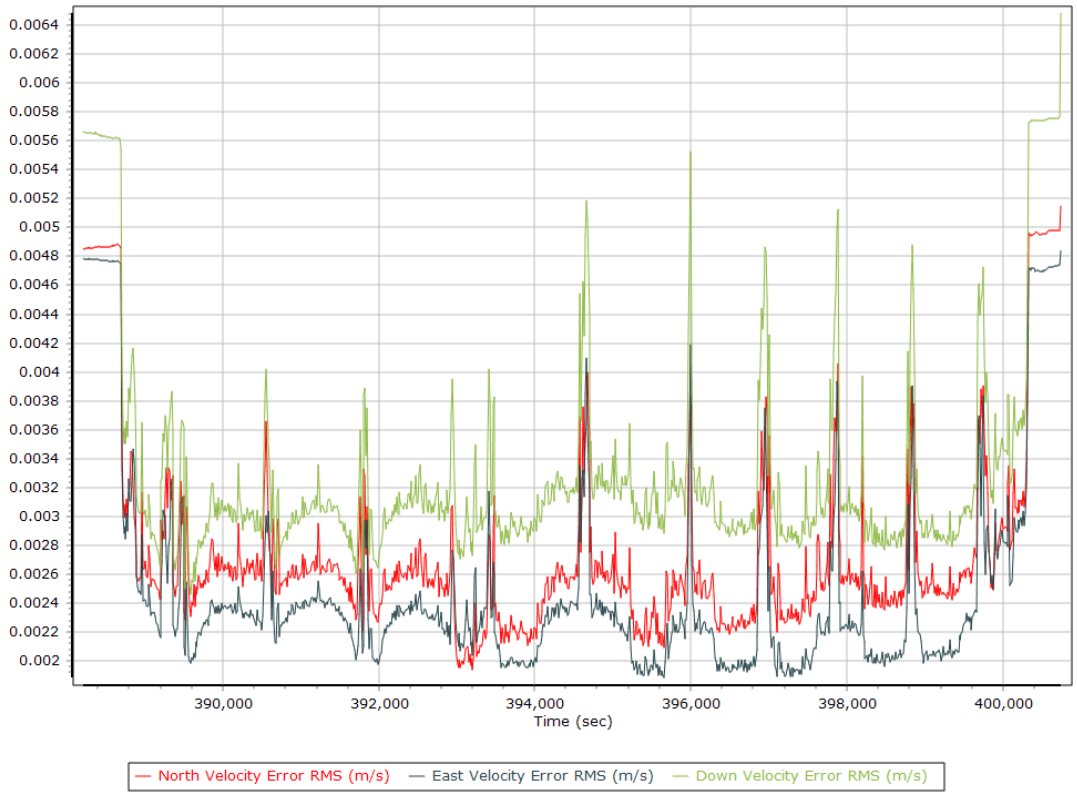


Smoothed Performance Metrics

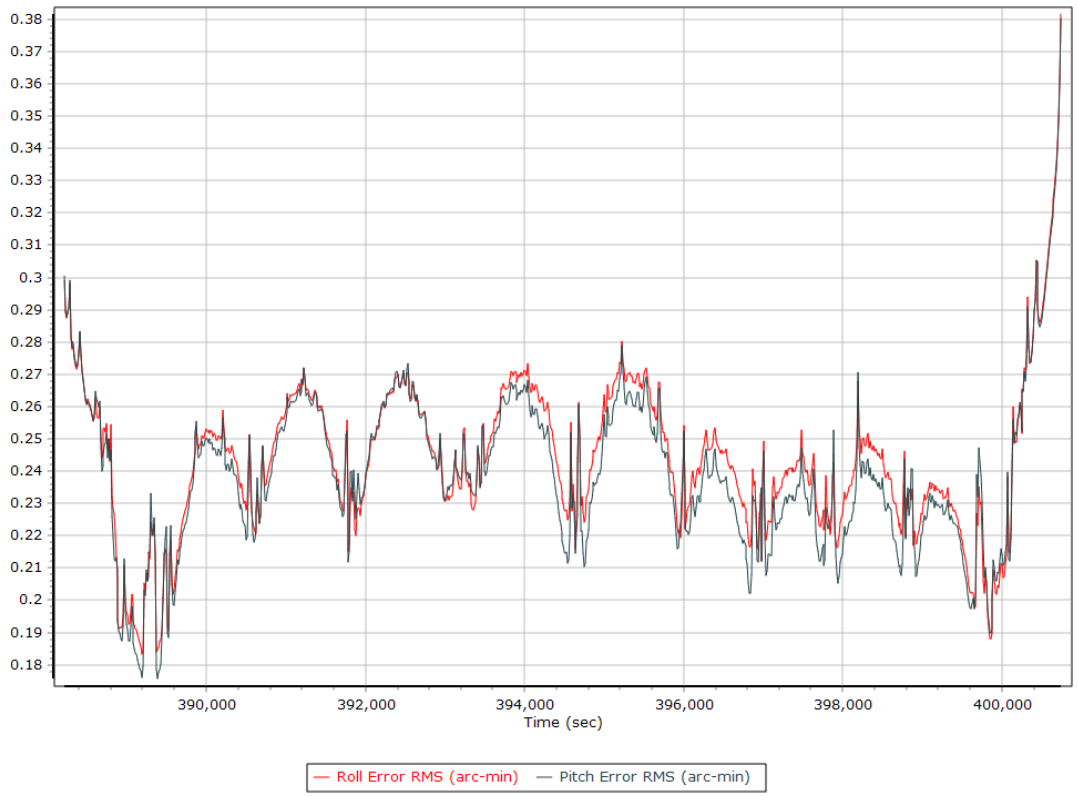
Position Error RMS (m)



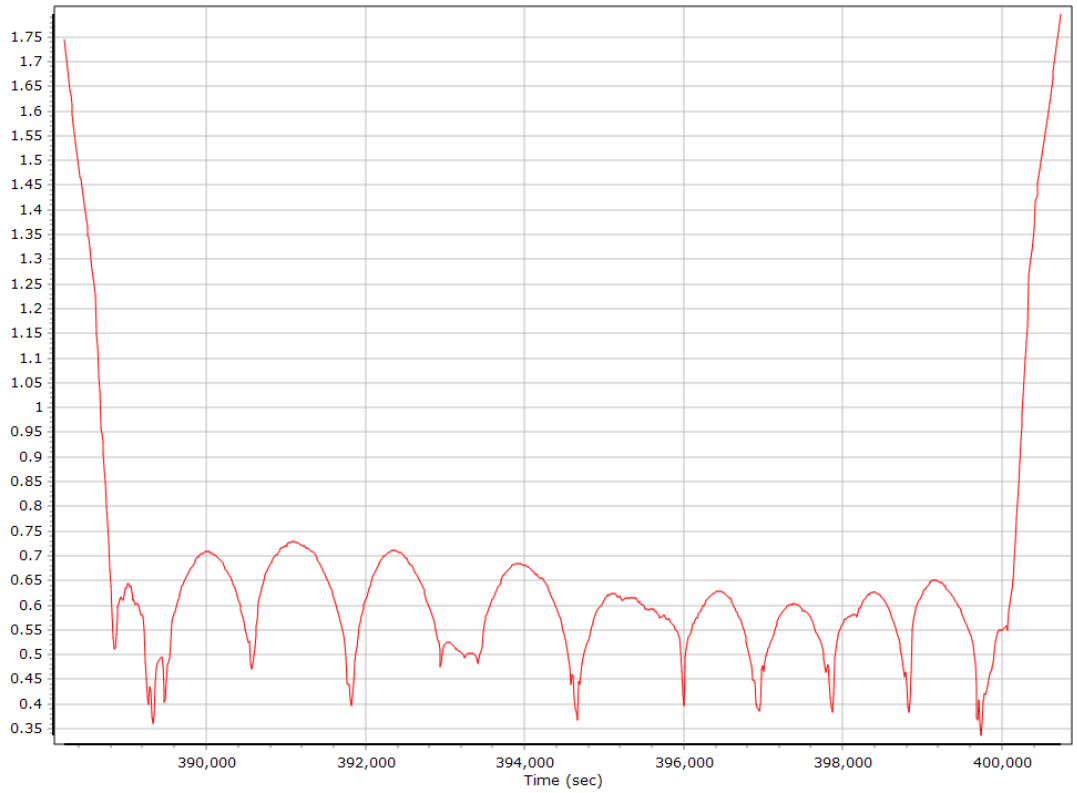
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

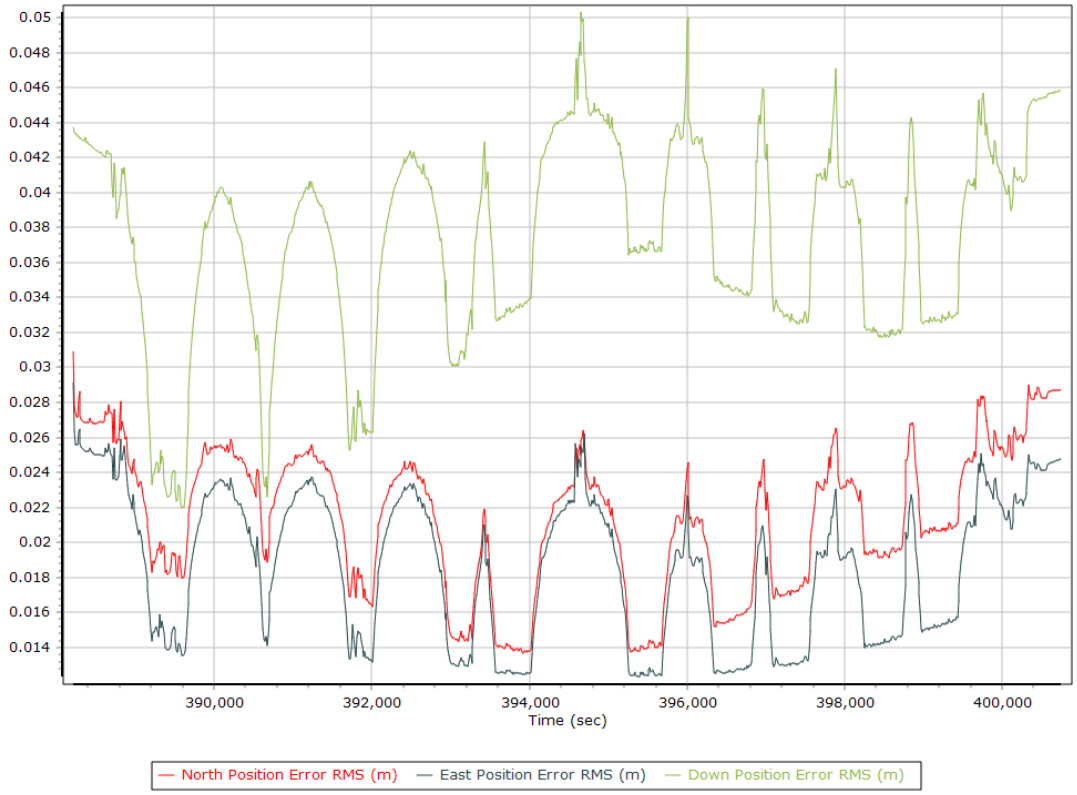


Heading Error RMS (arc-min)

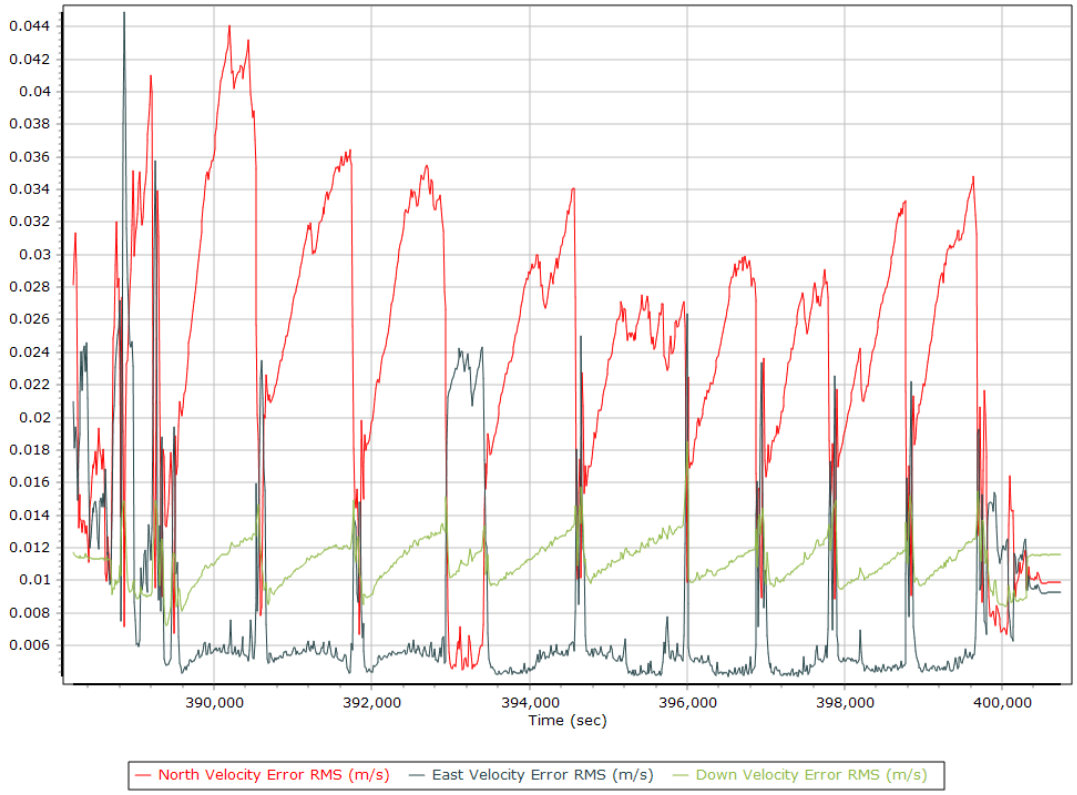


Forward Processed Performance Metrics

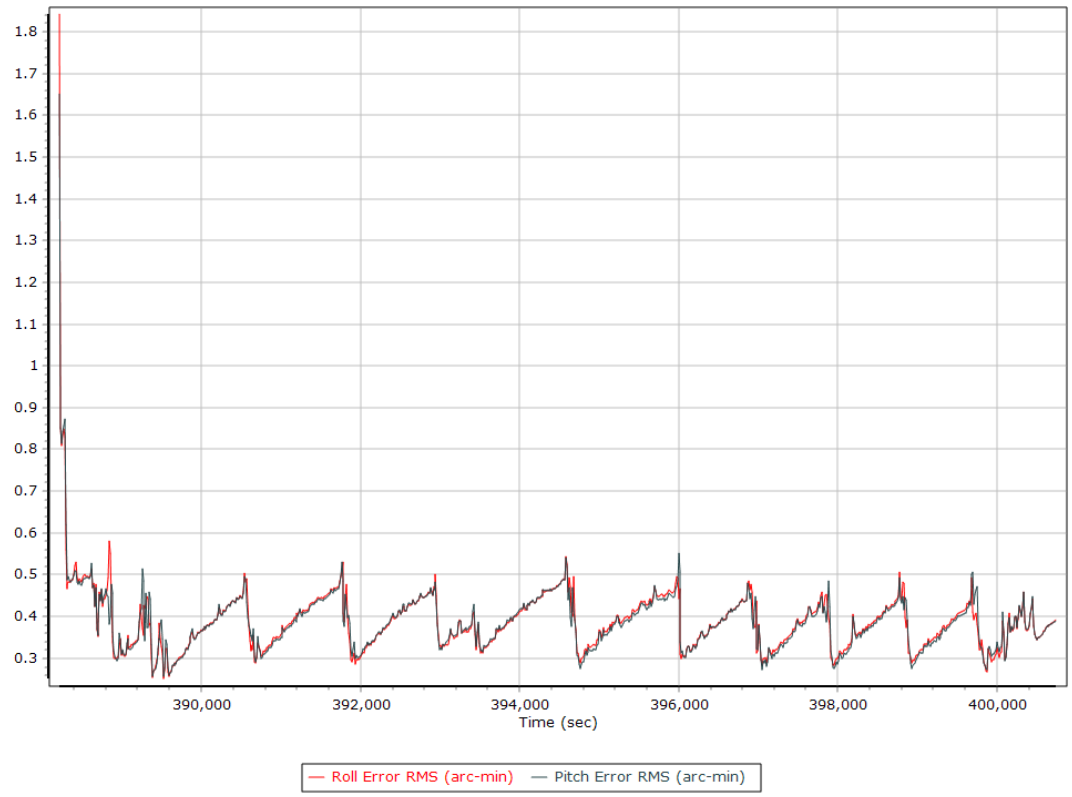
Position Error RMS (m)



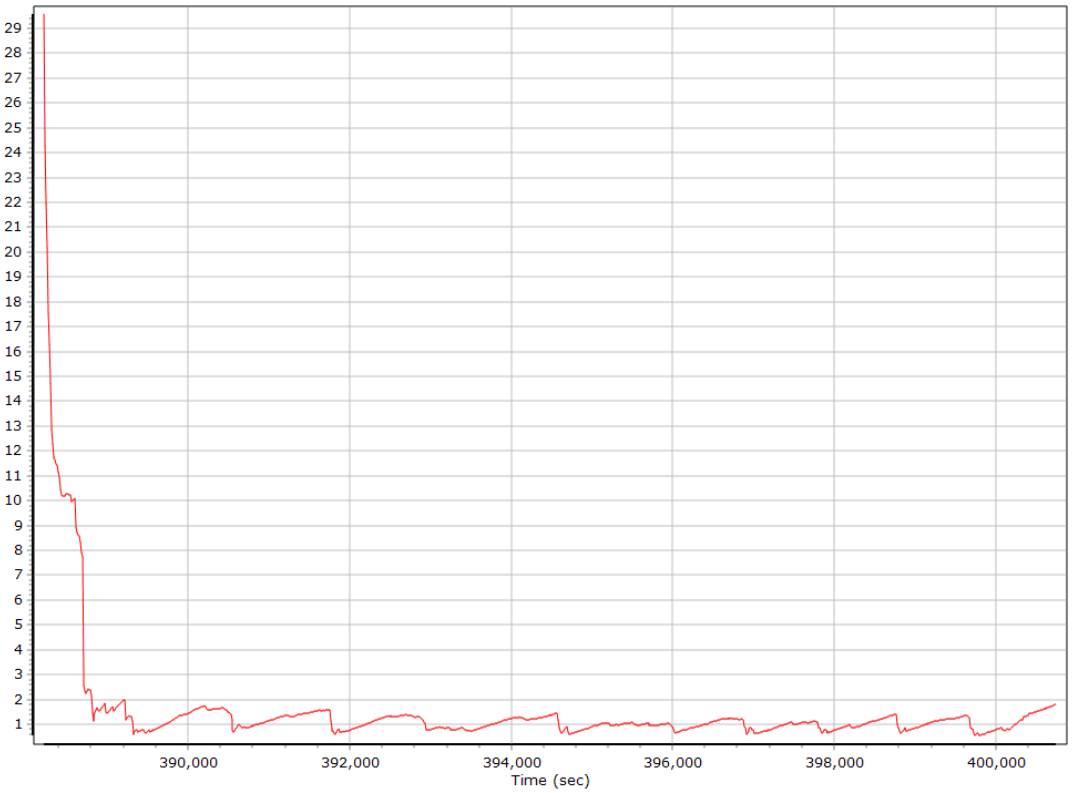
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

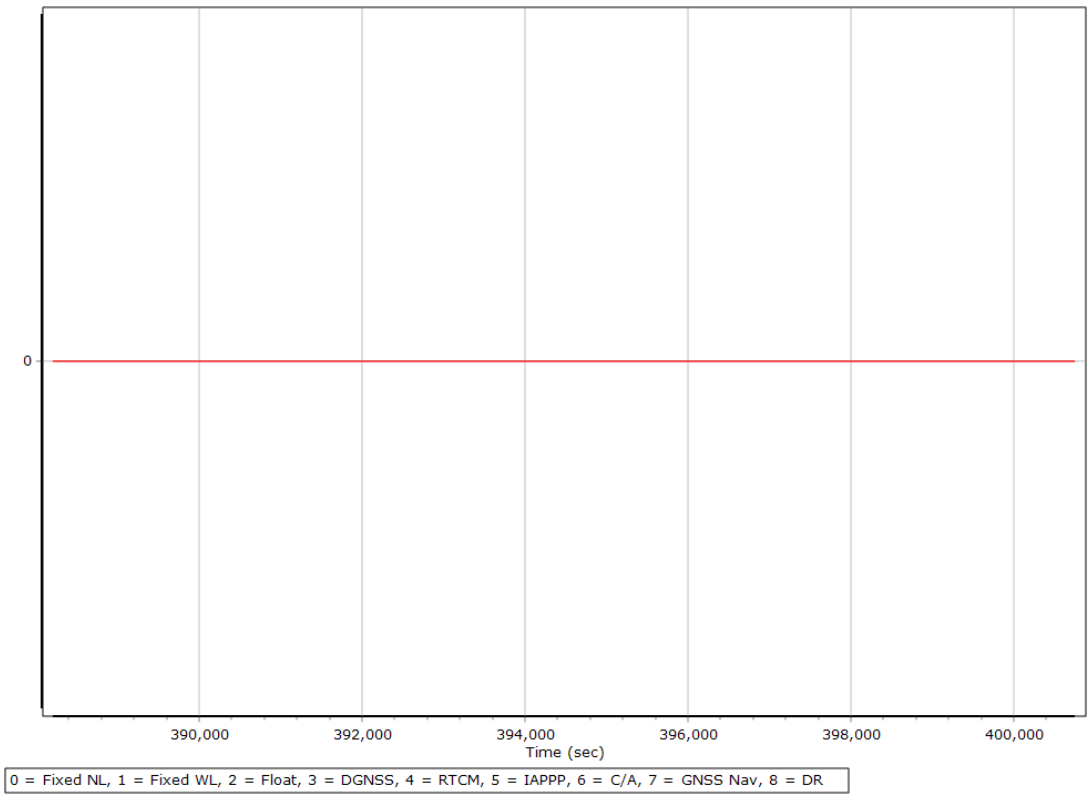


Heading Error RMS (arc-min)

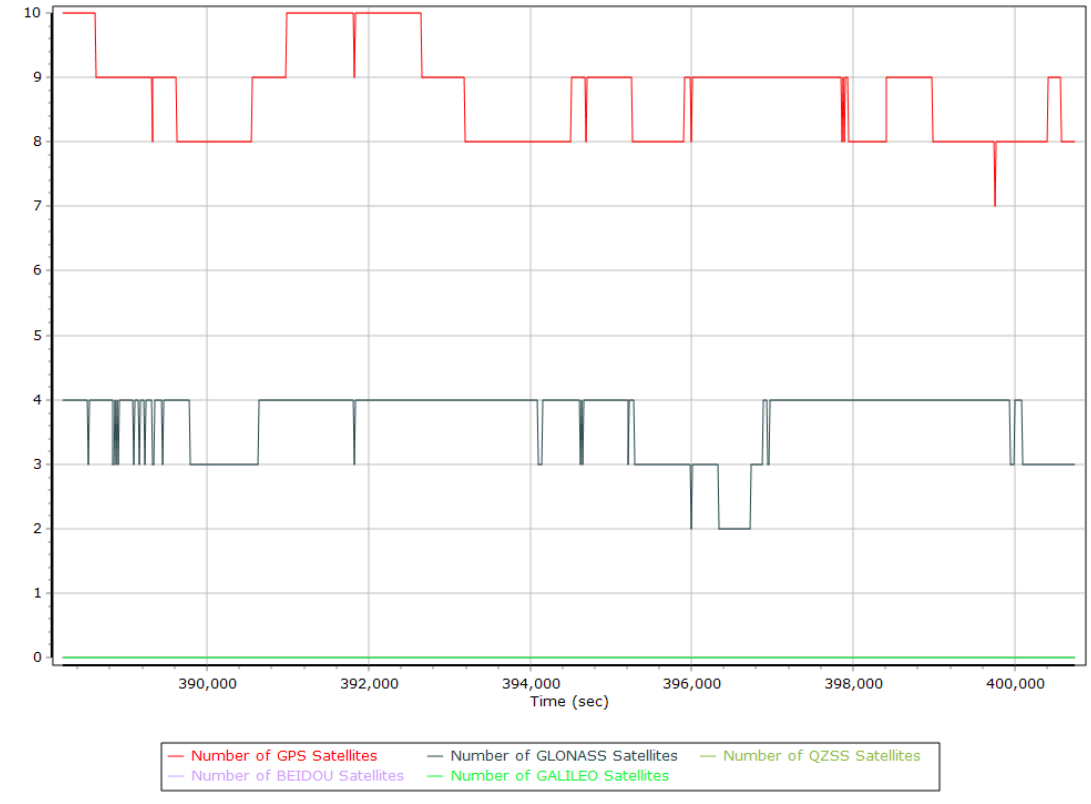


Smoothed Solution Status

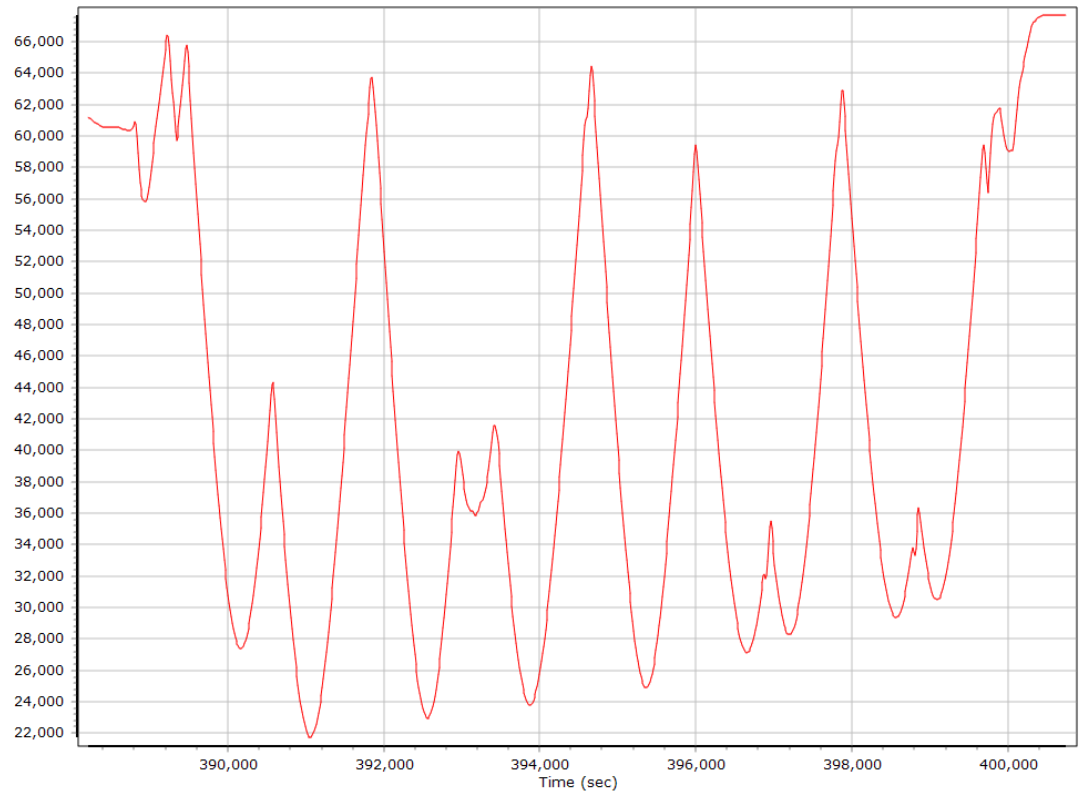
Processing Mode



Number of Satellites

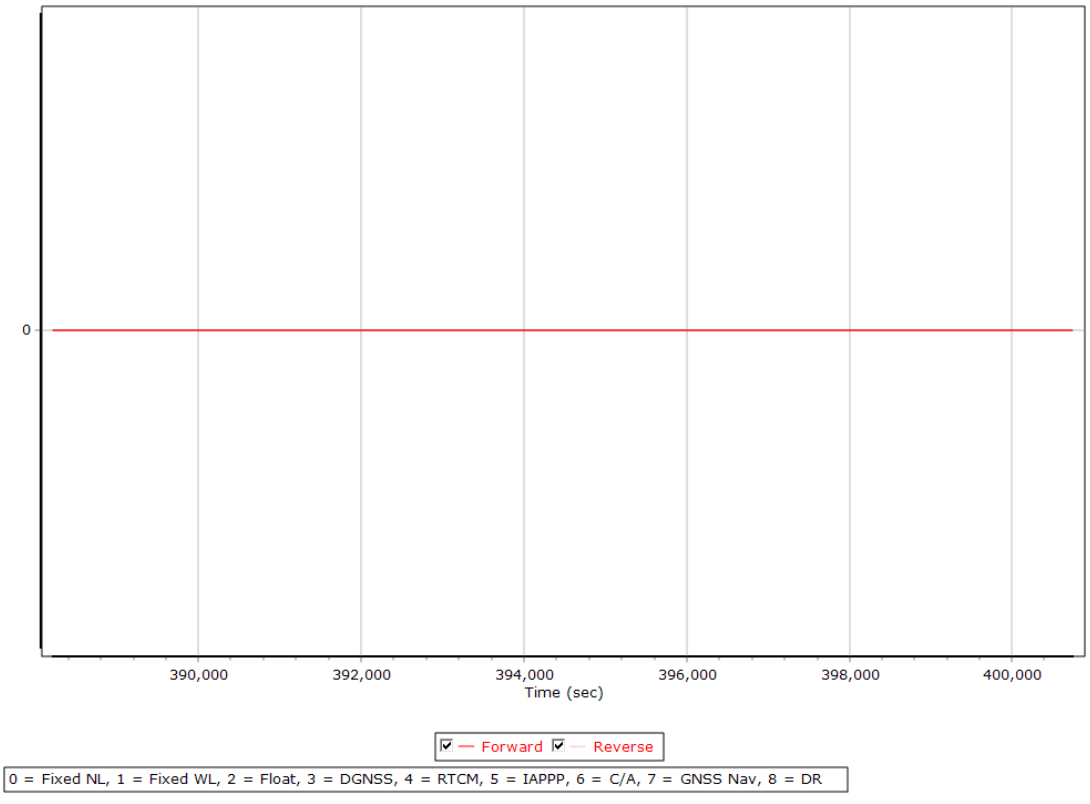


Baseline Length

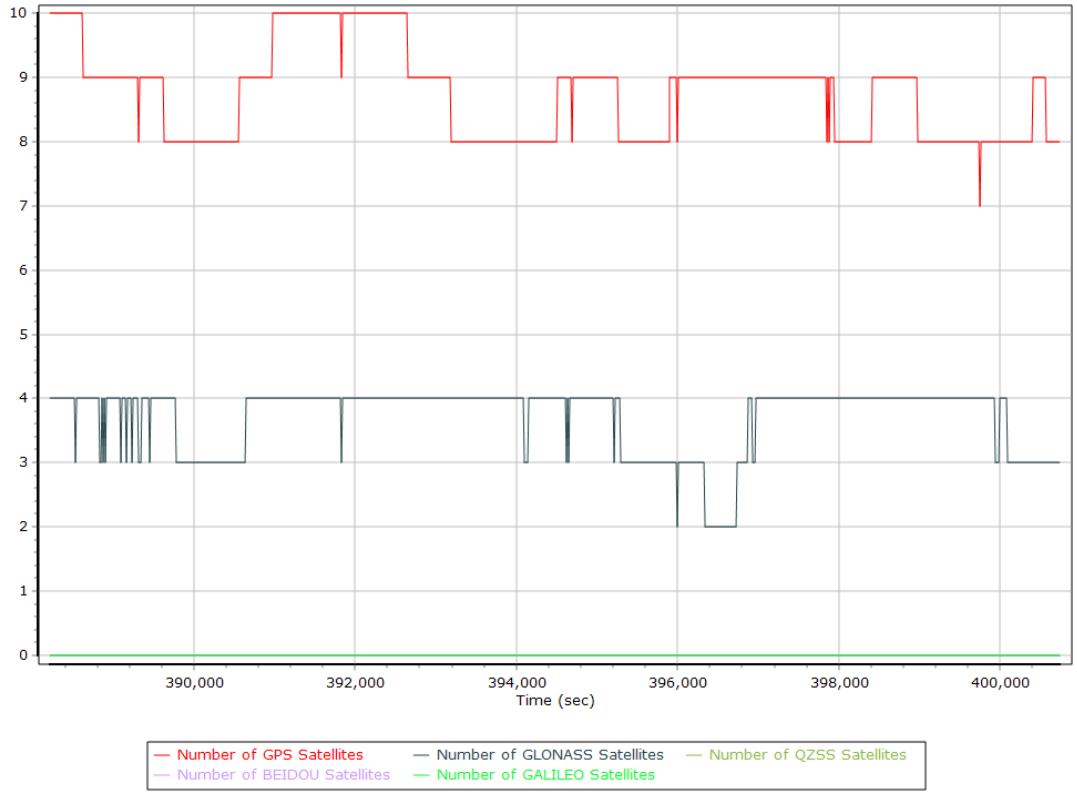


Forward Processed Solution Status

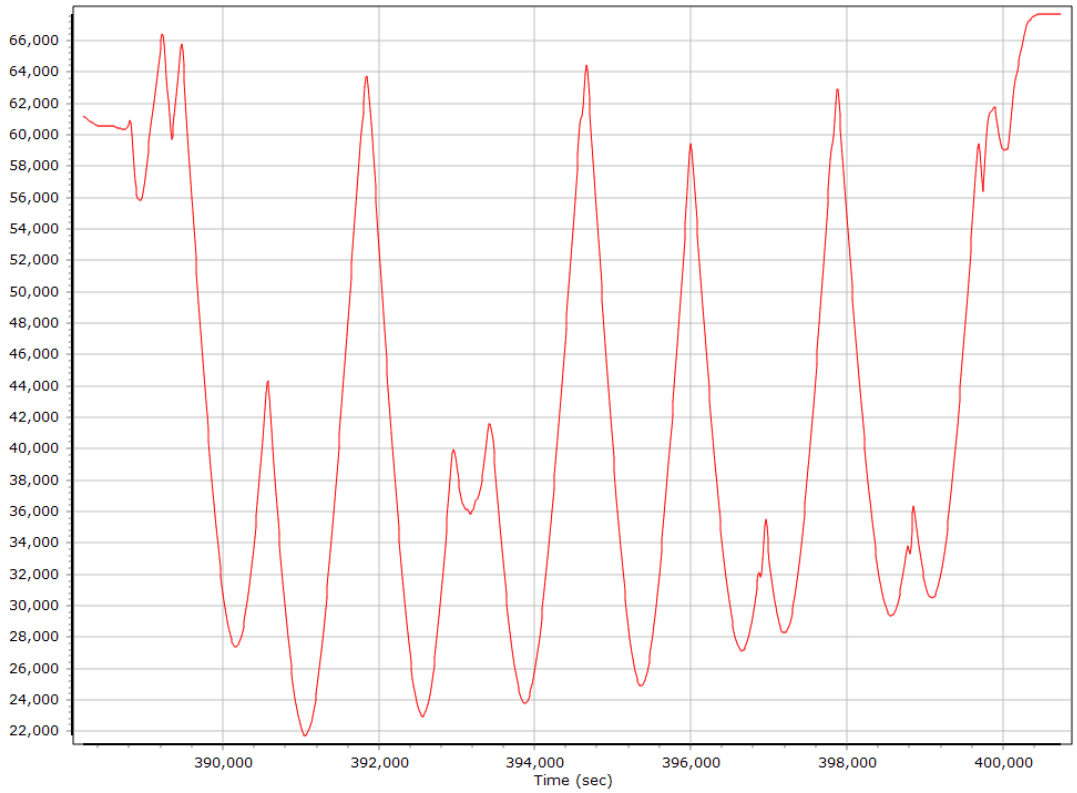
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

Export Summary

Export file	SBET_196648_01_Misson04020A.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	388152.003 (4/2/2020 11:49:12 AM)		
Export end time	400749.001 (4/2/2020 3:19:09 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	196648-01-20200423B-Part1
Processing date	2020-04-27 02:11:16
Mission date	2020-04-23 22:51:00
Mission duration	00:44:15.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	Sensor Systems L1

Project File List

Rover Data Files

File name	File type
ALS.068	POS Data
ALS.069	POS Data
ALS.070	POS Data
ALS.071	POS Data

Input Files

File Name	File Type
Ephm1140.20g	GLONASS Broadcast Ephemeris
Ephm1140.20n	GPS Broadcast Ephemeris
iaal1140.20o	GNSS SingleBase
iaam1140.20o	GNSS SingleBase
iacl1140.20o	GNSS SingleBase
iade1140.20o	GNSS SingleBase
iael1140.20o	GNSS SingleBase
iaht1140.20o	GNSS SingleBase
iamn1140.20o	GNSS SingleBase
iana1140.20o	GNSS SingleBase
iata1140.20o	GNSS SingleBase
mnca1140.20o	GNSS SingleBase
mnps1140.20o	GNSS SingleBase
mnsv1140.20o	GNSS SingleBase
nlib1140.20o	GNSS SingleBase
wlnc1140.20o	GNSS SingleBase
igr21023.sp3	GPS Precise Ephemeris
igr21024.sp3	GPS Precise Ephemeris
igr21025.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_196648-01-20200423B-Part1.out	SBET Trajectory File

Rover Data Summary

First raw data file	ALS.068		
Last raw data file	ALS.071		
Start GPS week	2102		
Start time	427853.859 (04/23/2020 22:50:53)		
End time	430498.554 (04/23/2020 23:34:58)		
Start of fine alignment	428090.735 (04/23/2020 22:54:50)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

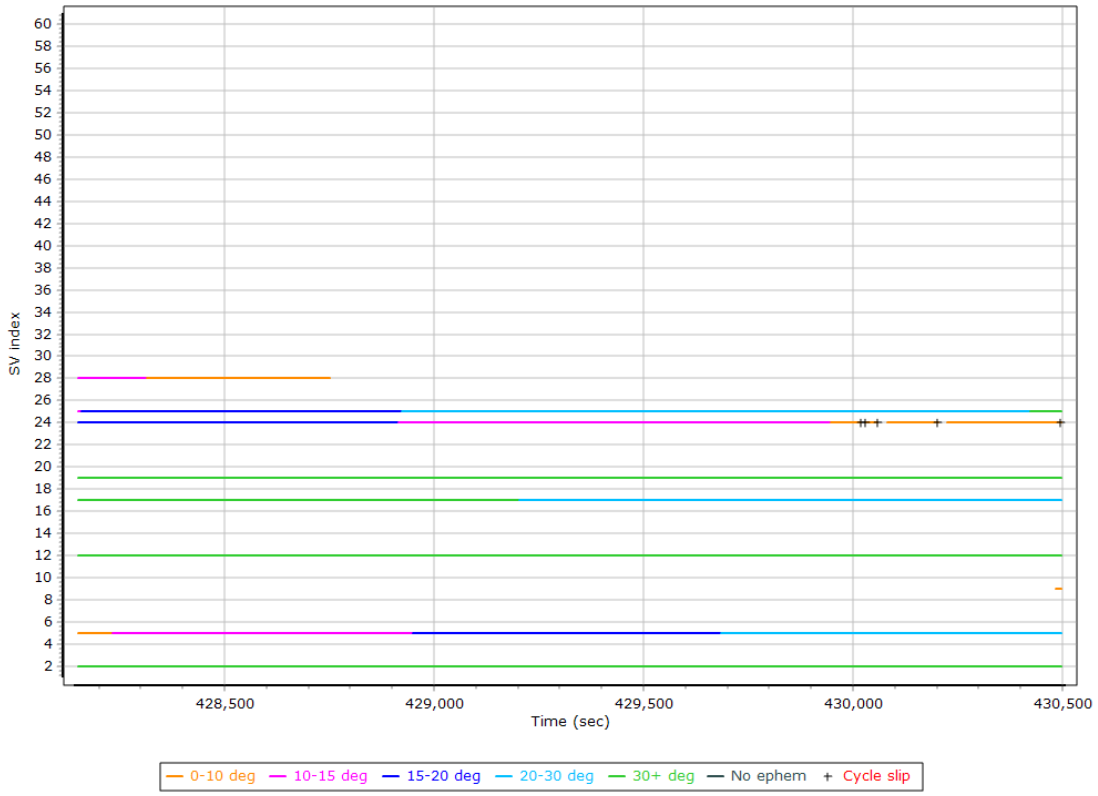
Rover Data QC

Raw IMU Import QC Summary

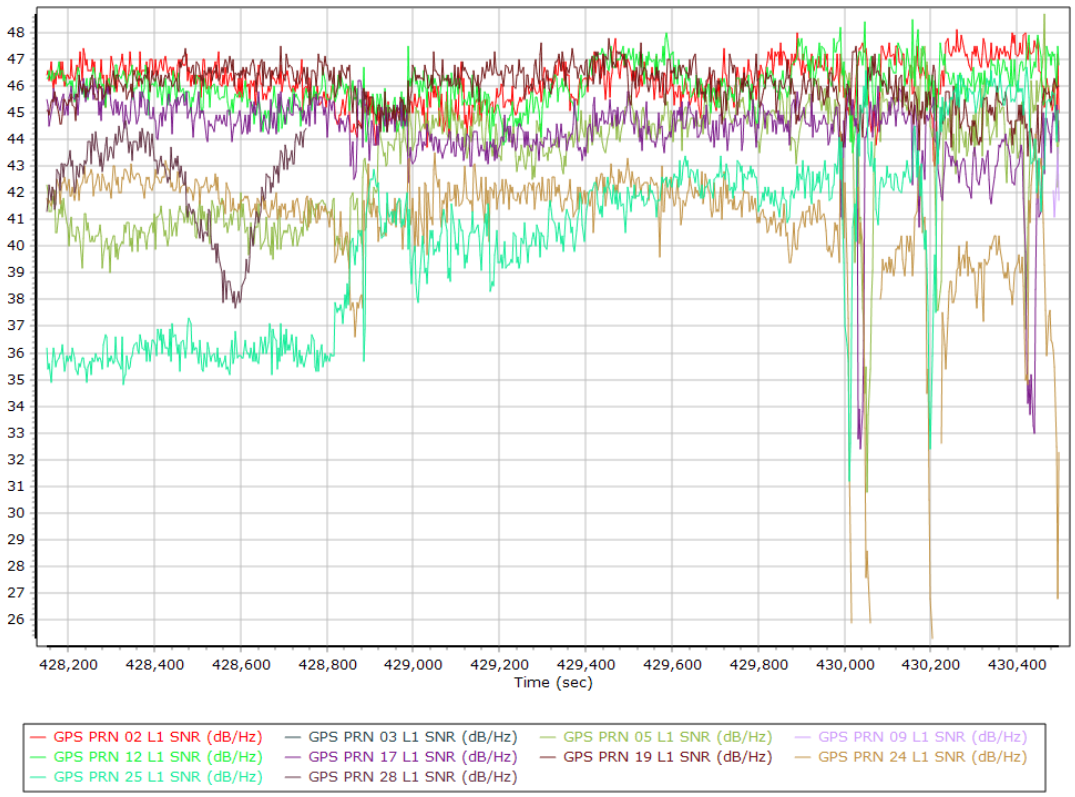
IMU data input file	imu_196648-01-20200423B-Part1.dat
IMU data check log file	imudt_196648-01-20200423B-Part1.log
IMU Records Processed	533495
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
427853.469 : WARNING : Gap of 427831.4822 seconds in CHECKDT input data	

Primary Observables & Satellite Data

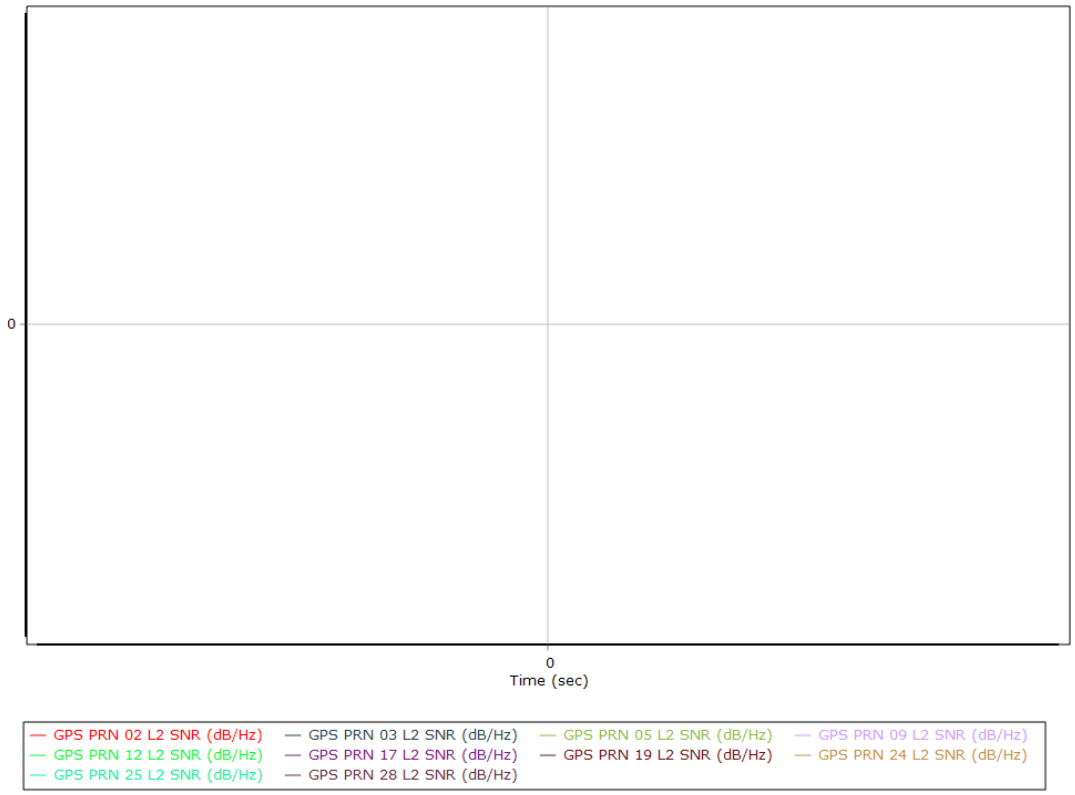
L1 Satellite Lock/Elevation



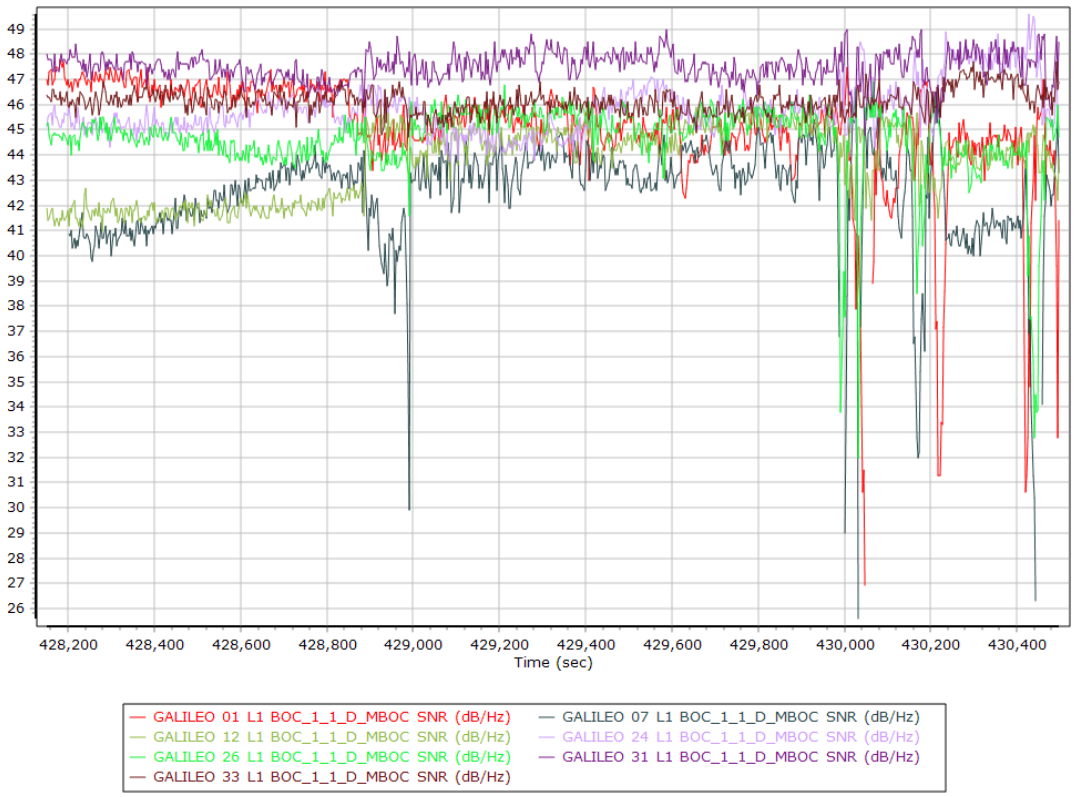
GPS L1 SNR



GPS L2 SNR



GALILEO SNR


49
48
47
46
45
44
43
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37
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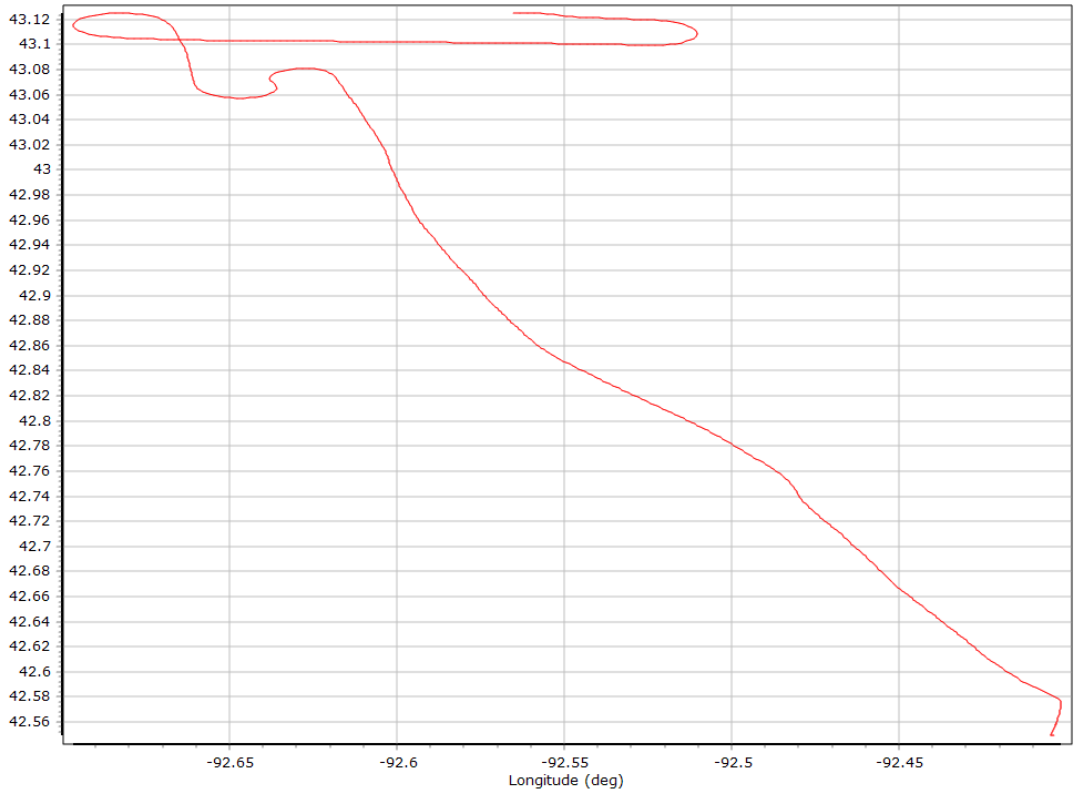
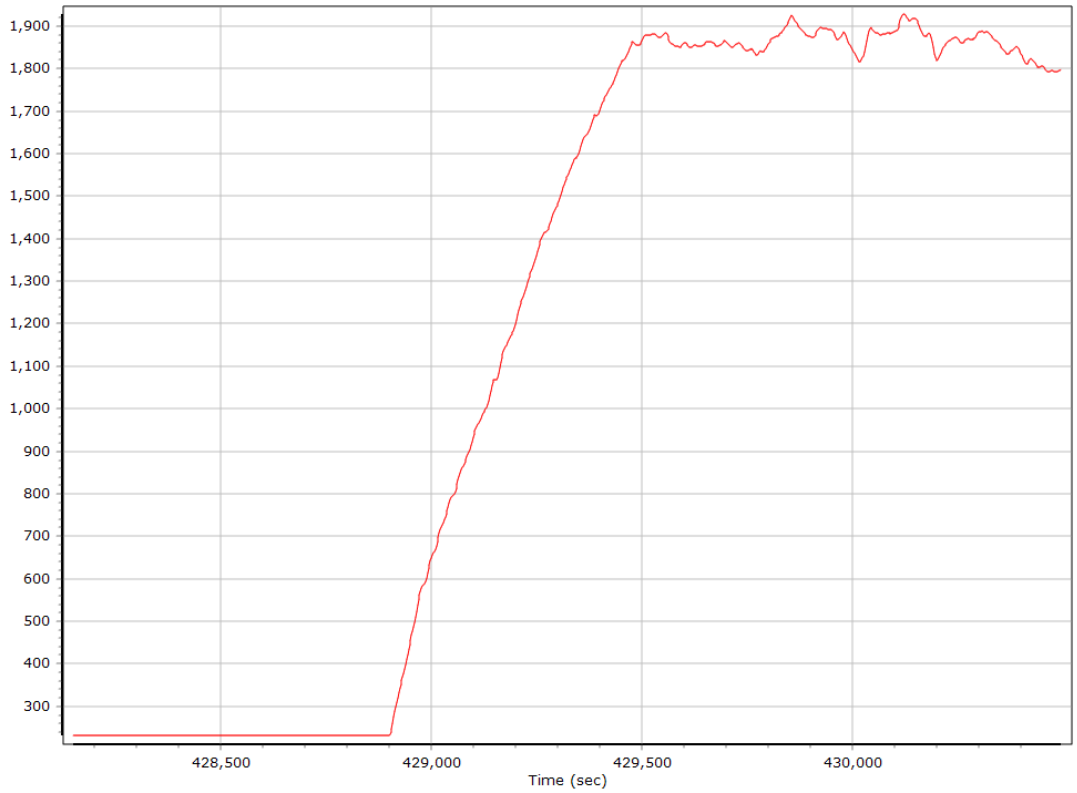
35
34
33
32
31
30
29
28
27
26
428,200
428,400
428,600
428,800
429,000
429,200
429,400
429,600
429,800
430,000
430,200
430,400
Time (sec)
GALILEO 01 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 26 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 33 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 07 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_D_MBOC SNR (dB/Hz)

Smoothed Trajectory Information

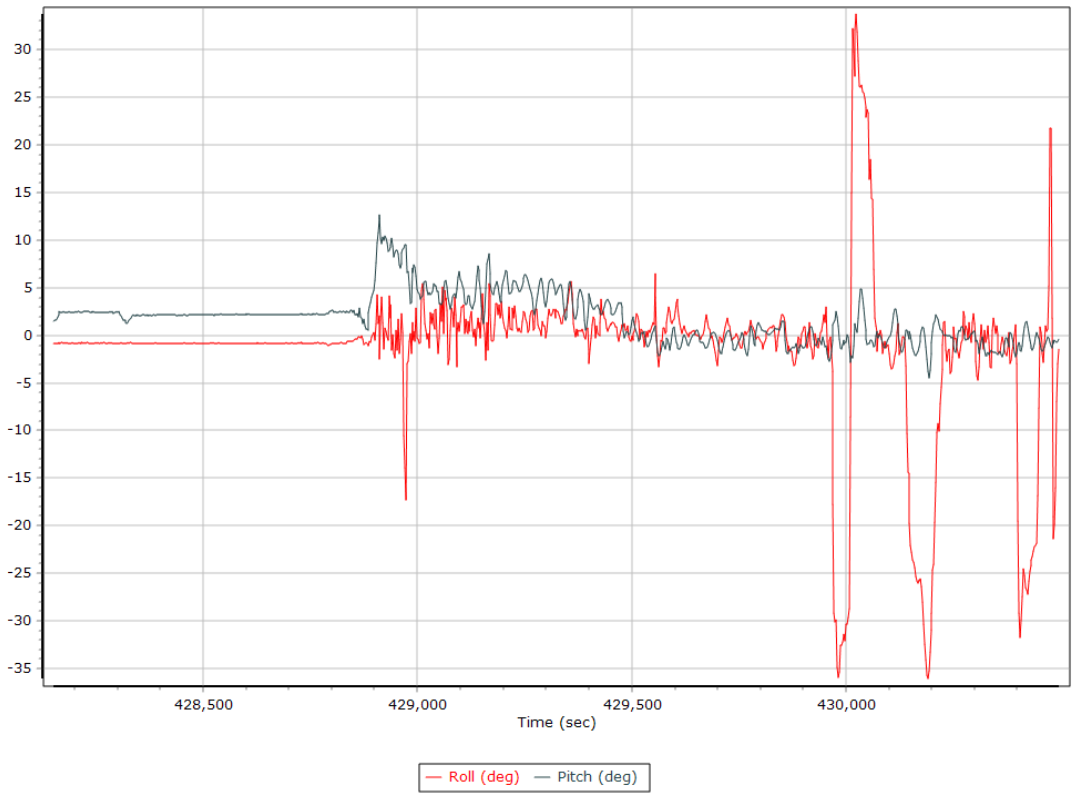
Top View



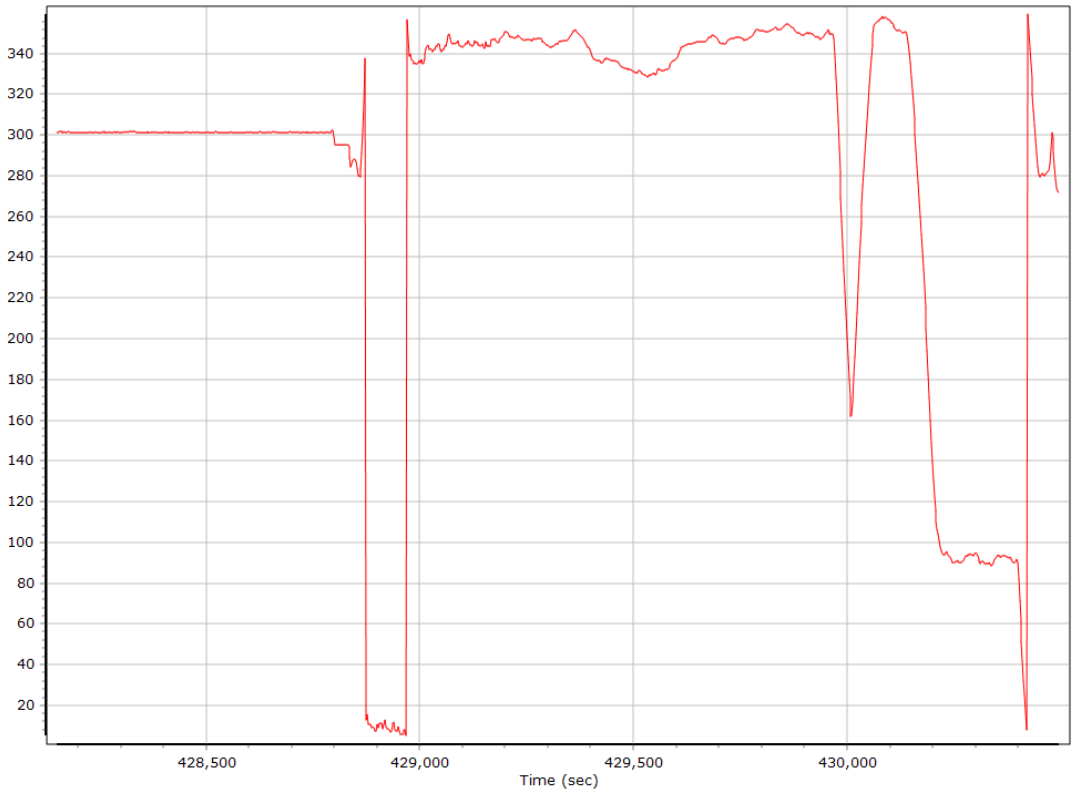
Altitude



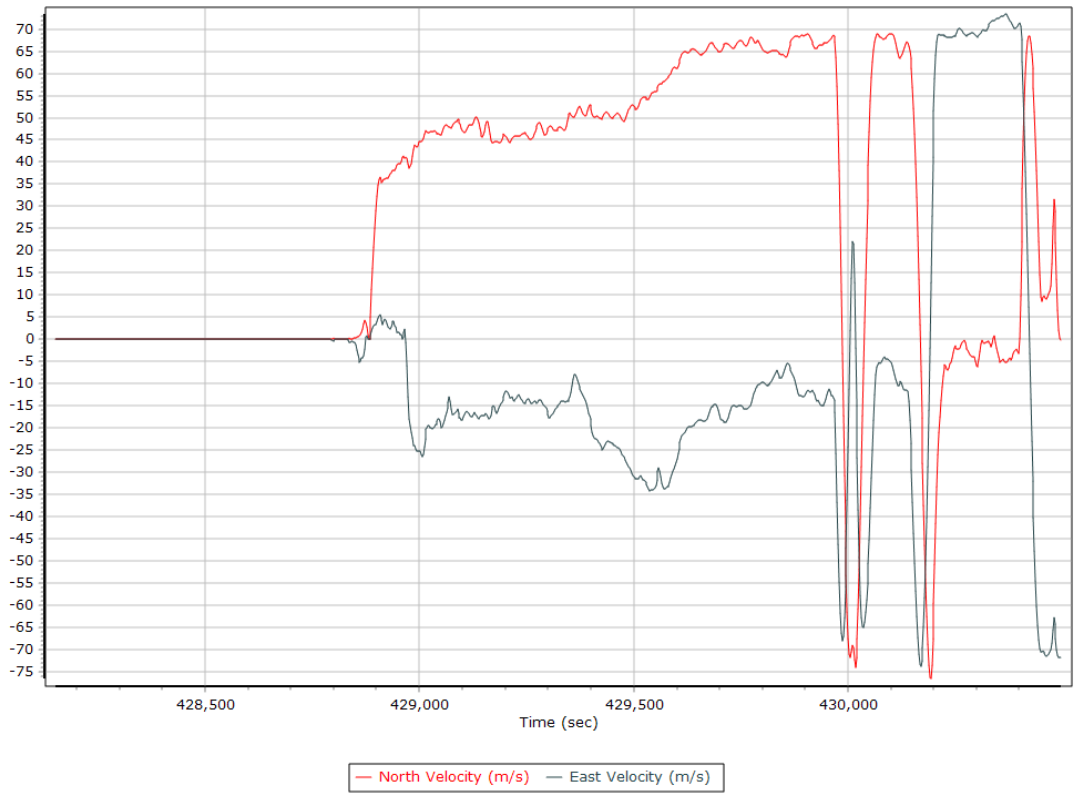
Roll/Pitch



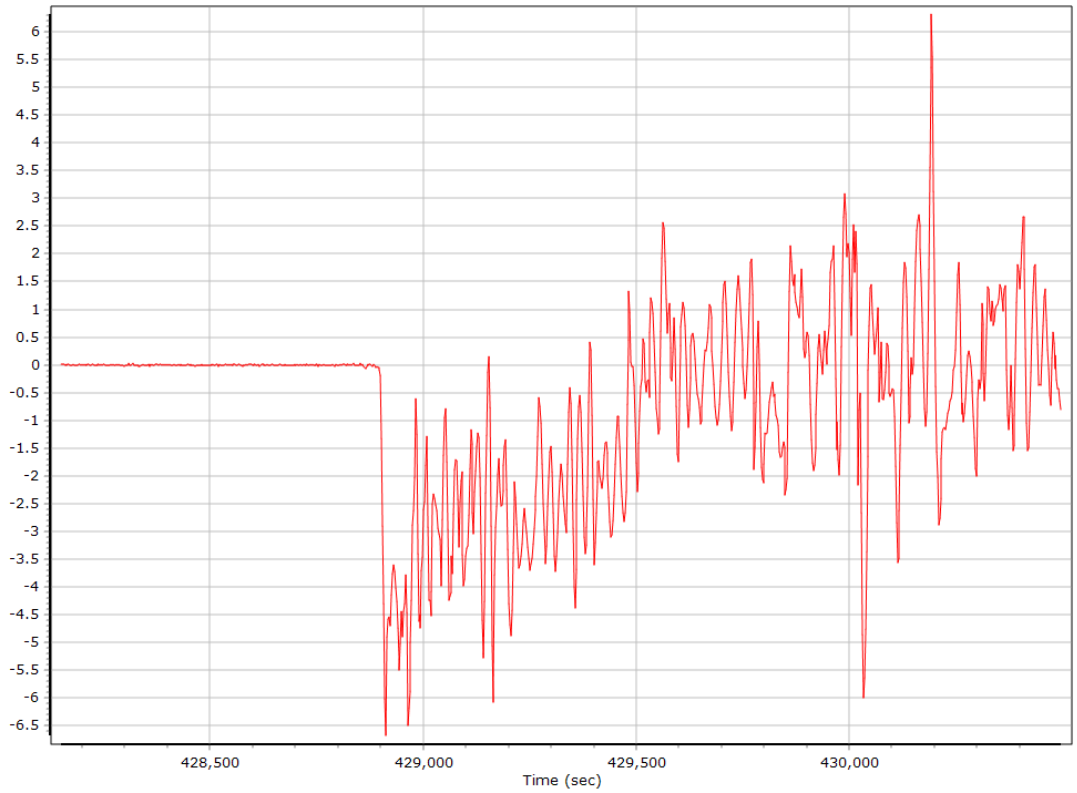
Heading



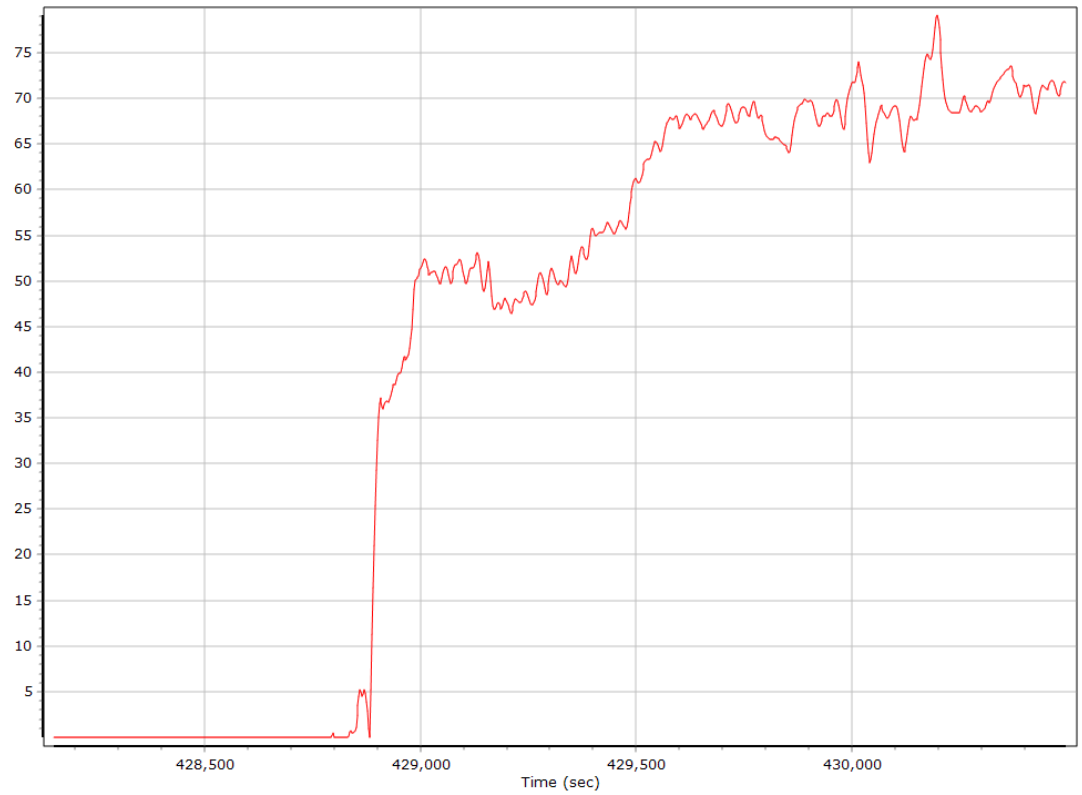
North/East Velocity



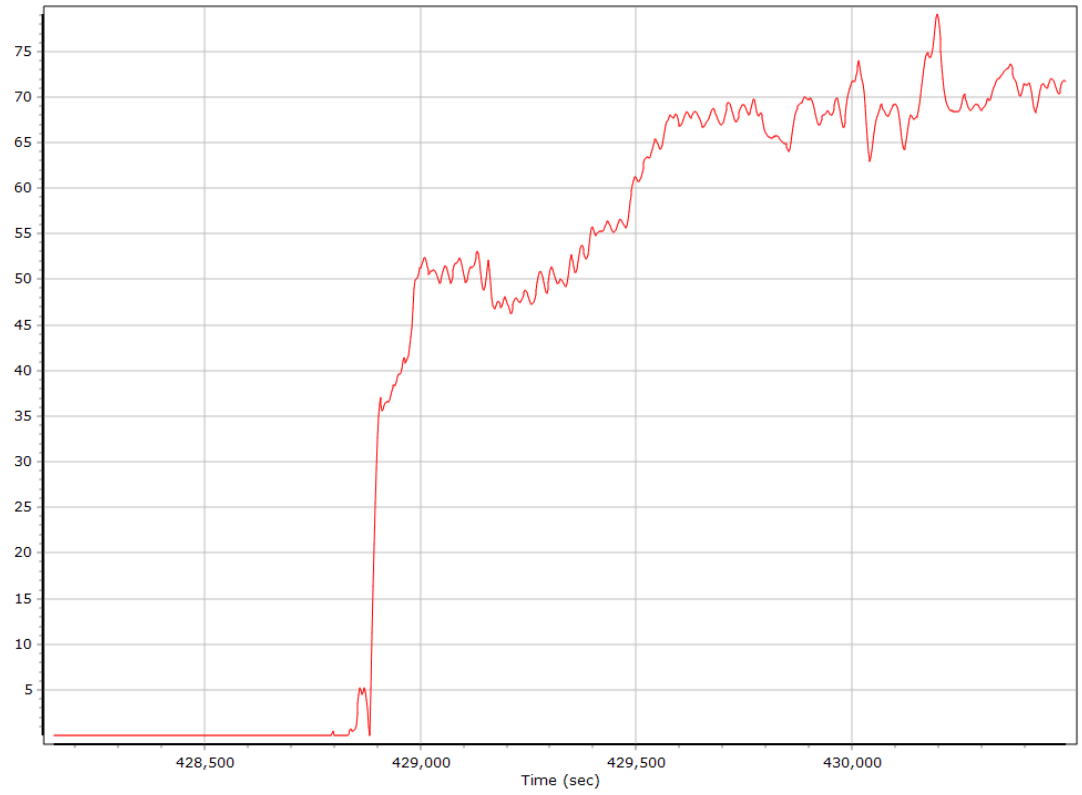
Down Velocity



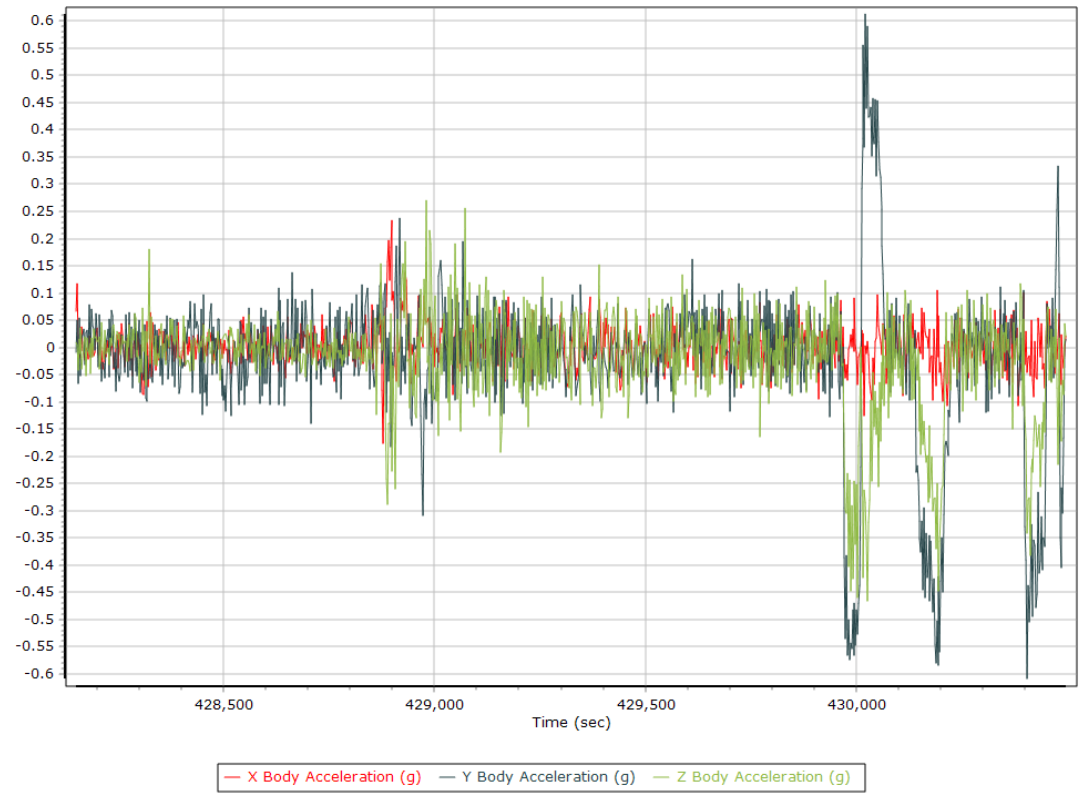
Total Speed



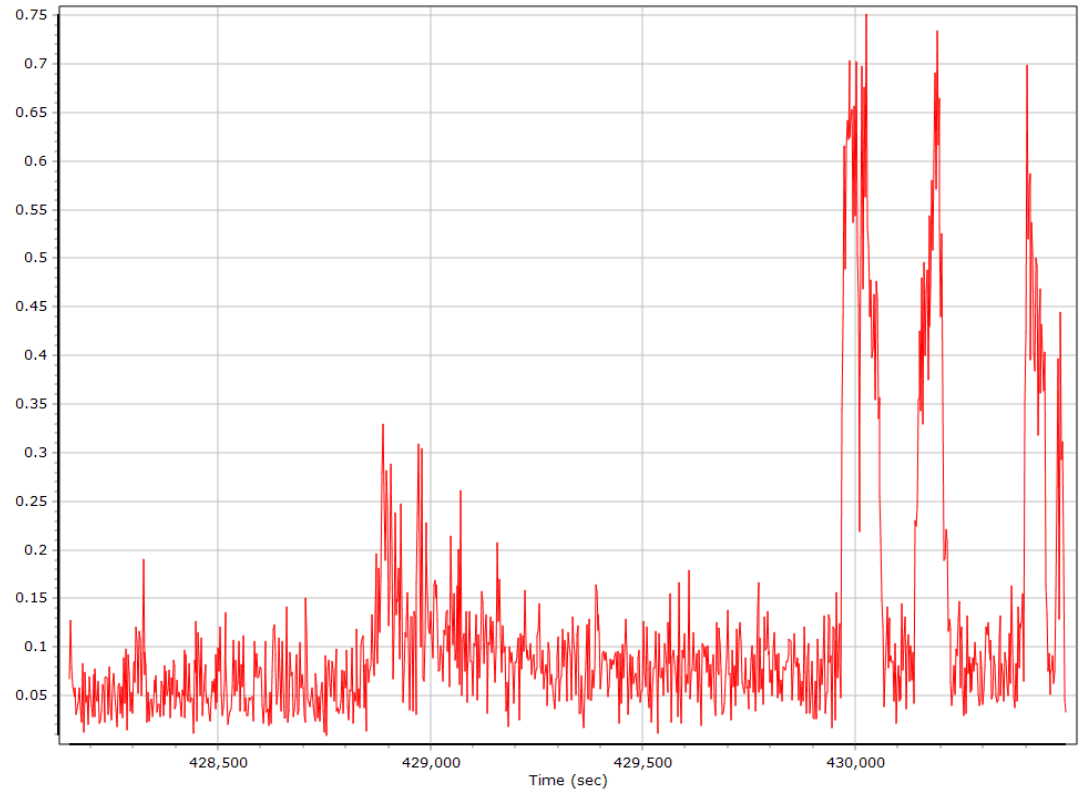
Ground Speed



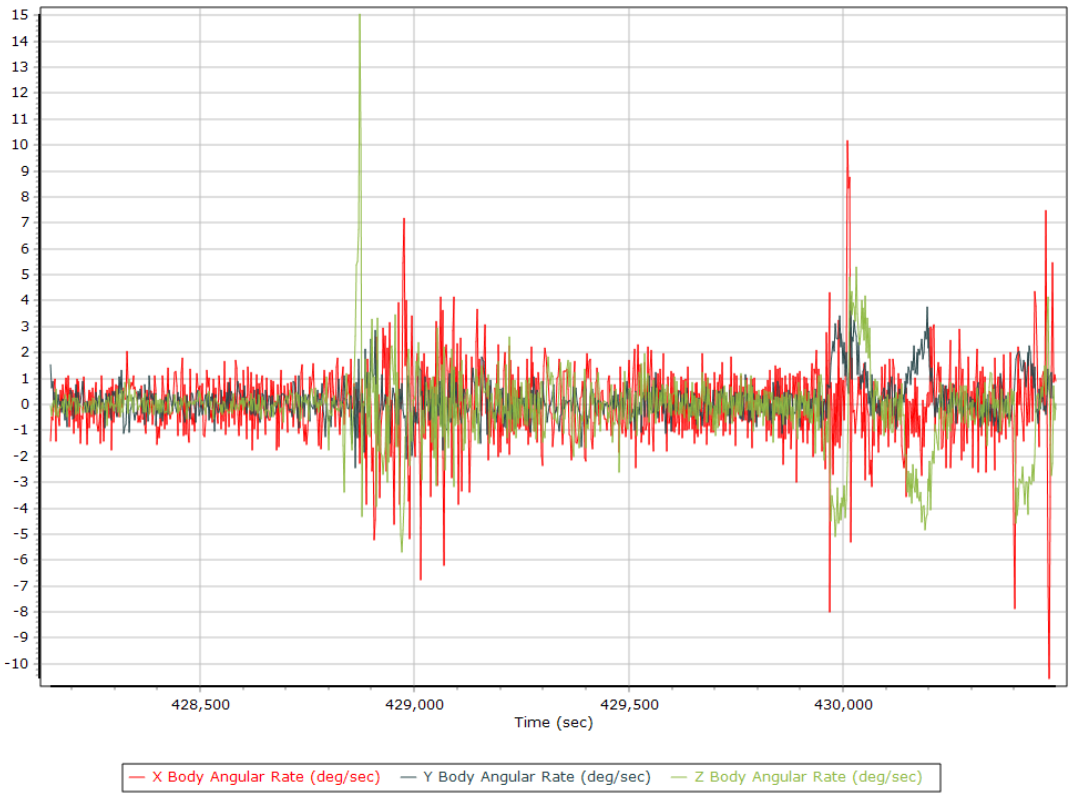
Body Acceleration



Total Body Acceleration

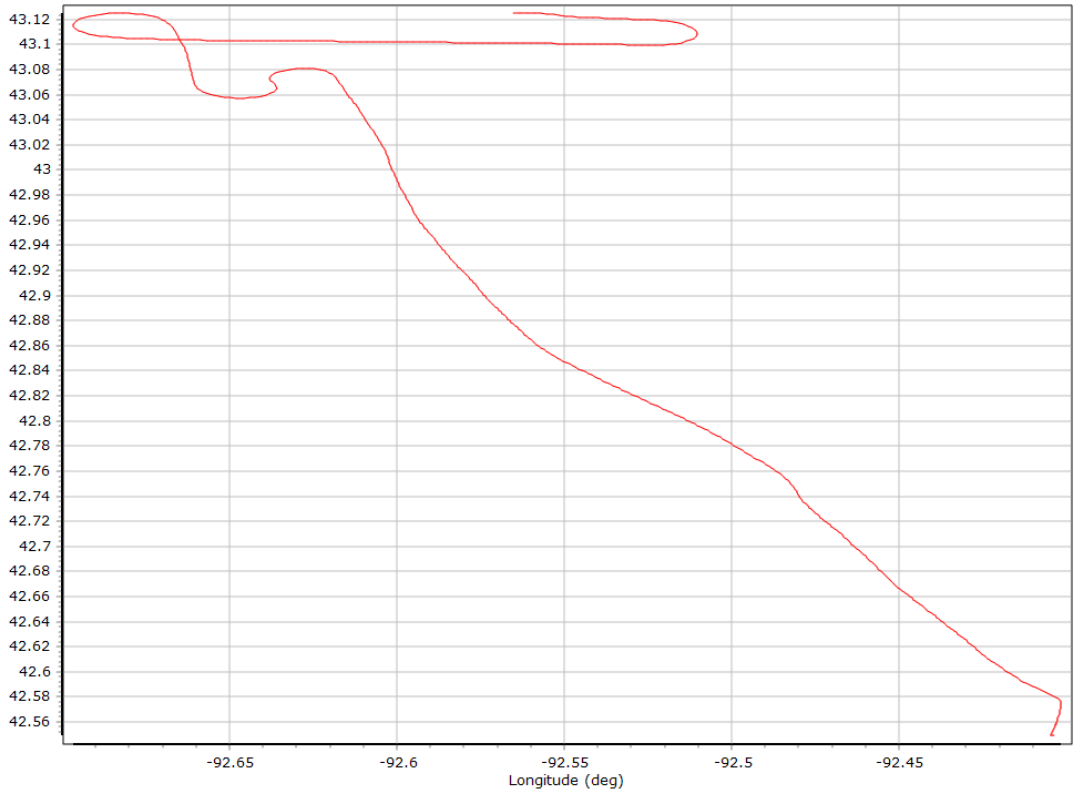


Body Angular Rate

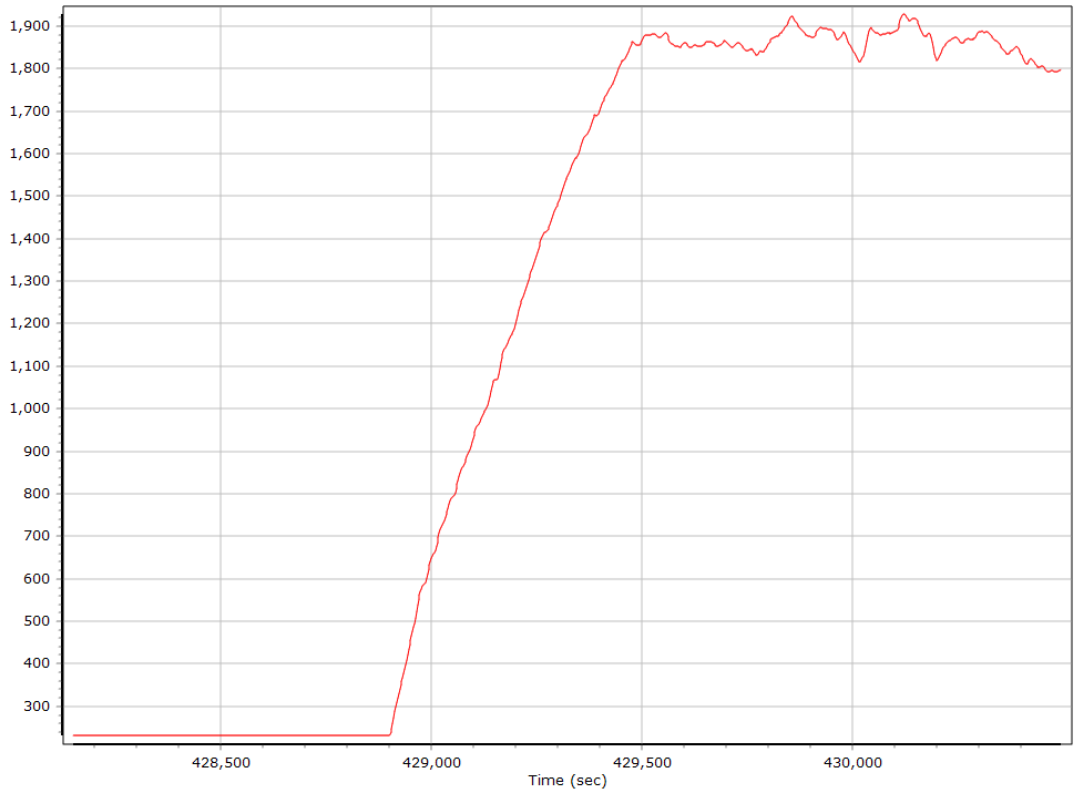


Forward Processed Trajectory Information

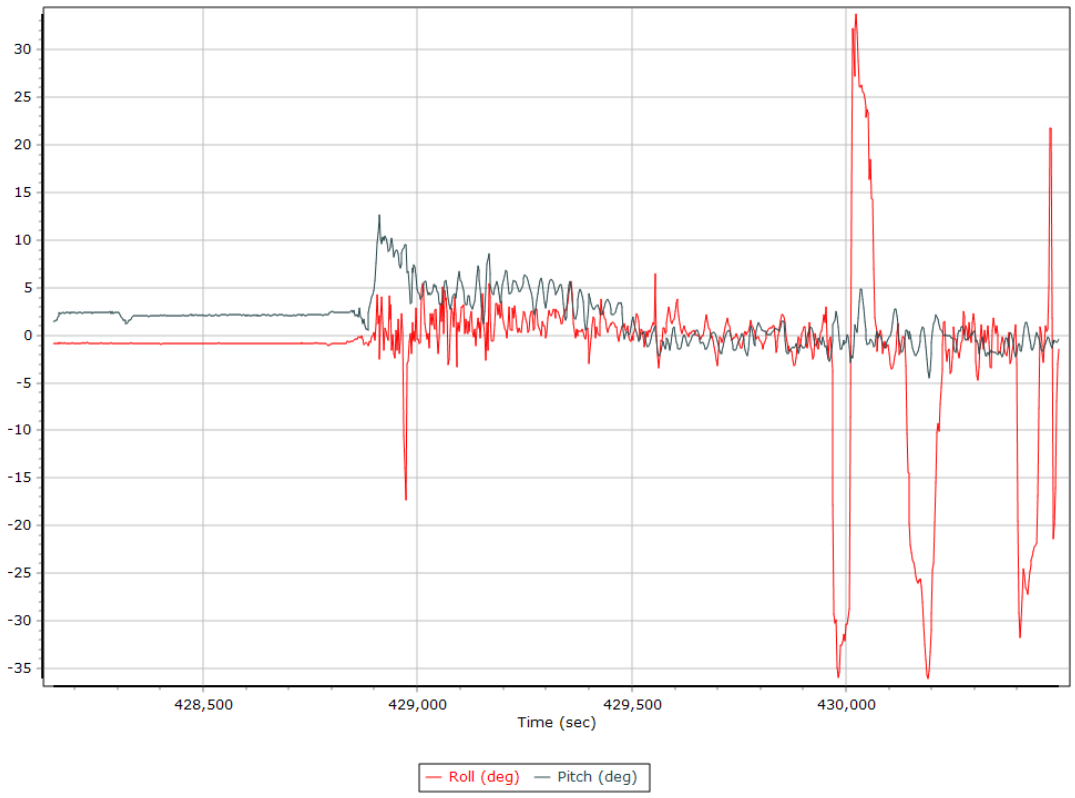
Top View



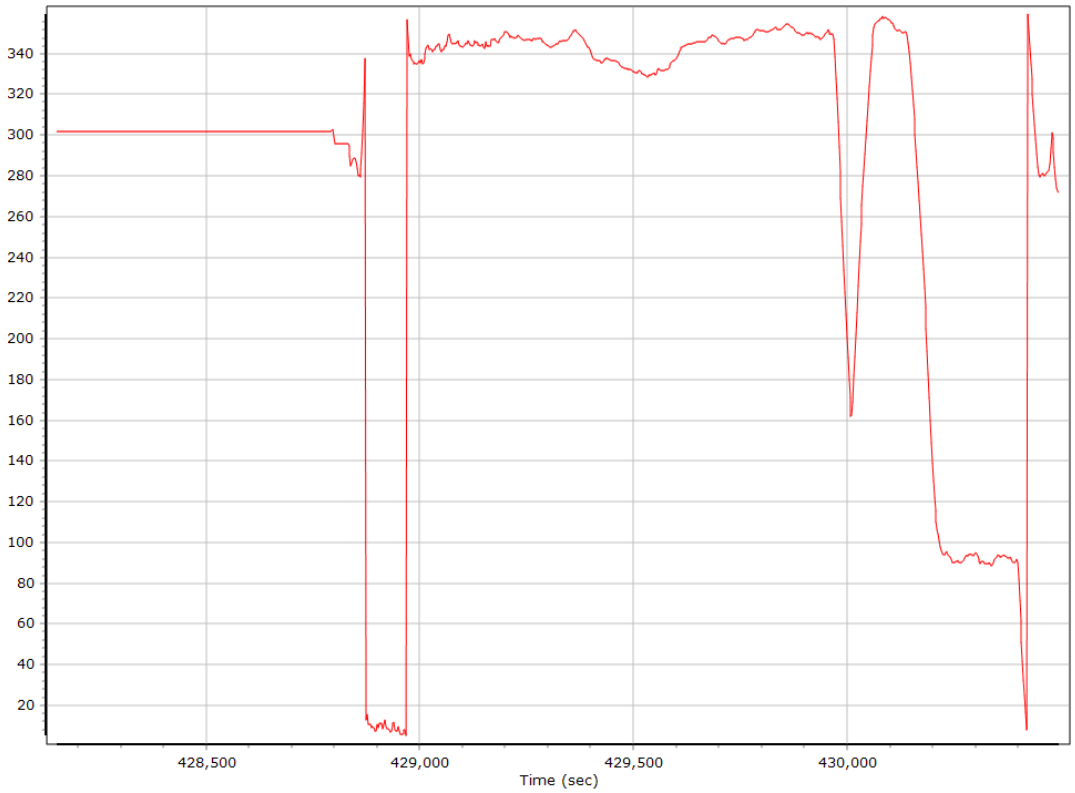
Altitude



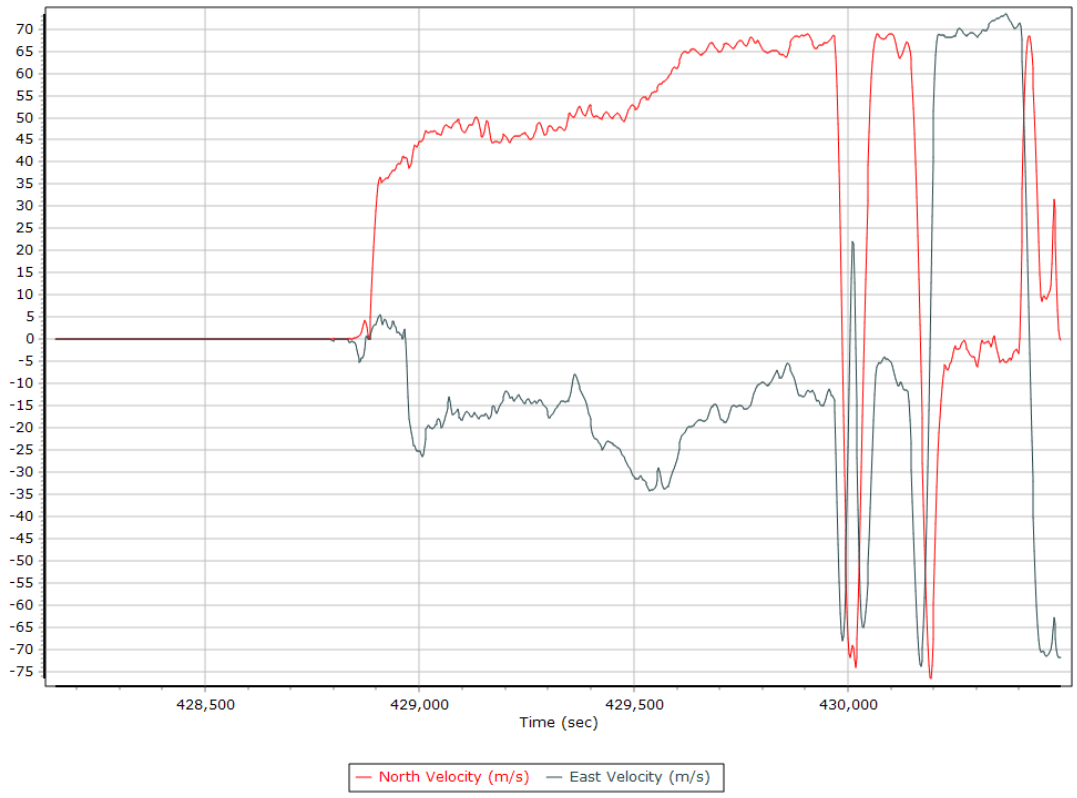
Roll/Pitch



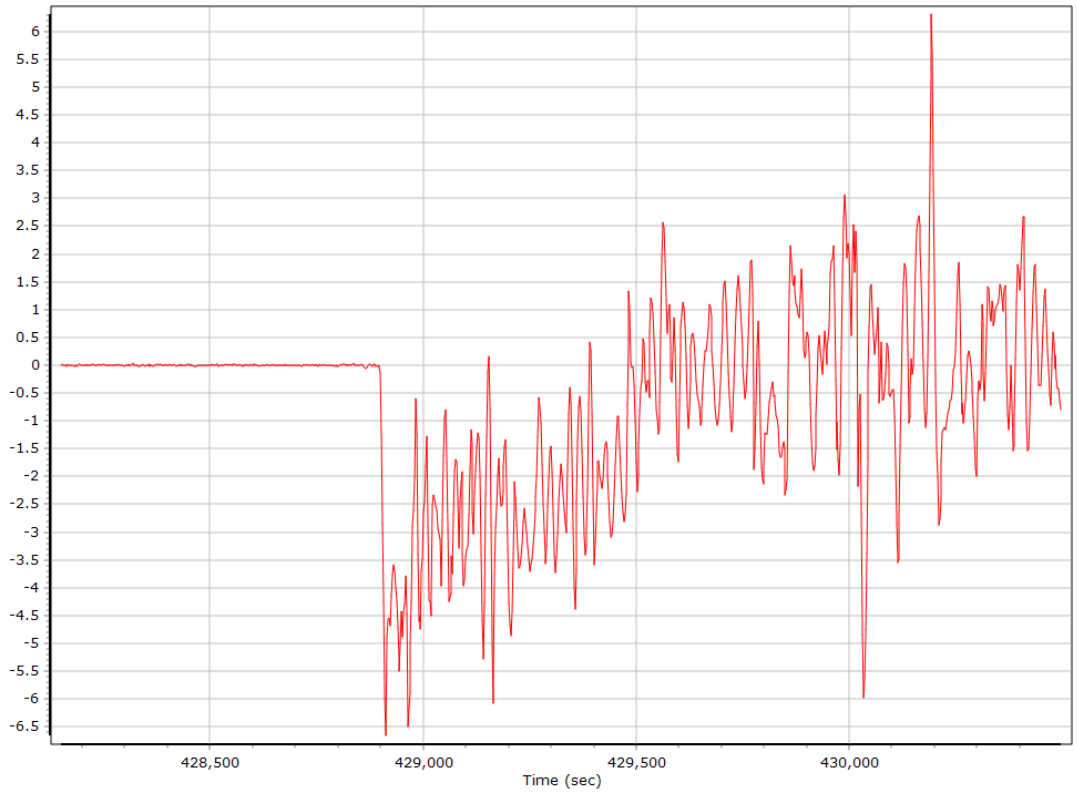
Heading



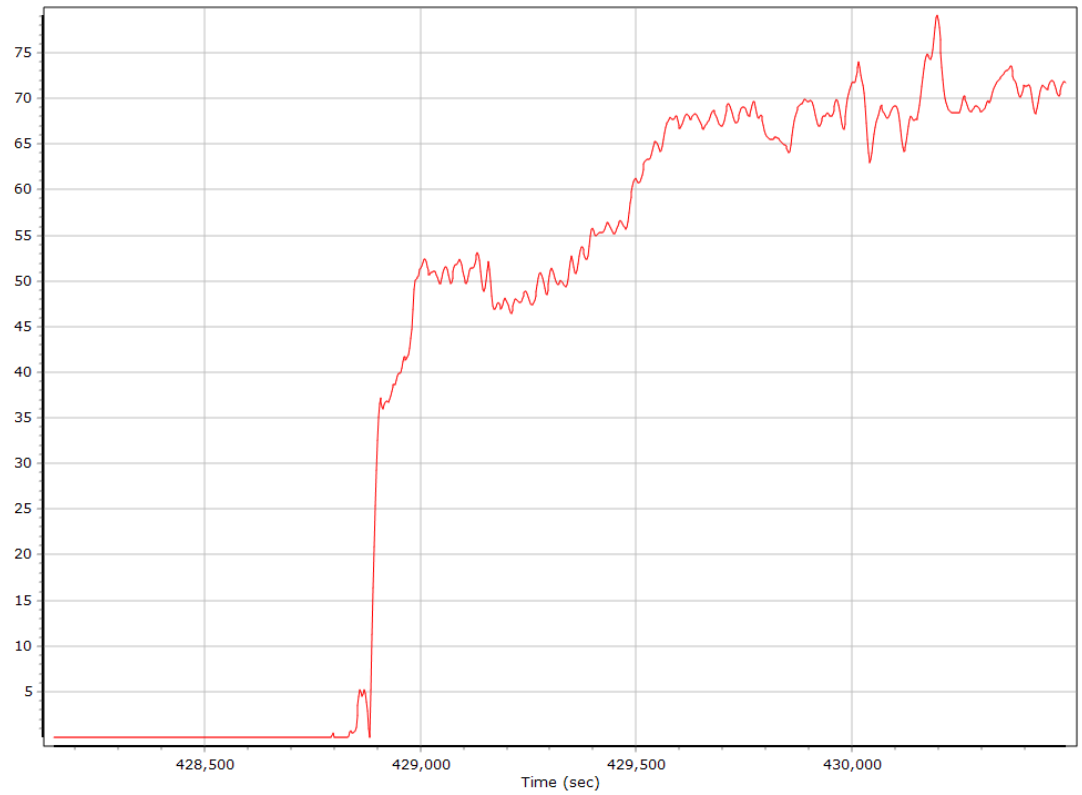
North/East Velocity



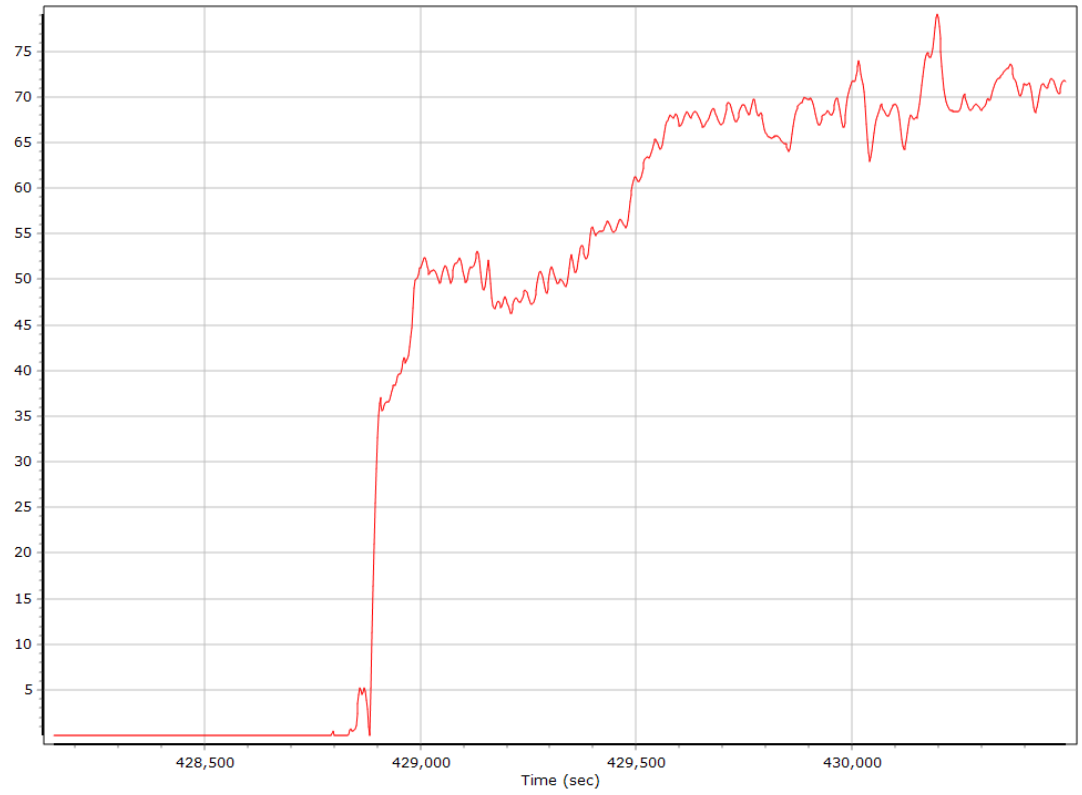
Down Velocity



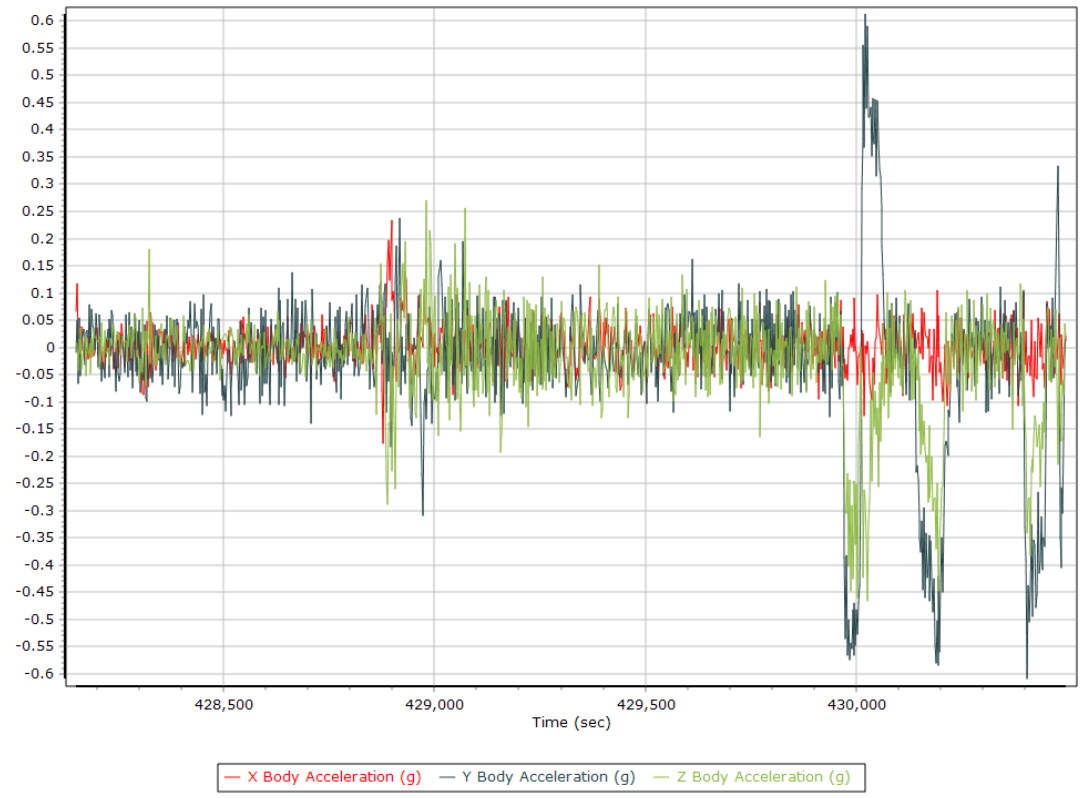
Total Speed



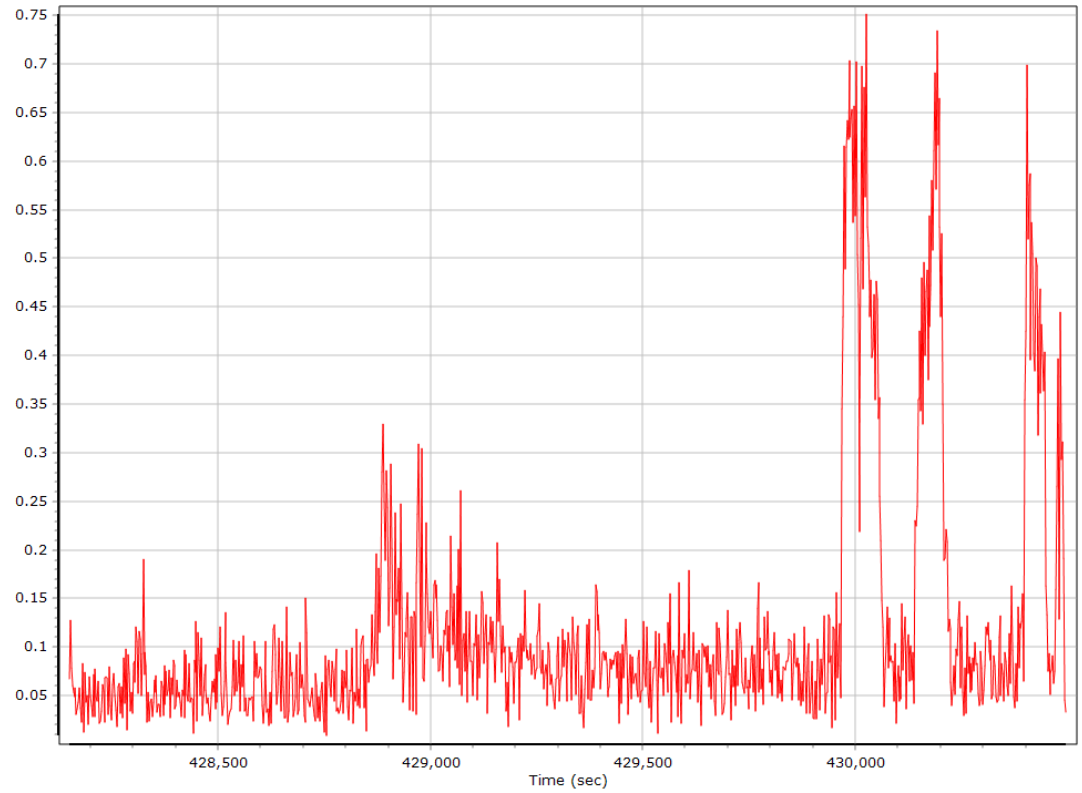
Ground Speed



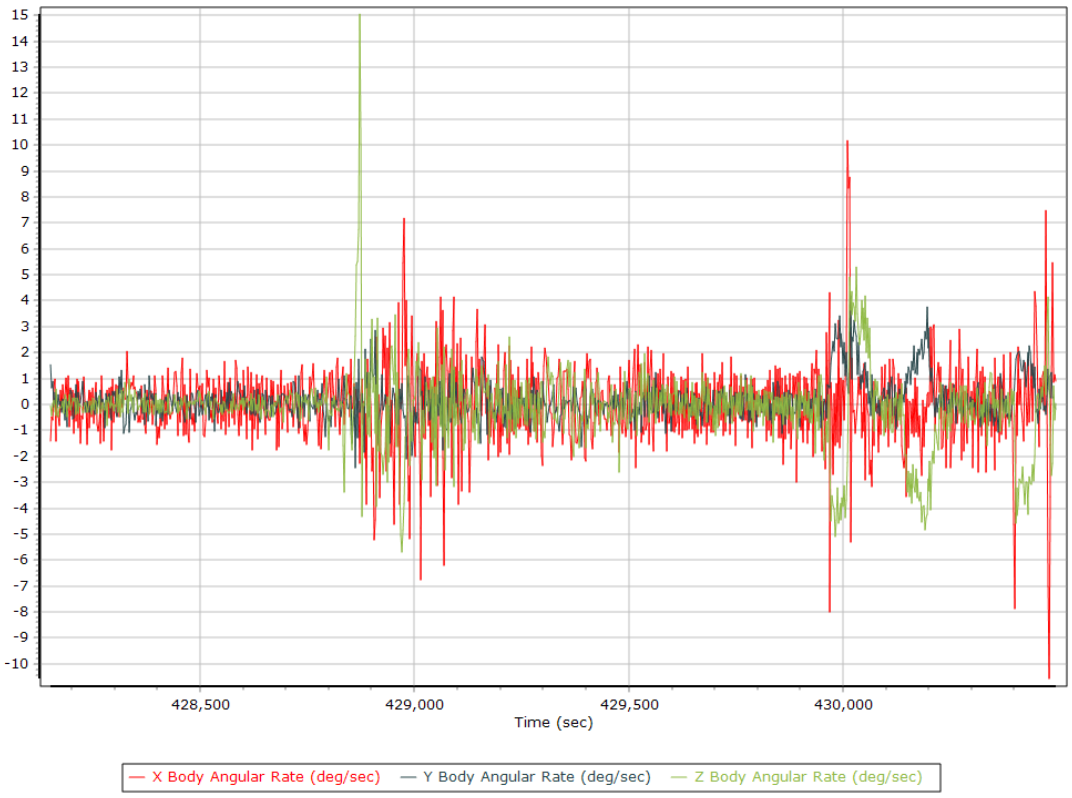
Body Acceleration



Total Body Acceleration



Body Angular Rate



SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GPS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/23/2020	IAAL	24.62	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IADE	78.57	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IATA	87.42	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IAHT	93.03	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IAEL	93.09	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	MNPS	97.84	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IACL	103.58	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IAMN	111.37	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IAAM	120.92	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	MNCA	126.70	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IANA	127.74	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	MNSV	127.78	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	NLIB	132.43	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	MNEY	135.61	GNSS	30	CORS (daily)	Smart Base	Failed Validation
04/23/2020	WLNC	145.57	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IAAL
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	2655 s (2102 427860 - 2102 430515)
Number of reference stations	5
Primary station GPS measurement usage (%)	99.0
Average number of satellites per epoch	6.7
Max number of GPS stations used	5
Min number of GPS stations used	3
Total full data gap (sec)	0
Total individual satellite data gap (sec)	180
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Adjusted	
Solution Epochs	2866	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59751"	228.904
Adjusted		N42°01'49.10917"	W91°32'55.59737"	228.852
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAMN		
Filename	iamn1140.20o		
Start date	04/23/2020 00:00:00		
End date	04/23/2020 23:59:30		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59751"		
Ellipsoidal height (m)	228.90414		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52988"	298.980
Adjusted		N42°52'40.47675"	W91°21'41.52977"	298.956
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.024	0.024

Base Station Information

Station ID	IAEL		
Filename	iael1140.20o		
Start date	04/23/2020 00:00:00		
End date	04/23/2020 23:59:30		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52988"		
Ellipsoidal height (m)	298.98027		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38124"	W93°22'06.68790"	344.482
Adjusted		N43°17'02.38136"	W93°22'06.68744"	344.464
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.018	0.021

Base Station Information

Station ID	IAHT		
Filename	iaht1140.20o		
Start date	04/23/2020 00:00:00		
End date	04/23/2020 23:59:30		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38124"		
Longitude	W93°22'06.68790"		
Ellipsoidal height (m)	344.48174		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52634"	316.516
Adjusted		N43°16'15.83218"	W91°49'53.52632"	316.491
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.025	0.025

Base Station Information

Station ID	IADE		
Filename	iade1140.20o		
Start date	04/23/2020 00:00:00		
End date	04/23/2020 23:59:30		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52634"		
Ellipsoidal height (m)	316.51616		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40417"	W92°47'14.24725"	291.092
Adjusted		N42°44'49.40417"	W92°47'14.24725"	291.092
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAAL		
Filename	iaal1140.20o		
Start date	04/23/2020 00:00:00		
End date	04/23/2020 23:59:30		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40417"		
Longitude	W92°47'14.24725"		
Ellipsoidal height (m)	291.09231		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.70	44.47	
Number of GPS SV	5	7	7
Number of GLONASS SV	0	0	0
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	5	7	7
PDOP	1.88	5.31	2.09
QC Solution Gaps	0.00	0.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	600.00	2015.00	0.00
Percentage	22.94	77.06	0.00

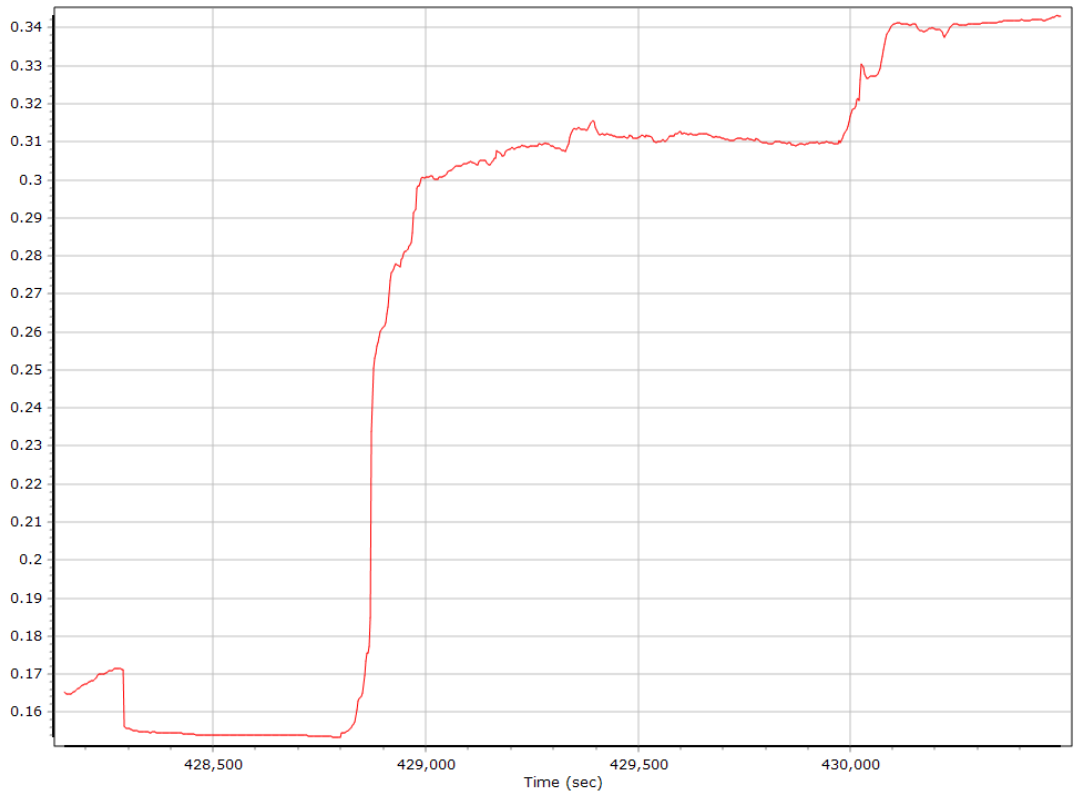
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	427842.000 (04/23/2020 22:50:42)		
Processing end time	430497.000 (04/23/2020 23:34:57)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	0.100	0.100	0.100
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

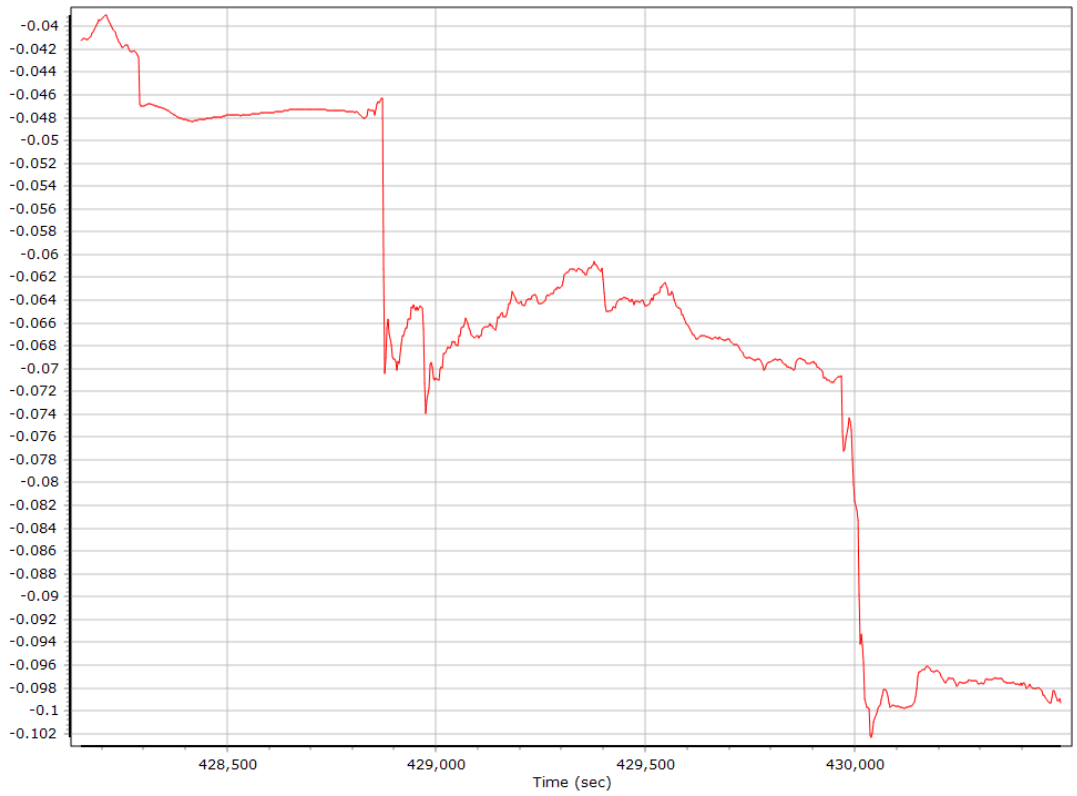
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

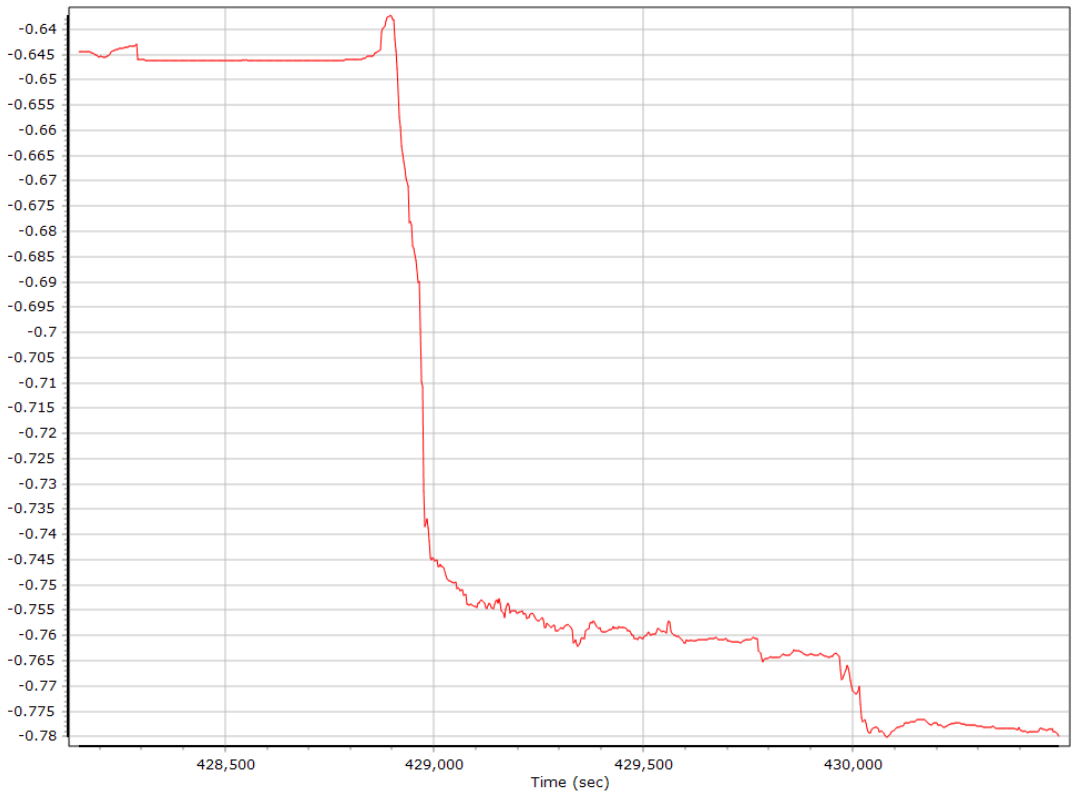
X Reference-Primary GNSS Lever Arm (m)



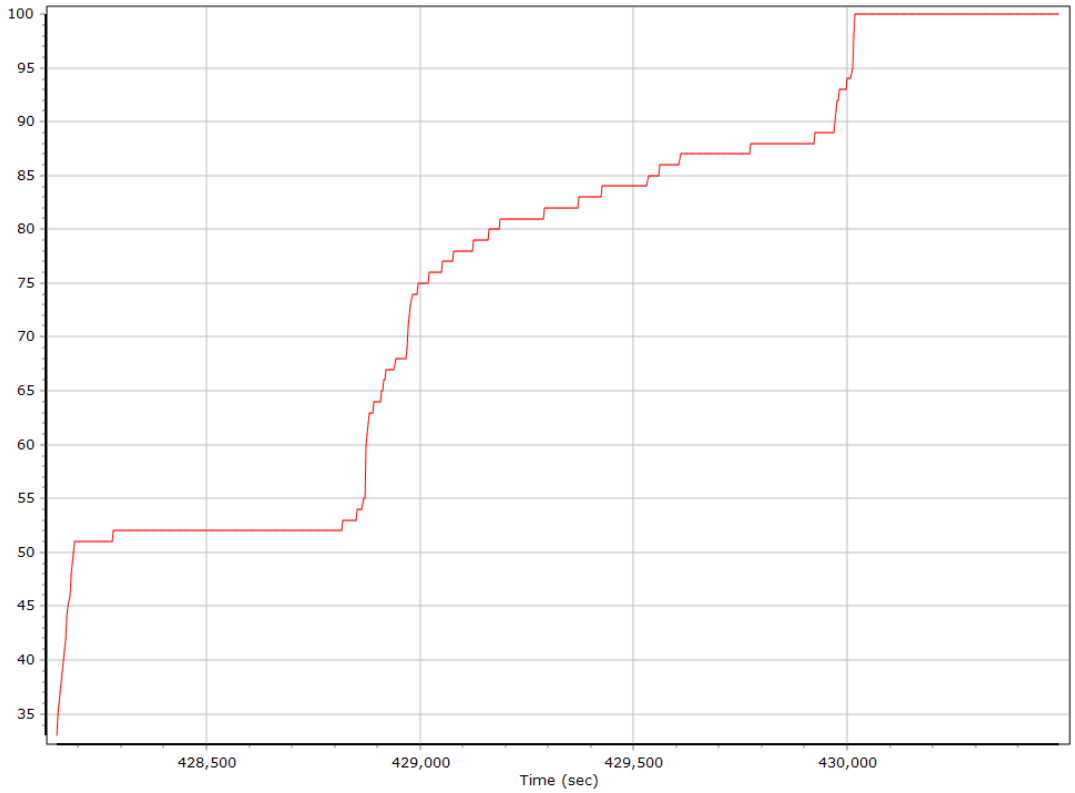
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



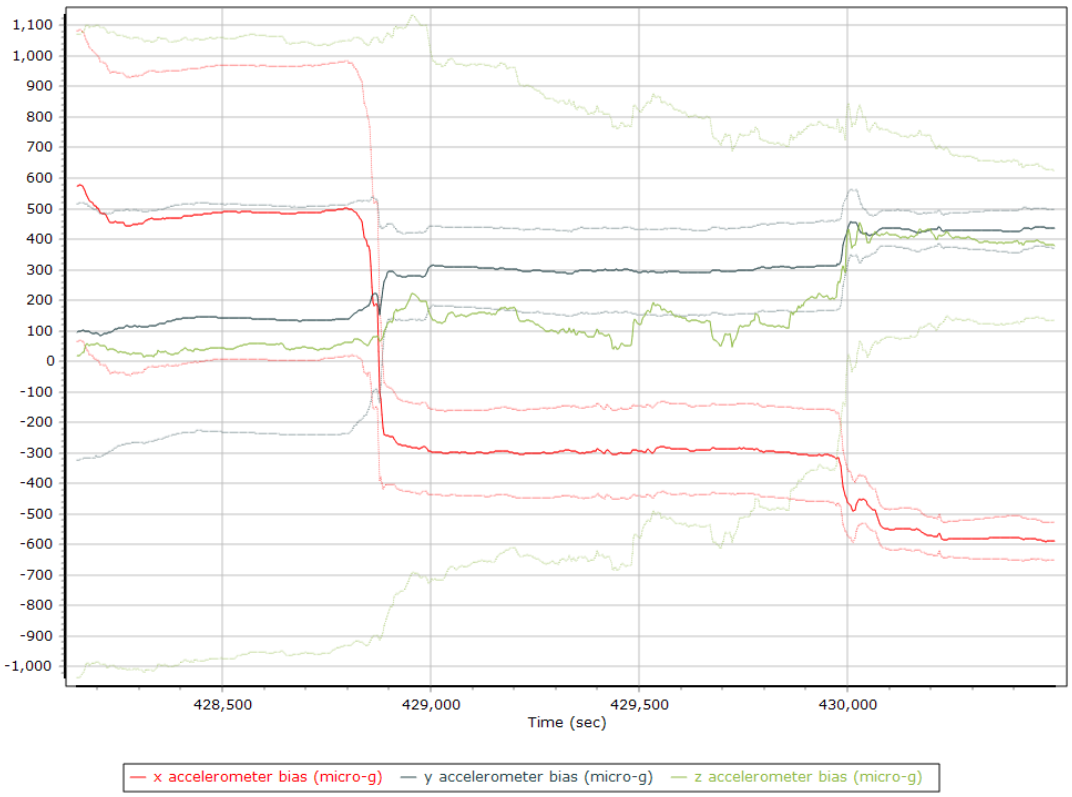
Reference-Primary GNSS Lever Arm Figure of Merit



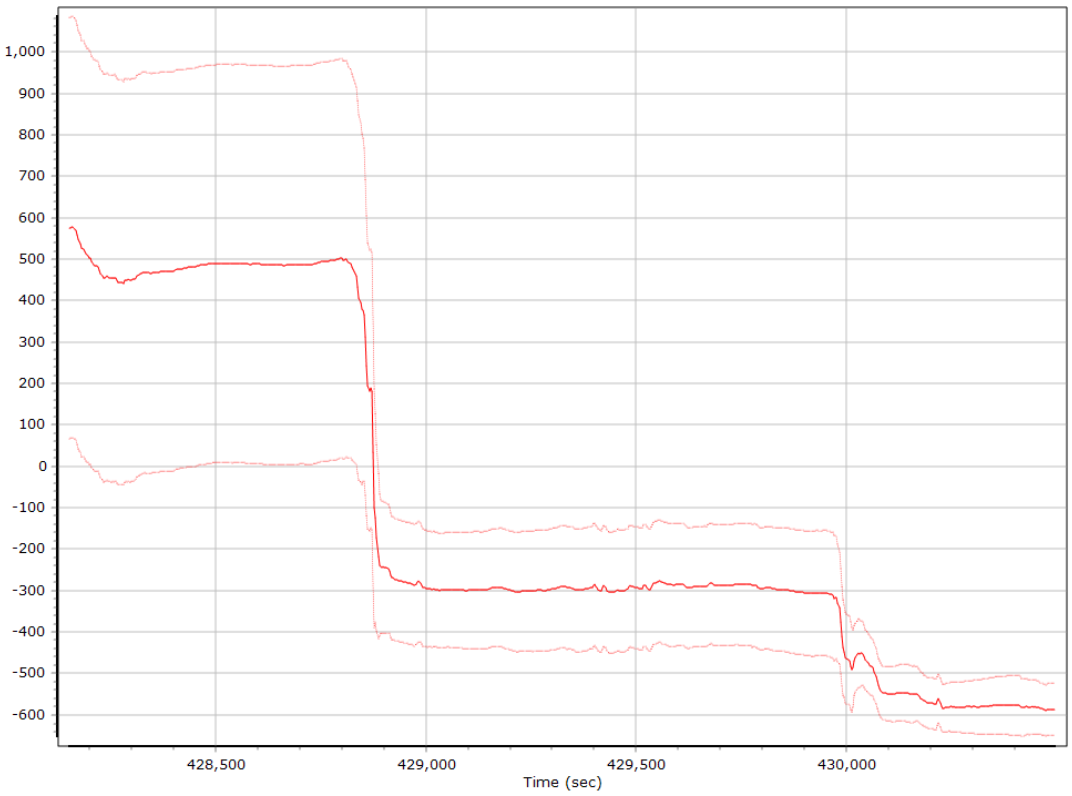
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

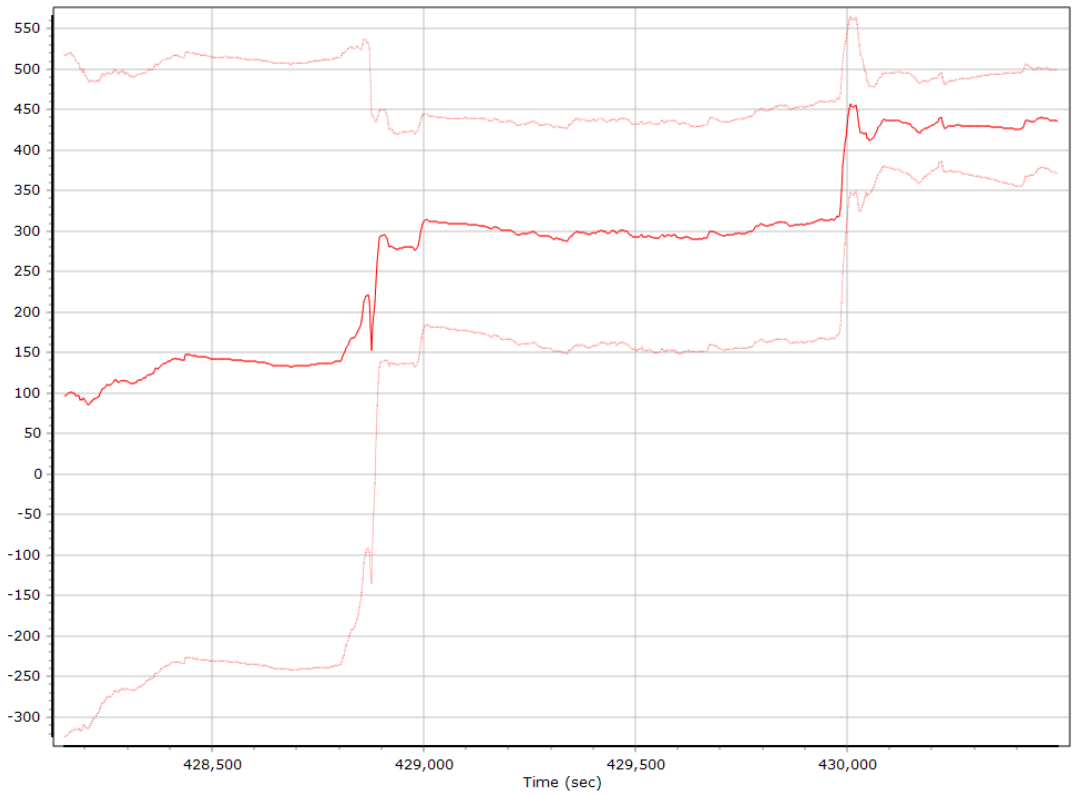
Accelerometer Bias (micro-g)



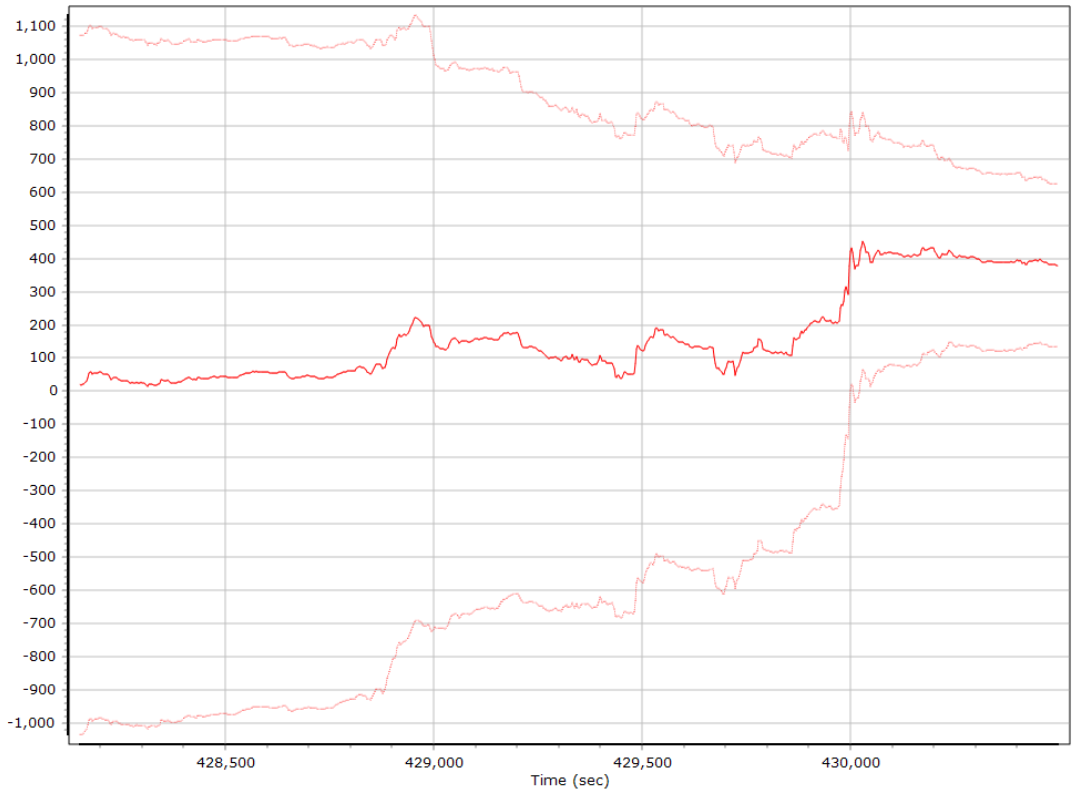
X Accelerometer Bias (micro-g)



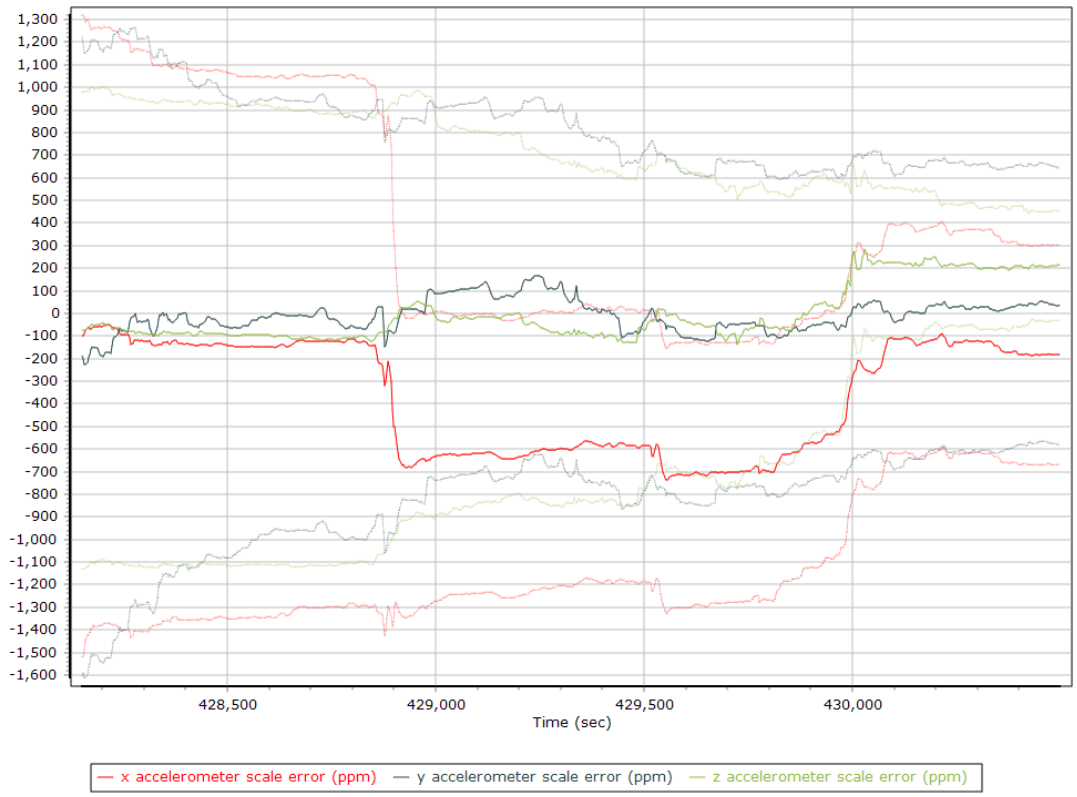
Y Accelerometer Bias (micro-g)



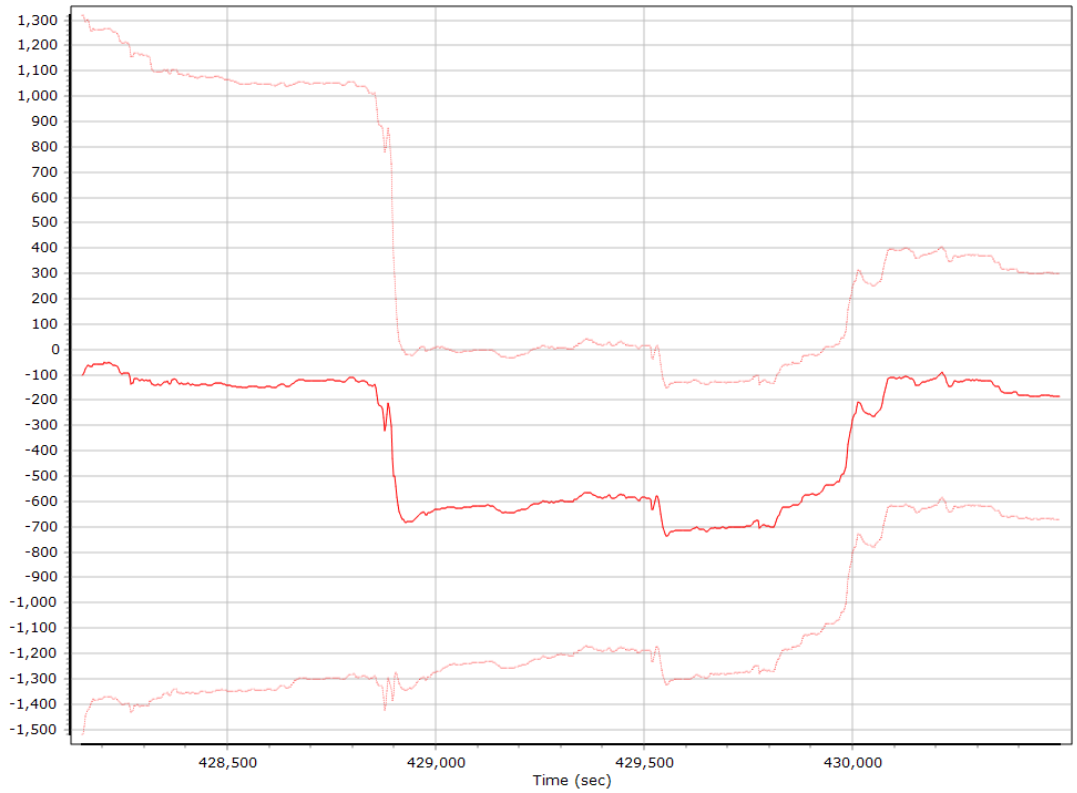
Z Accelerometer Bias (micro-g)



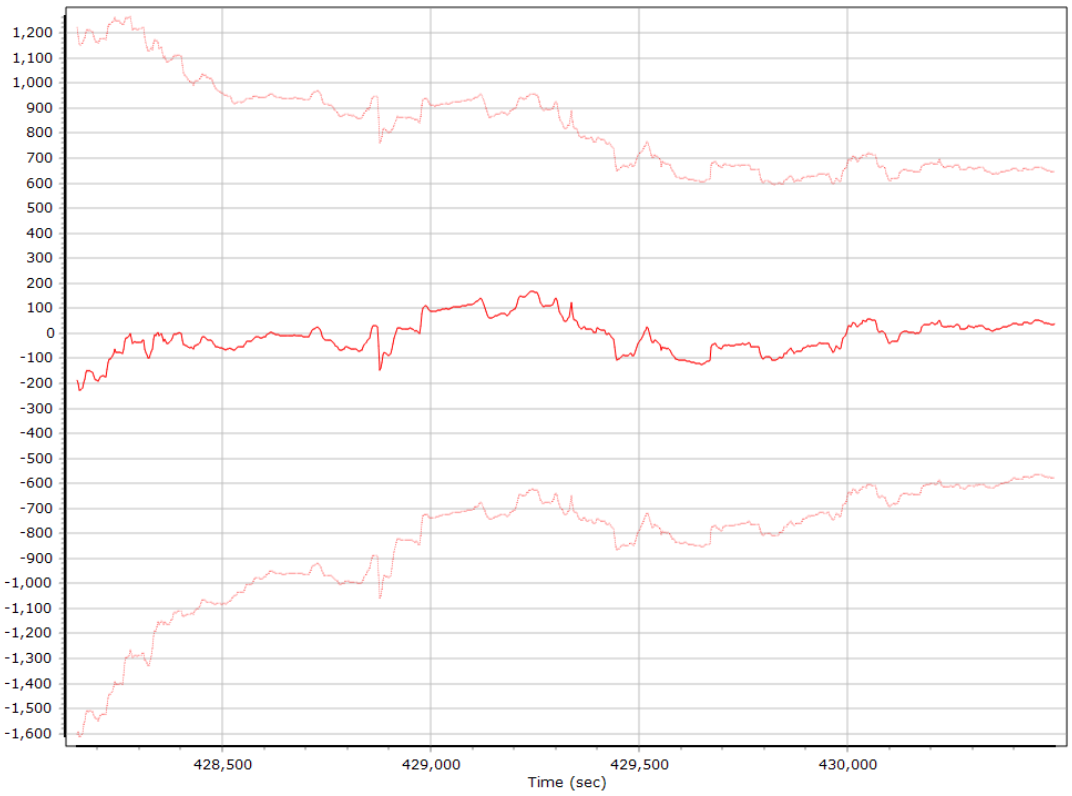
Accelerometer Scale Error (ppm)



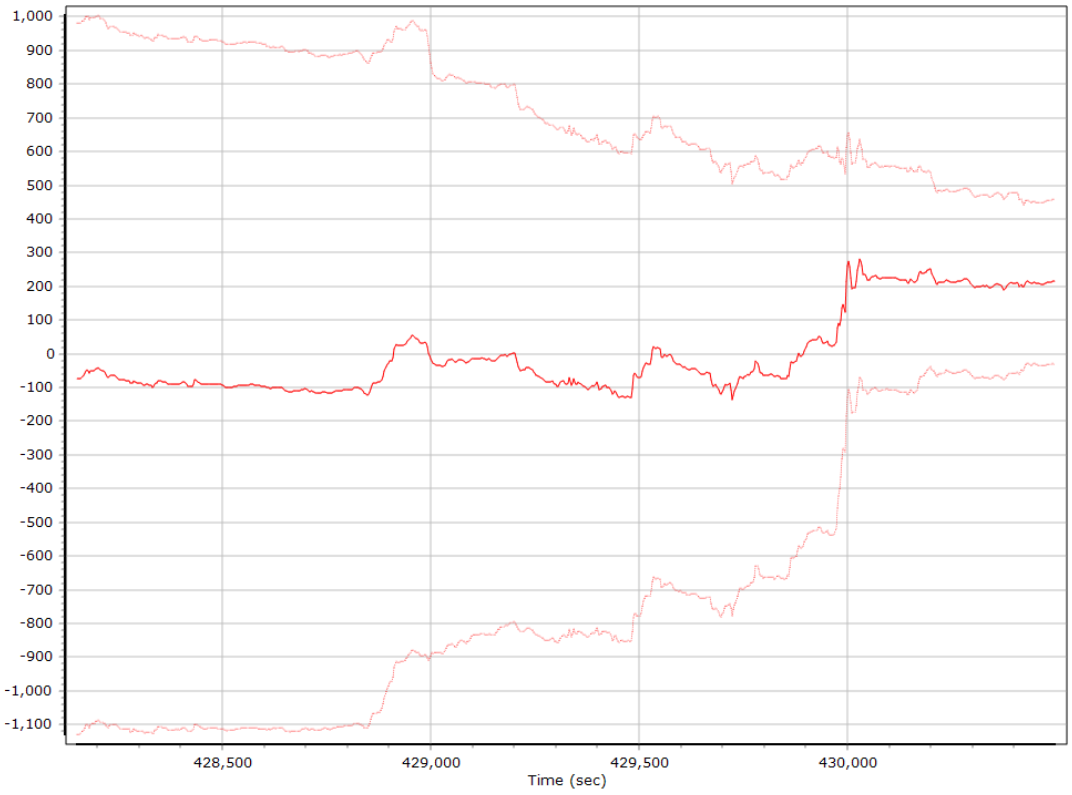
X Accelerometer Scale Error (ppm)



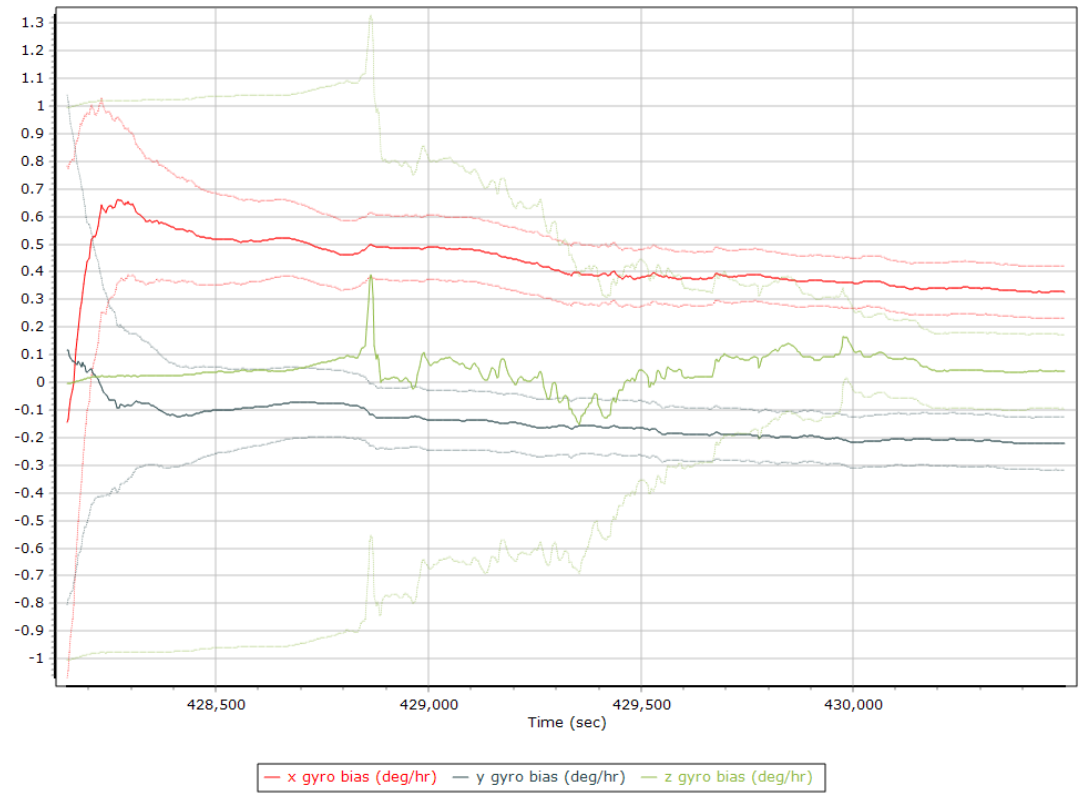
Y Accelerometer Scale Error (ppm)



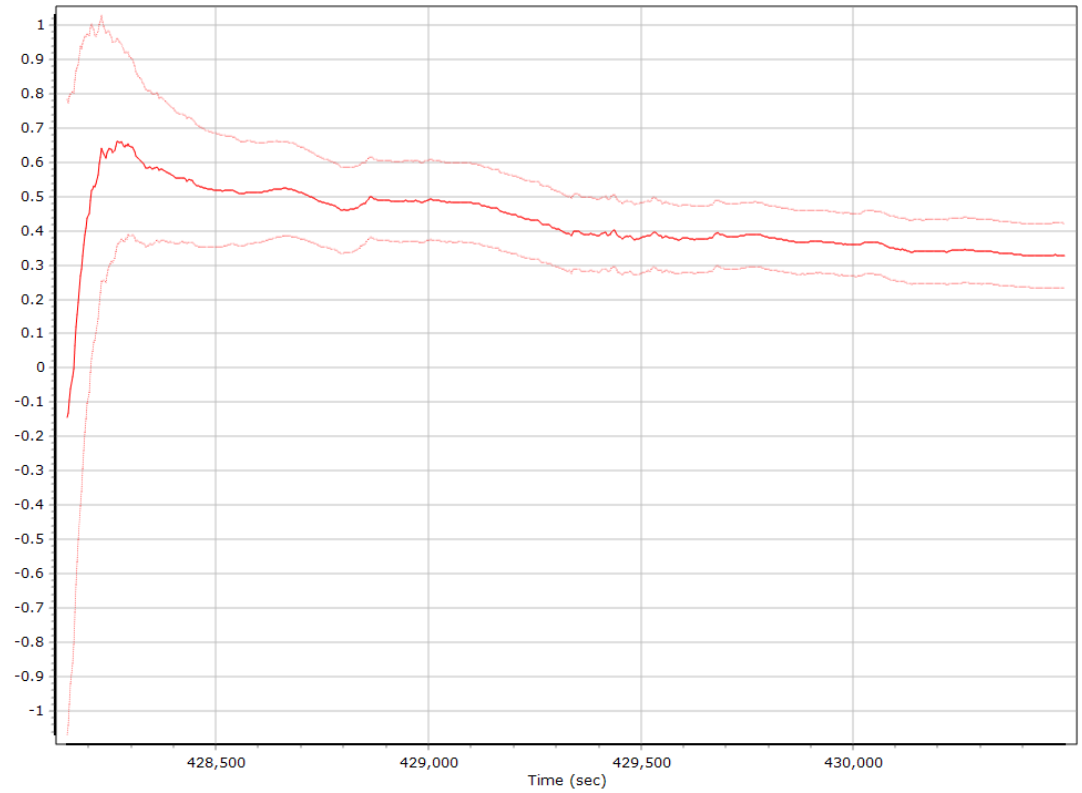
Z Accelerometer Scale Error (ppm)



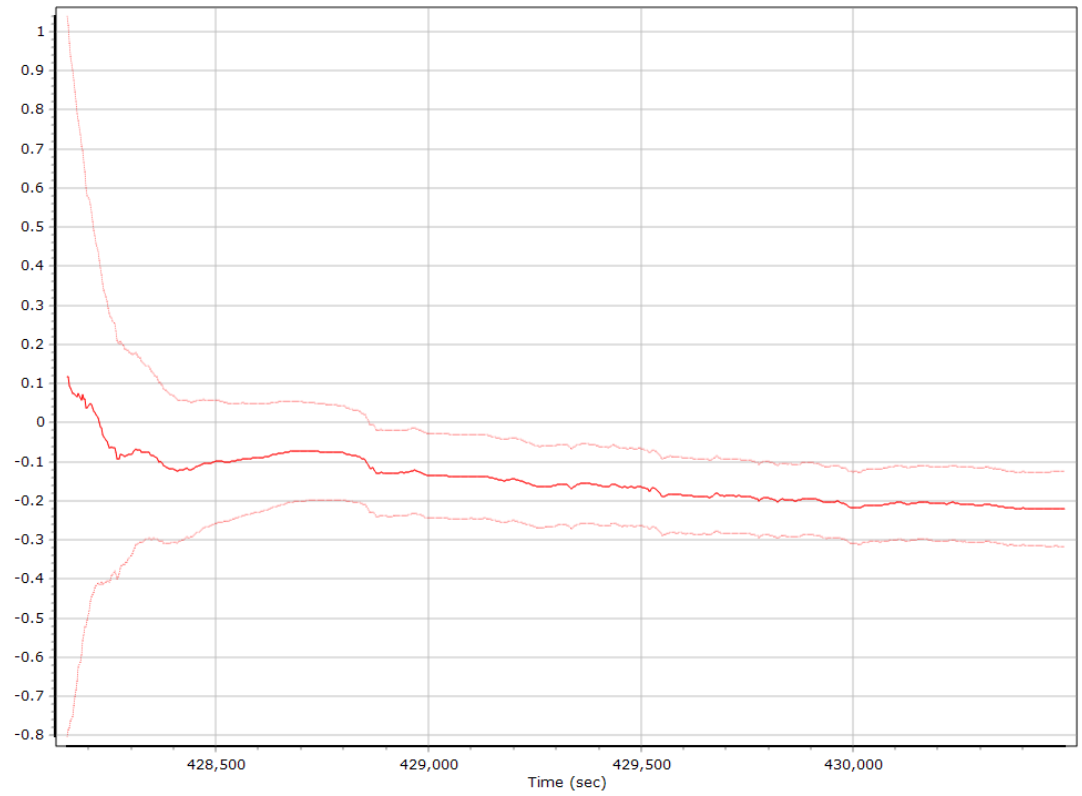
Gyro Bias (deg/h)



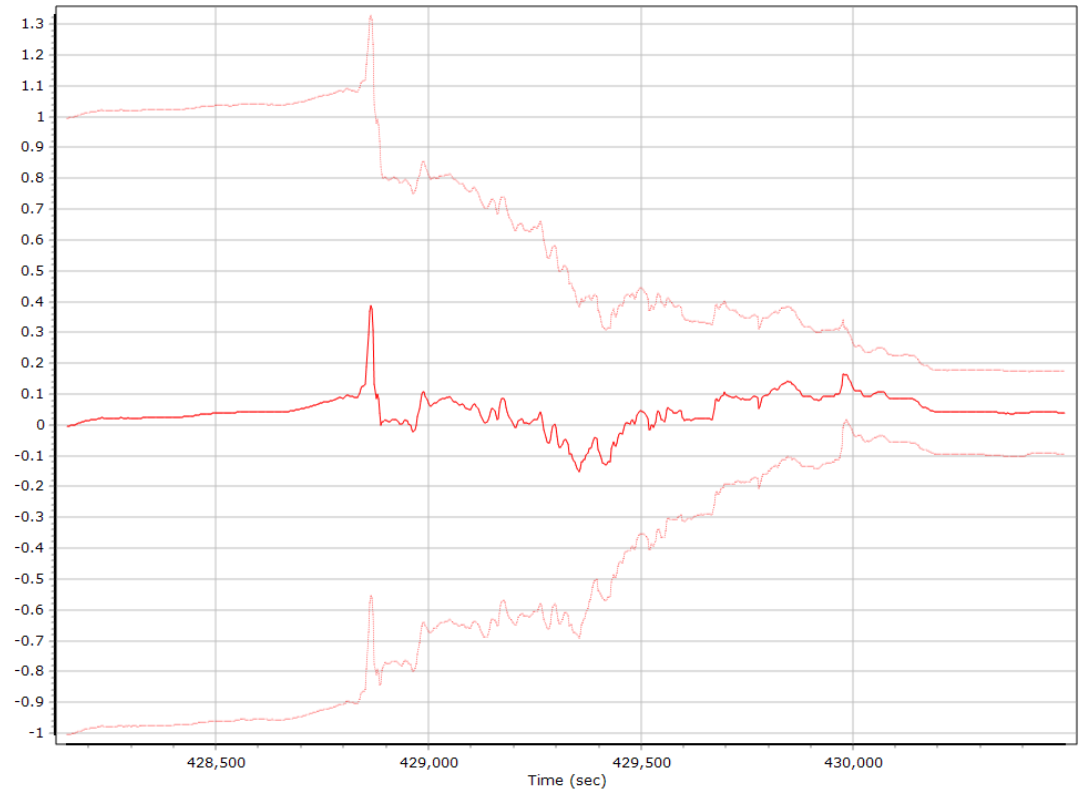
X Gyro Bias (deg/h)



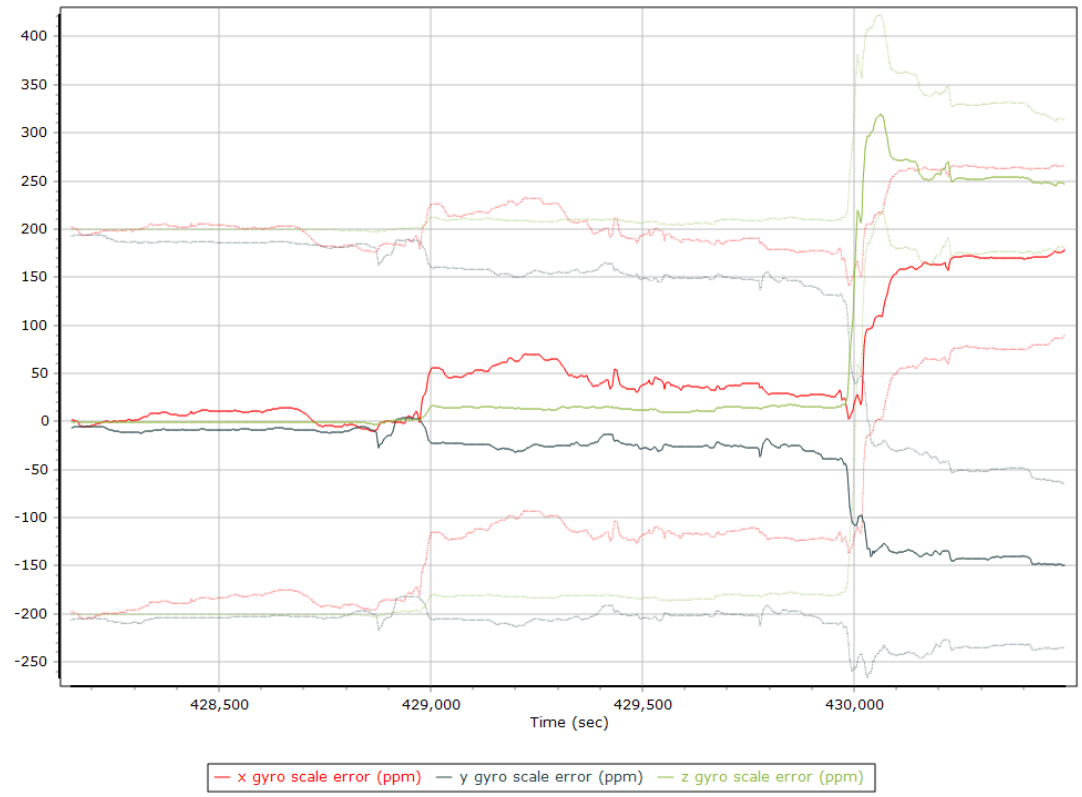
Y Gyro Bias (deg/h)



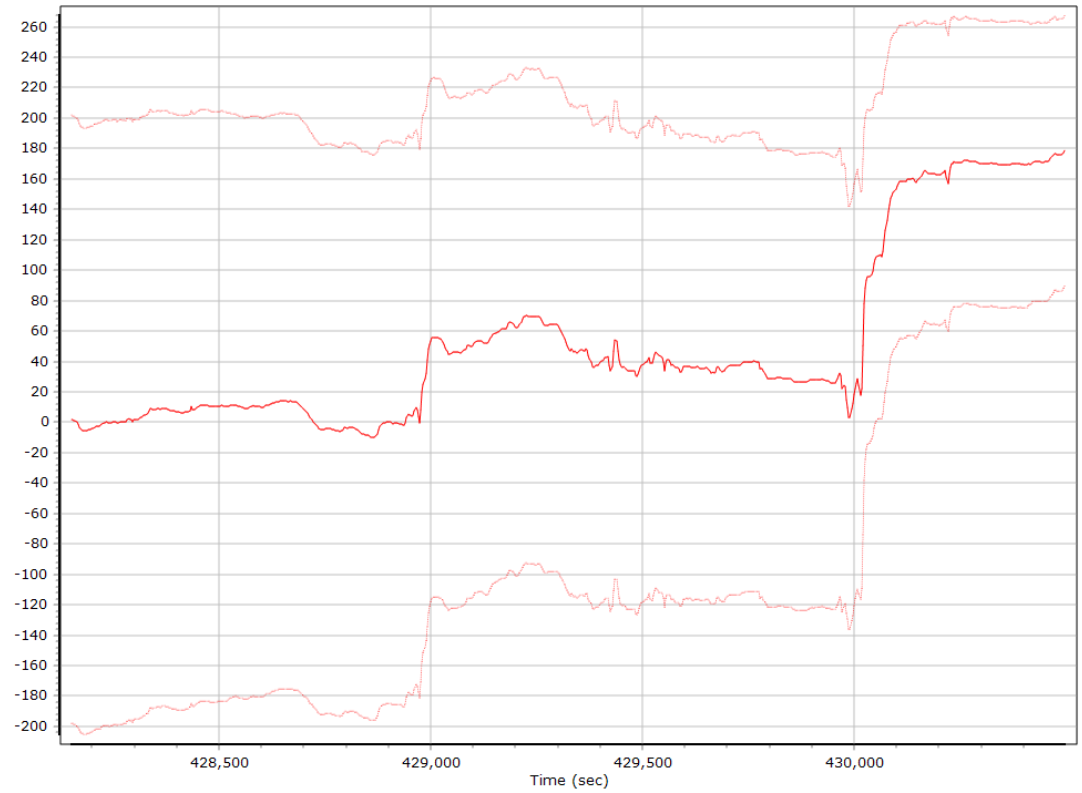
Z Gyro Bias (deg/h)



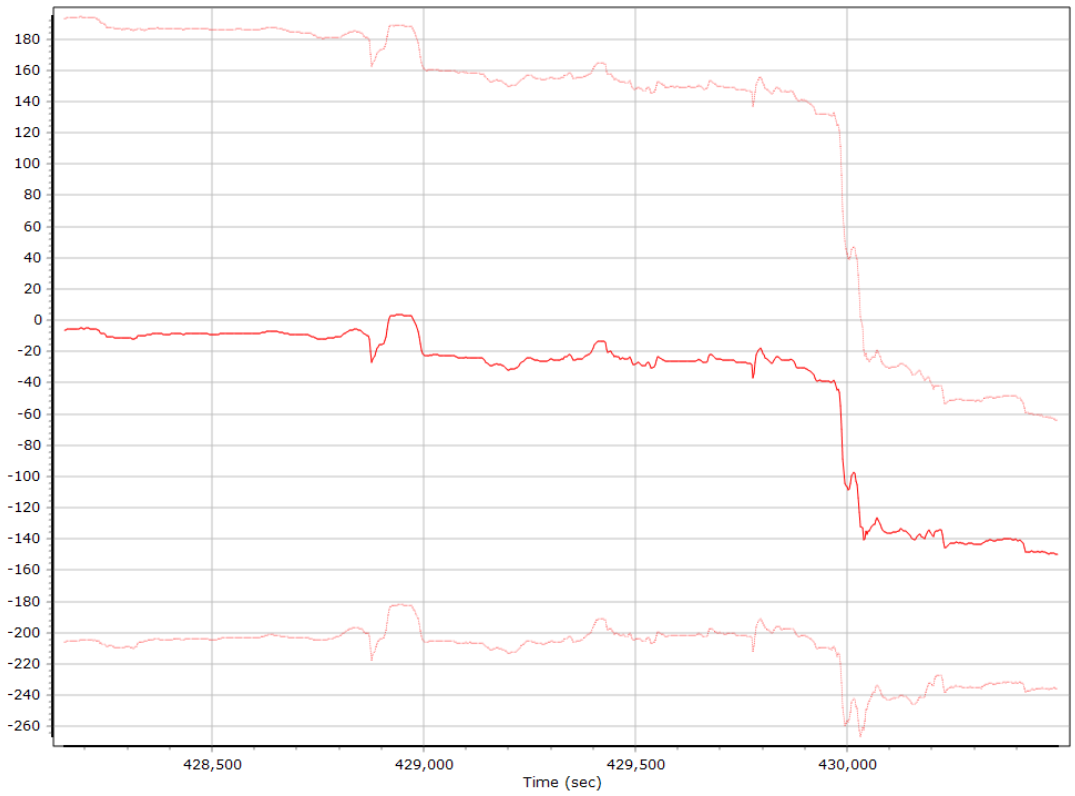
Gyro Scale Error (ppm)



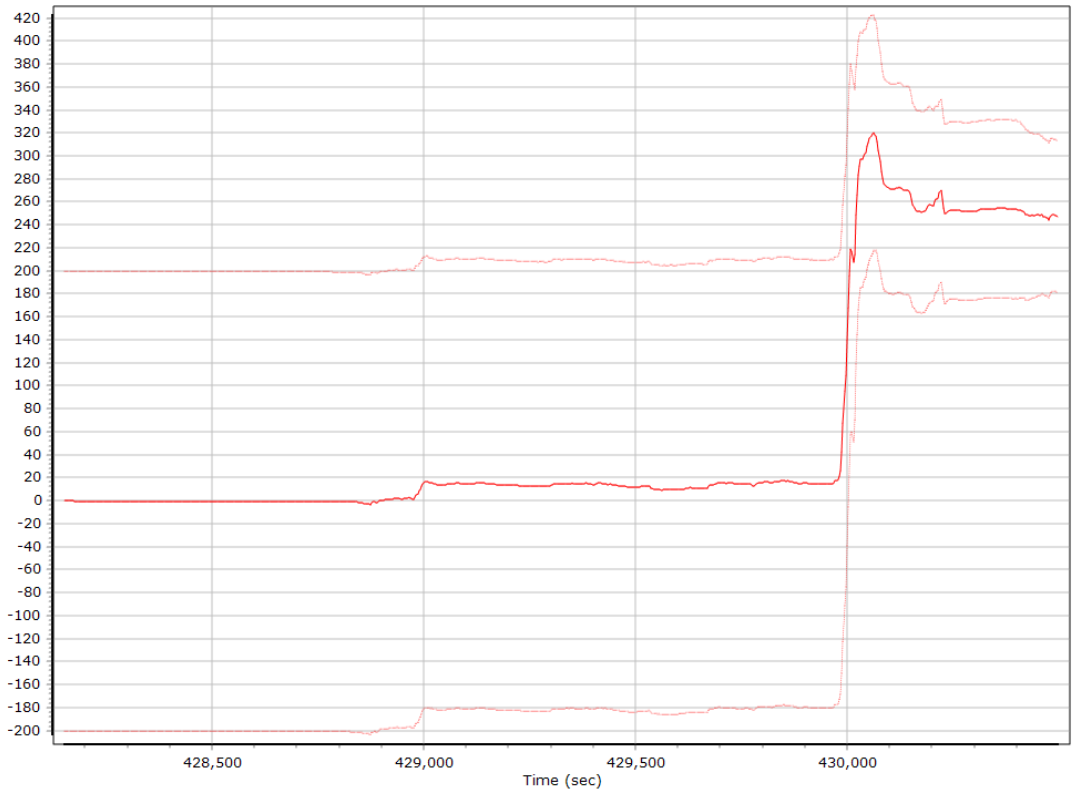
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

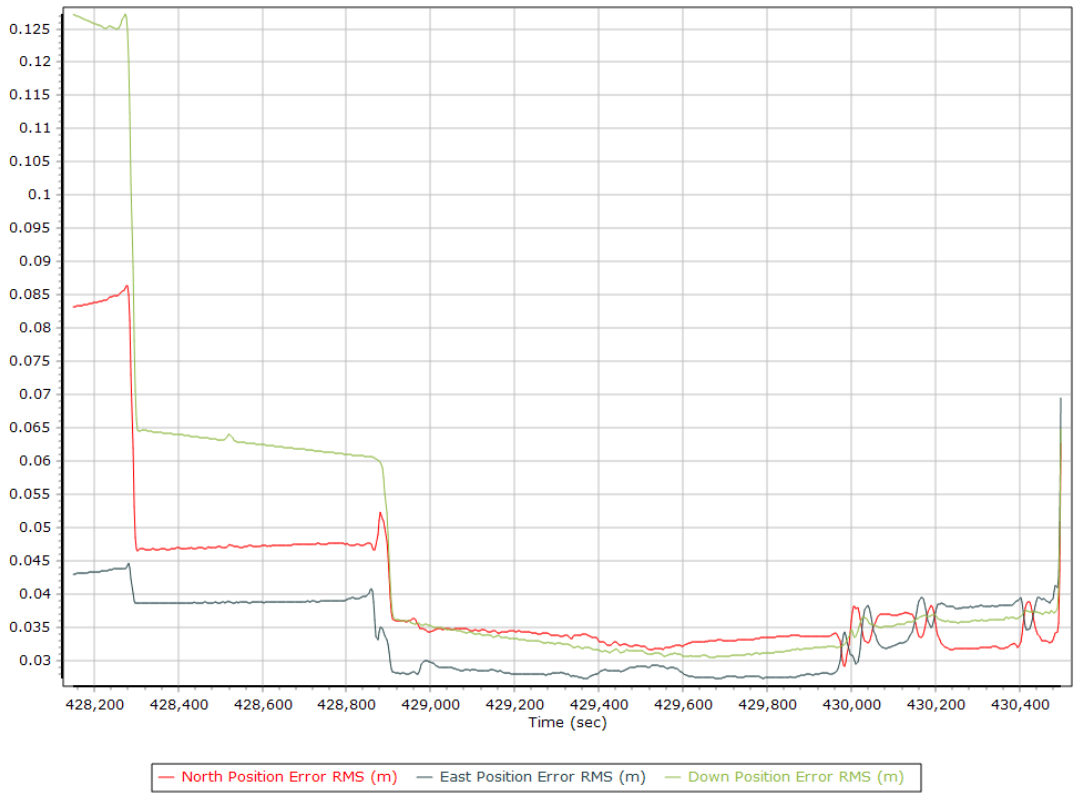


Z Gyro Scale Error (ppm)

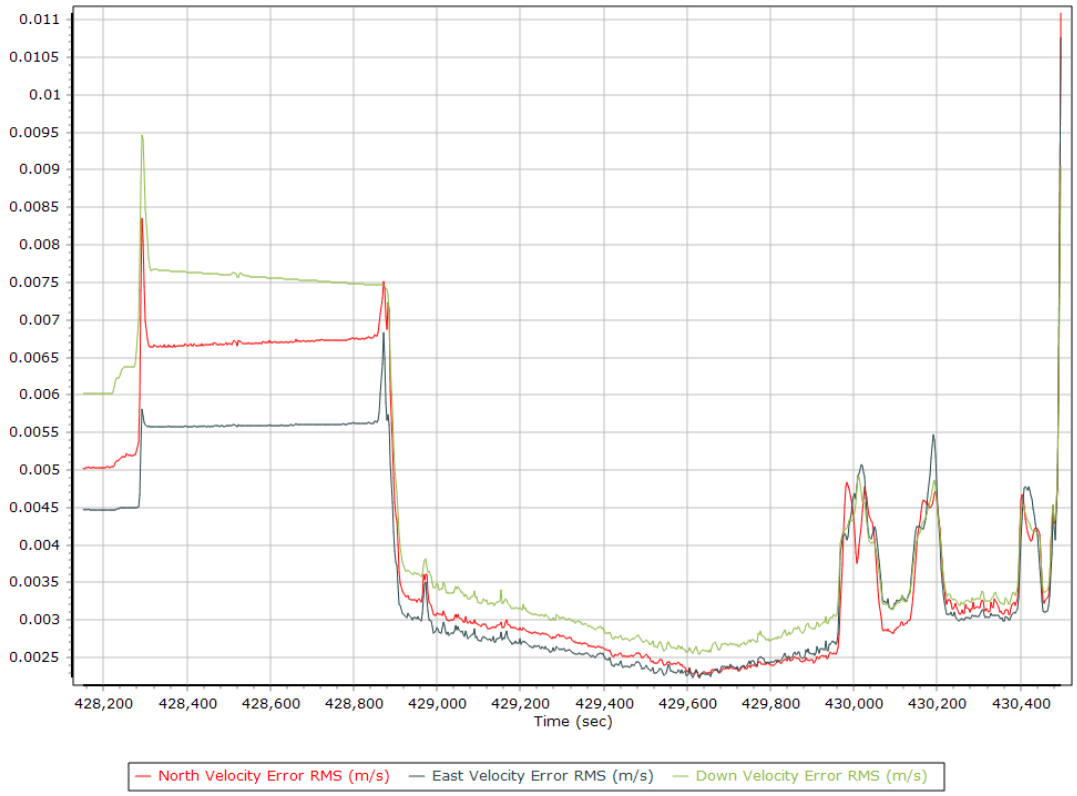


Smoothed Performance Metrics

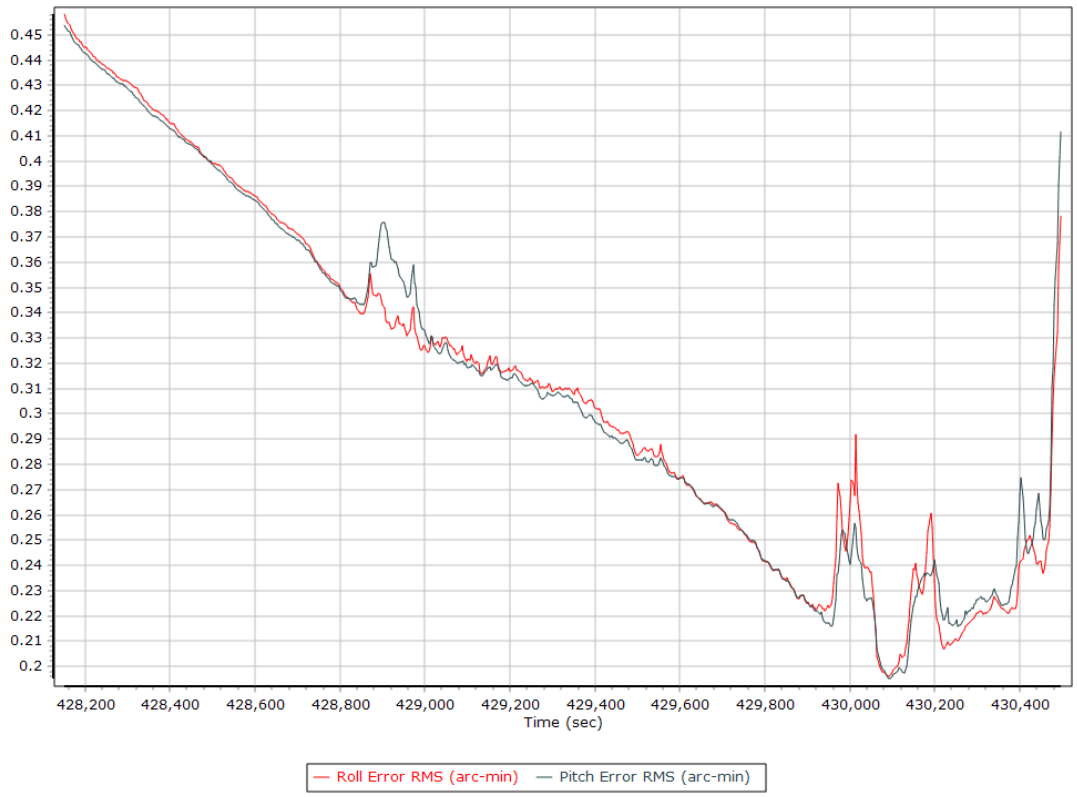
Position Error RMS (m)



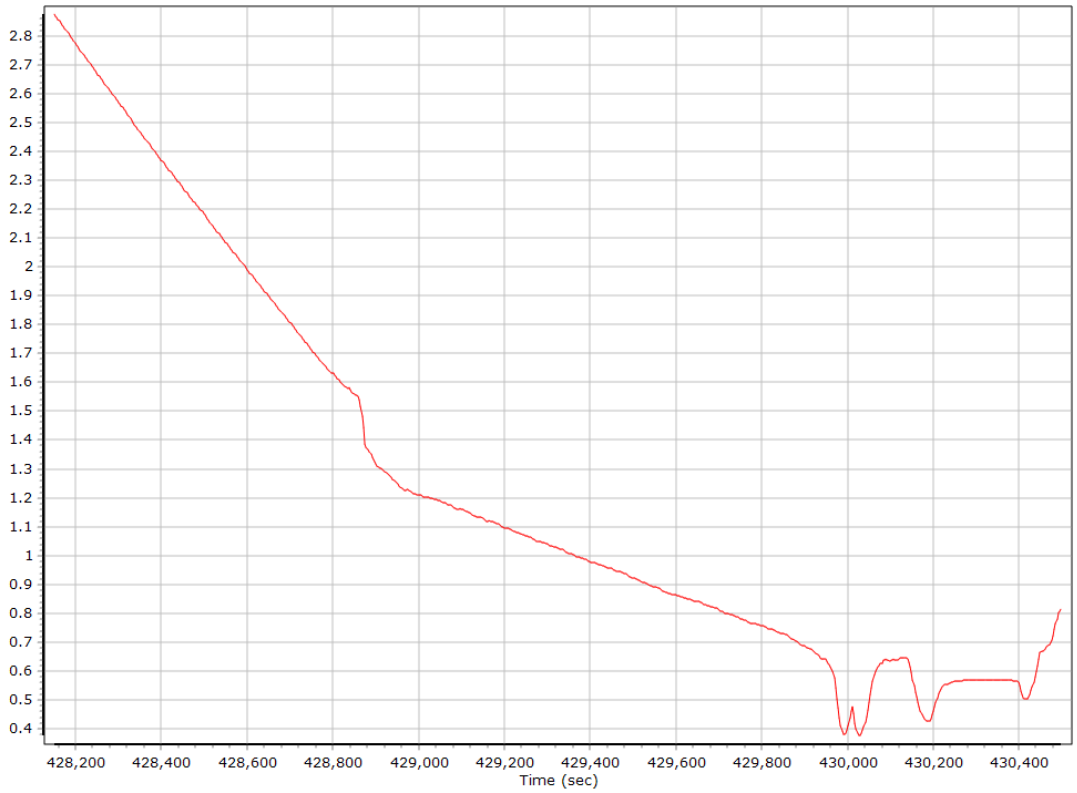
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

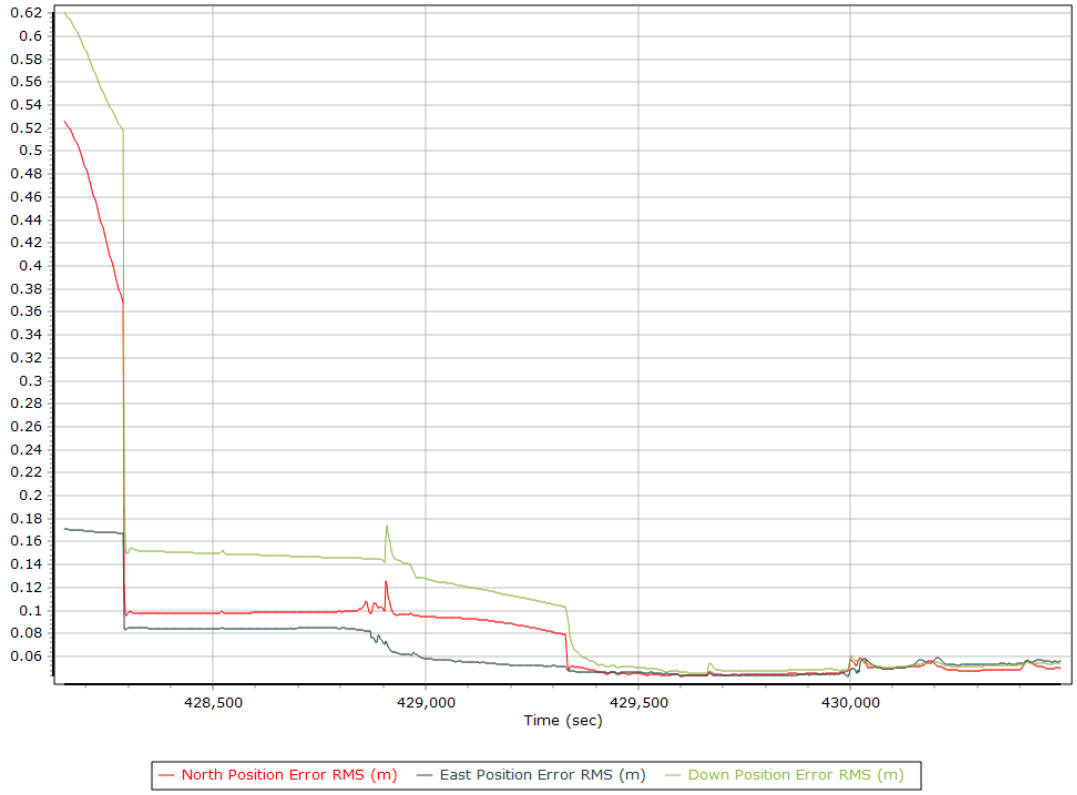


Heading Error RMS (arc-min)

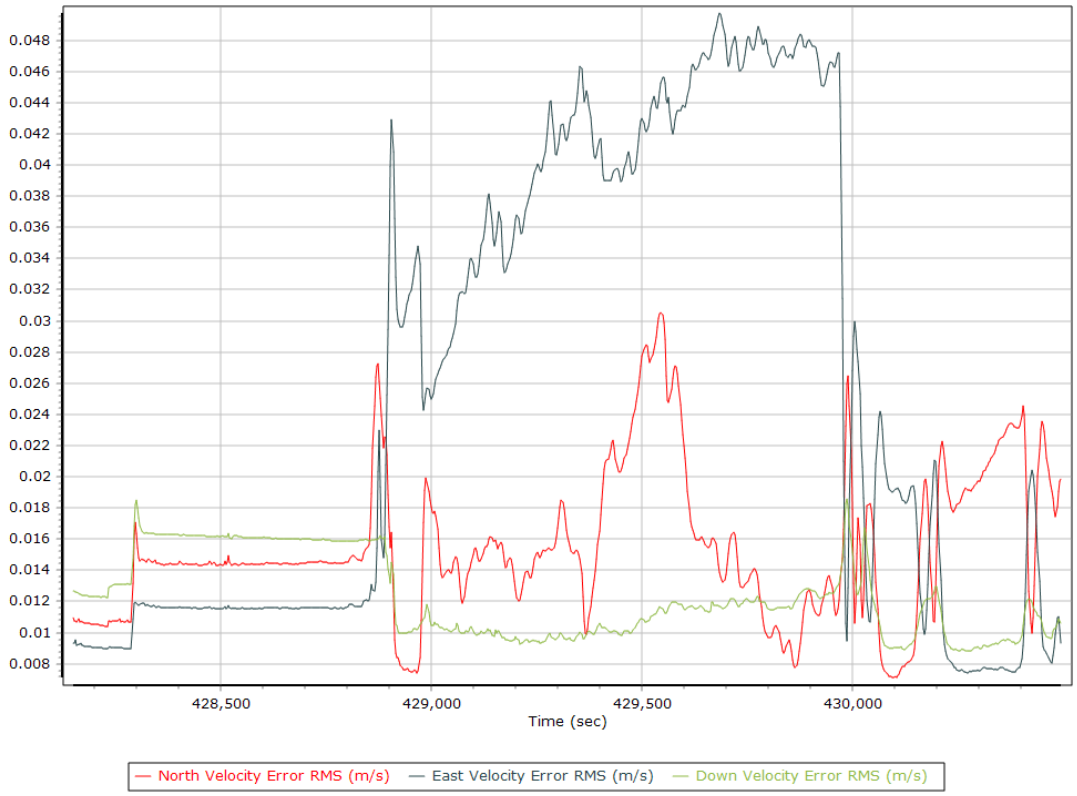


Forward Processed Performance Metrics

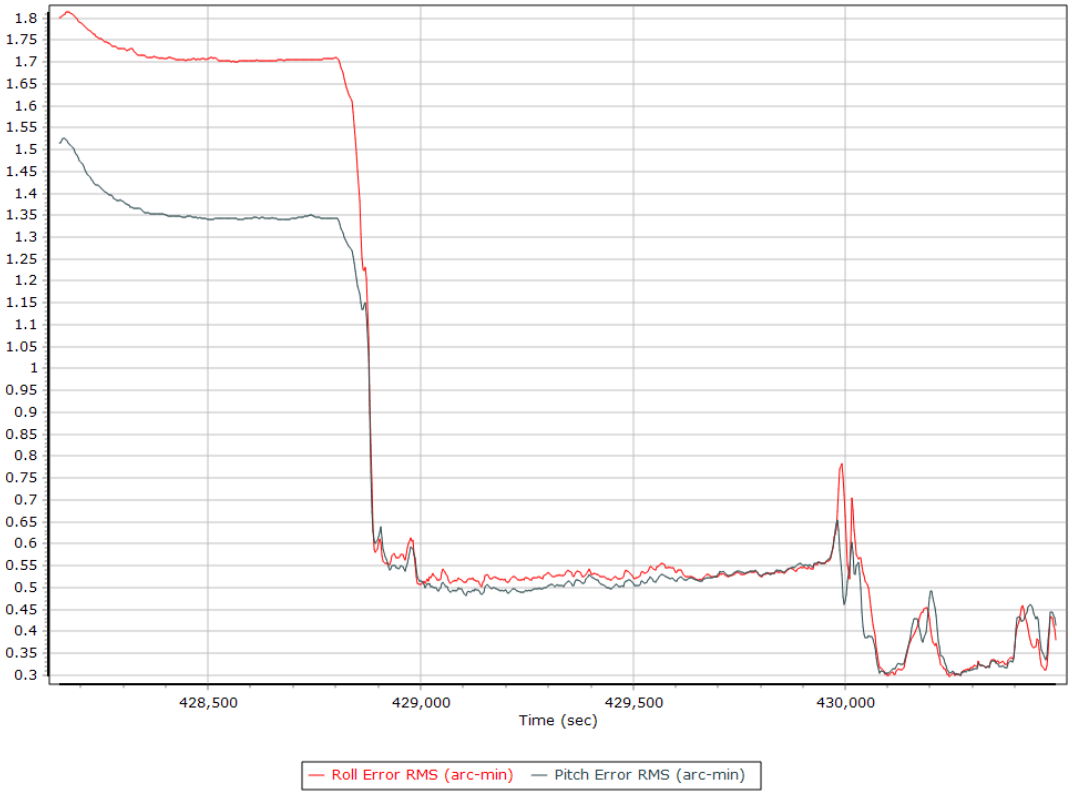
Position Error RMS (m)



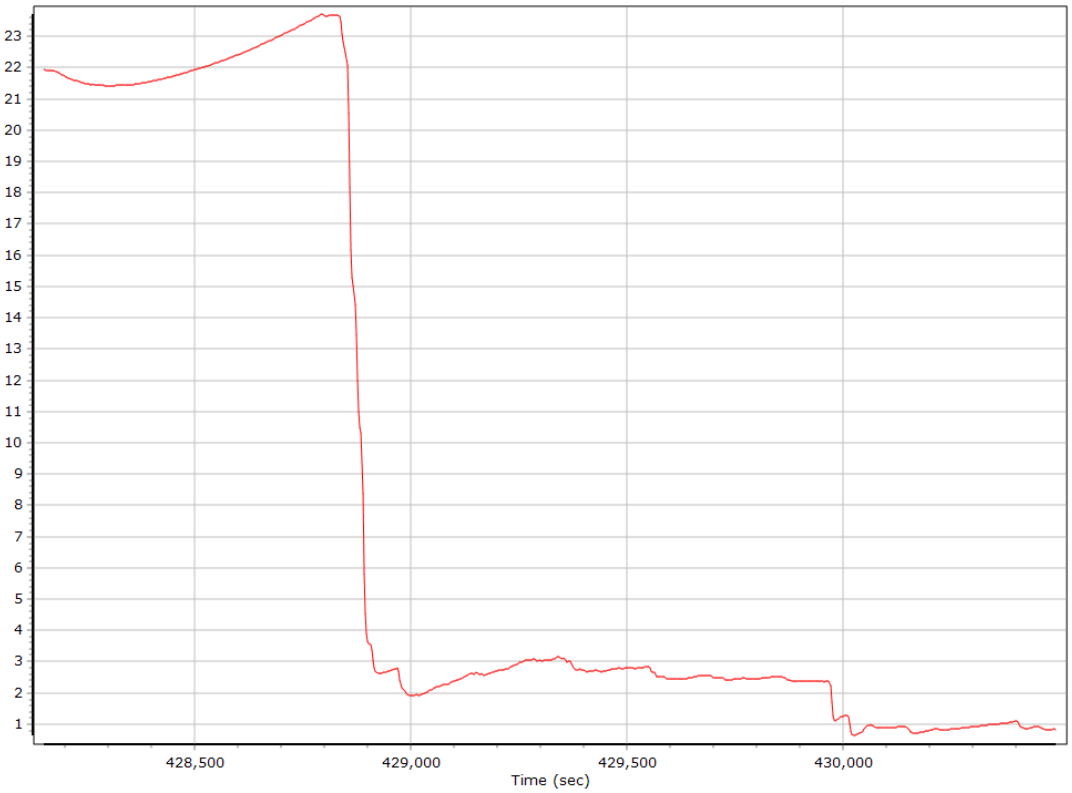
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

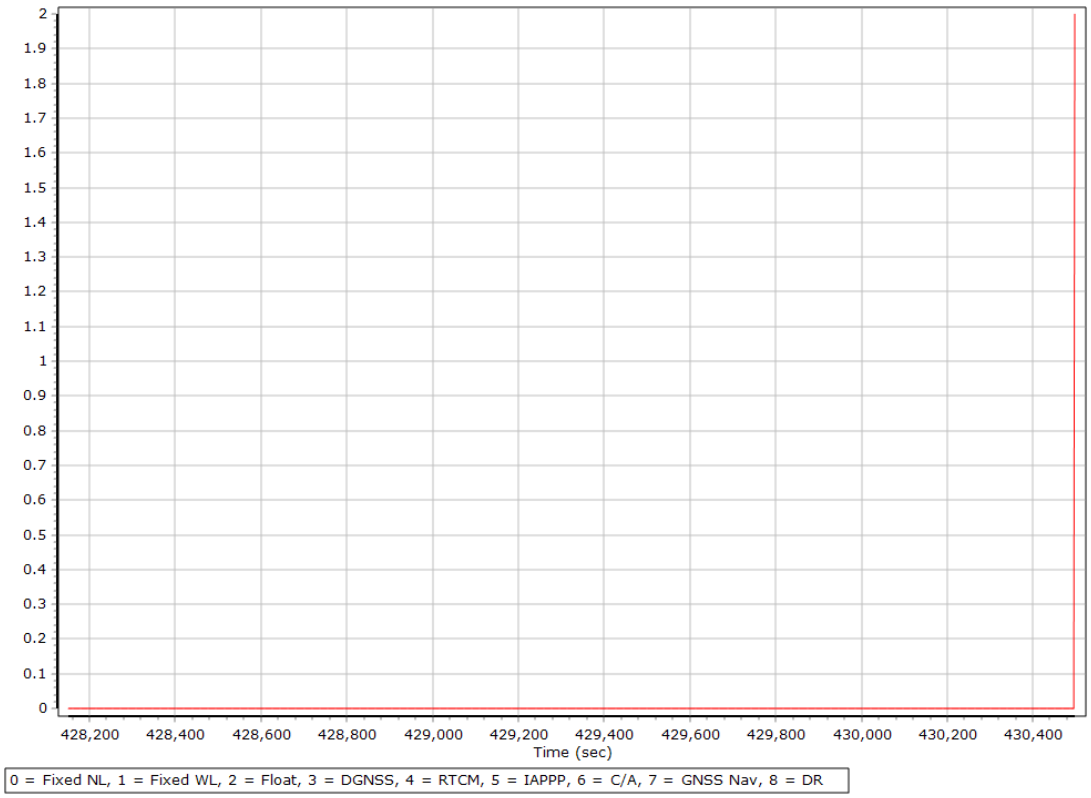


Heading Error RMS (arc-min)

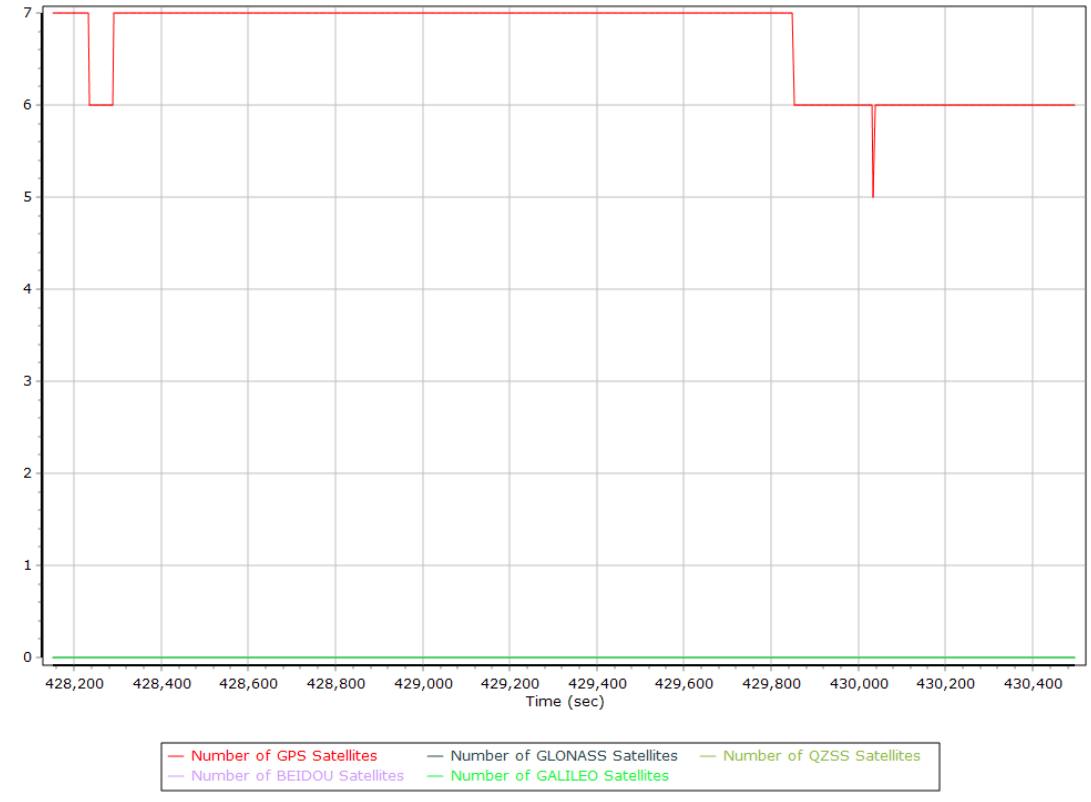


Smoothed Solution Status

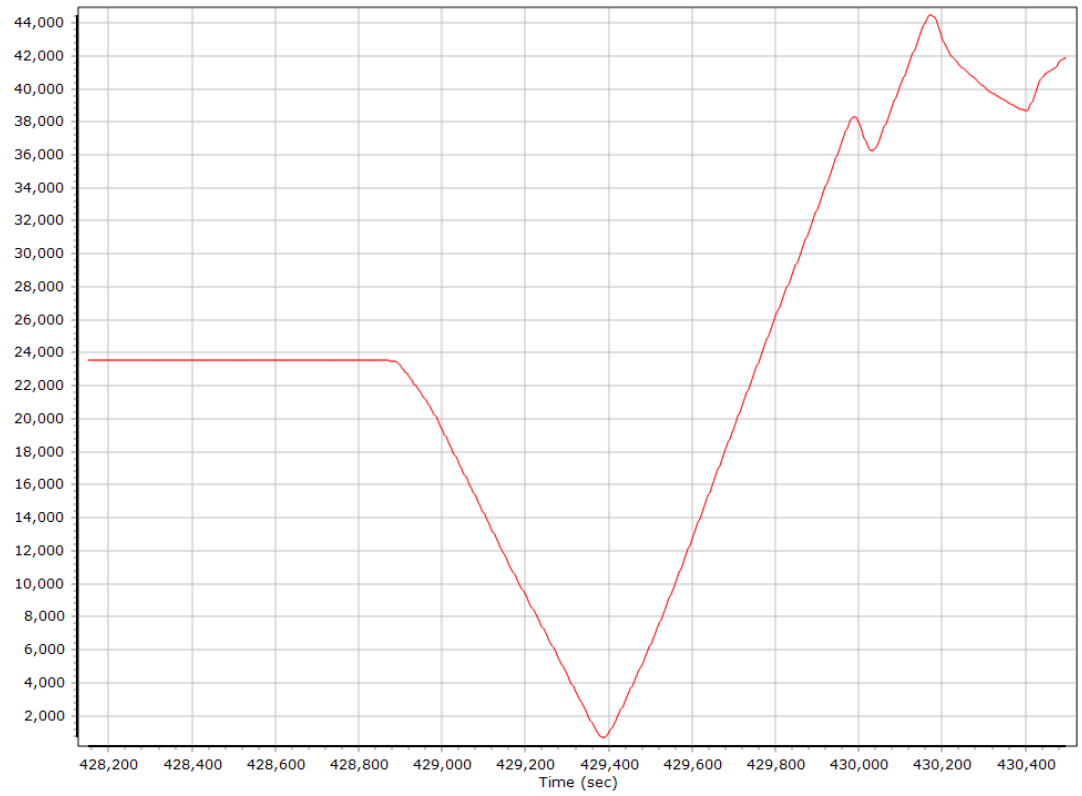
Processing Mode



Number of Satellites

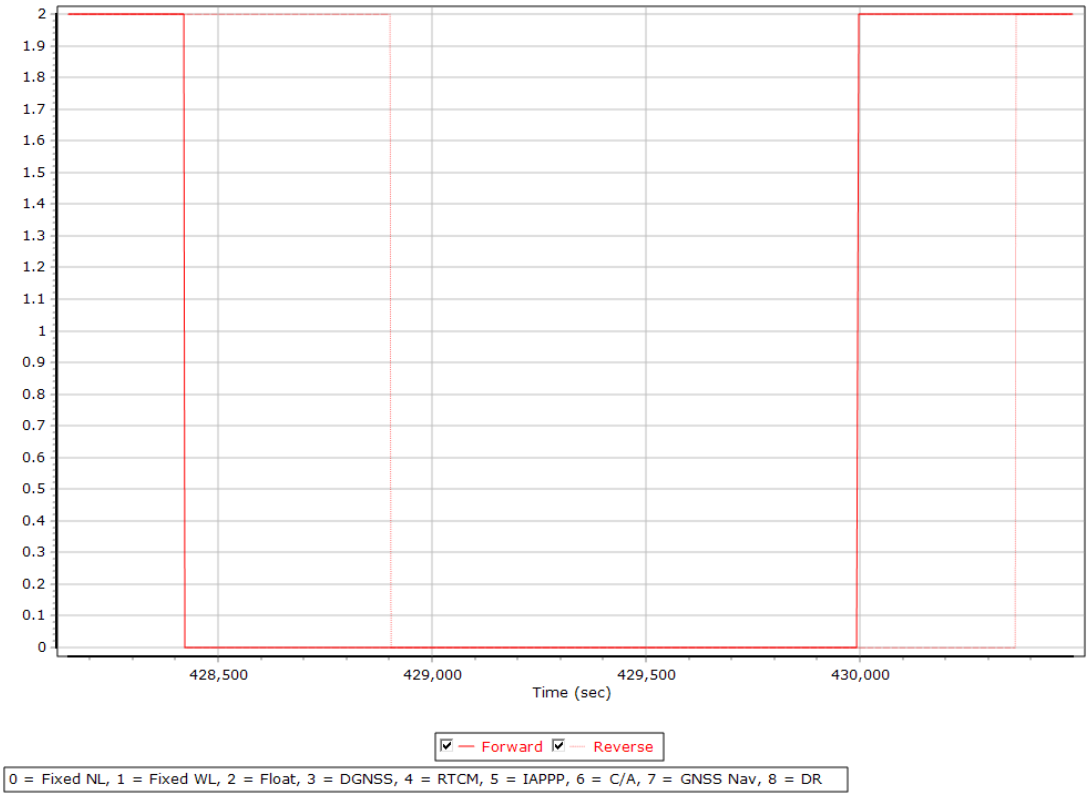


Baseline Length

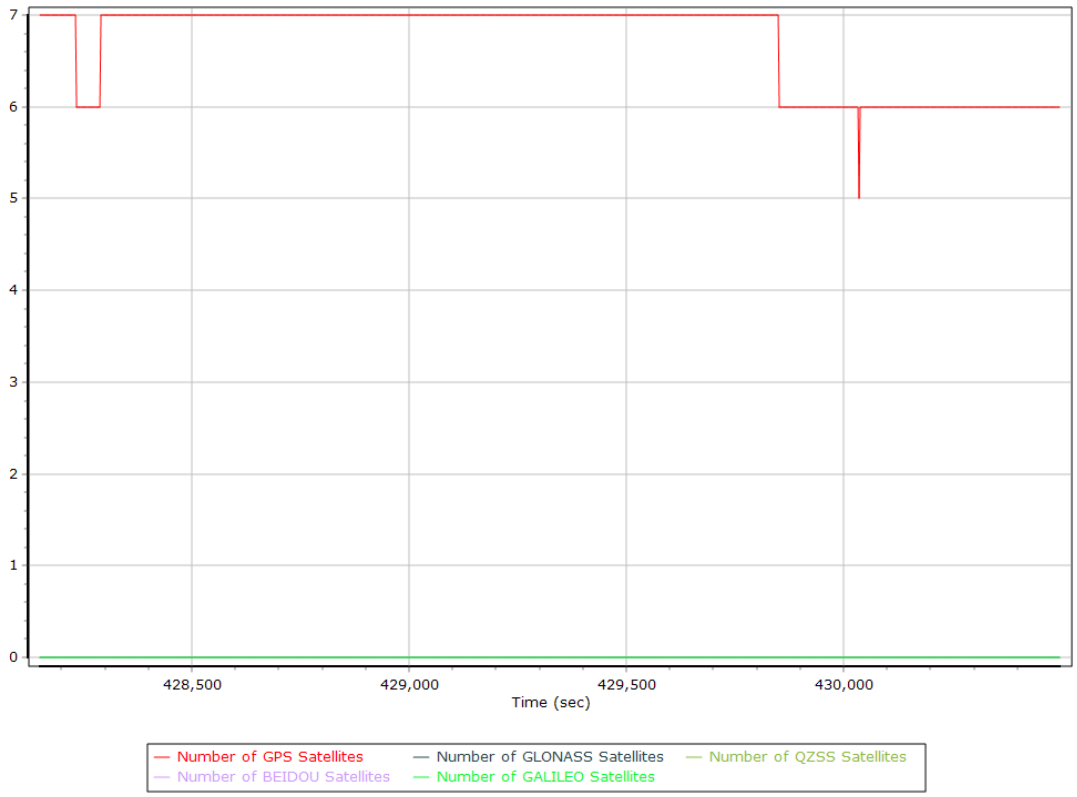


Forward Processed Solution Status

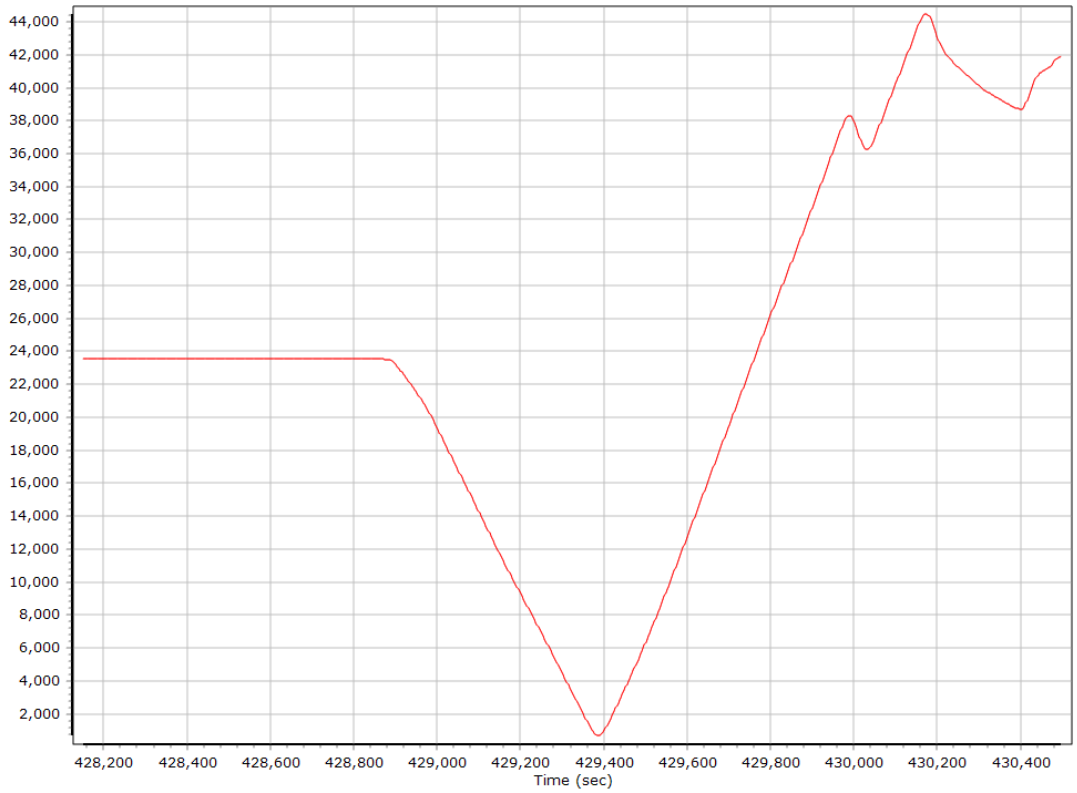
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

General Information

Mission Information

Project name	196648-01-20200423B-Part2
Processing date	2020-04-27 02:29:27
Mission date	2020-04-23 23:36:46
Mission duration	01:36:21.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	Sensor Systems L1

Project File List

Rover Data Files

File name	File type
ALS.072	POS Data
ALS.073	POS Data
ALS.074	POS Data
ALS.075	POS Data
ALS.076	POS Data
ALS.077	POS Data
ALS.078	POS Data
ALS.079	POS Data
ALS.080	POS Data

Input Files

File Name	File Type
Ephm1140.20g	GLONASS Broadcast Ephemeris
Ephm1140.20n	GPS Broadcast Ephemeris
Ephm1150.20g	GLONASS Broadcast Ephemeris
Ephm1150.20n	GPS Broadcast Ephemeris
iaal1140.20o	GNSS SingleBase
iaal1150.20o	GNSS SingleBase
iade1140.20o	GNSS SingleBase
iade1150.20o	GNSS SingleBase
iael1140.20o	GNSS SingleBase
iael1150.20o	GNSS SingleBase
iaht1140.20o	GNSS SingleBase
iaht1150.20o	GNSS SingleBase
iamn1140.20o	GNSS SingleBase
iamn1150.20o	GNSS SingleBase
iamq1140.20o	GNSS SingleBase
iamq1150.20o	GNSS SingleBase
iana1140.20o	GNSS SingleBase
iana1150.20o	GNSS SingleBase
iata1140.20o	GNSS SingleBase
iata1150.20o	GNSS SingleBase
jfws1140.20o	GPS SingleBase
jfws1150.20o	GPS SingleBase
mnca1140.20o	GNSS SingleBase
mnca1150.20o	GNSS SingleBase
mney1140.20o	GNSS SingleBase
mney1150.20o	GNSS SingleBase
mnps1140.20o	GNSS SingleBase
mnps1150.20o	GNSS SingleBase
mnsv1140.20o	GNSS SingleBase
mnsv1150.20o	GNSS SingleBase
mnwn1140.20o	GNSS SingleBase
mnwn1150.20o	GNSS SingleBase
nlib1140.20o	GNSS SingleBase
nlib1150.20o	GNSS SingleBase
wlnc1140.20o	GNSS SingleBase
wlnc1150.20o	GNSS SingleBase
igr21023.sp3	GPS Precise Ephemeris
igr21024.sp3	GPS Precise Ephemeris
igr21025.sp3	GPS Precise Ephemeris
igr21026.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_196648-01-20200423B-Part2.out	SBET Trajectory File

Rover Data Summary

First raw data file	ALS.072		
Last raw data file	ALS.080		
Start GPS week	2102		
Start time	430606.728 (04/23/2020 23:36:46)		
End time	436369.100 (04/24/2020 01:12:49)		
Start of fine alignment	430716.995 (04/23/2020 23:38:36)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

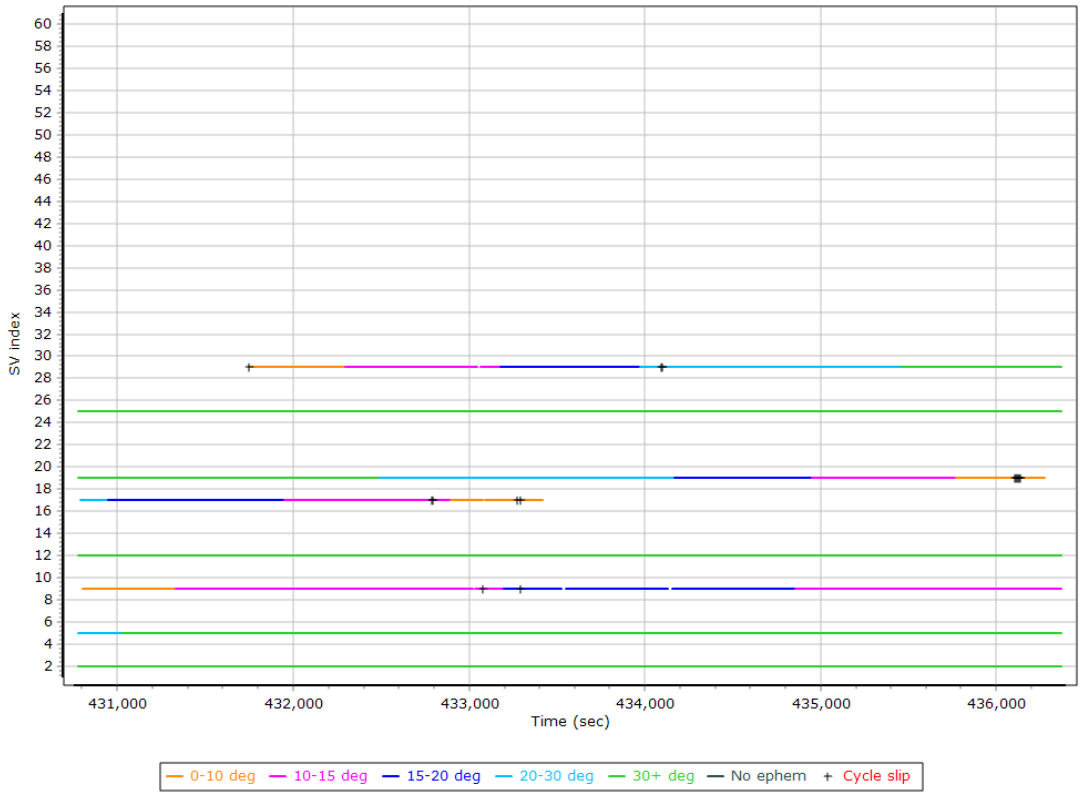
Rover Data QC

Raw IMU Import QC Summary

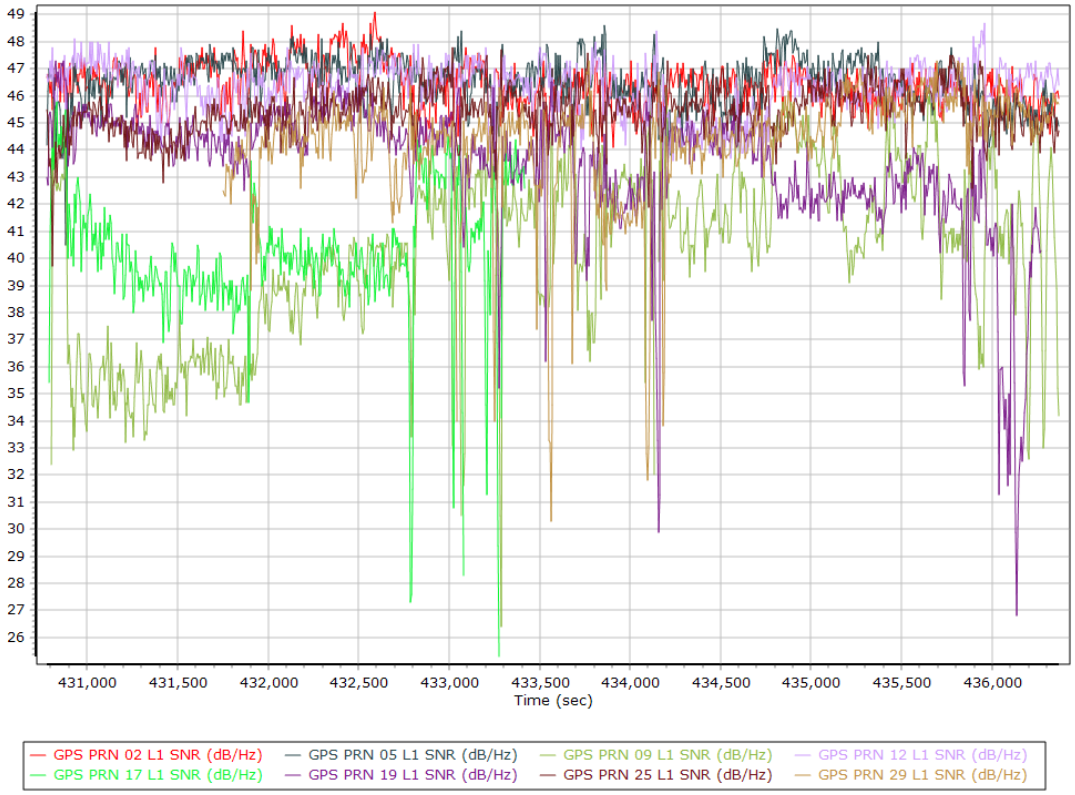
IMU data input file	imu_196648-01-20200423B-Part2.dat
IMU data check log file	imudt_196648-01-20200423B-Part2.log
IMU Records Processed	1158707
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
430599.308 : WARNING : Gap of 430577.3214 seconds in CHECKDT input data	

Primary Observables & Satellite Data

L1 Satellite Lock/Elevation

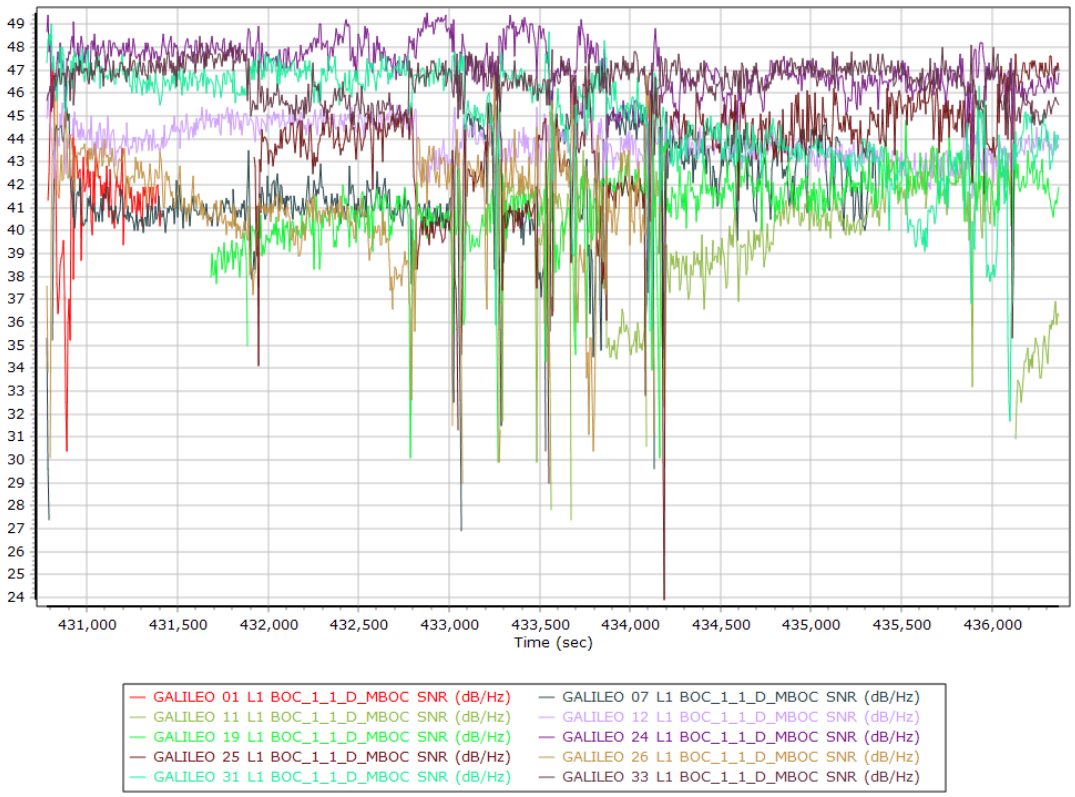


GPS L1 SNR



GPS L2 SNR

GALILEO SNR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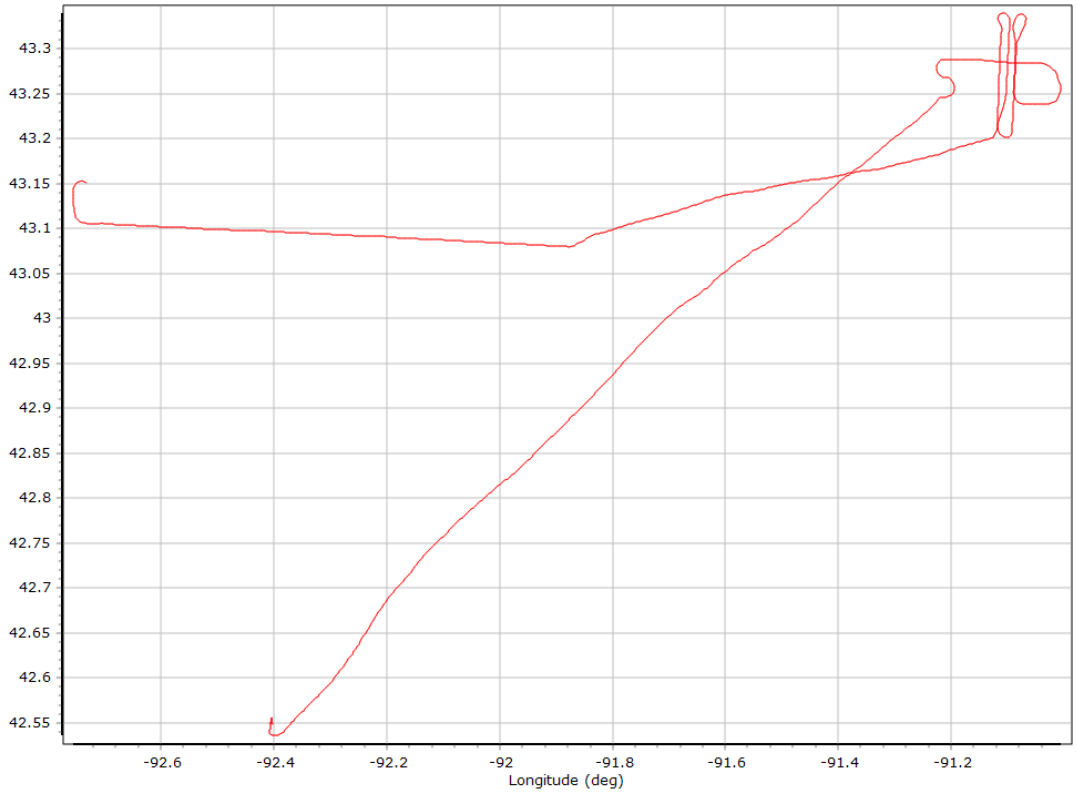
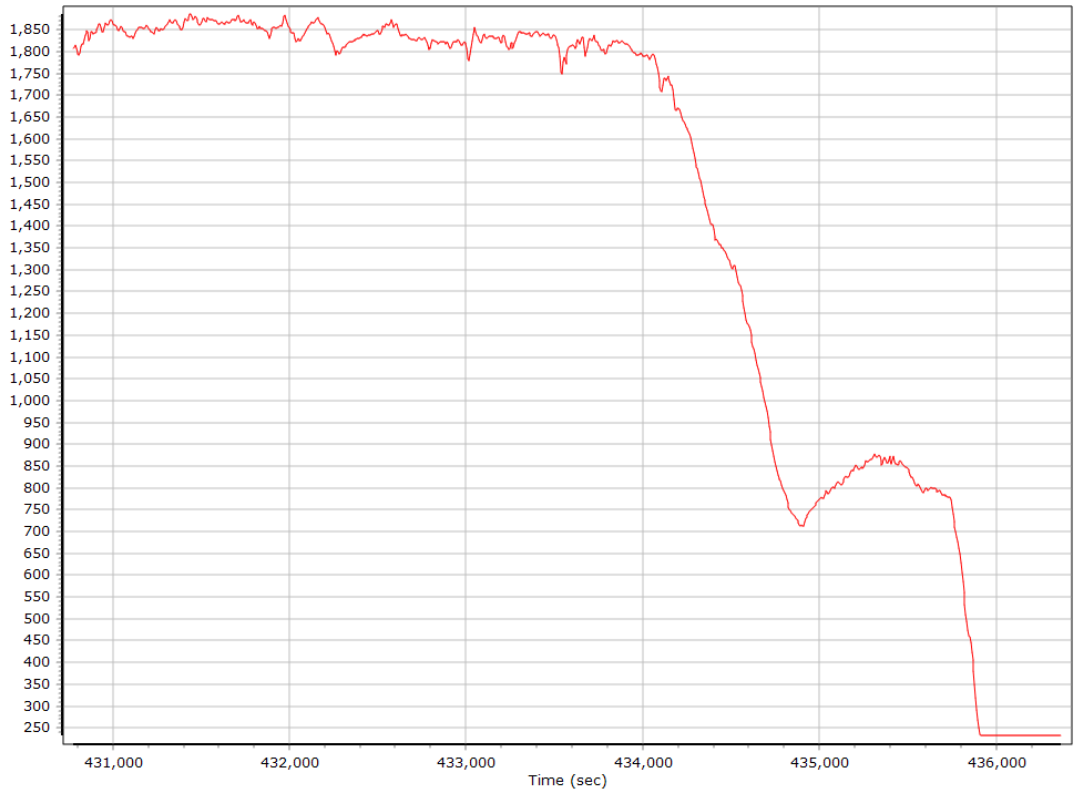
434,000
434,500
435,000
435,500
436,000
Time (sec)
GALILEO 01 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 07 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 26 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 33 L1 BOC_1_1_D_MBOC SNR (dB/Hz)

Smoothed Trajectory Information

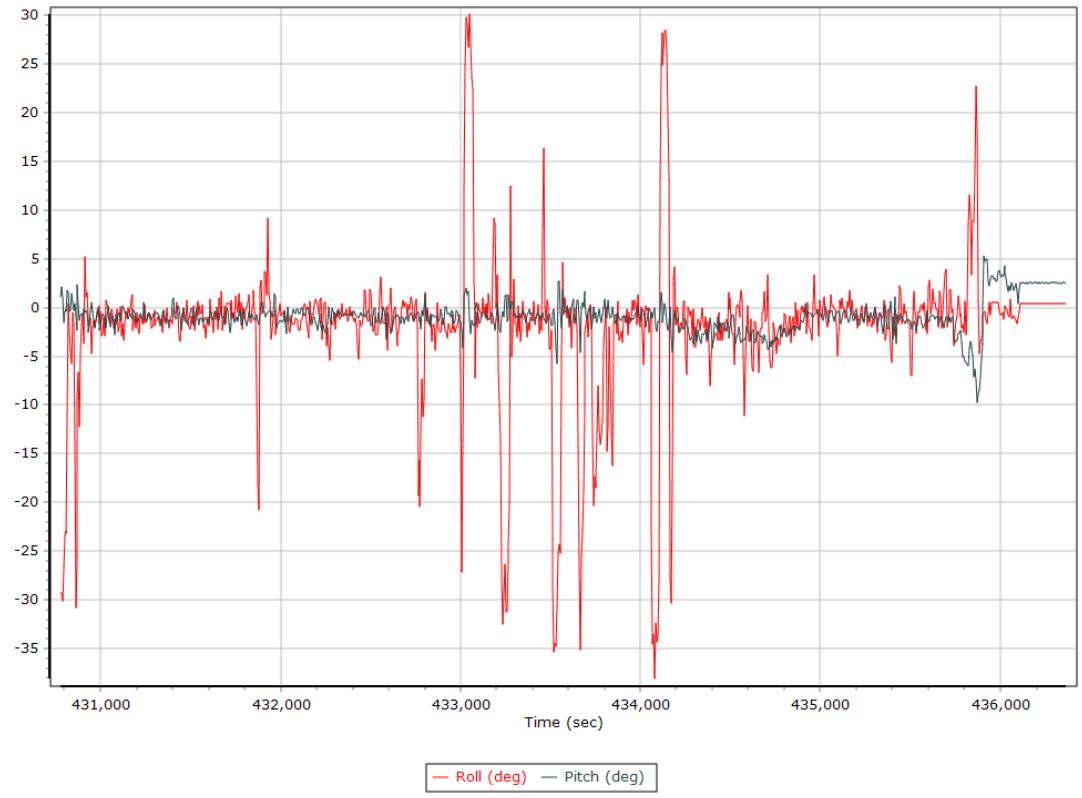
Top View



Altitude



Roll/Pitch



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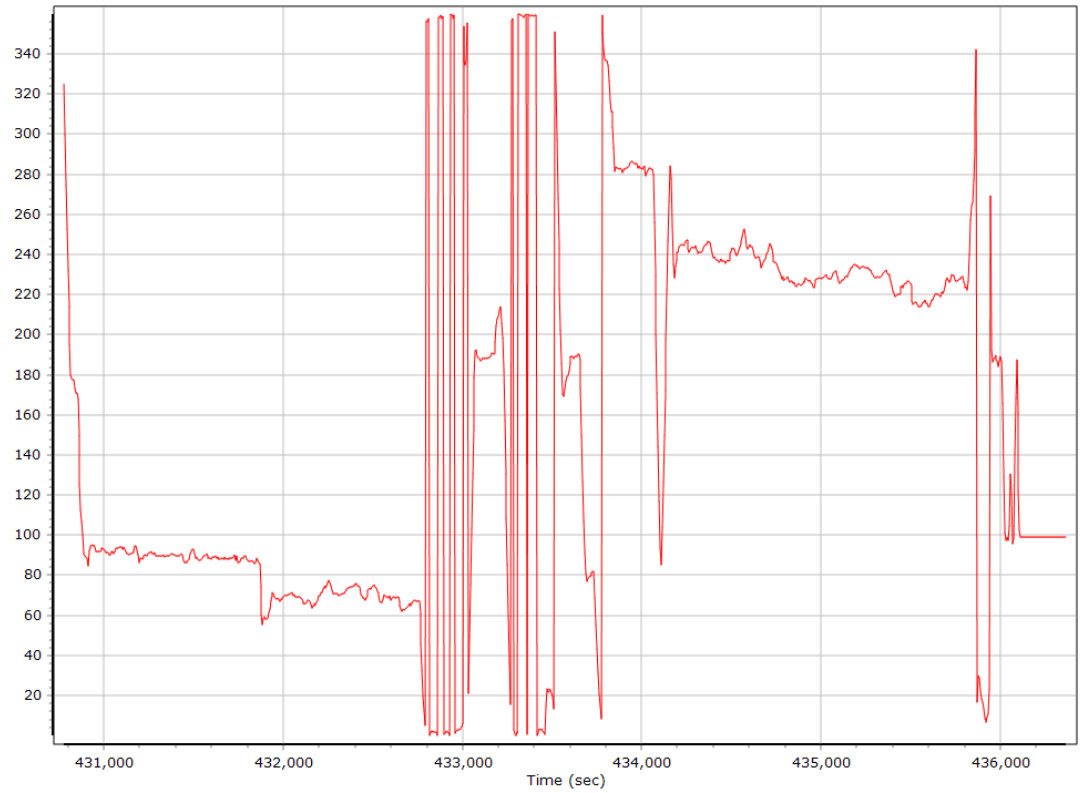
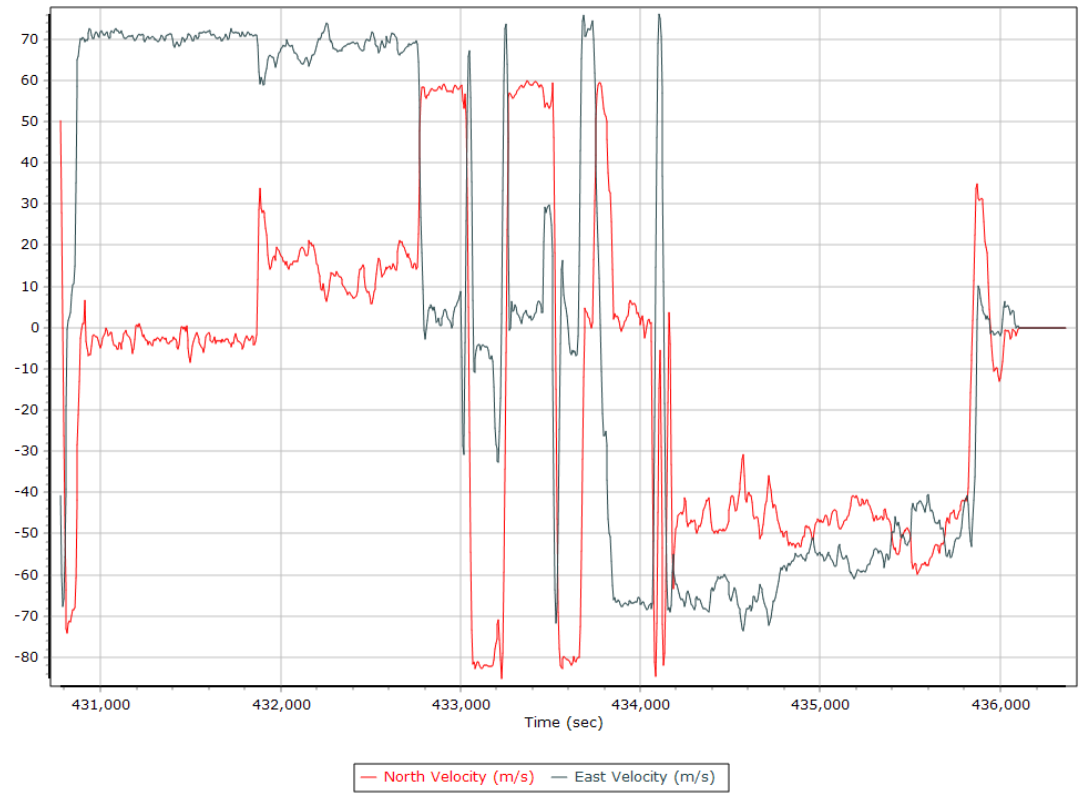
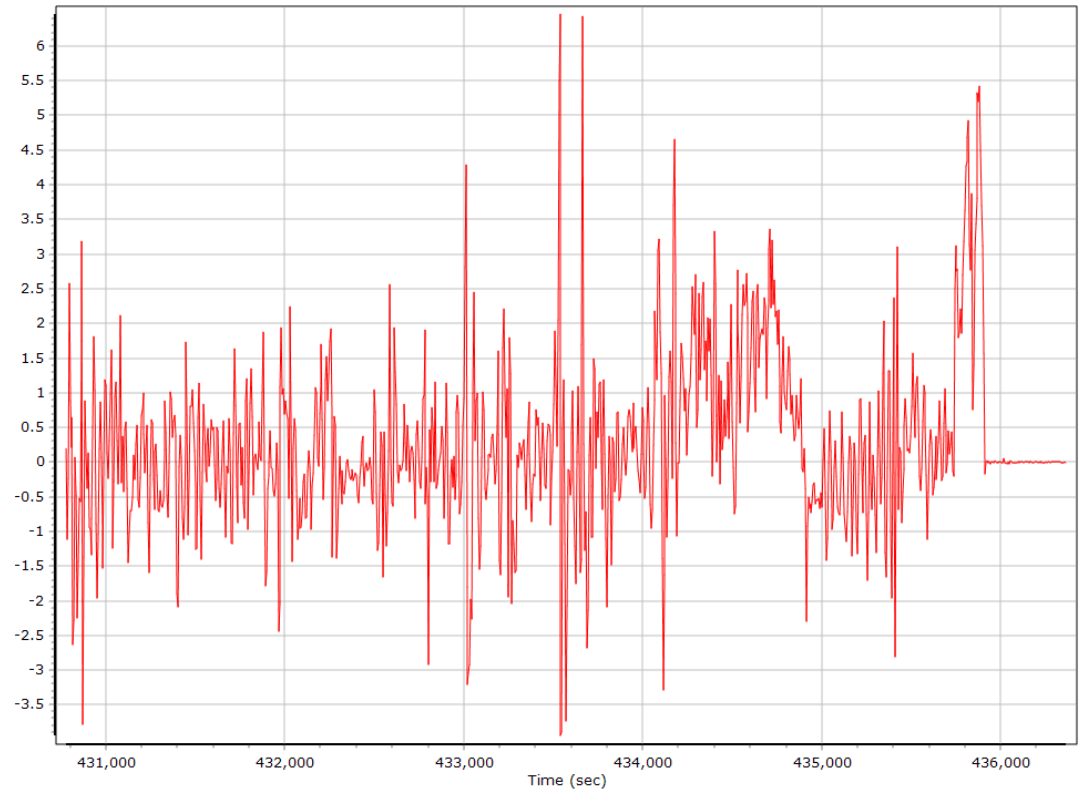


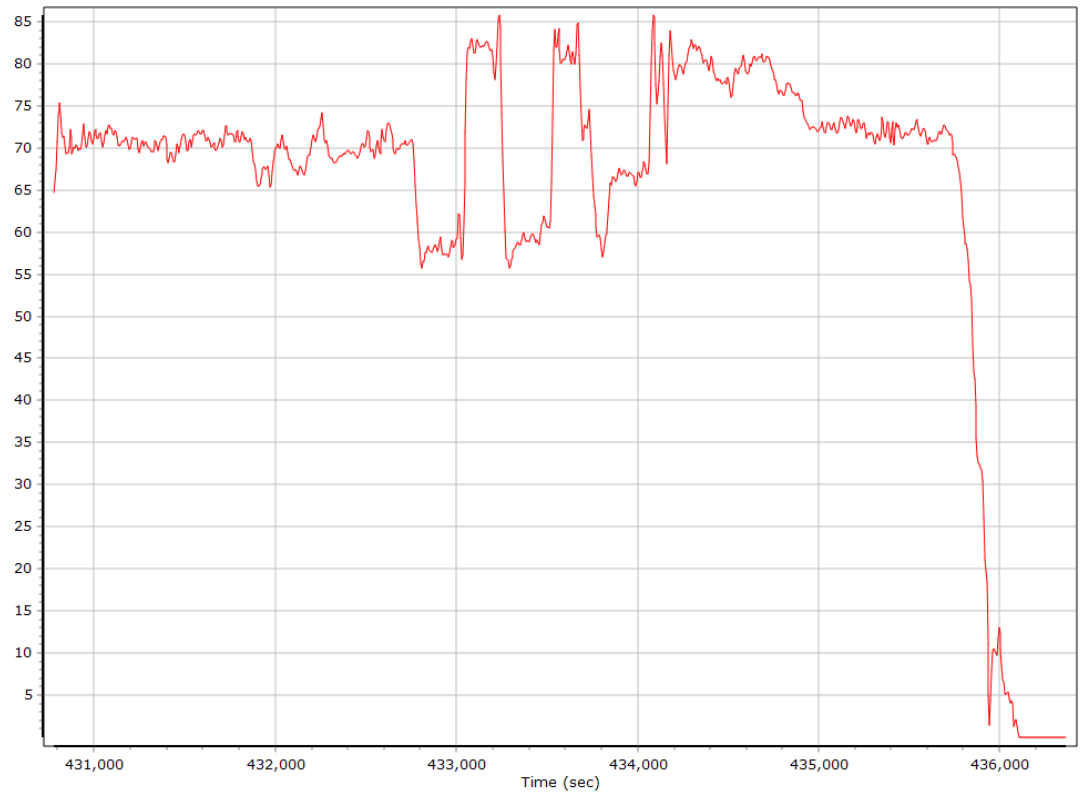
North/East Velocity



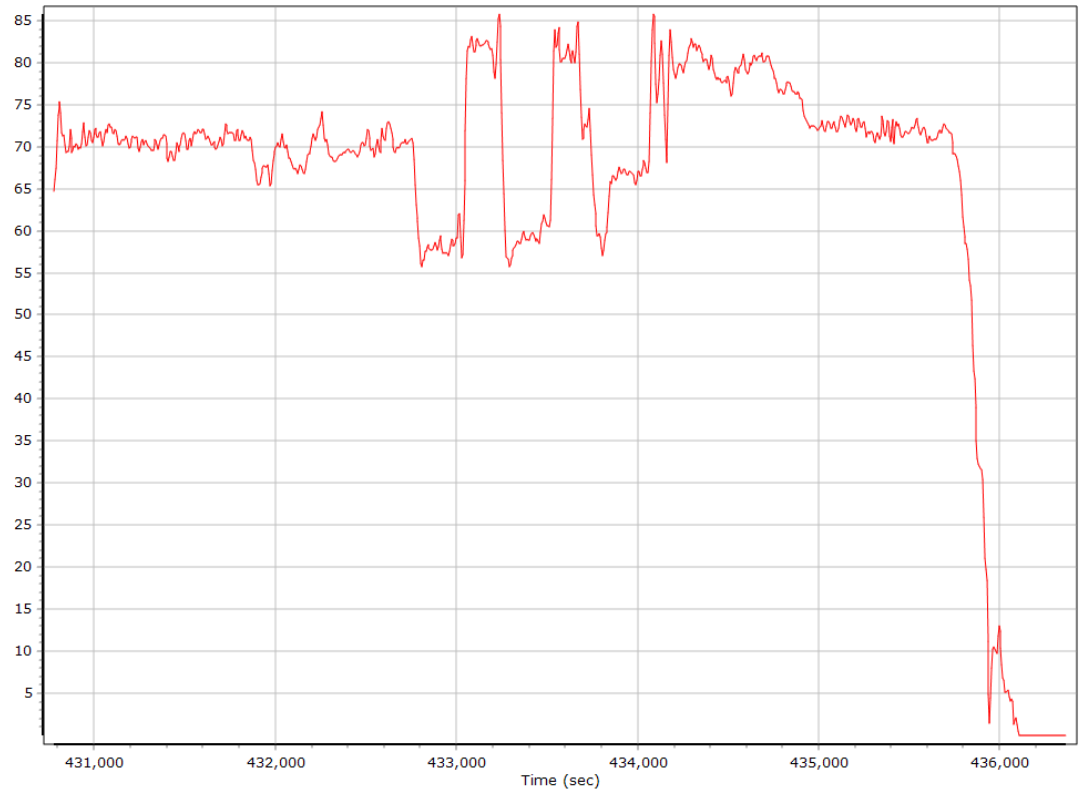
Down Velocity



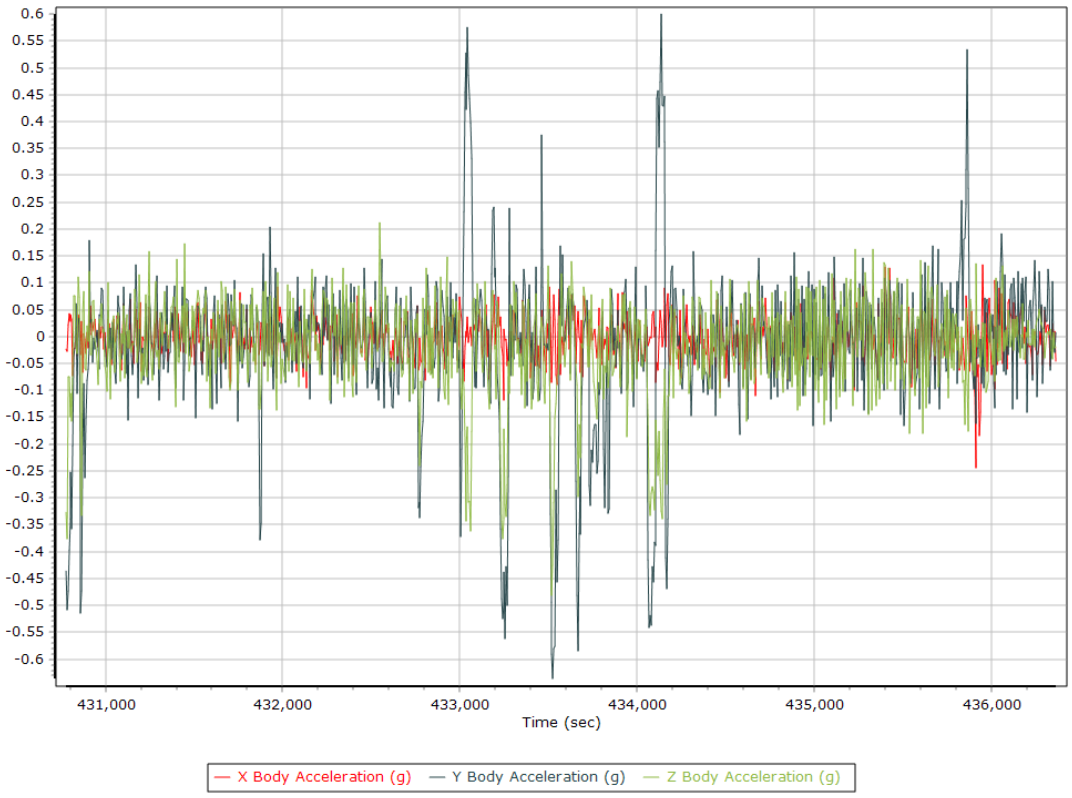
Total Speed



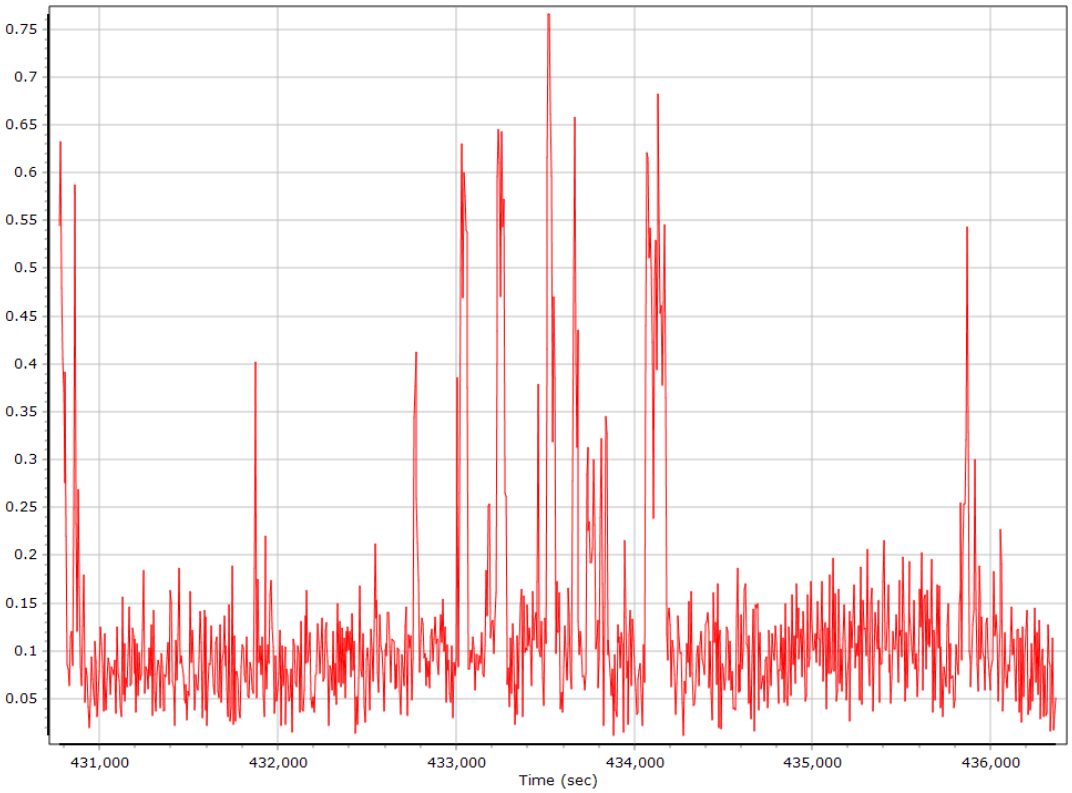
Ground Speed



Body Acceleration



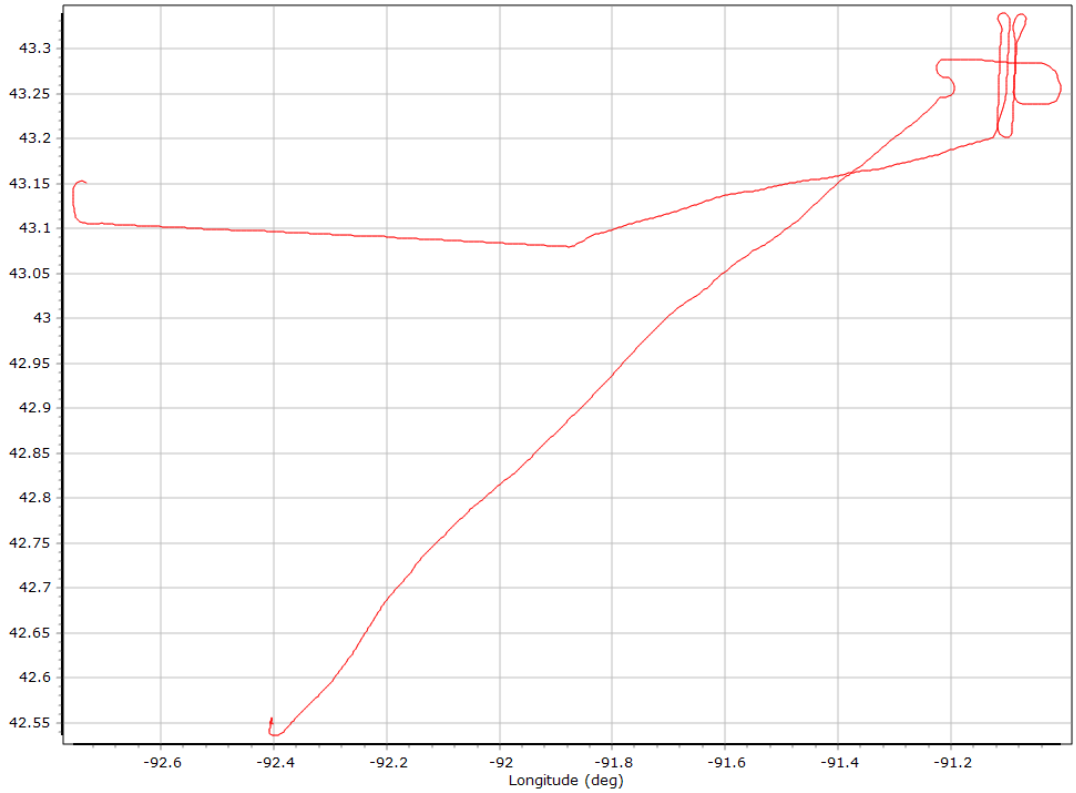
Total Body Acceleration



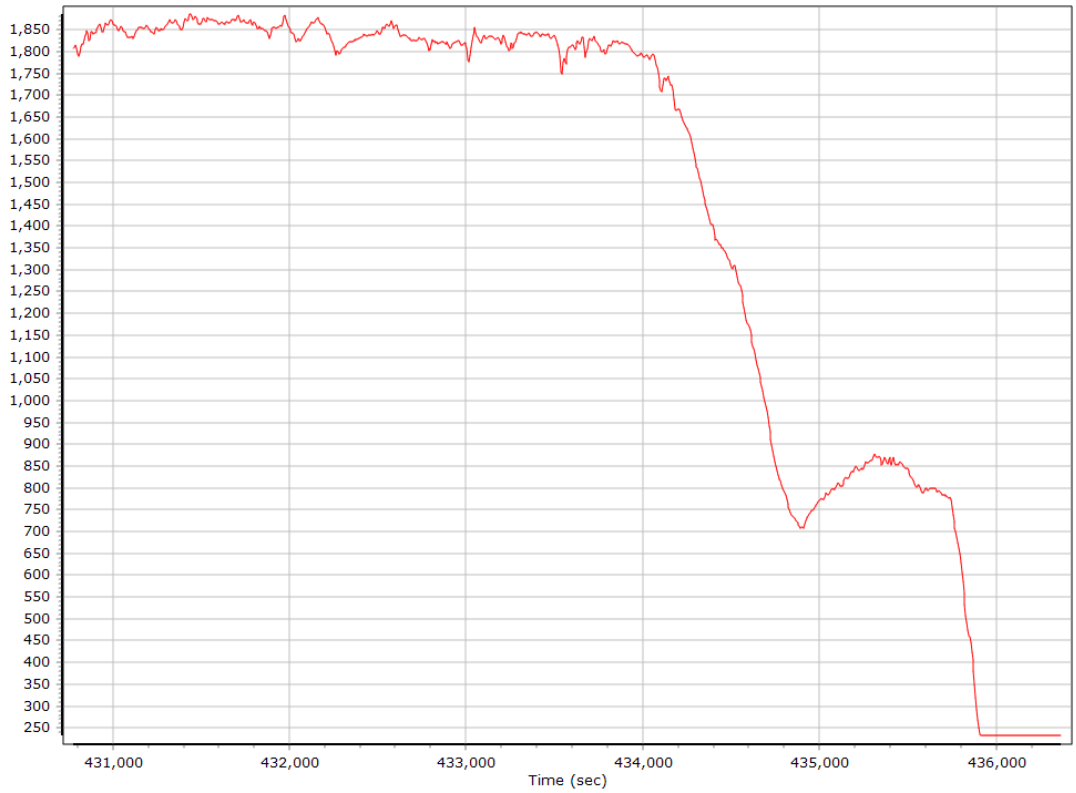
Body Angular Rate

Forward Processed Trajectory Information

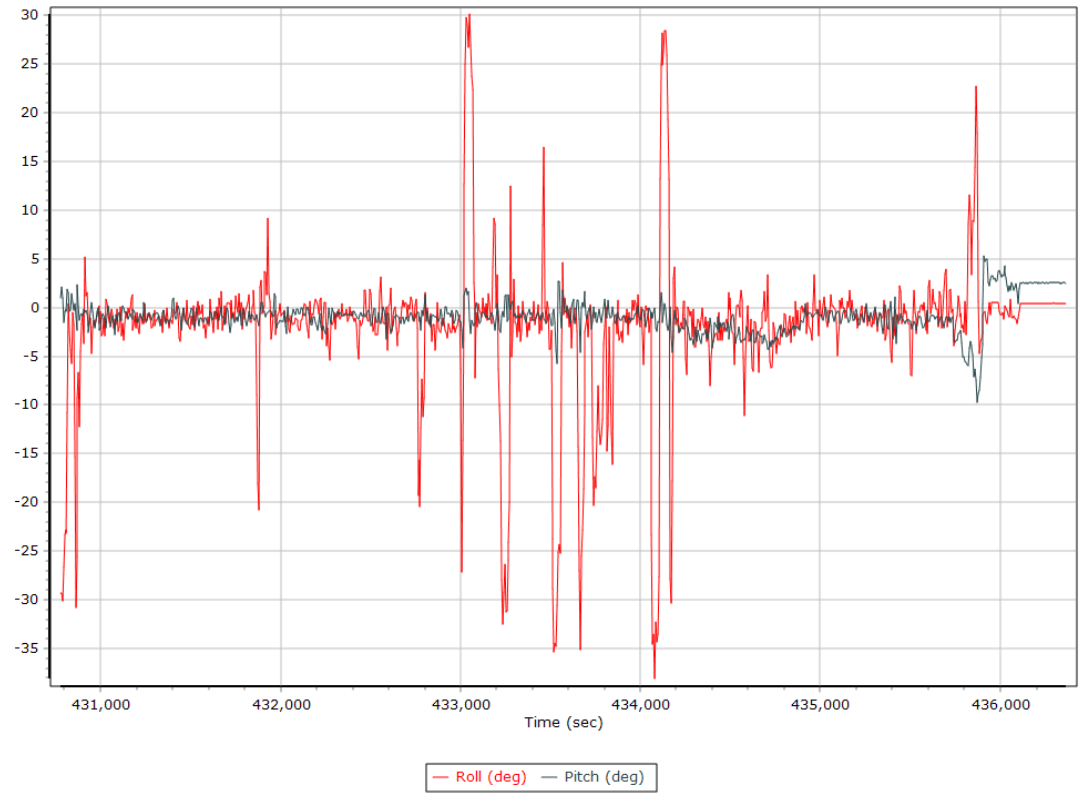
Top View



Altitude



Roll/Pitch



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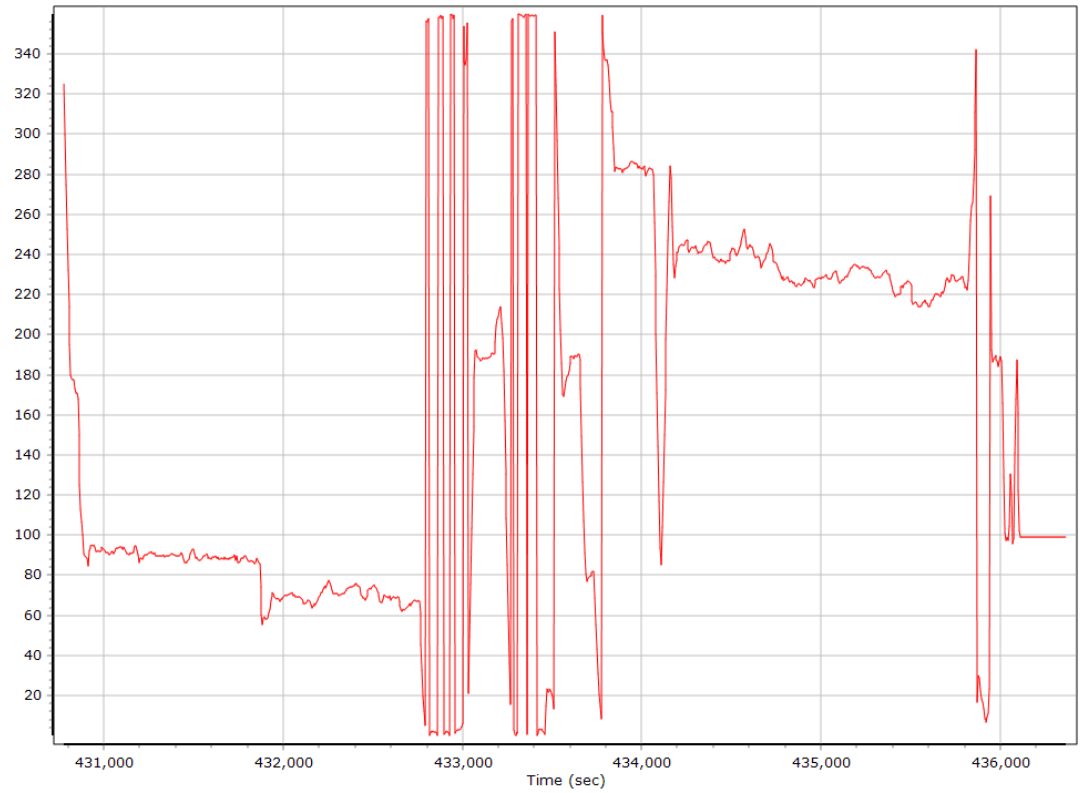
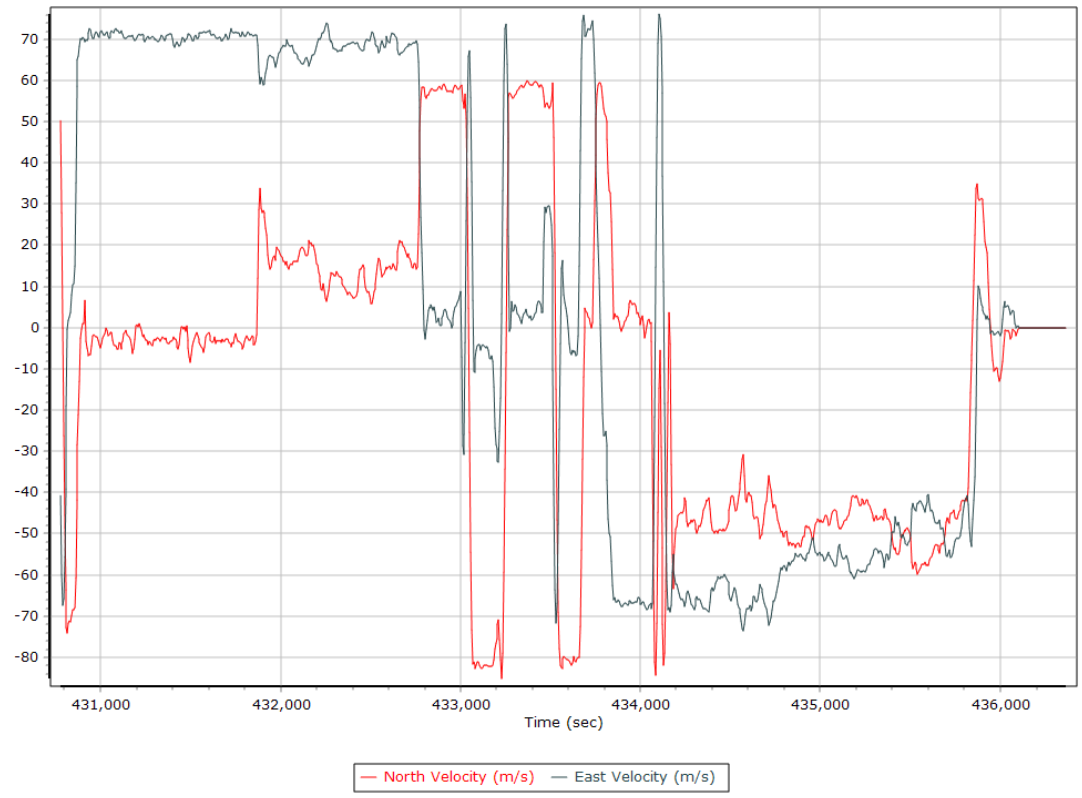
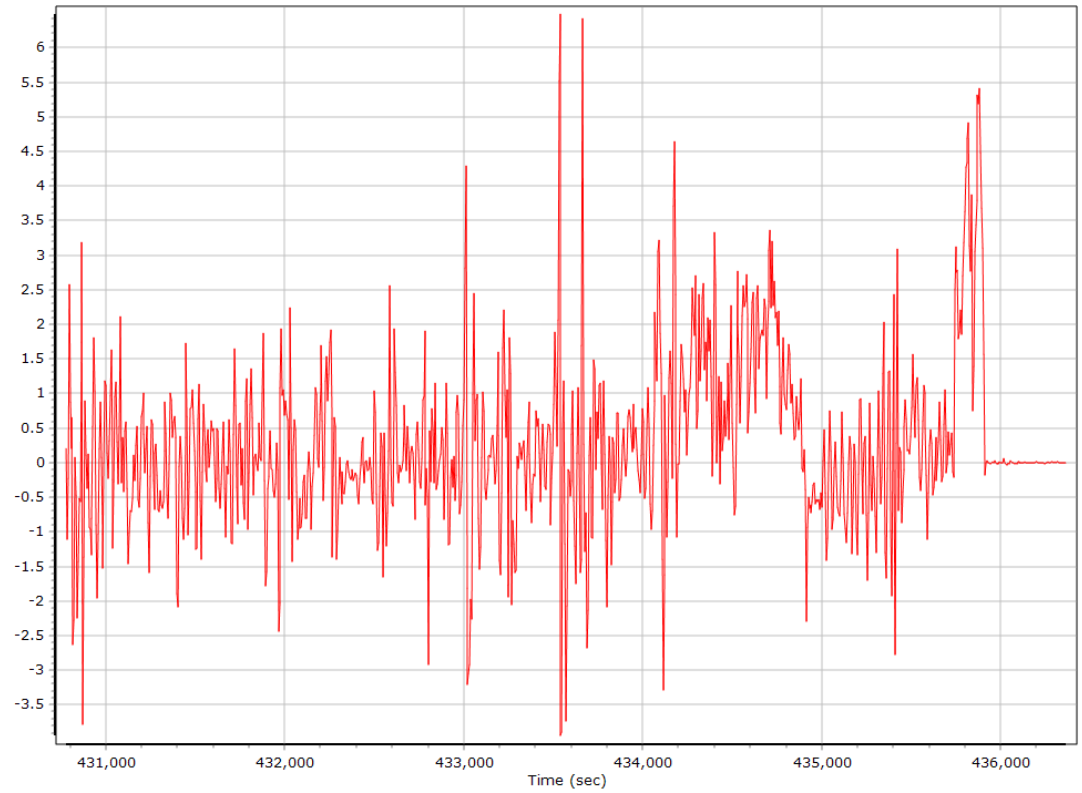


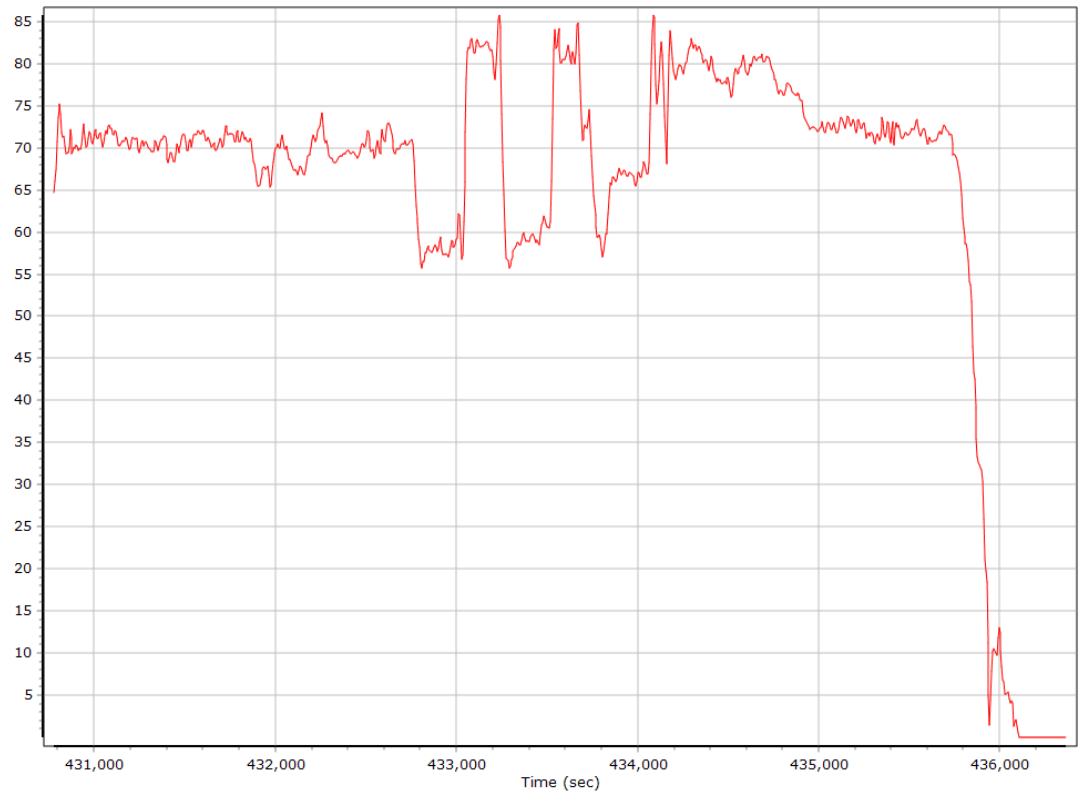
North/East Velocity



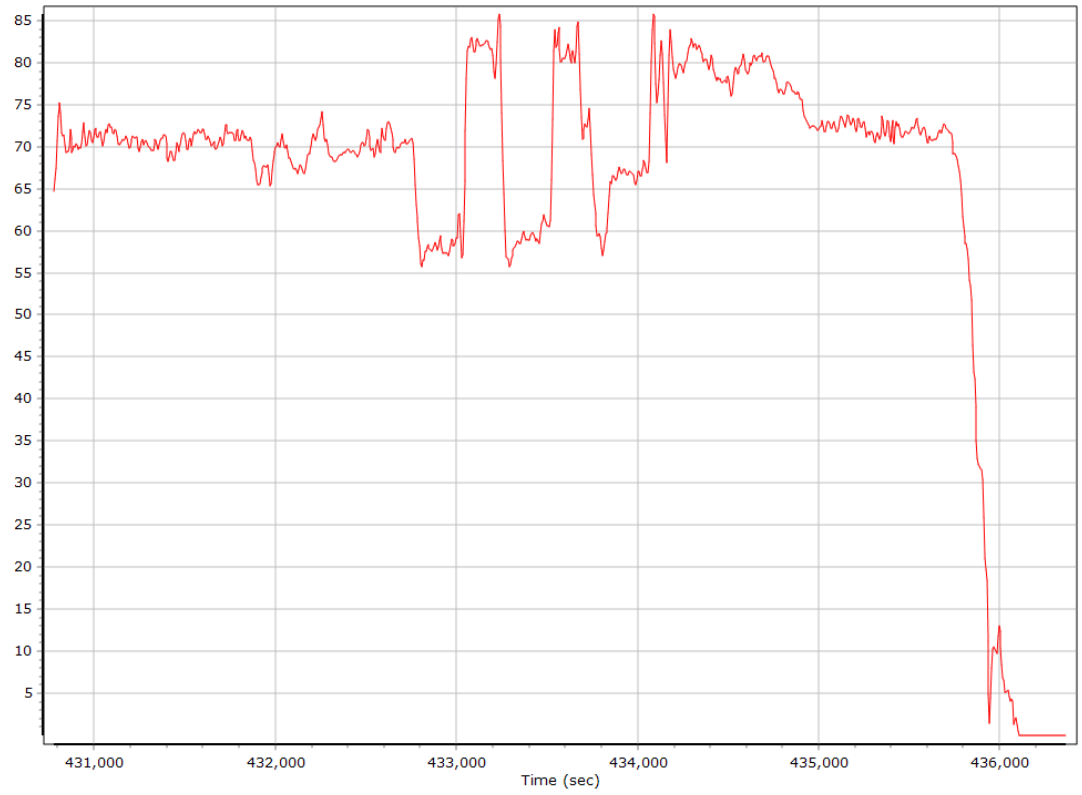
Down Velocity



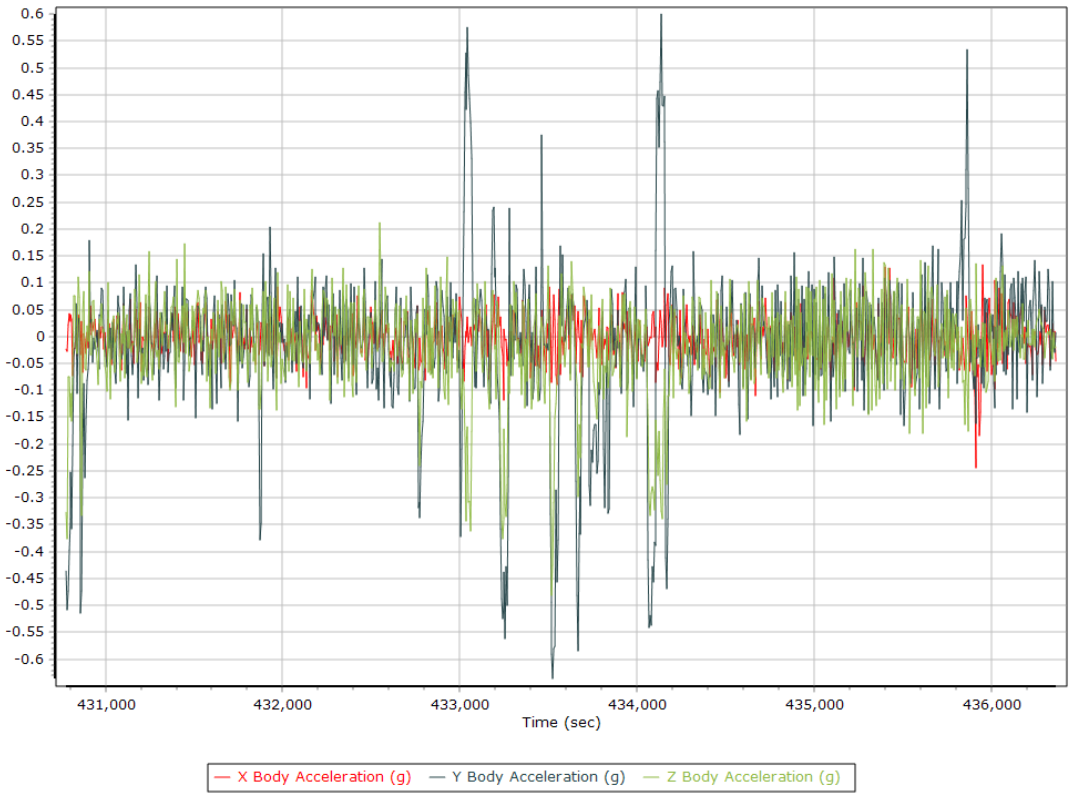
Total Speed



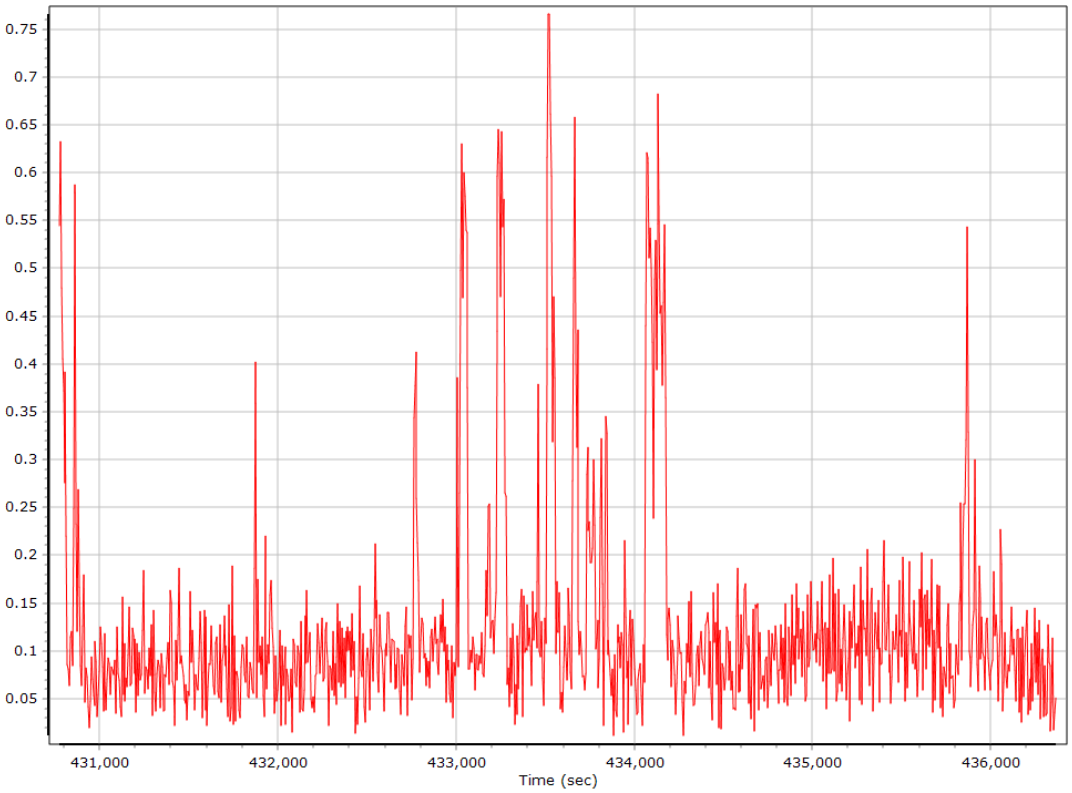
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GPS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/23/2020	IADE	25.88	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IADE	25.88	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IAEL	39.05	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IAEL	39.05	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	MNPS	53.32	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	MNPS	53.32	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IANA	64.69	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IANA	64.69	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	MNCA	69.86	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	MNCA	69.86	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IAAL	88.13	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IAAL	88.13	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	WLNC	90.53	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	WLNC	90.53	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	MNEY	107.19	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	MNEY	107.19	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	MNSV	111.13	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	MNSV	111.13	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IAMN	113.94	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IAMN	113.94	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	MNWN	113.96	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	MNWN	113.96	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	JFWS	126.19	GPS	30	CORS (daily)	Smart Base	Imported
04/24/2020	JFWS	126.19	GPS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IAHT	131.58	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IAHT	131.58	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IATA	134.89	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IATA	134.89	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	NLIB	142.07	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	NLIB	142.07	GNSS	30	CORS (daily)	Smart Base	Imported
04/23/2020	IAMQ	142.53	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IAMQ	142.53	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IAAL
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	5781 s (2102 430606 - 2102 436387)
Number of reference stations	8
Primary station GPS measurement usage (%)	99.7
Average number of satellites per epoch	6.8
Max number of GPS stations used	6
Min number of GPS stations used	3
Total full data gap (sec)	0
Total individual satellite data gap (sec)	118
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38124"	W93°22'06.68790"	344.482
Adjusted		N43°17'02.38122"	W93°22'06.68754"	344.489
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.007	0.011

Base Station Information

Station ID	IAHT		
Filename	iaht1140.20o, iaht1150.20o		
Start date	04/23/2020 00:00:00		
End date	04/24/2020 23:59:30		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38124"		
Longitude	W93°22'06.68790"		
Ellipsoidal height (m)	344.48174		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - JFWS

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°54'51.37586"	W90°14'53.19181"	293.597
Adjusted		N42°54'51.37620"	W90°14'53.19113"	293.584
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.019	0.012	0.022

Base Station Information

Station ID	JFWS		
Filename	jfws1140.20o, jfws1150.20o		
Start date	04/23/2020 00:00:00		
End date	04/24/2020 23:59:30		
Duration	1:23:59:30.000		
Data type	GPS		
Receiver manufacturer, model, serial no.	Trimble	NetRS	4532254621
Antenna manufacturer, model	Trimble	Choke Ring w/SCIT Dome	
Antenna height [m]	0.008		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.11		
Latitude	N42°54'51.37586"		
Longitude	W90°14'53.19181"		
Ellipsoidal height (m)	293.59662		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59751"	228.904
Adjusted		N42°01'49.10903"	W91°32'55.59728"	228.877
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.028	0.028

Base Station Information

Station ID	IAMN		
Filename	iamn1140.20o, iamn1150.20o		
Start date	04/23/2020 00:00:00		
End date	04/24/2020 23:59:30		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59751"		
Ellipsoidal height (m)	228.90414		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WLNC

Status	OK	**SBQI**	9	
Duration (Hours)	47.77	**Output Coordinates**	Original	
Solution Epochs	5732	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°50'15.66937"	W90°42'41.07307"	280.855
Adjusted		N42°50'15.66940"	W90°42'41.07300"	280.844
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.002	0.011	0.011

Base Station Information

Station ID	WLNC		
Filename	wlnc1140.20o, wlnc1150.20o		
Start date	04/23/2020 00:00:00		
End date	04/24/2020 23:59:30		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72957
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N42°50'15.66937"		
Longitude	W90°42'41.07307"		
Ellipsoidal height (m)	280.85483		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54034"	172.253
Adjusted		N43°29'49.47916"	W91°17'26.53964"	172.228
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.017	0.025	0.030

Base Station Information

Station ID	IANA		
Filename	iana1140.20o, iana1150.20o		
Start date	04/23/2020 00:00:00		
End date	04/24/2020 23:59:30		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54034"		
Ellipsoidal height (m)	172.25320		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52988"	298.980
Adjusted		N42°52'40.47663"	W91°21'41.52971"	298.983
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.002	0.005

Base Station Information

Station ID	IAEL		
Filename	iael1140.20o, iael1150.20o		
Start date	04/23/2020 00:00:00		
End date	04/24/2020 23:59:30		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52988"		
Ellipsoidal height (m)	298.98027		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Control	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52634"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52634"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade1140.20o, iade1150.20o		
Start date	04/23/2020 00:00:00		
End date	04/24/2020 23:59:30		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52634"		
Ellipsoidal height (m)	316.51616		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40417"	W92°47'14.24725"	291.092
Adjusted		N42°44'49.40402"	W92°47'14.24729"	291.119
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.027	0.027

Base Station Information

Station ID	IAAL		
Filename	iaal1140.20o, iaal1150.20o		
Start date	04/23/2020 00:00:00		
End date	04/24/2020 23:59:30		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40417"		
Longitude	W92°47'14.24725"		
Ellipsoidal height (m)	291.09231		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	6.55	79.86	
Number of GPS SV	5	8	7
Number of GLONASS SV	0	0	0
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	5	8	7
PDOP	1.82	4.87	2.31
QC Solution Gaps	0.00	0.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	5742.00	0.00	0.00
Percentage	100.00	0.00	0.00

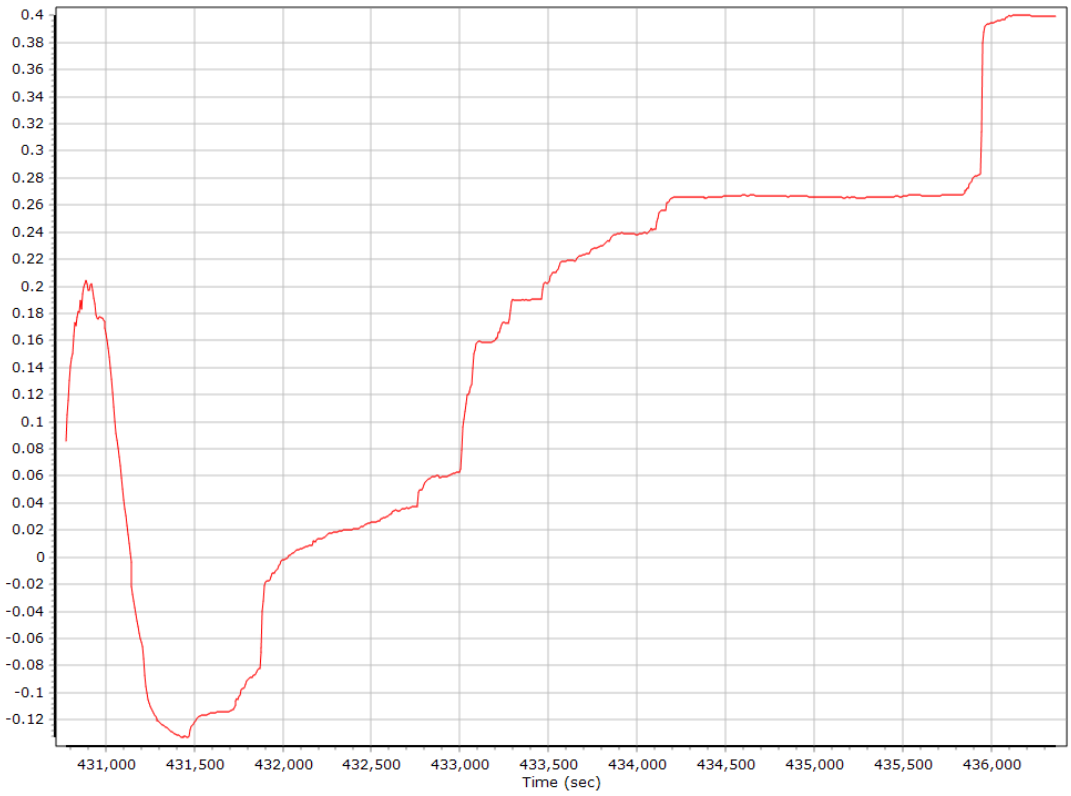
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	430588.000 (04/23/2020 23:36:28)		
Processing end time	436369.000 (04/24/2020 01:12:49)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	0.100	0.100	0.100
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

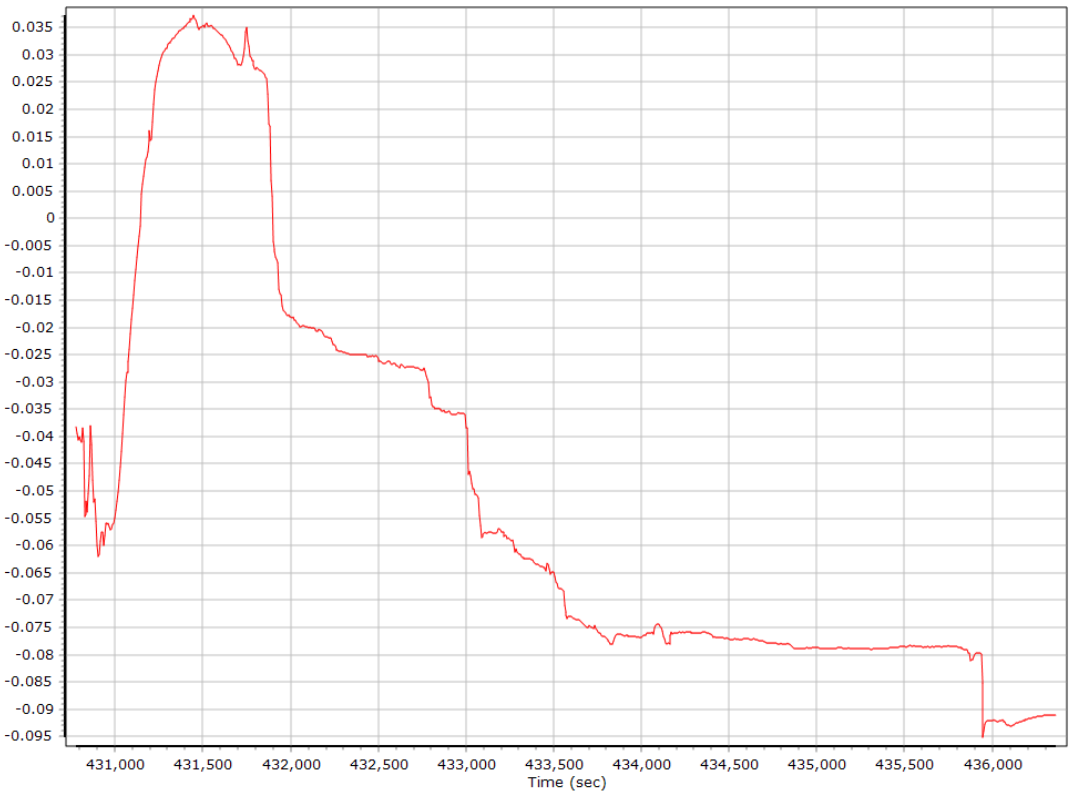
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

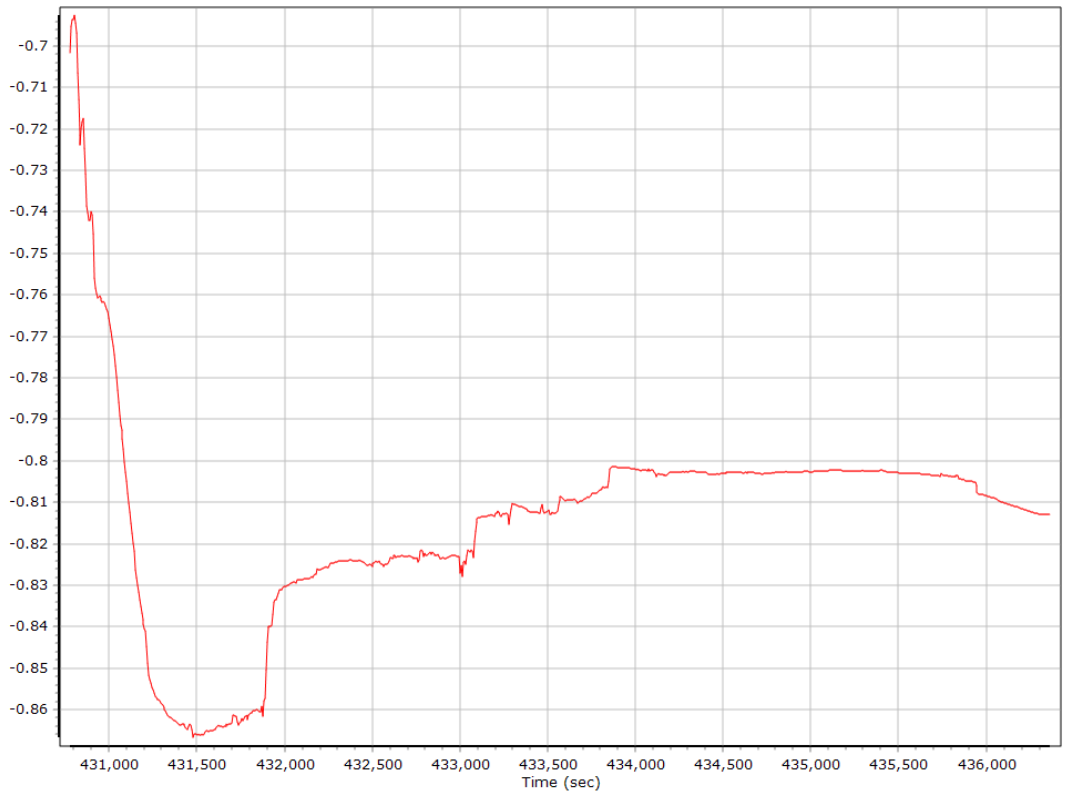
X Reference-Primary GNSS Lever Arm (m)



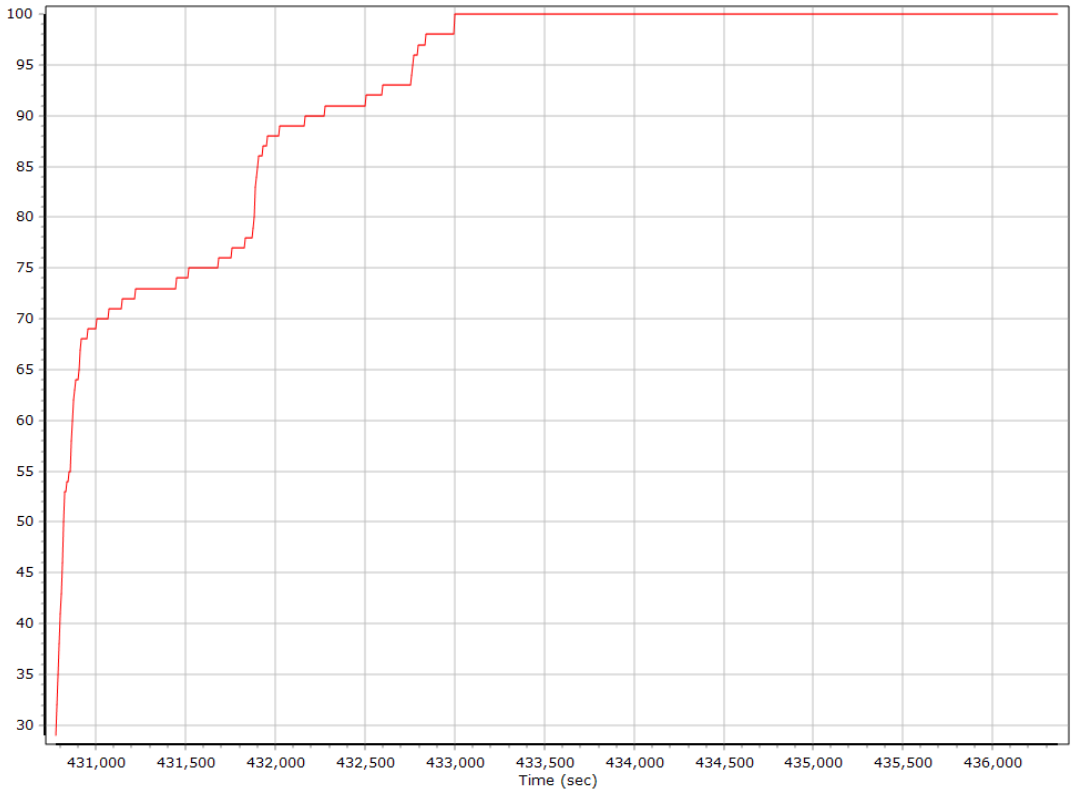
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



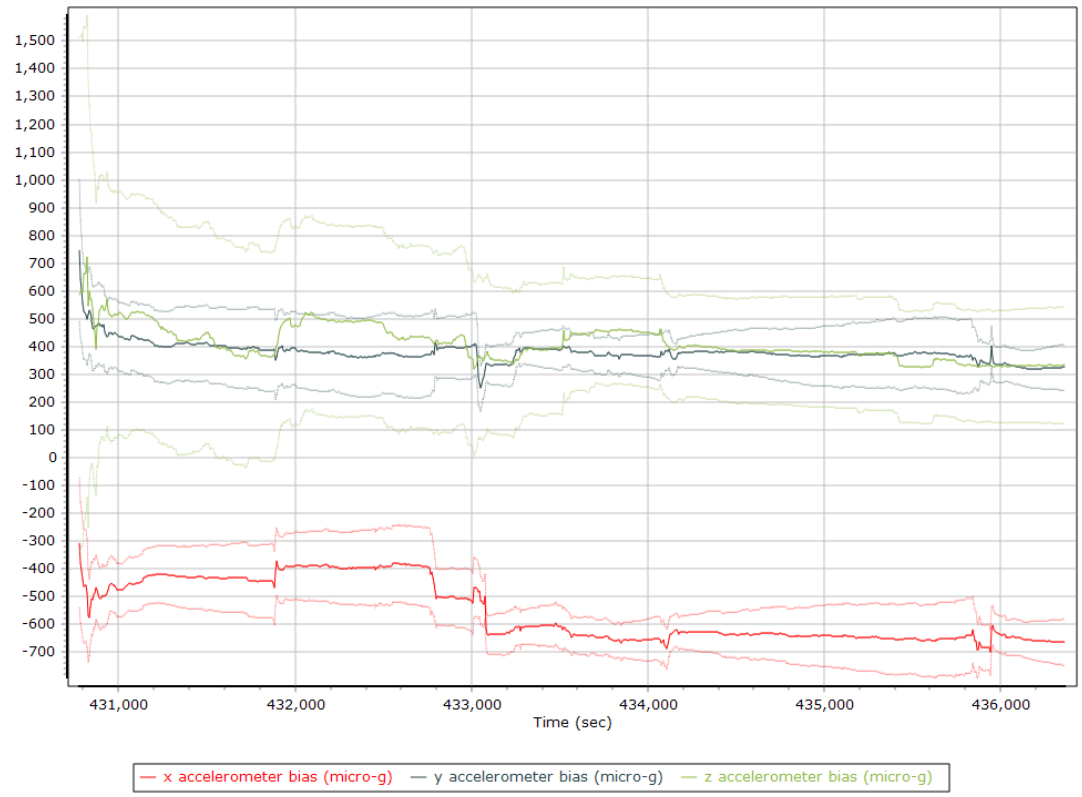
Reference-Primary GNSS Lever Arm Figure of Merit



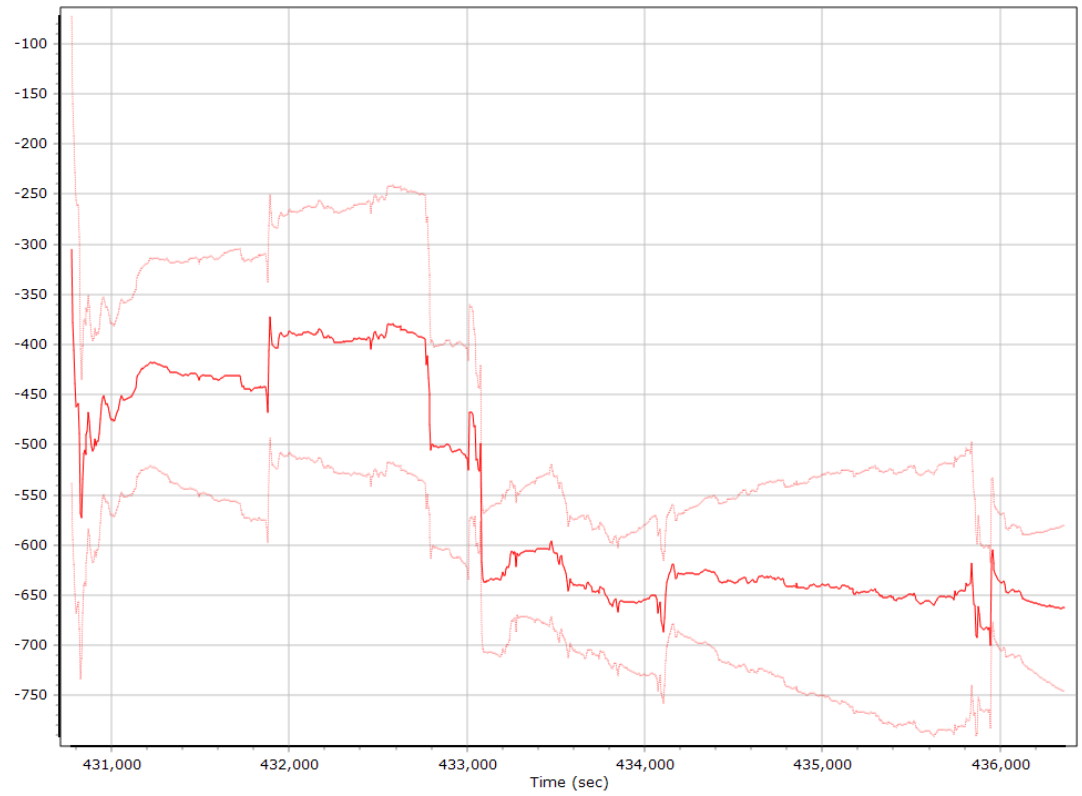
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

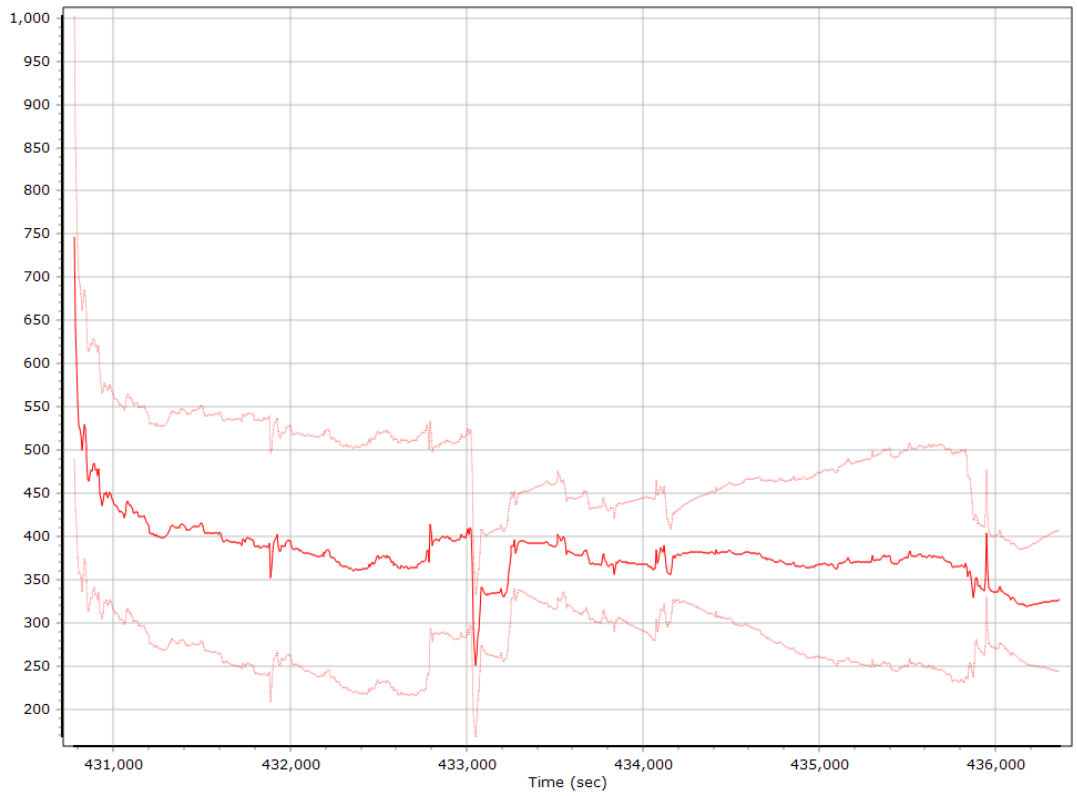
Accelerometer Bias (micro-g)



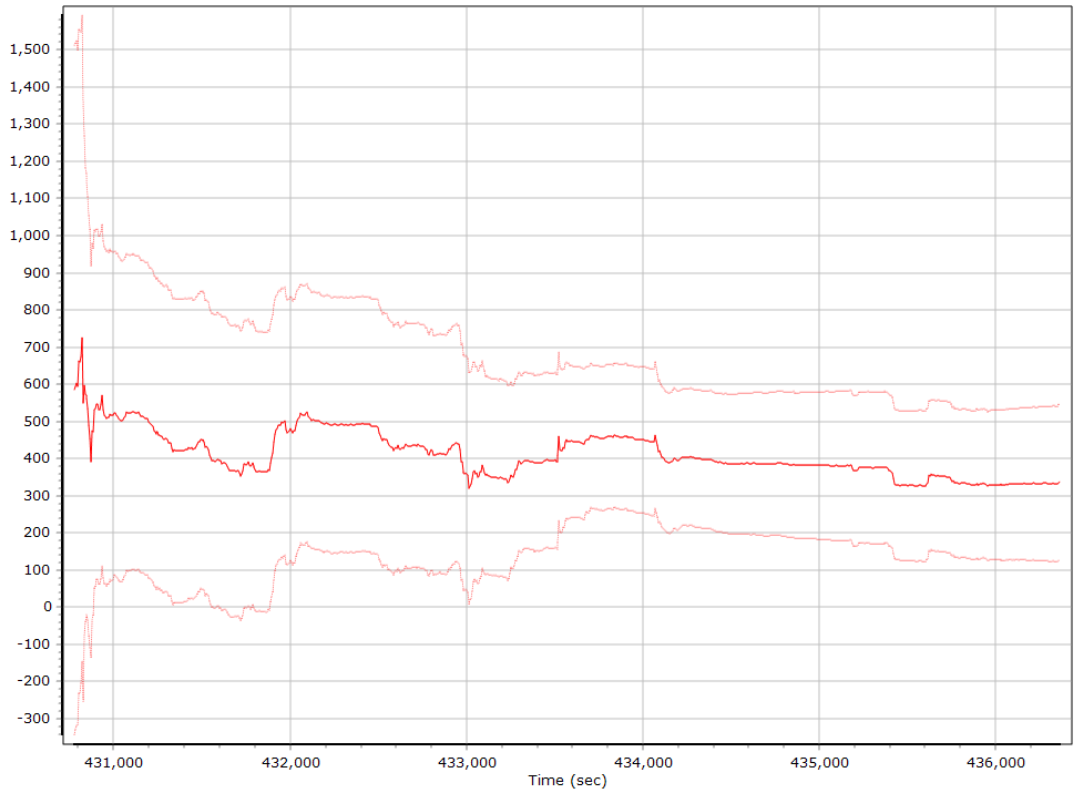
X Accelerometer Bias (micro-g)



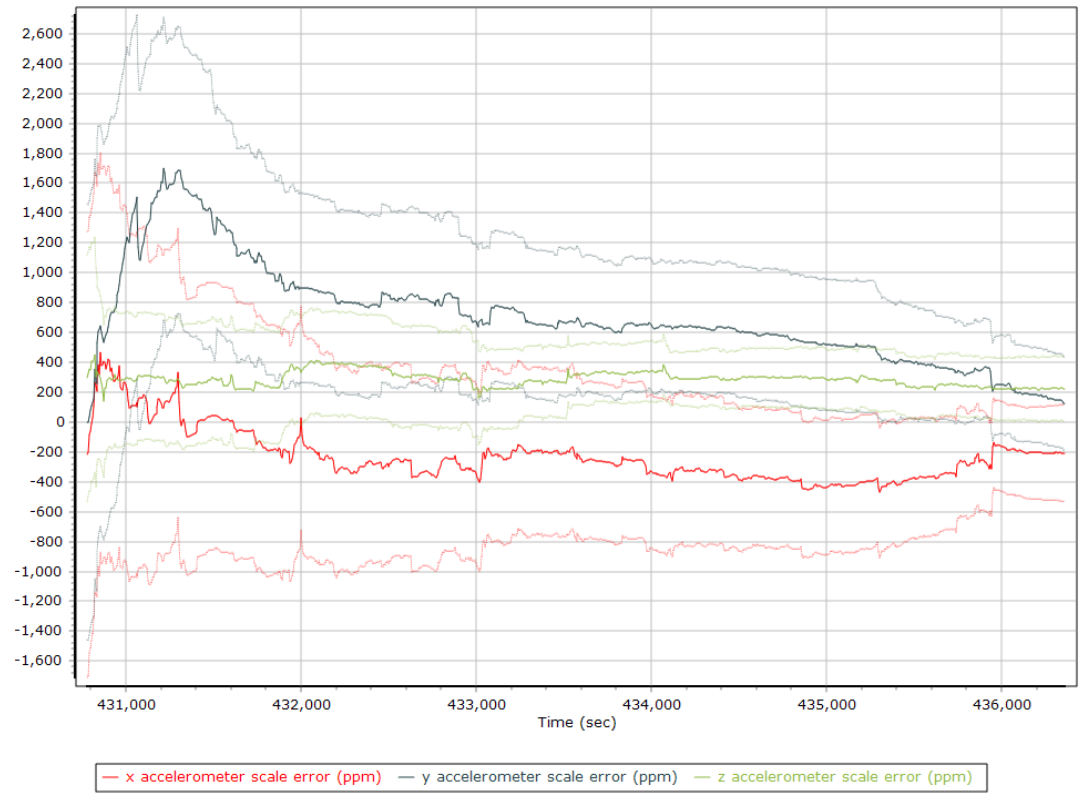
Y Accelerometer Bias (micro-g)



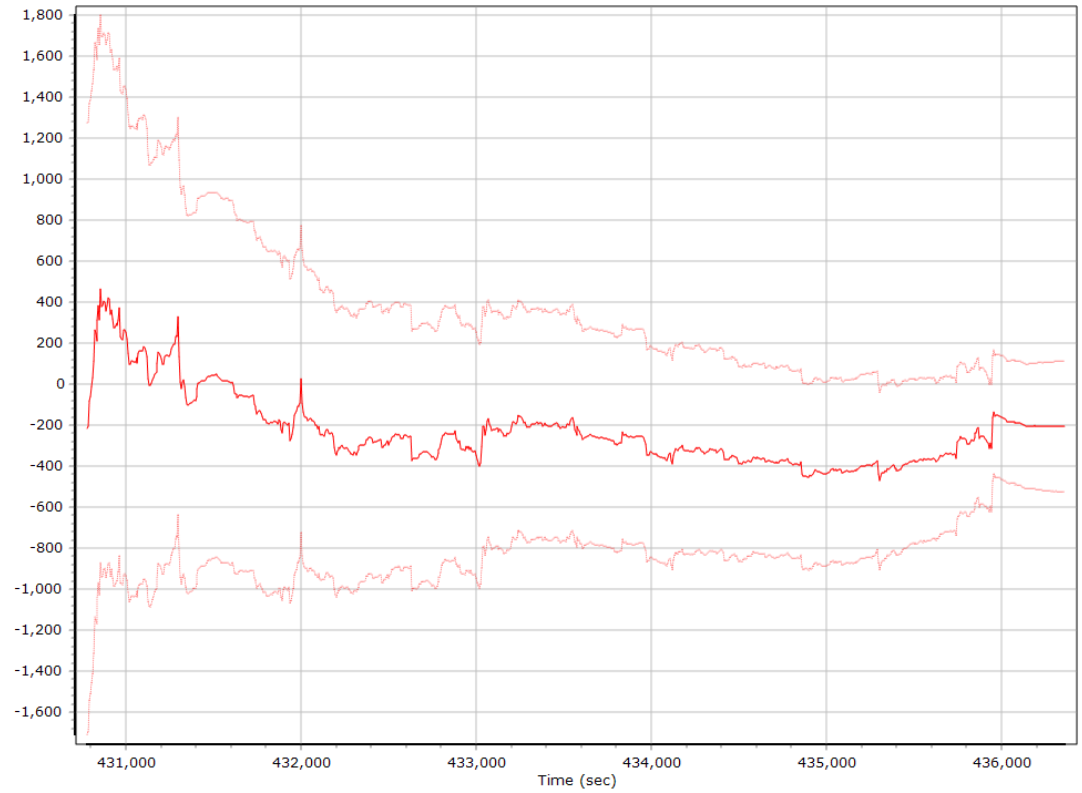
Z Accelerometer Bias (micro-g)



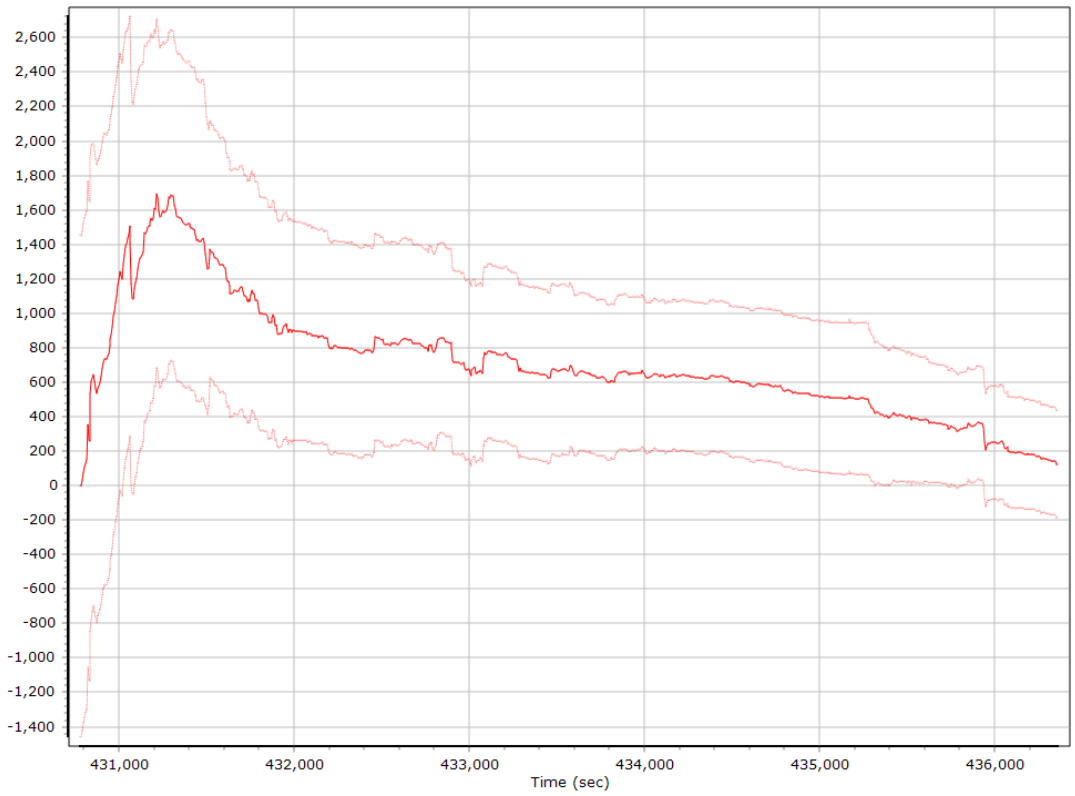
Accelerometer Scale Error (ppm)



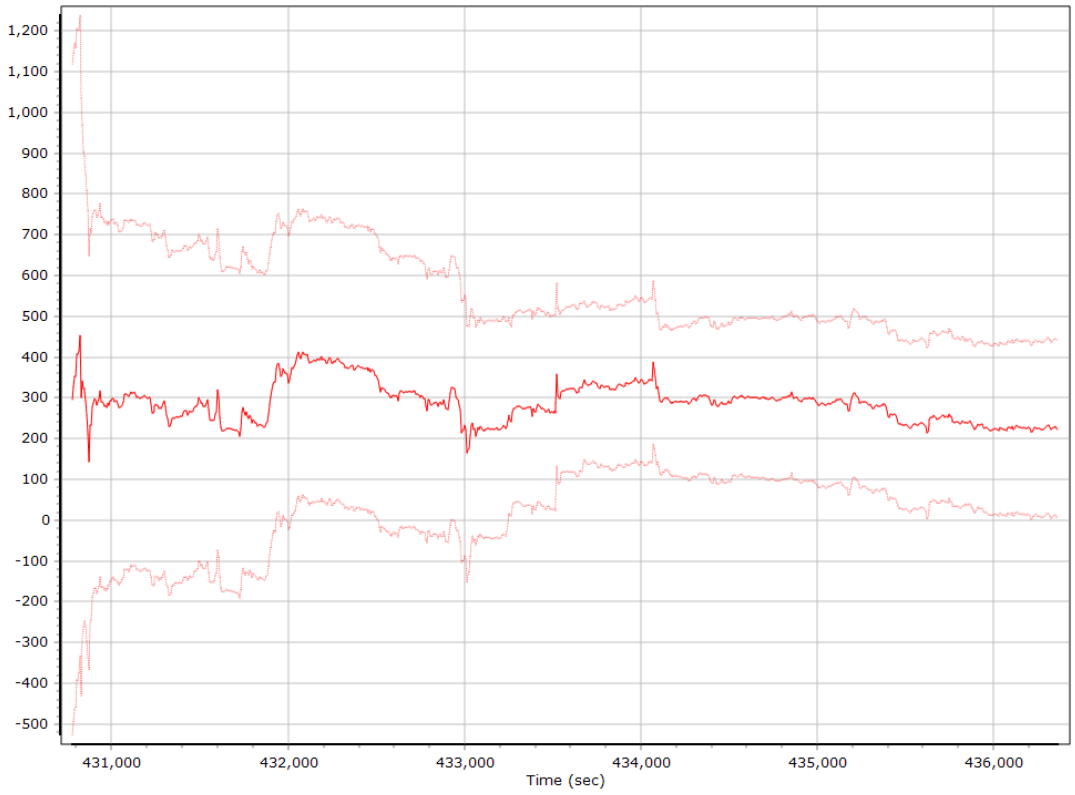
X Accelerometer Scale Error (ppm)



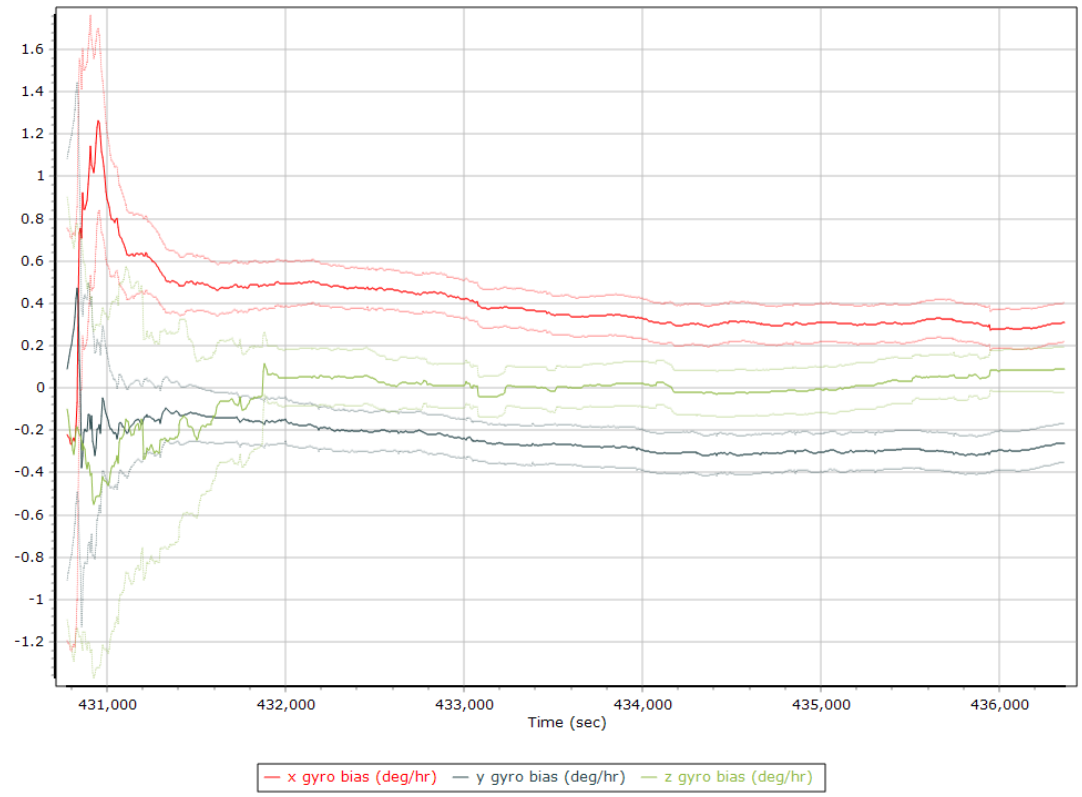
Y Accelerometer Scale Error (ppm)



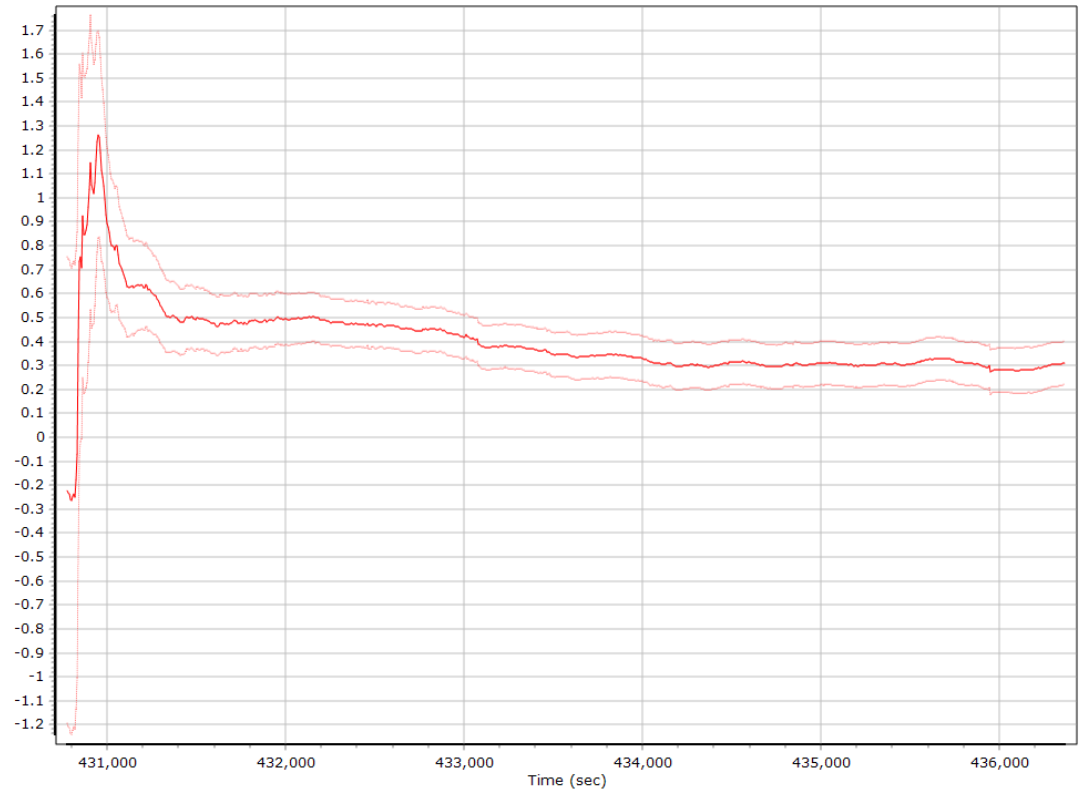
Z Accelerometer Scale Error (ppm)



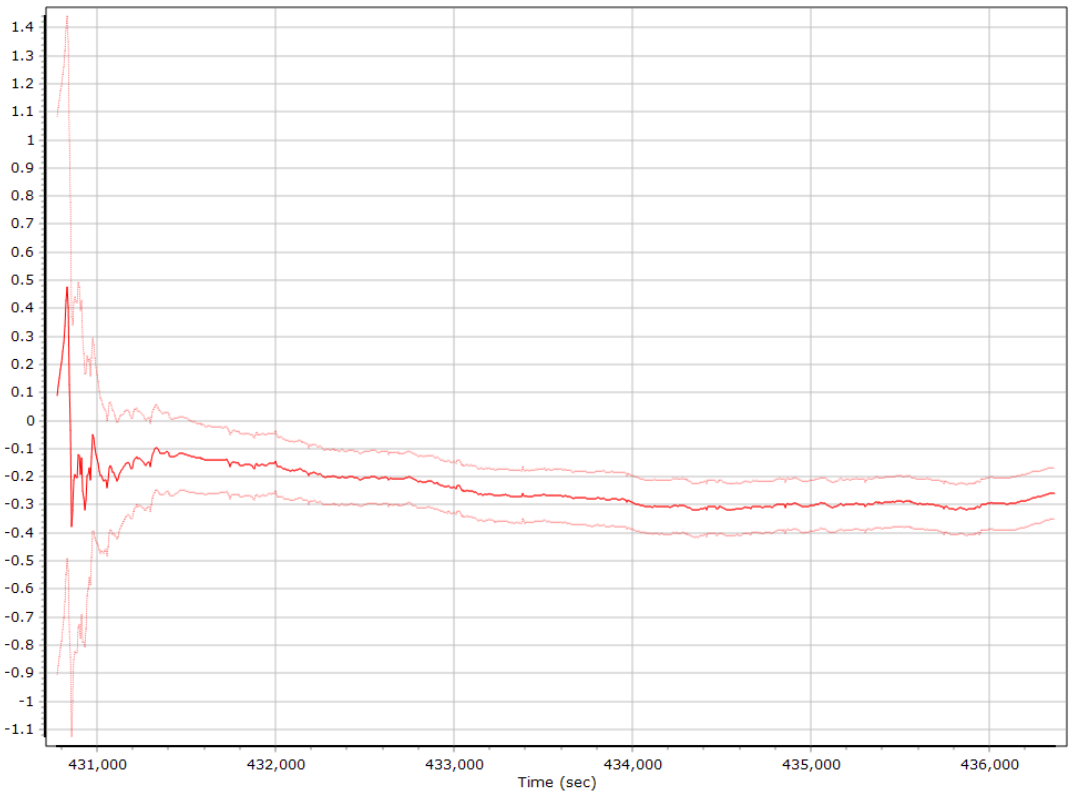
Gyro Bias (deg/h)



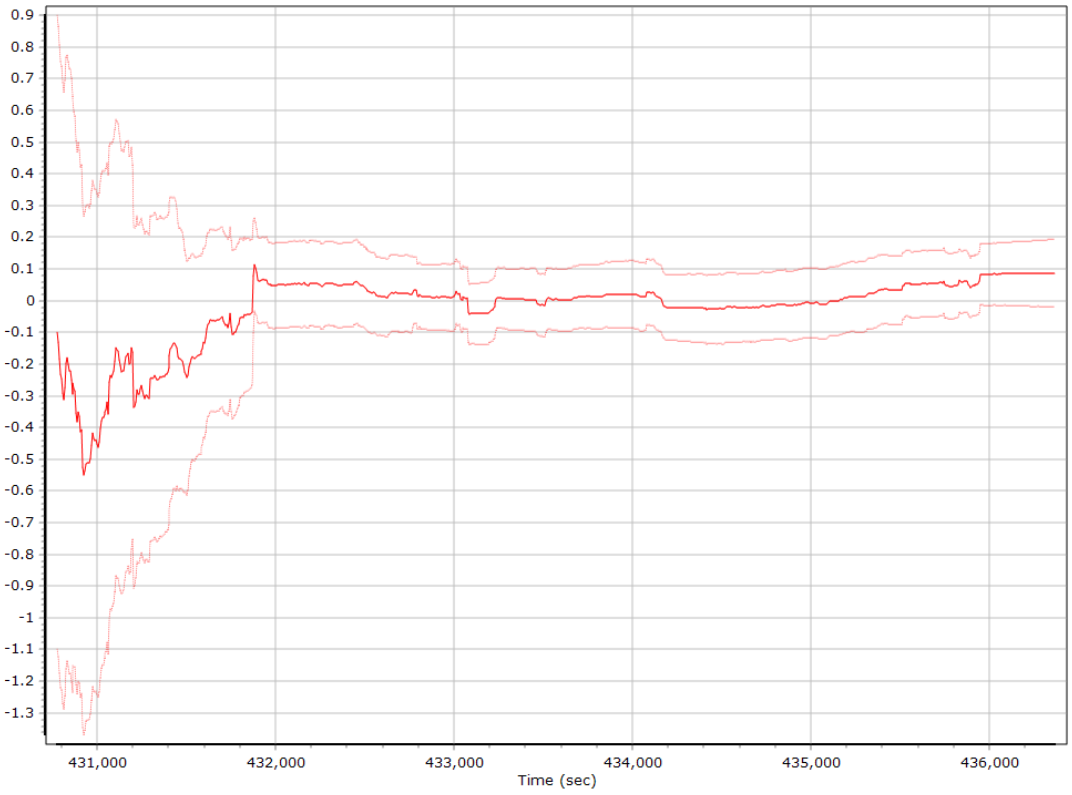
X Gyro Bias (deg/h)



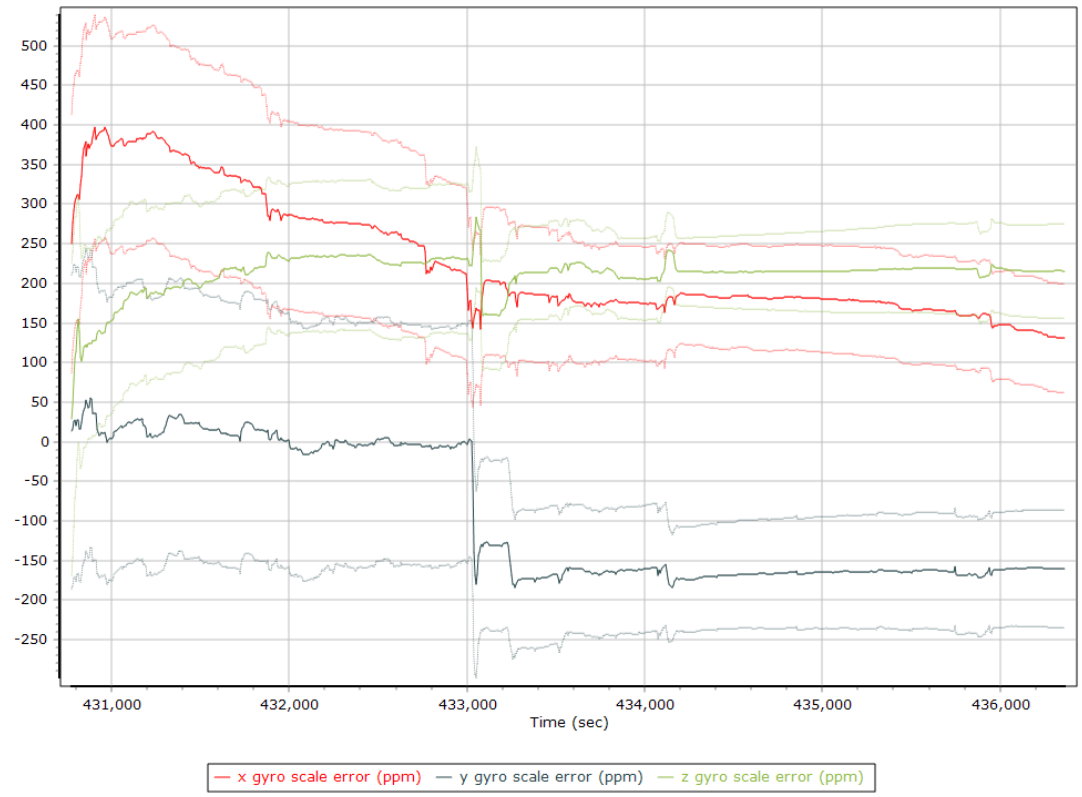
Y Gyro Bias (deg/h)



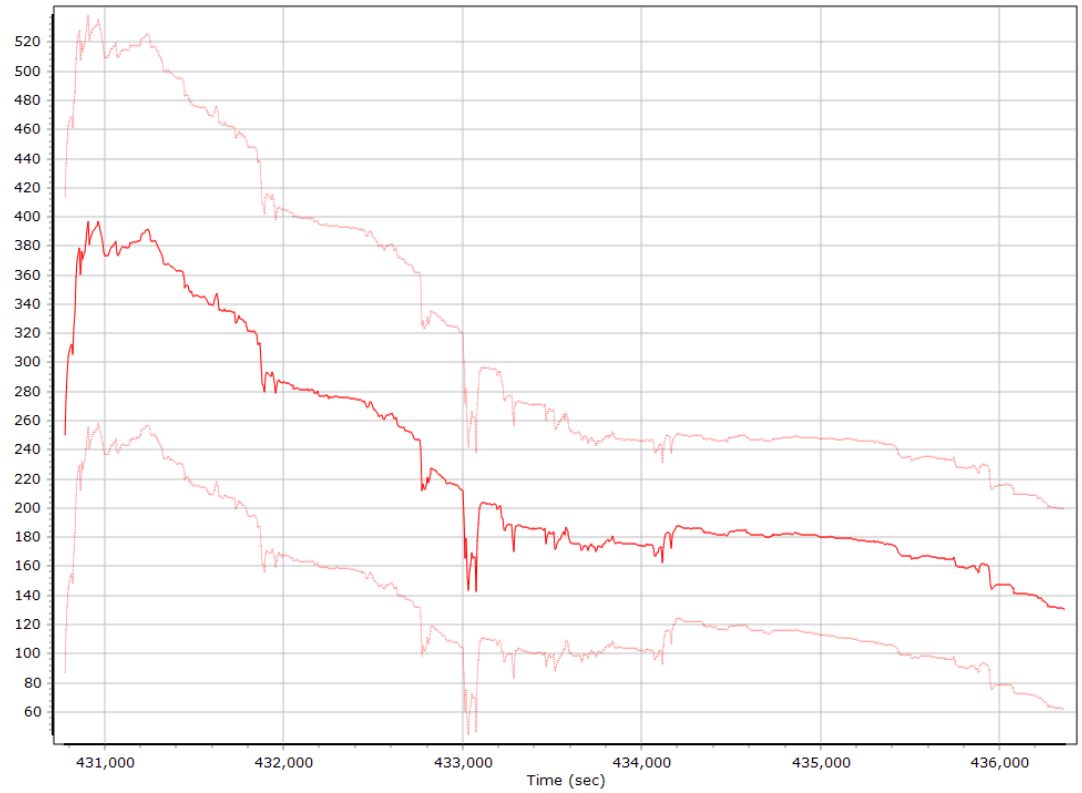
Z Gyro Bias (deg/h)



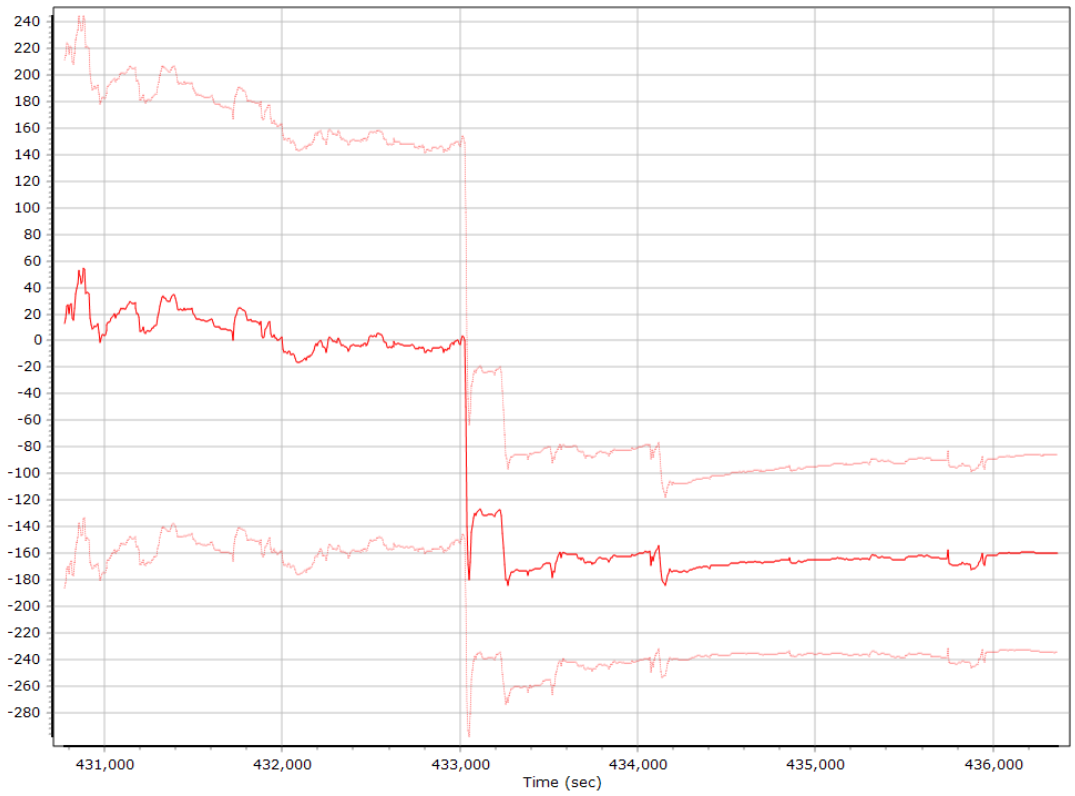
Gyro Scale Error (ppm)



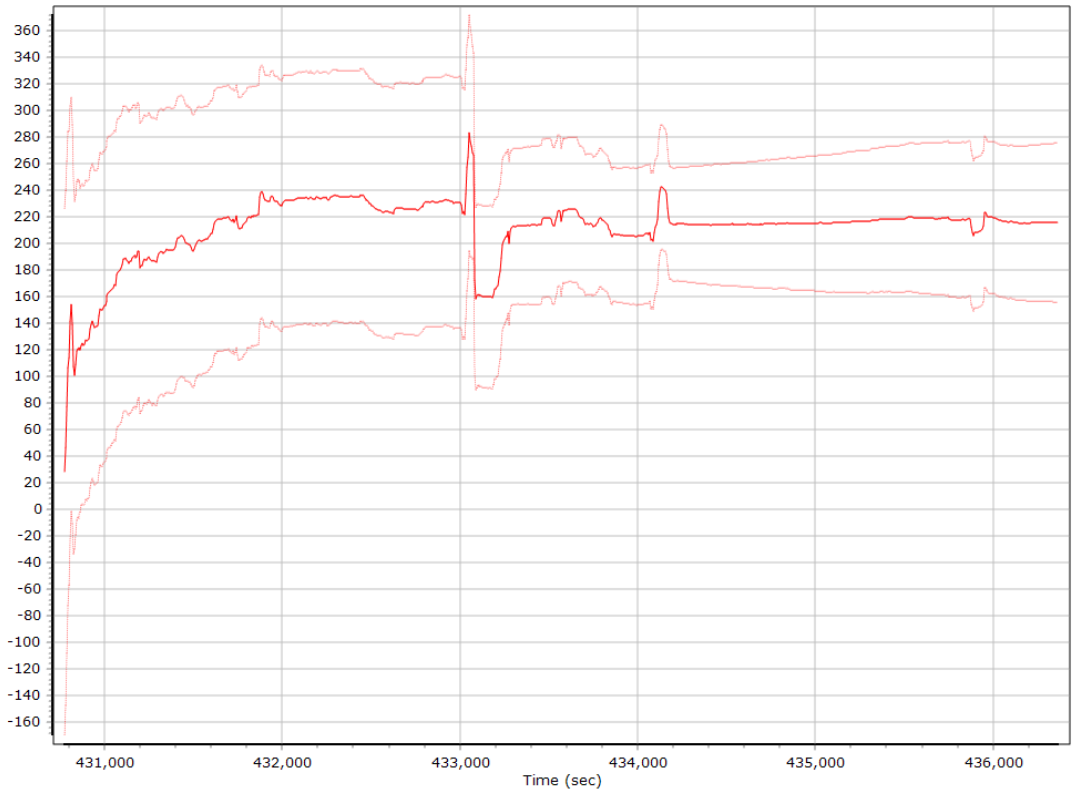
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

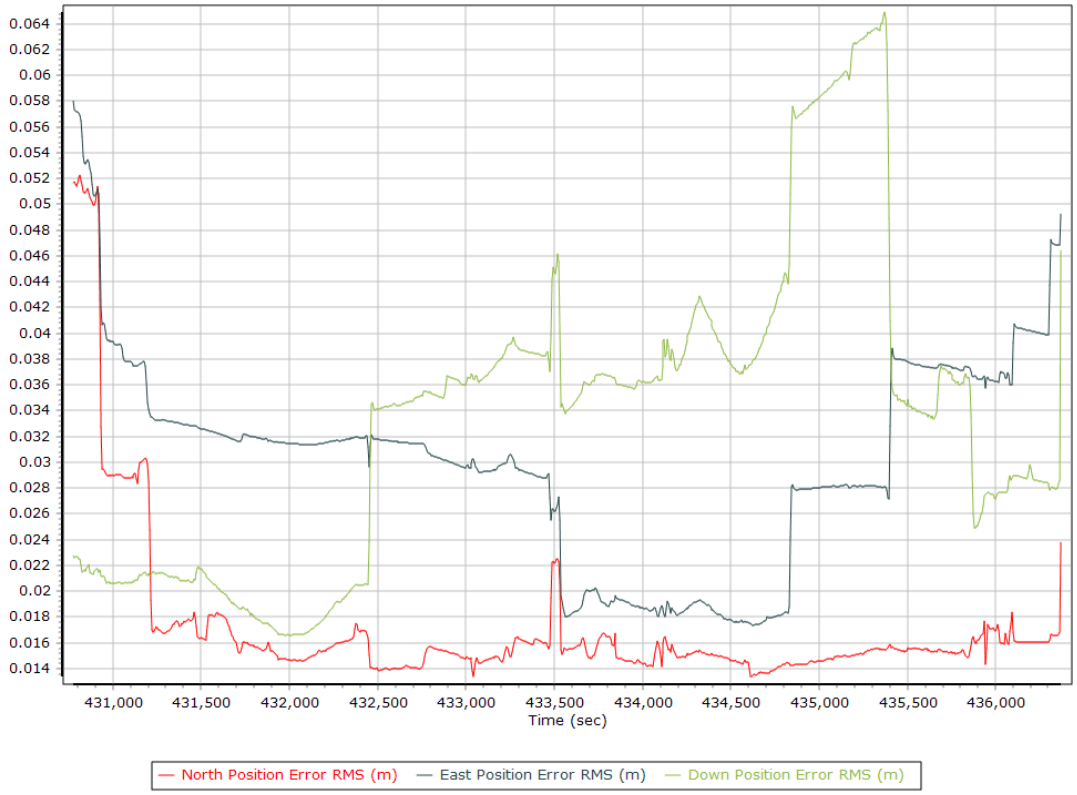


Z Gyro Scale Error (ppm)

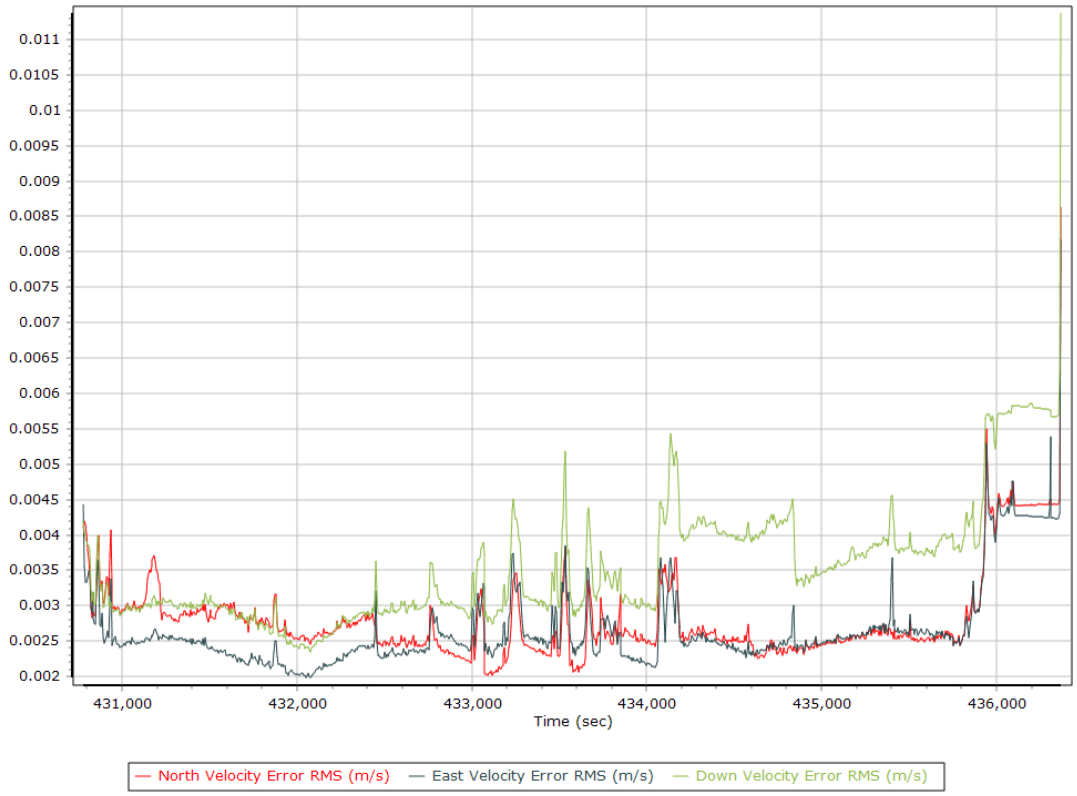


Smoothed Performance Metrics

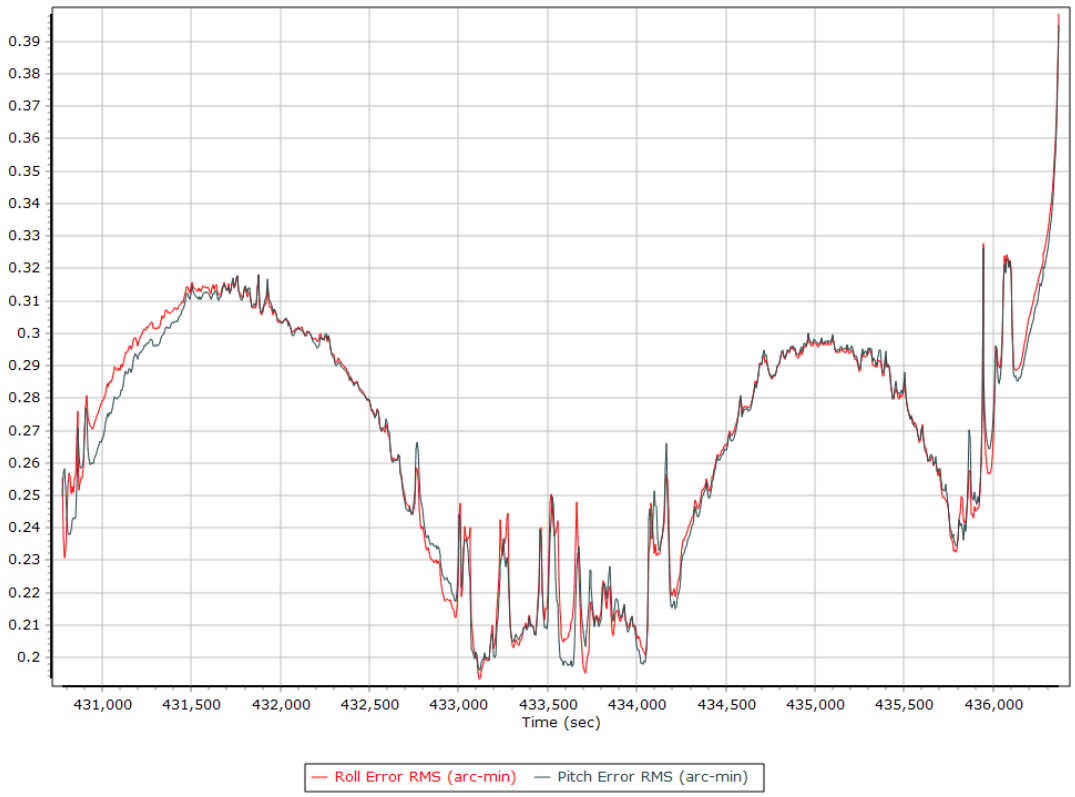
Position Error RMS (m)



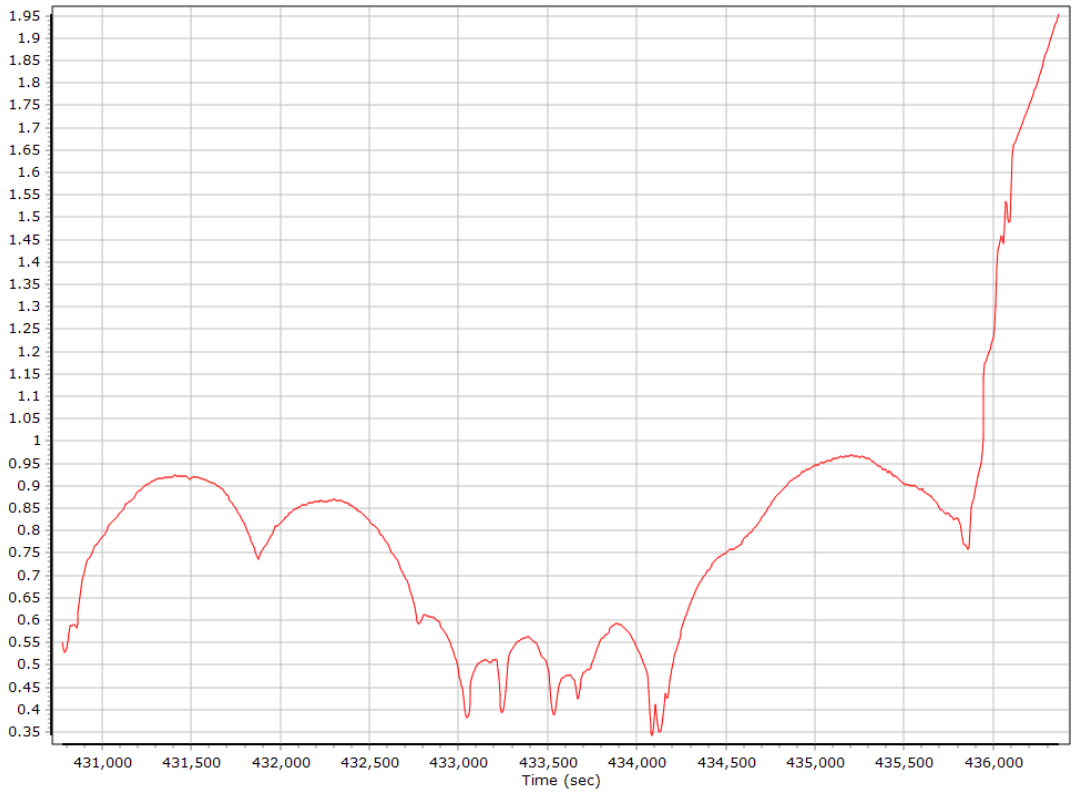
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

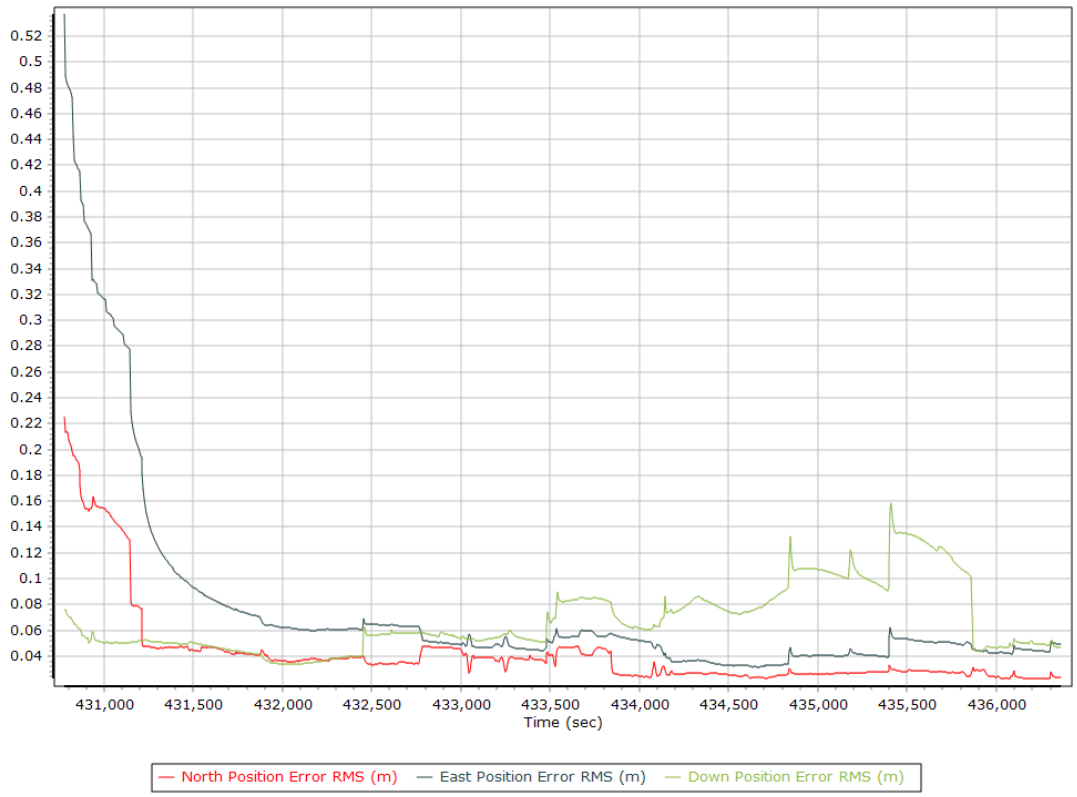


Heading Error RMS (arc-min)

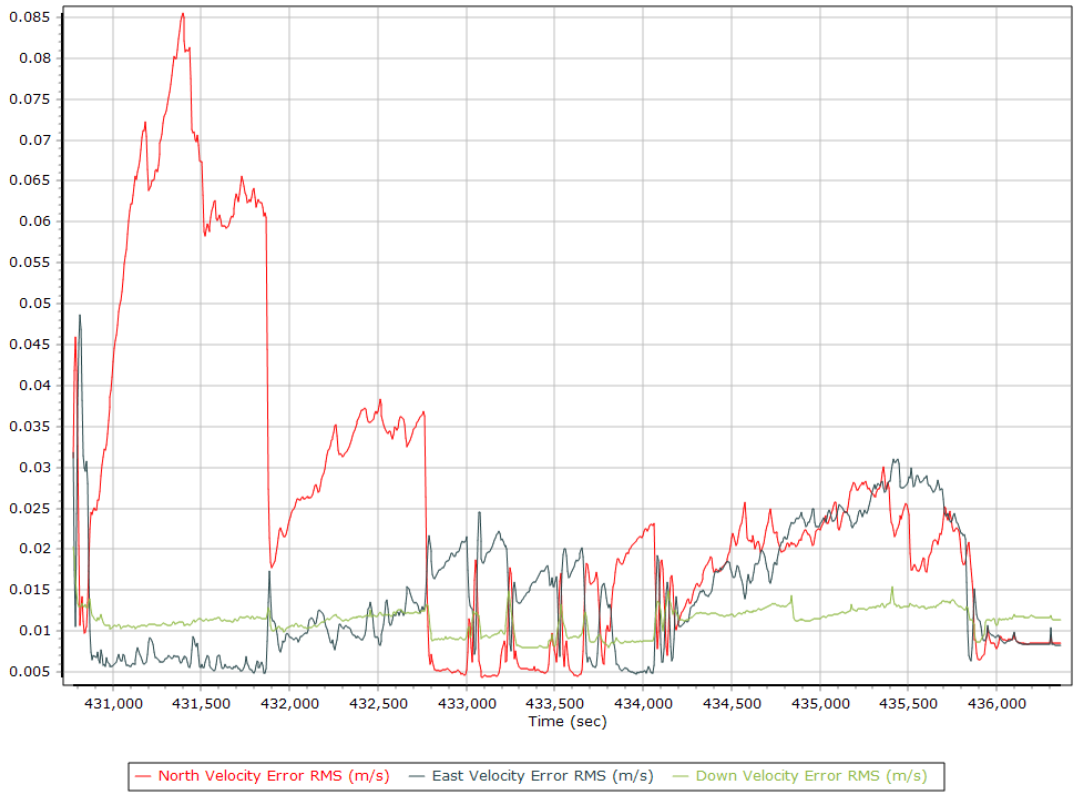


Forward Processed Performance Metrics

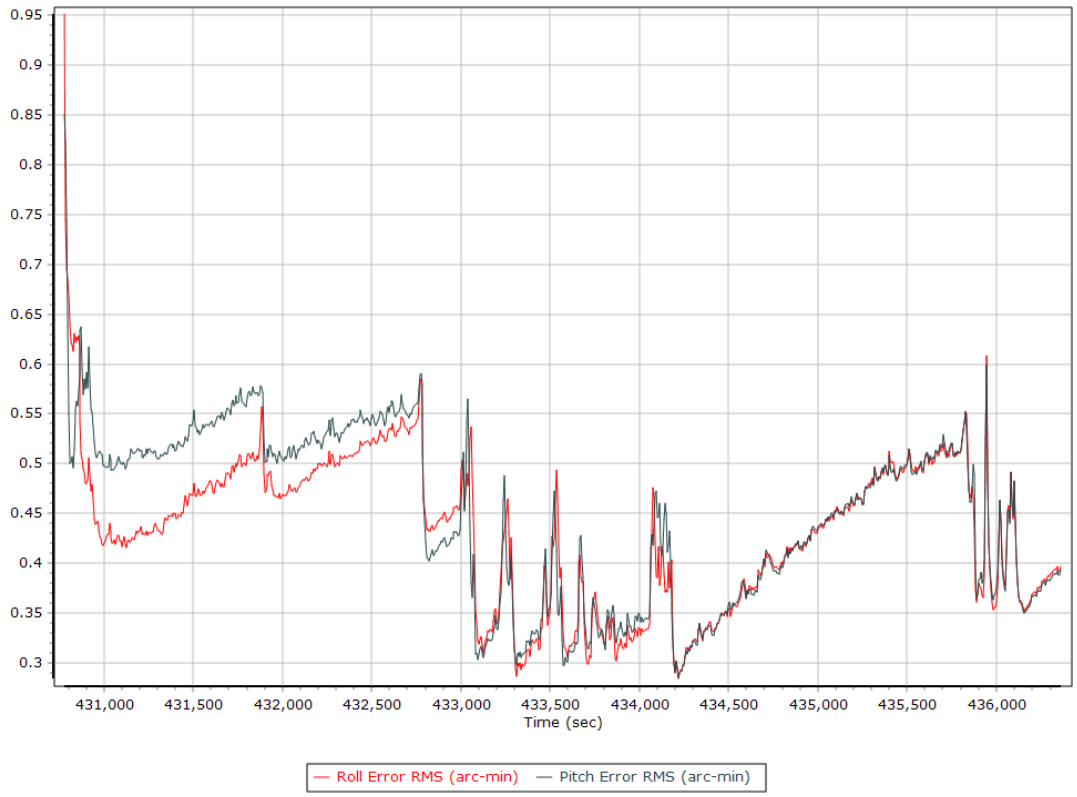
Position Error RMS (m)



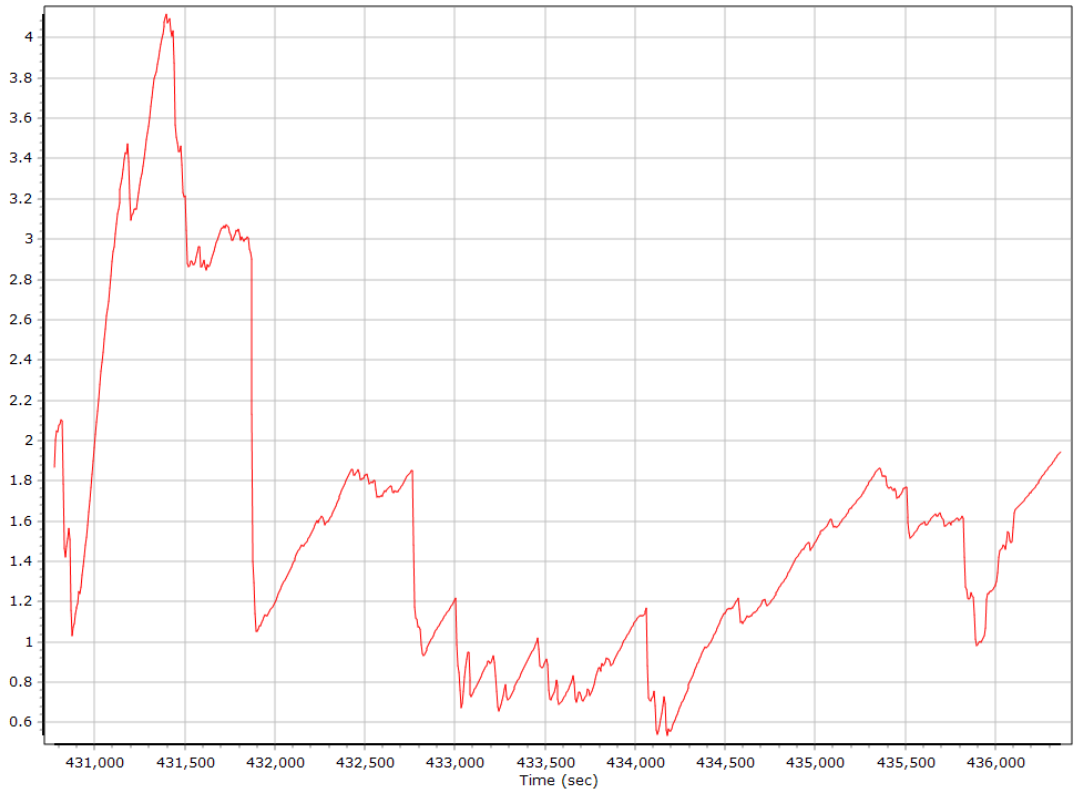
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

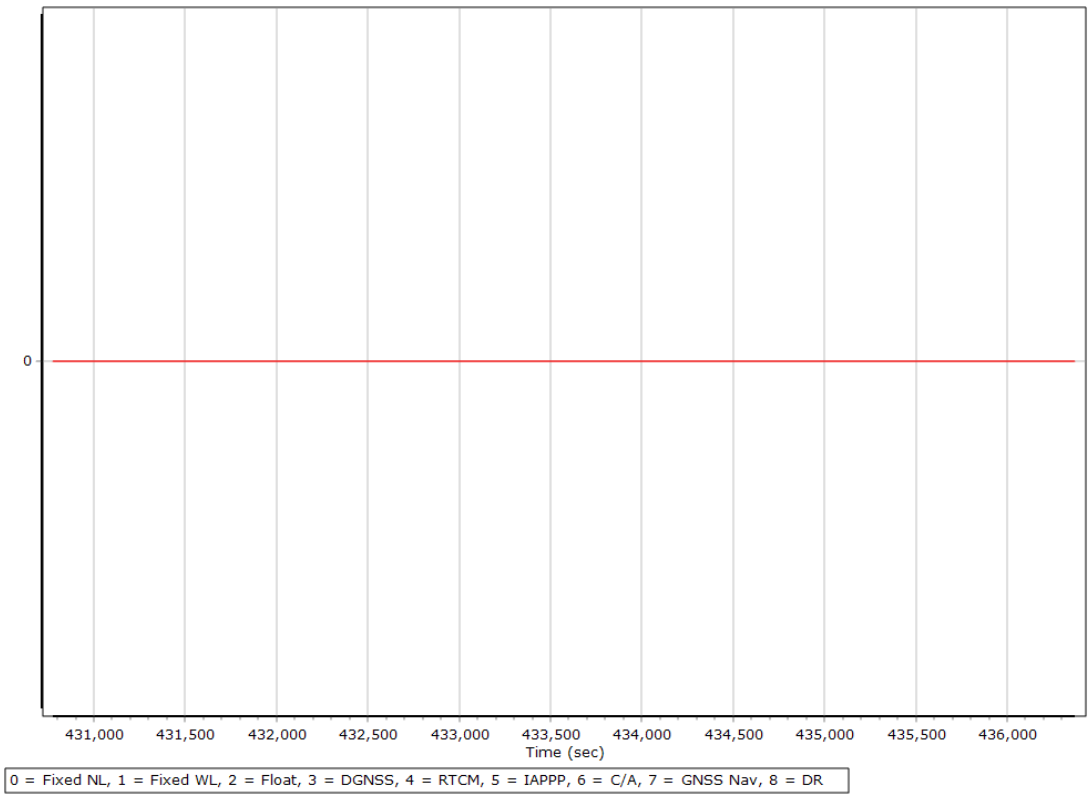


Heading Error RMS (arc-min)

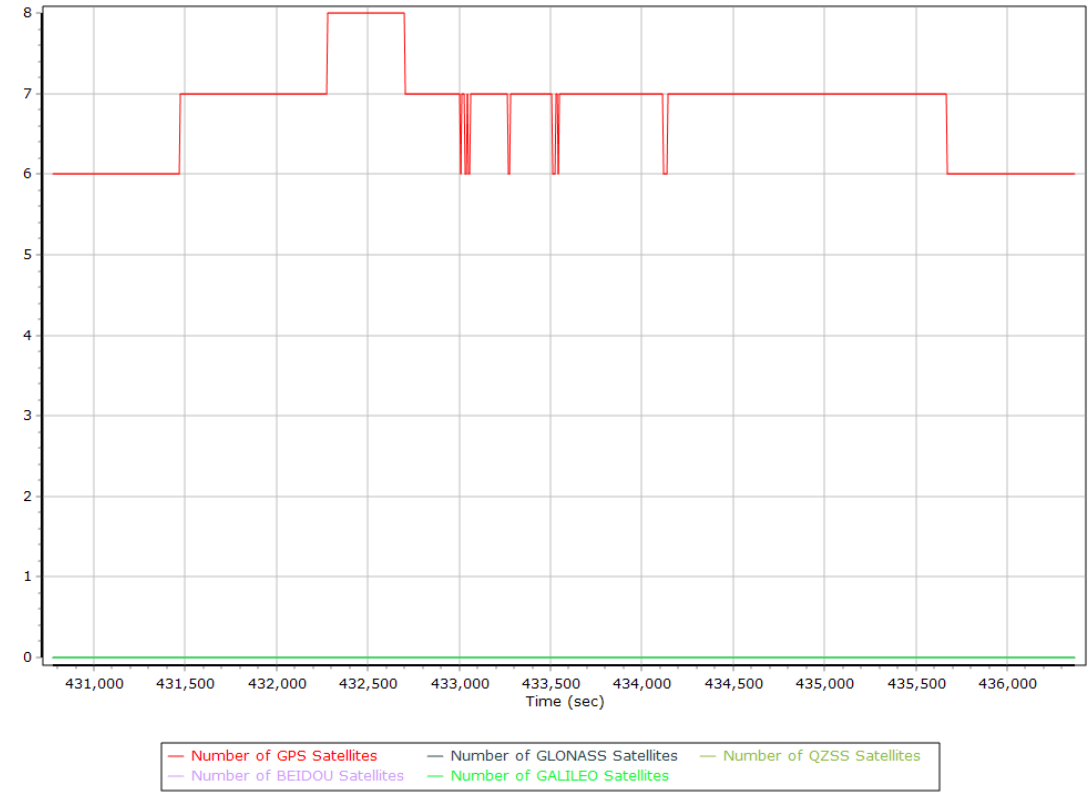


Smoothed Solution Status

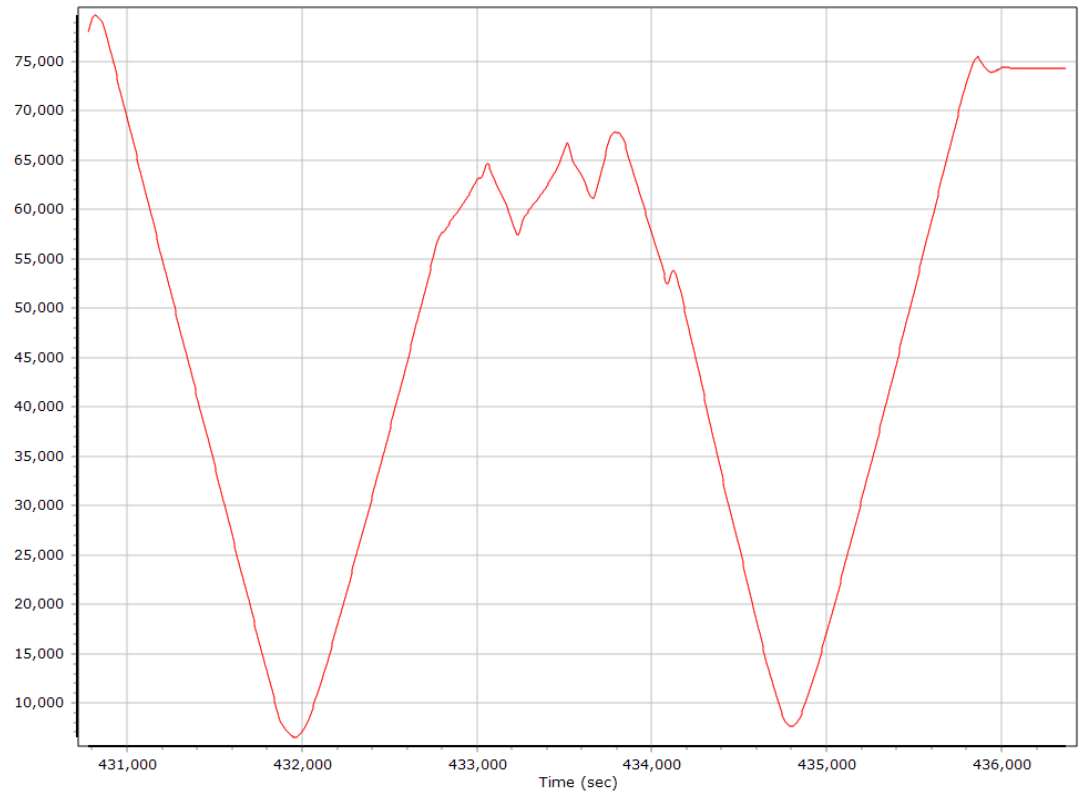
Processing Mode



Number of Satellites

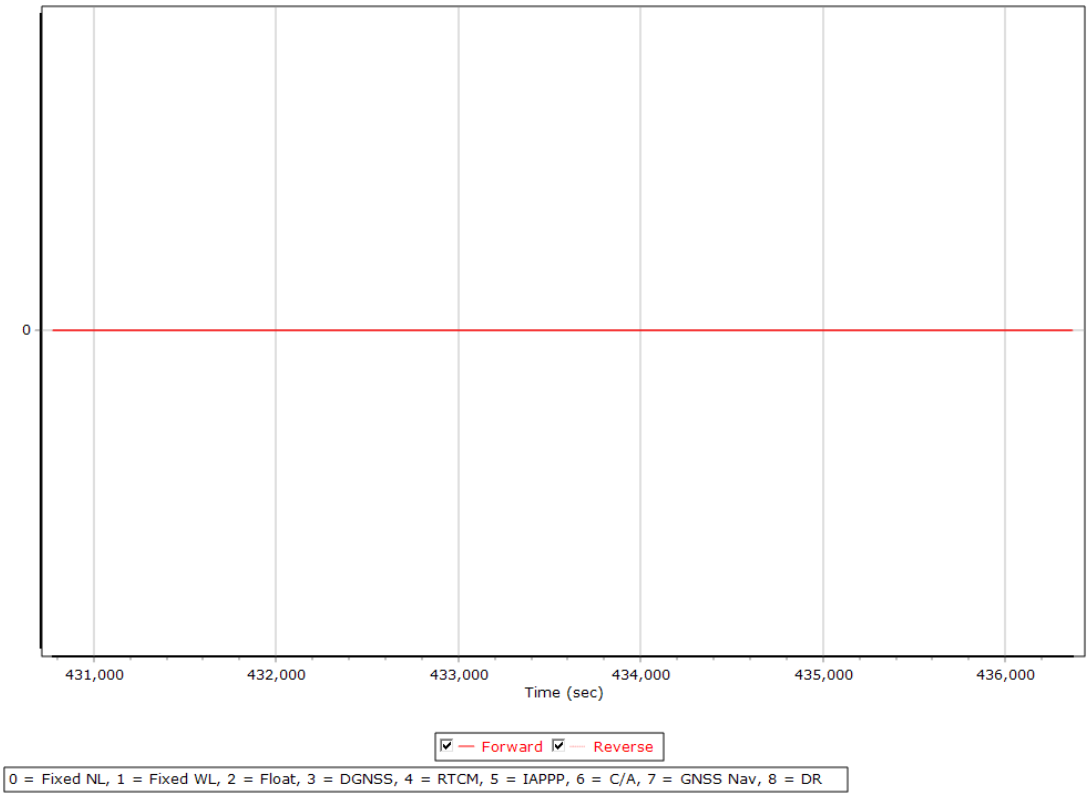


Baseline Length

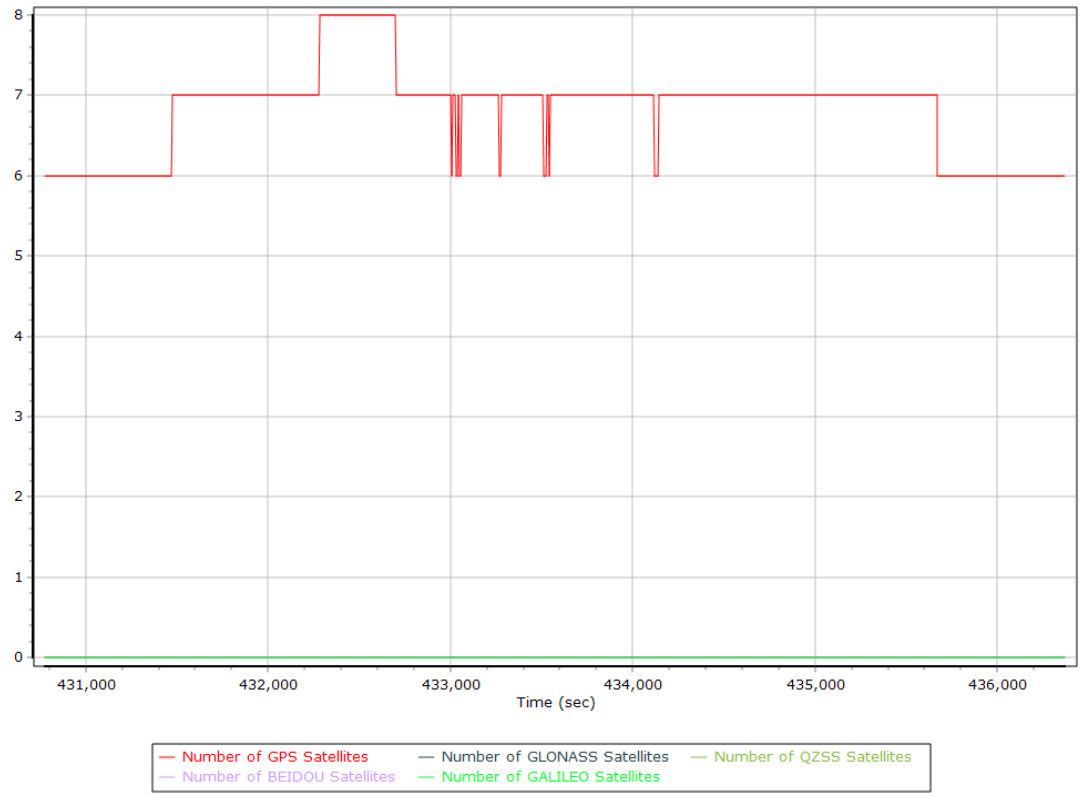


Forward Processed Solution Status

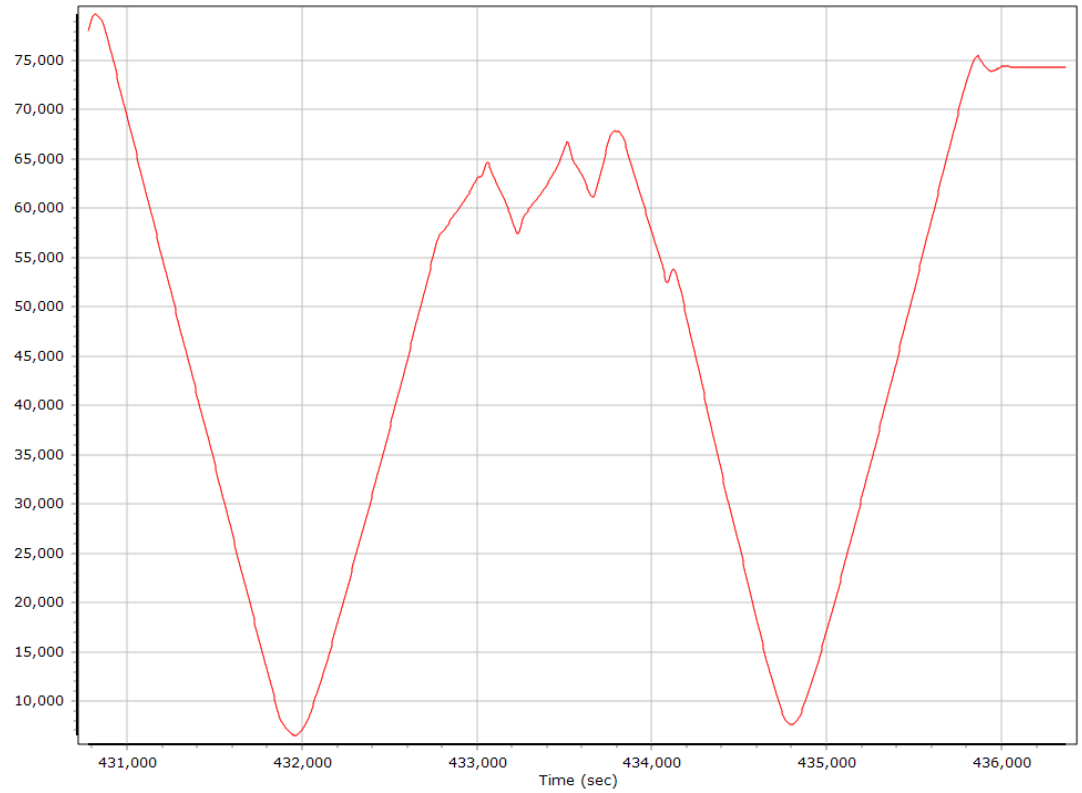
Processing Mode



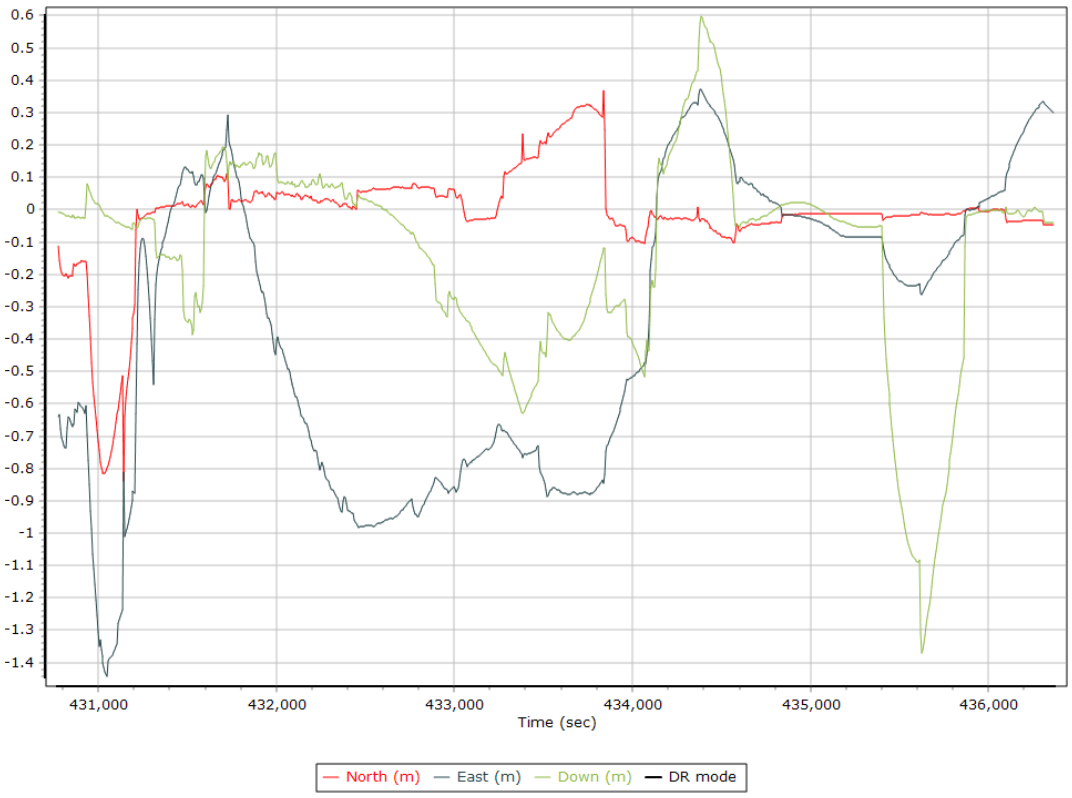
Number of Satellites



Baseline Length



SBET IAKAR Separation



General Information

Mission Information

Project name	196648-01-20200423B-Part2-j20200407Run
Processing date	2021-01-19 00:50:29
Mission date	2020-04-23 23:36:46
Mission duration	01:36:21.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	Sensor Systems L1

Project File List

Rover Data Files

File name	File type
ALS.072	POS Data
ALS.073	POS Data
ALS.074	POS Data
ALS.075	POS Data
ALS.076	POS Data
ALS.077	POS Data
ALS.078	POS Data
ALS.079	POS Data
ALS.080	POS Data

Input Files

File Name	File Type
Ephm1140.20g	GLONASS Broadcast Ephemeris
Ephm1140.20n	GPS Broadcast Ephemeris
Ephm1150.20g	GLONASS Broadcast Ephemeris
Ephm1150.20n	GPS Broadcast Ephemeris
iaht1140.20o	GNSS SingleBase
iaht1150.20o	GNSS SingleBase
iamn1140.20o	GNSS SingleBase
iamn1150.20o	GNSS SingleBase
iamq1140.20o	GNSS SingleBase
iamq1150.20o	GNSS SingleBase
iata1140.20o	GNSS SingleBase
iata1150.20o	GNSS SingleBase
jfws1140.20o	GPS SingleBase
jfws1150.20o	GPS SingleBase
mnsv1140.20o	GNSS SingleBase
mnsv1150.20o	GNSS SingleBase
mnwn1140.20o	GNSS SingleBase
mnwn1150.20o	GNSS SingleBase
nlib1140.20o	GNSS SingleBase
nlib1150.20o	GNSS SingleBase
igr21023.sp3	GPS Precise Ephemeris
igr21024.sp3	GPS Precise Ephemeris
igr21025.sp3	GPS Precise Ephemeris
igr21026.sp3	GPS Precise Ephemeris
iaal1140.20o	GNSS SingleBase
iaal1150.20o	GNSS SingleBase
iade1140.20o	GNSS SingleBase
iade1150.20o	GNSS SingleBase
iael1140.20o	GNSS SingleBase
iael1150.20o	GNSS SingleBase
iana1140.20o	GNSS SingleBase
iana1150.20o	GNSS SingleBase
mnca1140.20o	GNSS SingleBase
mnca1150.20o	GNSS SingleBase
mney1140.20o	GNSS SingleBase
mney1150.20o	GNSS SingleBase
mnps1140.20o	GNSS SingleBase
mnps1150.20o	GNSS SingleBase
wlnc1140.20o	GNSS SingleBase
wlnc1150.20o	GNSS SingleBase
igl21023.sp3	GLONASS Precise Ephemeris
igl21024.sp3	GLONASS Precise Ephemeris
igl21025.sp3	GLONASS Precise Ephemeris
igl21026.sp3	GLONASS Precise Ephemeris

Output Files

Filename	File type
sbet_196648-01-20200423B-Part2.out	SBET Trajectory File
SBET_196648-01-20200423B-Part2-20200714Run2.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.072		
Last raw data file	ALS.080		
Start GPS week	2102		
Start time	430606.728 (4/23/2020 11:36:46 PM)		
End time	436369.100 (4/24/2020 1:12:49 AM)		
Start of fine alignment	430716.995 (4/23/2020 11:38:36 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

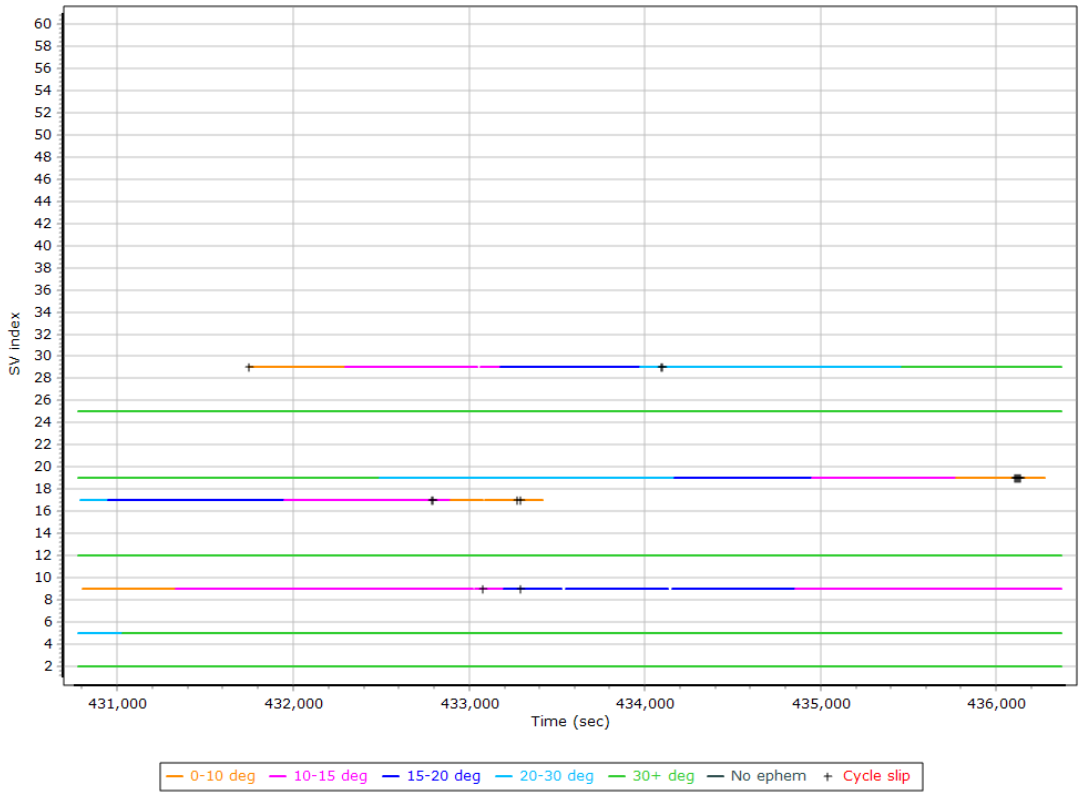
Rover Data QC

Raw IMU Import QC Summary

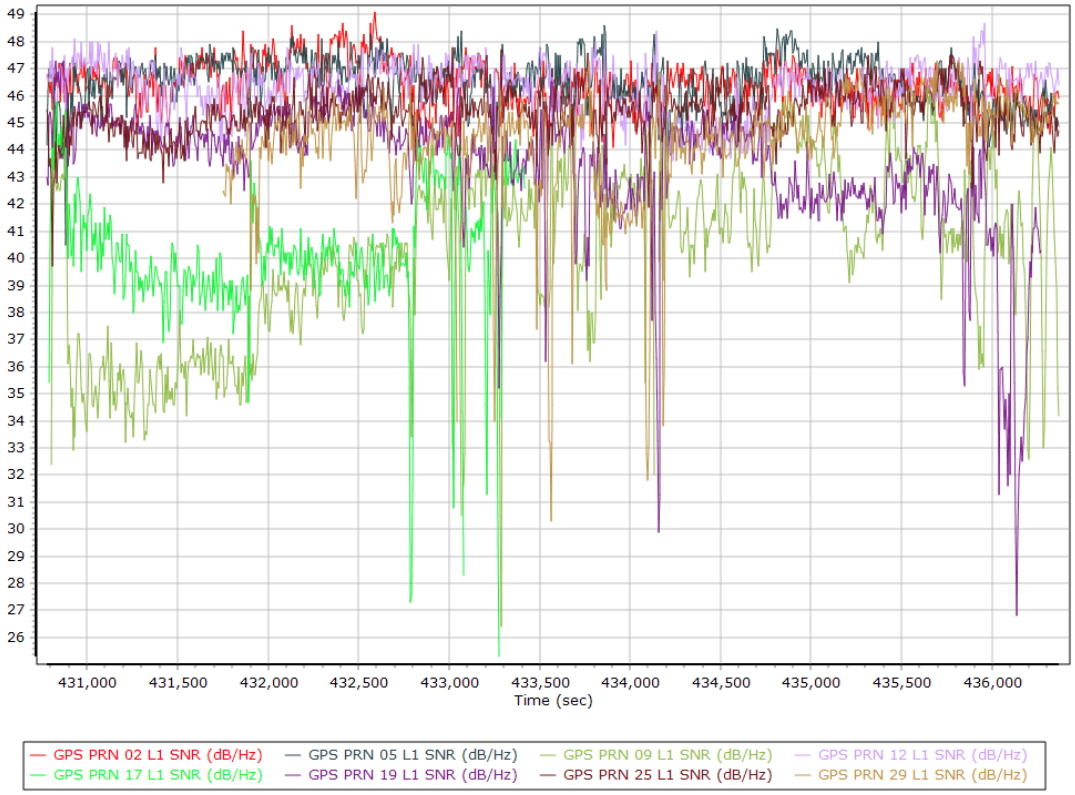
IMU data input file	imu_196648-01-20200423B-Part2.dat
IMU data check log file	imudt_196648-01-20200423B-Part2.log
IMU Records Processed	1158707
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
430599.308 : WARNING : Gap of 430577.3214 seconds in CHECKDT input data	

Primary Observables & Satellite Data

L1 Satellite Lock/Elevation

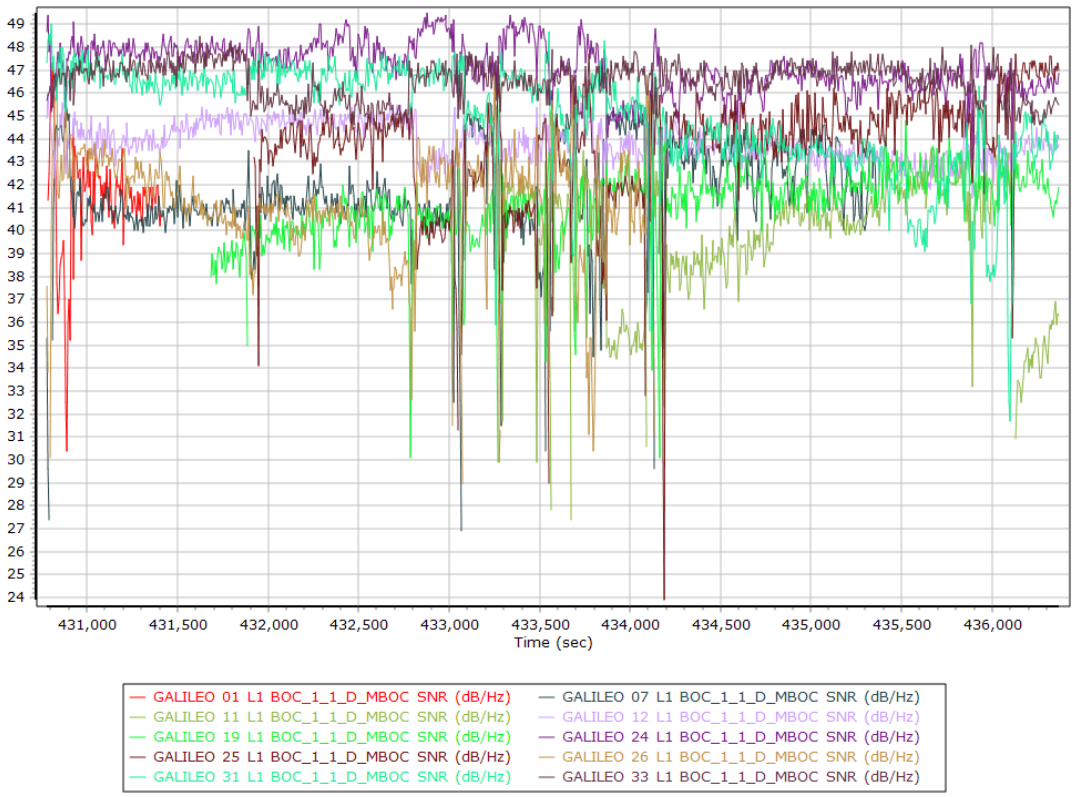


GPS L1 SNR



GPS L2 SNR

GALILEO SNR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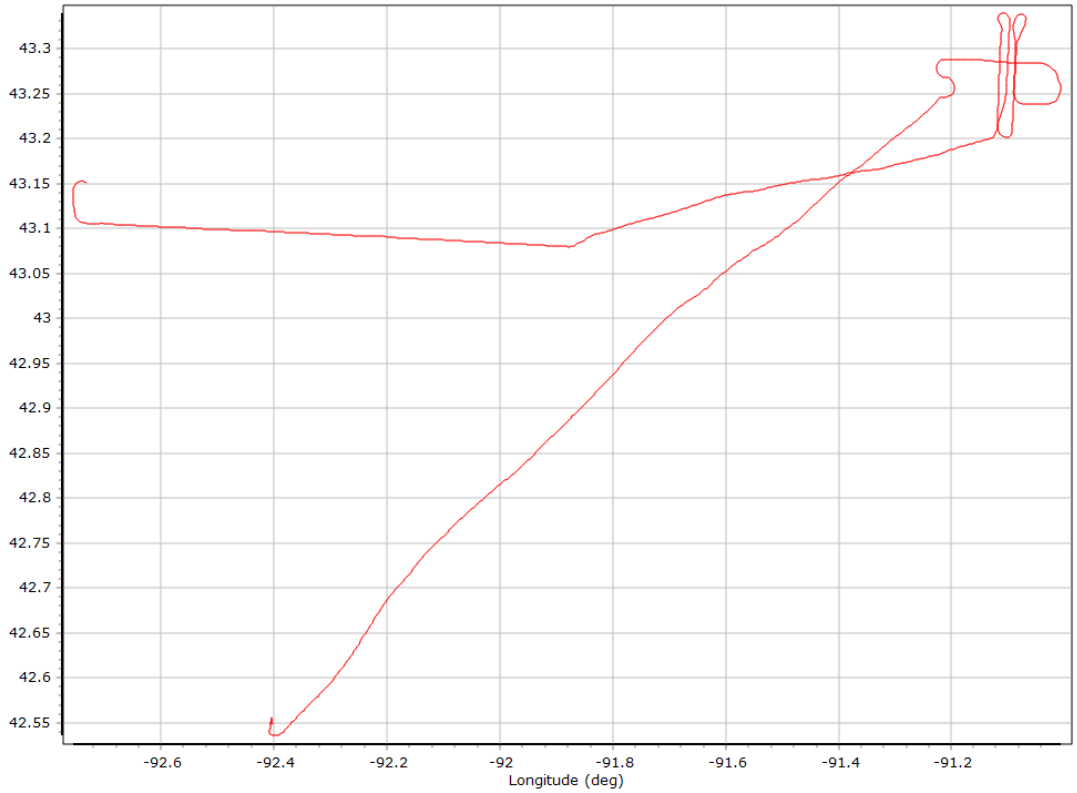
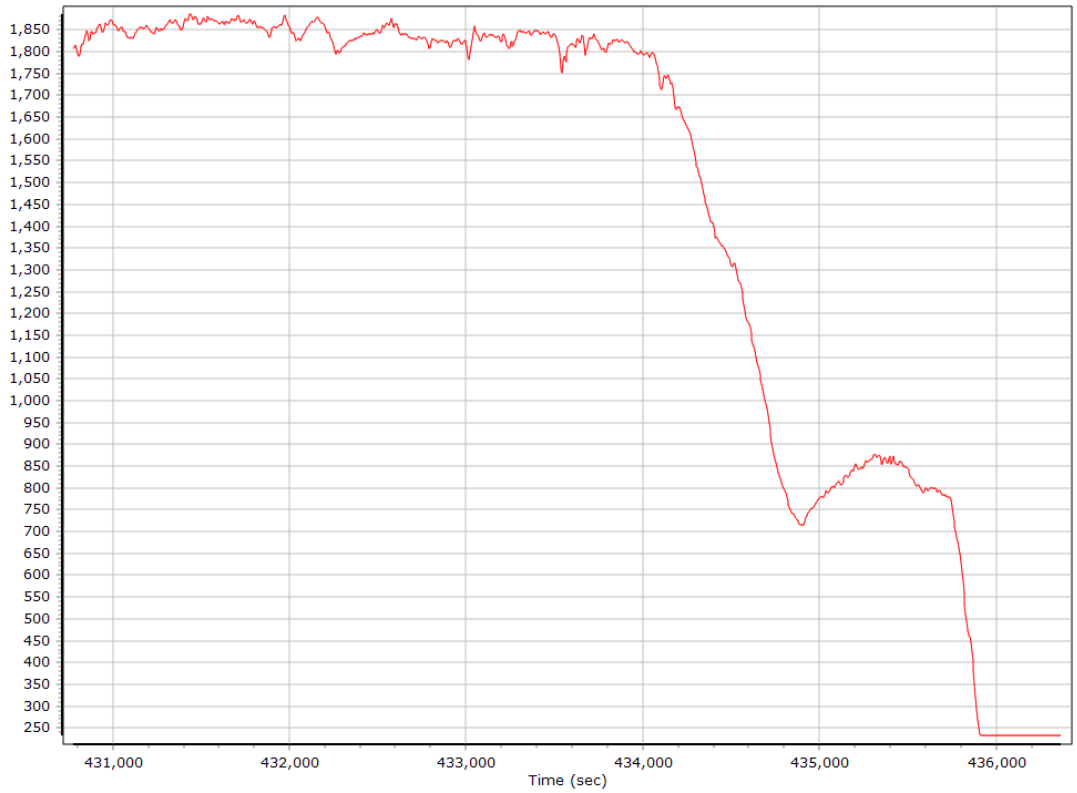
431,500
432,000
432,500
433,000
433,500
434,000
434,500
435,000
435,500
436,000
Time (sec)
GALILEO 01 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 07 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 26 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 33 L1 BOC_1_1_D_MBOC SNR (dB/Hz)

Smoothed Trajectory Information

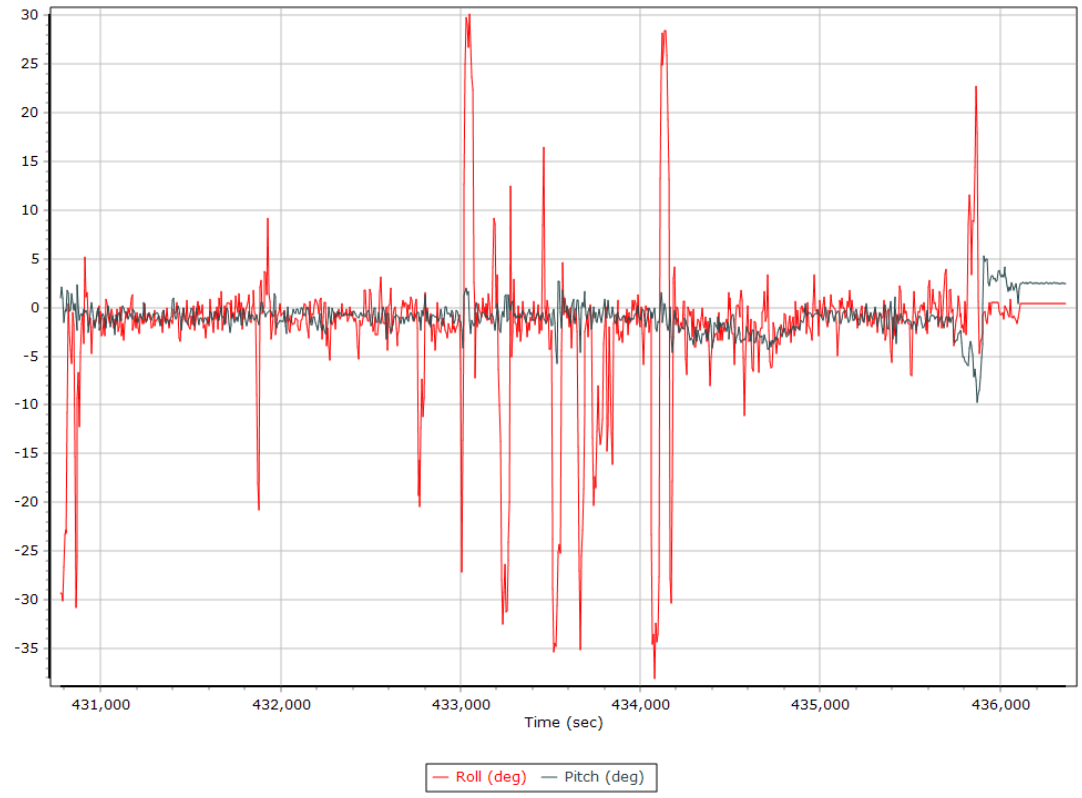
Top View



Altitude



Roll/Pitch



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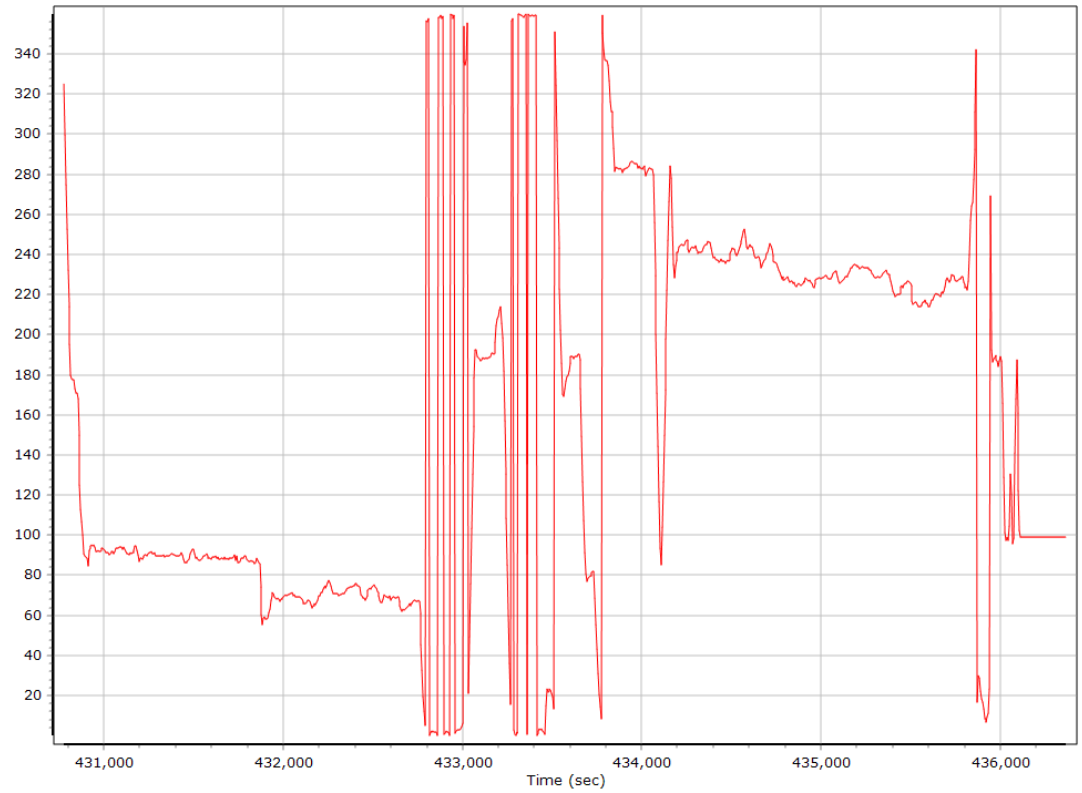
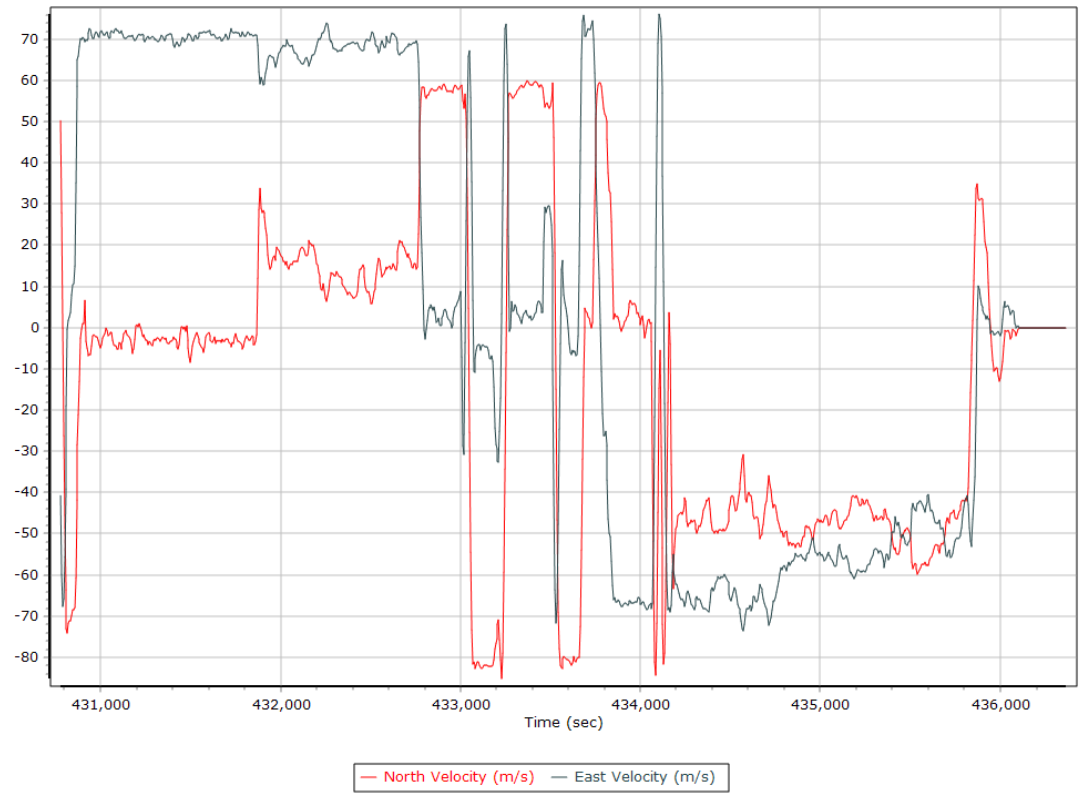
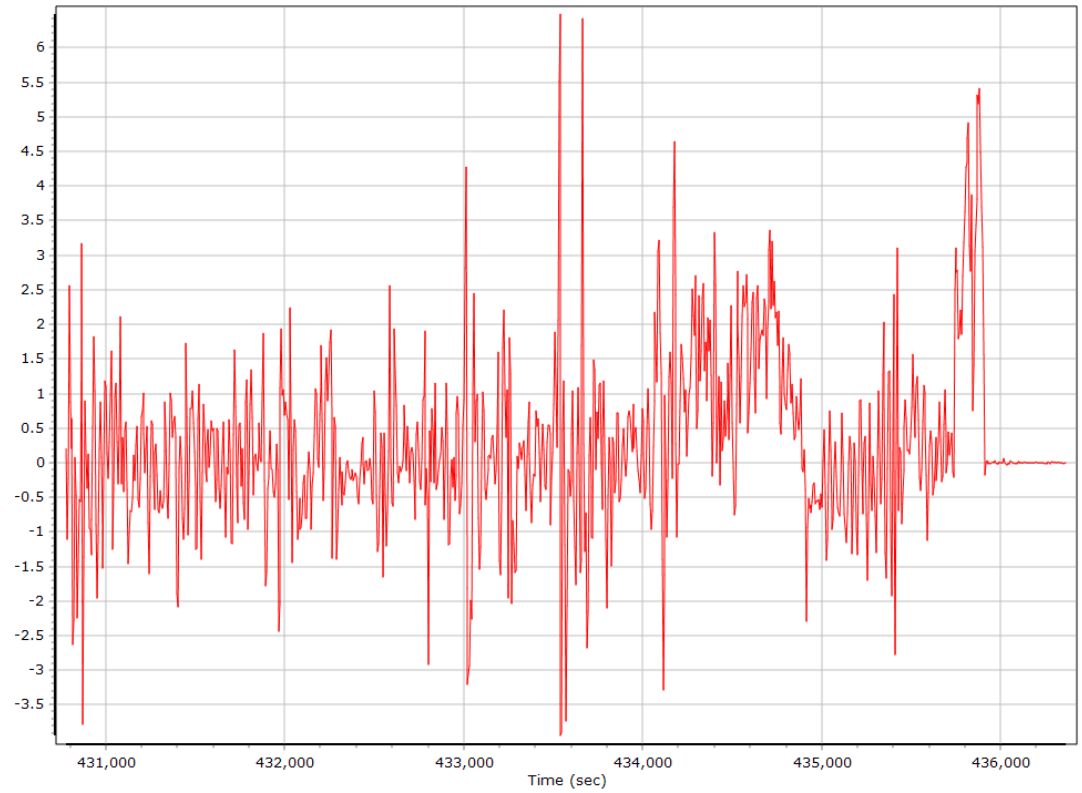


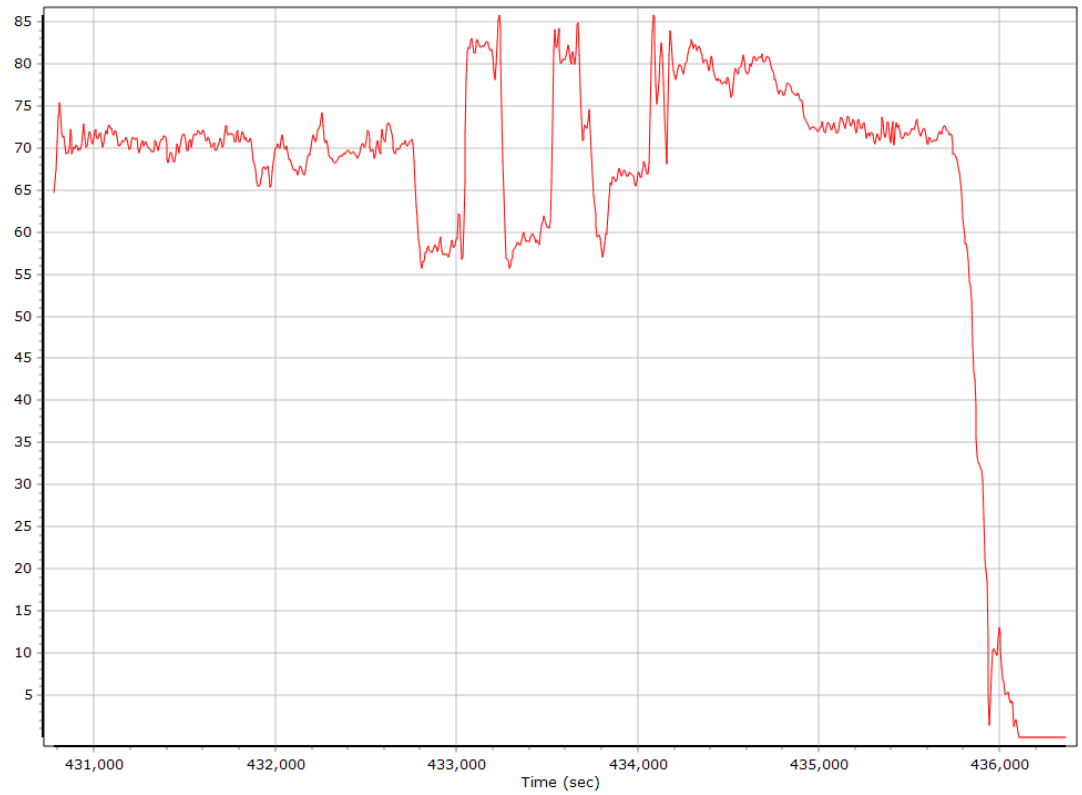
North/East Velocity



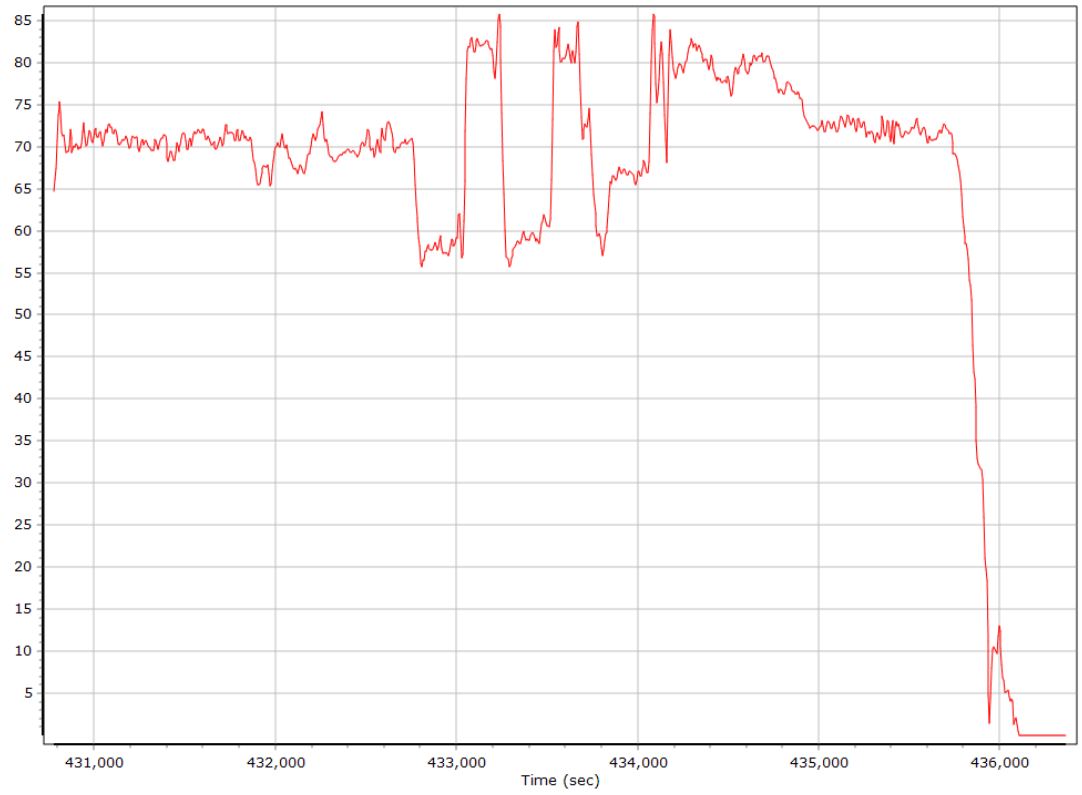
Down Velocity



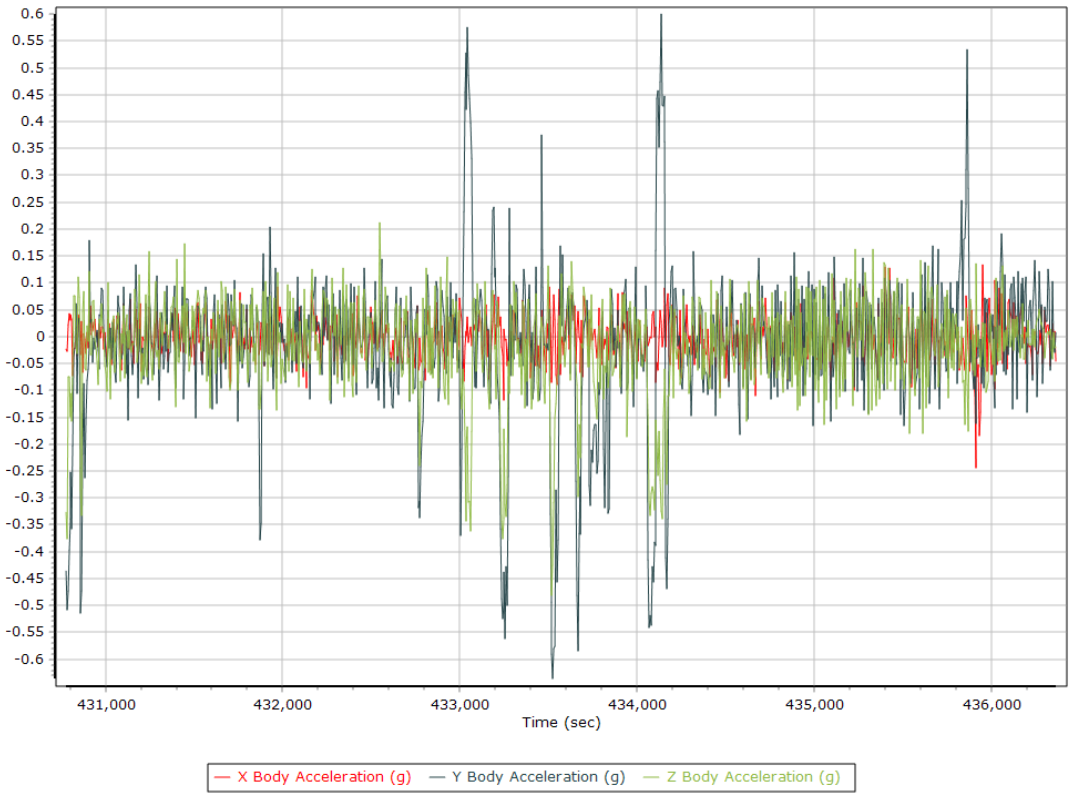
Total Speed



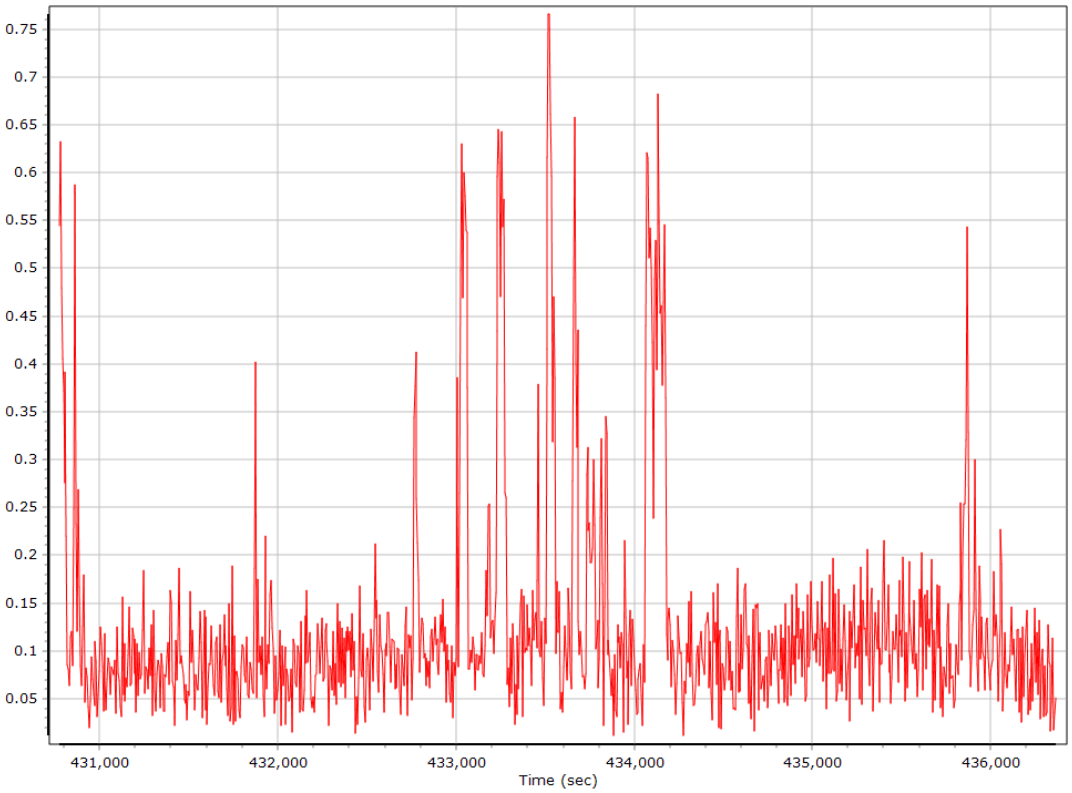
Ground Speed



Body Acceleration



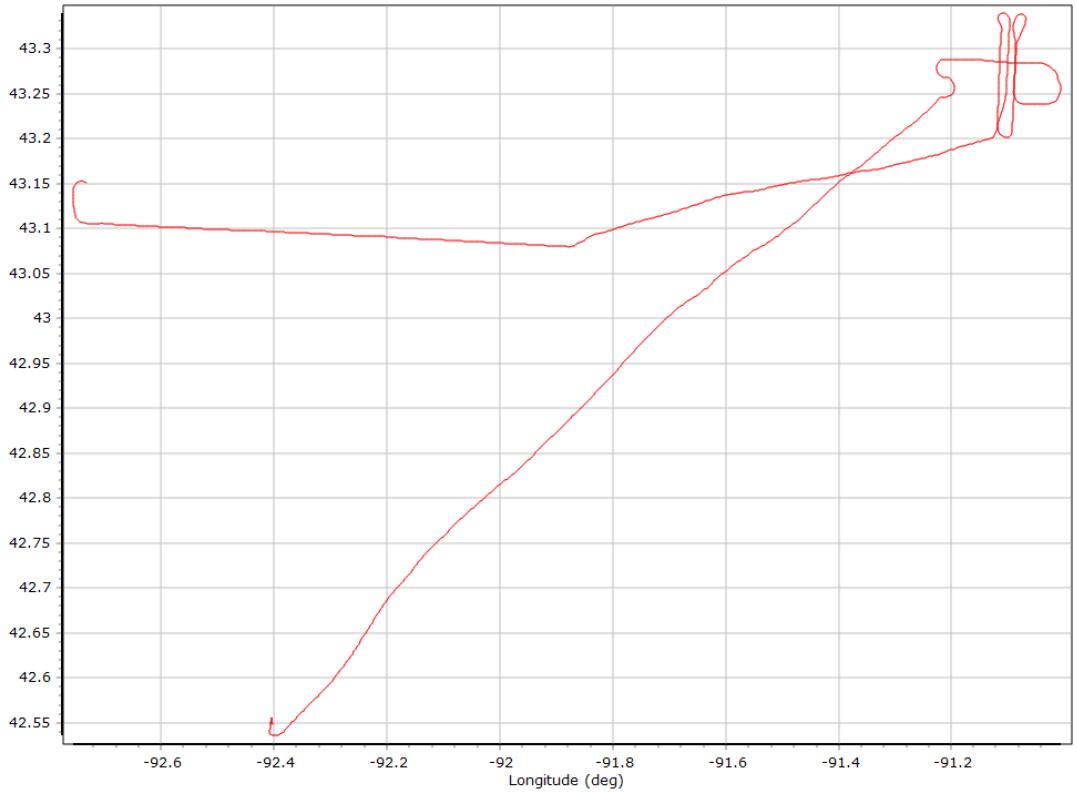
Total Body Acceleration



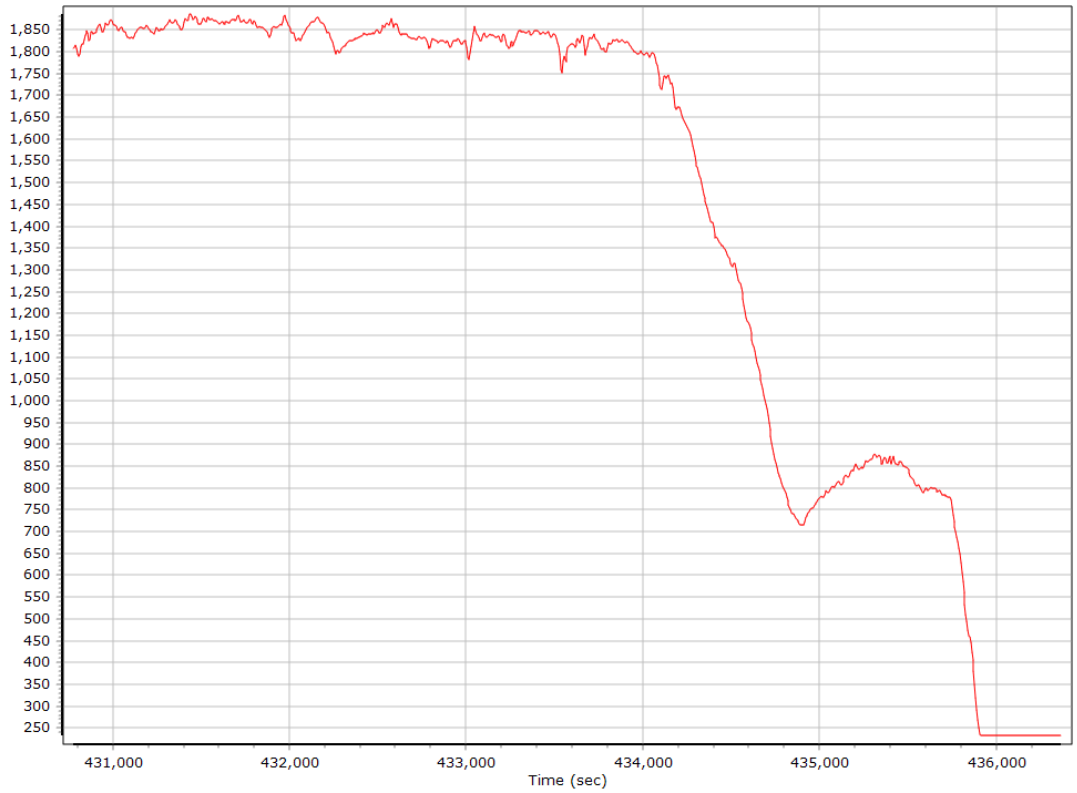
Body Angular Rate

Forward Processed Trajectory Information

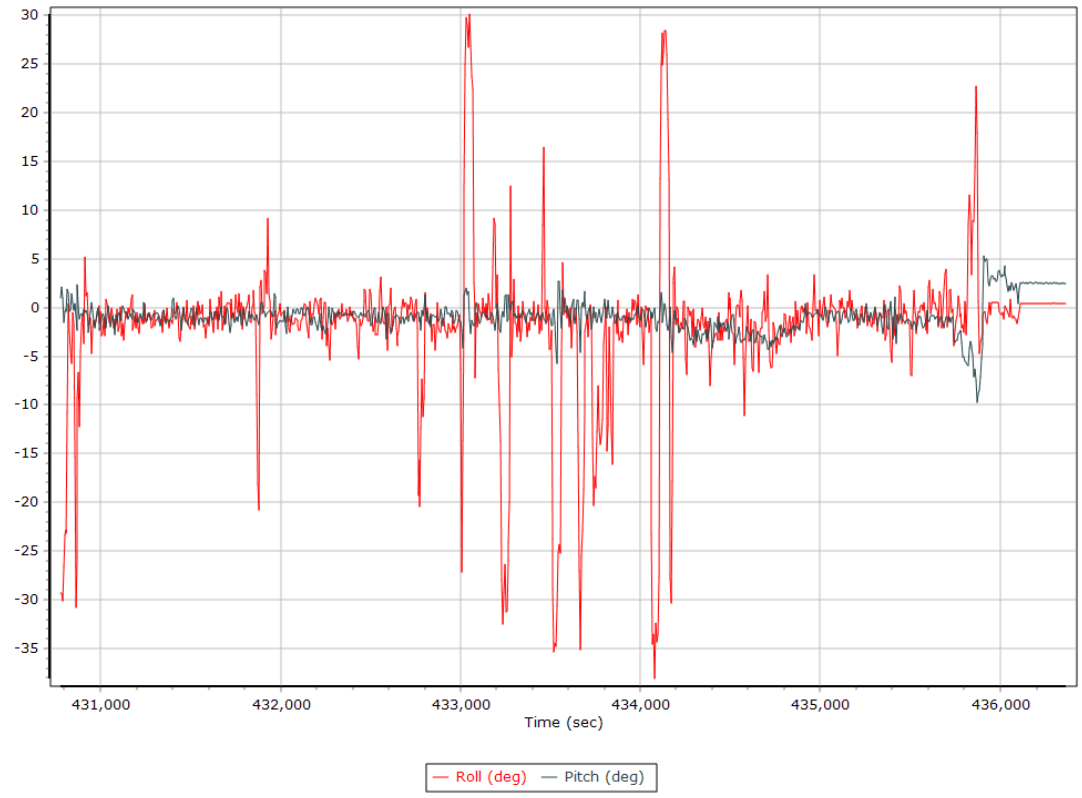
Top View



Altitude



Roll/Pitch



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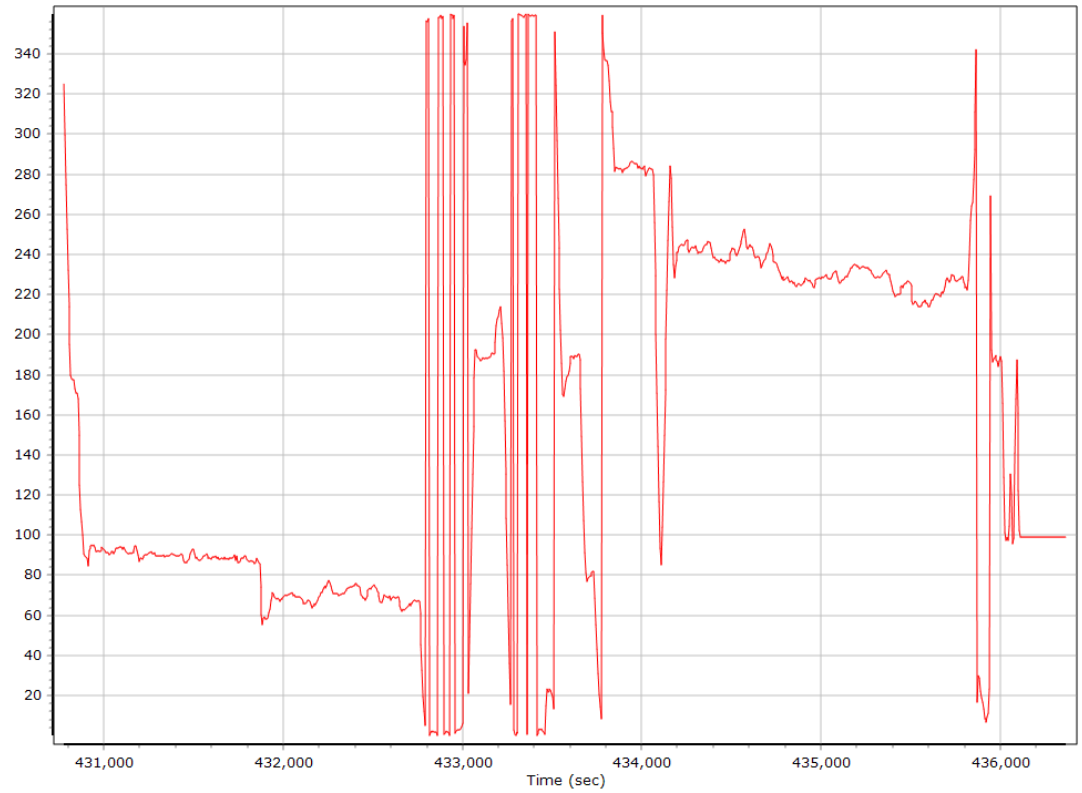
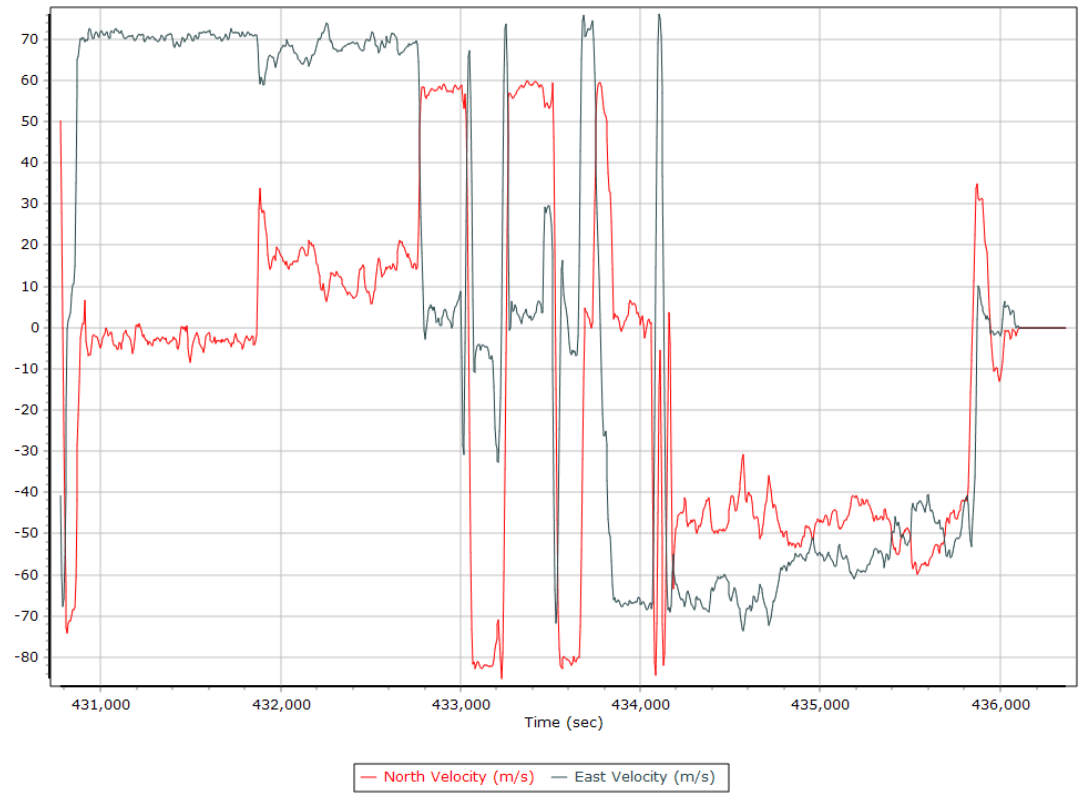
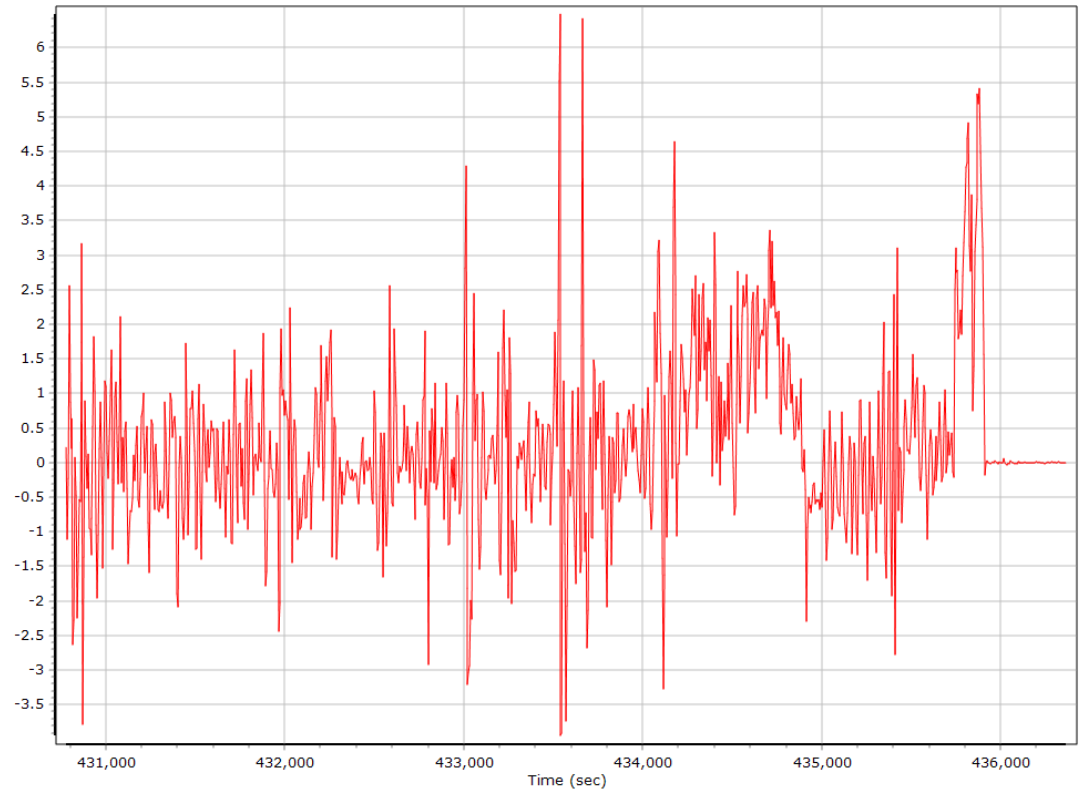


