General Information

Mission Information

Project name	RBV20053B_176
Processing date	2020-02-24 20:11:29
Mission date	2020-02-22 19:25:07
Mission duration	03:28:32.000
Processing mode	IN-Fusion SmartBase
GPS Station	ASB

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N9642
IMU type	57
Receiver type	BD982
Antenna type	AT1675-80

Project File List

Rover Data Files

File name	File type
RBV20053C.477	POS Data
RBV20053C.478	POS Data
RBV20053C.479	POS Data
RBV20053C.480	POS Data
RBV20053C.481	POS Data
RBV20053C.482	POS Data
RBV20053C.483	POS Data
RBV20053C.484	POS Data
RBV20053C.485	POS Data
RBV20053C.486	POS Data
RBV20053C.487	POS Data
RBV20053C.488	POS Data
RBV20053C.489	POS Data
RBV20053C.490	POS Data
RBV20053C.491	POS Data
RBV20053C.492	POS Data
RBV20053C.493	POS Data
RBV20053C.494	POS Data
RBV20053C.495	POS Data
RBV20053C.496	POS Data
RBV20053C.497	POS Data
RBV20053C.498	POS Data
RBV20053C.499	POS Data
RBV20053C.500	POS Data
RBV20053C.501	POS Data
RBV20053C.502	POS Data
RBV20053C.503	POS Data
RBV20053C.504	POS Data
RBV20053C.505	POS Data
RBV20053C.506	POS Data
RBV20053C.507	POS Data
RBV20053C.508	POS Data

Input Files

File Name	File Type
Ephm0530.20g	GLONASS Broadcast Ephemeris
Ephm0530.20n	GPS Broadcast Ephemeris
loys0530.20o	GNSS SingleBase
wvbr0530.20o	GNSS SingleBase
wvbu0530.20o	GNSS SingleBase
wvcv0530.20o	GNSS SingleBase
wvmz0530.20o	GNSS SingleBase
wvsh0530.20o	GNSS SingleBase
wvta0530.20o	GNSS SingleBase
igr20935.sp3	GPS Precise Ephemeris
igr20936.sp3	GPS Precise Ephemeris
igr20940.sp3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_RBV20053B_176.out	SBET Trajectory File
export_RBV20053B_176.shp	Shapefile Export Output

Rover Data Summary

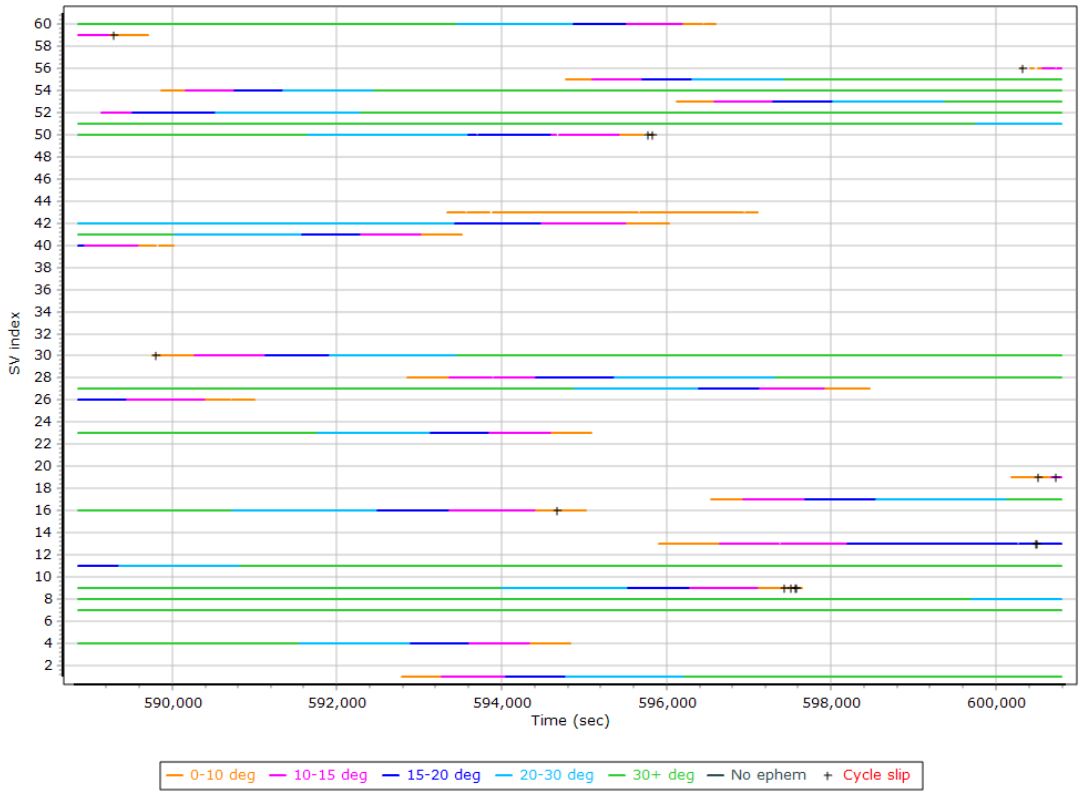
First raw data file	RBV20053C.477		
Last raw data file	RBV20053C.508		
Start GPS week	2093		
Start time	588288.670 (2/22/2020 7:24:48 PM)		
End time	600802.067 (2/22/2020 10:53:22 PM)		
Start of fine alignment	588796.139 (2/22/2020 7:33:16 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	0.000	0.000	0.000
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

Raw Data QC

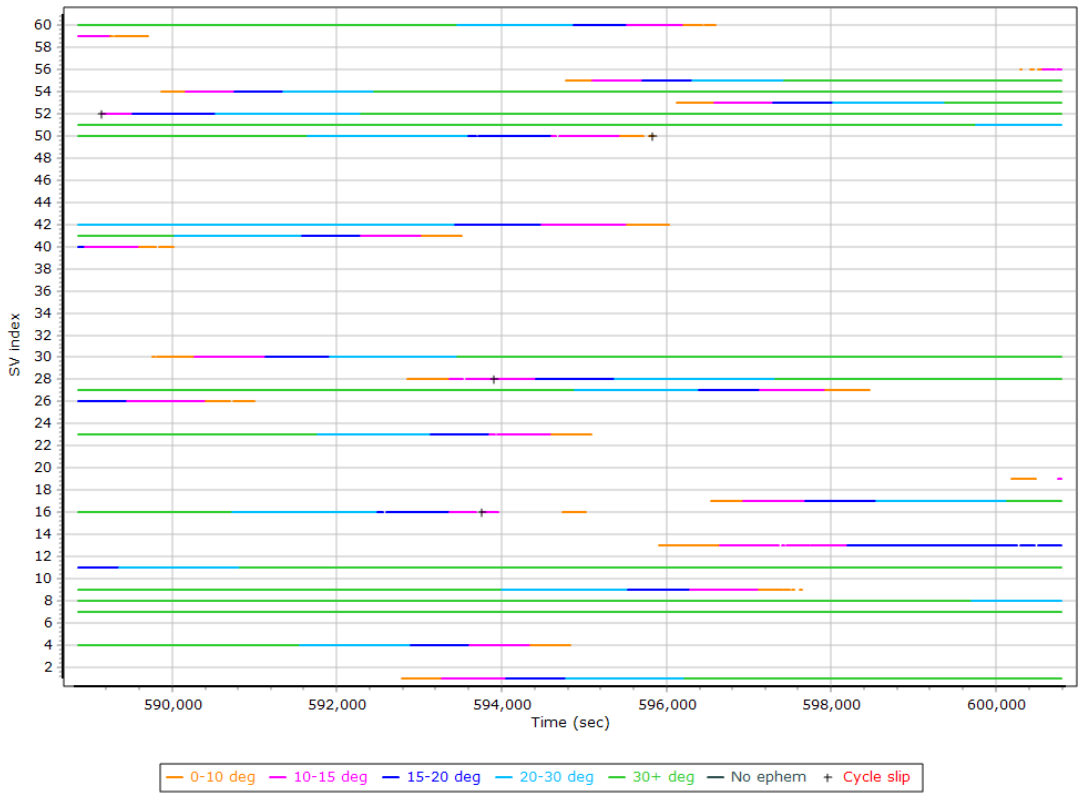
Raw IMU Import QC Summary

IMU data input file	imu_RBV20053B_176.dat
IMU data check log file	imudt_RBV20053B_176.log
IMU Records Processed	2502391
Termination Status	Normal
IMU Anomalies	0