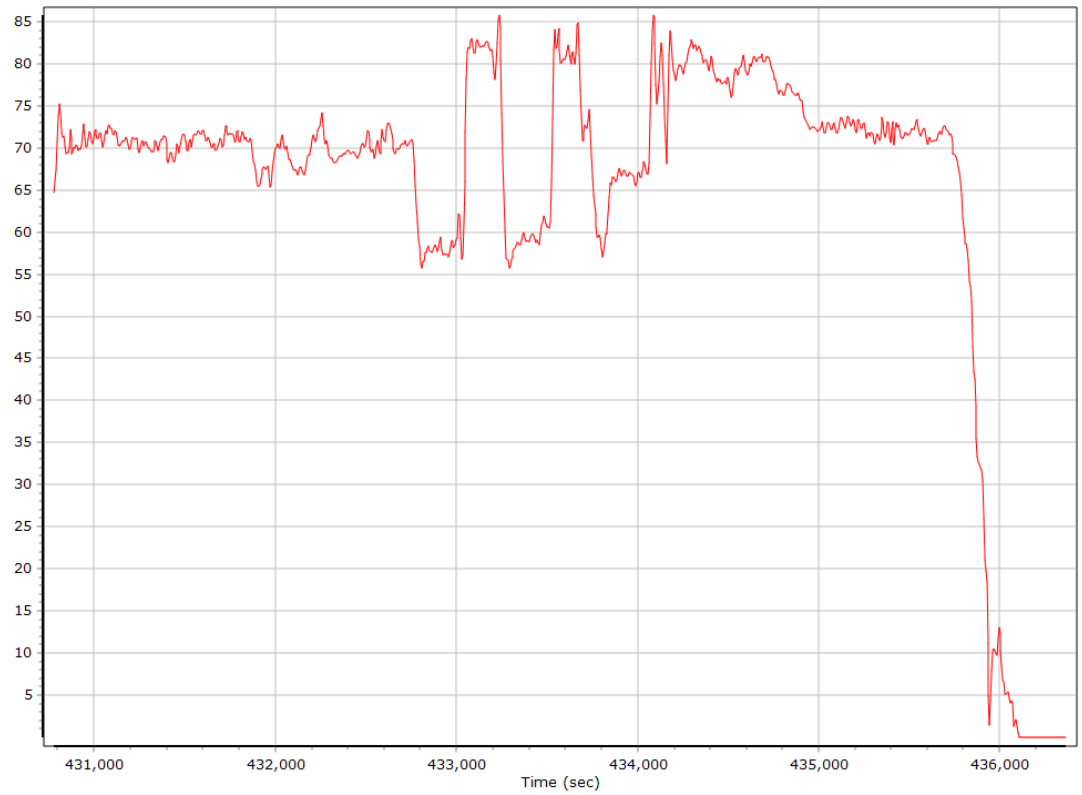
North/East Velocity



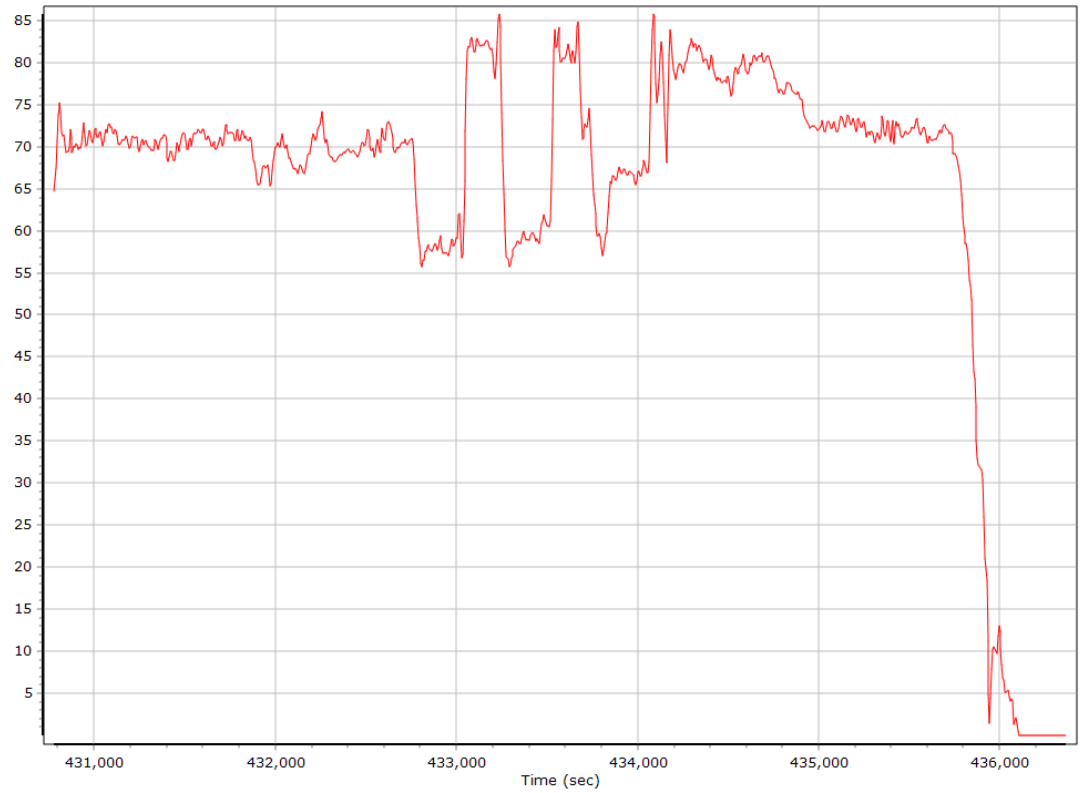
Down Velocity



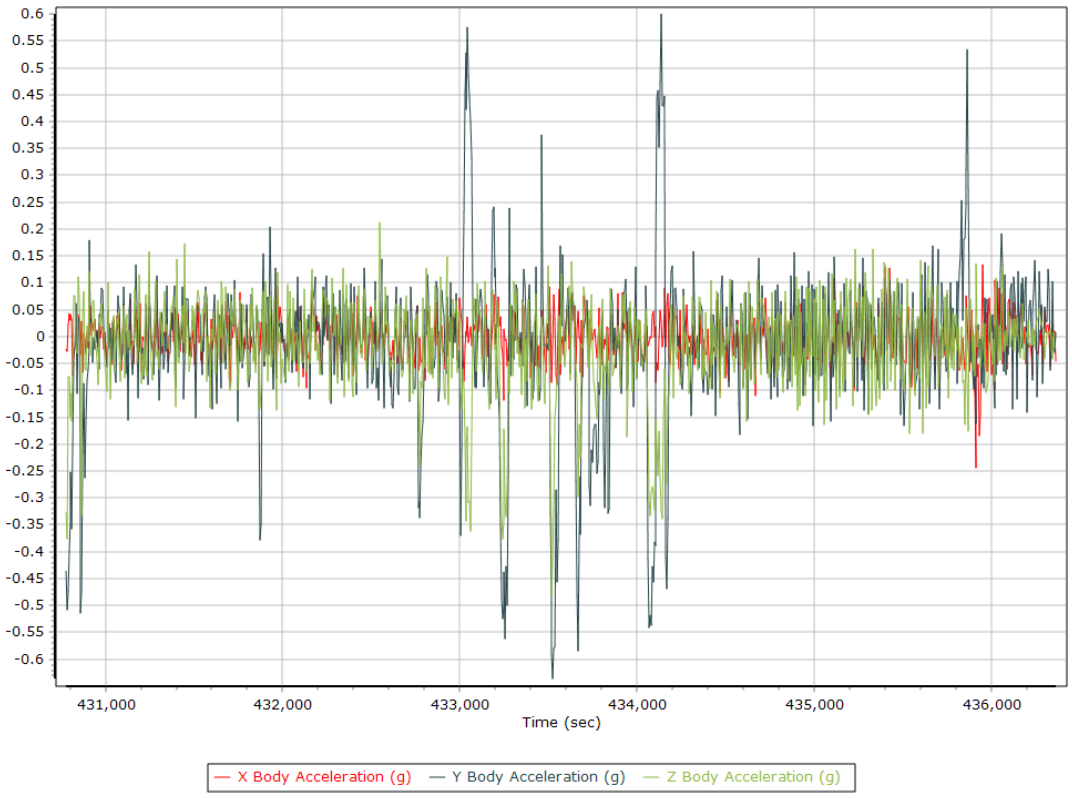
Total Speed



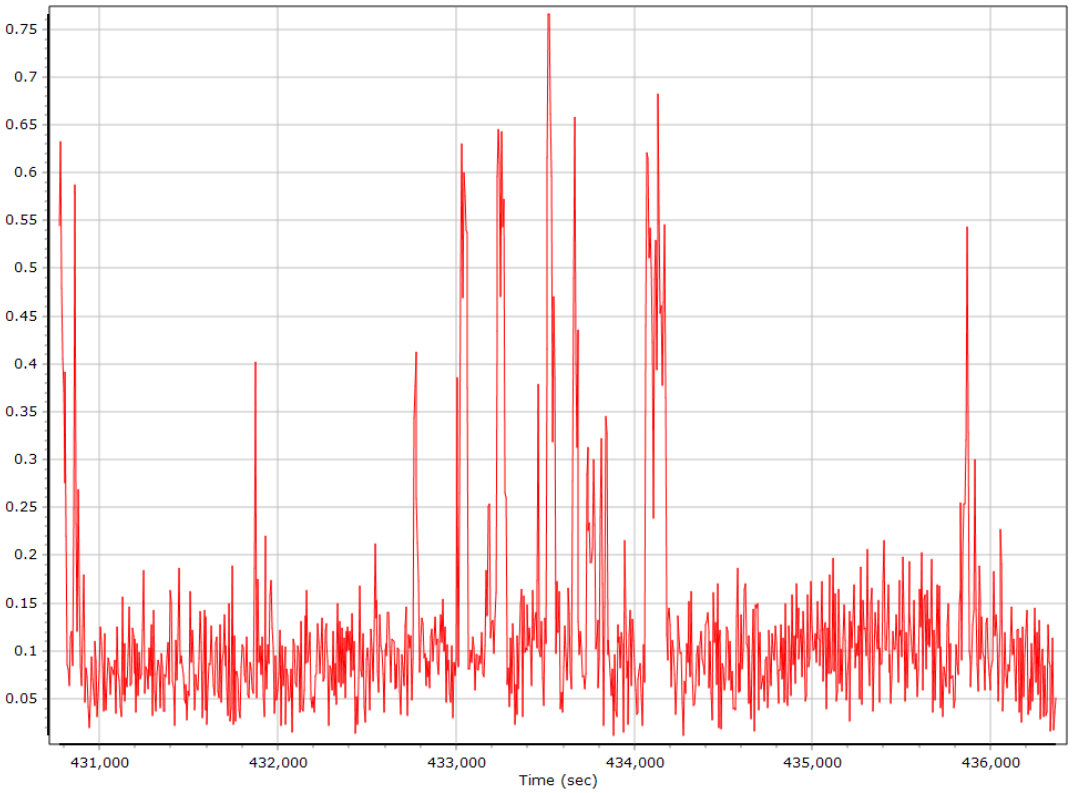
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GPS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/23/2020	IADE	25.88	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IADE	25.88	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/23/2020	IAEL	39.05	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IAEL	39.05	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/23/2020	MNPS	53.32	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	MNPS	53.32	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/23/2020	IANA	64.69	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IANA	64.69	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/23/2020	MNCA	69.86	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	MNCA	69.86	GNSS	30	UNAVCO (daily)	Smart Base	Imported
04/23/2020	IAAL	88.13	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	IAAL	88.13	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/23/2020	WLNC	90.53	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	WLNC	90.53	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/23/2020	MNEY	107.19	GNSS	30	CORS (daily)	Smart Base	Imported
04/24/2020	MNEY	107.19	GNSS	30	ALTCORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IAAL
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	5781 s (2102 430606 - 2102 436387)
Number of reference stations	11
Primary station GPS measurement usage (%)	99.9
Average number of satellites per epoch	6.8
Max number of GPS stations used	6
Min number of GPS stations used	3
Total full data gap (sec)	0
Total individual satellite data gap (sec)	58
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38124"	W93°22'06.68790"	344.482
Adjusted		N43°17'02.38123"	W93°22'06.68752"	344.489
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.009	0.007	0.011

Base Station Information

Station ID	IAHT		
Filename	iaht1140.20o, iaht1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38124"		
Longitude	W93°22'06.68790"		
Ellipsoidal height (m)	344.48174		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - JFWS

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°54'51.37586"	W90°14'53.19181"	293.597
Adjusted		N42°54'51.37620"	W90°14'53.19114"	293.586
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.018	0.011	0.021

Base Station Information

Station ID	JFWS		
Filename	jfws1140.20o, jfws1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GPS		
Receiver manufacturer, model, serial no.	Trimble	NetRS	4532254621
Antenna manufacturer, model	Trimble	Choke Ring w/SCIT Dome	
Antenna height [m]	0.008		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.11		
Latitude	N42°54'51.37586"		
Longitude	W90°14'53.19181"		
Ellipsoidal height (m)	293.59662		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59751"	228.904
Adjusted		N42°01'49.10902"	W91°32'55.59729"	228.878
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.026	0.027

Base Station Information

Station ID	IAMN		
Filename	iamn1140.20o, iamn1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59751"		
Ellipsoidal height (m)	228.90414		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNEY

Status	OK	**SBQI**	9	
Duration (Hours)	40.88	**Output Coordinates**	Original	
Solution Epochs	4906	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°57'20.27377"	W92°12'19.44389"	370.916
Adjusted		N43°57'20.27380"	W92°12'19.44340"	370.905
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.012	0.016

Base Station Information

Station ID	MNEY		
Filename	mney1140.20o, mney1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5426R48922
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°57'20.27377"		
Longitude	W92°12'19.44389"		
Ellipsoidal height (m)	370.91635		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WLNC

Status	OK	**SBQI**	9	
Duration (Hours)	47.77	**Output Coordinates**	Original	
Solution Epochs	5732	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°50'15.66937"	W90°42'41.07307"	280.855
Adjusted		N42°50'15.66940"	W90°42'41.07300"	280.844
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.002	0.011	0.011

Base Station Information

Station ID	WLNC		
Filename	wlnc1140.20o, wlnc1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72957
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N42°50'15.66937"		
Longitude	W90°42'41.07307"		
Ellipsoidal height (m)	280.85483		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64527"	W91°29'46.51639"	339.588
Adjusted		N43°37'58.64538"	W91°29'46.51596"	339.596
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.008	0.013

Base Station Information

Station ID	MNCA		
Filename	mnca1140.20o, mnca1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64527"		
Longitude	W91°29'46.51639"		
Ellipsoidal height (m)	339.58829		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54034"	172.253
Adjusted		N43°29'49.47916"	W91°17'26.53963"	172.229
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.017	0.024	0.030

Base Station Information

Station ID	IANA		
Filename	iana1140.20o, iana1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54034"		
Ellipsoidal height (m)	172.25320		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	47.78	**Output Coordinates**	Original	
Solution Epochs	5733	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84812"	W91°53'06.86731"	380.908
Adjusted		N43°30'53.84829"	W91°53'06.86700"	380.916
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.009	0.009	0.012

Base Station Information

Station ID	MNPS		
Filename	mnps1140.20o, mnps1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84812"		
Longitude	W91°53'06.86731"		
Ellipsoidal height (m)	380.90776		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52988"	298.980
Adjusted		N42°52'40.47663"	W91°21'41.52970"	298.983
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.003	0.005

Base Station Information

Station ID	IAEL		
Filename	iael1140.20o, iael1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52988"		
Ellipsoidal height (m)	298.98027		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Control	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52634"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52634"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade1140.20o, iade1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52634"		
Ellipsoidal height (m)	316.51616		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40417"	W92°47'14.24725"	291.092
Adjusted		N42°44'49.40401"	W92°47'14.24730"	291.119
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.027	0.027

Base Station Information

Station ID	IAAL		
Filename	iaal1140.20o, iaal1150.20o		
Start date	4/23/2020 12:00:00 AM		
End date	4/24/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40417"		
Longitude	W92°47'14.24725"		
Ellipsoidal height (m)	291.09231		
Frame	ITRF00		
Epoch	2020.308743		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	6.55	79.86	
Number of GPS SV	5	8	7
Number of GLONASS SV	0	0	0
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	5	8	7
PDOP	1.82	4.87	2.31
QC Solution Gaps	0.00	0.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	5742.00	0.00	0.00
Percentage	100.00	0.00	0.00

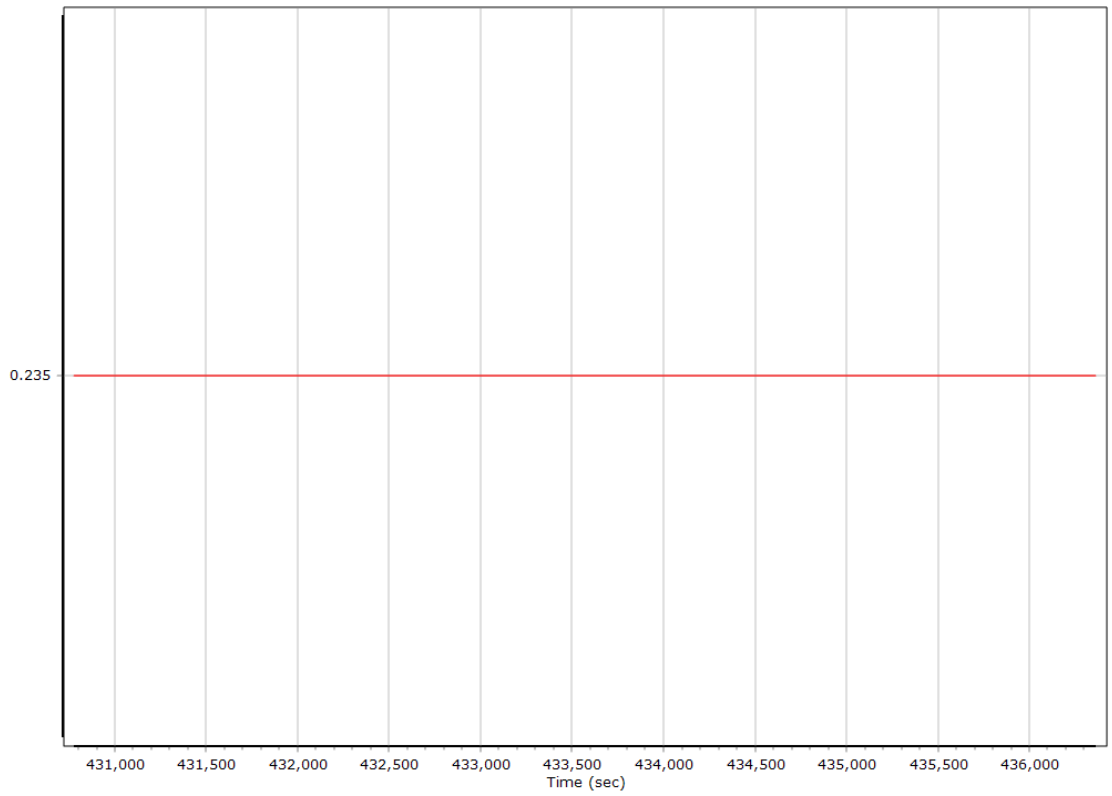
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	430588.000 (4/23/2020 11:36:28 PM)		
Processing end time	436369.000 (4/24/2020 1:12:49 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.235	-0.137	-0.793
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

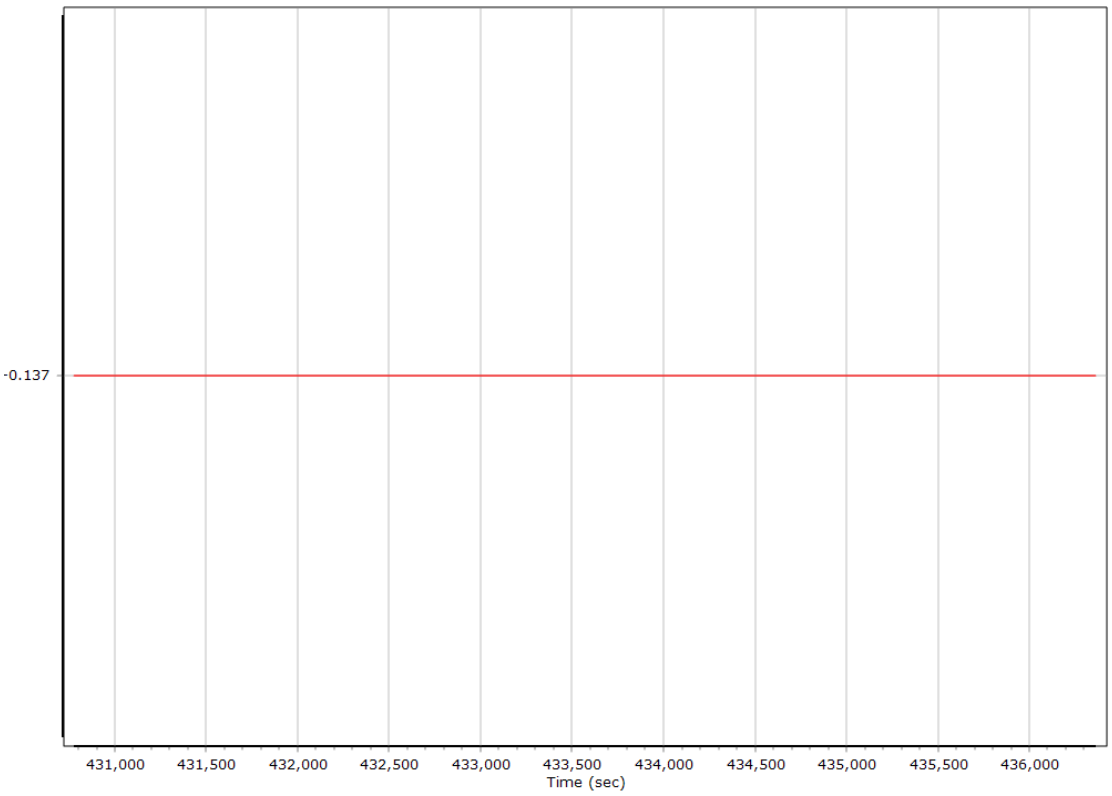
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

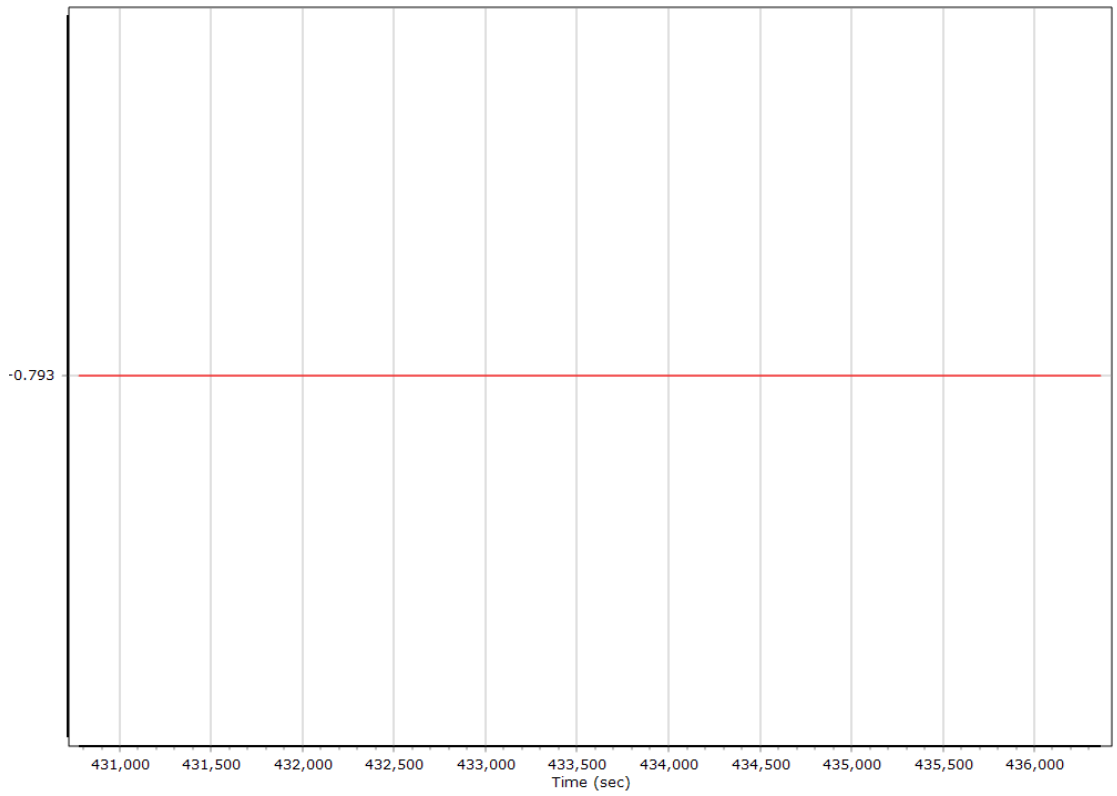
X Reference-Primary GNSS Lever Arm (m)



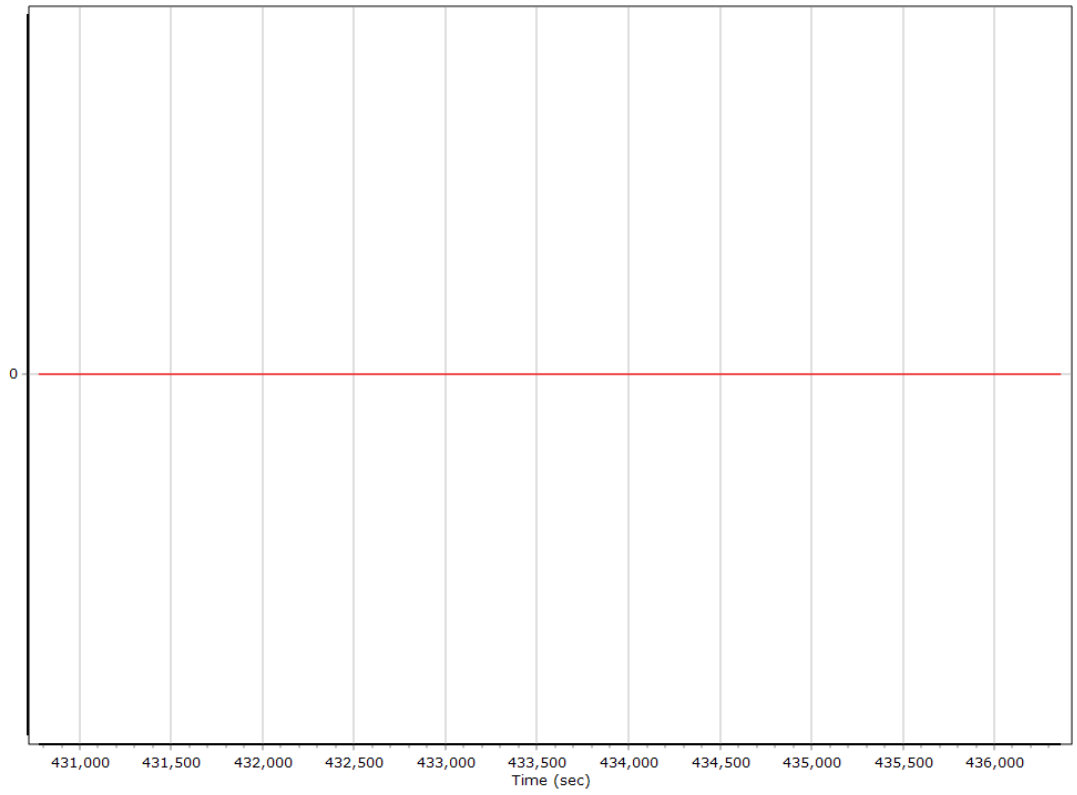
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



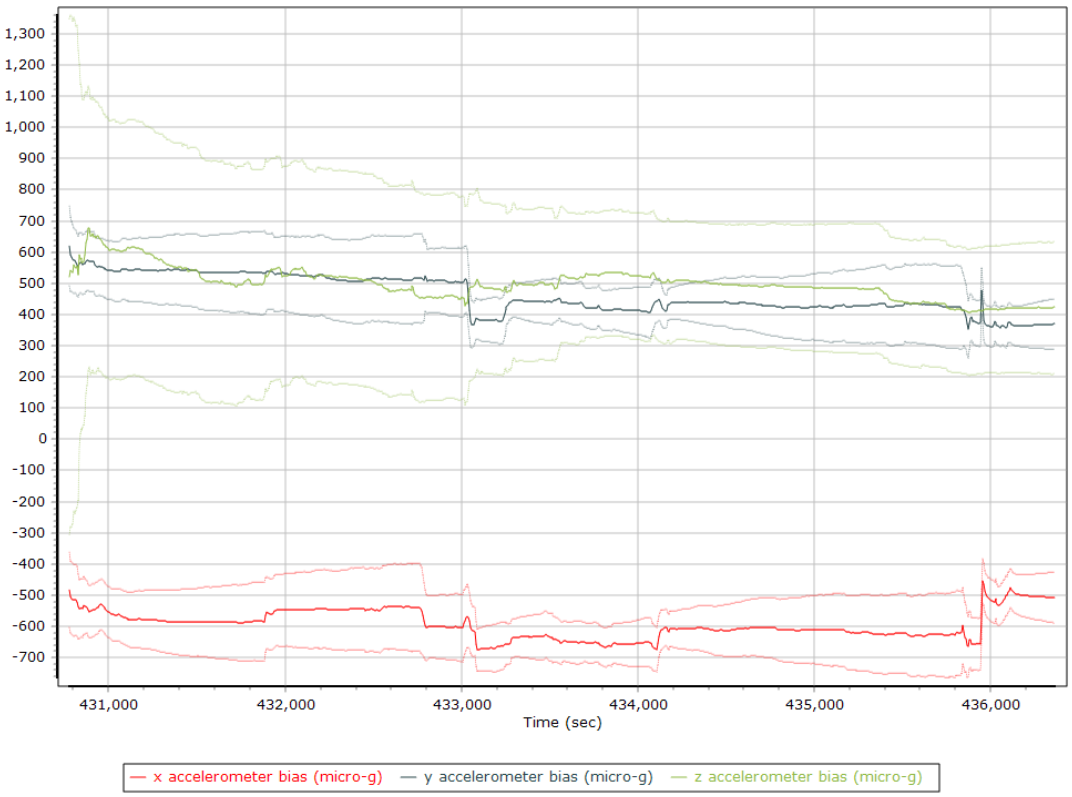
Reference-Primary GNSS Lever Arm Figure of Merit



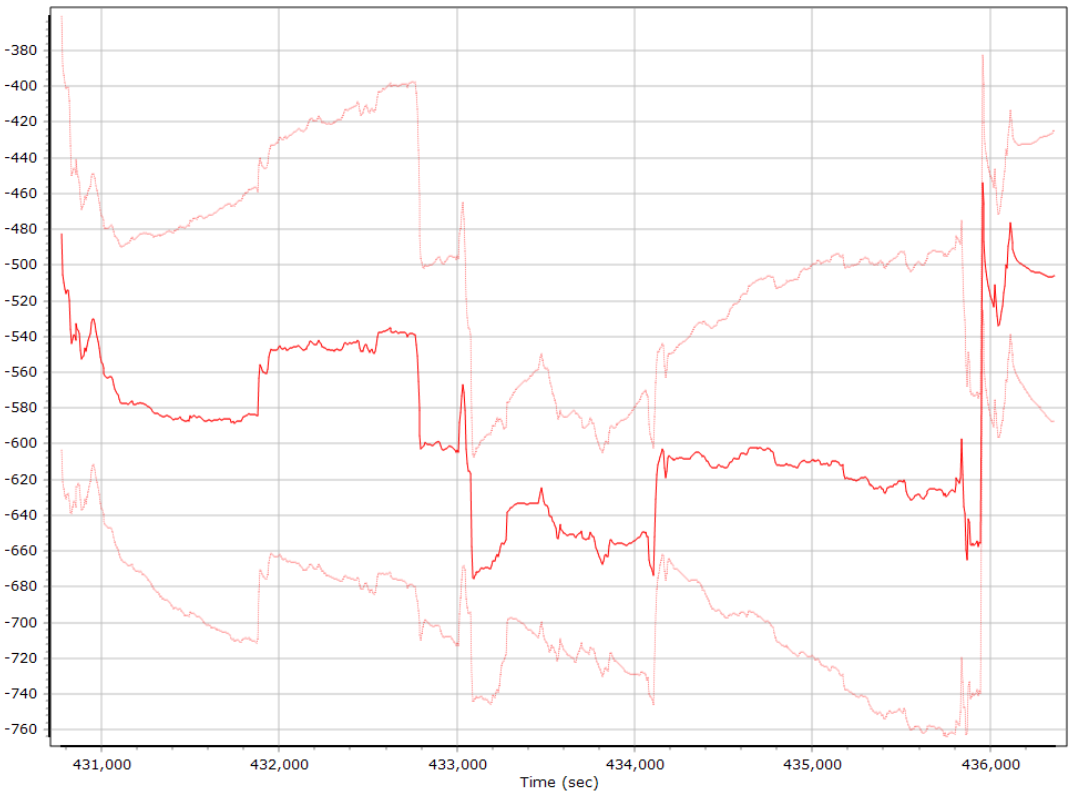
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

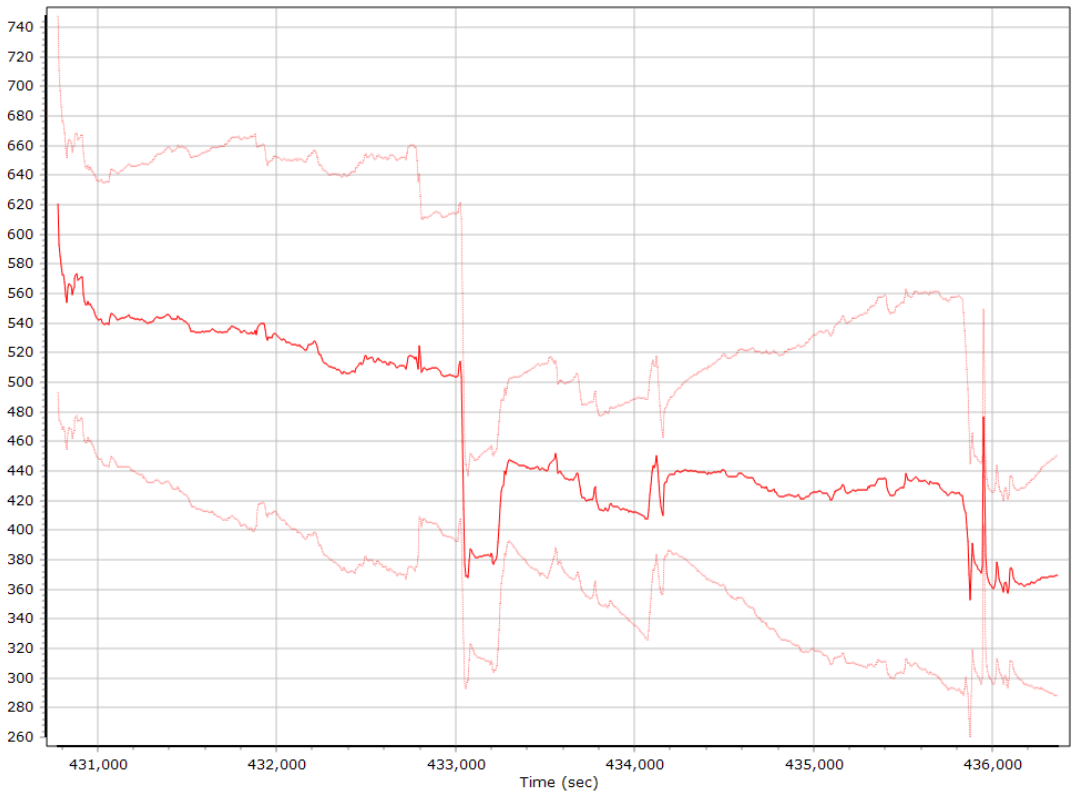
Accelerometer Bias (micro-g)



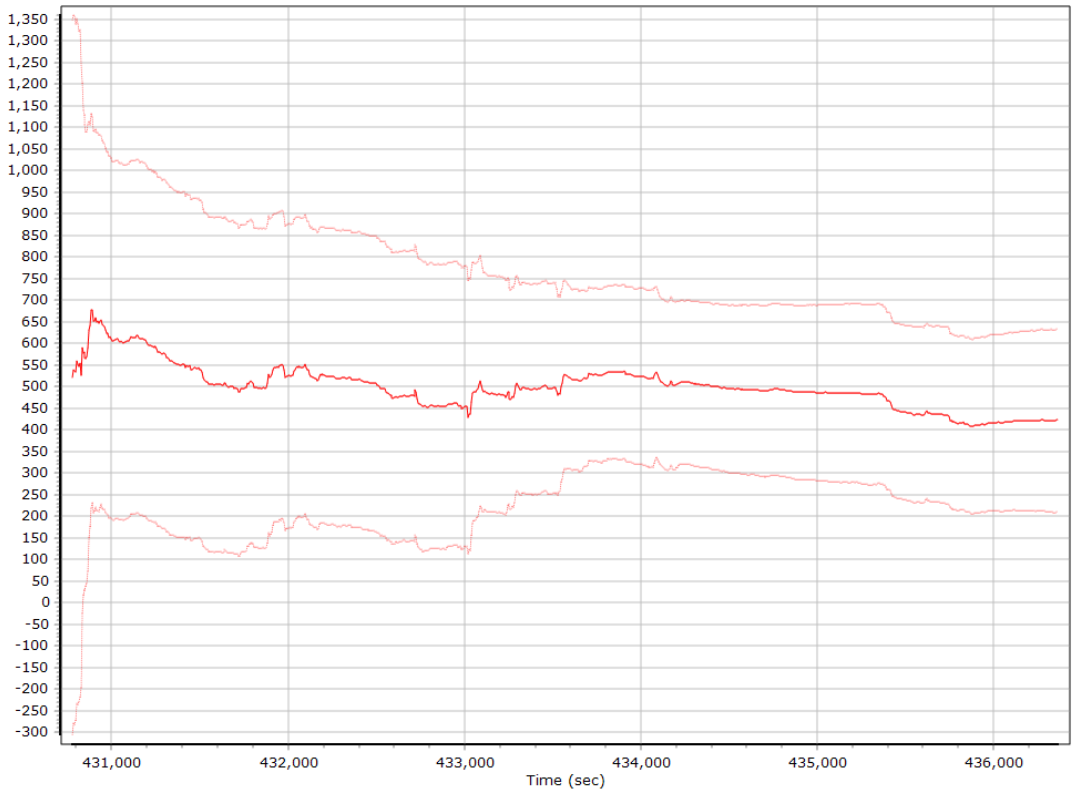
X Accelerometer Bias (micro-g)



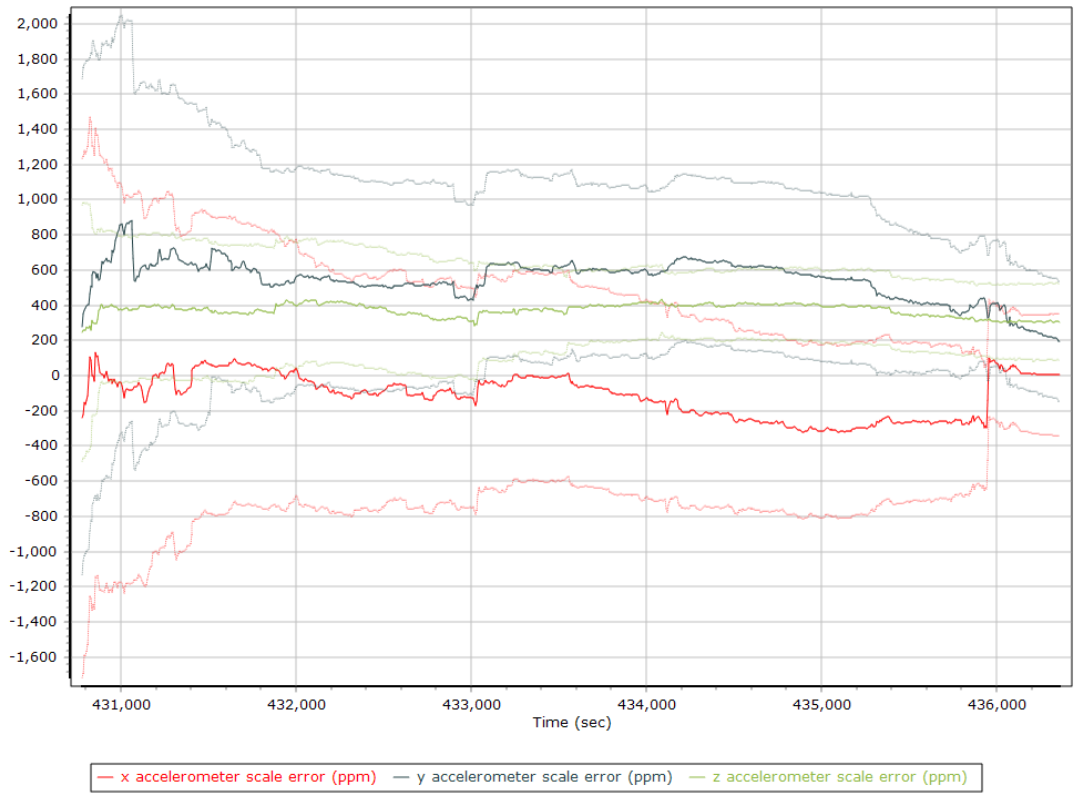
Y Accelerometer Bias (micro-g)



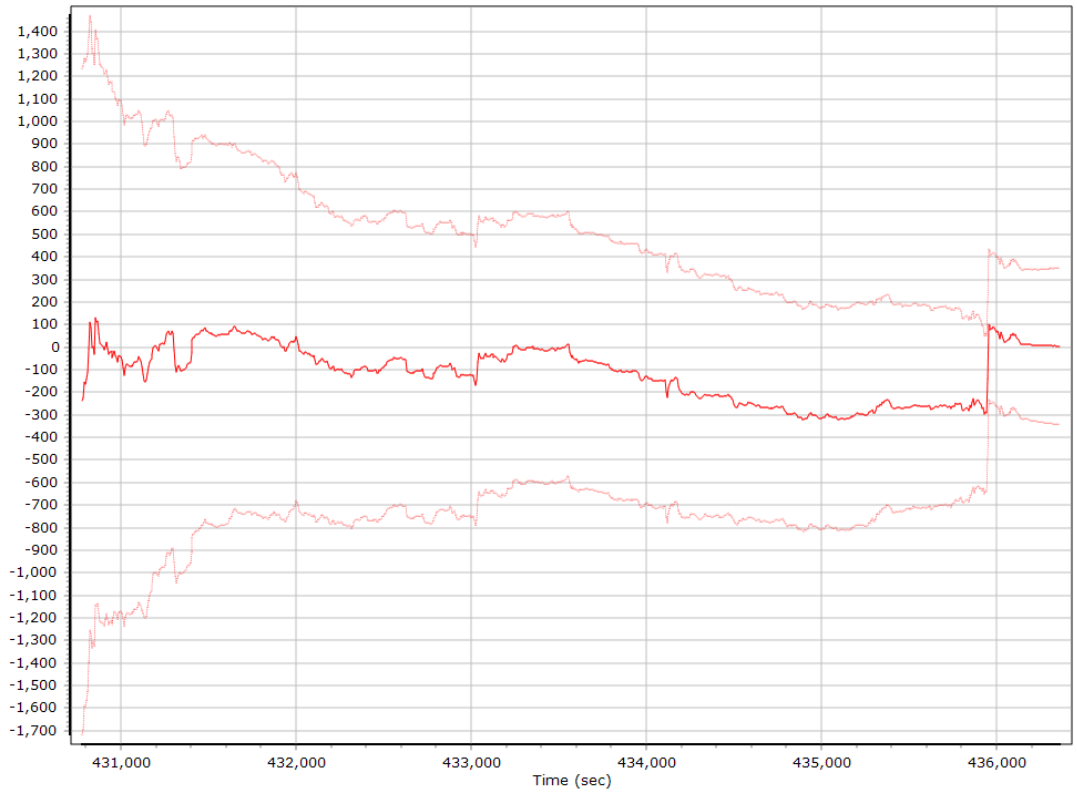
Z Accelerometer Bias (micro-g)



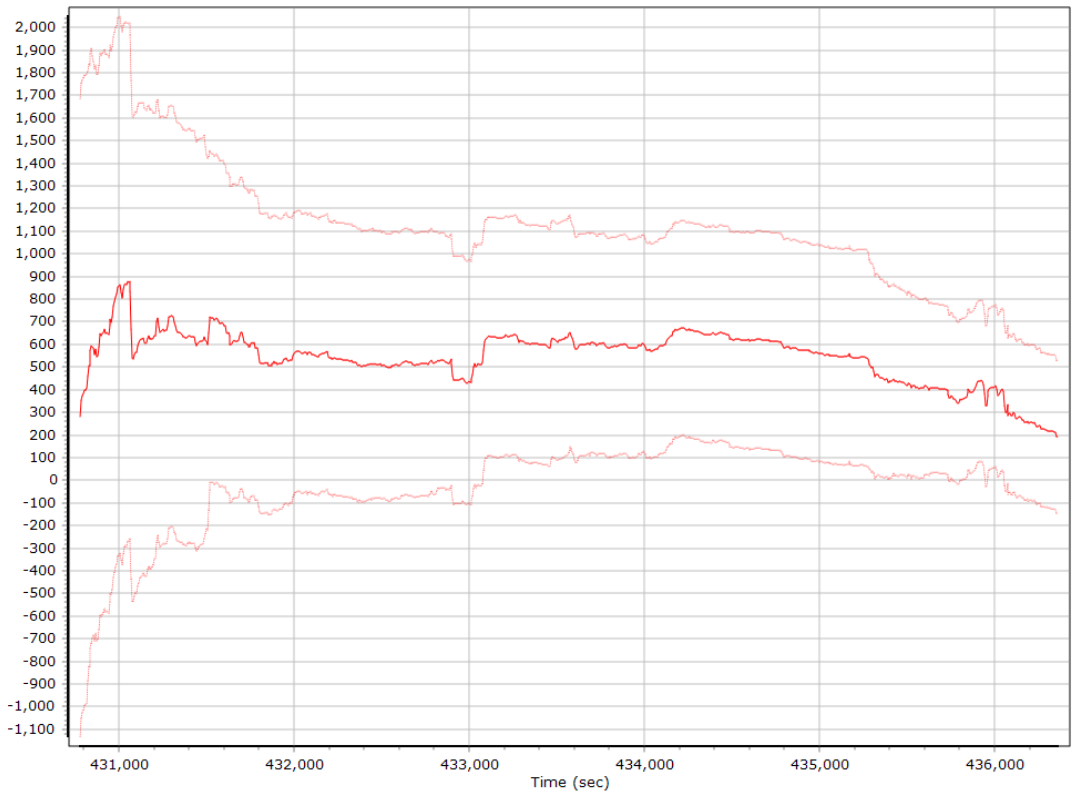
Accelerometer Scale Error (ppm)



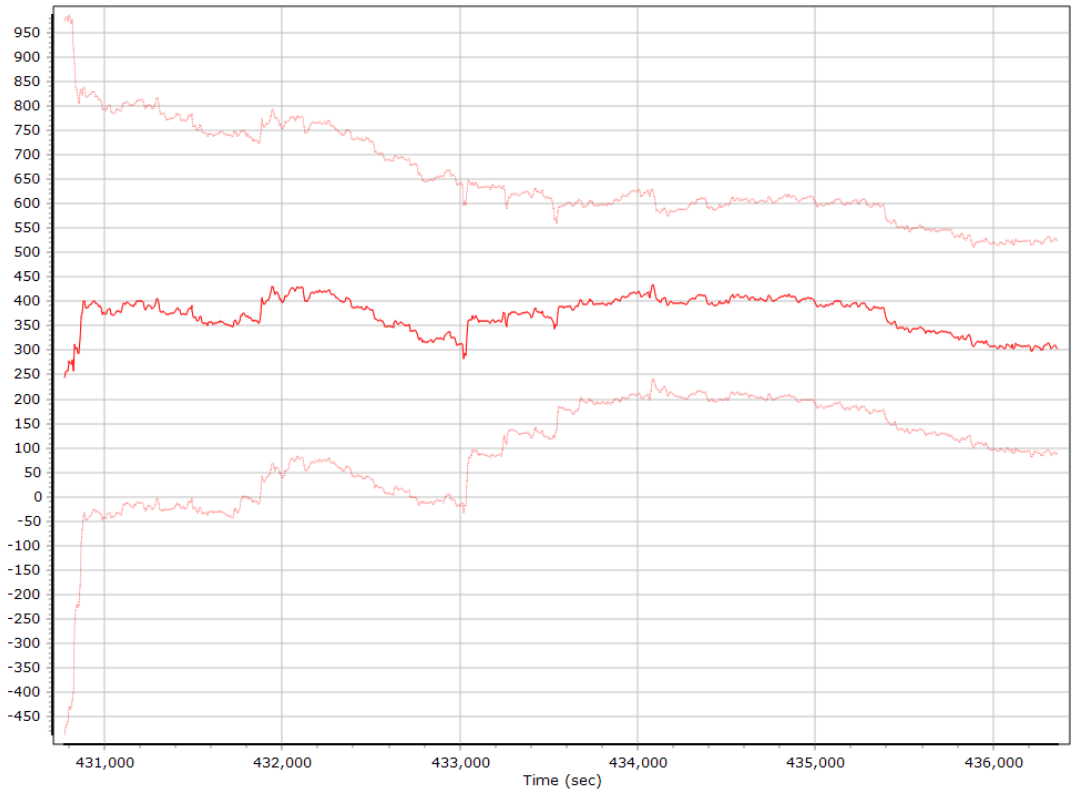
X Accelerometer Scale Error (ppm)



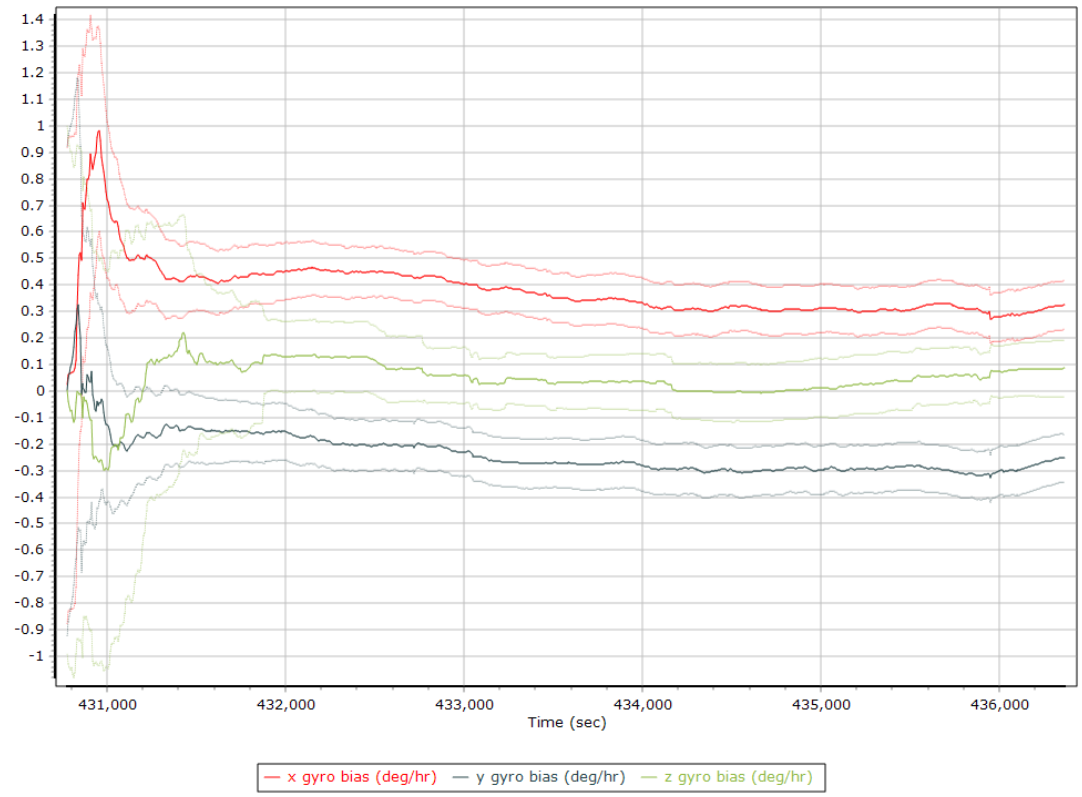
Y Accelerometer Scale Error (ppm)



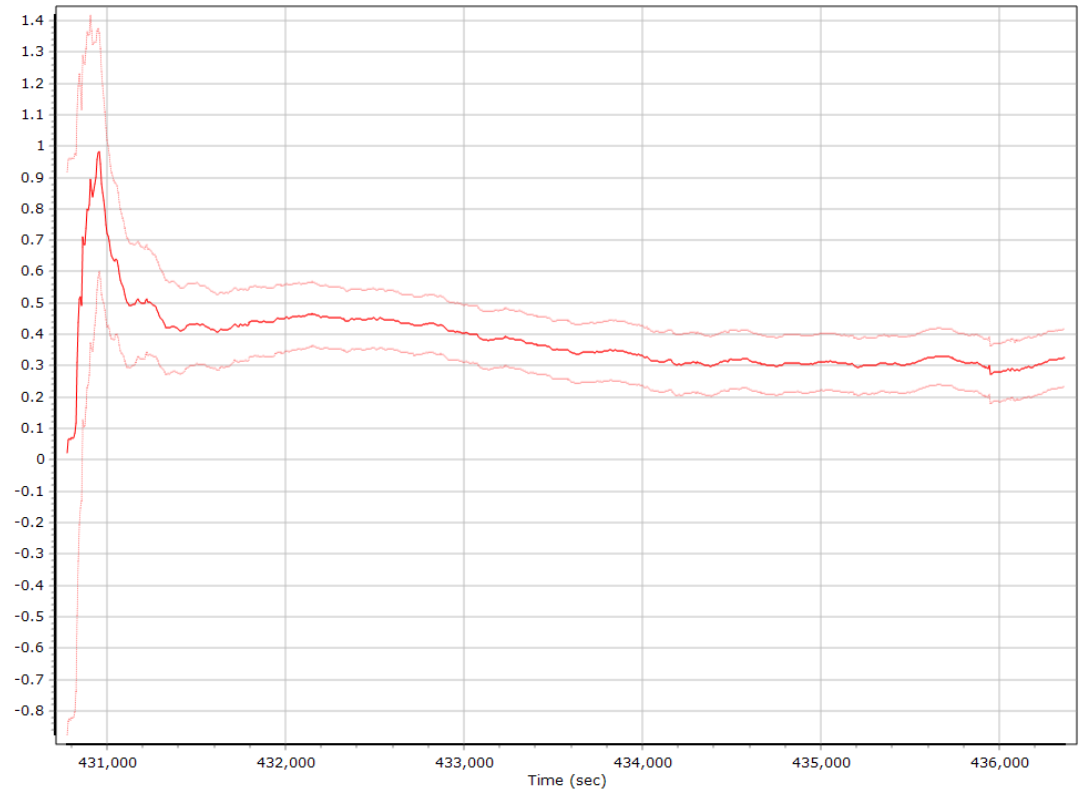
Z Accelerometer Scale Error (ppm)



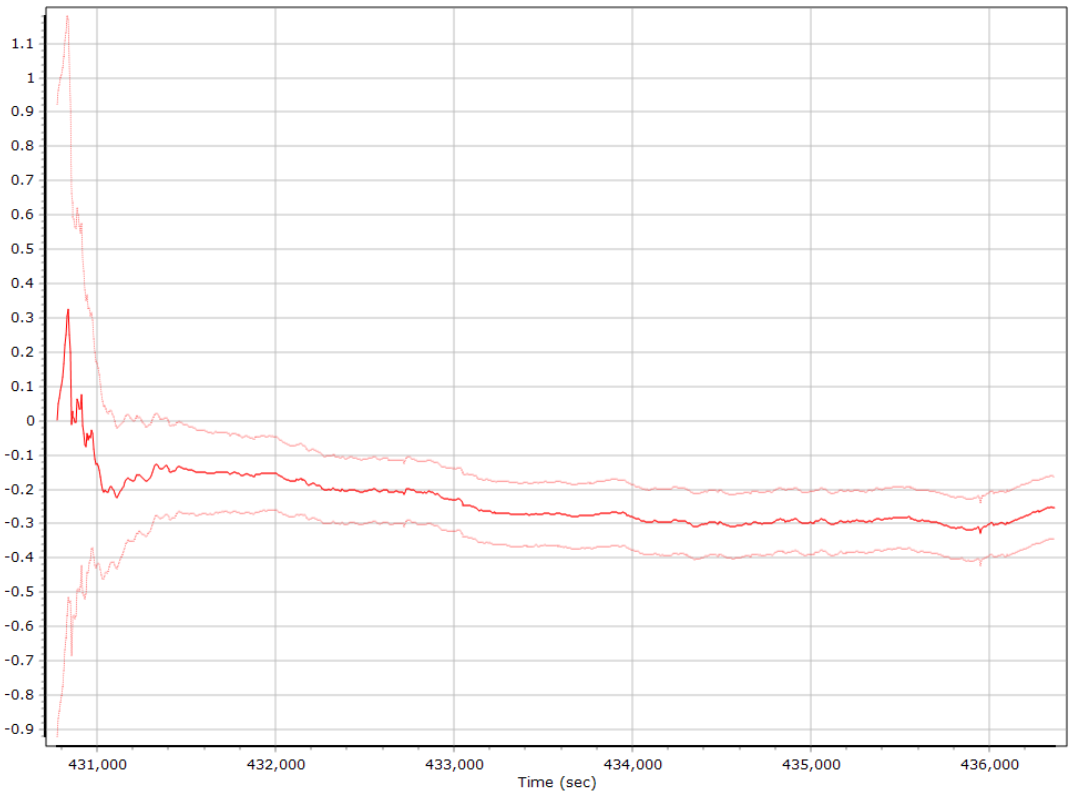
Gyro Bias (deg/h)



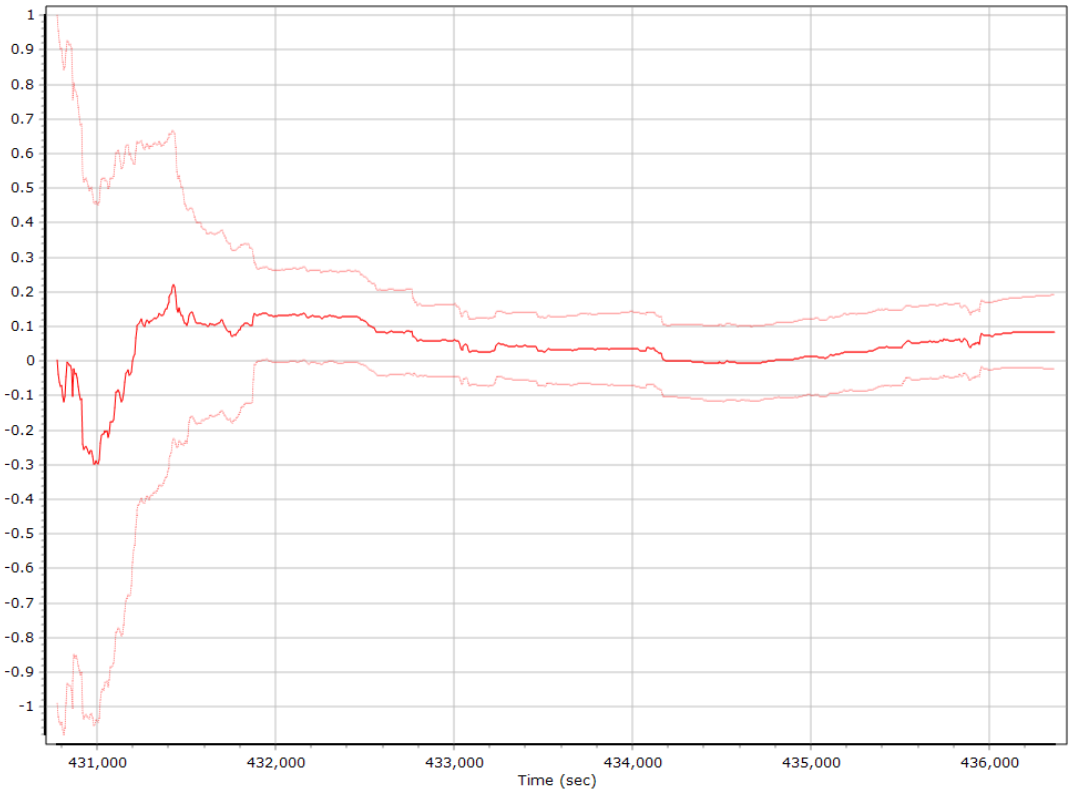
X Gyro Bias (deg/h)



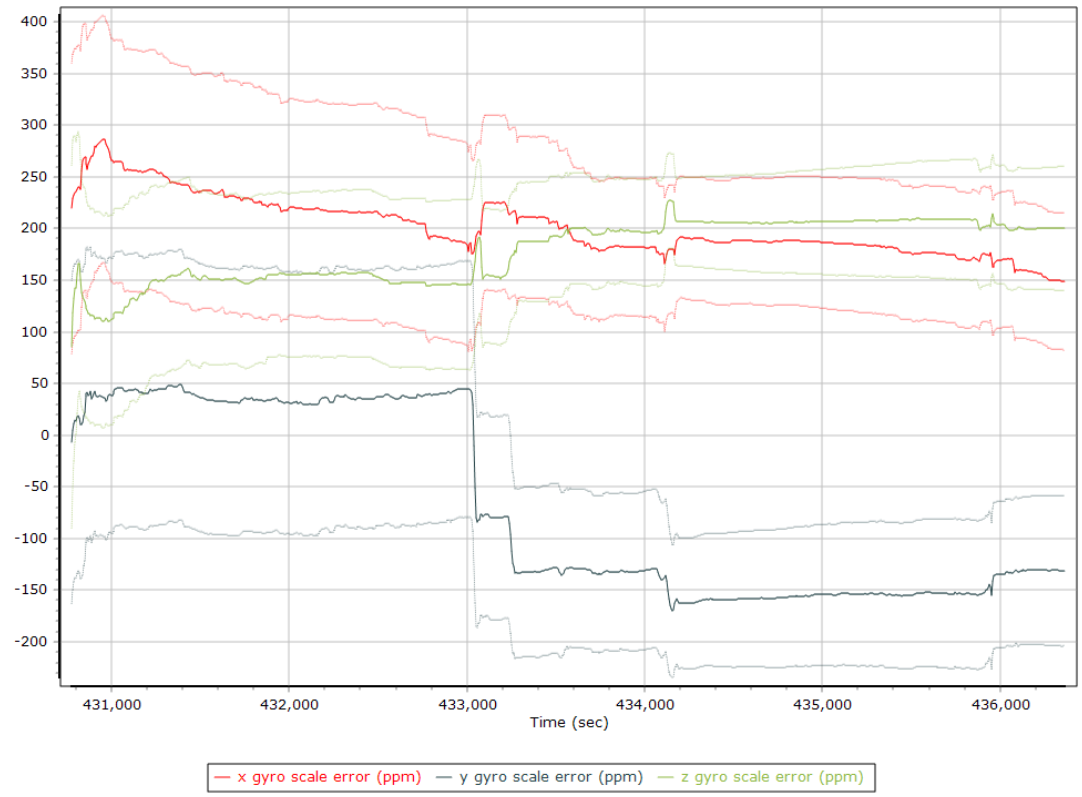
Y Gyro Bias (deg/h)



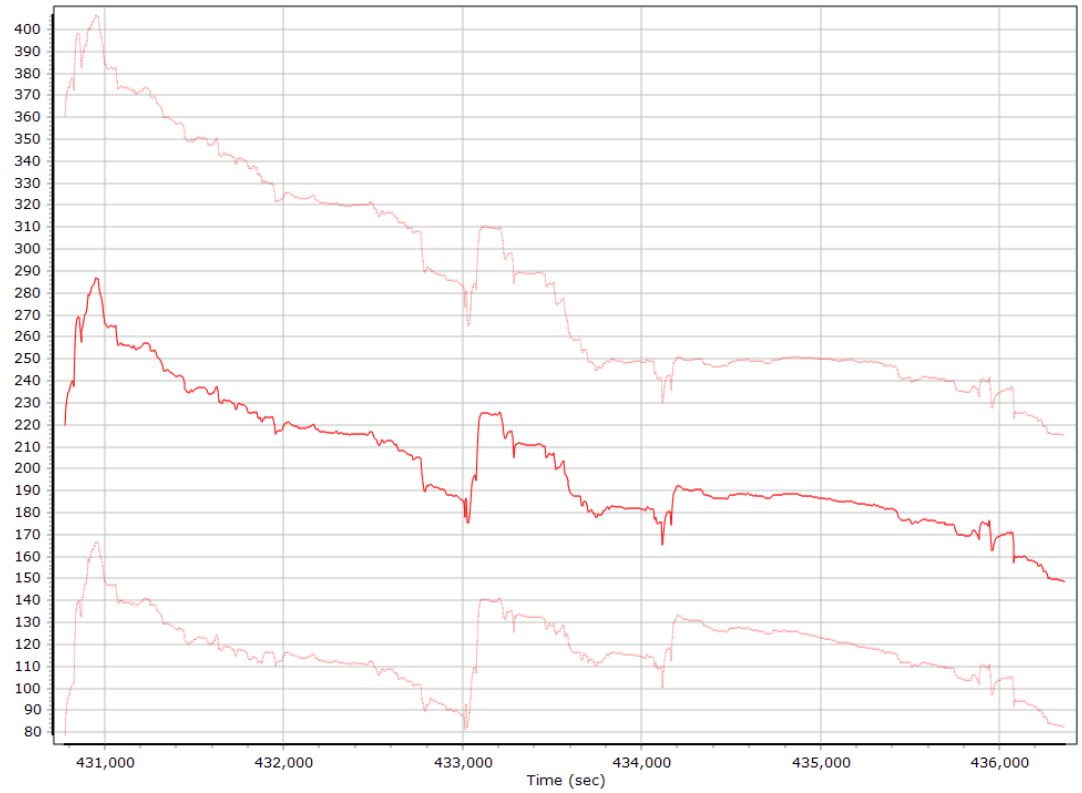
Z Gyro Bias (deg/h)



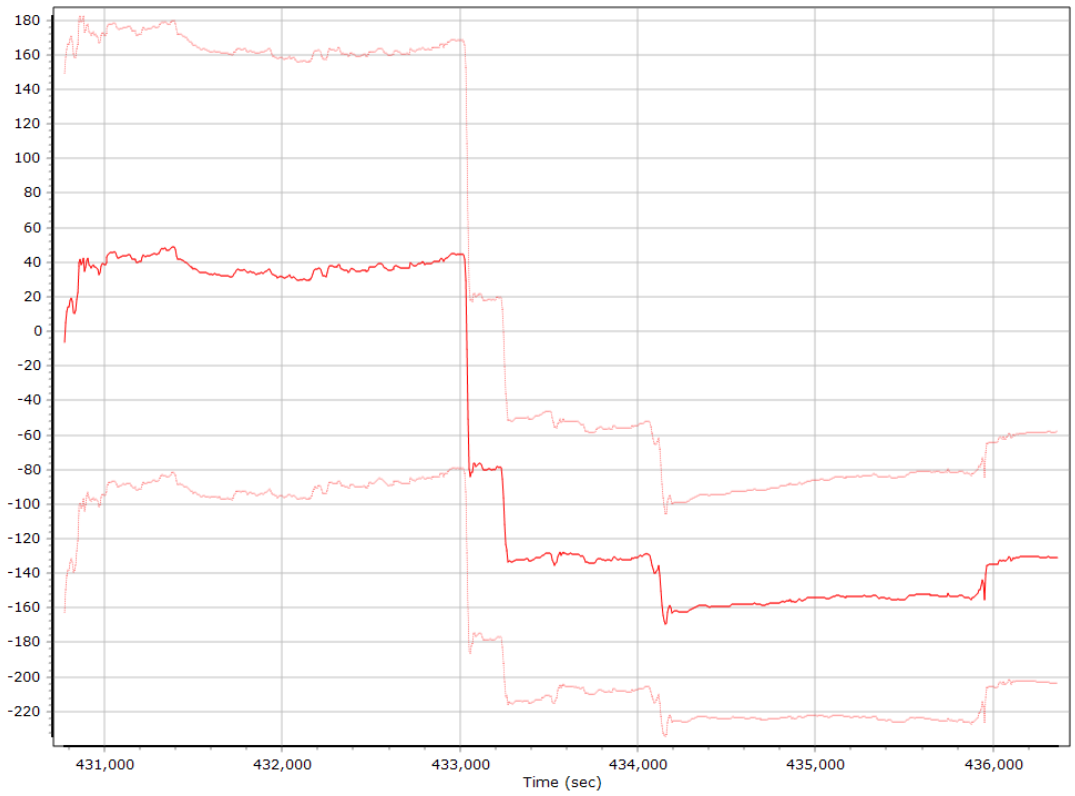
Gyro Scale Error (ppm)



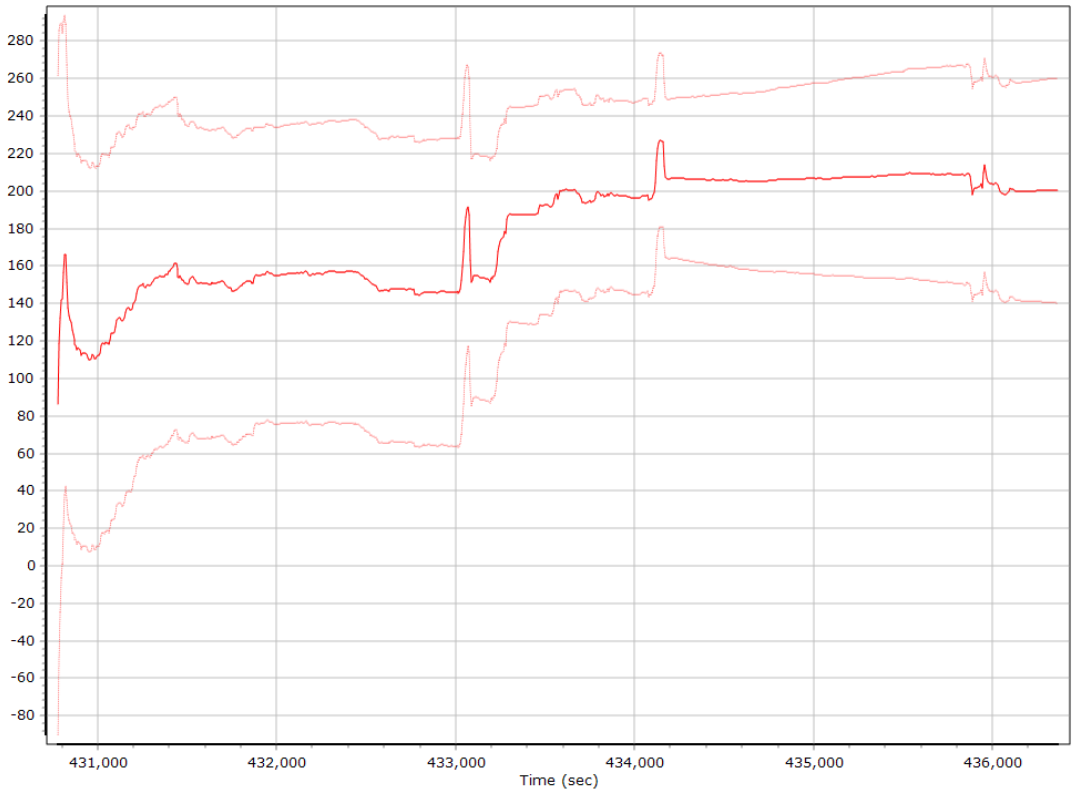
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

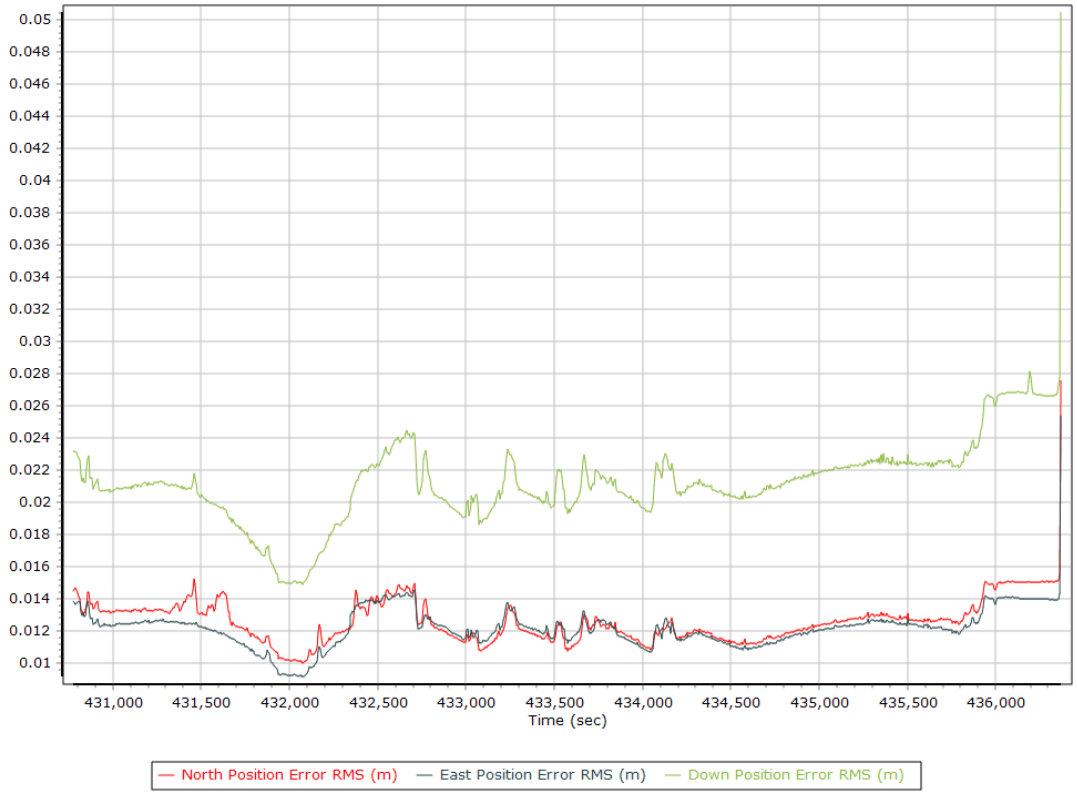


Z Gyro Scale Error (ppm)

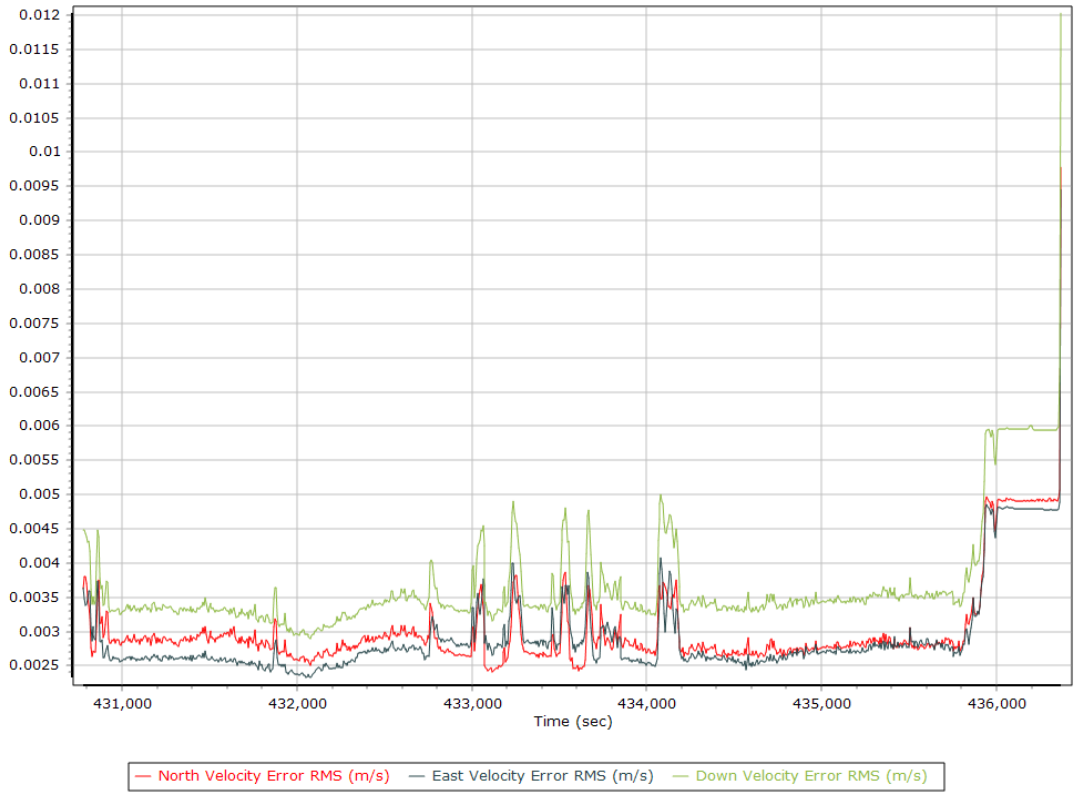


Smoothed Performance Metrics

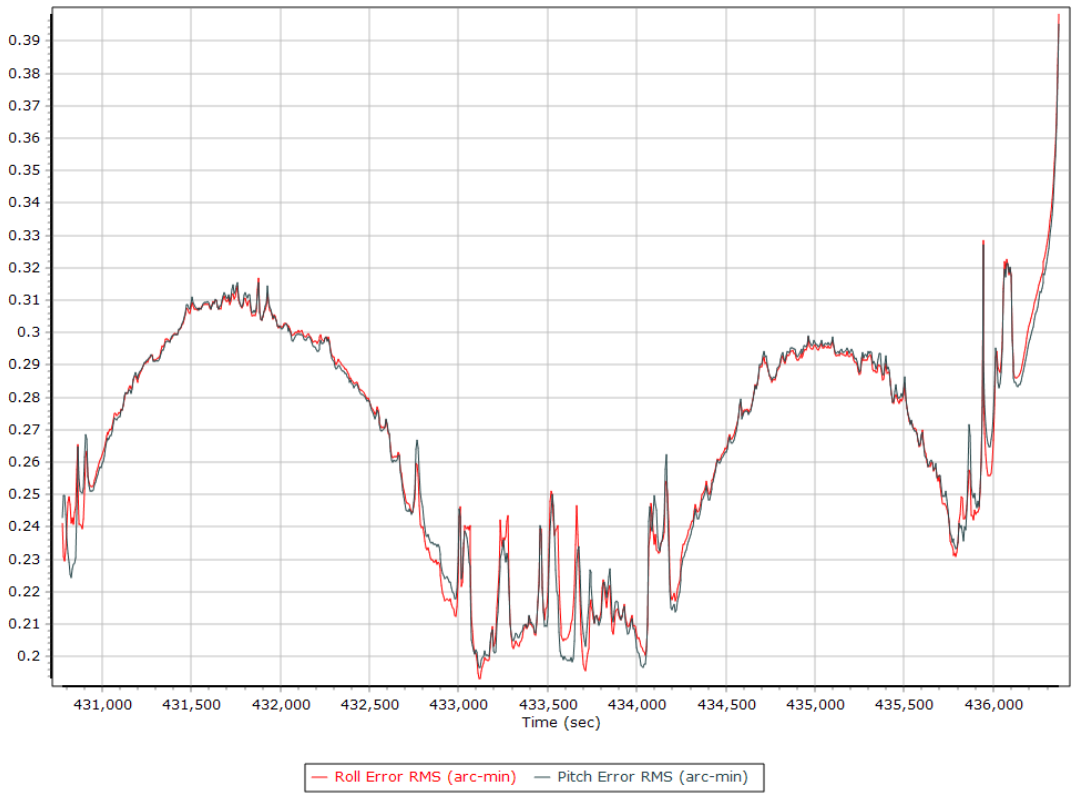
Position Error RMS (m)



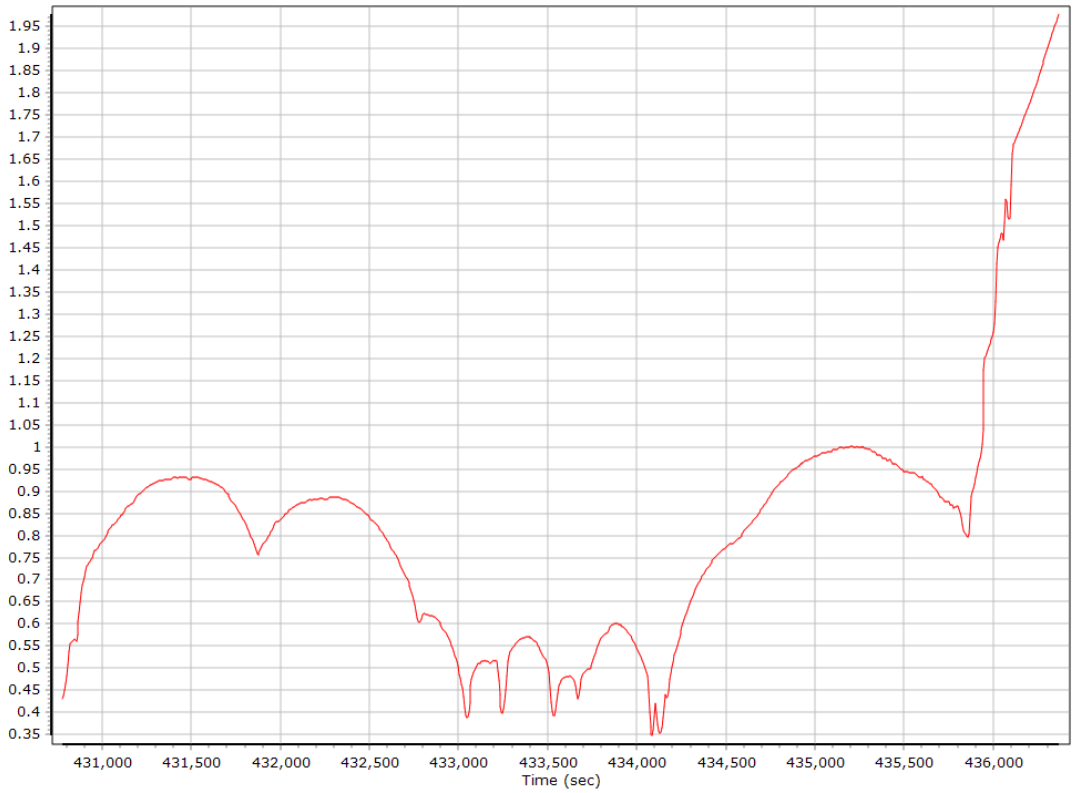
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

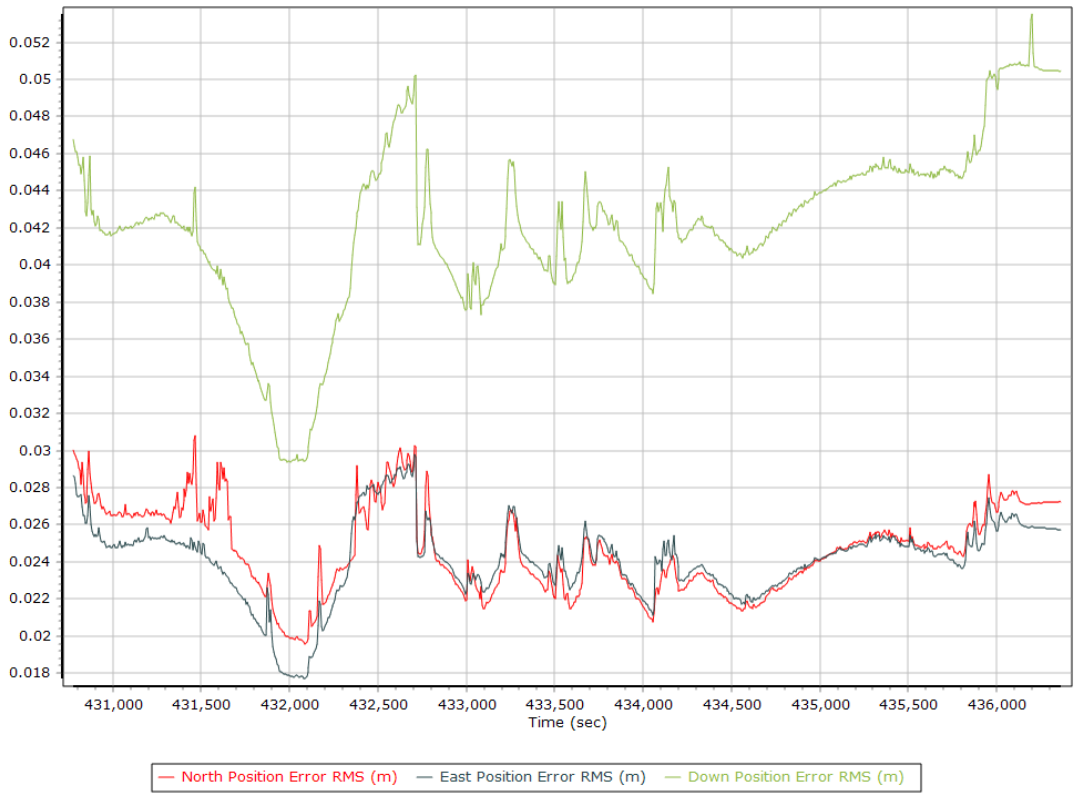


Heading Error RMS (arc-min)

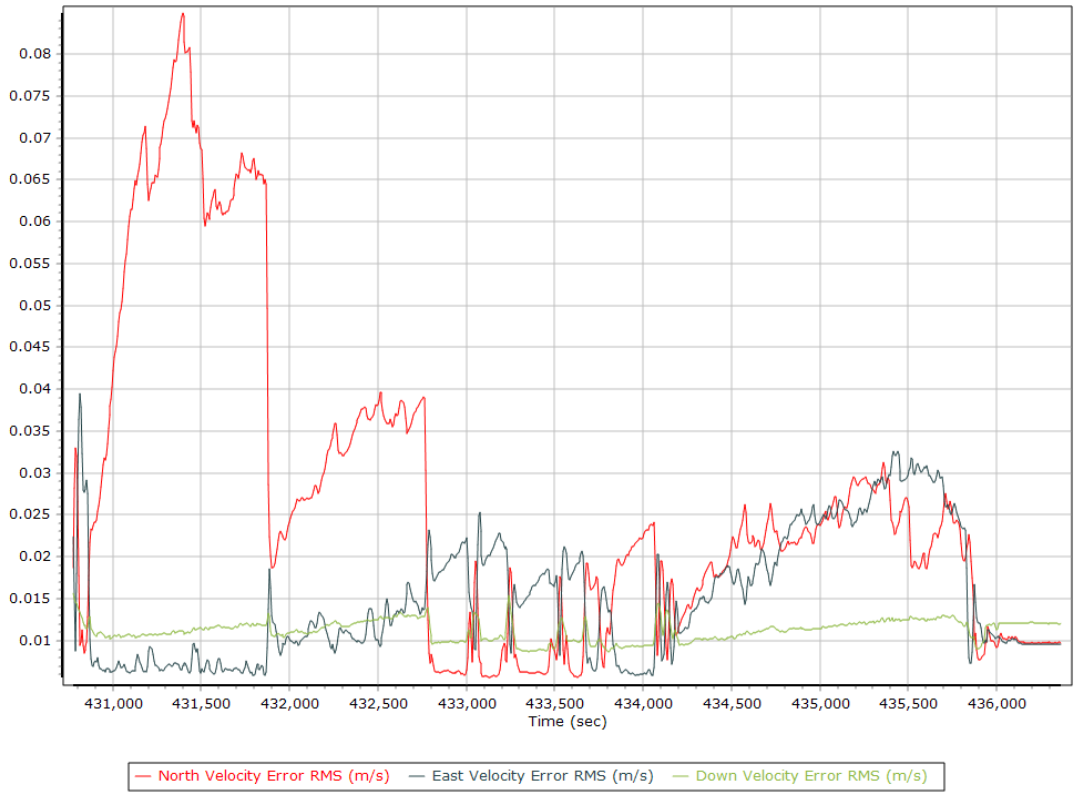


Forward Processed Performance Metrics

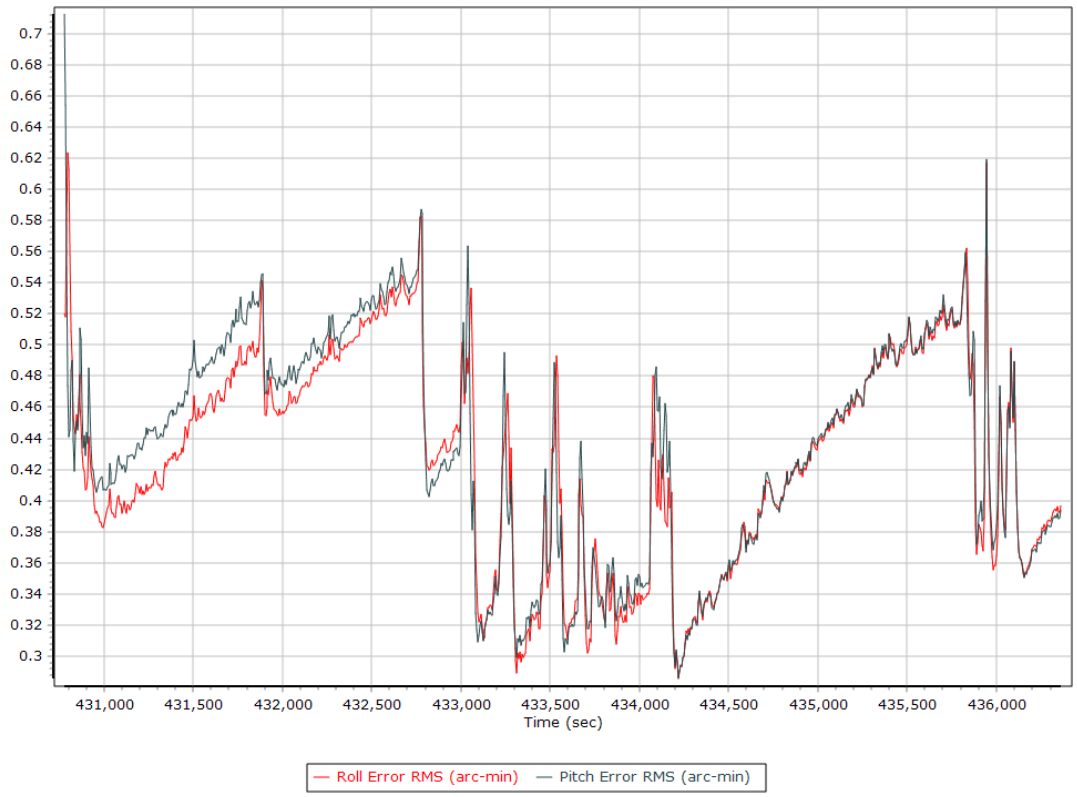
Position Error RMS (m)



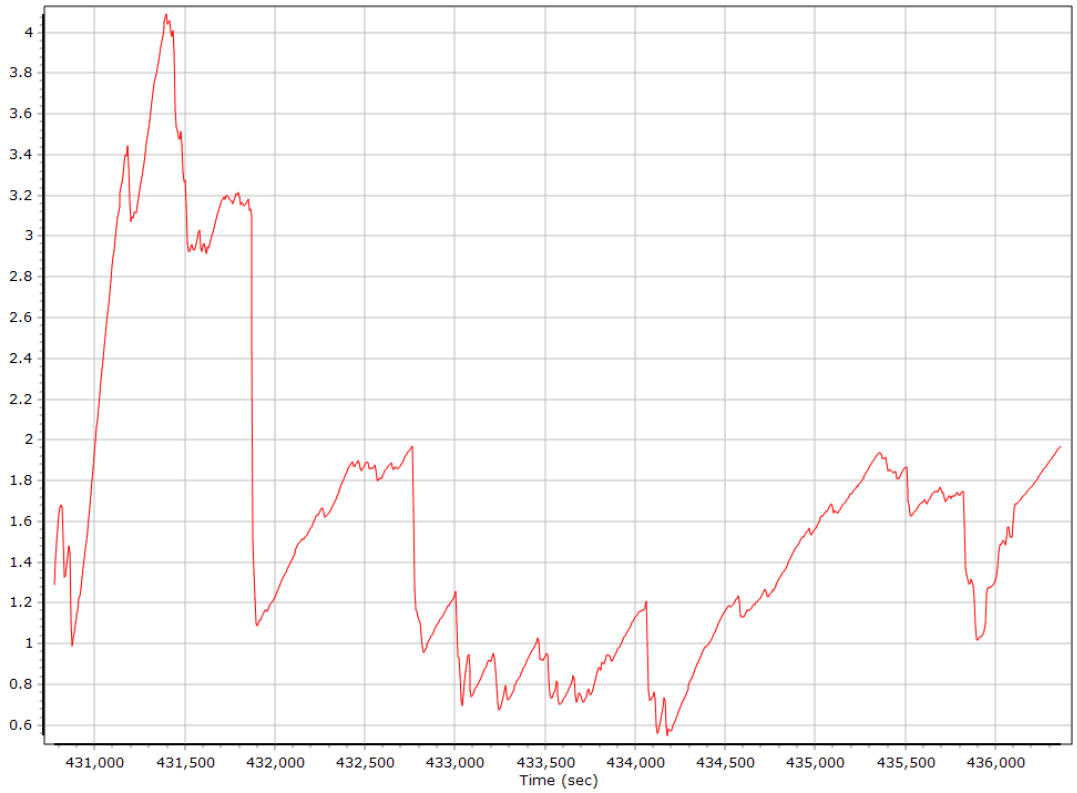
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

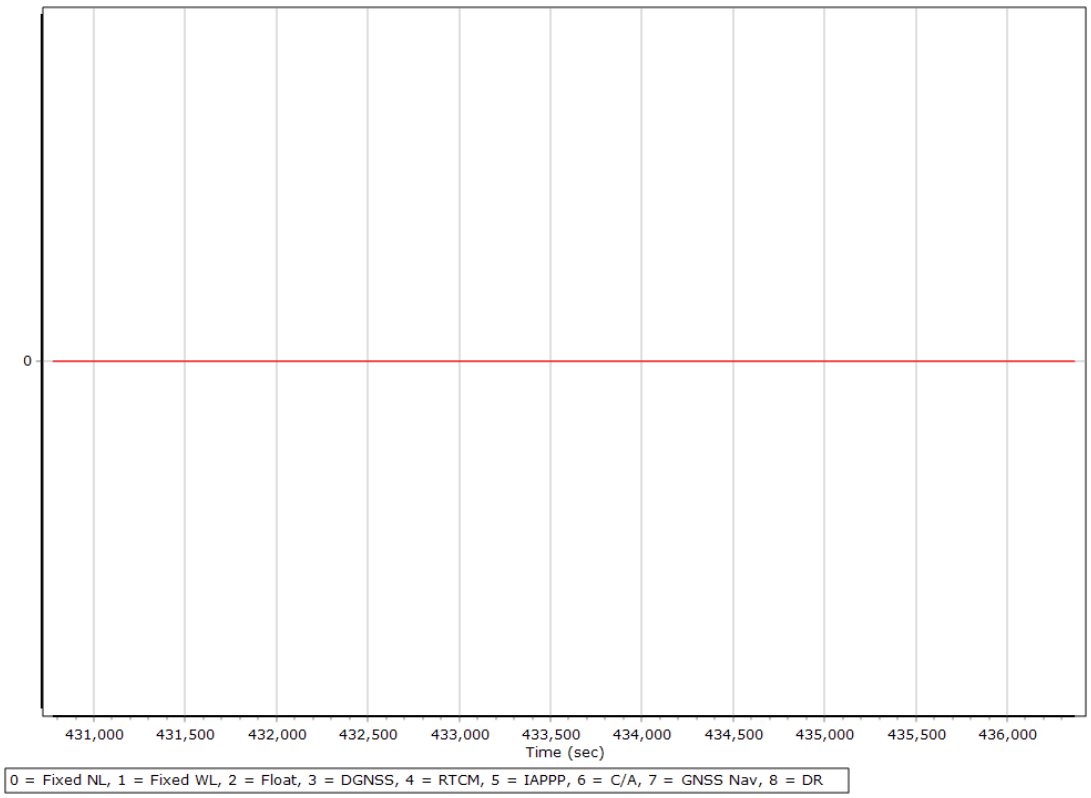


Heading Error RMS (arc-min)

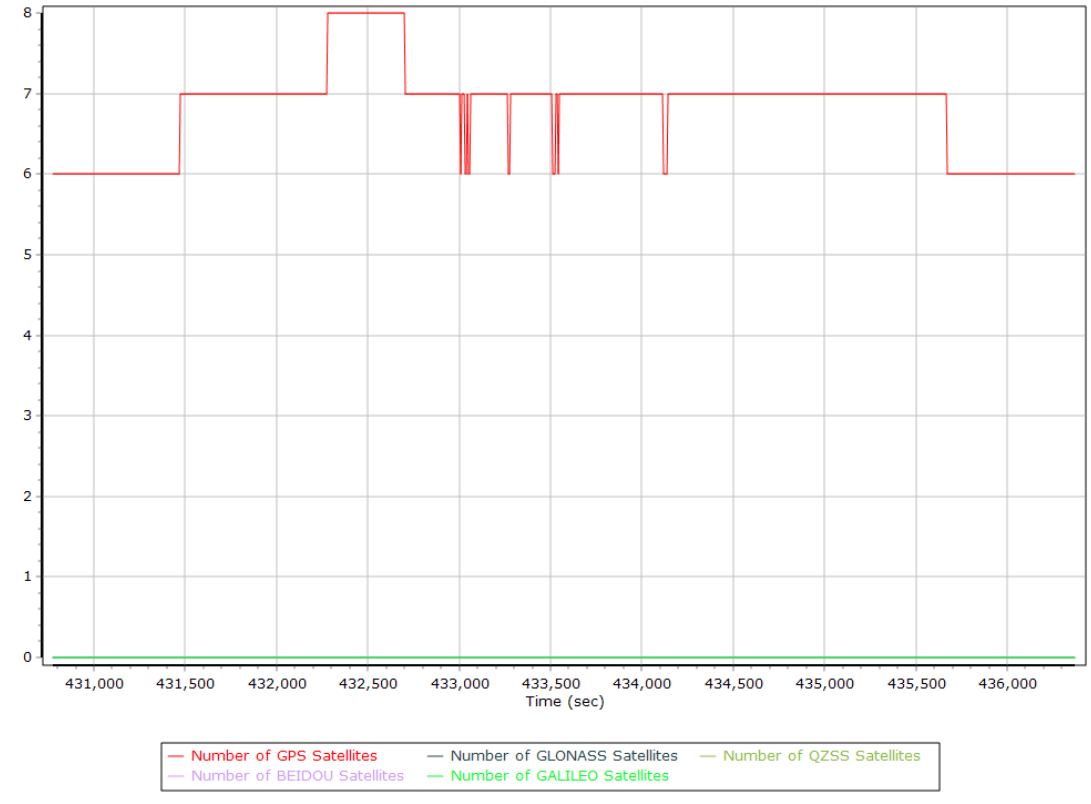


Smoothed Solution Status

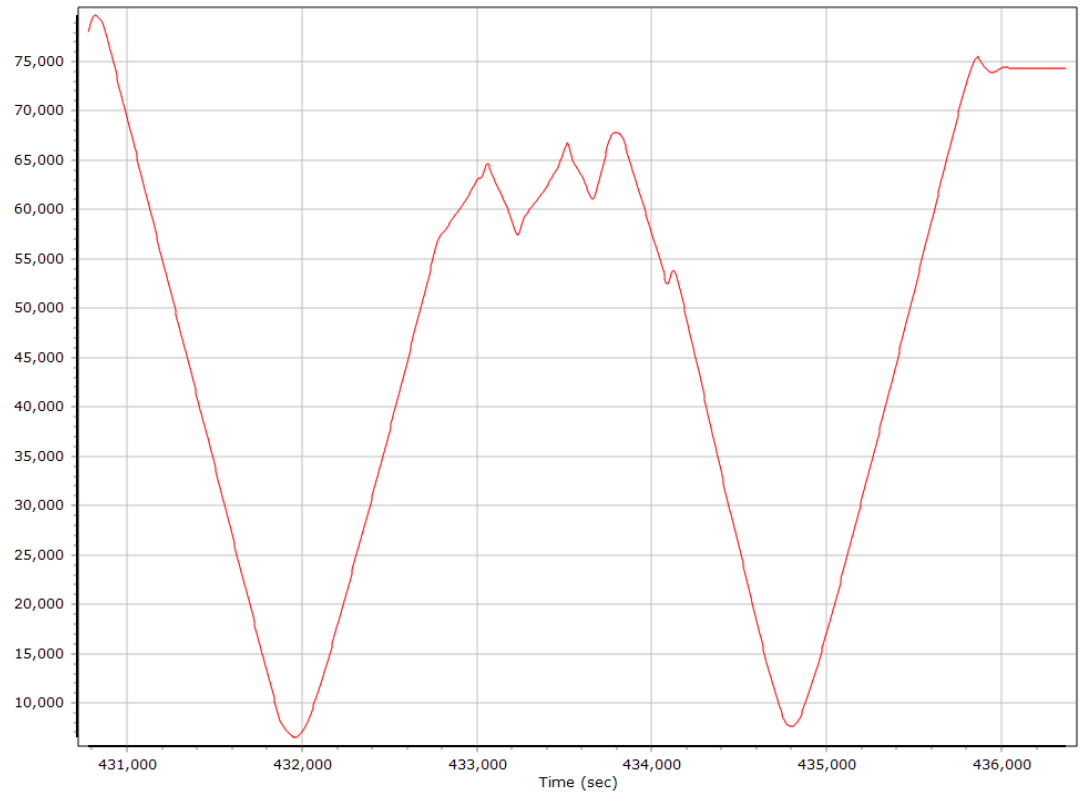
Processing Mode



Number of Satellites

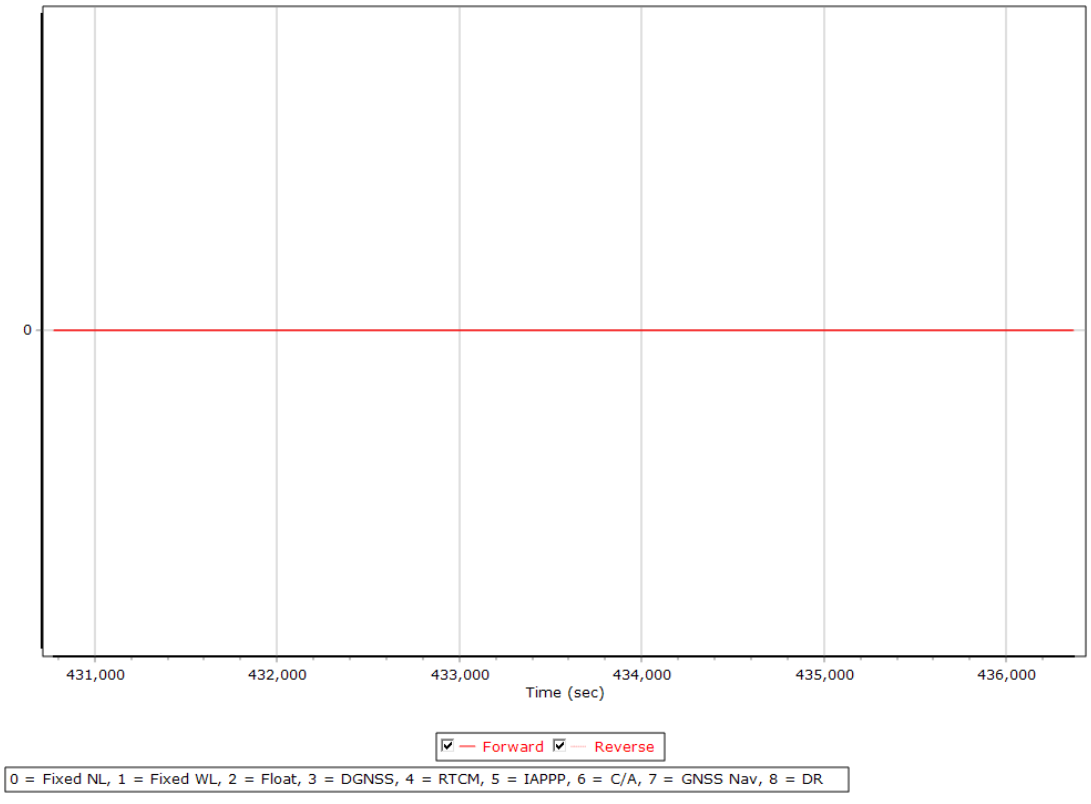


Baseline Length

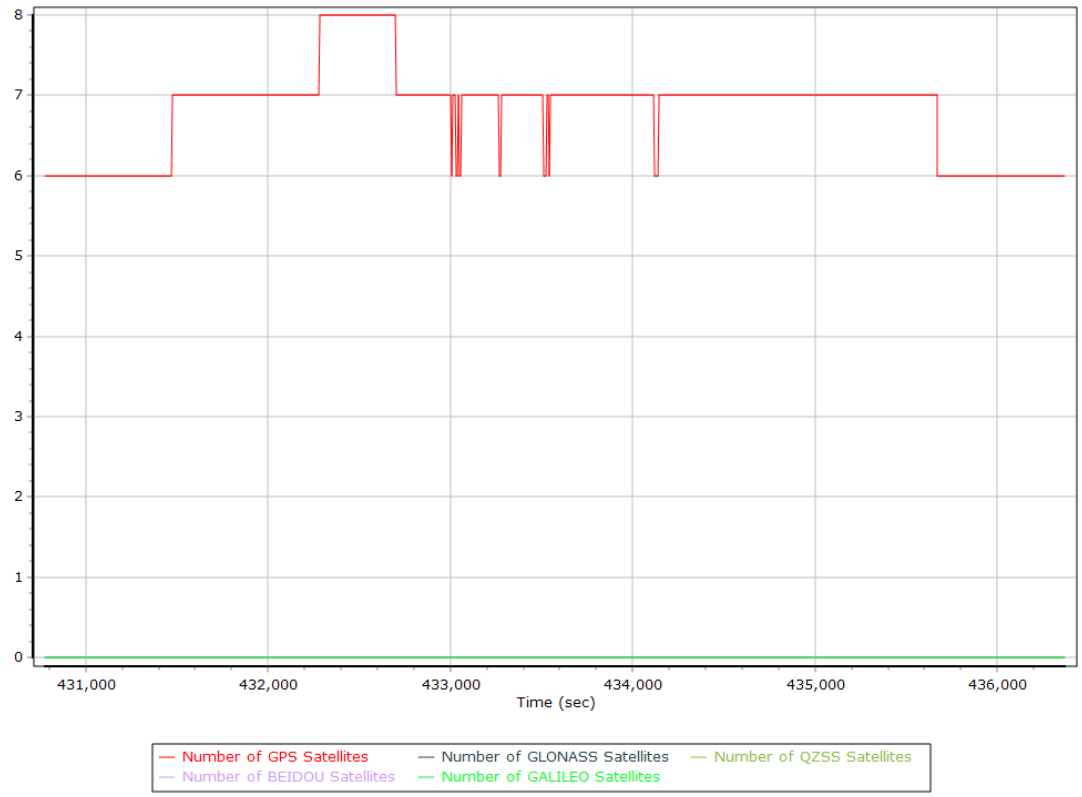


Forward Processed Solution Status

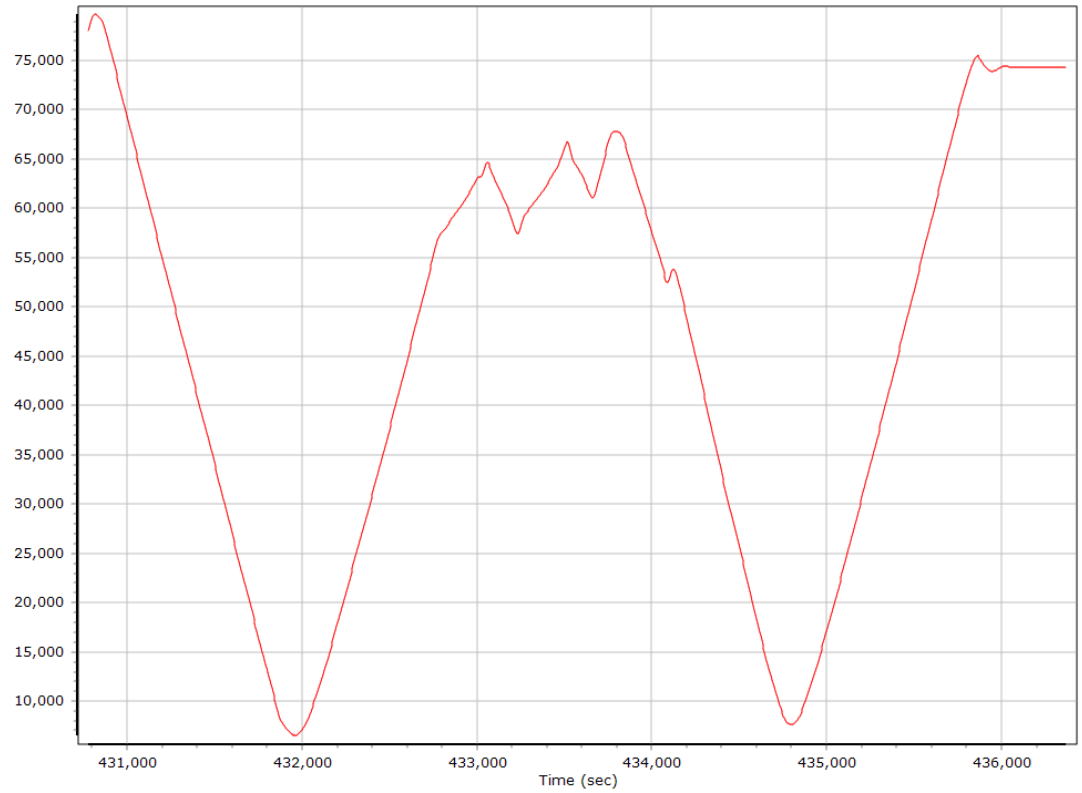
Processing Mode



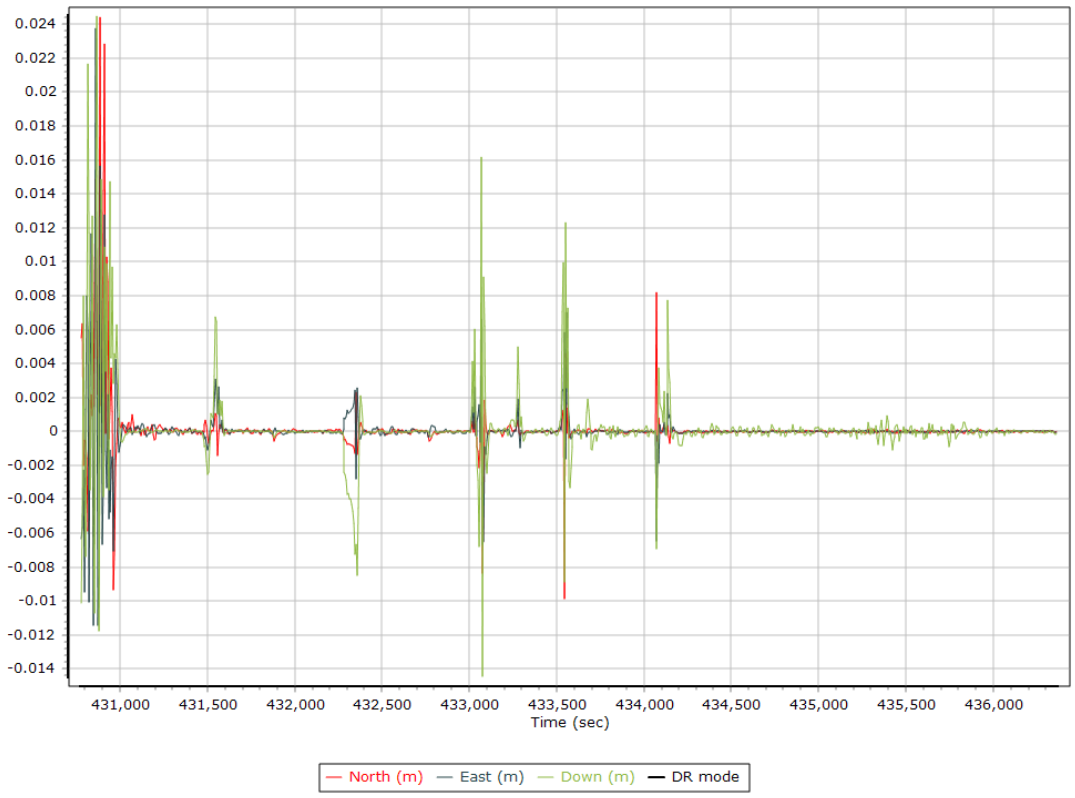
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_196648-01-20200423B-Part2-20200714Run2.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	430719.001 (4/23/2020 11:38:39 PM)		
Export end time	436369.000 (4/24/2020 1:12:49 AM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200404C
Processing date	2021-01-18 23:02:01
Mission date	2020-04-04 18:12:29
Mission duration	04:04:17.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.097	POS Data
ALS.098	POS Data
ALS.099	POS Data
ALS.100	POS Data
ALS.101	POS Data
ALS.102	POS Data
ALS.103	POS Data
ALS.104	POS Data
ALS.105	POS Data
ALS.106	POS Data
ALS.107	POS Data
ALS.108	POS Data
ALS.109	POS Data
ALS.110	POS Data
ALS.111	POS Data
ALS.112	POS Data
ALS.113	POS Data
ALS.114	POS Data
ALS.115	POS Data
ALS.116	POS Data
ALS.117	POS Data
ALS.118	POS Data
ALS.119	POS Data

Input Files

File Name	File Type
Ephm0950.20g	GLONASS Broadcast Ephemeris
Ephm0950.20n	GPS Broadcast Ephemeris
iaal0950.20o	GNSS SingleBase
iacl0950.20o	GNSS SingleBase
iade0950.20o	GNSS SingleBase
iael0950.20o	GNSS SingleBase
iaht0950.20o	GNSS SingleBase
iamn0950.20o	GNSS SingleBase
iana0950.20o	GNSS SingleBase
iata0950.20o	GNSS SingleBase
mnca0950.20o	GNSS SingleBase
mney0950.20o	GNSS SingleBase
mnps0950.20o	GNSS SingleBase
mnsv0950.20o	GNSS SingleBase
mnwn0950.20o	GNSS SingleBase
wlnc0950.20o	GNSS SingleBase
igr20995.sp3	GPS Precise Ephemeris
igr20996.sp3	GPS Precise Ephemeris
igr21000.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200404C-Mission 1.out	SBET Trajectory File
SBET_20200404C-Mission 1.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.097		
Last raw data file	ALS.119		
Start GPS week	2099		
Start time	583943.140 (4/4/2020 6:12:23 PM)		
End time	598587.527 (4/4/2020 10:16:27 PM)		
Start of fine alignment	584713.603 (4/4/2020 6:25:13 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

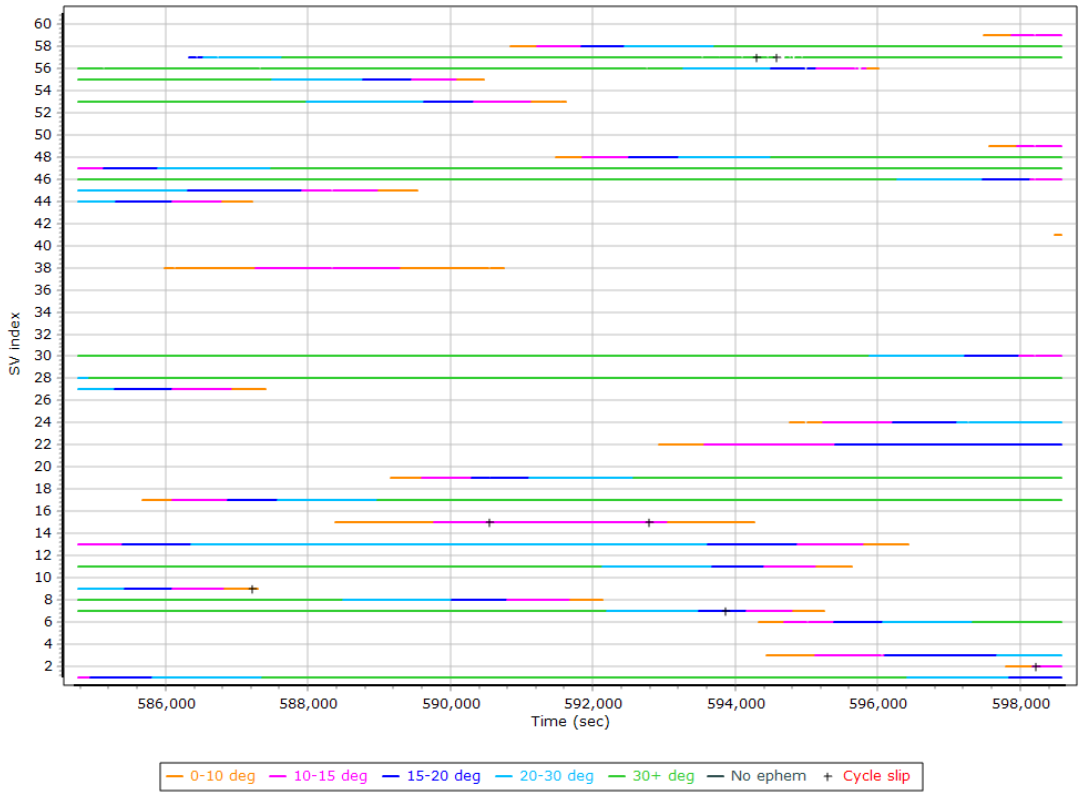
Rover Data QC

Raw IMU Import QC Summary

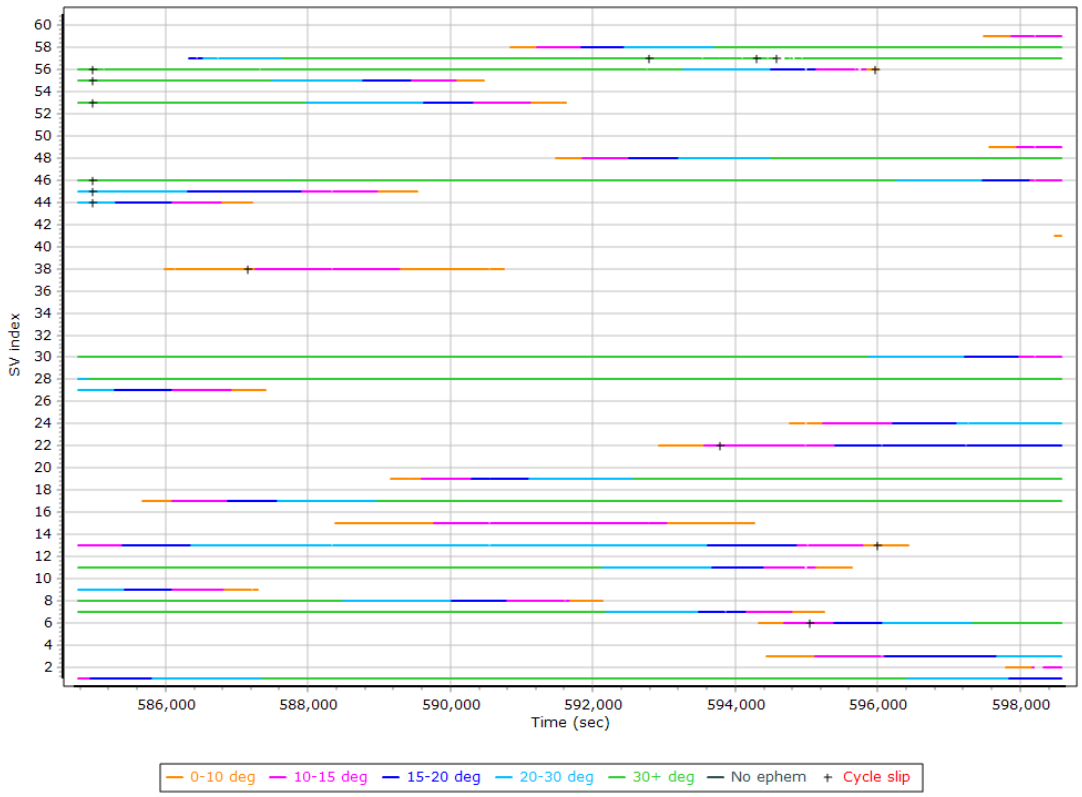
IMU data input file	imu_20200404C-Mission 1.dat
IMU data check log file	imudt_20200404C-Mission 1.log
IMU Records Processed	2933994
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
583942.745 : WARNING : Gap of 583920.7585 seconds in CHECKDT input data	

Primary Observables & Satellite Data

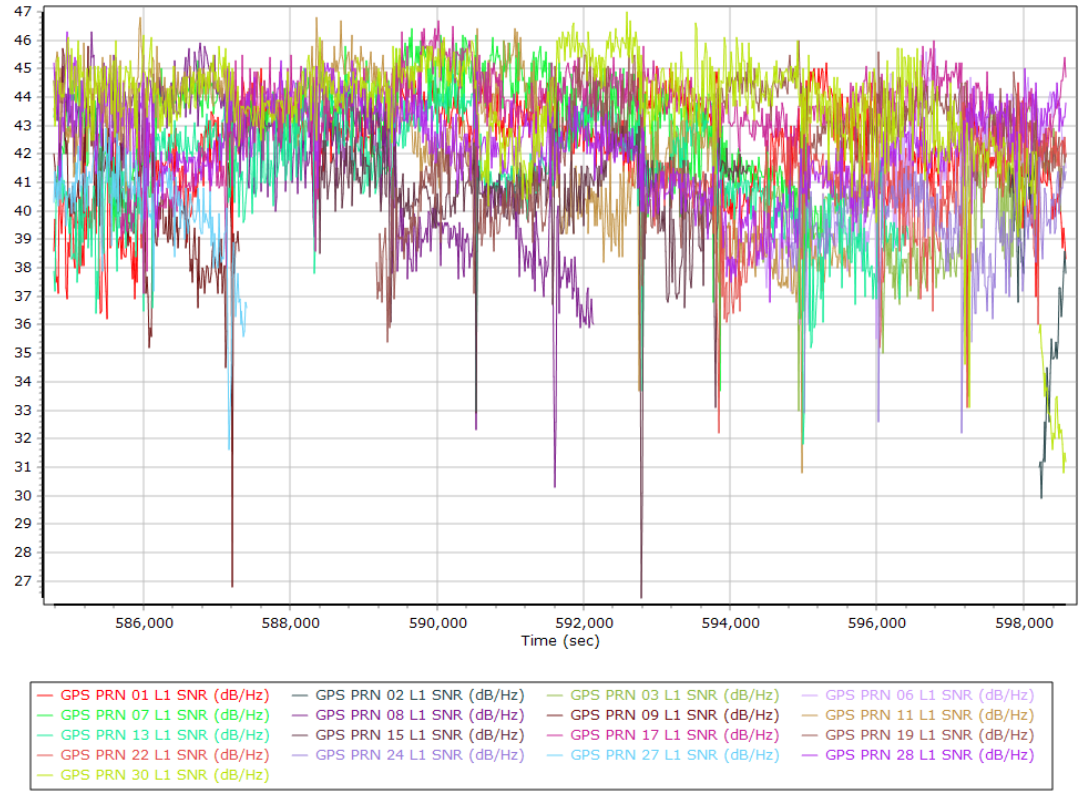
L1 Satellite Lock/Elevation



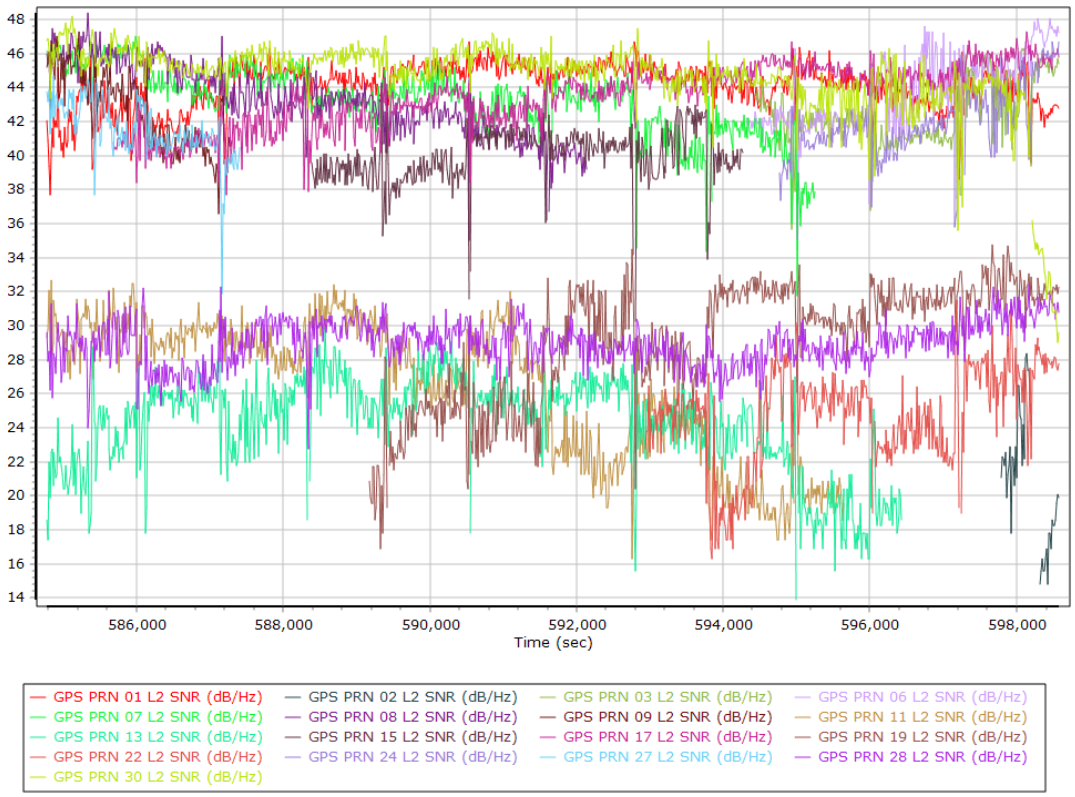
L2 Satellite Lock/Elevation



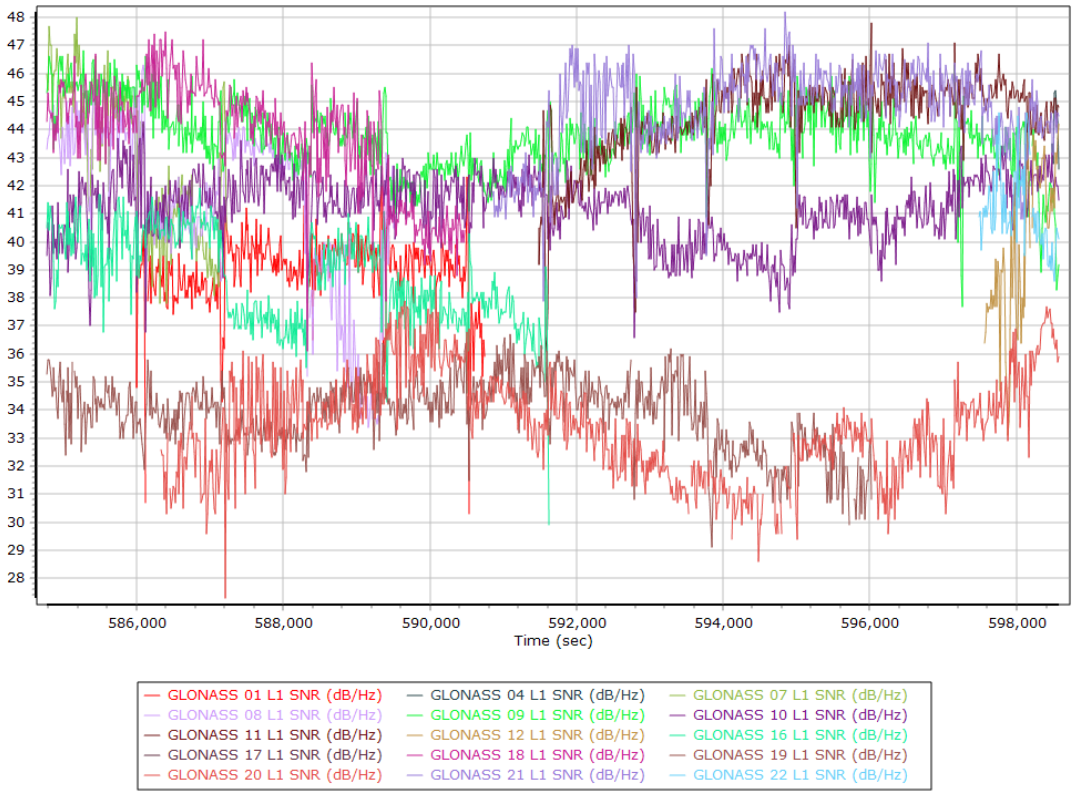
GPS L1 SNR



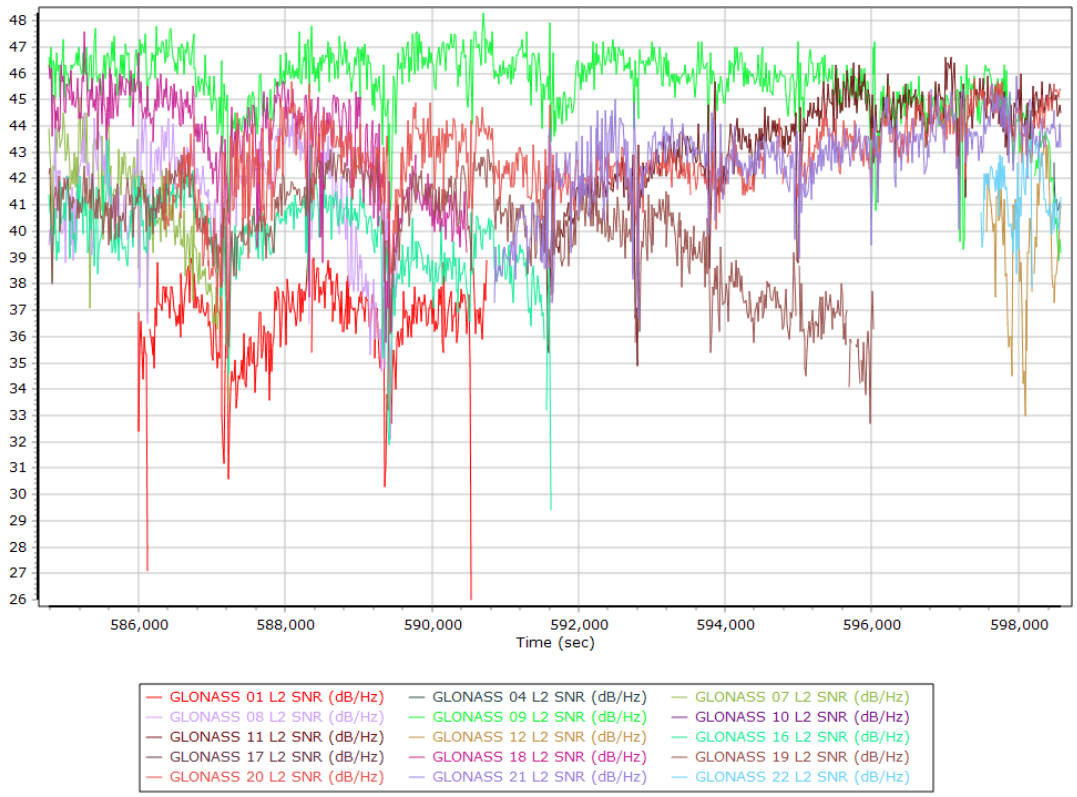
GPS L2 SNR



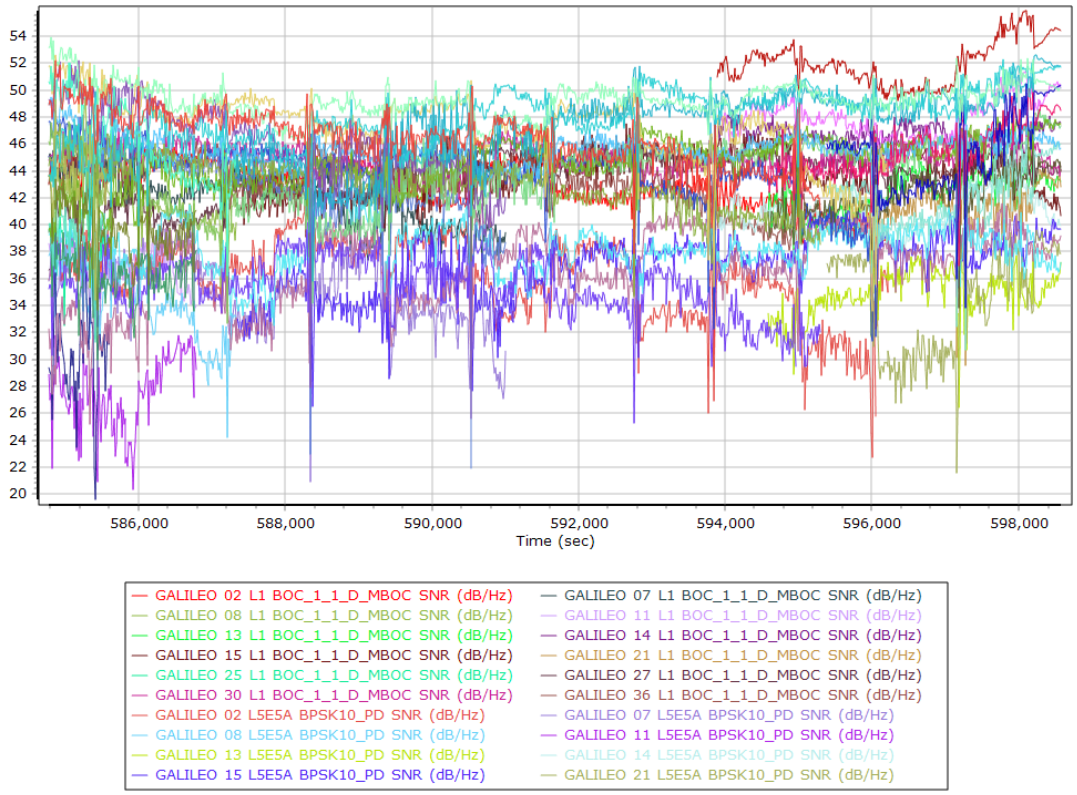
GLONASS L1 SNR



GLONASS L2 SNR

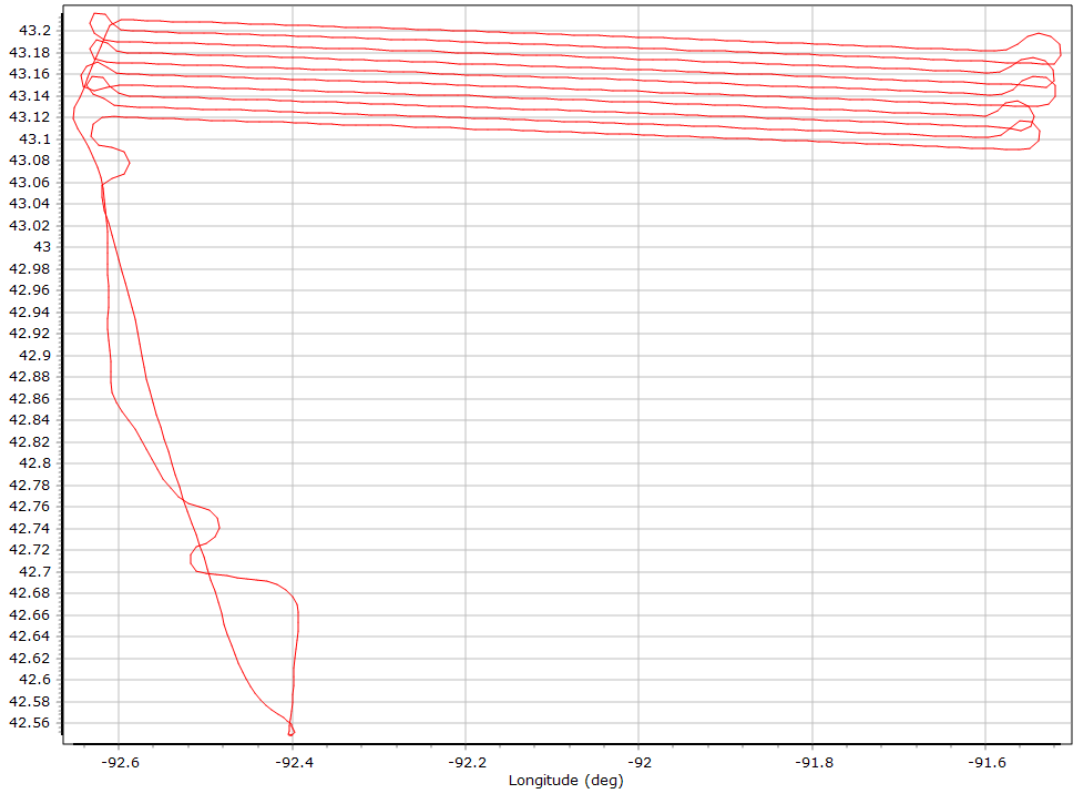


GALILEO SNR

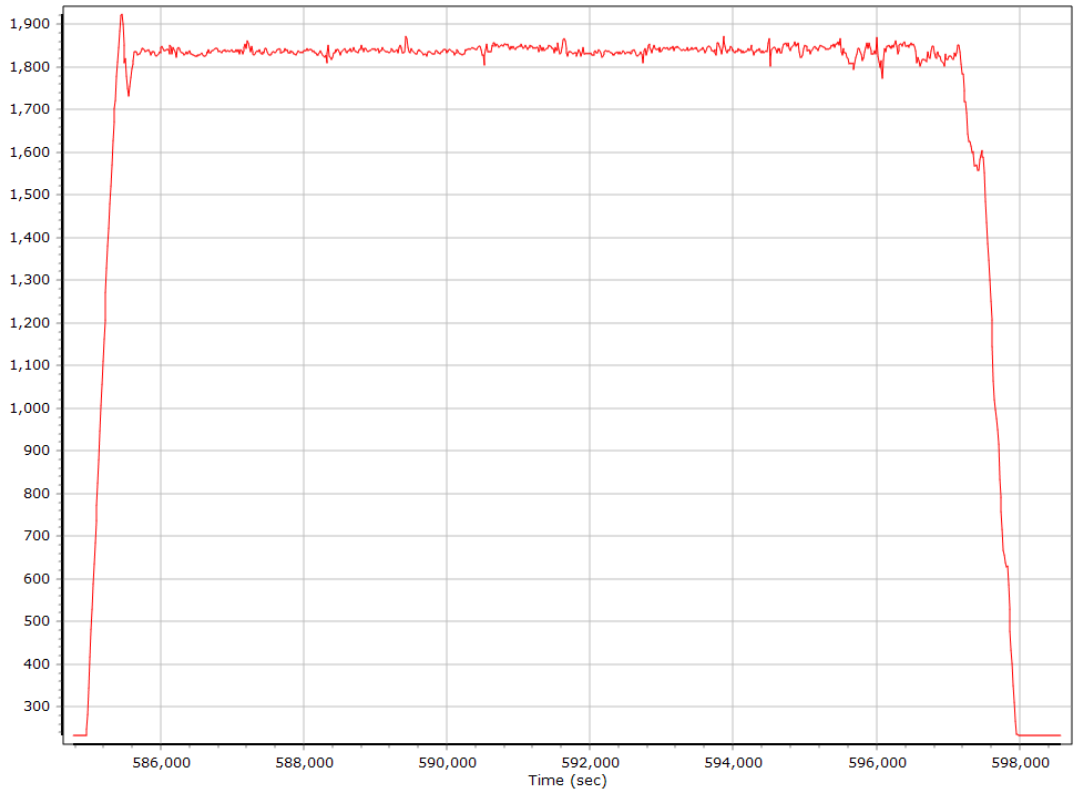


Smoothed Trajectory Information

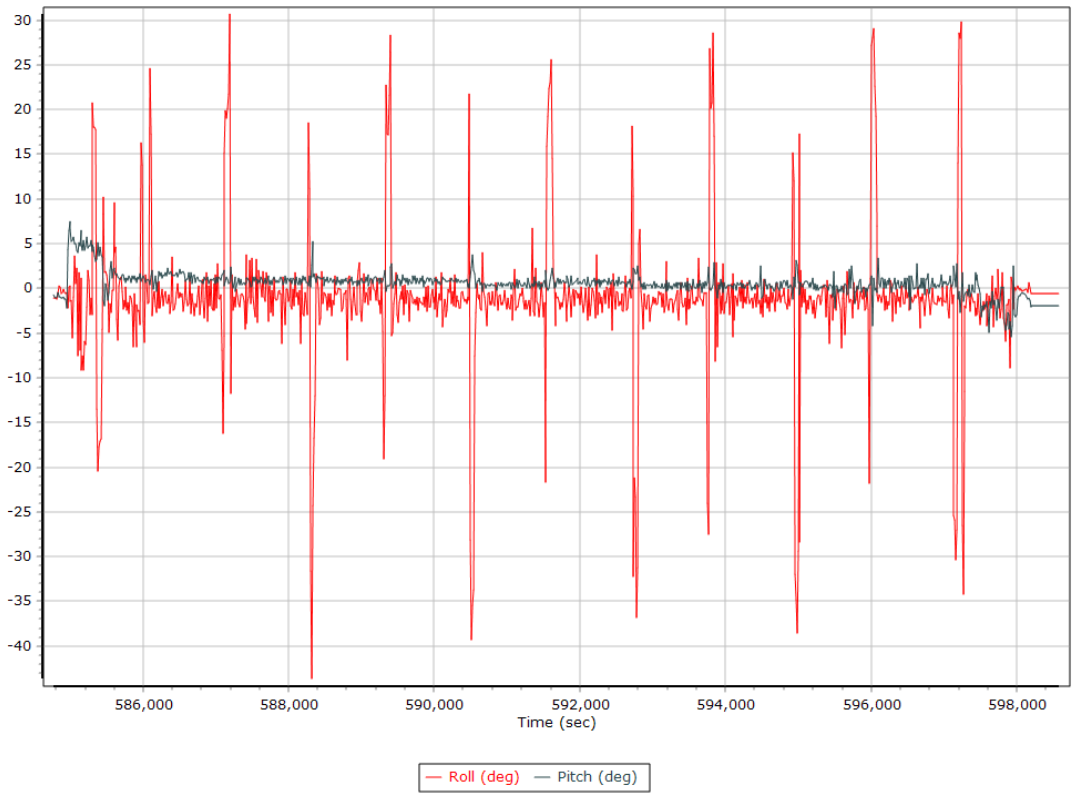
Top View



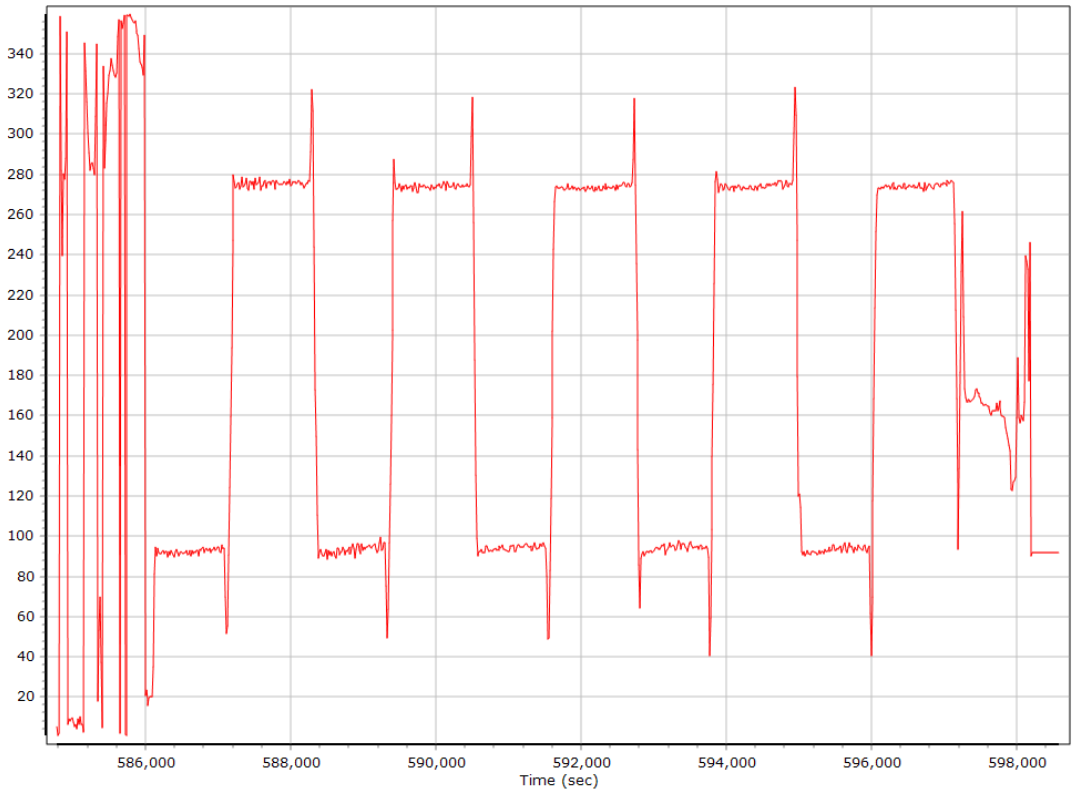
Altitude



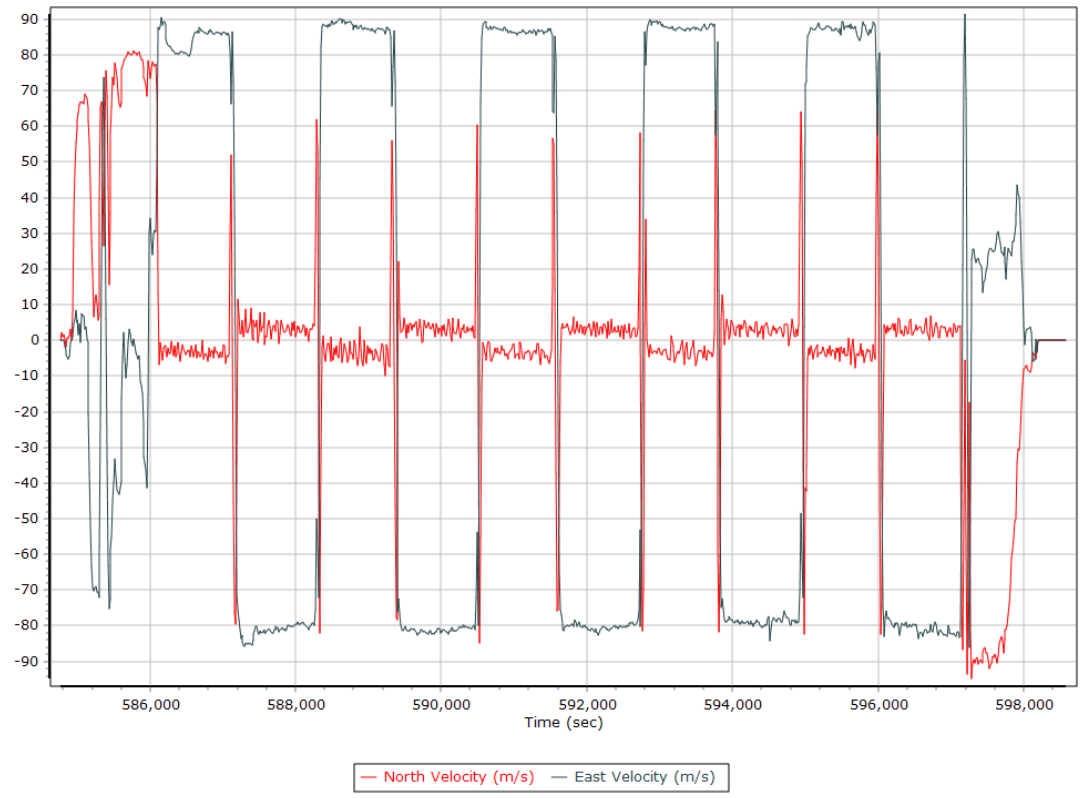
Roll/Pitch



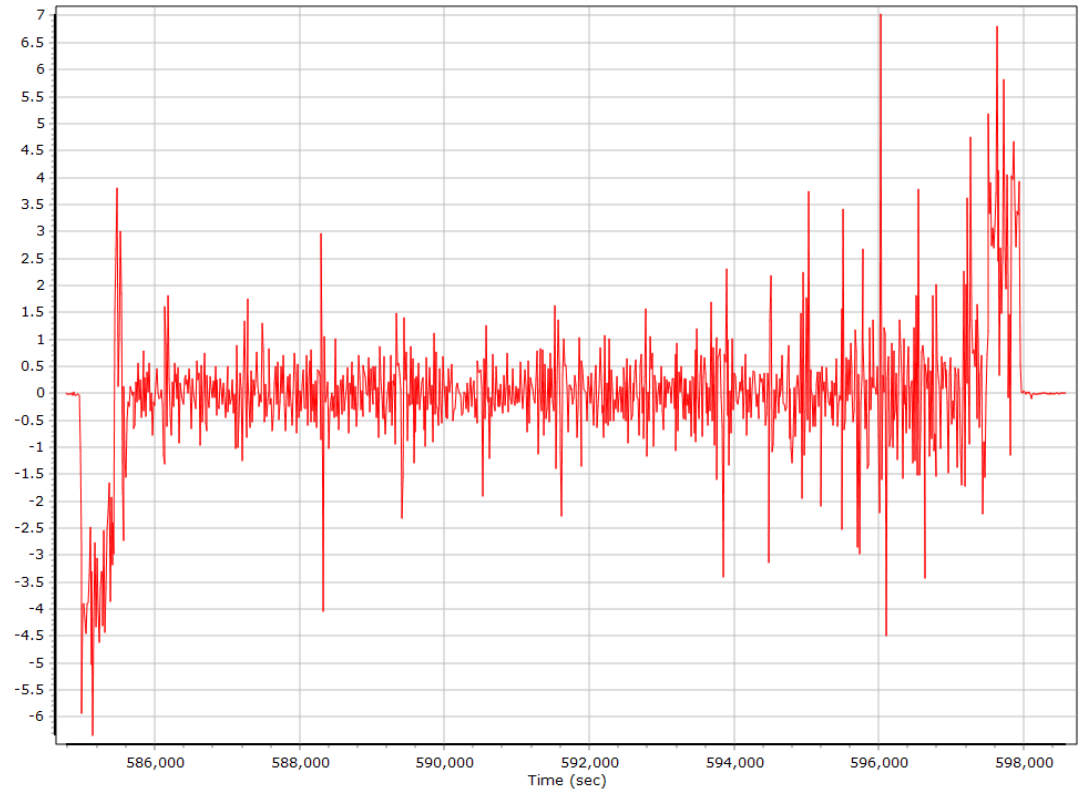
Heading



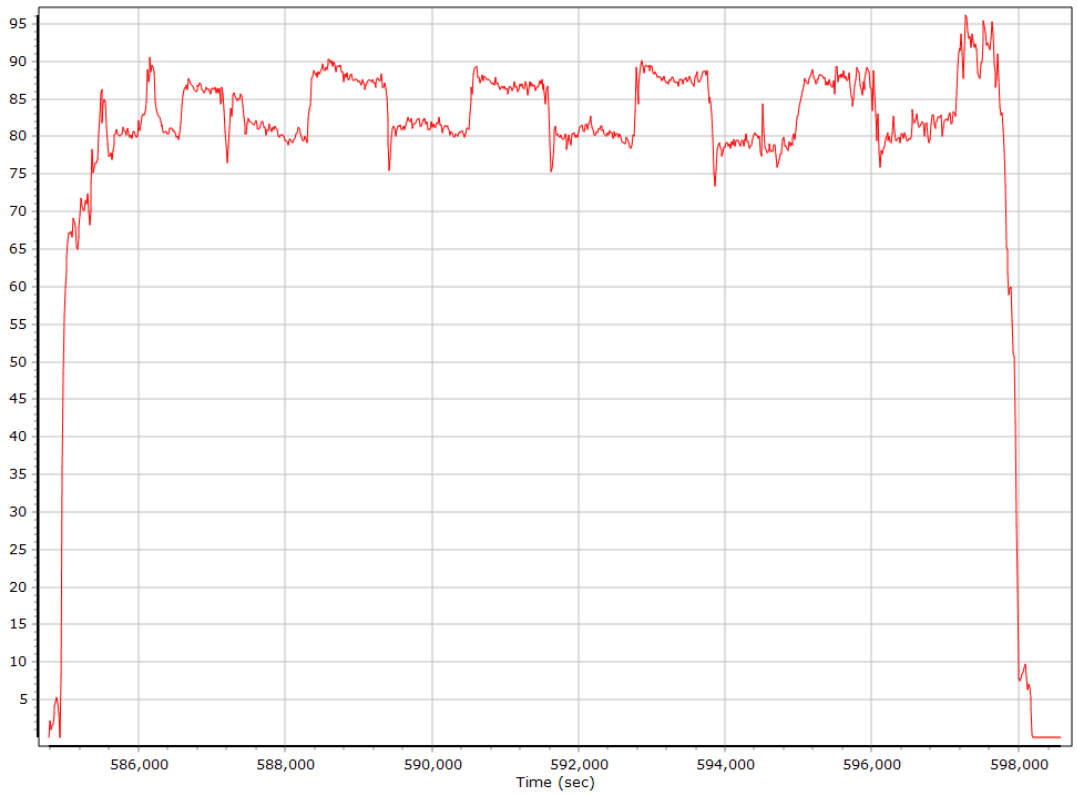
North/East Velocity



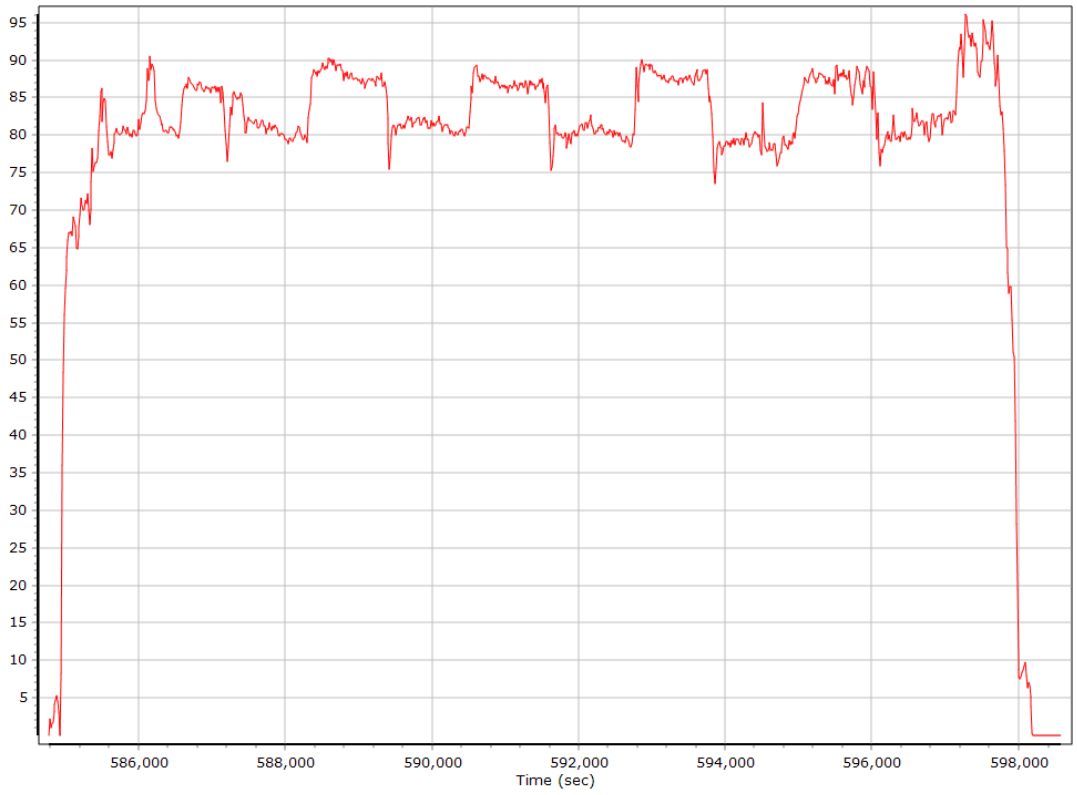
Down Velocity



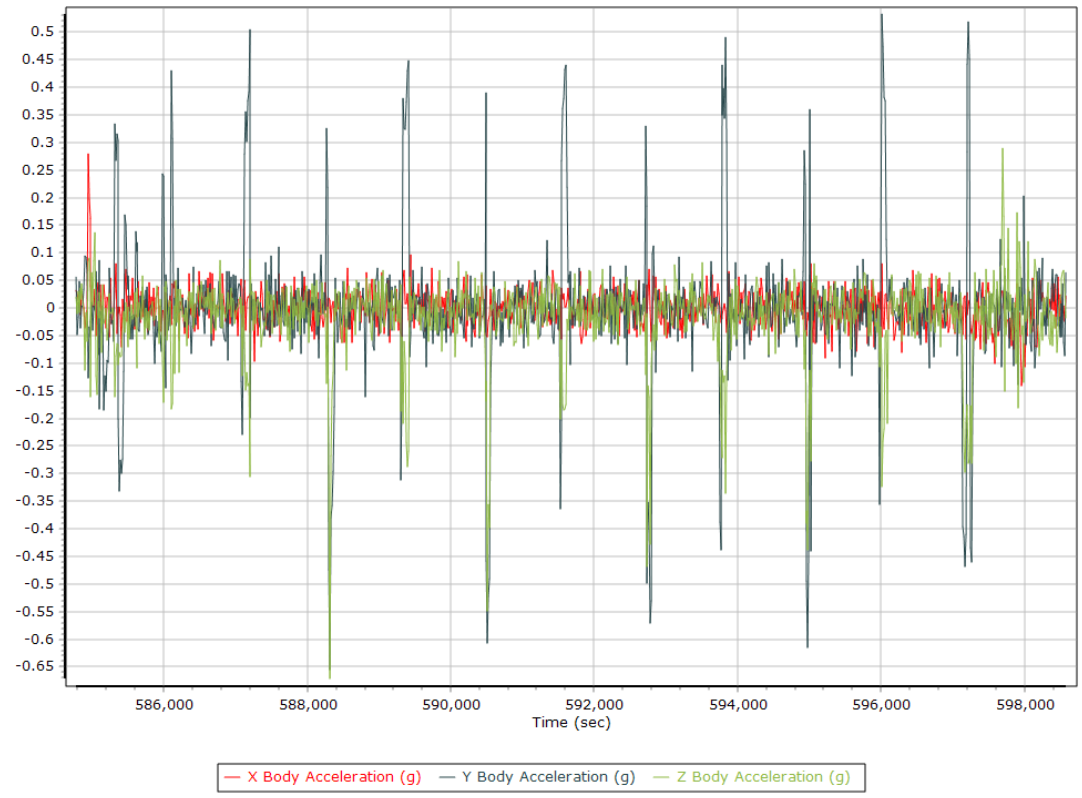
Total Speed



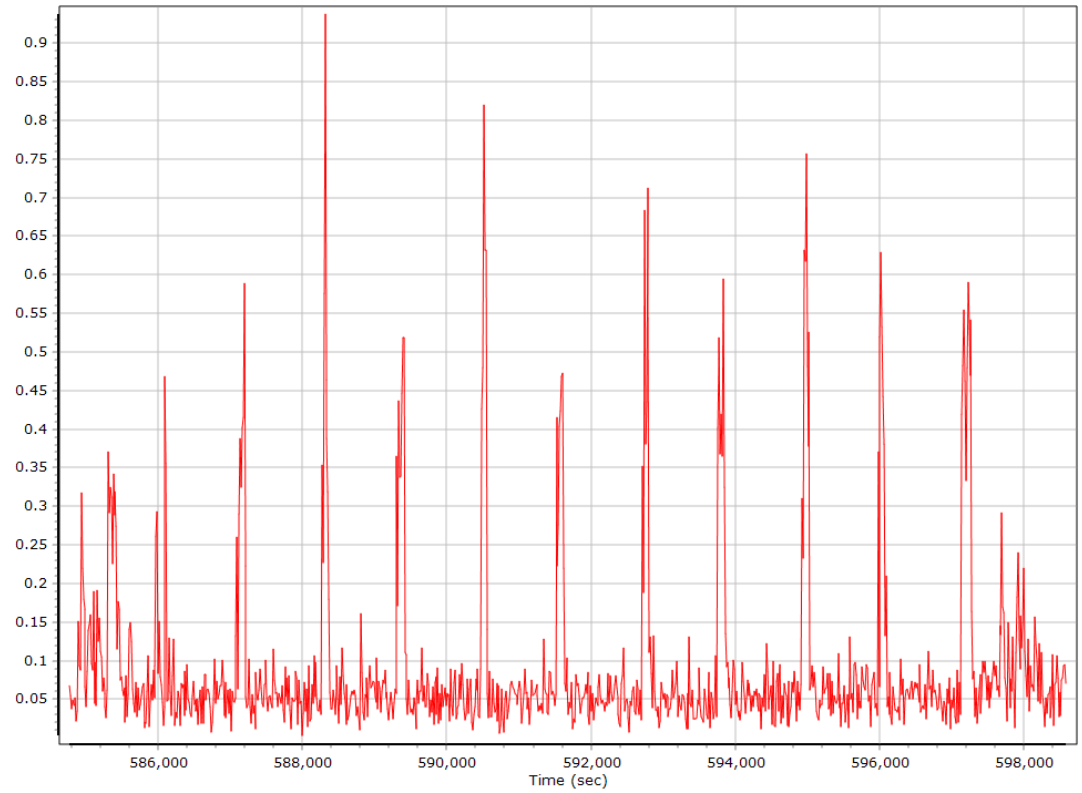
Ground Speed



Body Acceleration



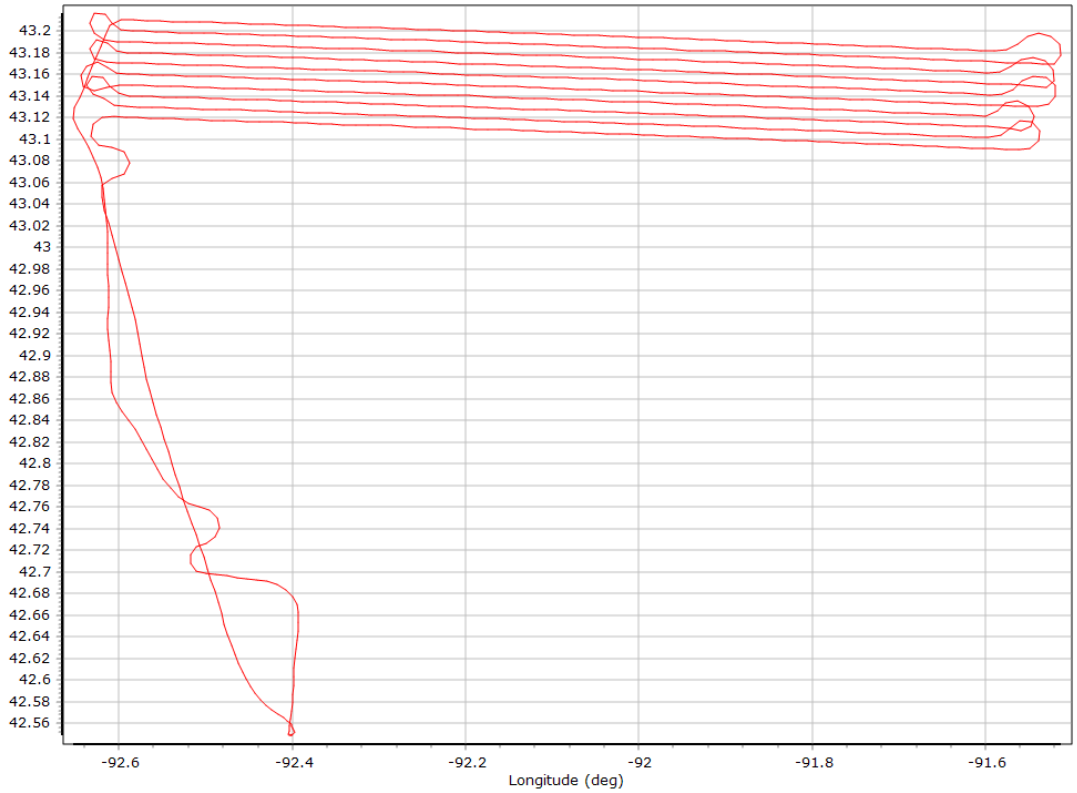
Total Body Acceleration



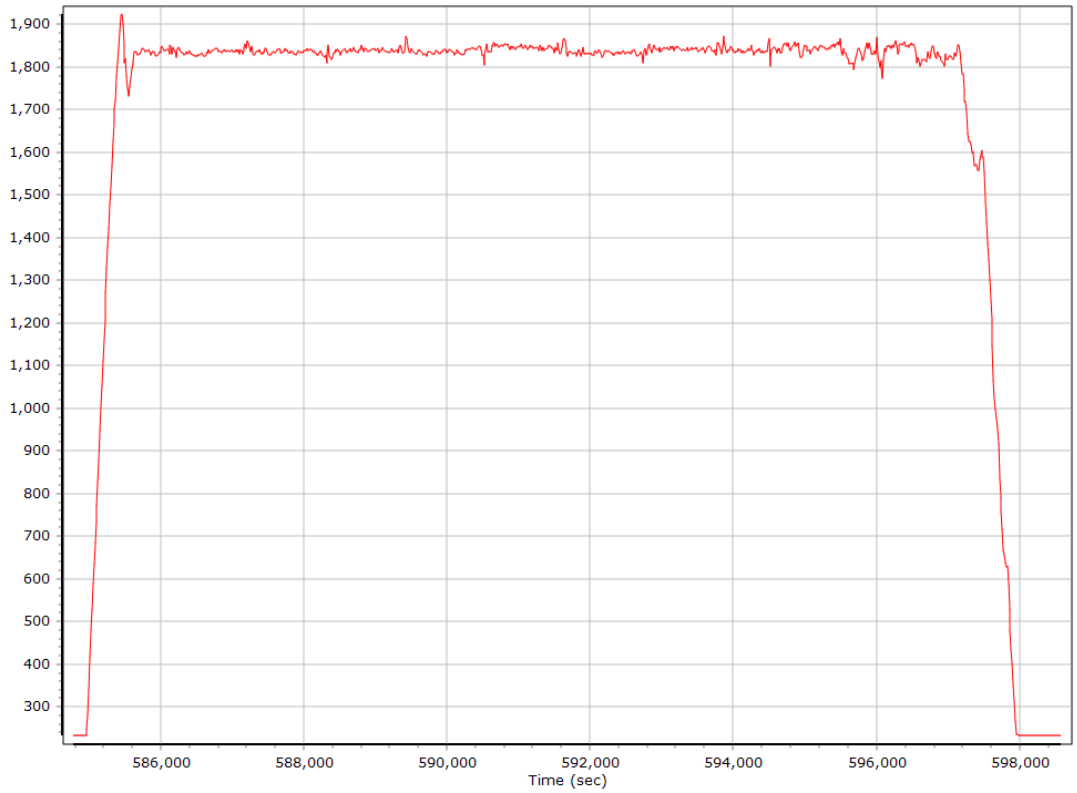
Body Angular Rate

Forward Processed Trajectory Information

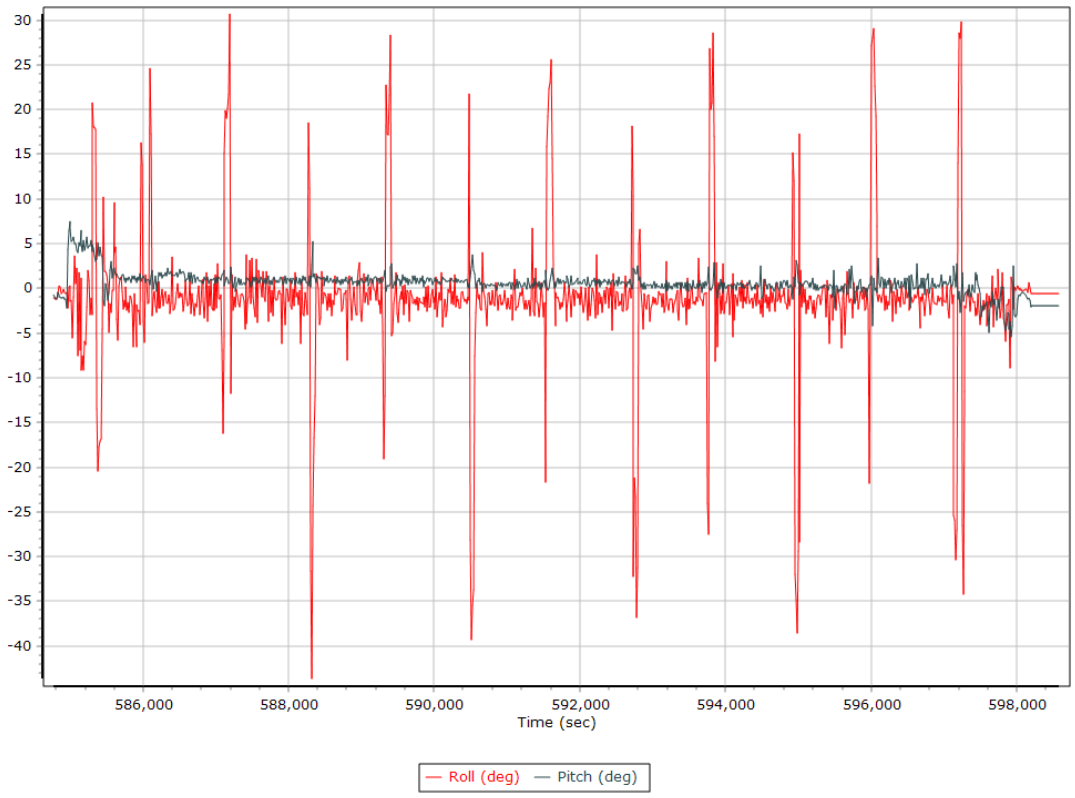
Top View



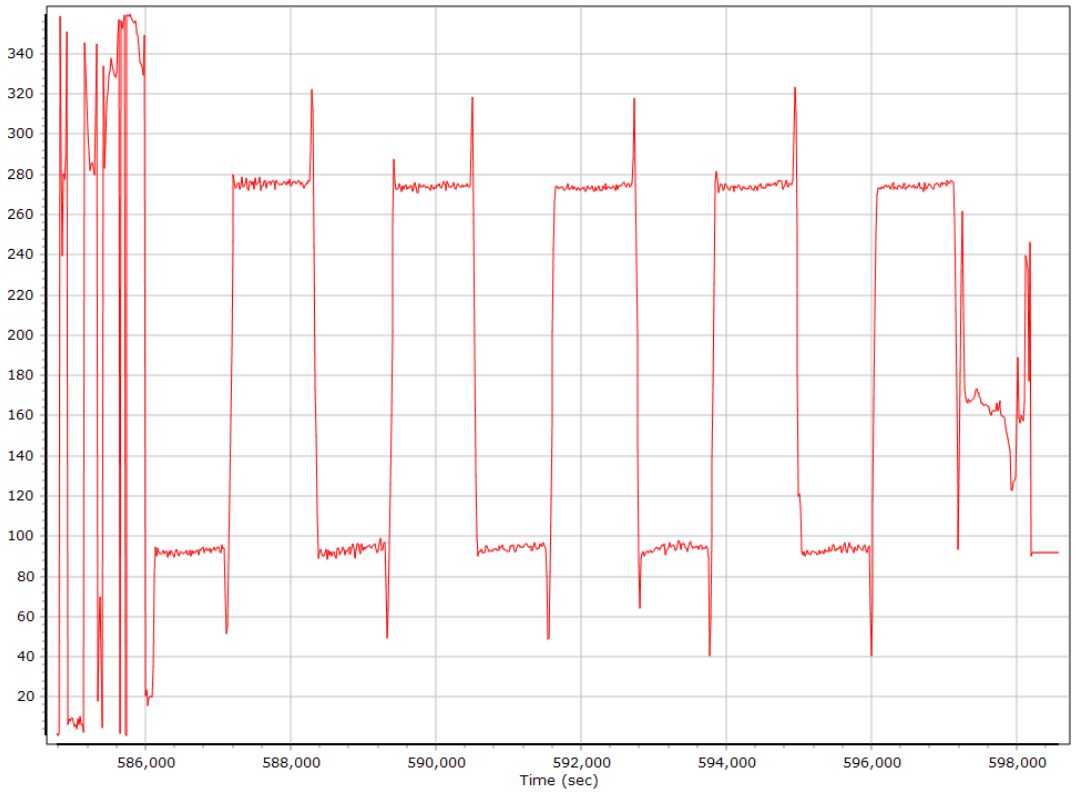
Altitude



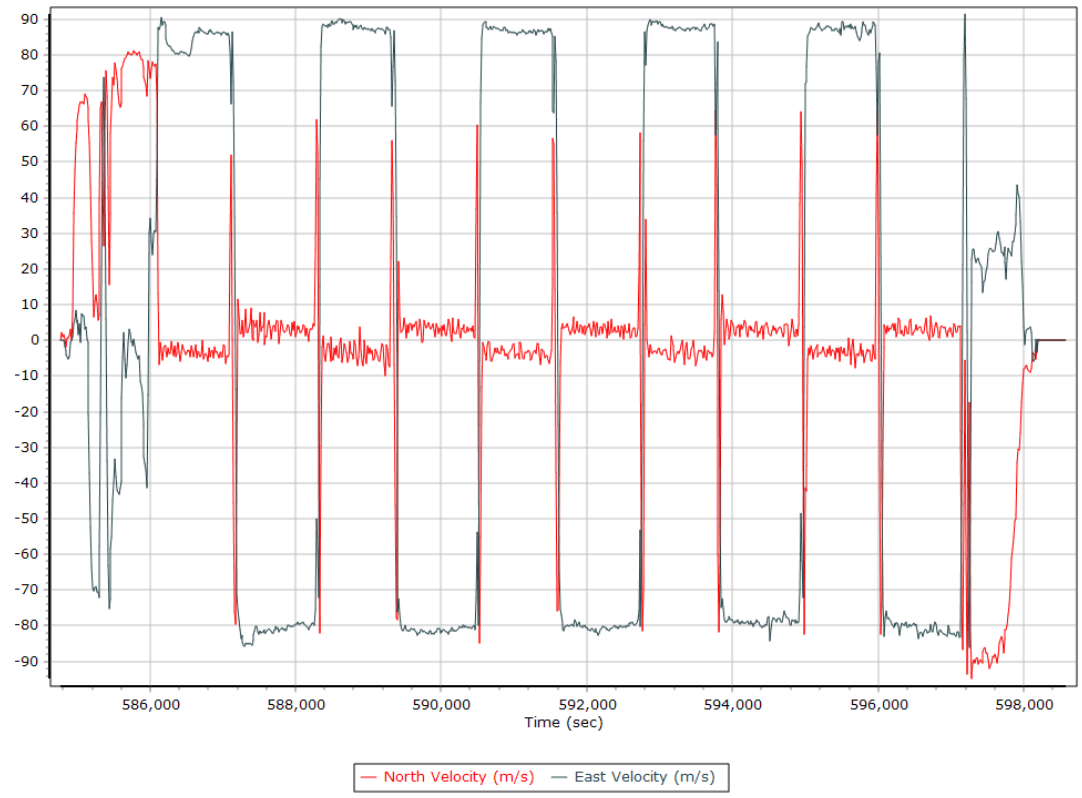
Roll/Pitch



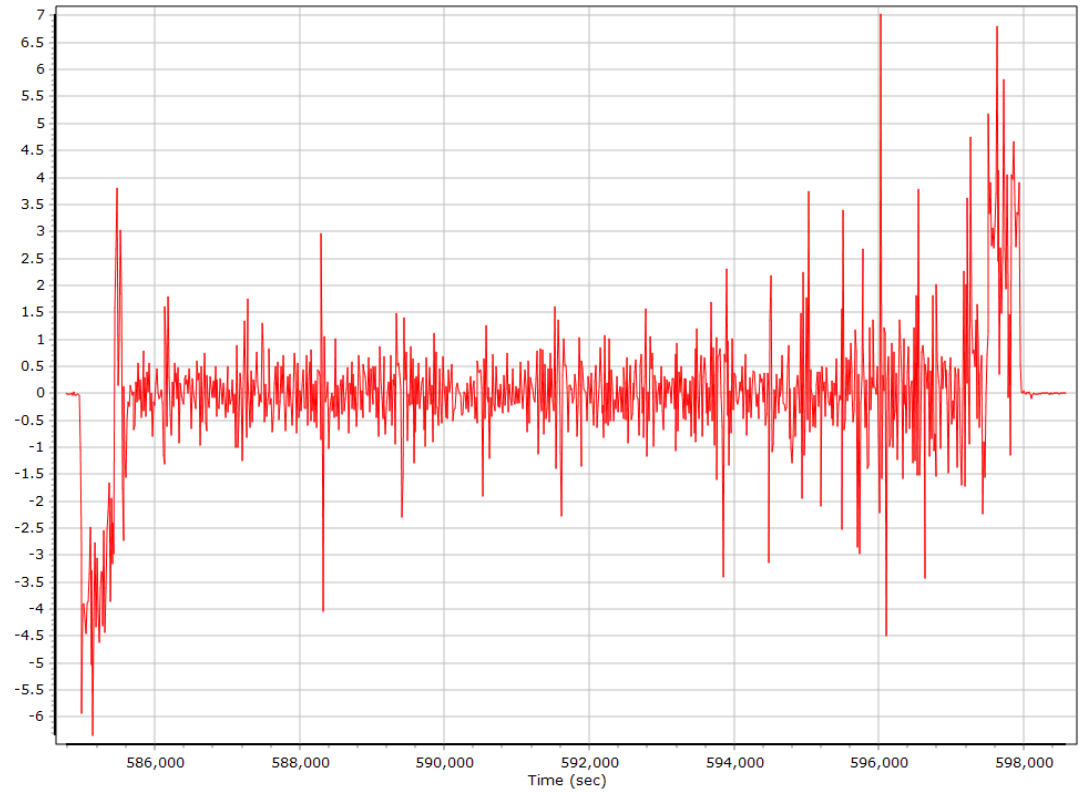
Heading



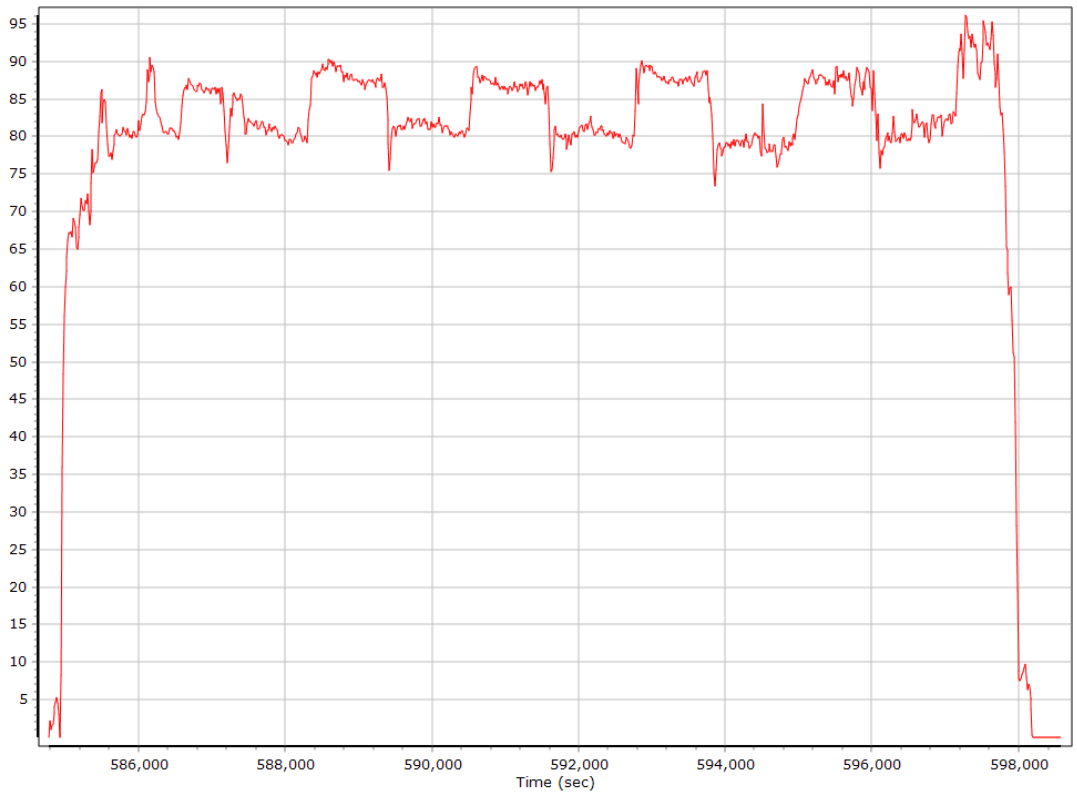
North/East Velocity



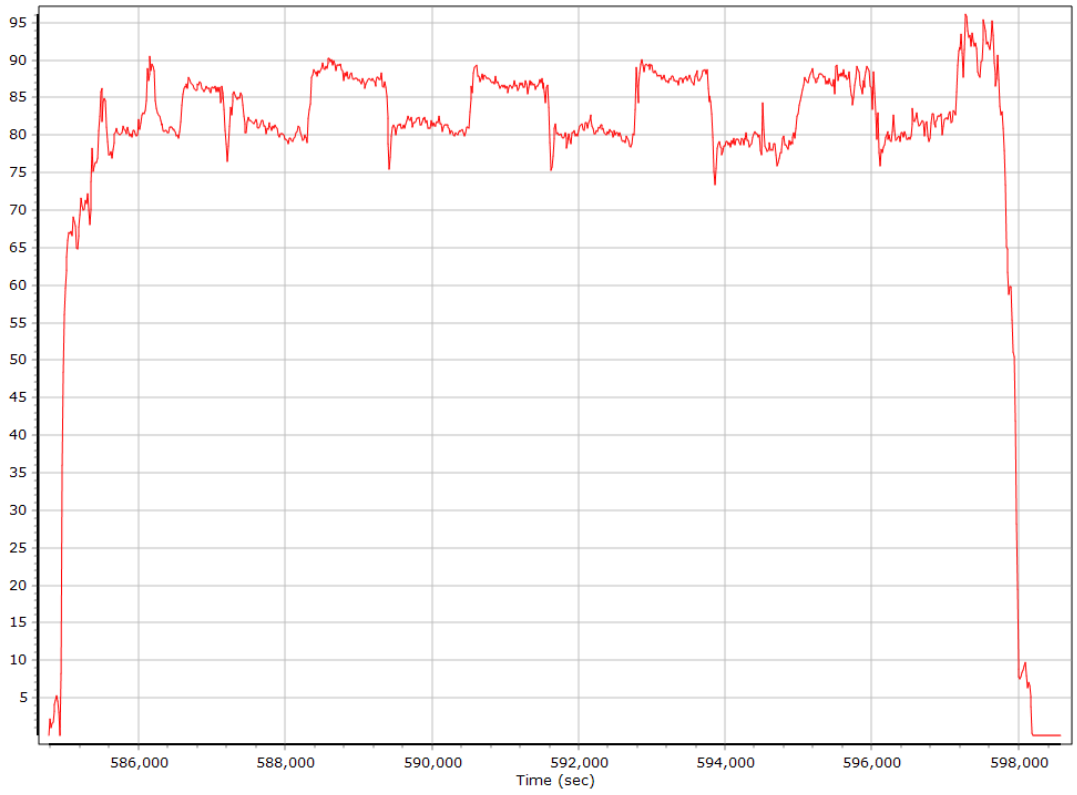
Down Velocity



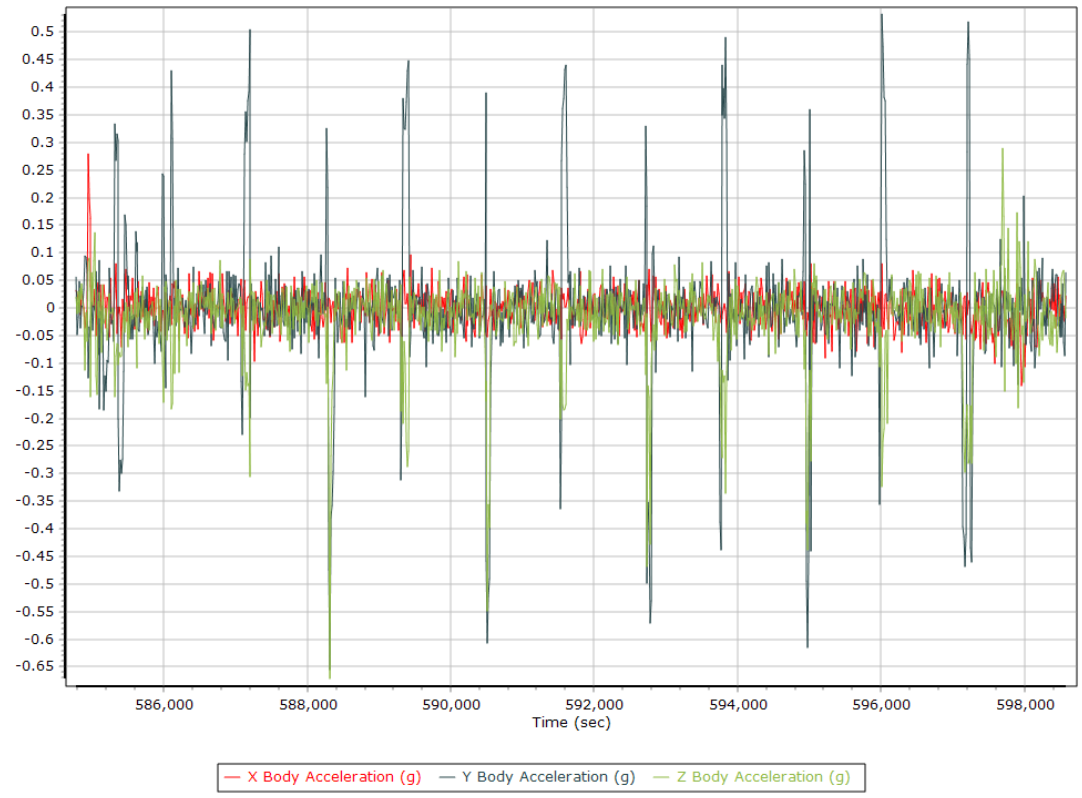
Total Speed



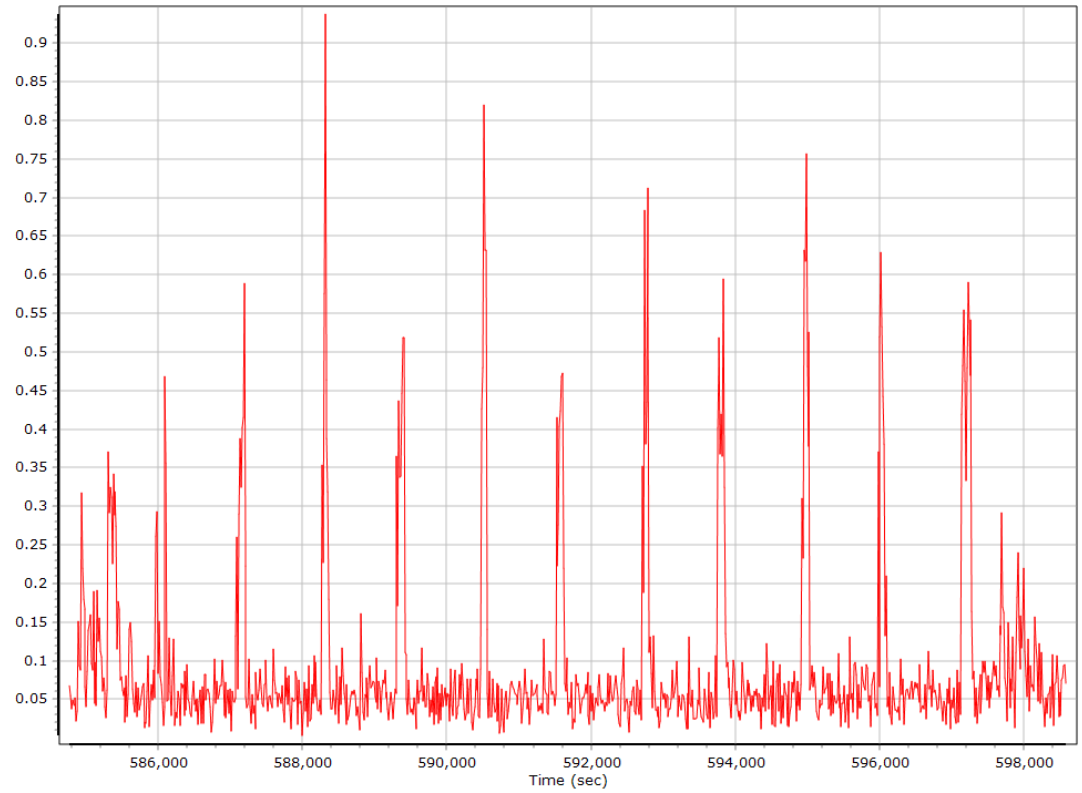
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/04/2020	IADE	37.79	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	MNPS	57.54	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IAAL	59.82	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IAEL	68.90	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	MNCA	85.66	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IANA	87.81	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	MNSV	98.73	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IAHT	100.69	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	MNEY	101.49	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	MNWN	119.61	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	WLNC	121.66	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IATA	123.42	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IAMN	123.70	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IACL	133.34	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IANA
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	14657 s (2099 583949 - 2099 598606)
Number of reference stations	7
Primary station GPS measurement usage (%)	99.6
Primary station GLONASS measurement usage (%)	74.8
Average number of satellites per epoch	13.6
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	23417
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59748"	228.904
Adjusted		N42°01'49.10895"	W91°32'55.59752"	228.883
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.001	0.021	0.021

Base Station Information

Station ID	IAMN		
Filename	iamn0950.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/4/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59748"		
Ellipsoidal height (m)	228.90418		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67189"	W92°33'05.07500"	247.334
Adjusted		N41°58'01.67181"	W92°33'05.07500"	247.346
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.002	0.011	0.011

Base Station Information

Station ID	IATA		
Filename	iata0950.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/4/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67189"		
Longitude	W92°33'05.07500"		
Ellipsoidal height (m)	247.33439		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38125"	W93°22'06.68787"	344.482
Adjusted		N43°17'02.38120"	W93°22'06.68739"	344.483
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.001	0.011

Base Station Information

Station ID	IAHT		
Filename	iaht0950.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/4/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38125"		
Longitude	W93°22'06.68787"		
Ellipsoidal height (m)	344.48179		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52984"	298.980
Adjusted		N42°52'40.47657"	W91°21'41.52977"	298.982
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.001	0.003

Base Station Information

Station ID	IAEL		
Filename	iael0950.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/4/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52984"		
Ellipsoidal height (m)	298.98031		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24722"	291.092
Adjusted		N42°44'49.40398"	W92°47'14.24720"	291.111
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.018	0.019

Base Station Information

Station ID	IAAL		
Filename	iaal0950.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/4/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24722"		
Ellipsoidal height (m)	291.09235		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52631"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52631"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade0950.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/4/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52631"		
Ellipsoidal height (m)	316.51620		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54031"	172.253
Adjusted		N43°29'49.47912"	W91°17'26.53985"	172.229
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.025	0.027

Base Station Information

Station ID	IANA		
Filename	iana0950.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/4/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54031"		
Ellipsoidal height (m)	172.25324		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	7.41	57.90	
Number of GPS SV	6	10	9
Number of GLONASS SV	0	6	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	9	15	13
PDOP	1.15	2.14	1.44
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	14618.00	0.00	1.00
Percentage	99.99	0.00	0.01

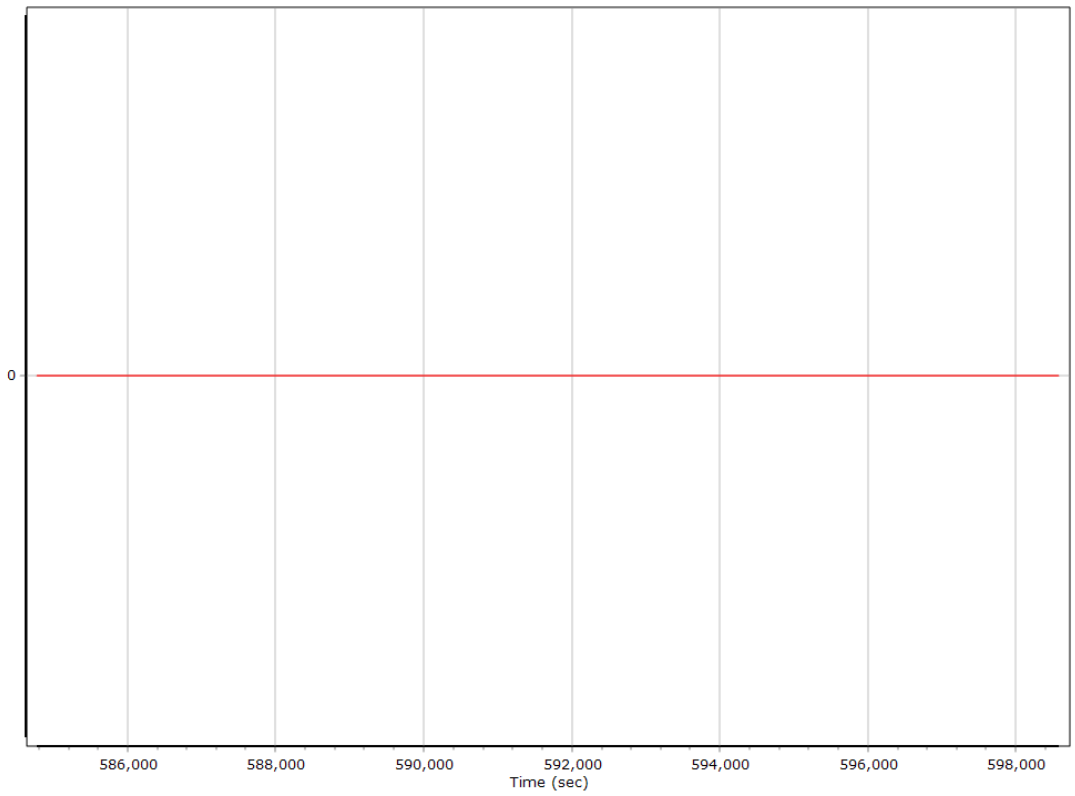
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	583931.000 (4/4/2020 6:12:11 PM)		
Processing end time	598588.000 (4/4/2020 10:16:28 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

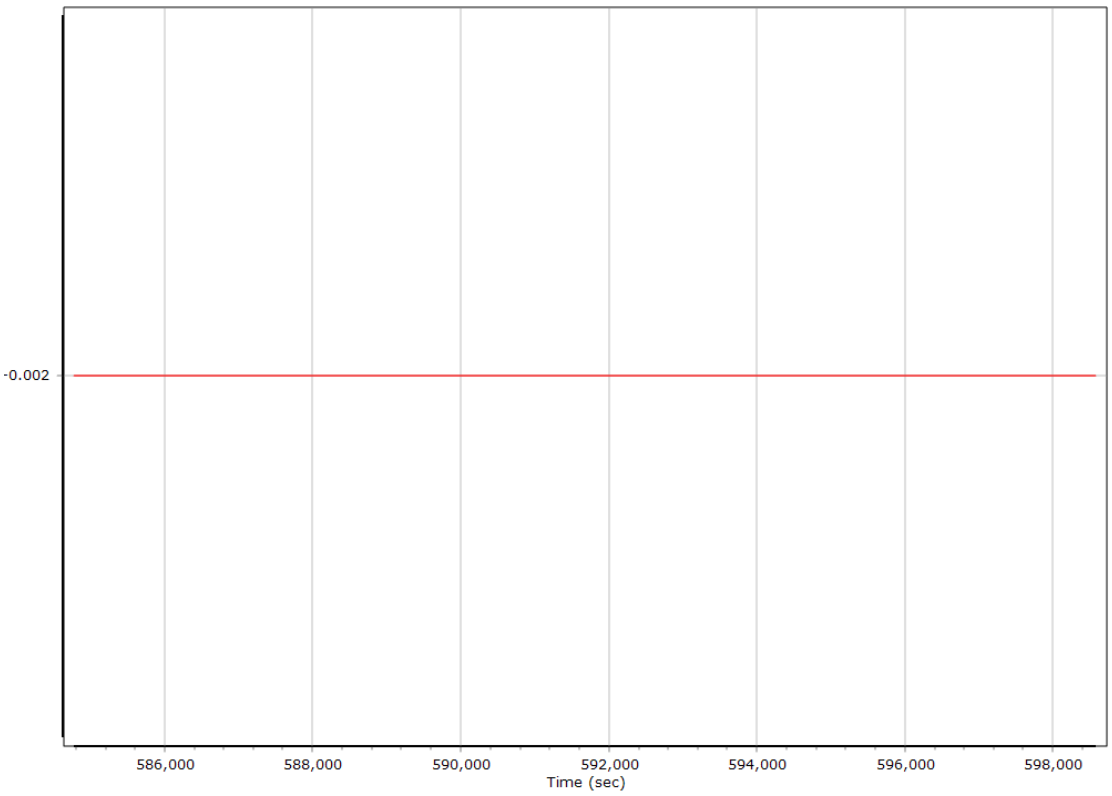
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

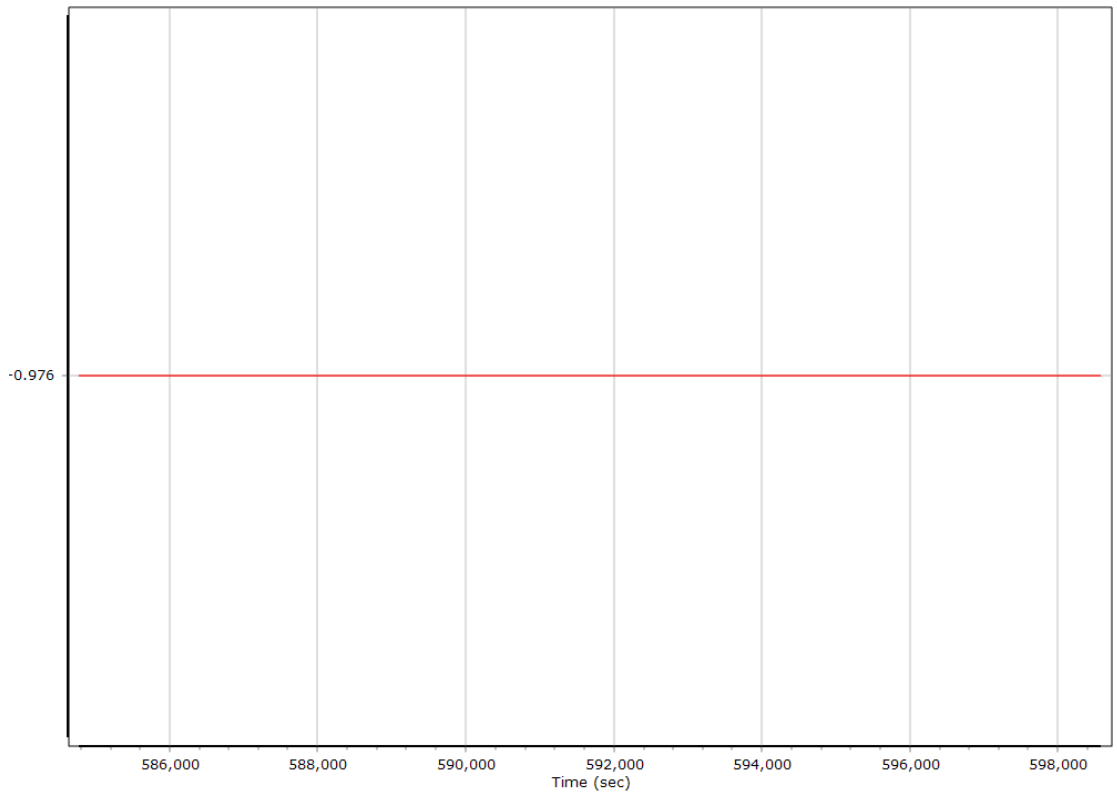
X Reference-Primary GNSS Lever Arm (m)



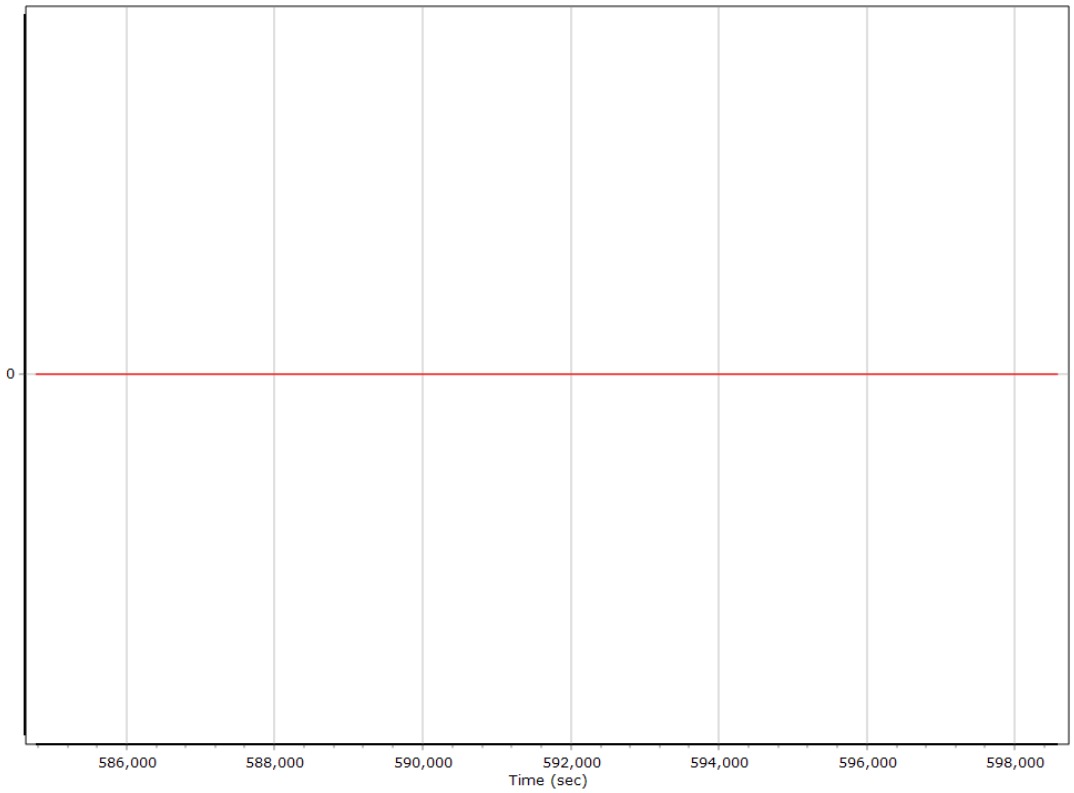
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



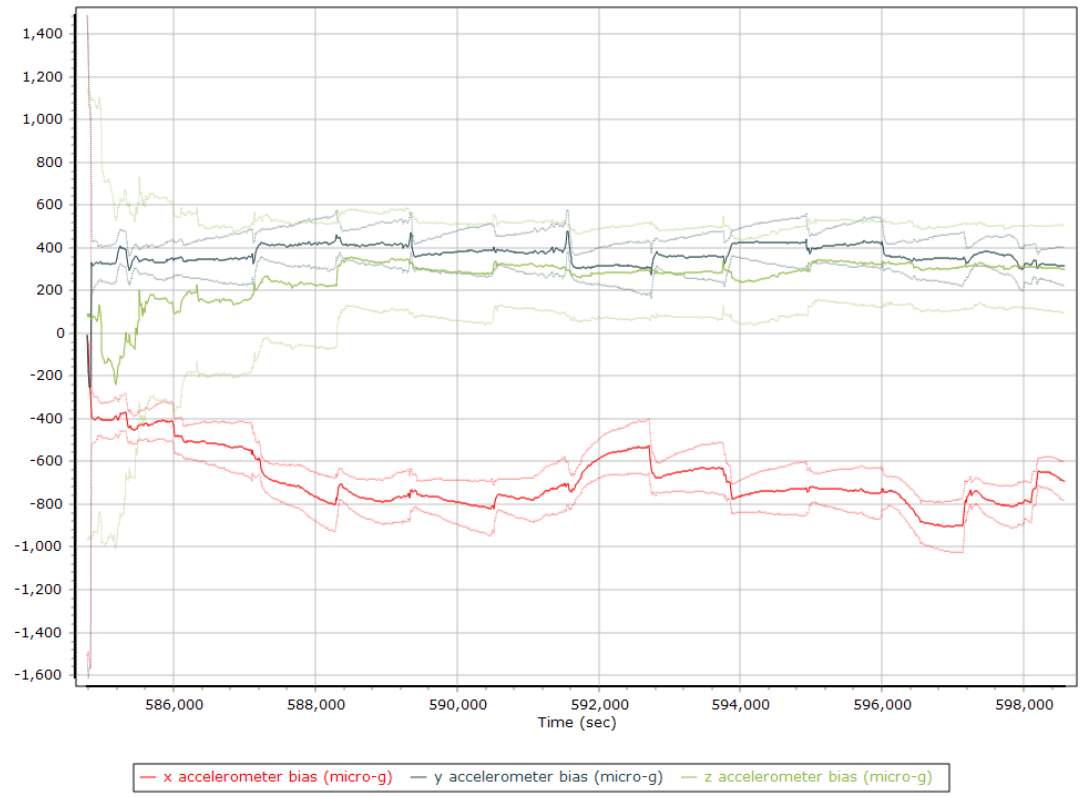
Reference-Primary GNSS Lever Arm Figure of Merit



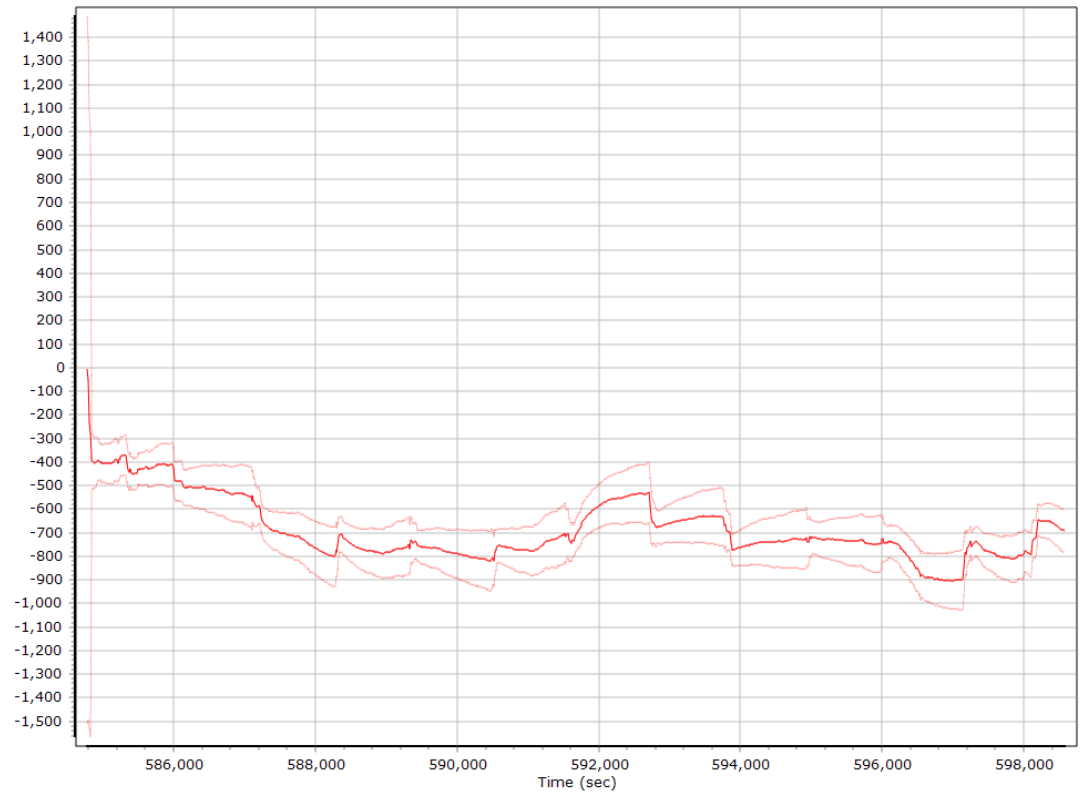
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

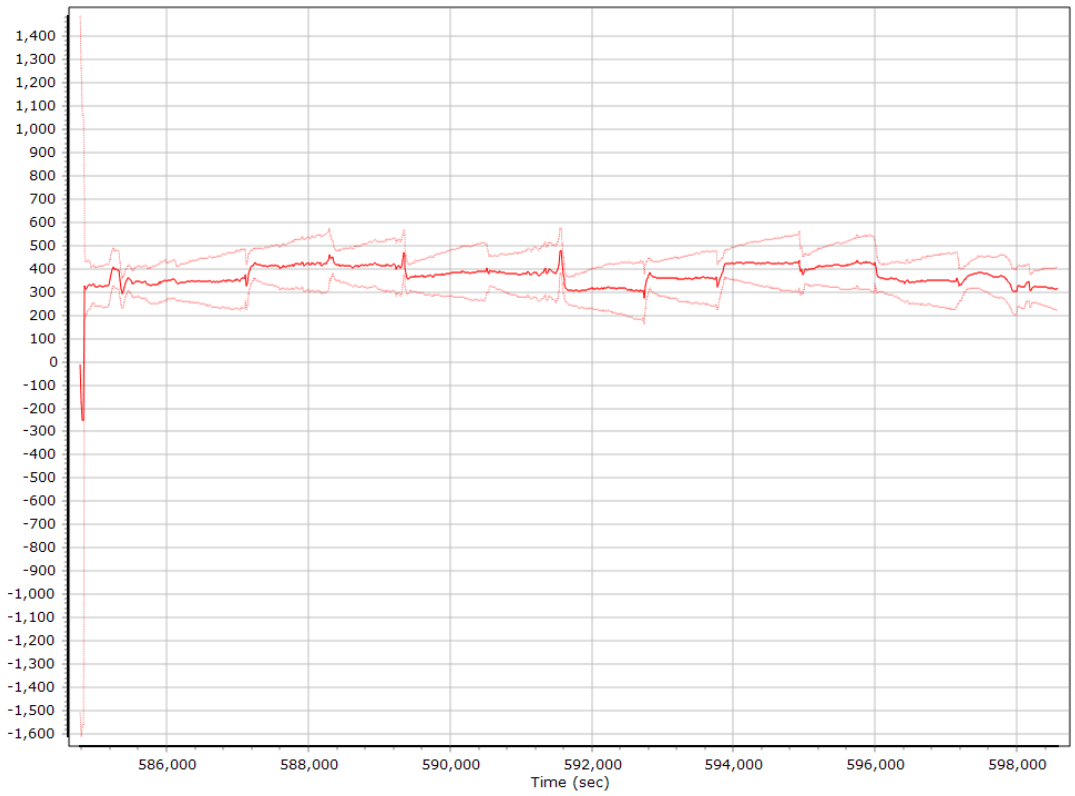
Accelerometer Bias (micro-g)



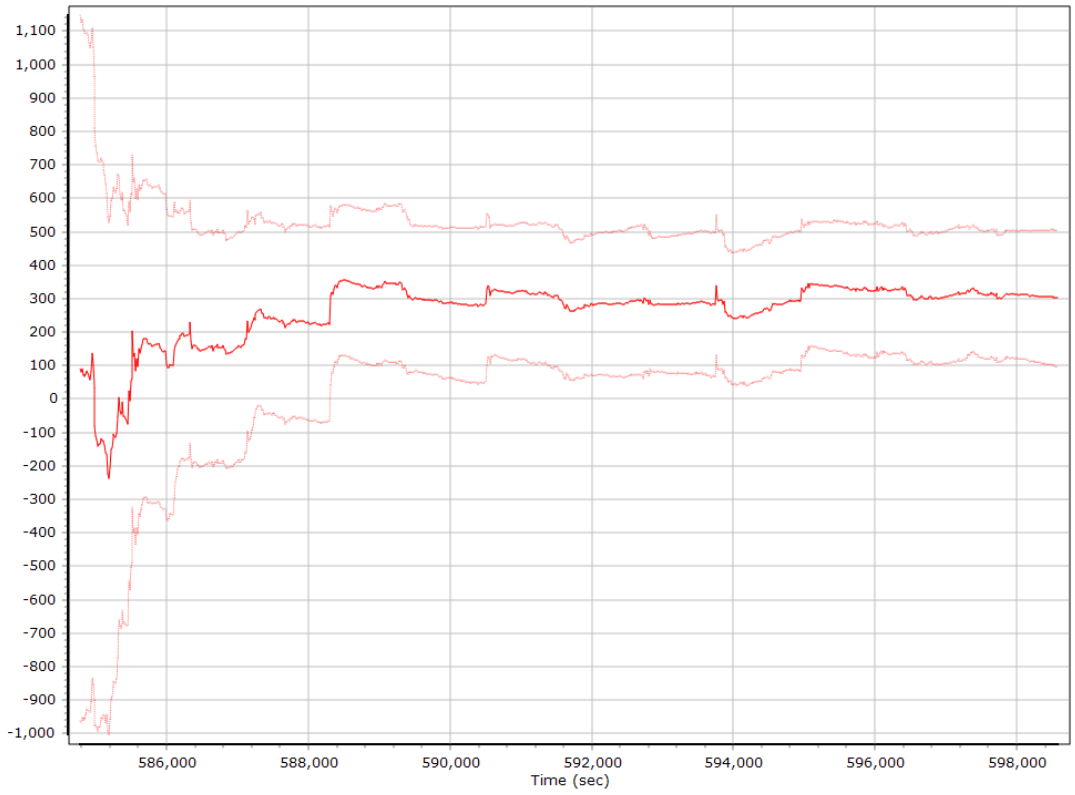
X Accelerometer Bias (micro-g)



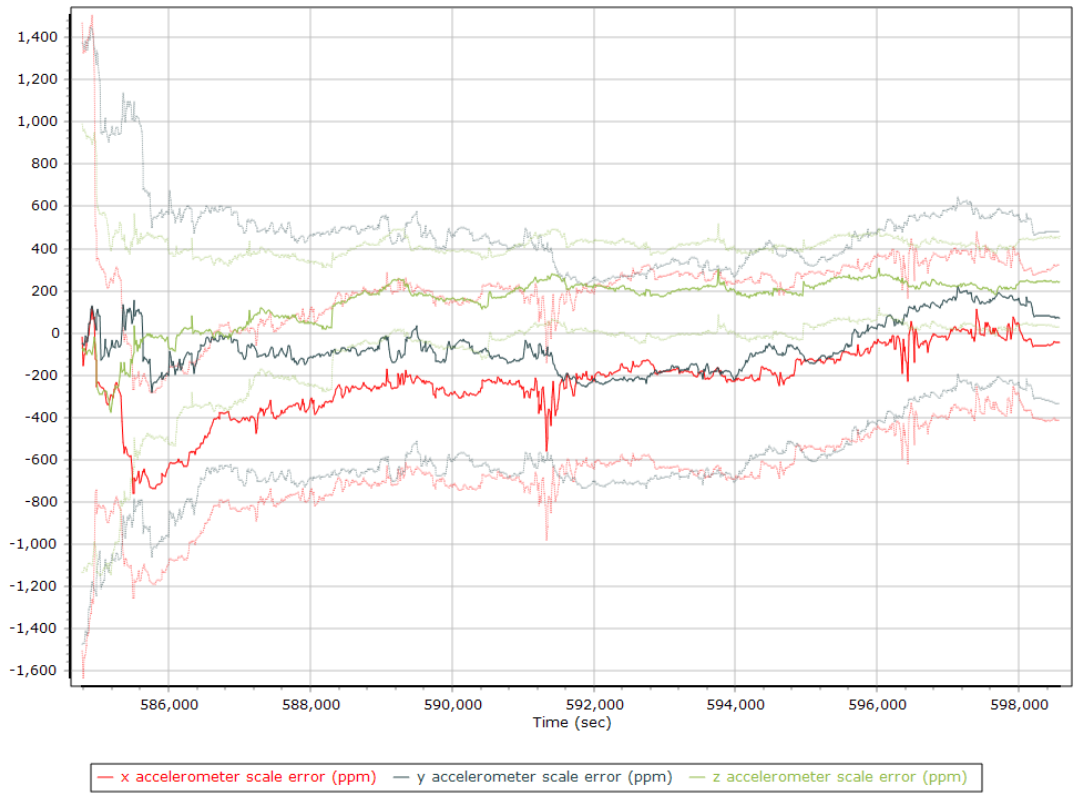
Y Accelerometer Bias (micro-g)



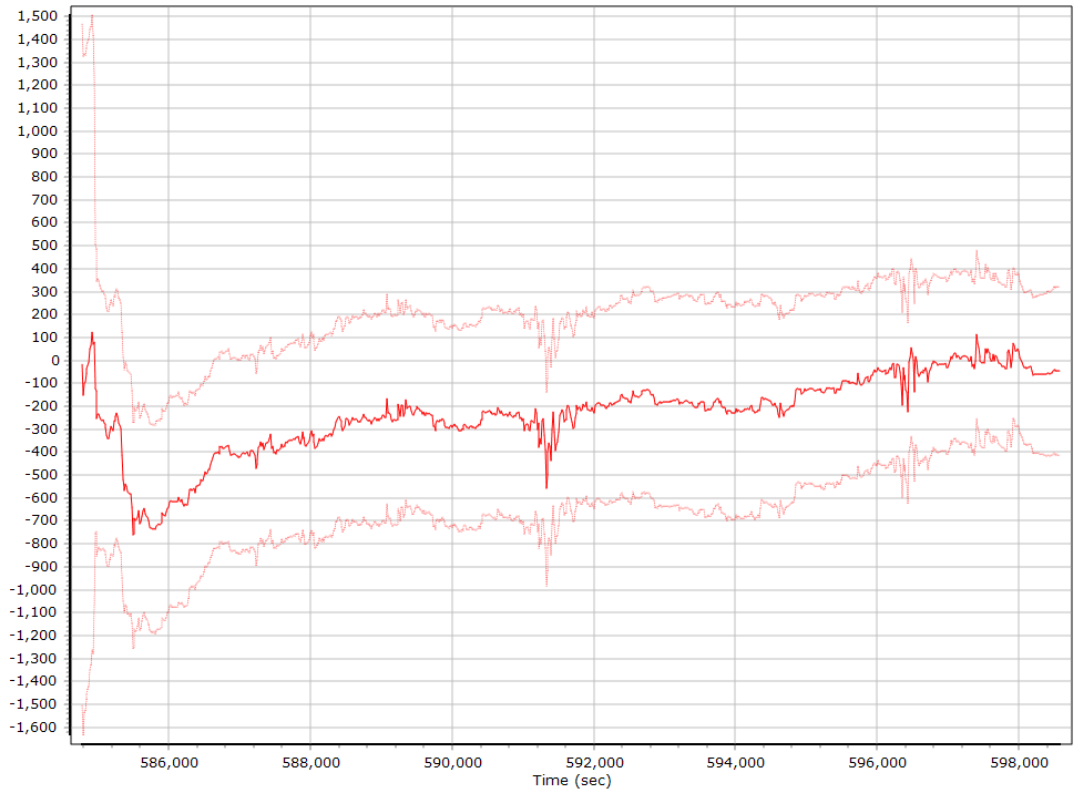
Z Accelerometer Bias (micro-g)



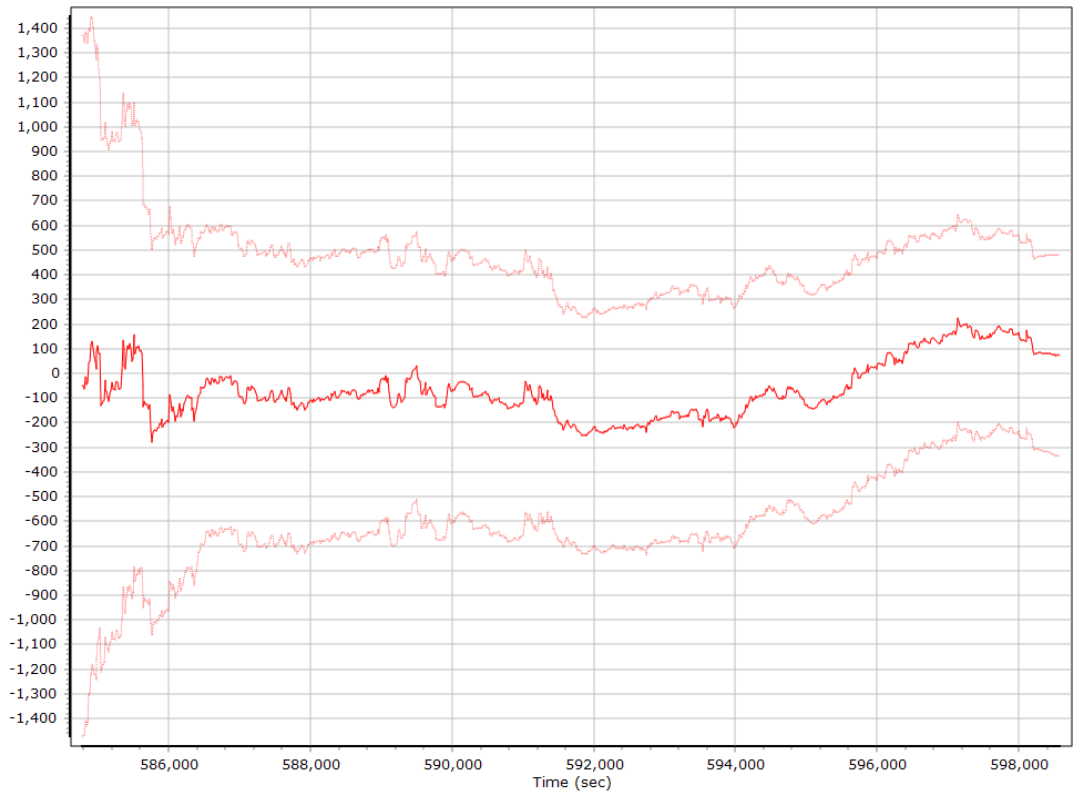
Accelerometer Scale Error (ppm)



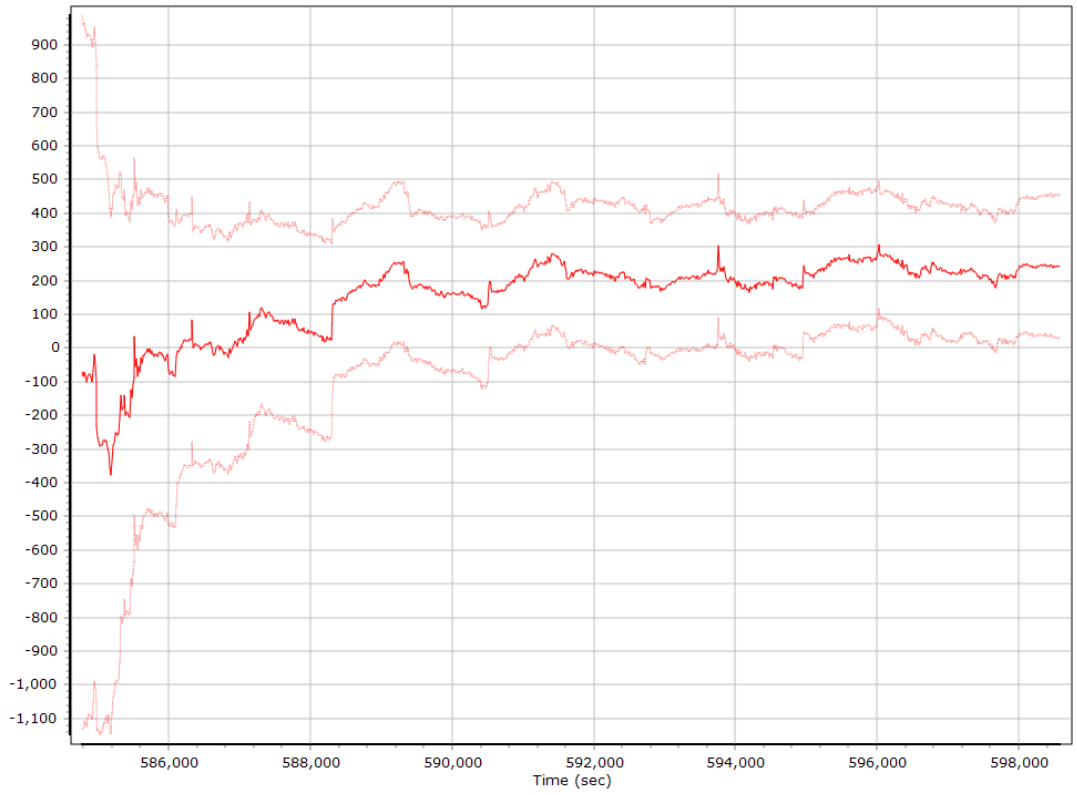
X Accelerometer Scale Error (ppm)



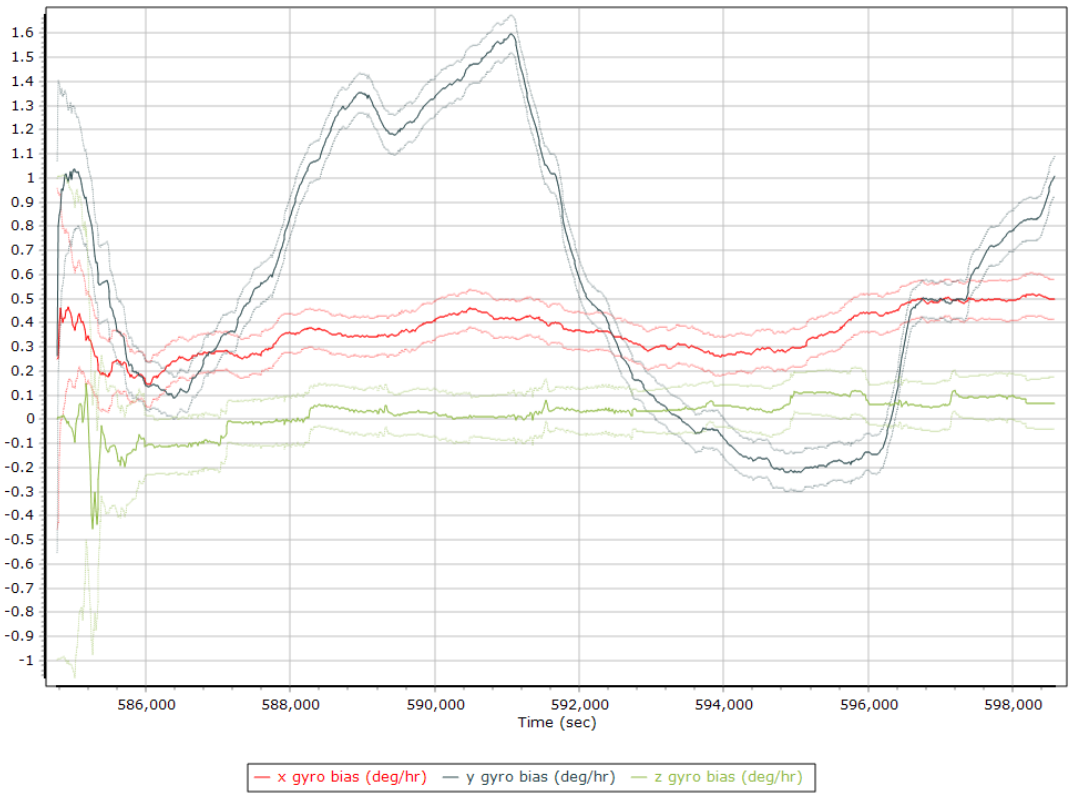
Y Accelerometer Scale Error (ppm)



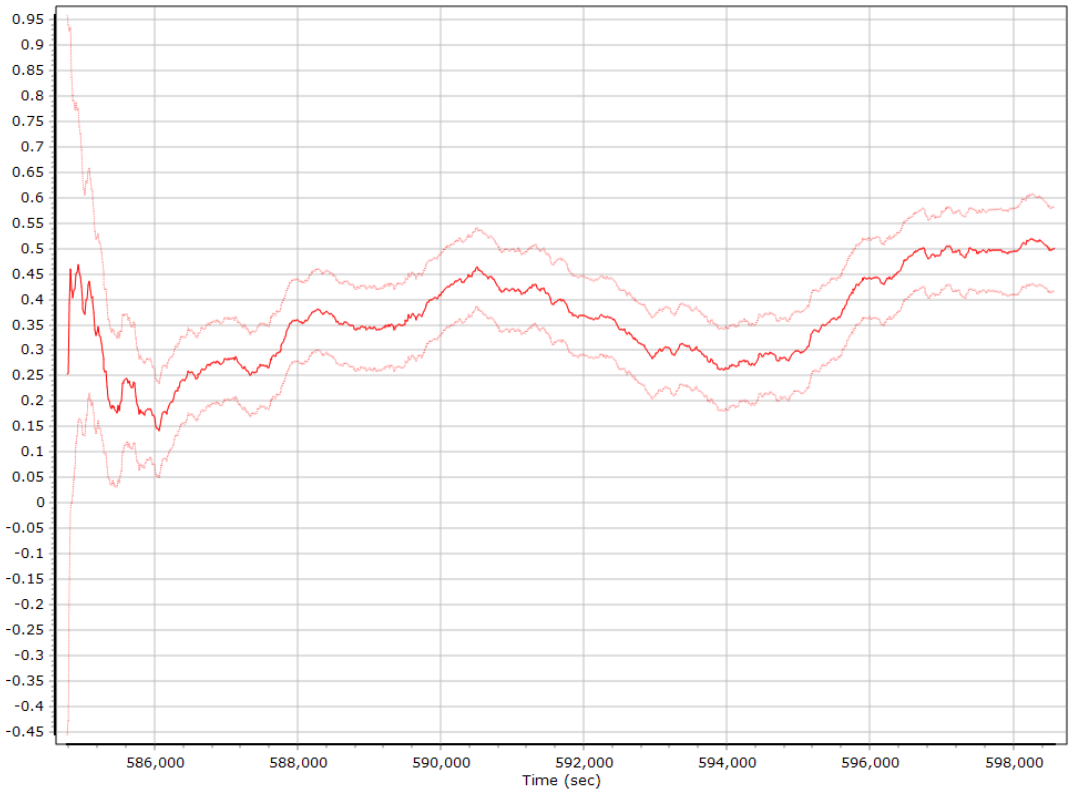
Z Accelerometer Scale Error (ppm)



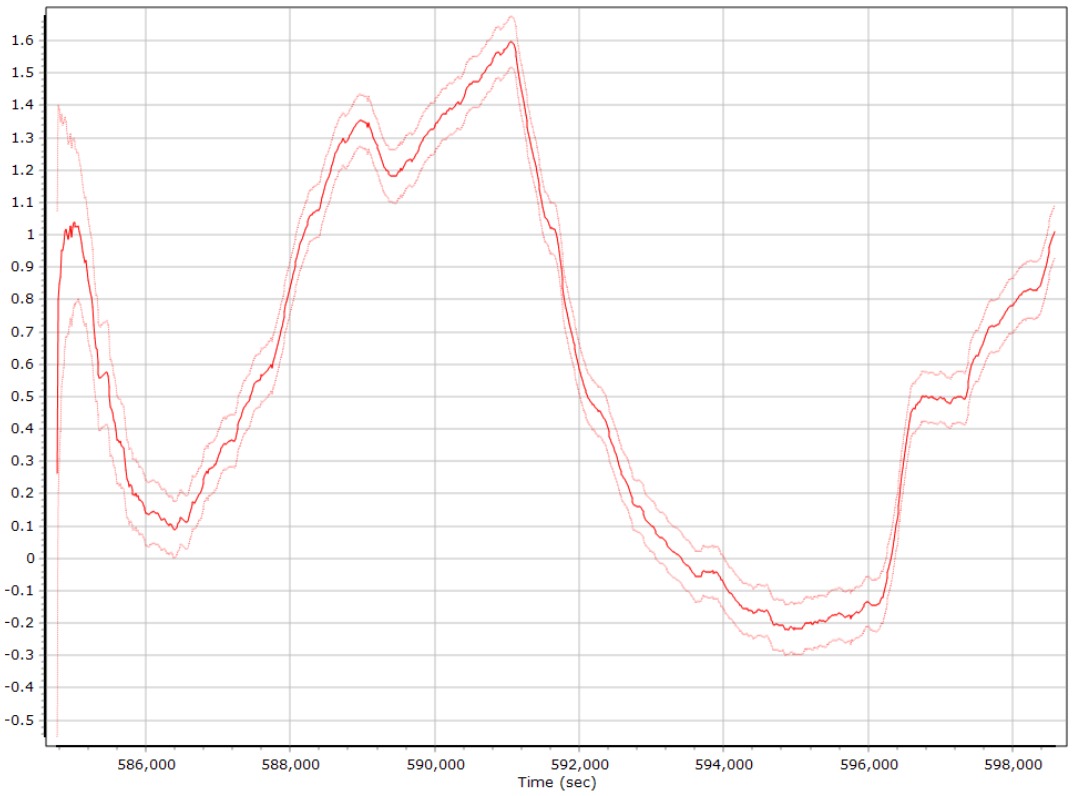
Gyro Bias (deg/h)



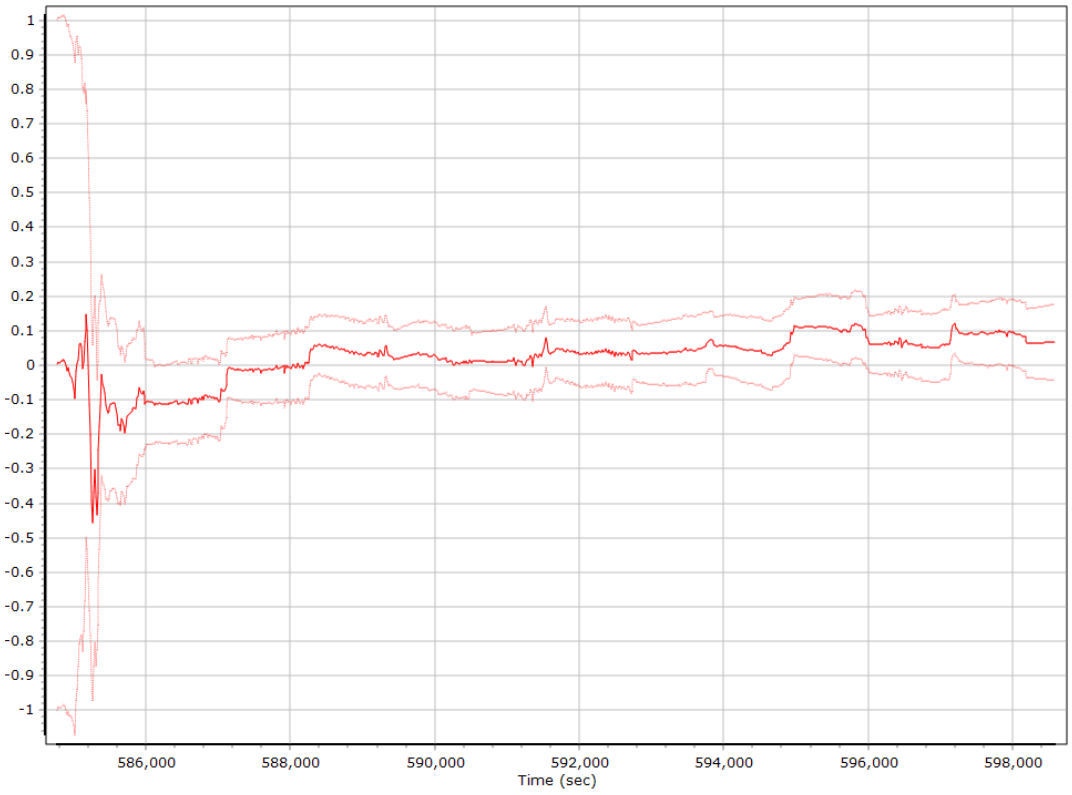
X Gyro Bias (deg/h)



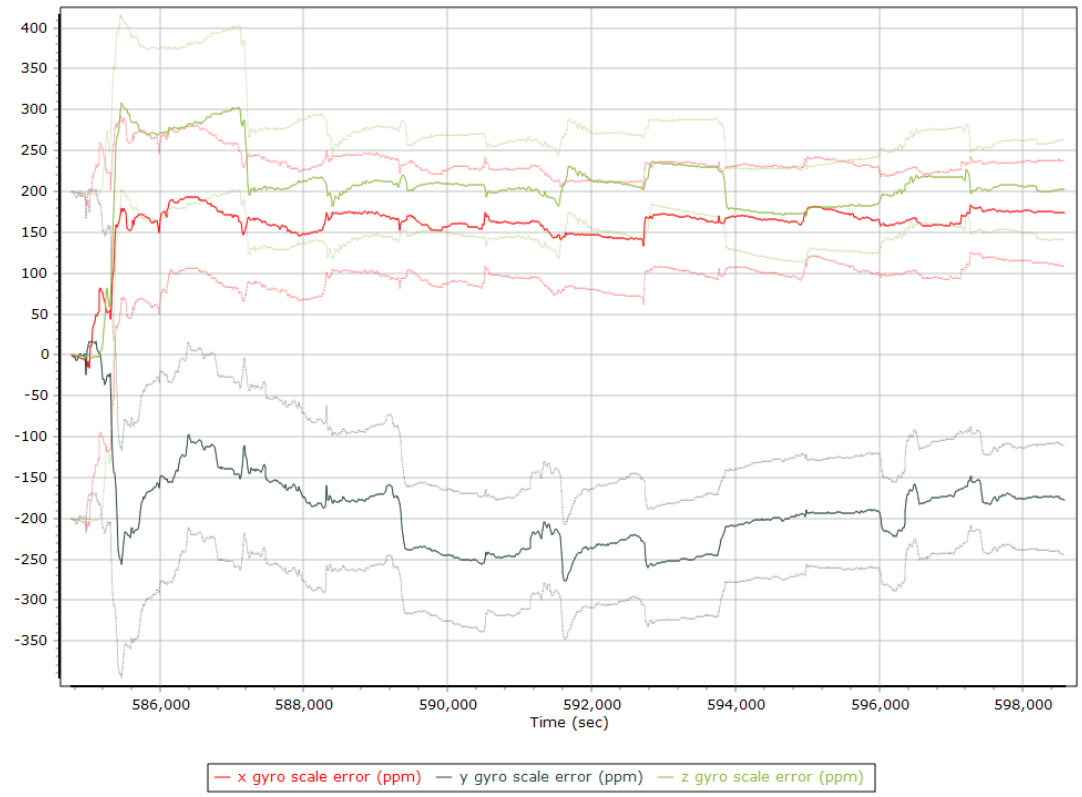
Y Gyro Bias (deg/h)



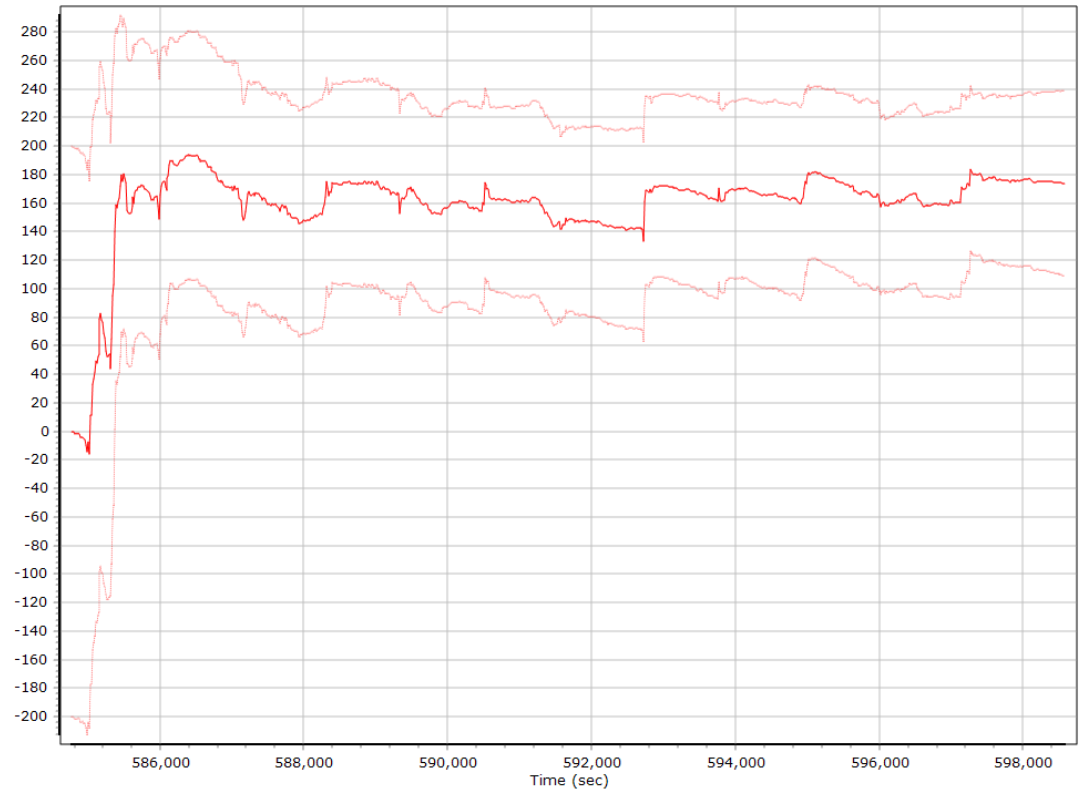
Z Gyro Bias (deg/h)



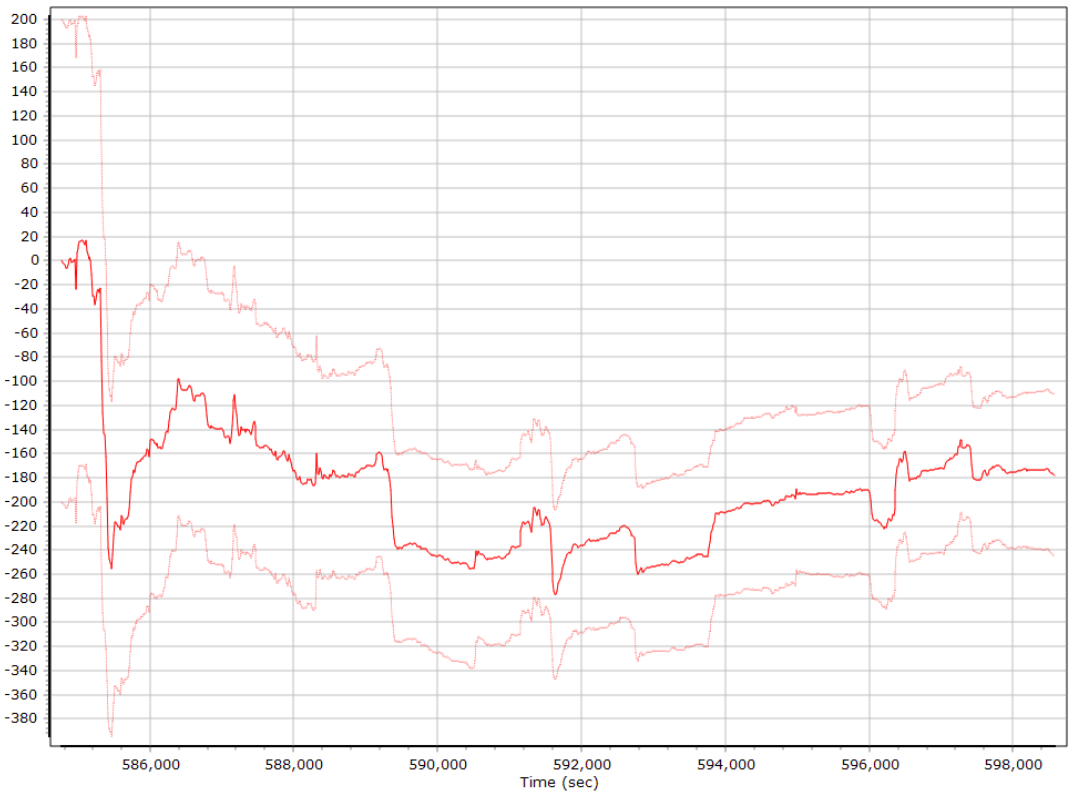
Gyro Scale Error (ppm)



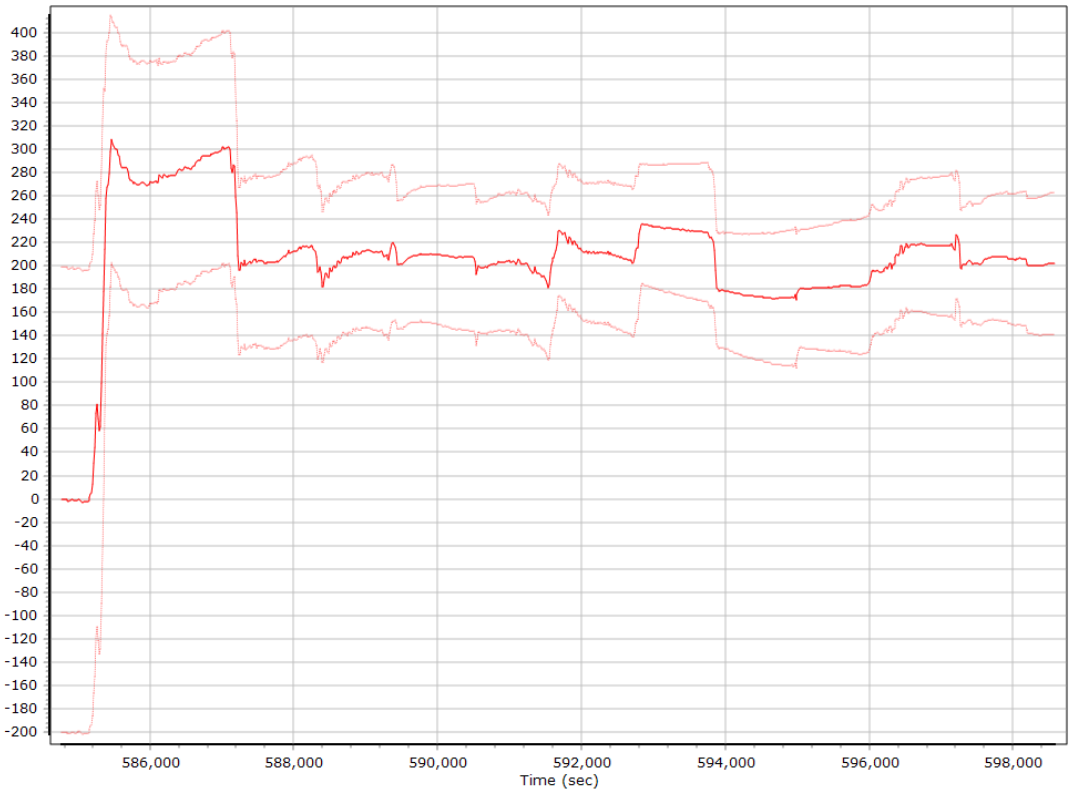
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

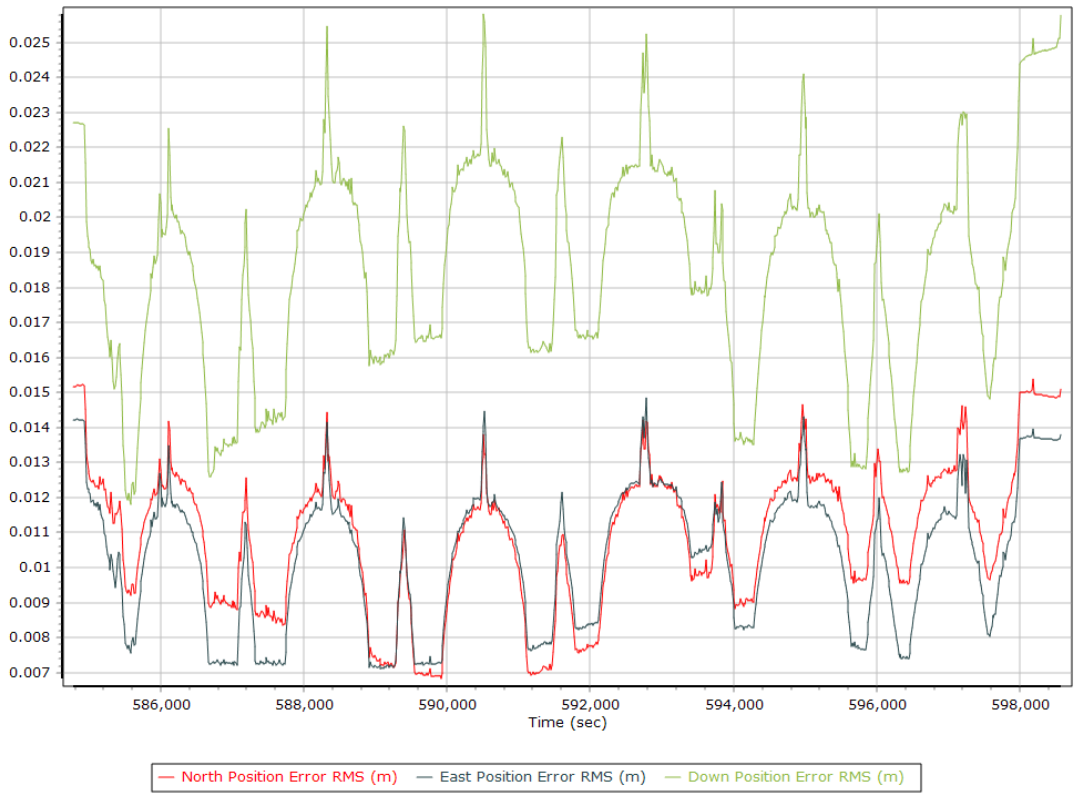


Z Gyro Scale Error (ppm)

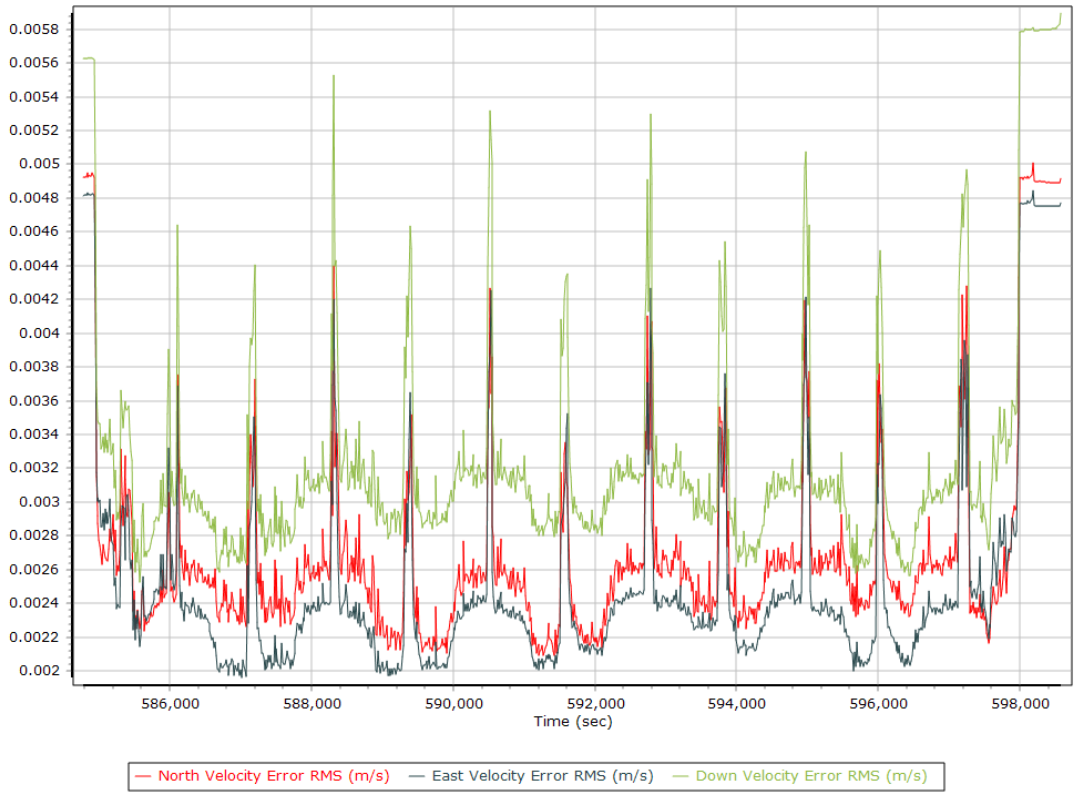


Smoothed Performance Metrics

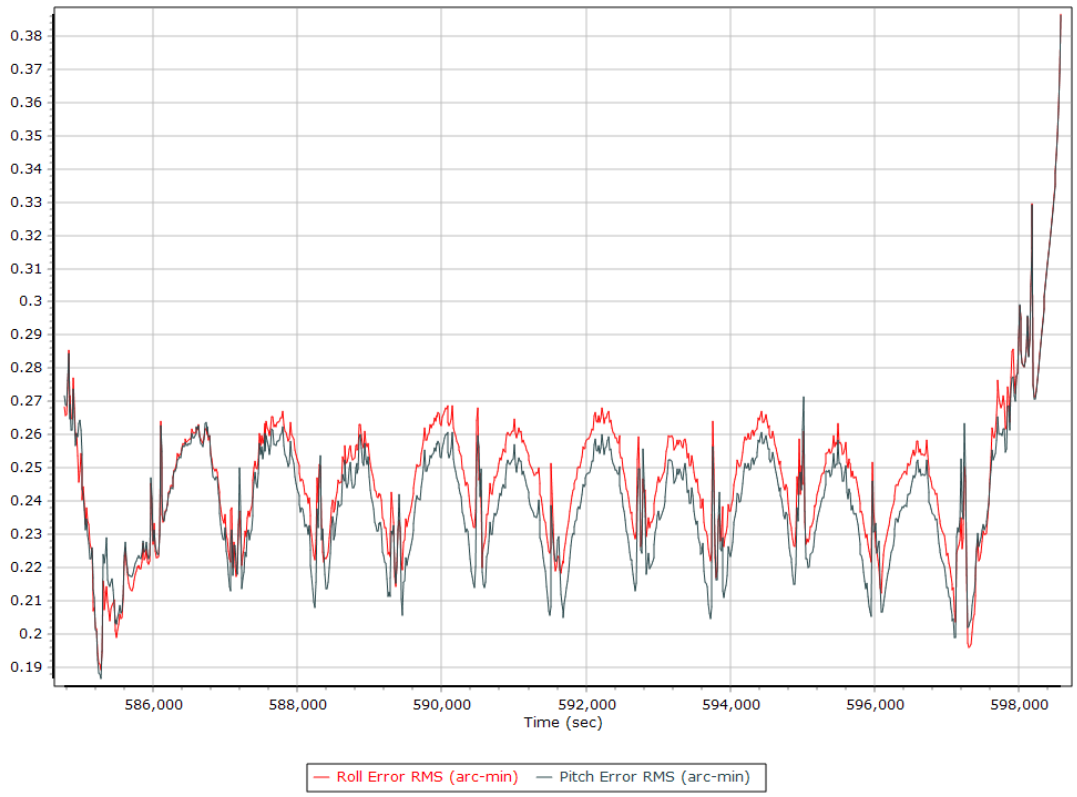
Position Error RMS (m)



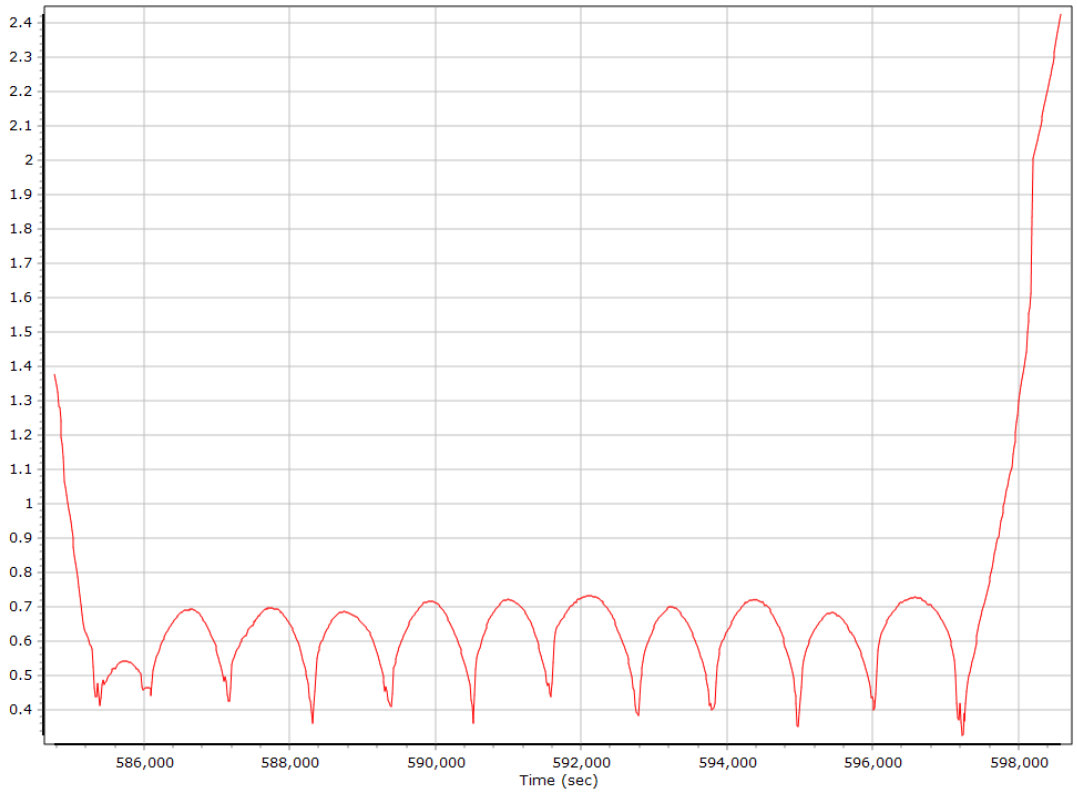
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

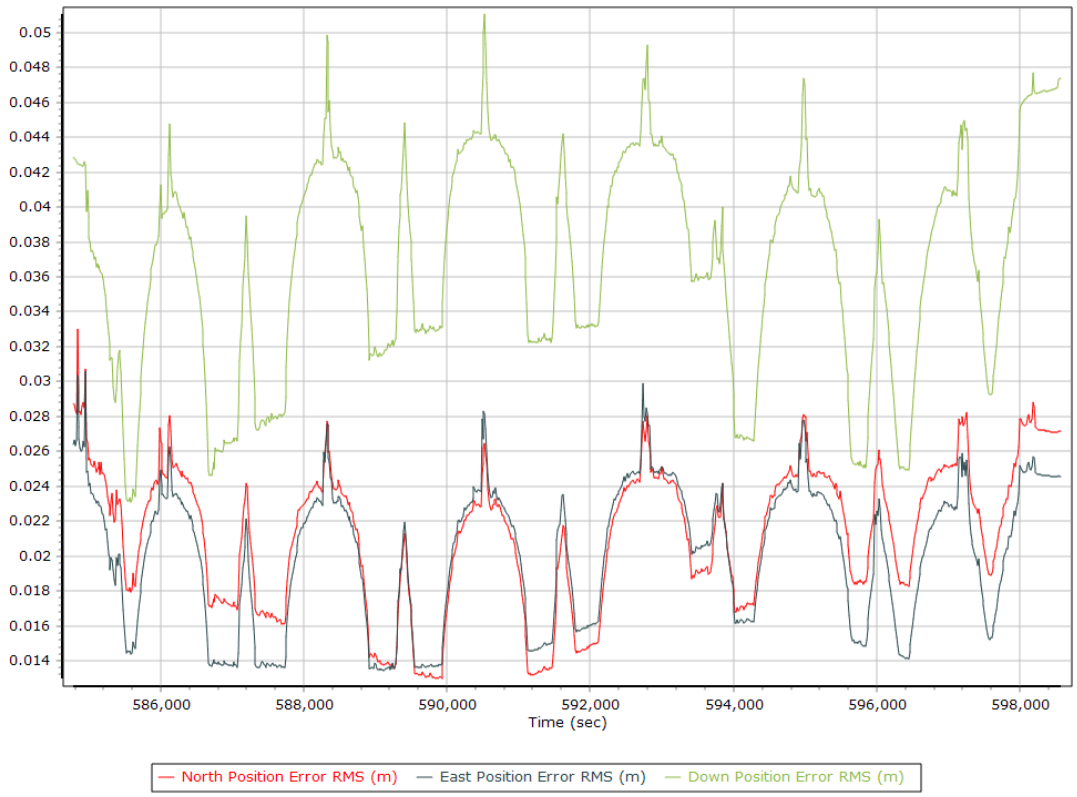


Heading Error RMS (arc-min)

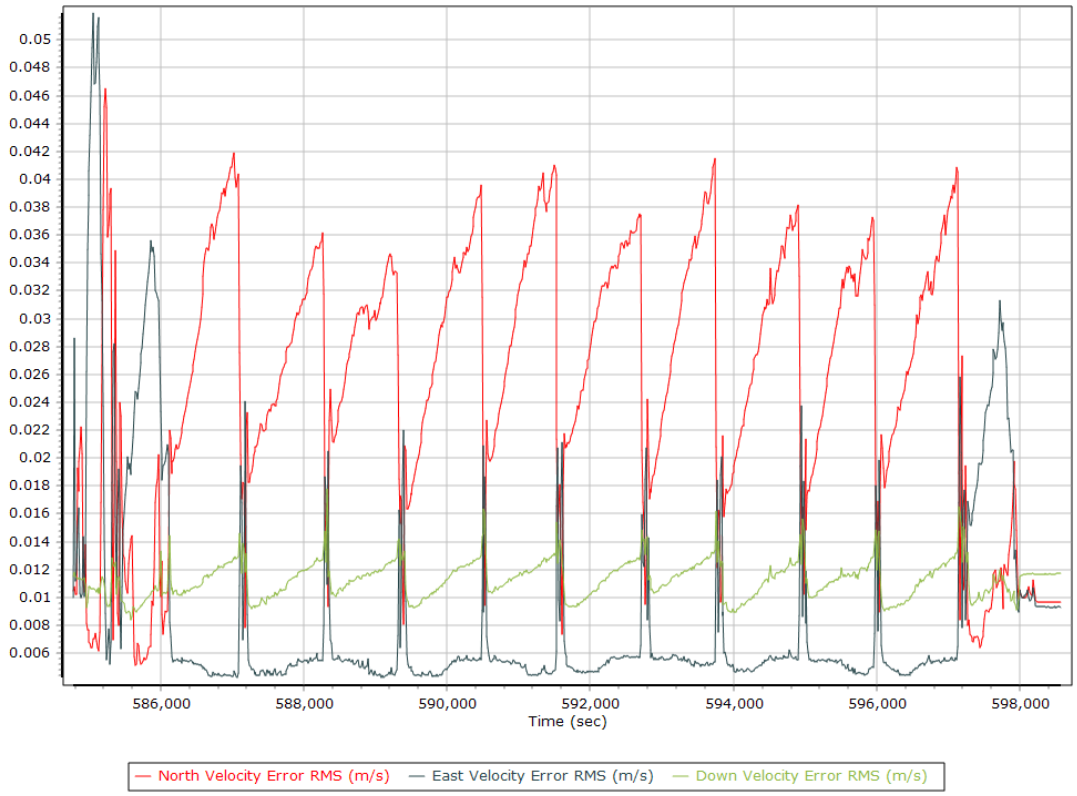


Forward Processed Performance Metrics

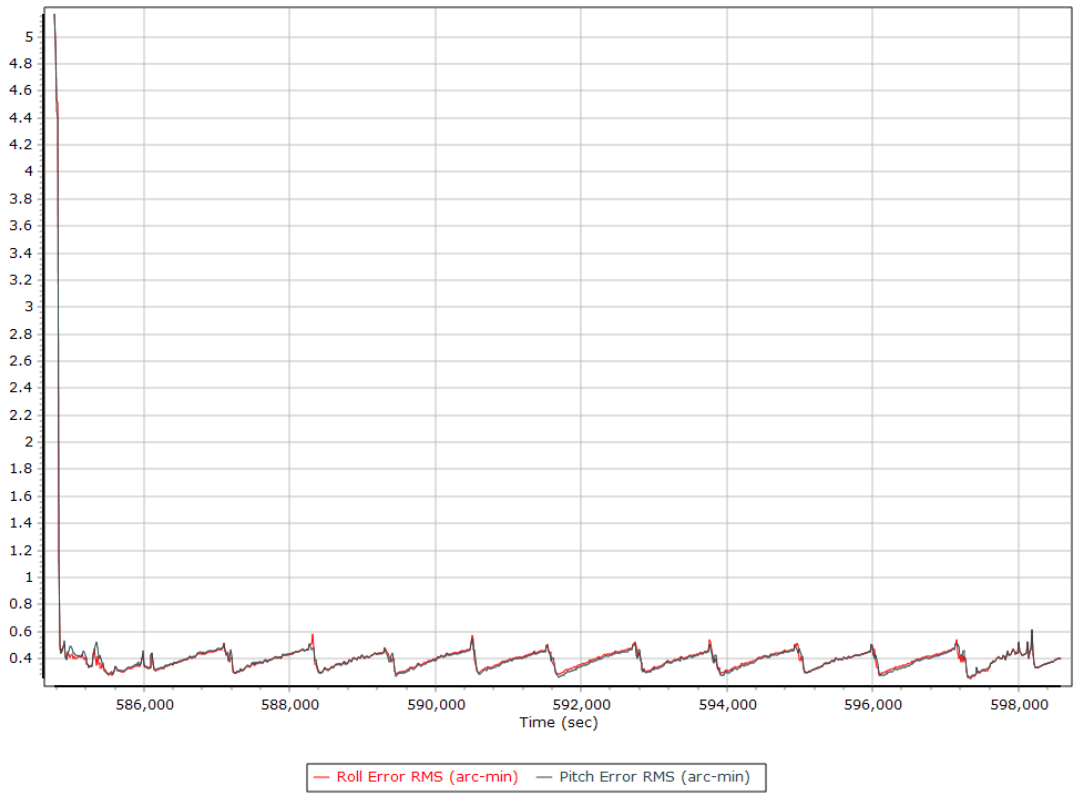
Position Error RMS (m)



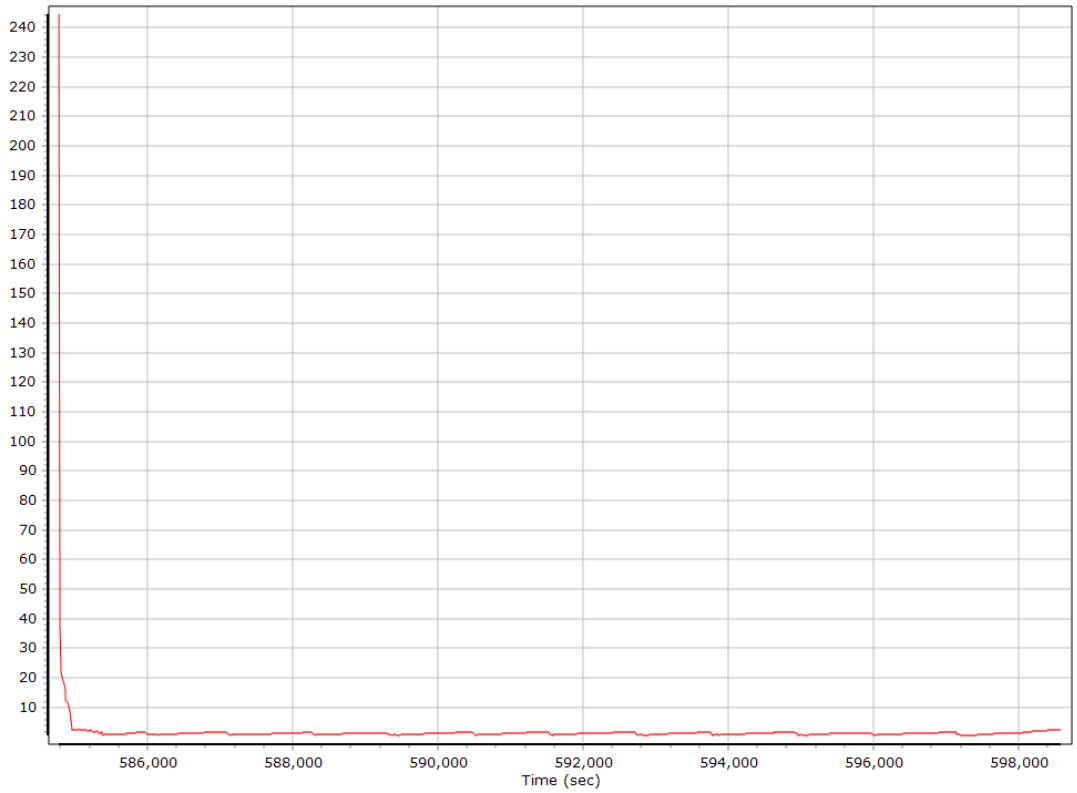
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

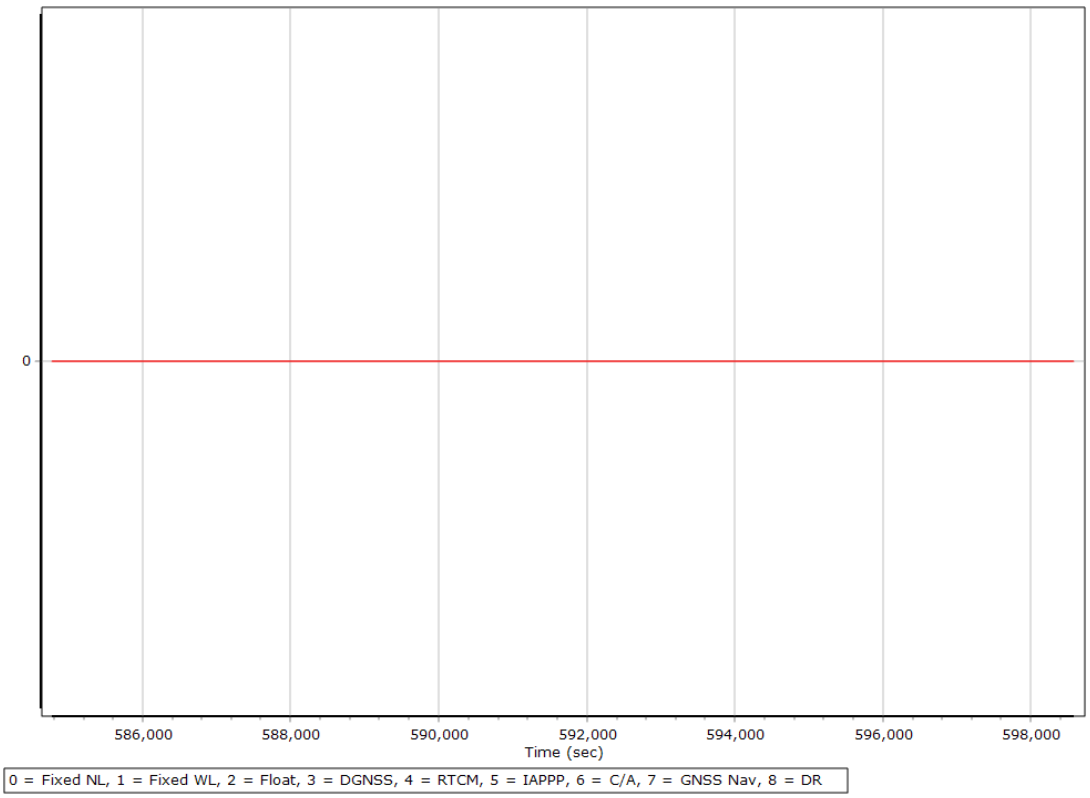


Heading Error RMS (arc-min)

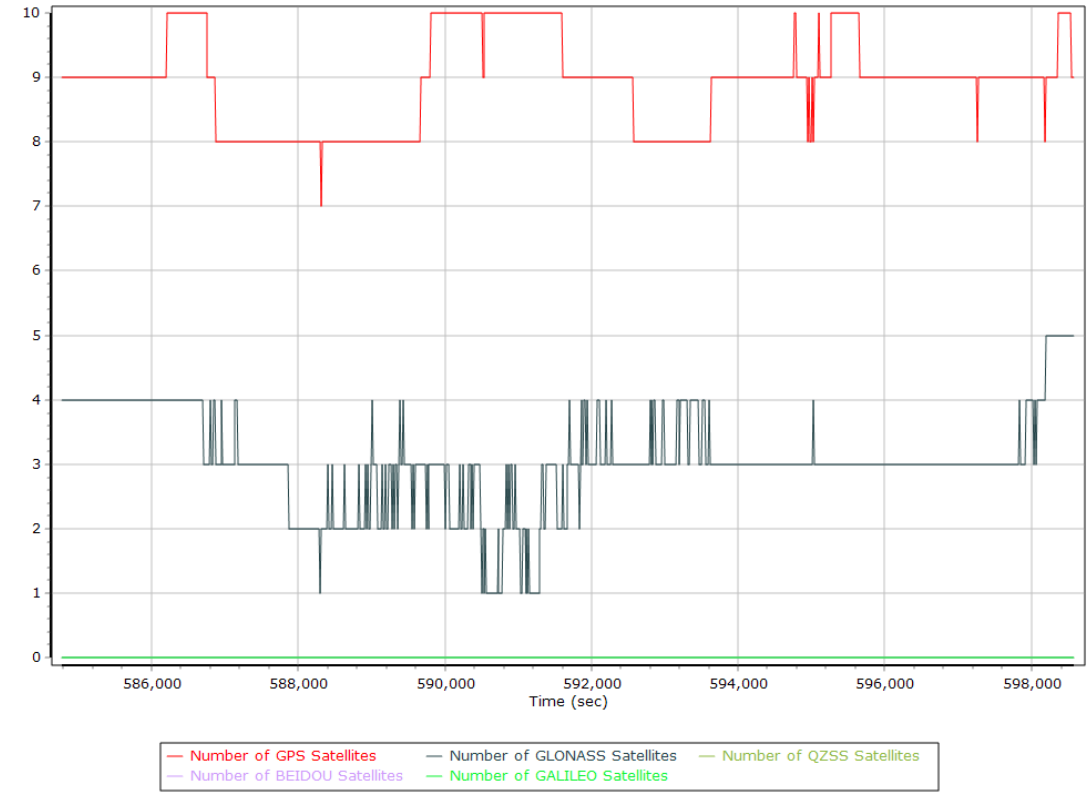


Smoothed Solution Status

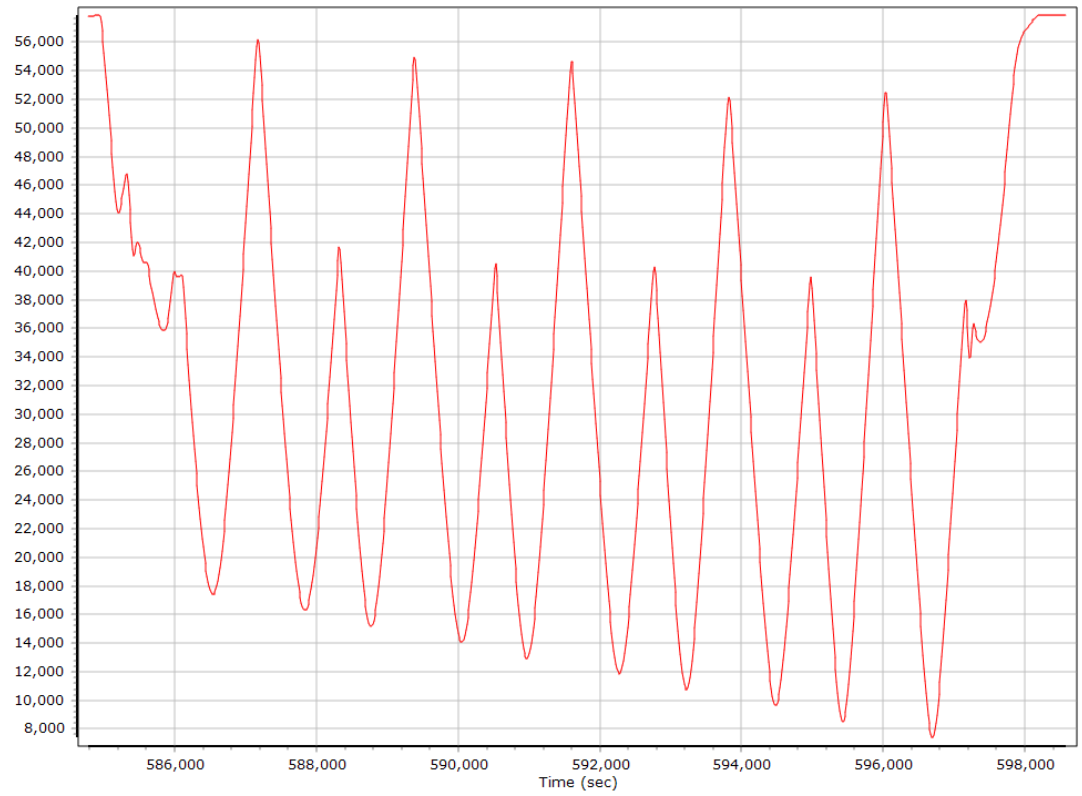
Processing Mode



Number of Satellites

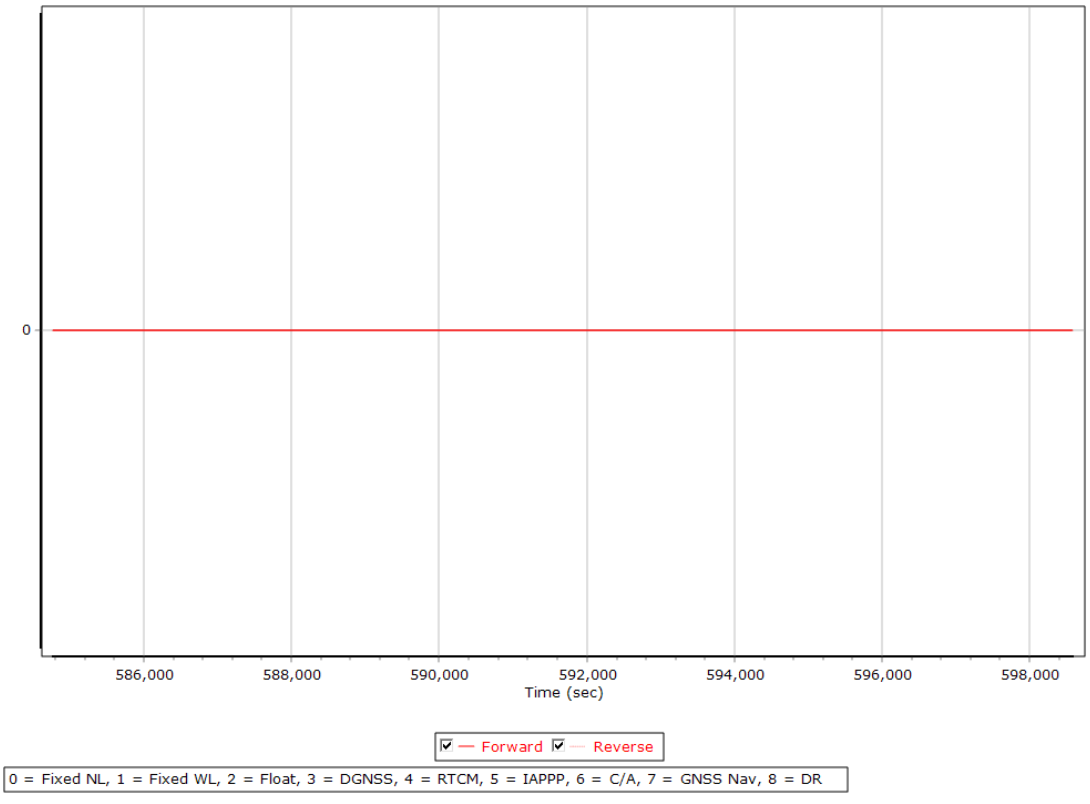


Baseline Length

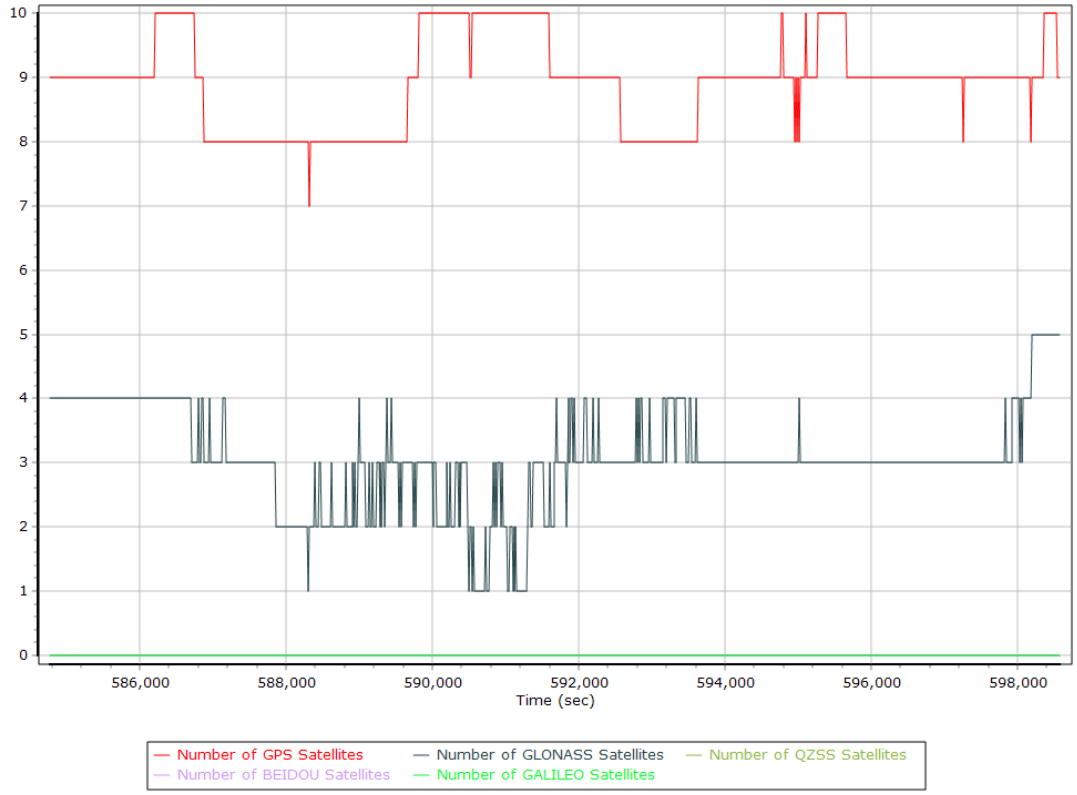


Forward Processed Solution Status

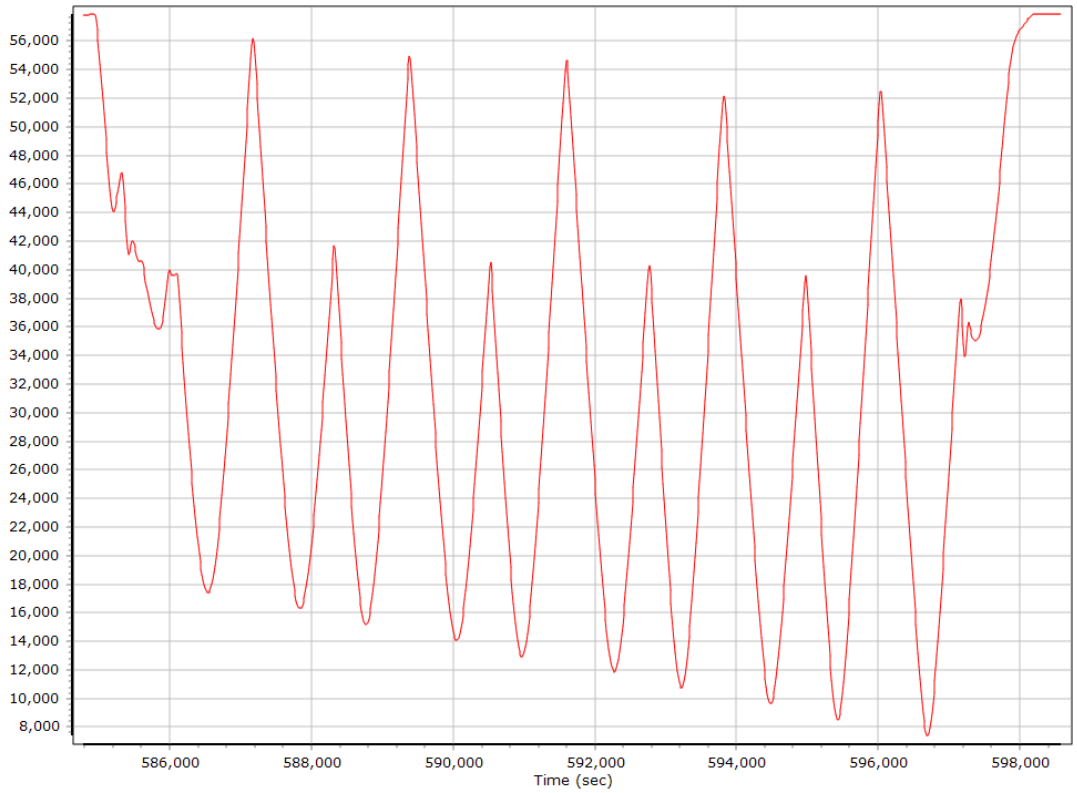
Processing Mode



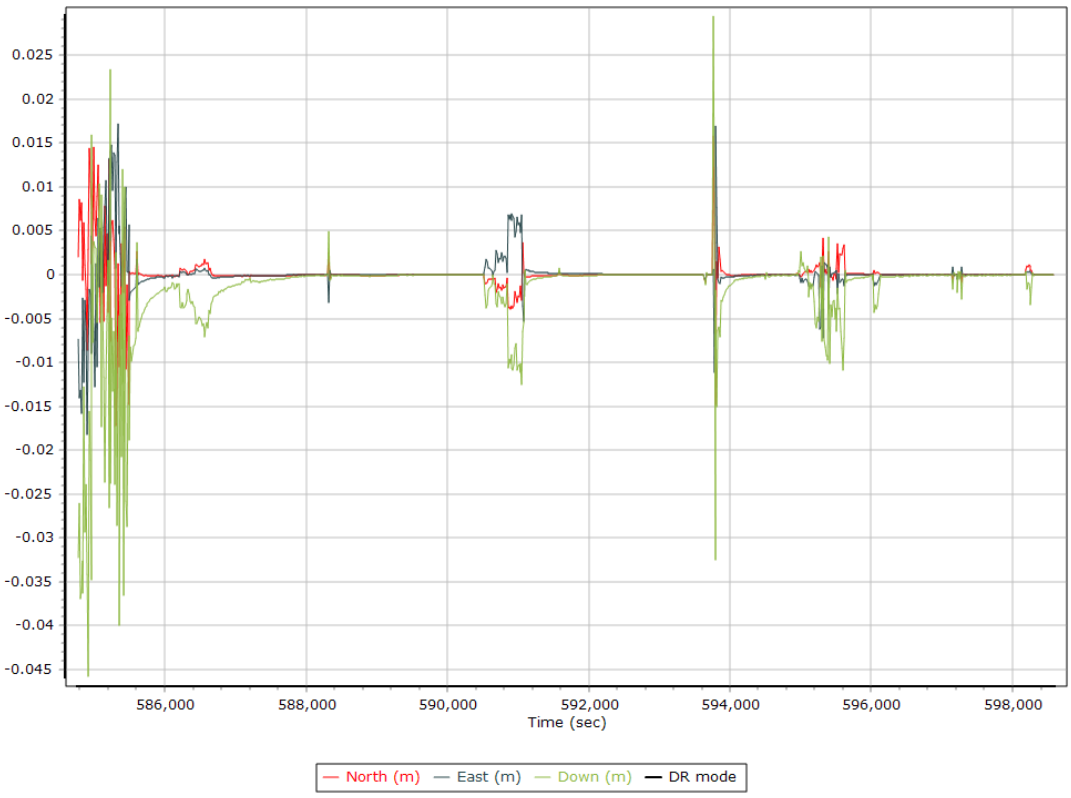
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_20200404C-Mission 1.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	584715.003 (4/4/2020 6:25:15 PM)		
Export end time	598588.002 (4/4/2020 10:16:28 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200404D
Processing date	2021-01-18 23:03:03
Mission date	2020-04-04 23:11:08
Mission duration	01:38:53.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.120	POS Data
ALS.121	POS Data
ALS.122	POS Data
ALS.123	POS Data
ALS.124	POS Data
ALS.125	POS Data
ALS.126	POS Data
ALS.127	POS Data
ALS.128	POS Data
ALS.129	POS Data

Input Files

File Name	File Type
Ephm0950.20g	GLONASS Broadcast Ephemeris
Ephm0950.20n	GPS Broadcast Ephemeris
Ephm0960.20g	GLONASS Broadcast Ephemeris
Ephm0960.20n	GPS Broadcast Ephemeris
iaal0950.20o	GNSS SingleBase
iaal0960.20o	GNSS SingleBase
iaam0950.20o	GNSS SingleBase
iaam0960.20o	GNSS SingleBase
iacl0950.20o	GNSS SingleBase
iacl0960.20o	GNSS SingleBase
iade0950.20o	GNSS SingleBase
iade0960.20o	GNSS SingleBase
iael0950.20o	GNSS SingleBase
iael0960.20o	GNSS SingleBase
iaht0950.20o	GNSS SingleBase
iaht0960.20o	GNSS SingleBase
iamn0950.20o	GNSS SingleBase
iamn0960.20o	GNSS SingleBase
iana0950.20o	GNSS SingleBase
iana0960.20o	GNSS SingleBase
iata0950.20o	GNSS SingleBase
iata0960.20o	GNSS SingleBase
mnca0950.20o	GNSS SingleBase
mnca0960.20o	GNSS SingleBase
mney0950.20o	GNSS SingleBase
mney0960.20o	GNSS SingleBase
mnsv0950.20o	GNSS SingleBase
mnsv0960.20o	GNSS SingleBase
nlib0950.20o	GNSS SingleBase
nlib0960.20o	GNSS SingleBase
wlnc0950.20o	GNSS SingleBase
wlnc0960.20o	GNSS SingleBase
igu20995_18.sp3	GPS Precise Ephemeris
igu20996_18.sp3	GPS Precise Ephemeris
igu21000_18.sp3	GPS Precise Ephemeris
igu21001_18.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200404D-Mission 1.out	SBET Trajectory File
SBET_20200404D-Mission 1.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.120		
Last raw data file	ALS.129		
Start GPS week	2099		
Start time	601862.220 (4/4/2020 11:11:02 PM)		
End time	2983.558 (4/5/2020 12:49:43 AM)		
Start of fine alignment	602471.899 (4/4/2020 11:21:11 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

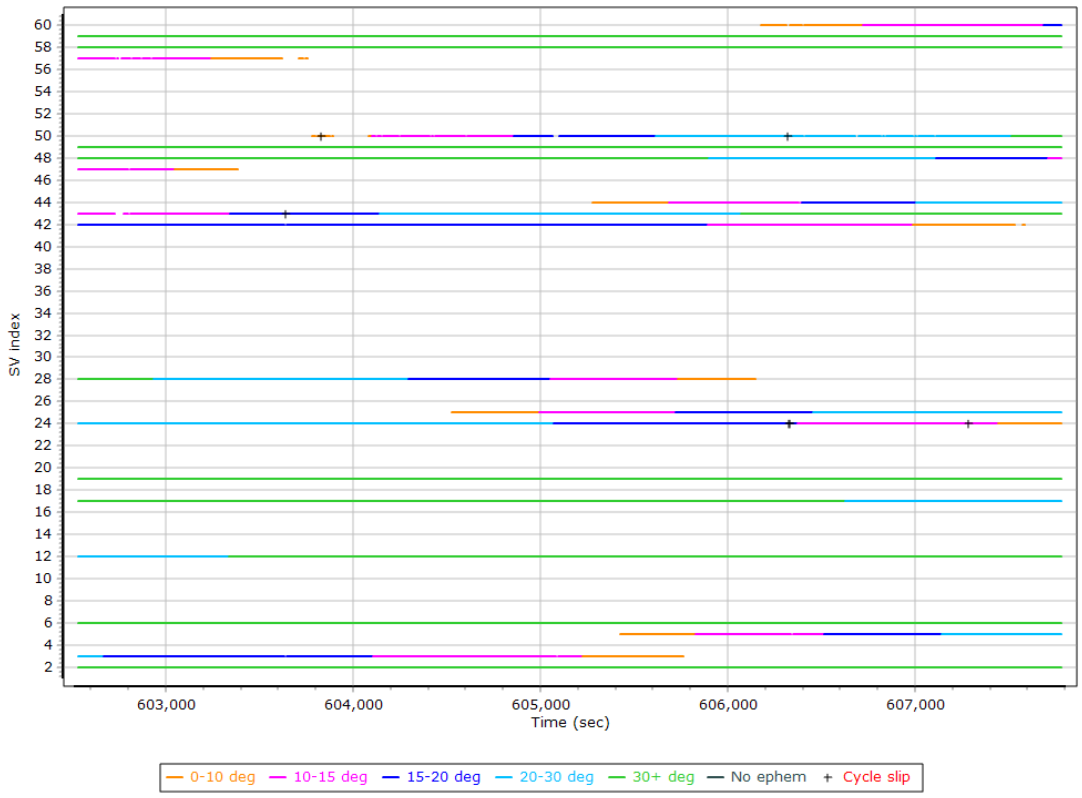
Rover Data QC

Raw IMU Import QC Summary

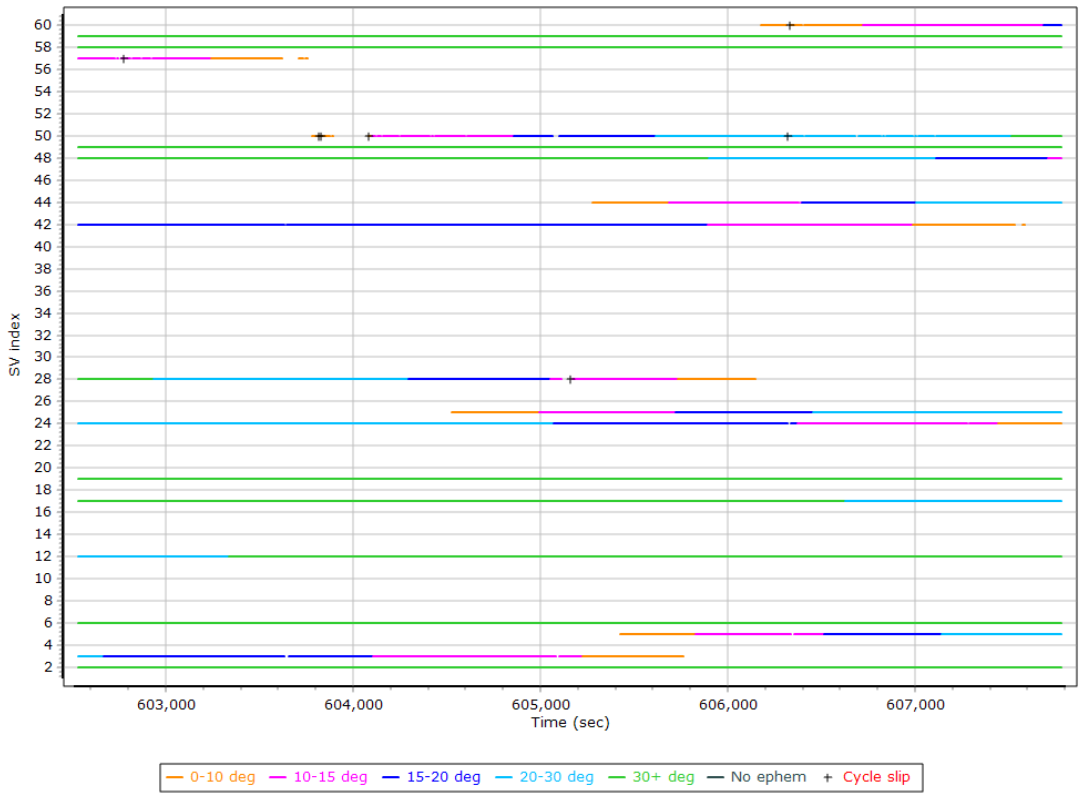
IMU data input file	imu_20200404D-Mission 1.dat
IMU data check log file	imudt_20200404D-Mission 1.log
IMU Records Processed	1189081
Termination Status	Warnings
IMU Anomalies	2
IMU Failure Messages	
604800.001 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
601861.820 : WARNING : Gap of 601839.8329 seconds in CHECKDT input data	

Primary Observables & Satellite Data

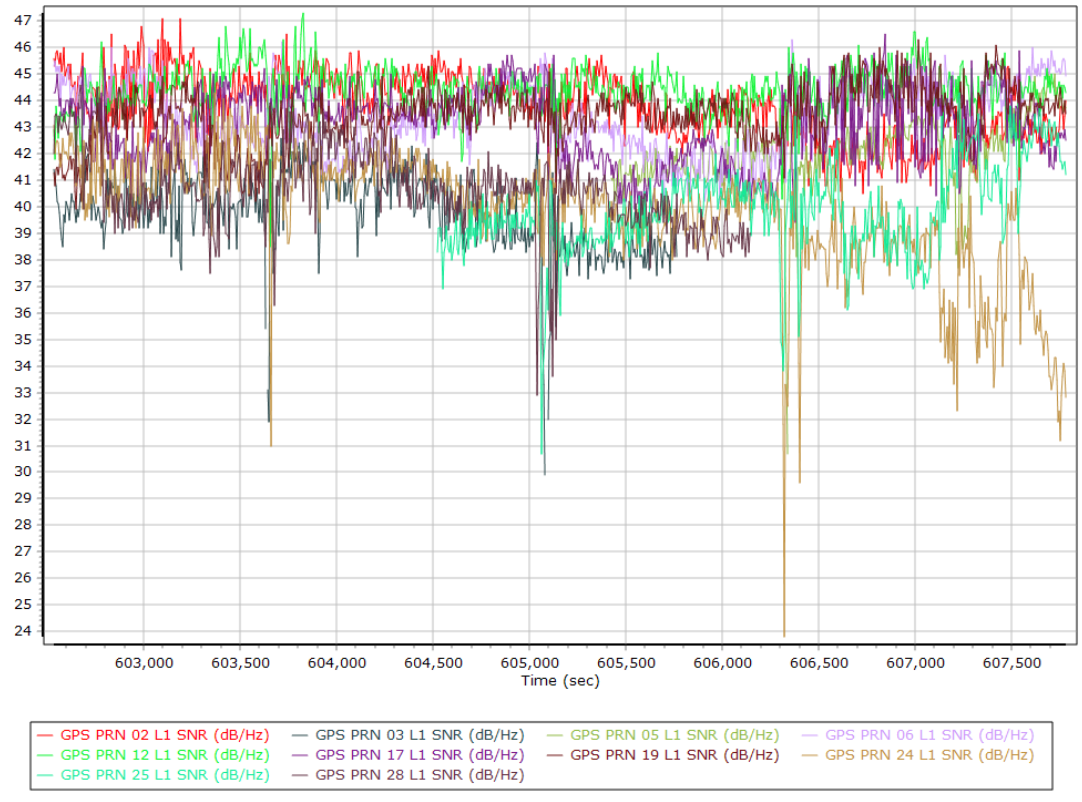
L1 Satellite Lock/Elevation



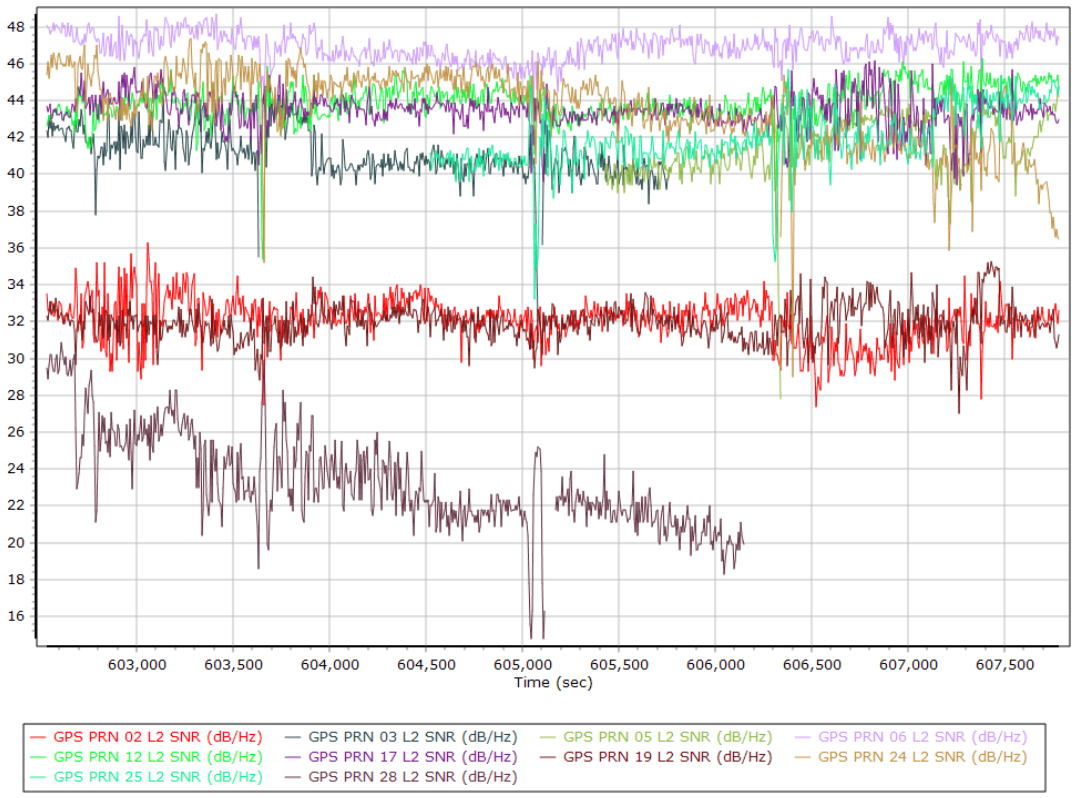
L2 Satellite Lock/Elevation



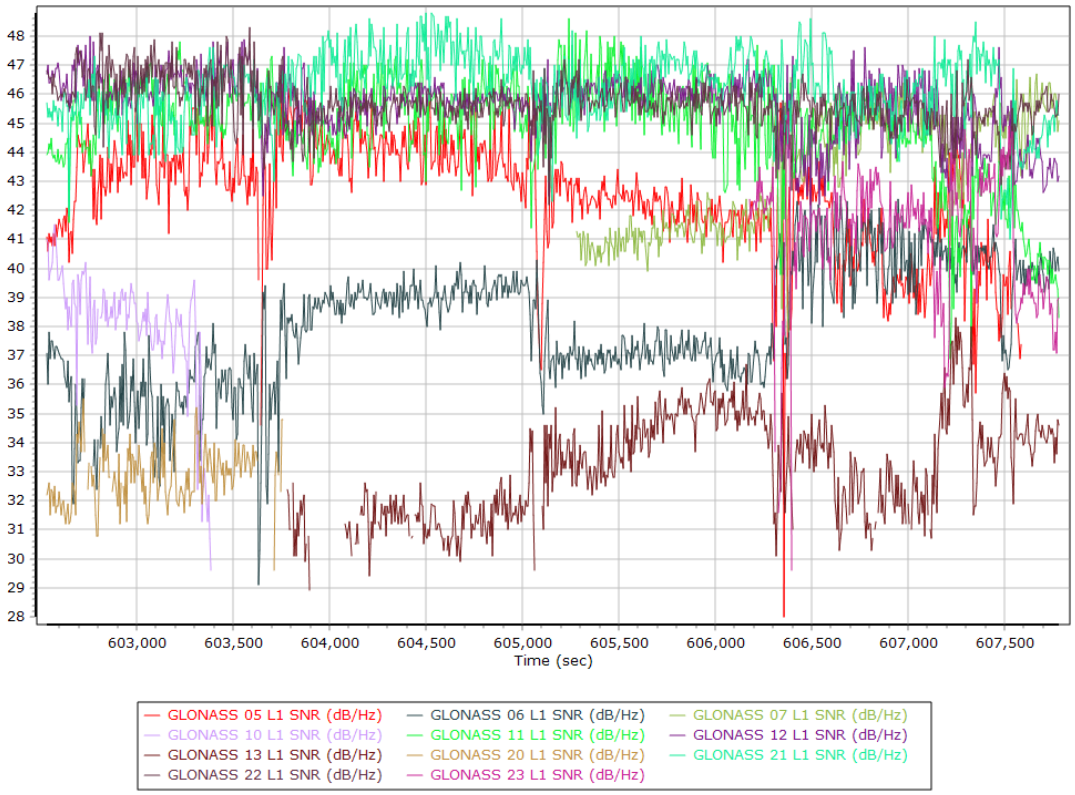
GPS L1 SNR



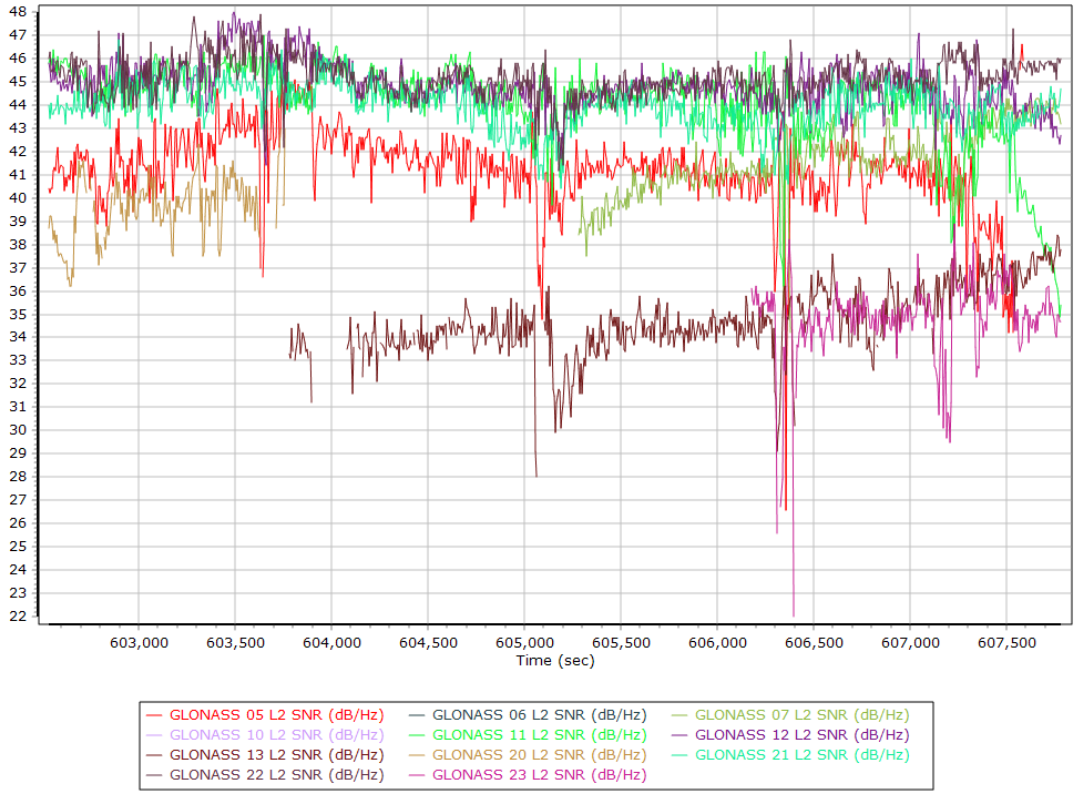
GPS L2 SNR



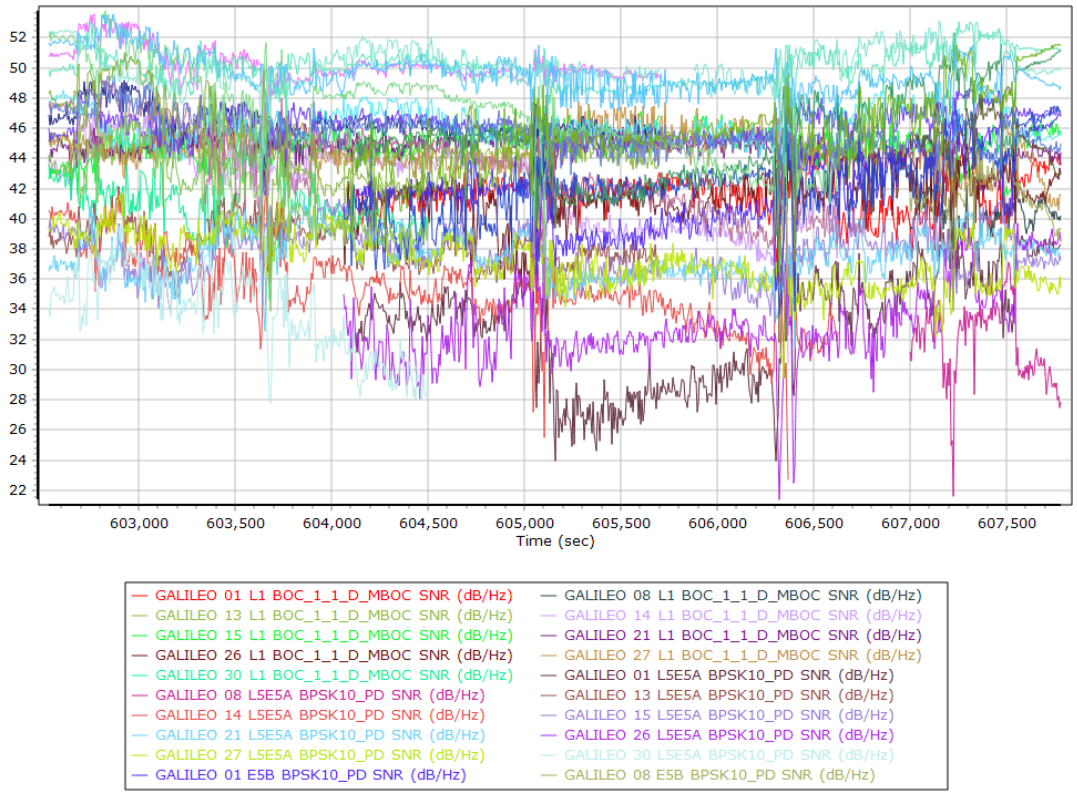
GLONASS L1 SNR



GLONASS L2 SNR

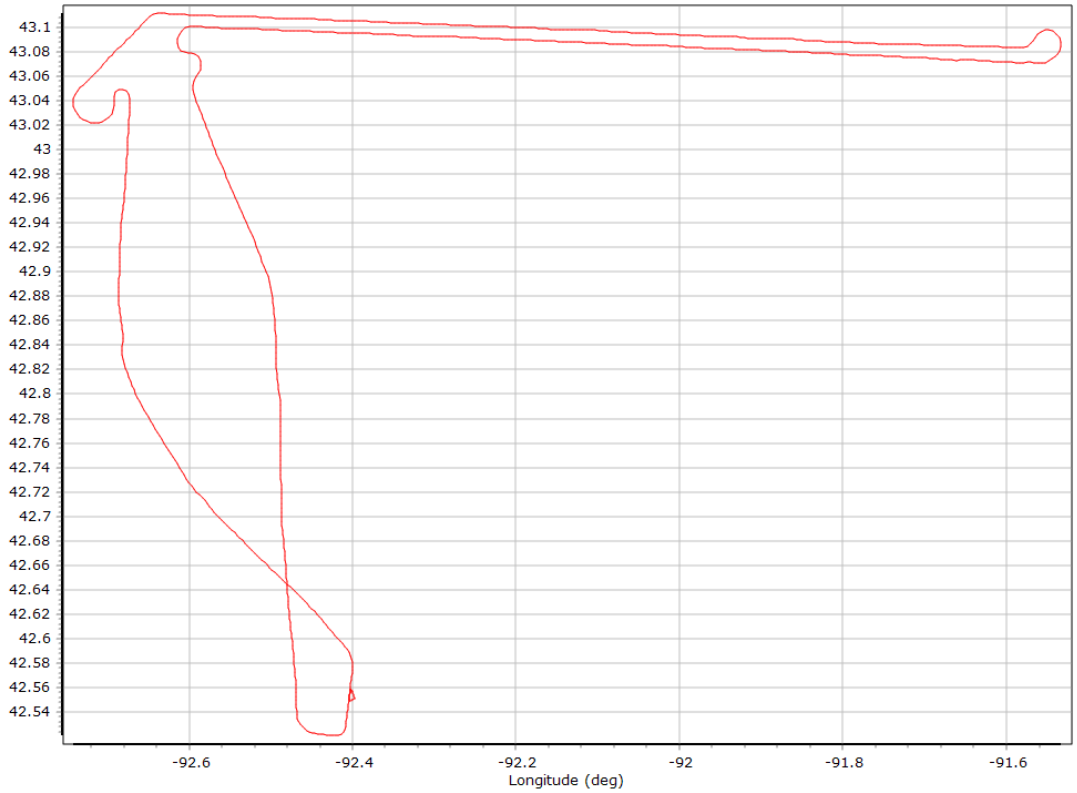


GALILEO SNR

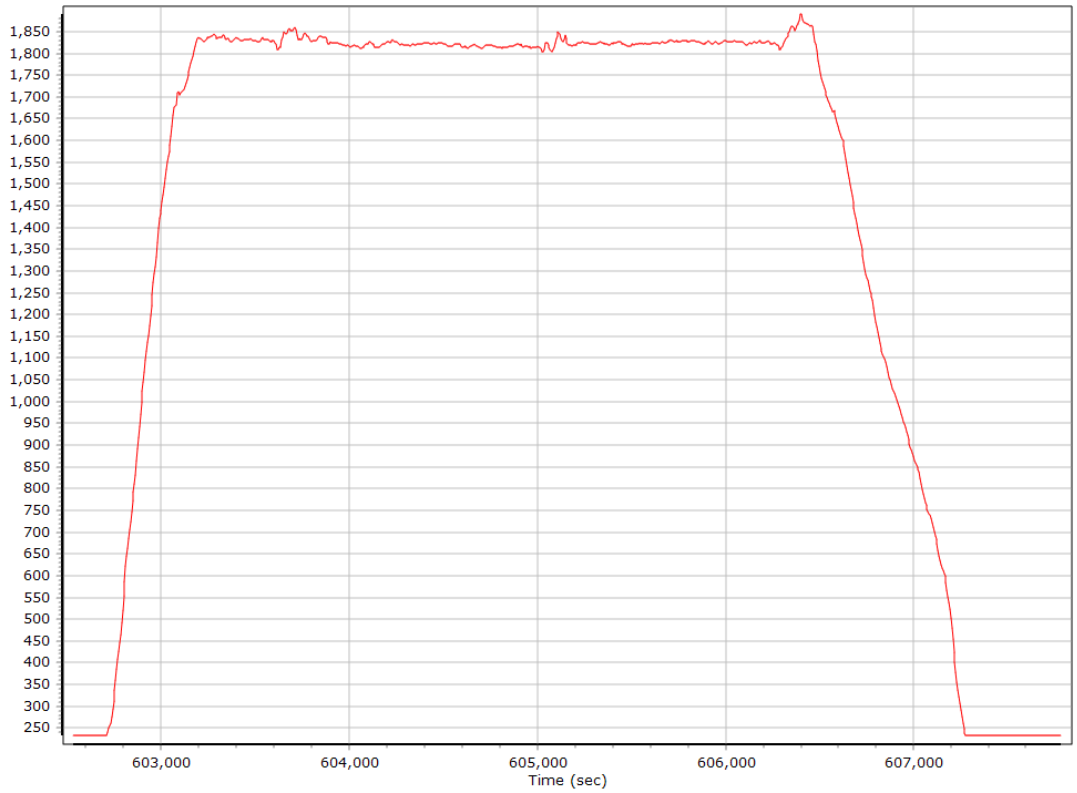


Smoothed Trajectory Information

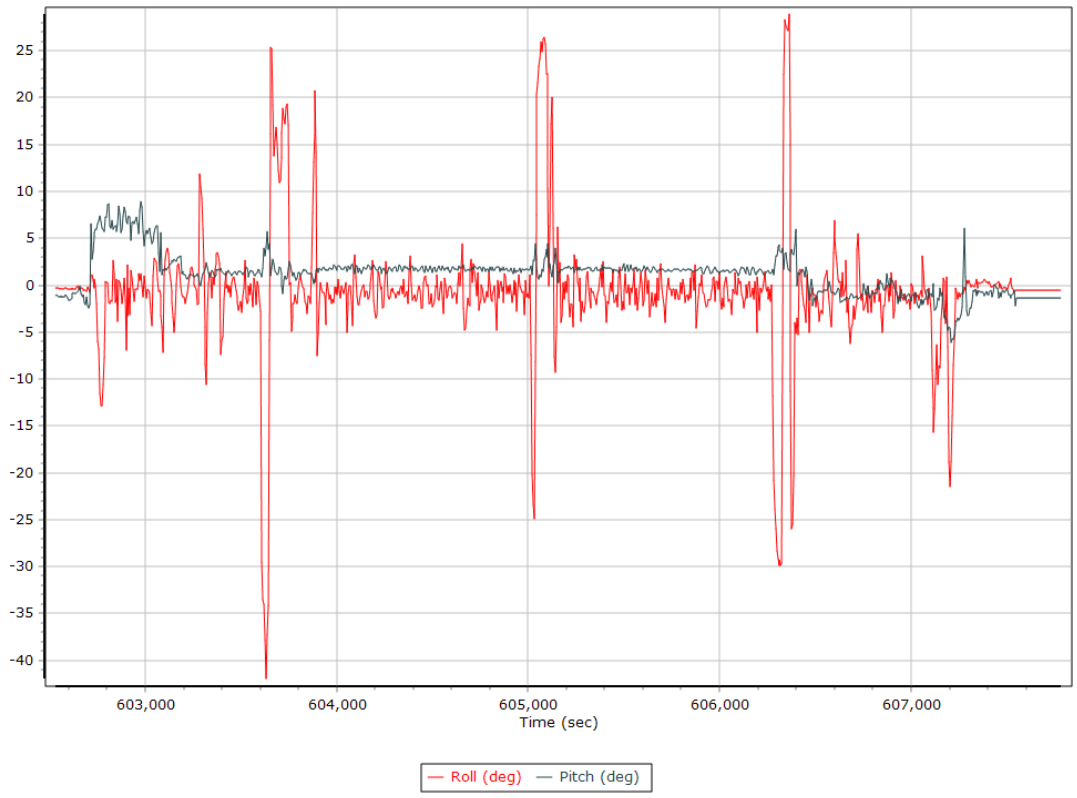
Top View



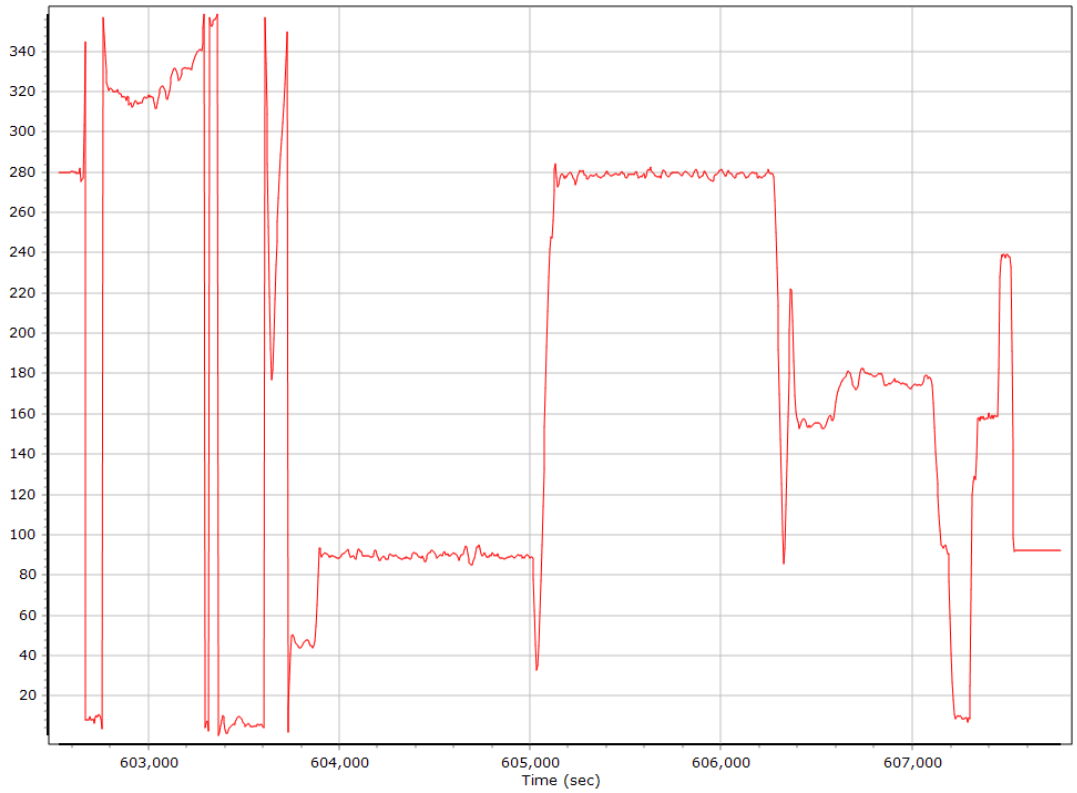
Altitude



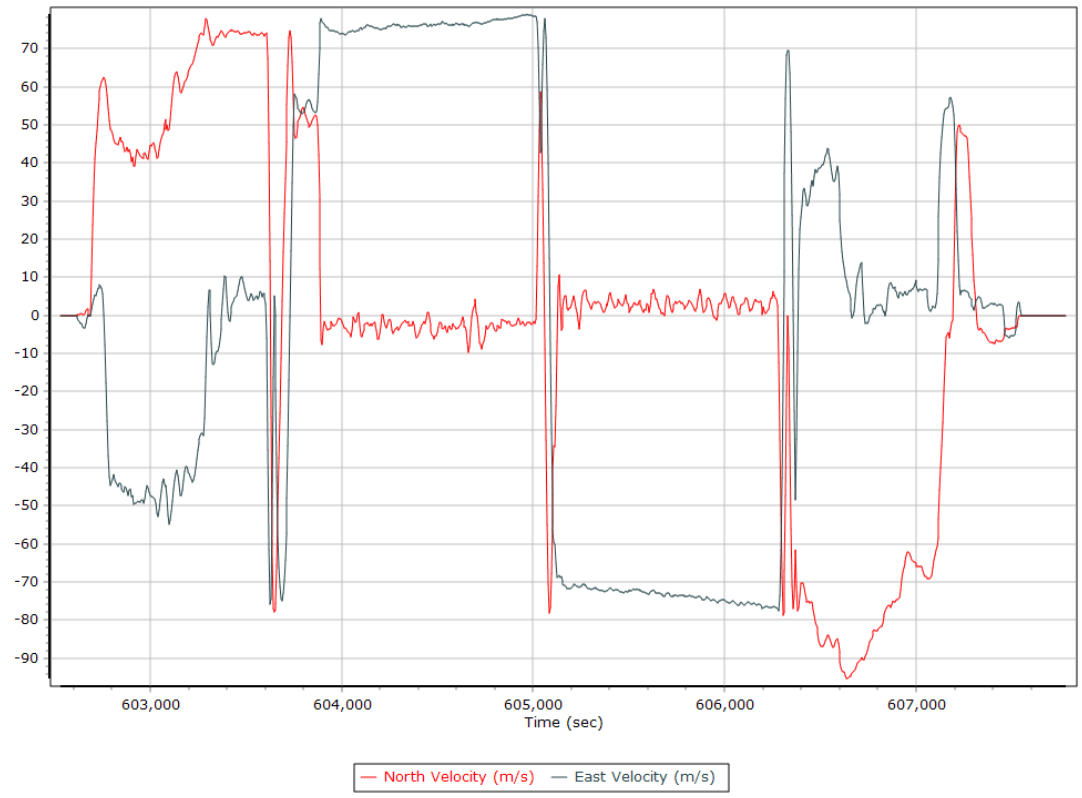
Roll/Pitch



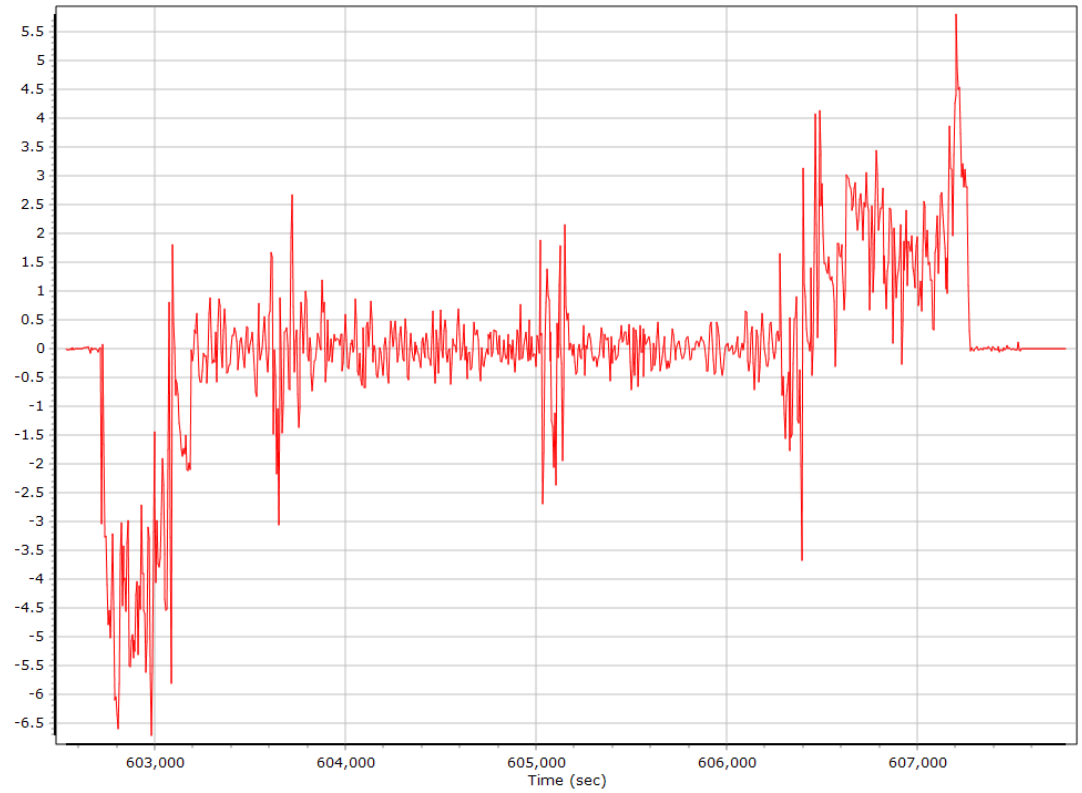
Heading



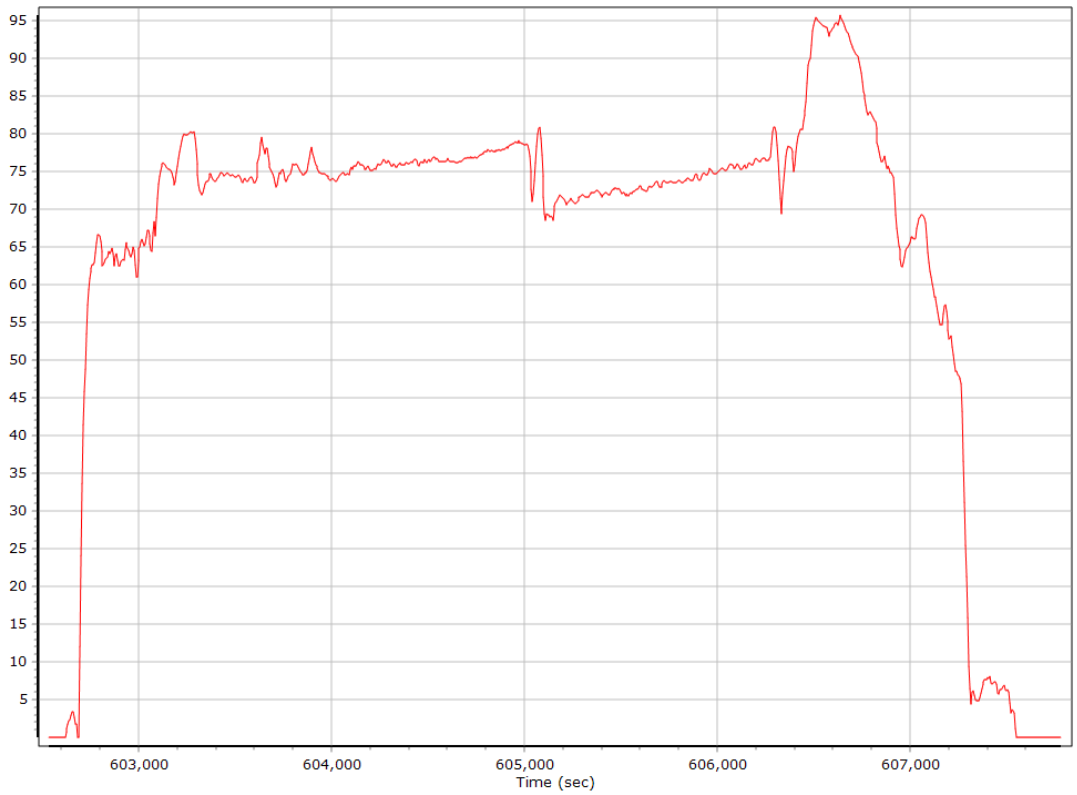
North/East Velocity



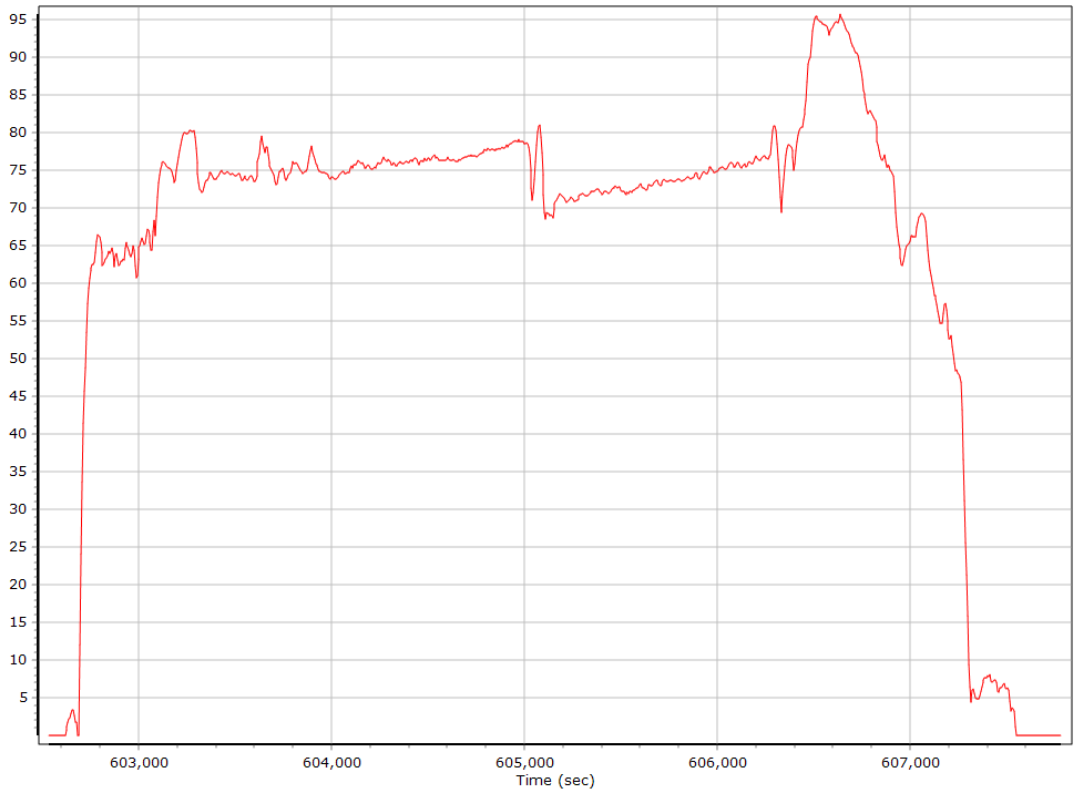
Down Velocity



Total Speed

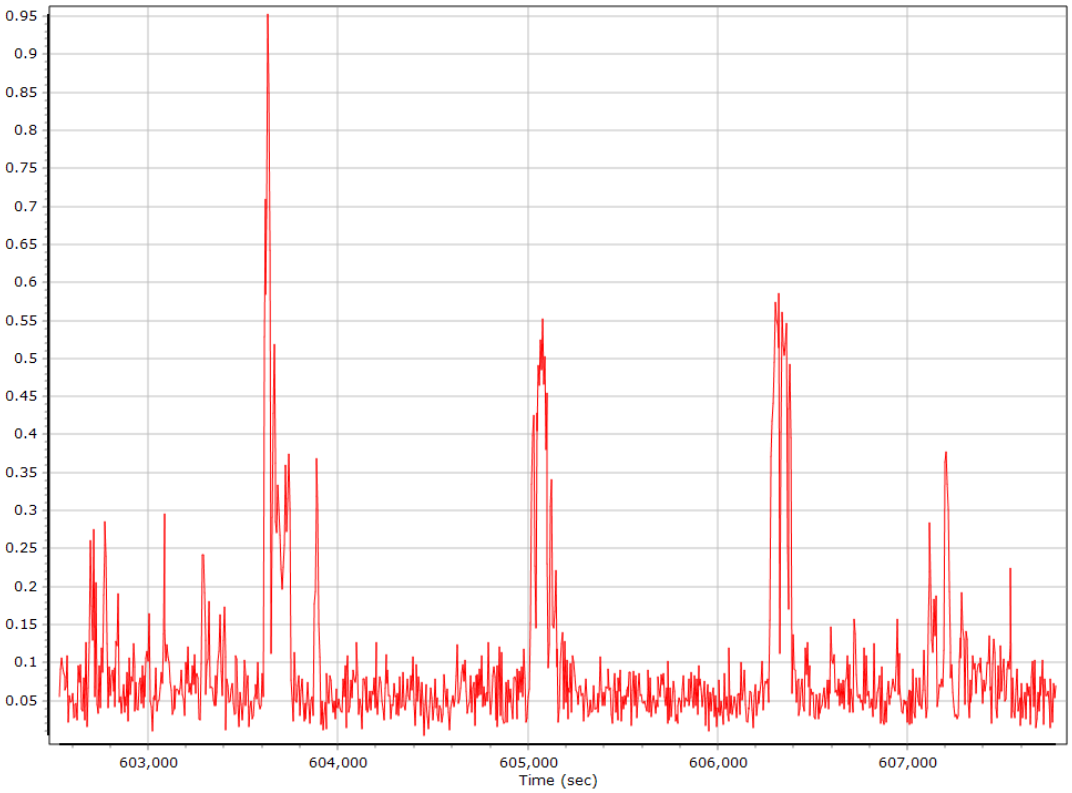


Ground Speed



Body Acceleration

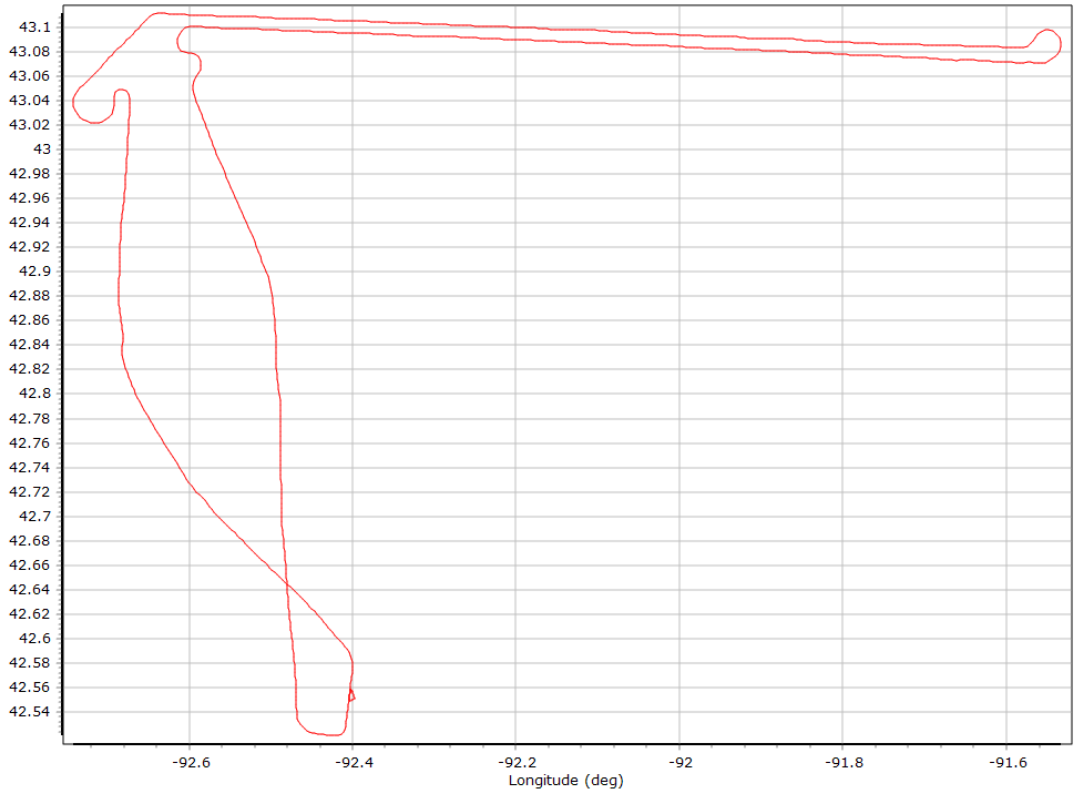
Total Body Acceleration



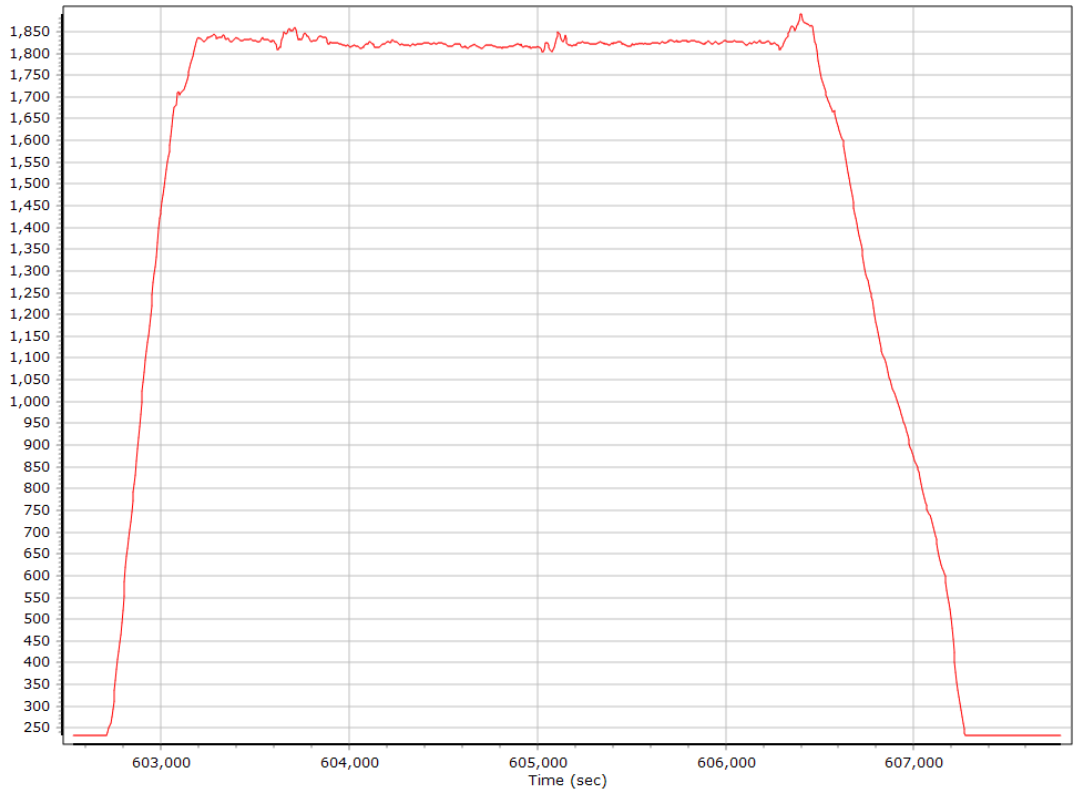
Body Angular Rate

Forward Processed Trajectory Information

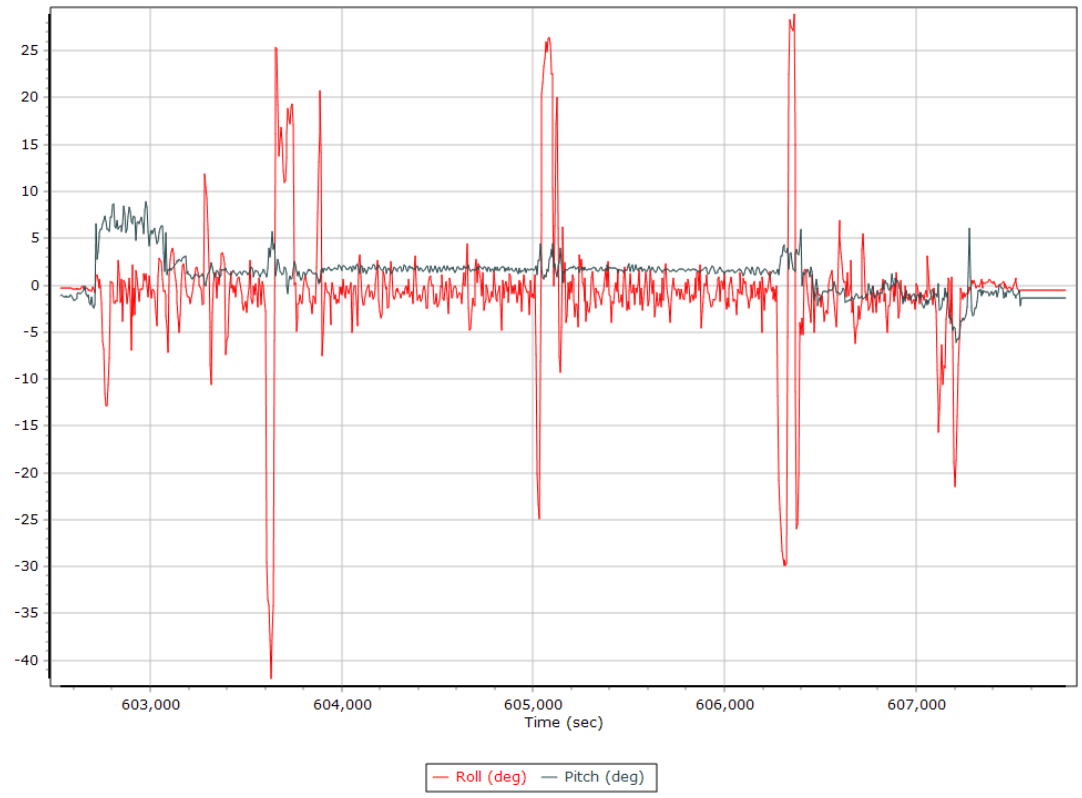
Top View



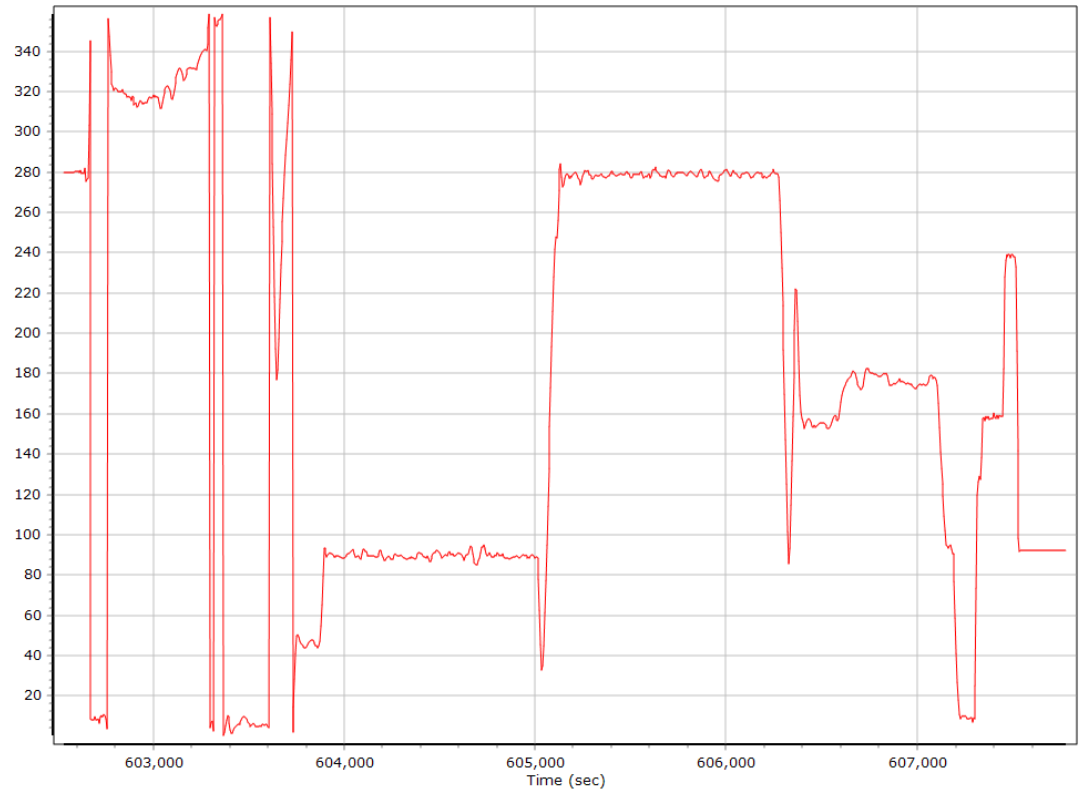
Altitude



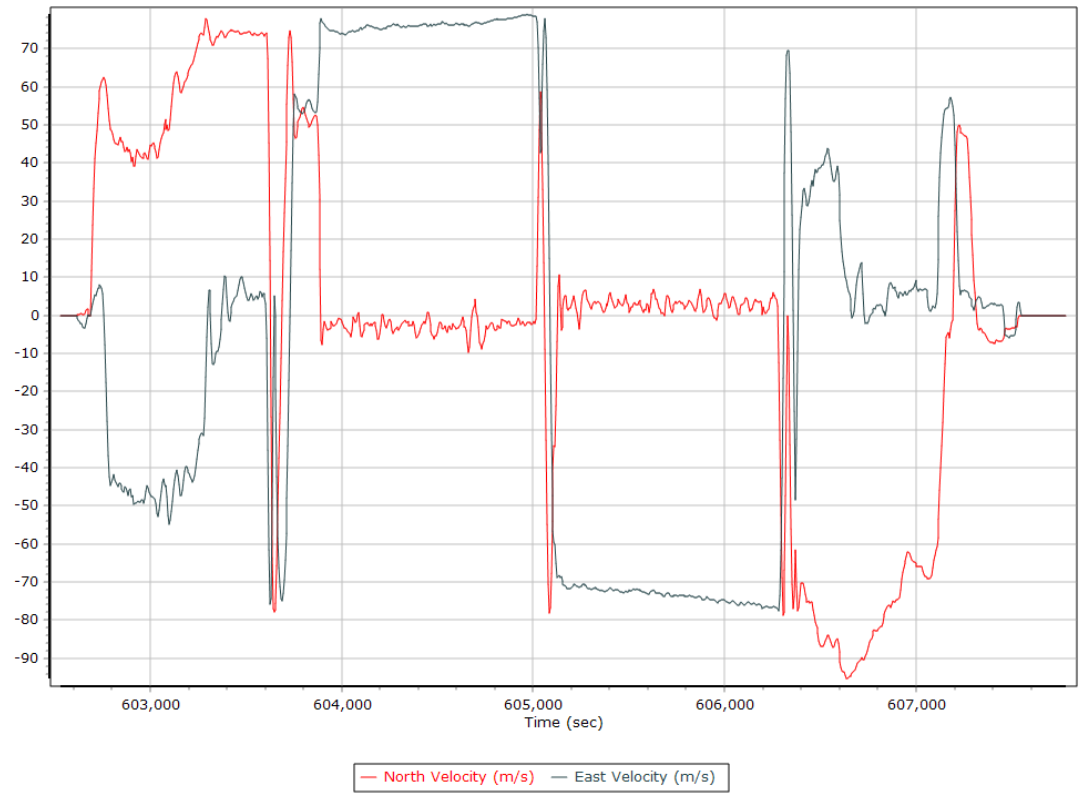
Roll/Pitch



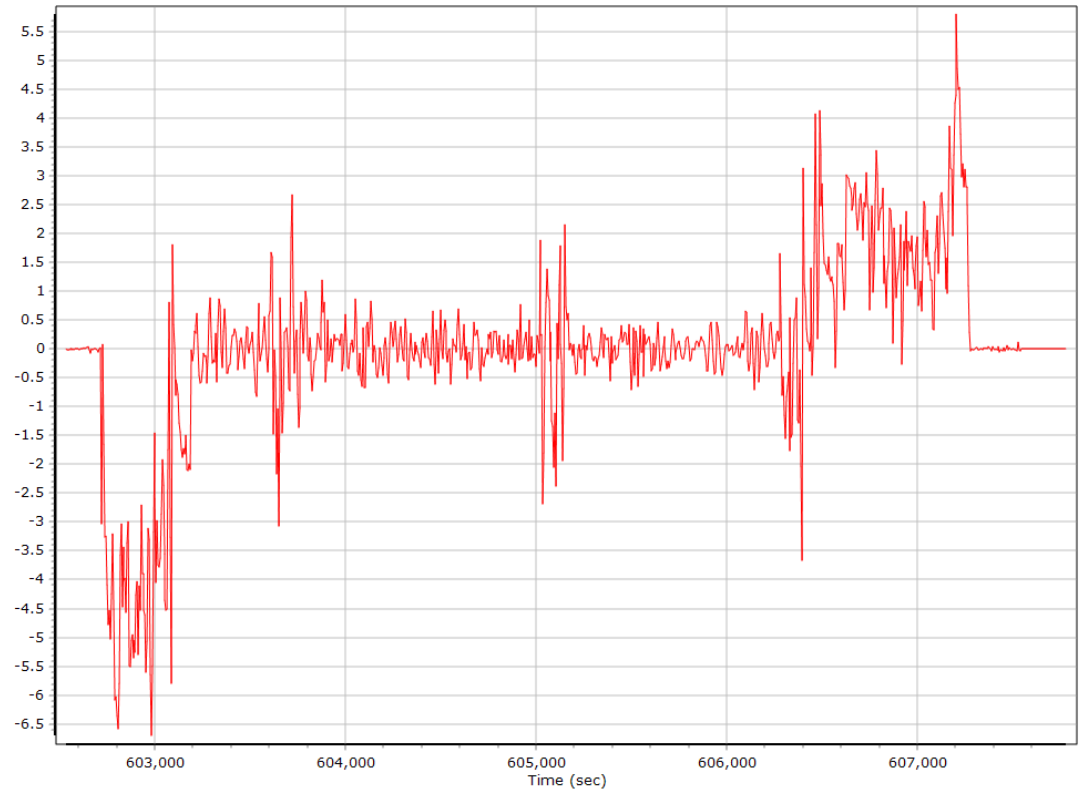
Heading



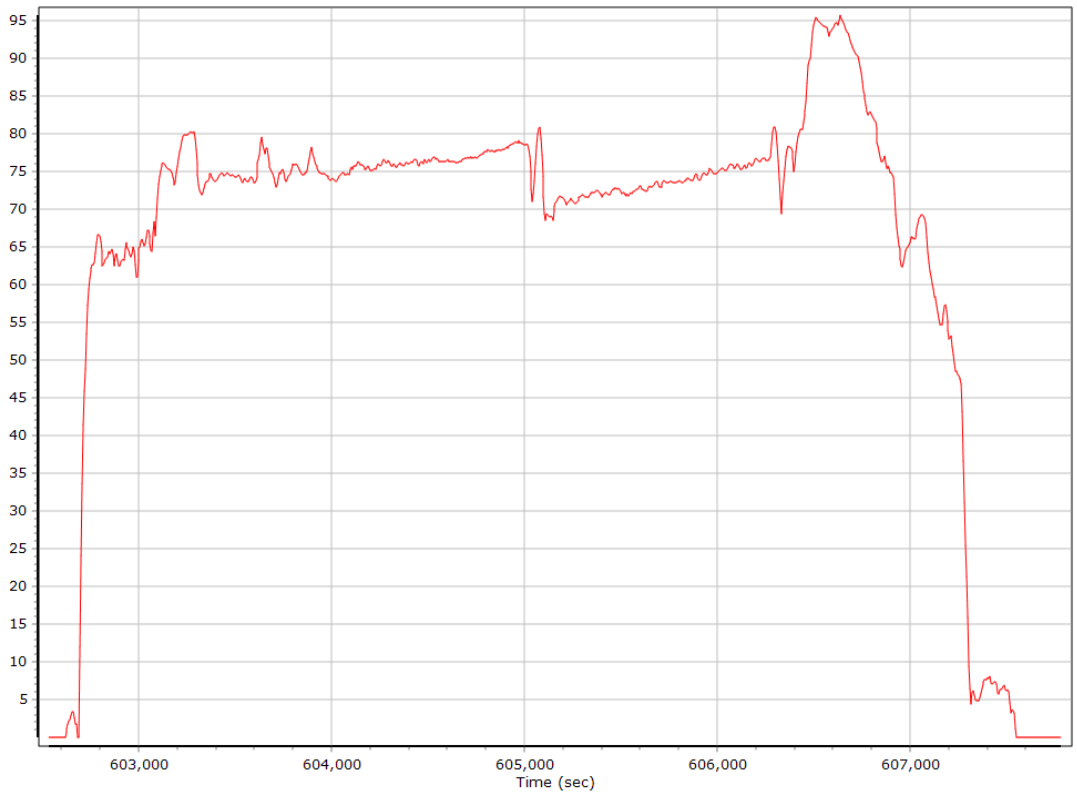
North/East Velocity



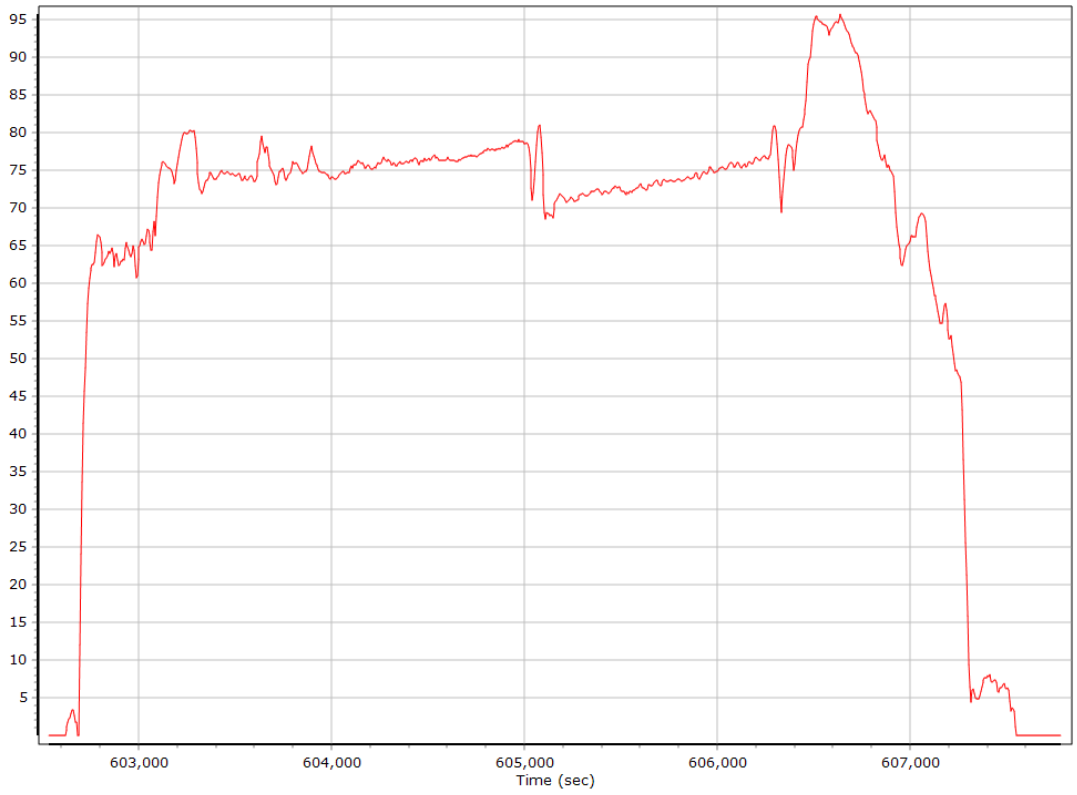
Down Velocity



Total Speed

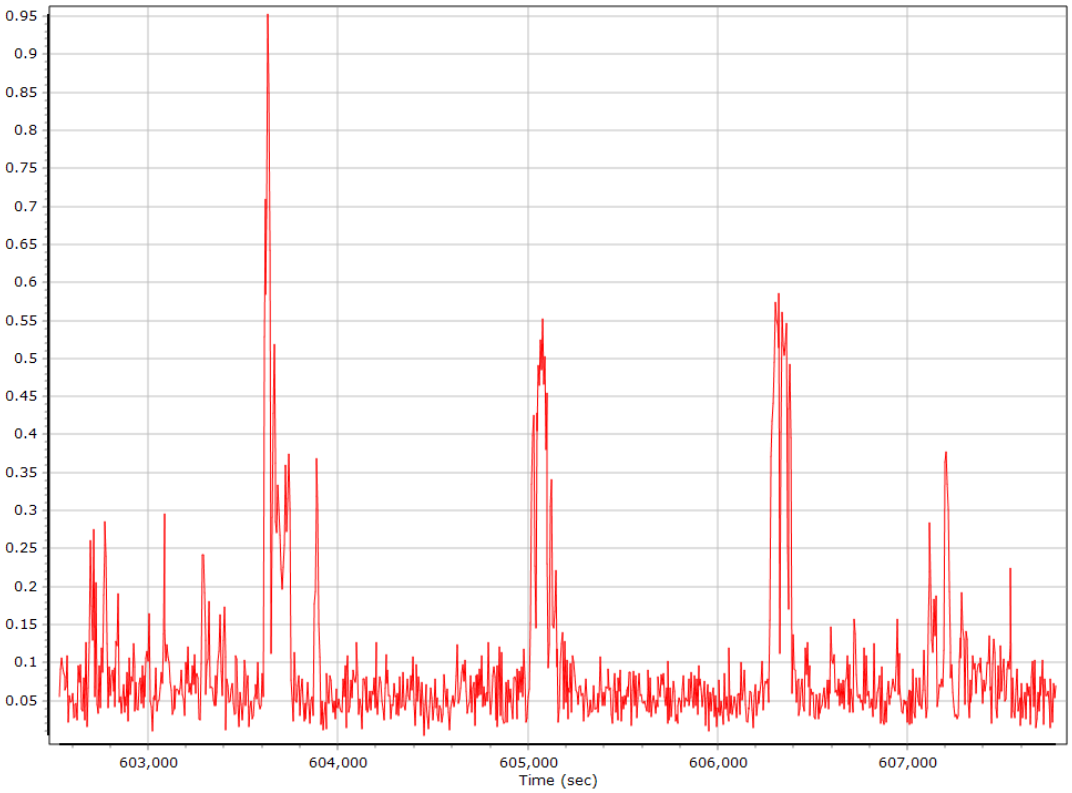


Ground Speed



Body Acceleration

Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/04/2020	IAAL	40.00	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	IAAL	40.00	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IADE	60.53	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	IADE	60.53	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IAEL	78.75	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	IAEL	78.75	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IAHT	96.98	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	IAHT	96.98	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IATA	101.35	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	IATA	101.35	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	MNCA	108.78	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	MNCA	108.78	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IANA	109.65	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	IANA	109.65	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IAMN	112.49	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	IAMN	112.49	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	MNSV	116.12	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	MNSV	116.12	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IACL	117.64	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	IACL	117.64	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	MNEY	121.70	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	MNEY	121.70	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	WLNC	131.93	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	WLNC	131.93	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	NLIB	136.19	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	NLIB	136.19	GNSS	30	CORS (daily)	Smart Base	Imported
04/04/2020	IAAM	139.04	GNSS	30	CORS (daily)	Smart Base	Imported
04/05/2020	IAAM	139.04	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IANA
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	5933 s (2099 601868 - 2100 3001)
Number of reference stations	6
Primary station GPS measurement usage (%)	99.8
Primary station GLONASS measurement usage (%)	70.1
Average number of satellites per epoch	12.9
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	12707
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67189"	W92°33'05.07500"	247.334
Adjusted		N41°58'01.67187"	W92°33'05.07499"	247.327
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.007	0.007

Base Station Information

Station ID	IATA		
Filename	iata0950.20o, iata0960.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/5/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67189"		
Longitude	W92°33'05.07500"		
Ellipsoidal height (m)	247.33439		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5745	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38125"	W93°22'06.68787"	344.482
Adjusted		N43°17'02.38147"	W93°22'06.68754"	344.459
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.023	0.025

Base Station Information

Station ID	IAHT		
Filename	iaht0950.20o, iaht0960.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/5/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38125"		
Longitude	W93°22'06.68787"		
Ellipsoidal height (m)	344.48179		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52984"	298.980
Adjusted		N42°52'40.47680"	W91°21'41.52954"	298.956
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.009	0.025	0.026

Base Station Information

Station ID	IAEL		
Filename	iael0950.20o, iael0960.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/5/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52984"		
Ellipsoidal height (m)	298.98031		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52631"	316.516
Adjusted		N43°16'15.83237"	W91°49'53.52612"	316.488
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.009	0.028	0.029

Base Station Information

Station ID	IADE		
Filename	iade0950.20o, iade0960.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/5/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52631"		
Ellipsoidal height (m)	316.51620		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	CONTROL	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Control	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24722"	291.092
Adjusted		N42°44'49.40418"	W92°47'14.24722"	291.092
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAAL		
Filename	iaal0950.20o, iaal0960.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/5/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24722"		
Ellipsoidal height (m)	291.09235		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Adjusted	
Solution Epochs	5746	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54031"	172.253
Adjusted		N43°29'49.47948"	W91°17'26.53954"	172.197
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IANA		
Filename	iana0950.20o, iana0960.20o		
Start date	4/4/2020 12:00:00 AM		
End date	4/5/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54031"		
Ellipsoidal height (m)	172.25324		
Frame	ITRF00		
Epoch	2020.256831		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	13.91	69.24	
Number of GPS SV	7	9	8
Number of GLONASS SV	0	6	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	7	14	13
PDOP	1.25	2.47	1.50
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	5912.00	0.00	1.00
Percentage	99.98	0.00	0.02

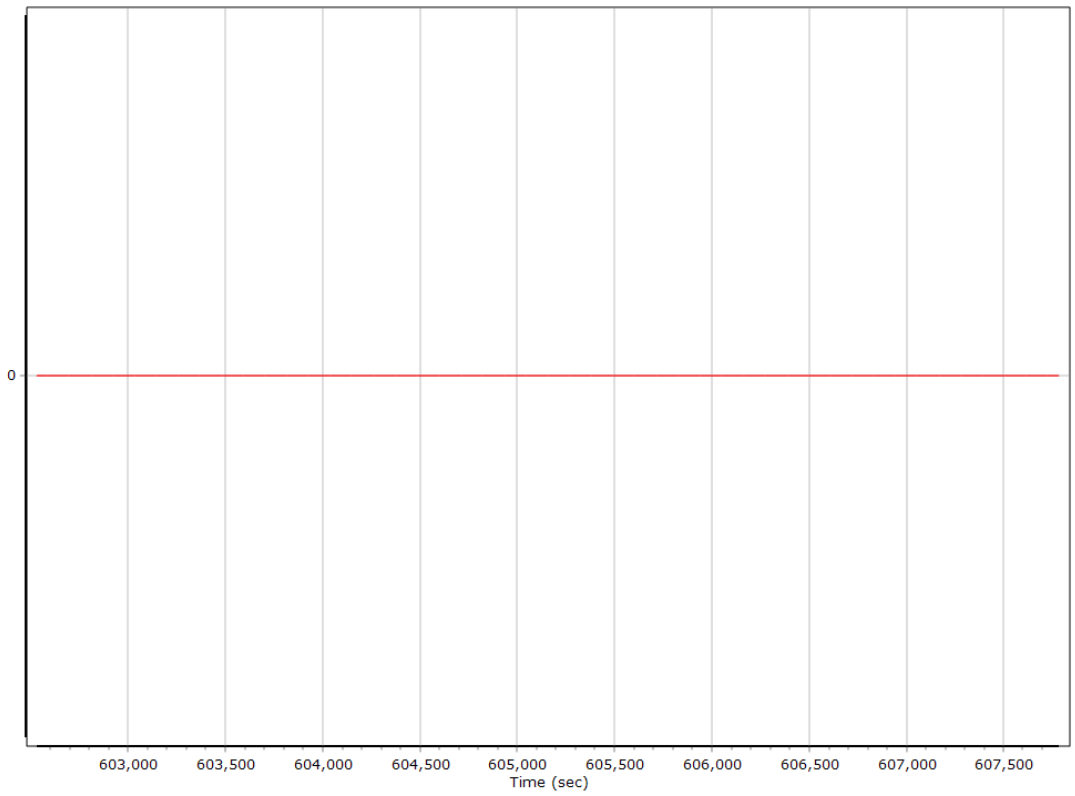
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	601850.000 (4/4/2020 11:10:50 PM)		
Processing end time	2983.000 (4/5/2020 12:49:43 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

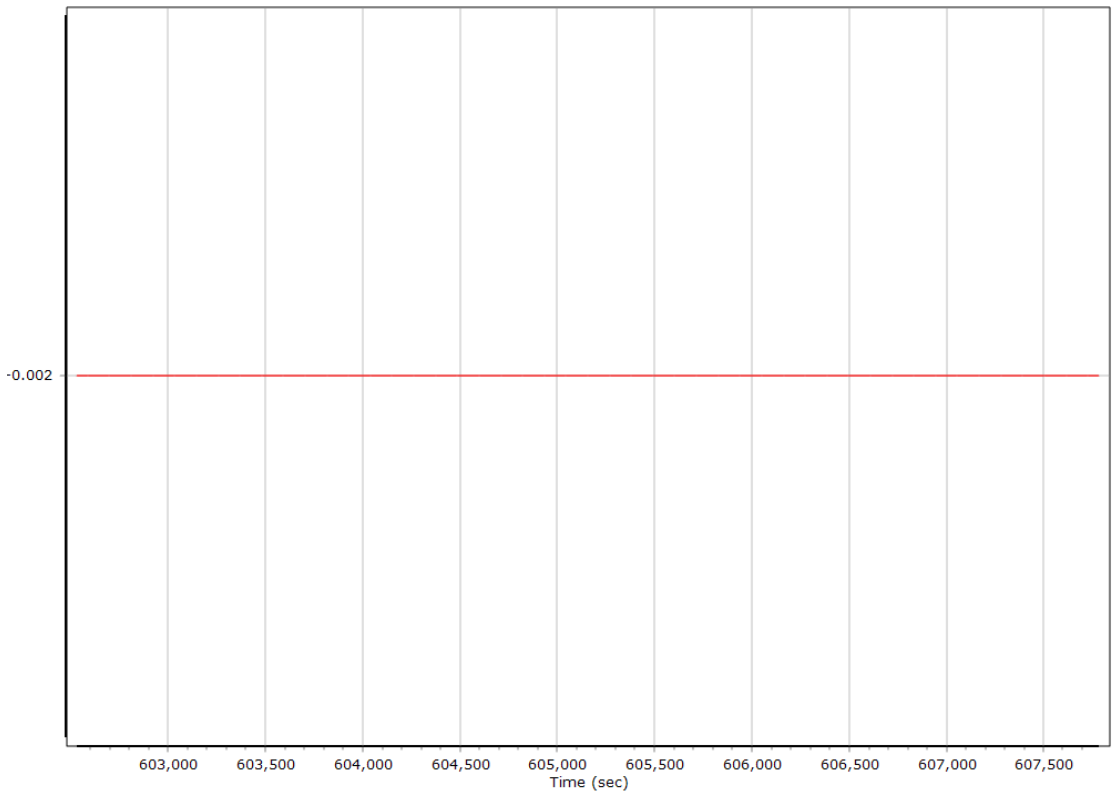
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

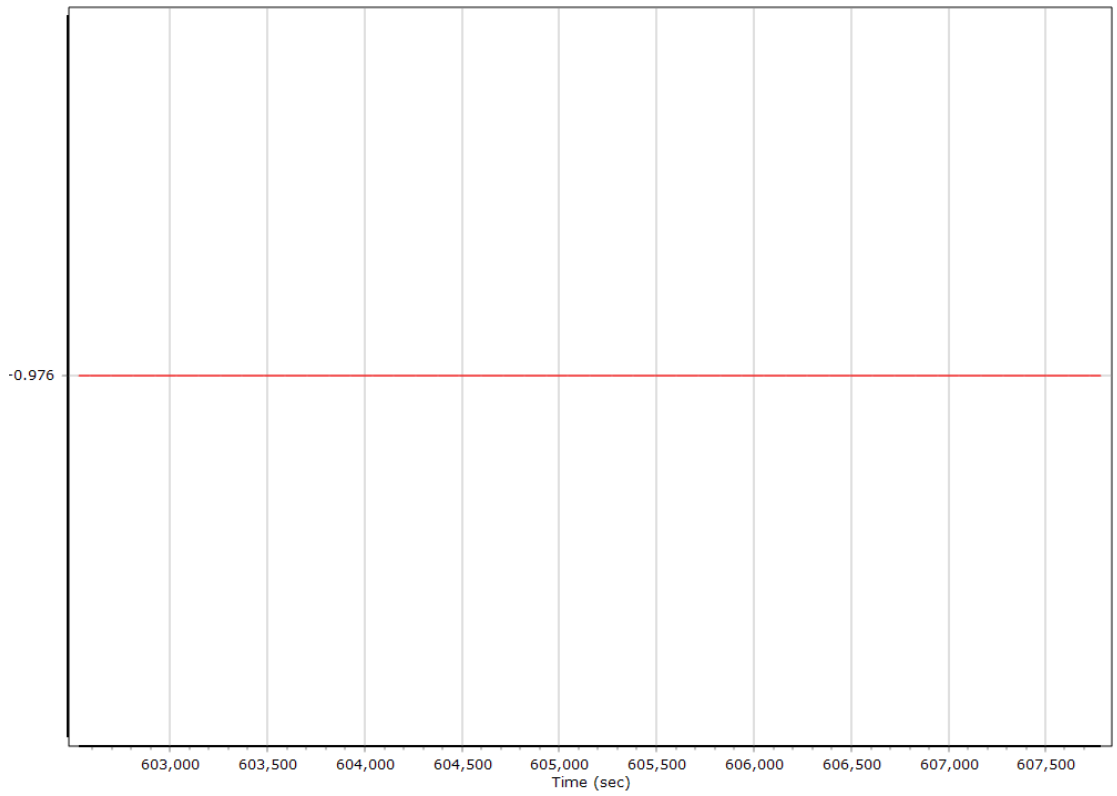
X Reference-Primary GNSS Lever Arm (m)



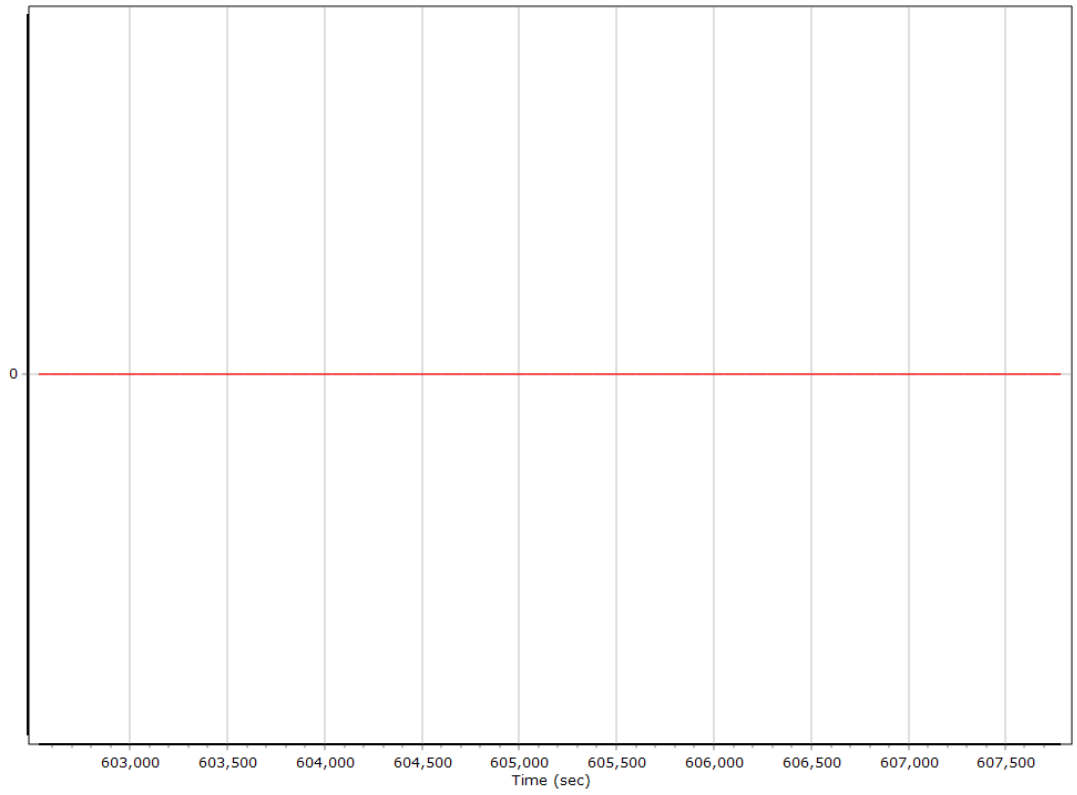
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



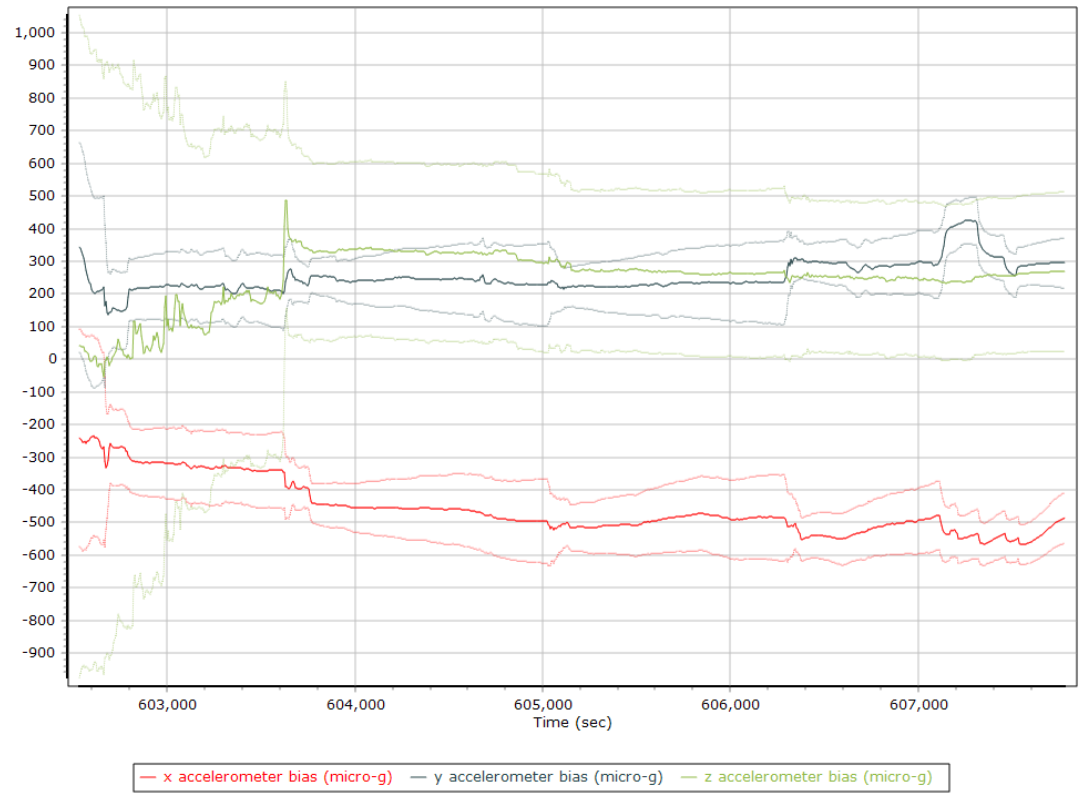
Reference-Primary GNSS Lever Arm Figure of Merit



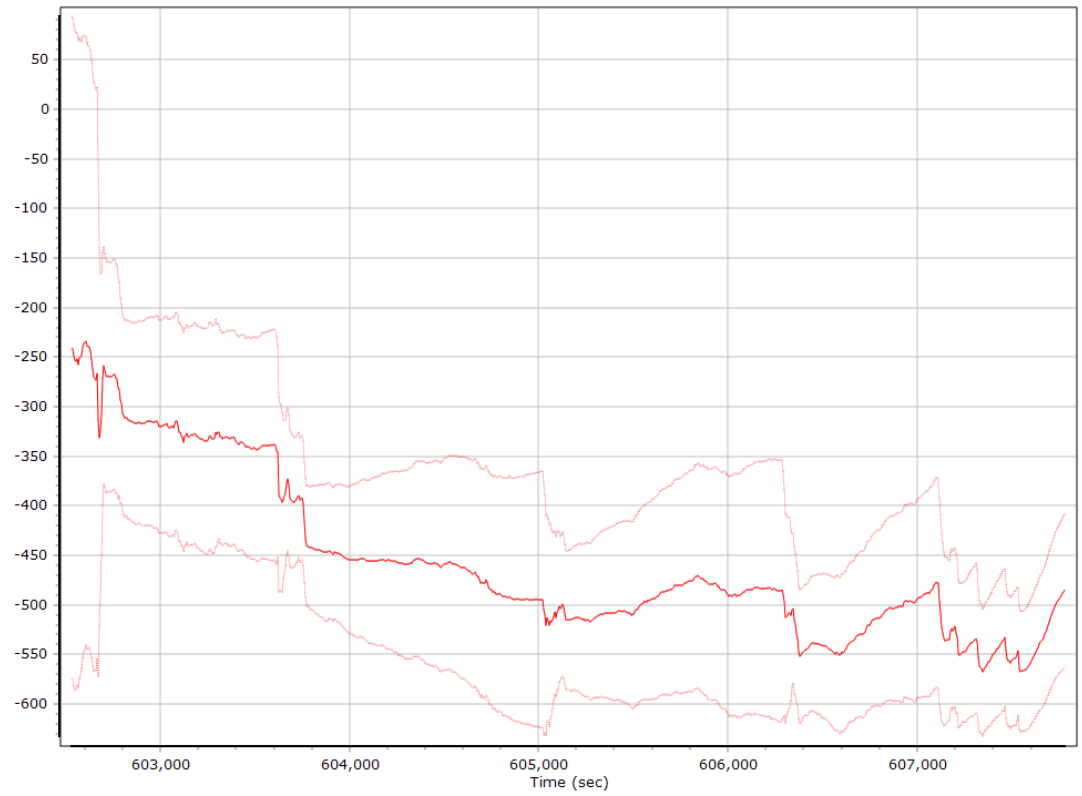
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

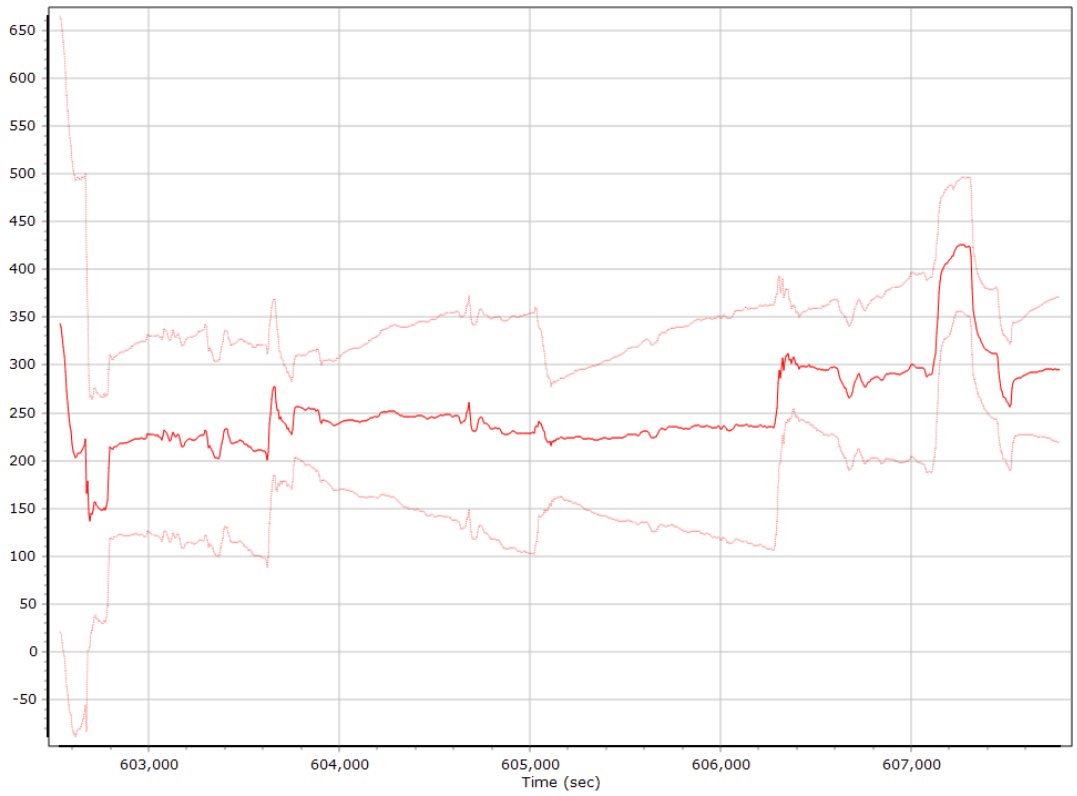
Accelerometer Bias (micro-g)



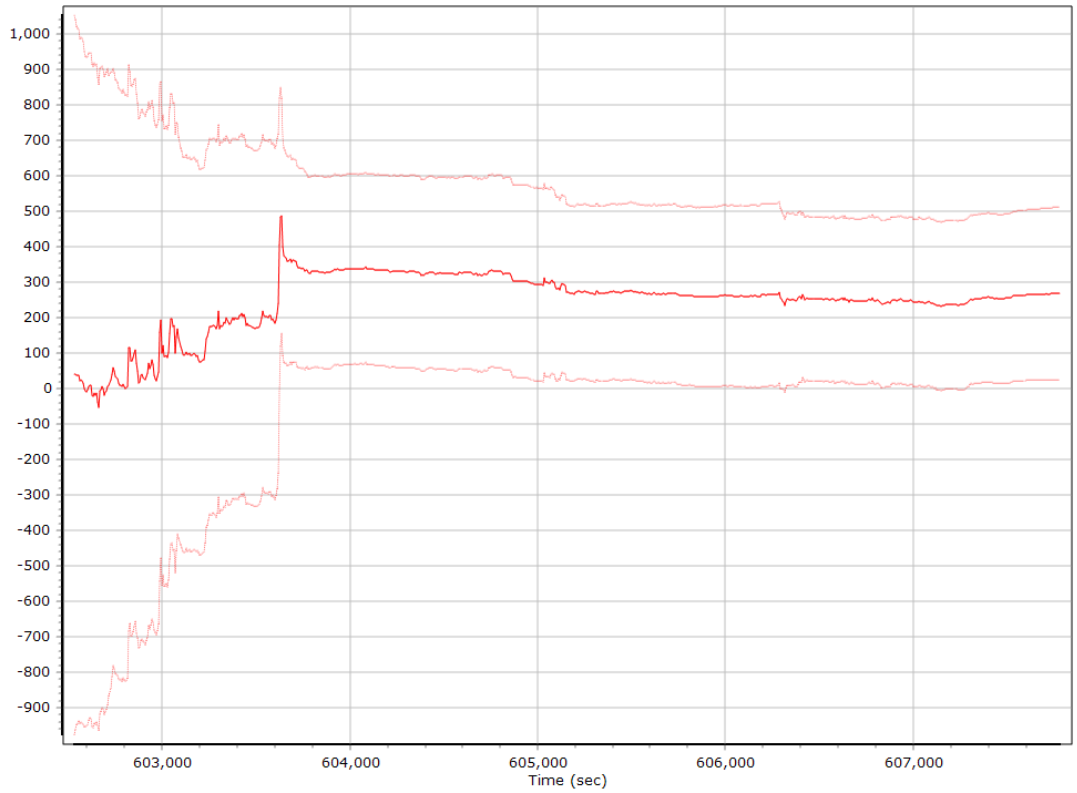
X Accelerometer Bias (micro-g)



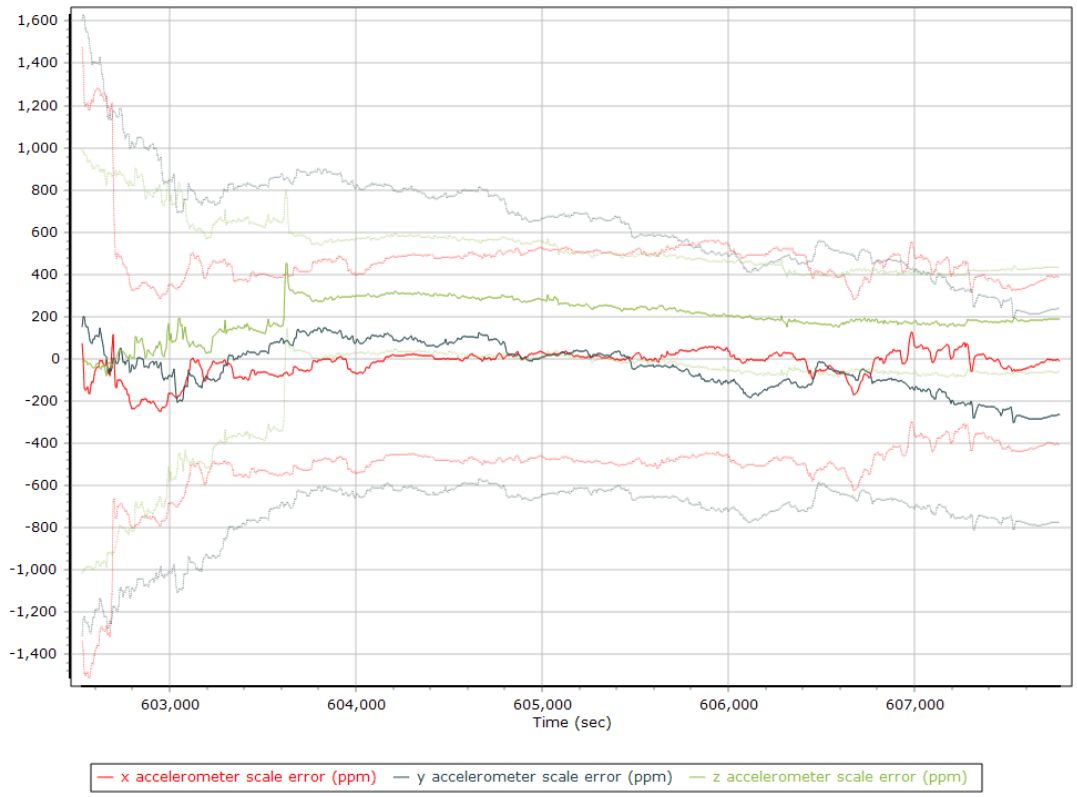
Y Accelerometer Bias (micro-g)



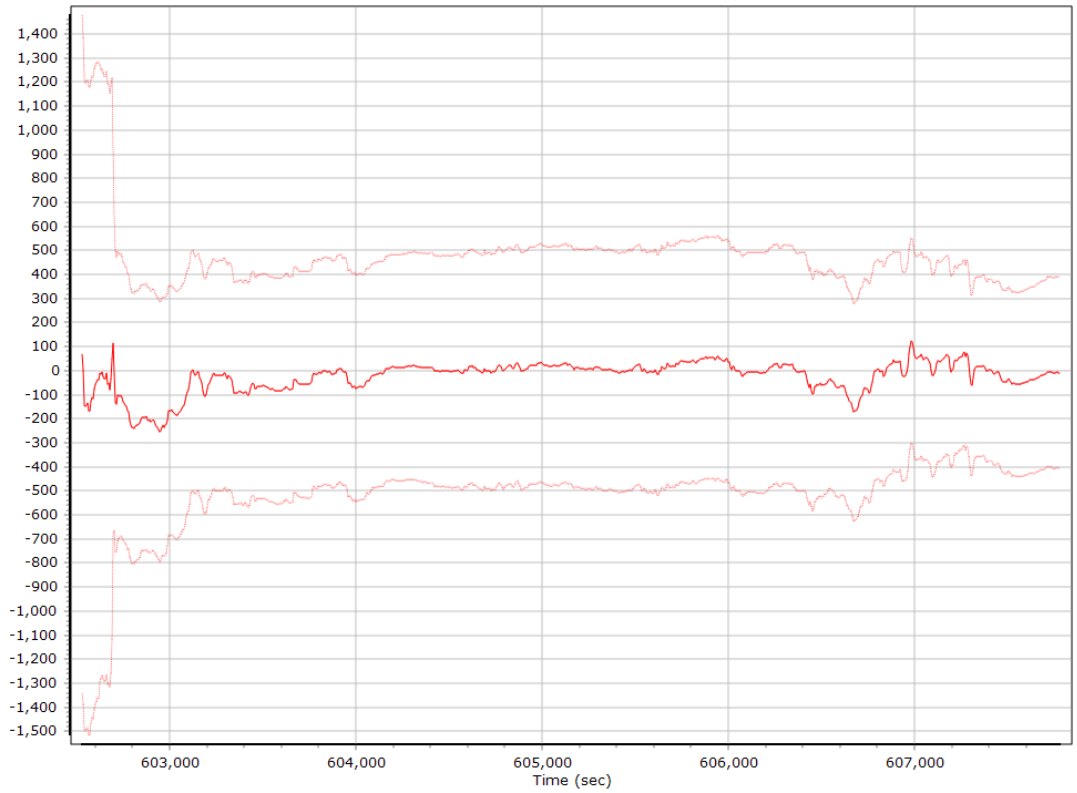
Z Accelerometer Bias (micro-g)



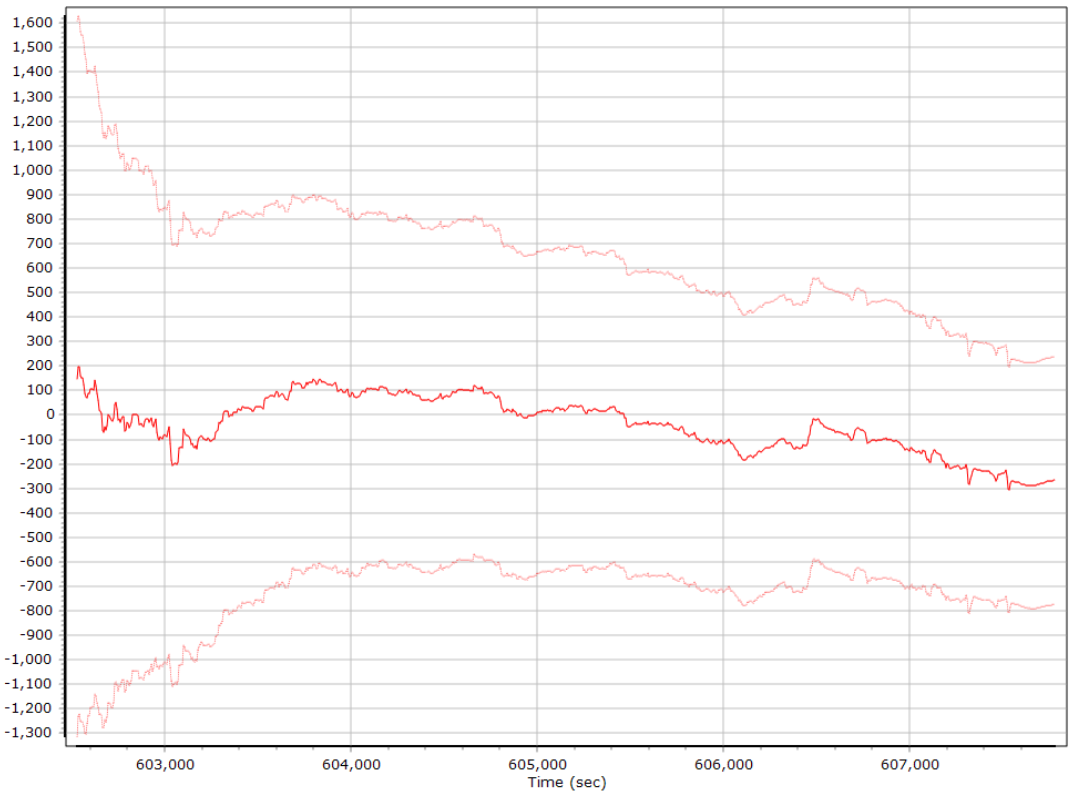
Accelerometer Scale Error (ppm)



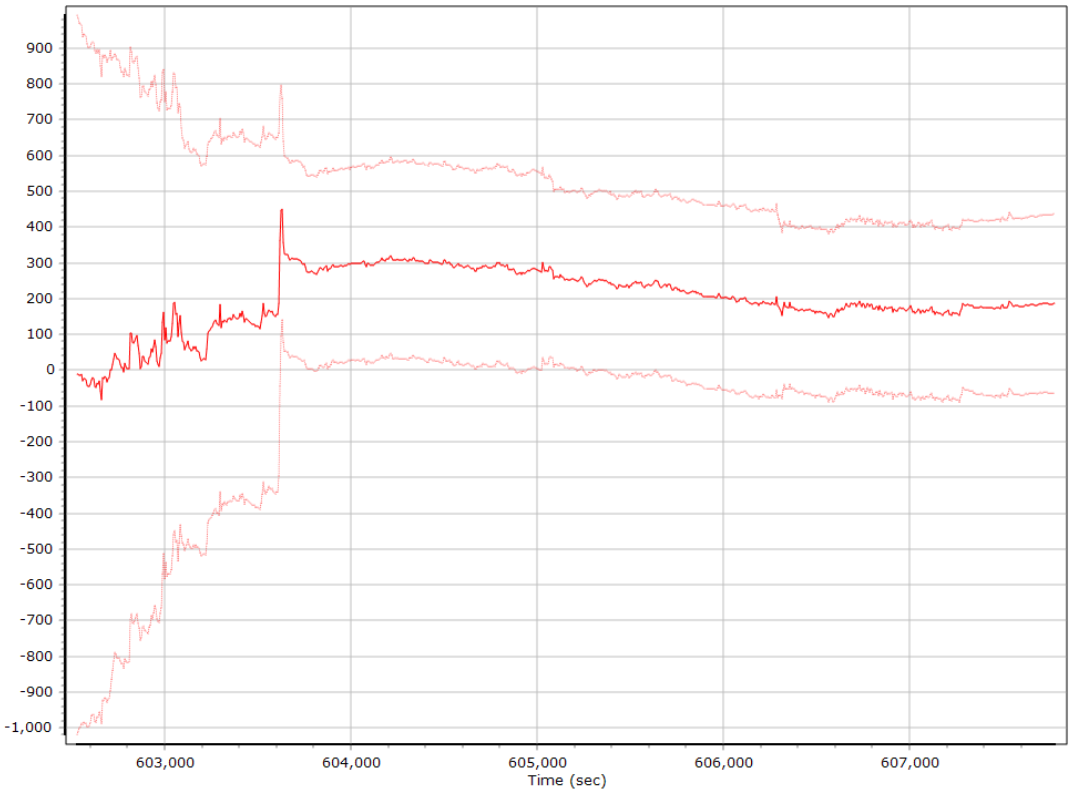
X Accelerometer Scale Error (ppm)



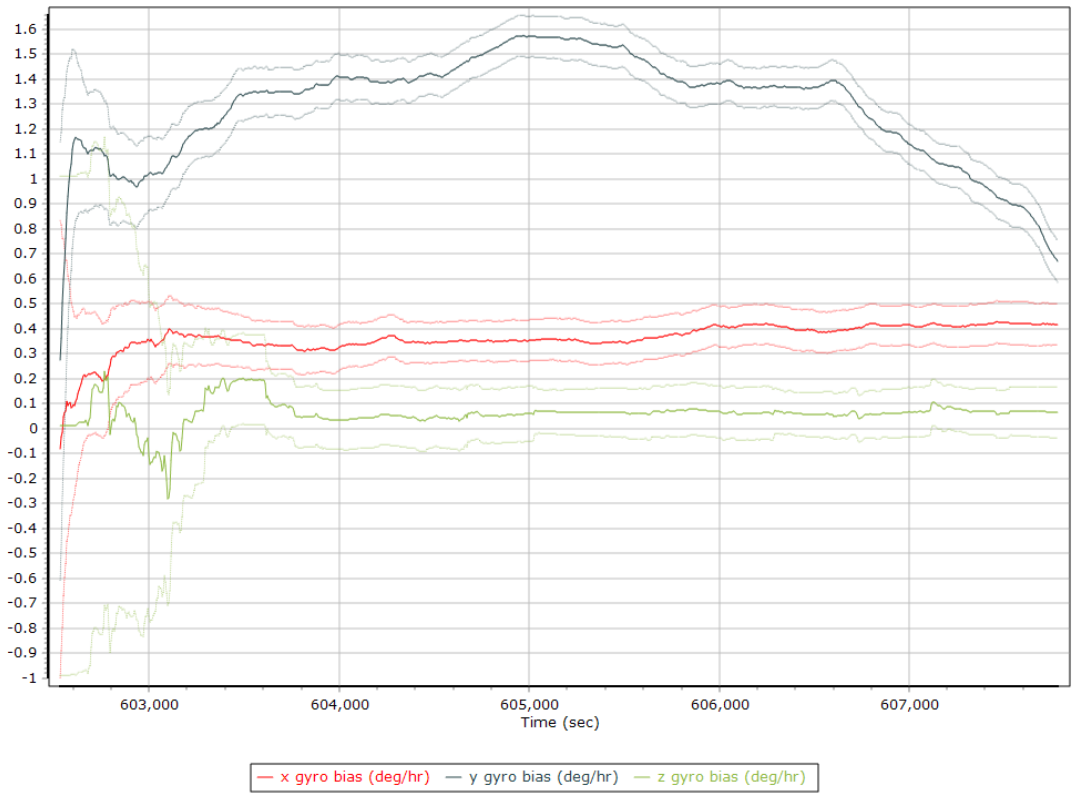
Y Accelerometer Scale Error (ppm)



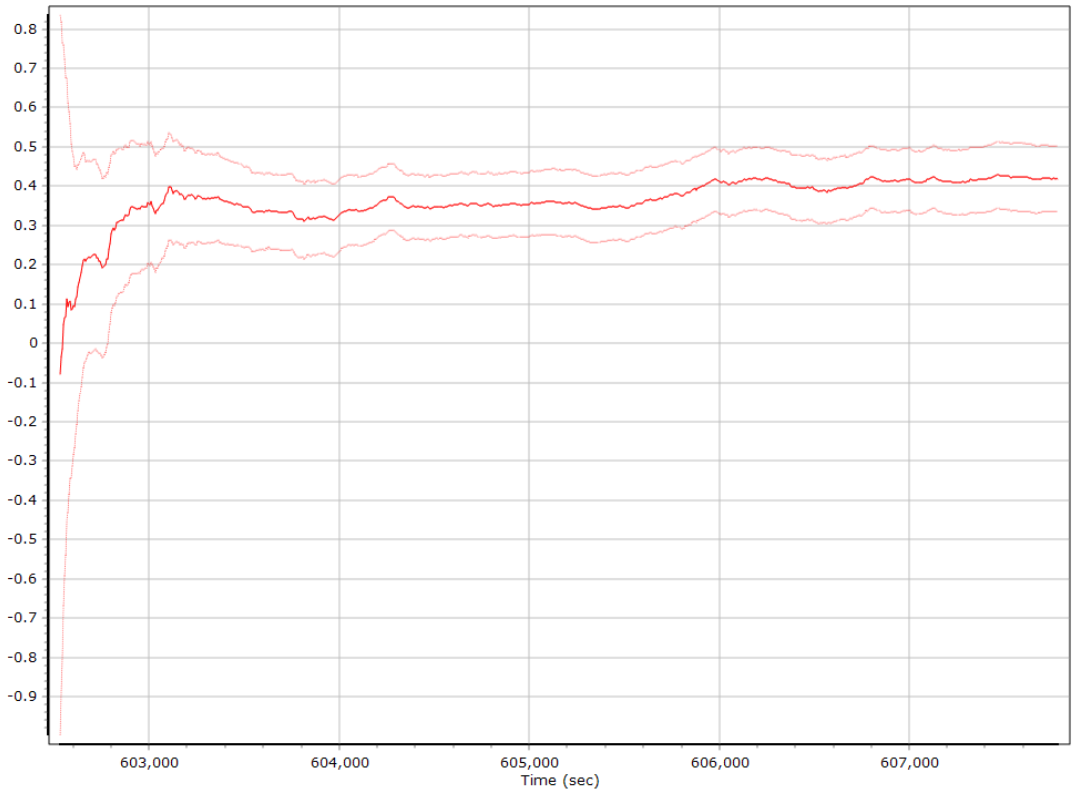
Z Accelerometer Scale Error (ppm)



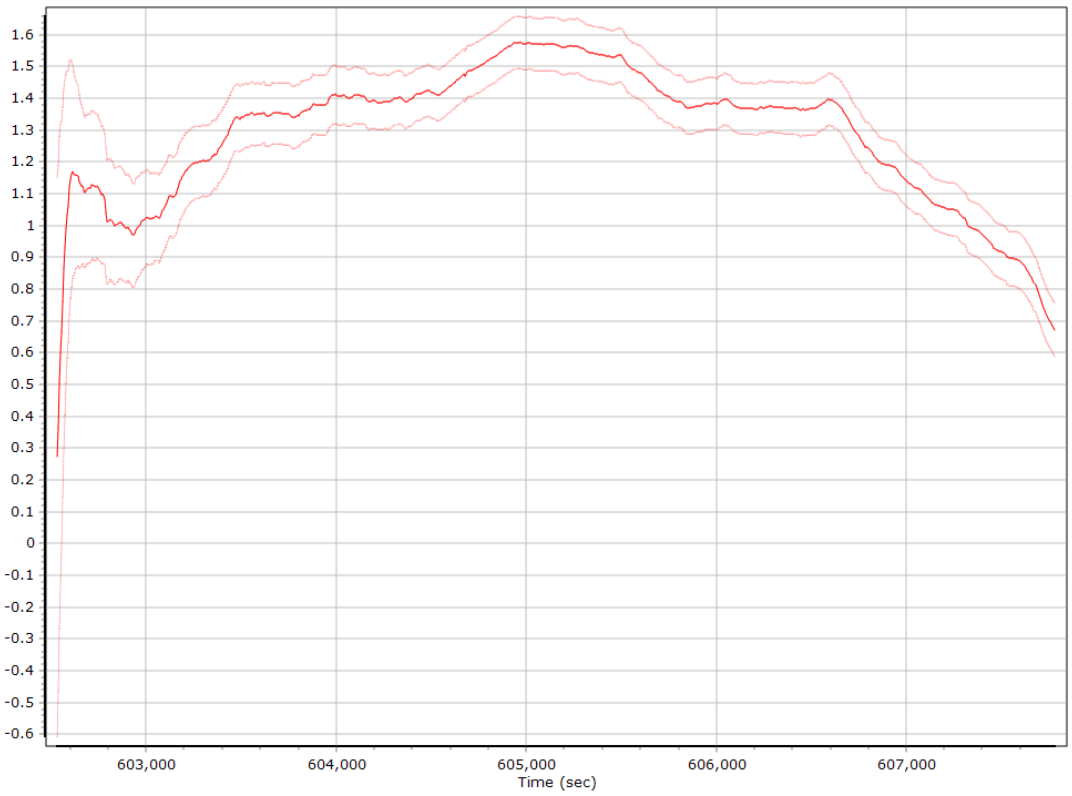
Gyro Bias (deg/h)



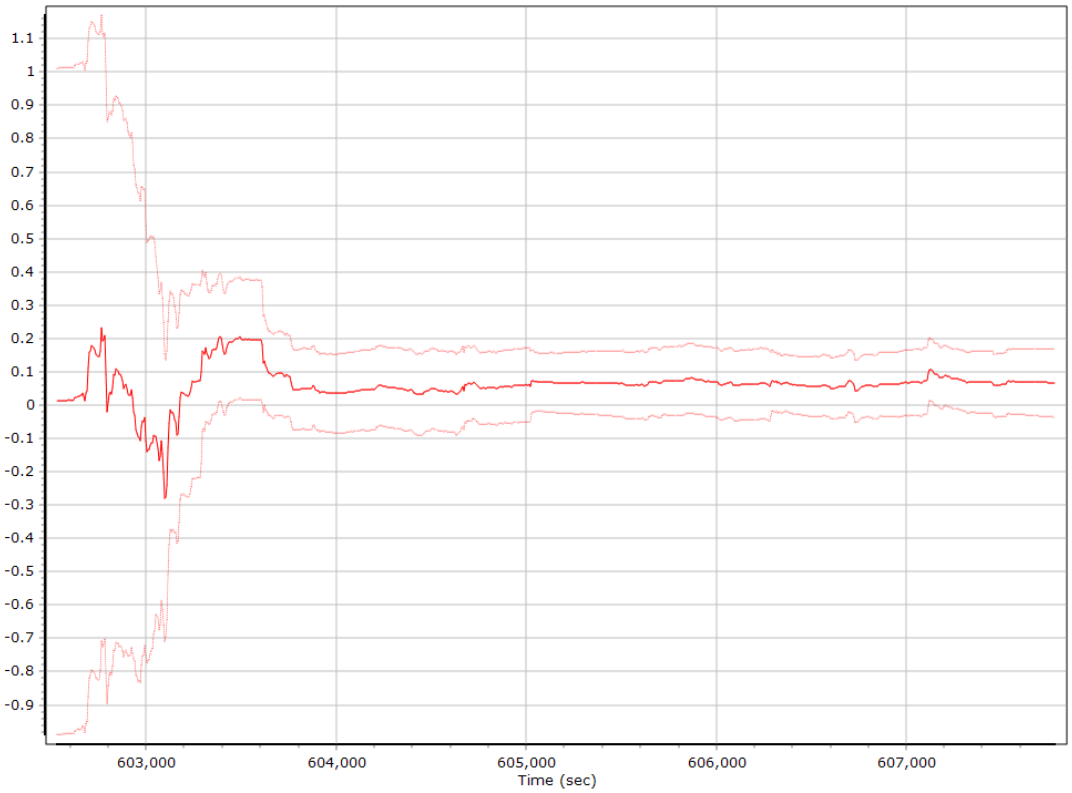
X Gyro Bias (deg/h)



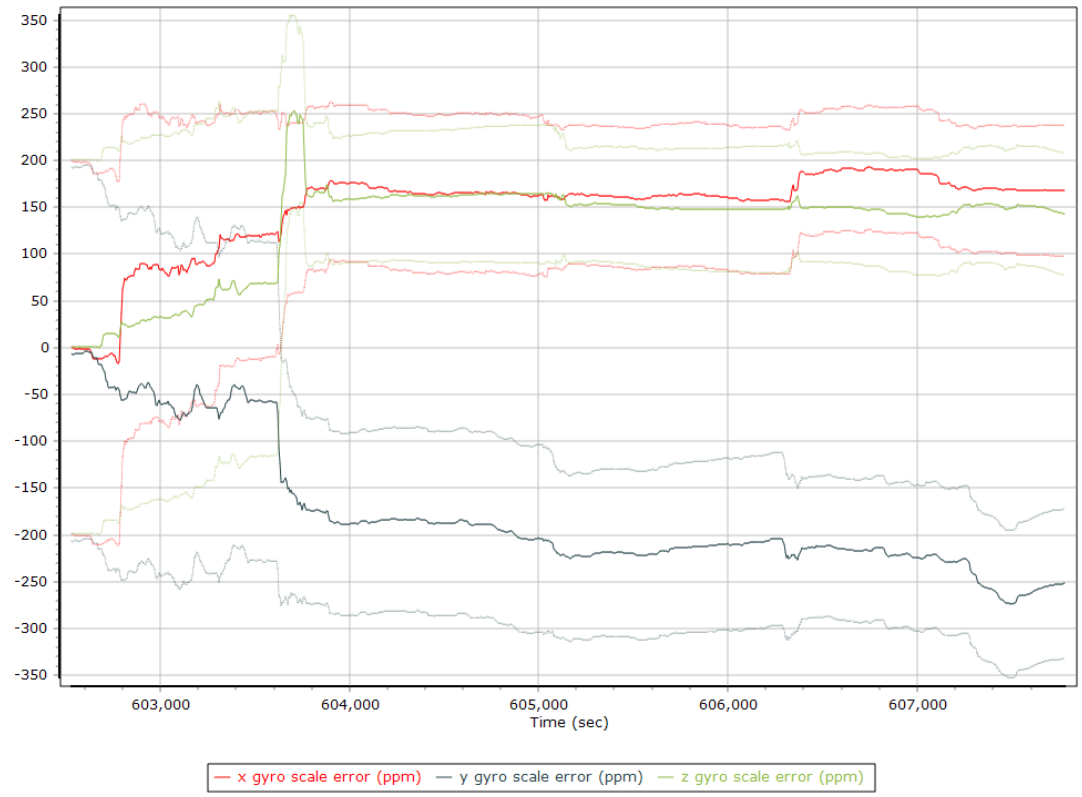
Y Gyro Bias (deg/h)



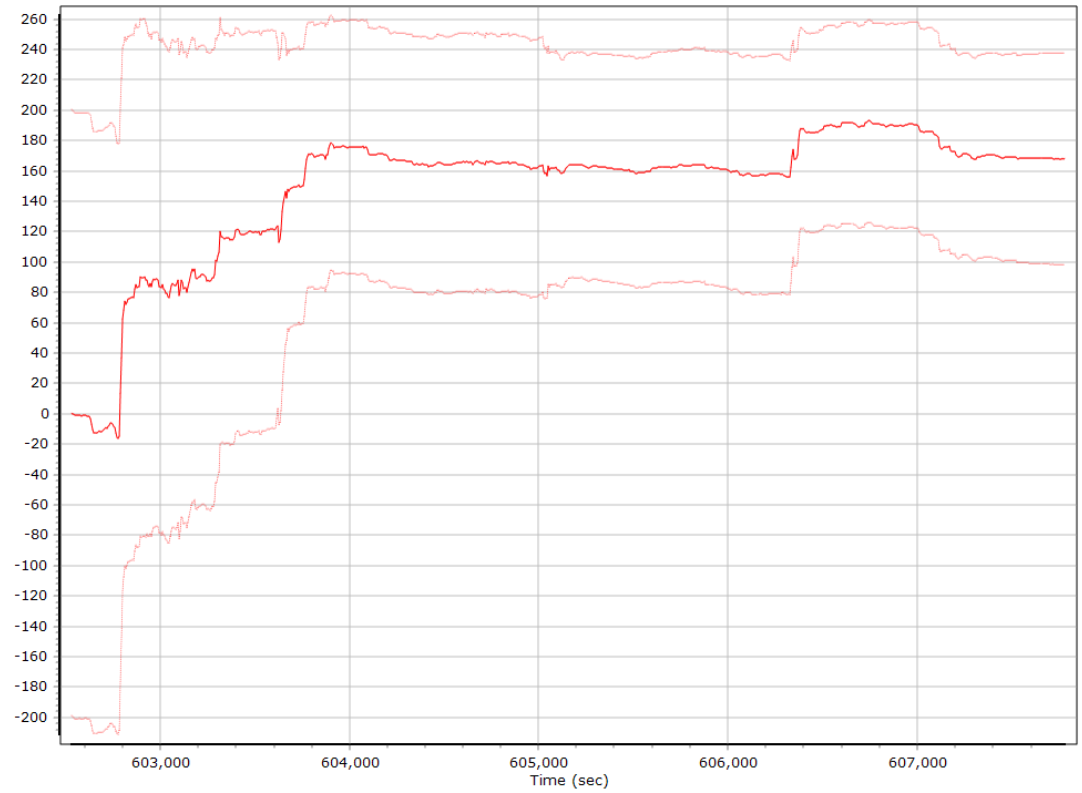
Z Gyro Bias (deg/h)



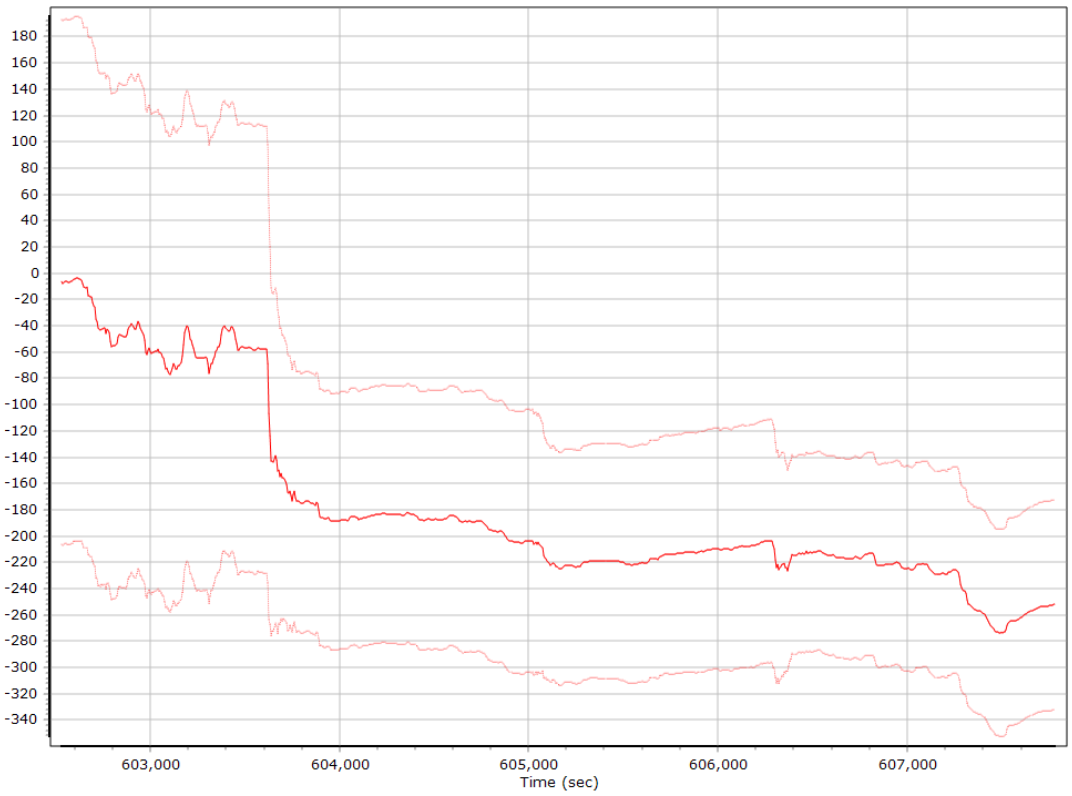
Gyro Scale Error (ppm)



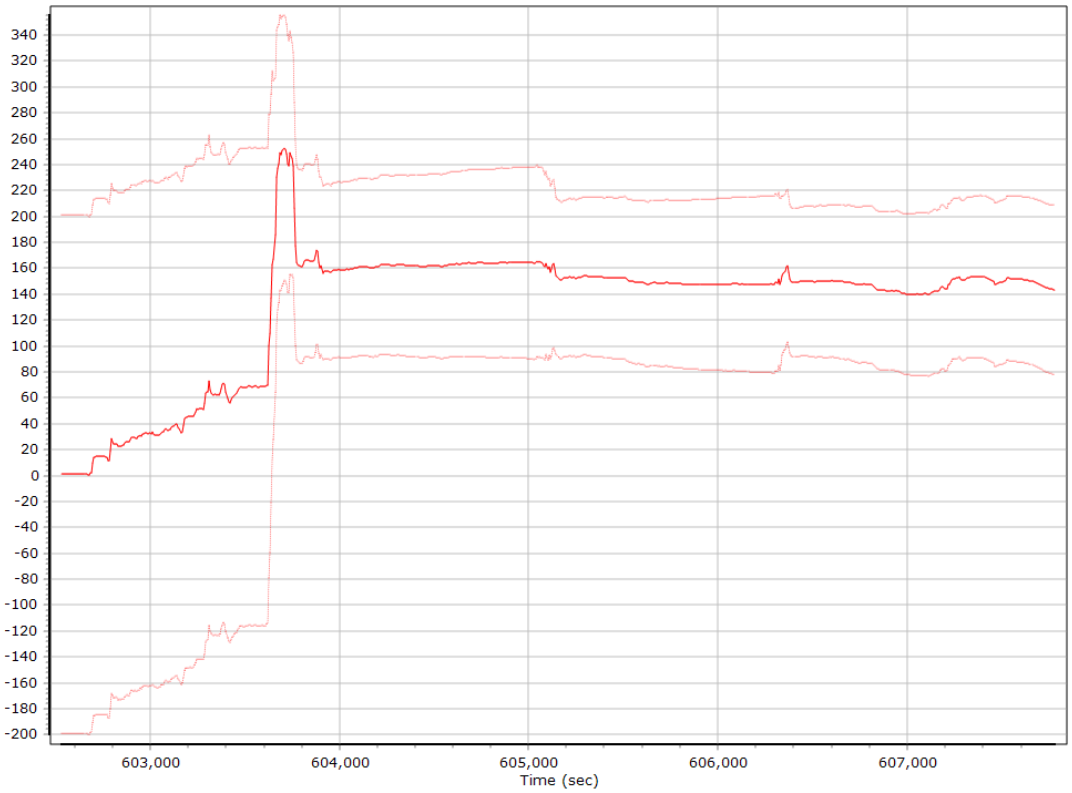
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

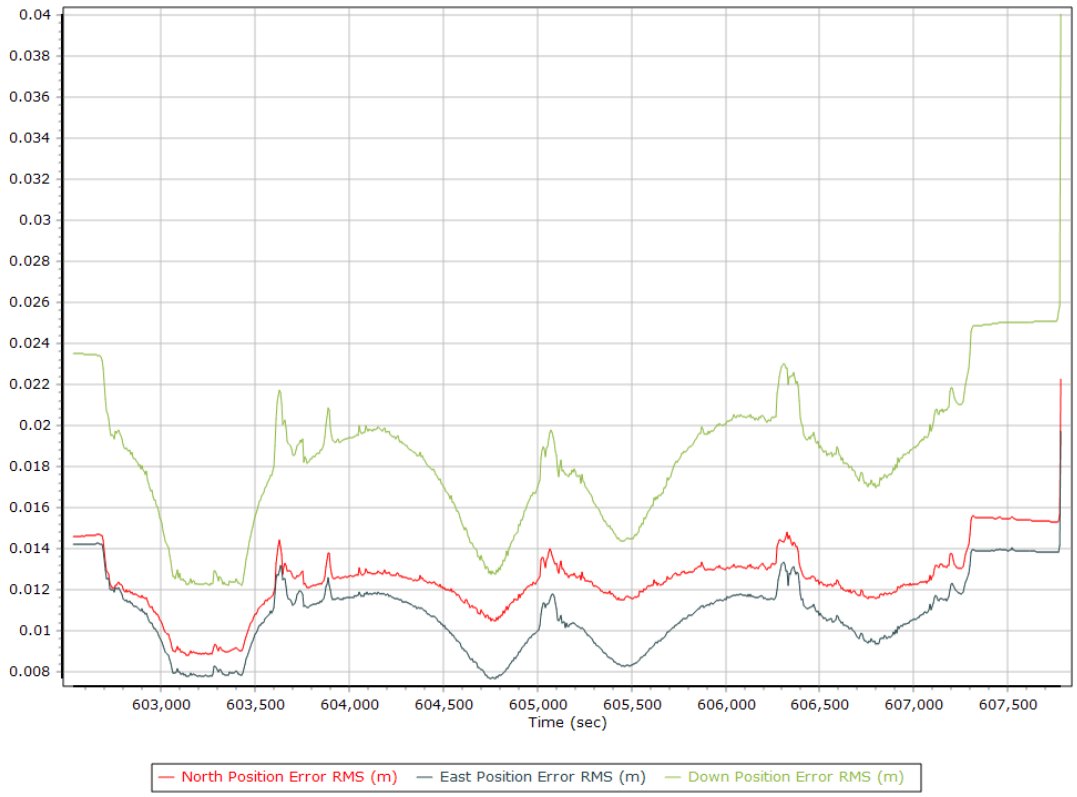


Z Gyro Scale Error (ppm)

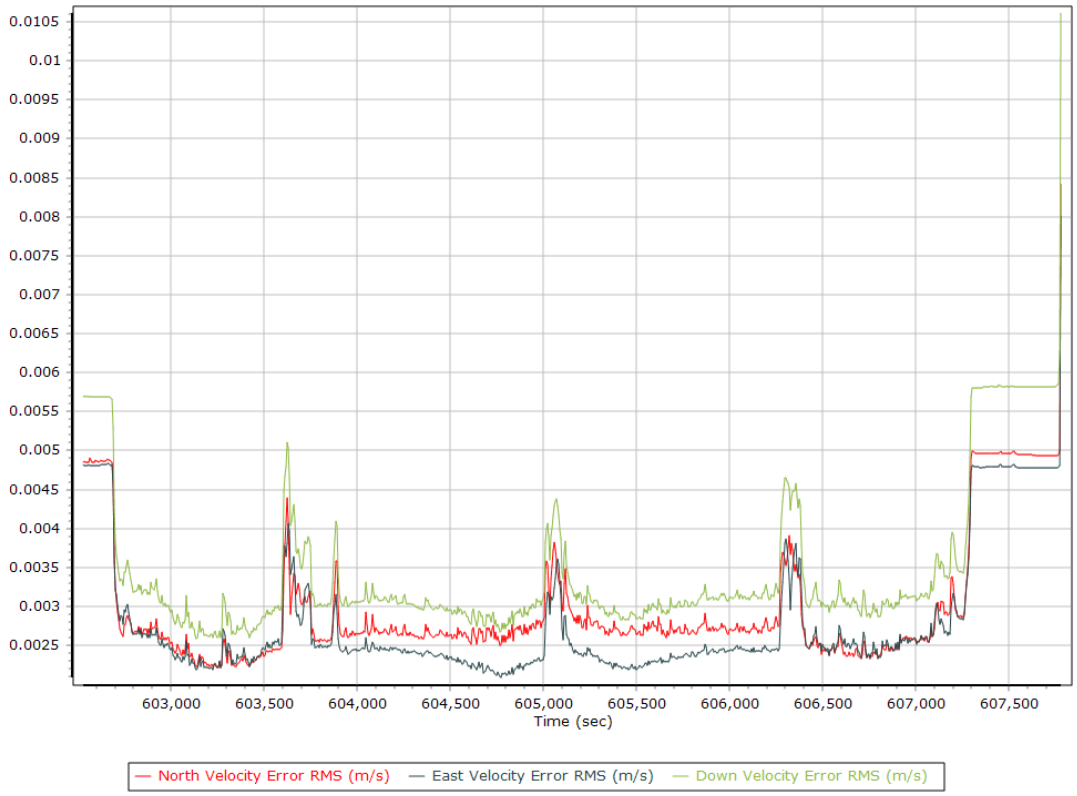


Smoothed Performance Metrics

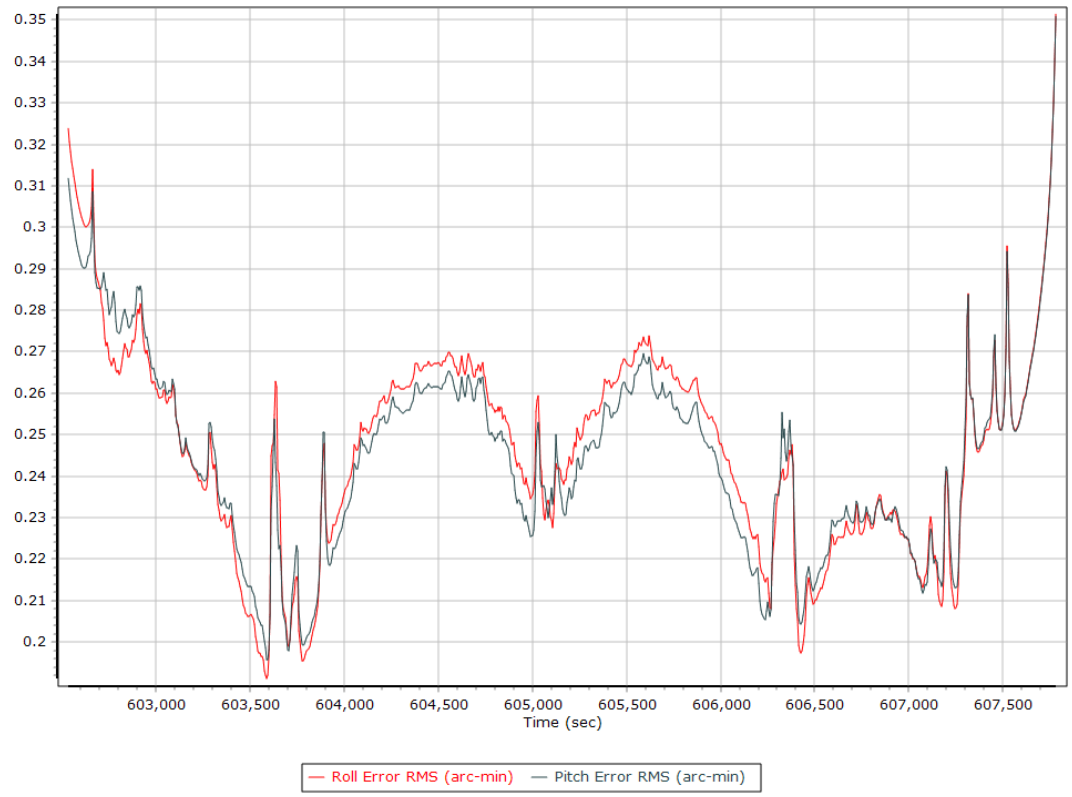
Position Error RMS (m)



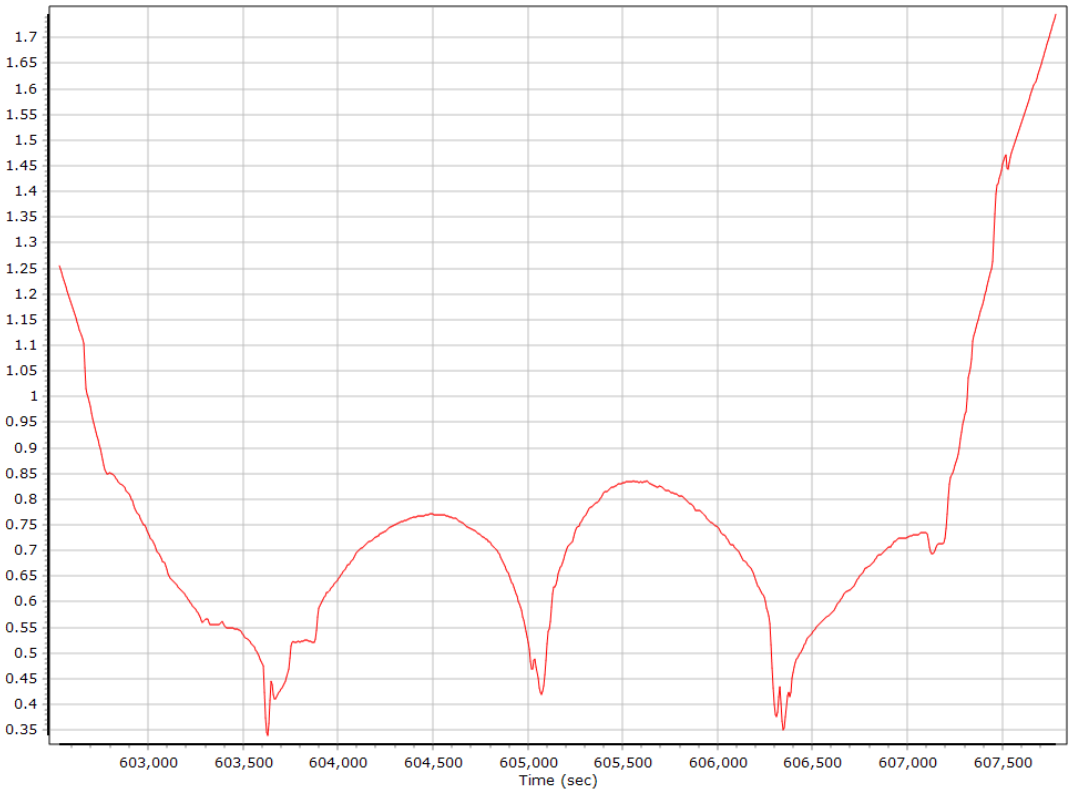
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

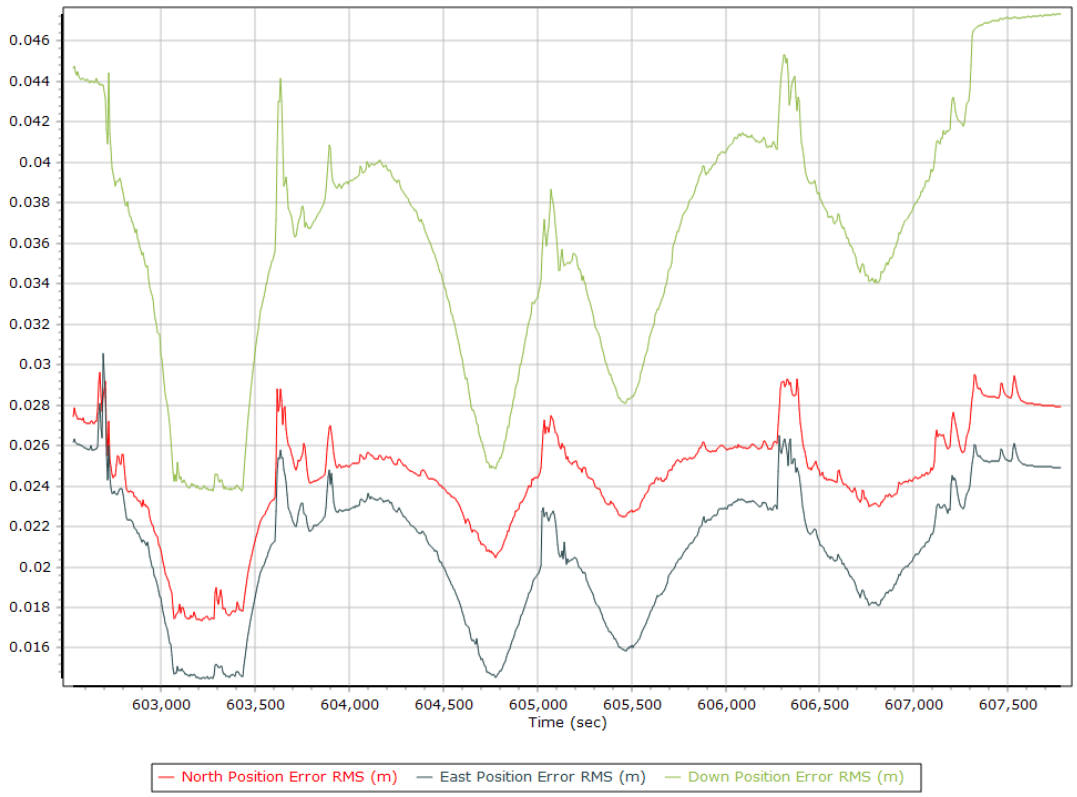


Heading Error RMS (arc-min)

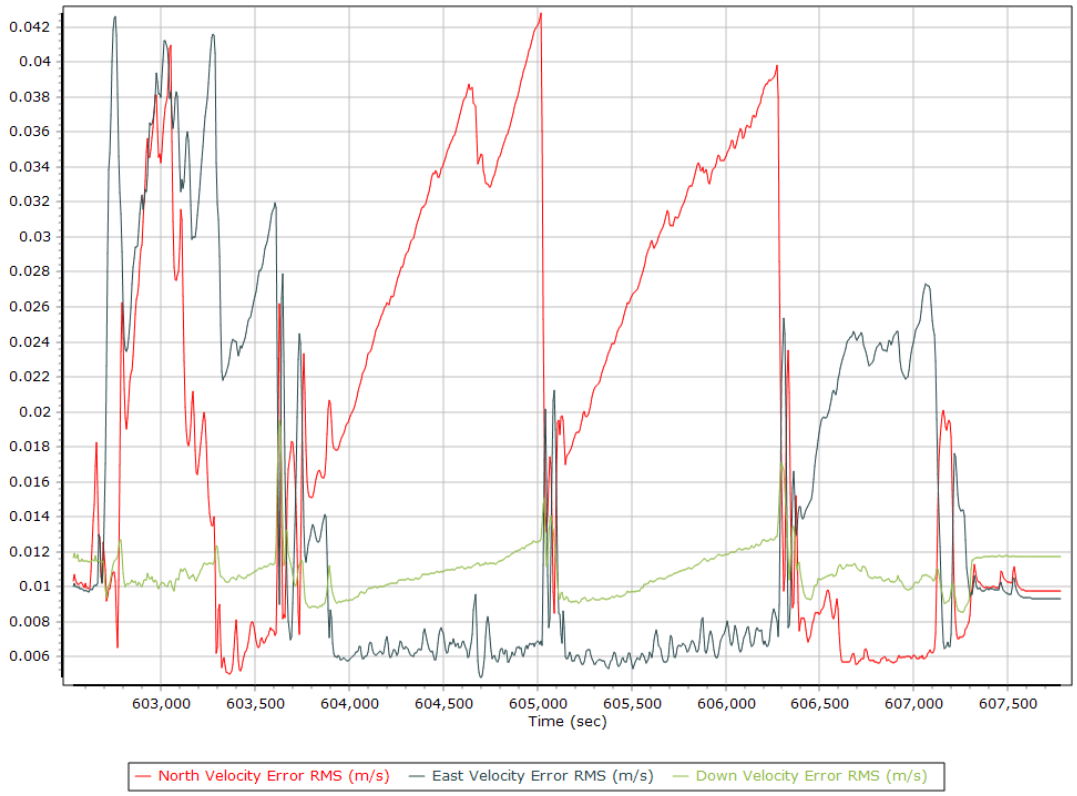


Forward Processed Performance Metrics

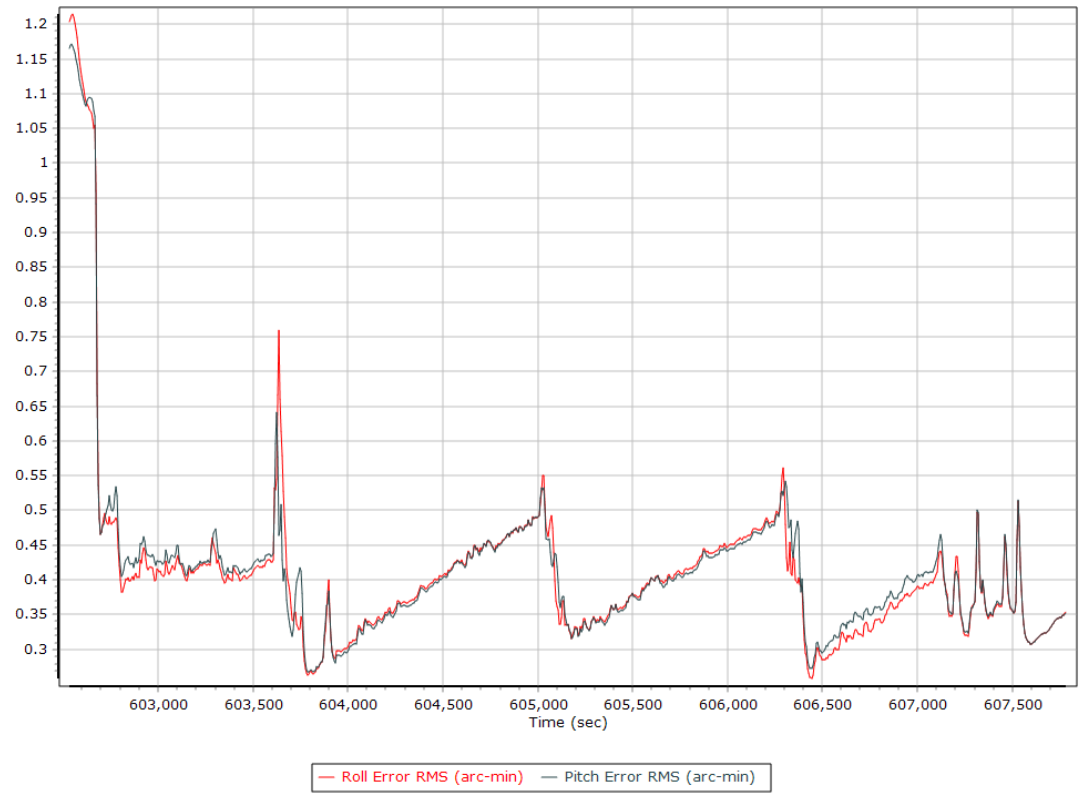
Position Error RMS (m)



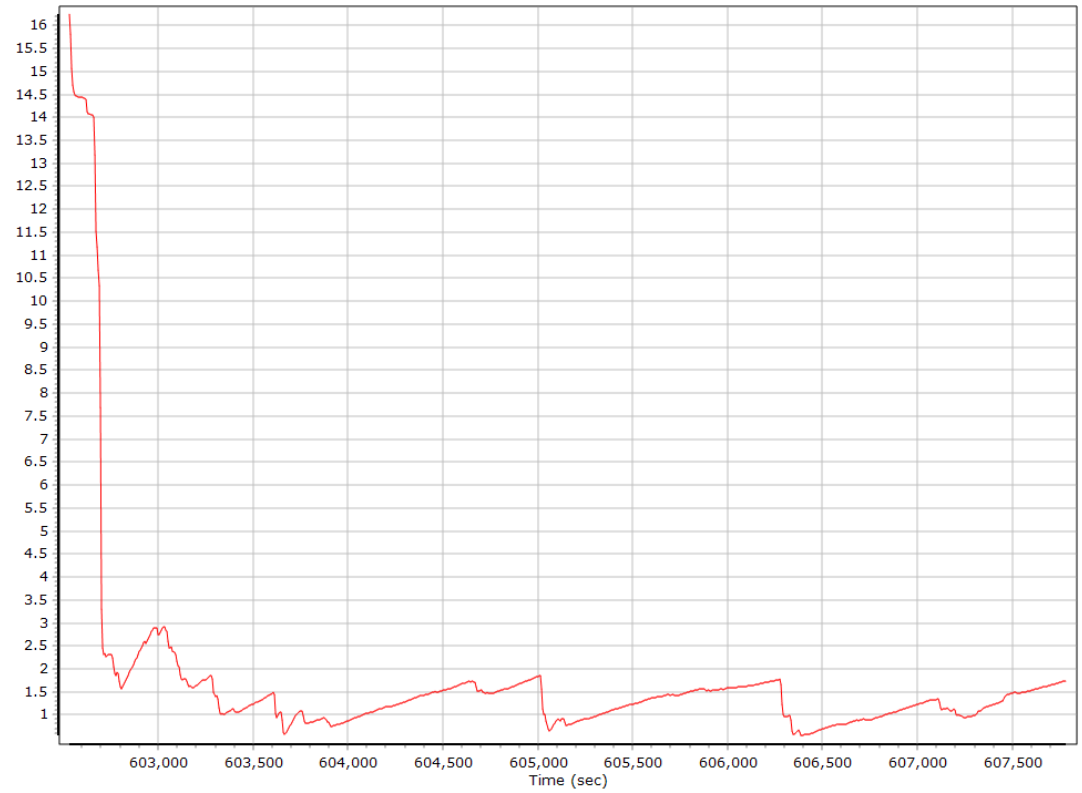
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

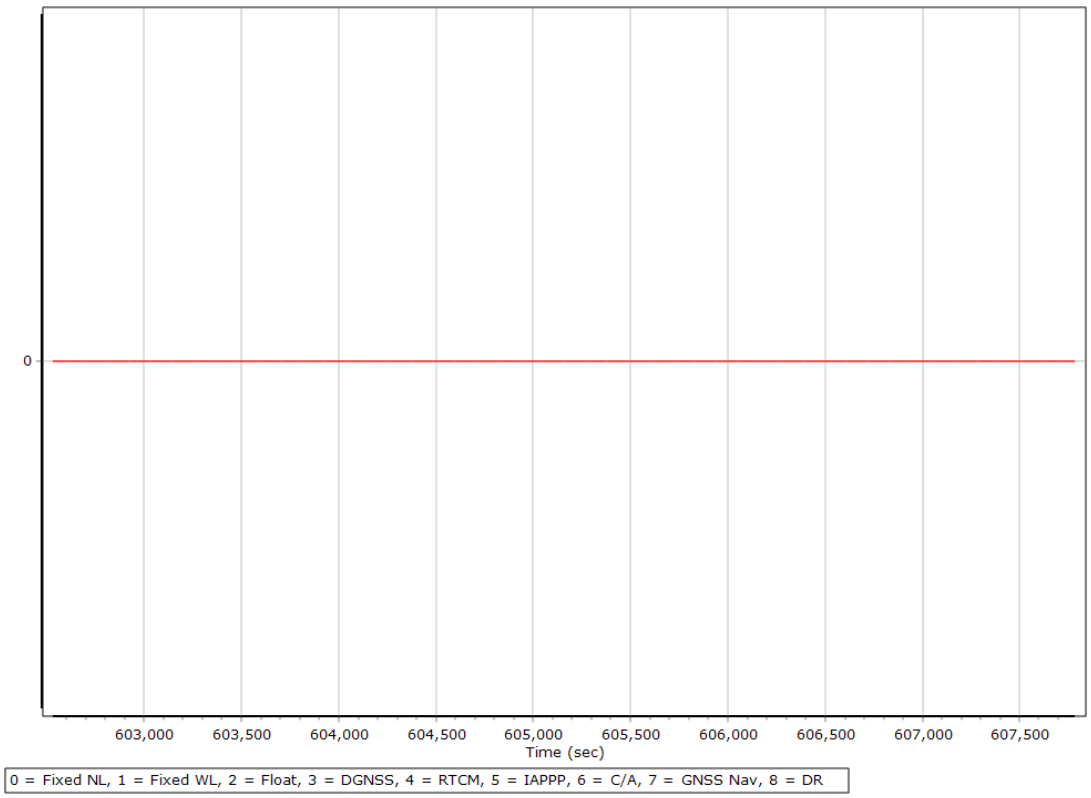


Heading Error RMS (arc-min)



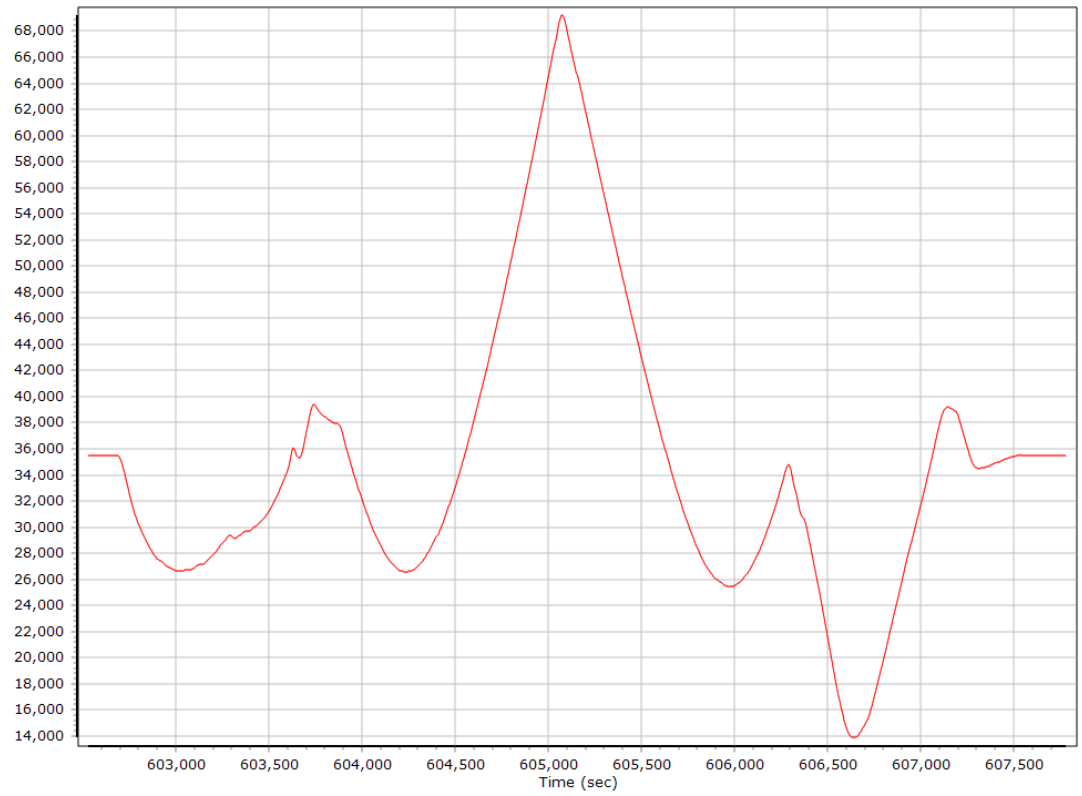
Smoothed Solution Status

Processing Mode



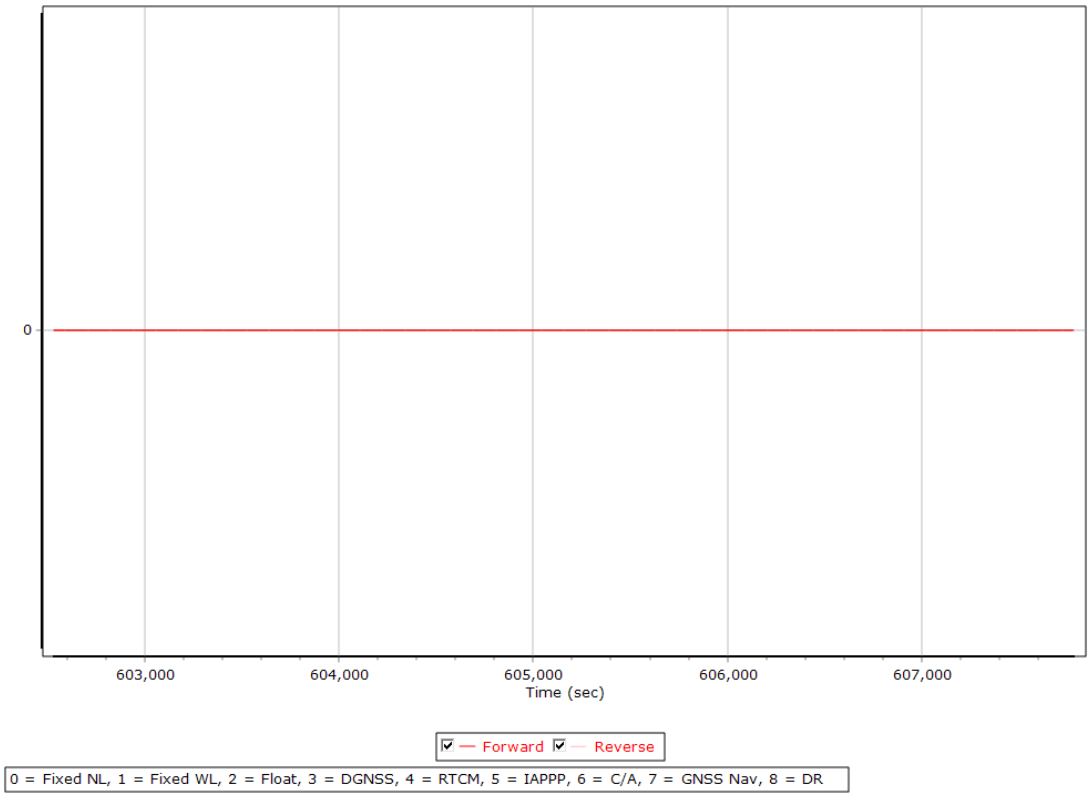
Number of Satellites

Baseline Length

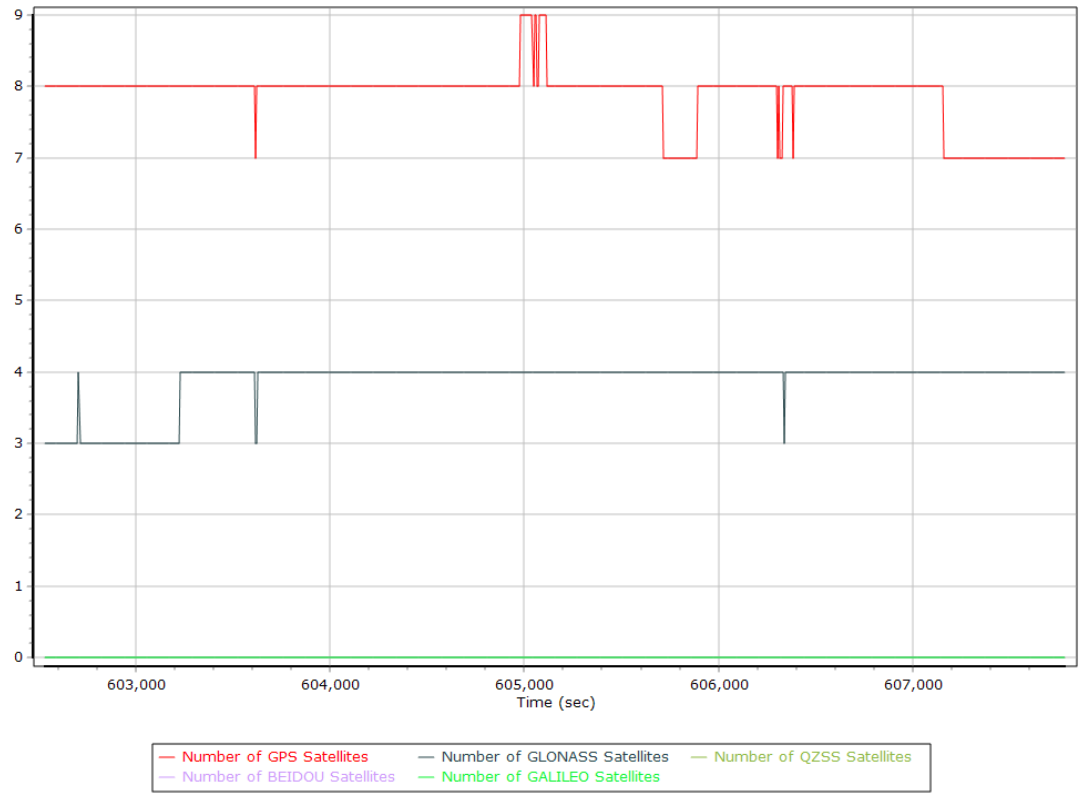


Forward Processed Solution Status

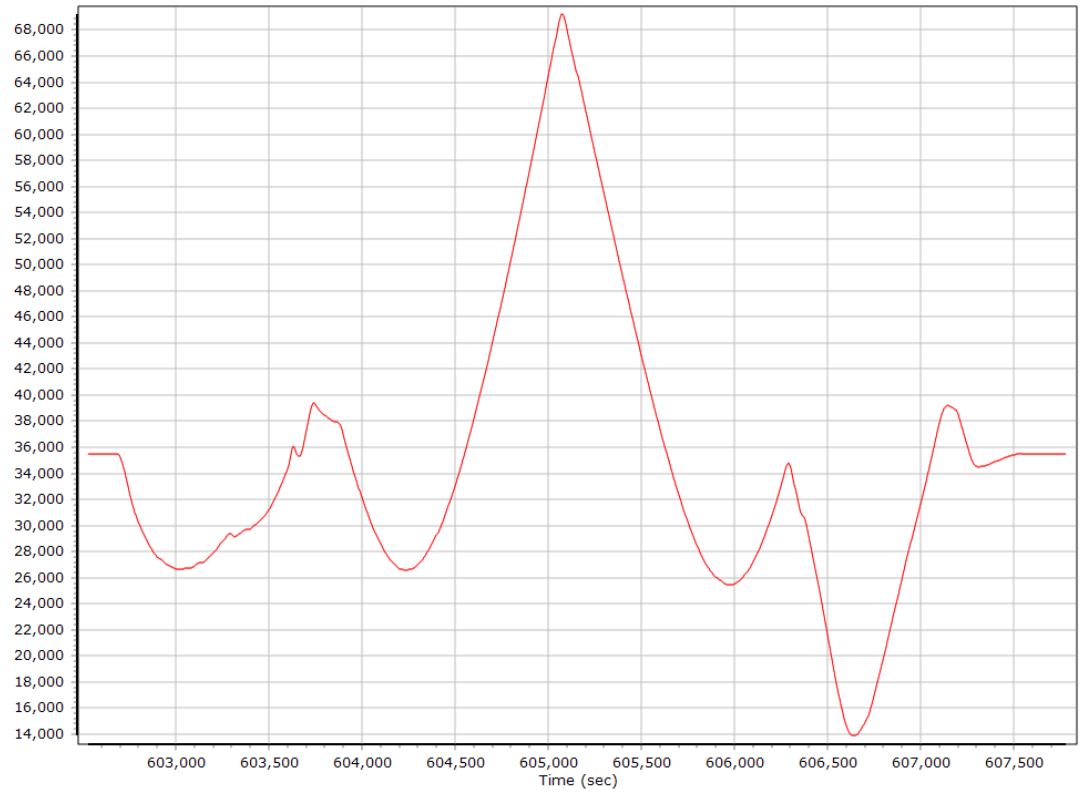
Processing Mode



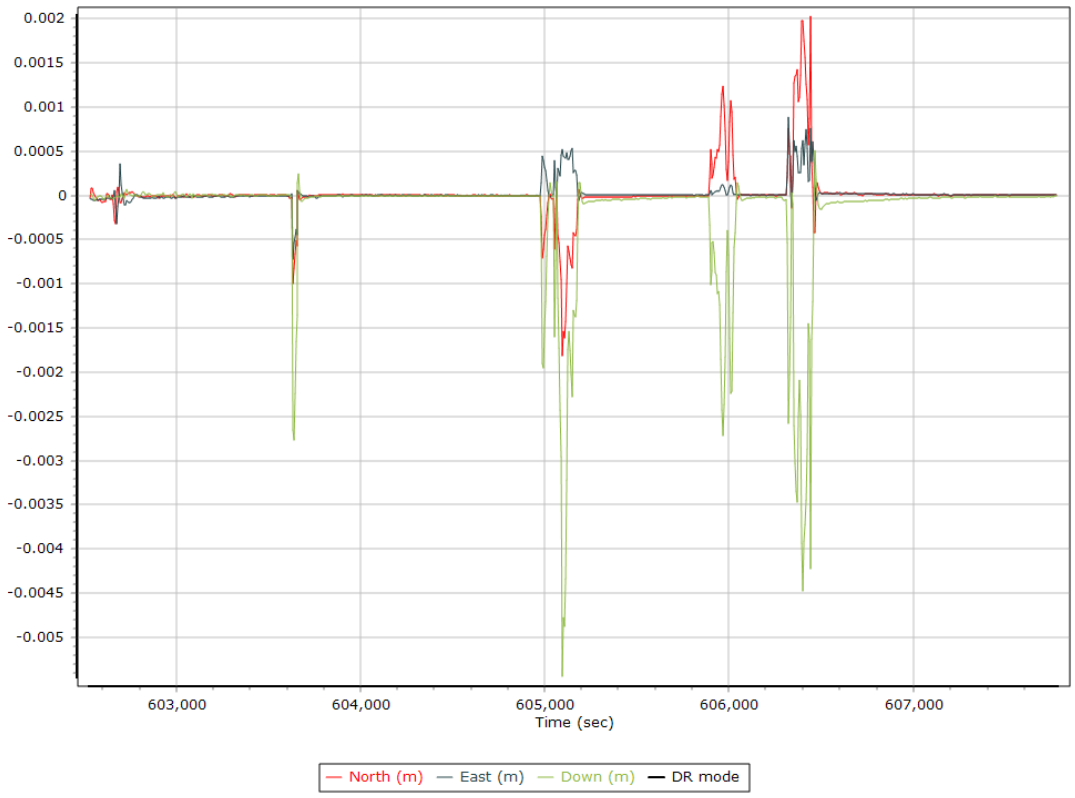
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_20200404D-Mission 1.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	602473.004 (4/4/2020 11:21:13 PM)		
Export end time	2983.003 (4/5/2020 12:49:43 AM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200409A
Processing date	2021-01-18 23:07:36
Mission date	2020-04-09 01:21:00
Mission duration	03:13:41.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.187	POS Data
ALS.188	POS Data
ALS.189	POS Data
ALS.190	POS Data
ALS.191	POS Data
ALS.192	POS Data
ALS.193	POS Data
ALS.194	POS Data
ALS.195	POS Data
ALS.196	POS Data
ALS.197	POS Data
ALS.198	POS Data
ALS.199	POS Data
ALS.200	POS Data
ALS.201	POS Data
ALS.202	POS Data
ALS.203	POS Data
ALS.204	POS Data

Input Files

File Name	File Type
Ephm1000.20g	GLONASS Broadcast Ephemeris
Ephm1000.20n	GPS Broadcast Ephemeris
iaal1000.20o	GNSS SingleBase
iade1000.20o	GNSS SingleBase
iael1000.20o	GNSS SingleBase
iamn1000.20o	GNSS SingleBase
iata1000.20o	GNSS SingleBase
mnps1000.20o	GNSS SingleBase
igu21003_18.sp3	GPS Precise Ephemeris
igu21004_18.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200409A-Mission 1.out	SBET Trajectory File
SBET_20200409A-Mission 1.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.187		
Last raw data file	ALS.204		
Start GPS week	2100		
Start time	350453.448 (4/9/2020 1:20:53 AM)		
End time	362063.752 (4/9/2020 4:34:23 AM)		
Start of fine alignment	351720.325 (4/9/2020 1:42:00 AM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

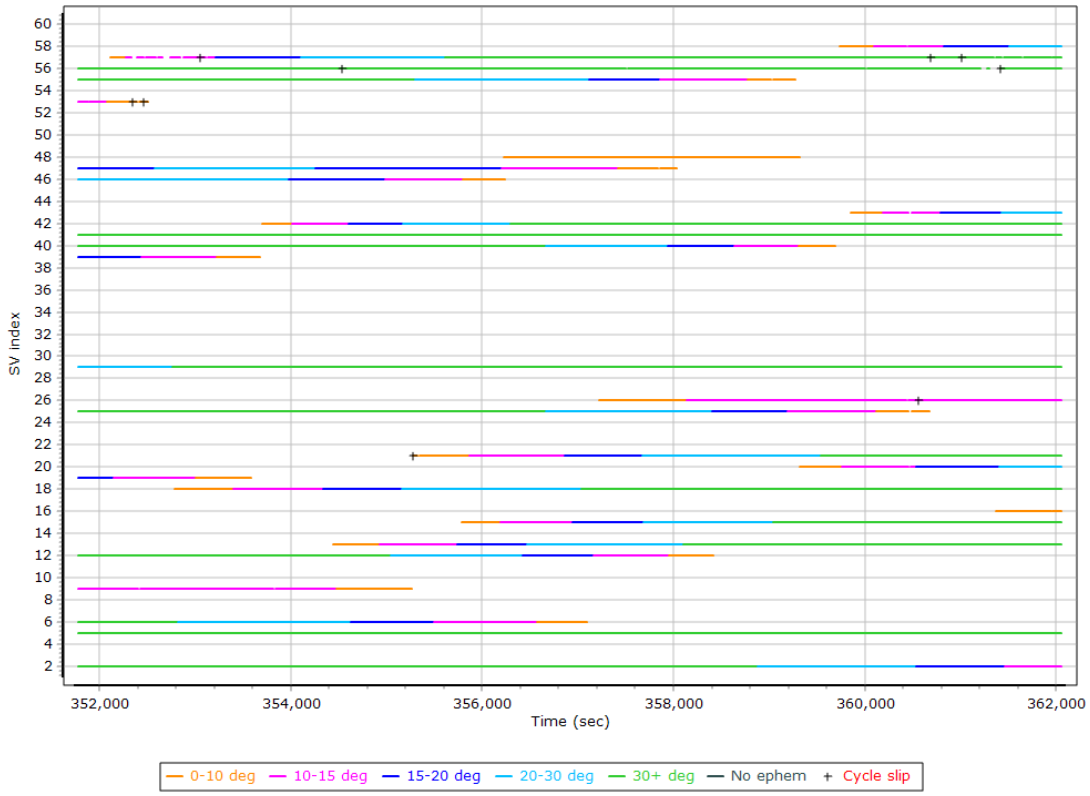
Rover Data QC

Raw IMU Import QC Summary

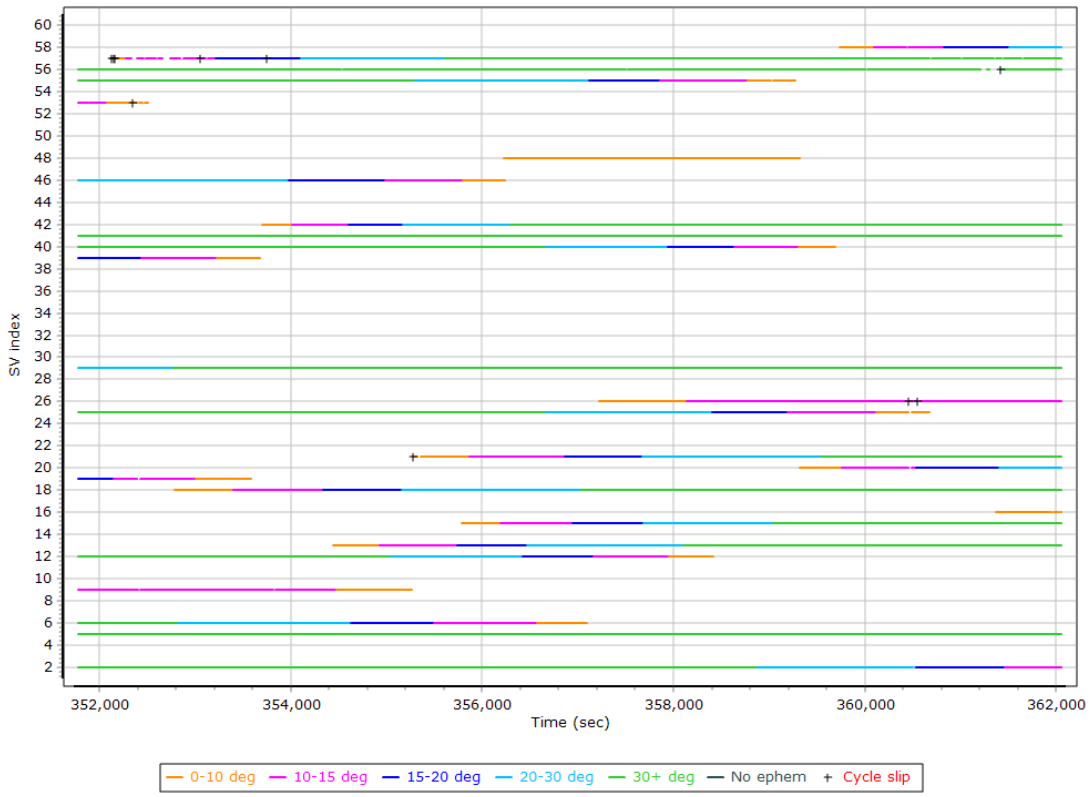
IMU data input file	imu_20200409A-Mission 1.dat
IMU data check log file	imudt_20200409A-Mission 1.log
IMU Records Processed	2326867
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
350453.058 : WARNING : Gap of 350431.0712 seconds in CHECKDT input data	

Primary Observables & Satellite Data

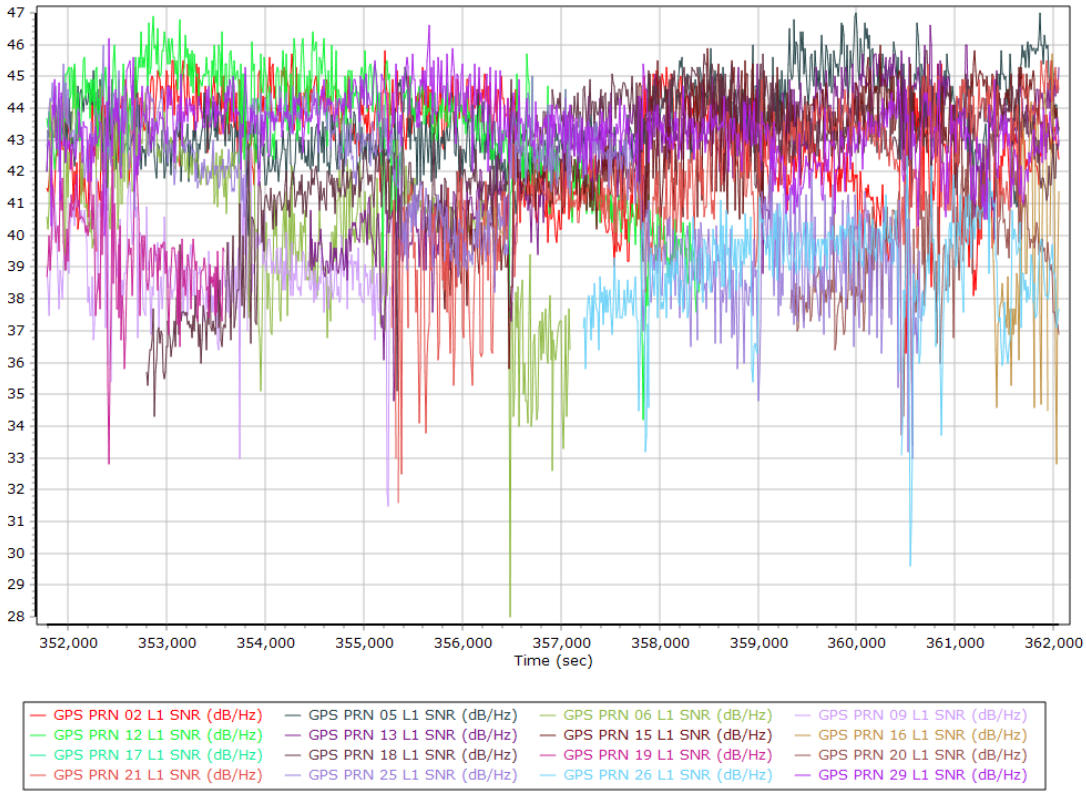
L1 Satellite Lock/Elevation



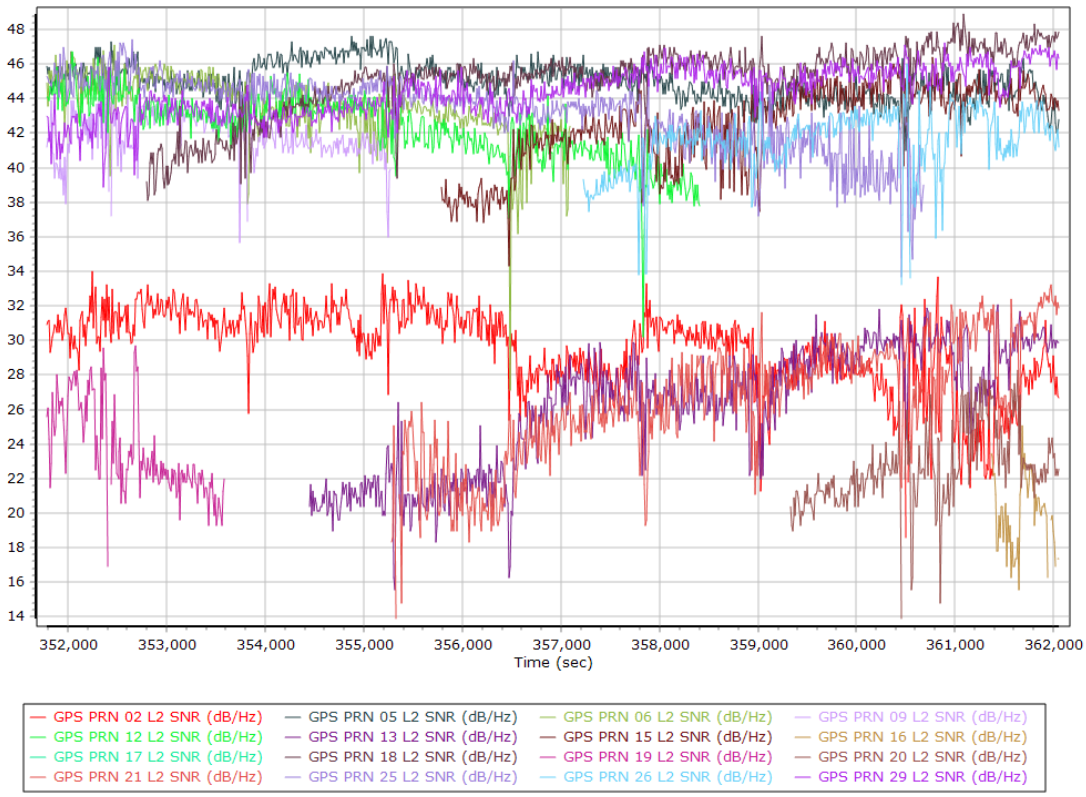
L2 Satellite Lock/Elevation



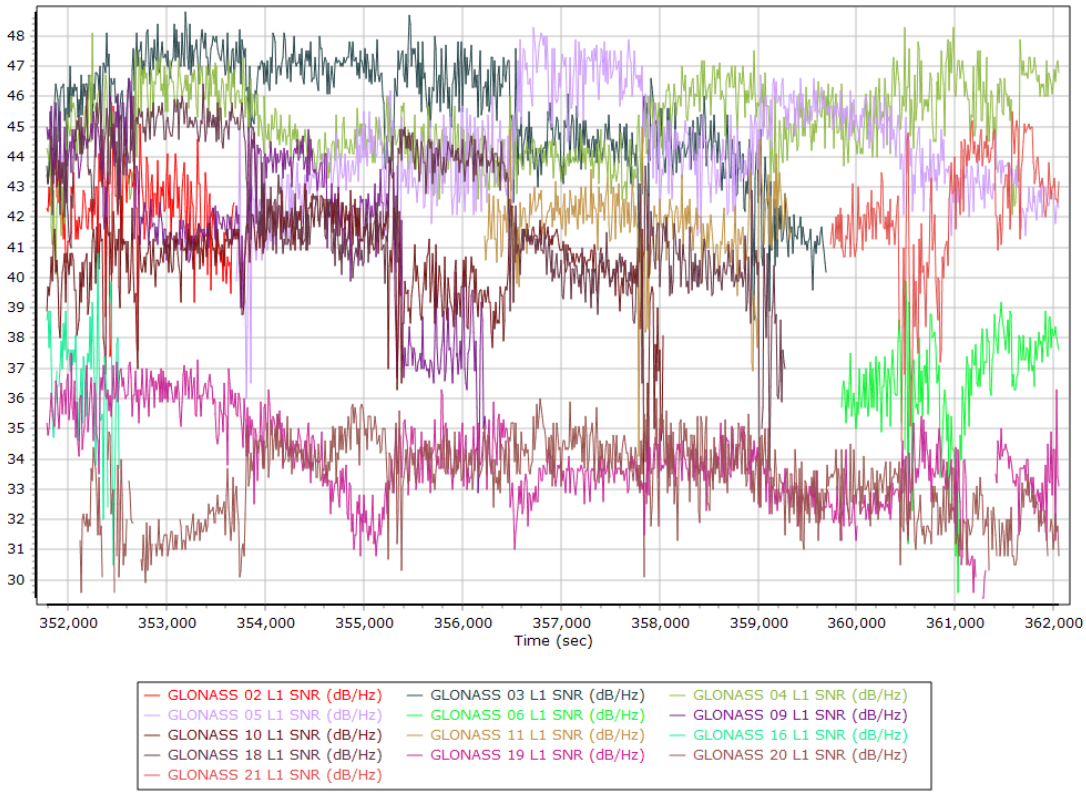
GPS L1 SNR



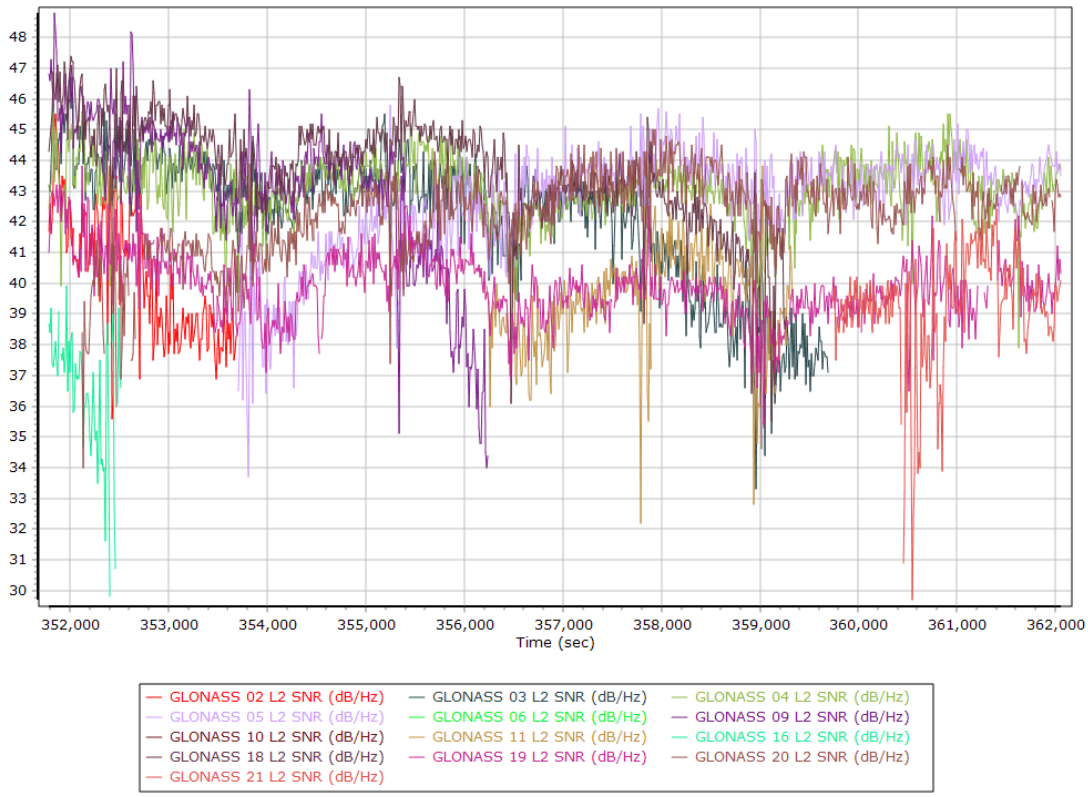
GPS L2 SNR



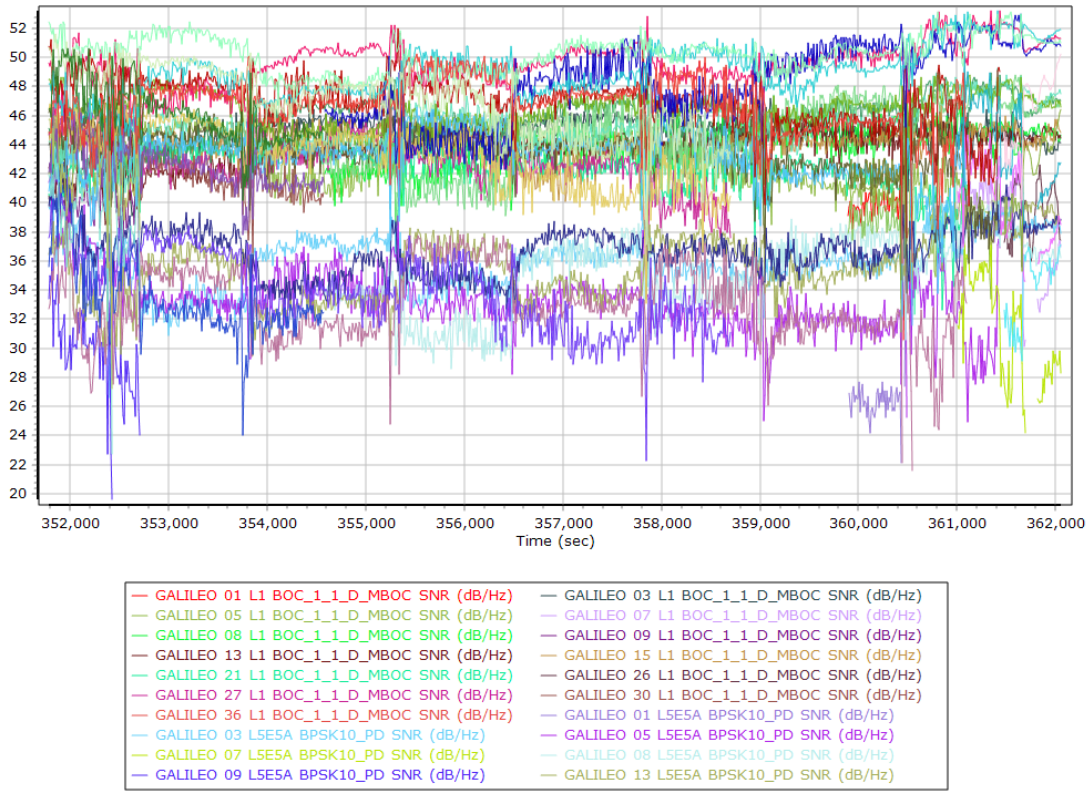
GLONASS L1 SNR



GLONASS L2 SNR

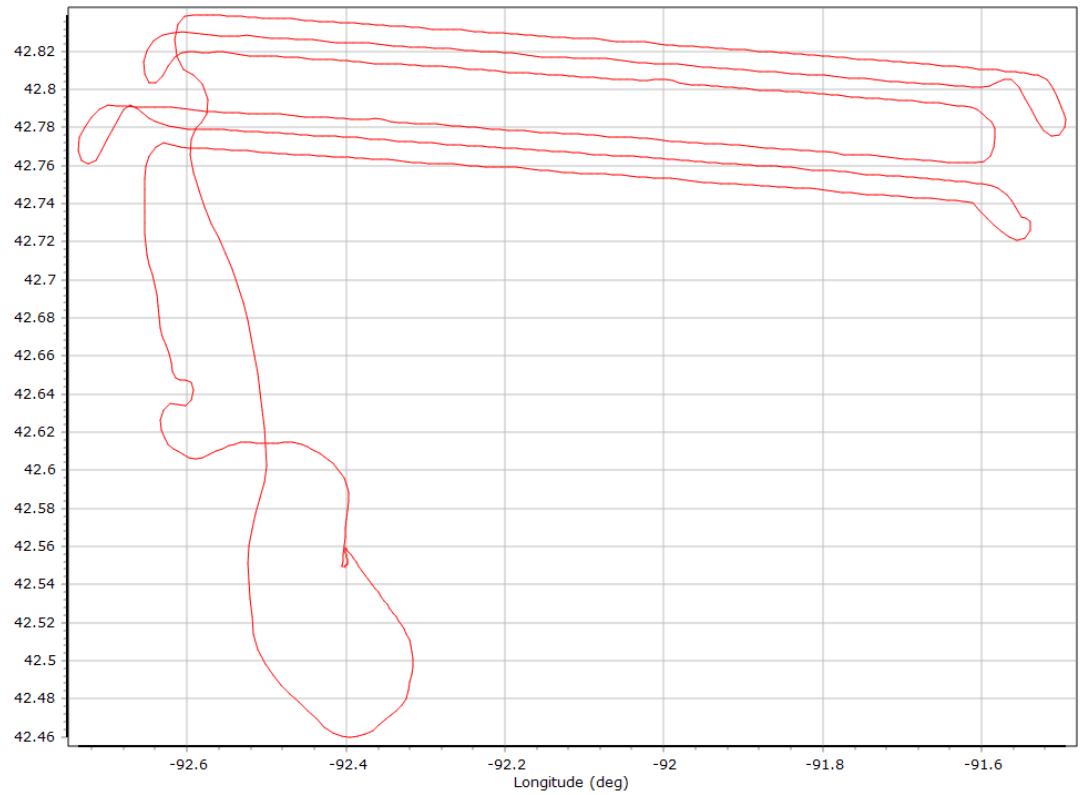


GALILEO SNR

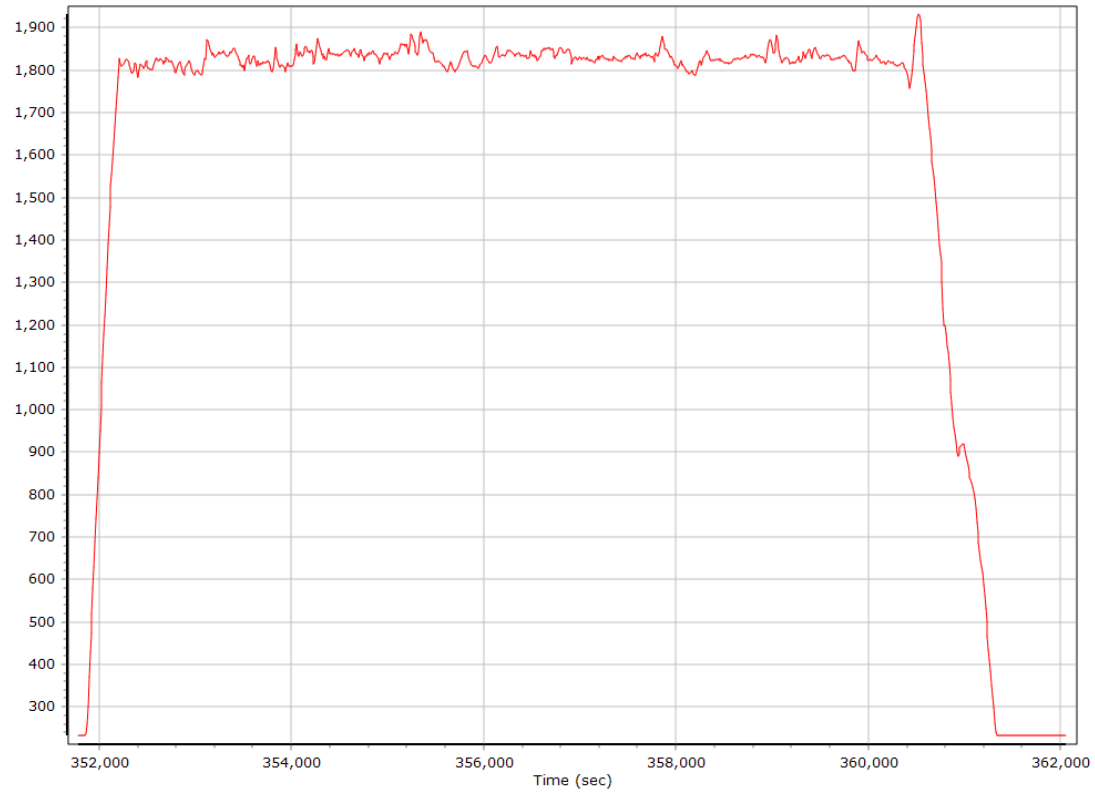


Smoothed Trajectory Information

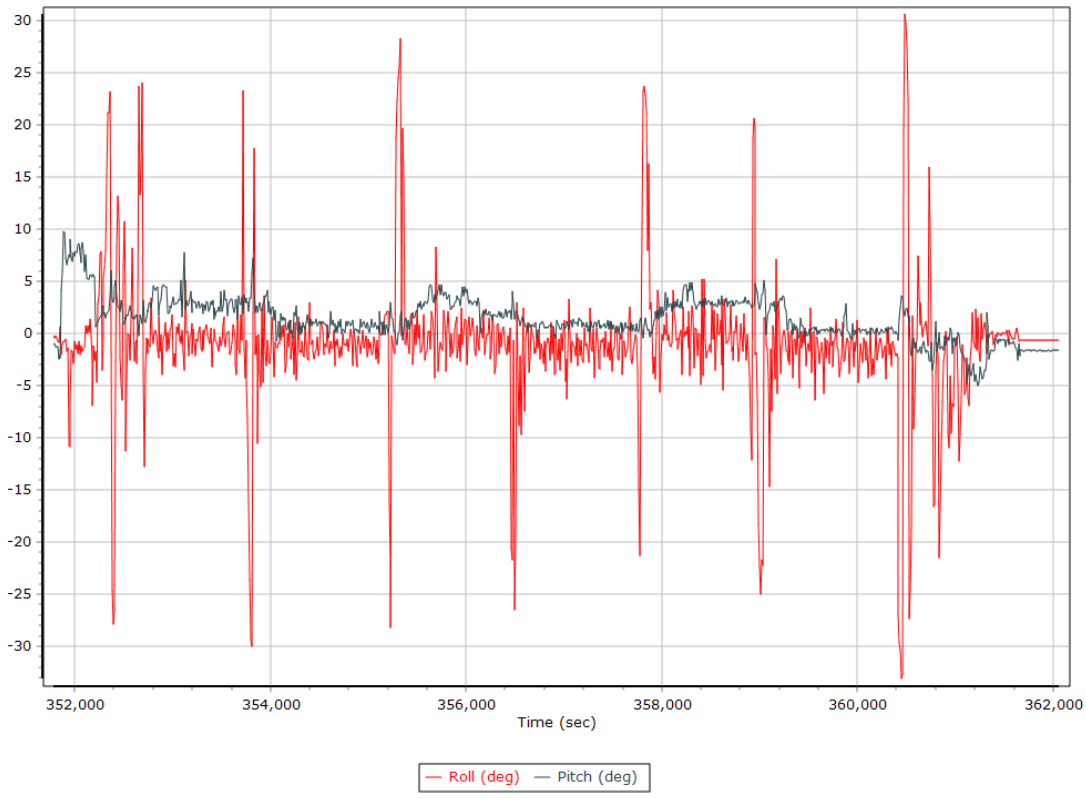
Top View



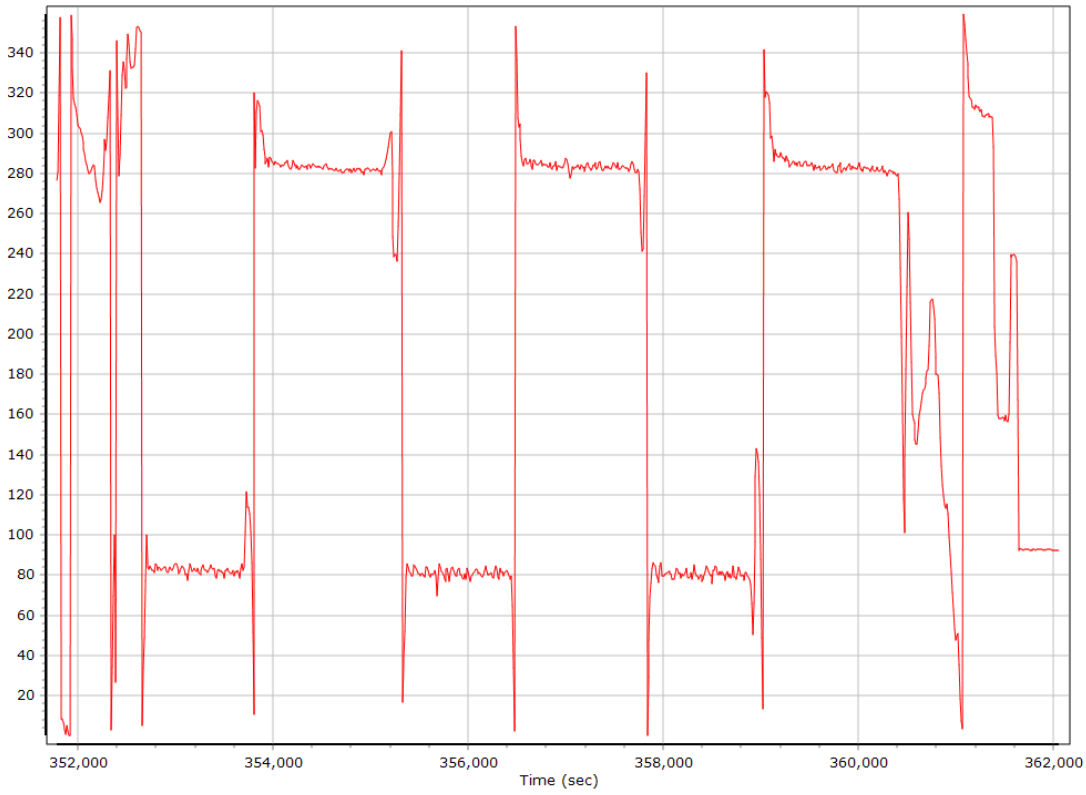
Altitude



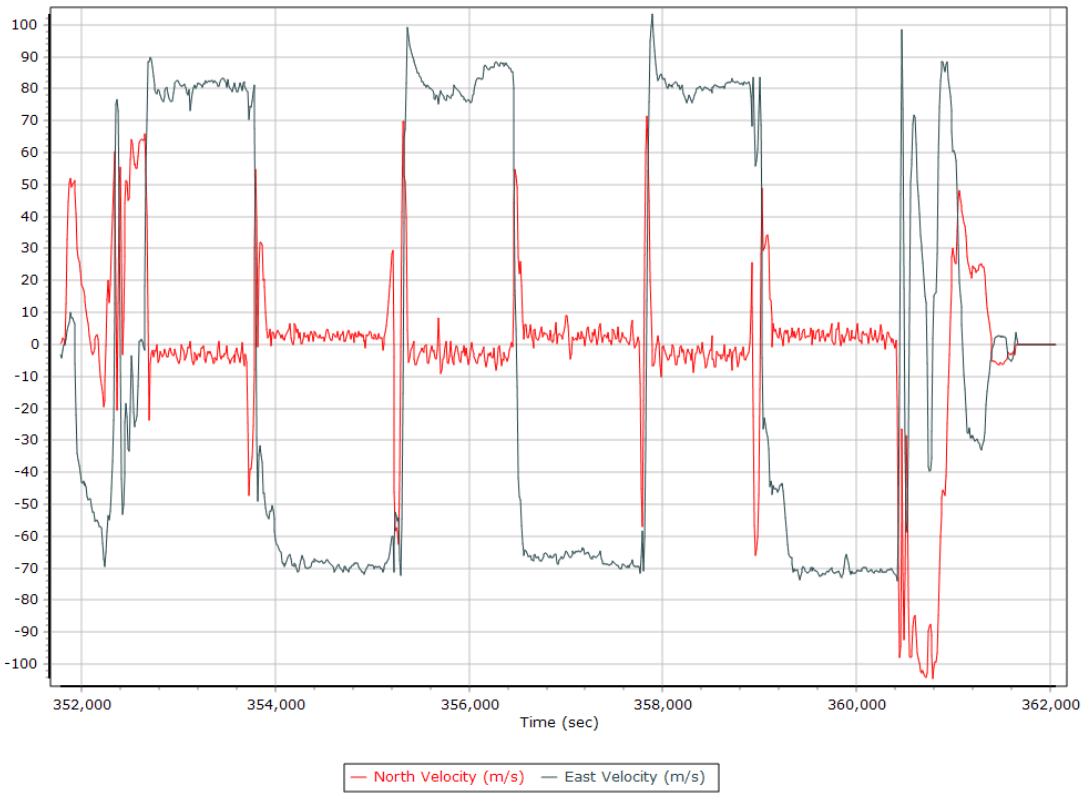
Roll/Pitch



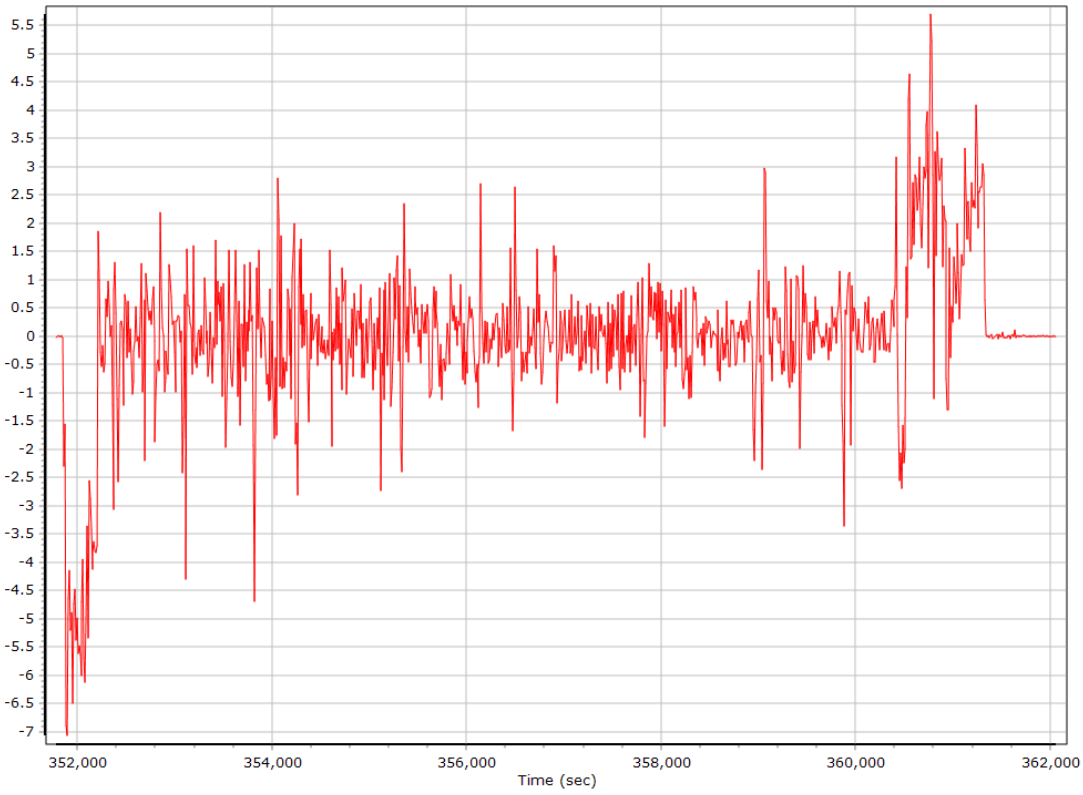
Heading



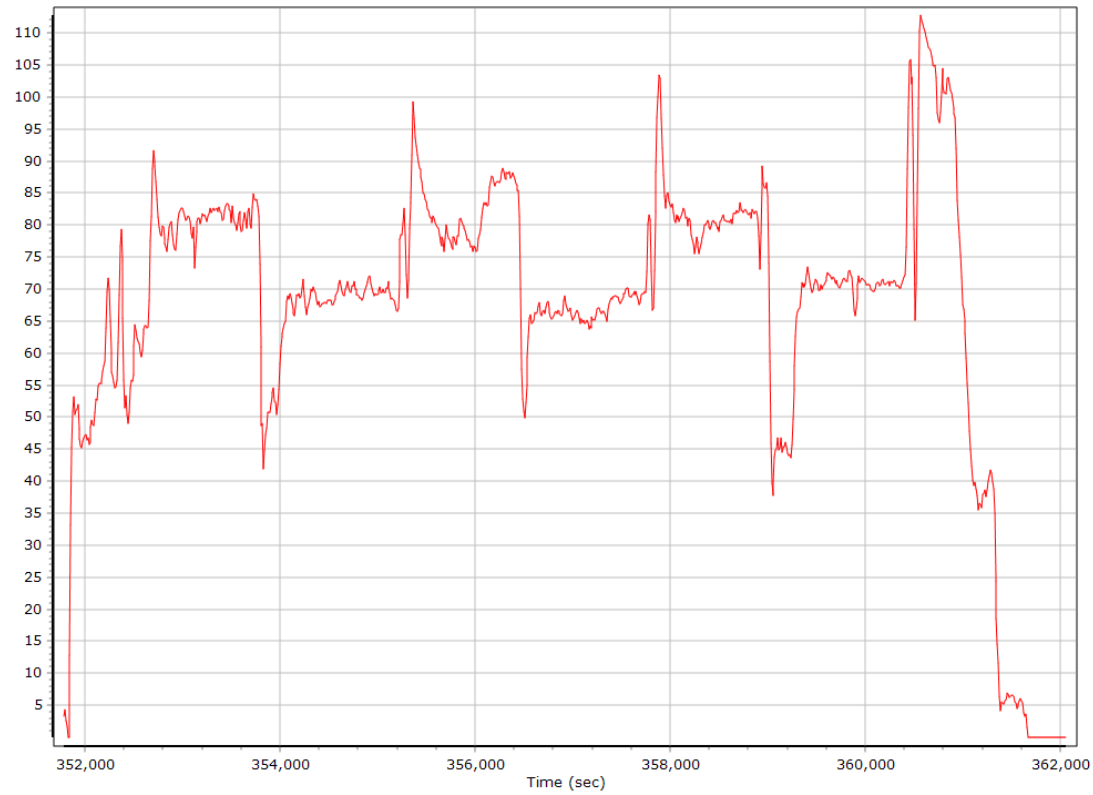
North/East Velocity



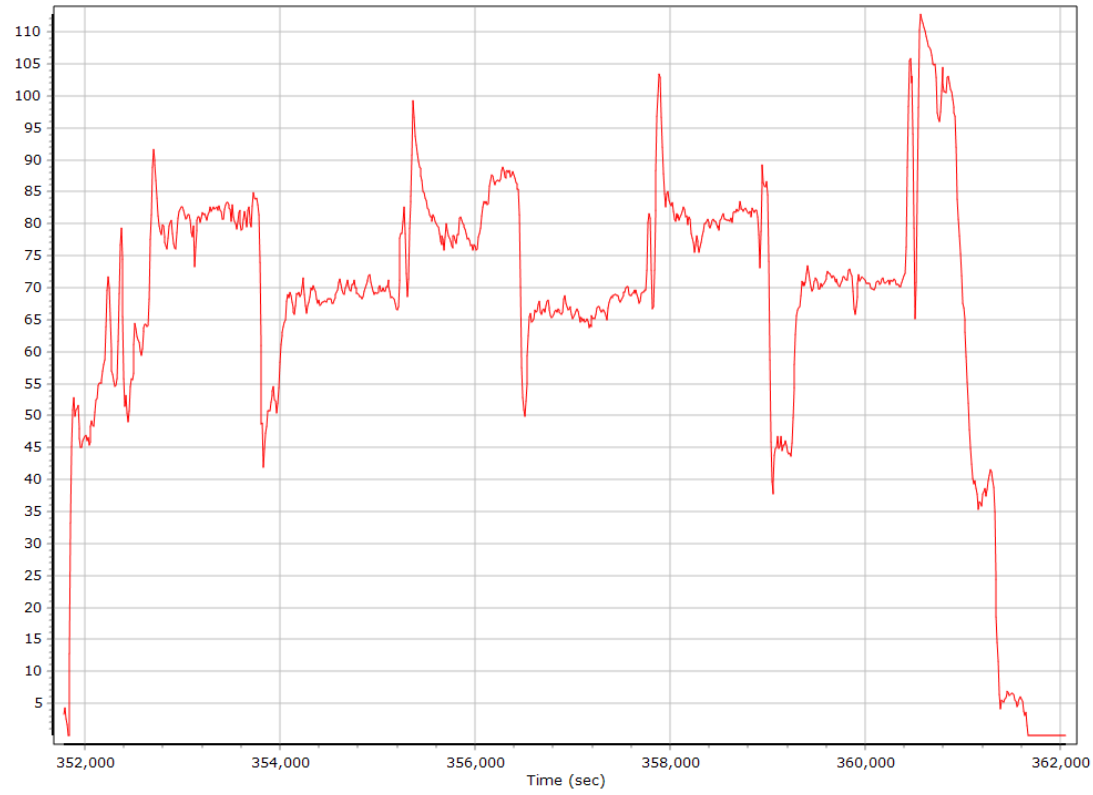
Down Velocity



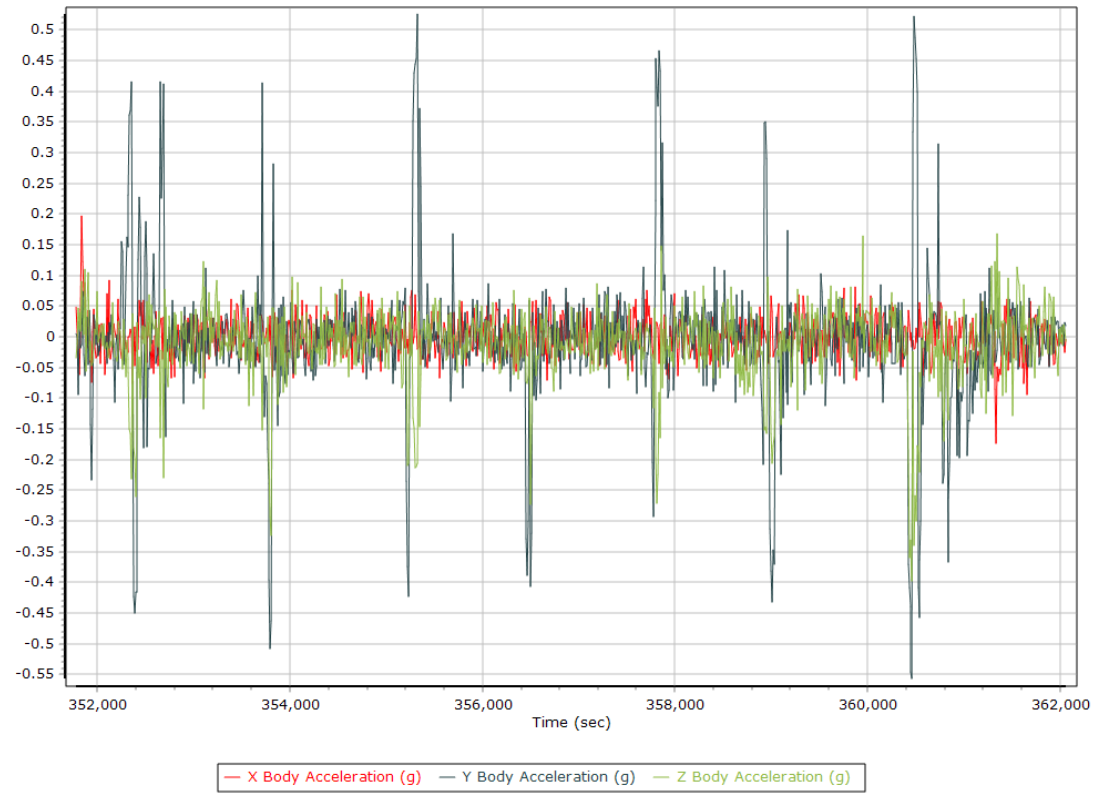
Total Speed



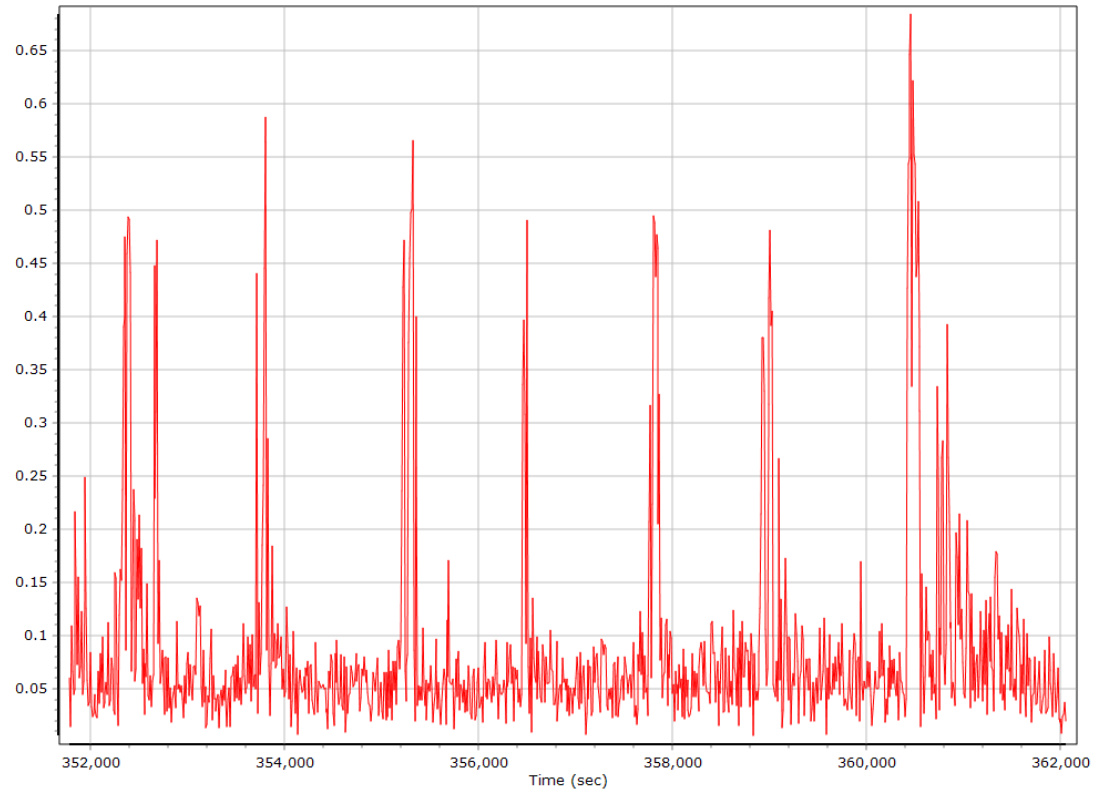
Ground Speed



Body Acceleration



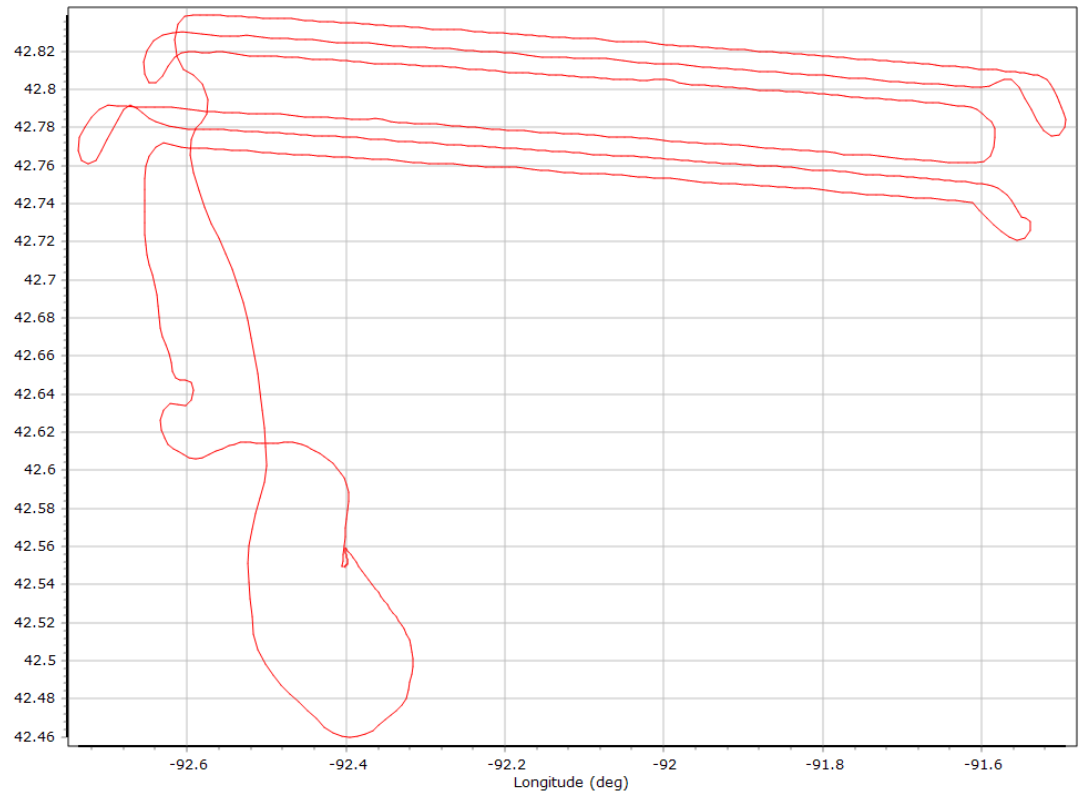
Total Body Acceleration



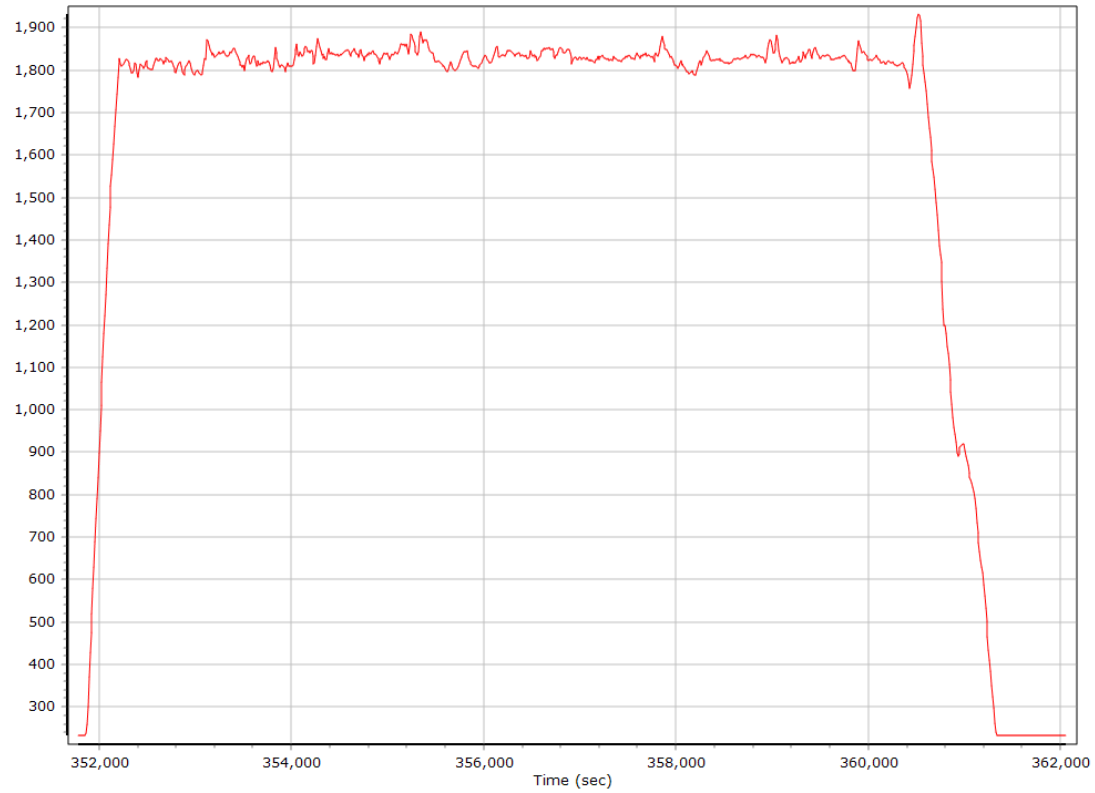
Body Angular Rate

Forward Processed Trajectory Information

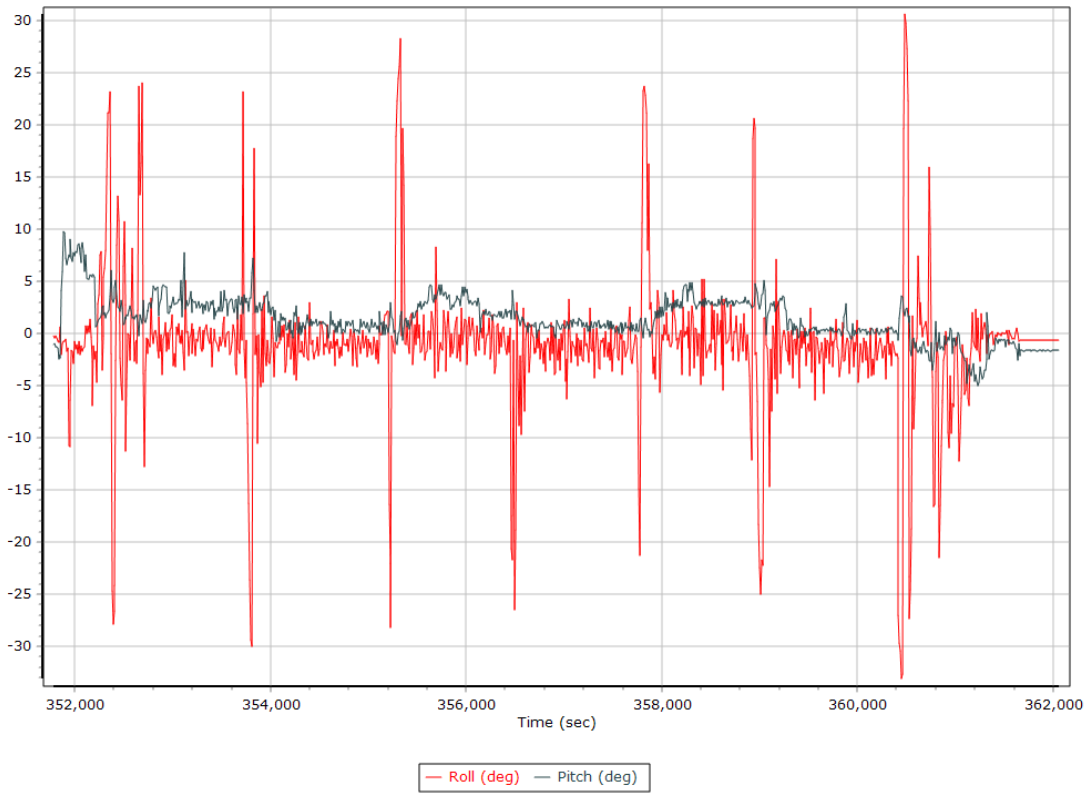
Top View



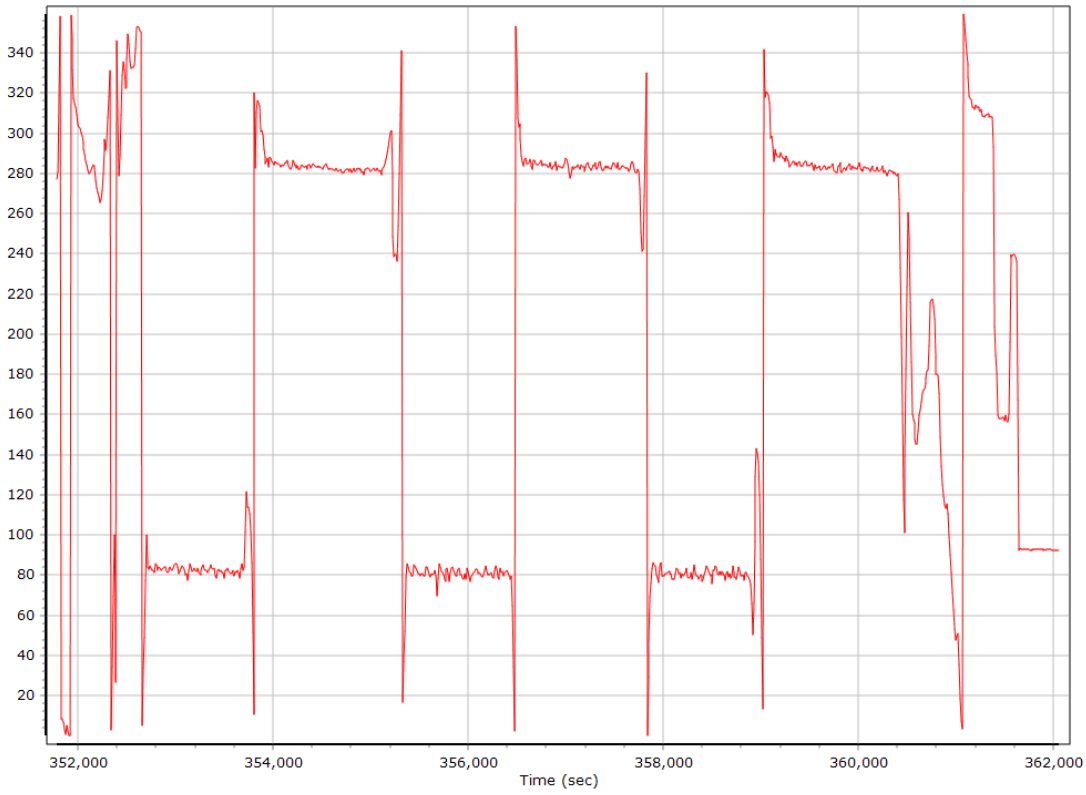
Altitude



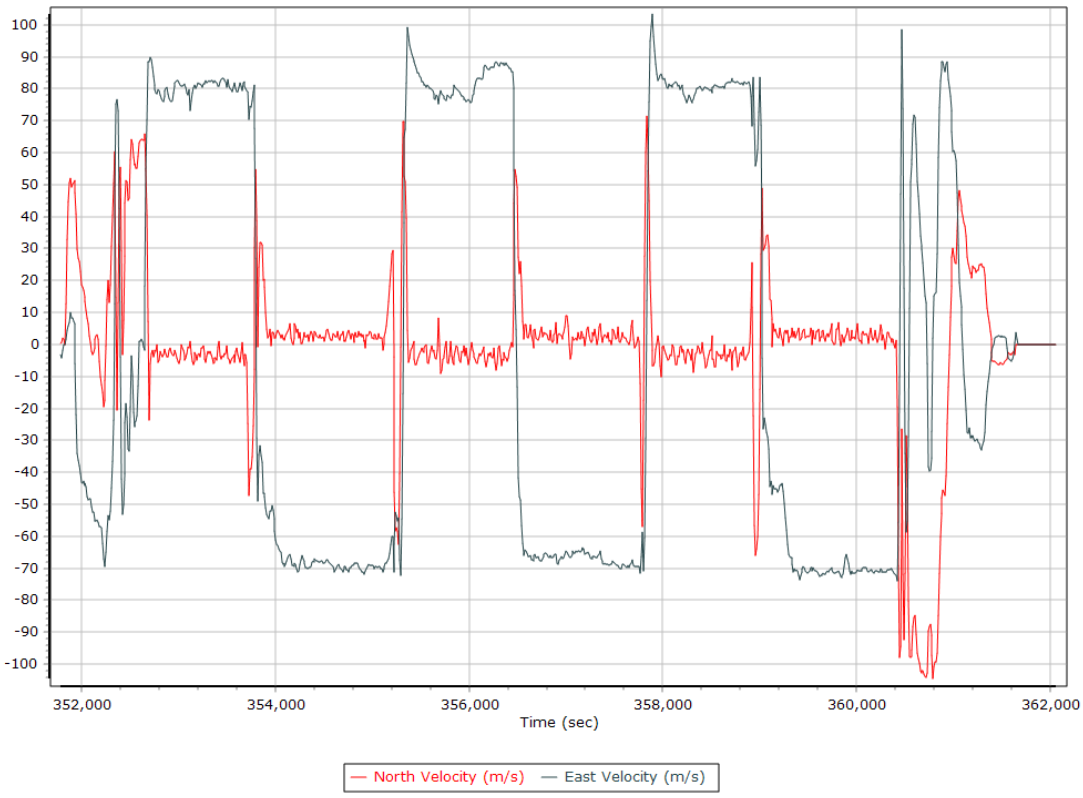
Roll/Pitch



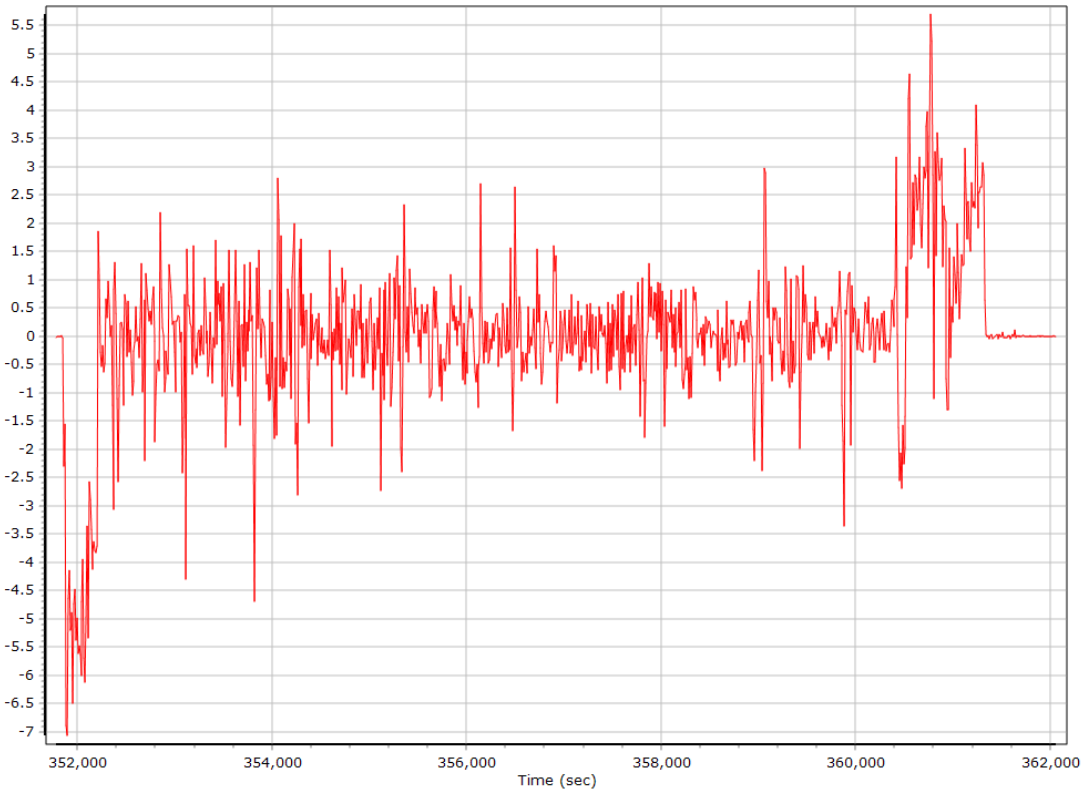
Heading



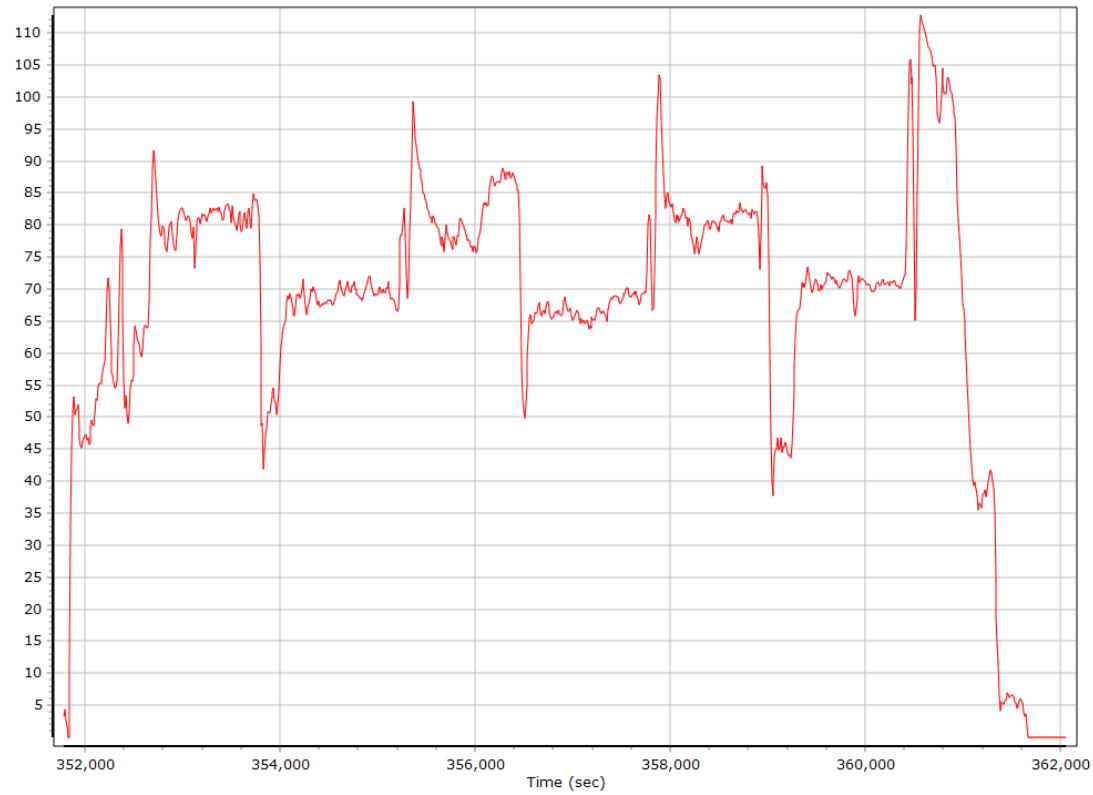
North/East Velocity



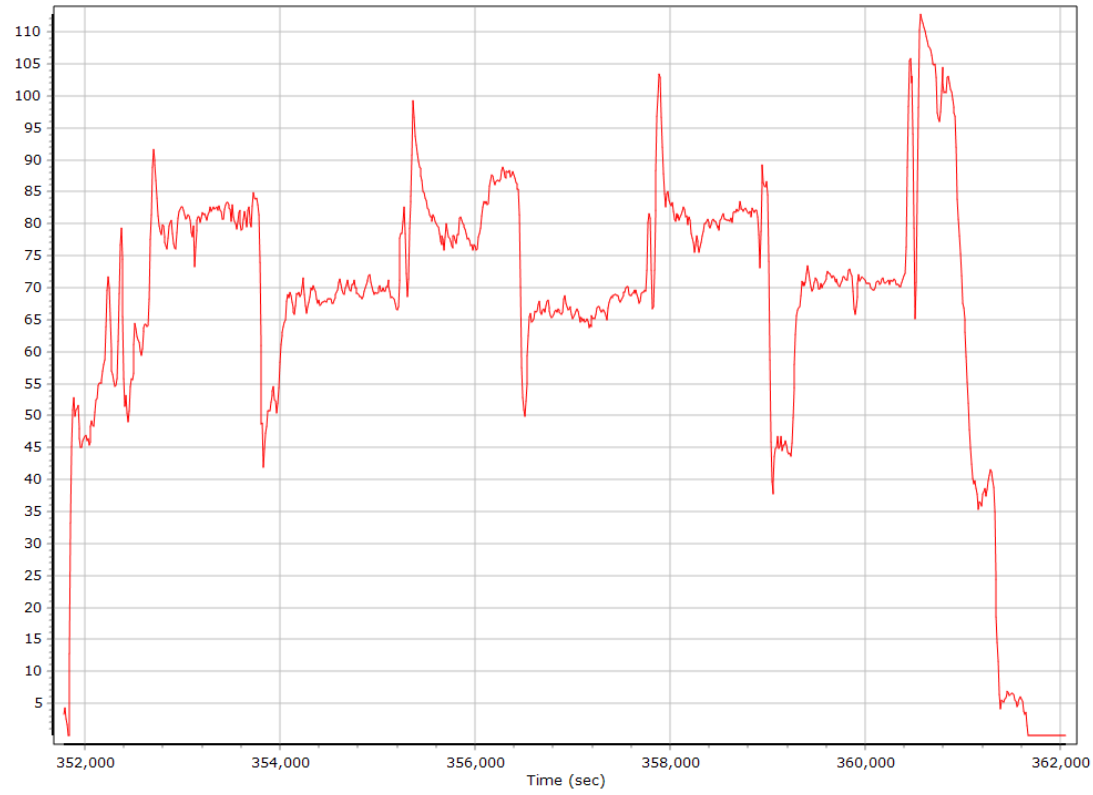
Down Velocity



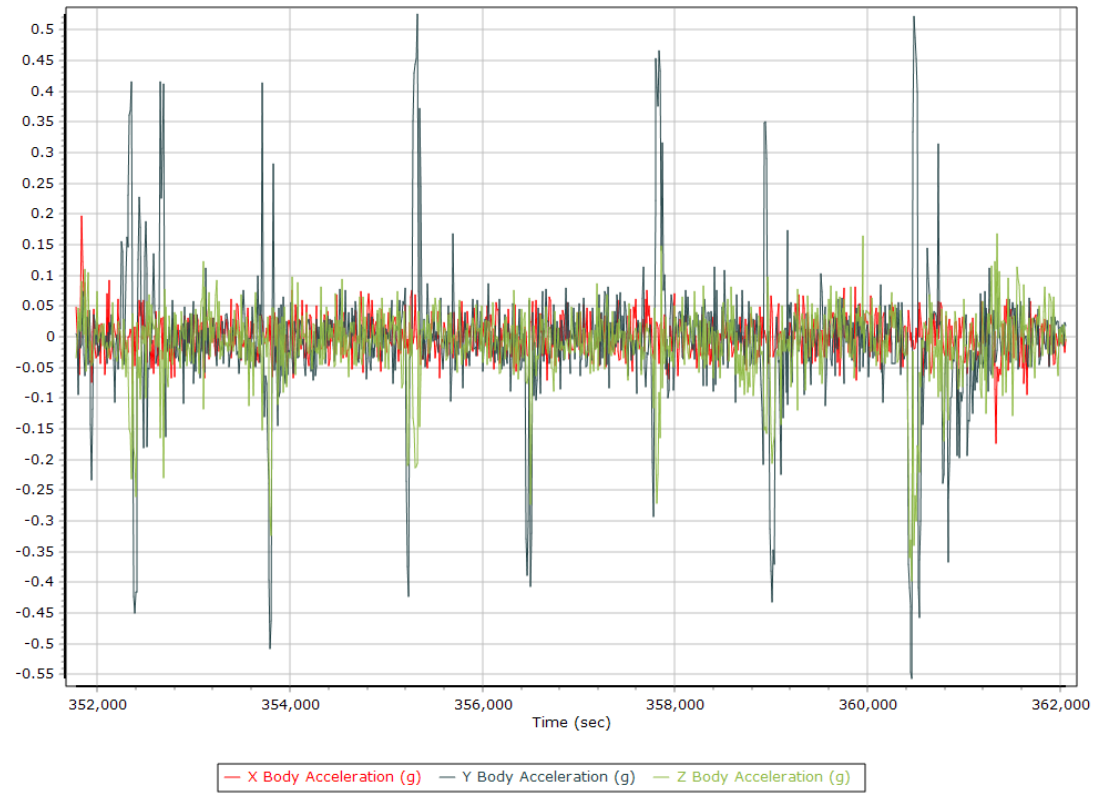
Total Speed



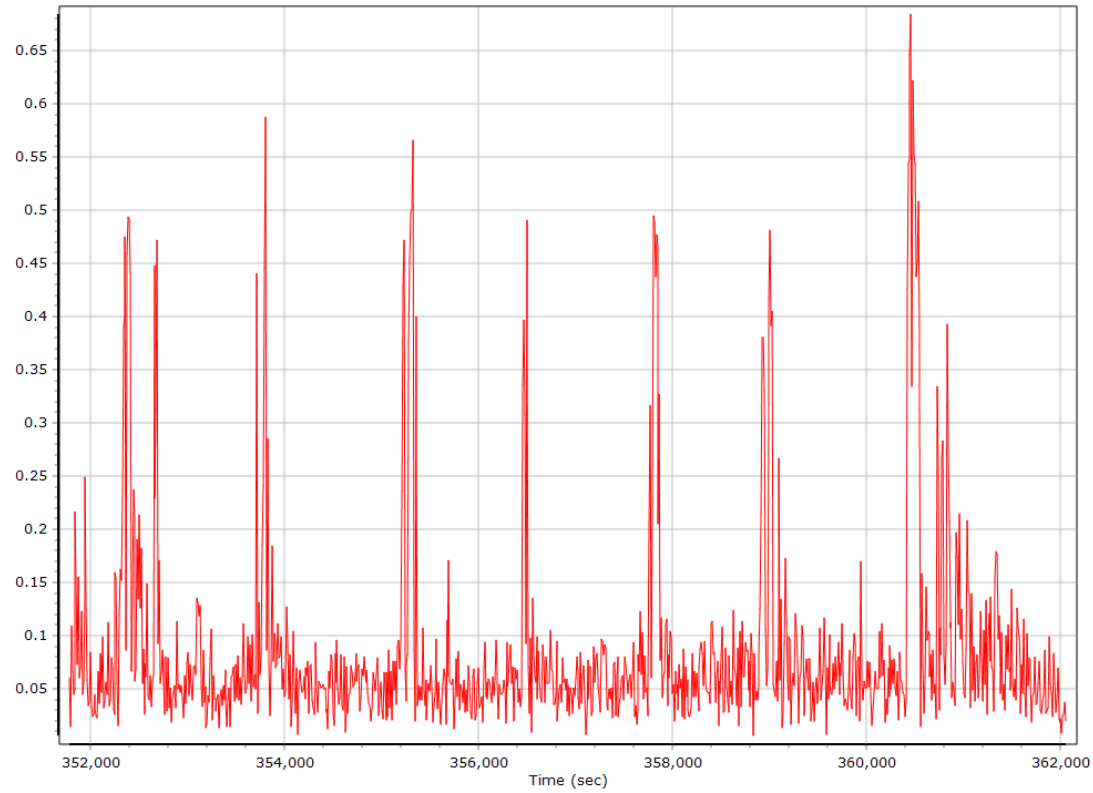
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/09/2020	IAAL	47.59	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/09/2020	IADE	68.55	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/09/2020	IAEL	71.44	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/09/2020	IATA	88.25	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/09/2020	MNPS	92.22	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/09/2020	IAMN	93.85	GNSS	30	ALTCORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	11621 s (2100 350460 - 2100 362081)
Number of reference stations	6
Primary station GPS measurement usage (%)	99.5
Primary station GLONASS measurement usage (%)	80.6
Average number of satellites per epoch	13.7
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	15187
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59749"	228.904
Adjusted		N42°01'49.10904"	W91°32'55.59722"	228.860
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.007	0.044	0.045

Base Station Information

Station ID	IAMN		
Filename	iamn1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59749"		
Ellipsoidal height (m)	228.90417		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67189"	W92°33'05.07500"	247.334
Adjusted		N41°58'01.67190"	W92°33'05.07486"	247.325
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.009	0.010

Base Station Information

Station ID	IATA		
Filename	iata1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67189"		
Longitude	W92°33'05.07500"		
Ellipsoidal height (m)	247.33438		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.53	**Output Coordinates**	Original	
Solution Epochs	2824	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52985"	298.980
Adjusted		N42°52'40.47676"	W91°21'41.52940"	298.963
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.017	0.020

Base Station Information

Station ID	IAEL		
Filename	iael1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52985"		
Ellipsoidal height (m)	298.98030		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52632"	316.516
Adjusted		N43°16'15.83228"	W91°49'53.52609"	316.495
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.022	0.023

Base Station Information

Station ID	IADE		
Filename	iade1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52632"		
Ellipsoidal height (m)	316.51619		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24723"	291.092
Adjusted		N42°44'49.40418"	W92°47'14.24723"	291.092
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAAL		
Filename	iaal1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24723"		
Ellipsoidal height (m)	291.09234		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86728"	380.908
Adjusted		N43°30'53.84847"	W91°53'06.86694"	380.893
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.013	0.015	0.020

Base Station Information

Station ID	MNPS		
Filename	mnps1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86728"		
Ellipsoidal height (m)	380.90780		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	4.45	58.86	
Number of GPS SV	5	10	8
Number of GLONASS SV	0	6	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	5	16	14
PDOP	1.25	2.97	1.52
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	11602.00	0.00	1.00
Percentage	99.99	0.00	0.01

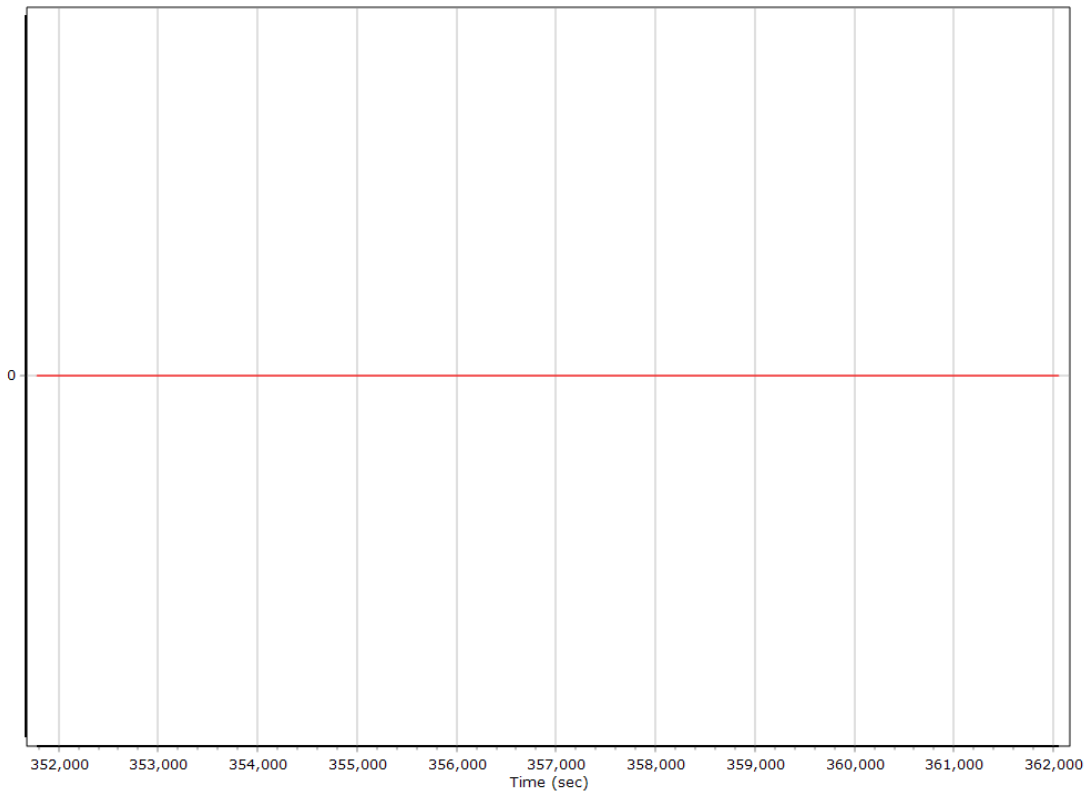
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	350442.000 (4/9/2020 1:20:42 AM)		
Processing end time	362063.000 (4/9/2020 4:34:23 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

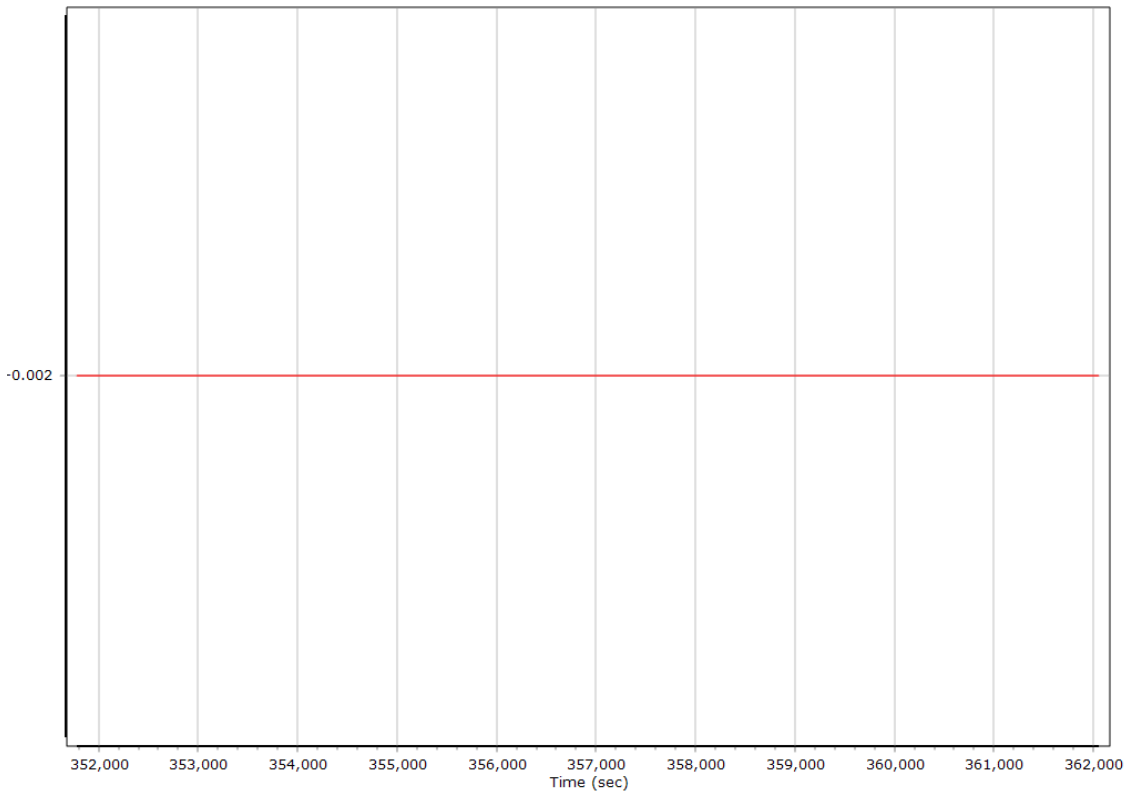
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

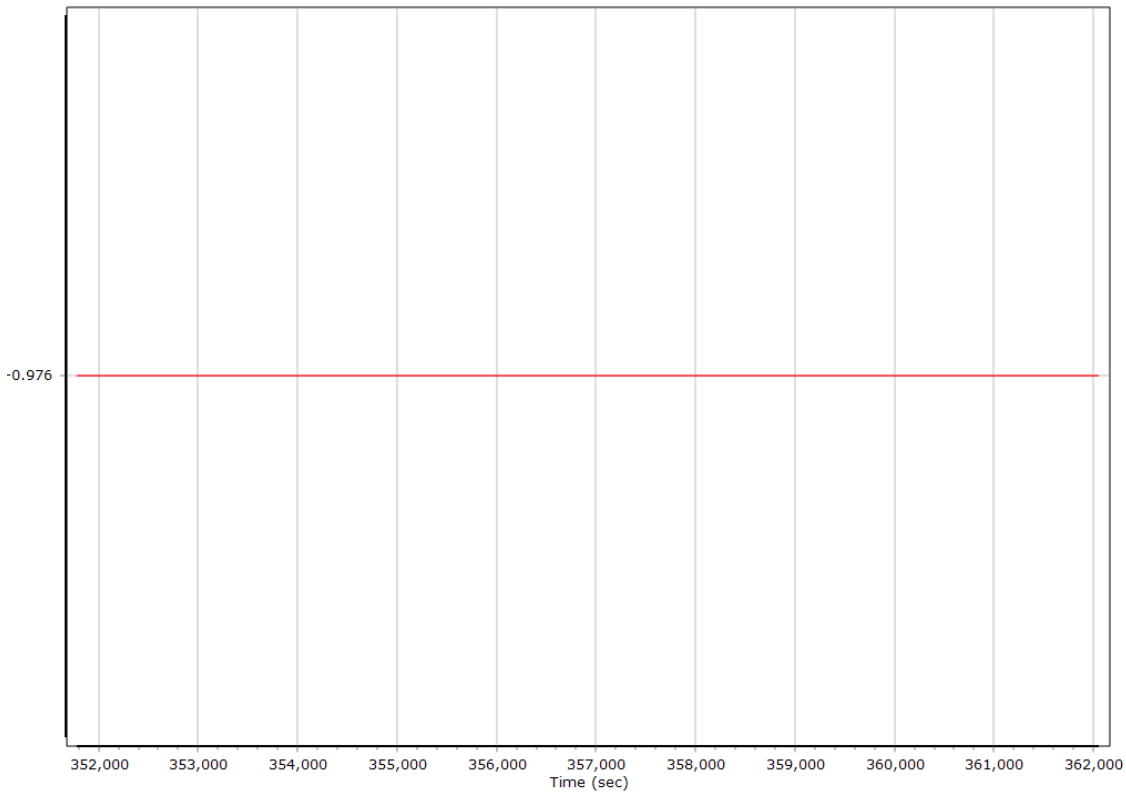
X Reference-Primary GNSS Lever Arm (m)



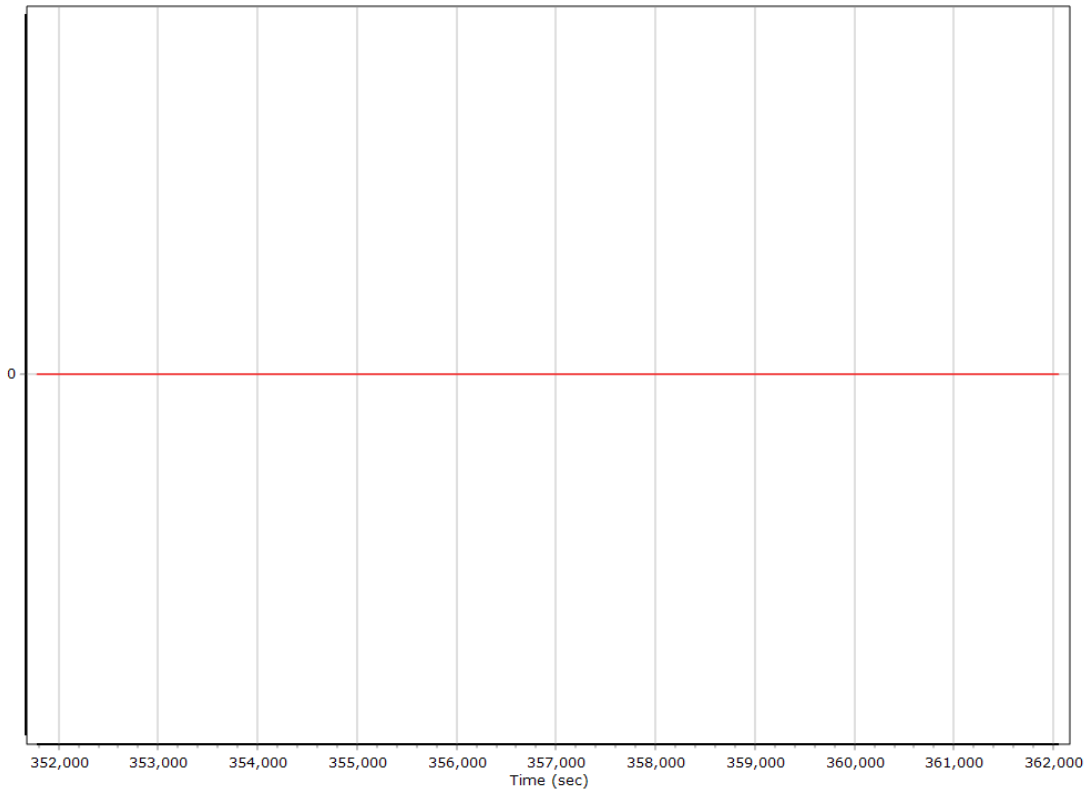
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



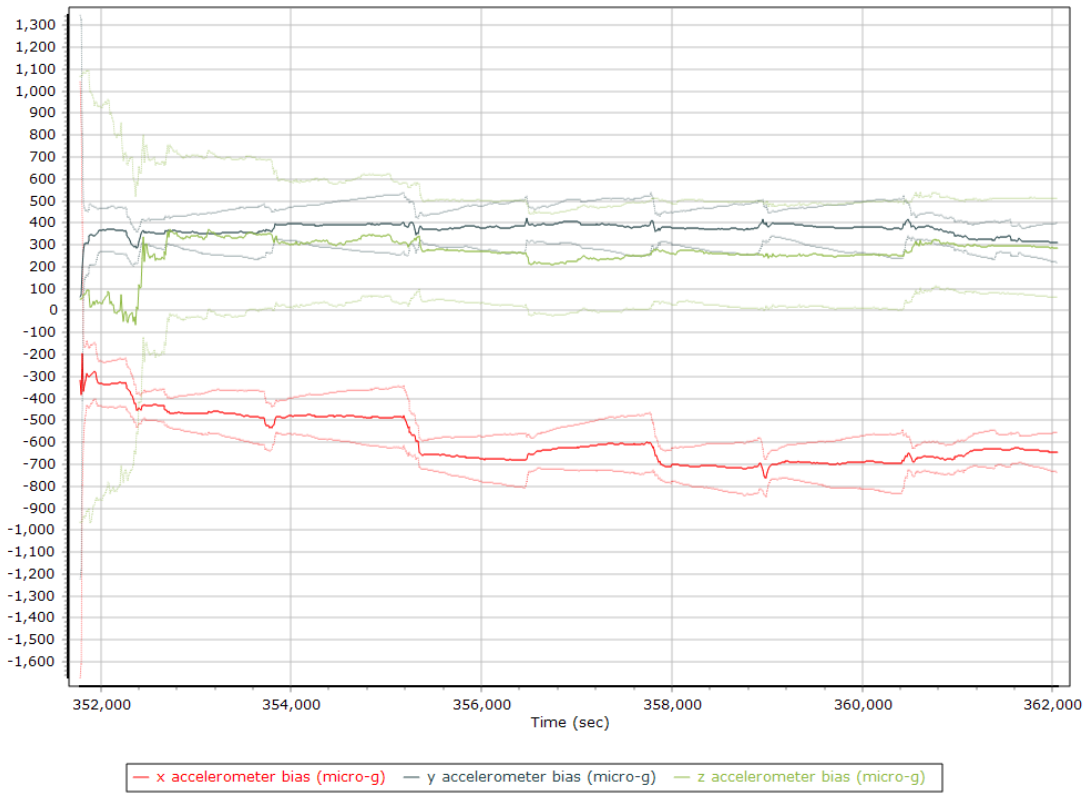
Reference-Primary GNSS Lever Arm Figure of Merit



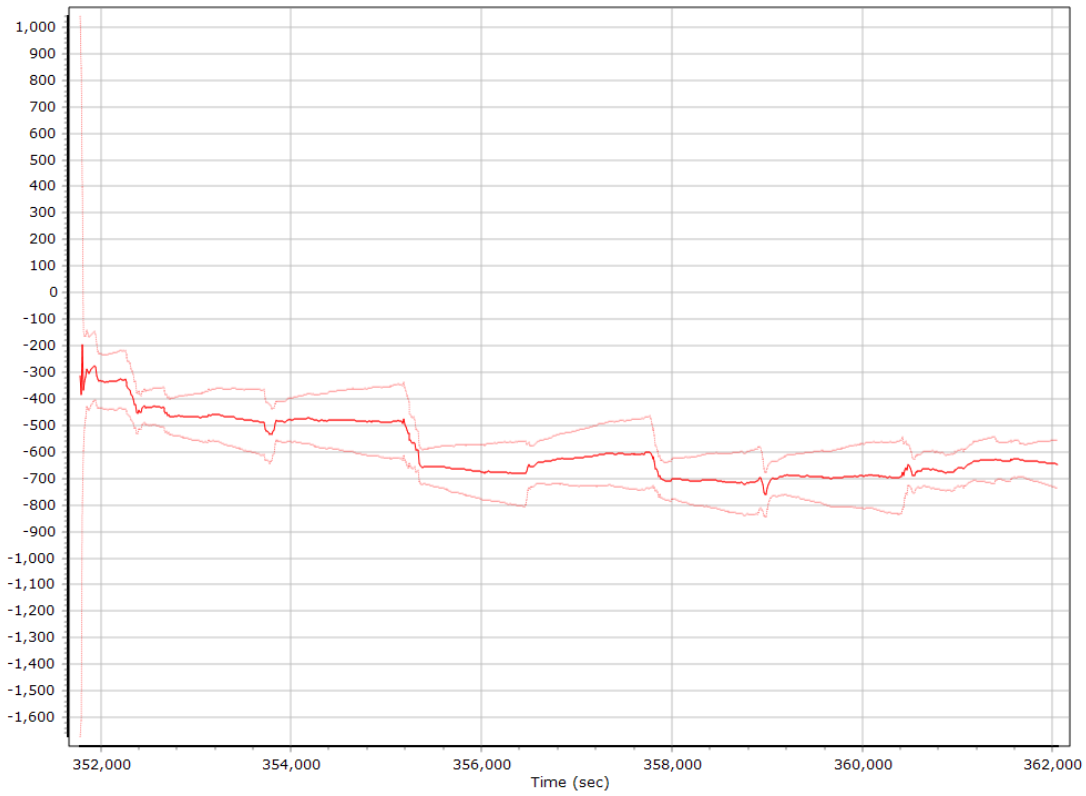
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

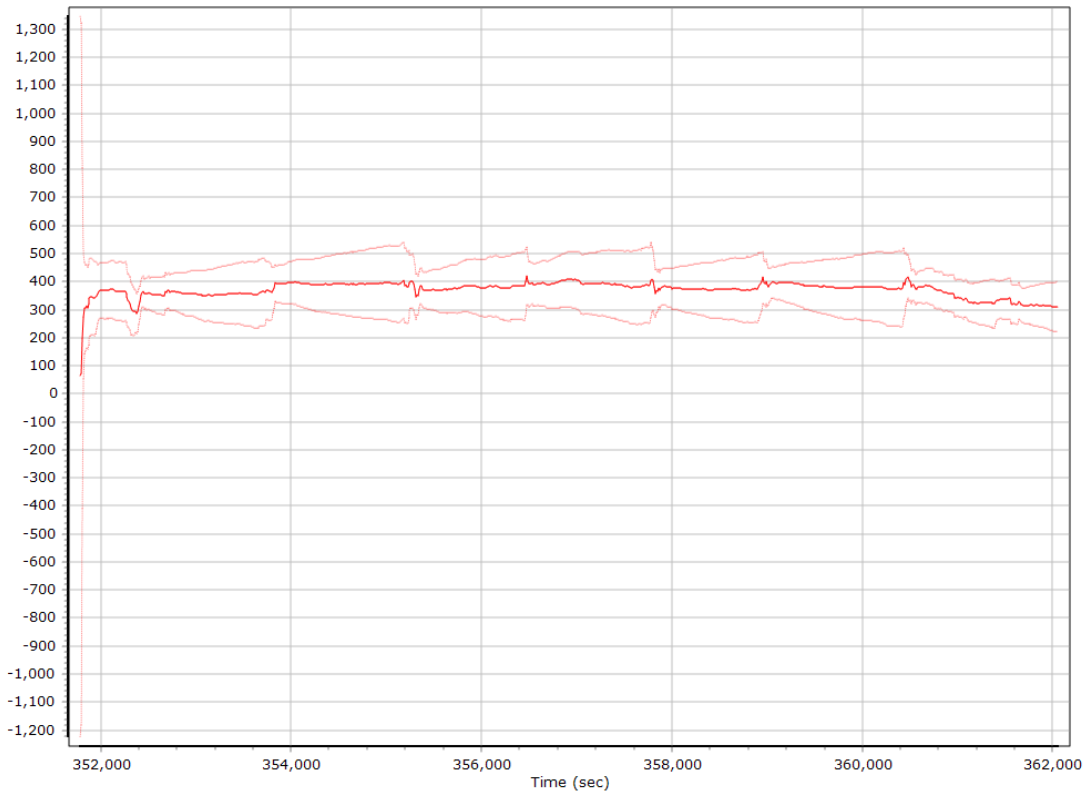
Accelerometer Bias (micro-g)



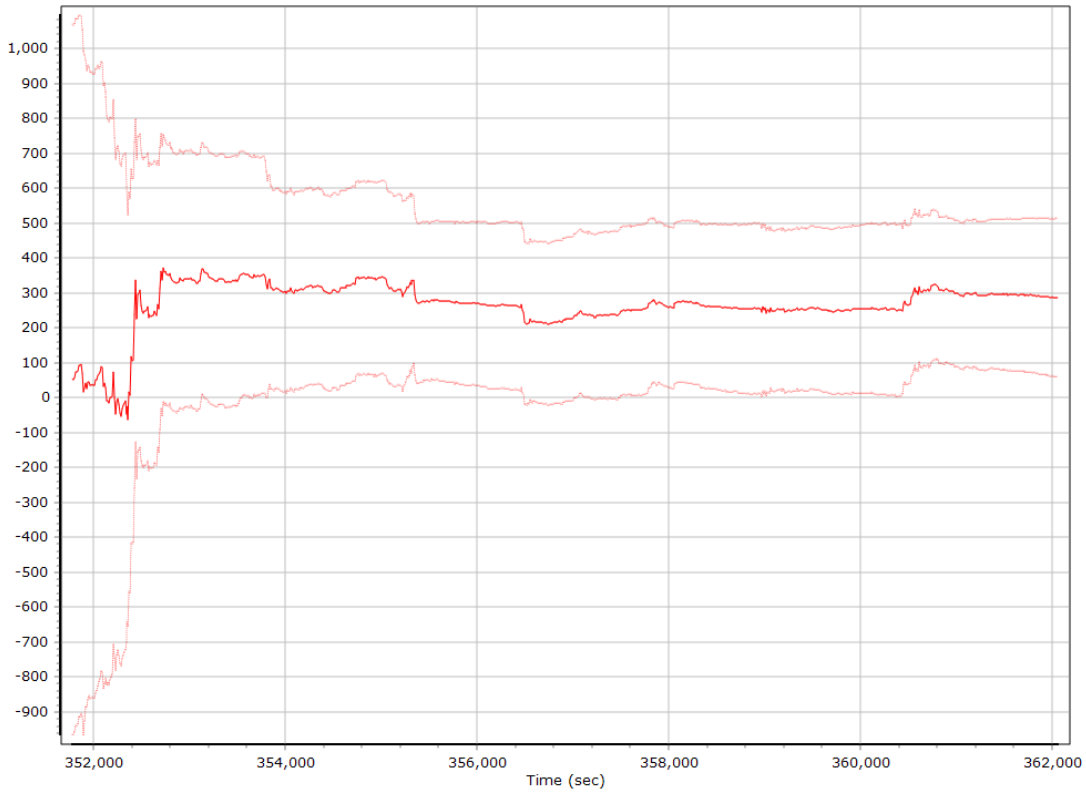
X Accelerometer Bias (micro-g)



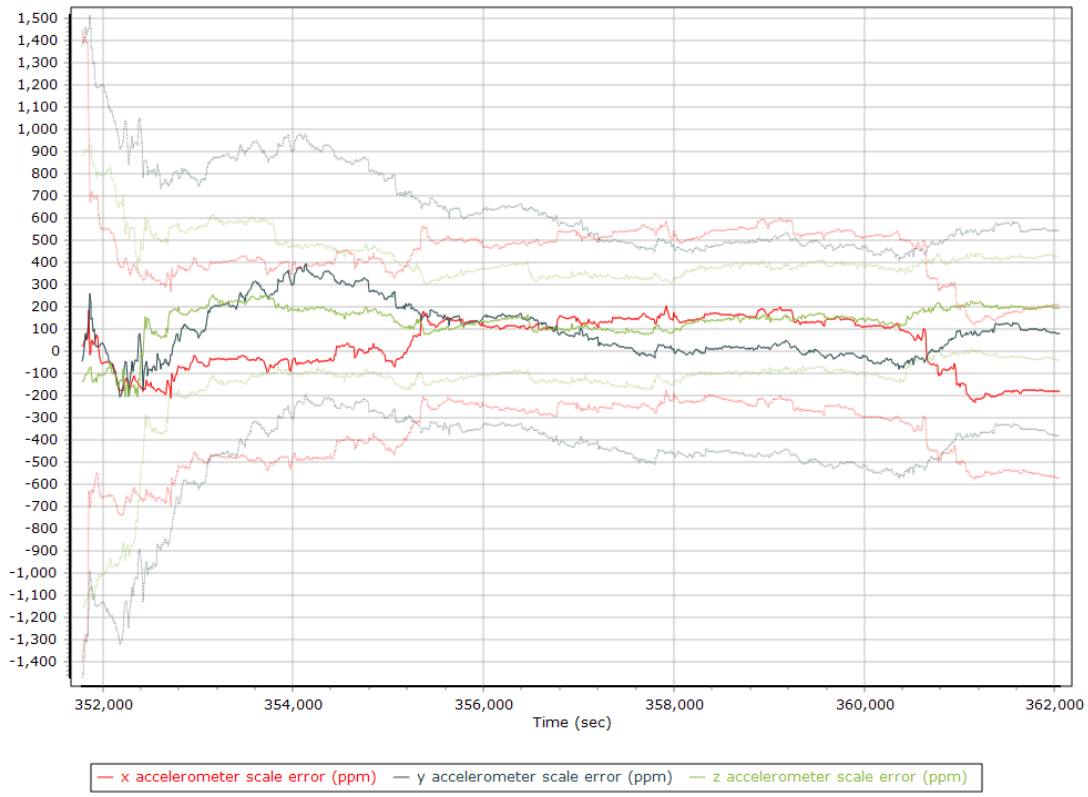
Y Accelerometer Bias (micro-g)



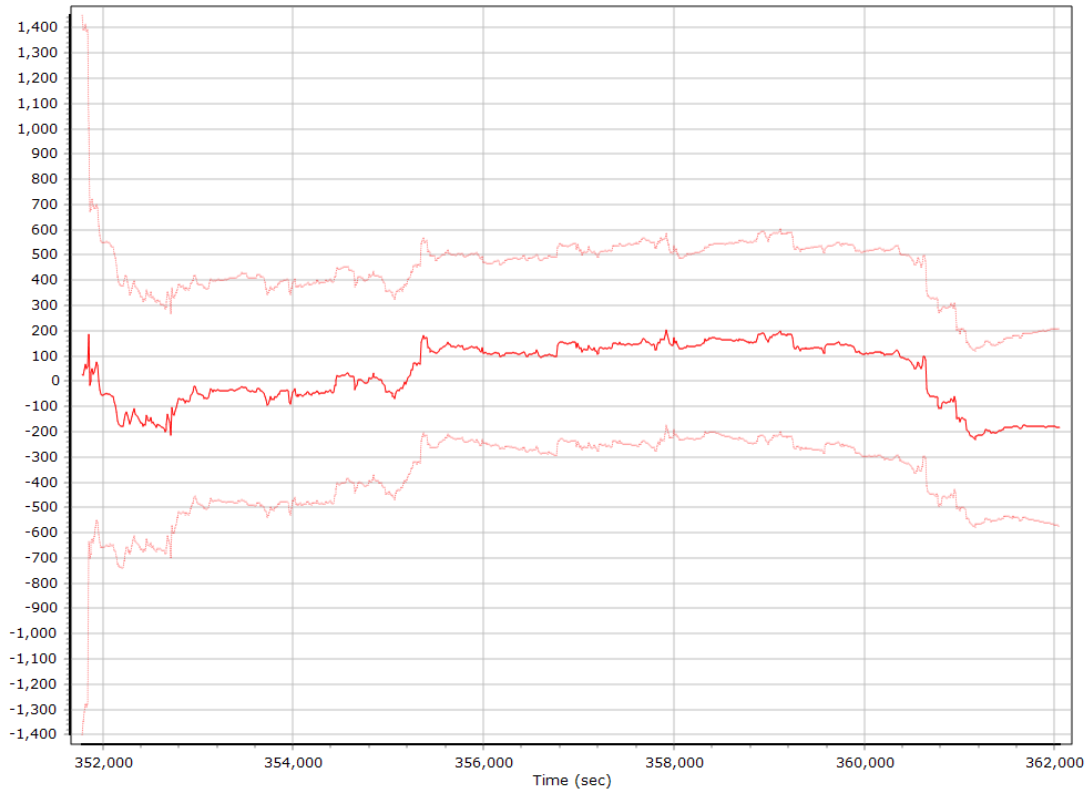
Z Accelerometer Bias (micro-g)



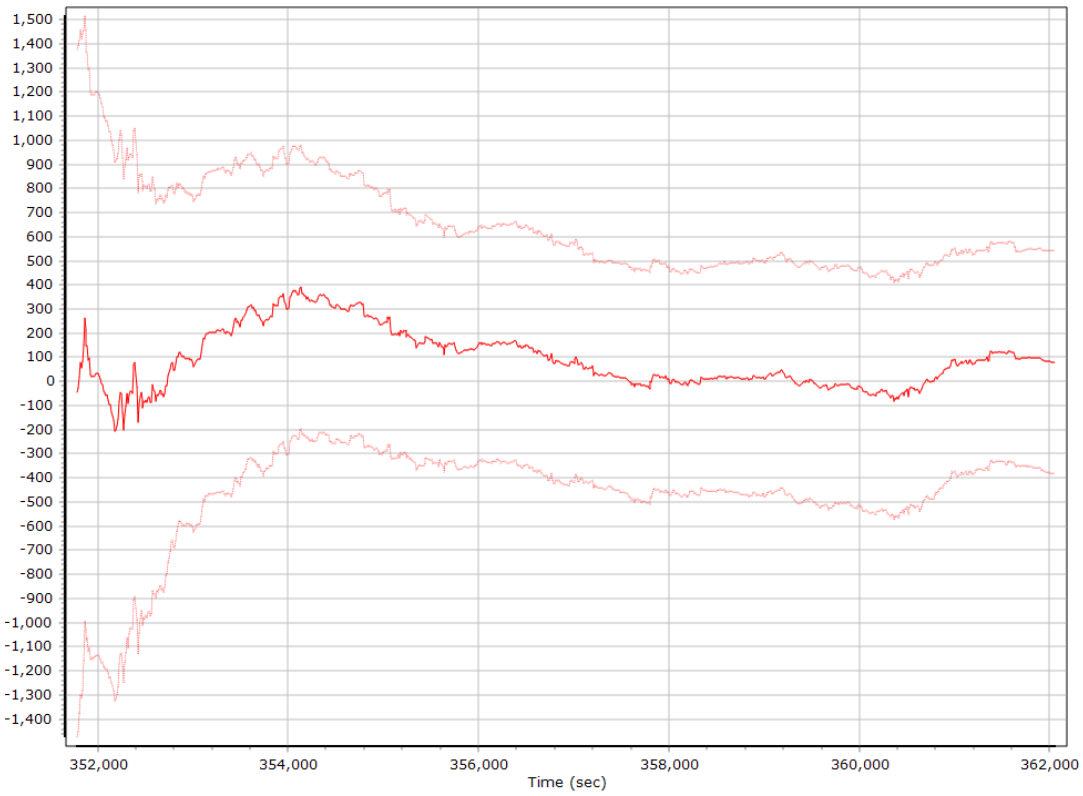
Accelerometer Scale Error (ppm)



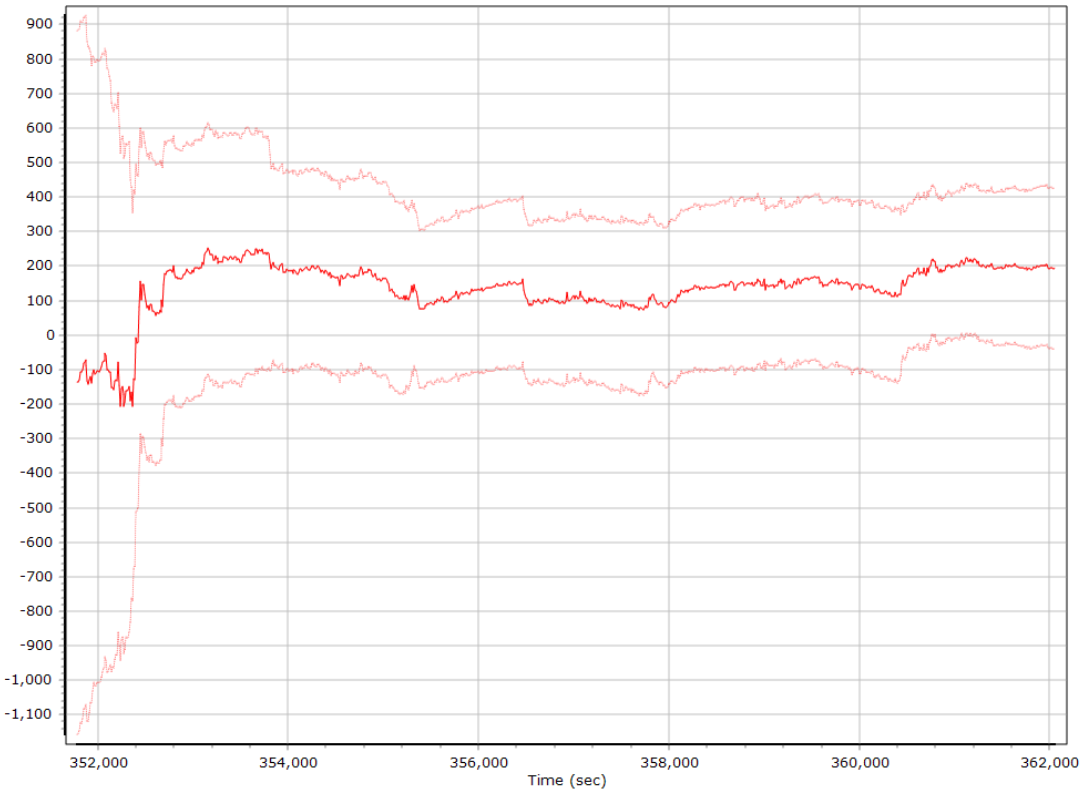
X Accelerometer Scale Error (ppm)



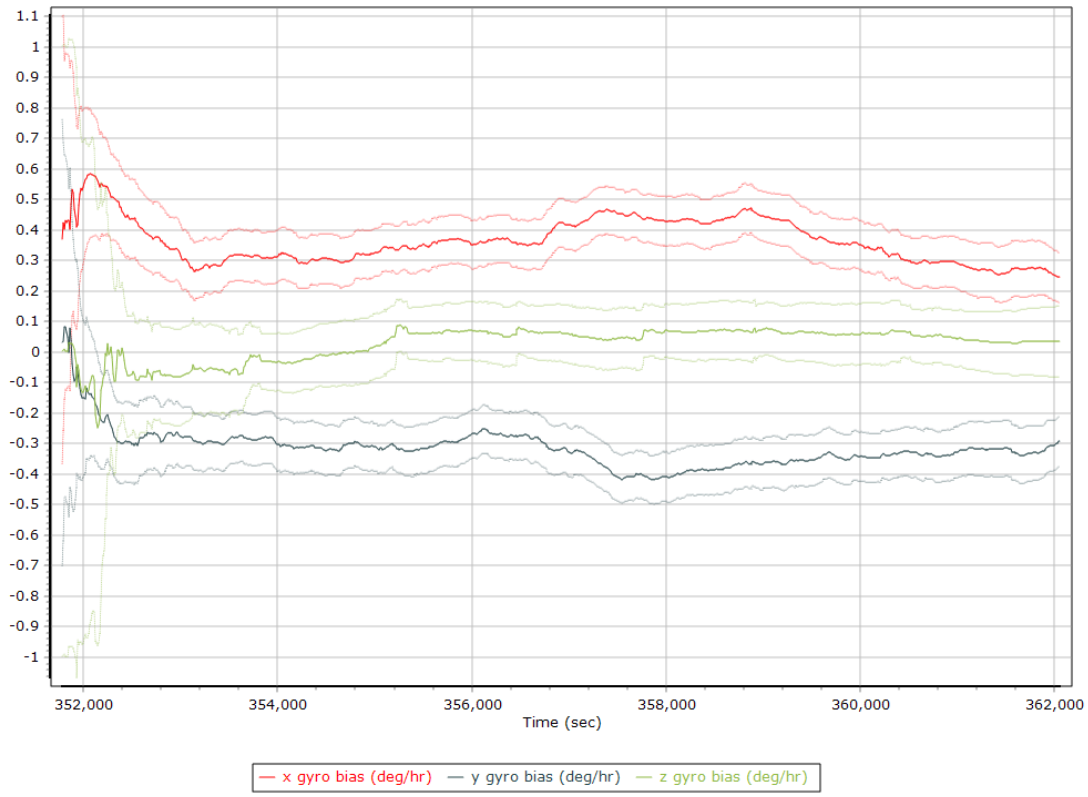
Y Accelerometer Scale Error (ppm)



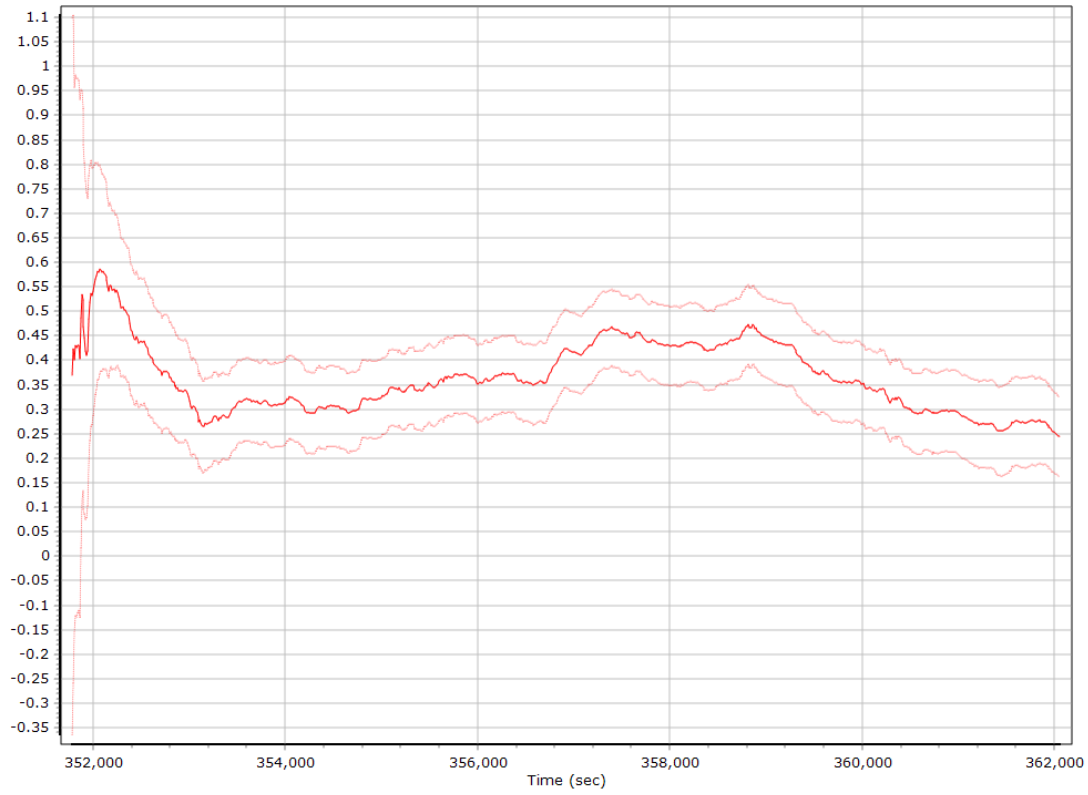
Z Accelerometer Scale Error (ppm)



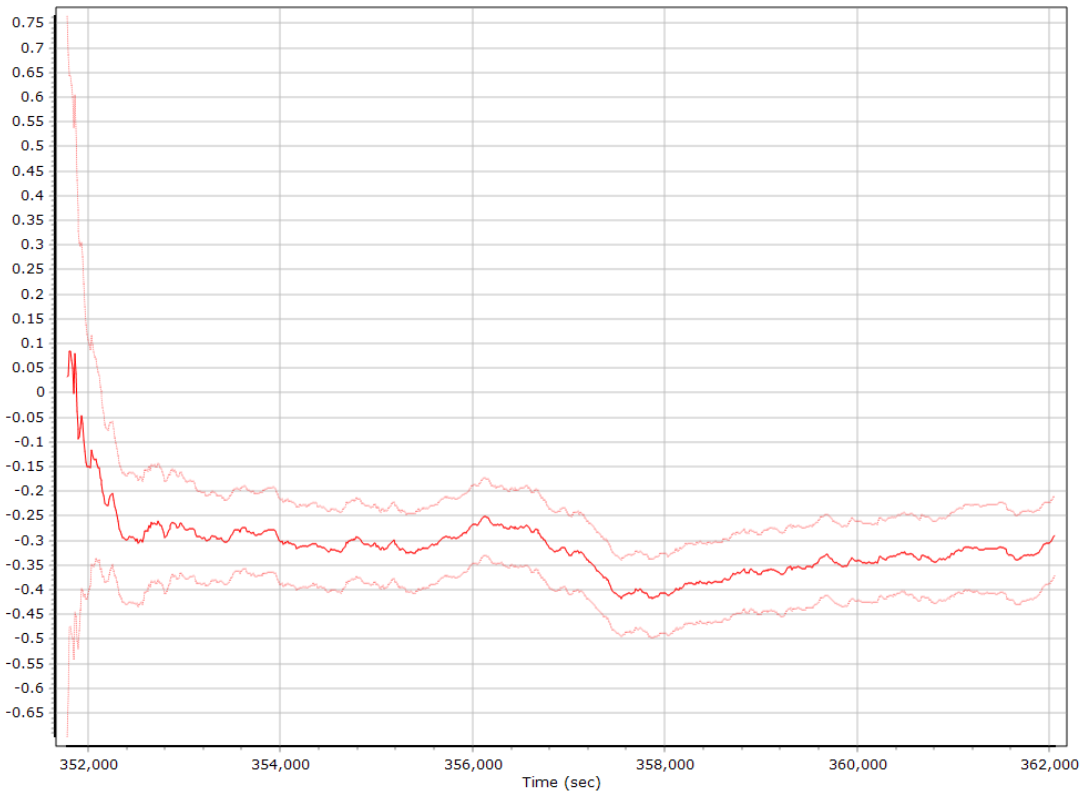
Gyro Bias (deg/h)



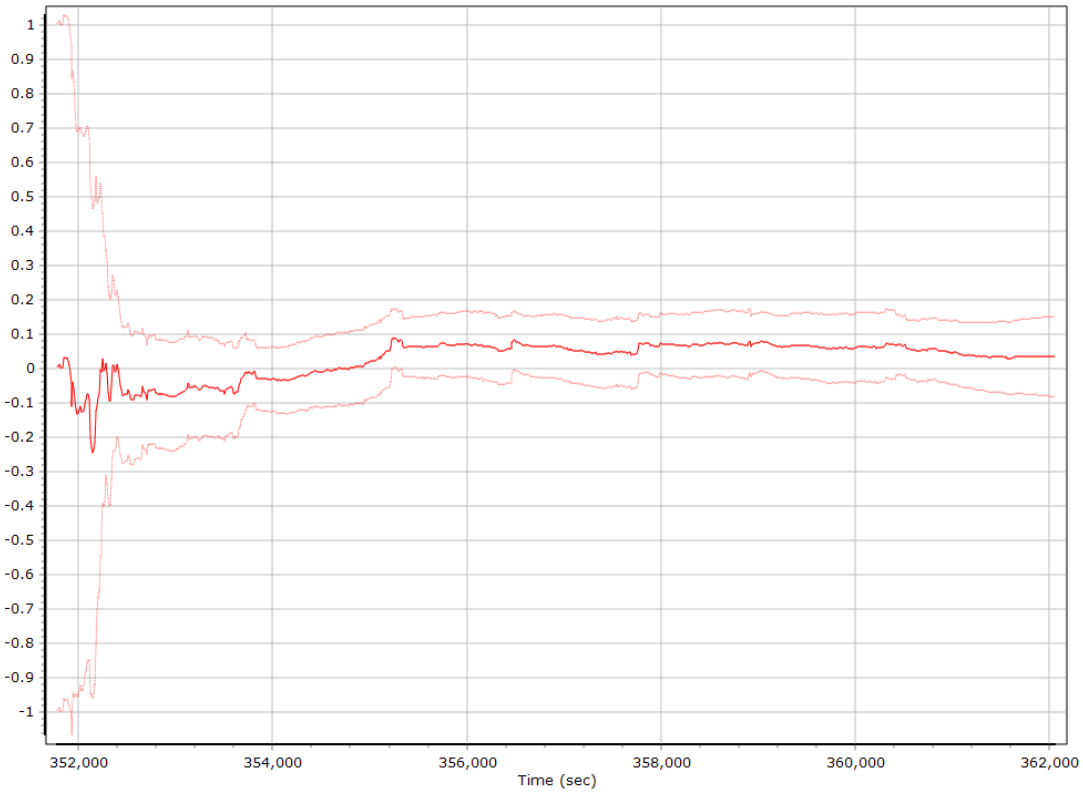
X Gyro Bias (deg/h)



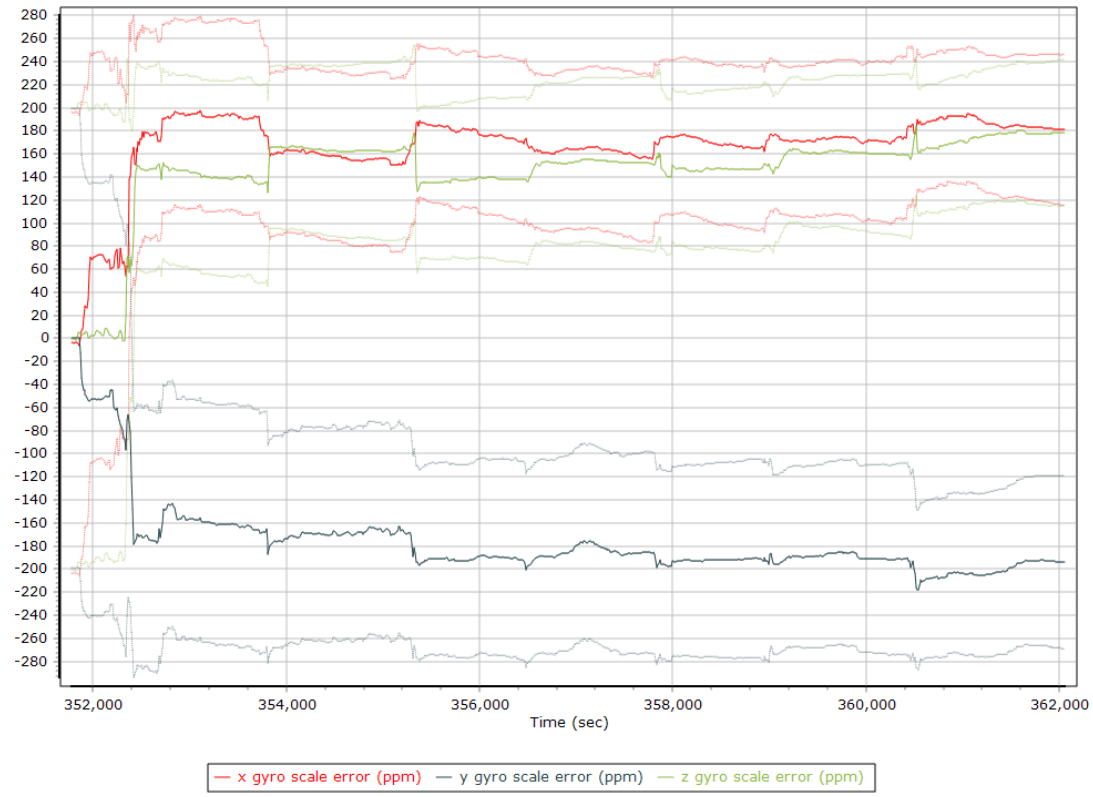
Y Gyro Bias (deg/h)



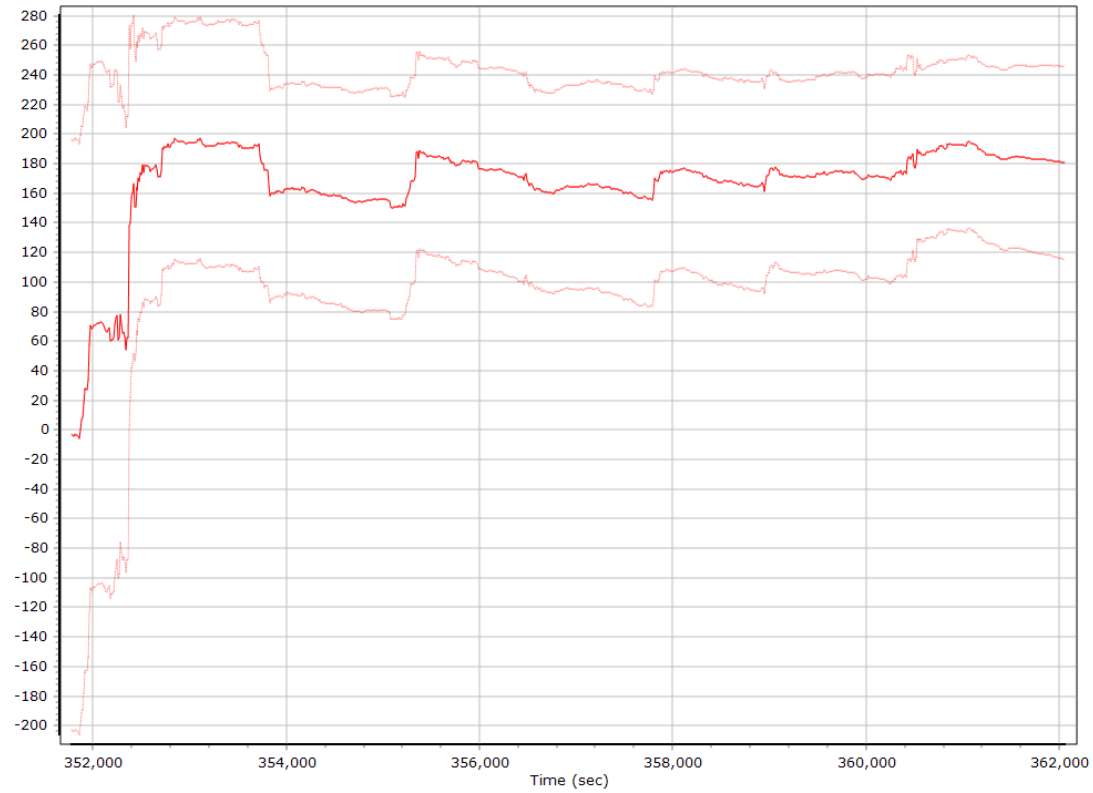
Z Gyro Bias (deg/h)



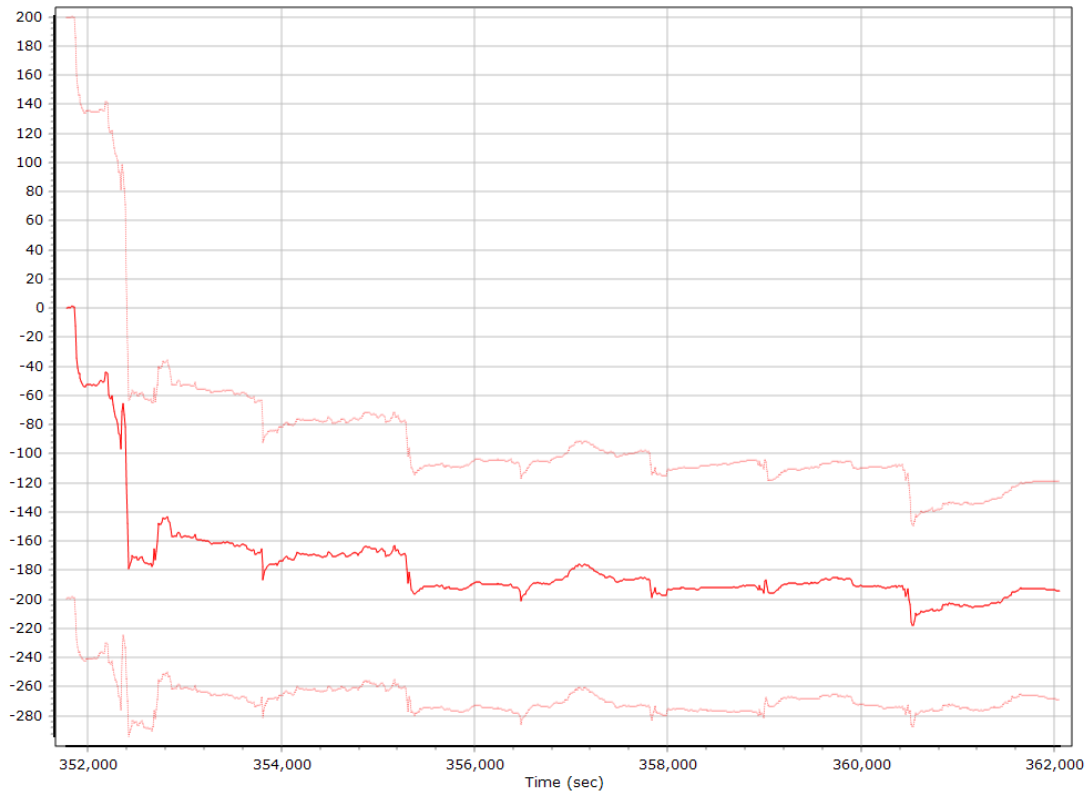
Gyro Scale Error (ppm)



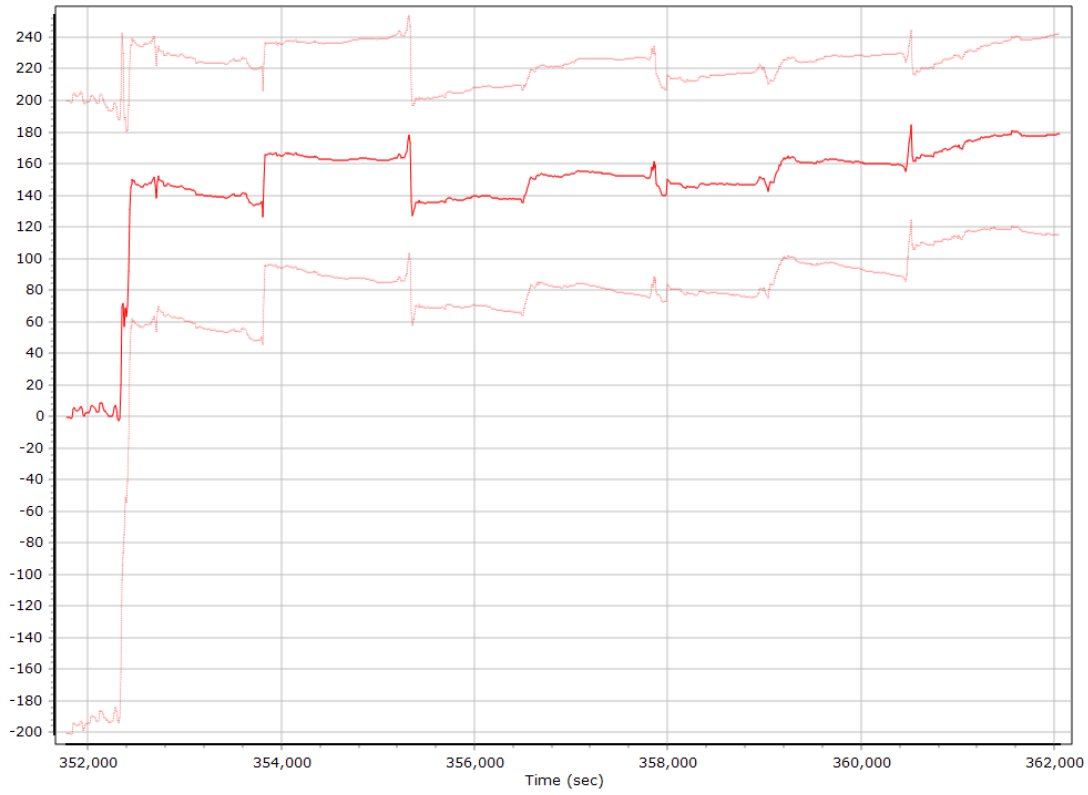
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

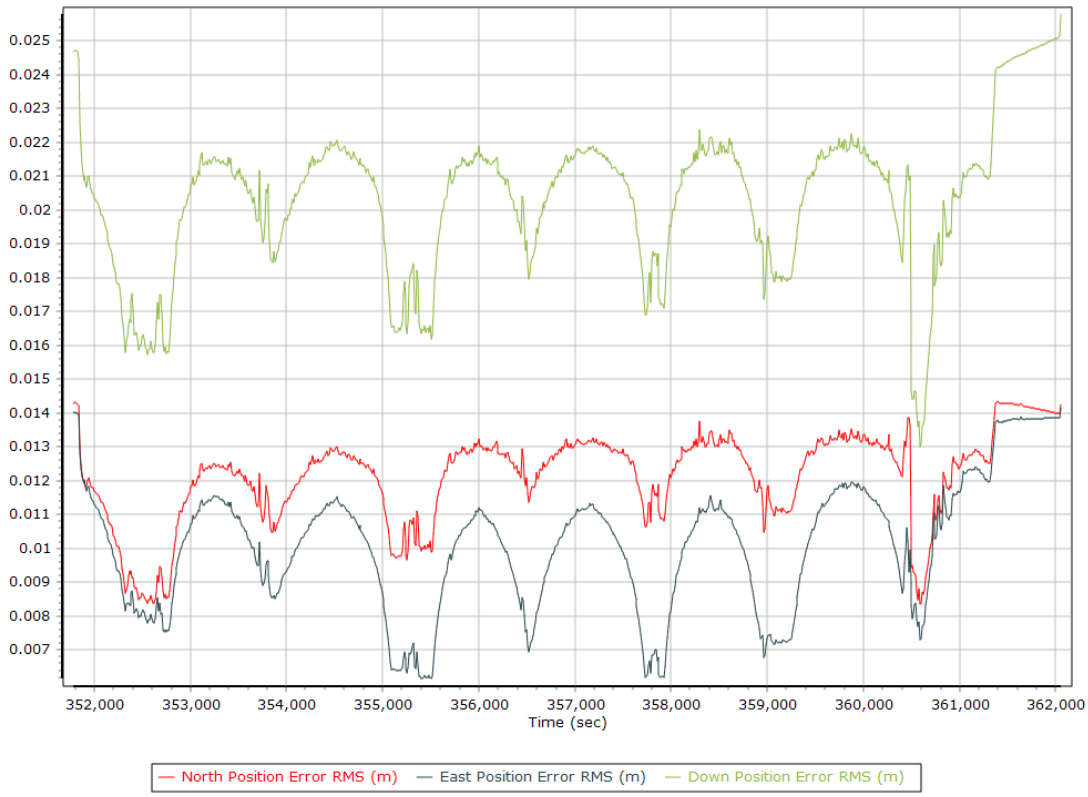


Z Gyro Scale Error (ppm)

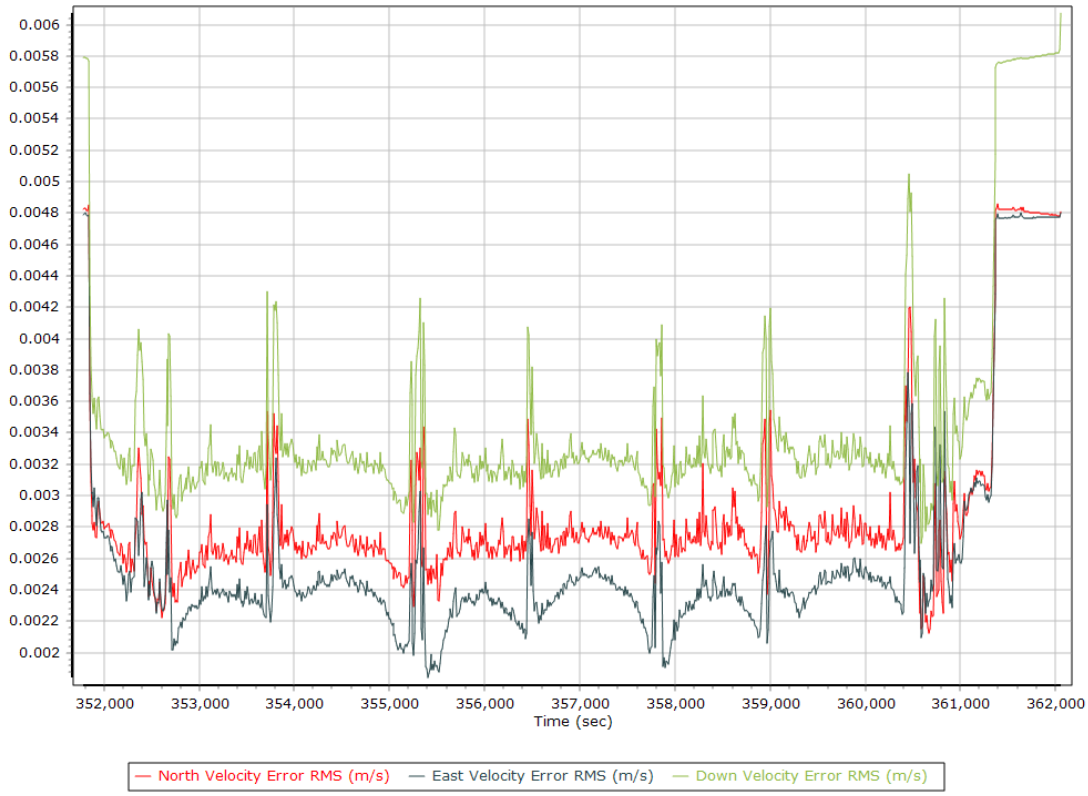


Smoothed Performance Metrics

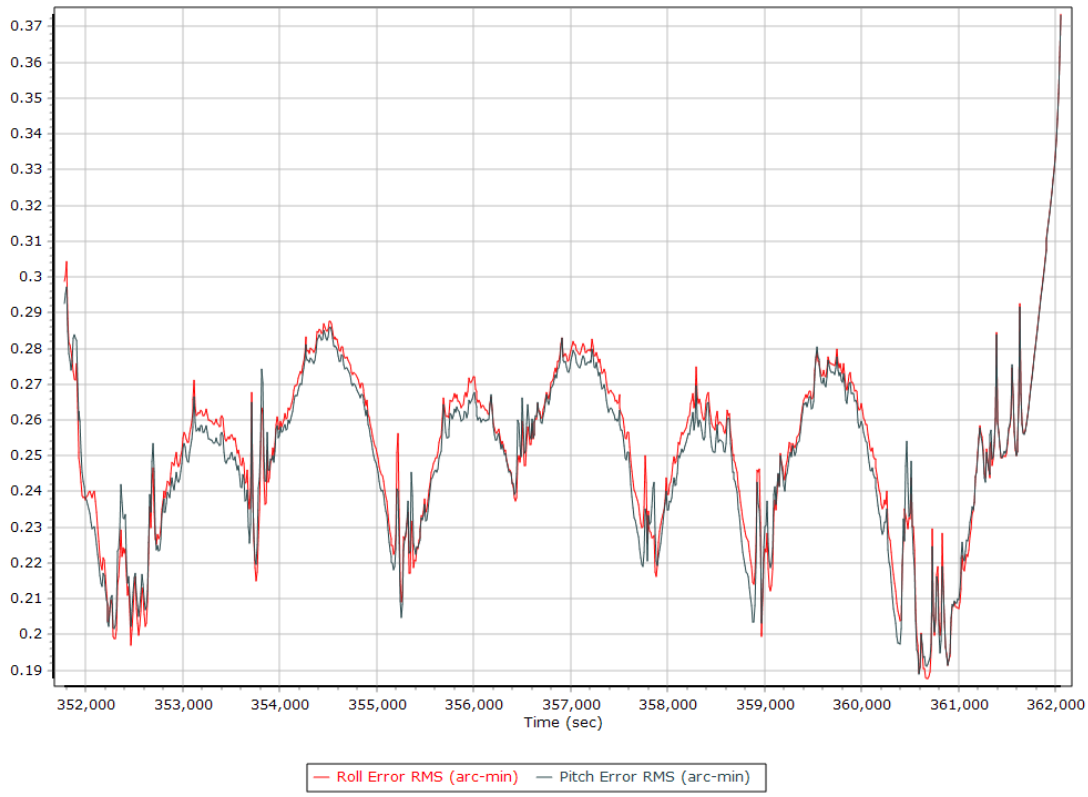
Position Error RMS (m)



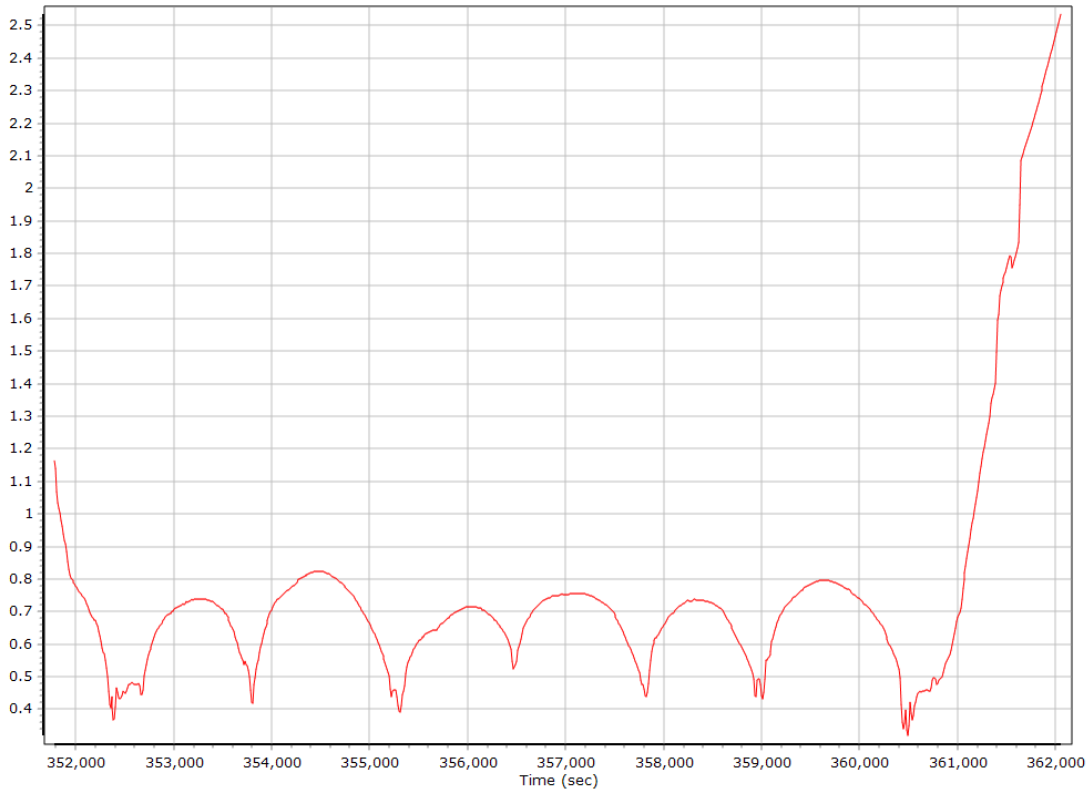
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

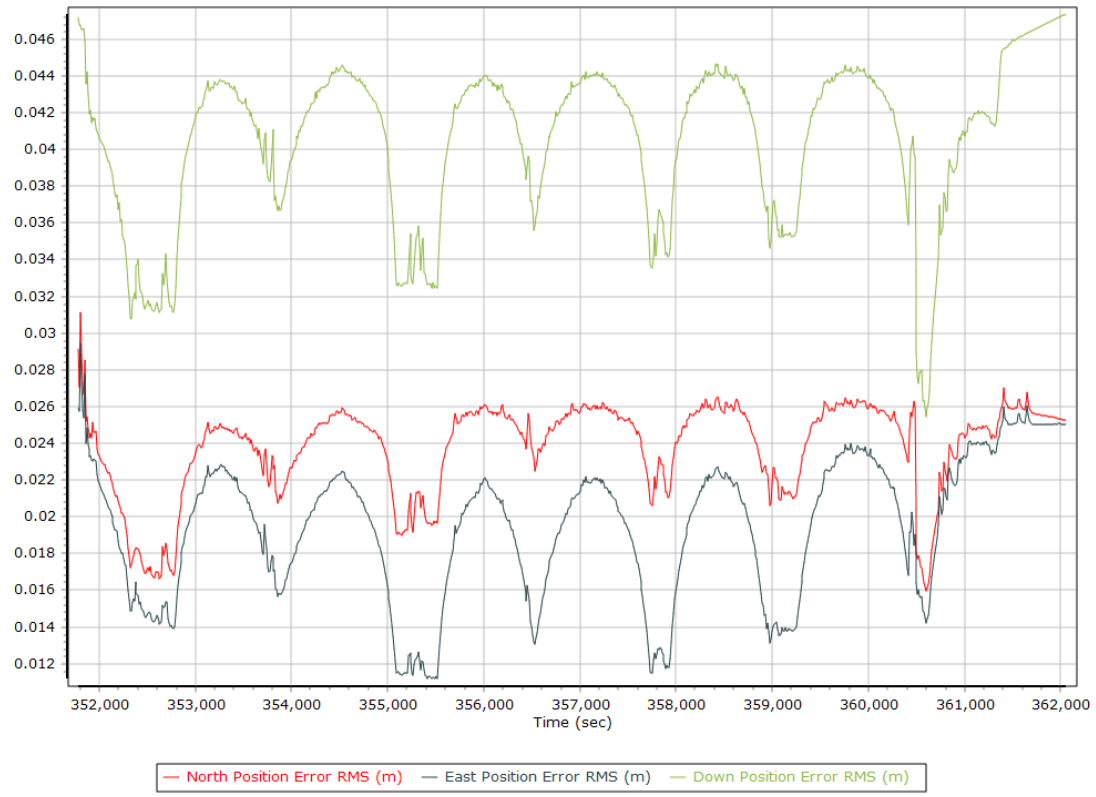


Heading Error RMS (arc-min)

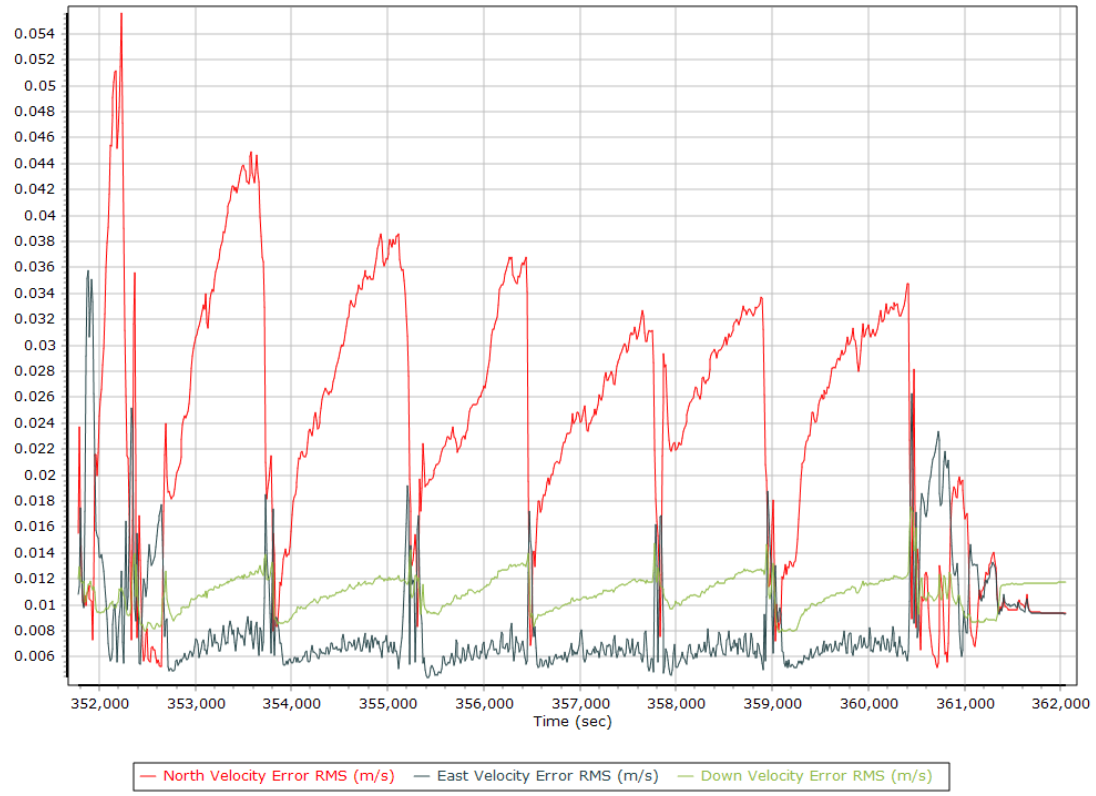


Forward Processed Performance Metrics

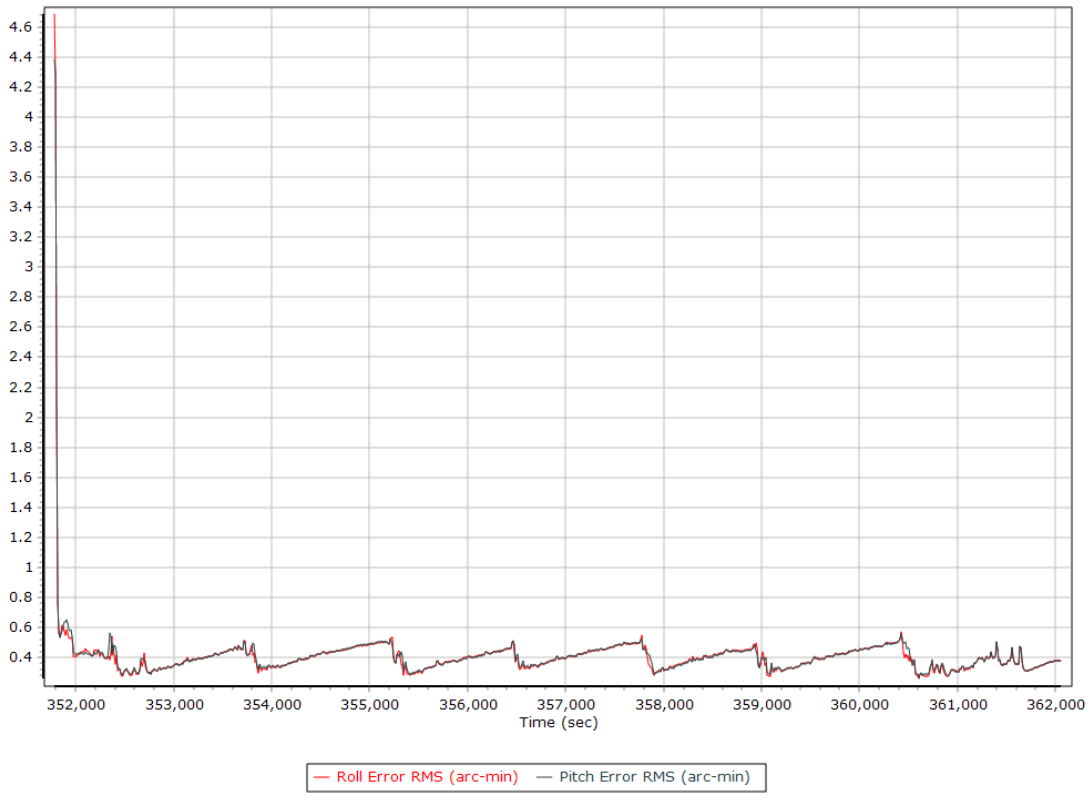
Position Error RMS (m)



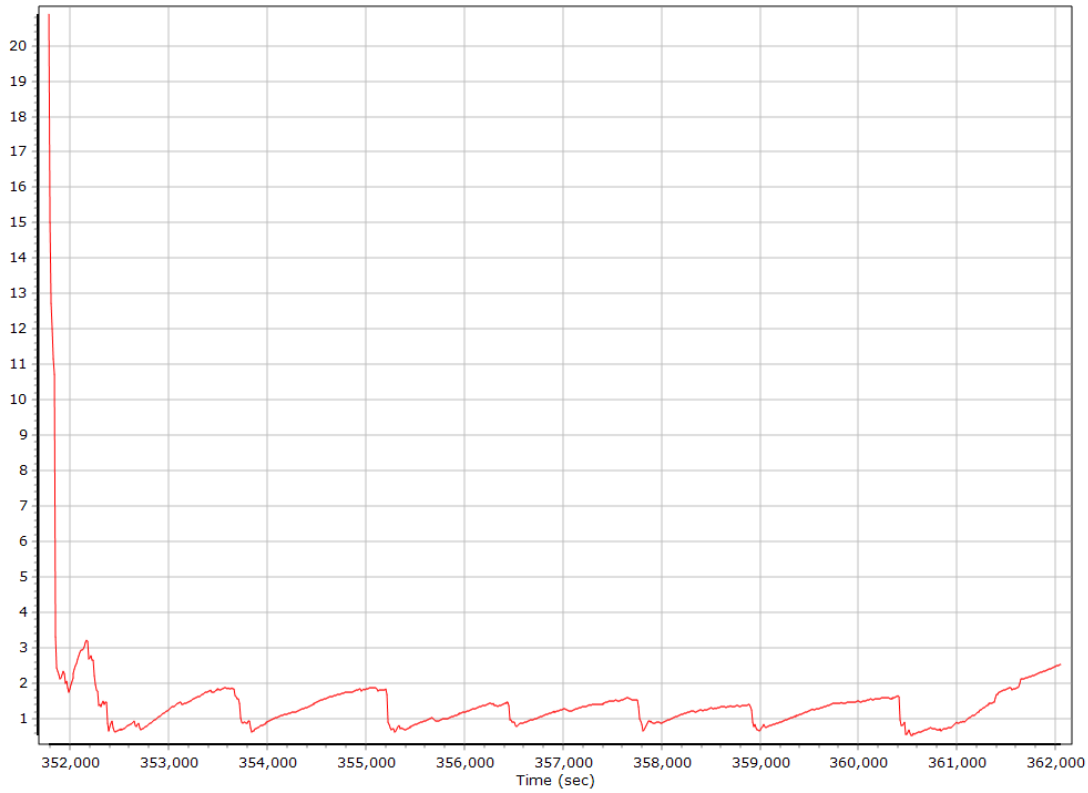
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

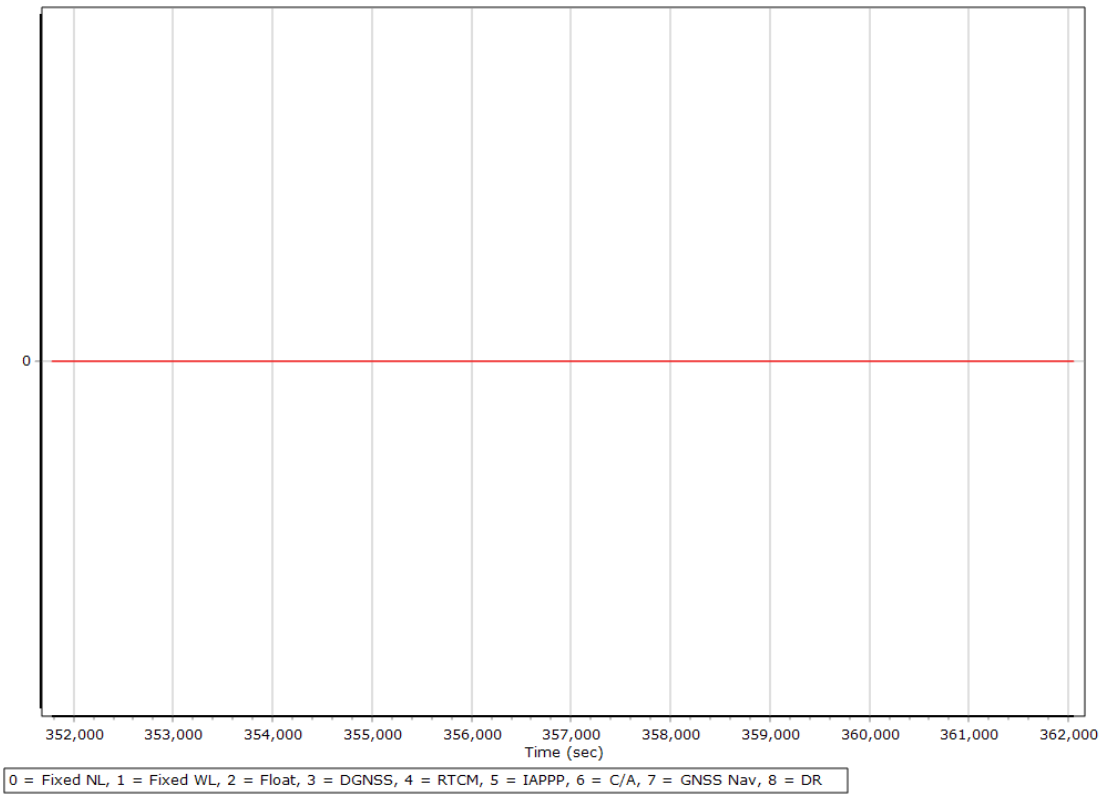


Heading Error RMS (arc-min)

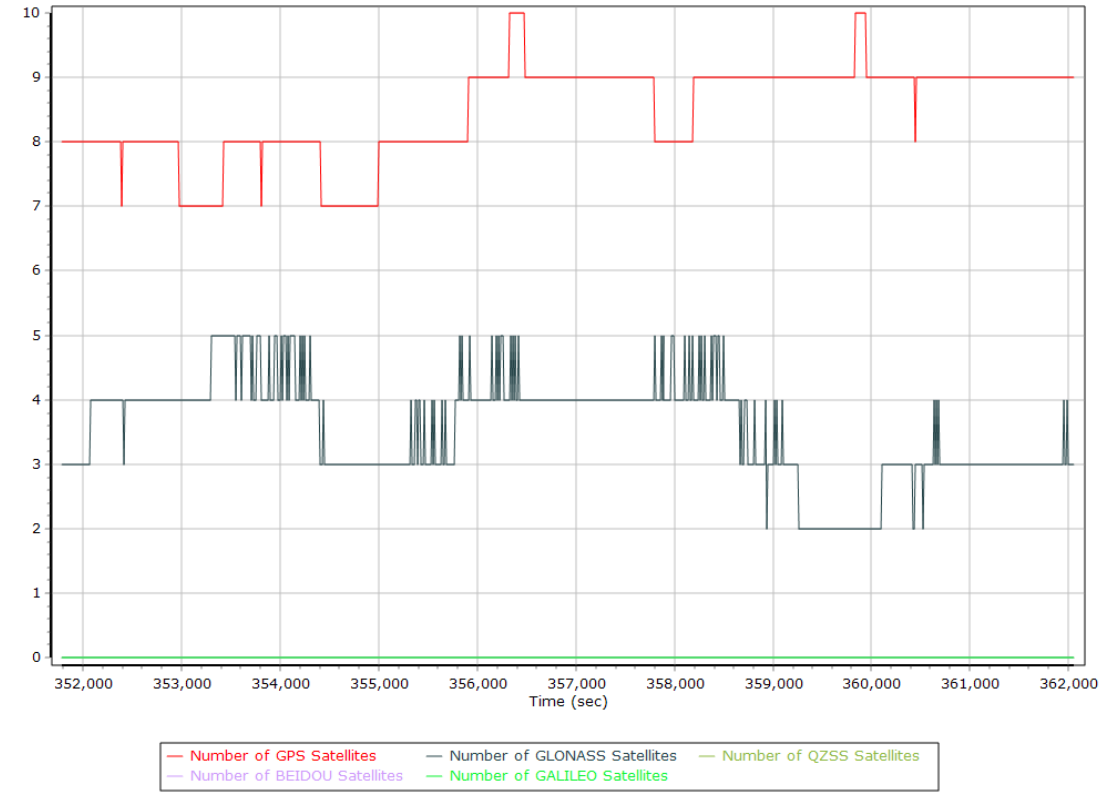


Smoothed Solution Status

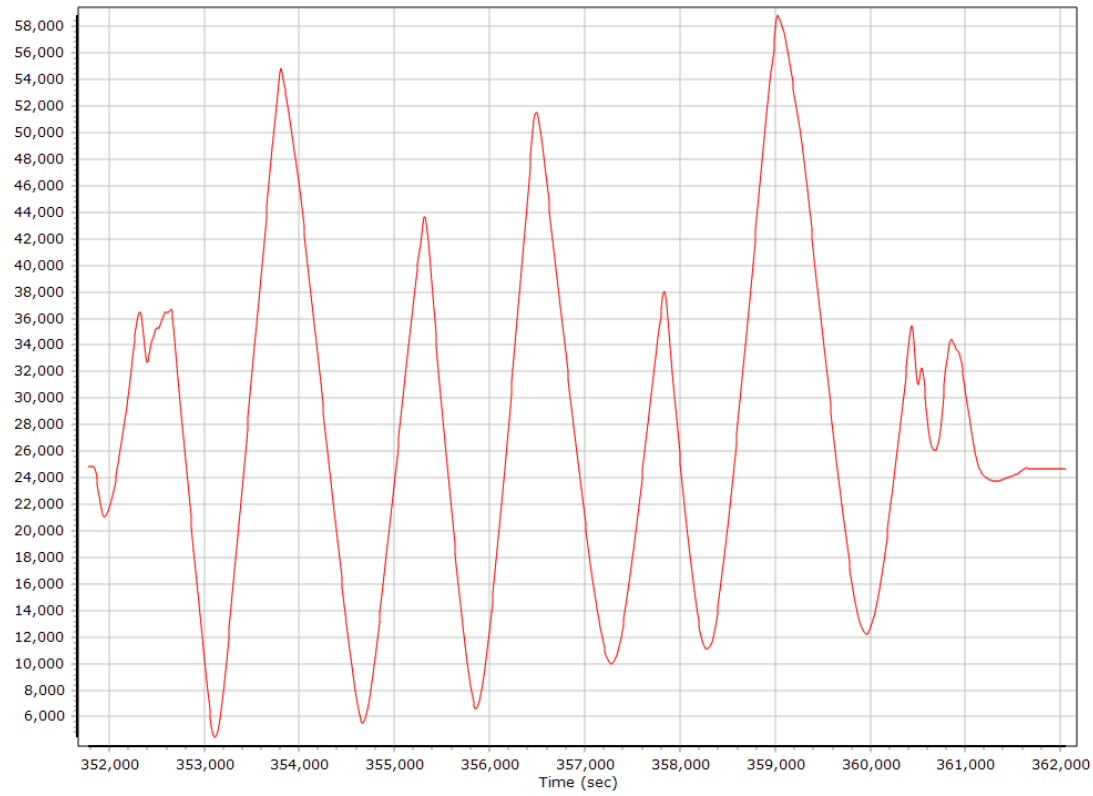
Processing Mode



Number of Satellites

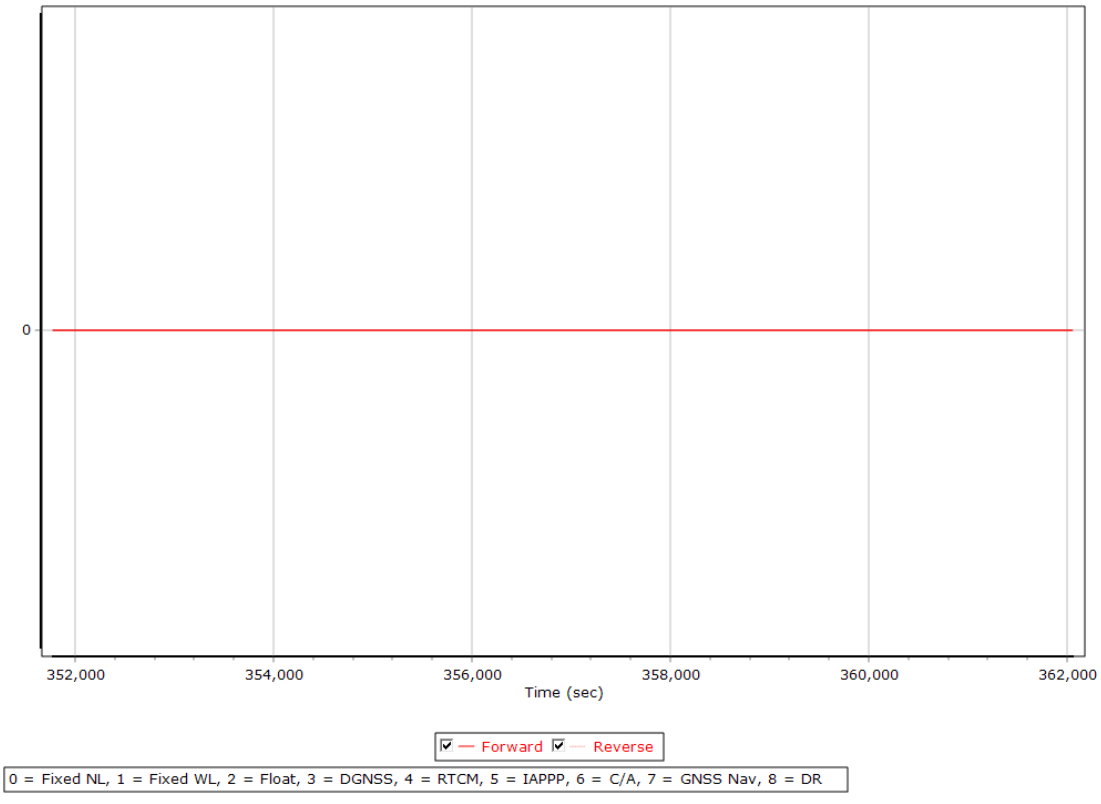


Baseline Length

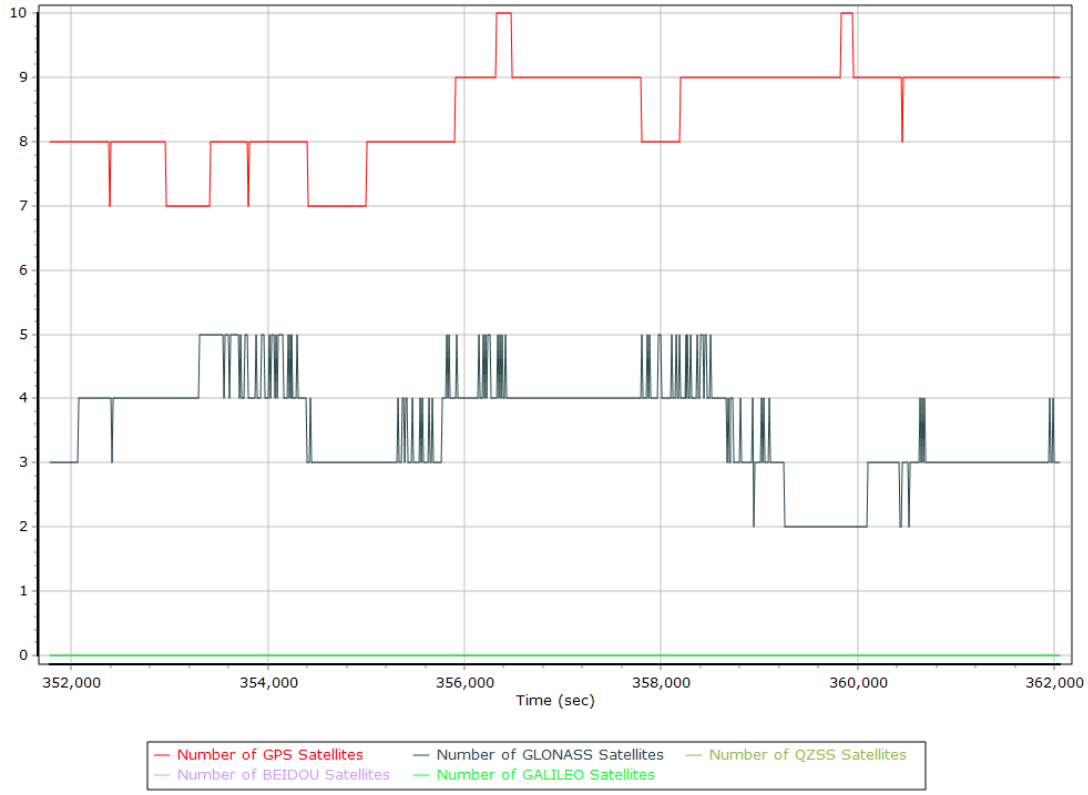


Forward Processed Solution Status

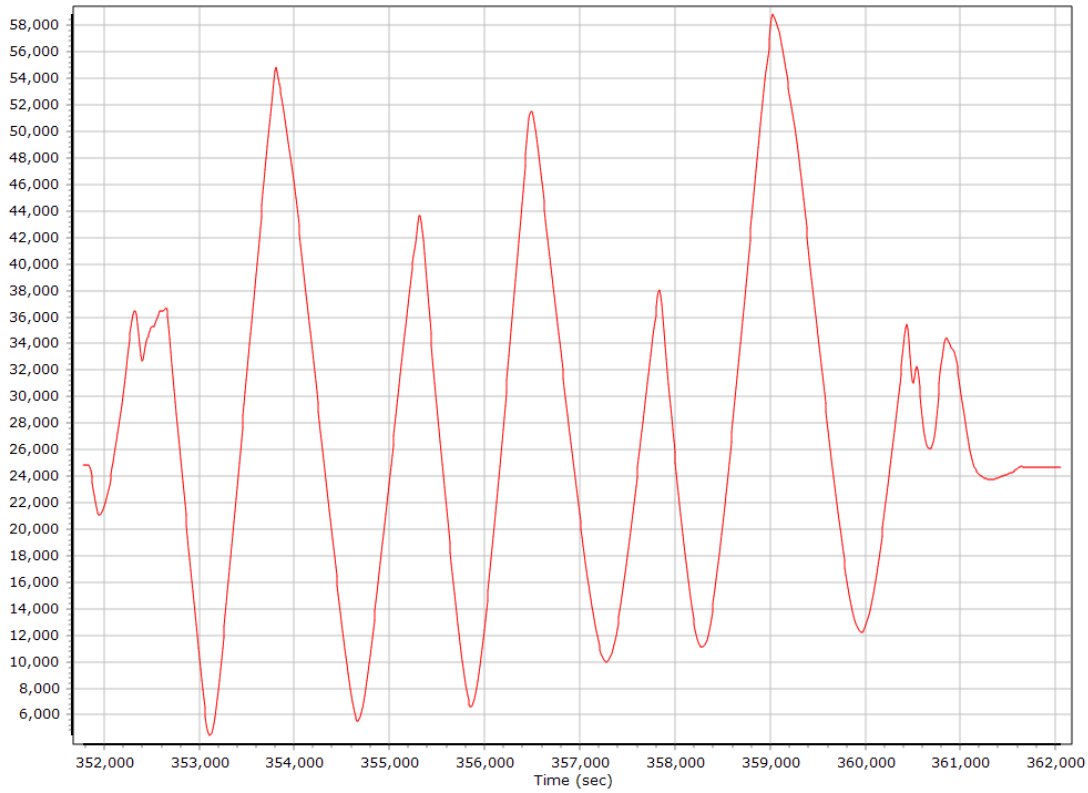
Processing Mode



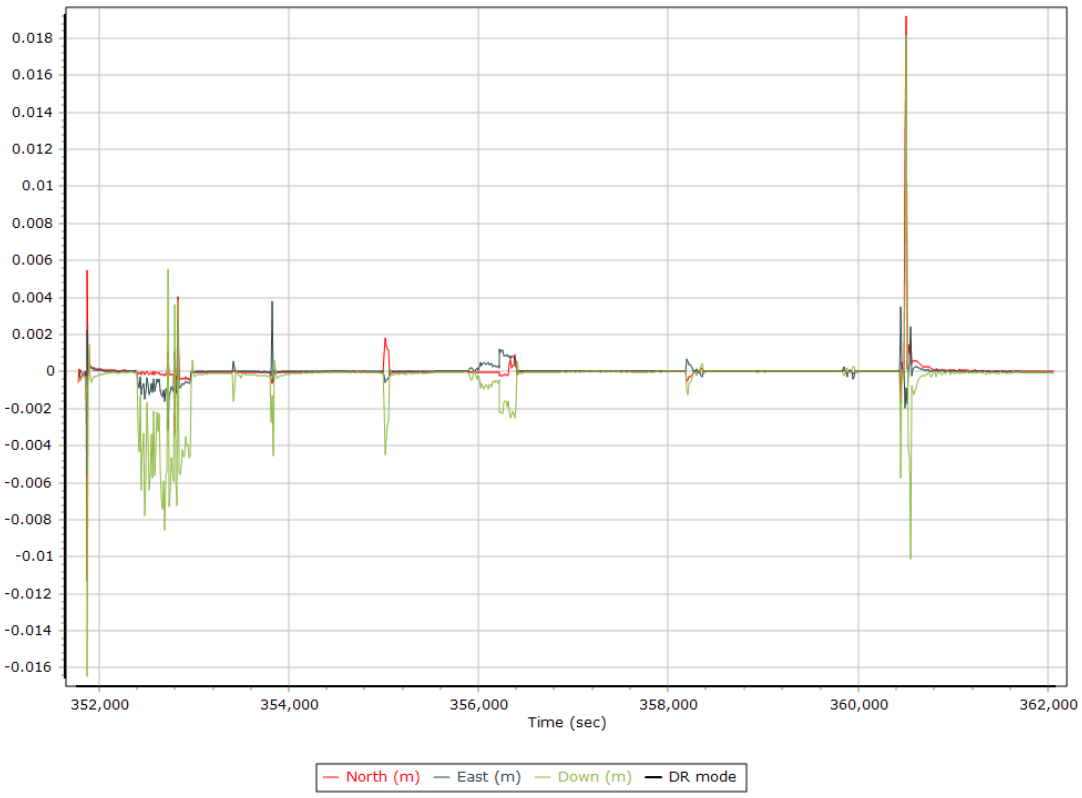
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_20200409A-Mission 1.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	350453.448 (4/9/2020 1:20:53 AM)		
Export end time	362063.752 (4/9/2020 4:34:23 AM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200409B
Processing date	2021-01-18 23:08:31
Mission date	2020-04-09 13:03:25
Mission duration	02:33:52.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.205	POS Data
ALS.206	POS Data
ALS.207	POS Data
ALS.208	POS Data
ALS.209	POS Data
ALS.210	POS Data
ALS.211	POS Data
ALS.212	POS Data
ALS.213	POS Data
ALS.214	POS Data
ALS.215	POS Data
ALS.216	POS Data
ALS.217	POS Data
ALS.218	POS Data

Input Files

File Name	File Type
Ephm1000.20g	GLONASS Broadcast Ephemeris
Ephm1000.20n	GPS Broadcast Ephemeris
iaal1000.20o	GNSS SingleBase
iade1000.20o	GNSS SingleBase
iael1000.20o	GNSS SingleBase
iamn1000.20o	GNSS SingleBase
iata1000.20o	GNSS SingleBase
mnps1000.20o	GNSS SingleBase
igu21003_18.sp3	GPS Precise Ephemeris
igu21004_18.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200409B-Mission 1.out	SBET Trajectory File
SBET_20200409B-Mission 1.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.205		
Last raw data file	ALS.218		
Start GPS week	2100		
Start time	392598.670 (4/9/2020 1:03:18 PM)		
End time	401819.594 (4/9/2020 3:36:59 PM)		
Start of fine alignment	393189.252 (4/9/2020 1:13:09 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

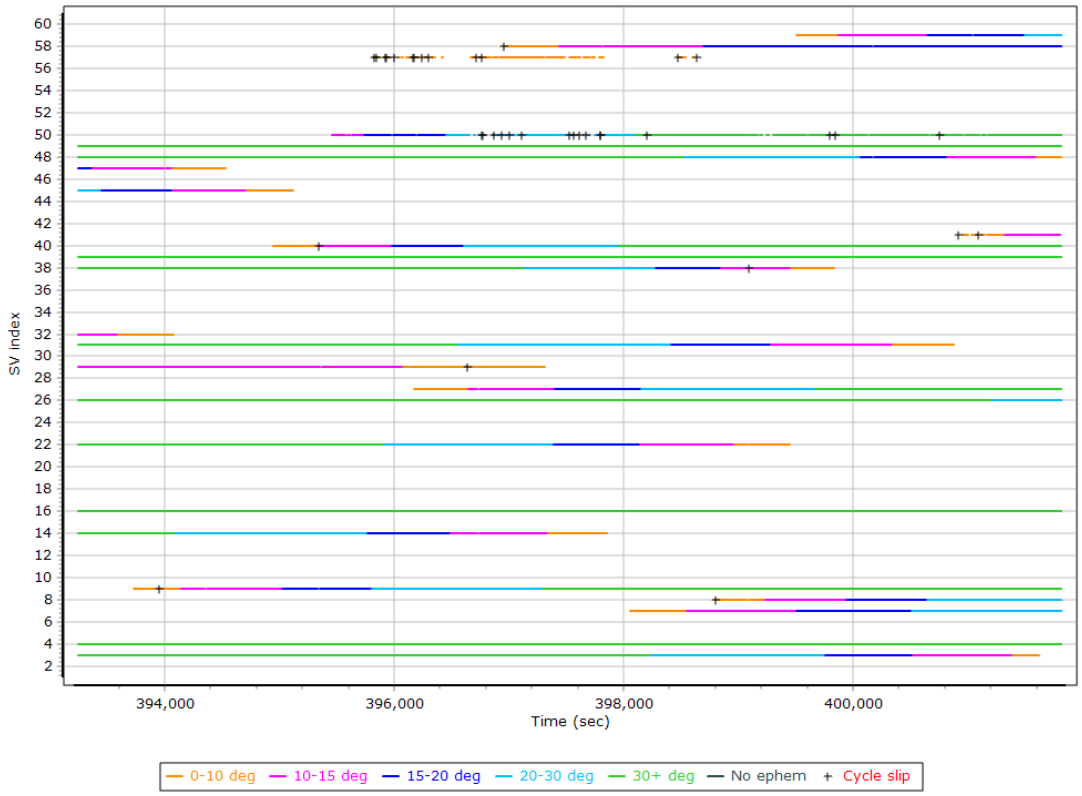
Rover Data QC

Raw IMU Import QC Summary

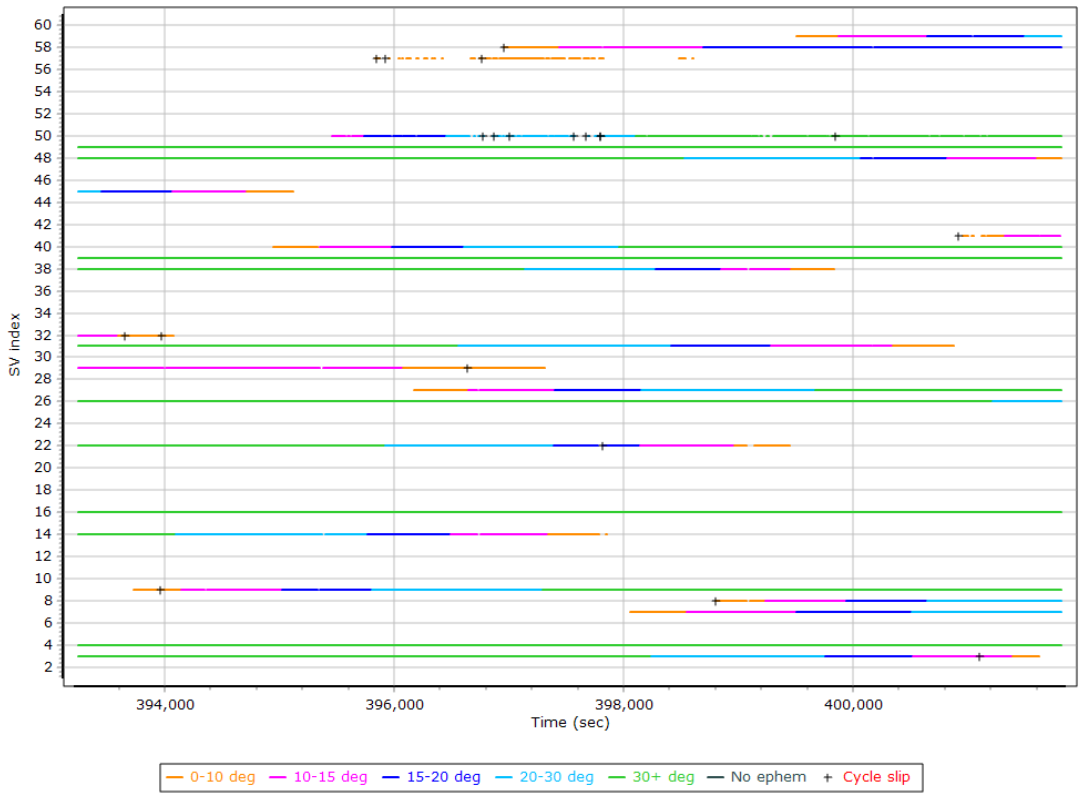
IMU data input file	imu_20200409B-Mission 1.dat
IMU data check log file	imudt_20200409B-Mission 1.log
IMU Records Processed	1849112
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
392598.275 : WARNING : Gap of 392576.2884 seconds in CHECKDT input data	

Primary Observables & Satellite Data

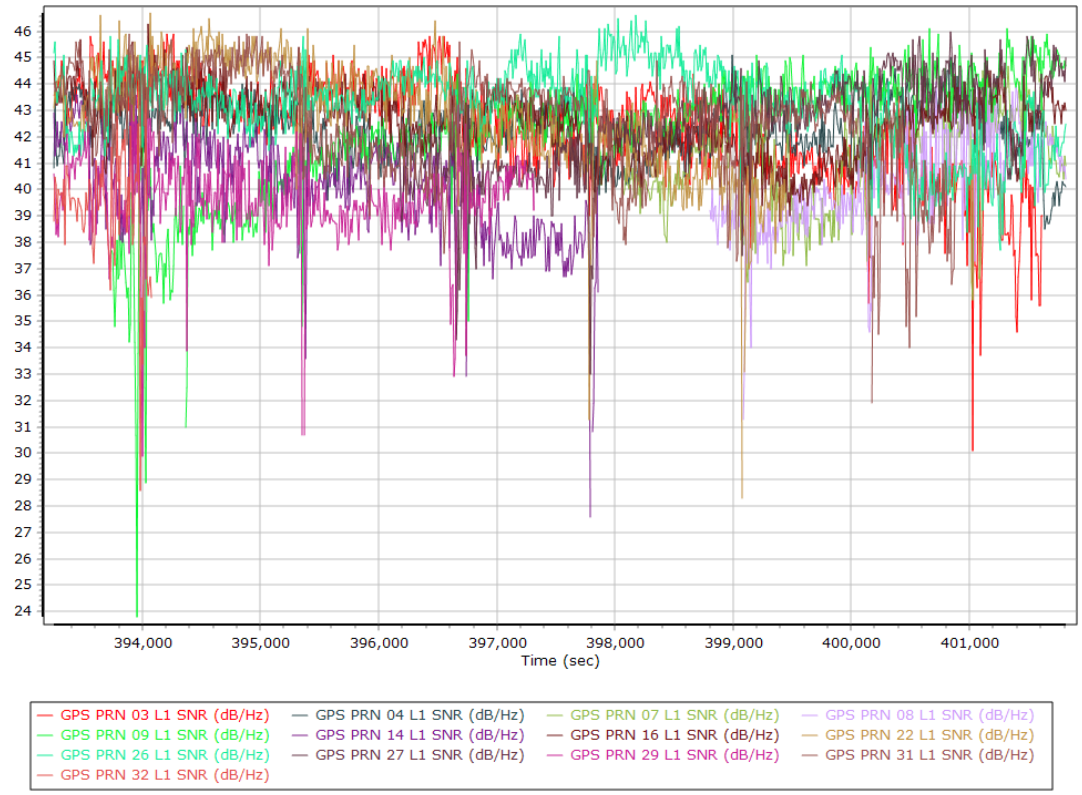
L1 Satellite Lock/Elevation



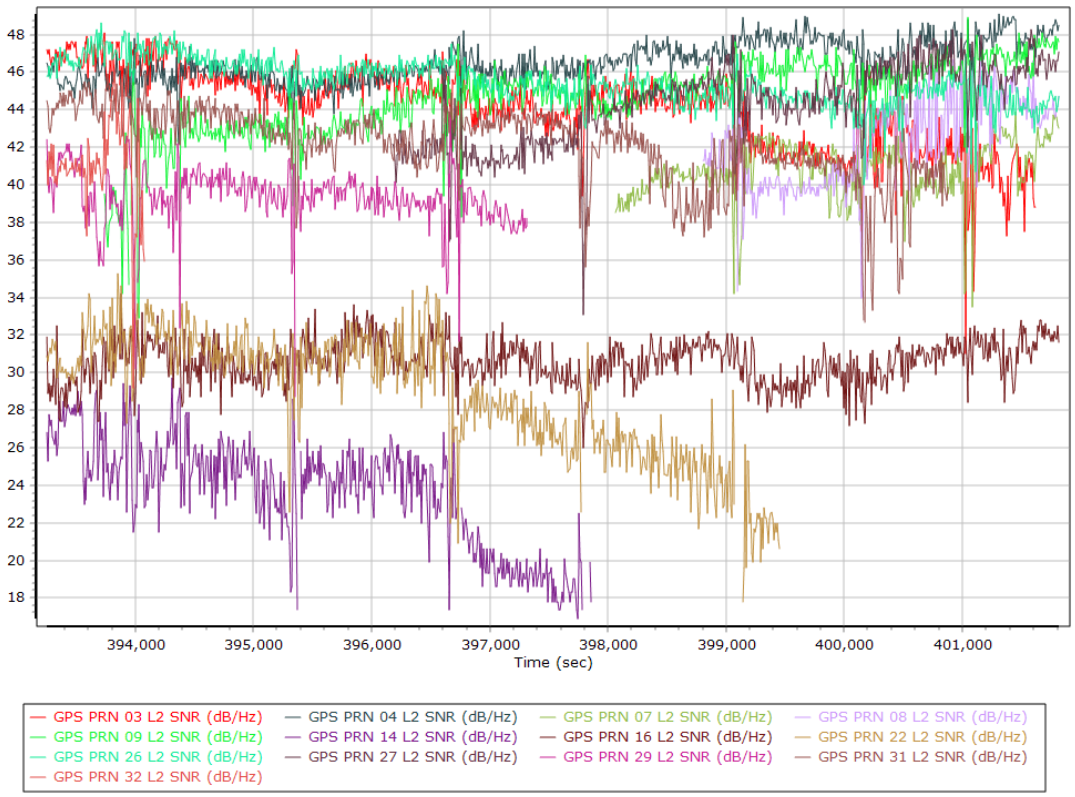
L2 Satellite Lock/Elevation



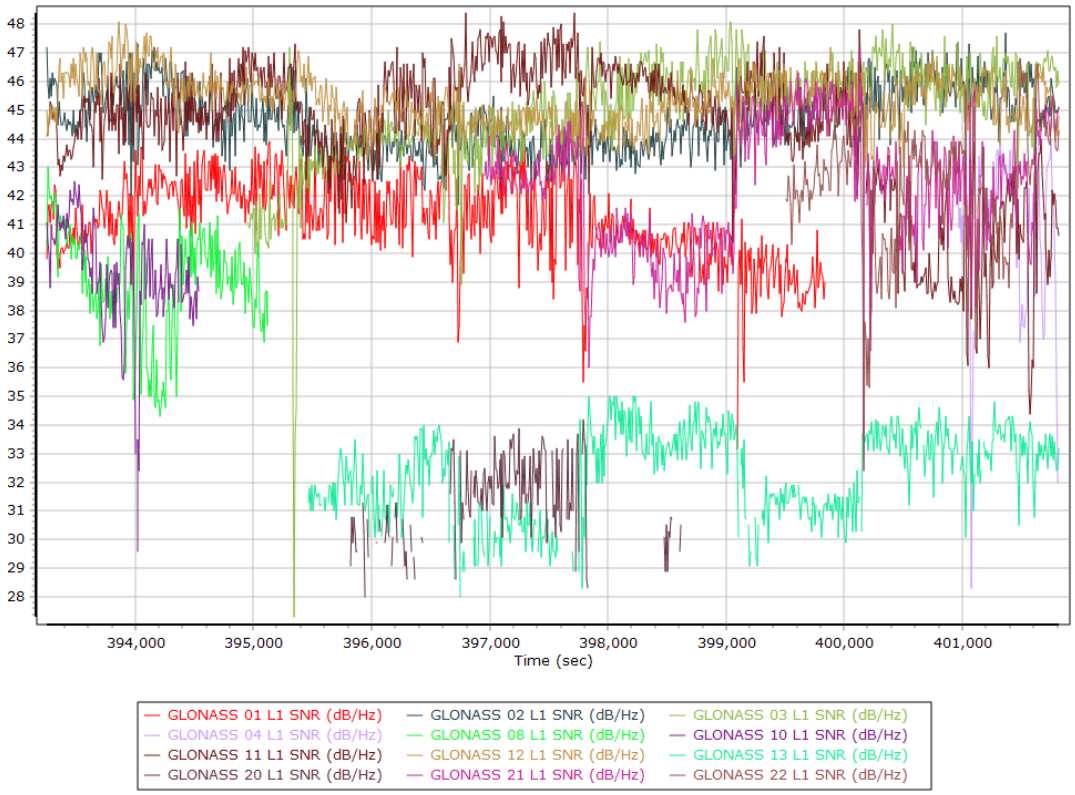
GPS L1 SNR



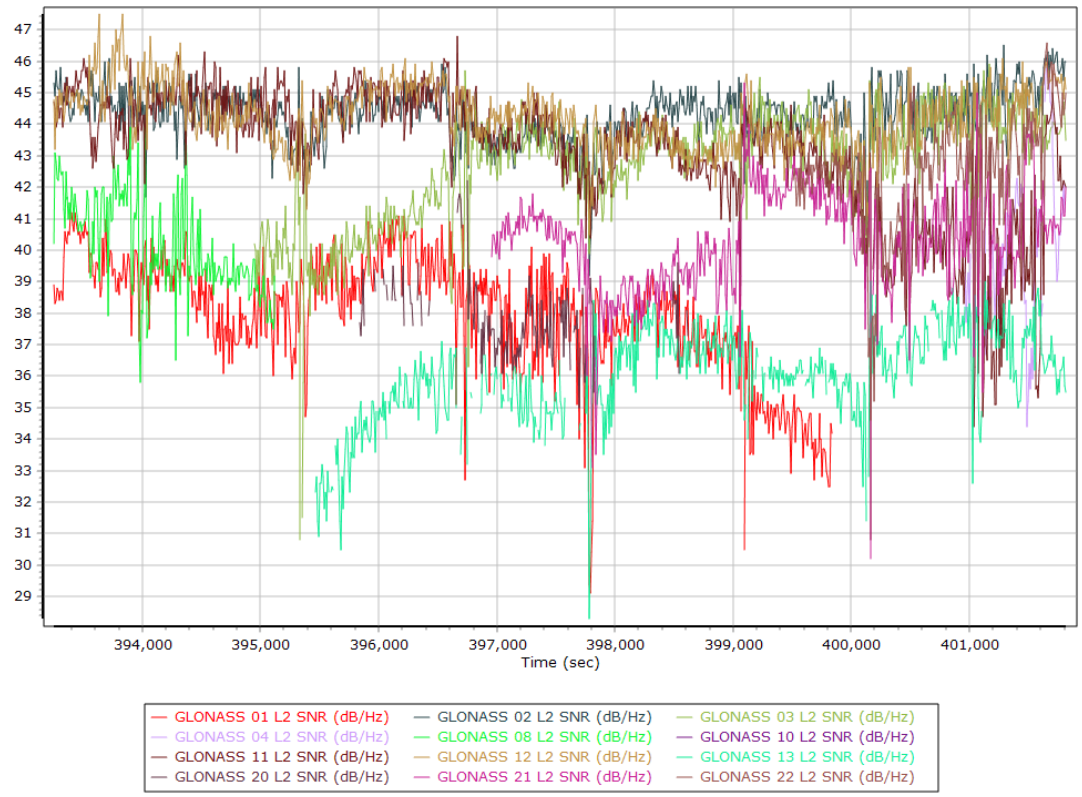
GPS L2 SNR



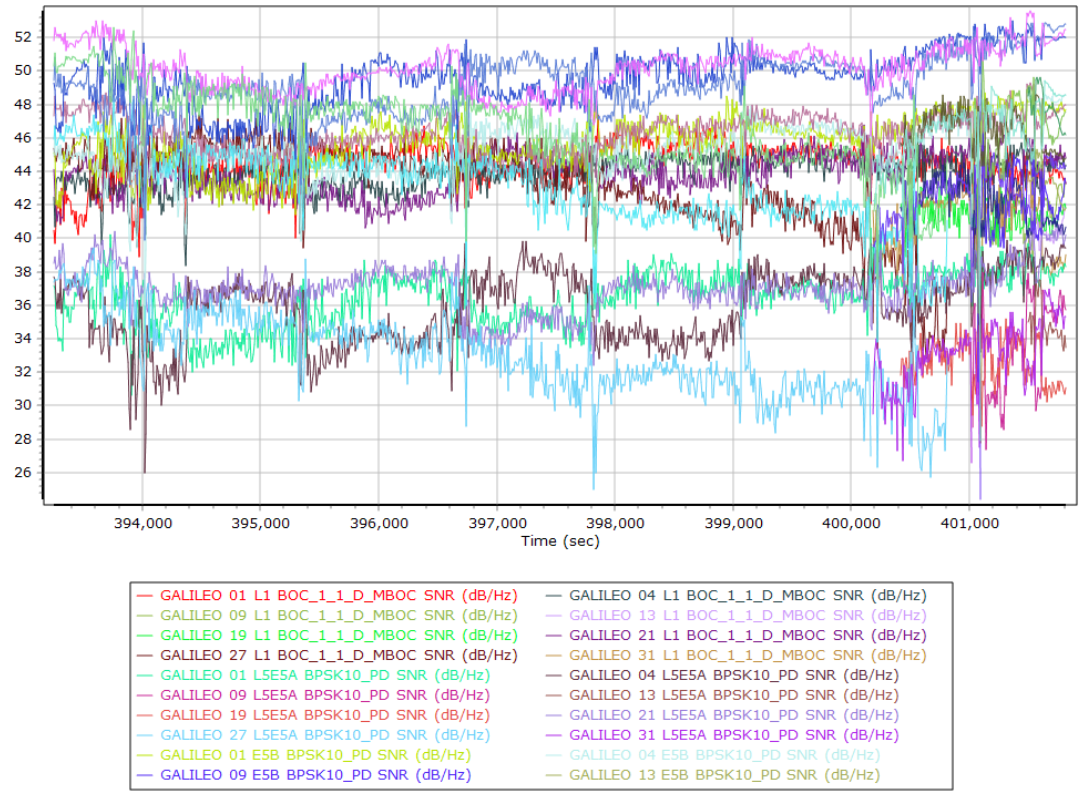
GLONASS L1 SNR



GLONASS L2 SNR

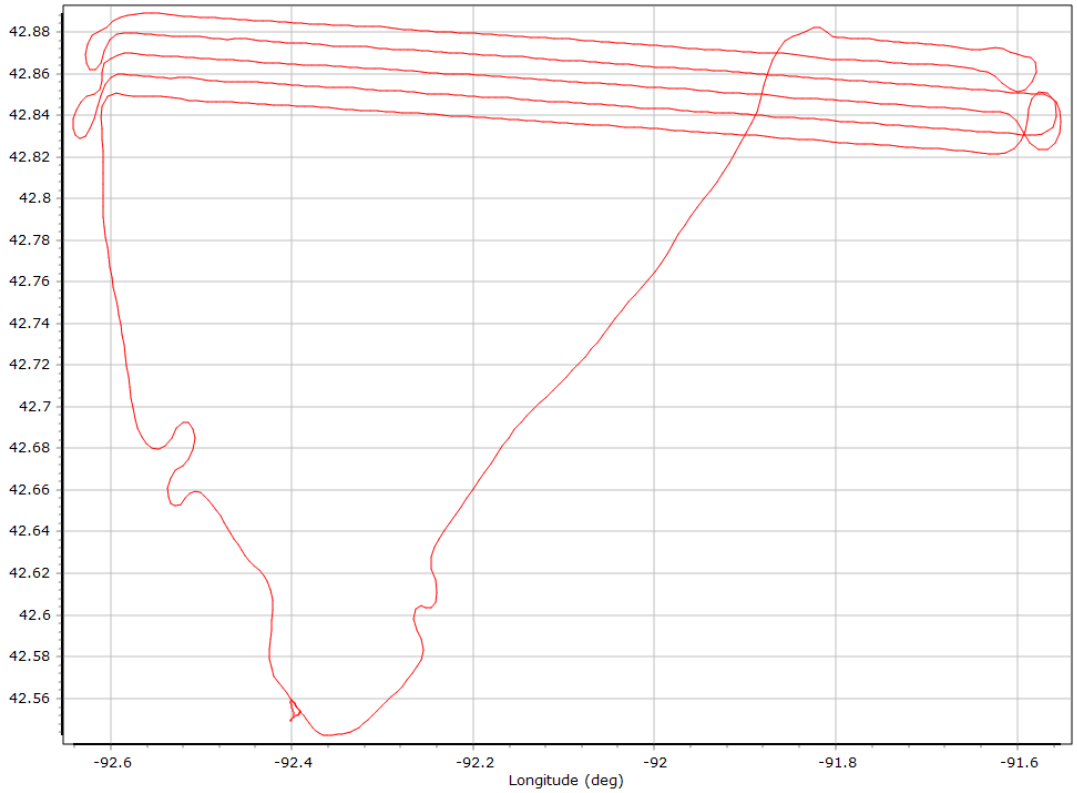


GALILEO SNR

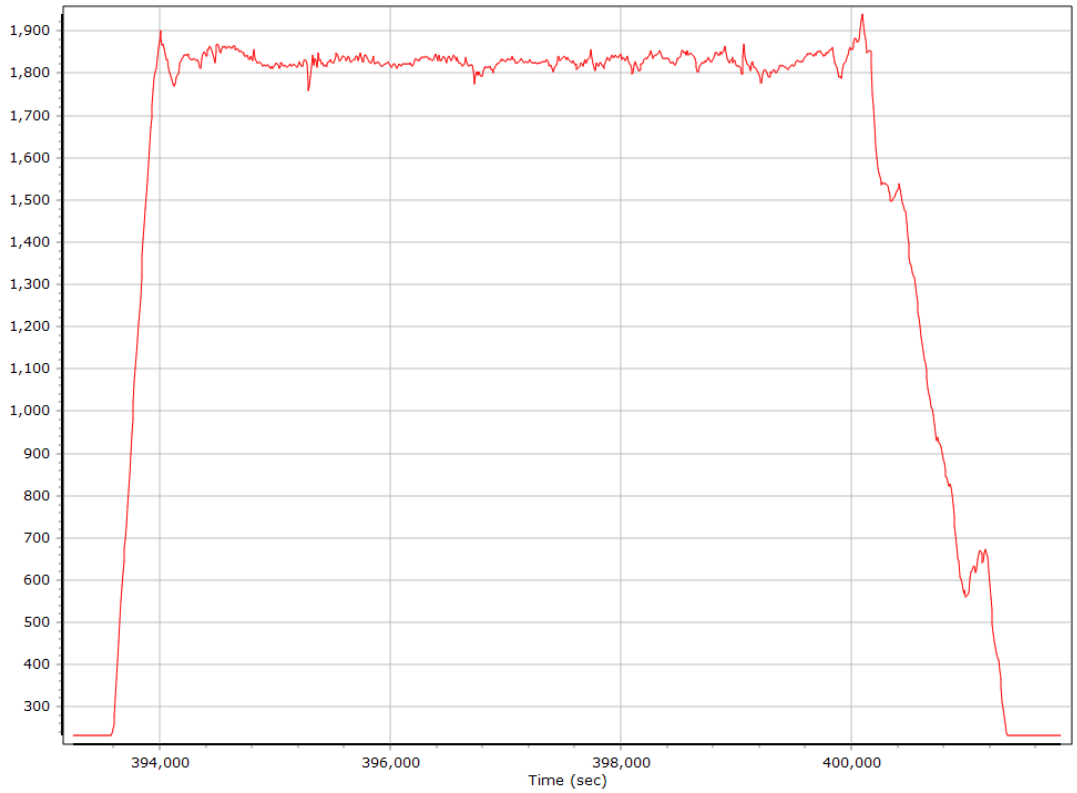


Smoothed Trajectory Information

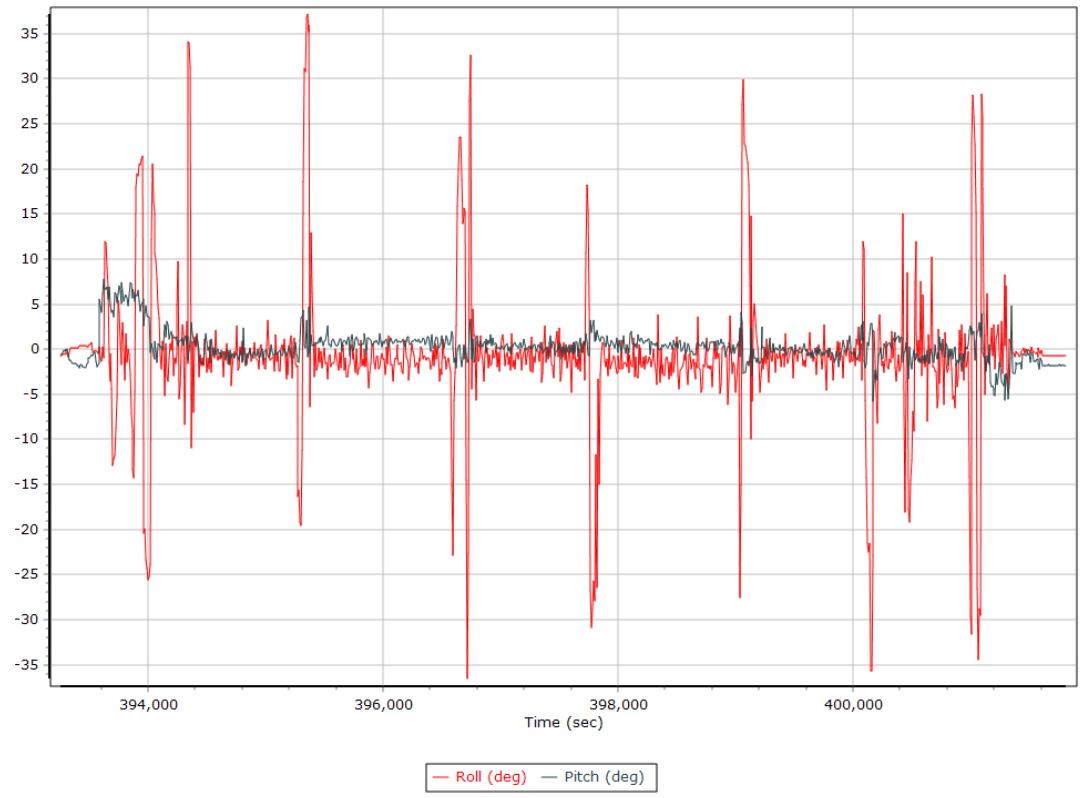
Top View



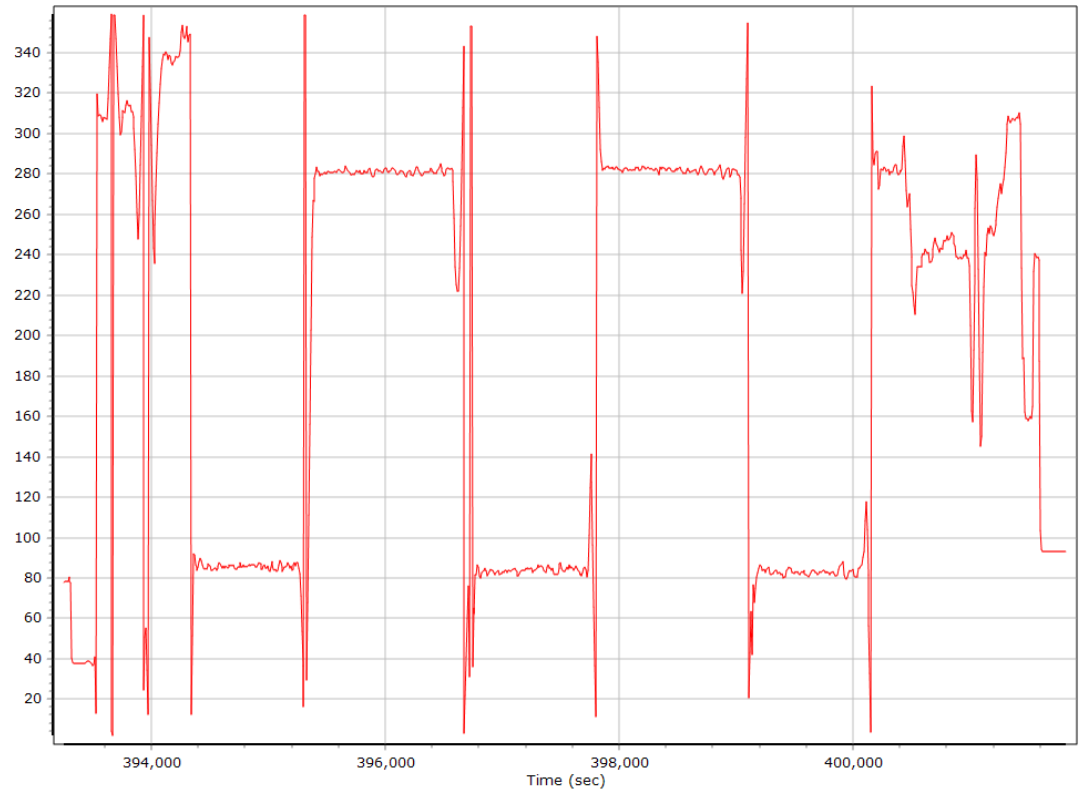
Altitude



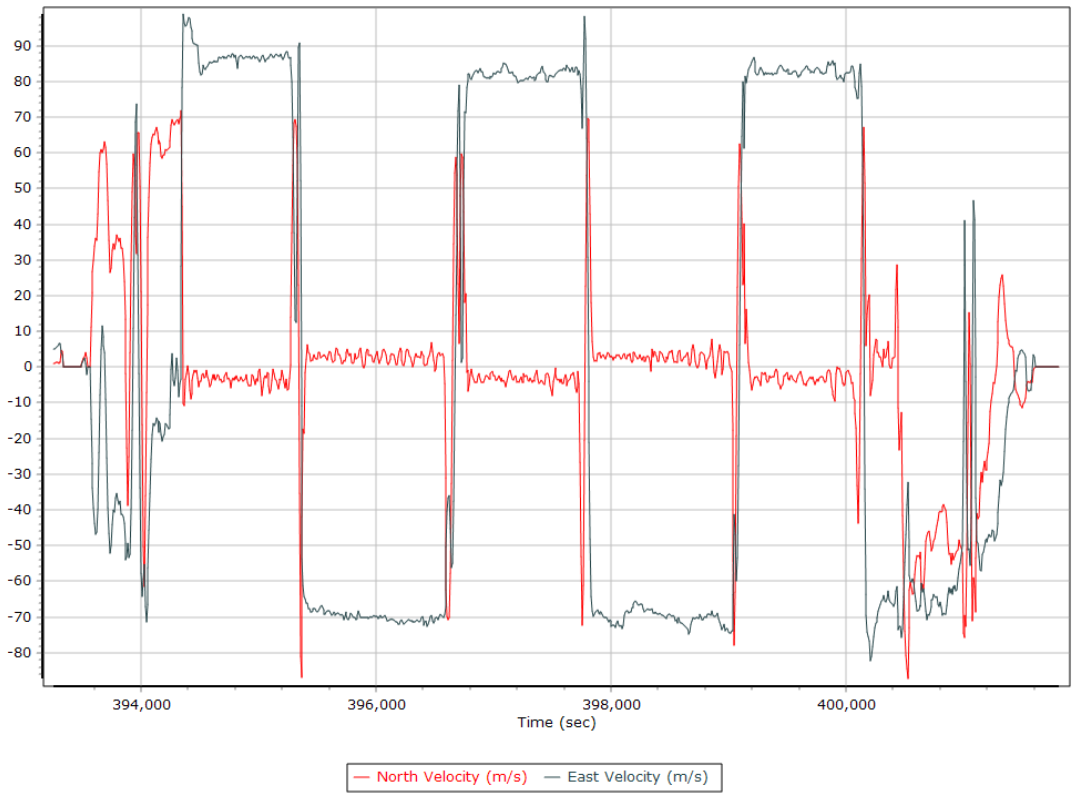
Roll/Pitch



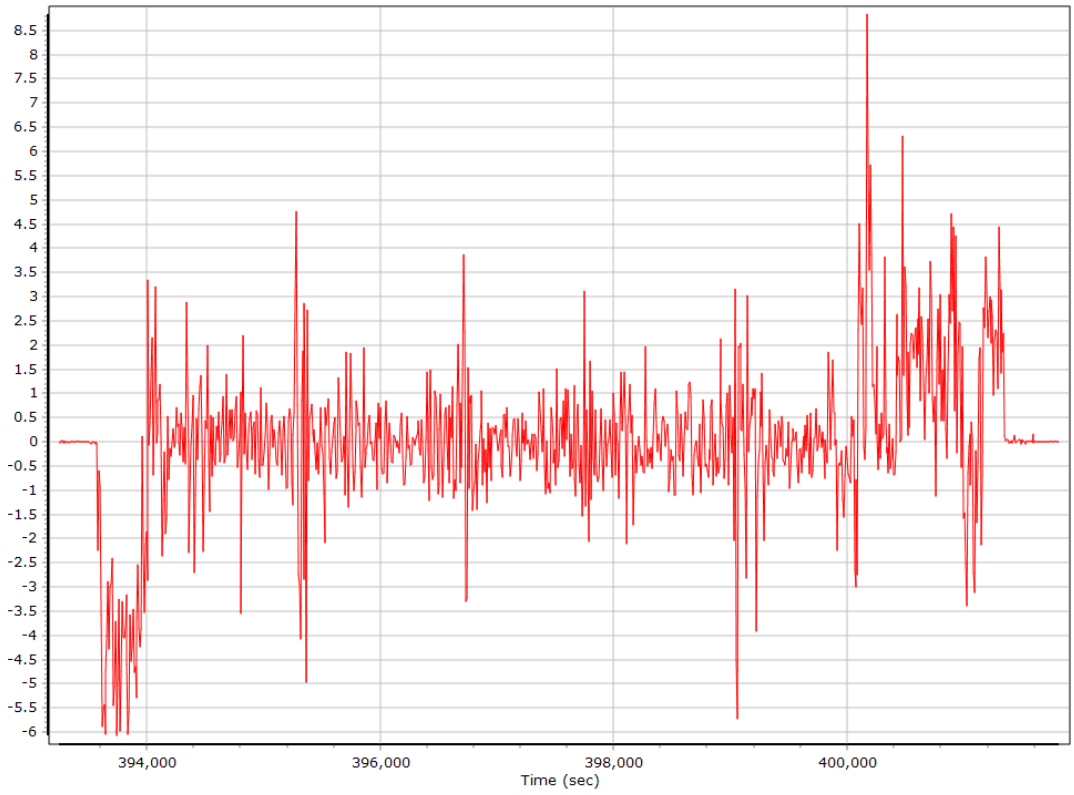
Heading



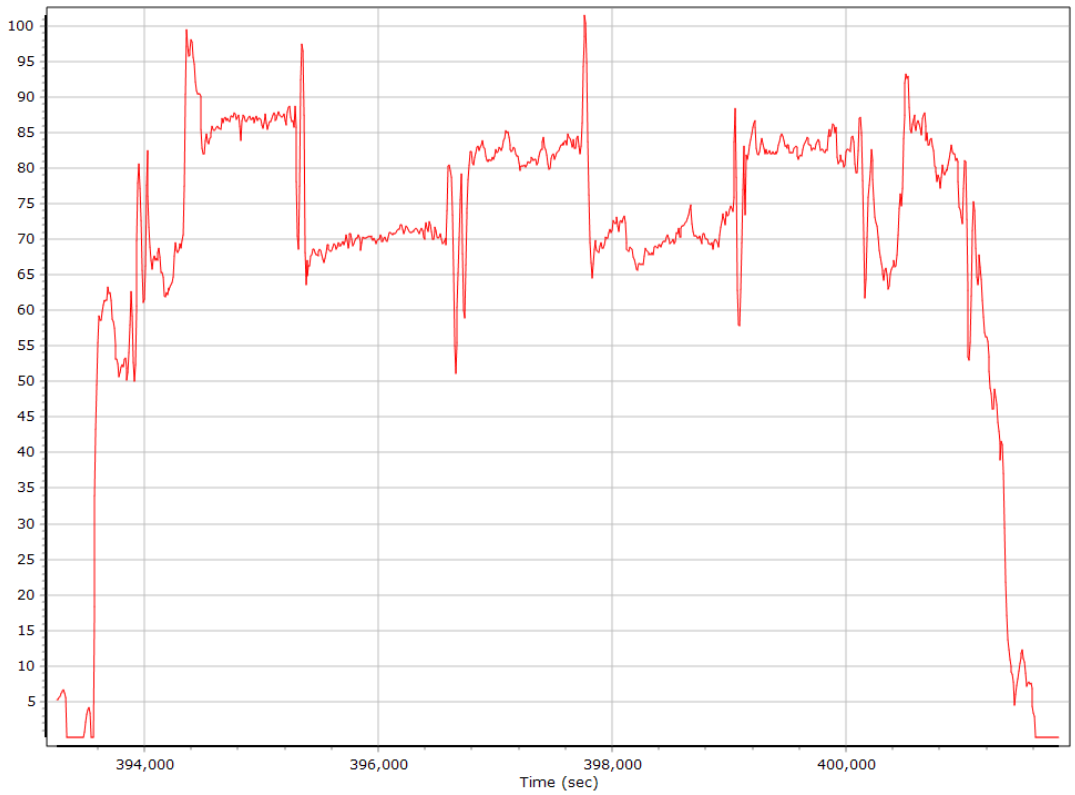
North/East Velocity



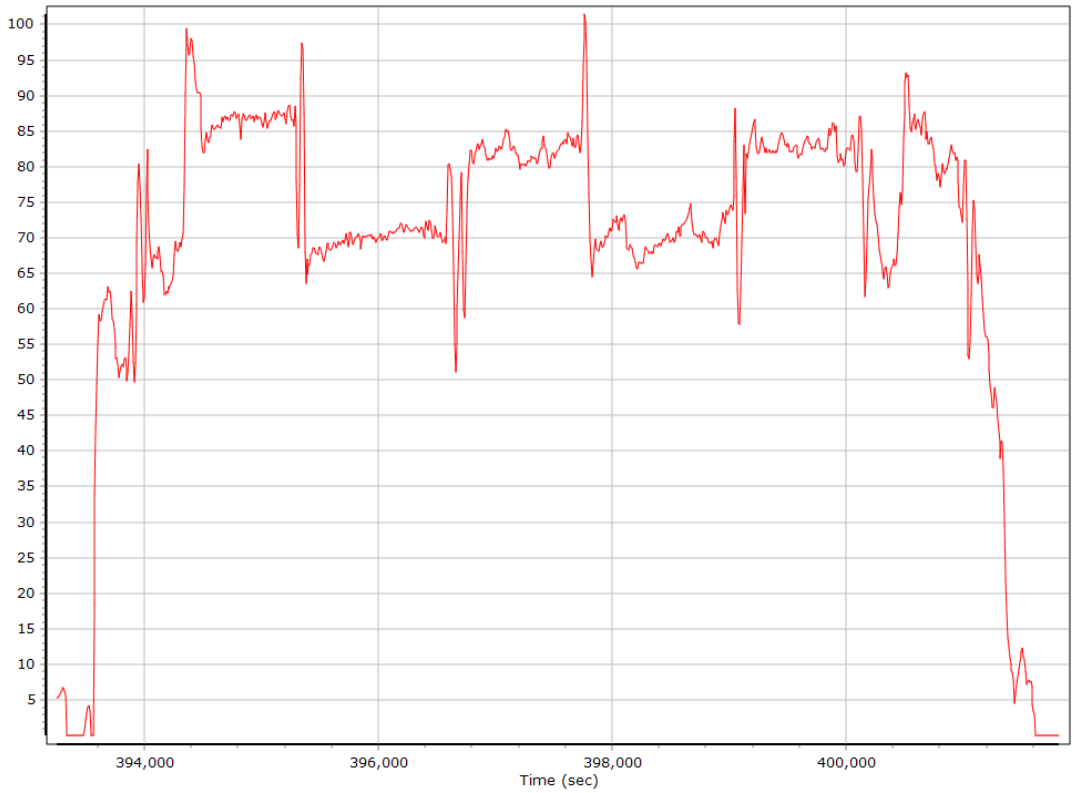
Down Velocity



Total Speed

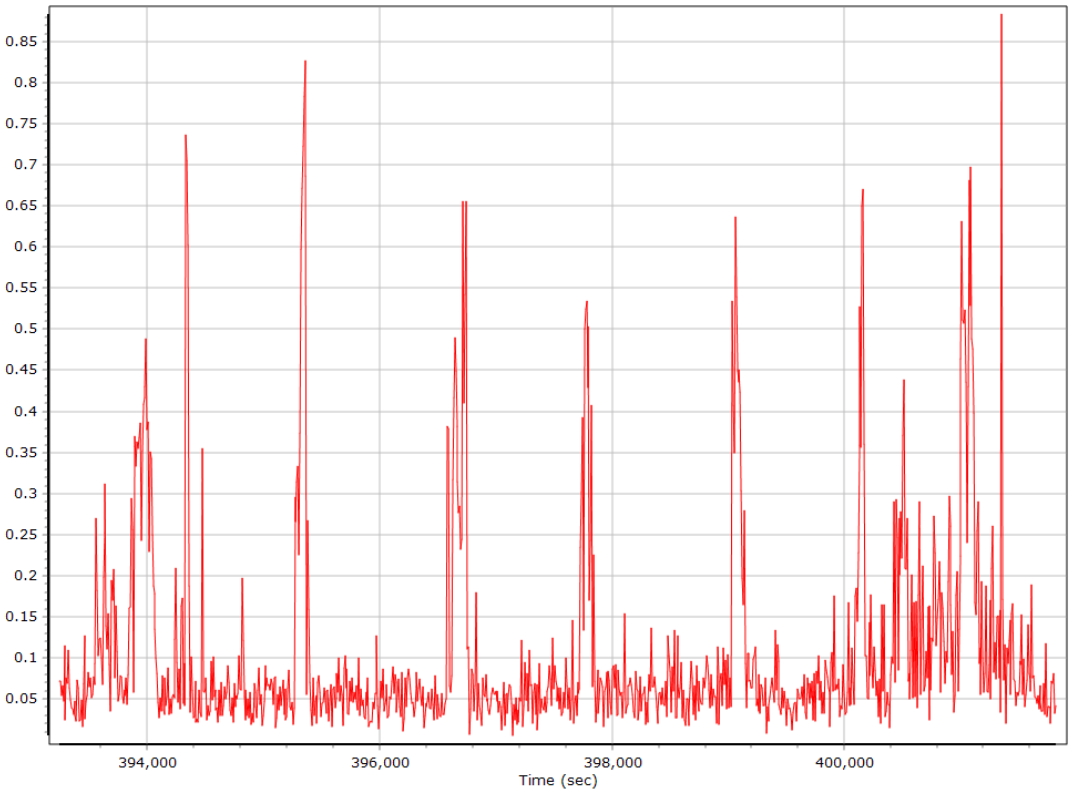


Ground Speed



Body Acceleration

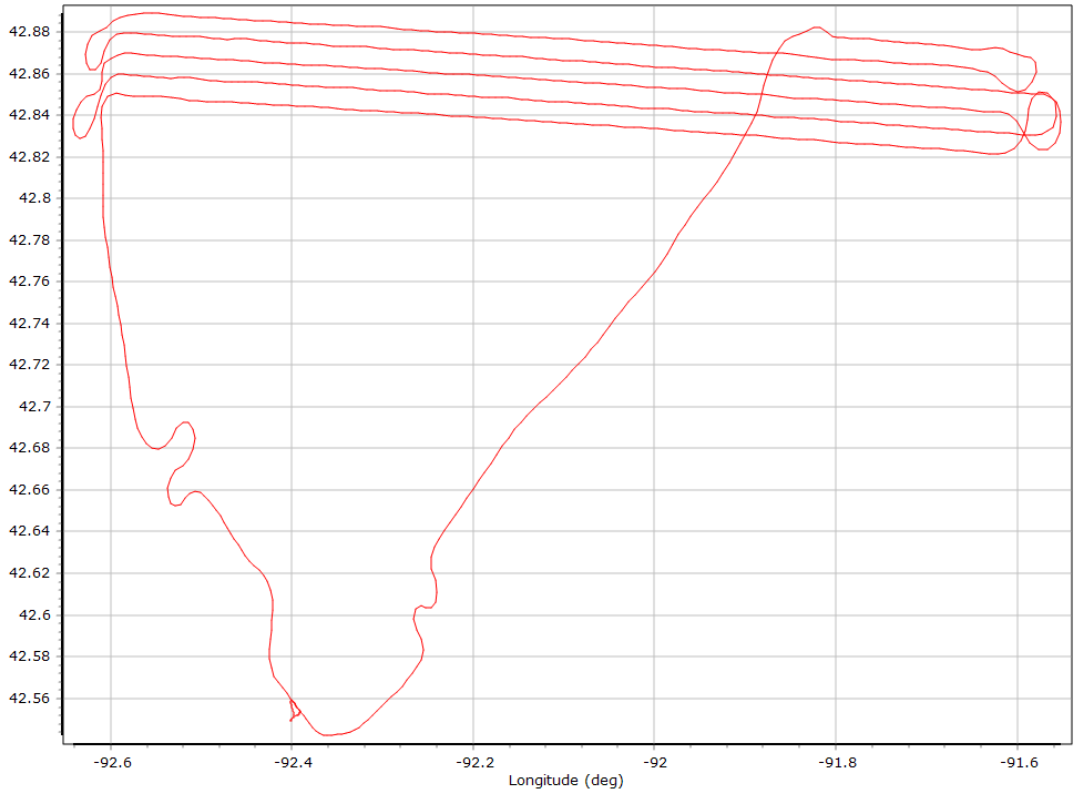
Total Body Acceleration



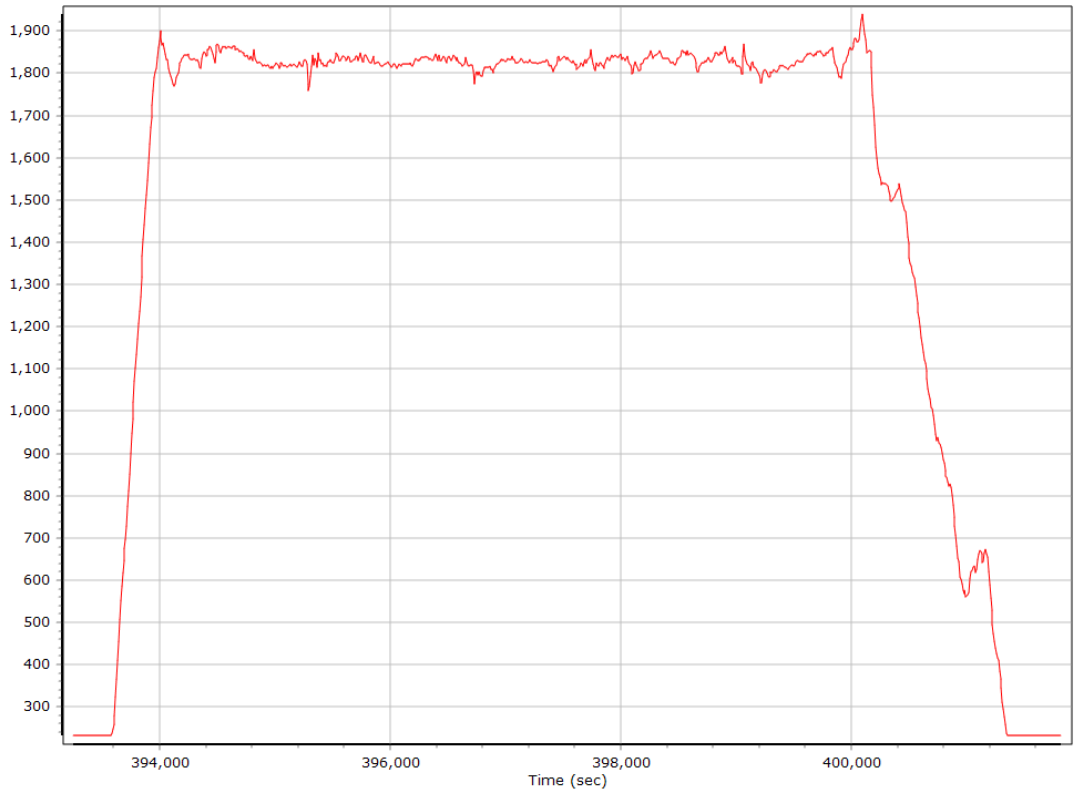
Body Angular Rate

Forward Processed Trajectory Information

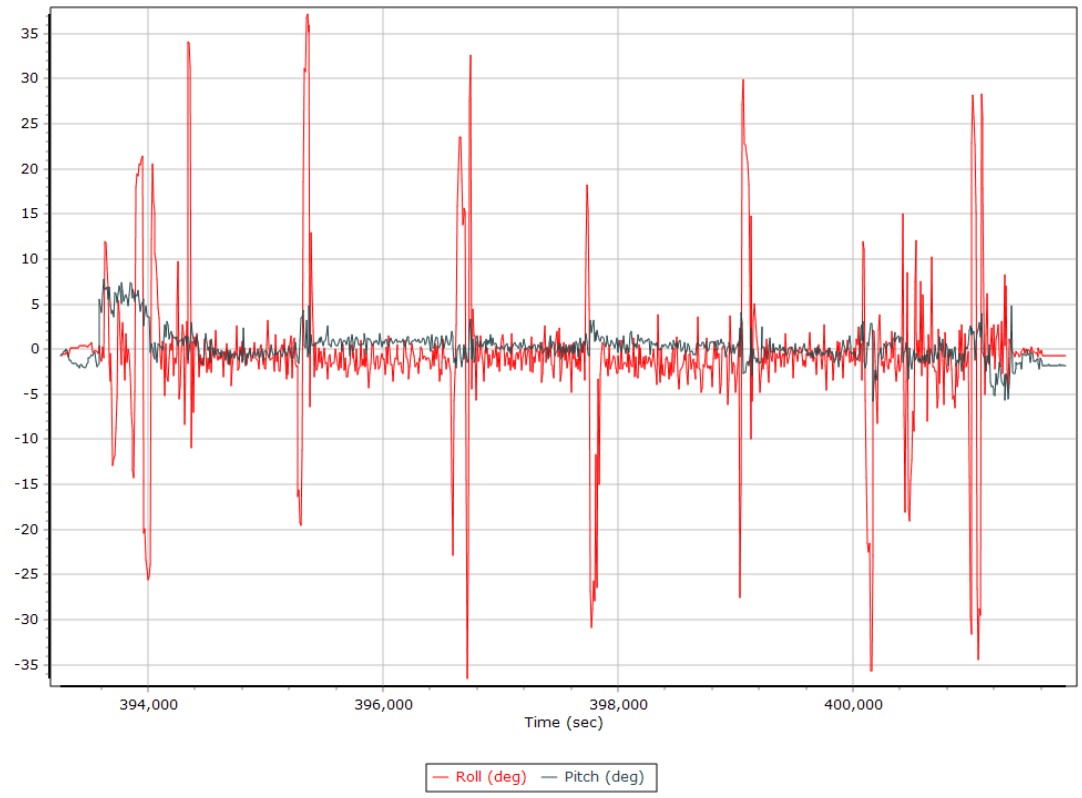
Top View



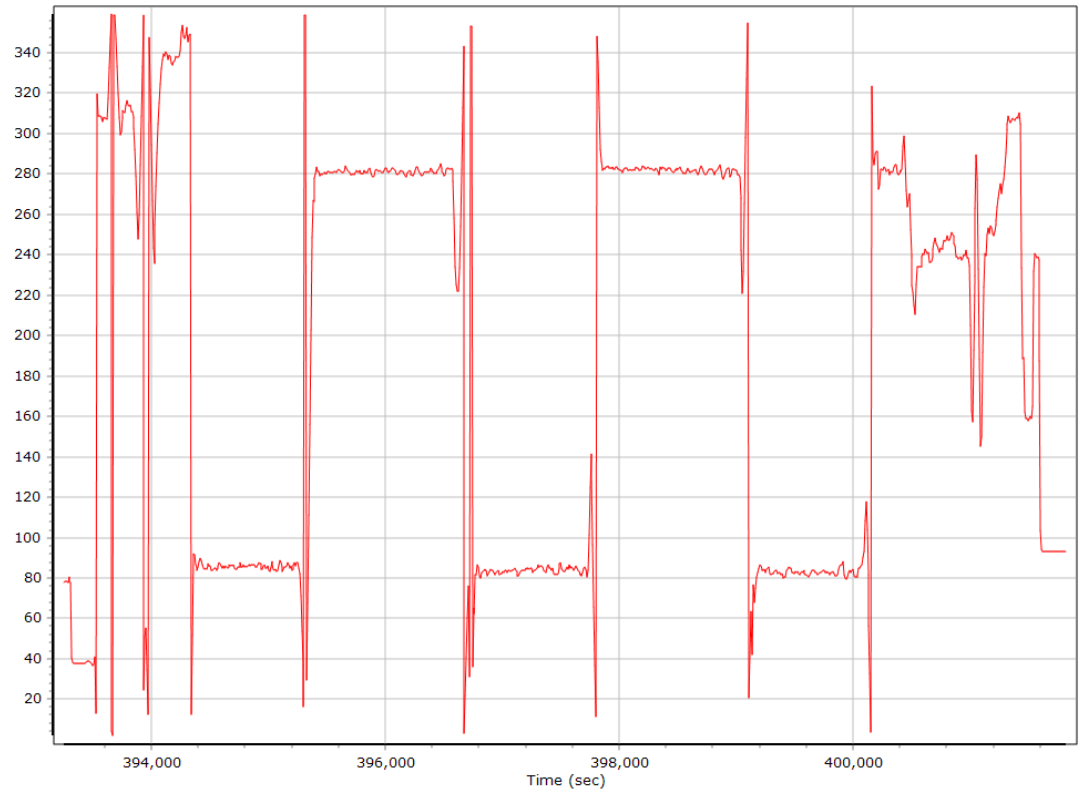
Altitude



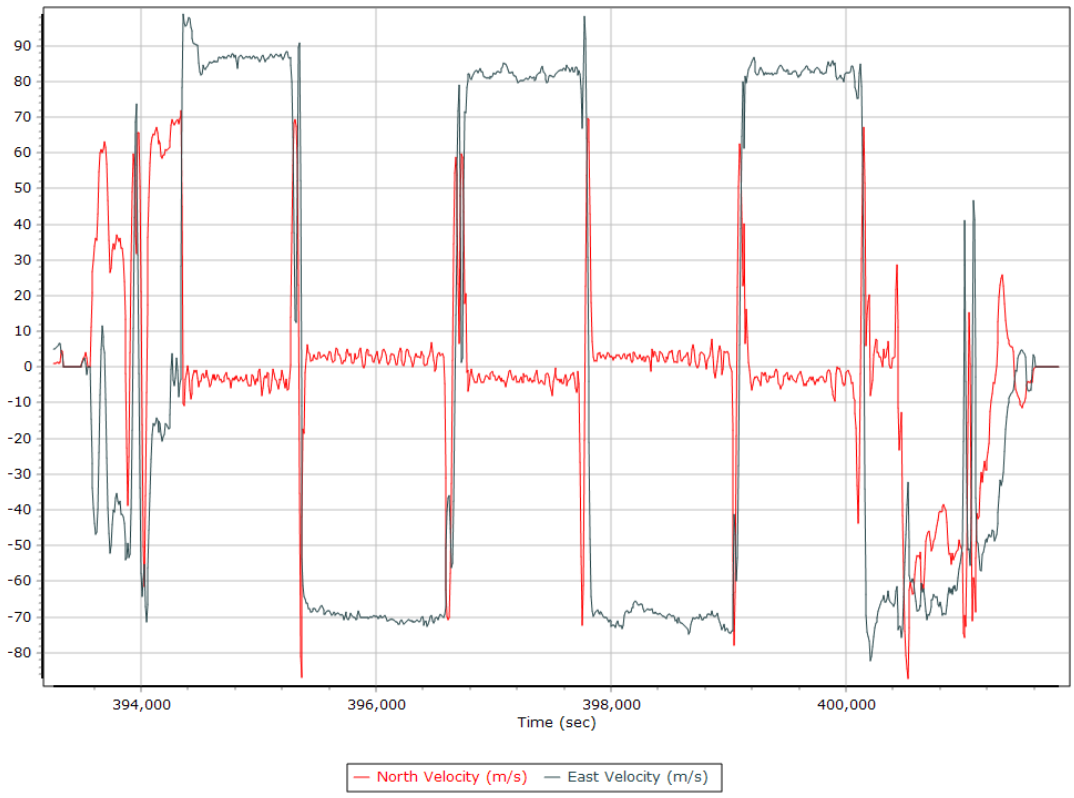
Roll/Pitch



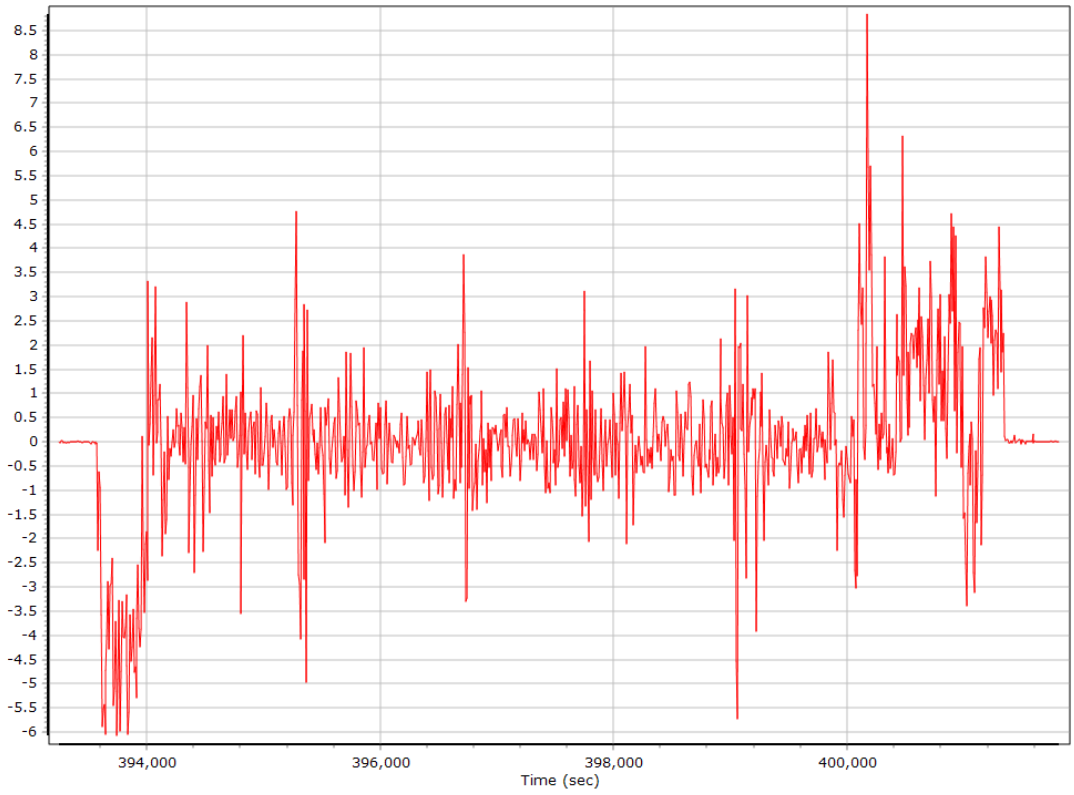
Heading



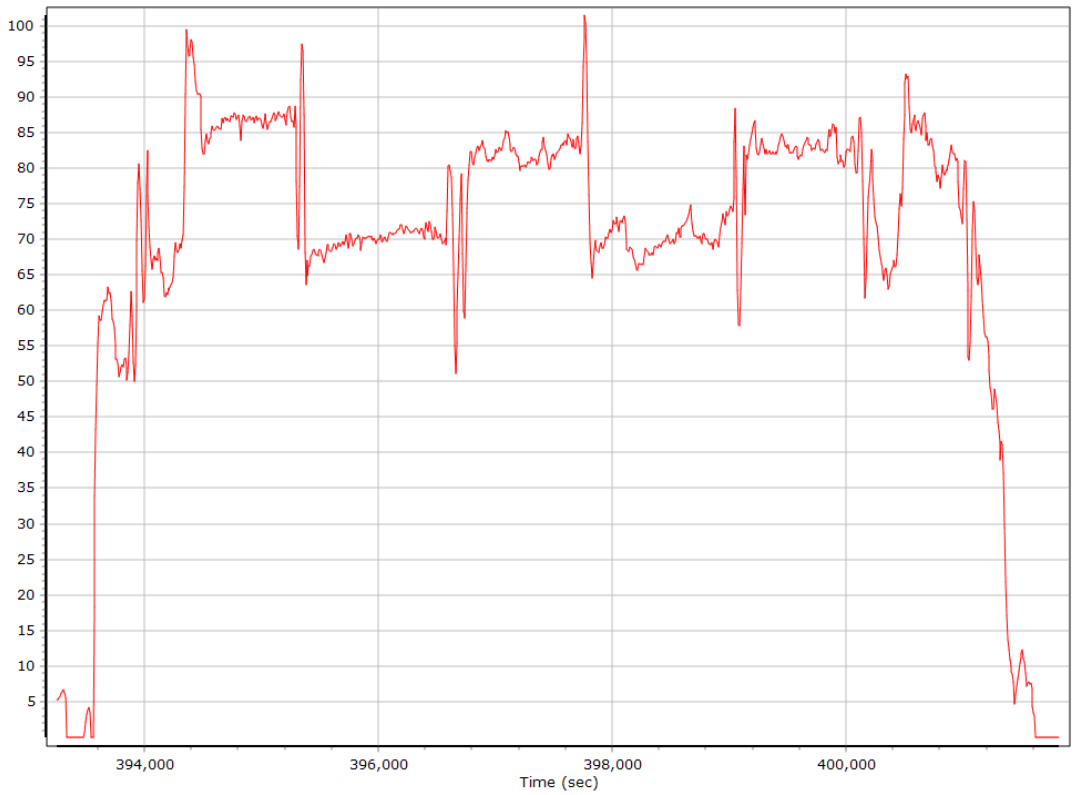
North/East Velocity



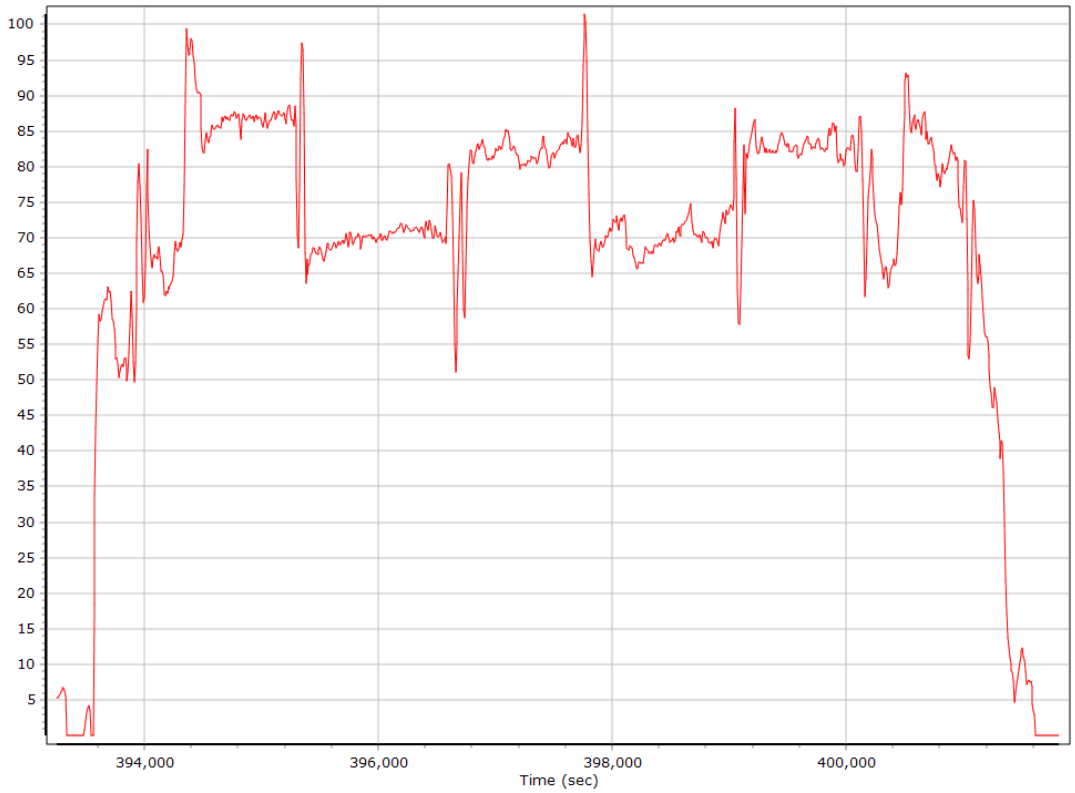
Down Velocity



Total Speed

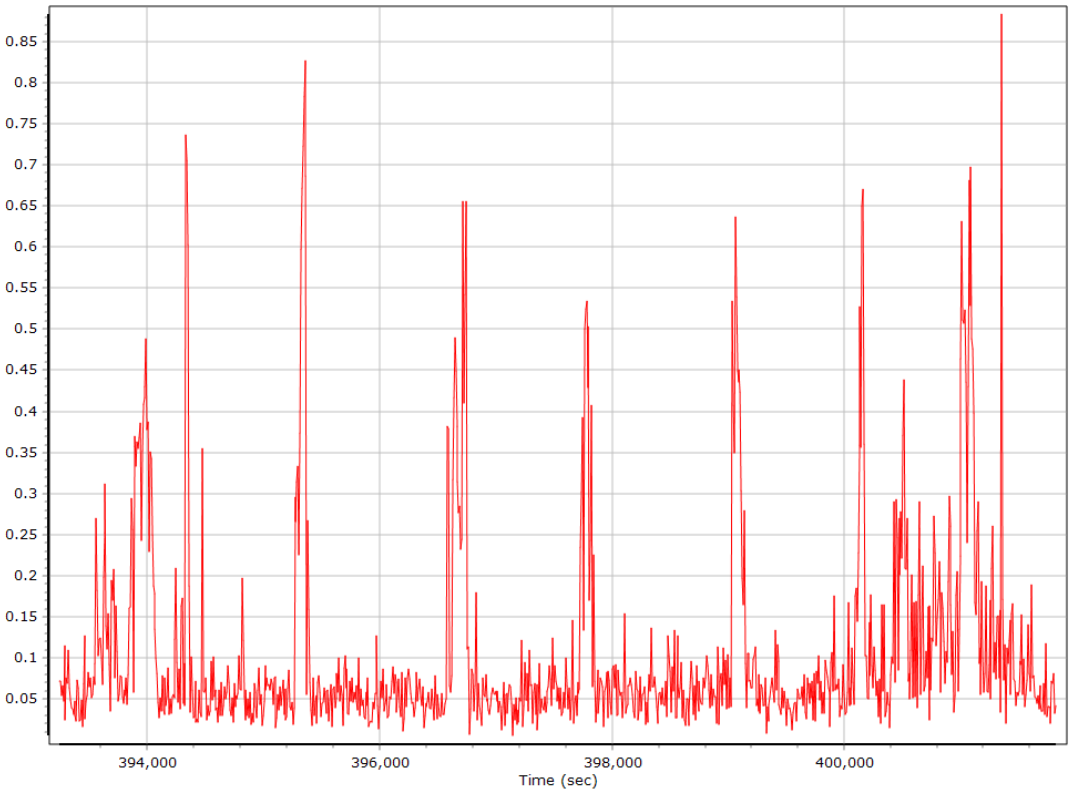


Ground Speed



Body Acceleration

Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/09/2020	IAAL	50.67	GNSS	30	CORS (daily)	Smart Base	Imported
04/09/2020	IADE	61.45	GNSS	30	CORS (daily)	Smart Base	Imported
04/09/2020	IAEL	67.05	GNSS	30	CORS (daily)	Smart Base	Imported
04/09/2020	MNPS	85.21	GNSS	30	CORS (daily)	Smart Base	Imported
04/09/2020	IATA	95.31	GNSS	30	CORS (daily)	Smart Base	Imported
04/09/2020	IAMN	97.44	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	9232 s (2100 392605 - 2100 401837)
Number of reference stations	6
Primary station GPS measurement usage (%)	99.0
Primary station GLONASS measurement usage (%)	78.2
Average number of satellites per epoch	12.8
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	12058
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59749"	228.904
Adjusted		N42°01'49.10904"	W91°32'55.59722"	228.860
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.007	0.044	0.045

Base Station Information

Station ID	IAMN		
Filename	iamn1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59749"		
Ellipsoidal height (m)	228.90417		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67189"	W92°33'05.07500"	247.334
Adjusted		N41°58'01.67190"	W92°33'05.07486"	247.325
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.009	0.010

Base Station Information

Station ID	IATA		
Filename	iata1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67189"		
Longitude	W92°33'05.07500"		
Ellipsoidal height (m)	247.33438		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.53	**Output Coordinates**	Original	
Solution Epochs	2824	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52985"	298.980
Adjusted		N42°52'40.47676"	W91°21'41.52940"	298.963
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.017	0.020

Base Station Information

Station ID	IAEL		
Filename	iael1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52985"		
Ellipsoidal height (m)	298.98030		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52632"	316.516
Adjusted		N43°16'15.83228"	W91°49'53.52609"	316.495
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.022	0.023

Base Station Information

Station ID	IADE		
Filename	iade1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52632"		
Ellipsoidal height (m)	316.51619		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24723"	291.092
Adjusted		N42°44'49.40418"	W92°47'14.24723"	291.092
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAAL		
Filename	iaal1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24723"		
Ellipsoidal height (m)	291.09234		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86728"	380.908
Adjusted		N43°30'53.84847"	W91°53'06.86694"	380.893
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.013	0.015	0.020

Base Station Information

Station ID	MNPS		
Filename	mnps1000.20o		
Start date	4/9/2020 12:00:00 AM		
End date	4/9/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86728"		
Ellipsoidal height (m)	380.90780		
Frame	ITRF00		
Epoch	2020.270492		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	6.84	51.00	
Number of GPS SV	7	9	8
Number of GLONASS SV	0	6	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	8	14	13
PDOP	1.26	2.46	1.50
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	9211.00	0.00	1.00
Percentage	99.99	0.00	0.01

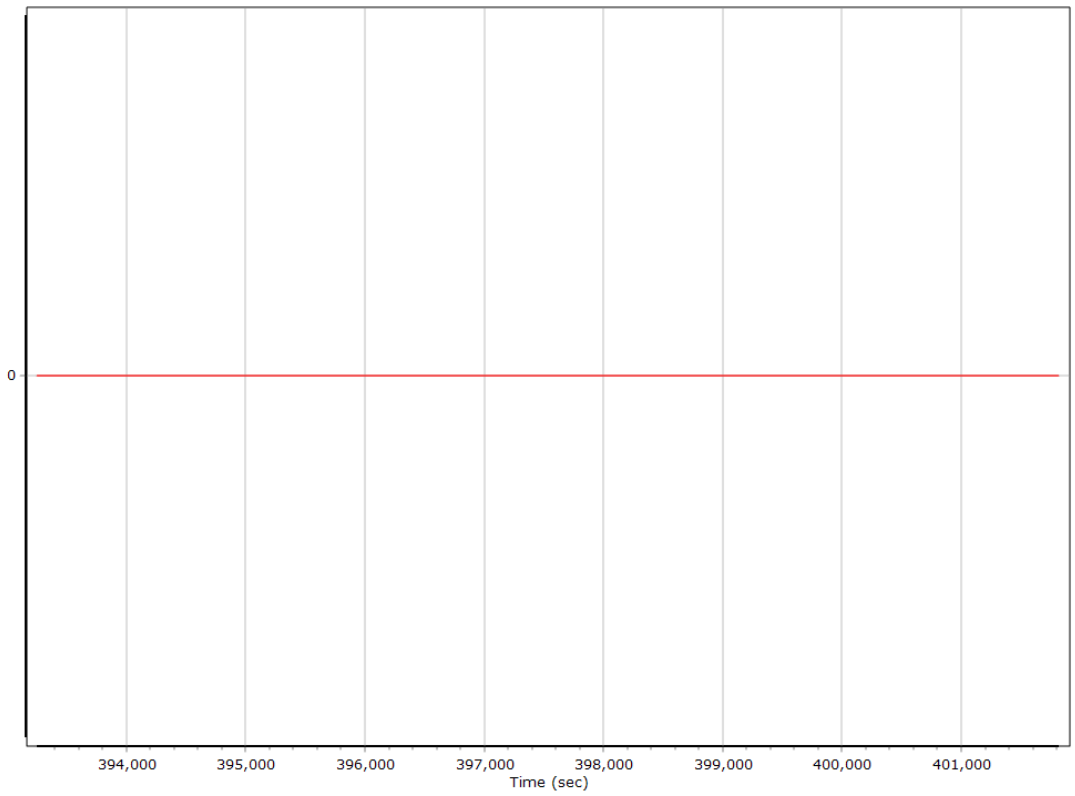
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	392587.000 (4/9/2020 1:03:07 PM)		
Processing end time	401819.000 (4/9/2020 3:36:59 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

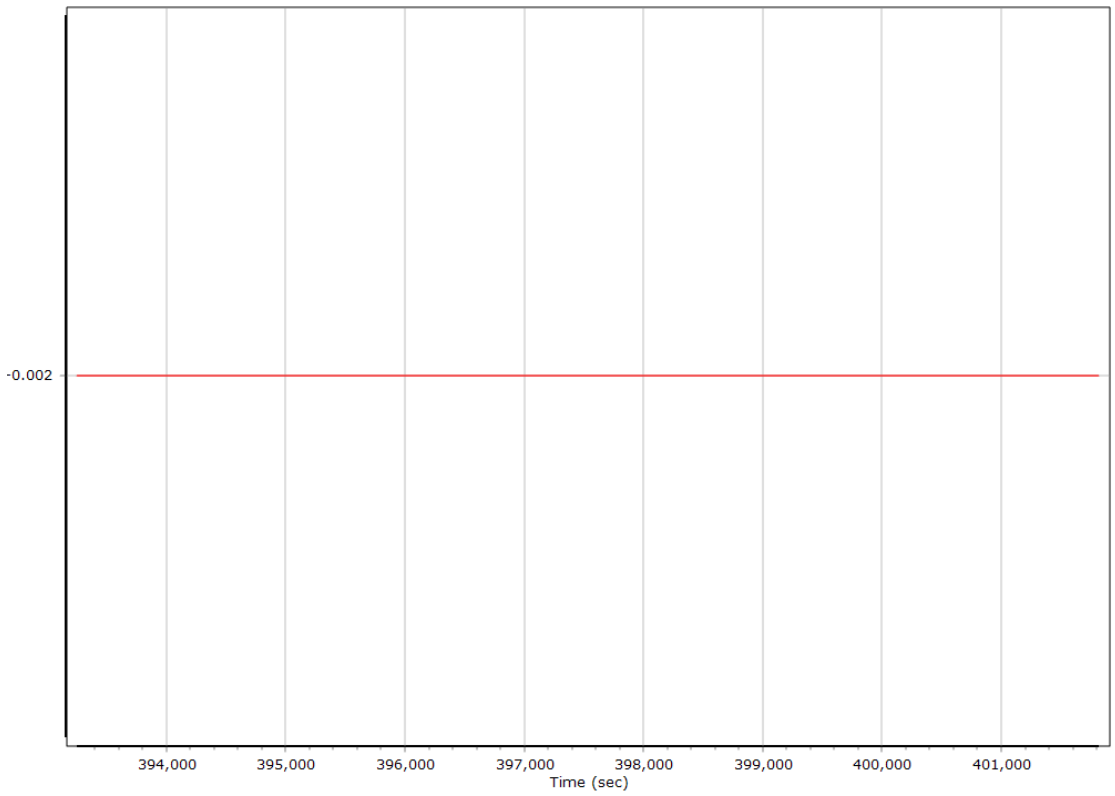
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

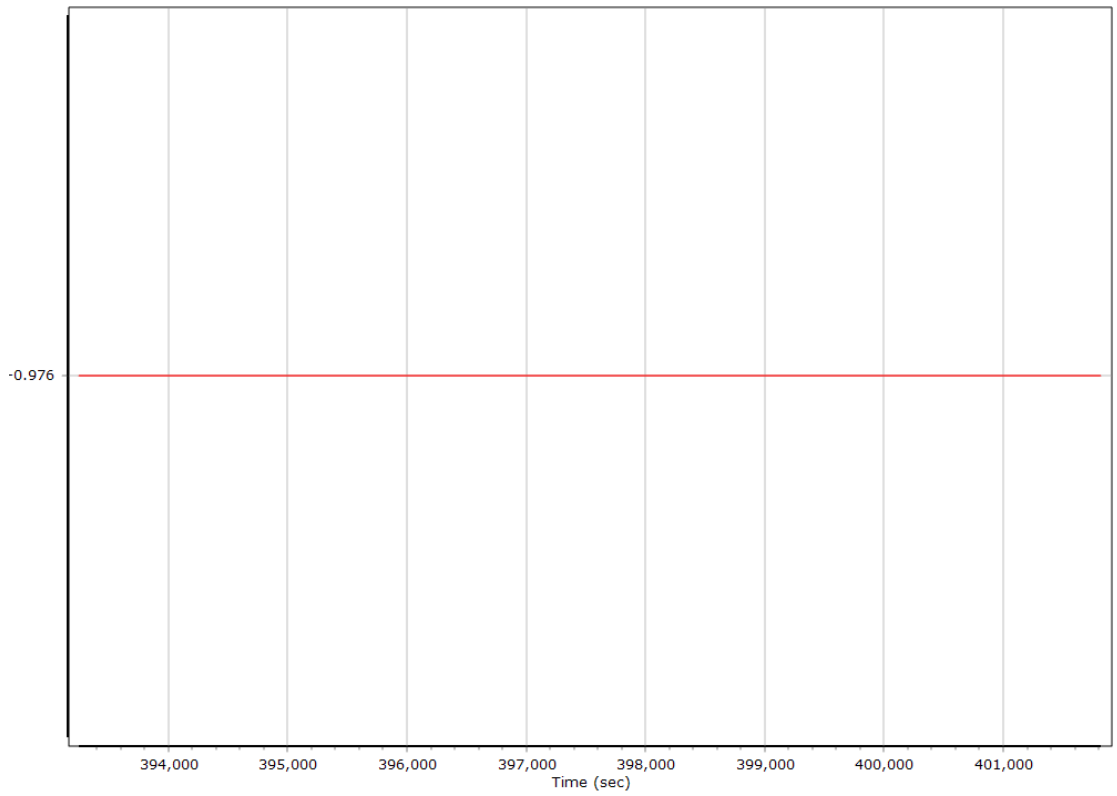
X Reference-Primary GNSS Lever Arm (m)



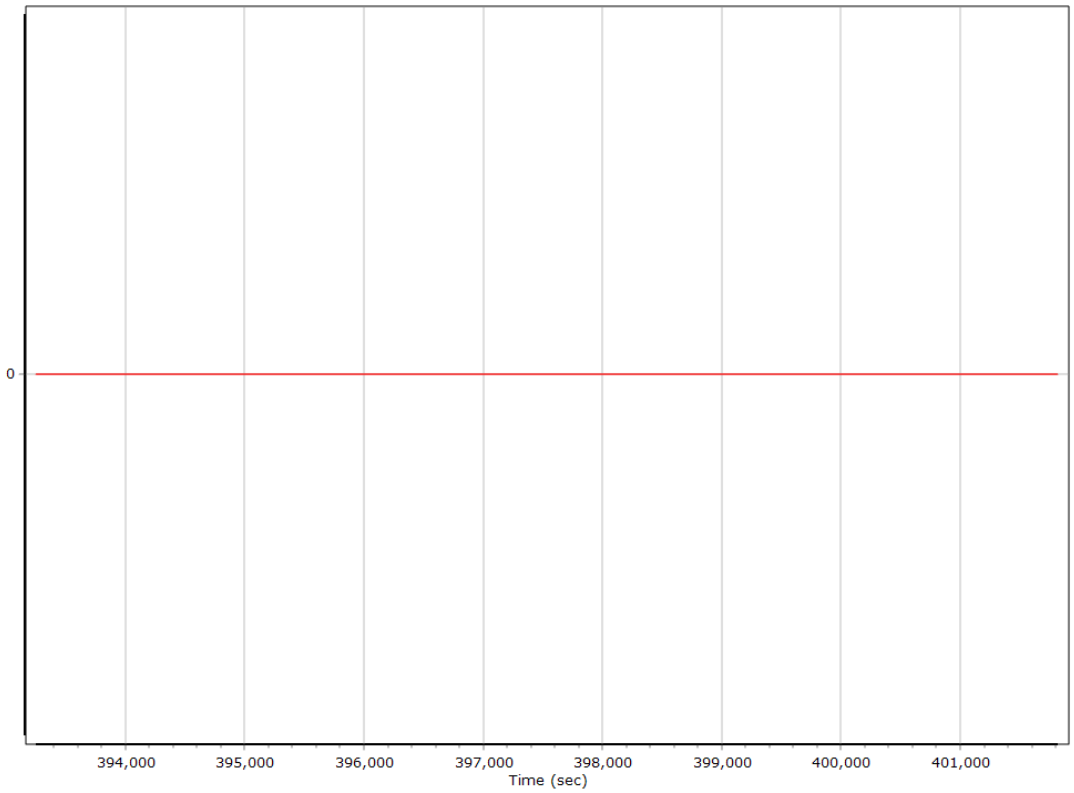
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



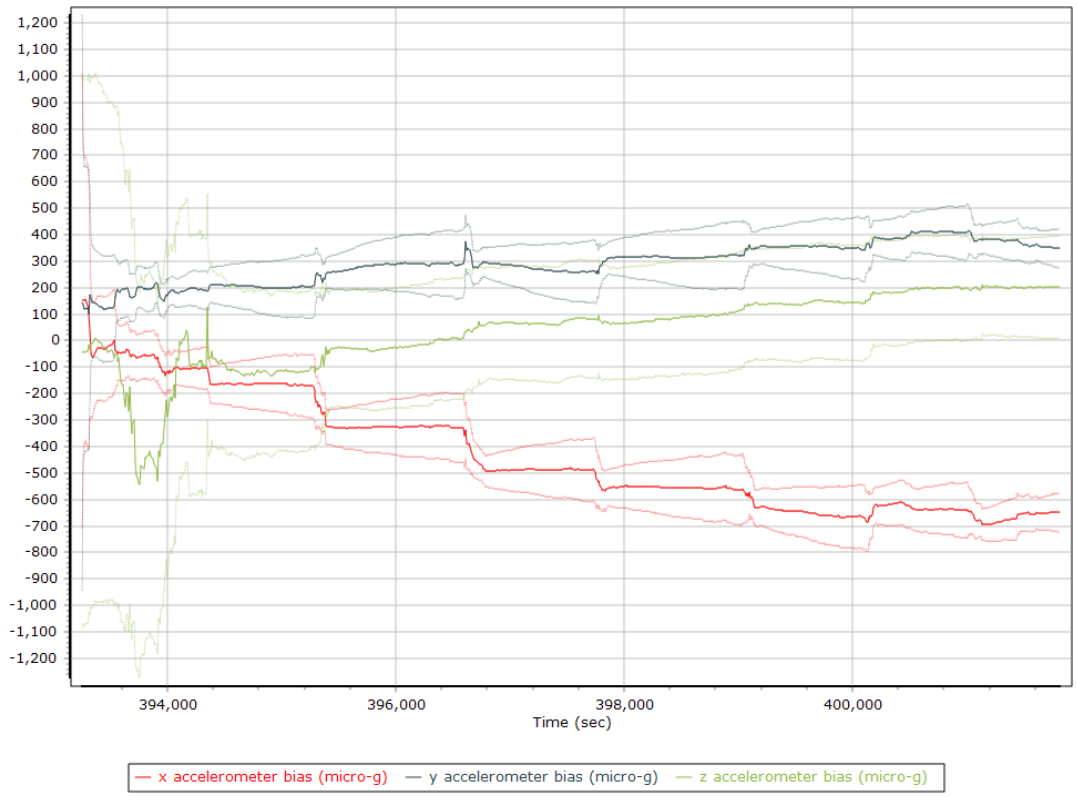
Reference-Primary GNSS Lever Arm Figure of Merit



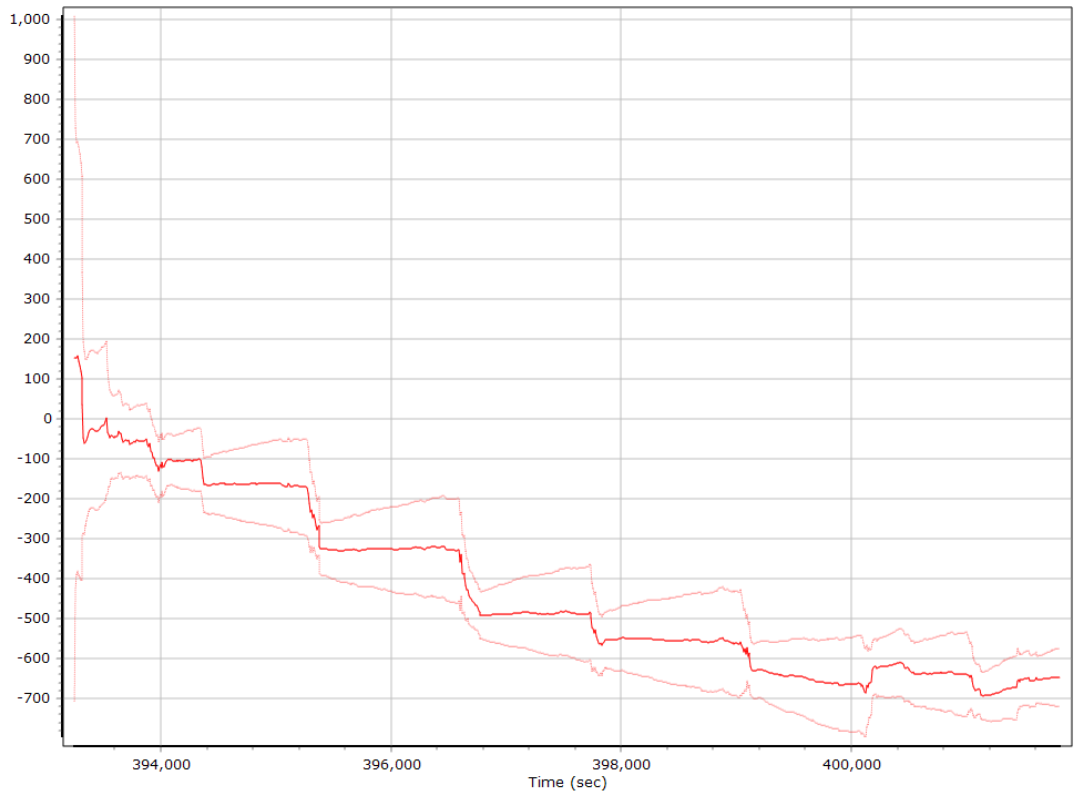
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

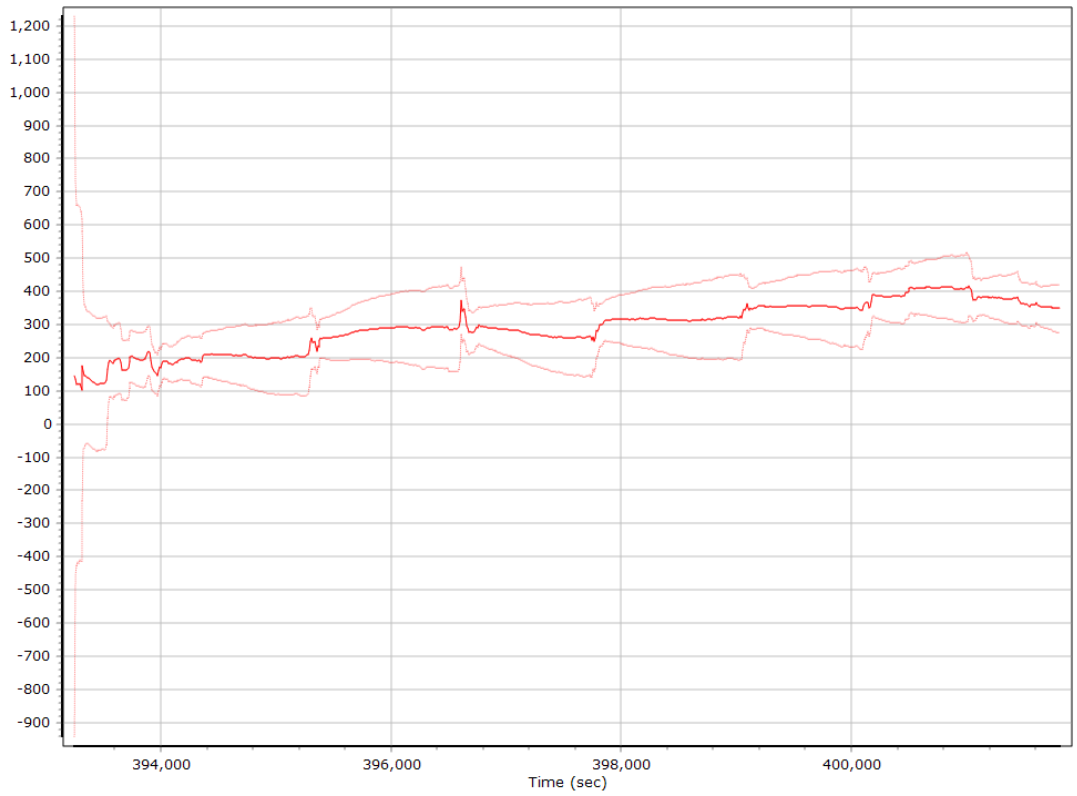
Accelerometer Bias (micro-g)



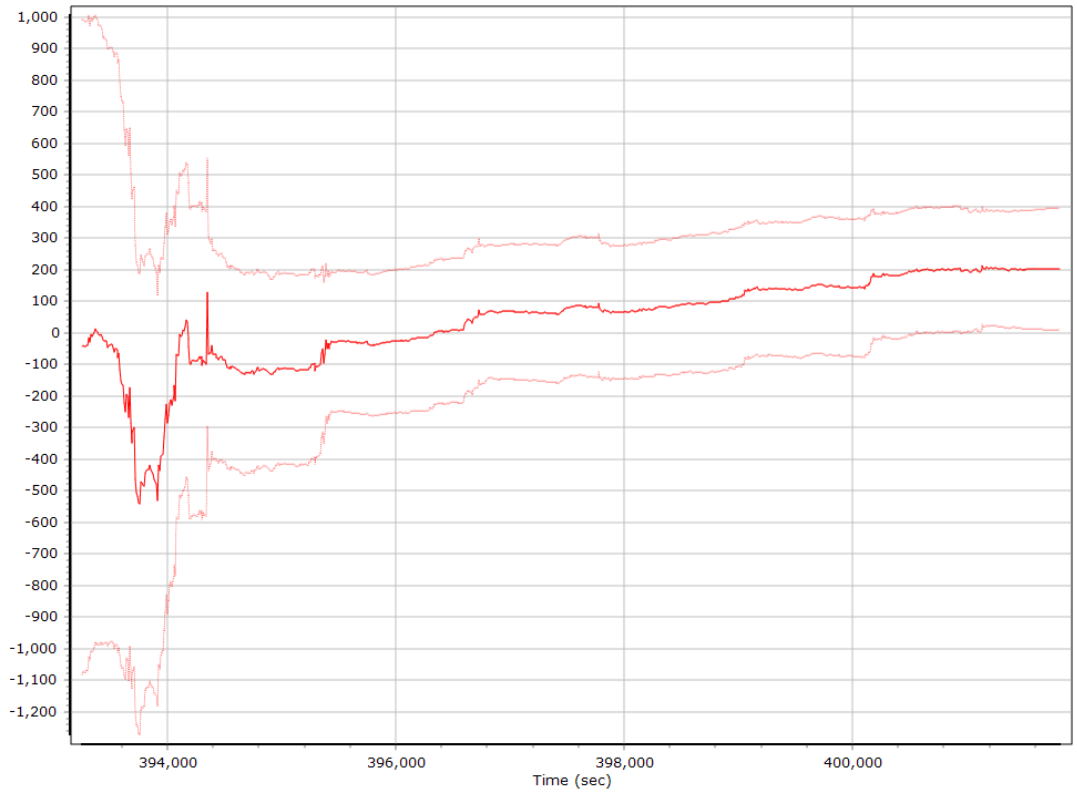
X Accelerometer Bias (micro-g)



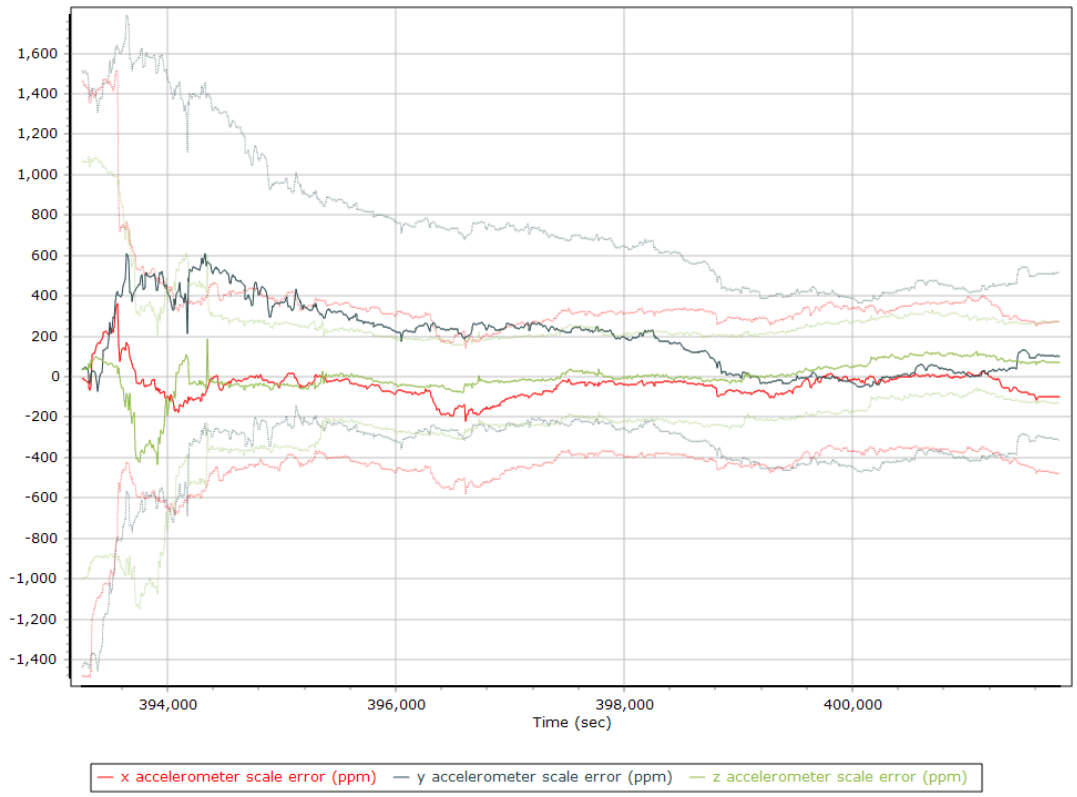
Y Accelerometer Bias (micro-g)



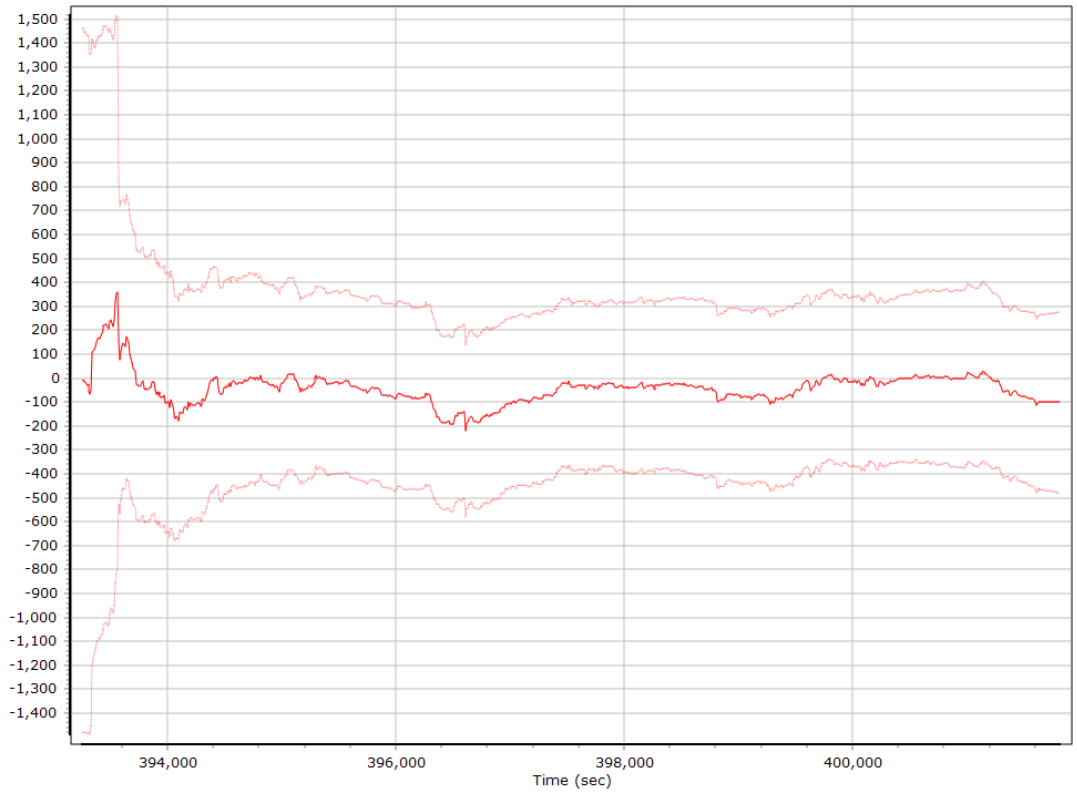
Z Accelerometer Bias (micro-g)



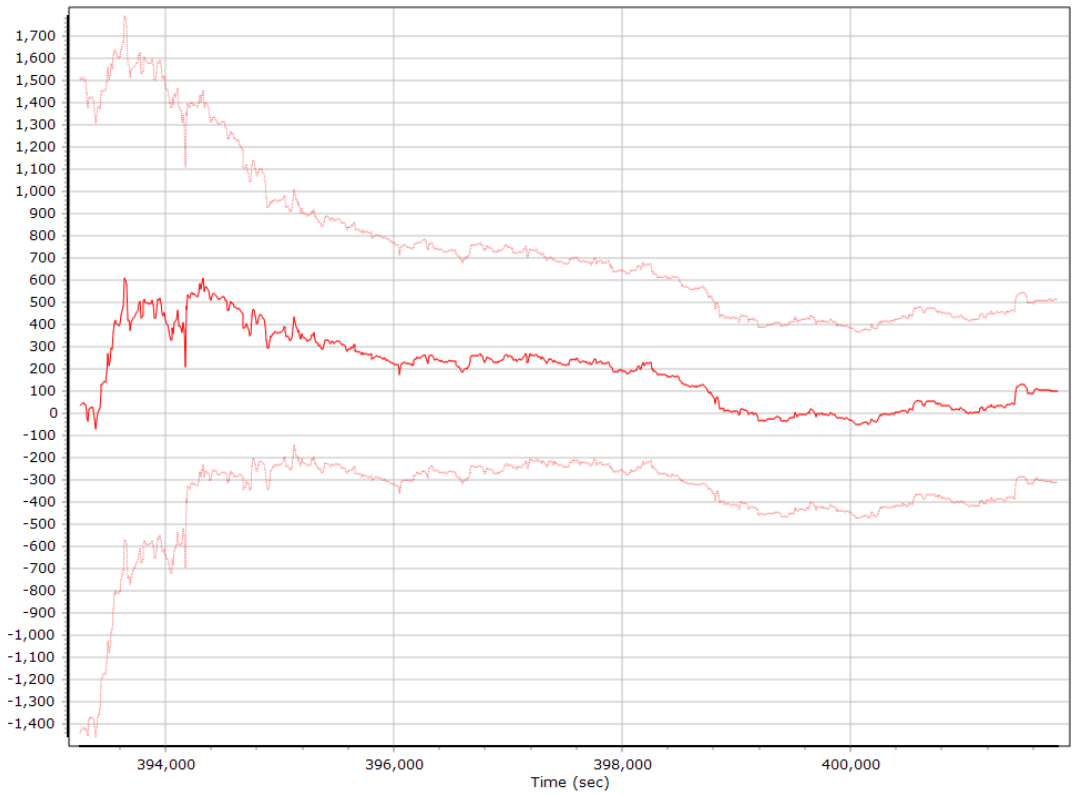
Accelerometer Scale Error (ppm)



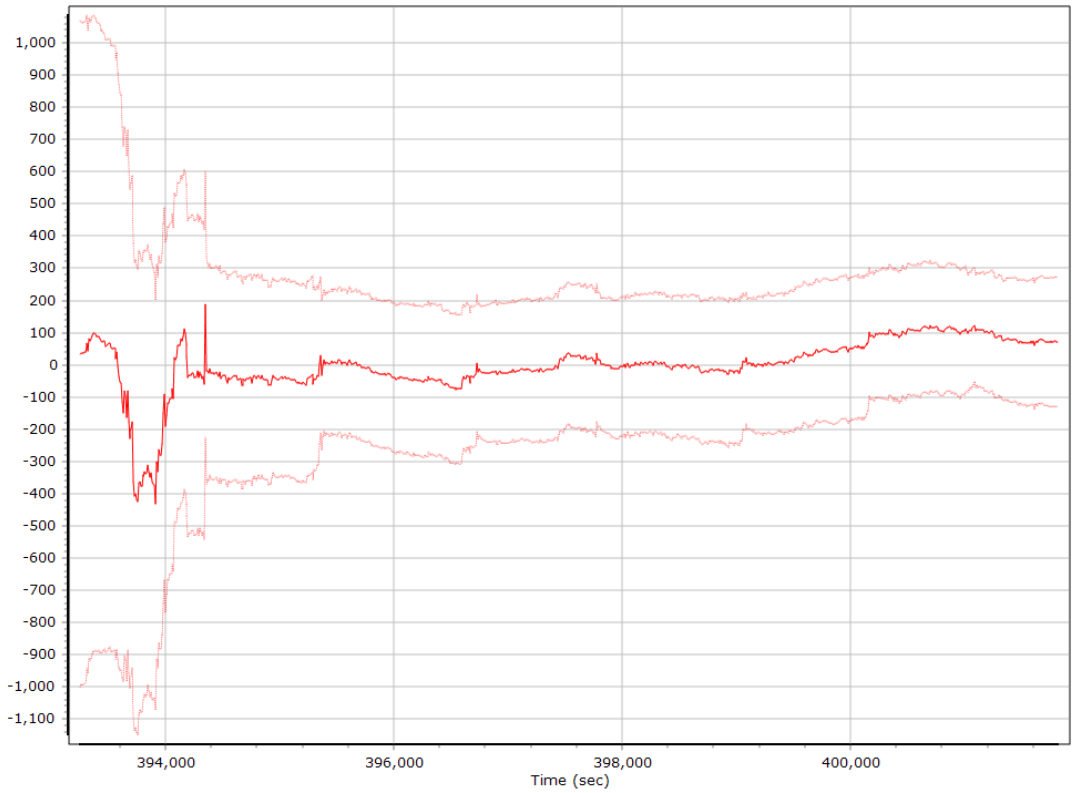
X Accelerometer Scale Error (ppm)



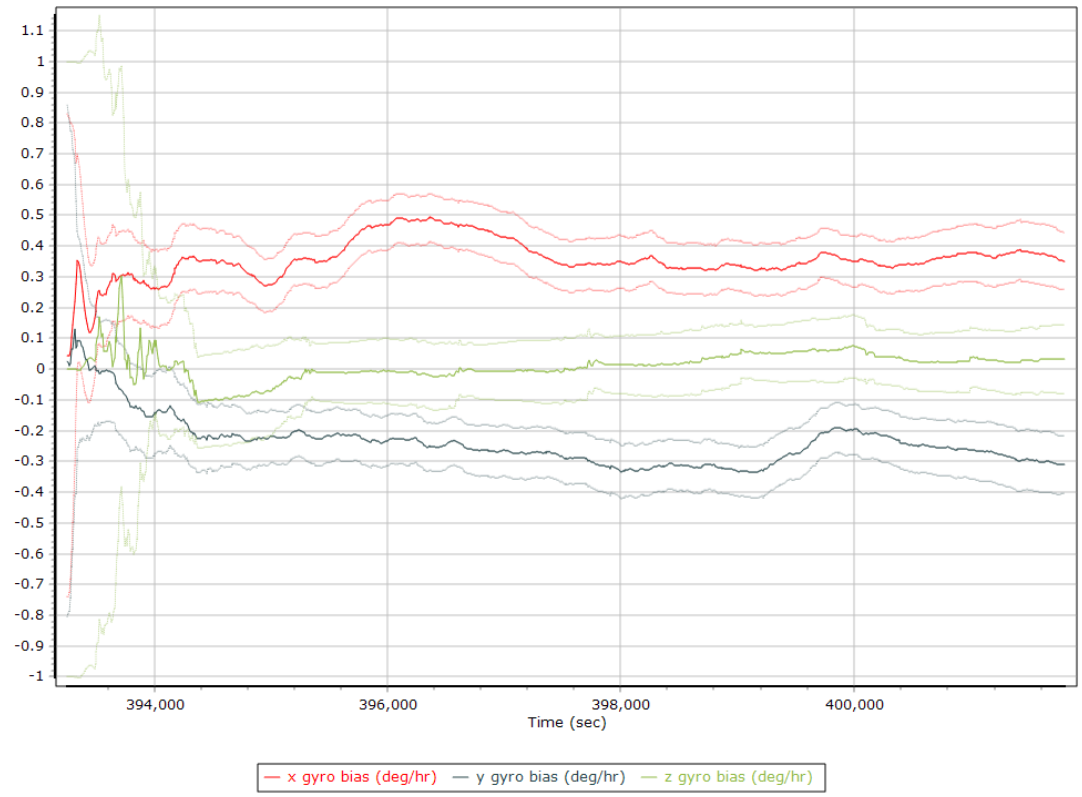
Y Accelerometer Scale Error (ppm)



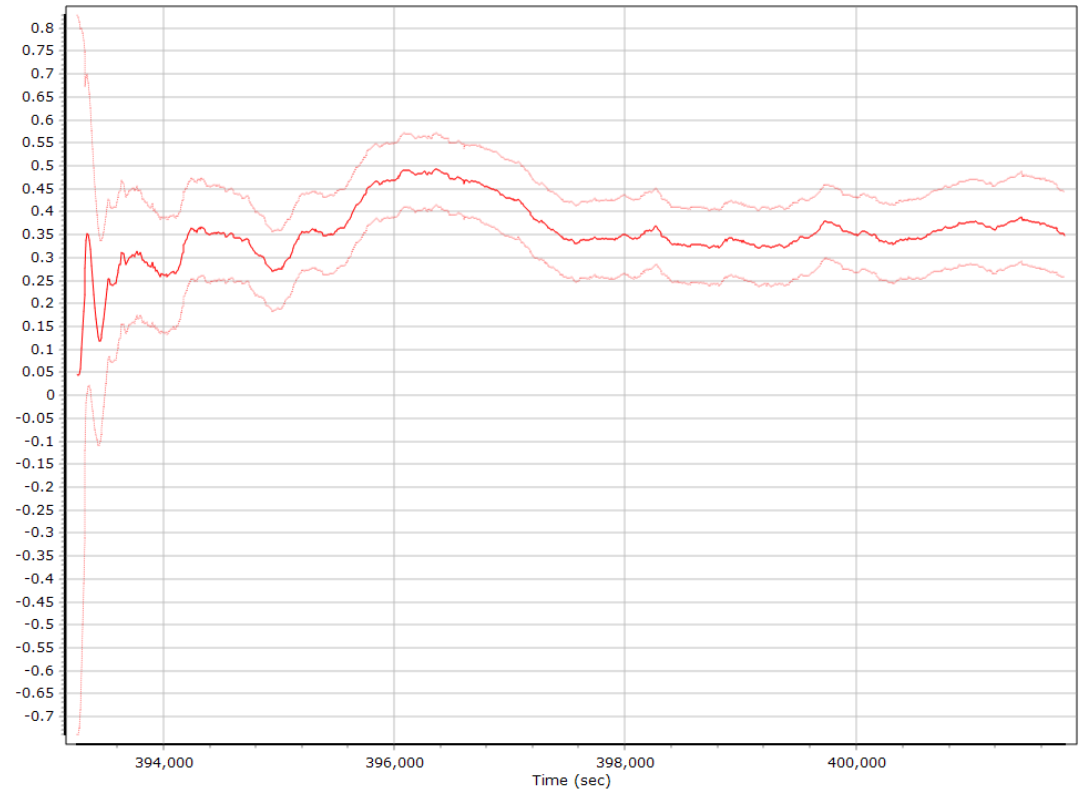
Z Accelerometer Scale Error (ppm)



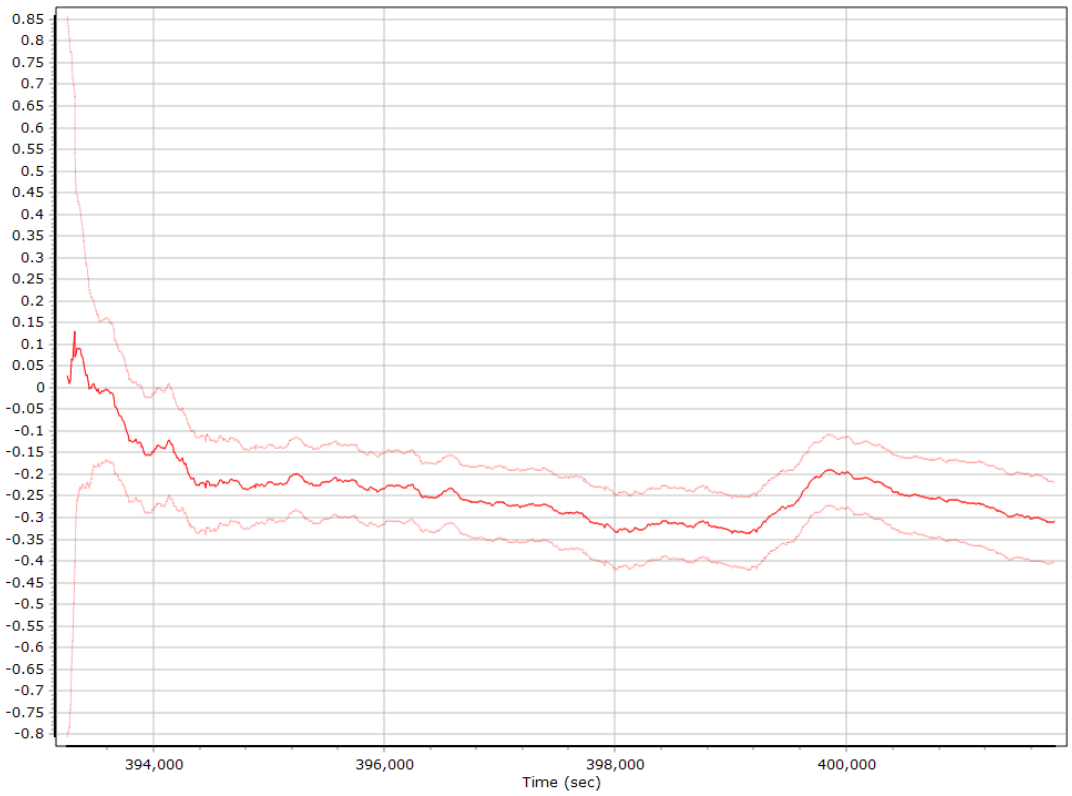
Gyro Bias (deg/h)



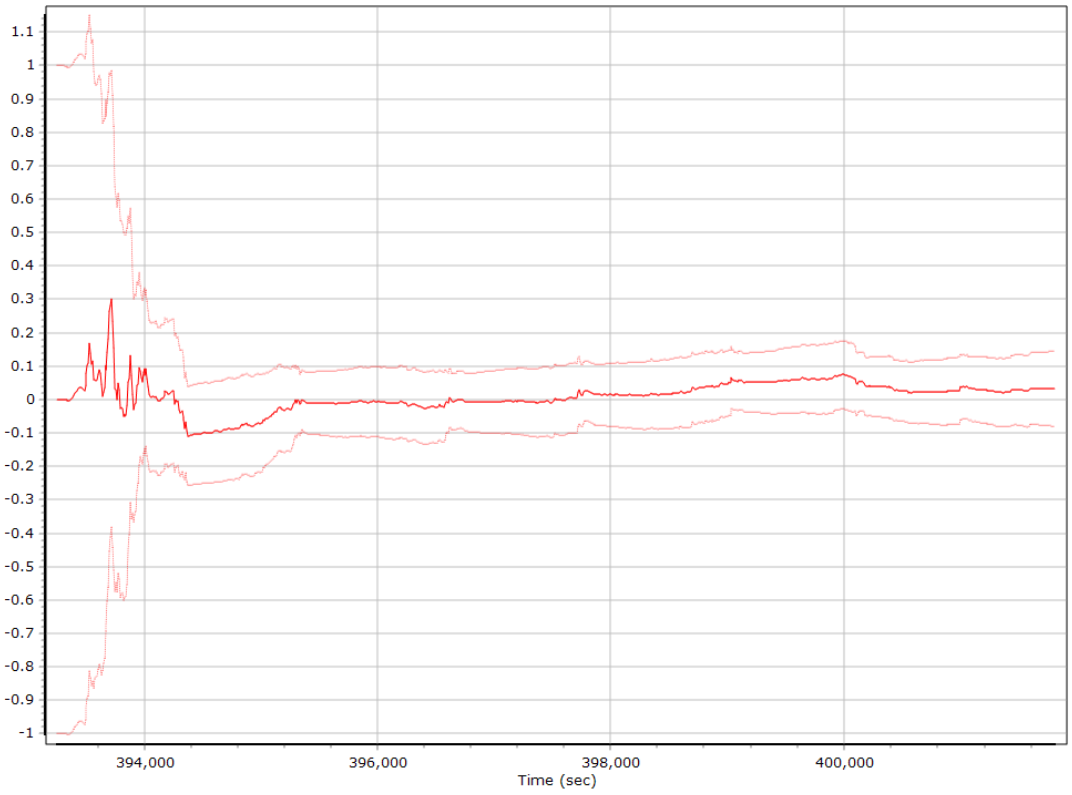
X Gyro Bias (deg/h)



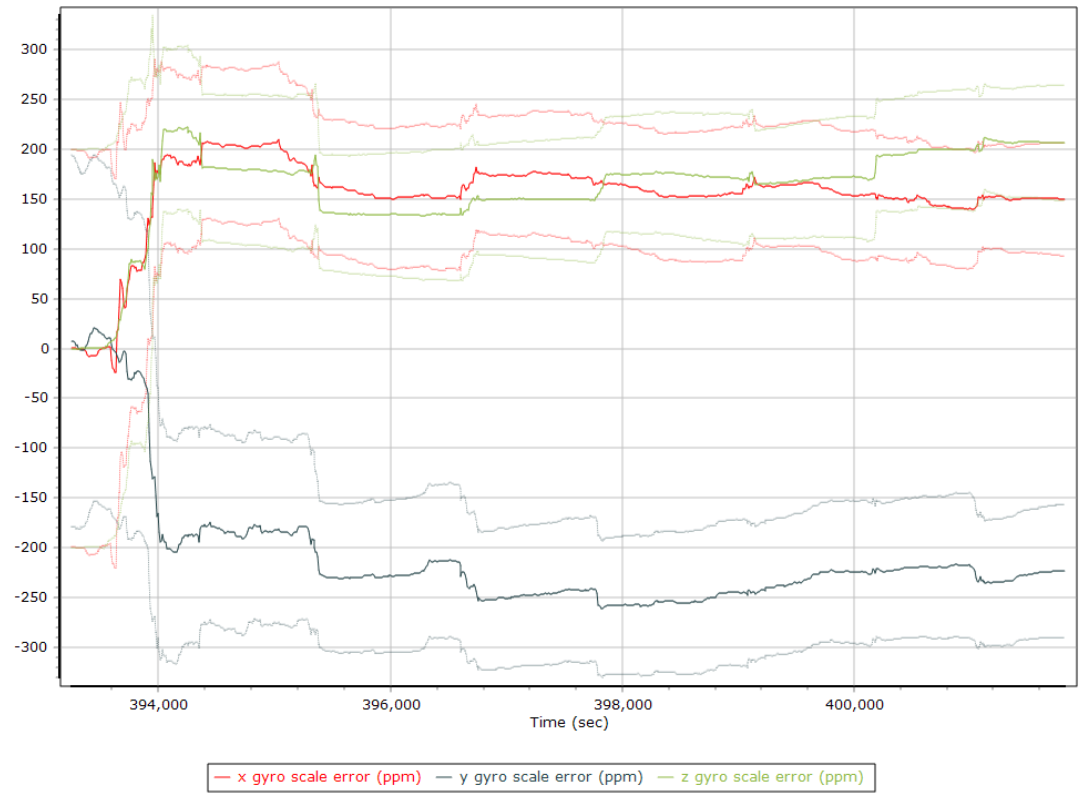
Y Gyro Bias (deg/h)



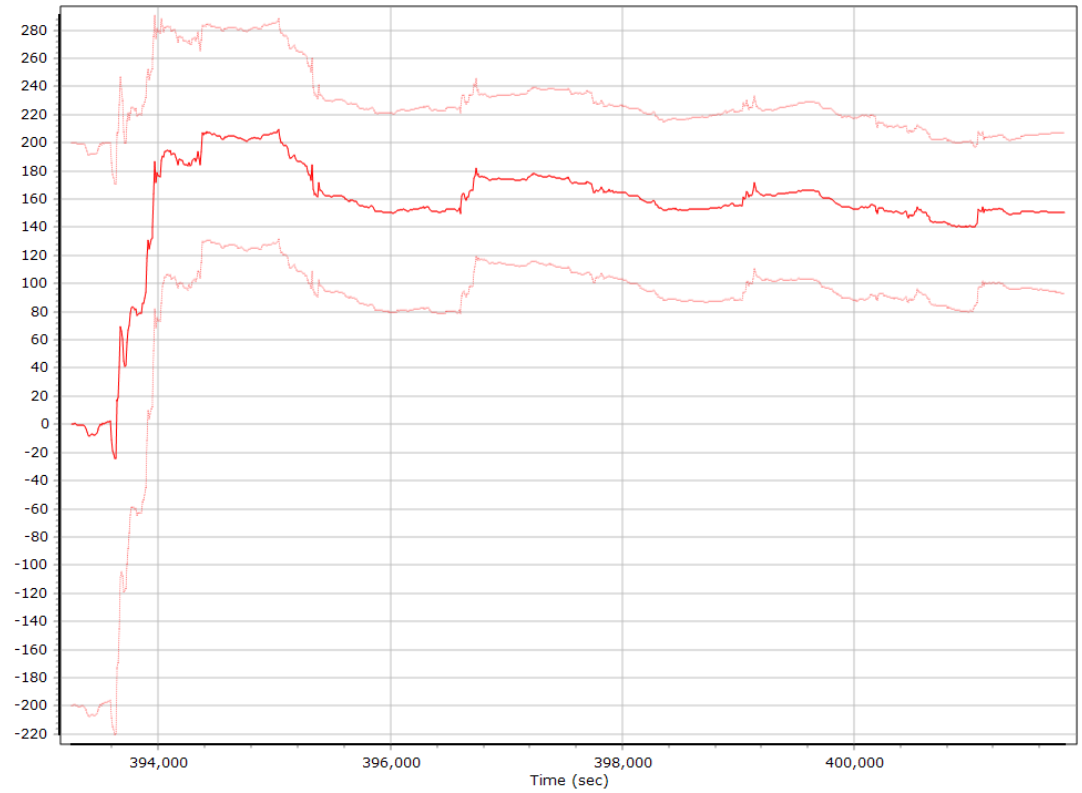
Z Gyro Bias (deg/h)



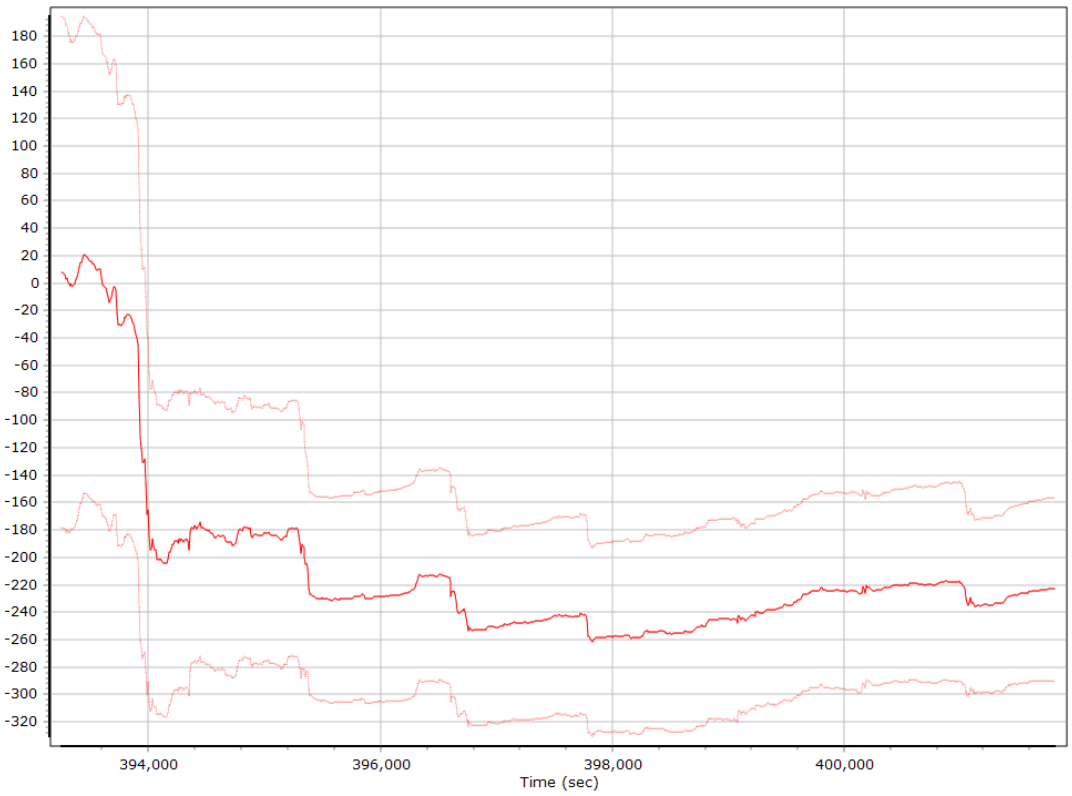
Gyro Scale Error (ppm)



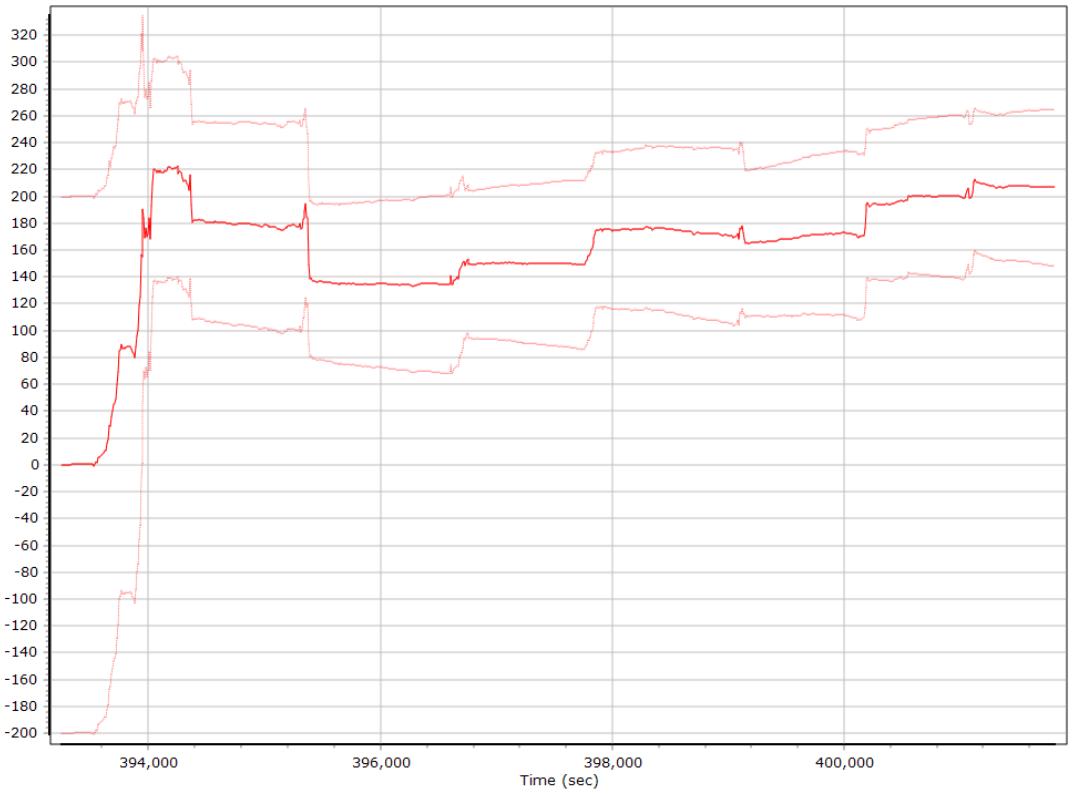
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

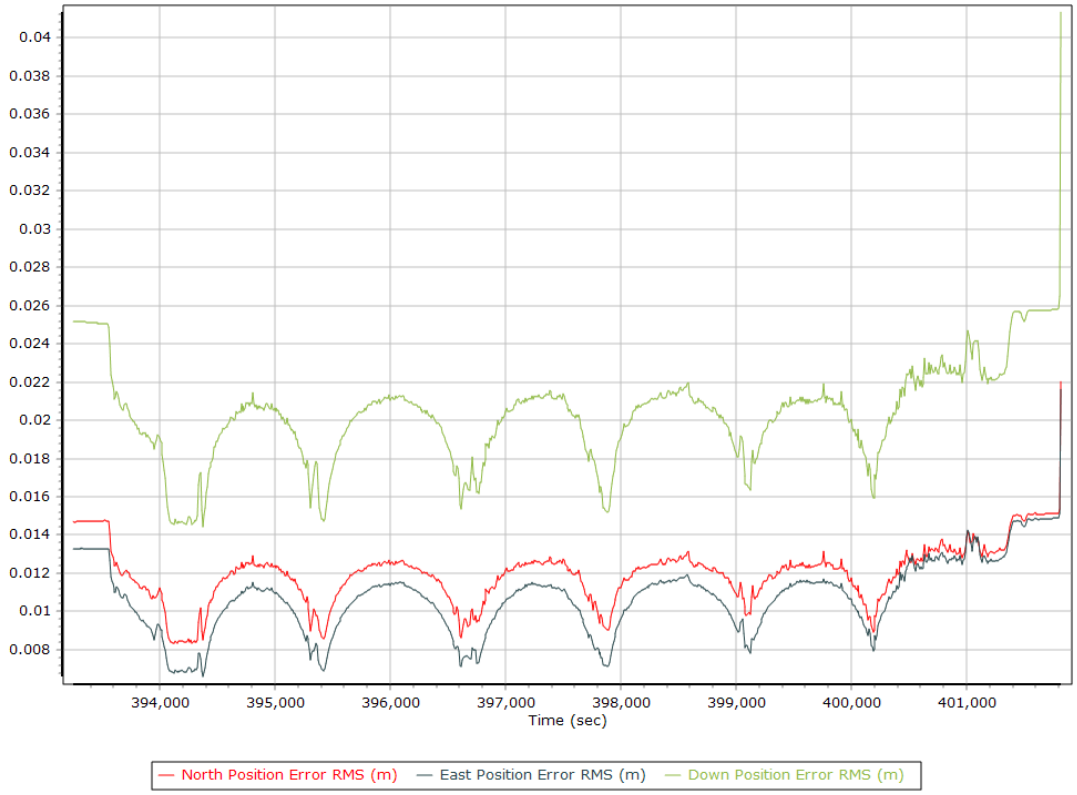


Z Gyro Scale Error (ppm)

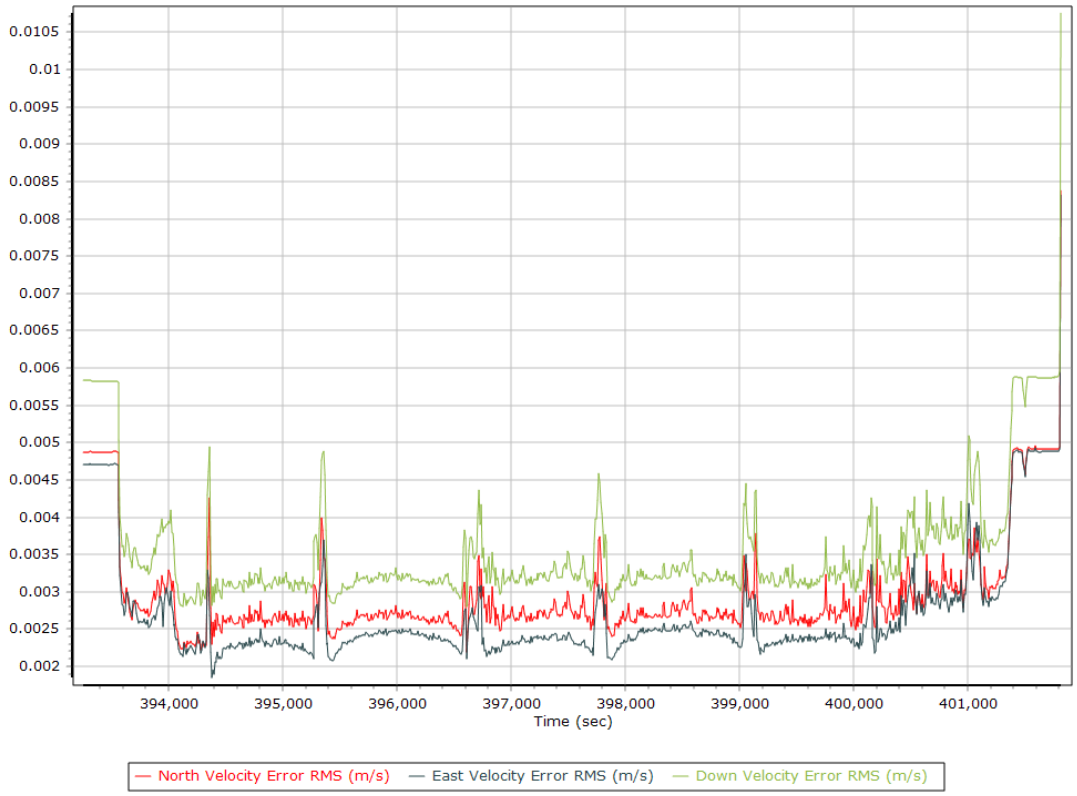


Smoothed Performance Metrics

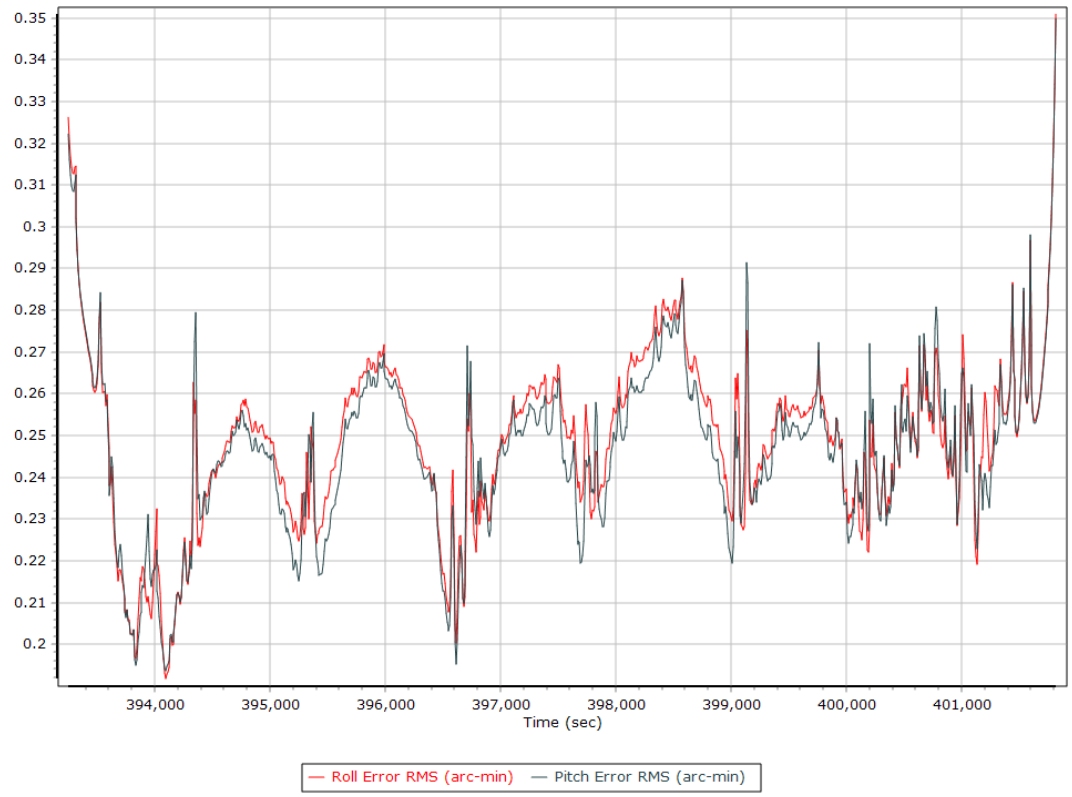
Position Error RMS (m)



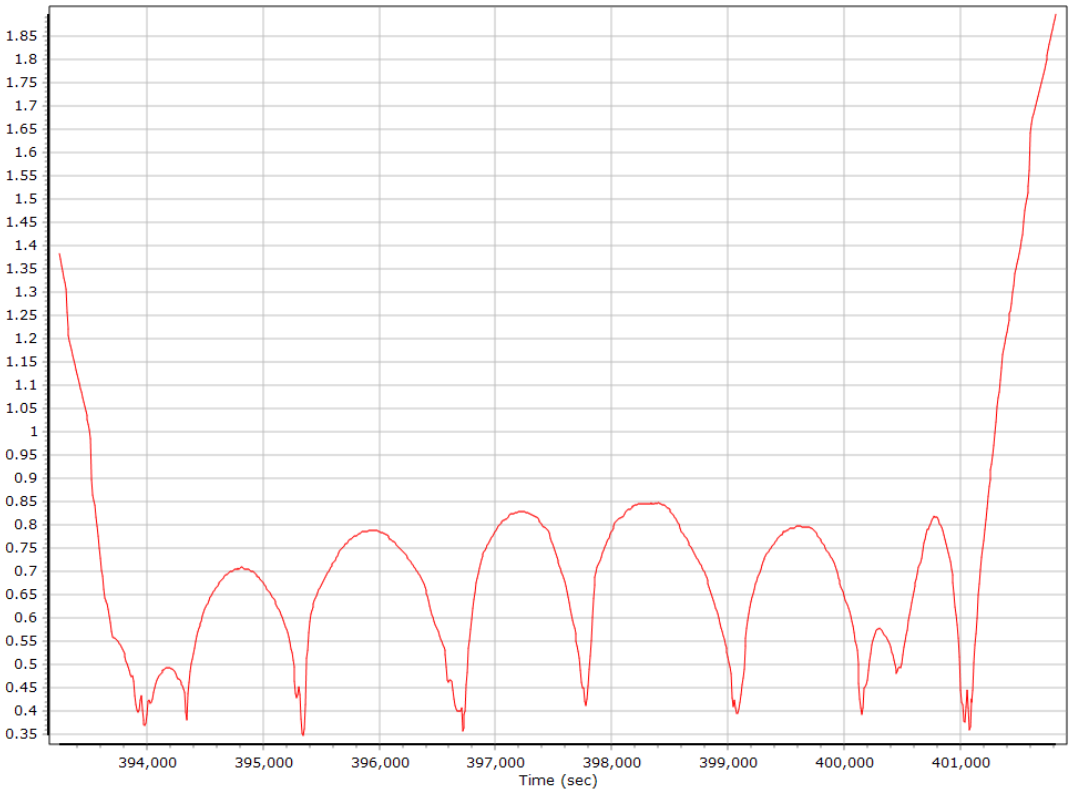
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

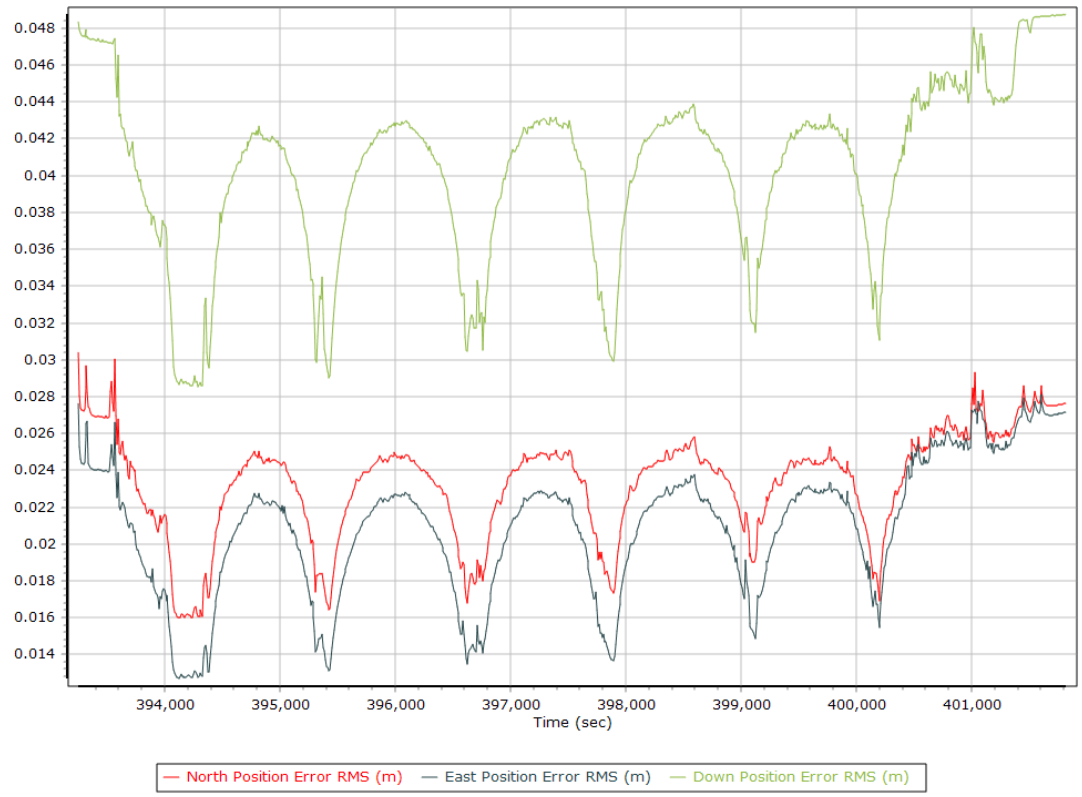


Heading Error RMS (arc-min)

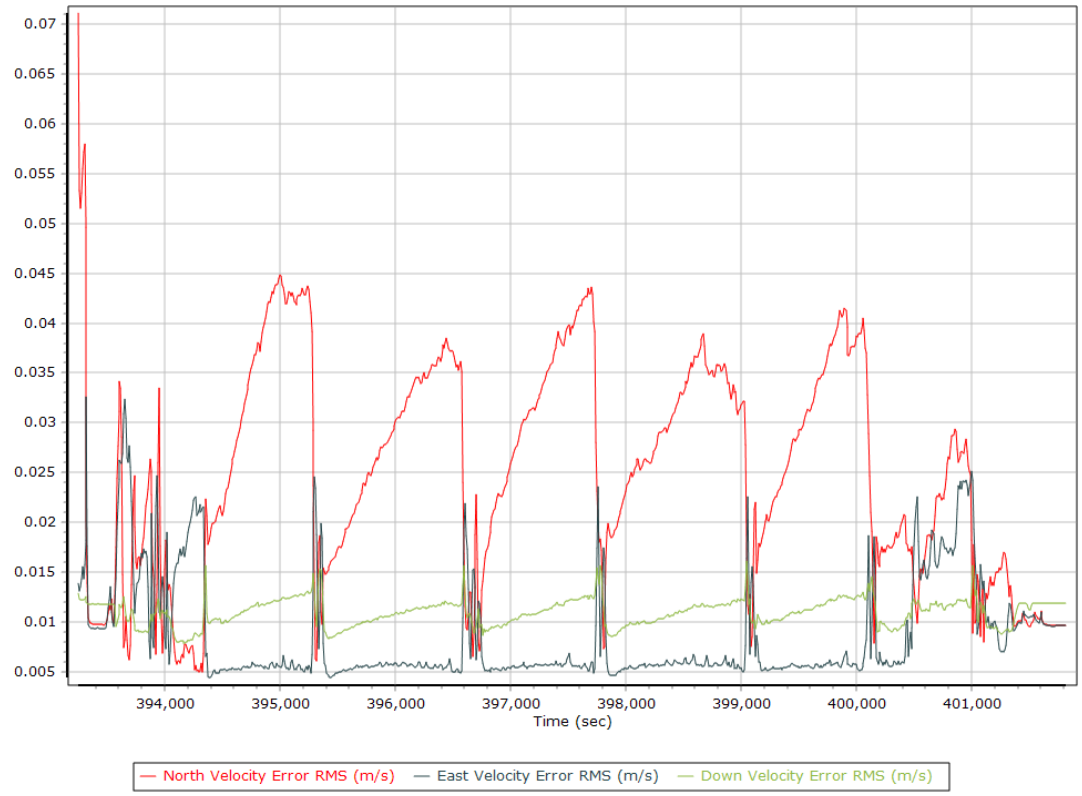


Forward Processed Performance Metrics

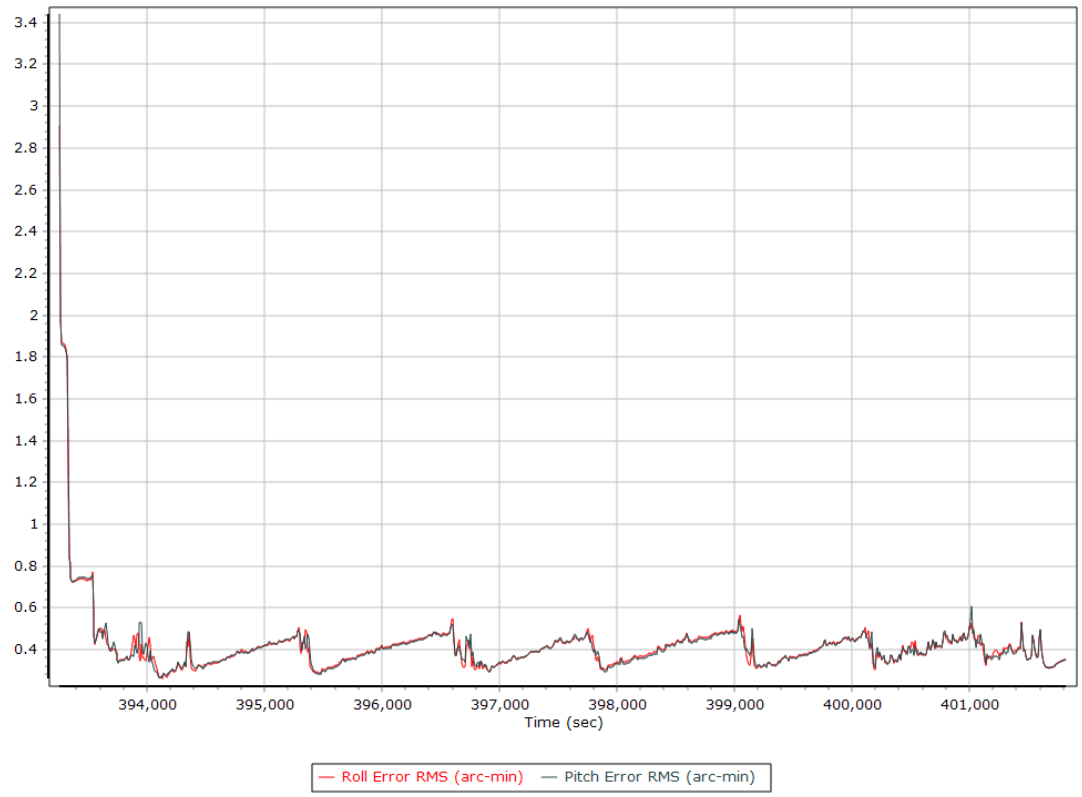
Position Error RMS (m)



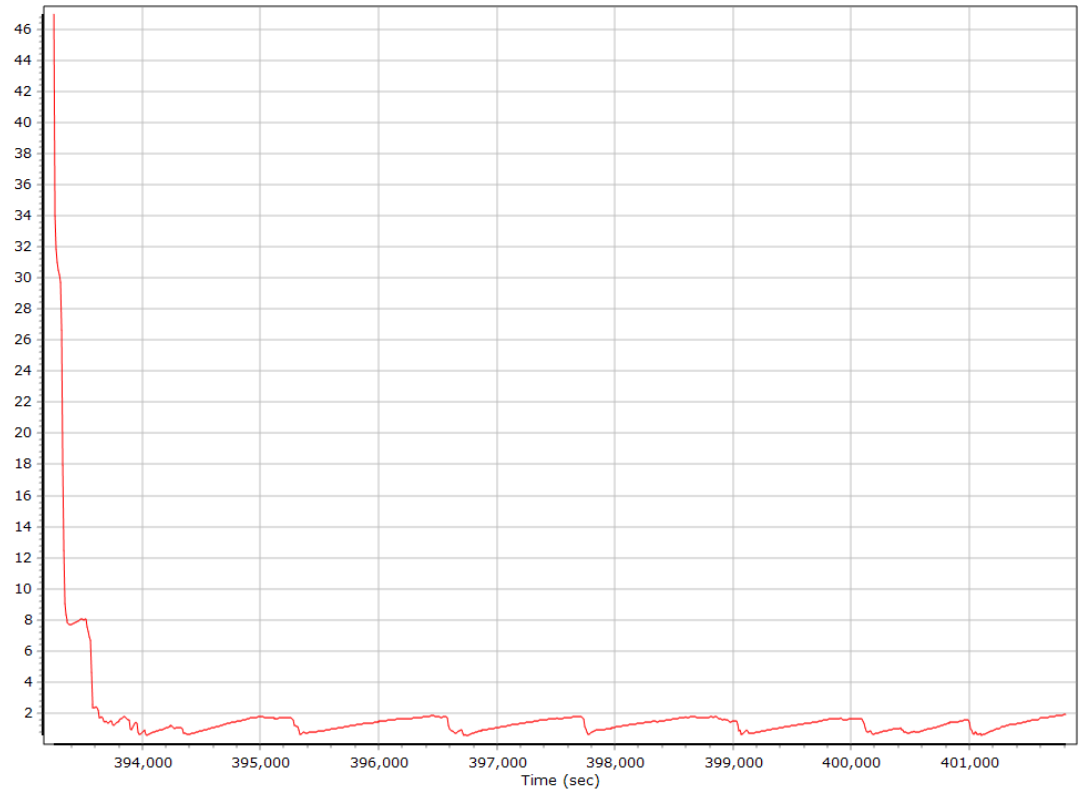
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

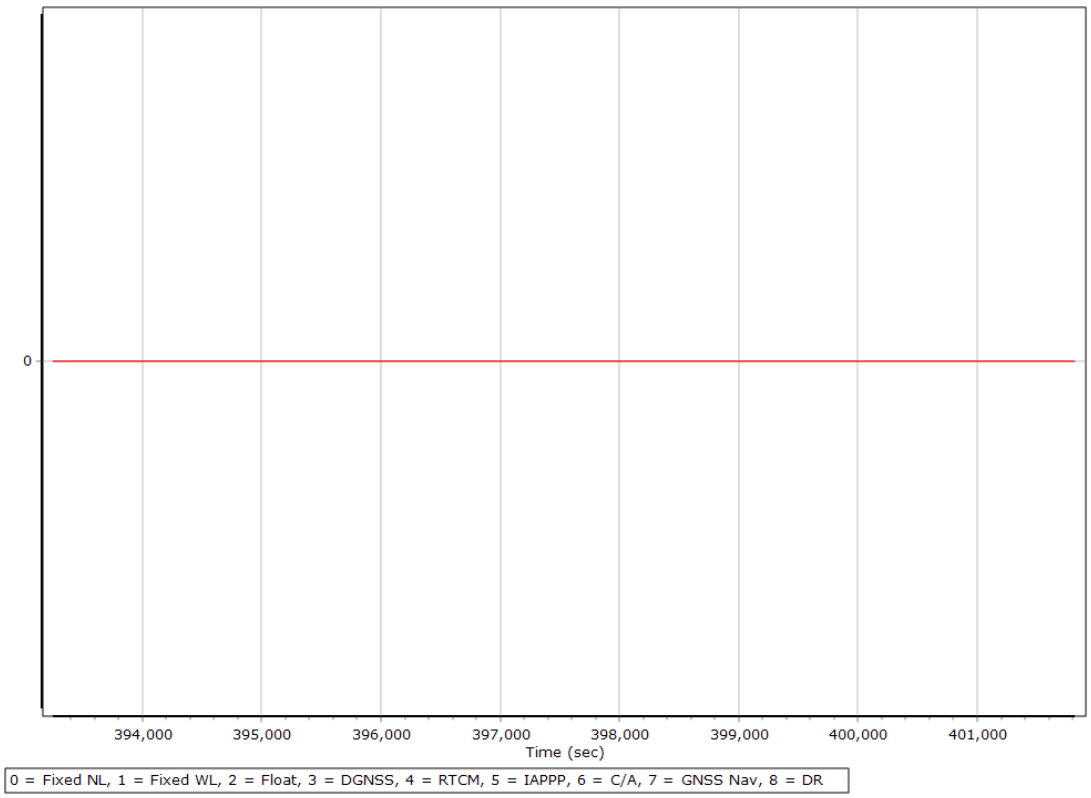


Heading Error RMS (arc-min)

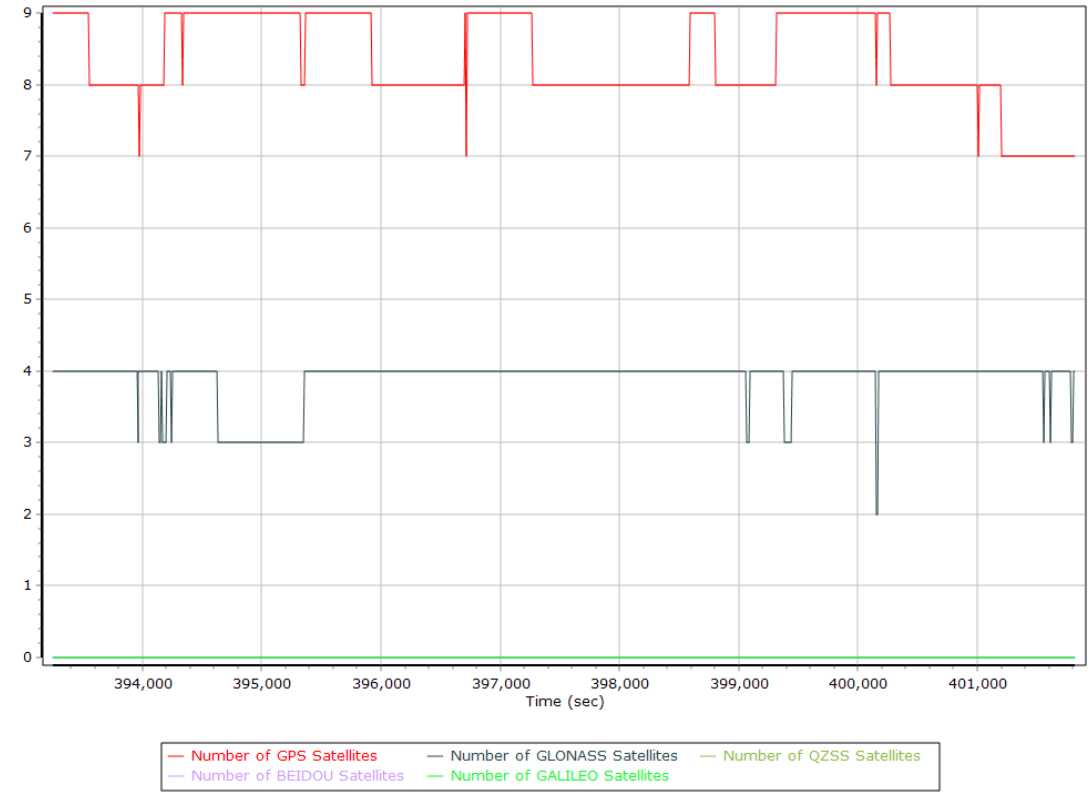


Smoothed Solution Status

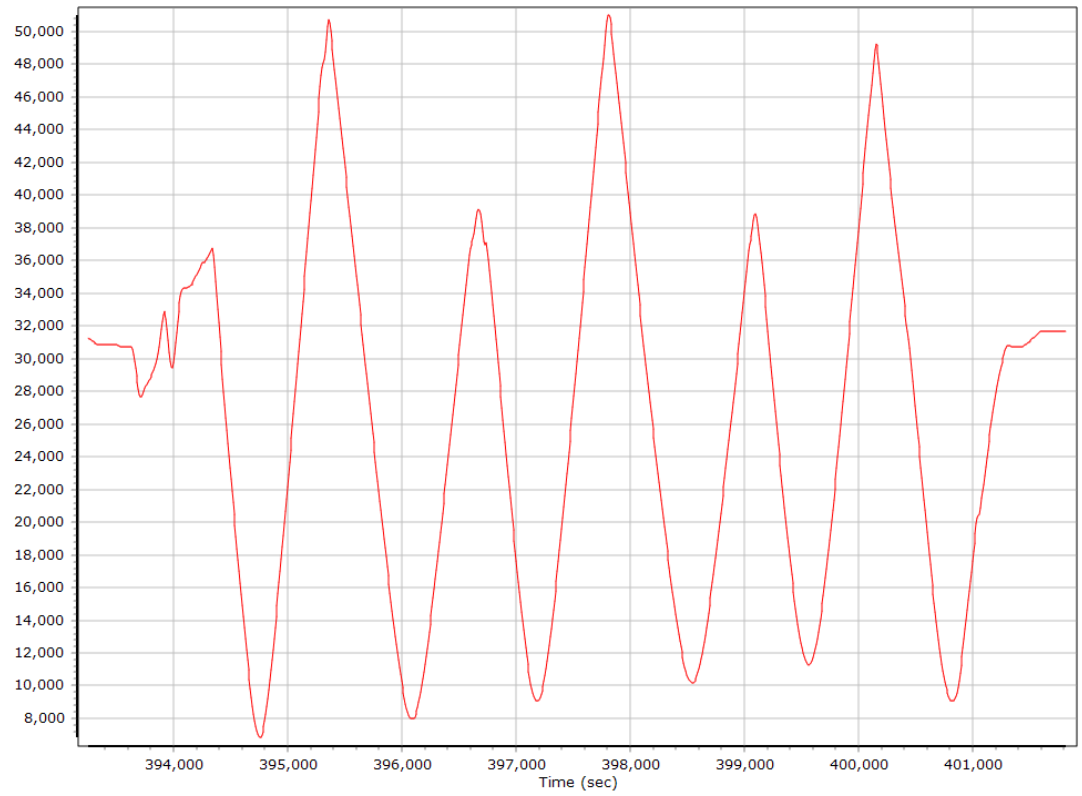
Processing Mode



Number of Satellites

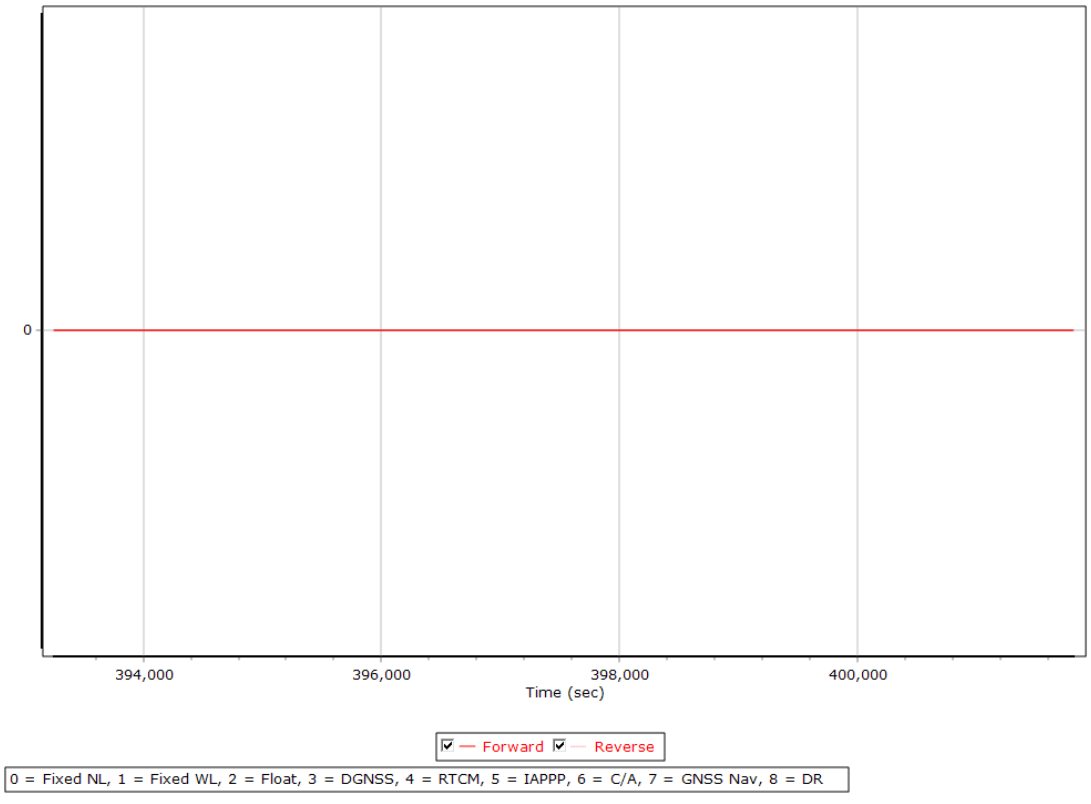


Baseline Length

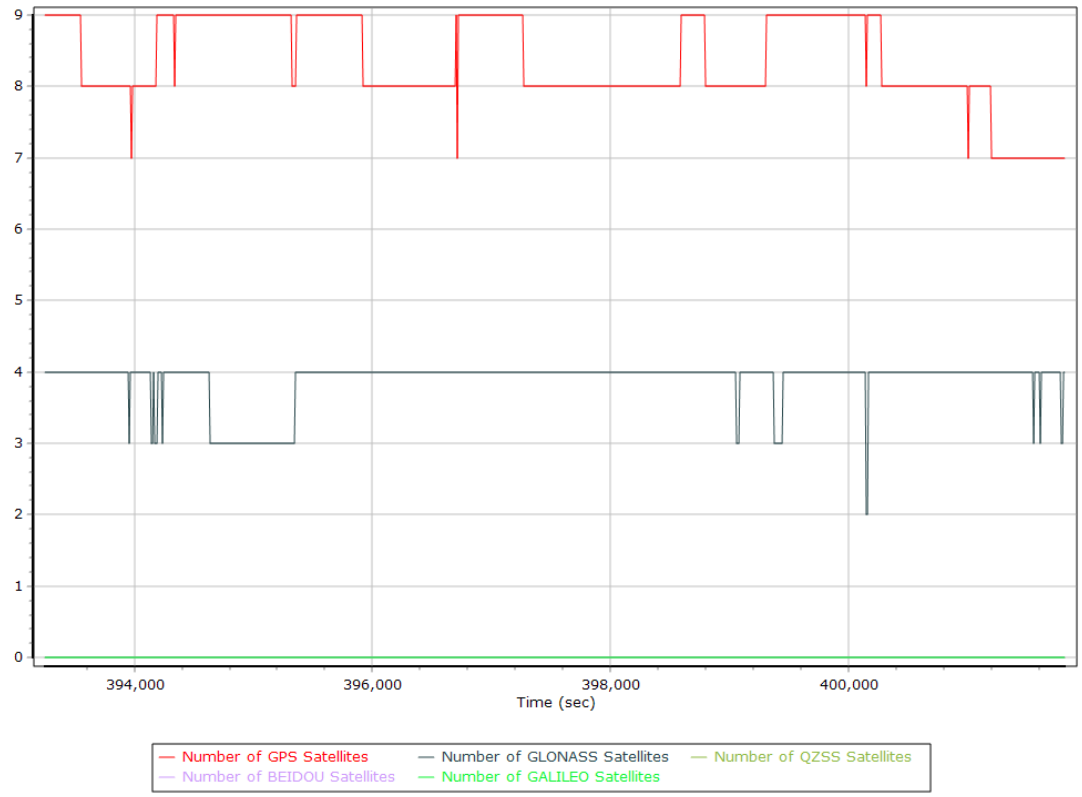


Forward Processed Solution Status

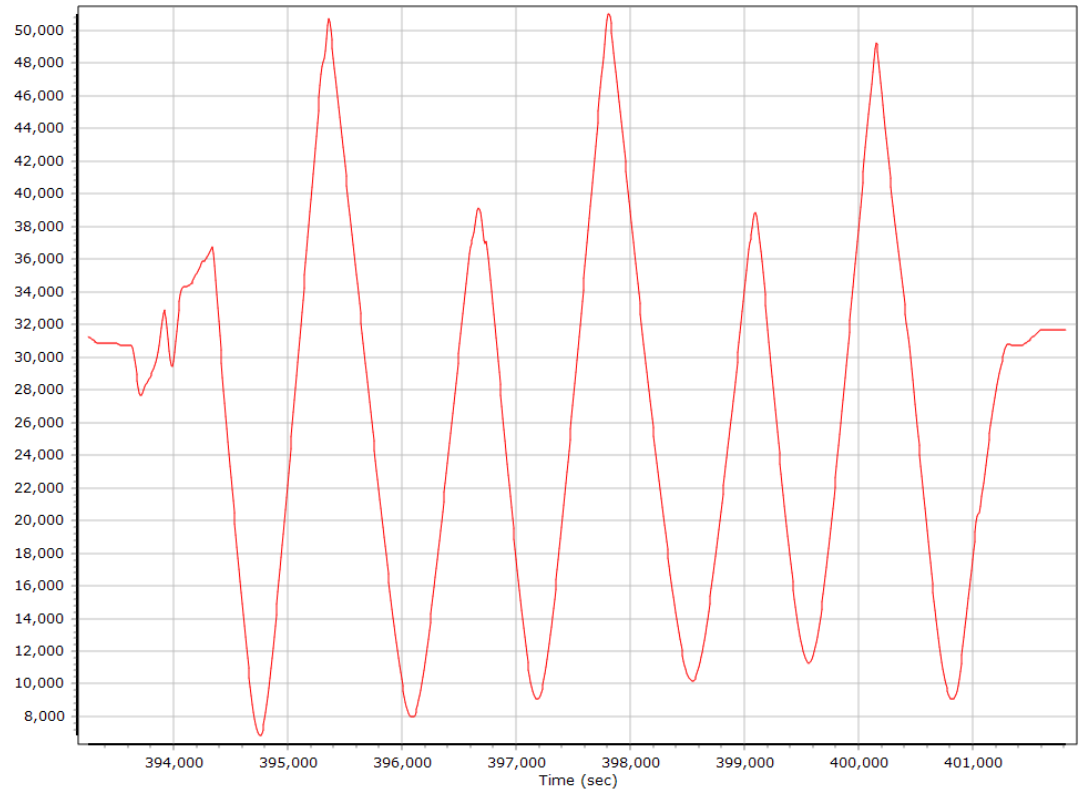
Processing Mode



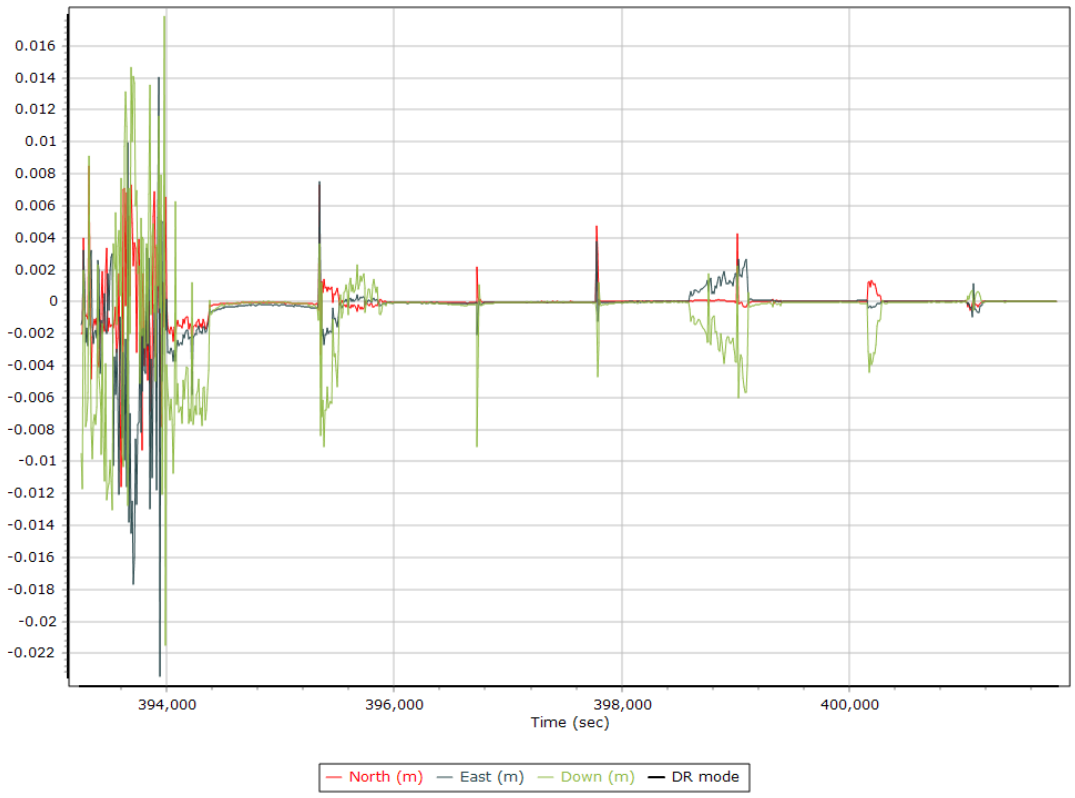
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_20200409B-Mission 1.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	393191.002 (4/9/2020 1:13:11 PM)		
Export end time	401819.004 (4/9/2020 3:36:59 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200410A
Processing date	2021-01-18 23:43:58
Mission date	2020-04-10 11:20:11
Mission duration	03:11:27.976
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.000	POS Data
ALS.001	POS Data
ALS.002	POS Data
ALS.003	POS Data
ALS.004	POS Data
ALS.005	POS Data
ALS.006	POS Data
ALS.007	POS Data
ALS.008	POS Data
ALS.009	POS Data
ALS.010	POS Data
ALS.011	POS Data
ALS.012	POS Data
ALS.013	POS Data
ALS.014	POS Data
ALS.015	POS Data
ALS.016	POS Data
ALS.017	POS Data

Input Files

File Name	File Type
Ephm1010.20g	GLONASS Broadcast Ephemeris
Ephm1010.20n	GPS Broadcast Ephemeris
iaal1010.20o	GNSS SingleBase
iade1010.20o	GNSS SingleBase
iael1010.20o	GNSS SingleBase
iaht1010.20o	GNSS SingleBase
iamn1010.20o	GNSS SingleBase
iana1010.20o	GNSS SingleBase
iata1010.20o	GNSS SingleBase
mnca1010.20o	GNSS SingleBase
mnps1010.20o	GNSS SingleBase
igr21004.sp3	GPS Precise Ephemeris
igr21005.sp3	GPS Precise Ephemeris
igr21006.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200410A.out	SBET Trajectory File
SBET_20200410A.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.000		
Last raw data file	ALS.017		
Start GPS week	2100		
Start time	472793.119 (4/10/2020 11:19:53 AM)		
End time	484282.555 (4/10/2020 2:31:22 PM)		
Start of fine alignment	473584.537 (4/10/2020 11:33:04 AM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

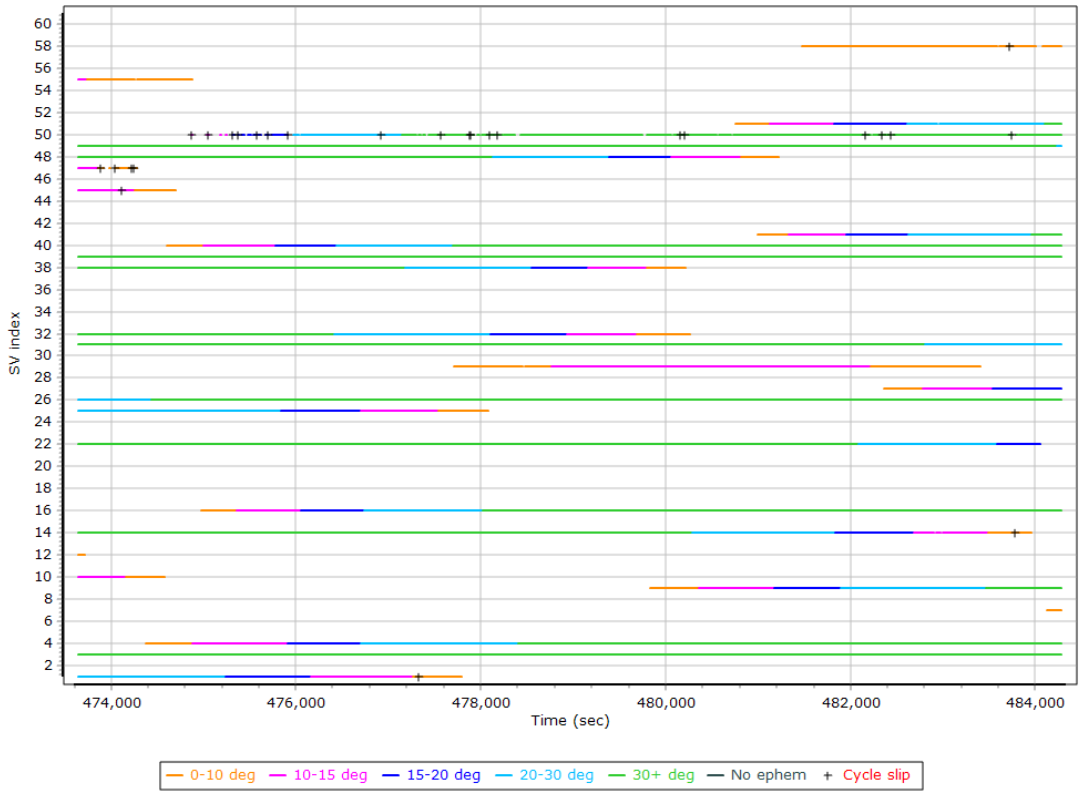
Rover Data QC

Raw IMU Import QC Summary

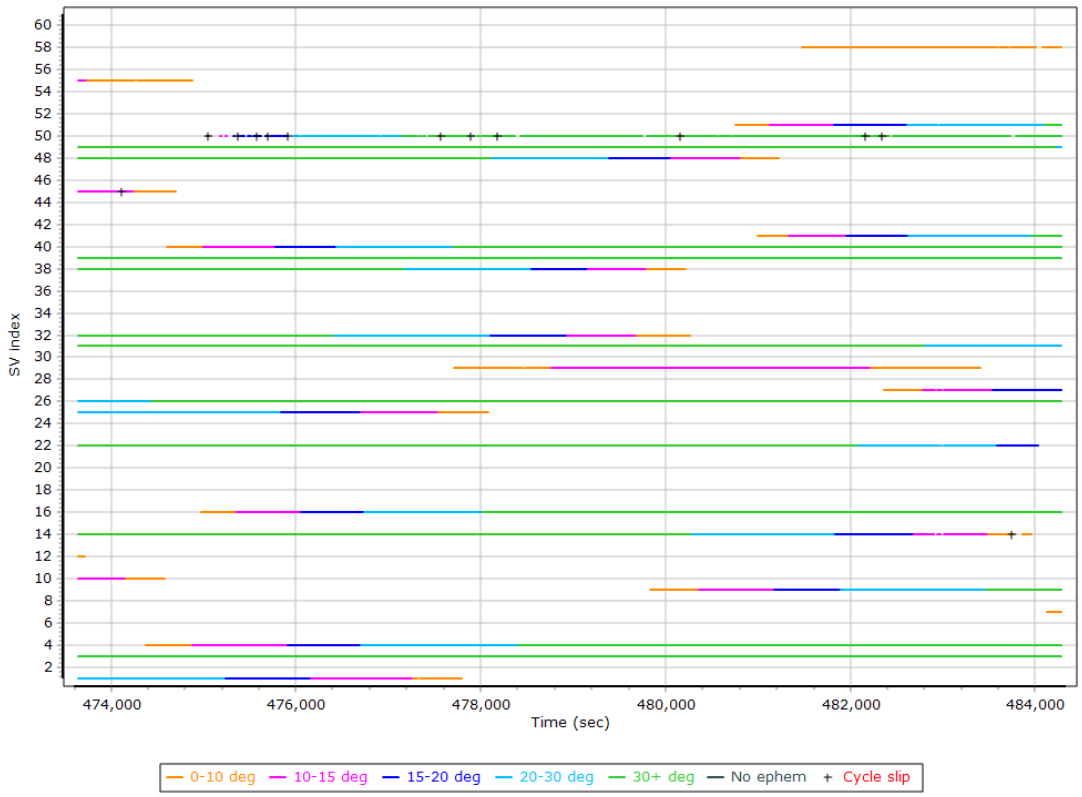
IMU data input file	imu_20200410A.dat
IMU data check log file	imudt_20200410A.log
IMU Records Processed	2298254
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

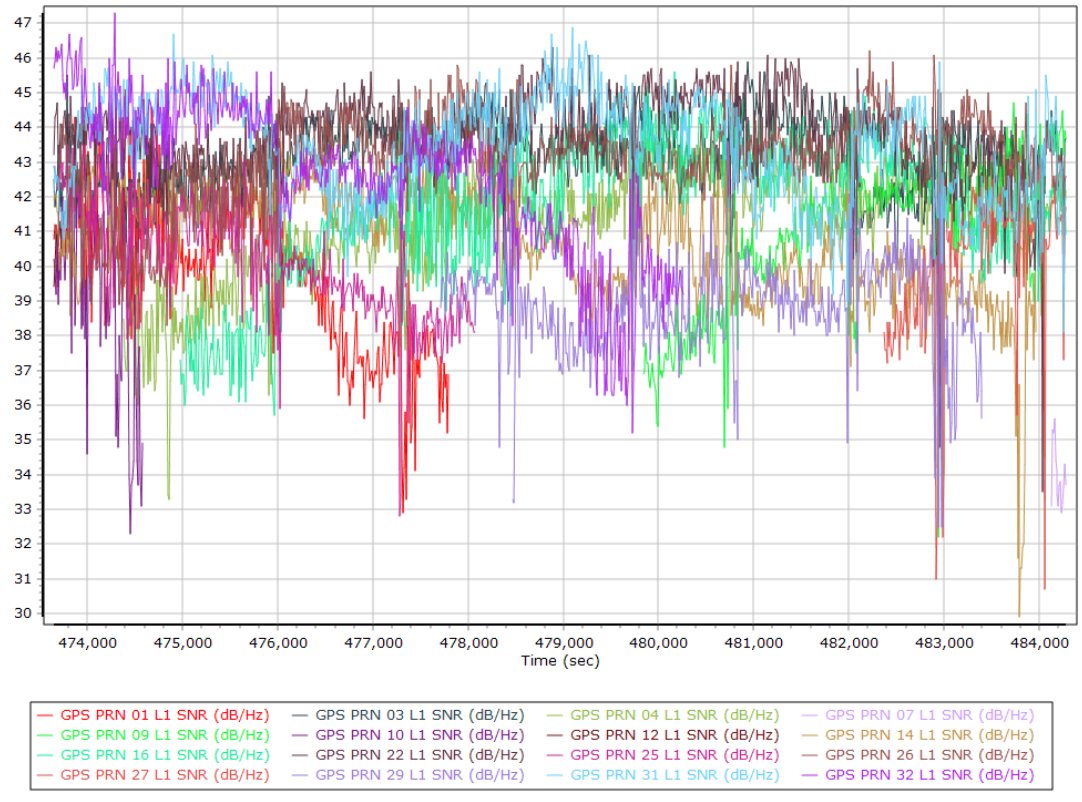
L1 Satellite Lock/Elevation



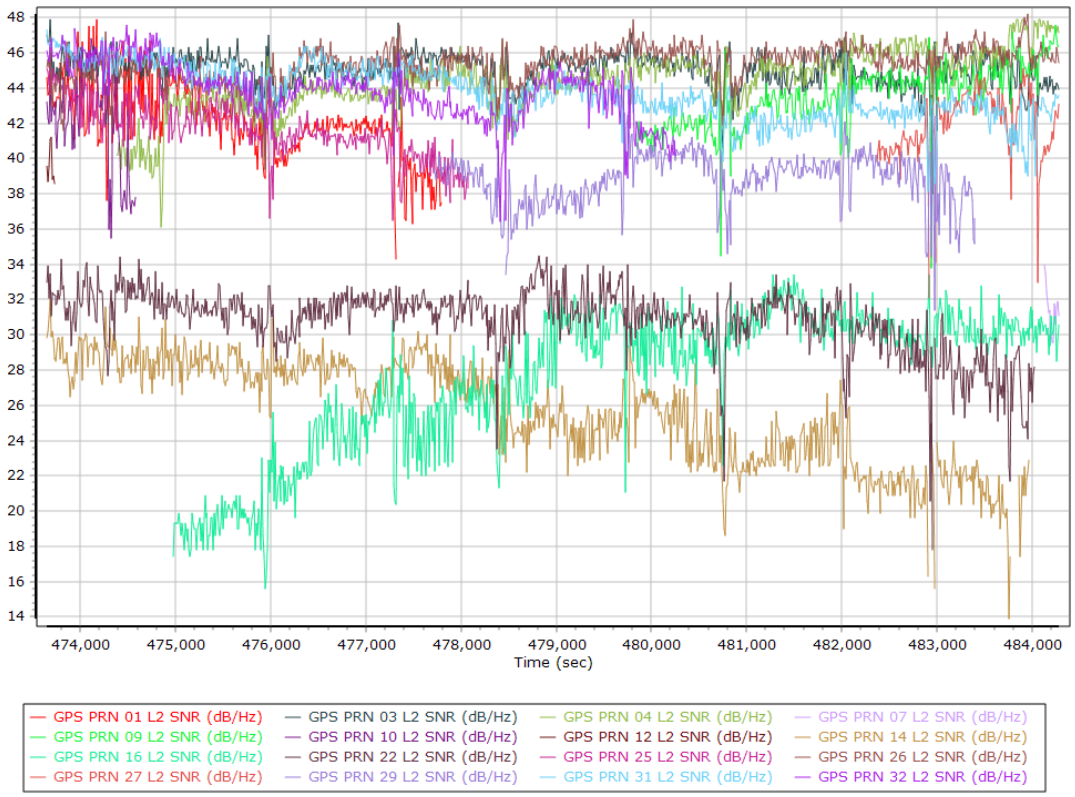
L2 Satellite Lock/Elevation



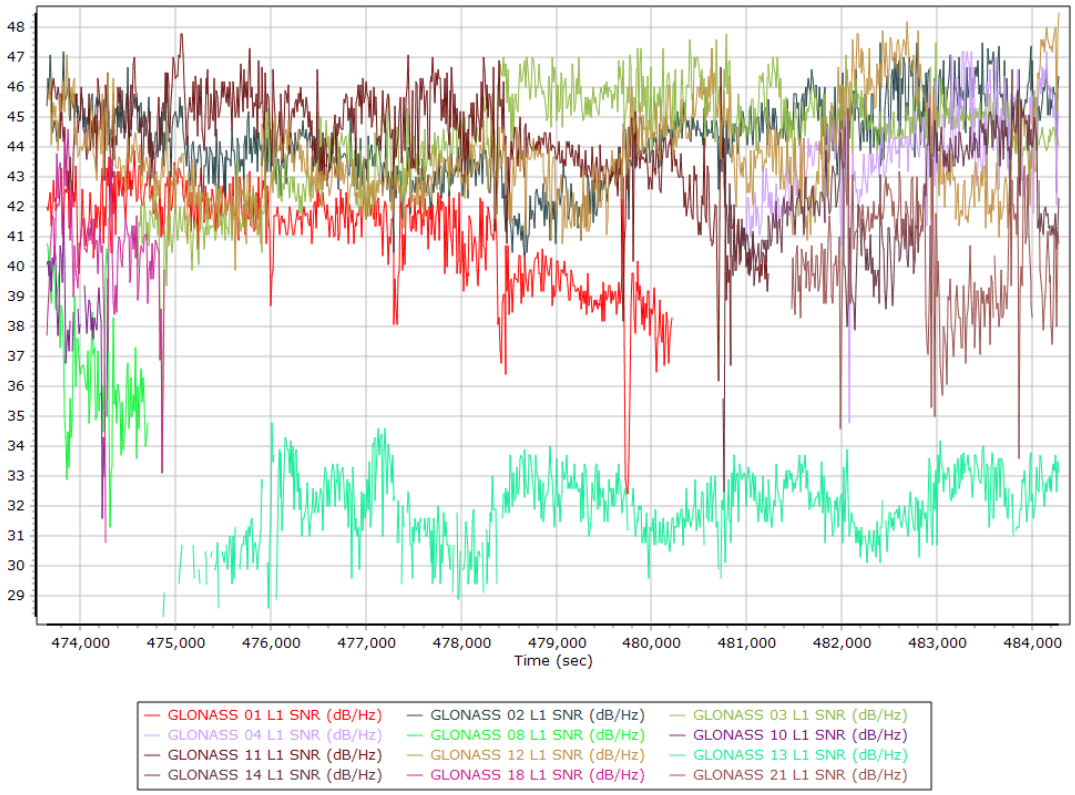
GPS L1 SNR



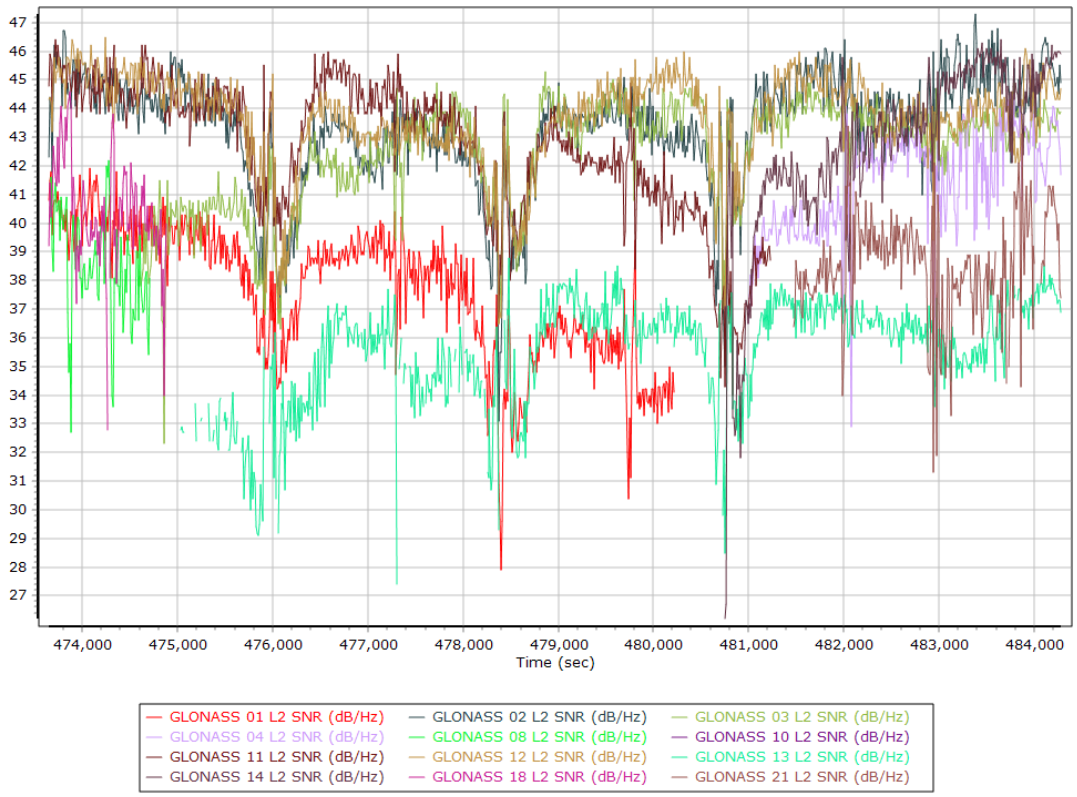
GPS L2 SNR



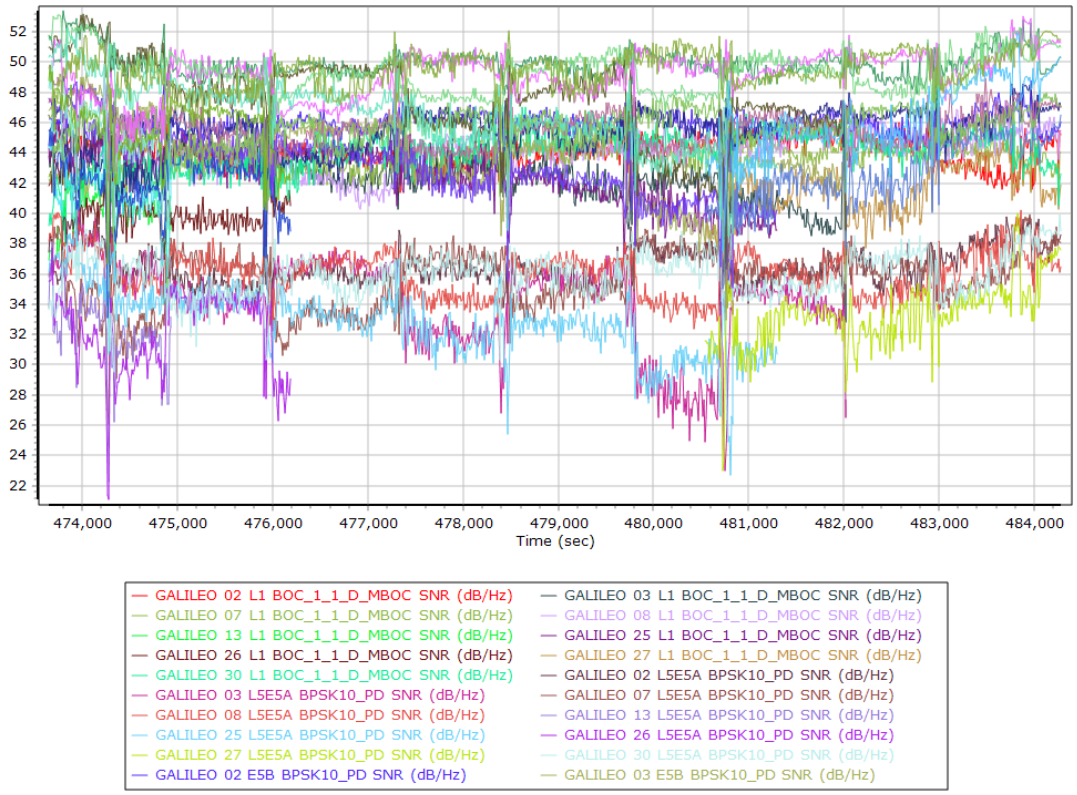
GLONASS L1 SNR



GLONASS L2 SNR

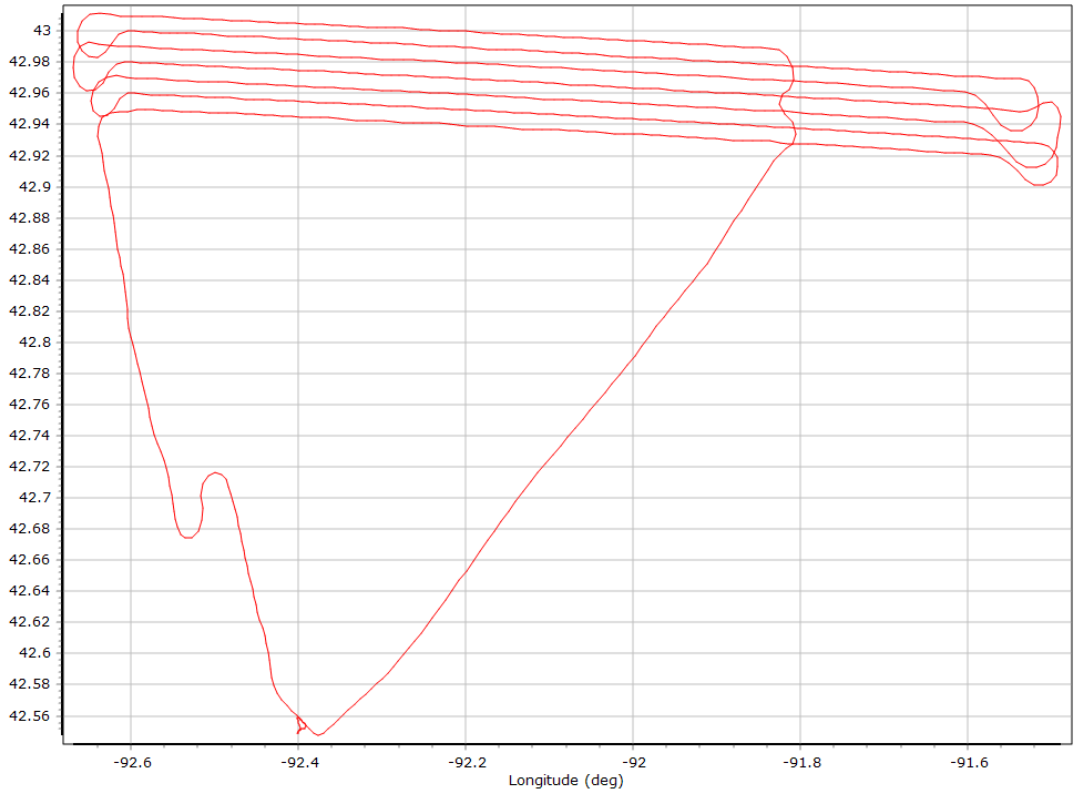


GALILEO SNR

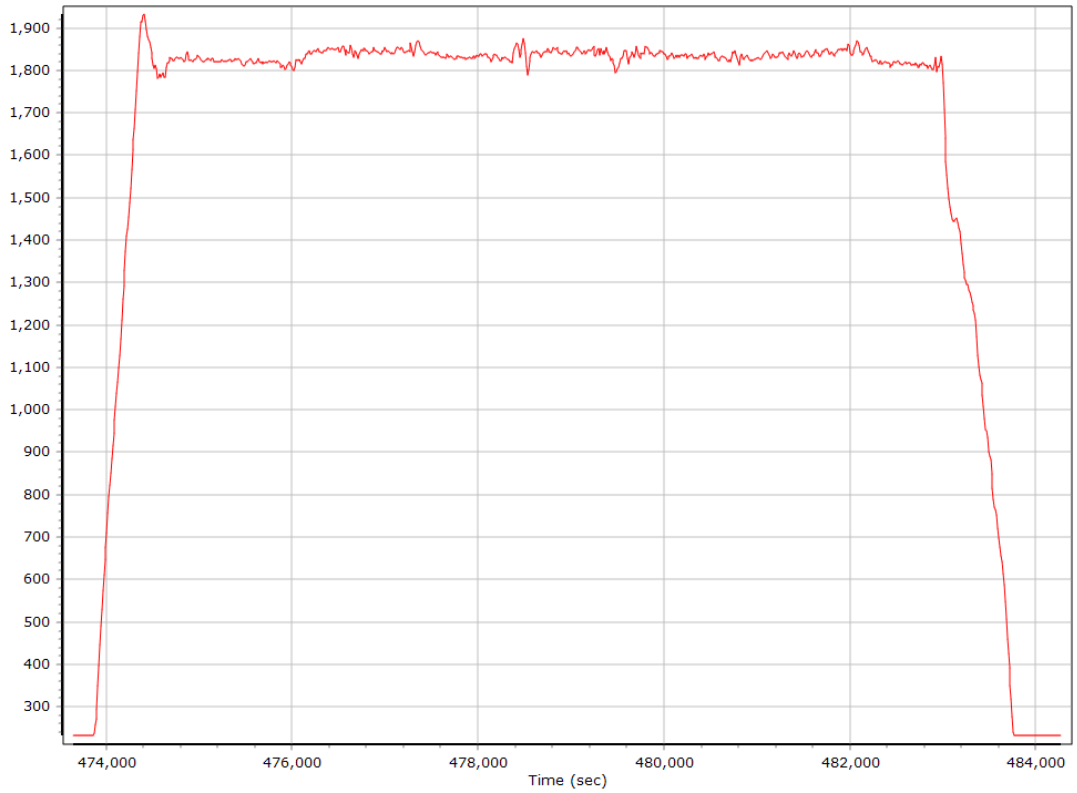


Smoothed Trajectory Information

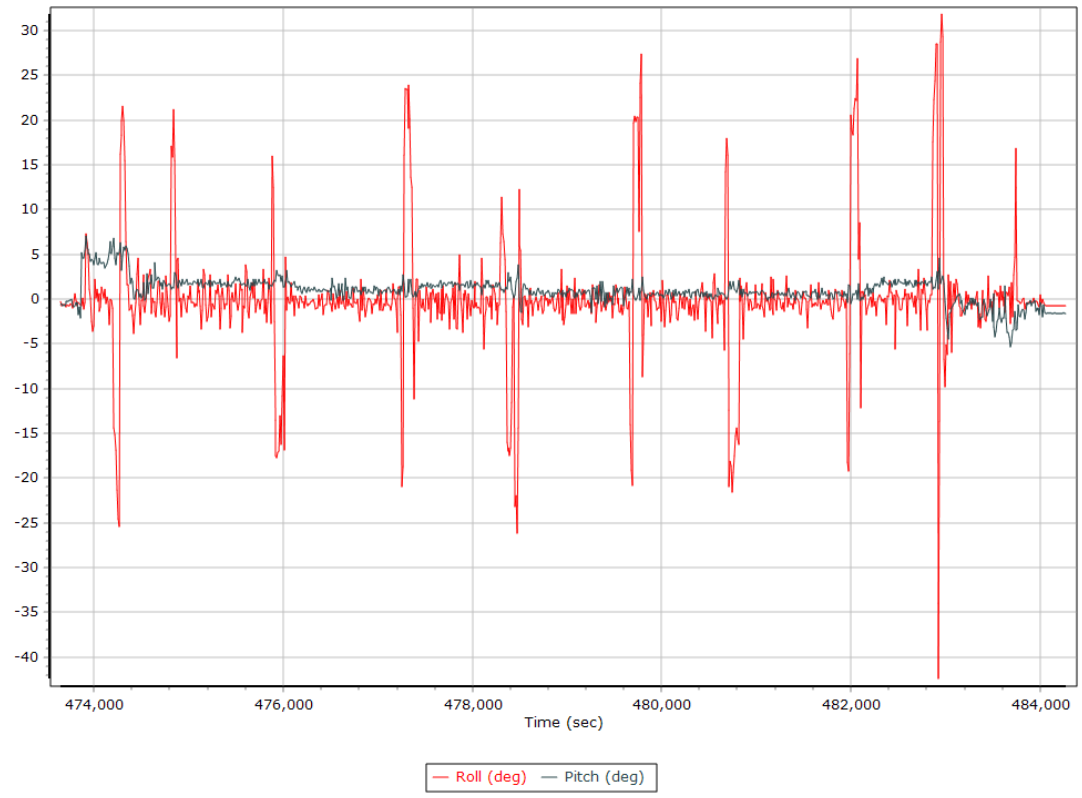
Top View



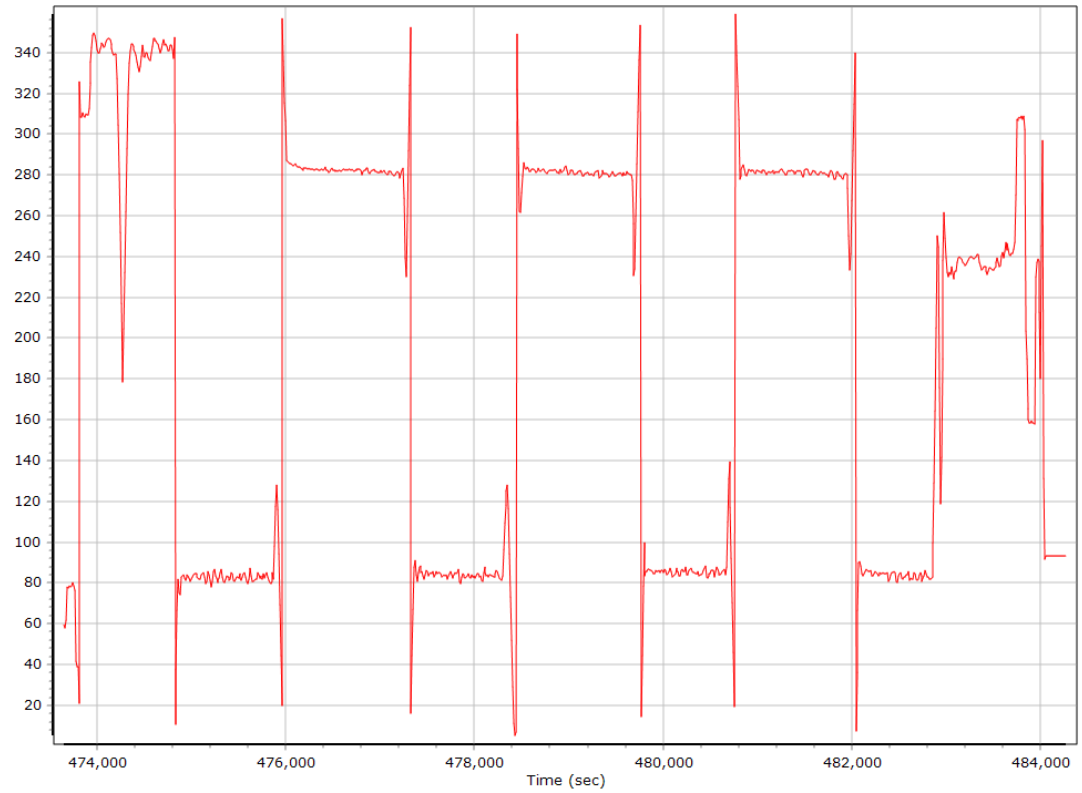
Altitude



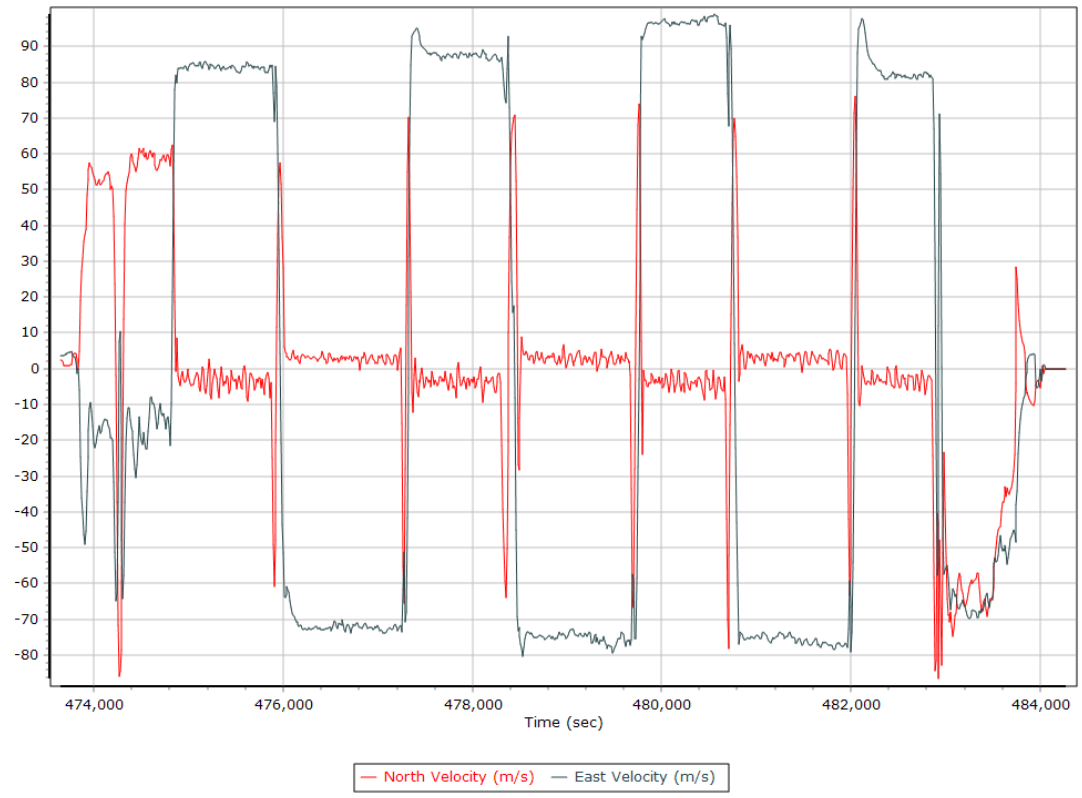
Roll/Pitch



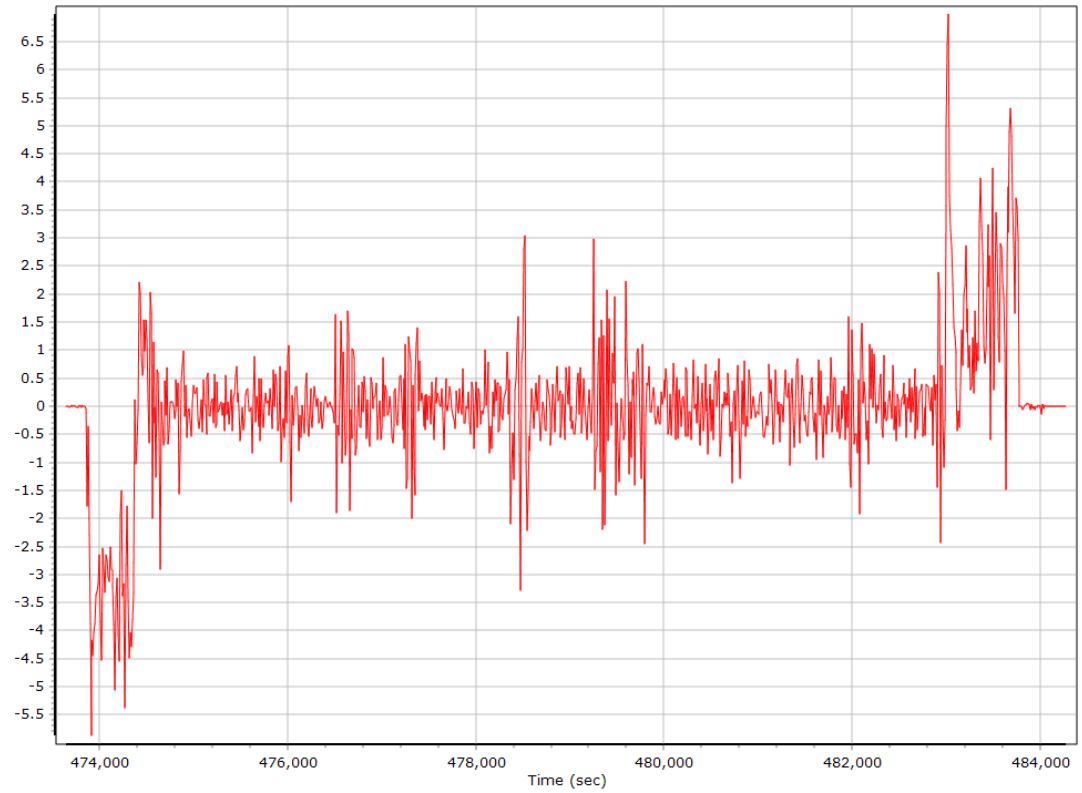
Heading



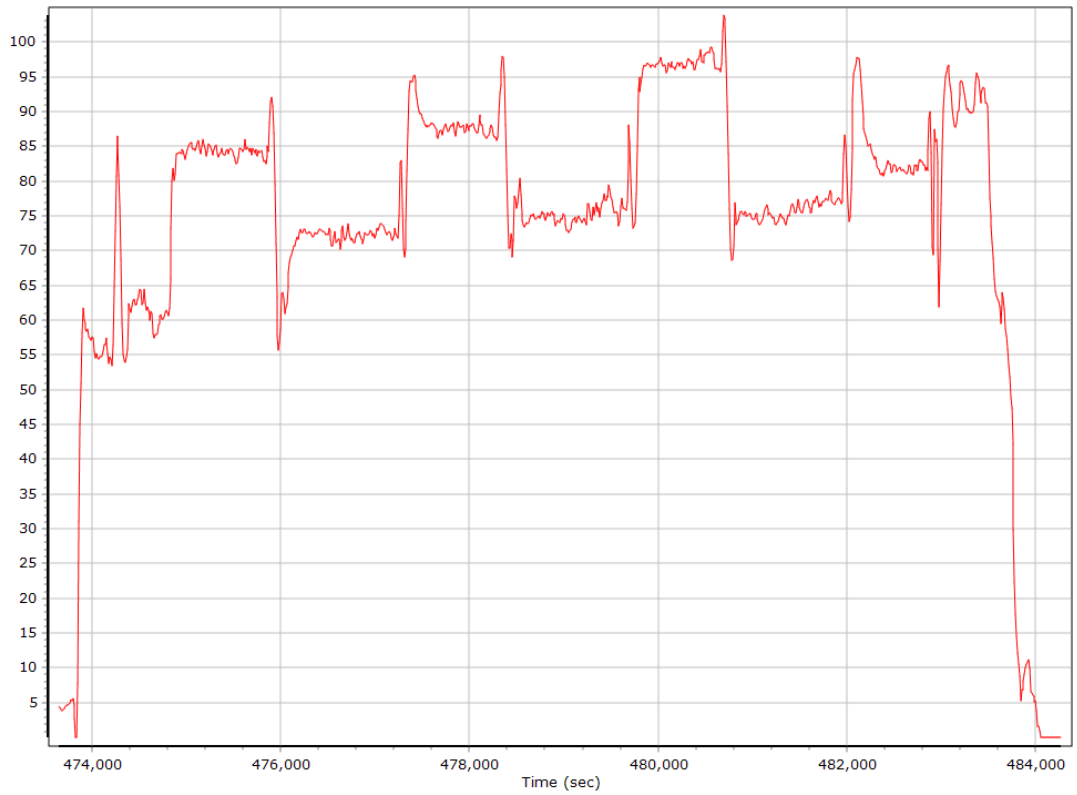
North/East Velocity



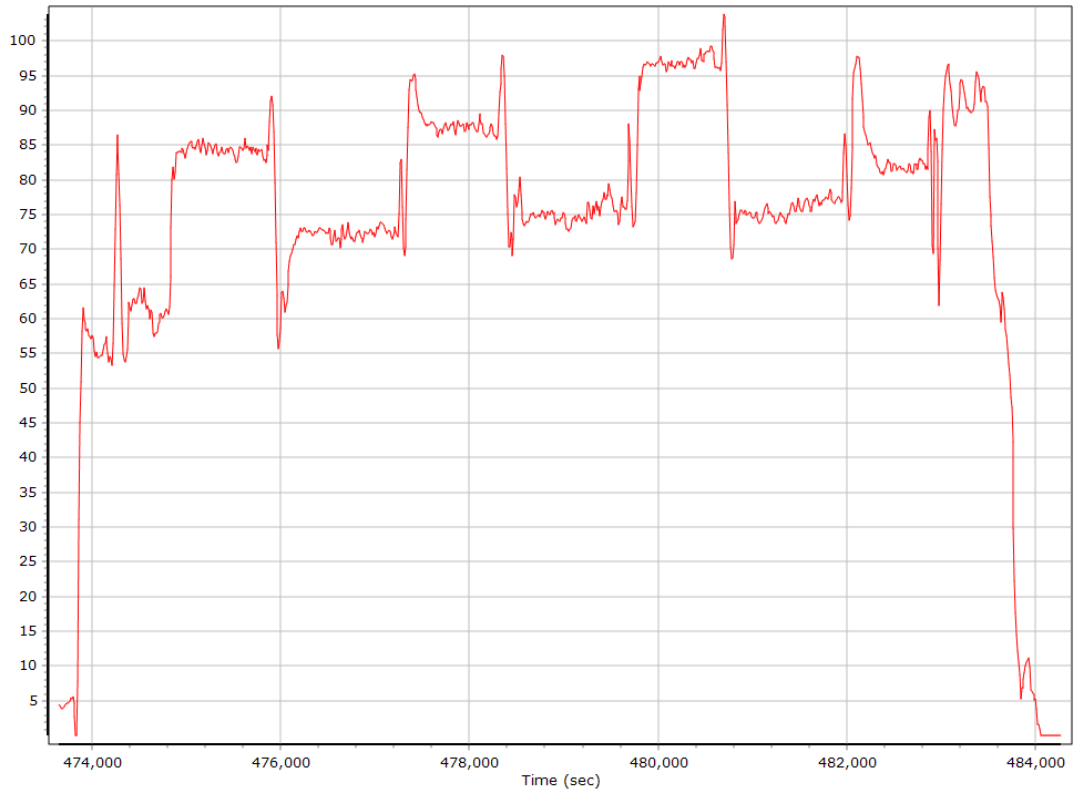
Down Velocity



Total Speed

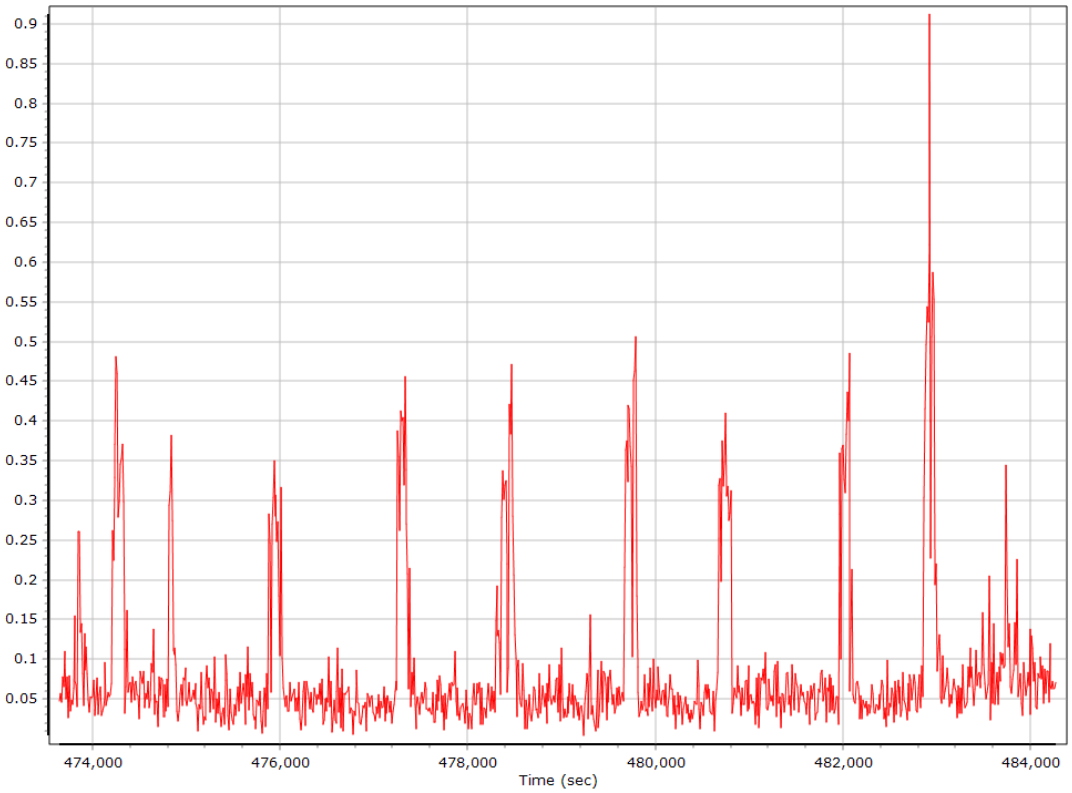


Ground Speed



Body Acceleration

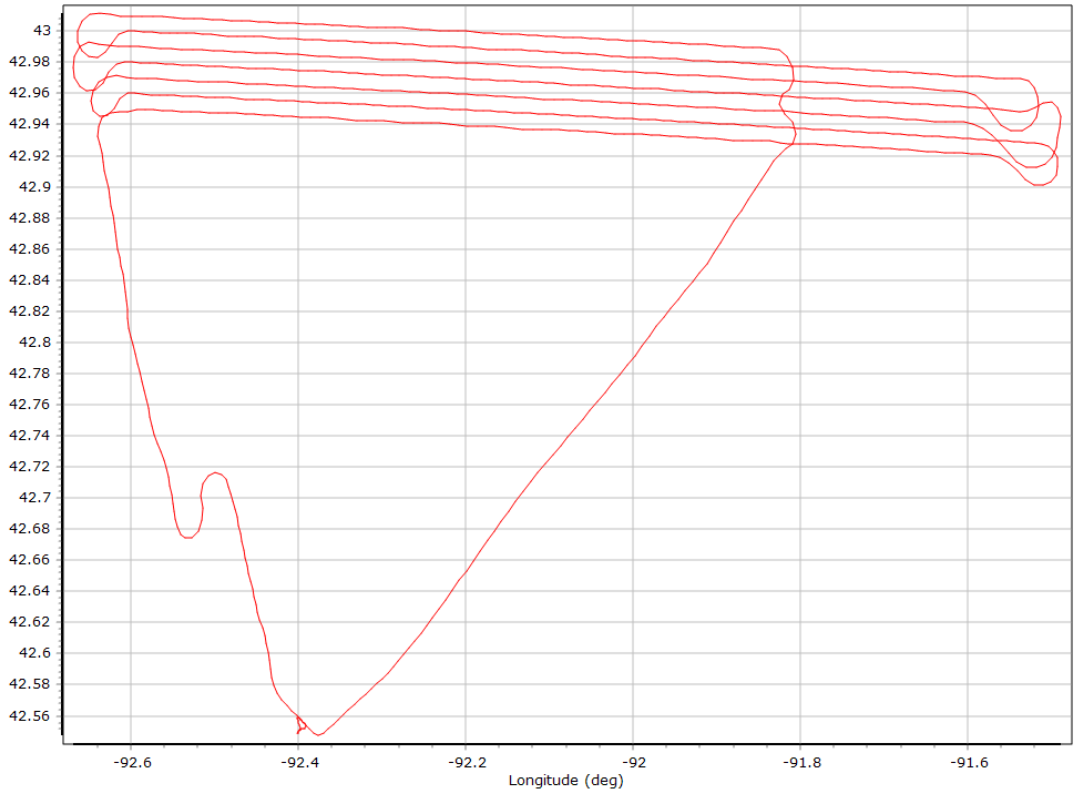
Total Body Acceleration



Body Angular Rate

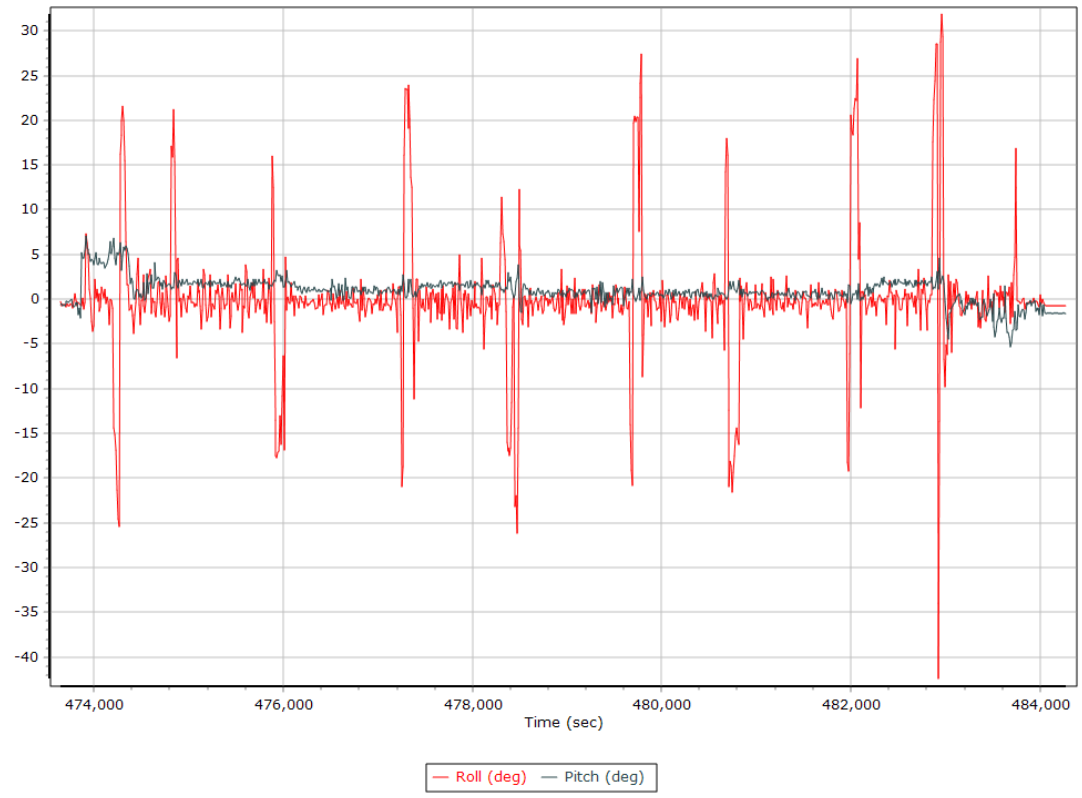
Forward Processed Trajectory Information

Top View

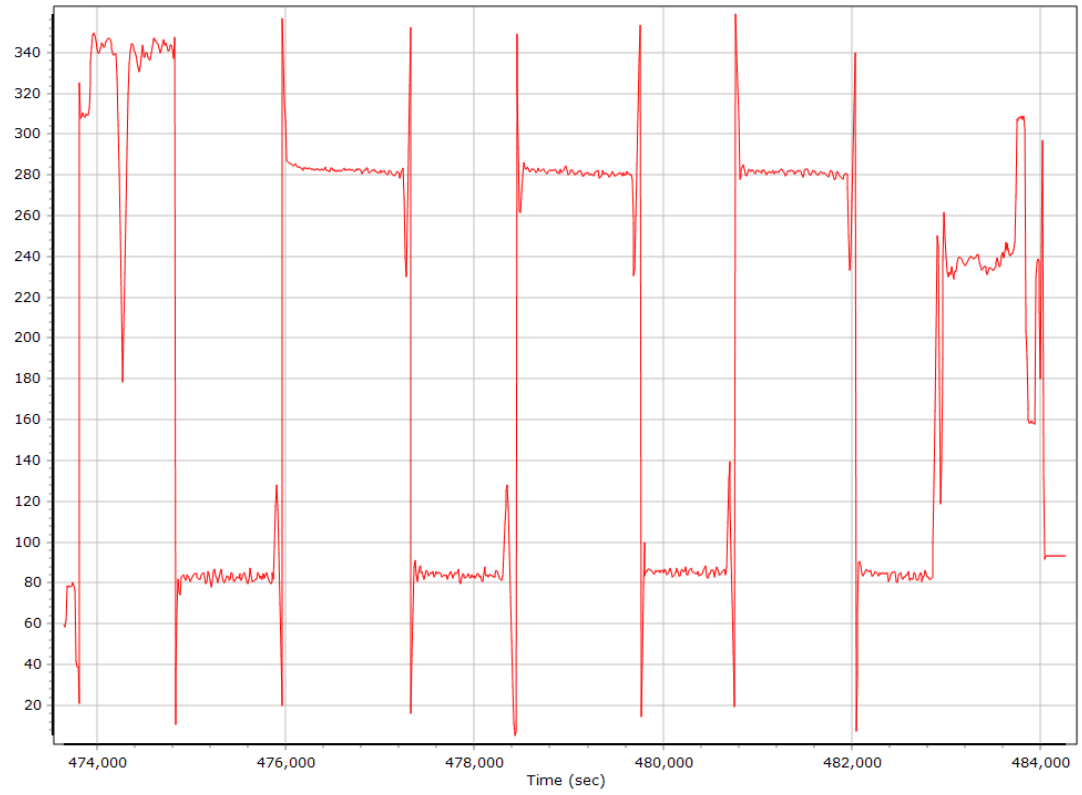


Altitude

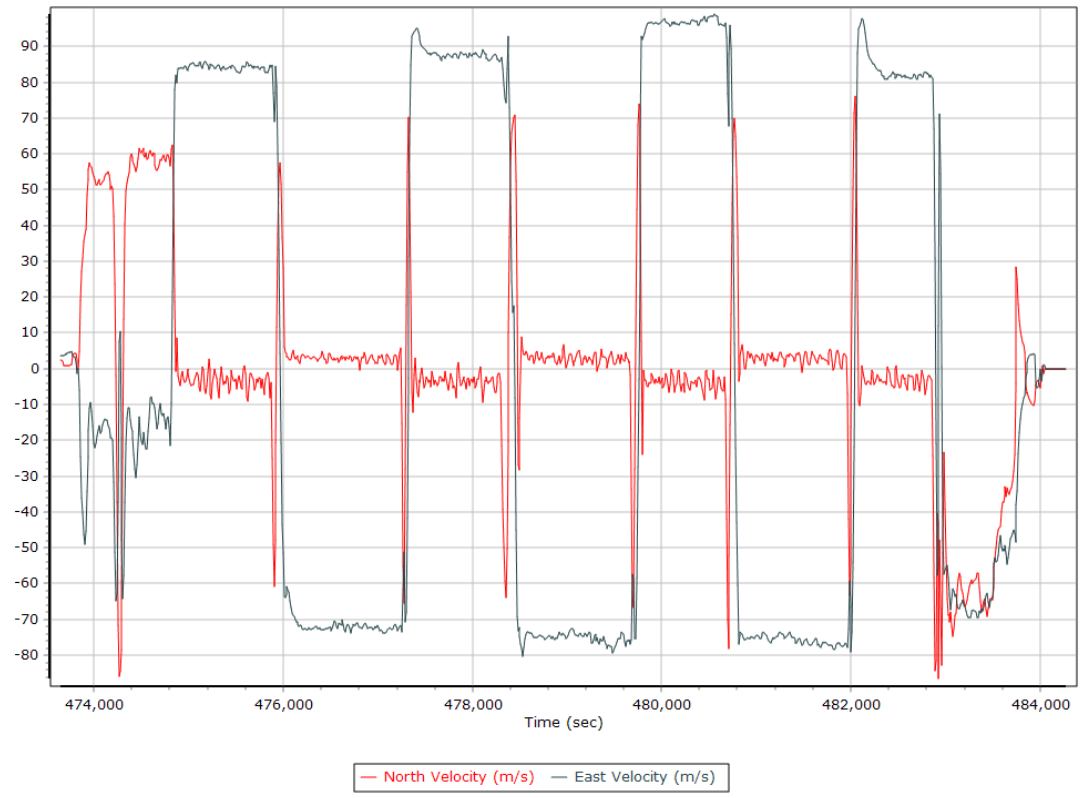
Roll/Pitch



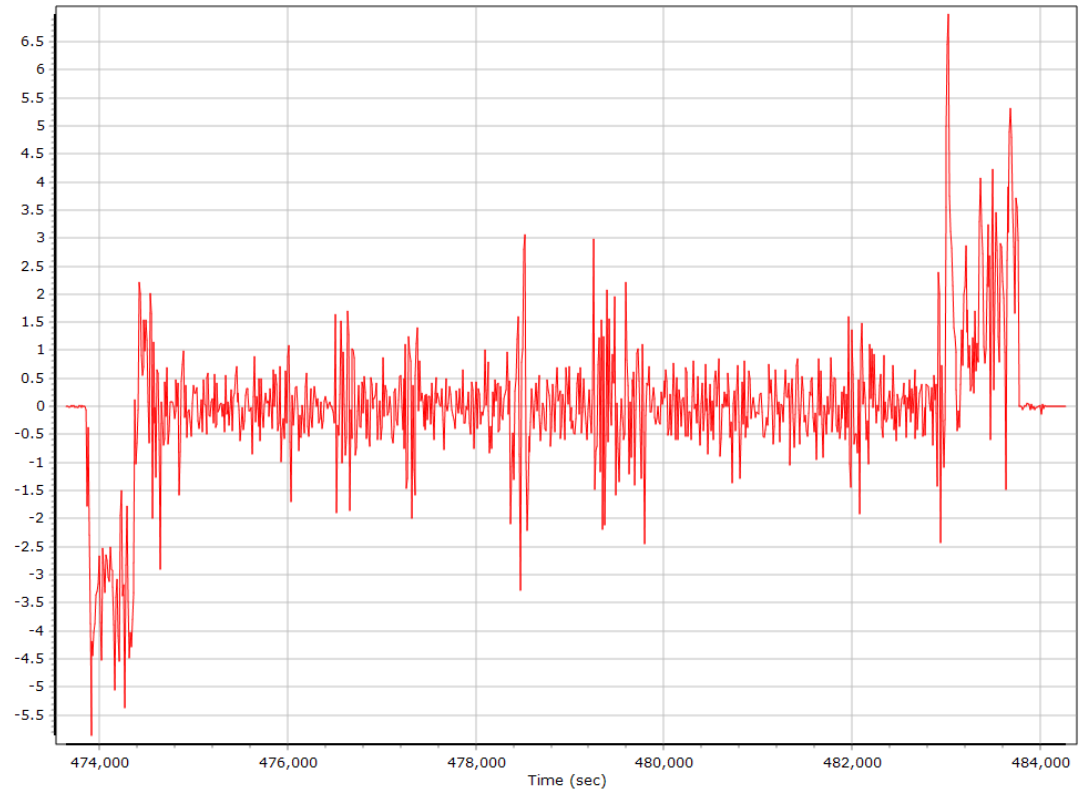
Heading



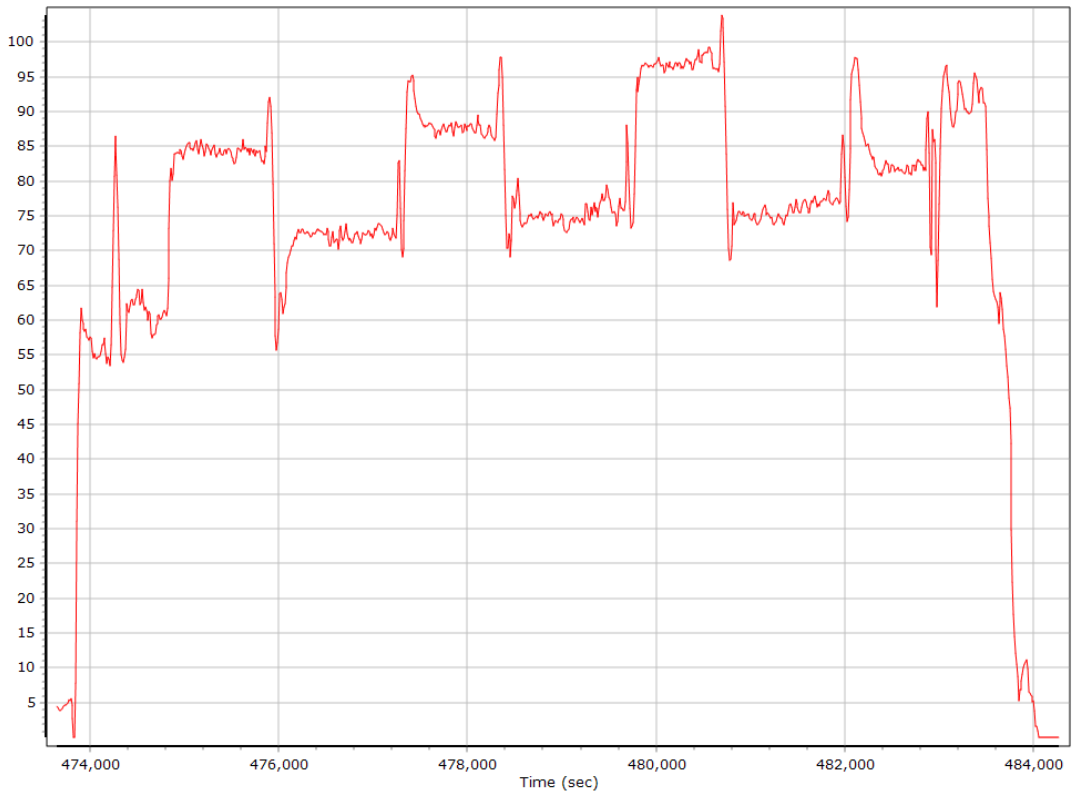
North/East Velocity



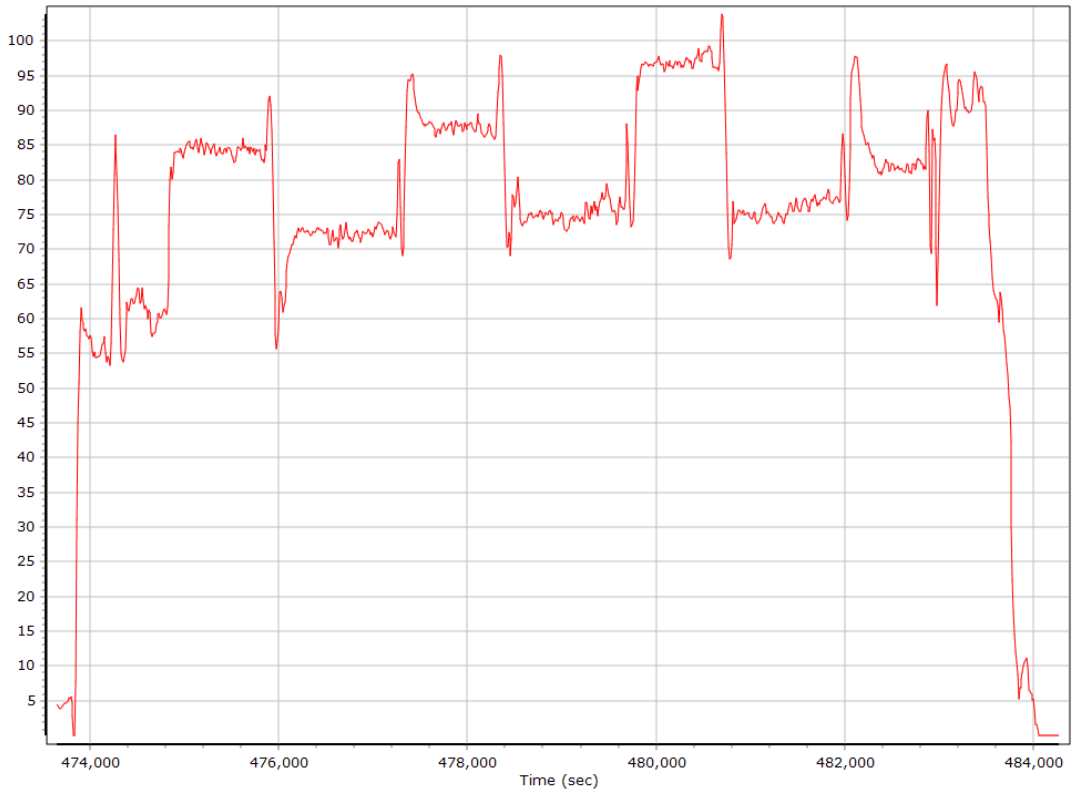
Down Velocity



Total Speed

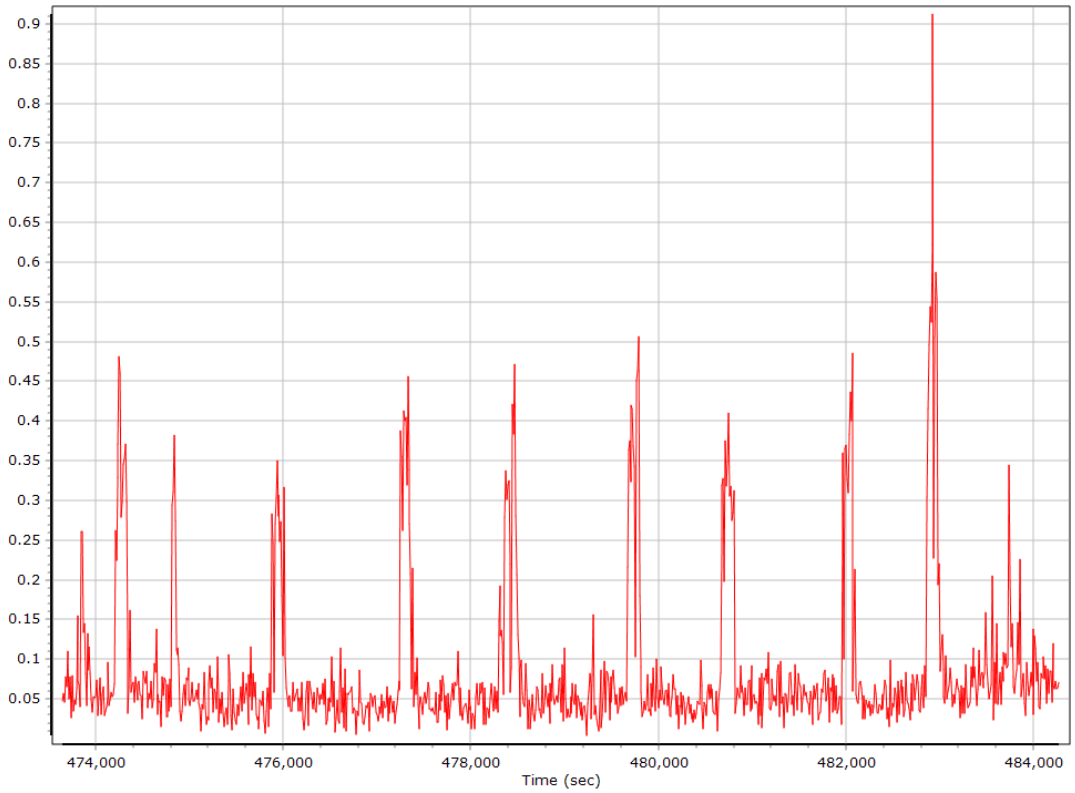


Ground Speed



Body Acceleration

Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/10/2020	IADE	52.32	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAAL	52.49	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAEL	65.92	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNPS	75.26	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IANA	99.72	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNCA	100.81	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IATA	105.17	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAMN	106.30	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAHT	108.06	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	11488 s (2100 472811 - 2100 484299)
Number of reference stations	9
Primary station GPS measurement usage (%)	99.9
Primary station GLONASS measurement usage (%)	79.3
Average number of satellites per epoch	13.2
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	12999
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38125"	W93°22'06.68788"	344.482
Adjusted		N43°17'02.38117"	W93°22'06.68752"	344.491
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.009	0.012

Base Station Information

Station ID	IAHT		
Filename	iaht1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38125"		
Longitude	W93°22'06.68788"		
Ellipsoidal height (m)	344.48177		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59749"	228.904
Adjusted		N42°01'49.10897"	W91°32'55.59750"	228.881
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.001	0.023	0.024

Base Station Information

Station ID	IAMN		
Filename	iamn1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59749"		
Ellipsoidal height (m)	228.90417		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67189"	W92°33'05.07501"	247.334
Adjusted		N41°58'01.67181"	W92°33'05.07510"	247.352
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.018	0.018

Base Station Information

Station ID	IATA		
Filename	iata1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67189"		
Longitude	W92°33'05.07501"		
Ellipsoidal height (m)	247.33438		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64527"	W91°29'46.51636"	339.588
Adjusted		N43°37'58.64529"	W91°29'46.51609"	339.600
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.011	0.013