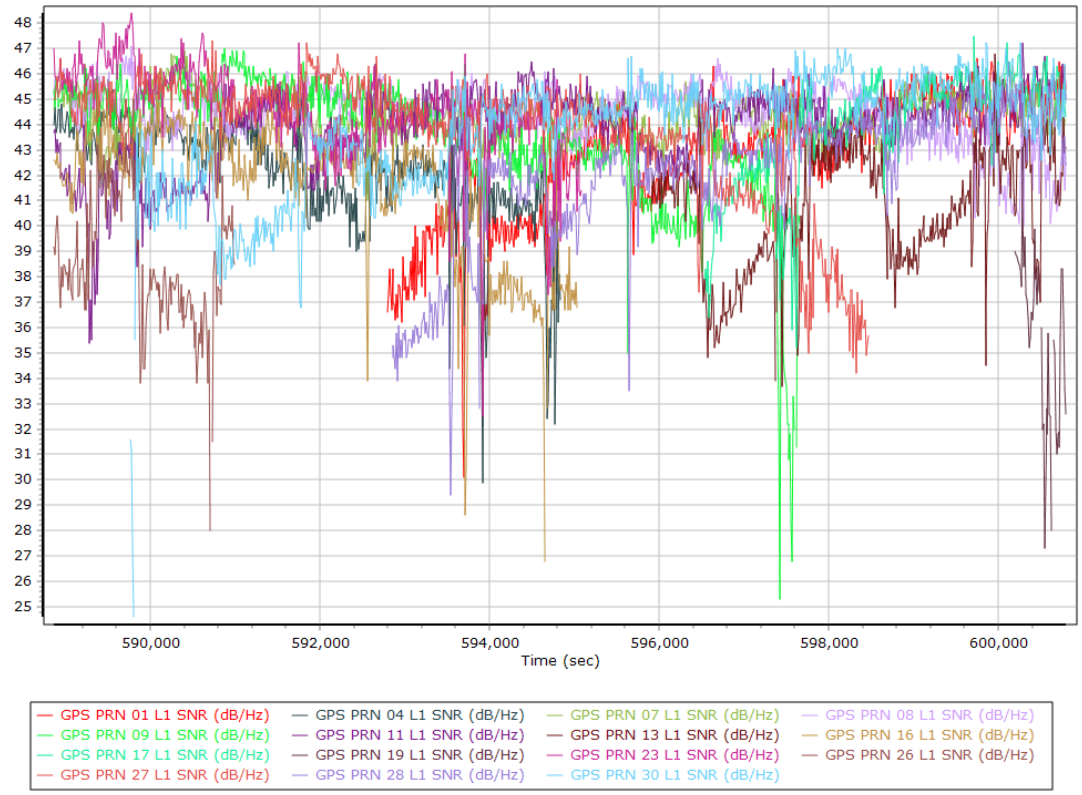
L1 Satellite Lock/Elevation



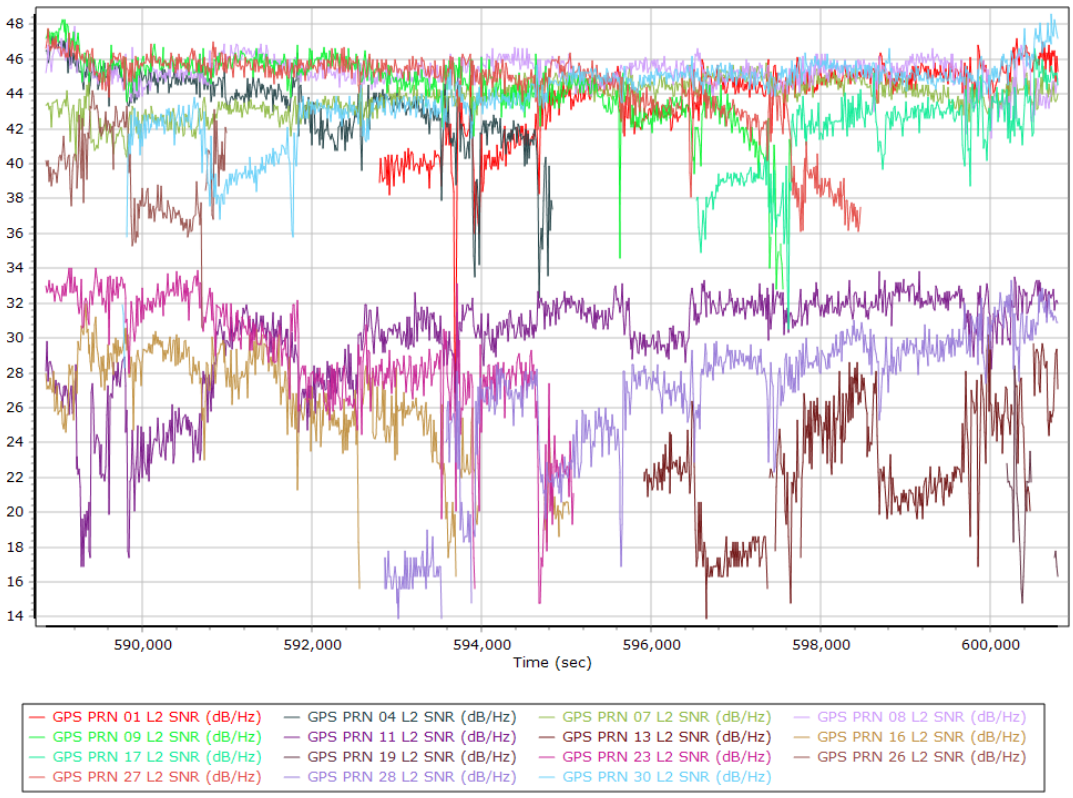
L2 Satellite Lock/Elevation



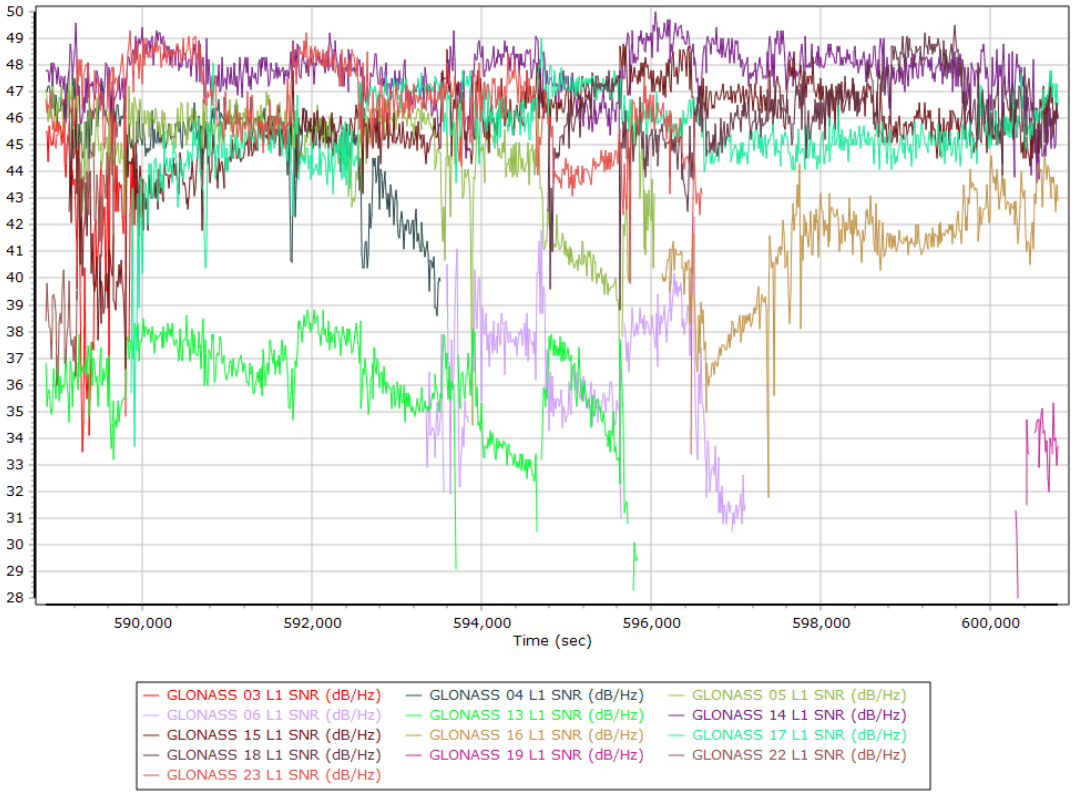
GPS L1 SNR



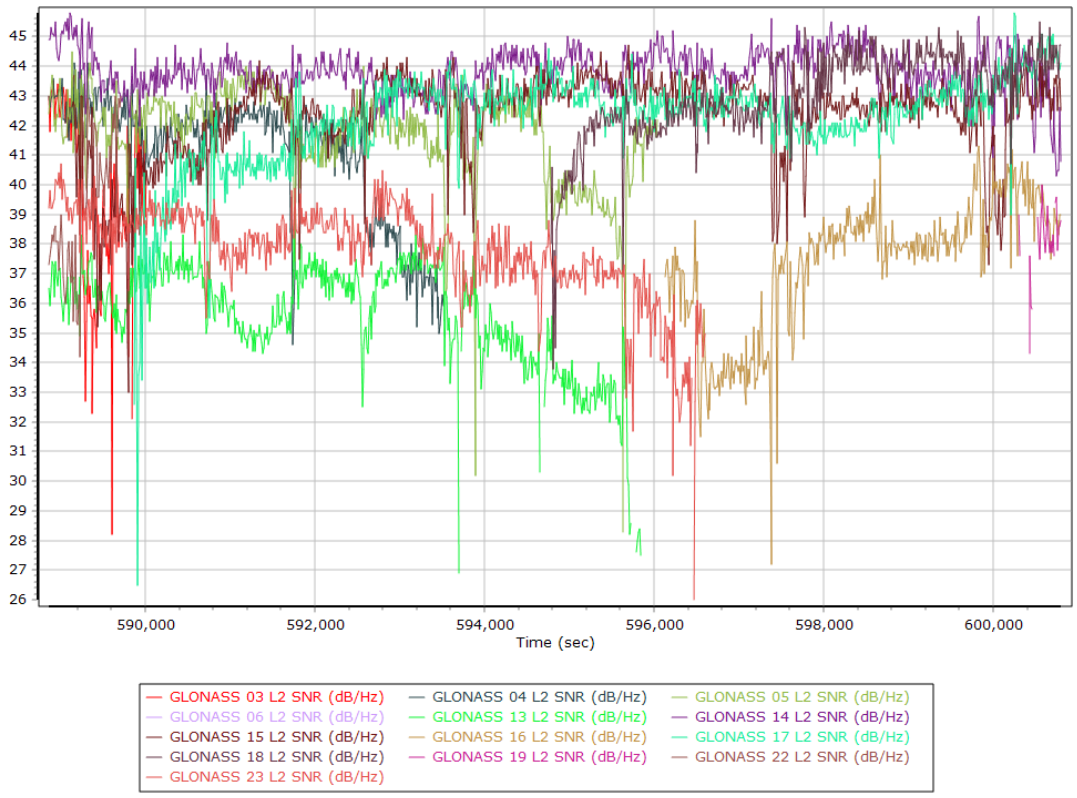
GPS L2 SNR



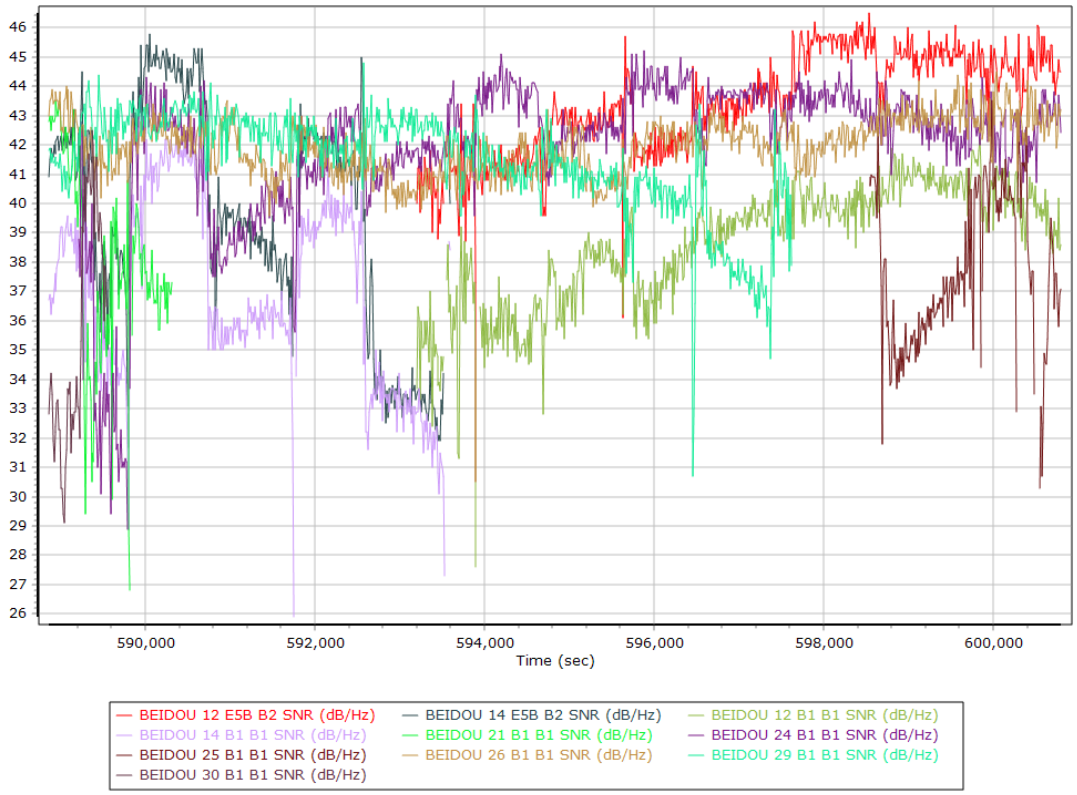
GLONASS L1 SNR



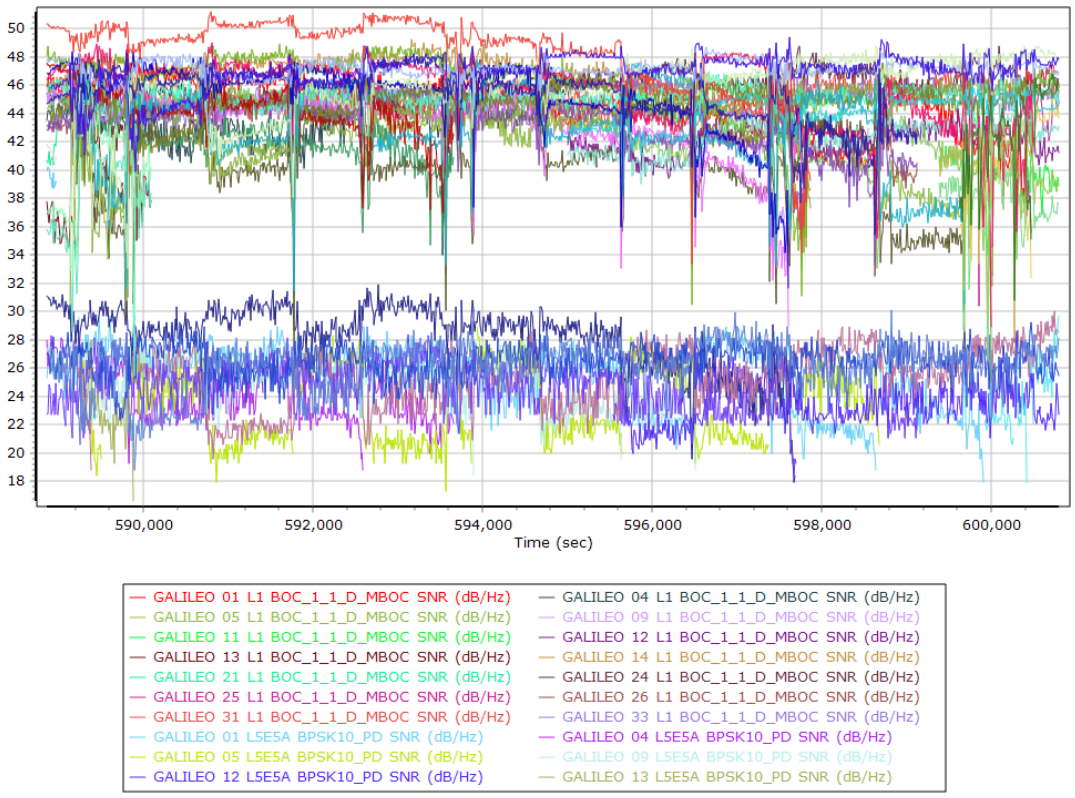
GLONASS L2 SNR



BEIDOU SNR