Base Station Information

Station ID	MNCA		
Filename	mnca1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64527"		
Longitude	W91°29'46.51636"		
Ellipsoidal height (m)	339.58842		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.72	**Output Coordinates**	Original	
Solution Epochs	2846	**Mean Epoch SVs**	8.0	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54032"	172.253
Adjusted		N43°29'49.47912"	W91°17'26.53971"	172.230
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.014	0.023	0.027

Base Station Information

Station ID	IANA		
Filename	iana1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54032"		
Ellipsoidal height (m)	172.25323		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.77	**Output Coordinates**	Original	
Solution Epochs	2852	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52986"	298.980
Adjusted		N42°52'40.47661"	W91°21'41.52965"	298.989
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.008	0.010

Base Station Information

Station ID	IAEL		
Filename	iael1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52986"		
Ellipsoidal height (m)	298.98030		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24723"	291.092
Adjusted		N42°44'49.40400"	W92°47'14.24730"	291.121
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.029	0.029

Base Station Information

Station ID	IAAL		
Filename	iaal1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24723"		
Ellipsoidal height (m)	291.09234		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52632"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52632"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52632"		
Ellipsoidal height (m)	316.51619		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86729"	380.908
Adjusted		N43°30'53.84825"	W91°53'06.86715"	380.919
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.011	0.012

Base Station Information

Station ID	MNPS		
Filename	mnps1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86729"		
Ellipsoidal height (m)	380.90779		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	7.65	56.10	
Number of GPS SV	6	10	9
Number of GLONASS SV	0	5	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	9	15	13
PDOP	1.20	2.18	1.55
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	11432.00	0.00	1.00
Percentage	99.99	0.00	0.01

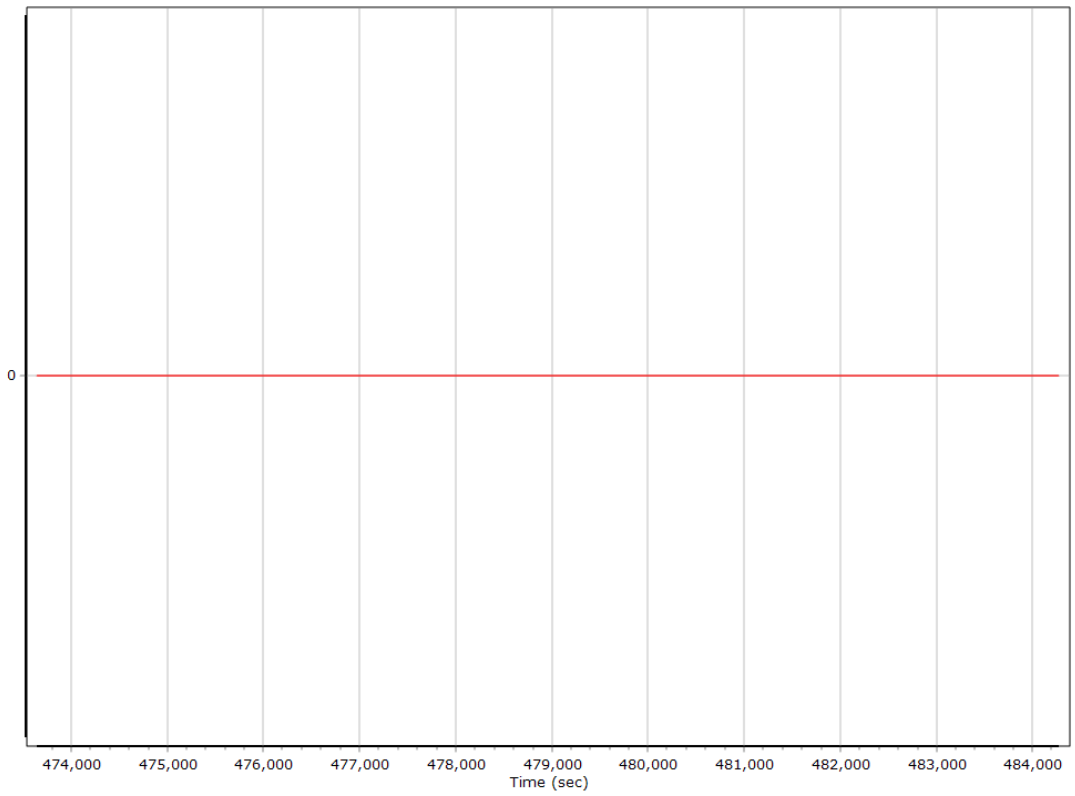
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	472793.024 (4/10/2020 11:19:53 AM)		
Processing end time	484281.000 (4/10/2020 2:31:21 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

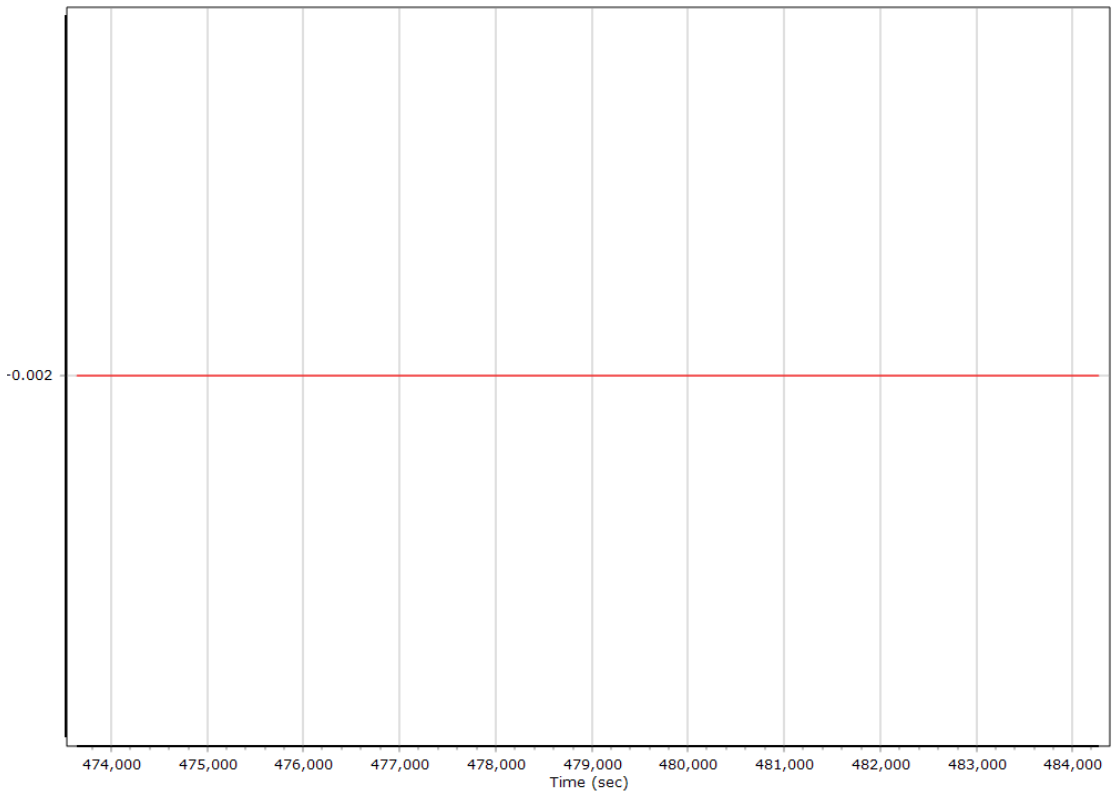
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

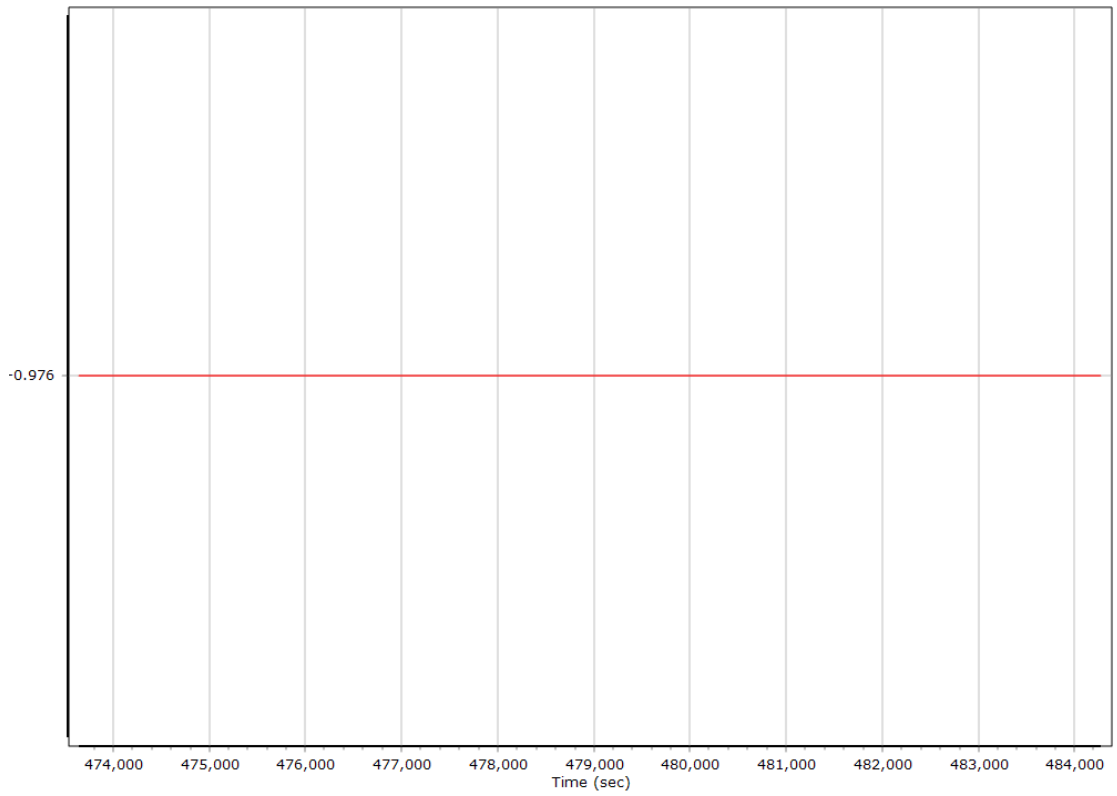
X Reference-Primary GNSS Lever Arm (m)



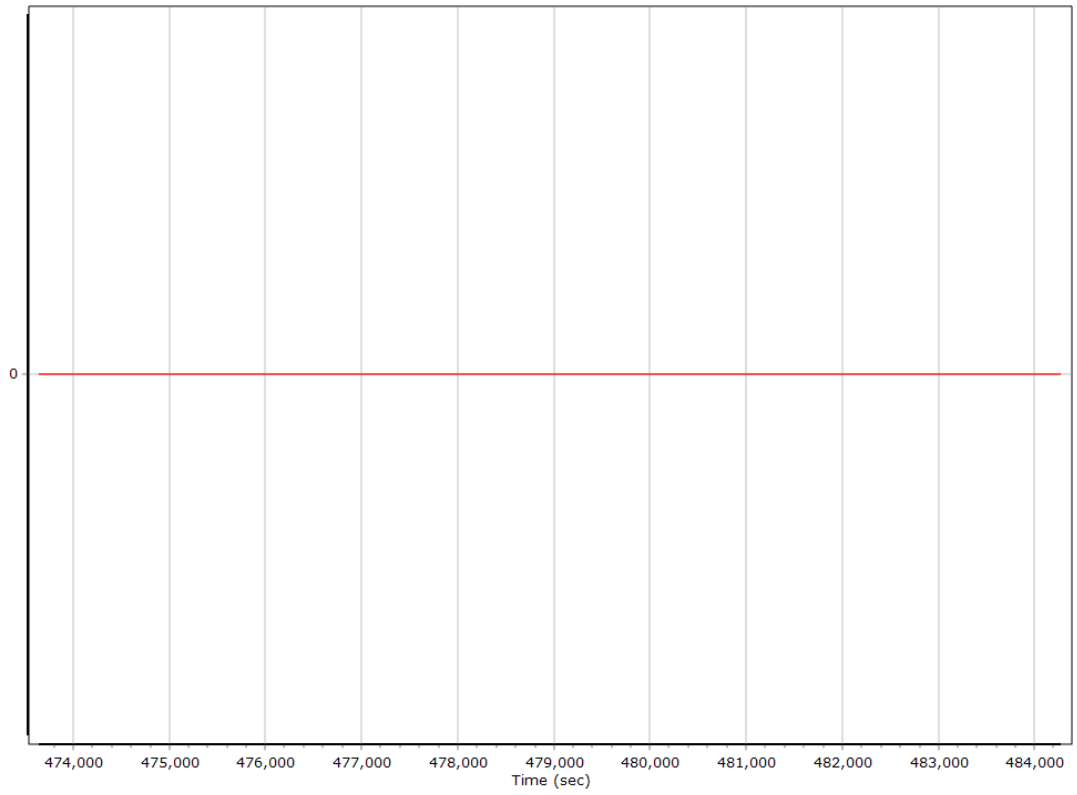
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



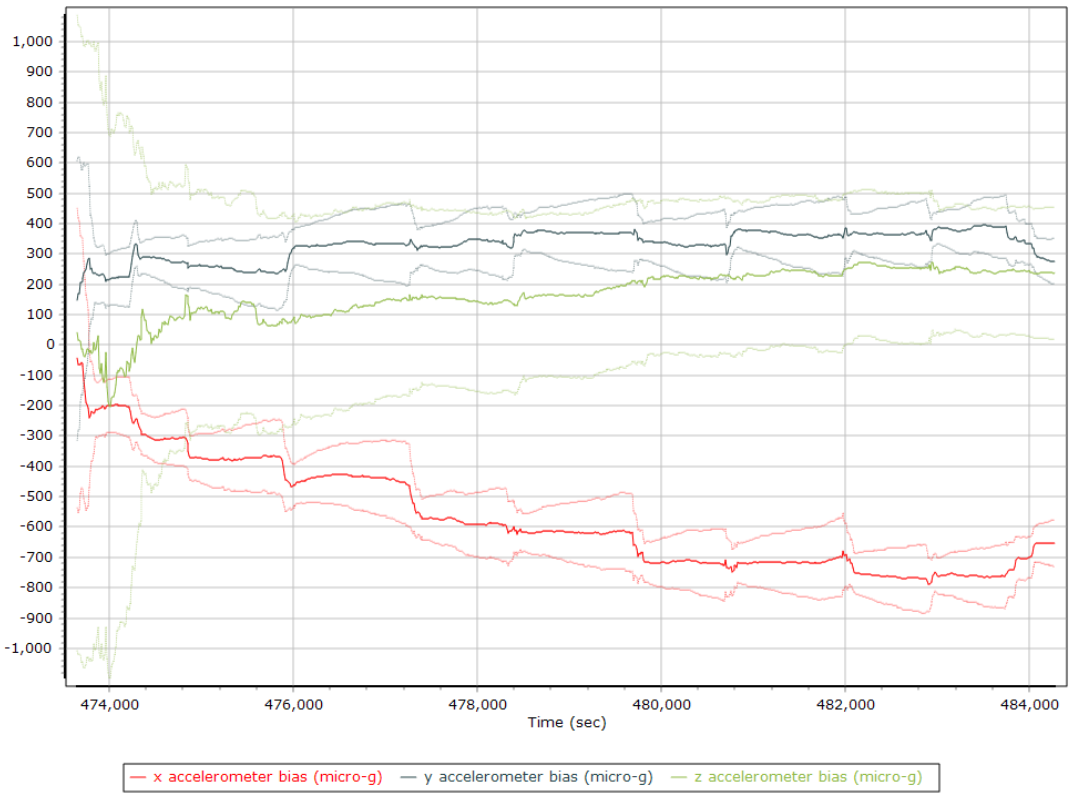
Reference-Primary GNSS Lever Arm Figure of Merit



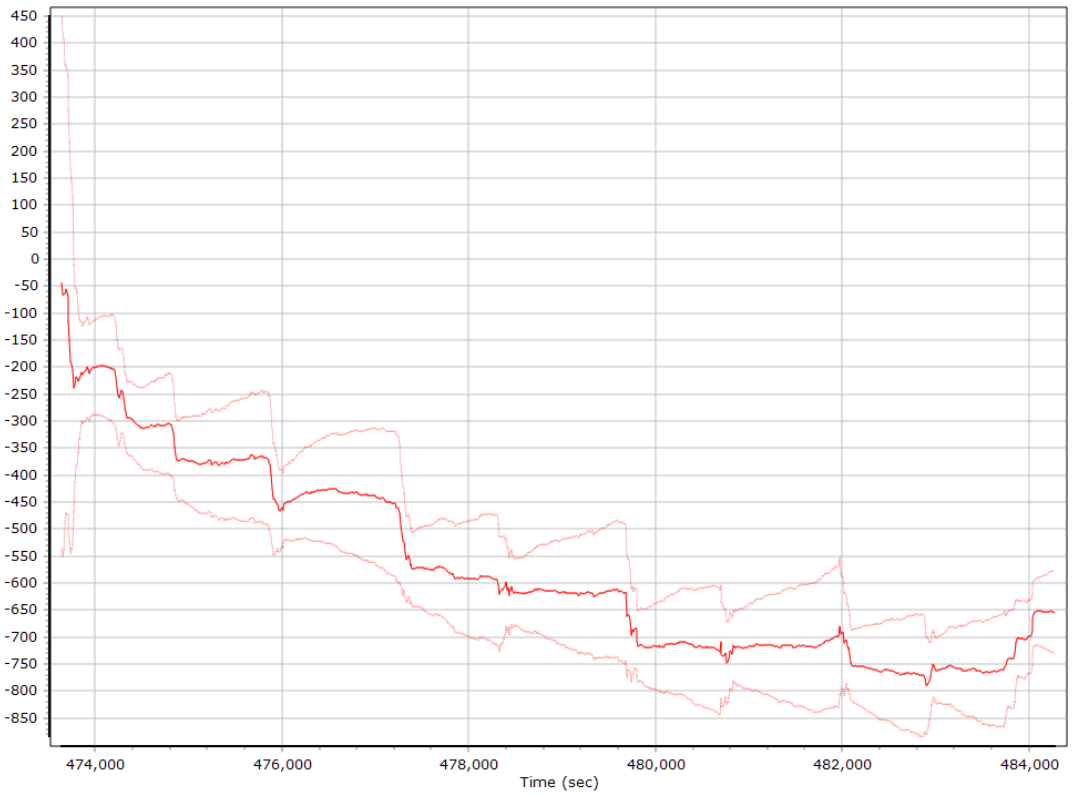
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

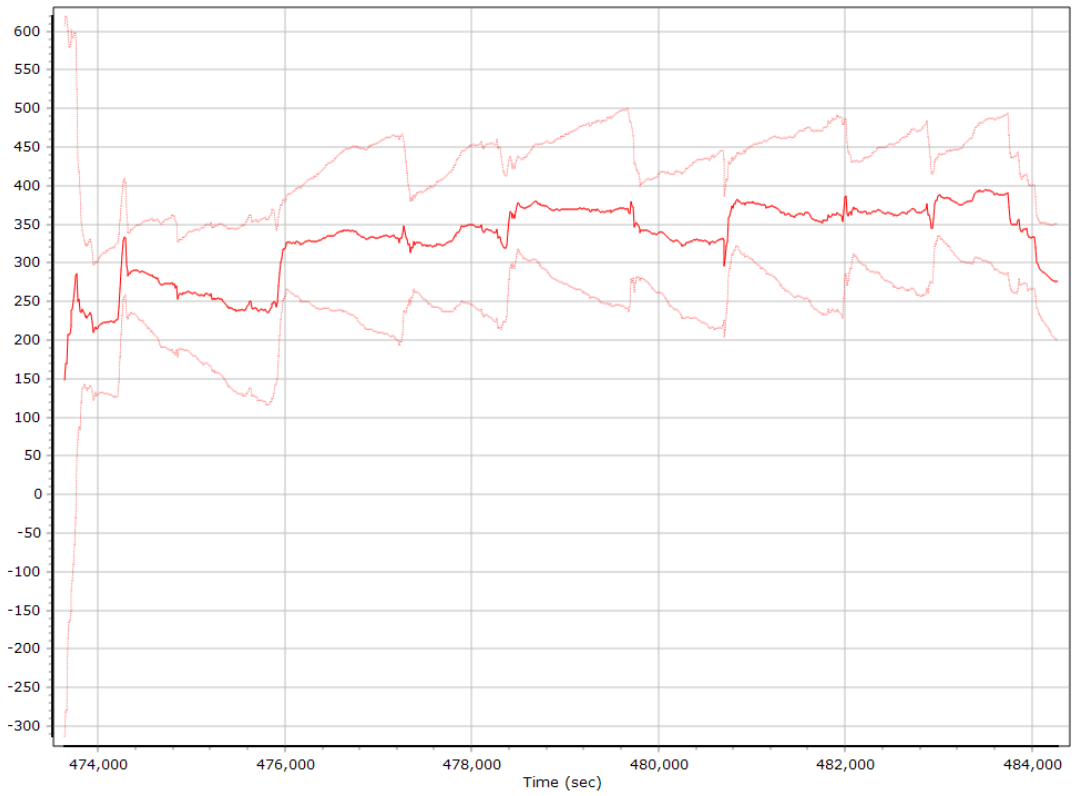
Accelerometer Bias (micro-g)



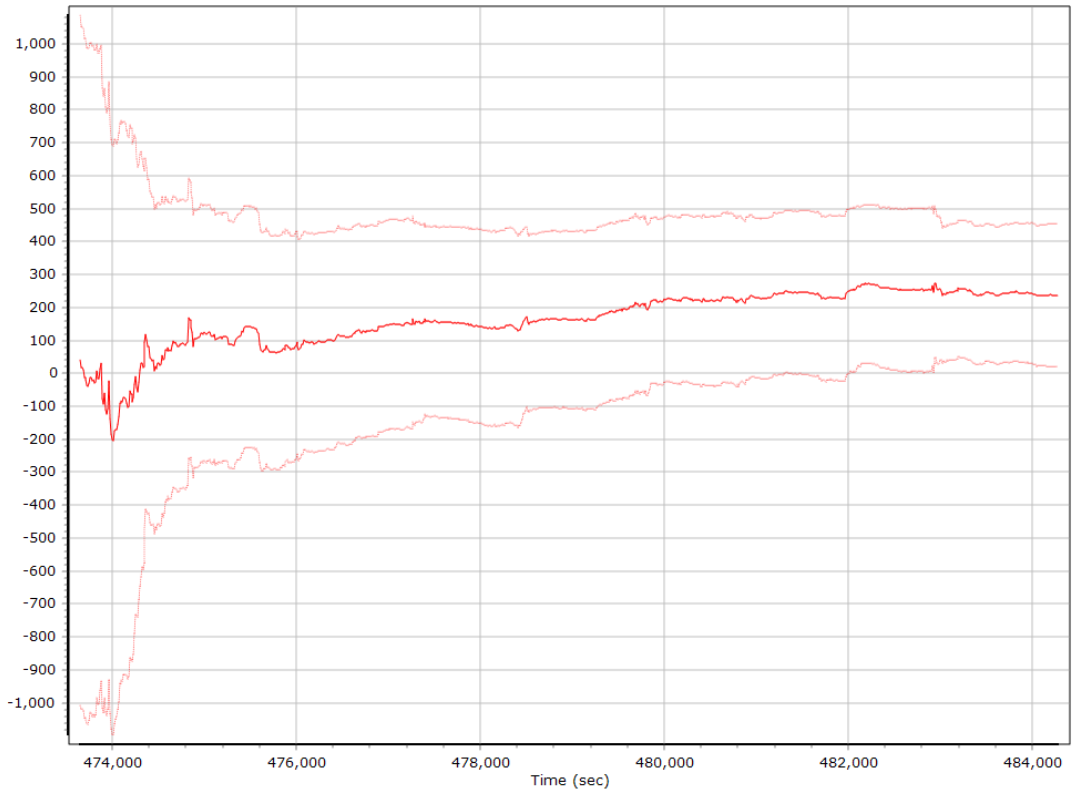
X Accelerometer Bias (micro-g)



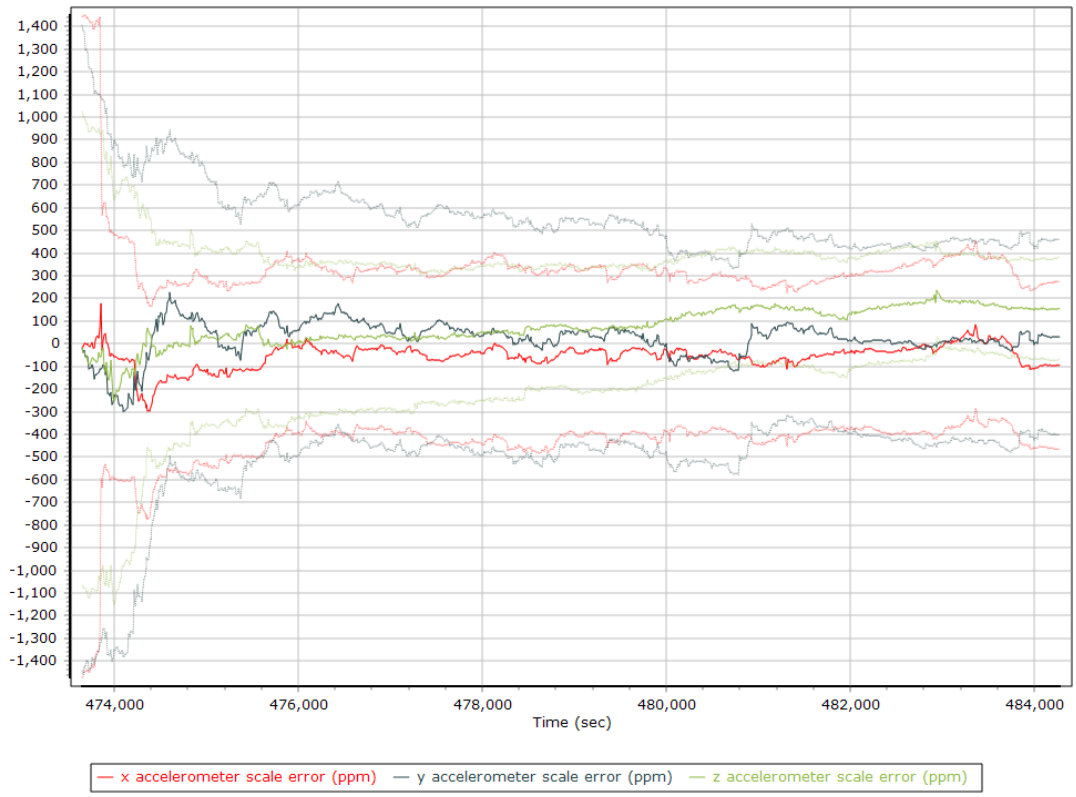
Y Accelerometer Bias (micro-g)



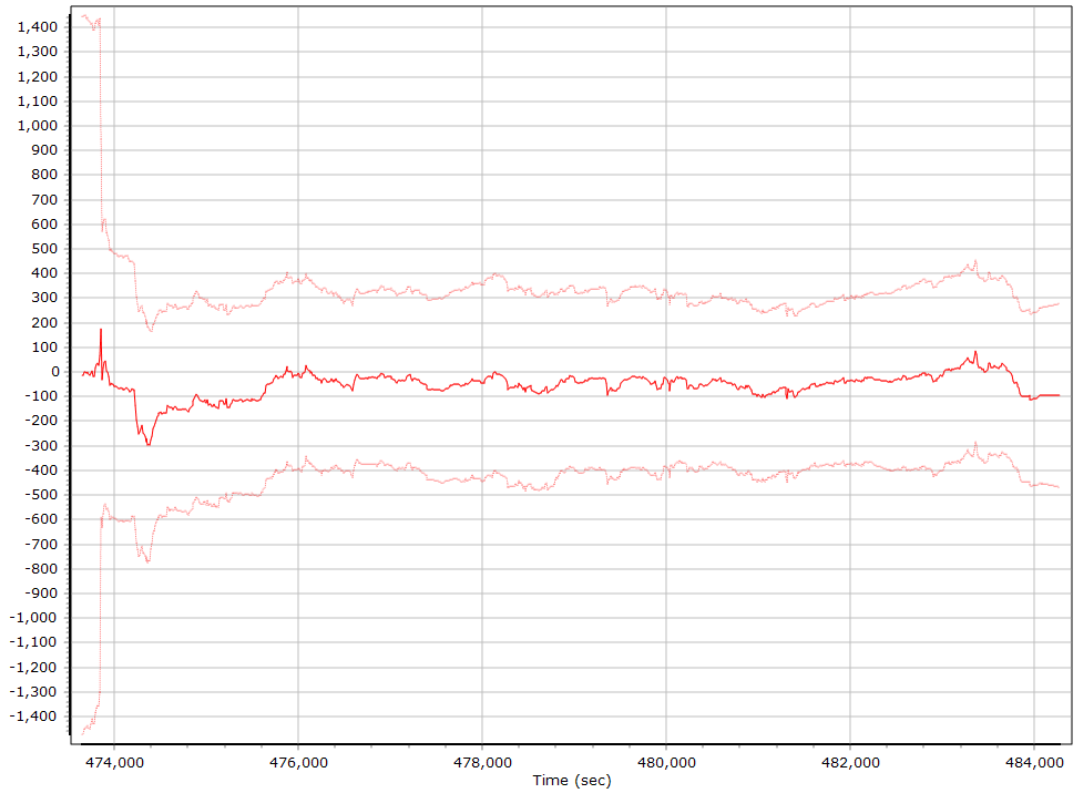
Z Accelerometer Bias (micro-g)



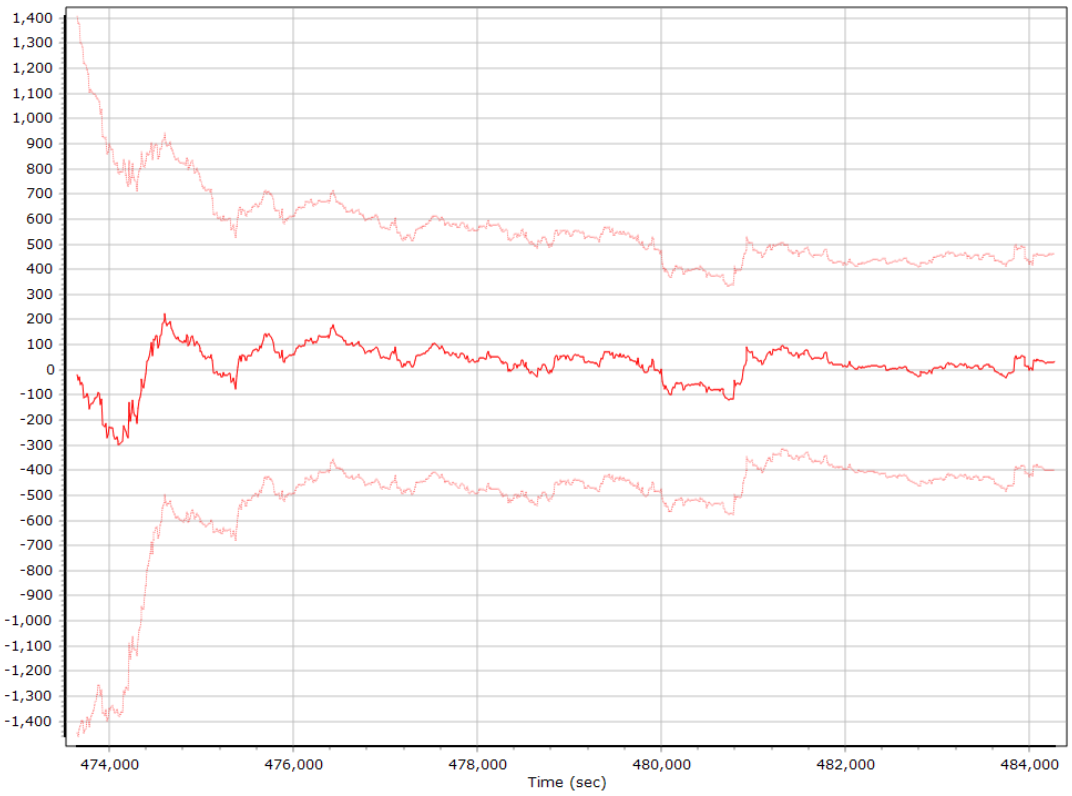
Accelerometer Scale Error (ppm)



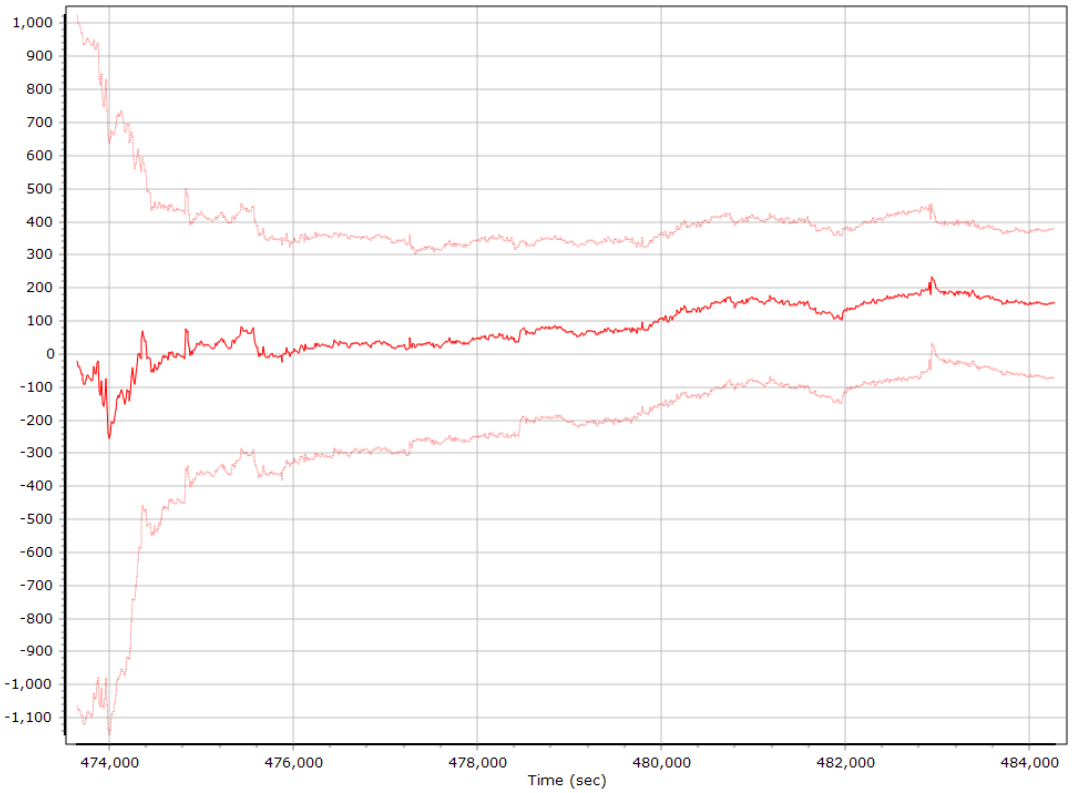
X Accelerometer Scale Error (ppm)



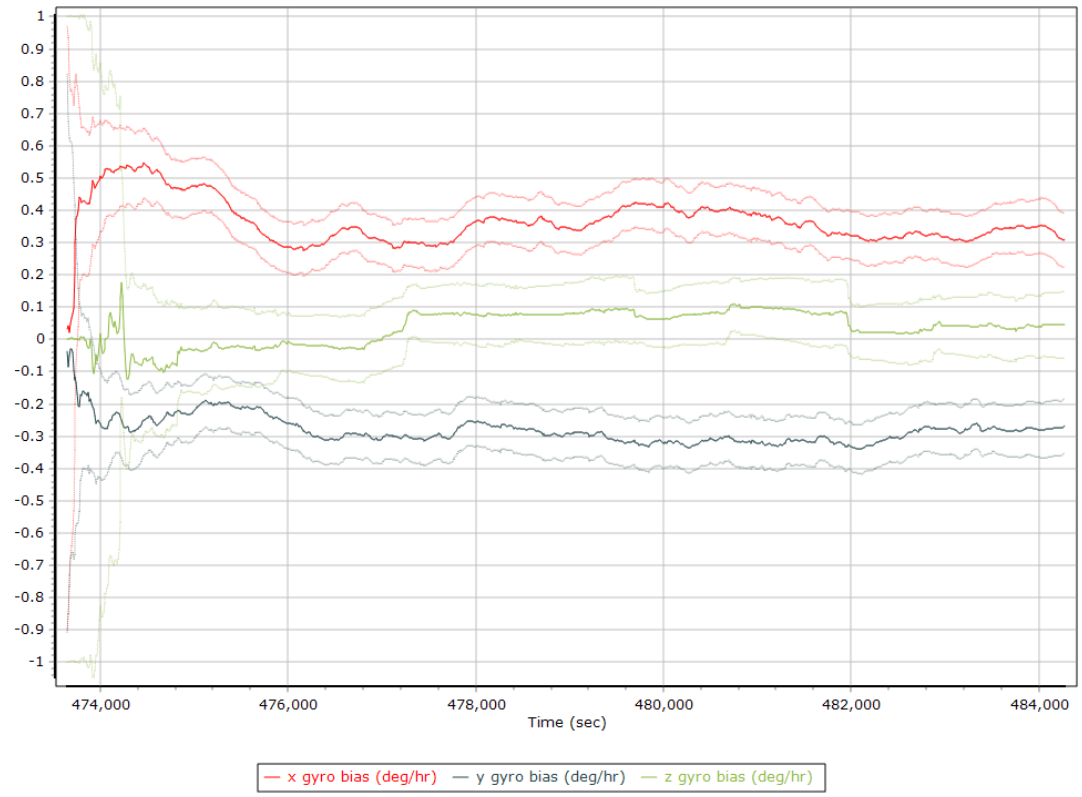
Y Accelerometer Scale Error (ppm)



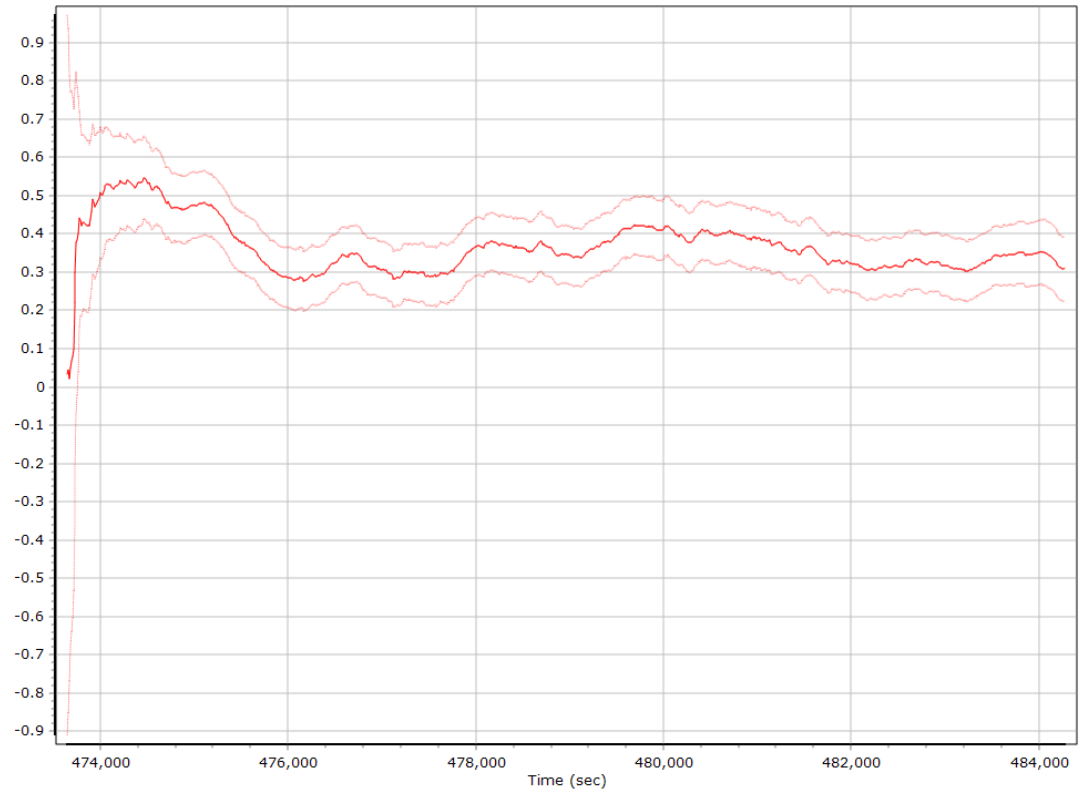
Z Accelerometer Scale Error (ppm)



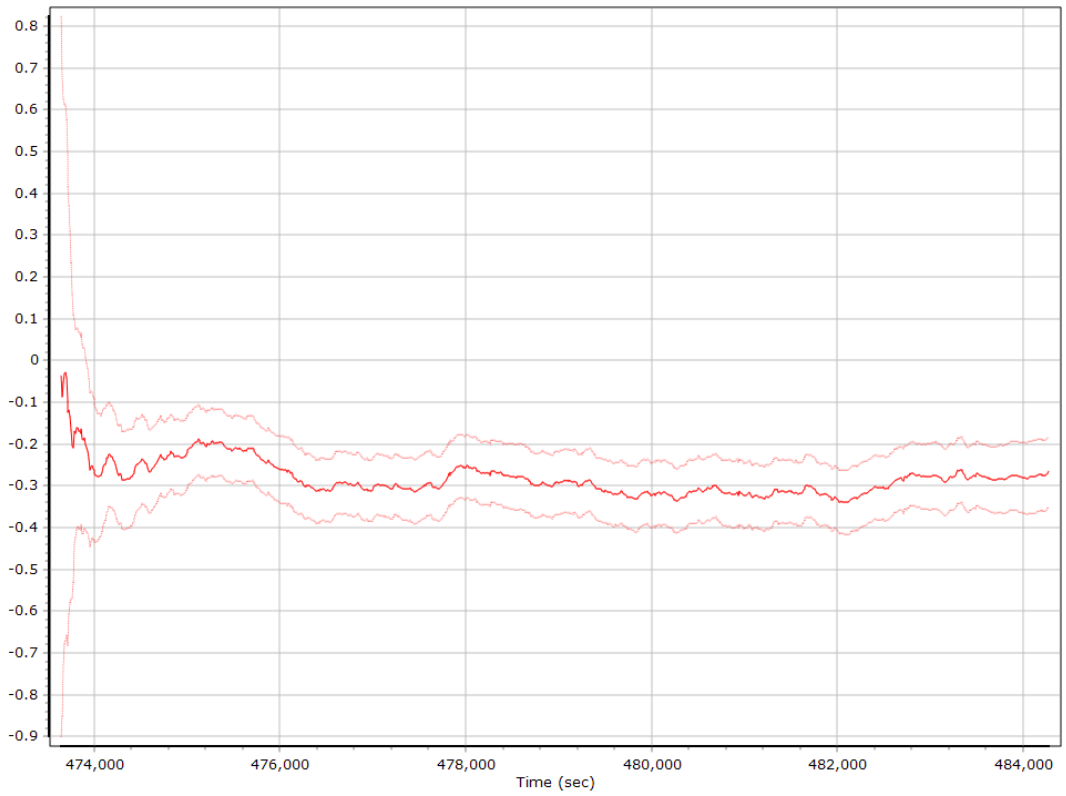
Gyro Bias (deg/h)



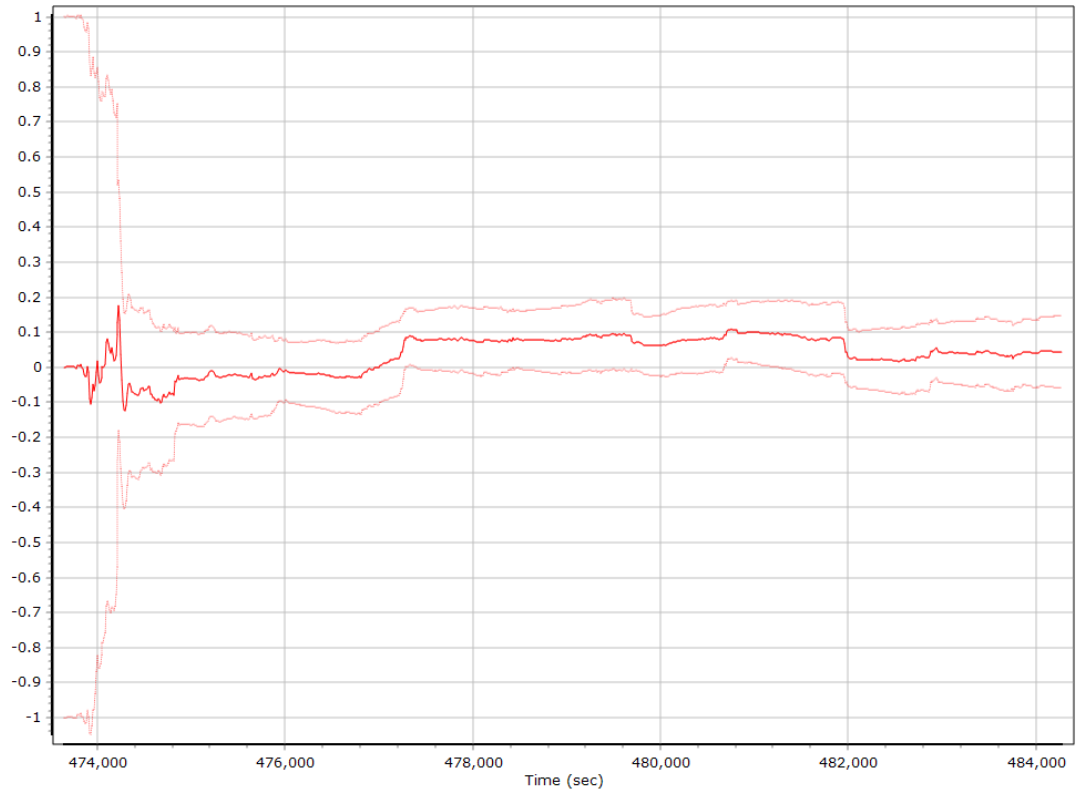
X Gyro Bias (deg/h)



Y Gyro Bias (deg/h)

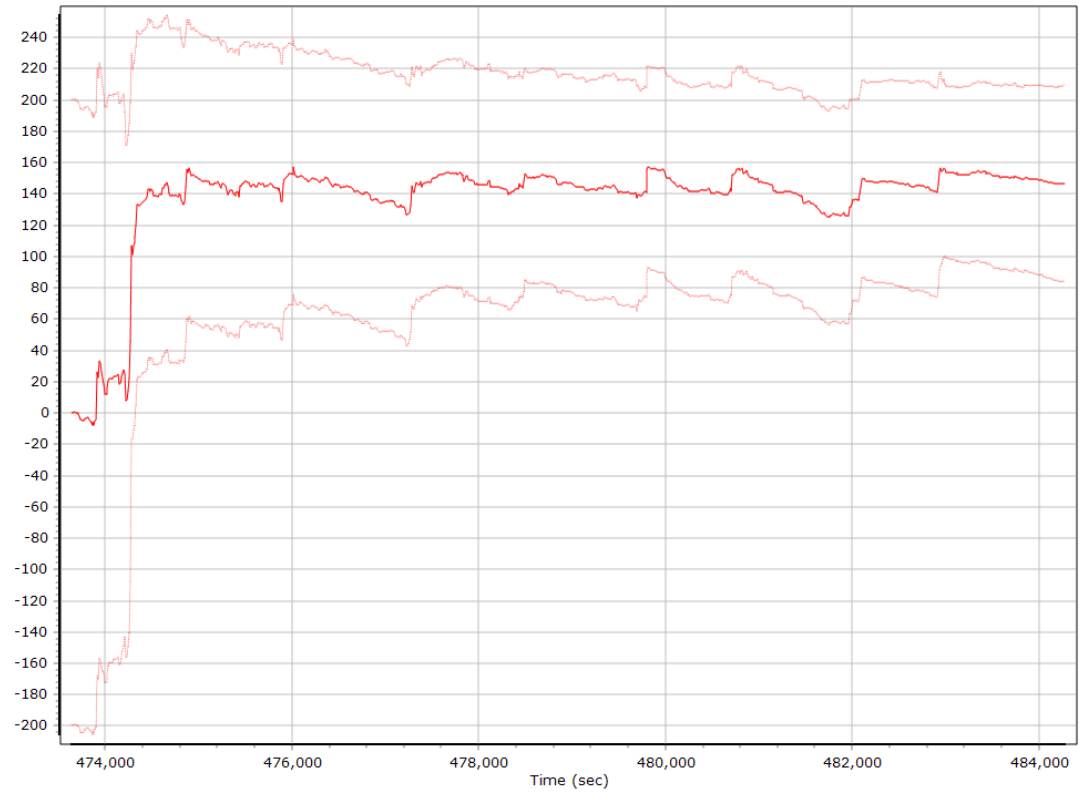


Z Gyro Bias (deg/h)

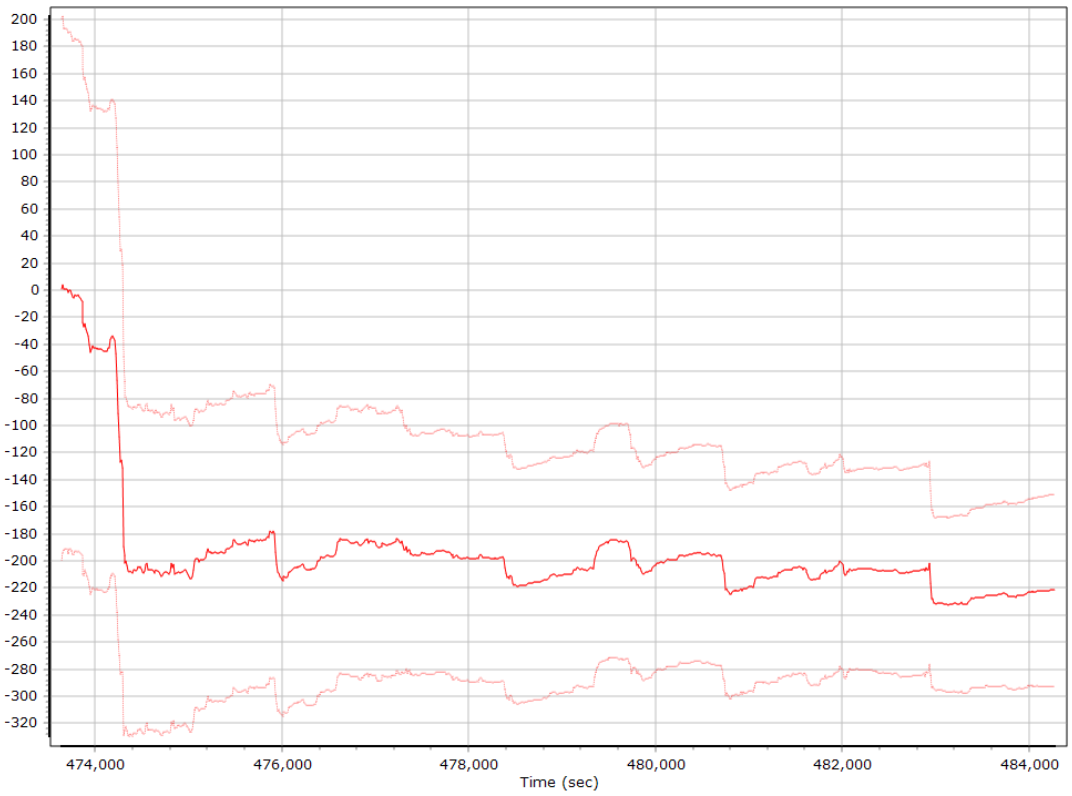


Gyro Scale Error (ppm)

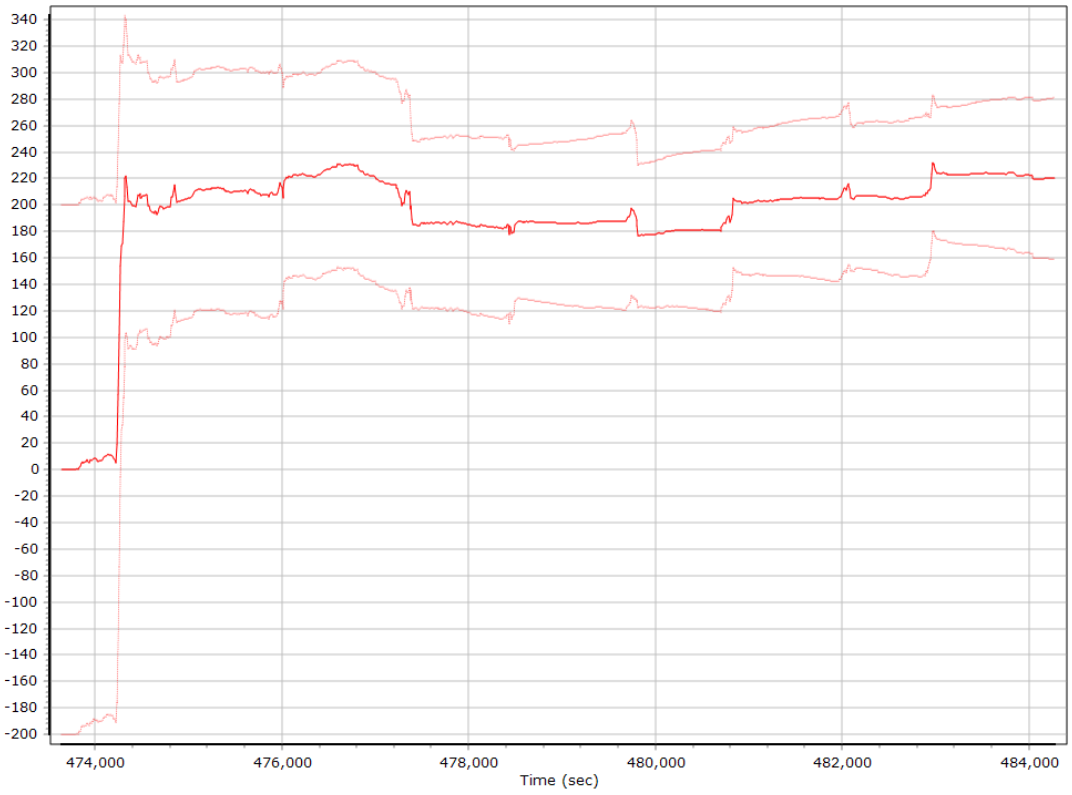
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

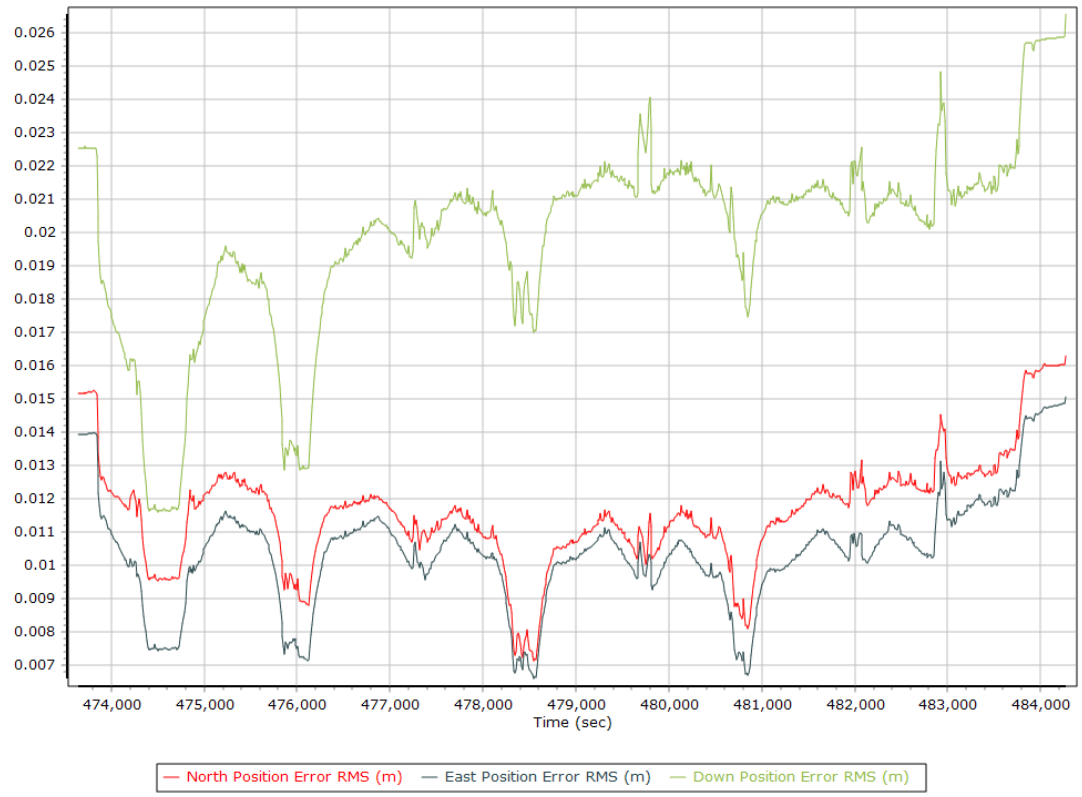


Z Gyro Scale Error (ppm)

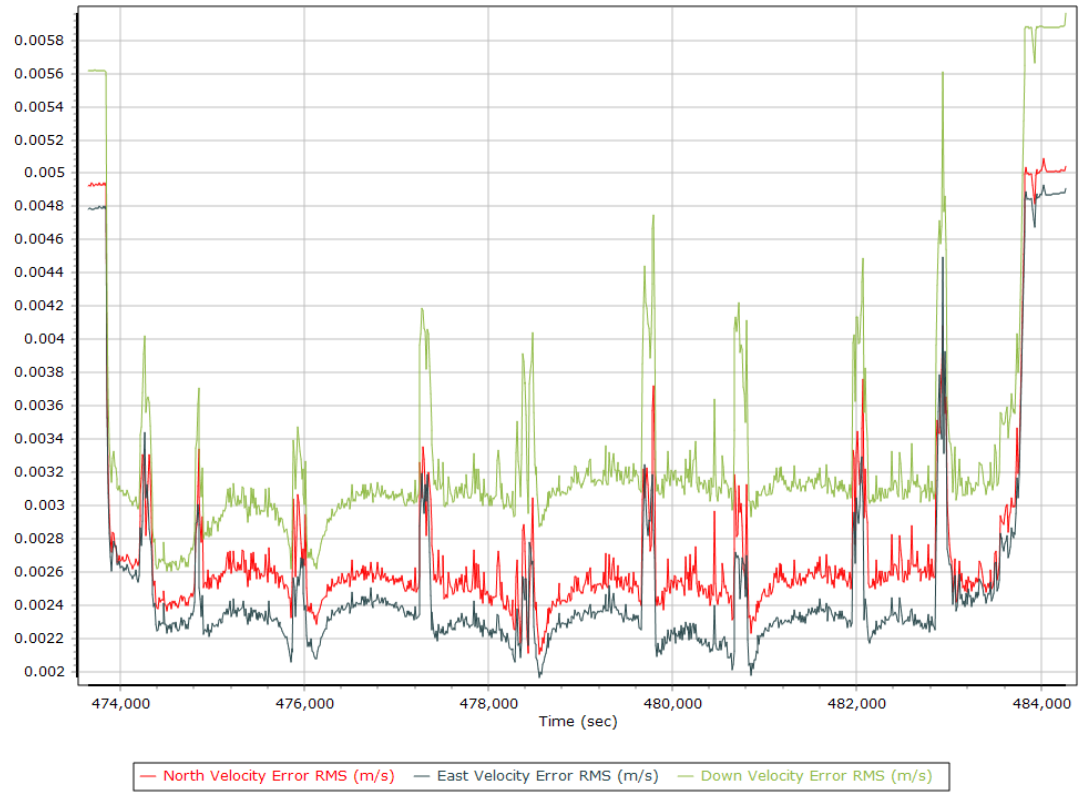


Smoothed Performance Metrics

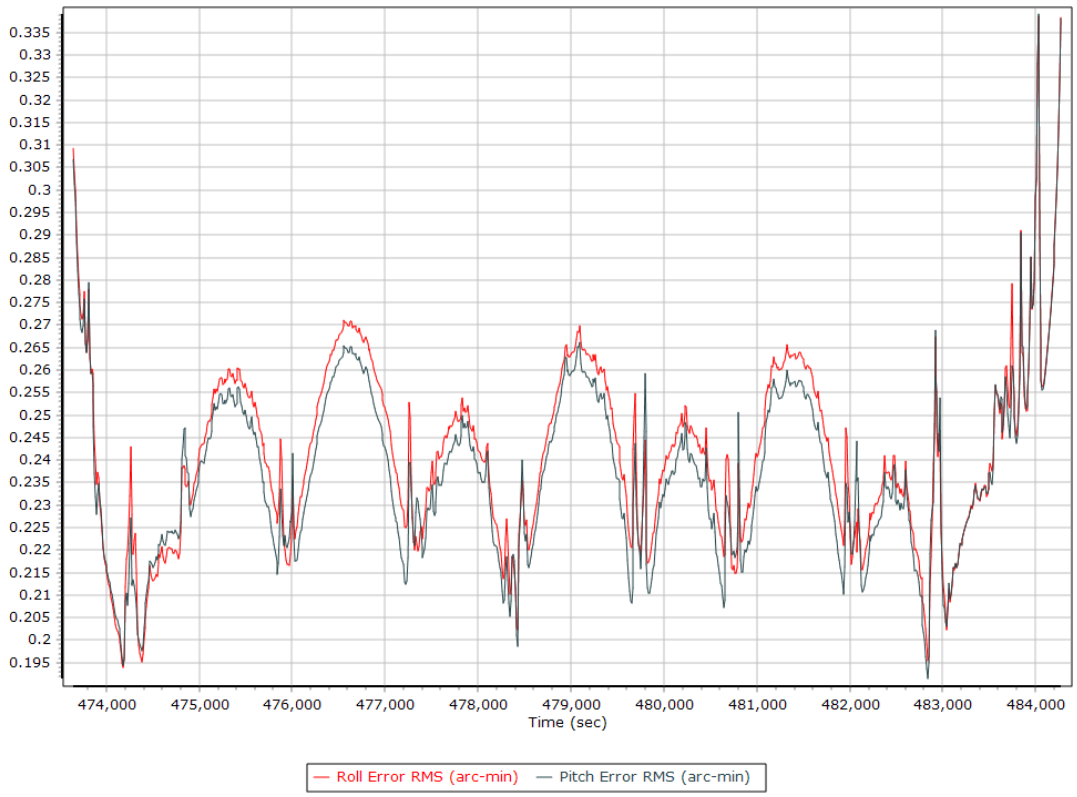
Position Error RMS (m)



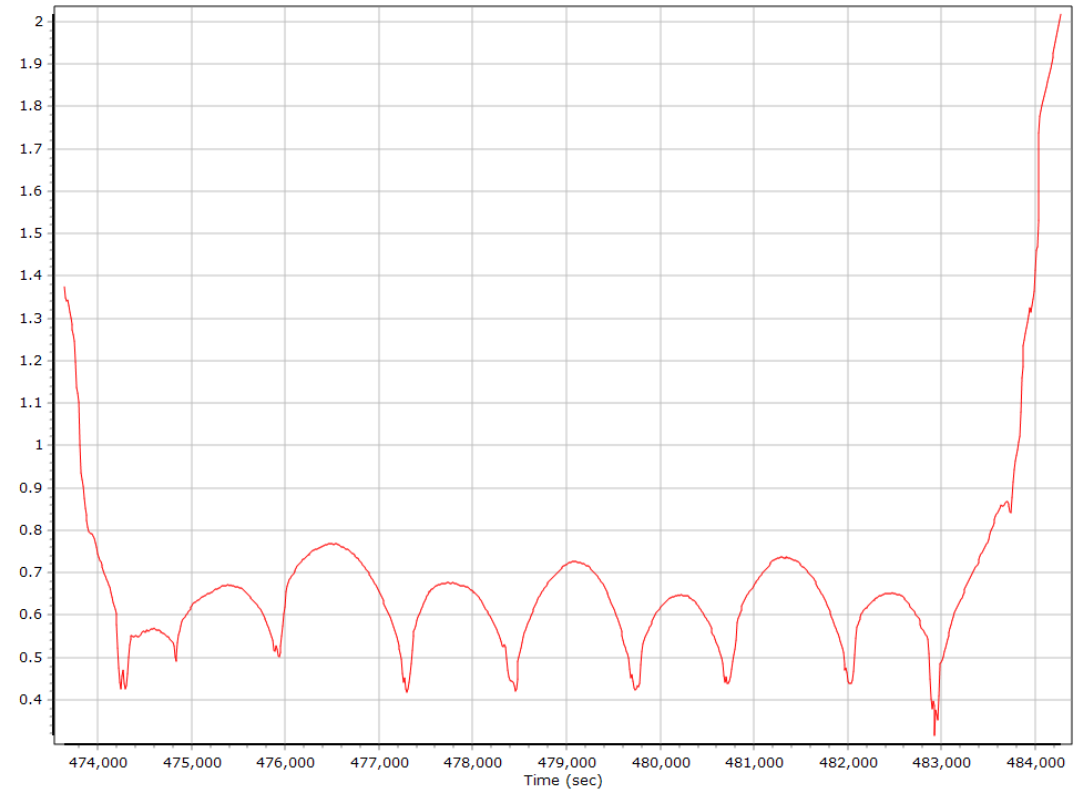
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

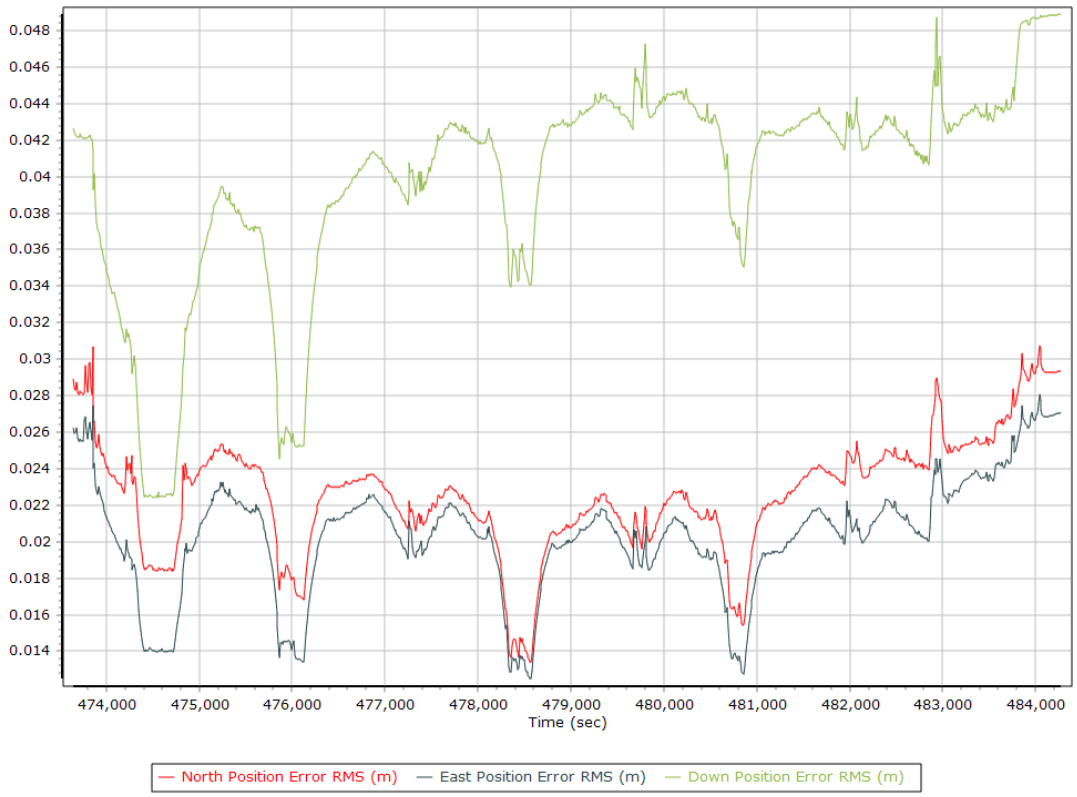


Heading Error RMS (arc-min)

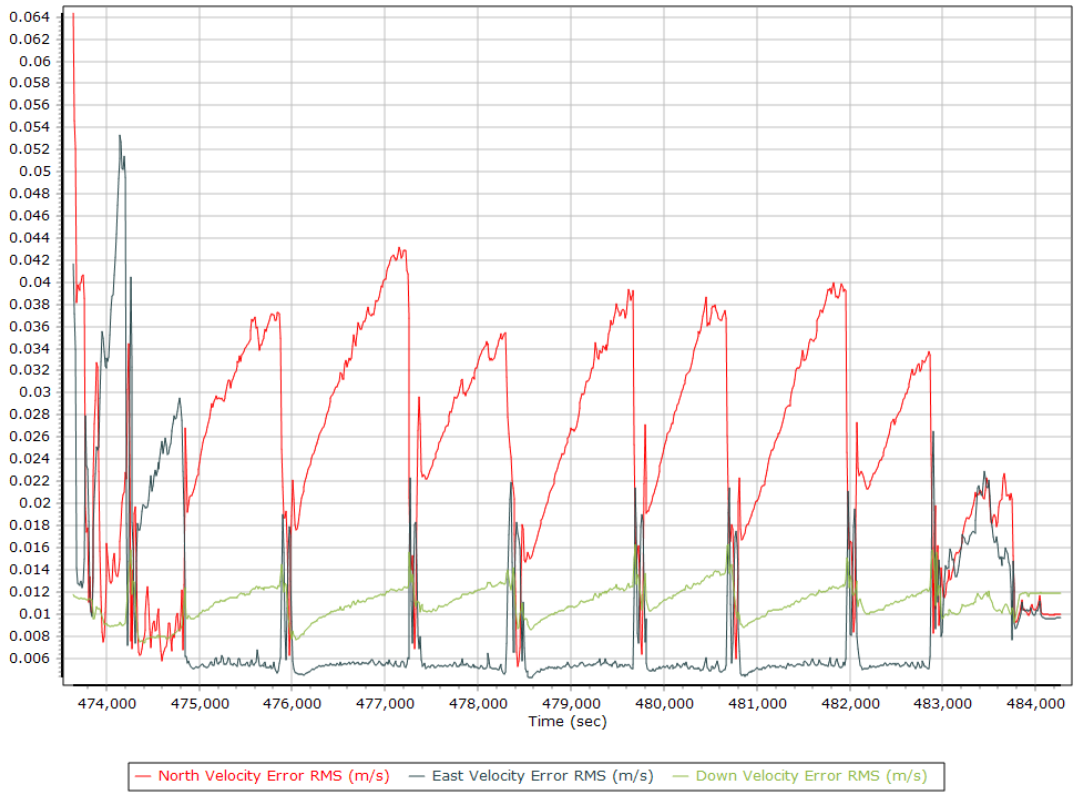


Forward Processed Performance Metrics

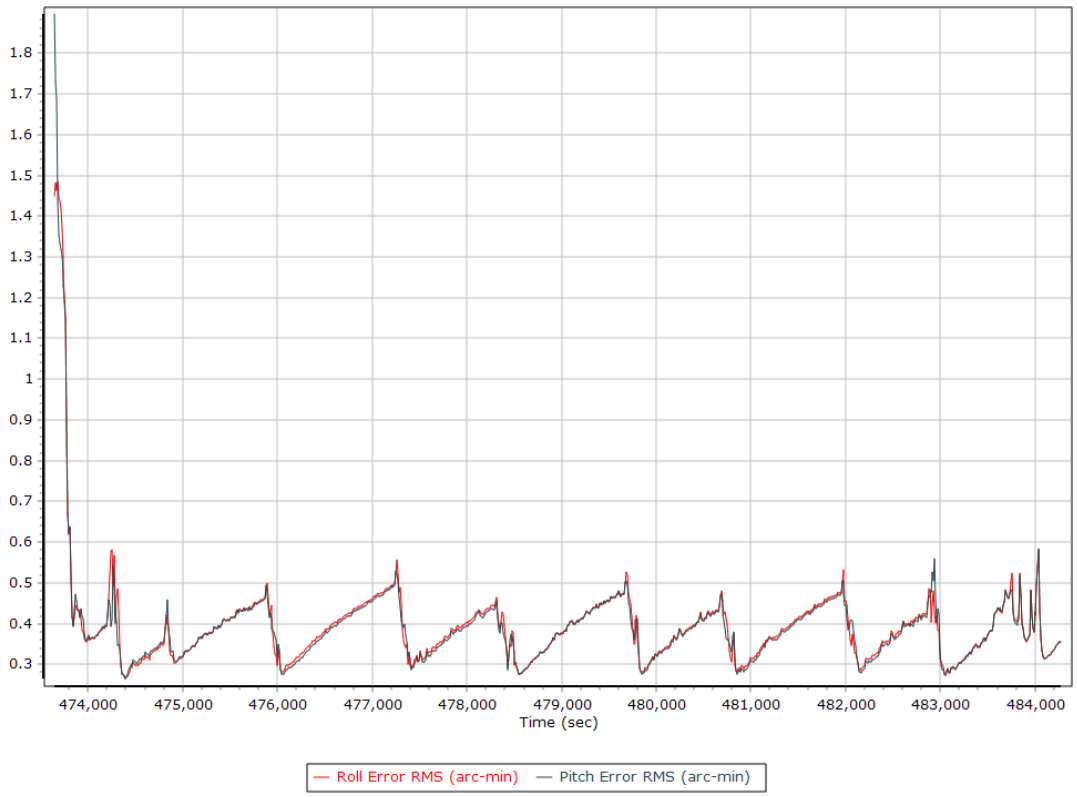
Position Error RMS (m)



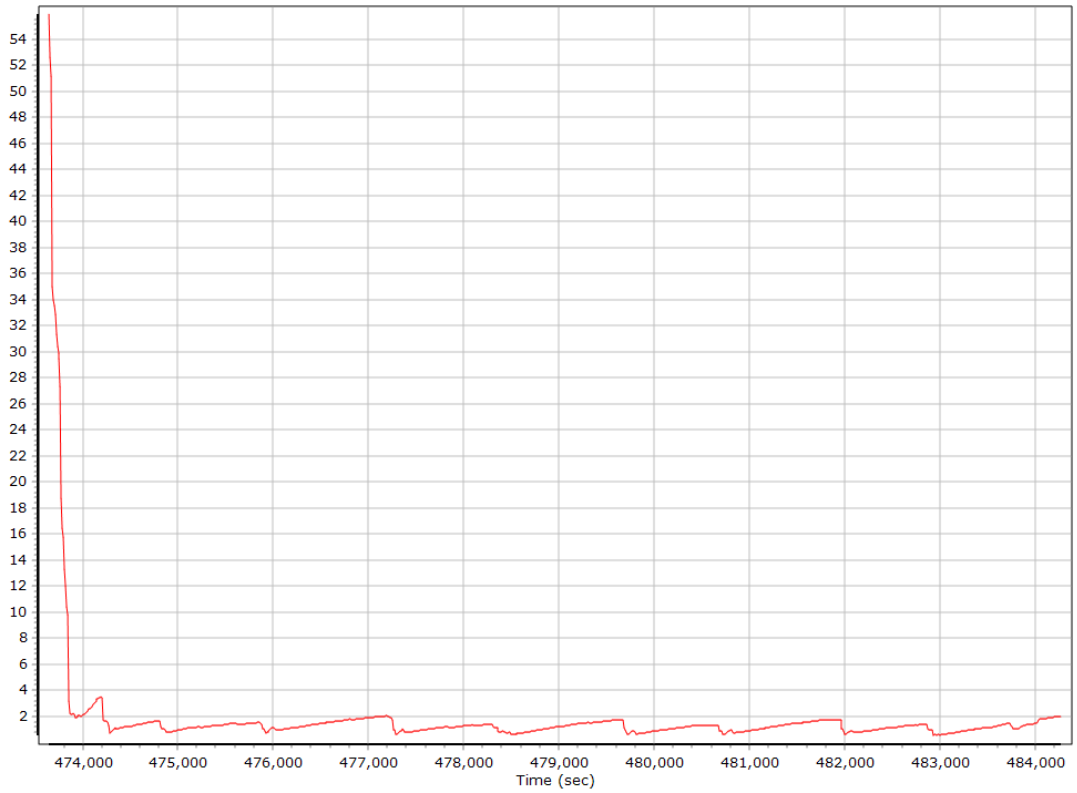
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

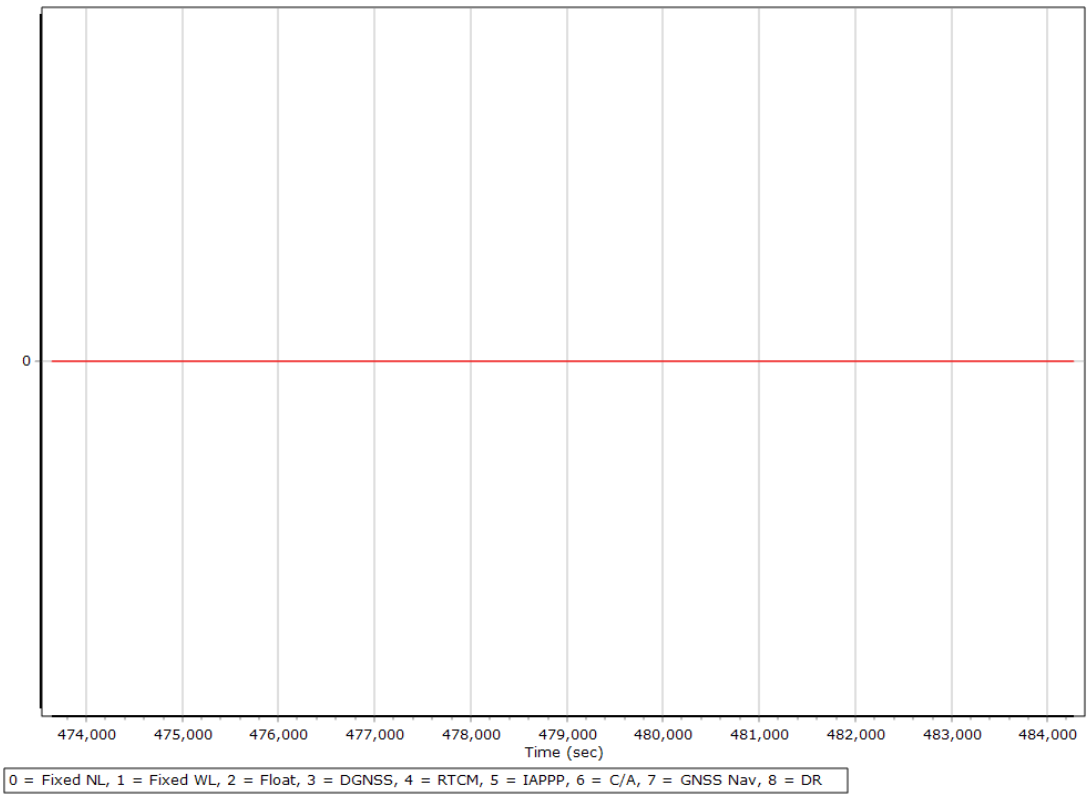


Heading Error RMS (arc-min)

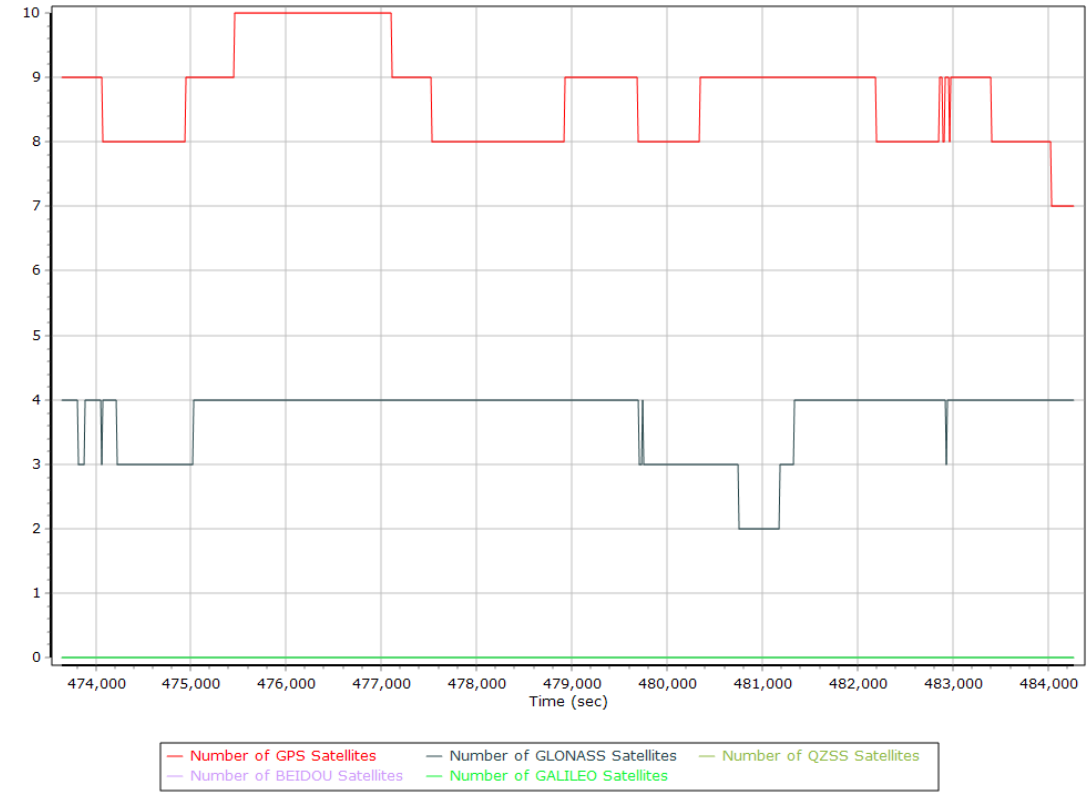


Smoothed Solution Status

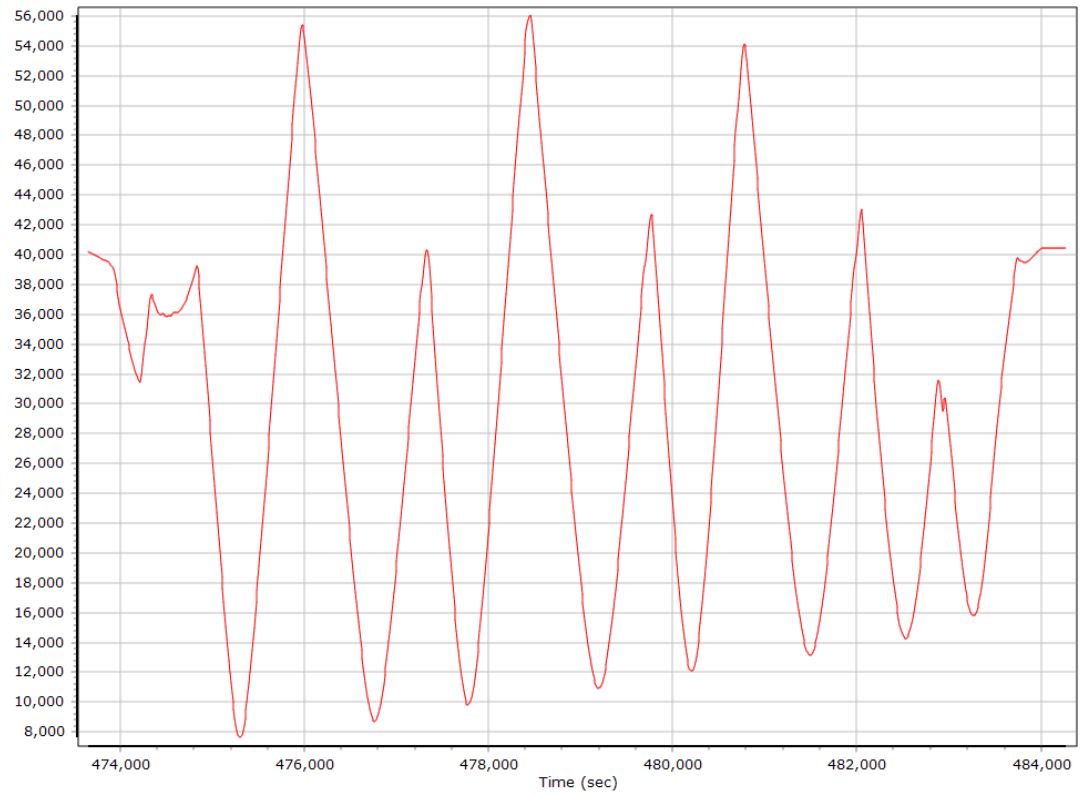
Processing Mode



Number of Satellites

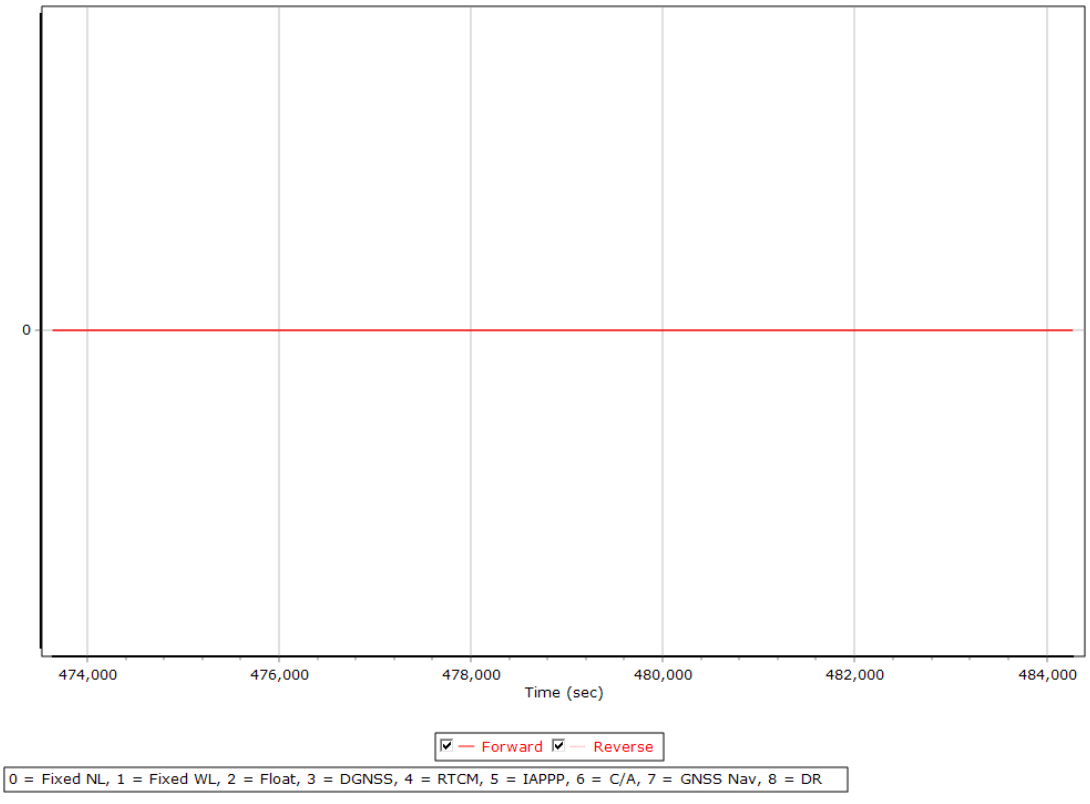


Baseline Length

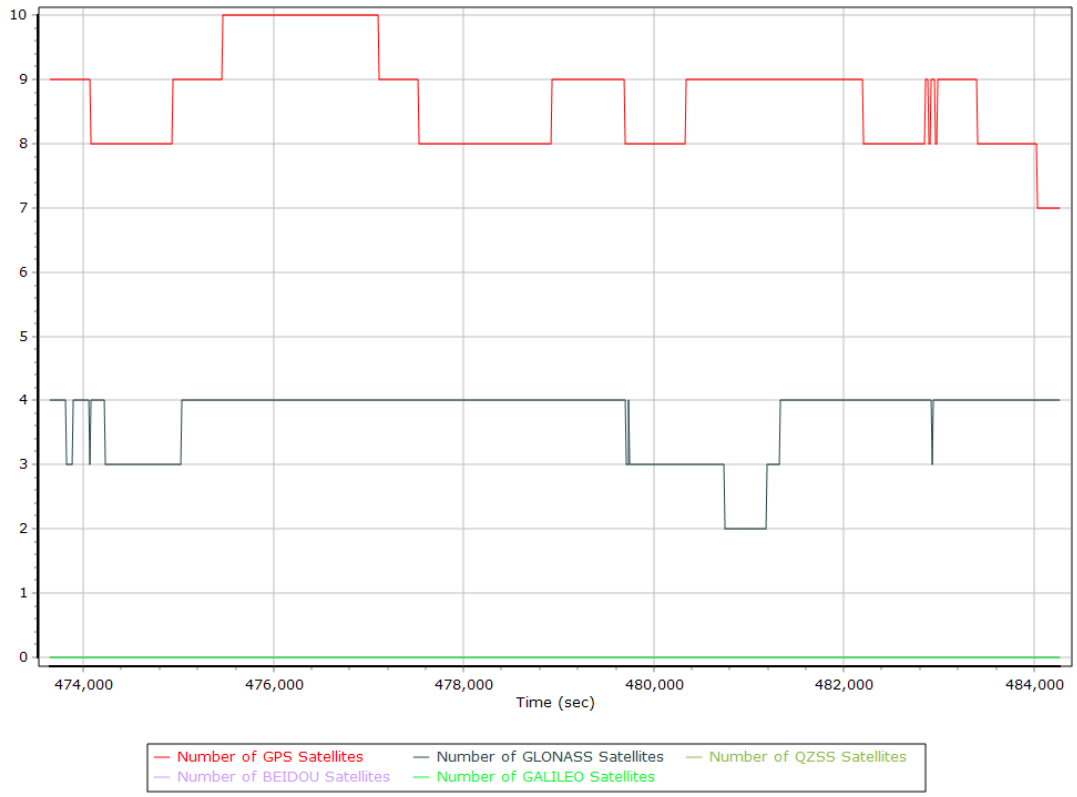


Forward Processed Solution Status

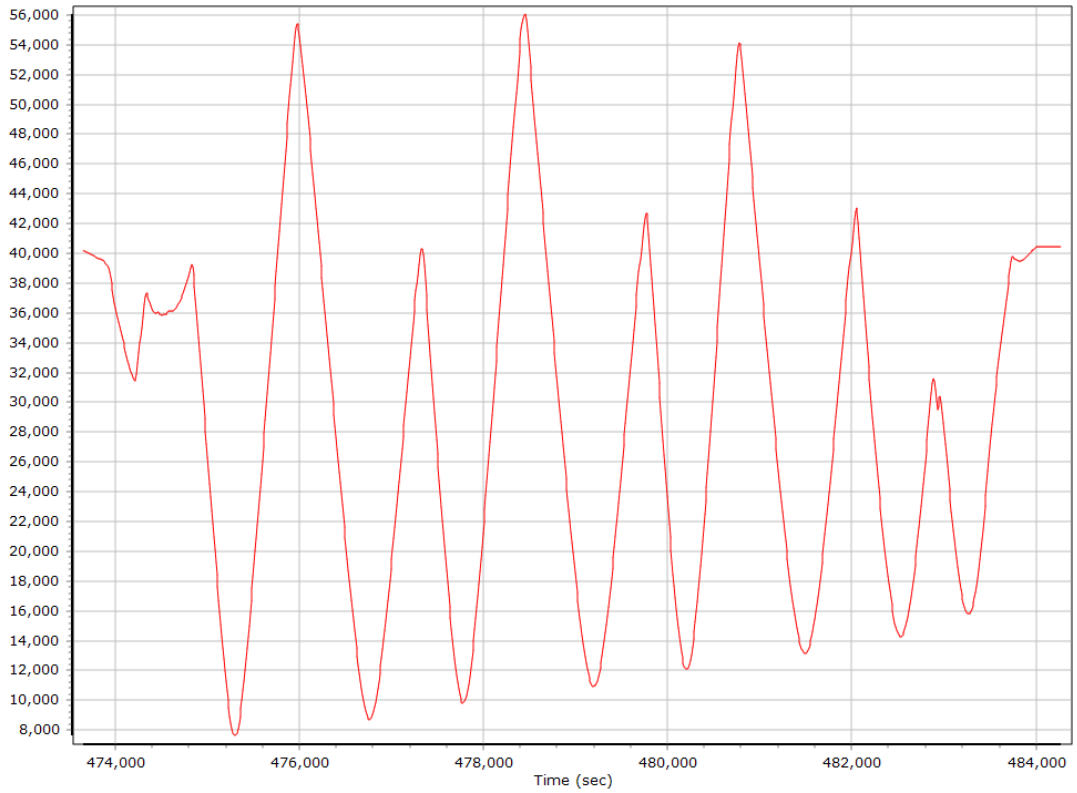
Processing Mode



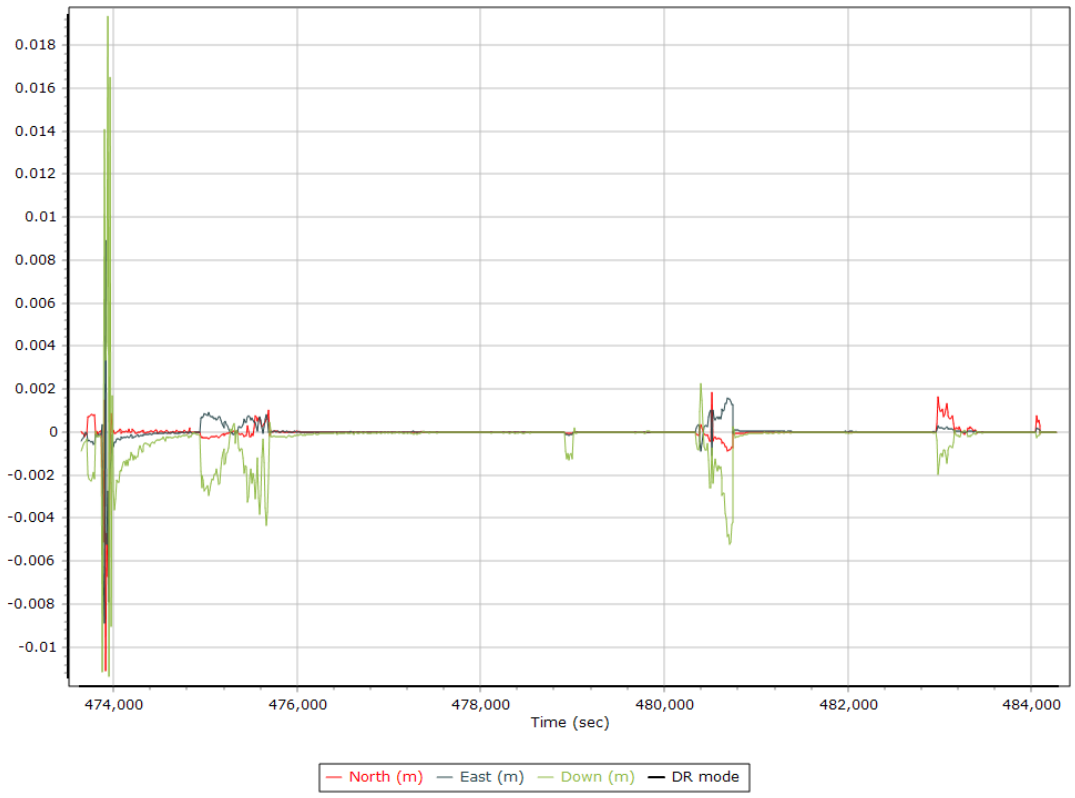
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_20200410A.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	473586.002 (4/10/2020 11:33:06 AM)		
Export end time	484281.000 (4/10/2020 2:31:21 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200410B
Processing date	2021-01-18 23:44:33
Mission date	2020-04-10 01:20:17
Mission duration	02:59:36.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.220	POS Data
ALS.221	POS Data
ALS.222	POS Data
ALS.223	POS Data
ALS.224	POS Data
ALS.225	POS Data
ALS.226	POS Data
ALS.227	POS Data
ALS.228	POS Data
ALS.229	POS Data
ALS.230	POS Data
ALS.231	POS Data
ALS.232	POS Data
ALS.233	POS Data
ALS.234	POS Data
ALS.235	POS Data
ALS.236	POS Data

Input Files

File Name	File Type
Ephm1010.20g	GLONASS Broadcast Ephemeris
Ephm1010.20n	GPS Broadcast Ephemeris
iaal1010.20o	GNSS SingleBase
iade1010.20o	GNSS SingleBase
iael1010.20o	GNSS SingleBase
iaht1010.20o	GNSS SingleBase
iamn1010.20o	GNSS SingleBase
iana1010.20o	GNSS SingleBase
iata1010.20o	GNSS SingleBase
mnca1010.20o	GNSS SingleBase
mnps1010.20o	GNSS SingleBase
igr21004.sp3	GPS Precise Ephemeris
igr21005.sp3	GPS Precise Ephemeris
igr21006.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200410B.out	SBET Trajectory File
SBET_20200410B.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.220		
Last raw data file	ALS.236		
Start GPS week	2100		
Start time	436810.533 (4/10/2020 1:20:10 AM)		
End time	447576.122 (4/10/2020 4:19:36 AM)		
Start of fine alignment	437809.101 (4/10/2020 1:36:49 AM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

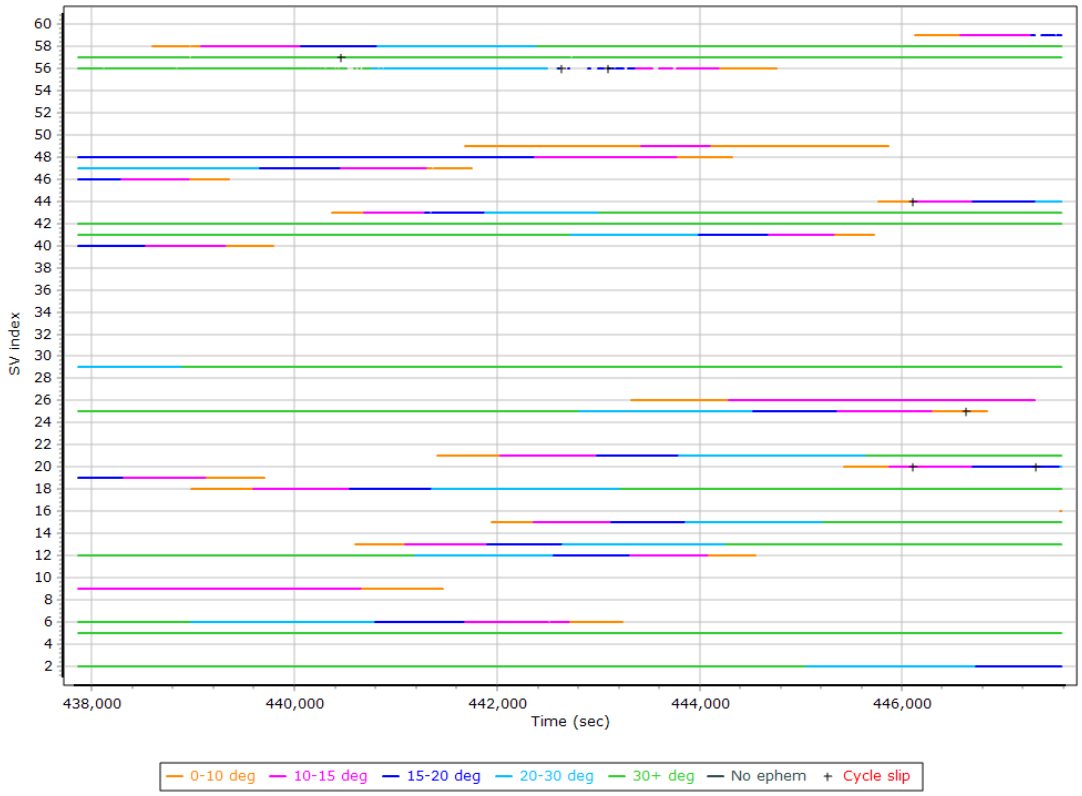
Rover Data QC

Raw IMU Import QC Summary

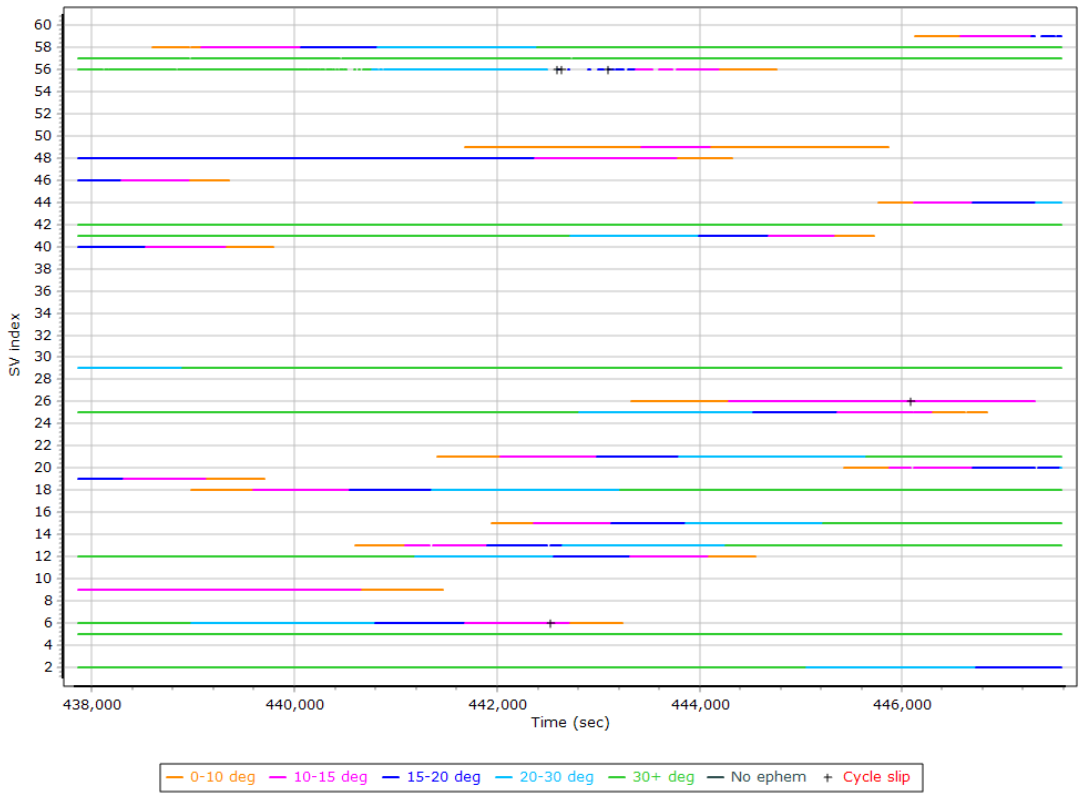
IMU data input file	imu_20200410B.dat
IMU data check log file	imudt_20200410B.log
IMU Records Processed	2157823
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
436810.138 : WARNING : Gap of 436788.1515 seconds in CHECKDT input data	

Primary Observables & Satellite Data

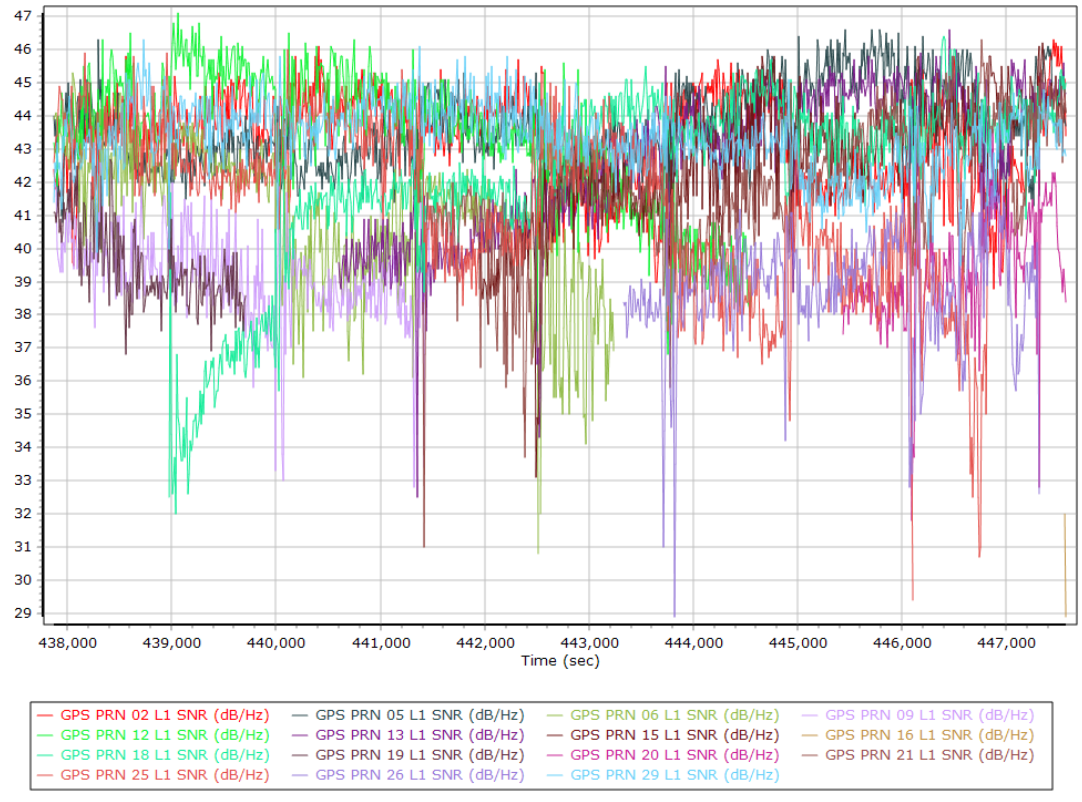
L1 Satellite Lock/Elevation



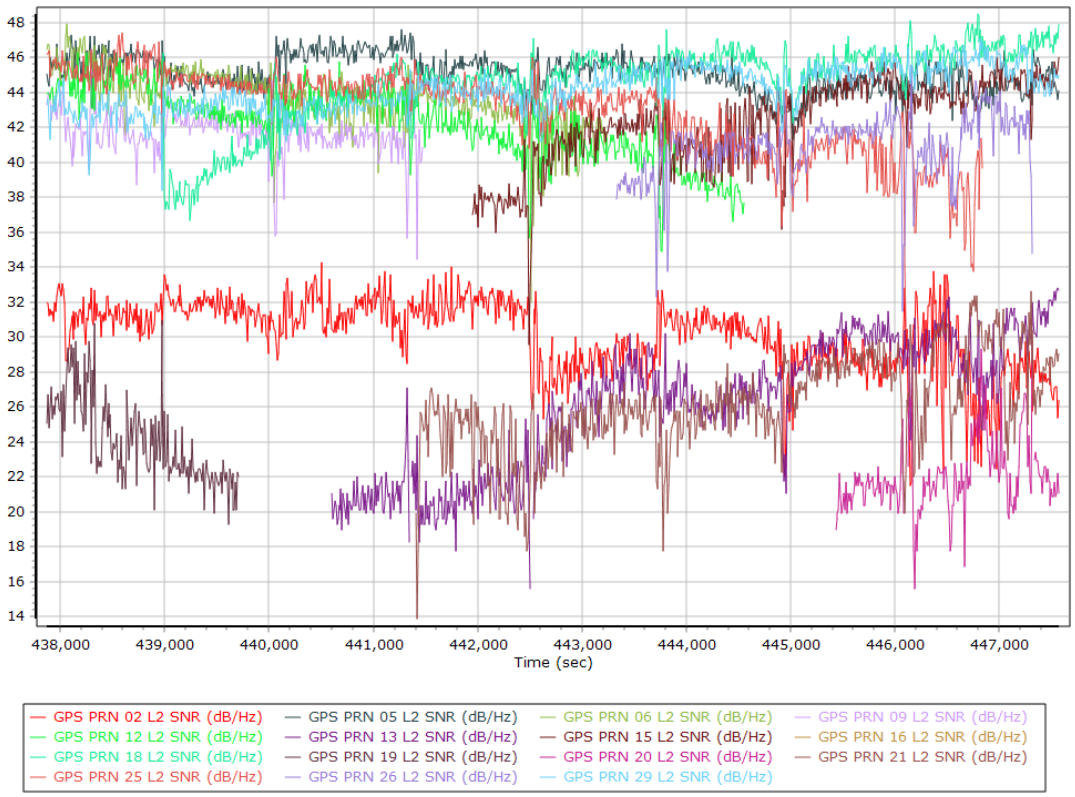
L2 Satellite Lock/Elevation



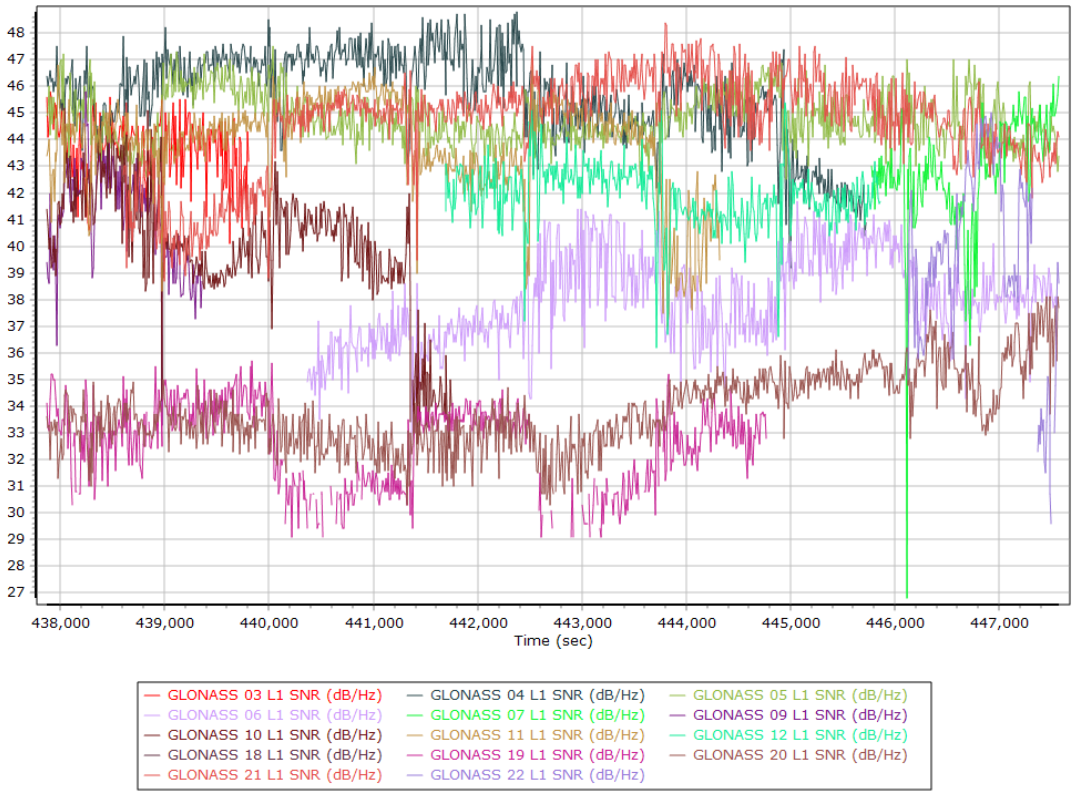
GPS L1 SNR



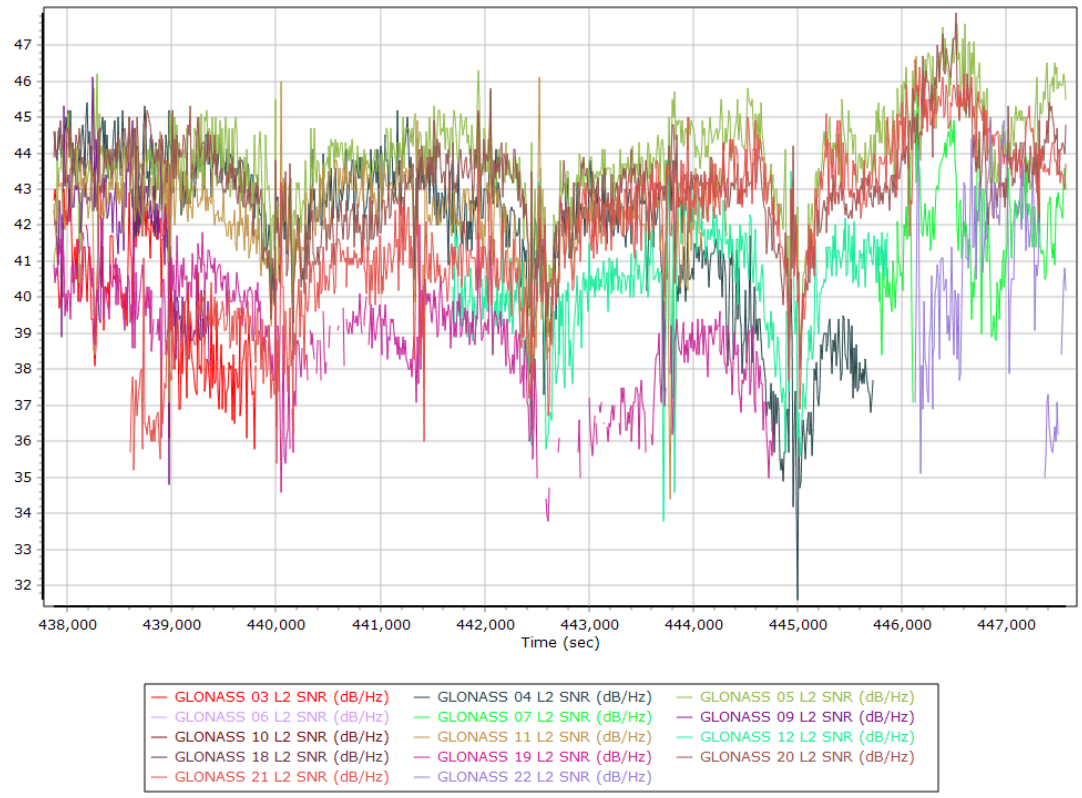
GPS L2 SNR



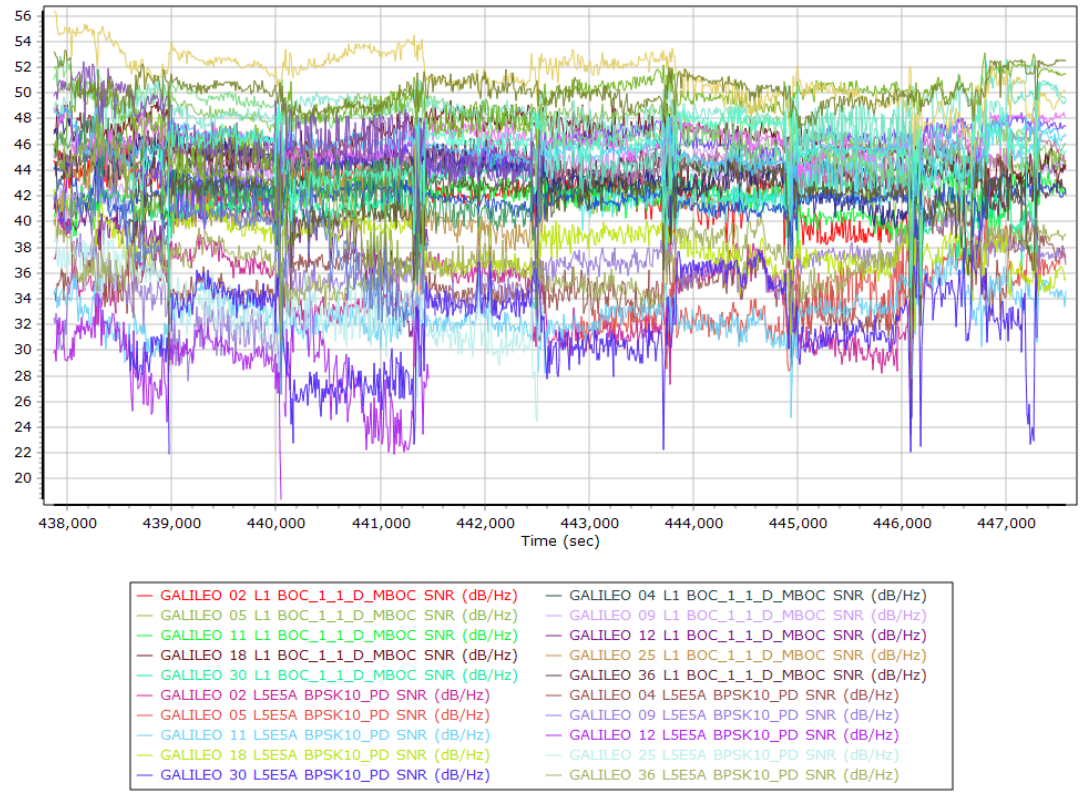
GLONASS L1 SNR



GLONASS L2 SNR

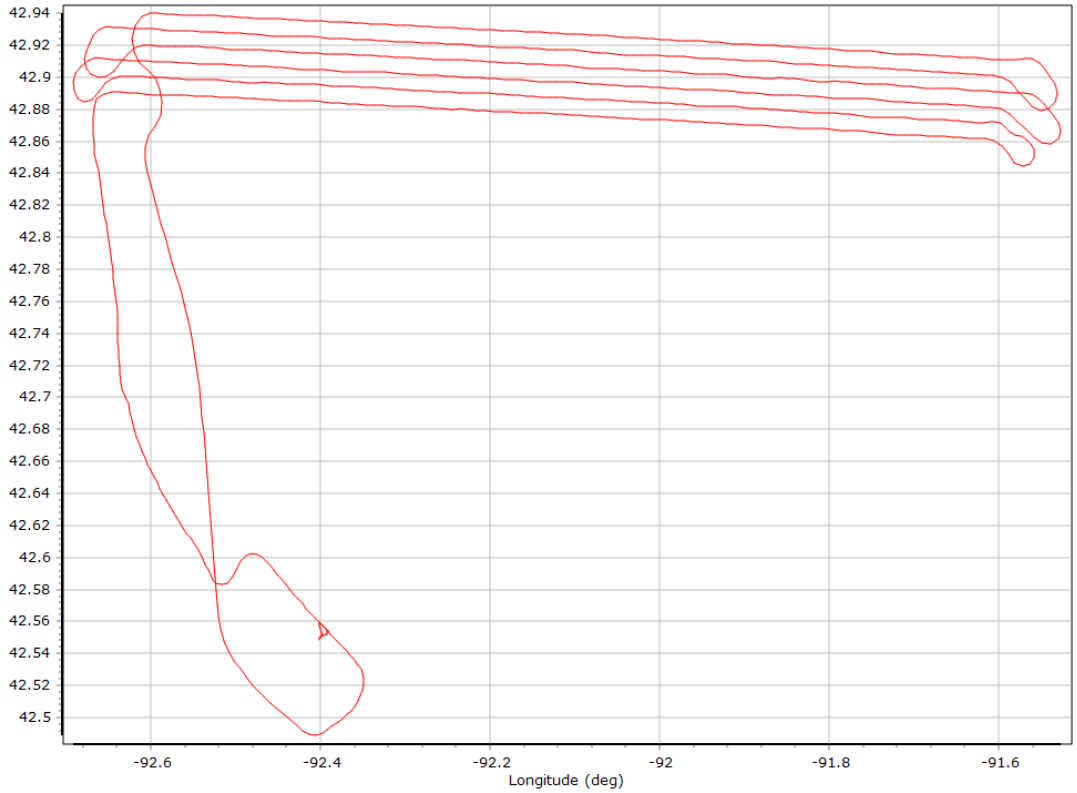


GALILEO SNR

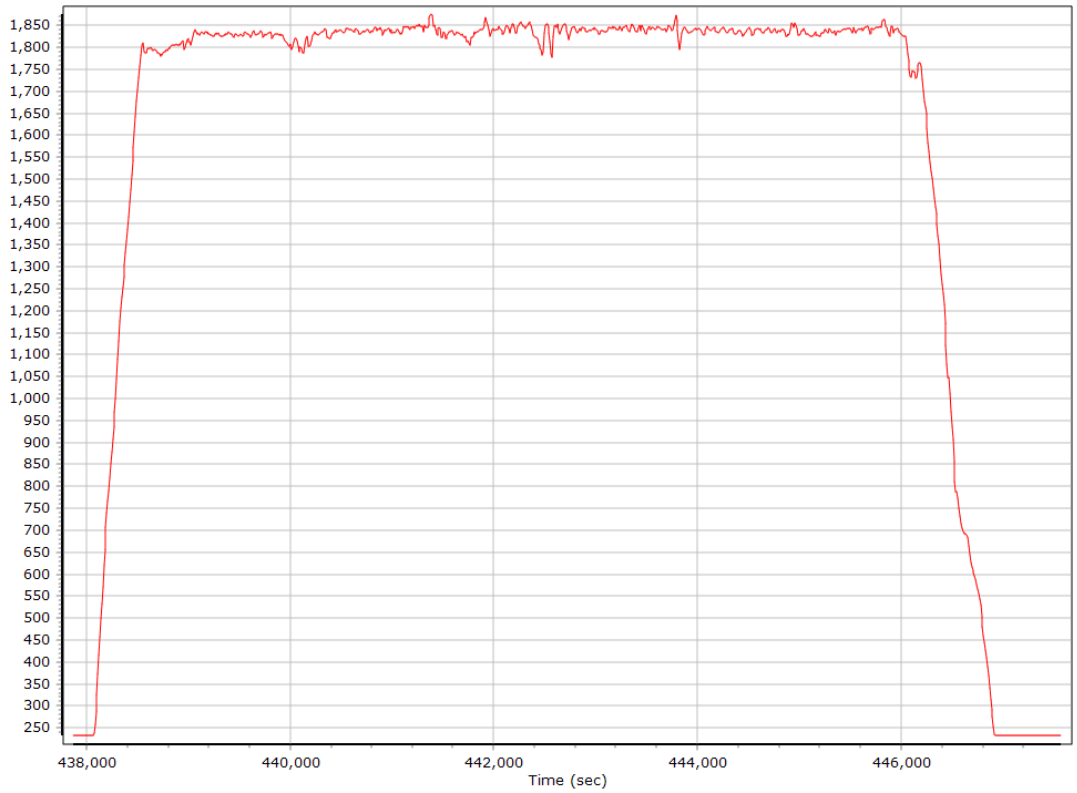


Smoothed Trajectory Information

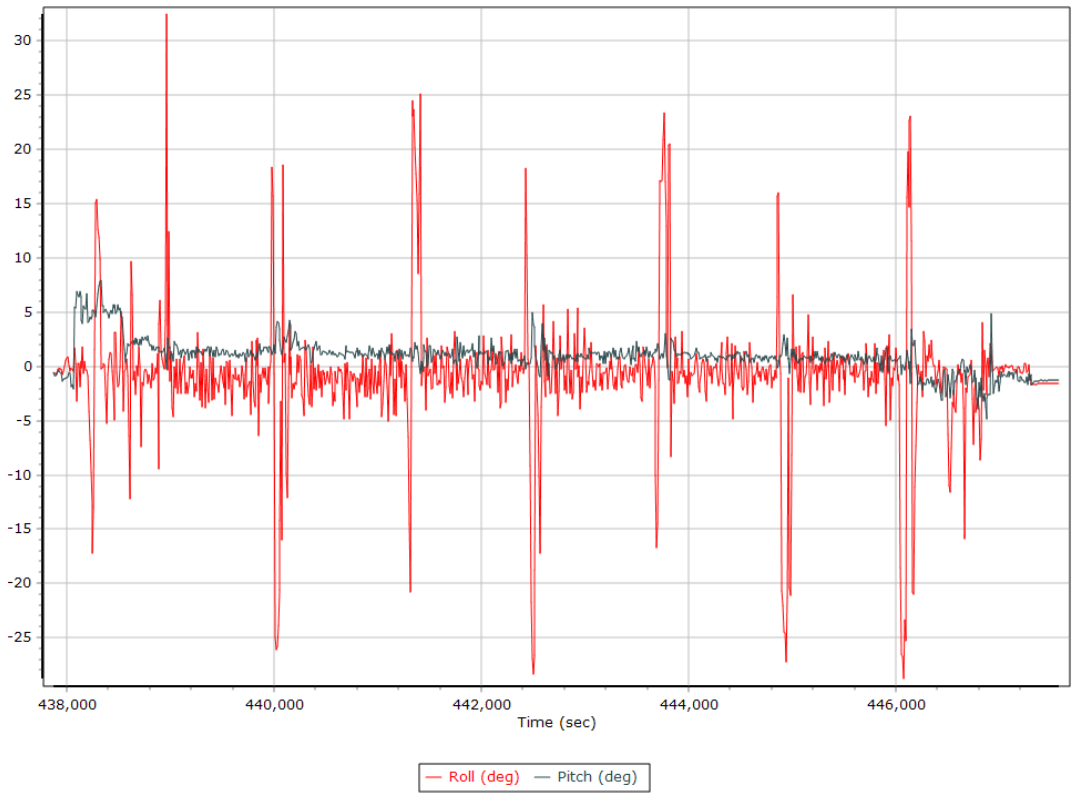
Top View



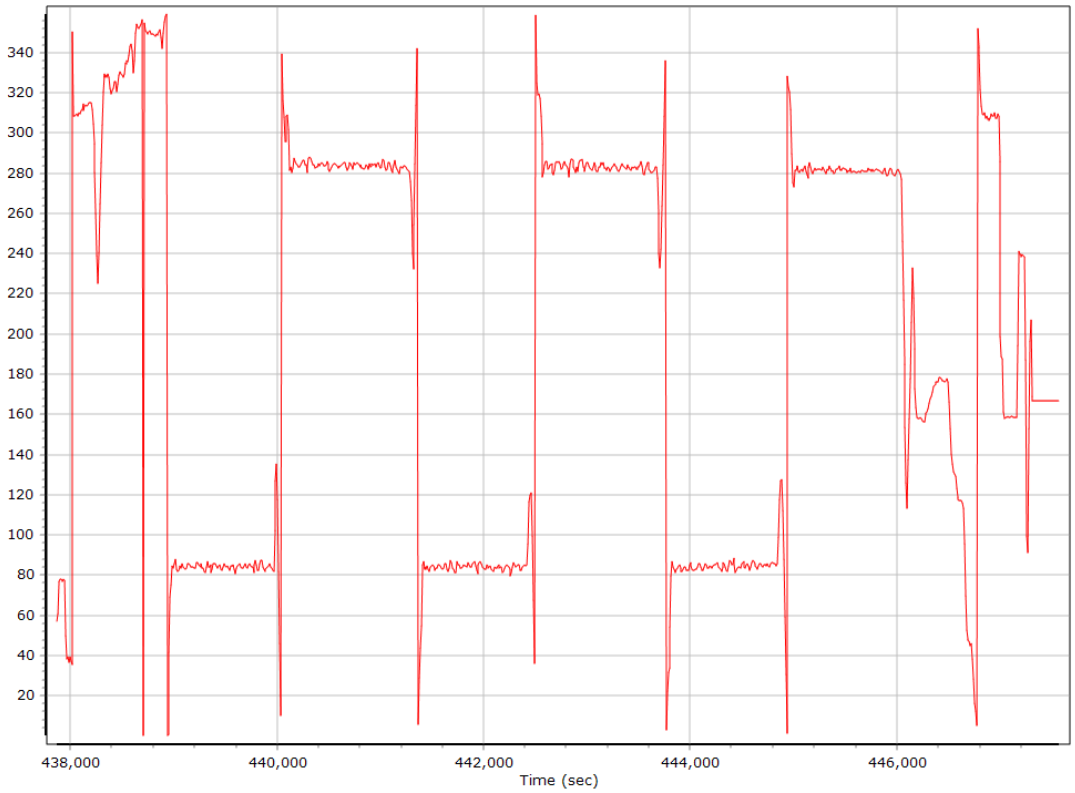
Altitude



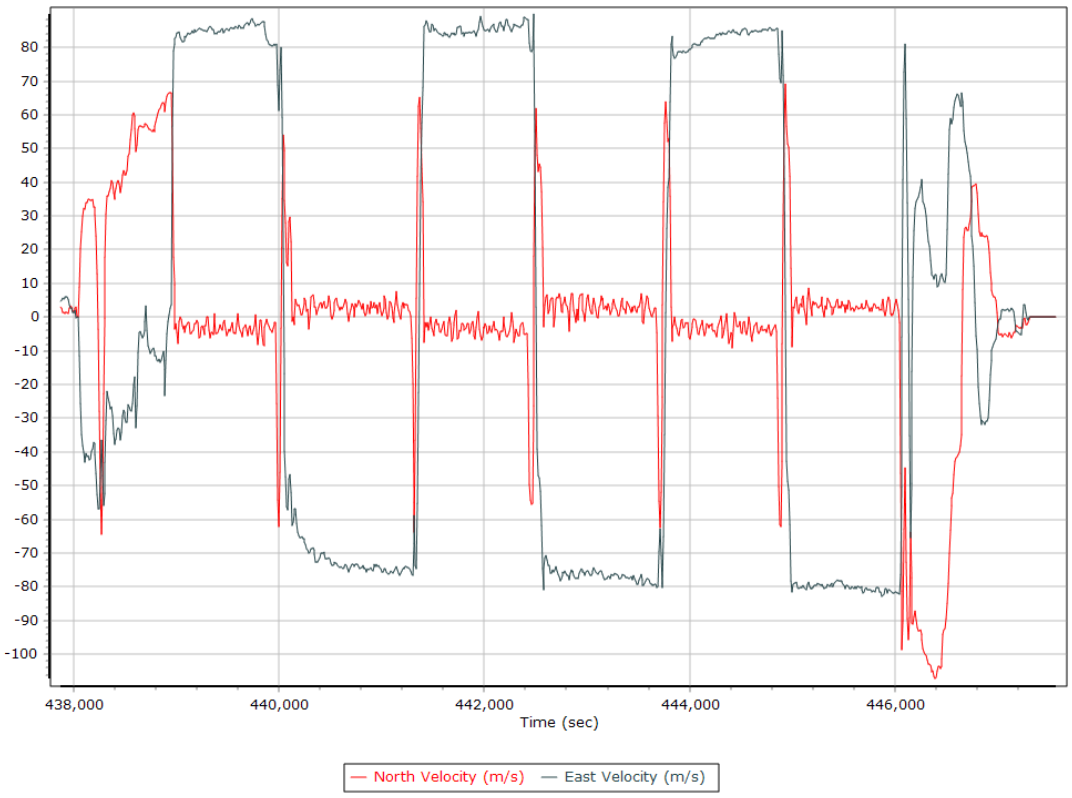
Roll/Pitch



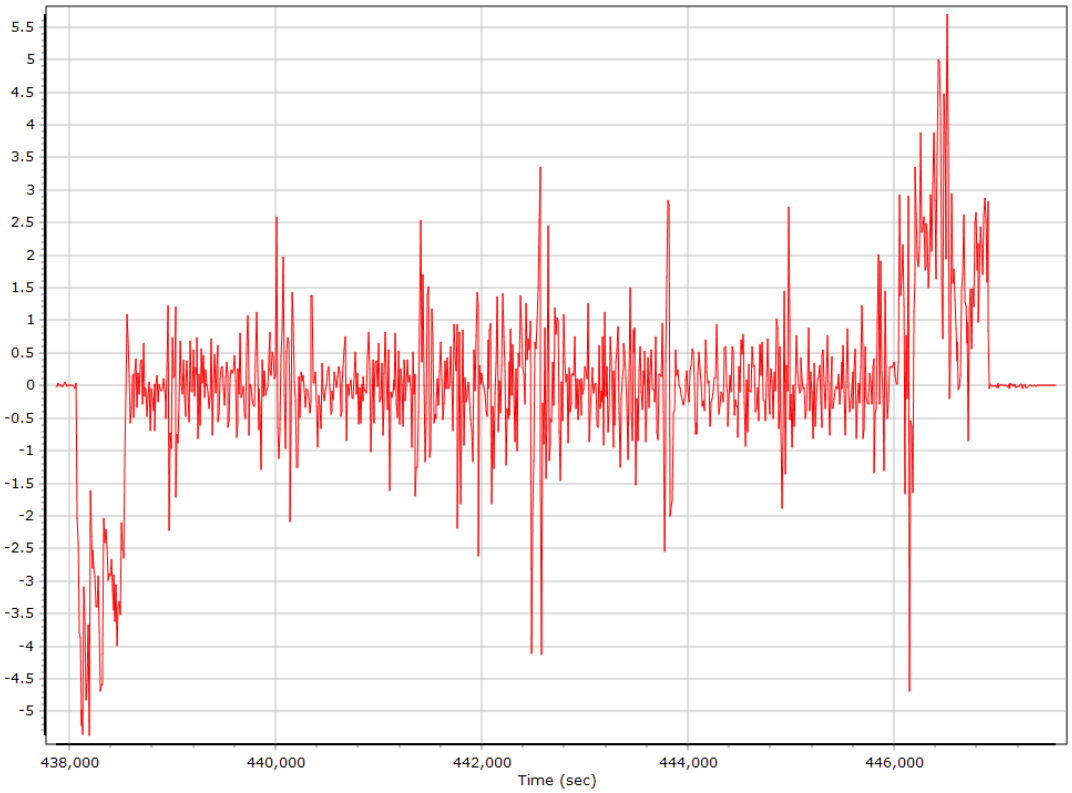
Heading



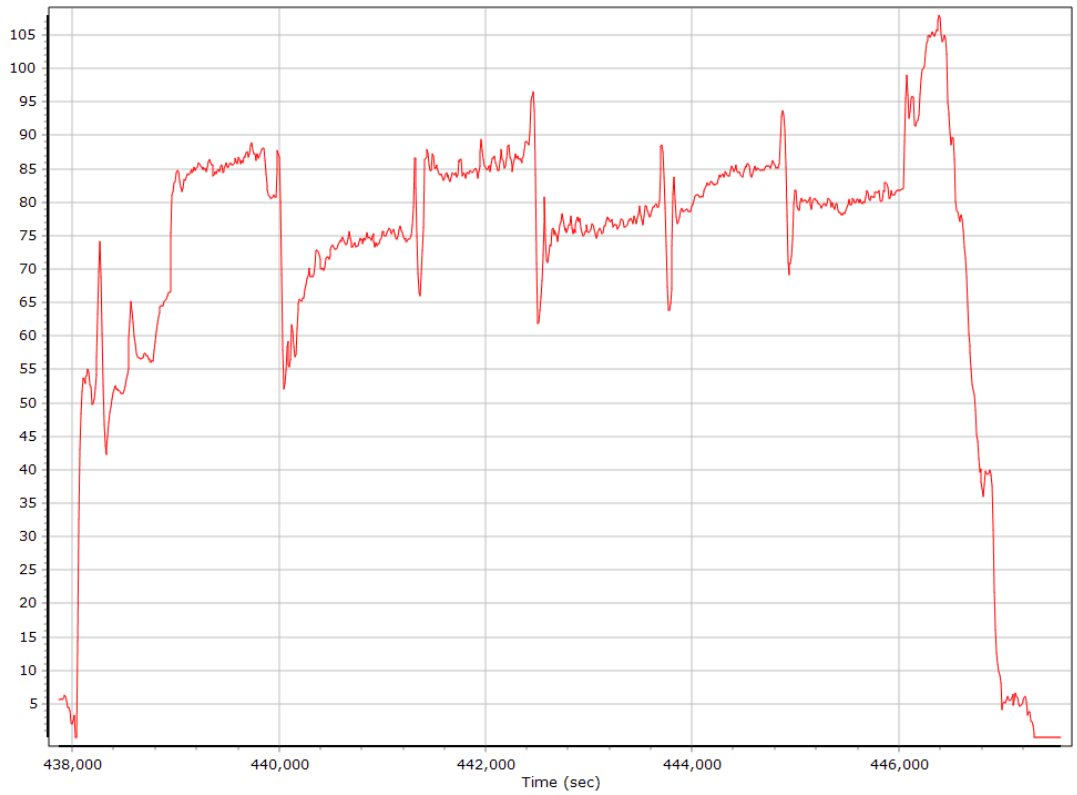
North/East Velocity



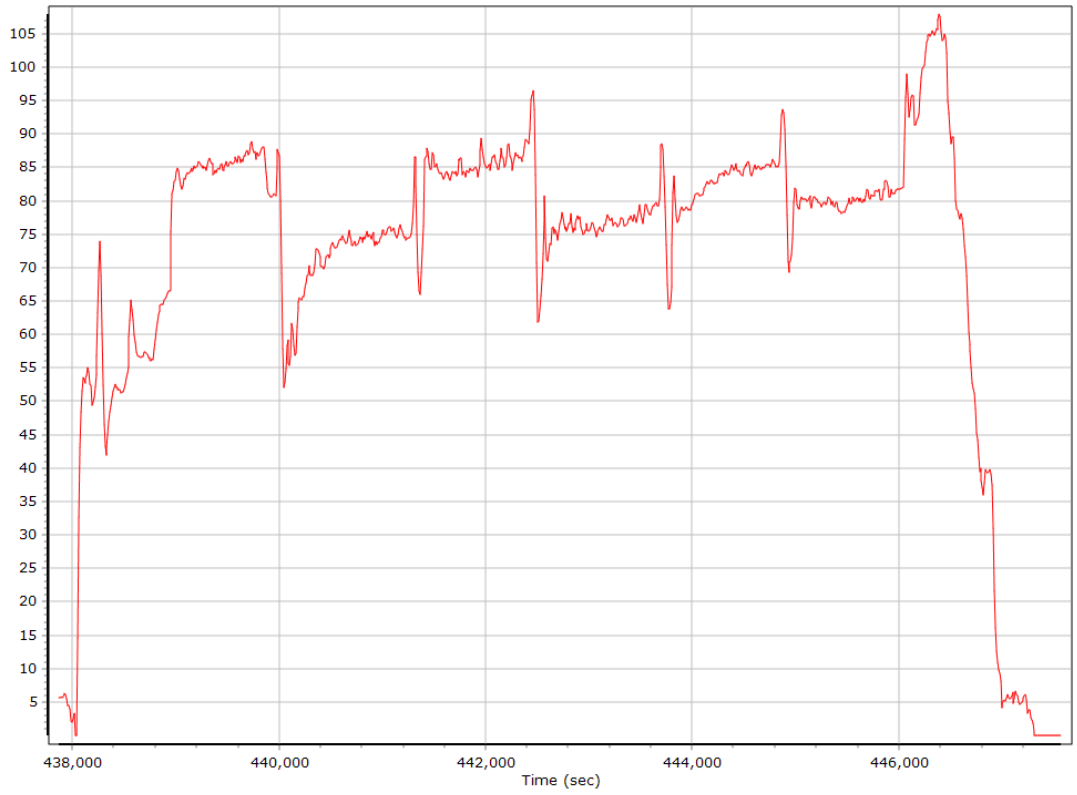
Down Velocity



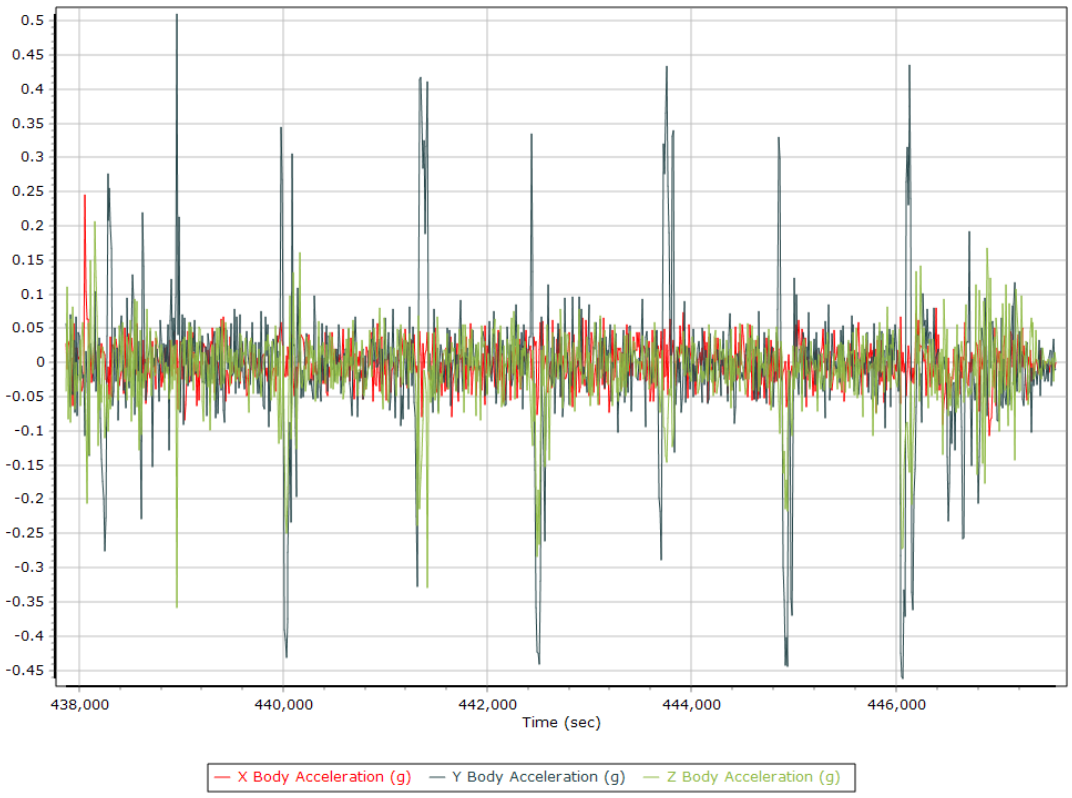
Total Speed



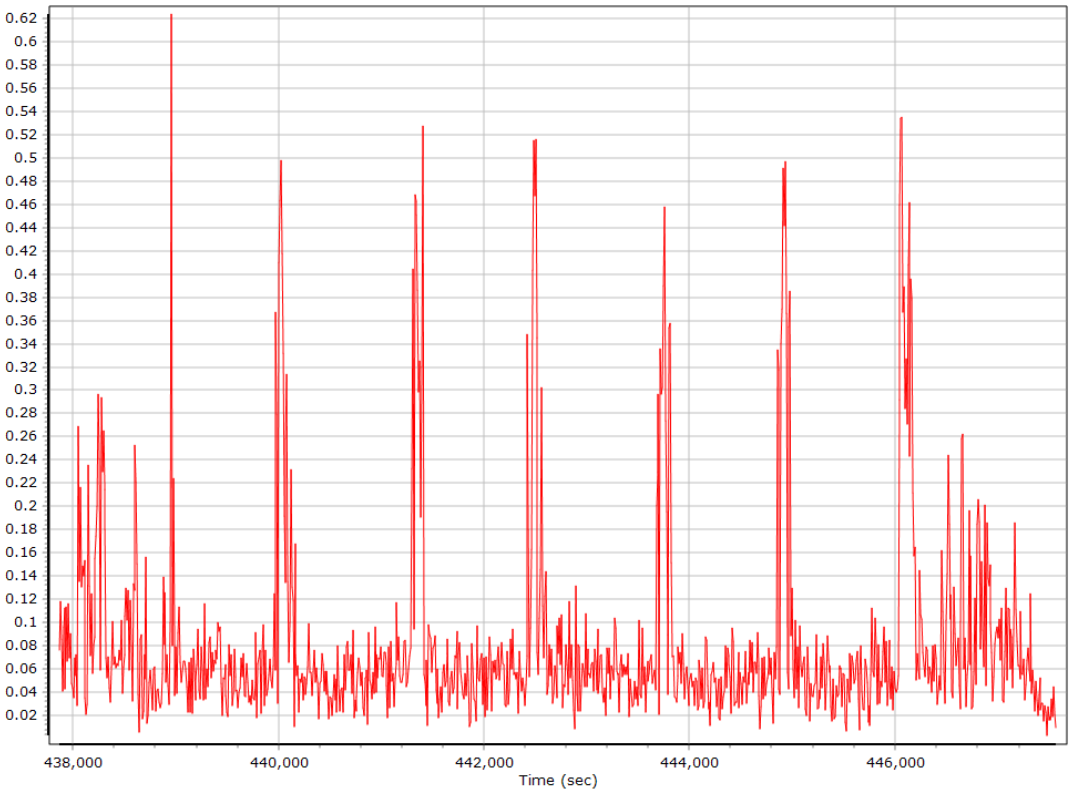
Ground Speed



Body Acceleration



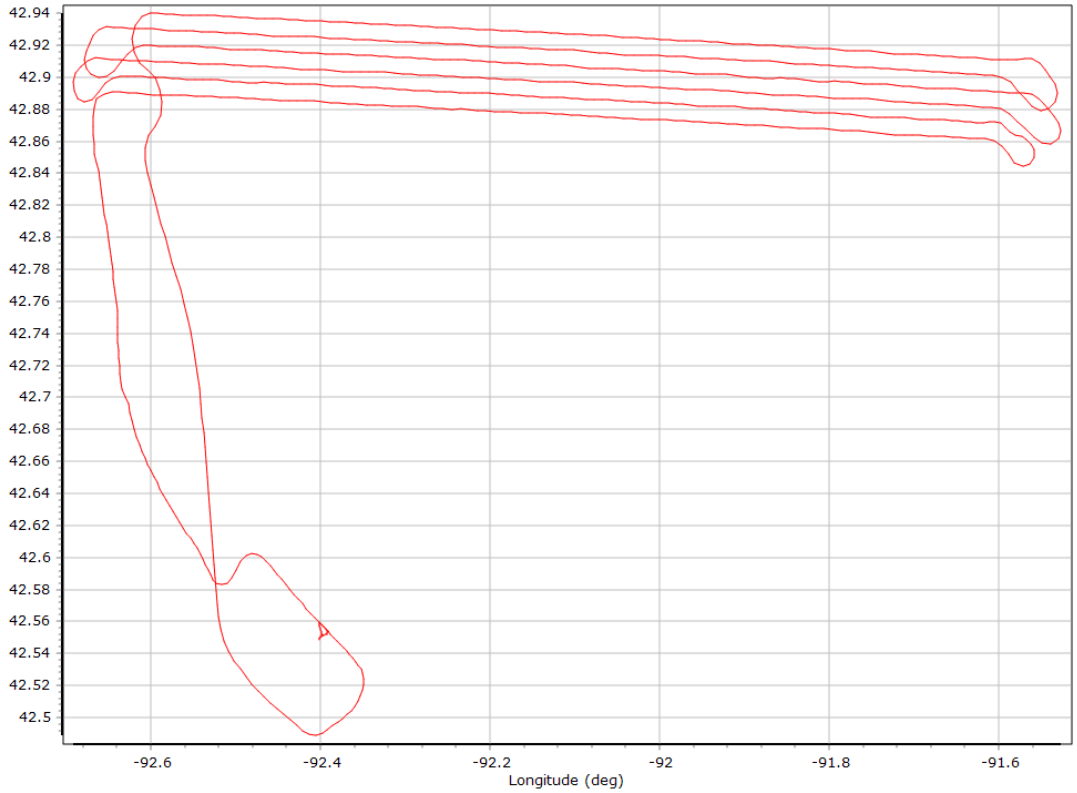
Total Body Acceleration



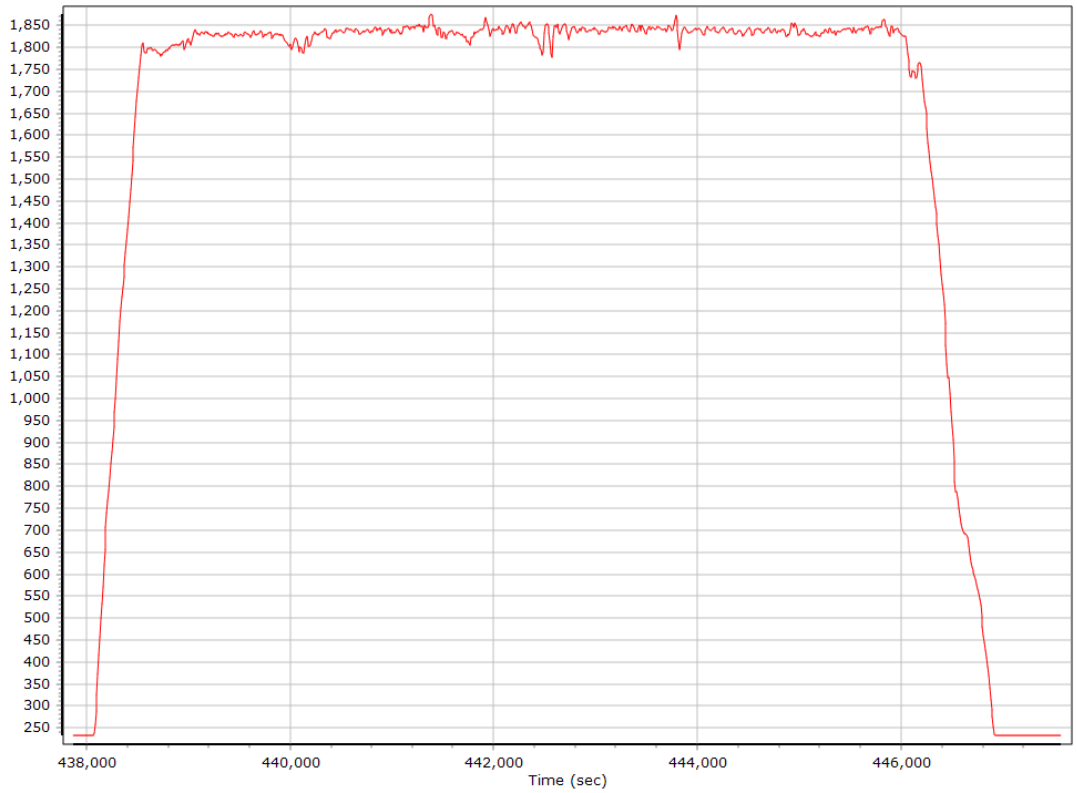
Body Angular Rate

Forward Processed Trajectory Information

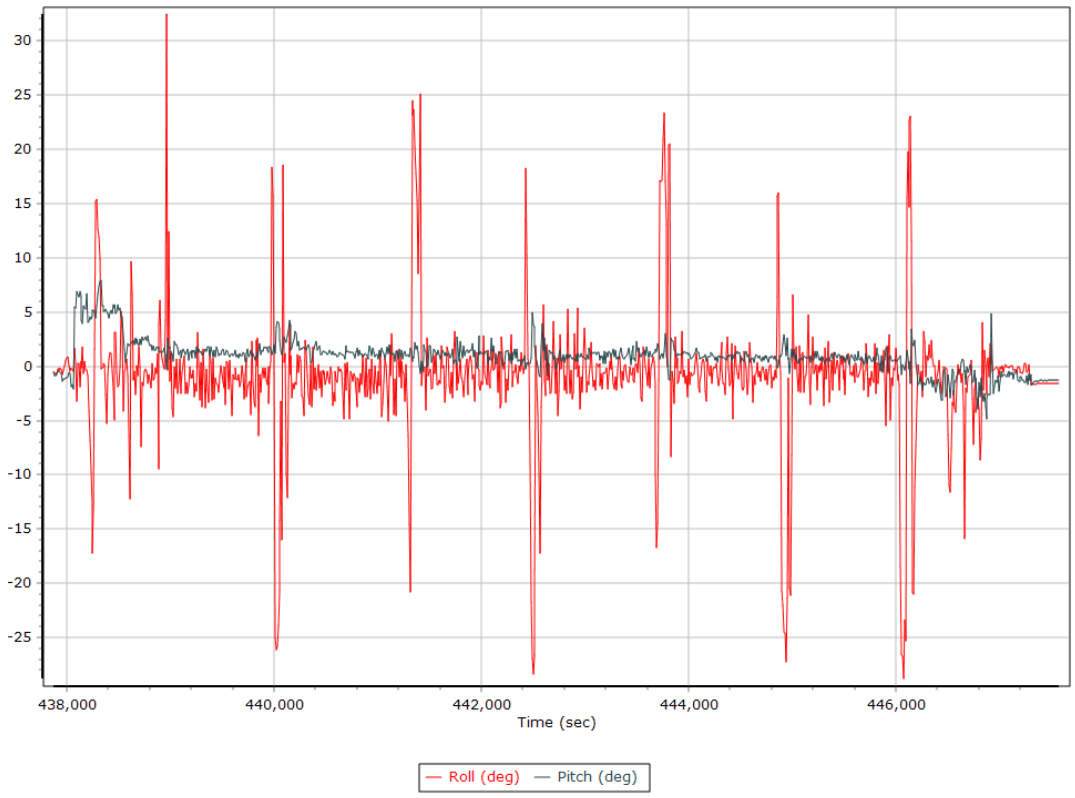
Top View



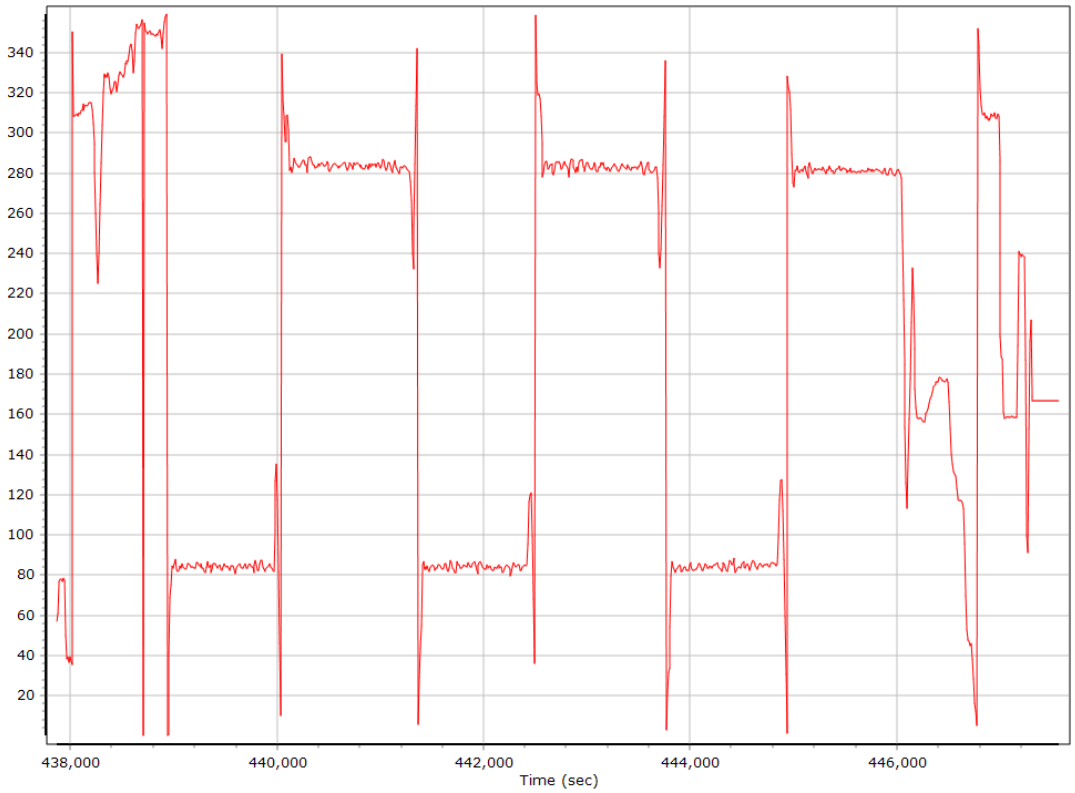
Altitude



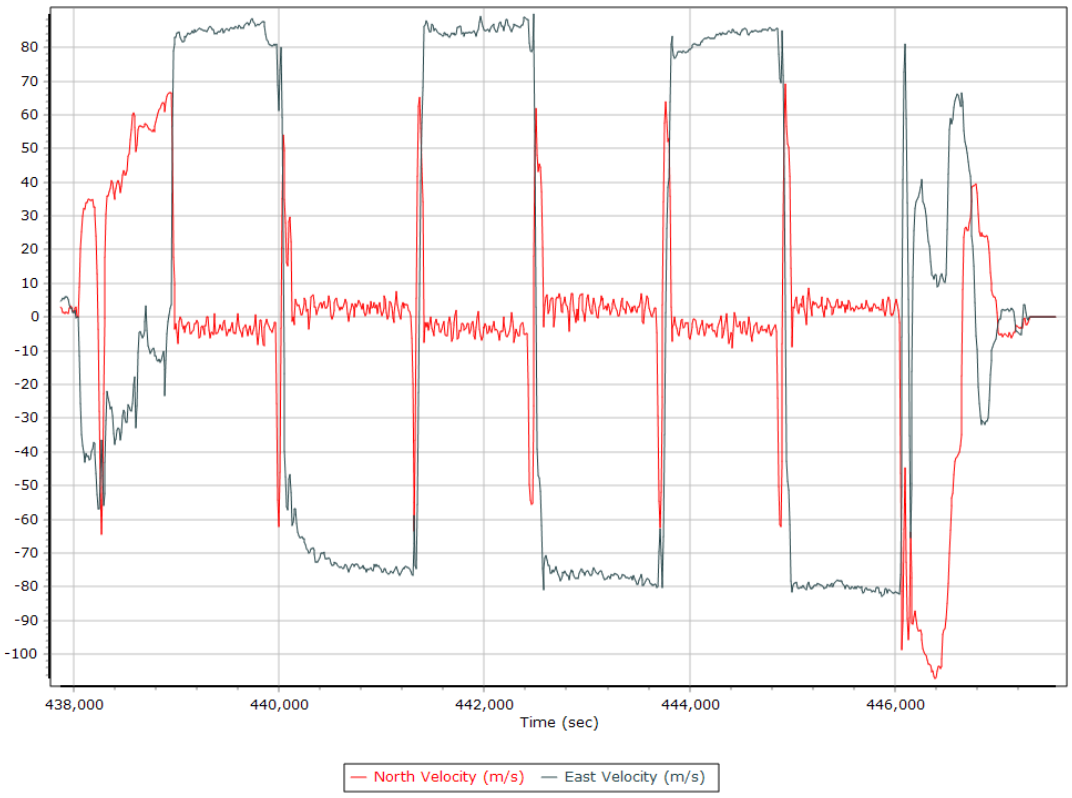
Roll/Pitch



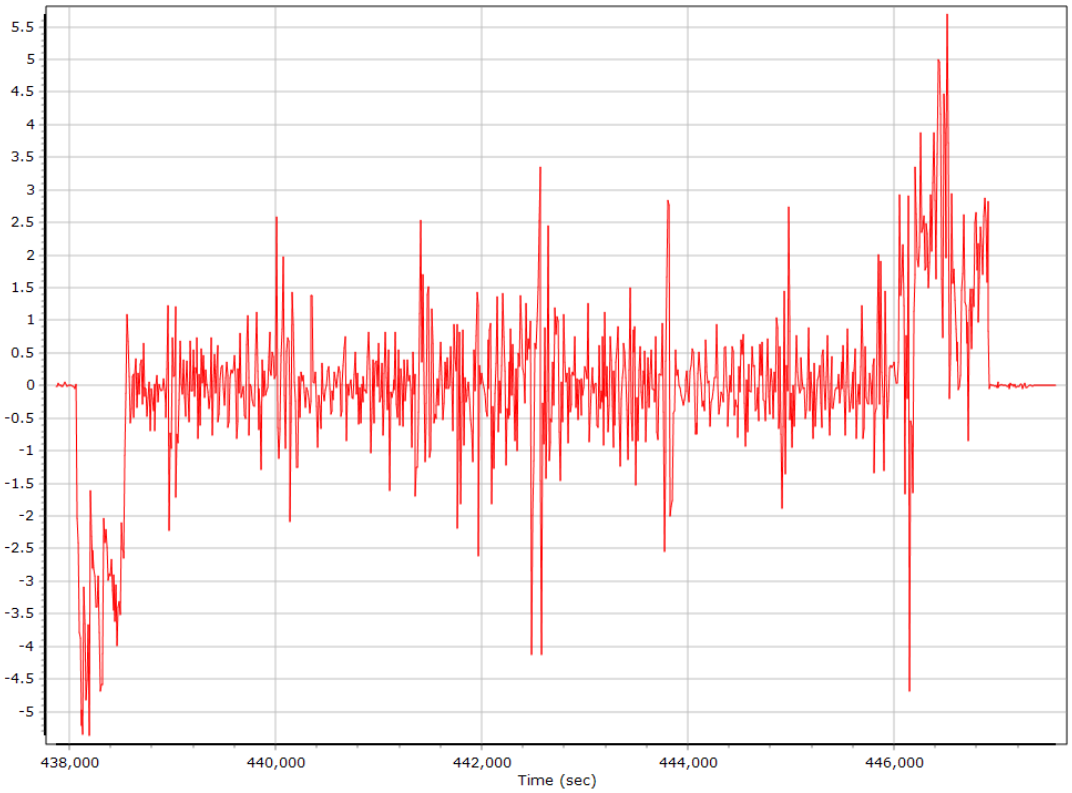
Heading



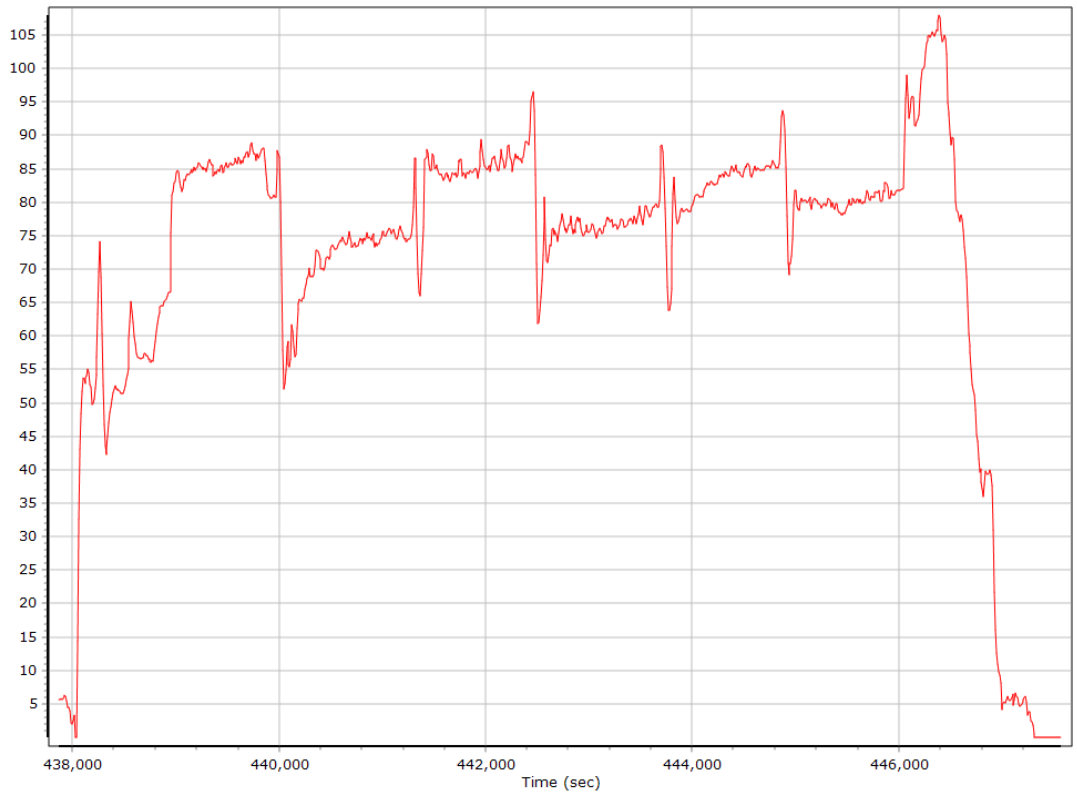
North/East Velocity



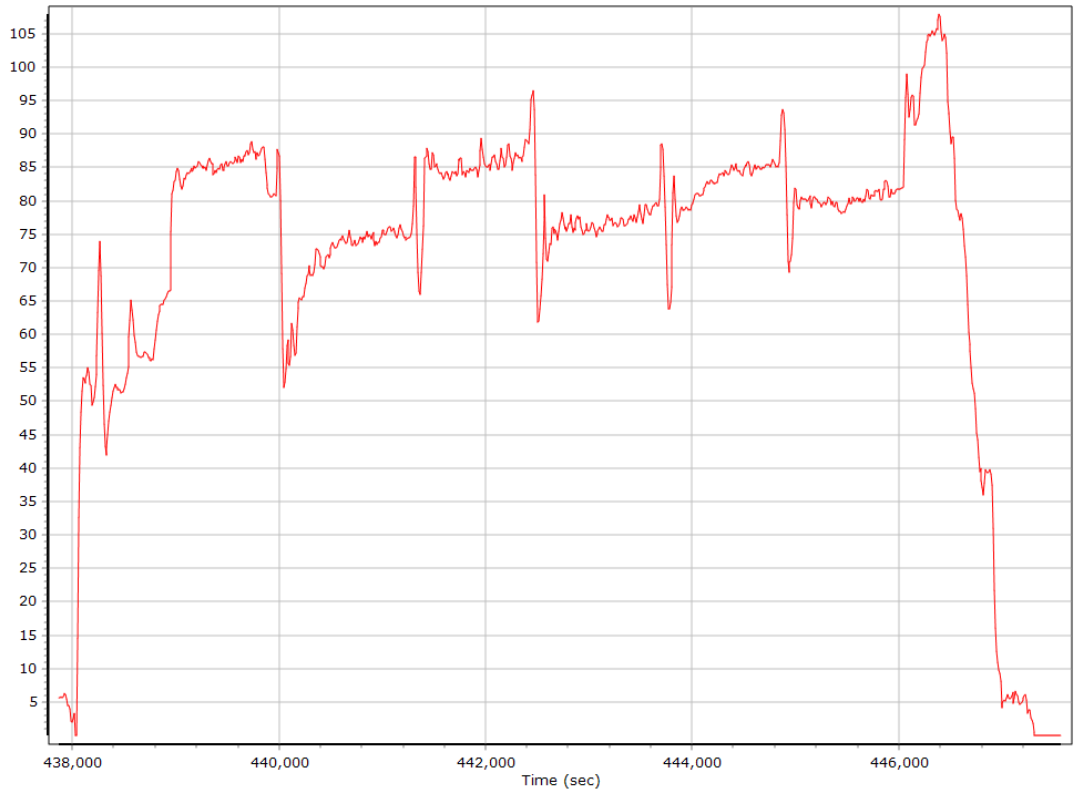
Down Velocity



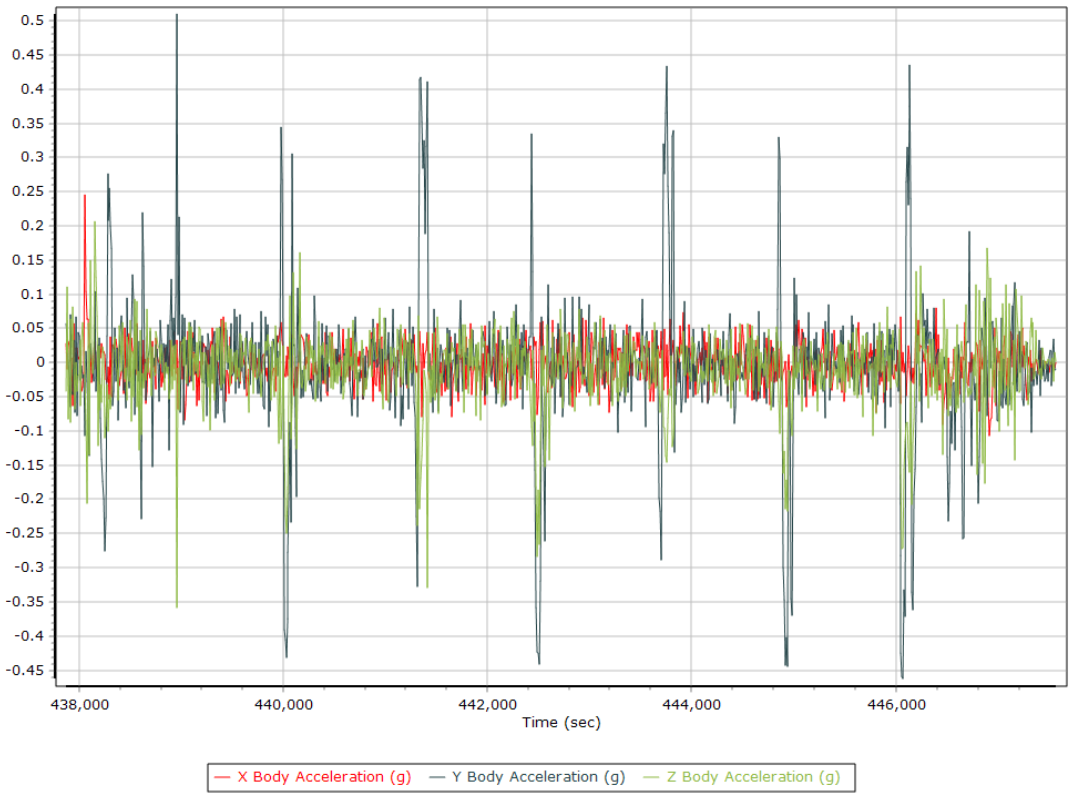
Total Speed



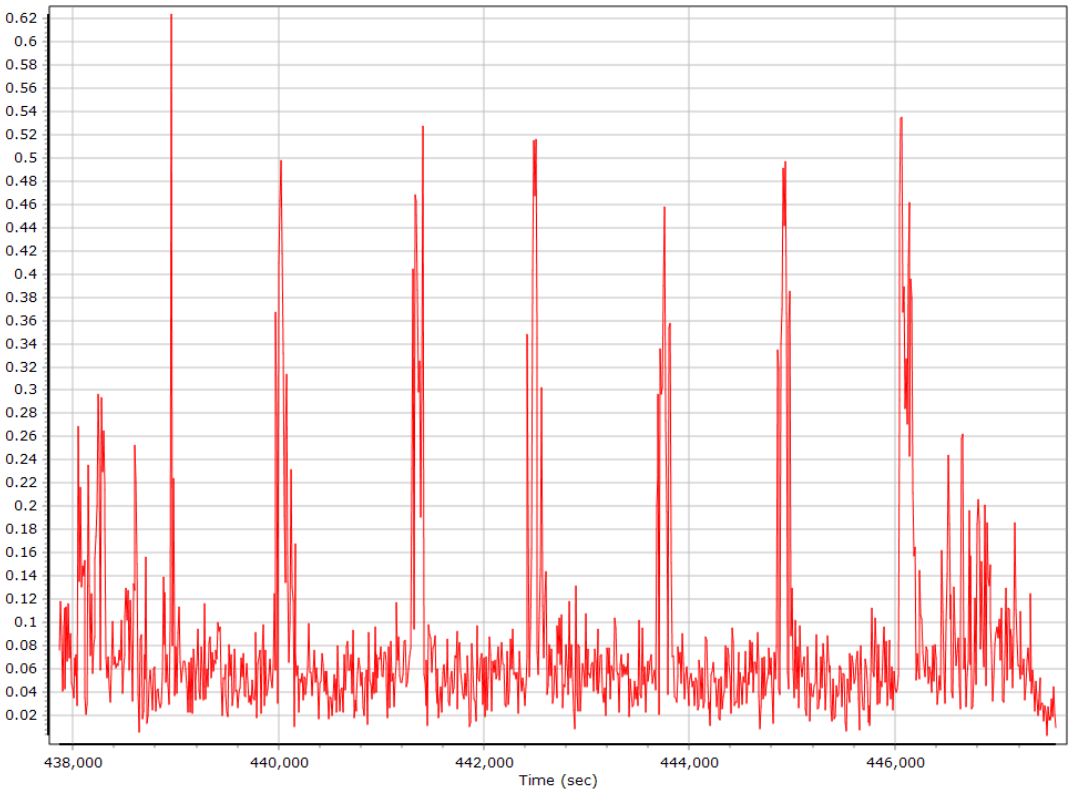
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/10/2020	IAAL	46.57	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IADE	61.36	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAEL	70.99	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNPS	84.12	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IATA	96.35	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAMN	101.90	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAHT	107.77	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IANA	108.45	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNCA	109.84	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	10776 s (2100 436817 - 2100 447593)
Number of reference stations	9
Primary station GPS measurement usage (%)	99.7
Primary station GLONASS measurement usage (%)	82.0
Average number of satellites per epoch	14.0
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	13404
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64527"	W91°29'46.51636"	339.588
Adjusted		N43°37'58.64548"	W91°29'46.51599"	339.571
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.017	0.020

Base Station Information

Station ID	MNCA		
Filename	mnca1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64527"		
Longitude	W91°29'46.51636"		
Ellipsoidal height (m)	339.58842		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	7	
Duration (Hours)	23.70	**Output Coordinates**	Adjusted	
Solution Epochs	2844	**Mean Epoch SVs**	8.0	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54032"	172.253
Adjusted		N43°29'49.47931"	W91°17'26.53960"	172.202
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IANA		
Filename	iana1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54032"		
Ellipsoidal height (m)	172.25323		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38125"	W93°22'06.68788"	344.482
Adjusted		N43°17'02.38136"	W93°22'06.68746"	344.462
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.020	0.022

Base Station Information

Station ID	IAHT		
Filename	iaht1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38125"		
Longitude	W93°22'06.68788"		
Ellipsoidal height (m)	344.48177		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Adjusted	
Solution Epochs	2865	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59749"	228.904
Adjusted		N42°01'49.10914"	W91°32'55.59741"	228.852
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAMN		
Filename	iamn1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59749"		
Ellipsoidal height (m)	228.90417		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67189"	W92°33'05.07501"	247.334
Adjusted		N41°58'01.67198"	W92°33'05.07502"	247.323
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.011	0.011

Base Station Information

Station ID	IATA		
Filename	iata1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67189"		
Longitude	W92°33'05.07501"		
Ellipsoidal height (m)	247.33438		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.77	**Output Coordinates**	Original	
Solution Epochs	2852	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52986"	298.980
Adjusted		N42°52'40.47680"	W91°21'41.52955"	298.960
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.020	0.022

Base Station Information

Station ID	IAEL		
Filename	iael1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52986"		
Ellipsoidal height (m)	298.98030		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52632"	316.516
Adjusted		N43°16'15.83228"	W91°49'53.52623"	316.487
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.029	0.029

Base Station Information

Station ID	IADE		
Filename	iade1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52632"		
Ellipsoidal height (m)	316.51619		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2865	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24723"	291.092
Adjusted		N42°44'49.40418"	W92°47'14.24723"	291.092
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAAL		
Filename	iaal1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24723"		
Ellipsoidal height (m)	291.09234		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86729"	380.908
Adjusted		N43°30'53.84844"	W91°53'06.86705"	380.890
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.018	0.021

Base Station Information

Station ID	MNPS		
Filename	mnps1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86729"		
Ellipsoidal height (m)	380.90779		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	8.93	57.51	
Number of GPS SV	7	10	8
Number of GLONASS SV	0	8	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	7	16	14
PDOP	1.25	4.77	1.48
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	10749.00	0.00	1.00
Percentage	99.99	0.00	0.01

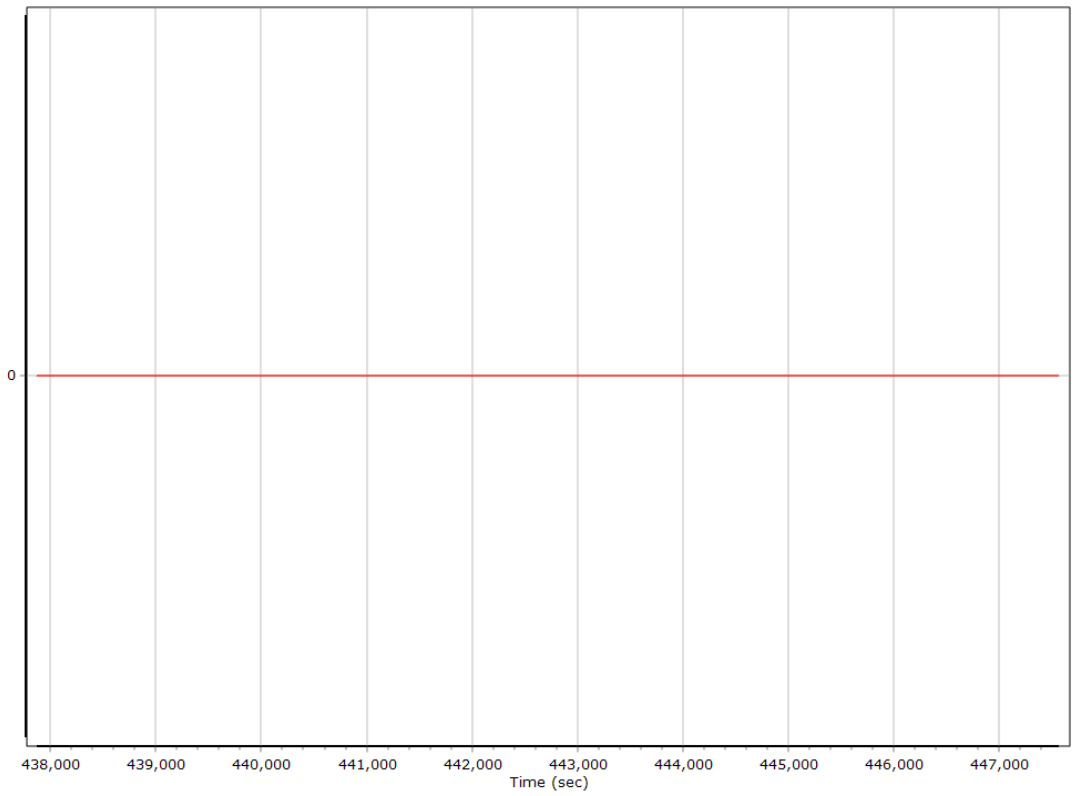
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	436799.000 (4/10/2020 1:19:59 AM)		
Processing end time	447575.000 (4/10/2020 4:19:35 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

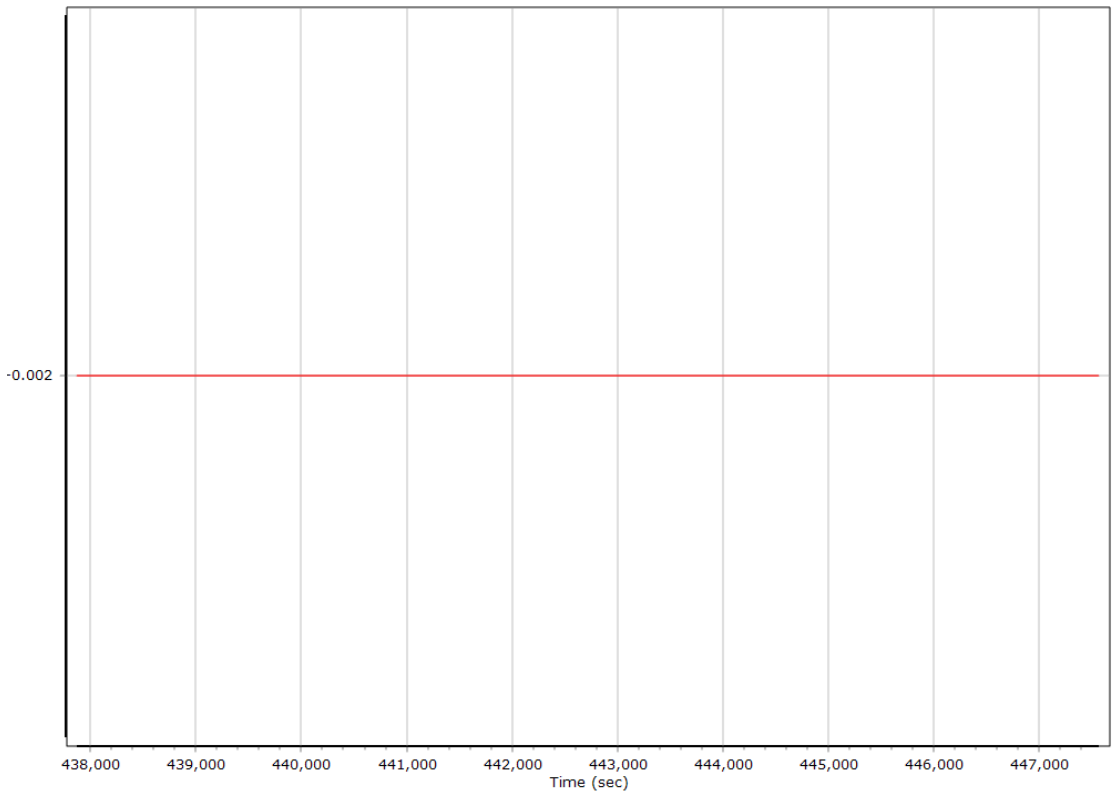
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

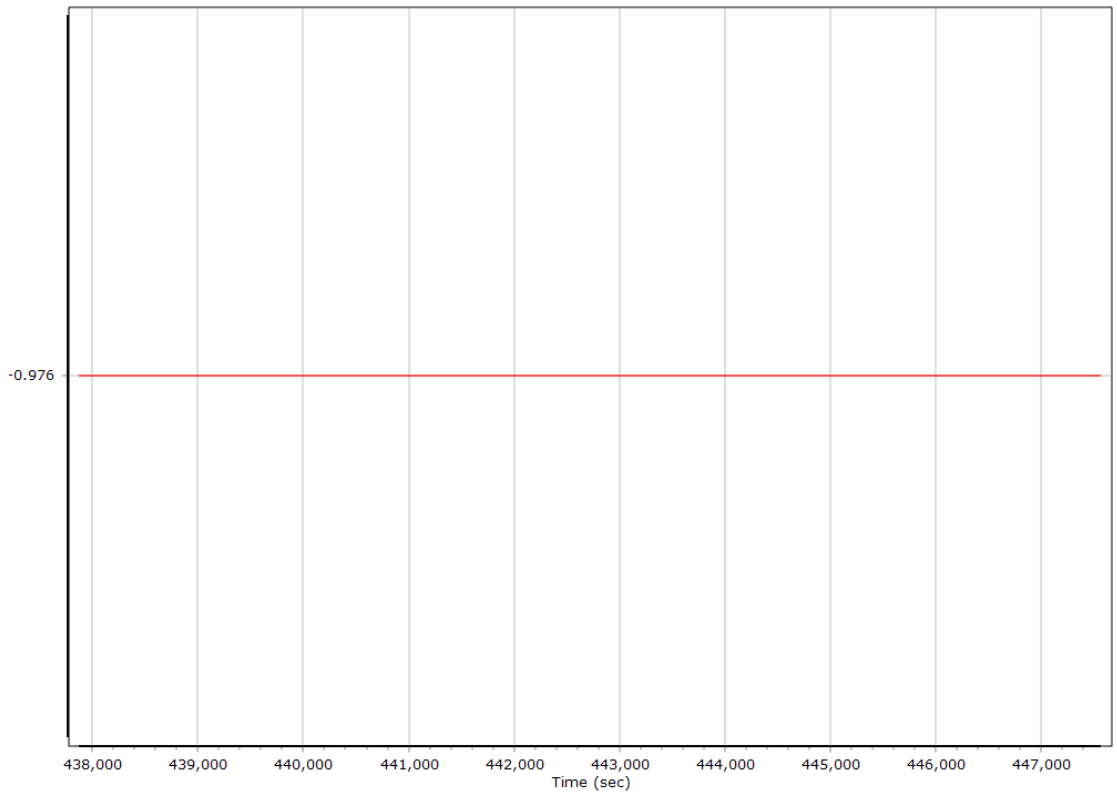
X Reference-Primary GNSS Lever Arm (m)



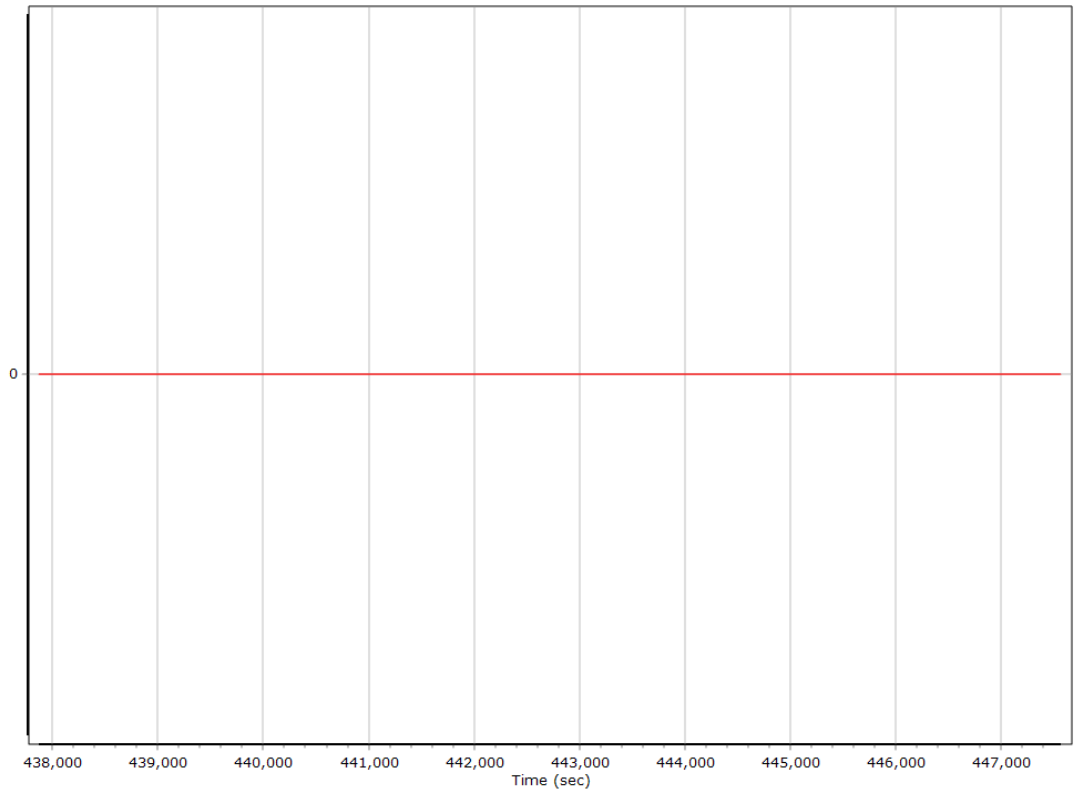
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



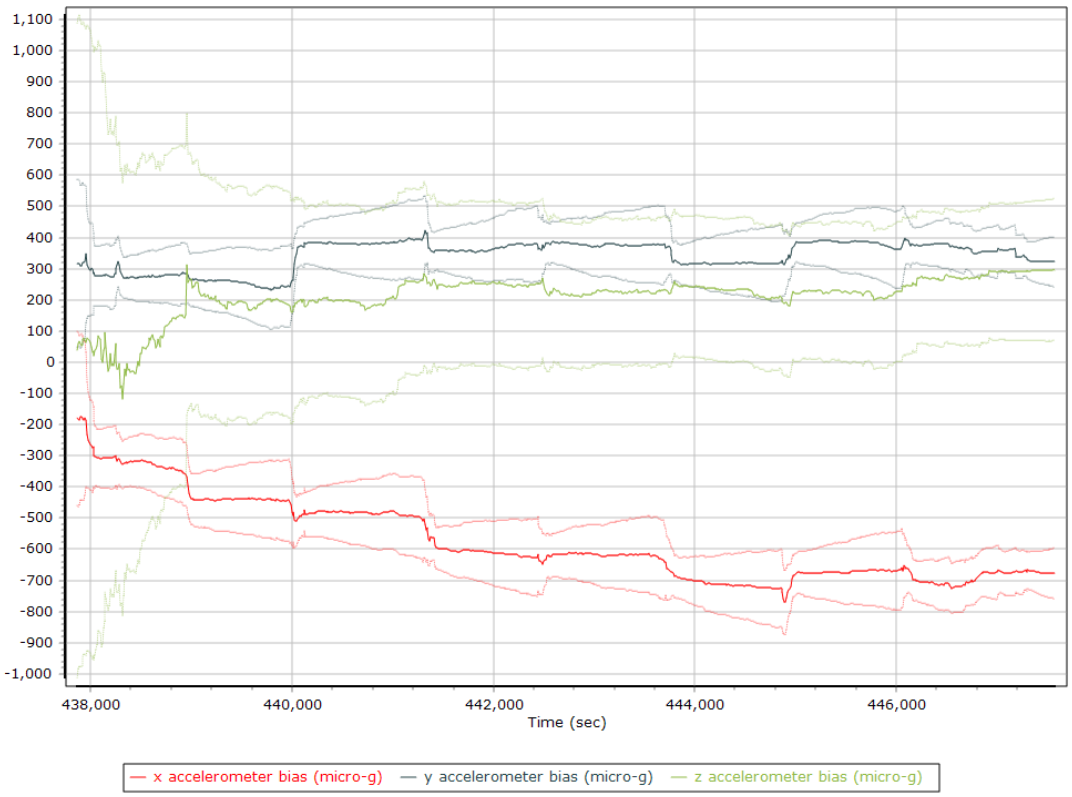
Reference-Primary GNSS Lever Arm Figure of Merit



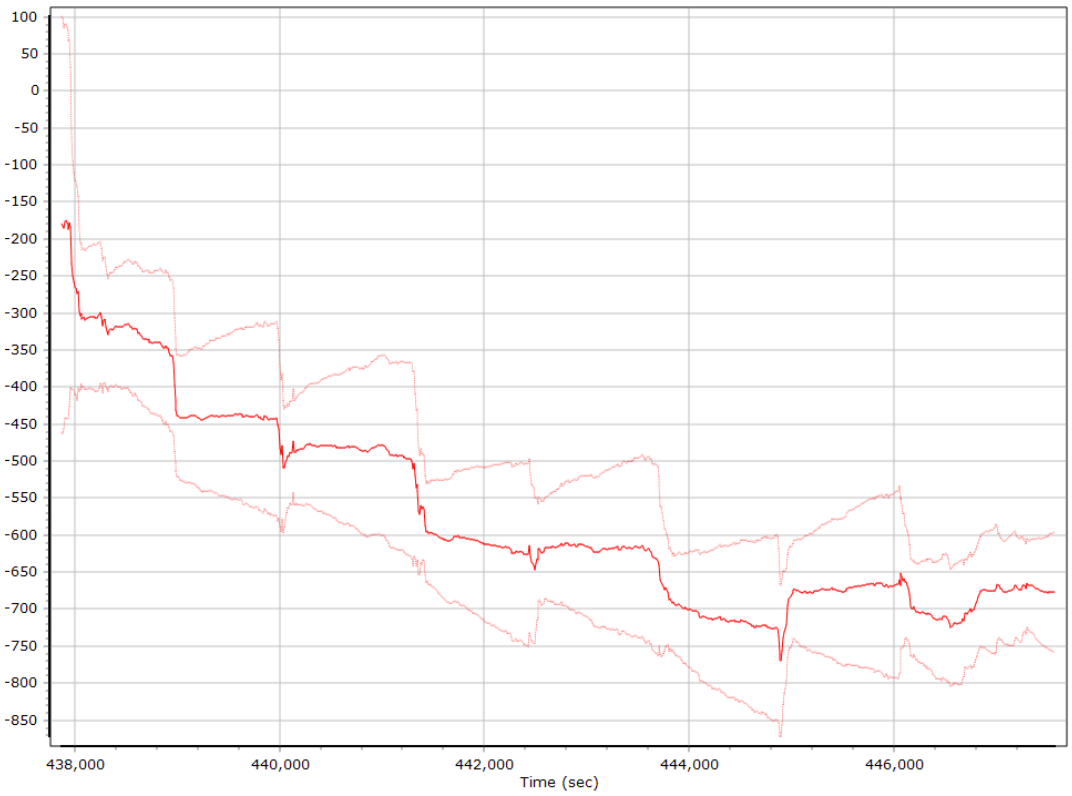
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

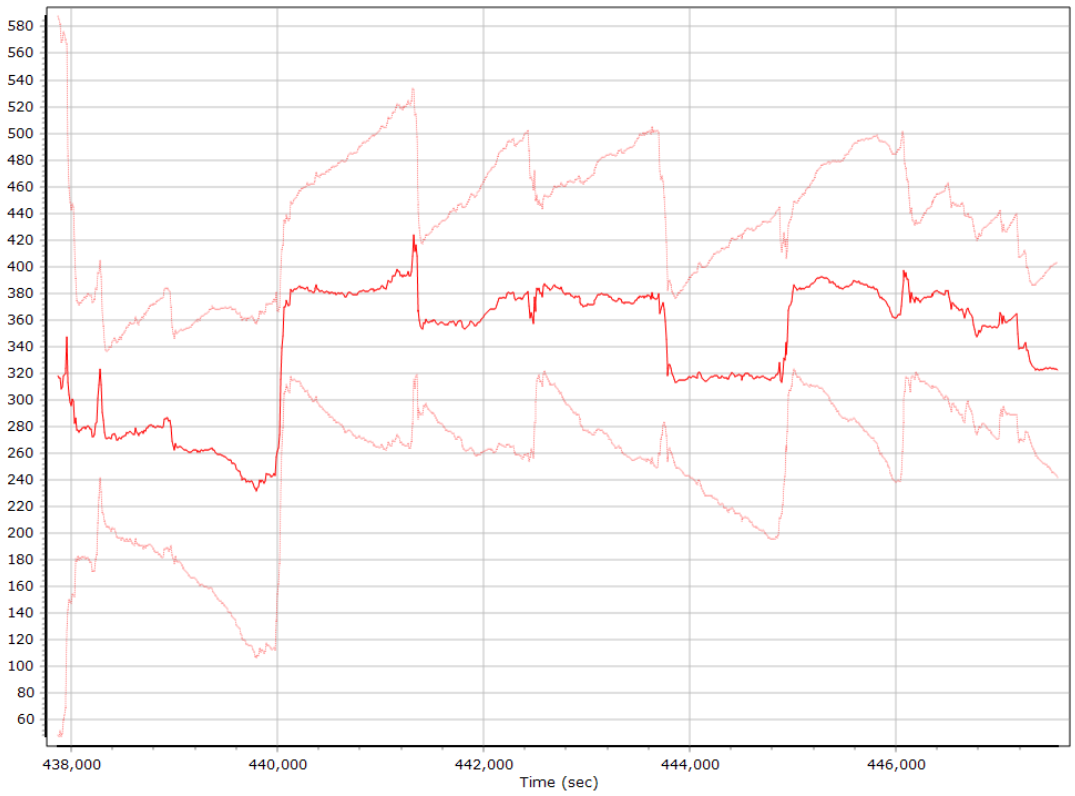
Accelerometer Bias (micro-g)



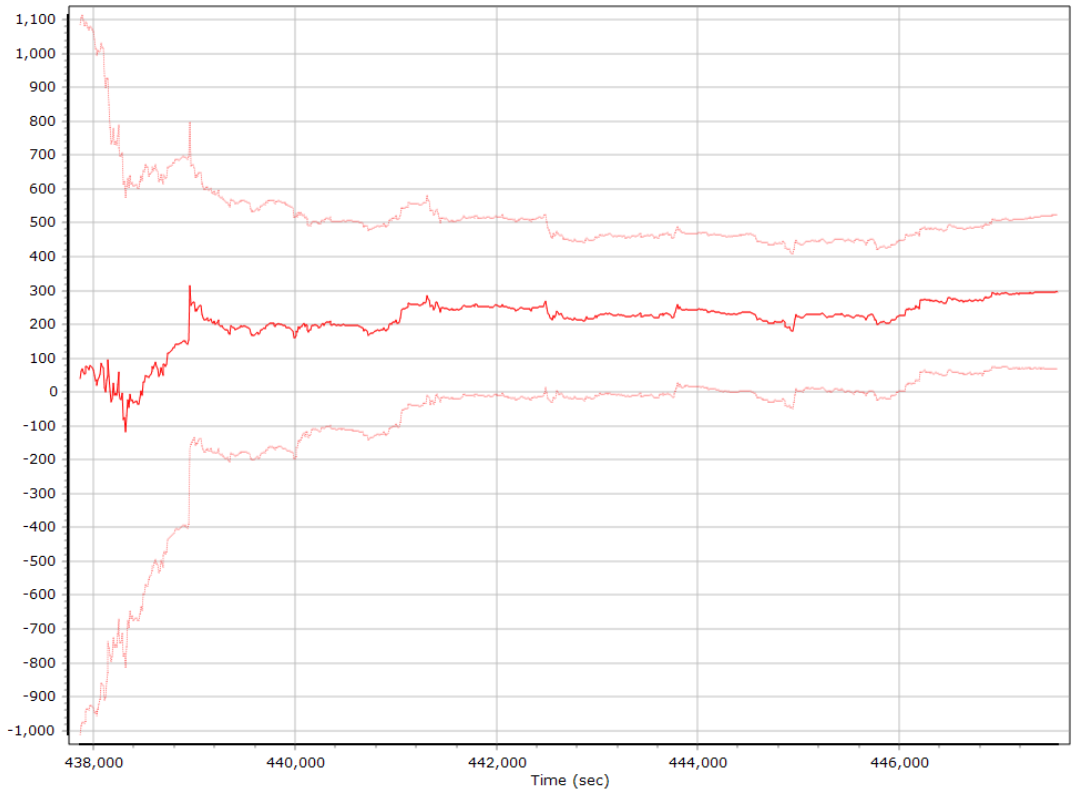
X Accelerometer Bias (micro-g)



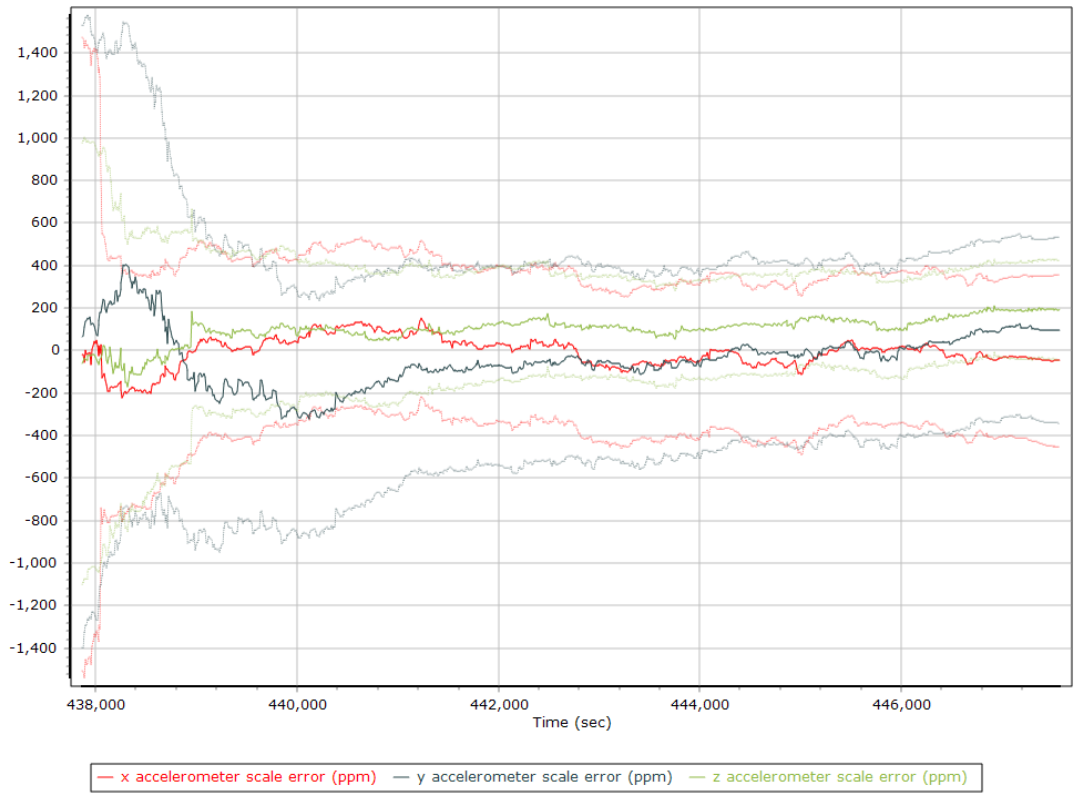
Y Accelerometer Bias (micro-g)



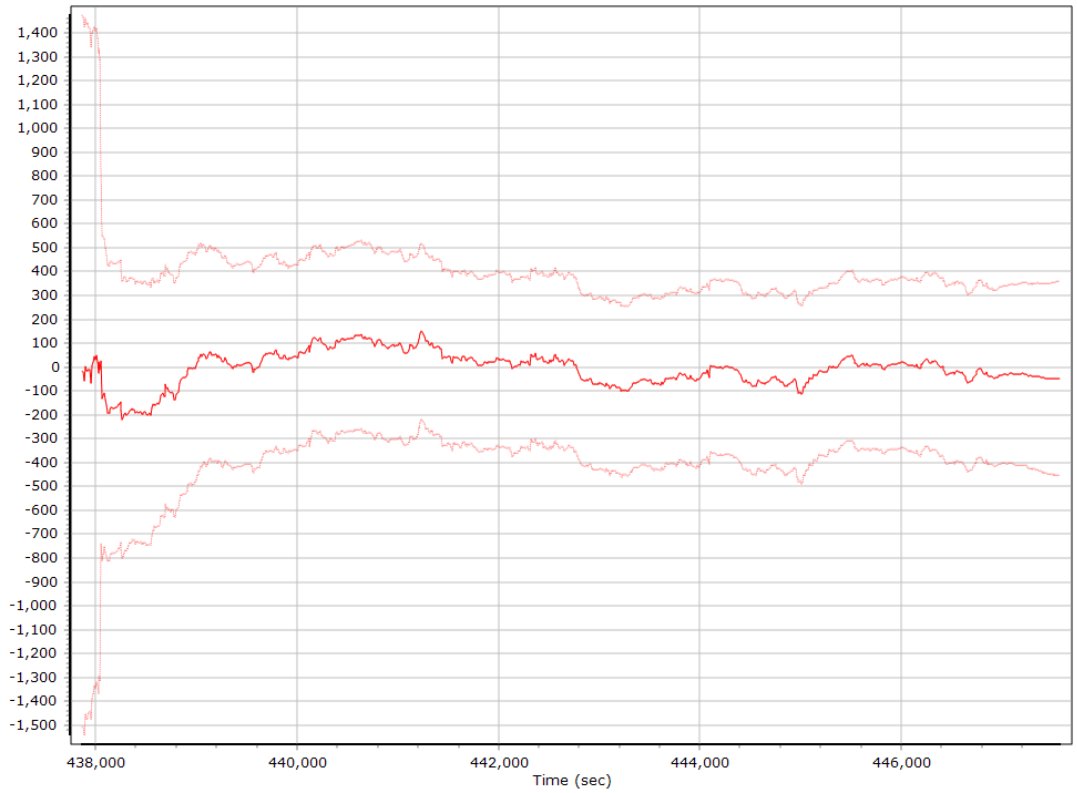
Z Accelerometer Bias (micro-g)



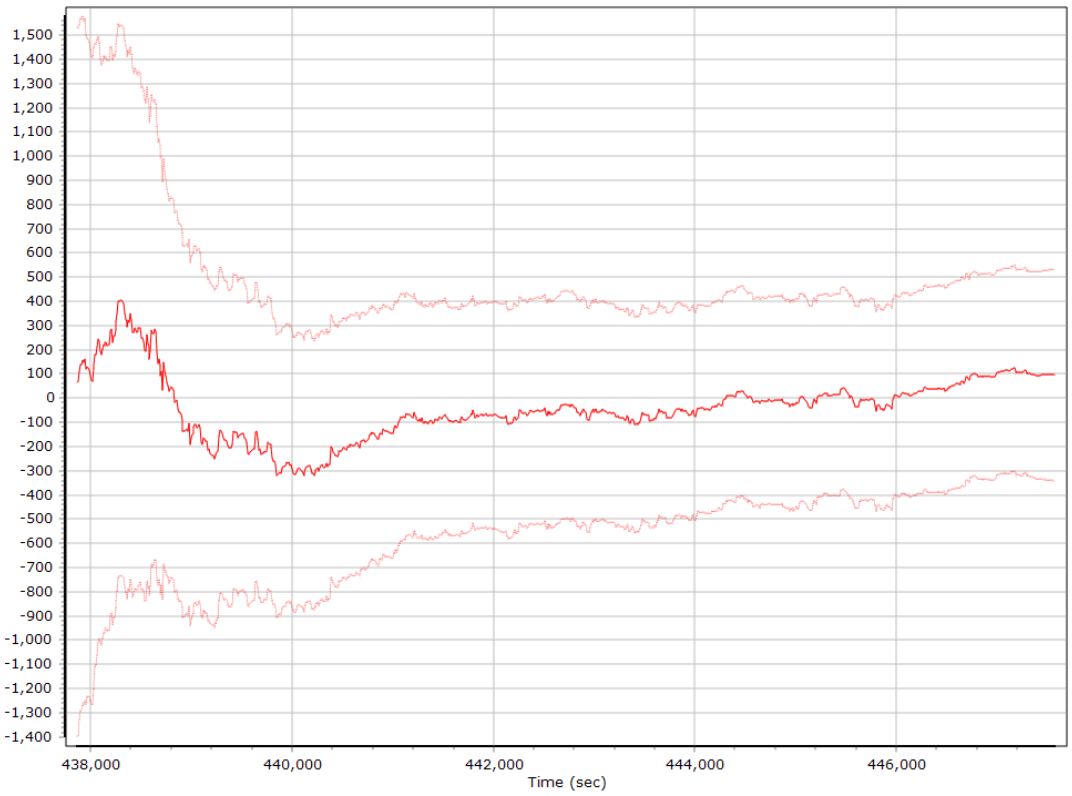
Accelerometer Scale Error (ppm)



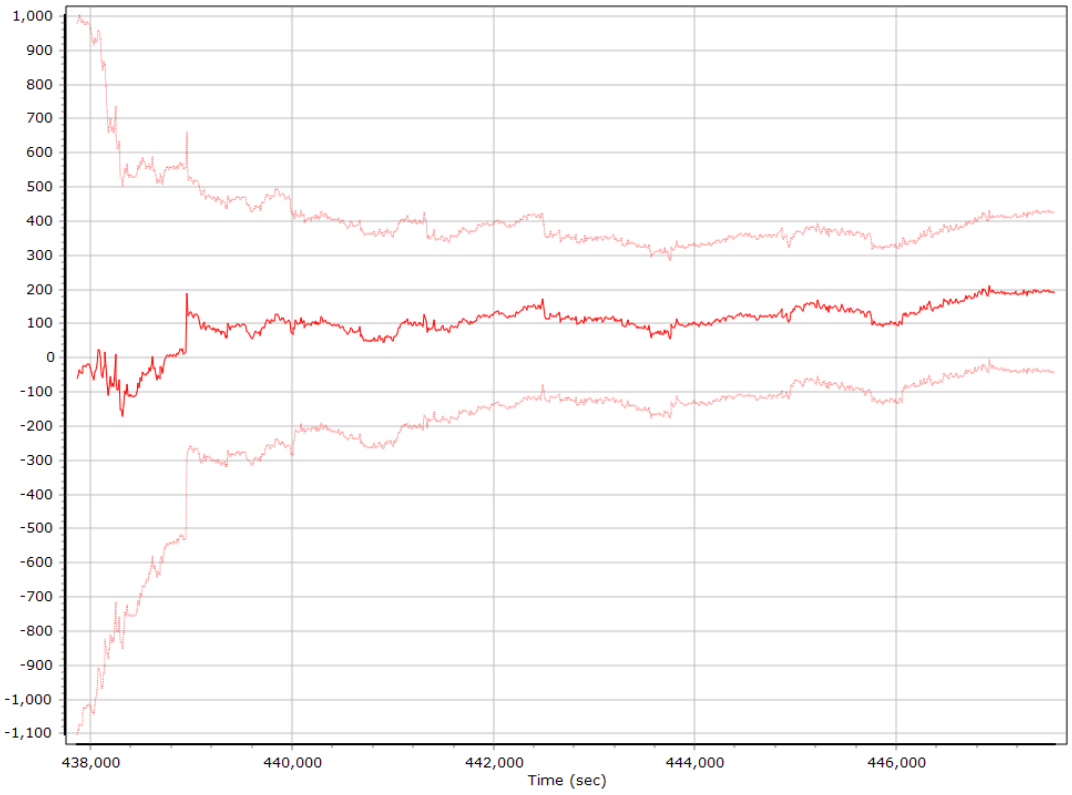
X Accelerometer Scale Error (ppm)



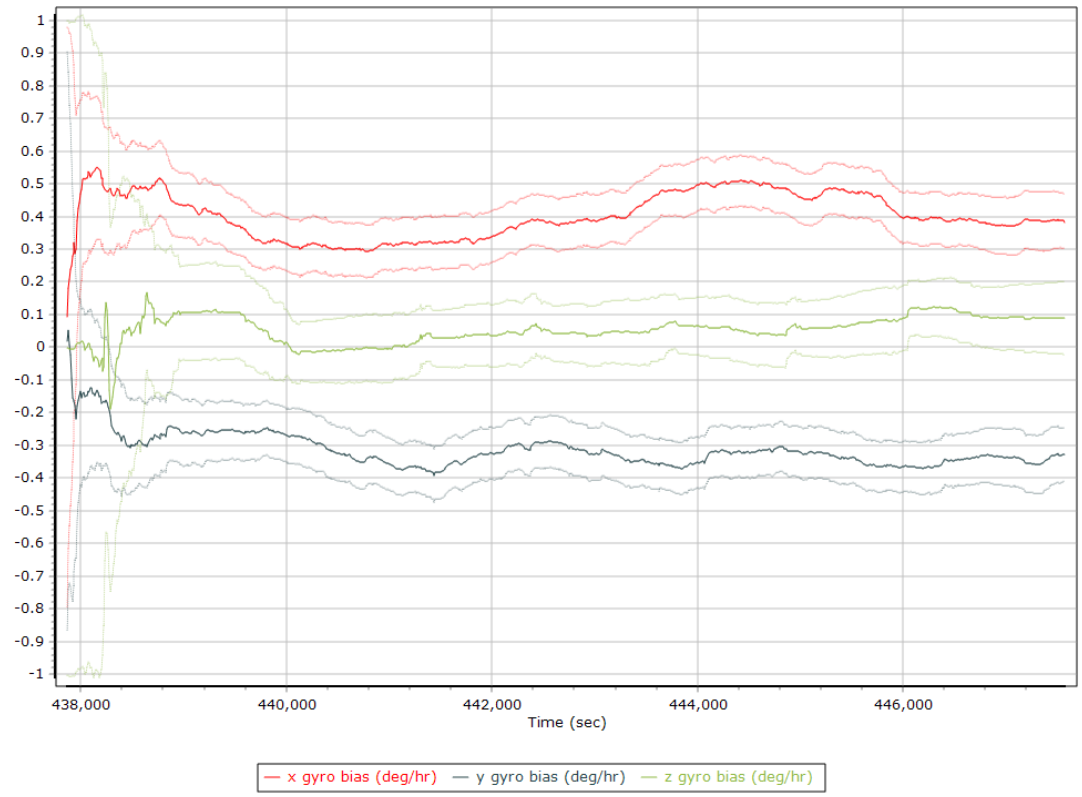
Y Accelerometer Scale Error (ppm)



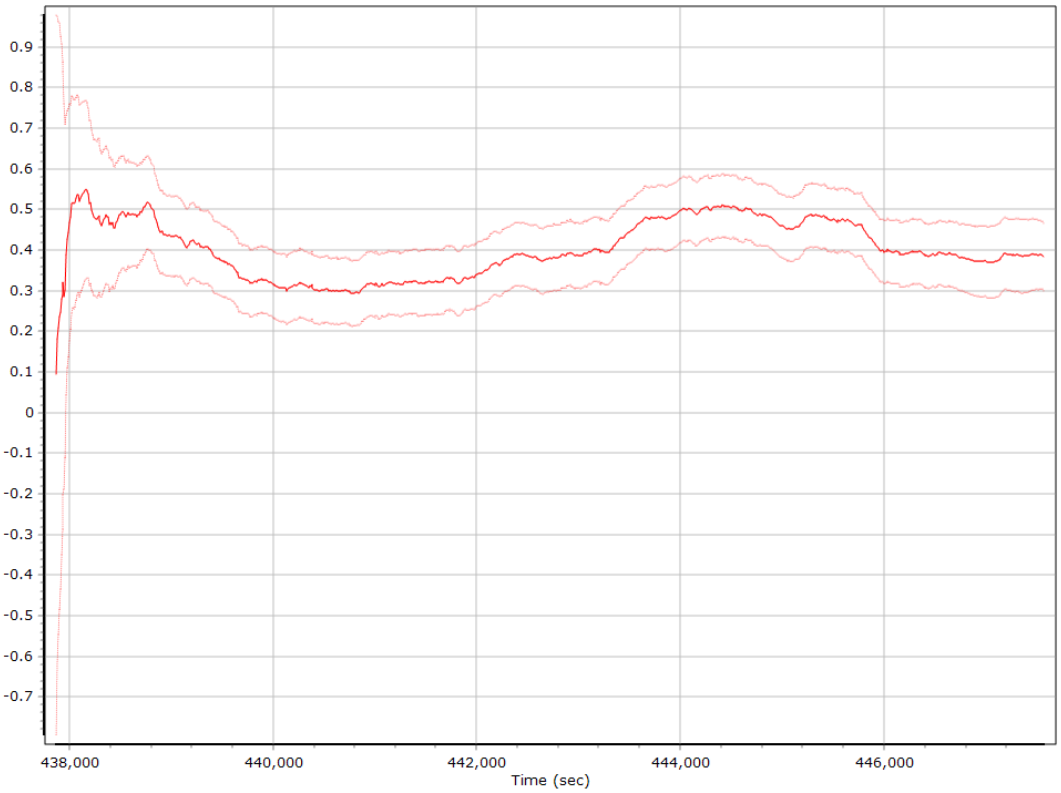
Z Accelerometer Scale Error (ppm)



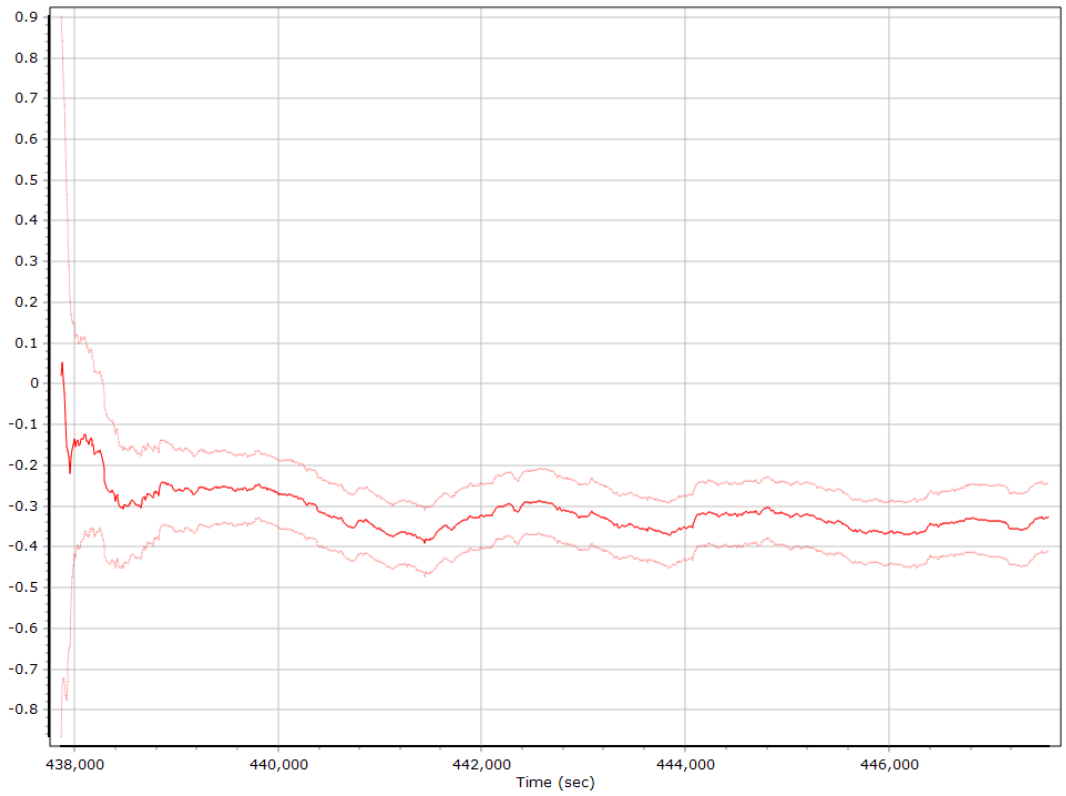
Gyro Bias (deg/h)



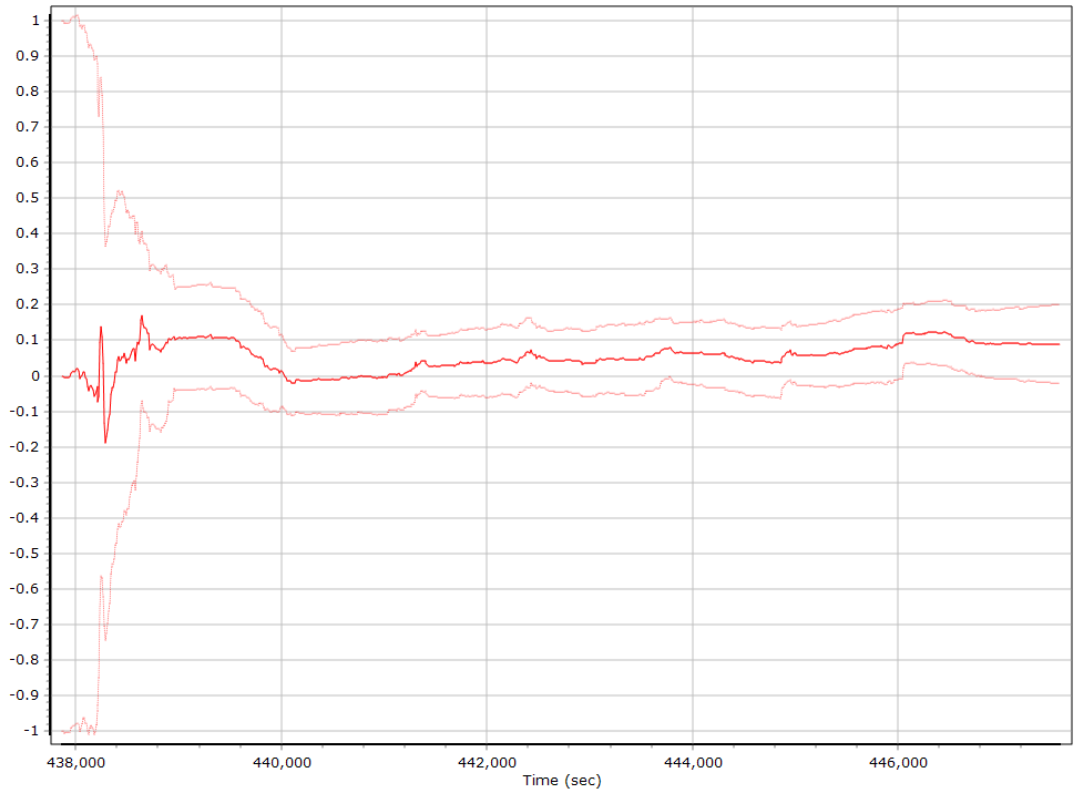
X Gyro Bias (deg/h)



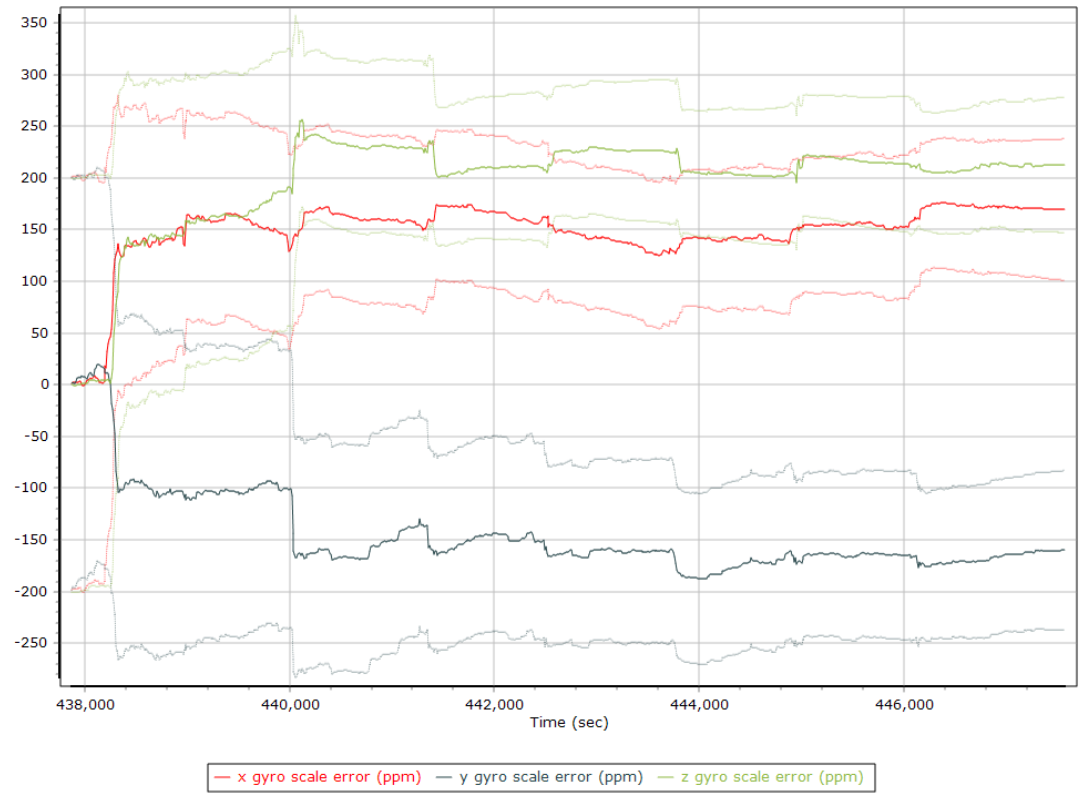
Y Gyro Bias (deg/h)



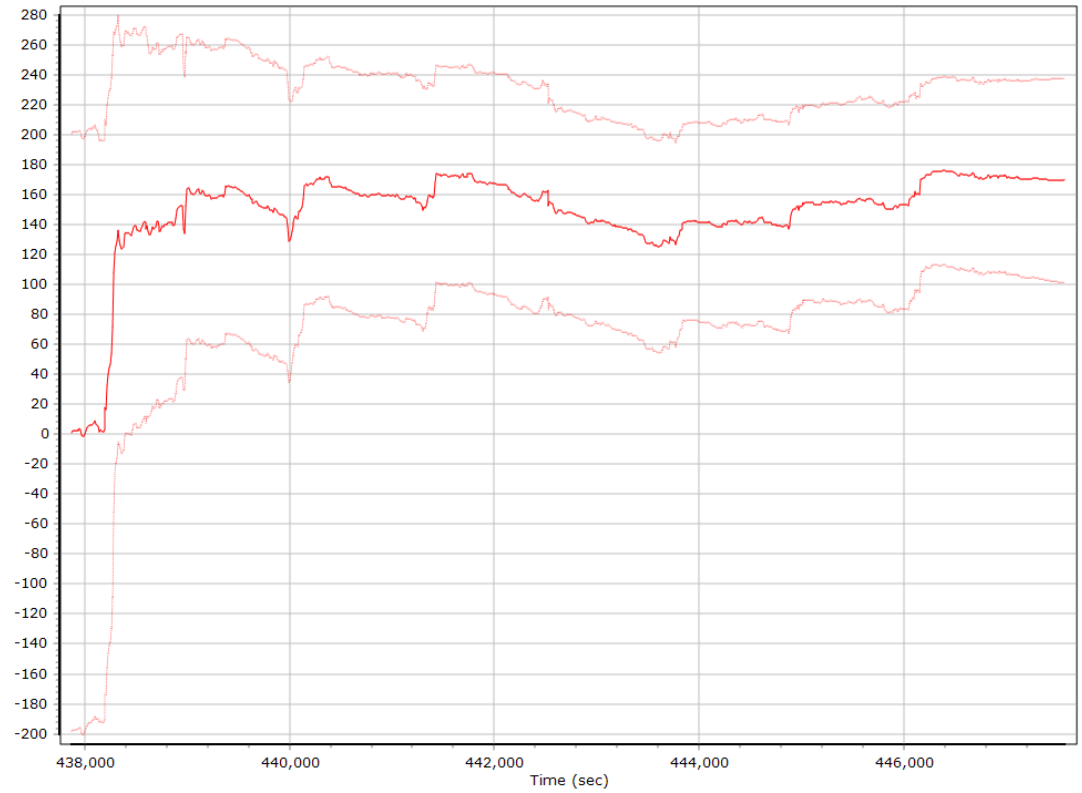
Z Gyro Bias (deg/h)



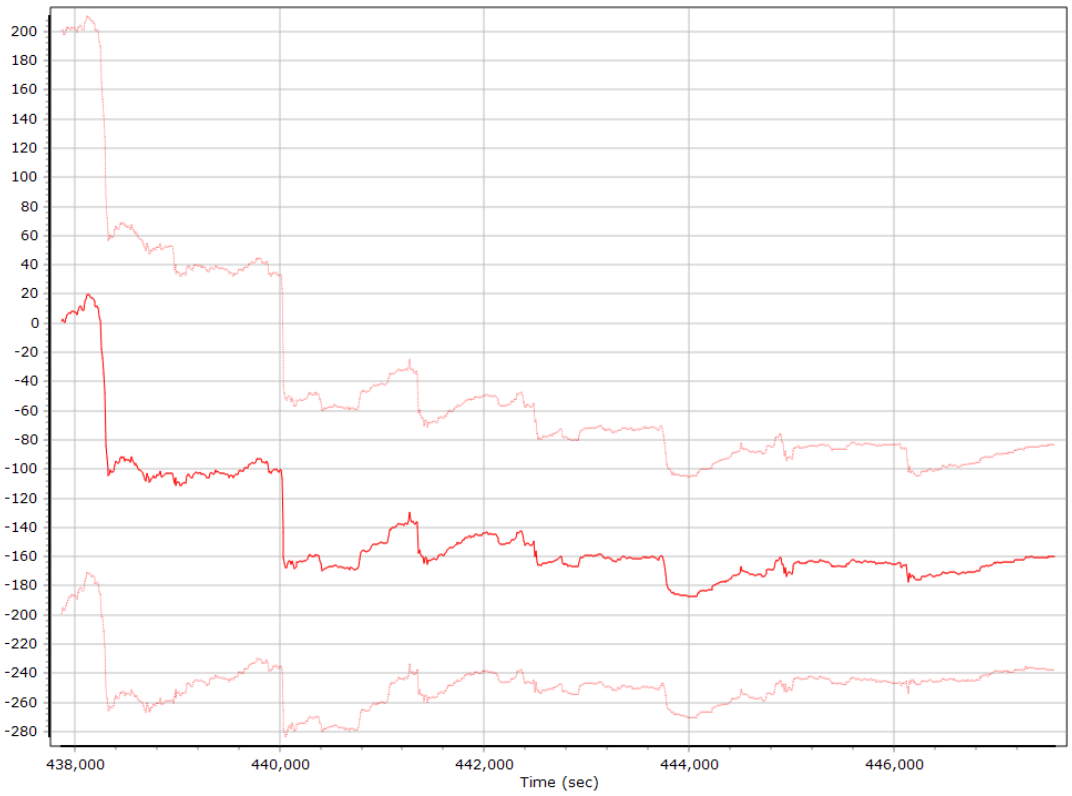
Gyro Scale Error (ppm)



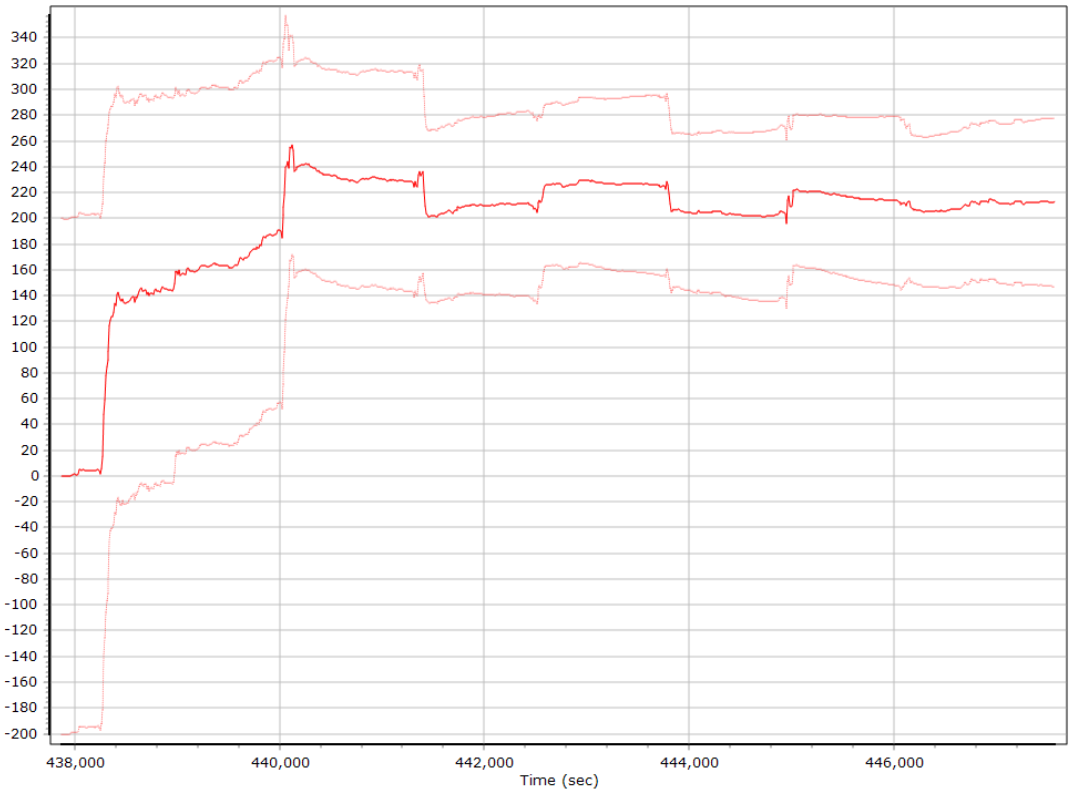
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

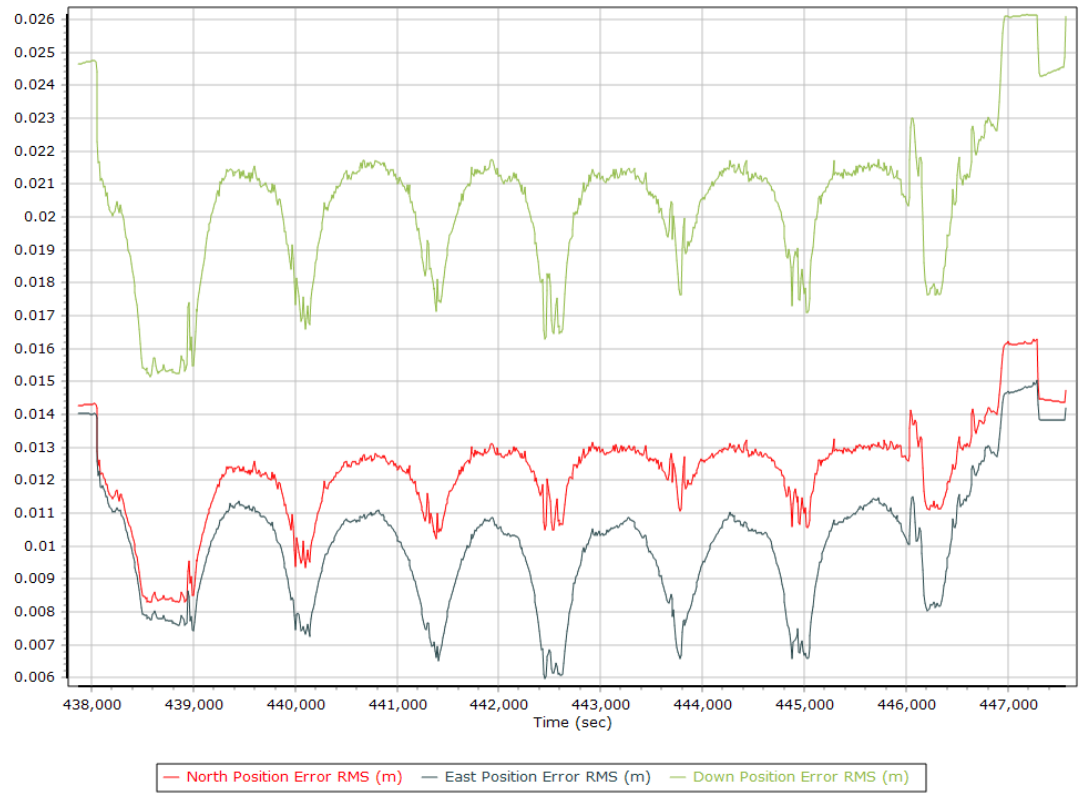


Z Gyro Scale Error (ppm)

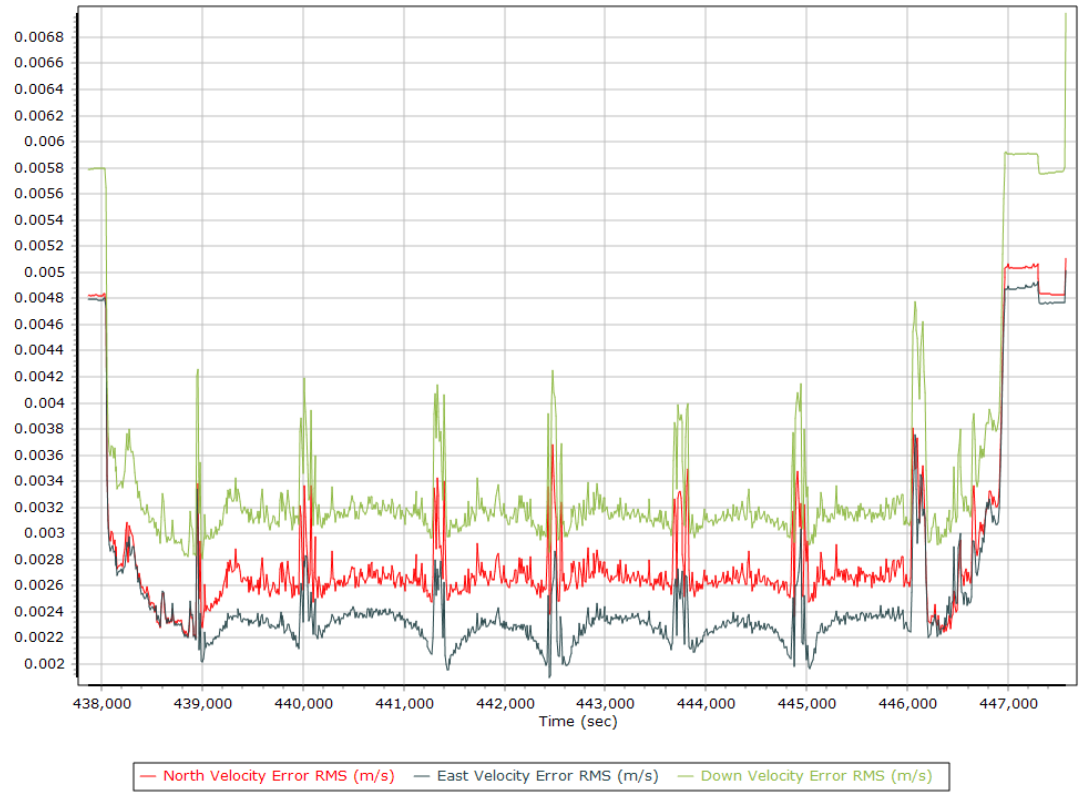


Smoothed Performance Metrics

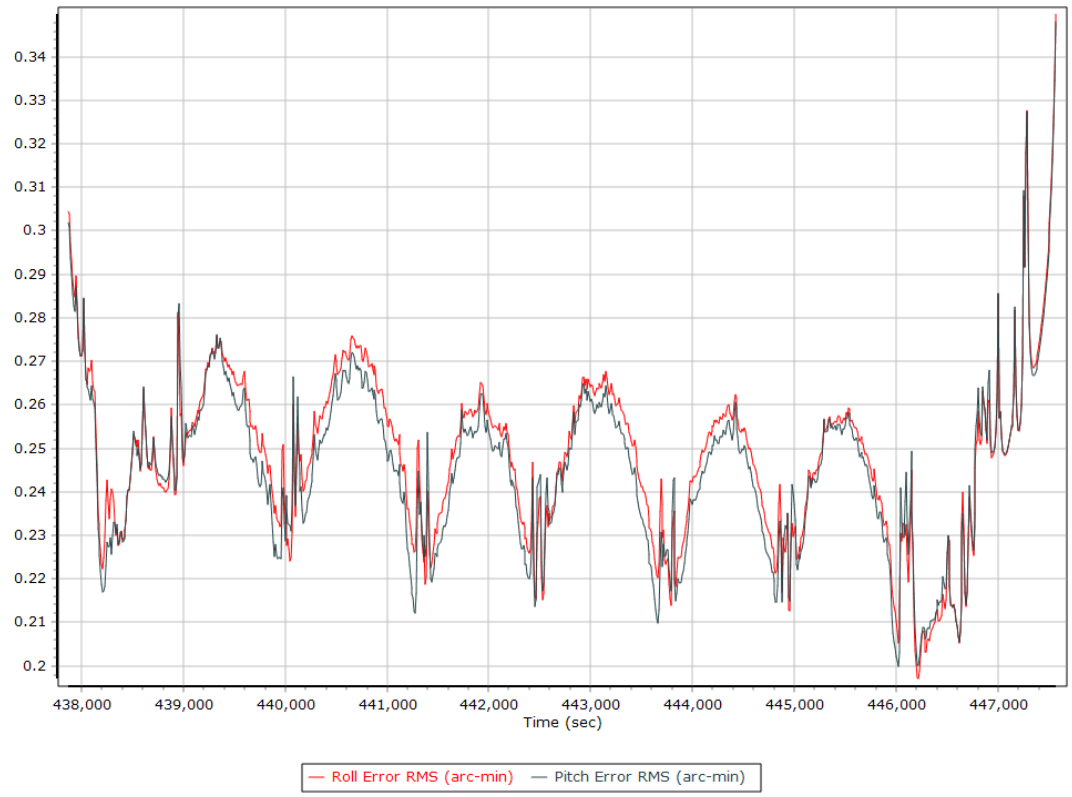
Position Error RMS (m)



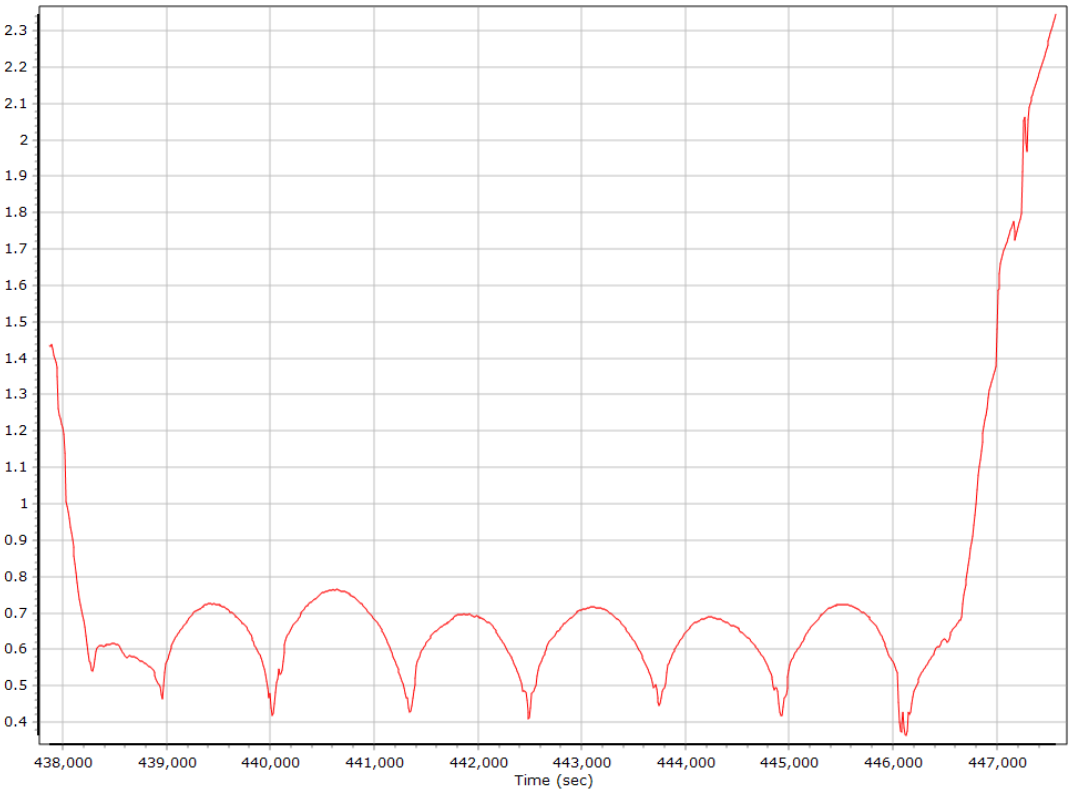
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

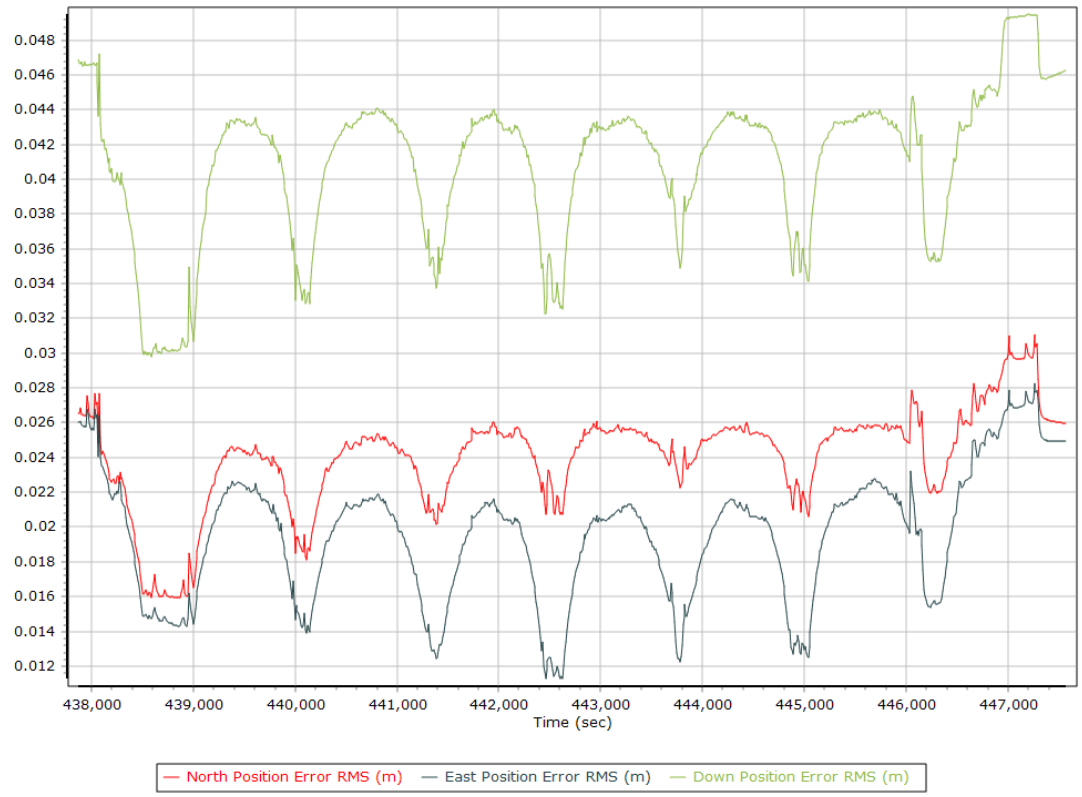


Heading Error RMS (arc-min)

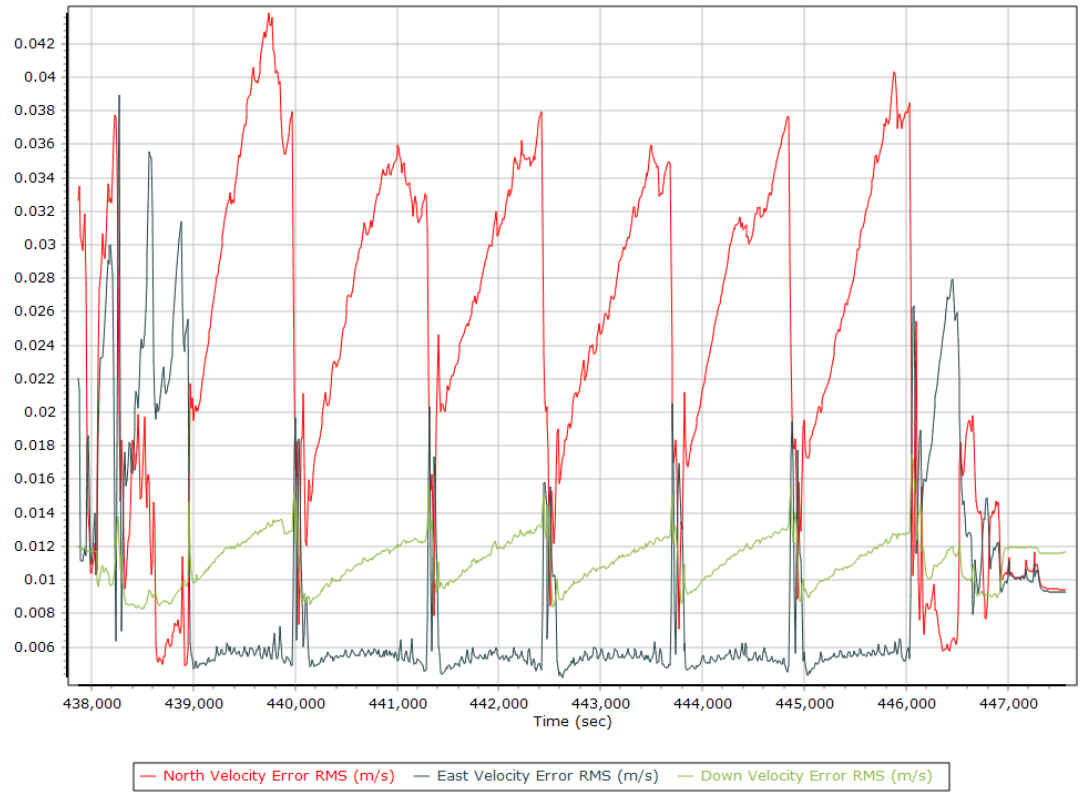


Forward Processed Performance Metrics

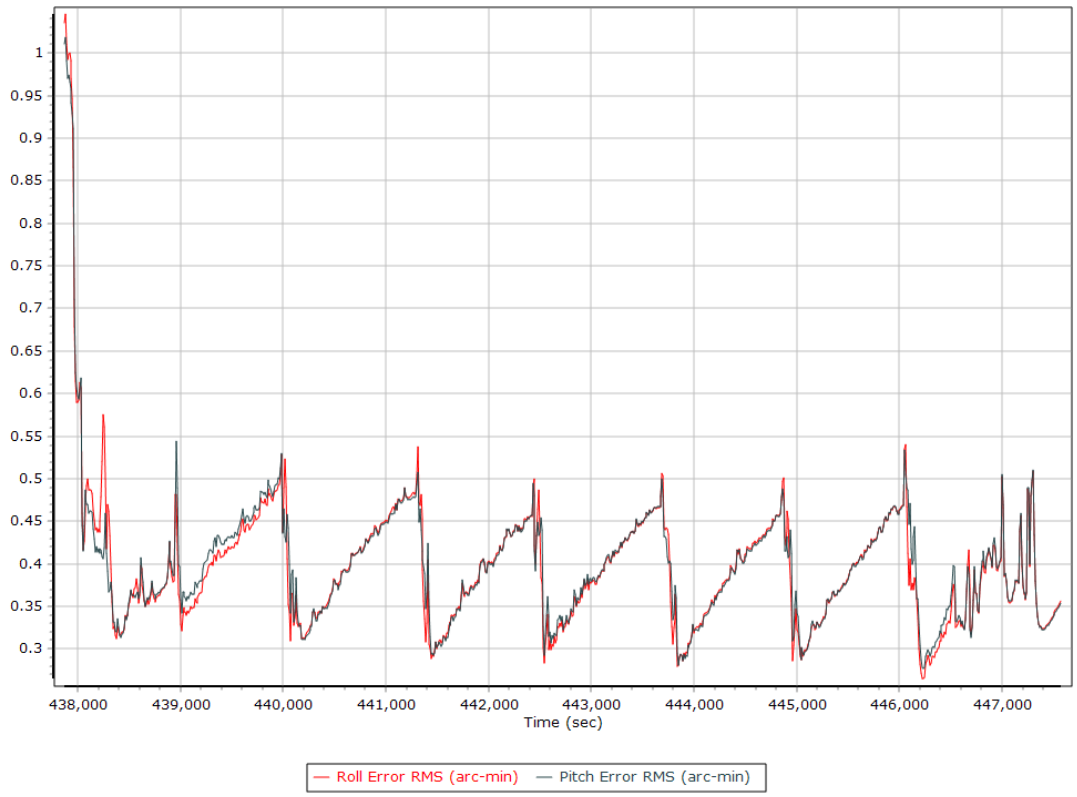
Position Error RMS (m)



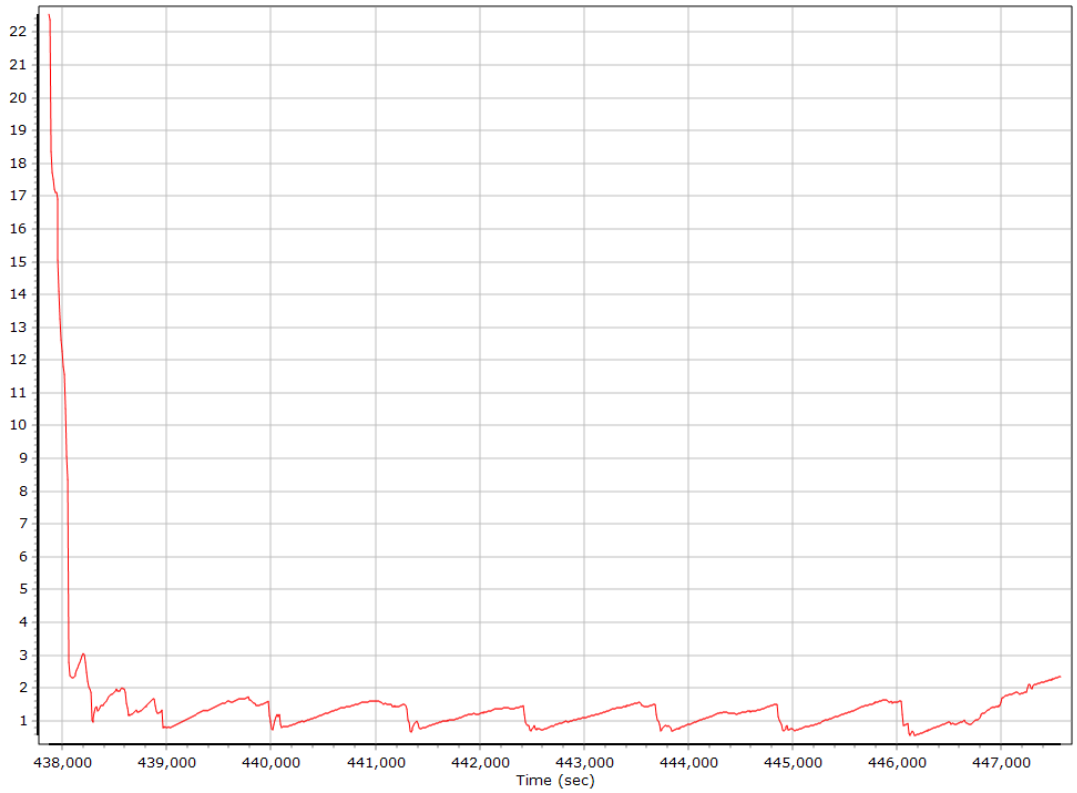
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

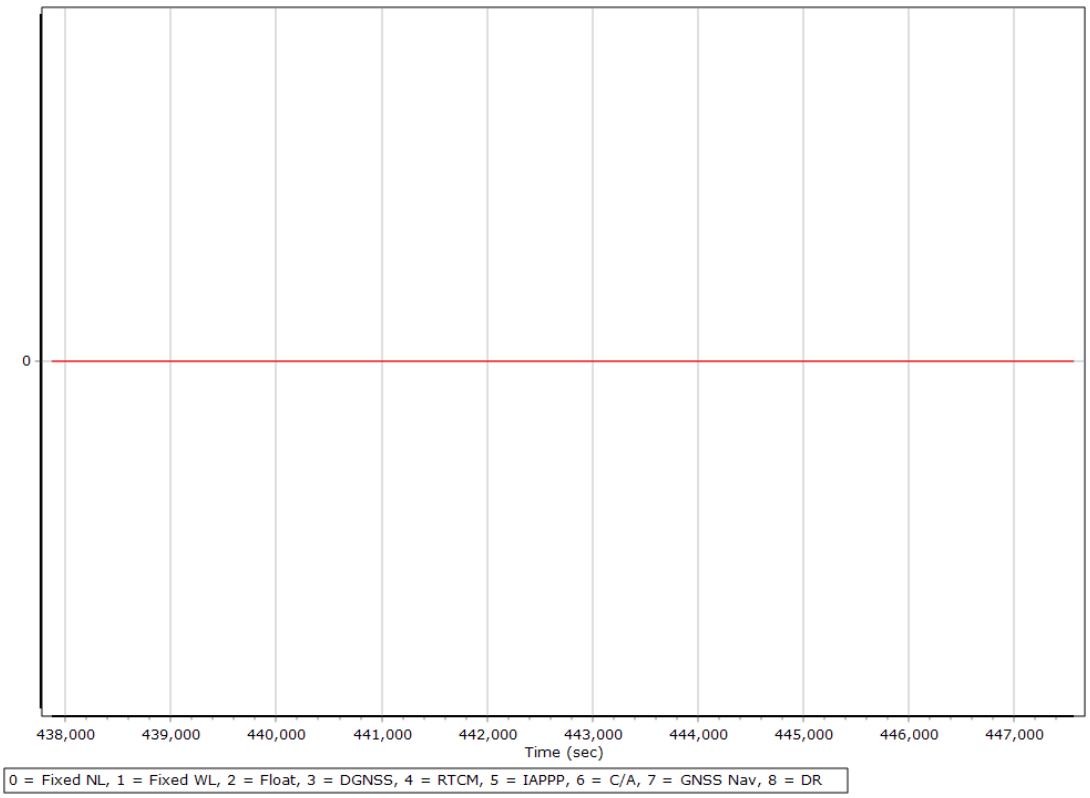


Heading Error RMS (arc-min)

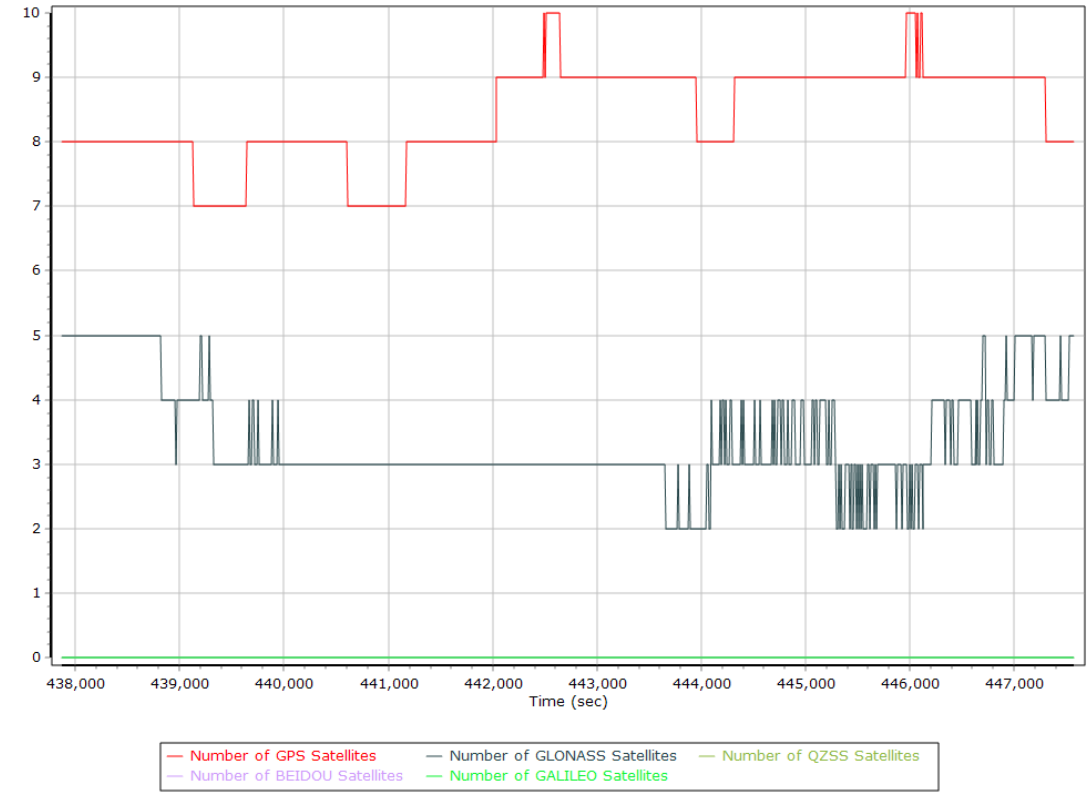


Smoothed Solution Status

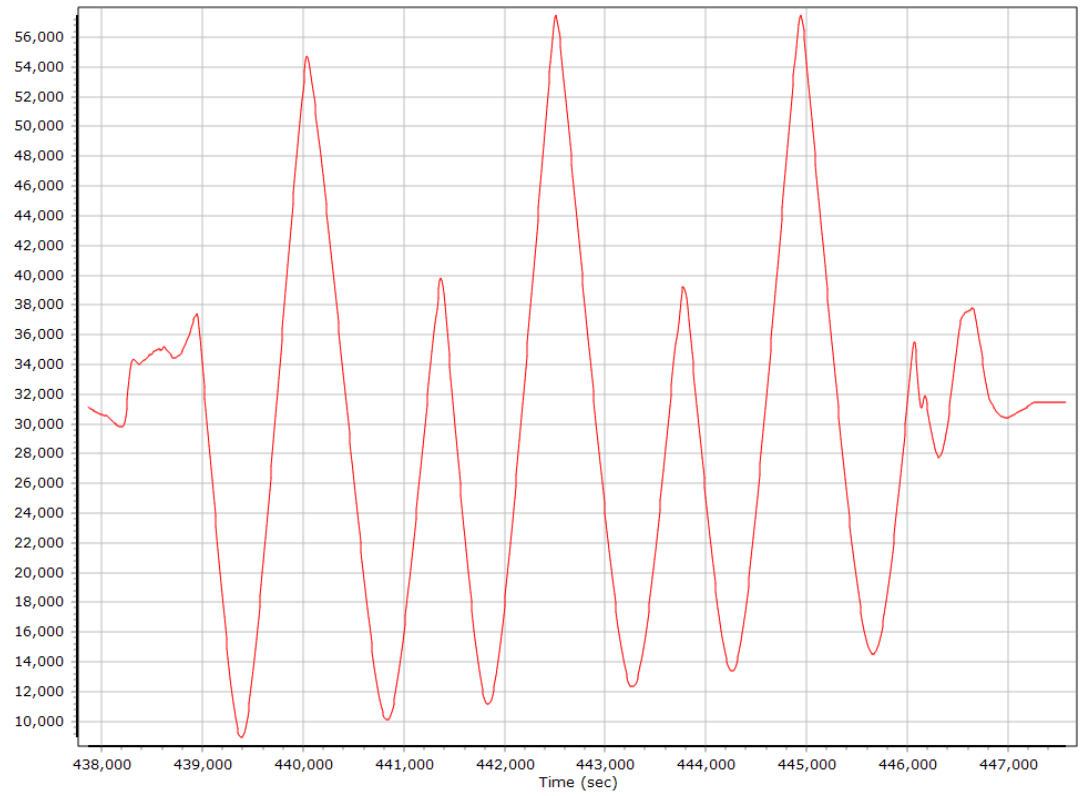
Processing Mode



Number of Satellites

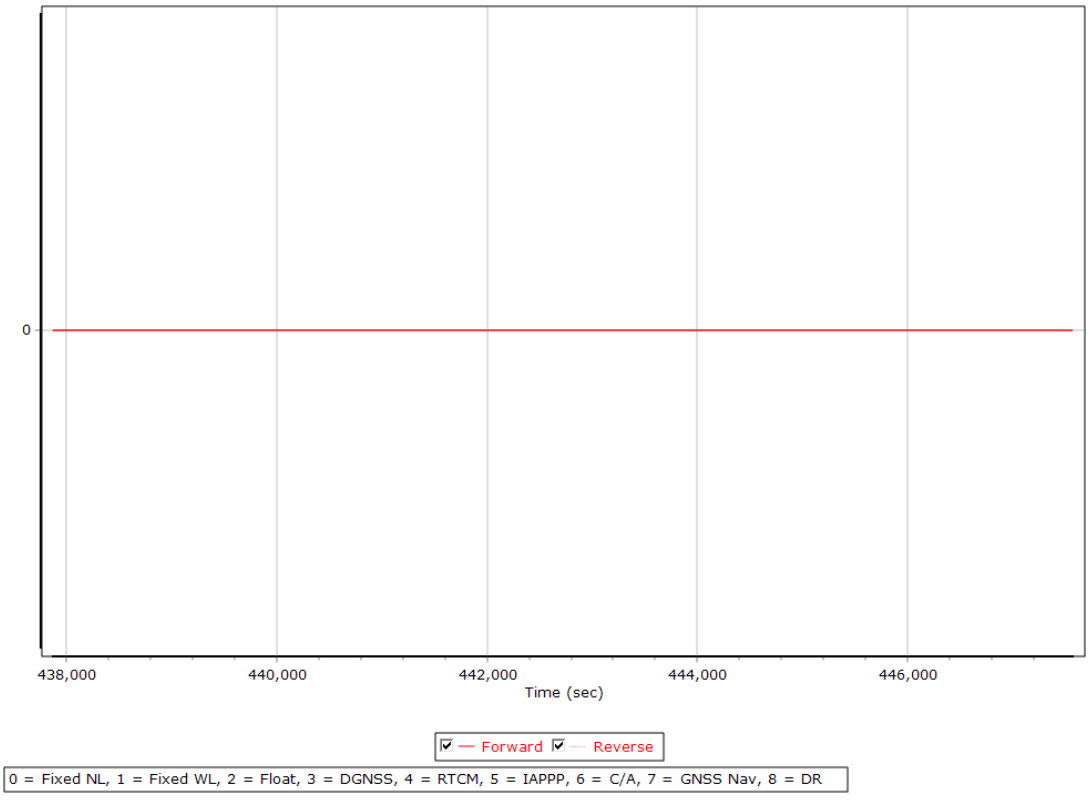


Baseline Length

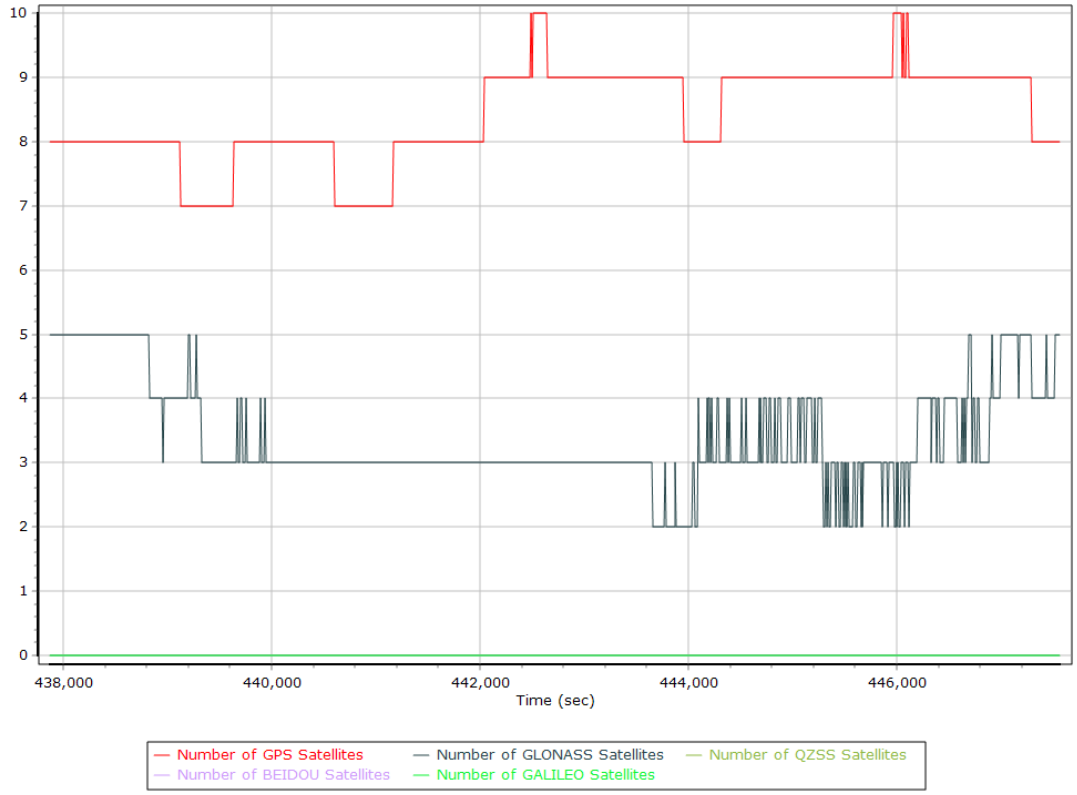


Forward Processed Solution Status

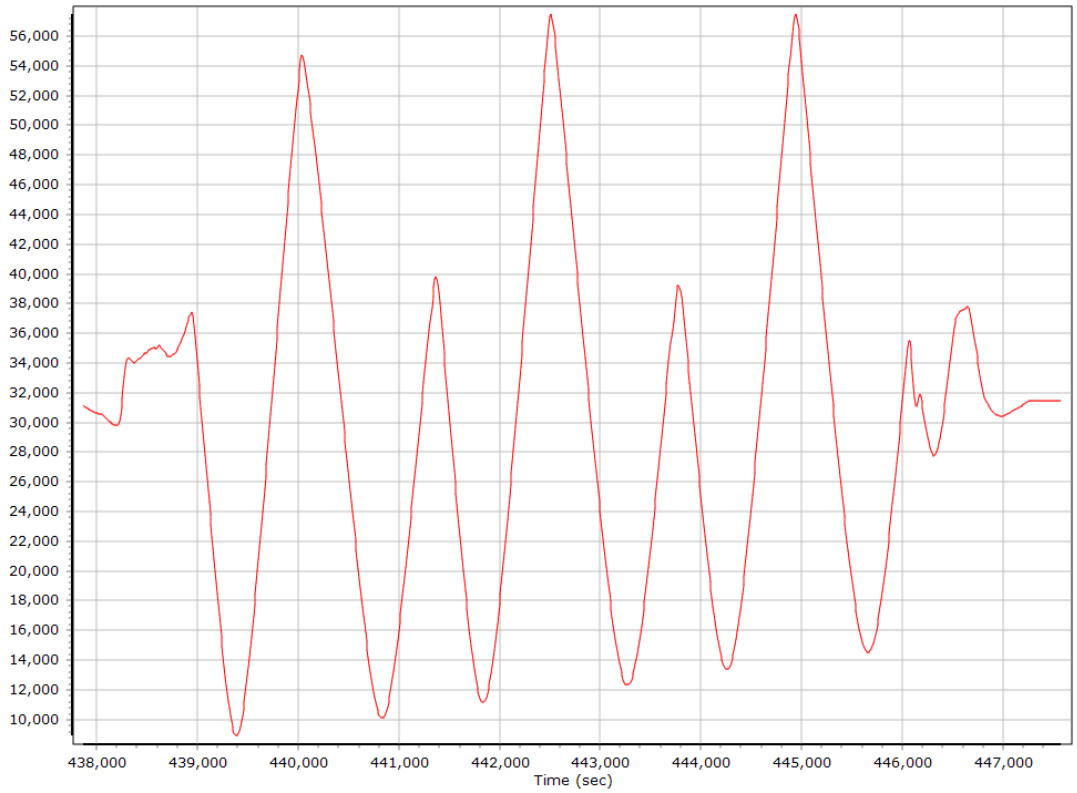
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

Export Summary

Export file	SBET_20200410B.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	437811.001 (4/10/2020 1:36:51 AM)		
Export end time	447575.002 (4/10/2020 4:19:35 AM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200410C
Processing date	2021-01-18 23:45:11
Mission date	2020-04-10 18:32:30
Mission duration	03:08:42.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.018	POS Data
ALS.019	POS Data
ALS.020	POS Data
ALS.021	POS Data
ALS.022	POS Data
ALS.023	POS Data
ALS.024	POS Data
ALS.025	POS Data
ALS.026	POS Data
ALS.027	POS Data
ALS.028	POS Data
ALS.029	POS Data
ALS.030	POS Data
ALS.031	POS Data
ALS.032	POS Data
ALS.033	POS Data
ALS.034	POS Data
ALS.035	POS Data

Input Files

File Name	File Type
Ephm1010.20g	GLONASS Broadcast Ephemeris
Ephm1010.20n	GPS Broadcast Ephemeris
iaal1010.20o	GNSS SingleBase
iade1010.20o	GNSS SingleBase
iael1010.20o	GNSS SingleBase
iaht1010.20o	GNSS SingleBase
iamn1010.20o	GNSS SingleBase
iana1010.20o	GNSS SingleBase
iata1010.20o	GNSS SingleBase
mnca1010.20o	GNSS SingleBase
mney1010.20o	GNSS SingleBase
mnps1010.20o	GNSS SingleBase
mnsv1010.20o	GNSS SingleBase
igr21004.sp3	GPS Precise Ephemeris
igr21005.sp3	GPS Precise Ephemeris
igr21006.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200410C.out	SBET Trajectory File
SBET_20200410C.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.018		
Last raw data file	ALS.035		
Start GPS week	2100		
Start time	498744.118 (4/10/2020 6:32:24 PM)		
End time	510055.248 (4/10/2020 9:40:55 PM)		
Start of fine alignment	499201.061 (4/10/2020 6:40:01 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

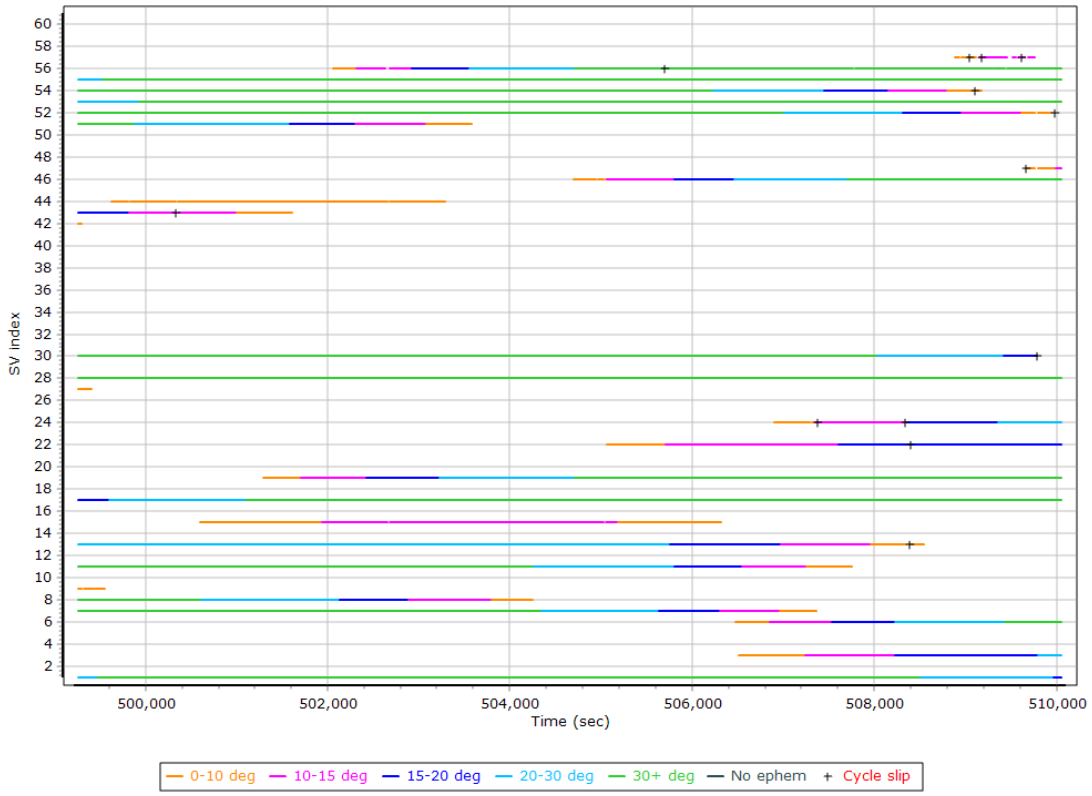
Rover Data QC

Raw IMU Import QC Summary

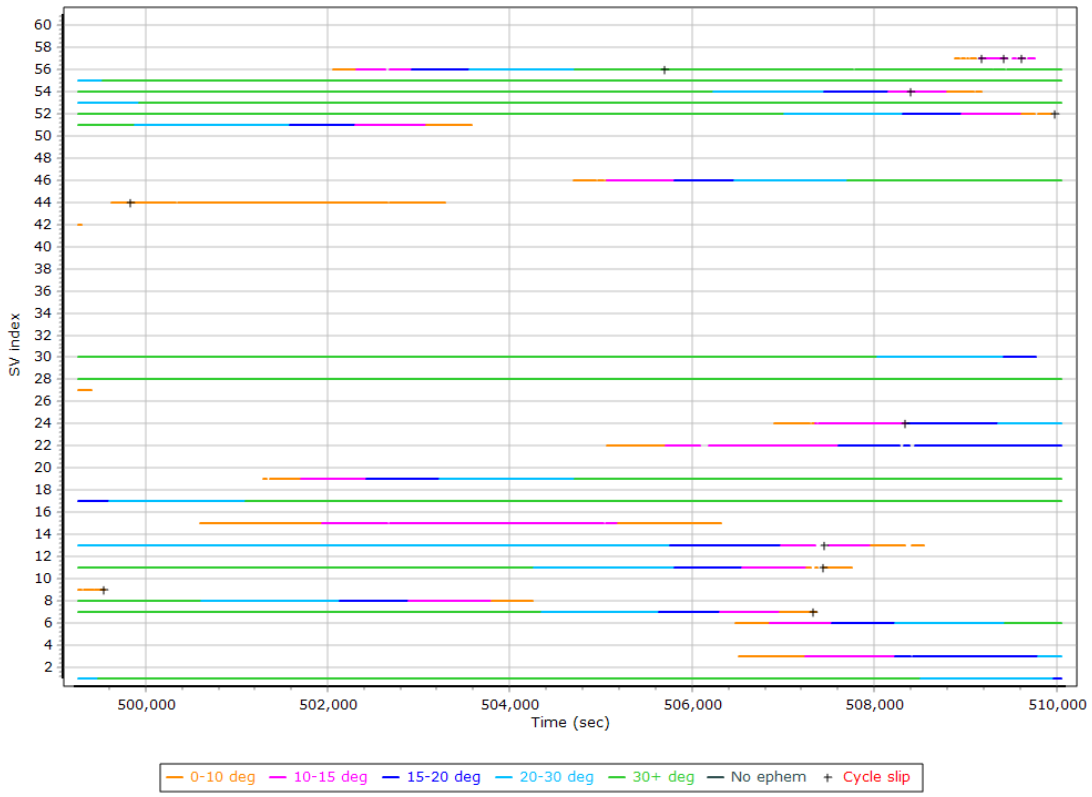
IMU data input file	imu_20200410C.dat
IMU data check log file	imudt_20200410C.log
IMU Records Processed	2267042
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
498743.728 : WARNING : Gap of 498721.7416 seconds in CHECKDT input data	

Primary Observables & Satellite Data

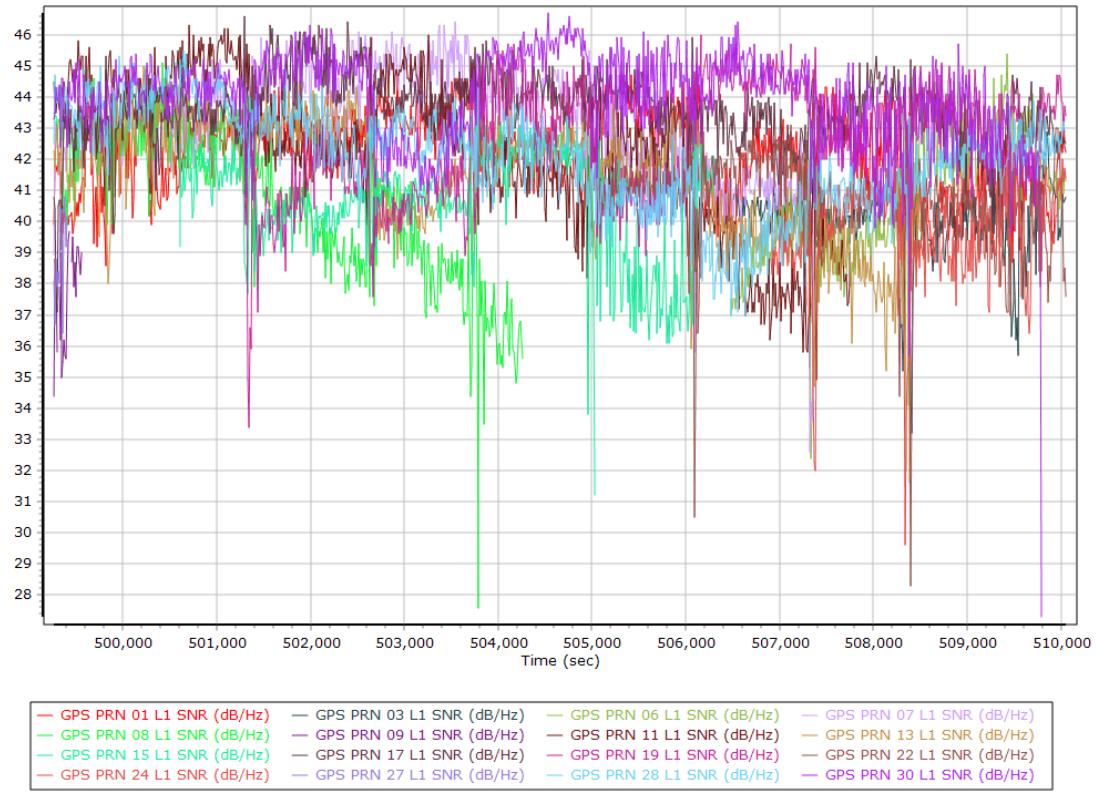
L1 Satellite Lock/Elevation



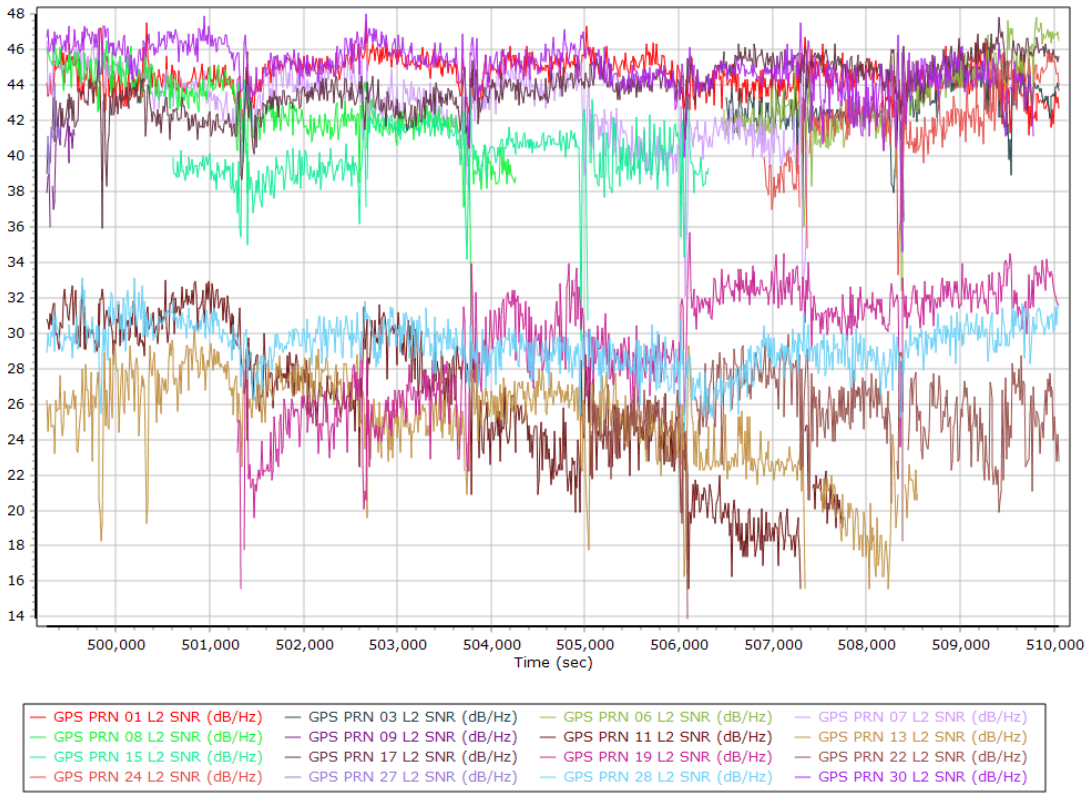
L2 Satellite Lock/Elevation



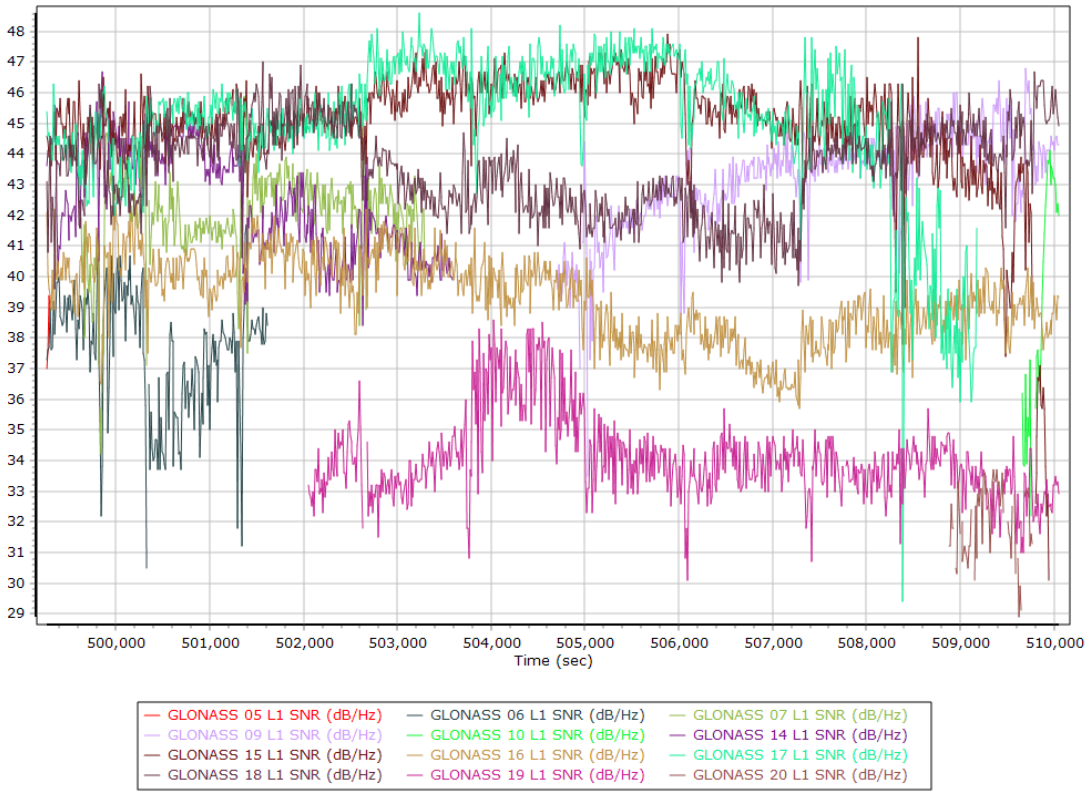
GPS L1 SNR



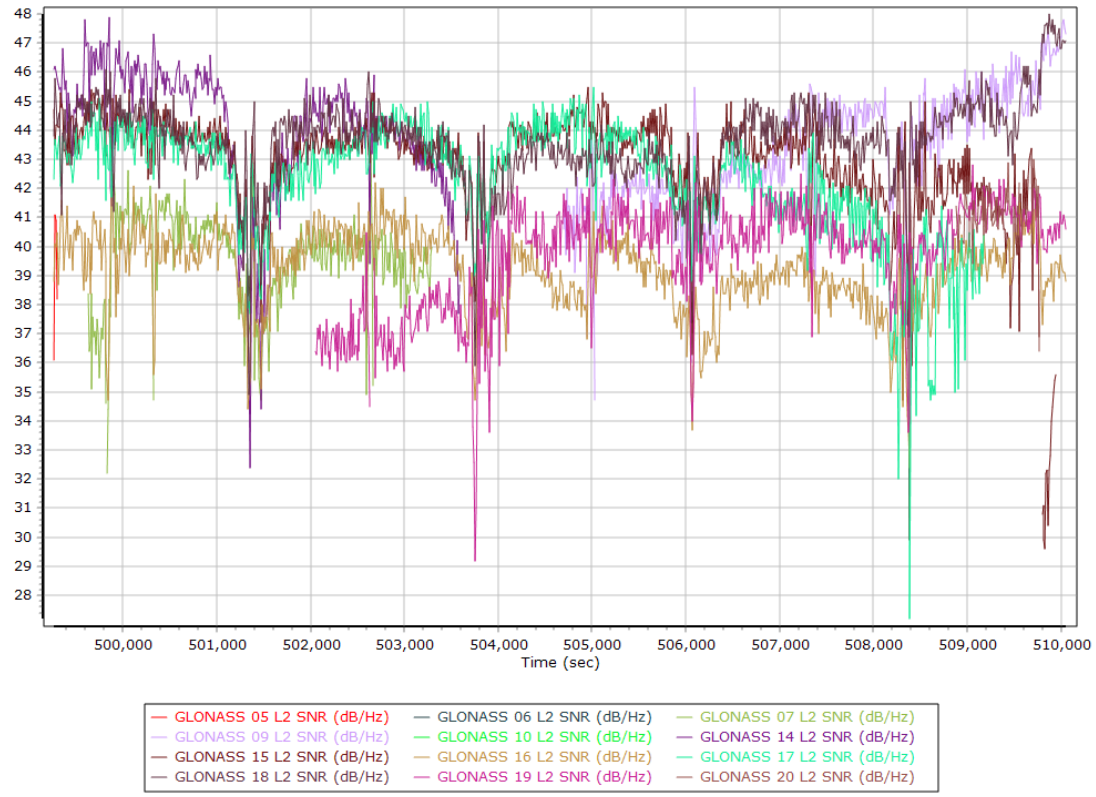
GPS L2 SNR



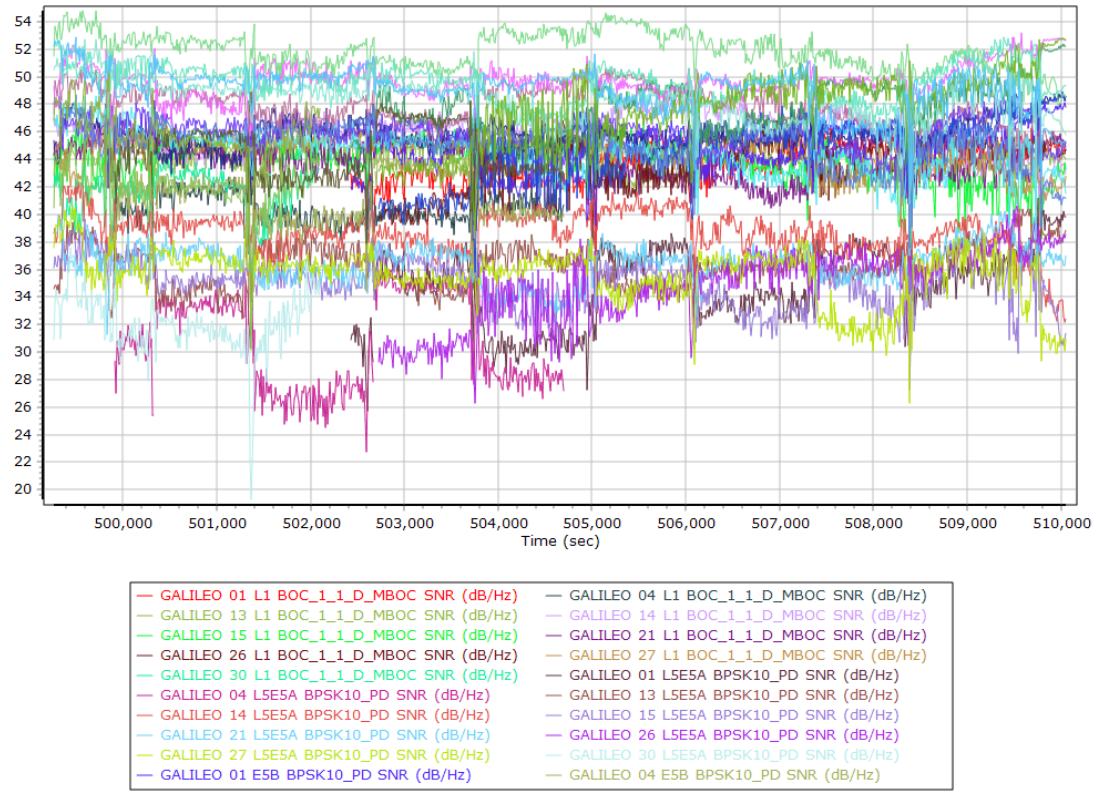
GLONASS L1 SNR



GLONASS L2 SNR

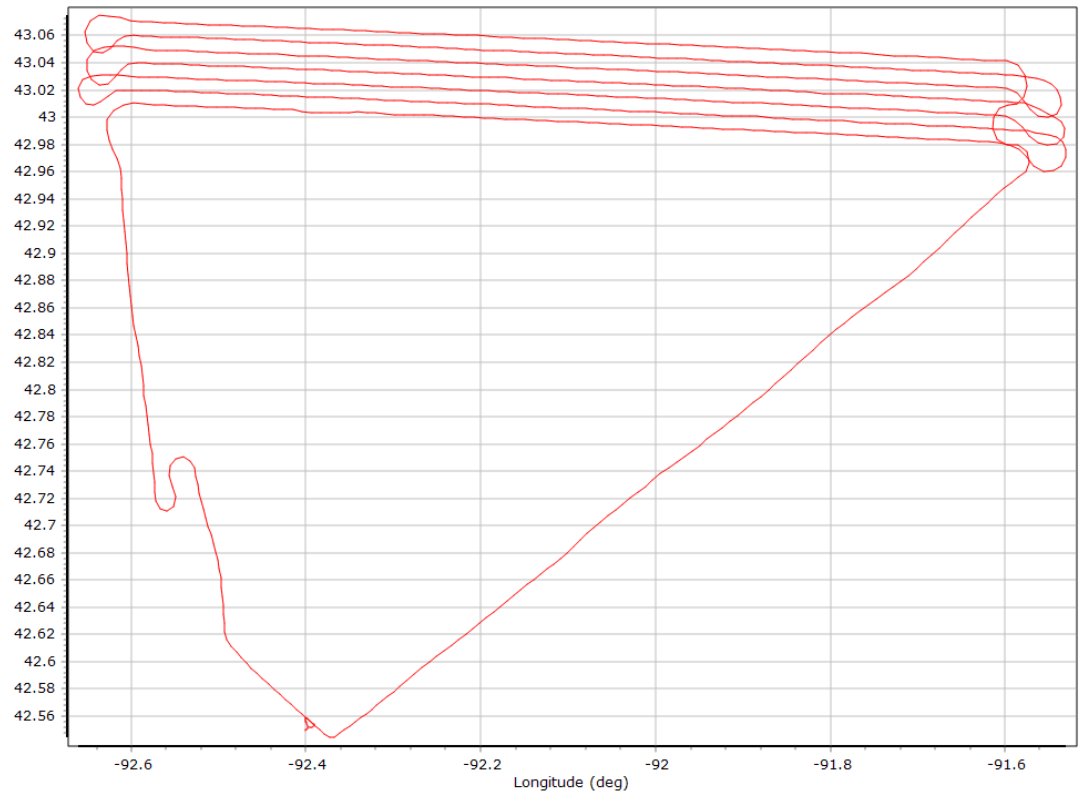


GALILEO SNR

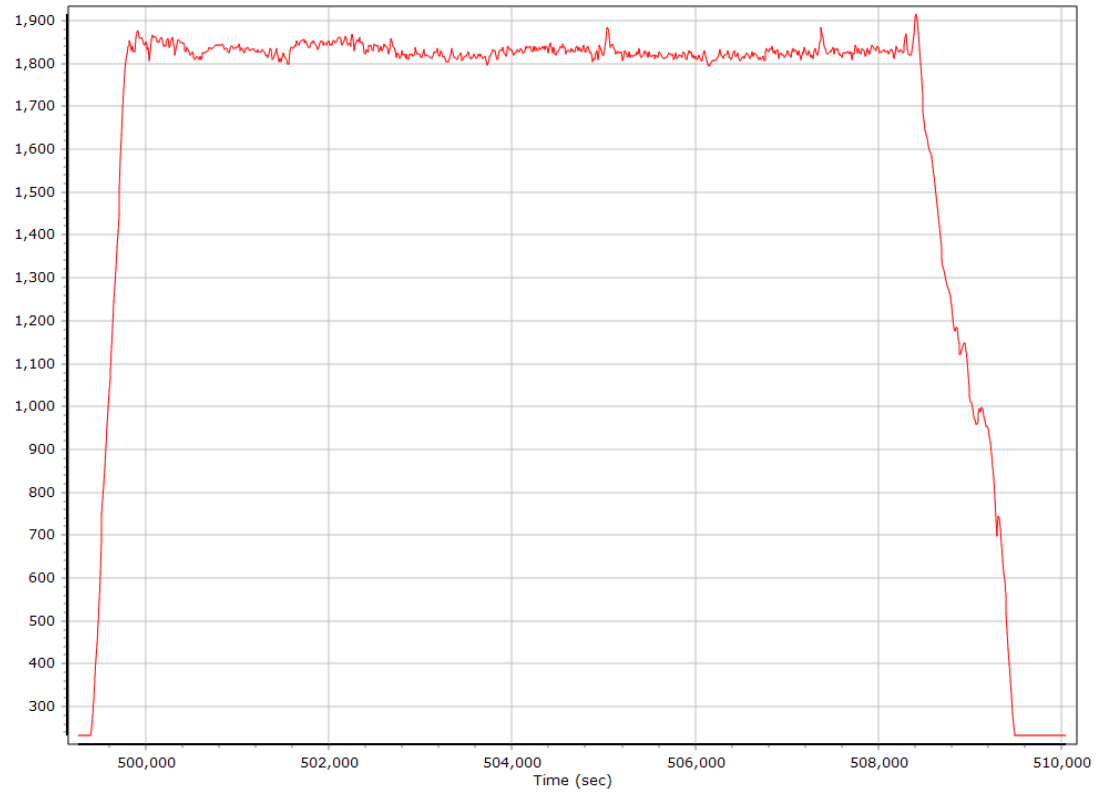


Smoothed Trajectory Information

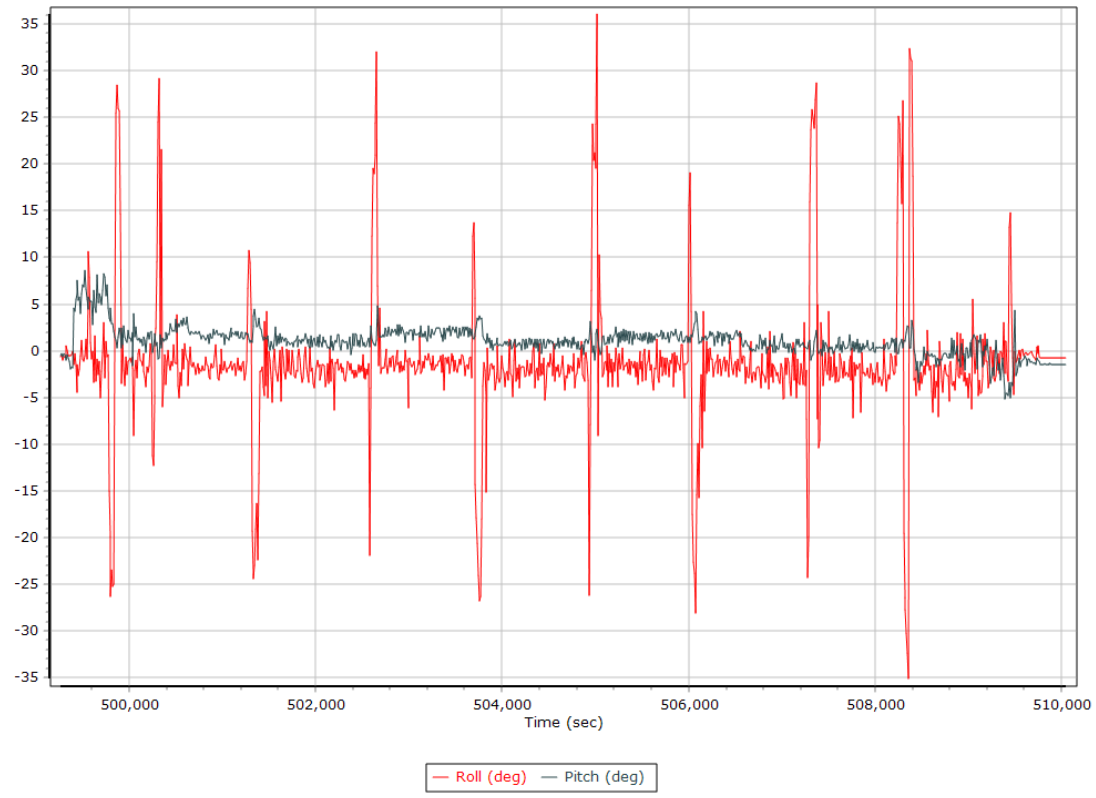
Top View



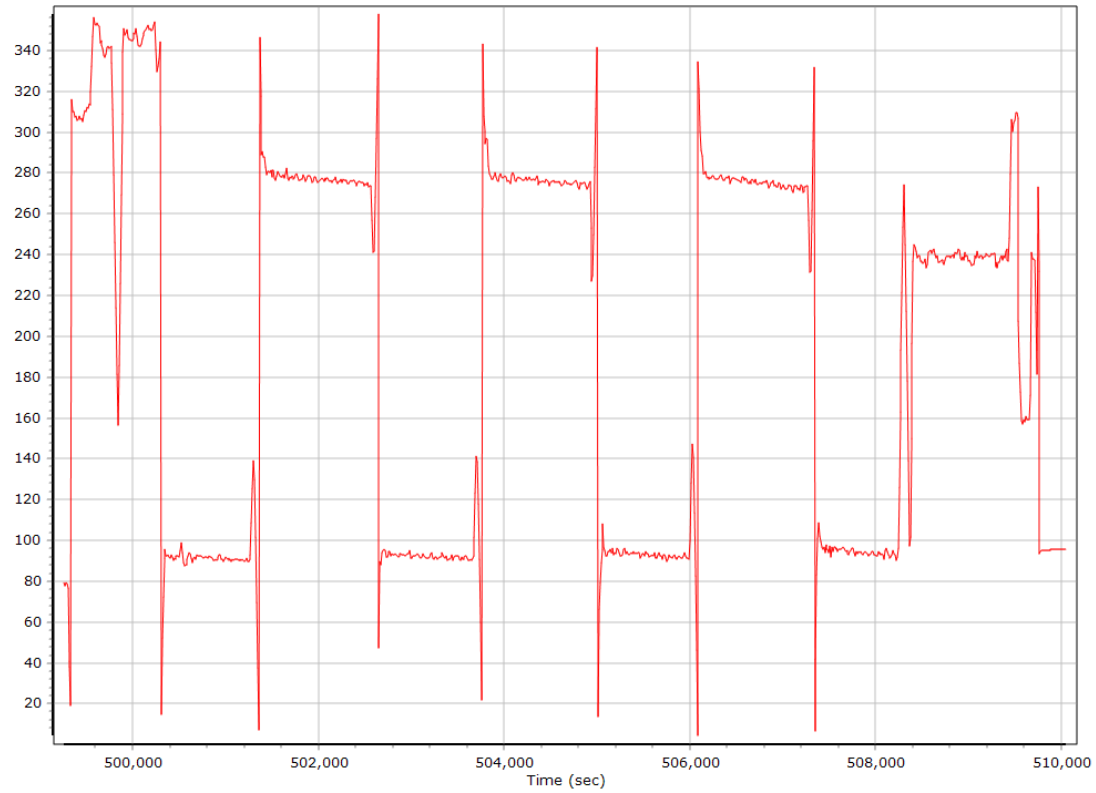
Altitude



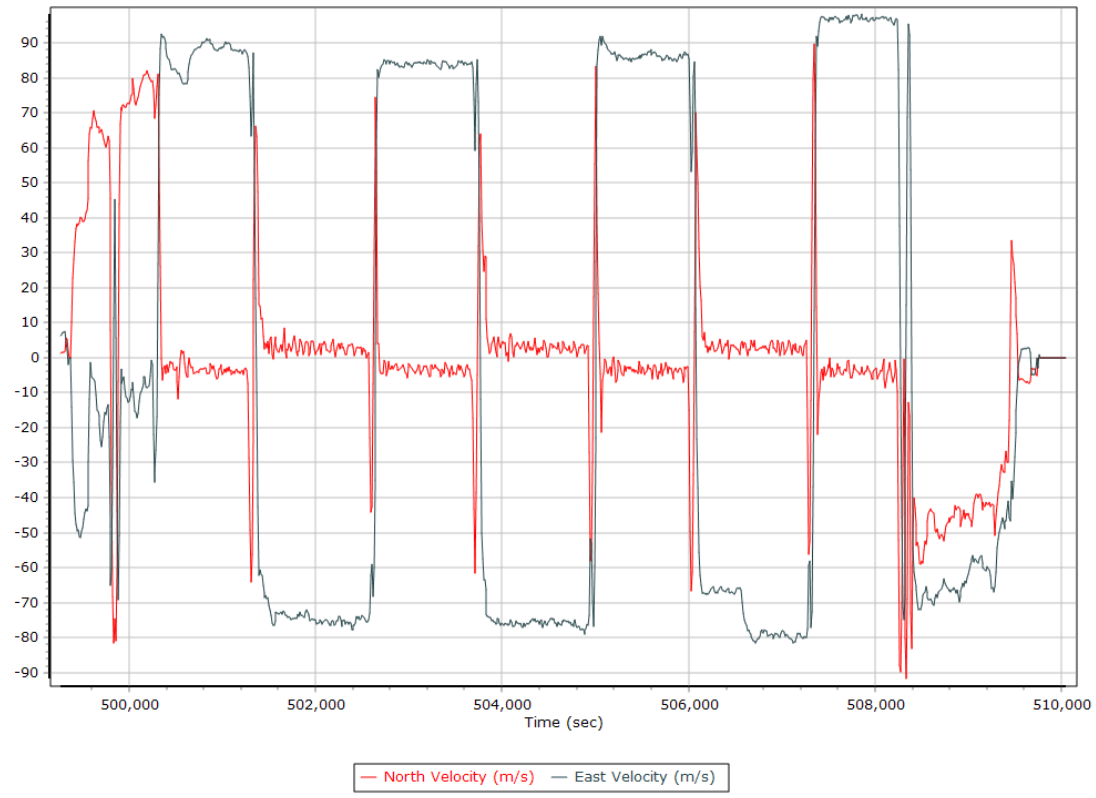
Roll/Pitch



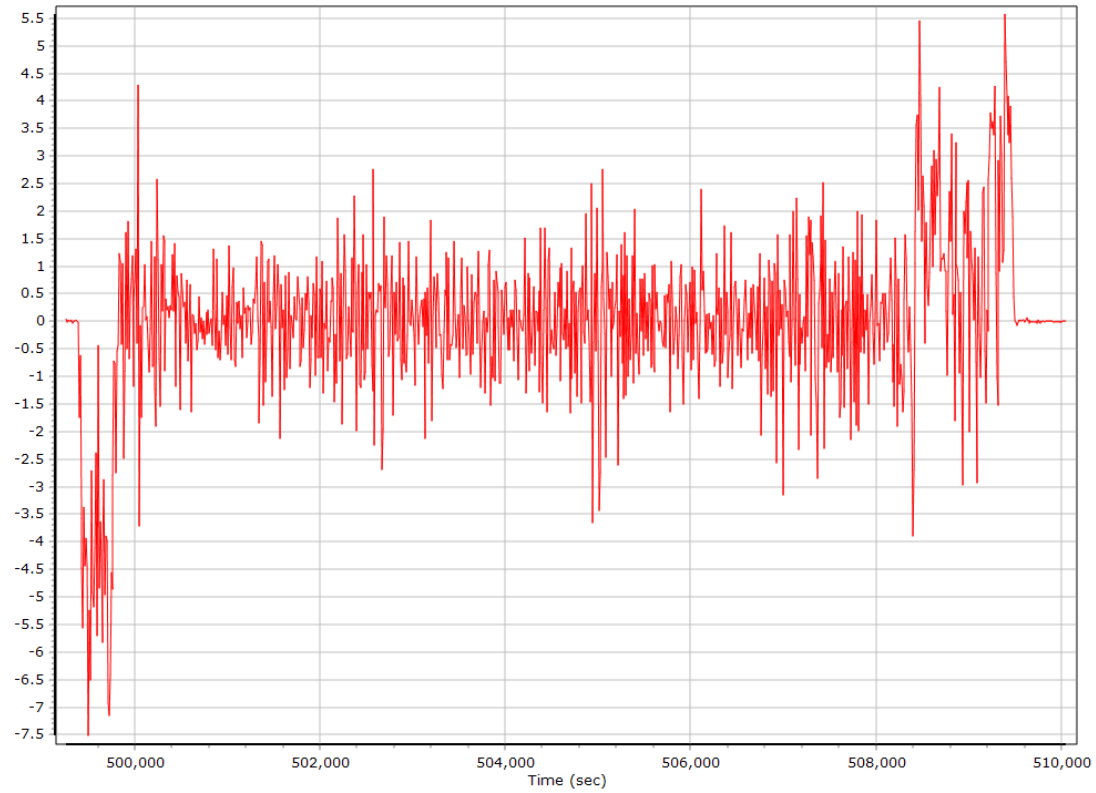
Heading



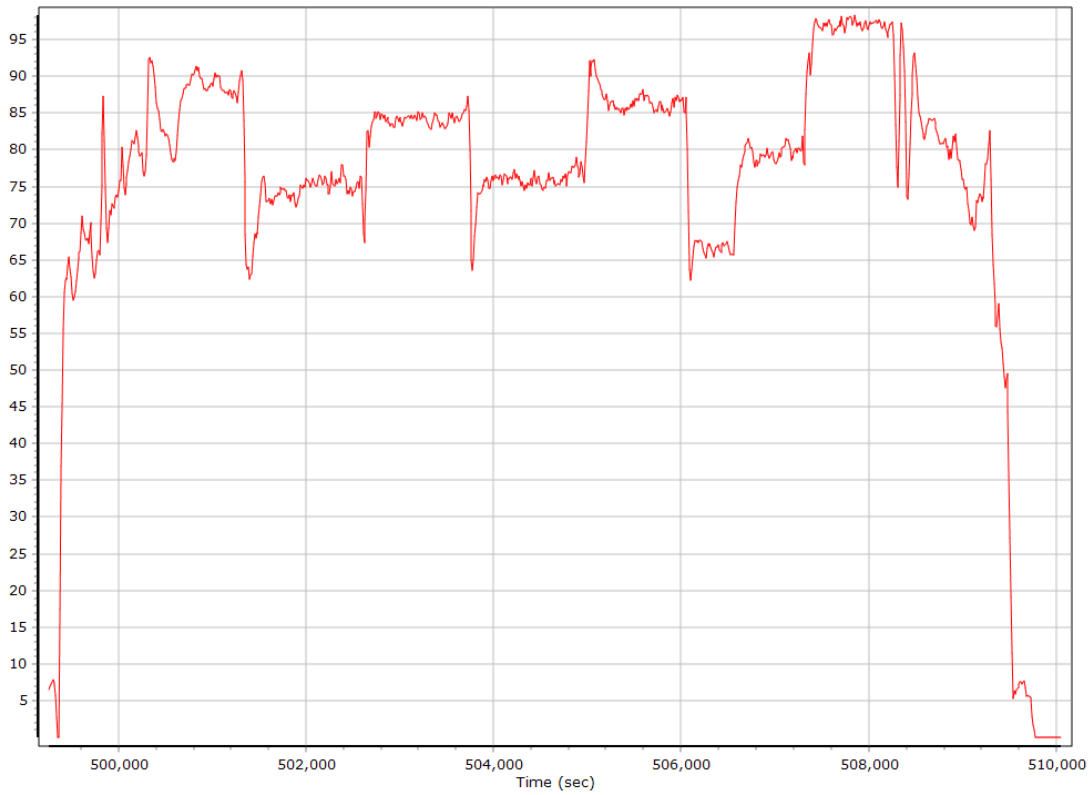
North/East Velocity



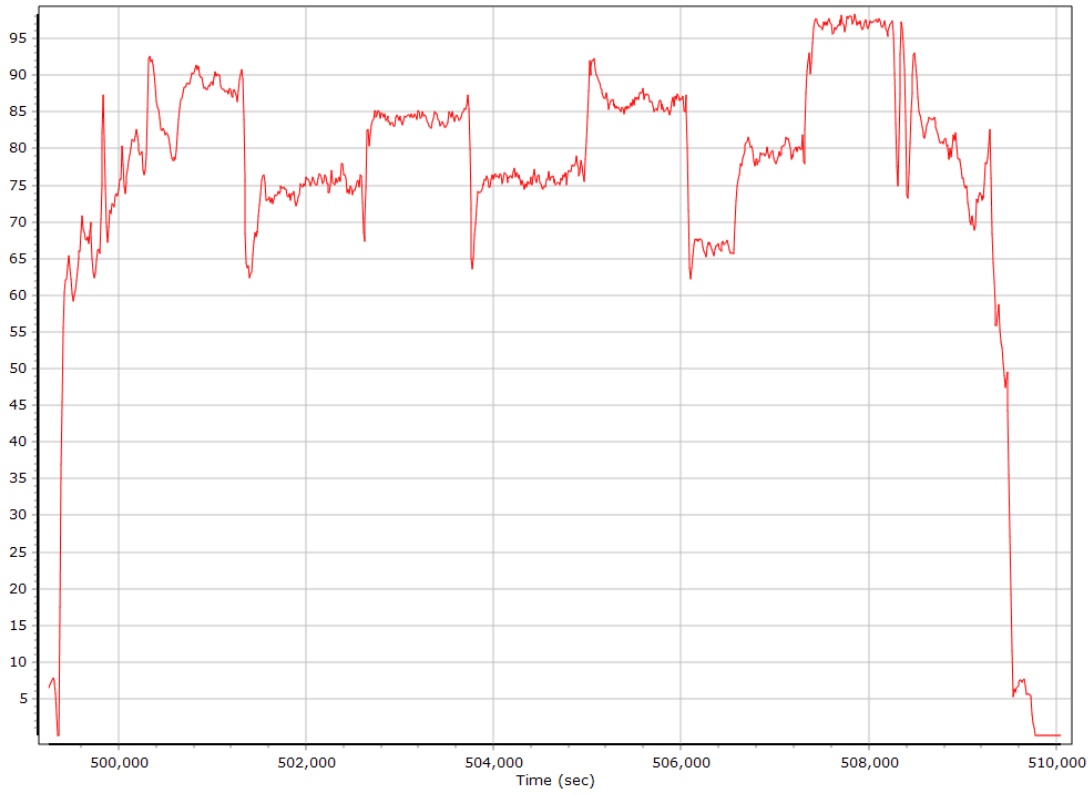
Down Velocity



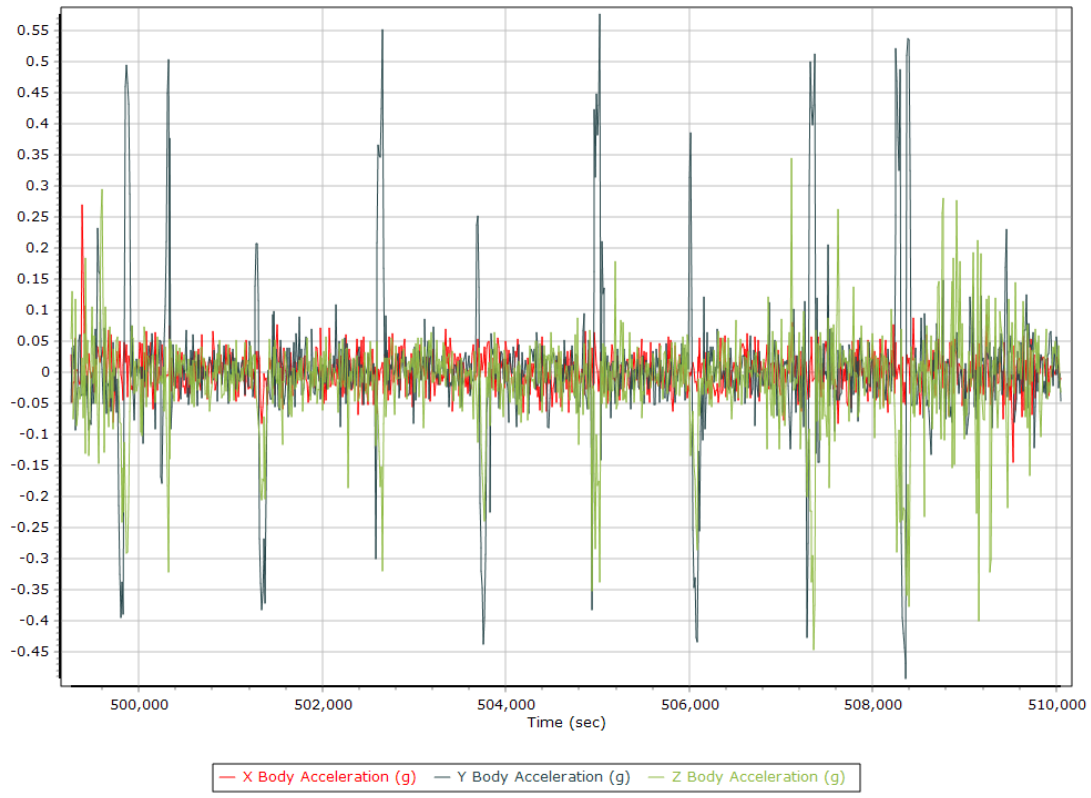
Total Speed



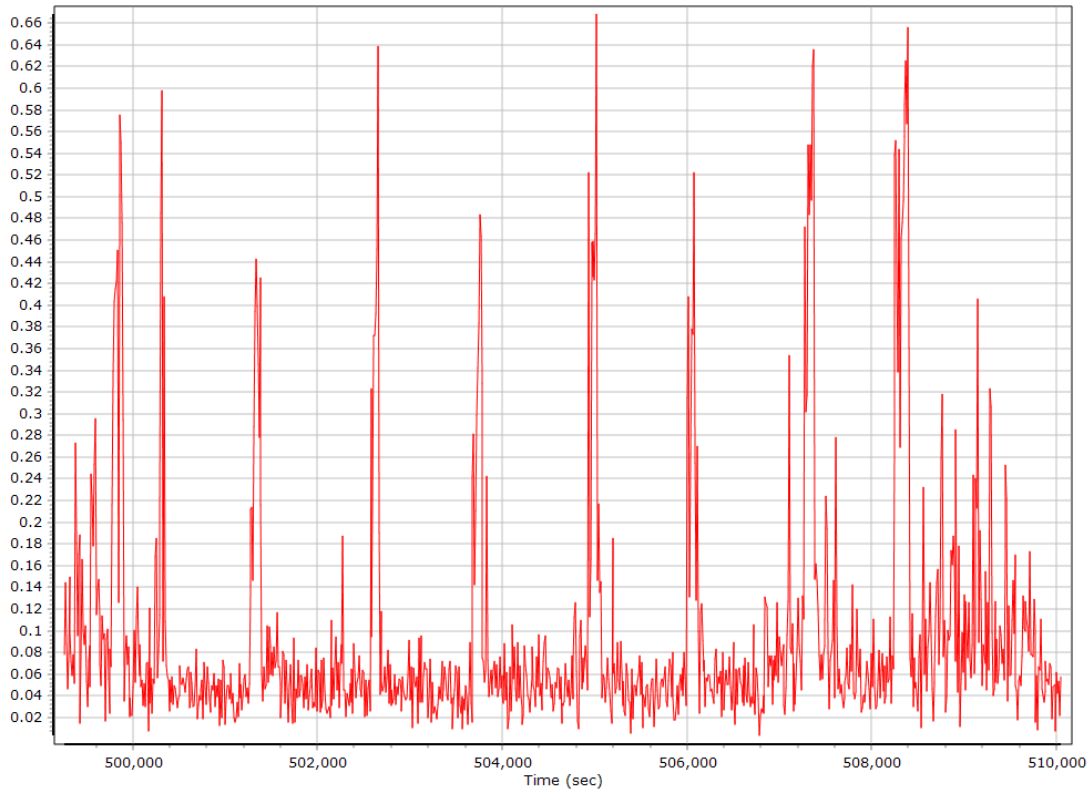
Ground Speed



Body Acceleration



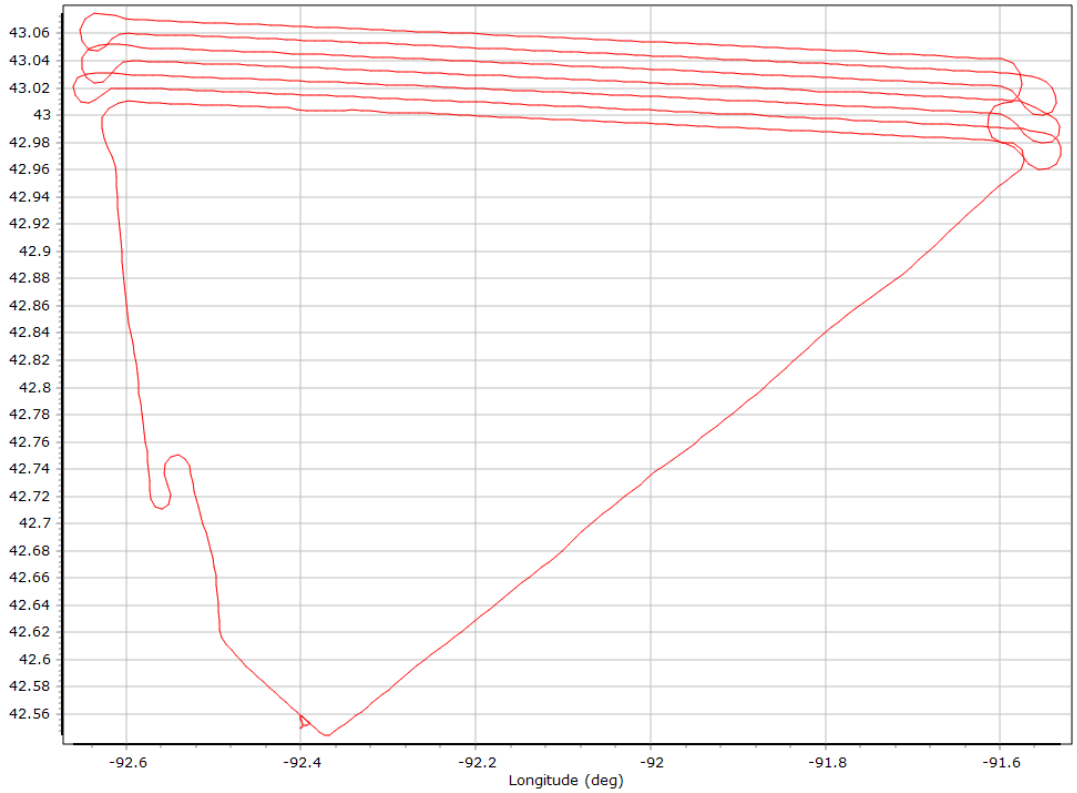
Total Body Acceleration



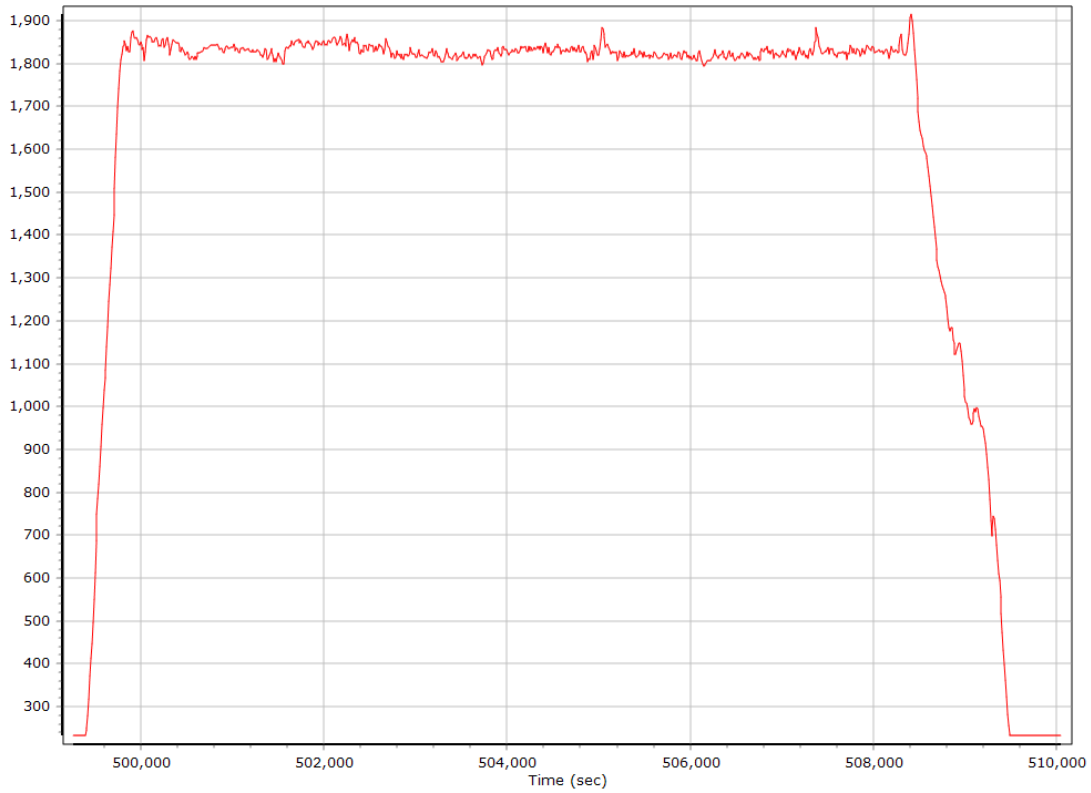
Body Angular Rate

Forward Processed Trajectory Information

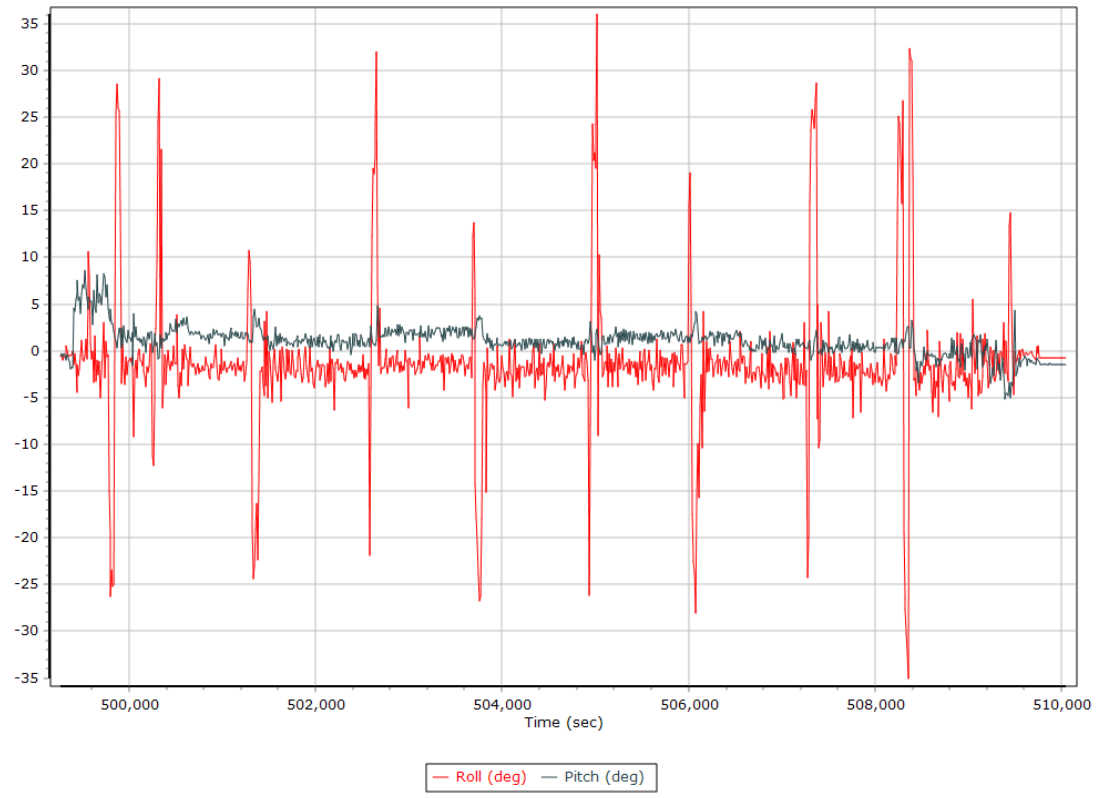
Top View



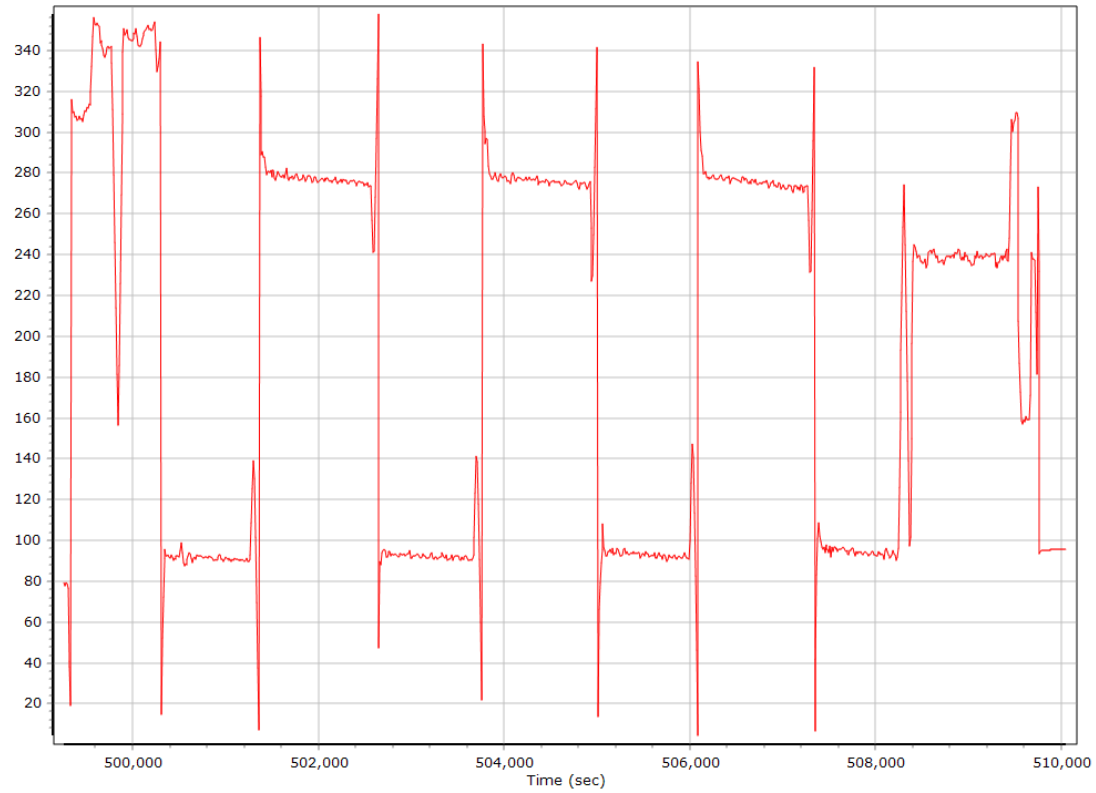
Altitude



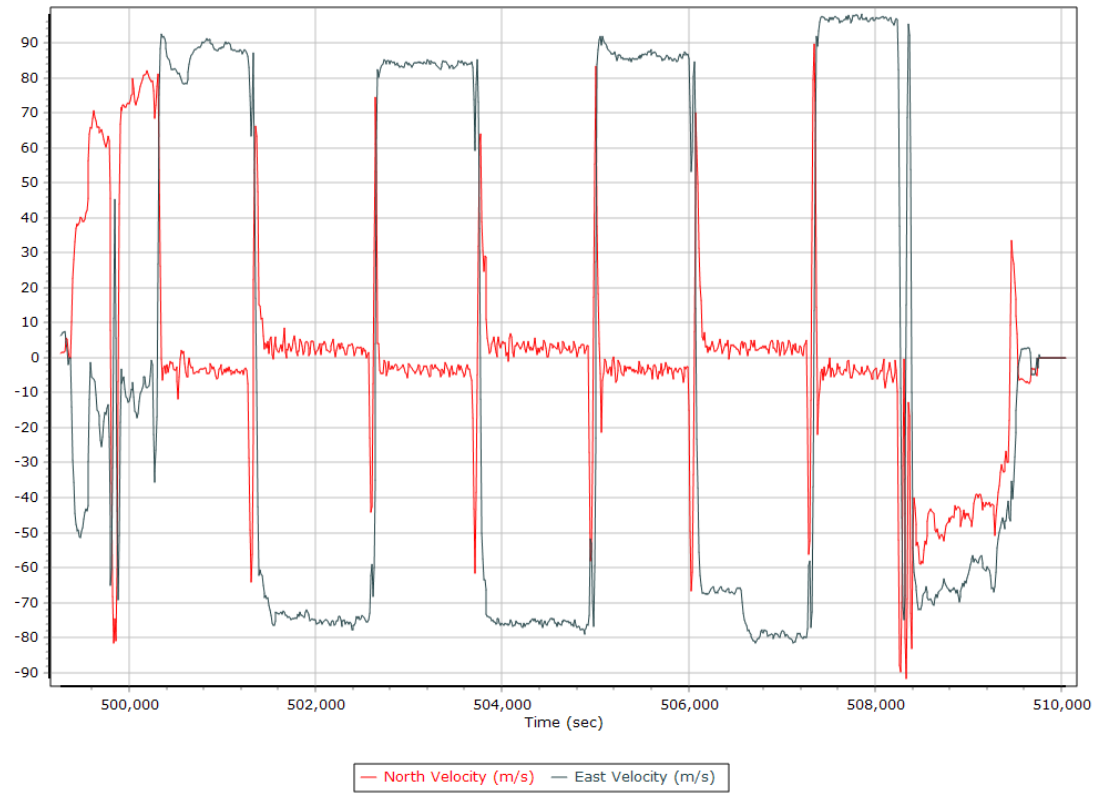
Roll/Pitch



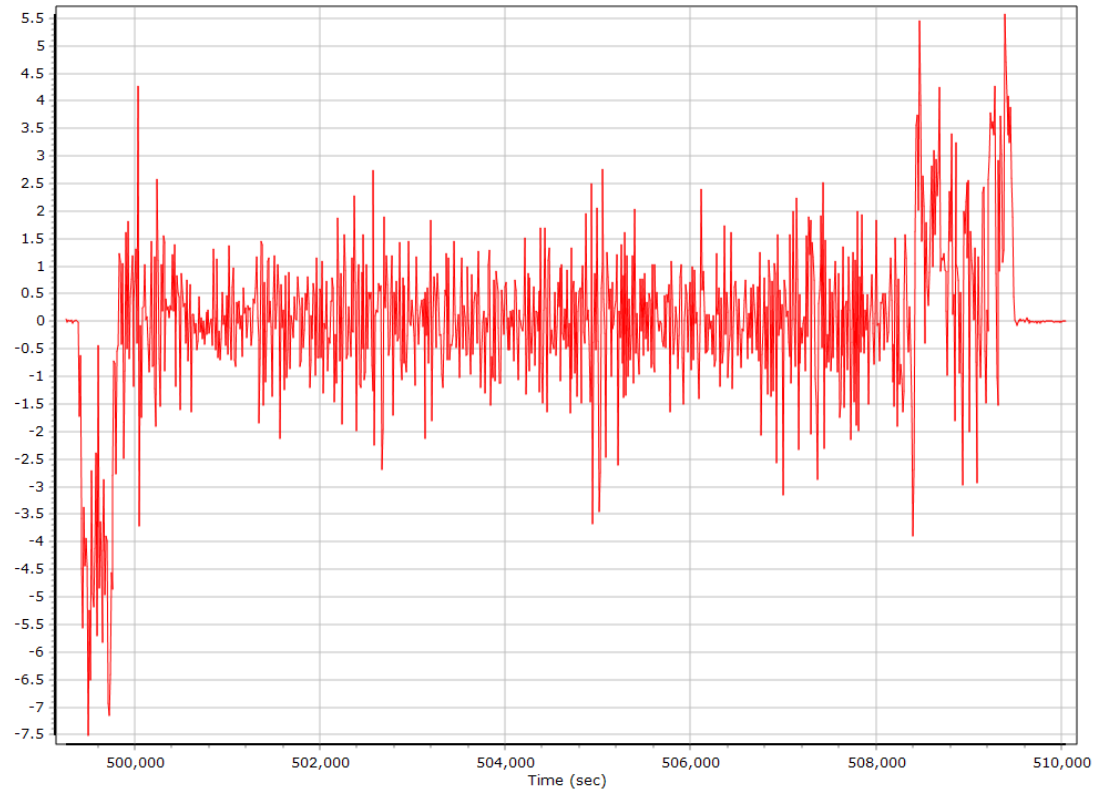
Heading



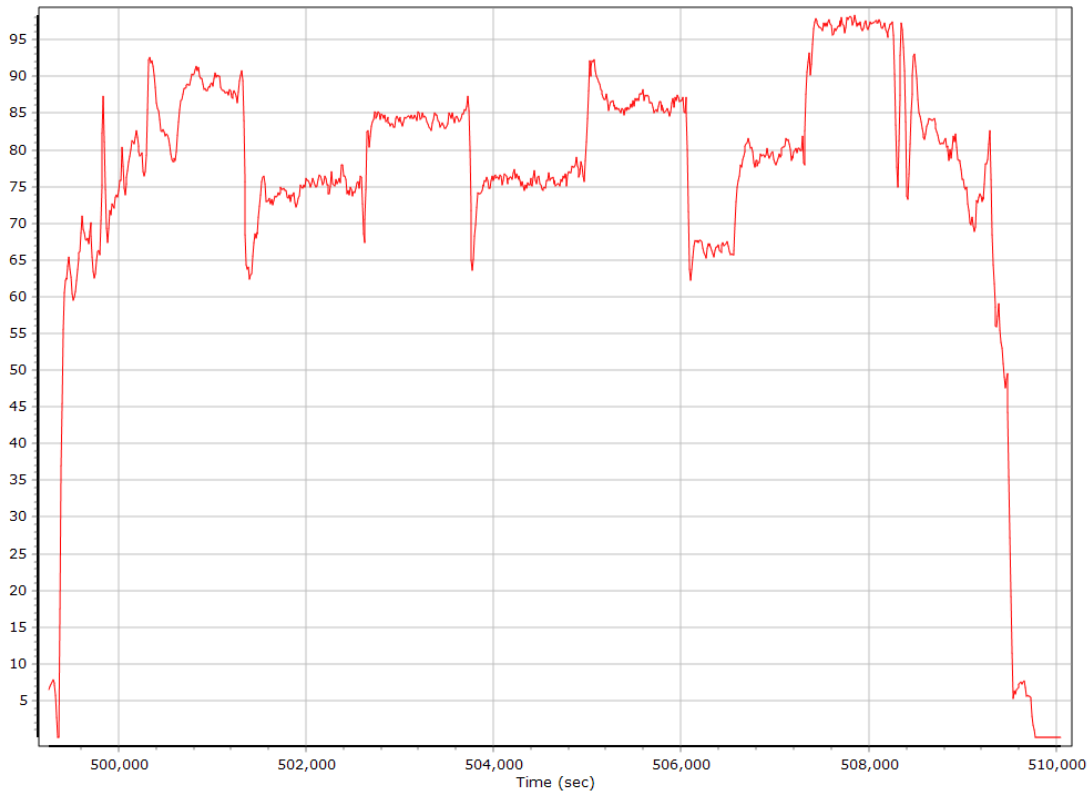
North/East Velocity



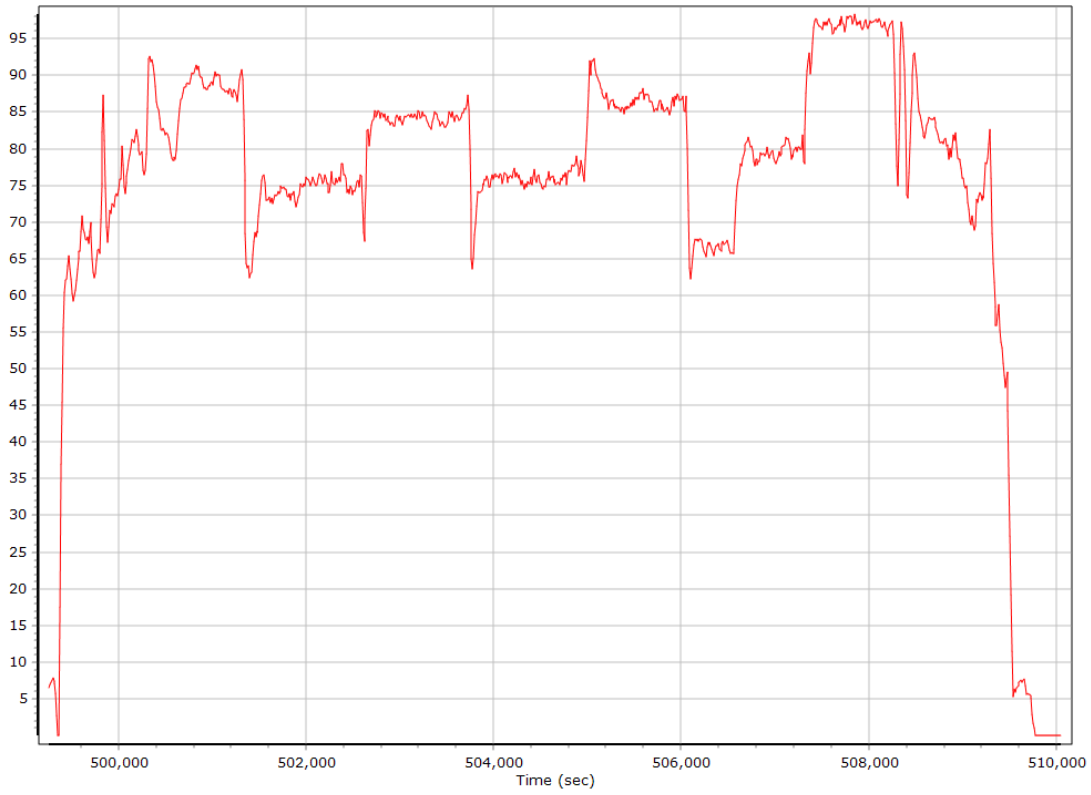
Down Velocity



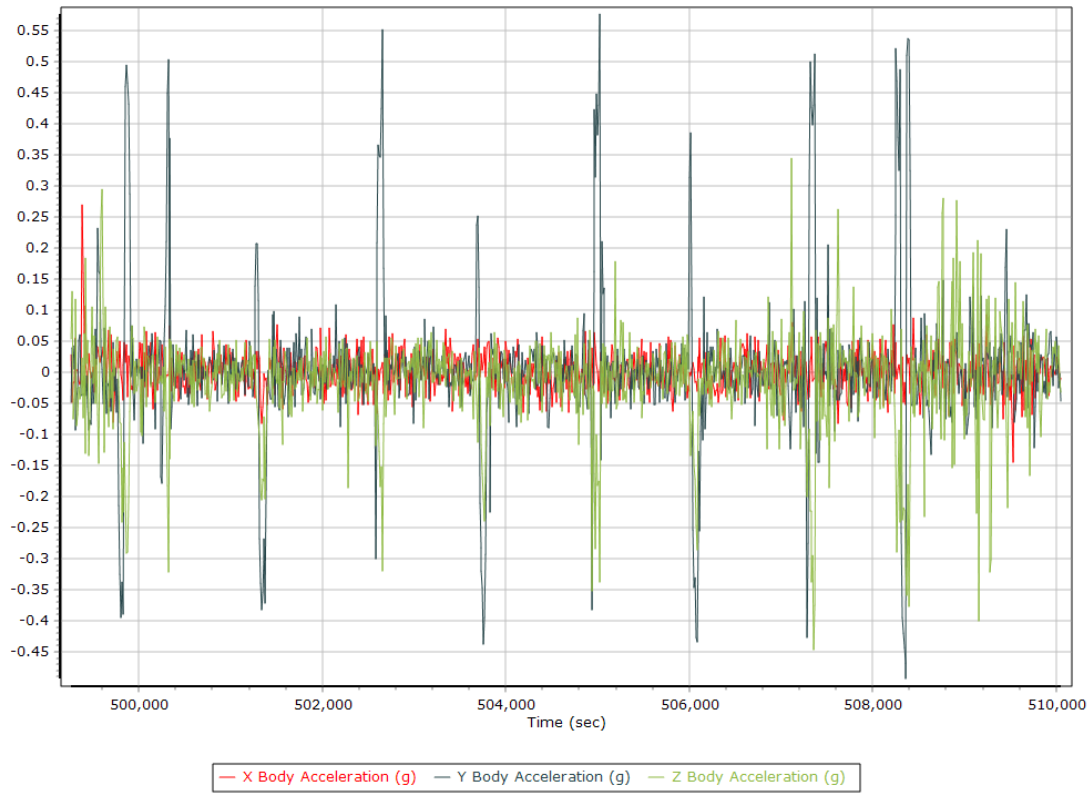
Total Speed



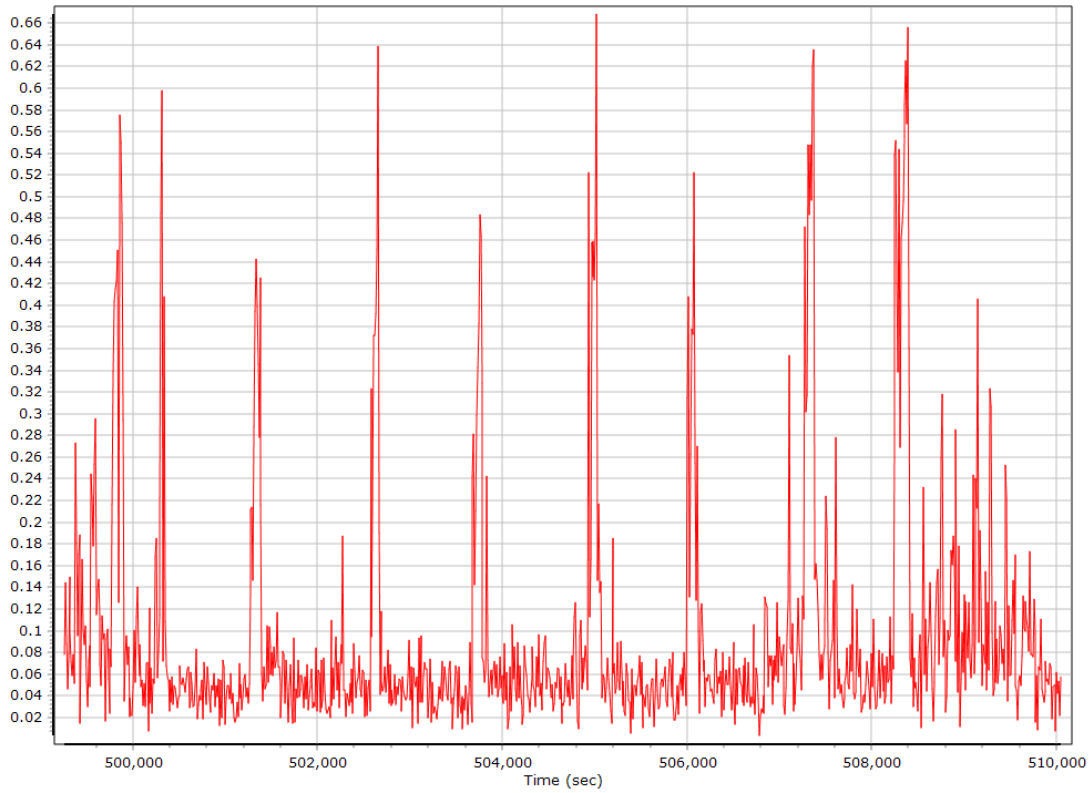
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/10/2020	IADE	46.32	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAAL	56.12	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAEL	64.13	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNPS	69.07	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IANA	94.24	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNCA	94.82	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAHT	107.47	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAMN	110.60	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IATA	111.36	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNSV	112.25	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNEY	114.86	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	11322 s (2100 498750 - 2100 510072)
Number of reference stations	9
Primary station GPS measurement usage (%)	99.7
Primary station GLONASS measurement usage (%)	78.0
Average number of satellites per epoch	13.3
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	14118
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67189"	W92°33'05.07501"	247.334
Adjusted		N41°58'01.67181"	W92°33'05.07510"	247.352
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.018	0.018

Base Station Information

Station ID	IATA		
Filename	iata1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67189"		
Longitude	W92°33'05.07501"		
Ellipsoidal height (m)	247.33438		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59749"	228.904
Adjusted		N42°01'49.10897"	W91°32'55.59750"	228.881
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.001	0.023	0.024

Base Station Information

Station ID	IAMN		
Filename	iamn1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59749"		
Ellipsoidal height (m)	228.90417		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38125"	W93°22'06.68788"	344.482
Adjusted		N43°17'02.38117"	W93°22'06.68752"	344.491
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.009	0.012

Base Station Information

Station ID	IAHT		
Filename	iaht1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38125"		
Longitude	W93°22'06.68788"		
Ellipsoidal height (m)	344.48177		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64527"	W91°29'46.51636"	339.588
Adjusted		N43°37'58.64529"	W91°29'46.51609"	339.600
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.011	0.013

Base Station Information

Station ID	MNCA		
Filename	mnca1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64527"		
Longitude	W91°29'46.51636"		
Ellipsoidal height (m)	339.58842		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.72	**Output Coordinates**	Original	
Solution Epochs	2846	**Mean Epoch SVs**	8.0	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54032"	172.253
Adjusted		N43°29'49.47912"	W91°17'26.53971"	172.230
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.014	0.023	0.027

Base Station Information

Station ID	IANA		
Filename	iana1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54032"		
Ellipsoidal height (m)	172.25323		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.77	**Output Coordinates**	Original	
Solution Epochs	2852	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52986"	298.980
Adjusted		N42°52'40.47661"	W91°21'41.52965"	298.989
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.008	0.010

Base Station Information

Station ID	IAEL		
Filename	iael1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52986"		
Ellipsoidal height (m)	298.98030		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24723"	291.092
Adjusted		N42°44'49.40400"	W92°47'14.24730"	291.121
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.029	0.029

Base Station Information

Station ID	IAAL		
Filename	iaal1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24723"		
Ellipsoidal height (m)	291.09234		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52632"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52632"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52632"		
Ellipsoidal height (m)	316.51619		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86729"	380.908
Adjusted		N43°30'53.84825"	W91°53'06.86715"	380.919
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.011	0.012

Base Station Information

Station ID	MNPS		
Filename	mnps1010.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/10/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86729"		
Ellipsoidal height (m)	380.90779		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	8.34	50.64	
Number of GPS SV	6	10	9
Number of GLONASS SV	0	5	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	6	15	13
PDOP	1.15	4.26	1.48
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	11313.00	0.00	1.00
Percentage	99.99	0.00	0.01

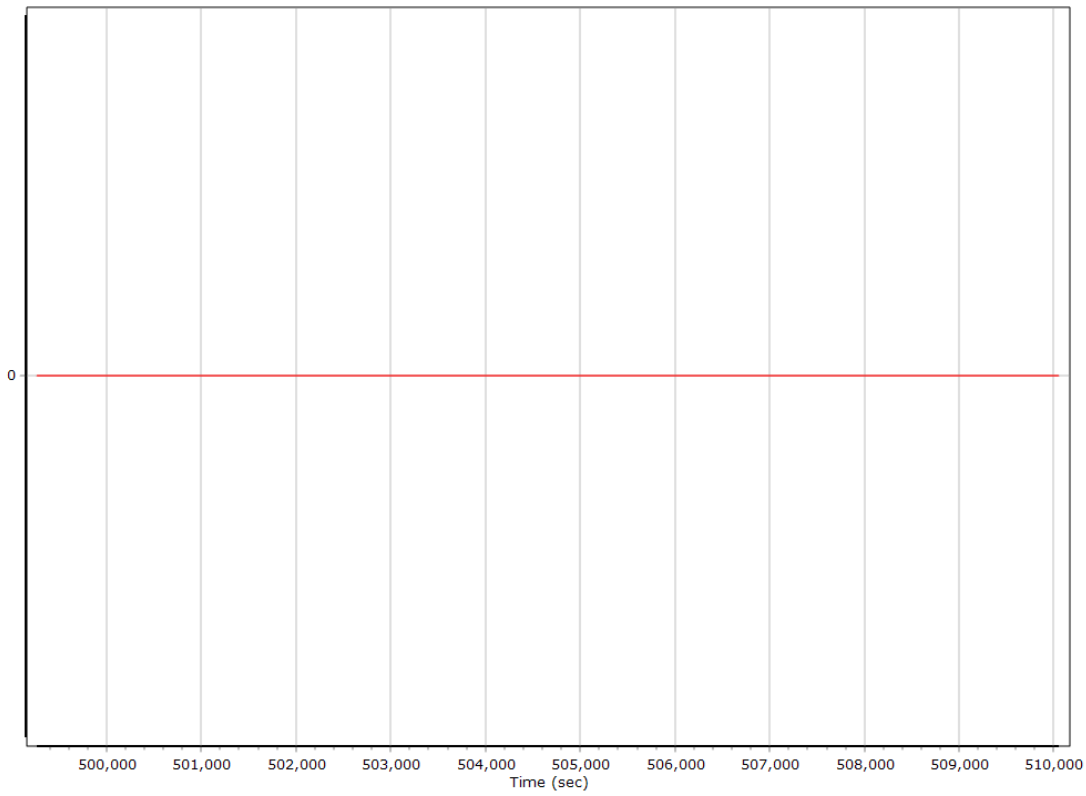
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	498732.000 (4/10/2020 6:32:12 PM)		
Processing end time	510054.000 (4/10/2020 9:40:54 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

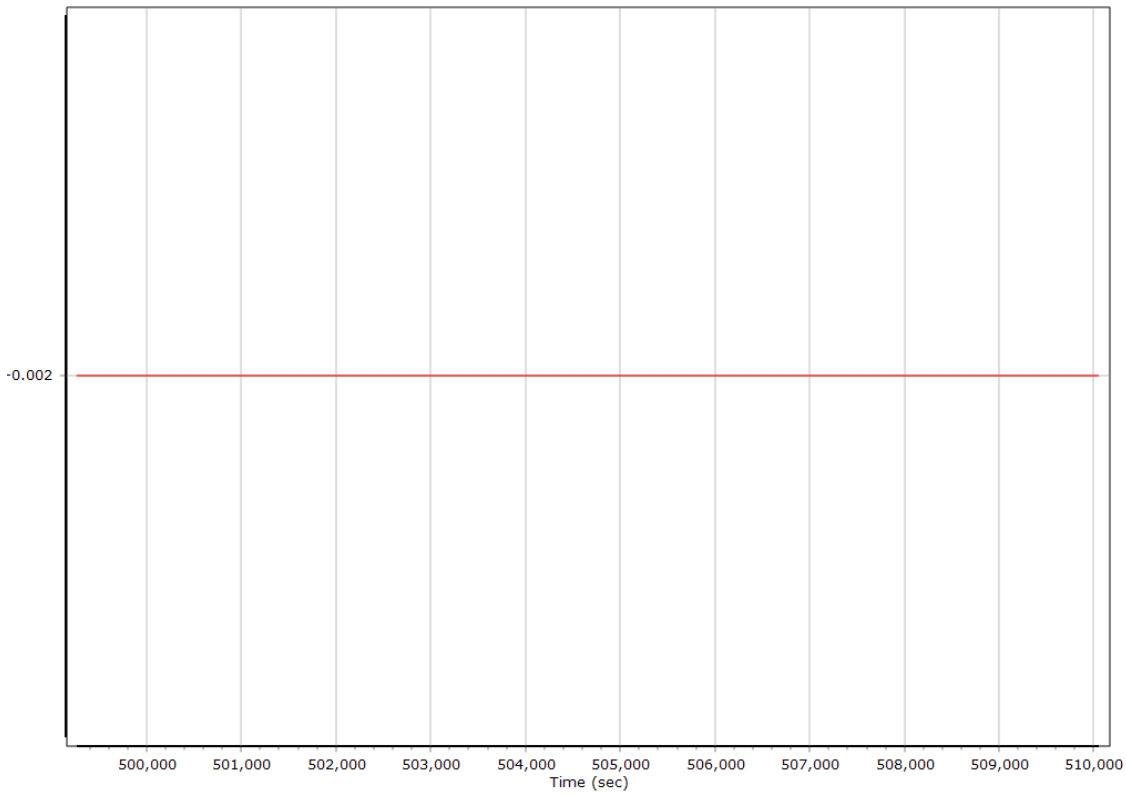
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

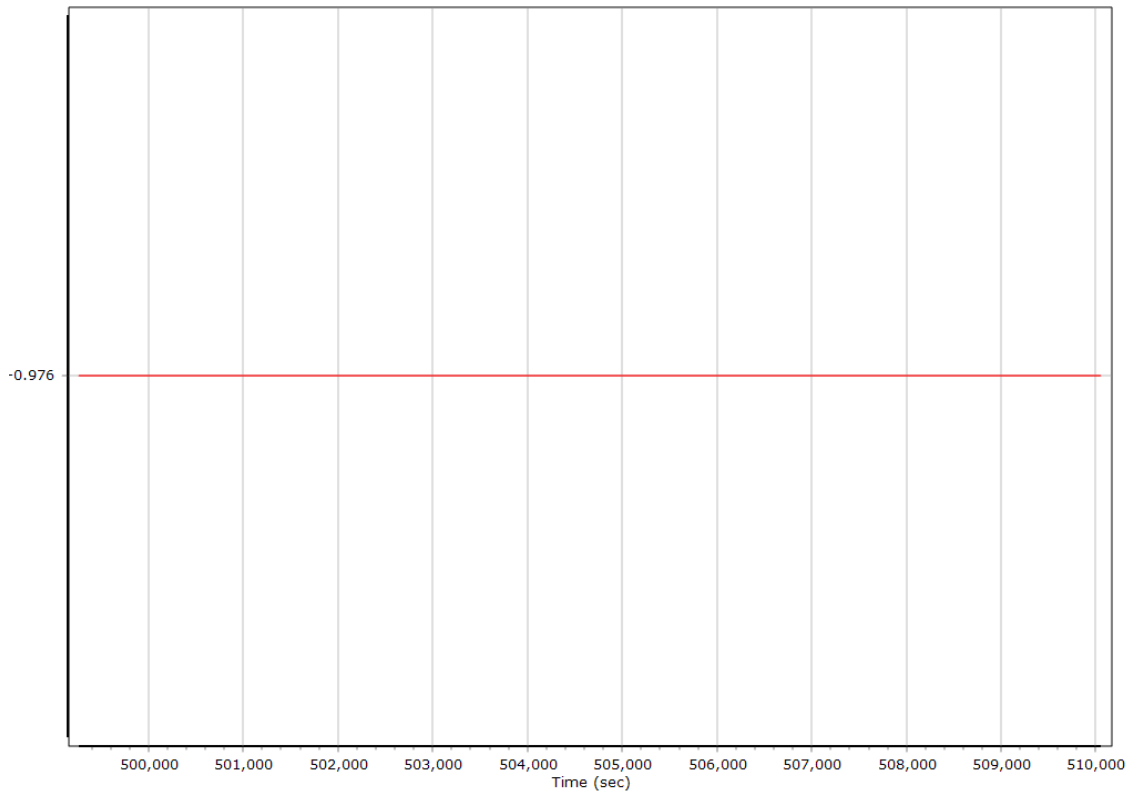
X Reference-Primary GNSS Lever Arm (m)



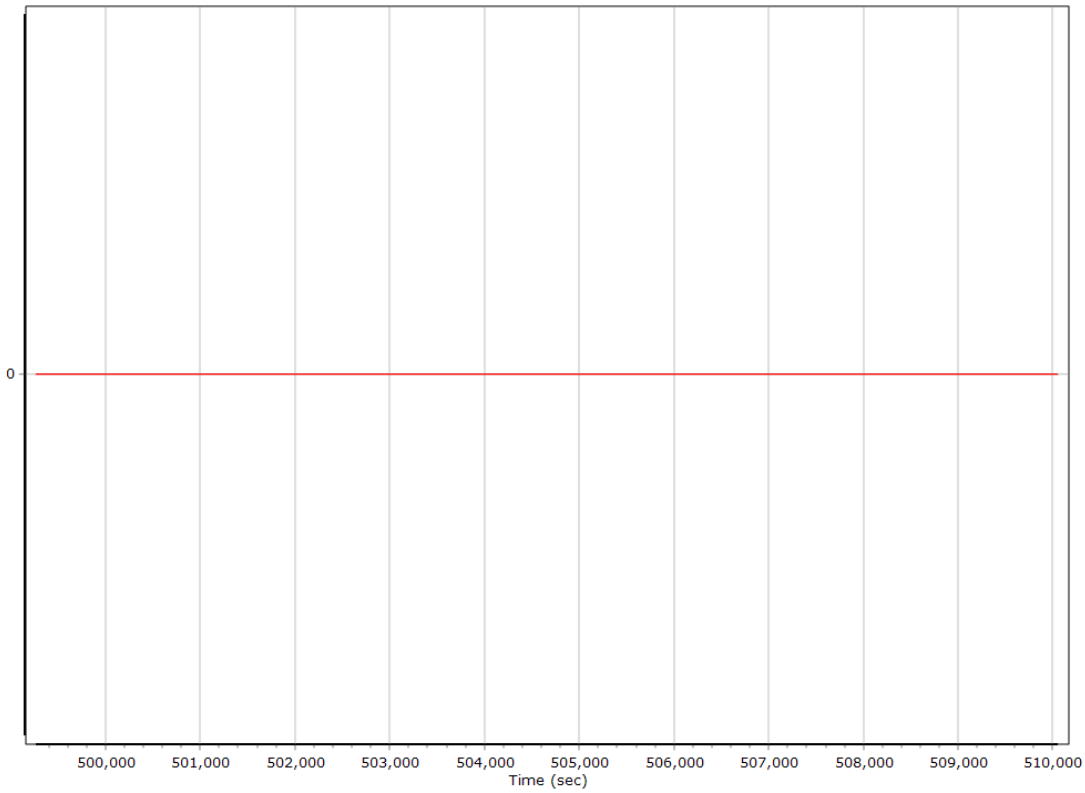
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



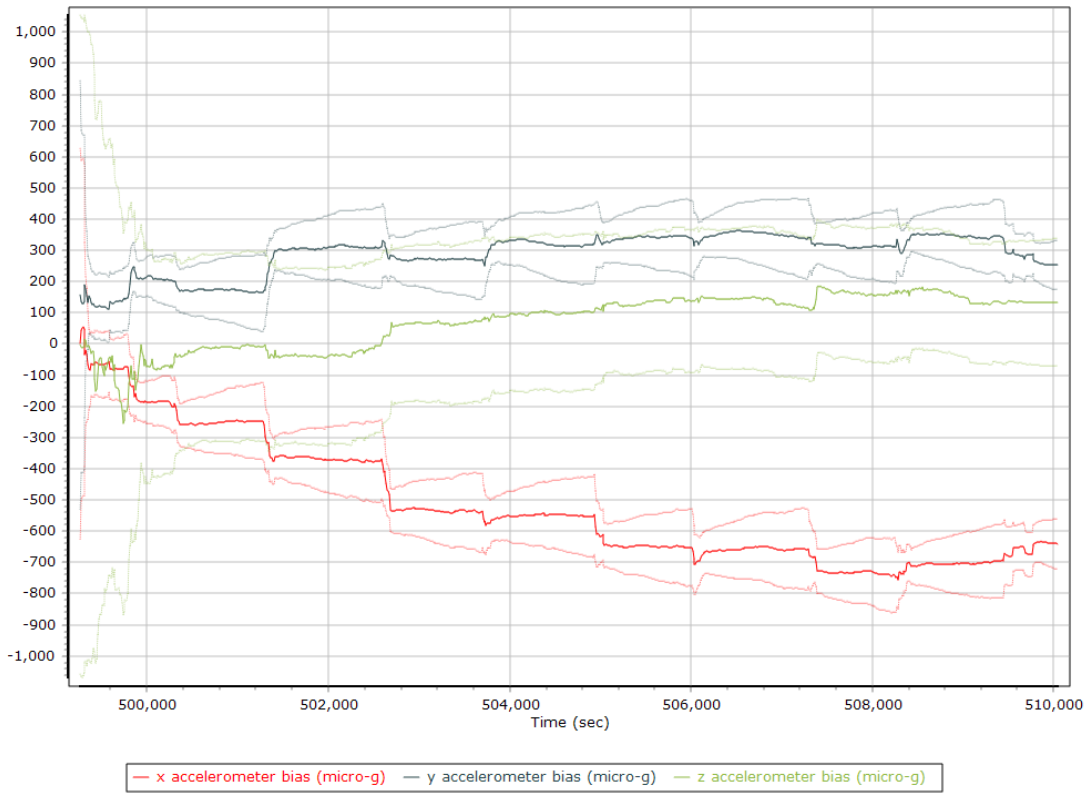
Reference-Primary GNSS Lever Arm Figure of Merit



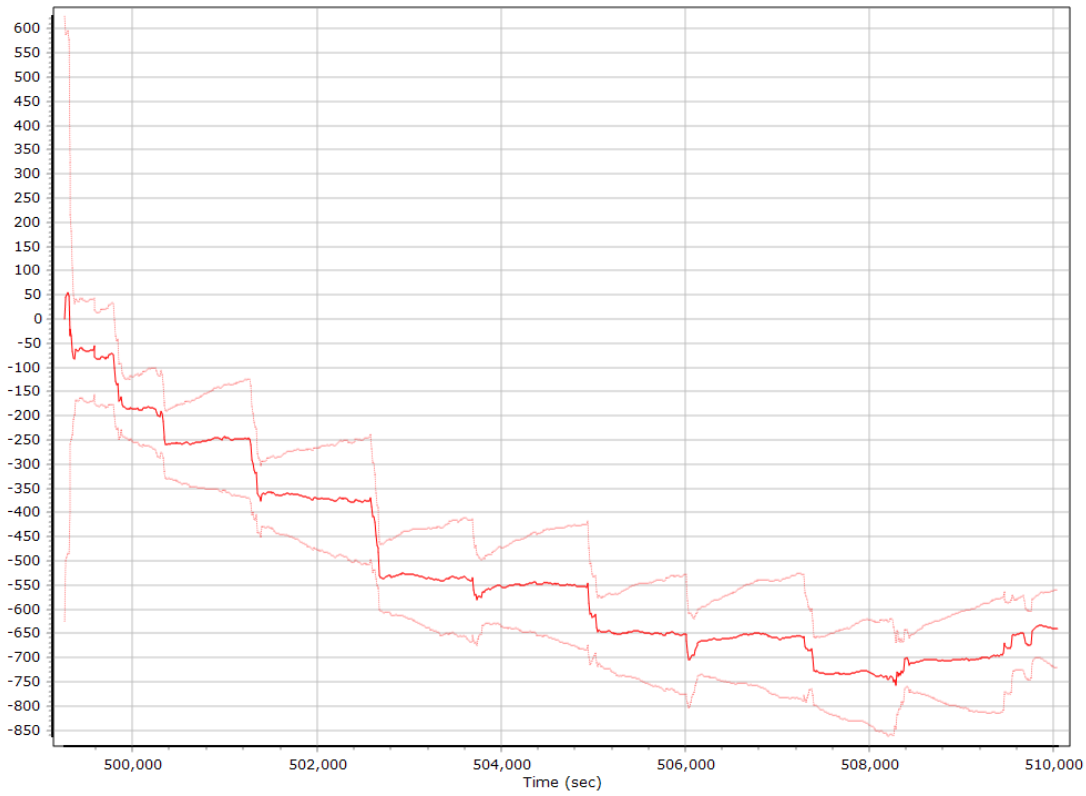
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

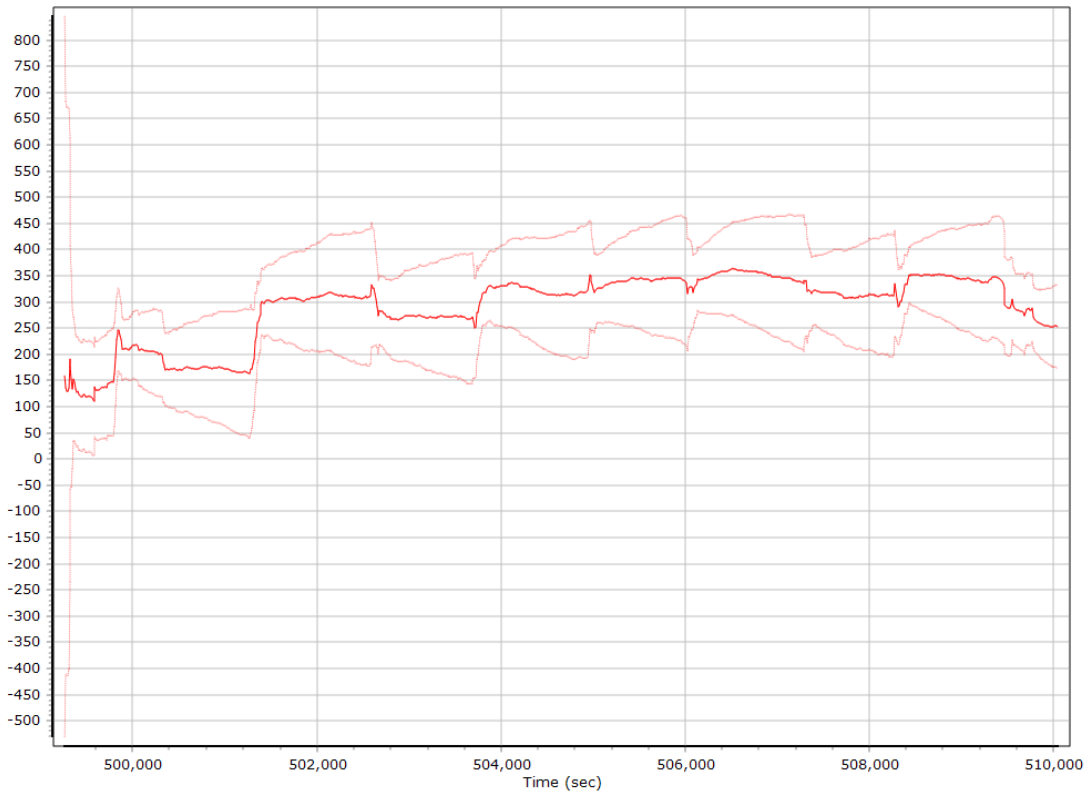
Accelerometer Bias (micro-g)



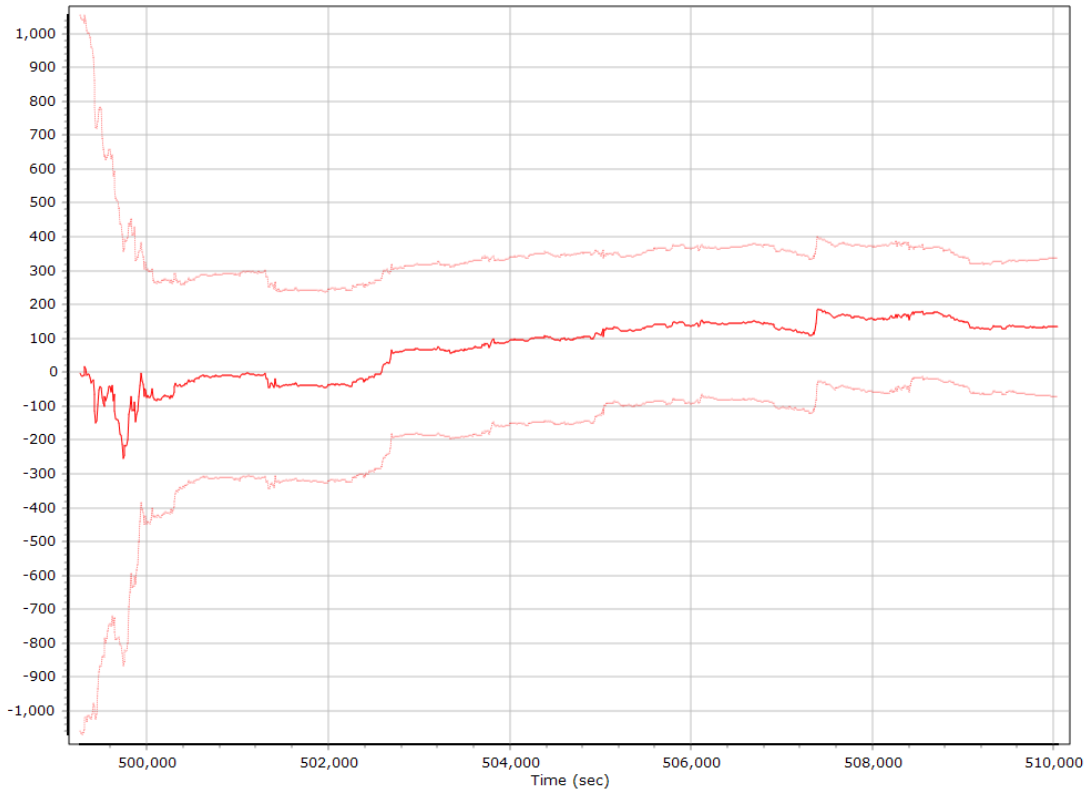
X Accelerometer Bias (micro-g)



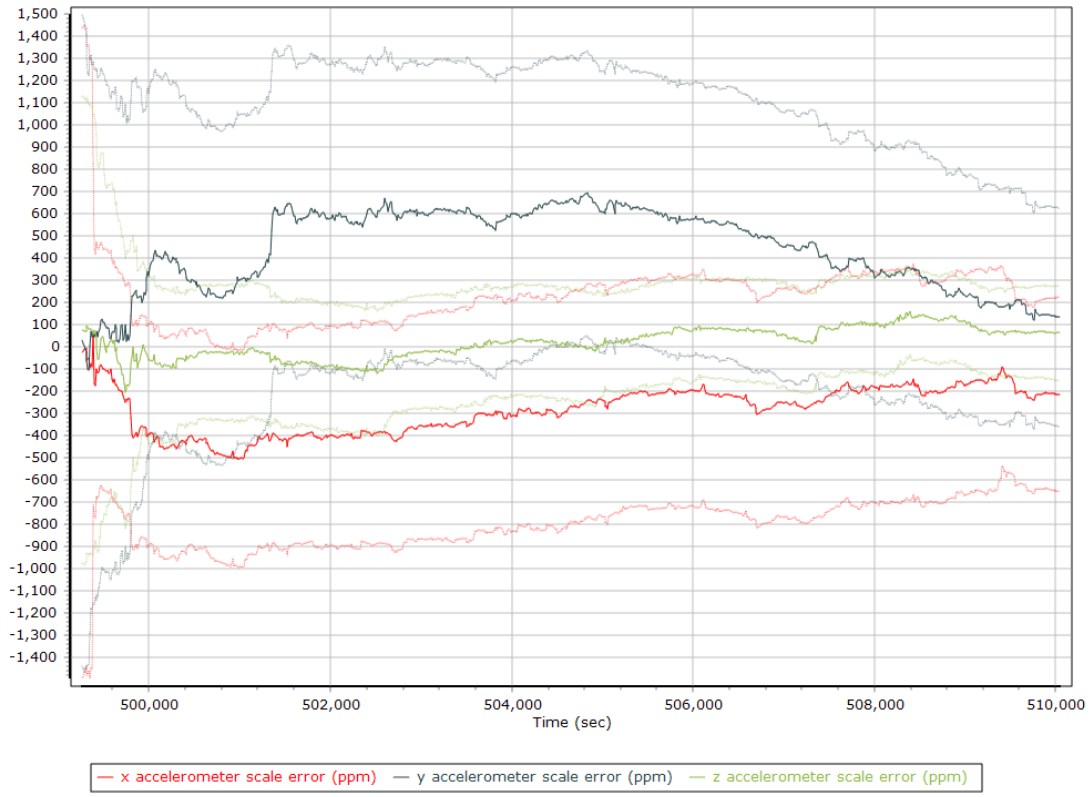
Y Accelerometer Bias (micro-g)



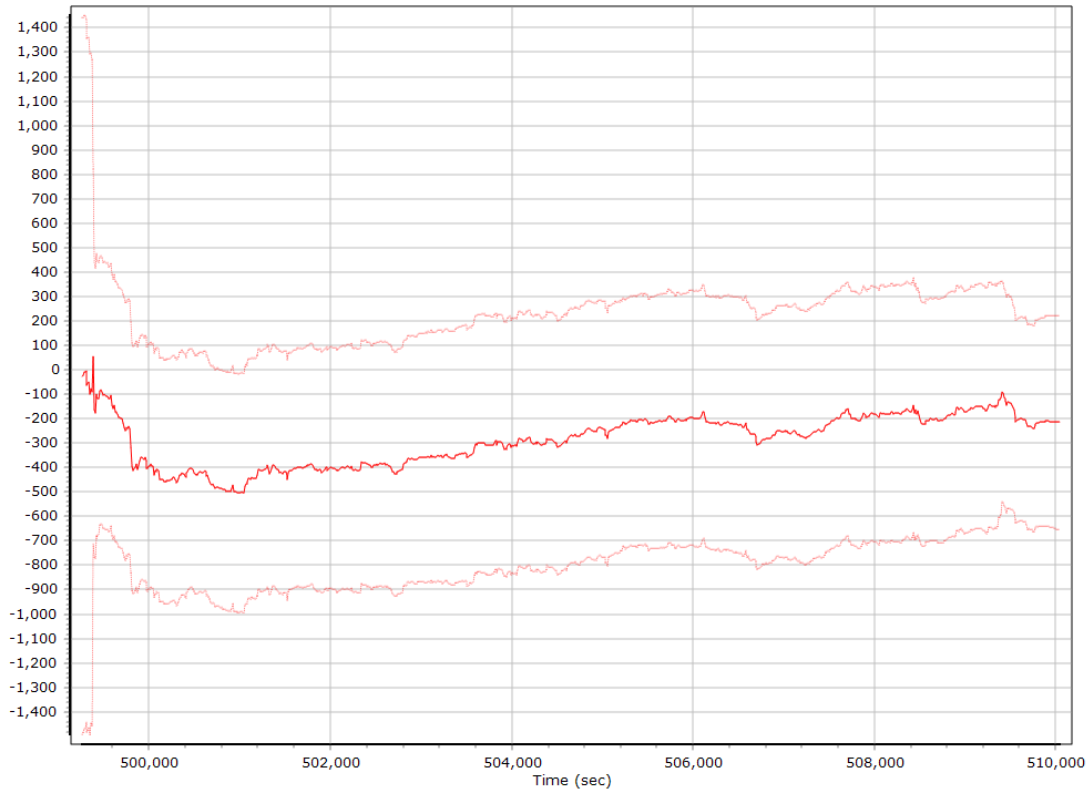
Z Accelerometer Bias (micro-g)



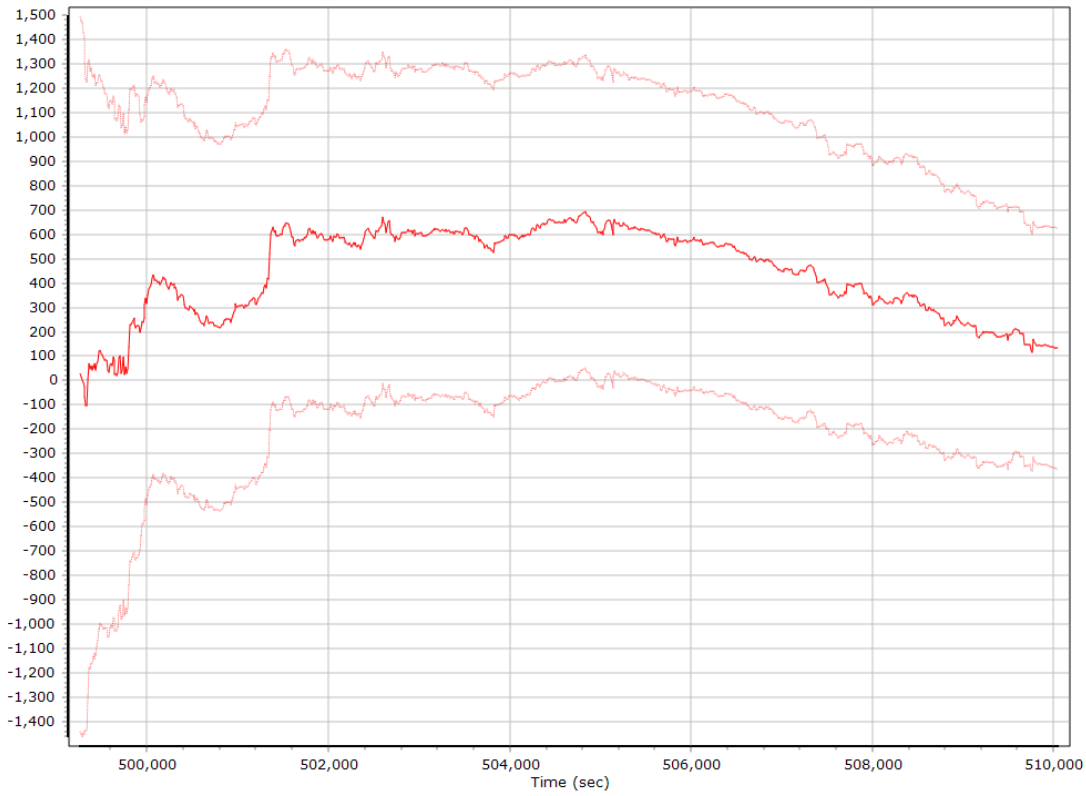
Accelerometer Scale Error (ppm)



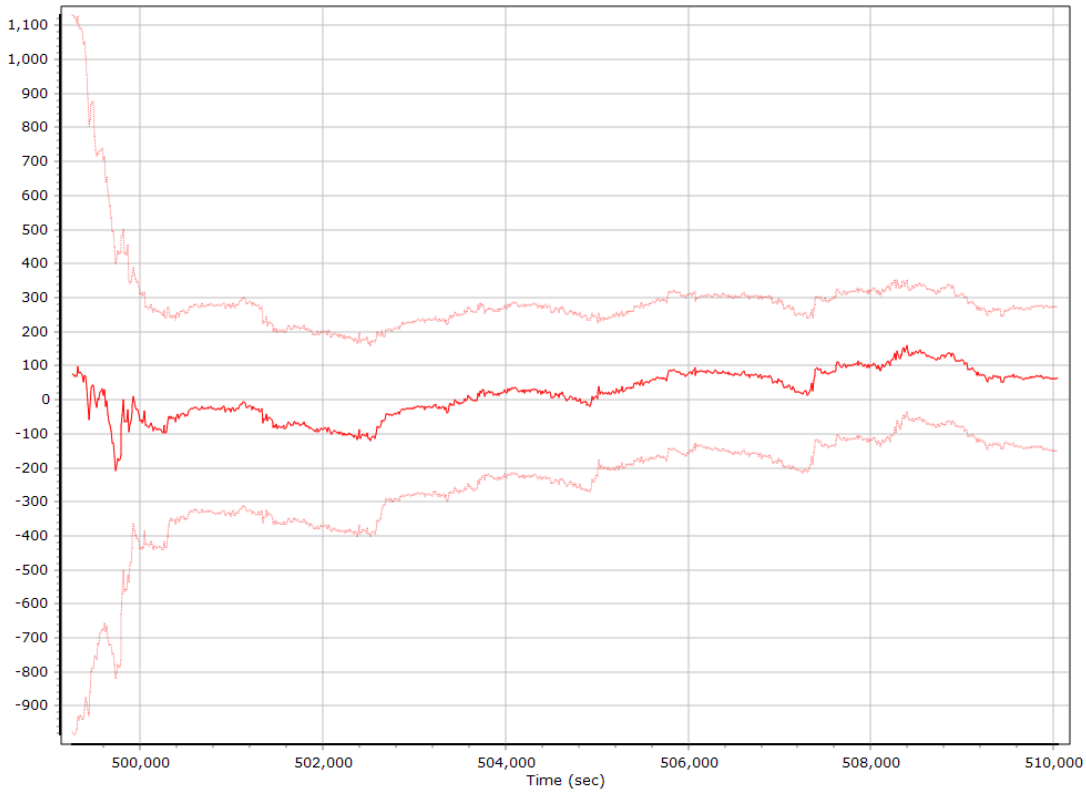
X Accelerometer Scale Error (ppm)



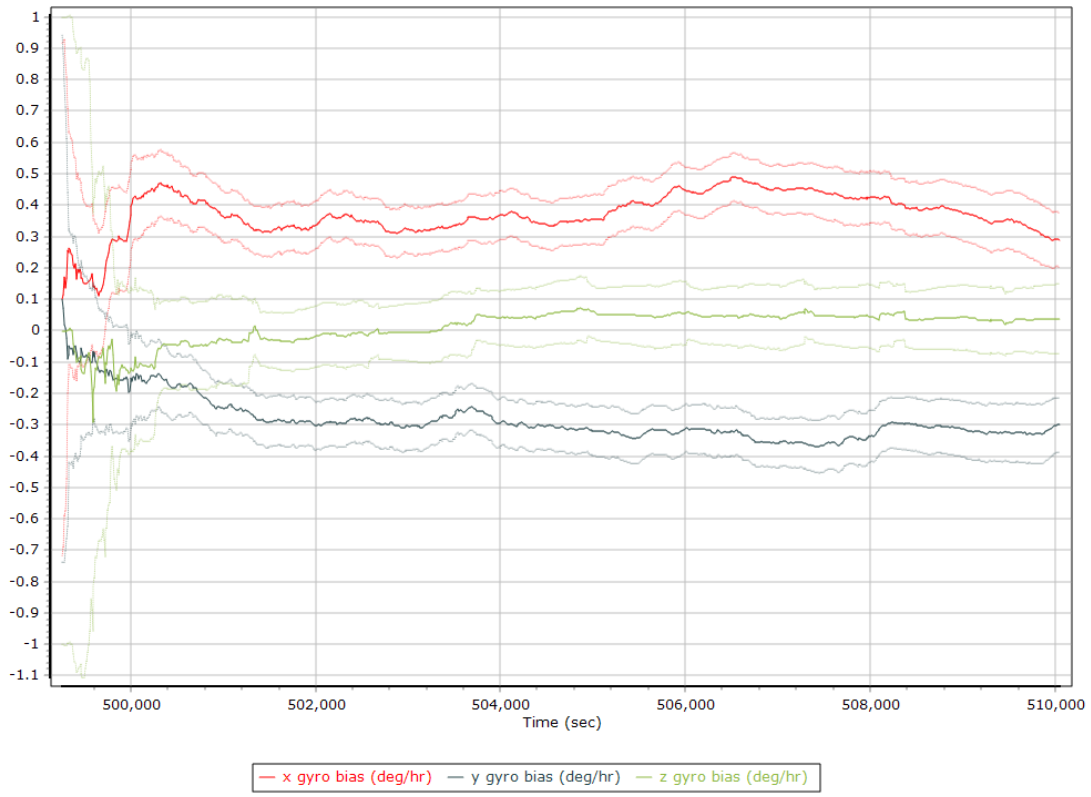
Y Accelerometer Scale Error (ppm)



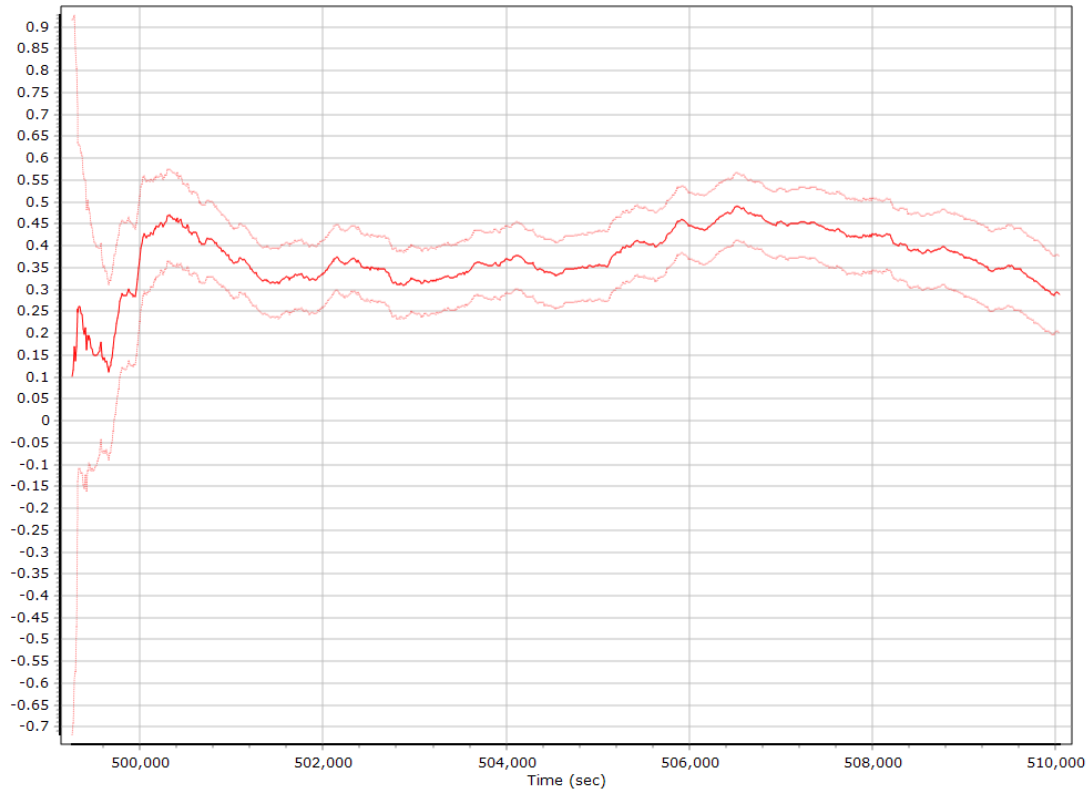
Z Accelerometer Scale Error (ppm)



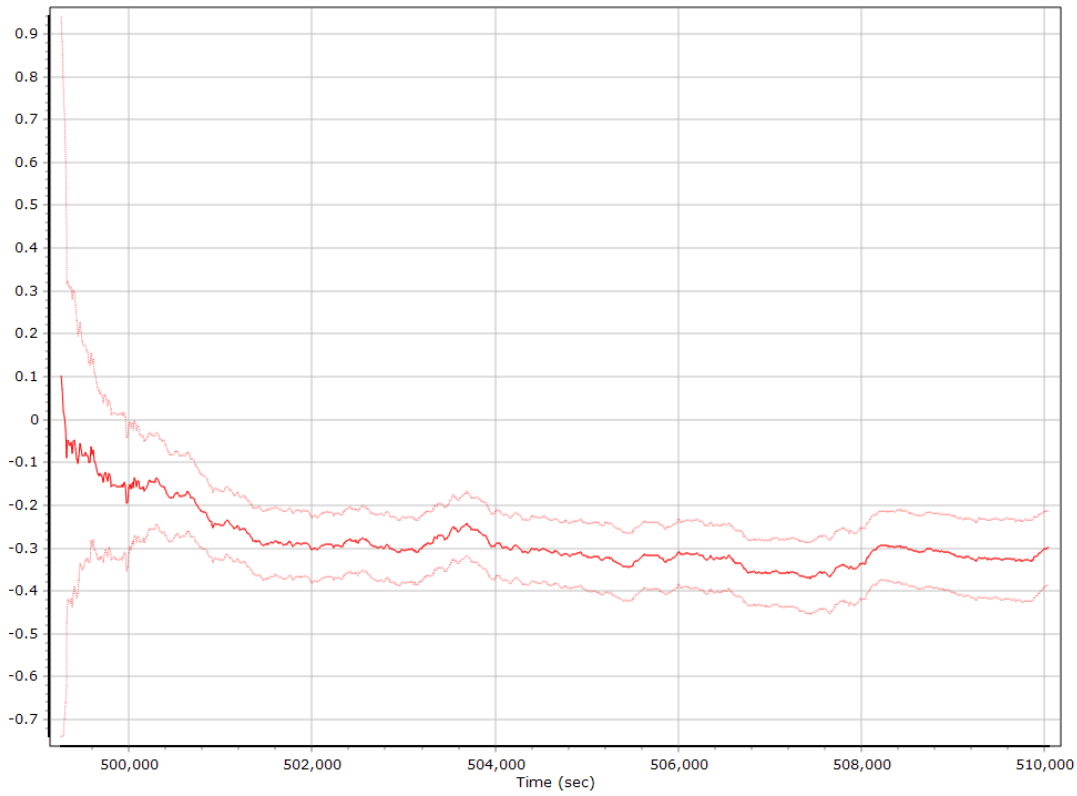
Gyro Bias (deg/h)



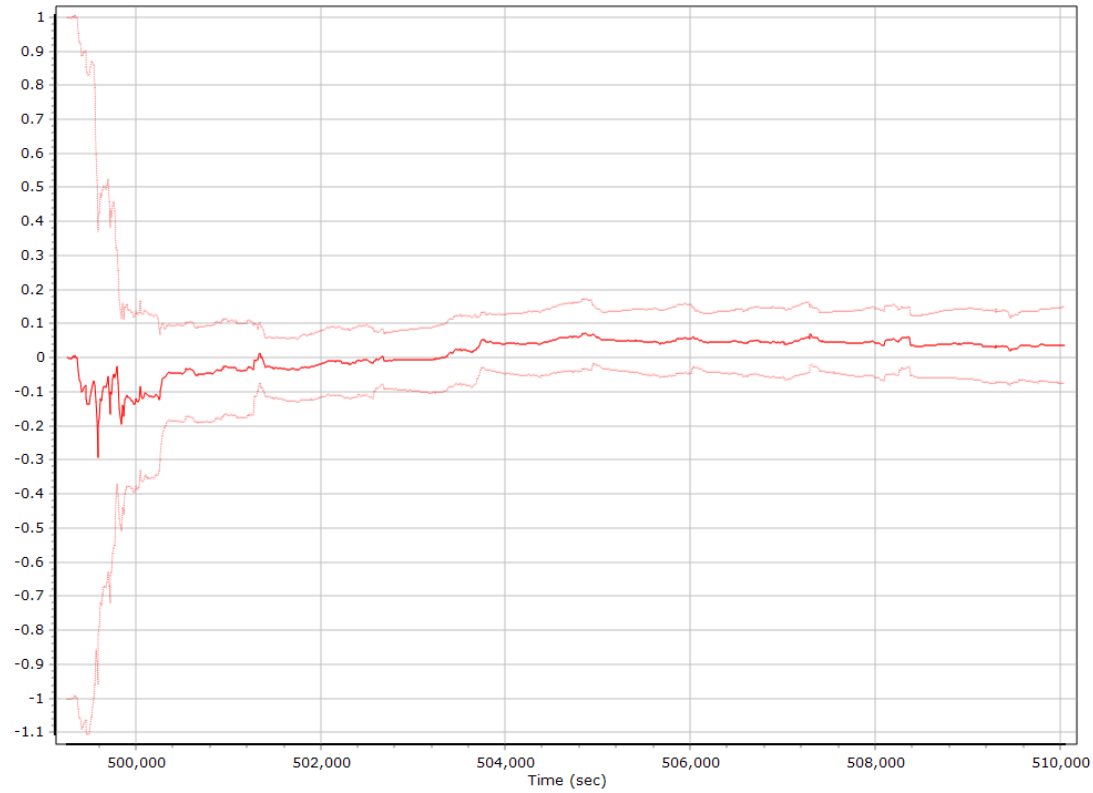
X Gyro Bias (deg/h)



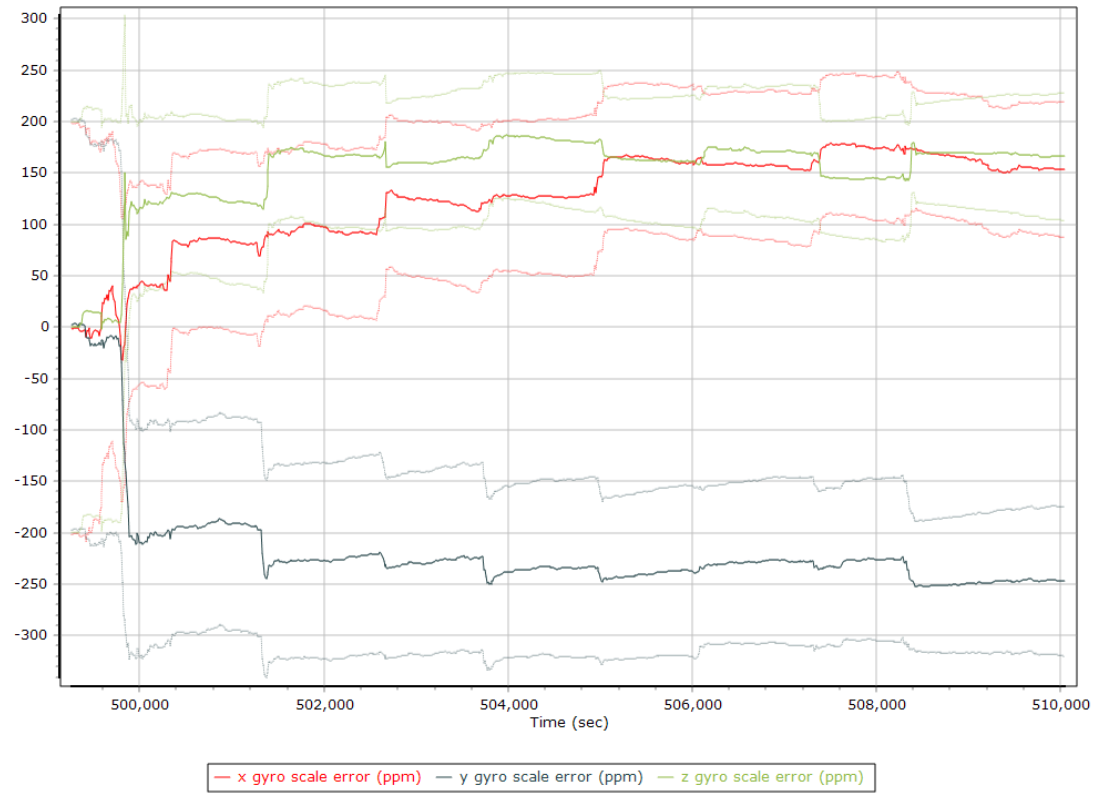
Y Gyro Bias (deg/h)



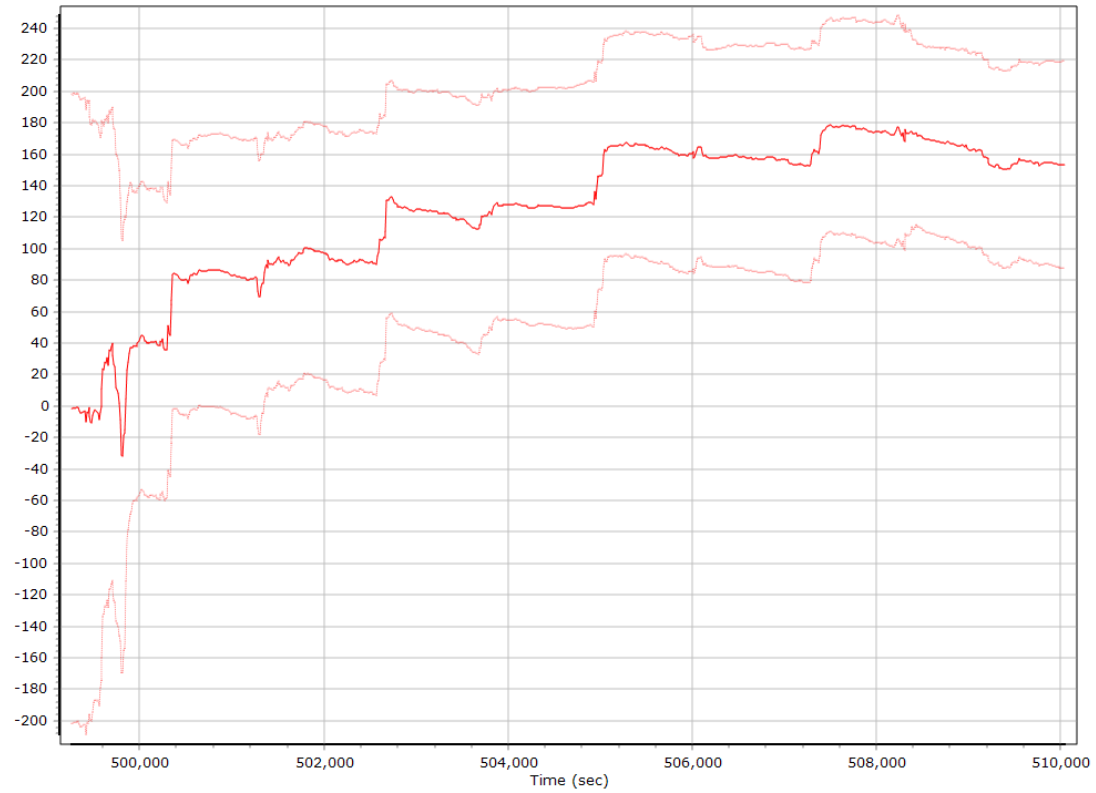
Z Gyro Bias (deg/h)



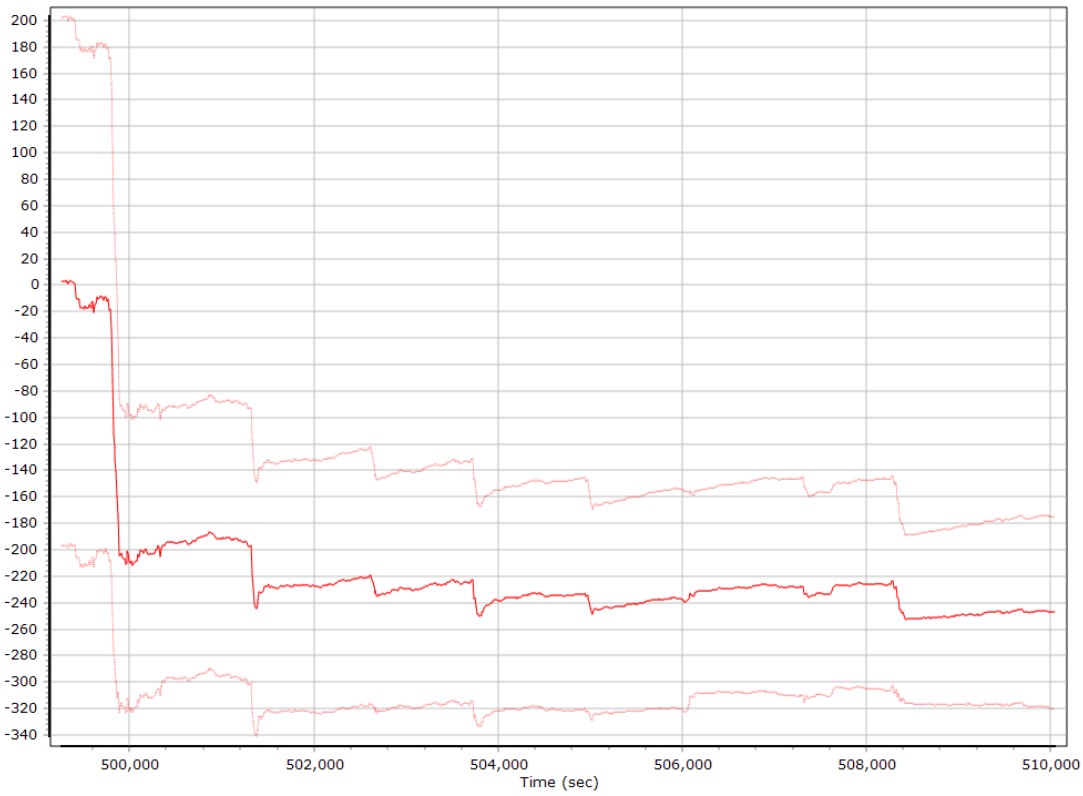
Gyro Scale Error (ppm)



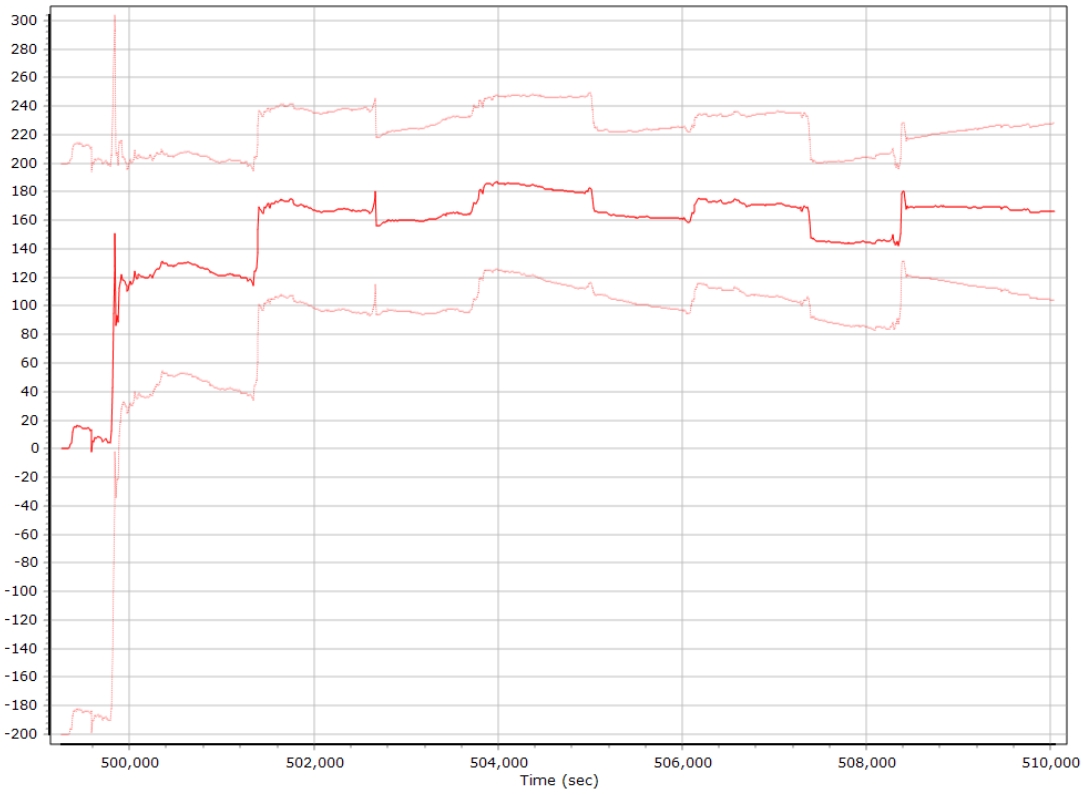
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

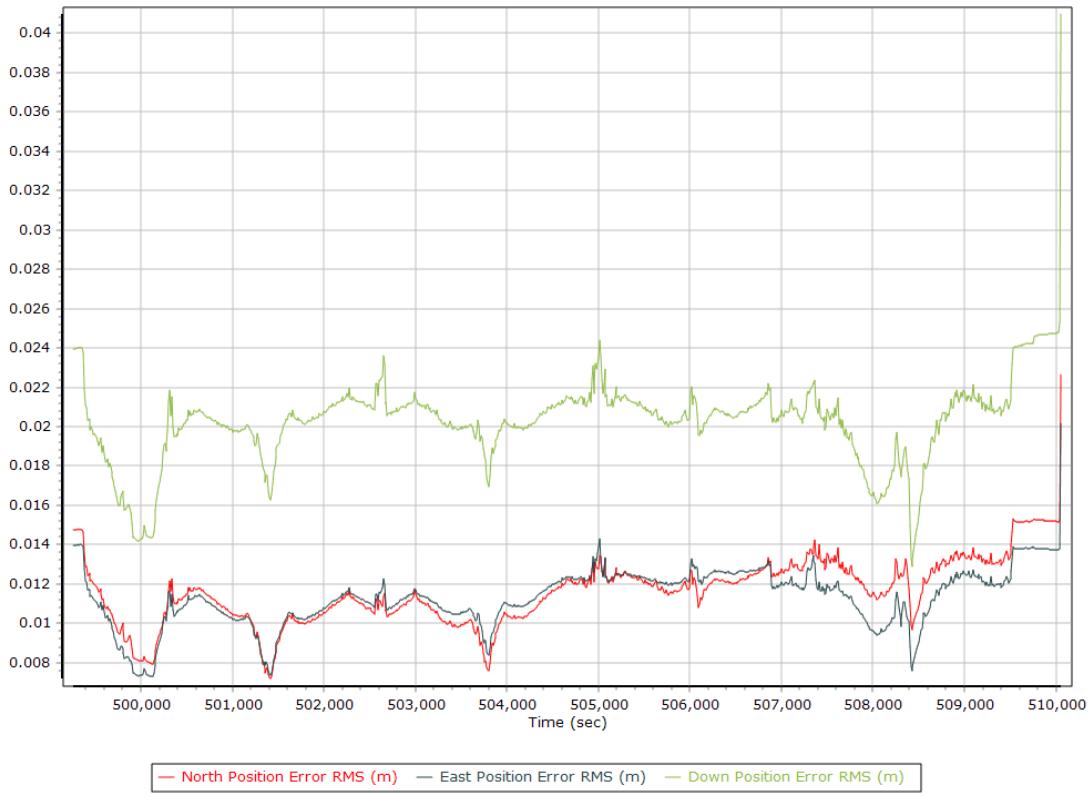


Z Gyro Scale Error (ppm)

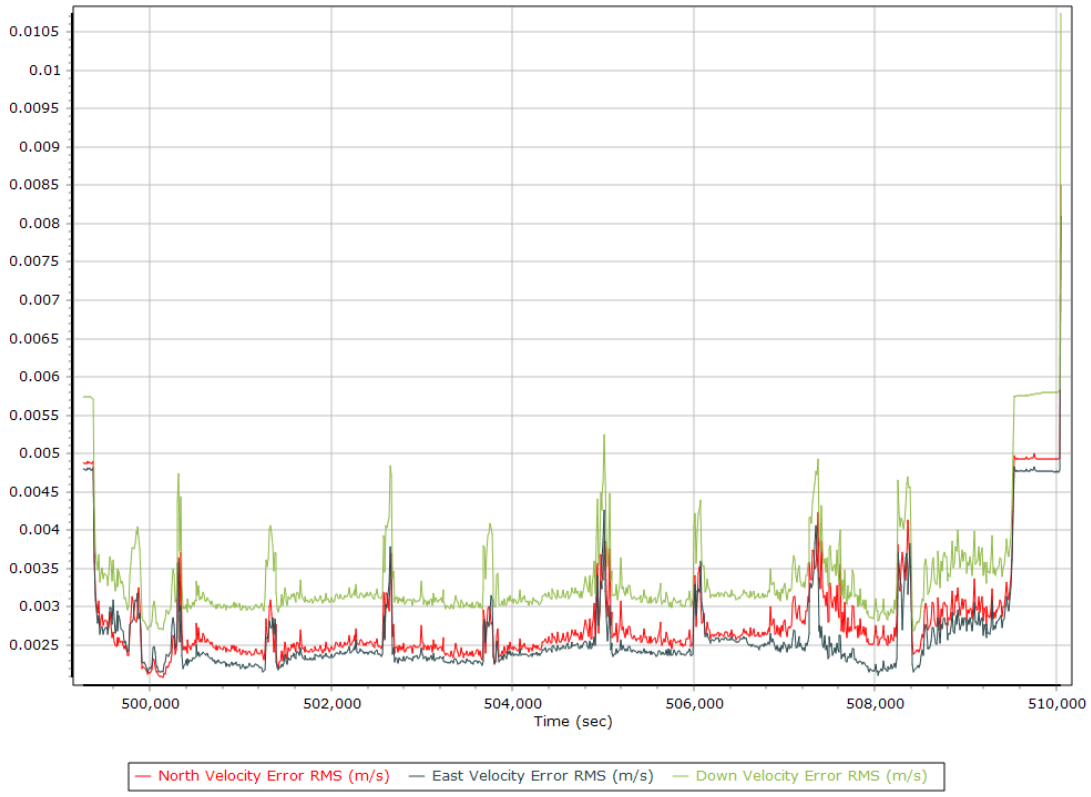


Smoothed Performance Metrics

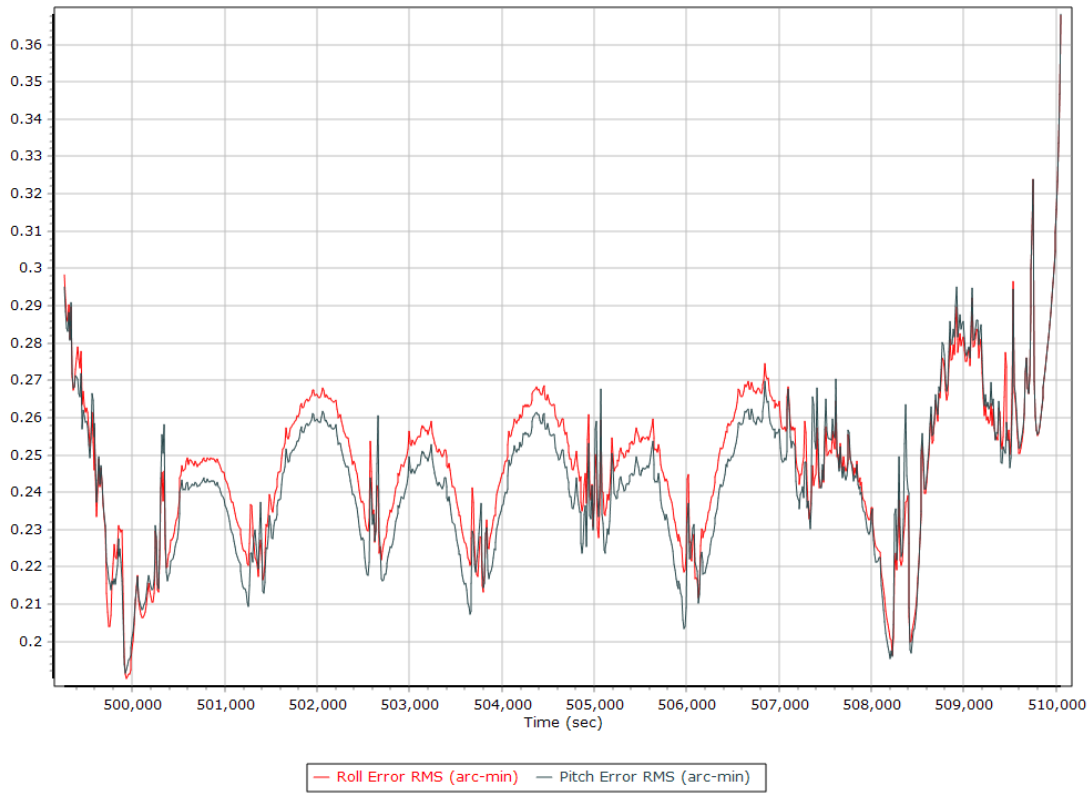
Position Error RMS (m)



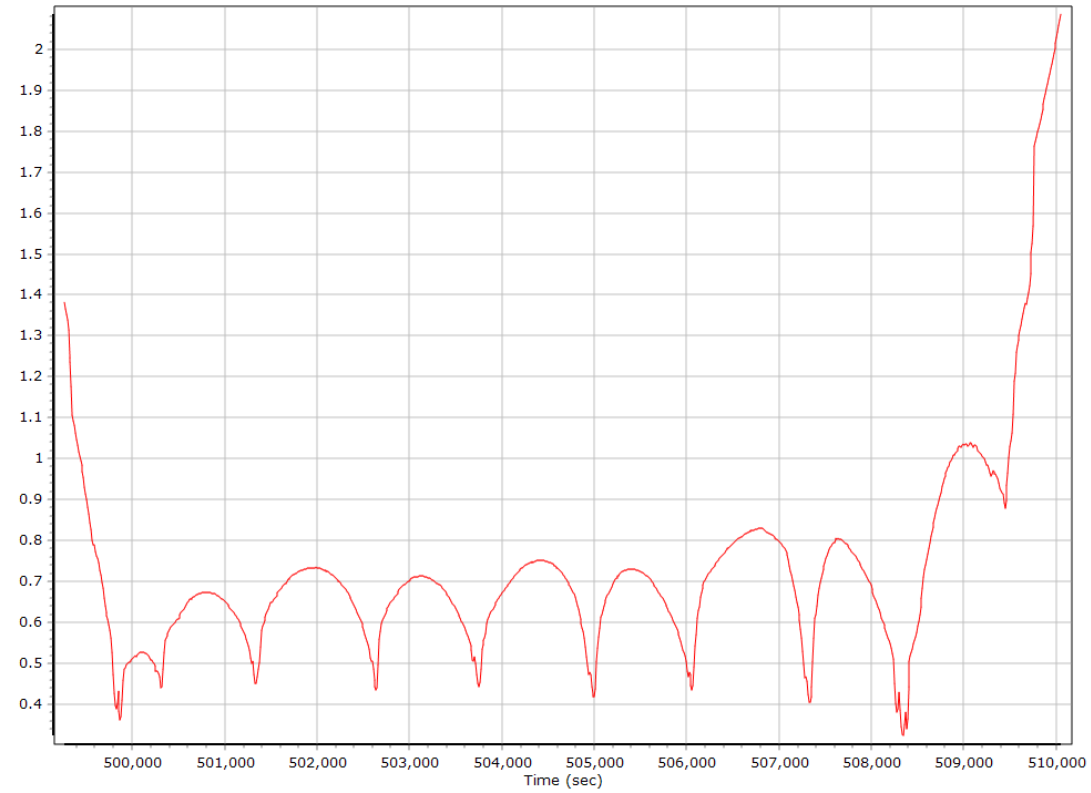
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

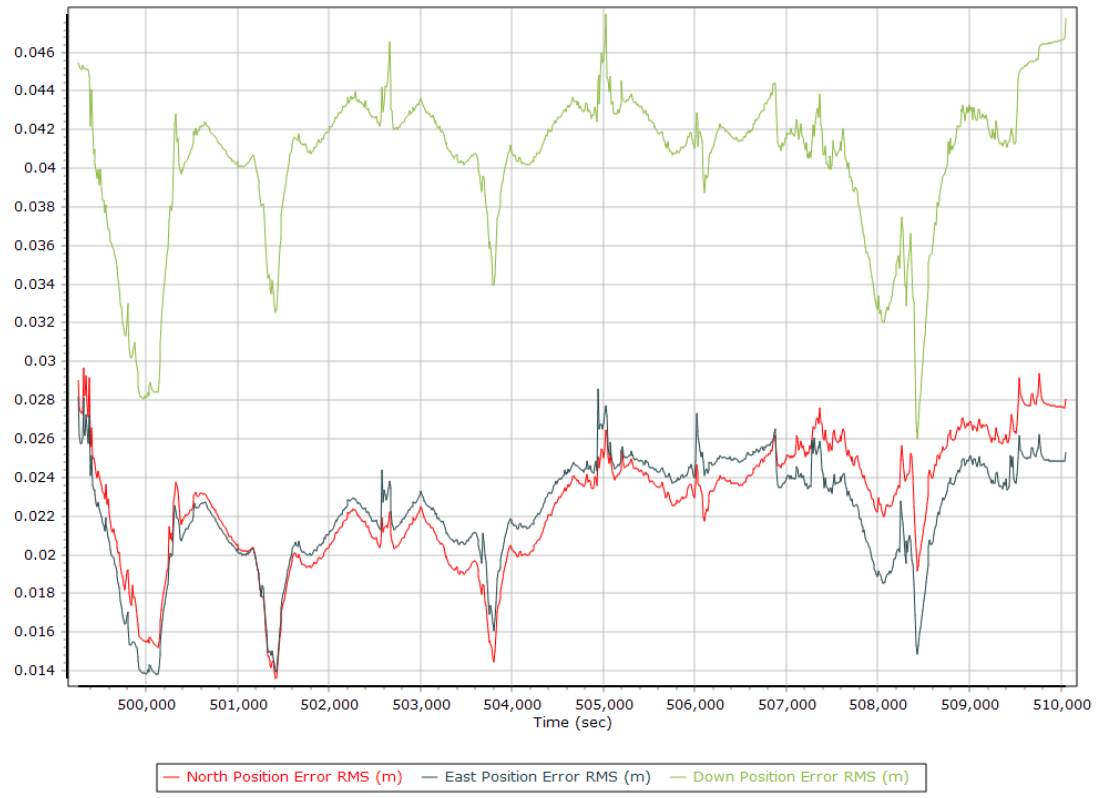


Heading Error RMS (arc-min)

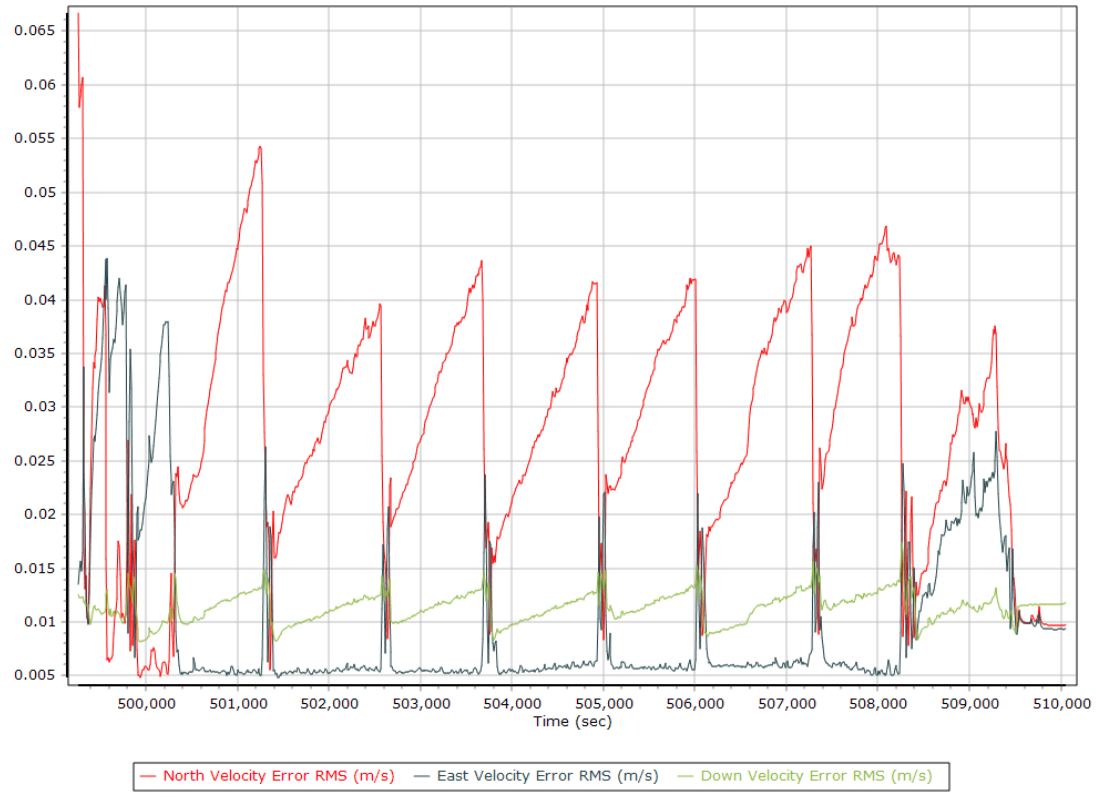


Forward Processed Performance Metrics

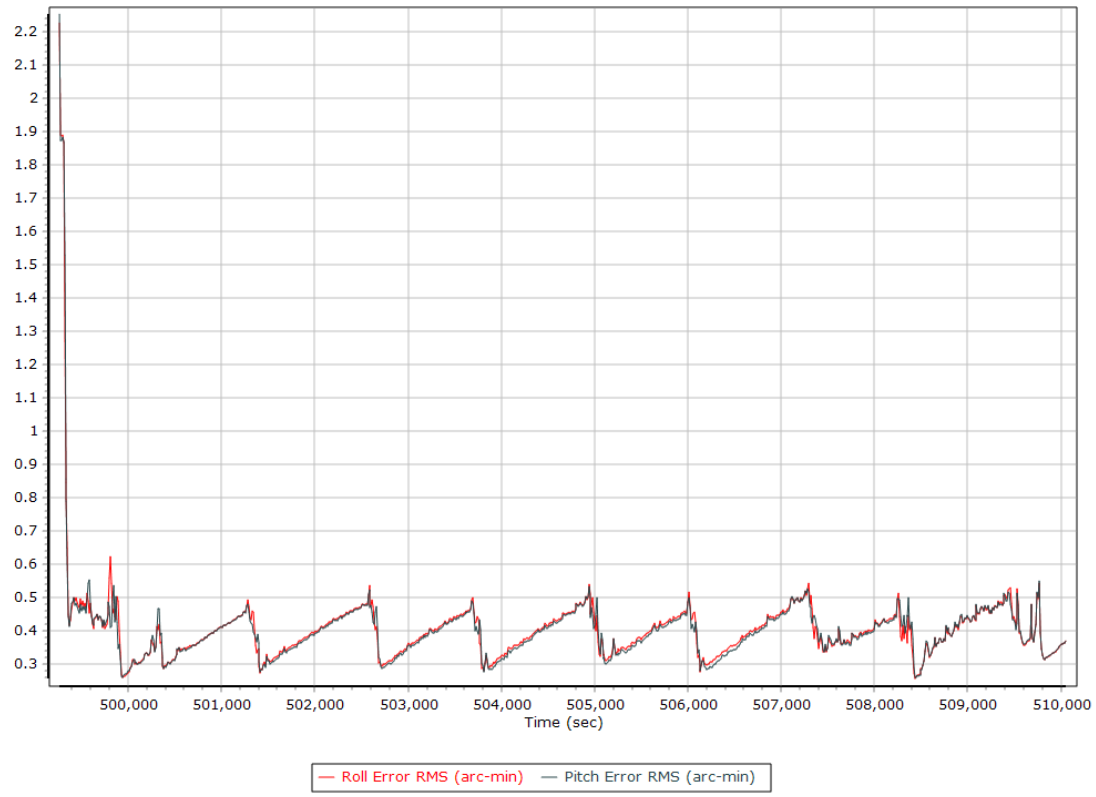
Position Error RMS (m)



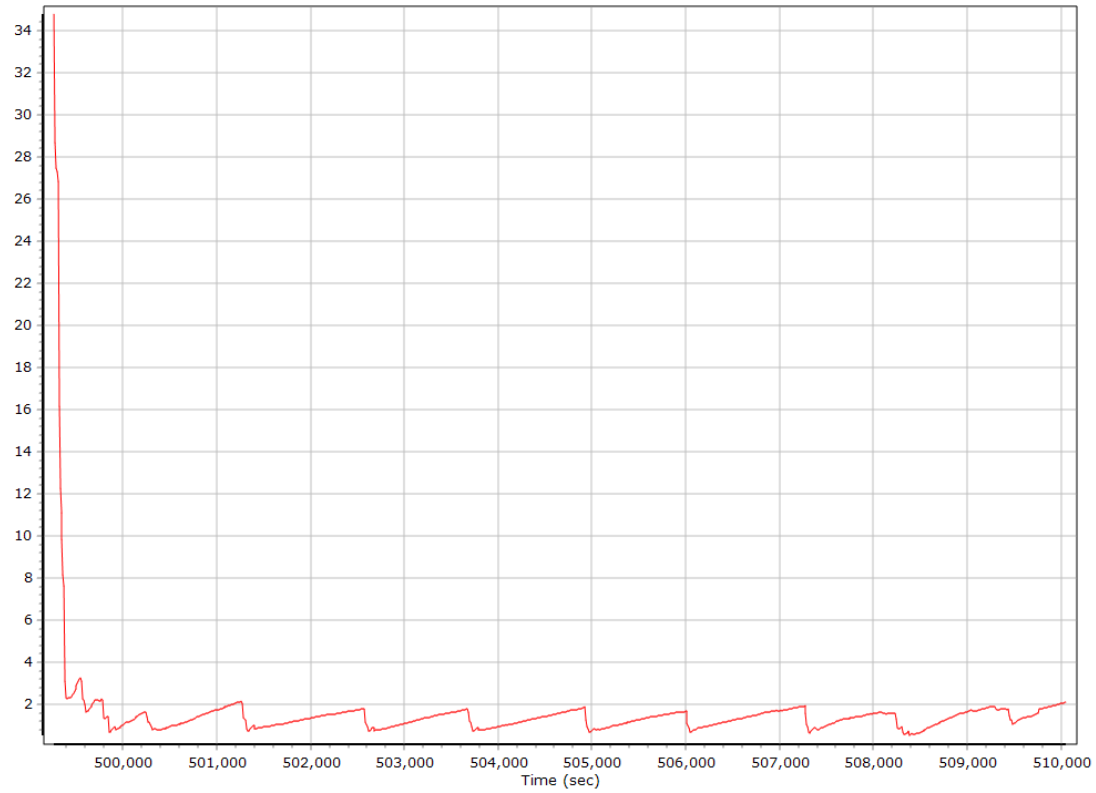
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

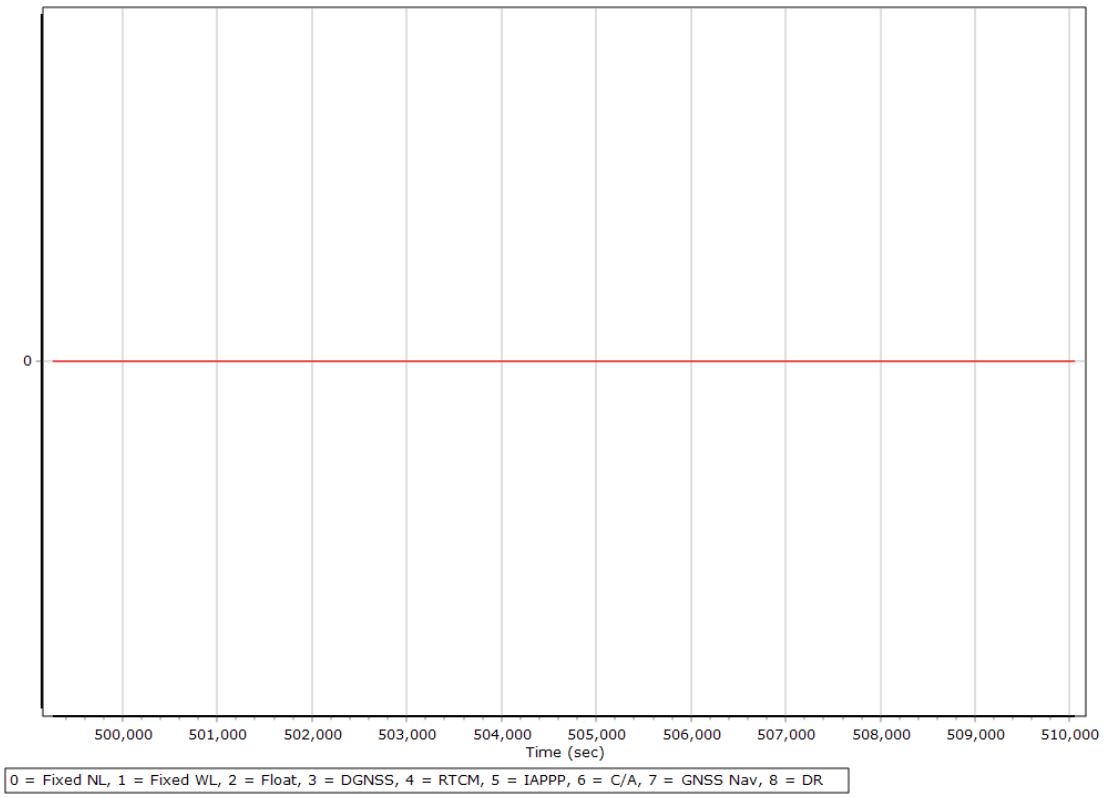


Heading Error RMS (arc-min)

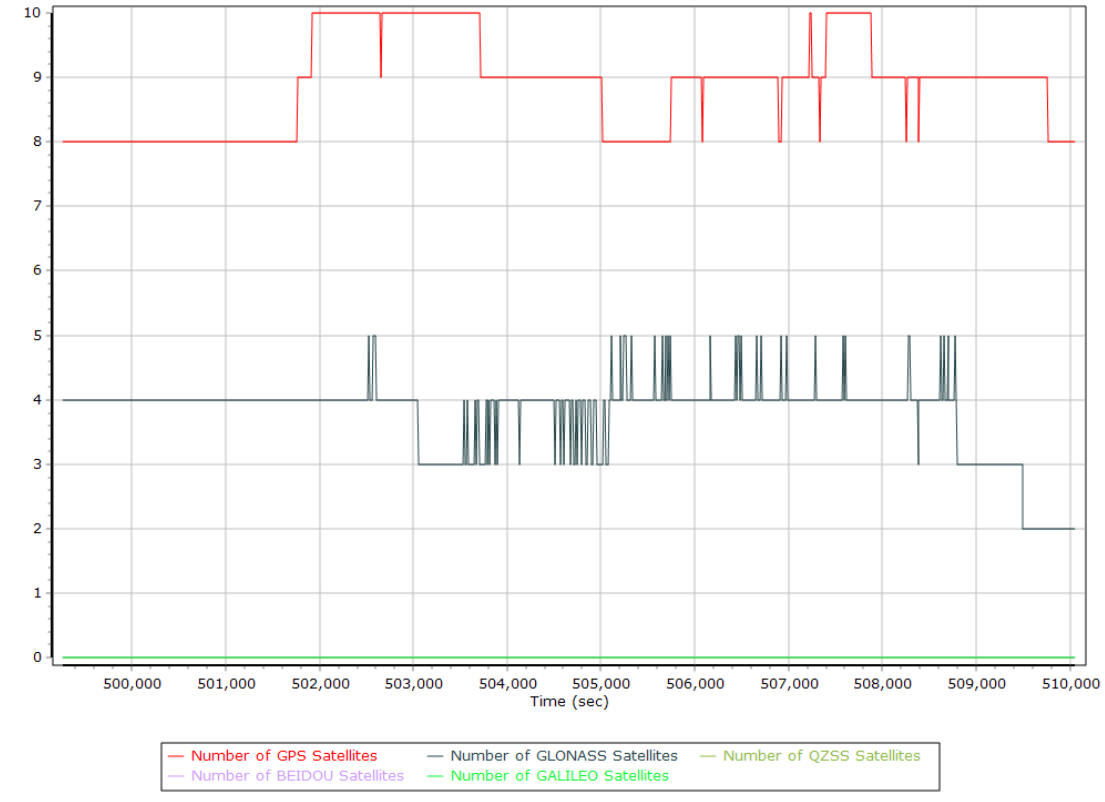


Smoothed Solution Status

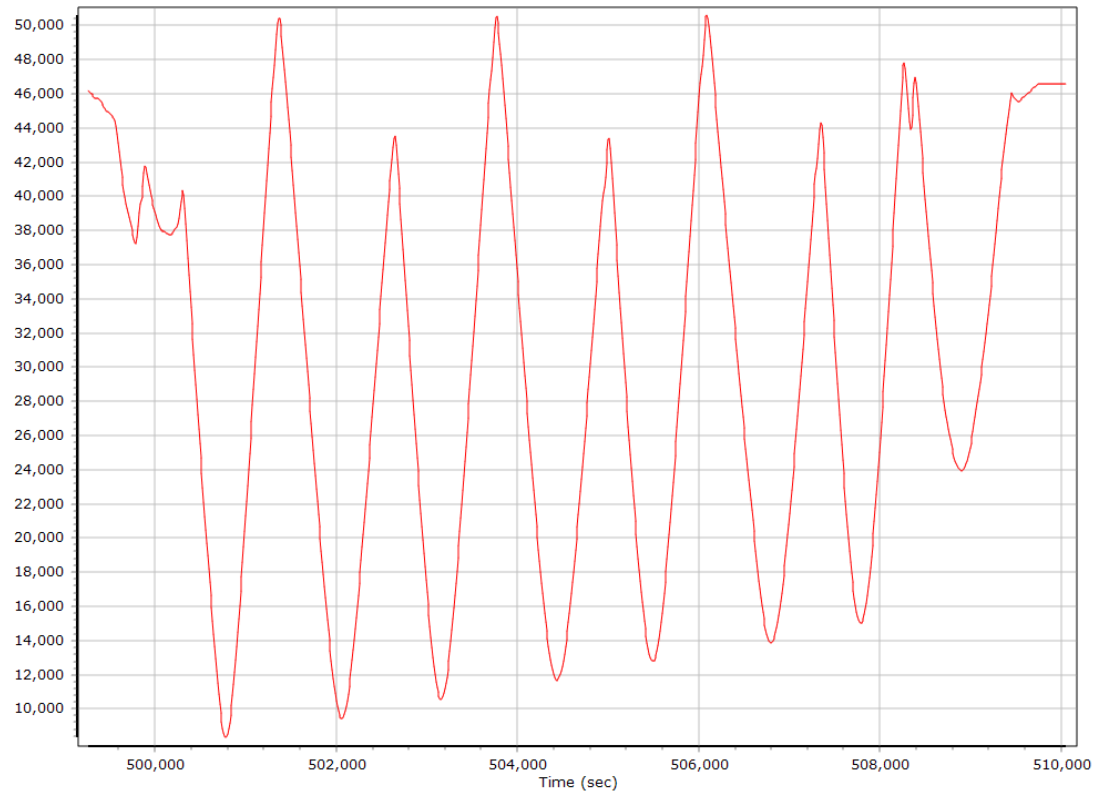
Processing Mode



Number of Satellites

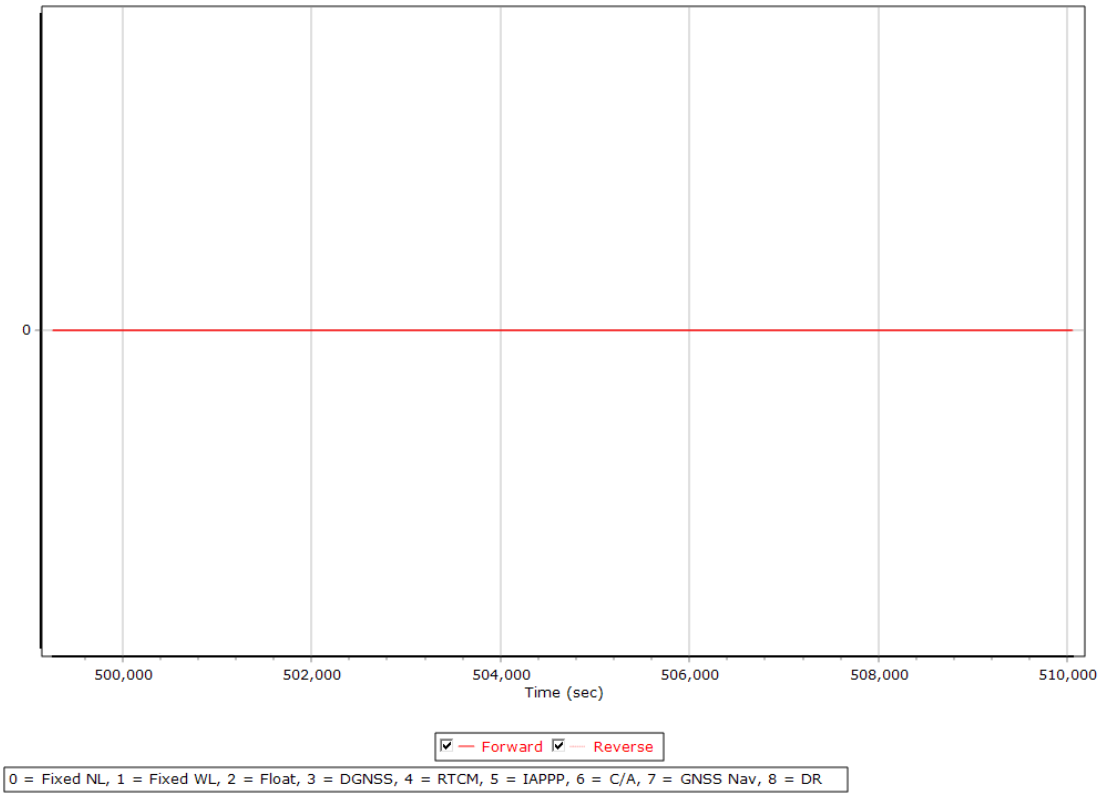


Baseline Length

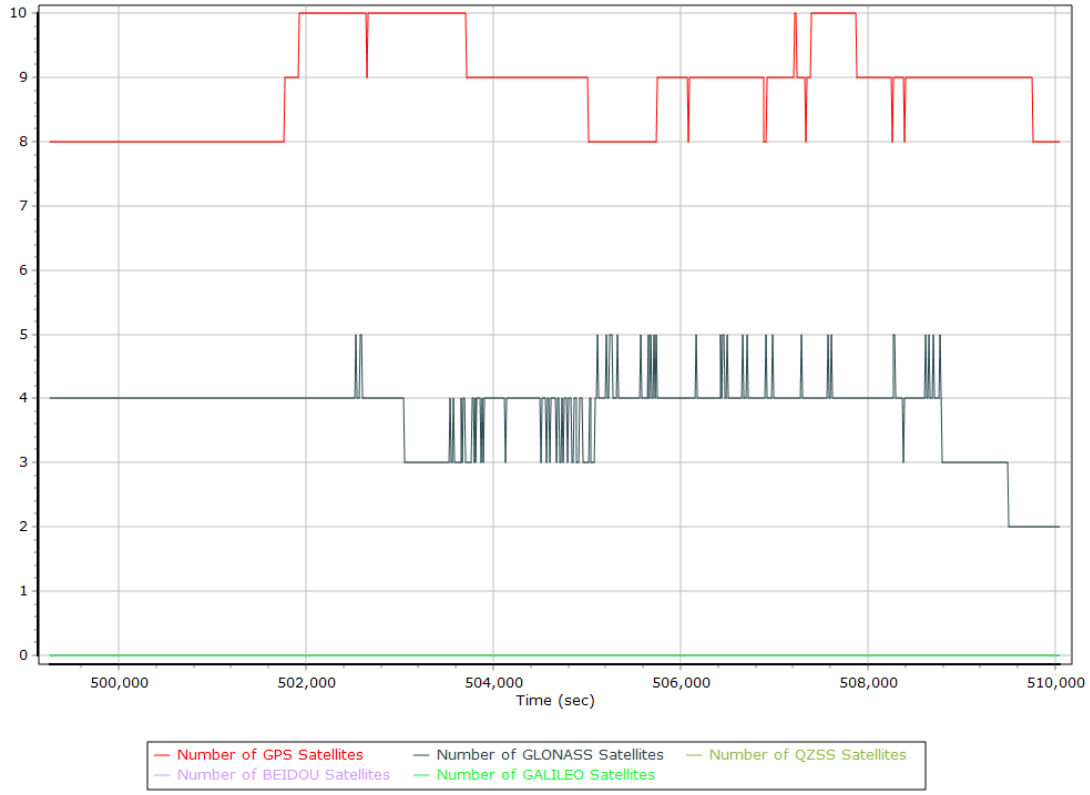


Forward Processed Solution Status

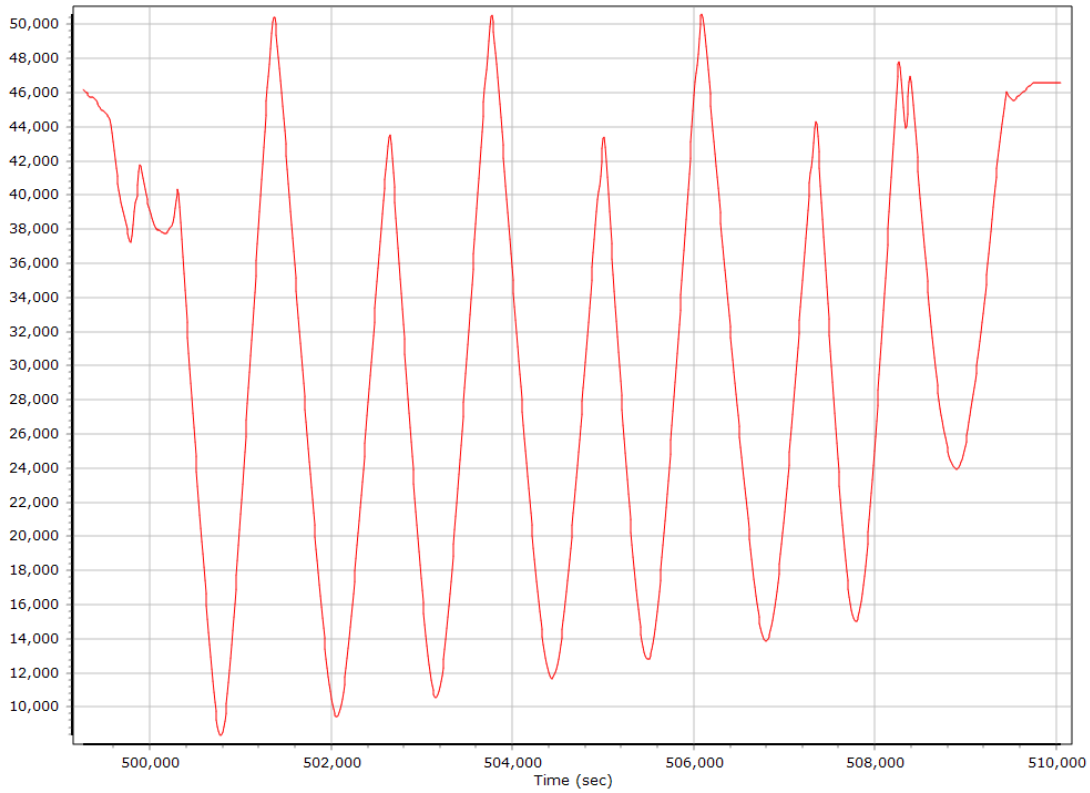
Processing Mode



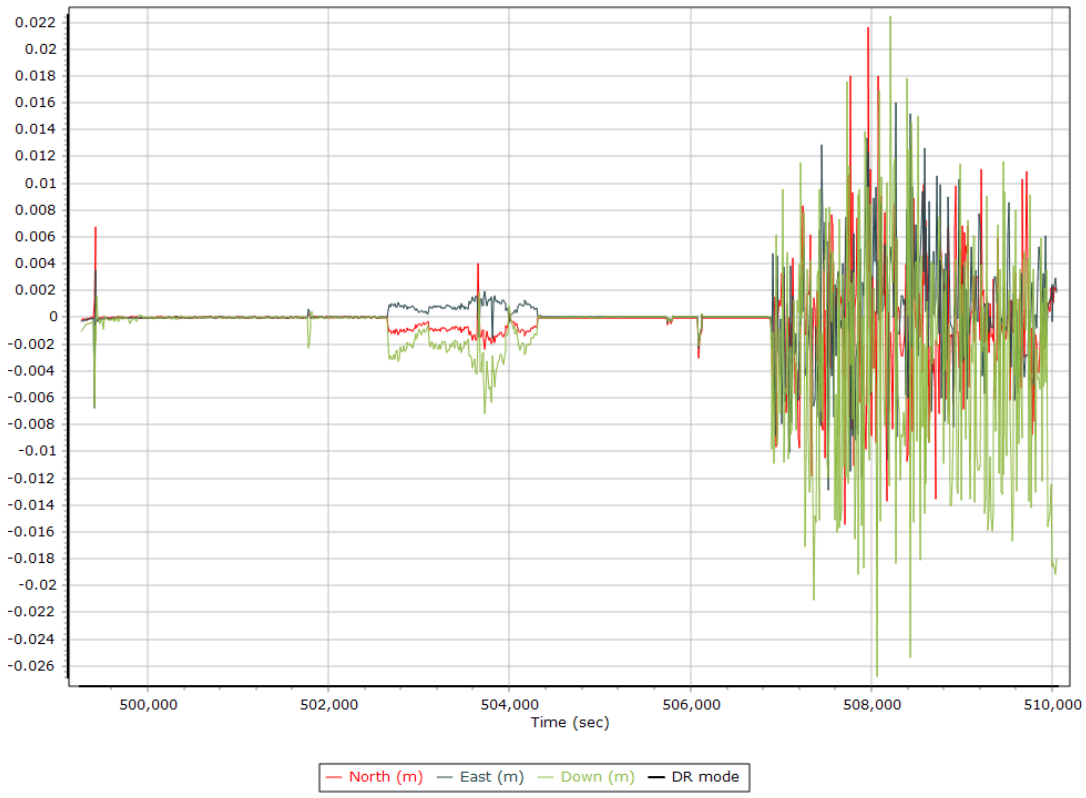
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_20200410C.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	499203.001 (4/10/2020 6:40:03 PM)		
Export end time	510054.003 (4/10/2020 9:40:54 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200410D
Processing date	2021-01-18 23:45:52
Mission date	2020-04-10 22:35:27
Mission duration	03:09:13.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.002	POS Data
ALS.003	POS Data
ALS.004	POS Data
ALS.005	POS Data
ALS.006	POS Data
ALS.007	POS Data
ALS.008	POS Data
ALS.009	POS Data
ALS.010	POS Data
ALS.011	POS Data
ALS.012	POS Data
ALS.013	POS Data
ALS.014	POS Data
ALS.015	POS Data
ALS.016	POS Data
ALS.017	POS Data
ALS.018	POS Data
ALS.019	POS Data

Input Files

File Name	File Type
Ephm1010.20g	GLONASS Broadcast Ephemeris
Ephm1010.20n	GPS Broadcast Ephemeris
Ephm1020.20g	GLONASS Broadcast Ephemeris
Ephm1020.20n	GPS Broadcast Ephemeris
iaal1010.20o	GNSS SingleBase
iaal1020.20o	GNSS SingleBase
iade1010.20o	GNSS SingleBase
iade1020.20o	GNSS SingleBase
iael1010.20o	GNSS SingleBase
iael1020.20o	GNSS SingleBase
iaht1010.20o	GNSS SingleBase
iaht1020.20o	GNSS SingleBase
iamn1010.20o	GNSS SingleBase
iamn1020.20o	GNSS SingleBase
iamq1010.20o	GNSS SingleBase
iamq1020.20o	GNSS SingleBase
iana1010.20o	GNSS SingleBase
iana1020.20o	GNSS SingleBase
iata1010.20o	GNSS SingleBase
iata1020.20o	GNSS SingleBase
jfws1010.20o	GPS SingleBase
jfws1020.20o	GPS SingleBase
mnca1010.20o	GNSS SingleBase
mnca1020.20o	GNSS SingleBase
mney1010.20o	GNSS SingleBase
mney1020.20o	GNSS SingleBase
mnps1010.20o	GNSS SingleBase
mnps1020.20o	GNSS SingleBase
mnsv1010.20o	GNSS SingleBase
mnsv1020.20o	GNSS SingleBase
mnwn1010.20o	GNSS SingleBase
mnwn1020.20o	GNSS SingleBase
wlnc1010.20o	GNSS SingleBase
wlnc1020.20o	GNSS SingleBase
igr21004.sp3	GPS Precise Ephemeris
igr21005.sp3	GPS Precise Ephemeris
igr21006.sp3	GPS Precise Ephemeris
igr21010.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200410D.out	SBET Trajectory File
SBET_20200410D.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.002		
Last raw data file	ALS.019		
Start GPS week	2100		
Start time	513308.768 (4/10/2020 10:35:08 PM)		
End time	524661.527 (4/11/2020 1:44:21 AM)		
Start of fine alignment	513328.215 (4/10/2020 10:35:28 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

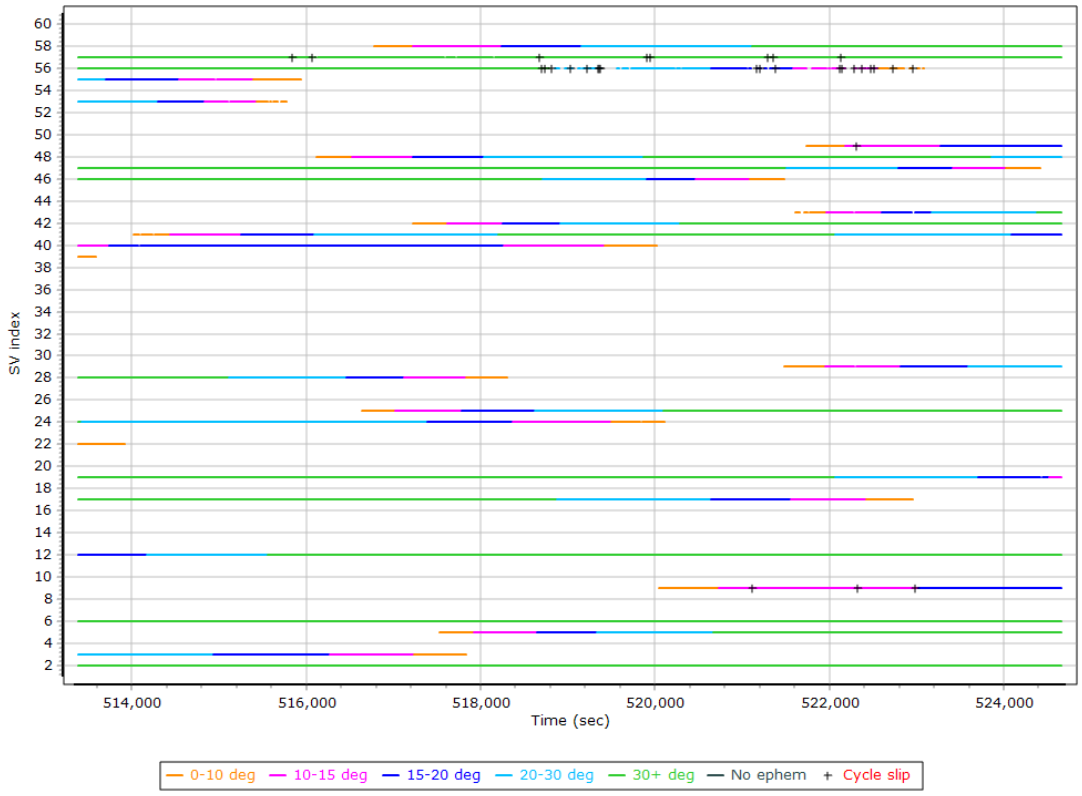
Rover Data QC

Raw IMU Import QC Summary

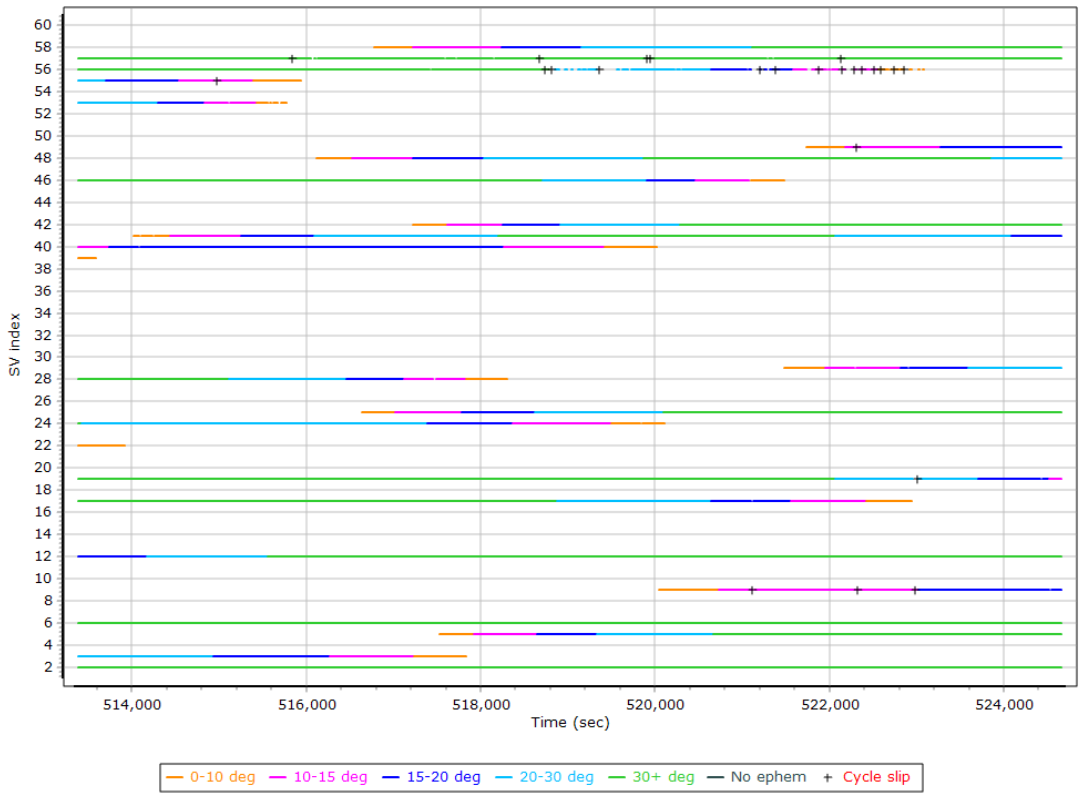
IMU data input file	imu_20200410D.dat
IMU data check log file	imudt_20200410D.log
IMU Records Processed	2271130
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

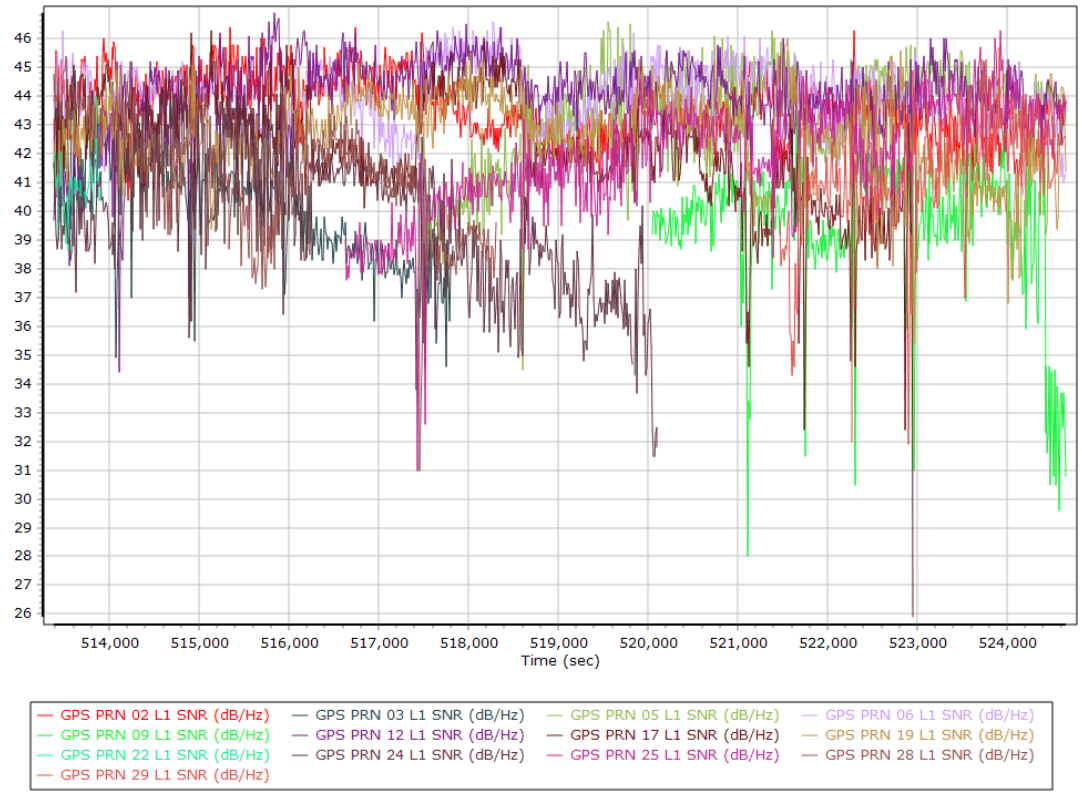
L1 Satellite Lock/Elevation



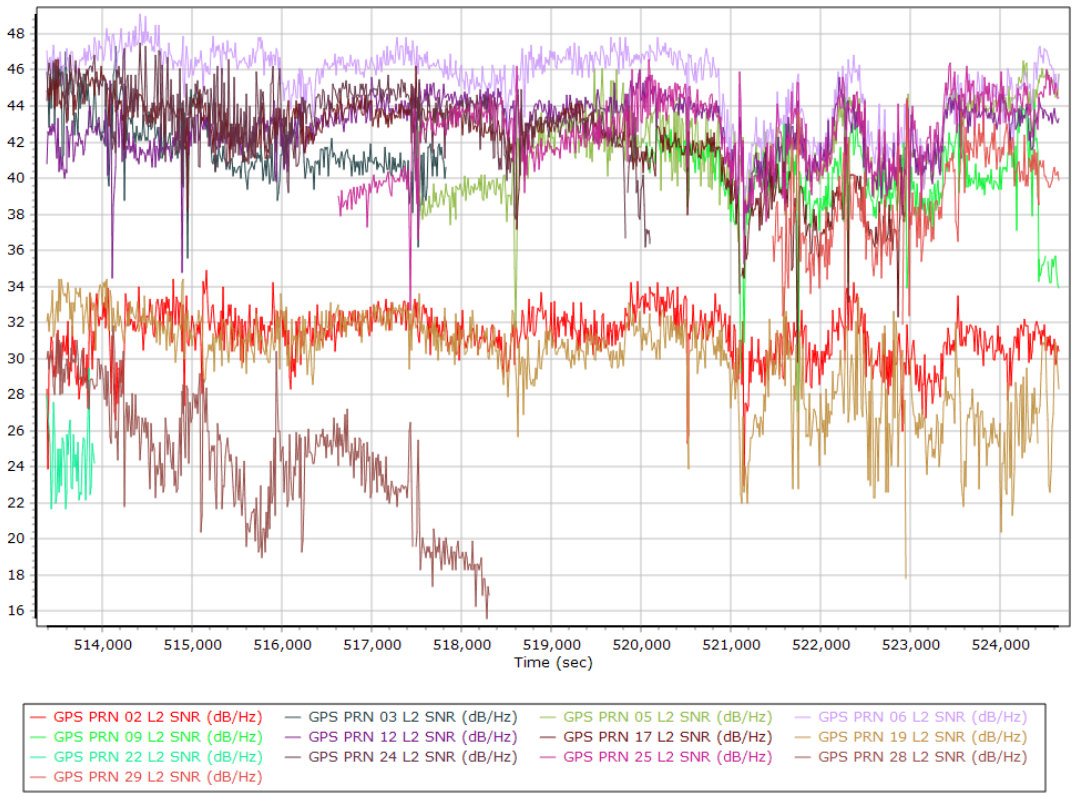
L2 Satellite Lock/Elevation



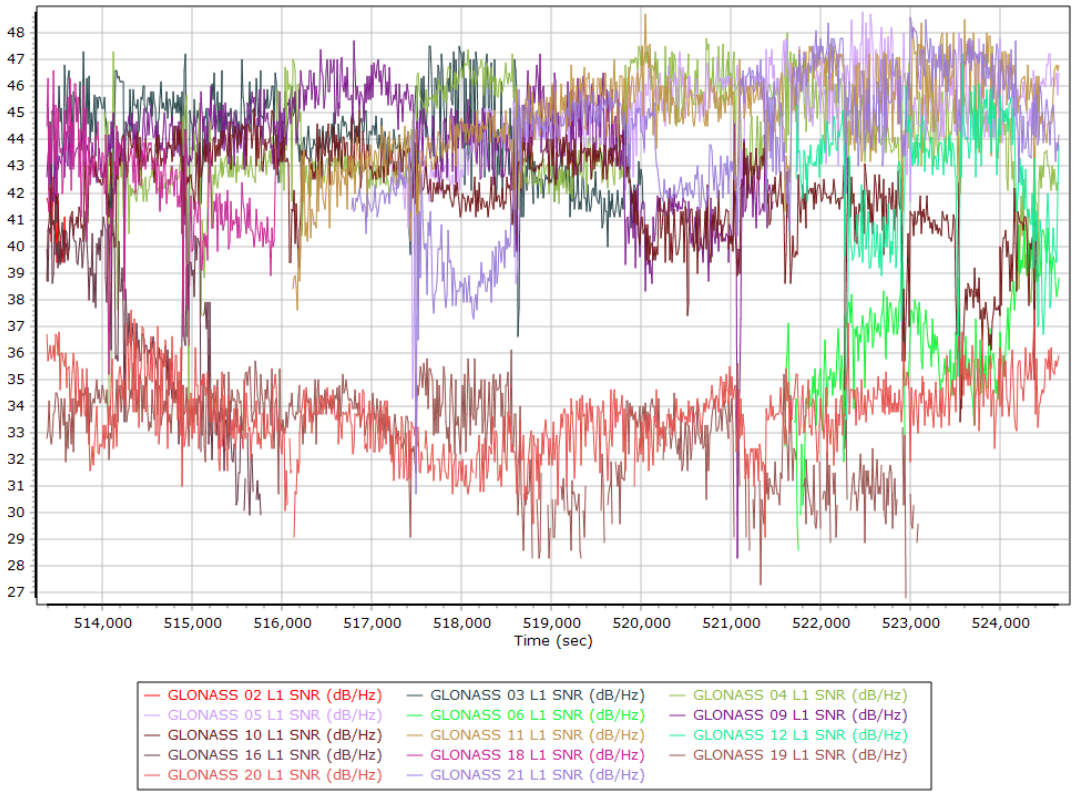
GPS L1 SNR



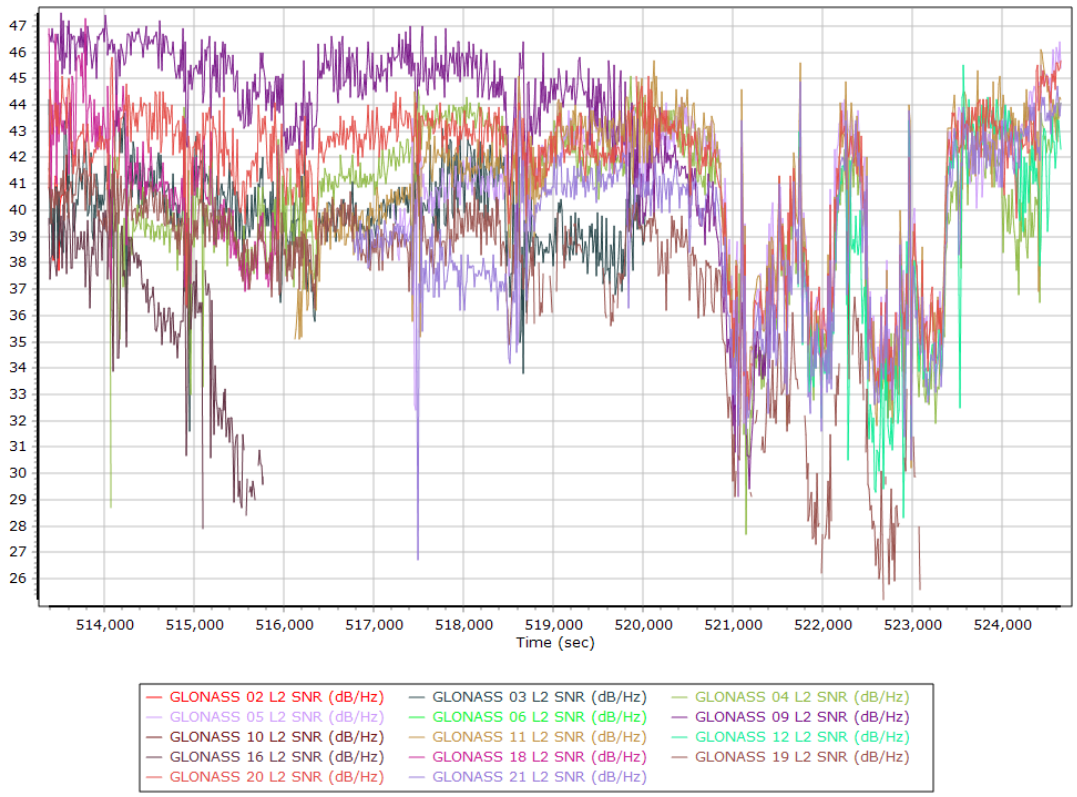
GPS L2 SNR



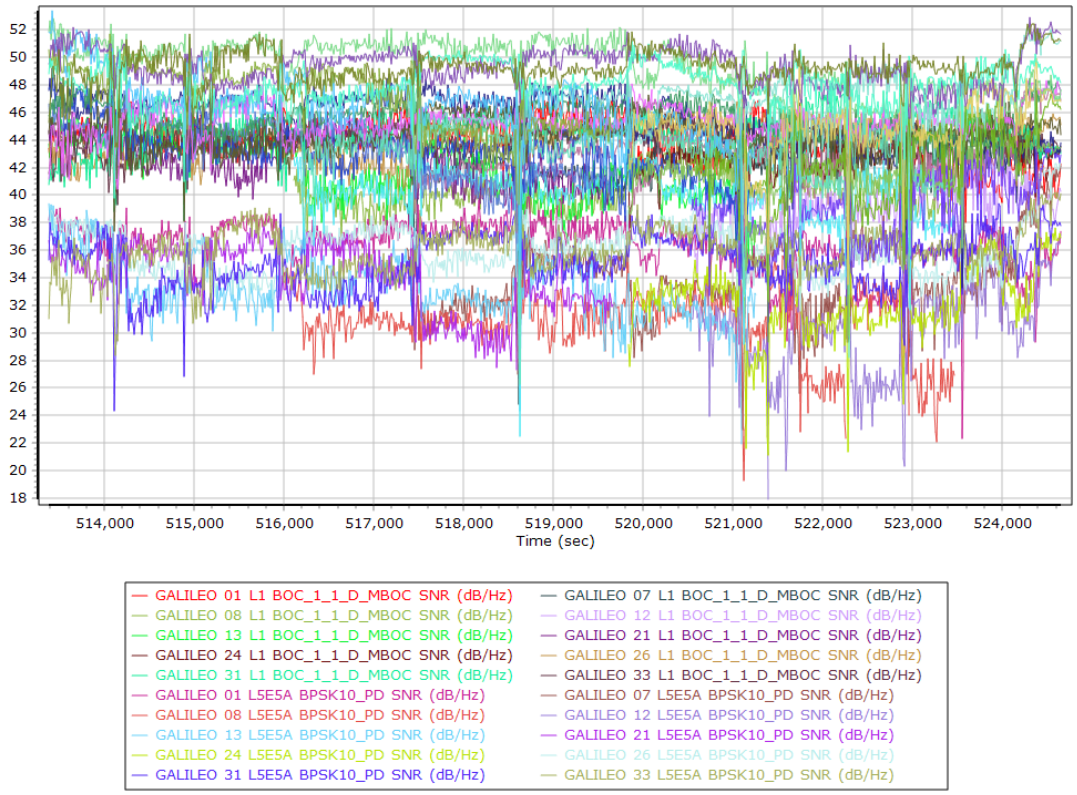
GLONASS L1 SNR



GLONASS L2 SNR

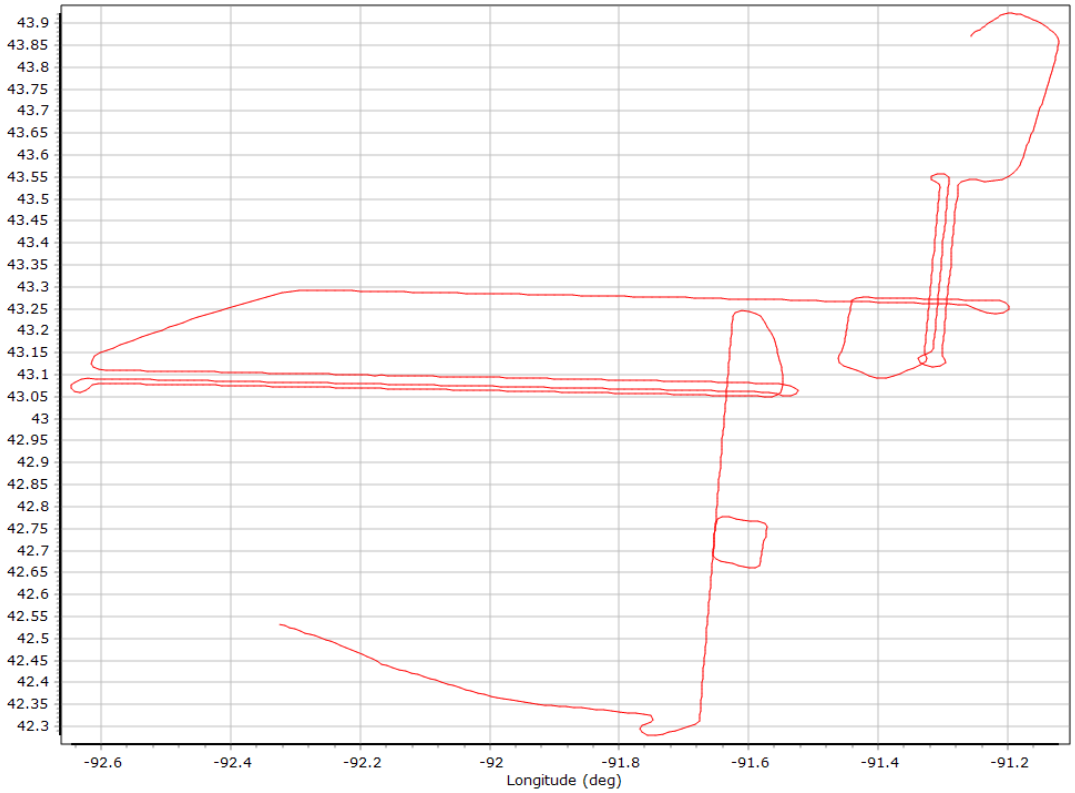


GALILEO SNR

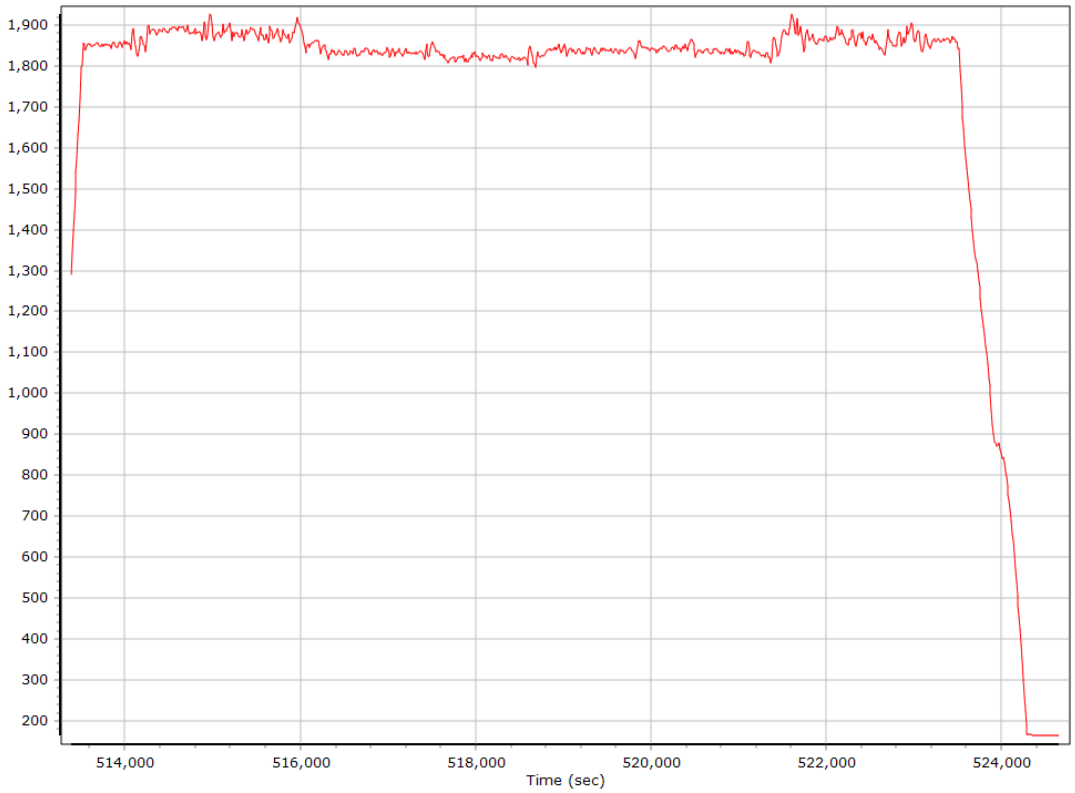


Smoothed Trajectory Information

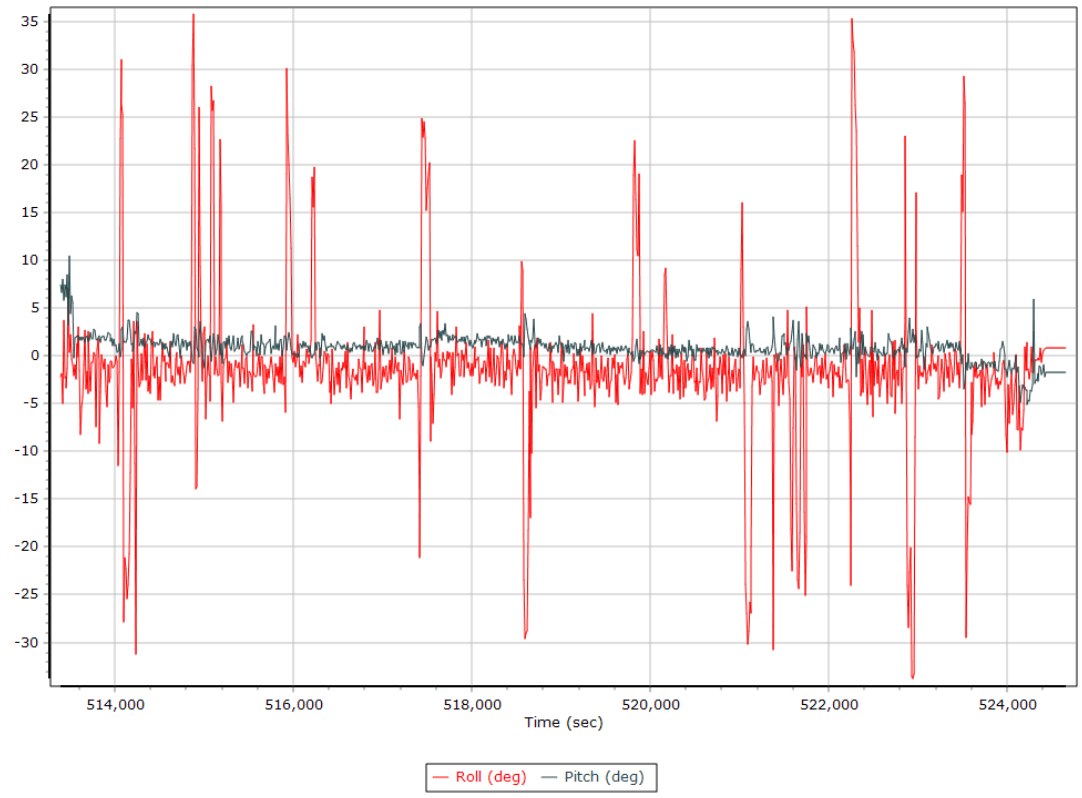
Top View



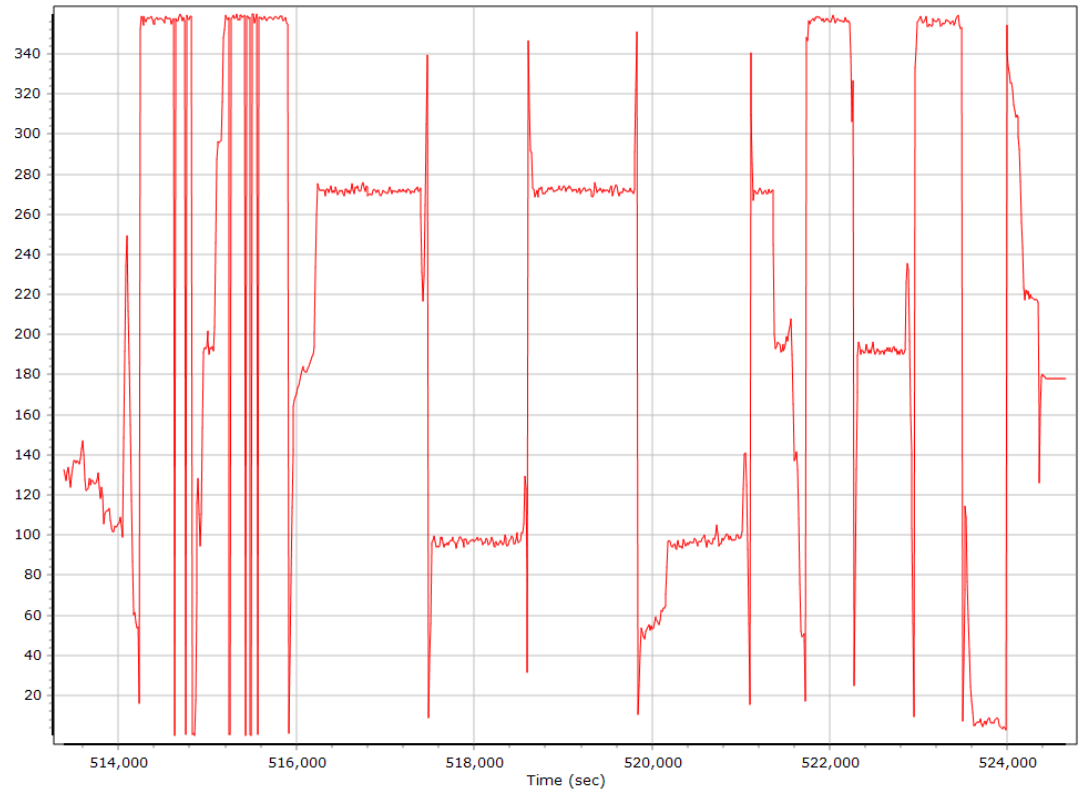
Altitude



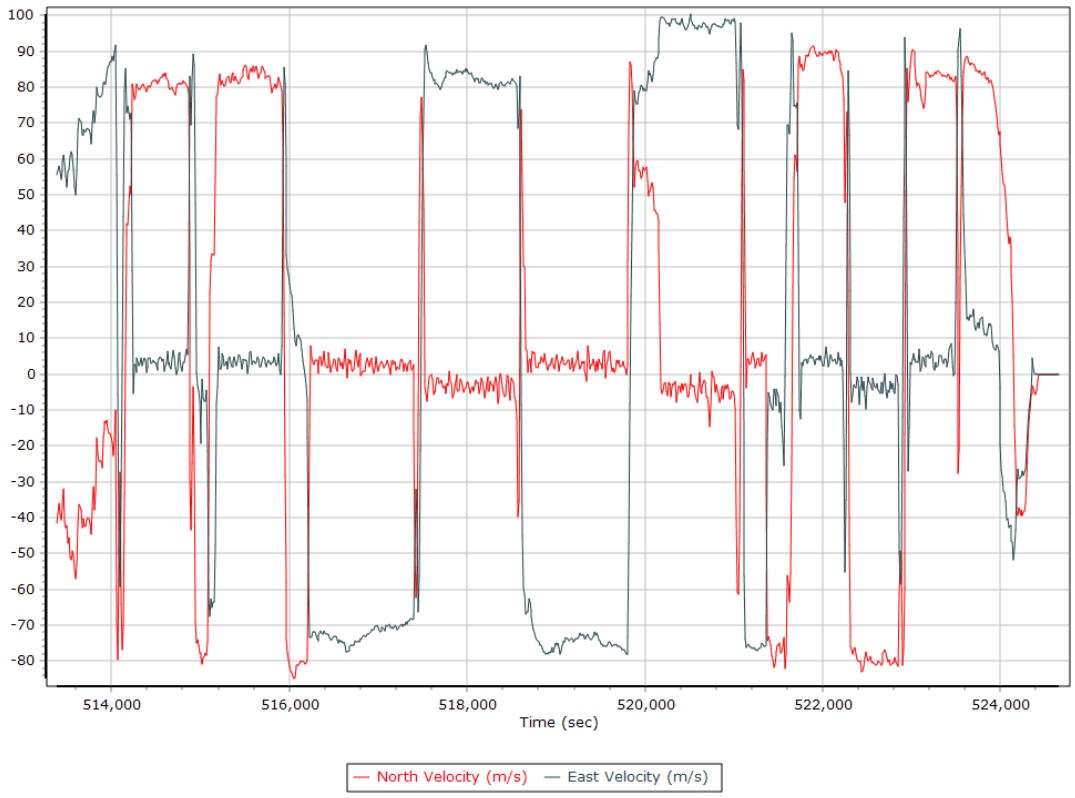
Roll/Pitch



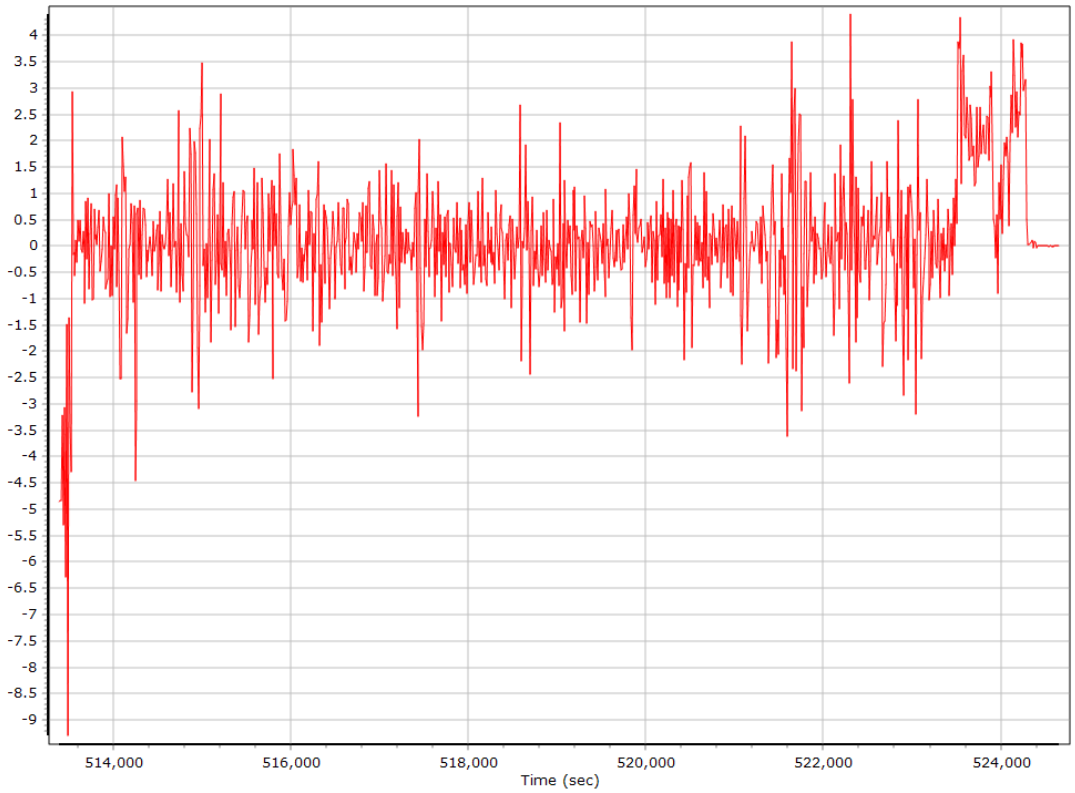
Heading



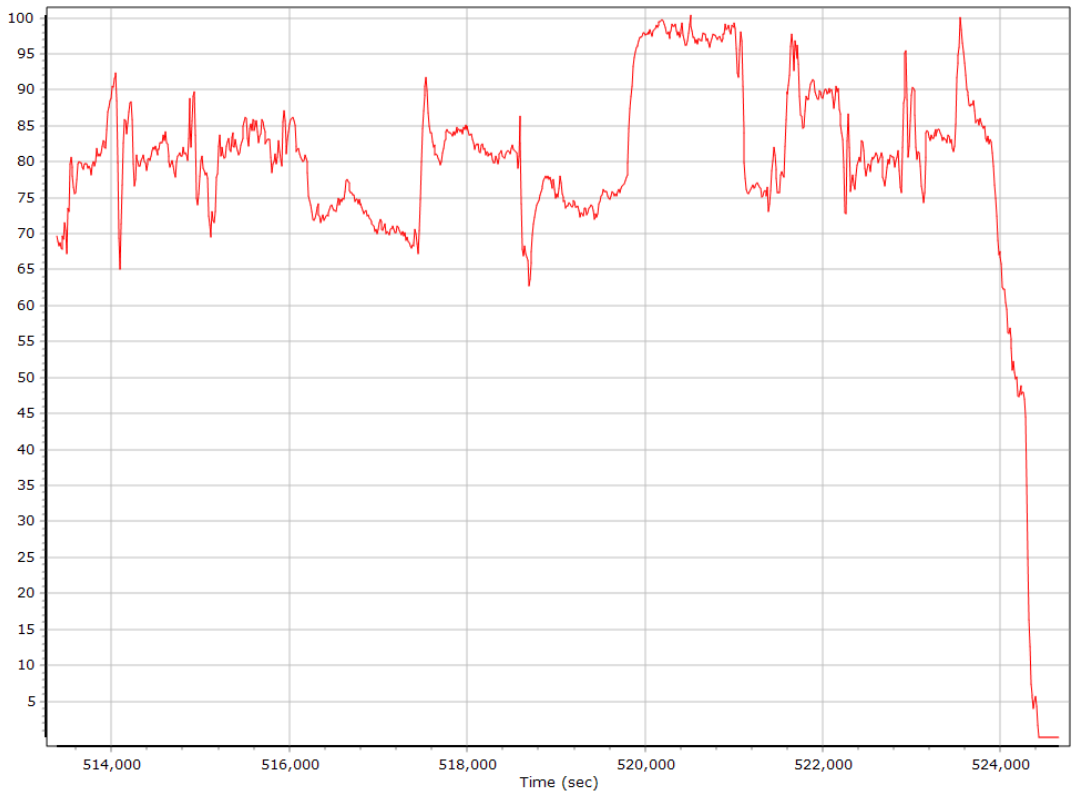
North/East Velocity



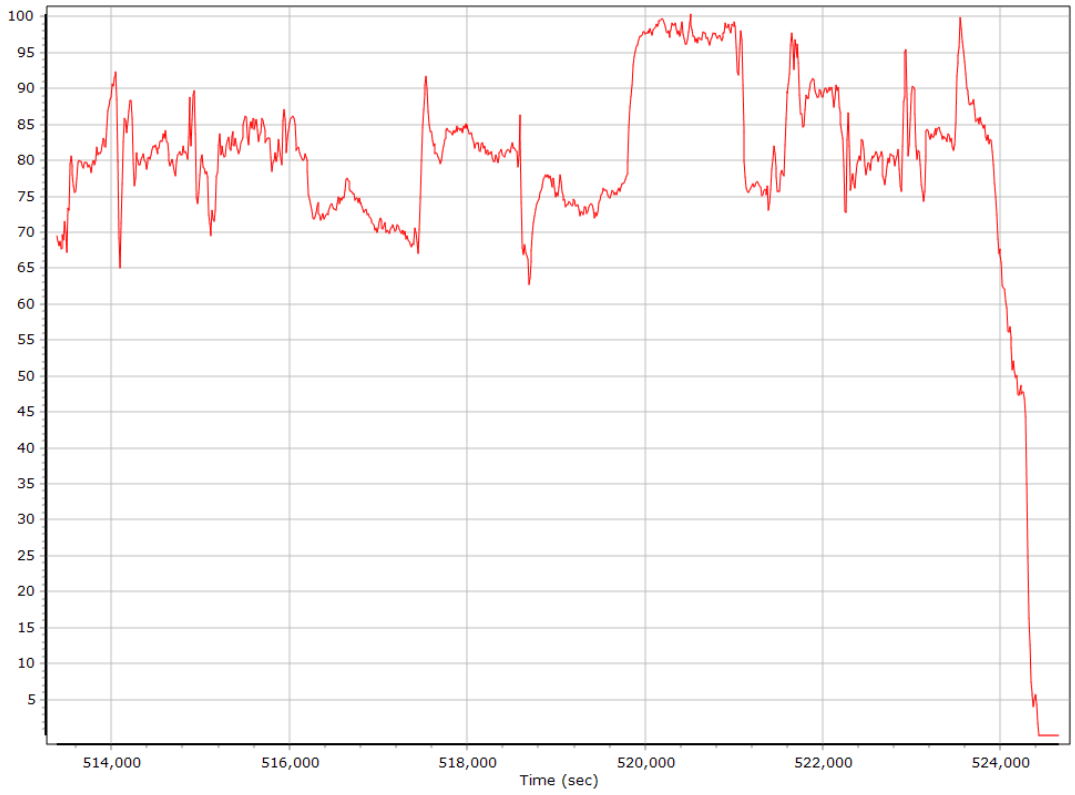
Down Velocity



Total Speed

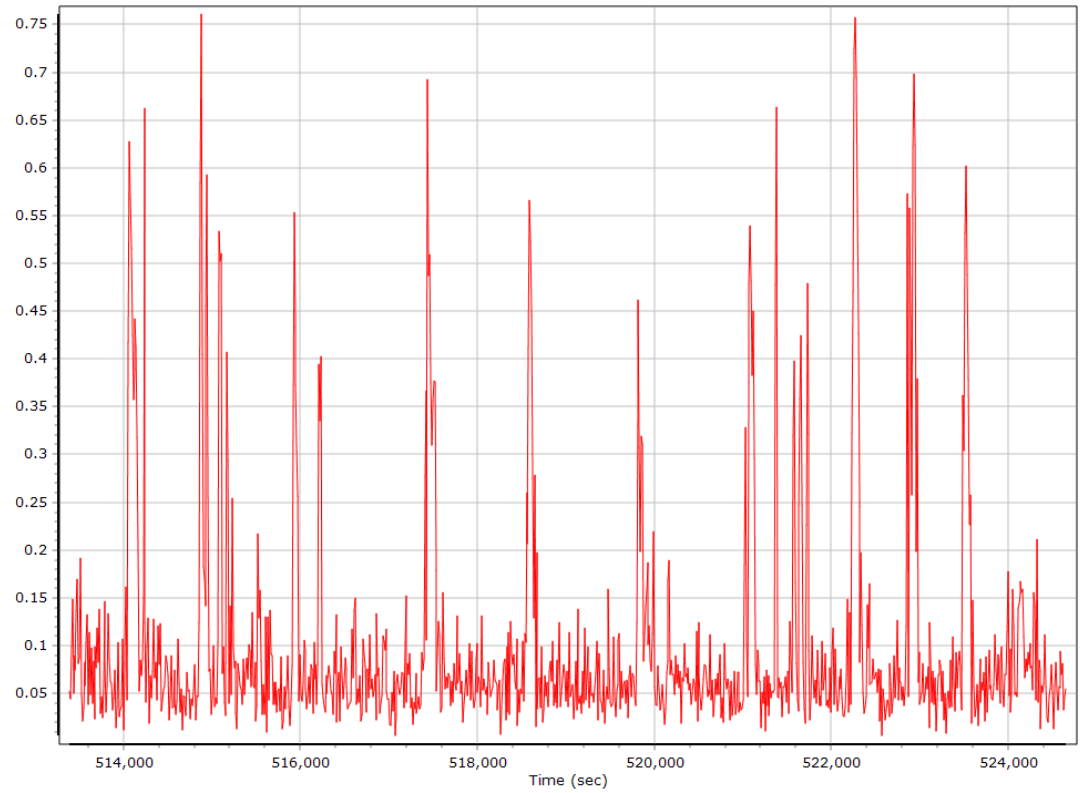


Ground Speed



Body Acceleration

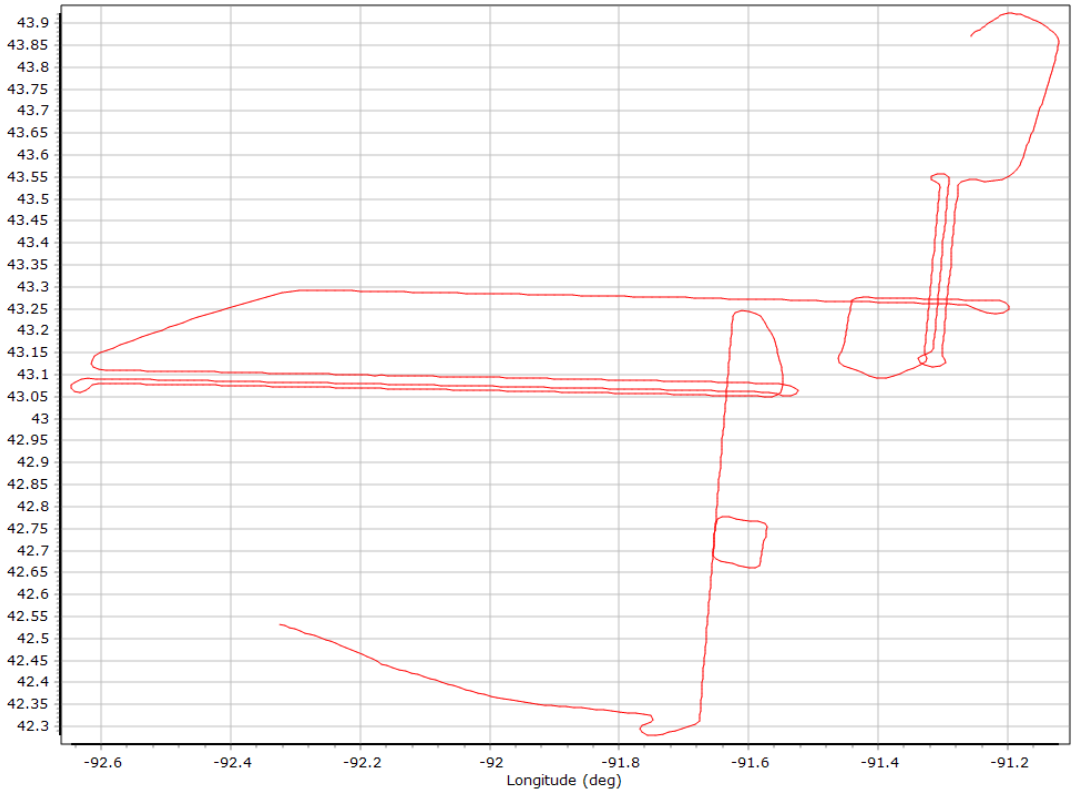
Total Body Acceleration



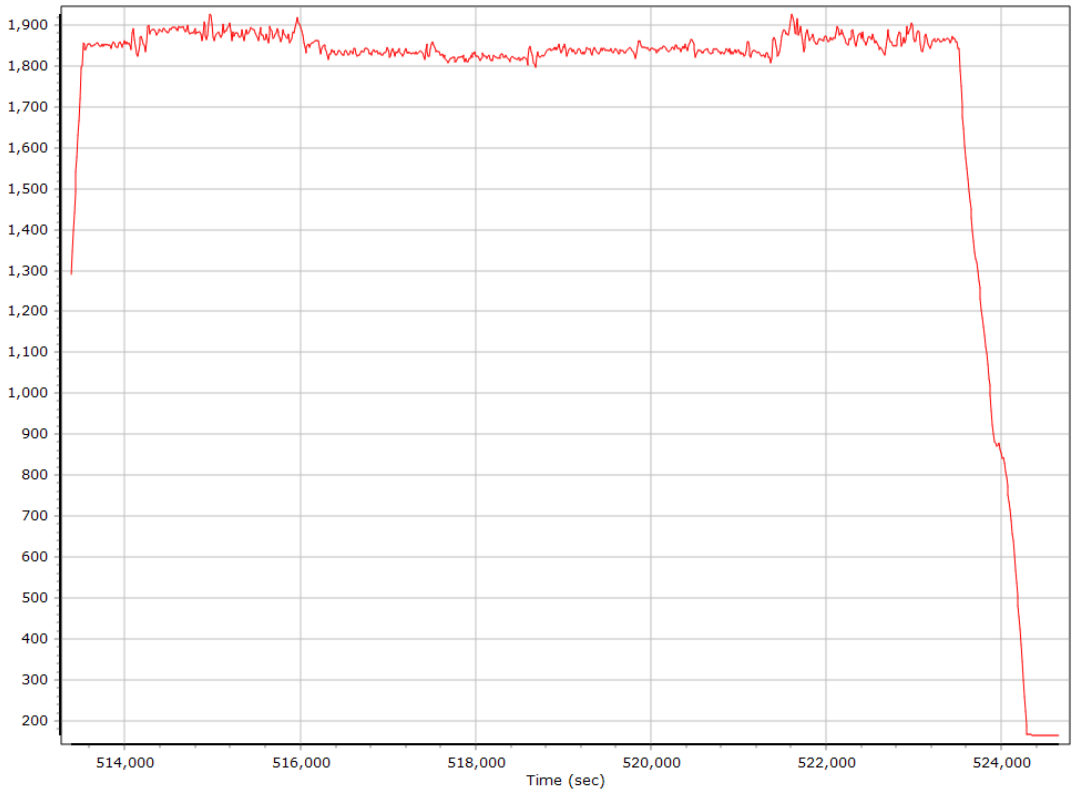
Body Angular Rate

Forward Processed Trajectory Information

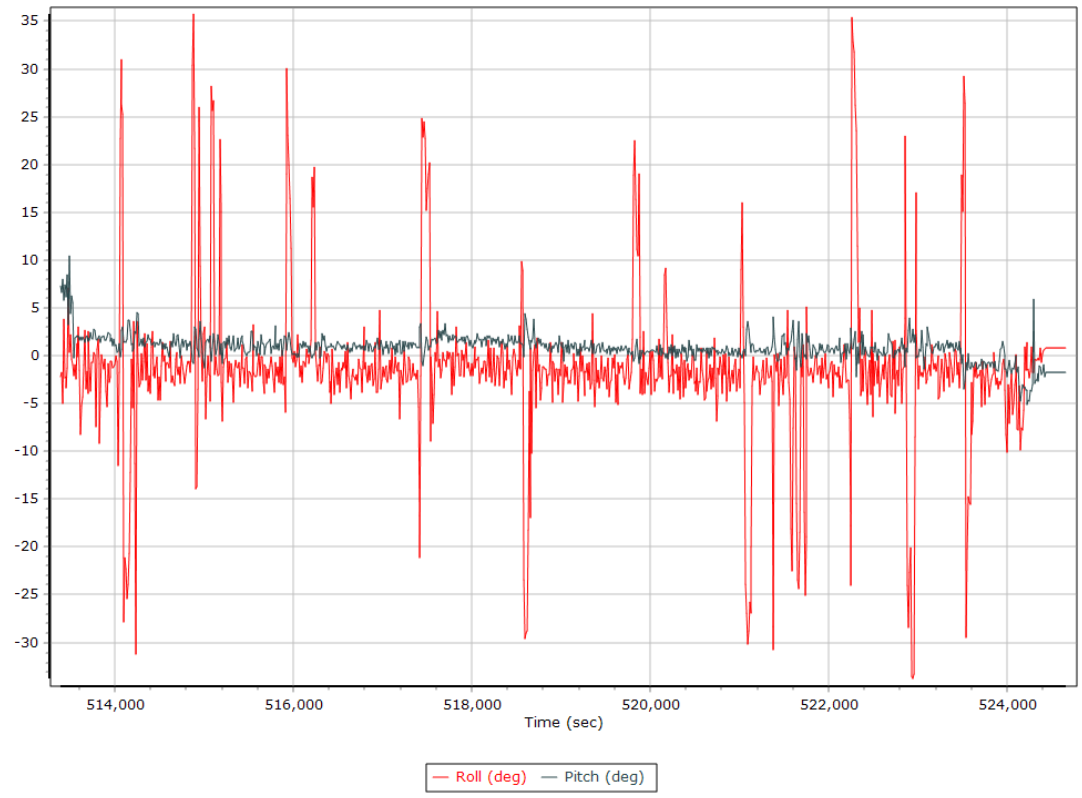
Top View



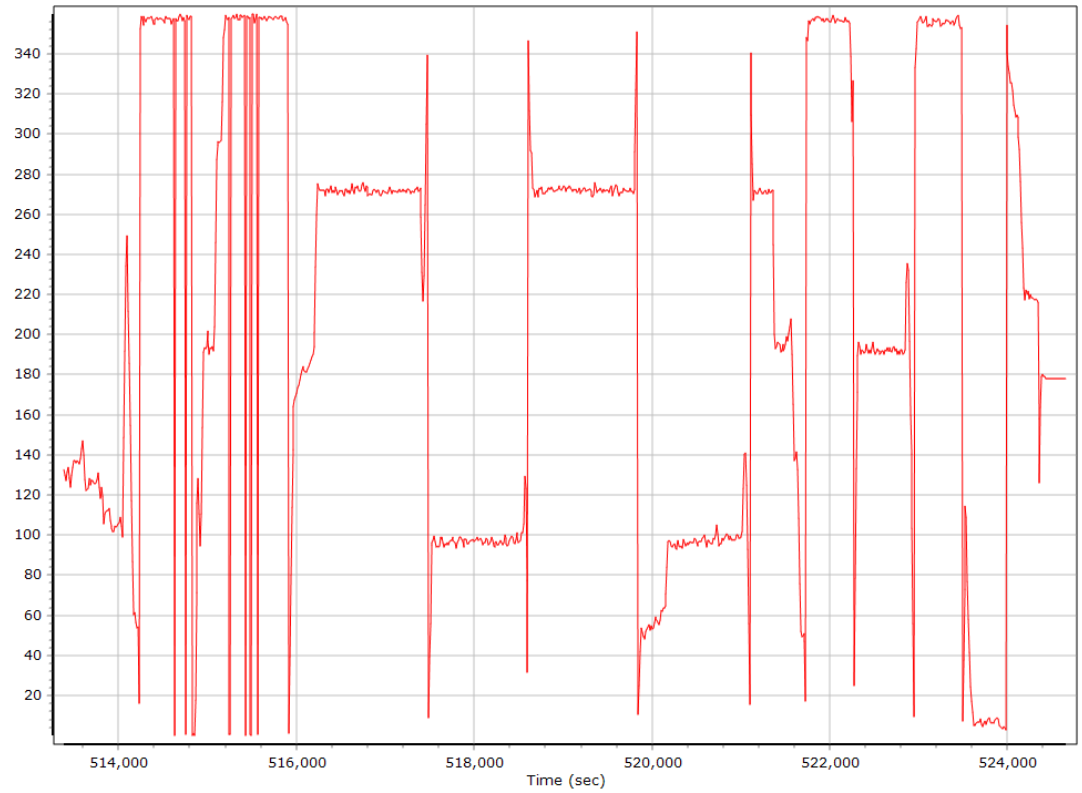
Altitude



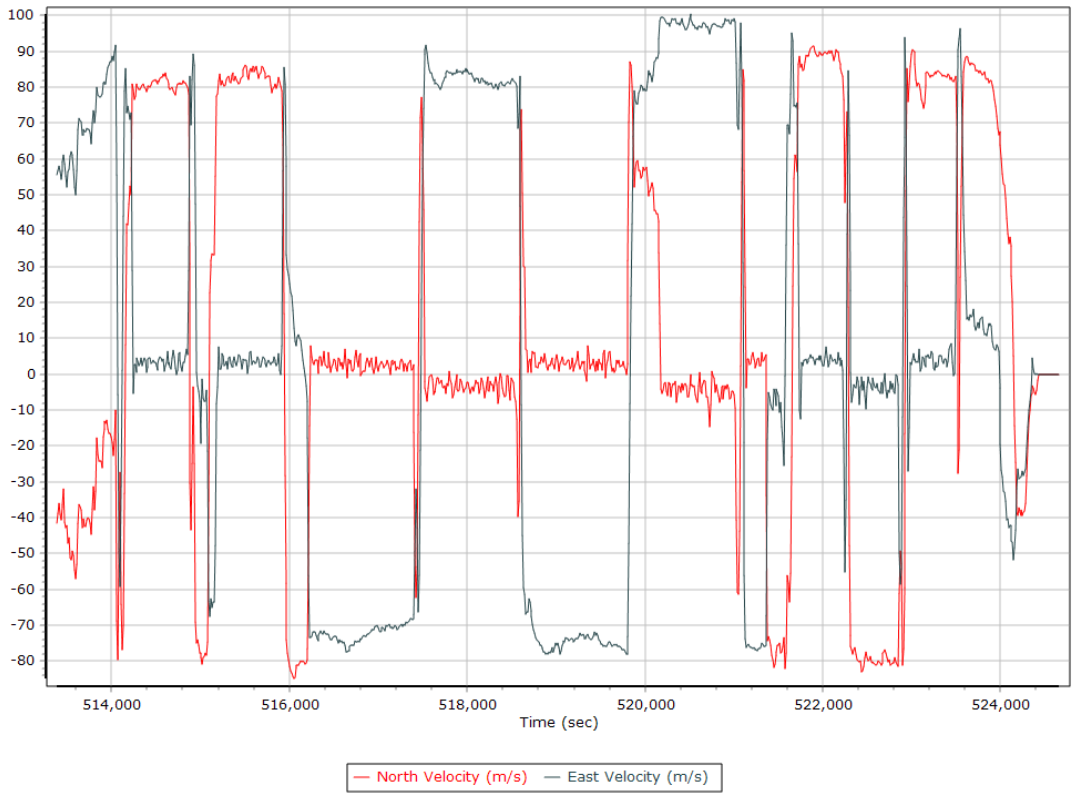
Roll/Pitch



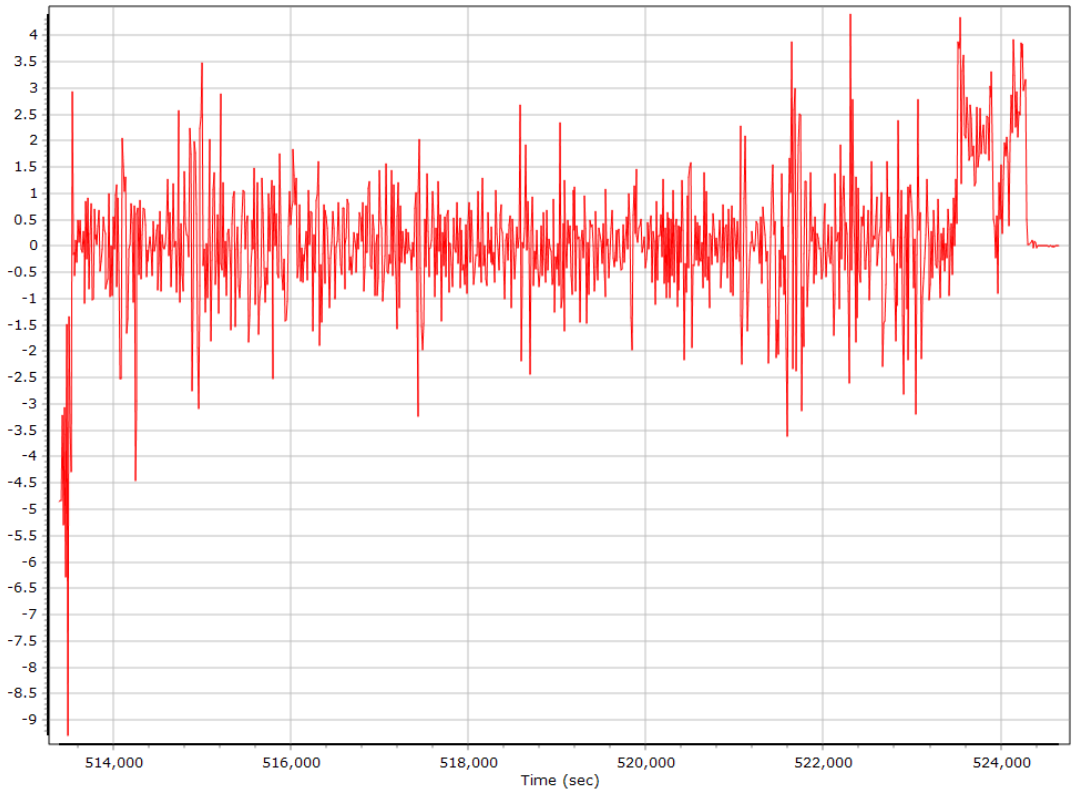
Heading



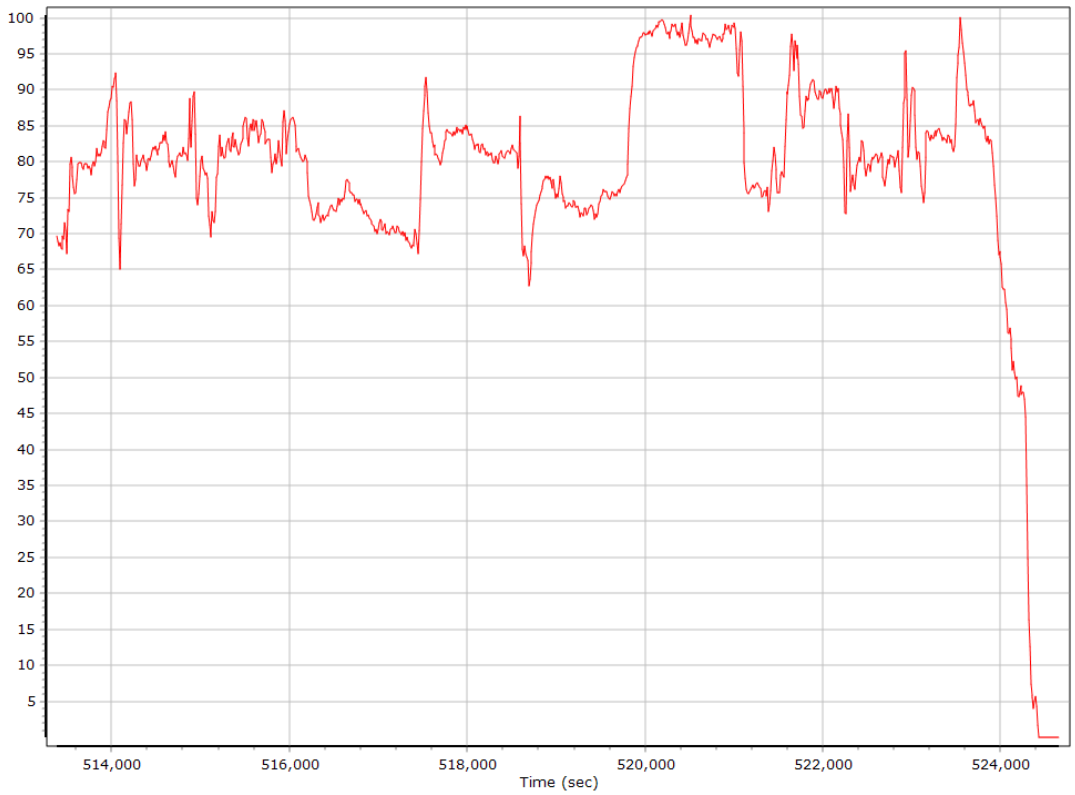
North/East Velocity



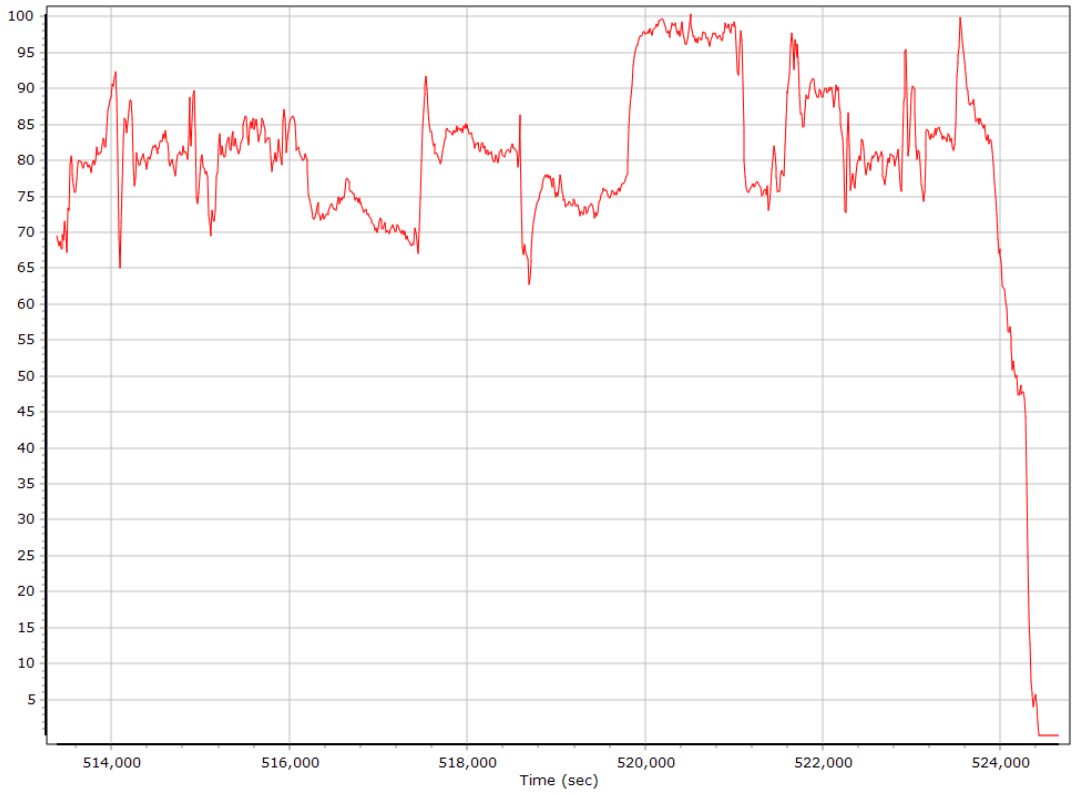
Down Velocity



Total Speed

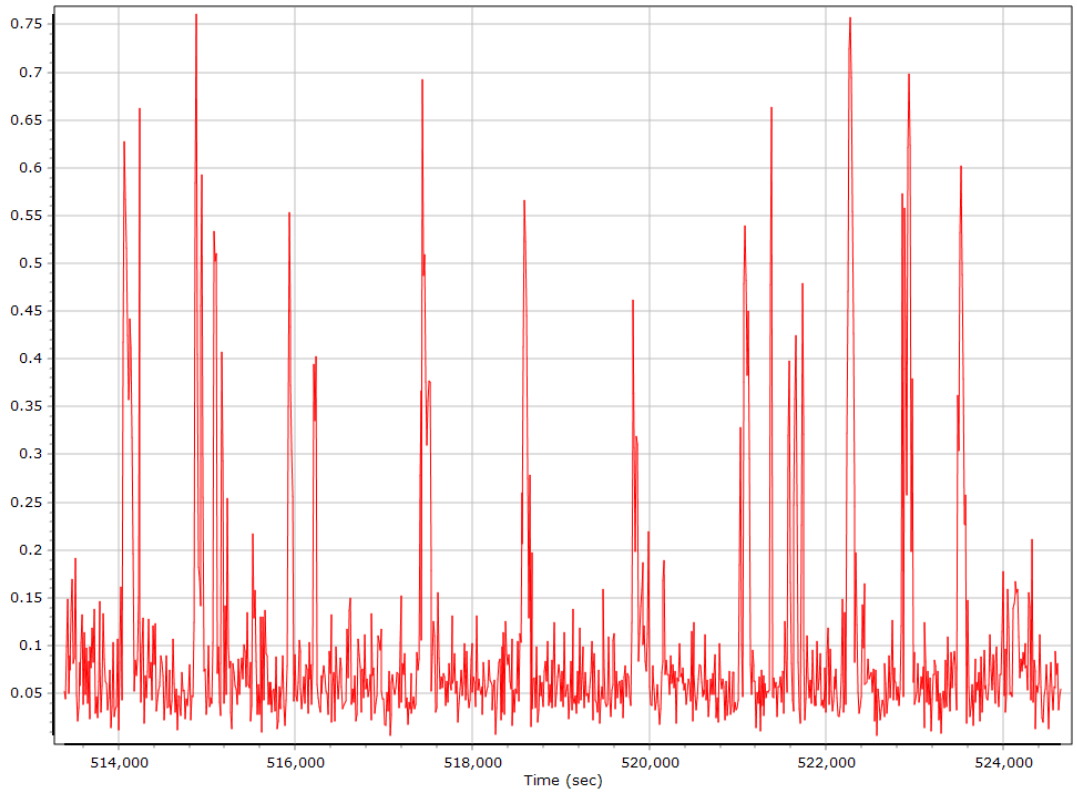


Ground Speed



Body Acceleration

Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/10/2020	IADE	18.77	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IADE	18.77	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAEL	40.47	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IAEL	40.47	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNPS	45.75	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNPS	45.75	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IANA	55.34	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IANA	55.34	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNCA	60.32	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNCA	60.32	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	WLNC	89.05	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	WLNC	89.05	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAAL	95.43	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IAAL	95.43	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNEY	100.53	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNEY	100.53	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNWN	105.19	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNWN	105.19	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	MNSV	106.09	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNSV	106.09	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAMN	121.87	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IAMN	121.87	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	JFWS	123.23	GPS	30	CORS (daily)	Smart Base	Imported
04/11/2020	JFWS	123.23	GPS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAHT	134.17	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IAHT	134.17	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IATA	144.50	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IATA	144.50	GNSS	30	CORS (daily)	Smart Base	Imported
04/10/2020	IAMQ	146.50	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IAMQ	146.50	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	11353 s (2100 513327 - 2100 524680)
Number of reference stations	11
Primary station GPS measurement usage (%)	99.9
Primary station GLONASS measurement usage (%)	79.2
Average number of satellites per epoch	14.0
Max number of GPS stations used	6
Min number of GPS stations used	4
Max number of GLONASS stations used	6
Min number of GLONASS stations used	5
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	18319
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59749"	228.904
Adjusted		N42°01'49.10900"	W91°32'55.59750"	228.881
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.002	0.024	0.024

Base Station Information

Station ID	IAMN		
Filename	iamn1010.20o, iamn1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59749"		
Ellipsoidal height (m)	228.90417		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNSV

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°54'09.07389"	W92°28'55.97413"	361.226
Adjusted		N43°54'09.07404"	W92°28'55.97414"	361.226
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.000	0.004

Base Station Information

Station ID	MNSV		
Filename	mnsv1010.20o, mnsv1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	Alloy	5829R40031
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°54'09.07389"		
Longitude	W92°28'55.97413"		
Ellipsoidal height (m)	361.22645		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNWN

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N44°03'54.03515"	W91°42'45.52415"	178.655
Adjusted		N44°03'54.03519"	W91°42'45.52386"	178.654
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.007	0.001	0.007

Base Station Information

Station ID	MNWN		
Filename	mnwn1010.20o, mnwn1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5443R50018
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N44°03'54.03515"		
Longitude	W91°42'45.52415"		
Ellipsoidal height (m)	178.65534		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNEY

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°57'20.27378"	W92°12'19.44386"	370.916
Adjusted		N43°57'20.27369"	W92°12'19.44357"	370.905
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.007	0.012	0.014

Base Station Information

Station ID	MNEY		
Filename	mney1010.20o, mney1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5426R48922
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°57'20.27378"		
Longitude	W92°12'19.44386"		
Ellipsoidal height (m)	370.91638		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5745	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24723"	291.092
Adjusted		N42°44'49.40401"	W92°47'14.24730"	291.119
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.027	0.027

Base Station Information

Station ID	IAAL		
Filename	iaal1010.20o, iaal1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24723"		
Ellipsoidal height (m)	291.09234		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WLNC

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°50'15.66937"	W90°42'41.07305"	280.855
Adjusted		N42°50'15.66938"	W90°42'41.07307"	280.850
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.001	0.005	0.005

Base Station Information

Station ID	WLNC		
Filename	wlnc1010.20o, wlnc1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72957
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N42°50'15.66937"		
Longitude	W90°42'41.07305"		
Ellipsoidal height (m)	280.85485		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5745	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64527"	W91°29'46.51636"	339.588
Adjusted		N43°37'58.64526"	W91°29'46.51613"	339.599
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.011	0.012

Base Station Information

Station ID	MNCA		
Filename	mnca1010.20o, mnca1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64527"		
Longitude	W91°29'46.51636"		
Ellipsoidal height (m)	339.58842		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	47.72	**Output Coordinates**	Original	
Solution Epochs	5726	**Mean Epoch SVs**	8.1	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54032"	172.253
Adjusted		N43°29'49.47909"	W91°17'26.53974"	172.231
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.014	0.022	0.026

Base Station Information

Station ID	IANA		
Filename	iana1010.20o, iana1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54032"		
Ellipsoidal height (m)	172.25323		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	47.65	**Output Coordinates**	Original	
Solution Epochs	5718	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52986"	298.980
Adjusted		N42°52'40.47660"	W91°21'41.52970"	298.988
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.007	0.008

Base Station Information

Station ID	IAEL		
Filename	iael1010.20o, iael1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52986"		
Ellipsoidal height (m)	298.98030		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Control	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52632"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52632"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade1010.20o, iade1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52632"		
Ellipsoidal height (m)	316.51619		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5745	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86729"	380.908
Adjusted		N43°30'53.84821"	W91°53'06.86720"	380.917
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.009	0.010

Base Station Information

Station ID	MNPS		
Filename	mnps1010.20o, mnps1020.20o		
Start date	4/10/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86729"		
Ellipsoidal height (m)	380.90779		
Frame	ITRF00		
Epoch	2020.273224		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	3.60	99.66	
Number of GPS SV	6	9	8
Number of GLONASS SV	0	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	8	16	14
PDOP	1.18	2.46	1.52
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	11319.00	0.00	0.00
Percentage	100.00	0.00	0.00

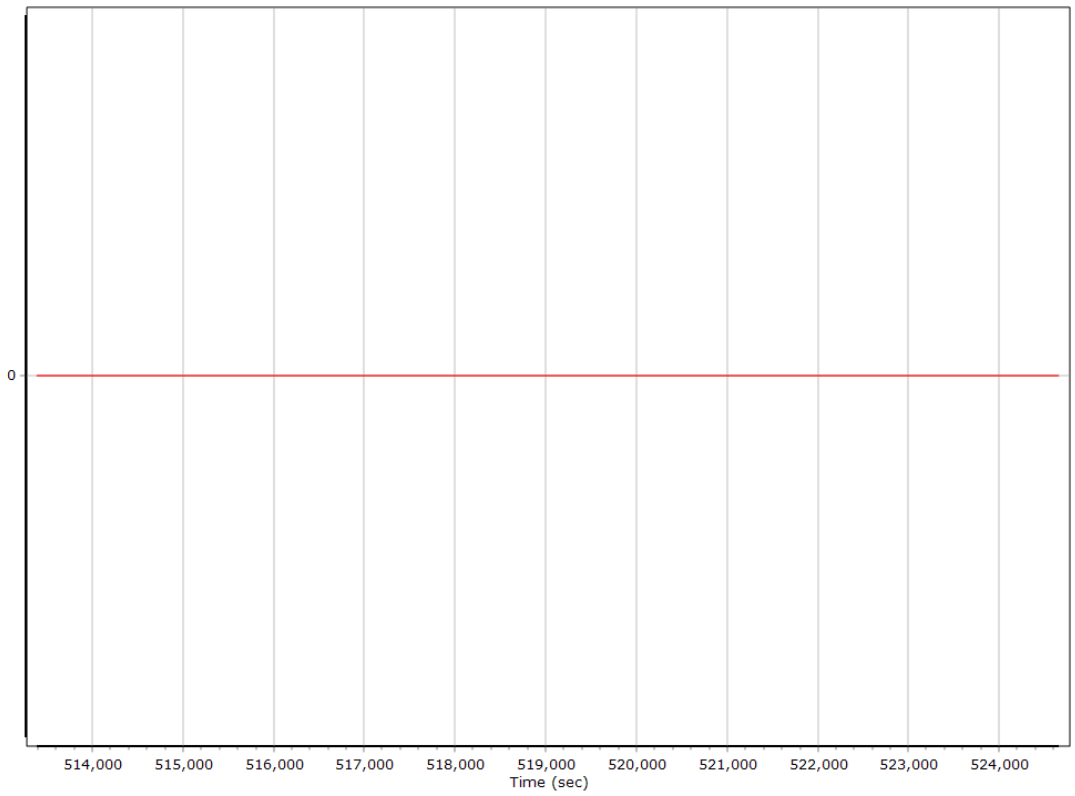
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	513309.000 (4/10/2020 10:35:09 PM)		
Processing end time	524662.000 (4/11/2020 1:44:22 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

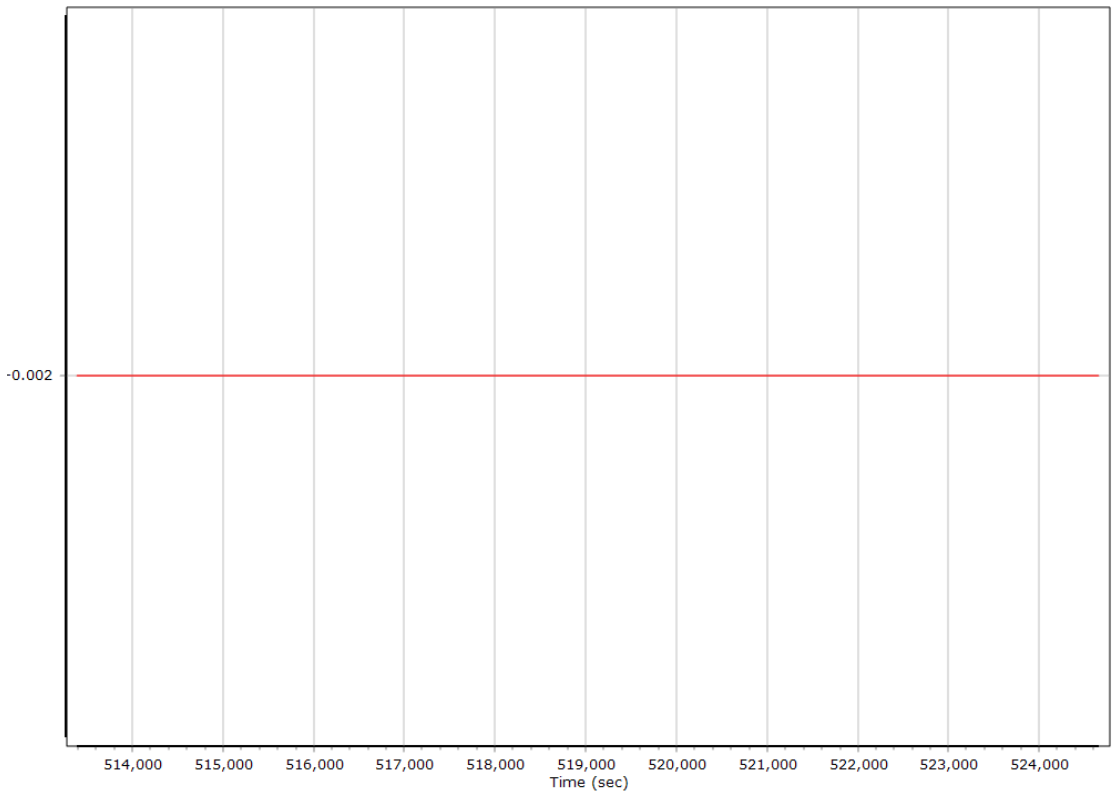
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

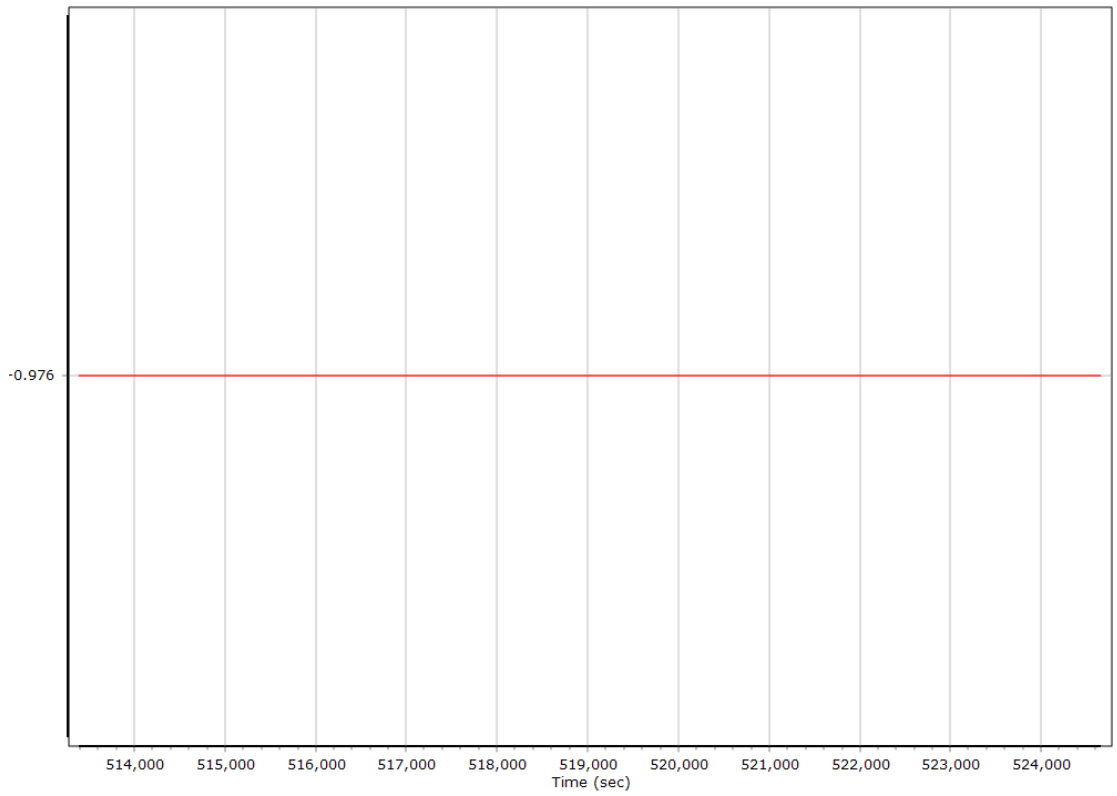
X Reference-Primary GNSS Lever Arm (m)



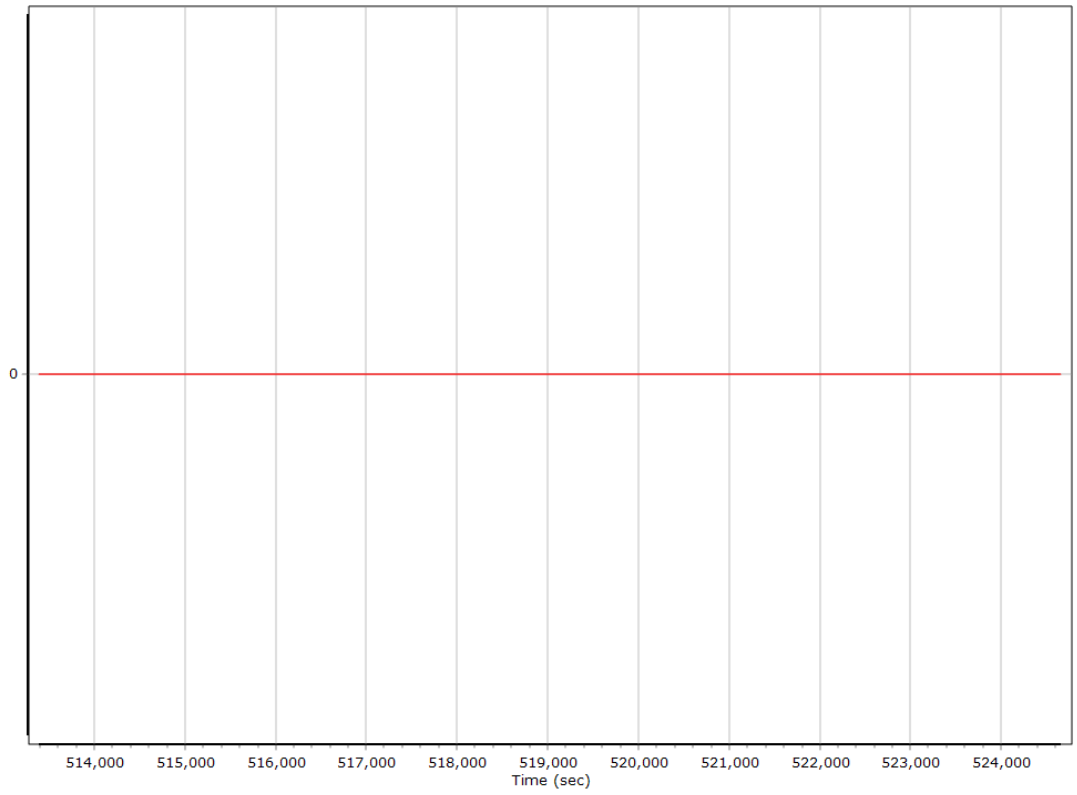
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



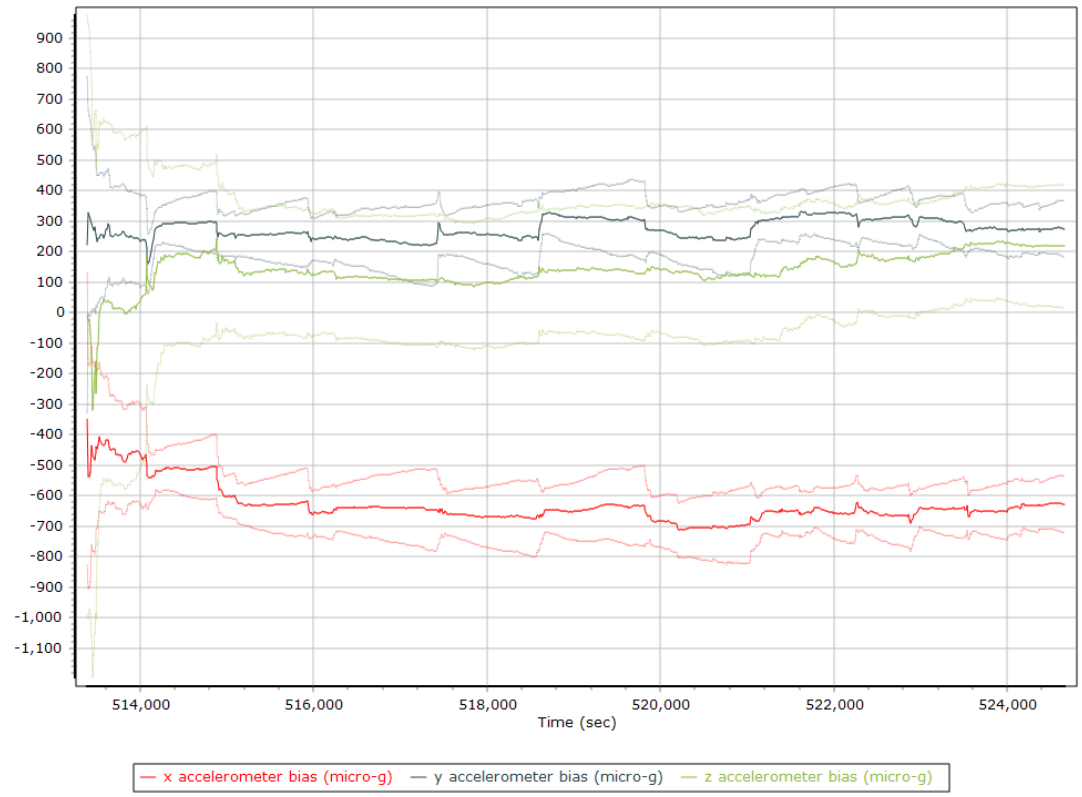
Reference-Primary GNSS Lever Arm Figure of Merit



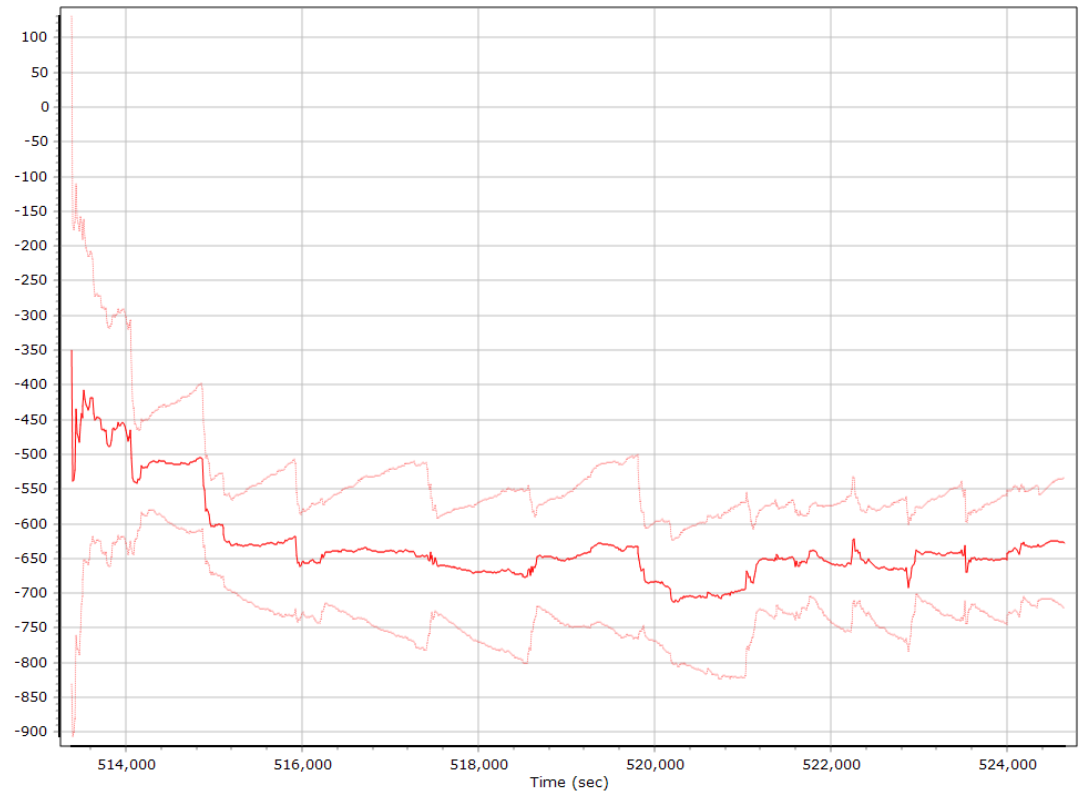
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

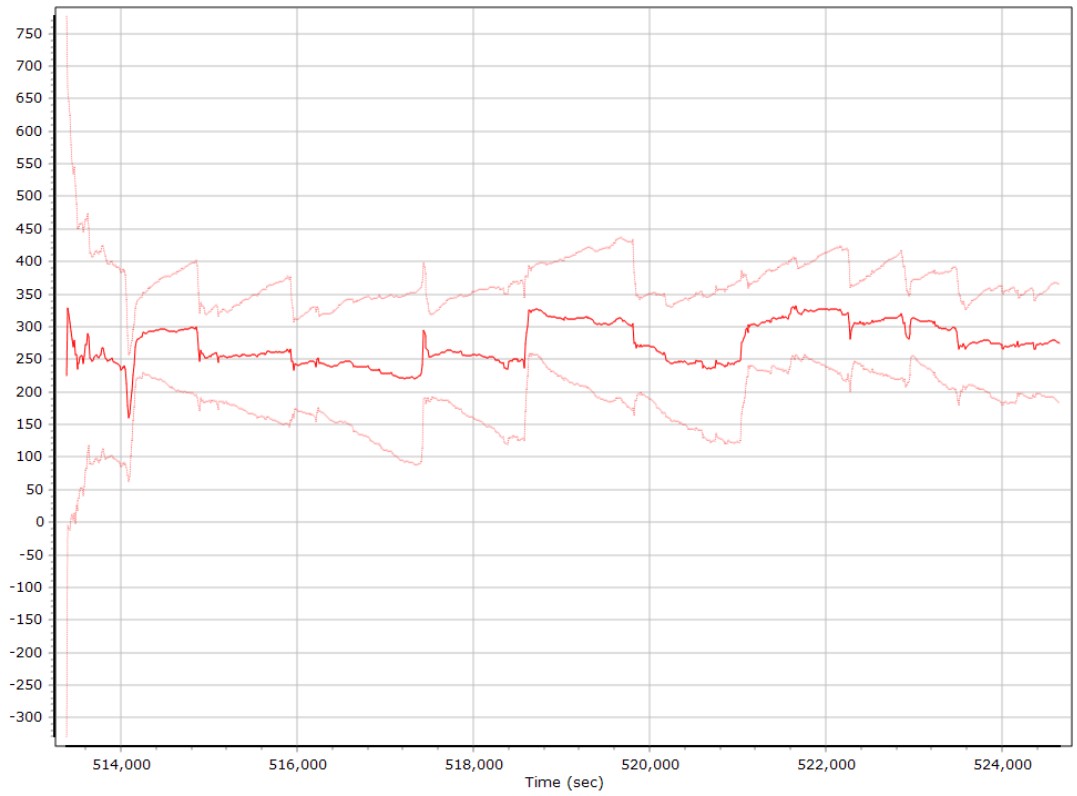
Accelerometer Bias (micro-g)



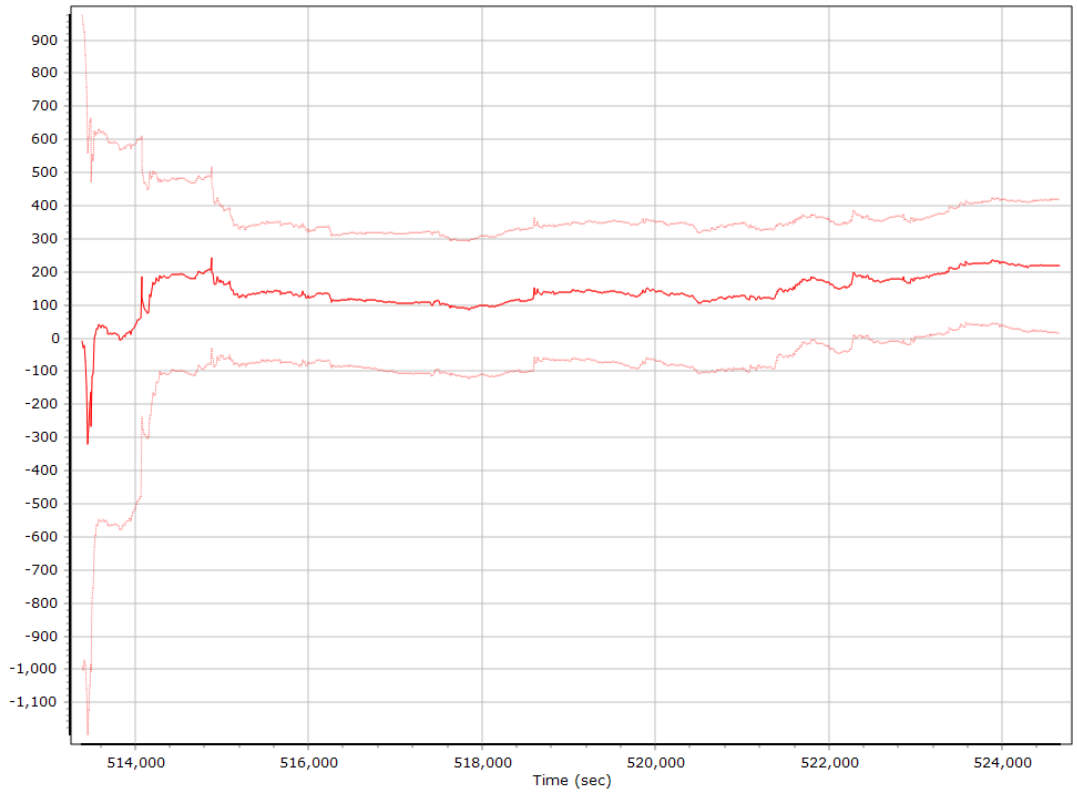
X Accelerometer Bias (micro-g)



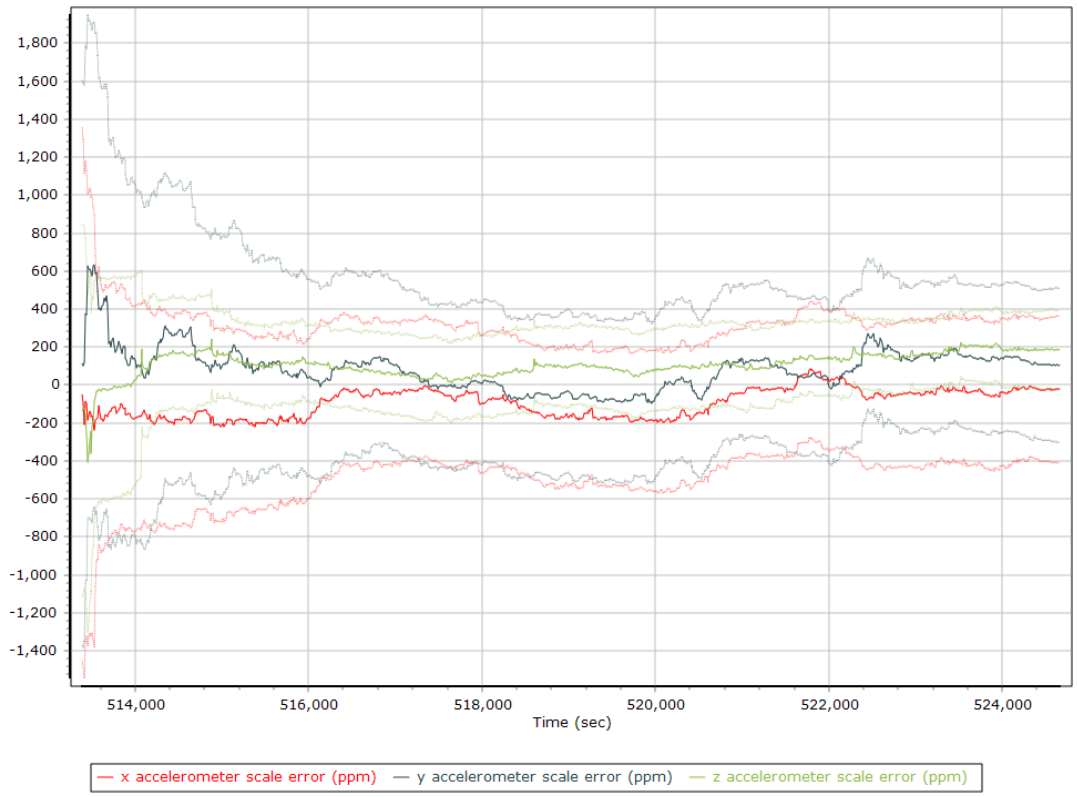
Y Accelerometer Bias (micro-g)



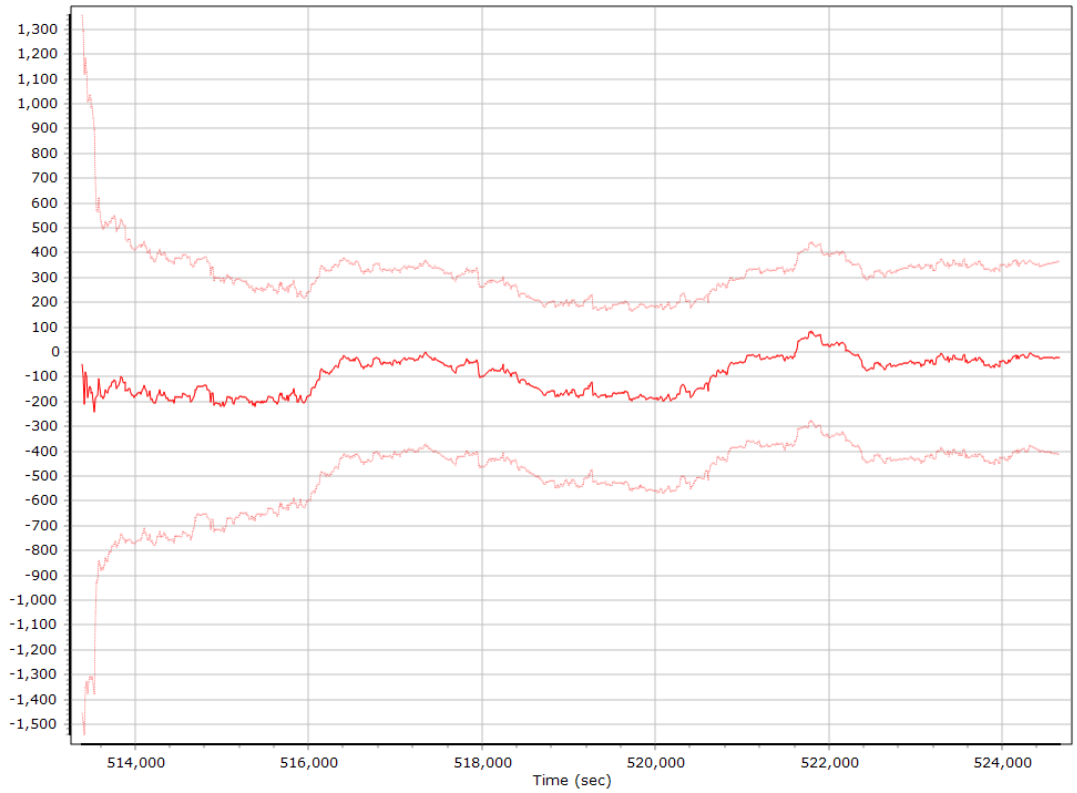
Z Accelerometer Bias (micro-g)



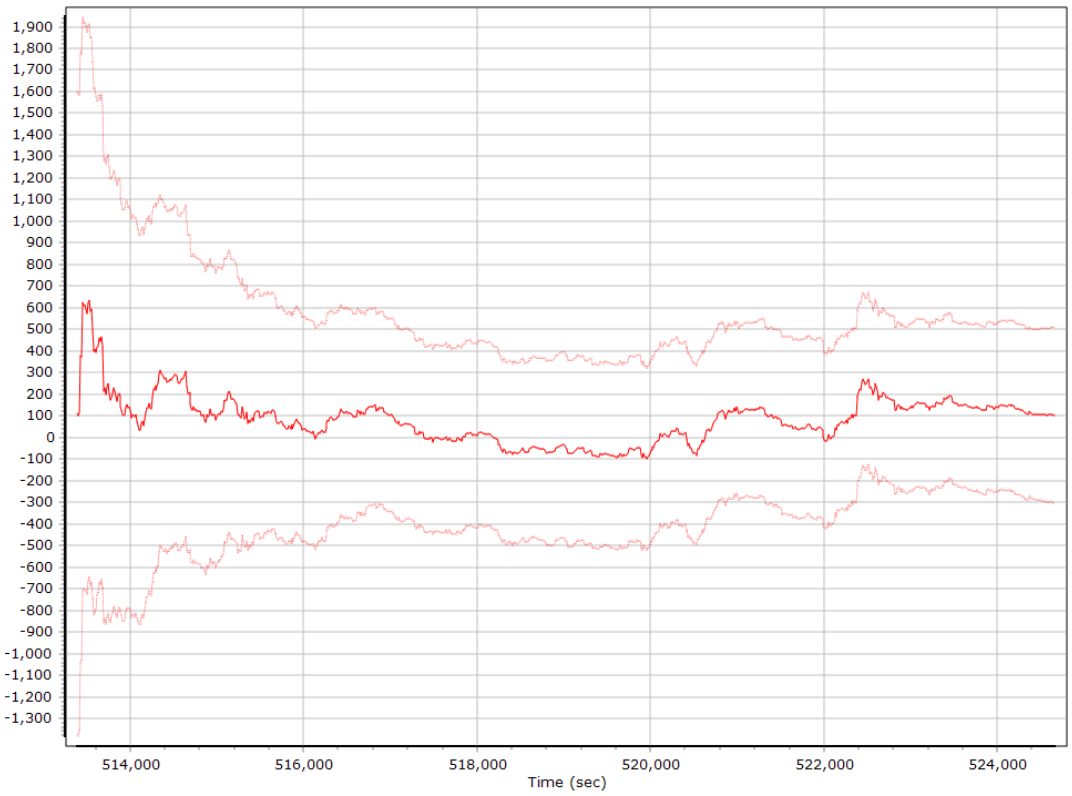
Accelerometer Scale Error (ppm)



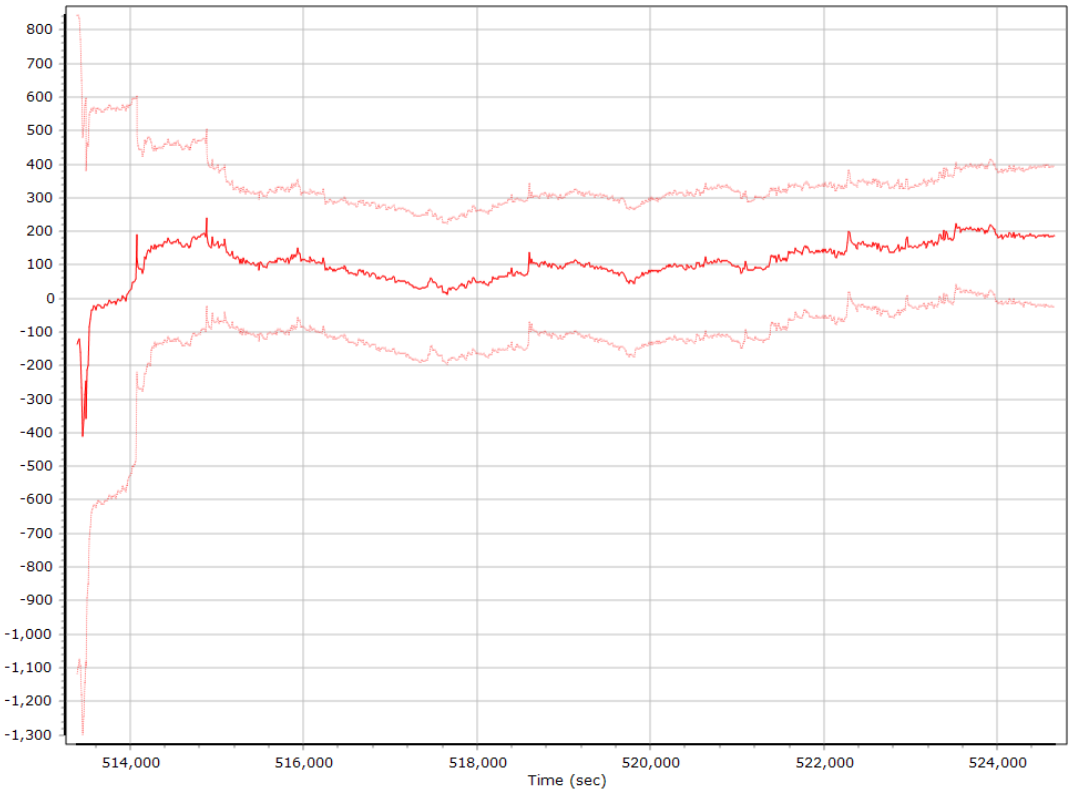
X Accelerometer Scale Error (ppm)



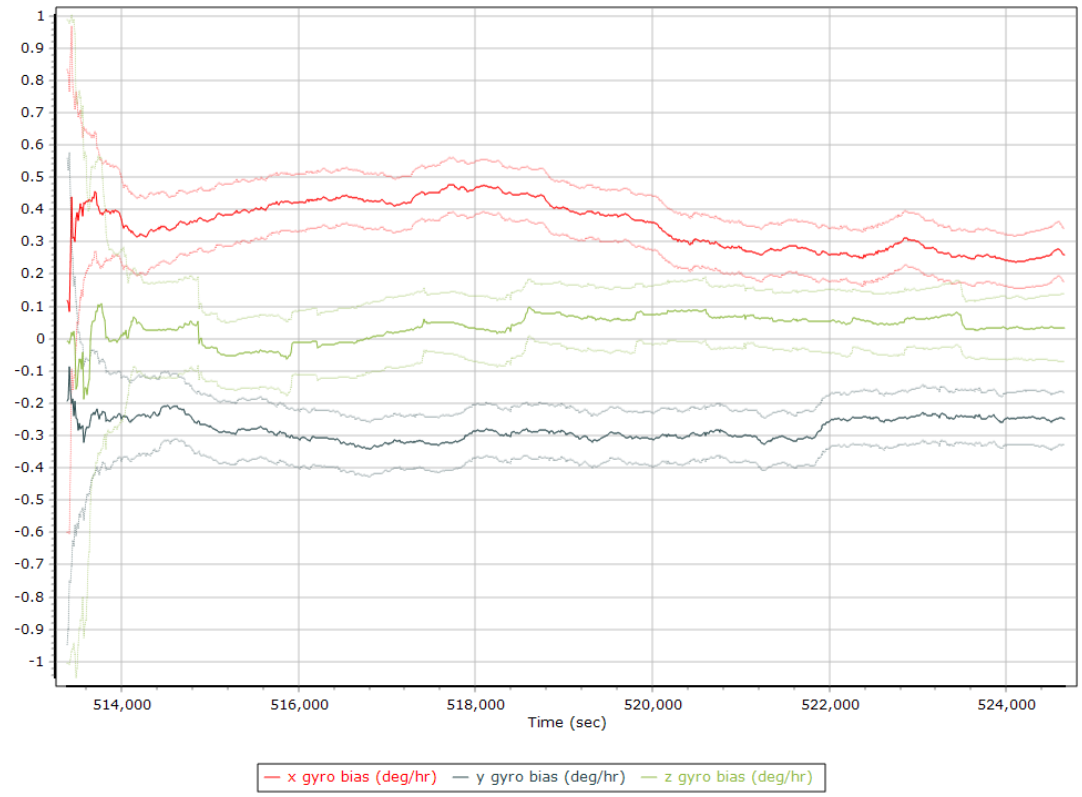
Y Accelerometer Scale Error (ppm)



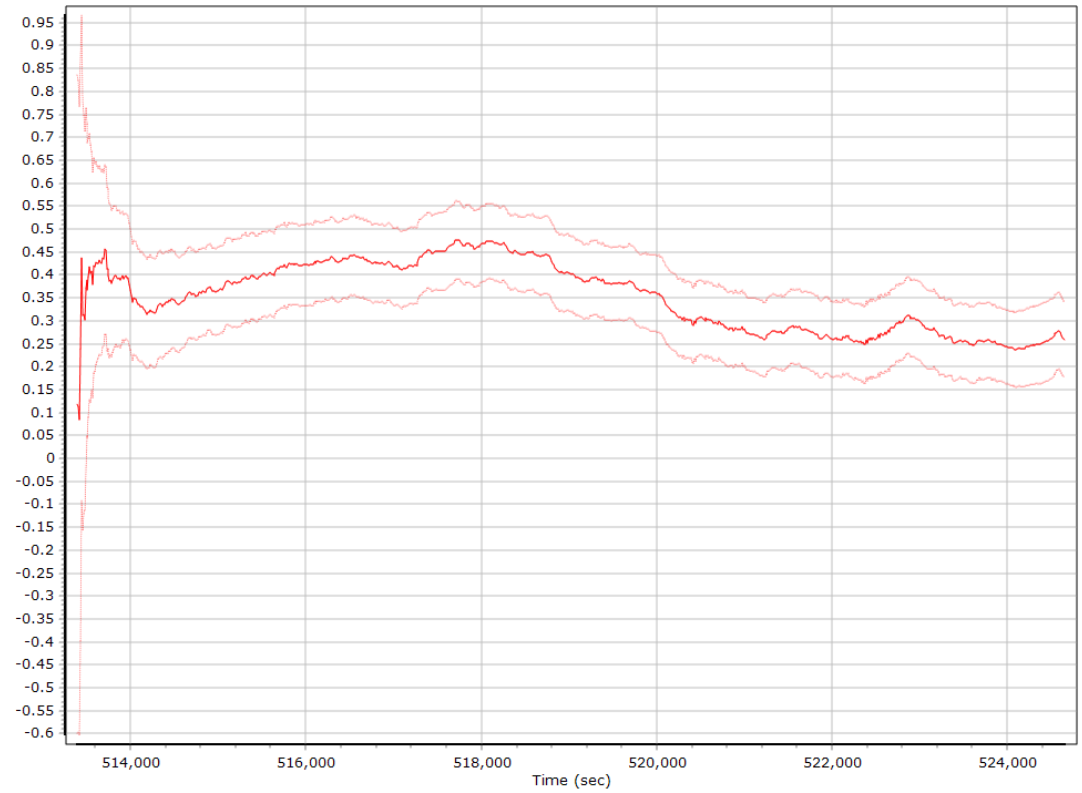
Z Accelerometer Scale Error (ppm)



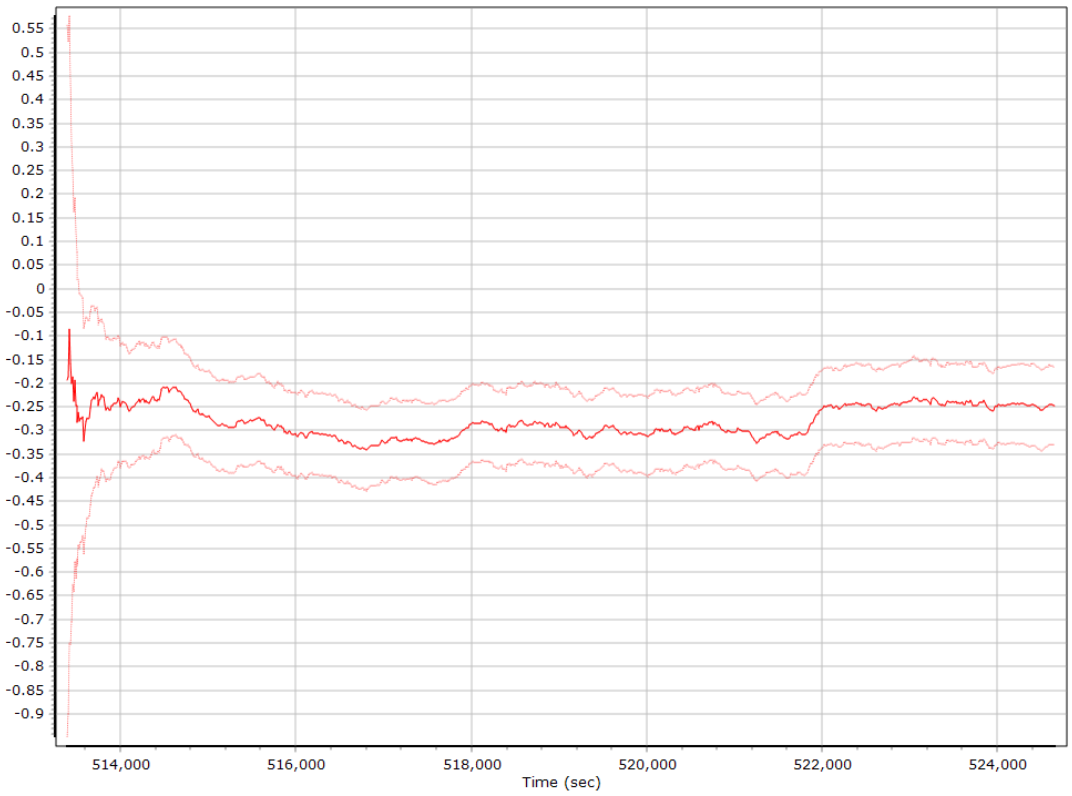
Gyro Bias (deg/h)



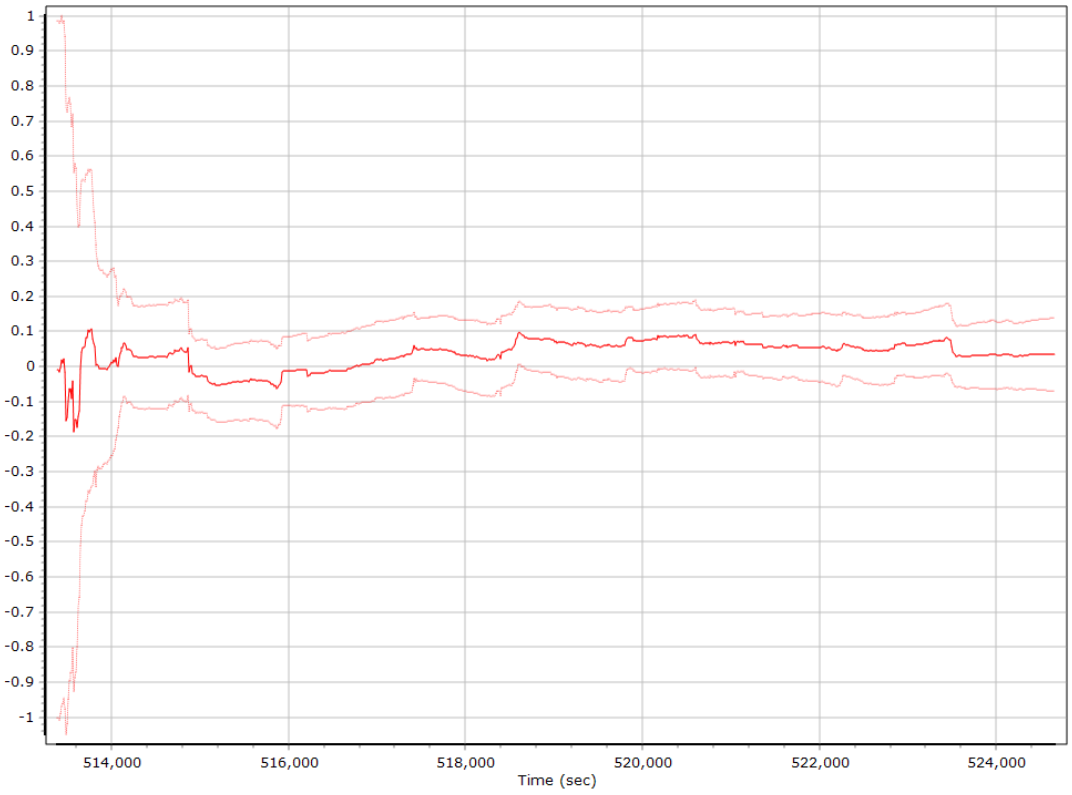
X Gyro Bias (deg/h)



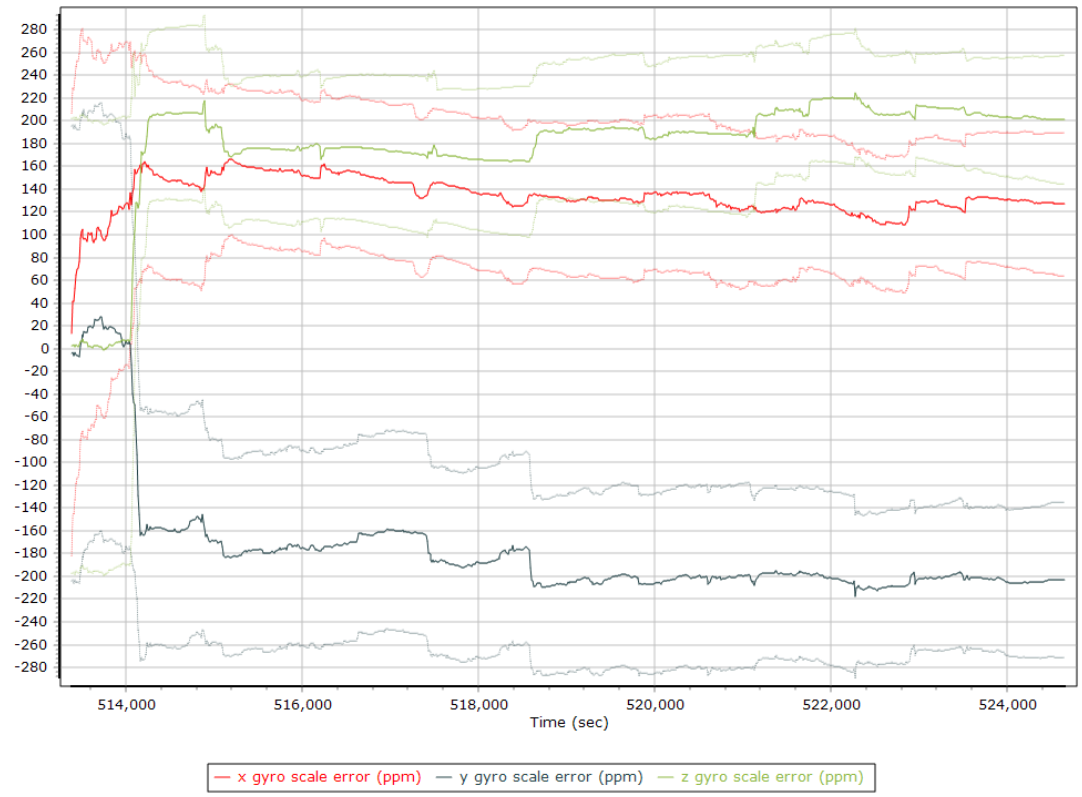
Y Gyro Bias (deg/h)



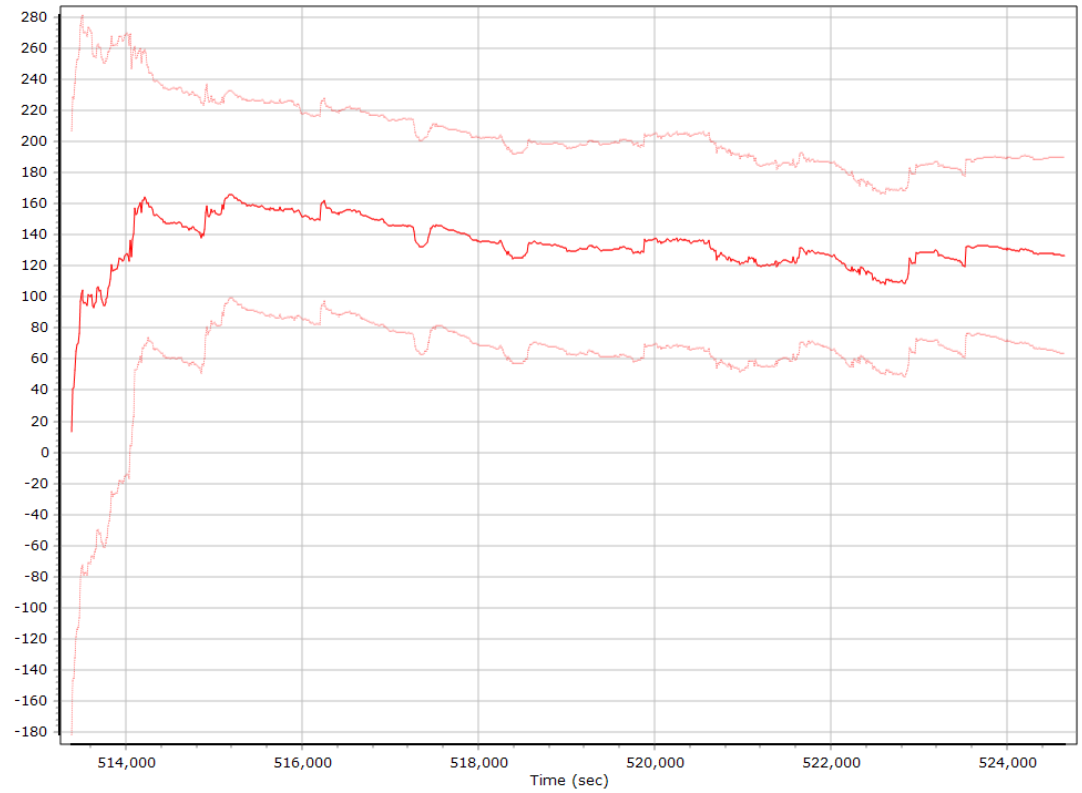
Z Gyro Bias (deg/h)



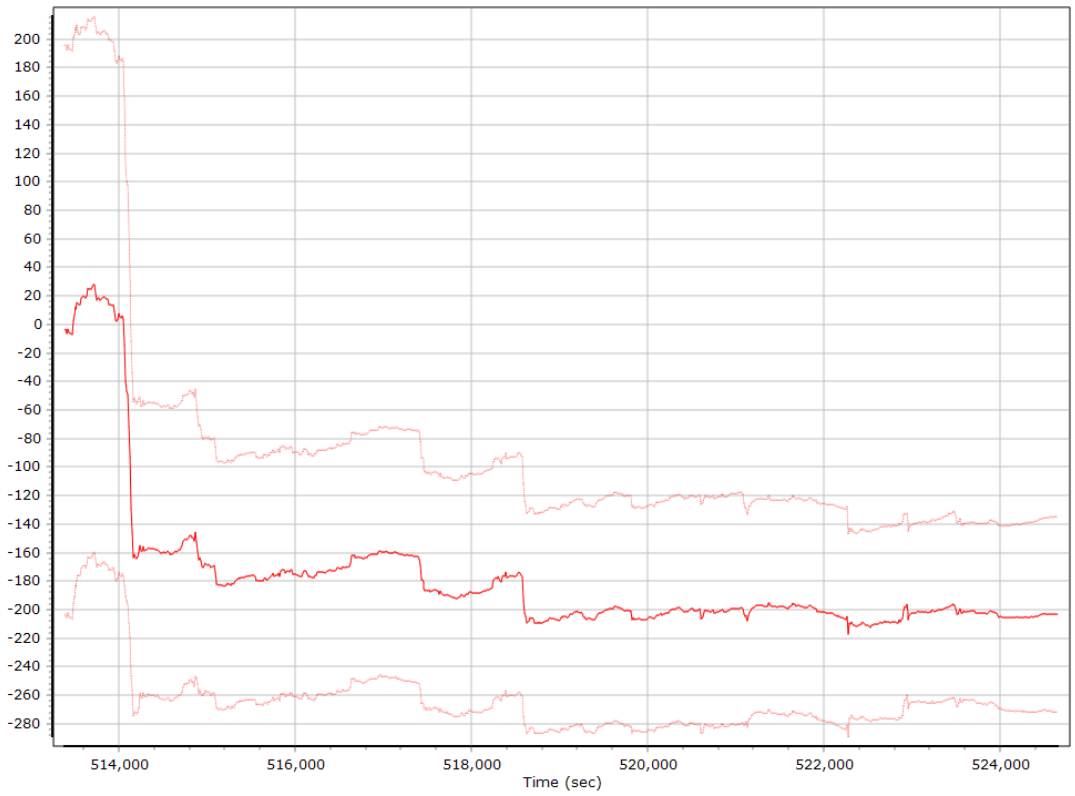
Gyro Scale Error (ppm)



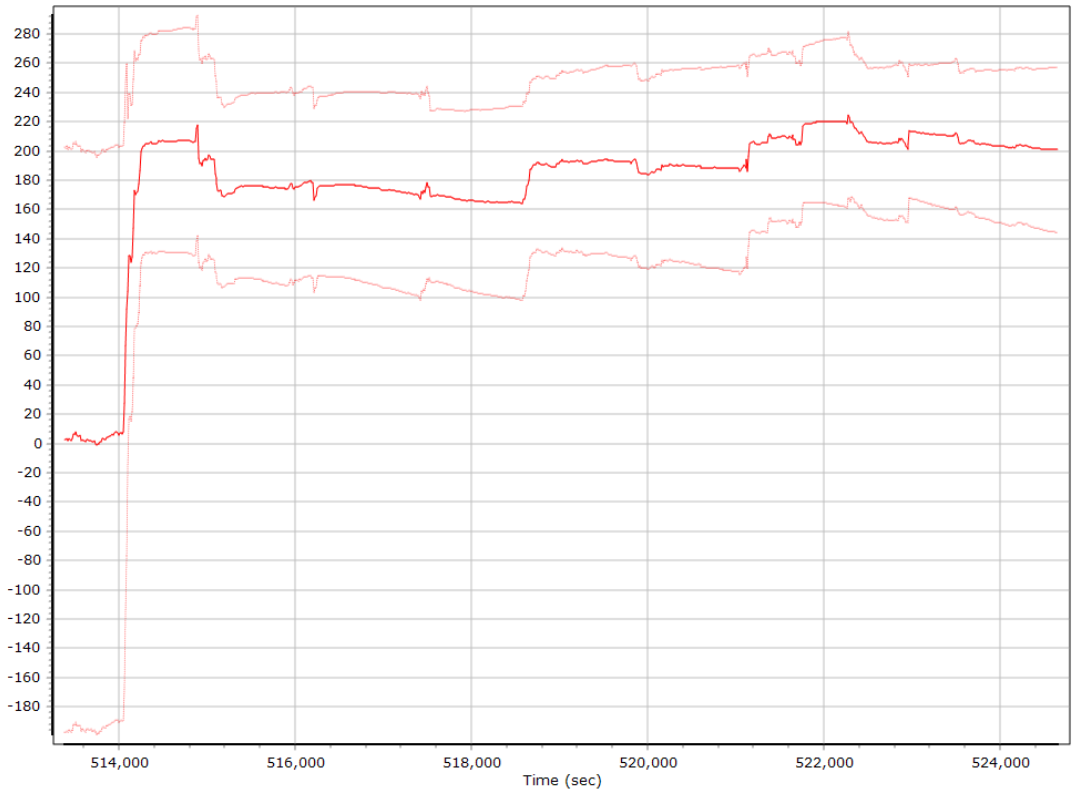
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

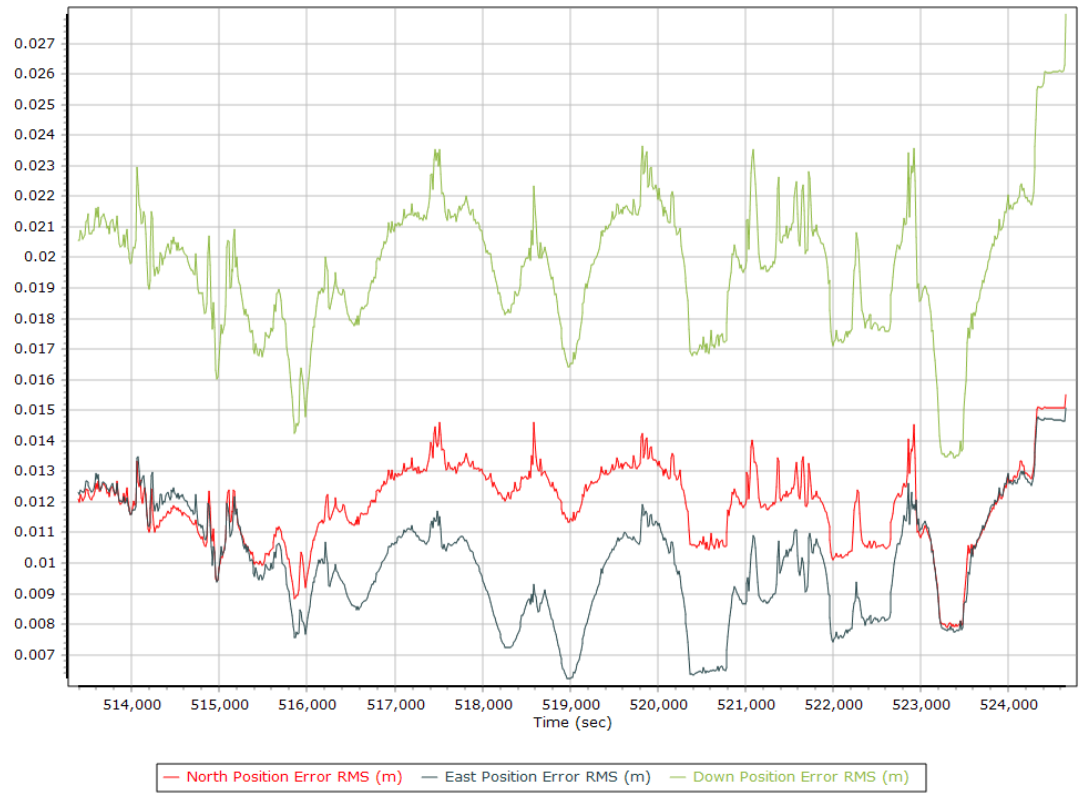


Z Gyro Scale Error (ppm)

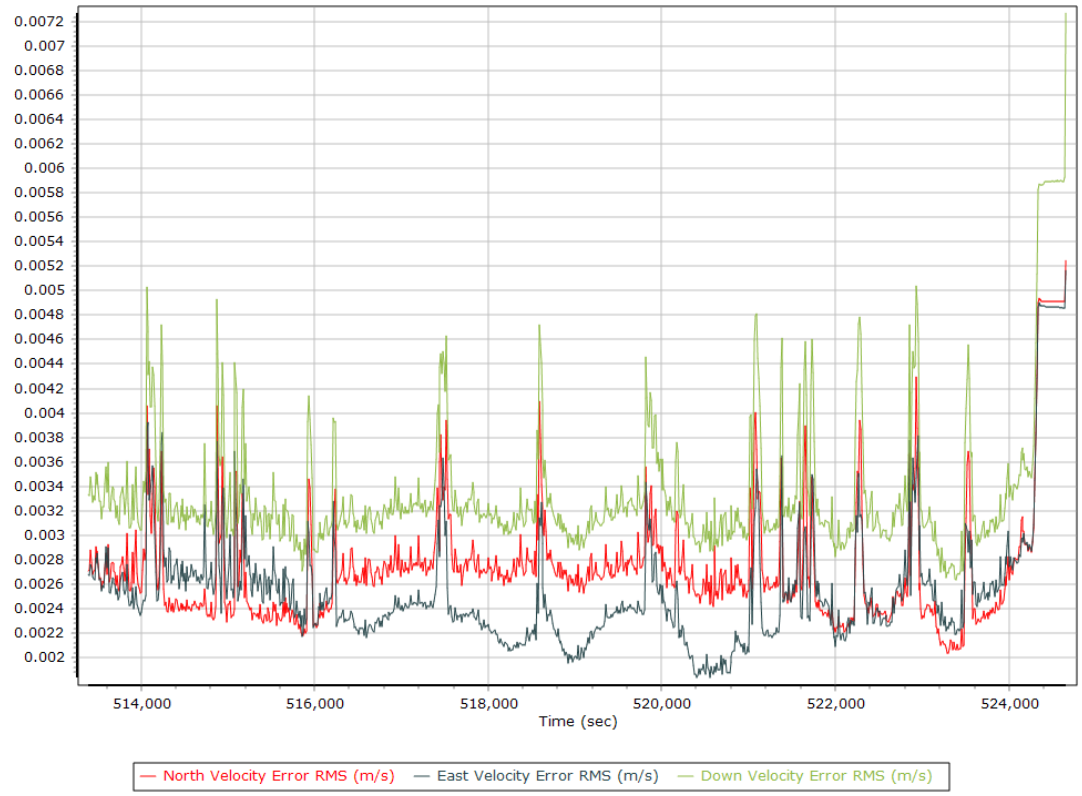


Smoothed Performance Metrics

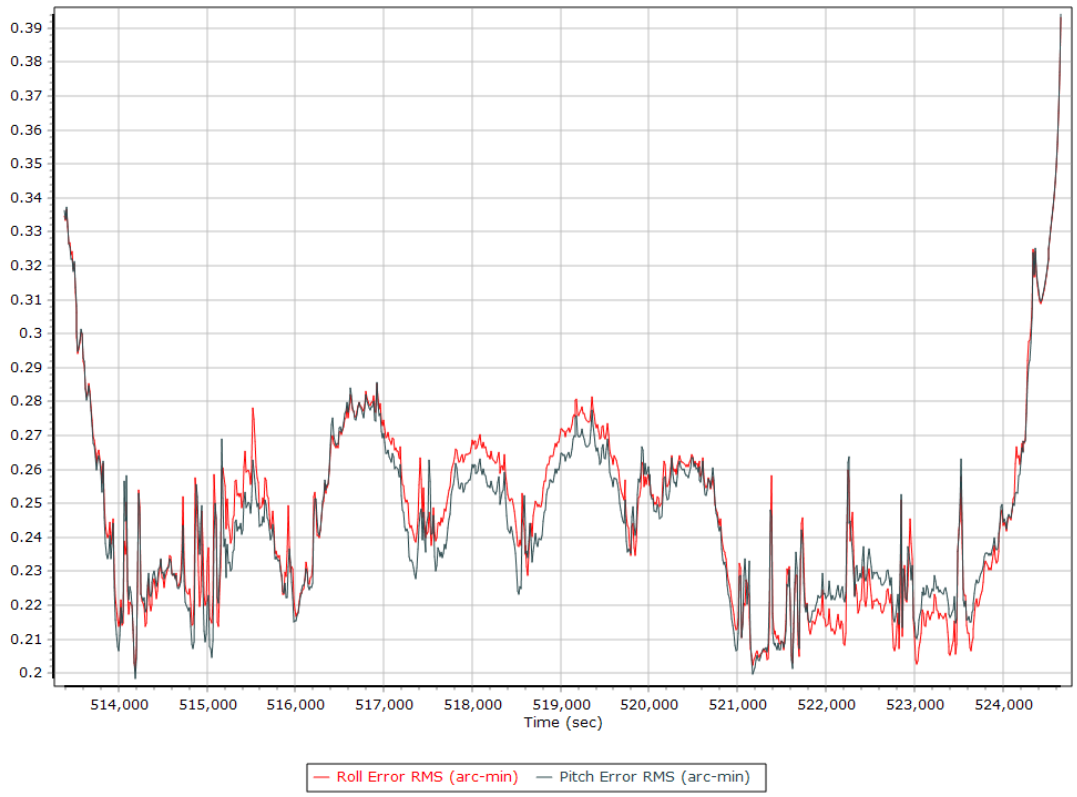
Position Error RMS (m)



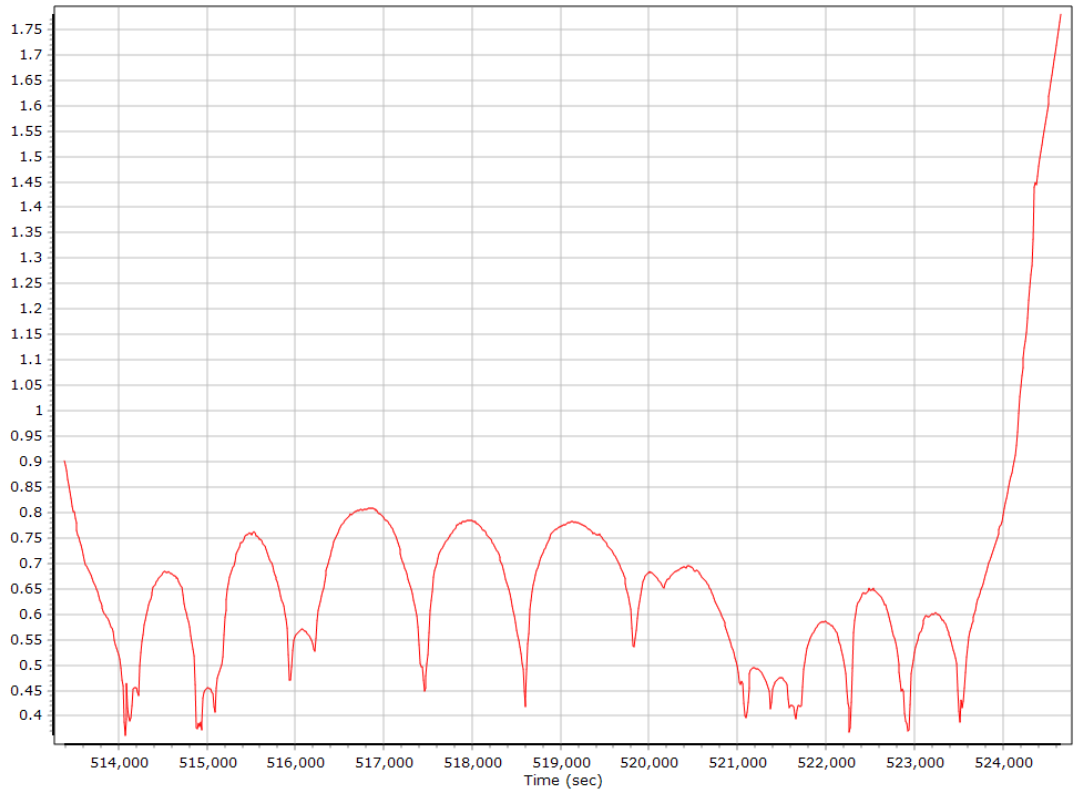
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

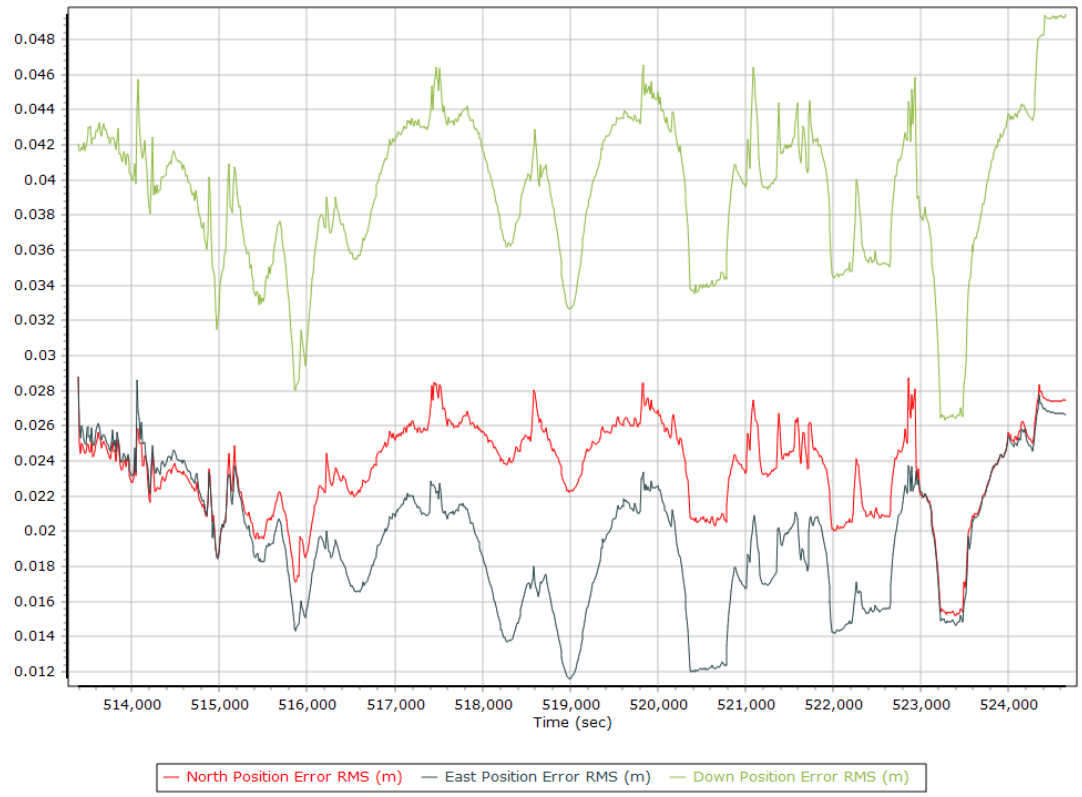


Heading Error RMS (arc-min)

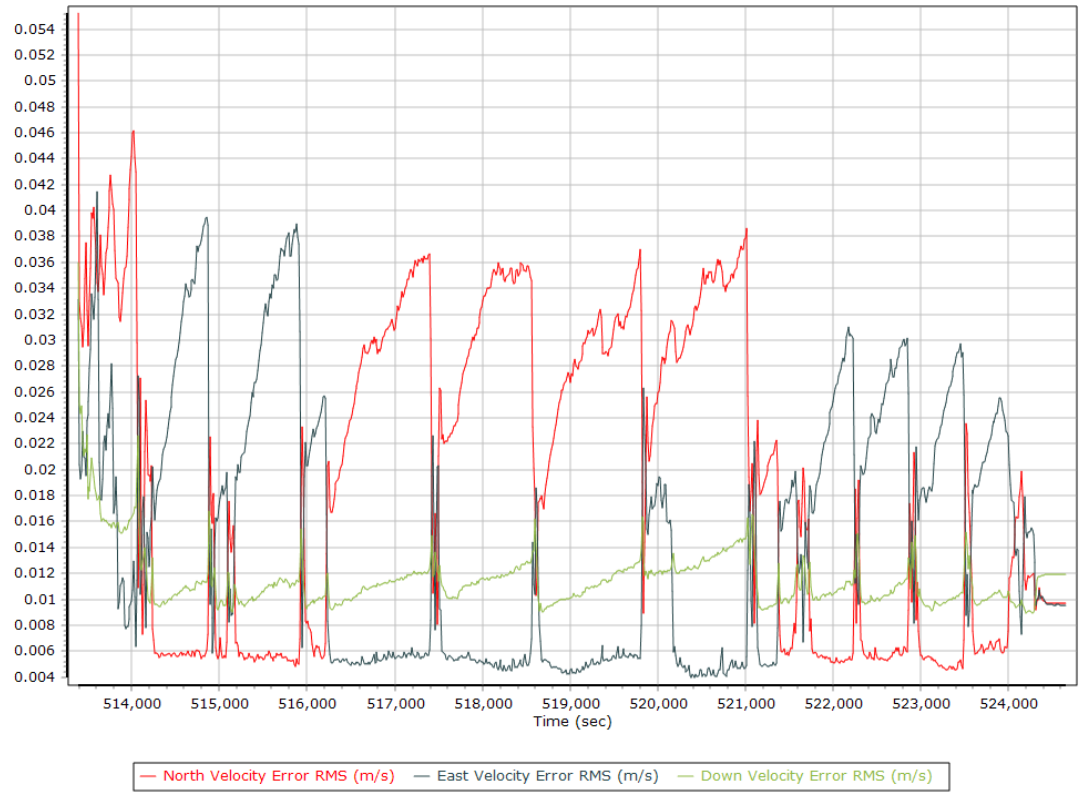


Forward Processed Performance Metrics

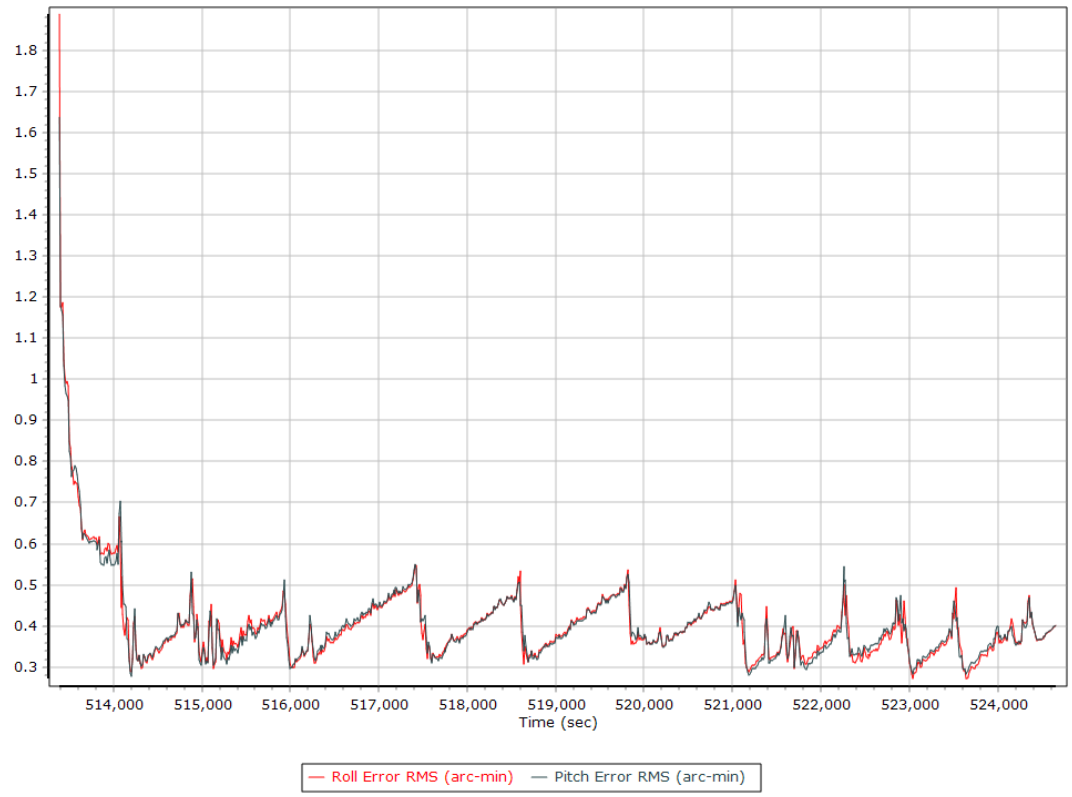
Position Error RMS (m)



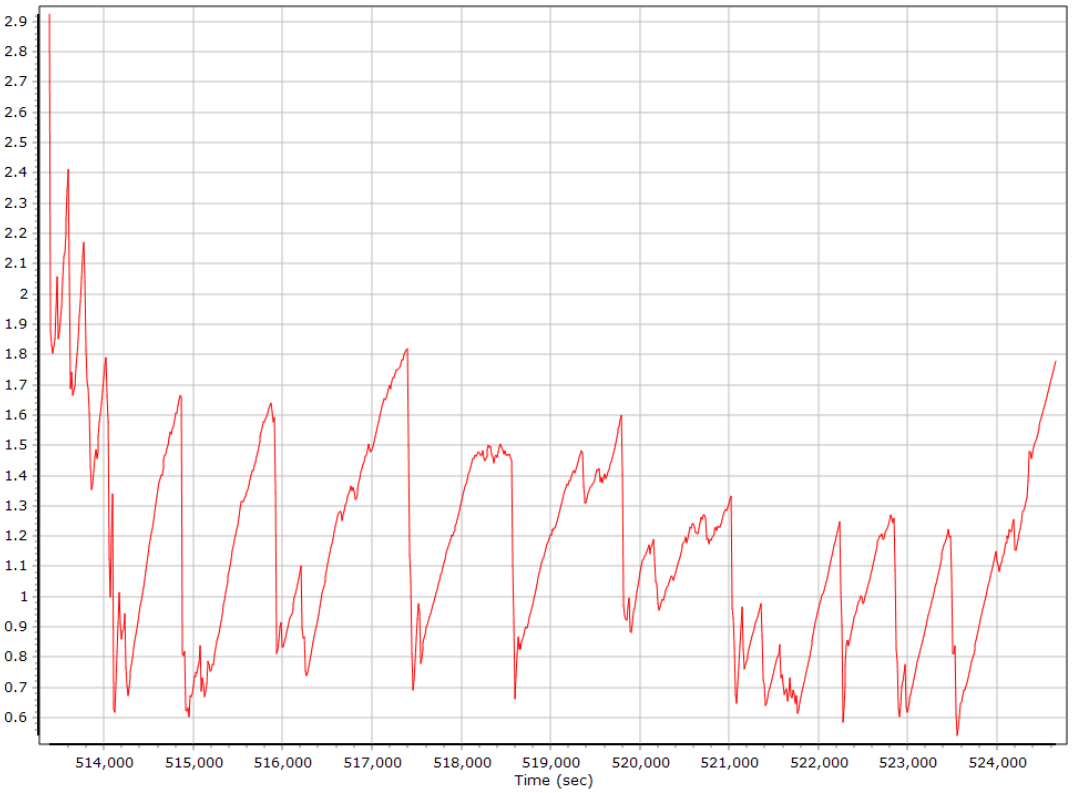
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

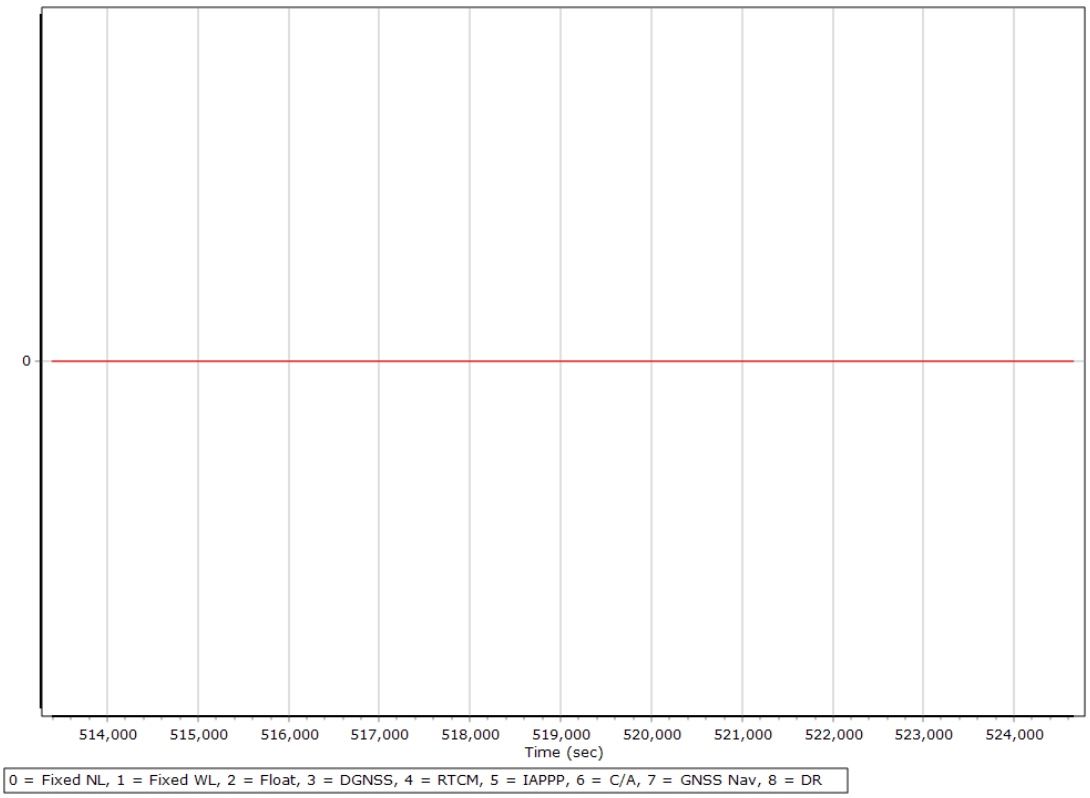


Heading Error RMS (arc-min)

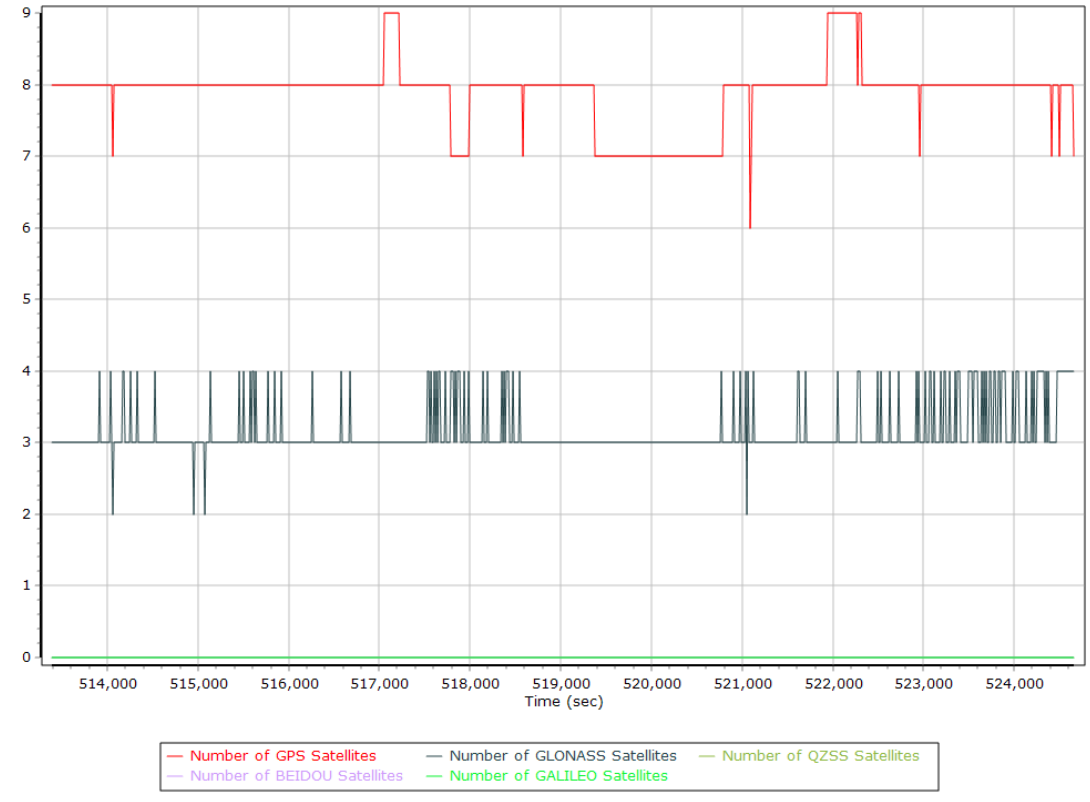


Smoothed Solution Status

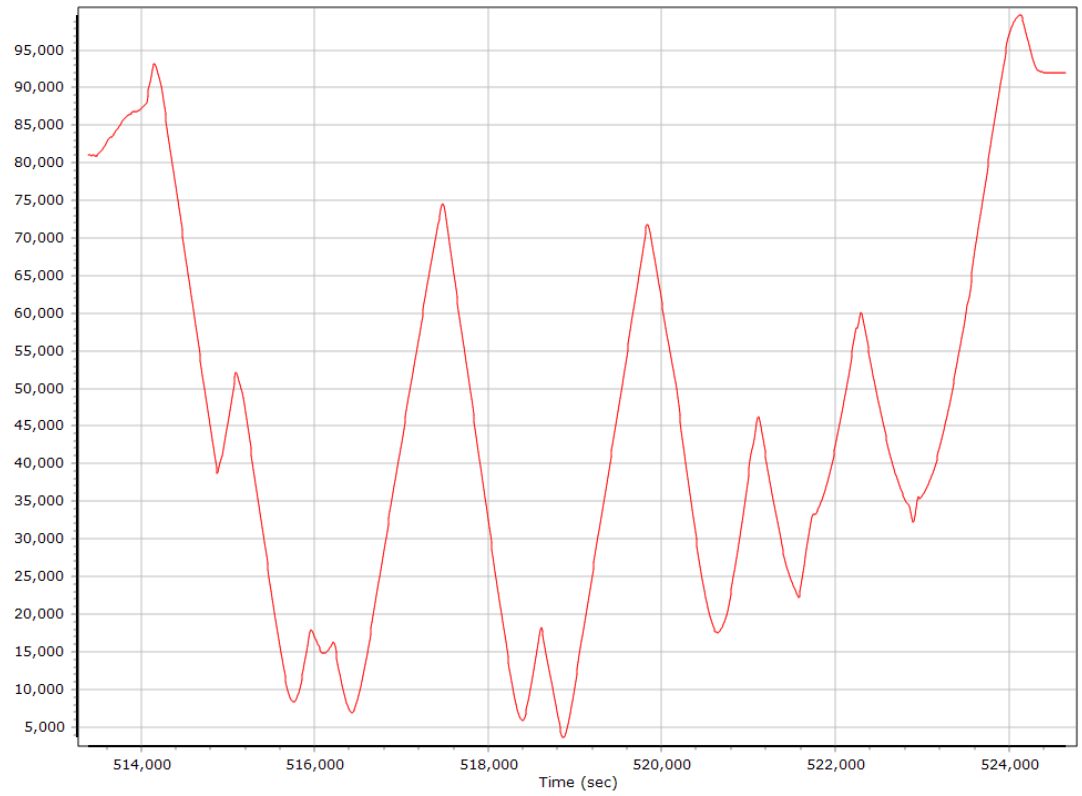
Processing Mode



Number of Satellites

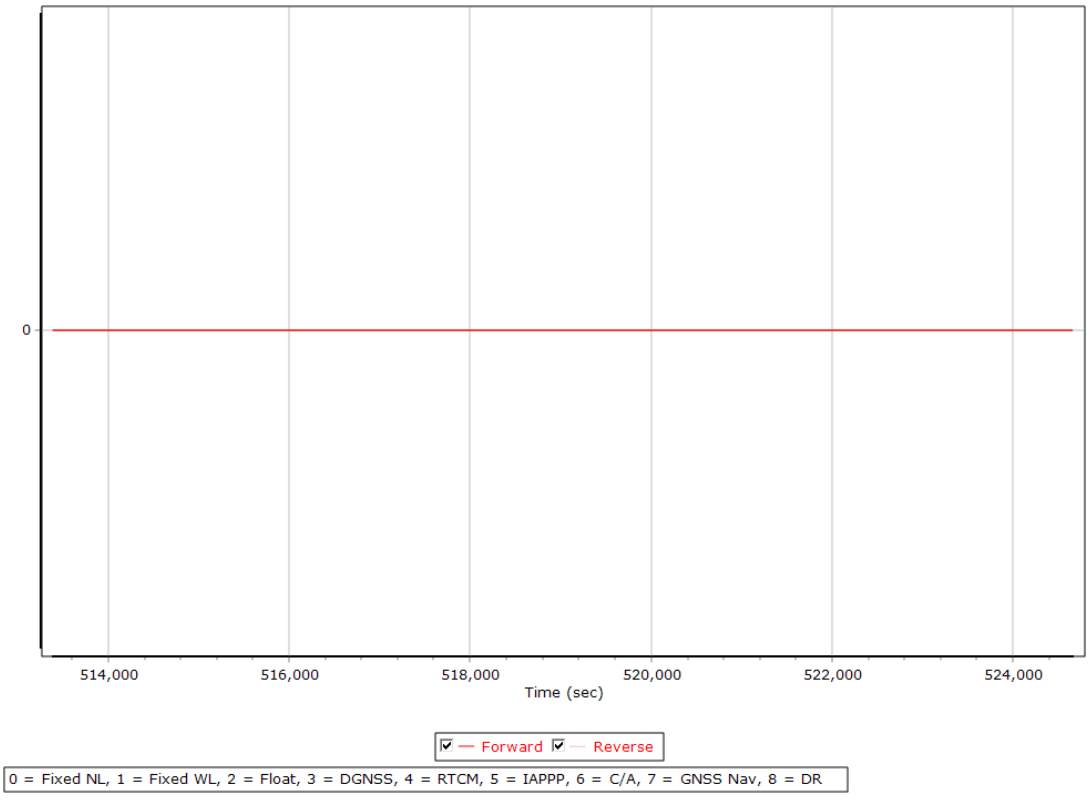


Baseline Length

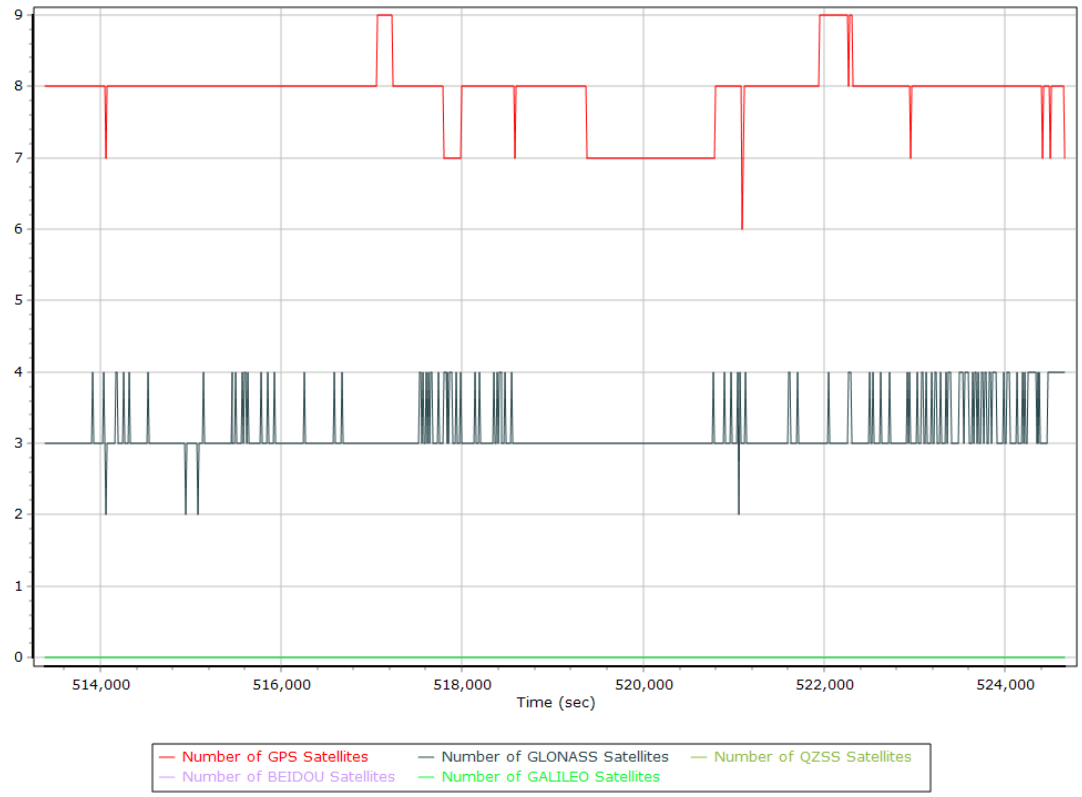


Forward Processed Solution Status

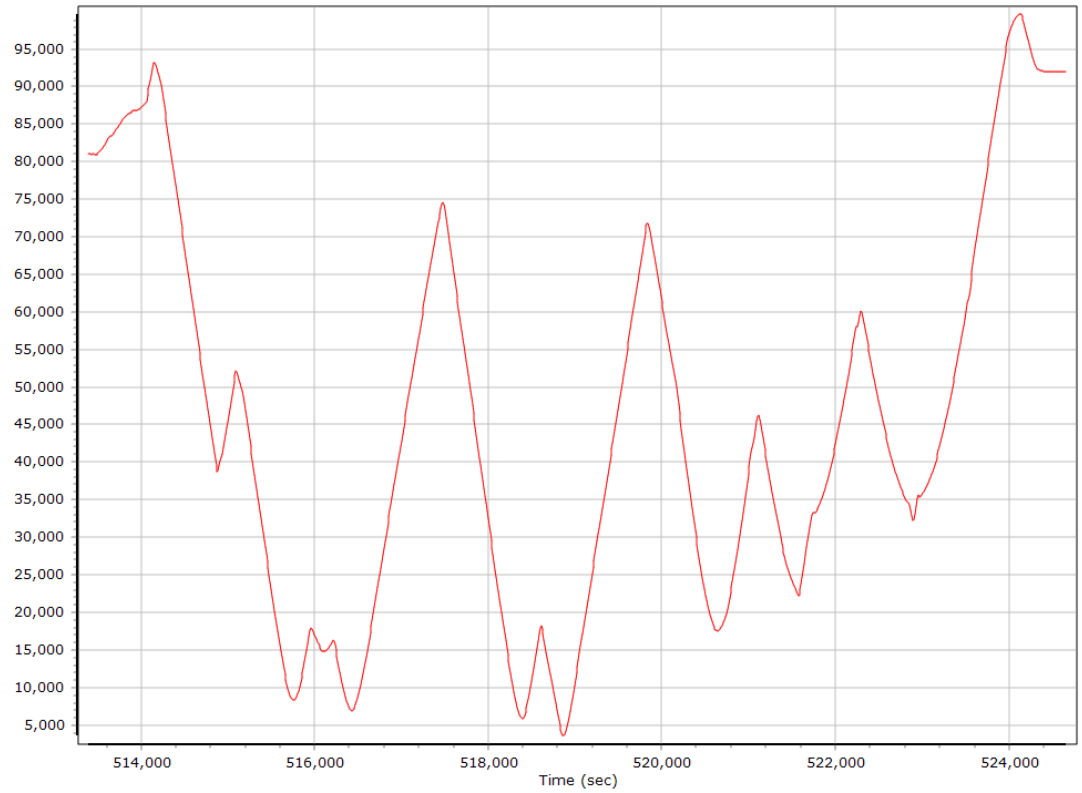
Processing Mode



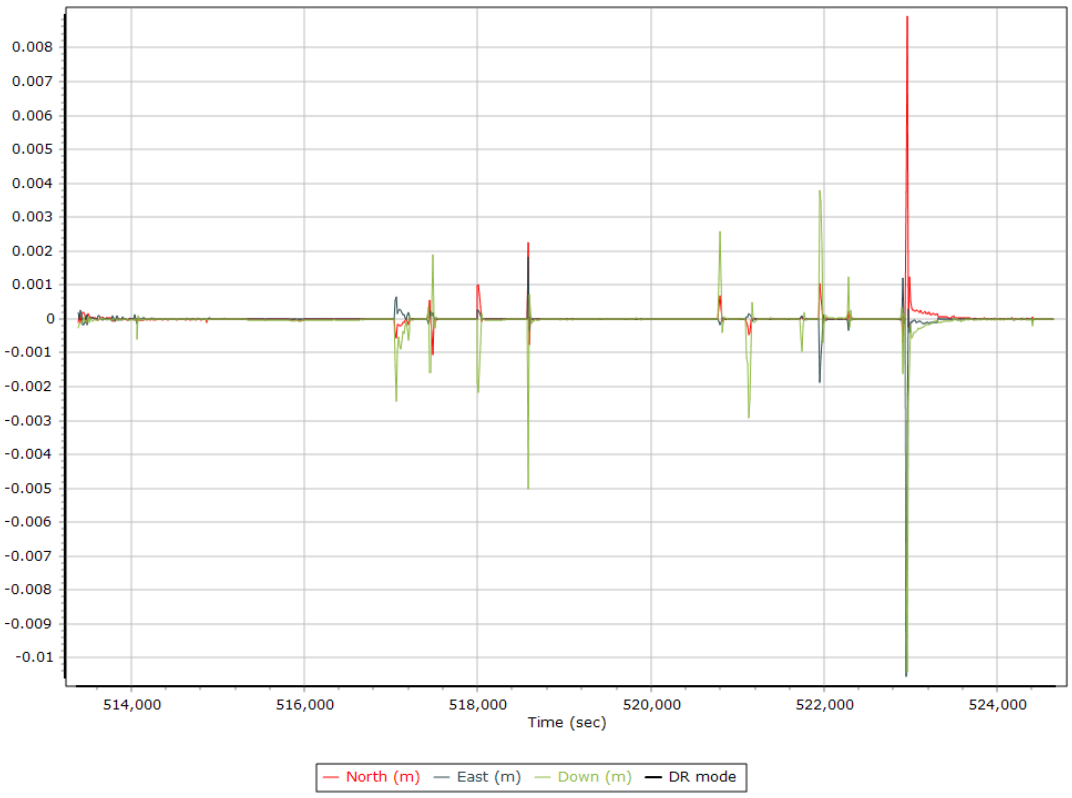
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_20200410D.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	513330.001 (4/10/2020 10:35:30 PM)		
Export end time	524662.002 (4/11/2020 1:44:22 AM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200410E
Processing date	2021-01-19 00:08:23
Mission date	2020-04-11 02:04:20
Mission duration	03:00:36.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.020	POS Data
ALS.021	POS Data
ALS.022	POS Data
ALS.023	POS Data
ALS.024	POS Data
ALS.025	POS Data
ALS.026	POS Data
ALS.027	POS Data
ALS.028	POS Data
ALS.029	POS Data
ALS.030	POS Data
ALS.031	POS Data
ALS.032	POS Data
ALS.033	POS Data
ALS.034	POS Data
ALS.035	POS Data
ALS.036	POS Data

Input Files

File Name	File Type
Ephm1020.20g	GLONASS Broadcast Ephemeris
Ephm1020.20n	GPS Broadcast Ephemeris
iaal1020.20o	GNSS SingleBase
iade1020.20o	GNSS SingleBase
iael1020.20o	GNSS SingleBase
iaht1020.20o	GNSS SingleBase
iamn1020.20o	GNSS SingleBase
iana1020.20o	GNSS SingleBase
jfws1020.20o	GPS SingleBase
mnca1020.20o	GNSS SingleBase
mney1020.20o	GNSS SingleBase
mnps1020.20o	GNSS SingleBase
mnsv1020.20o	GNSS SingleBase
mnwn1020.20o	GNSS SingleBase
wbrf1020.20o	GNSS SingleBase
winl1020.20o	GNSS SingleBase
wlnc1020.20o	GNSS SingleBase
igr21005.sp3	GPS Precise Ephemeris
igr21006.sp3	GPS Precise Ephemeris
igr21010.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200410E.out	SBET Trajectory File
SBET_20200410E.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.020		
Last raw data file	ALS.036		
Start GPS week	2100		
Start time	525853.458 (4/11/2020 2:04:13 AM)		
End time	536678.271 (4/11/2020 5:04:38 AM)		
Start of fine alignment	526331.504 (4/11/2020 2:12:11 AM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

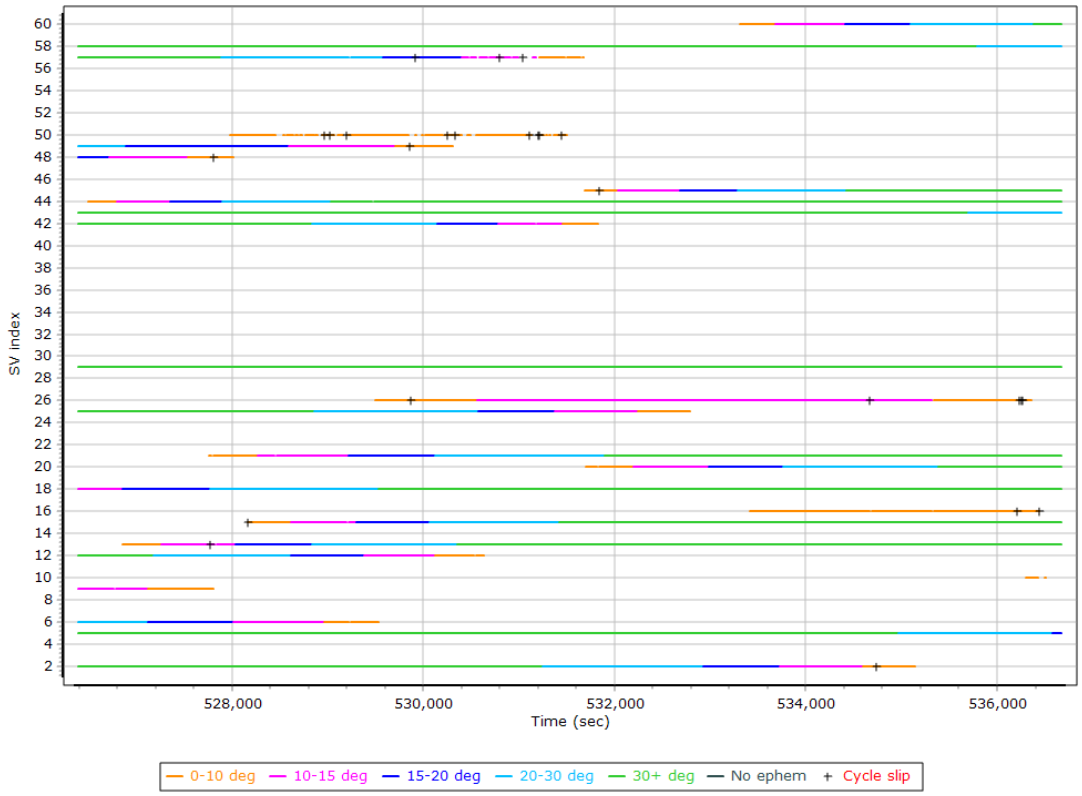
Rover Data QC

Raw IMU Import QC Summary

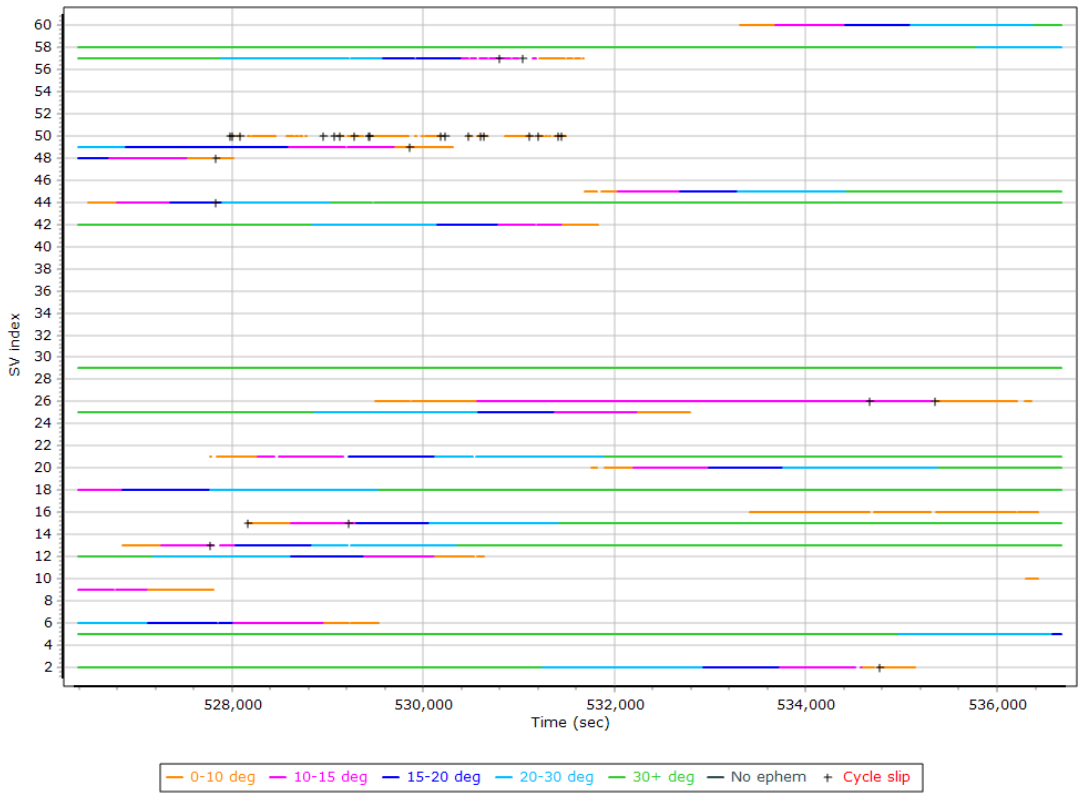
IMU data input file	imu_20200410E.dat
IMU data check log file	imudt_20200410E.log
IMU Records Processed	2169871
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
525853.063 : WARNING : Gap of 525831.0757 seconds in CHECKDT input data	

Primary Observables & Satellite Data

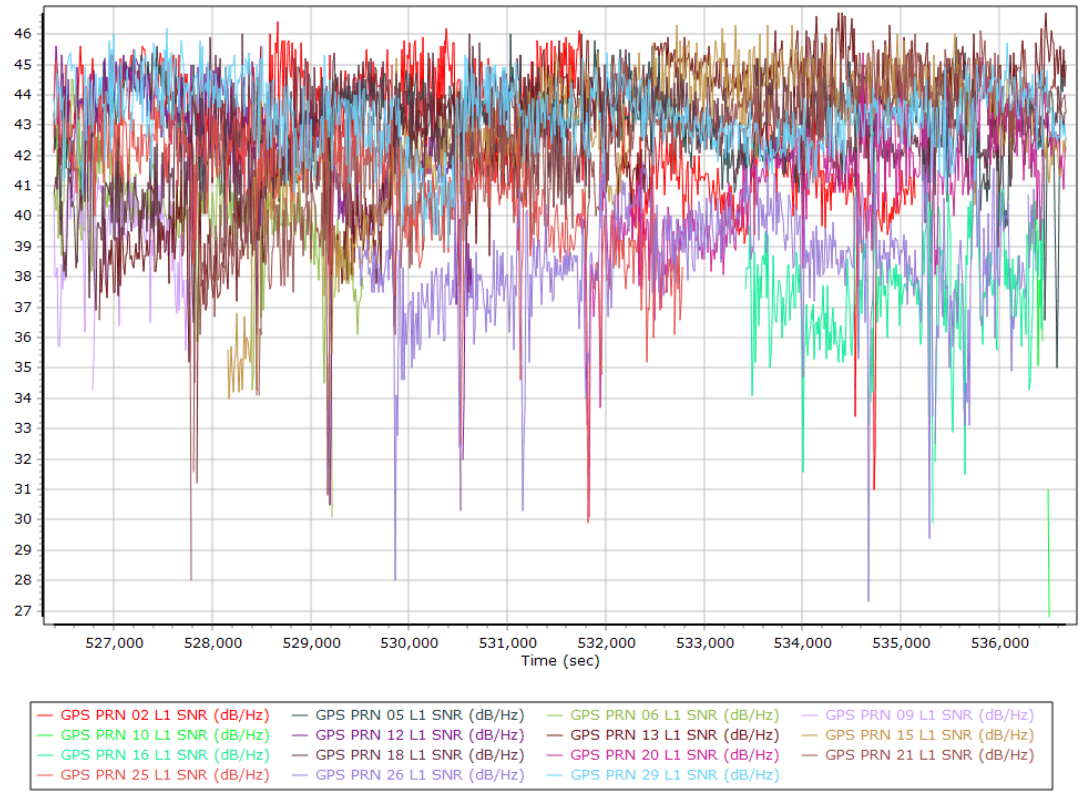
L1 Satellite Lock/Elevation



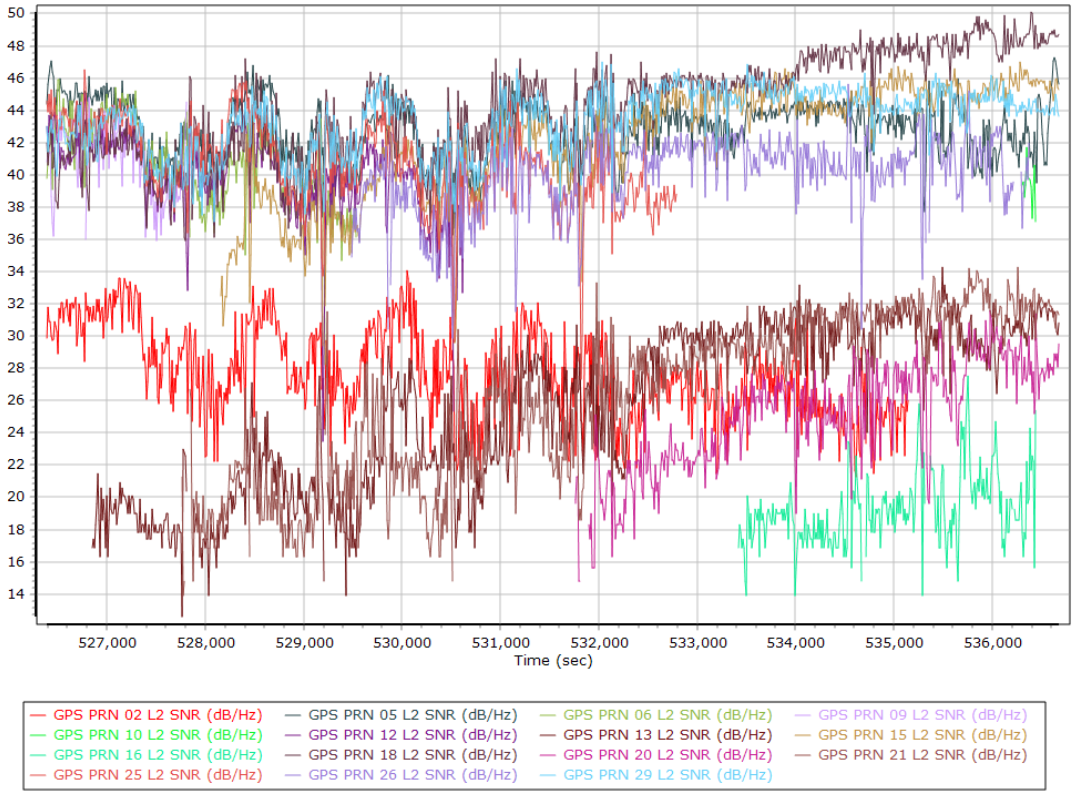
L2 Satellite Lock/Elevation



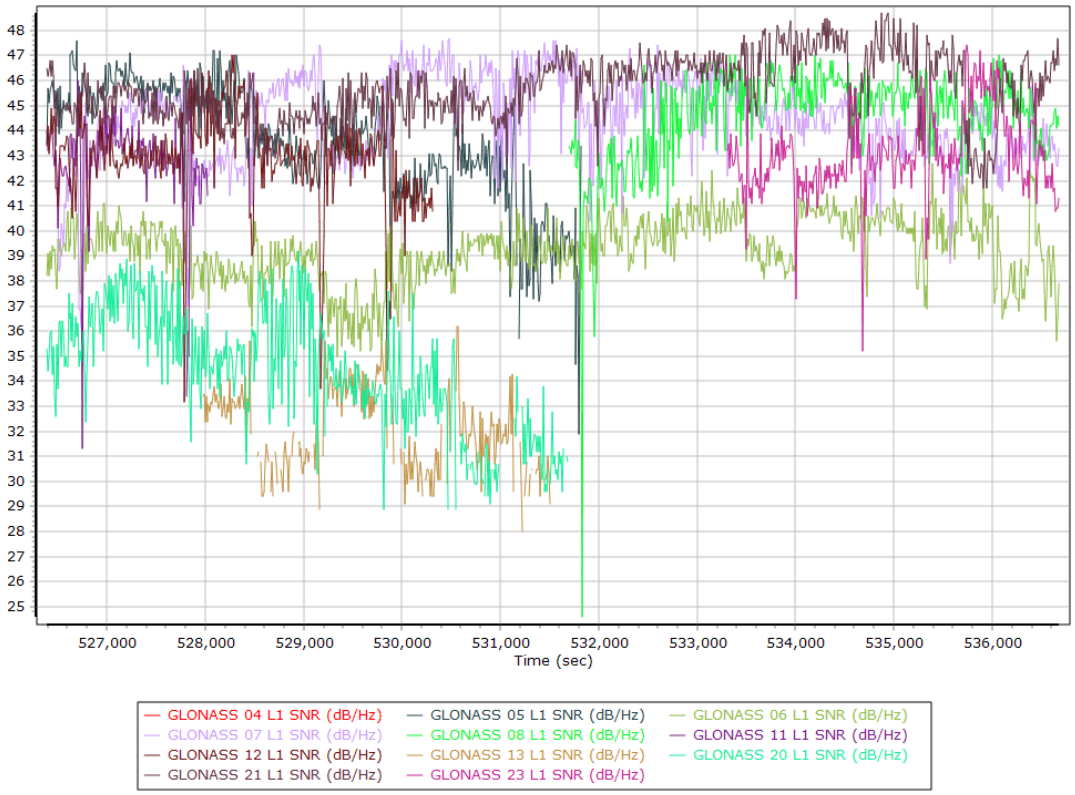
GPS L1 SNR



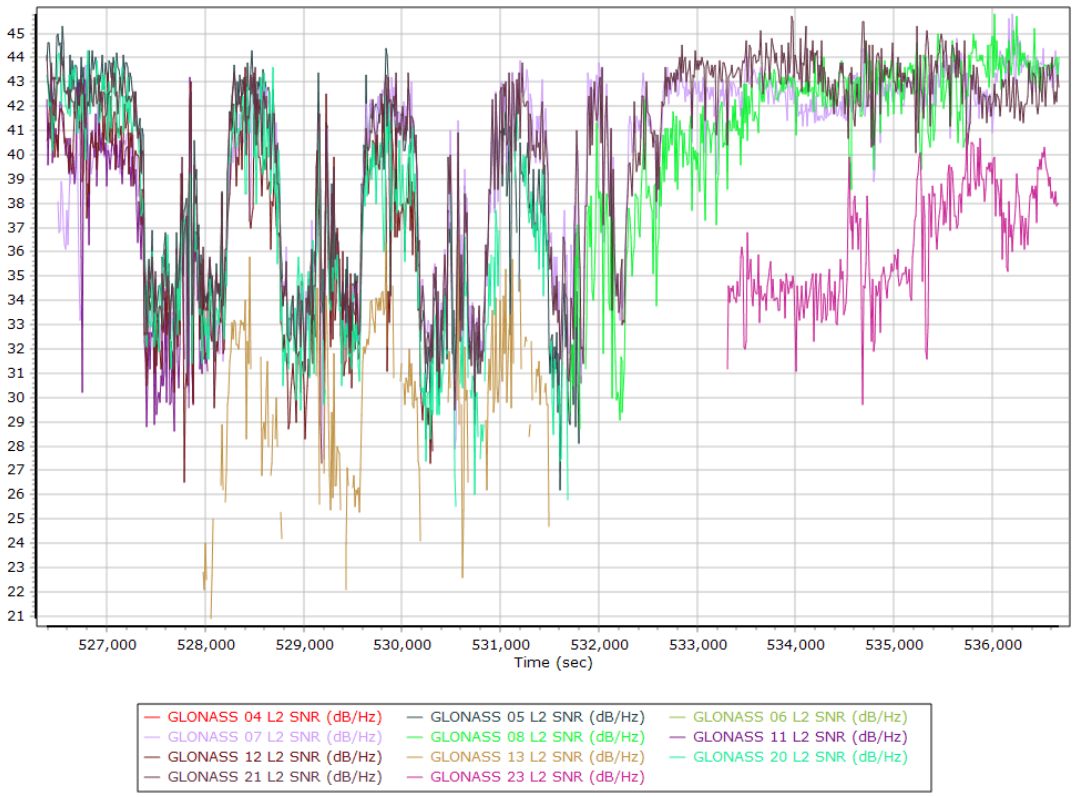
GPS L2 SNR



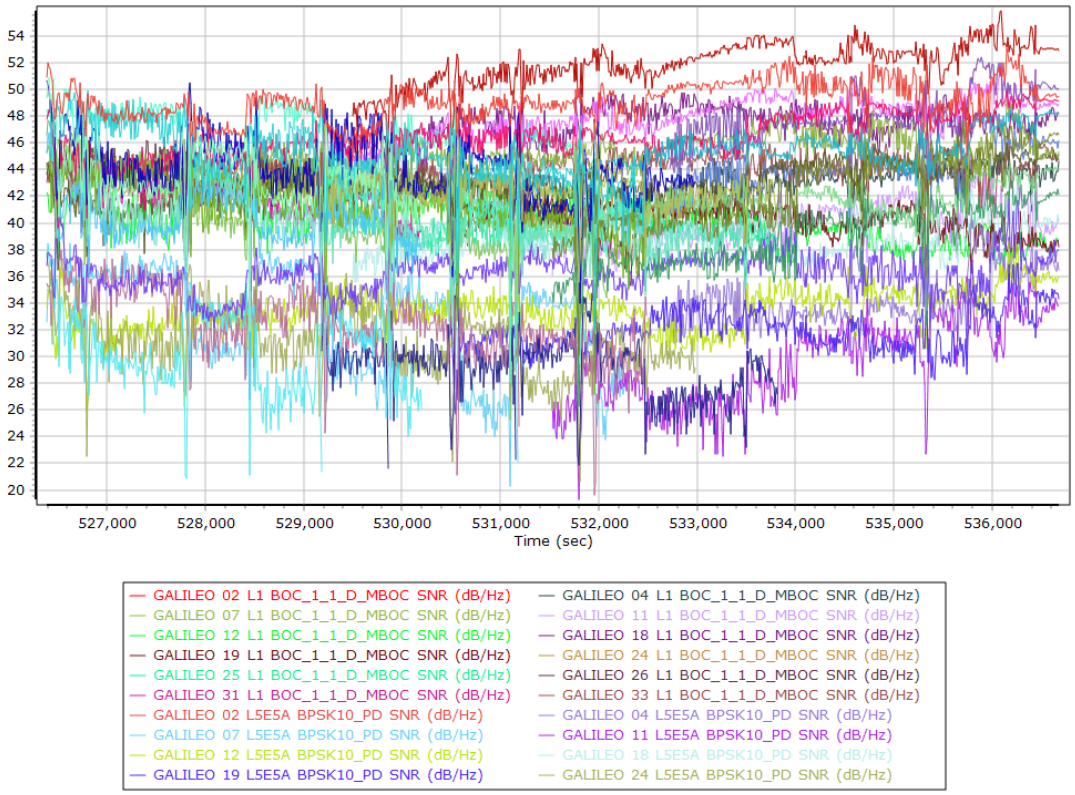
GLONASS L1 SNR



GLONASS L2 SNR



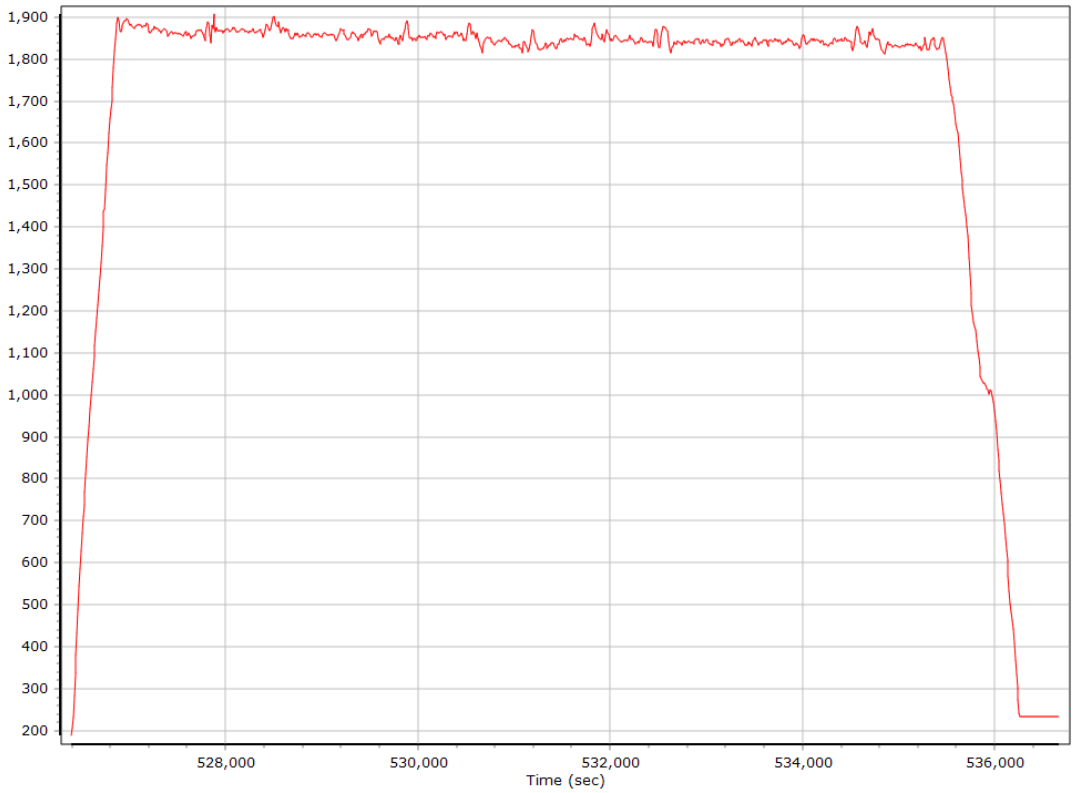
GALILEO SNR



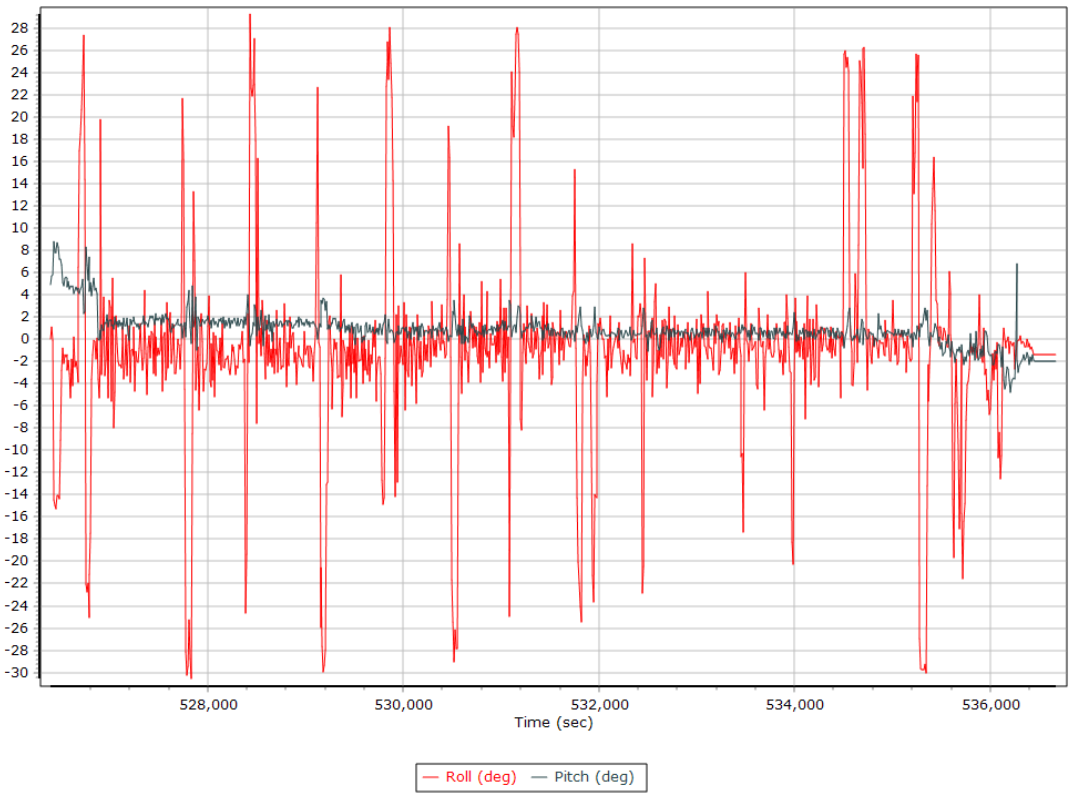
Smoothed Trajectory Information

Top View

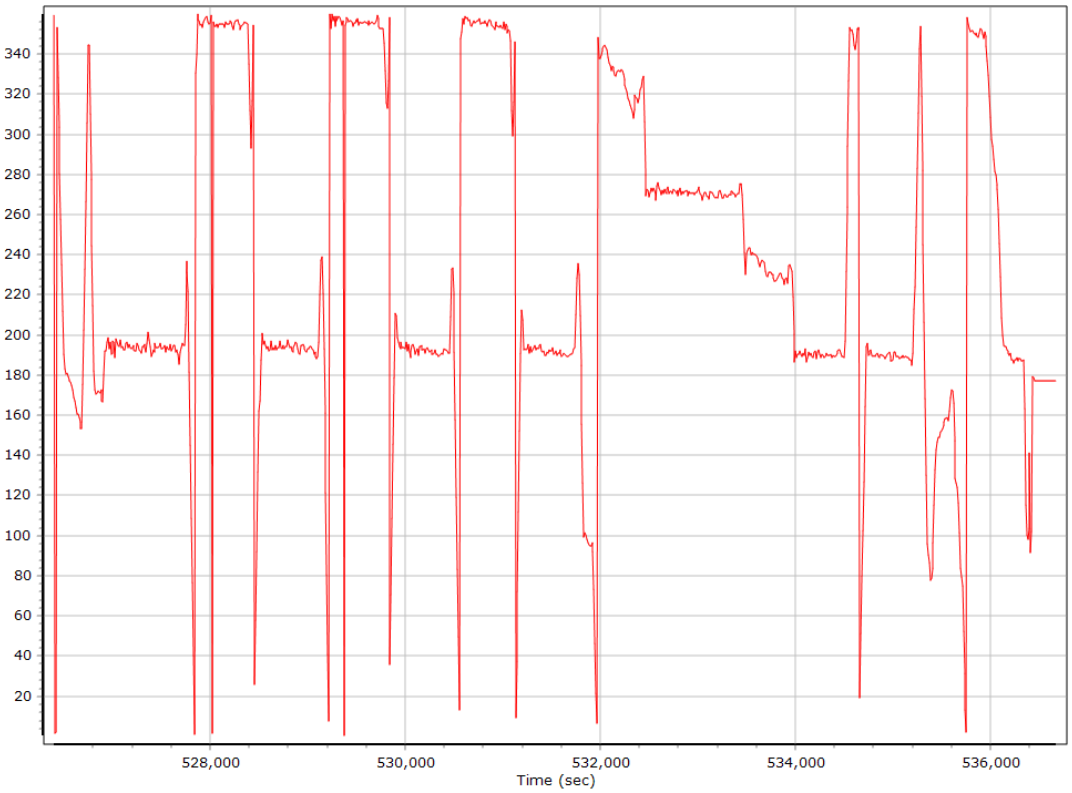
Altitude



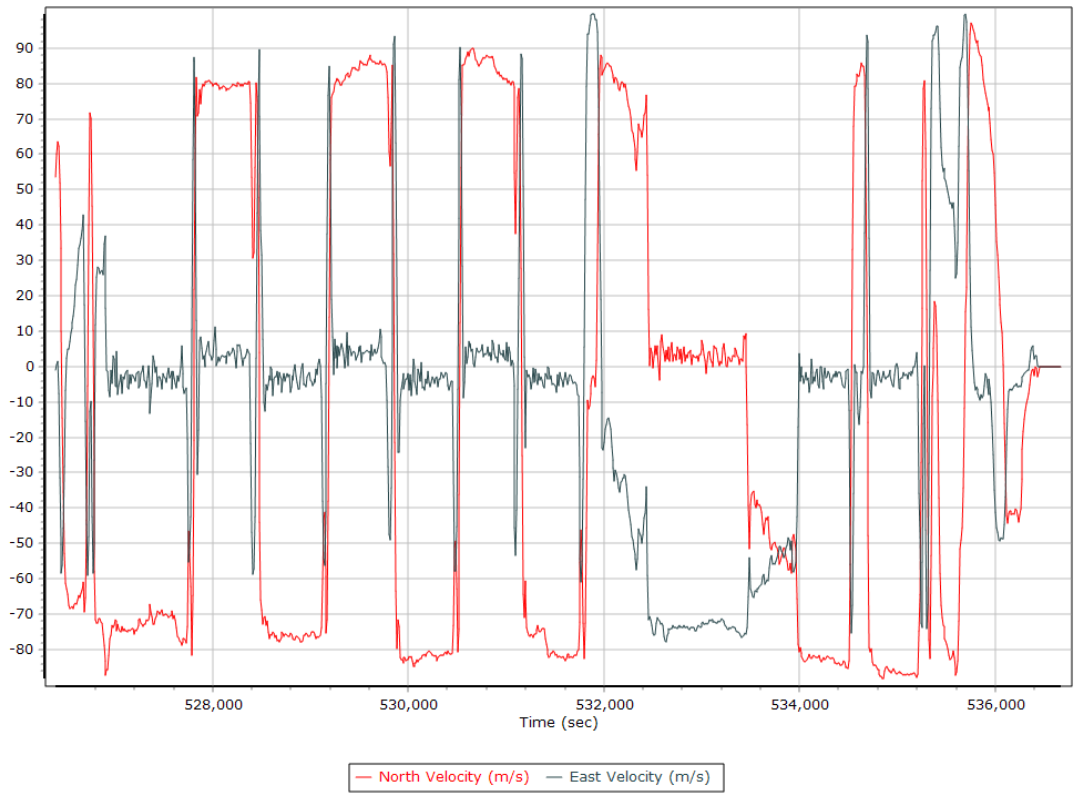
Roll/Pitch



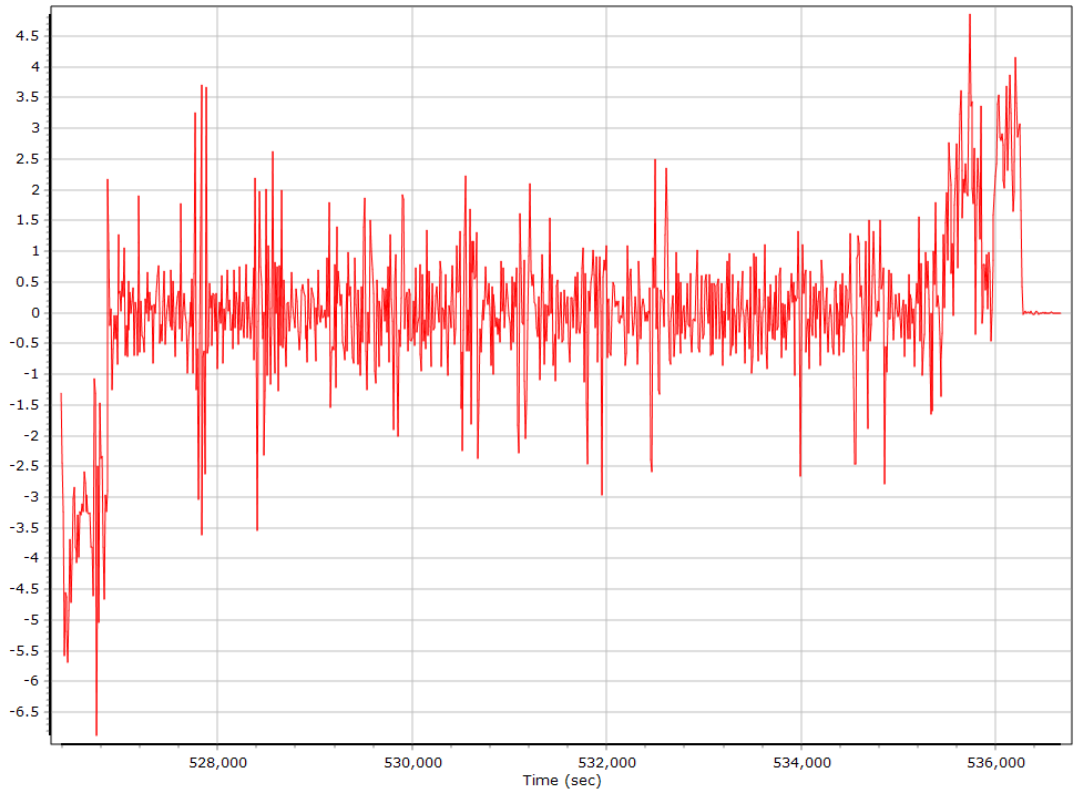
Heading



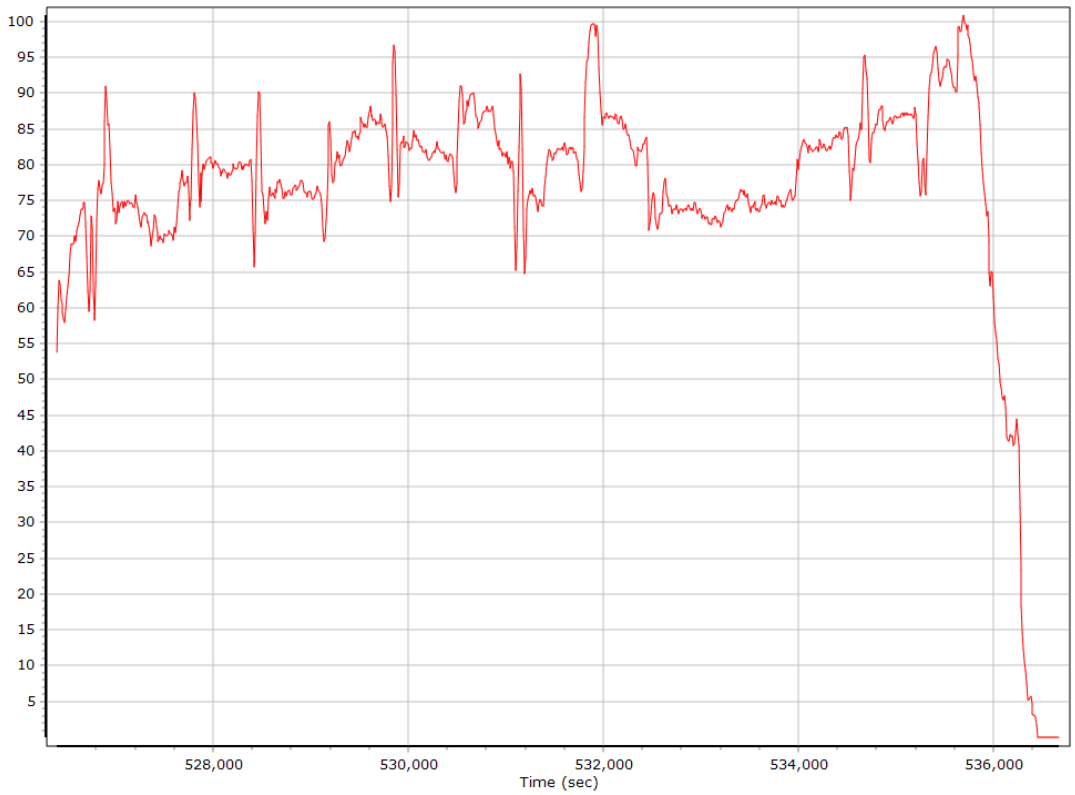
North/East Velocity



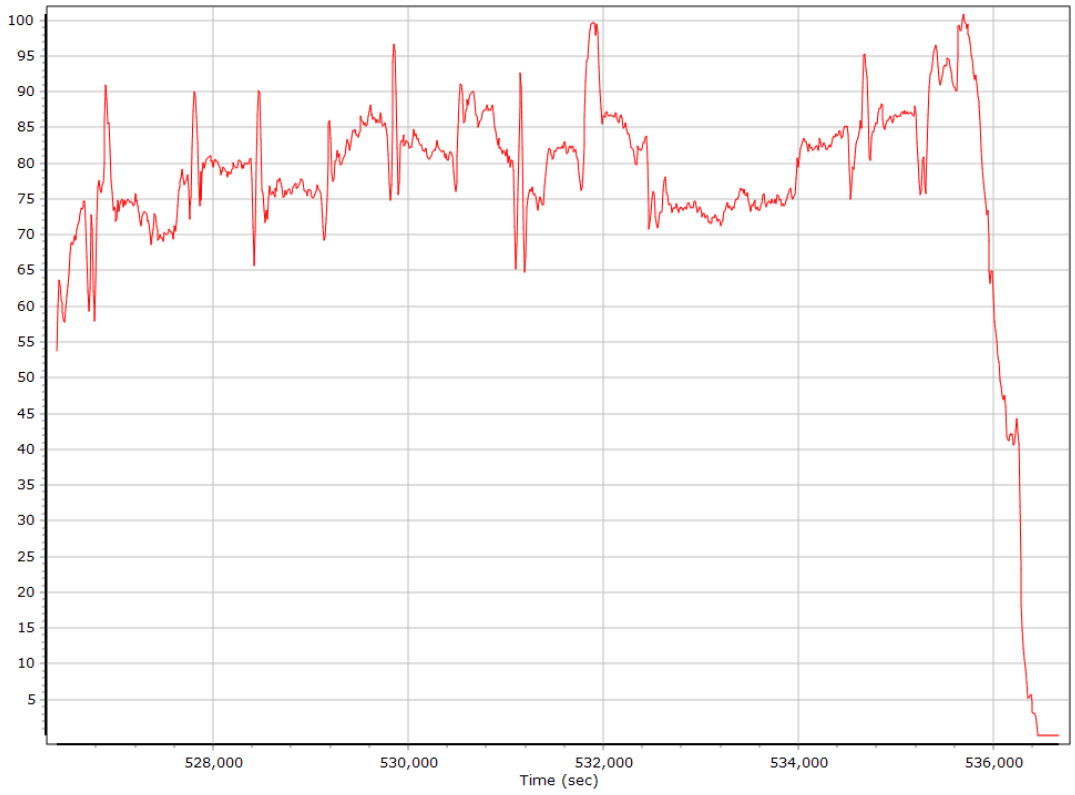
Down Velocity



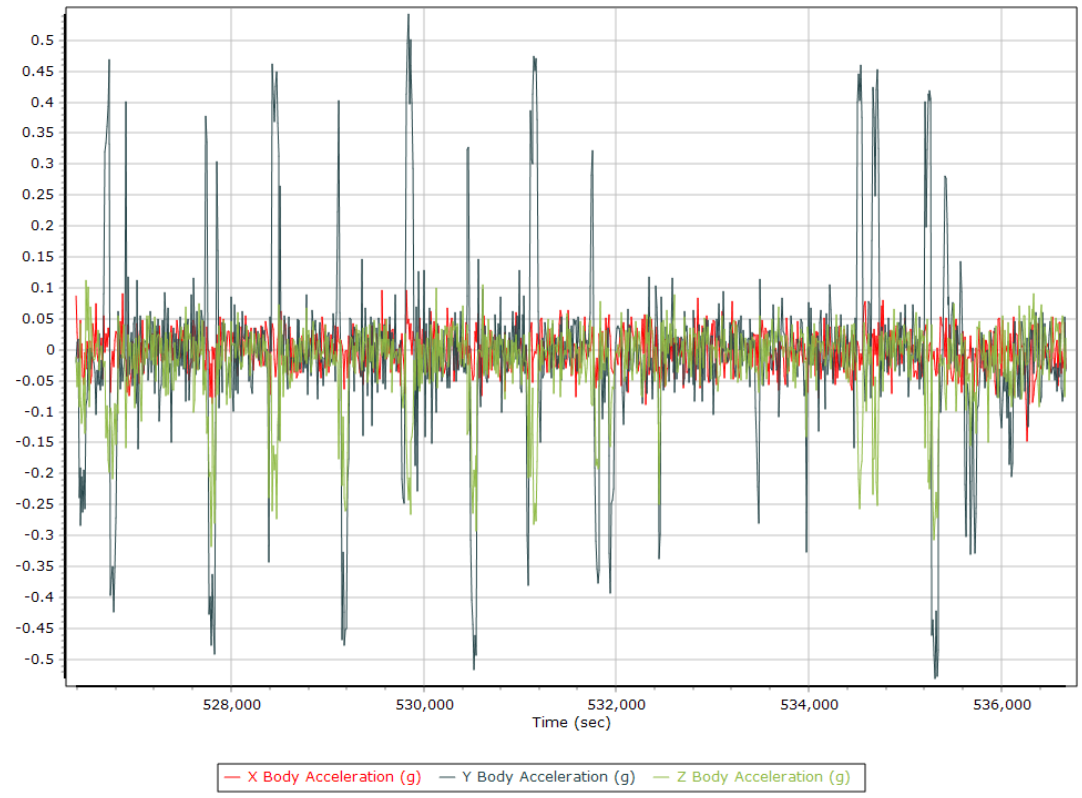
Total Speed



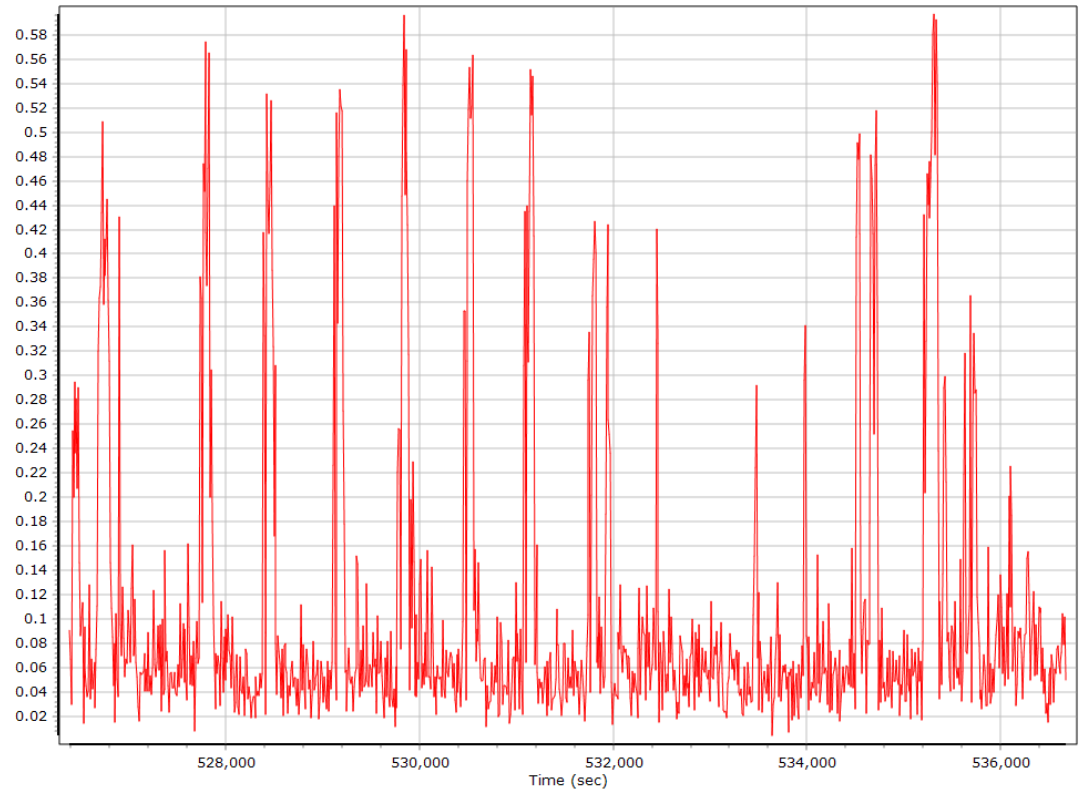
Ground Speed



Body Acceleration



Total Body Acceleration

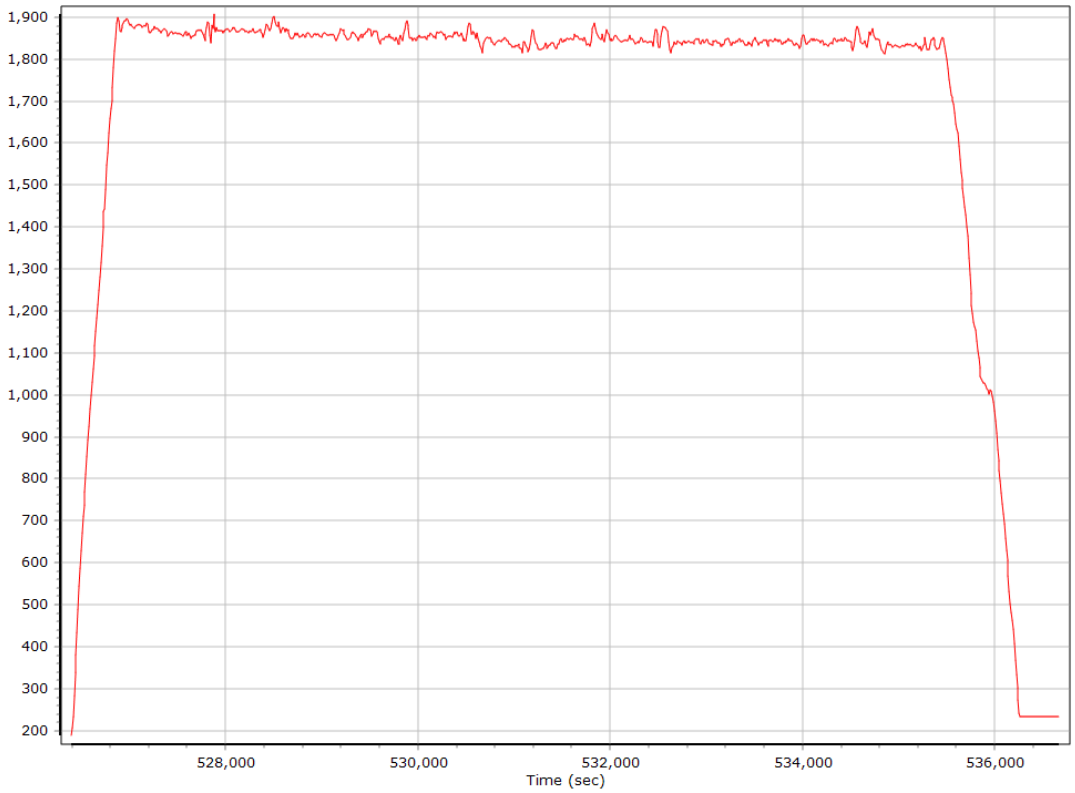


Body Angular Rate

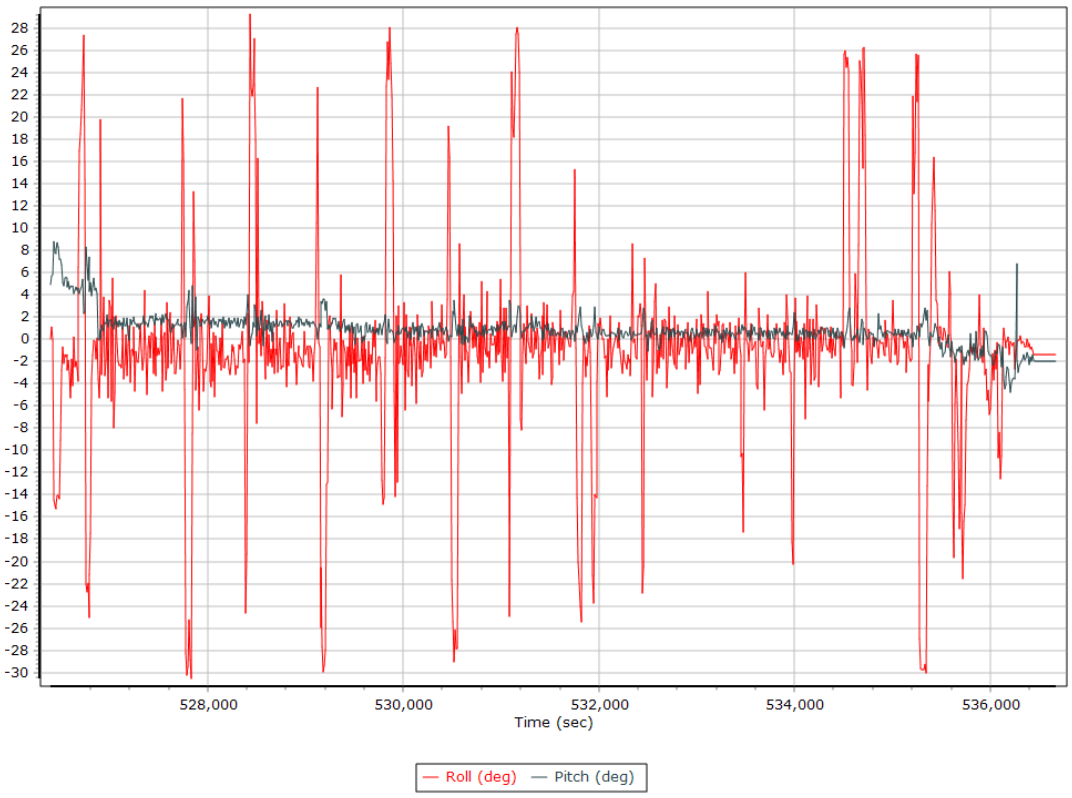
Forward Processed Trajectory Information

Top View

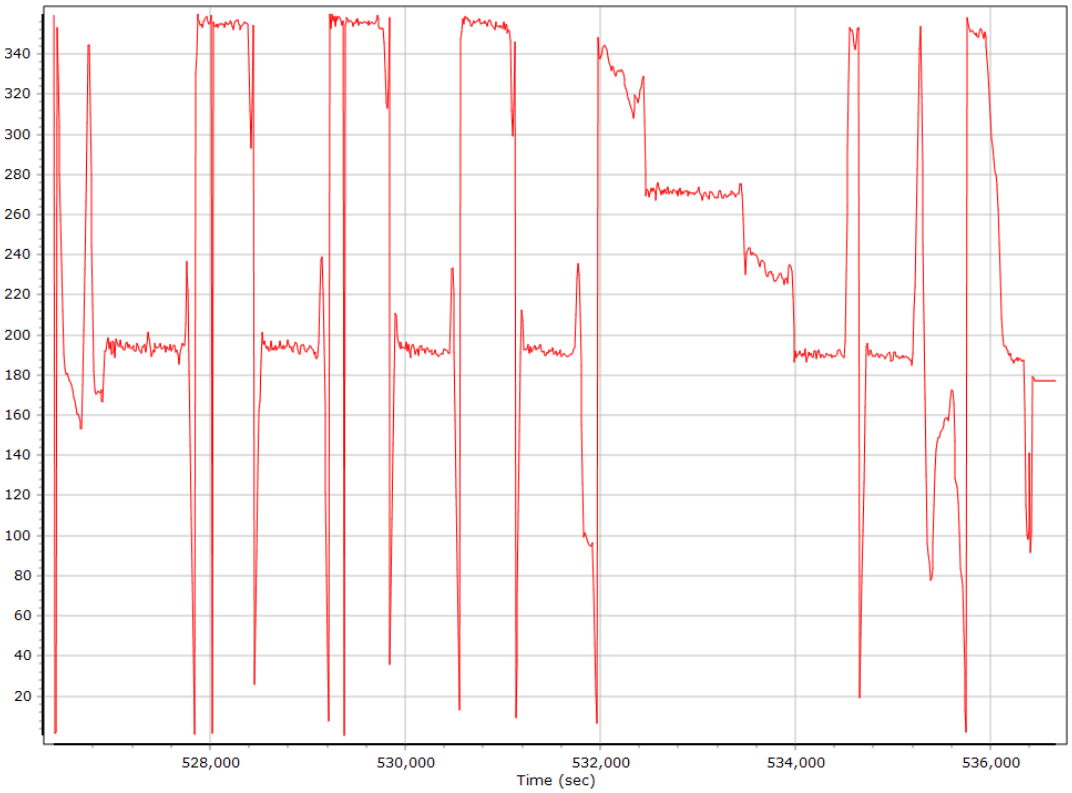
Altitude



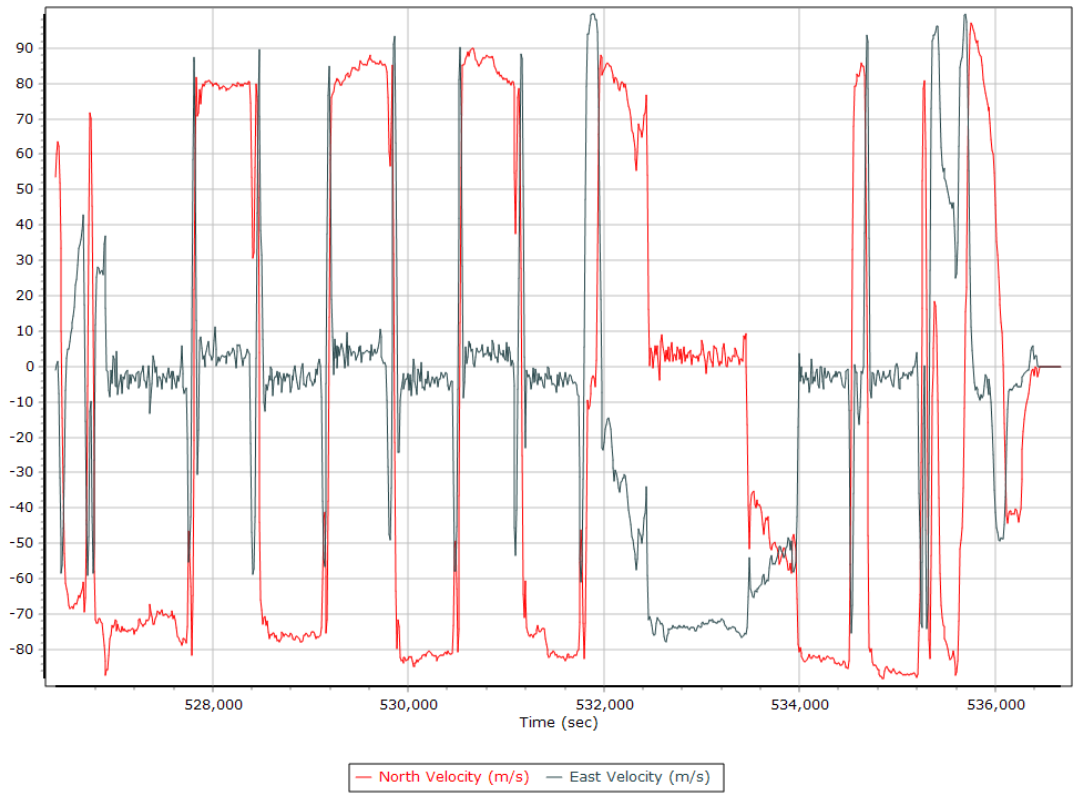
Roll/Pitch



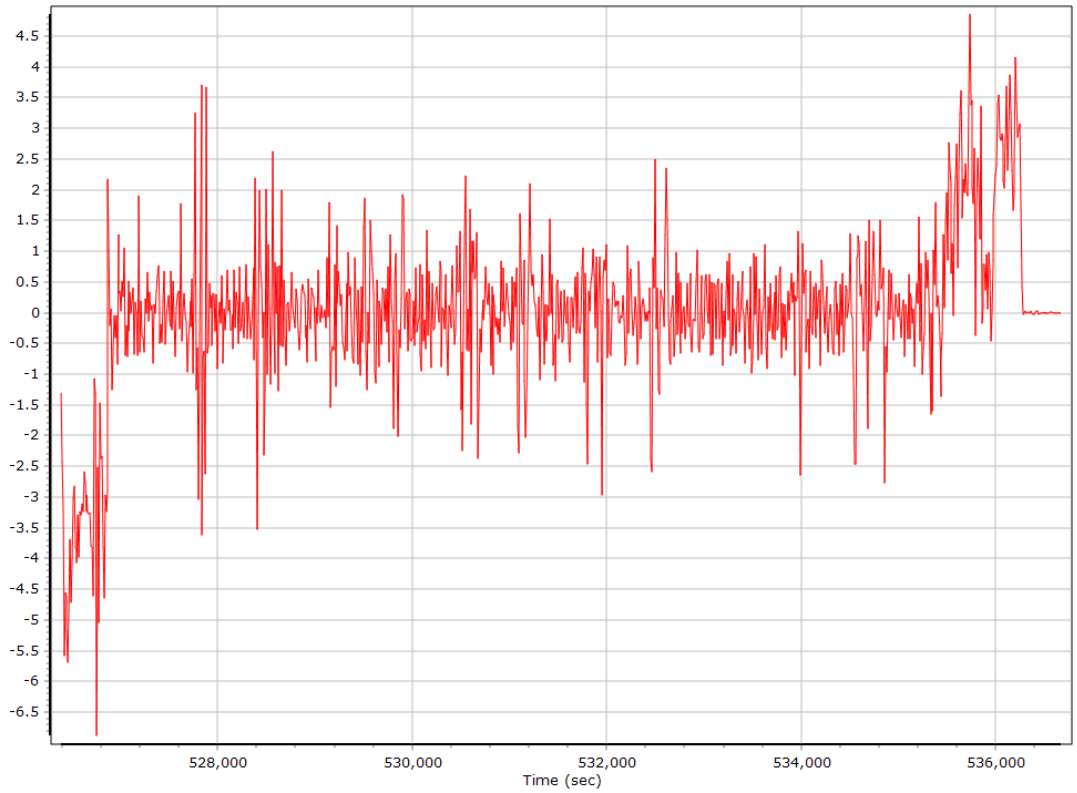
Heading



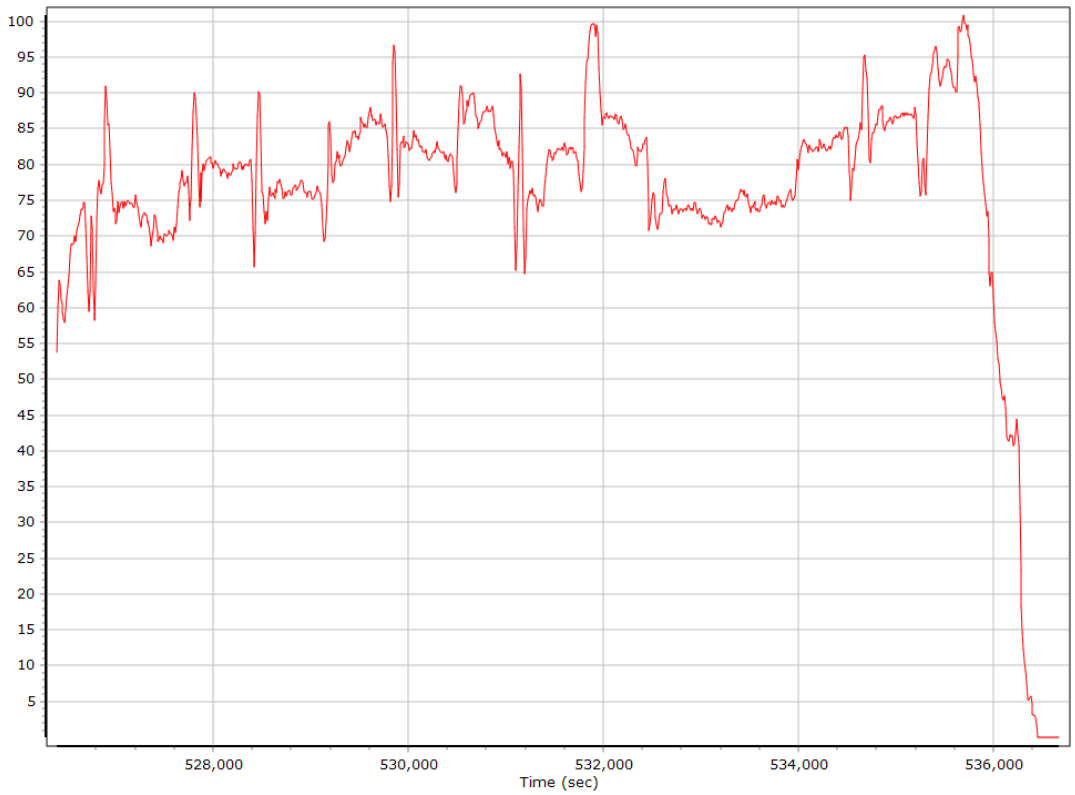
North/East Velocity



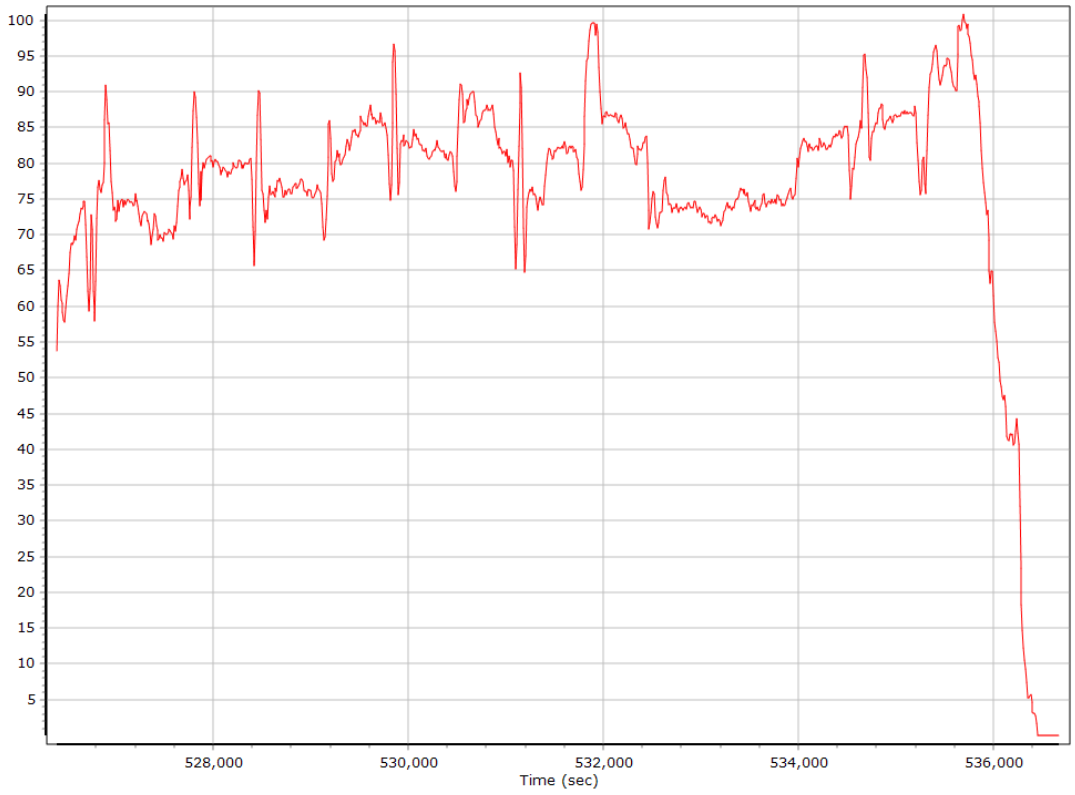
Down Velocity



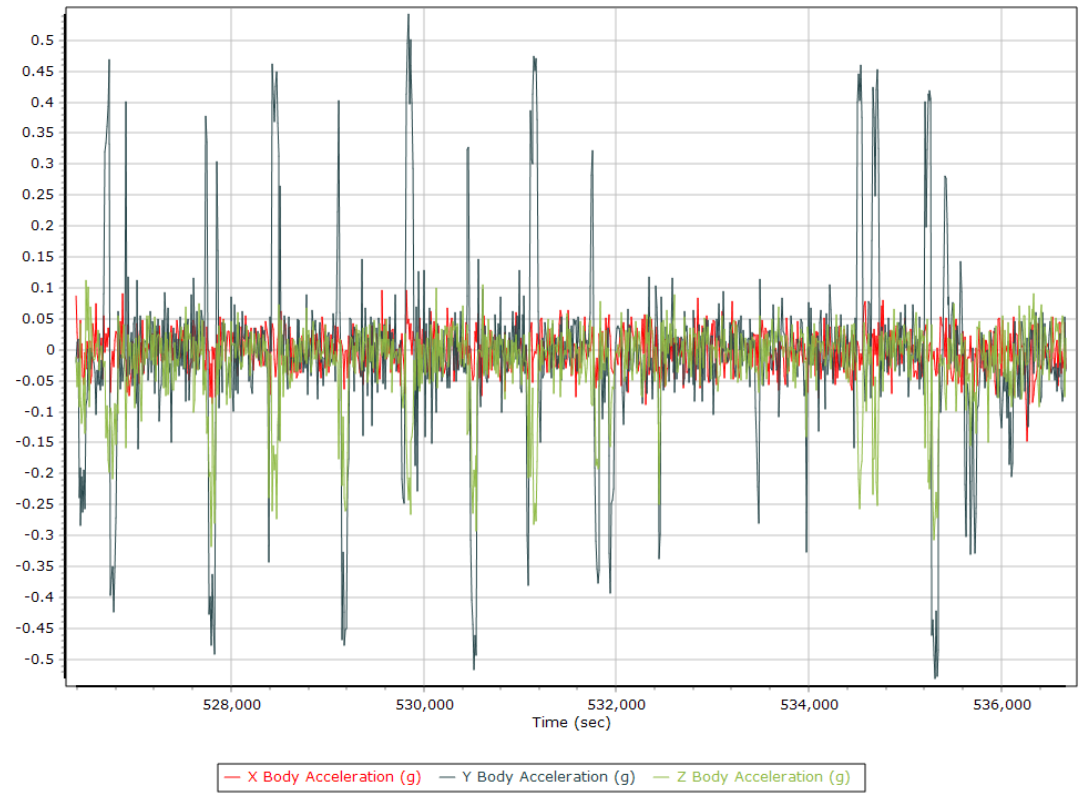
Total Speed



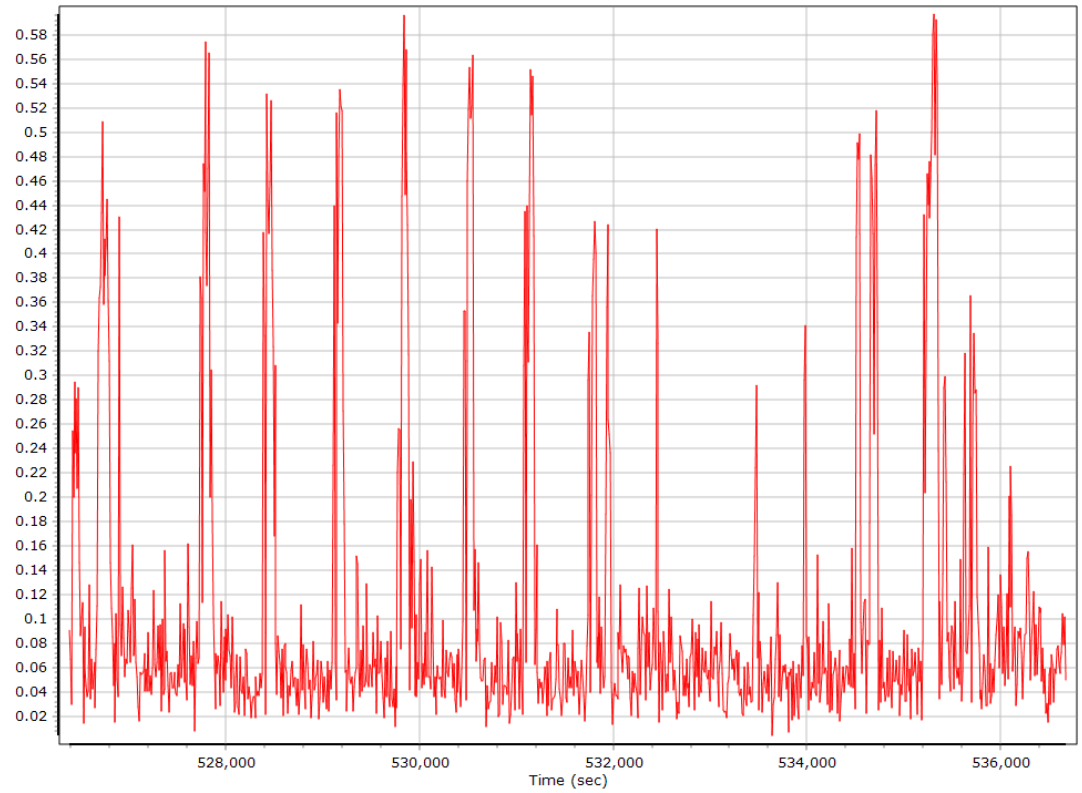
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/11/2020	IADE	15.22	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNPS	34.98	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IANA	39.61	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNCA	43.96	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IAEL	47.72	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	WLNC	89.08	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNEY	90.20	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNWN	90.41	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	MNSV	98.85	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IAAL	108.71	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	JFWS	119.94	GPS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IAMN	136.08	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	WINL	138.03	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	IAHT	139.88	GNSS	30	CORS (daily)	Smart Base	Imported
04/11/2020	WBRF	146.34	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	10836 s (2100 525860 - 2100 536696)
Number of reference stations	13
Primary station GPS measurement usage (%)	99.8
Primary station GLONASS measurement usage (%)	73.4
Average number of satellites per epoch	12.3
Max number of GPS stations used	6
Min number of GPS stations used	5
Max number of GLONASS stations used	6
Min number of GLONASS stations used	4
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	15049
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38124"	W93°22'06.68788"	344.482
Adjusted		N43°17'02.38119"	W93°22'06.68764"	344.492
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.010	0.012

Base Station Information

Station ID	IAHT		
Filename	iaht1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38124"		
Longitude	W93°22'06.68788"		
Ellipsoidal height (m)	344.48177		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WINL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°50'27.42791"	W90°08'31.59808"	243.634
Adjusted		N43°50'27.42791"	W90°08'31.59773"	243.646
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.012	0.014

Base Station Information

Station ID	WINL		
Filename	winl1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5503R50037
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°50'27.42791"		
Longitude	W90°08'31.59808"		
Ellipsoidal height (m)	243.63361		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59749"	228.904
Adjusted		N42°01'49.10889"	W91°32'55.59746"	228.886
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.001	0.018	0.018

Base Station Information

Station ID	IAMN		
Filename	iamn1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59749"		
Ellipsoidal height (m)	228.90417		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24723"	291.092
Adjusted		N42°44'49.40397"	W92°47'14.24740"	291.122
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.029	0.030

Base Station Information

Station ID	IAAL		
Filename	iaal1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24723"		
Ellipsoidal height (m)	291.09233		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNSV

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°54'09.07389"	W92°28'55.97413"	361.226
Adjusted		N43°54'09.07405"	W92°28'55.97415"	361.226
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.001	0.005

Base Station Information

Station ID	MNSV		
Filename	mnsv1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	Alloy	5829R40031
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°54'09.07389"		
Longitude	W92°28'55.97413"		
Ellipsoidal height (m)	361.22645		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNWN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N44°03'54.03515"	W91°42'45.52415"	178.655
Adjusted		N44°03'54.03520"	W91°42'45.52382"	178.651
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.007	0.004	0.008

Base Station Information

Station ID	MNWN		
Filename	mnwn1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5443R50018
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N44°03'54.03515"		
Longitude	W91°42'45.52415"		
Ellipsoidal height (m)	178.65534		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNEY

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°57'20.27378"	W92°12'19.44386"	370.916
Adjusted		N43°57'20.27372"	W92°12'19.44351"	370.904
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.013	0.015

Base Station Information

Station ID	MNEY		
Filename	mney1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5426R48922
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°57'20.27378"		
Longitude	W92°12'19.44386"		
Ellipsoidal height (m)	370.91638		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WLNC

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°50'15.66937"	W90°42'41.07305"	280.855
Adjusted		N42°50'15.66932"	W90°42'41.07287"	280.851
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.004	0.004	0.006

Base Station Information

Station ID	WLNC		
Filename	wlnc1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72957
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N42°50'15.66937"		
Longitude	W90°42'41.07305"		
Ellipsoidal height (m)	280.85485		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.77	**Output Coordinates**	Original	
Solution Epochs	2852	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52986"	298.980
Adjusted		N42°52'40.47657"	W91°21'41.52961"	298.988
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.008	0.010

Base Station Information

Station ID	IAEL		
Filename	iael1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52986"		
Ellipsoidal height (m)	298.98030		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64527"	W91°29'46.51636"	339.588
Adjusted		N43°37'58.64527"	W91°29'46.51601"	339.599
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.011	0.013

Base Station Information

Station ID	MNCA		
Filename	mnca1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64527"		
Longitude	W91°29'46.51636"		
Ellipsoidal height (m)	339.58841		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54032"	172.253
Adjusted		N43°29'49.47908"	W91°17'26.53962"	172.233
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.016	0.020	0.026

Base Station Information

Station ID	IANA		
Filename	iana1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54032"		
Ellipsoidal height (m)	172.25323		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52632"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52632"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52632"		
Ellipsoidal height (m)	316.51619		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84813"	W91°53'06.86729"	380.908
Adjusted		N43°30'53.84819"	W91°53'06.86718"	380.916
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.009	0.009

Base Station Information

Station ID	MNPS		
Filename	mnps1020.20o		
Start date	4/11/2020 12:00:00 AM		
End date	4/11/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84813"		
Longitude	W91°53'06.86729"		
Ellipsoidal height (m)	380.90779		
Frame	ITRF00		
Epoch	2020.275956		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	24.55	112.28	
Number of GPS SV	6	10	8
Number of GLONASS SV	0	5	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	8	14	12
PDOP	1.31	2.27	1.61
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	10801.00	0.00	1.00
Percentage	99.99	0.00	0.01

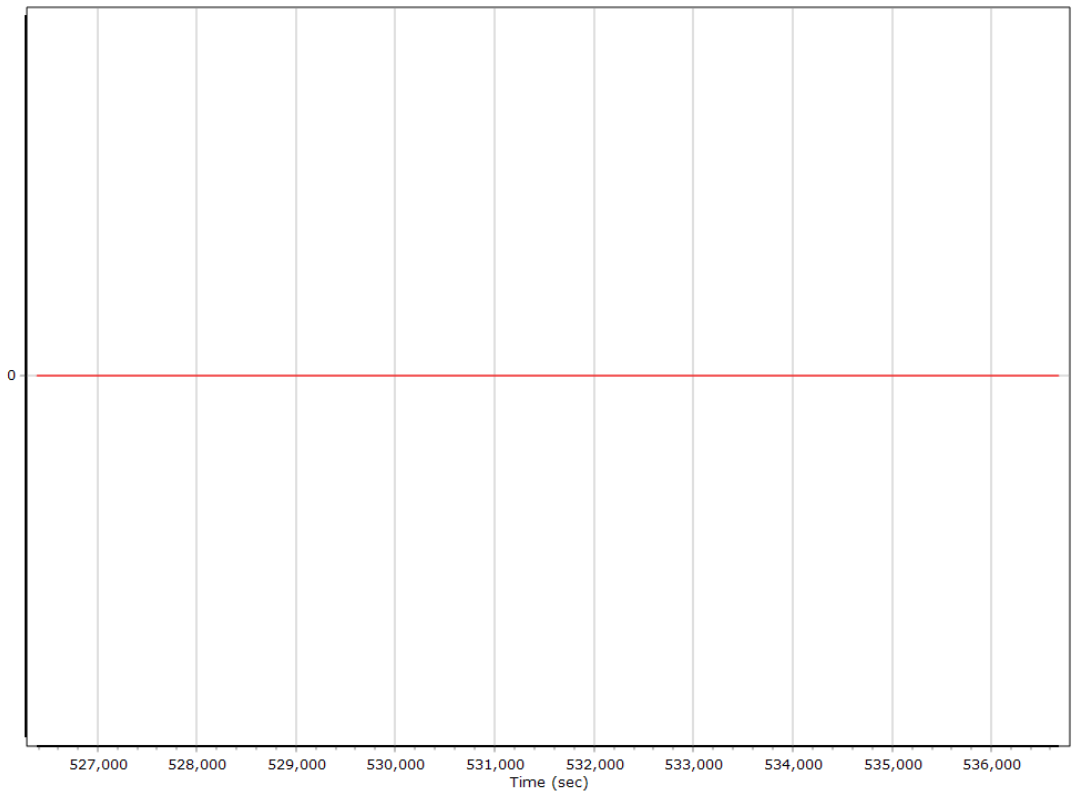
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	525842.000 (4/11/2020 2:04:02 AM)		
Processing end time	536678.000 (4/11/2020 5:04:38 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

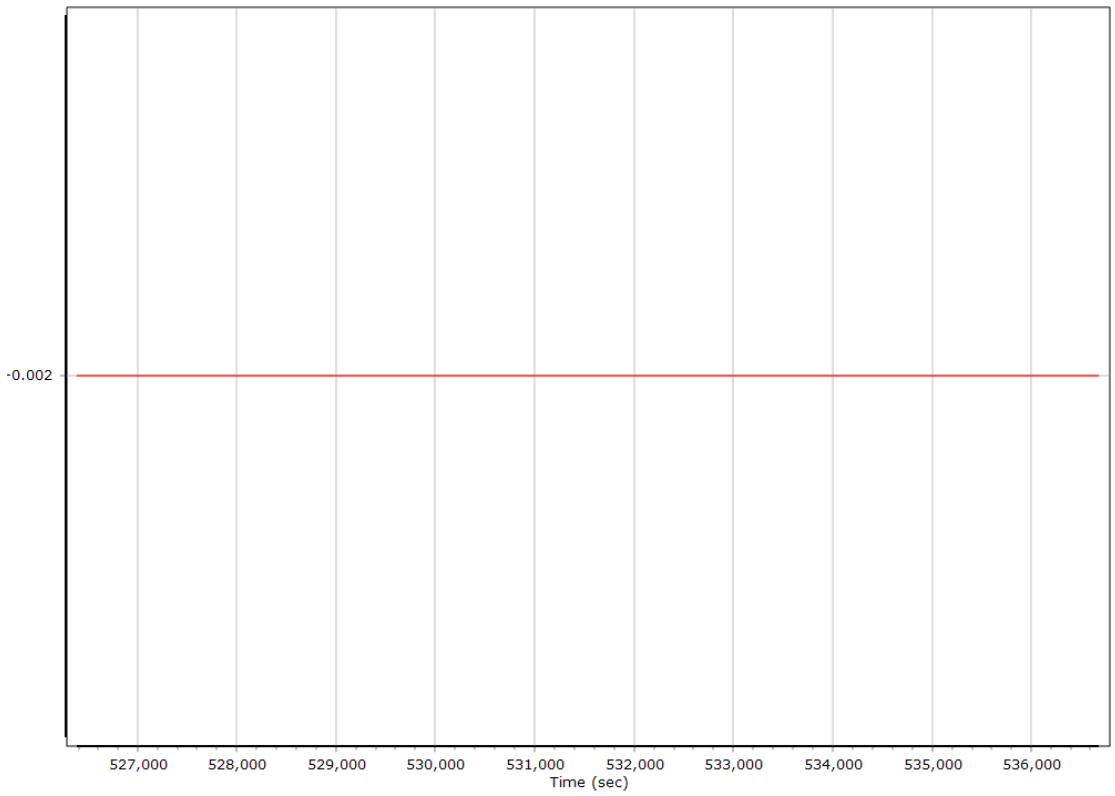
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

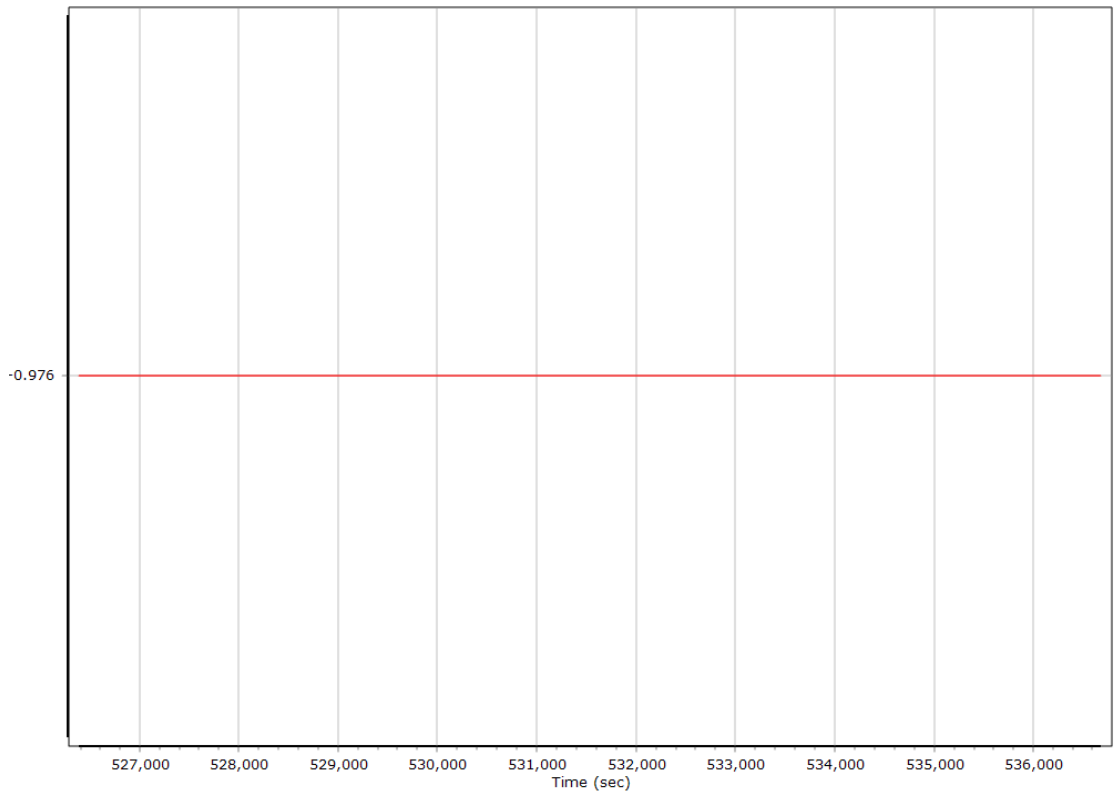
X Reference-Primary GNSS Lever Arm (m)



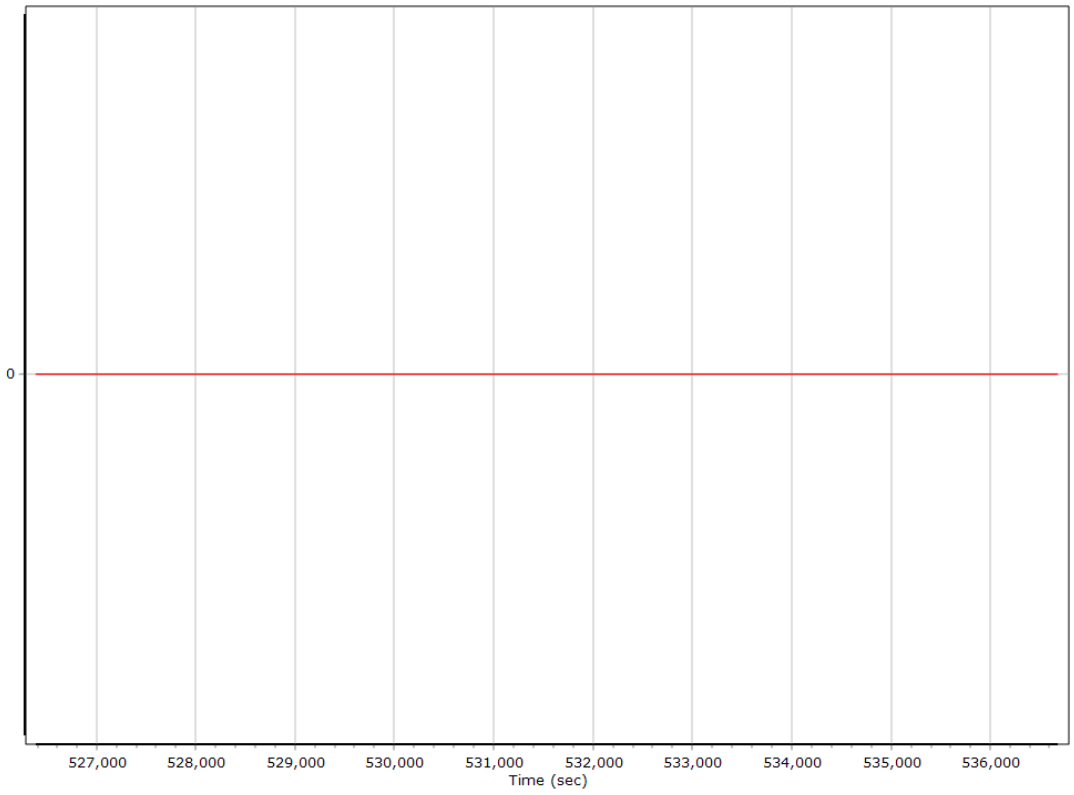
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



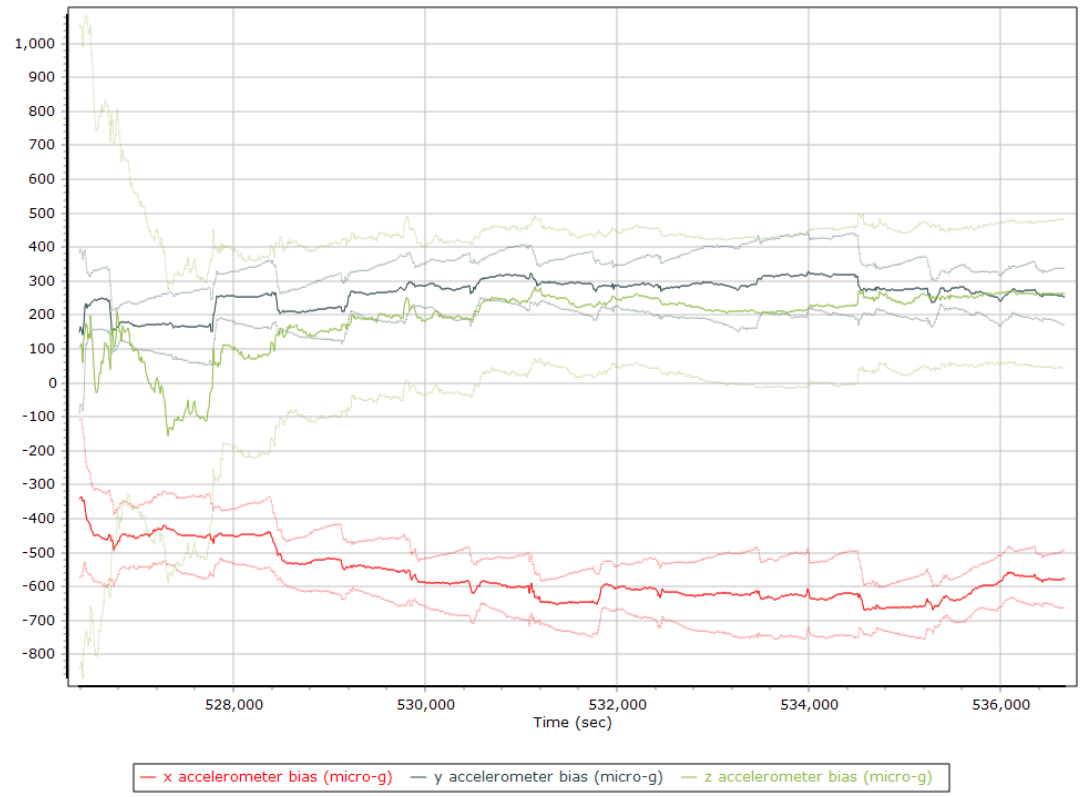
Reference-Primary GNSS Lever Arm Figure of Merit



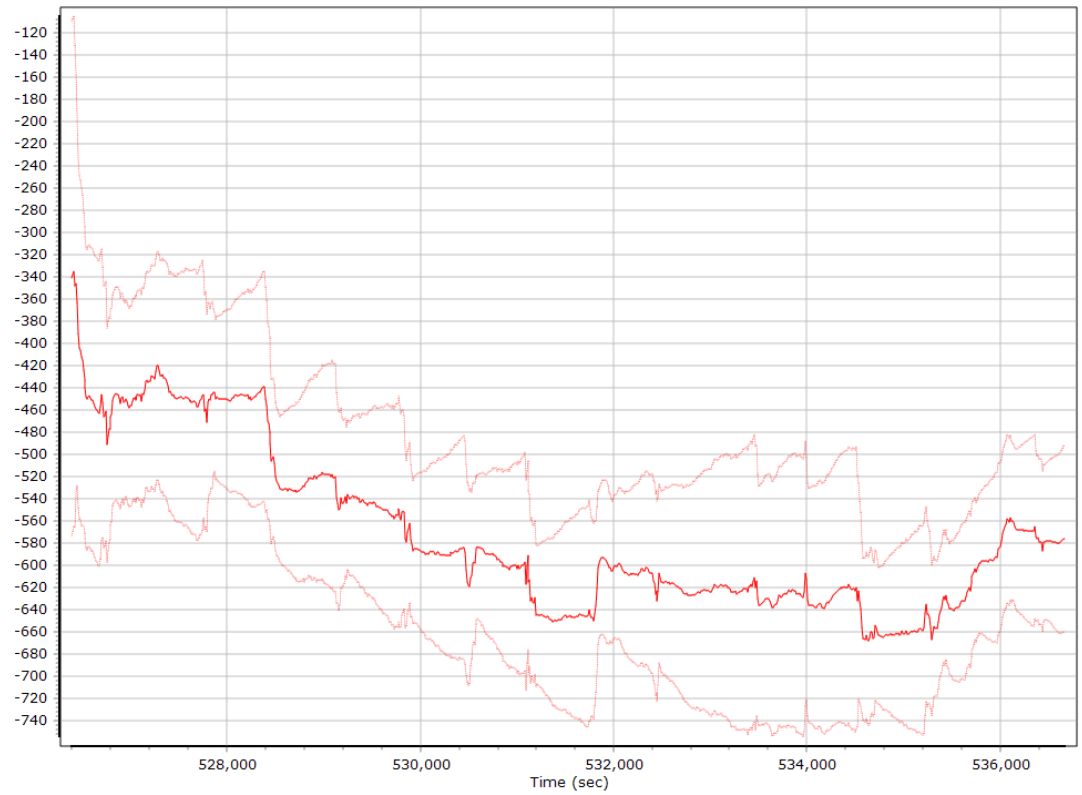
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

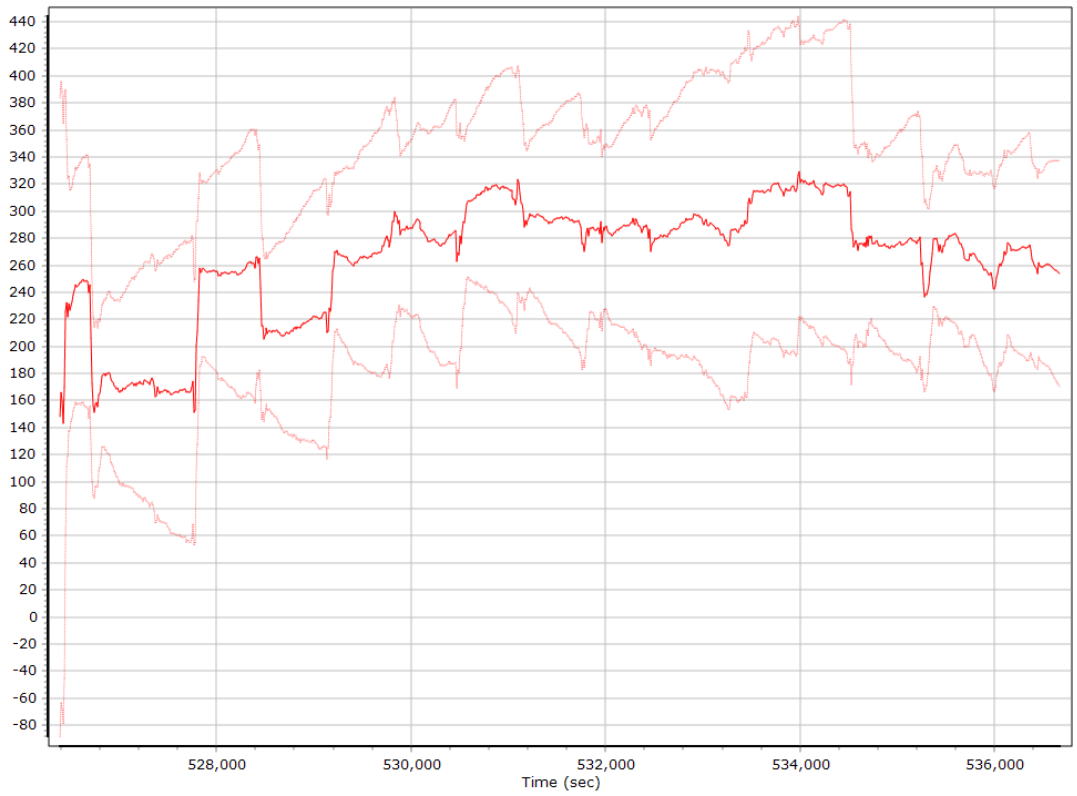
Accelerometer Bias (micro-g)



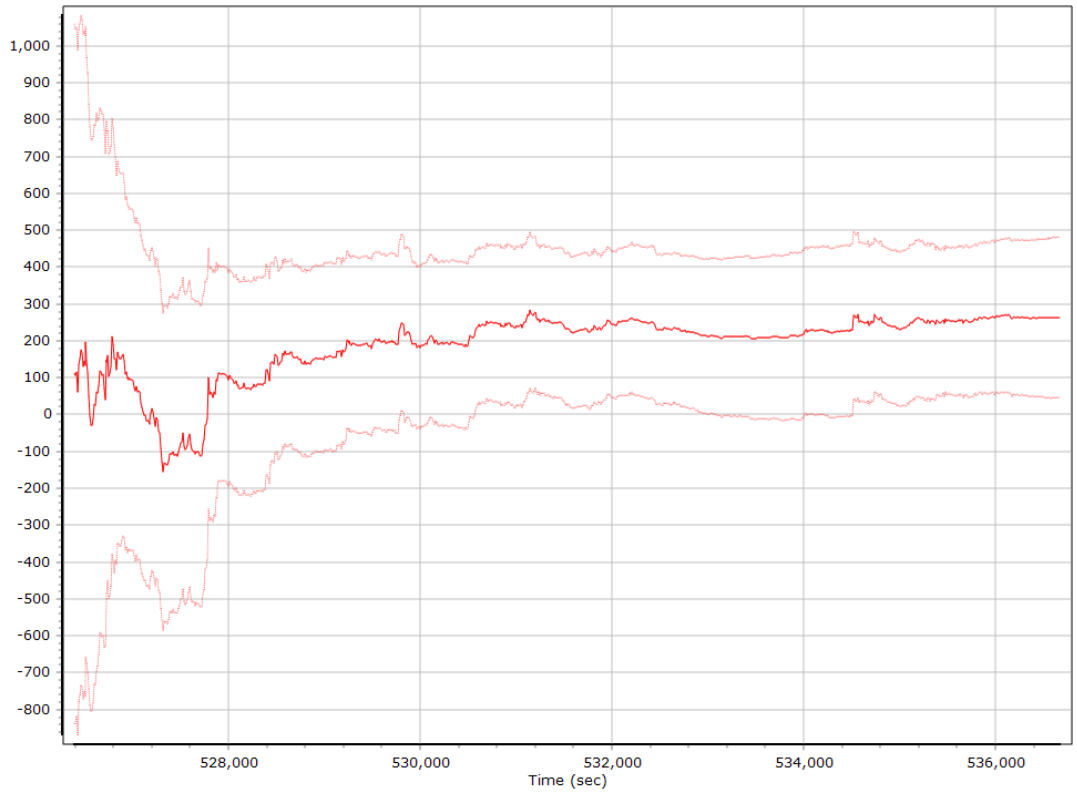
X Accelerometer Bias (micro-g)



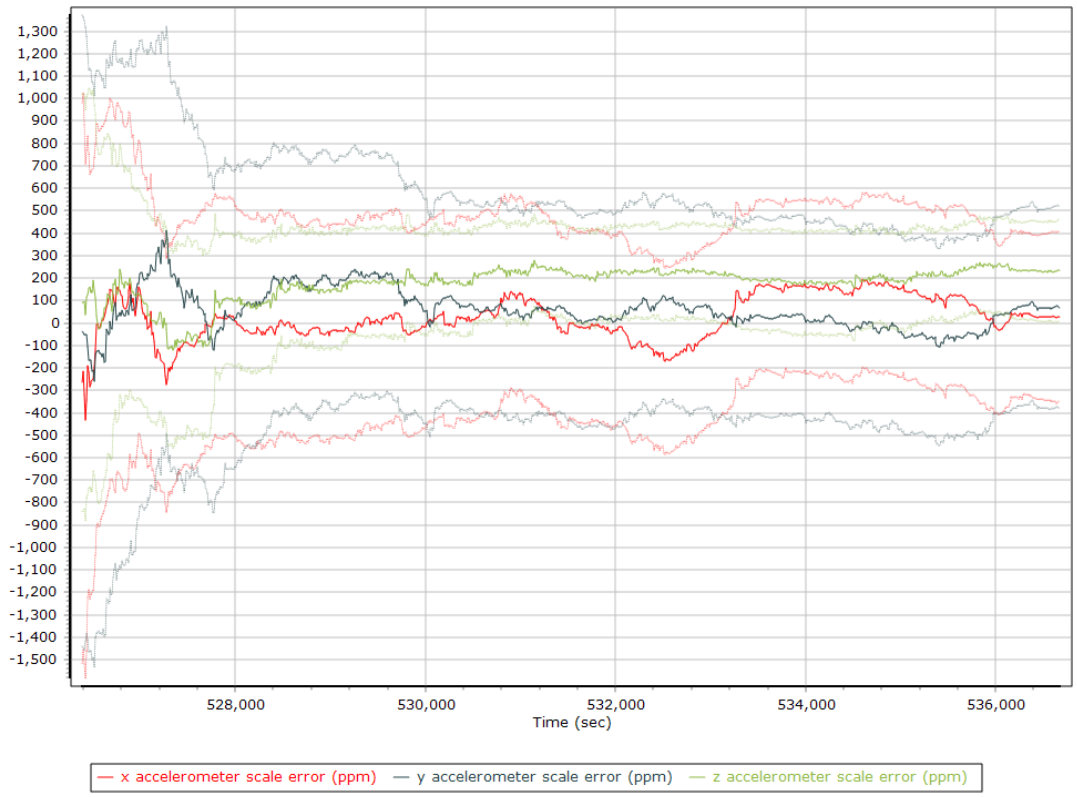
Y Accelerometer Bias (micro-g)



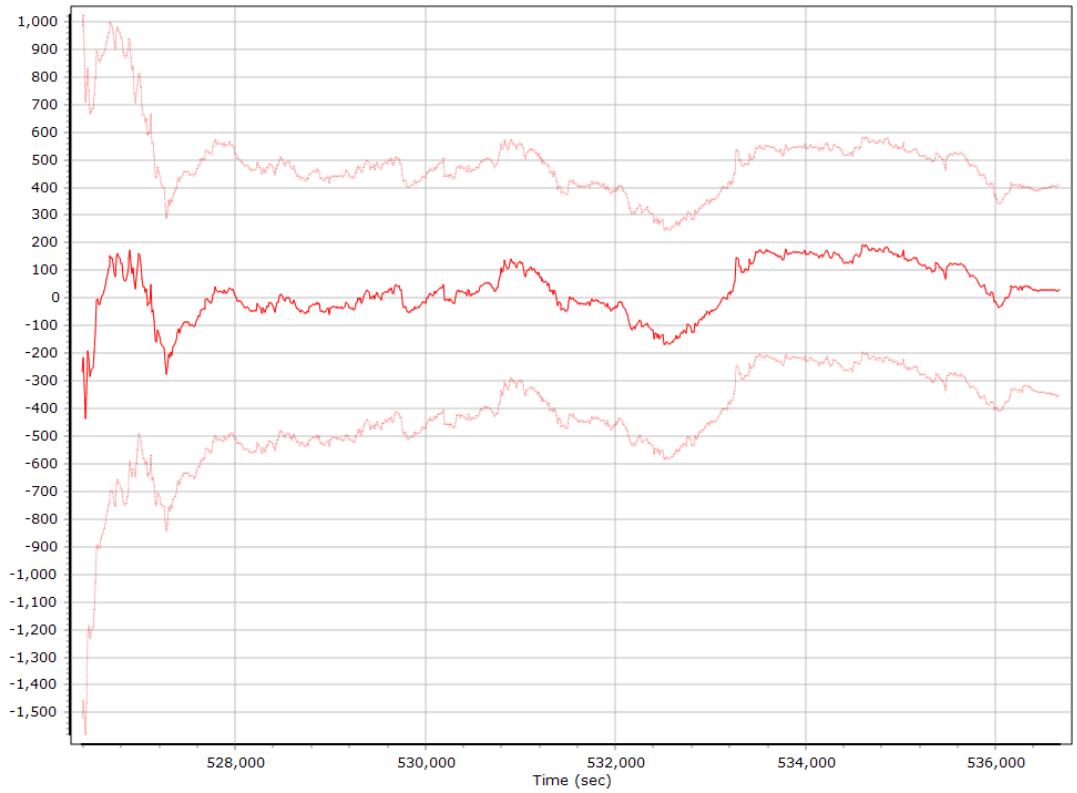
Z Accelerometer Bias (micro-g)



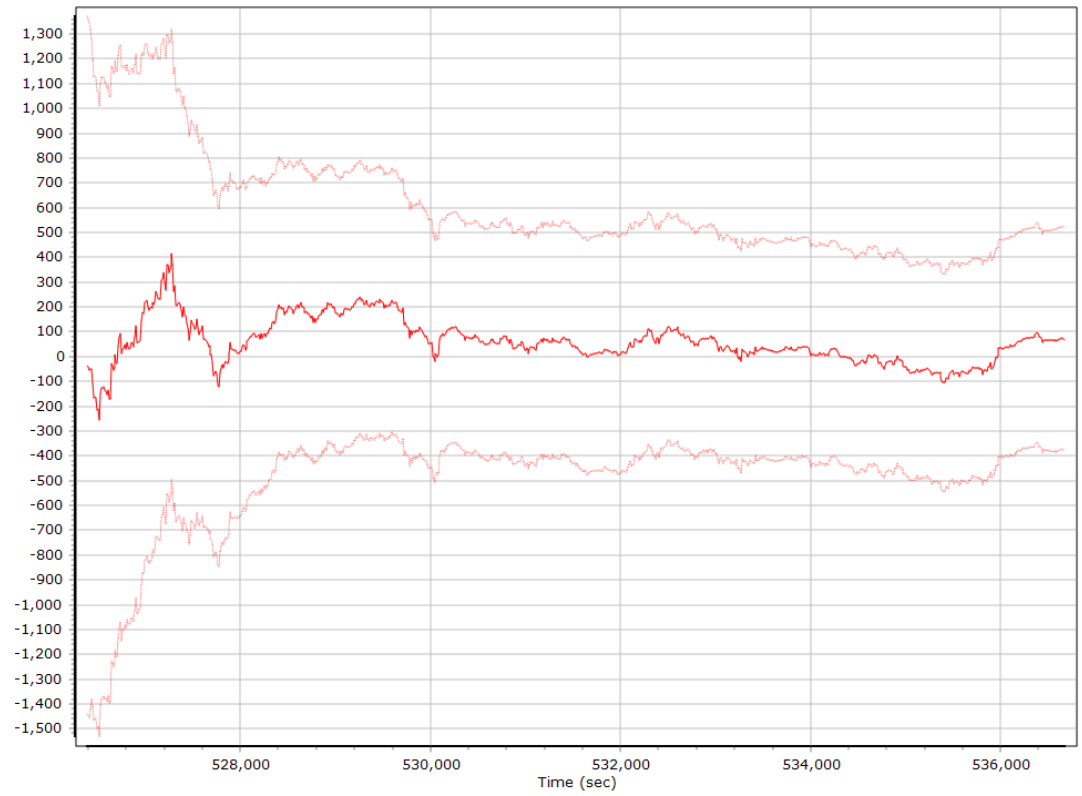
Accelerometer Scale Error (ppm)



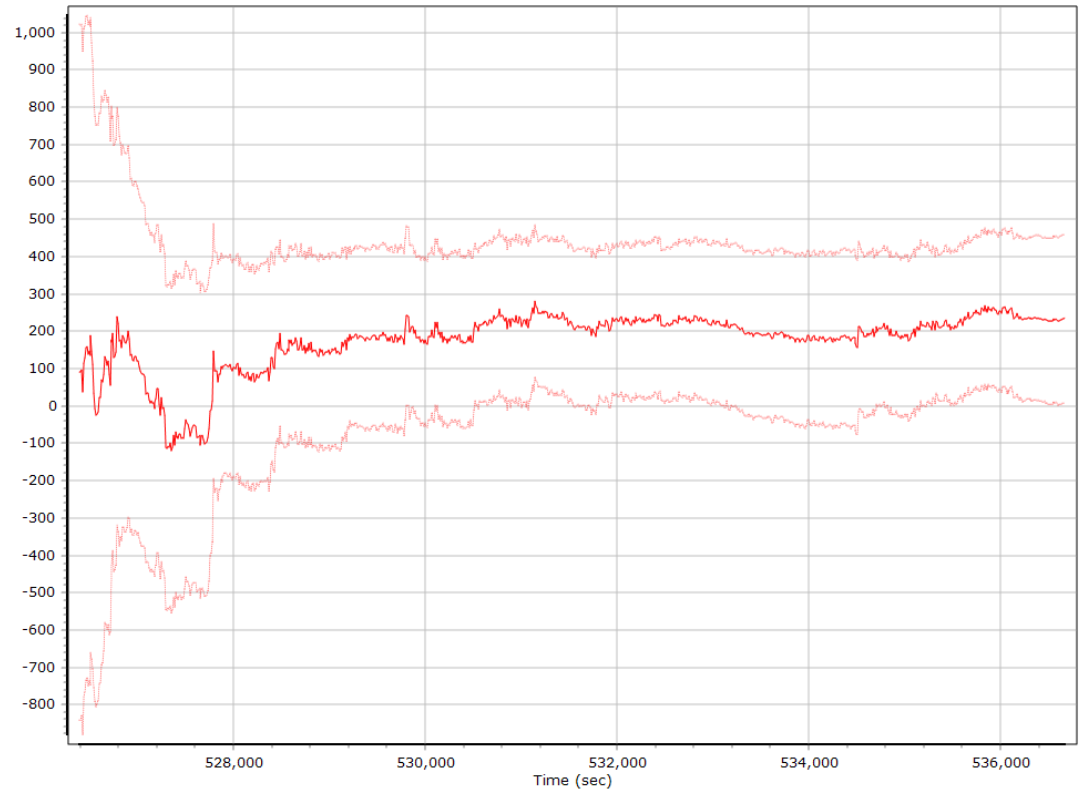
X Accelerometer Scale Error (ppm)



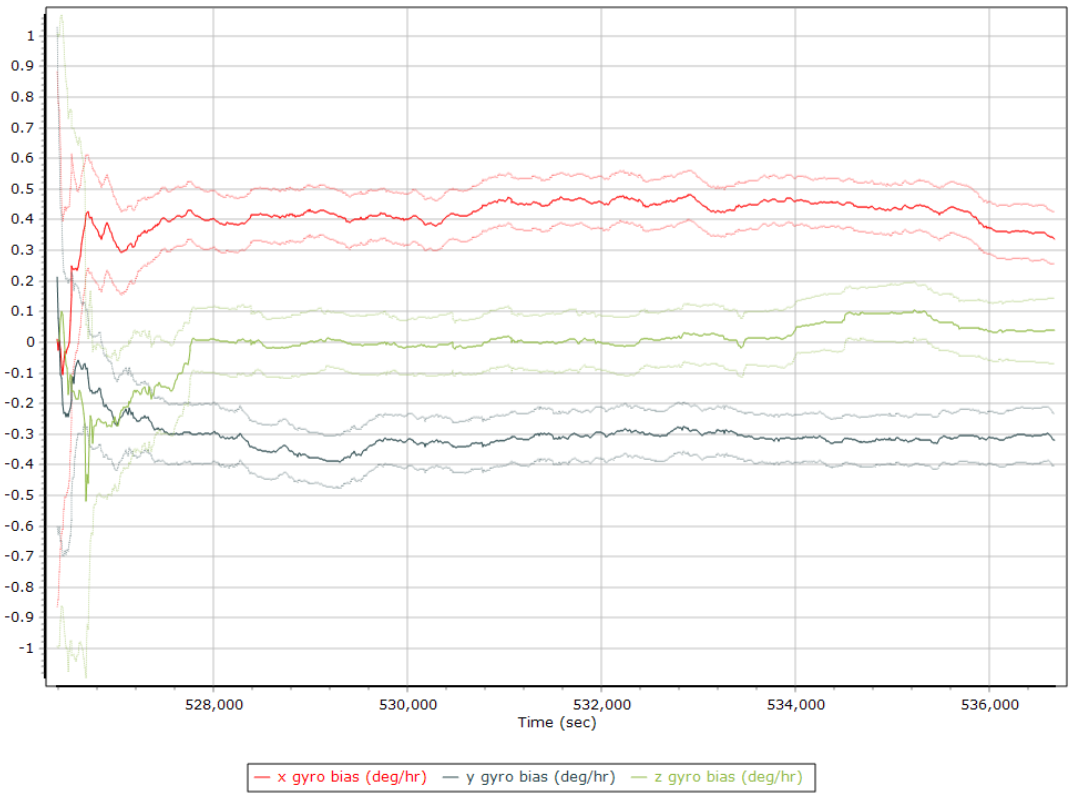
Y Accelerometer Scale Error (ppm)



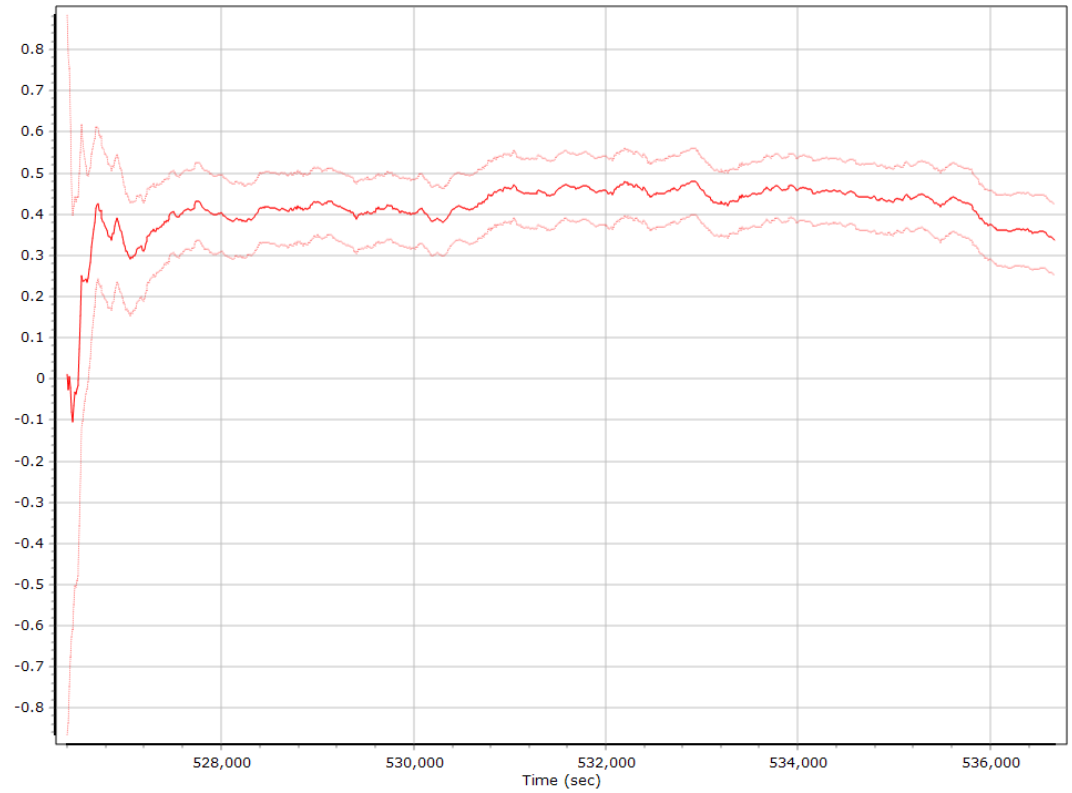
Z Accelerometer Scale Error (ppm)



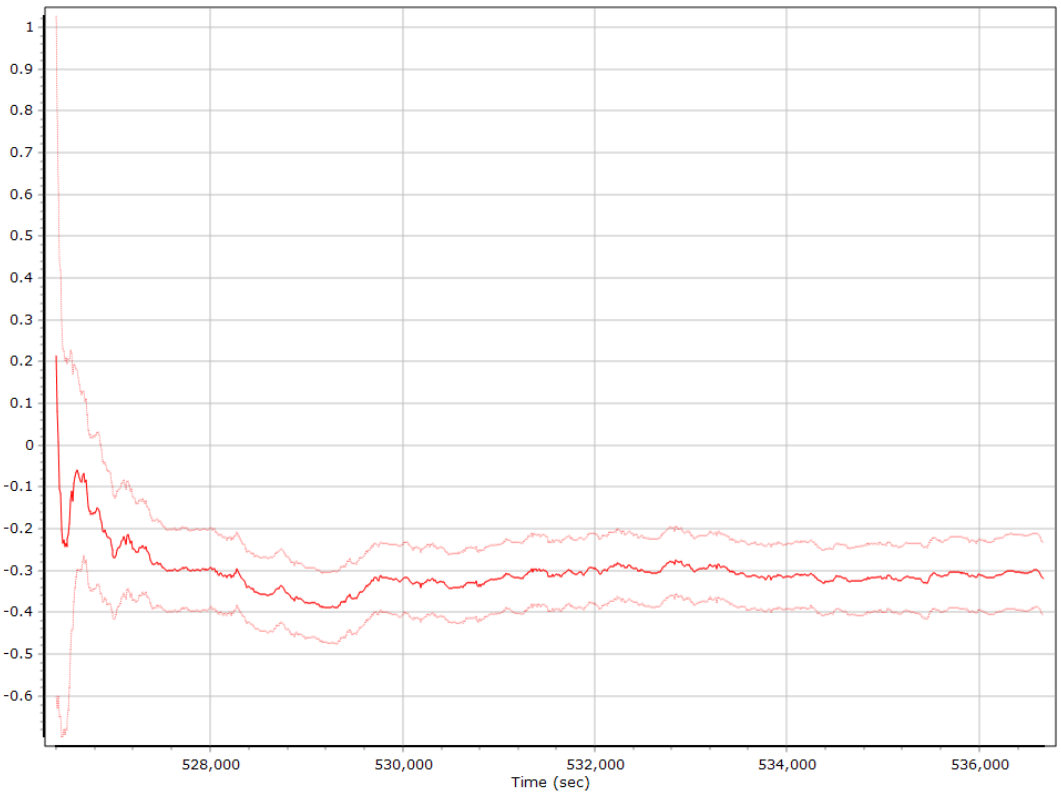
Gyro Bias (deg/h)



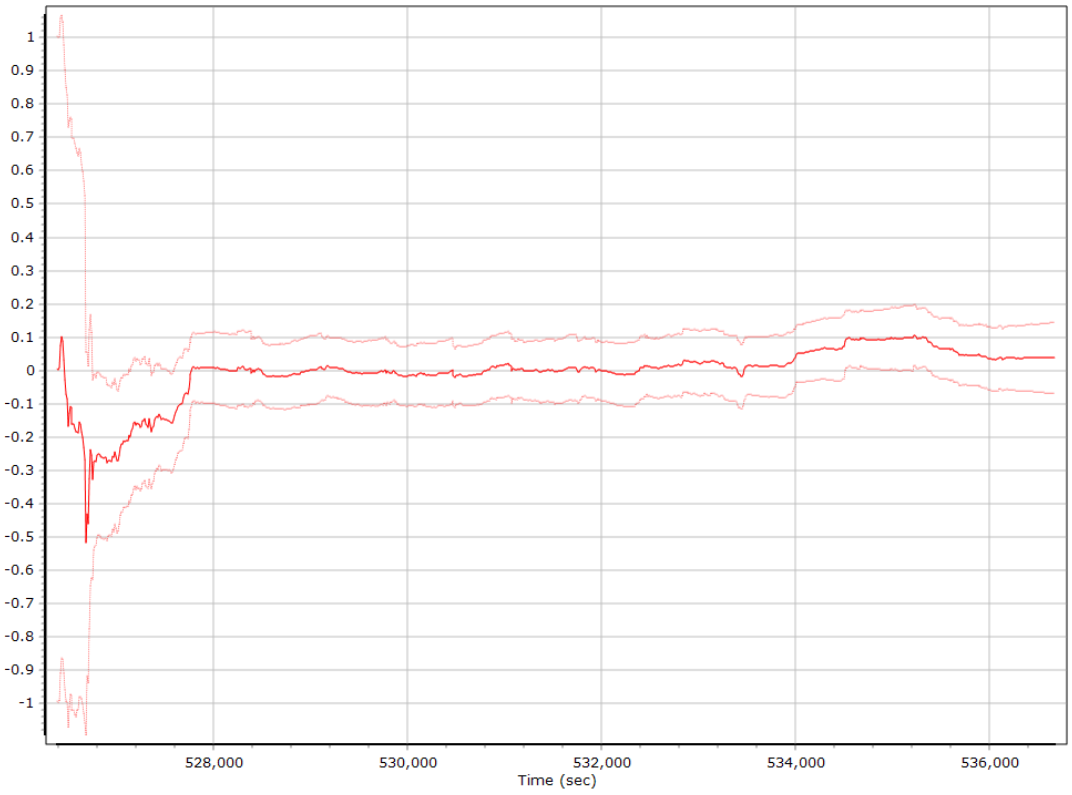
X Gyro Bias (deg/h)



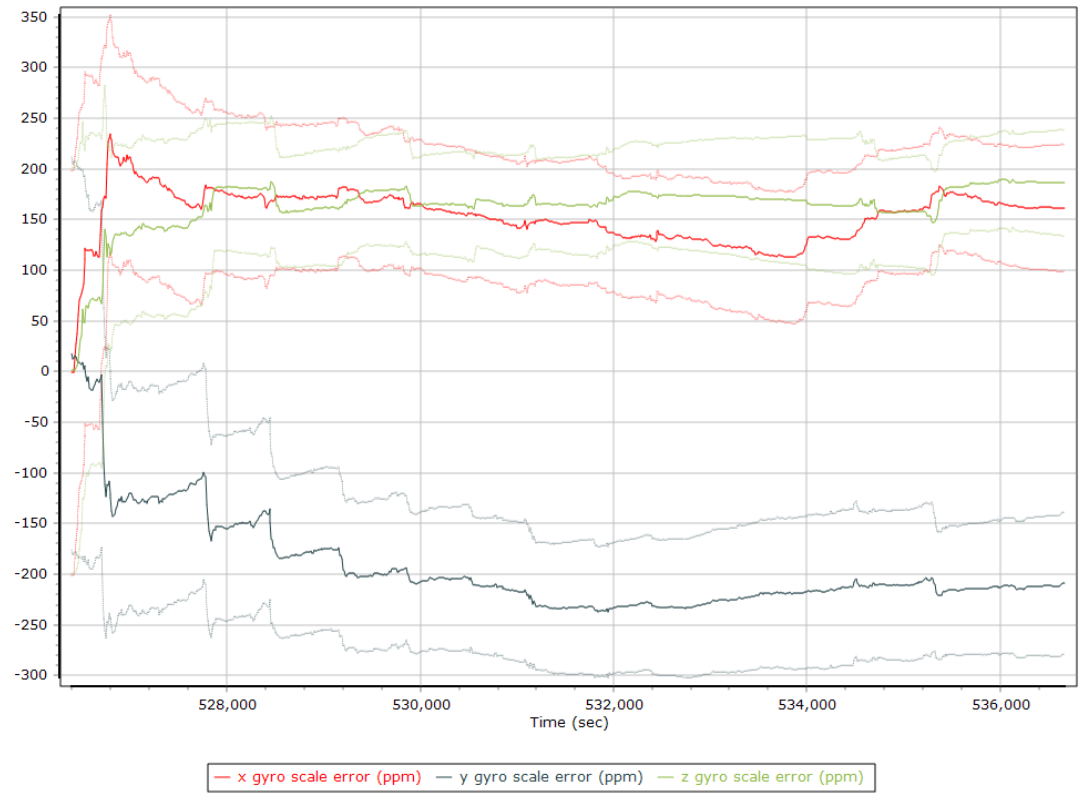
Y Gyro Bias (deg/h)



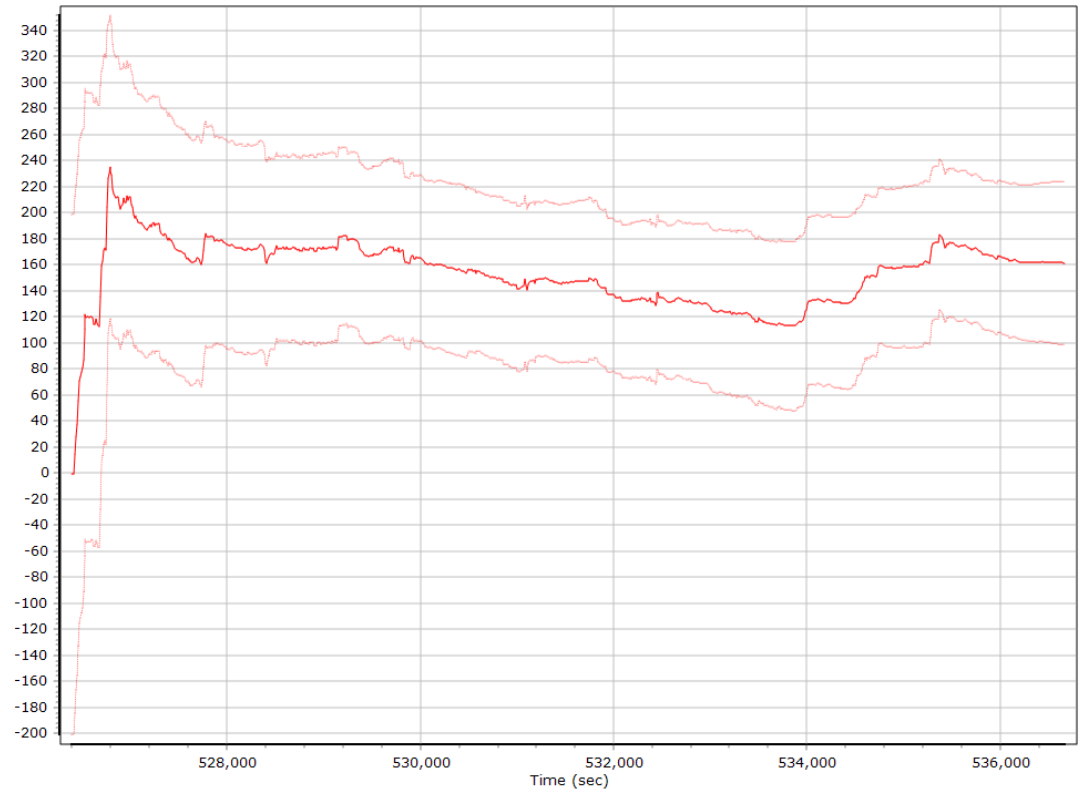
Z Gyro Bias (deg/h)



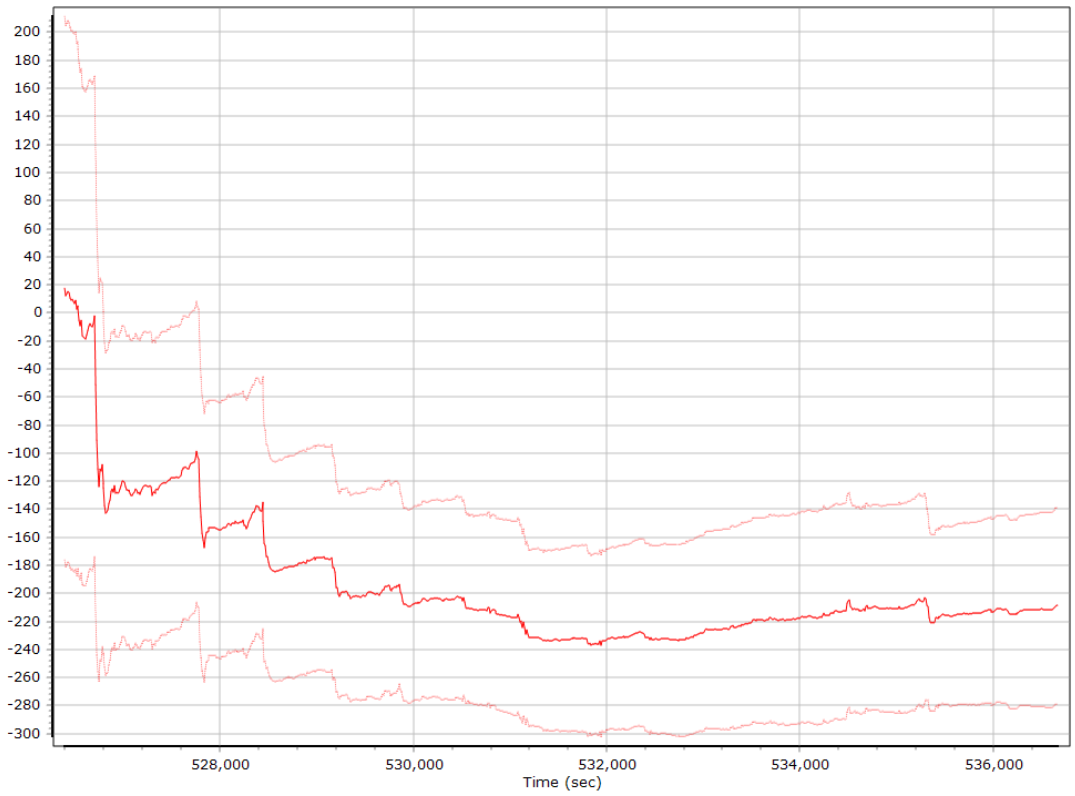
Gyro Scale Error (ppm)



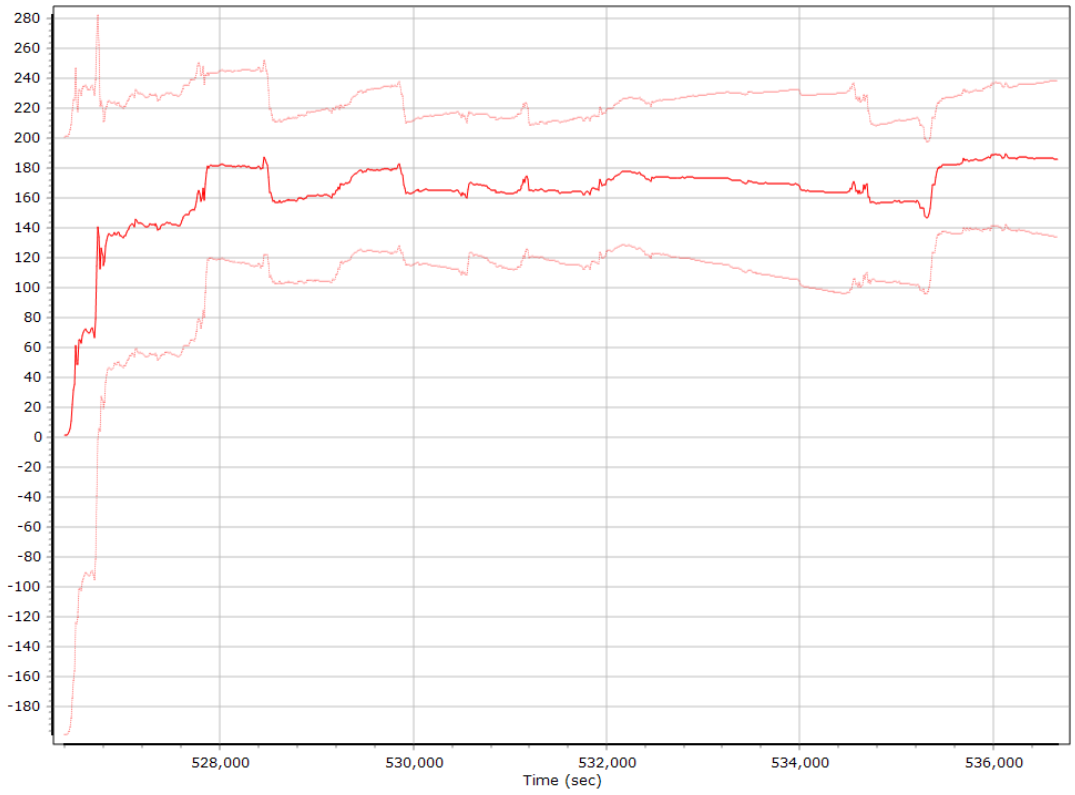
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

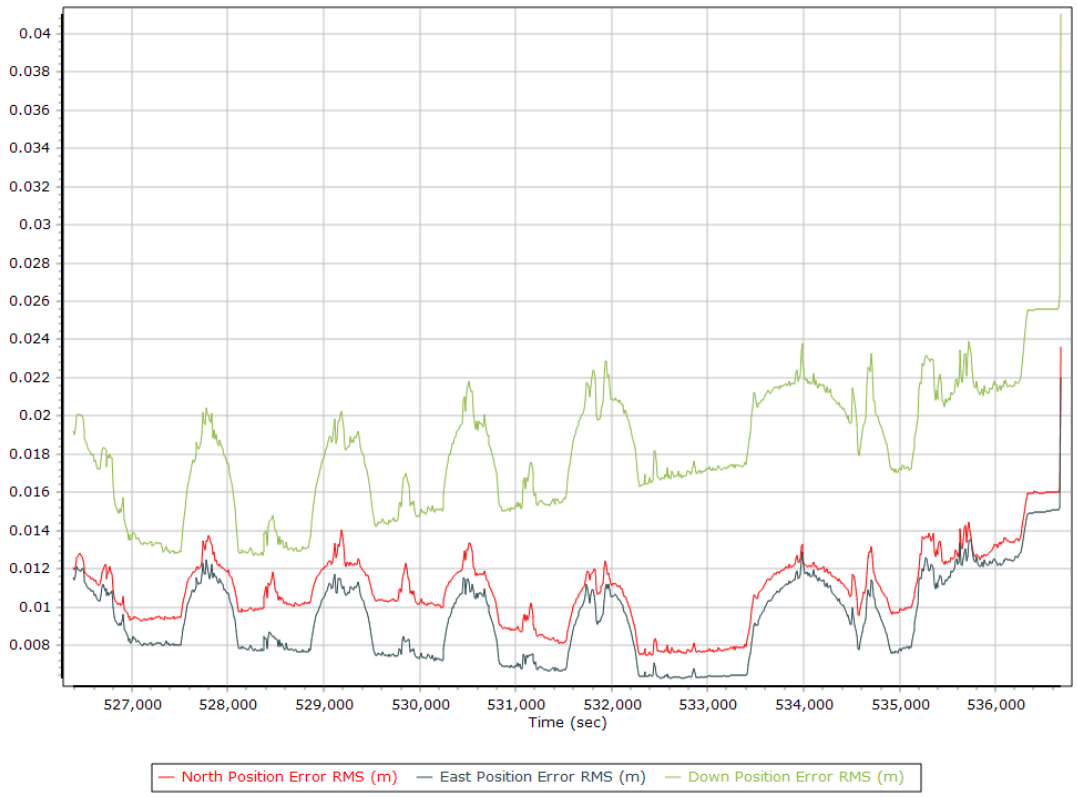


Z Gyro Scale Error (ppm)

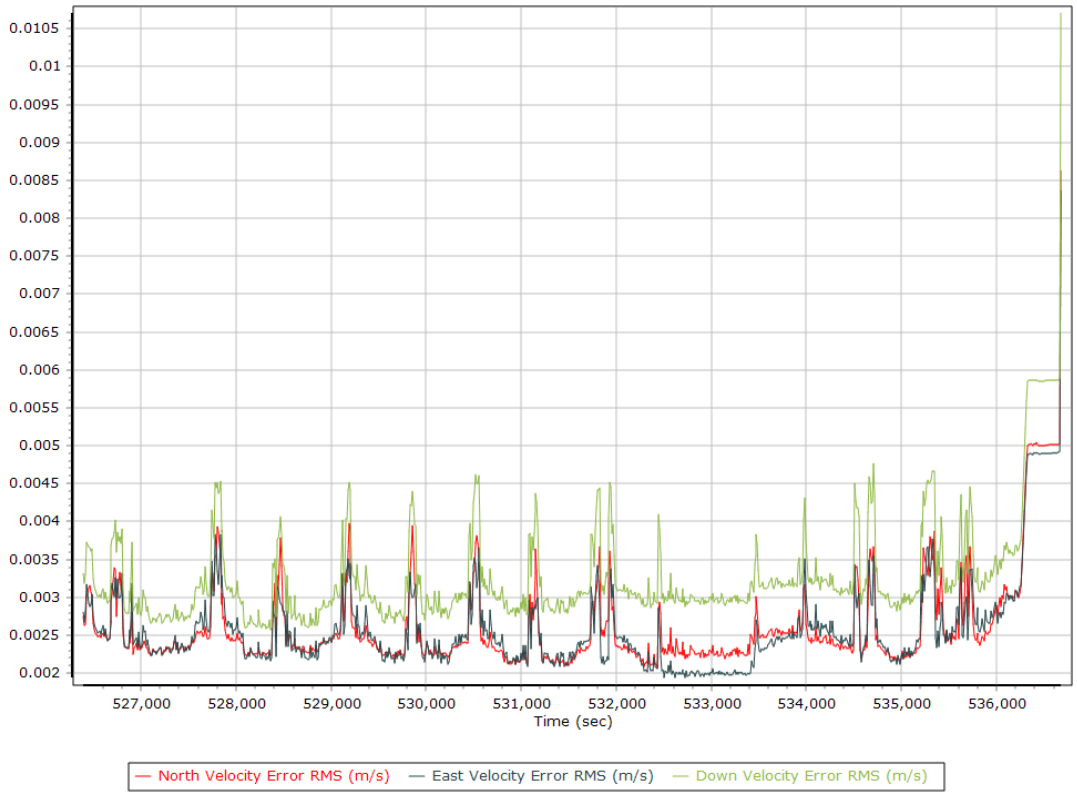


Smoothed Performance Metrics

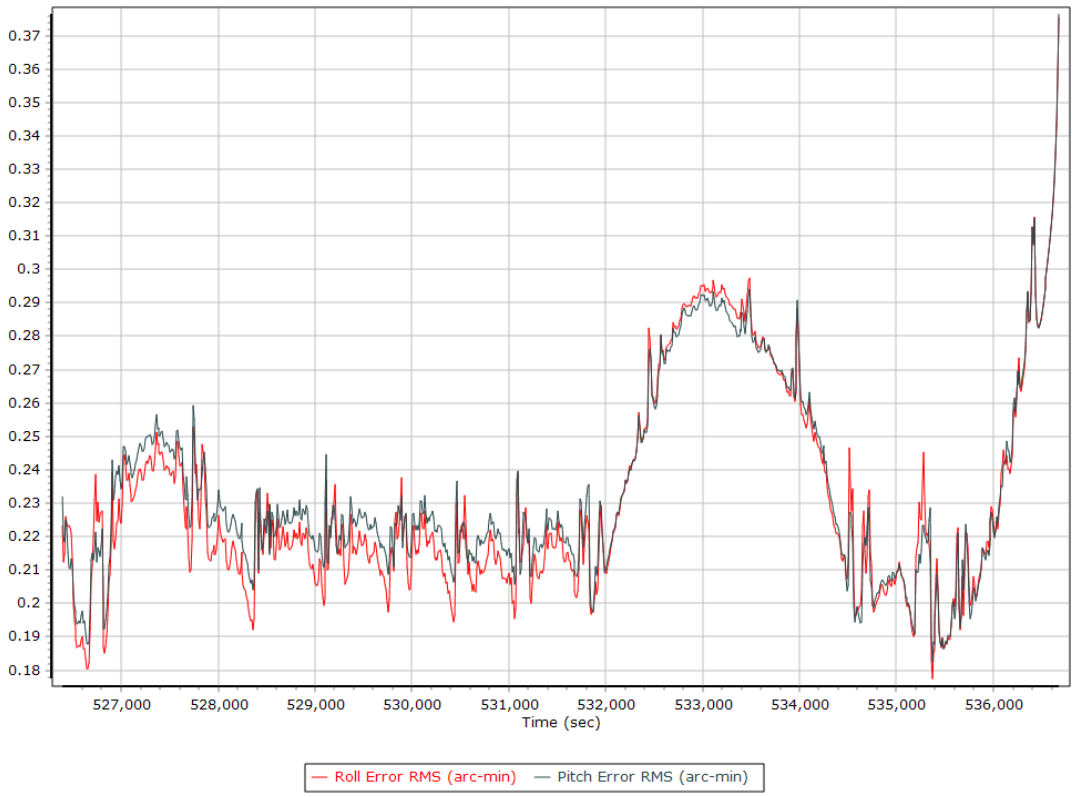
Position Error RMS (m)



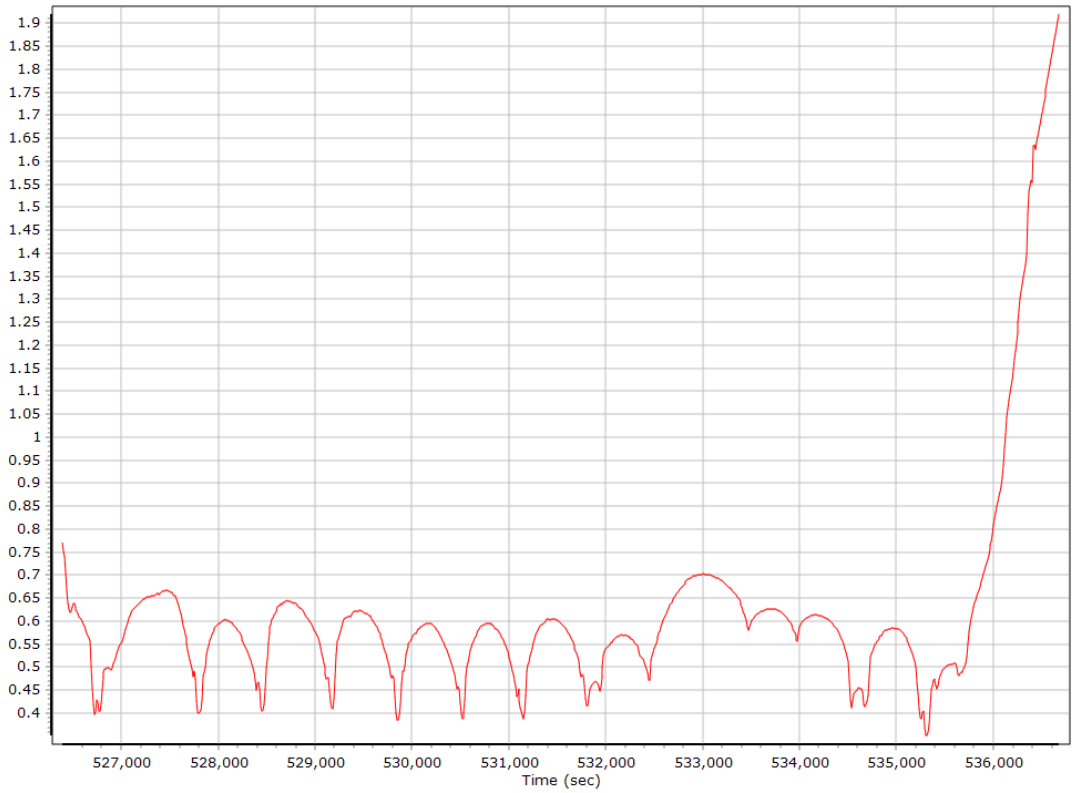
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

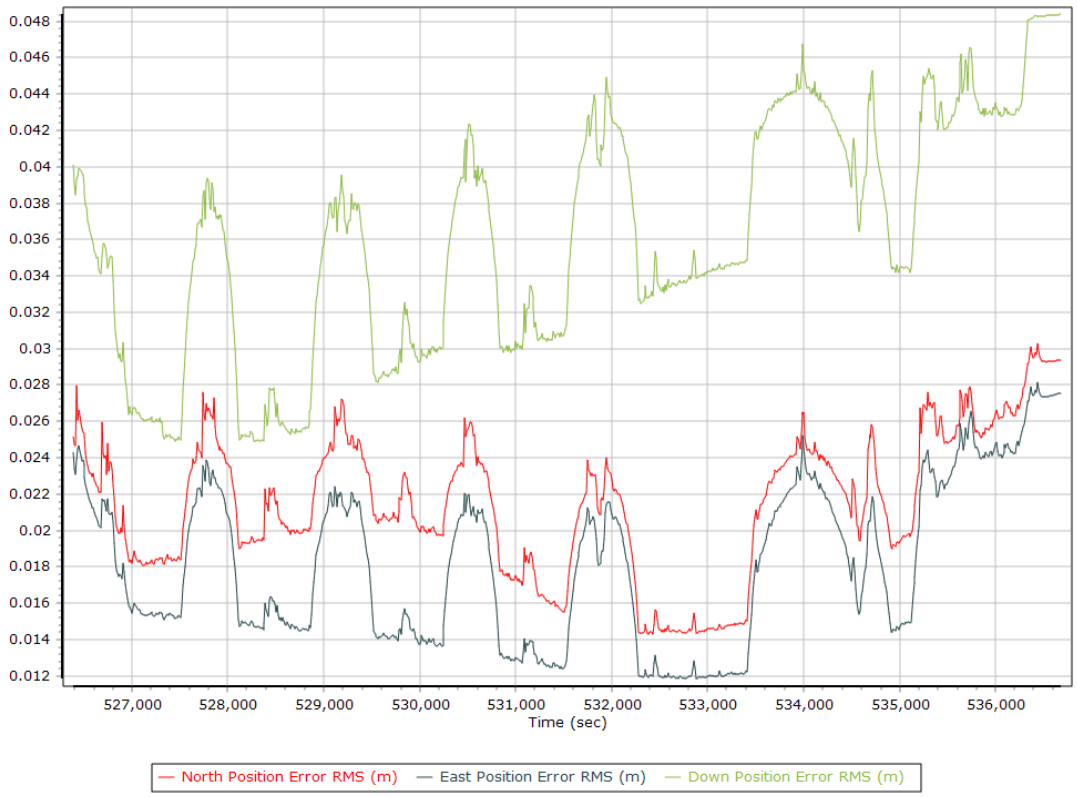


Heading Error RMS (arc-min)

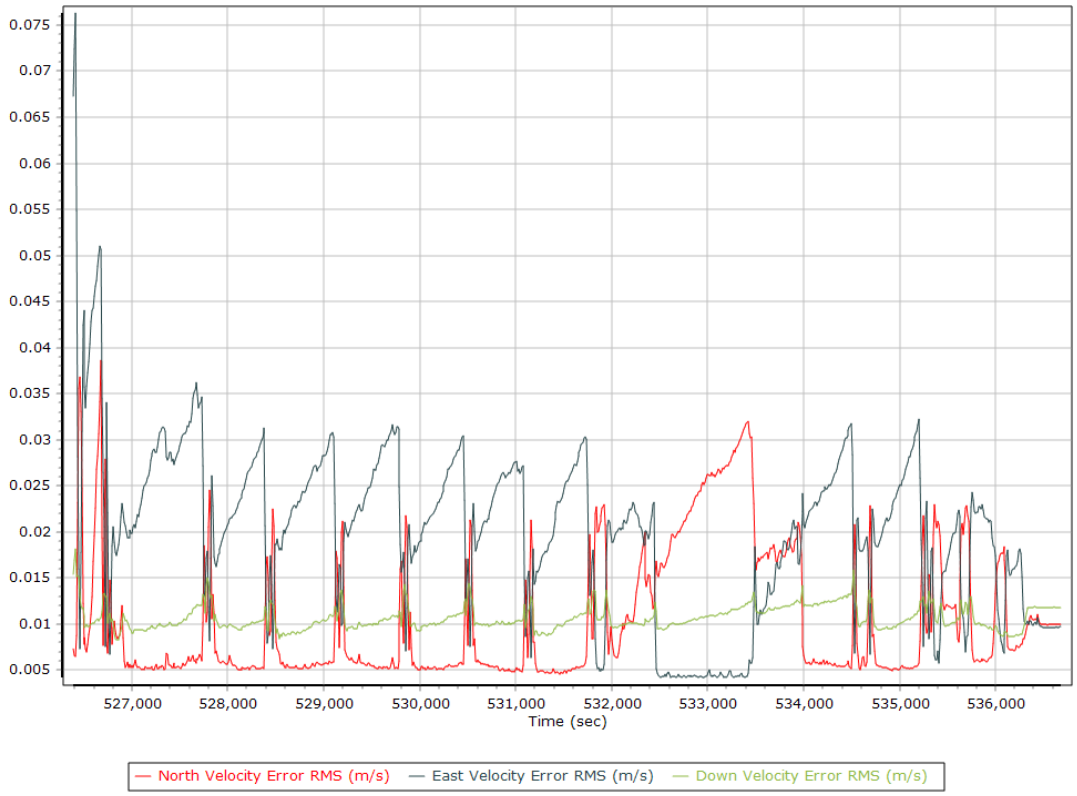


Forward Processed Performance Metrics

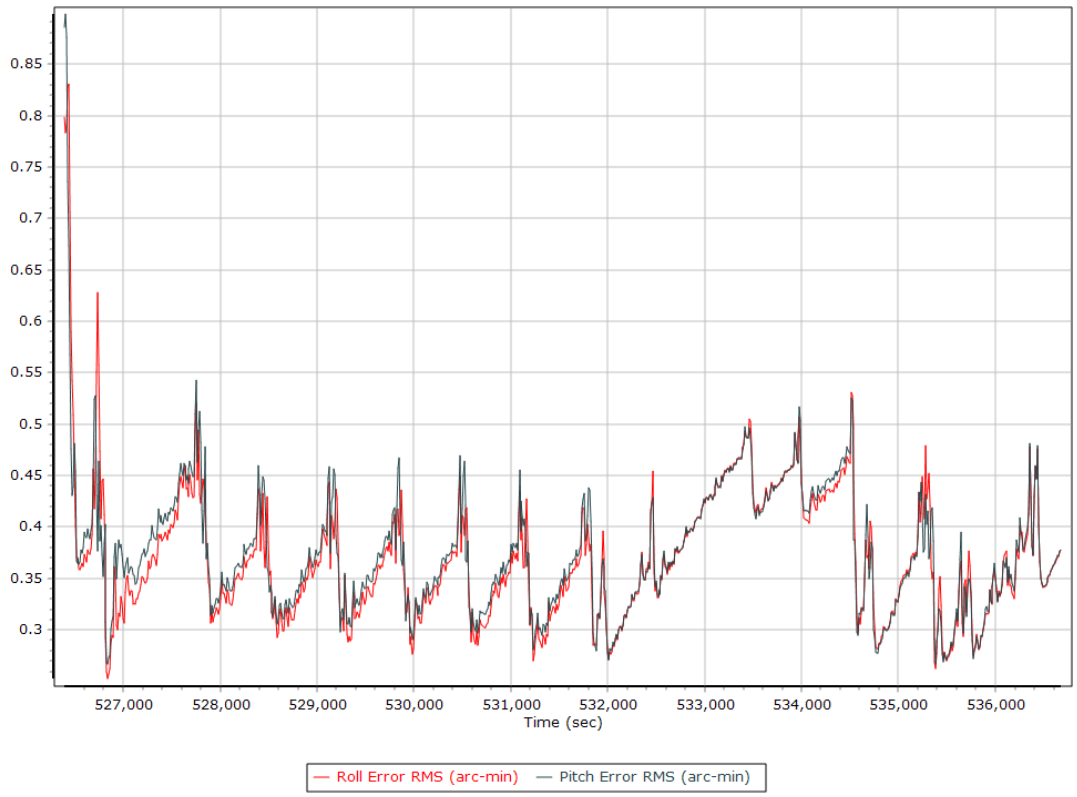
Position Error RMS (m)



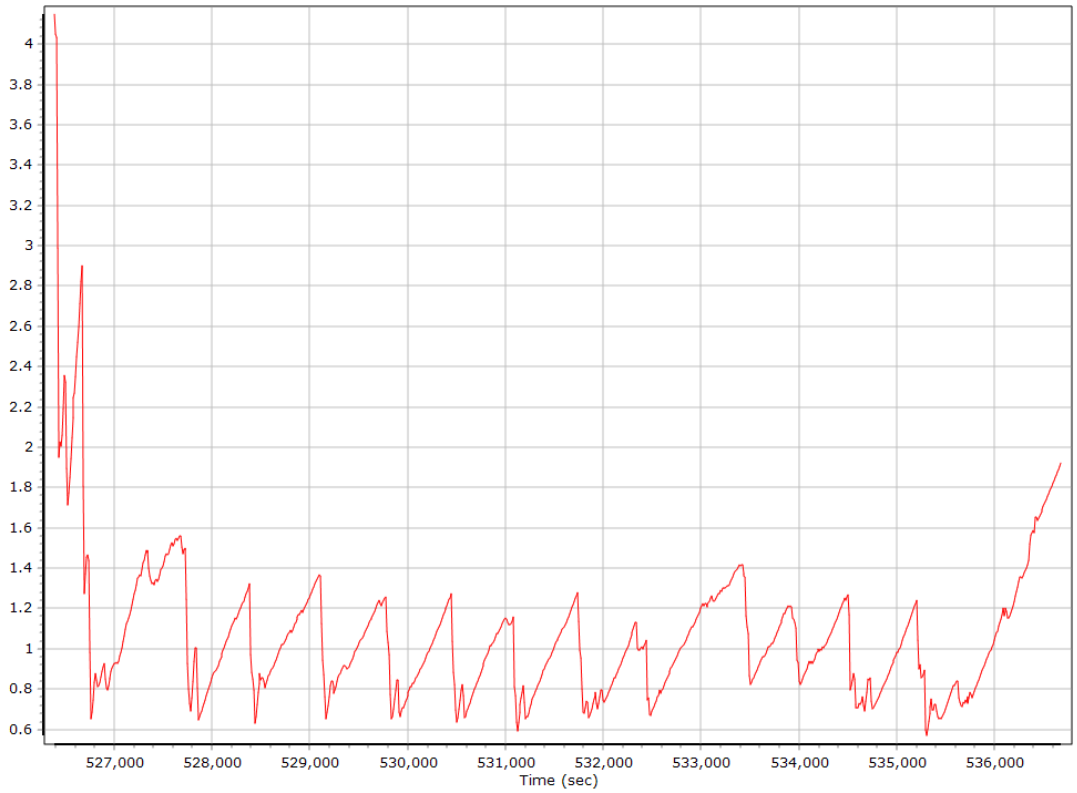
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

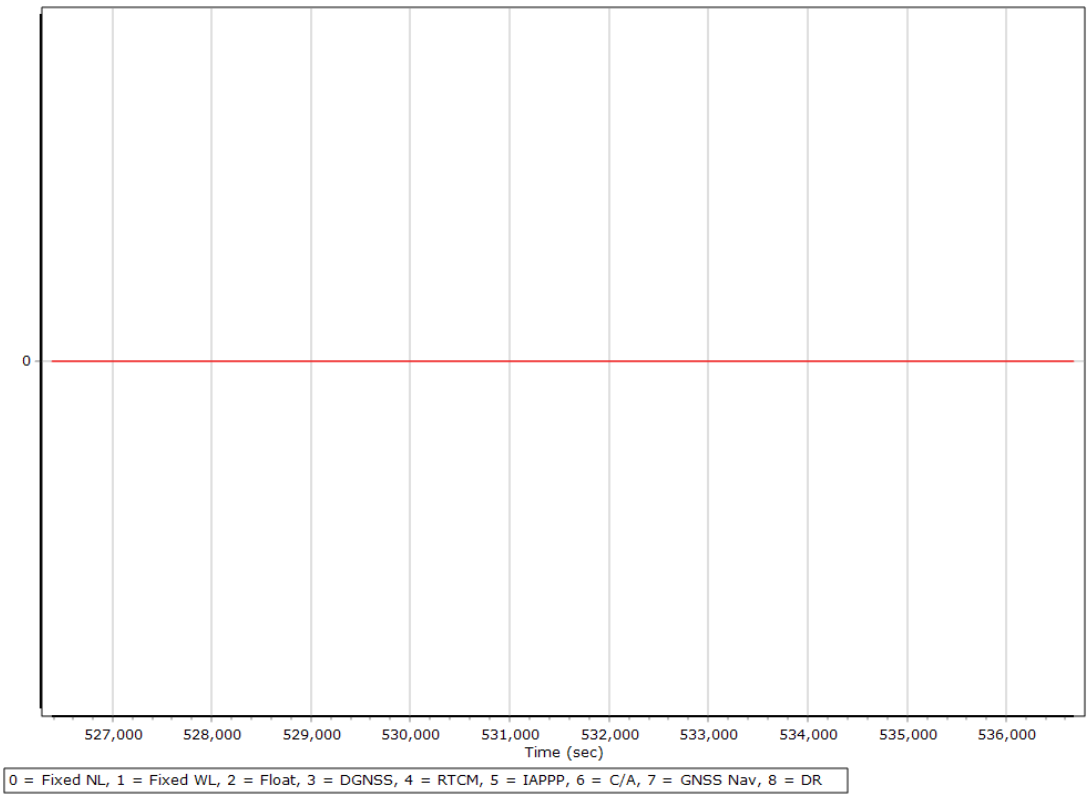


Heading Error RMS (arc-min)

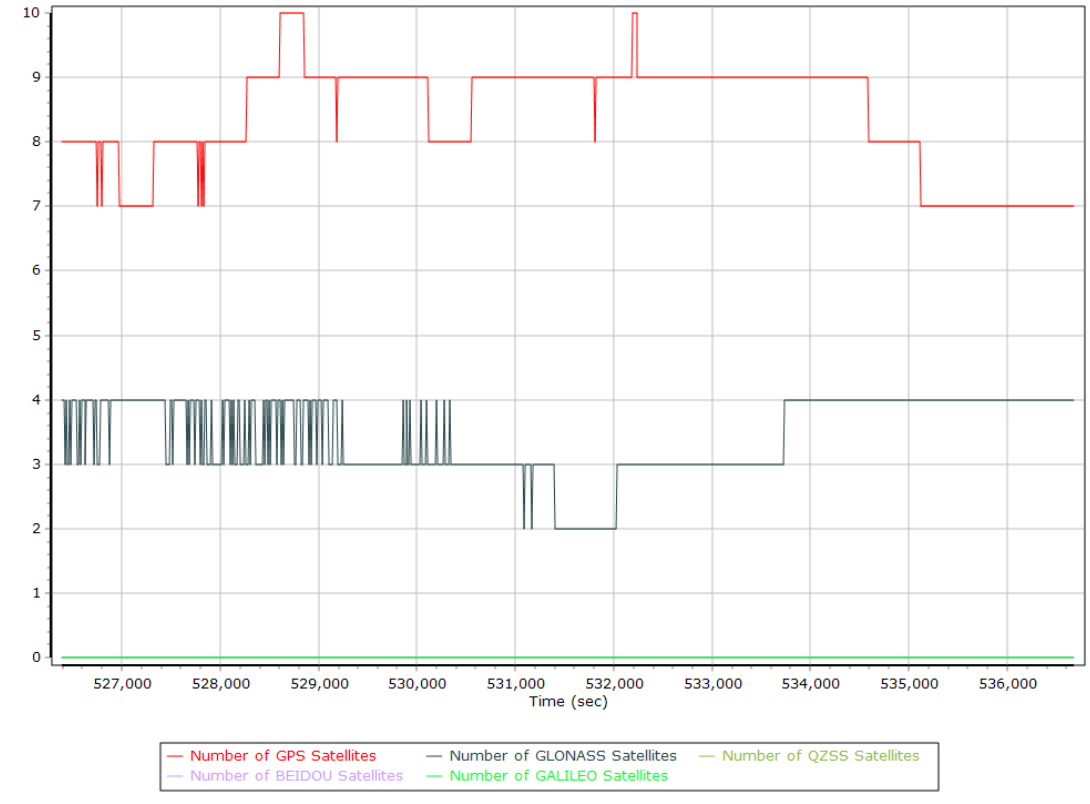


Smoothed Solution Status

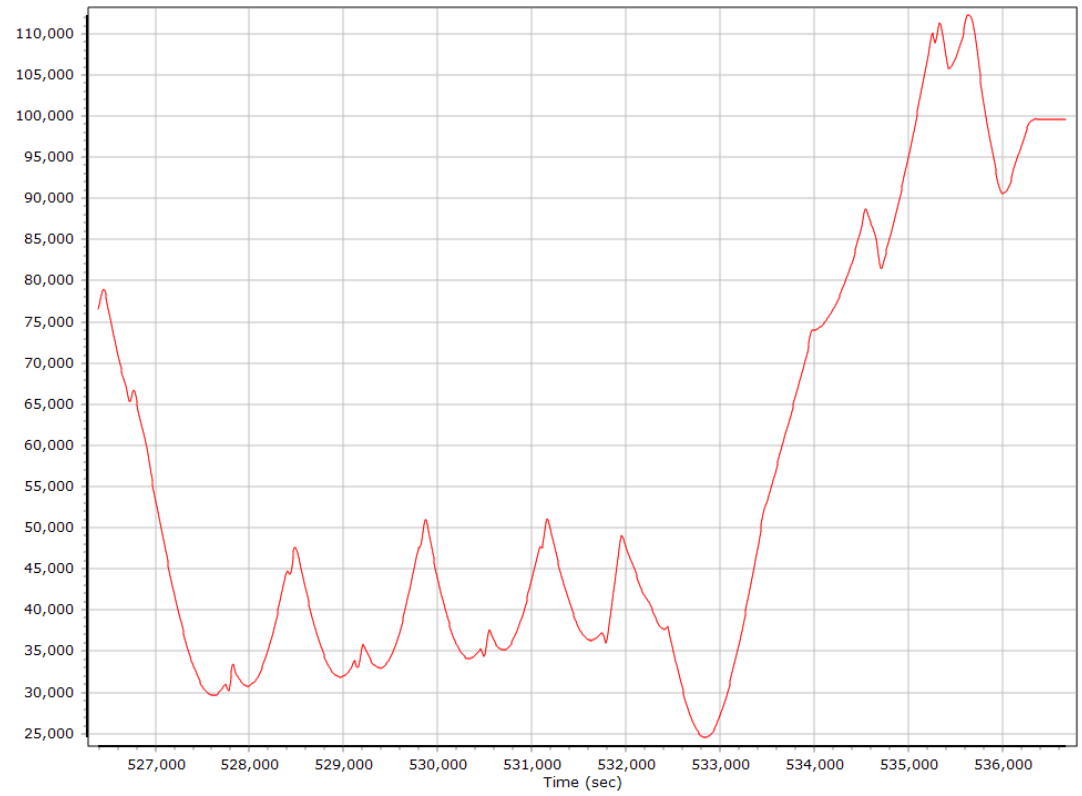
Processing Mode



Number of Satellites

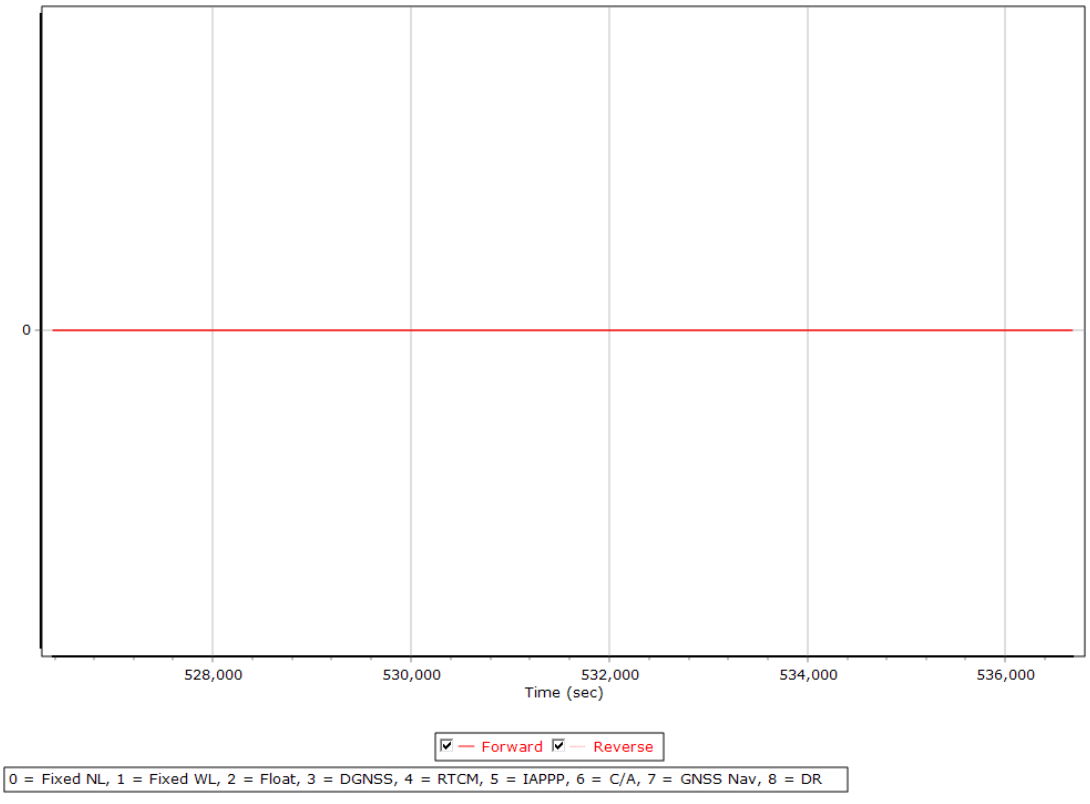


Baseline Length

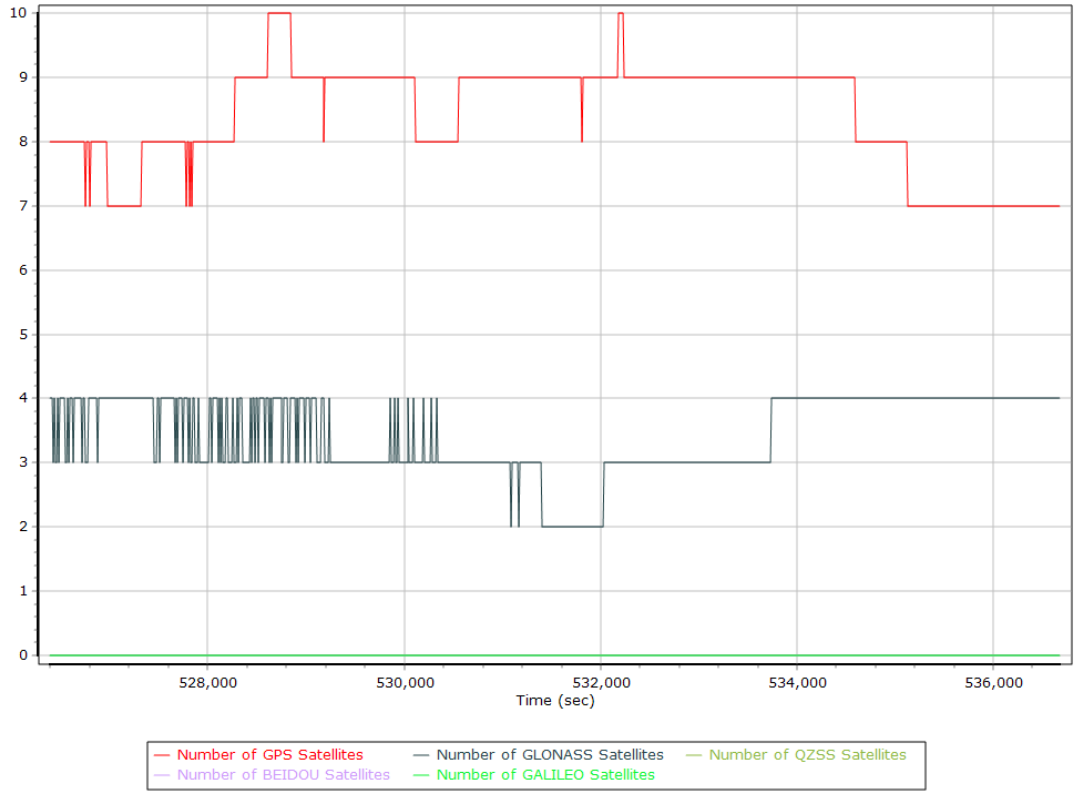


Forward Processed Solution Status

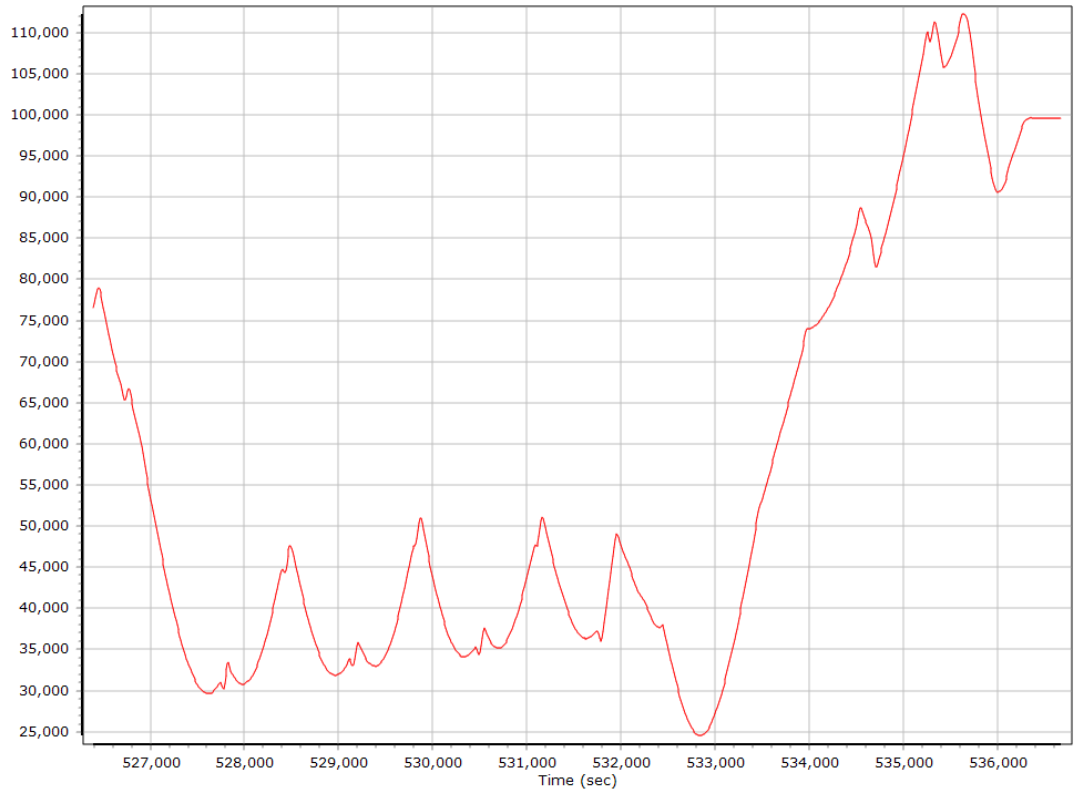
Processing Mode



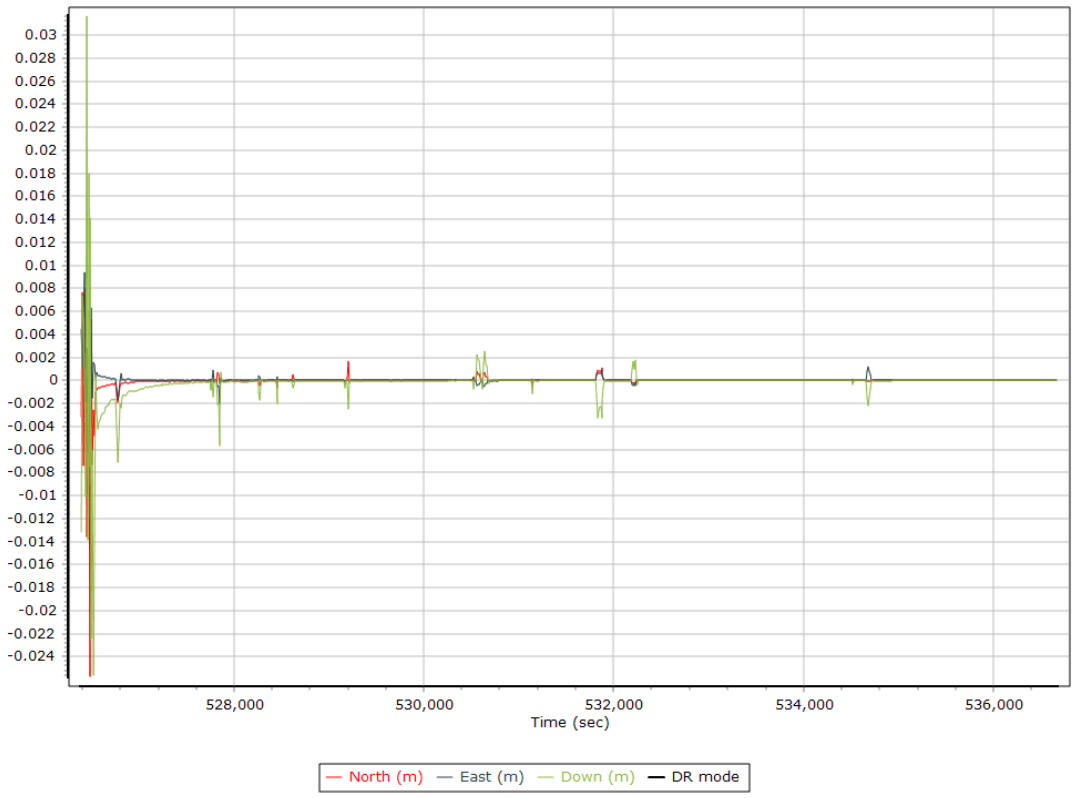
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_20200410E.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	526333.004 (4/11/2020 2:12:13 AM)		
Export end time	536678.001 (4/11/2020 5:04:38 AM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200416A
Processing date	2021-01-19 00:10:32
Mission date	2020-04-16 13:10:16
Mission duration	03:29:10.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.044	POS Data
ALS.045	POS Data
ALS.046	POS Data
ALS.047	POS Data
ALS.048	POS Data
ALS.049	POS Data
ALS.050	POS Data
ALS.051	POS Data
ALS.052	POS Data
ALS.053	POS Data
ALS.054	POS Data
ALS.055	POS Data
ALS.056	POS Data
ALS.057	POS Data
ALS.058	POS Data
ALS.059	POS Data
ALS.060	POS Data
ALS.061	POS Data
ALS.062	POS Data
ALS.063	POS Data

Input Files

File Name	File Type
Ephm1070.20g	GLONASS Broadcast Ephemeris
Ephm1070.20n	GPS Broadcast Ephemeris
iaal1070.20o	GNSS SingleBase
iade1070.20o	GNSS SingleBase
iael1070.20o	GNSS SingleBase
iana1070.20o	GNSS SingleBase
mnca1070.20o	GNSS SingleBase
mnps1070.20o	GNSS SingleBase
wlnc1070.20o	GNSS SingleBase
igu21013_18.sp3	GPS Precise Ephemeris
igu21014_18.sp3	GPS Precise Ephemeris
iamn1070.20o	GNSS SingleBase
mney1070.20o	GNSS SingleBase
mnsv1070.20o	GNSS SingleBase
mnwn1070.20o	GNSS SingleBase
iaht1070.20o	GNSS SingleBase
iamq1070.20o	GNSS SingleBase
iata1070.20o	GNSS SingleBase
jfws1070.20o	GPS SingleBase
nlib1070.20o	GNSS SingleBase

Output Files

Filename	File type
sbet_20200416A.out	SBET Trajectory File
SBET_20200416A.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.044		
Last raw data file	ALS.063		
Start GPS week	2101		
Start time	393009.681 (4/16/2020 1:10:09 PM)		
End time	405547.264 (4/16/2020 4:39:07 PM)		
Start of fine alignment	394221.280 (4/16/2020 1:30:21 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

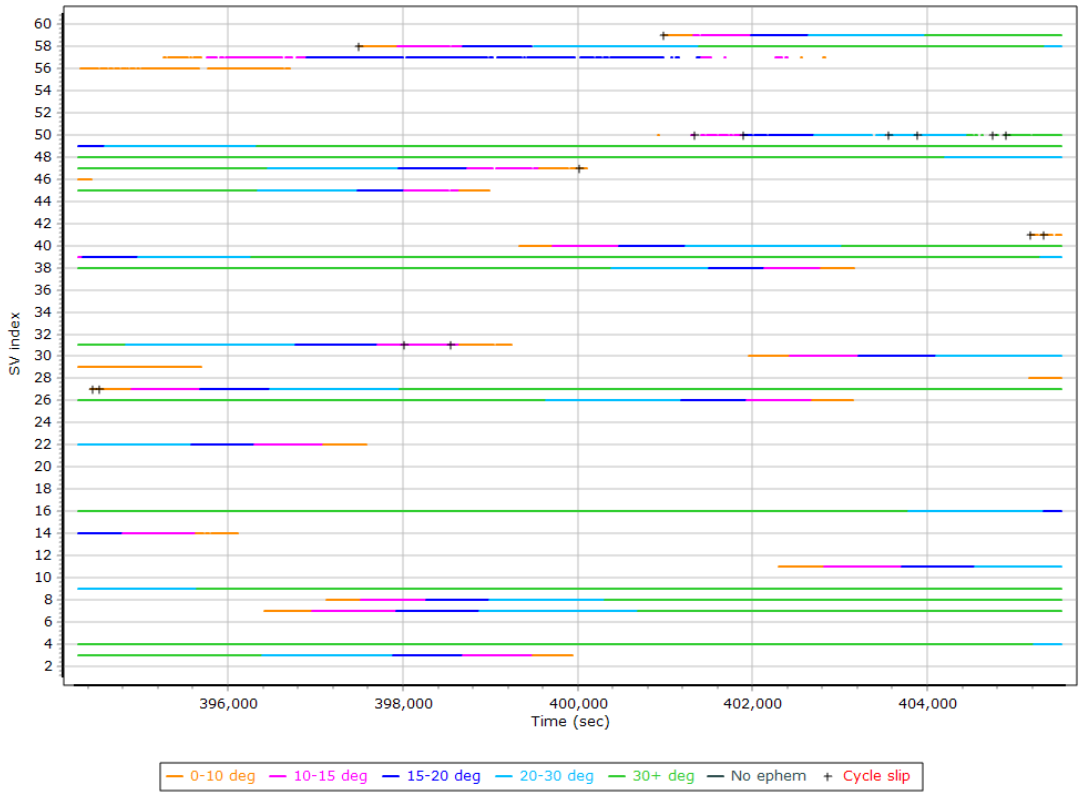
Rover Data QC

Raw IMU Import QC Summary

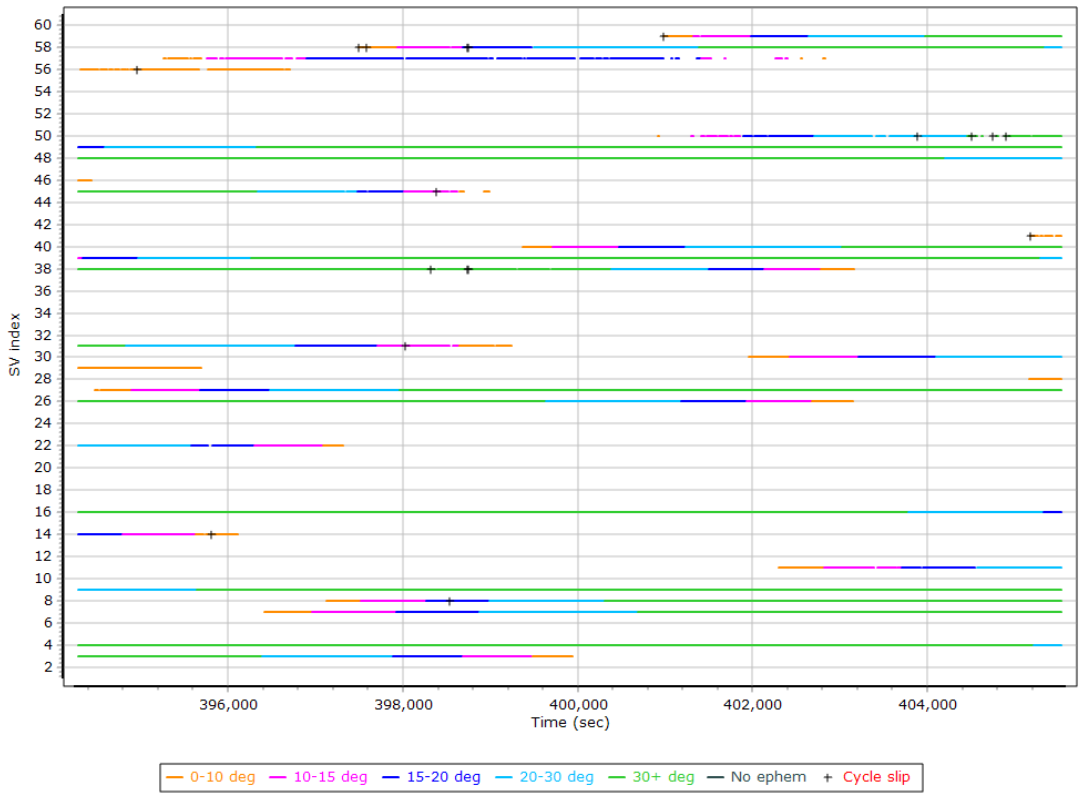
IMU data input file	imu_20200416A.dat
IMU data check log file	imudt_20200416A.log
IMU Records Processed	2512556
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
393009.286 : WARNING : Gap of 392987.2998 seconds in CHECKDT input data	

Primary Observables & Satellite Data

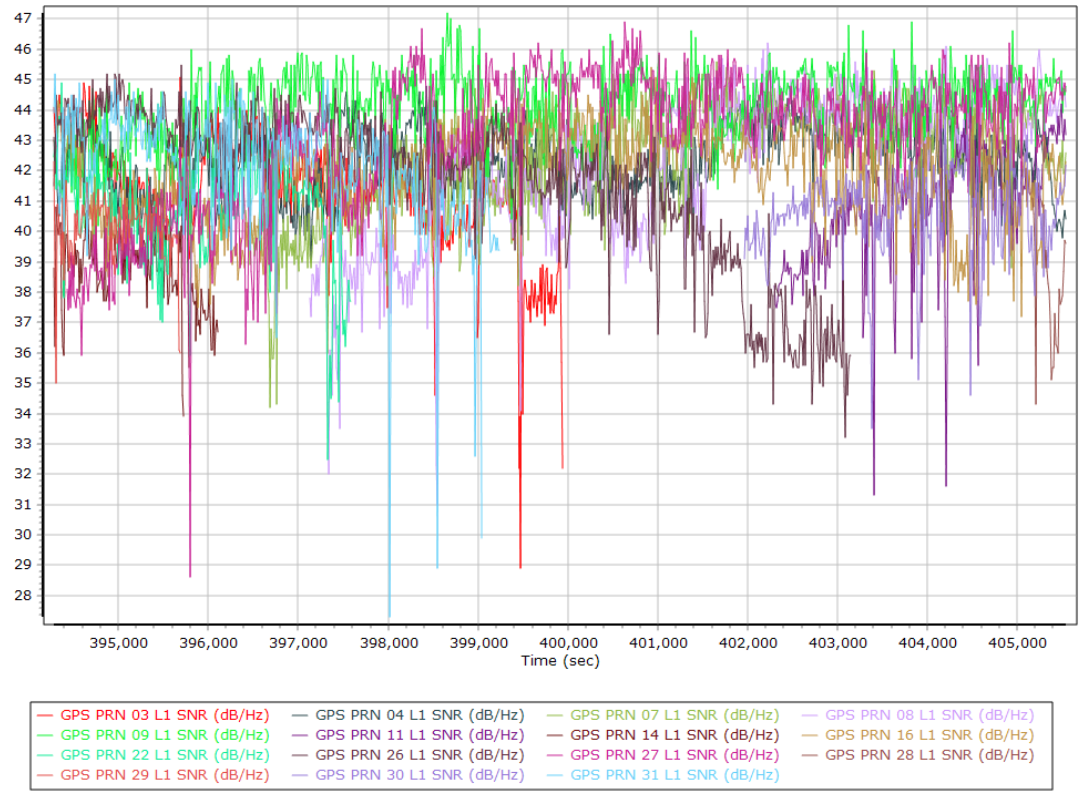
L1 Satellite Lock/Elevation



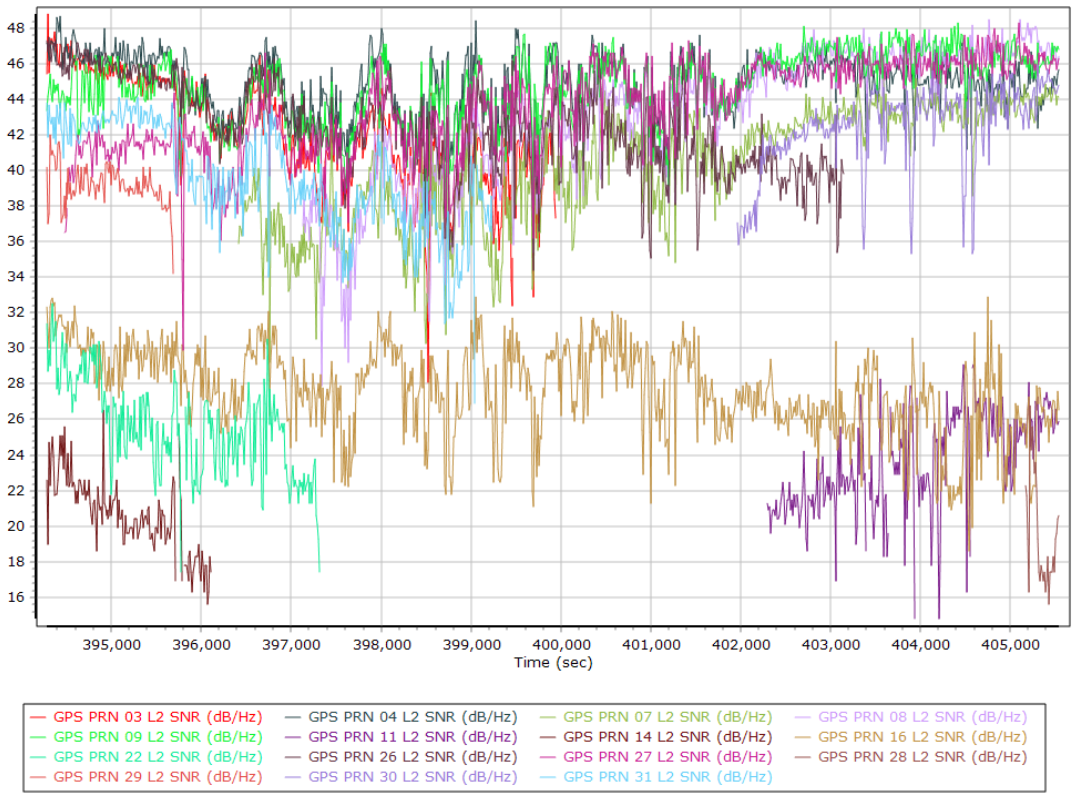
L2 Satellite Lock/Elevation



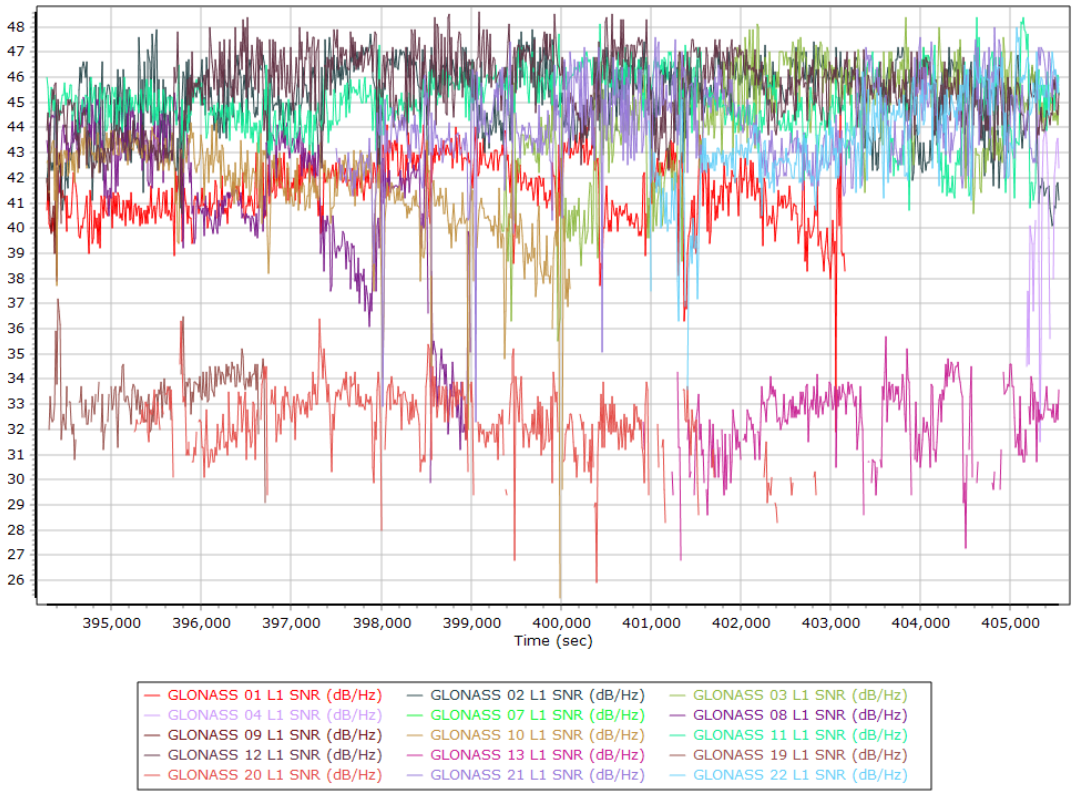
GPS L1 SNR



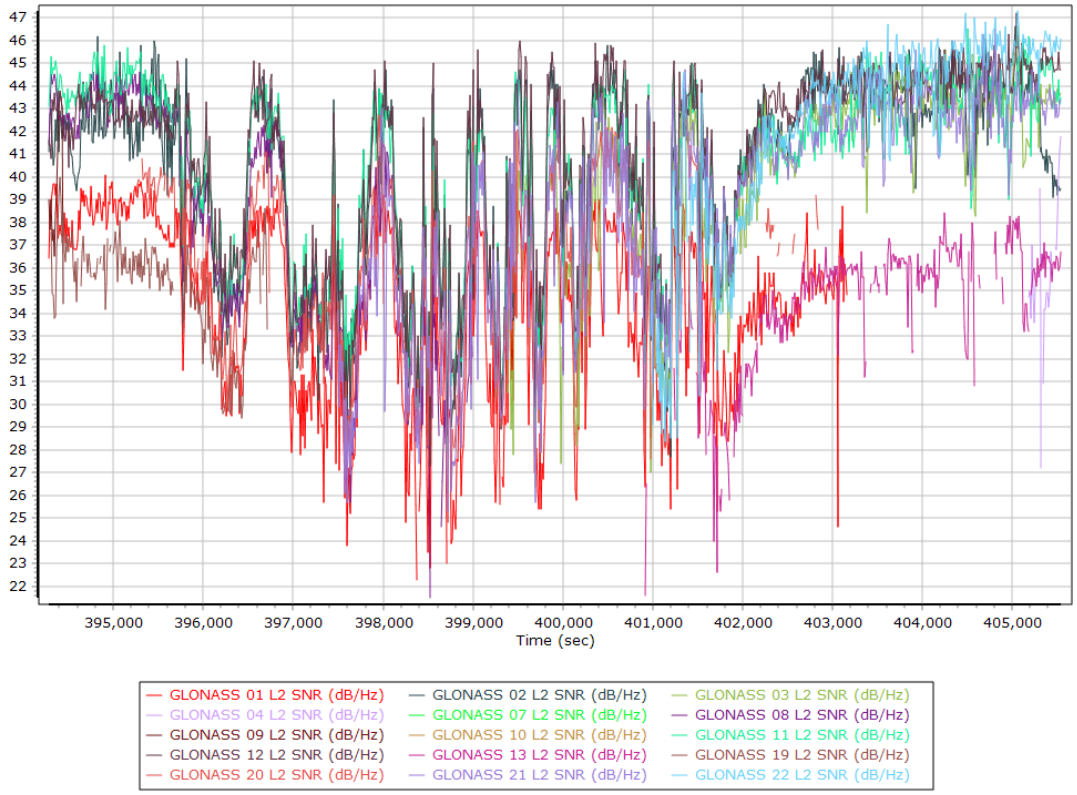
GPS L2 SNR



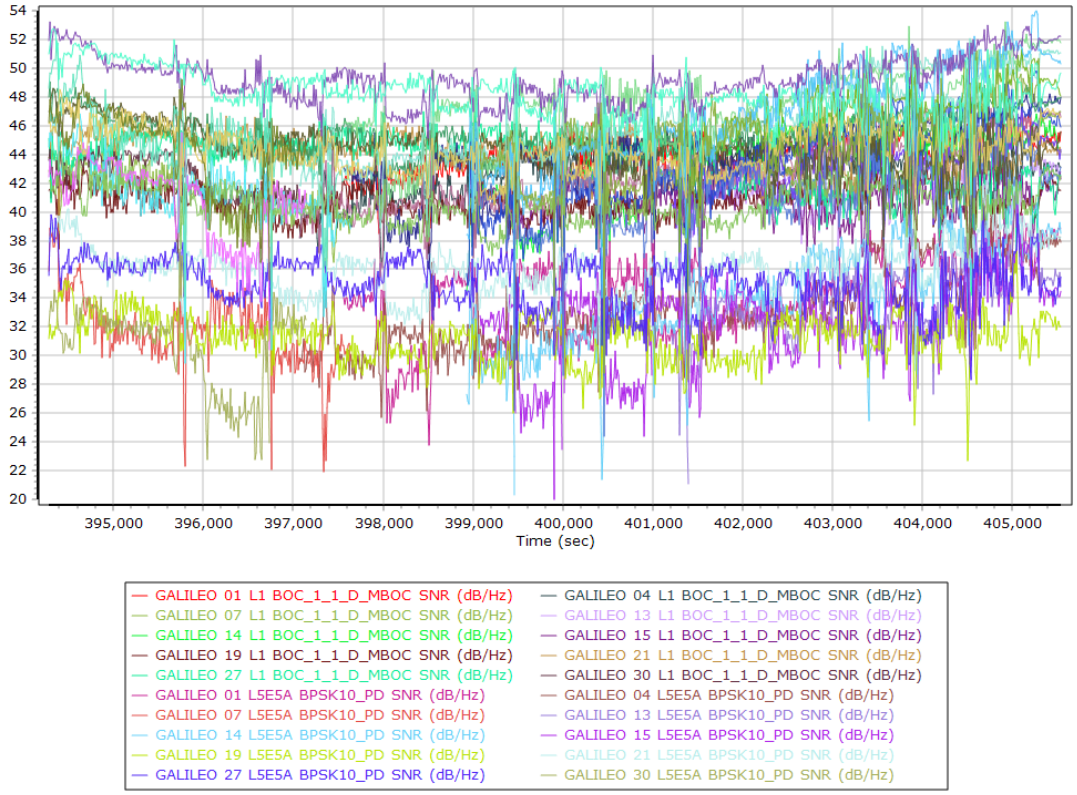
GLONASS L1 SNR



GLONASS L2 SNR

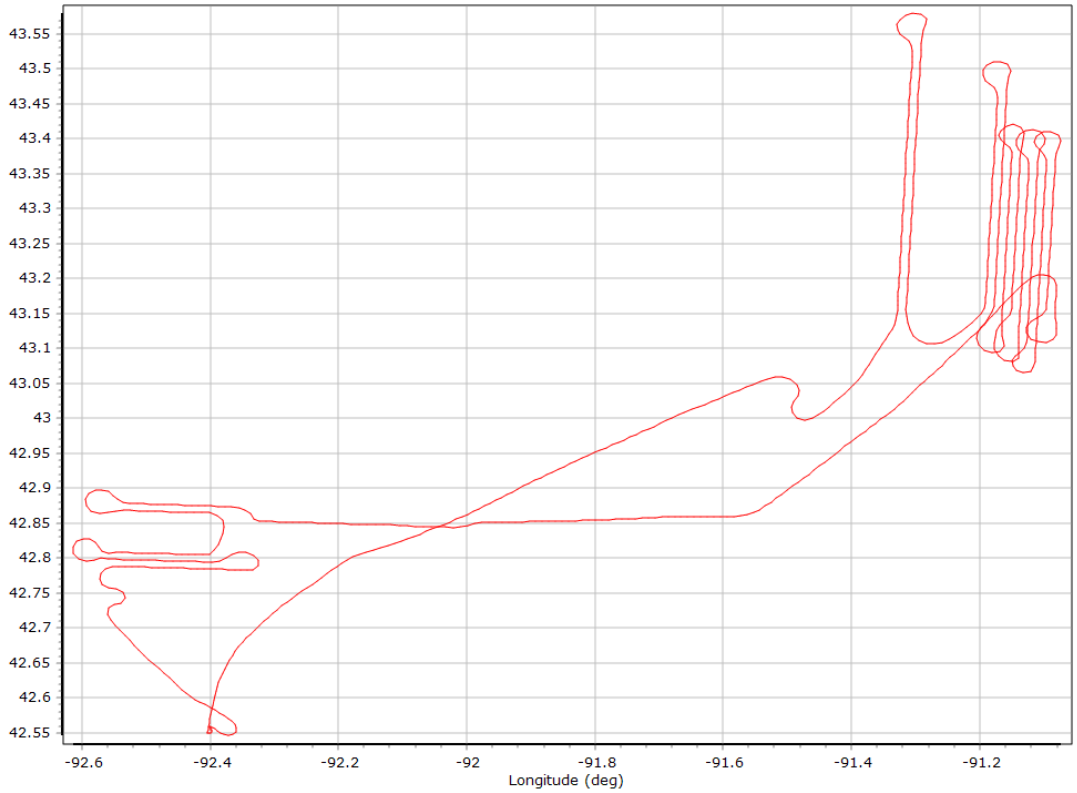


GALILEO SNR

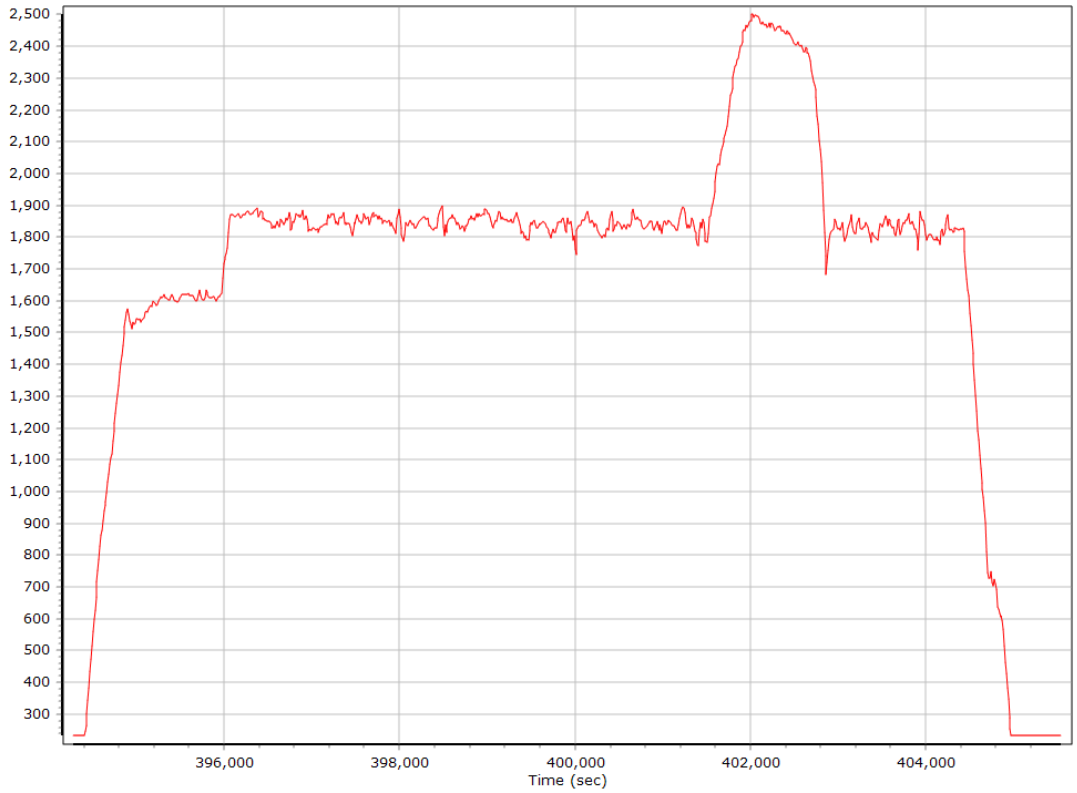


Smoothed Trajectory Information

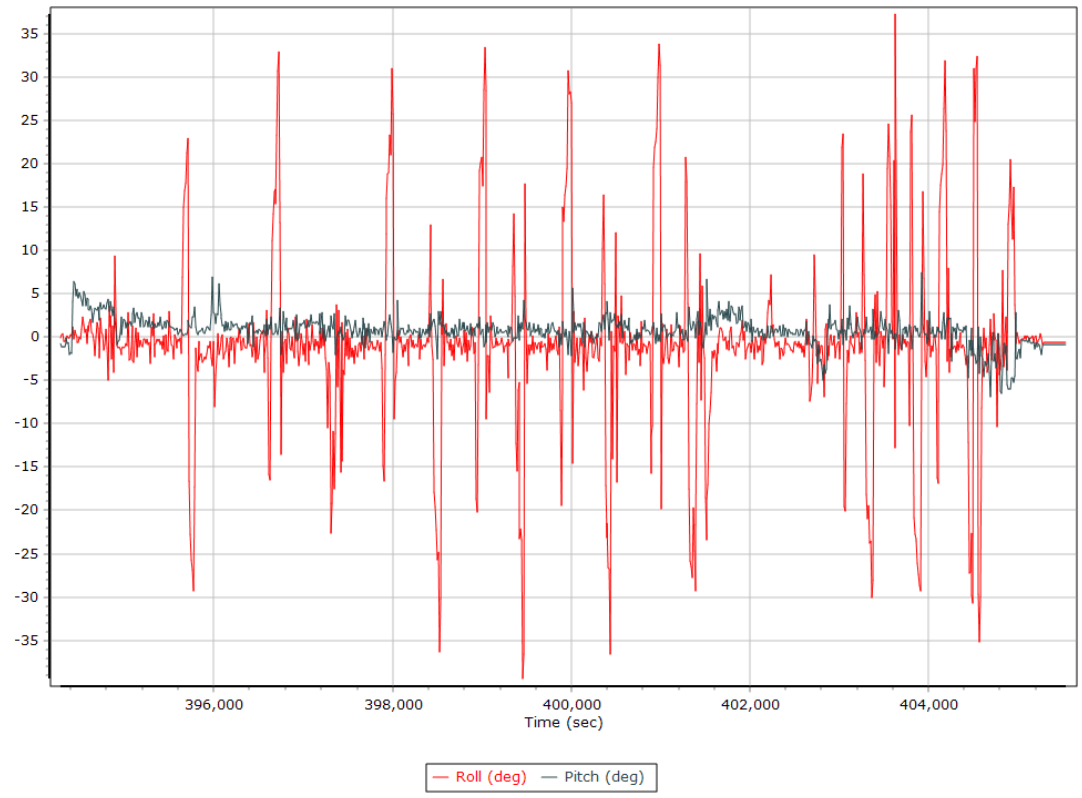
Top View



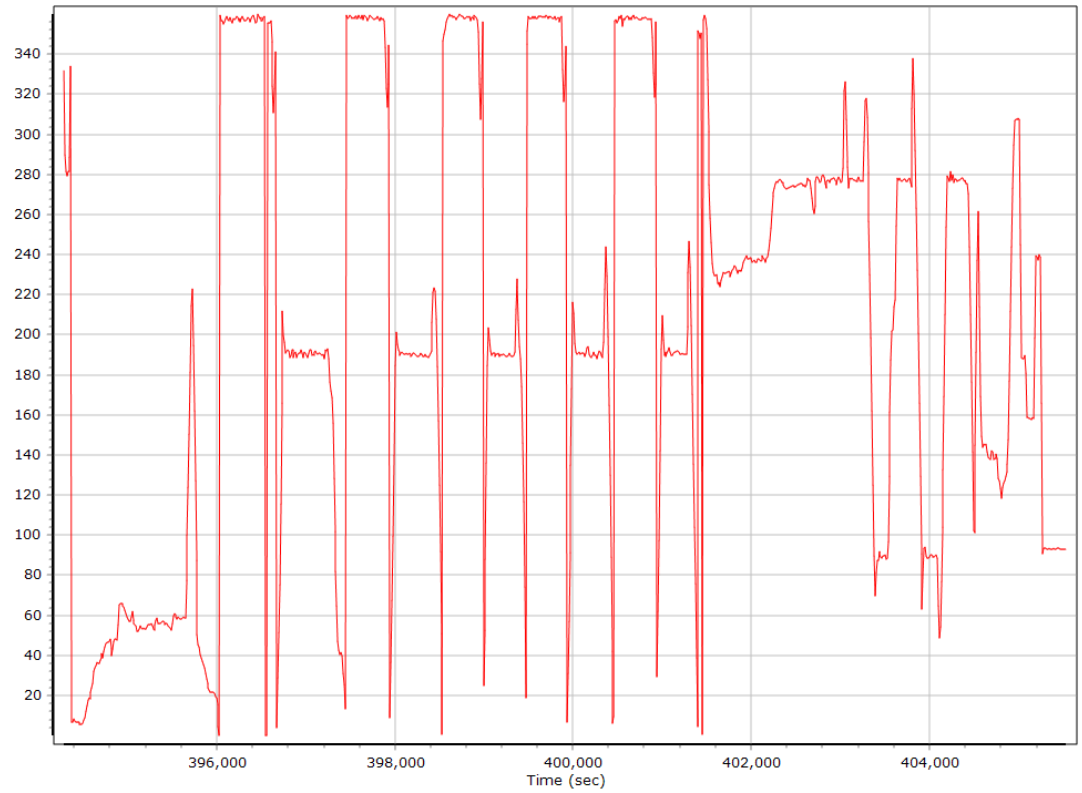
Altitude



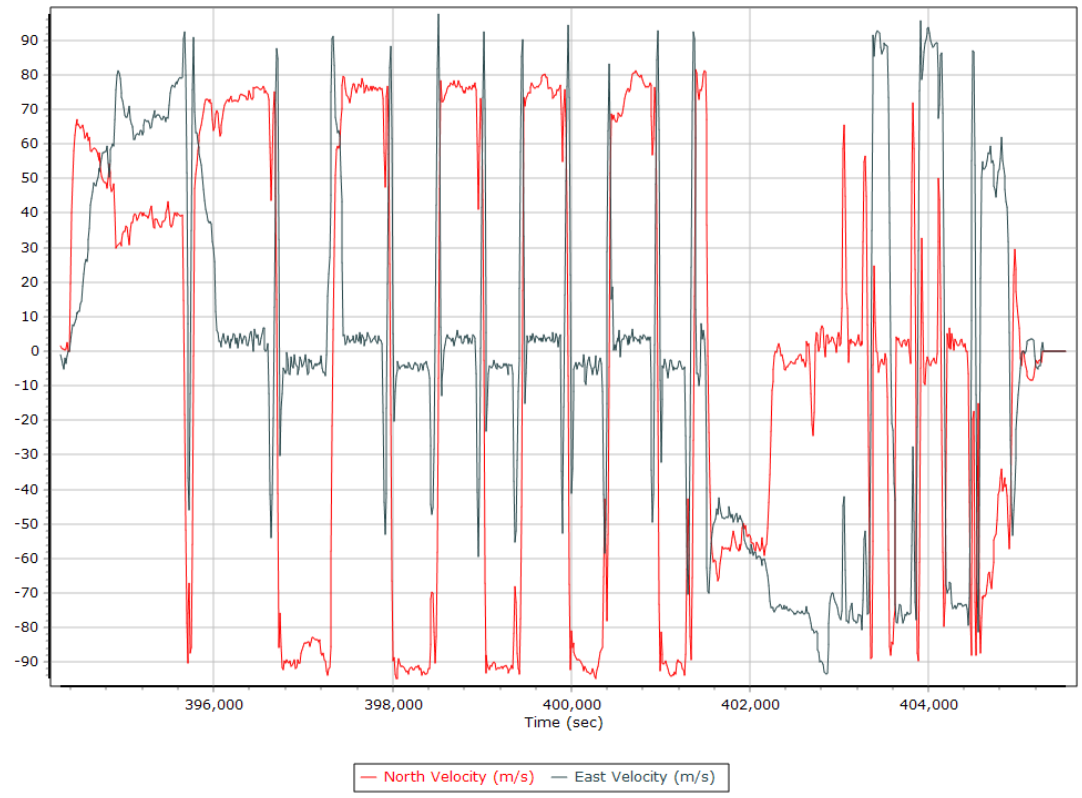
Roll/Pitch



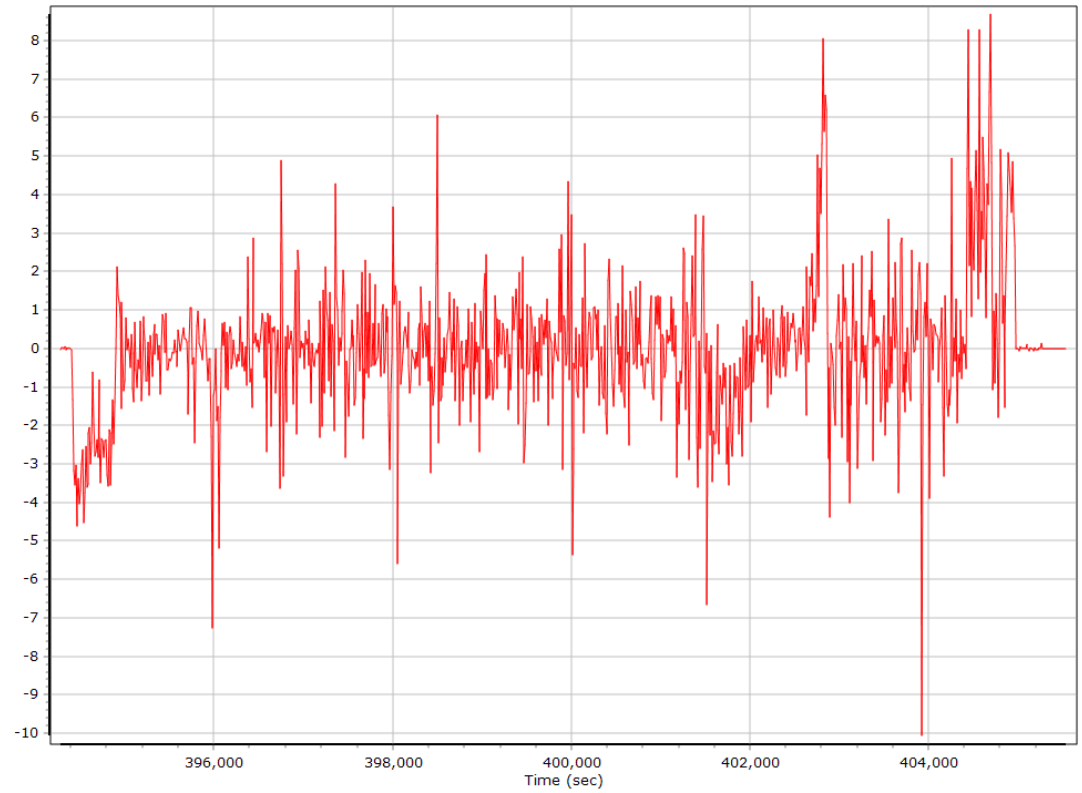
Heading



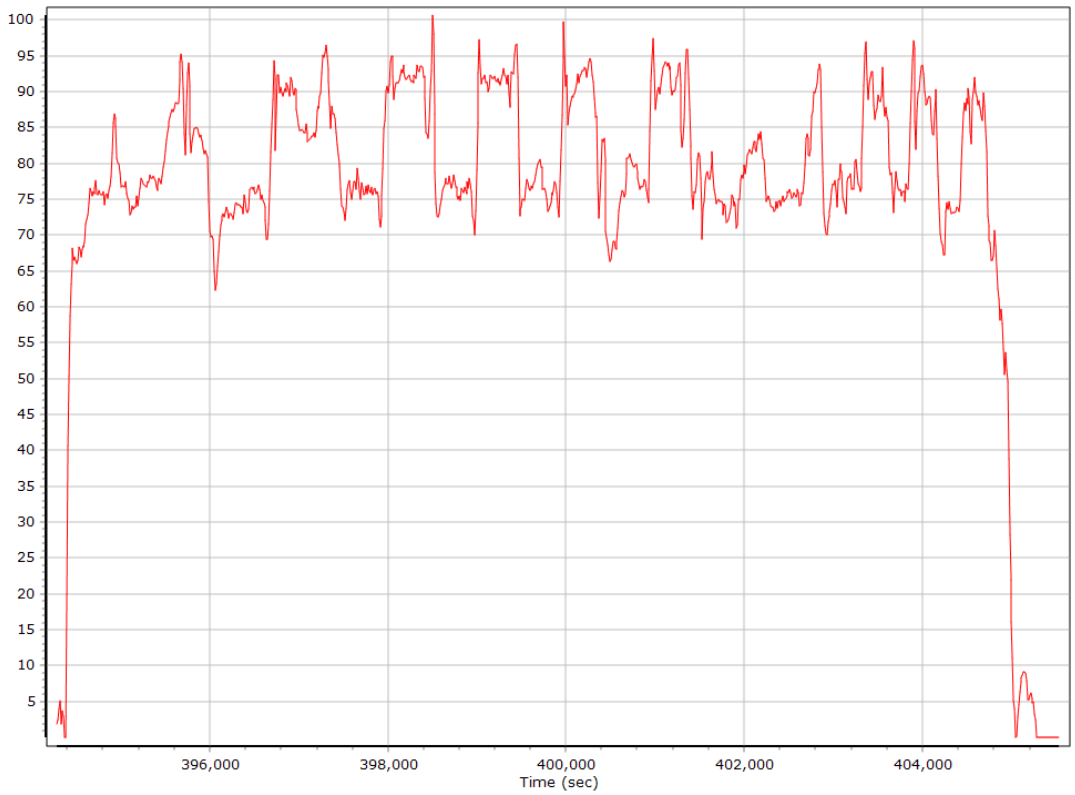
North/East Velocity



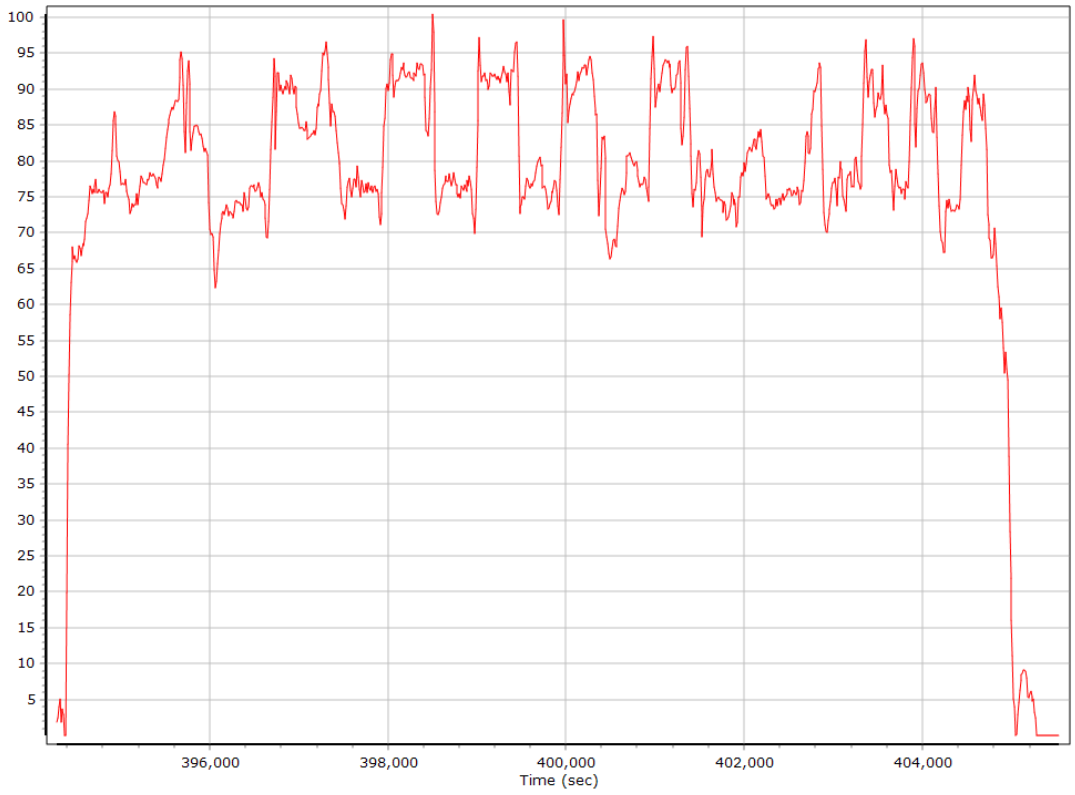
Down Velocity



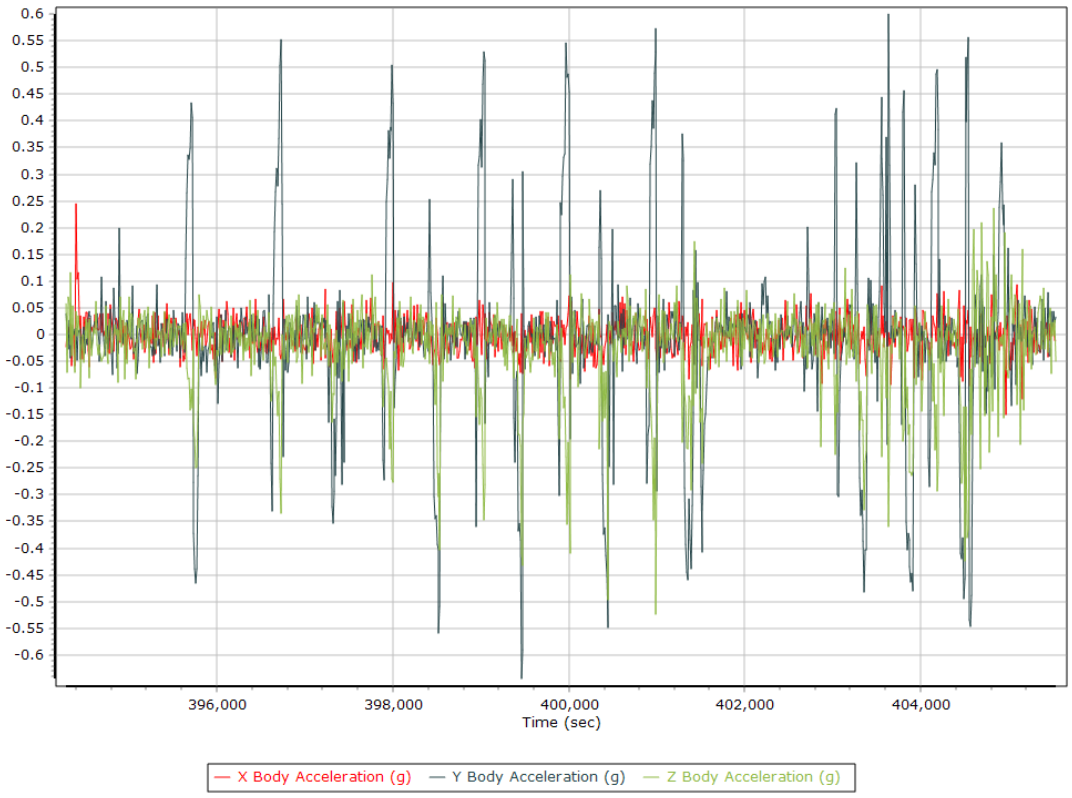
Total Speed



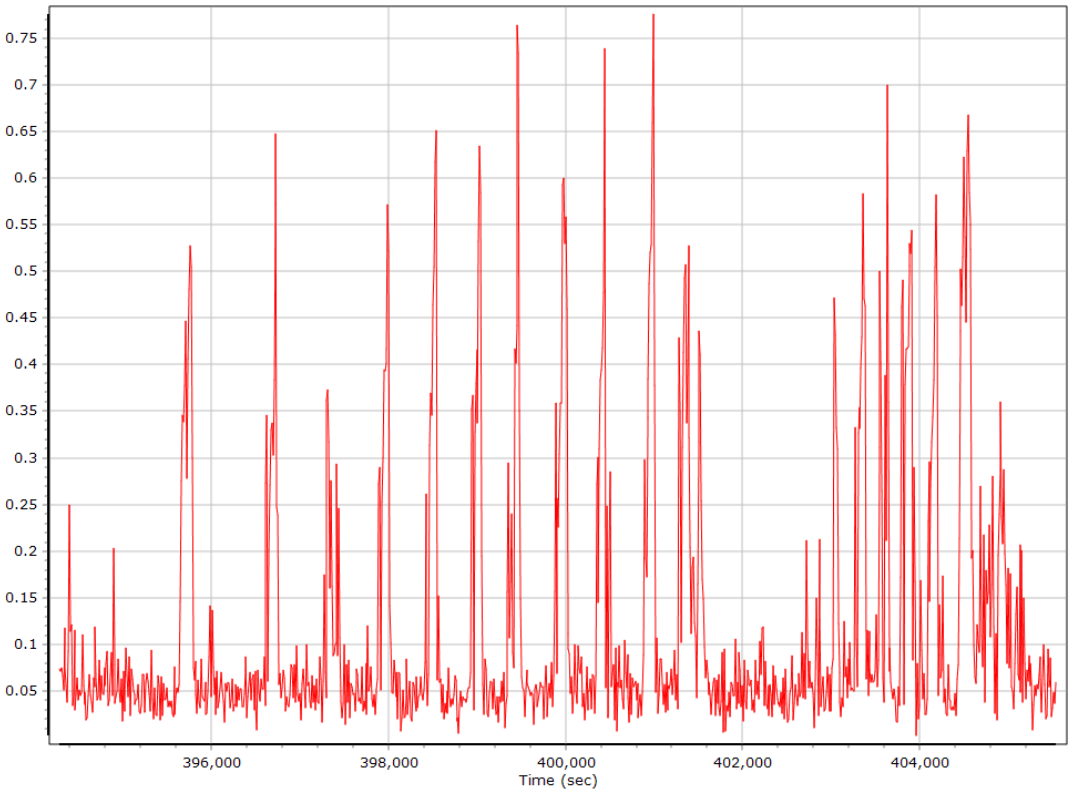
Ground Speed



Body Acceleration



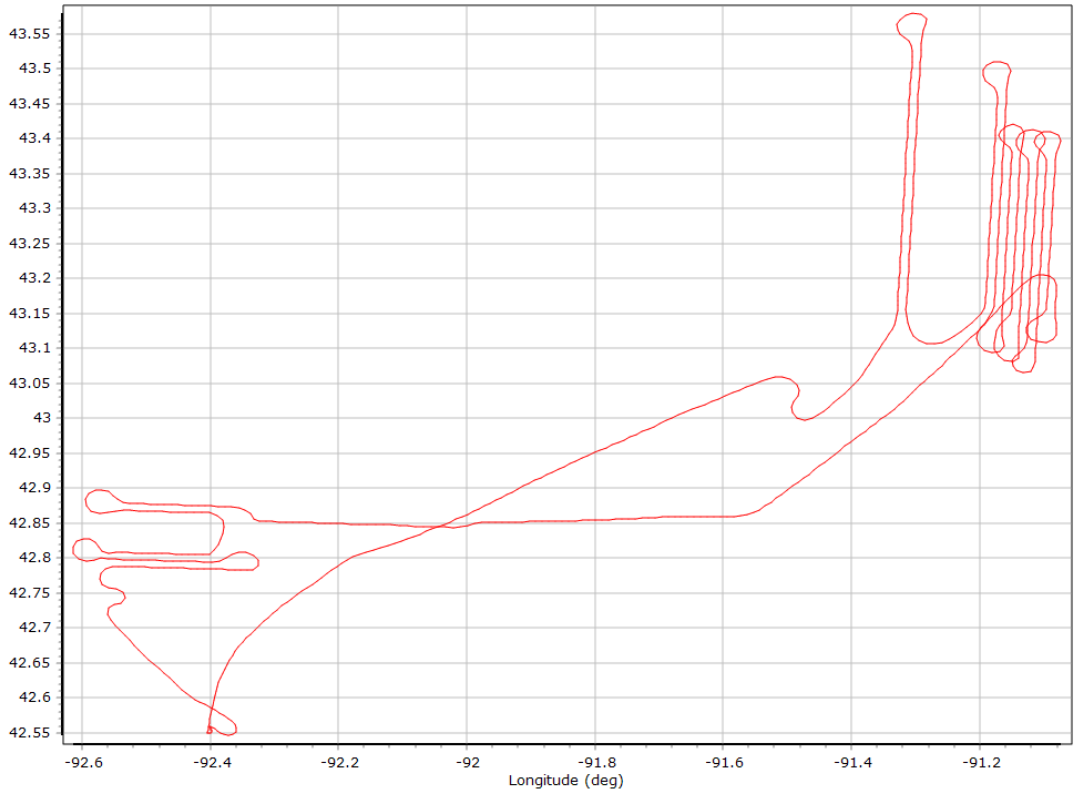
Total Body Acceleration



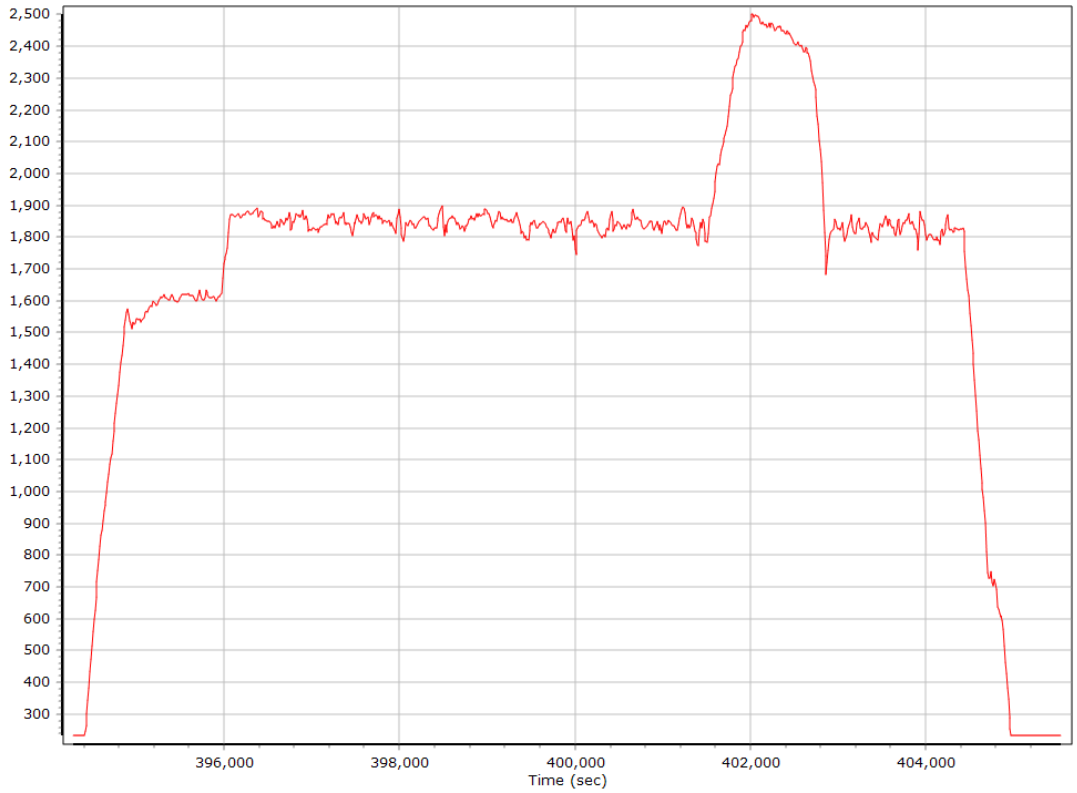
Body Angular Rate

Forward Processed Trajectory Information

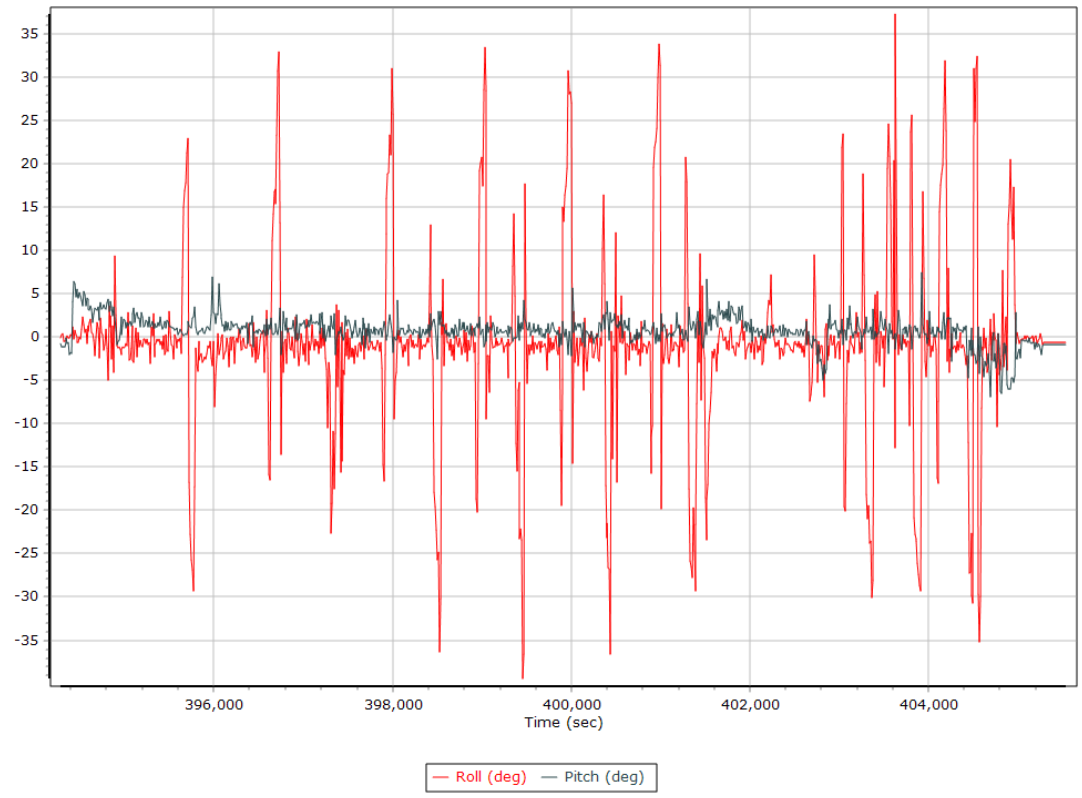
Top View



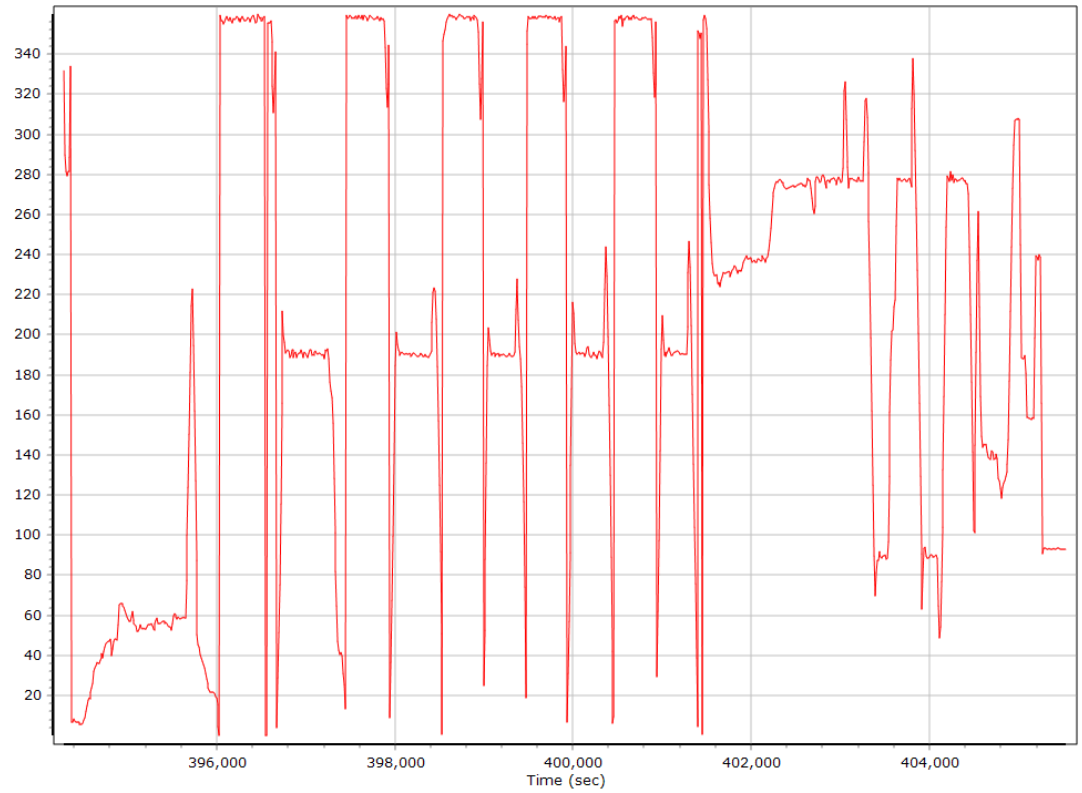
Altitude



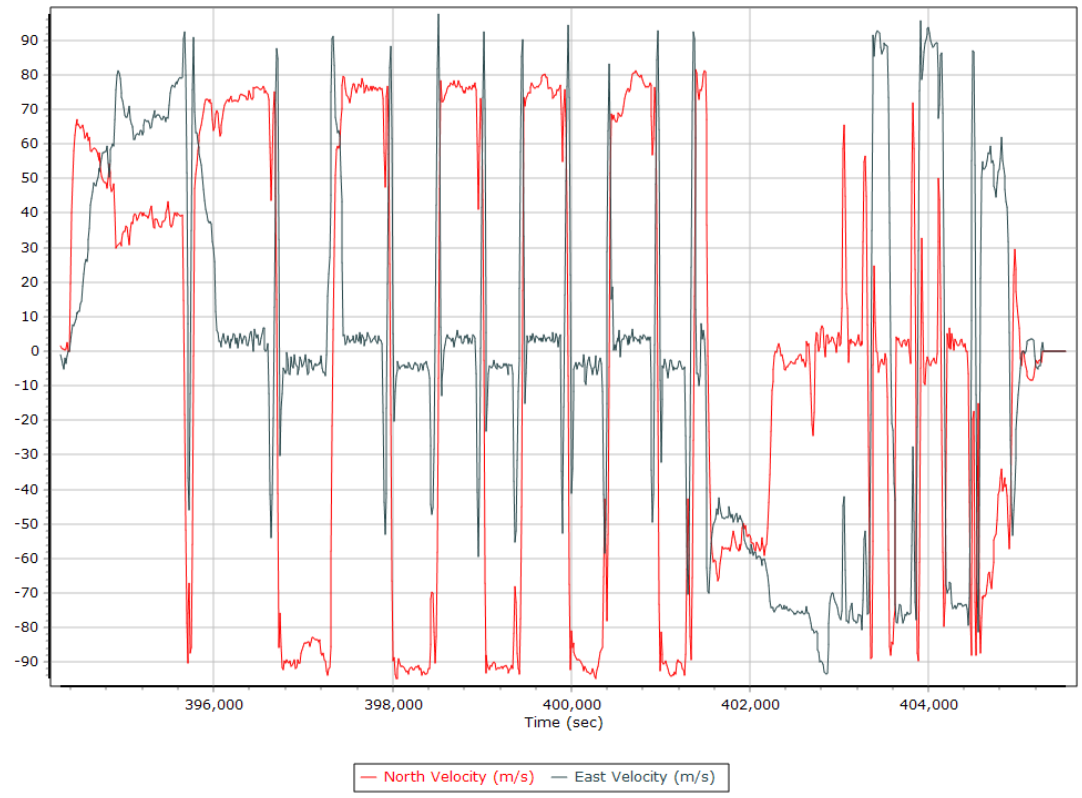
Roll/Pitch



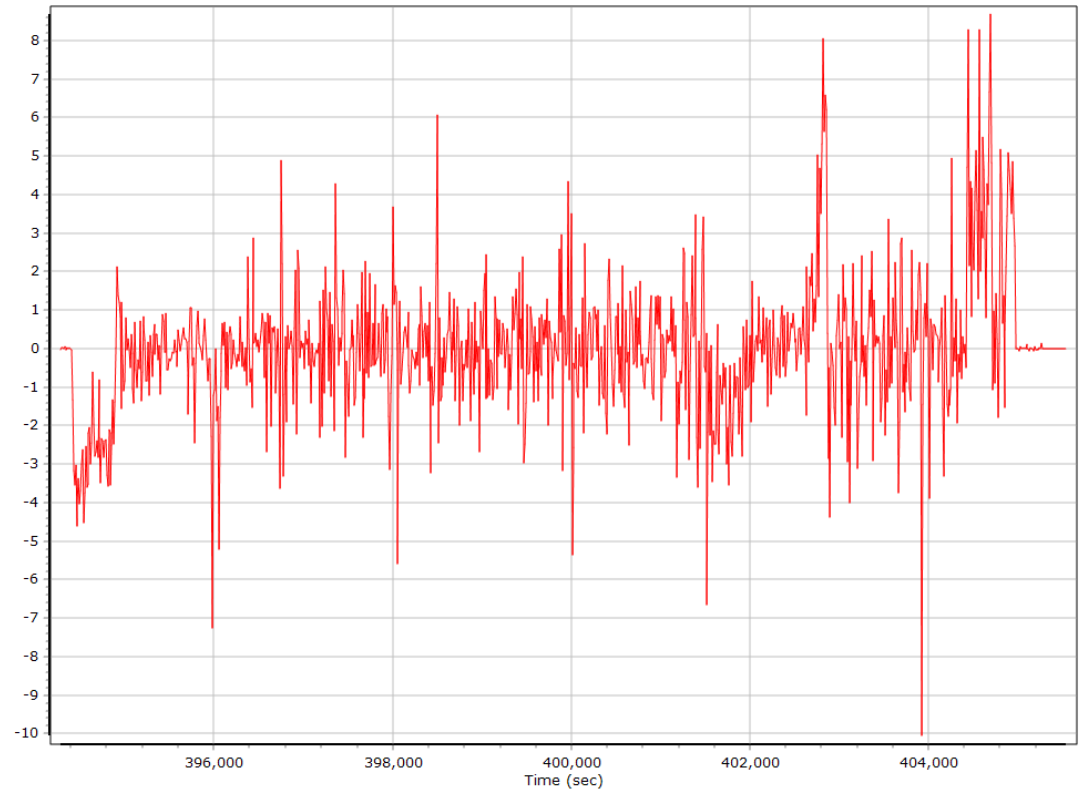
Heading



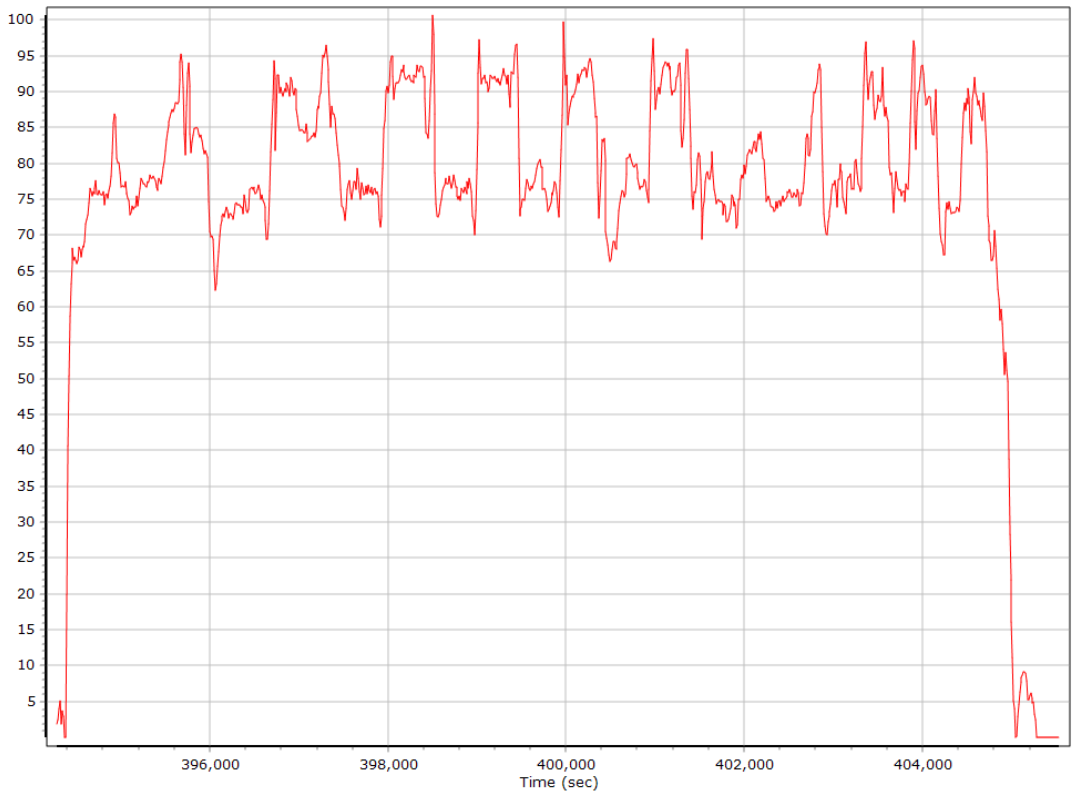
North/East Velocity



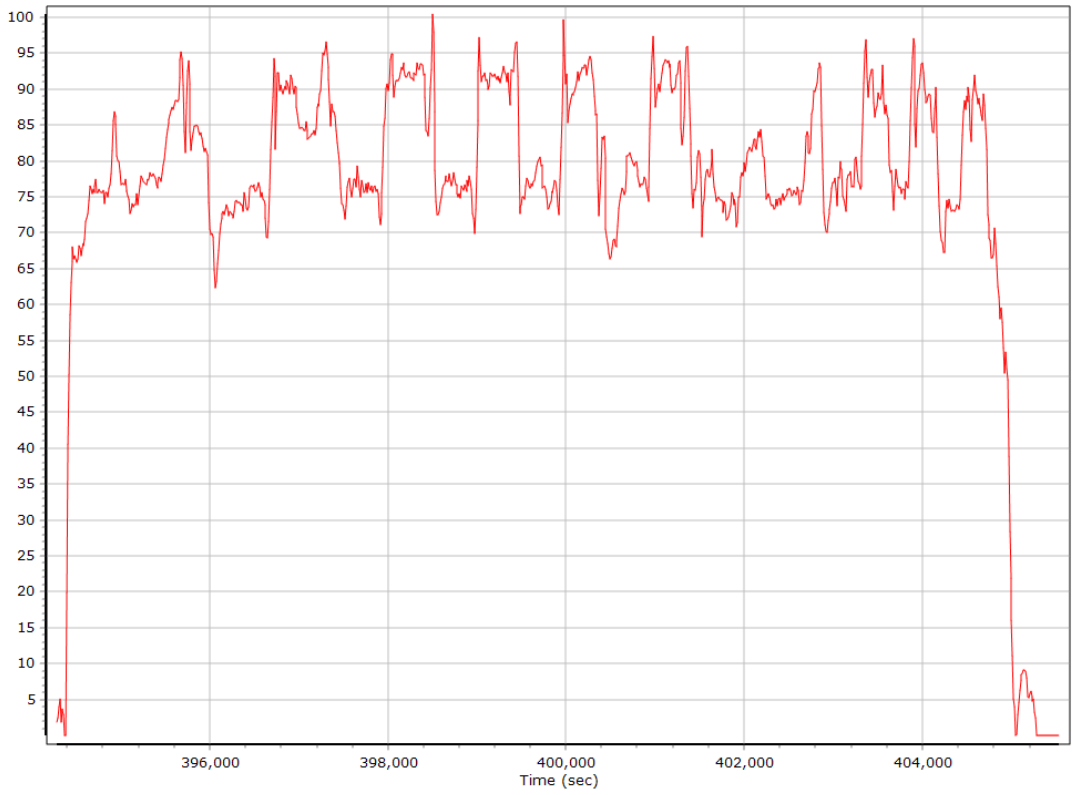
Down Velocity



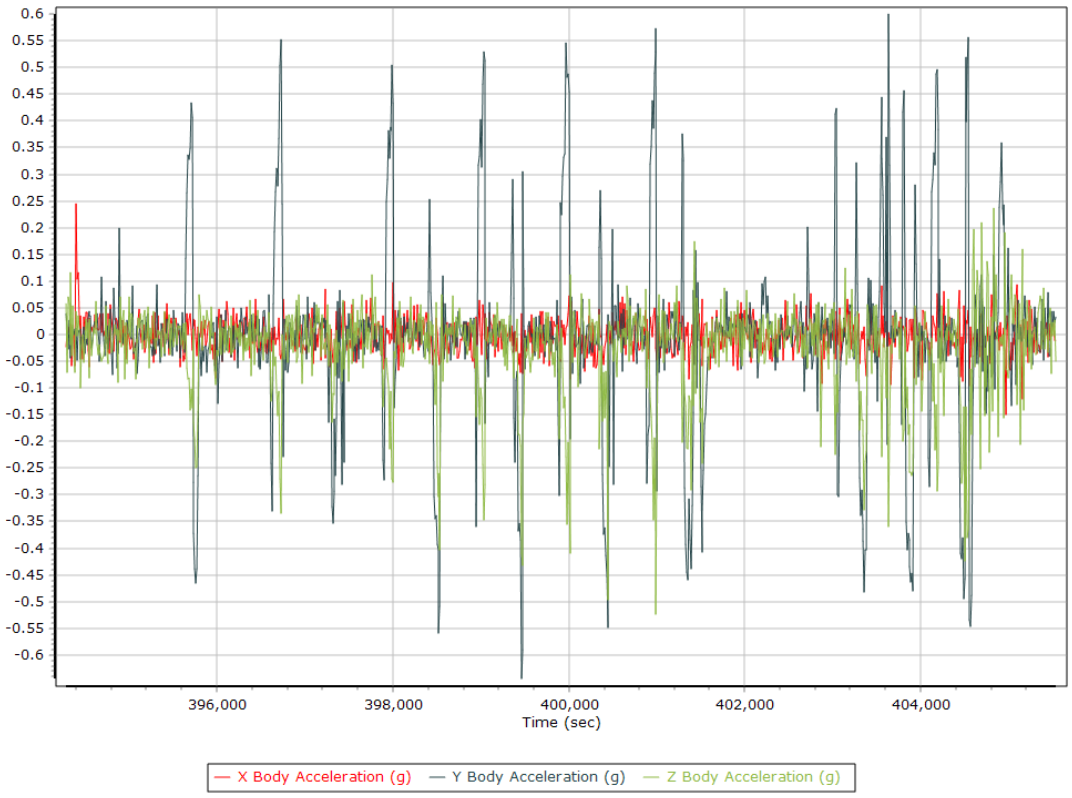
Total Speed



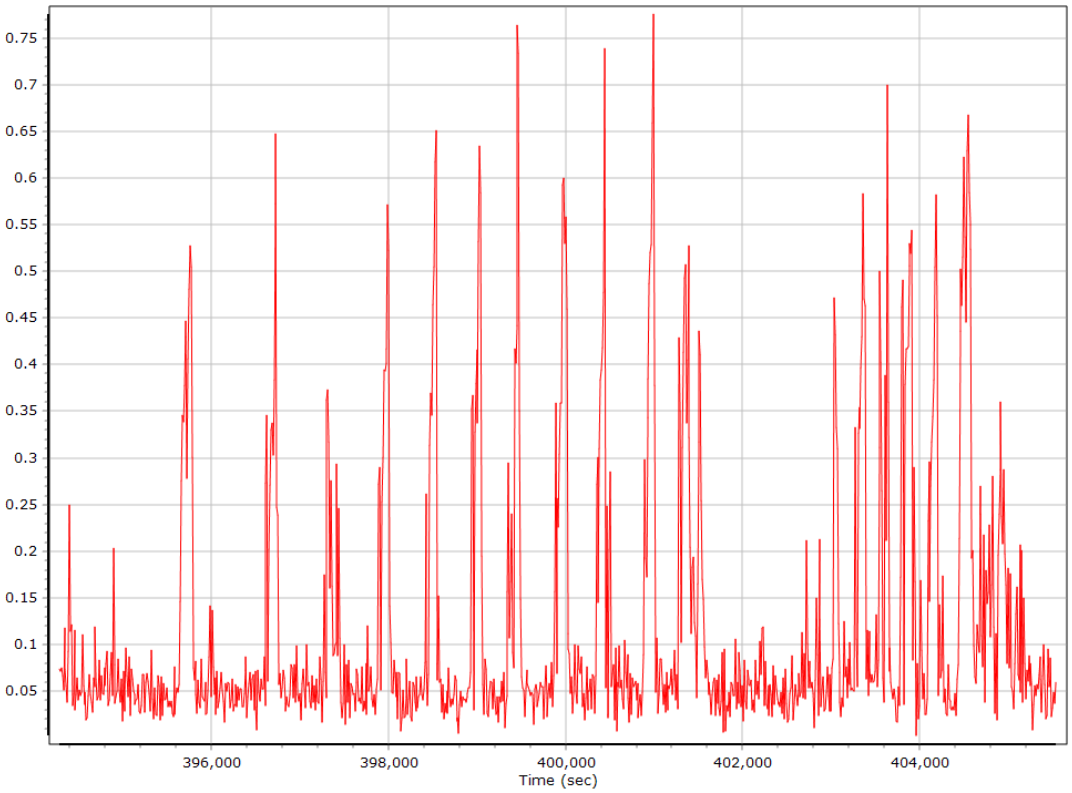
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/16/2020	IADE	31.85	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAEL	32.11	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNPS	59.16	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IANA	65.65	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNCA	73.02	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	WLNC	84.23	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAAL	91.54	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAMN	108.27	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNEY	113.59	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNSV	118.09	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNWN	118.74	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	JFWS	120.46	GPS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IATA	133.25	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAMQ	135.32	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	NLIB	136.61	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAHT	137.90	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	12550 s (2101 393016 - 2101 405566)
Number of reference stations	10
Primary station GPS measurement usage (%)	99.9
Primary station GLONASS measurement usage (%)	75.4
Average number of satellites per epoch	12.7
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	19289
GPS precise vs. broadcast ephemeris used	94.1 % / 5.9 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - JFWS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°54'51.37586"	W90°14'53.19180"	293.597
Adjusted		N42°54'51.37619"	W90°14'53.19142"	293.588
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.013	0.008	0.016