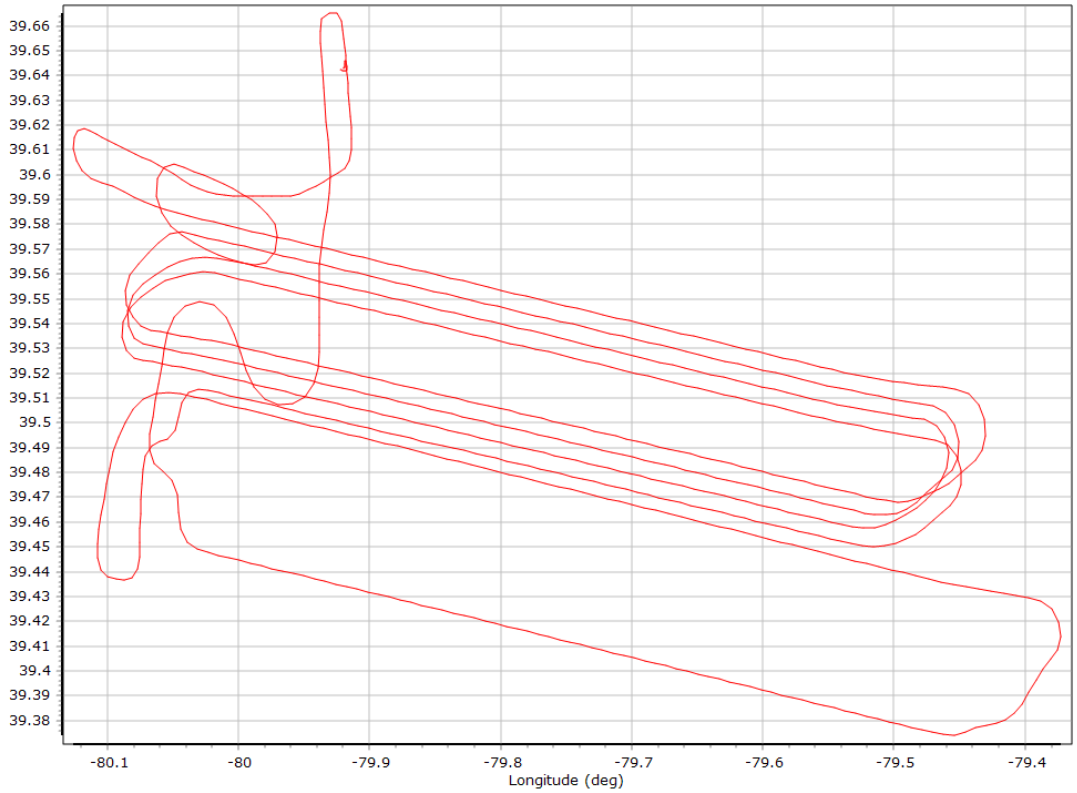


GALILEO SNR

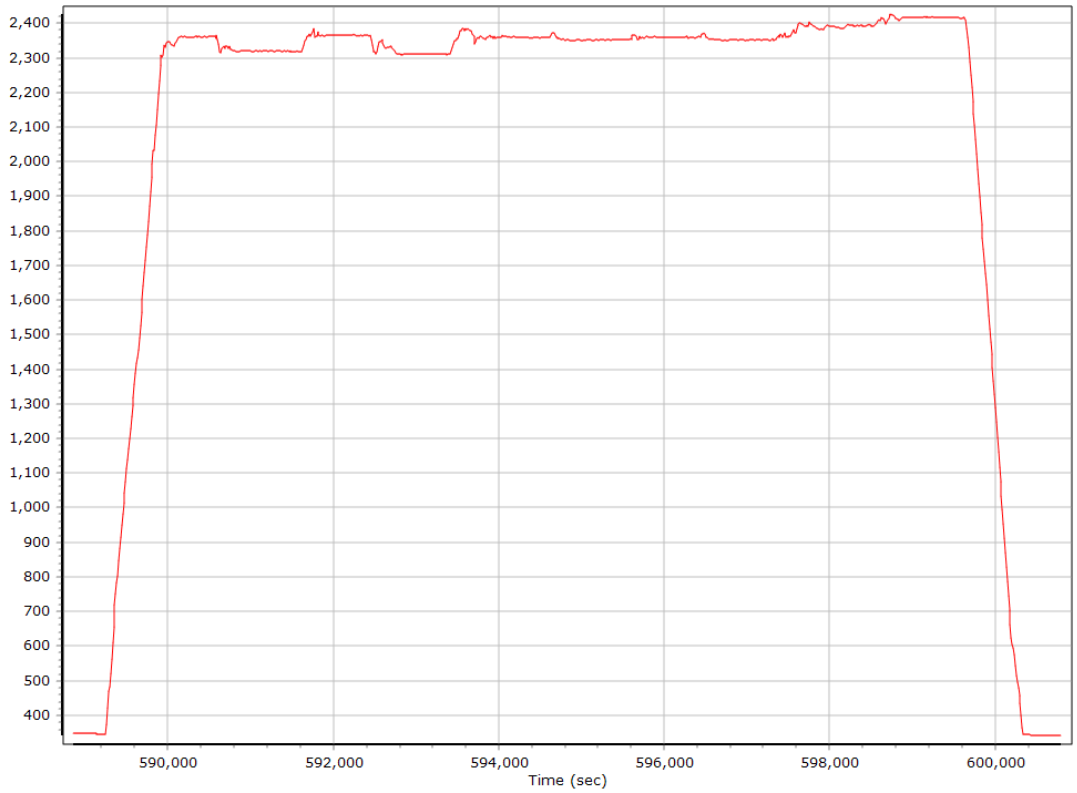

50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
590,000
592,000
594,000
596,000
598,000
600,000
Time (sec)
GALILEO 01 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 04 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 05 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 09 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 13 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 14 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 21 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)
GALILEO 01 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 05 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 13 L5E5A BPSK10_PD SNR (dB/Hz)