Base Station Information

Station ID	JFWS		
Filename	jfws1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GPS		
Receiver manufacturer, model, serial no.	Trimble	NetRS	4532254621
Antenna manufacturer, model	Trimble	Choke Ring w/SCIT Dome	
Antenna height [m]	0.008		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.11		
Latitude	N42°54'51.37586"		
Longitude	W90°14'53.19180"		
Ellipsoidal height (m)	293.59668		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNWN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N44°03'54.03515"	W91°42'45.52416"	178.655
Adjusted		N44°03'54.03521"	W91°42'45.52373"	178.652
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.004	0.010

Base Station Information

Station ID	MNWN		
Filename	mnwn1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5443R50018
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N44°03'54.03515"		
Longitude	W91°42'45.52416"		
Ellipsoidal height (m)	178.65532		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59750"	228.904
Adjusted		N42°01'49.10908"	W91°32'55.59736"	228.874
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.030	0.031

Base Station Information

Station ID	IAMN		
Filename	iamn1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59750"		
Ellipsoidal height (m)	228.90416		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24724"	291.092
Adjusted		N42°44'49.40401"	W92°47'14.24730"	291.115
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.023	0.024

Base Station Information

Station ID	IAAL		
Filename	iaal1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24724"		
Ellipsoidal height (m)	291.09232		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WLNC

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°50'15.66937"	W90°42'41.07306"	280.855
Adjusted		N42°50'15.66938"	W90°42'41.07306"	280.848
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.006	0.006

Base Station Information

Station ID	WLNC		
Filename	wlnc1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72957
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N42°50'15.66937"		
Longitude	W90°42'41.07306"		
Ellipsoidal height (m)	280.85484		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64527"	W91°29'46.51637"	339.588
Adjusted		N43°37'58.64522"	W91°29'46.51595"	339.594
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.006	0.011

Base Station Information

Station ID	MNCA		
Filename	mnca1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64527"		
Longitude	W91°29'46.51637"		
Ellipsoidal height (m)	339.58836		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54033"	172.253
Adjusted		N43°29'49.47911"	W91°17'26.53969"	172.229
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.015	0.024	0.028

Base Station Information

Station ID	IANA		
Filename	iana1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54033"		
Ellipsoidal height (m)	172.25322		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.77	**Output Coordinates**	Original	
Solution Epochs	2852	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52987"	298.980
Adjusted		N42°52'40.47662"	W91°21'41.52960"	298.982
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.002	0.006

Base Station Information

Station ID	IAEL		
Filename	iael1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52987"		
Ellipsoidal height (m)	298.98029		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52633"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52633"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52633"		
Ellipsoidal height (m)	316.51618		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84812"	W91°53'06.86730"	380.908
Adjusted		N43°30'53.84825"	W91°53'06.86701"	380.915
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.007	0.010

Base Station Information

Station ID	MNPS		
Filename	mnps1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84812"		
Longitude	W91°53'06.86730"		
Ellipsoidal height (m)	380.90778		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	1.26	76.00	
Number of GPS SV	6	9	8
Number of GLONASS SV	0	6	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	6	14	13
PDOP	1.32	2.63	1.60
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	12512.00	0.00	1.00
Percentage	99.99	0.00	0.01

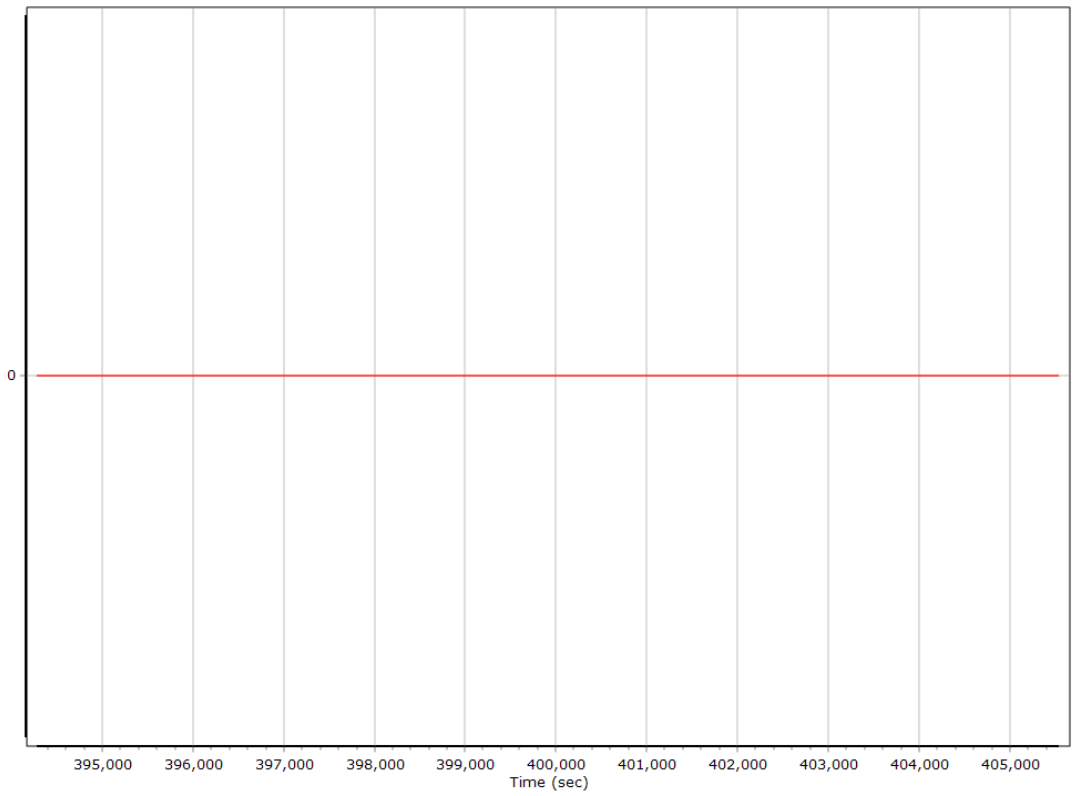
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	392998.000 (4/16/2020 1:09:58 PM)		
Processing end time	405548.000 (4/16/2020 4:39:08 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

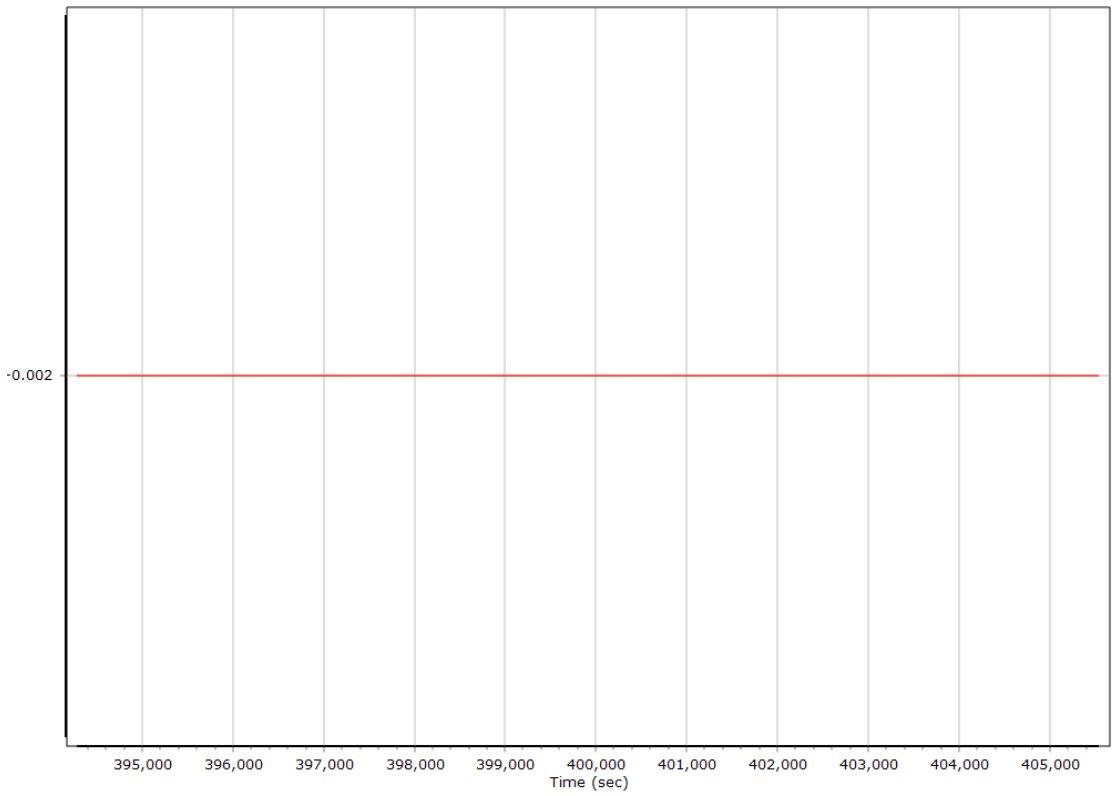
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

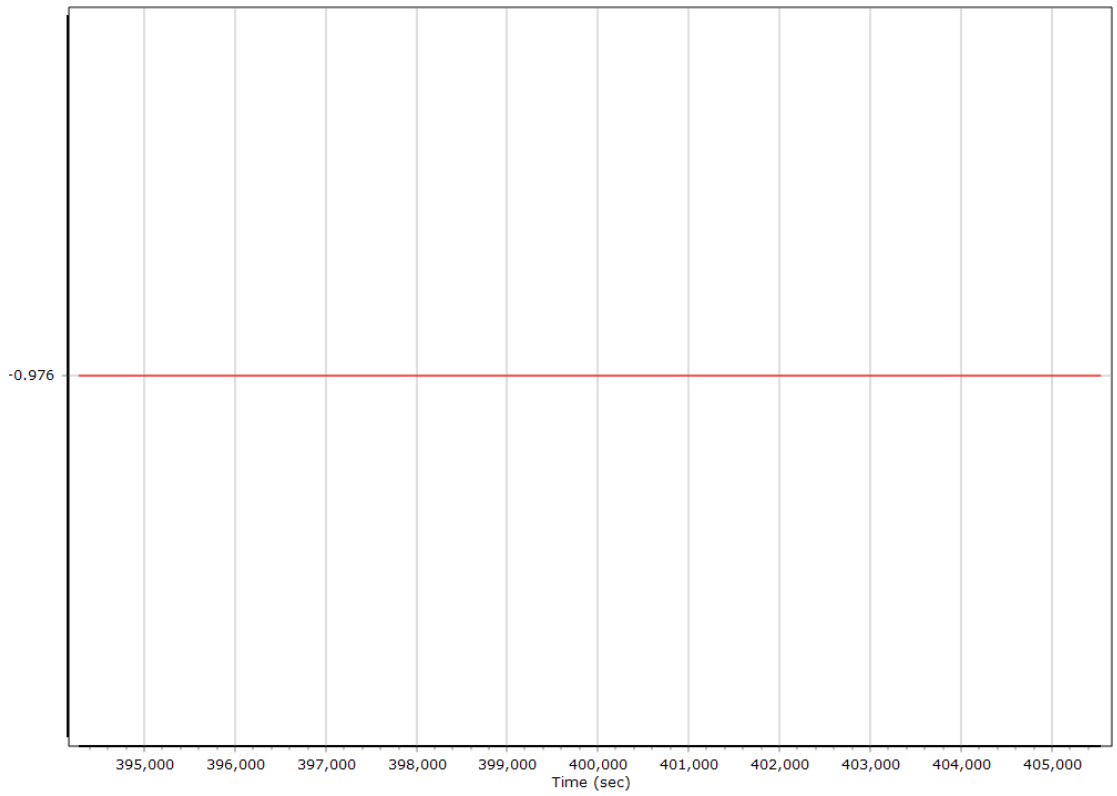
X Reference-Primary GNSS Lever Arm (m)



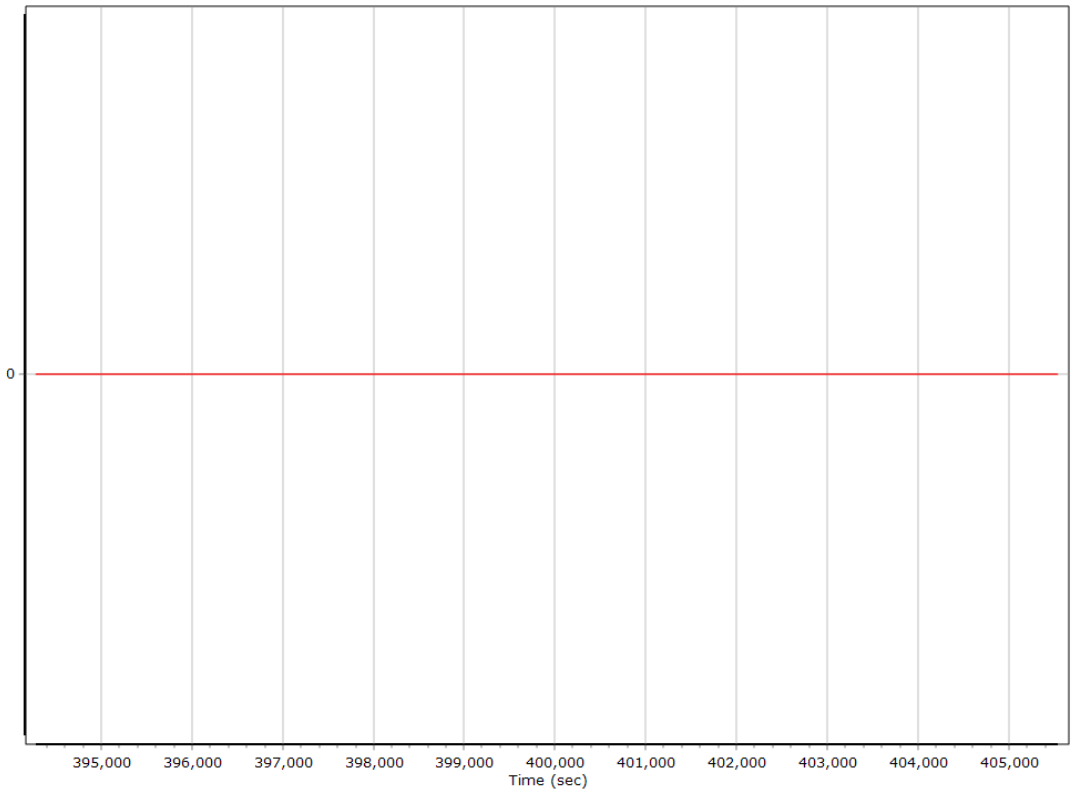
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



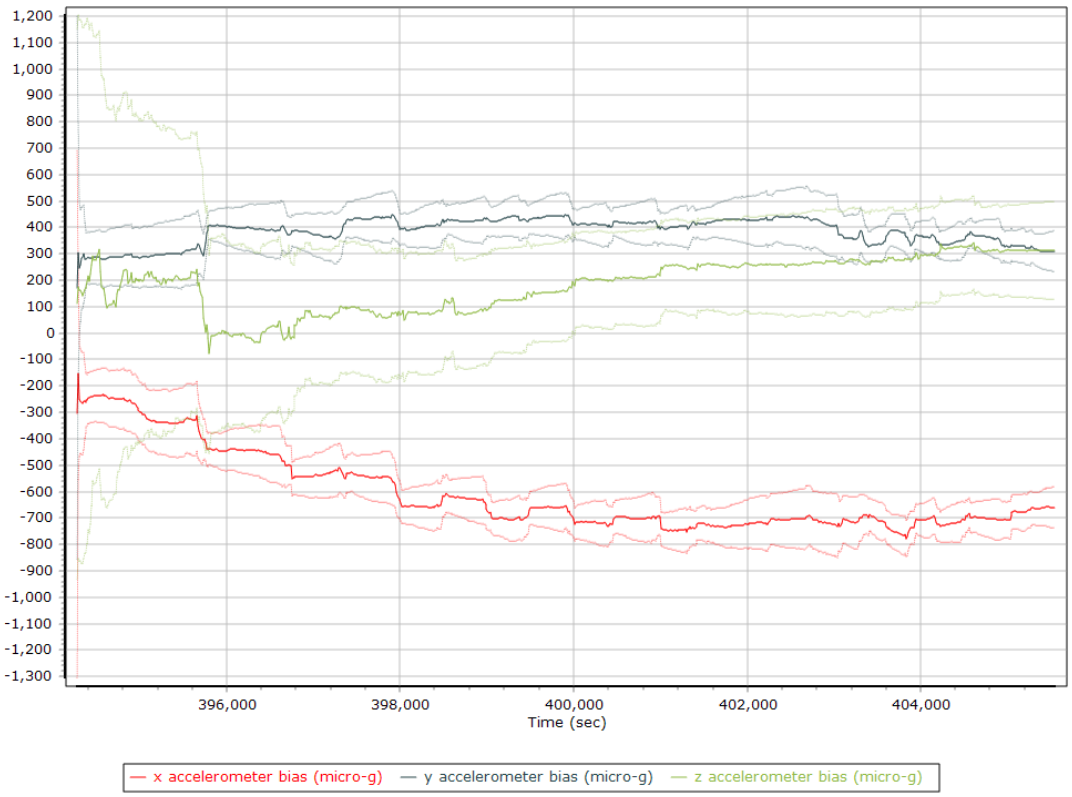
Reference-Primary GNSS Lever Arm Figure of Merit



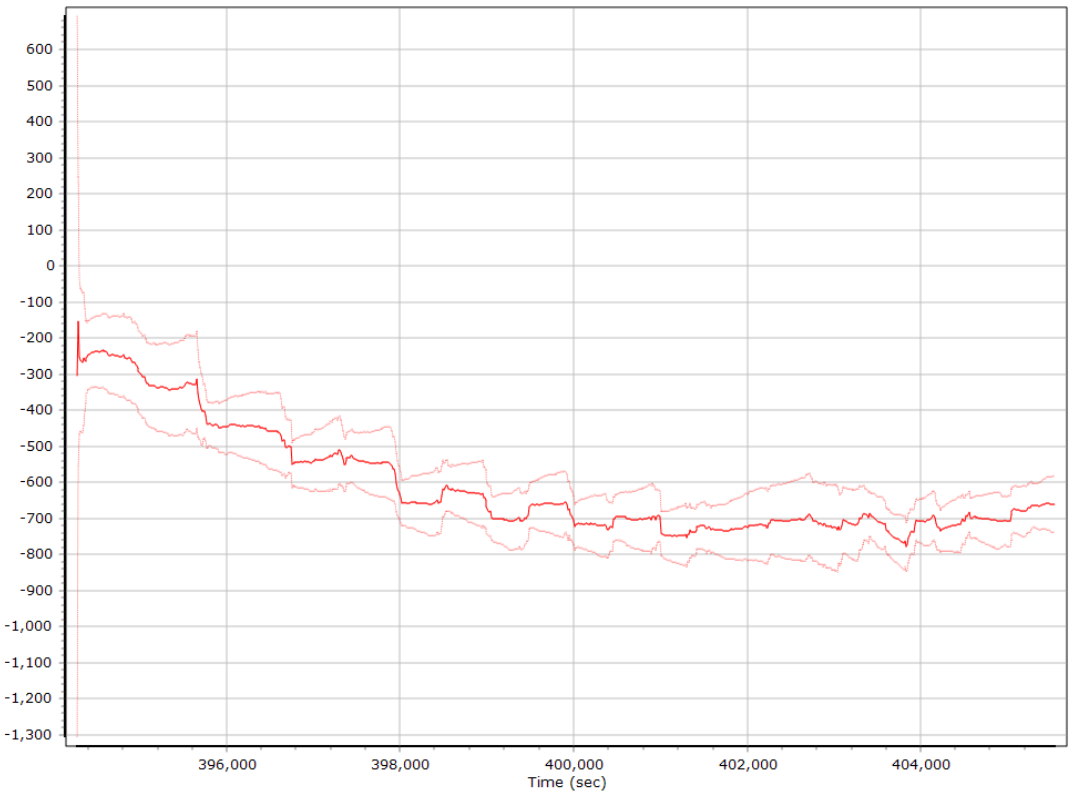
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

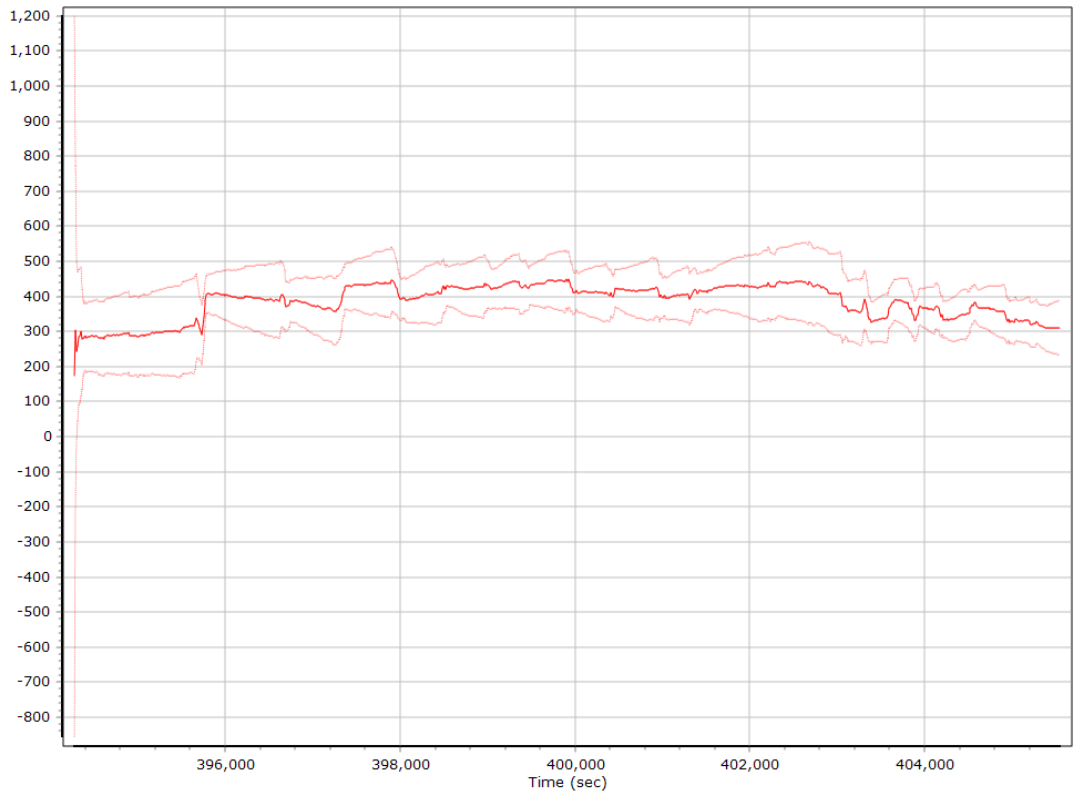
Accelerometer Bias (micro-g)



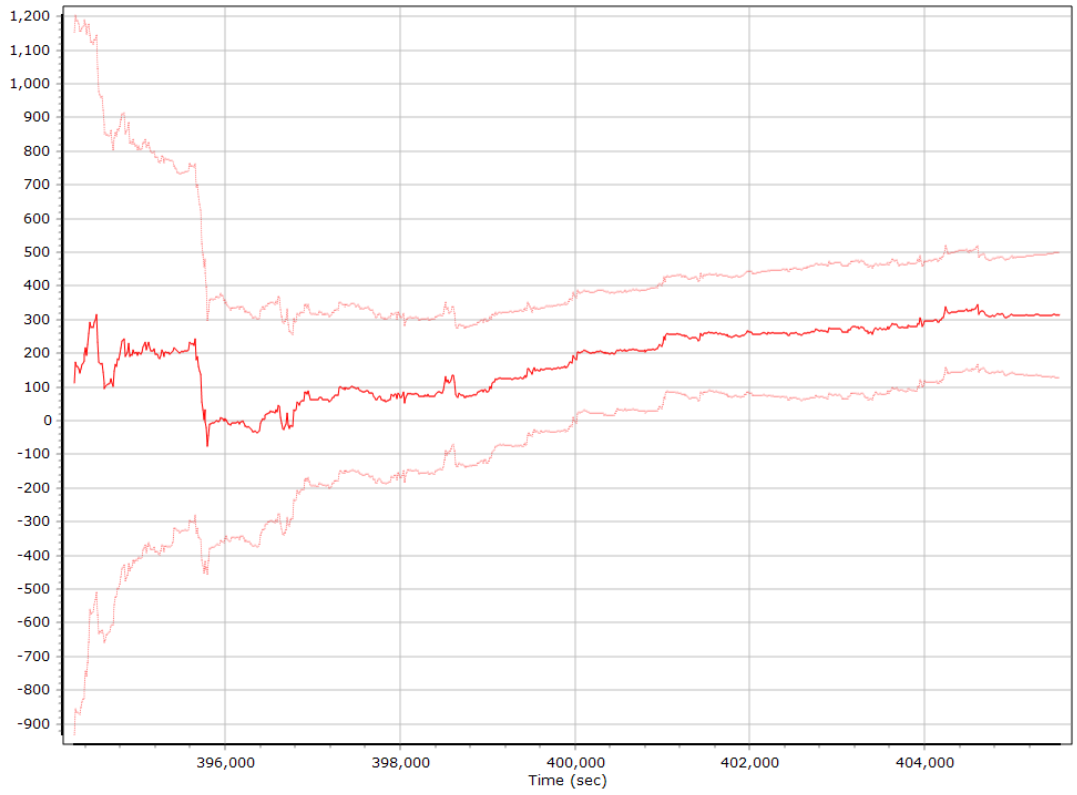
X Accelerometer Bias (micro-g)



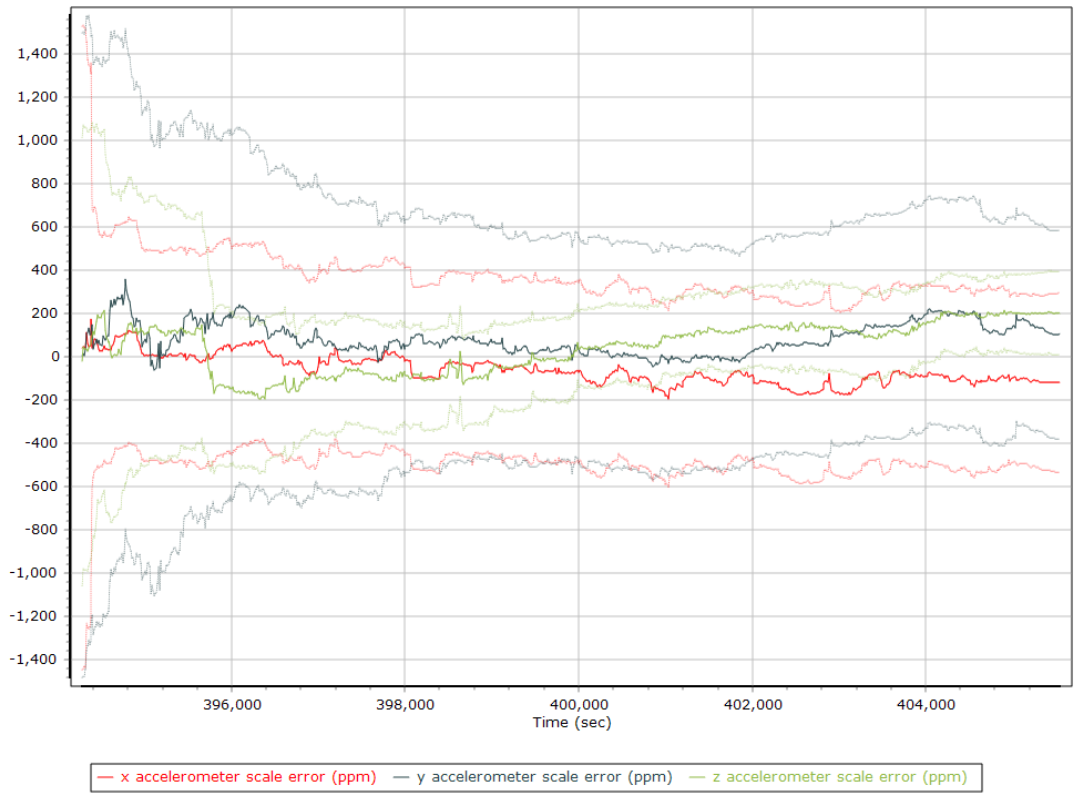
Y Accelerometer Bias (micro-g)



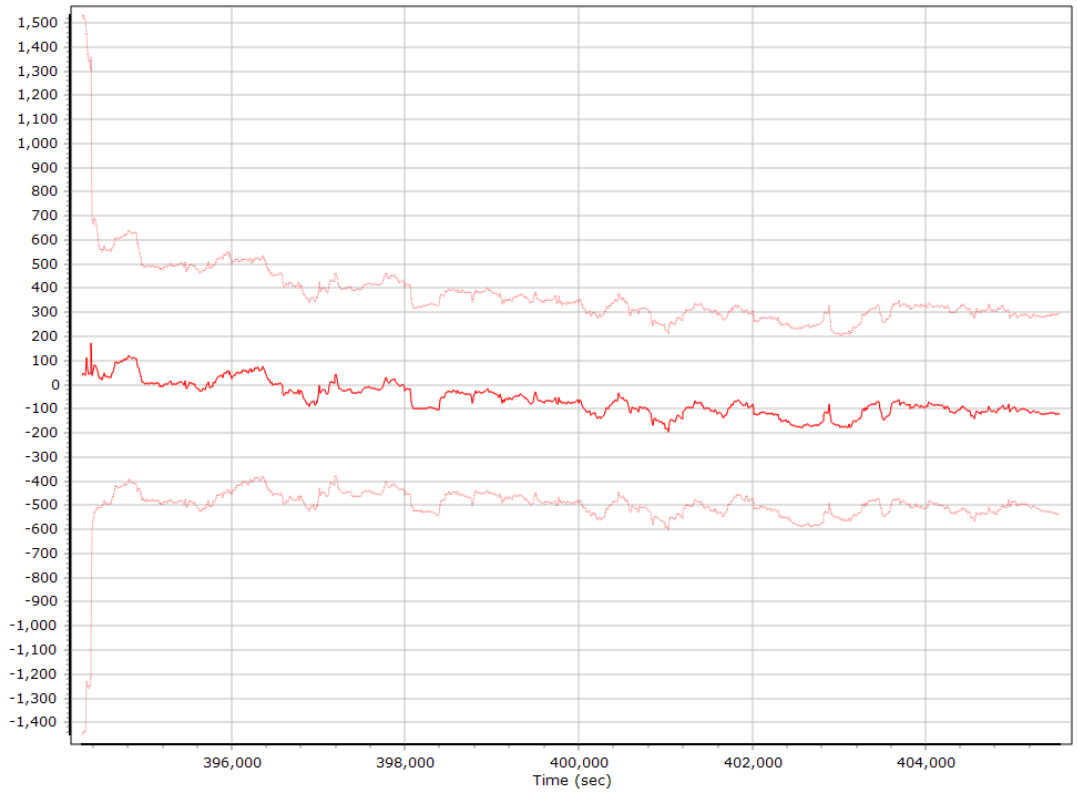
Z Accelerometer Bias (micro-g)



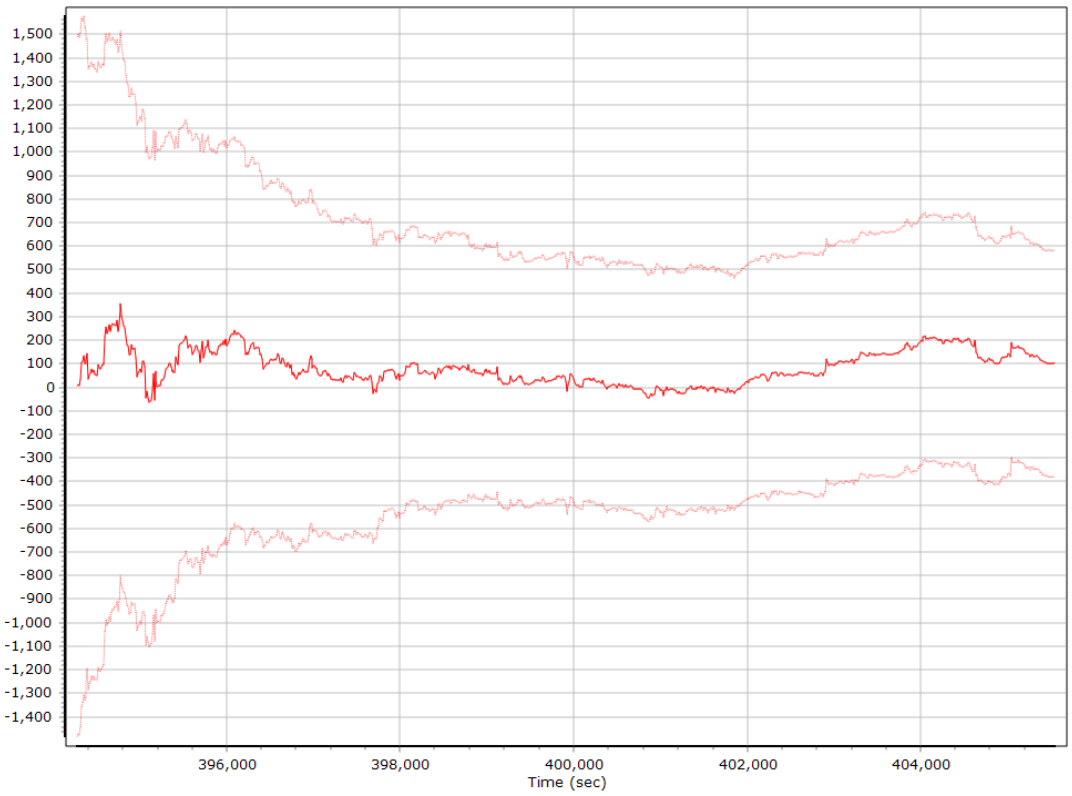
Accelerometer Scale Error (ppm)



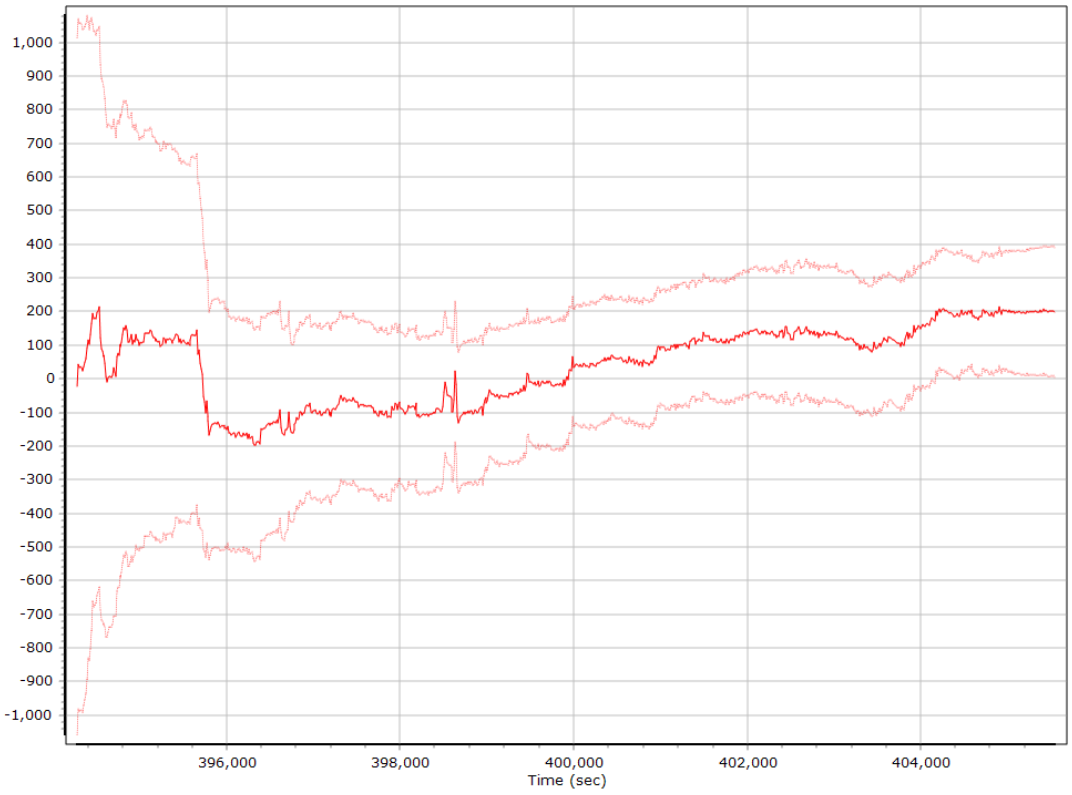
X Accelerometer Scale Error (ppm)



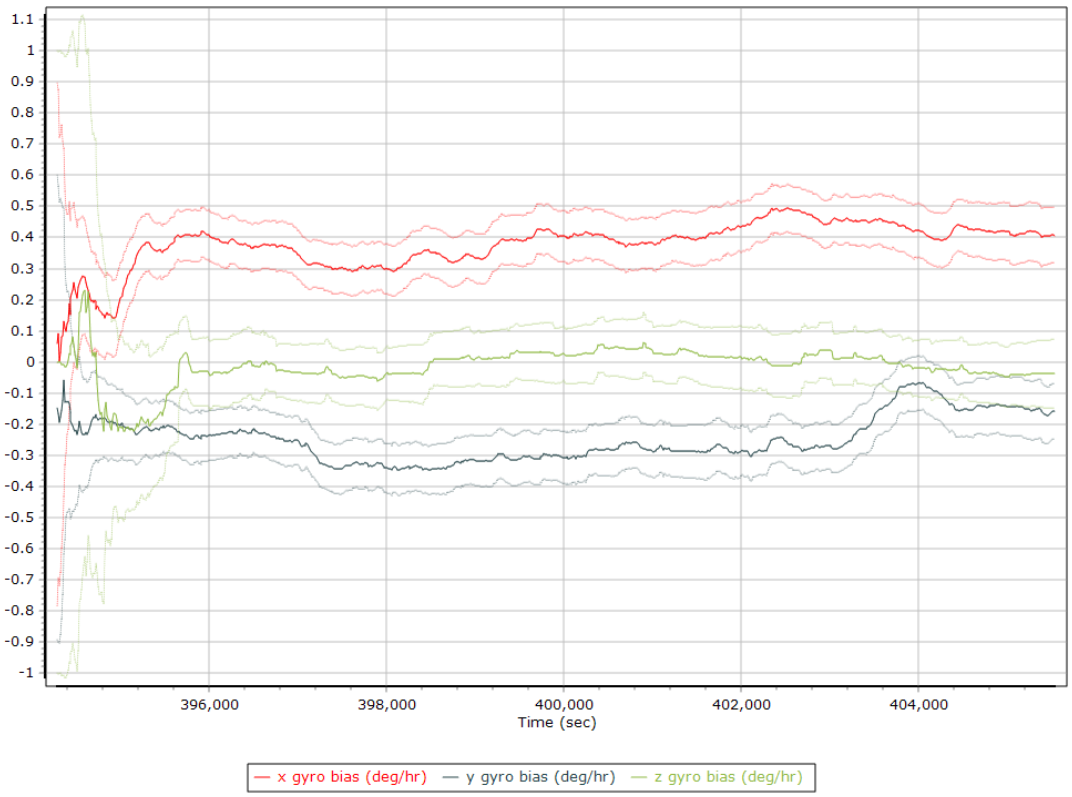
Y Accelerometer Scale Error (ppm)



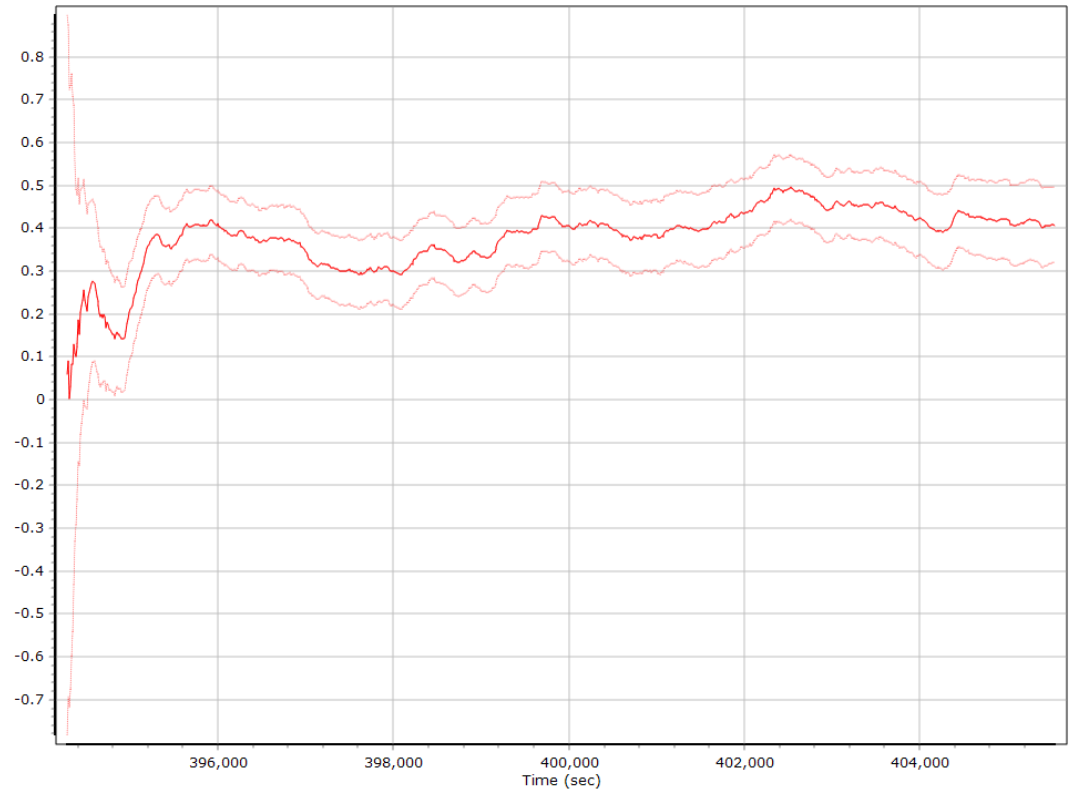
Z Accelerometer Scale Error (ppm)



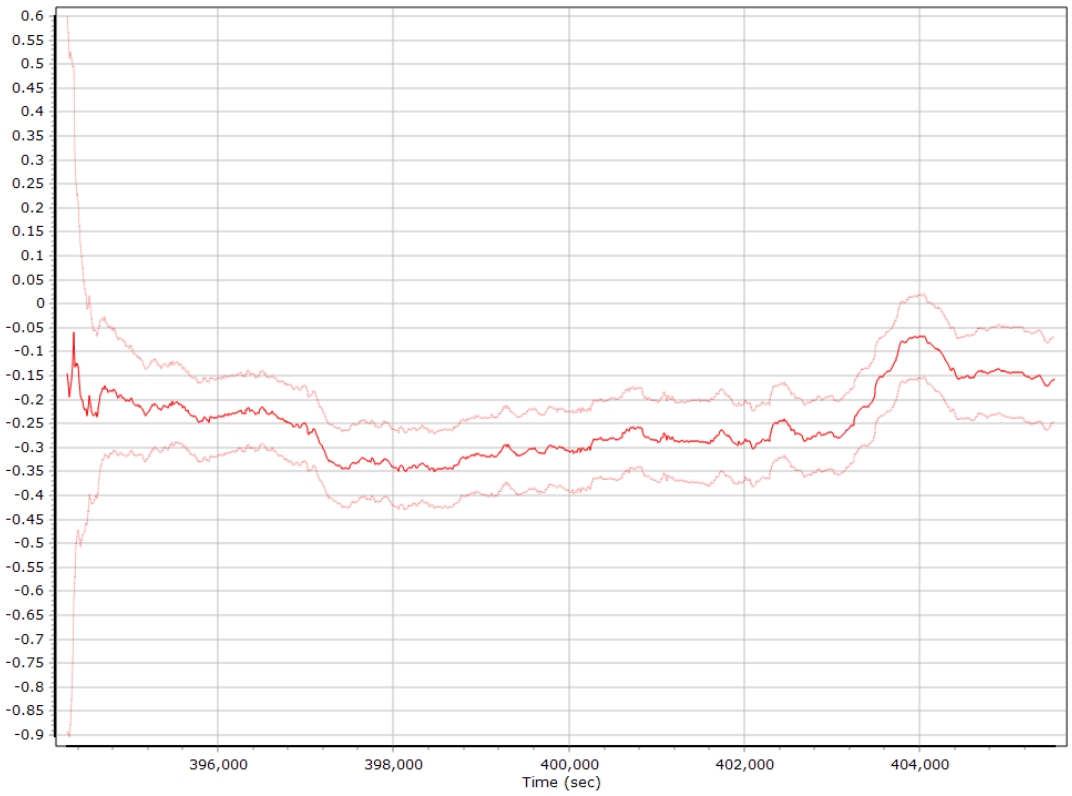
Gyro Bias (deg/h)



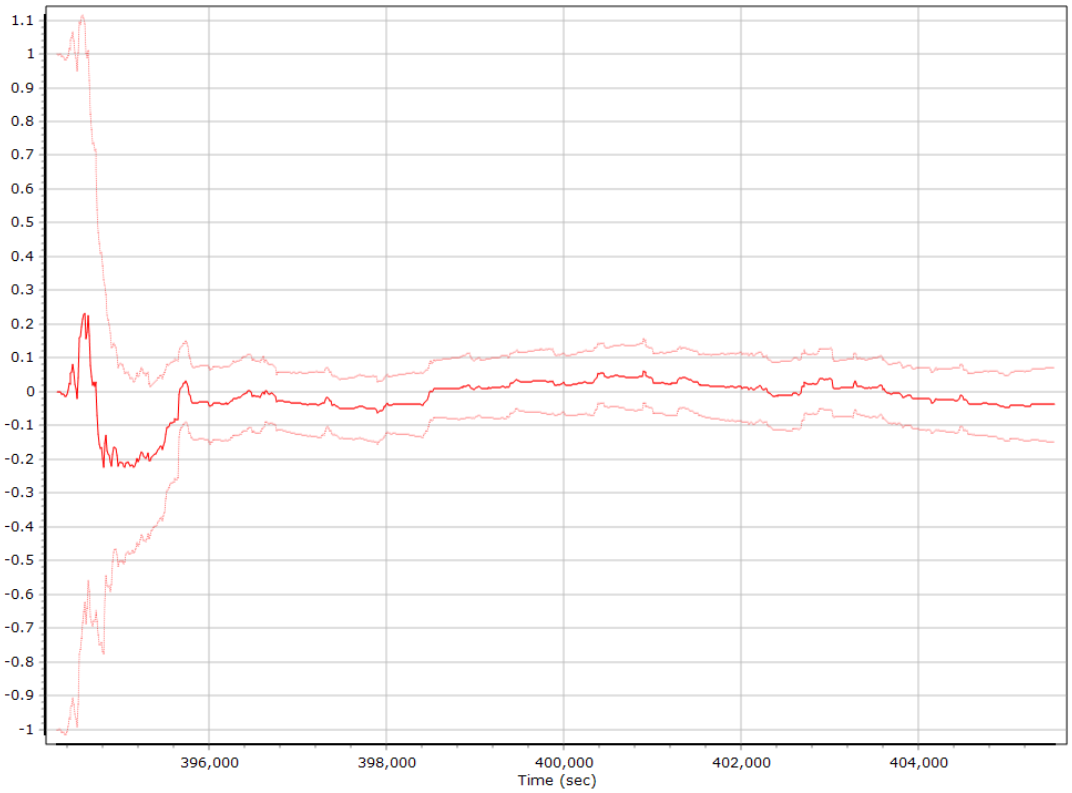
X Gyro Bias (deg/h)



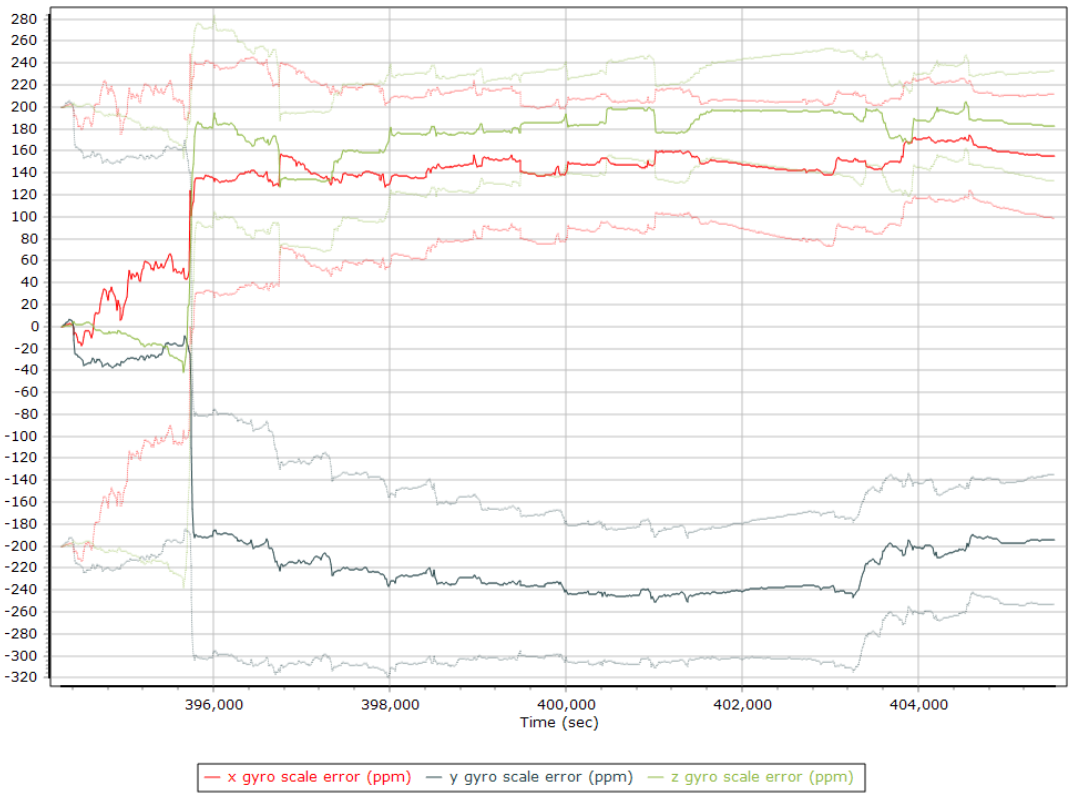
Y Gyro Bias (deg/h)



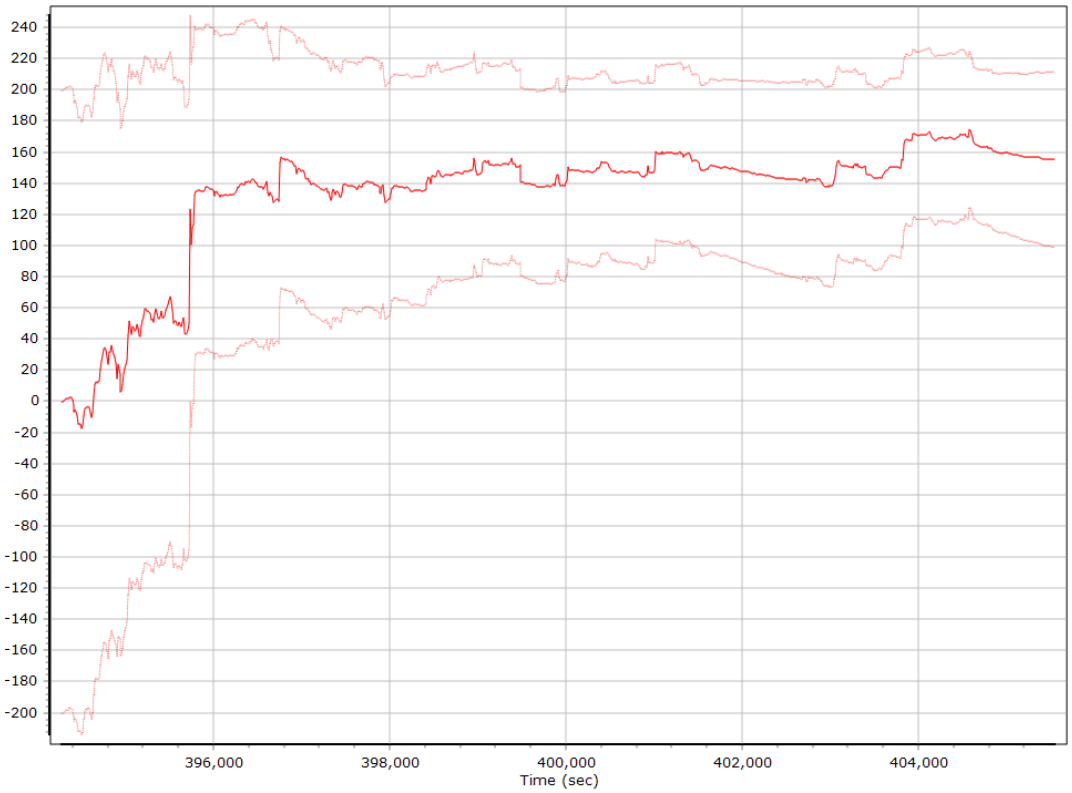
Z Gyro Bias (deg/h)



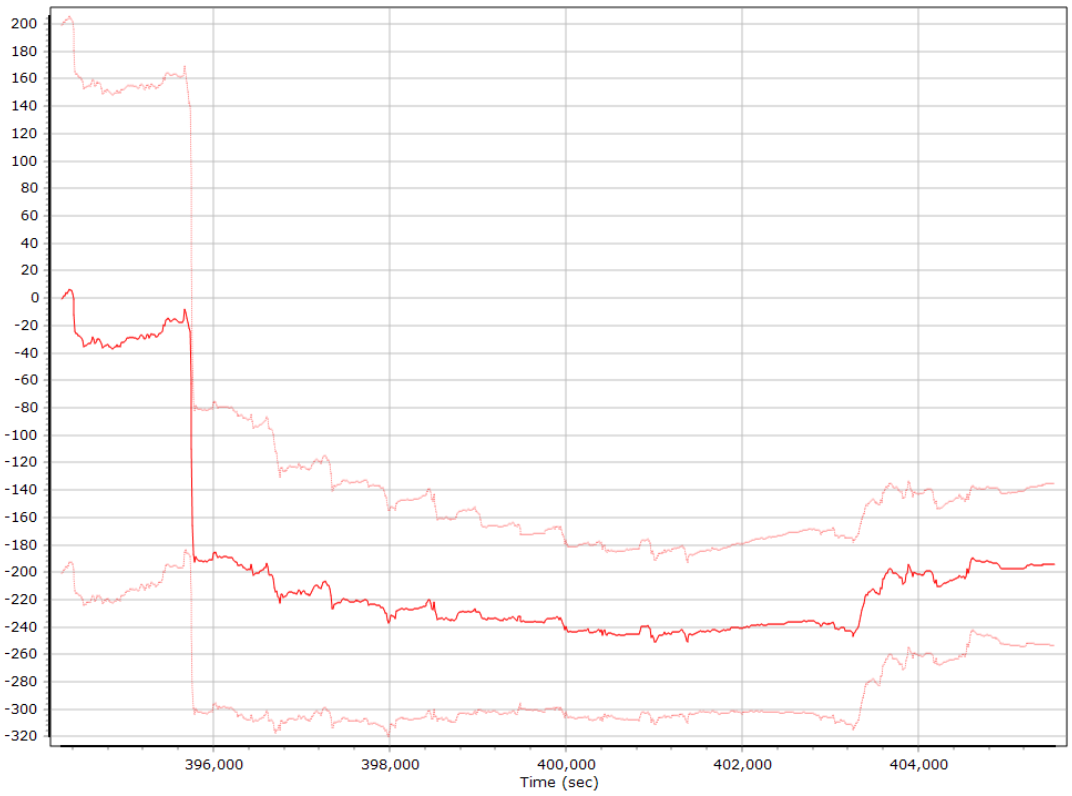
Gyro Scale Error (ppm)



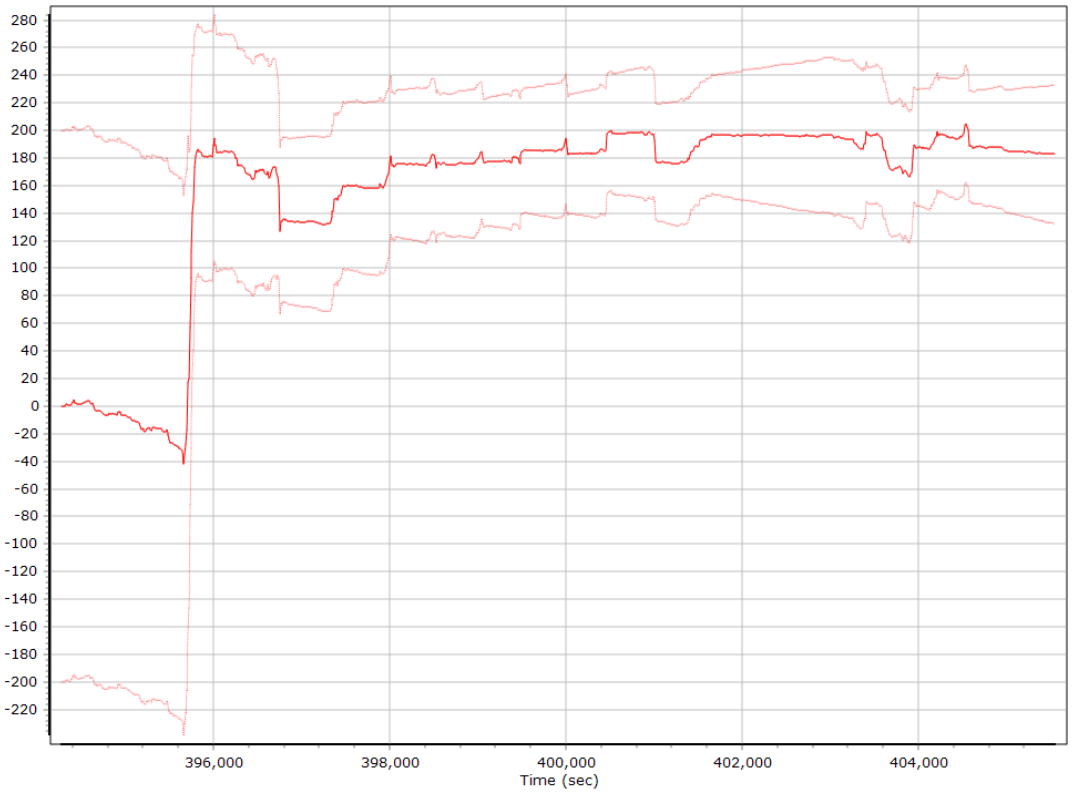
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

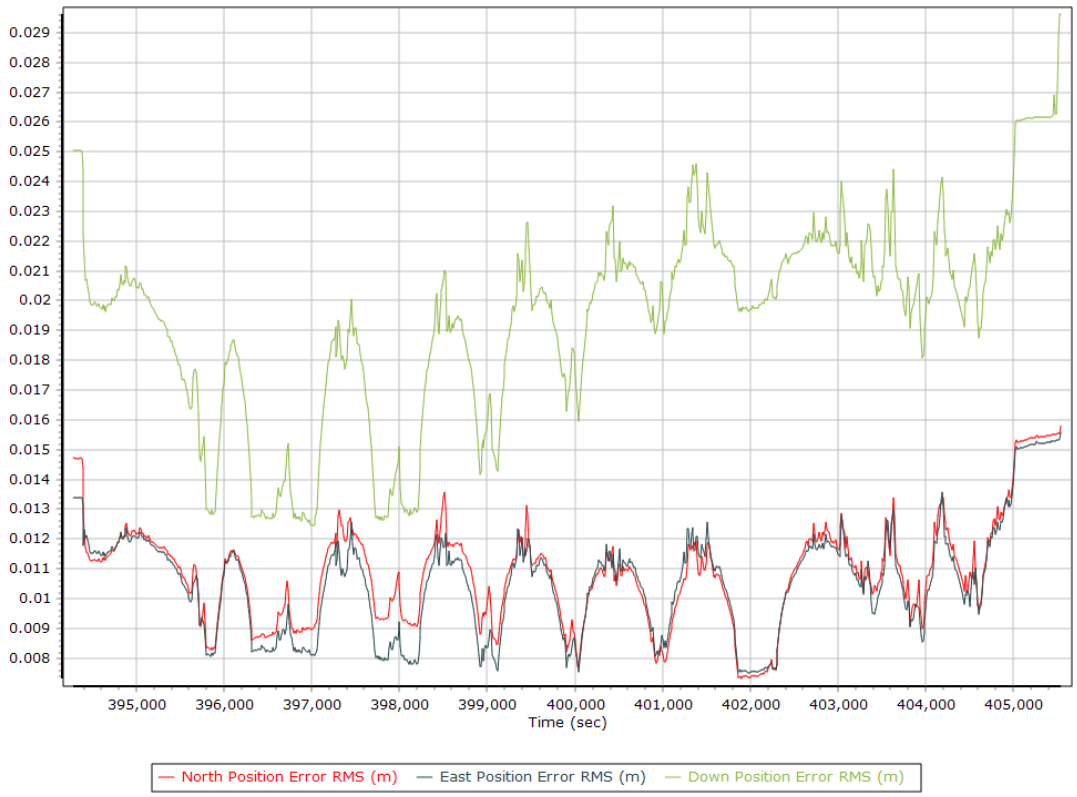


Z Gyro Scale Error (ppm)

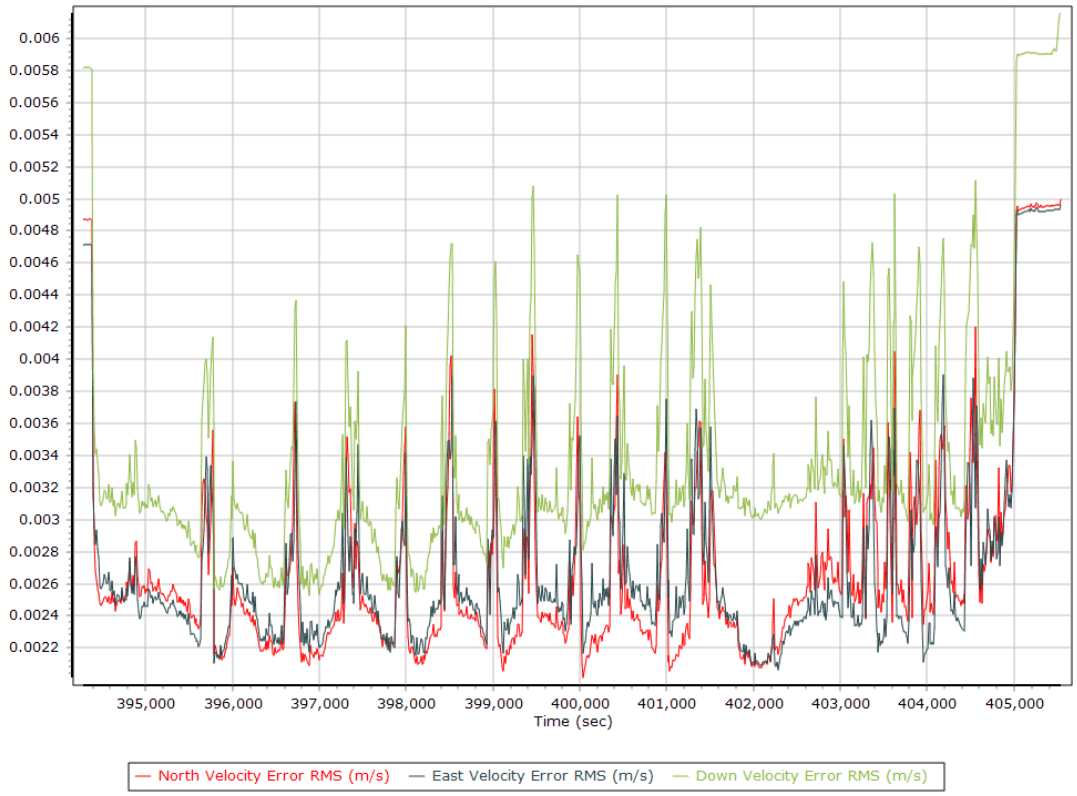


Smoothed Performance Metrics

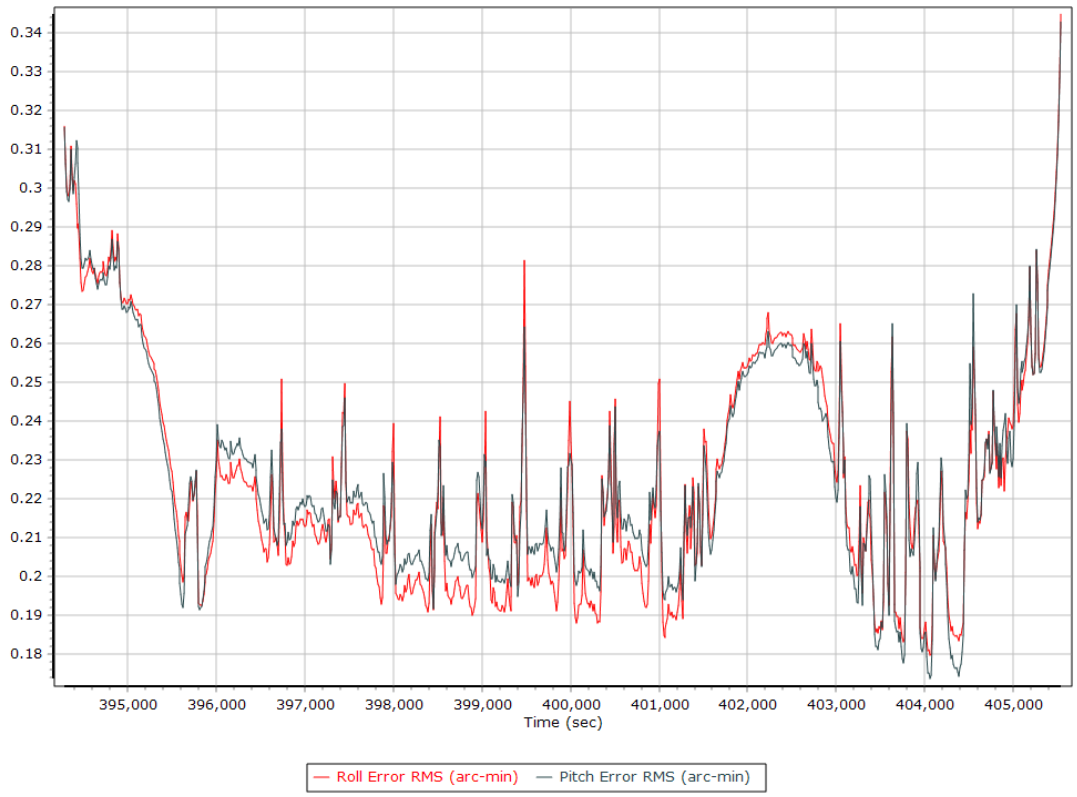
Position Error RMS (m)



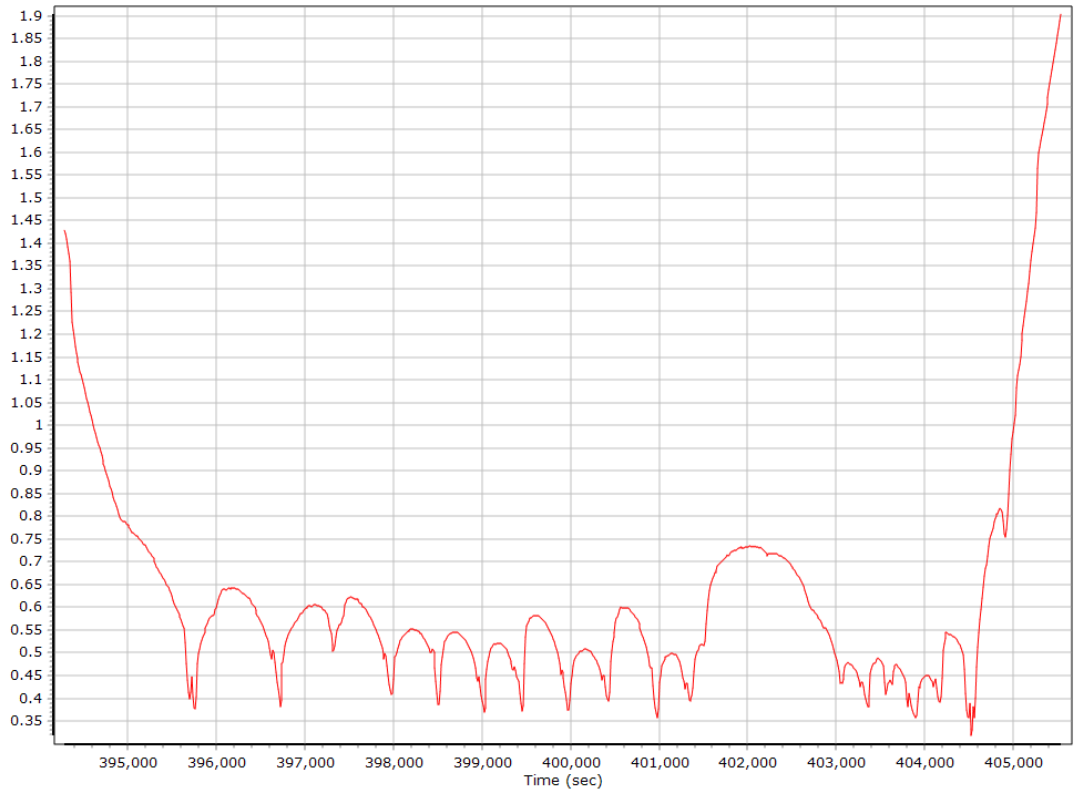
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

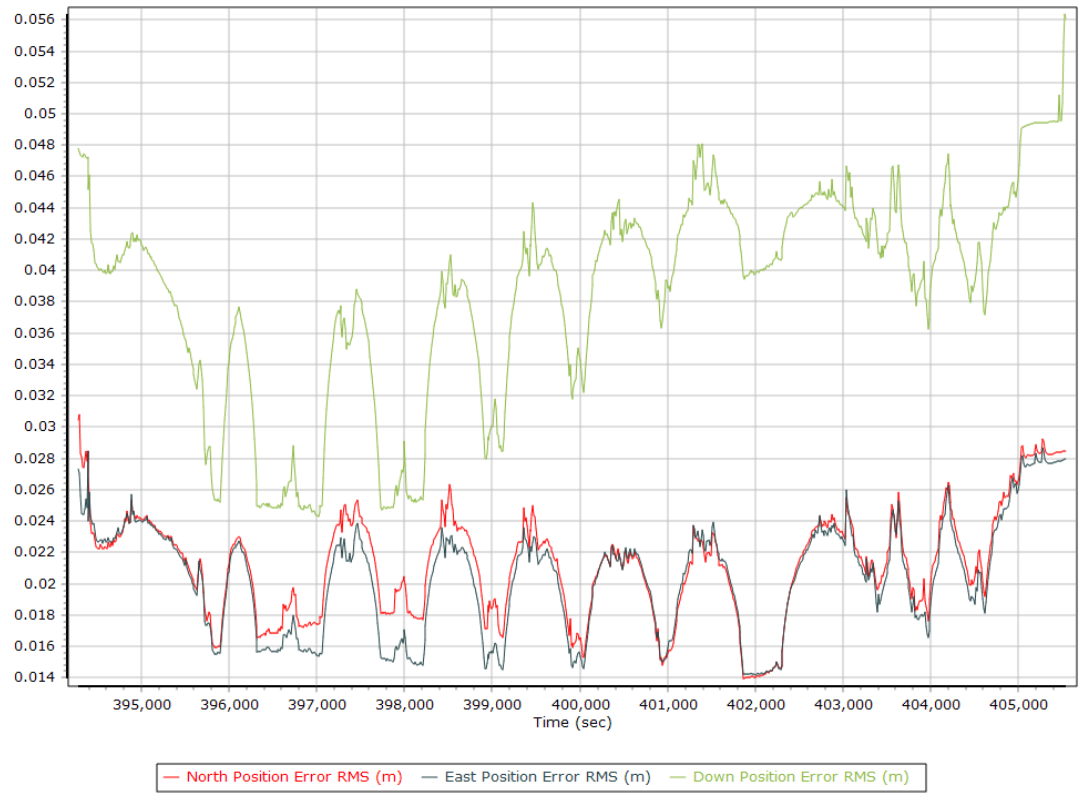


Heading Error RMS (arc-min)

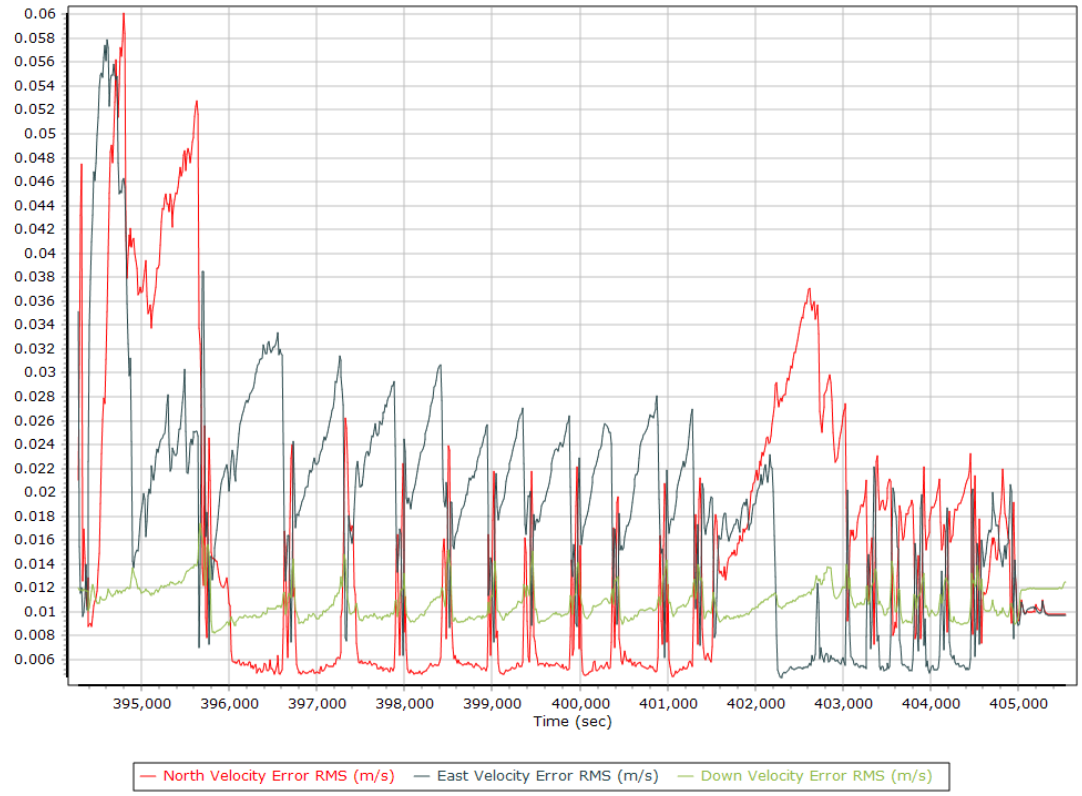


Forward Processed Performance Metrics

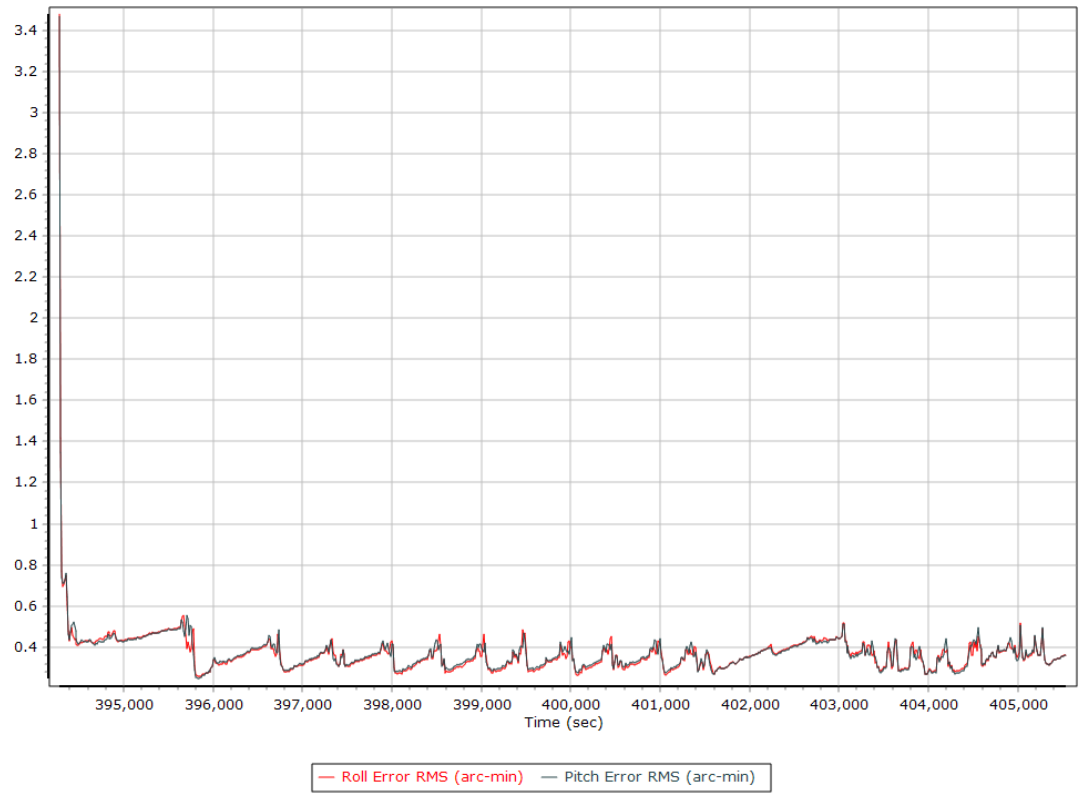
Position Error RMS (m)



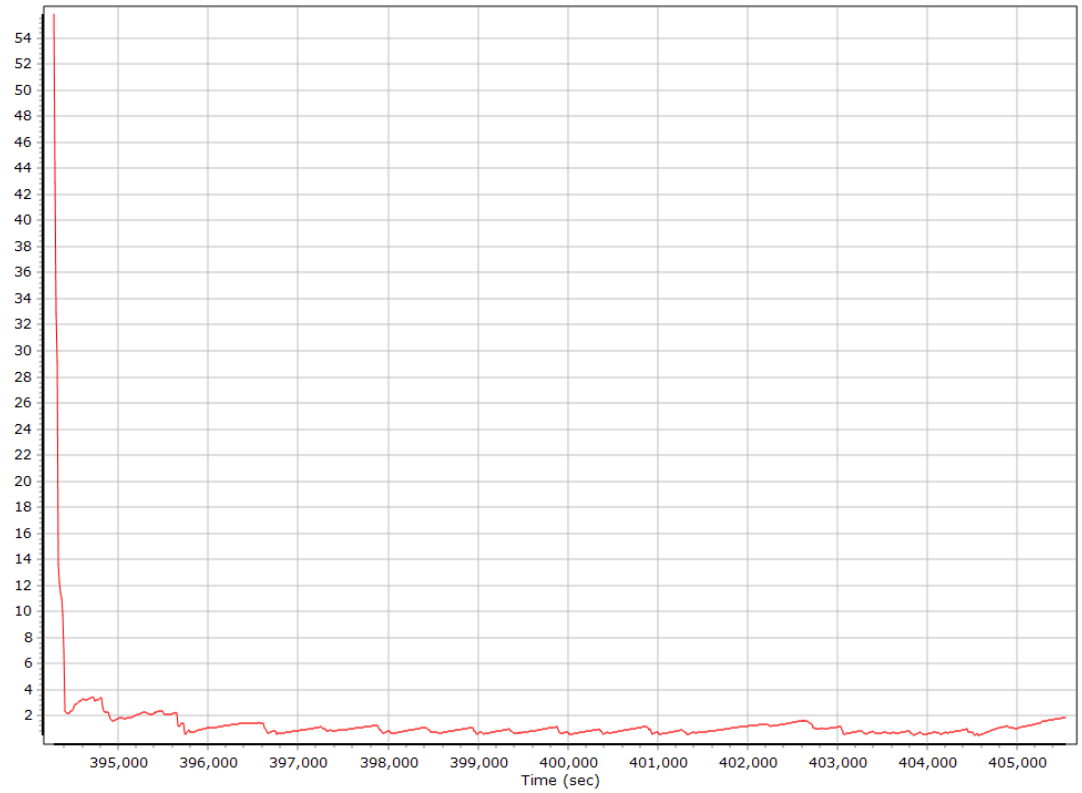
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

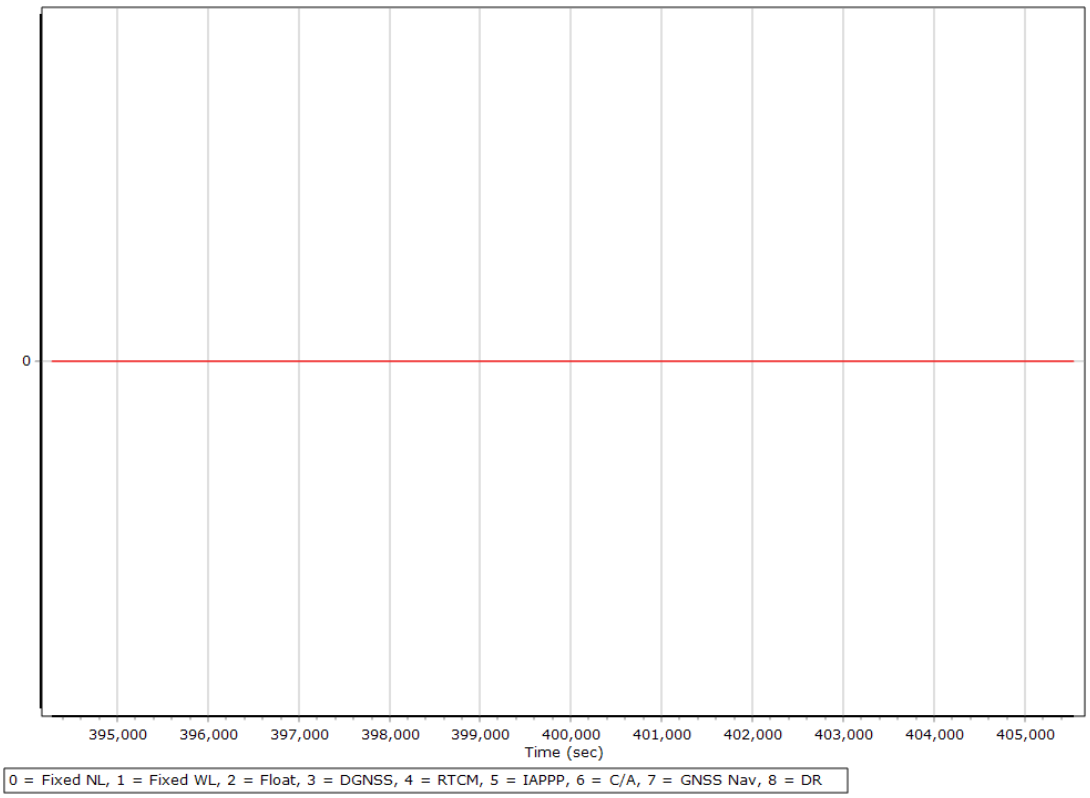


Heading Error RMS (arc-min)

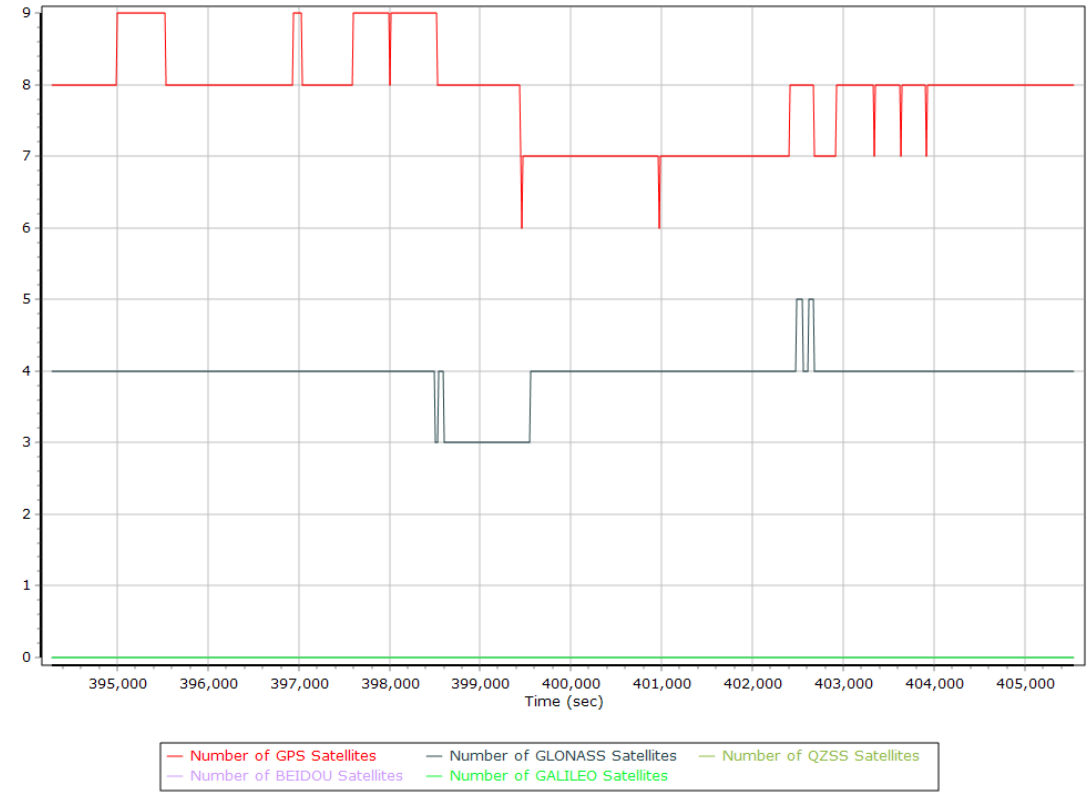


Smoothed Solution Status

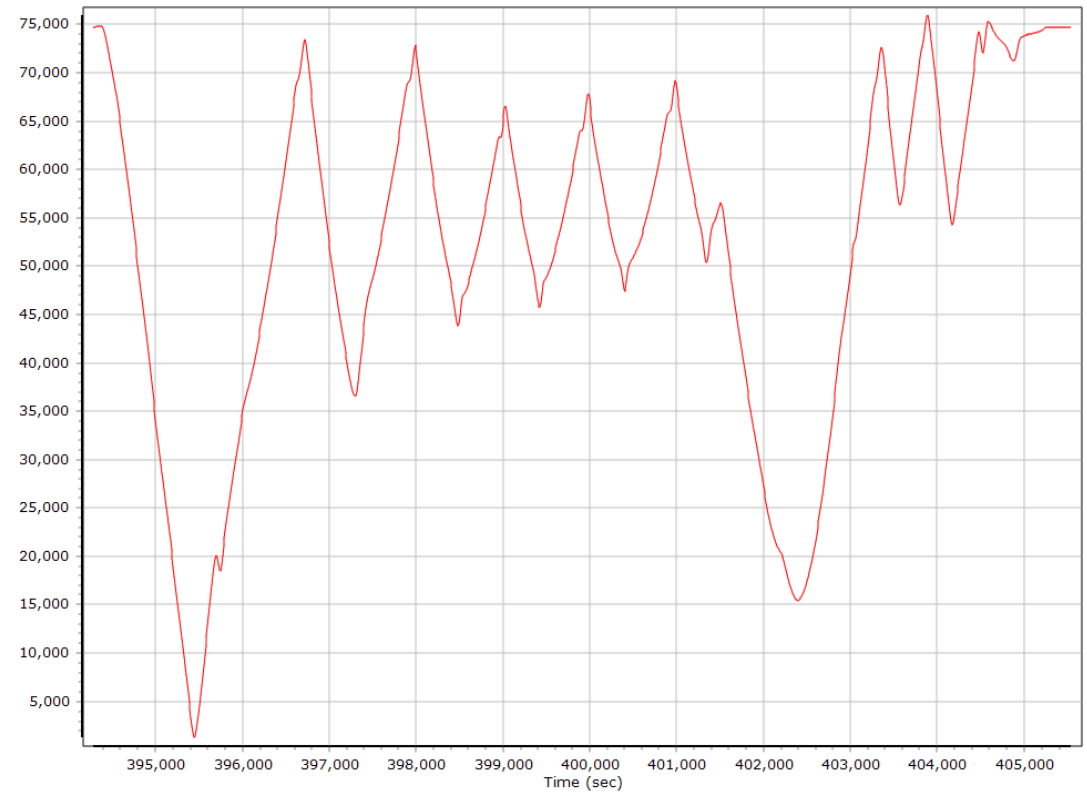
Processing Mode



Number of Satellites

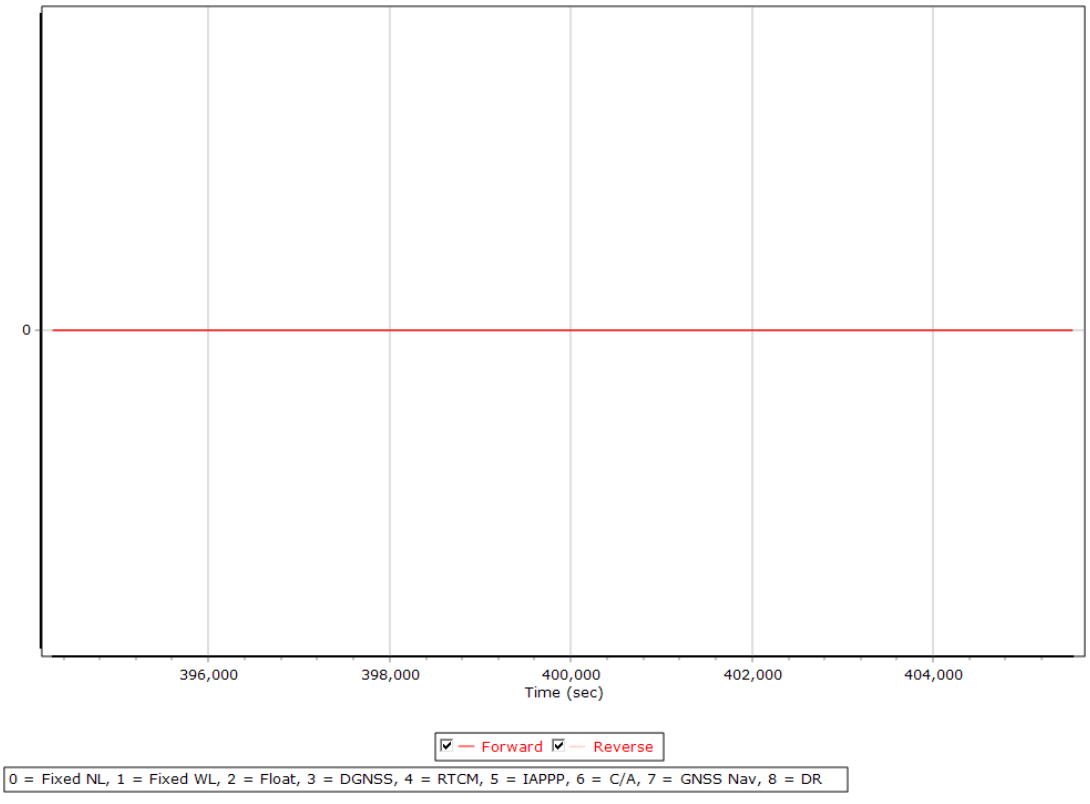


Baseline Length

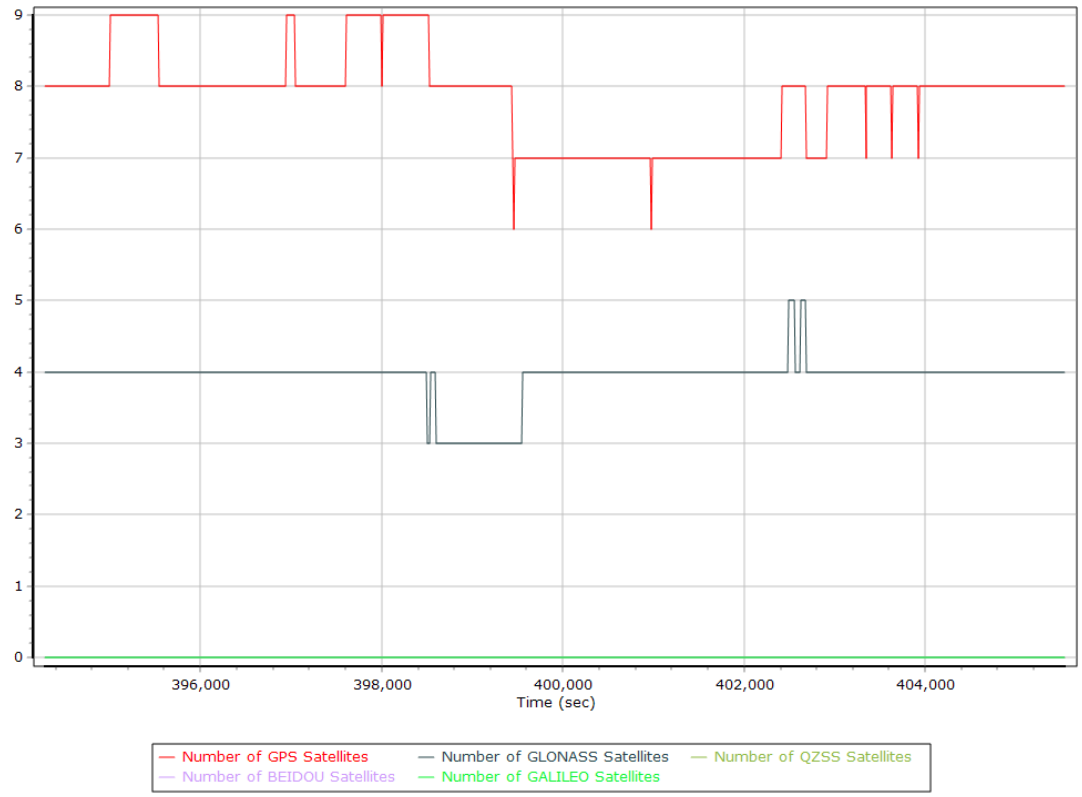


Forward Processed Solution Status

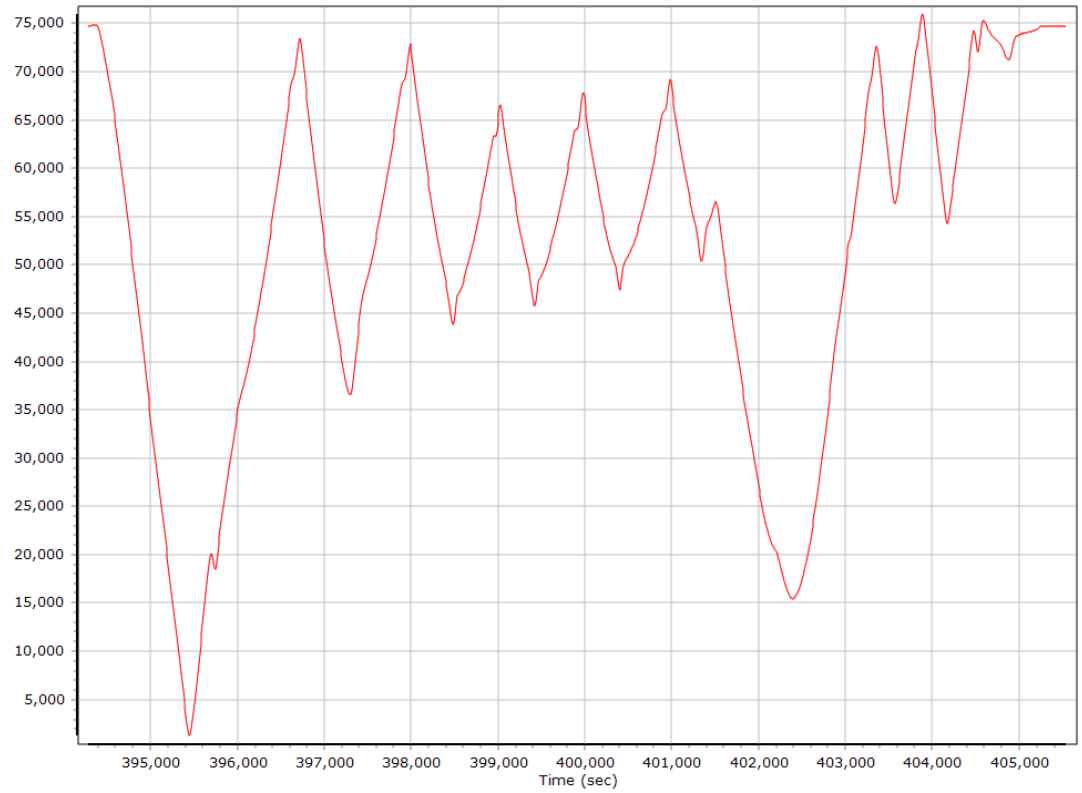
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

Export Summary

Export file	SBET_20200416A.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	394223.005 (4/16/2020 1:30:23 PM)		
Export end time	405548.004 (4/16/2020 4:39:08 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200416B
Processing date	2021-01-19 00:11:25
Mission date	2020-04-16 19:08:51
Mission duration	03:17:32.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.064	POS Data
ALS.065	POS Data
ALS.066	POS Data
ALS.067	POS Data
ALS.068	POS Data
ALS.069	POS Data
ALS.070	POS Data
ALS.071	POS Data
ALS.072	POS Data
ALS.073	POS Data
ALS.074	POS Data
ALS.075	POS Data
ALS.076	POS Data
ALS.077	POS Data
ALS.078	POS Data
ALS.079	POS Data
ALS.080	POS Data
ALS.081	POS Data
ALS.082	POS Data

Input Files

File Name	File Type
Ephm1070.20g	GLONASS Broadcast Ephemeris
Ephm1070.20n	GPS Broadcast Ephemeris
iaal1070.20o	GNSS SingleBase
iade1070.20o	GNSS SingleBase
iael1070.20o	GNSS SingleBase
iaht1070.20o	GNSS SingleBase
iamn1070.20o	GNSS SingleBase
iamq1070.20o	GNSS SingleBase
iana1070.20o	GNSS SingleBase
iata1070.20o	GNSS SingleBase
jfws1070.20o	GPS SingleBase
mnca1070.20o	GNSS SingleBase
mney1070.20o	GNSS SingleBase
mnps1070.20o	GNSS SingleBase
mnsv1070.20o	GNSS SingleBase
mnwn1070.20o	GNSS SingleBase
nlib1070.20o	GNSS SingleBase
wlnc1070.20o	GNSS SingleBase
igu21013_18.sp3	GPS Precise Ephemeris
igu21014_18.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200416B.out	SBET Trajectory File
SBET_20200416B.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.064		
Last raw data file	ALS.082		
Start GPS week	2101		
Start time	414524.709 (4/16/2020 7:08:44 PM)		
End time	426365.389 (4/16/2020 10:26:05 PM)		
Start of fine alignment	415396.659 (4/16/2020 7:23:16 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

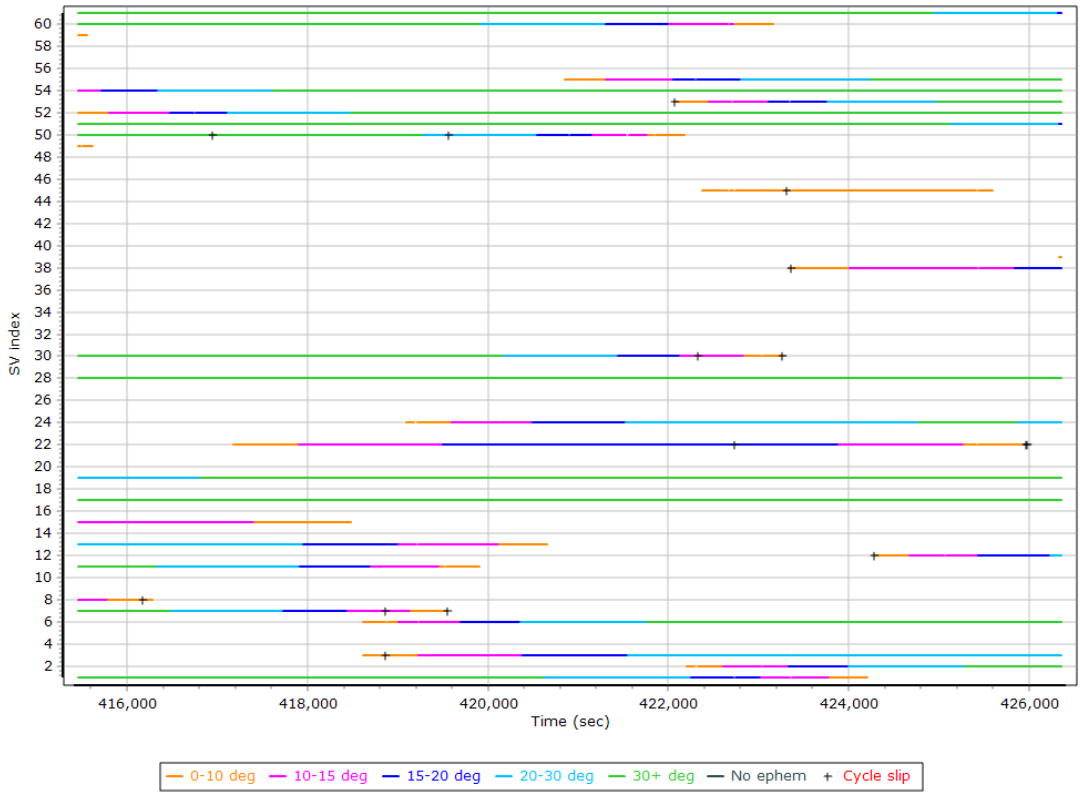
Rover Data QC

Raw IMU Import QC Summary

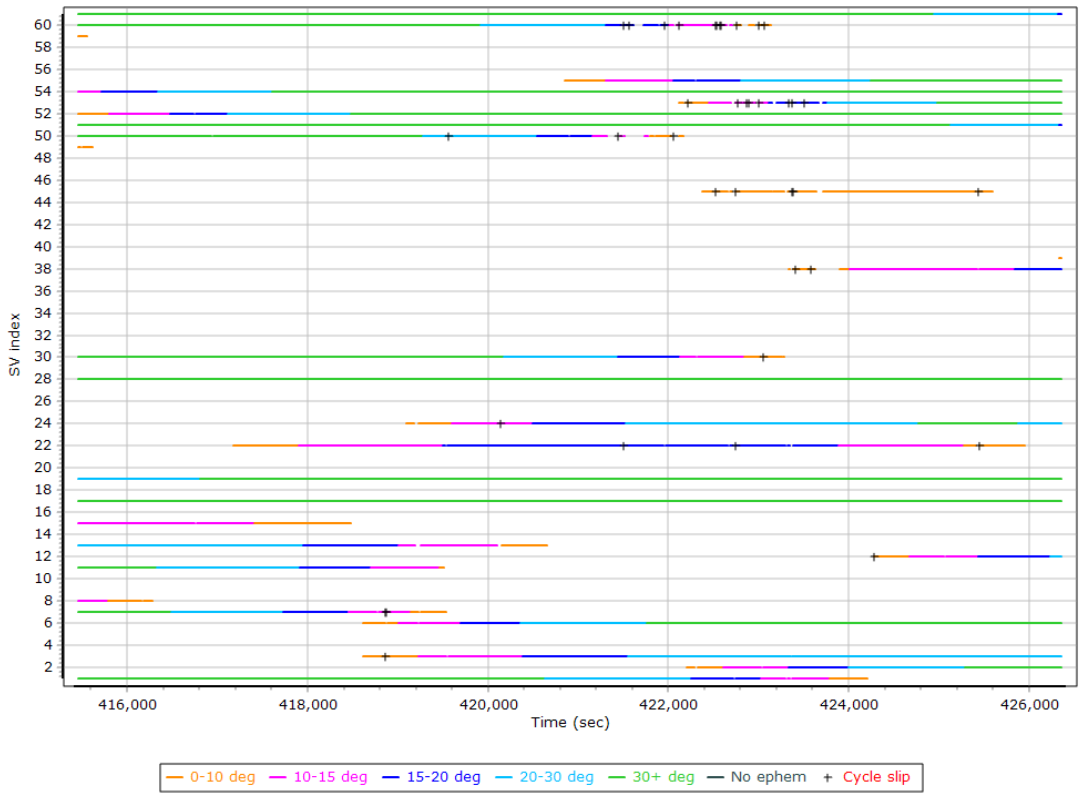
IMU data input file	imu_20200416B.dat
IMU data check log file	imudt_20200416B.log
IMU Records Processed	2373120
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
414524.310 : WARNING : Gap of 414502.3228 seconds in CHECKDT input data	

Primary Observables & Satellite Data

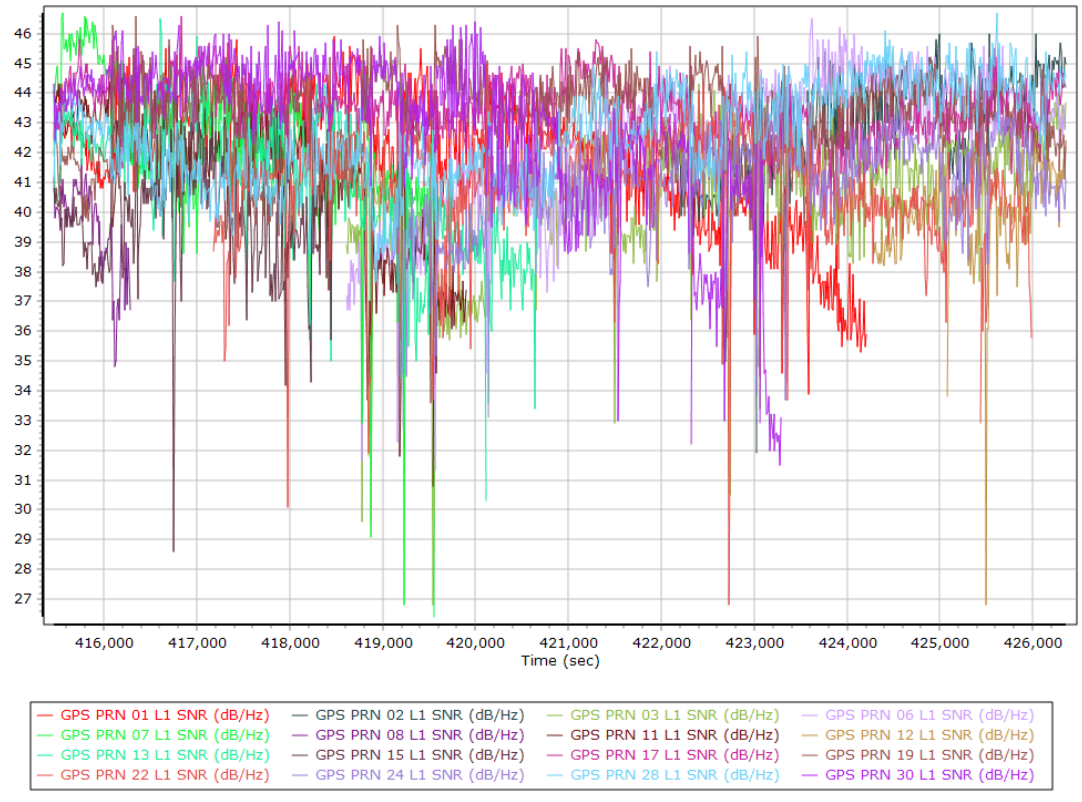
L1 Satellite Lock/Elevation



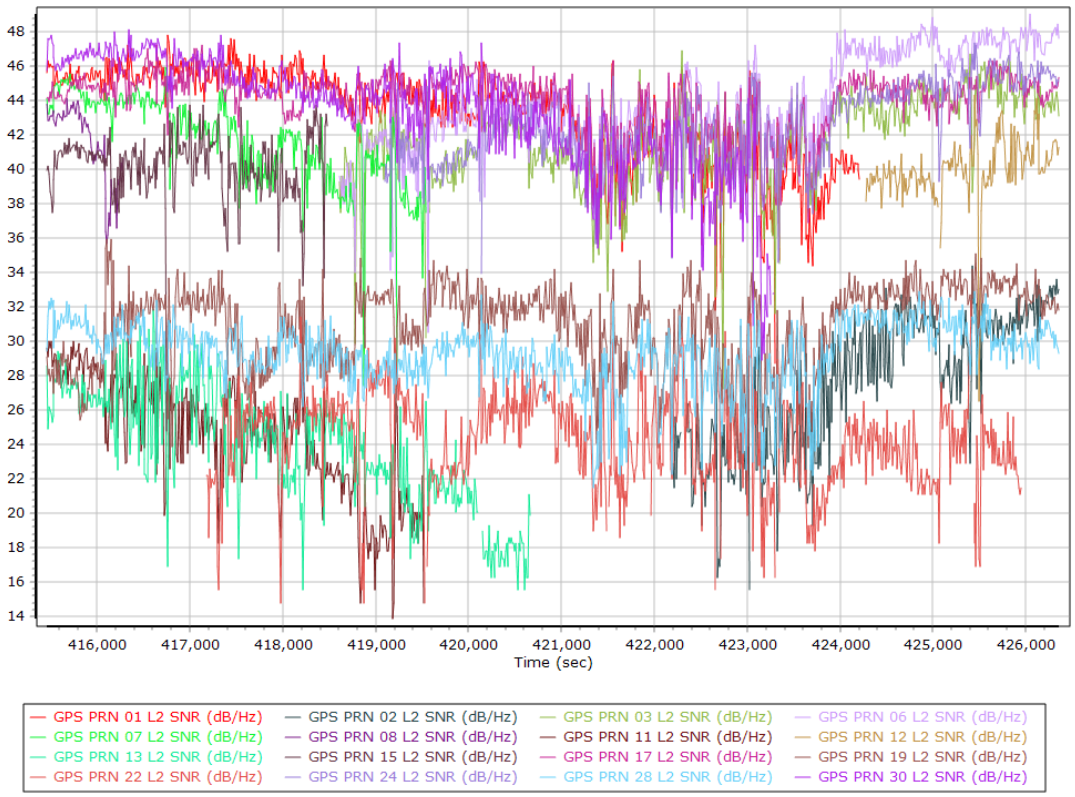
L2 Satellite Lock/Elevation



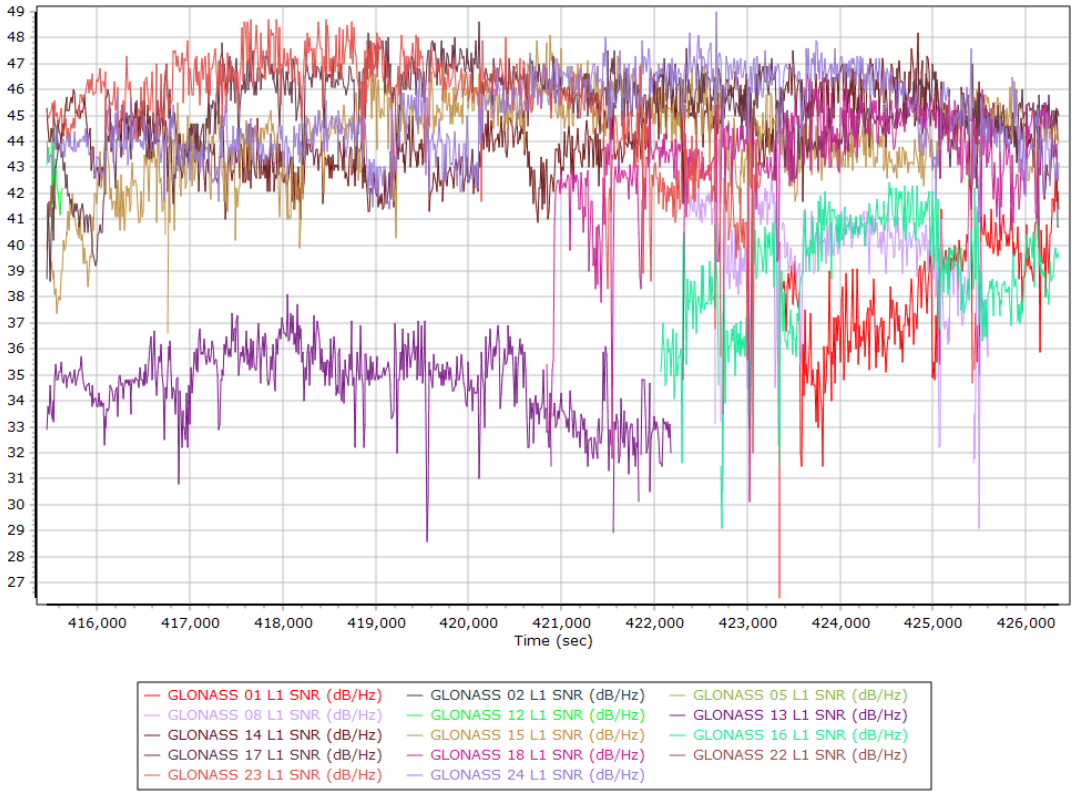
GPS L1 SNR



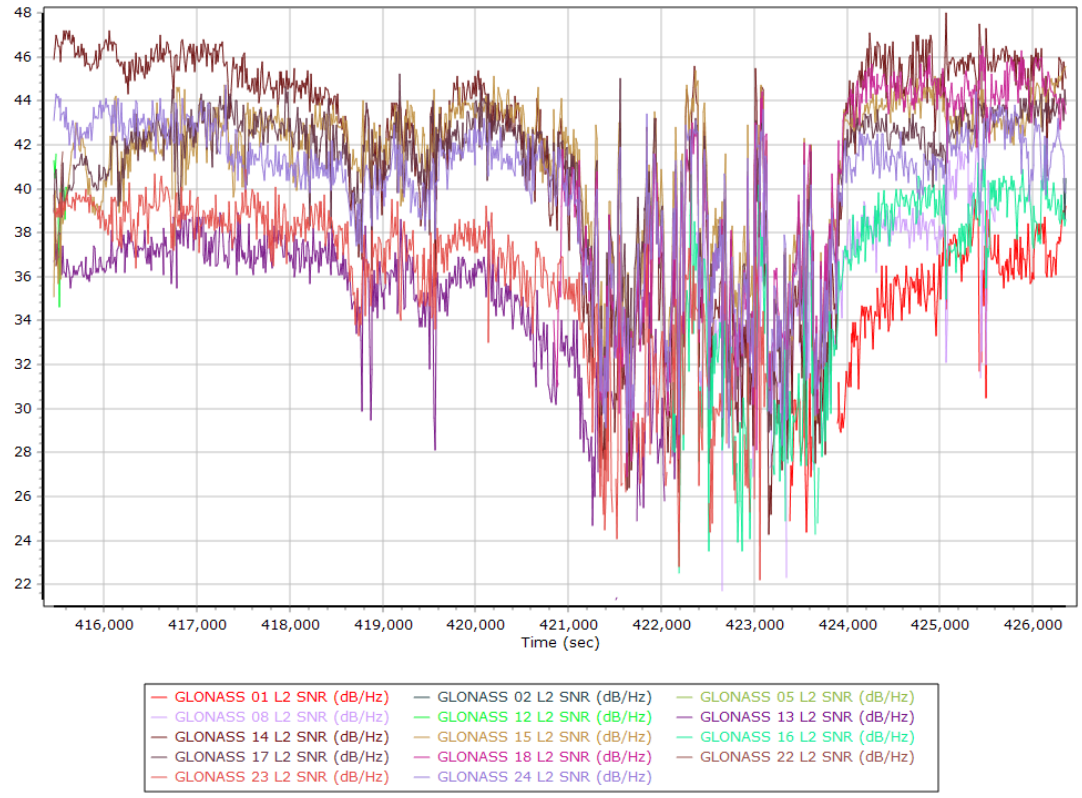
GPS L2 SNR



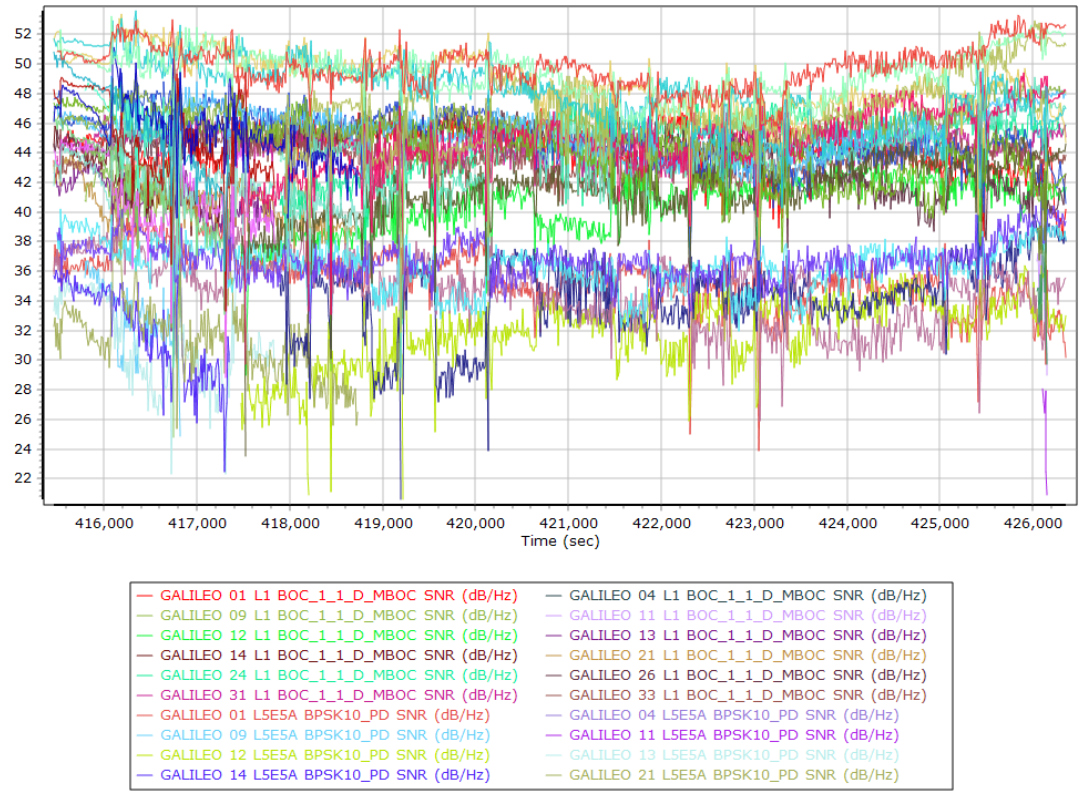
GLONASS L1 SNR



GLONASS L2 SNR

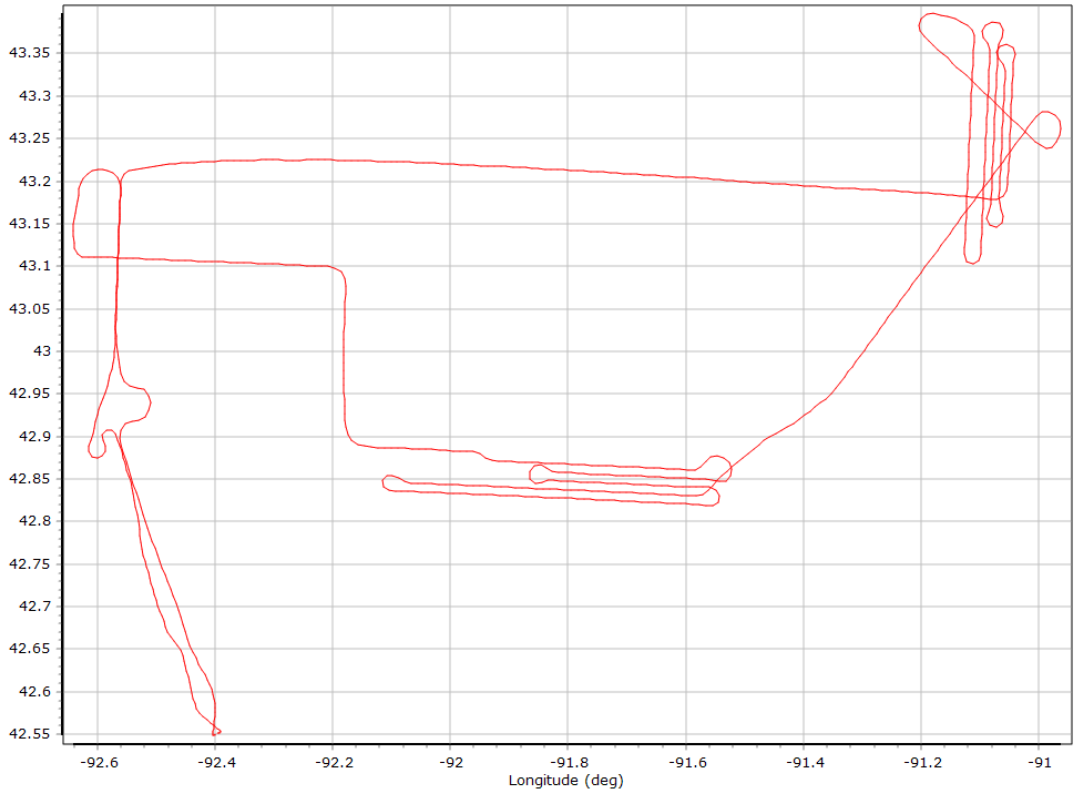


GALILEO SNR

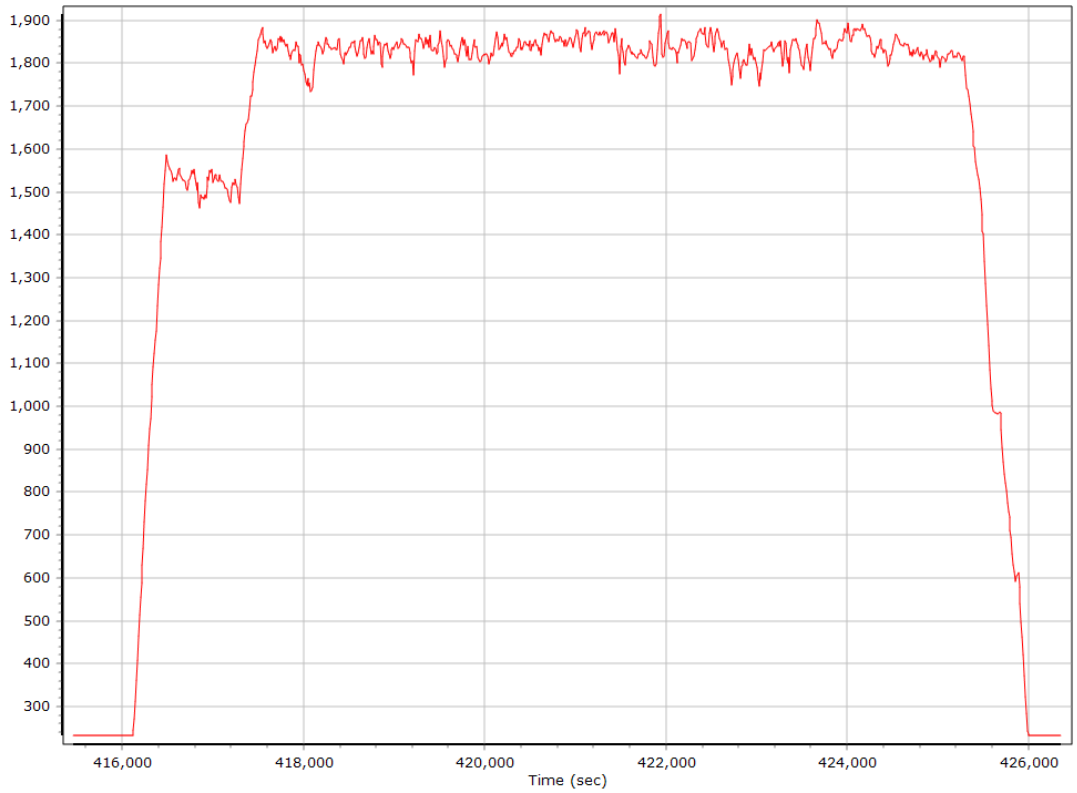


Smoothed Trajectory Information

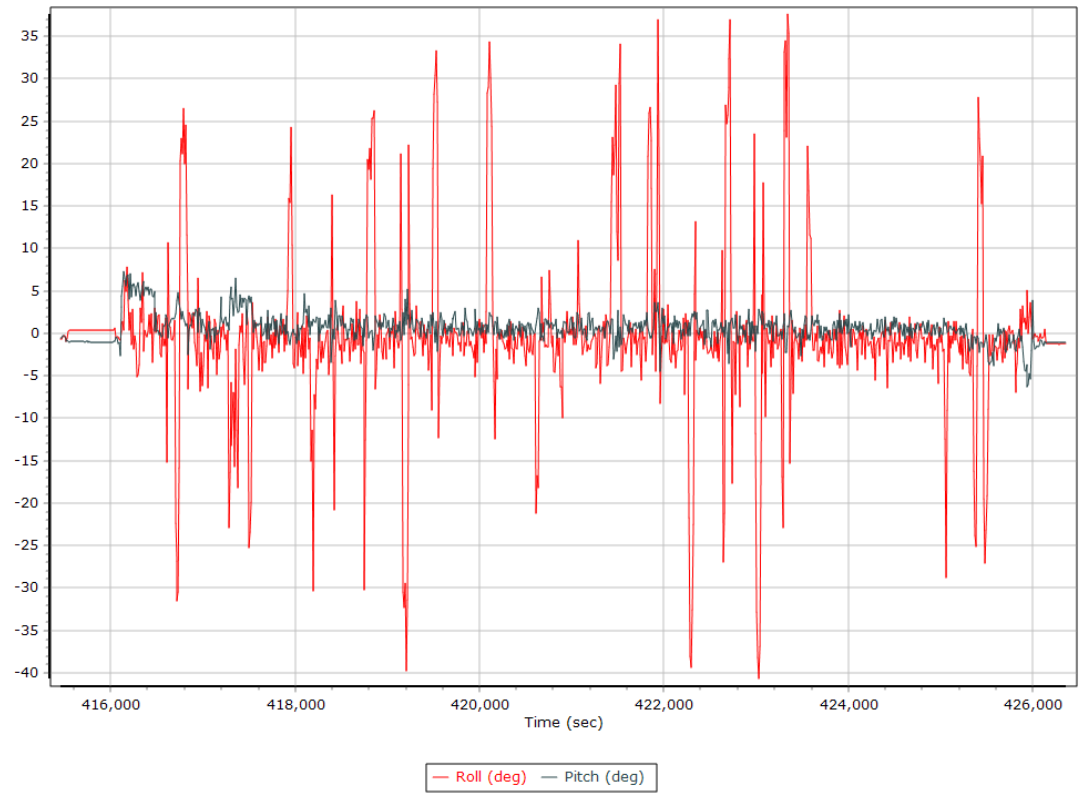
Top View



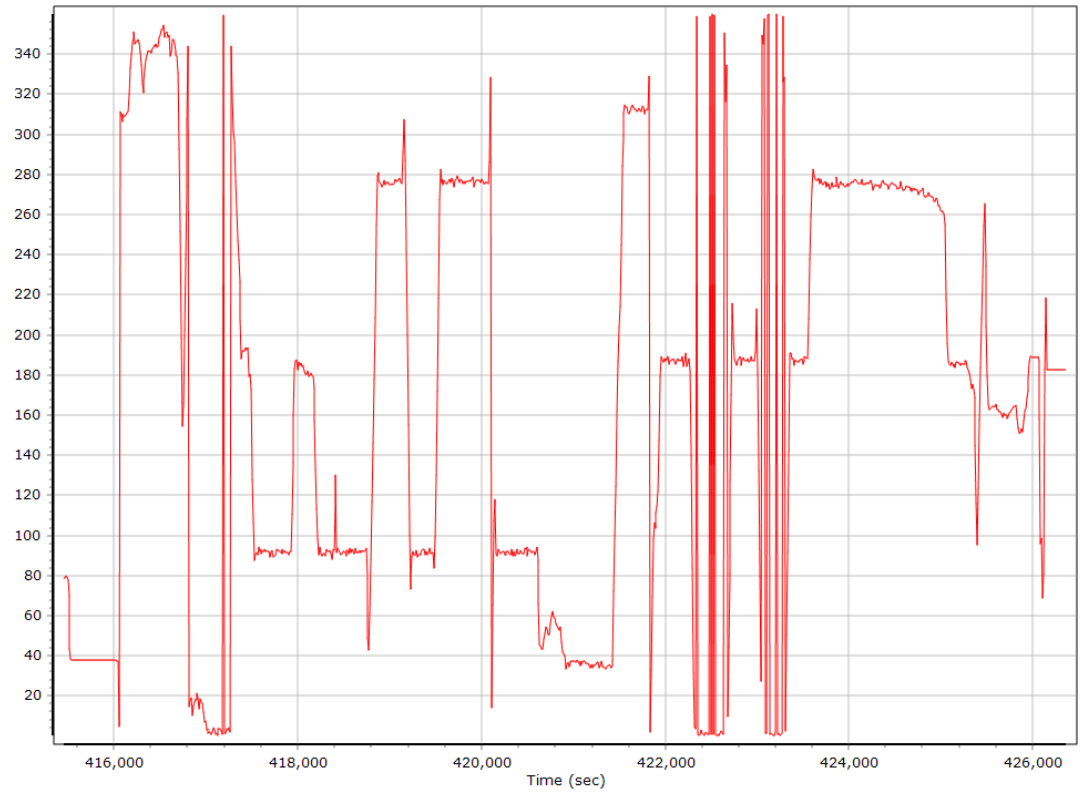
Altitude



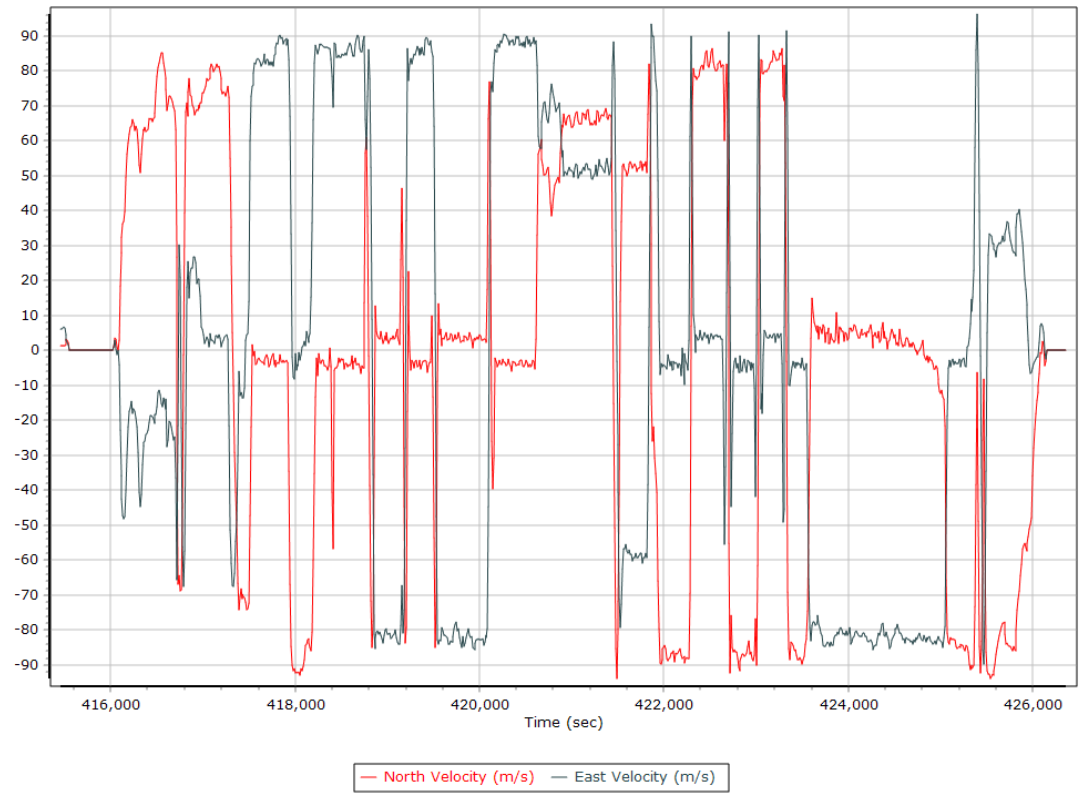
Roll/Pitch



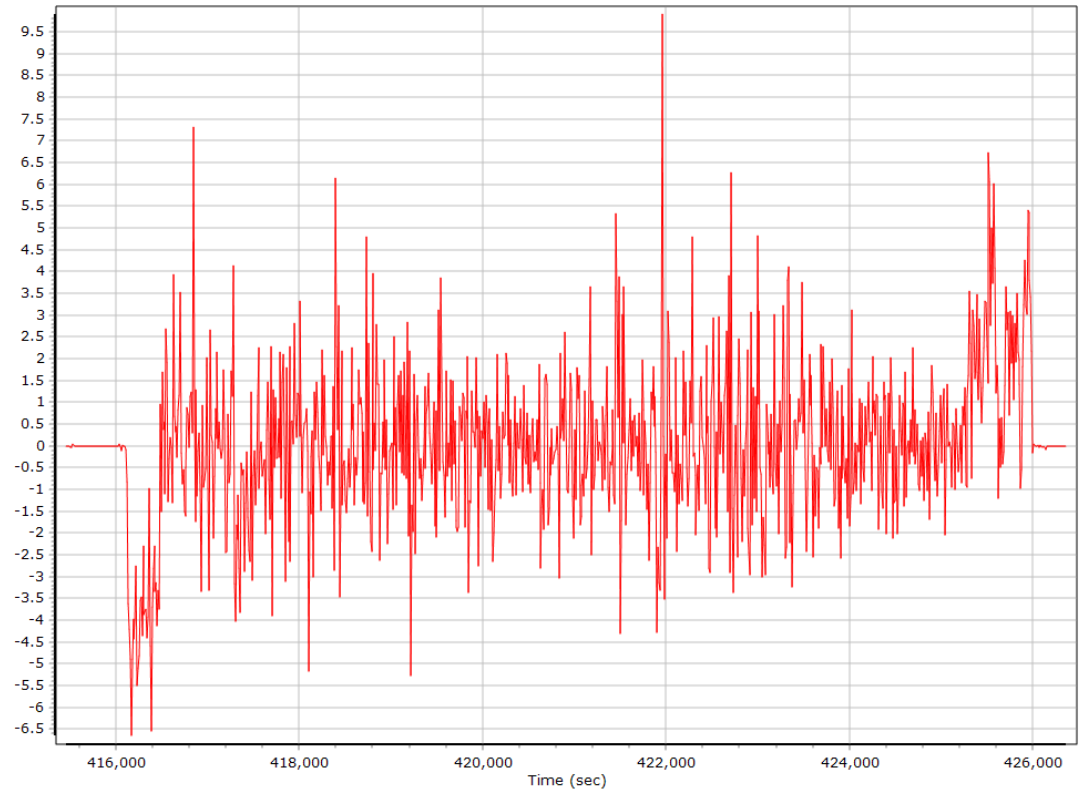
Heading



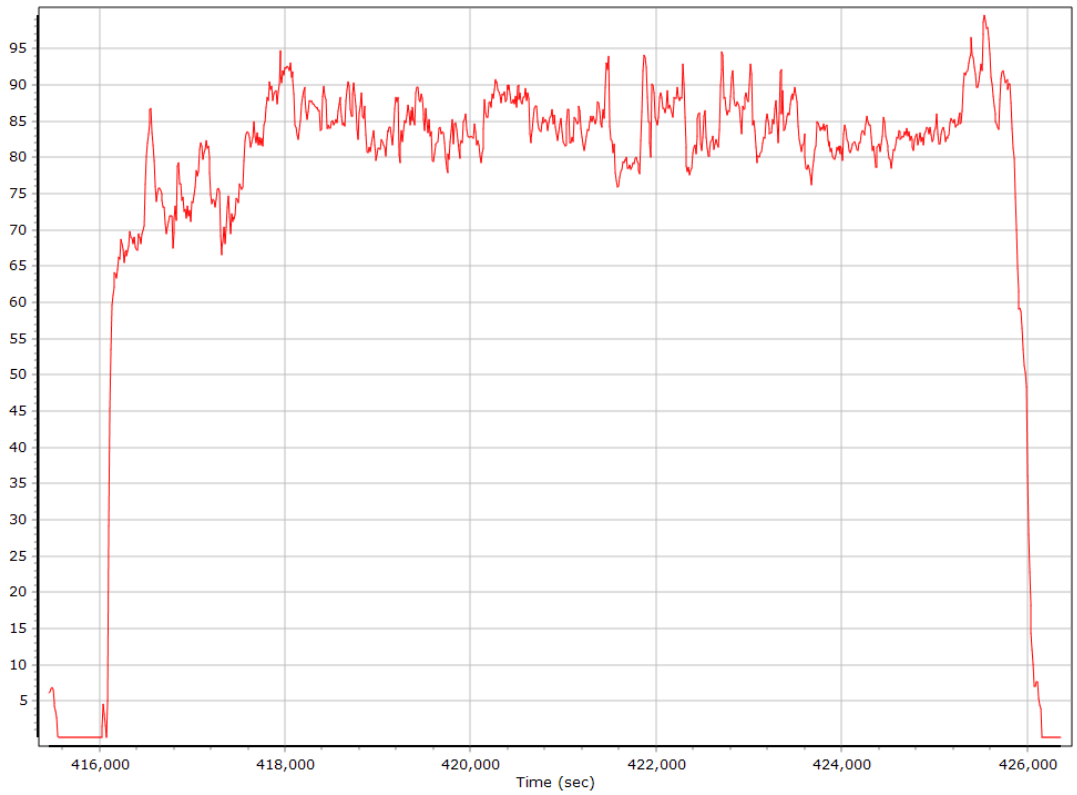
North/East Velocity



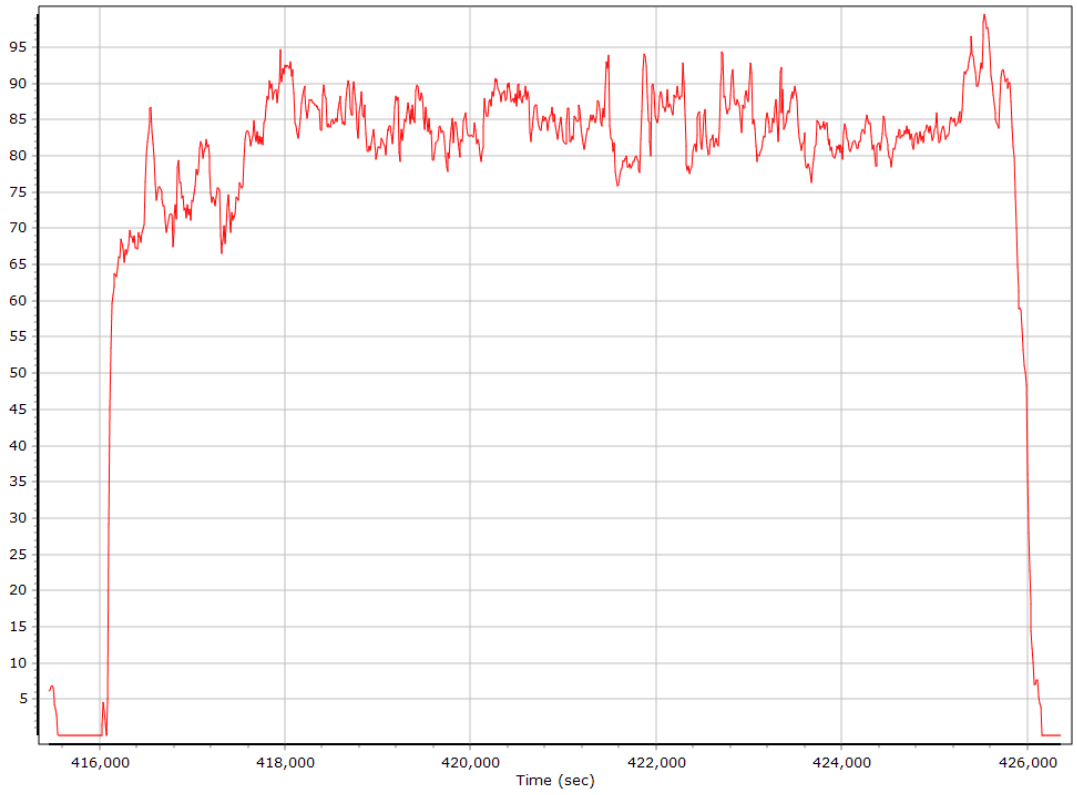
Down Velocity



Total Speed

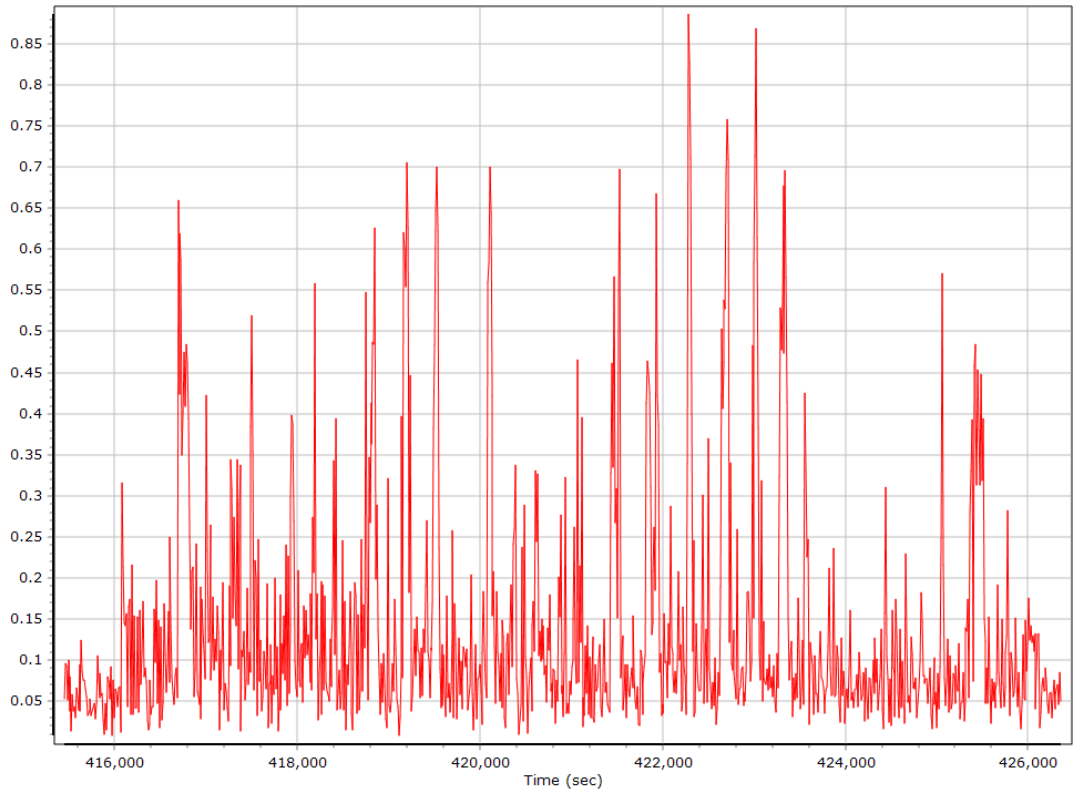


Ground Speed

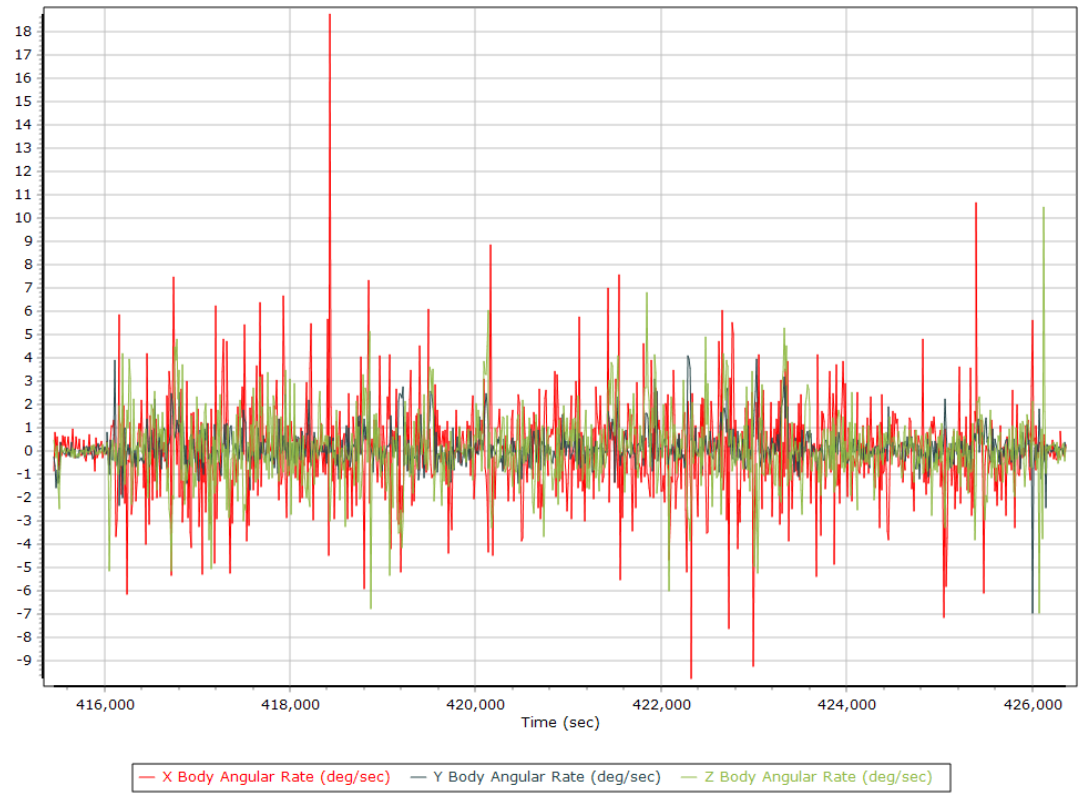


Body Acceleration

Total Body Acceleration

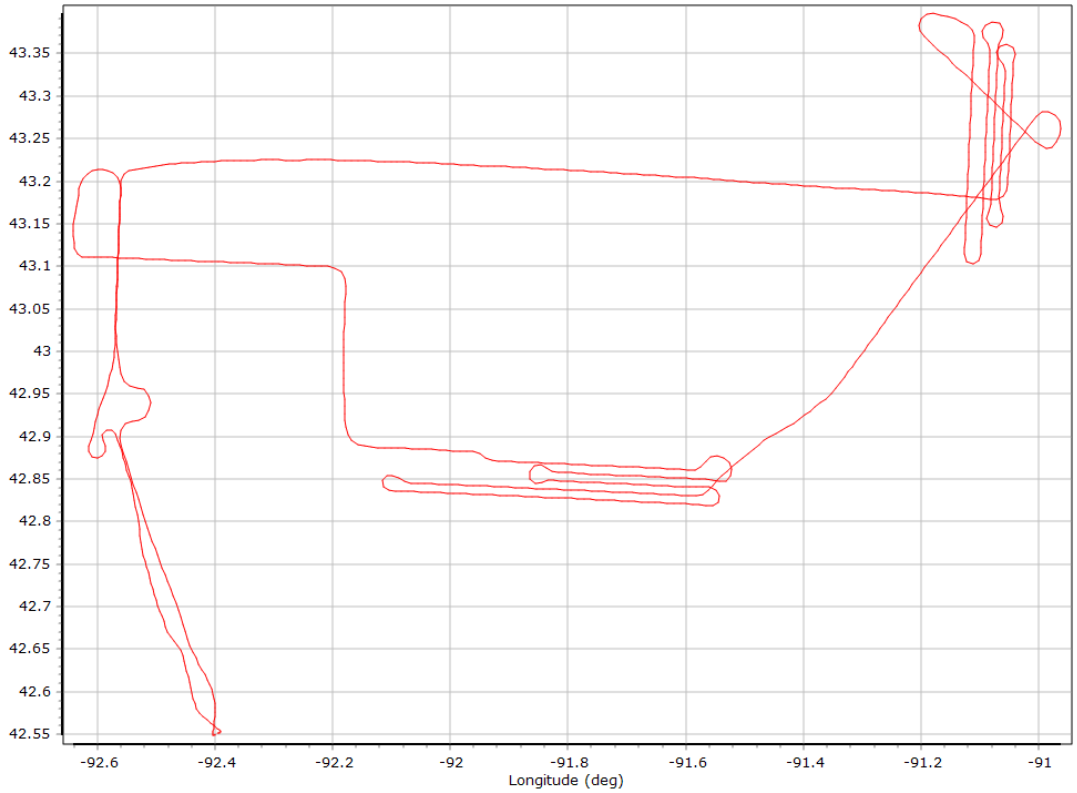


Body Angular Rate

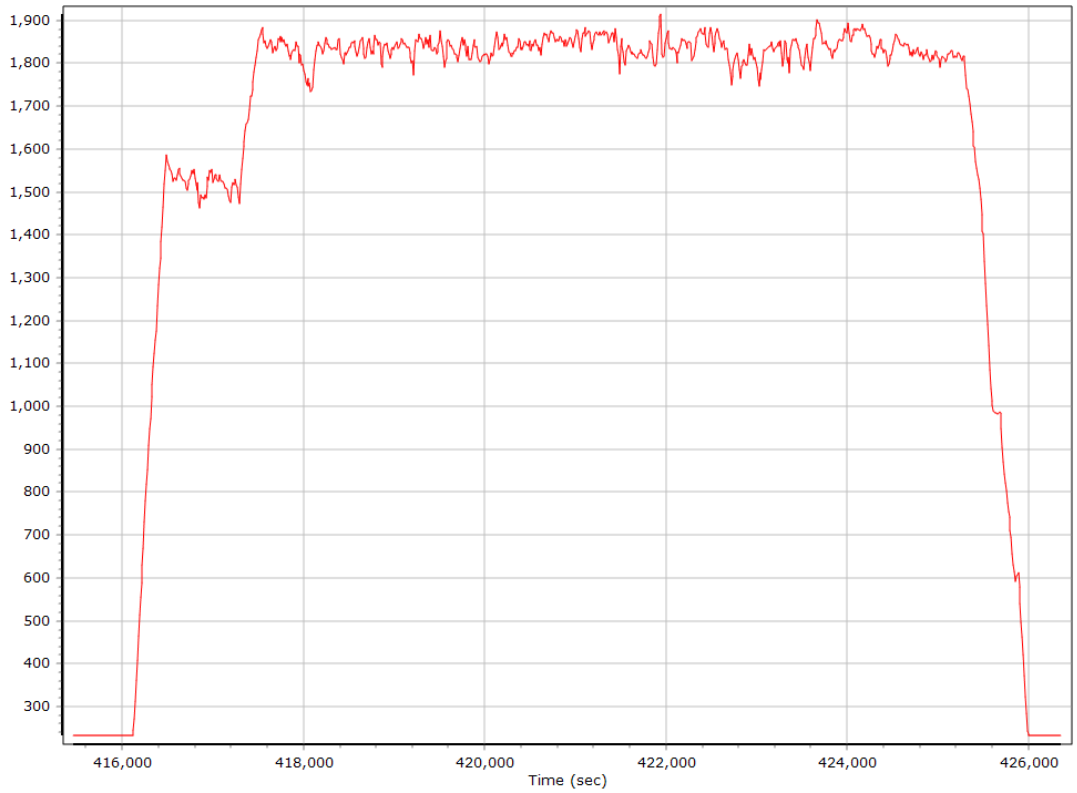


Forward Processed Trajectory Information

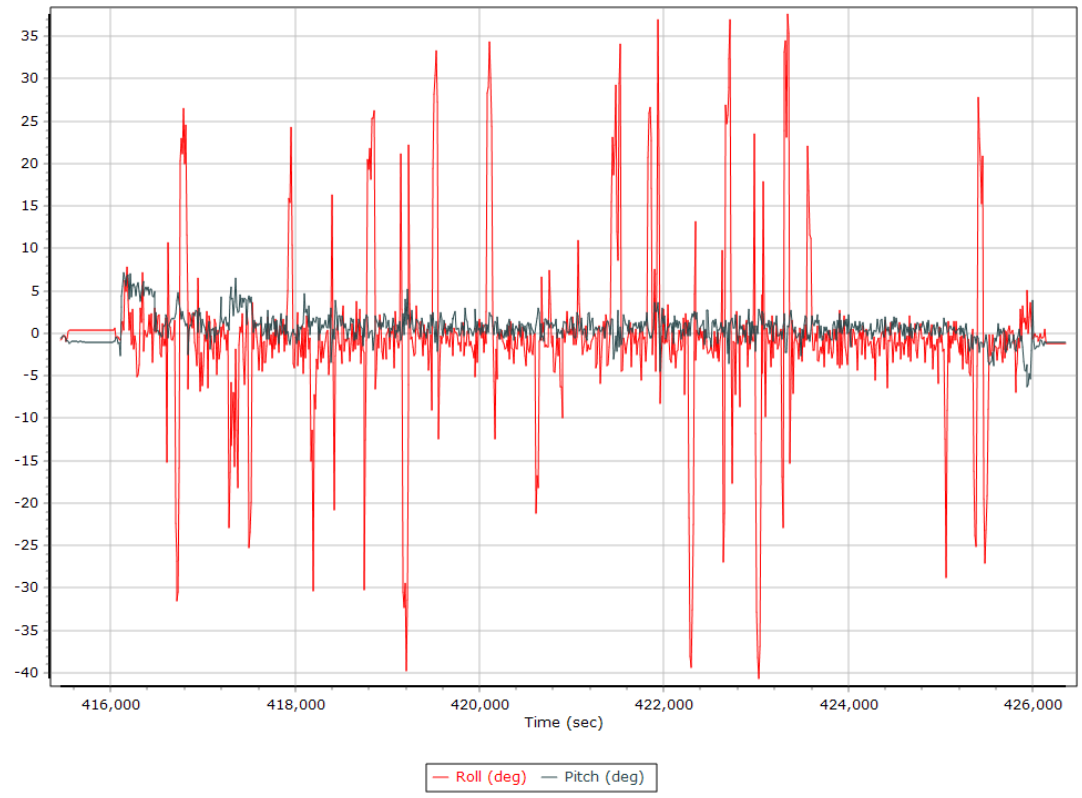
Top View



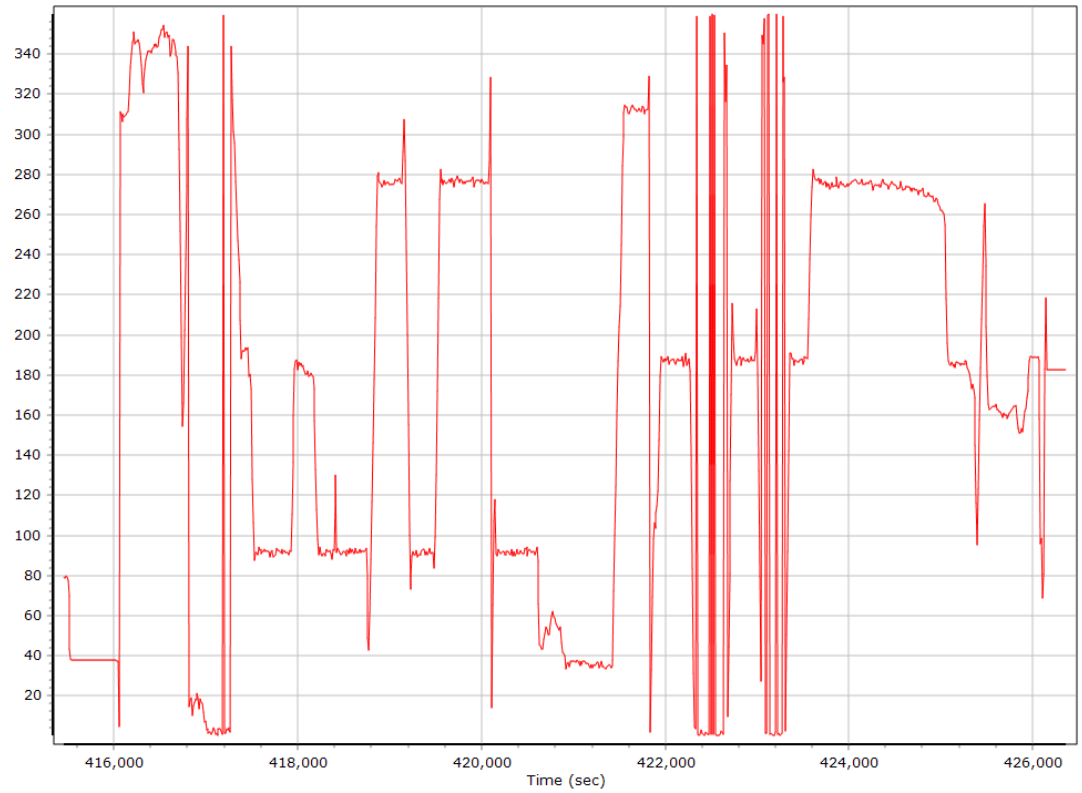
Altitude



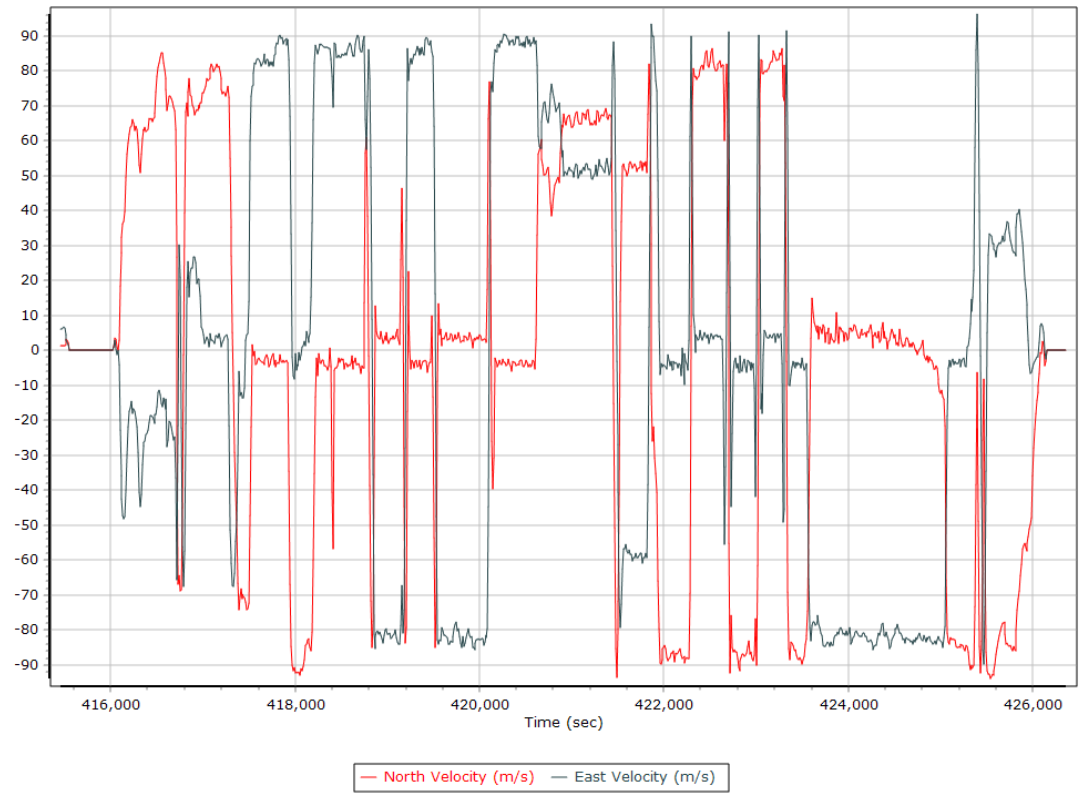
Roll/Pitch



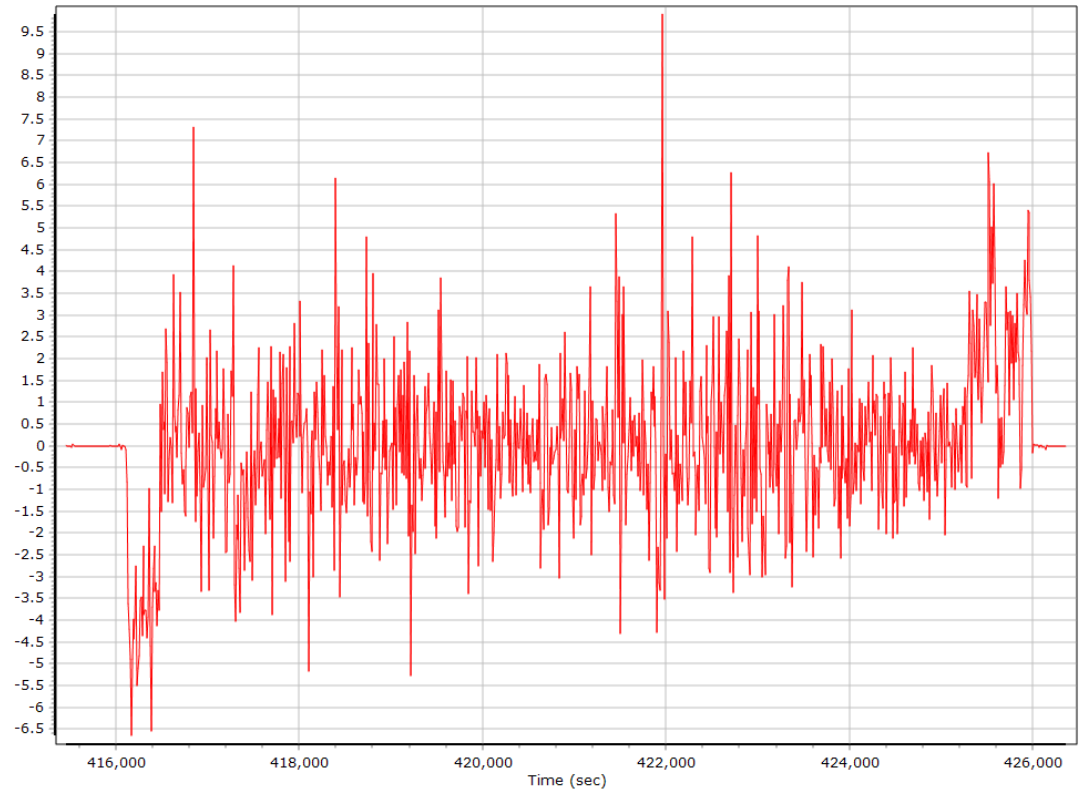
Heading



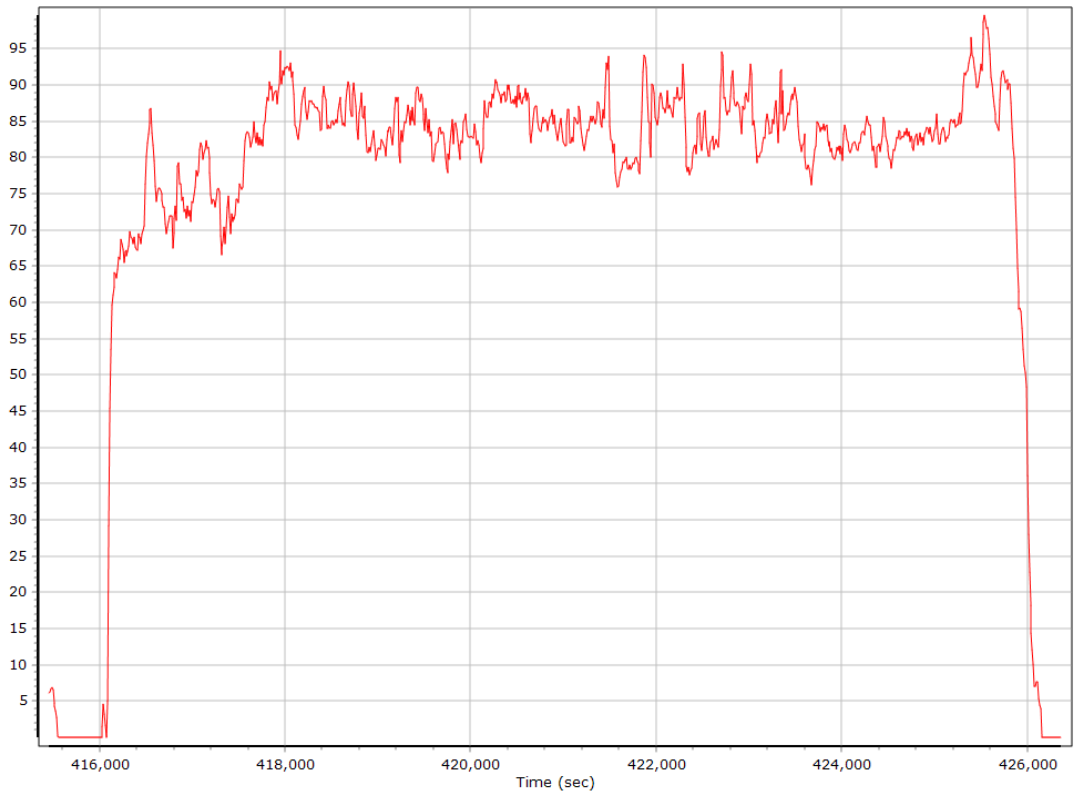
North/East Velocity



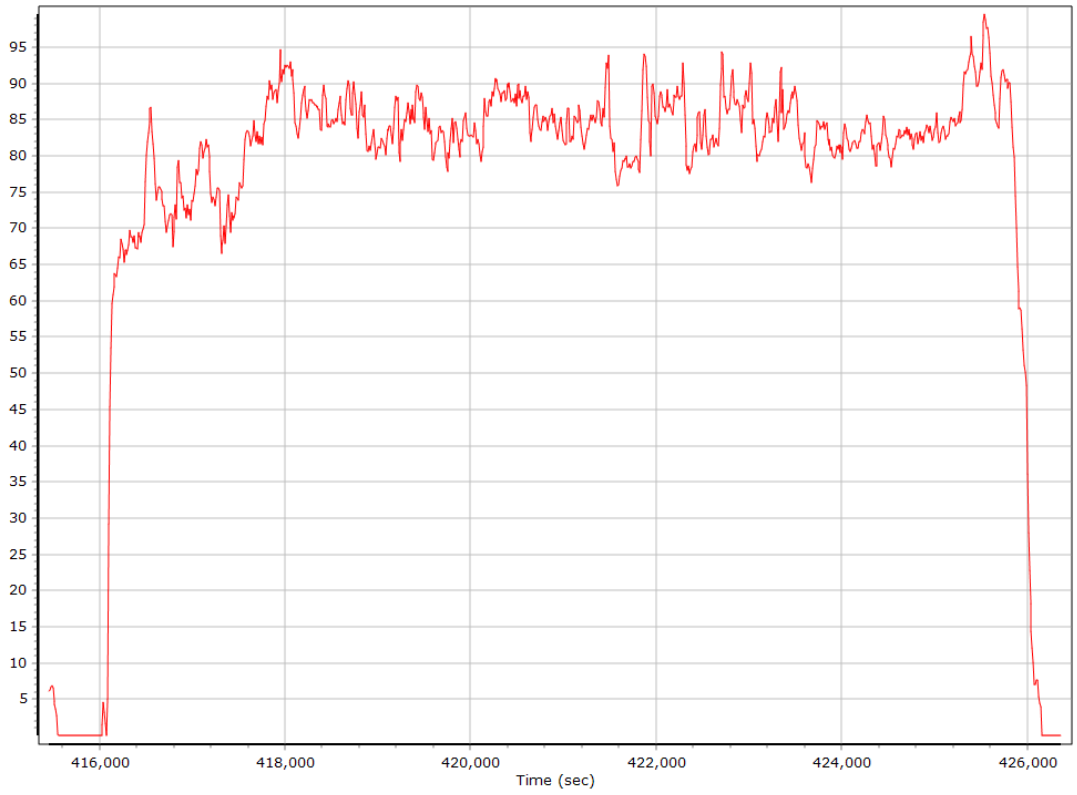
Down Velocity



Total Speed

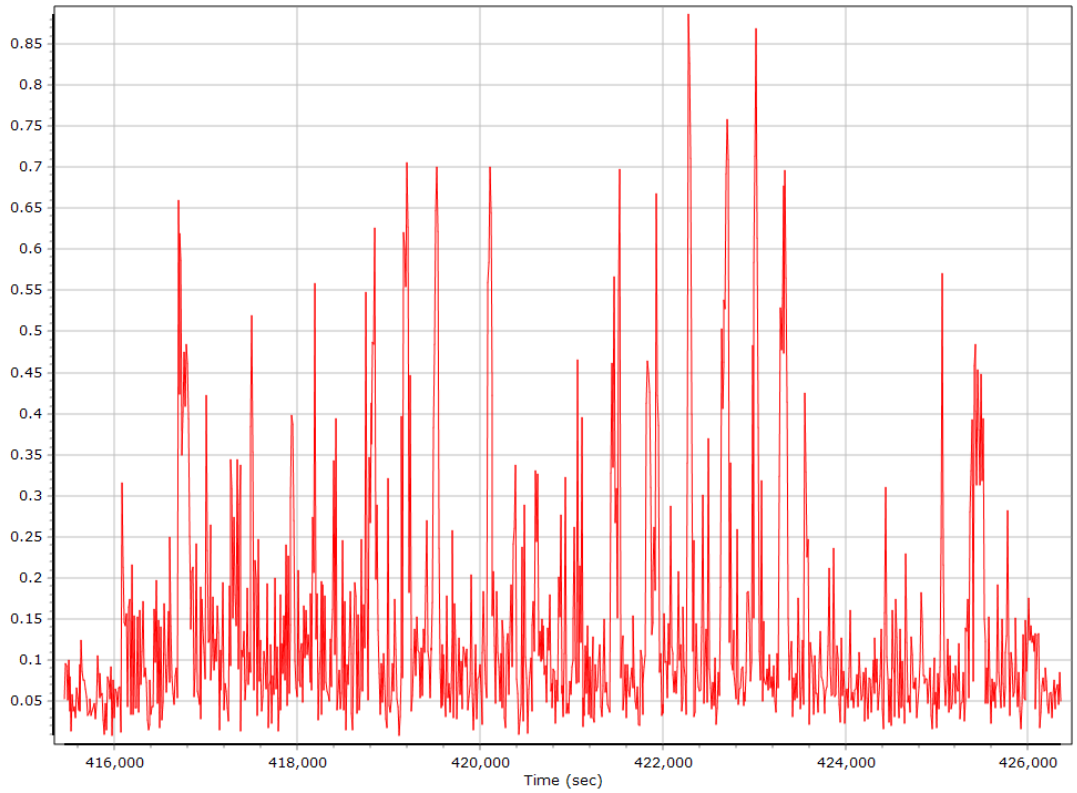


Ground Speed

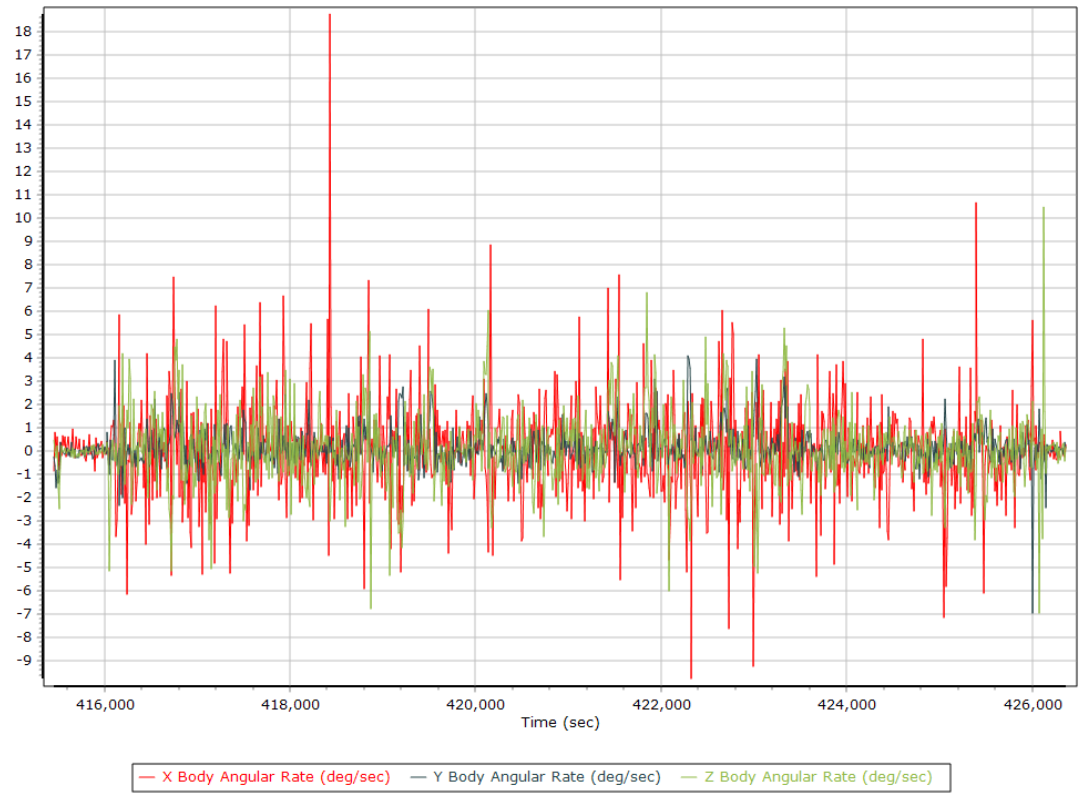


Body Acceleration

Total Body Acceleration



Body Angular Rate



SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/16/2020	IADE	35.60	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAEL	45.54	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNPS	62.16	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAAL	75.48	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IANA	78.36	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNCA	82.36	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	WLNC	98.69	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAMN	107.01	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNEY	113.66	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNSV	114.99	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IATA	121.91	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	MNWN	124.27	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAHT	124.28	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	NLIB	134.41	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	JFWS	135.65	GPS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAMQ	142.81	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	MNPS
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	11852 s (2101 414531 - 2101 426383)
Number of reference stations	11
Primary station GPS measurement usage (%)	99.8
Primary station GLONASS measurement usage (%)	93.5
Average number of satellites per epoch	14.8
Max number of GPS stations used	6
Min number of GPS stations used	4
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	4941
GPS precise vs. broadcast ephemeris used	98.6 % / 1.4 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - JFWS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°54'51.37586"	W90°14'53.19180"	293.597
Adjusted		N42°54'51.37618"	W90°14'53.19139"	293.586
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.013	0.010	0.017

Base Station Information

Station ID	JFWS		
Filename	jfws1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GPS		
Receiver manufacturer, model, serial no.	Trimble	NetRS	4532254621
Antenna manufacturer, model	Trimble	Choke Ring w/SCIT Dome	
Antenna height [m]	0.008		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.11		
Latitude	N42°54'51.37586"		
Longitude	W90°14'53.19180"		
Ellipsoidal height (m)	293.59668		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38124"	W93°22'06.68789"	344.482
Adjusted		N43°17'02.38124"	W93°22'06.68751"	344.486
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.009	0.004	0.010

Base Station Information

Station ID	IAHT		
Filename	iaht1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38124"		
Longitude	W93°22'06.68789"		
Ellipsoidal height (m)	344.48176		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNWN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N44°03'54.03515"	W91°42'45.52416"	178.655
Adjusted		N44°03'54.03523"	W91°42'45.52372"	178.650
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.006	0.012

Base Station Information

Station ID	MNWN		
Filename	mnwn1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5443R50018
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N44°03'54.03515"		
Longitude	W91°42'45.52416"		
Ellipsoidal height (m)	178.65532		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59750"	228.904
Adjusted		N42°01'49.10906"	W91°32'55.59735"	228.875
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.029	0.030

Base Station Information

Station ID	IAMN		
Filename	iamn1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59750"		
Ellipsoidal height (m)	228.90416		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WLNC

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°50'15.66937"	W90°42'41.07306"	280.855
Adjusted		N42°50'15.66937"	W90°42'41.07304"	280.847
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.008	0.008

Base Station Information

Station ID	WLNC		
Filename	wlnc1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72957
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N42°50'15.66937"		
Longitude	W90°42'41.07306"		
Ellipsoidal height (m)	280.85484		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2865	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64527"	W91°29'46.51637"	339.588
Adjusted		N43°37'58.64522"	W91°29'46.51596"	339.593
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.009	0.004	0.010

Base Station Information

Station ID	MNCA		
Filename	mnca1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64527"		
Longitude	W91°29'46.51637"		
Ellipsoidal height (m)	339.58836		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.2	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54033"	172.253
Adjusted		N43°29'49.47912"	W91°17'26.53969"	172.228
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.015	0.025	0.030

Base Station Information

Station ID	IANA		
Filename	iana1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54033"		
Ellipsoidal height (m)	172.25322		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24724"	291.092
Adjusted		N42°44'49.40400"	W92°47'14.24731"	291.117
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.025	0.025

Base Station Information

Station ID	IAAL		
Filename	iaal1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24724"		
Ellipsoidal height (m)	291.09232		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.77	**Output Coordinates**	Original	
Solution Epochs	2852	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52987"	298.980
Adjusted		N42°52'40.47661"	W91°21'41.52959"	298.982
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.002	0.006

Base Station Information

Station ID	IAEL		
Filename	iael1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52987"		
Ellipsoidal height (m)	298.98029		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52633"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52633"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52633"		
Ellipsoidal height (m)	316.51618		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84812"	W91°53'06.86730"	380.908
Adjusted		N43°30'53.84825"	W91°53'06.86701"	380.914
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.007	0.010

Base Station Information

Station ID	MNPS		
Filename	mnps1070.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/16/2020 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84812"		
Longitude	W91°53'06.86730"		
Ellipsoidal height (m)	380.90778		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	9.05	84.55	
Number of GPS SV	6	10	9
Number of GLONASS SV	0	7	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	9	16	15
PDOP	1.16	2.00	1.34
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	11826.00	0.00	1.00
Percentage	99.99	0.00	0.01

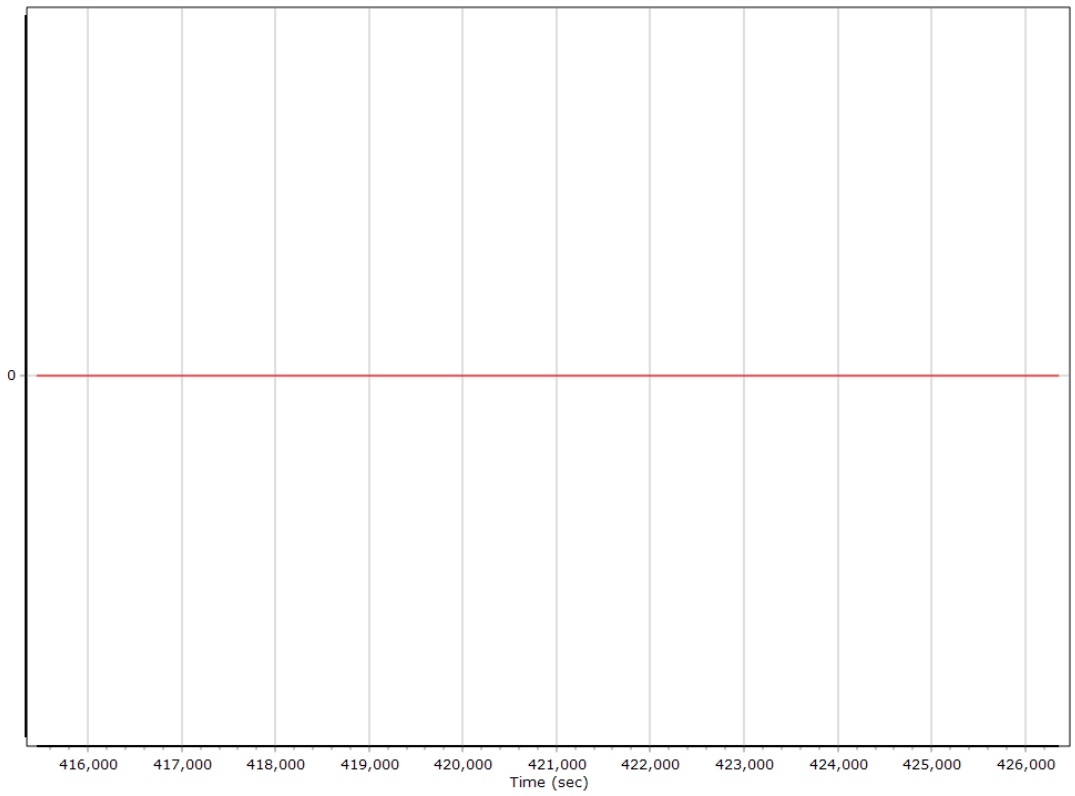
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	414513.000 (4/16/2020 7:08:33 PM)		
Processing end time	426365.000 (4/16/2020 10:26:05 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

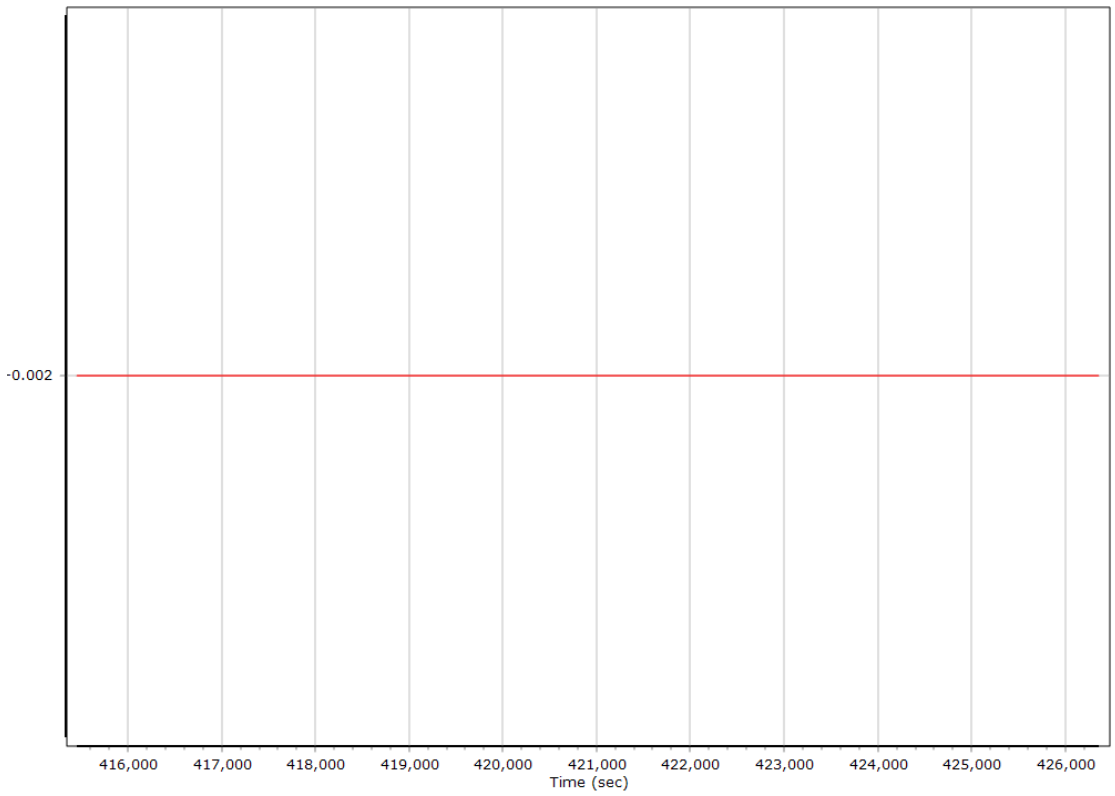
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

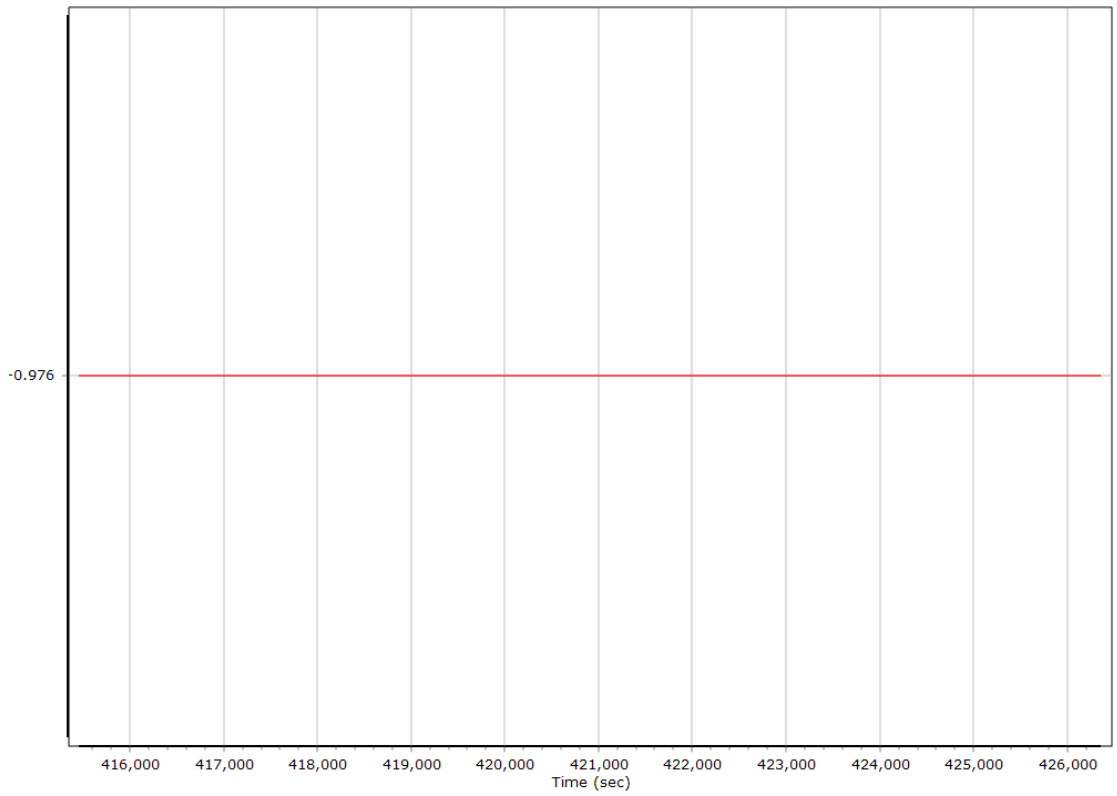
X Reference-Primary GNSS Lever Arm (m)



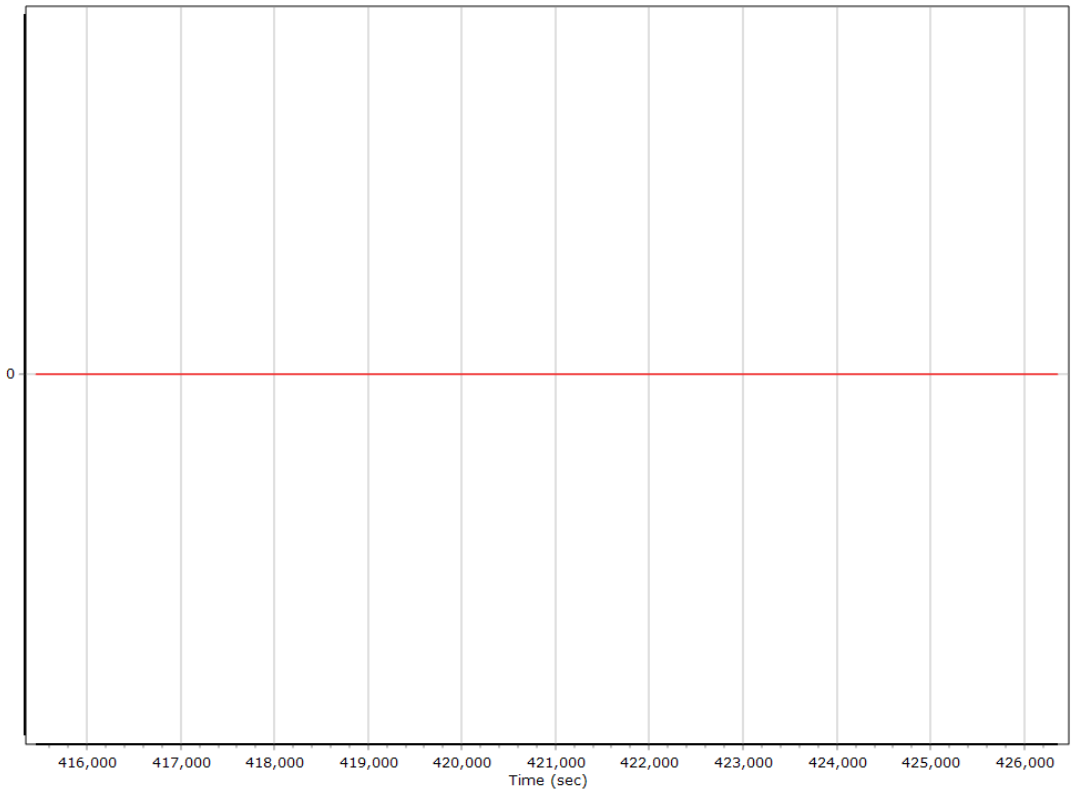
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



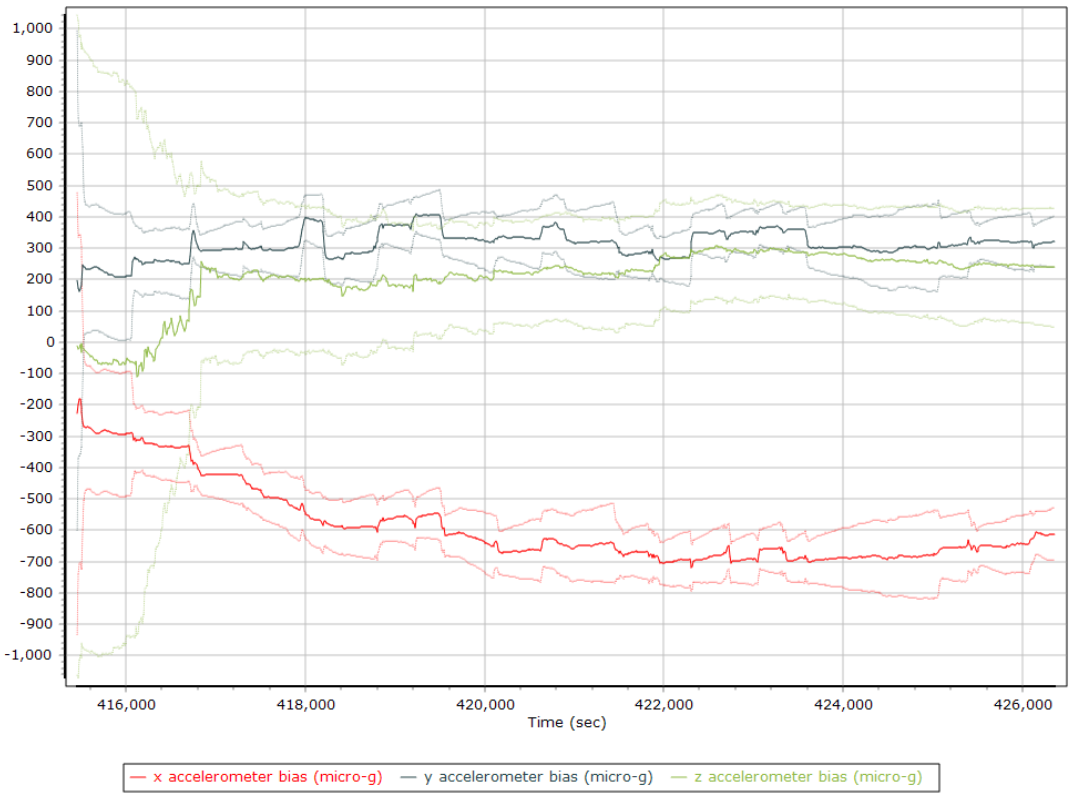
Reference-Primary GNSS Lever Arm Figure of Merit



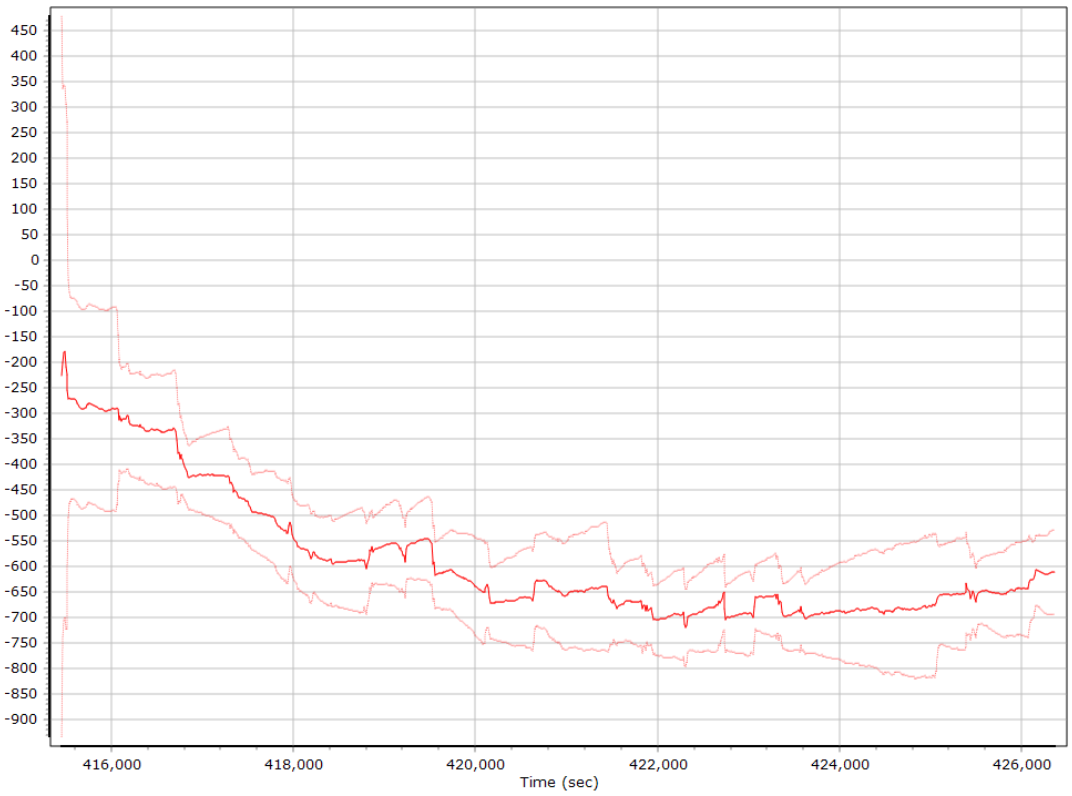
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

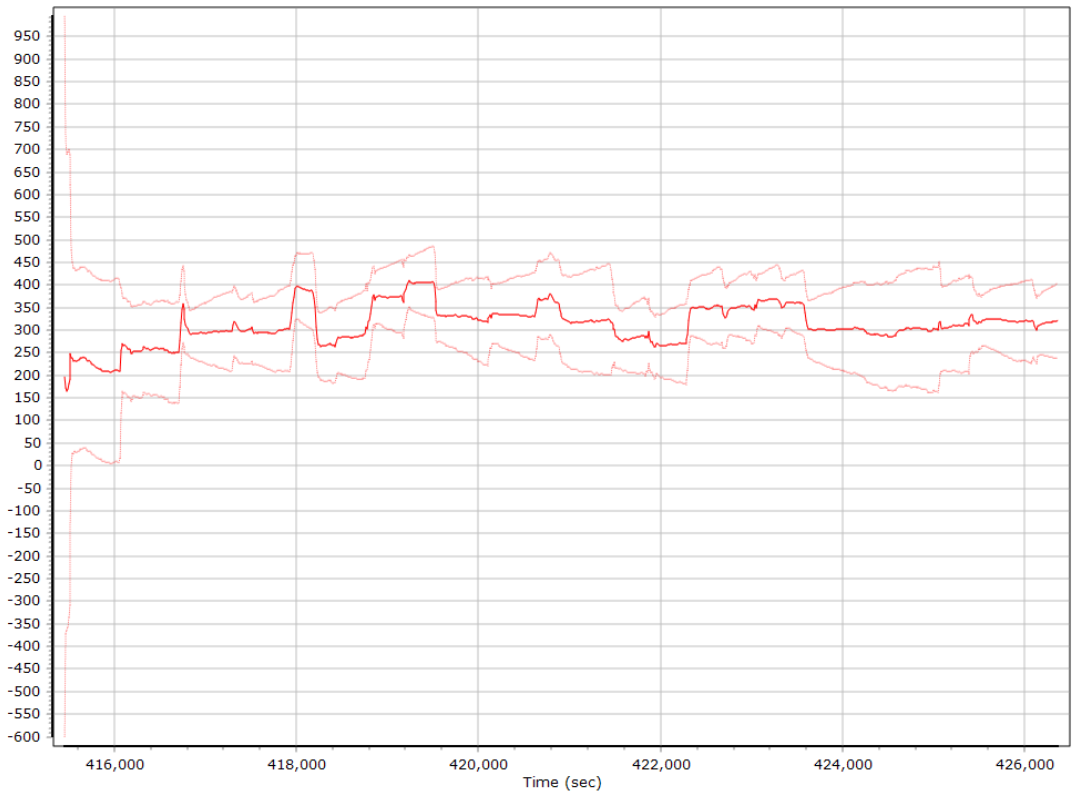
Accelerometer Bias (micro-g)



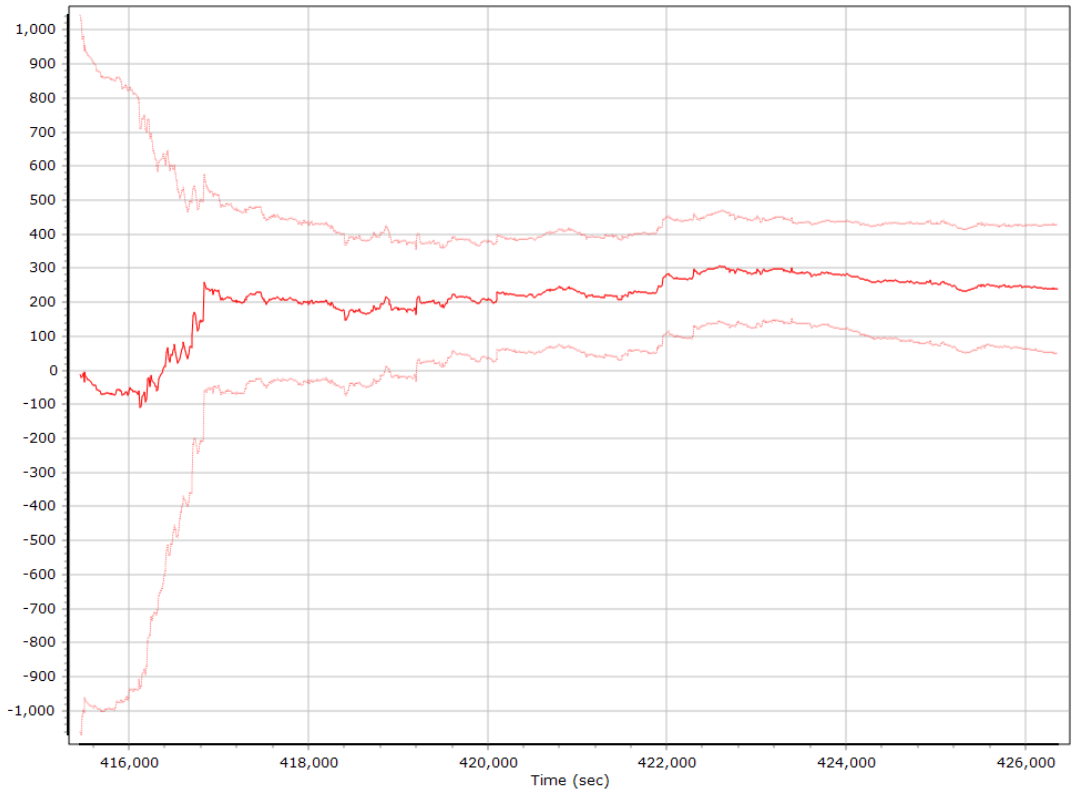
X Accelerometer Bias (micro-g)



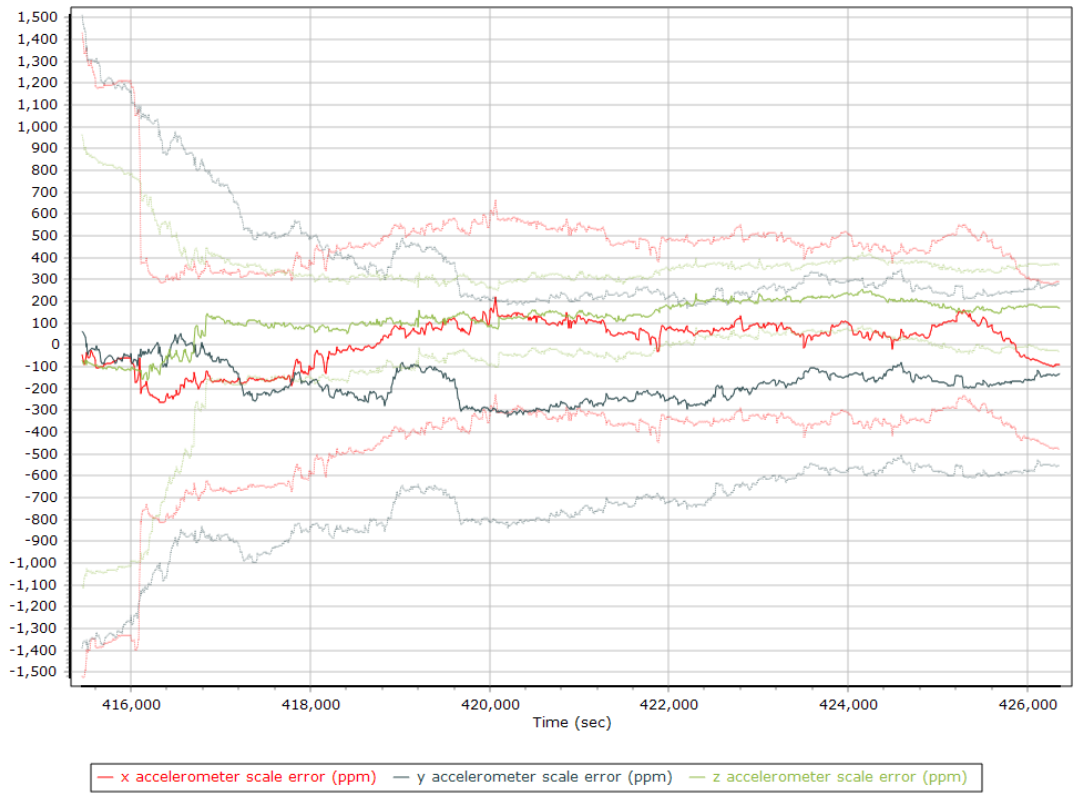
Y Accelerometer Bias (micro-g)



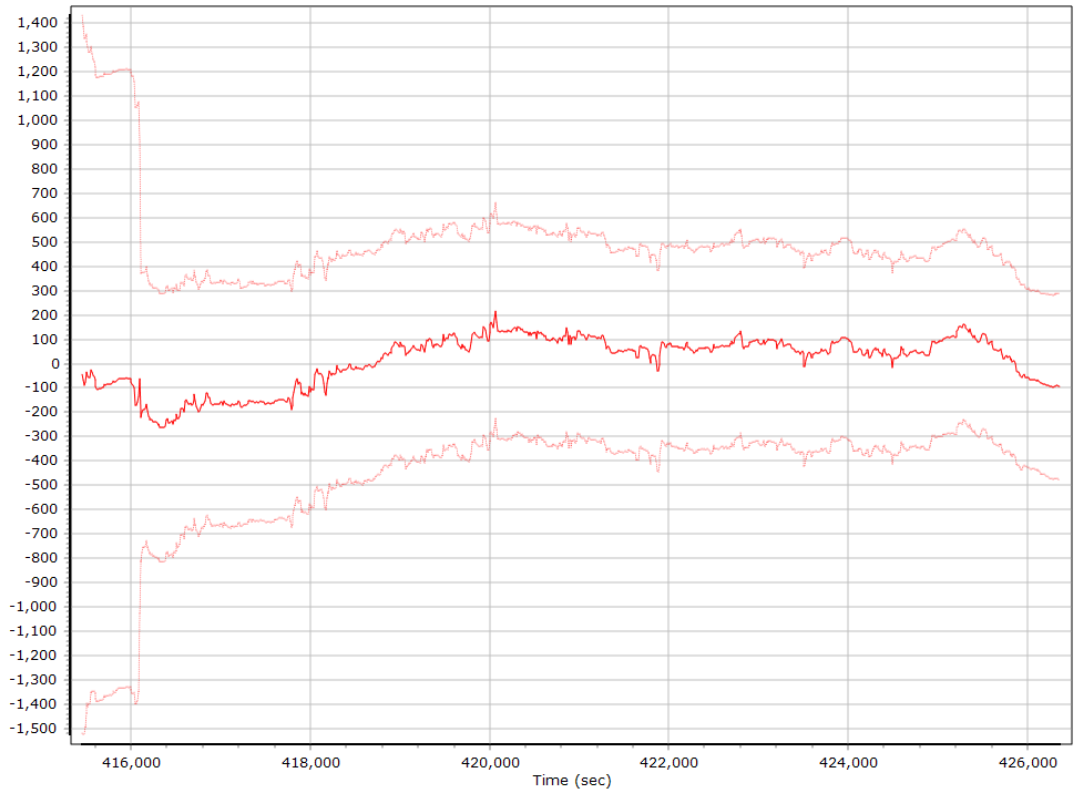
Z Accelerometer Bias (micro-g)



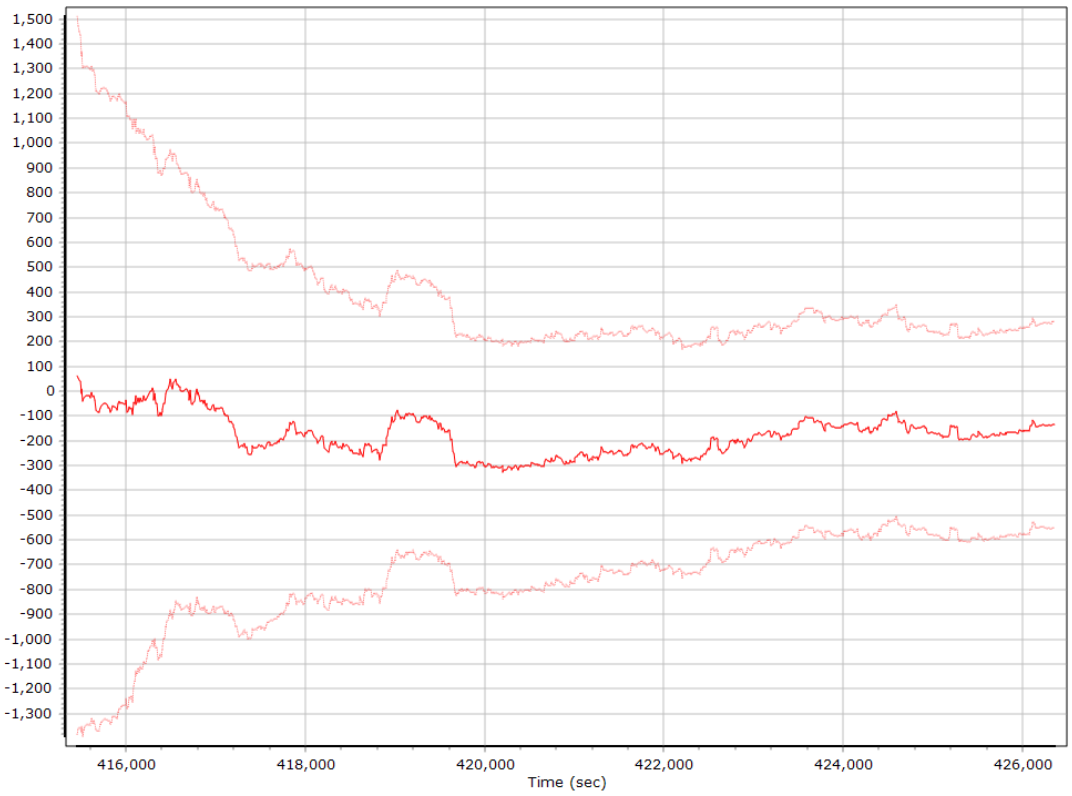
Accelerometer Scale Error (ppm)



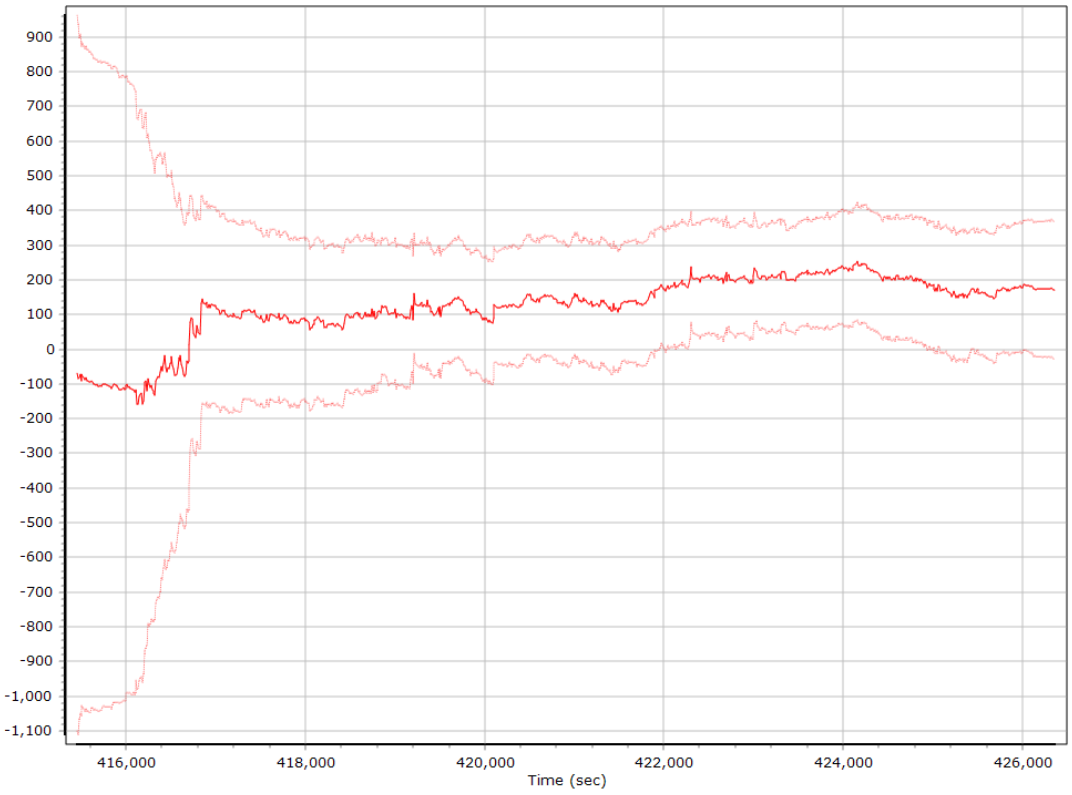
X Accelerometer Scale Error (ppm)



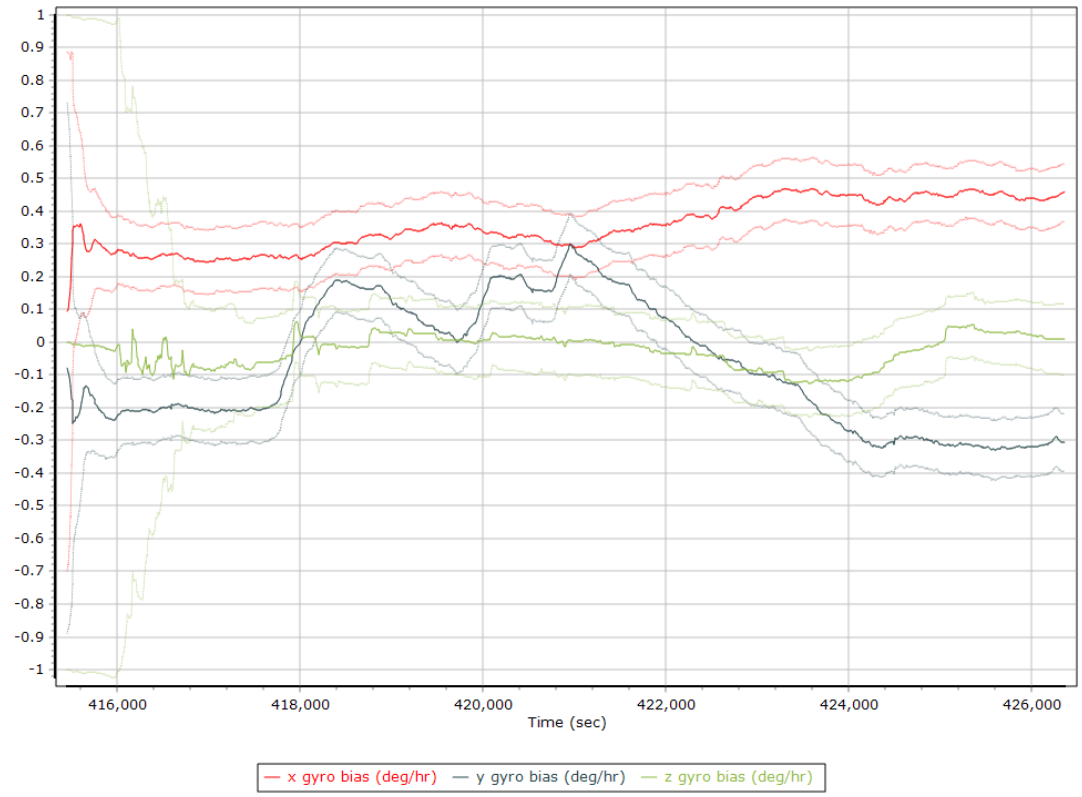
Y Accelerometer Scale Error (ppm)



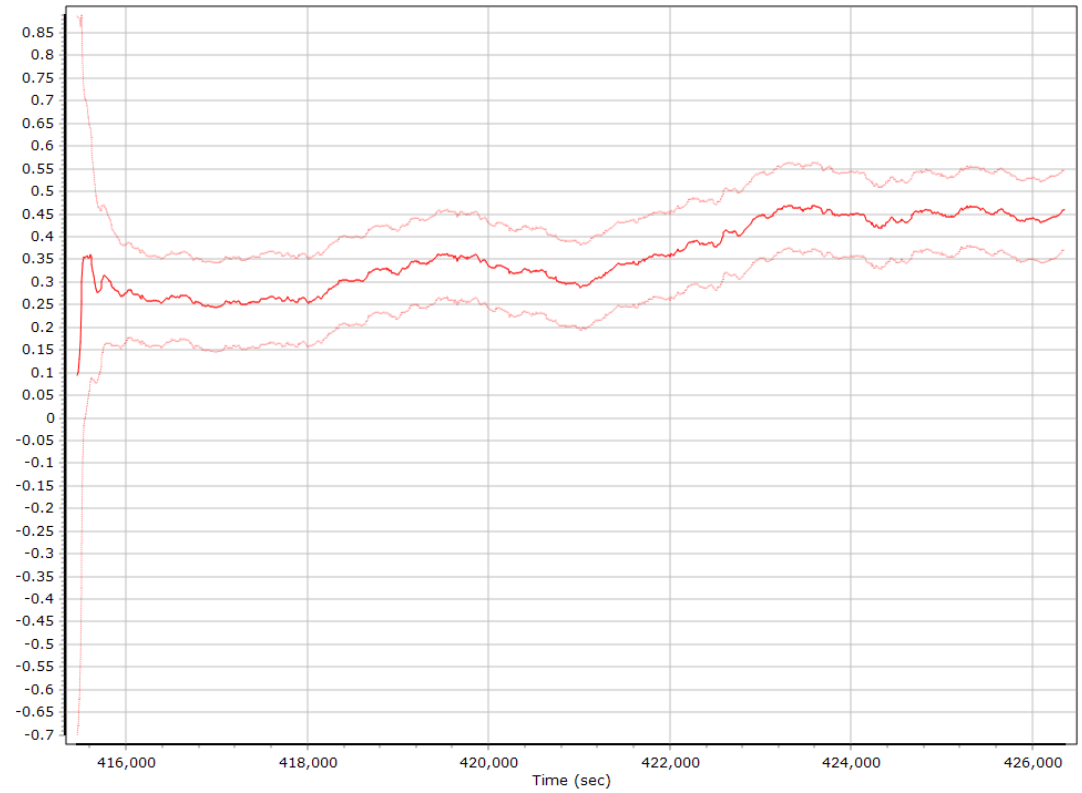
Z Accelerometer Scale Error (ppm)



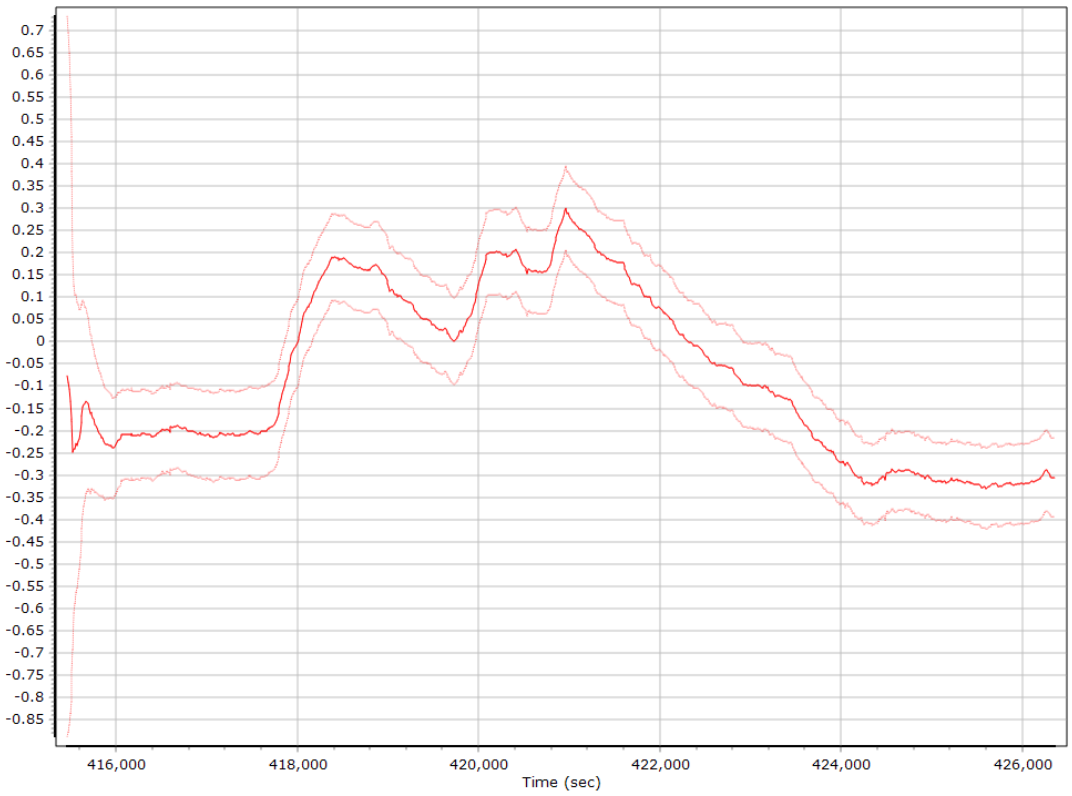
Gyro Bias (deg/h)



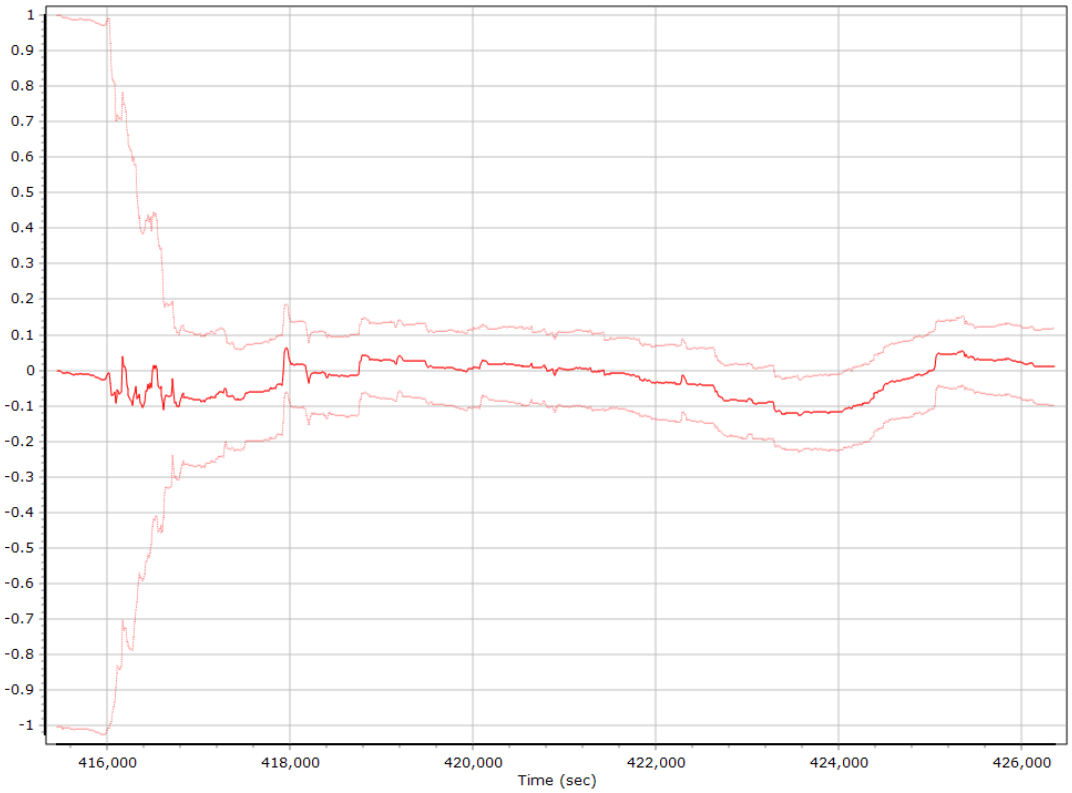
X Gyro Bias (deg/h)



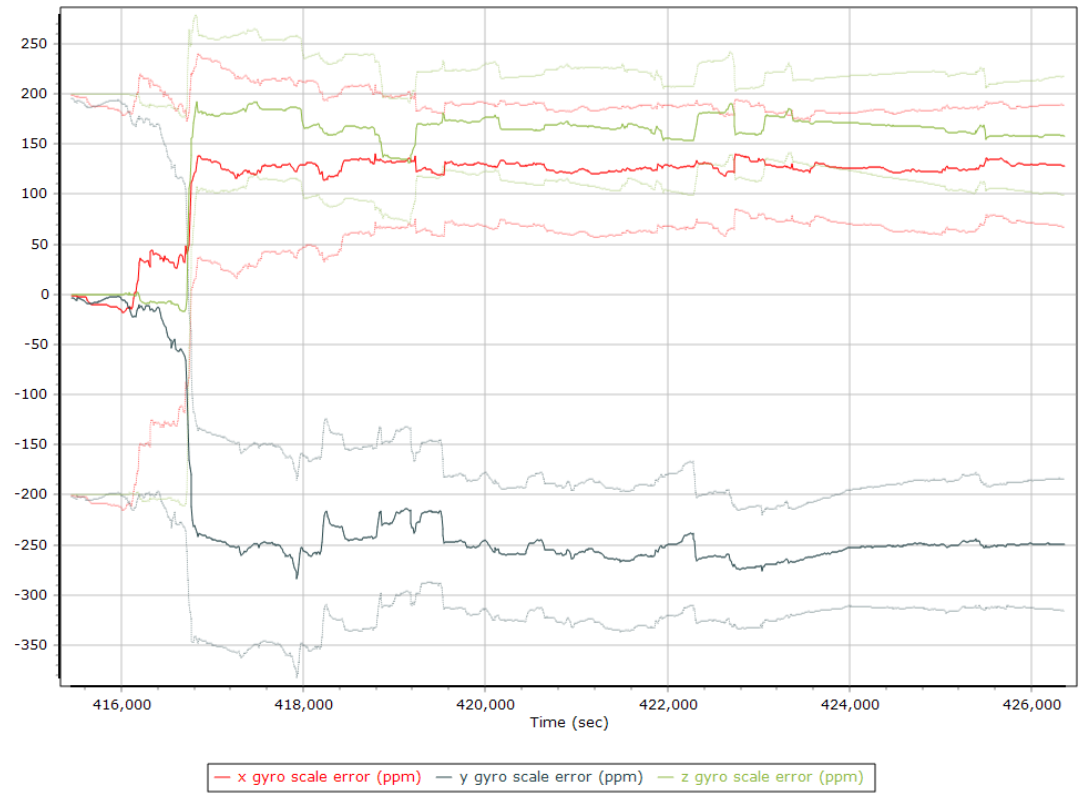
Y Gyro Bias (deg/h)



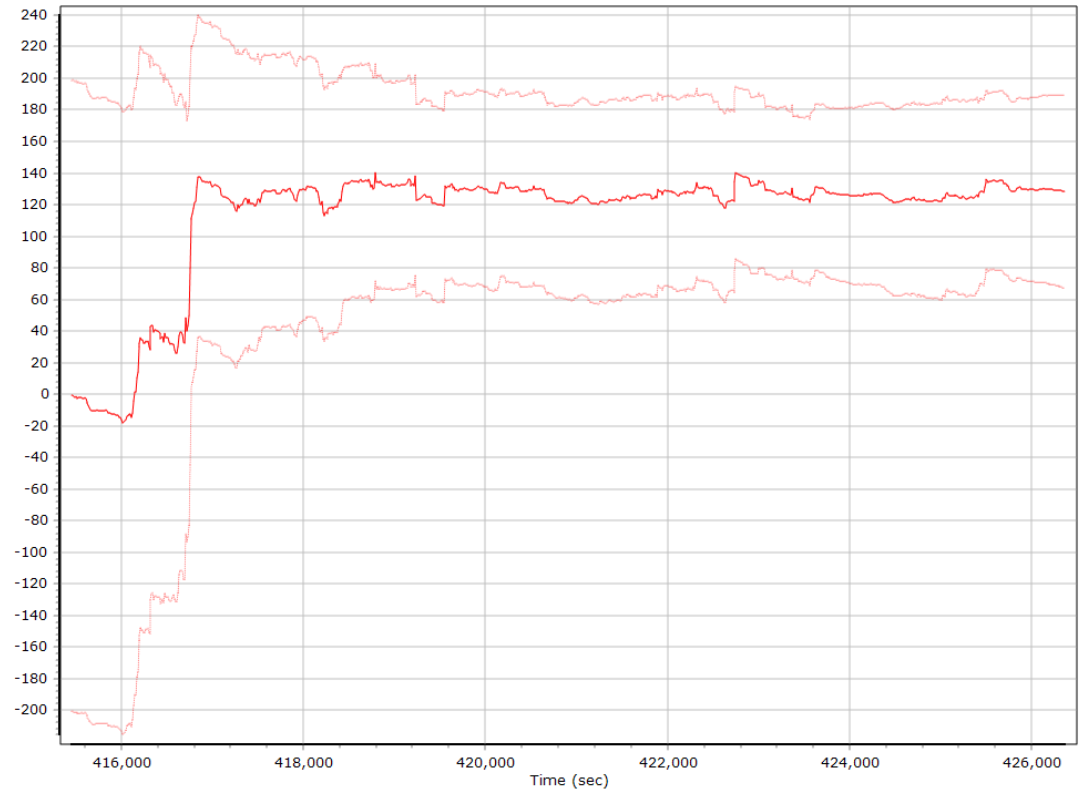
Z Gyro Bias (deg/h)



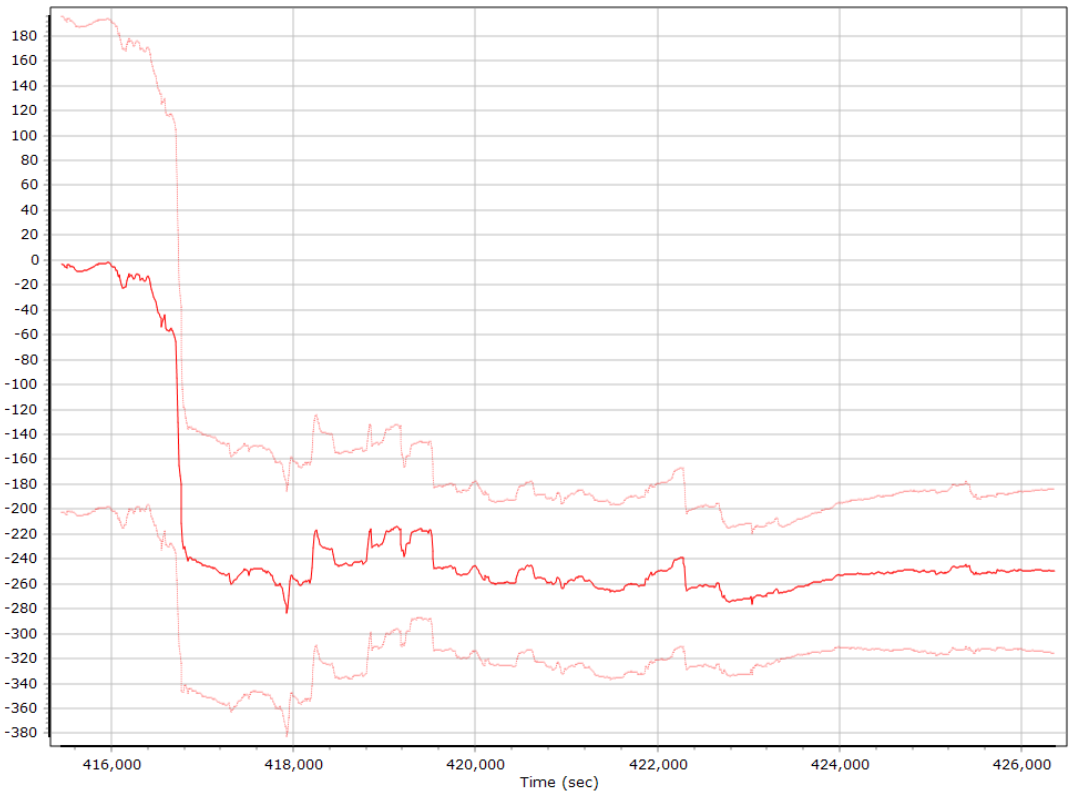
Gyro Scale Error (ppm)



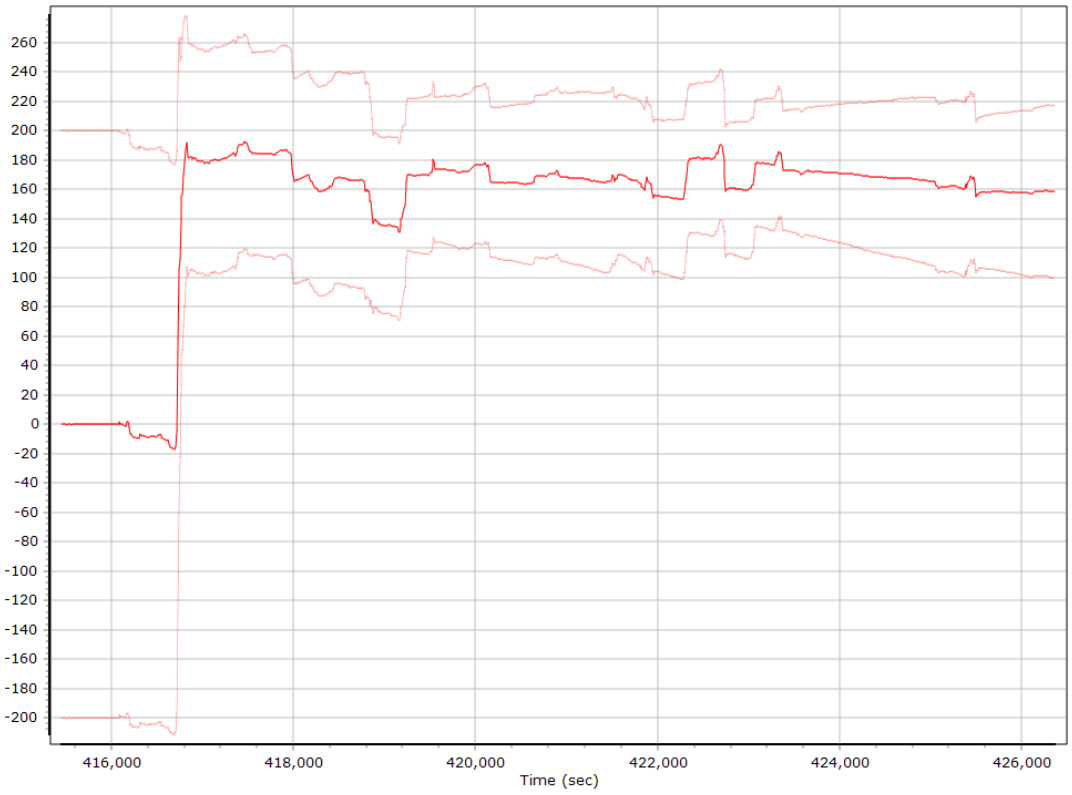
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

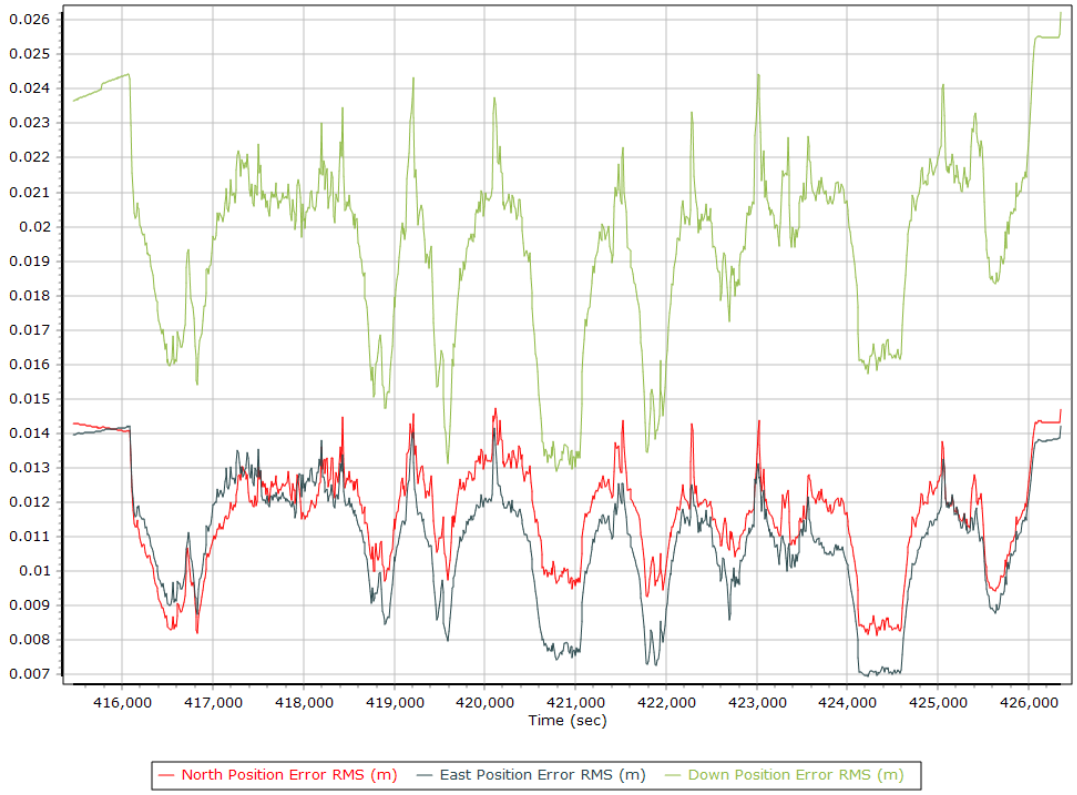


Z Gyro Scale Error (ppm)

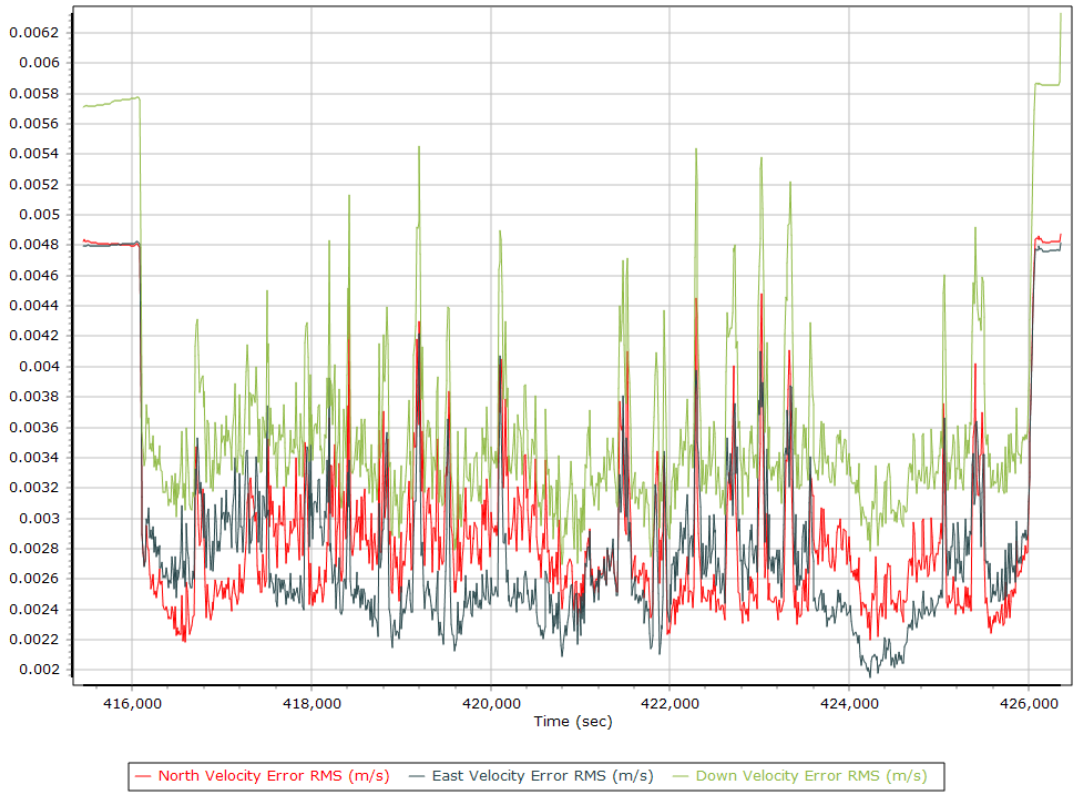


Smoothed Performance Metrics

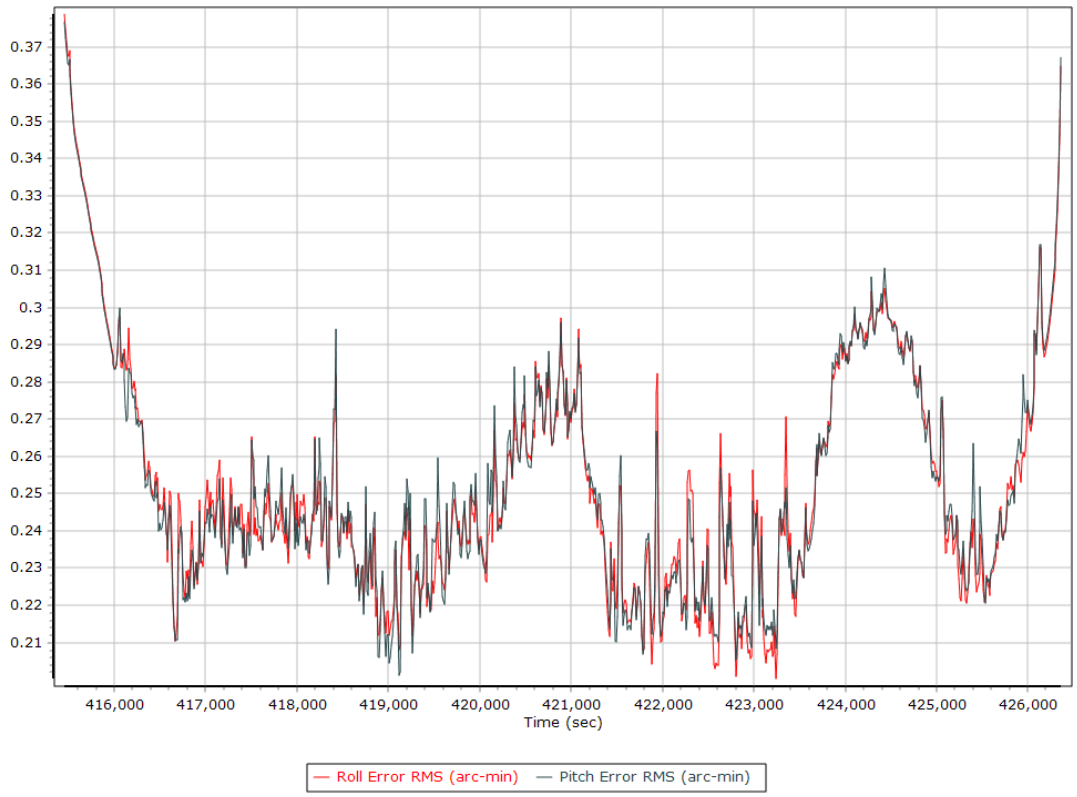
Position Error RMS (m)



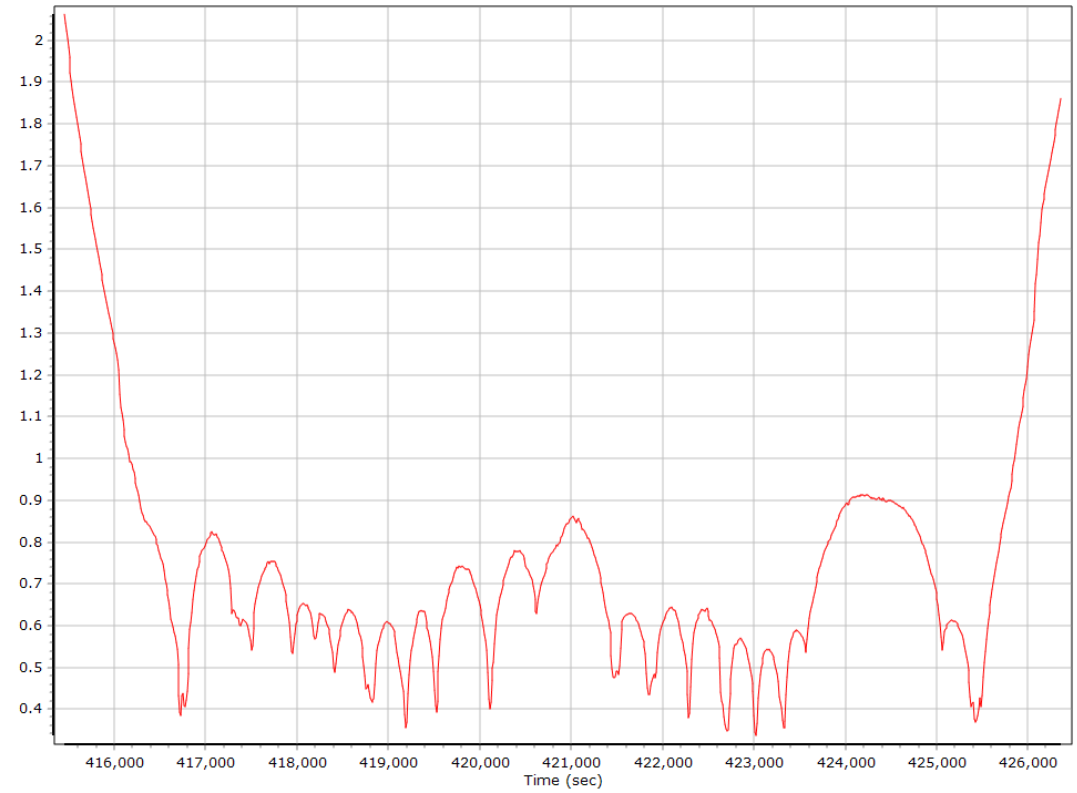
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

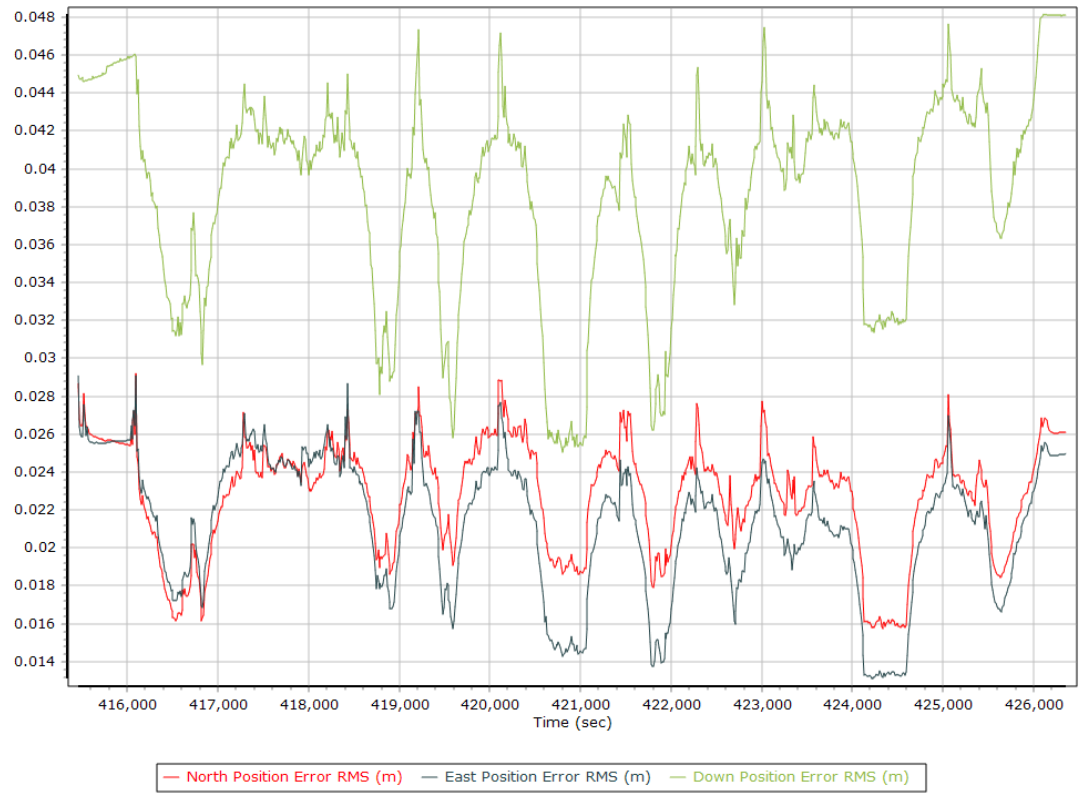


Heading Error RMS (arc-min)

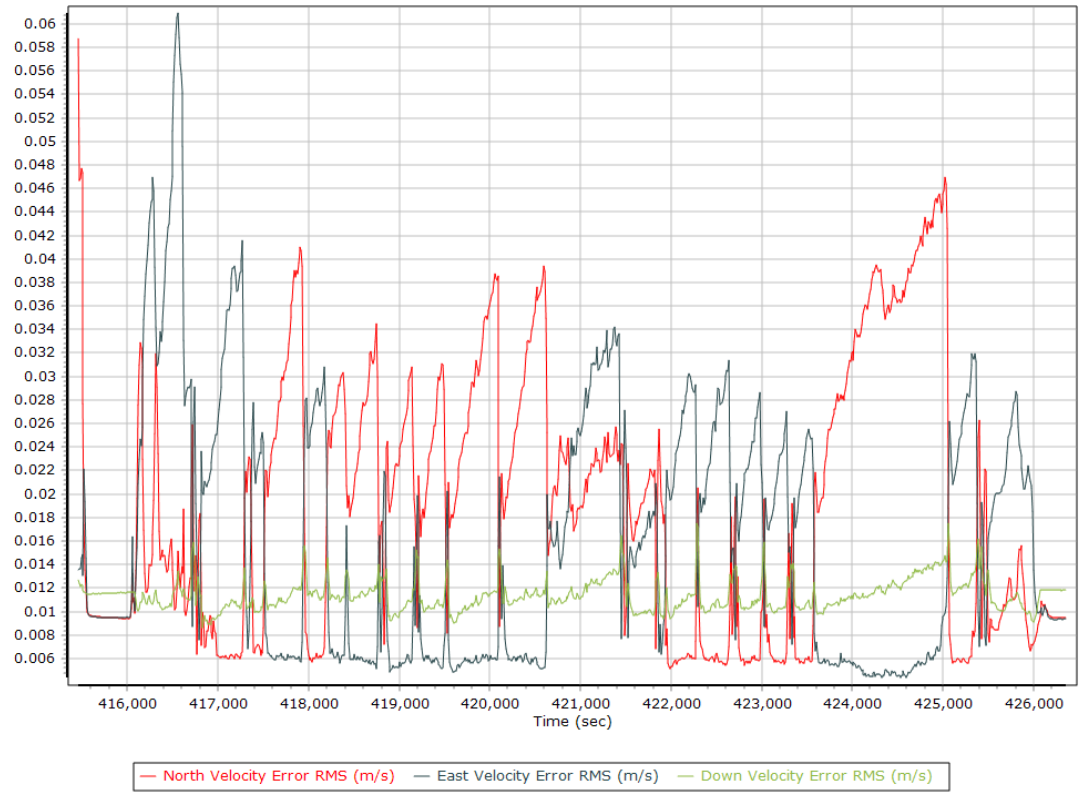


Forward Processed Performance Metrics

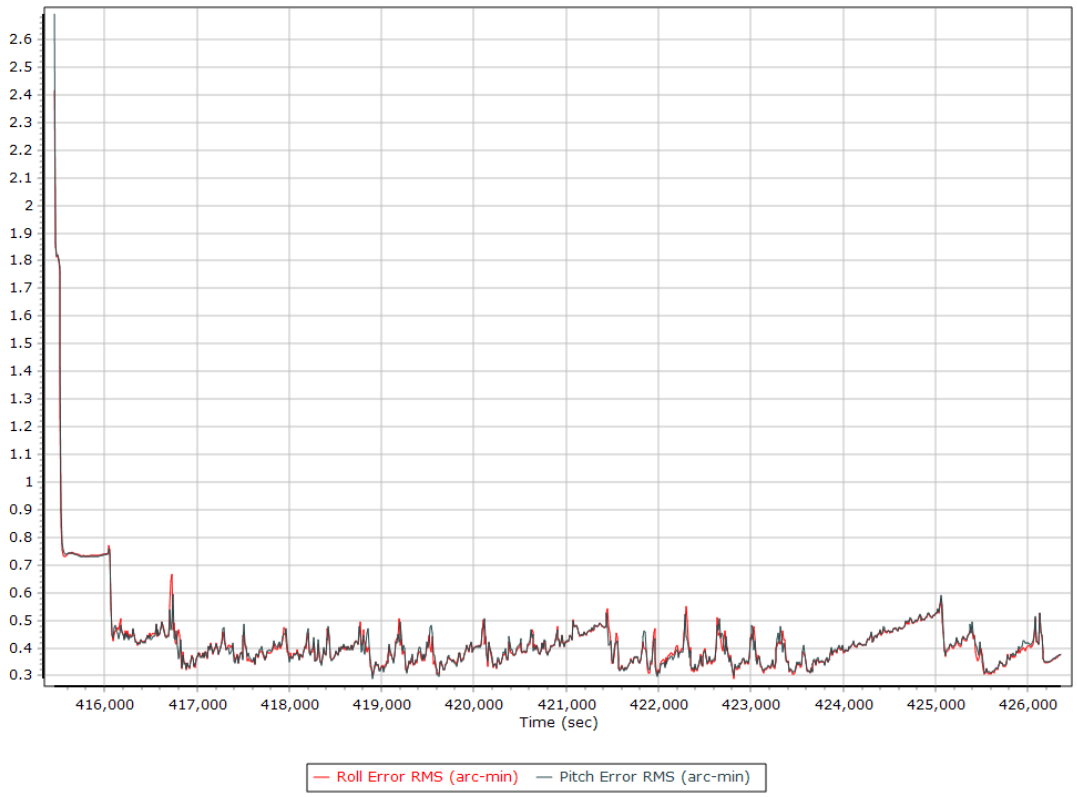
Position Error RMS (m)



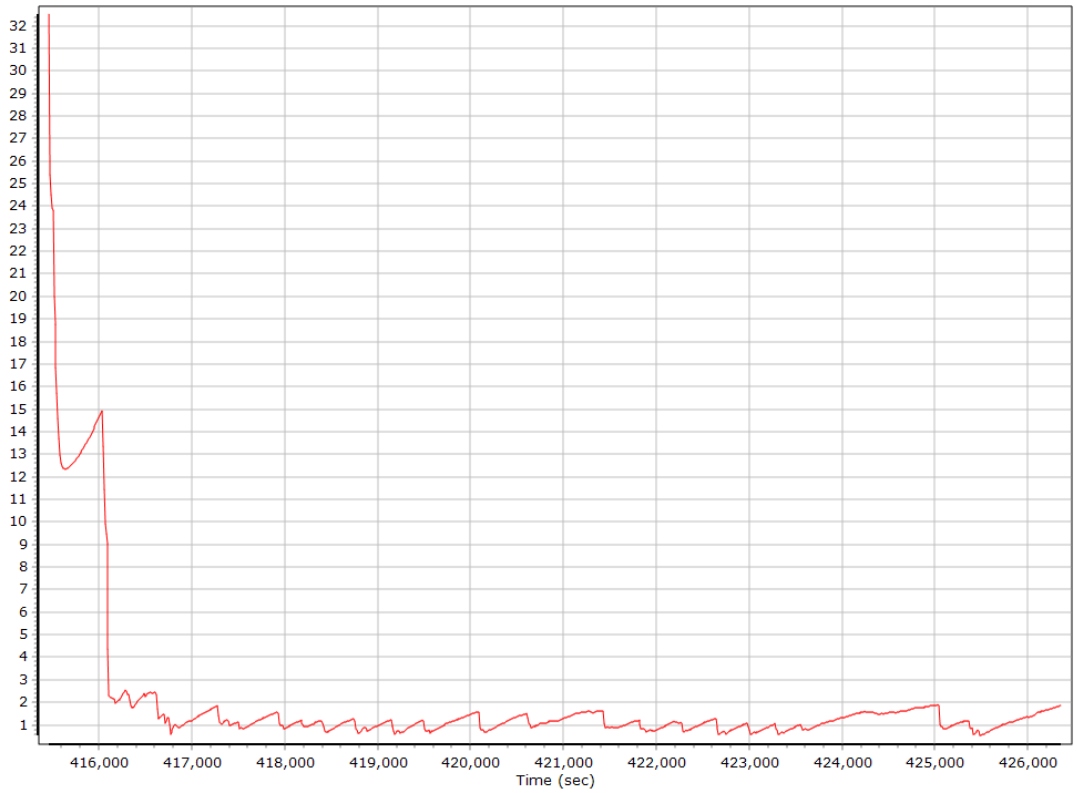
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

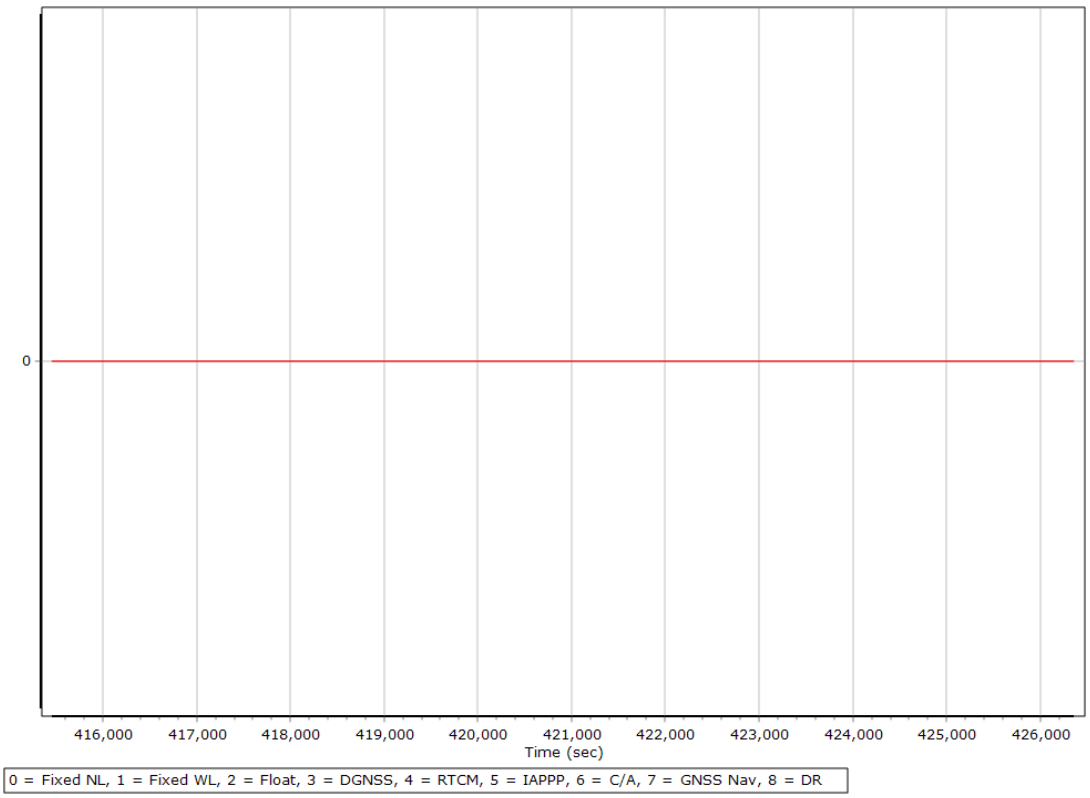


Heading Error RMS (arc-min)

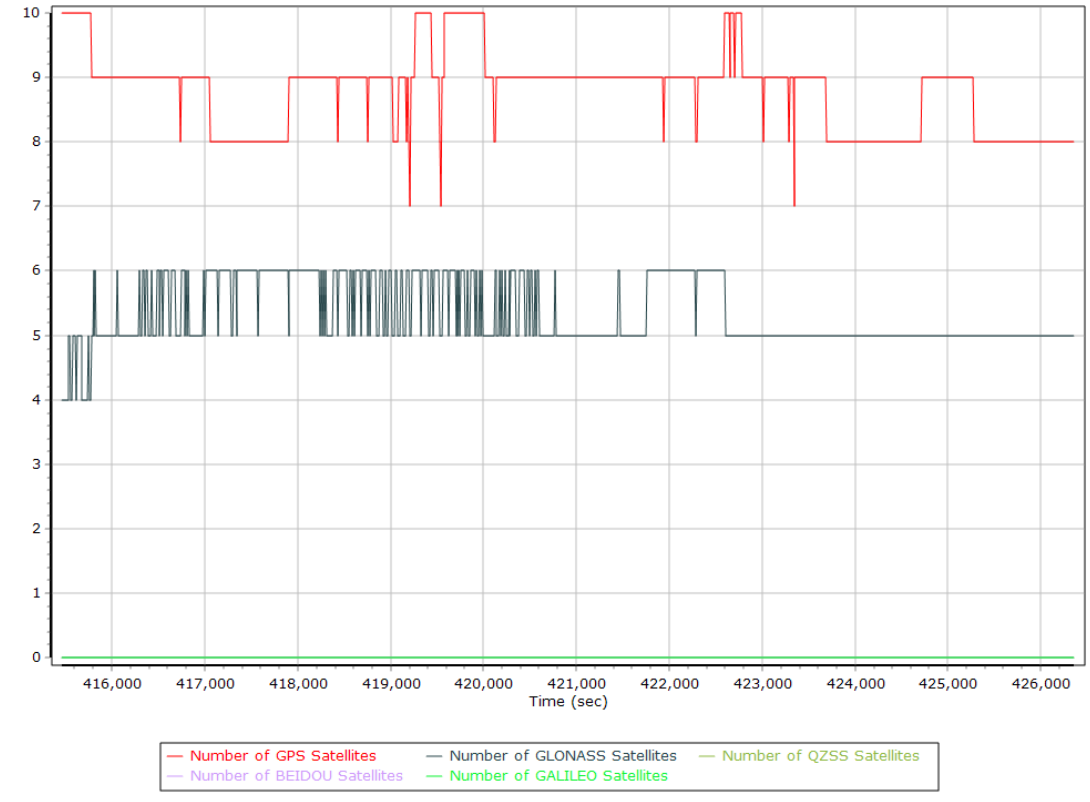


Smoothed Solution Status

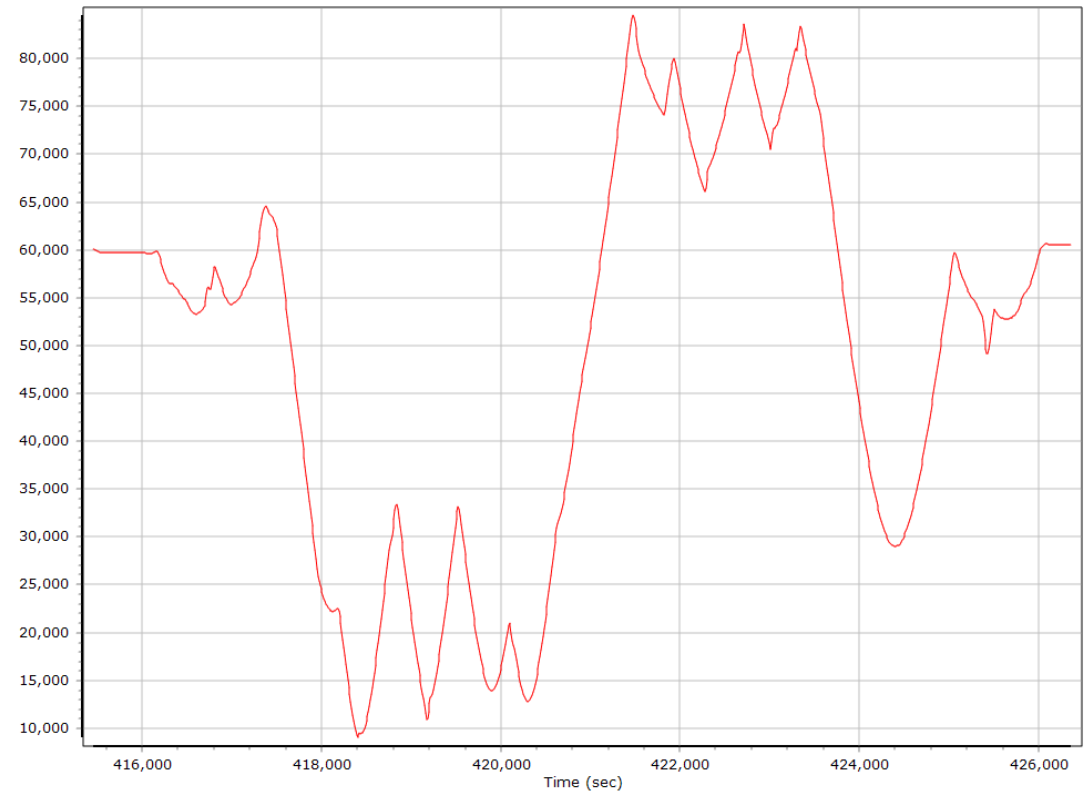
Processing Mode



Number of Satellites

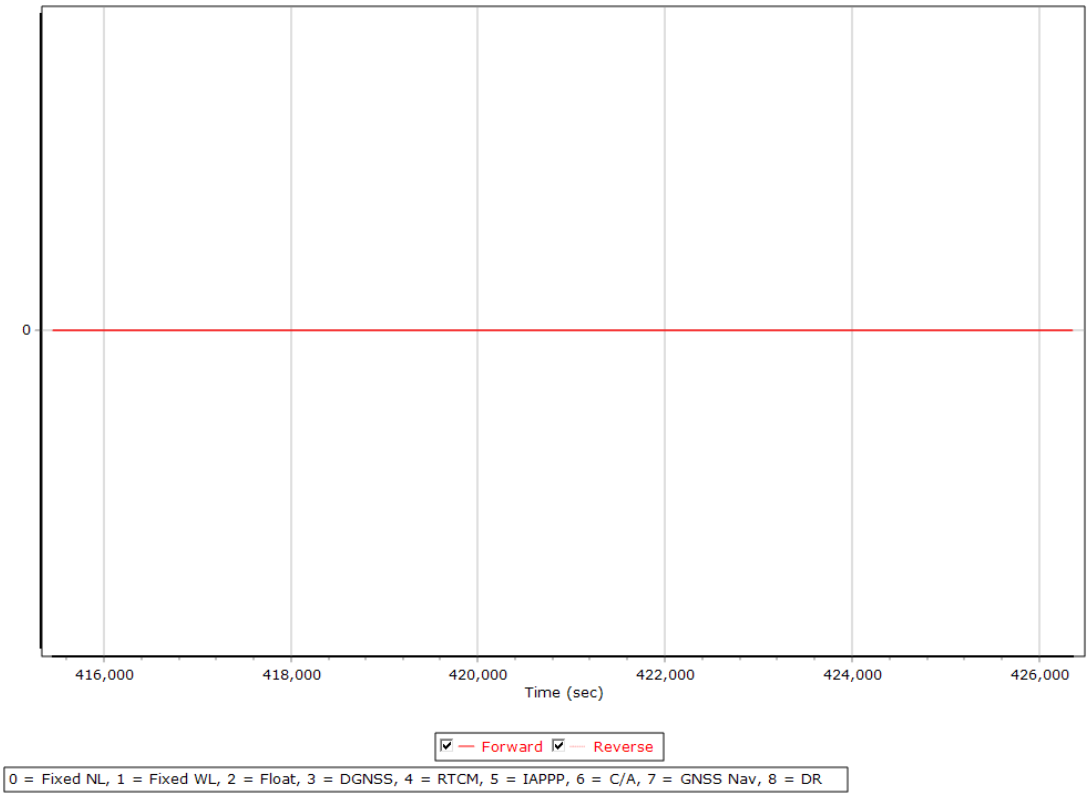


Baseline Length

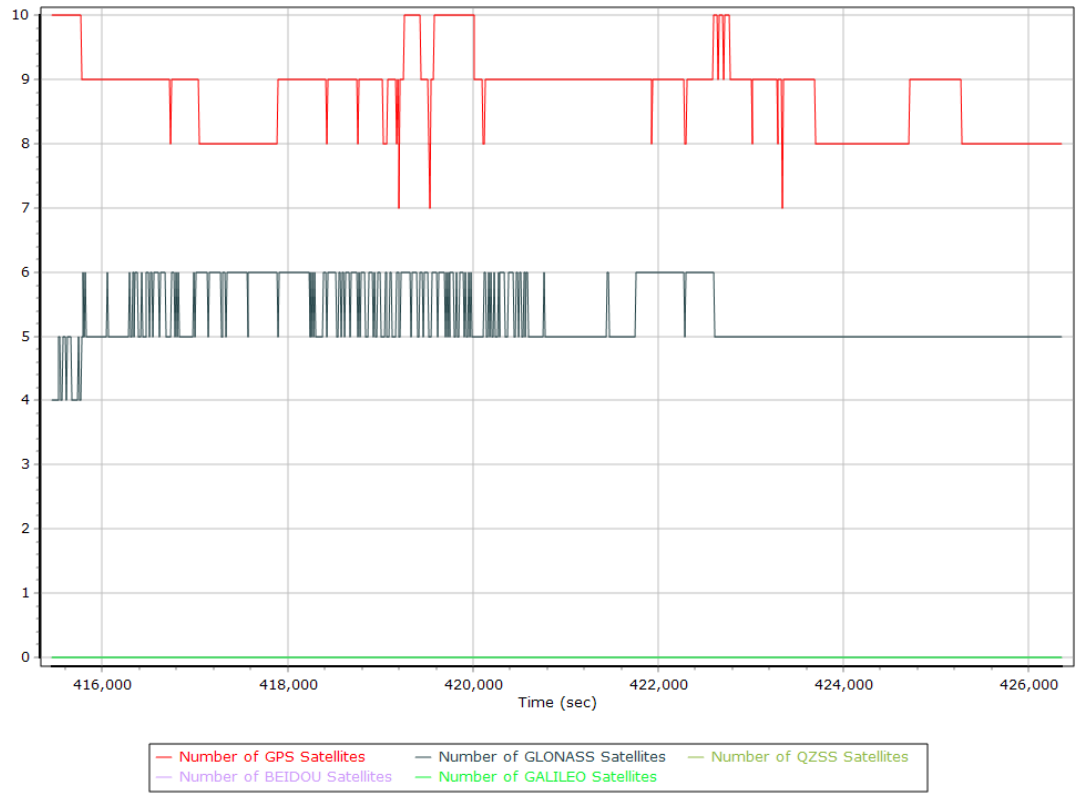


Forward Processed Solution Status

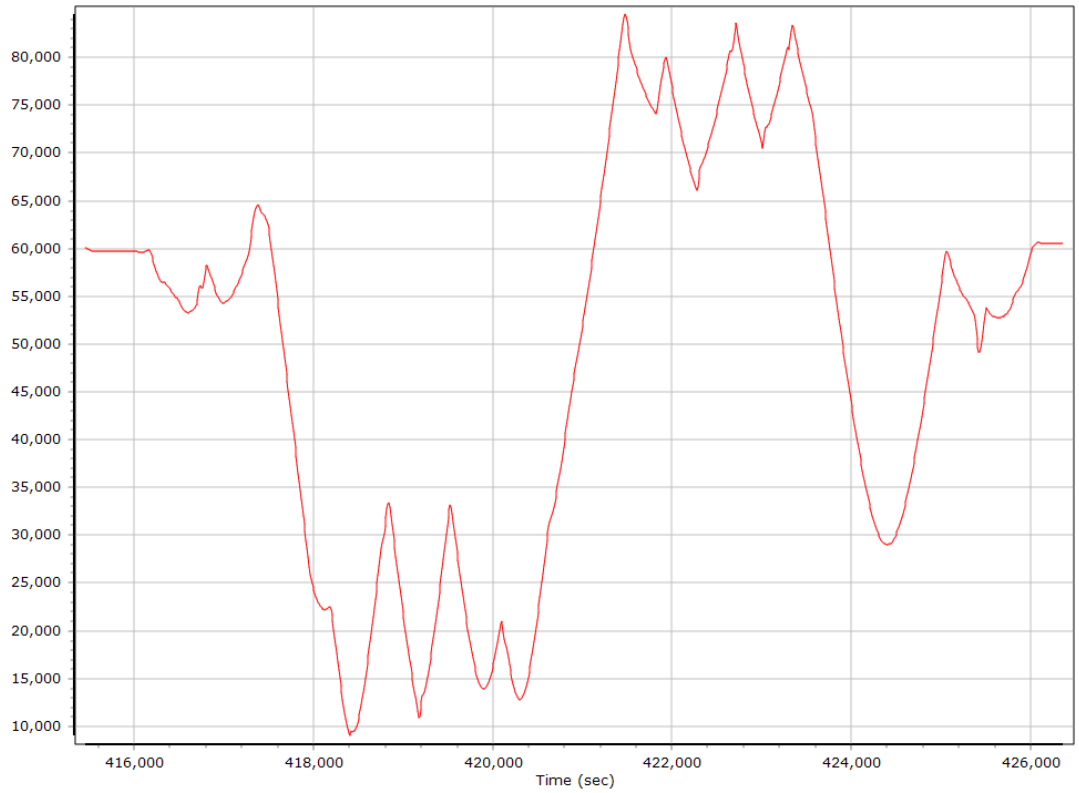
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

Export Summary

Export file	SBET_20200416B.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	415398.004 (4/16/2020 7:23:18 PM)		
Export end time	426365.005 (4/16/2020 10:26:05 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20200416C
Processing date	2021-01-19 00:12:00
Mission date	2020-04-16 23:39:28
Mission duration	00:55:01.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.083	POS Data
ALS.084	POS Data
ALS.085	POS Data
ALS.086	POS Data
ALS.087	POS Data
ALS.088	POS Data

Input Files

File Name	File Type
Ephm1070.20g	GLONASS Broadcast Ephemeris
Ephm1070.20n	GPS Broadcast Ephemeris
Ephm1080.20g	GLONASS Broadcast Ephemeris
Ephm1080.20n	GPS Broadcast Ephemeris
iaal1070.20o	GNSS SingleBase
iaal1080.20o	GNSS SingleBase
iade1070.20o	GNSS SingleBase
iade1080.20o	GNSS SingleBase
iael1070.20o	GNSS SingleBase
iael1080.20o	GNSS SingleBase
iamn1070.20o	GNSS SingleBase
iamn1080.20o	GNSS SingleBase
iata1070.20o	GNSS SingleBase
iata1080.20o	GNSS SingleBase
brdc1080.20g	GLONASS Broadcast Ephemeris
brdc1080.20n	GPS Broadcast Ephemeris
igu21013_18.sp3	GPS Precise Ephemeris
igu21014_18.sp3	GPS Precise Ephemeris
igu21015_18.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_20200416C.out	SBET Trajectory File
SBET_20200416C.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.083		
Last raw data file	ALS.088		
Start GPS week	2101		
Start time	22.387 (4/12/2020 12:00:22 AM)		
End time	434051.799 (4/17/2020 12:34:11 AM)		
Start of fine alignment	431228.368 (4/16/2020 11:47:08 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

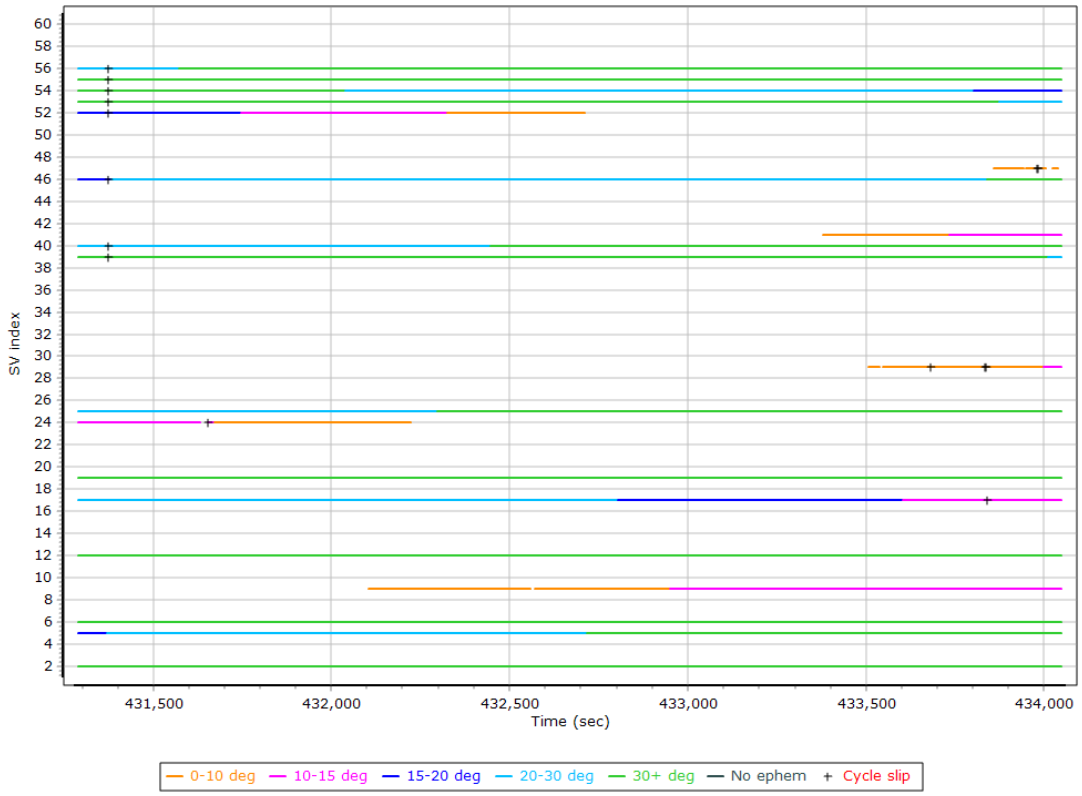
Rover Data QC

Raw IMU Import QC Summary

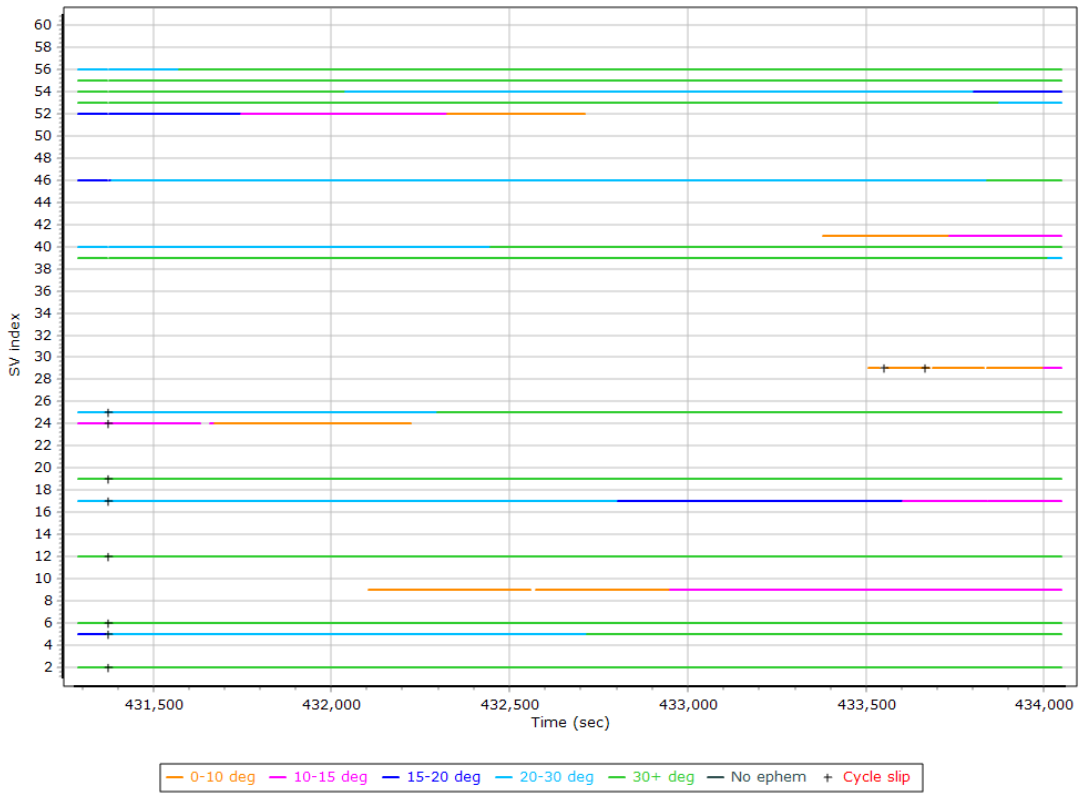
IMU data input file	imu_20200416C.dat
IMU data check log file	imudt_20200416C.log
IMU Records Processed	662592
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
430762.984 : WARNING : Gap of 430738.9974 seconds in CHECKDT input data	

Primary Observables & Satellite Data

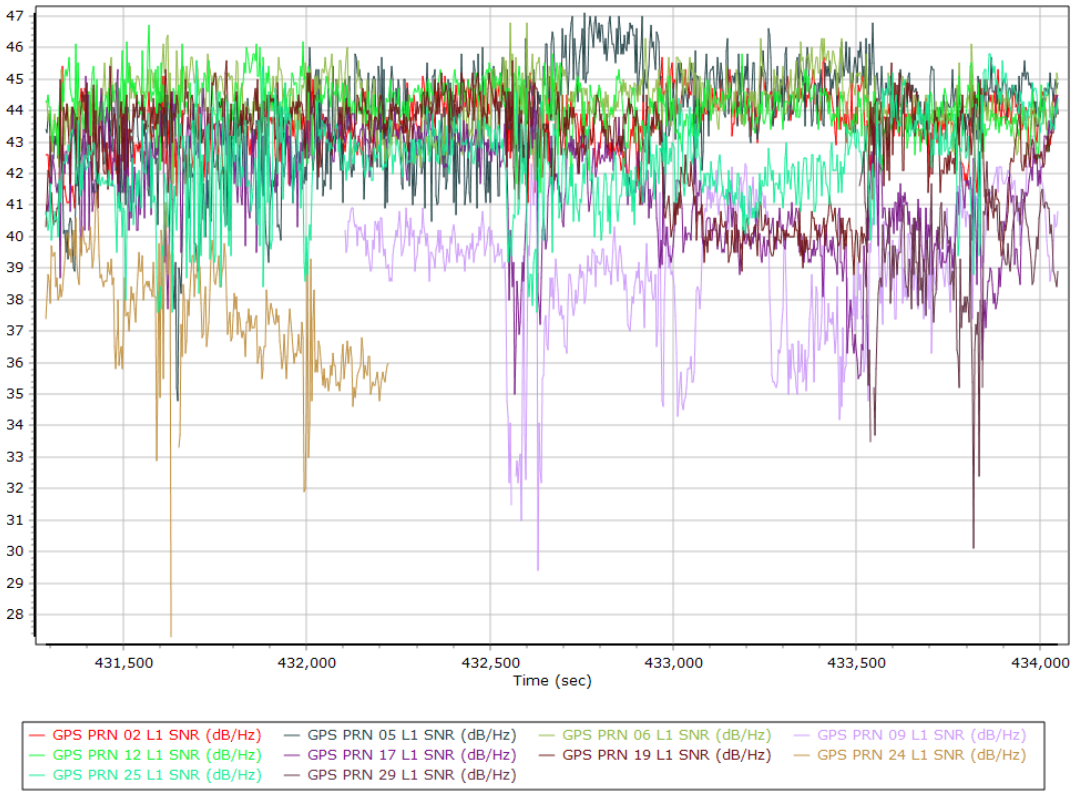
L1 Satellite Lock/Elevation



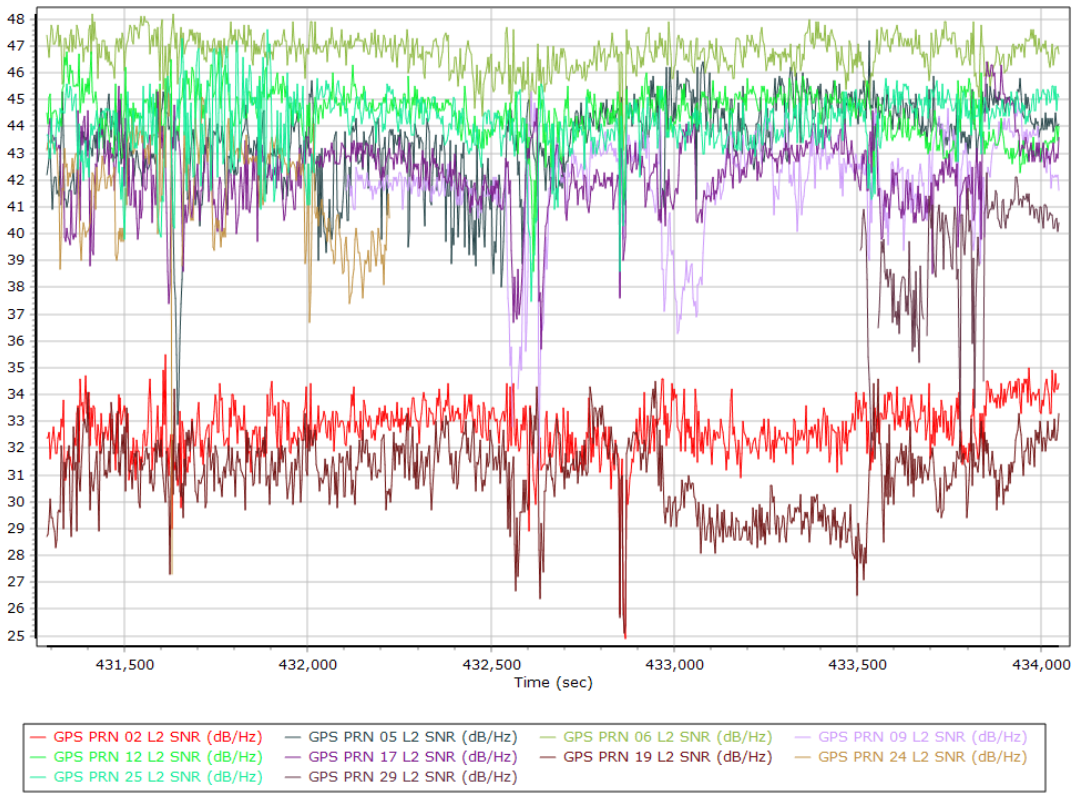
L2 Satellite Lock/Elevation



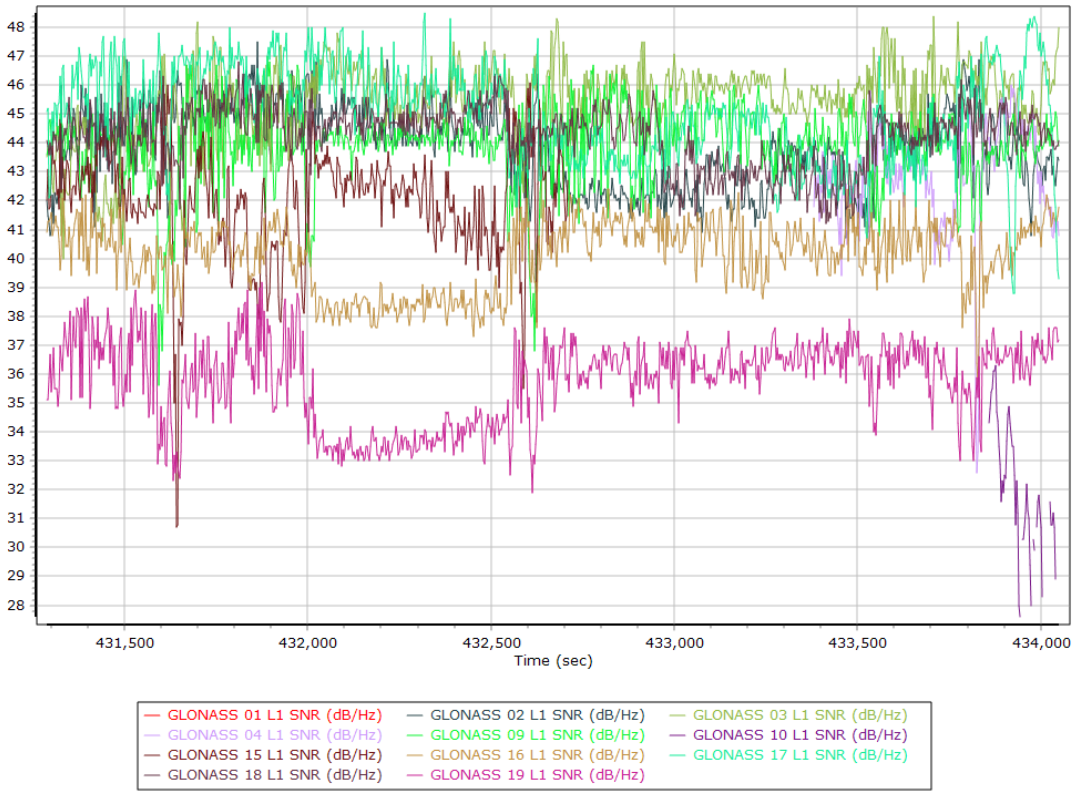
GPS L1 SNR



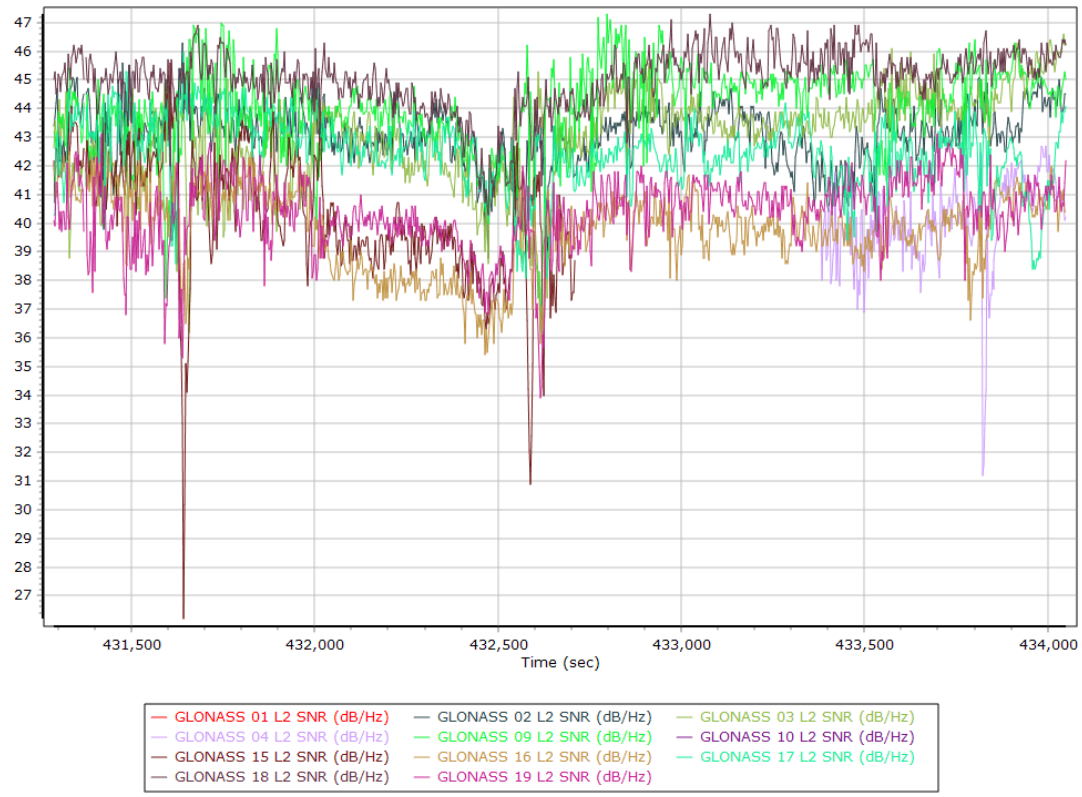
GPS L2 SNR



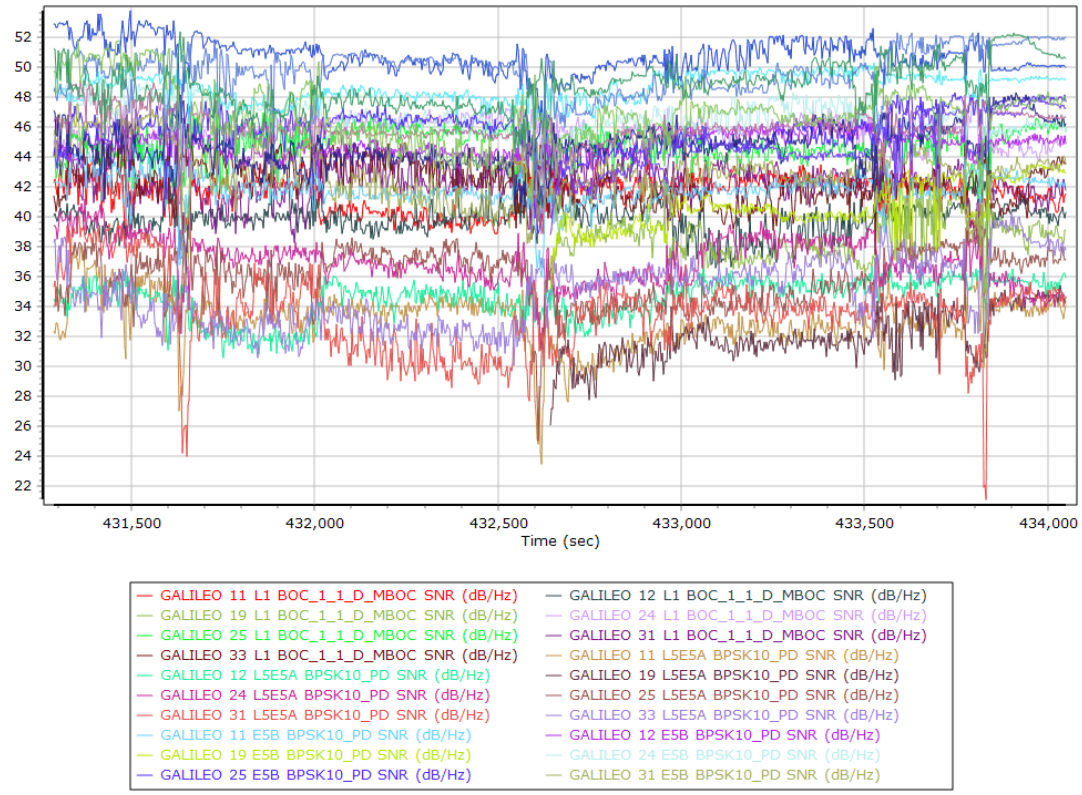
GLONASS L1 SNR



GLONASS L2 SNR

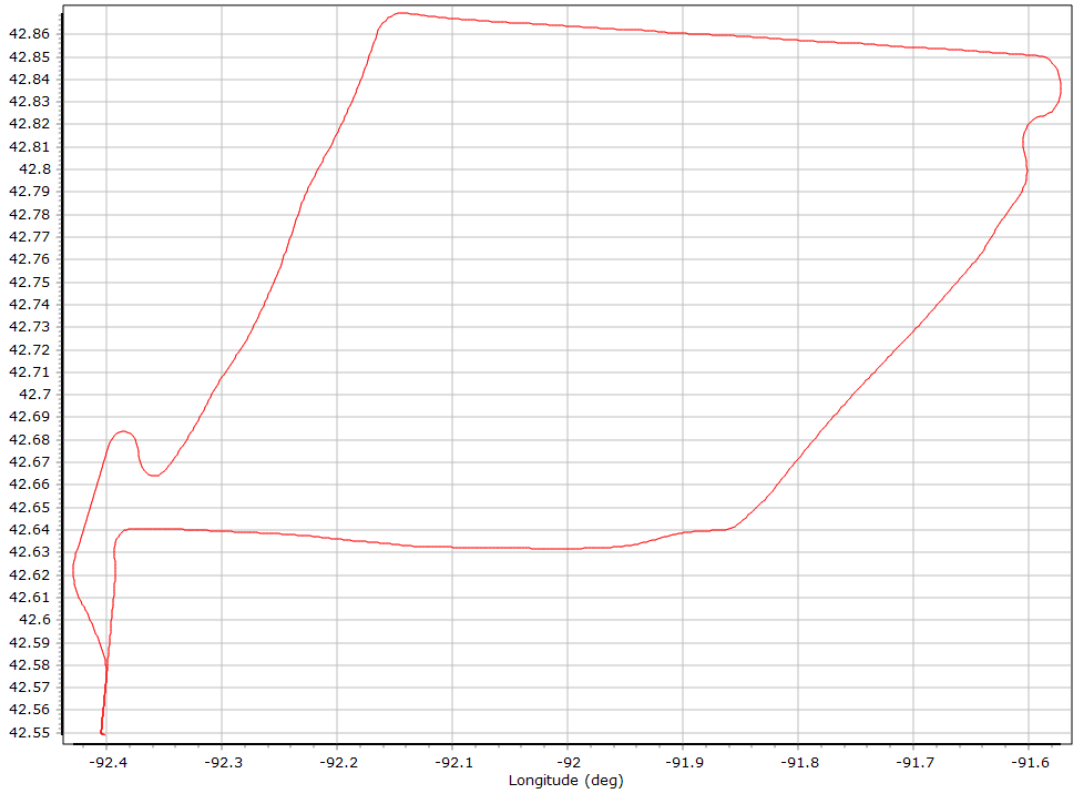


GALILEO SNR

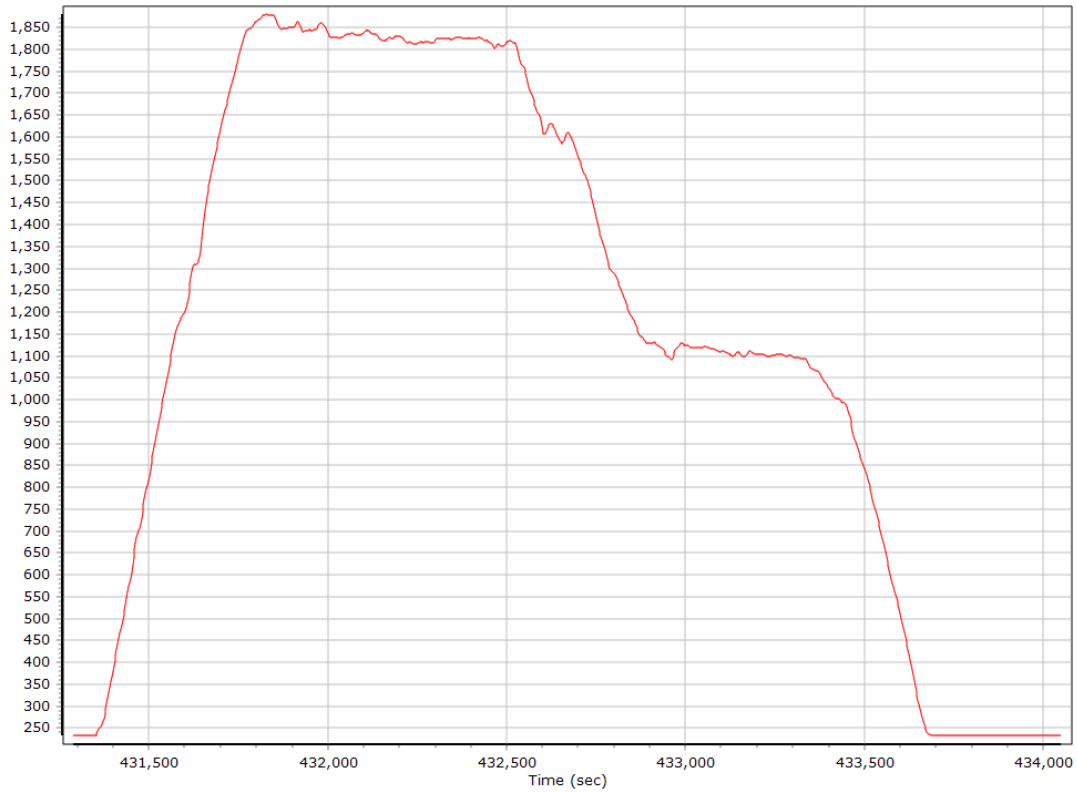


Smoothed Trajectory Information

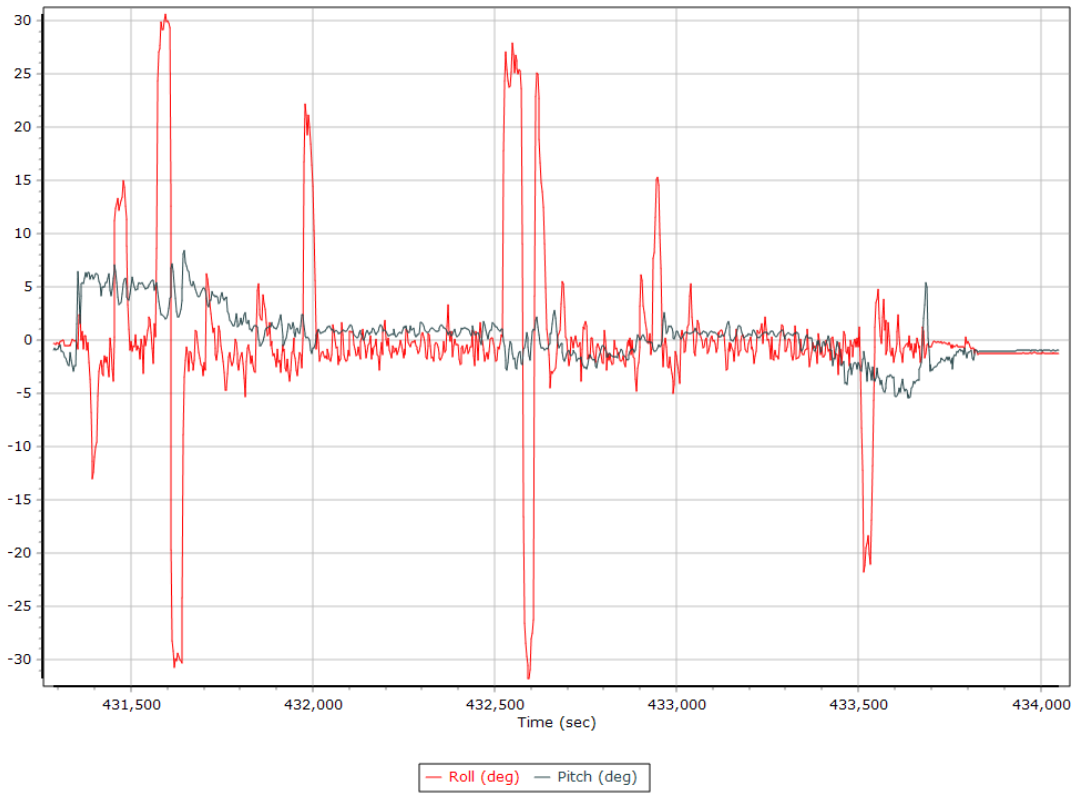
Top View



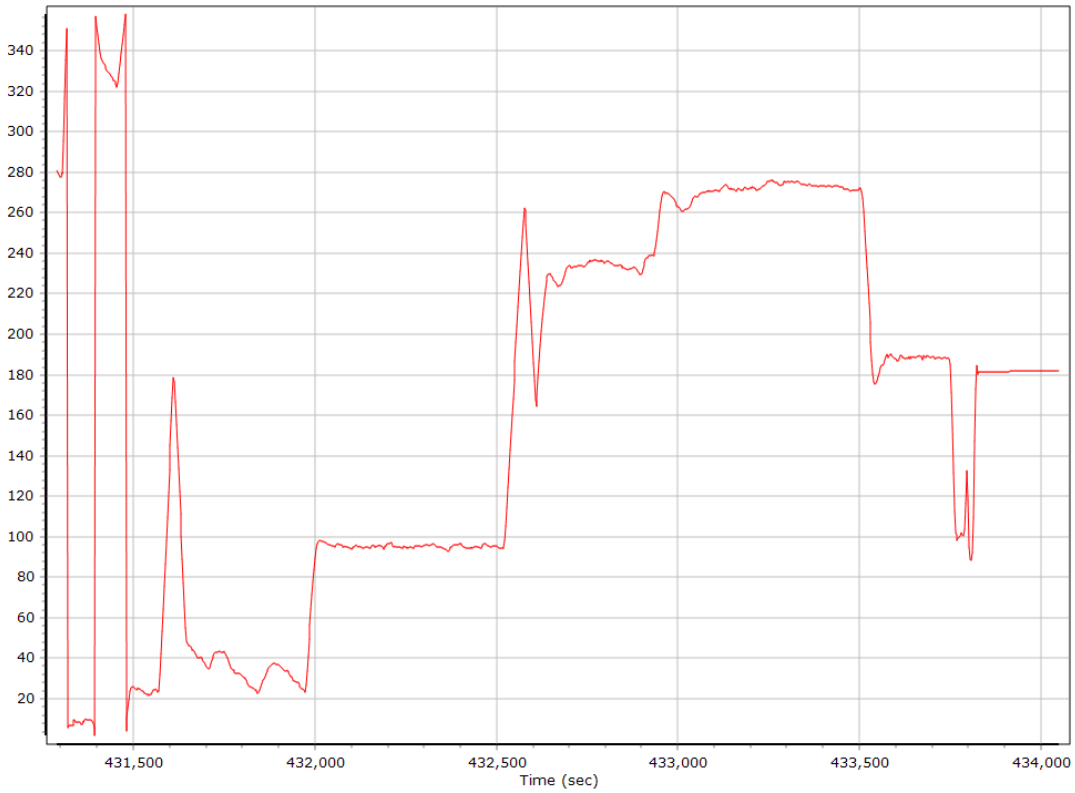
Altitude



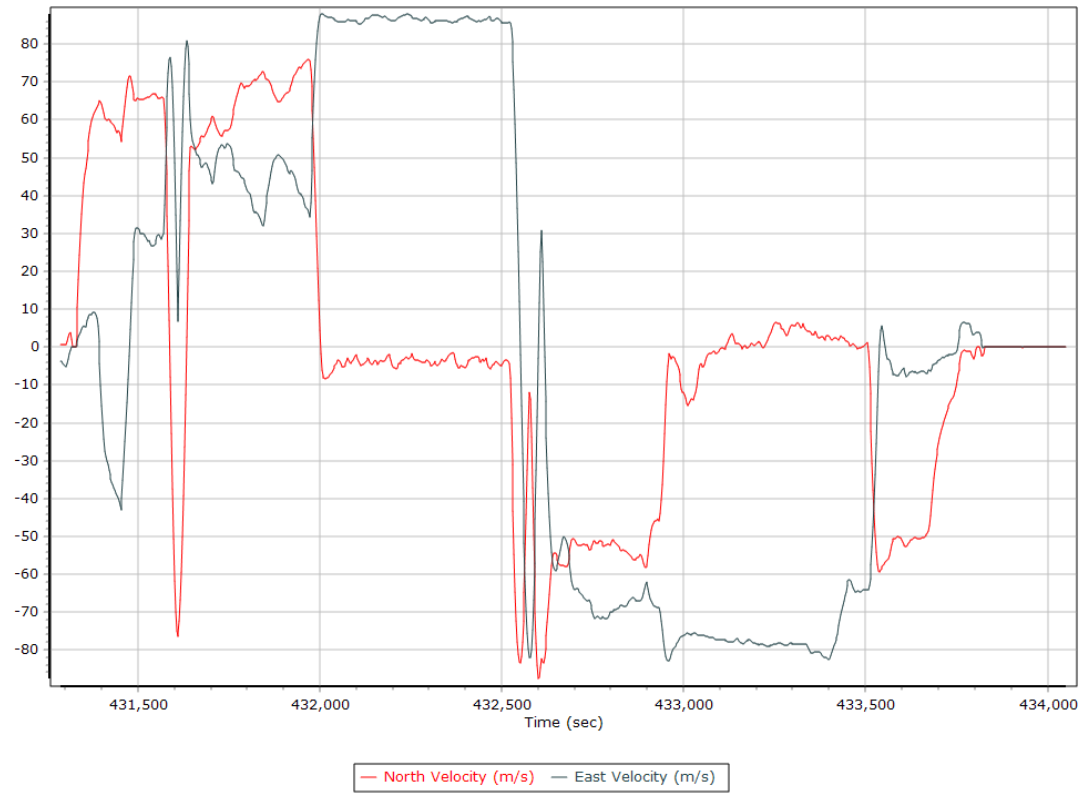
Roll/Pitch



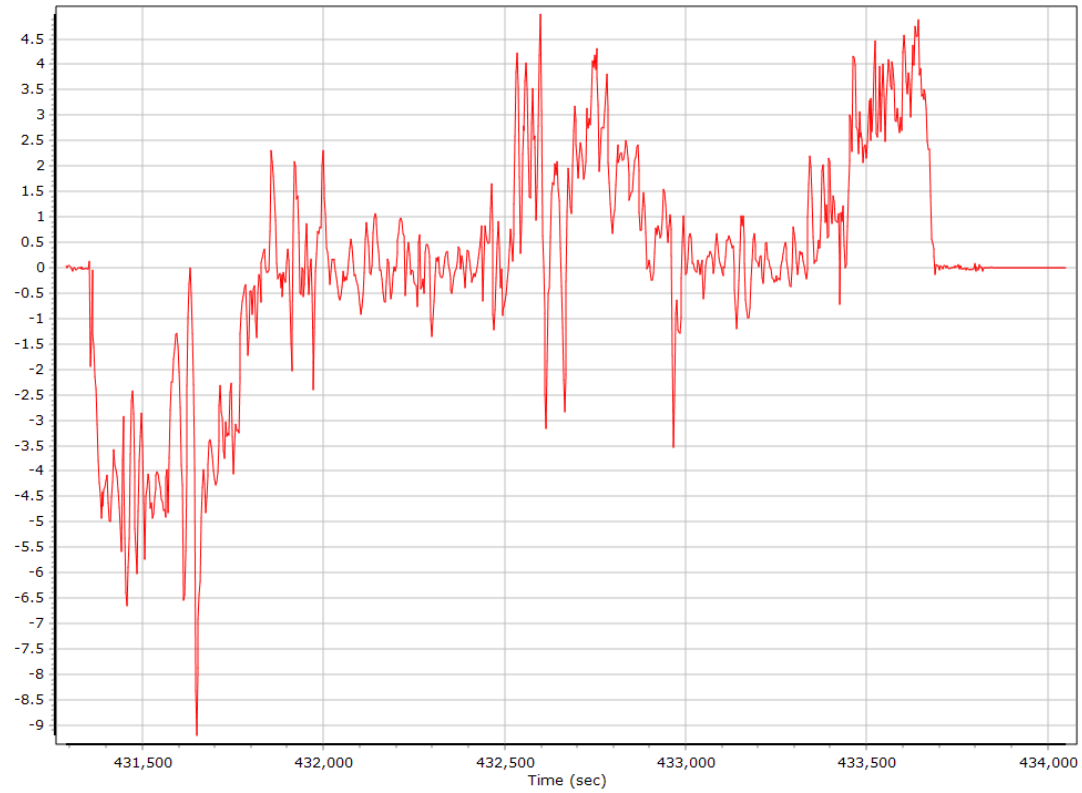
Heading



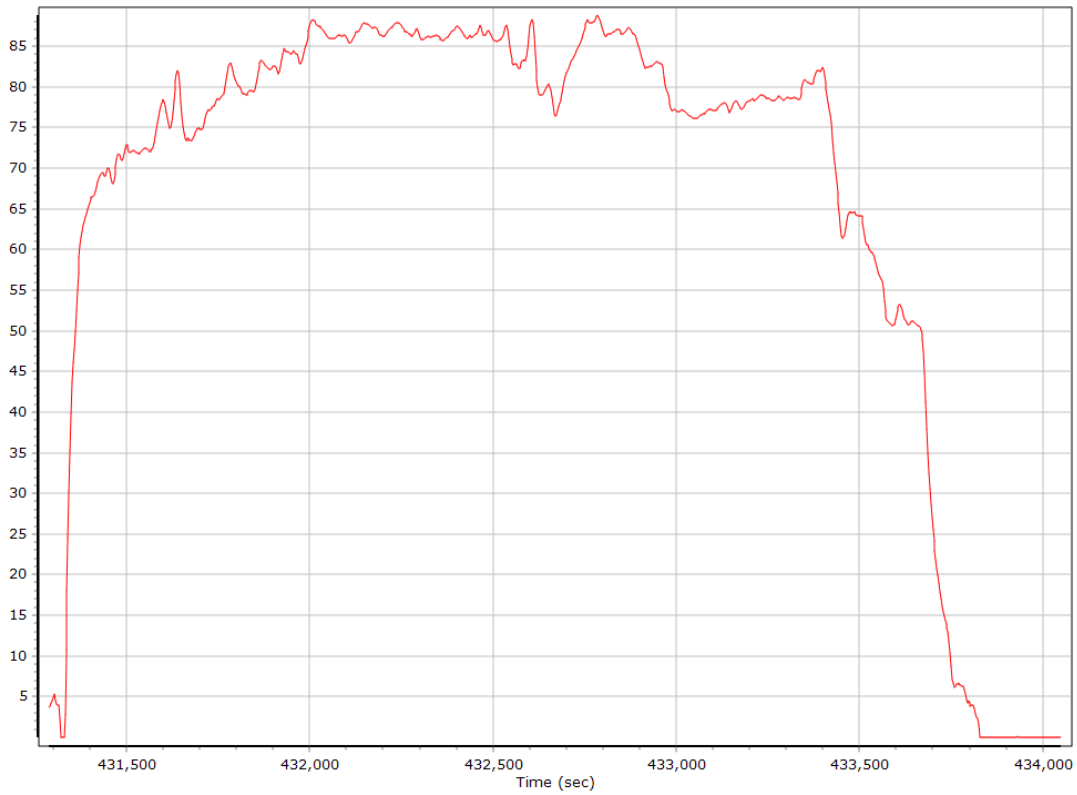
North/East Velocity



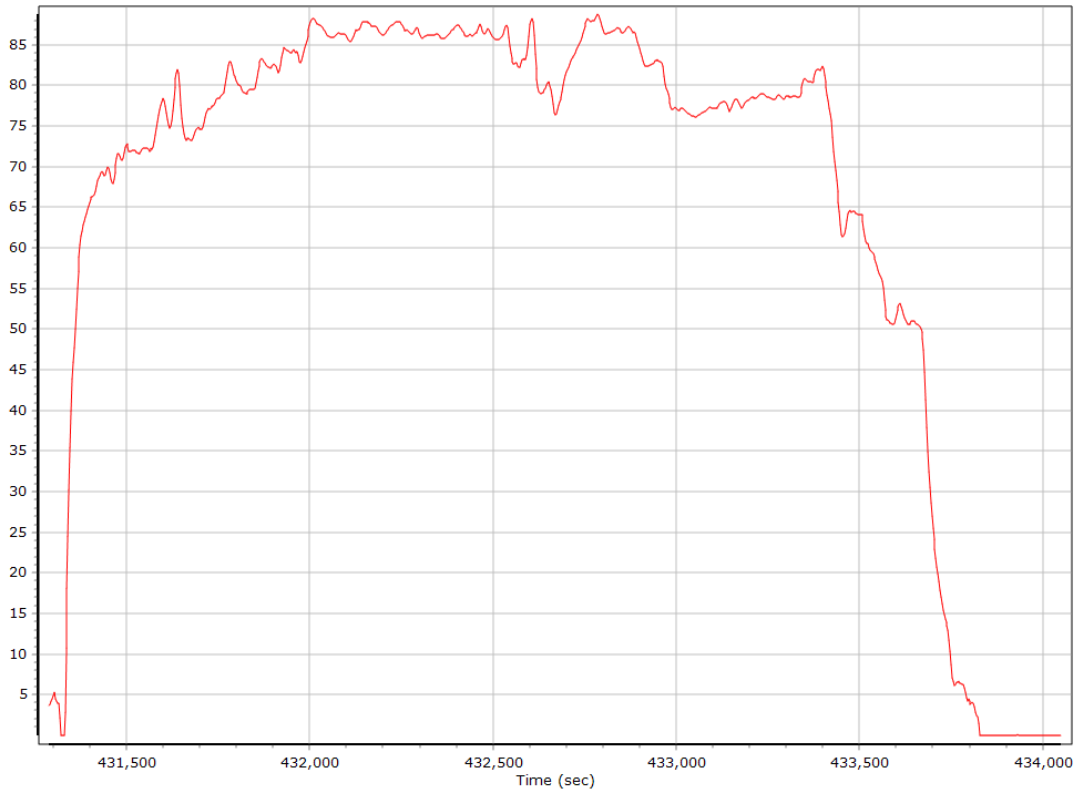
Down Velocity



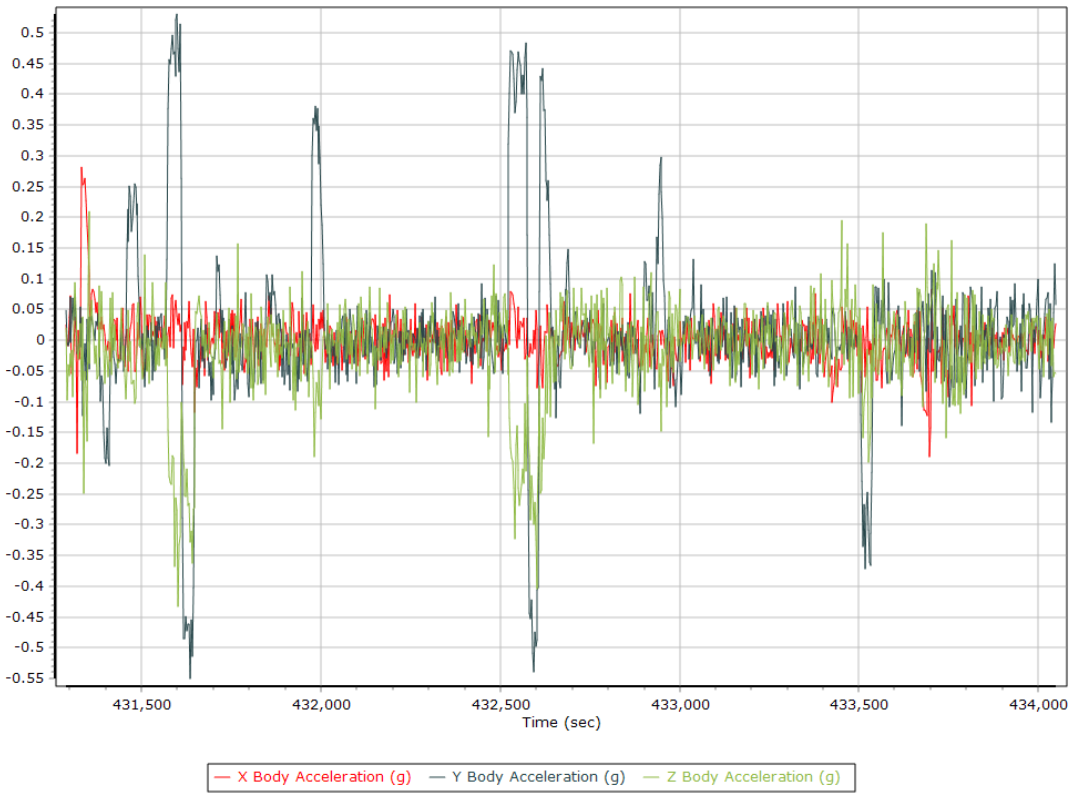
Total Speed



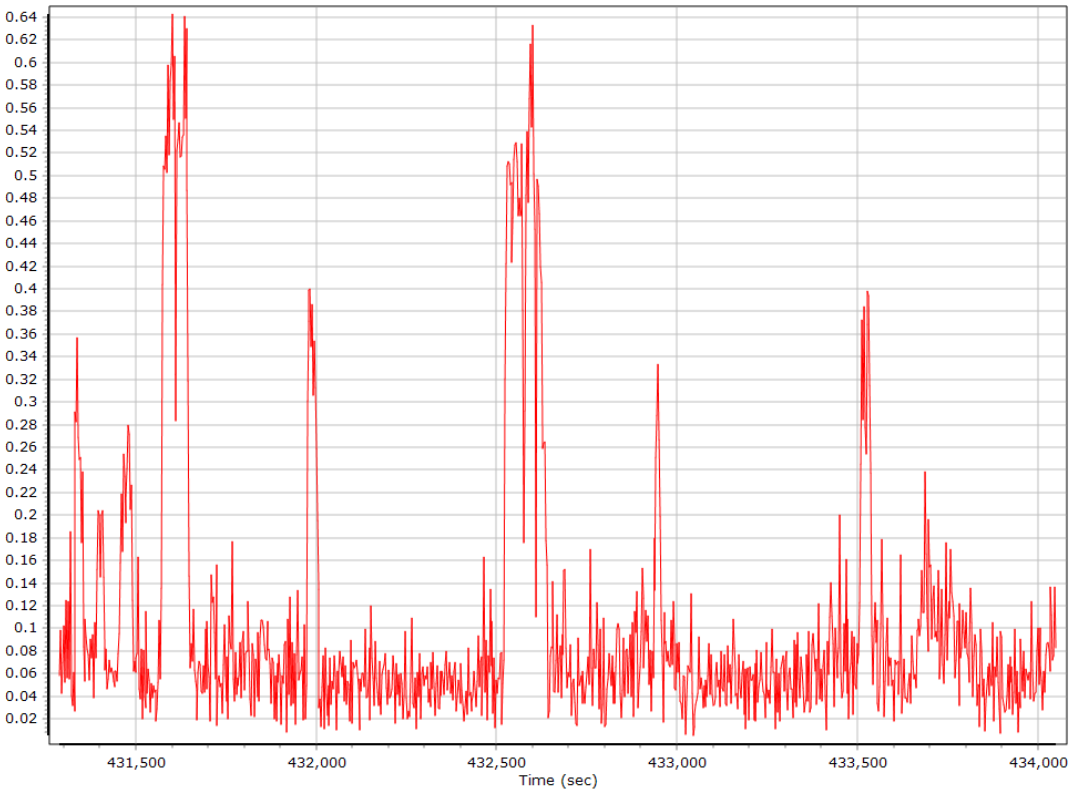
Ground Speed



Body Acceleration



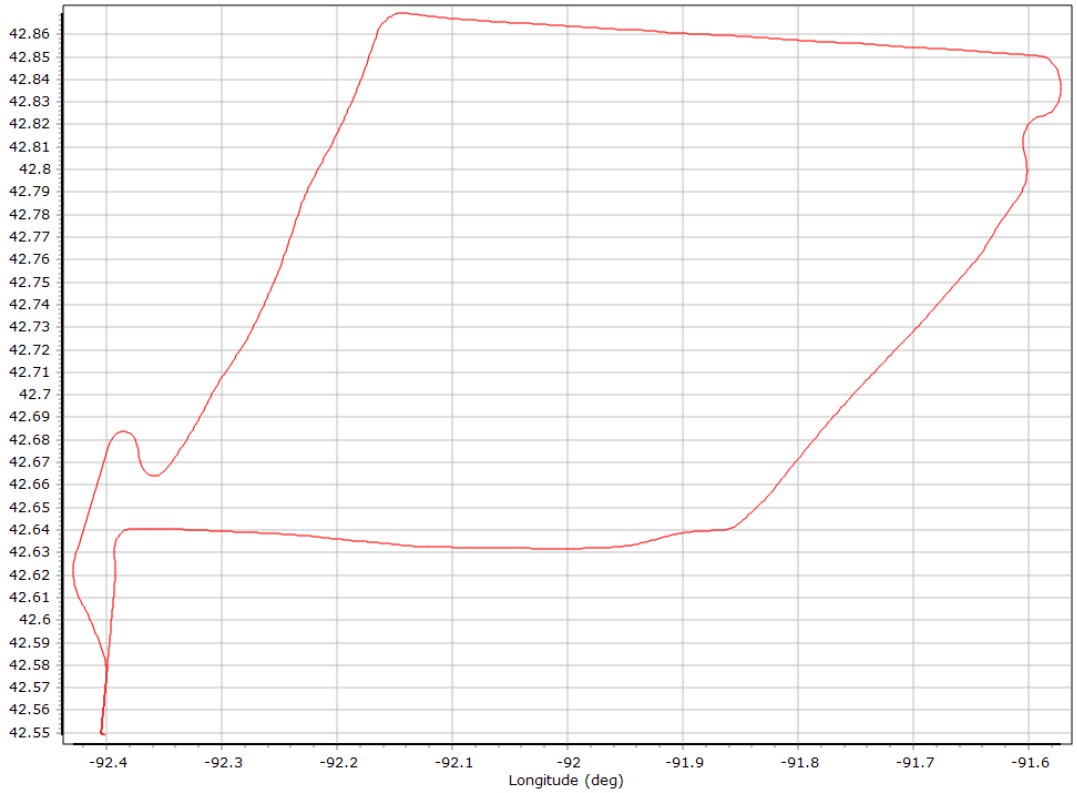
Total Body Acceleration



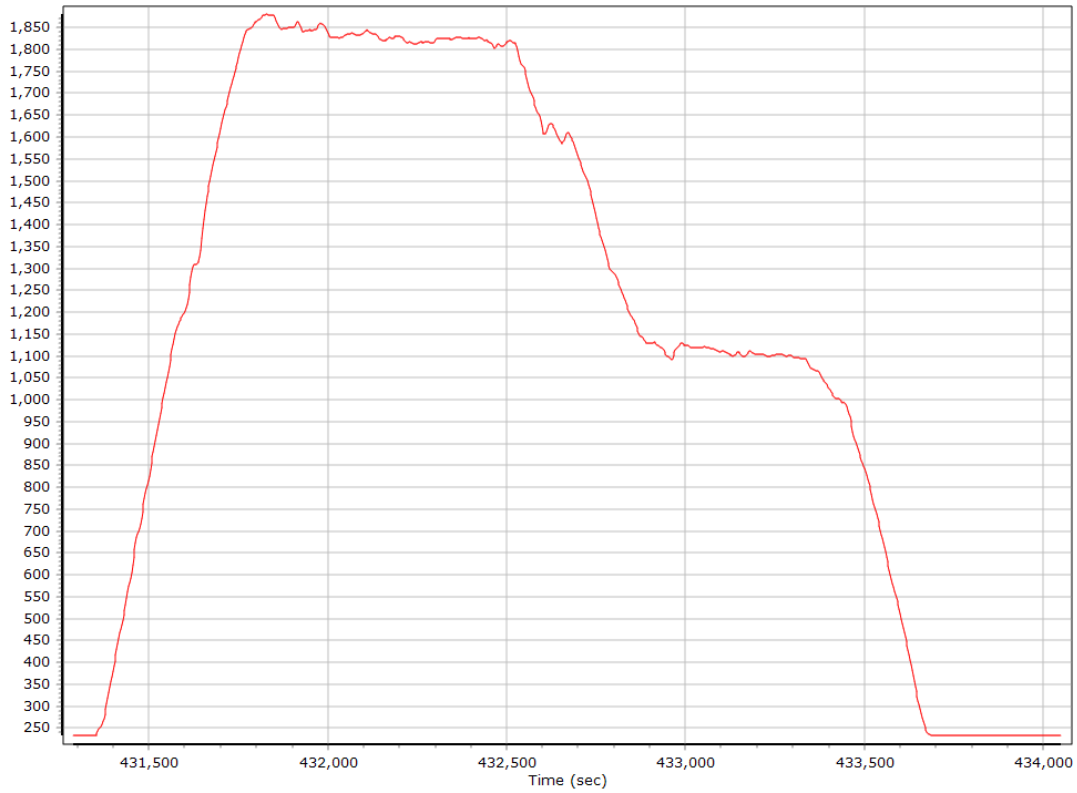
Body Angular Rate

Forward Processed Trajectory Information

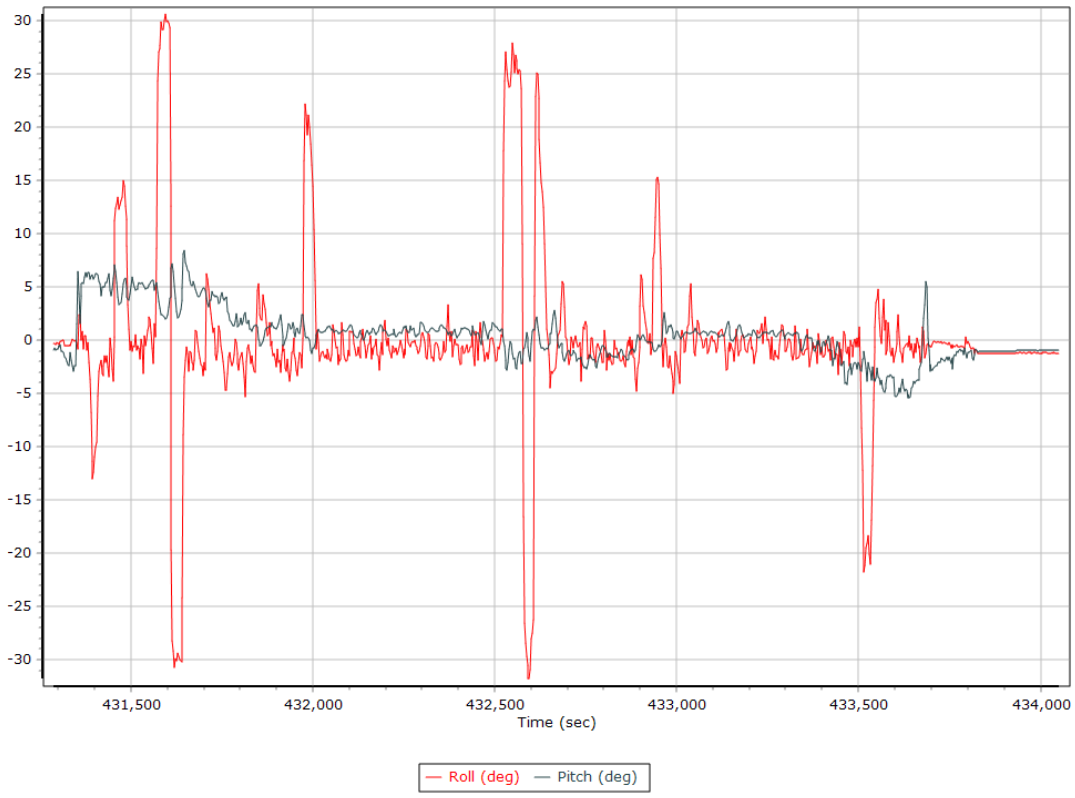
Top View



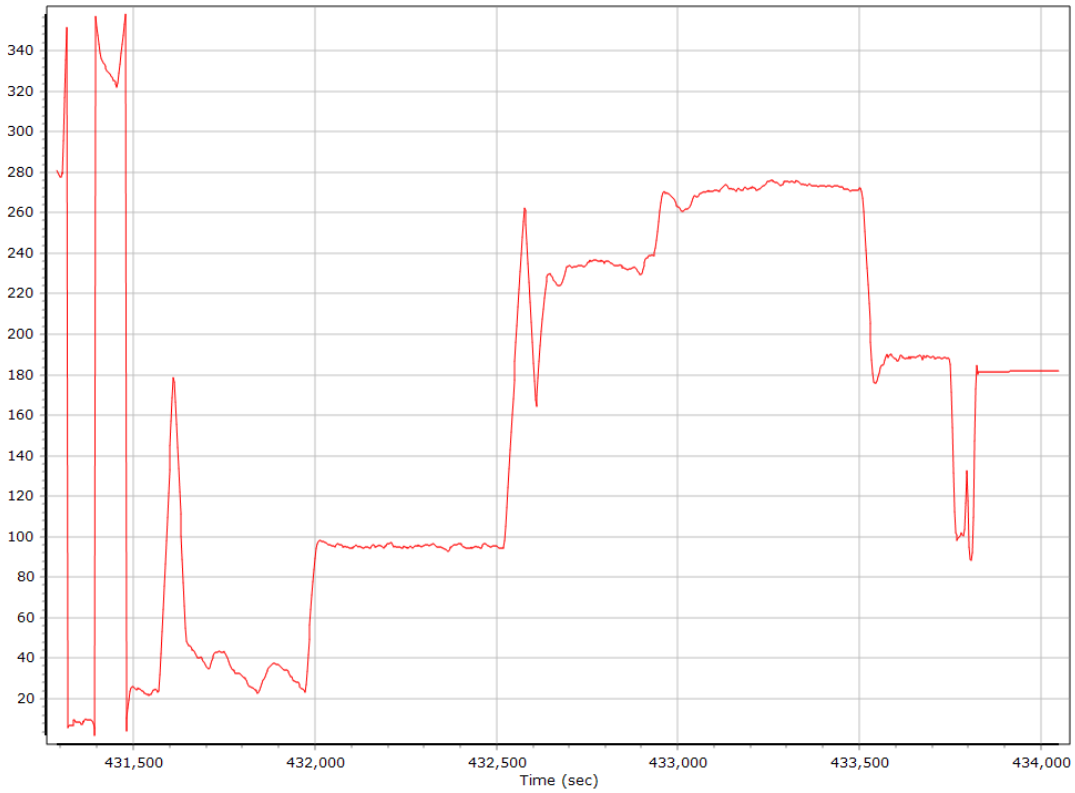
Altitude



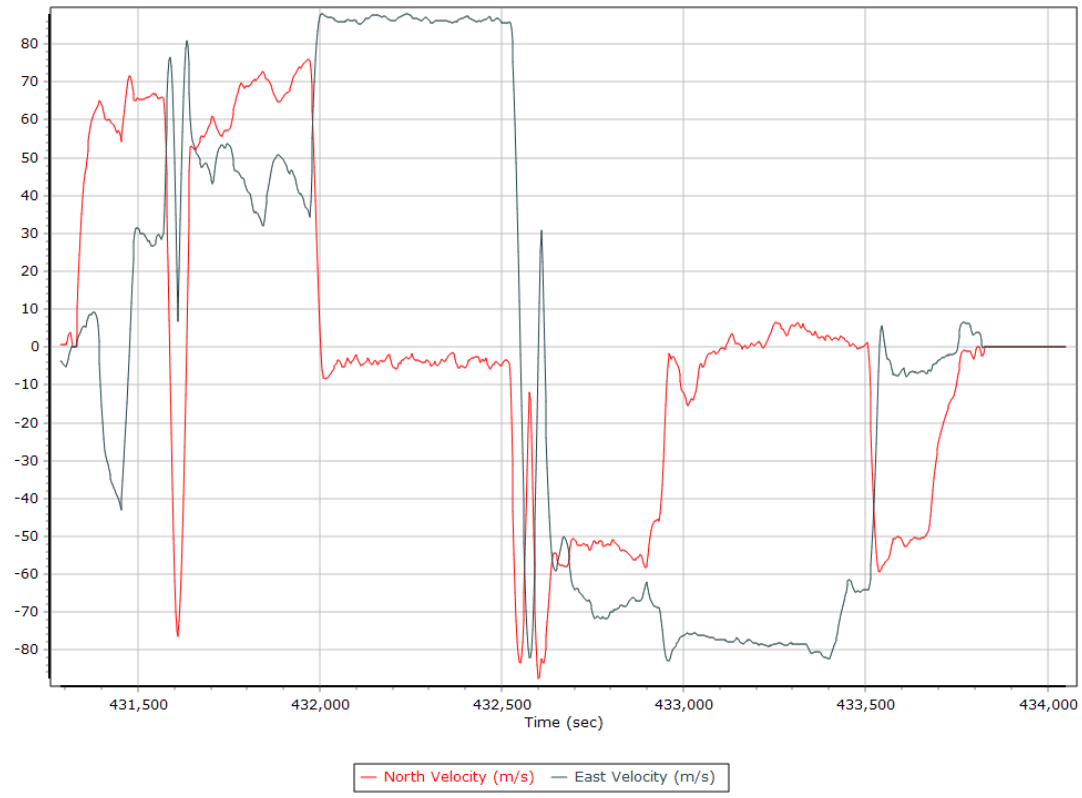
Roll/Pitch



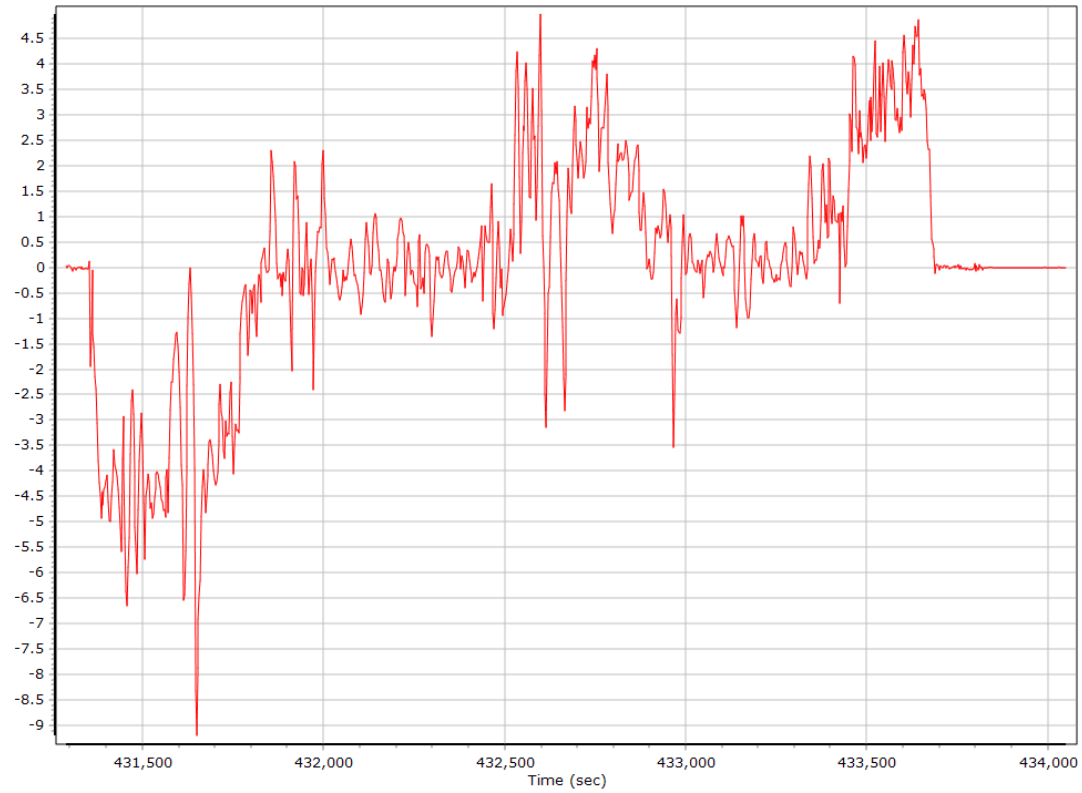
Heading



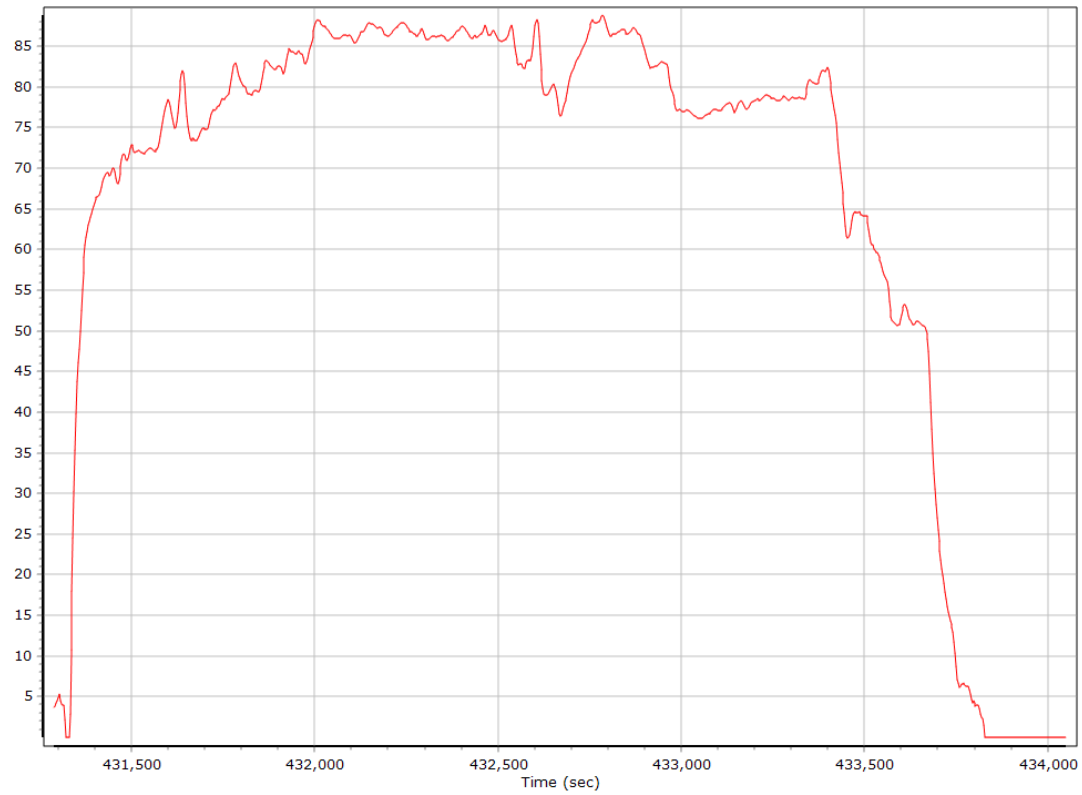
North/East Velocity



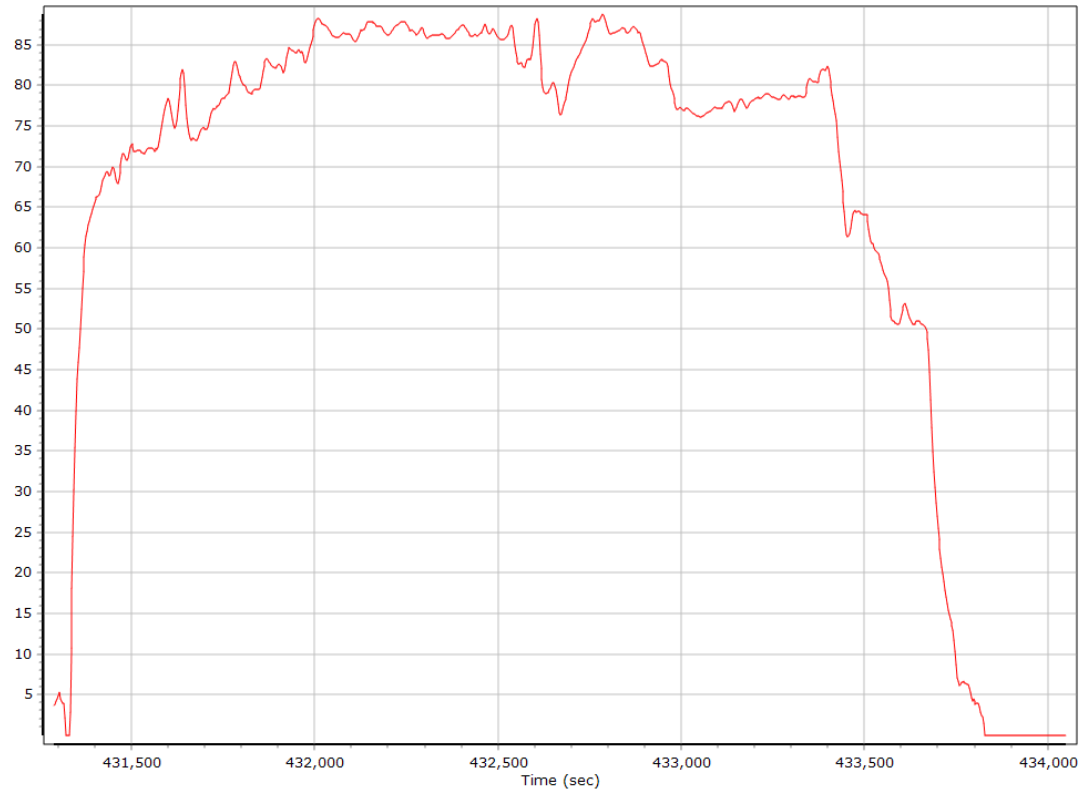
Down Velocity



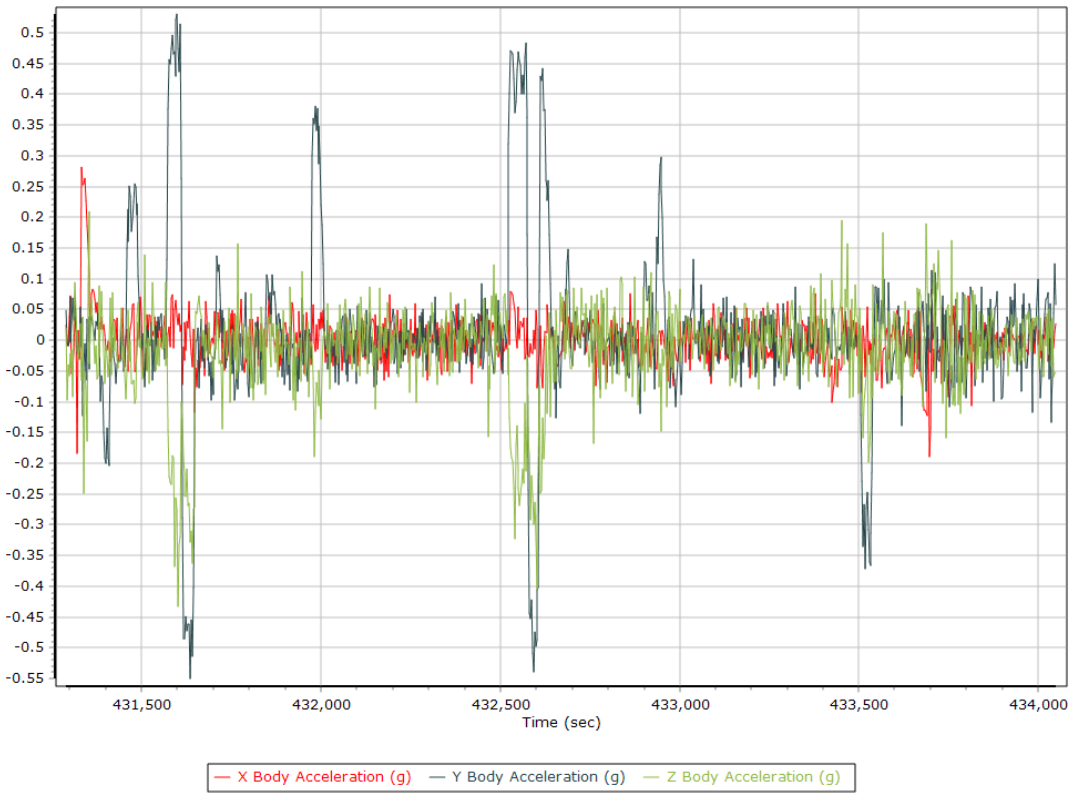
Total Speed



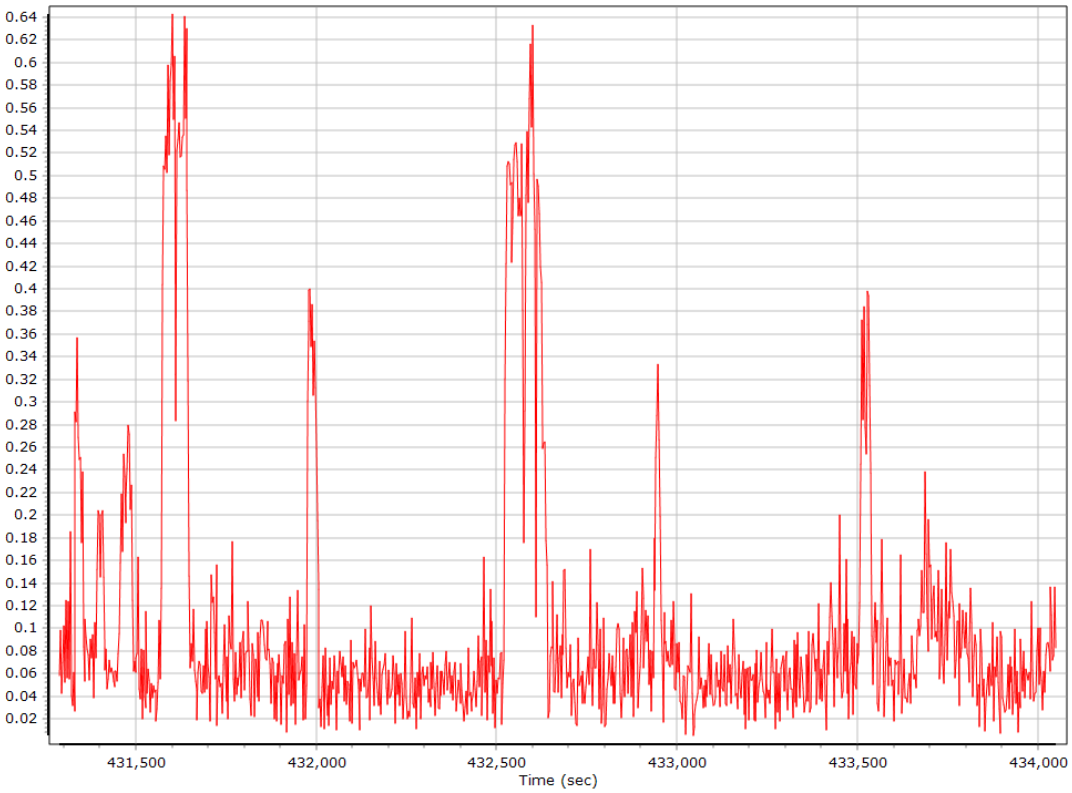
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/16/2020	IAAL	52.07	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/17/2020	IAAL	52.07	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAEL	69.25	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/17/2020	IAEL	69.25	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IADE	71.77	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/17/2020	IADE	71.77	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IATA	84.67	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/17/2020	IATA	84.67	GNSS	30	CORS (daily)	Smart Base	Imported
04/16/2020	IAMN	87.27	GNSS	30	ALTCORS (daily)	Smart Base	Imported
04/17/2020	IAMN	87.27	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IAAL
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	3301 s (2101 430768 - 2101 434069)
Number of reference stations	5
Primary station GPS measurement usage (%)	99.2
Primary station GLONASS measurement usage (%)	86.7
Average number of satellites per epoch	14.1
Max number of GPS stations used	5
Min number of GPS stations used	3
Max number of GLONASS stations used	5
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	3540
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Adjusted	
Solution Epochs	5746	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59750"	228.904
Adjusted		N42°01'49.10916"	W91°32'55.59737"	228.852
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAMN		
Filename	iamn1070.20o, iamn1080.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/17/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59750"		
Ellipsoidal height (m)	228.90416		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67188"	W92°33'05.07502"	247.334
Adjusted		N41°58'01.67203"	W92°33'05.07505"	247.320
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.015	0.015

Base Station Information

Station ID	IATA		
Filename	iata1070.20o, iata1080.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/17/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67188"		
Longitude	W92°33'05.07502"		
Ellipsoidal height (m)	247.33437		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52633"	316.516
Adjusted		N43°16'15.83228"	W91°49'53.52627"	316.487
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.029	0.030

Base Station Information

Station ID	IADE		
Filename	iade1070.20o, iade1080.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/17/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52633"		
Ellipsoidal height (m)	316.51618		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	47.65	**Output Coordinates**	Original	
Solution Epochs	5718	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52987"	298.980
Adjusted		N42°52'40.47681"	W91°21'41.52951"	298.959
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.009	0.022	0.024

Base Station Information

Station ID	IAEL		
Filename	iael1070.20o, iael1080.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/17/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52987"		
Ellipsoidal height (m)	298.98029		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	CONTROL	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Control	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24724"	291.092
Adjusted		N42°44'49.40418"	W92°47'14.24724"	291.092
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAAL		
Filename	iaal1070.20o, iaal1080.20o		
Start date	4/16/2020 12:00:00 AM		
End date	4/17/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24724"		
Ellipsoidal height (m)	291.09232		
Frame	ITRF00		
Epoch	2020.289617		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	4.17	51.63	
Number of GPS SV	7	9	7
Number of GLONASS SV	0	7	7
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	7	16	14
PDOP	1.27	6.17	1.68
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	3297.00	0.00	1.00
Percentage	99.97	0.00	0.03

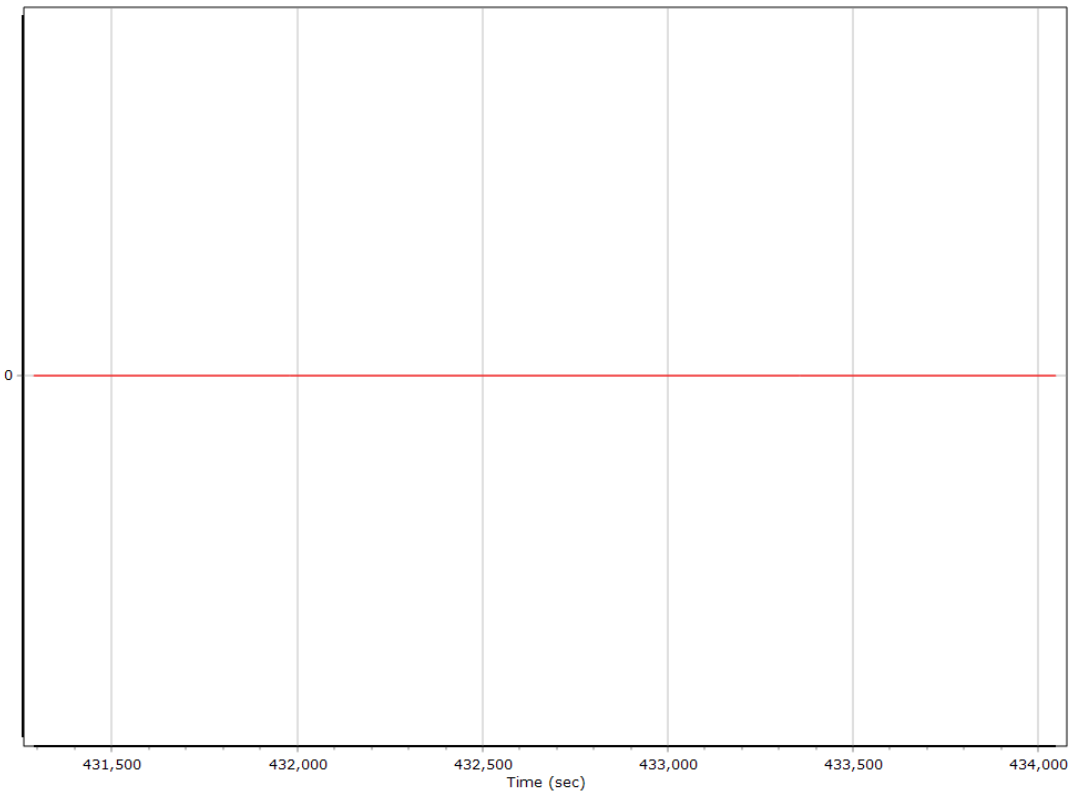
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	430750.000 (4/16/2020 11:39:10 PM)		
Processing end time	434051.000 (4/17/2020 12:34:11 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

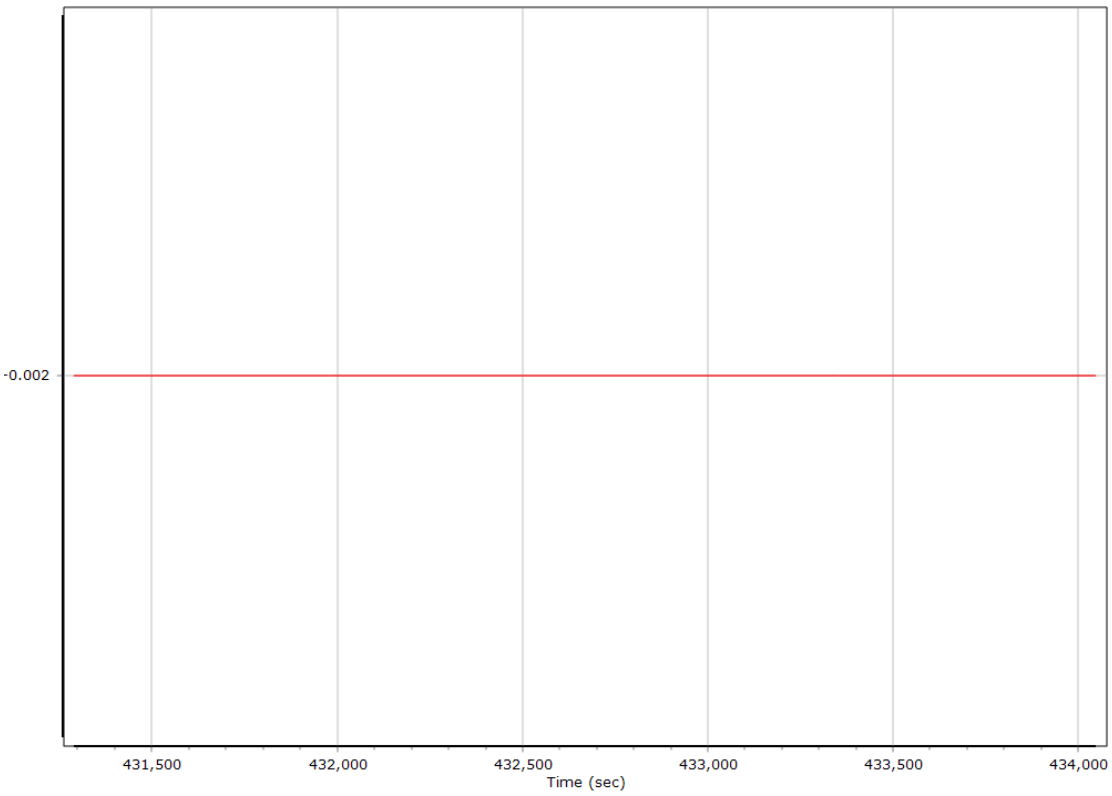
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

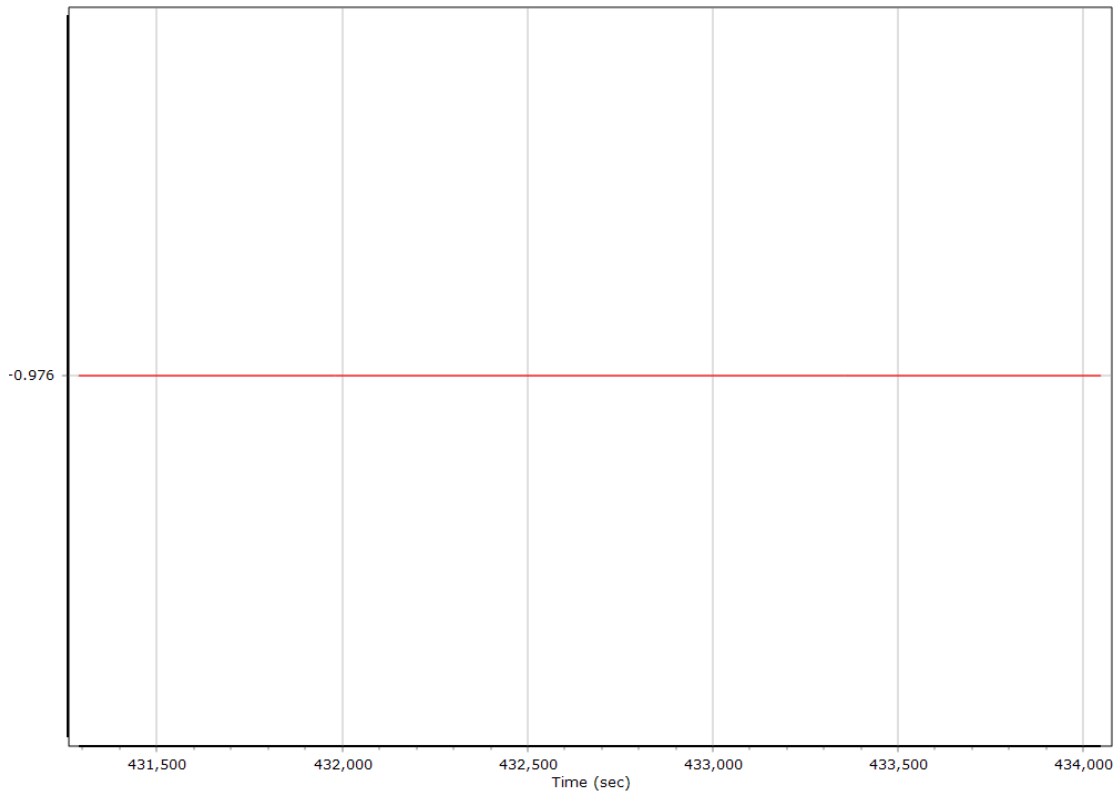
X Reference-Primary GNSS Lever Arm (m)



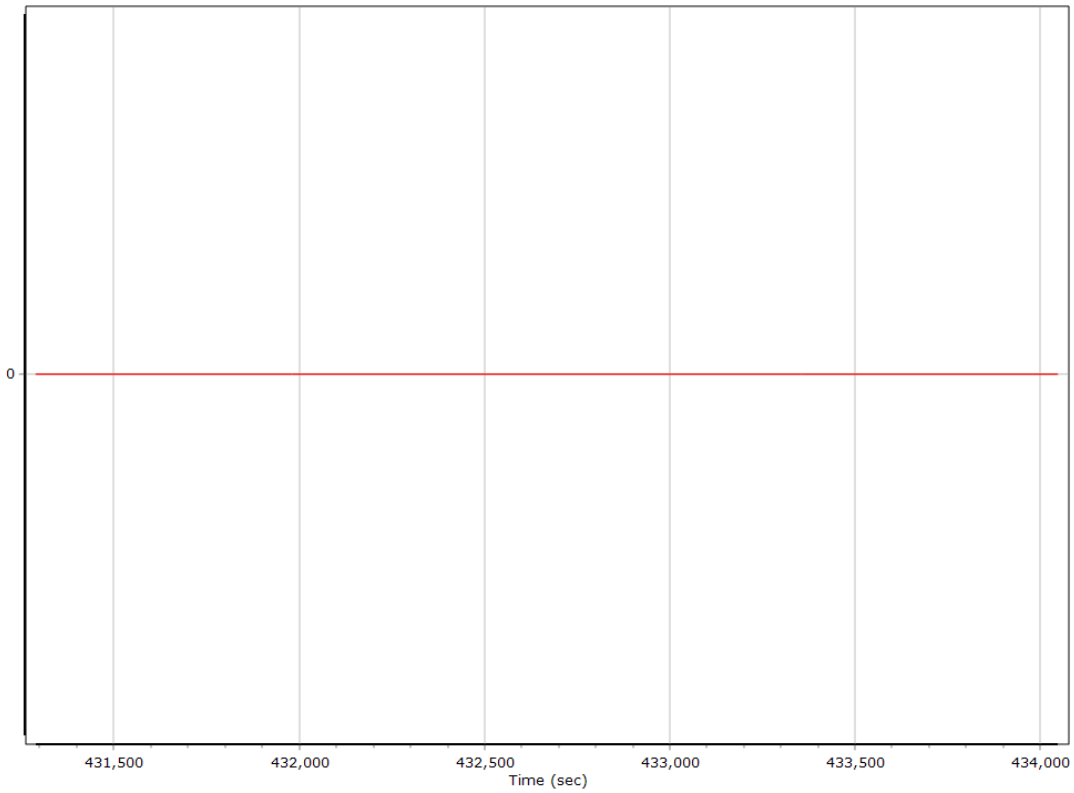
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



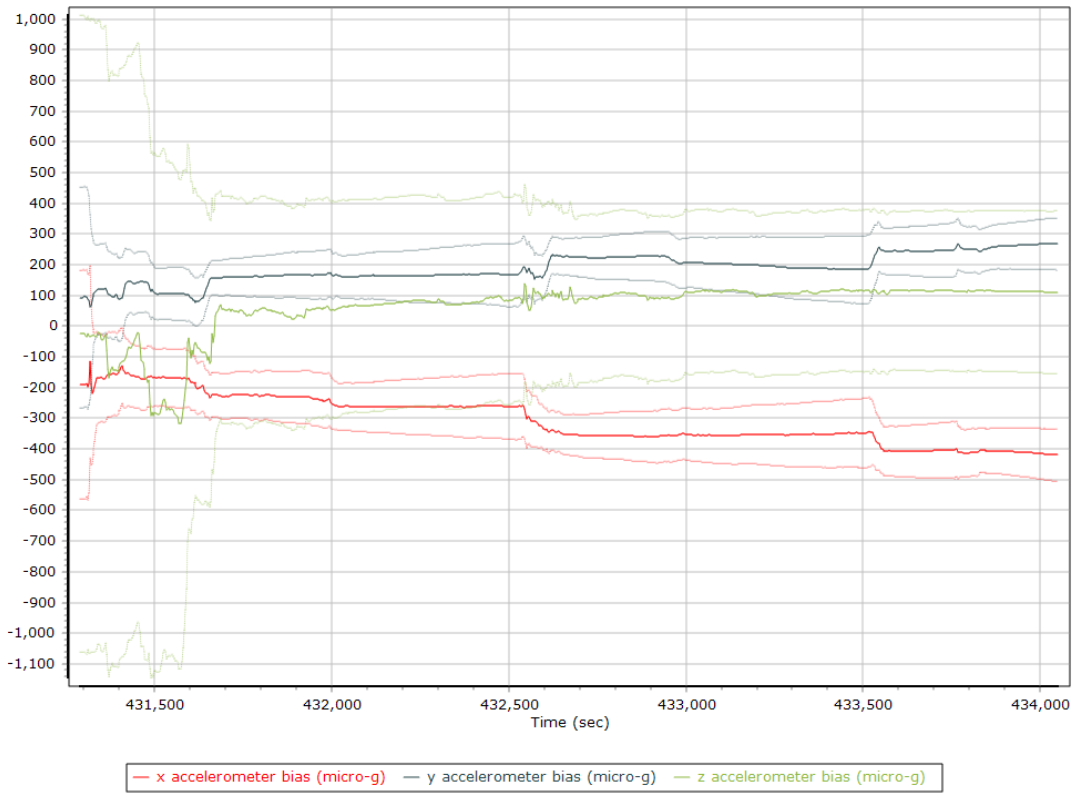
Reference-Primary GNSS Lever Arm Figure of Merit



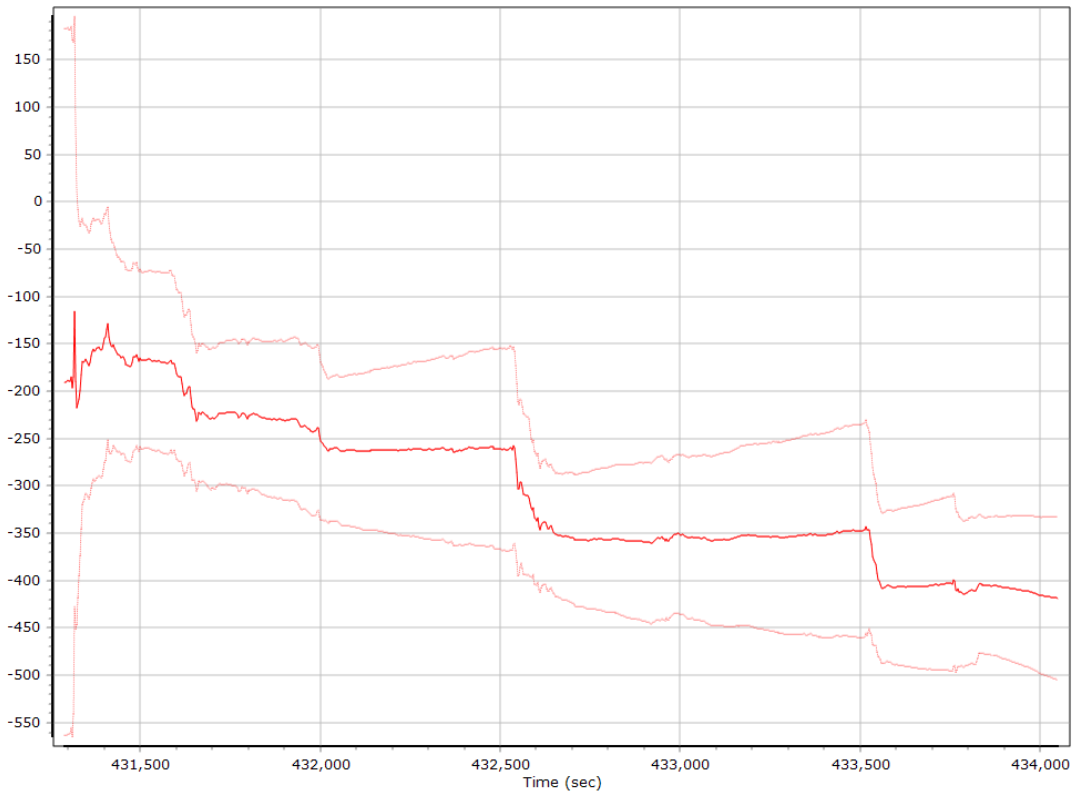
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

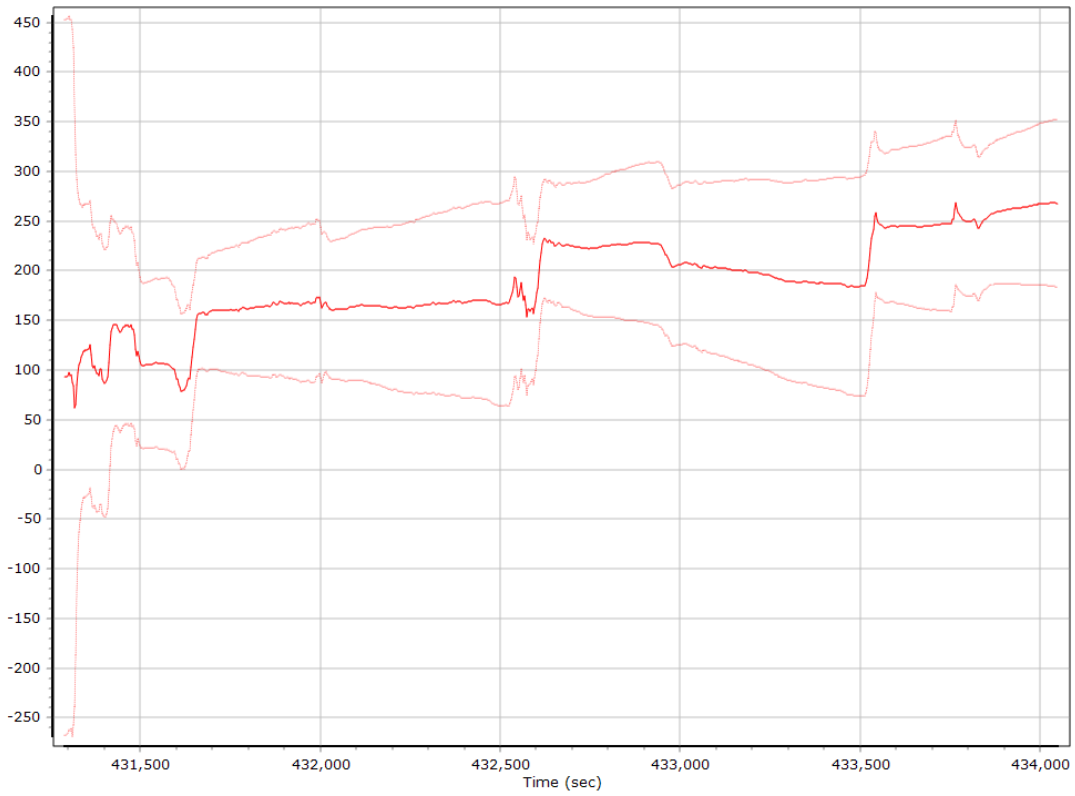
Accelerometer Bias (micro-g)



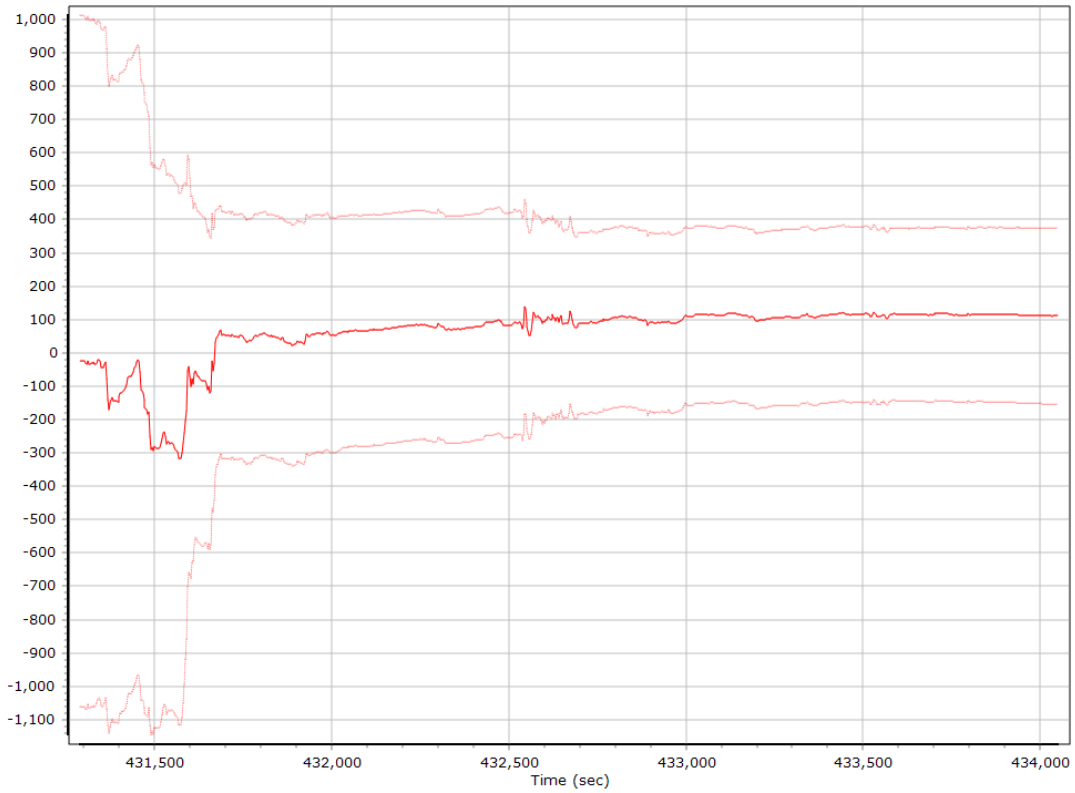
X Accelerometer Bias (micro-g)



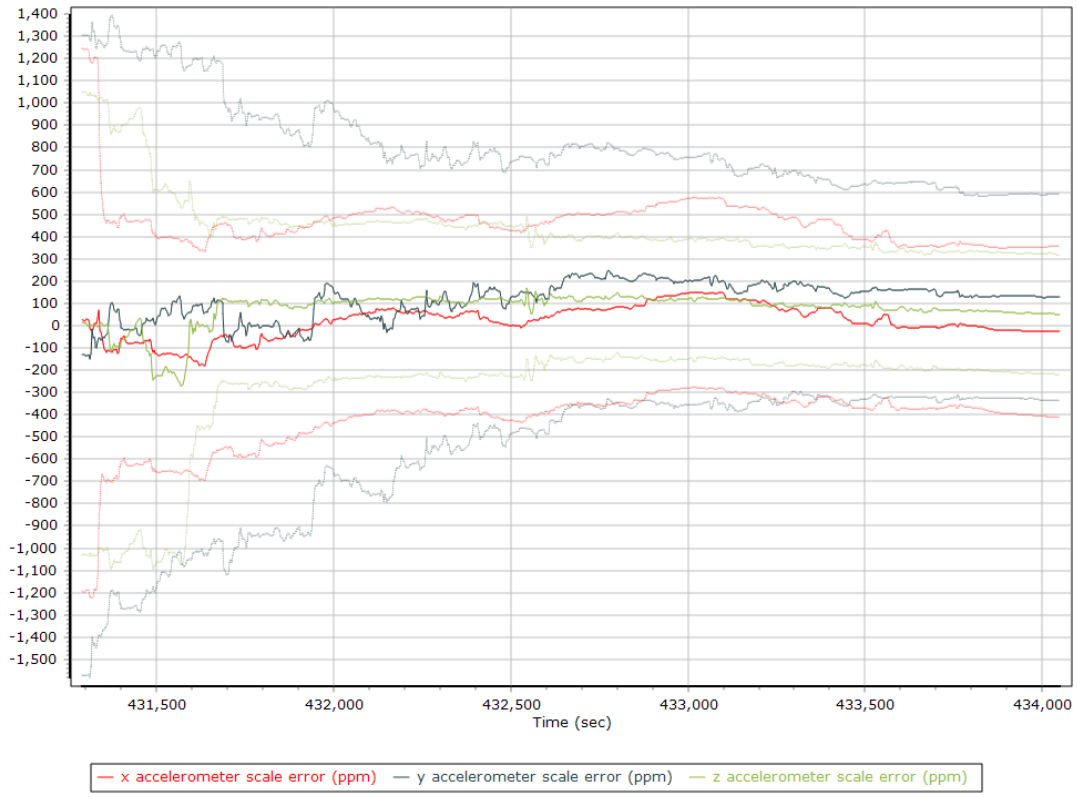
Y Accelerometer Bias (micro-g)



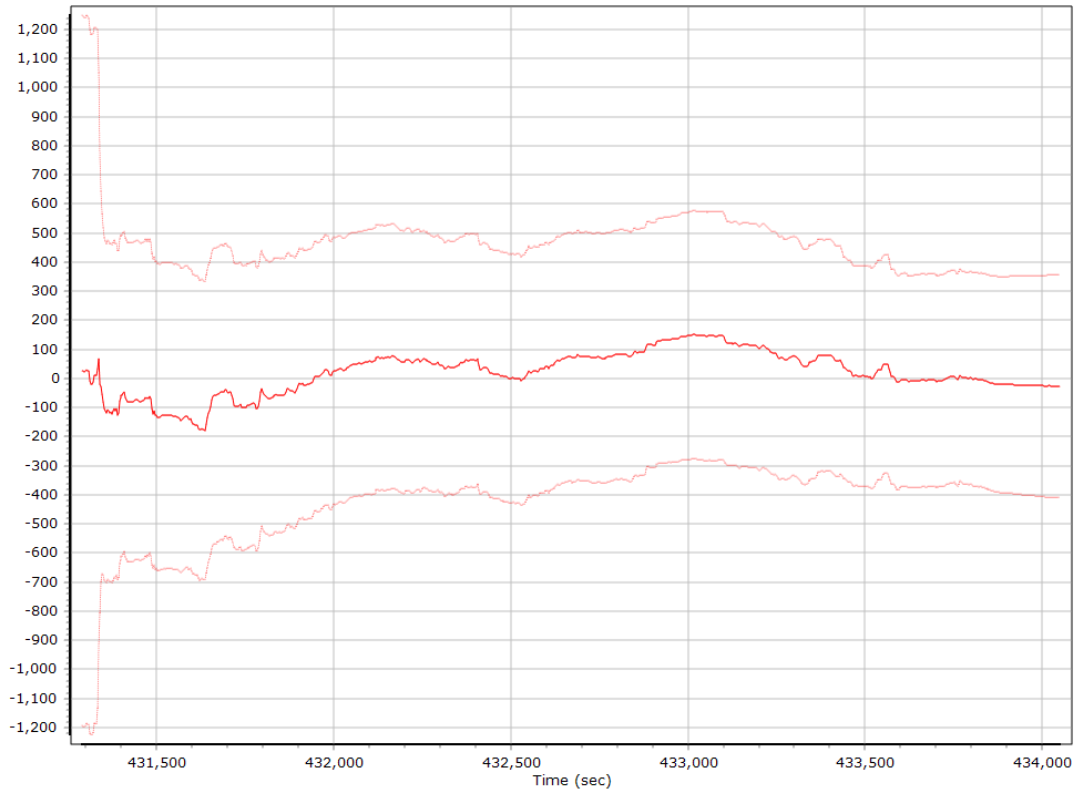
Z Accelerometer Bias (micro-g)



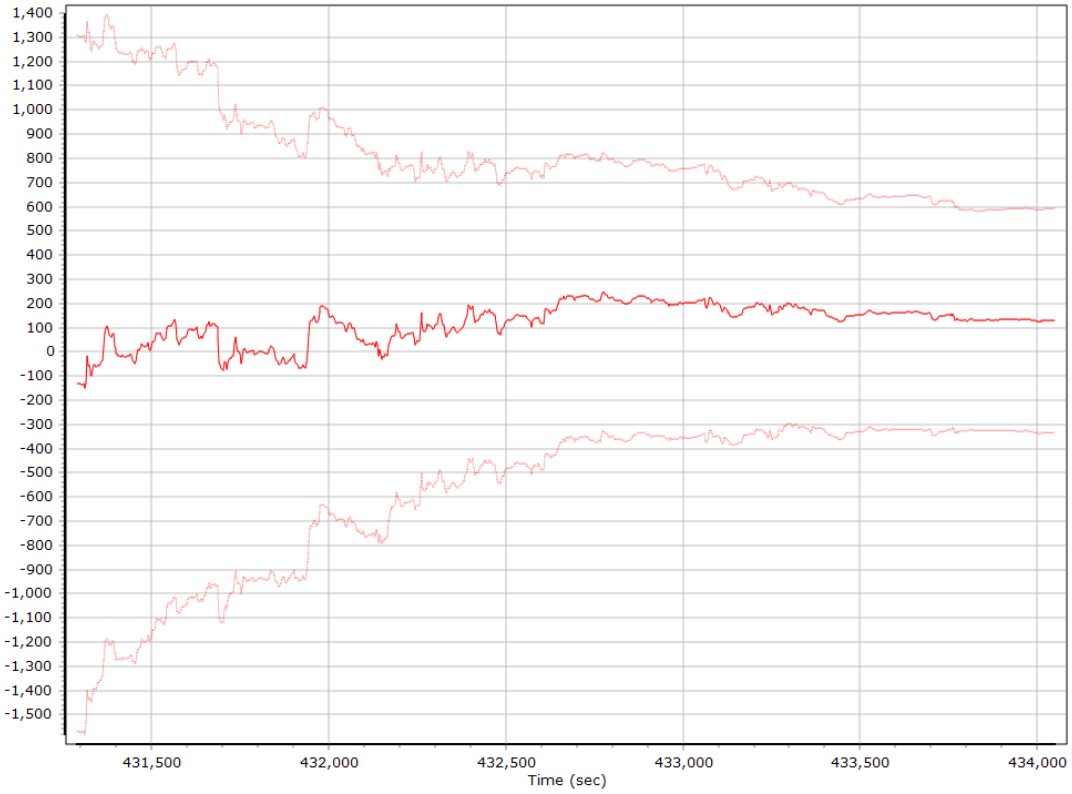
Accelerometer Scale Error (ppm)



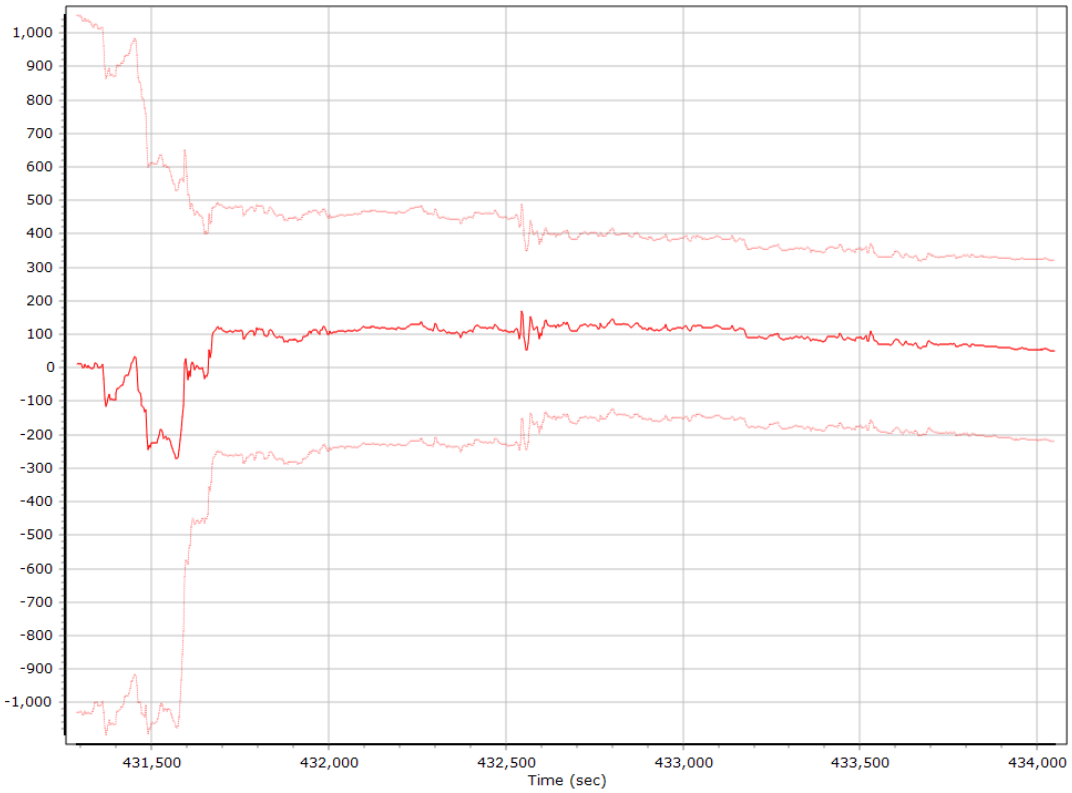
X Accelerometer Scale Error (ppm)



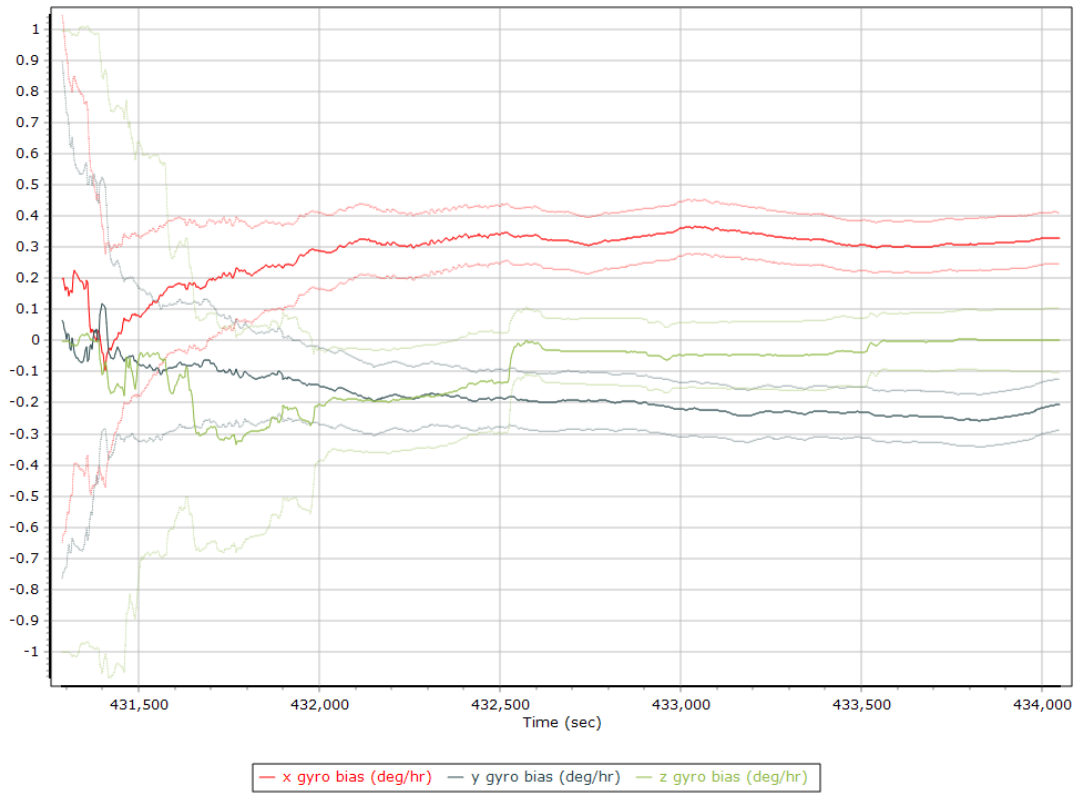
Y Accelerometer Scale Error (ppm)



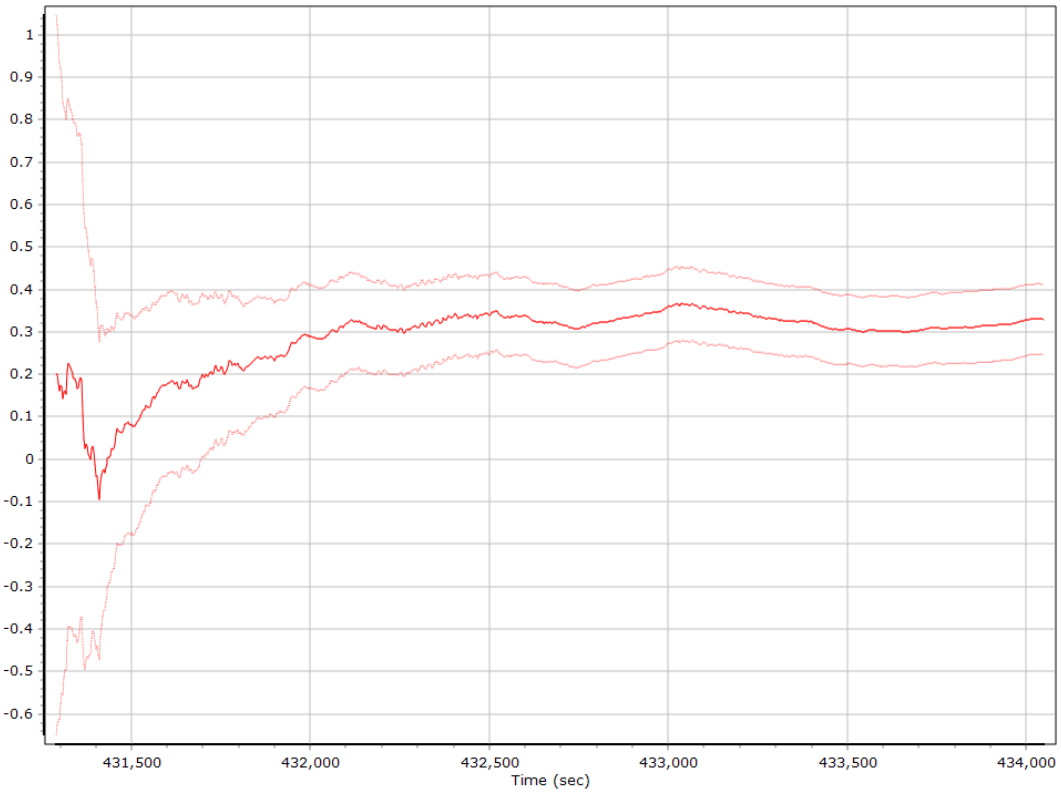
Z Accelerometer Scale Error (ppm)



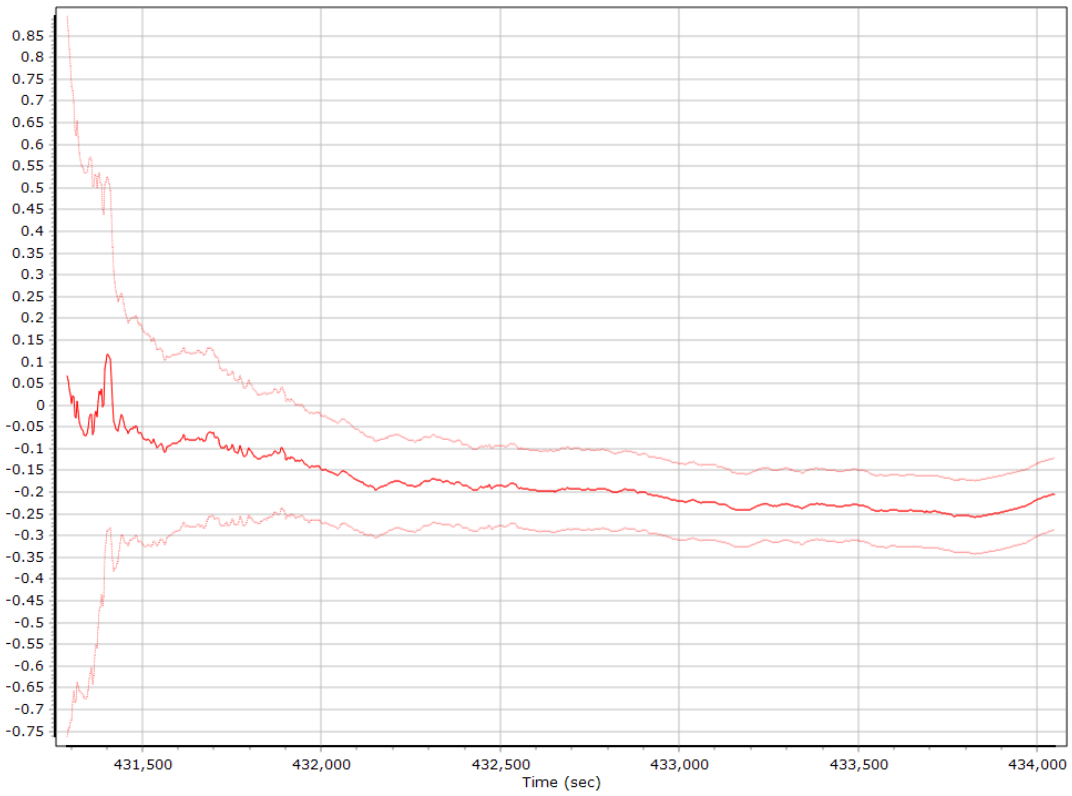
Gyro Bias (deg/h)



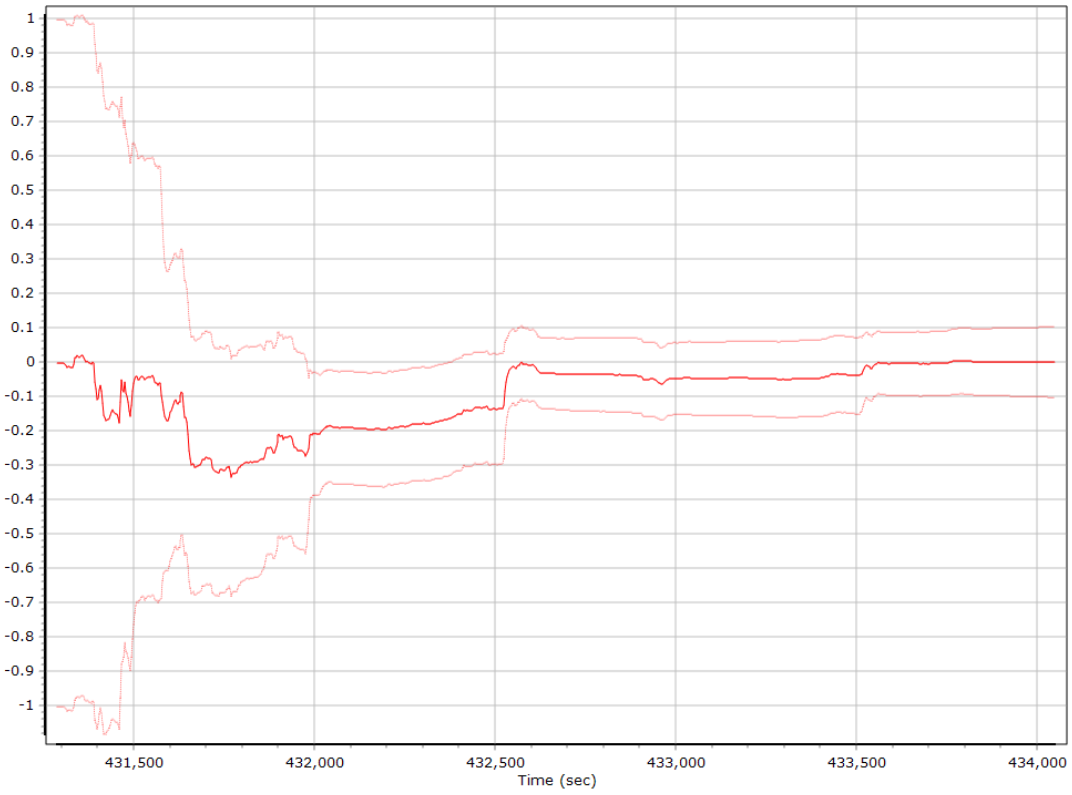
X Gyro Bias (deg/h)



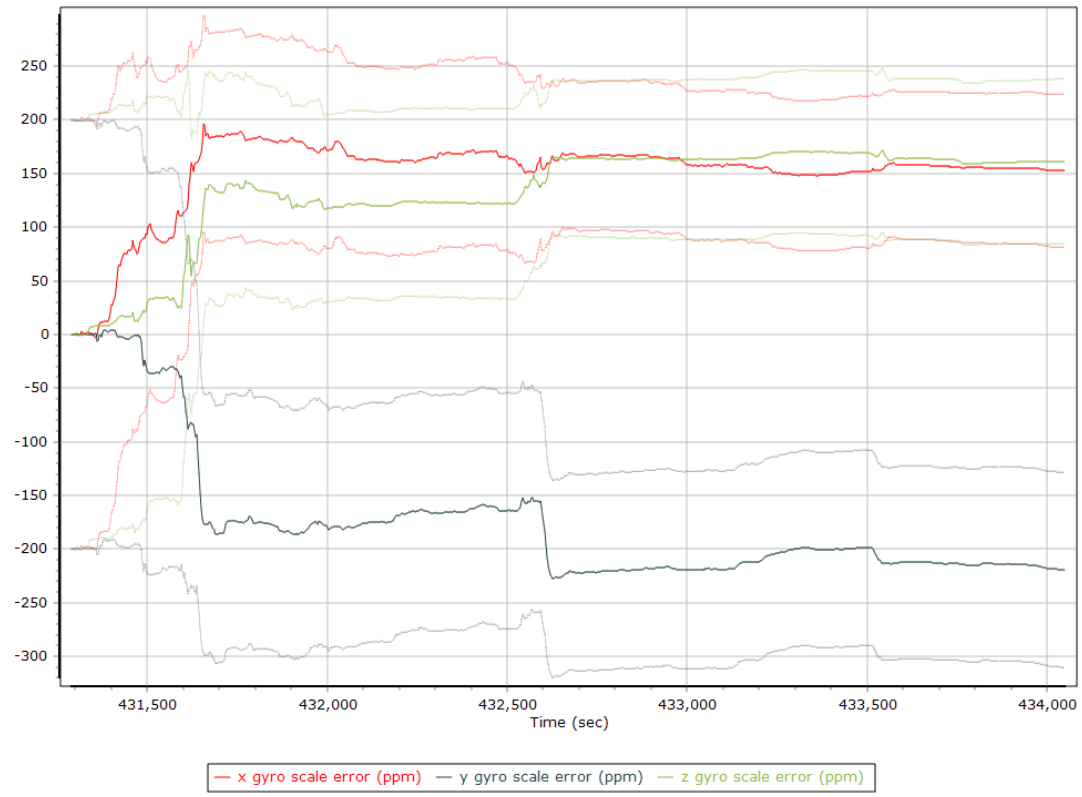
Y Gyro Bias (deg/h)



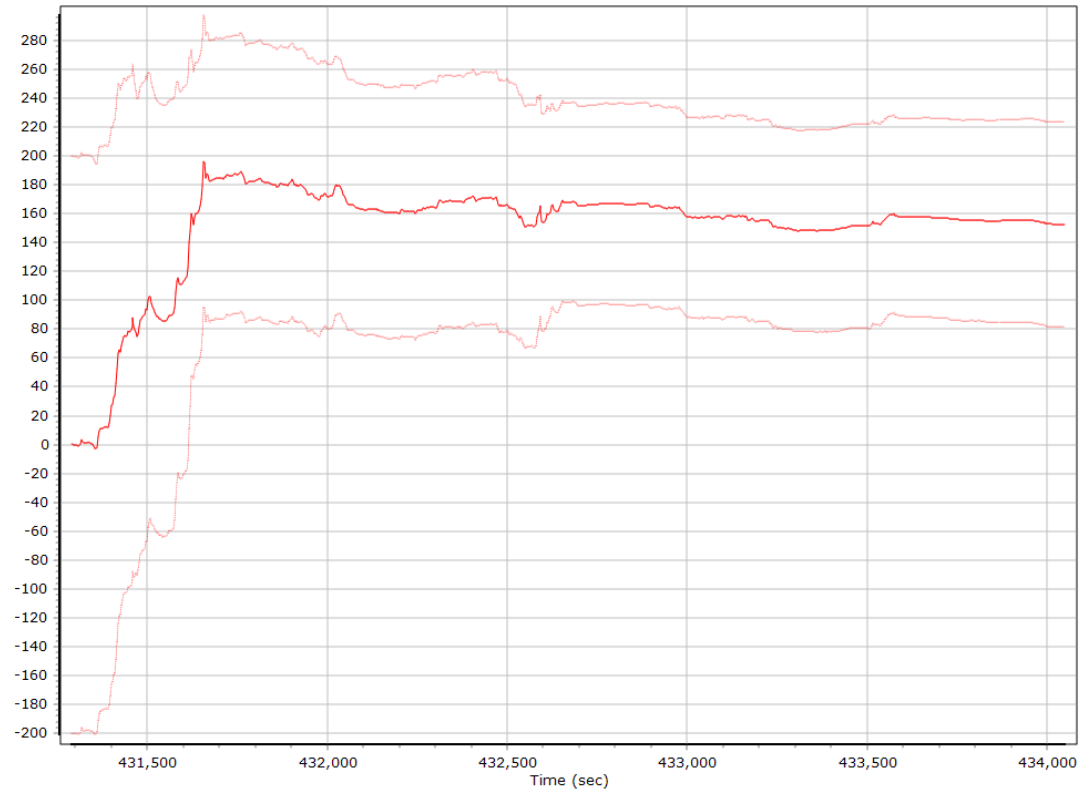
Z Gyro Bias (deg/h)



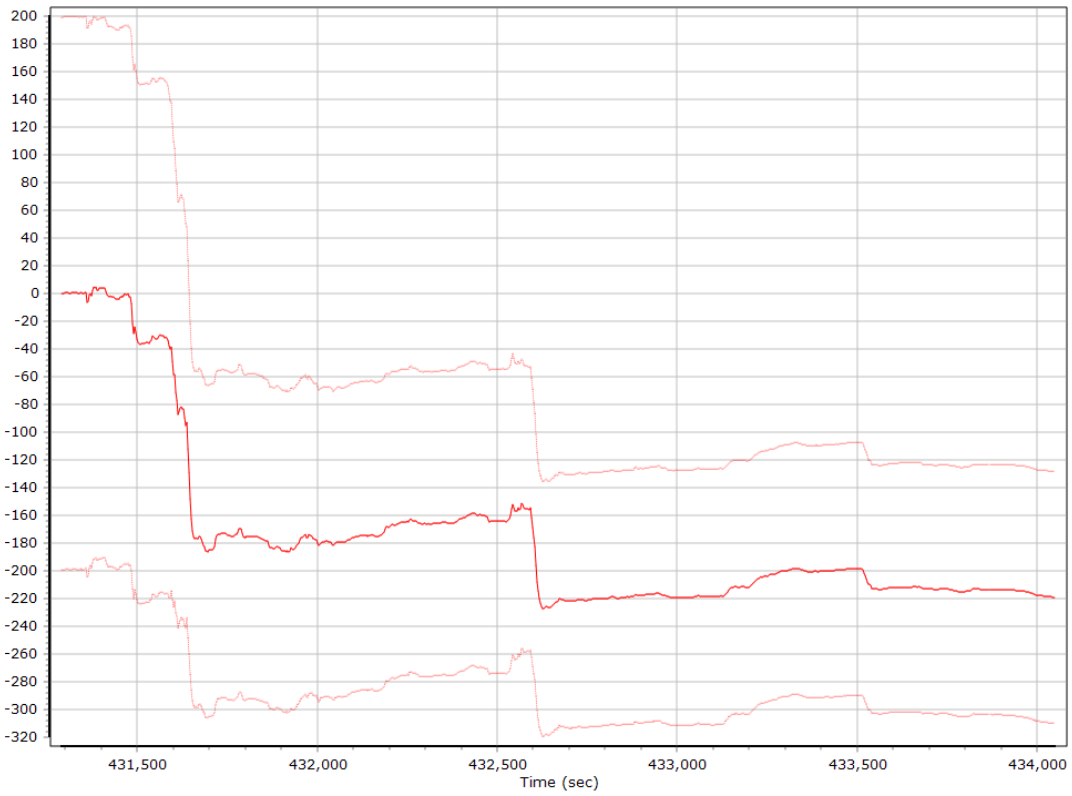
Gyro Scale Error (ppm)



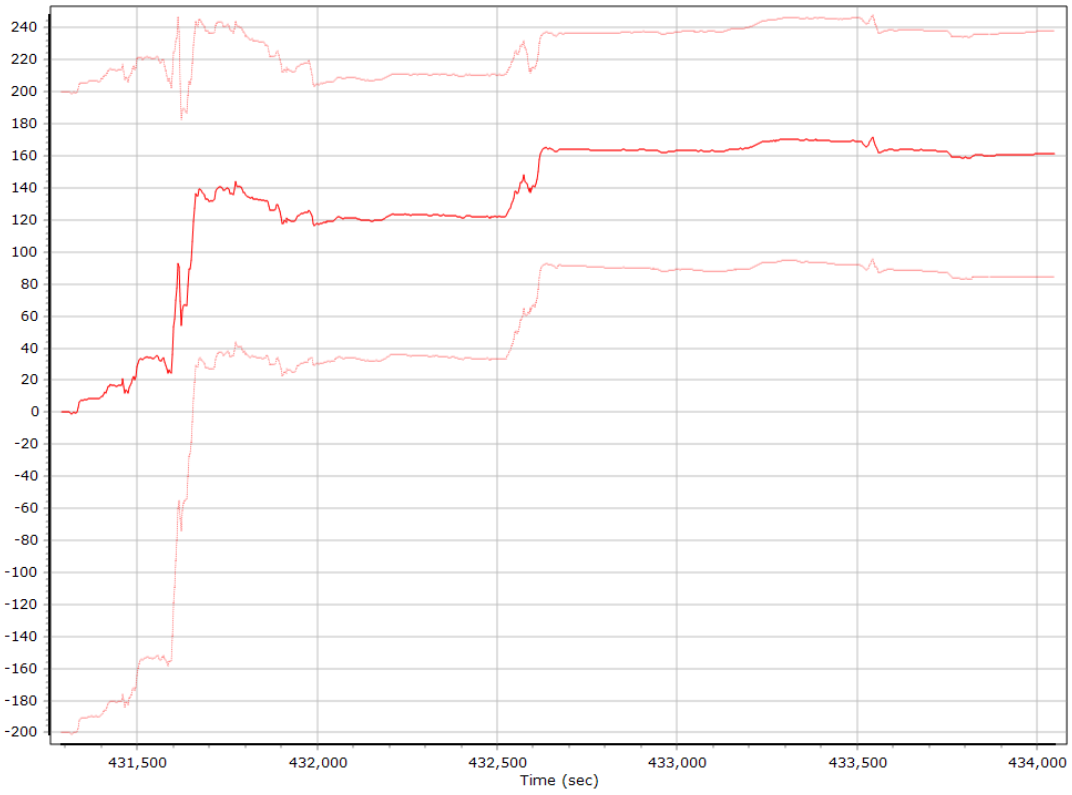
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)



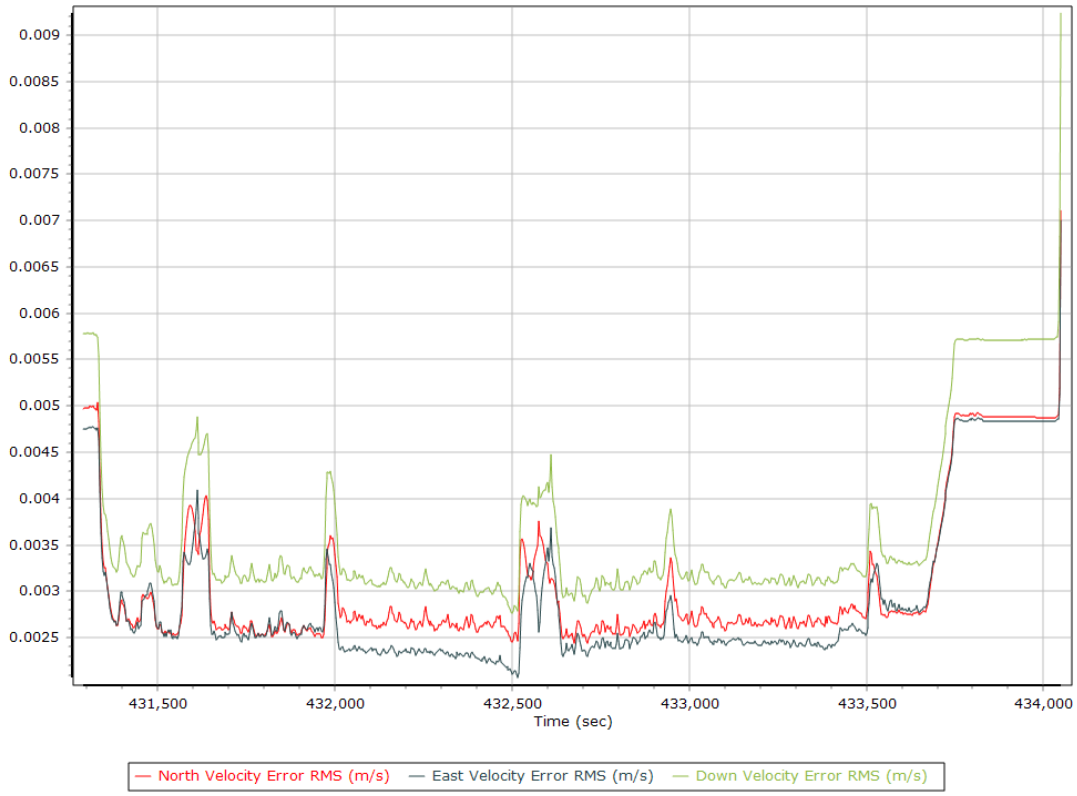
Z Gyro Scale Error (ppm)



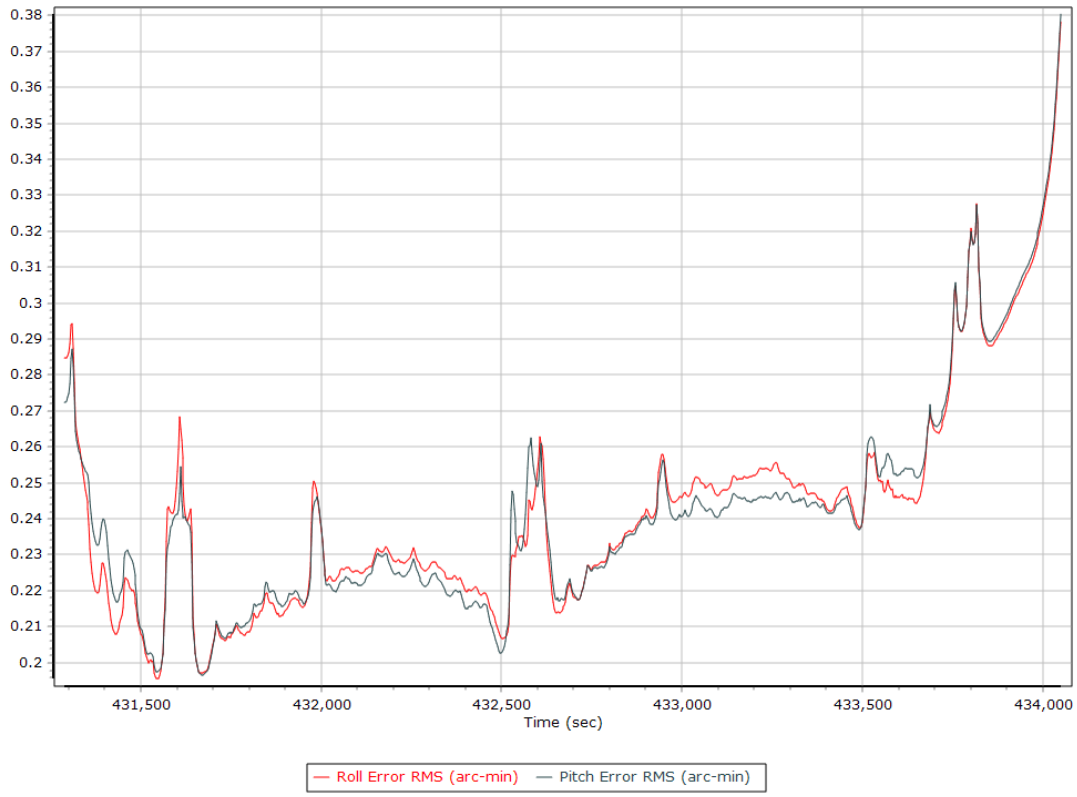
Smoothed Performance Metrics

Position Error RMS (m)

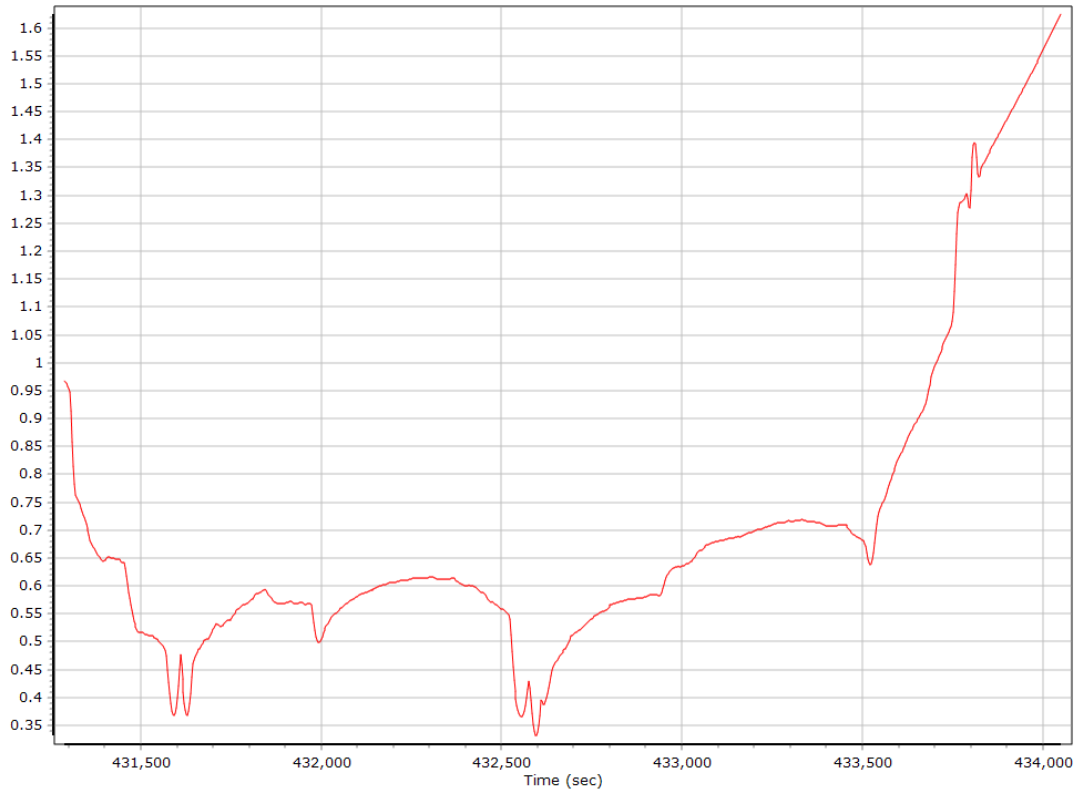
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

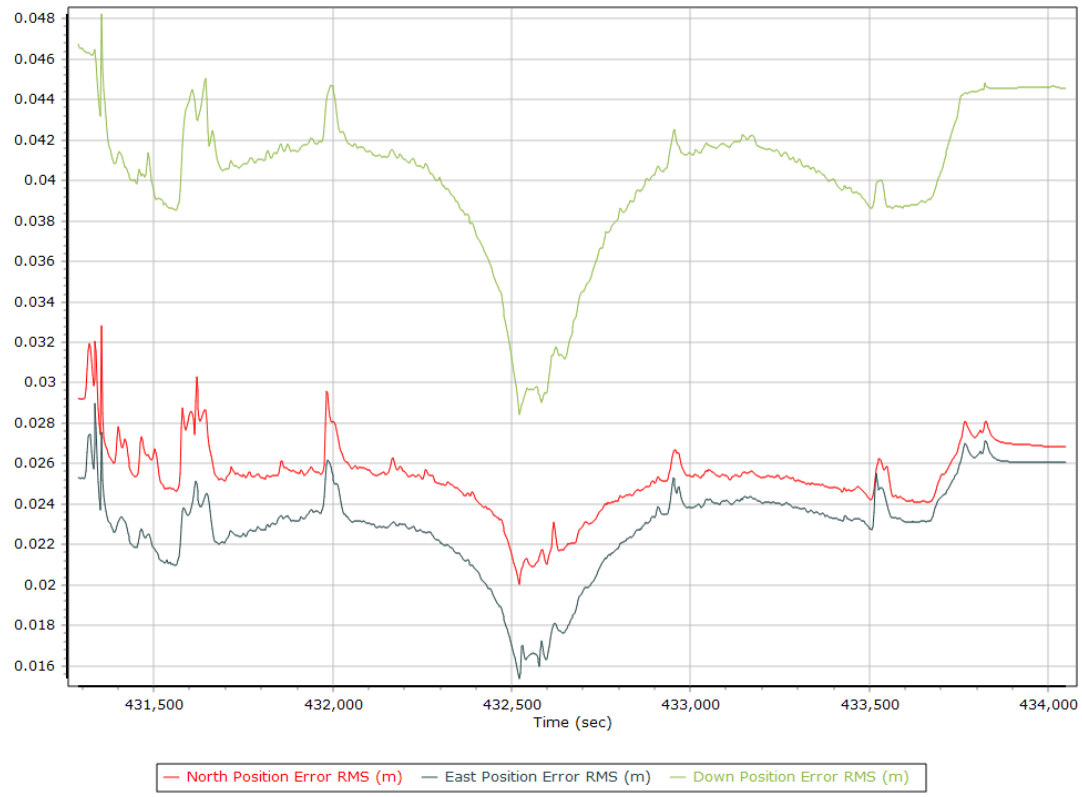


Heading Error RMS (arc-min)

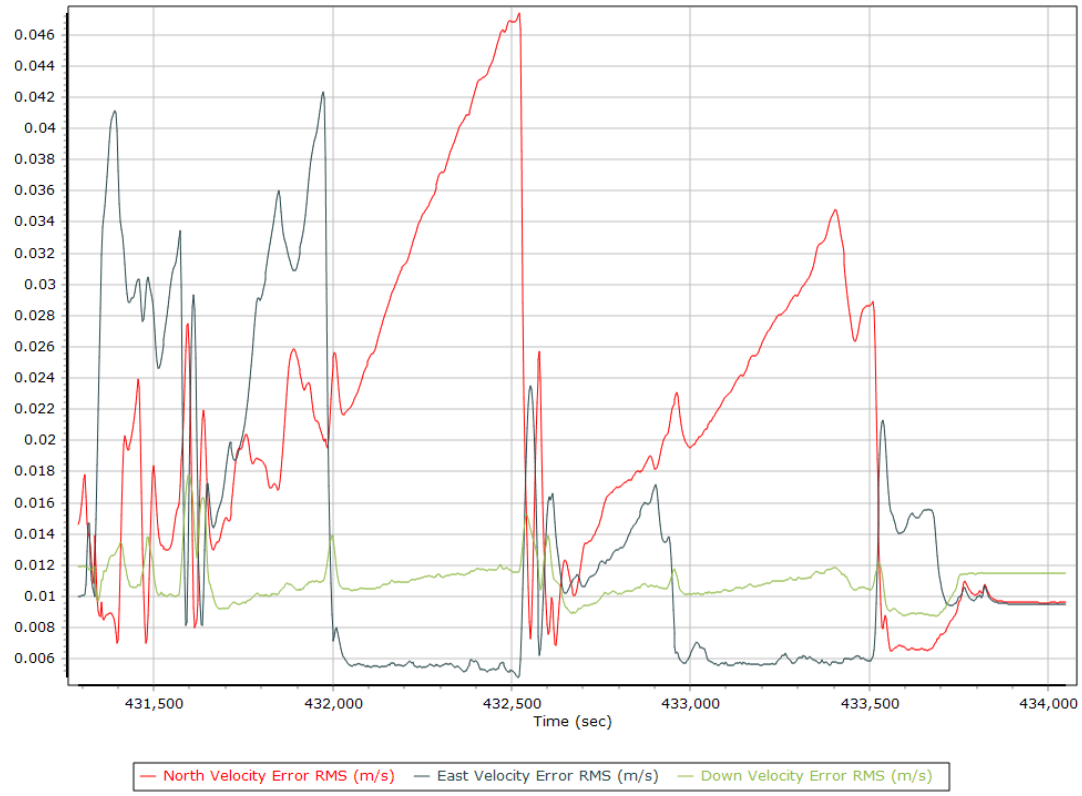


Forward Processed Performance Metrics

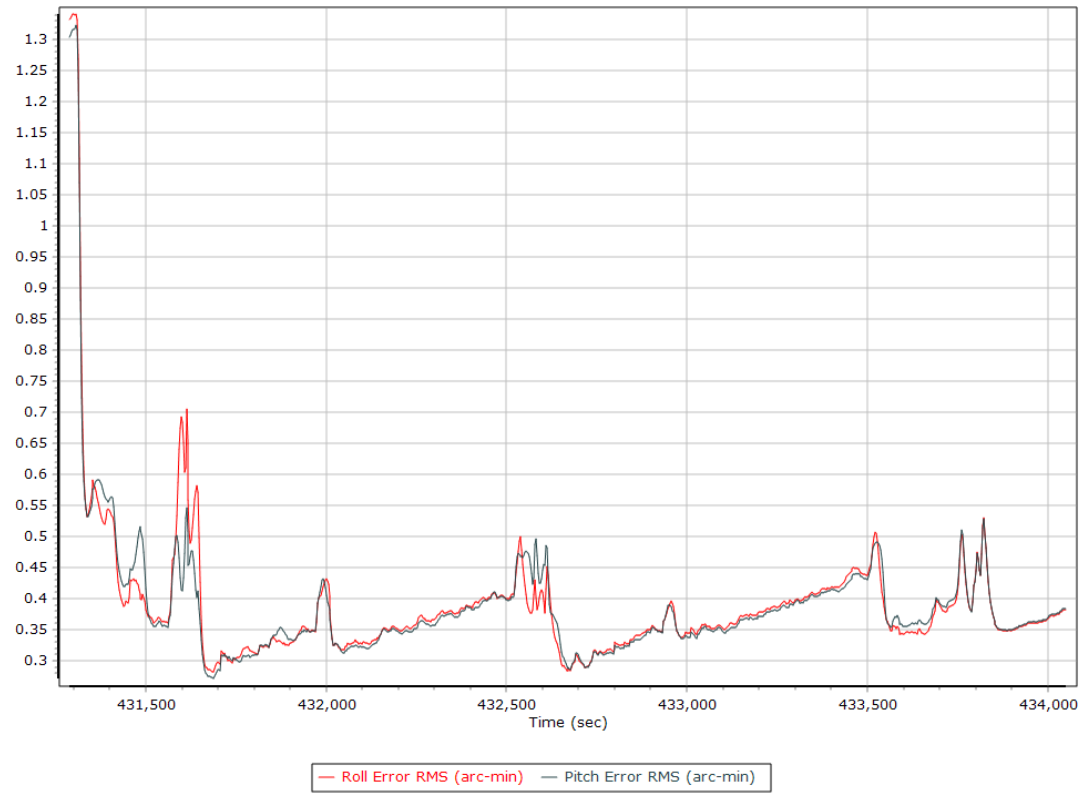
Position Error RMS (m)



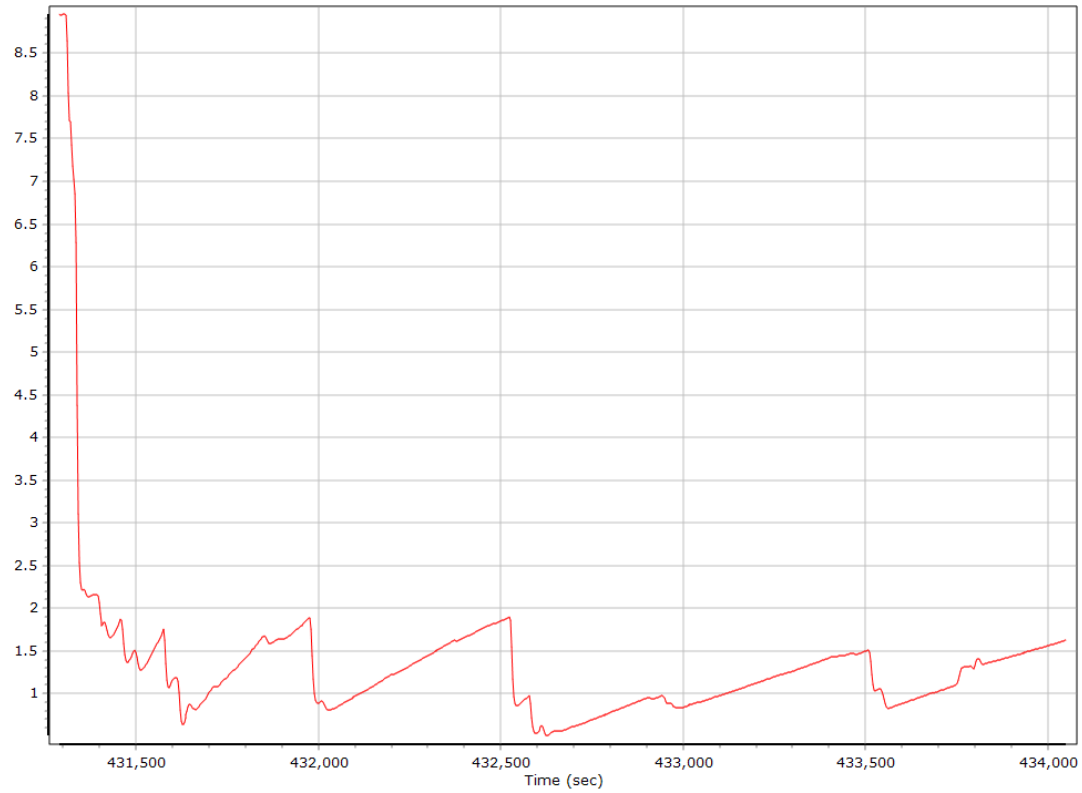
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

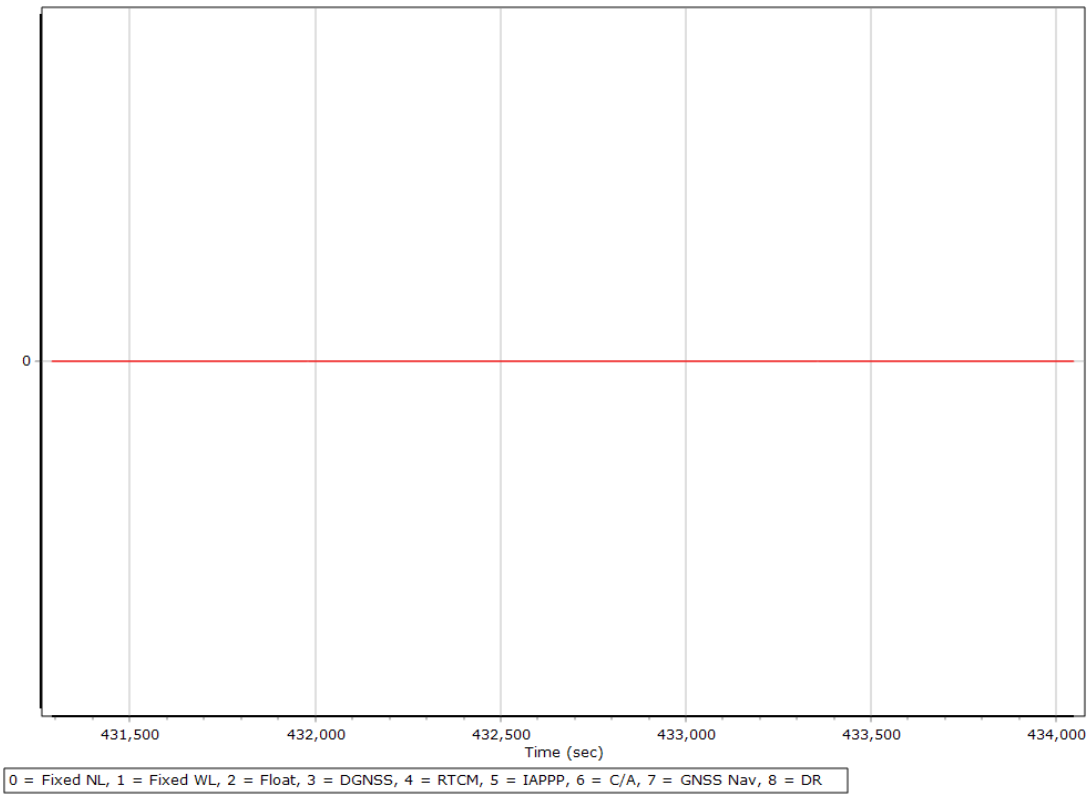


Heading Error RMS (arc-min)