Trajectory Information

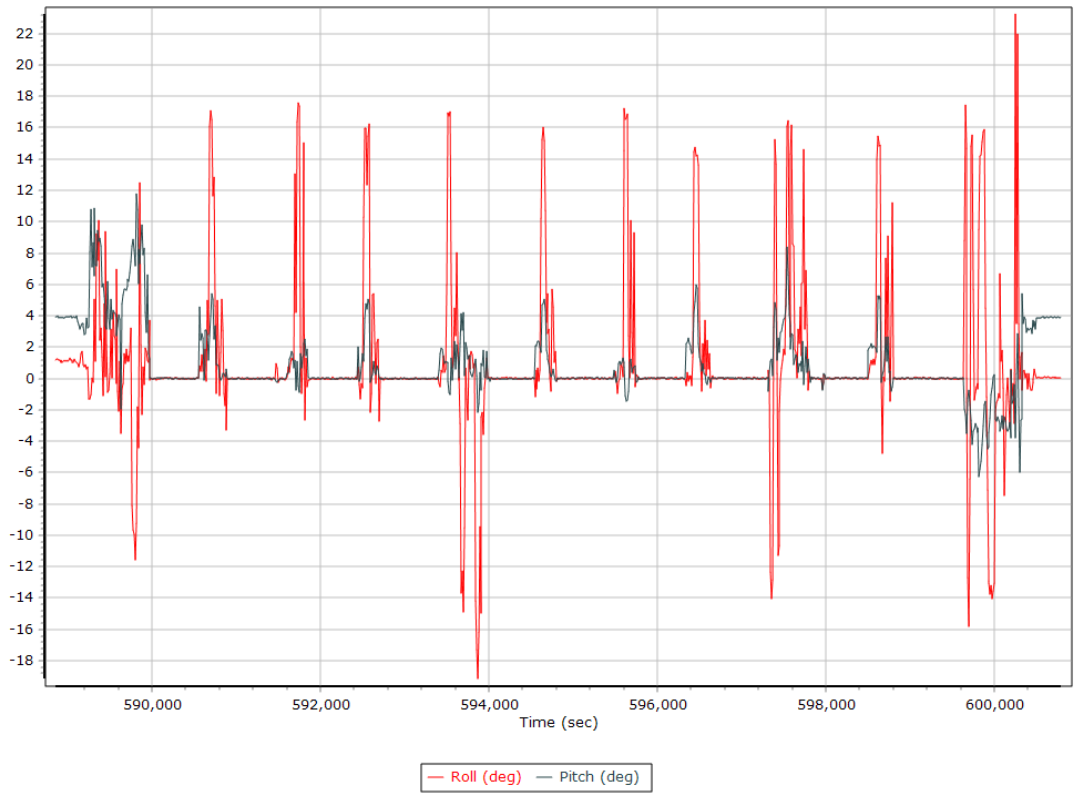
Top View



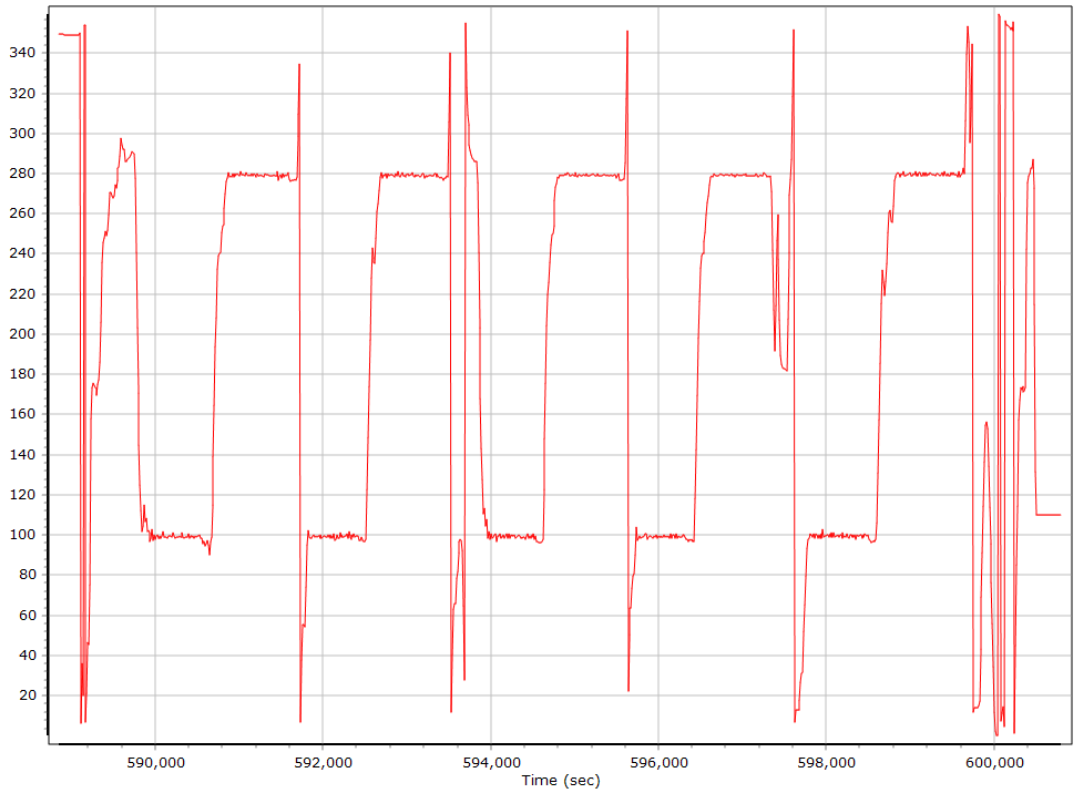
Altitude



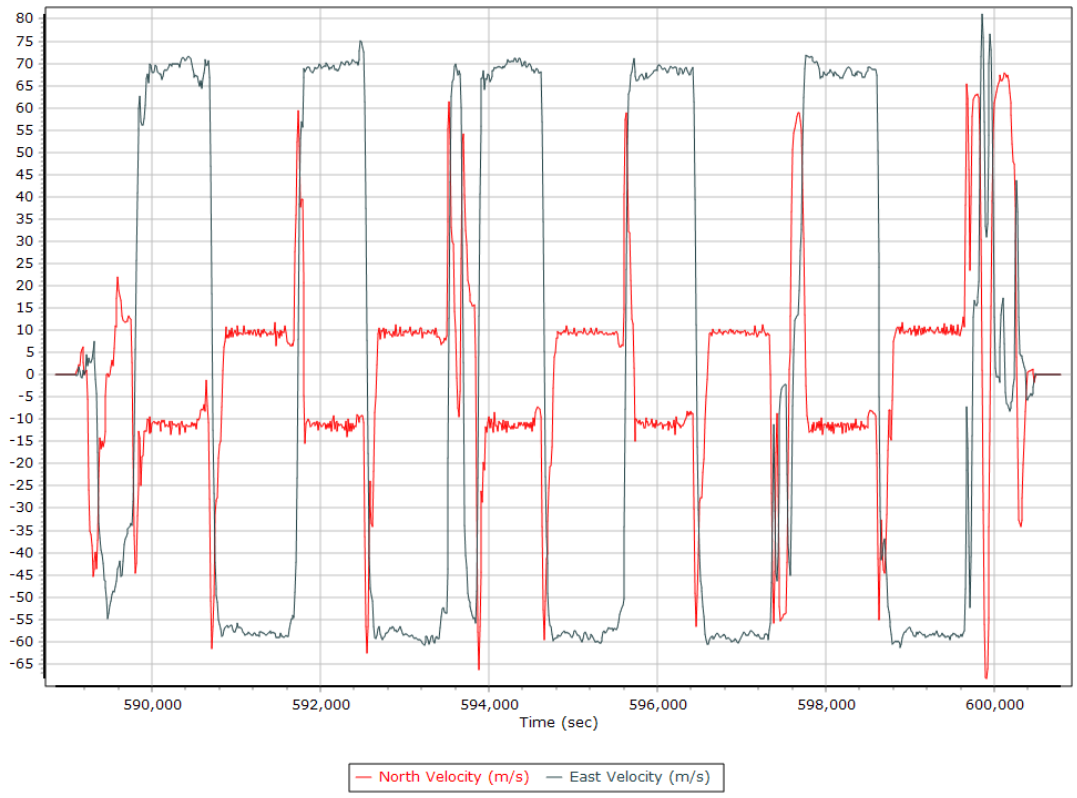
Roll/Pitch



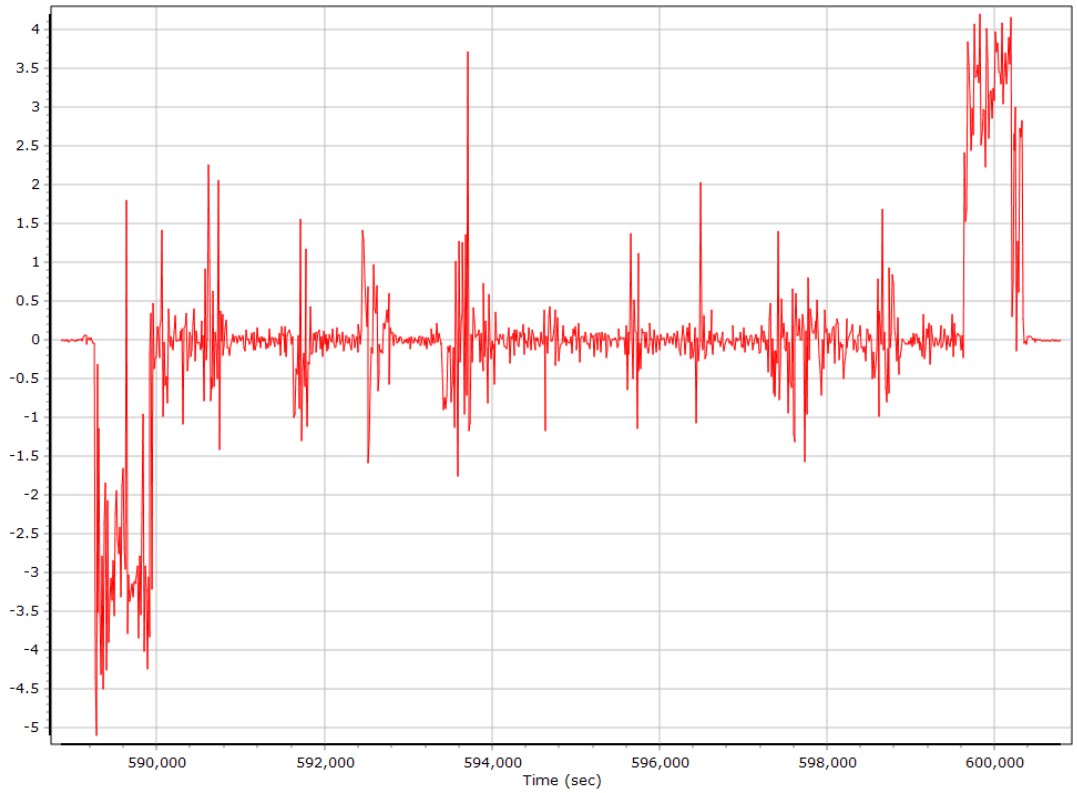
Heading



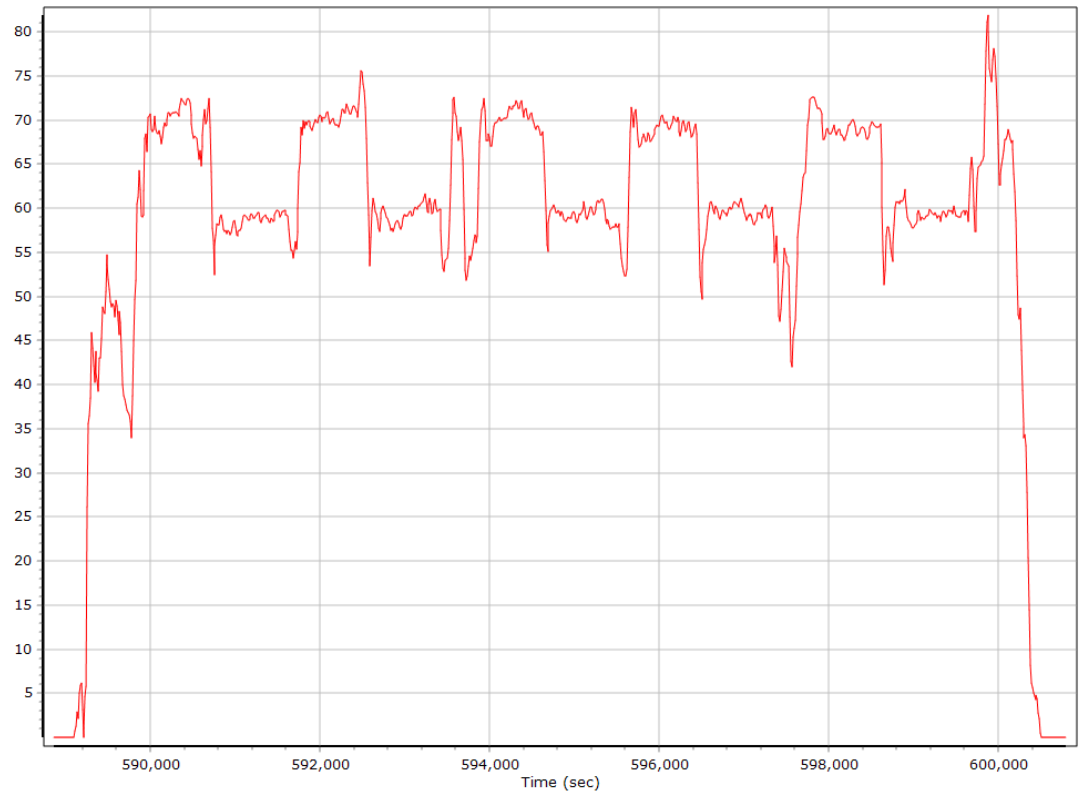
North/East Velocity



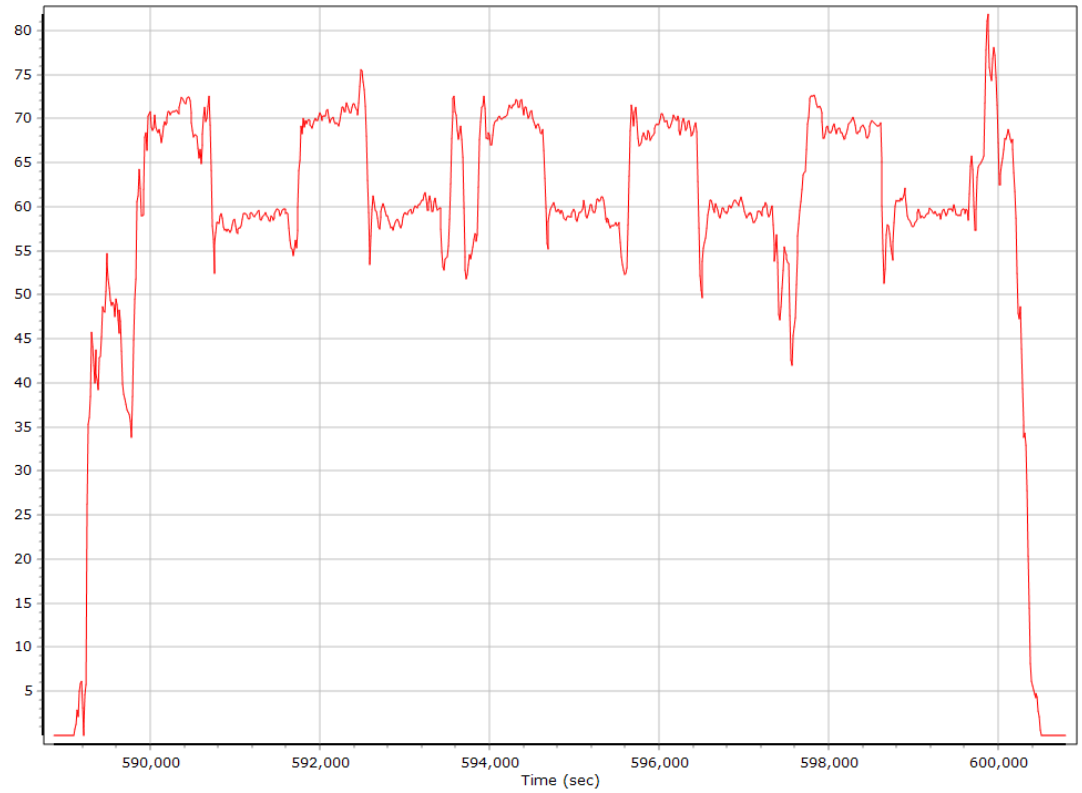
Down Velocity



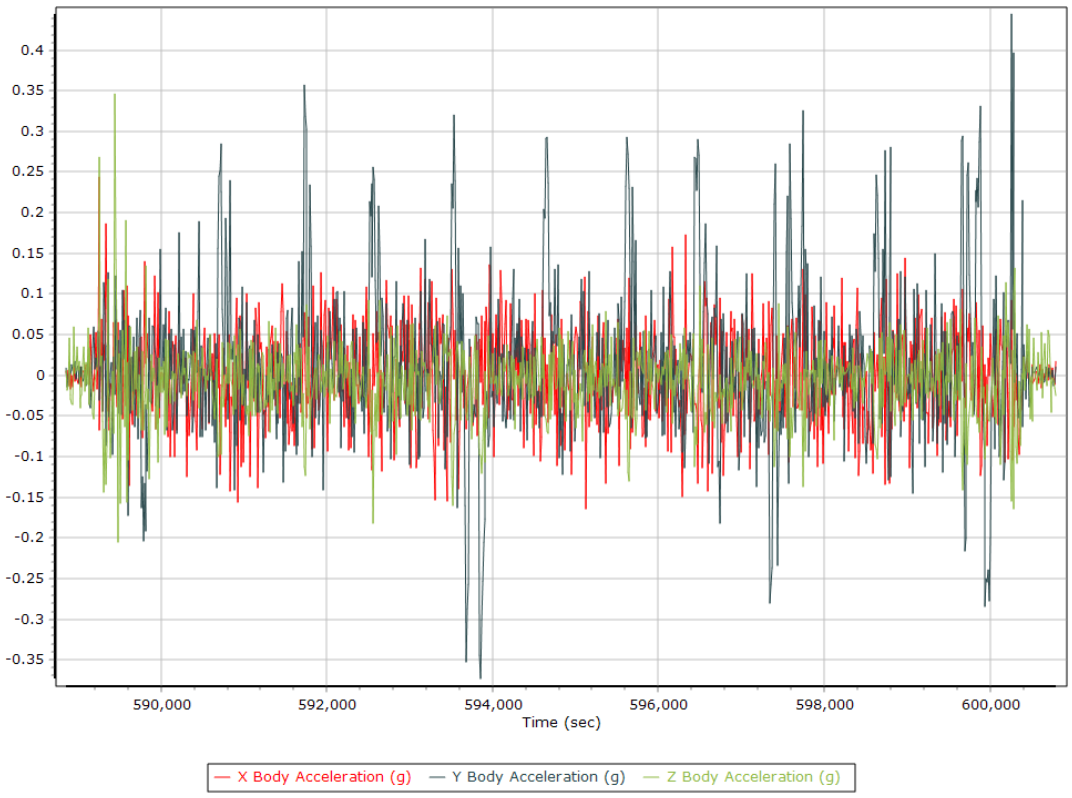
Total Speed



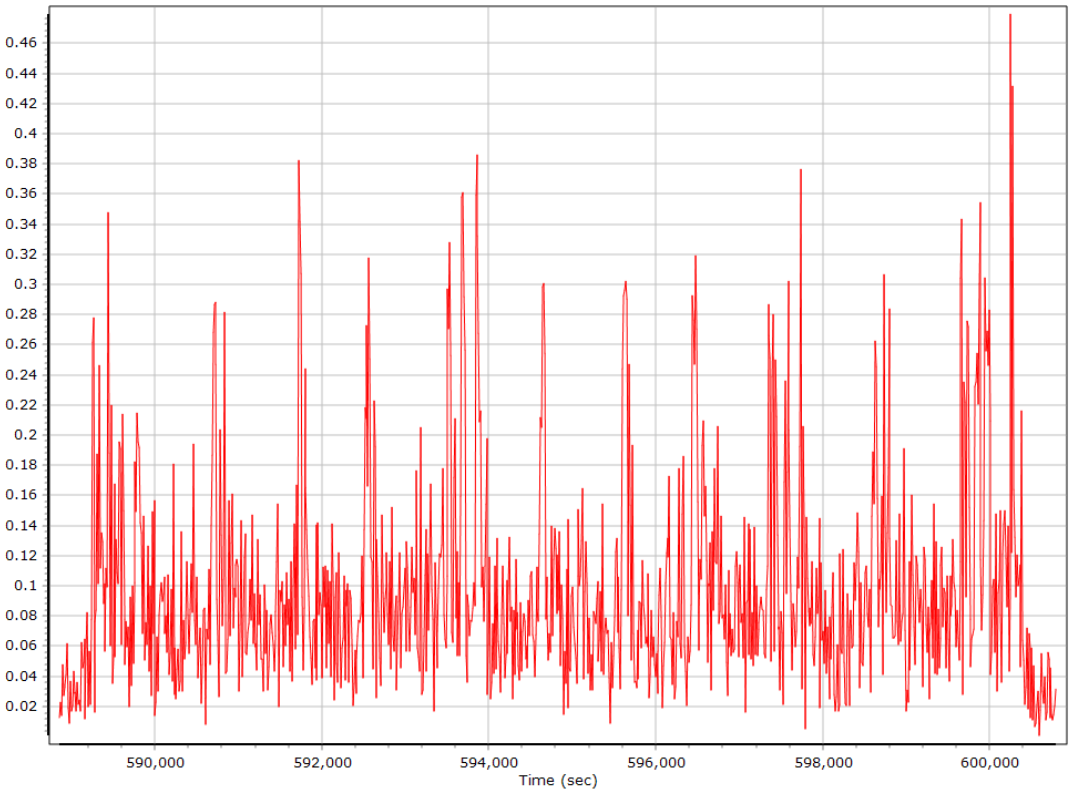
Ground Speed



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
02/22/2020	WVTA	27.34	GNSS	1	User	None	Imported
02/22/2020	WVSH	91.05	GNSS	1	User	None	Imported
02/22/2020	WVCV	64.27	GNSS	1	User	None	Imported
02/22/2020	WVBU	80.10	GNSS	1	User	None	Imported
02/22/2020	WVBR	46.75	GNSS	1	User	None	Imported
02/22/2020	LOYS	93.97	GNSS	1	User	None	Imported

SmartBase Results

SmartBase status	PROC_STATUS_OK
Primary station Id	WVTA
Primary station data rate (sec)	1.0
VRS/ASB generation rate (sec)	1.0
VRS/ASB timespan	12512 s (2093 588307 - 2093 600819)
Number of reference stations	6
Primary station GPS measurement usage (%)	99.1
Primary station GLONASS measurement usage (%)	94.5
Average number of satellites per epoch	14.3
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)	5098
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 - WVTA

Status	OK	**SBQI**	0	
Duration (Hours)	23.70	**Output Coordinates**	Original	