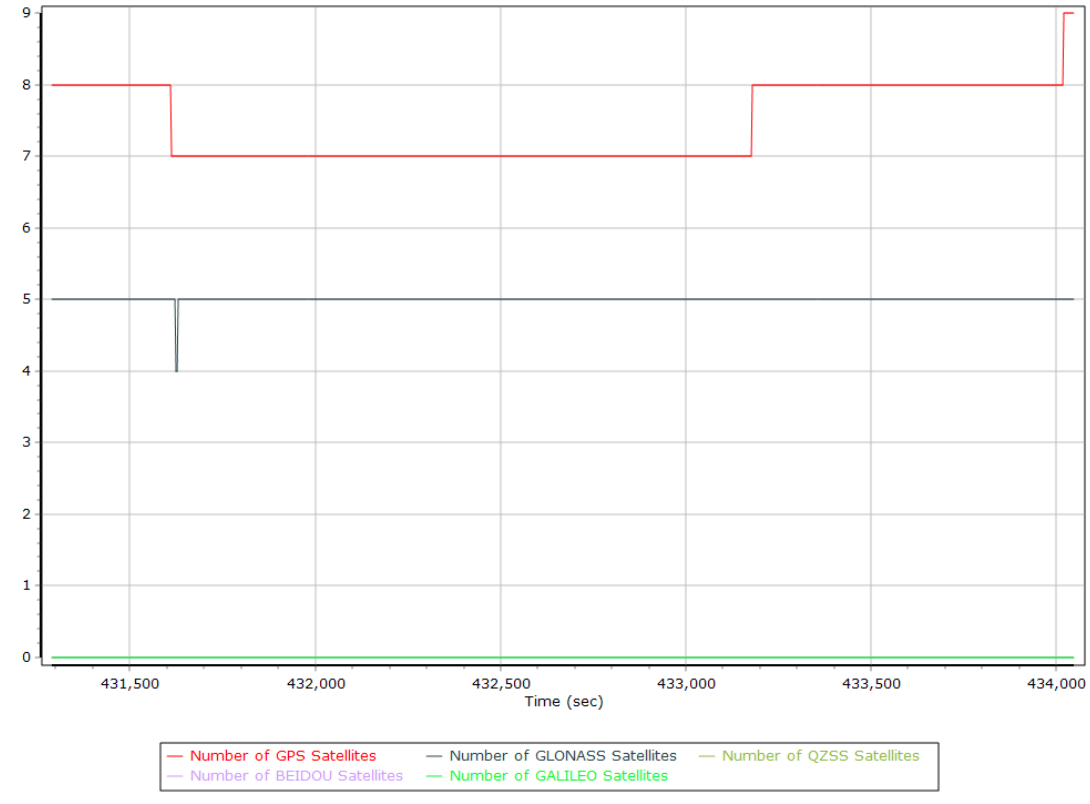


Smoothed Solution Status

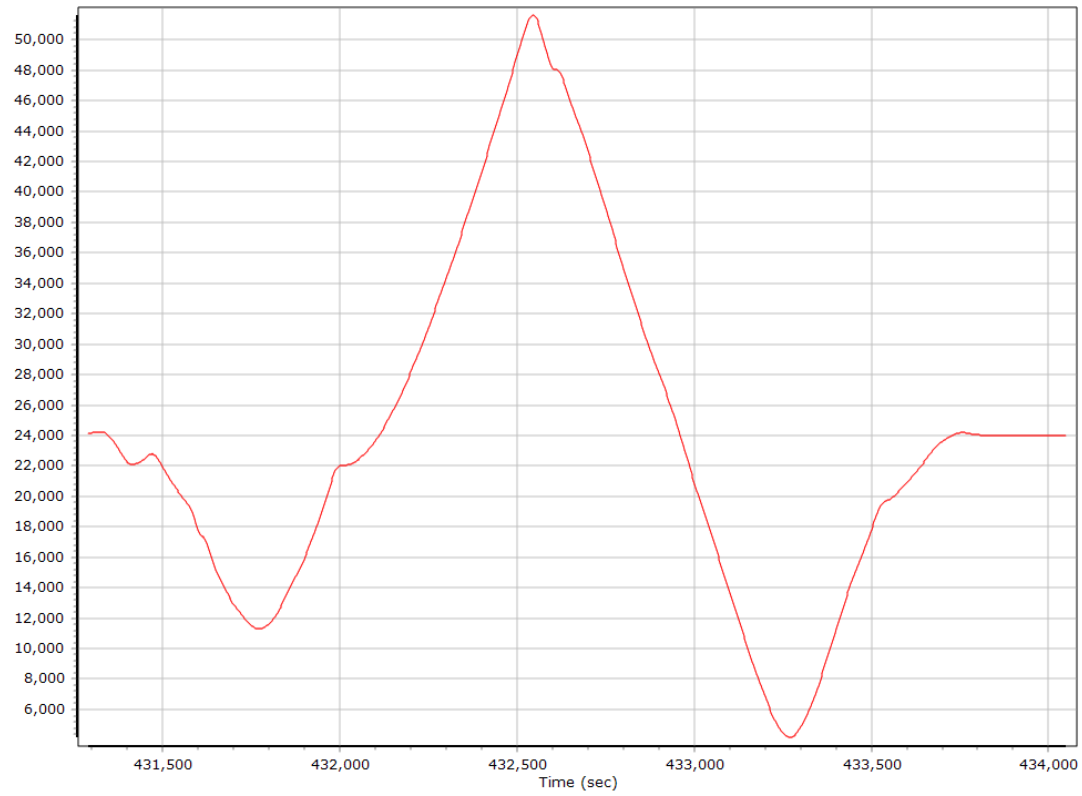
Processing Mode



Number of Satellites

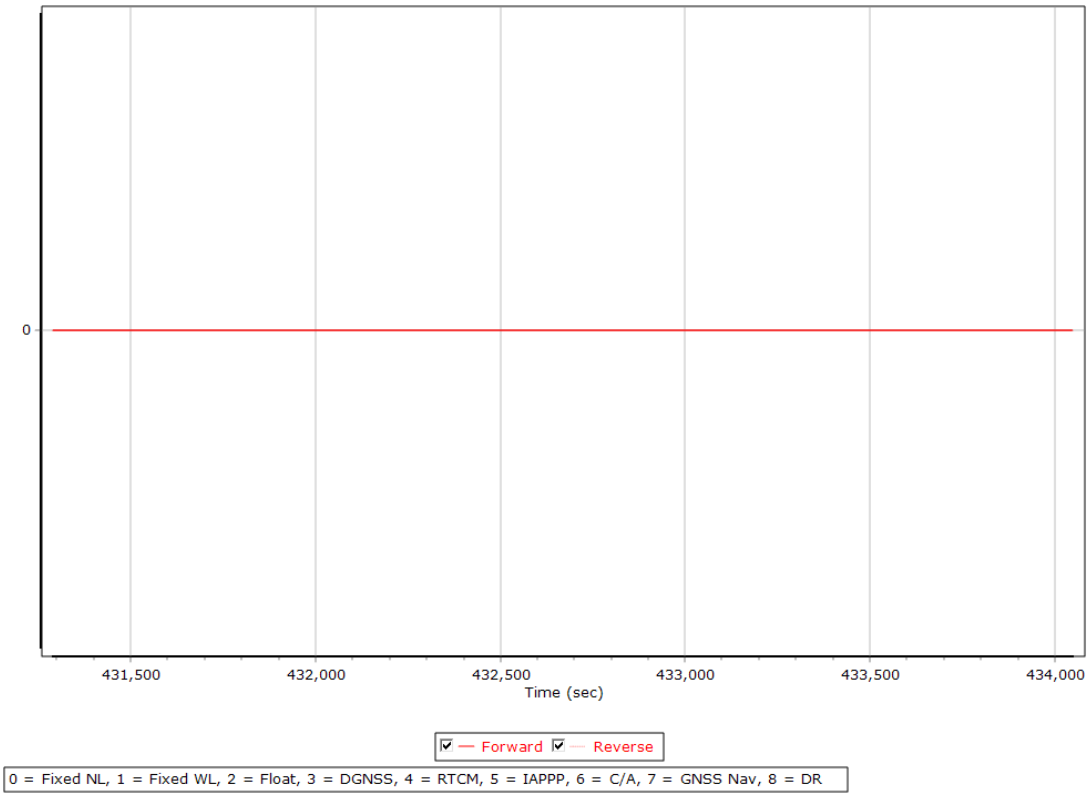


Baseline Length

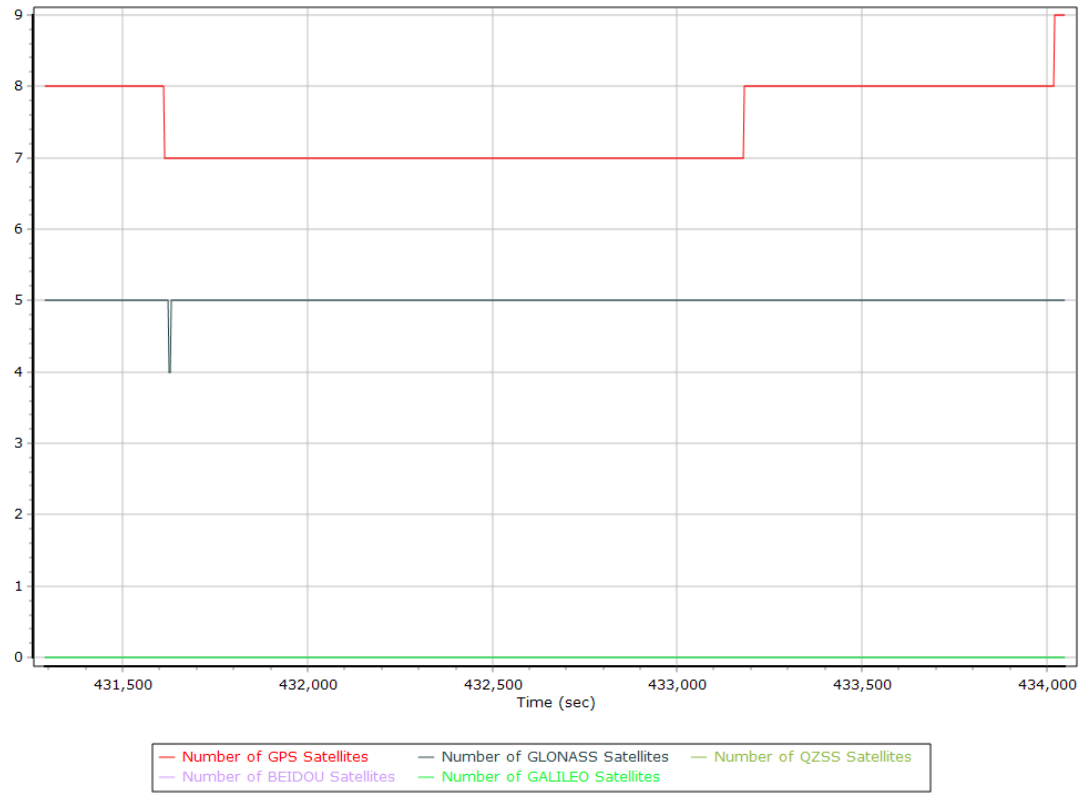


Forward Processed Solution Status

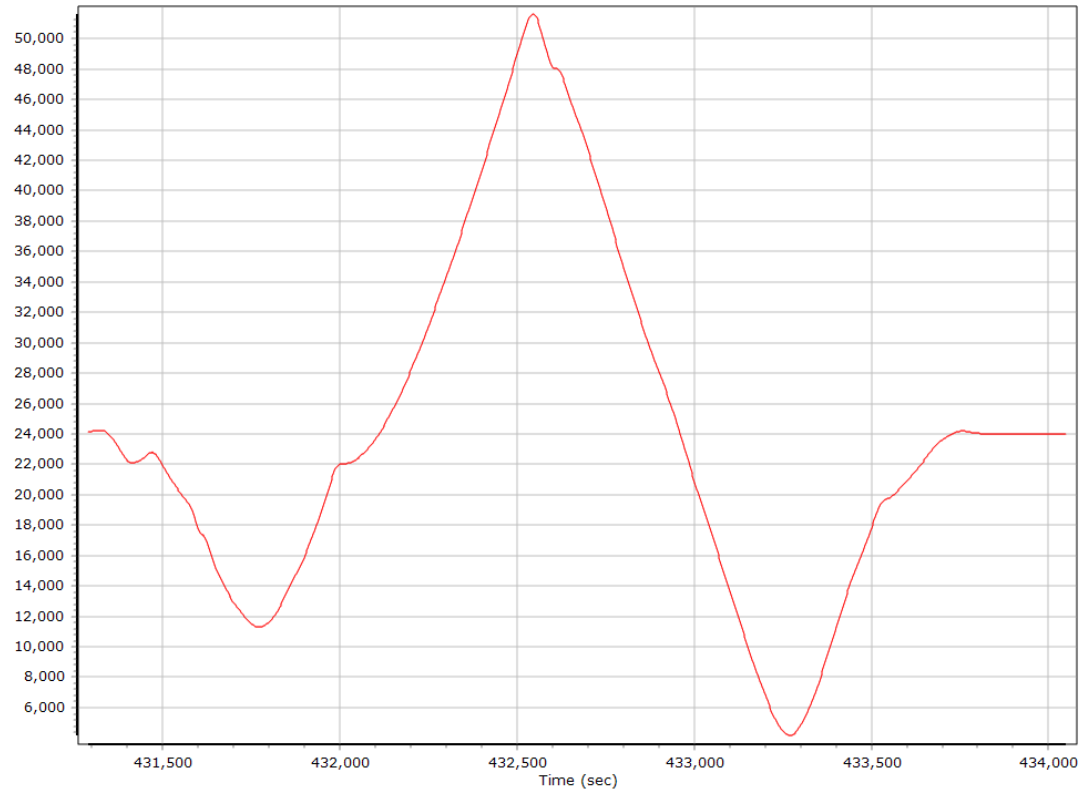
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

Export Summary

Export file	SBET_20200416C.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	431230.003 (4/16/2020 11:47:10 PM)		
Export end time	434051.005 (4/17/2020 12:34:11 AM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20191208A-run20201221
Processing date	2020-12-21 14:25:45
Mission date	2019-12-08 14:31:47
Mission duration	03:50:59.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	Unknown External

Project File List

Rover Data Files

File name	File type
ALS.133	POS Data
ALS.134	POS Data
ALS.135	POS Data
ALS.136	POS Data
ALS.137	POS Data
ALS.138	POS Data
ALS.139	POS Data
ALS.140	POS Data
ALS.141	POS Data
ALS.142	POS Data
ALS.143	POS Data
ALS.144	POS Data
ALS.145	POS Data
ALS.146	POS Data
ALS.147	POS Data
ALS.148	POS Data
ALS.149	POS Data
ALS.150	POS Data
ALS.151	POS Data
ALS.152	POS Data
ALS.153	POS Data
ALS.154	POS Data

Input Files

File Name	File Type
Ephm3420.19g	GLONASS Broadcast Ephemeris
Ephm3420.19n	GPS Broadcast Ephemeris
igr20826.sp3	GPS Precise Ephemeris
igr20830.sp3	GPS Precise Ephemeris
igr20831.sp3	GPS Precise Ephemeris
iaal3420.19o	GNSS SingleBase
iade3420.19o	GNSS SingleBase
iael3420.19o	GNSS SingleBase
iamn3420.19o	GNSS SingleBase
iata3420.19o	GNSS SingleBase
mnps3420.19o	GNSS SingleBase
nlib3420.19o	GNSS SingleBase

Output Files

Filename	File type
sbet_20201221-rerun.out	SBET Trajectory File

Rover Data Summary

First raw data file	ALS.133		
Last raw data file	ALS.154		
Start GPS week	2083		
Start time	52301.139 (12/8/2019 2:31:41 PM)		
End time	66147.588 (12/8/2019 6:22:27 PM)		
Start of fine alignment	52745.013 (12/8/2019 2:39:05 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

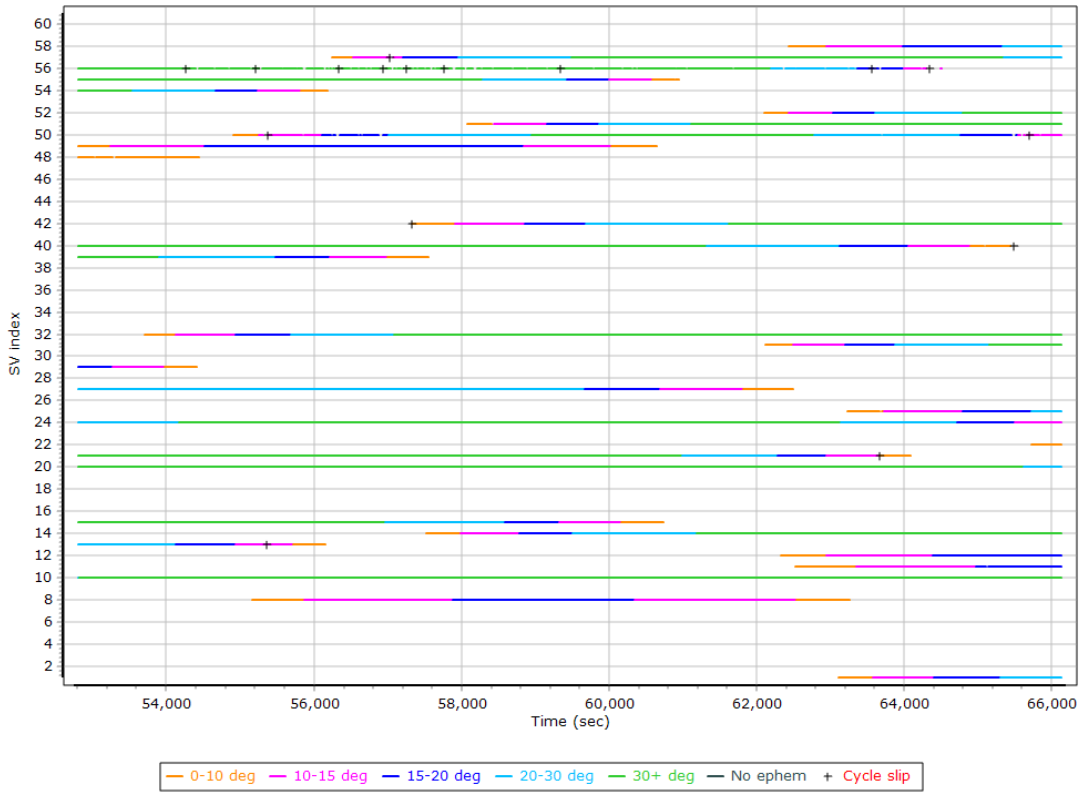
Rover Data QC

Raw IMU Import QC Summary

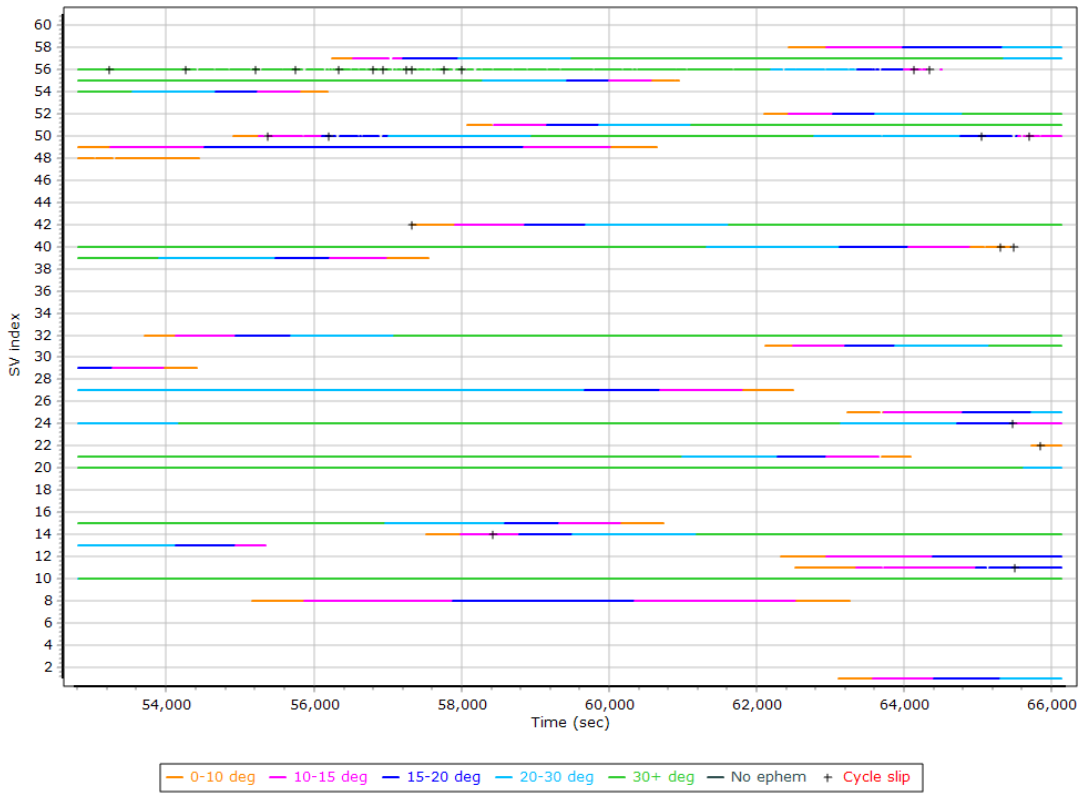
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_20201221-rerun.log
IMU Records Processed	2774378
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
52300.744 : WARNING : Gap of 52278.7578 seconds in CHECKDT input data	

Primary Observables & Satellite Data

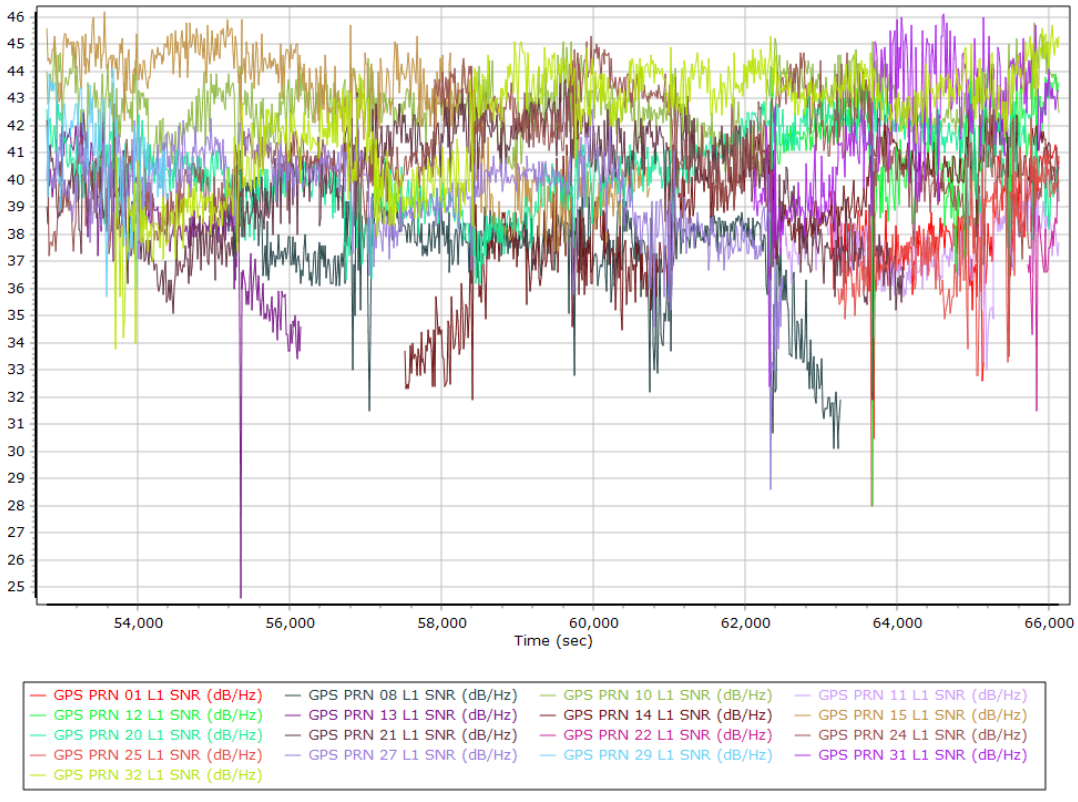
L1 Satellite Lock/Elevation



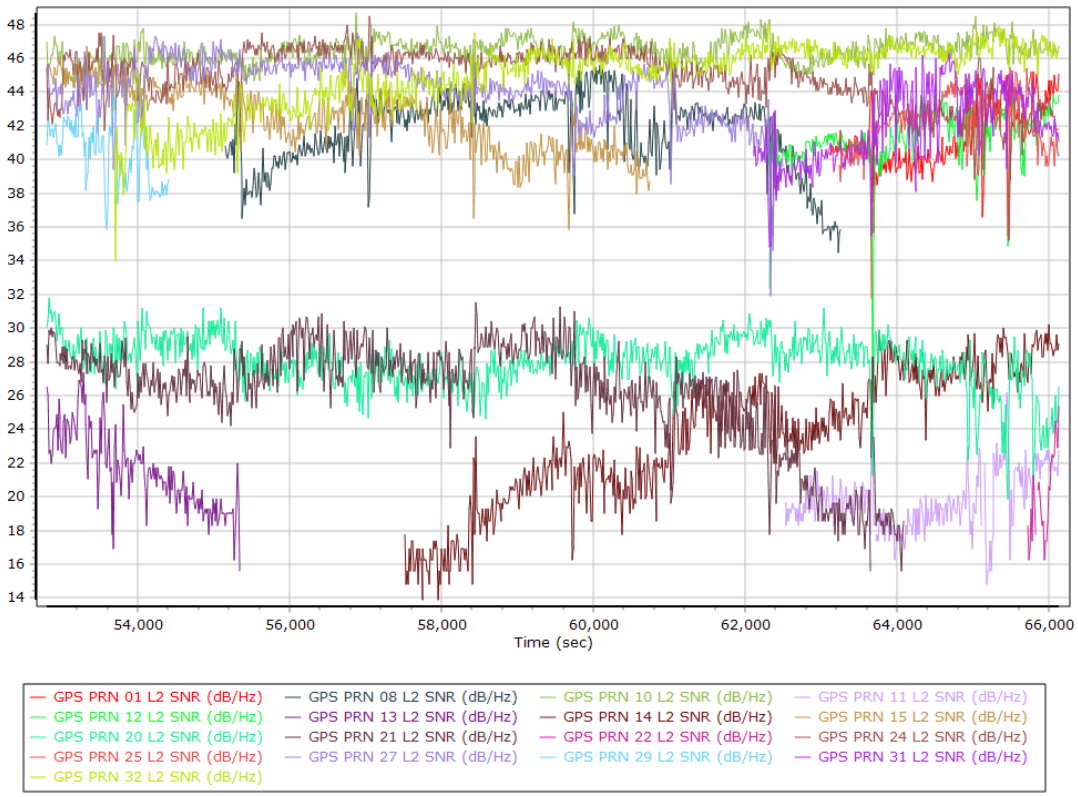
L2 Satellite Lock/Elevation



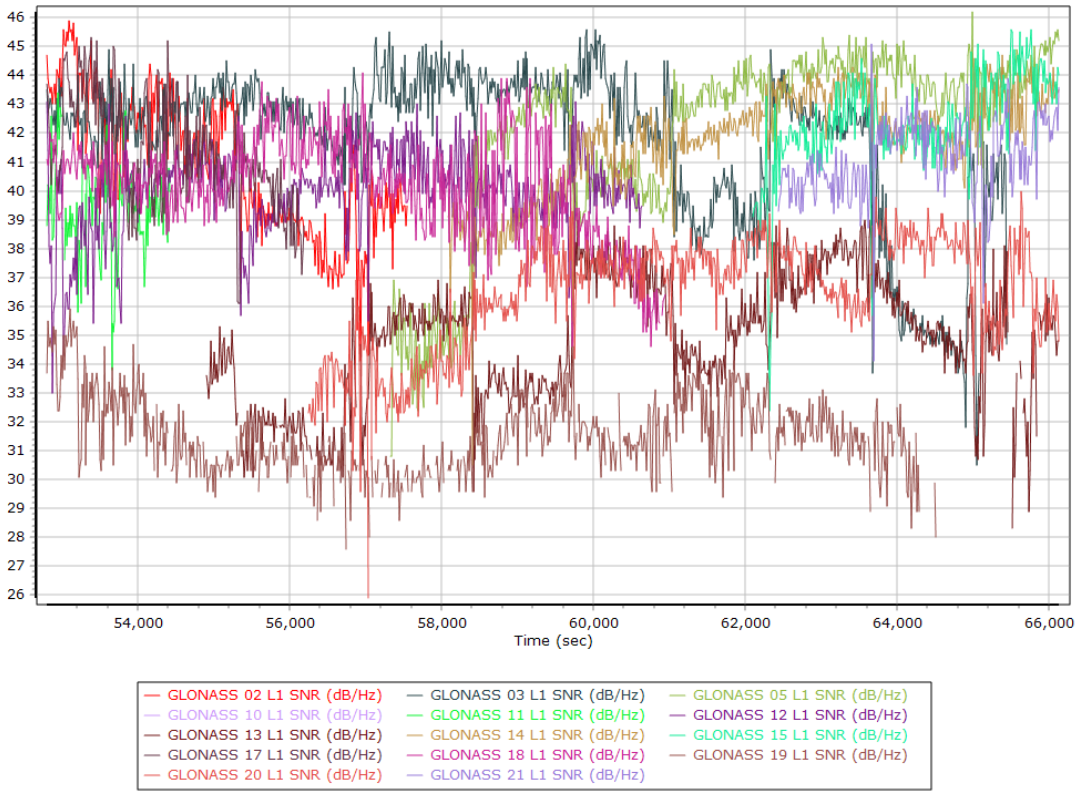
GPS L1 SNR



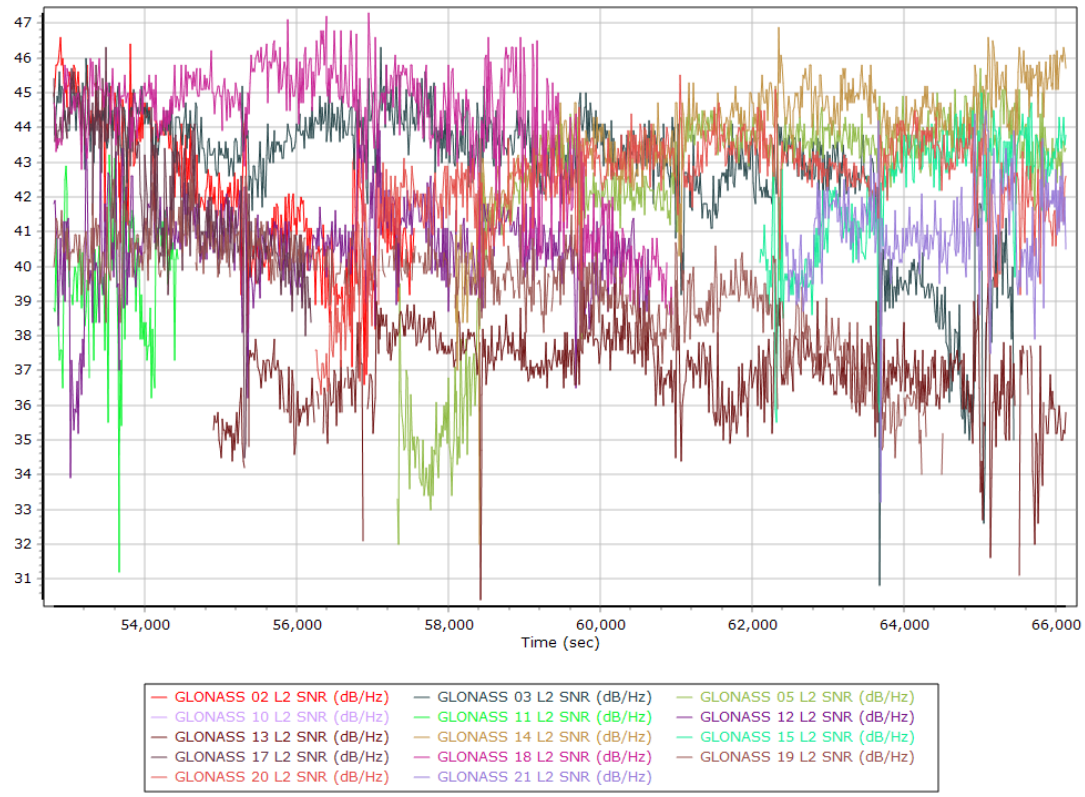
GPS L2 SNR



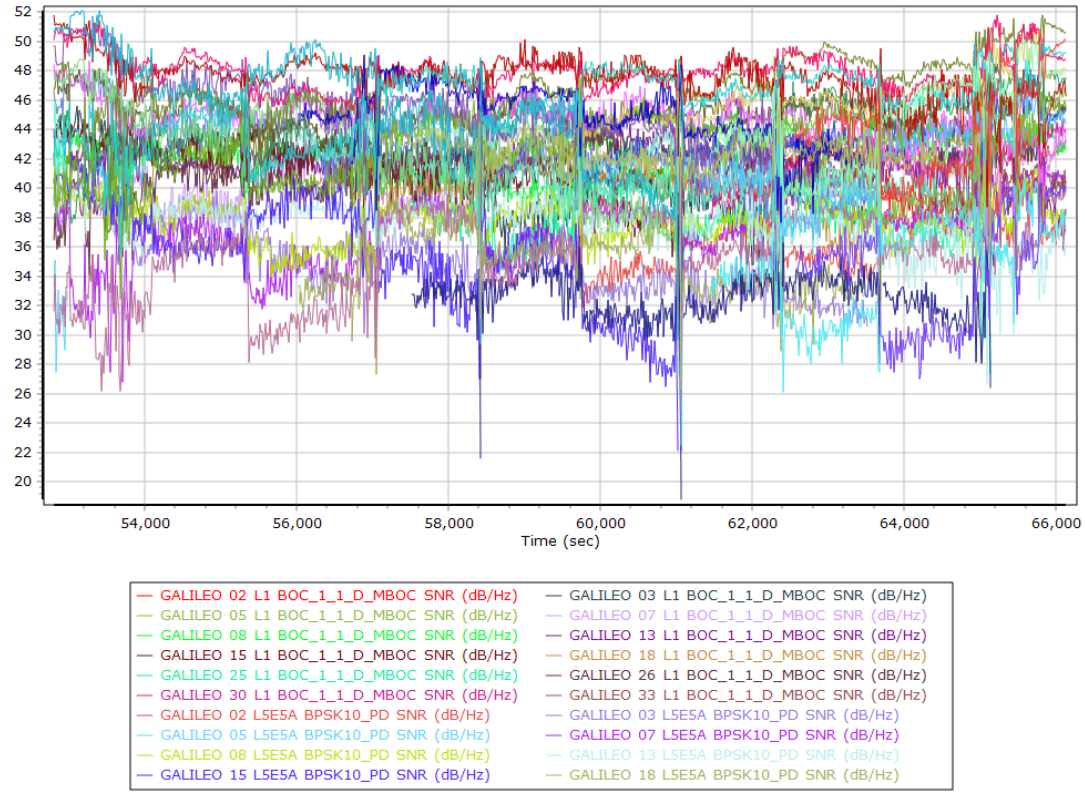
GLONASS L1 SNR



GLONASS L2 SNR

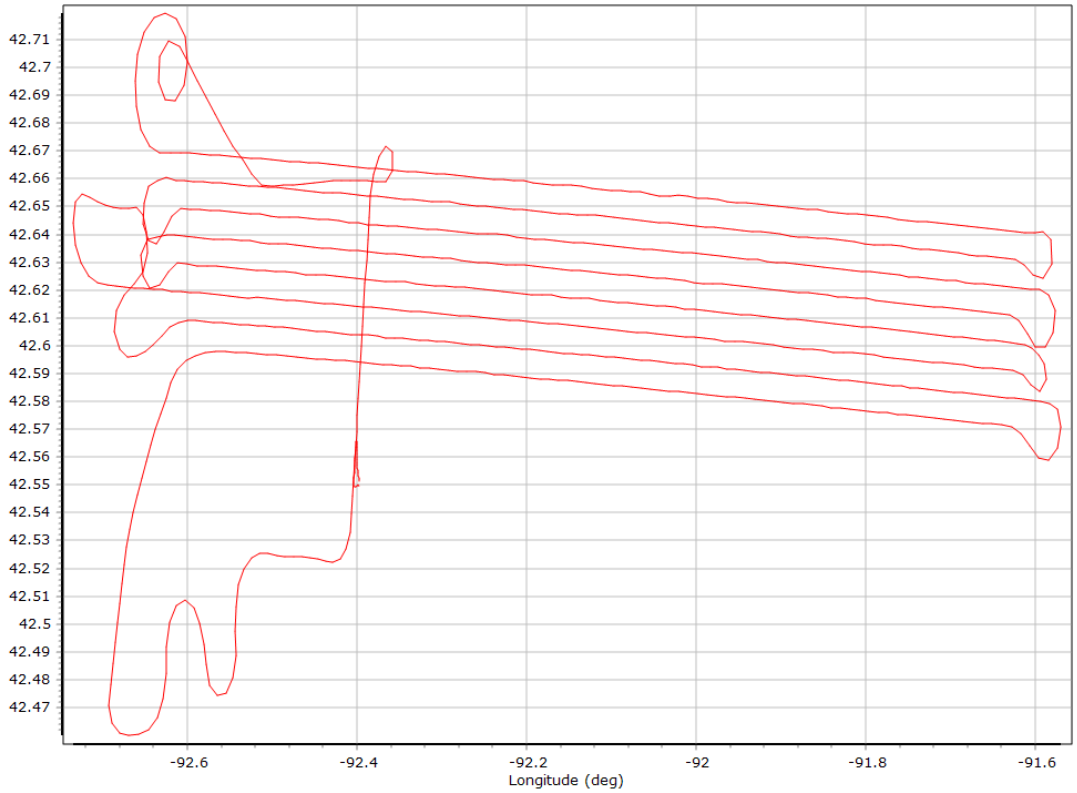


GALILEO SNR

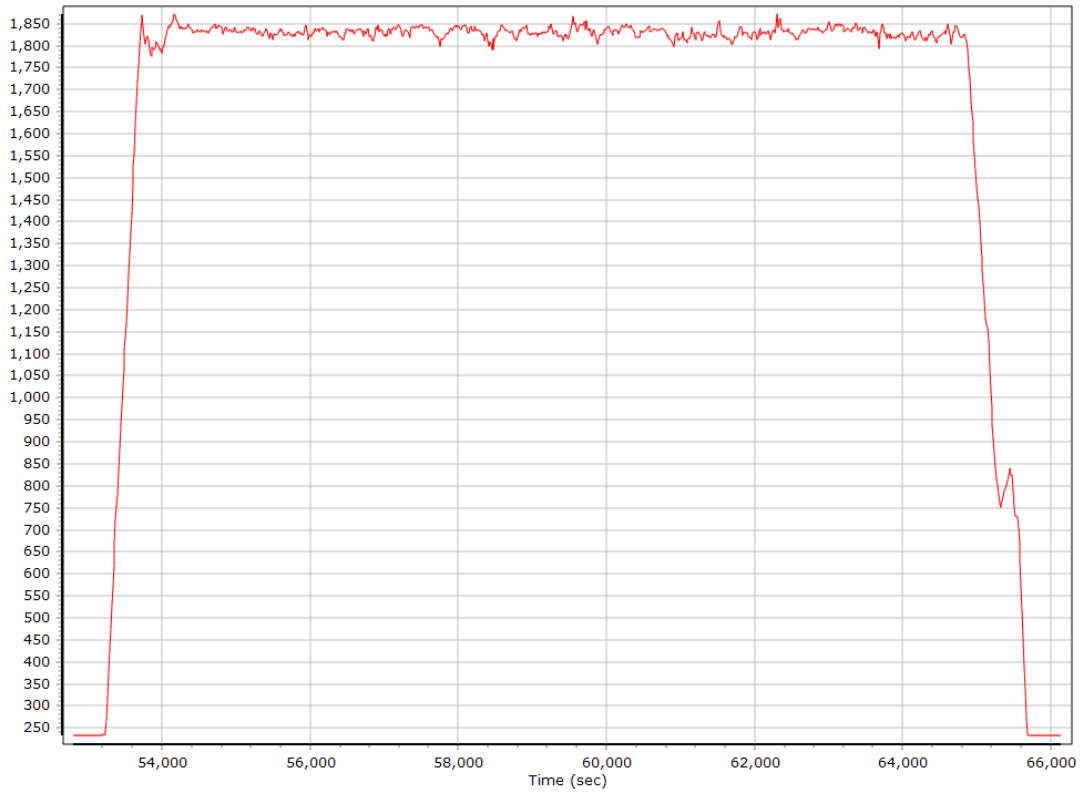


Smoothed Trajectory Information

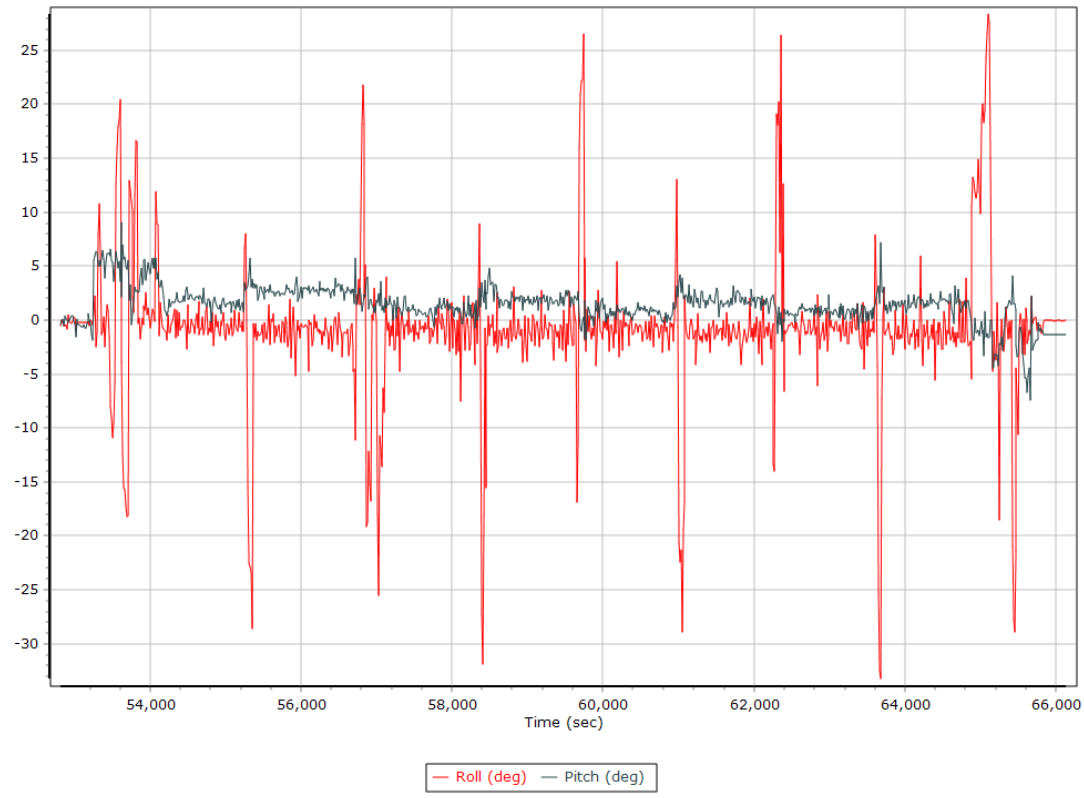
Top View



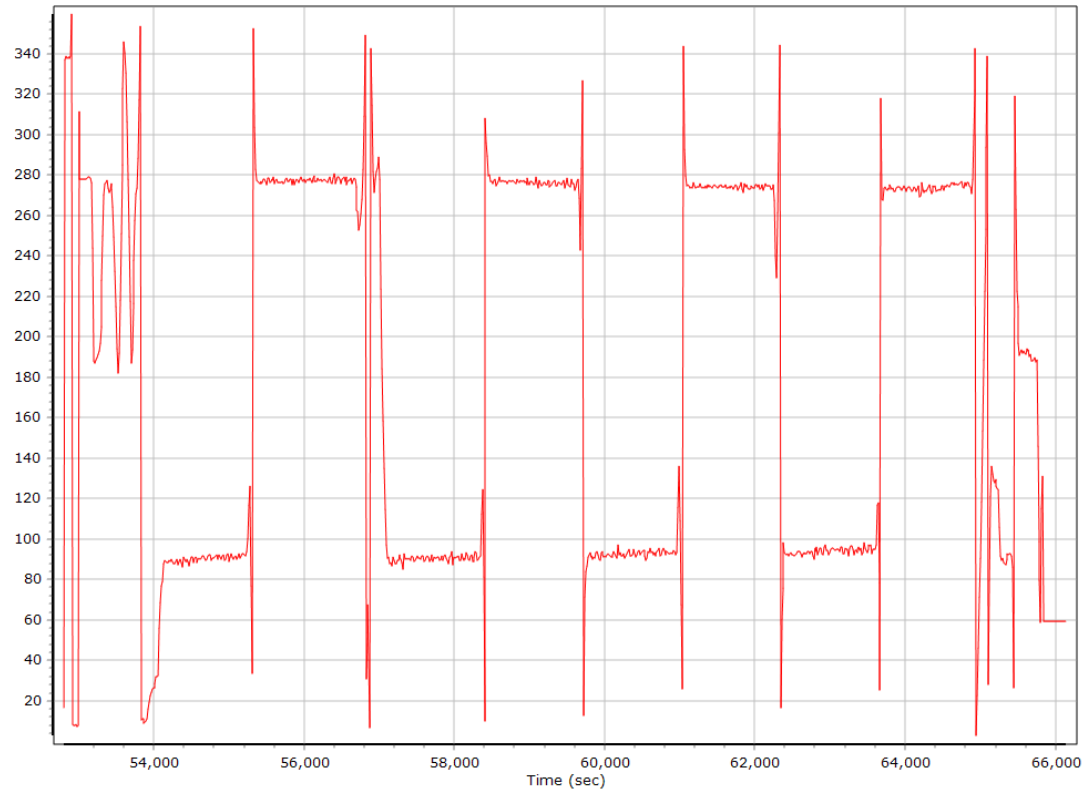
Altitude



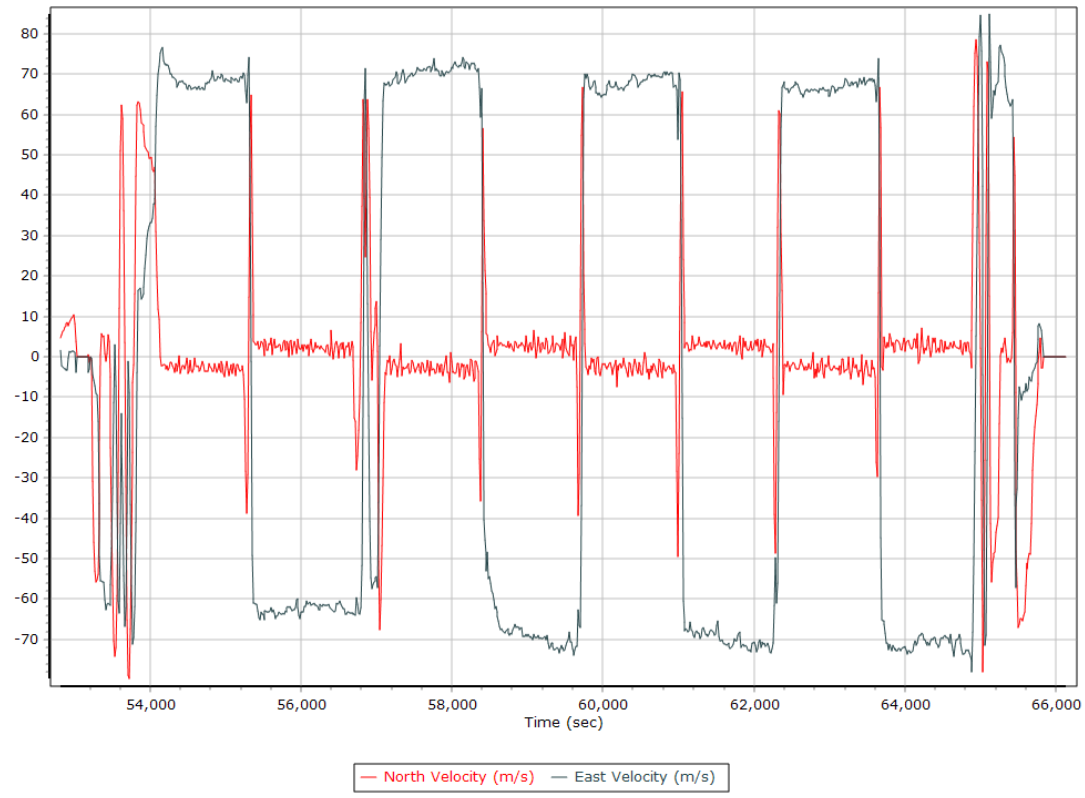
Roll/Pitch



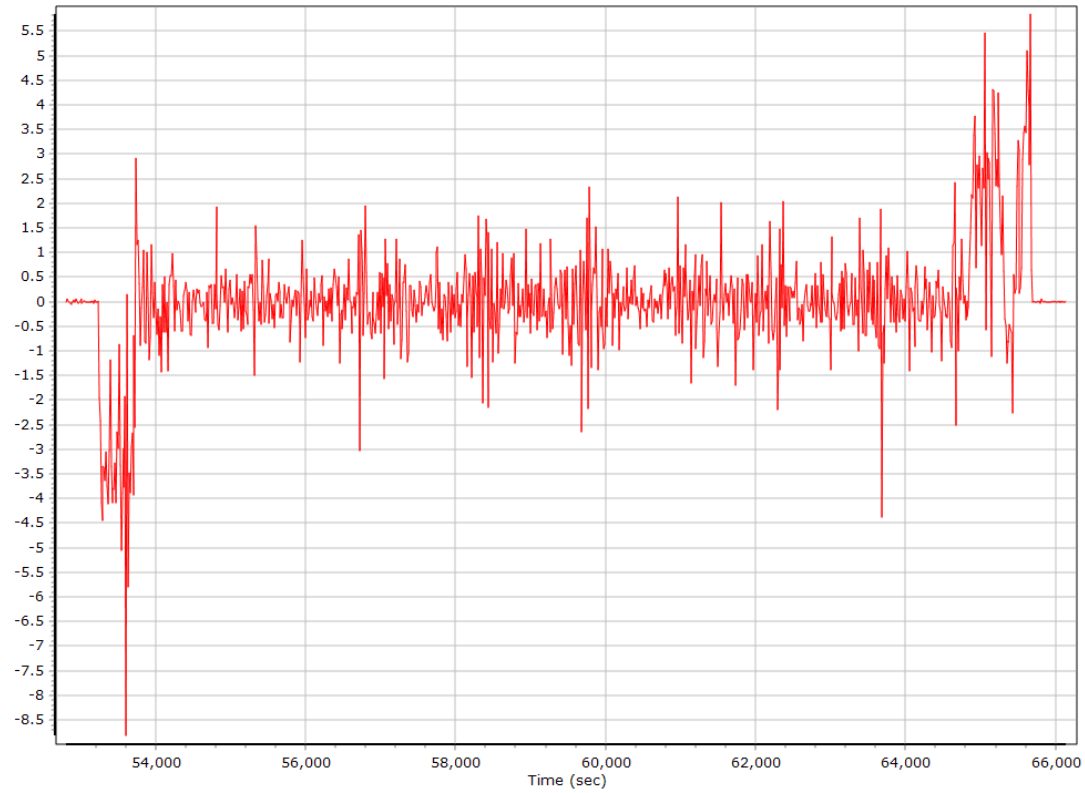
Heading



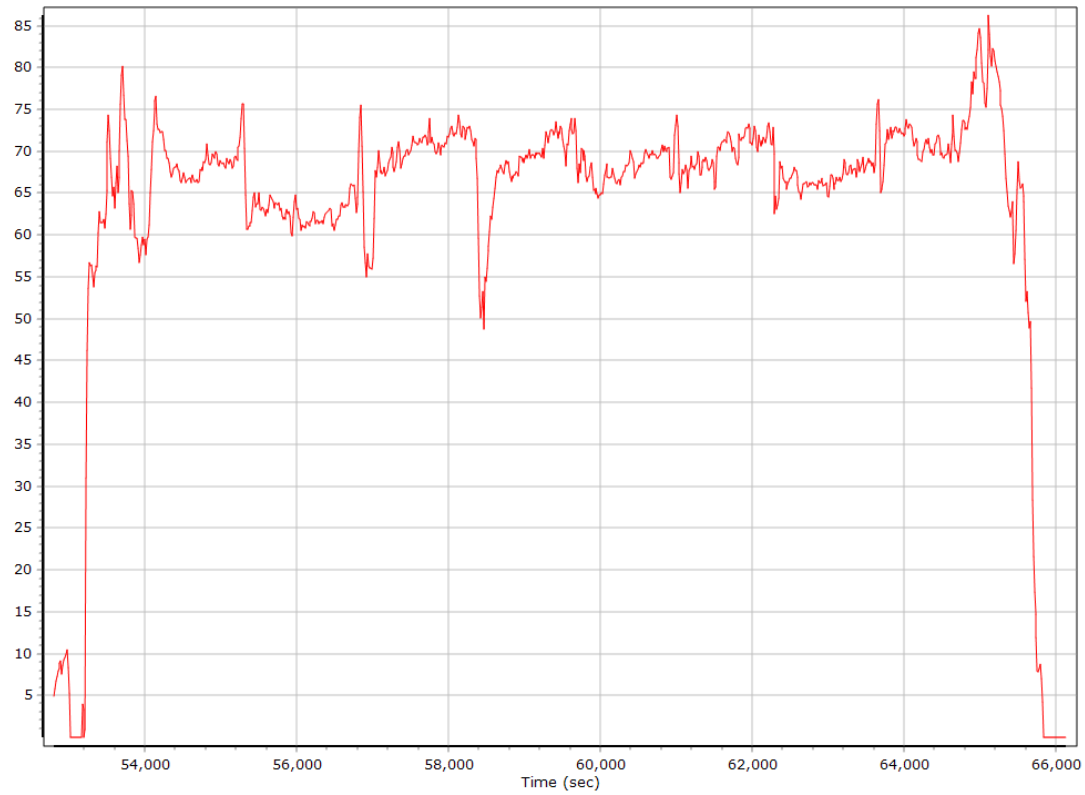
North/East Velocity



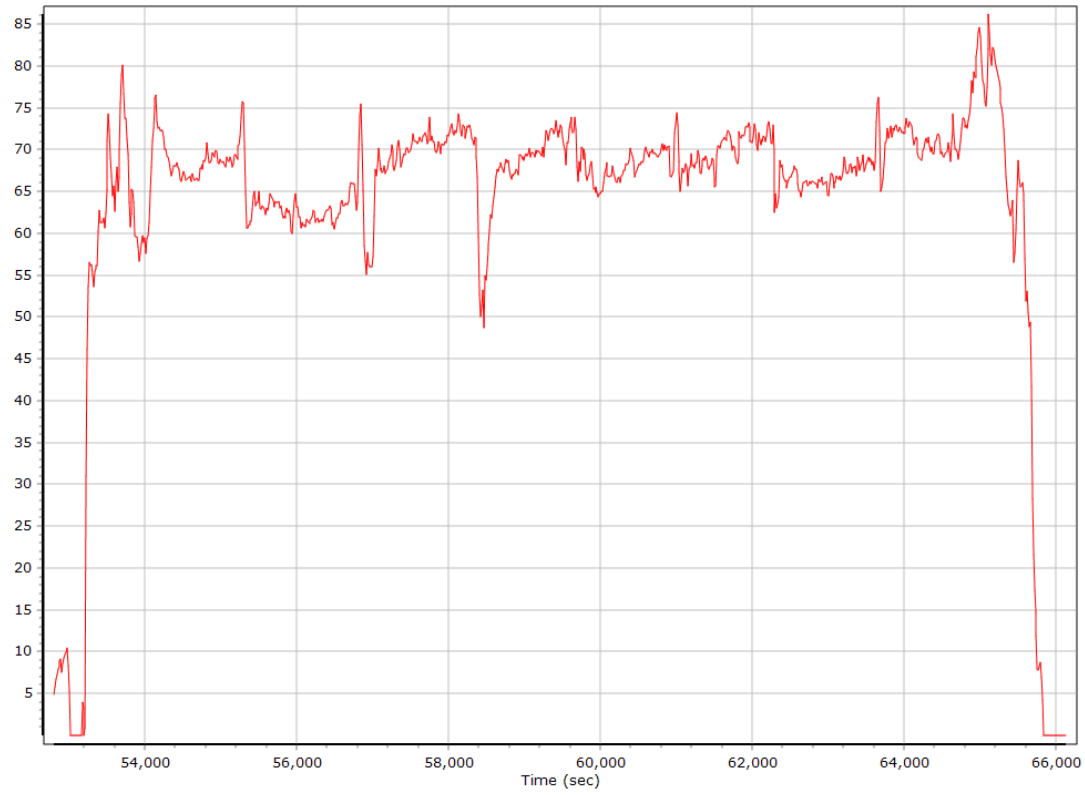
Down Velocity



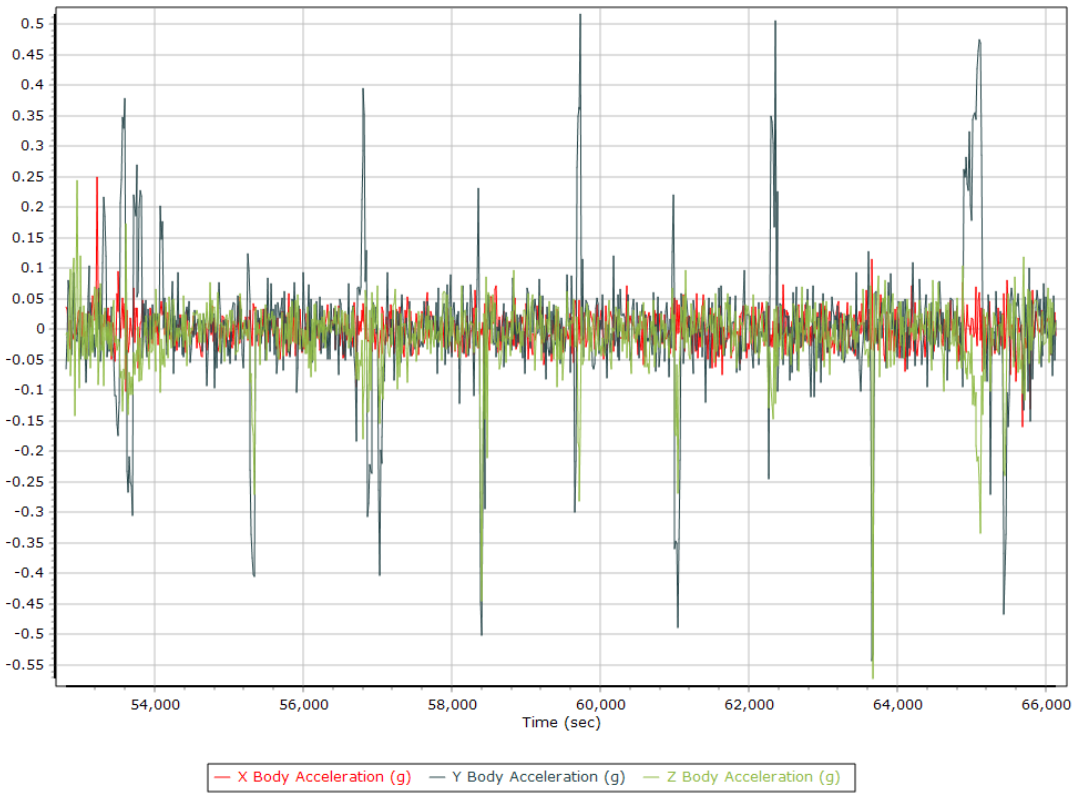
Total Speed



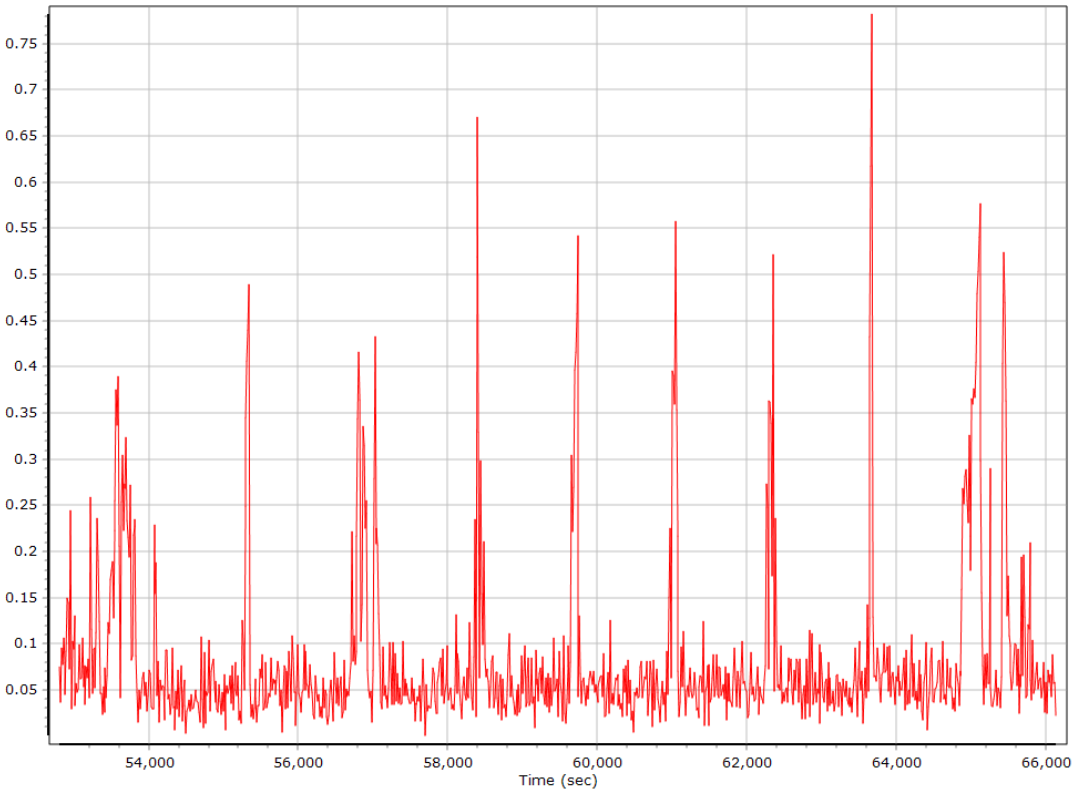
Ground Speed



Body Acceleration



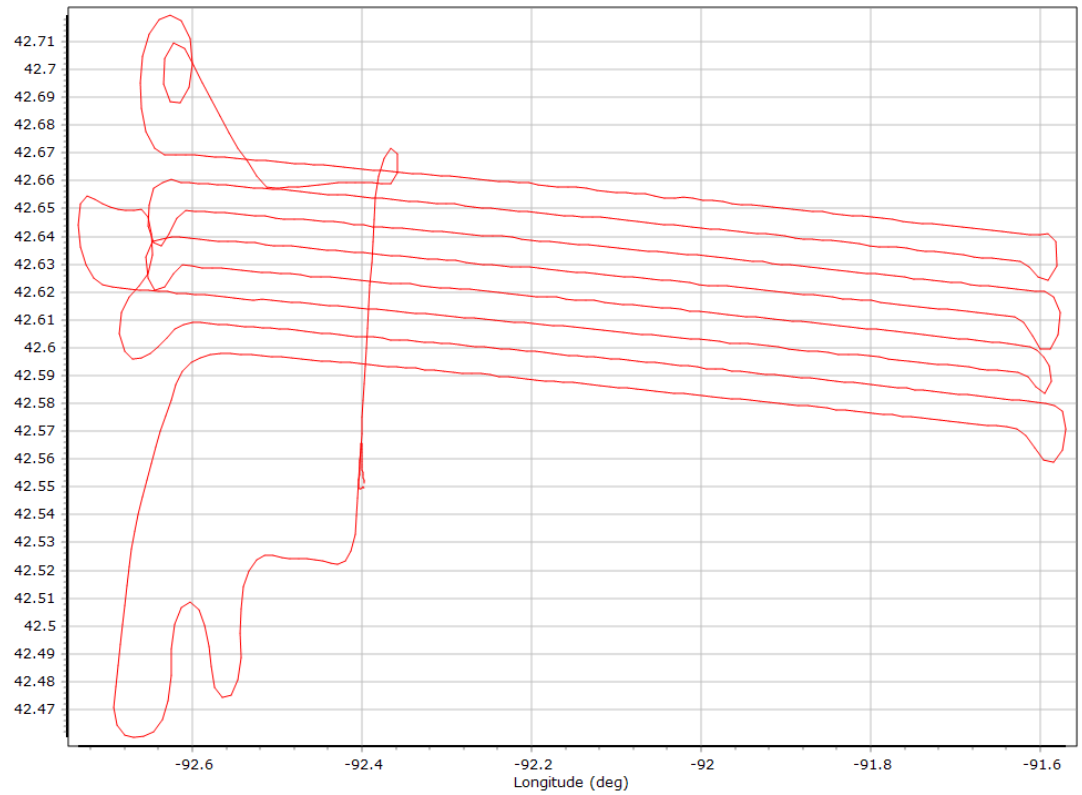
Total Body Acceleration



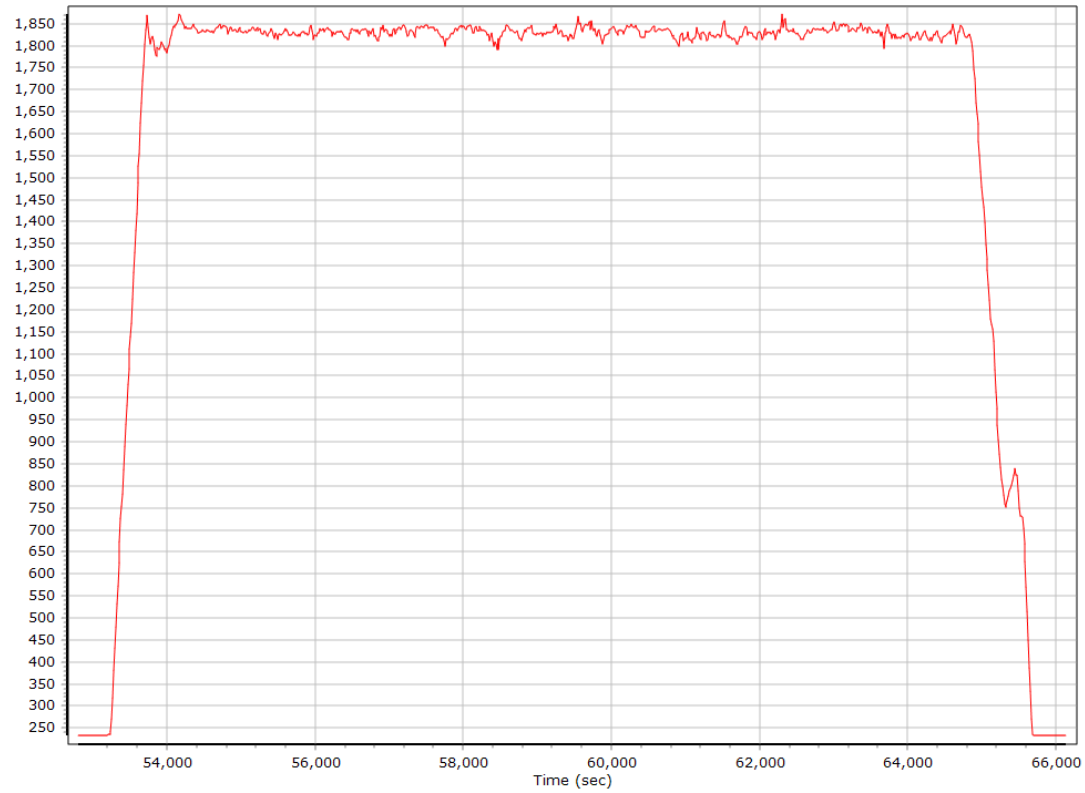
Body Angular Rate

Forward Processed Trajectory Information

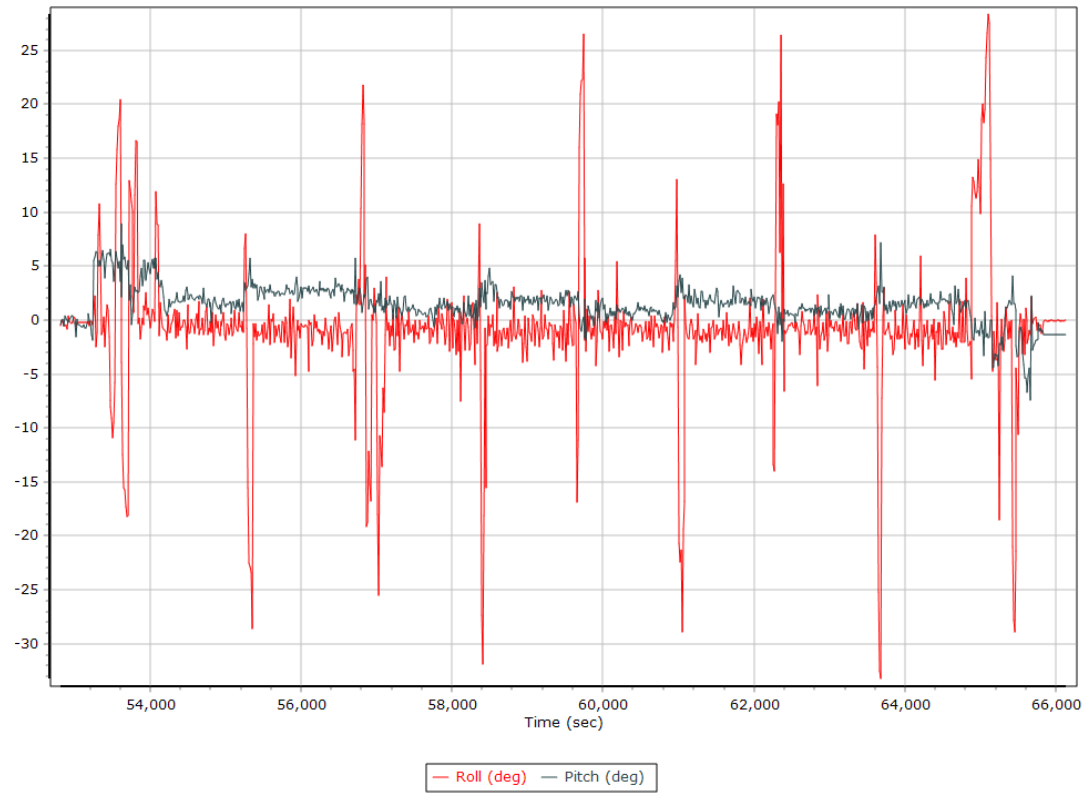
Top View



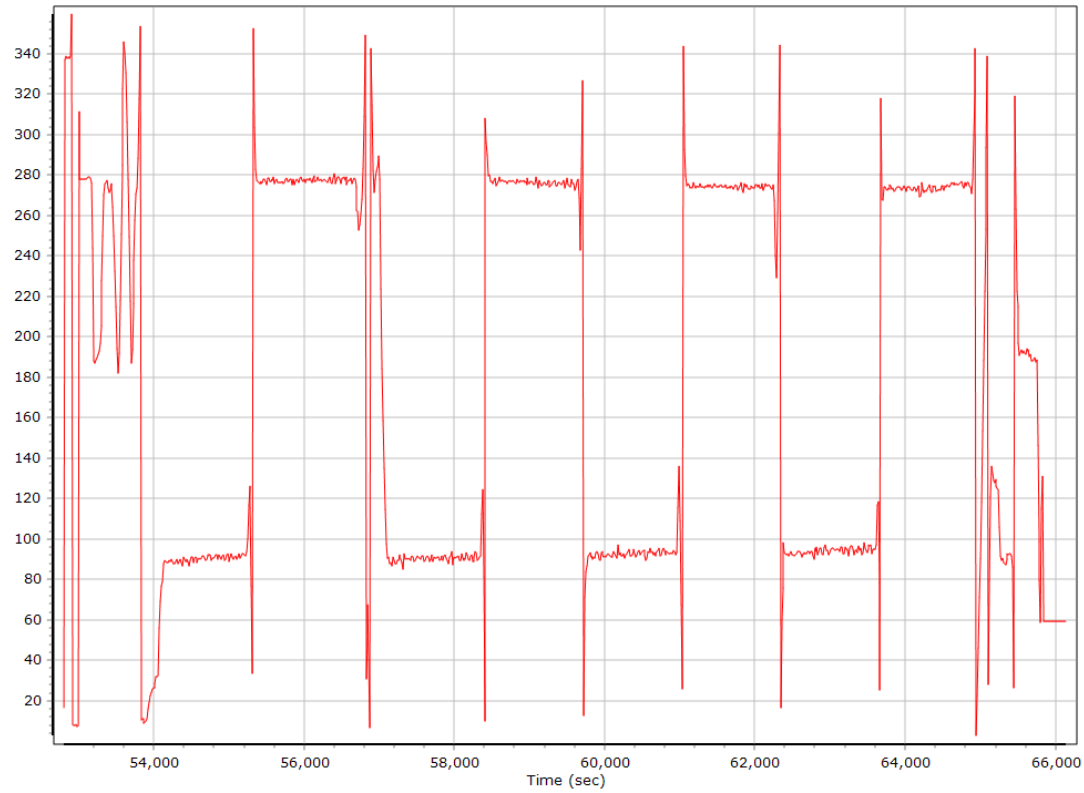
Altitude



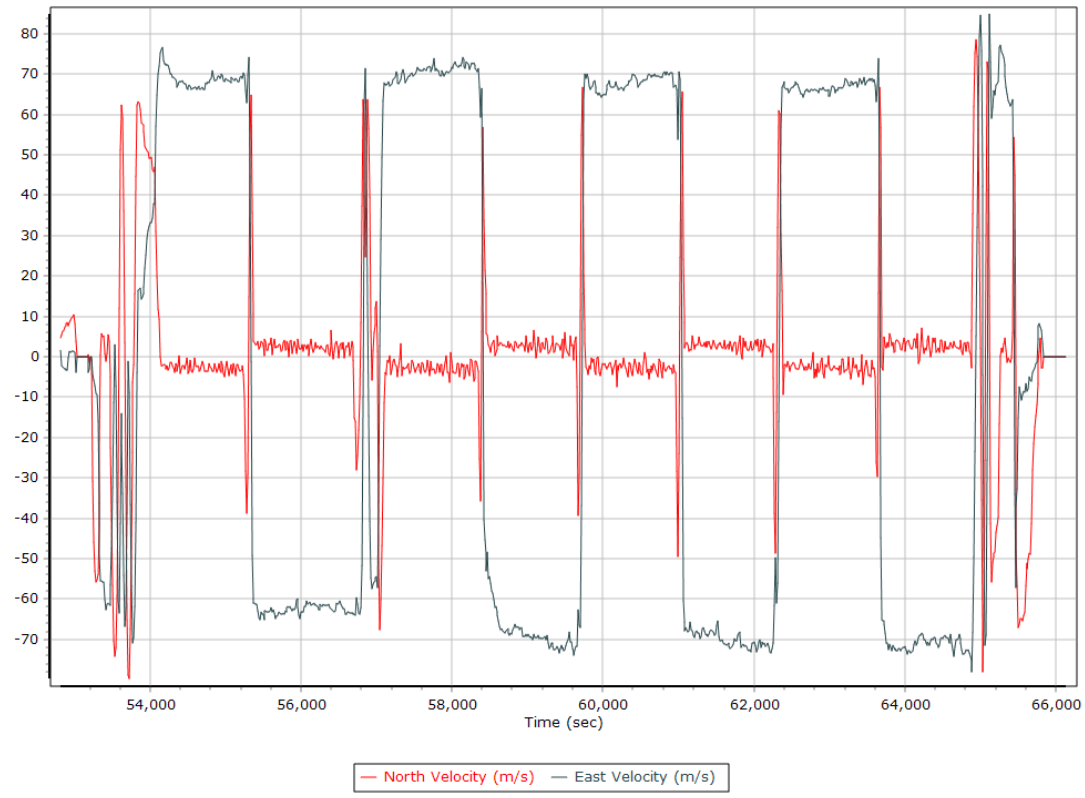
Roll/Pitch



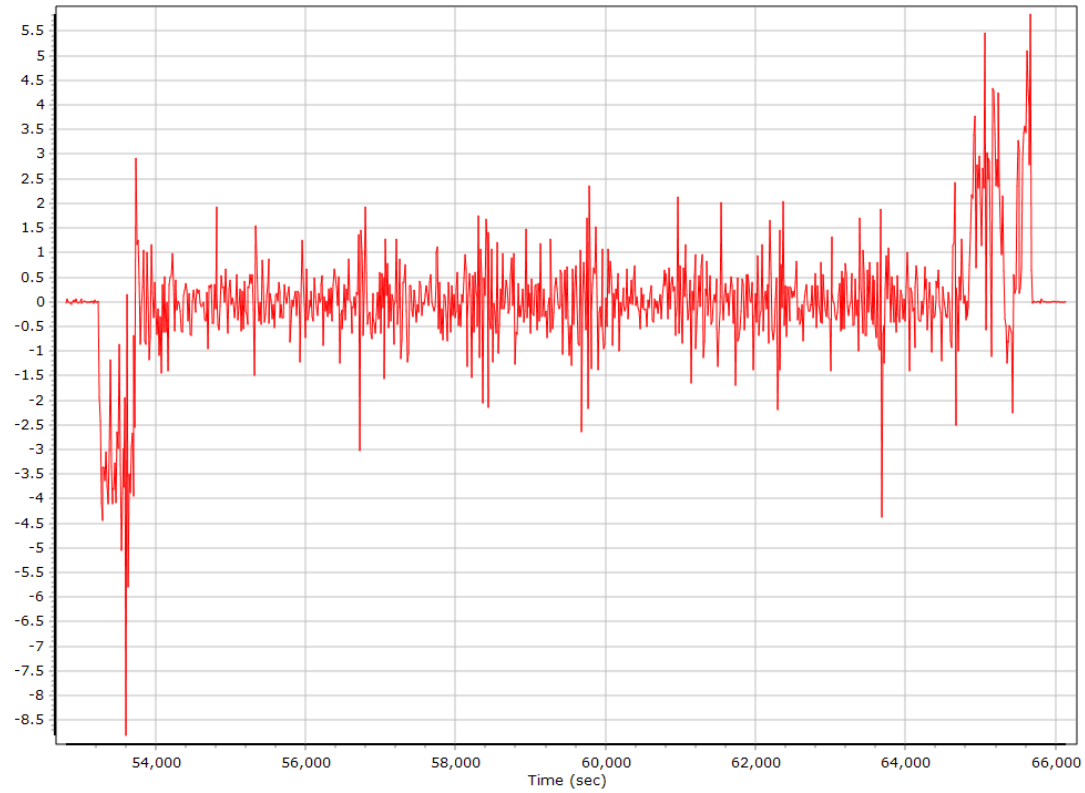
Heading



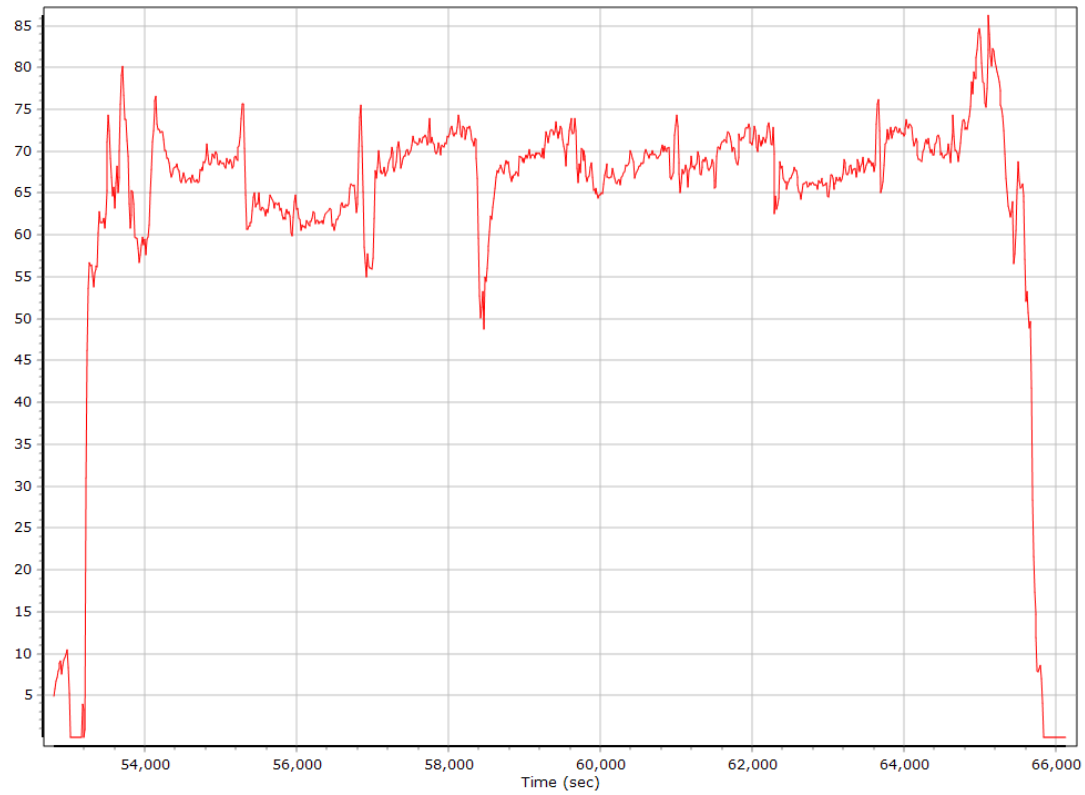
North/East Velocity



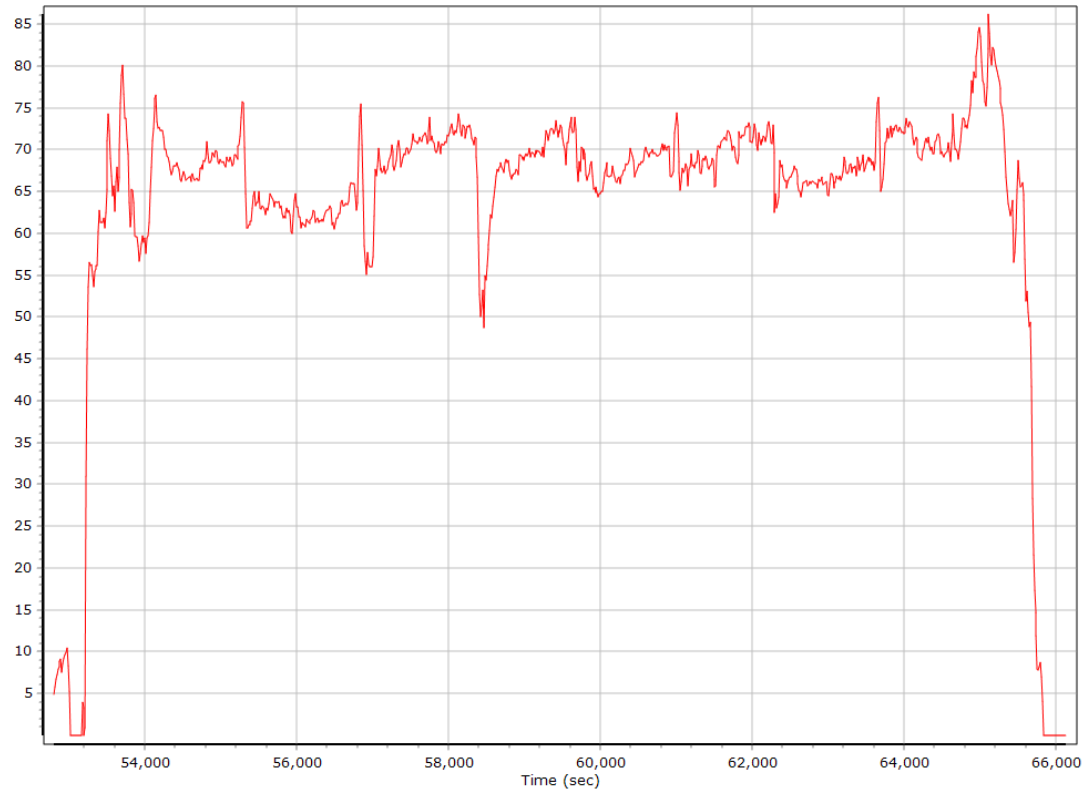
Down Velocity



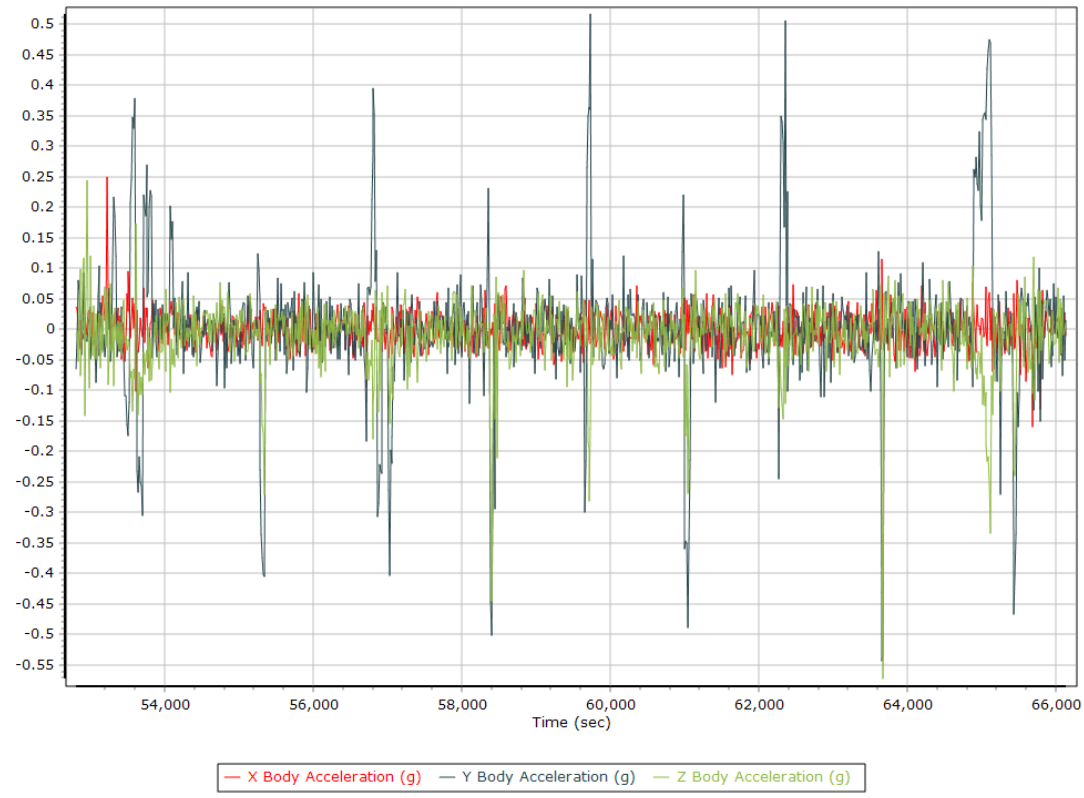
Total Speed



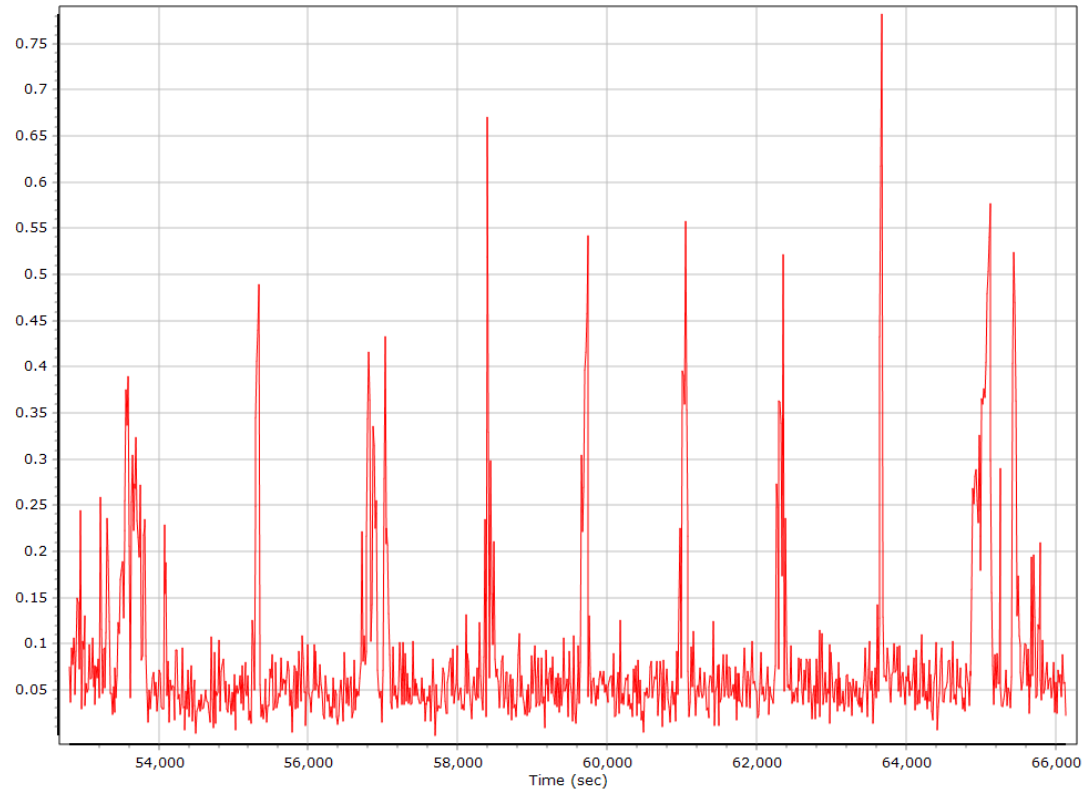
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
12/08/2019	IAAL	50.10	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	IAEL	75.27	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	IATA	76.90	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	IADE	79.57	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	IAMN	84.12	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	MNPS	103.91	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	NLIB	106.70	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IAAL
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	13859 s (2083 52307 - 2083 66166)
Number of reference stations	5
Primary station GPS measurement usage (%)	99.2
Primary station GLONASS measurement usage (%)	92.1
Average number of satellites per epoch	14.5
Max number of GPS stations used	5
Min number of GPS stations used	3
Max number of GLONASS stations used	5
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	8192
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

Base Station Information - IAMN

Station ID	IAMN		
Filename	iamn3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10896"		
Longitude	W91°32'55.59726"		
Ellipsoidal height (m)	228.90443		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IADE

Station ID	IADE		
Filename	iade3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83212"		
Longitude	W91°49'53.52609"		
Ellipsoidal height (m)	316.51644		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IATA

Station ID	IATA		
Filename	iata3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67192"		
Longitude	W92°33'05.07479"		
Ellipsoidal height (m)	247.33464		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IAEL

Station ID	IAEL		
Filename	iael3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47667"		
Longitude	W91°21'41.52963"		
Ellipsoidal height (m)	298.98058		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IAAL

Station ID	IAAL		
Filename	iaal3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40421"		
Longitude	W92°47'14.24700"		
Ellipsoidal height (m)	291.09259		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.25	52.37	
Number of GPS SV	6	10	8
Number of GLONASS SV	0	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	8	18	14
PDOP	1.11	2.09	1.43
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	13821.00	0.00	1.00
Percentage	99.99	0.00	0.01

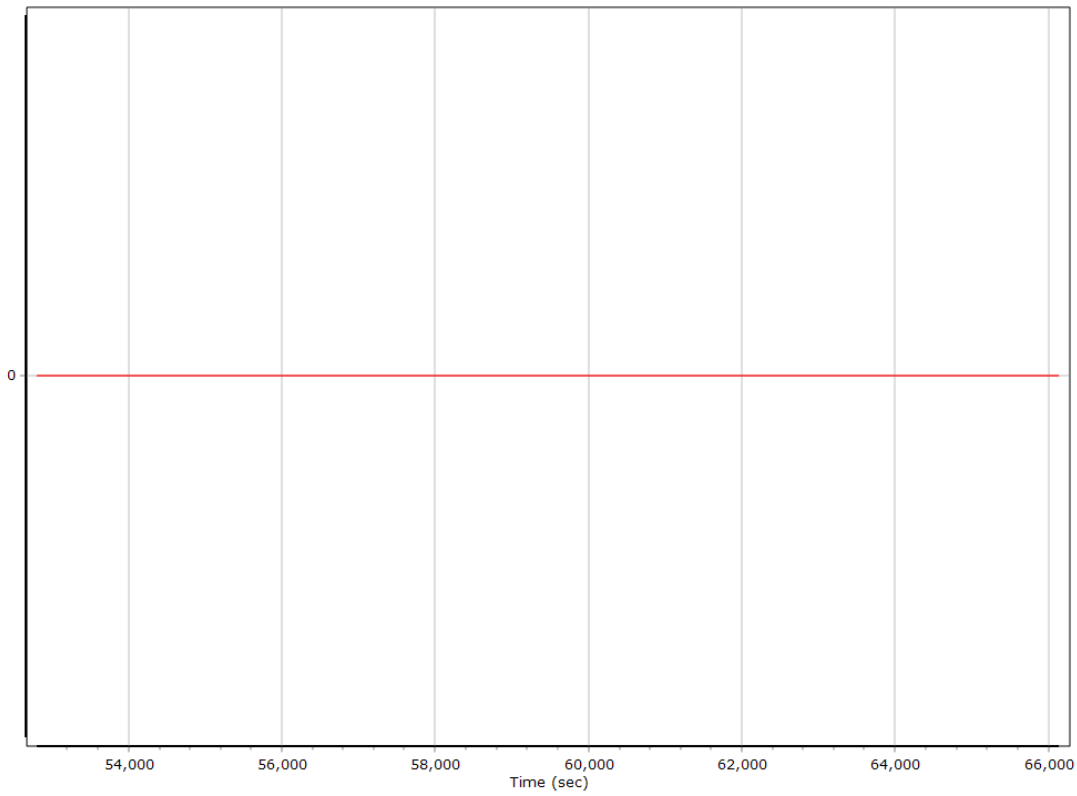
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	52289.000 (12/8/2019 2:31:29 PM)		
Processing end time	66148.000 (12/8/2019 6:22:28 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

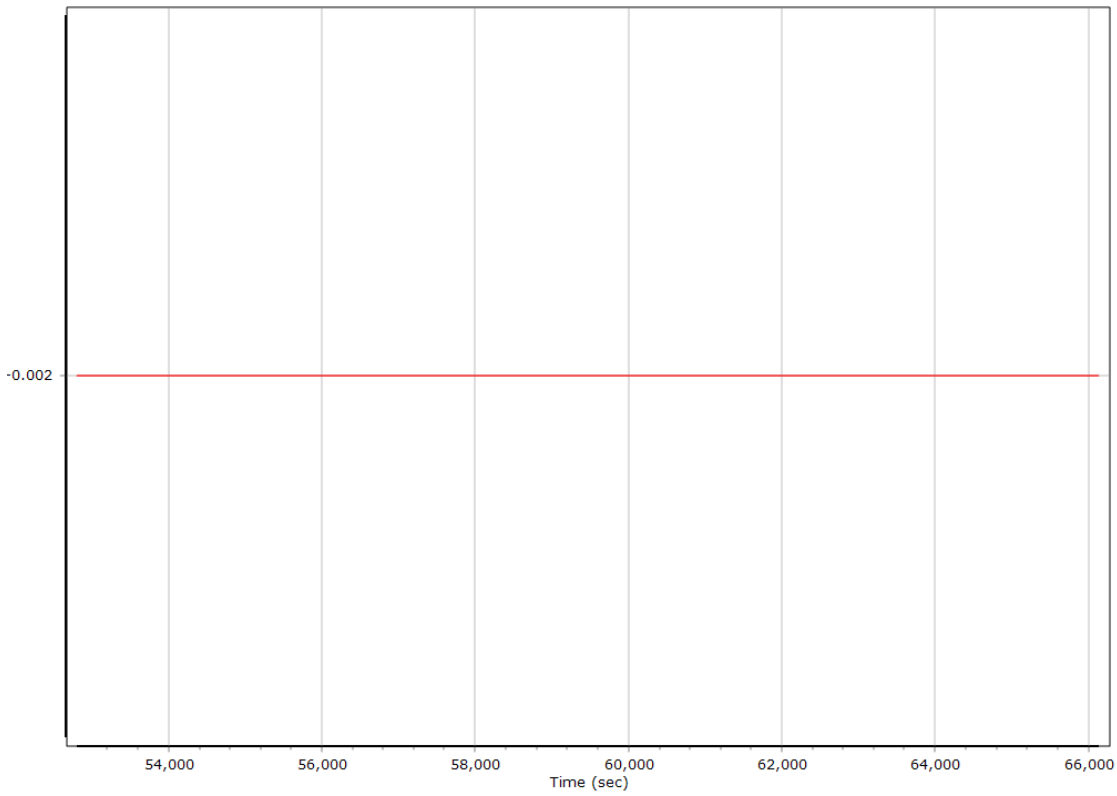
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

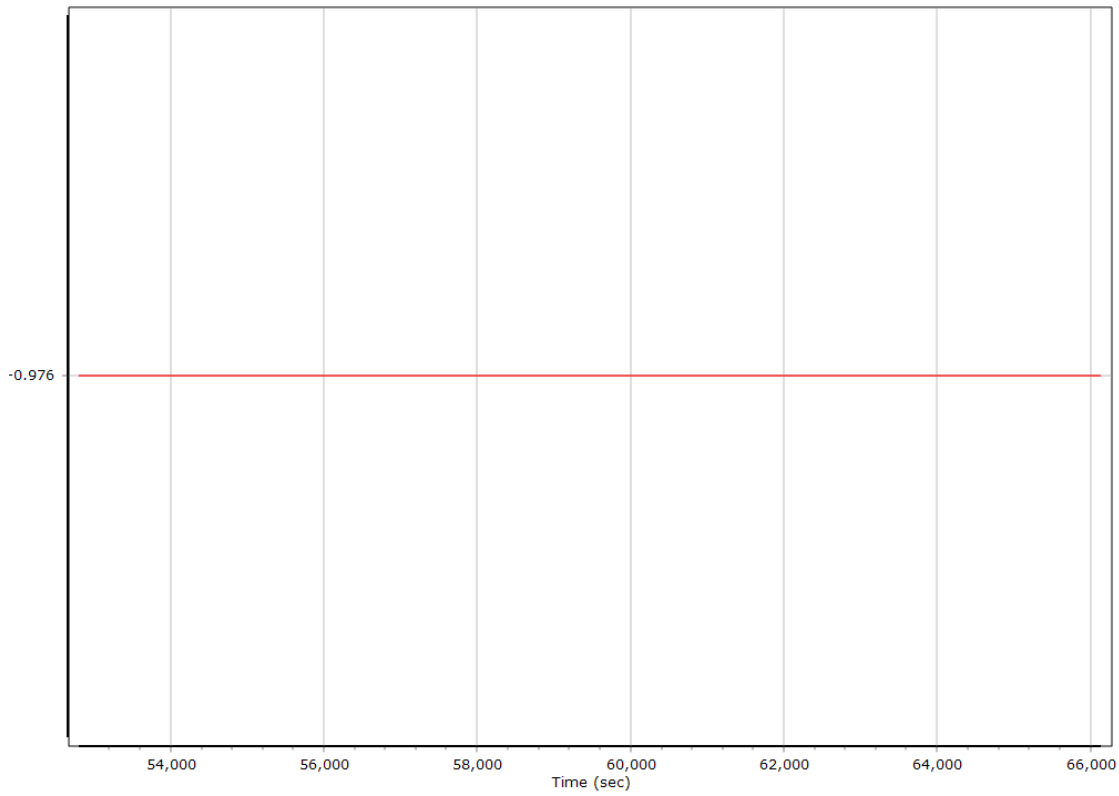
X Reference-Primary GNSS Lever Arm (m)



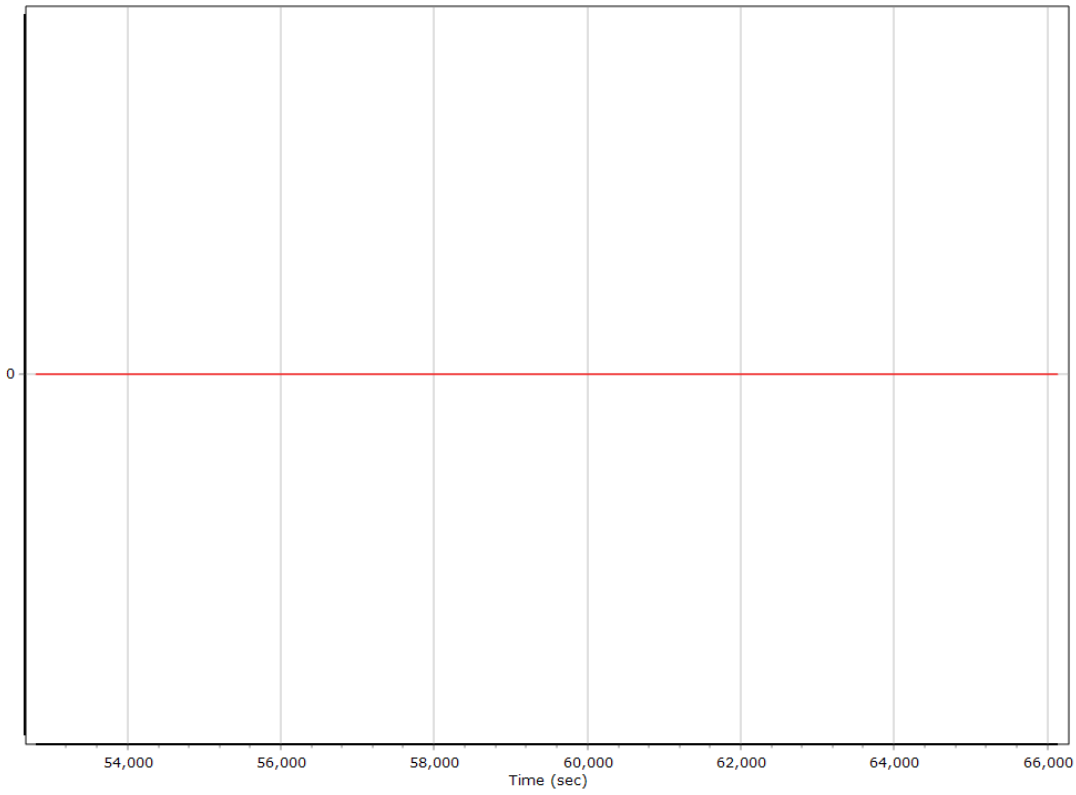
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



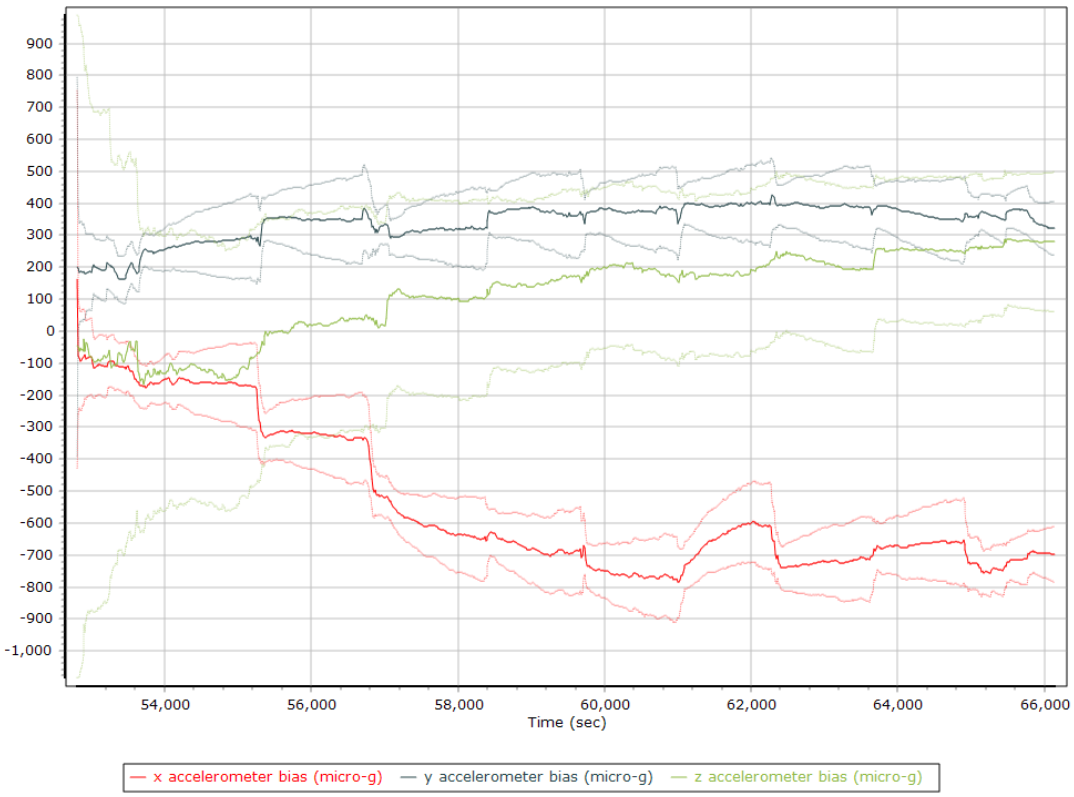
Reference-Primary GNSS Lever Arm Figure of Merit



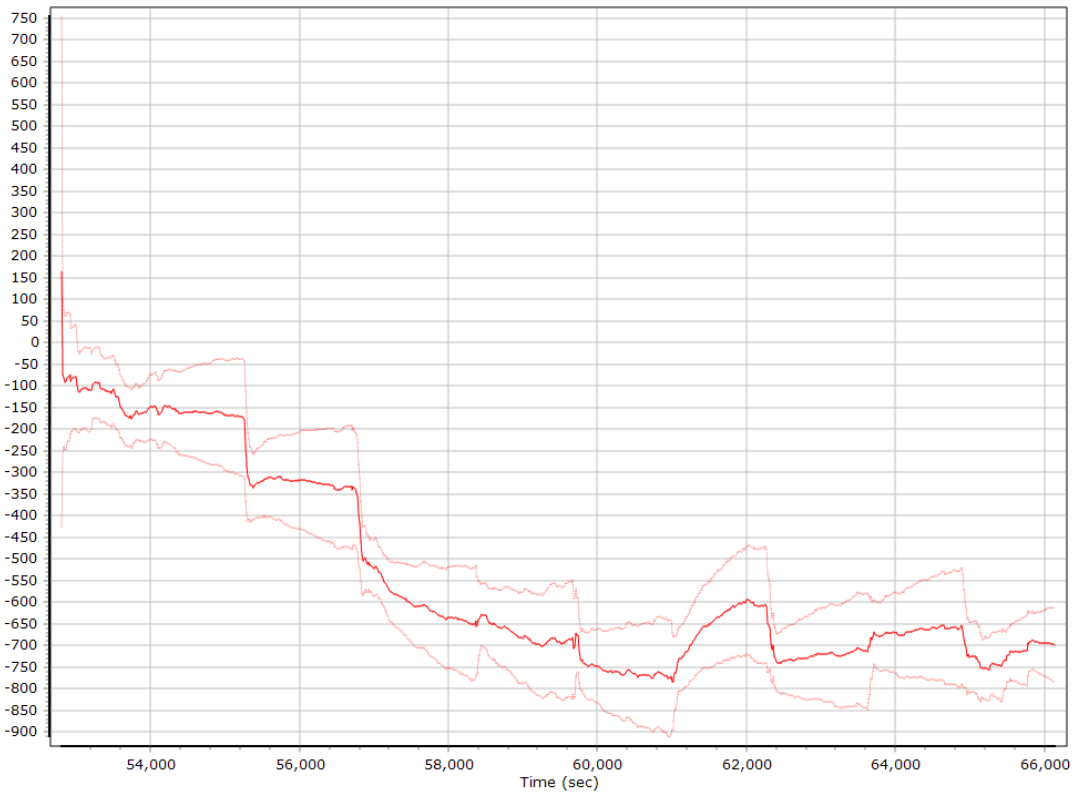
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

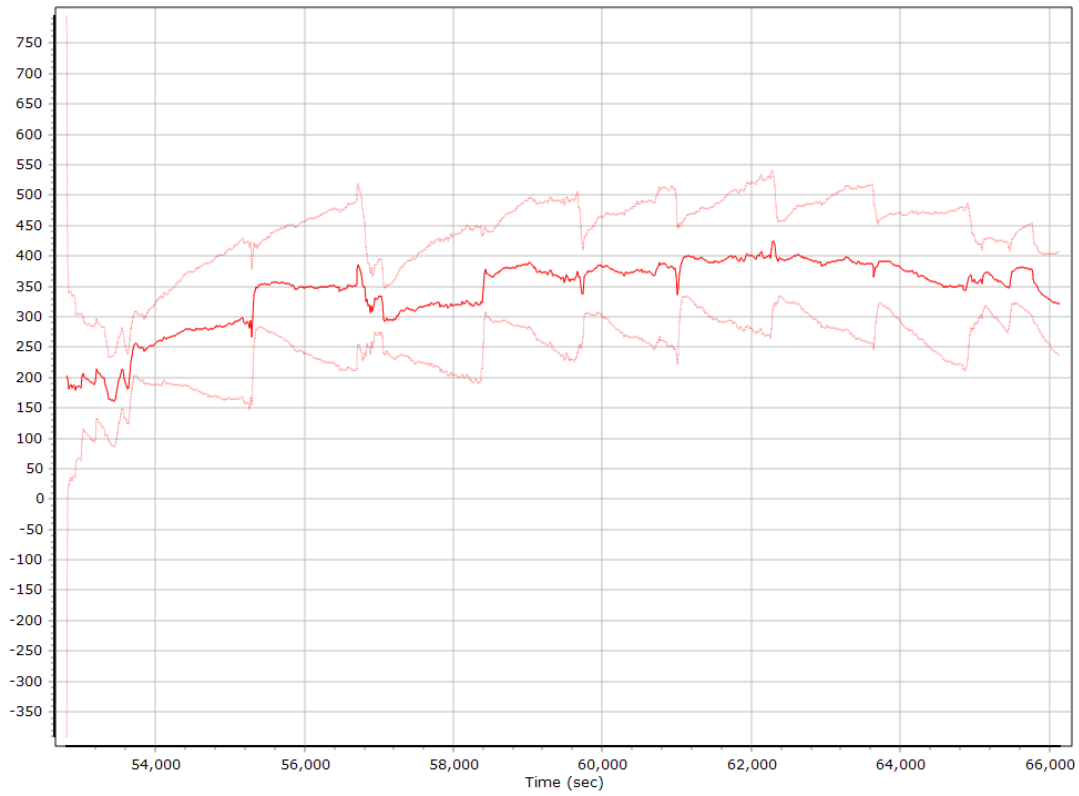
Accelerometer Bias (micro-g)



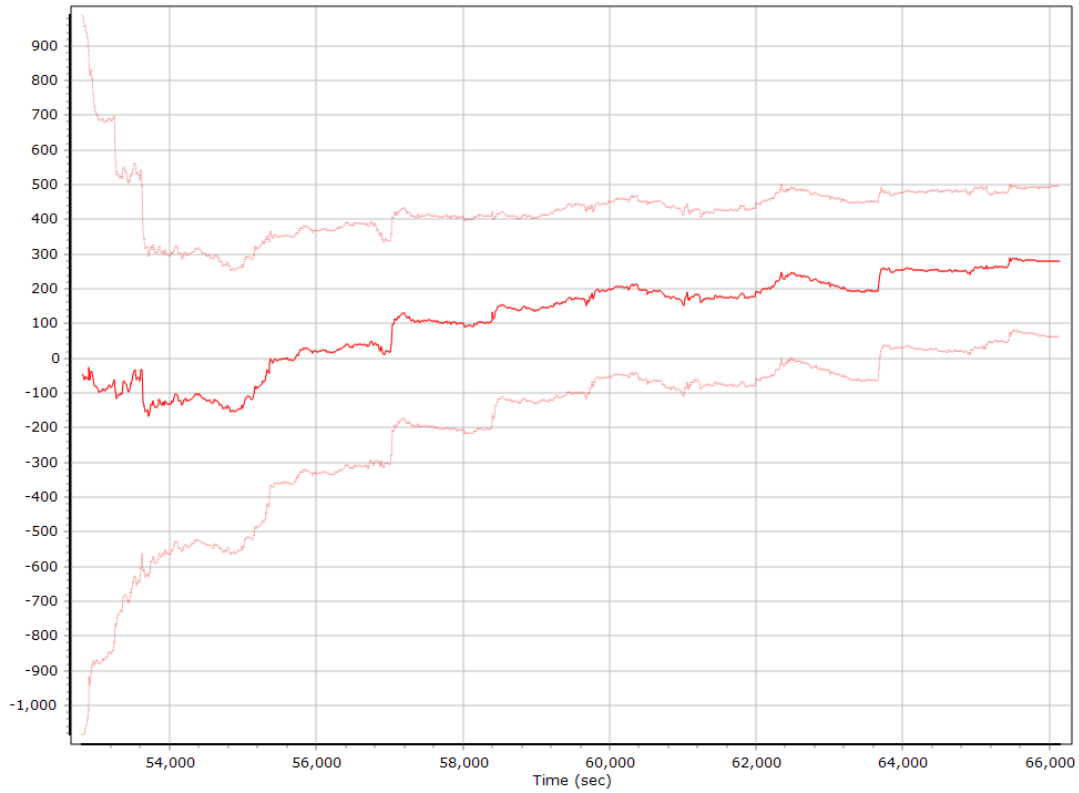
X Accelerometer Bias (micro-g)



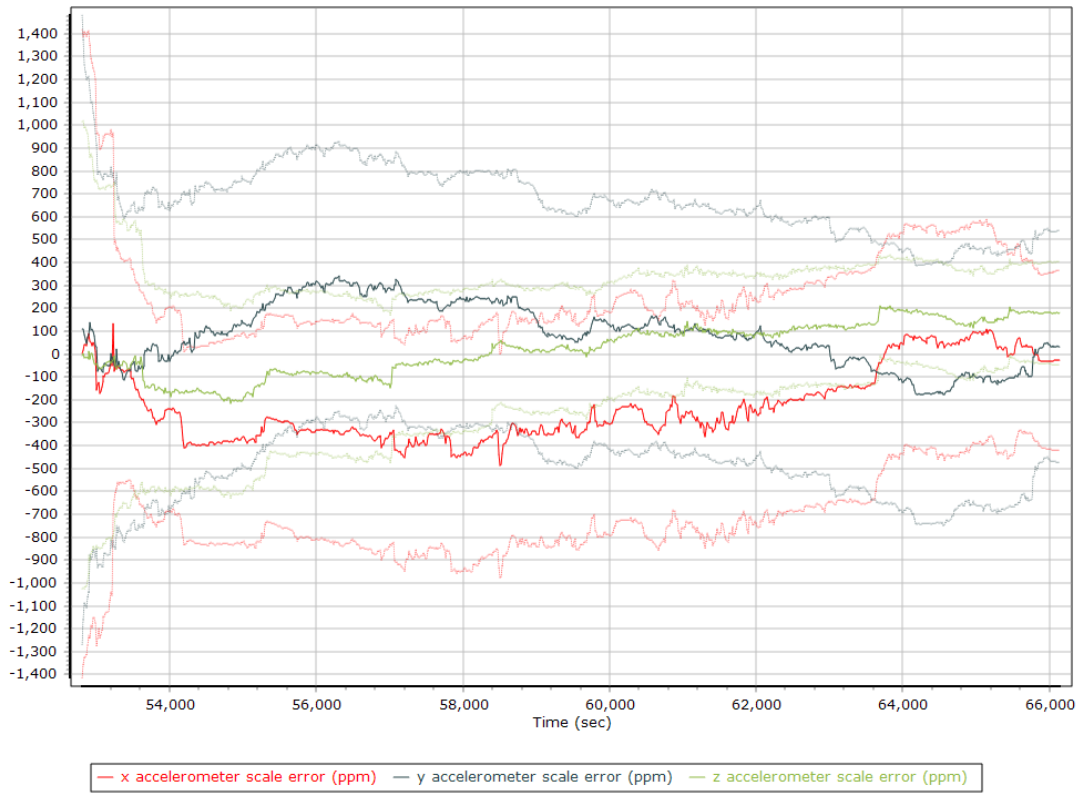
Y Accelerometer Bias (micro-g)



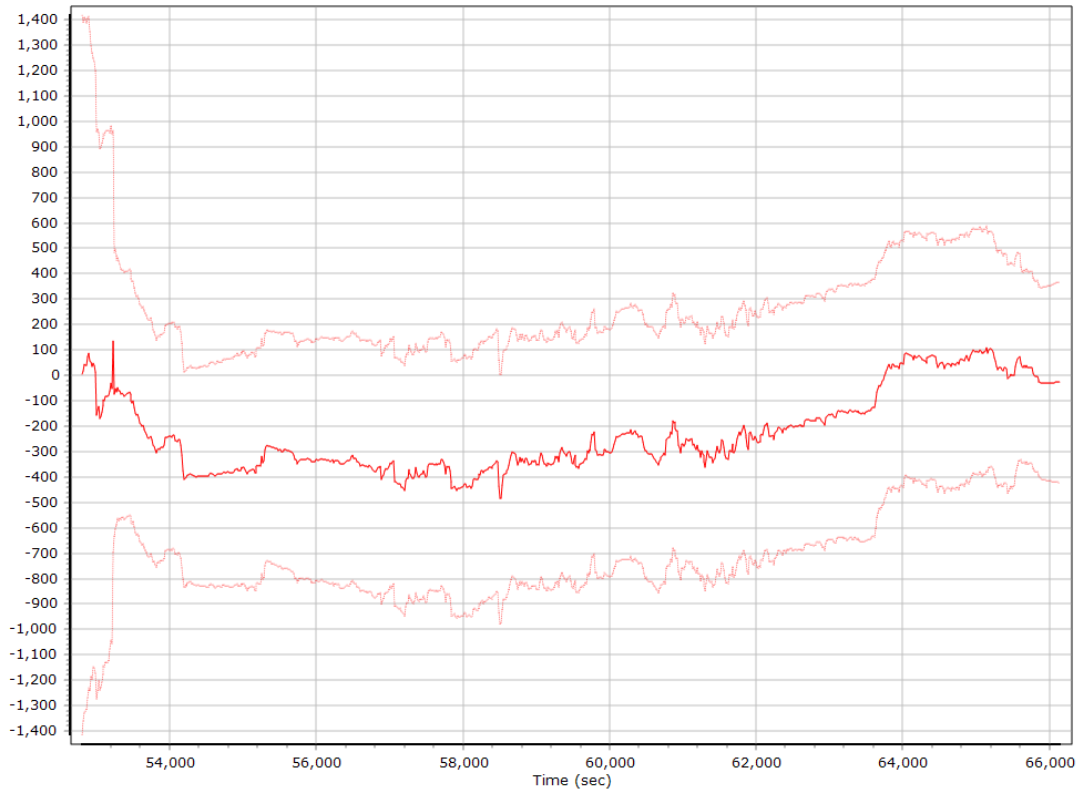
Z Accelerometer Bias (micro-g)



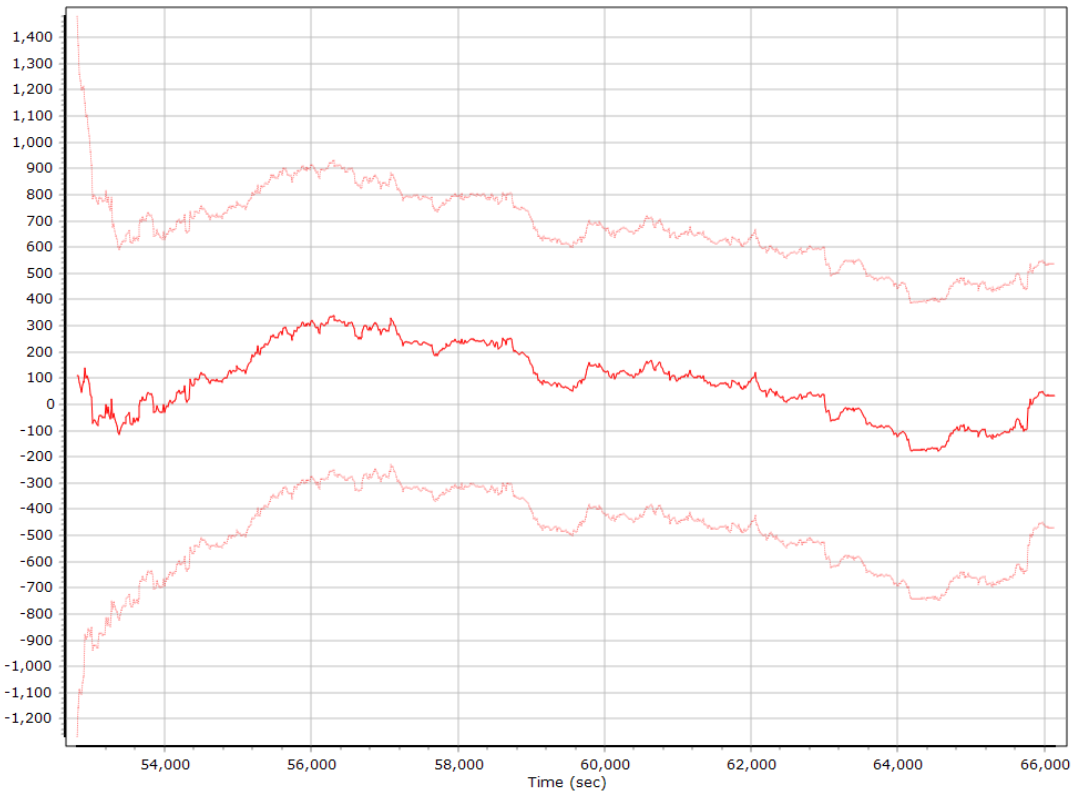
Accelerometer Scale Error (ppm)



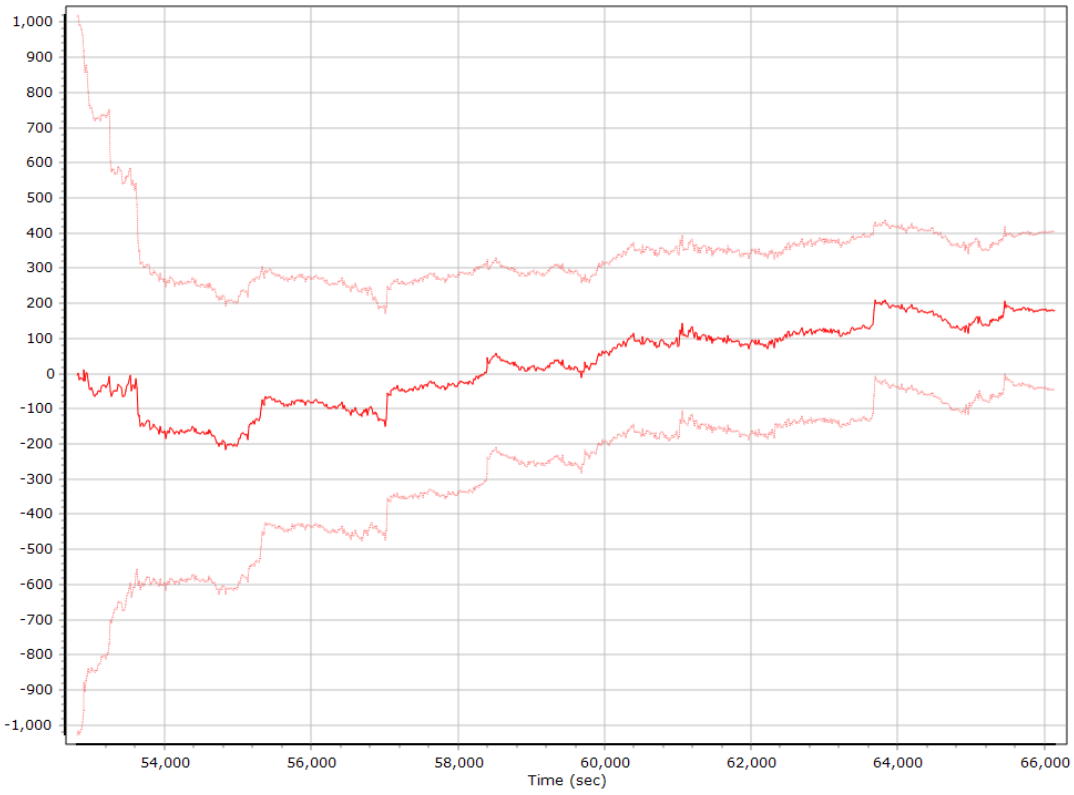
X Accelerometer Scale Error (ppm)



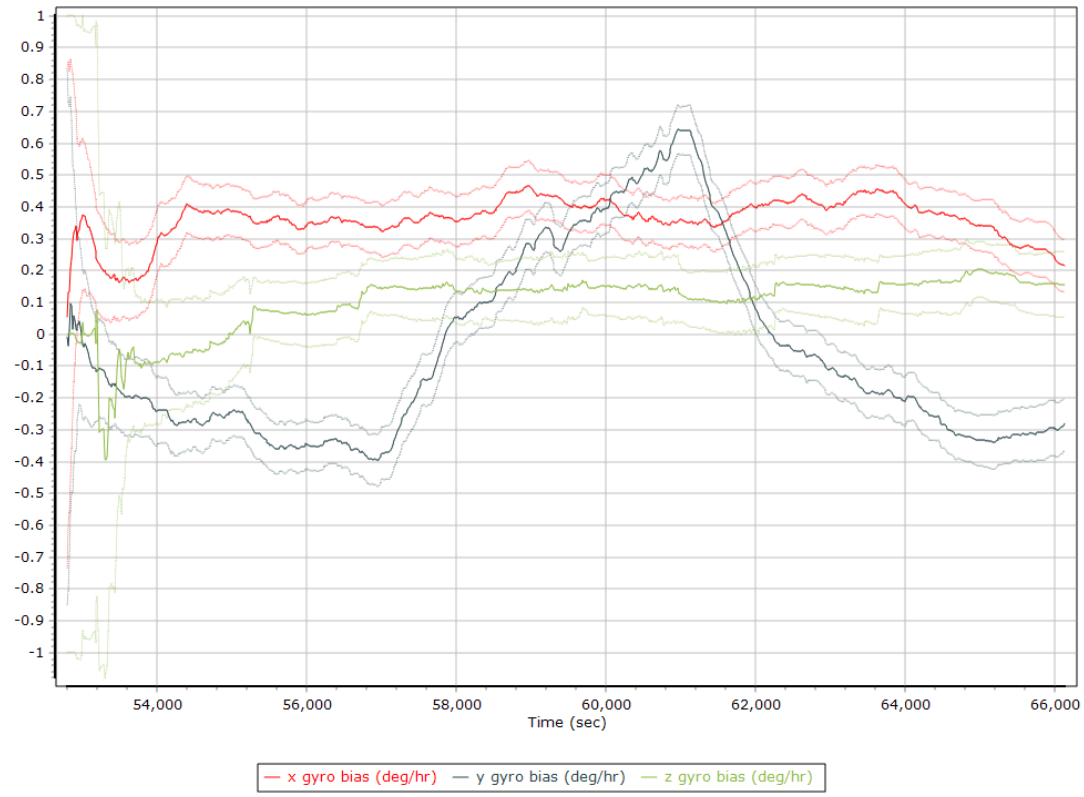
Y Accelerometer Scale Error (ppm)



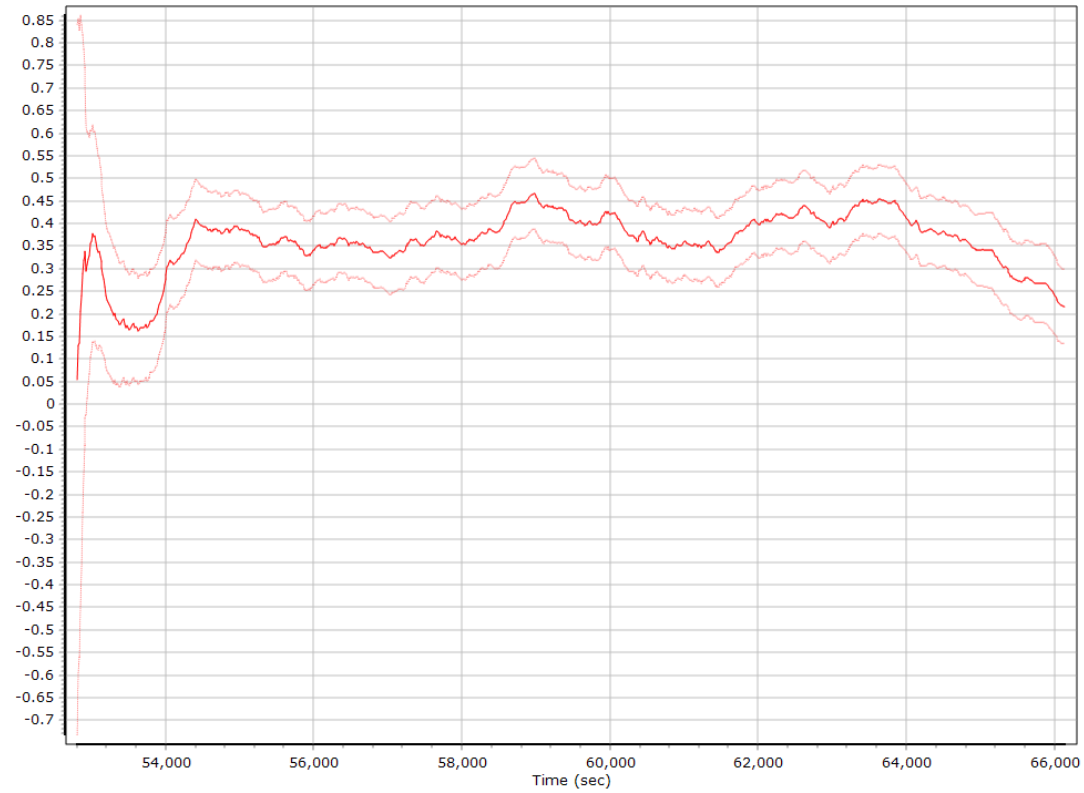
Z Accelerometer Scale Error (ppm)



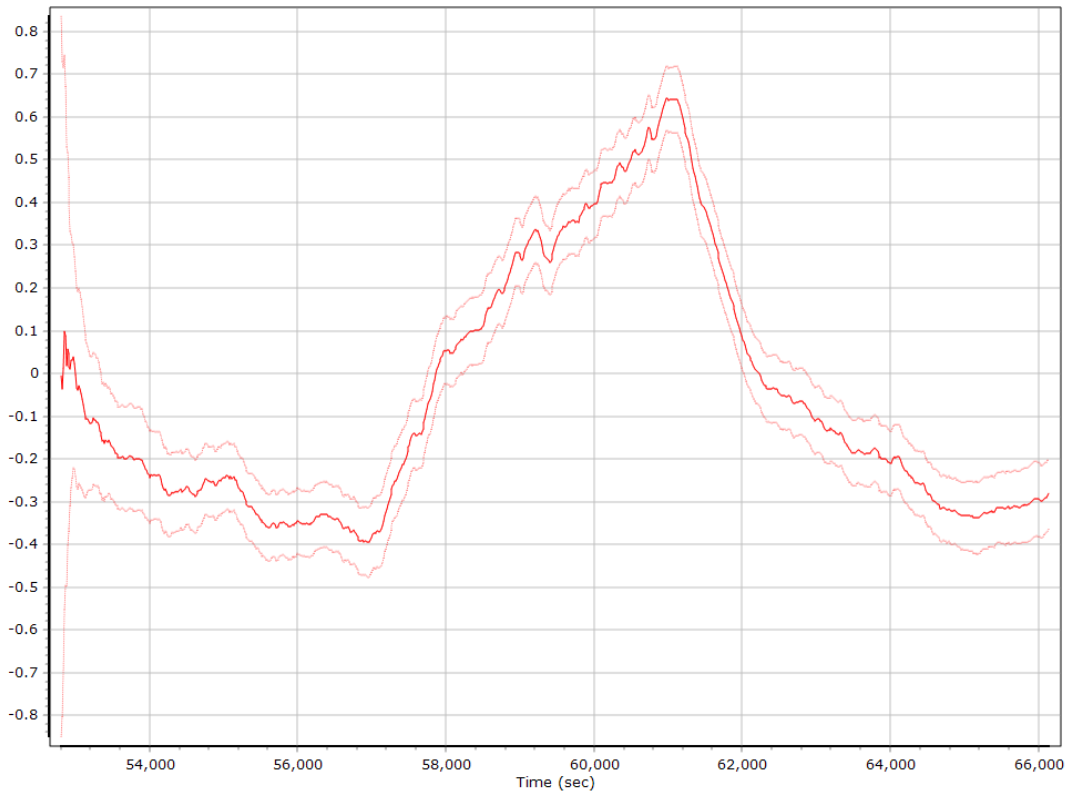
Gyro Bias (deg/h)



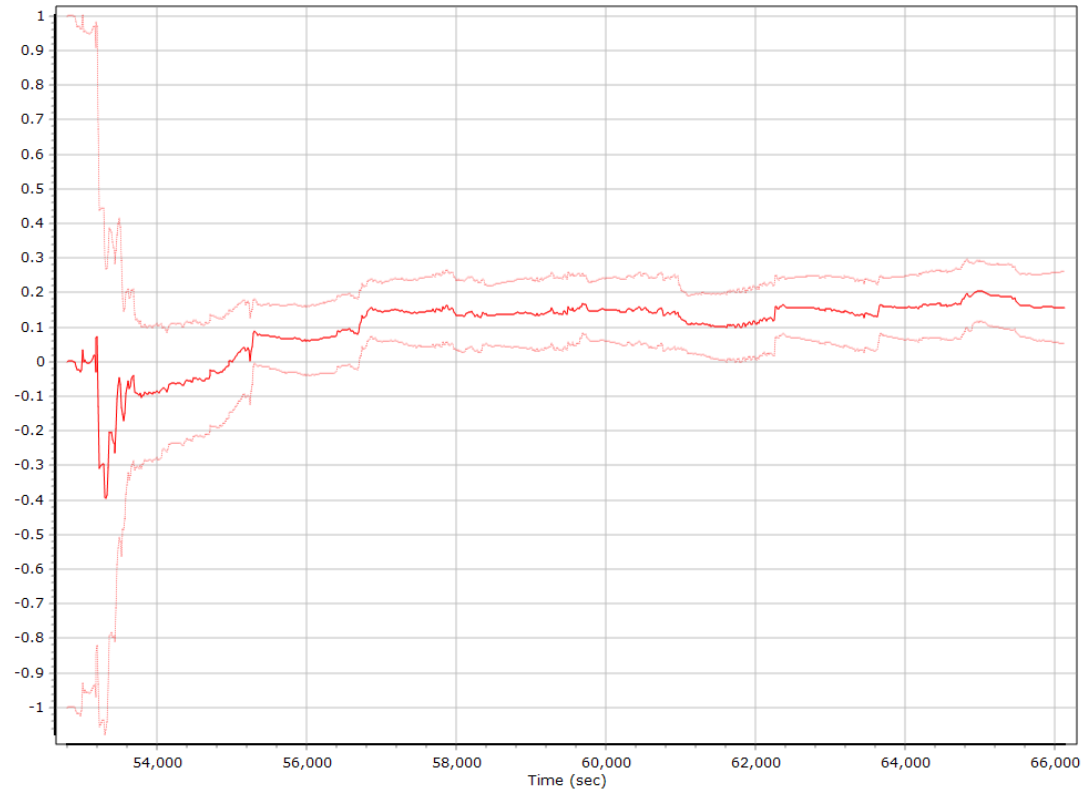
X Gyro Bias (deg/h)



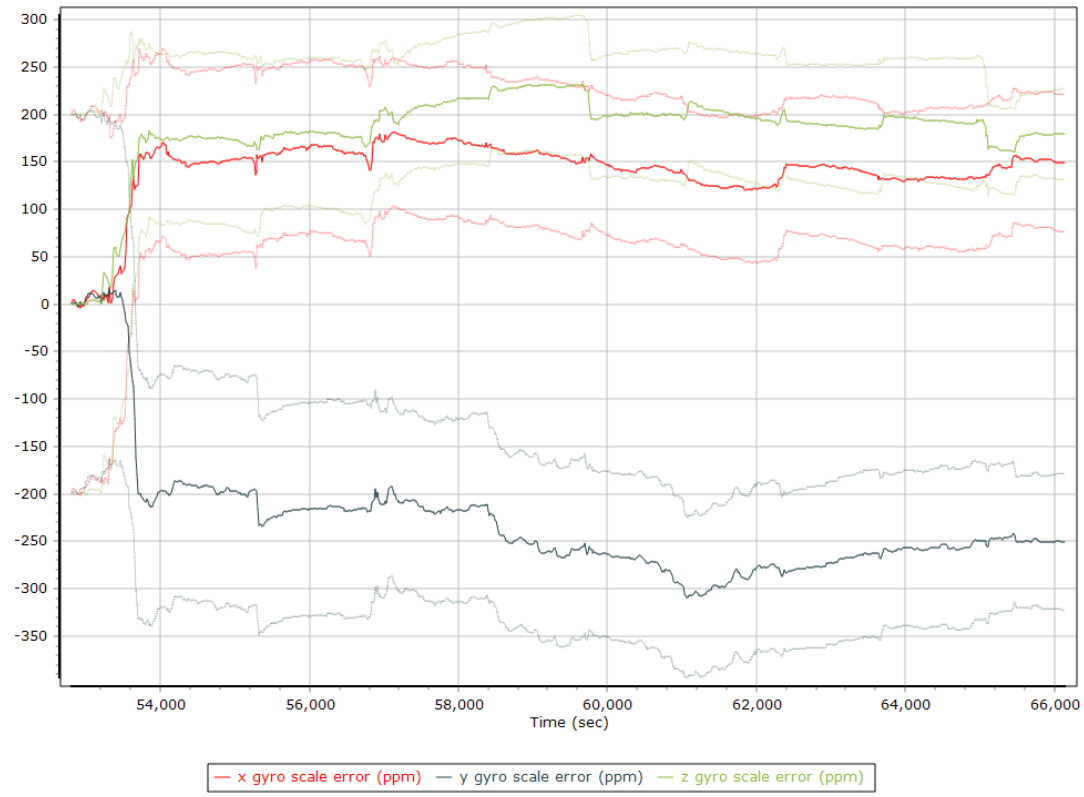
Y Gyro Bias (deg/h)



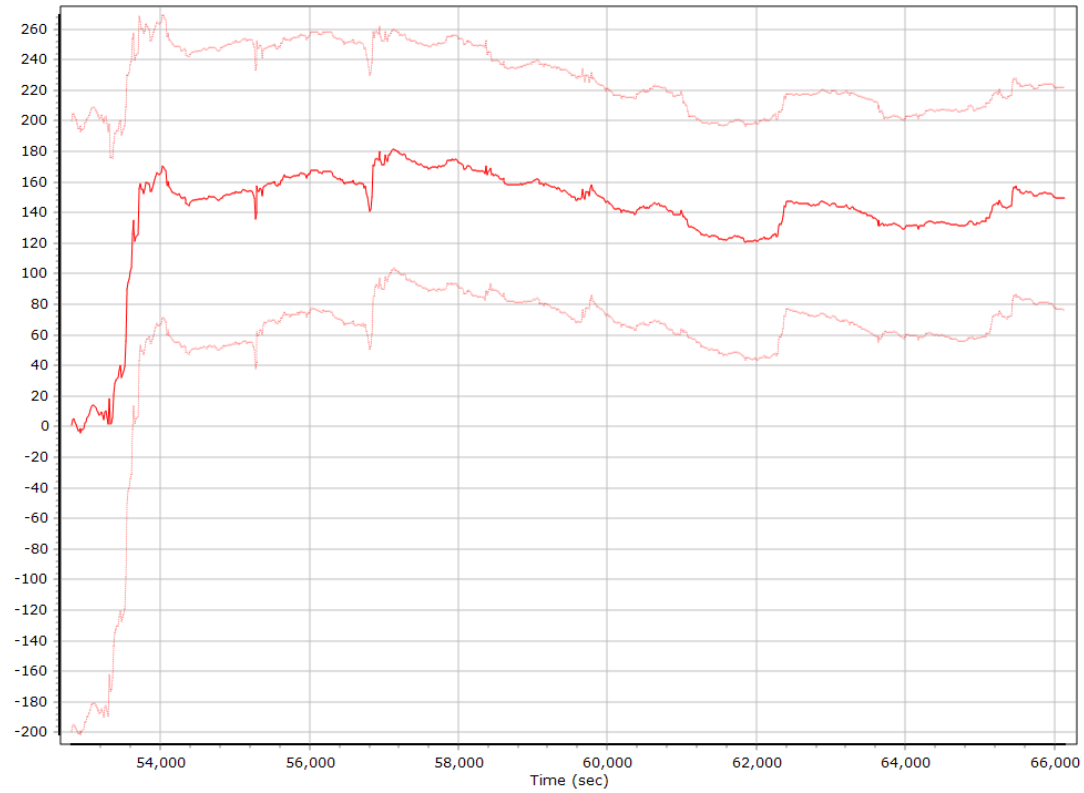
Z Gyro Bias (deg/h)



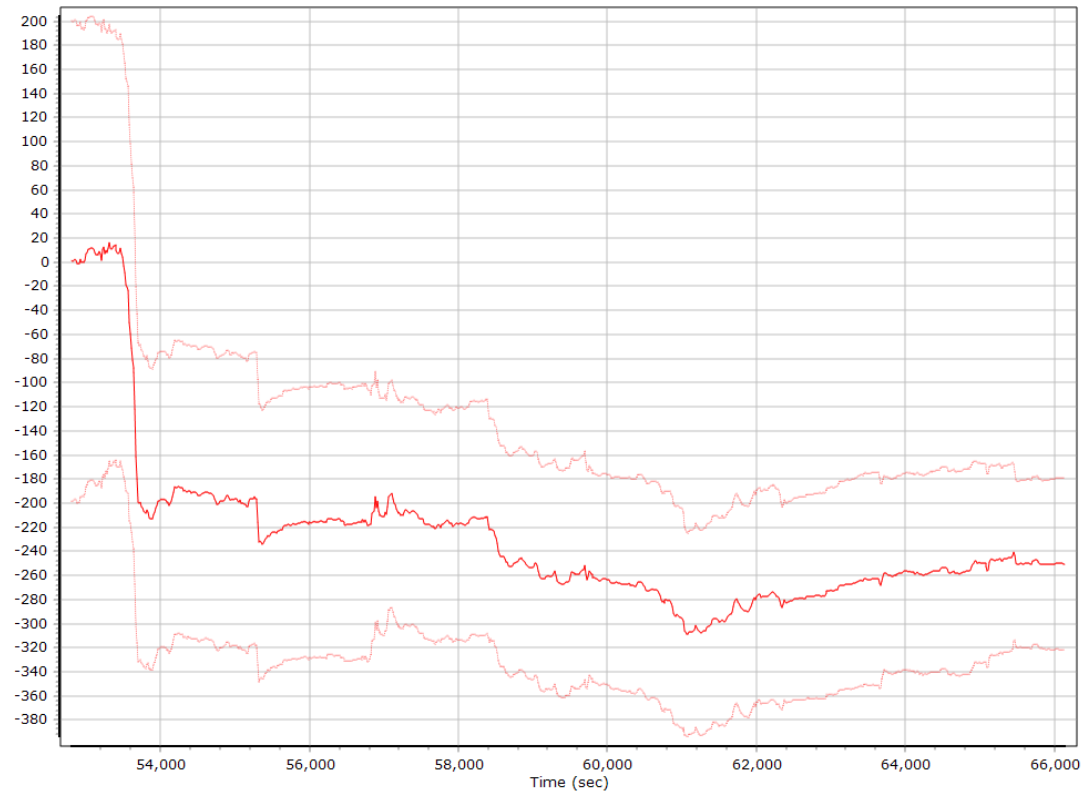
Gyro Scale Error (ppm)



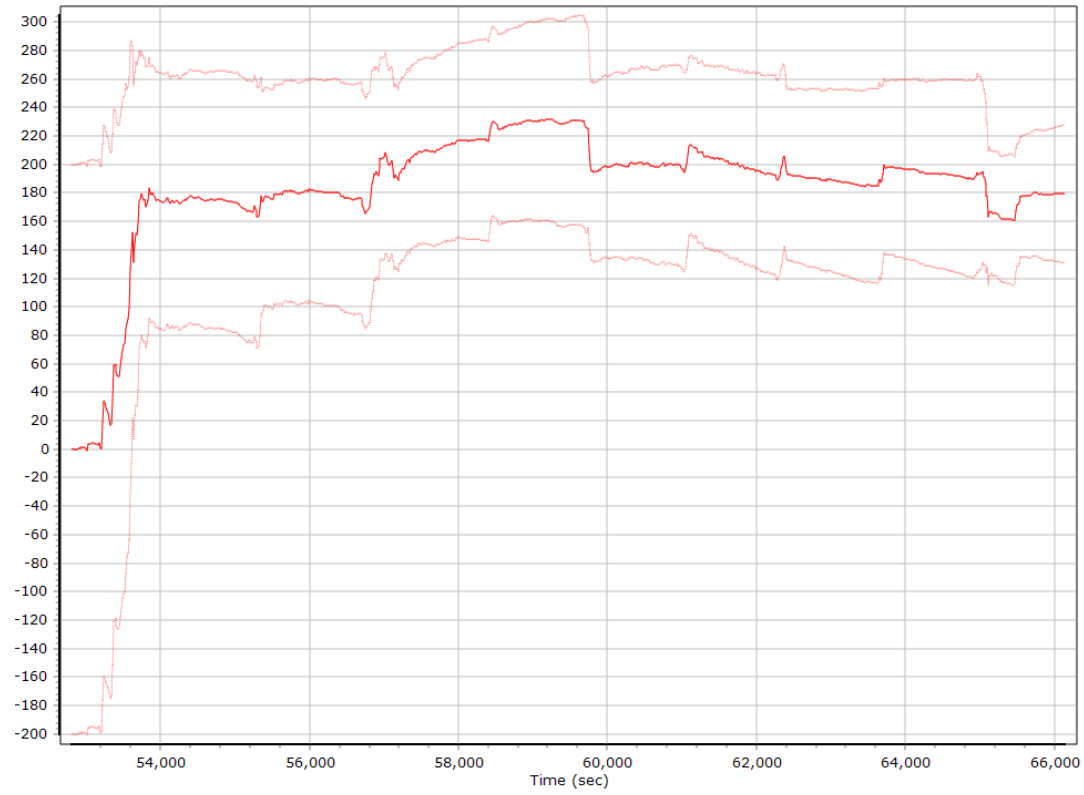
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

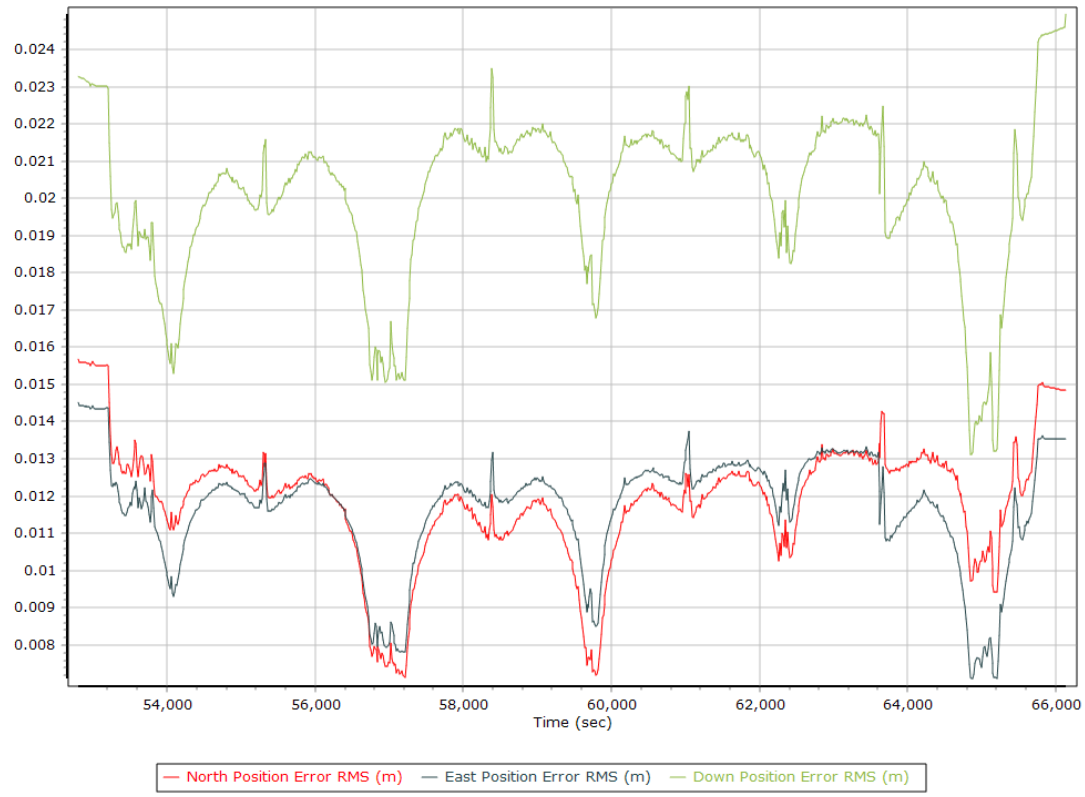


Z Gyro Scale Error (ppm)

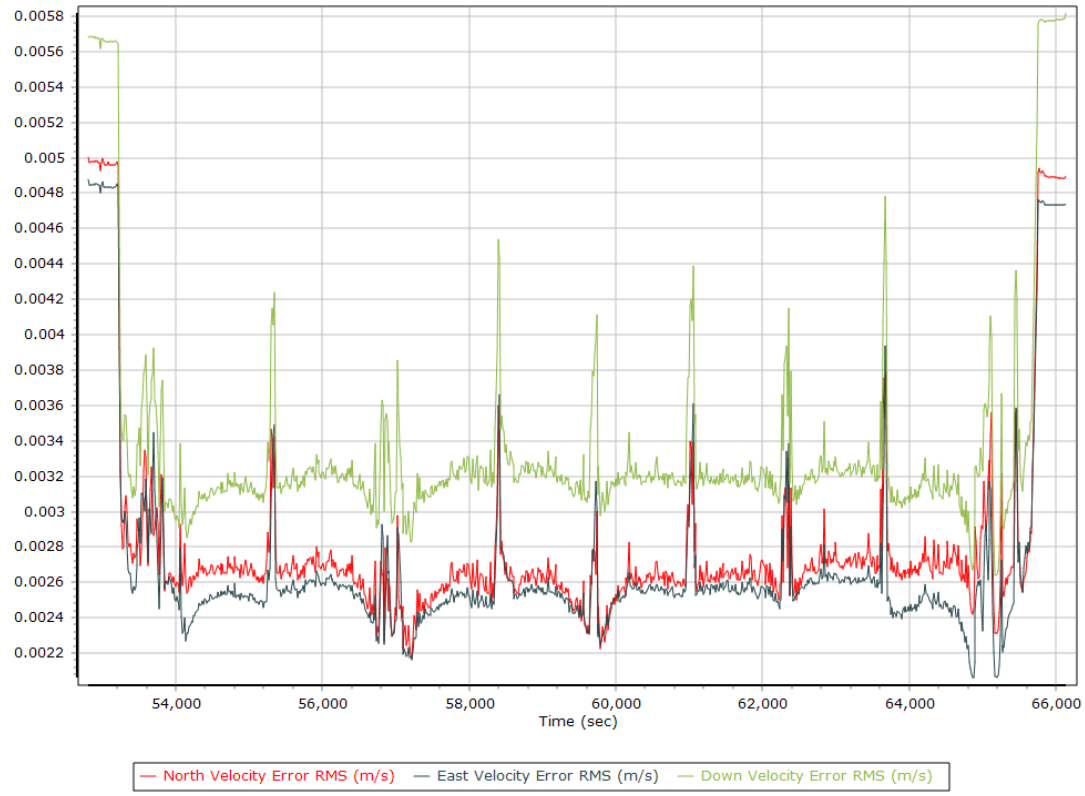


Smoothed Performance Metrics

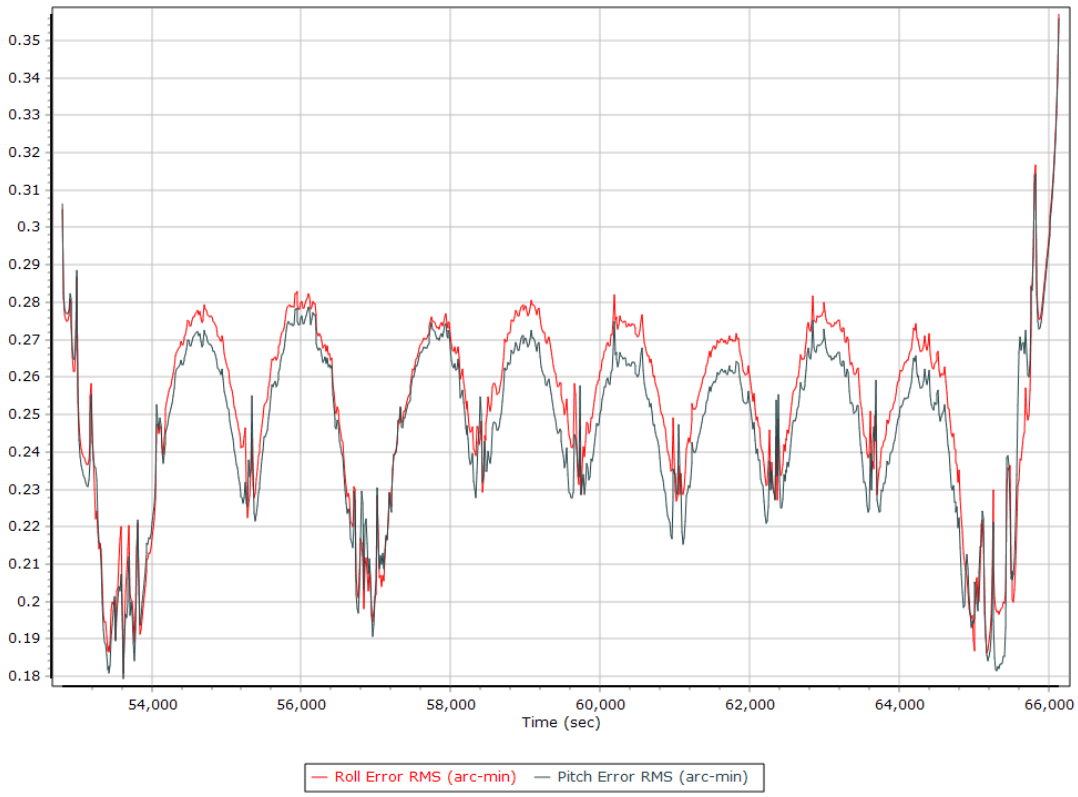
Position Error RMS (m)



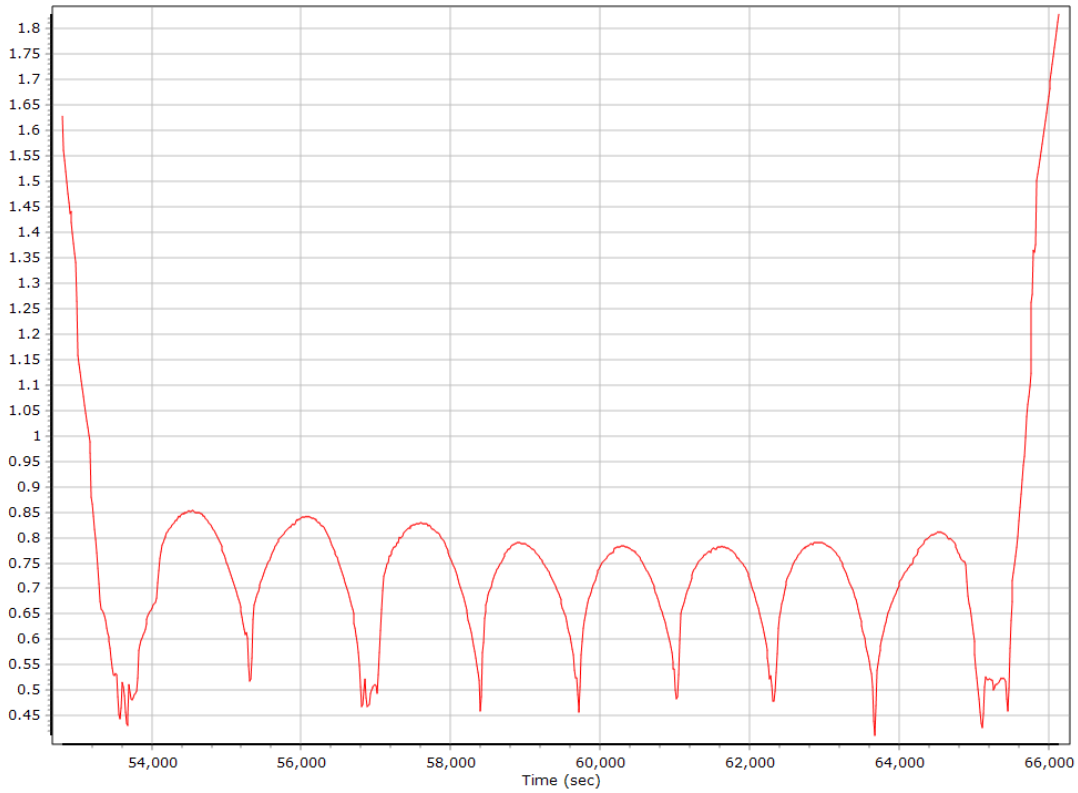
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

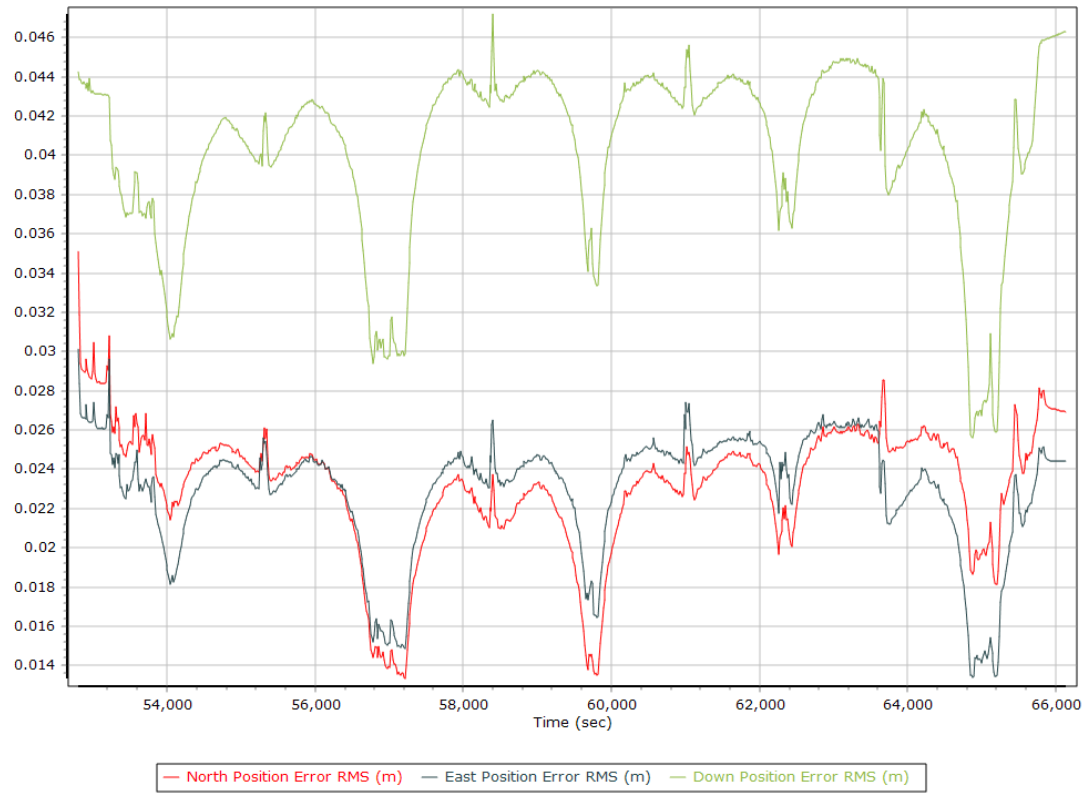


Heading Error RMS (arc-min)

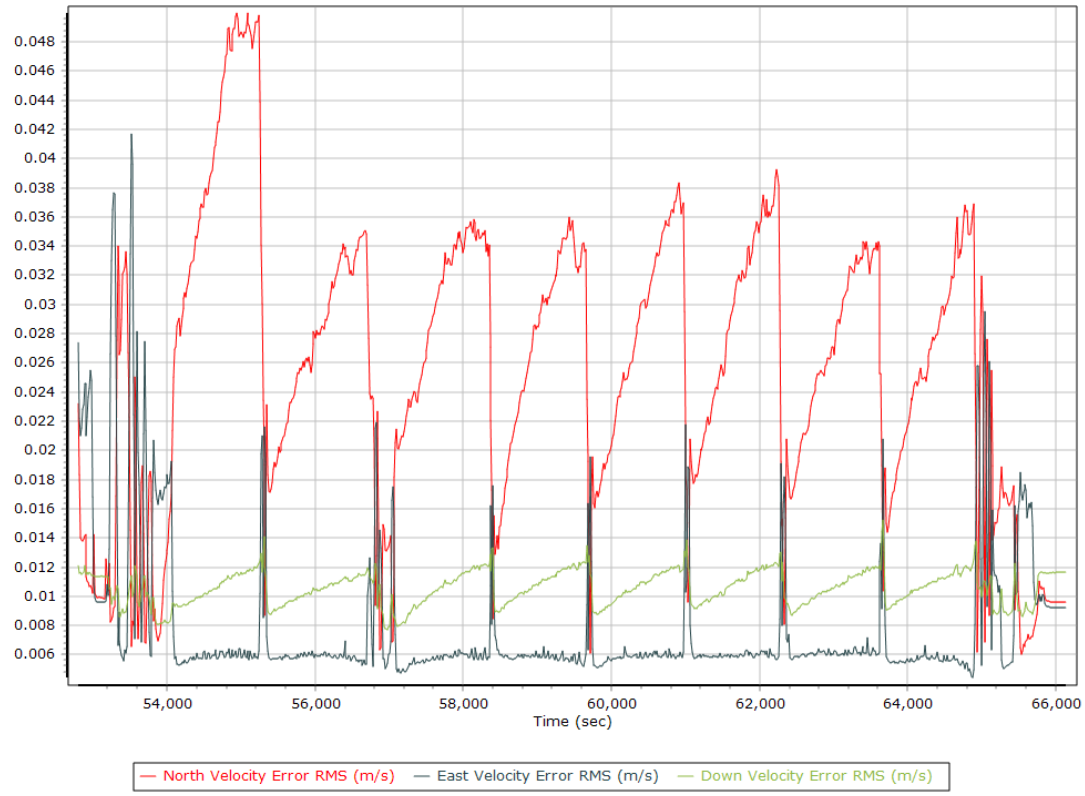


Forward Processed Performance Metrics

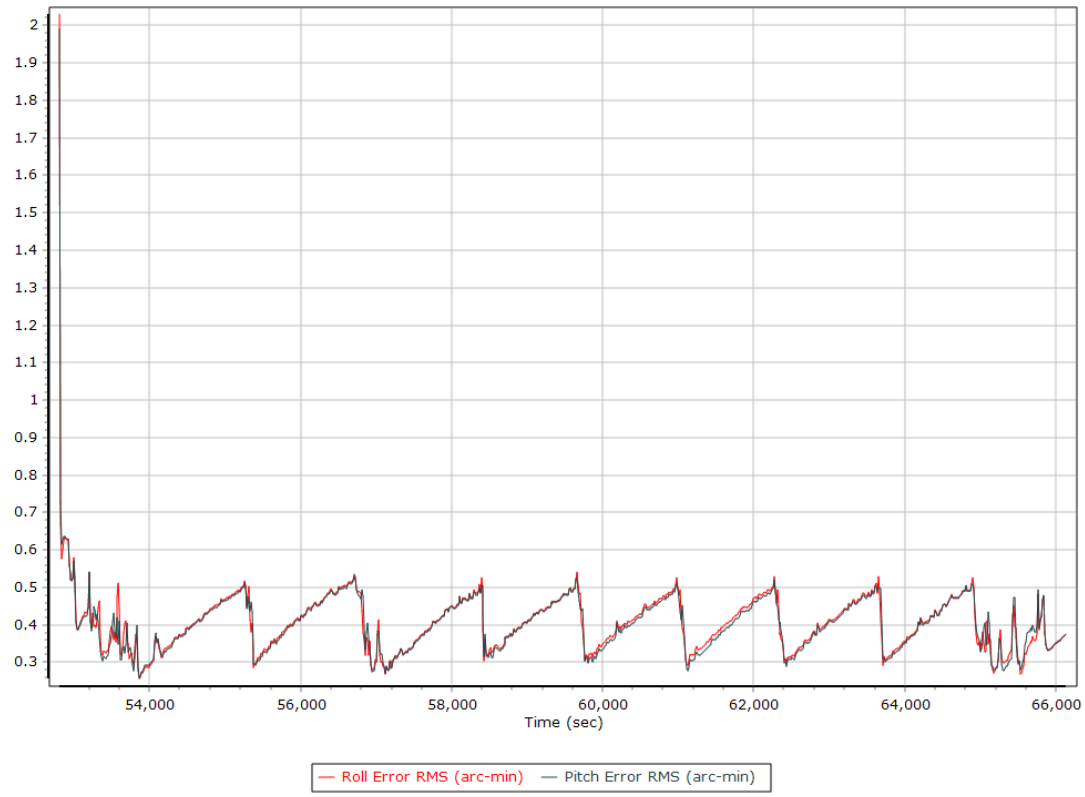
Position Error RMS (m)



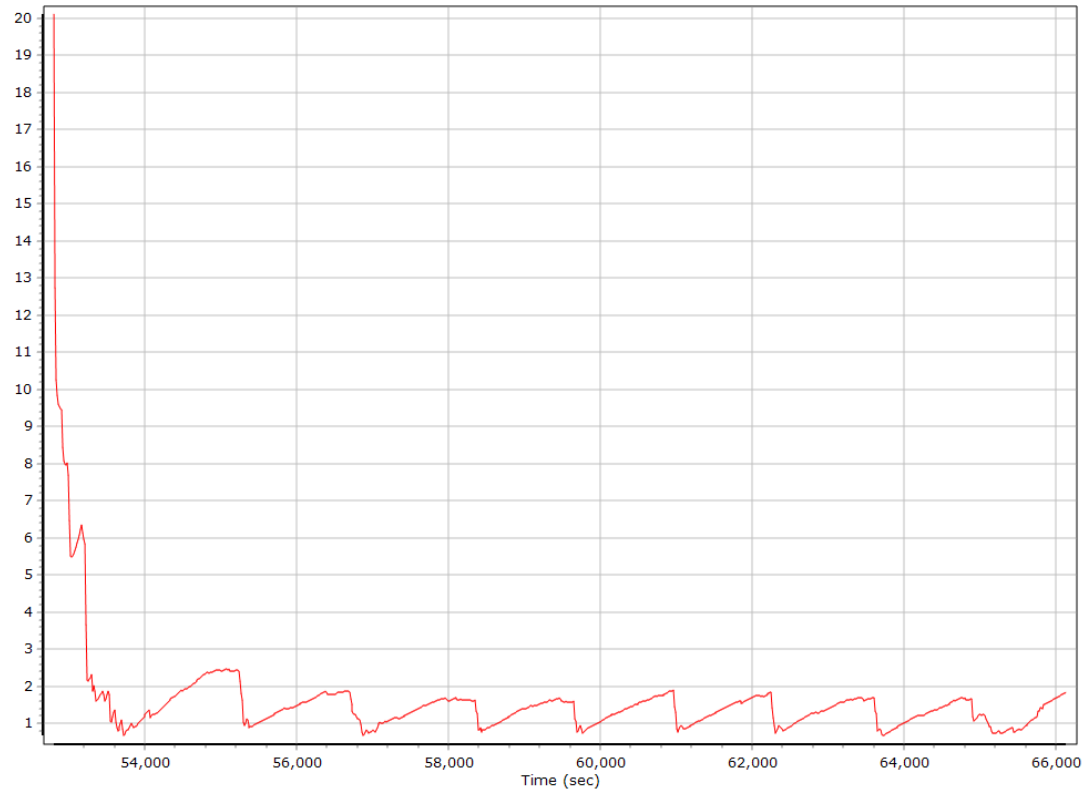
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

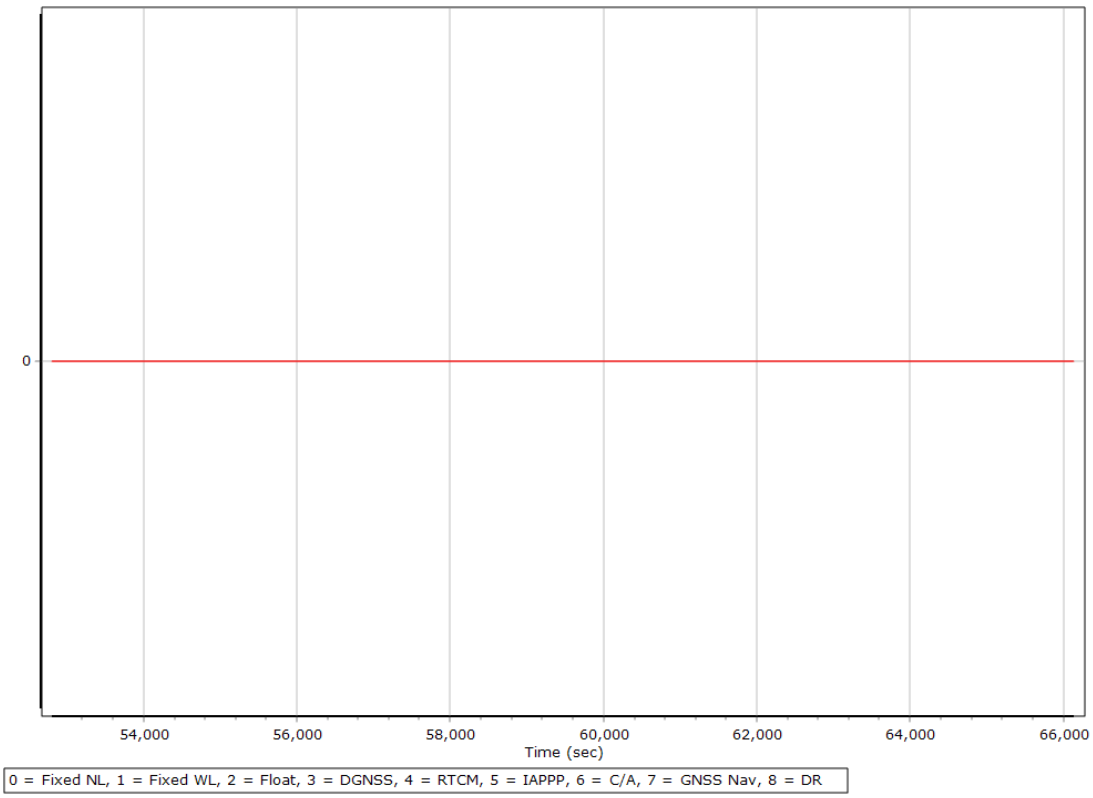


Heading Error RMS (arc-min)

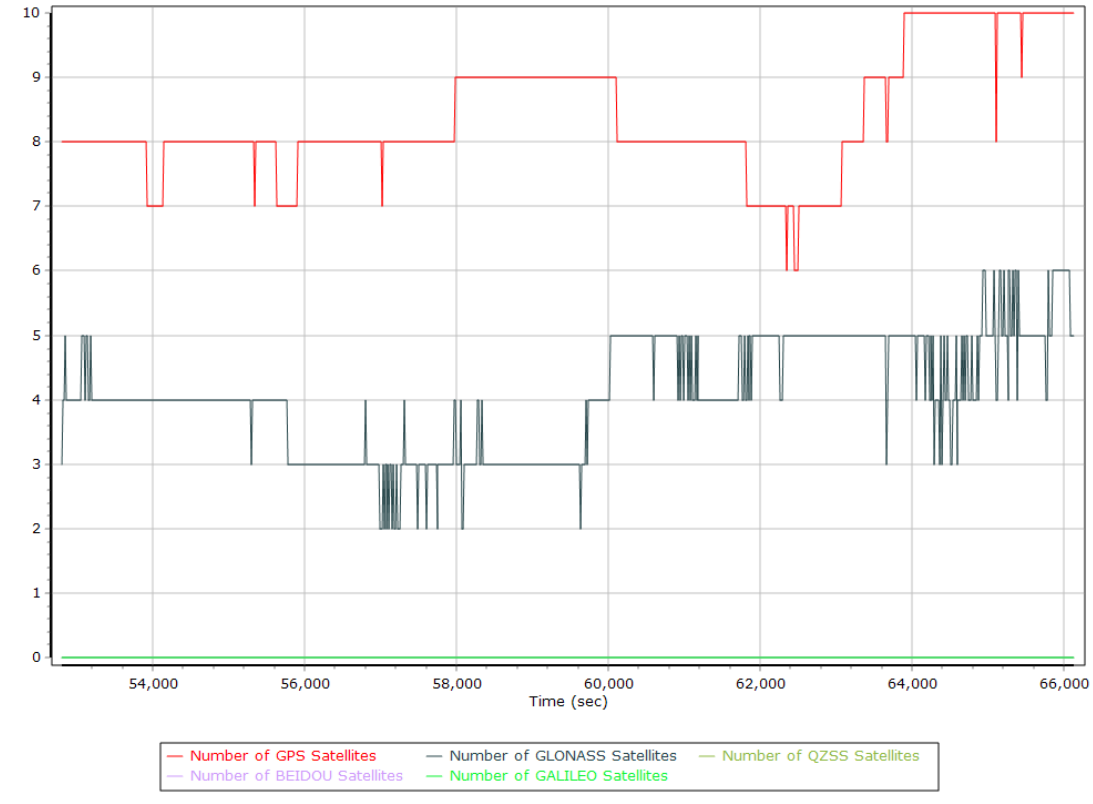


Smoothed Solution Status

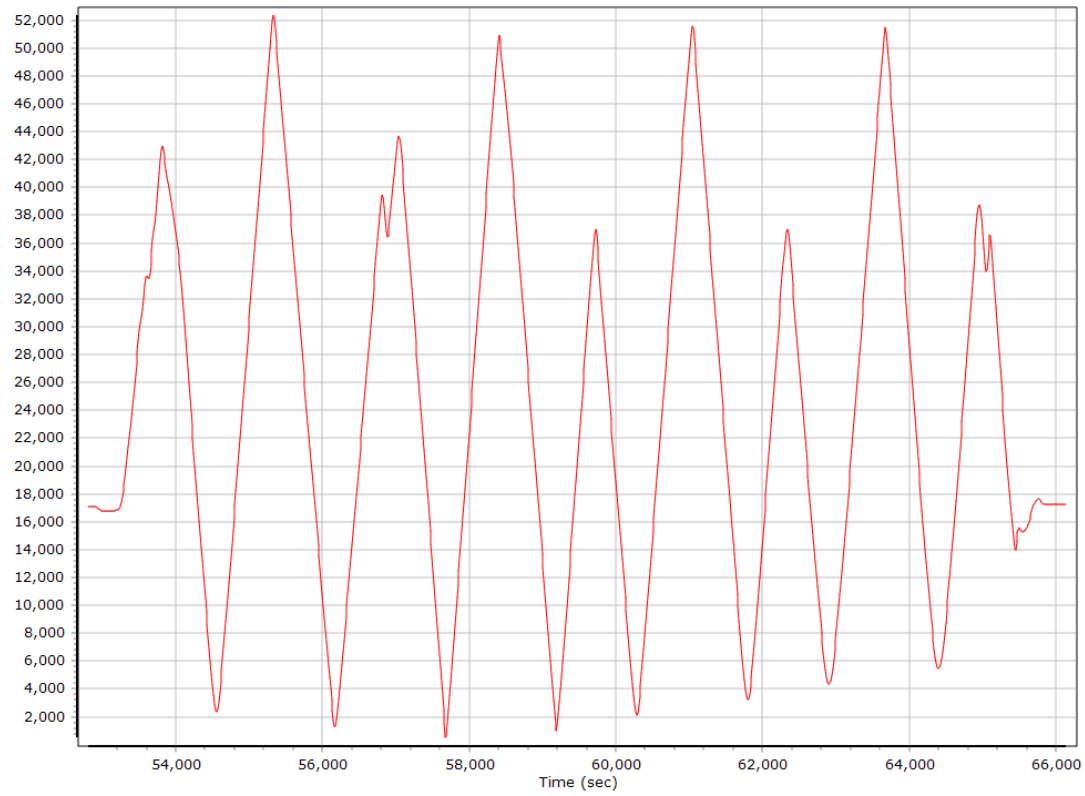
Processing Mode



Number of Satellites

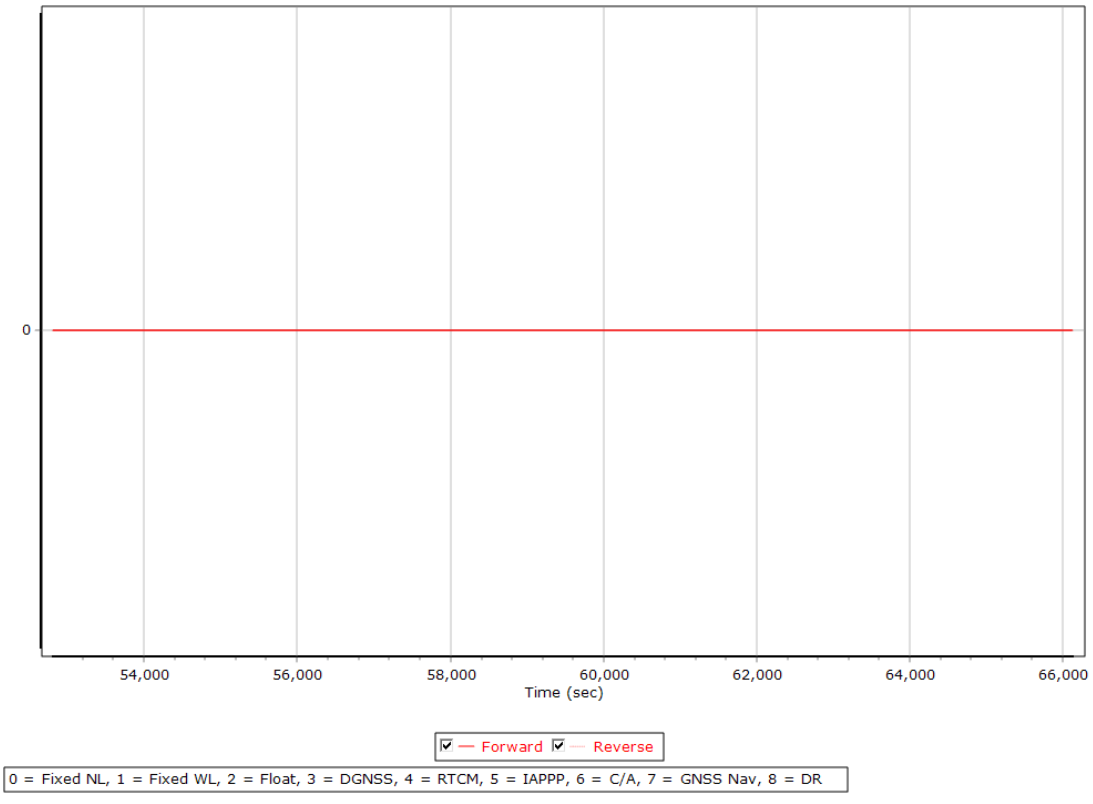


Baseline Length

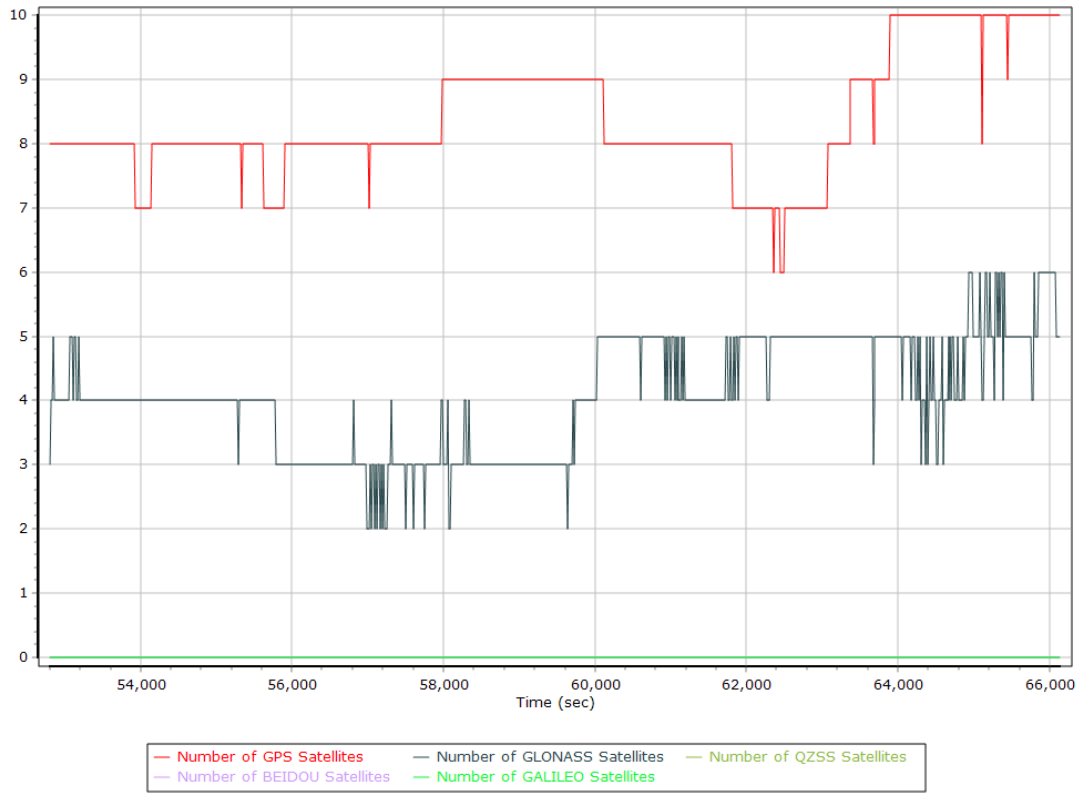


Forward Processed Solution Status

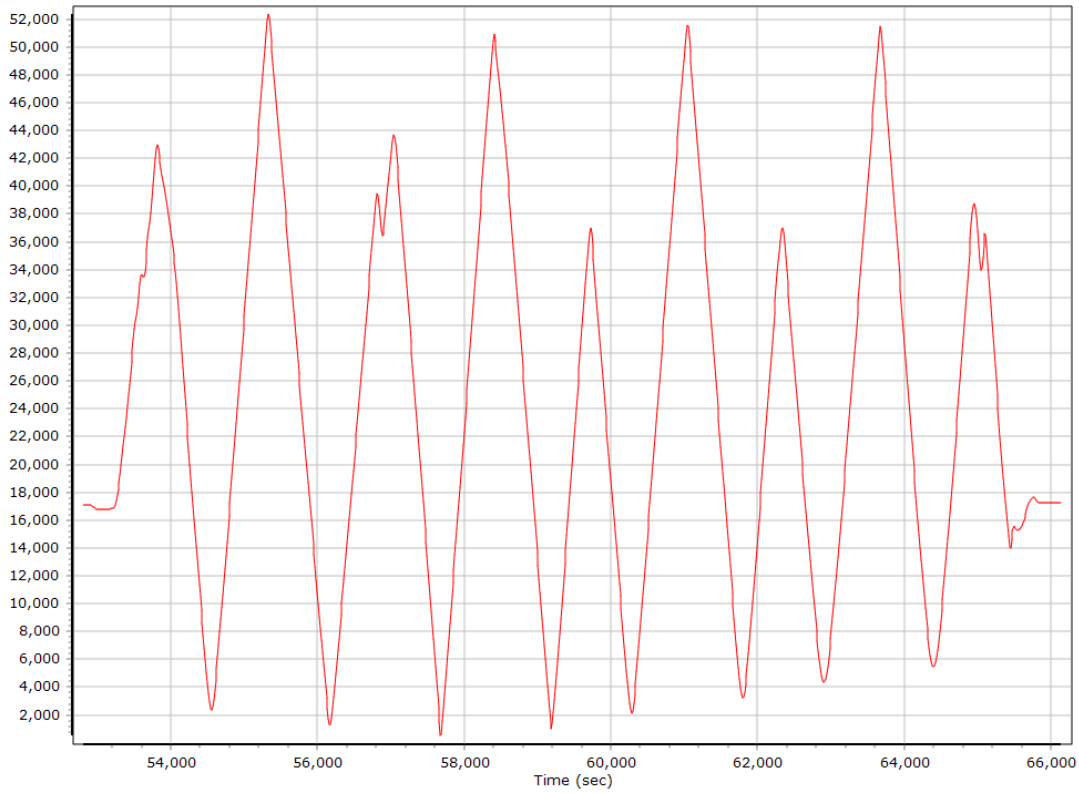
Processing Mode



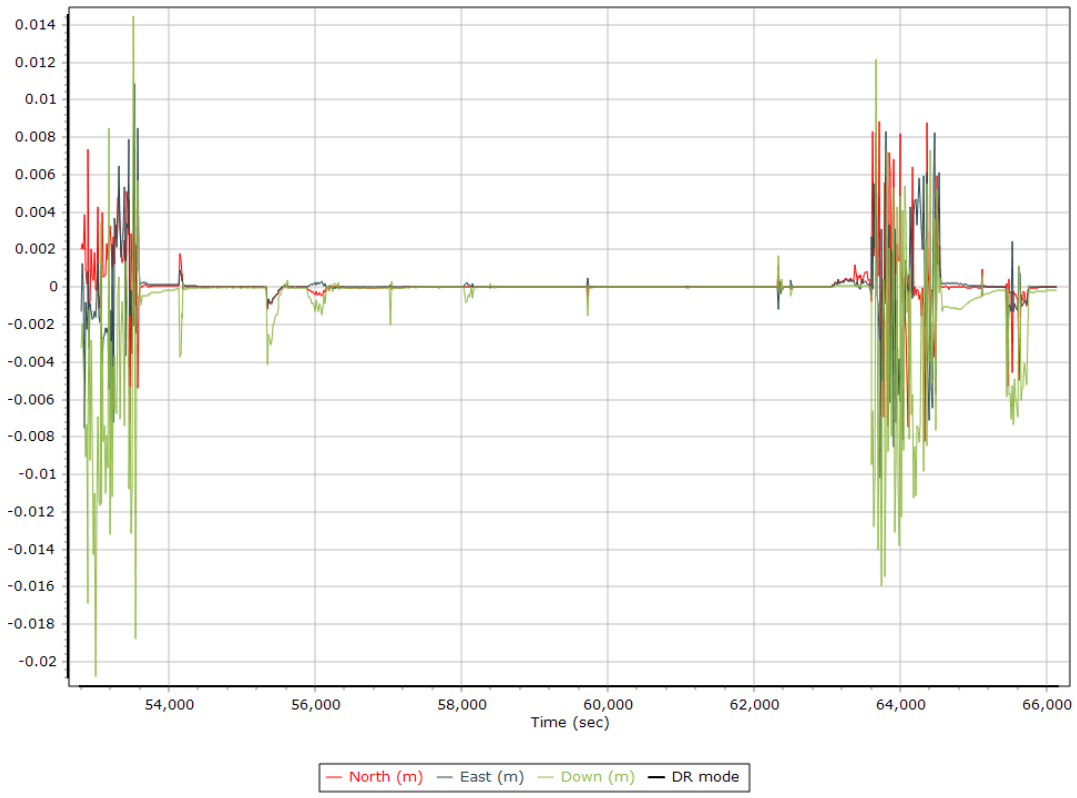
Number of Satellites



Baseline Length



SBET IAKAR Separation



General Information

Mission Information

Project name	20200417B-2
Processing date	2021-01-19 00:48:26
Mission date	2020-04-17 22:57:32
Mission duration	01:09:29.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	42G1215A-XT1

Project File List

Rover Data Files

File name	File type
ALS.090	POS Data
ALS.091	POS Data
ALS.092	POS Data
ALS.093	POS Data
ALS.094	POS Data
ALS.095	POS Data

Input Files

File Name	File Type
Ephm1080.20g	GLONASS Broadcast Ephemeris
Ephm1080.20n	GPS Broadcast Ephemeris
Ephm1090.20g	GLONASS Broadcast Ephemeris
Ephm1090.20n	GPS Broadcast Ephemeris
iaal1080.20o	GNSS SingleBase
iaal1090.20o	GNSS SingleBase
iade1080.20o	GNSS SingleBase
iade1090.20o	GNSS SingleBase
iael1080.20o	GNSS SingleBase
iael1090.20o	GNSS SingleBase
iaht1080.20o	GNSS SingleBase
iaht1090.20o	GNSS SingleBase
iamn1080.20o	GNSS SingleBase
iamn1090.20o	GNSS SingleBase
iana1080.20o	GNSS SingleBase
iana1090.20o	GNSS SingleBase
iata1080.20o	GNSS SingleBase
iata1090.20o	GNSS SingleBase
mnca1080.20o	GNSS SingleBase
mnca1090.20o	GNSS SingleBase
mnps1080.20o	GNSS SingleBase
mnps1090.20o	GNSS SingleBase
igu21014_18.sp3	GPS Precise Ephemeris
igu21015_18.sp3	GPS Precise Ephemeris
igu21016_18.sp3	GPS Precise Ephemeris
igu21020_18.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_Mission 1.out	SBET Trajectory File
SBET_Mission 1.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.090		
Last raw data file	ALS.095		
Start GPS week	2101		
Start time	514645.800 (4/17/2020 10:57:25 PM)		
End time	518803.459 (4/18/2020 12:06:43 AM)		
Start of fine alignment	515054.506 (4/17/2020 11:04:14 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.450	-0.080	-0.840
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

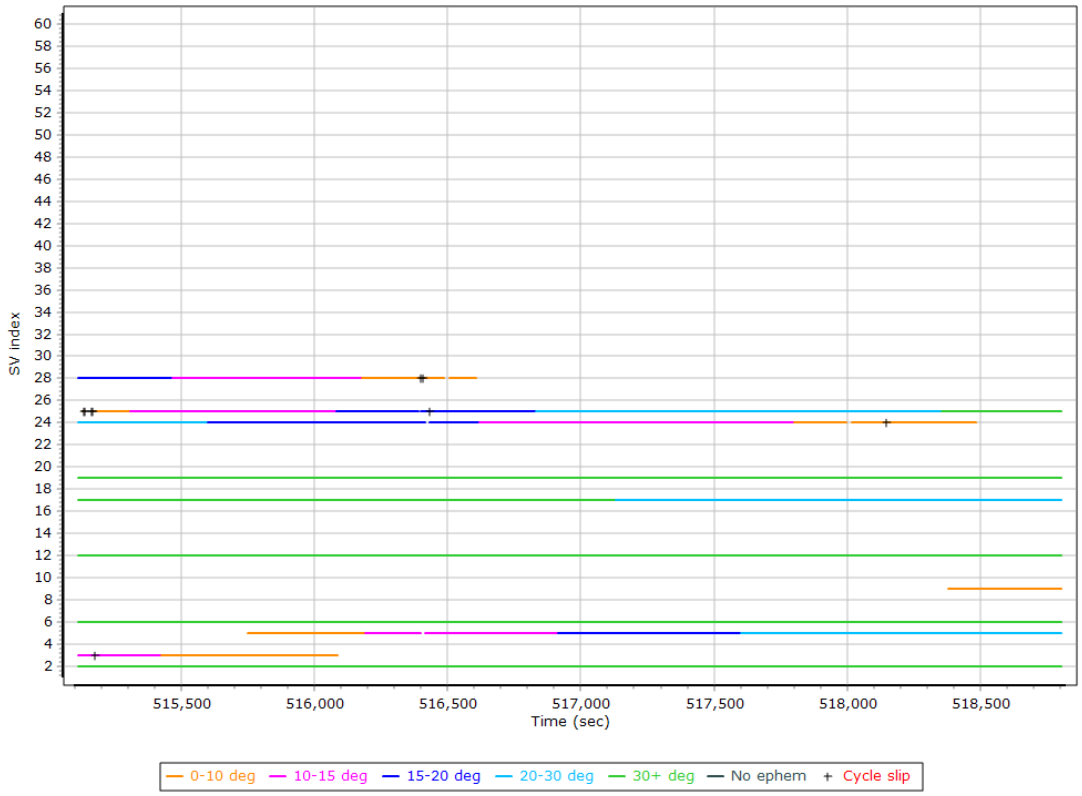
Rover Data QC

Raw IMU Import QC Summary

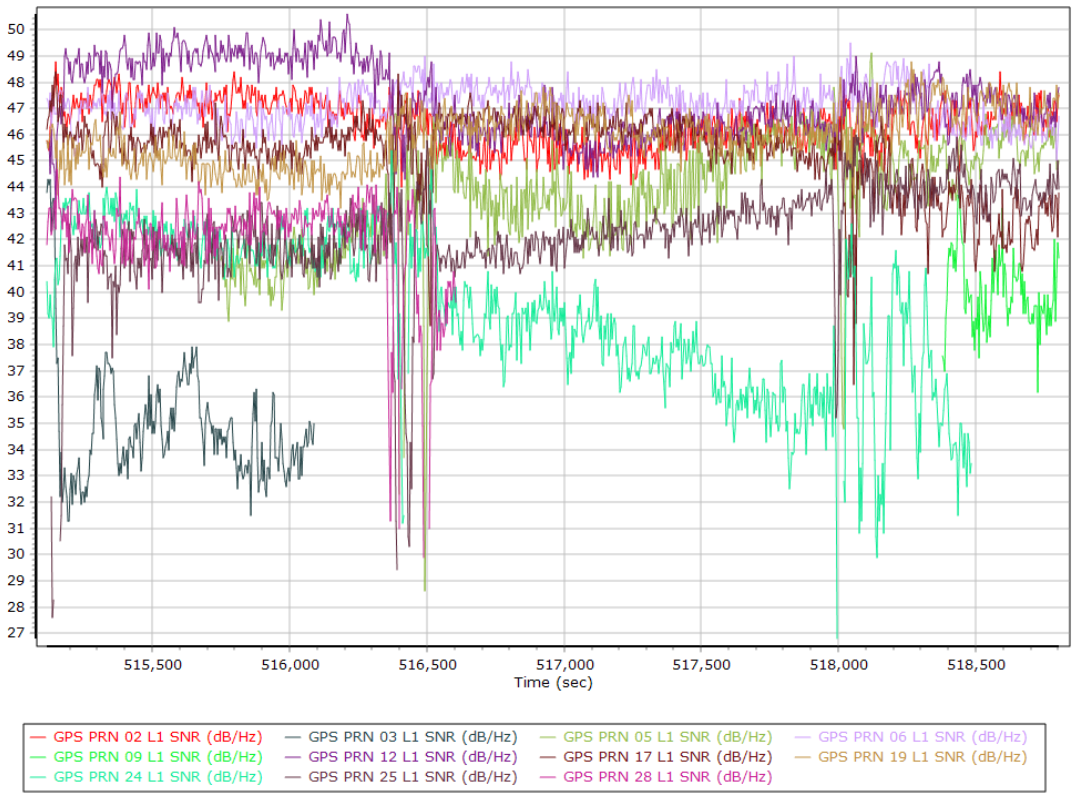
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_Mission 1.log
IMU Records Processed	836246
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
514645.405 : WARNING : Gap of 514623.4186 seconds in CHECKDT input data	

Primary Observables & Satellite Data

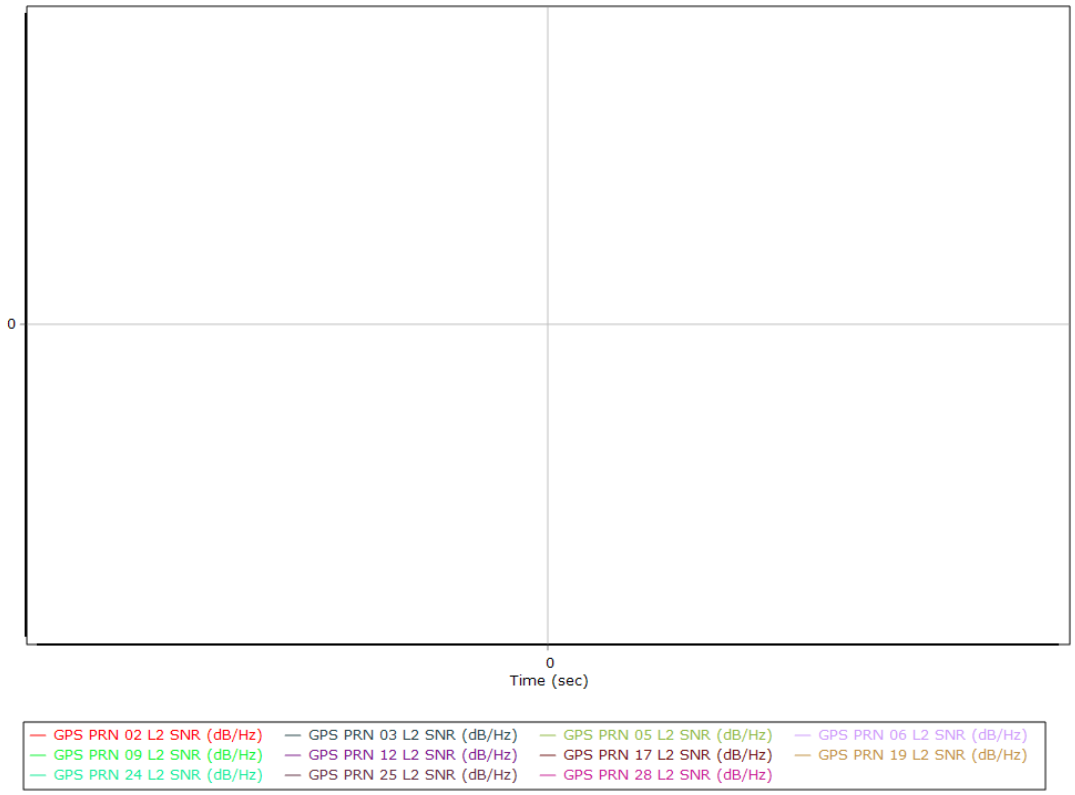
L1 Satellite Lock/Elevation



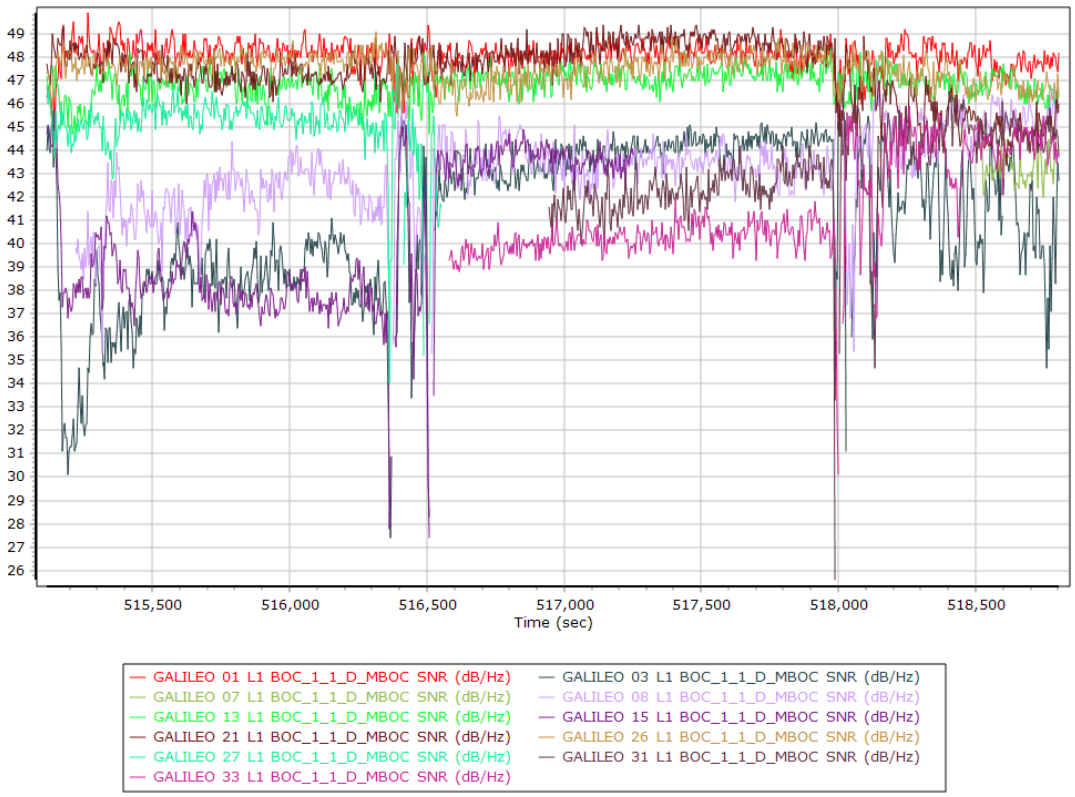
GPS L1 SNR



GPS L2 SNR



GALILEO SNR


49
48
47
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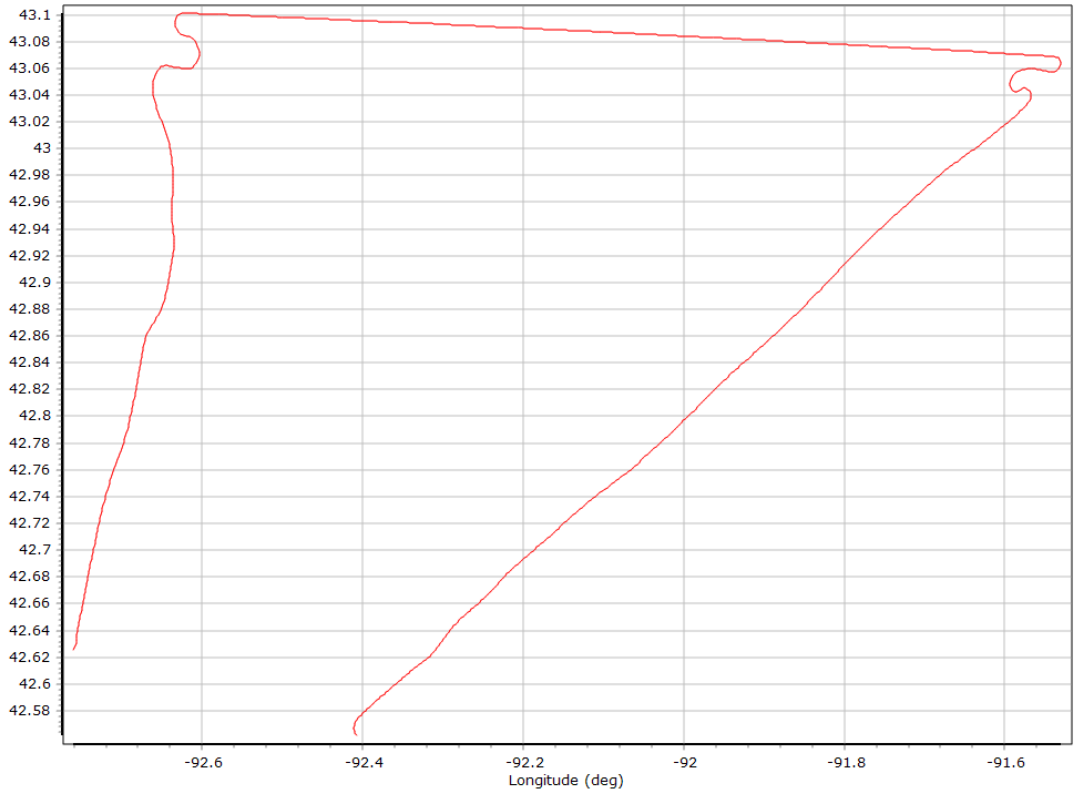
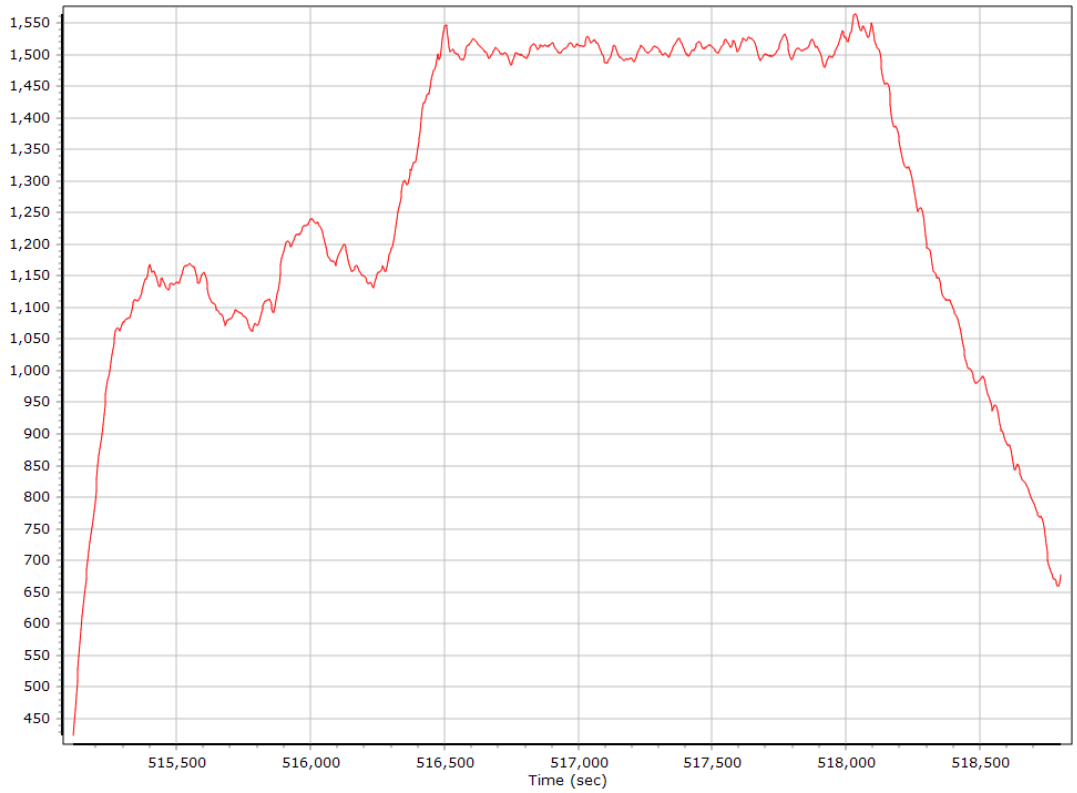
36
35
34
33
32
31
30
29
28
27
26
515,500
516,000
516,500
517,000
517,500
518,000
518,500
Time (sec)
GALILEO 01 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 03 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 07 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 08 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 13 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 15 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 21 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 26 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 27 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 33 L1 BOC_1_1_D_MBOC SNR (dB/Hz)

Smoothed Trajectory Information

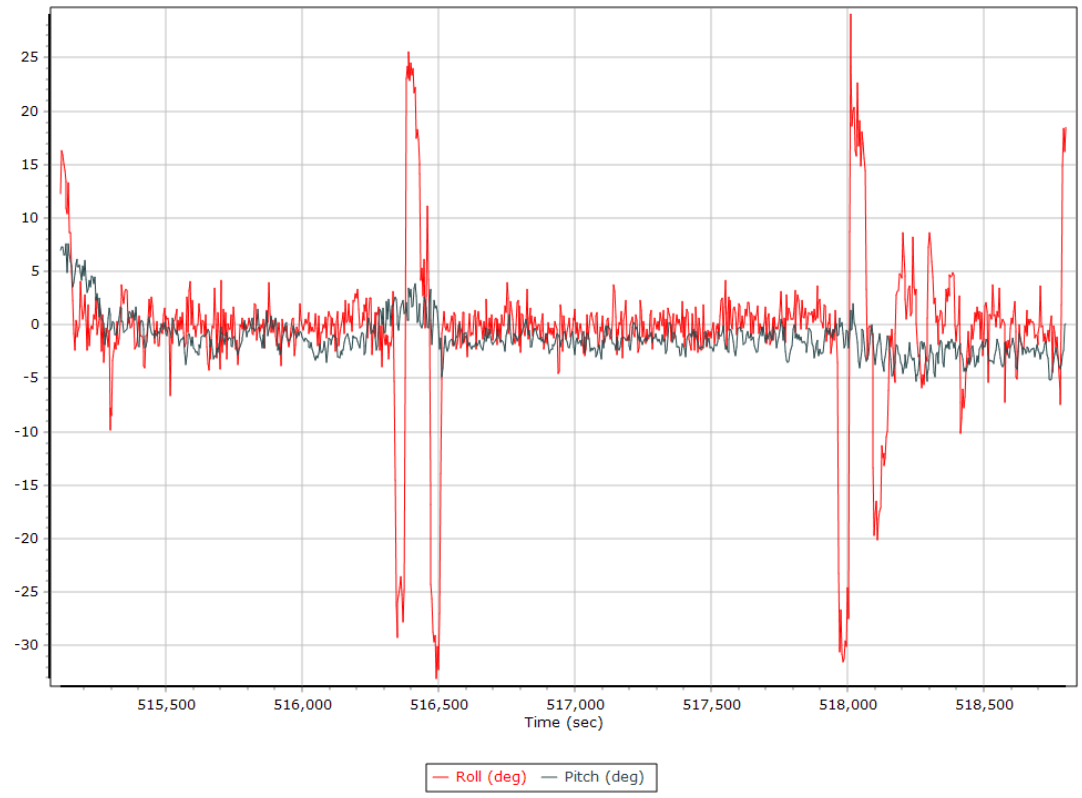
Top View



Altitude

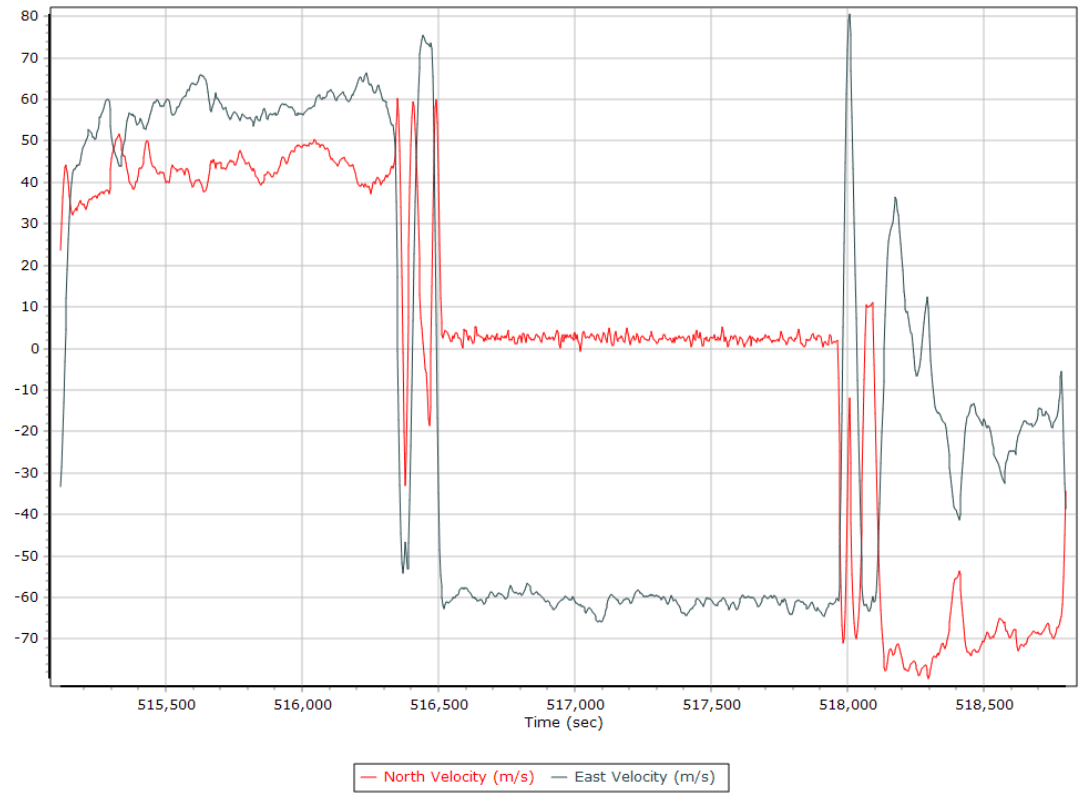


Roll/Pitch

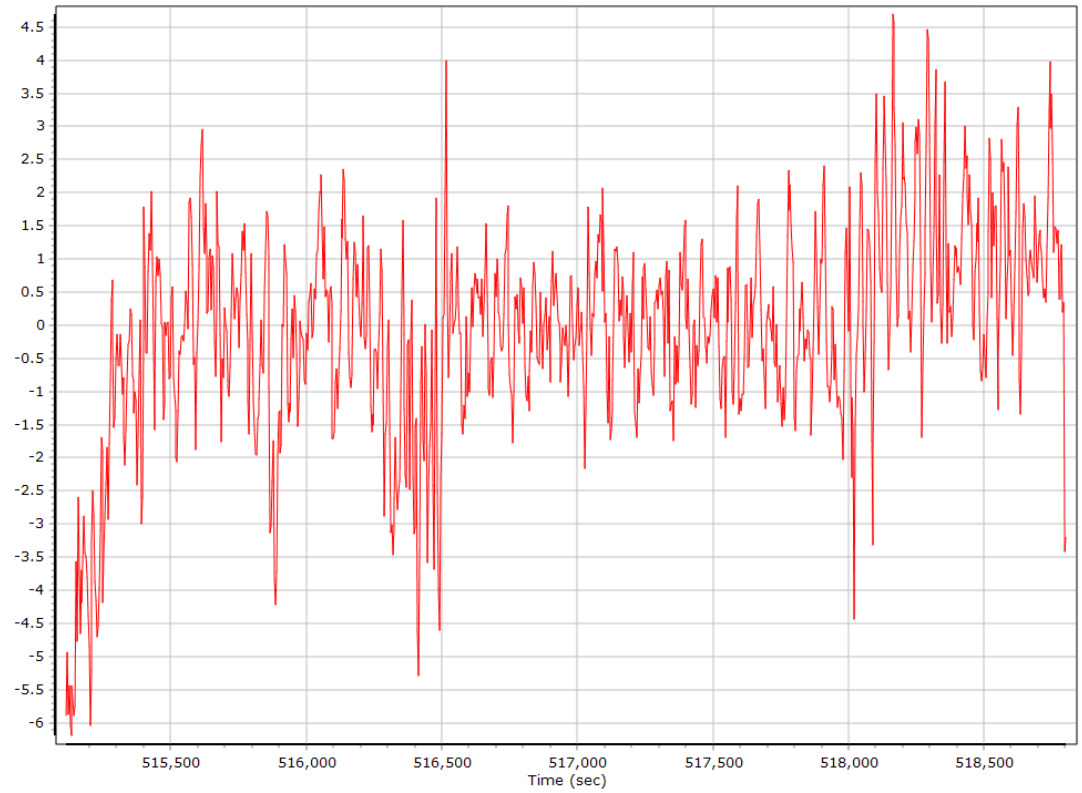


Heading

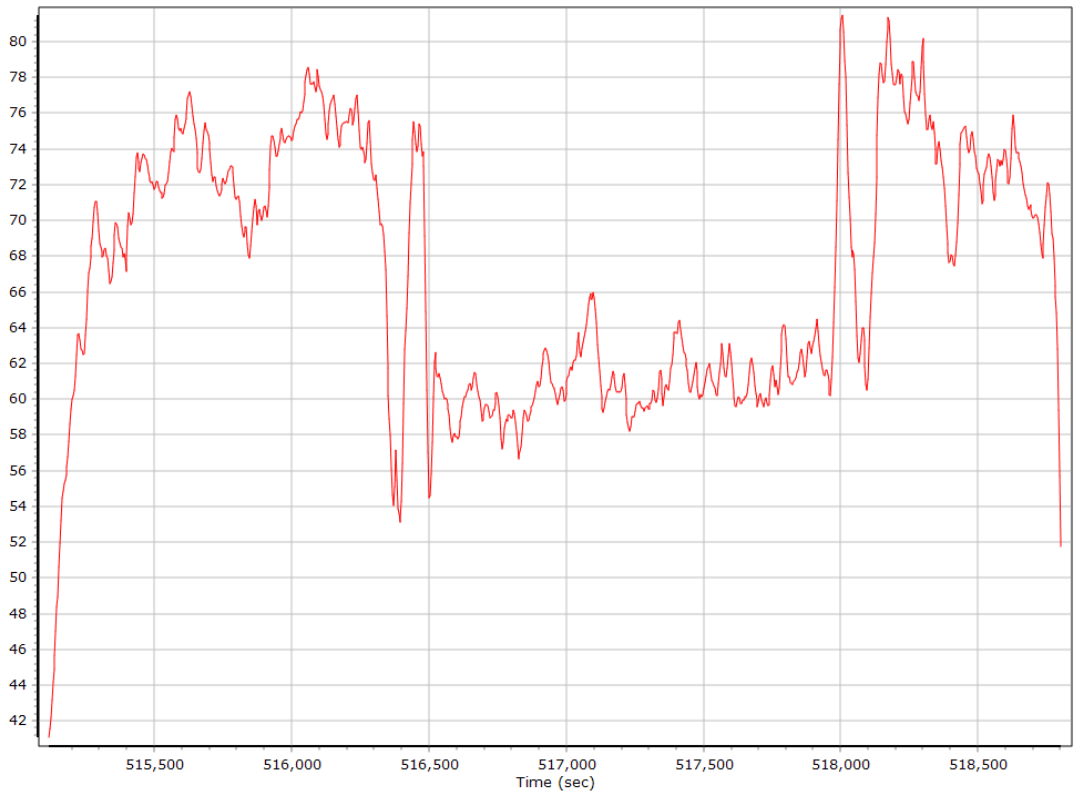
North/East Velocity



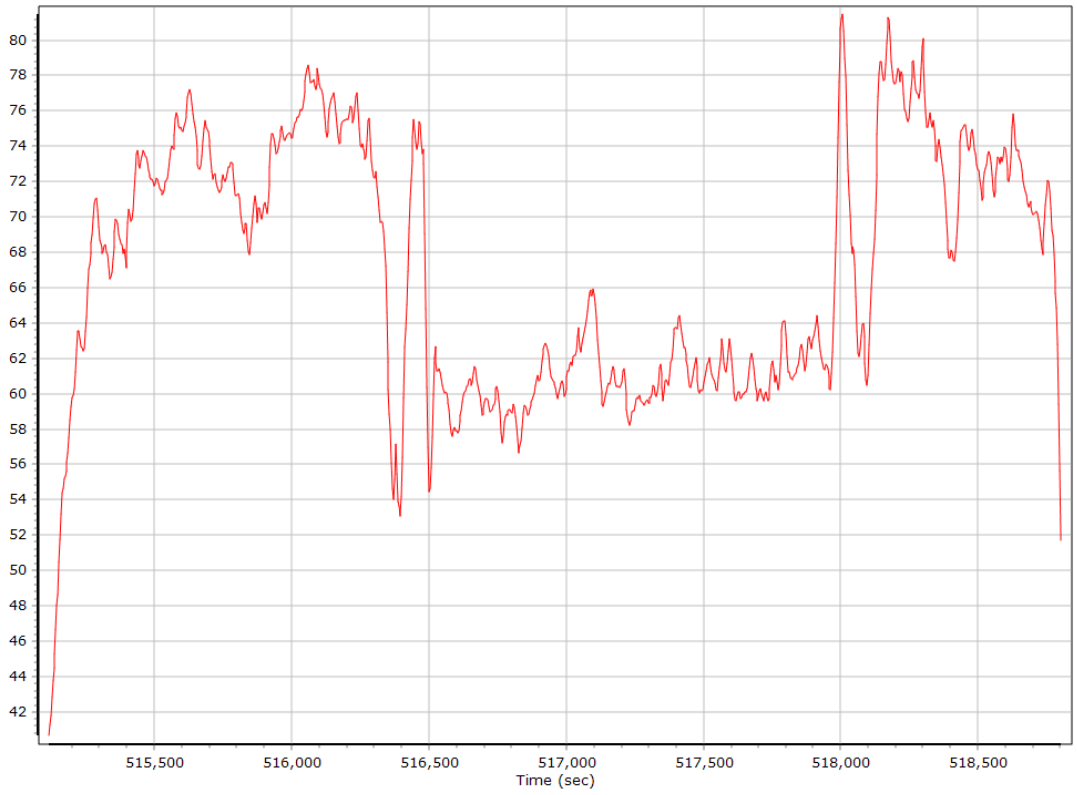
Down Velocity



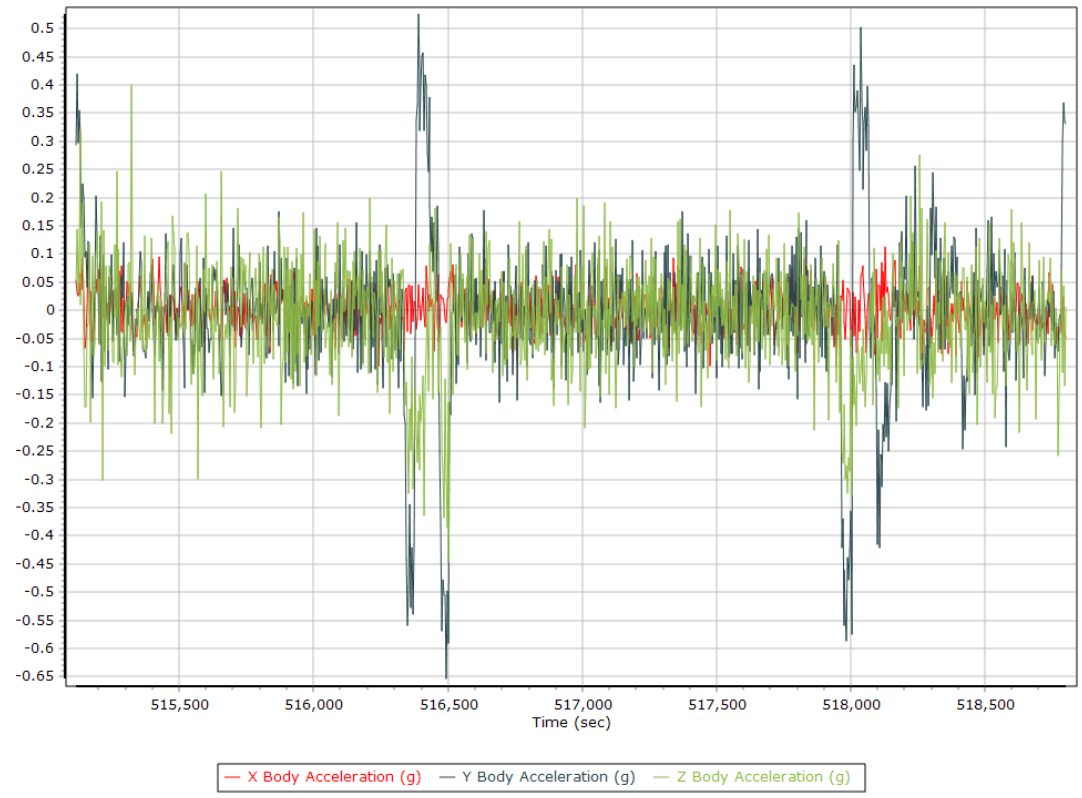
Total Speed



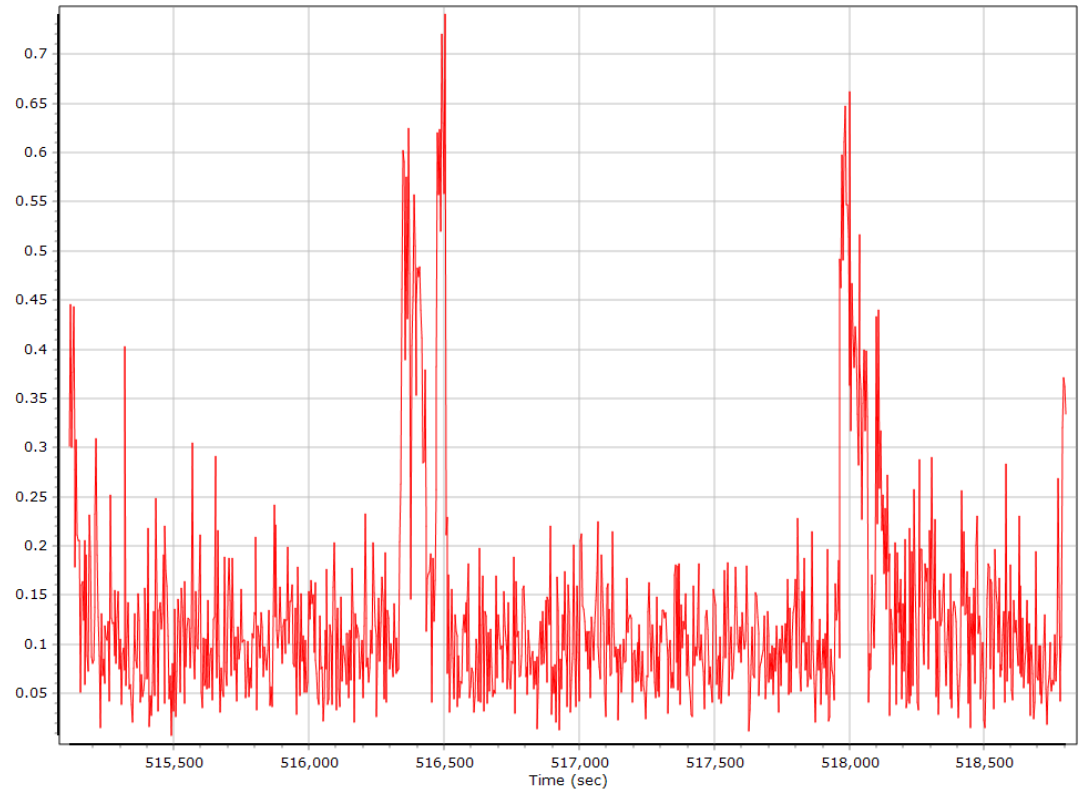
Ground Speed



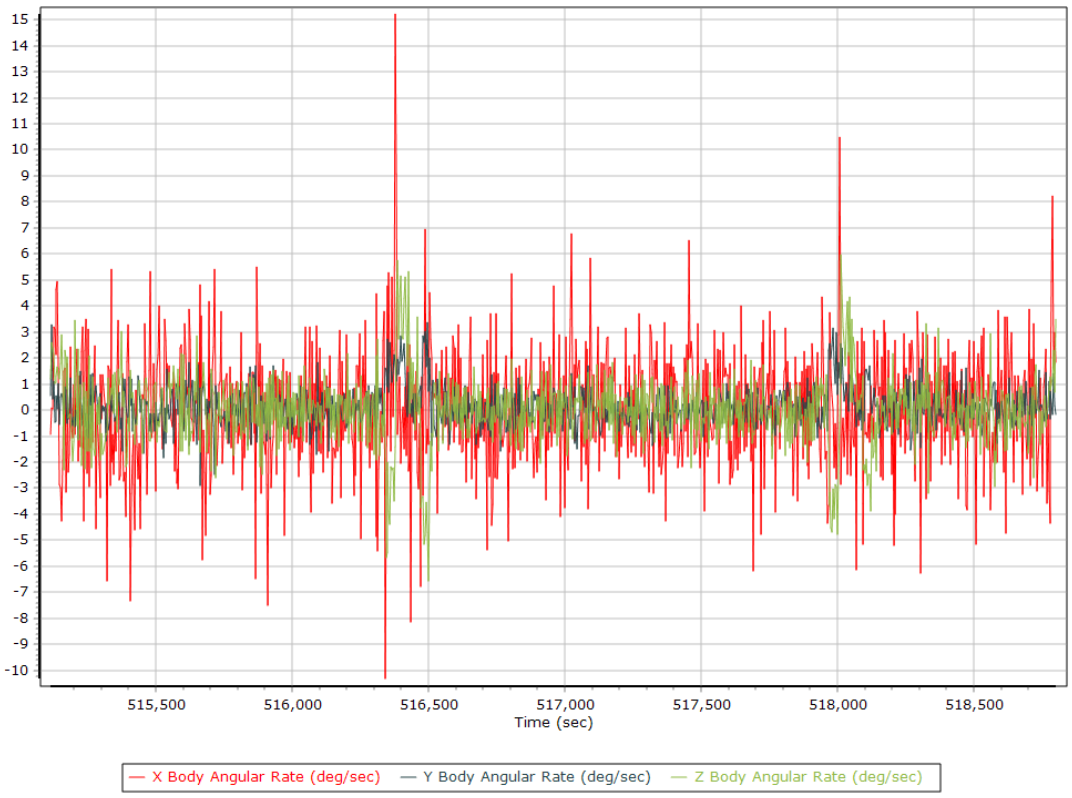
Body Acceleration



Total Body Acceleration

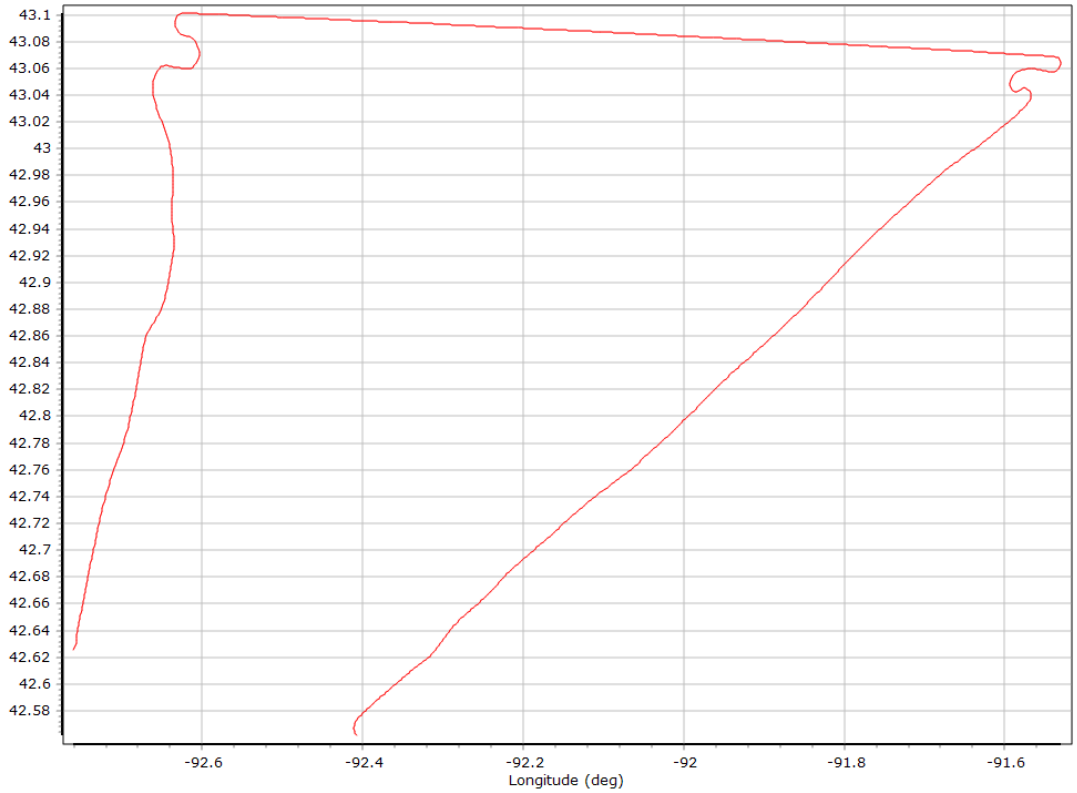


Body Angular Rate

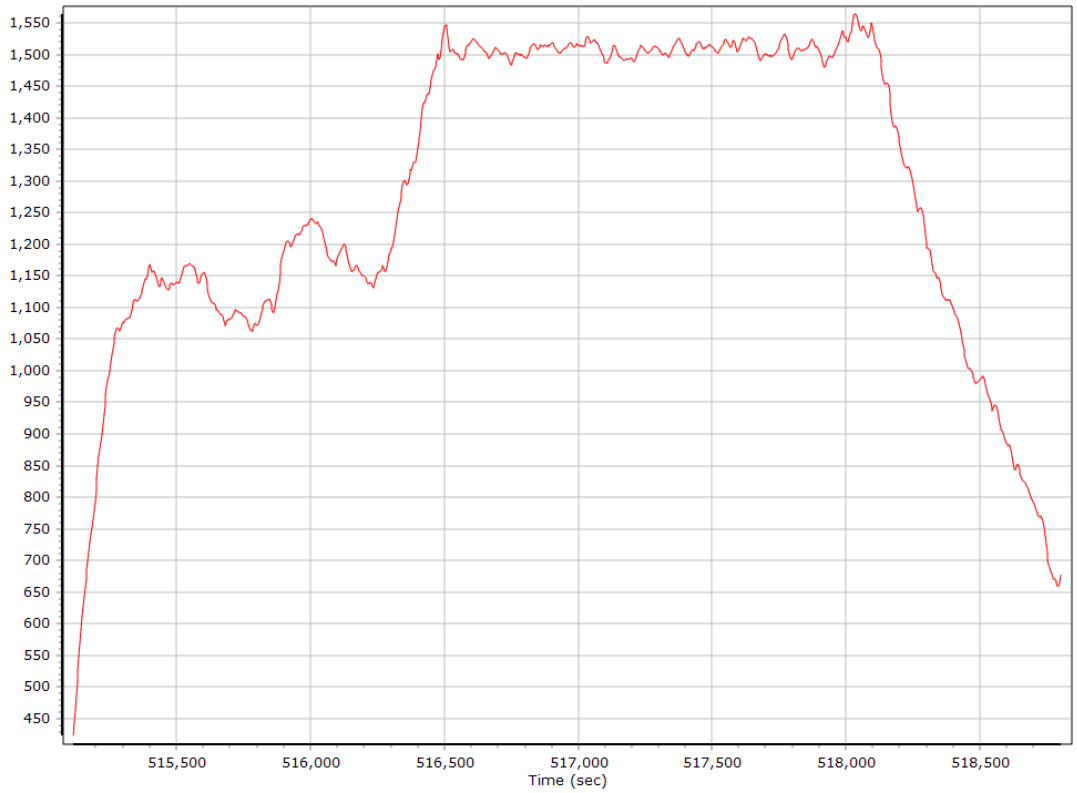


Forward Processed Trajectory Information

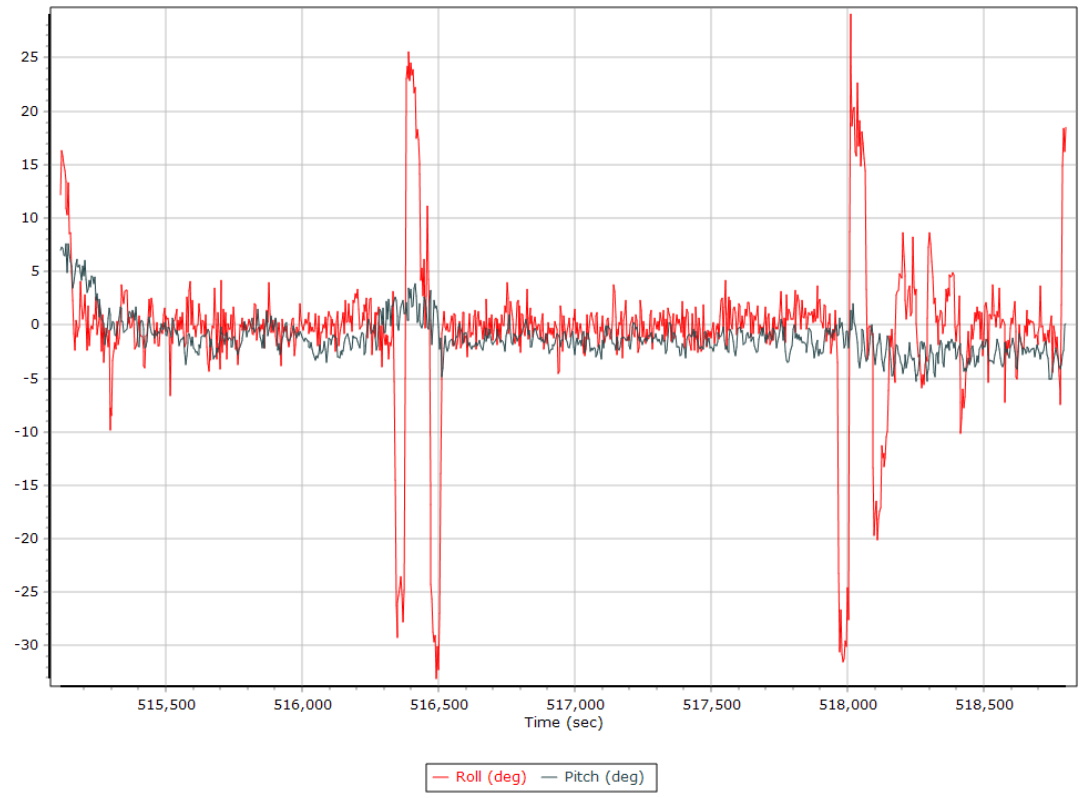
Top View



Altitude

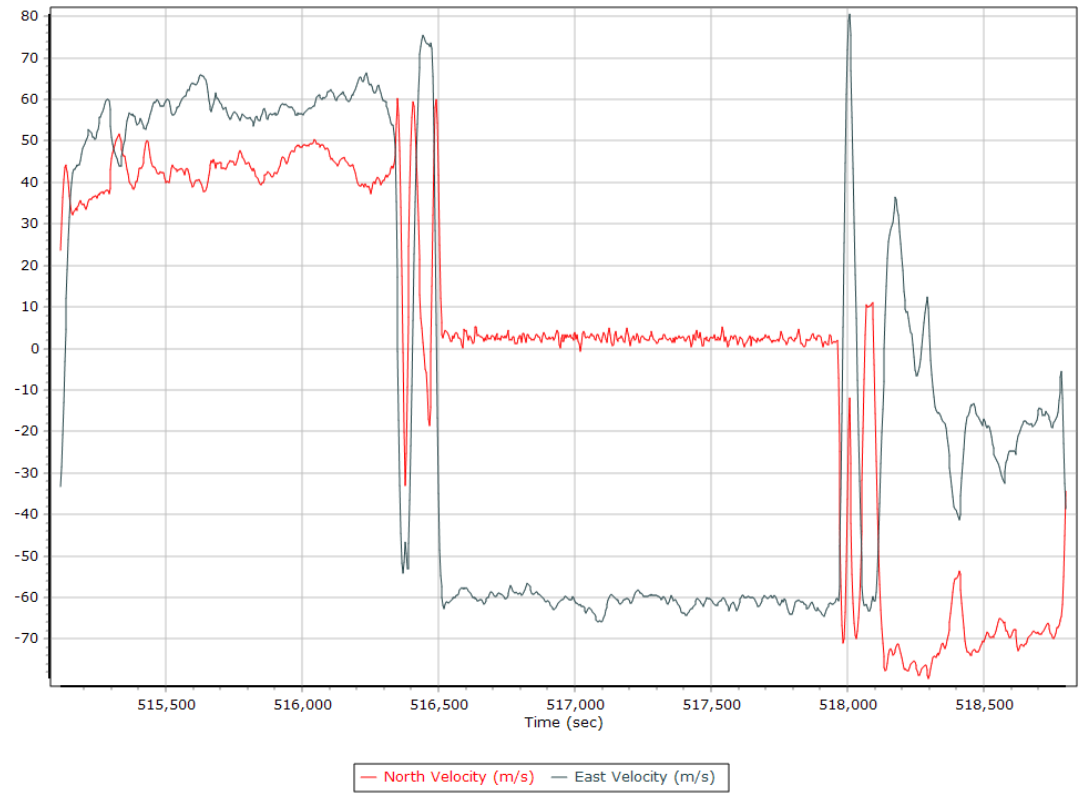


Roll/Pitch

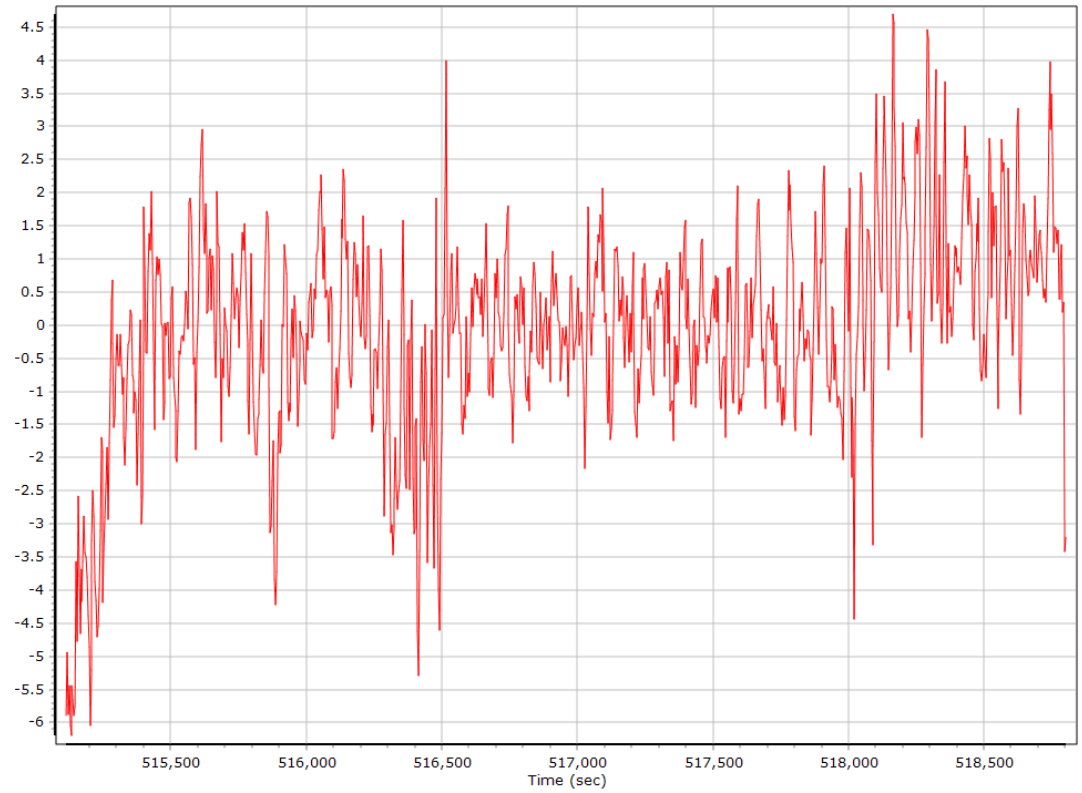


Heading

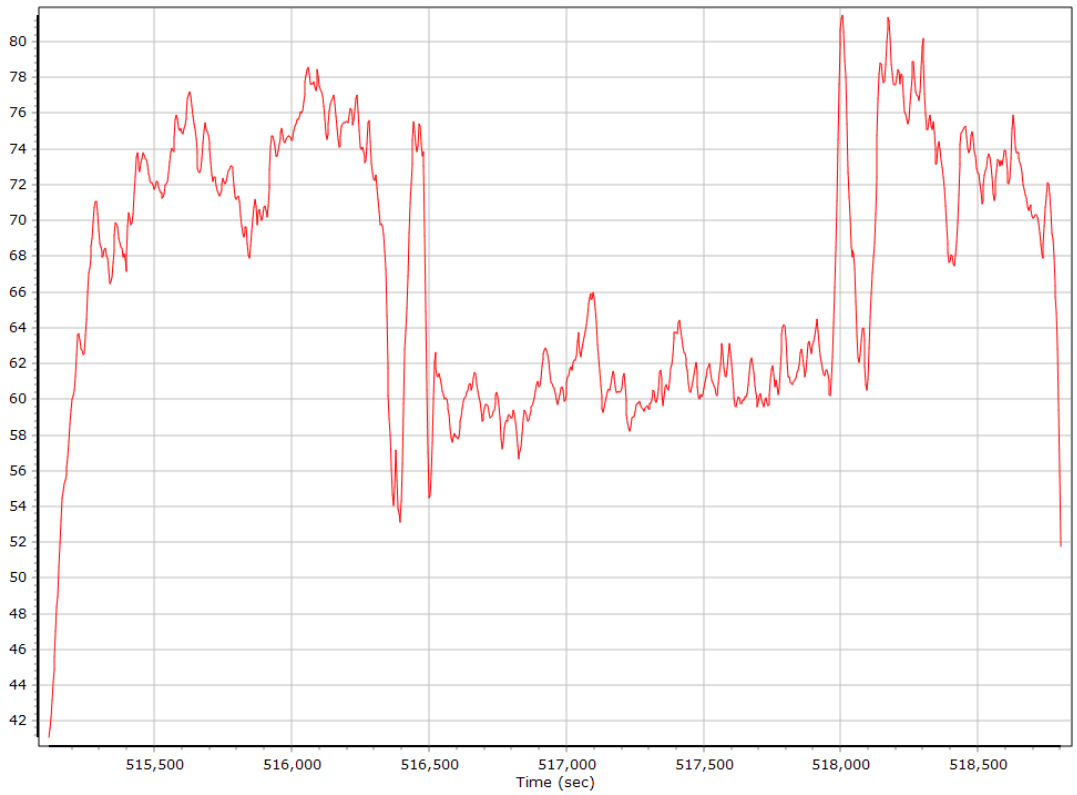
North/East Velocity



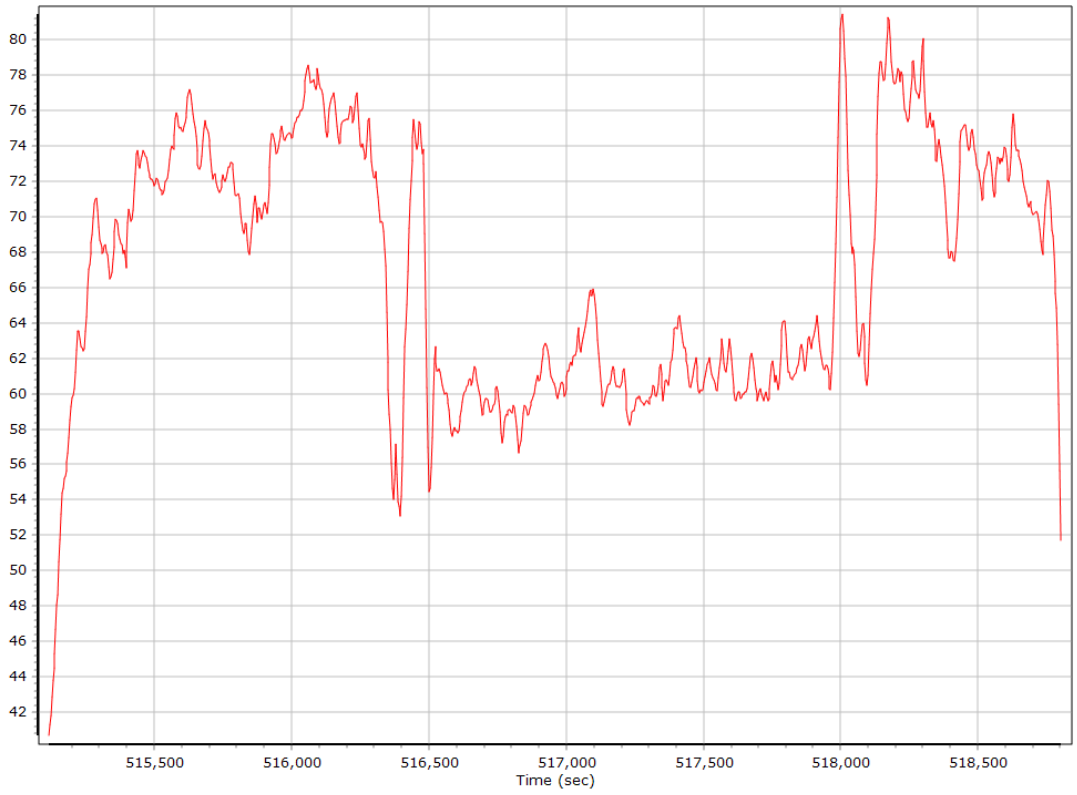
Down Velocity



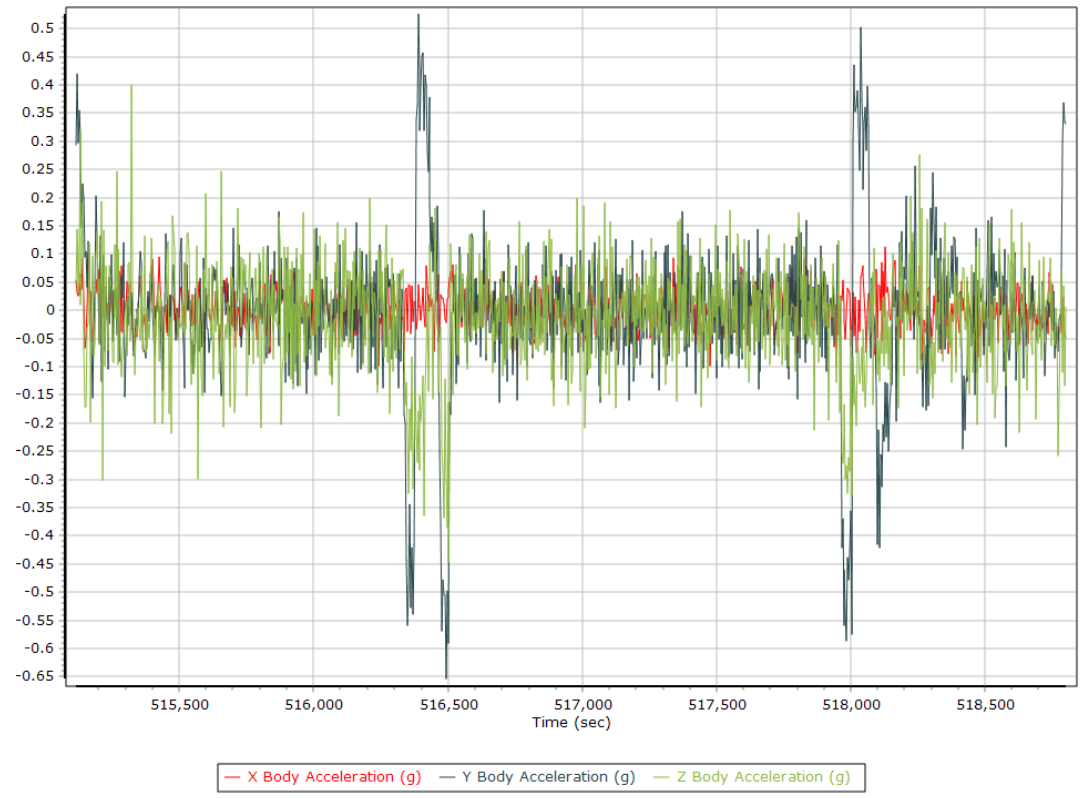
Total Speed



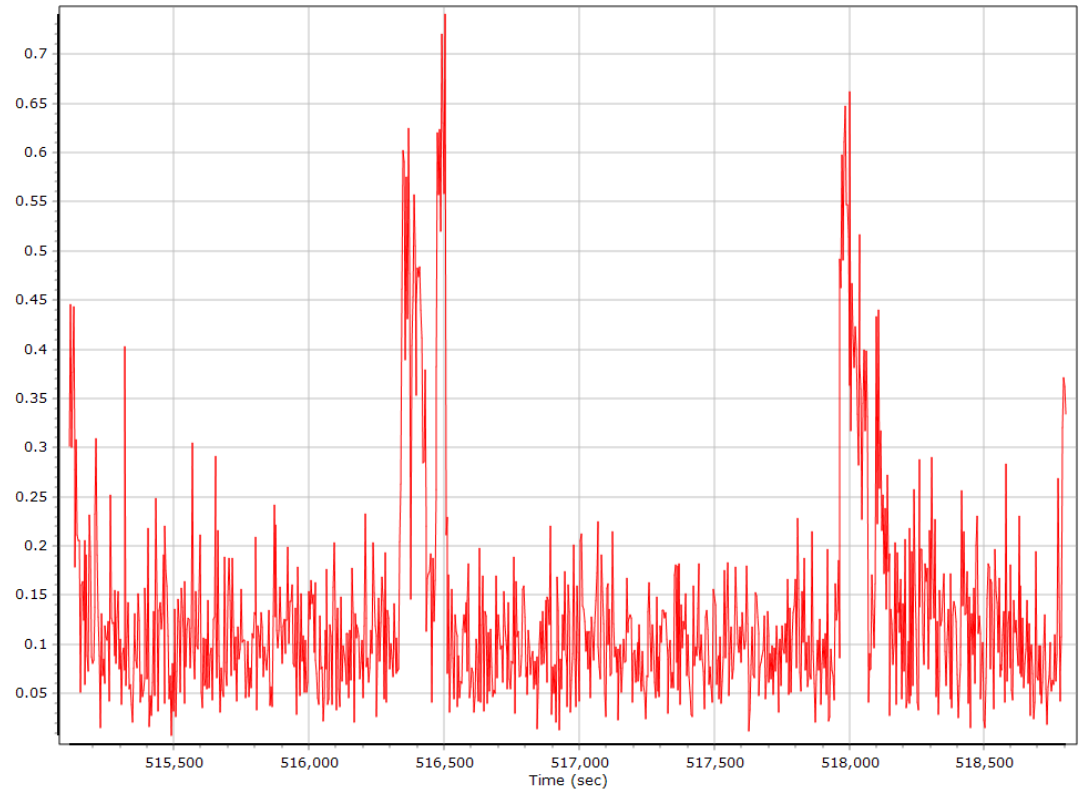
Ground Speed



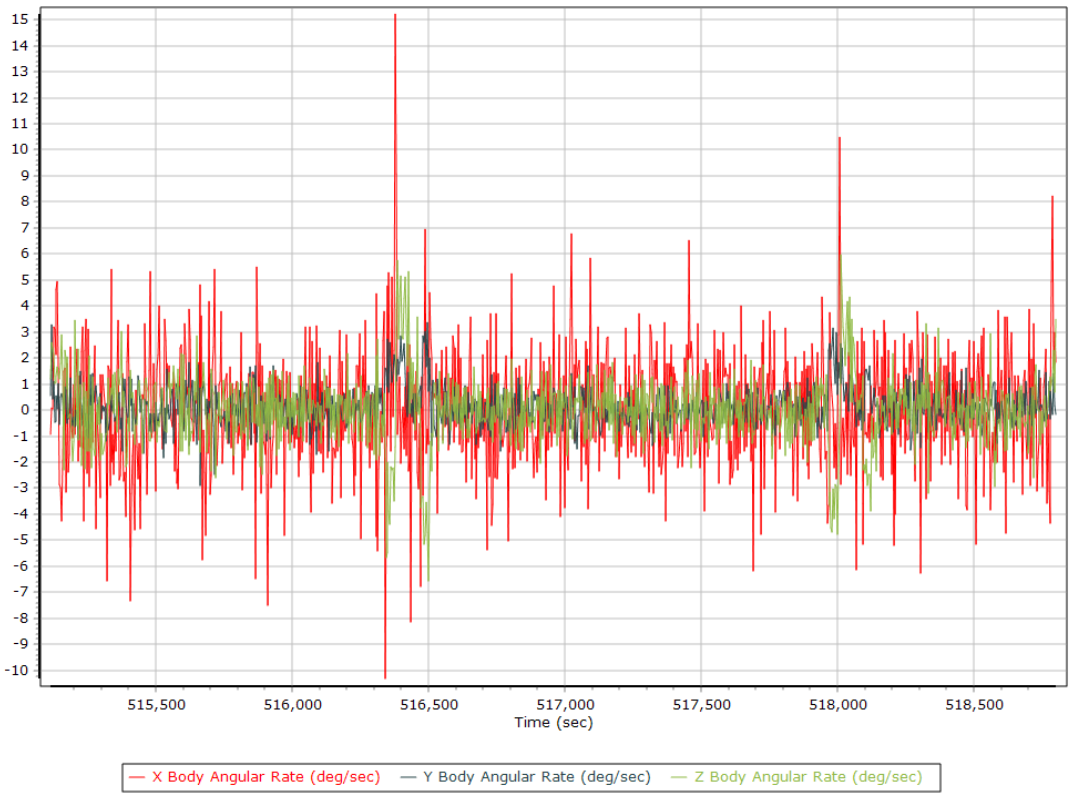
Body Acceleration



Total Body Acceleration



Body Angular Rate



SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GPS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
04/17/2020	IADE	50.91	GNSS	30	CORS (daily)	Smart Base	Imported
04/18/2020	IADE	50.91	GNSS	30	CORS (daily)	Smart Base	Imported
04/17/2020	IAAL	51.51	GNSS	30	CORS (daily)	Smart Base	Imported
04/18/2020	IAAL	51.51	GNSS	30	CORS (daily)	Smart Base	Imported
04/17/2020	IAEL	67.82	GNSS	30	CORS (daily)	Smart Base	Imported
04/18/2020	IAEL	67.82	GNSS	30	CORS (daily)	Smart Base	Imported
04/17/2020	MNPS	73.10	GNSS	30	CORS (daily)	Smart Base	Imported
04/18/2020	MNPS	73.10	GNSS	30	CORS (daily)	Smart Base	Imported
04/17/2020	IANA	99.06	GNSS	30	CORS (daily)	Smart Base	Imported
04/18/2020	IANA	99.06	GNSS	30	CORS (daily)	Smart Base	Imported
04/17/2020	MNCA	99.41	GNSS	30	CORS (daily)	Smart Base	Imported
04/18/2020	MNCA	99.41	GNSS	30	CORS (daily)	Smart Base	Imported
04/17/2020	IAHT	105.10	GNSS	30	CORS (daily)	Smart Base	Imported
04/18/2020	IAHT	105.10	GNSS	30	CORS (daily)	Smart Base	Imported
04/17/2020	IATA	107.41	GNSS	30	CORS (daily)	Smart Base	Imported
04/18/2020	IATA	107.41	GNSS	30	CORS (daily)	Smart Base	Imported
04/17/2020	IAMN	109.77	GNSS	30	CORS (daily)	Smart Base	Imported
04/18/2020	IAMN	109.77	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IAAL
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	4169 s (2101 514652 - 2101 518821)
Number of reference stations	9
Primary station GPS measurement usage (%)	99.8
Average number of satellites per epoch	7.8
Max number of GPS stations used	6
Min number of GPS stations used	3
Total full data gap (sec)	0
Total individual satellite data gap (sec)	58
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10893"	W91°32'55.59750"	228.904
Adjusted		N42°01'49.10896"	W91°32'55.59745"	228.880
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.001	0.024	0.024

Base Station Information

Station ID	IAMN		
Filename	iamn1080.20o, iamn1090.20o		
Start date	4/17/2020 12:00:00 AM		
End date	4/18/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10893"		
Longitude	W91°32'55.59750"		
Ellipsoidal height (m)	228.90416		
Frame	ITRF00		
Epoch	2020.29235		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67188"	W92°33'05.07502"	247.334
Adjusted		N41°58'01.67180"	W92°33'05.07512"	247.348
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.013	0.014

Base Station Information

Station ID	IATA		
Filename	iata1080.20o, iata1090.20o		
Start date	4/17/2020 12:00:00 AM		
End date	4/18/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67188"		
Longitude	W92°33'05.07502"		
Ellipsoidal height (m)	247.33436		
Frame	ITRF00		
Epoch	2020.29235		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAHT

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°17'02.38124"	W93°22'06.68789"	344.482
Adjusted		N43°17'02.38122"	W93°22'06.68767"	344.487
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.005	0.005	0.007

Base Station Information

Station ID	IAHT		
Filename	iaht1080.20o, iaht1090.20o		
Start date	4/17/2020 12:00:00 AM		
End date	4/18/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870766
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°17'02.38124"		
Longitude	W93°22'06.68789"		
Ellipsoidal height (m)	344.48176		
Frame	ITRF00		
Epoch	2020.29235		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNCA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°37'58.64527"	W91°29'46.51637"	339.588
Adjusted		N43°37'58.64531"	W91°29'46.51602"	339.597
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.009	0.012

Base Station Information

Station ID	MNCA		
Filename	mnca1080.20o, mnca1090.20o		
Start date	4/17/2020 12:00:00 AM		
End date	4/18/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74598
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°37'58.64527"		
Longitude	W91°29'46.51637"		
Ellipsoidal height (m)	339.58835		
Frame	ITRF00		
Epoch	2020.29235		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IANA

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°29'49.47896"	W91°17'26.54033"	172.253
Adjusted		N43°29'49.47915"	W91°17'26.53957"	172.226
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.018	0.027	0.032

Base Station Information

Station ID	IANA		
Filename	iana1080.20o, iana1090.20o		
Start date	4/17/2020 12:00:00 AM		
End date	4/18/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5101K72891
Antenna manufacturer, model	Trimble	Zephyr Geodetic 2 RoHS	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.08546		
Latitude	N43°29'49.47896"		
Longitude	W91°17'26.54033"		
Ellipsoidal height (m)	172.25321		
Frame	ITRF00		
Epoch	2020.29235		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - MNPS

Status	OK	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Original	
Solution Epochs	5746	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°30'53.84812"	W91°53'06.86730"	380.908
Adjusted		N43°30'53.84827"	W91°53'06.86707"	380.916
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.007	0.009	0.011

Base Station Information

Station ID	MNPS		
Filename	mnps1080.20o, mnps1090.20o		
Start date	4/17/2020 12:00:00 AM		
End date	4/18/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR9	5112K74594
Antenna manufacturer, model	Trimble	Zephyr 3 Geodetic	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.06519		
Latitude	N43°30'53.84812"		
Longitude	W91°53'06.86730"		
Ellipsoidal height (m)	380.90778		
Frame	ITRF00		
Epoch	2020.29235		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	47.53	**Output Coordinates**	Original	
Solution Epochs	5704	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47664"	W91°21'41.52987"	298.980
Adjusted		N42°52'40.47662"	W91°21'41.52957"	298.985
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.007	0.005	0.008

Base Station Information

Station ID	IAEL		
Filename	iael1080.20o, iael1090.20o		
Start date	4/17/2020 12:00:00 AM		
End date	4/18/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47664"		
Longitude	W91°21'41.52987"		
Ellipsoidal height (m)	298.98028		
Frame	ITRF00		
Epoch	2020.29235		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	CONTROL	**SBQI**	9	
Duration (Hours)	47.88	**Output Coordinates**	Control	
Solution Epochs	5746	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83209"	W91°49'53.52633"	316.516
Adjusted		N43°16'15.83209"	W91°49'53.52633"	316.516
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IADE		
Filename	iade1080.20o, iade1090.20o		
Start date	4/17/2020 12:00:00 AM		
End date	4/18/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83209"		
Longitude	W91°49'53.52633"		
Ellipsoidal height (m)	316.51617		
Frame	ITRF00		
Epoch	2020.29235		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	OK	**SBQI**	9	
Duration (Hours)	47.77	**Output Coordinates**	Original	
Solution Epochs	5732	**Mean Epoch SVs**	8.7	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40418"	W92°47'14.24724"	291.092
Adjusted		N42°44'49.40398"	W92°47'14.24749"	291.120
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.008	0.028	0.029

Base Station Information

Station ID	IAAL		
Filename	iaal1080.20o, iaal1090.20o		
Start date	4/17/2020 12:00:00 AM		
End date	4/18/2020 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40418"		
Longitude	W92°47'14.24724"		
Ellipsoidal height (m)	291.09232		
Frame	ITRF00		
Epoch	2020.29235		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	18.27	57.07	
Number of GPS SV	7	9	8
Number of GLONASS SV	0	0	0
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	7	9	8
PDOP	1.46	2.66	1.90
QC Solution Gaps	0.00	0.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	4146.00	0.00	0.00
Percentage	100.00	0.00	0.00

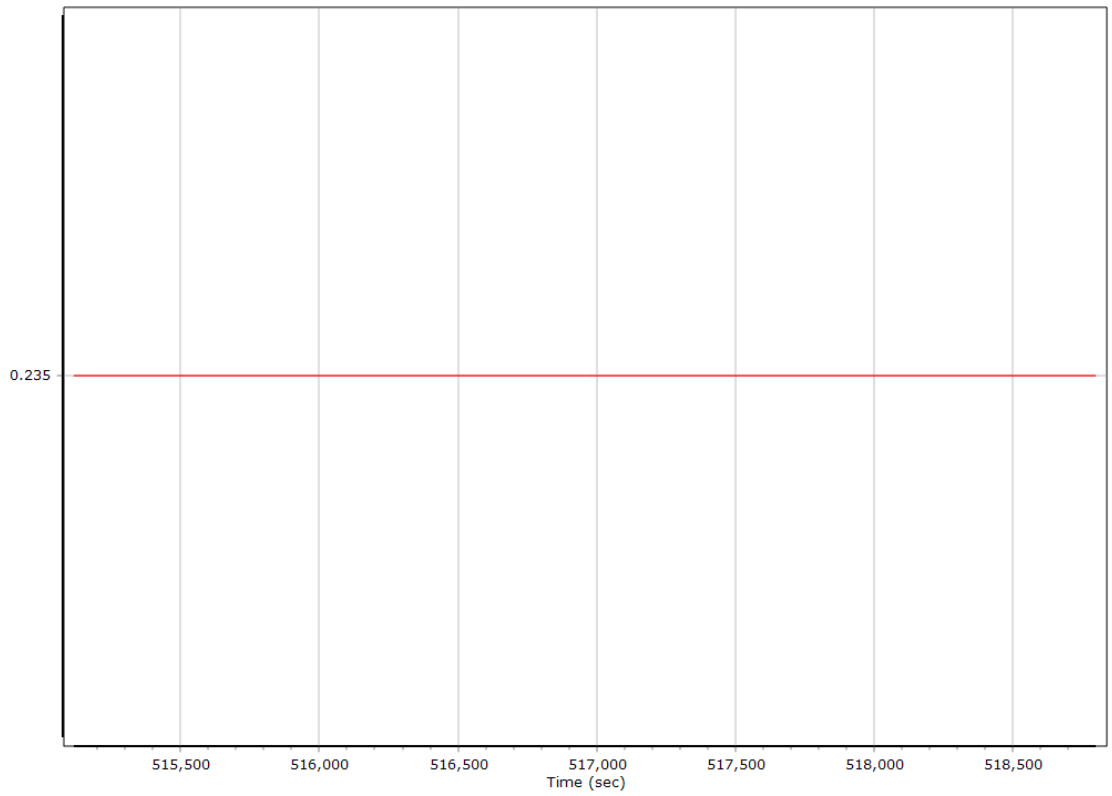
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	514634.000 (4/17/2020 10:57:14 PM)		
Processing end time	518803.000 (4/18/2020 12:06:43 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.235	-0.137	-0.793
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

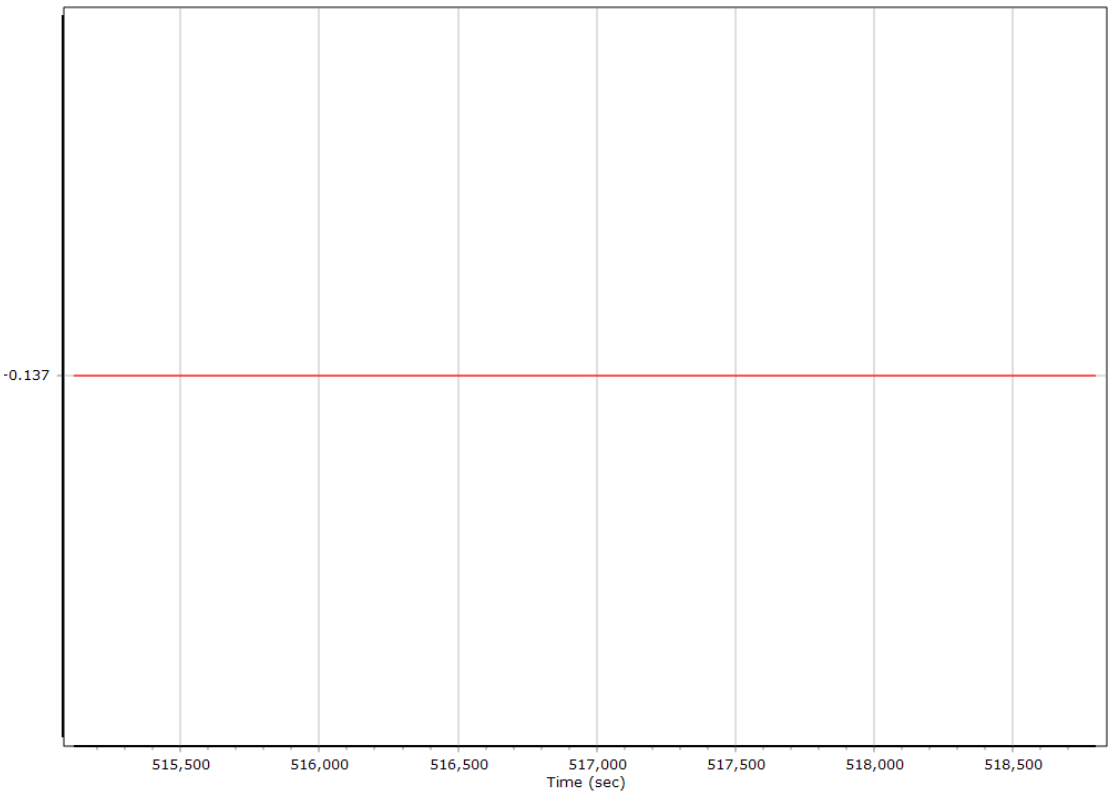
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

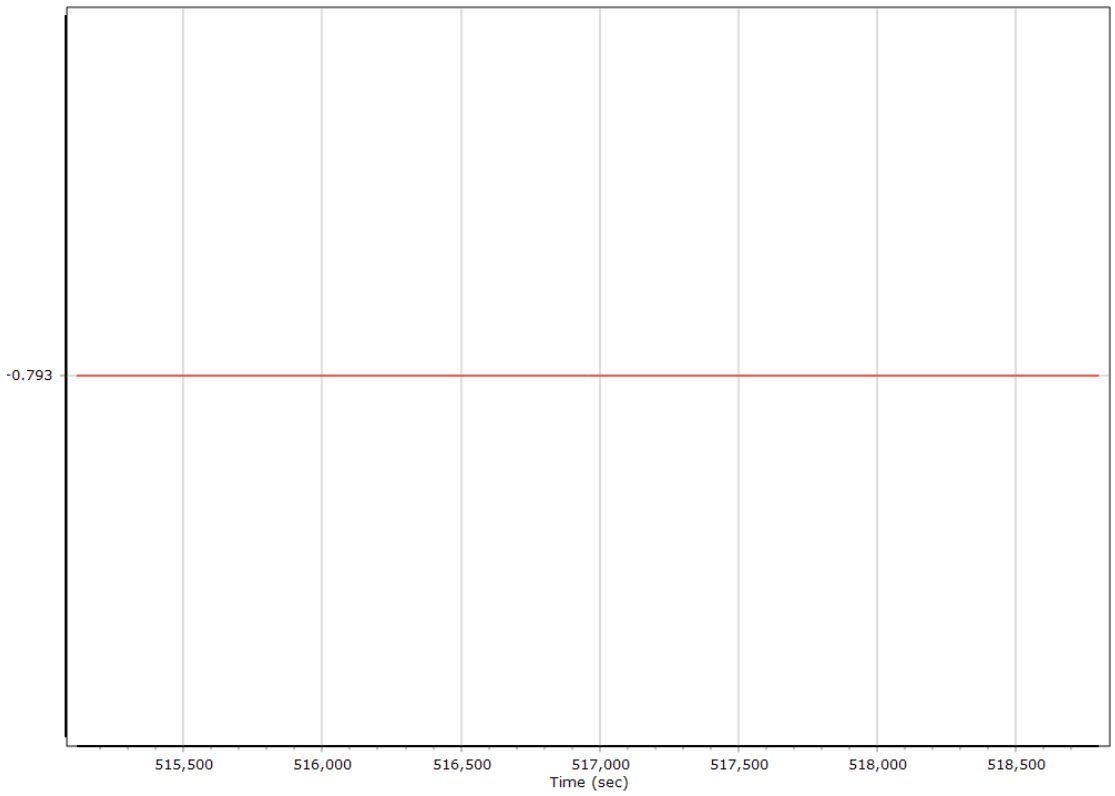
X Reference-Primary GNSS Lever Arm (m)



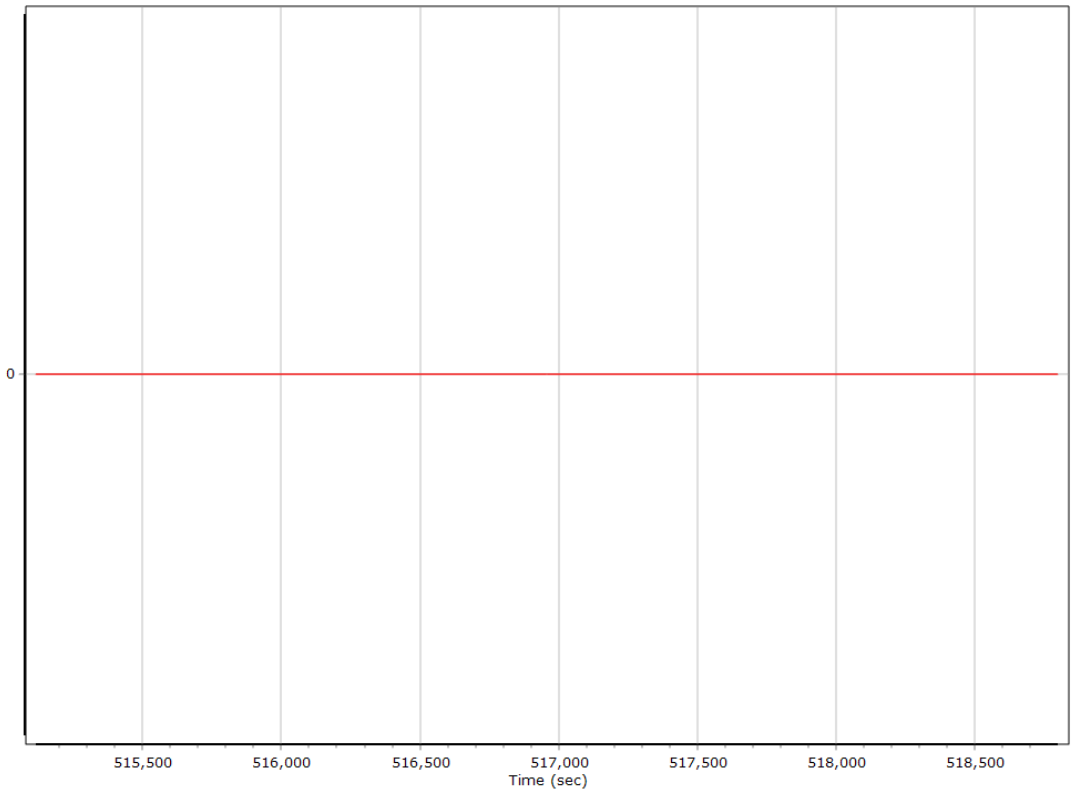
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



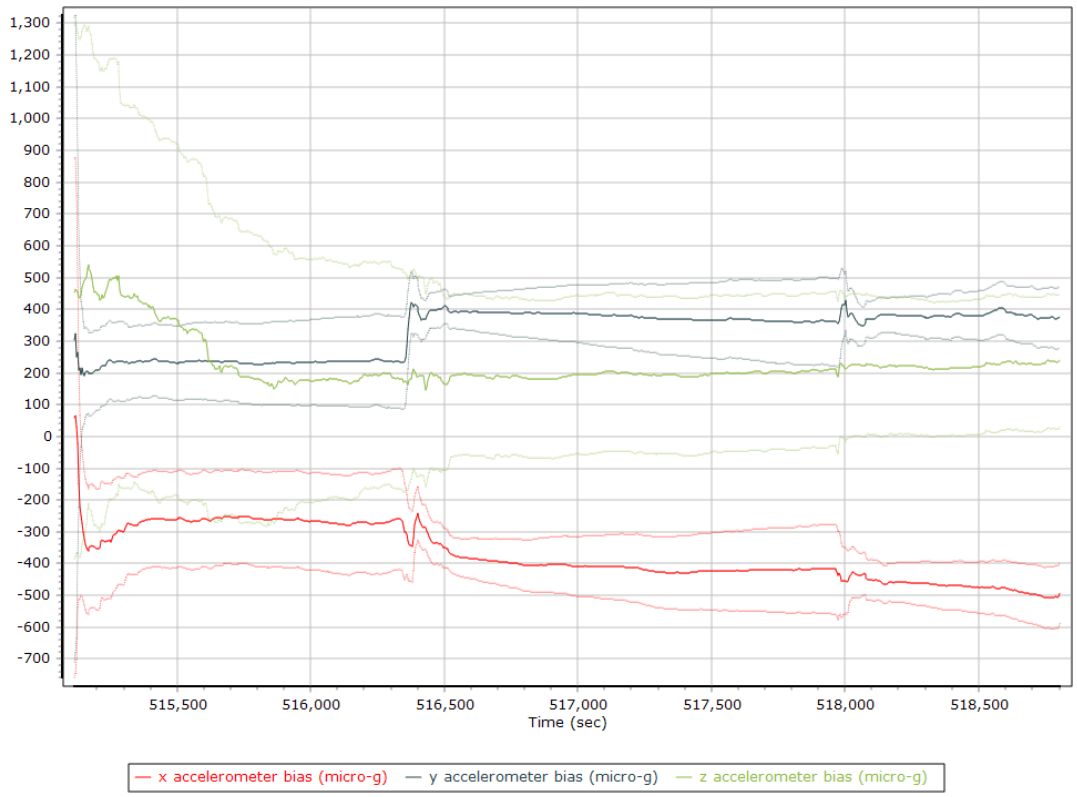
Reference-Primary GNSS Lever Arm Figure of Merit



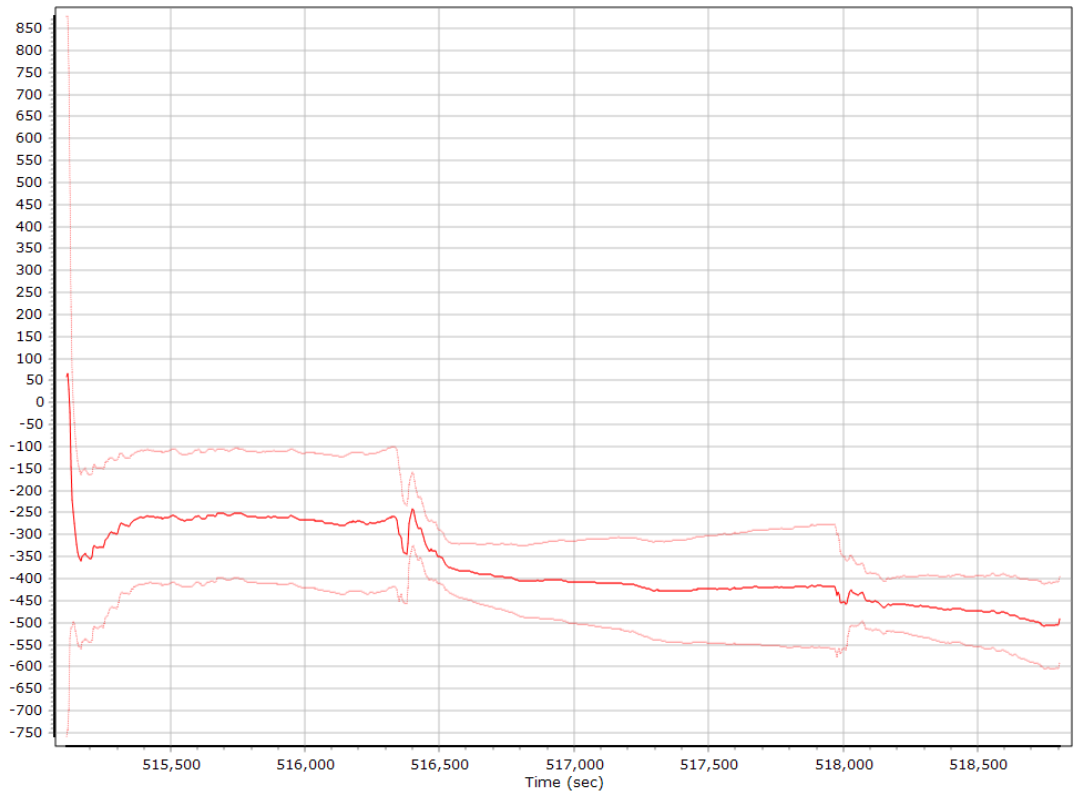
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

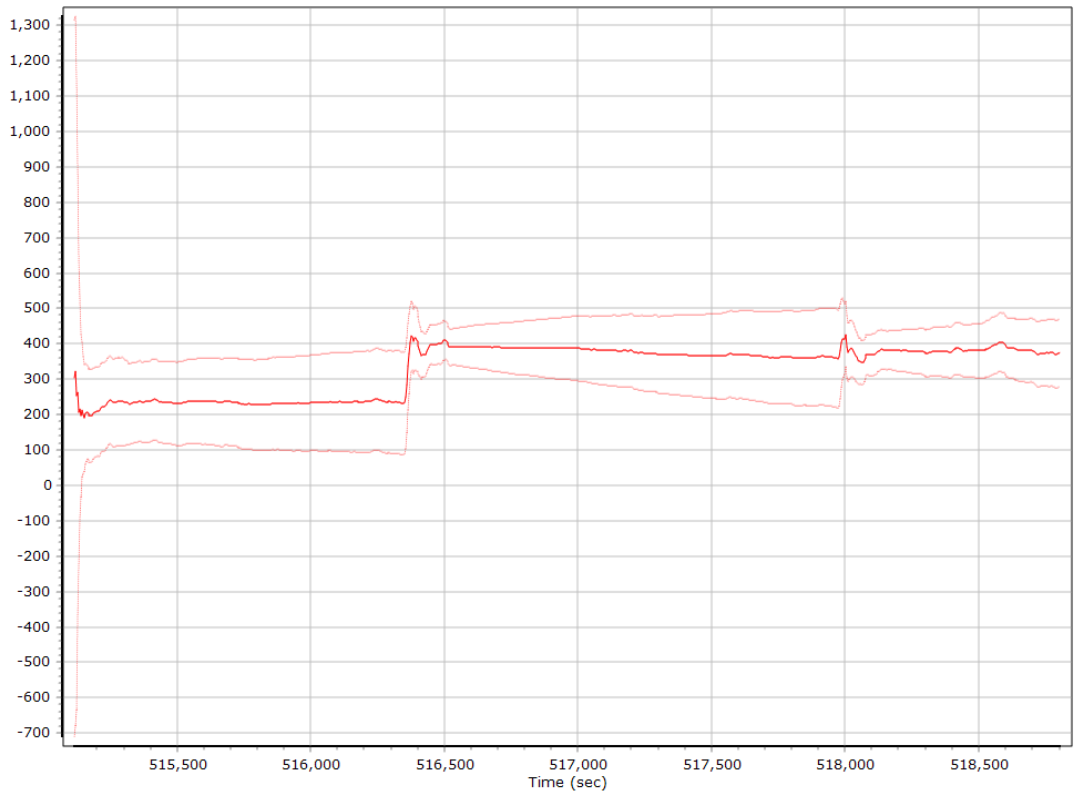
Accelerometer Bias (micro-g)



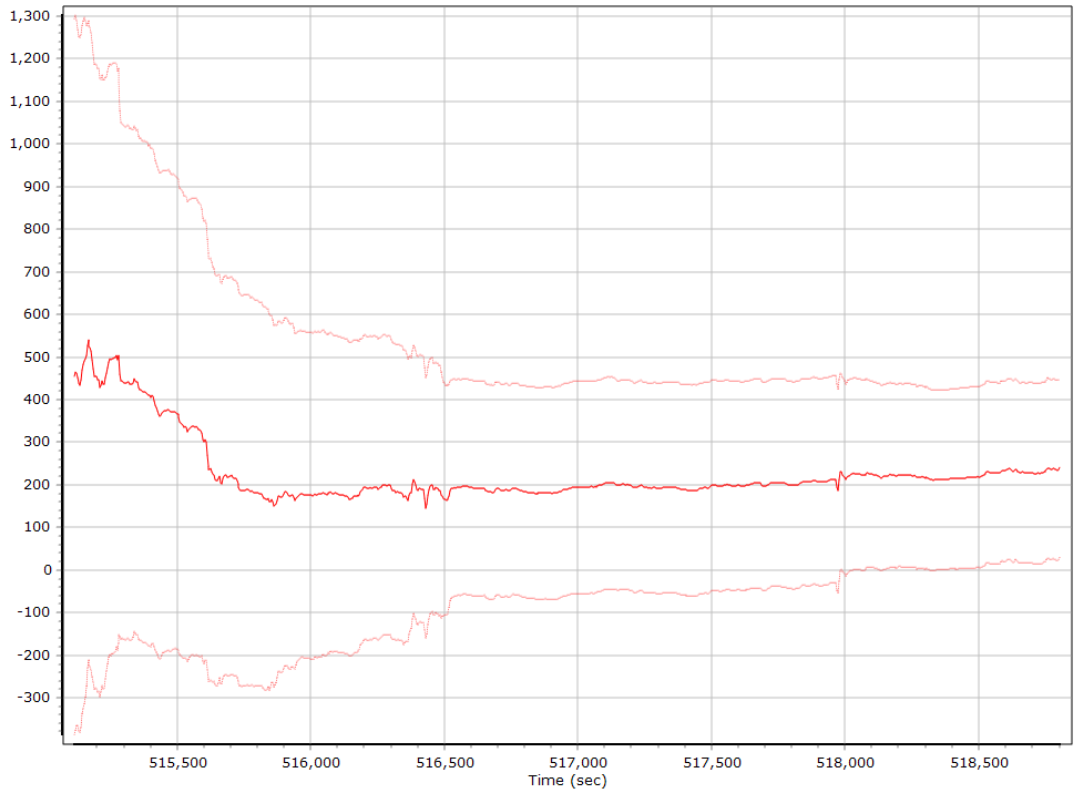
X Accelerometer Bias (micro-g)



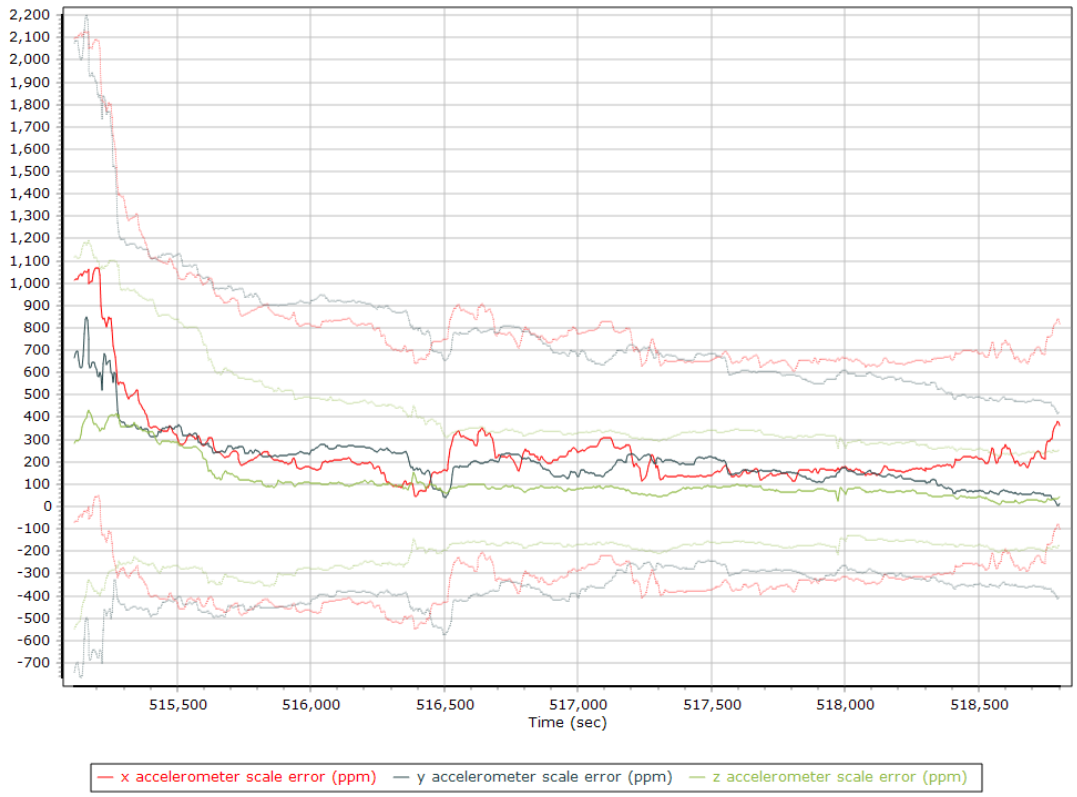
Y Accelerometer Bias (micro-g)



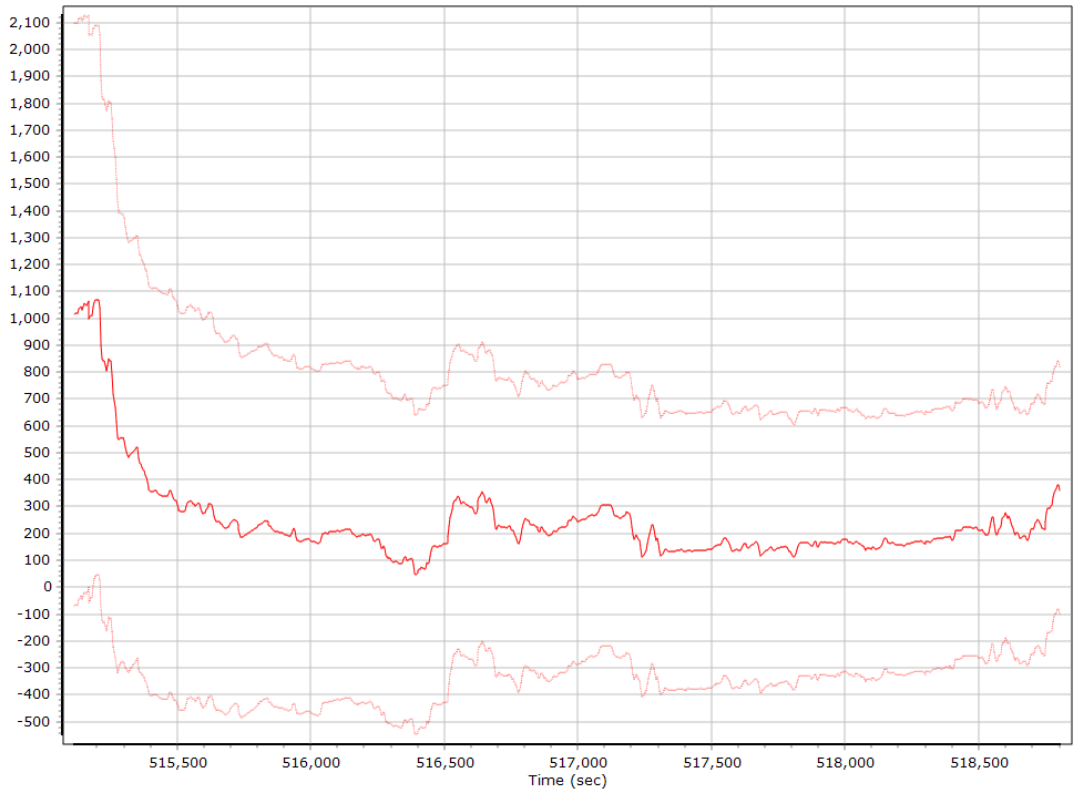
Z Accelerometer Bias (micro-g)



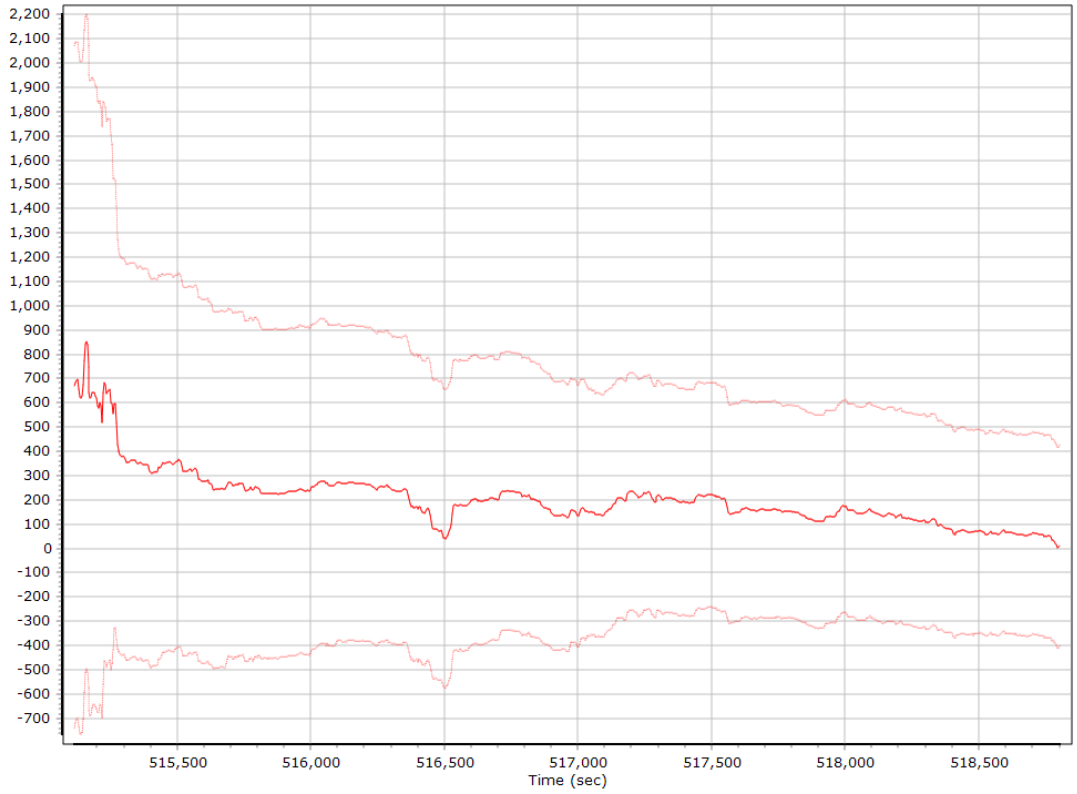
Accelerometer Scale Error (ppm)



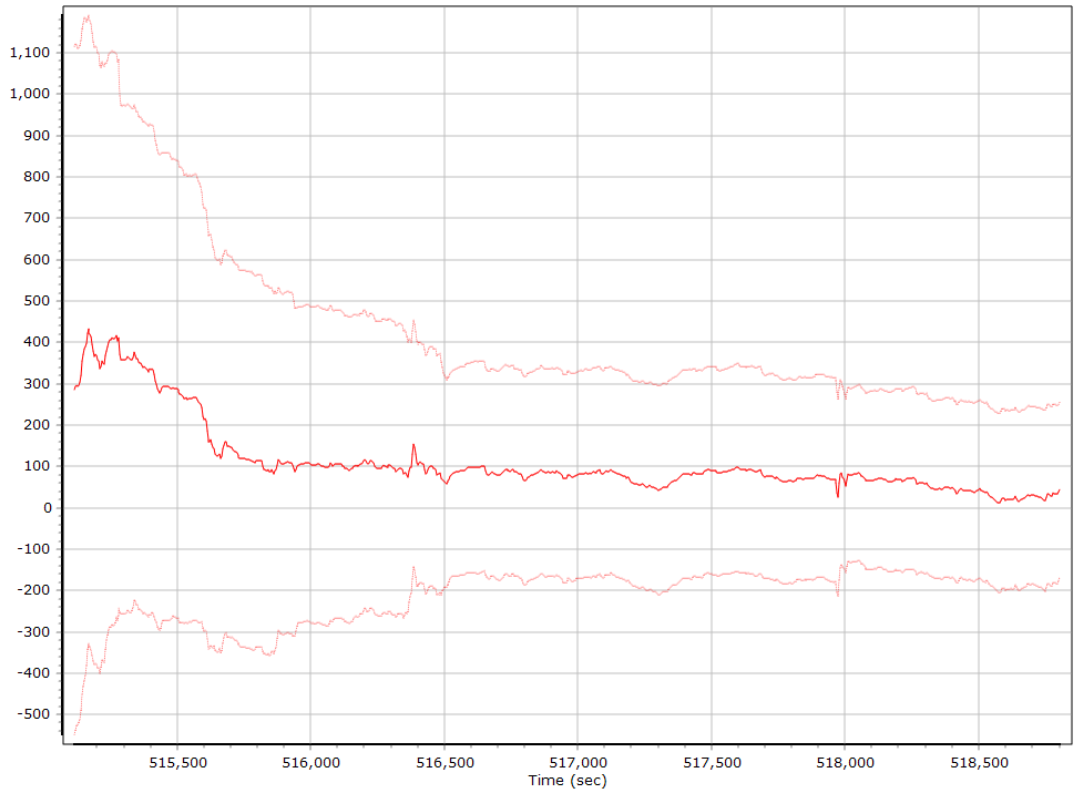
X Accelerometer Scale Error (ppm)



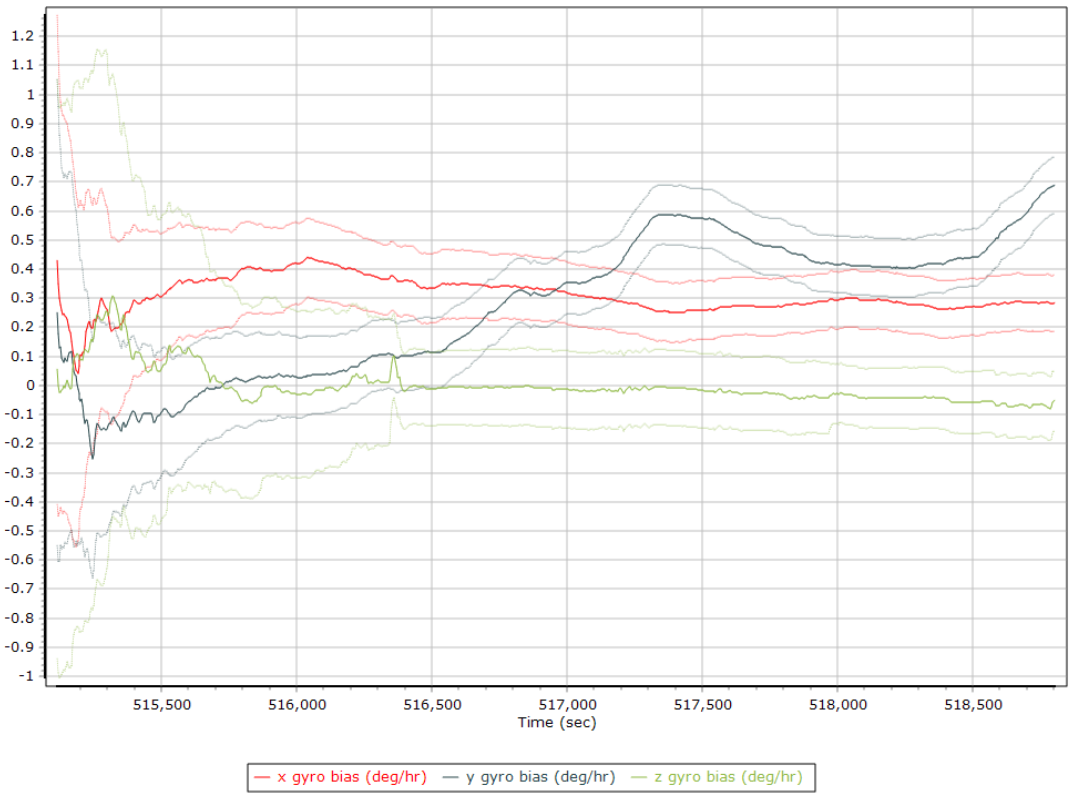
Y Accelerometer Scale Error (ppm)



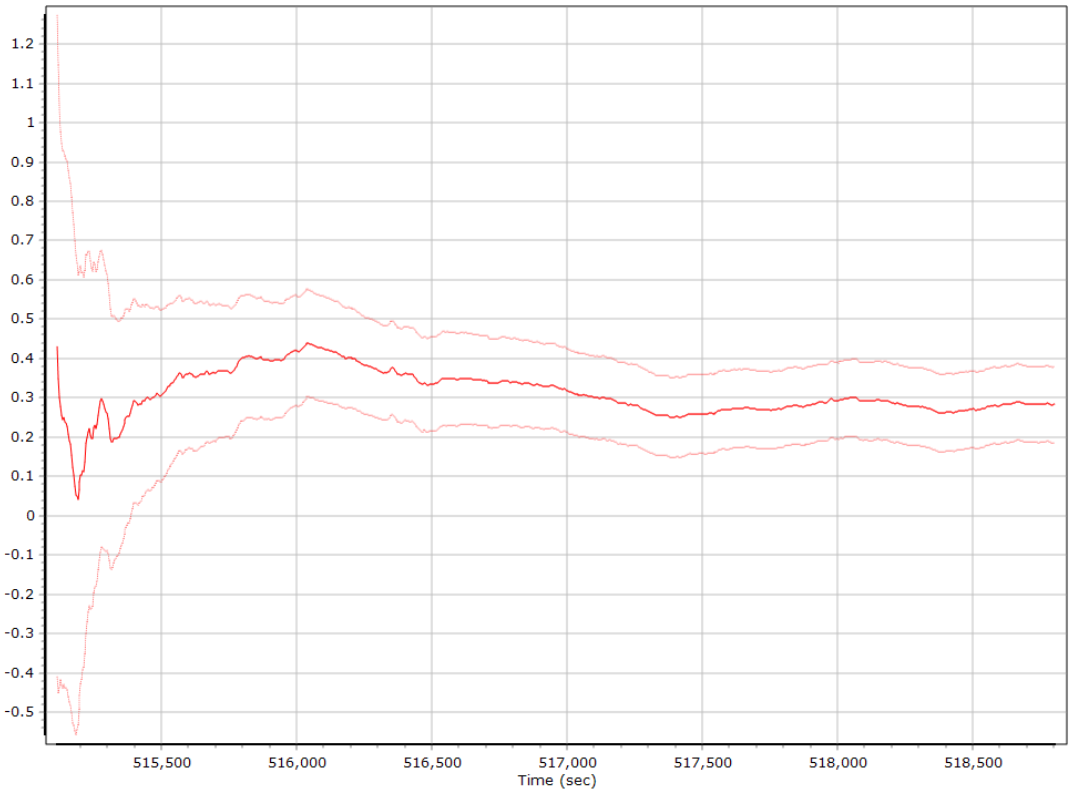
Z Accelerometer Scale Error (ppm)



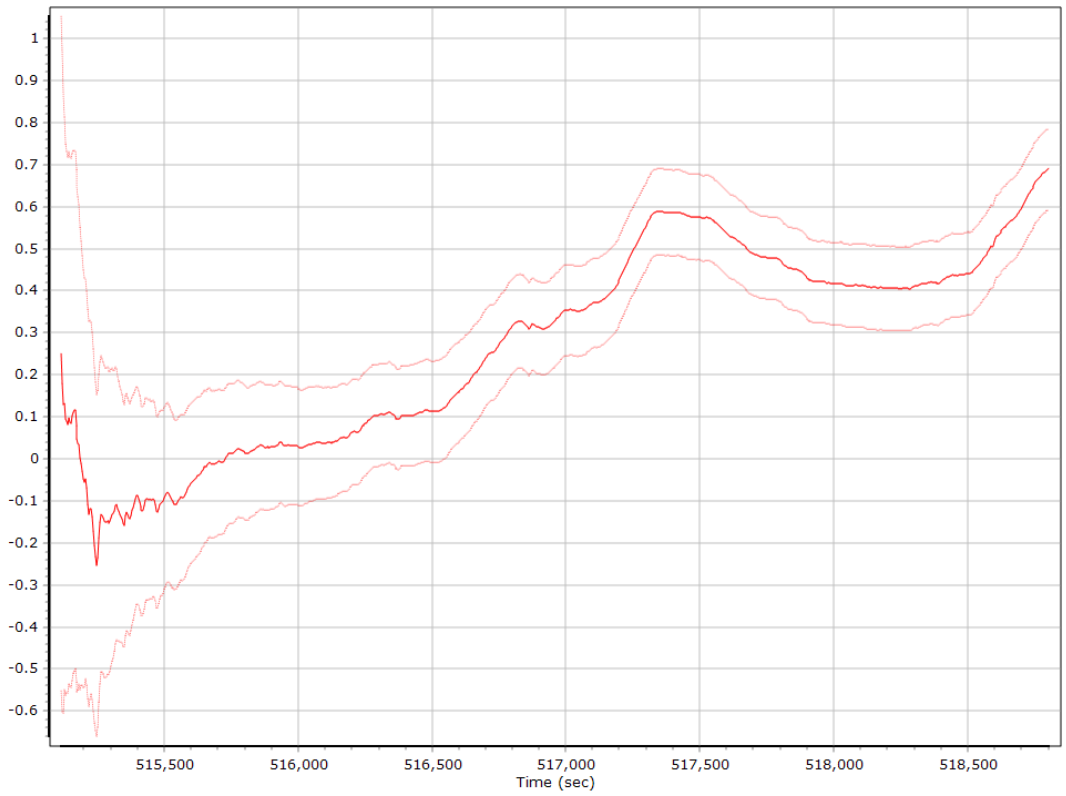
Gyro Bias (deg/h)



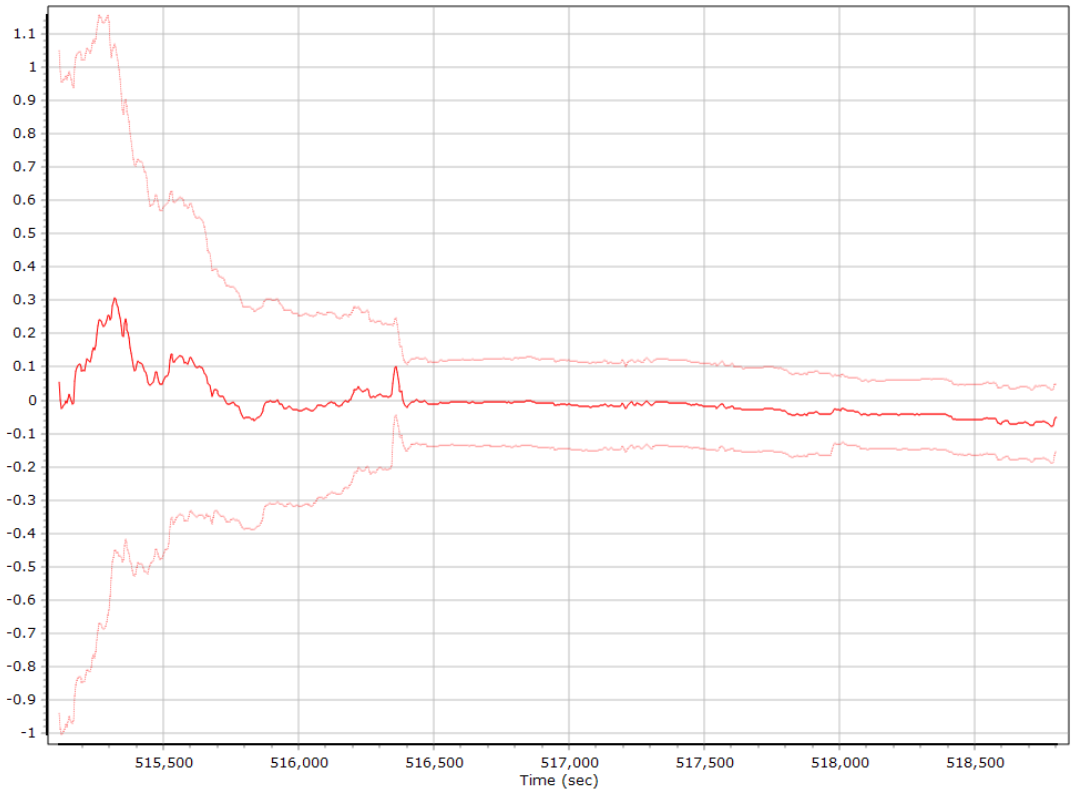
X Gyro Bias (deg/h)



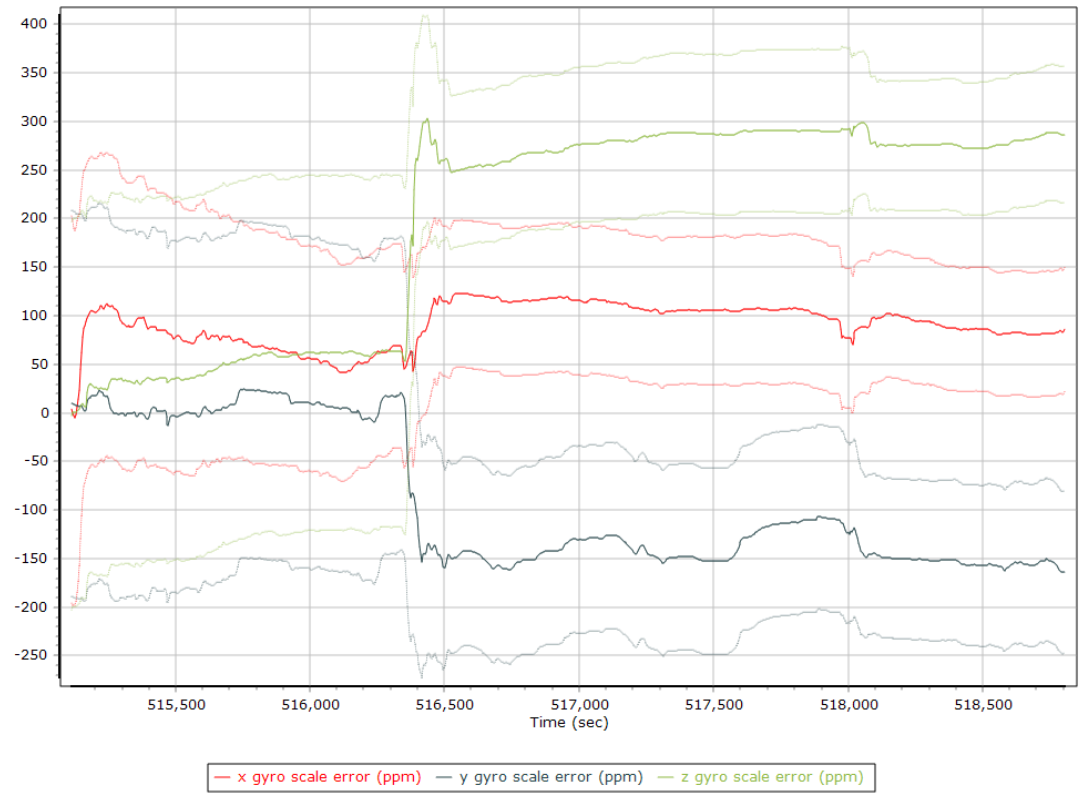
Y Gyro Bias (deg/h)



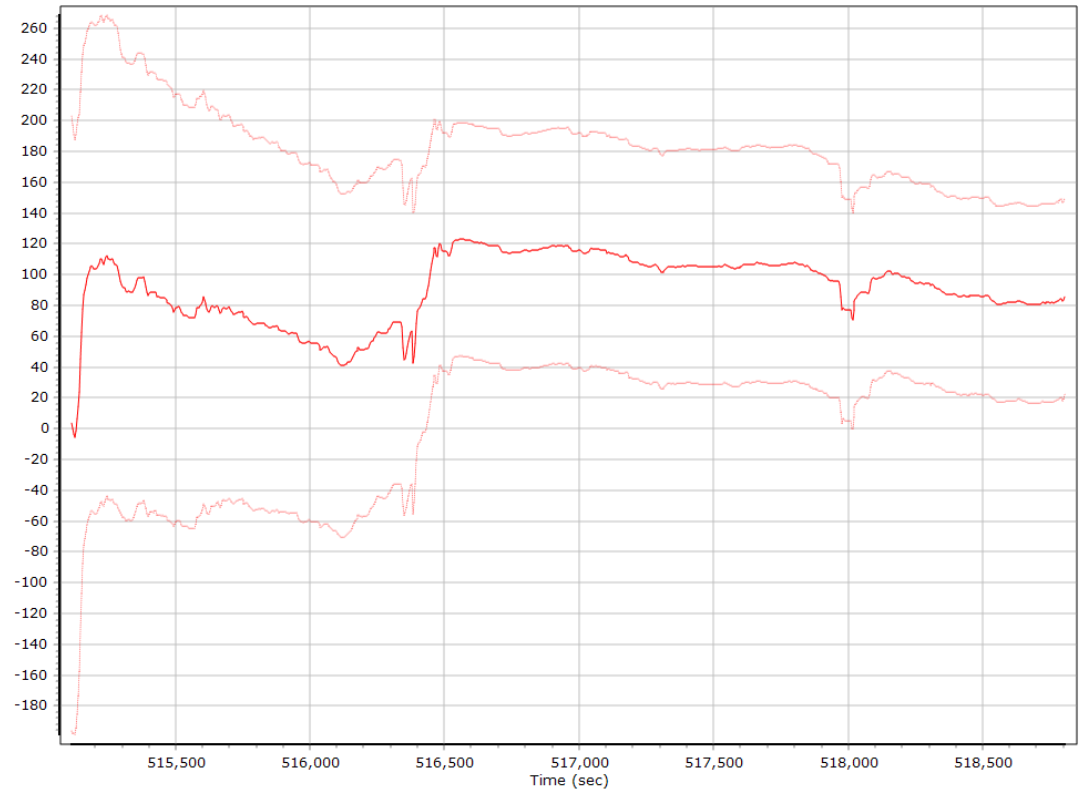
Z Gyro Bias (deg/h)



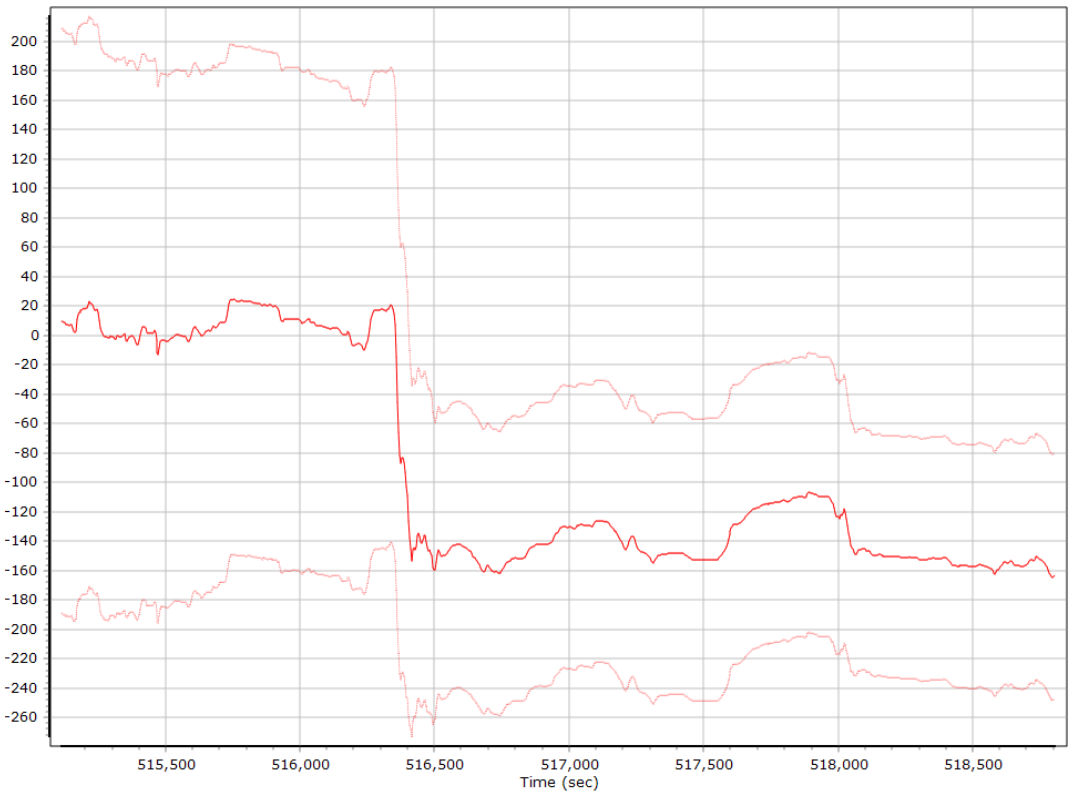
Gyro Scale Error (ppm)



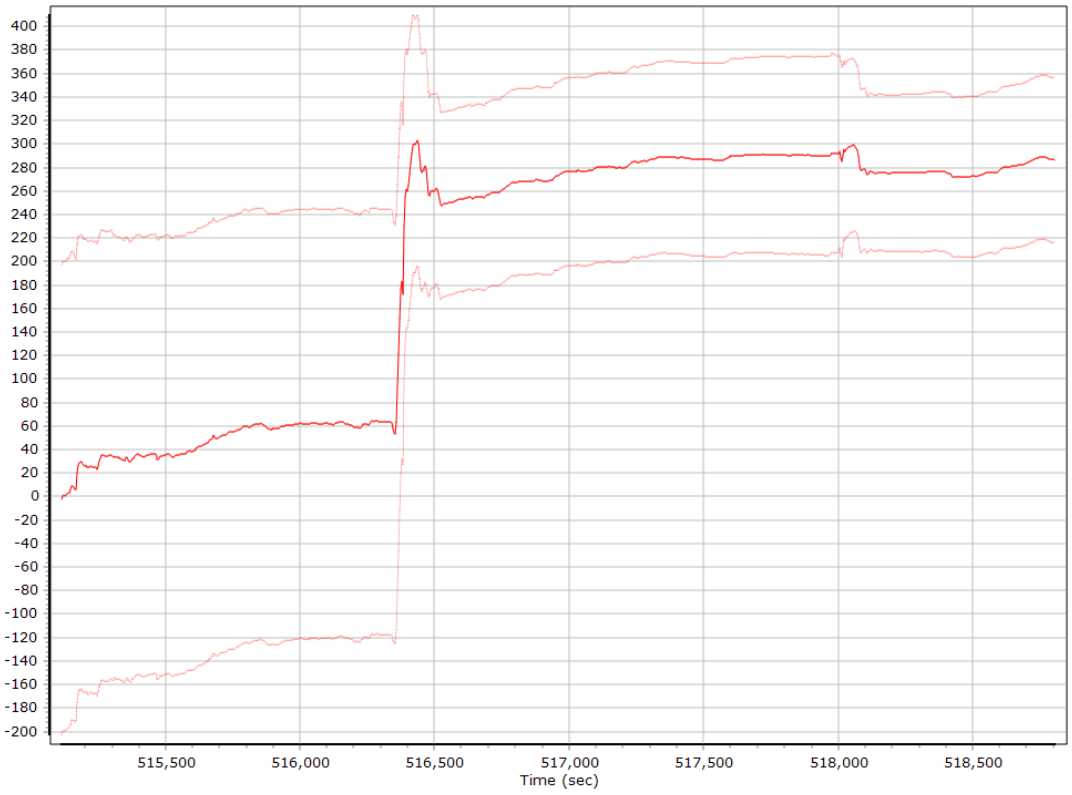
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

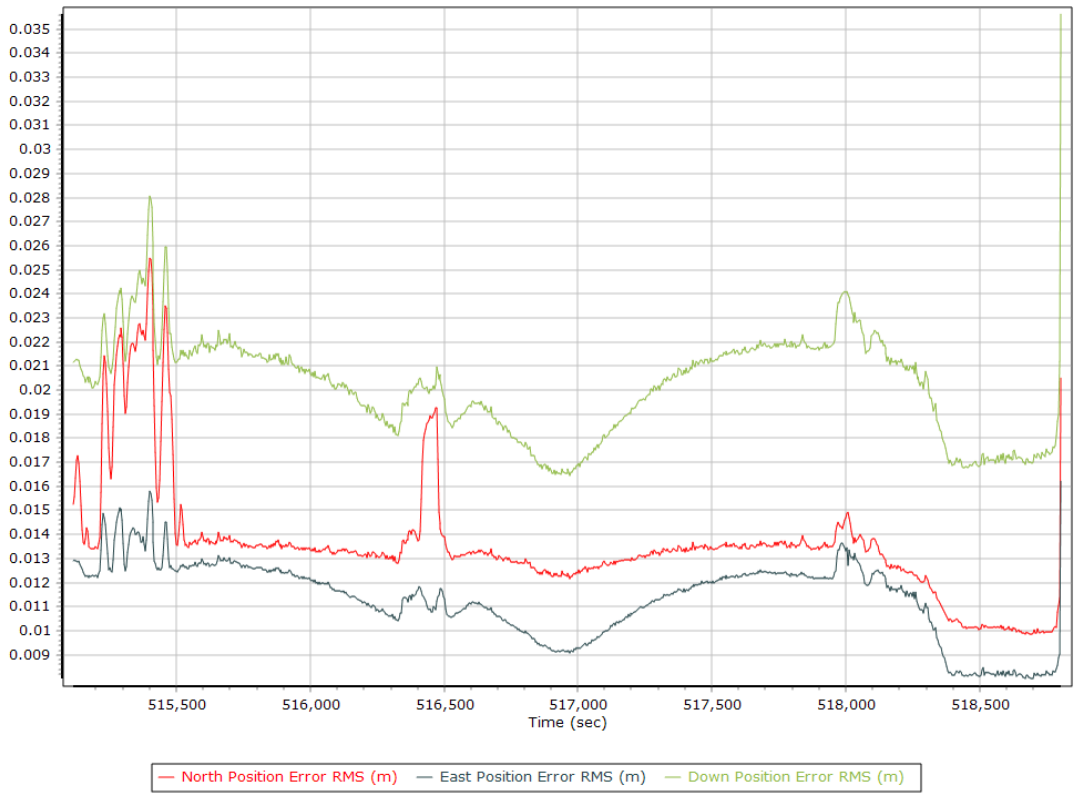


Z Gyro Scale Error (ppm)

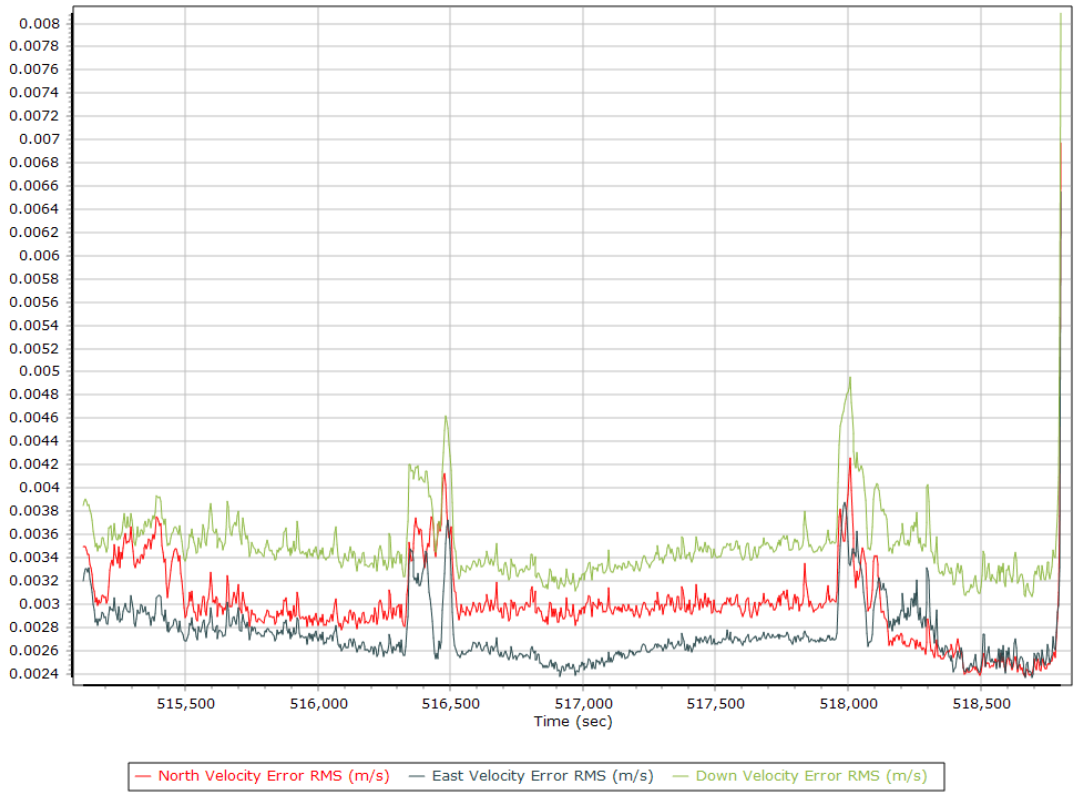


Smoothed Performance Metrics

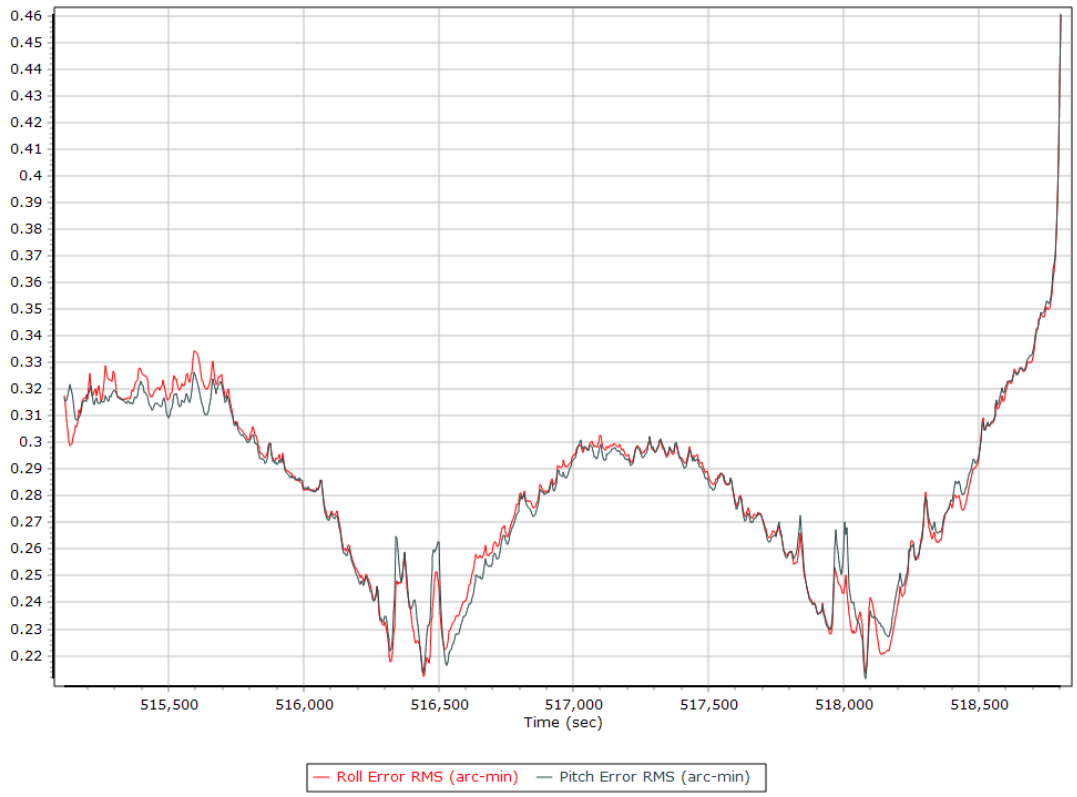
Position Error RMS (m)



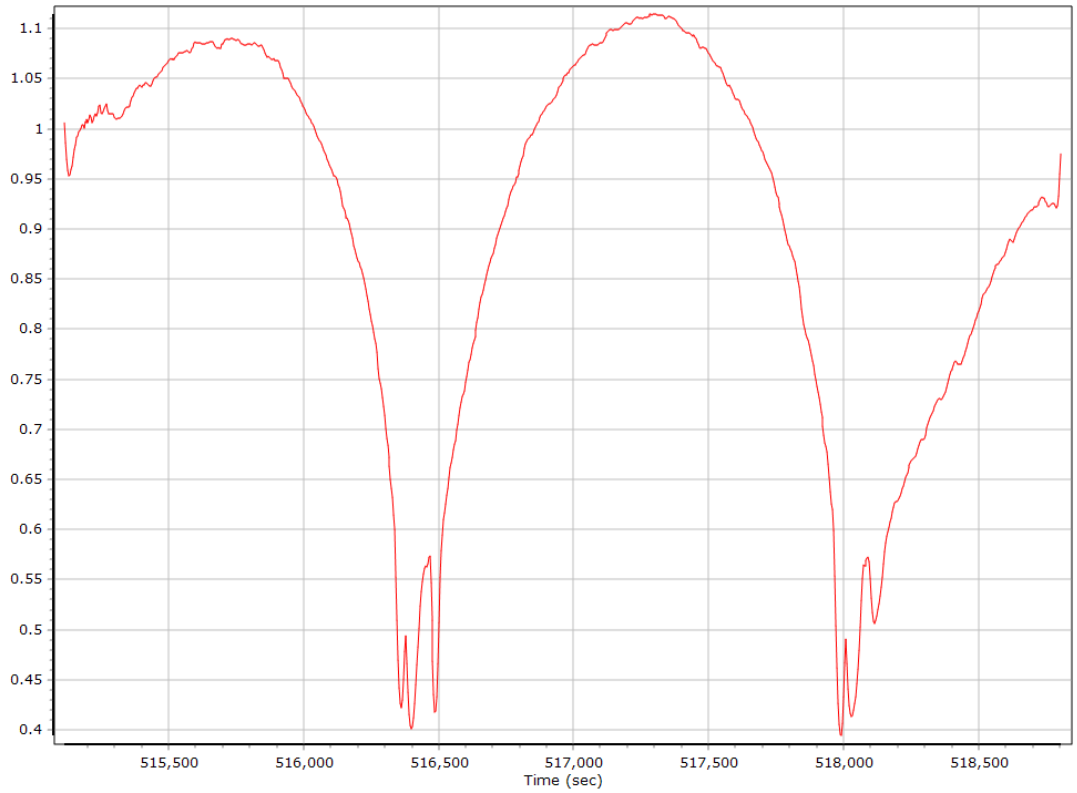
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

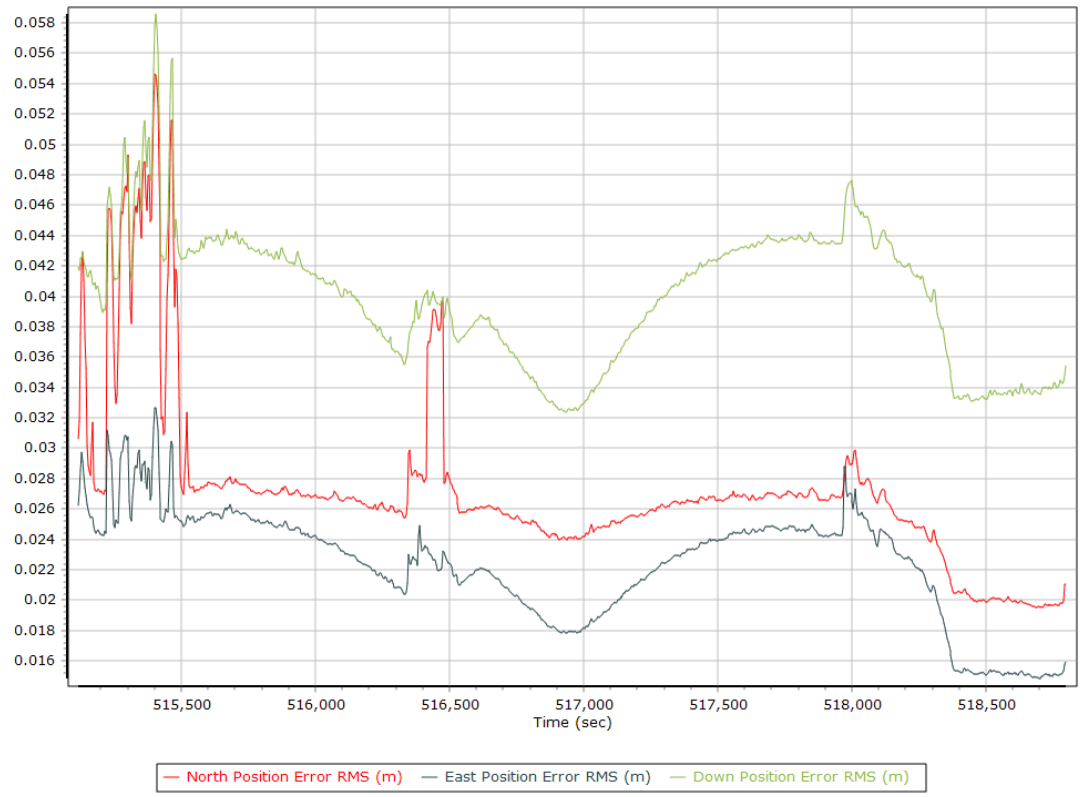


Heading Error RMS (arc-min)

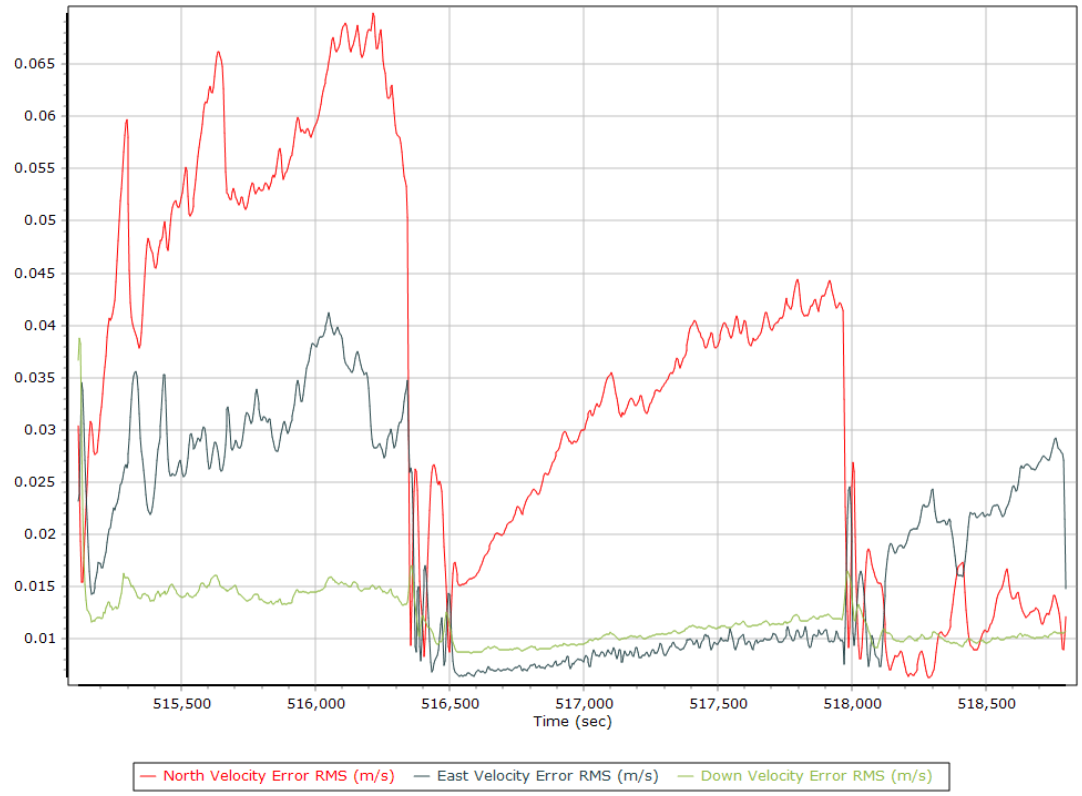


Forward Processed Performance Metrics

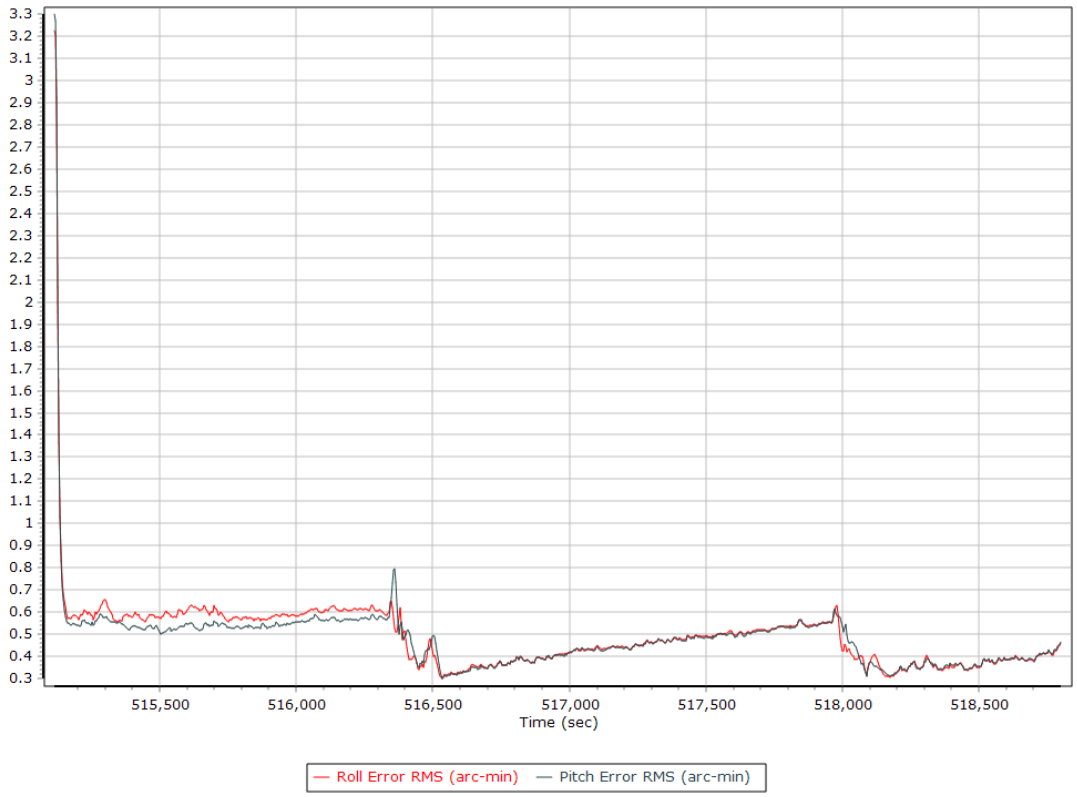
Position Error RMS (m)



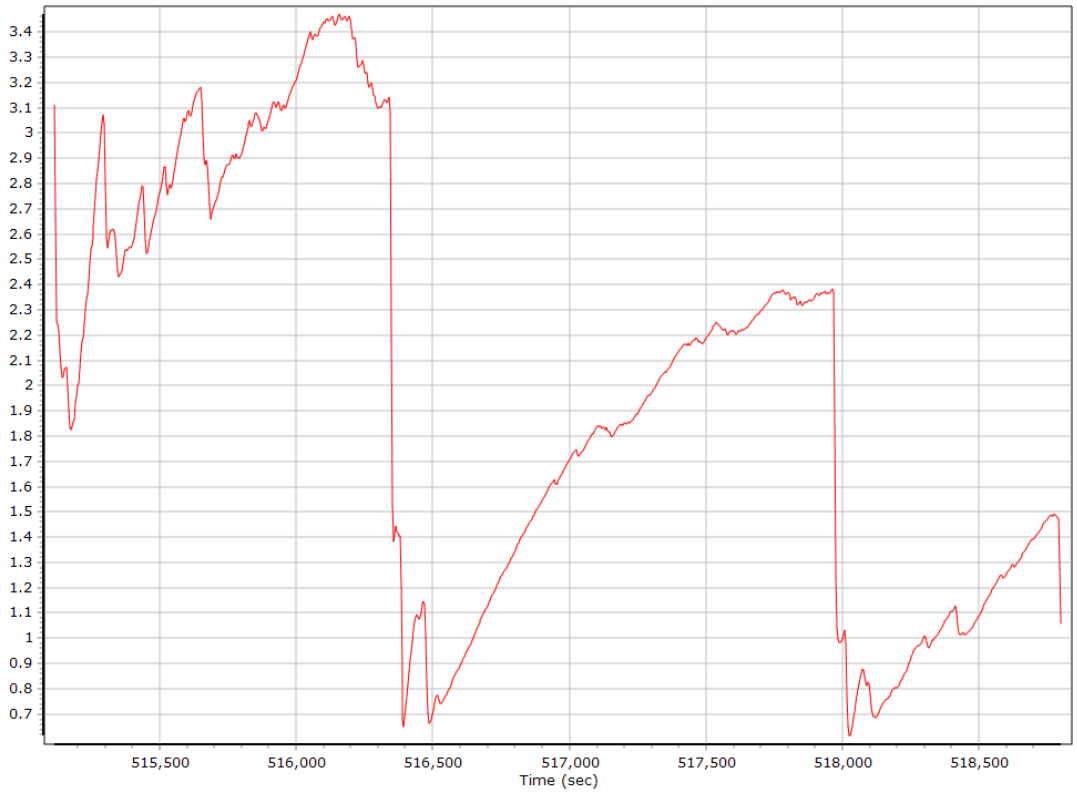
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

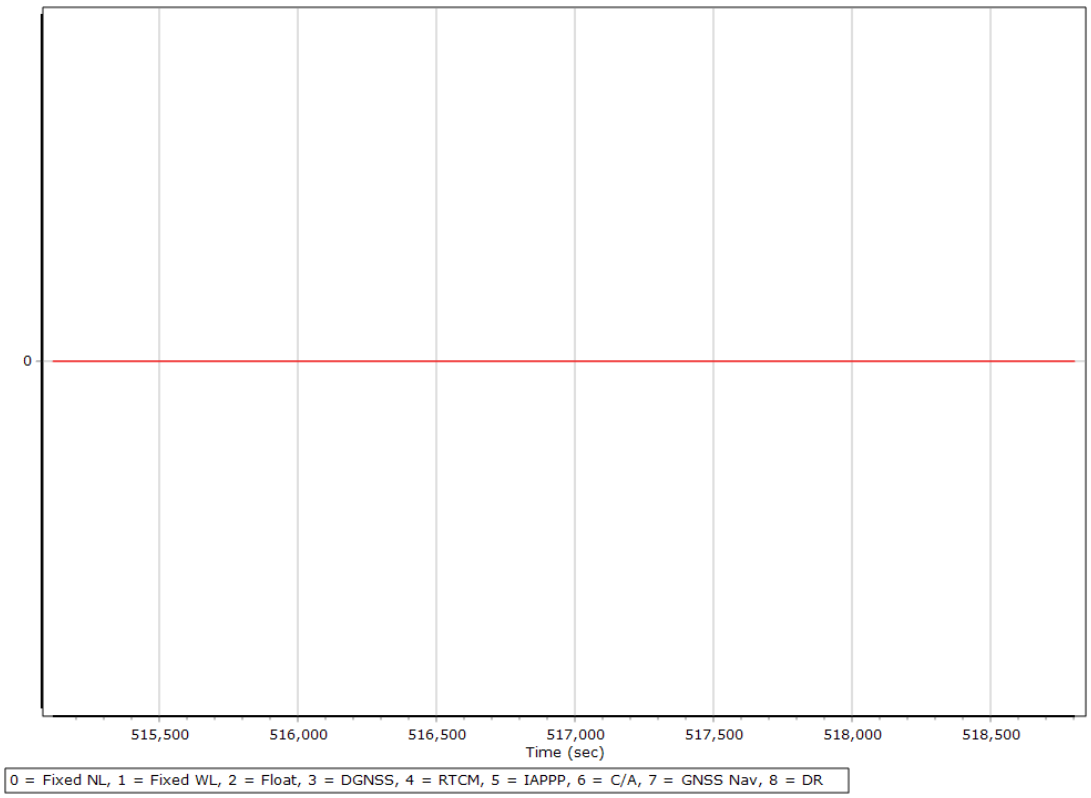


Heading Error RMS (arc-min)

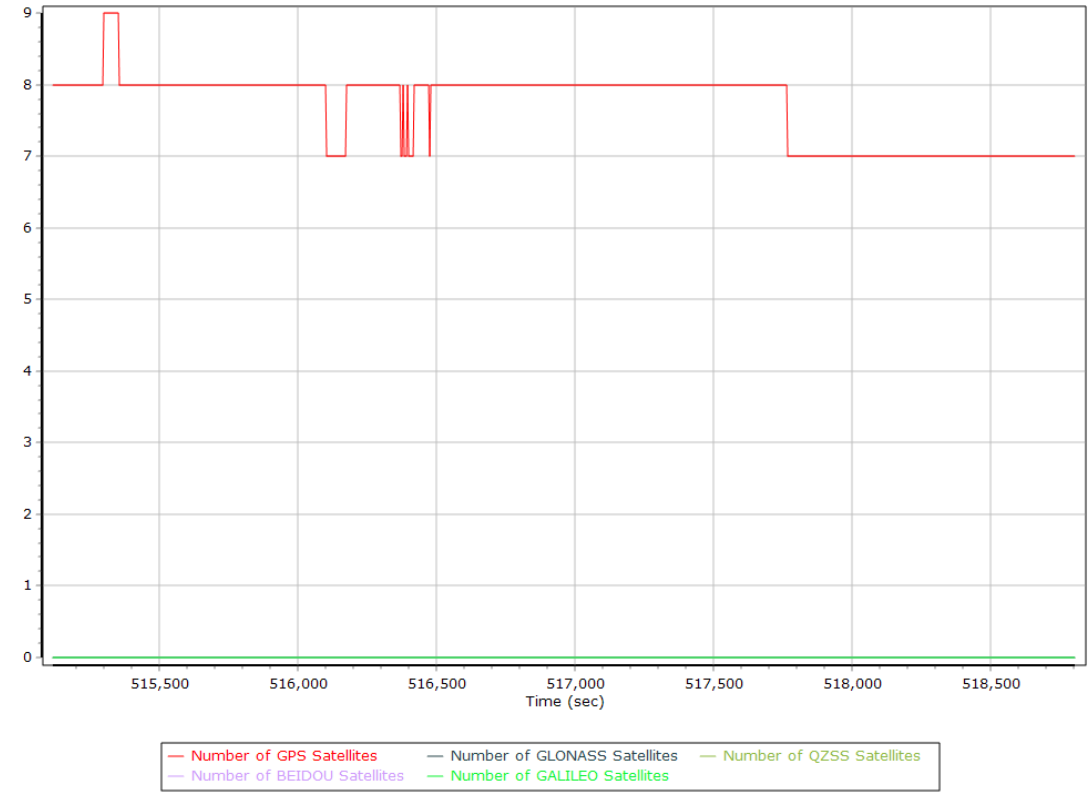


Smoothed Solution Status

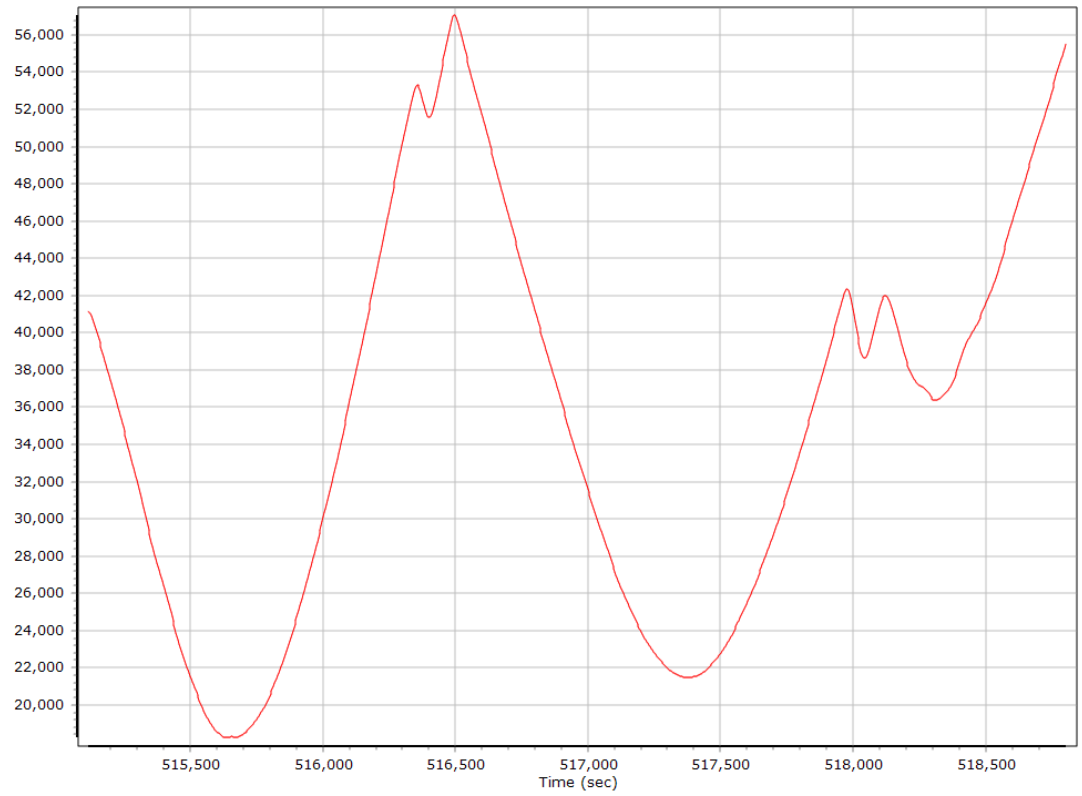
Processing Mode



Number of Satellites

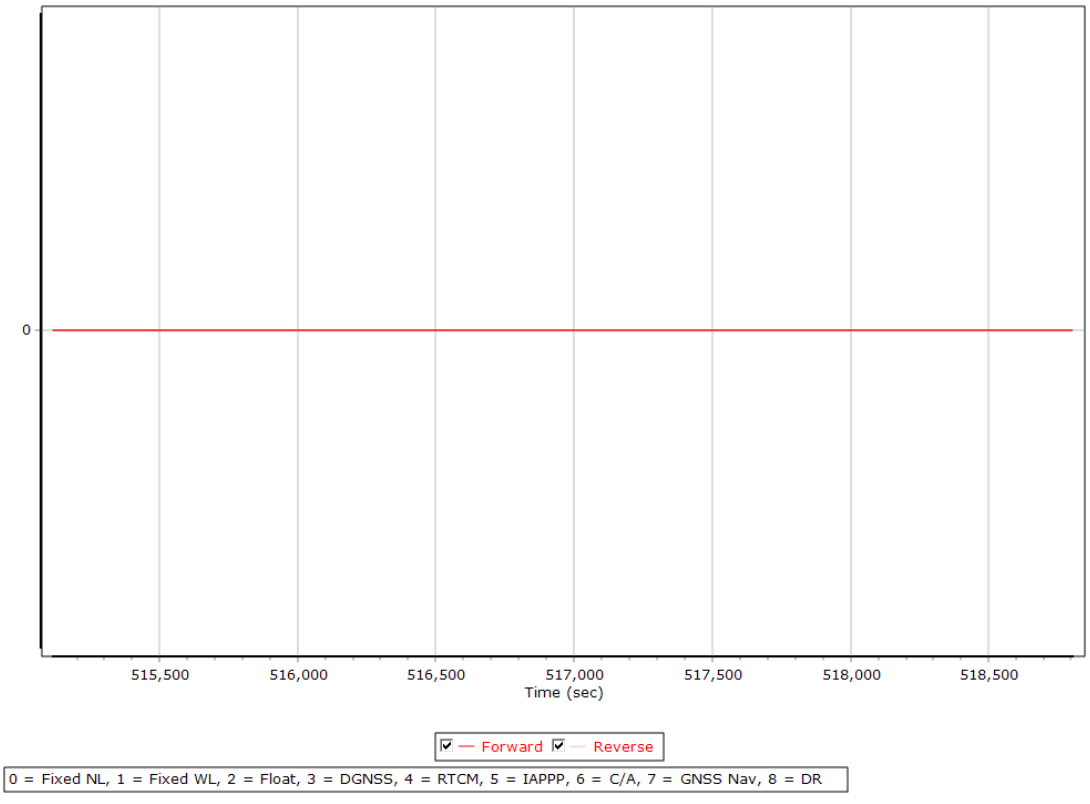


Baseline Length

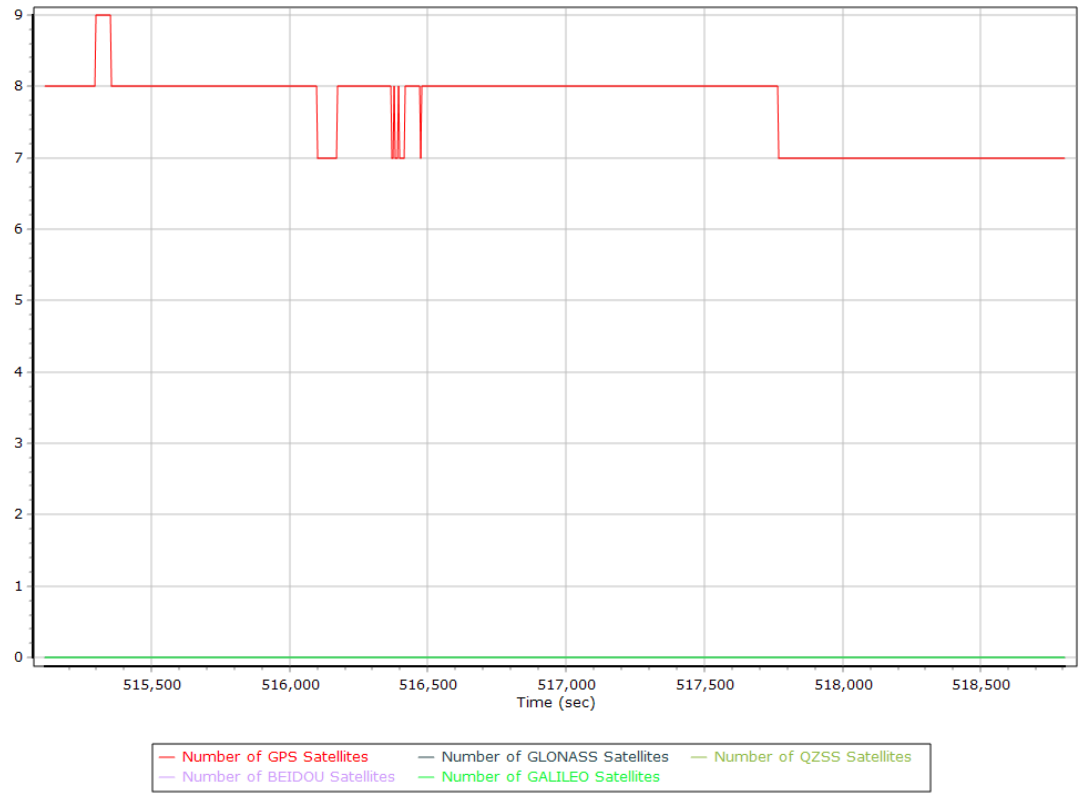


Forward Processed Solution Status

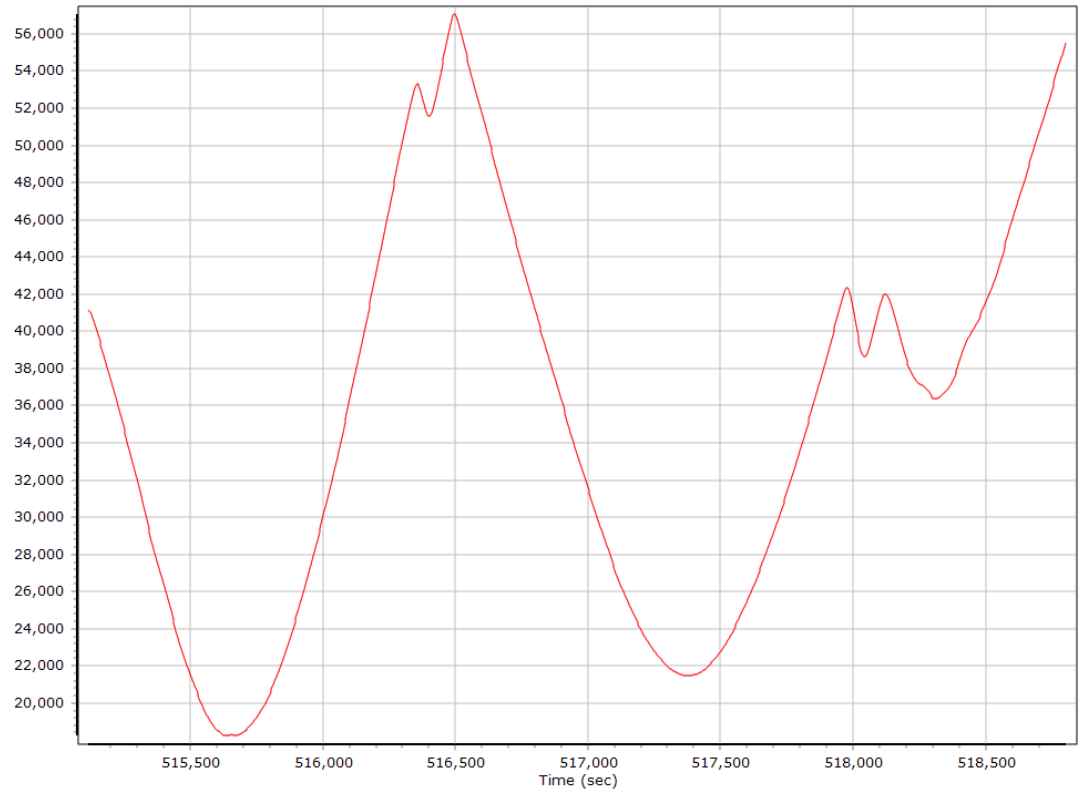
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

Export Summary

Export file	SBET_Mission 1.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	515056.001 (4/17/2020 11:04:16 PM)		
Export end time	518803.004 (4/18/2020 12:06:43 AM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 01 (180W to 174W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		

General Information

Mission Information

Project name	20191207A-rerun
Processing date	2020-12-21 18:05:26
Mission date	2019-12-07 18:13:37
Mission duration	03:59:17.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	Unknown External

Project File List

Rover Data Files

File name	File type
ALS.096	POS Data
ALS.097	POS Data
ALS.098	POS Data
ALS.099	POS Data
ALS.100	POS Data
ALS.101	POS Data
ALS.102	POS Data
ALS.103	POS Data
ALS.104	POS Data
ALS.105	POS Data
ALS.106	POS Data
ALS.107	POS Data
ALS.108	POS Data
ALS.109	POS Data
ALS.110	POS Data
ALS.111	POS Data
ALS.112	POS Data
ALS.113	POS Data
ALS.114	POS Data
ALS.115	POS Data
ALS.116	POS Data
ALS.117	POS Data

Input Files

File Name	File Type
Ephm3410.19g	GLONASS Broadcast Ephemeris
Ephm3410.19n	GPS Broadcast Ephemeris
iaal3410.19o	GNSS SingleBase
igr20825.sp3	GPS Precise Ephemeris
igr20826.sp3	GPS Precise Ephemeris
igr20830.sp3	GPS Precise Ephemeris
iade3410.19o	GNSS SingleBase
iael3410.19o	GNSS SingleBase
iamn3410.19o	GNSS SingleBase
iata3410.19o	GNSS SingleBase
nlib3410.19o	GNSS SingleBase

Output Files

Filename	File type
sbet_rerun-20201221.out	SBET Trajectory File

Rover Data Summary

First raw data file	ALS.096		
Last raw data file	ALS.117		
Start GPS week	2082		
Start time	584011.011 (12/7/2019 6:13:31 PM)		
End time	598356.700 (12/7/2019 10:12:36 PM)		
Start of fine alignment	584515.176 (12/7/2019 6:21:55 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

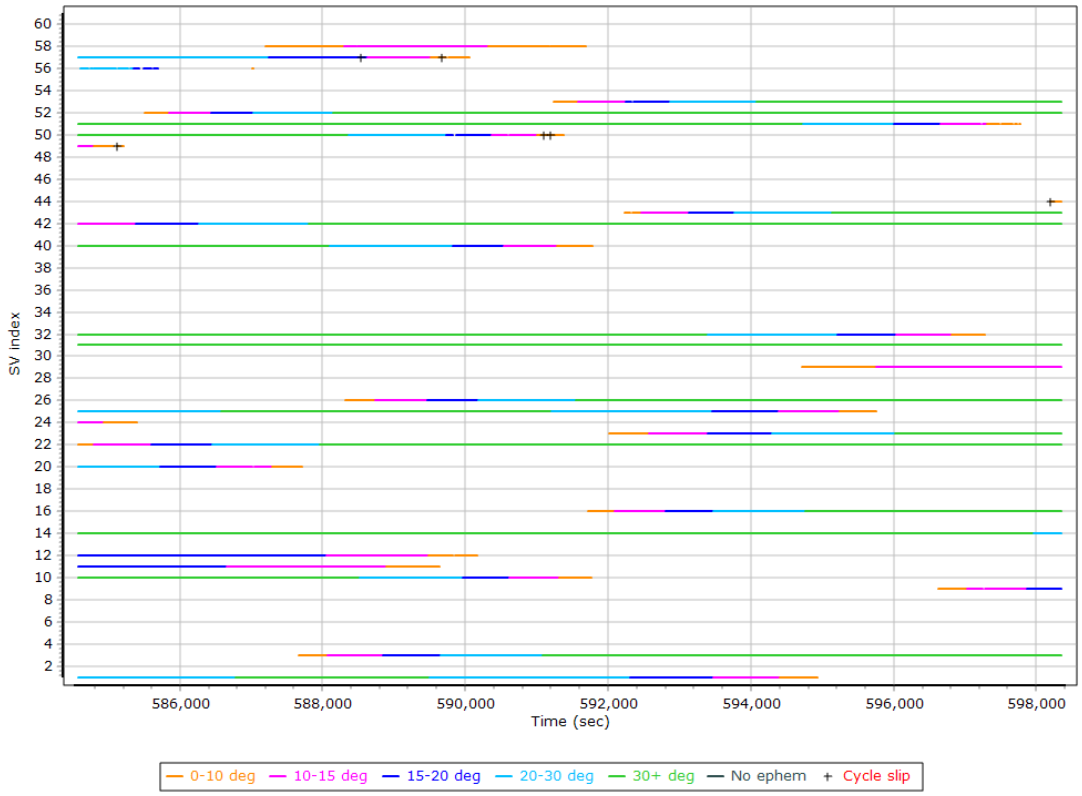
Rover Data QC

Raw IMU Import QC Summary

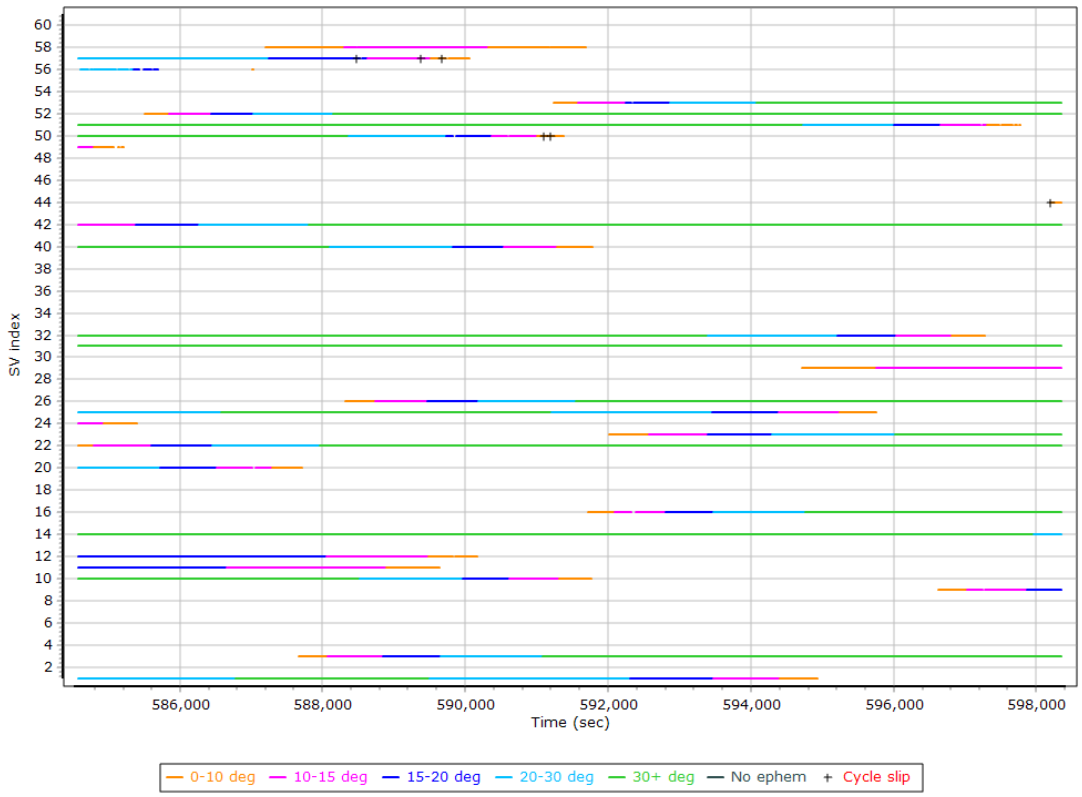
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_rerun-20201221.log
IMU Records Processed	2874009
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
584010.616 : WARNING : Gap of 583988.6293 seconds in CHECKDT input data	

Primary Observables & Satellite Data

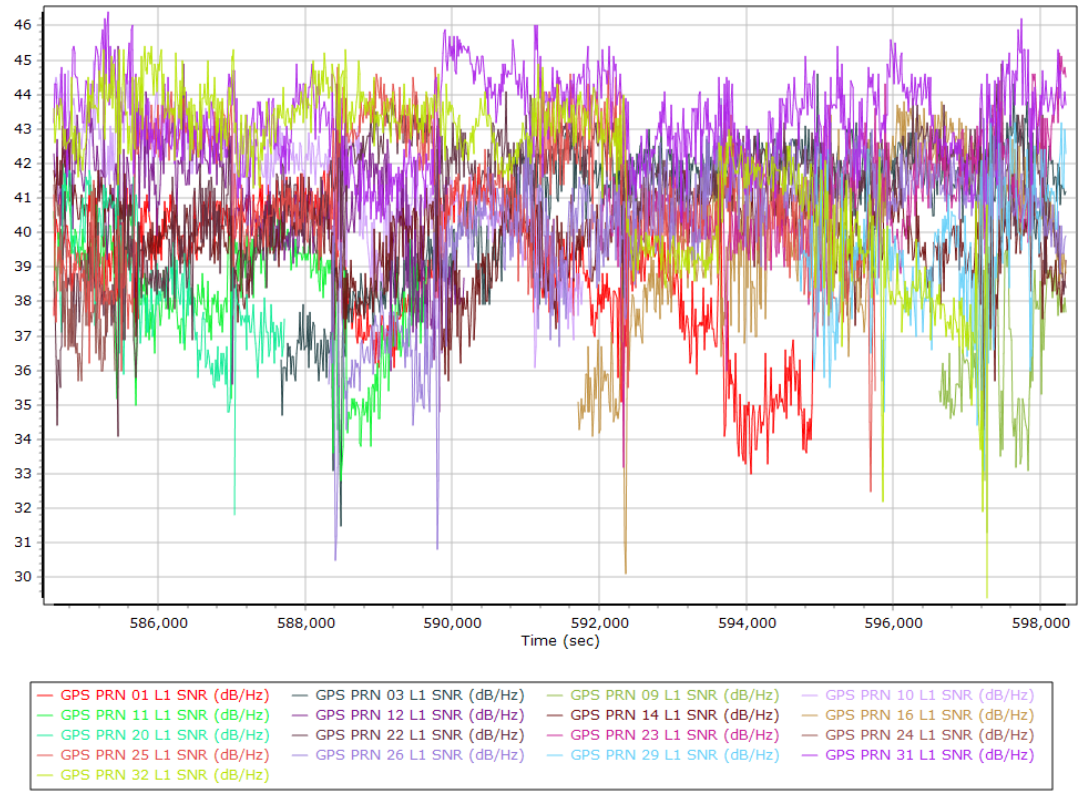
L1 Satellite Lock/Elevation



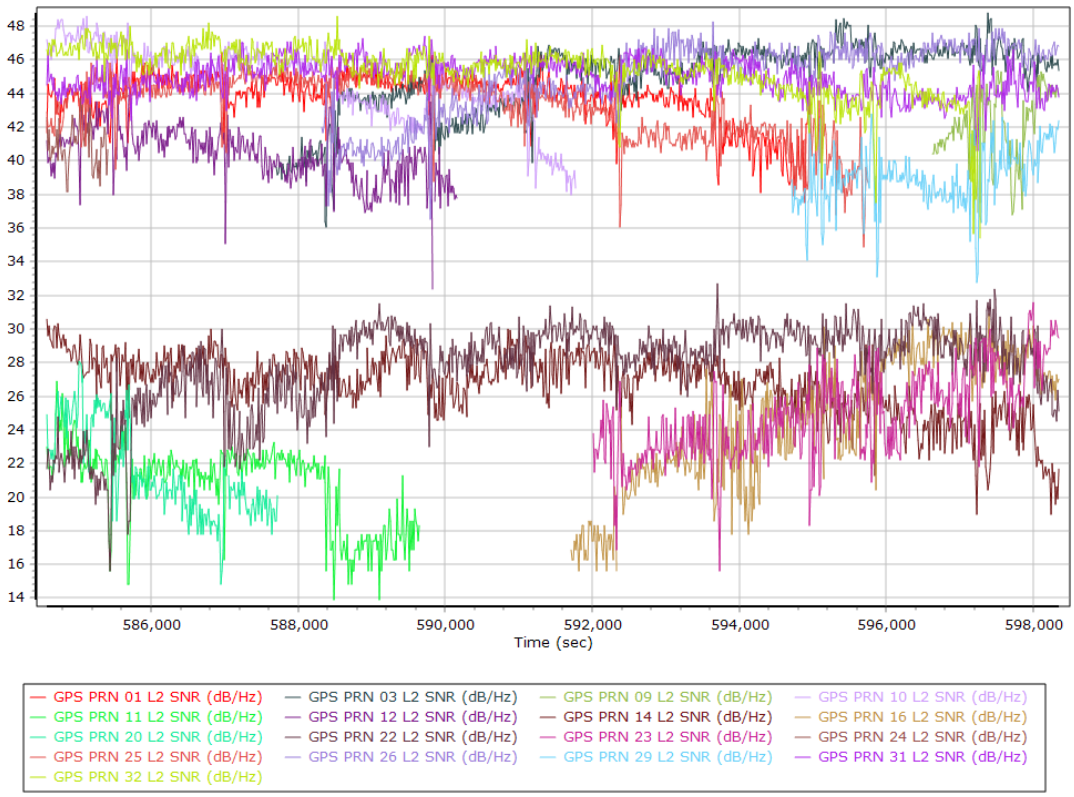
L2 Satellite Lock/Elevation



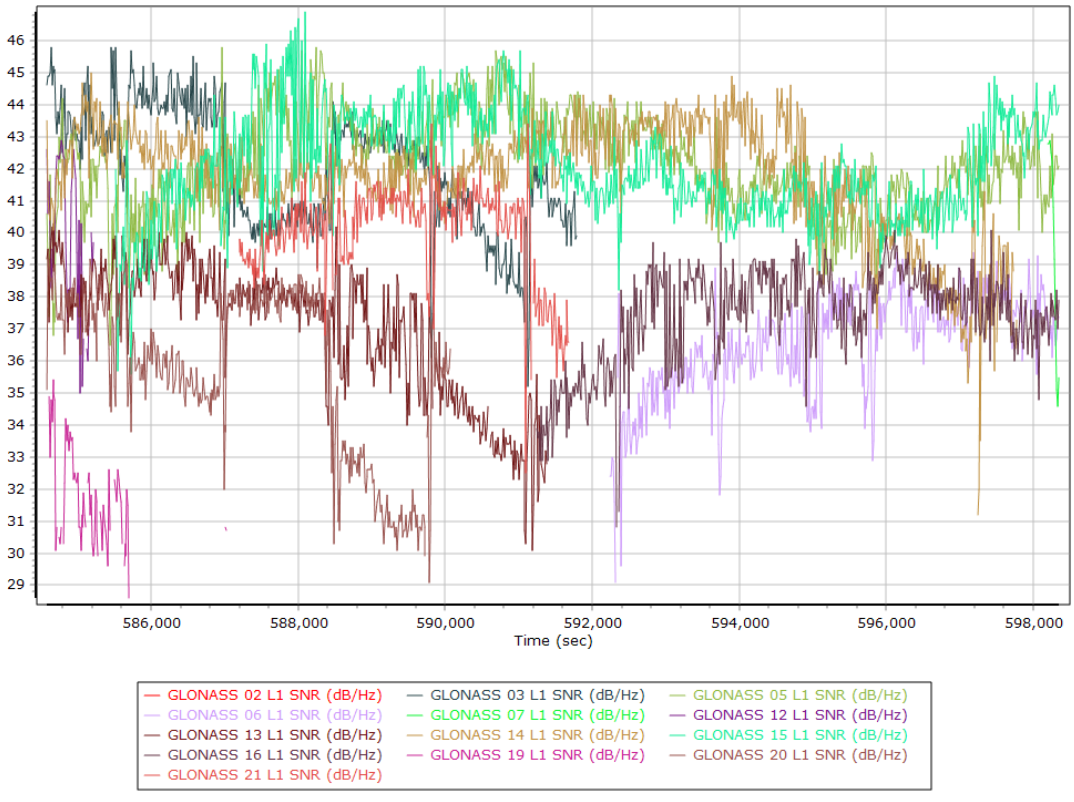
GPS L1 SNR



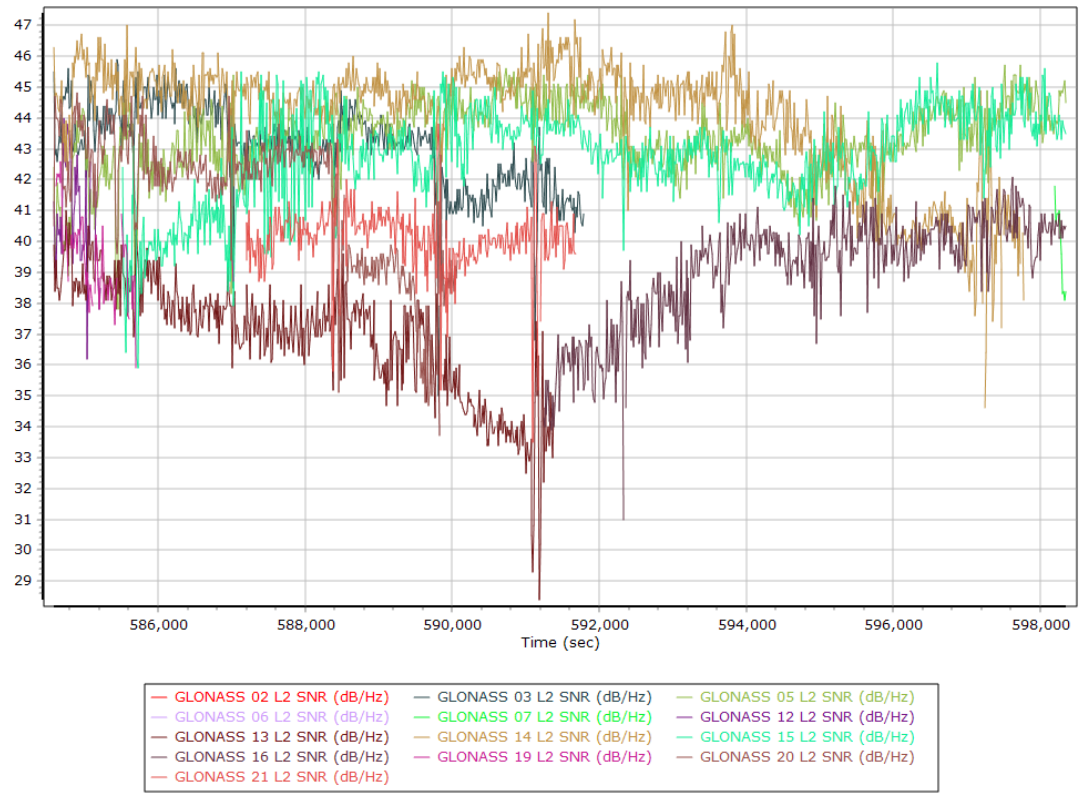
GPS L2 SNR



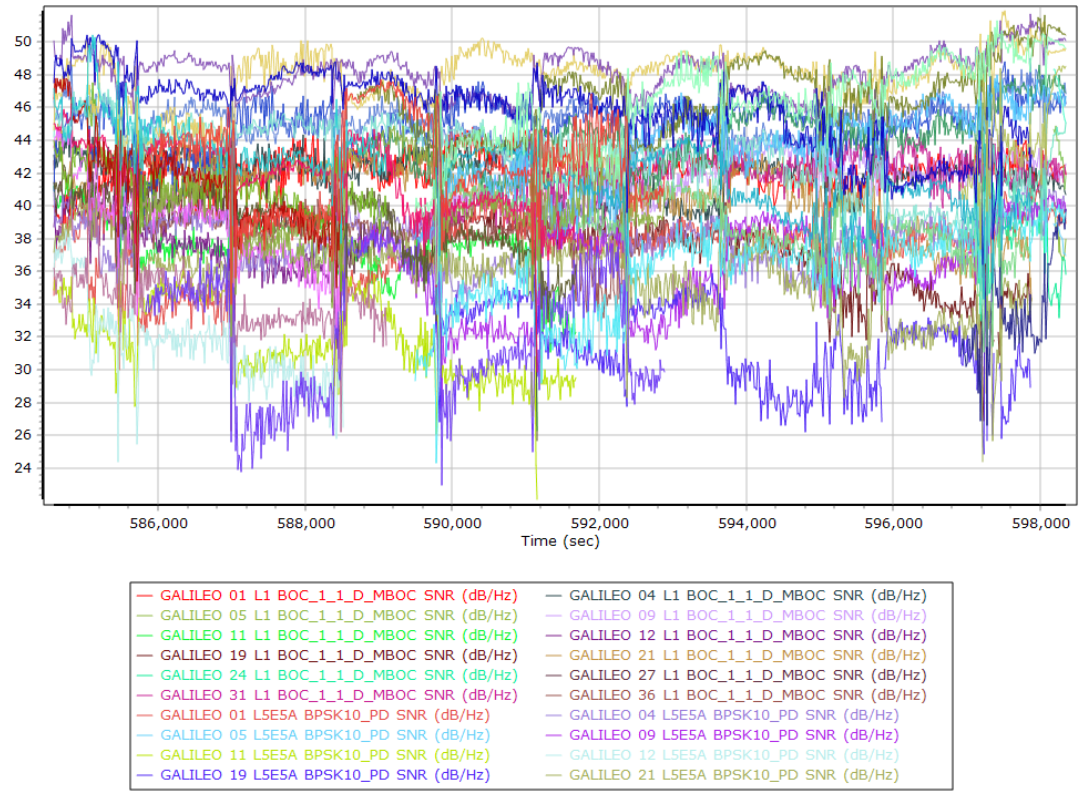
GLONASS L1 SNR



GLONASS L2 SNR

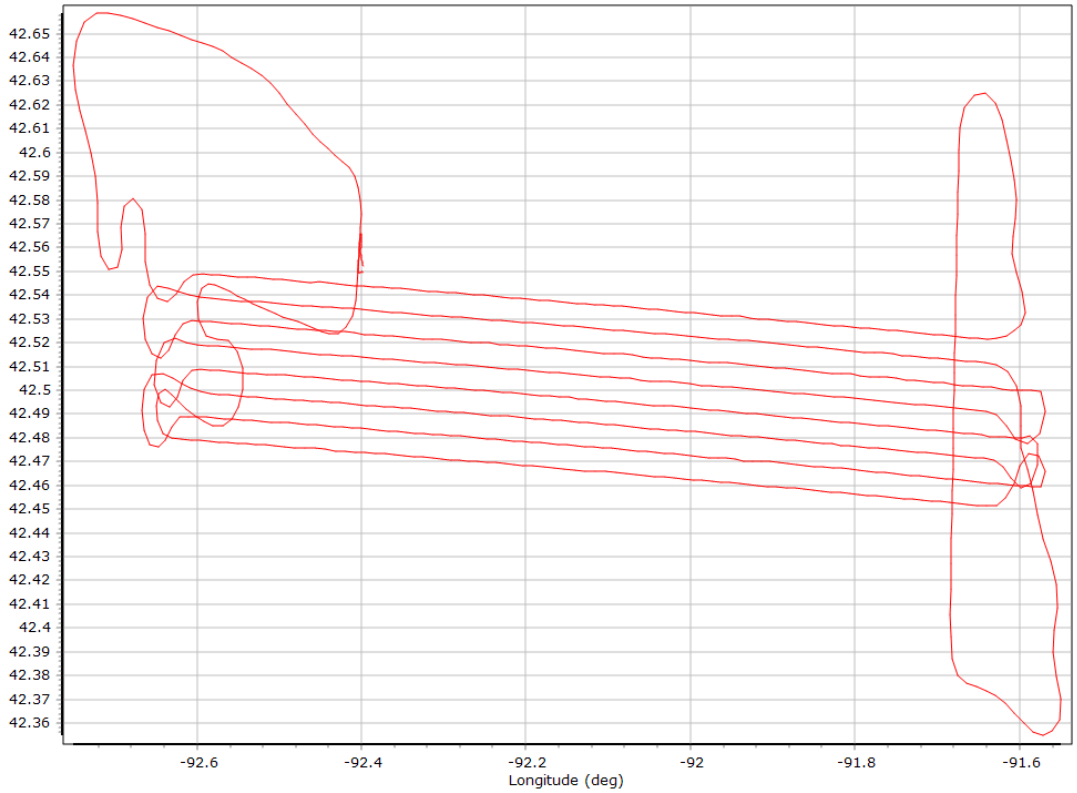


GALILEO SNR

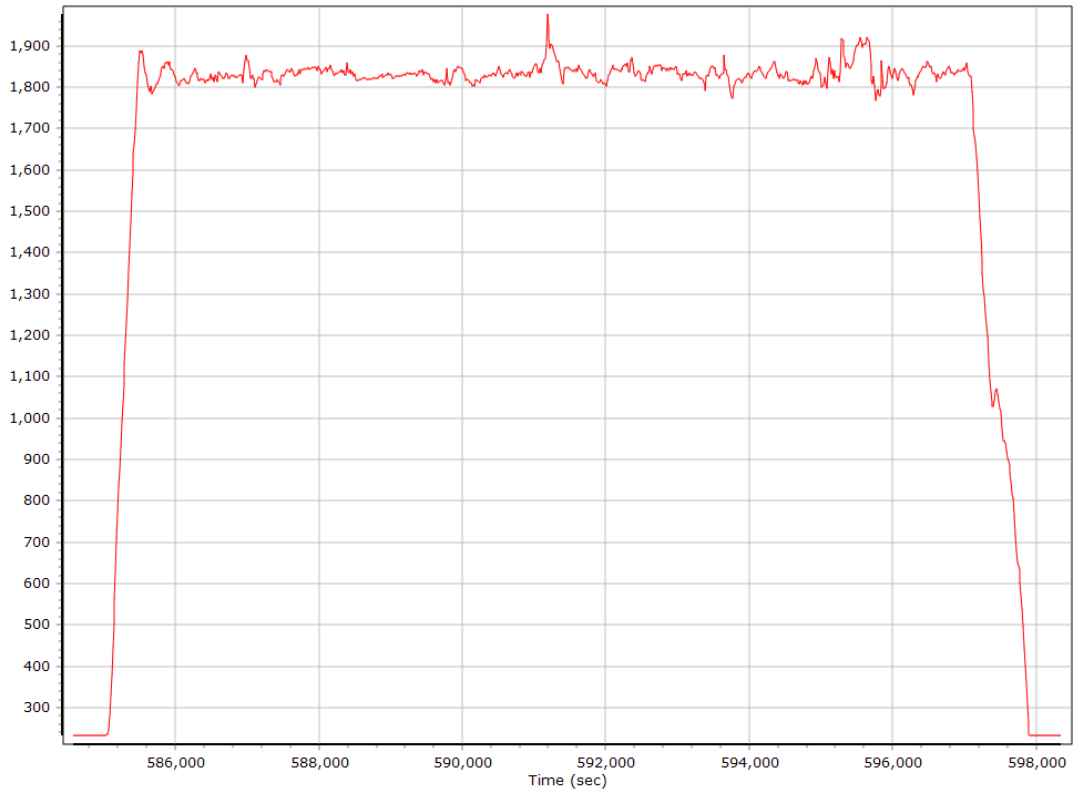


Smoothed Trajectory Information

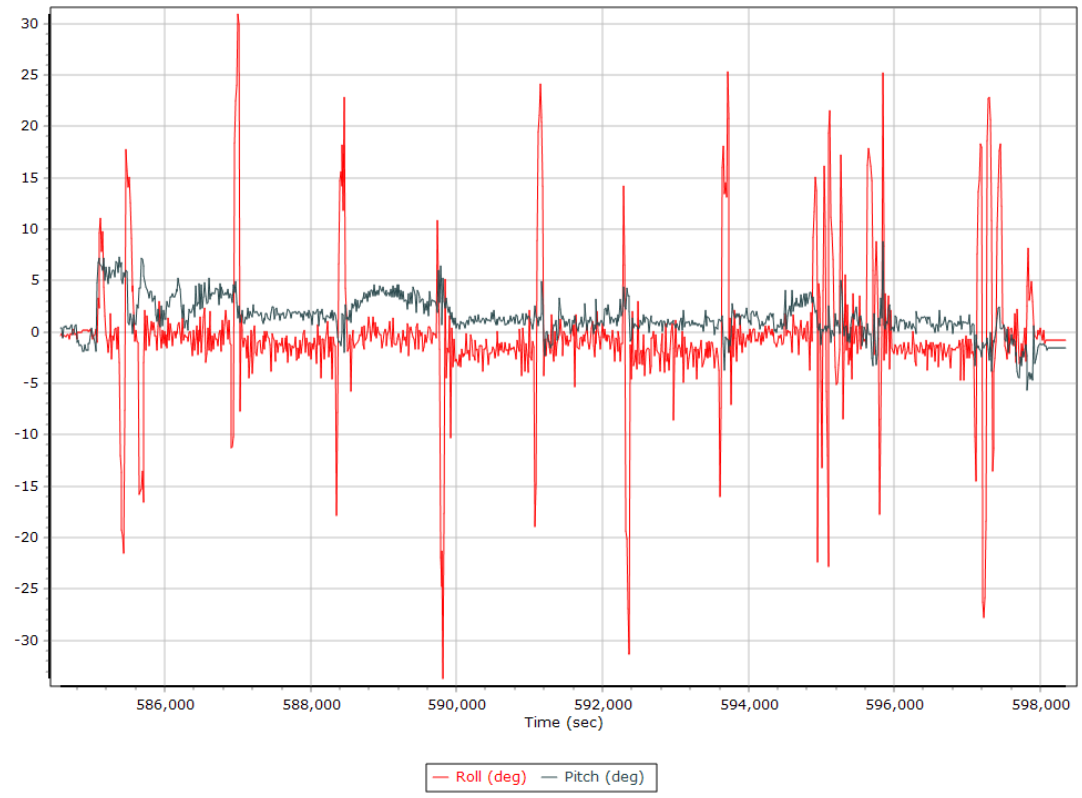
Top View



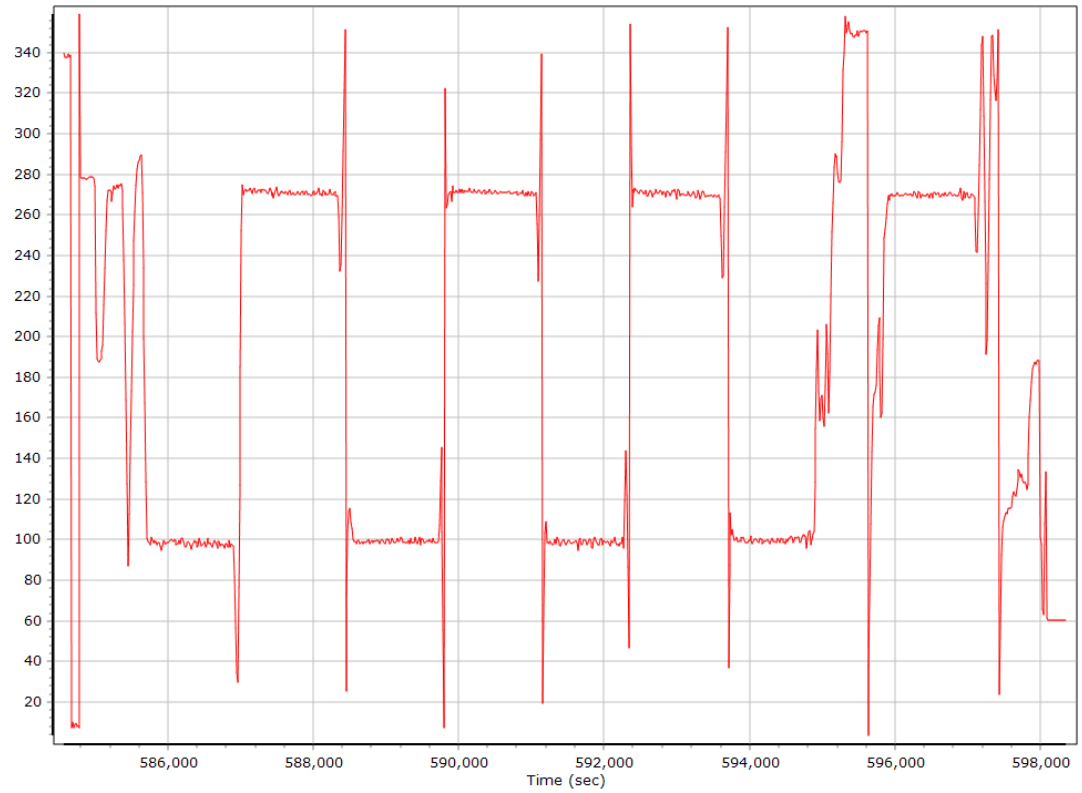
Altitude



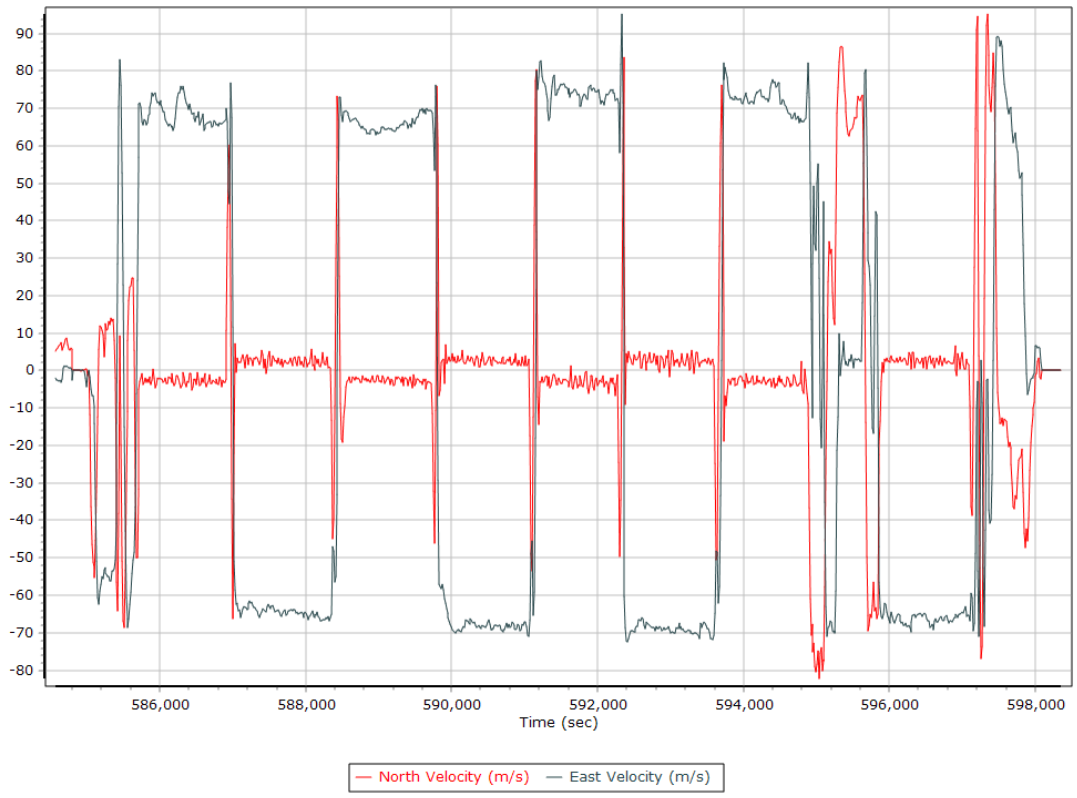
Roll/Pitch



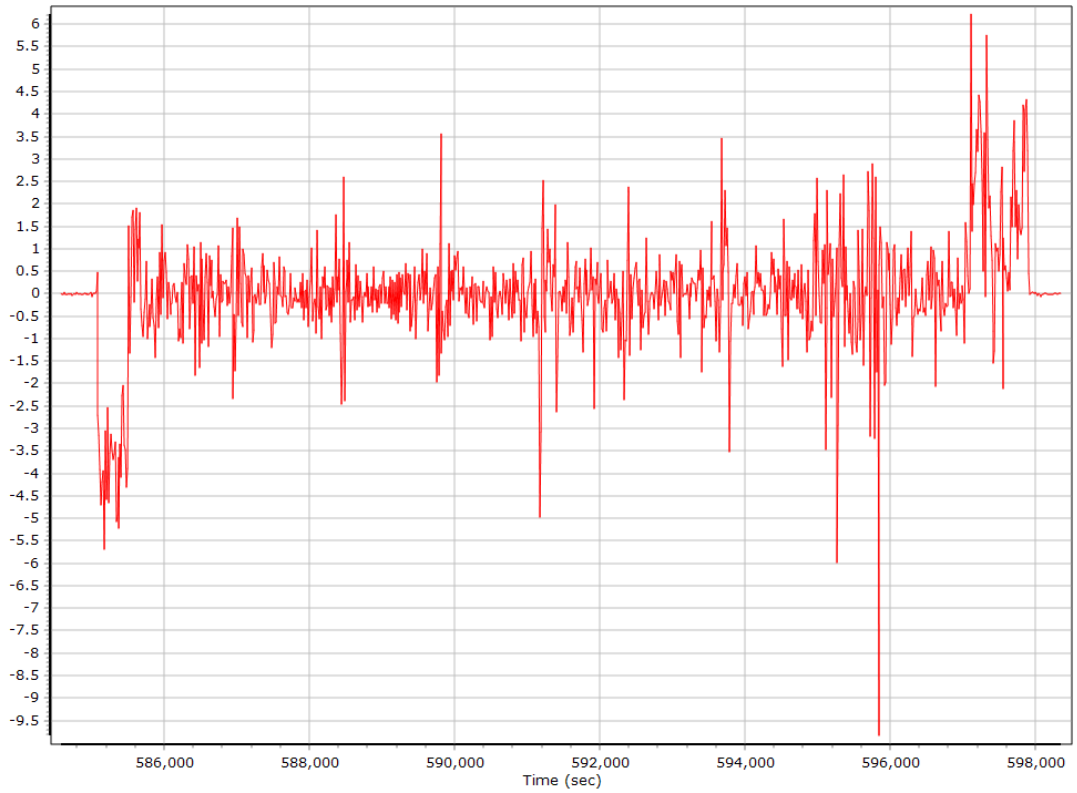
Heading



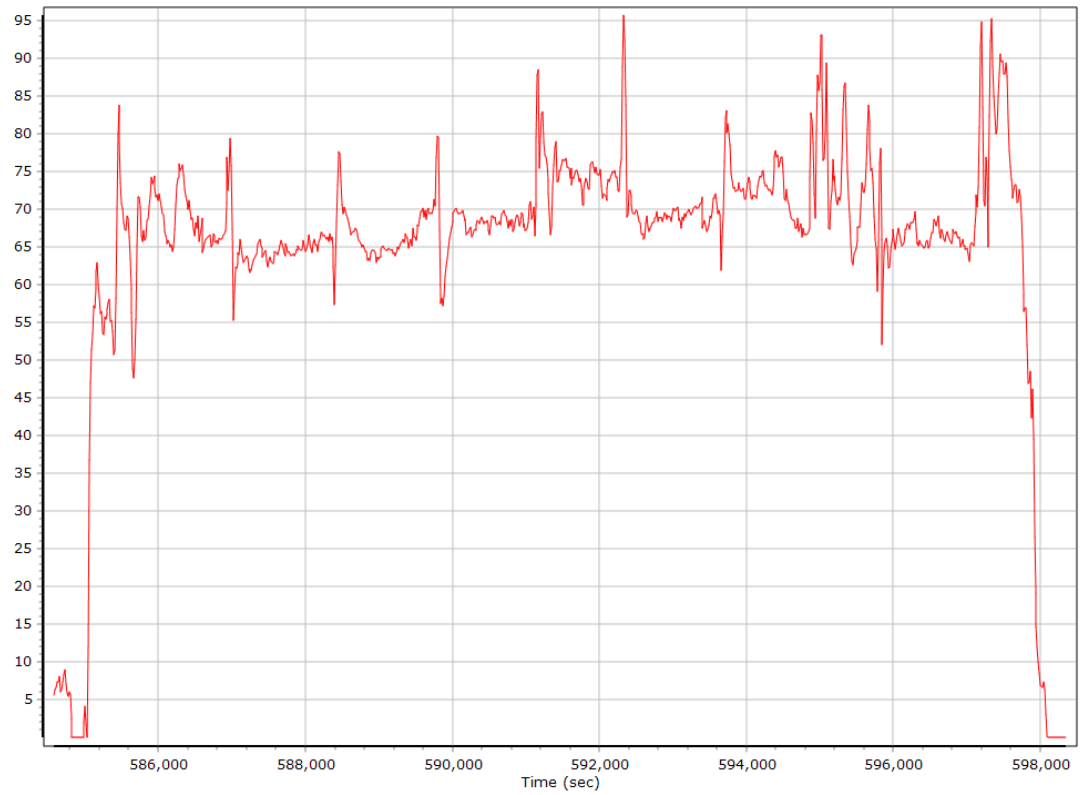
North/East Velocity



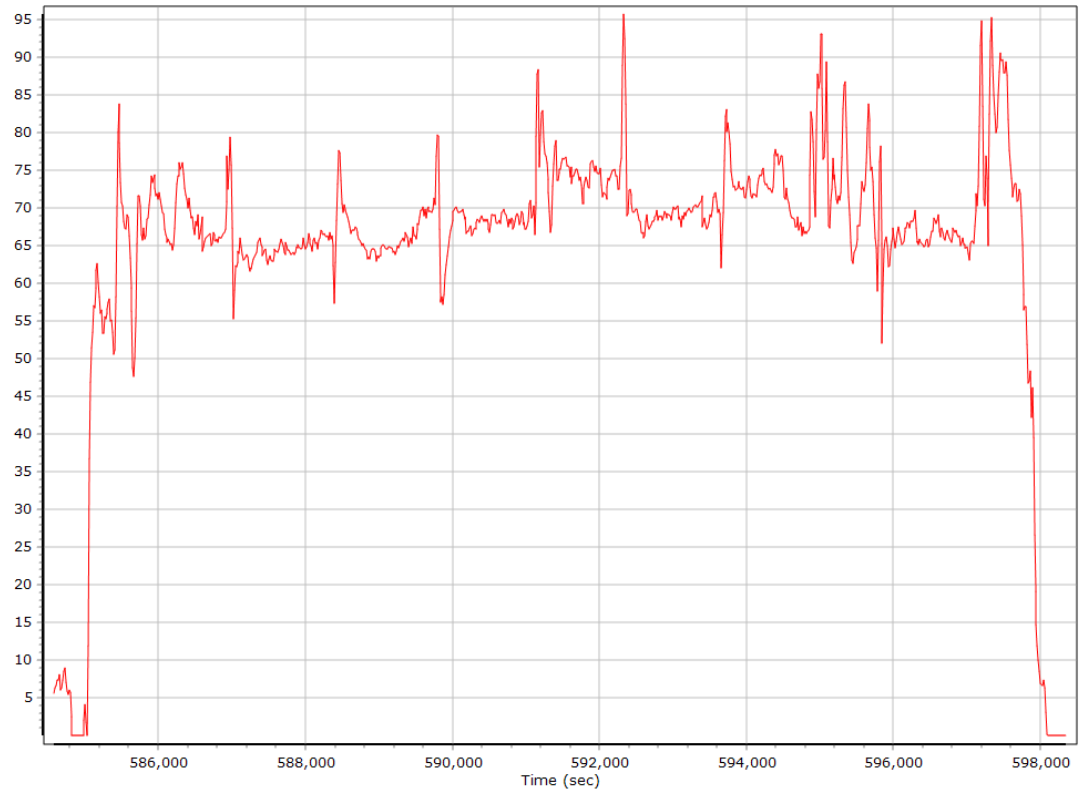
Down Velocity



Total Speed

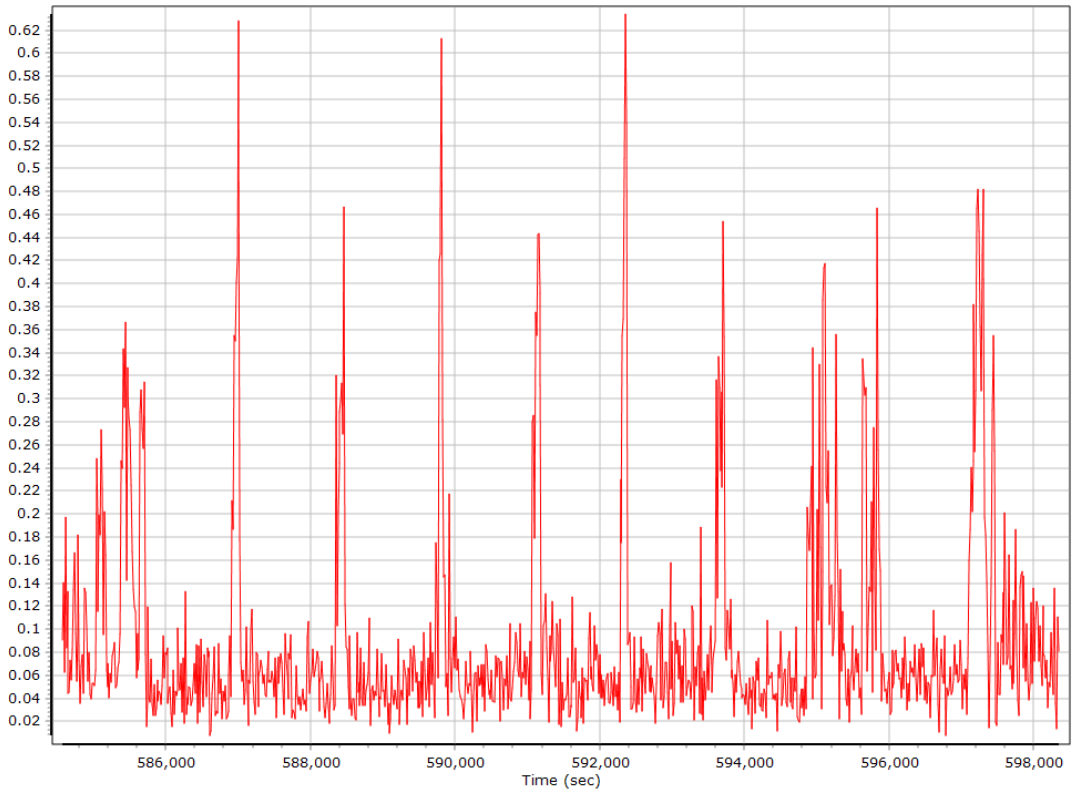


Ground Speed



Body Acceleration

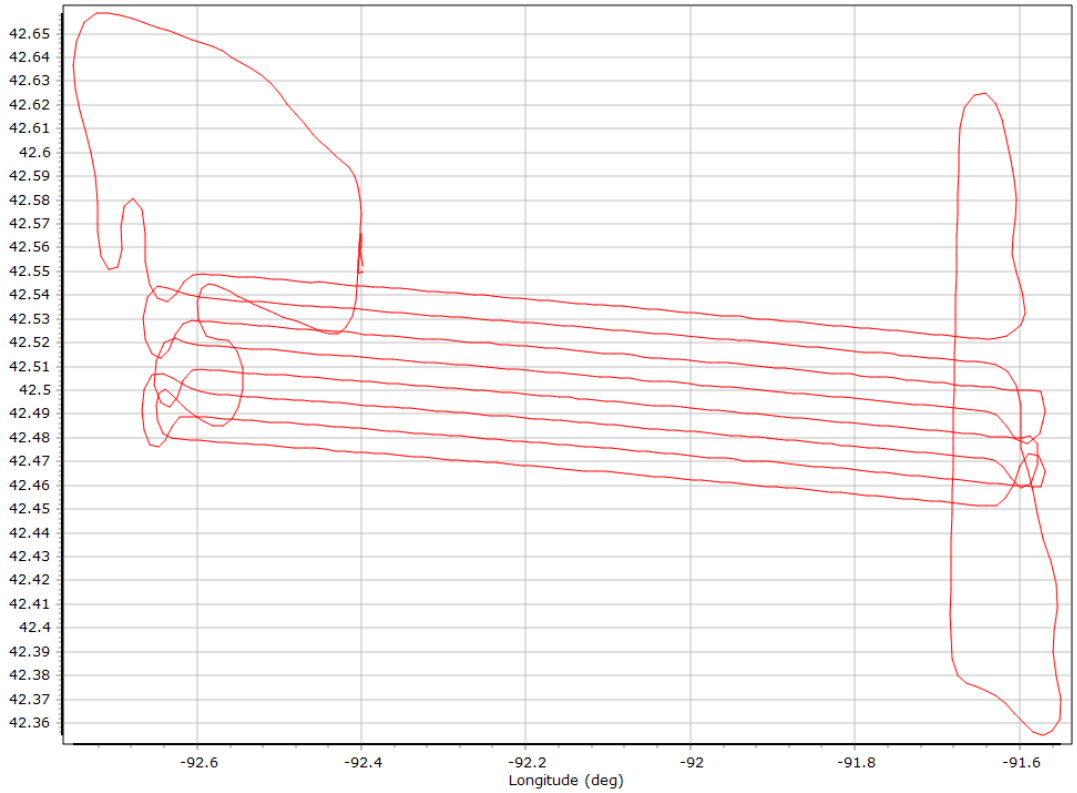
Total Body Acceleration



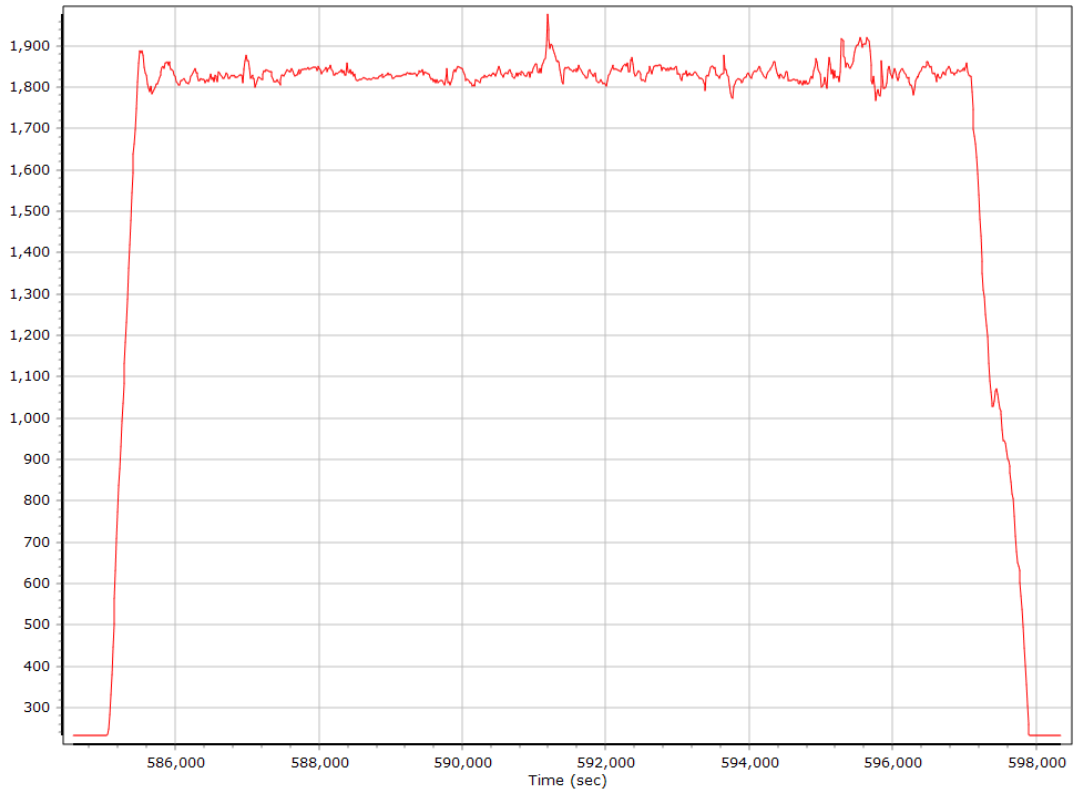
Body Angular Rate

Forward Processed Trajectory Information

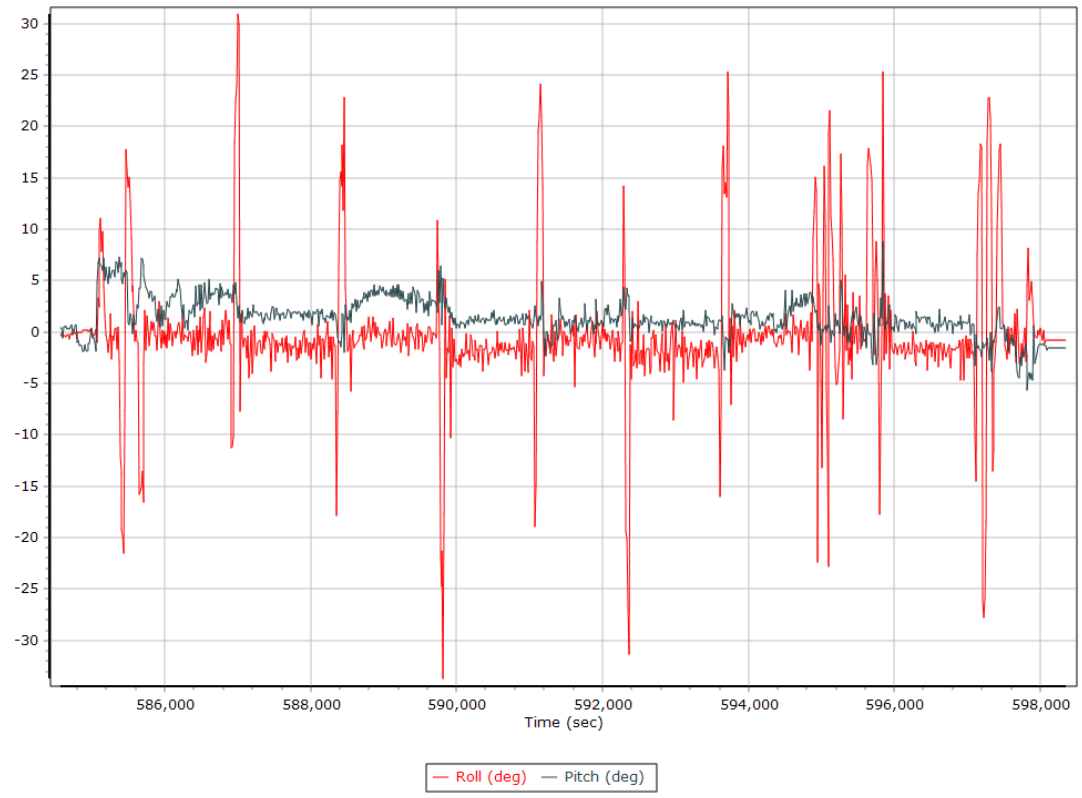
Top View



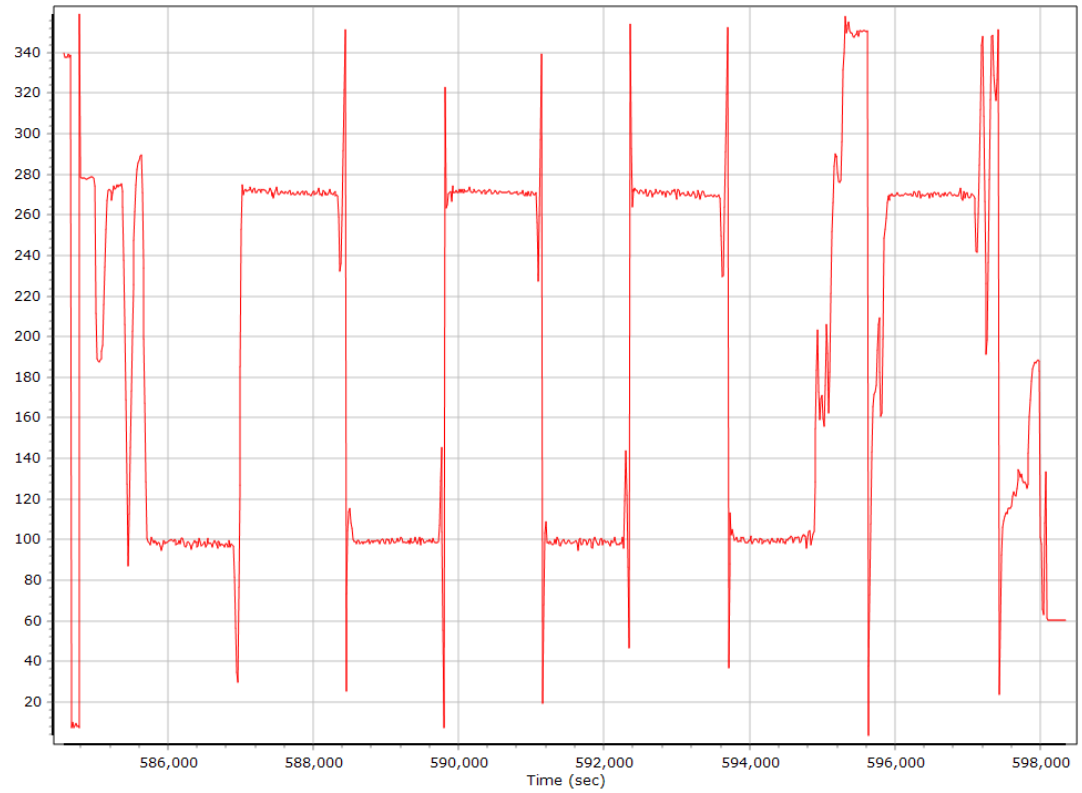
Altitude



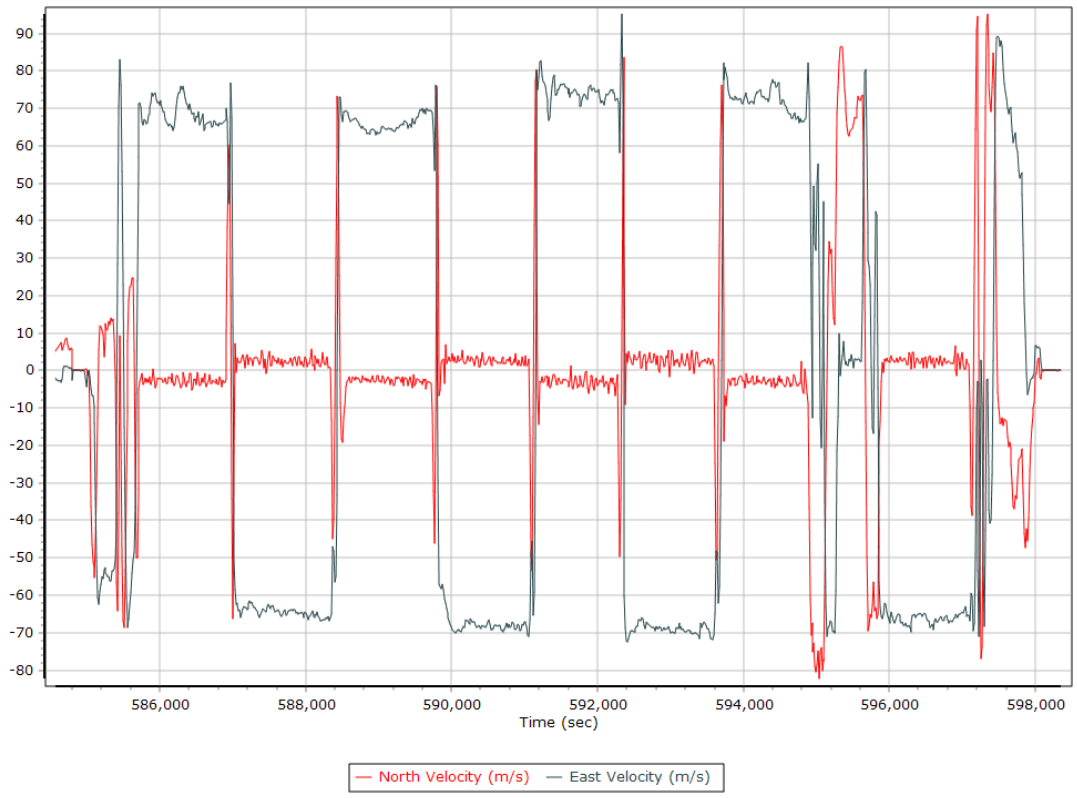
Roll/Pitch



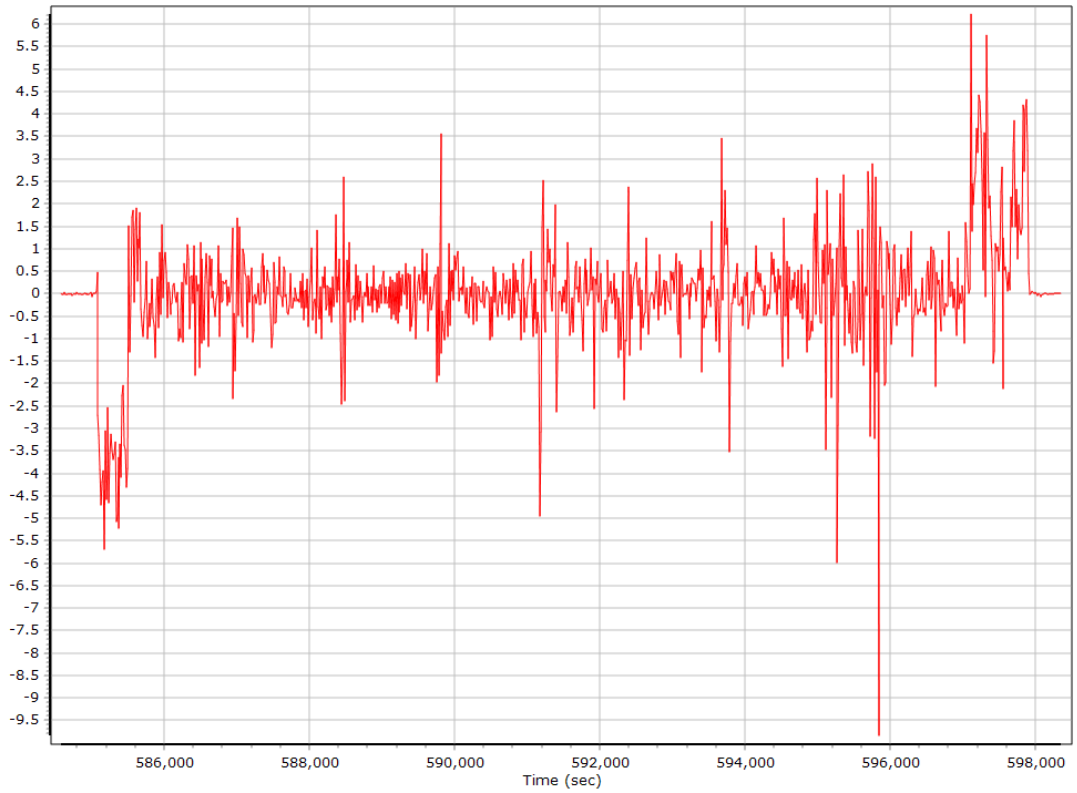
Heading



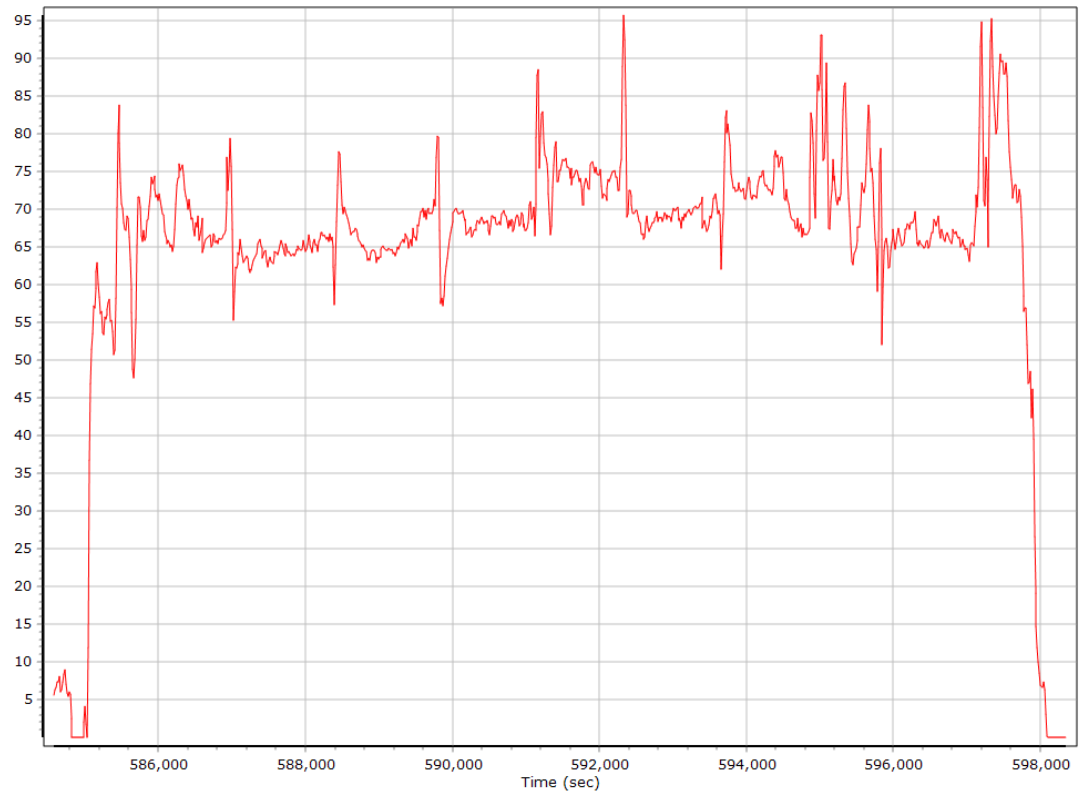
North/East Velocity



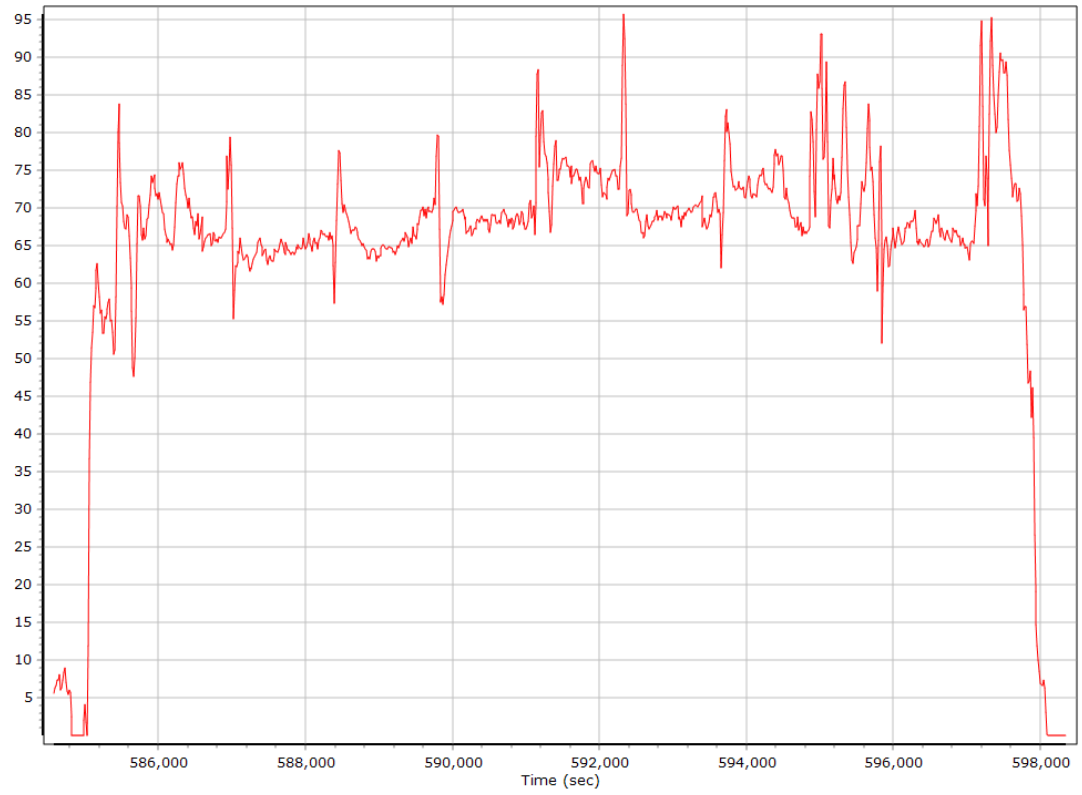
Down Velocity



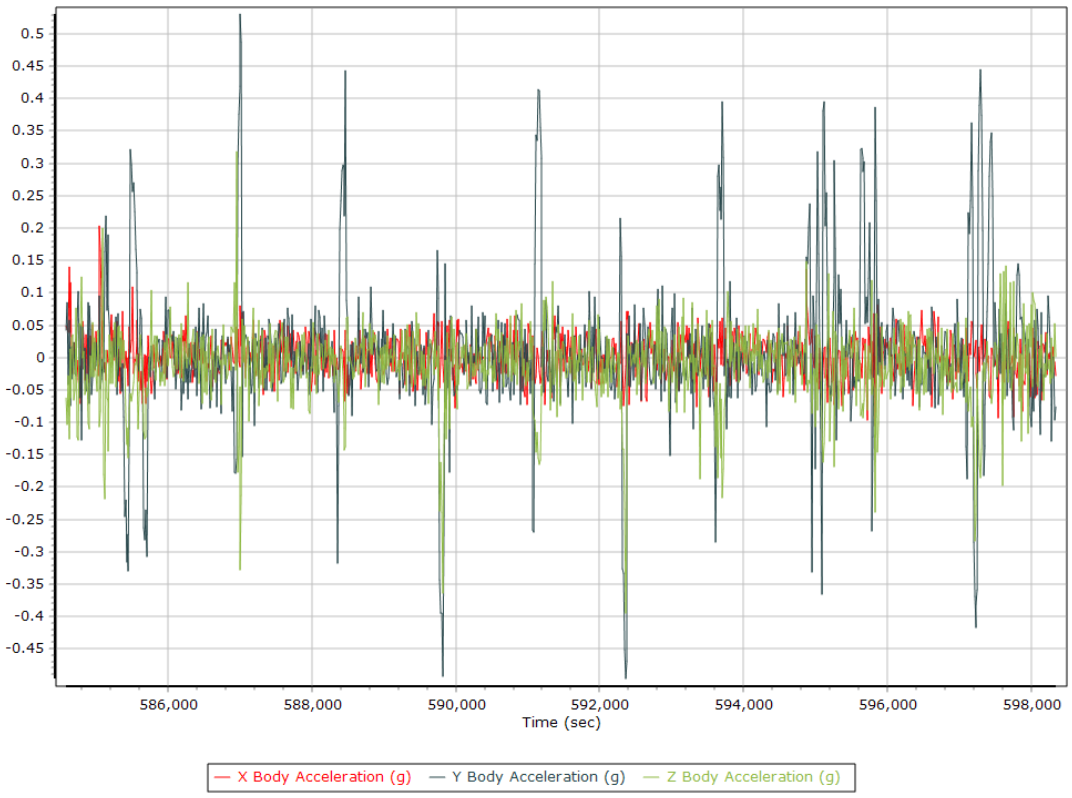
Total Speed



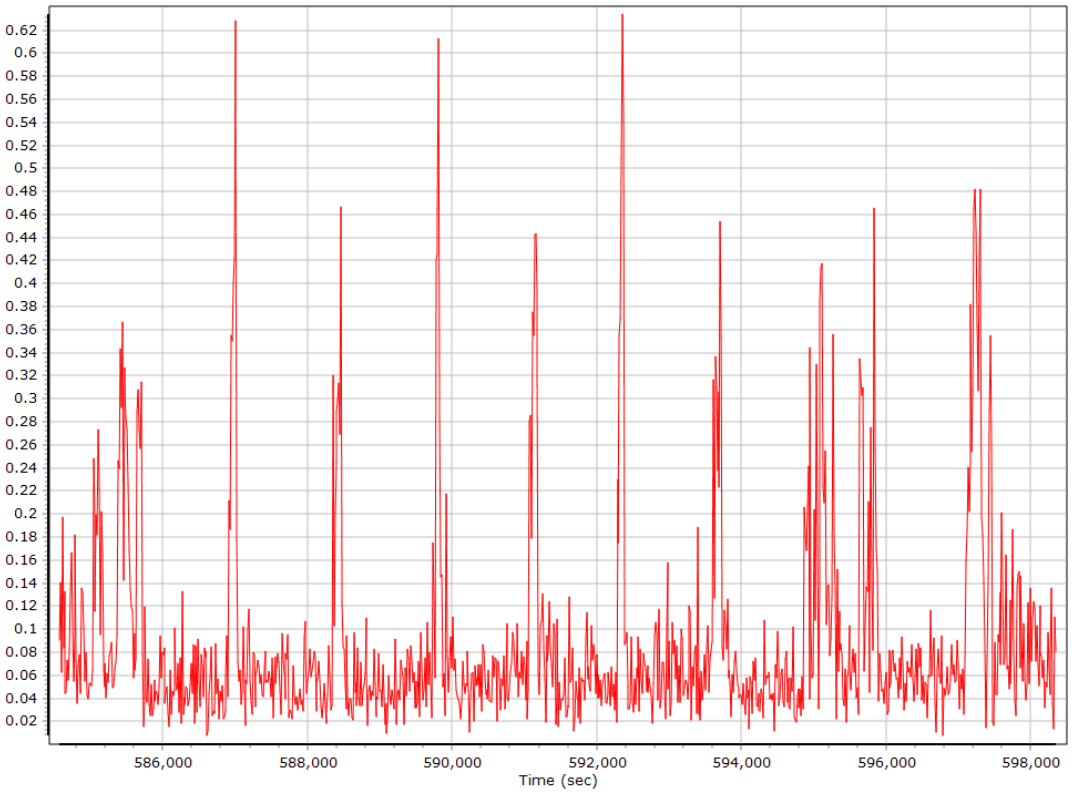
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
12/07/2019	IAAL	57.87	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	IATA	68.57	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	IAMN	73.39	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	IAEL	77.03	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	IADE	88.60	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	NLIB	95.28	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IAAL
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	14357 s (2082 584017 - 2082 598374)
Number of reference stations	6
Primary station GPS measurement usage (%)	99.4
Primary station GLONASS measurement usage (%)	76.0
Average number of satellites per epoch	13.4
Max number of GPS stations used	6
Min number of GPS stations used	3
Max number of GLONASS stations used	6
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	19641
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

SmartBase Quality Check

Base Station - NLIB

Status	OK	**SBQI**	8	
Duration (Hours)	23.77	**Output Coordinates**	Original	
Solution Epochs	2852	**Mean Epoch SVs**	6.5	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°46'17.72574"	W91°34'29.63308"	206.993
Adjusted		N41°46'17.72620"	W91°34'29.63272"	206.952
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.016	0.041	0.044

Base Station Information

Station ID	NLIB		
Filename	nlib3410.19o		
Start date	12/7/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Unknown	Unknown	3013995
Antenna manufacturer, model	Javad GNSS	JAV RINGANT-DM w/SCIS	
Antenna height [m]	0.613		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1067		
Latitude	N41°46'17.72574"		
Longitude	W91°34'29.63308"		
Ellipsoidal height (m)	206.99286		
Frame	ITRF00		
Epoch	2019.931507		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IADE

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N43°16'15.83212"	W91°49'53.52608"	316.516
Adjusted		N43°16'15.83230"	W91°49'53.52603"	316.490
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.026	0.027

Base Station Information

Station ID	IADE		
Filename	iade3410.19o		
Start date	12/7/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83212"		
Longitude	W91°49'53.52608"		
Ellipsoidal height (m)	316.51644		
Frame	ITRF00		
Epoch	2019.931507		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAEL

Status	OK	**SBQI**	9	
Duration (Hours)	23.77	**Output Coordinates**	Original	
Solution Epochs	2852	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°52'40.47667"	W91°21'41.52962"	298.981
Adjusted		N42°52'40.47678"	W91°21'41.52942"	298.961
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.006	0.019	0.020

Base Station Information

Station ID	IAEL		
Filename	iael3410.19o		
Start date	12/7/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47667"		
Longitude	W91°21'41.52962"		
Ellipsoidal height (m)	298.98058		
Frame	ITRF00		
Epoch	2019.931507		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAMN

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Adjusted	
Solution Epochs	2866	**Mean Epoch SVs**	8.3	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°01'49.10896"	W91°32'55.59726"	228.904
Adjusted		N42°01'49.10916"	W91°32'55.59715"	228.852
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAMN		
Filename	iamn3410.19o		
Start date	12/7/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10896"		
Longitude	W91°32'55.59726"		
Ellipsoidal height (m)	228.90443		
Frame	ITRF00		
Epoch	2019.931507		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IATA

Status	OK	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Original	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N41°58'01.67192"	W92°33'05.07478"	247.335
Adjusted		N41°58'01.67199"	W92°33'05.07484"	247.320
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.003	0.014	0.015

Base Station Information

Station ID	IATA		
Filename	iata3410.19o		
Start date	12/7/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67192"		
Longitude	W92°33'05.07478"		
Ellipsoidal height (m)	247.33464		
Frame	ITRF00		
Epoch	2019.931507		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - IAAL

Status	CONTROL	**SBQI**	9	
Duration (Hours)	23.88	**Output Coordinates**	Control	
Solution Epochs	2866	**Mean Epoch SVs**	8.4	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N42°44'49.40421"	W92°47'14.24700"	291.093
Adjusted		N42°44'49.40421"	W92°47'14.24700"	291.093
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	IAAL		
Filename	iaal3410.19o		
Start date	12/7/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40421"		
Longitude	W92°47'14.24700"		
Ellipsoidal height (m)	291.09259		
Frame	ITRF00		
Epoch	2019.931507		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.47	52.67	
Number of GPS SV	5	11	9
Number of GLONASS SV	0	6	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	7	17	13
PDOP	1.16	3.14	1.57
QC Solution Gaps	1.00	1.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	14332.00	0.00	1.00
Percentage	99.99	0.00	0.01

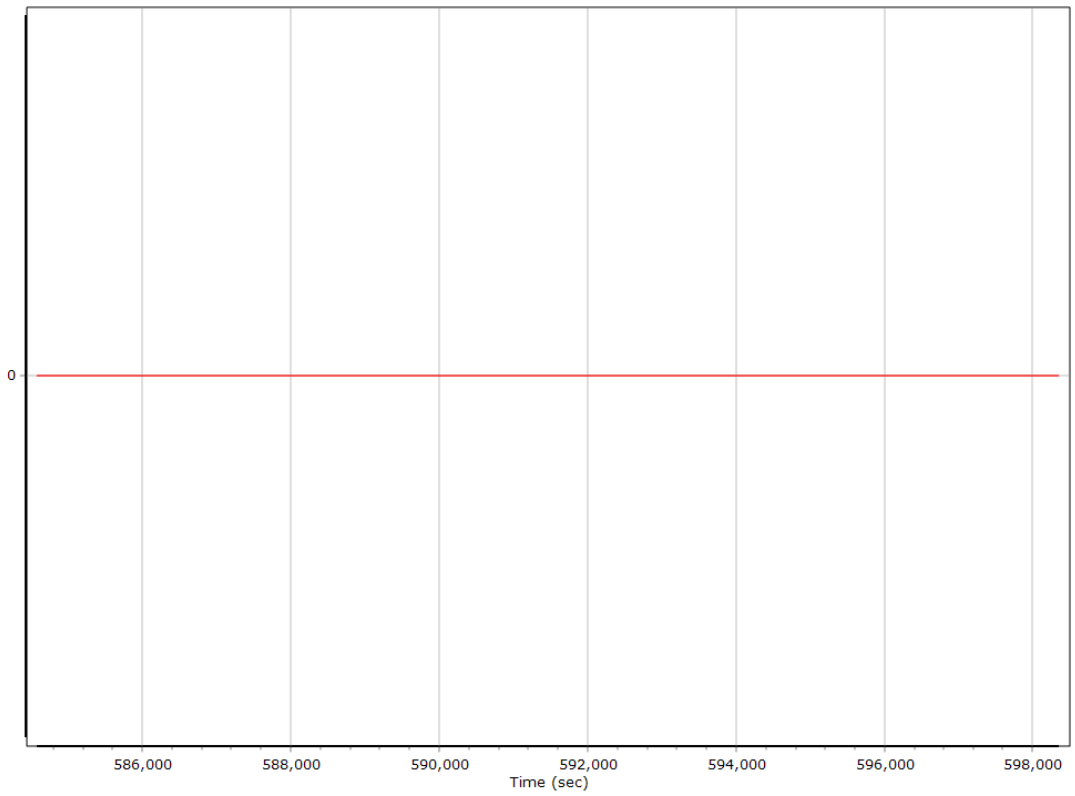
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	583999.000 (12/7/2019 6:13:19 PM)		
Processing end time	598356.000 (12/7/2019 10:12:36 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