Solution Epochs	5688	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N39°26'16.64399"	W79°30'52.95303"	726.066
Adjusted		N39°26'16.64377"	W79°30'52.95258"	726.064
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.013	0.002	0.013

Base Station Information

Station ID	WVTA		
Filename	wvta0530.20o		
Start date	2/22/2020 12:00:00 AM		
End date	2/22/2020 11:59:59 PM		
Duration	23:59:59.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR5	4922K62119
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	N39°26'16.64399"		
Longitude	W79°30'52.95303"		
Ellipsoidal height (m)	726.06600		
Frame	ITRF00		
Epoch	1997		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WVSH

Status	OK	**SBQI**	0	
Duration (Hours)	23.45	**Output Coordinates**	Original	
Solution Epochs	5629	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N39°59'49.09954"	W80°40'46.36115"	384.551
Adjusted		N39°59'49.09934"	W80°40'46.36148"	384.552
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.010	0.001	0.010

Base Station Information

Station ID	WVSH		
Filename	wvsh0530.20o		
Start date	2/22/2020 12:00:00 AM		
End date	2/22/2020 11:59:59 PM		
Duration	23:59:59.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR5	4924K62366
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	N39°59'49.09954"		
Longitude	W80°40'46.36115"		
Ellipsoidal height (m)	384.55100		
Frame	ITRF00		
Epoch	1997		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WVCV

Status	OK	**SBQI**	0	