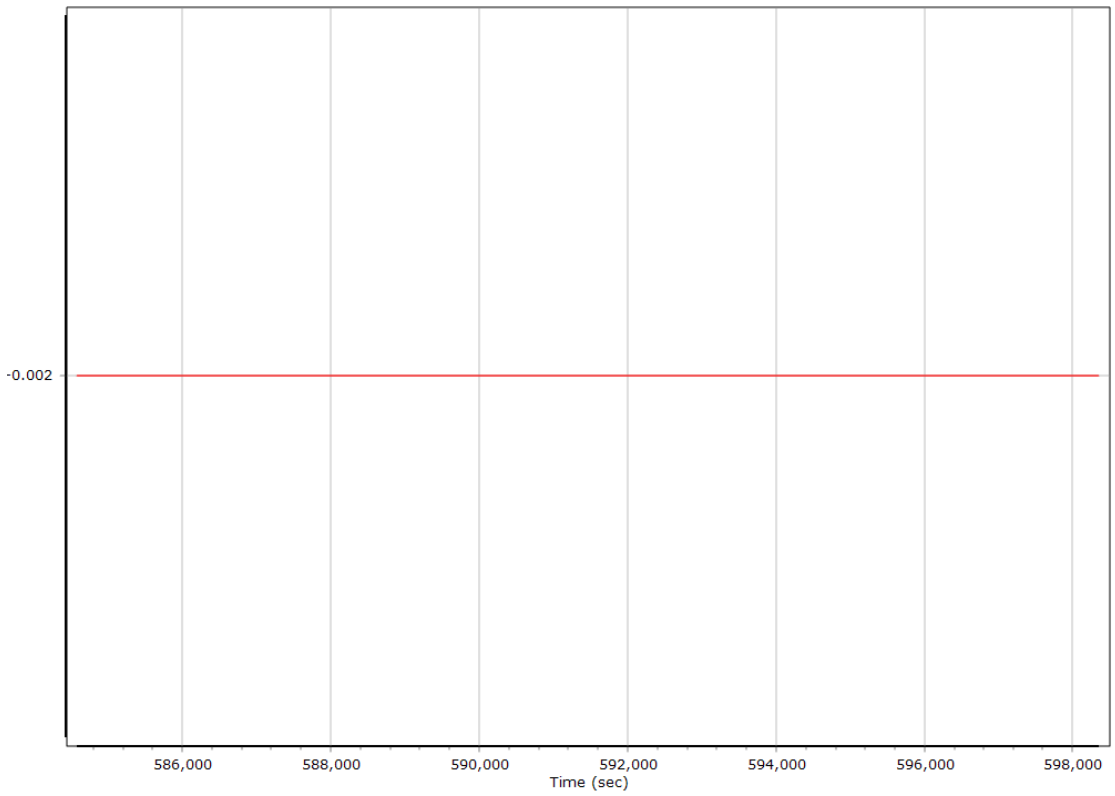
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

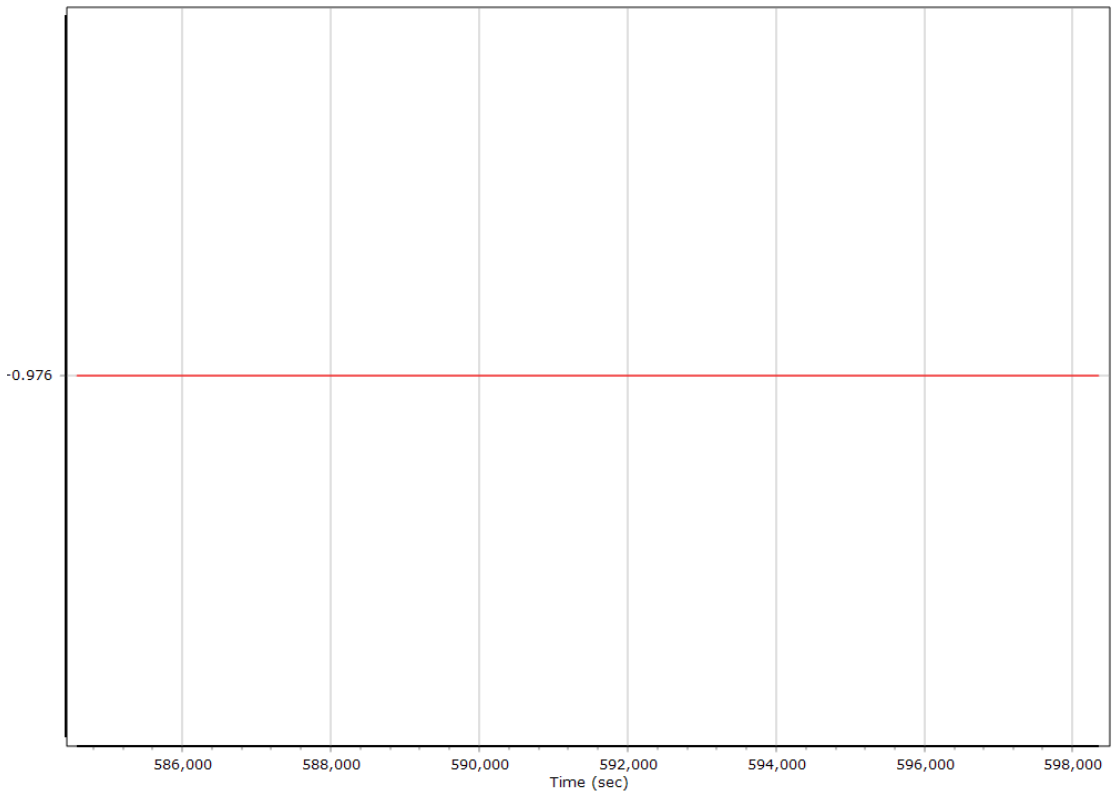
X Reference-Primary GNSS Lever Arm (m)



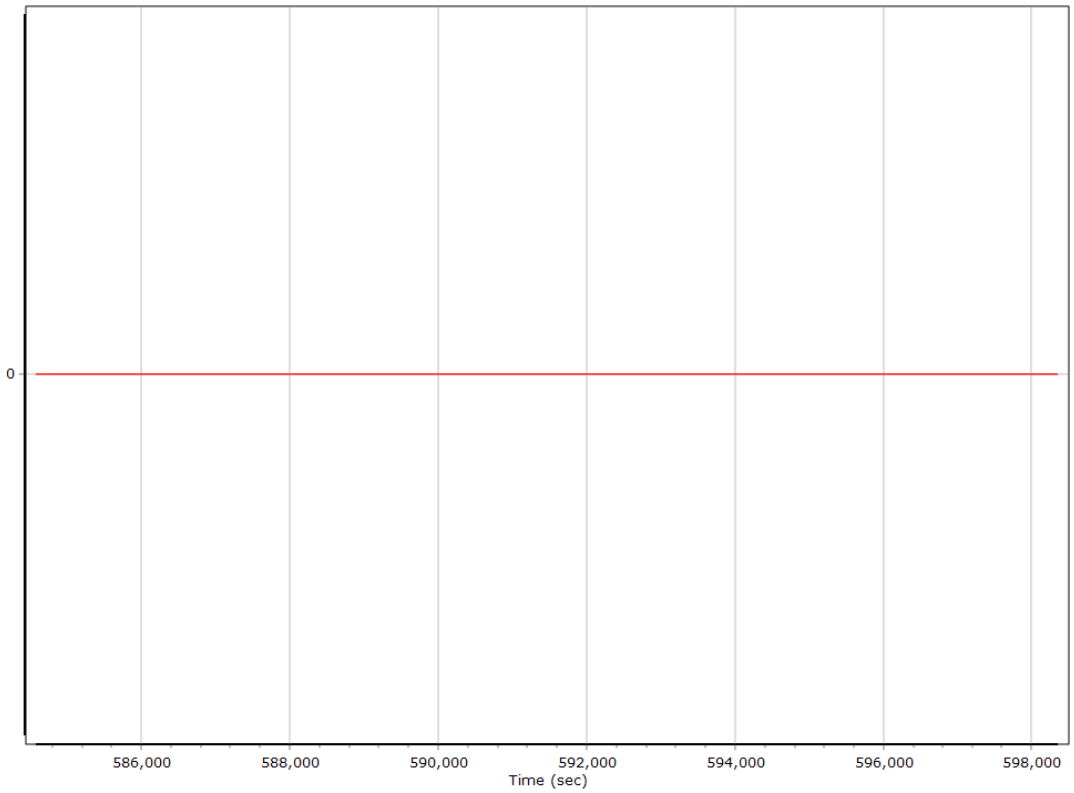
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



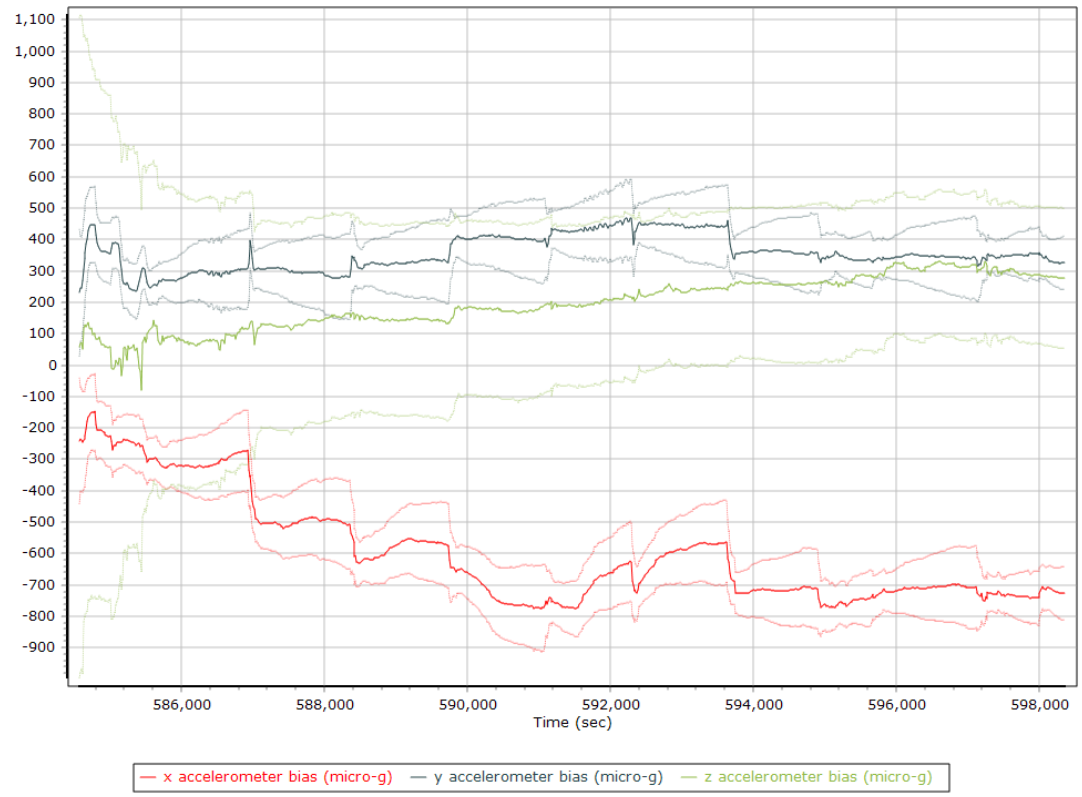
Reference-Primary GNSS Lever Arm Figure of Merit



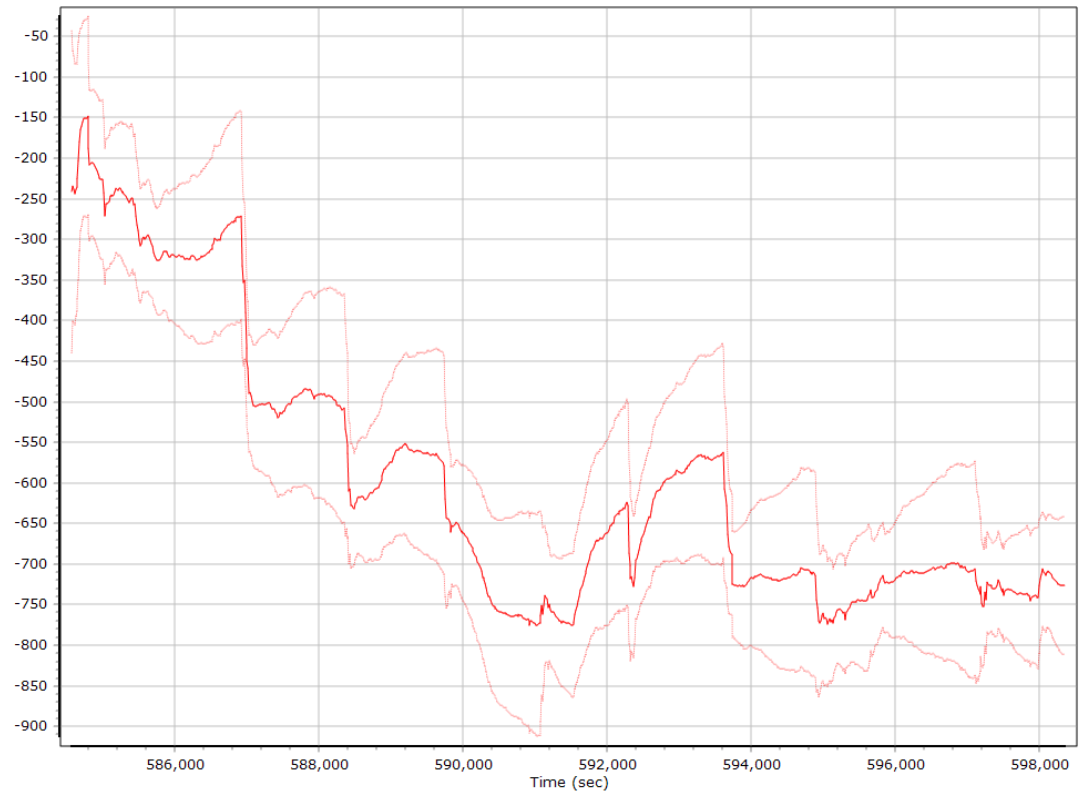
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

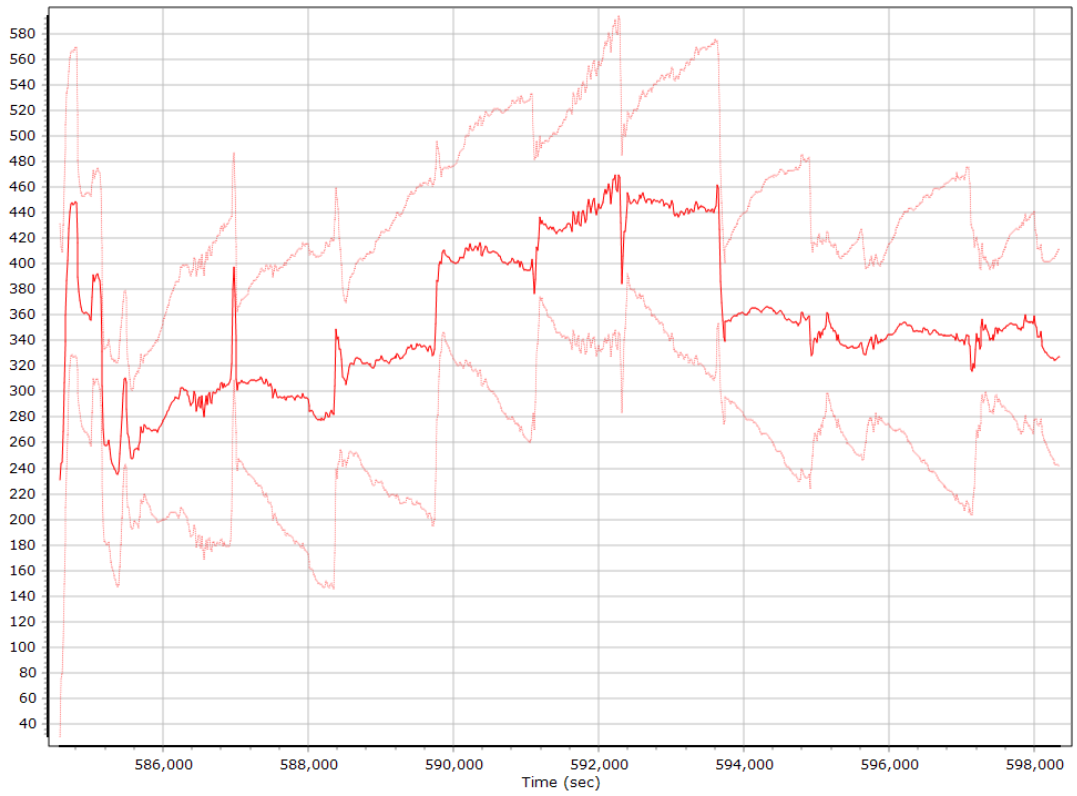
Accelerometer Bias (micro-g)



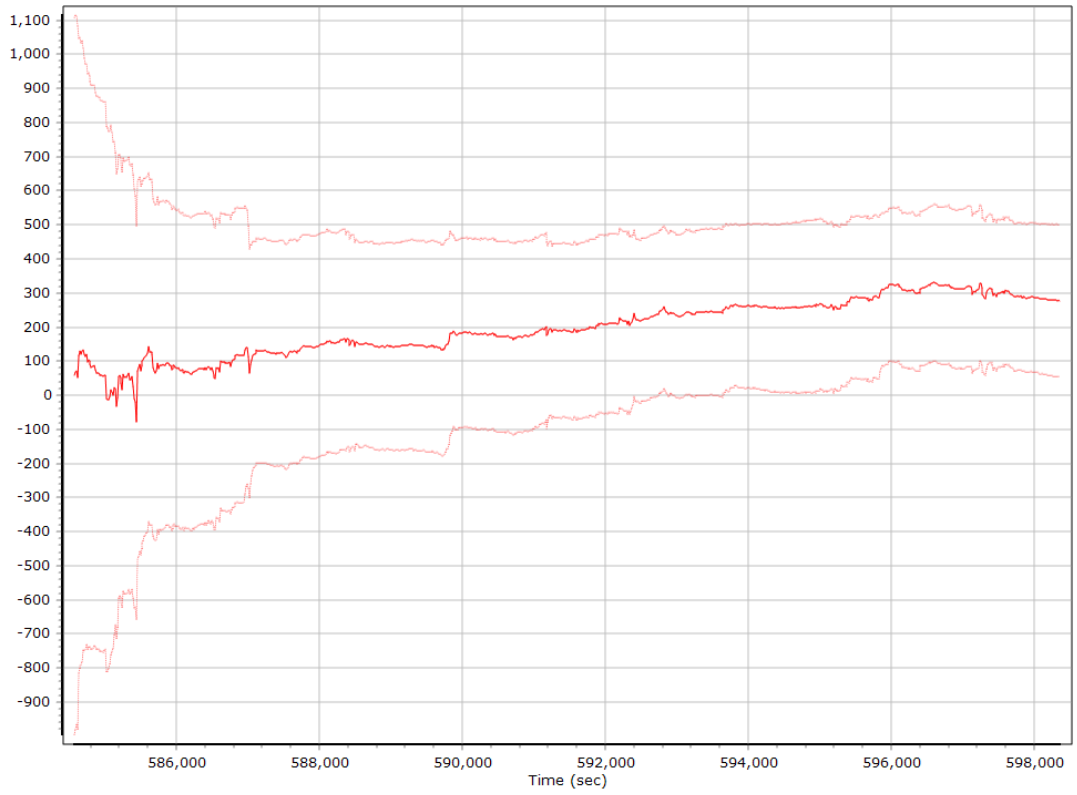
X Accelerometer Bias (micro-g)



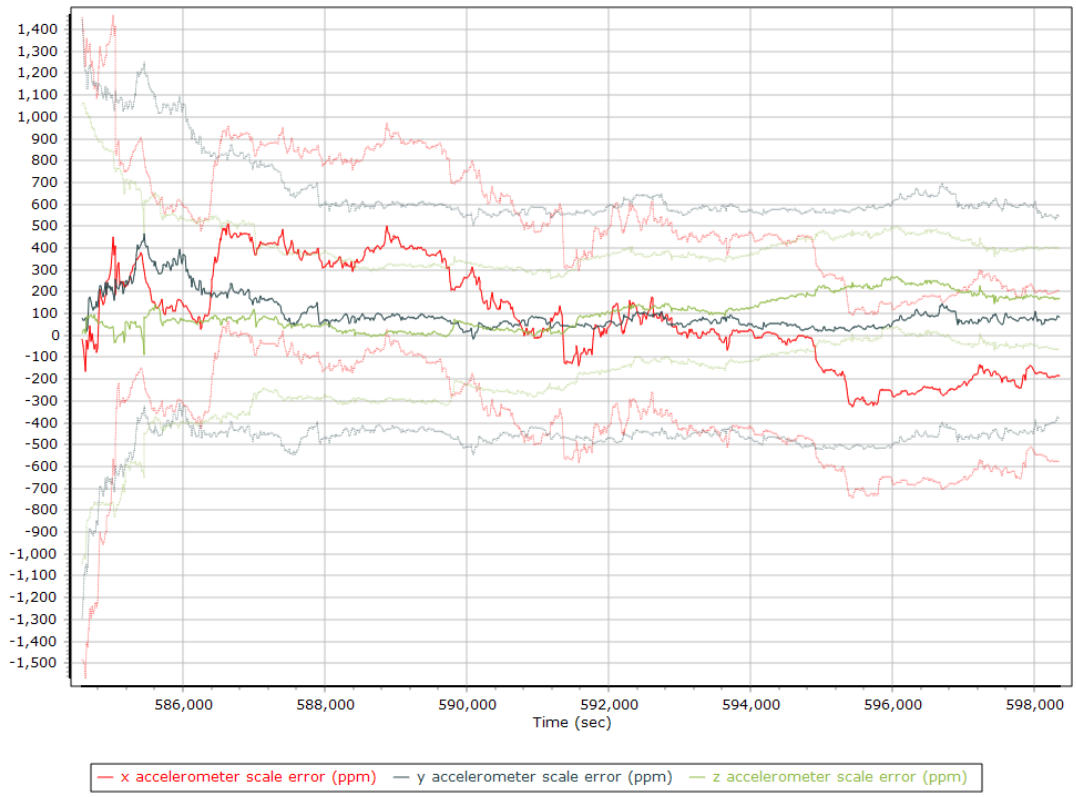
Y Accelerometer Bias (micro-g)



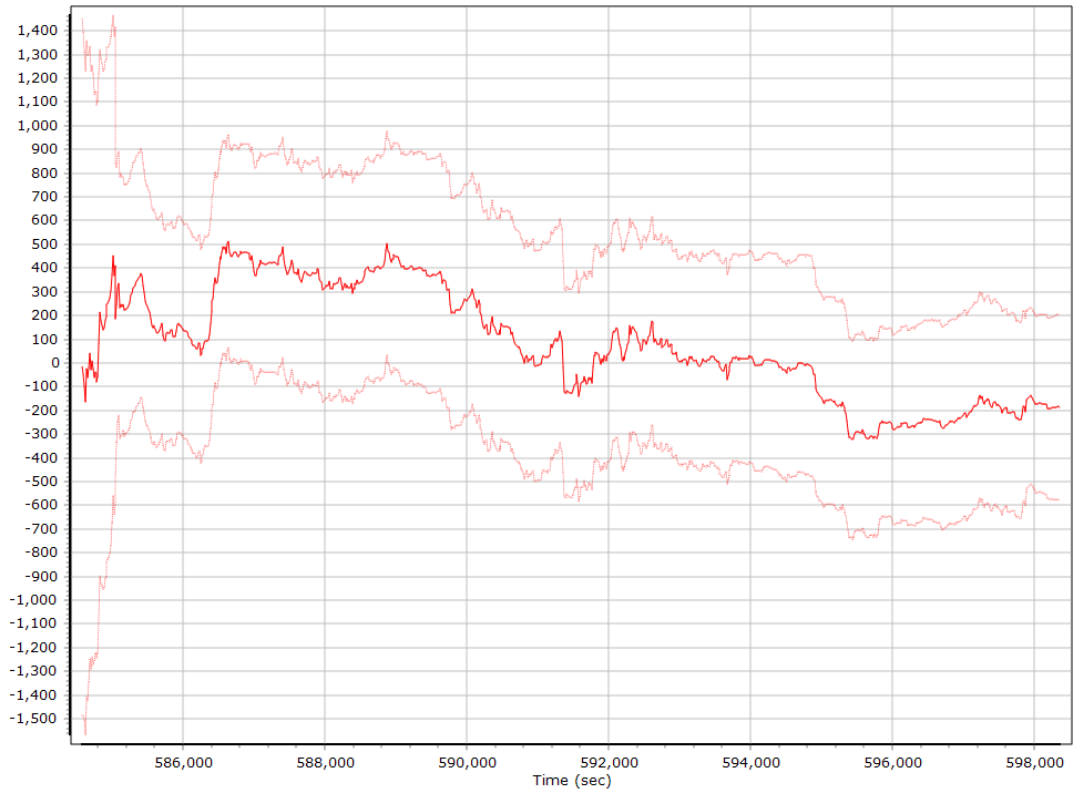
Z Accelerometer Bias (micro-g)



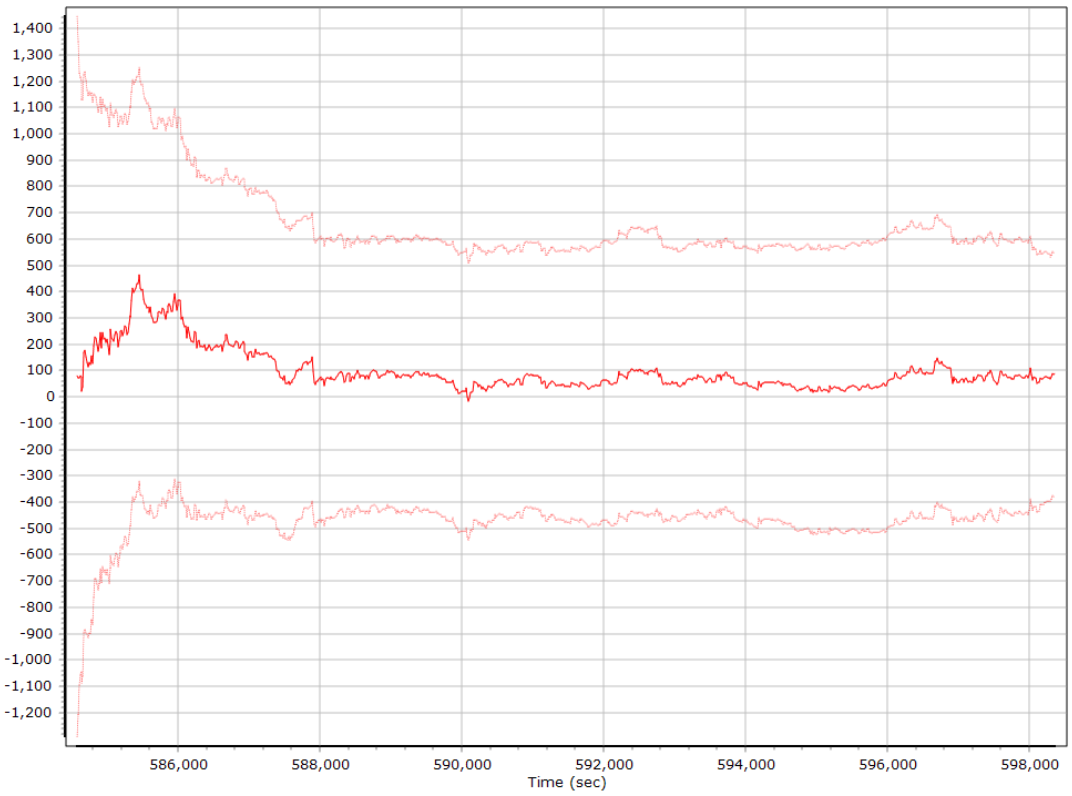
Accelerometer Scale Error (ppm)



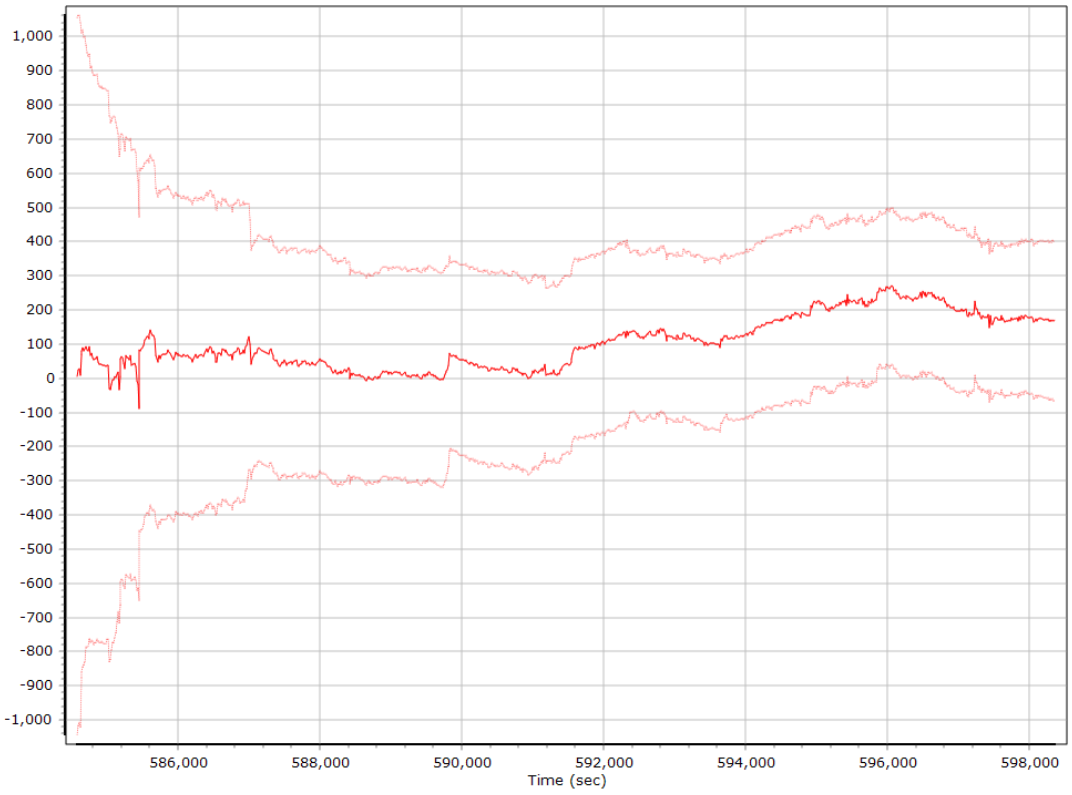
X Accelerometer Scale Error (ppm)



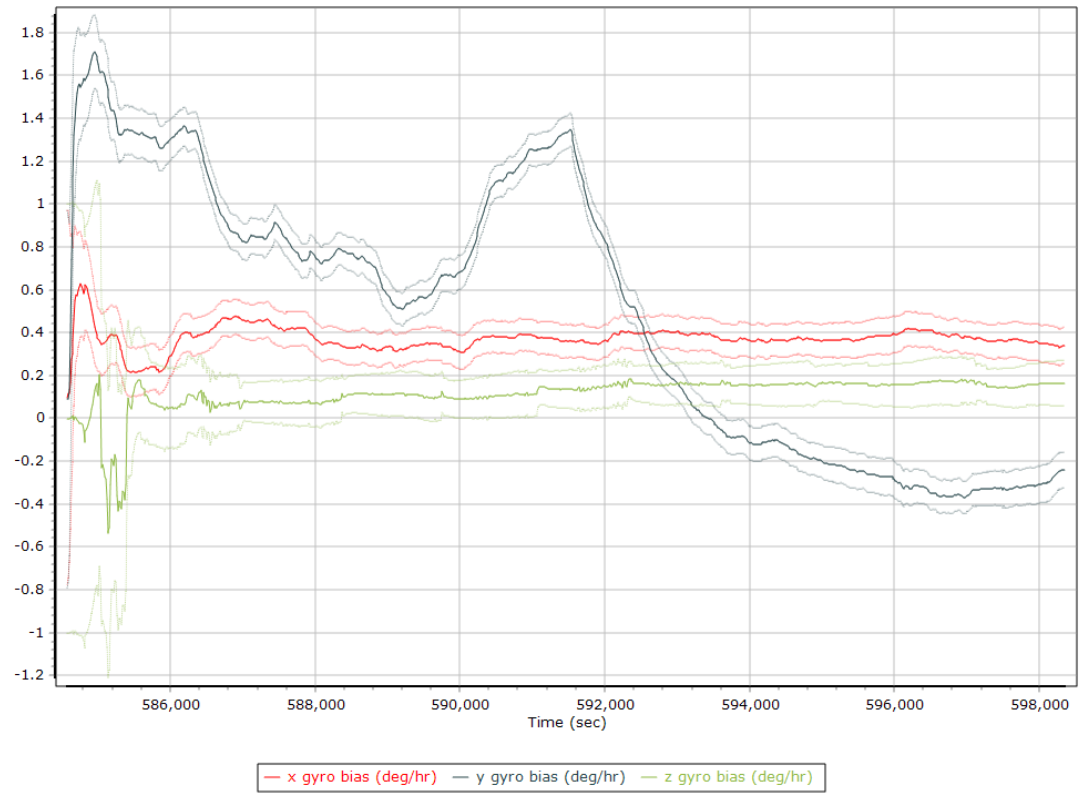
Y Accelerometer Scale Error (ppm)



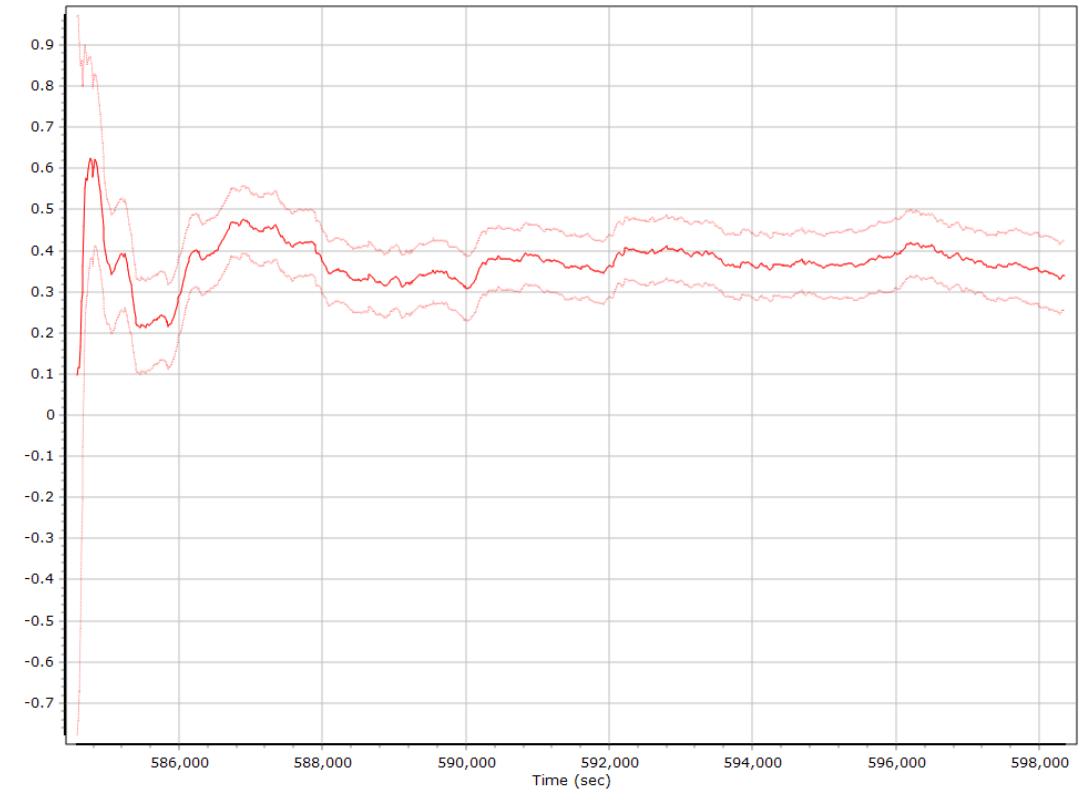
Z Accelerometer Scale Error (ppm)



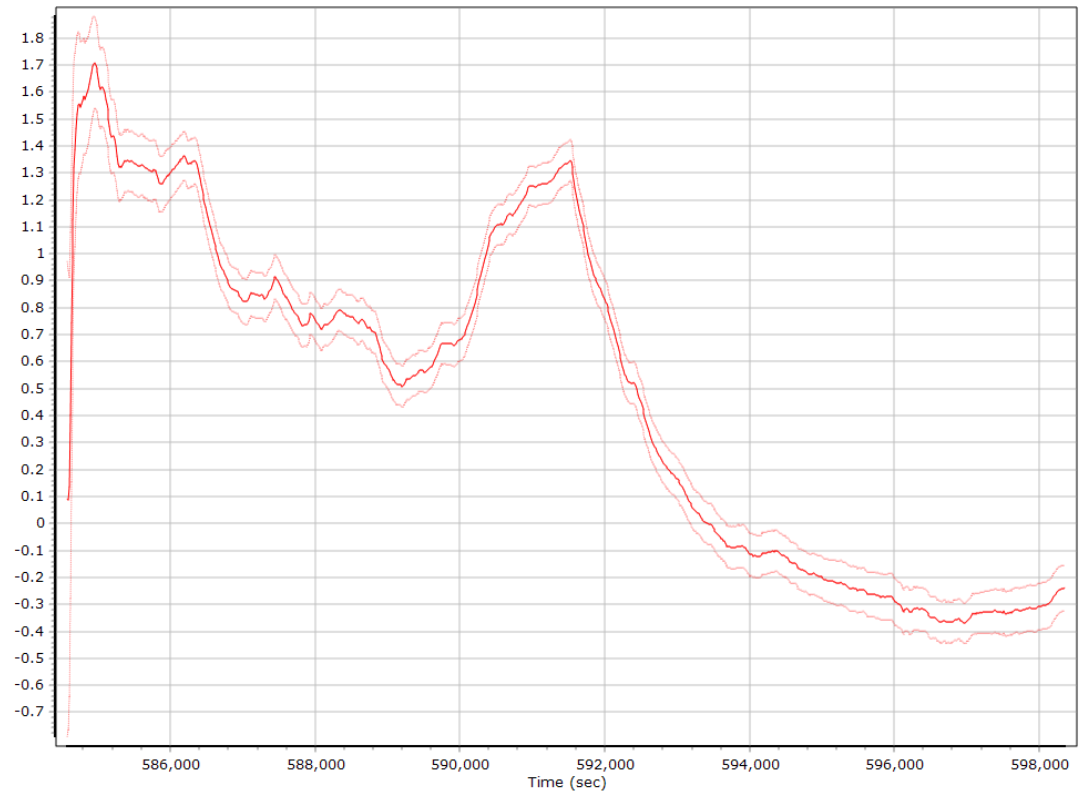
Gyro Bias (deg/h)



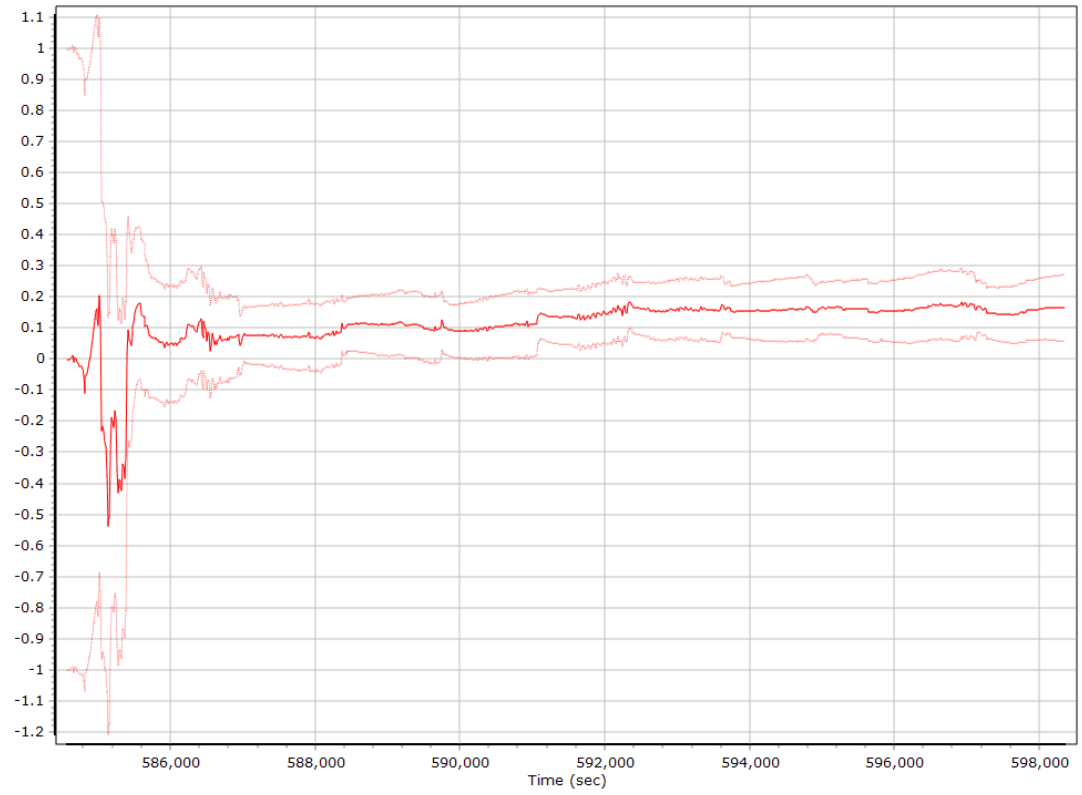
X Gyro Bias (deg/h)



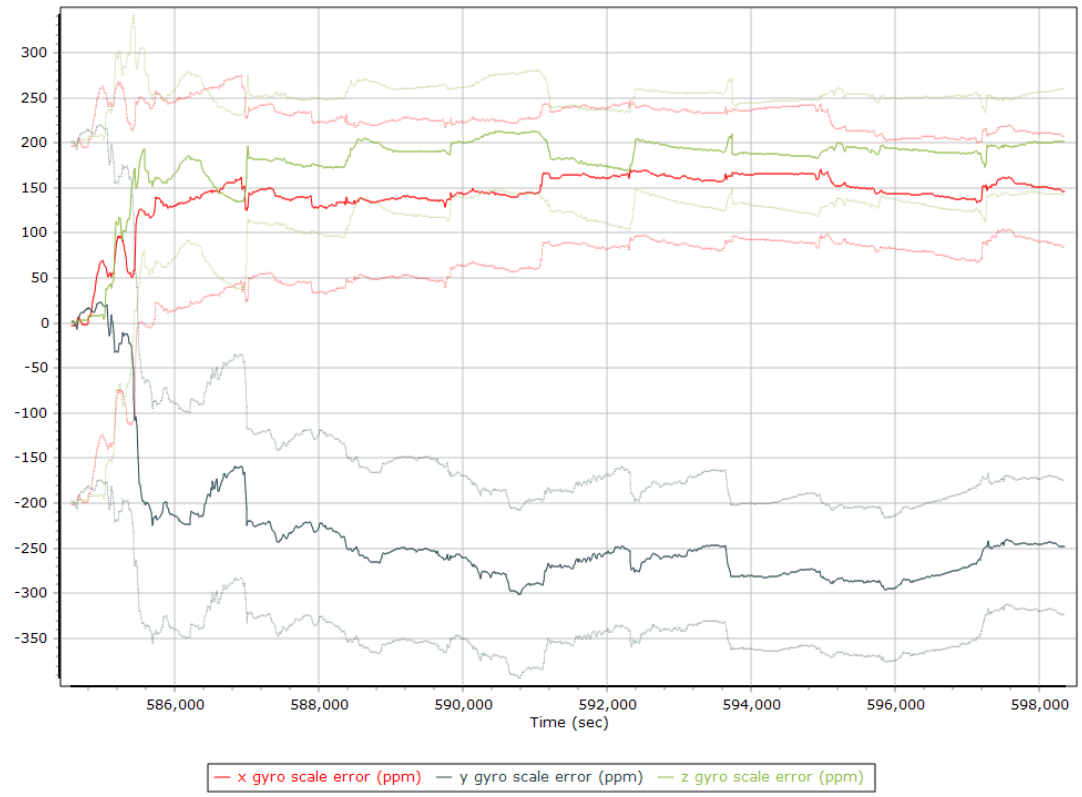
Y Gyro Bias (deg/h)



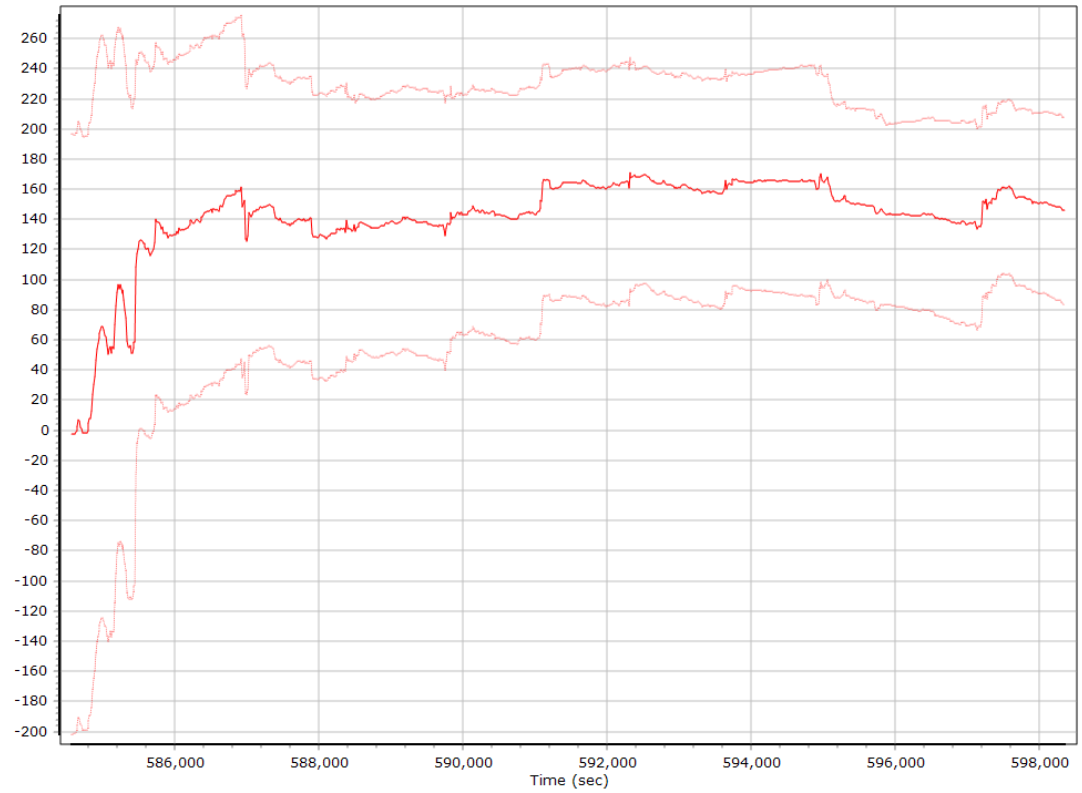
Z Gyro Bias (deg/h)



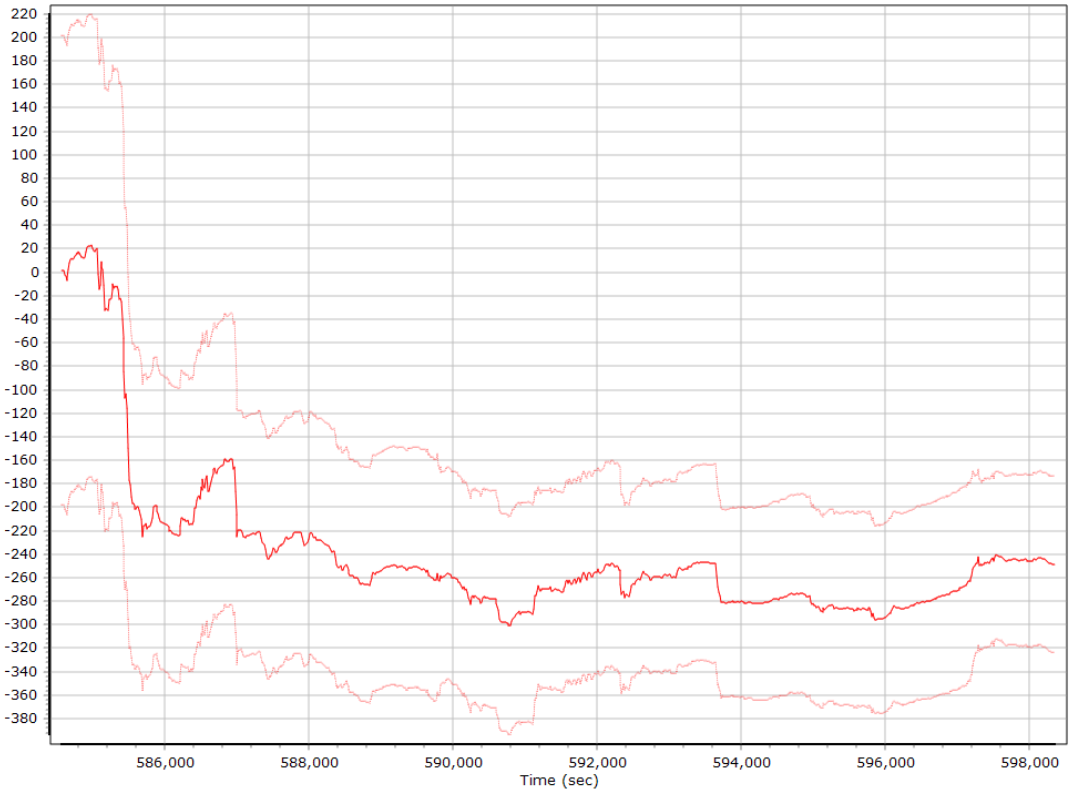
Gyro Scale Error (ppm)



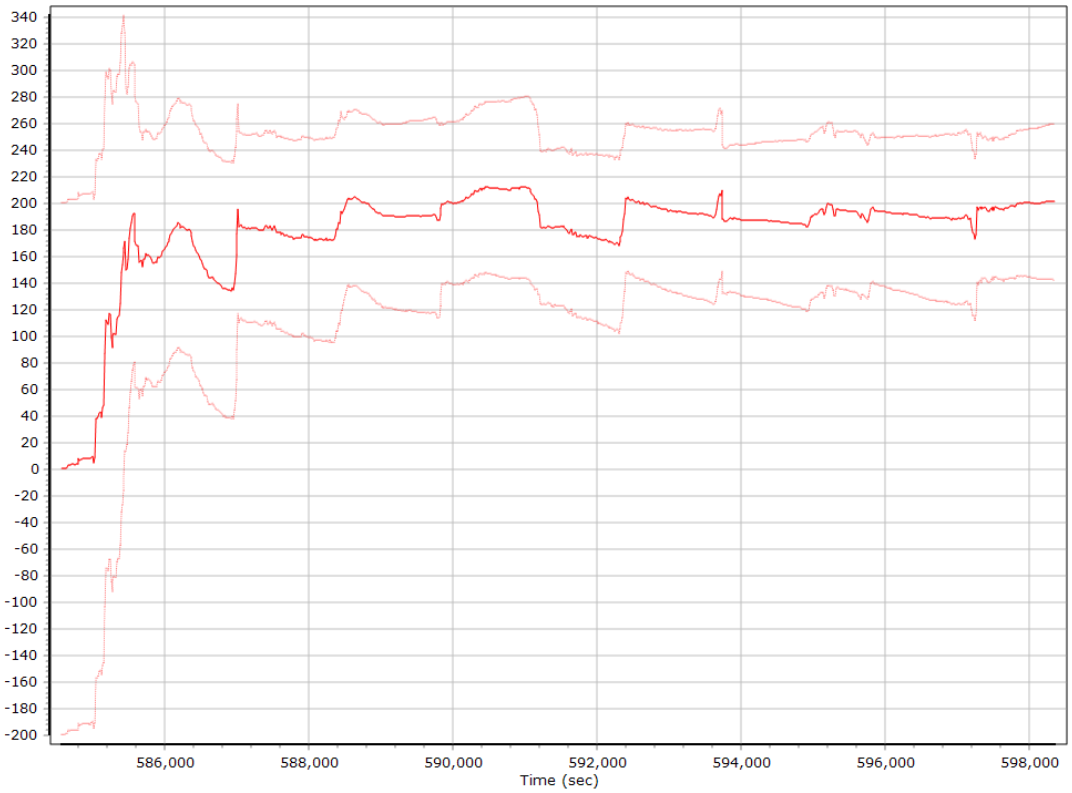
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

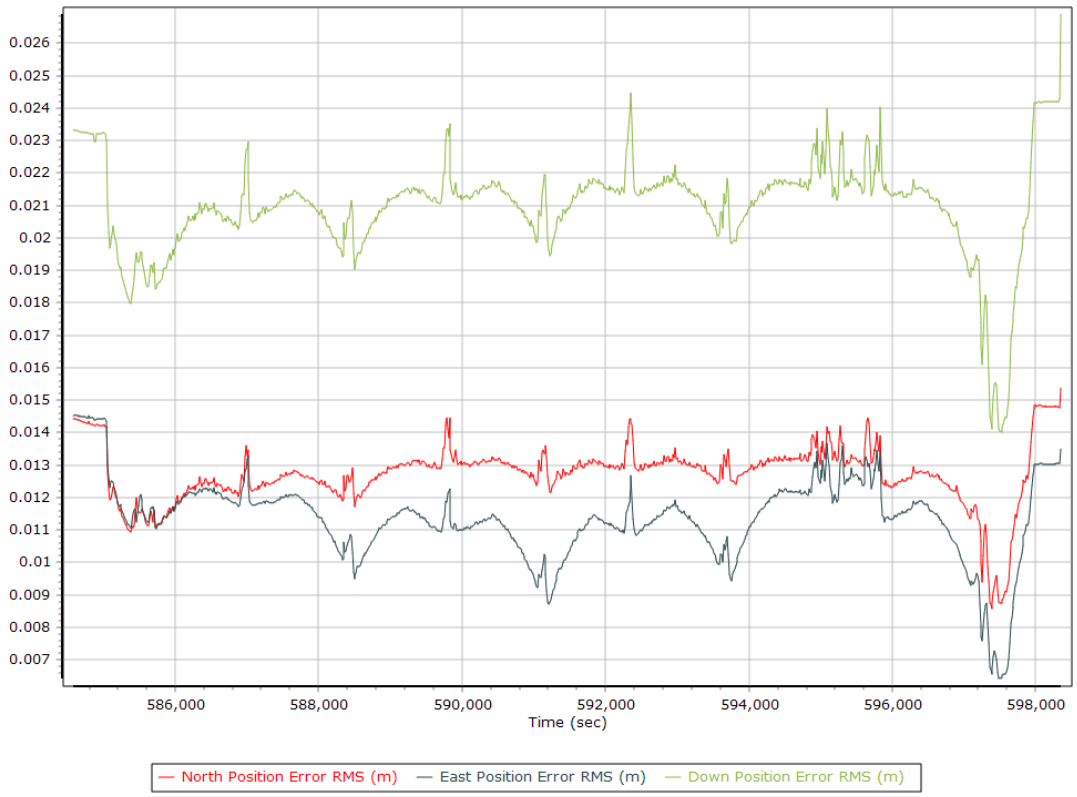


Z Gyro Scale Error (ppm)

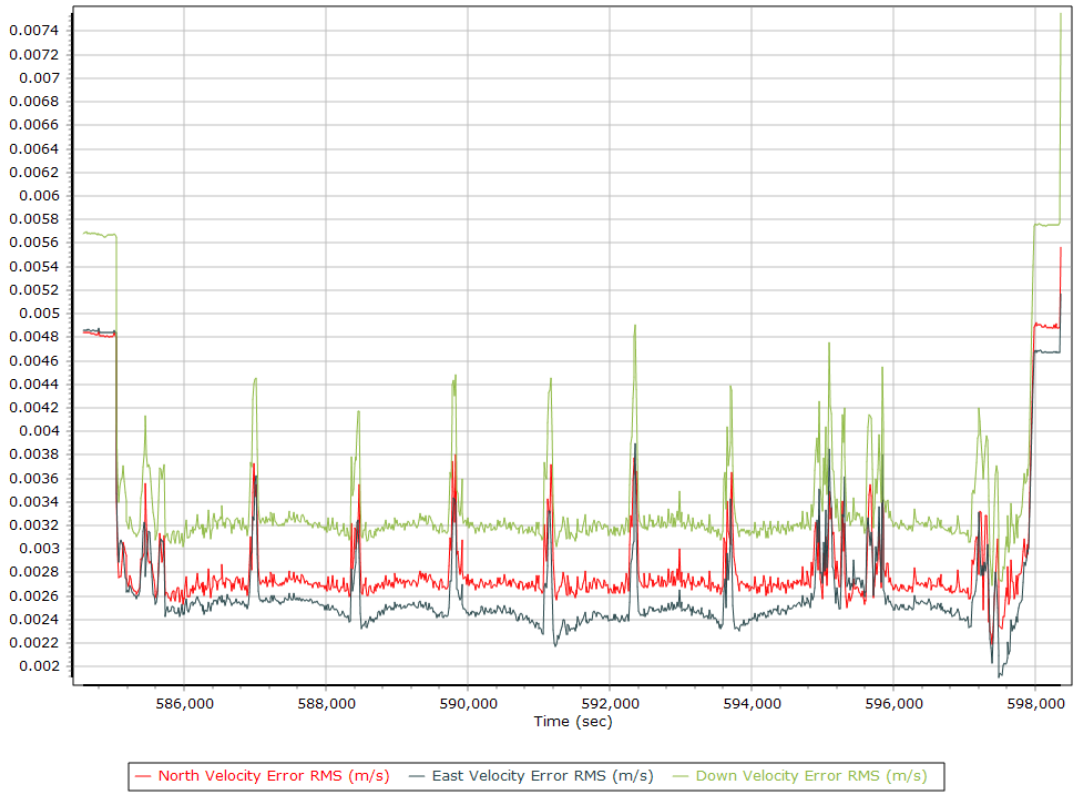


Smoothed Performance Metrics

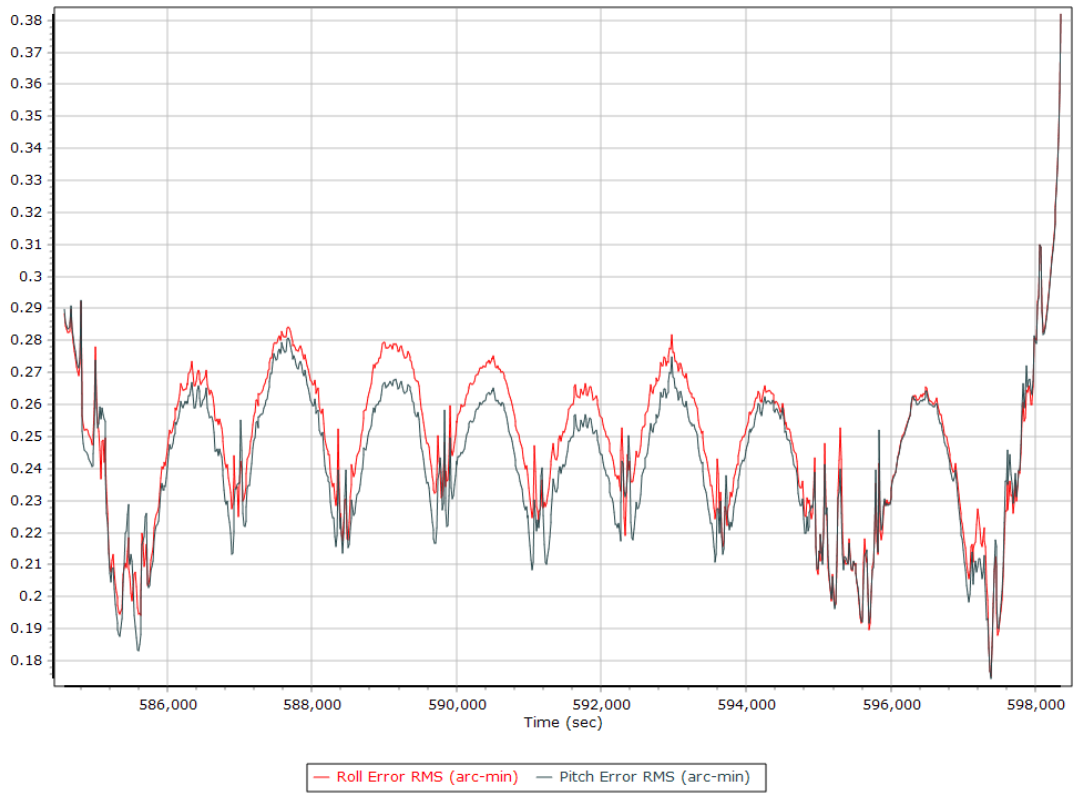
Position Error RMS (m)



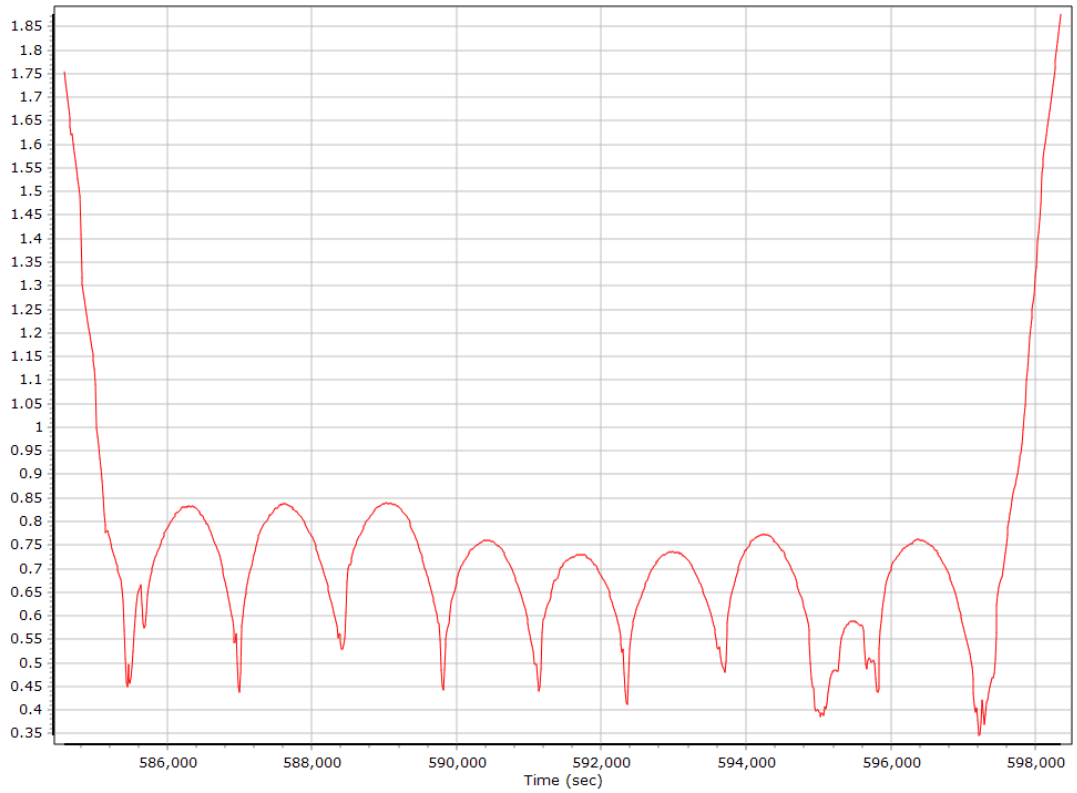
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

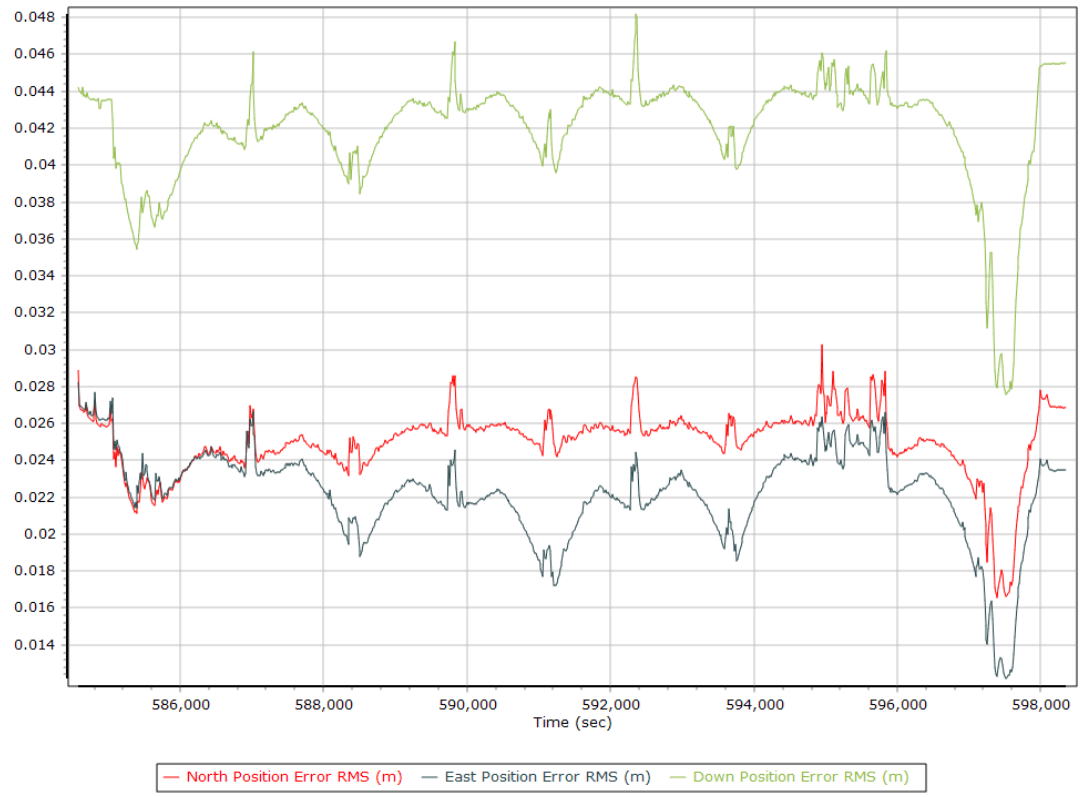


Heading Error RMS (arc-min)

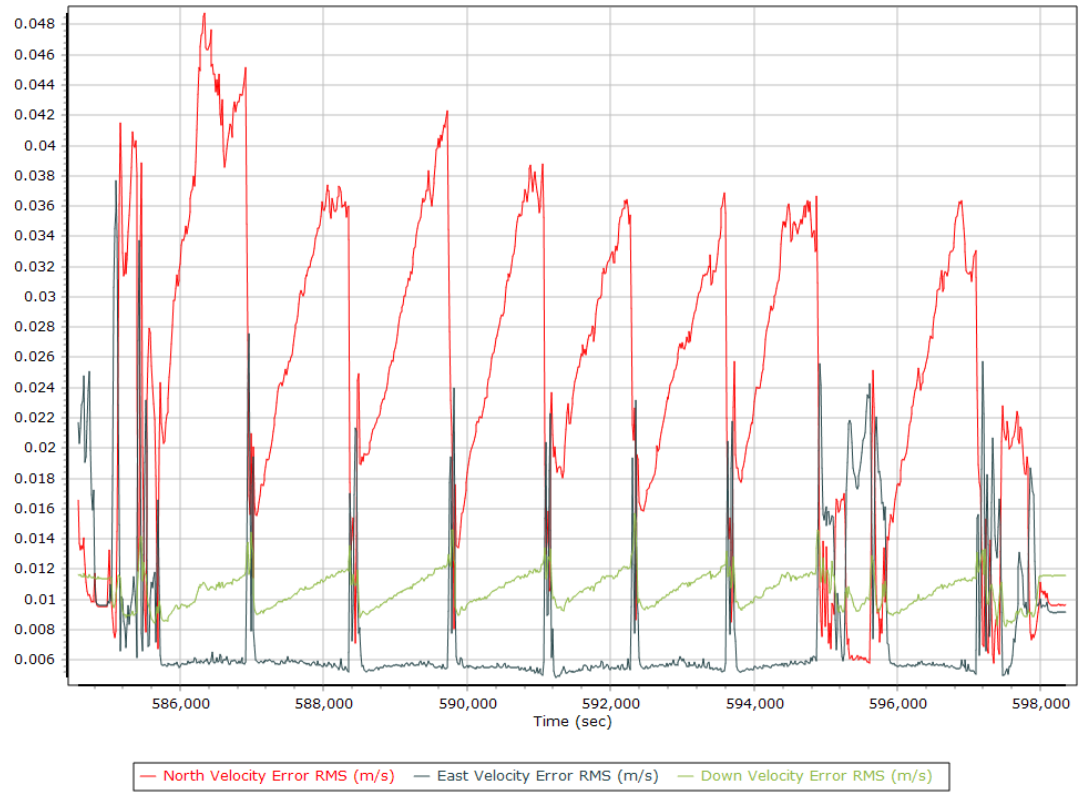


Forward Processed Performance Metrics

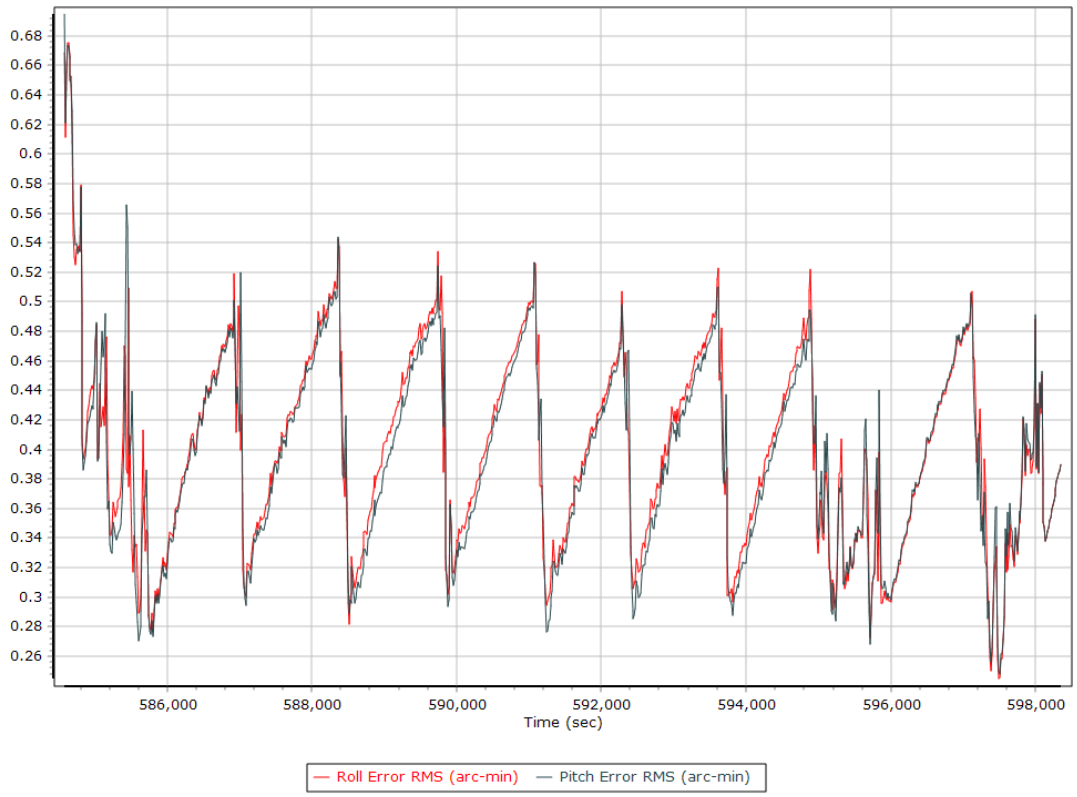
Position Error RMS (m)



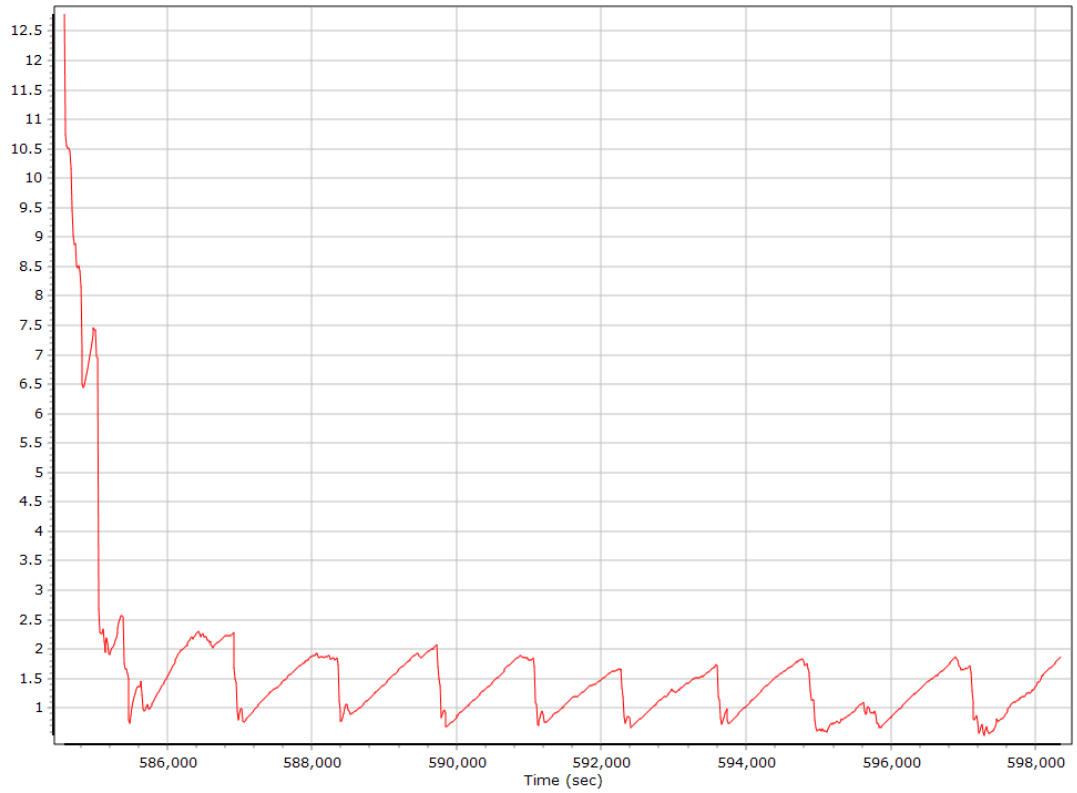
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

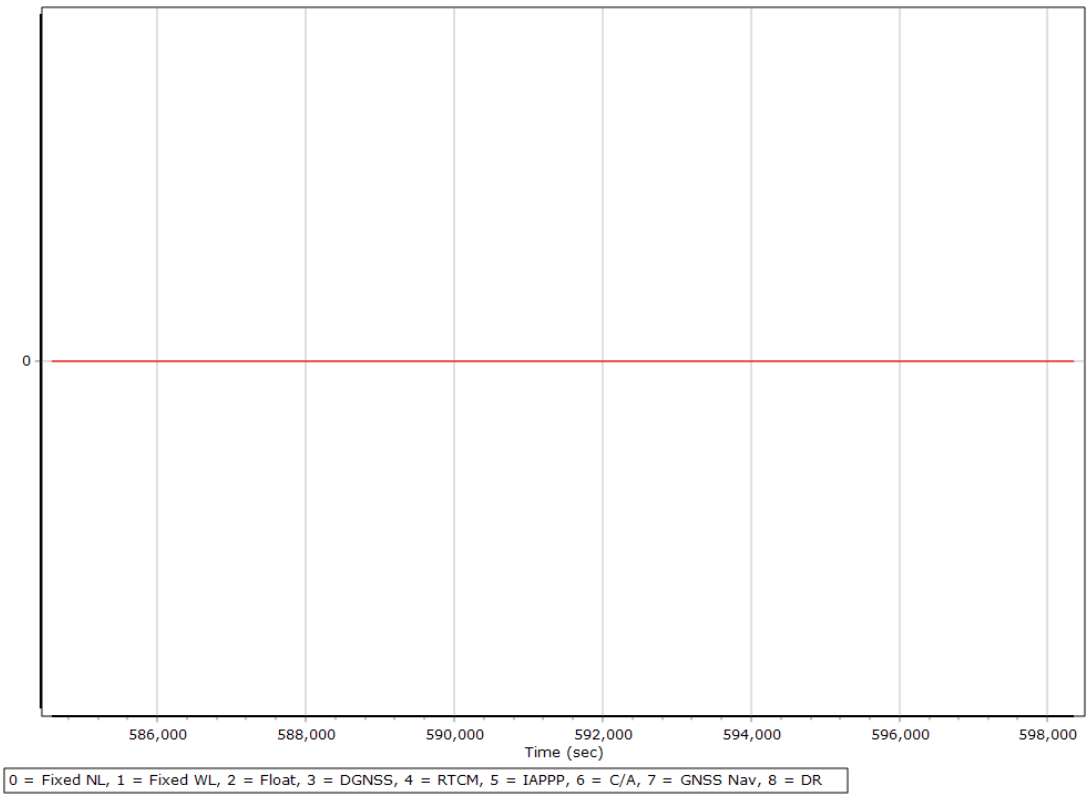


Heading Error RMS (arc-min)

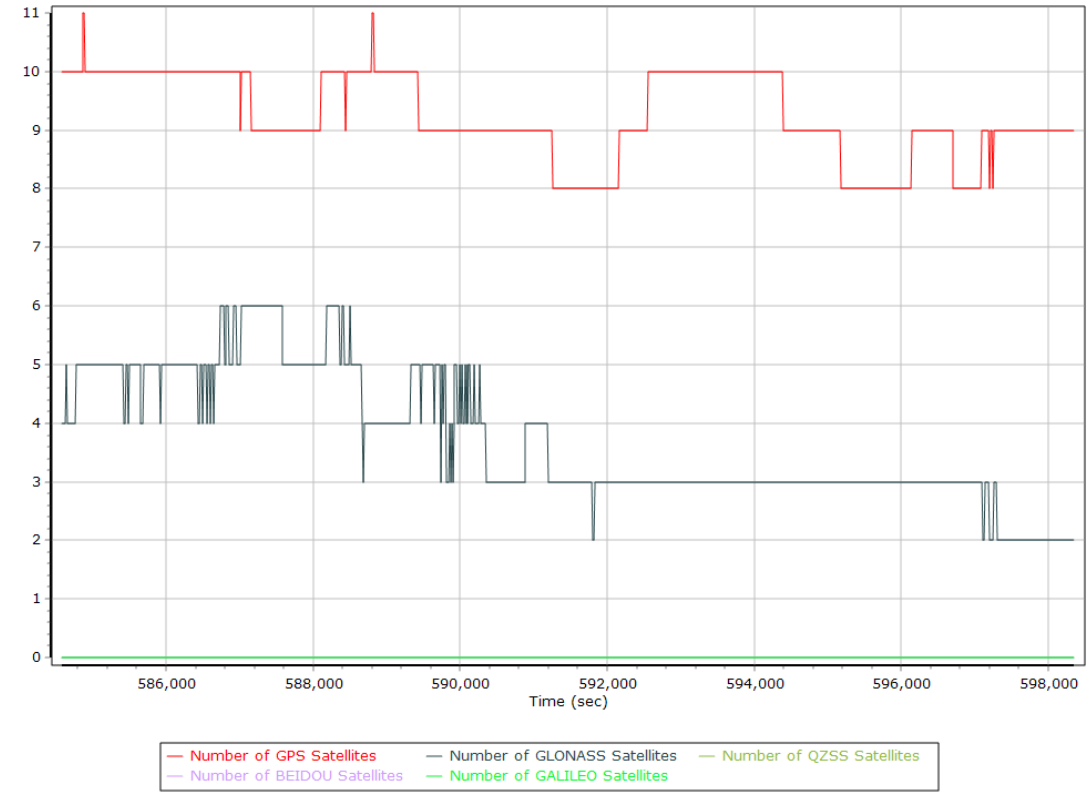


Smoothed Solution Status

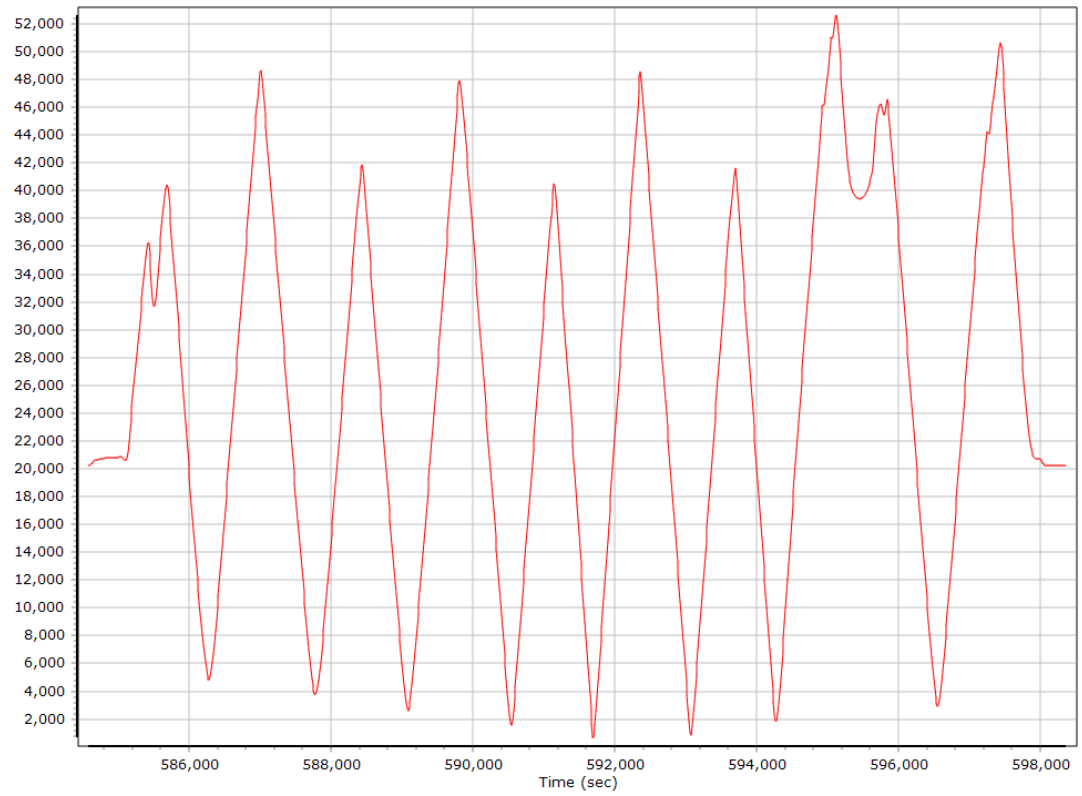
Processing Mode



Number of Satellites

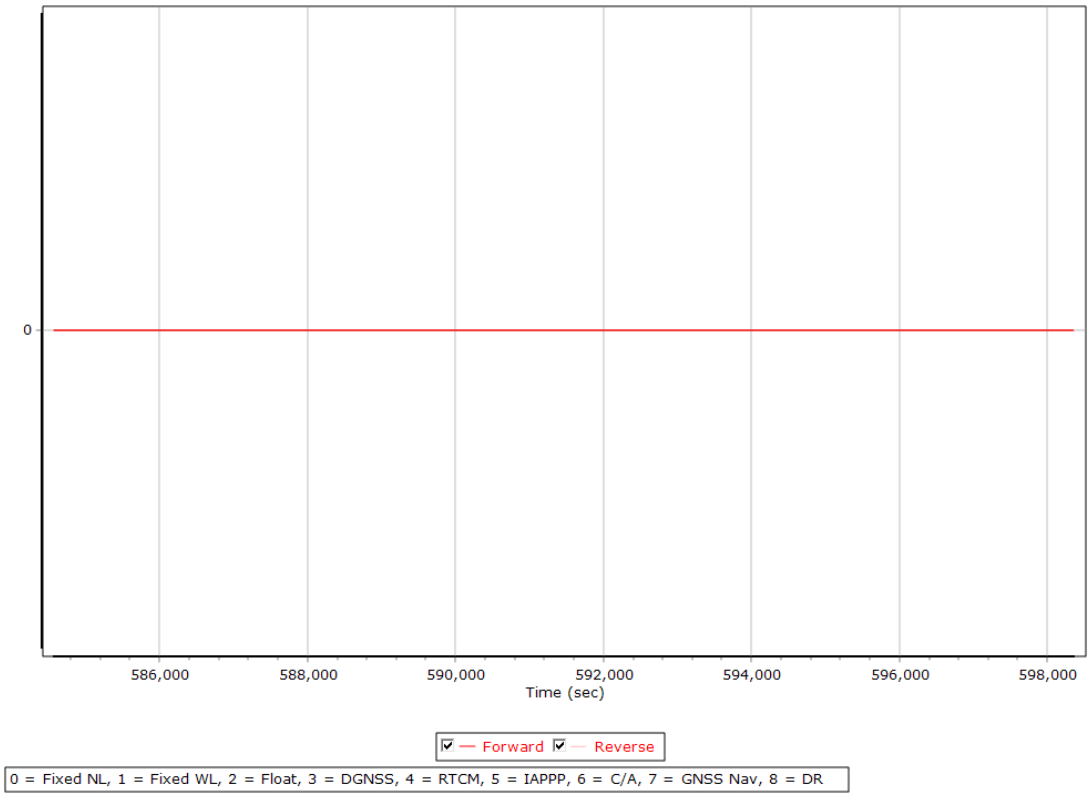


Baseline Length

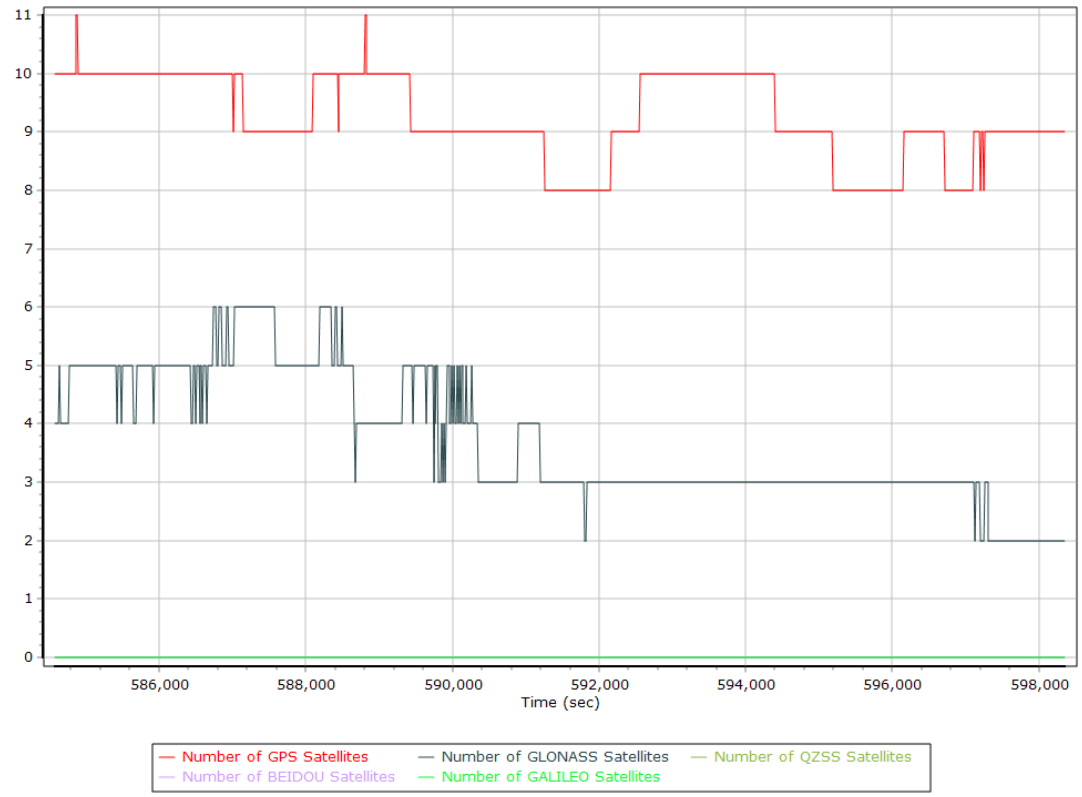


Forward Processed Solution Status

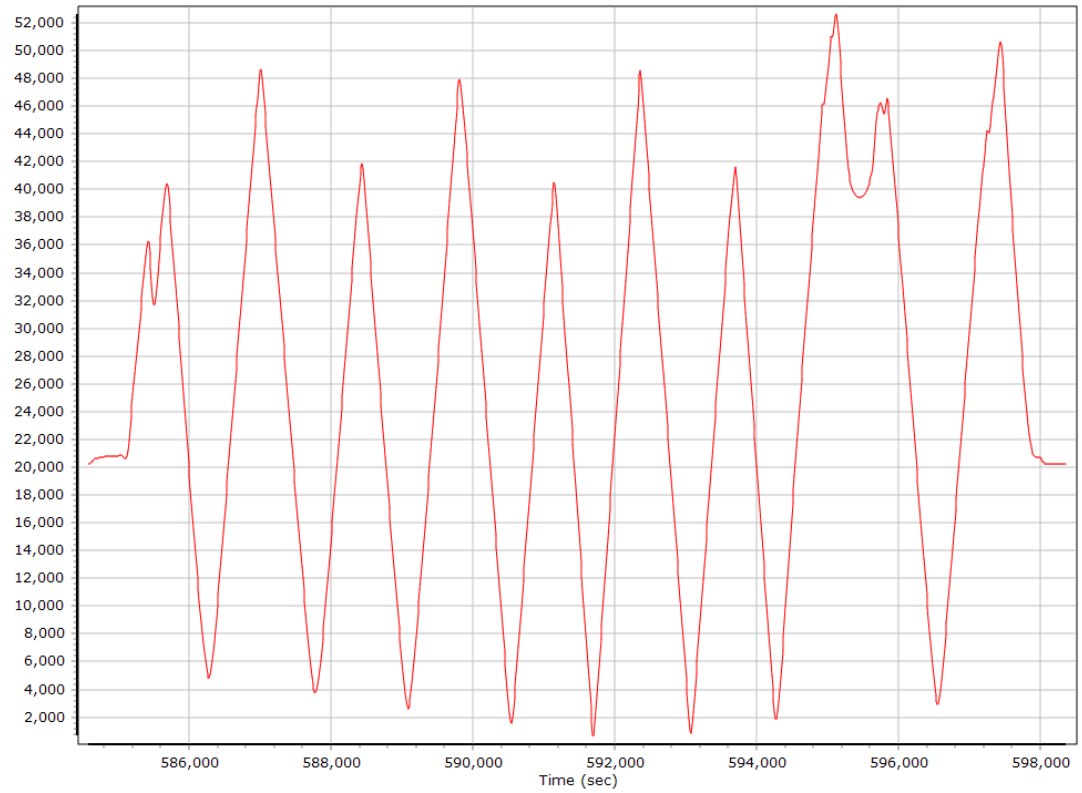
Processing Mode



Number of Satellites



Baseline Length



SBET IAKAR Separation

General Information

Mission Information

Project name	20191206A-rerun20201221
Processing date	2020-12-21 20:57:34
Mission date	2019-12-06 23:44:47
Mission duration	02:38:50.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	Unknown External

Project File List

Rover Data Files

File name	File type
ALS.081	POS Data
ALS.082	POS Data
ALS.083	POS Data
ALS.084	POS Data
ALS.085	POS Data
ALS.086	POS Data
ALS.087	POS Data
ALS.088	POS Data
ALS.089	POS Data
ALS.090	POS Data
ALS.091	POS Data
ALS.092	POS Data
ALS.093	POS Data
ALS.094	POS Data
ALS.095	POS Data

Input Files

File Name	File Type
Ephm3400.19g	GLONASS Broadcast Ephemeris
Ephm3400.19n	GPS Broadcast Ephemeris
Ephm3410.19g	GLONASS Broadcast Ephemeris
Ephm3410.19n	GPS Broadcast Ephemeris
iaal3400.19o	GNSS SingleBase
iaal3410.19o	GNSS SingleBase
igr20824.sp3	GPS Precise Ephemeris
igr20825.sp3	GPS Precise Ephemeris
igr20826.sp3	GPS Precise Ephemeris
igr20830.sp3	GPS Precise Ephemeris
iade3400.19o	GNSS SingleBase
iade3410.19o	GNSS SingleBase
iael3400.19o	GNSS SingleBase
iael3410.19o	GNSS SingleBase
iamn3400.19o	GNSS SingleBase
iamn3410.19o	GNSS SingleBase
iata3400.19o	GNSS SingleBase
iata3410.19o	GNSS SingleBase
nlib3400.19o	GNSS SingleBase
nlib3410.19o	GNSS SingleBase

Output Files

Filename	File type
sbet_rerun-20201221.out	SBET Trajectory File

Rover Data Summary

First raw data file	ALS.081		
Last raw data file	ALS.095		
Start GPS week	2082		
Start time	22.387 (12/1/2019 12:00:22 AM)		
End time	527000.418 (12/7/2019 2:23:20 AM)		
Start of fine alignment	518037.732 (12/6/2019 11:53:57 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

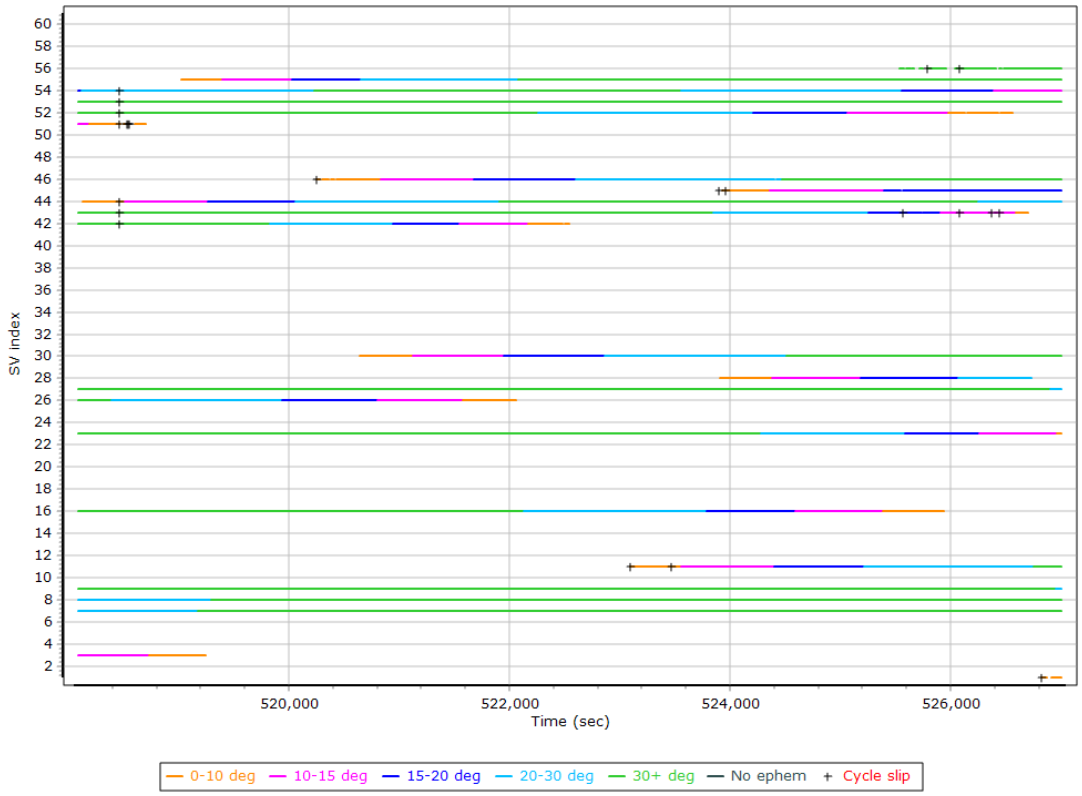
Rover Data QC

Raw IMU Import QC Summary

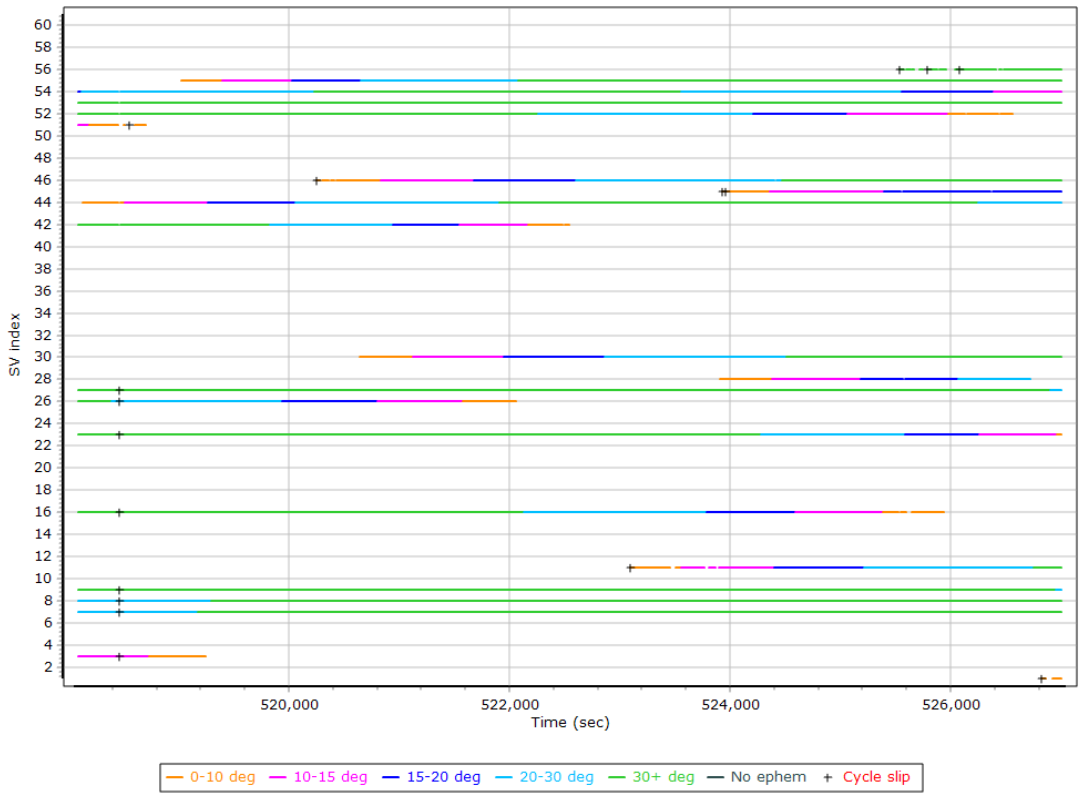
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_rerun-20201221.log
IMU Records Processed	1908691
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
517481.913 : WARNING : Gap of 517457.9269 seconds in CHECKDT input data	

Primary Observables & Satellite Data

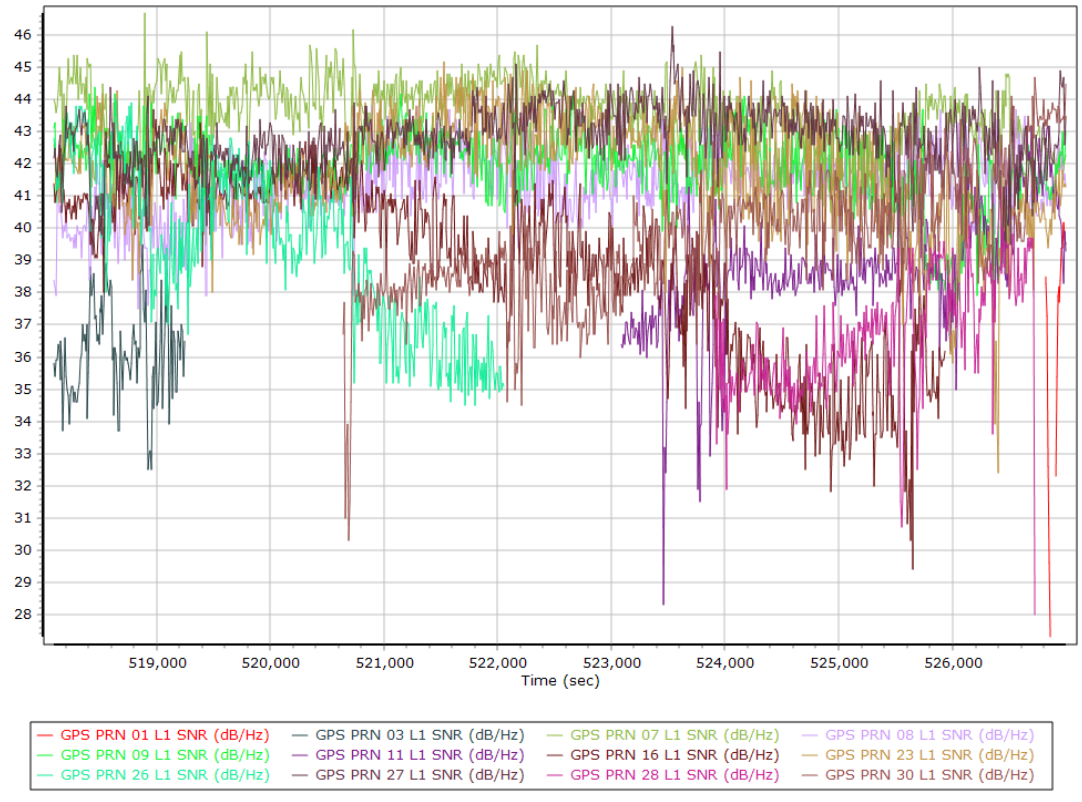
L1 Satellite Lock/Elevation



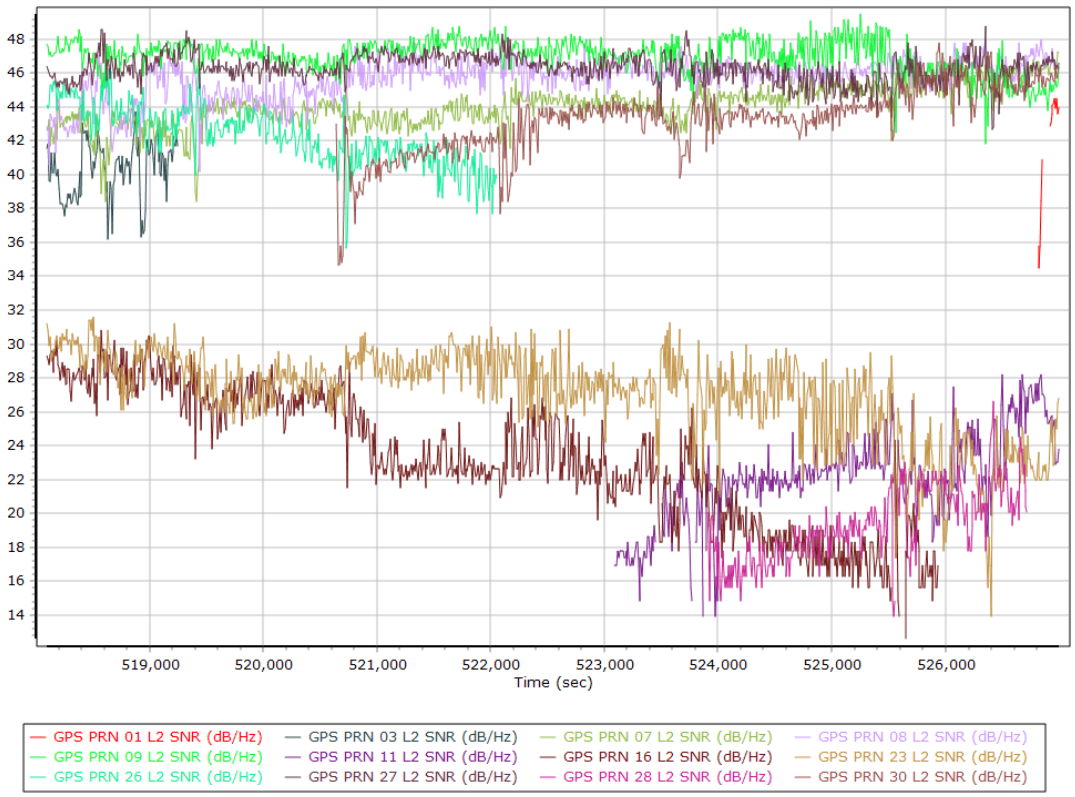
L2 Satellite Lock/Elevation



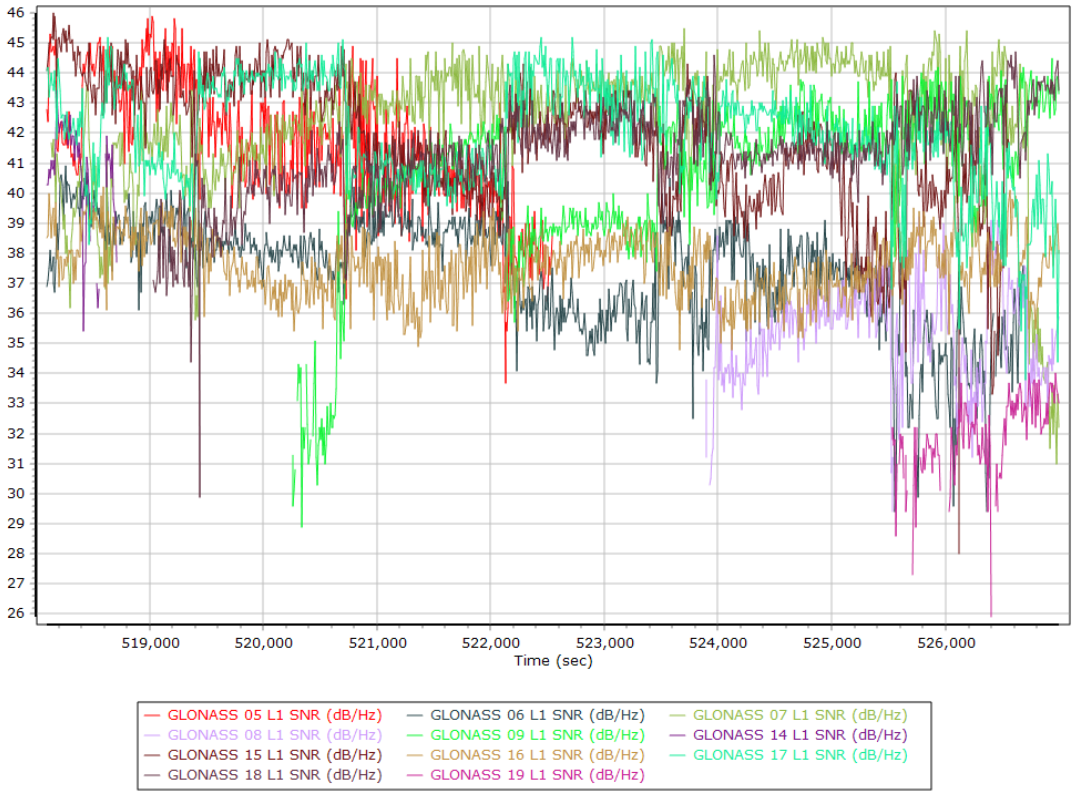
GPS L1 SNR



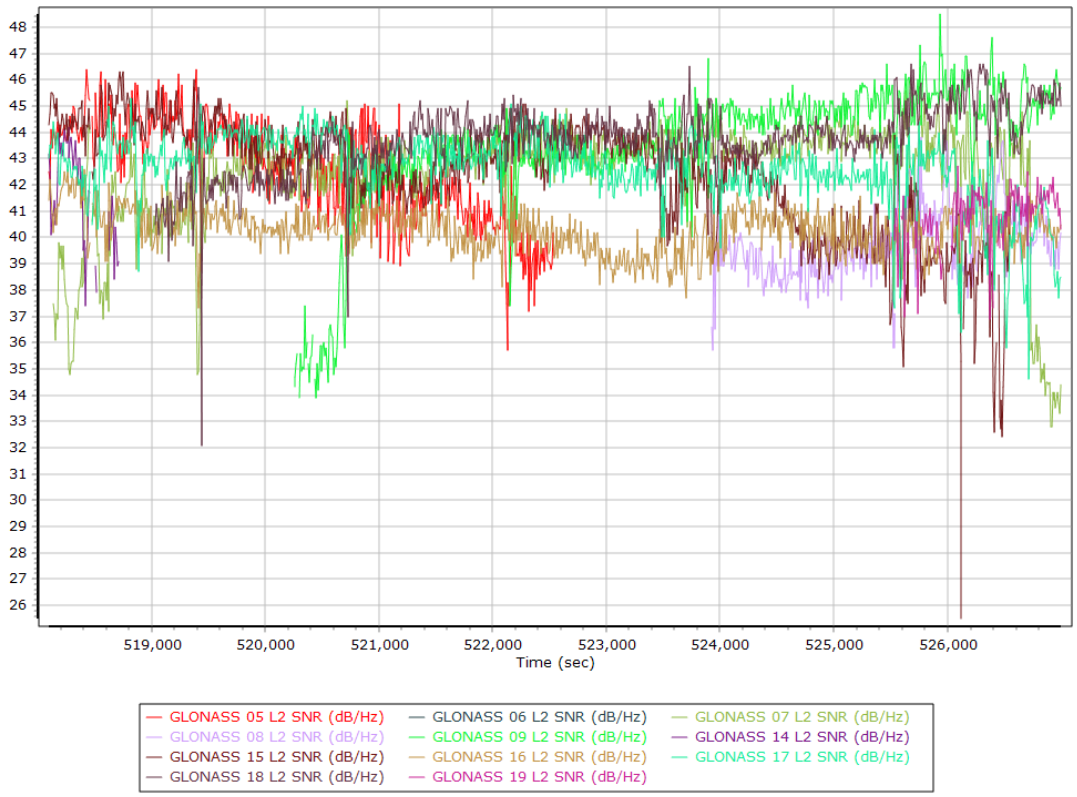
GPS L2 SNR



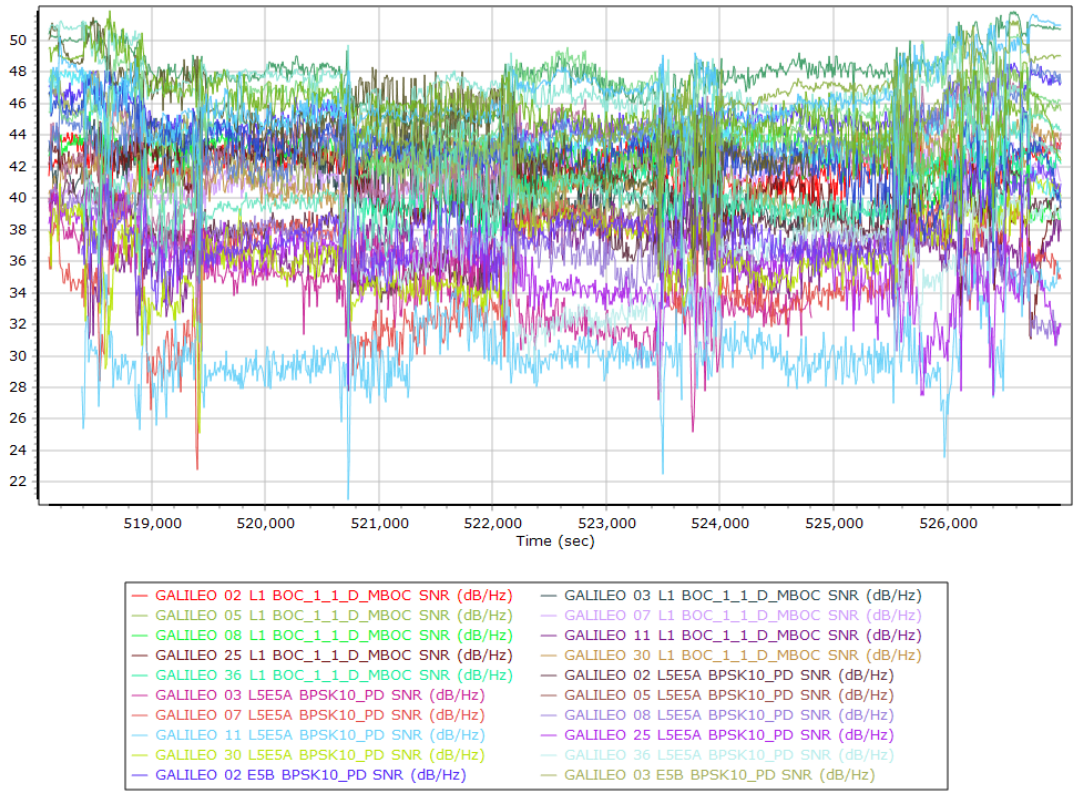
GLONASS L1 SNR



GLONASS L2 SNR

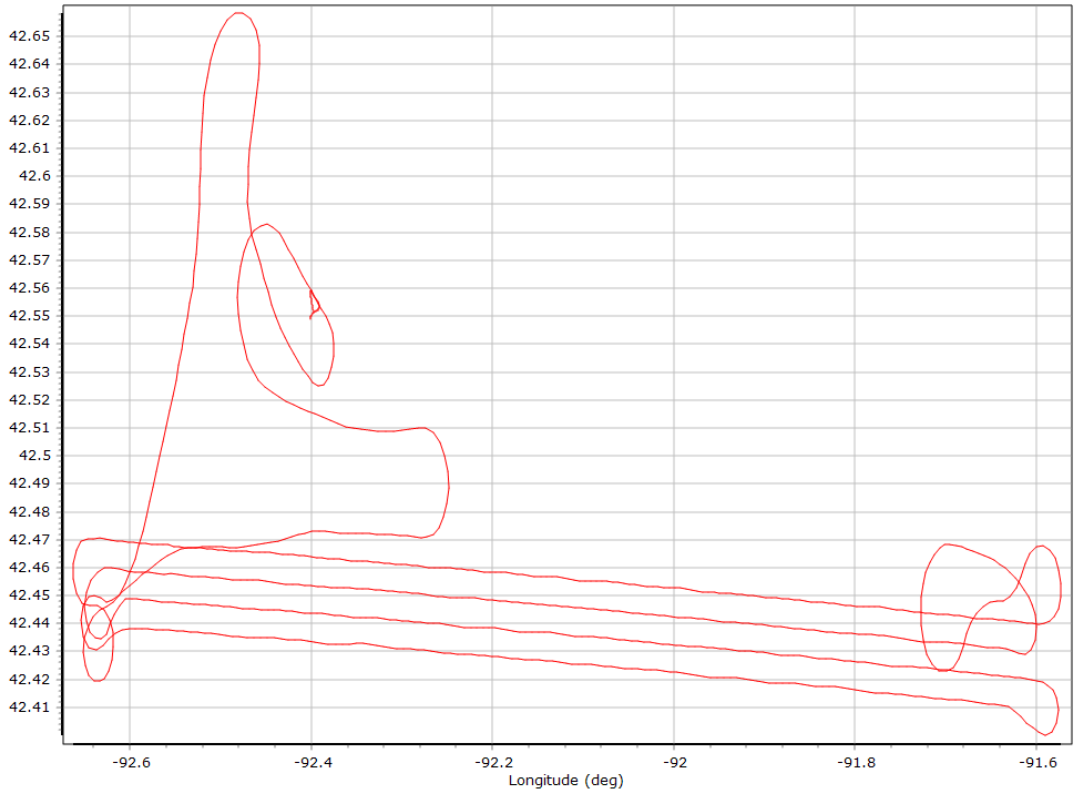


GALILEO SNR

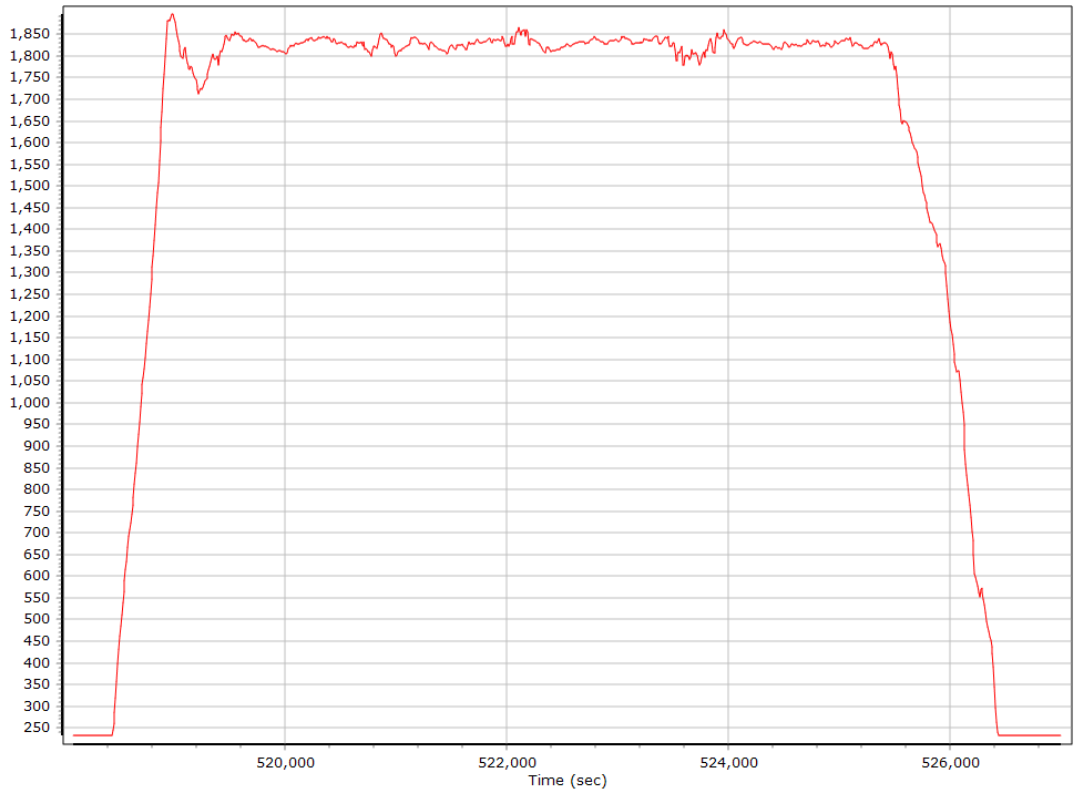


Smoothed Trajectory Information

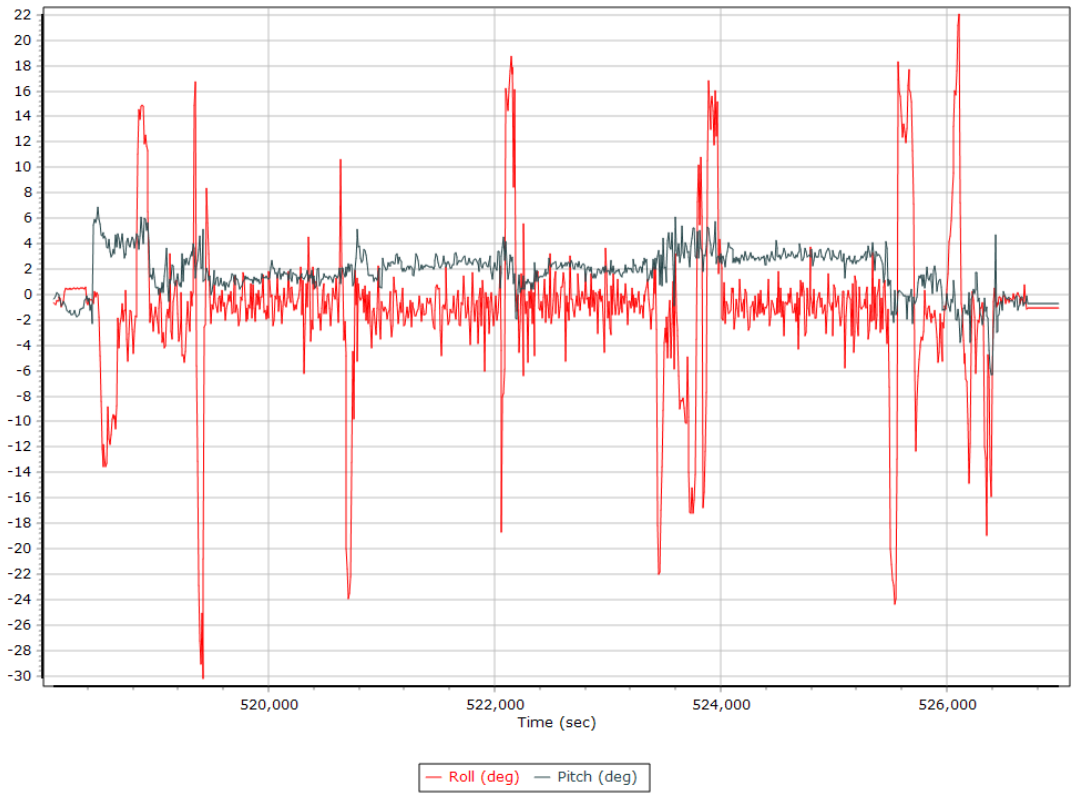
Top View



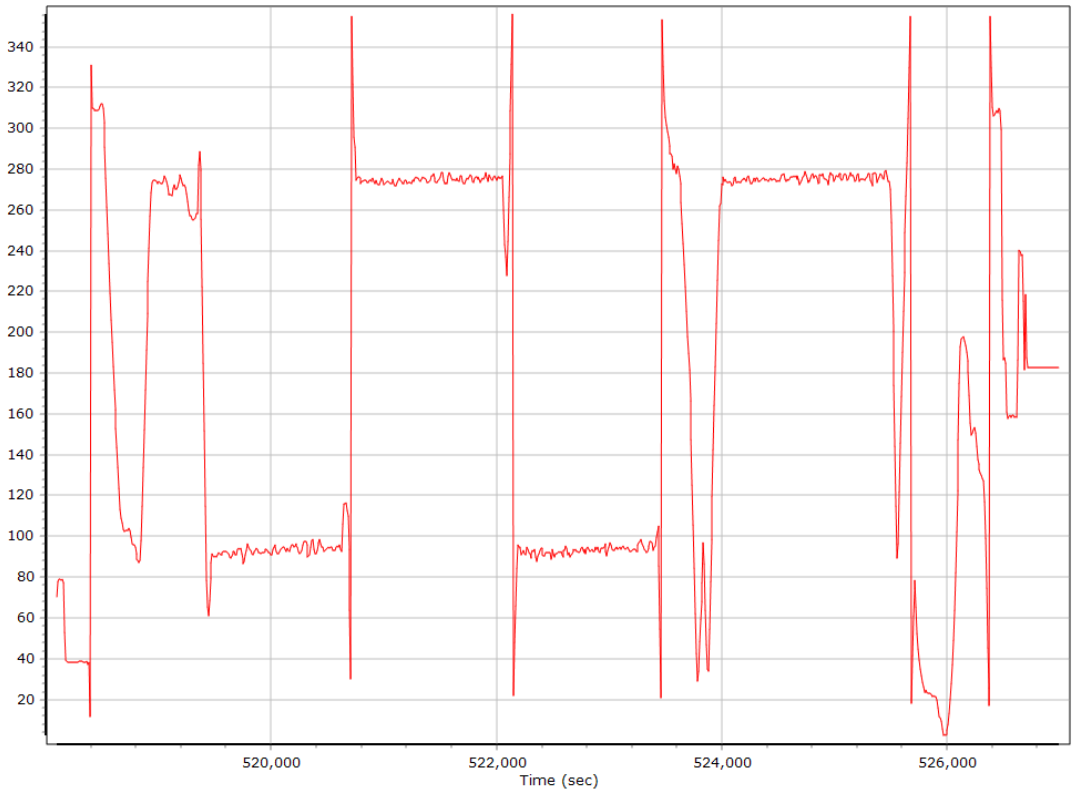
Altitude



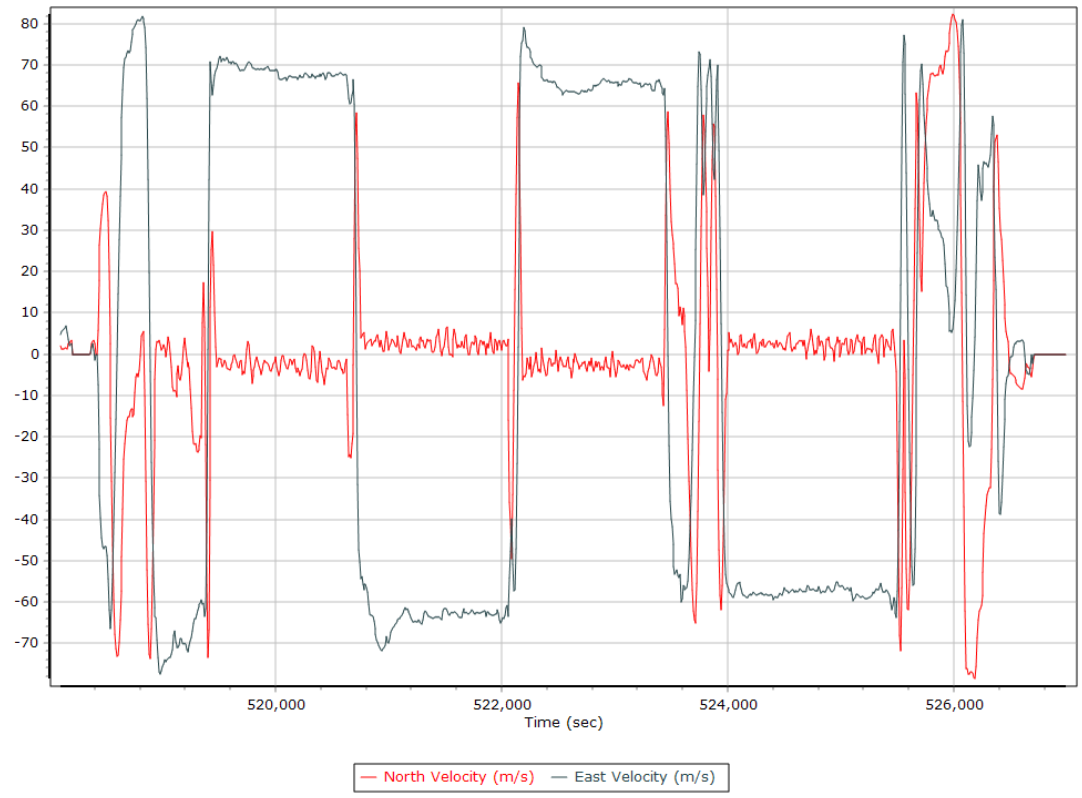
Roll/Pitch



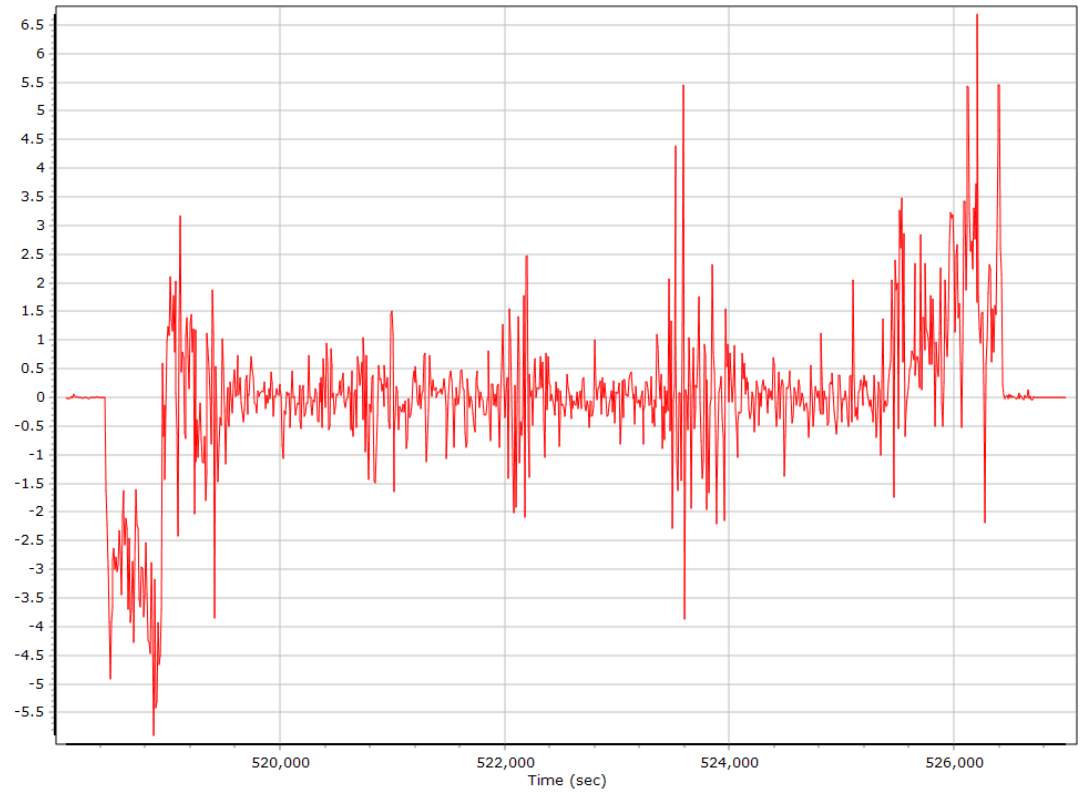
Heading



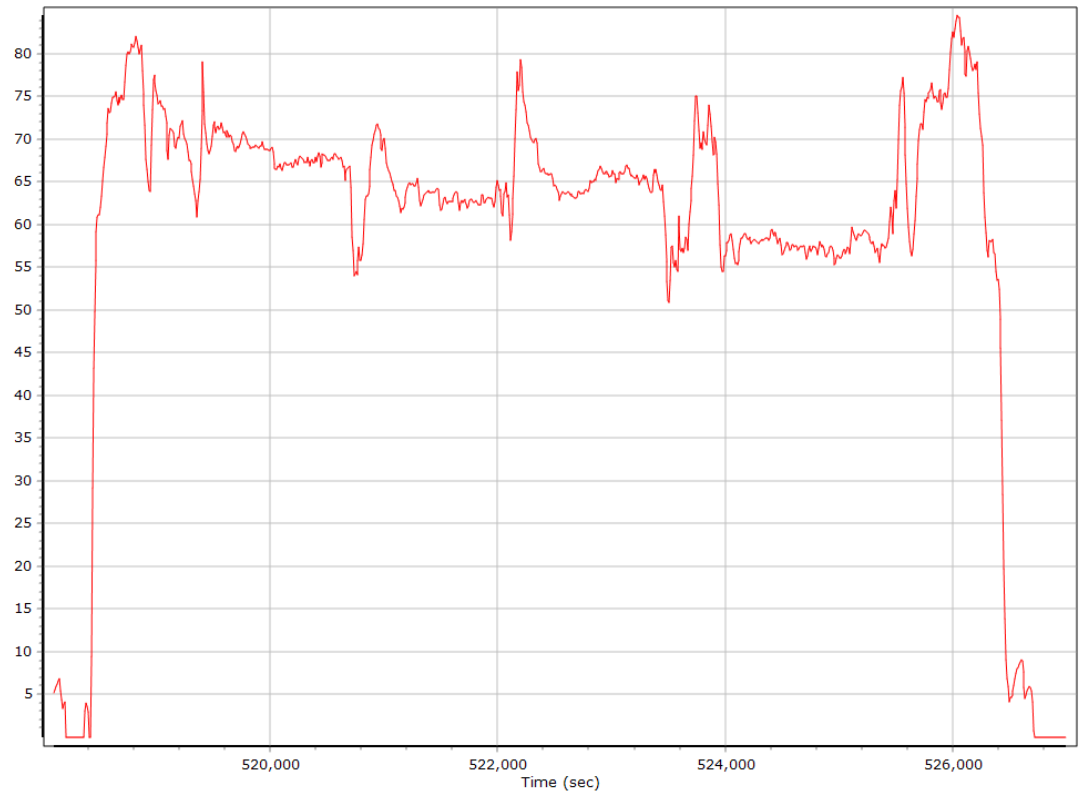
North/East Velocity



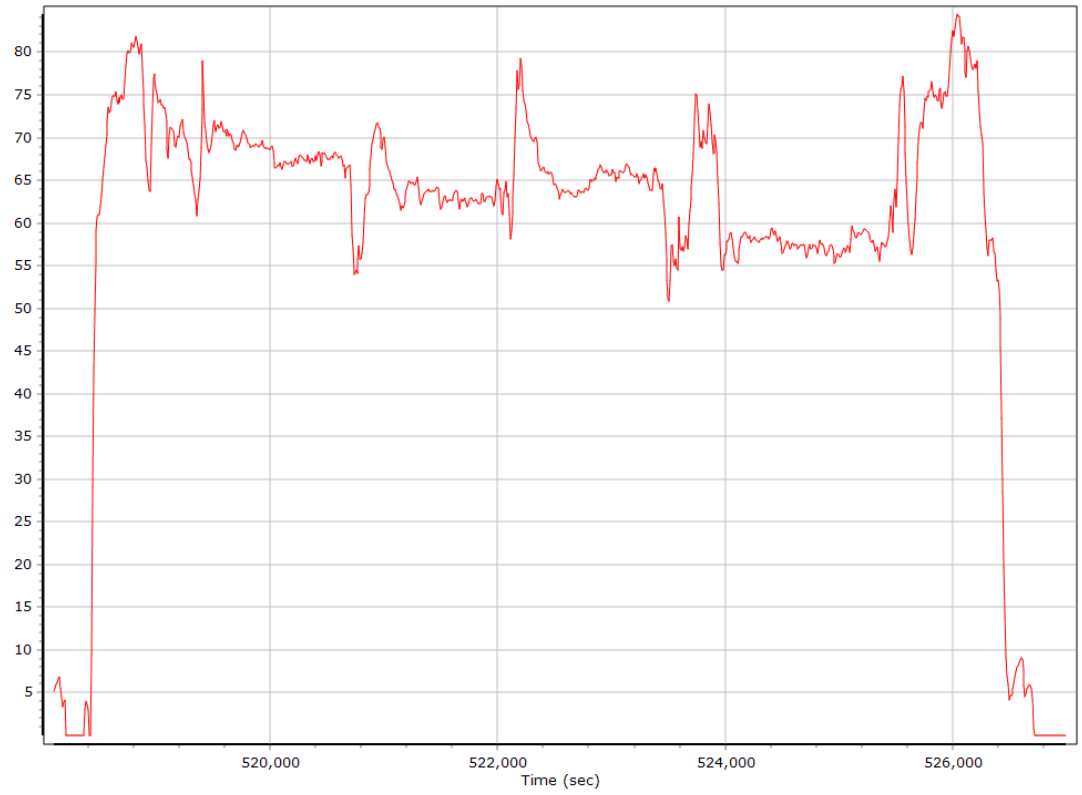
Down Velocity



Total Speed

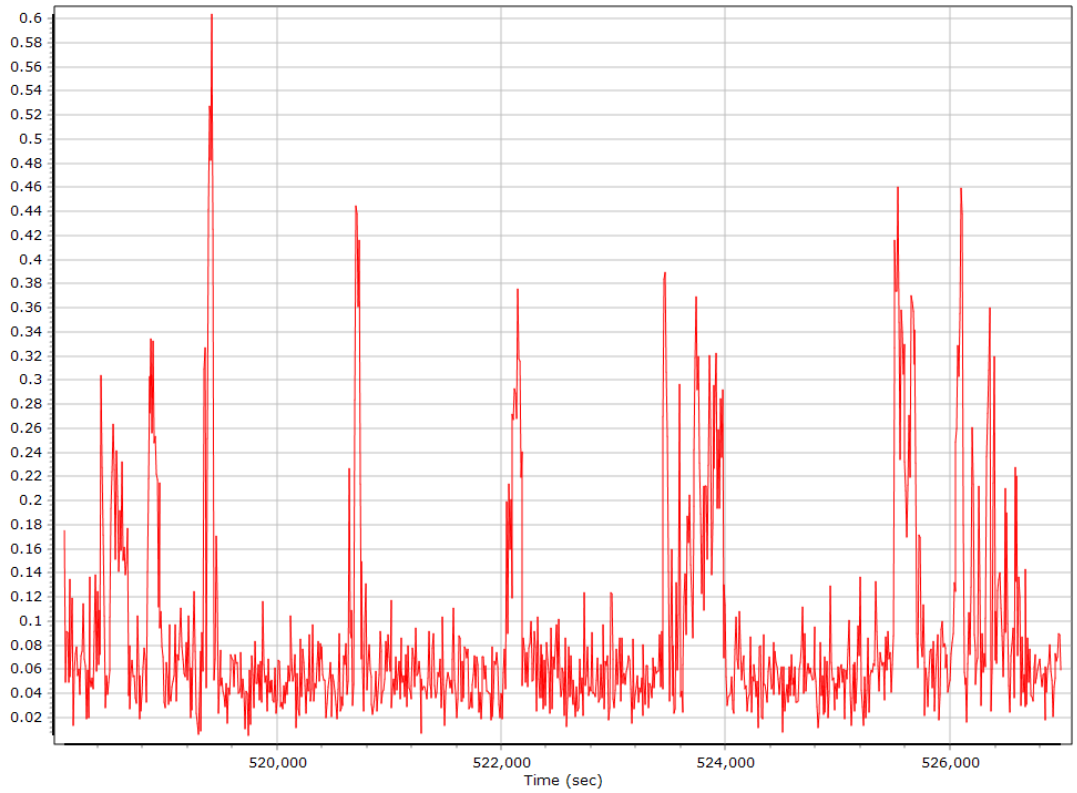


Ground Speed

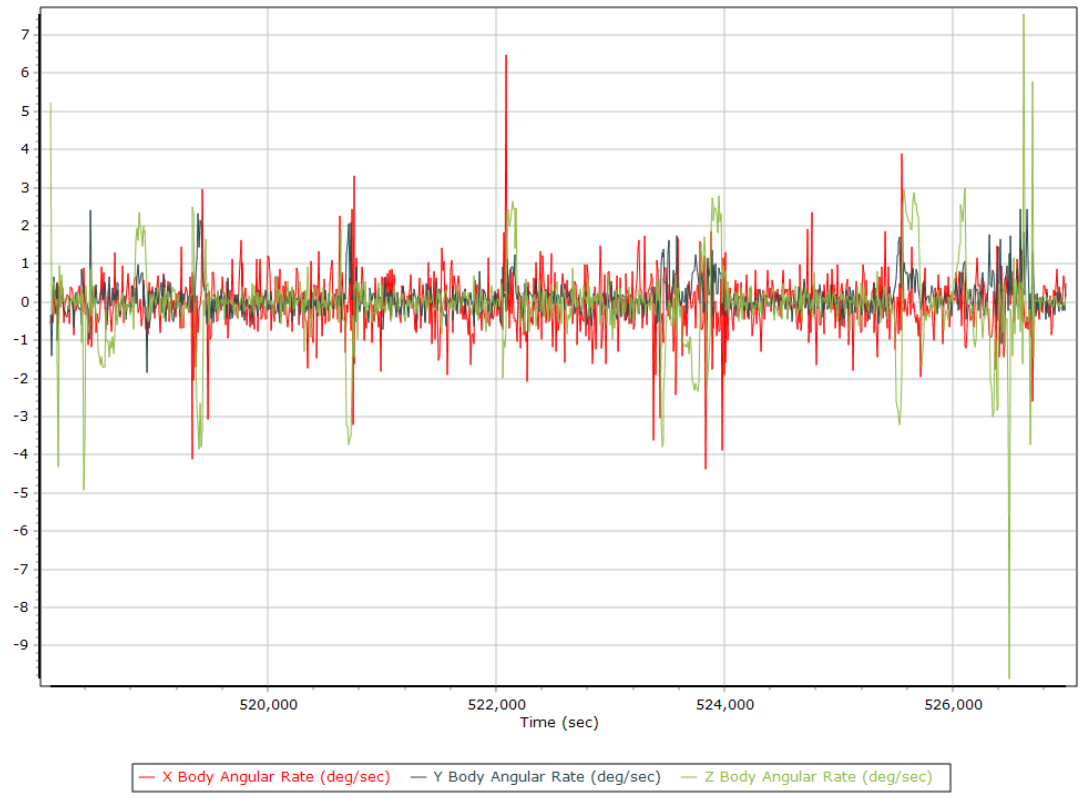


Body Acceleration

Total Body Acceleration

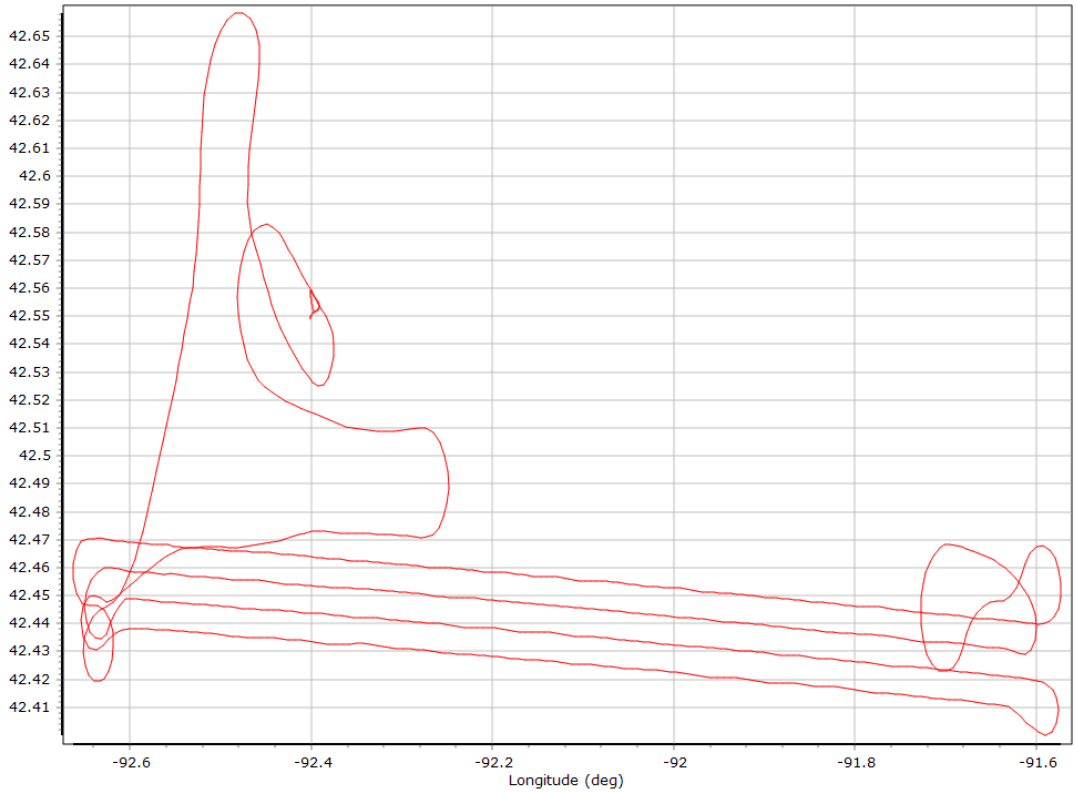


Body Angular Rate

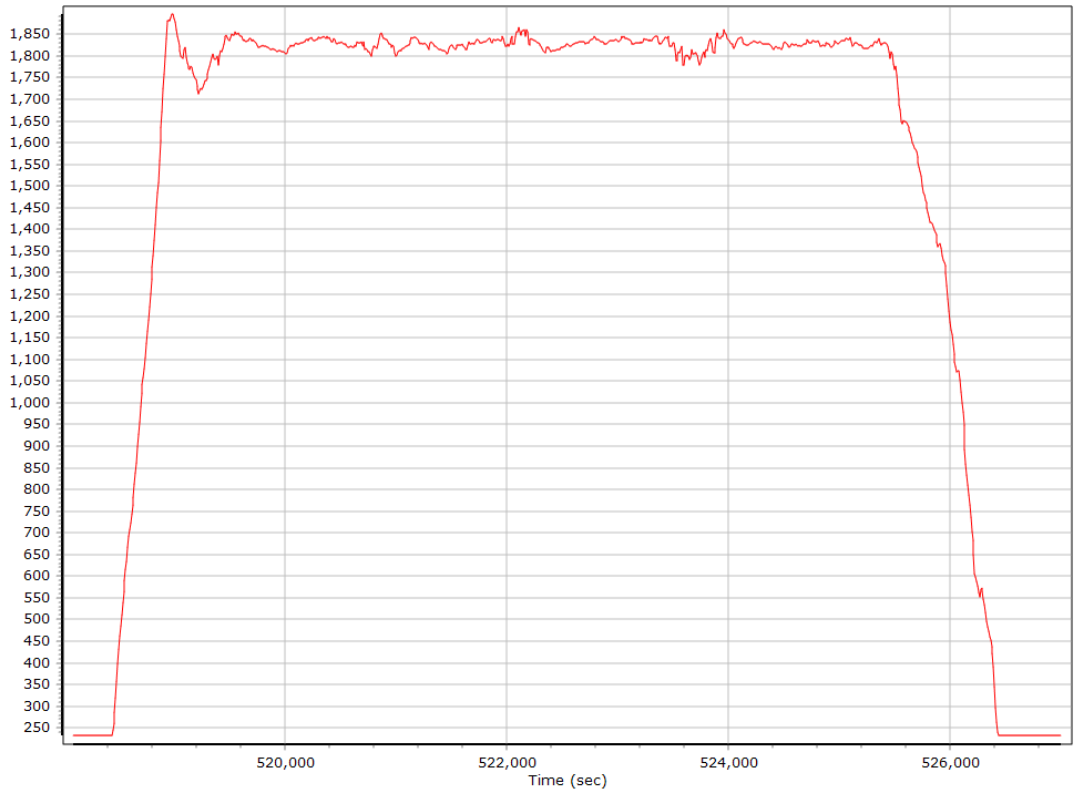


Forward Processed Trajectory Information

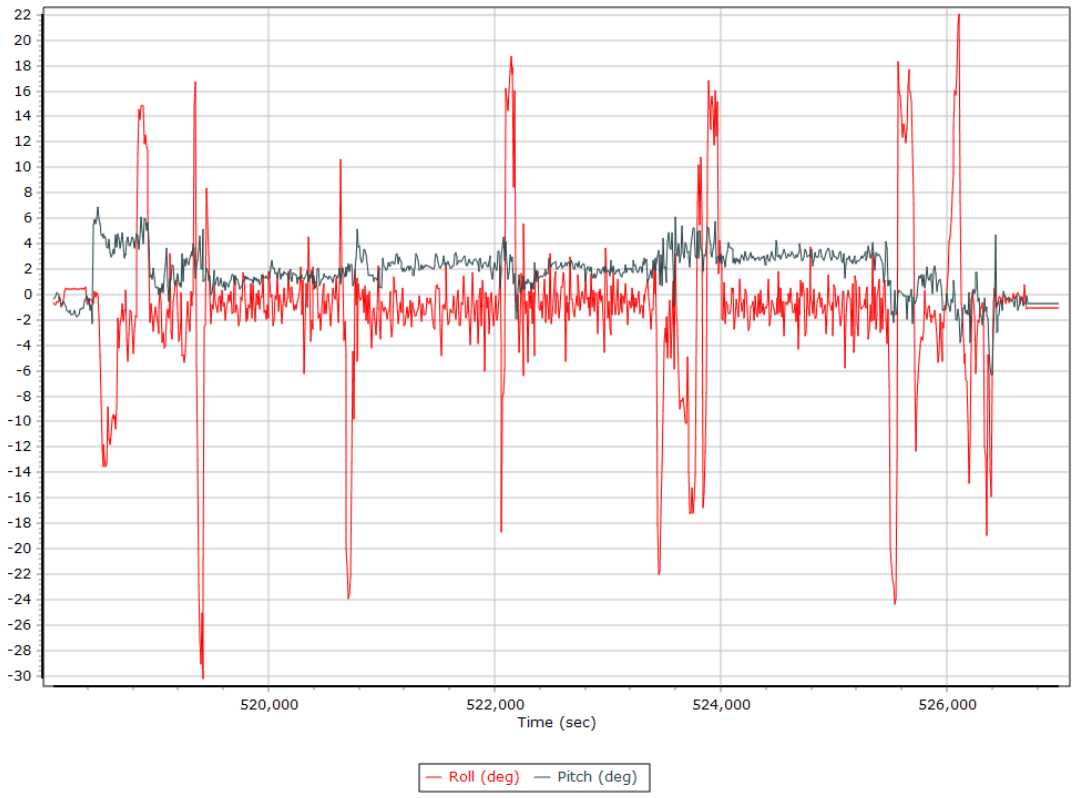
Top View



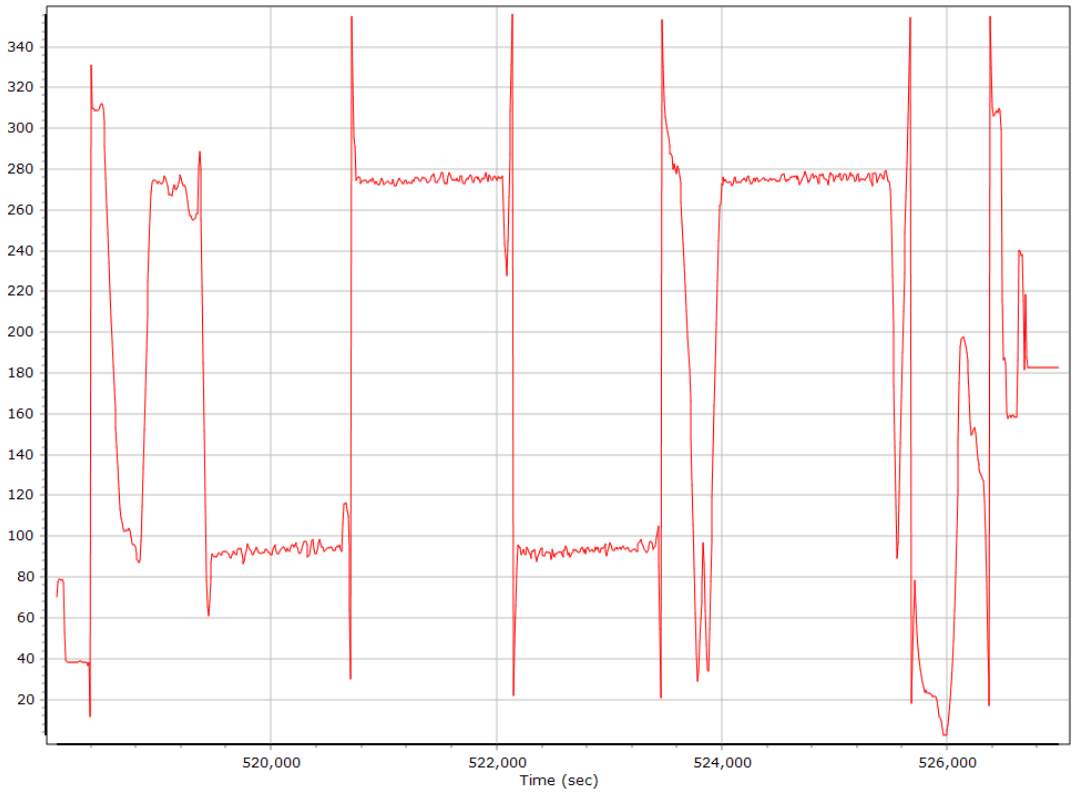
Altitude



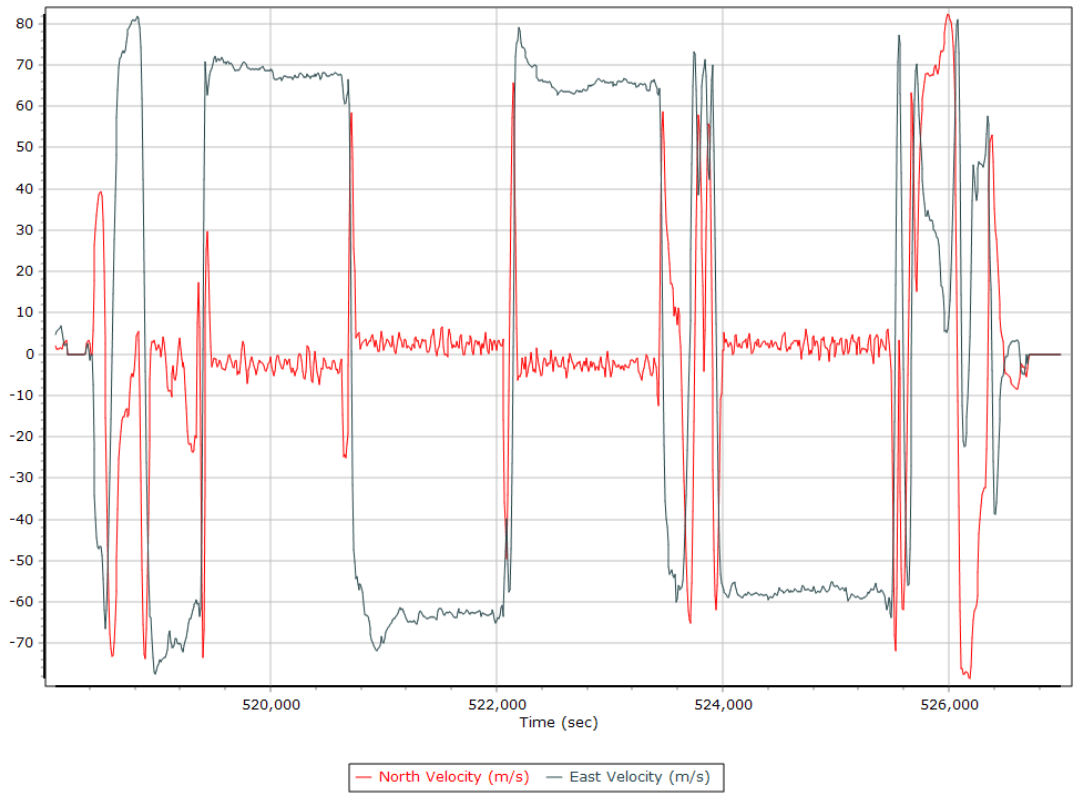
Roll/Pitch



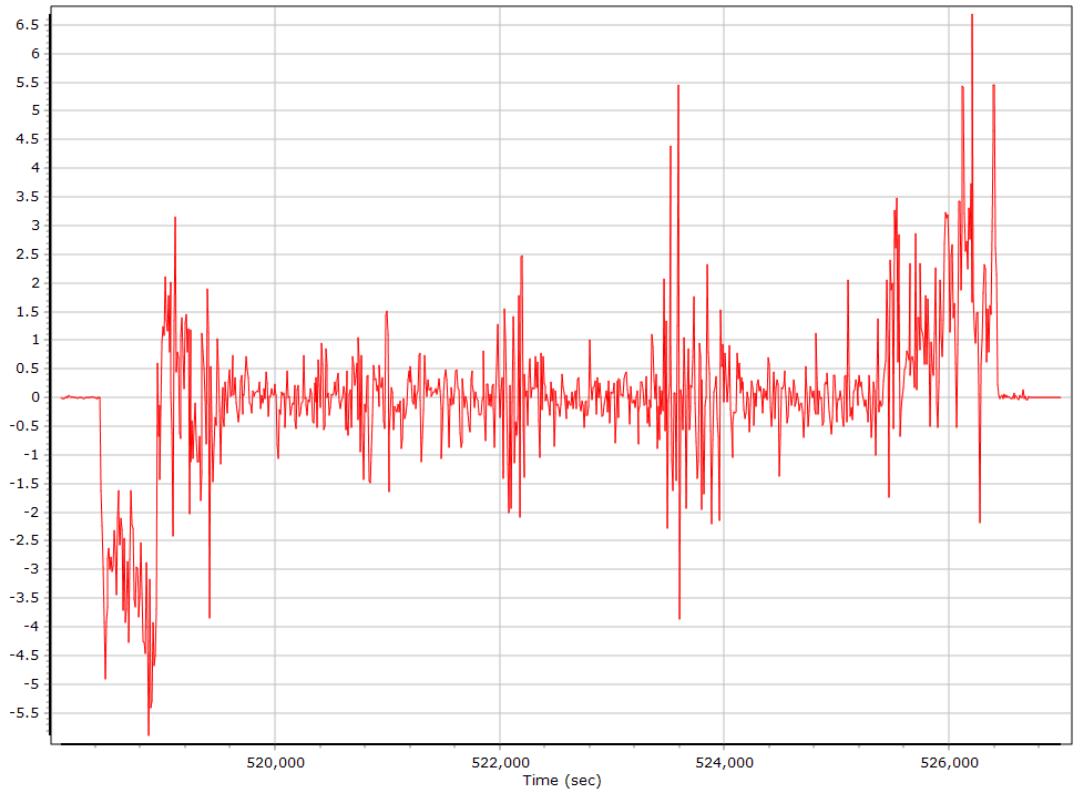
Heading



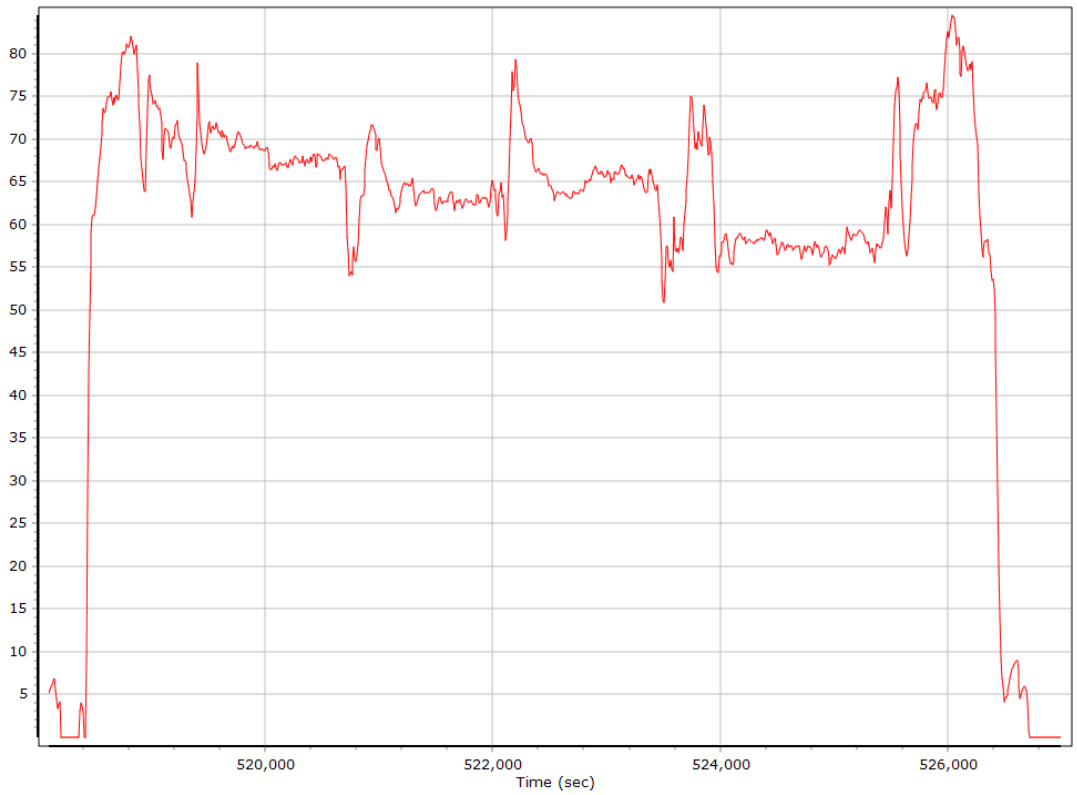
North/East Velocity



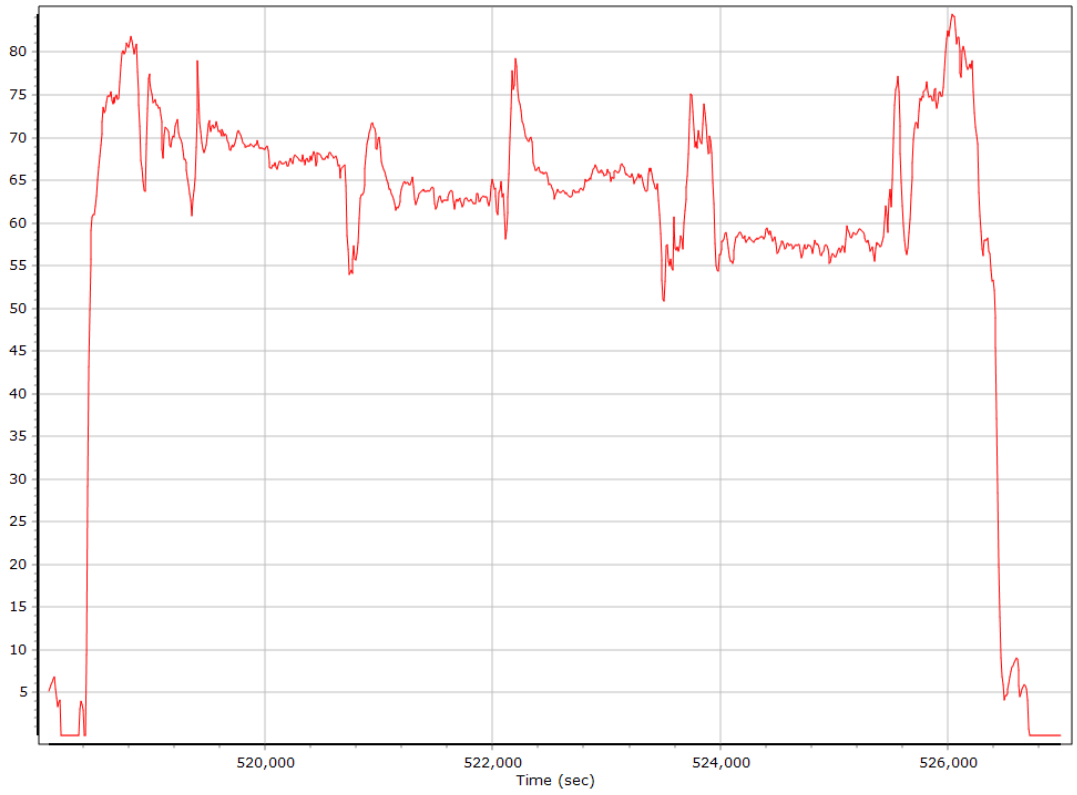
Down Velocity



Total Speed

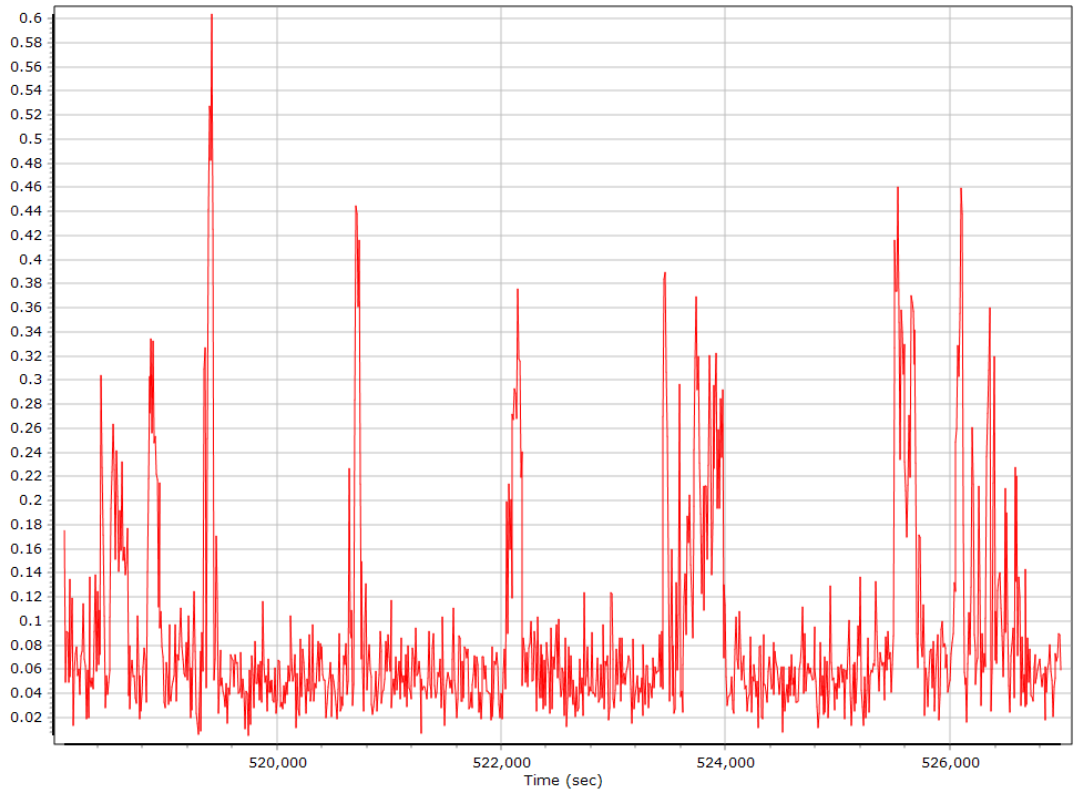


Ground Speed

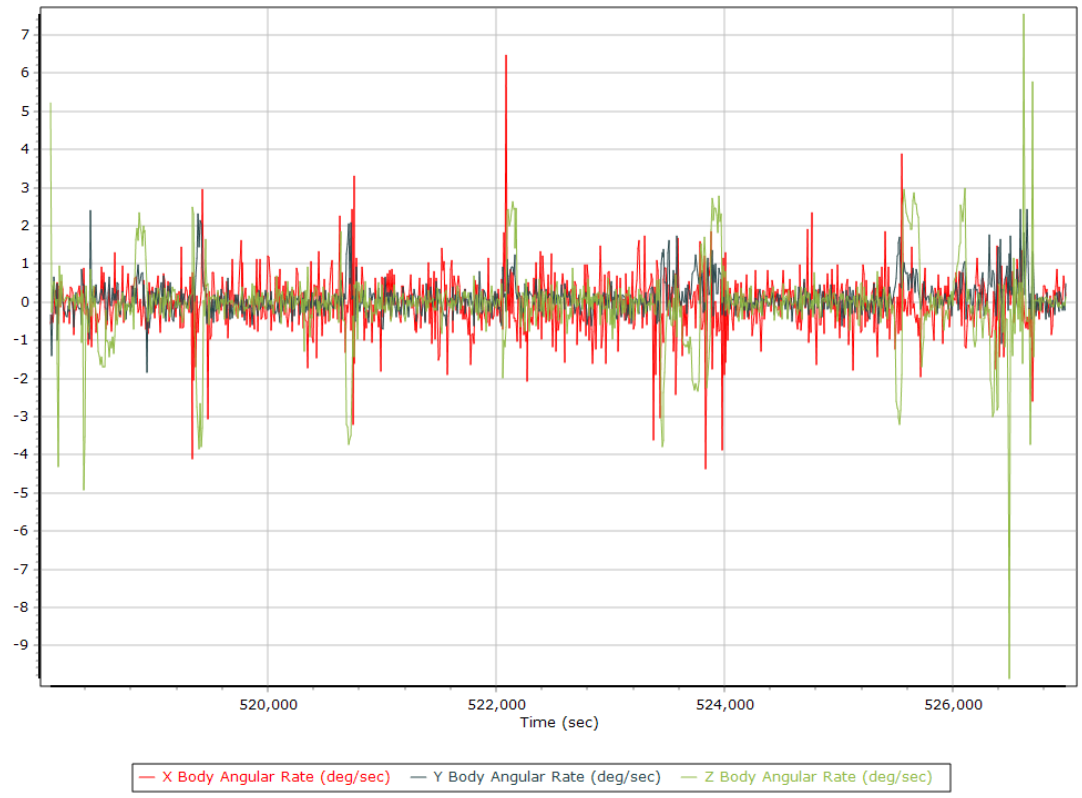


Body Acceleration

Total Body Acceleration



Body Angular Rate



SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
12/06/2019	IAAL	56.48	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	IAAL	56.48	GNSS	30	CORS (daily)	Smart Base	Imported
12/06/2019	IATA	63.05	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	IATA	63.05	GNSS	30	CORS (daily)	Smart Base	Imported
12/06/2019	IAMN	73.35	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	IAMN	73.35	GNSS	30	CORS (daily)	Smart Base	Imported
12/06/2019	IAEL	82.61	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	IAEL	82.61	GNSS	30	CORS (daily)	Smart Base	Imported
12/06/2019	IADE	93.77	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	IADE	93.77	GNSS	30	CORS (daily)	Smart Base	Imported
12/06/2019	NLIB	93.91	GNSS	30	CORS (daily)	Smart Base	Imported
12/07/2019	NLIB	93.91	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IAAL
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	9530 s (2082 517487 - 2082 527017)
Number of reference stations	5
Primary station GPS measurement usage (%)	99.6
Primary station GLONASS measurement usage (%)	73.0
Average number of satellites per epoch	13.1
Max number of GPS stations used	5
Min number of GPS stations used	3
Max number of GLONASS stations used	5
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	19467
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

Base Station Information - IADE

Station ID	IADE		
Filename	iade3400.19o, iade3410.19o		
Start date	12/6/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83212"		
Longitude	W91°49'53.52608"		
Ellipsoidal height (m)	316.51645		
Frame	ITRF00		
Epoch	2019.928767		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IAEL

Station ID	IAEL		
Filename	iael3400.19o, iael3410.19o		
Start date	12/6/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47667"		
Longitude	W91°21'41.52962"		
Ellipsoidal height (m)	298.98059		
Frame	ITRF00		
Epoch	2019.928767		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IAMN

Station ID	IAMN		
Filename	iamn3400.19o, iamn3410.19o		
Start date	12/6/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10896"		
Longitude	W91°32'55.59726"		
Ellipsoidal height (m)	228.90443		
Frame	ITRF00		
Epoch	2019.928767		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IATA

Station ID	IATA		
Filename	iata3400.19o, iata3410.19o		
Start date	12/6/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67192"		
Longitude	W92°33'05.07478"		
Ellipsoidal height (m)	247.33464		
Frame	ITRF00		
Epoch	2019.928767		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IAAL

Station ID	IAAL		
Filename	iaal3400.19o, iaal3410.19o		
Start date	12/6/2019 12:00:00 AM		
End date	12/7/2019 11:59:30 PM		
Duration	1:23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40421"		
Longitude	W92°47'14.24700"		
Ellipsoidal height (m)	291.09260		
Frame	ITRF00		
Epoch	2019.928767		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	1.74	52.50	
Number of GPS SV	6	9	8
Number of GLONASS SV	0	7	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	7	15	13
PDOP	1.32	2.38	1.74
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	9498.00	0.00	1.00
Percentage	99.99	0.00	0.01

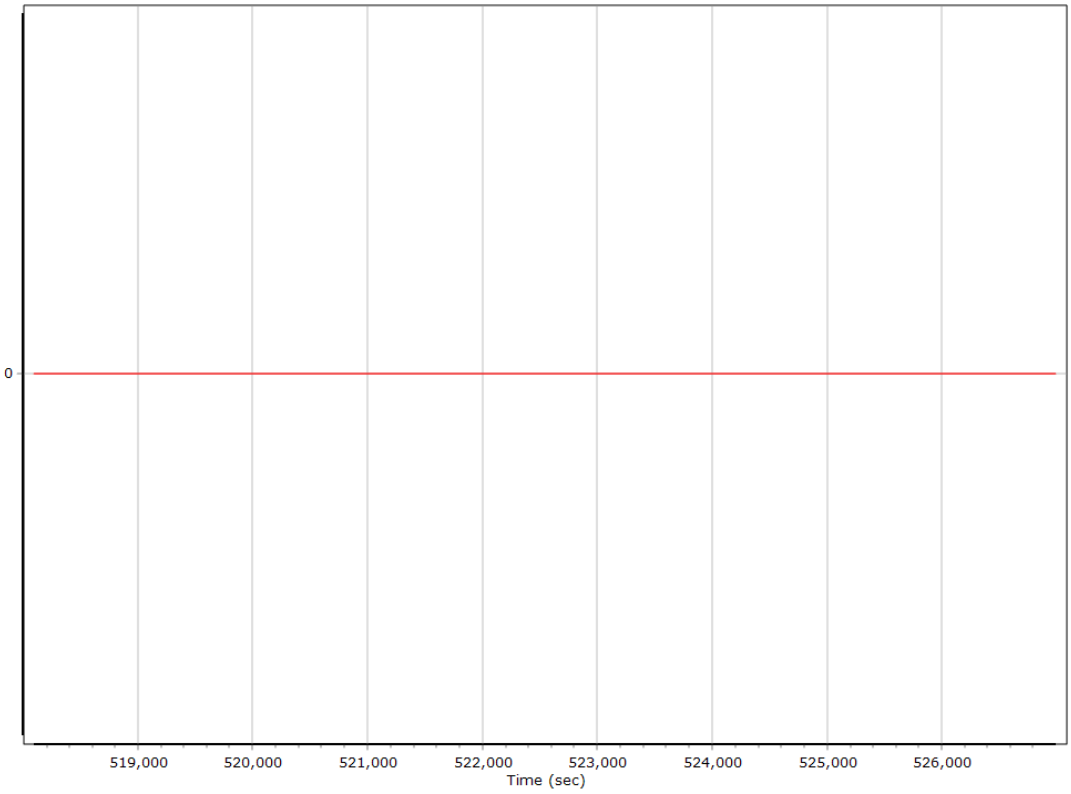
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	517469.000 (12/6/2019 11:44:29 PM)		
Processing end time	526999.000 (12/7/2019 2:23:19 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

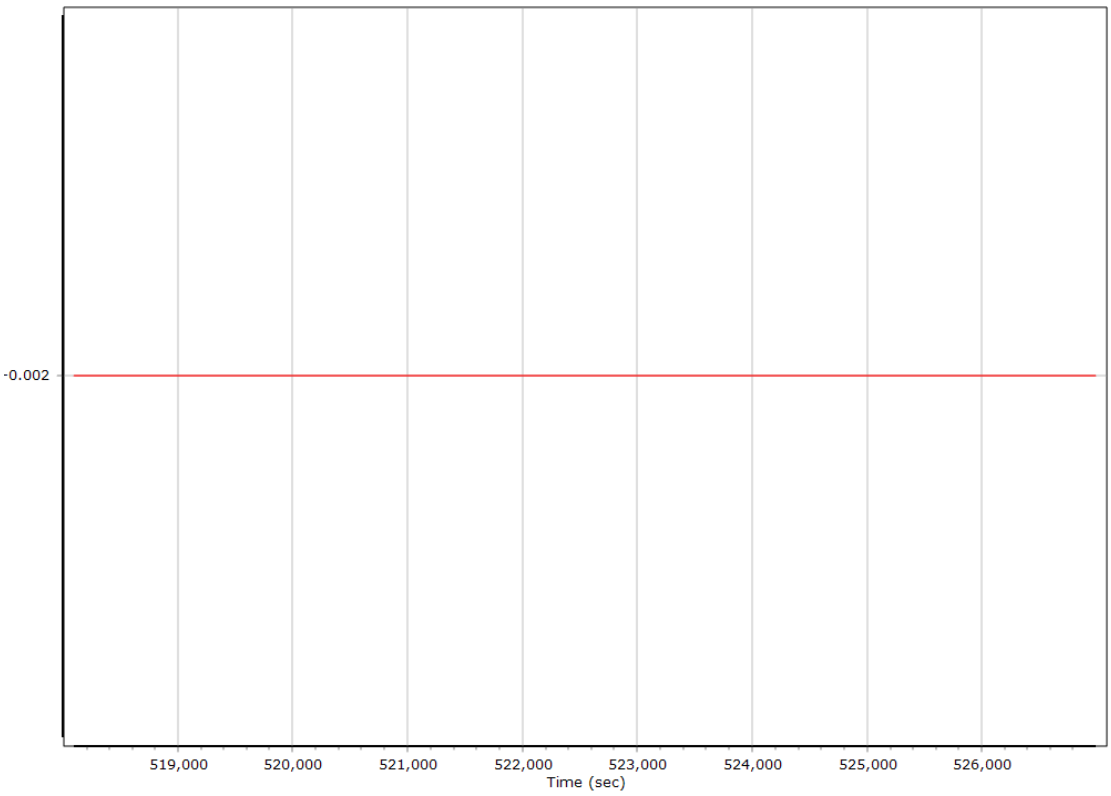
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

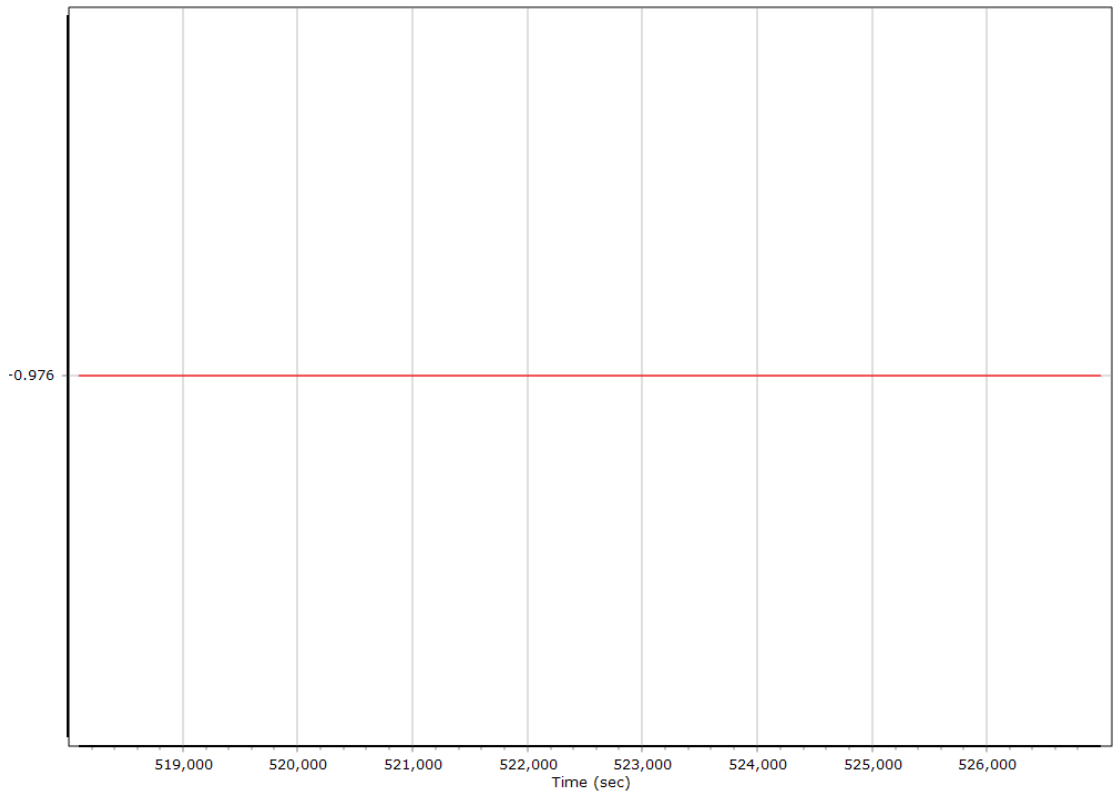
X Reference-Primary GNSS Lever Arm (m)



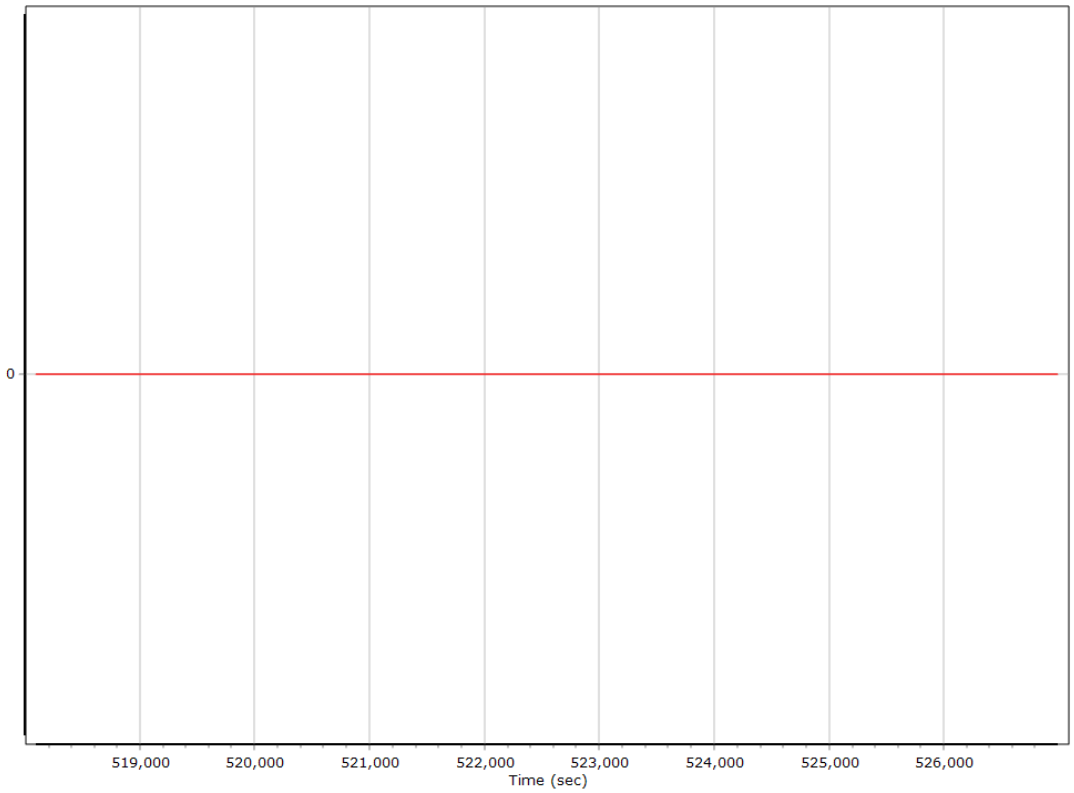
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



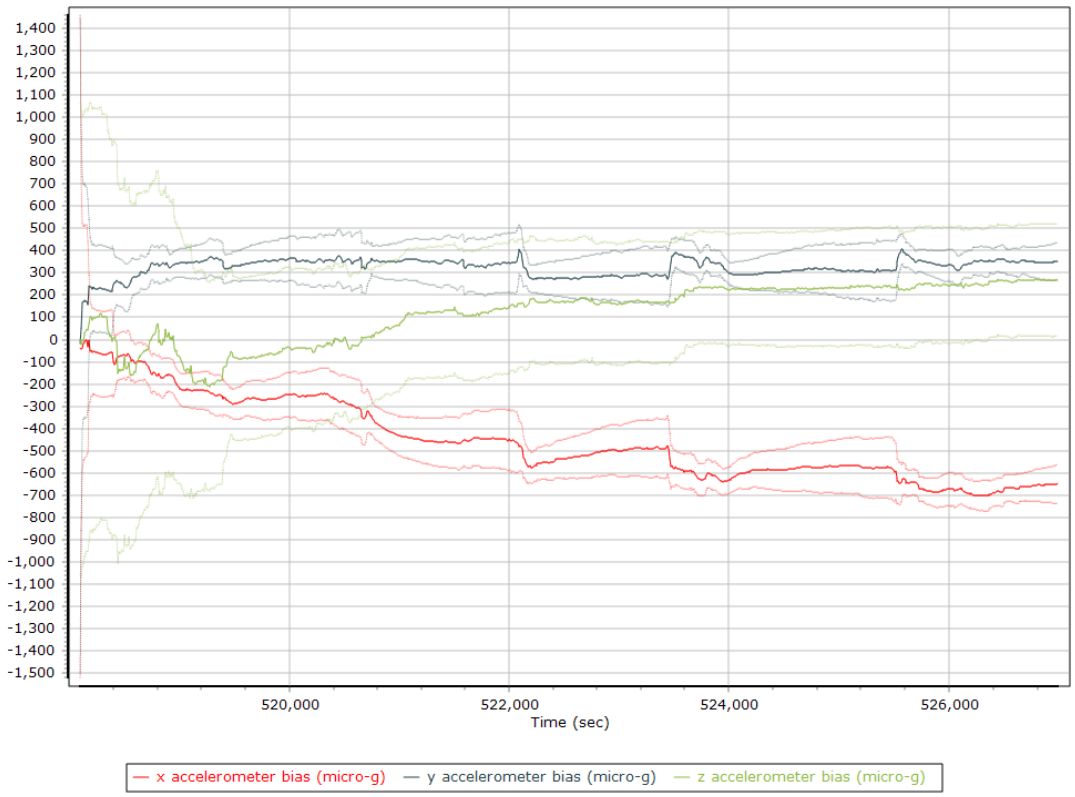
Reference-Primary GNSS Lever Arm Figure of Merit



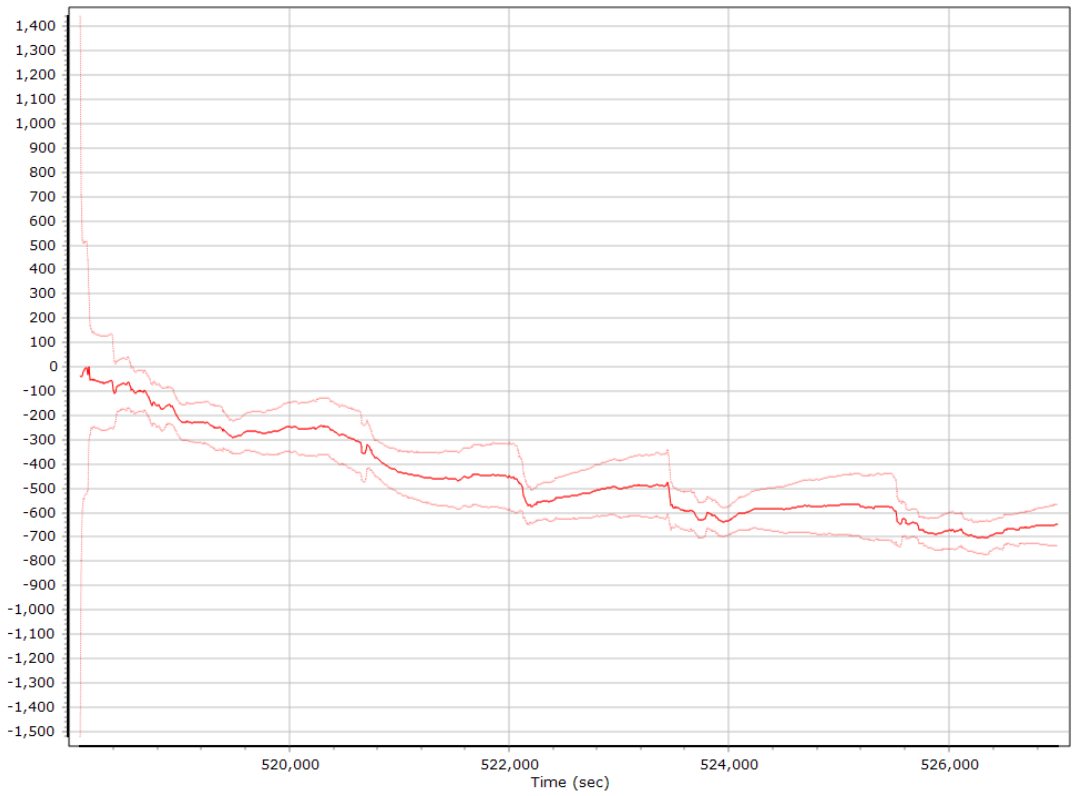
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

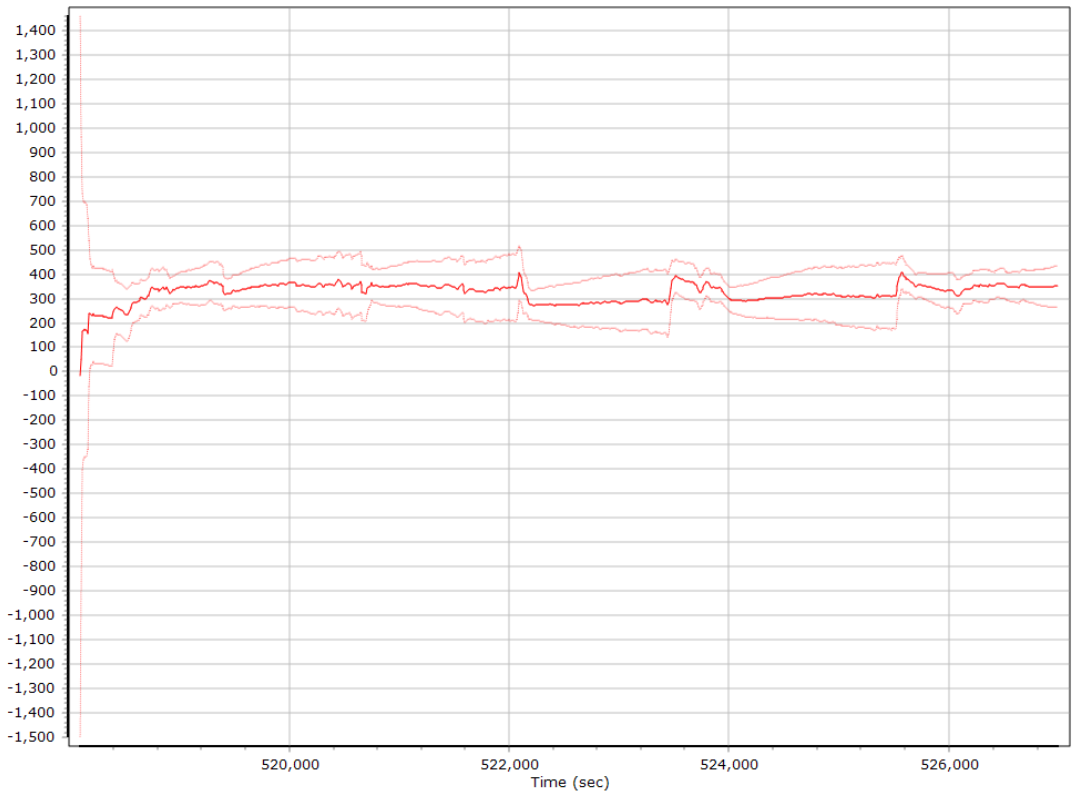
Accelerometer Bias (micro-g)



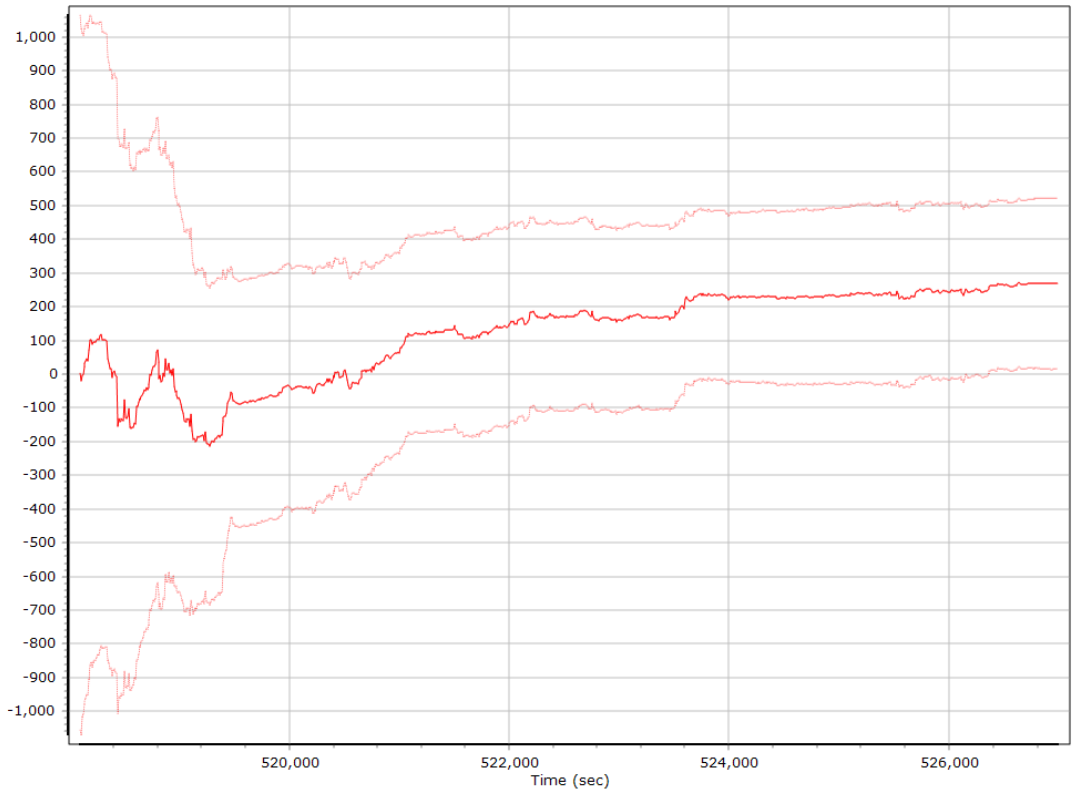
X Accelerometer Bias (micro-g)



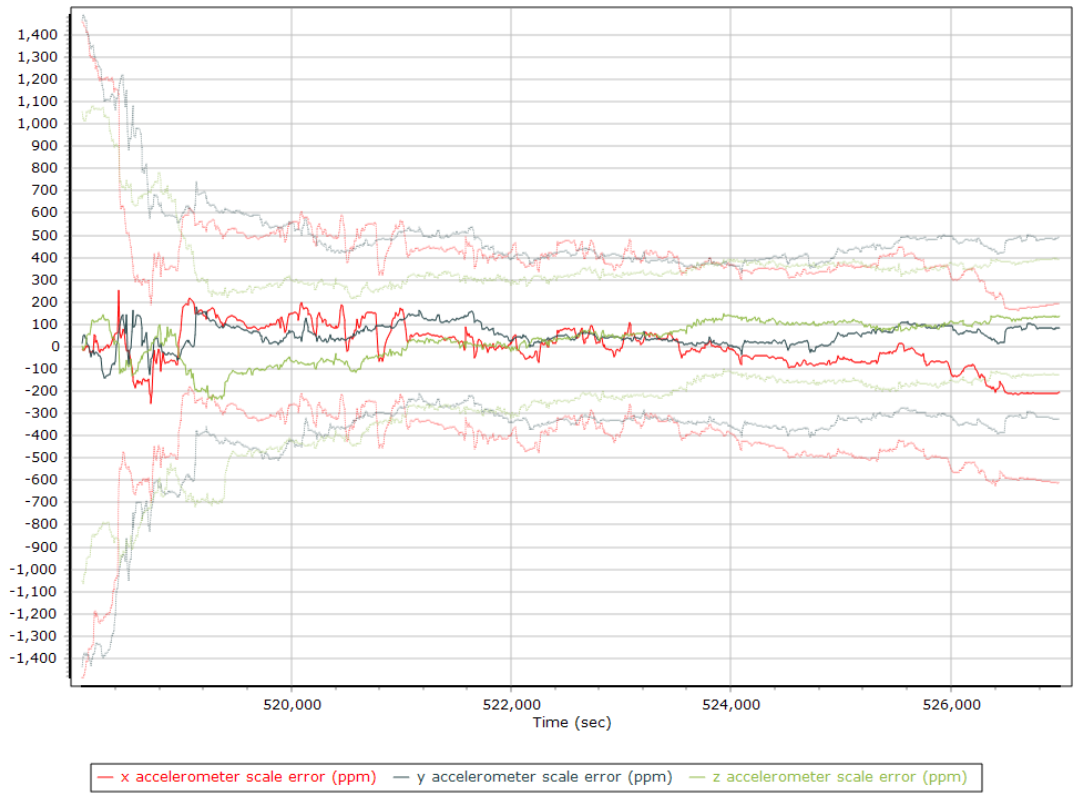
Y Accelerometer Bias (micro-g)



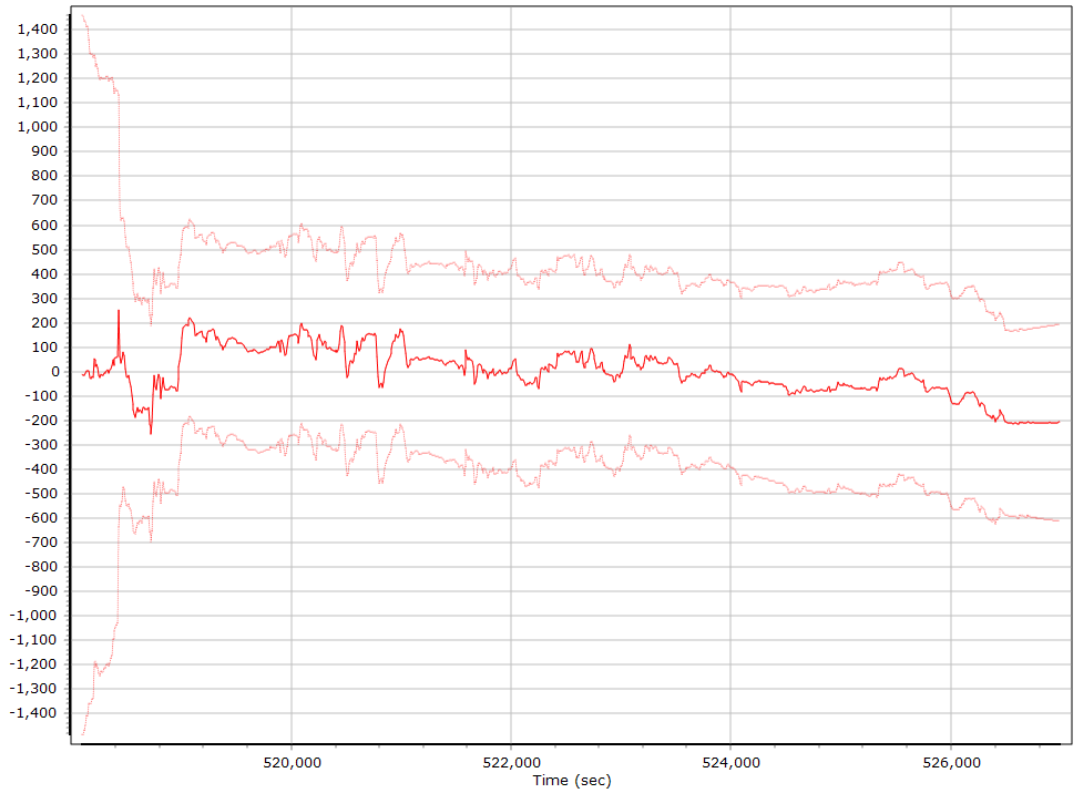
Z Accelerometer Bias (micro-g)



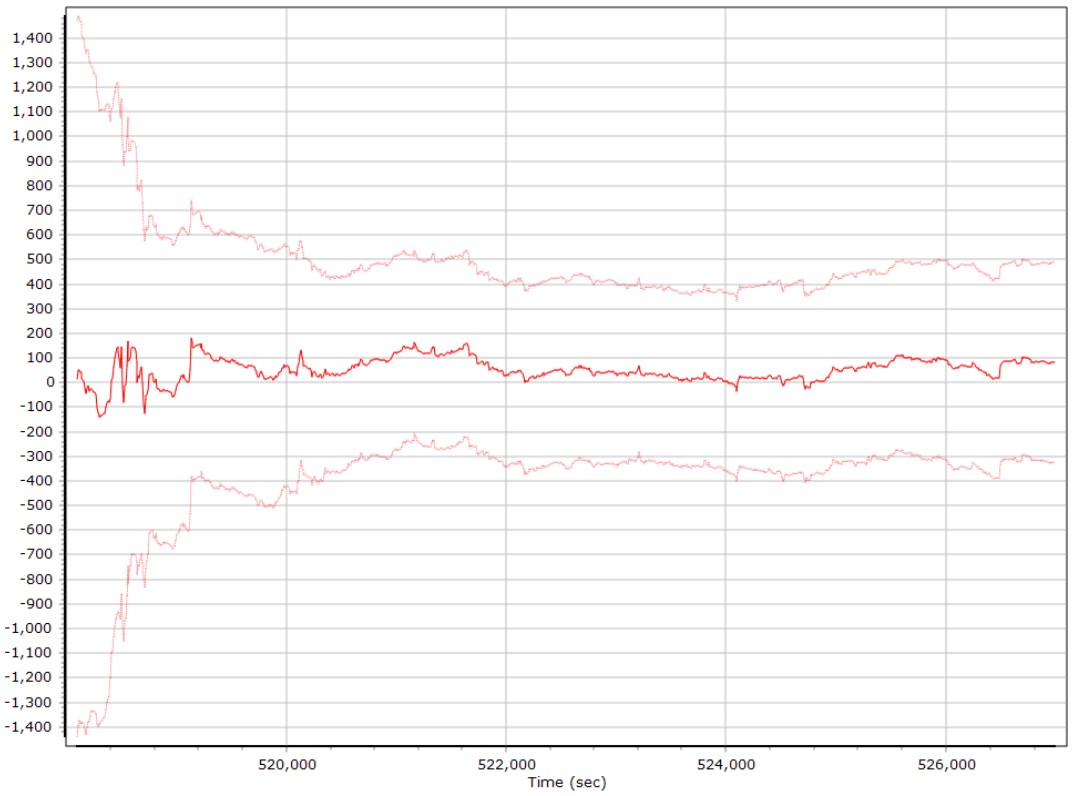
Accelerometer Scale Error (ppm)



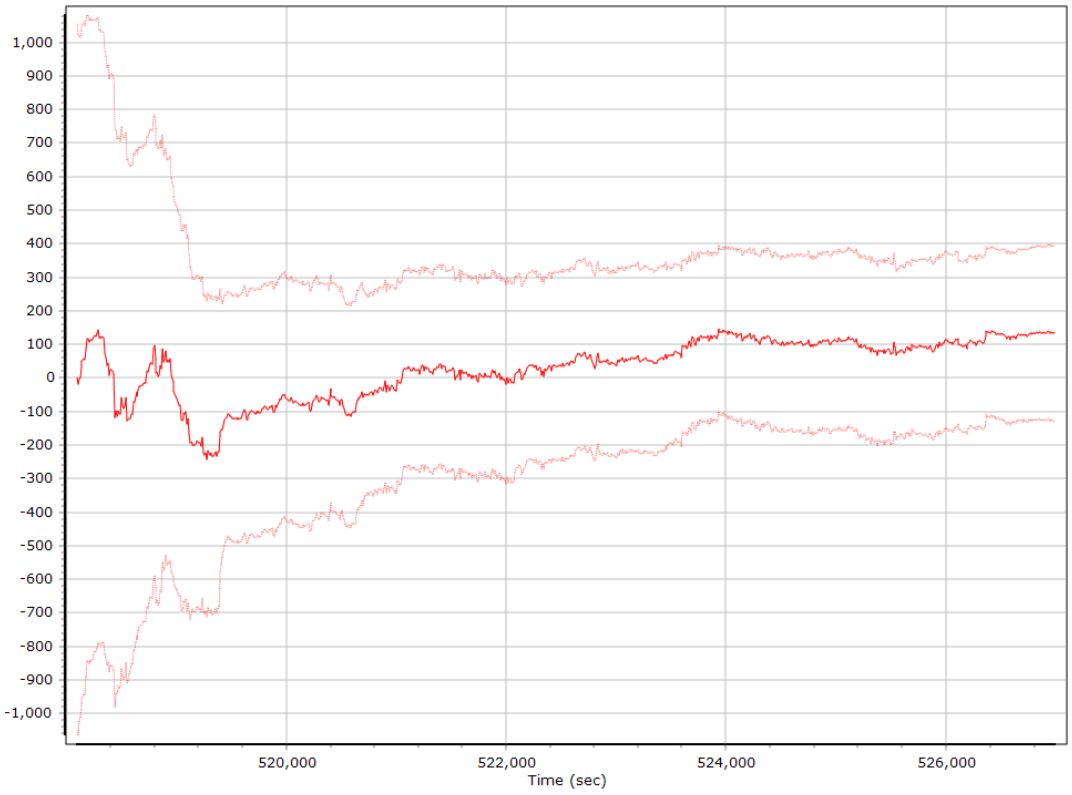
X Accelerometer Scale Error (ppm)



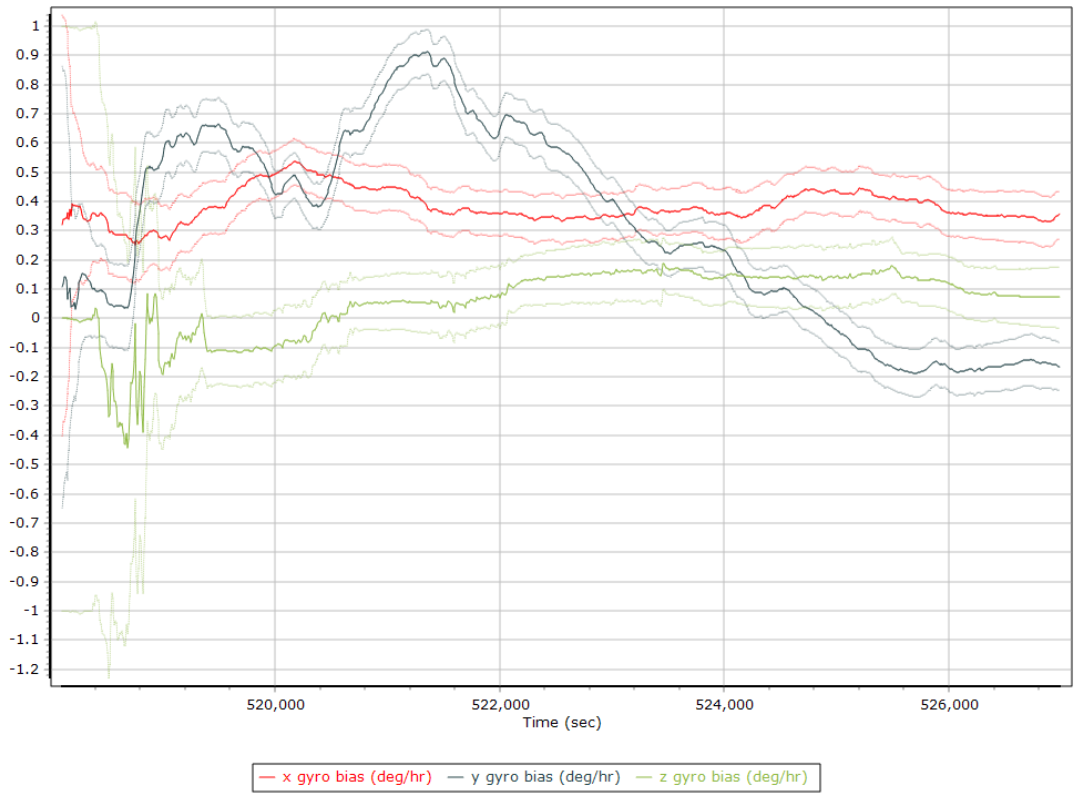
Y Accelerometer Scale Error (ppm)



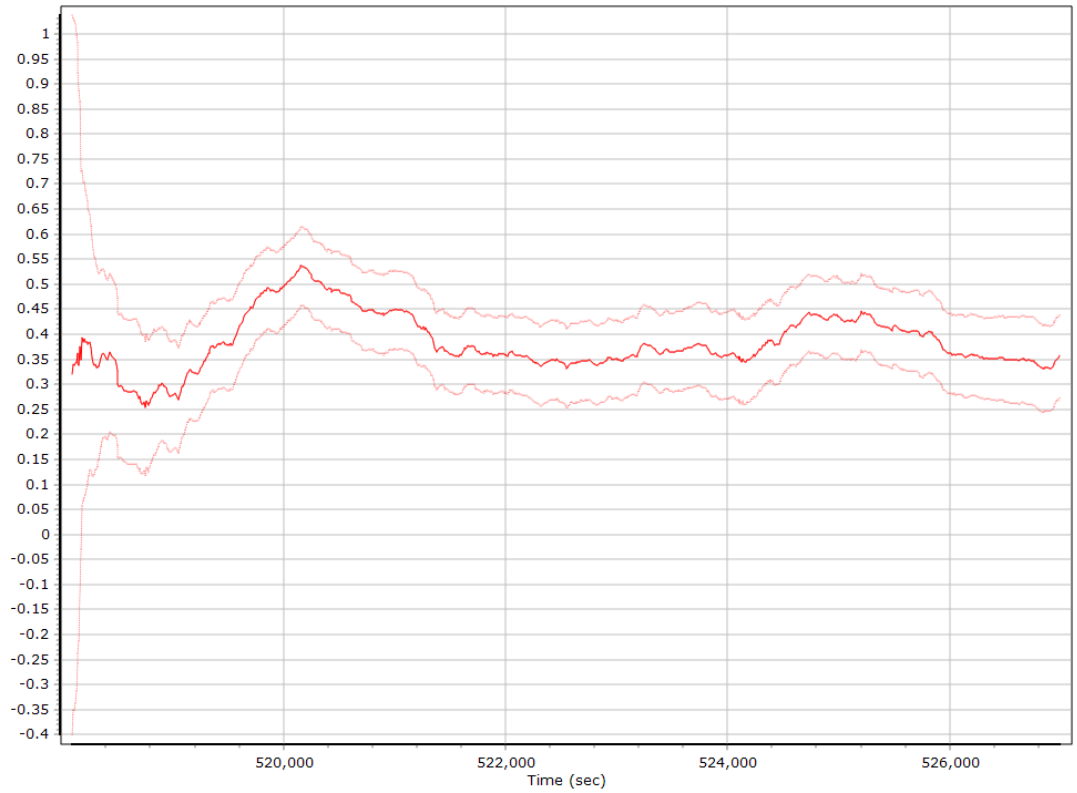
Z Accelerometer Scale Error (ppm)



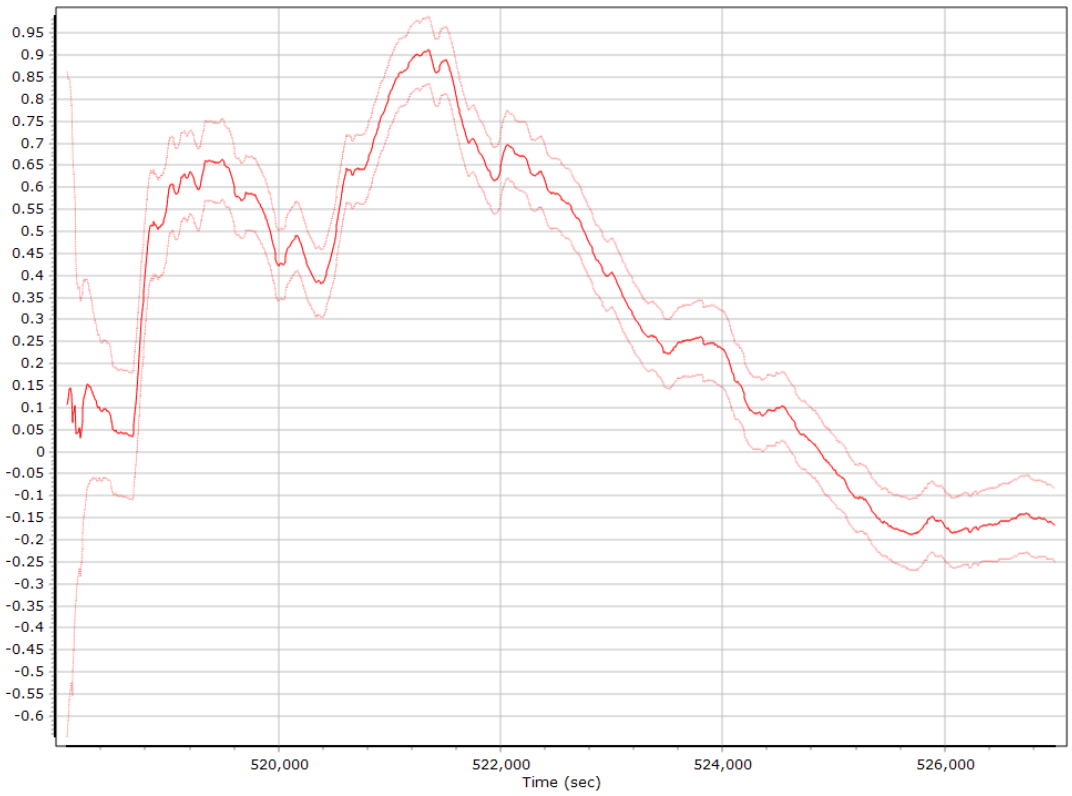
Gyro Bias (deg/h)



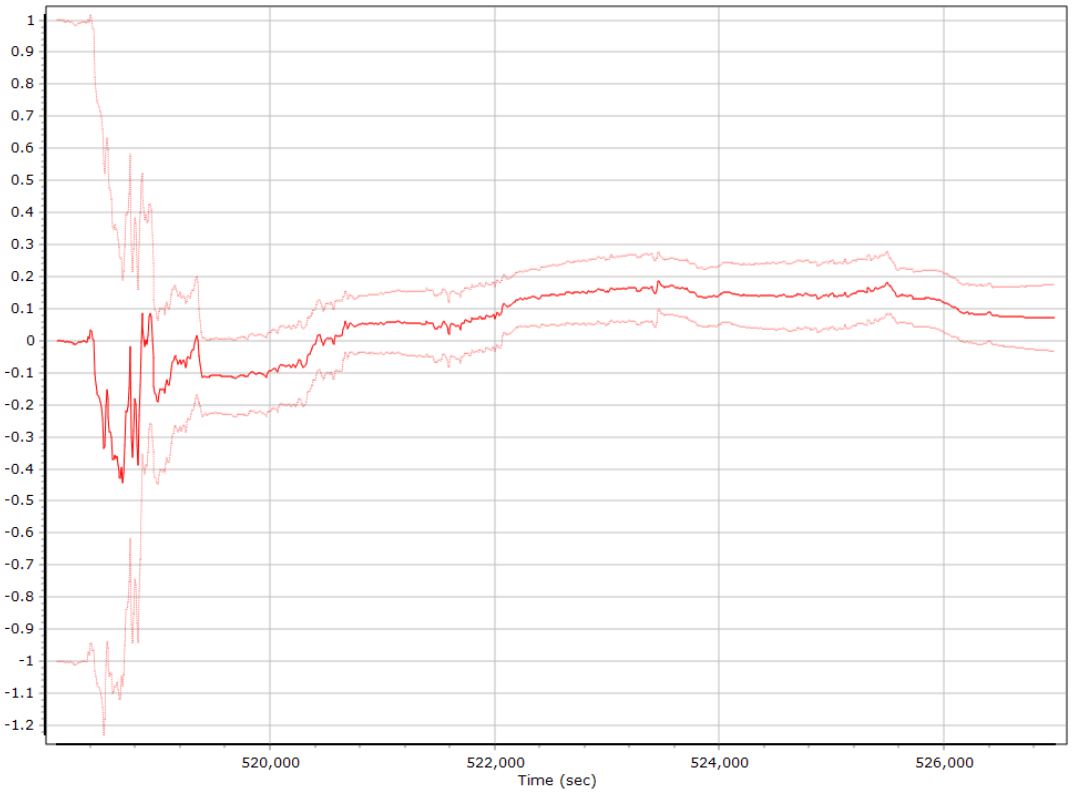
X Gyro Bias (deg/h)



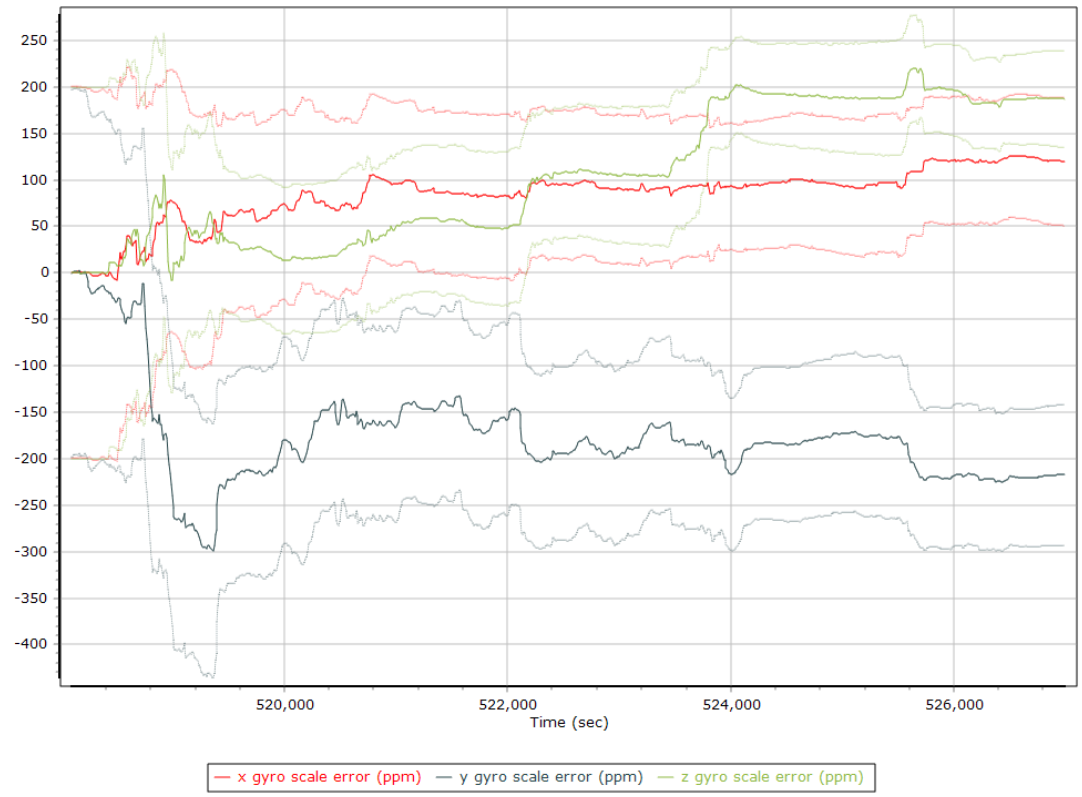
Y Gyro Bias (deg/h)



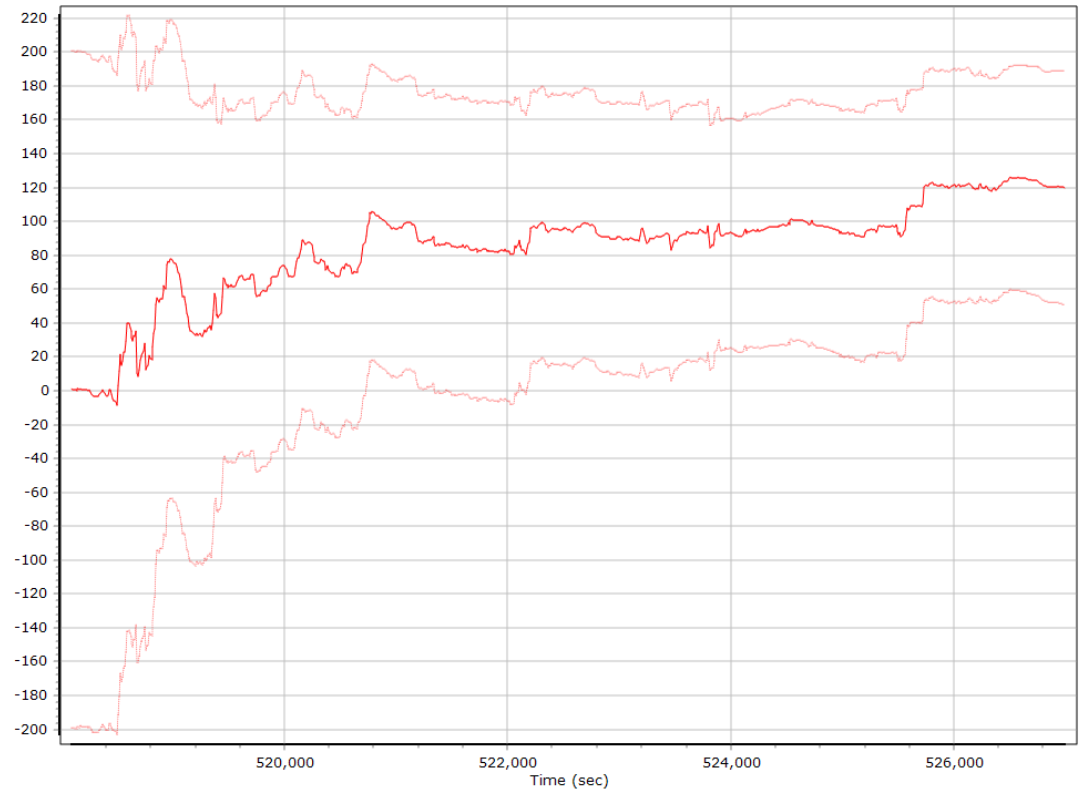
Z Gyro Bias (deg/h)



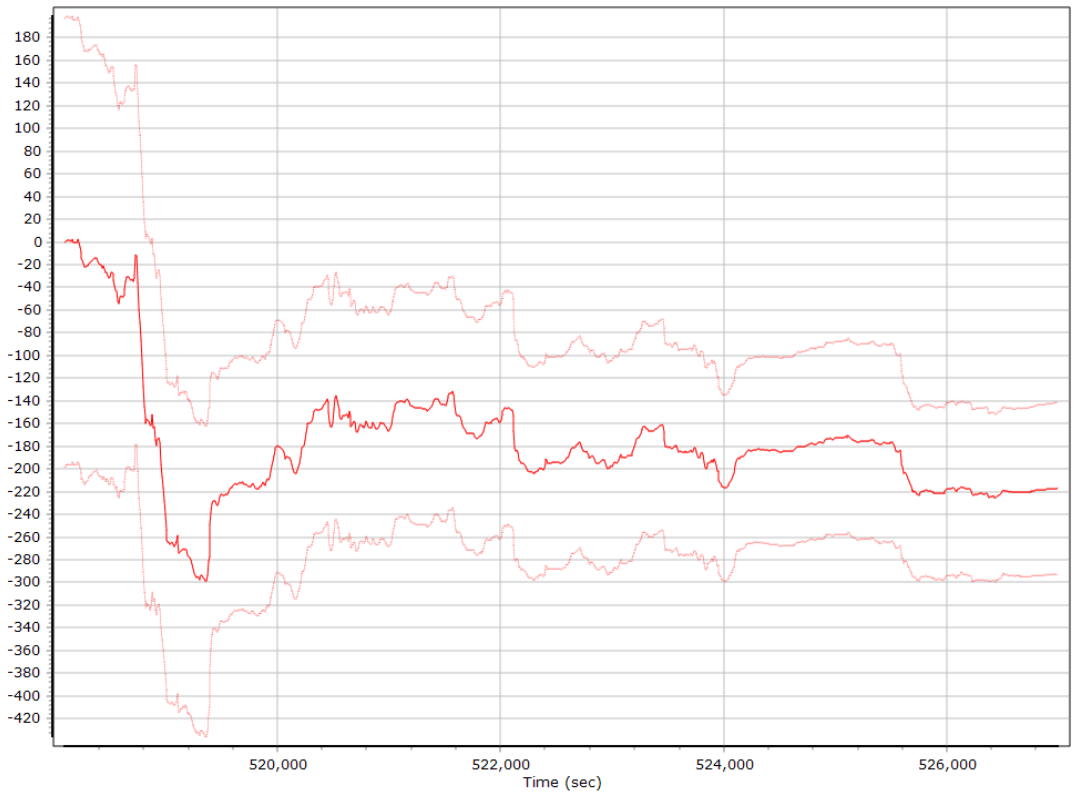
Gyro Scale Error (ppm)



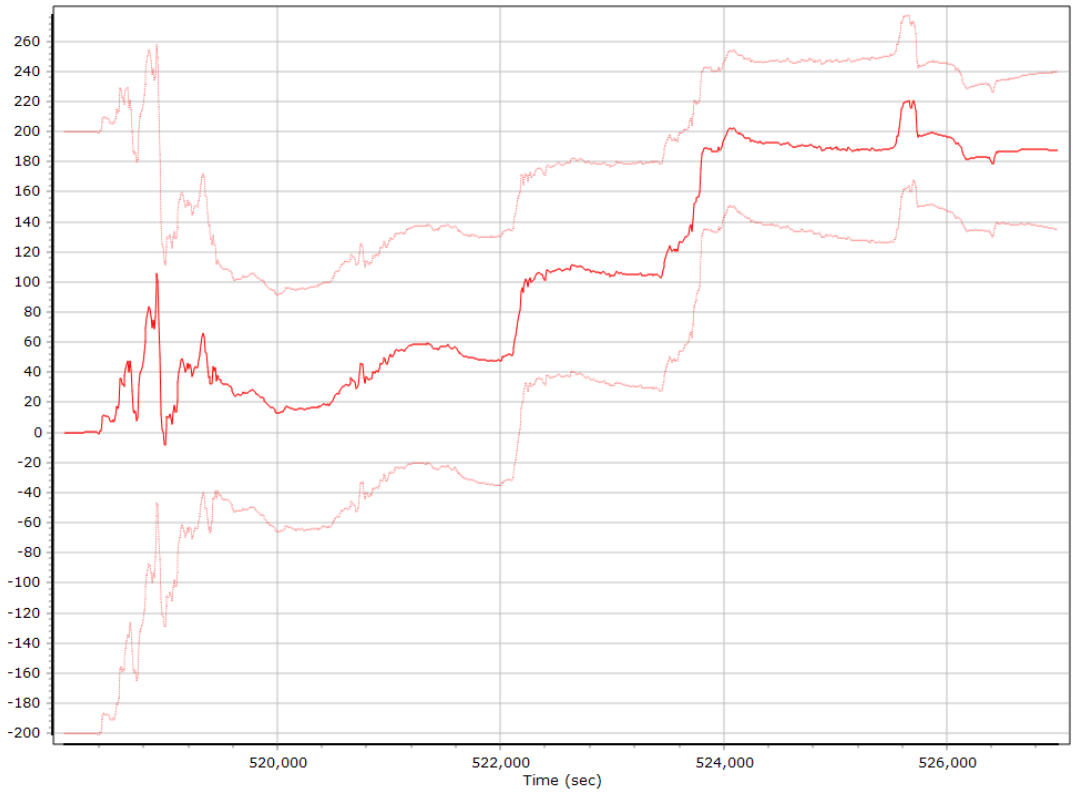
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

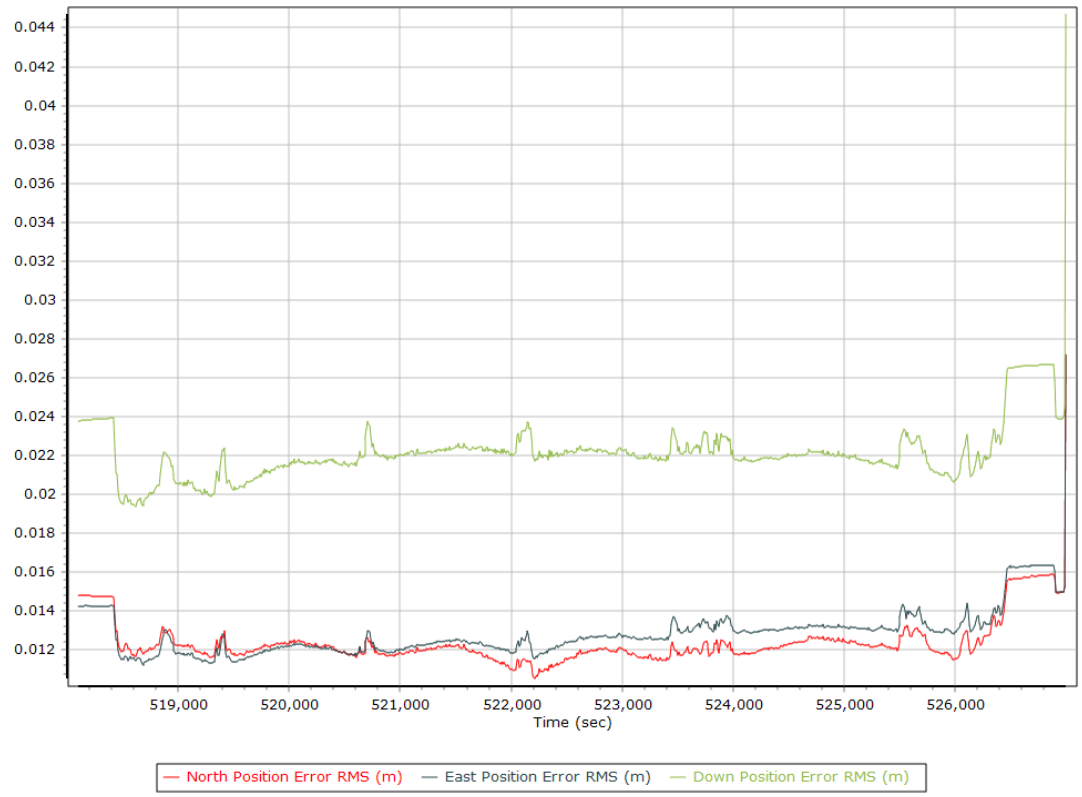


Z Gyro Scale Error (ppm)

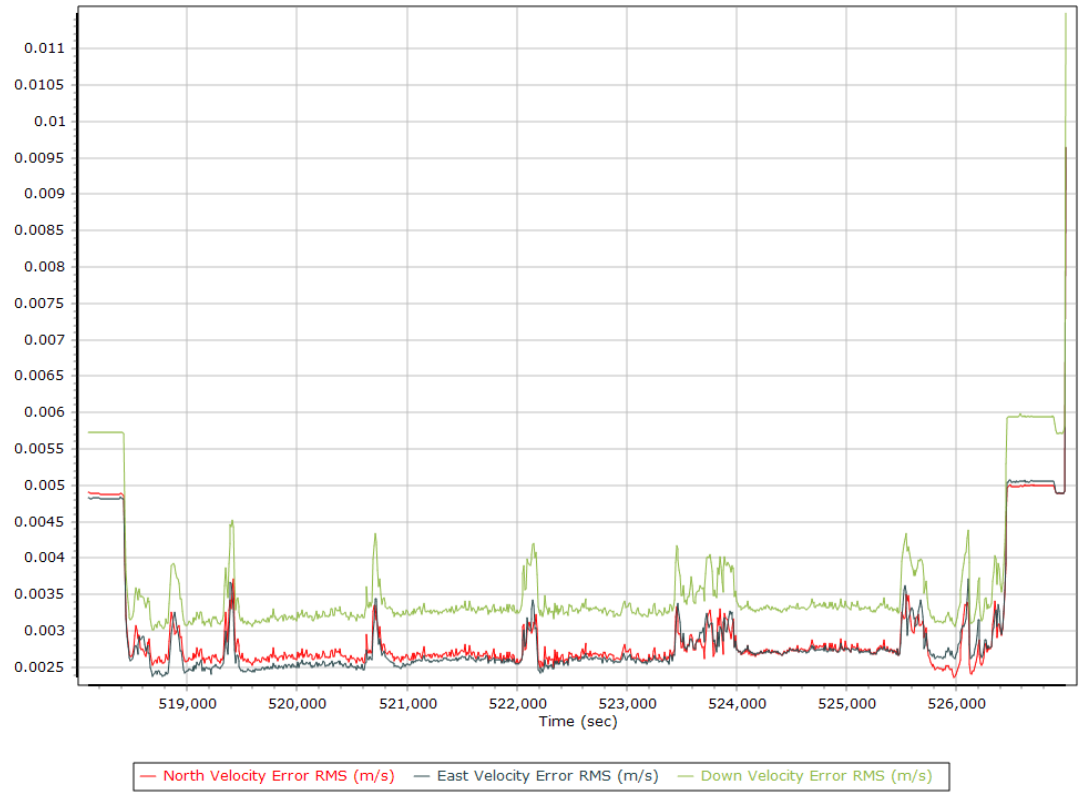


Smoothed Performance Metrics

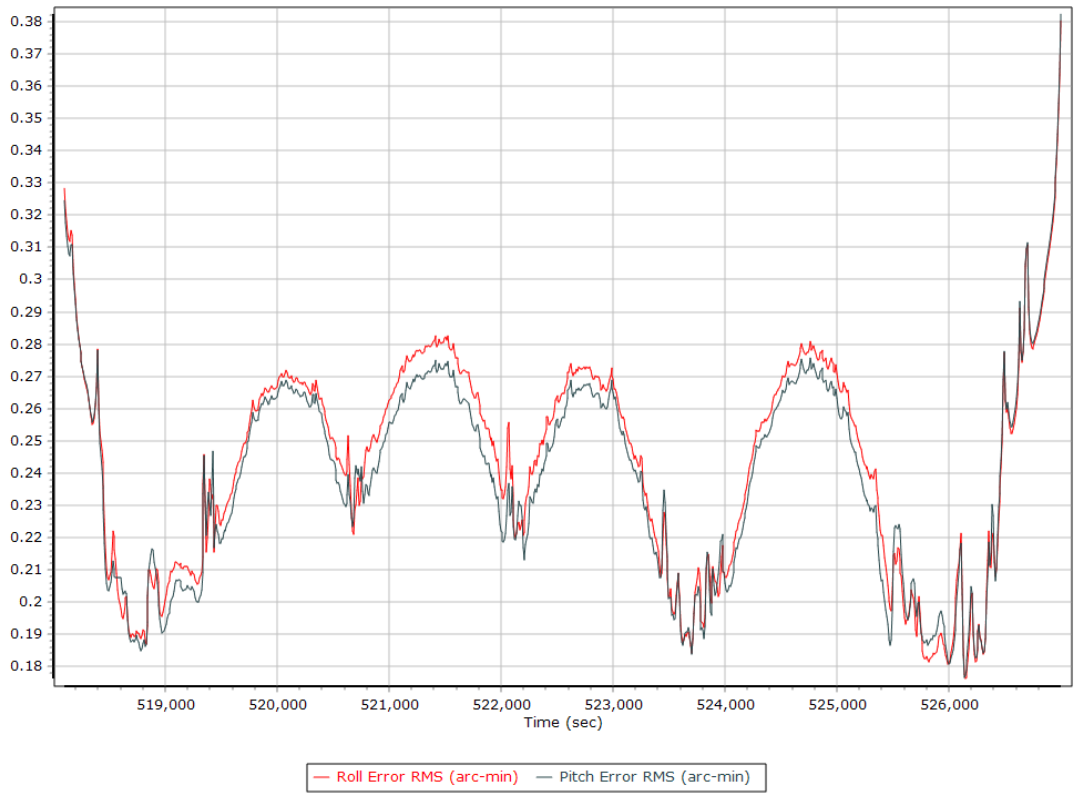
Position Error RMS (m)



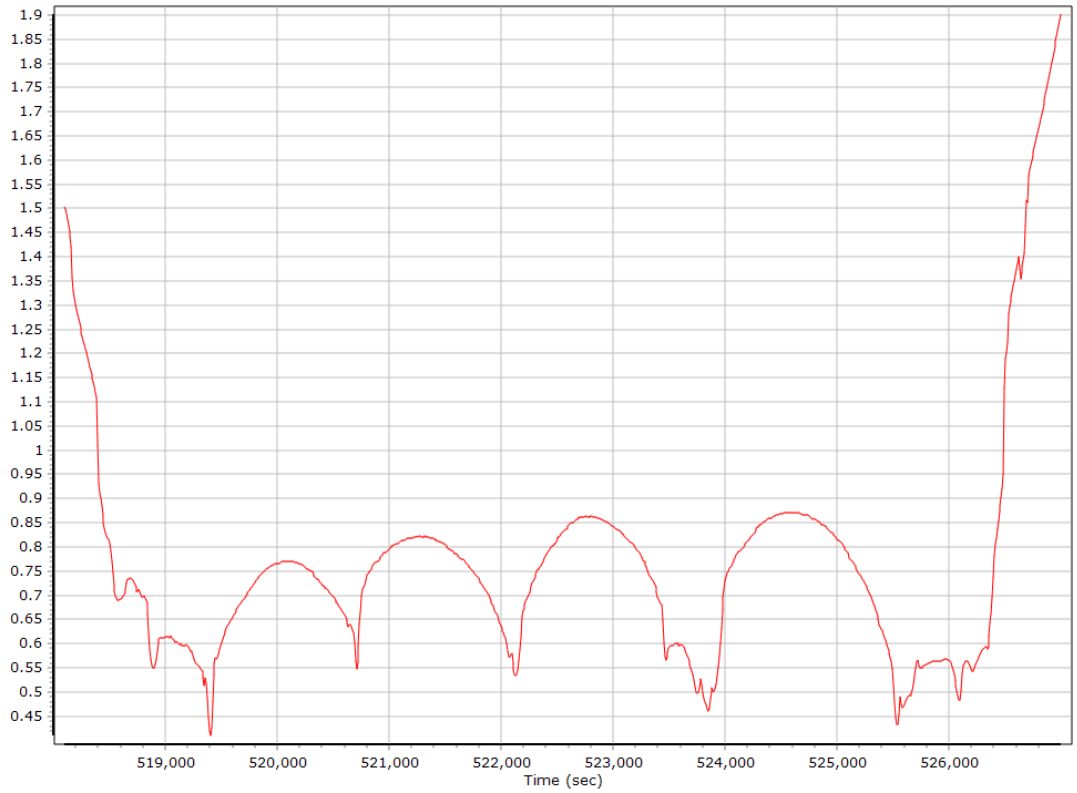
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

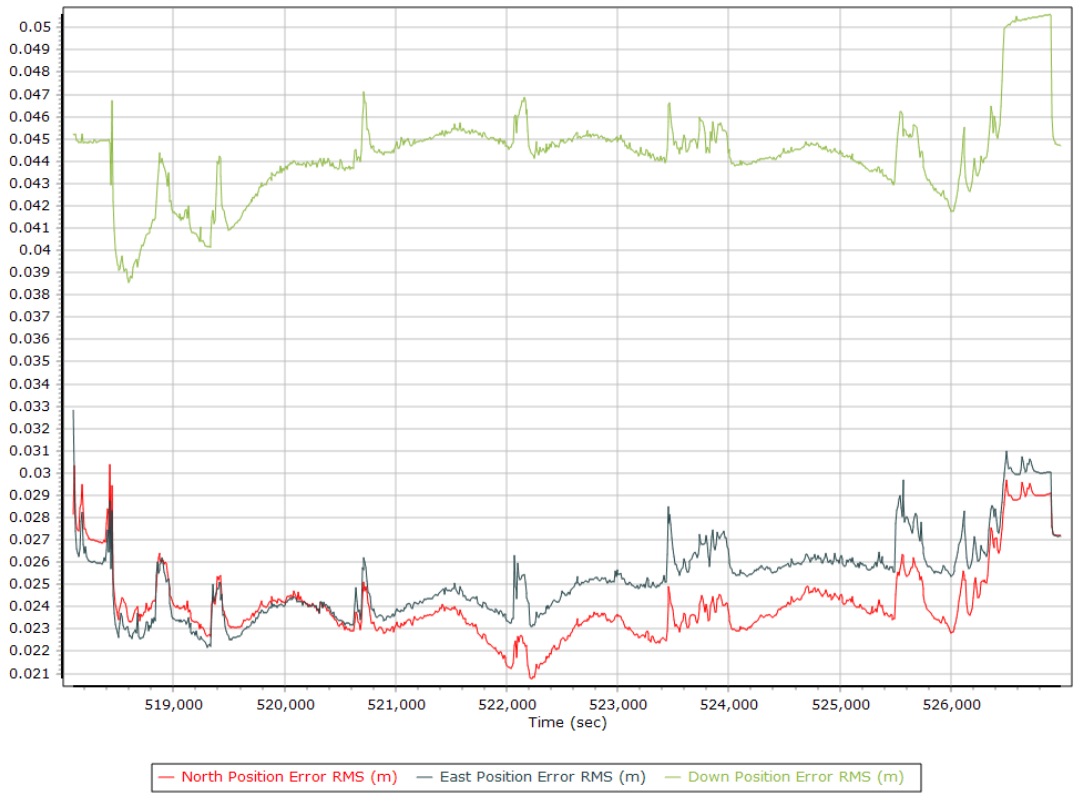


Heading Error RMS (arc-min)

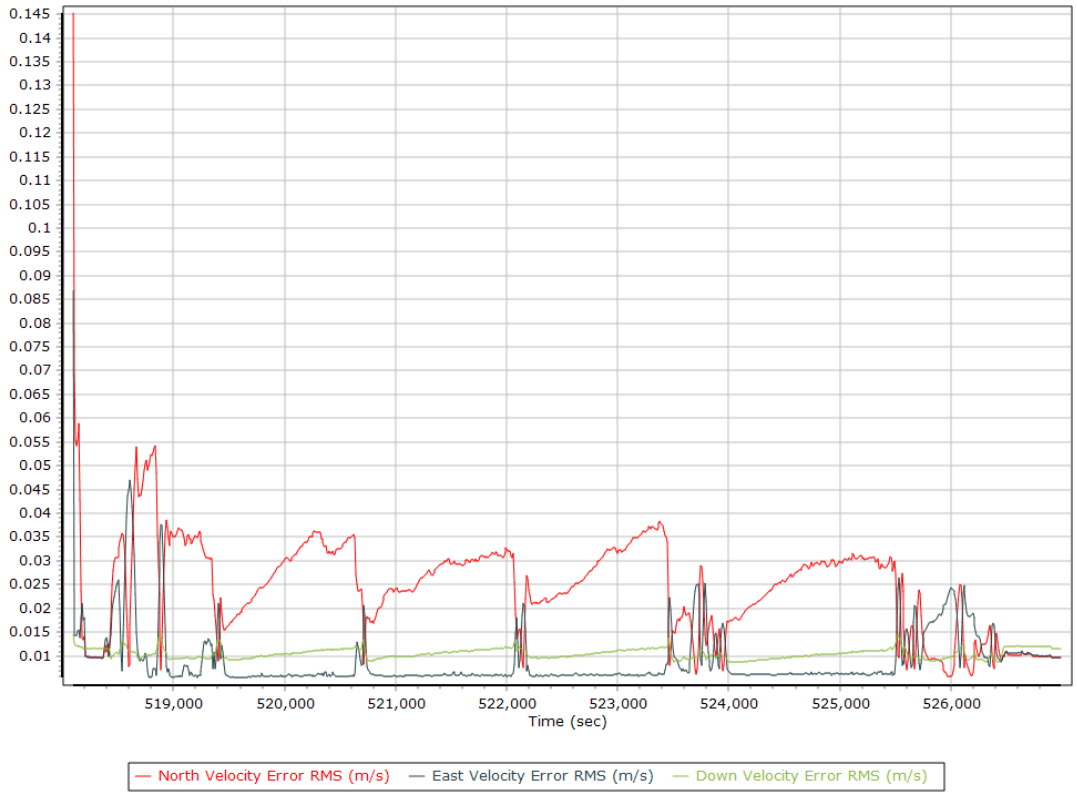


Forward Processed Performance Metrics

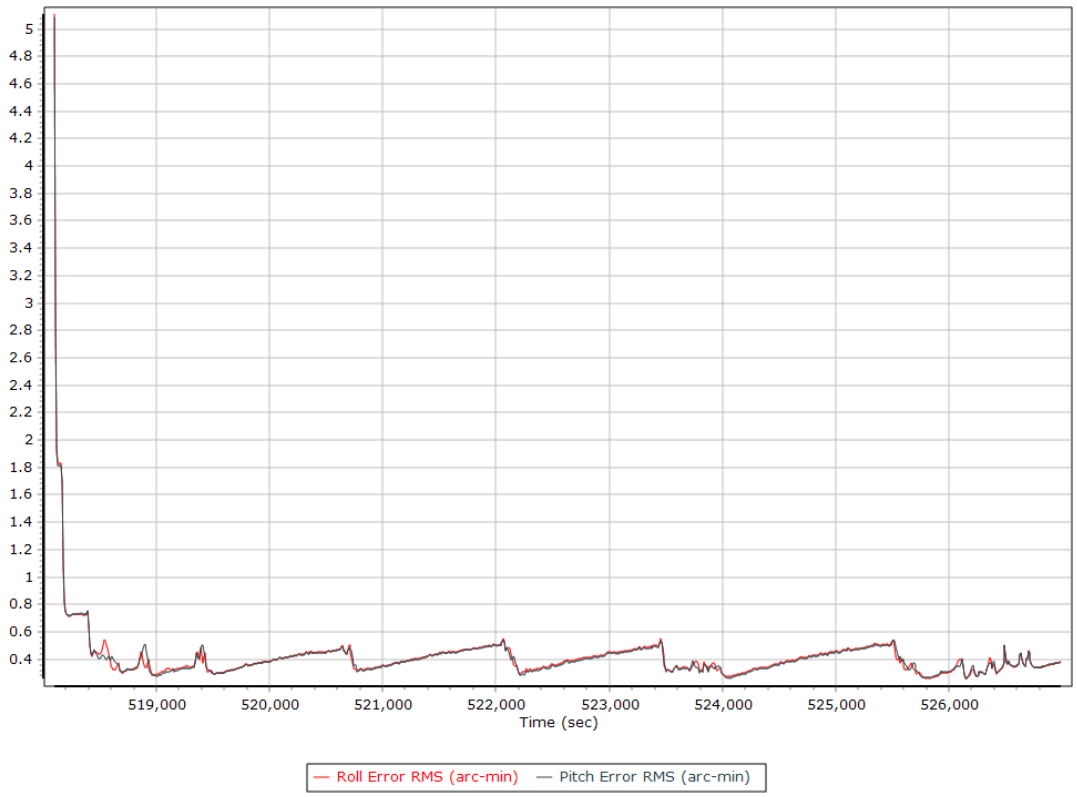
Position Error RMS (m)



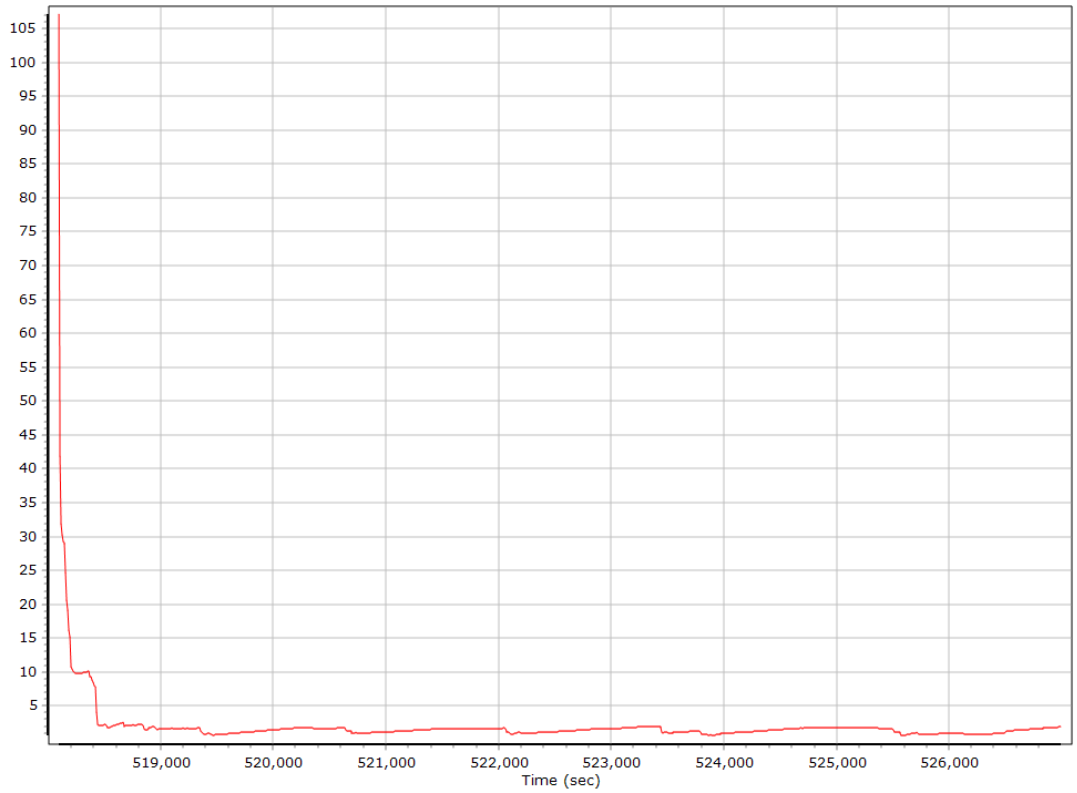
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

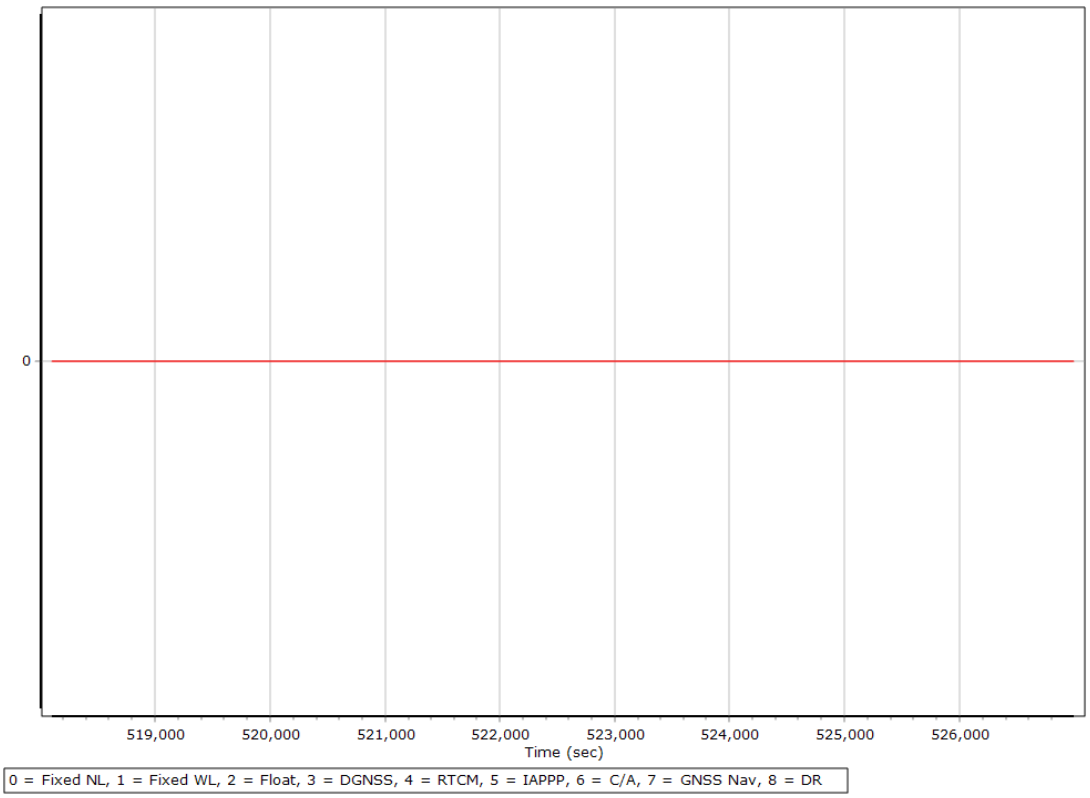


Heading Error RMS (arc-min)

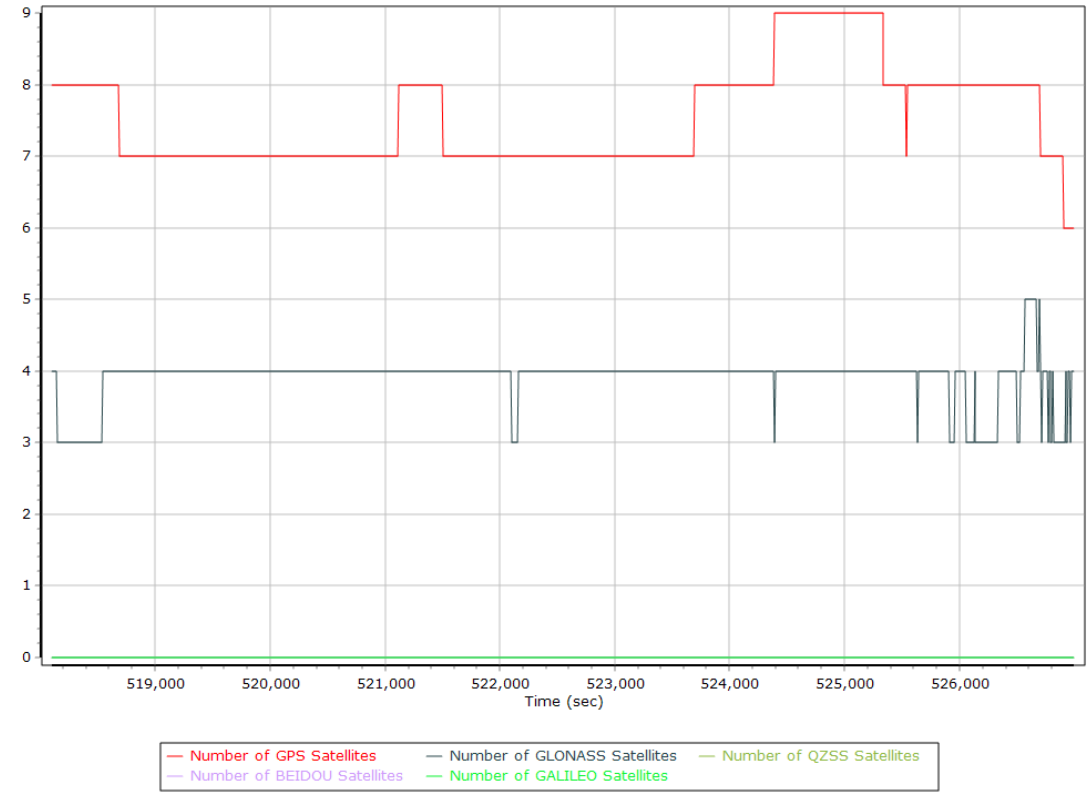


Smoothed Solution Status

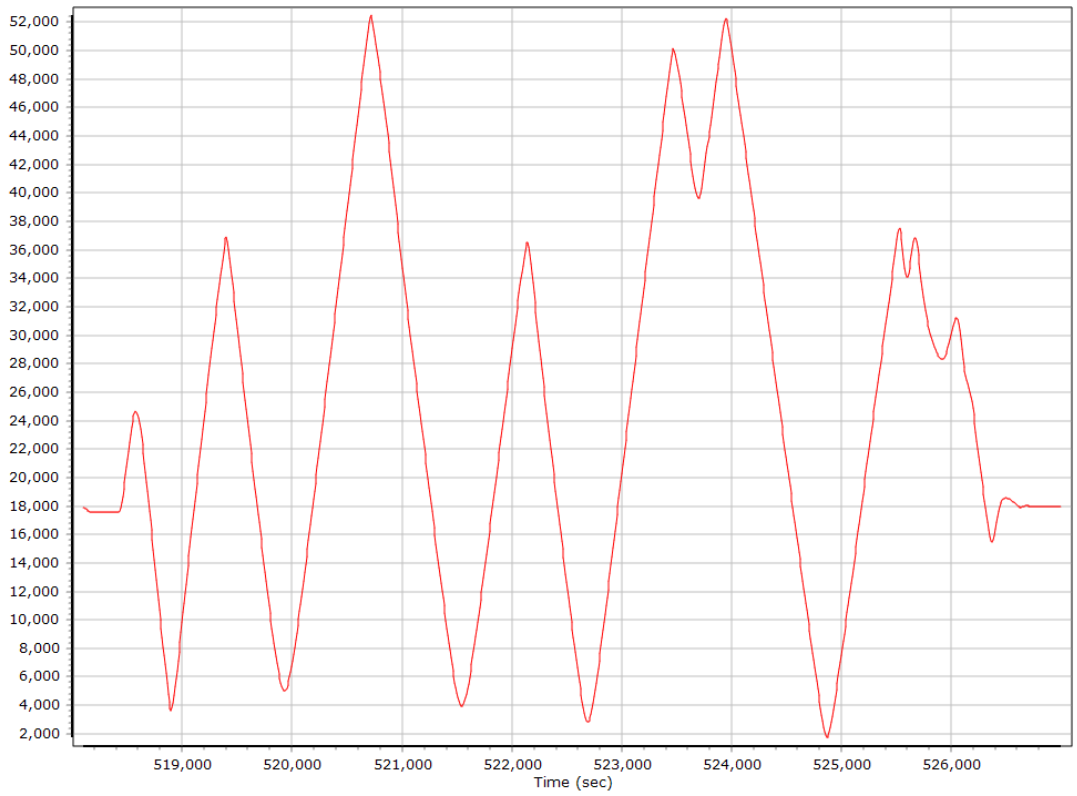
Processing Mode



Number of Satellites

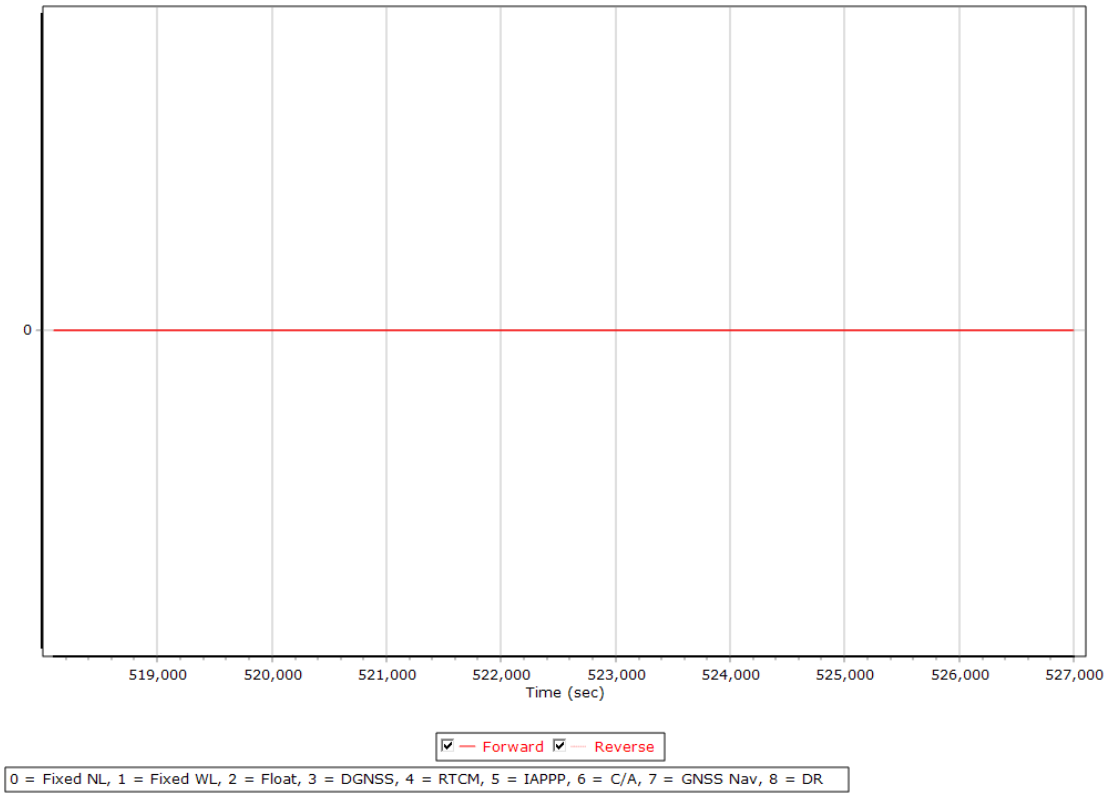


Baseline Length

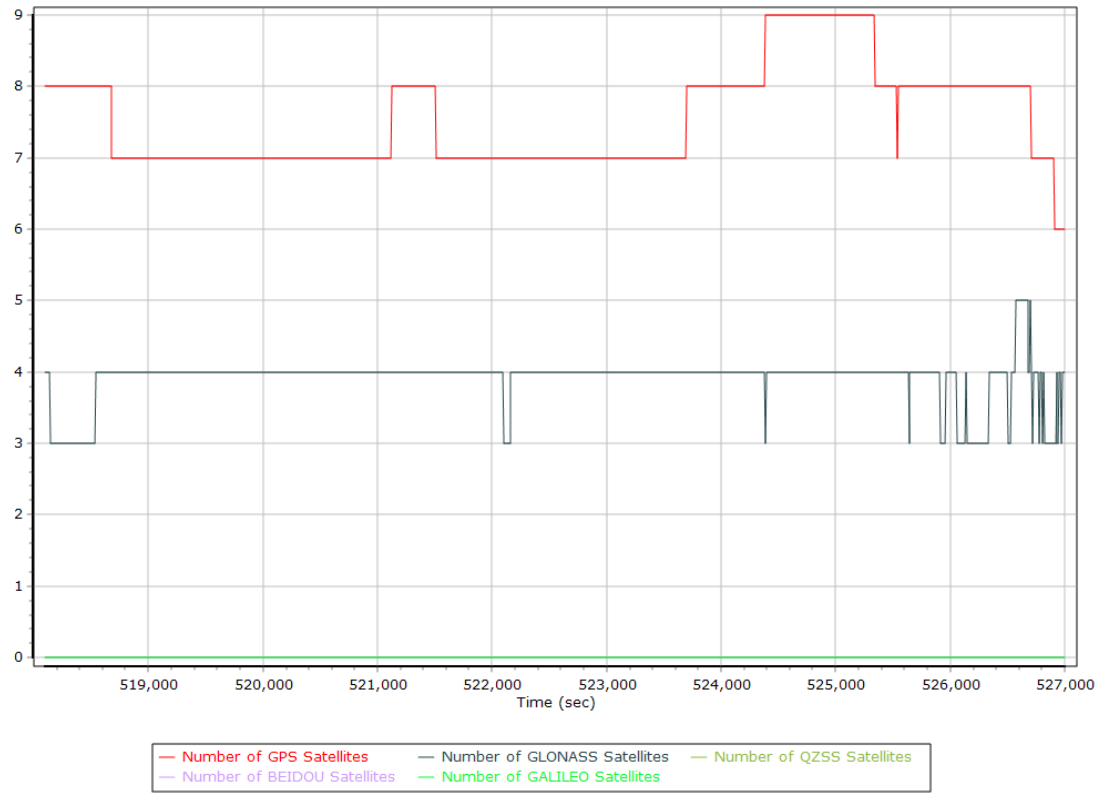


Forward Processed Solution Status

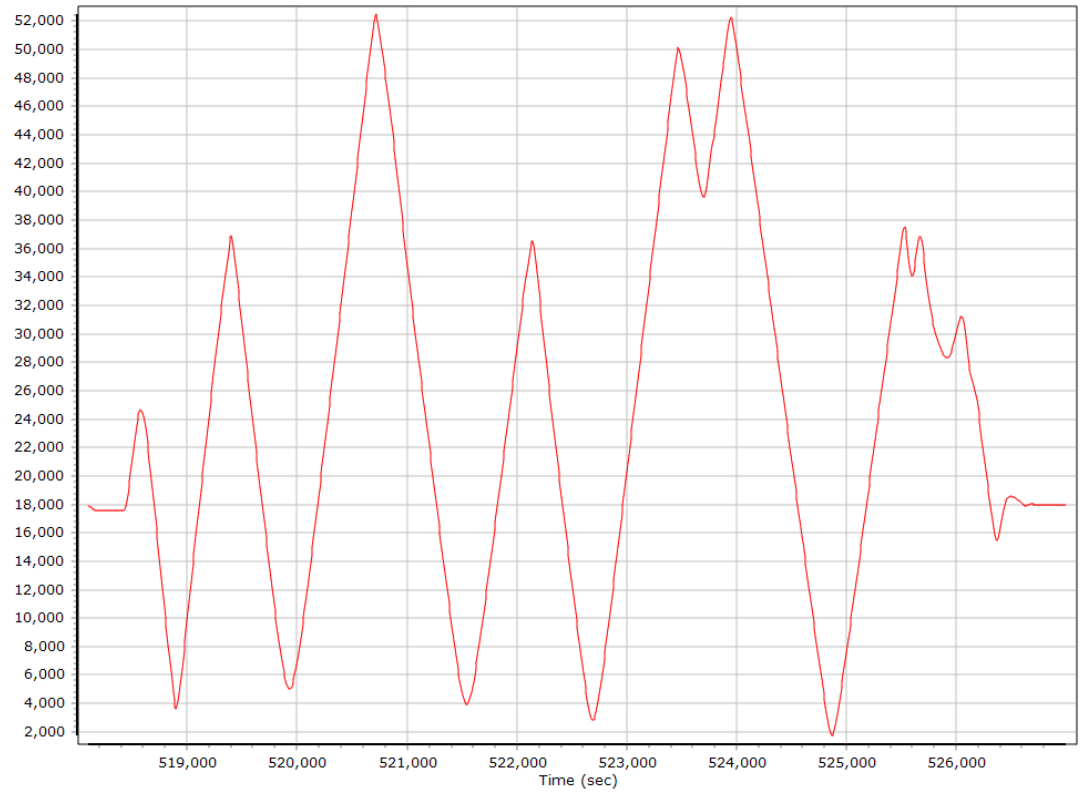
Processing Mode



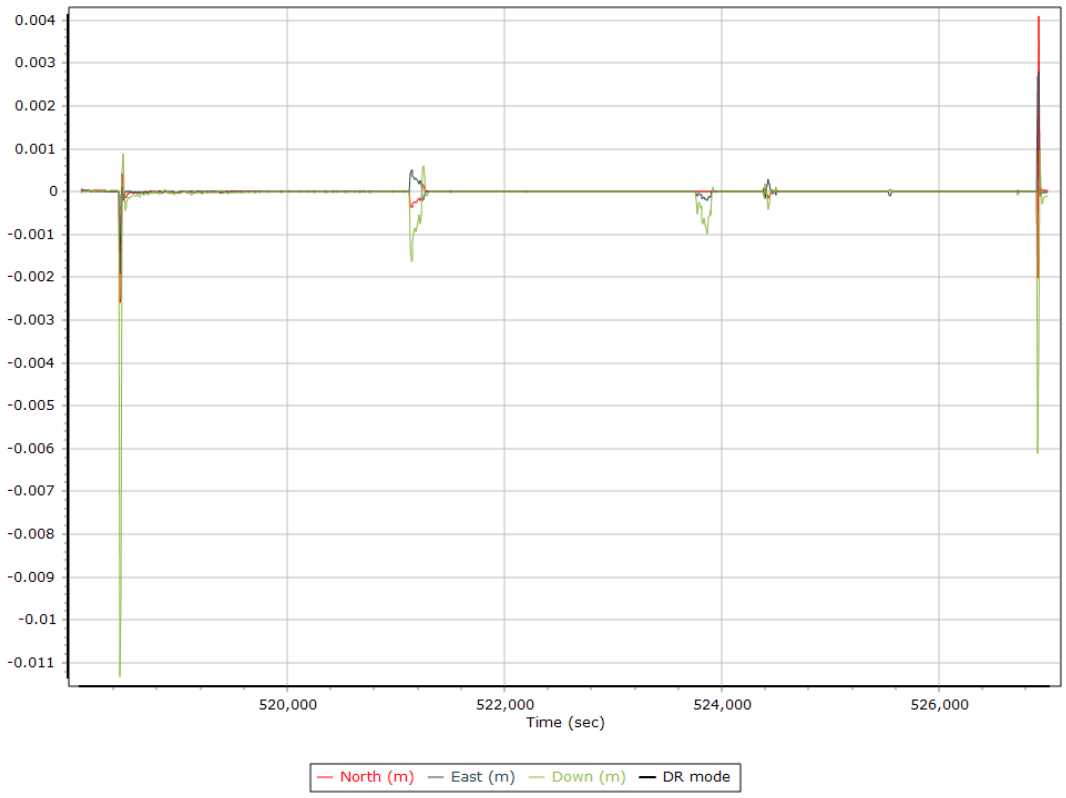
Number of Satellites



Baseline Length



SBET IAKAR Separation



General Information

Mission Information

Project name	20191208B-rerun20201221
Processing date	2021-01-18 00:56:50
Mission date	2019-12-08 19:12:39
Mission duration	03:32:58.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 510 VER5 HW2.4-11
Serial number	S/N6247
IMU type	46
Receiver type	BD982
Antenna type	Unknown External

Project File List

Rover Data Files

File name	File type
ALS.155	POS Data
ALS.156	POS Data
ALS.157	POS Data
ALS.158	POS Data
ALS.159	POS Data
ALS.160	POS Data
ALS.161	POS Data
ALS.162	POS Data
ALS.163	POS Data
ALS.164	POS Data
ALS.165	POS Data
ALS.166	POS Data
ALS.167	POS Data
ALS.168	POS Data
ALS.169	POS Data
ALS.170	POS Data
ALS.171	POS Data
ALS.172	POS Data
ALS.173	POS Data
ALS.174	POS Data

Input Files

File Name	File Type
Ephm3420.19g	GLONASS Broadcast Ephemeris
Ephm3420.19n	GPS Broadcast Ephemeris
iaal3420.19o	GNSS SingleBase
igr20826.sp3	GPS Precise Ephemeris
igr20830.sp3	GPS Precise Ephemeris
igr20831.sp3	GPS Precise Ephemeris
iade3420.19o	GNSS SingleBase
iael3420.19o	GNSS SingleBase
iamn3420.19o	GNSS SingleBase
iata3420.19o	GNSS SingleBase
mnps3420.19o	GNSS SingleBase

Output Files

Filename	File type
sbet_rerun20201221.out	SBET Trajectory File
SBET_export_Mission 1.out	Custom Smoothed BET Export Output

Rover Data Summary

First raw data file	ALS.155		
Last raw data file	ALS.174		
Start GPS week	2083		
Start time	69152.621 (12/8/2019 7:12:32 PM)		
End time	81919.227 (12/8/2019 10:45:19 PM)		
Start of fine alignment	69631.670 (12/8/2019 7:20:31 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.020	-0.030	-0.650
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

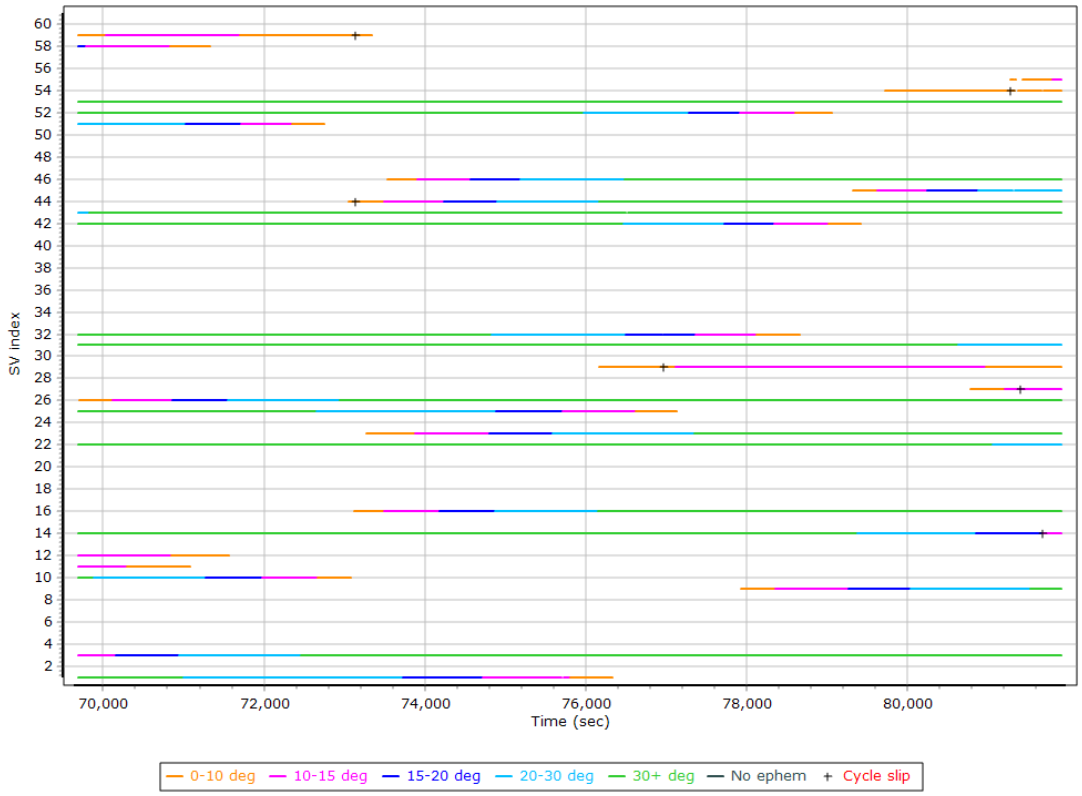
Rover Data QC

Raw IMU Import QC Summary

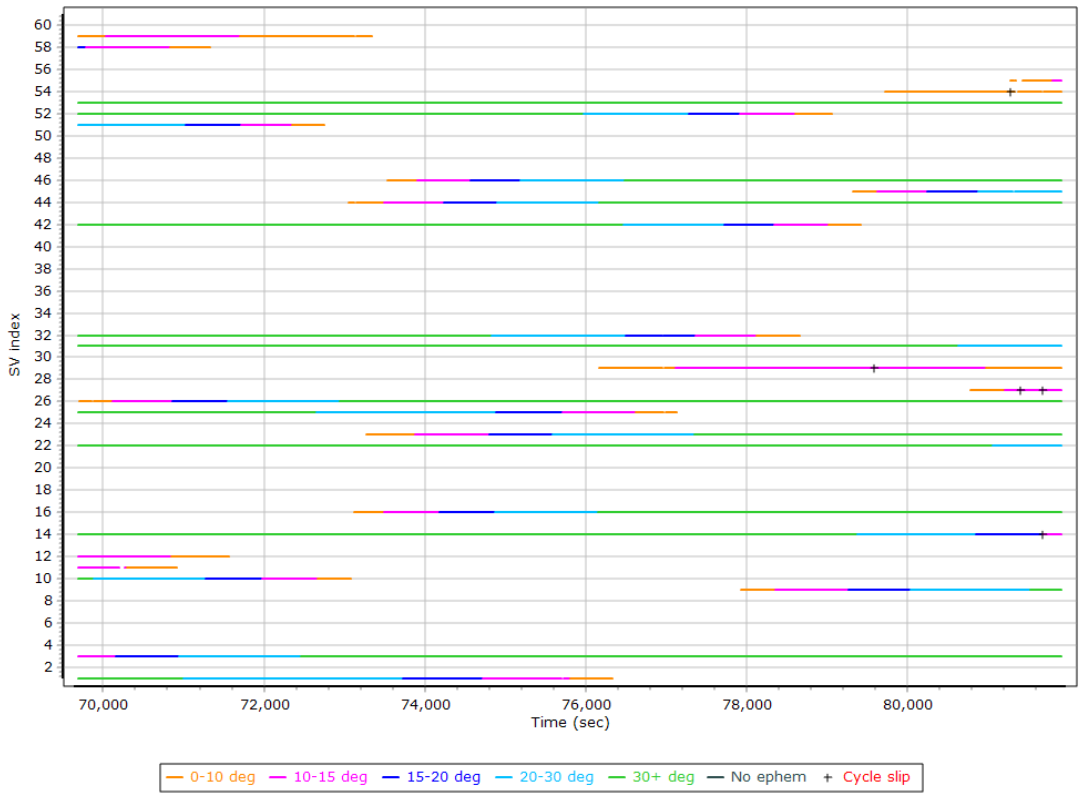
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_rerun20201221.log
IMU Records Processed	2558361
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
69152.226 : WARNING : Gap of 69130.2387 seconds in CHECKDT input data	

Primary Observables & Satellite Data

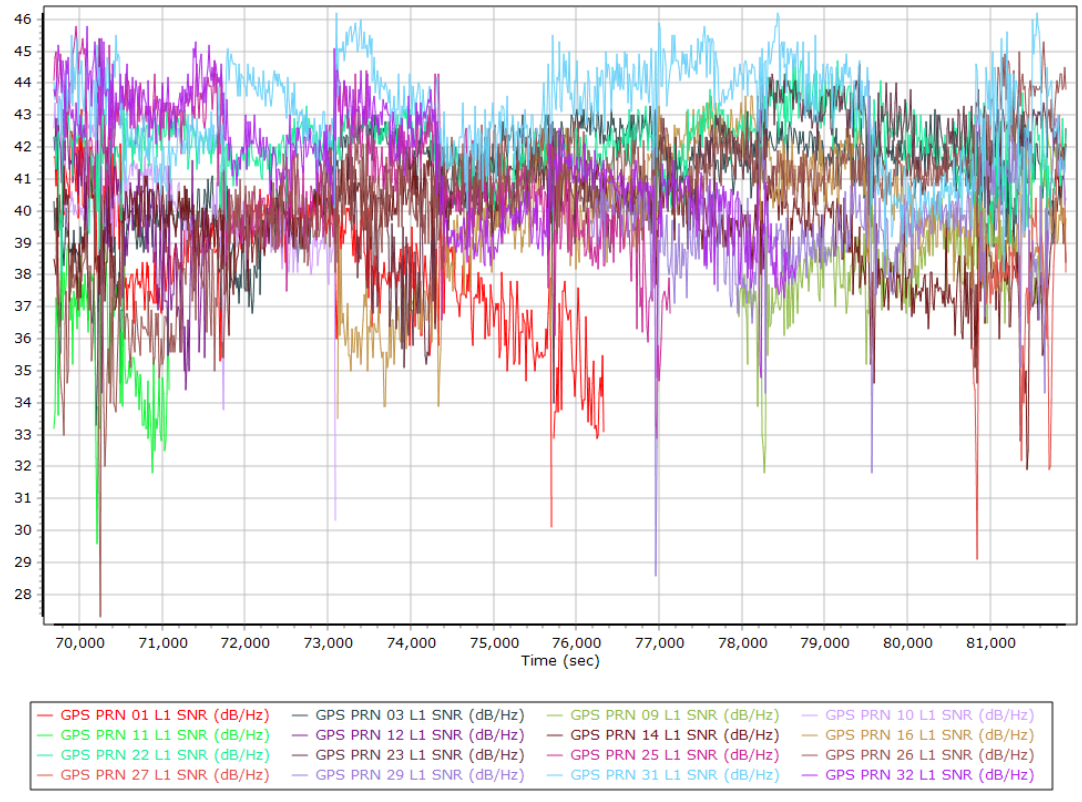
L1 Satellite Lock/Elevation



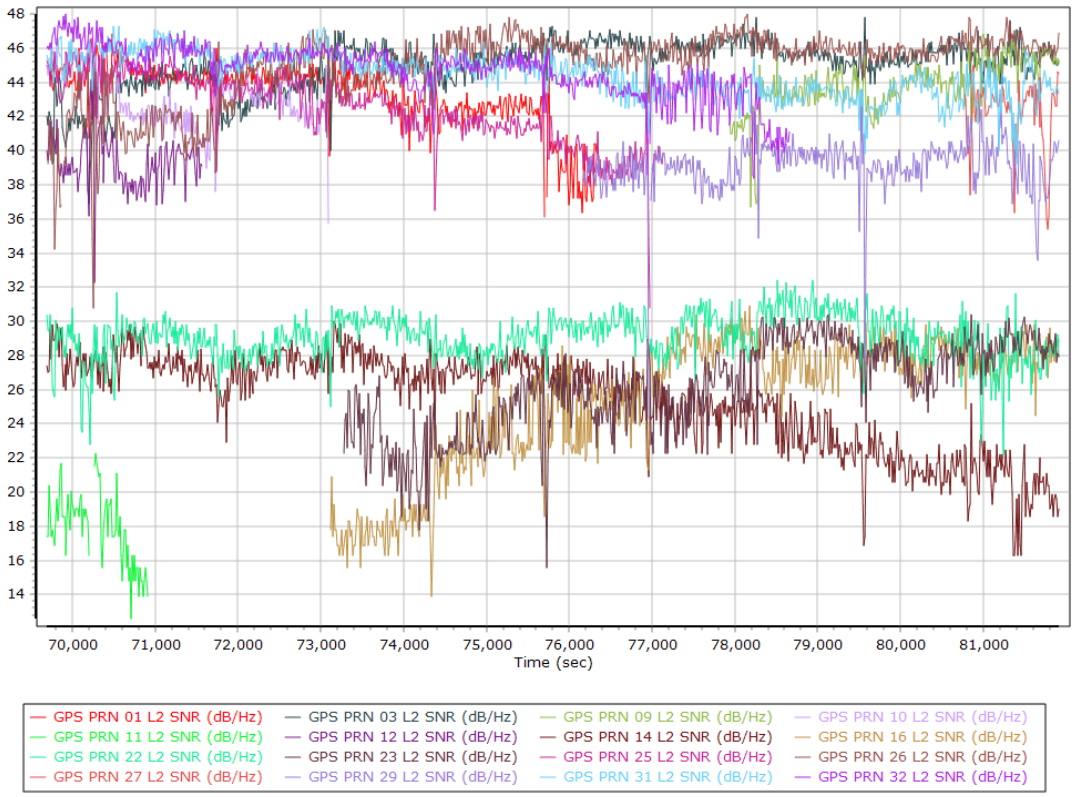
L2 Satellite Lock/Elevation



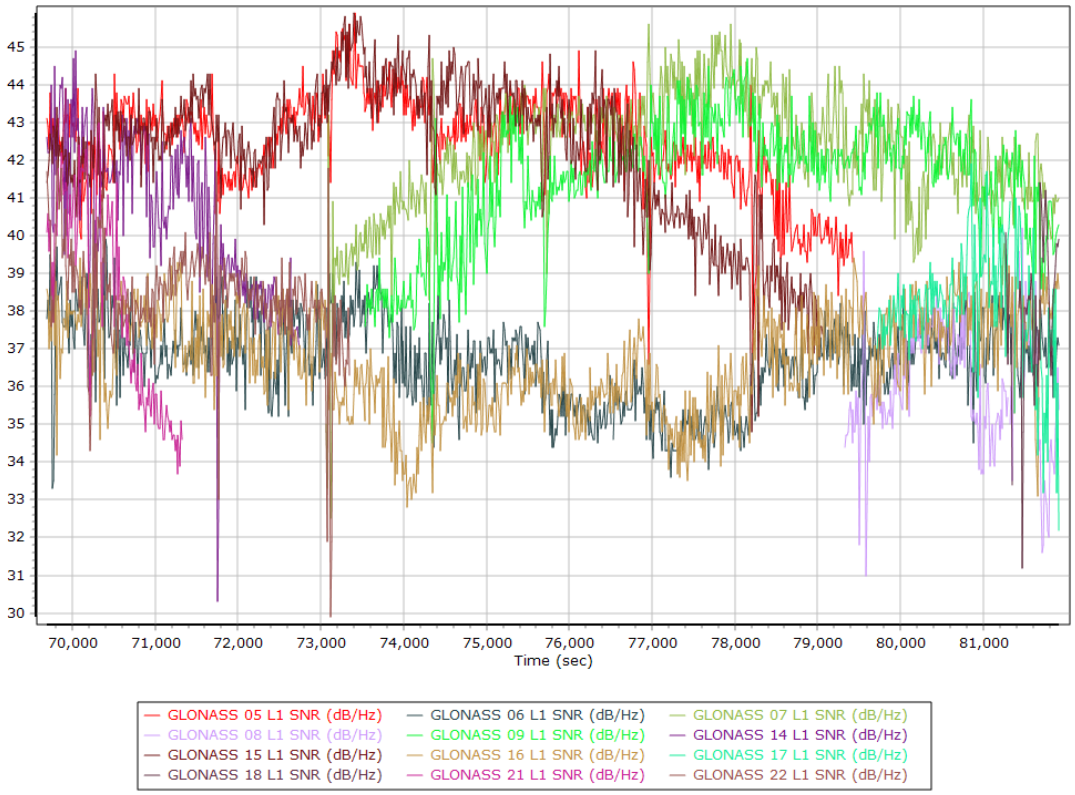
GPS L1 SNR



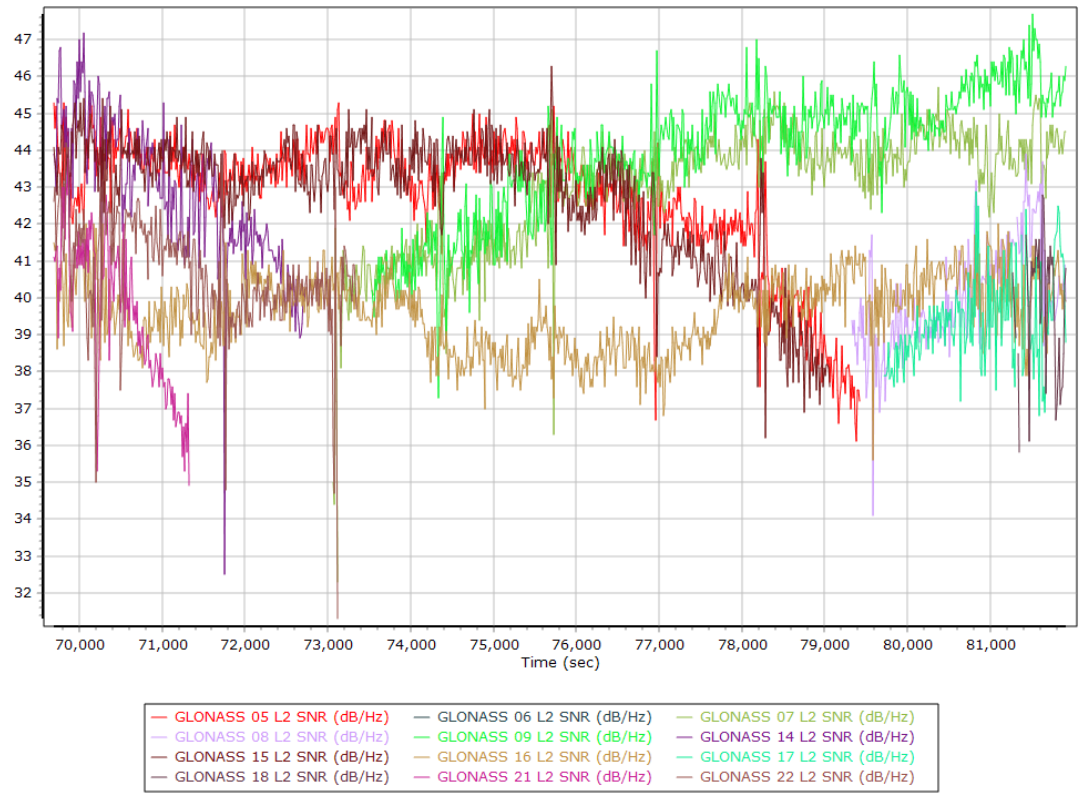
GPS L2 SNR



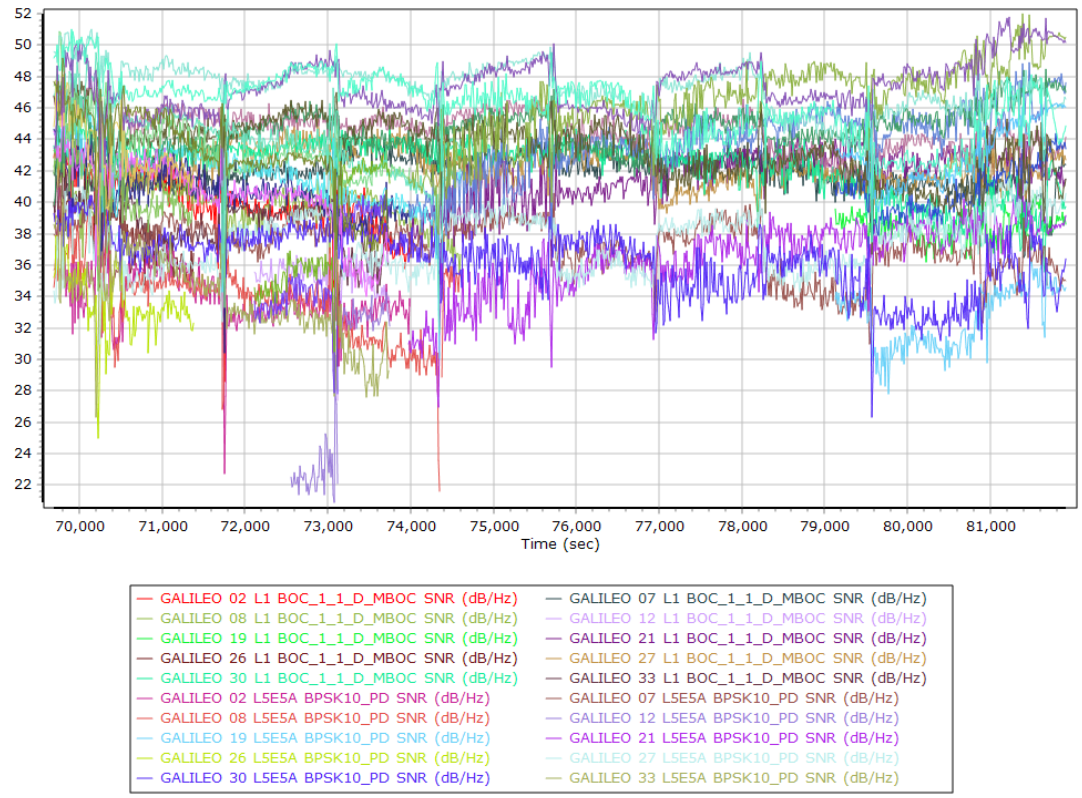
GLONASS L1 SNR



GLONASS L2 SNR

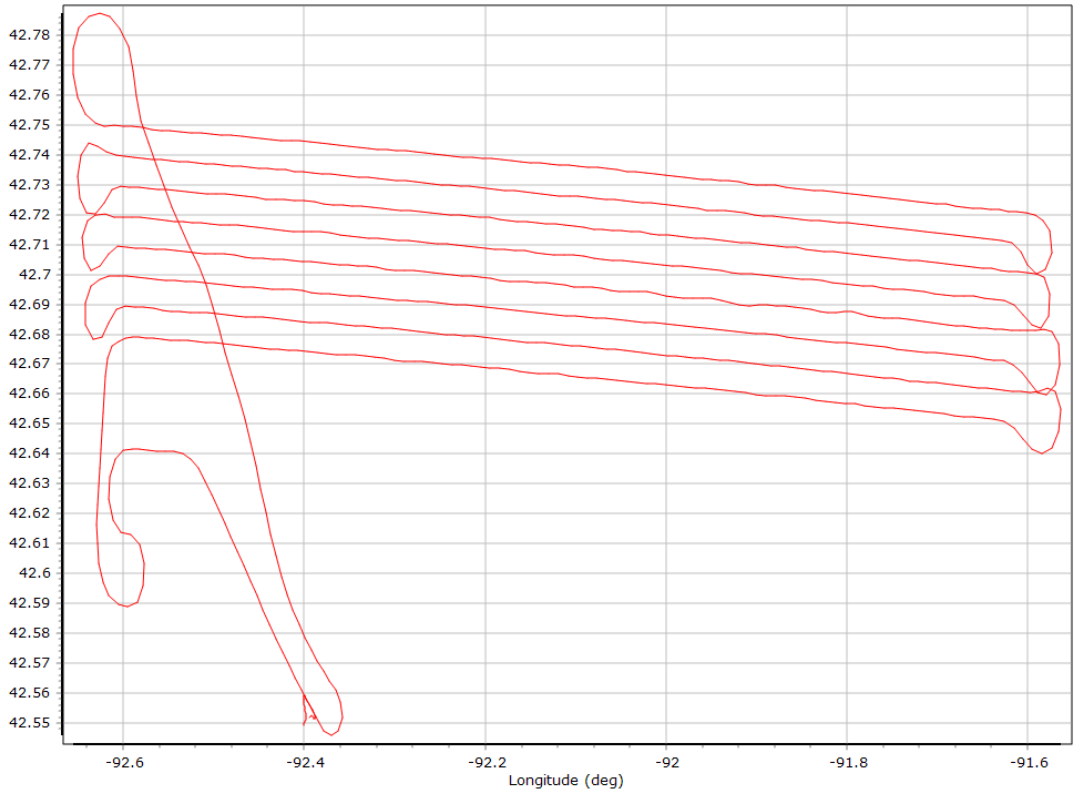


GALILEO SNR

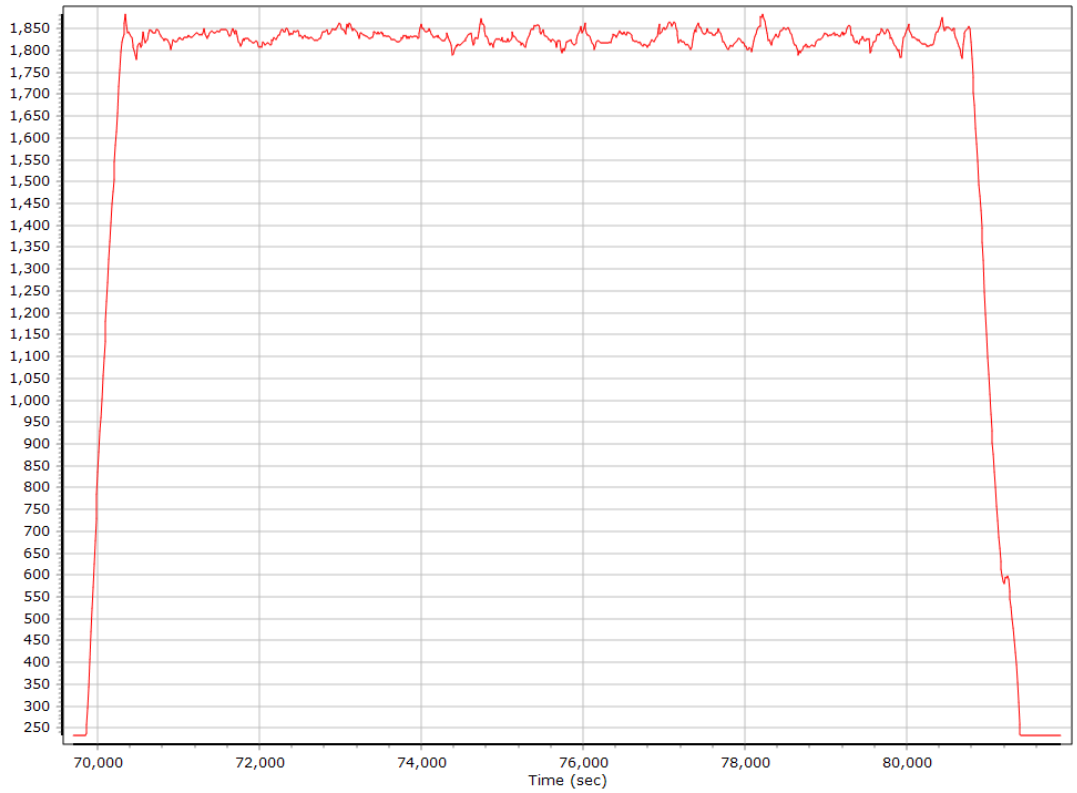


Smoothed Trajectory Information

Top View

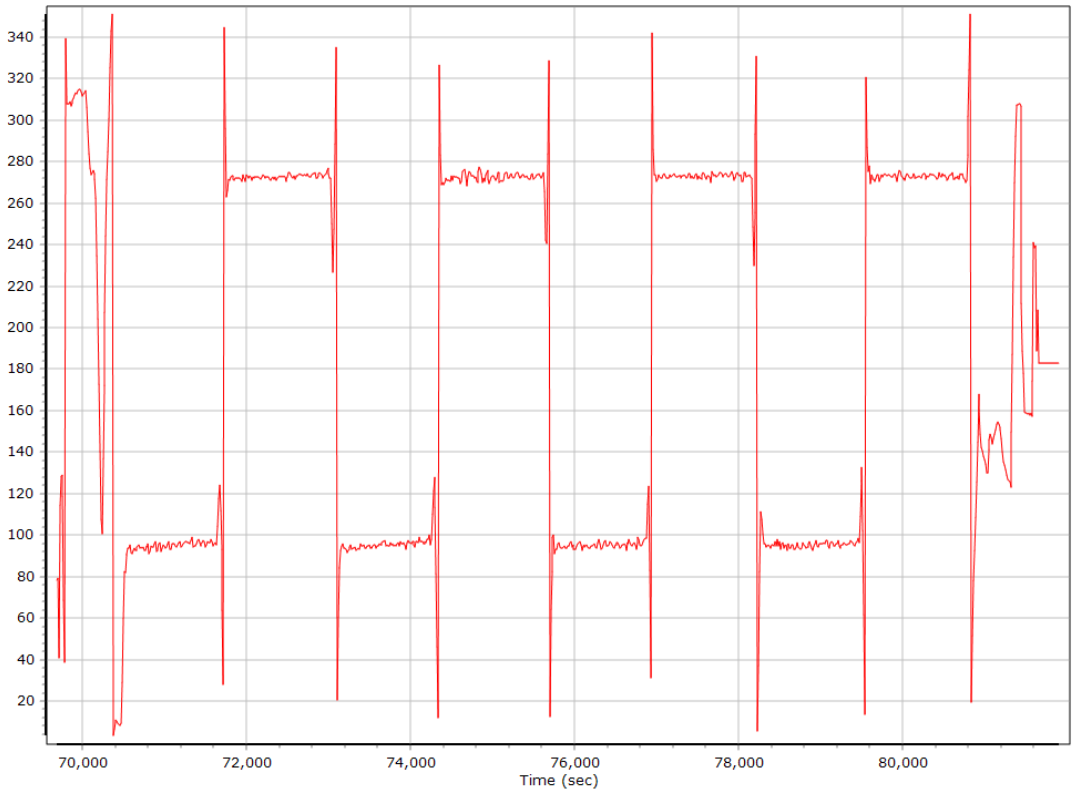


Altitude

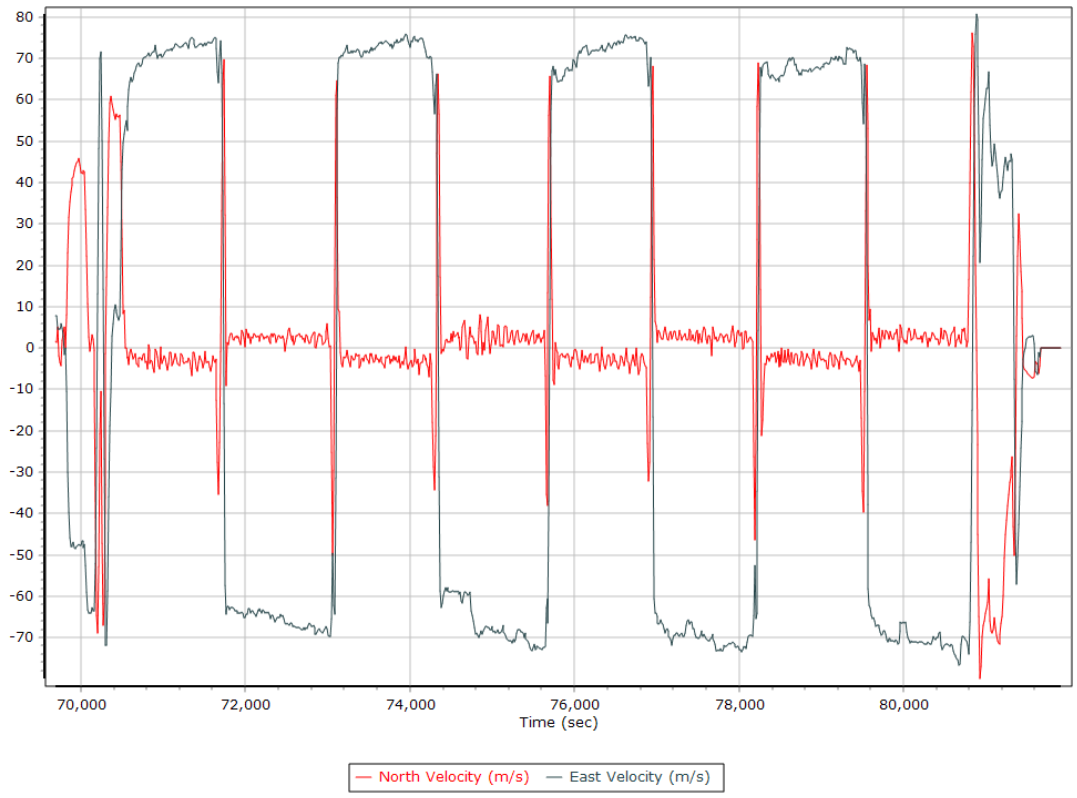


Roll/Pitch

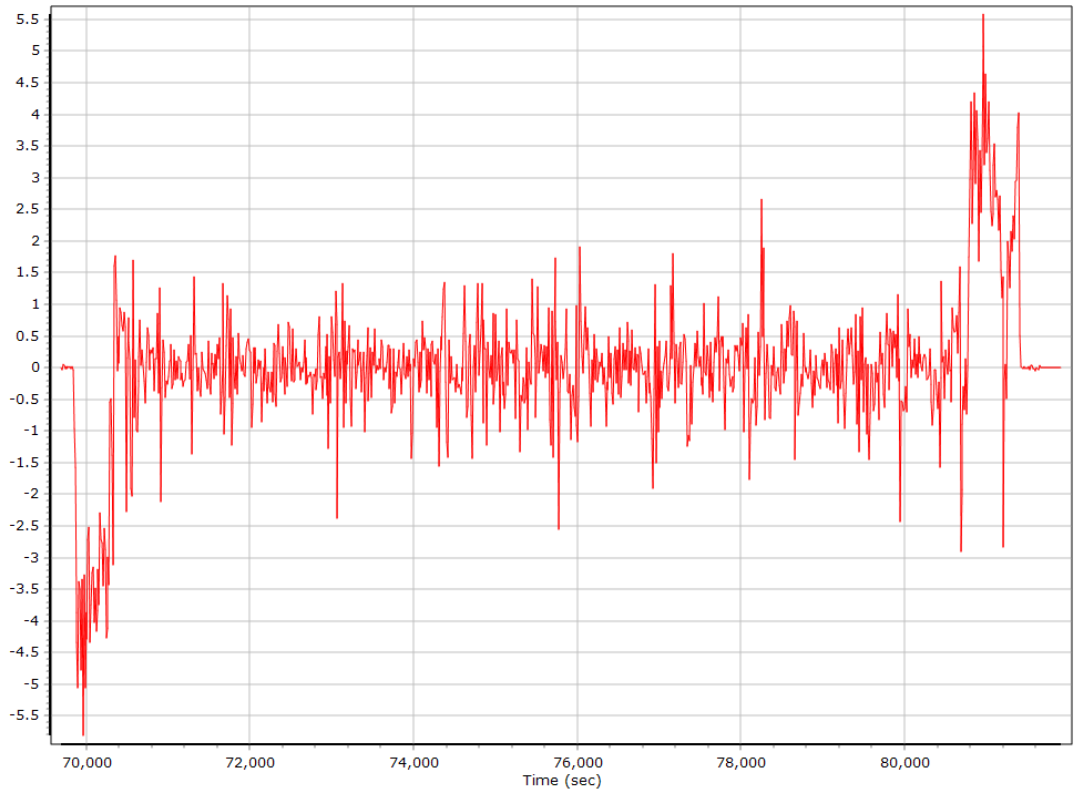
Heading



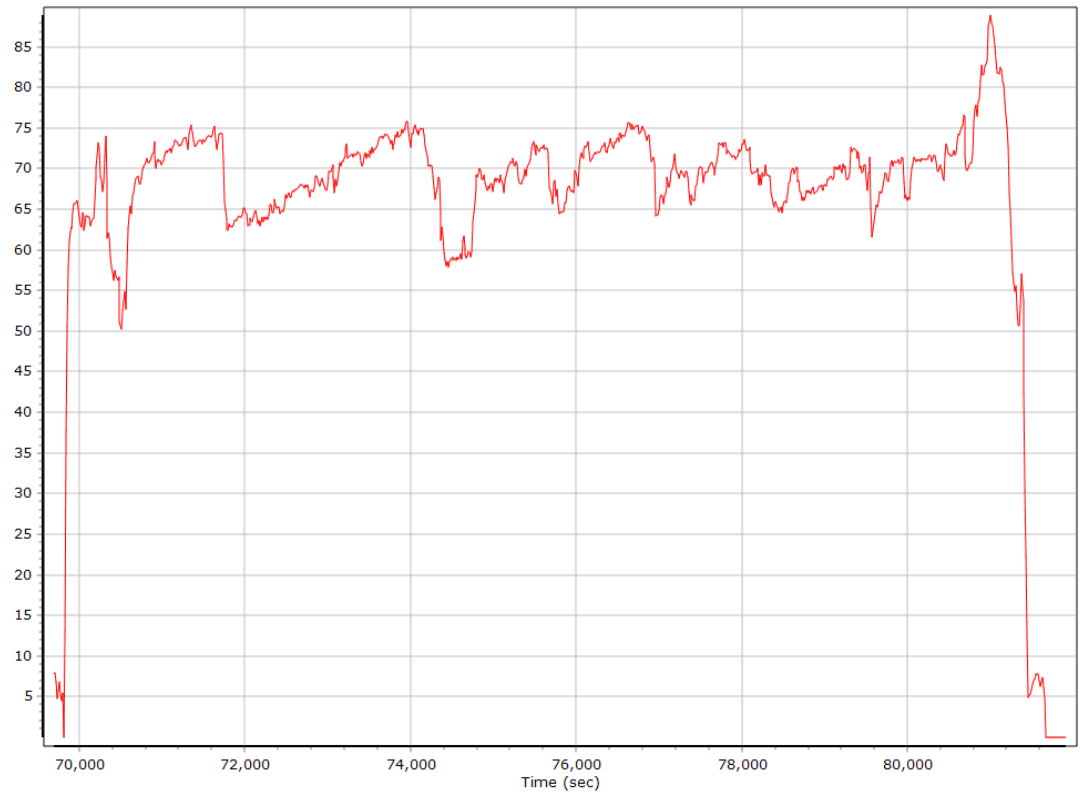
North/East Velocity



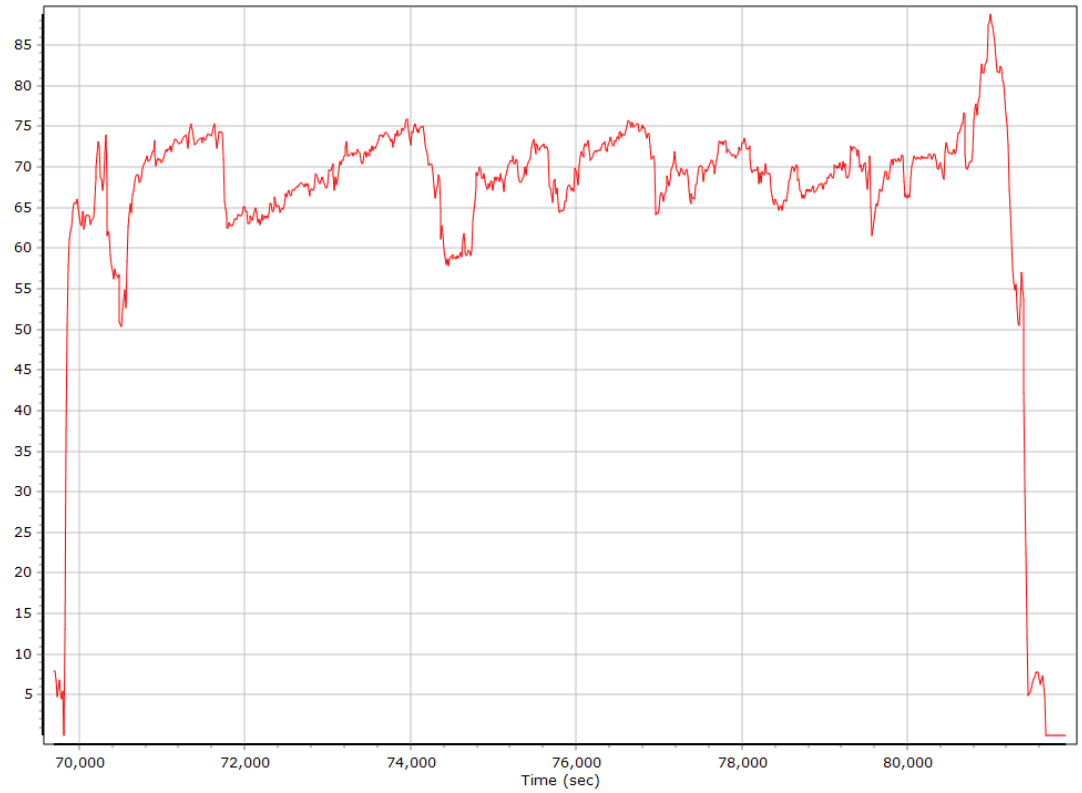
Down Velocity



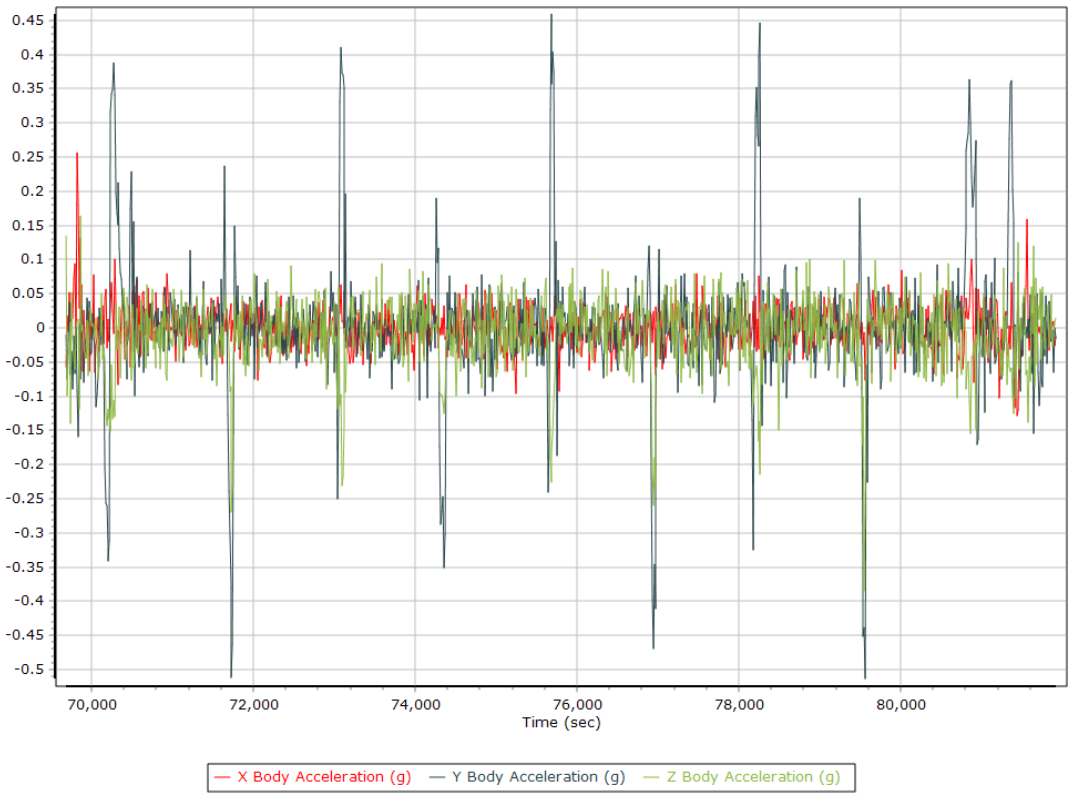
Total Speed



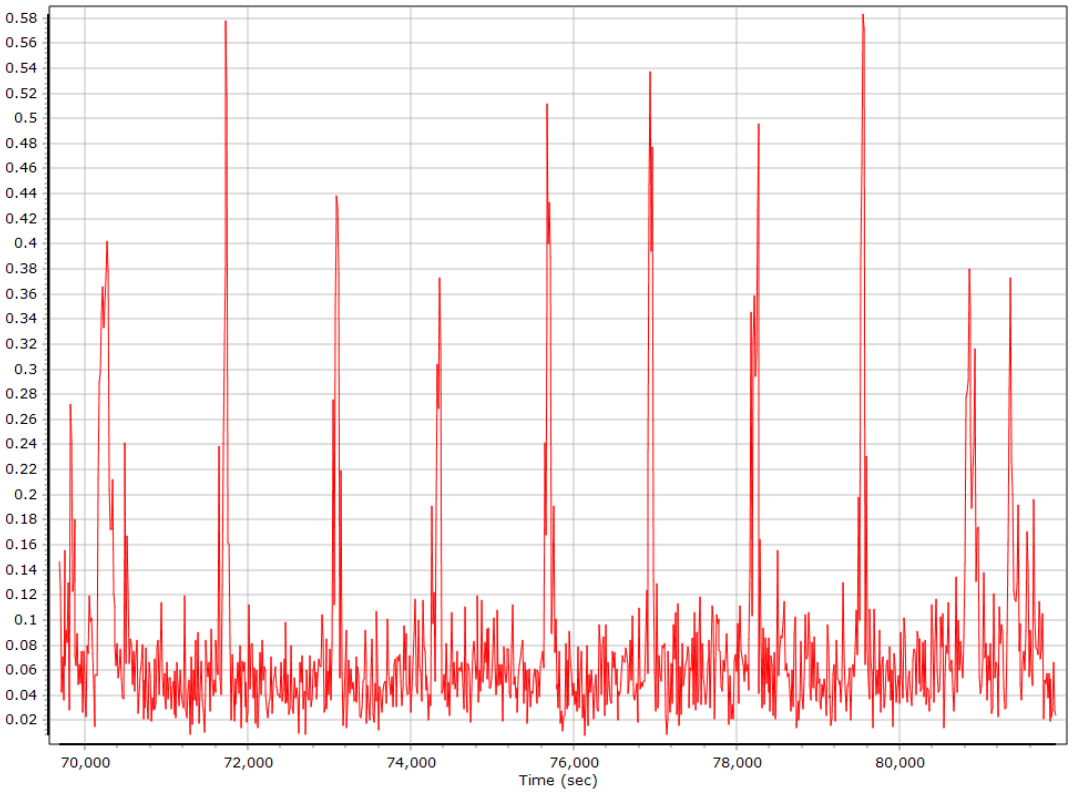
Ground Speed



Body Acceleration



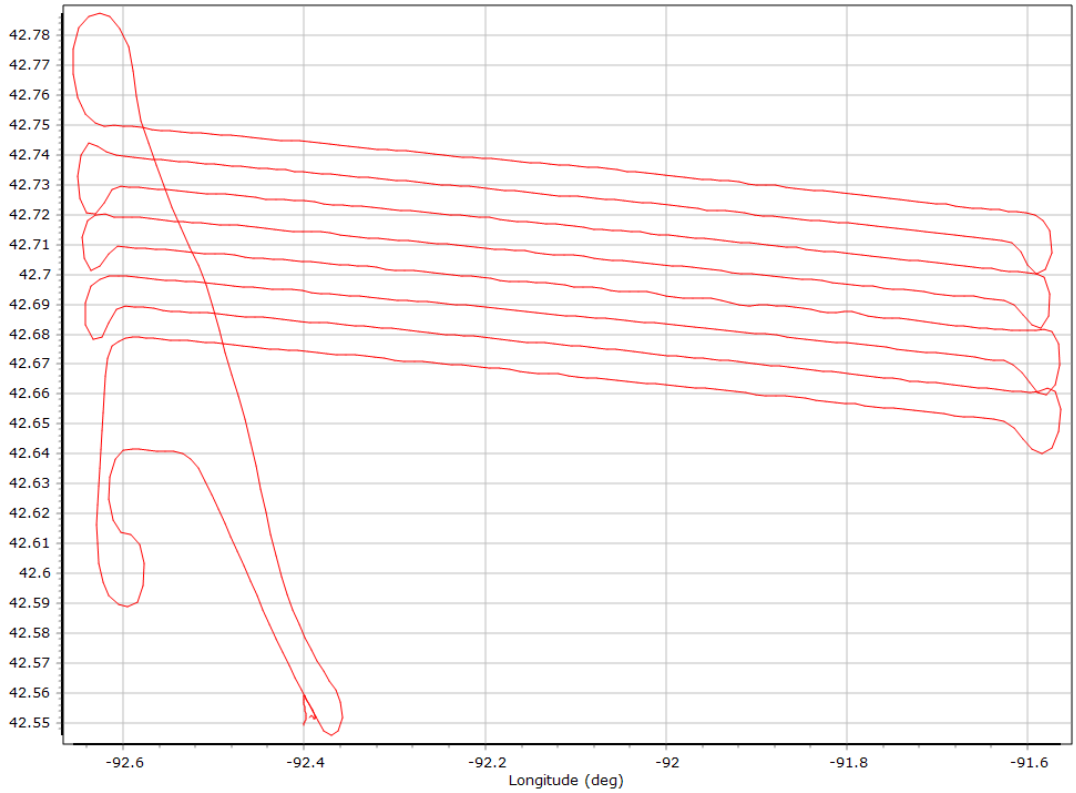
Total Body Acceleration



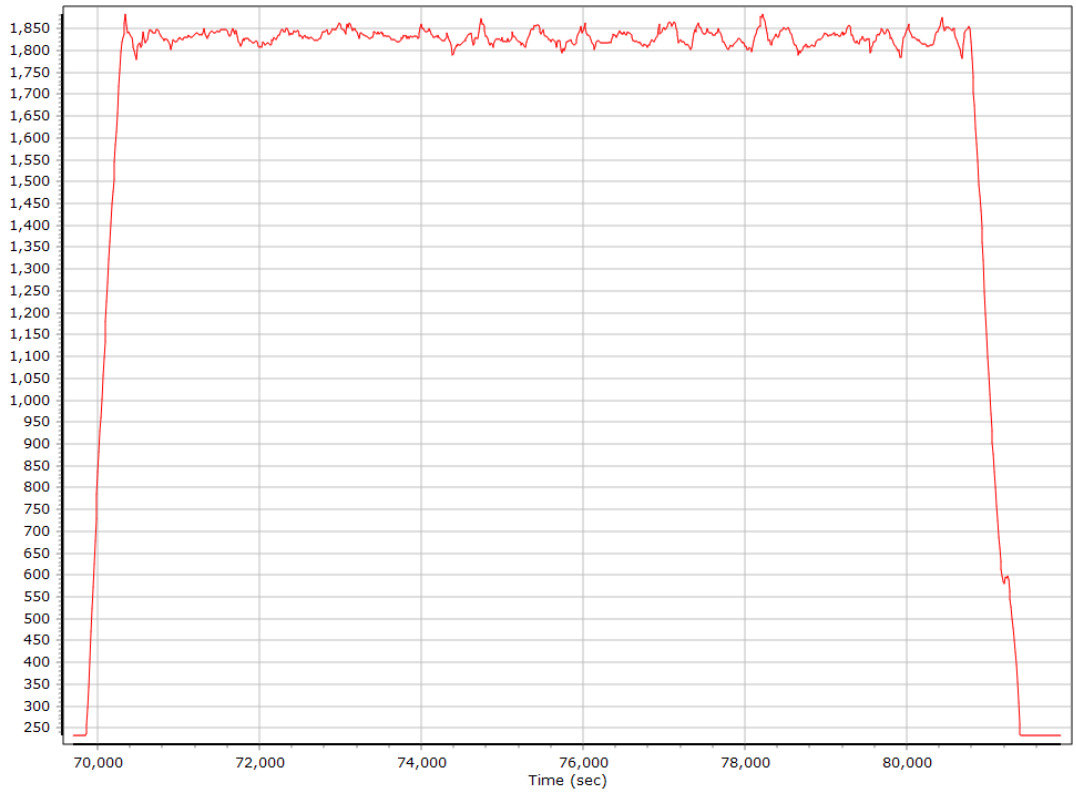
Body Angular Rate

Forward Processed Trajectory Information

Top View

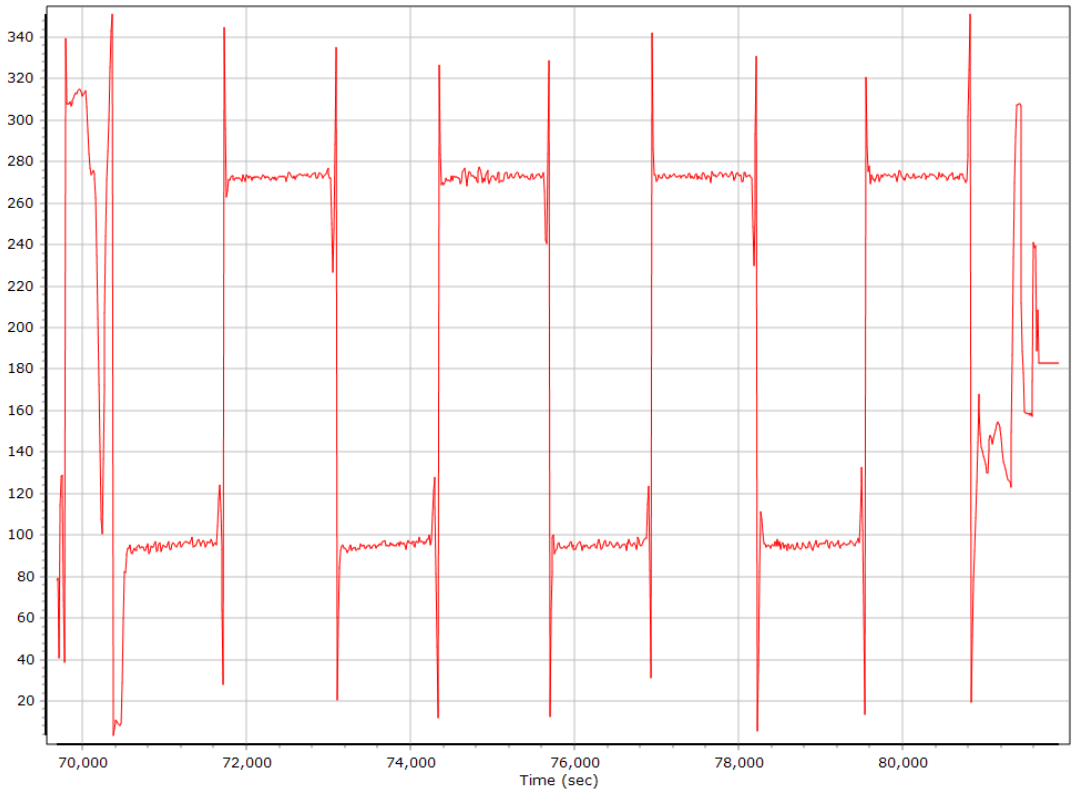


Altitude

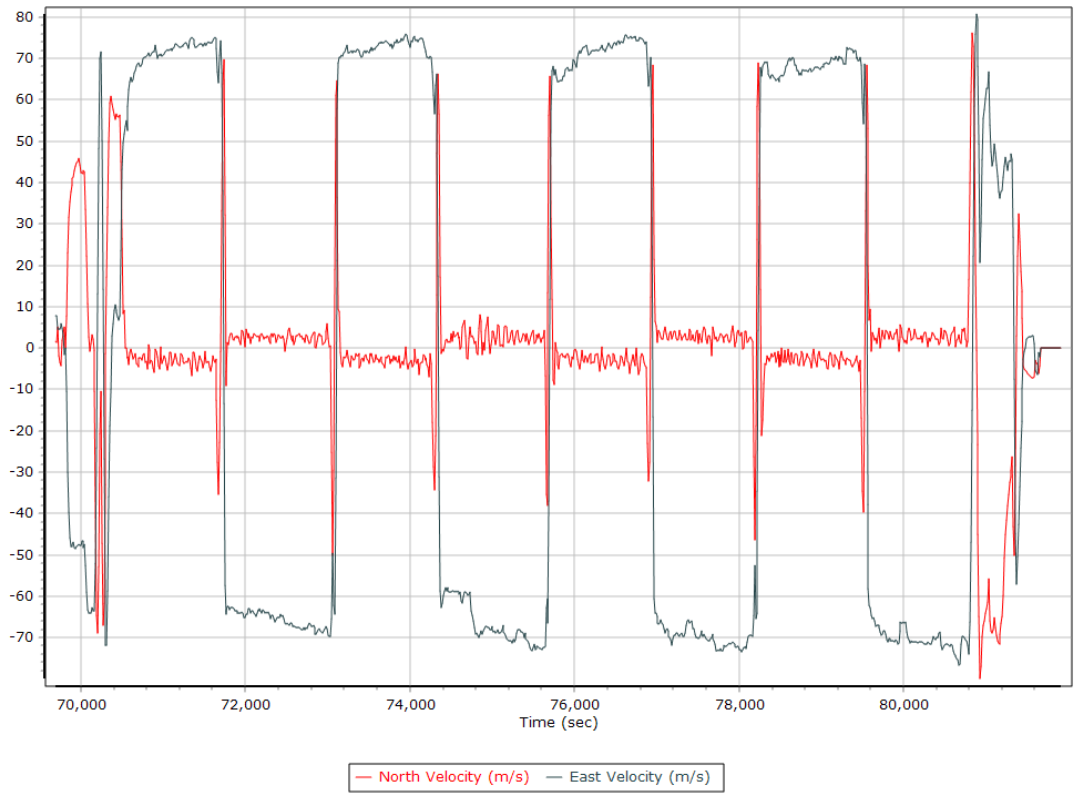


Roll/Pitch

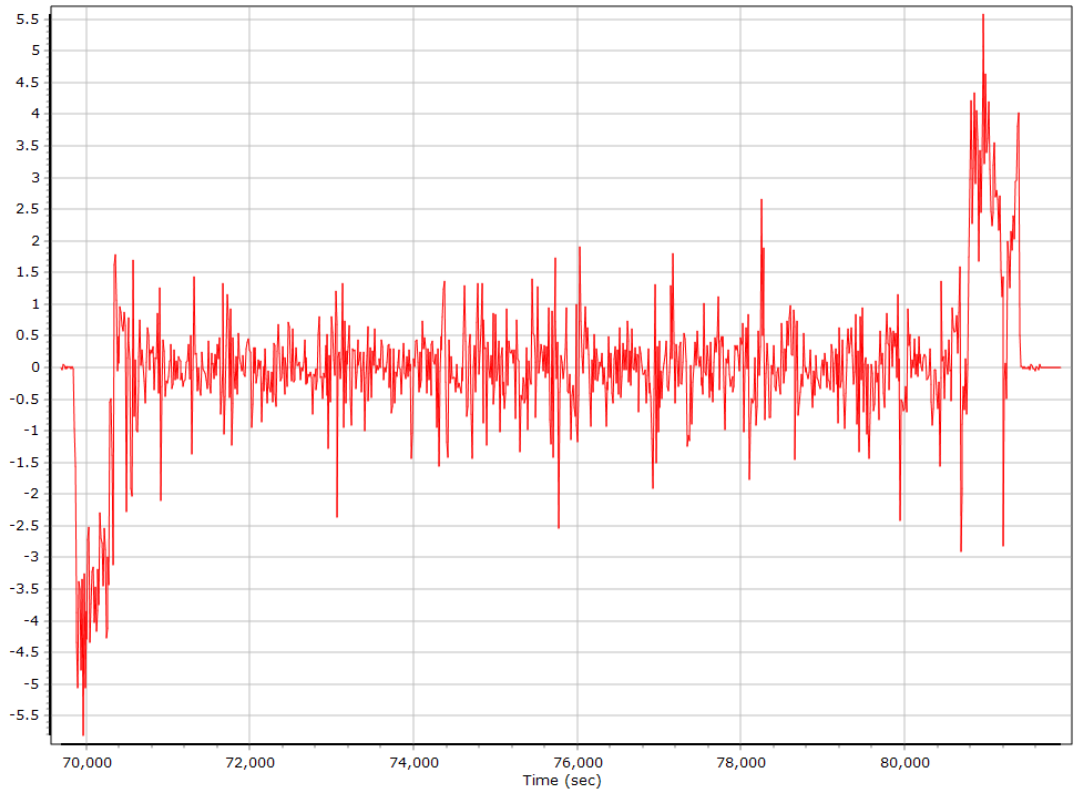
Heading



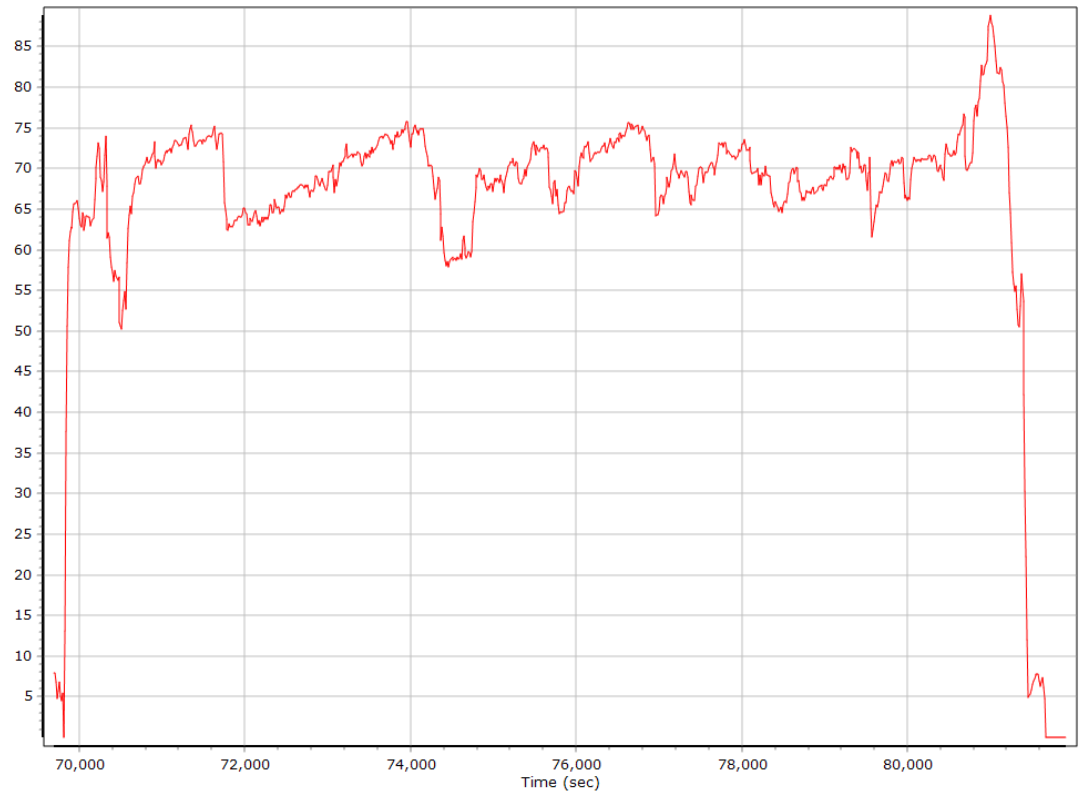
North/East Velocity



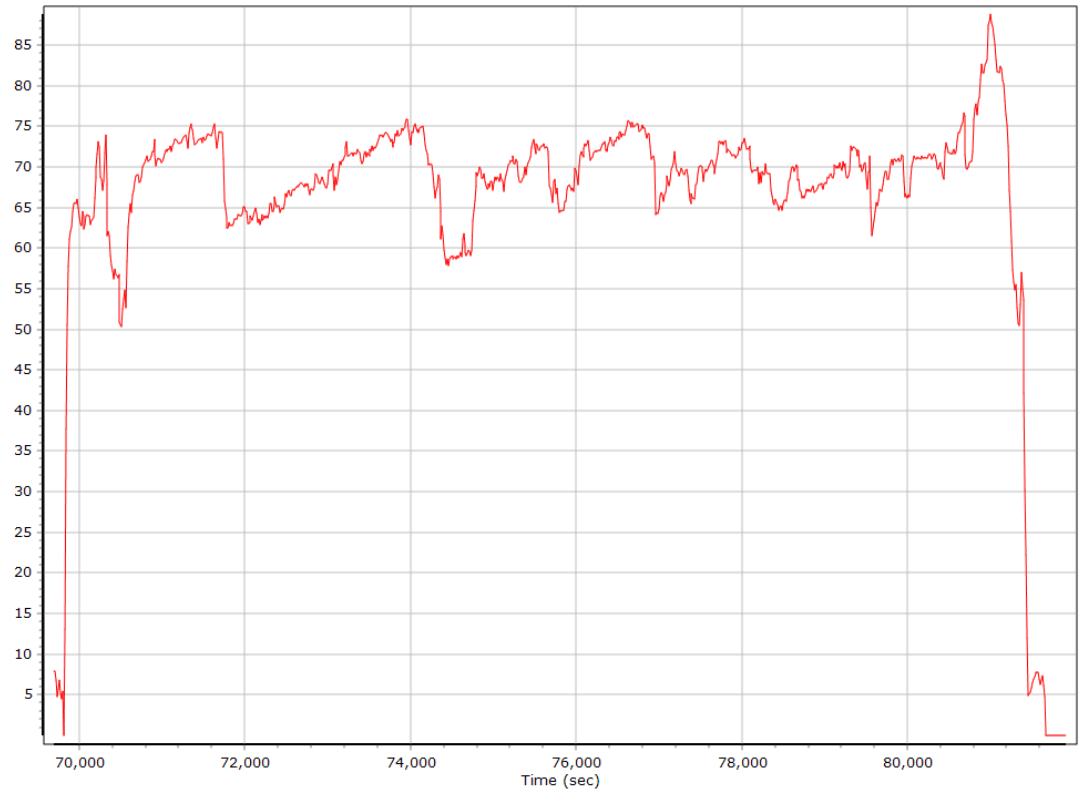
Down Velocity



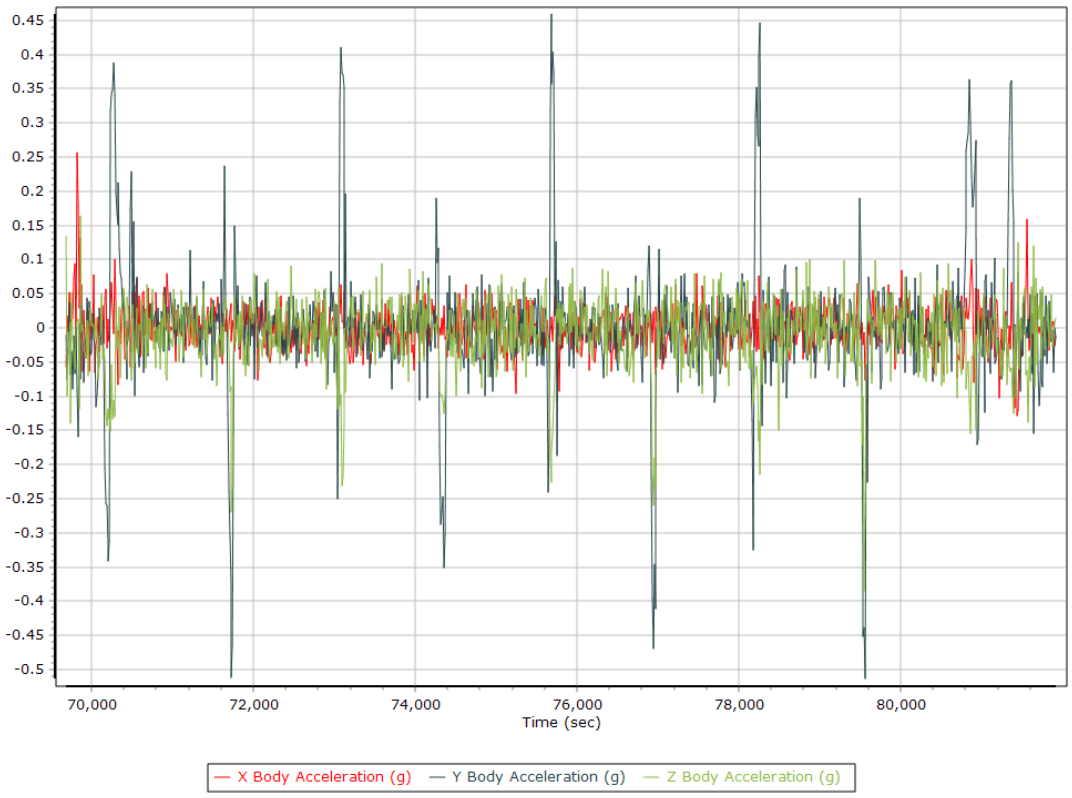
Total Speed



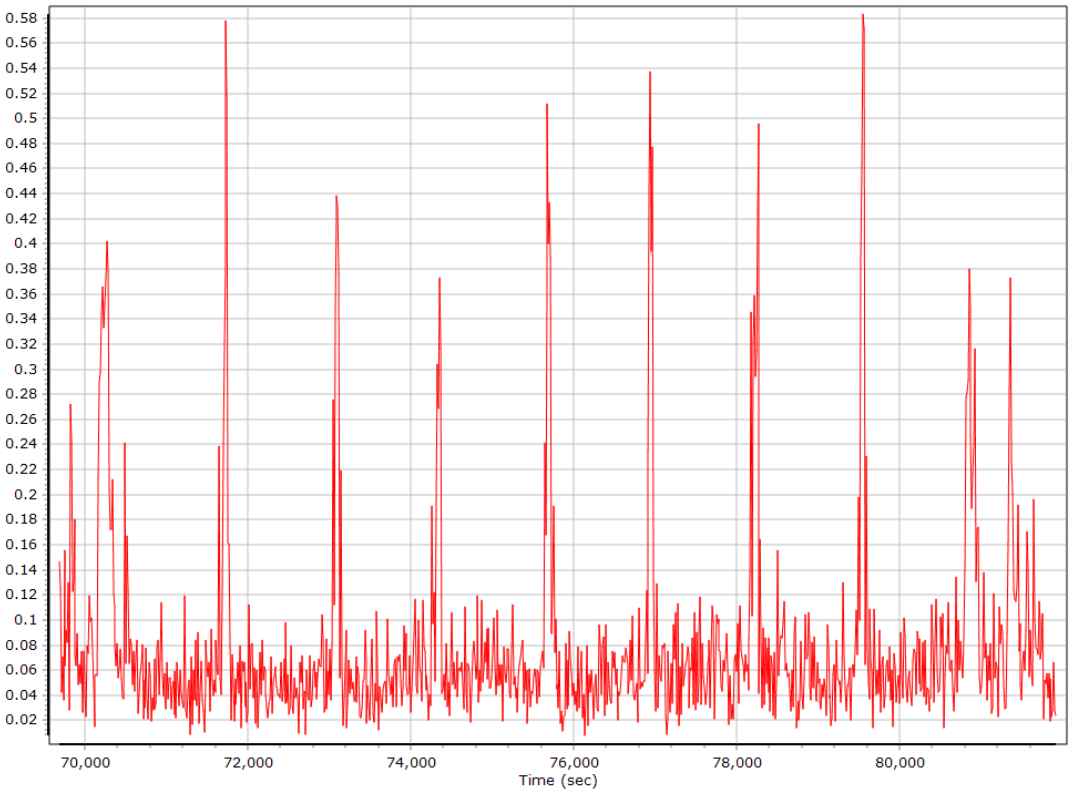
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

SmartBase Processing Summary

Smart Select Options

Archive enabled	False
User database enabled	False
Include high-rate data sites	False
Target GNSS Selection	GNSS

Basestation Selection

Date	ID	Dist	System	Rate	Service	Database	Status
12/08/2019	IAAL	50.97	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	IAEL	69.88	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	IADE	71.28	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	IATA	85.20	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	IAMN	88.63	GNSS	30	CORS (daily)	Smart Base	Imported
12/08/2019	MNPS	95.63	GNSS	30	CORS (daily)	Smart Base	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	IAAL
Primary station data rate (sec)	30.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	12778 s (2083 69159 - 2083 81937)
Number of reference stations	5
Primary station GPS measurement usage (%)	99.4
Primary station GLONASS measurement usage (%)	60.3
Average number of satellites per epoch	12.4
Max number of GPS stations used	5
Min number of GPS stations used	3
Max number of GLONASS stations used	5
Min number of GLONASS stations used	3
Total full data gap (sec)	0
Total GPS full data gaps	0
Total GLONASS full data gaps	0
Total individual satellite data gap (sec)	28910
GPS precise vs. broadcast ephemeris used	100.0 % / 0.0 %
GLONASS precise vs. broadcast ephemeris used	0.0 % / 100.0 %
Termination Status	Normal

Base Station Information - IAMN

Station ID	IAMN		
Filename	iamn3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870823
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°01'49.10896"		
Longitude	W91°32'55.59726"		
Ellipsoidal height (m)	228.90443		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IATA

Station ID	IATA		
Filename	iata3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870793
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N41°58'01.67192"		
Longitude	W92°33'05.07479"		
Ellipsoidal height (m)	247.33464		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IADE

Station ID	IADE		
Filename	iade3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870850
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N43°16'15.83212"		
Longitude	W91°49'53.52609"		
Ellipsoidal height (m)	316.51644		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IAEL

Station ID	IAEL		
Filename	iael3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870836
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°52'40.47667"		
Longitude	W91°21'41.52963"		
Ellipsoidal height (m)	298.98058		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station Information - IAAL

Station ID	IAAL		
Filename	iaal3420.19o		
Start date	12/8/2019 12:00:00 AM		
End date	12/8/2019 11:59:30 PM		
Duration	23:59:30.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR50	1870816
Antenna manufacturer, model	Leica	AR10	
Antenna height [m]	0.000		
Antenna measurement method	Bottom of antenna mount		
Offset from measured point to APC (m)	0.1085		
Latitude	N42°44'49.40421"		
Longitude	W92°47'14.24700"		
Ellipsoidal height (m)	291.09259		
Frame	ITRF00		
Epoch	2019.934247		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.36	50.04	
Number of GPS SV	5	10	9
Number of GLONASS SV	0	4	3
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	0	0
Total number of SV	5	14	12
PDOP	1.20	3.07	1.64
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	12739.00	0.00	1.00
Percentage	99.99	0.00	0.01

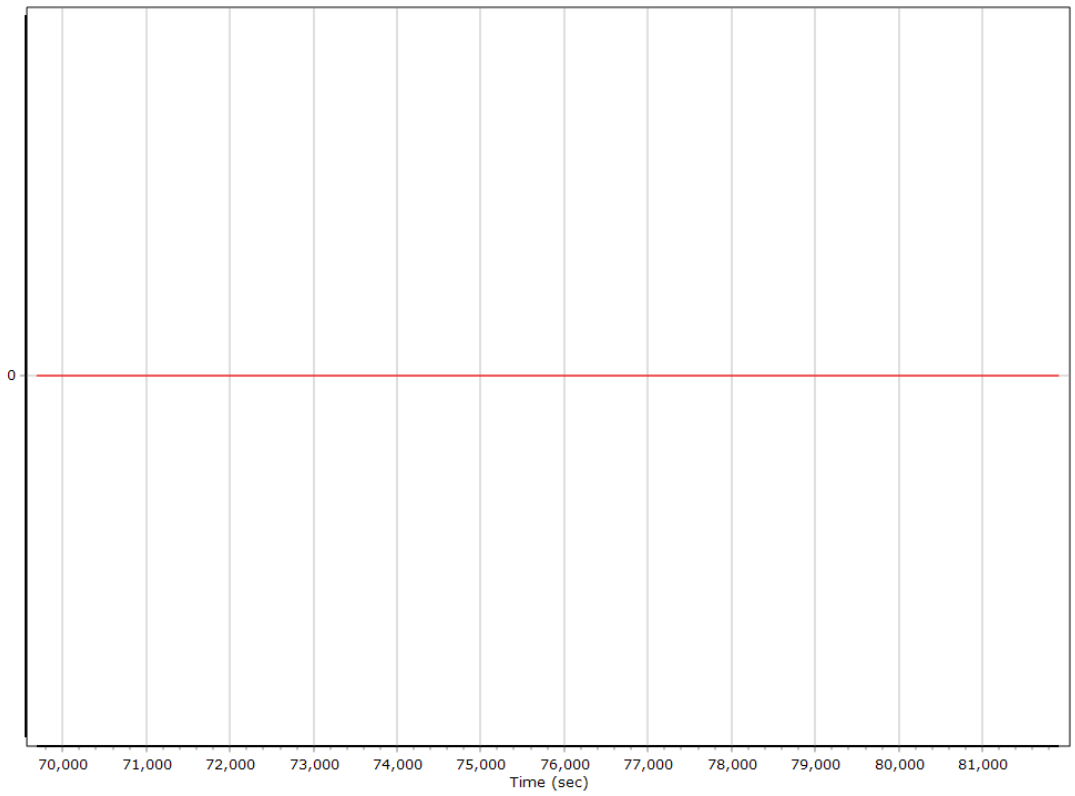
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	False		
Base station	ASB		
Processing start time	69141.000 (12/8/2019 7:12:21 PM)		
Processing end time	81919.000 (12/8/2019 10:45:19 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	0.000	-0.002	-0.976
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

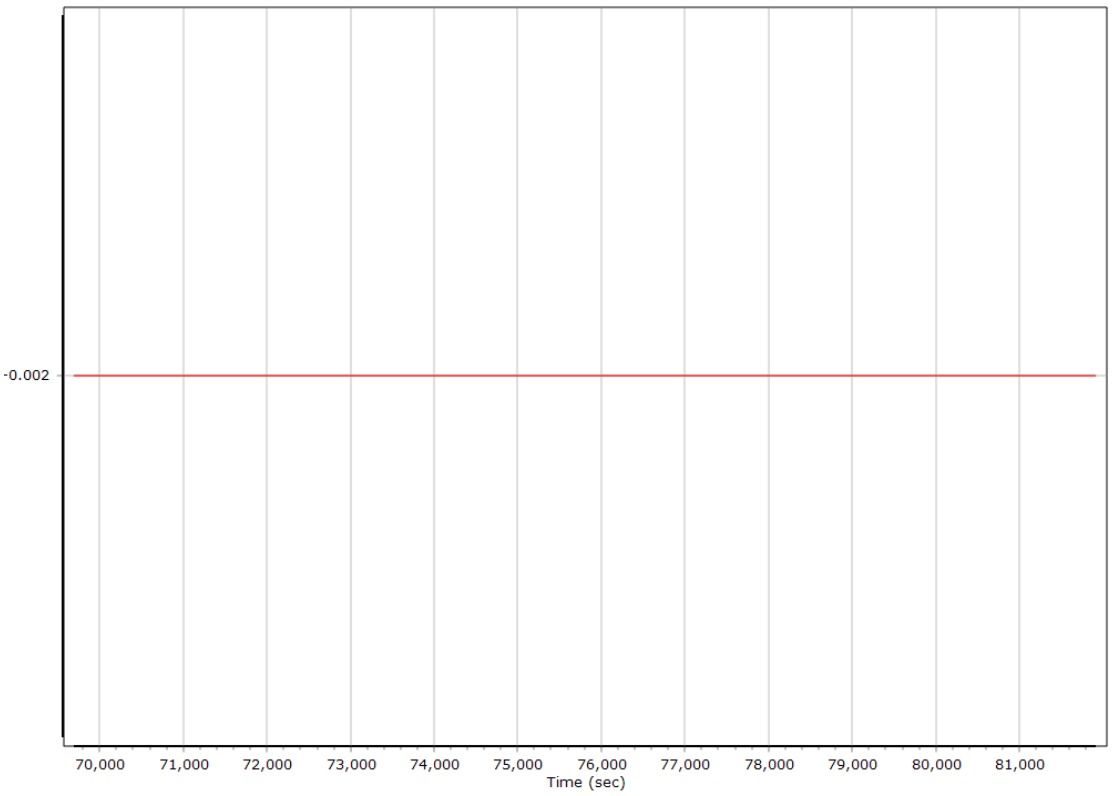
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

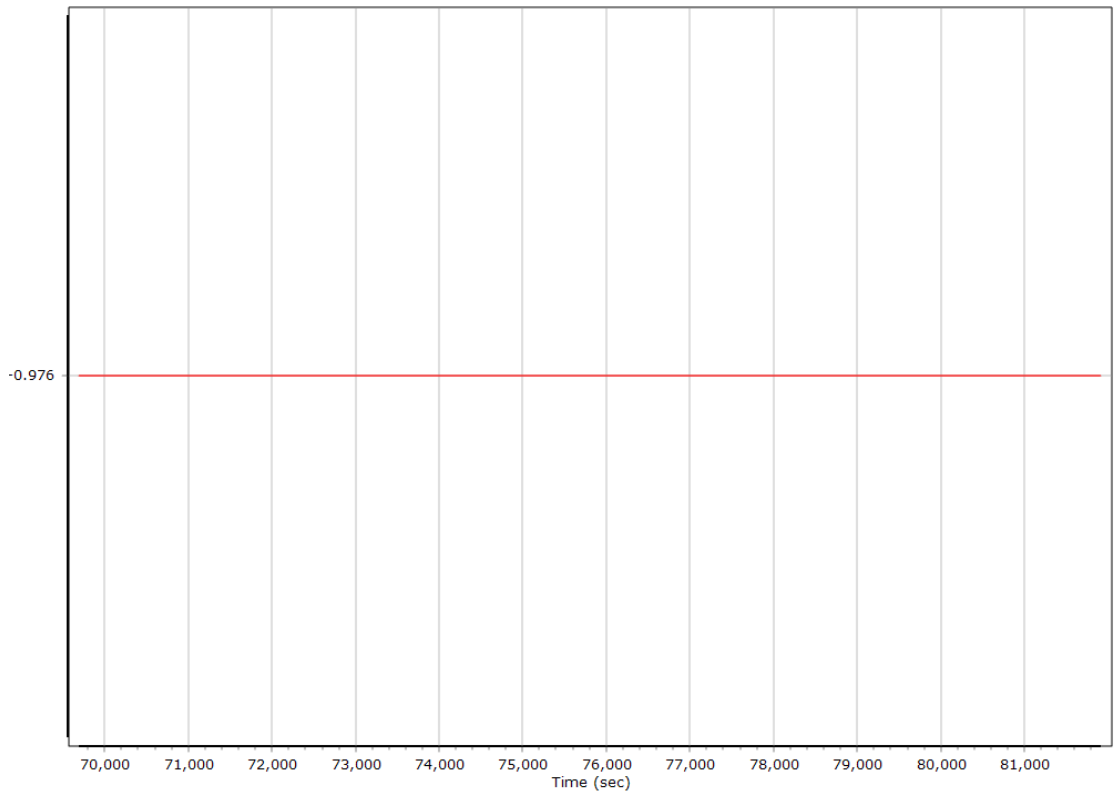
X Reference-Primary GNSS Lever Arm (m)



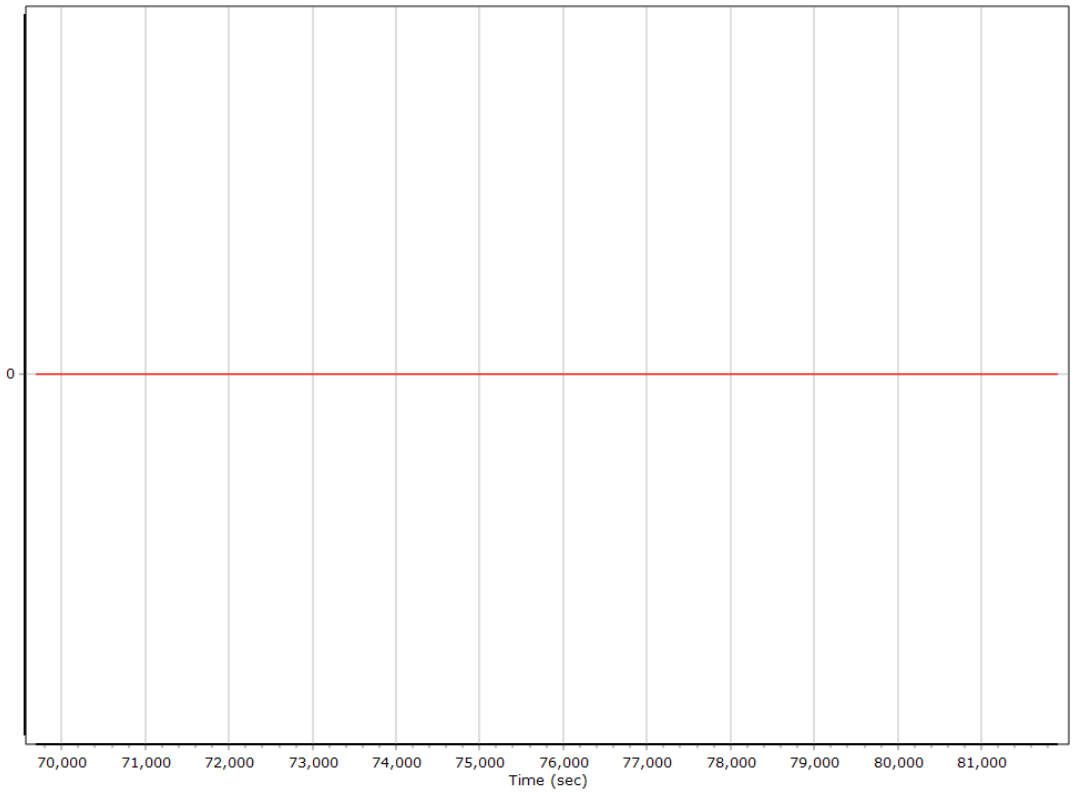
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



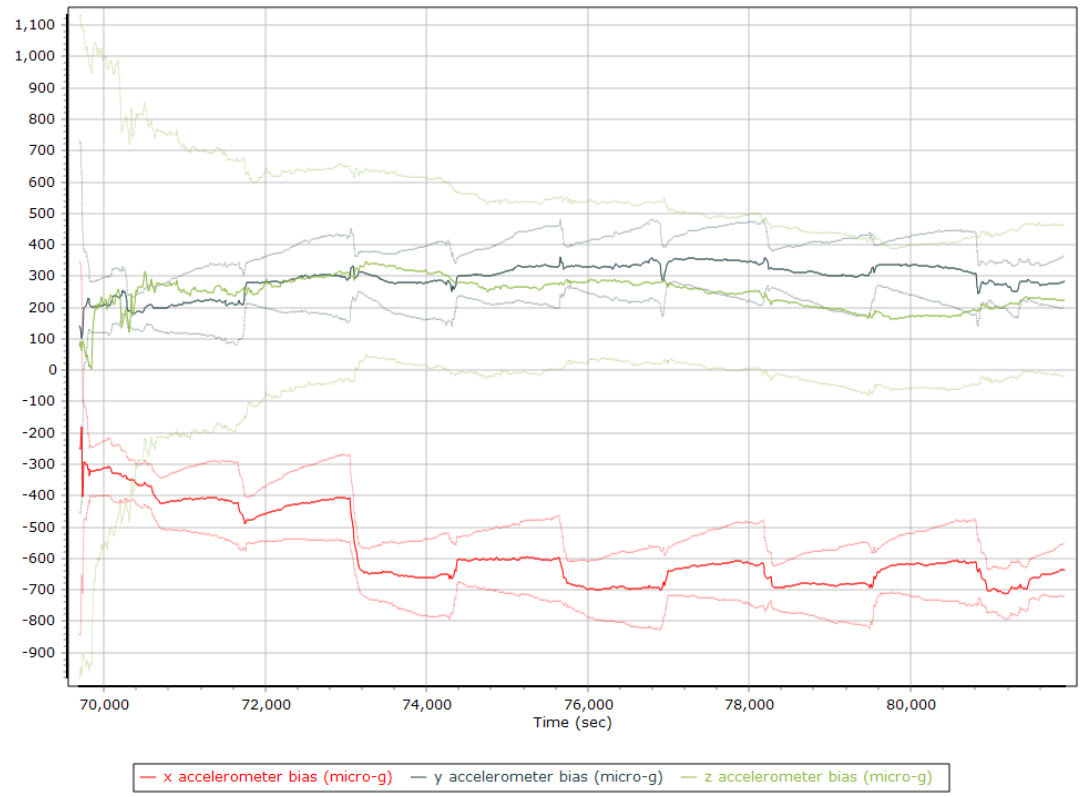
Reference-Primary GNSS Lever Arm Figure of Merit



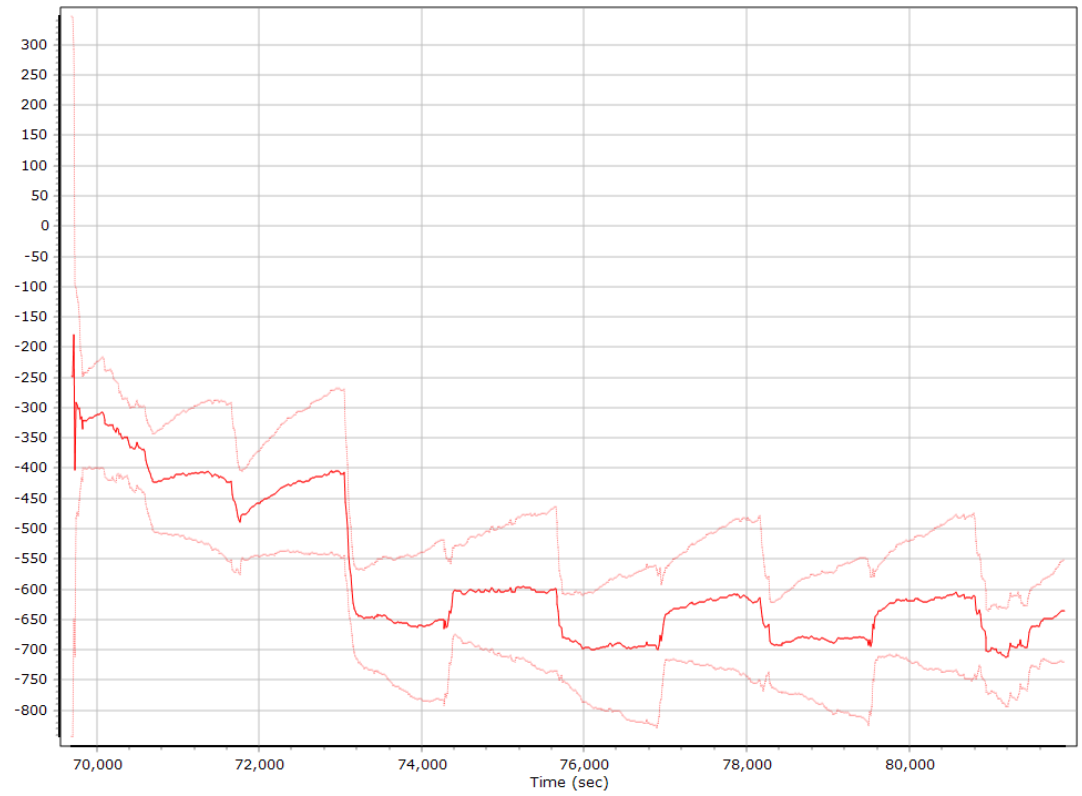
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

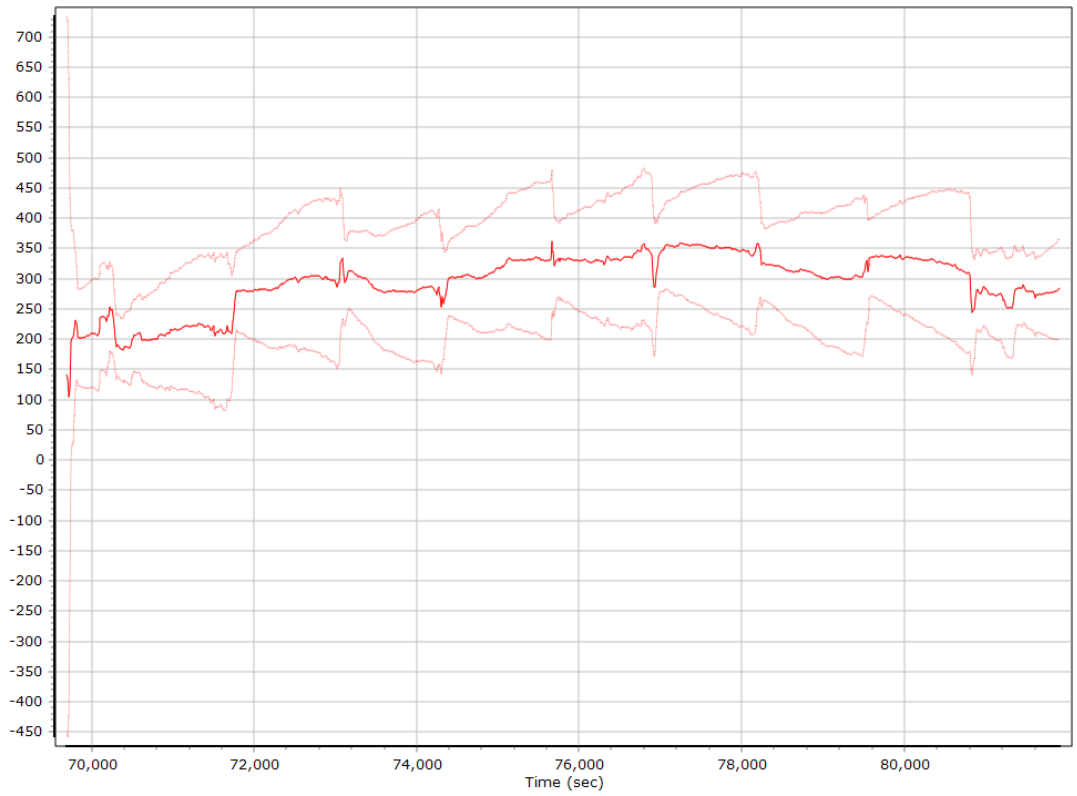
Accelerometer Bias (micro-g)



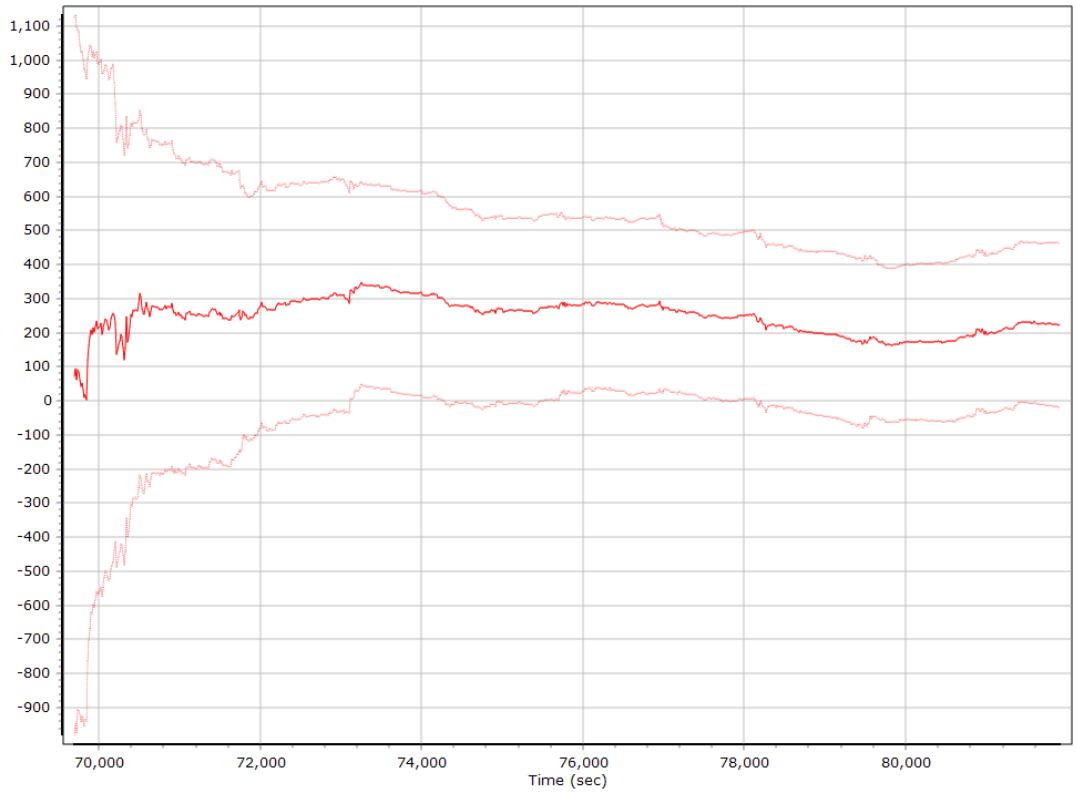
X Accelerometer Bias (micro-g)



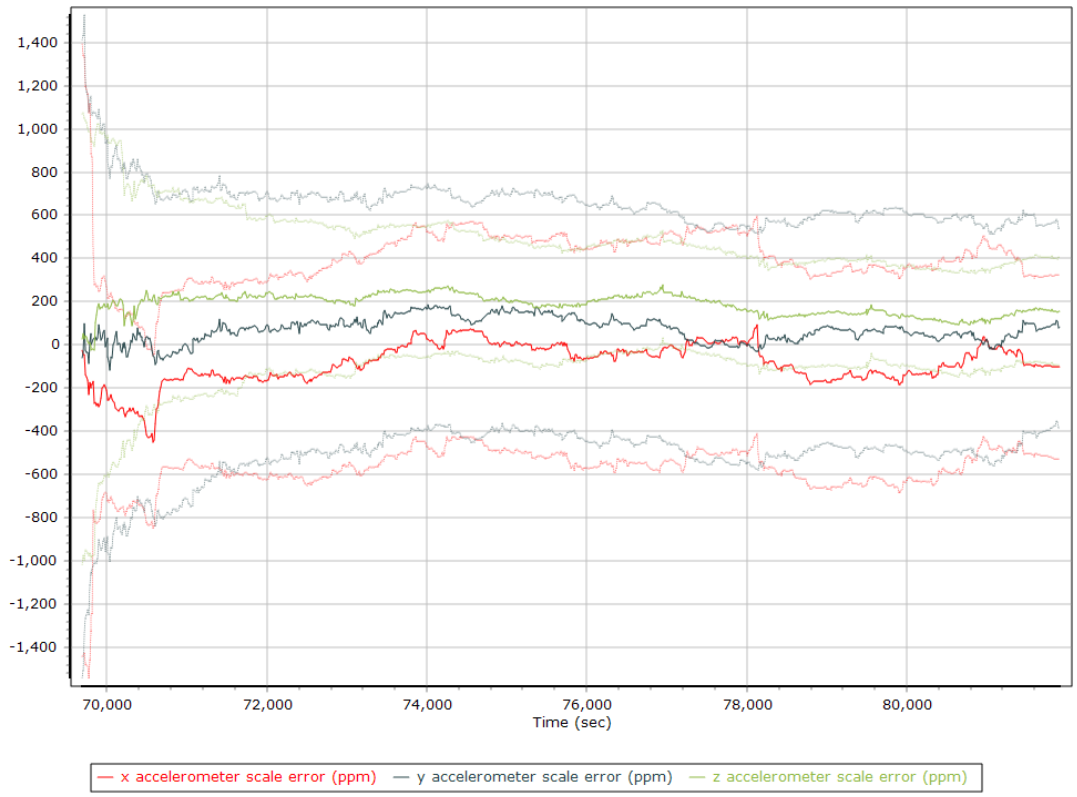
Y Accelerometer Bias (micro-g)



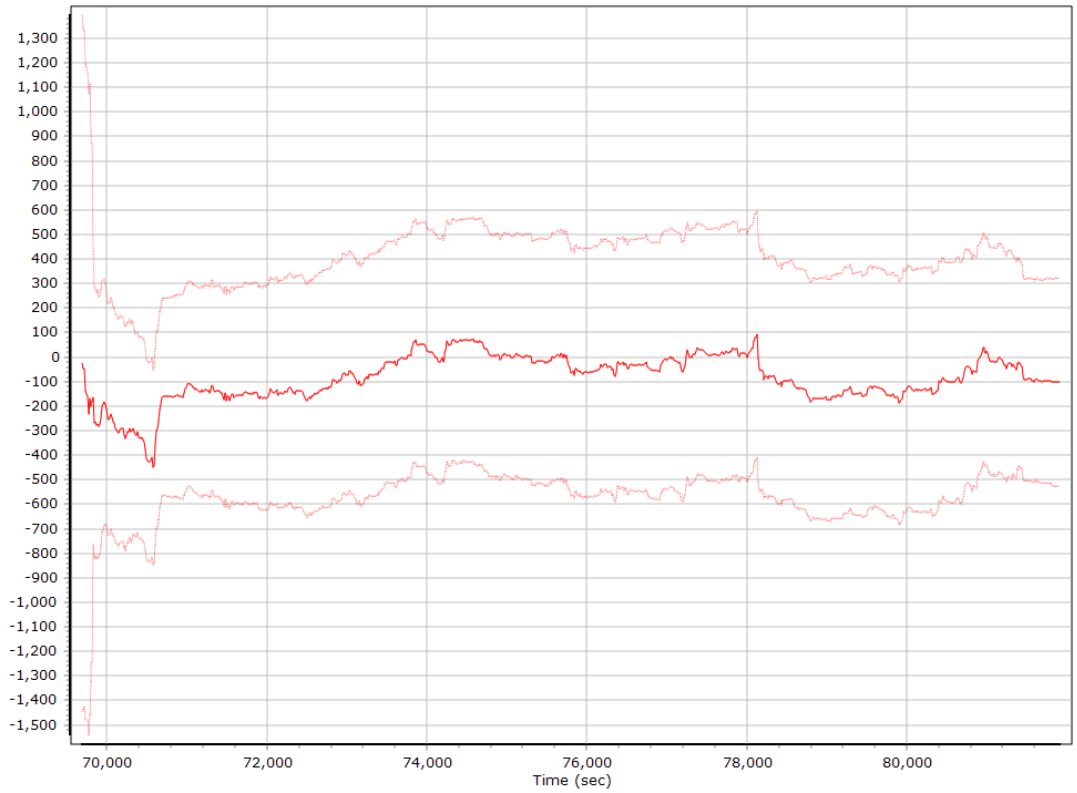
Z Accelerometer Bias (micro-g)



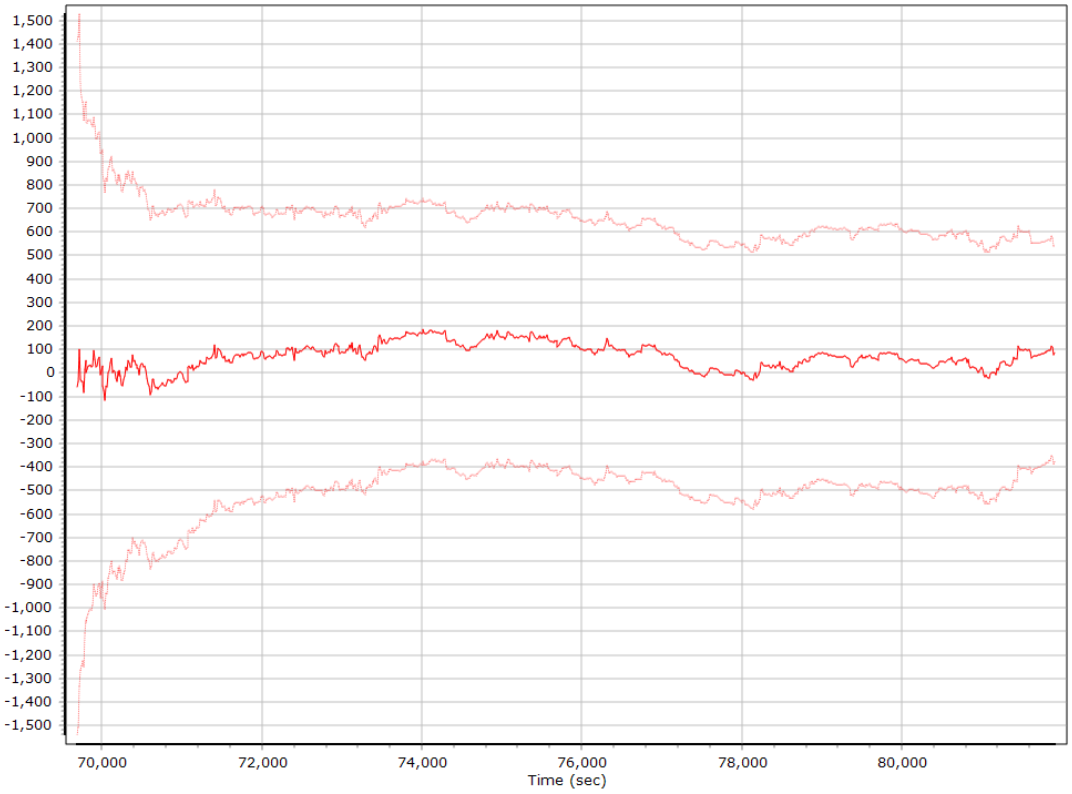
Accelerometer Scale Error (ppm)



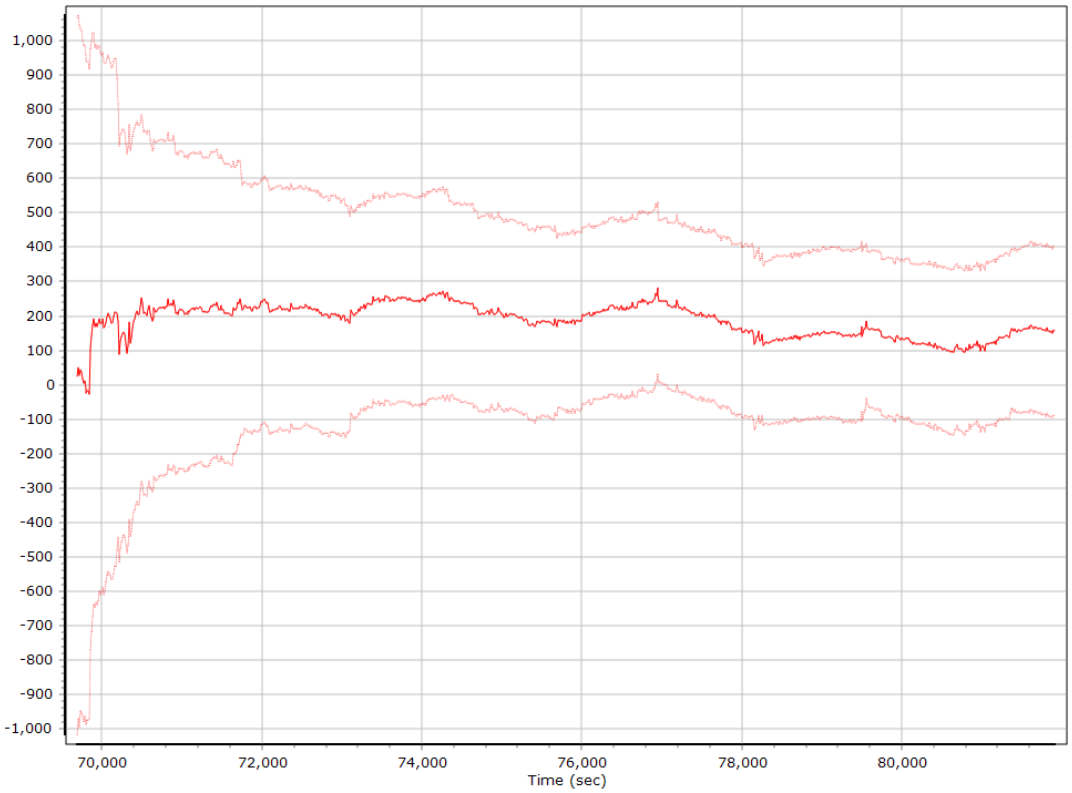
X Accelerometer Scale Error (ppm)



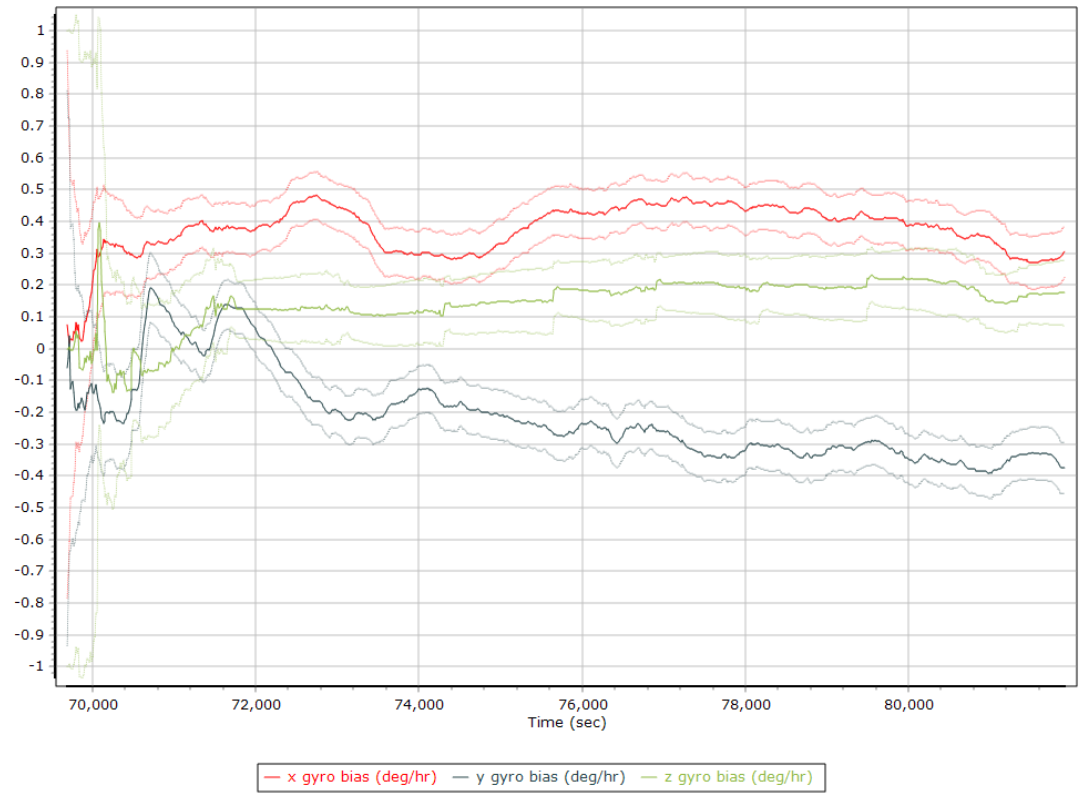
Y Accelerometer Scale Error (ppm)



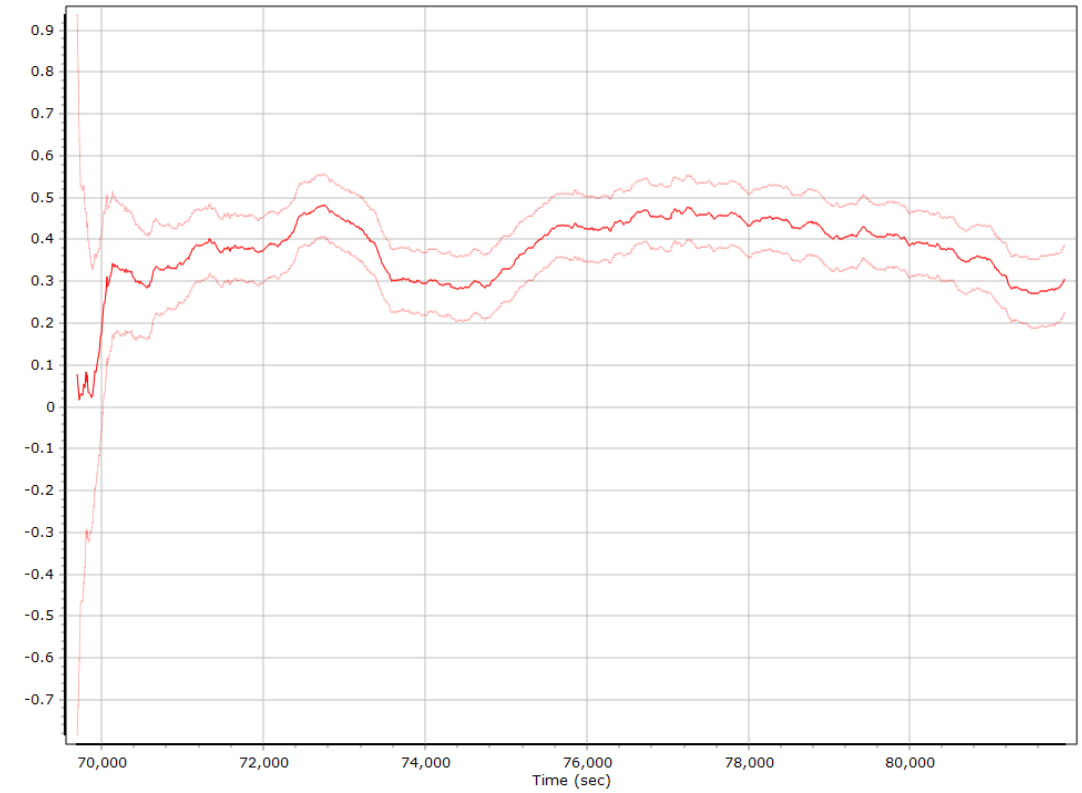
Z Accelerometer Scale Error (ppm)



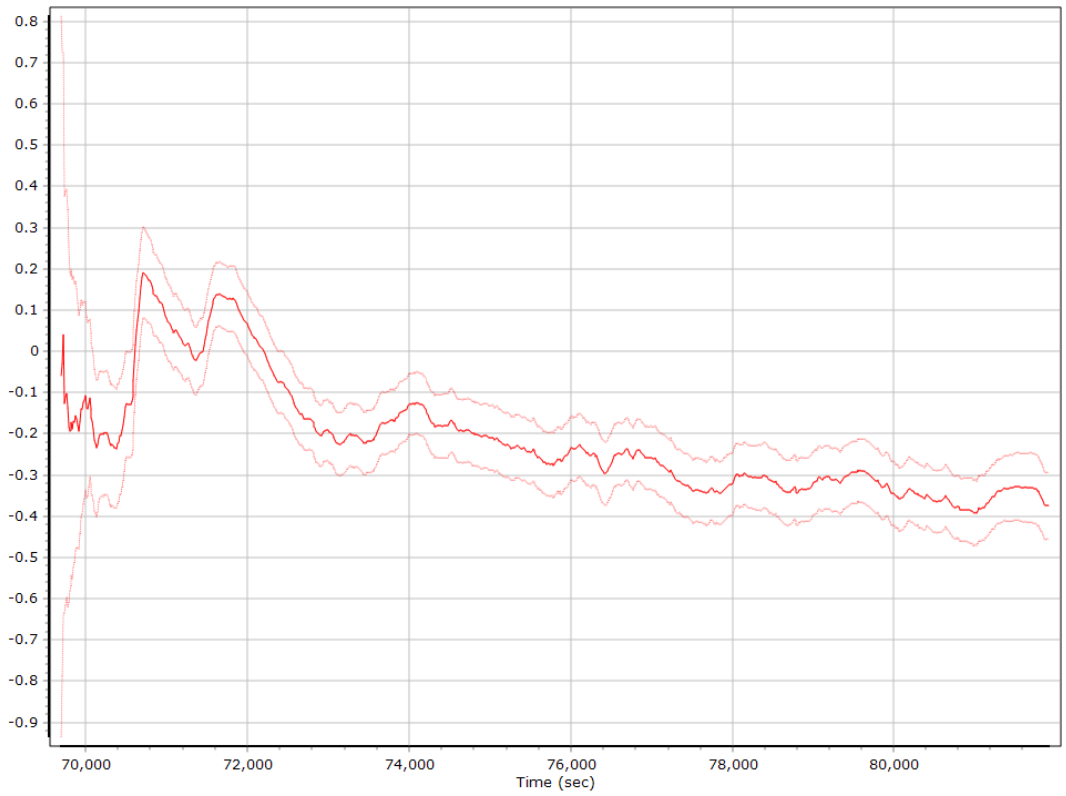
Gyro Bias (deg/h)



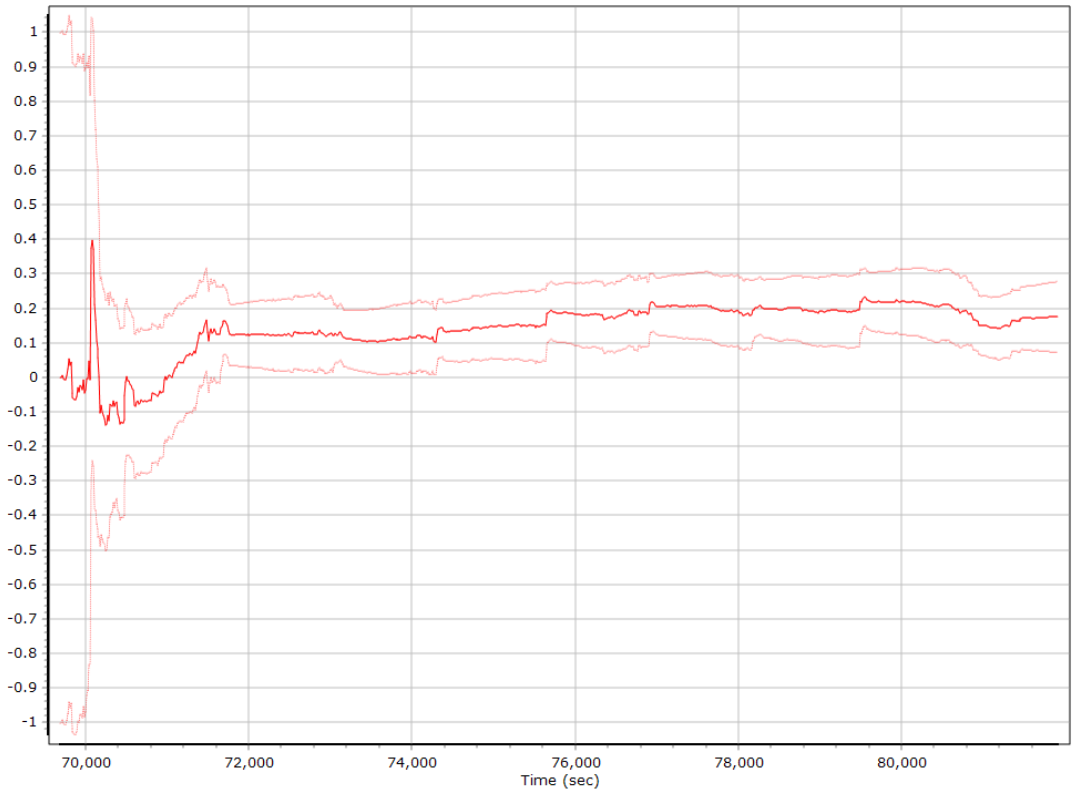
X Gyro Bias (deg/h)



Y Gyro Bias (deg/h)

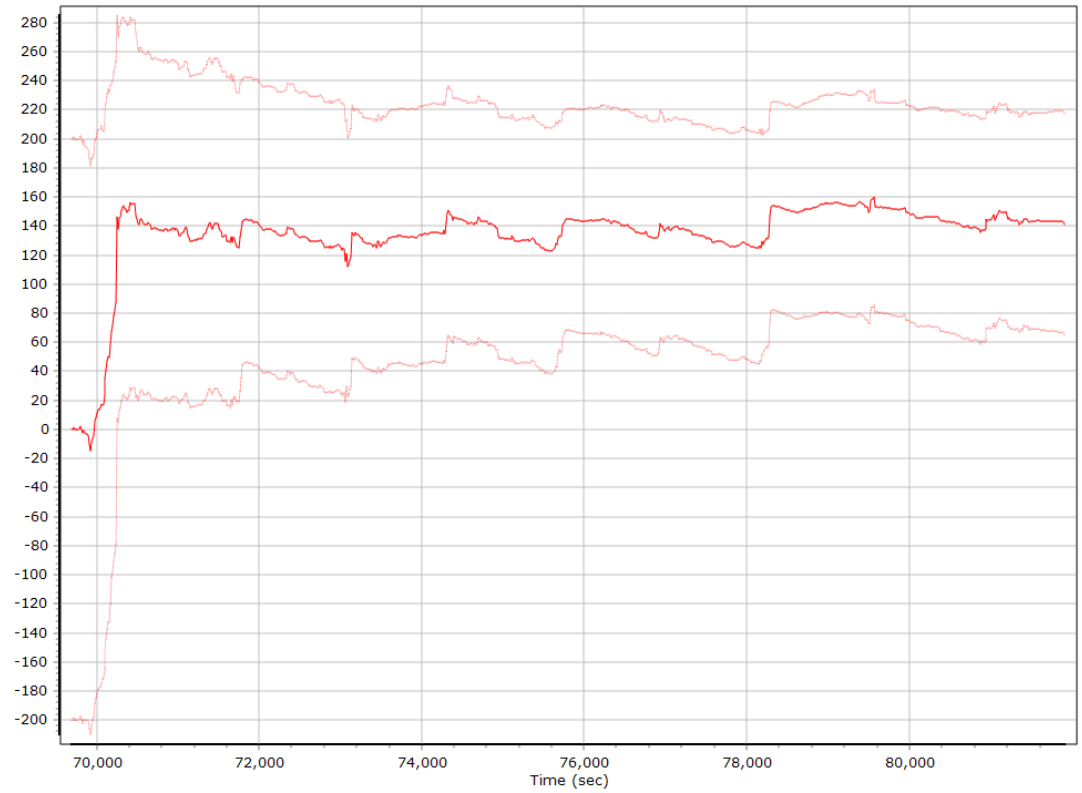


Z Gyro Bias (deg/h)

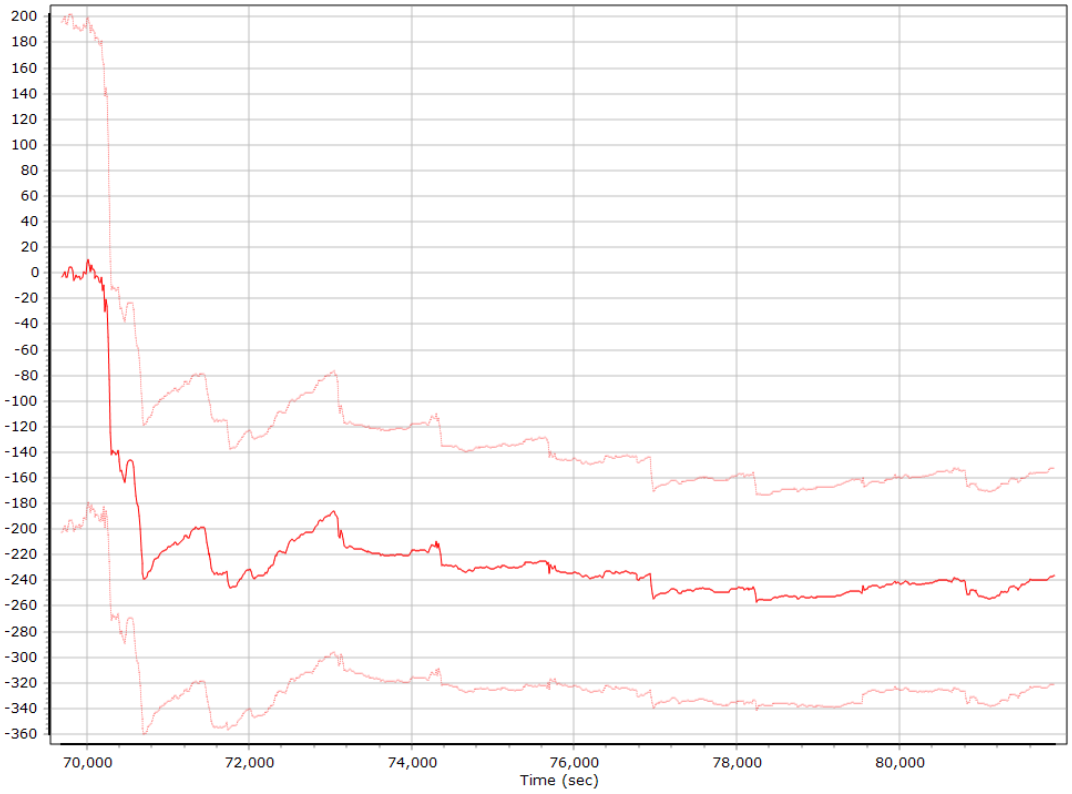


Gyro Scale Error (ppm)

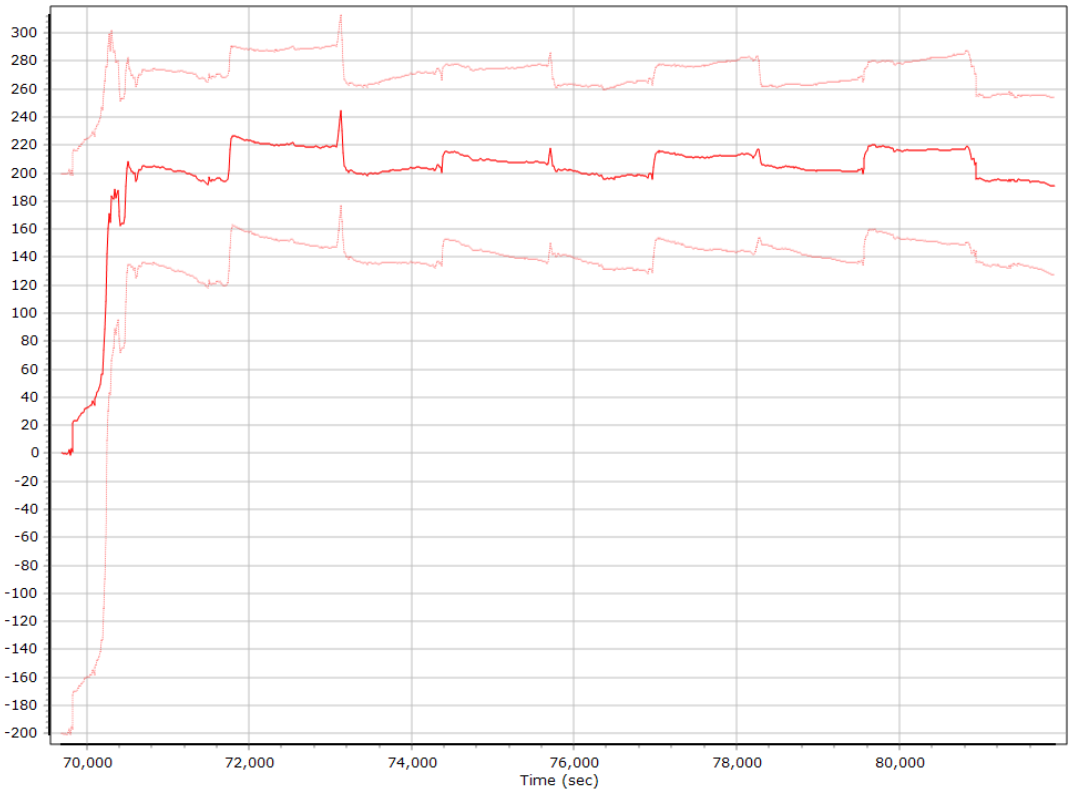
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

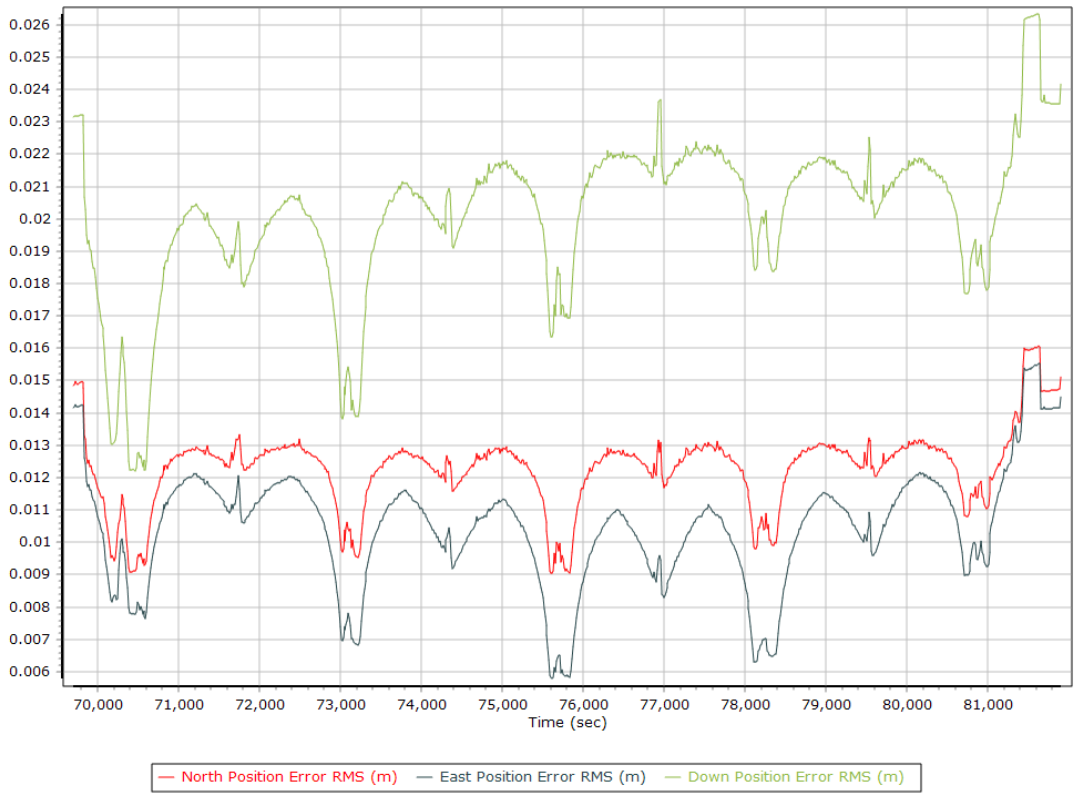


Z Gyro Scale Error (ppm)

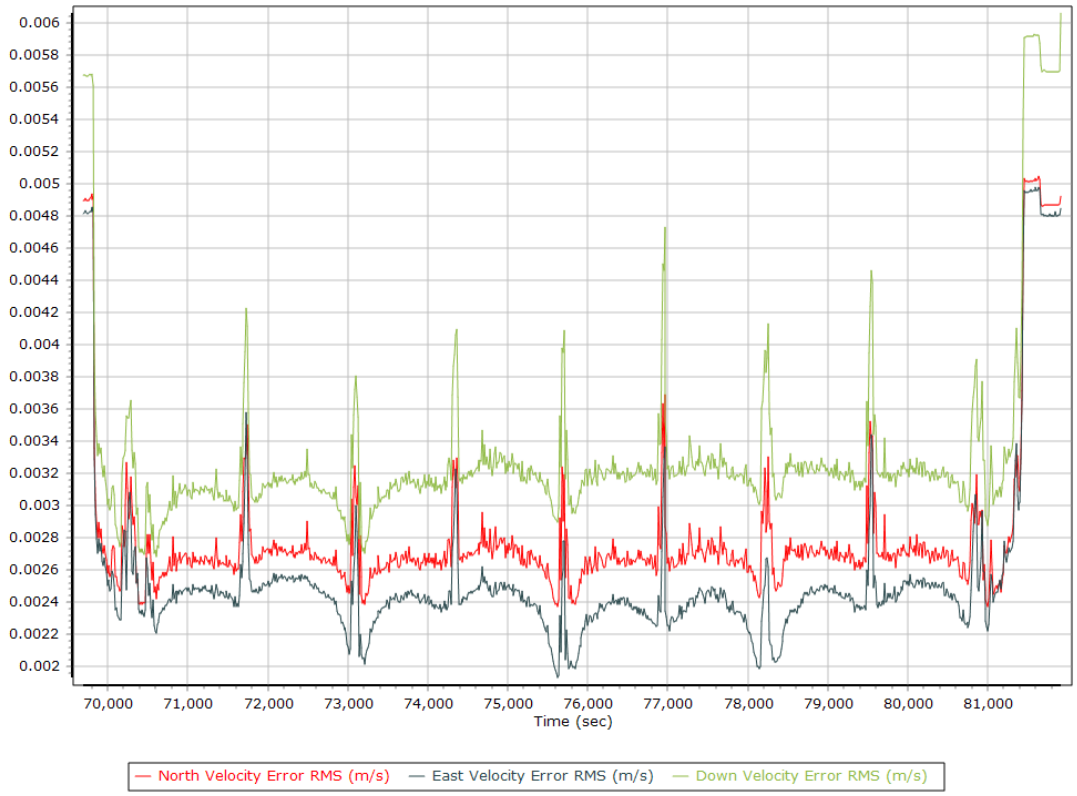


Smoothed Performance Metrics

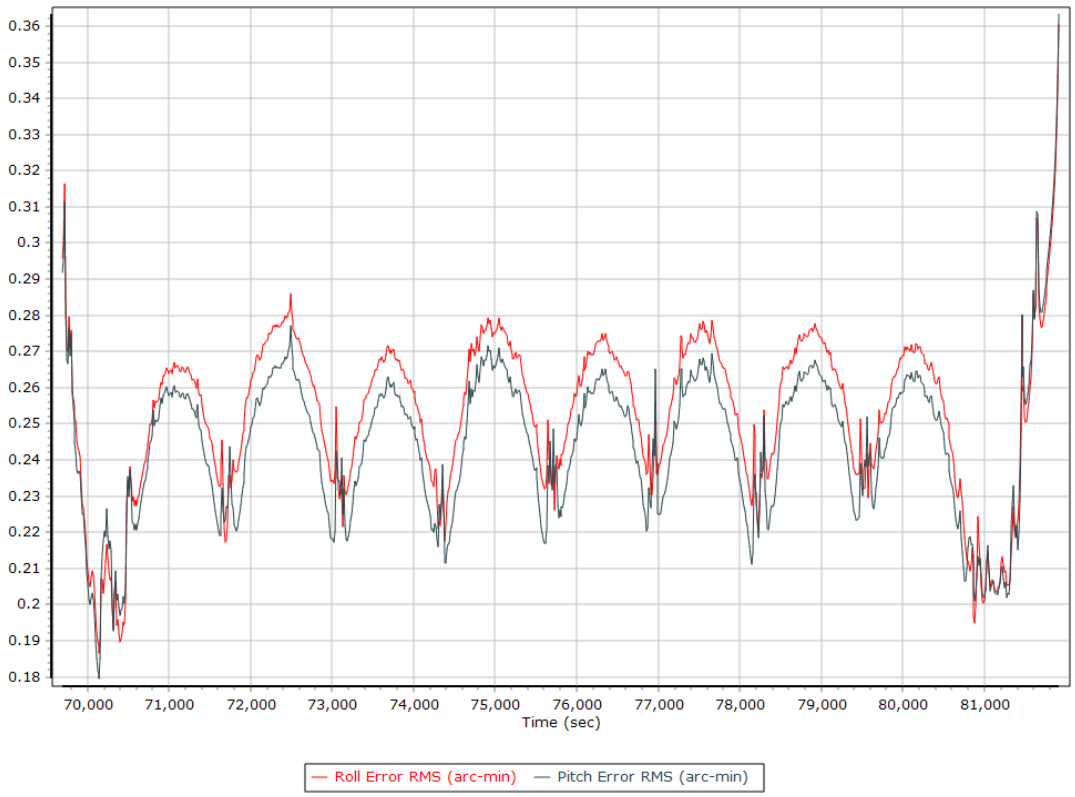
Position Error RMS (m)



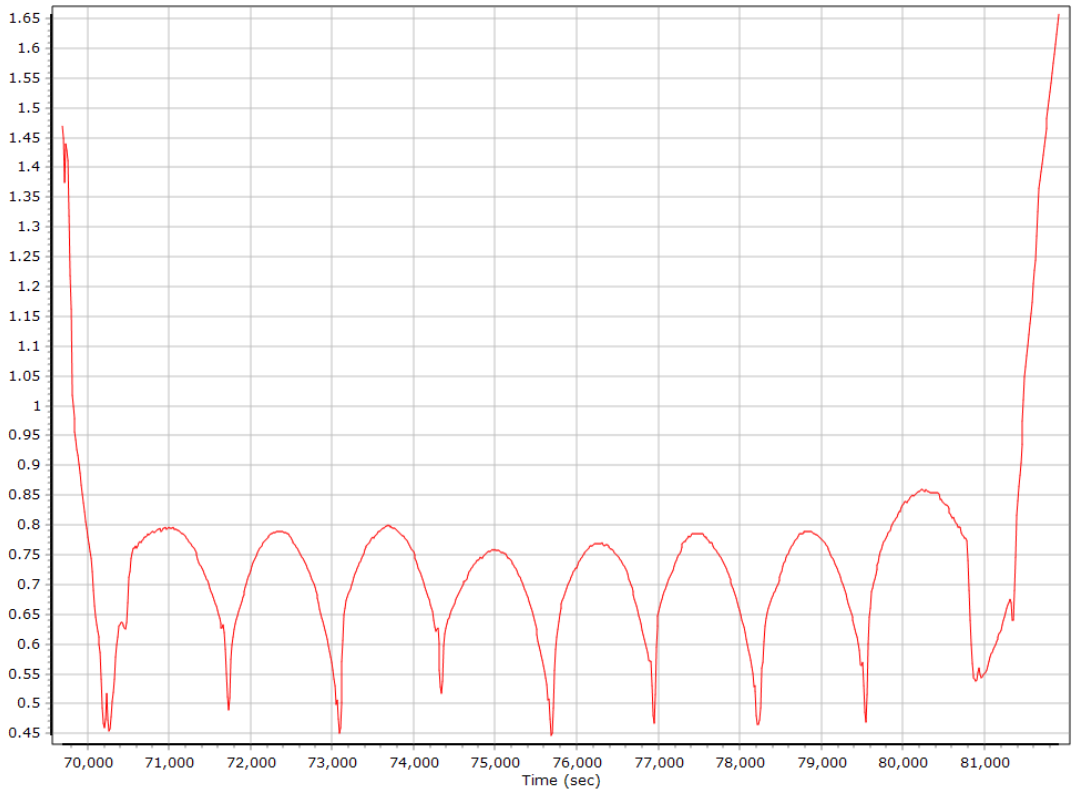
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

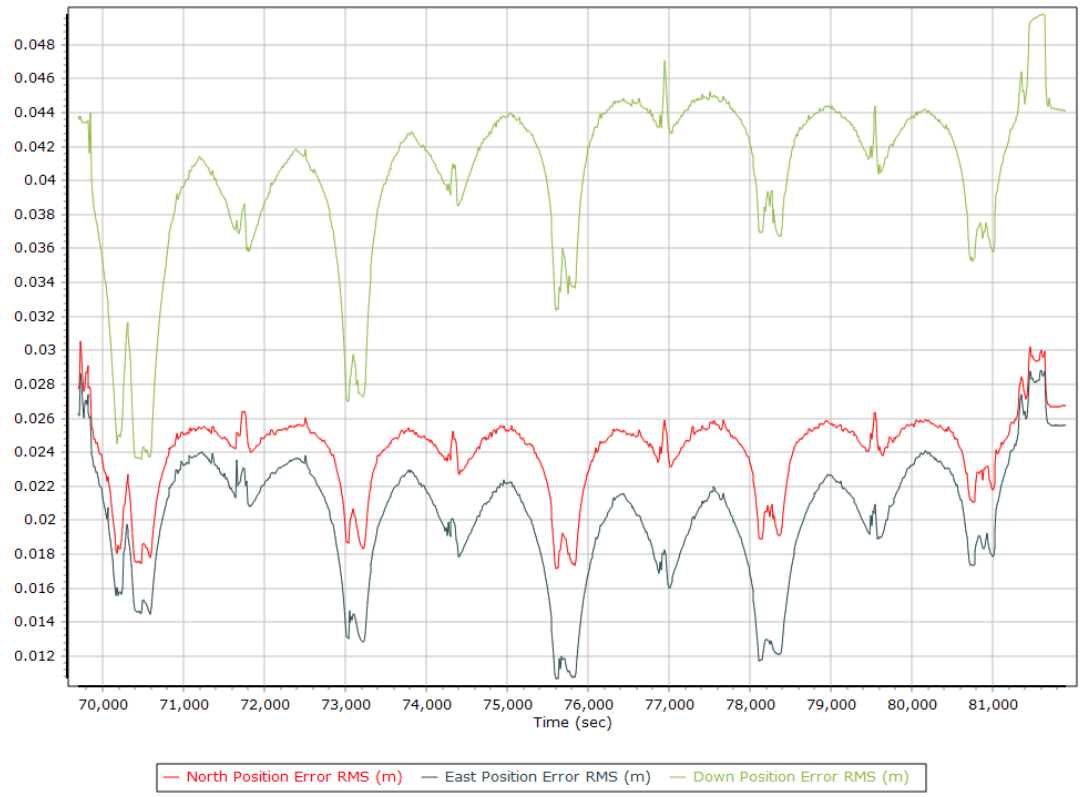


Heading Error RMS (arc-min)

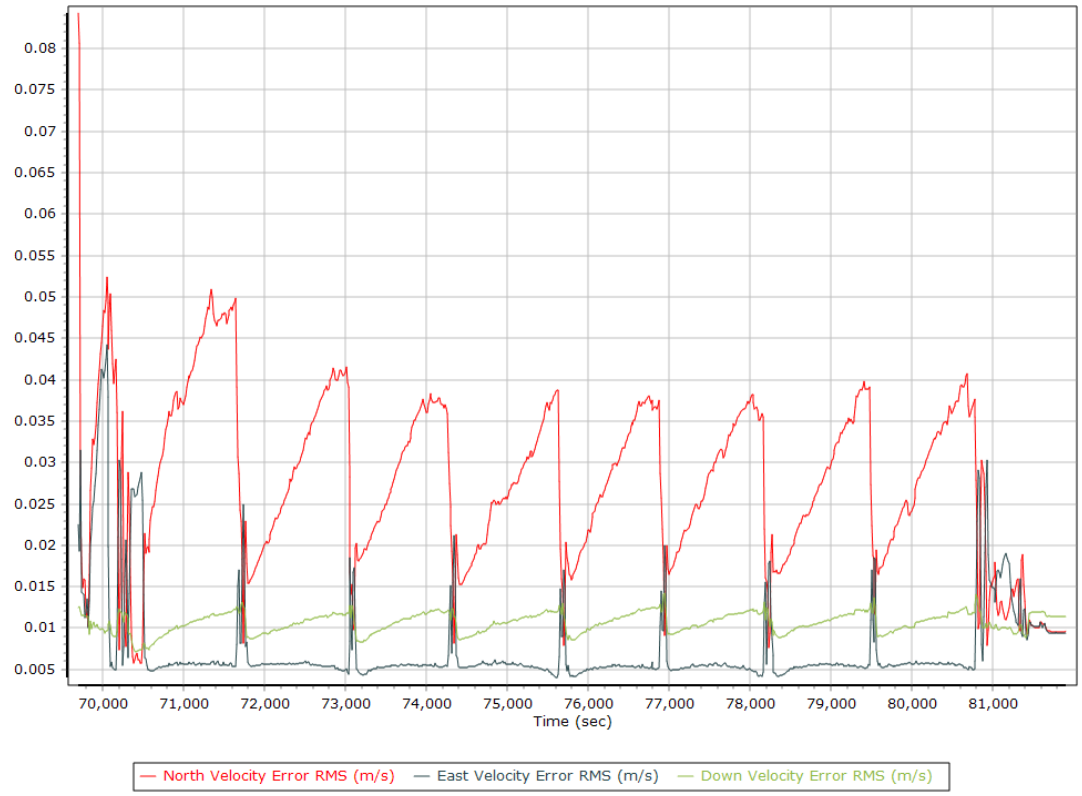


Forward Processed Performance Metrics

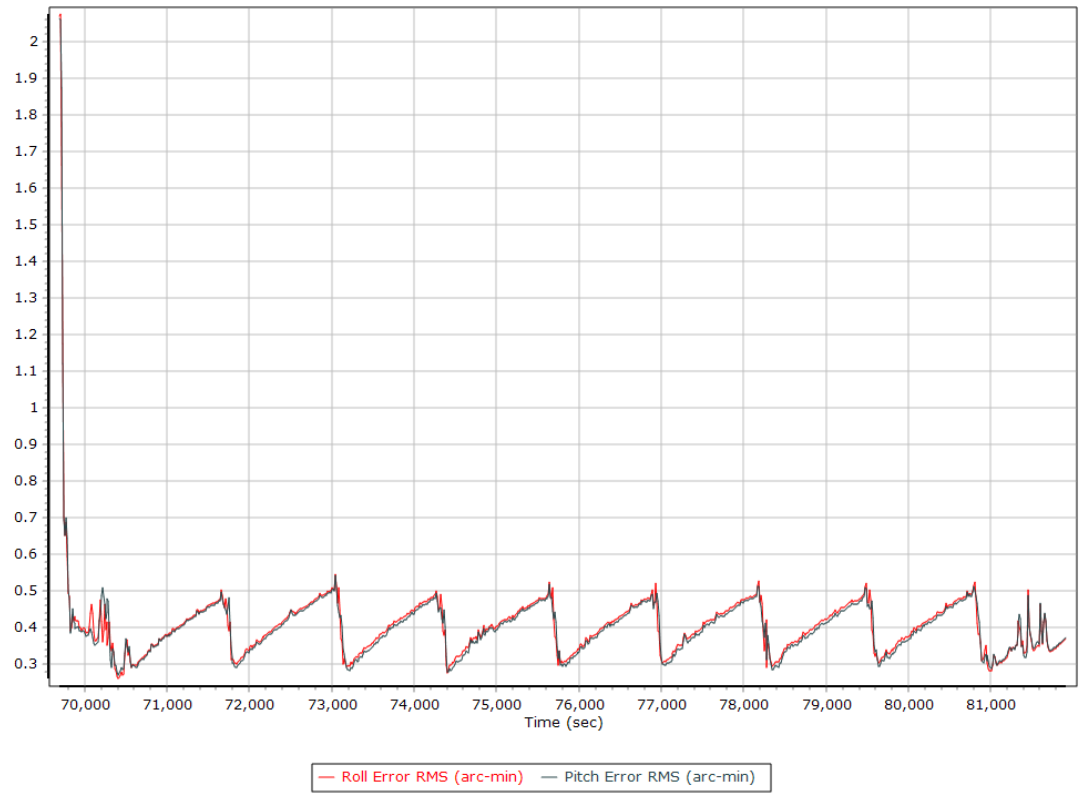
Position Error RMS (m)



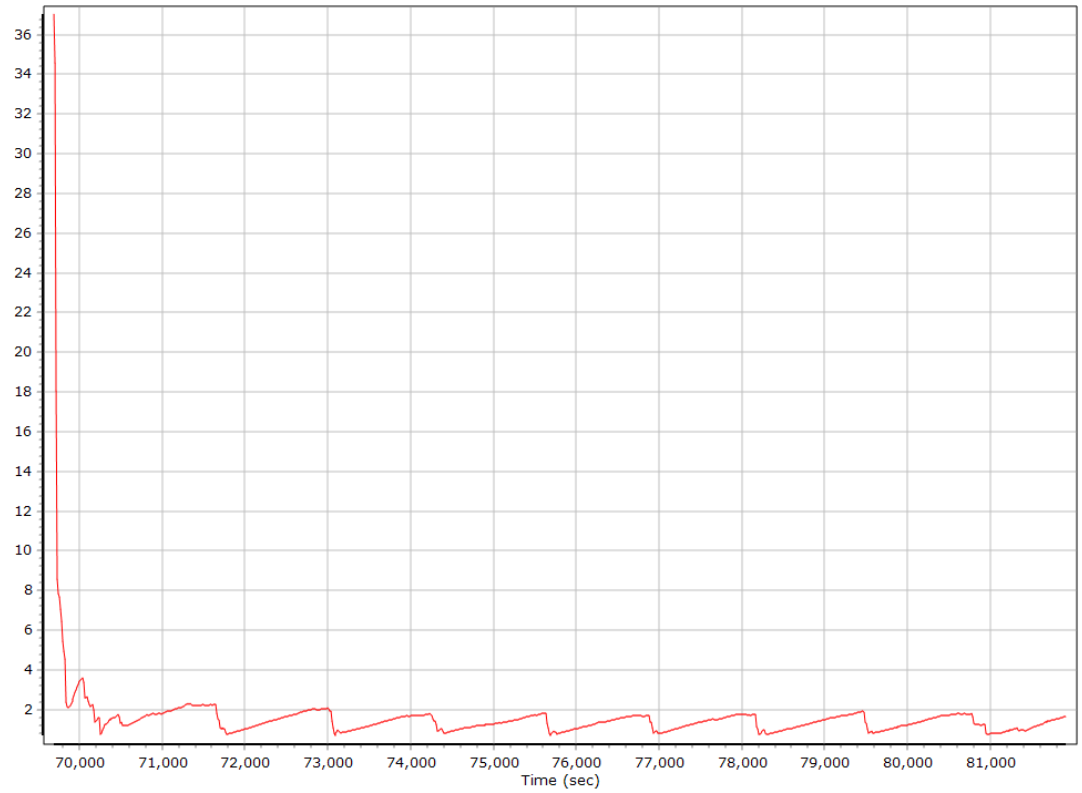
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

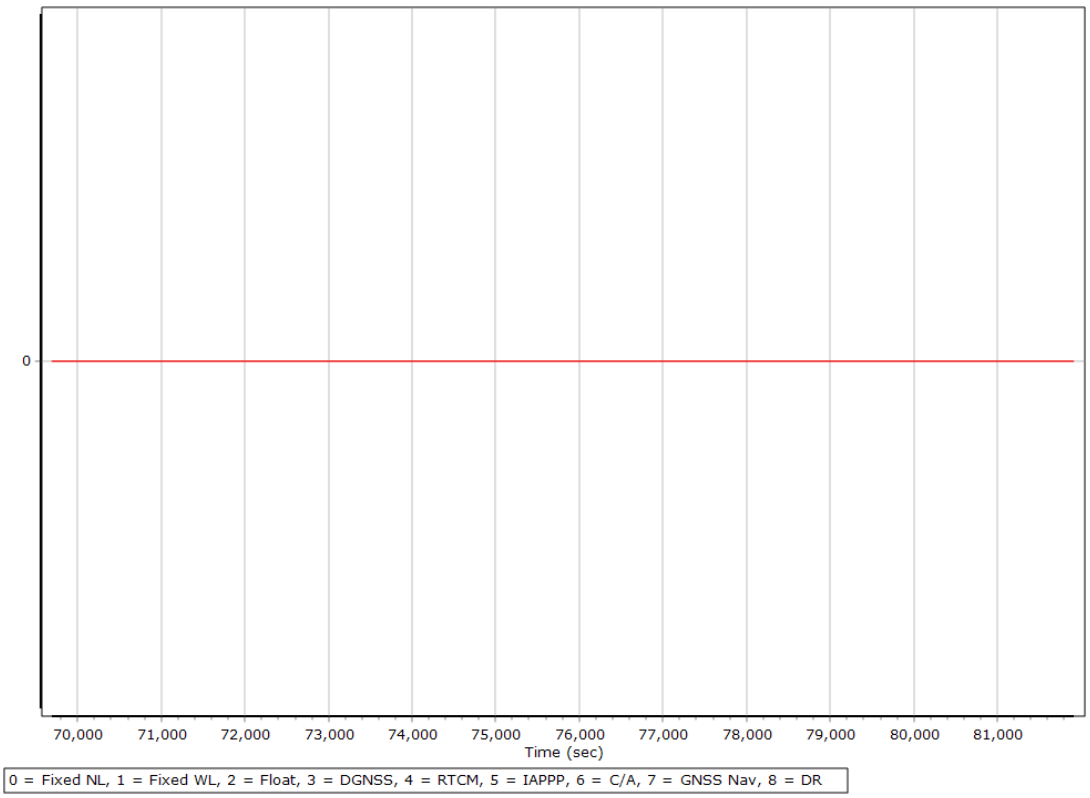


Heading Error RMS (arc-min)

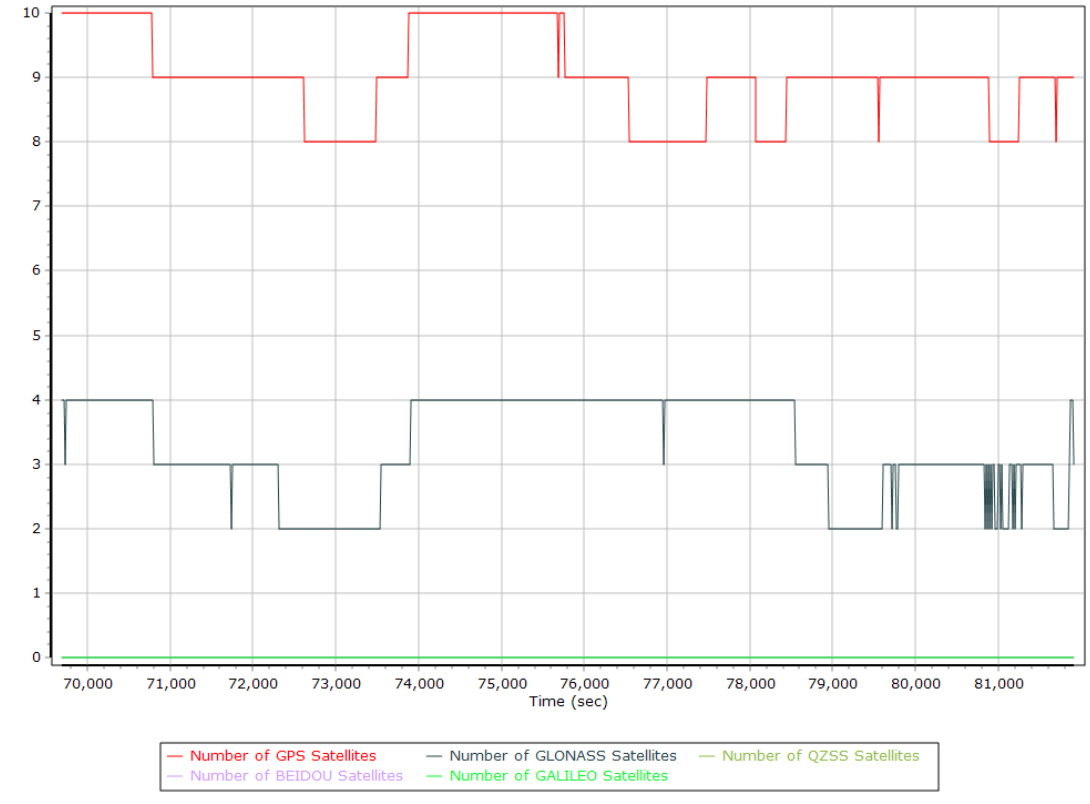


Smoothed Solution Status

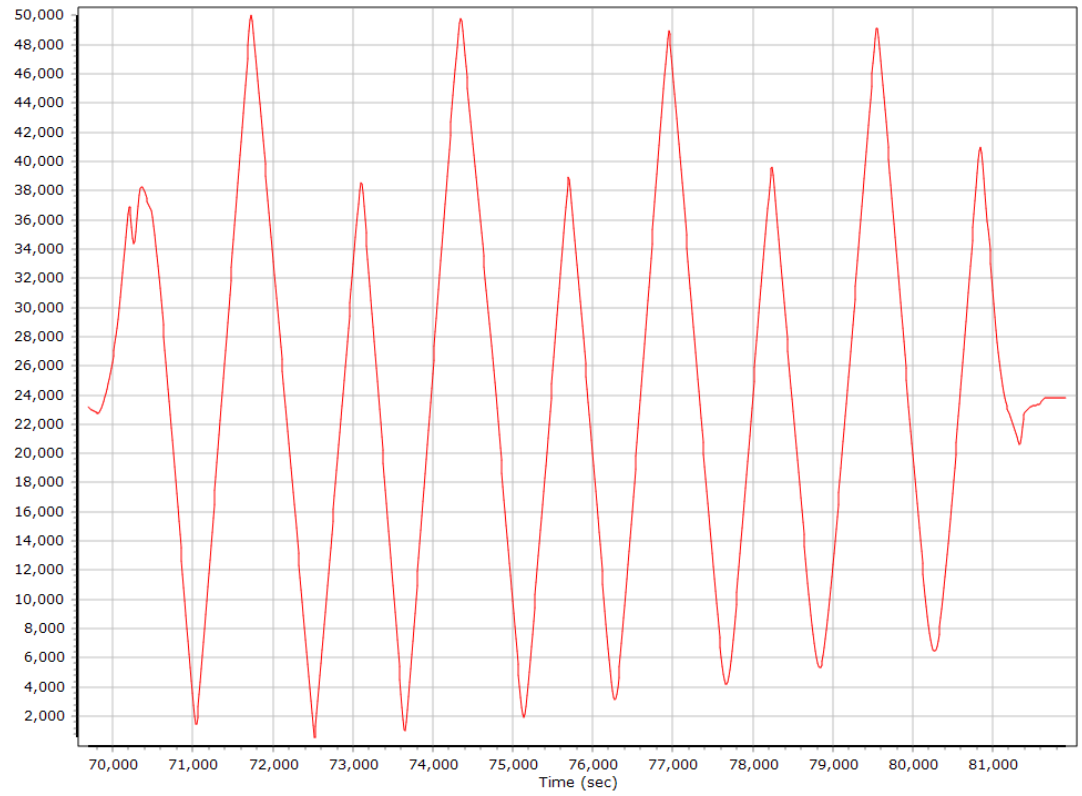
Processing Mode



Number of Satellites

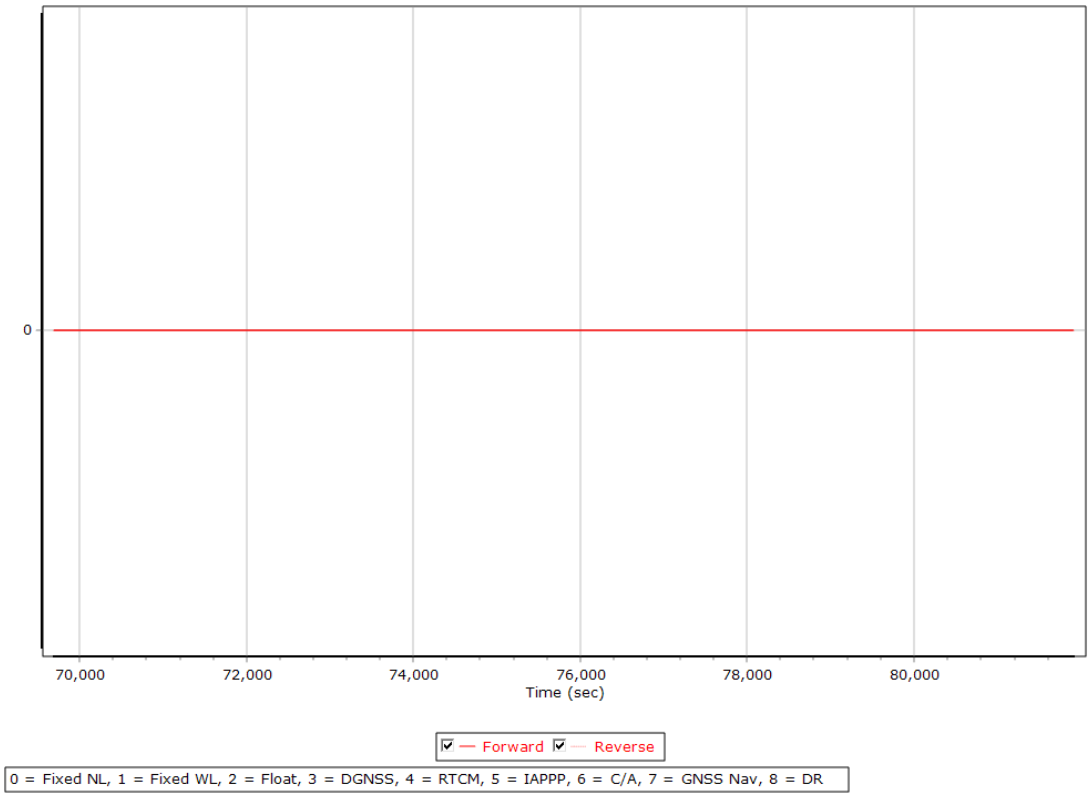


Baseline Length

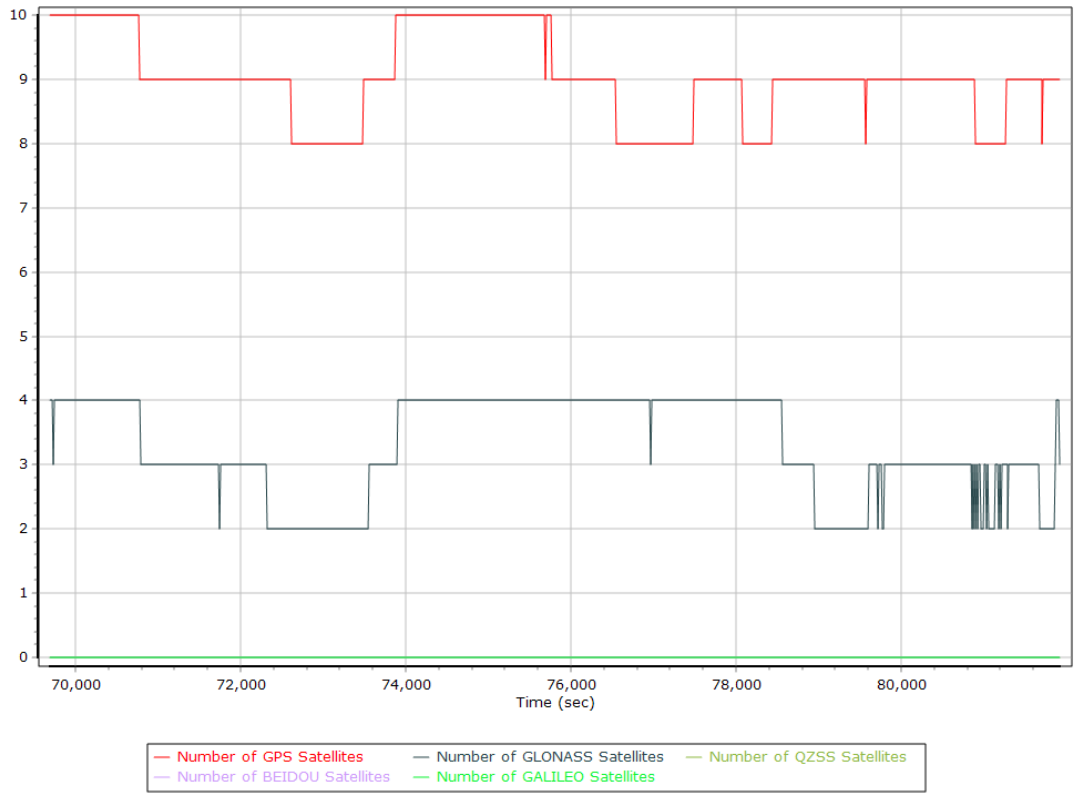


Forward Processed Solution Status

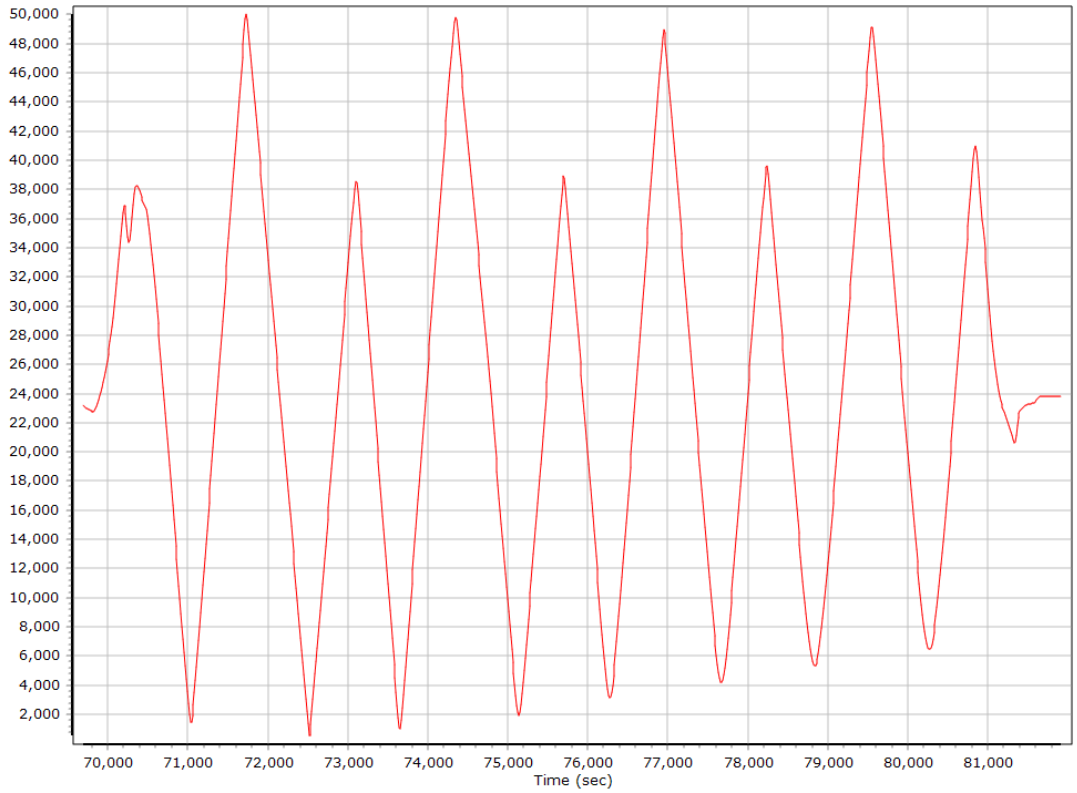
Processing Mode



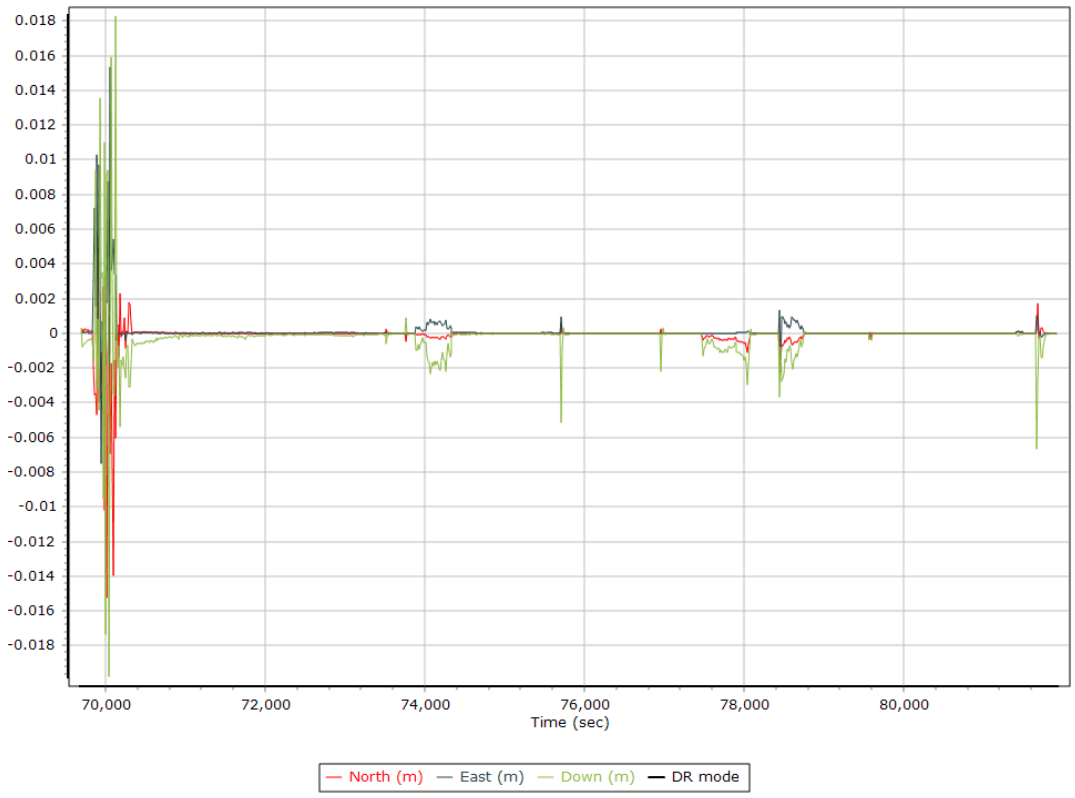
Number of Satellites



Baseline Length



SBET IAKAR Separation



Export Summary

Export file	SBET_export_Mission 1.out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	Specified Distance Interval		
Distance Interval (m)	10.000		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Deg Decimal	
Export start time	69633.001 (12/8/2019 7:20:33 PM)		
Export end time	81919.002 (12/8/2019 10:45:19 PM)		
Height option	Applanix Orthometric Height		
Geoid model	GEOID12B (Conus)		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 15 (96W to 90W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		