Duration (Hours)	23.80	**Output Coordinates**	Adjusted	
Solution Epochs	5712	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N39°00'55.07616"	W79°27'25.00965"	969.235
Adjusted		N39°00'55.07510"	W79°27'25.00807"	969.231
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	WVCV		
Filename	wvcv0530.20o		
Start date	2/22/2020 12:00:00 AM		
End date	2/22/2020 11:59:59 PM		
Duration	23:59:59.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR5	4922K62079
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	N39°00'55.07616"		
Longitude	W79°27'25.00965"		
Ellipsoidal height (m)	969.23500		
Frame	ITRF00		
Epoch	1997		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WVBU

Status	CONTROL	**SBQI**	0	
Duration (Hours)	23.80	**Output Coordinates**	Control	
Solution Epochs	5712	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N39°20'16.82171"	W78°54'48.58712"	200.059
Adjusted		N39°20'16.82171"	W78°54'48.58712"	200.059
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.000	0.000	0.000

Base Station Information

Station ID	WVBU		
Filename	wvbu0530.20o		
Start date	2/22/2020 12:00:00 AM		
End date	2/22/2020 11:59:59 PM		
Duration	23:59:59.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR5	4922K62096
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	N39°20'16.82171"		
Longitude	W78°54'48.58712"		
Ellipsoidal height (m)	200.05900		
Frame	ITRF00		
Epoch	1997		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - WVBR

Status	OK	**SBQI**	0	
Duration (Hours)	23.80	**Output Coordinates**	Original	
Solution Epochs	5712	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N39°18'28.88440"	W80°16'38.61885"	270.246
Adjusted		N39°18'28.88402"	W80°16'38.61894"	270.253
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.012	0.007	0.014

Base Station Information

Station ID	WVBR		
Filename	wvbr0530.20o		
Start date	2/22/2020 12:00:00 AM		
End date	2/22/2020 11:59:59 PM		
Duration	23:59:59.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Trimble	NetR5	4922K62070
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	N39°18'28.88440"		
Longitude	W80°16'38.61885"		
Ellipsoidal height (m)	270.24600		
Frame	ITRF00		
Epoch	1997		
Ellipsoid	WGS84		
Velocity North (mm/y)	0		
Velocity East (mm/y)	0		
Velocity Up (mm/y)	0		

Base Station - LOYS

Status	OK	**SBQI**	0	
Duration (Hours)	23.80	**Output Coordinates**	Original	
Solution Epochs	5712	**Mean Epoch SVs**	8.6	
Base Station Coordinates		**Latitude**	**Longitude**	**Height (m)**
Original		N39°38'46.39064"	W78°43'47.89728"	169.358
Adjusted		N39°38'46.39082"	W78°43'47.89767"	169.357
Coordinate Adjustments		**Horizontal (m)**	**Vertical (m)**	**Total (m)**
Adjustments		0.011	0.001	0.011

Base Station Information

Station ID	LOYS		
Filename	loys0530.20o		
Start date	2/22/2020 12:00:00 AM		
End date	2/22/2020 11:59:59 PM		
Duration	23:59:59.000		
Data type	GNSS		
Receiver manufacturer, model, serial no.	Leica	GR30	1705733
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	N39°38'46.39064"		
Longitude	W78°43'47.89728"		
Ellipsoidal height (m)	169.35800		
Frame	ITRF00		
Epoch	1997		
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)	1.21	39.78	
Number of GPS SV	6	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	9	17	14
PDOP	1.20	2.45	1.50
QC Solution Gaps	1.00	1.00	
Solution Type	**Fixed**	**Float**	**No solution**
Epoch (sec)	12456.00	0.00	2.00
Percentage	99.98	0.00	0.02

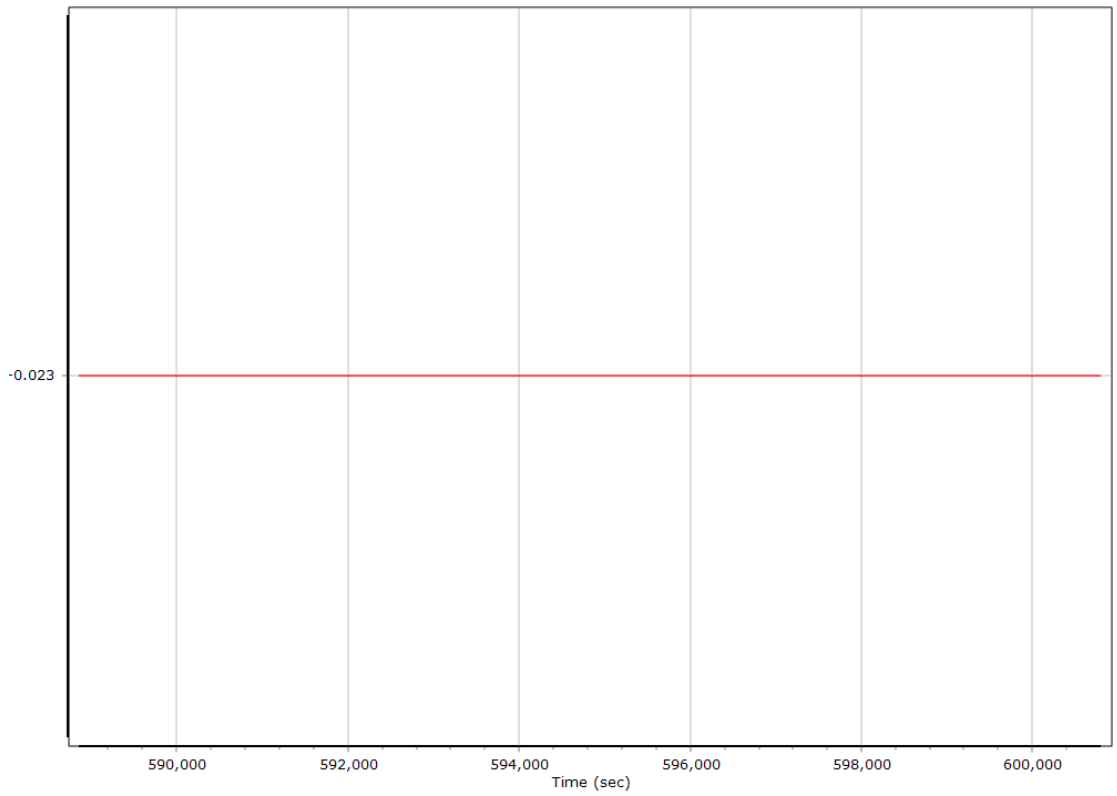
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion SmartBase		
Stabilized mount	True		
Base station	ASB		
Processing start time	588289.000 (2/22/2020 7:24:49 PM)		
Processing end time	600801.000 (2/22/2020 10:53:21 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	0.000	0.000	0.000
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	-0.023	0.000	-1.028
Gimbal 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

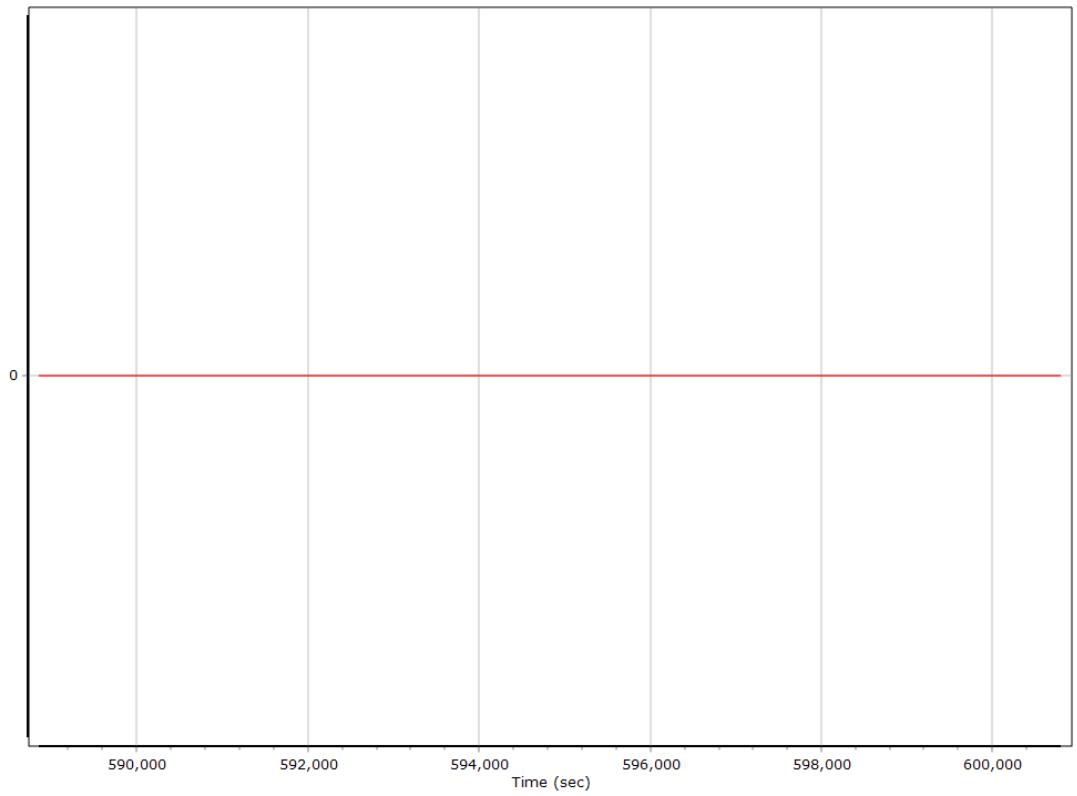
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

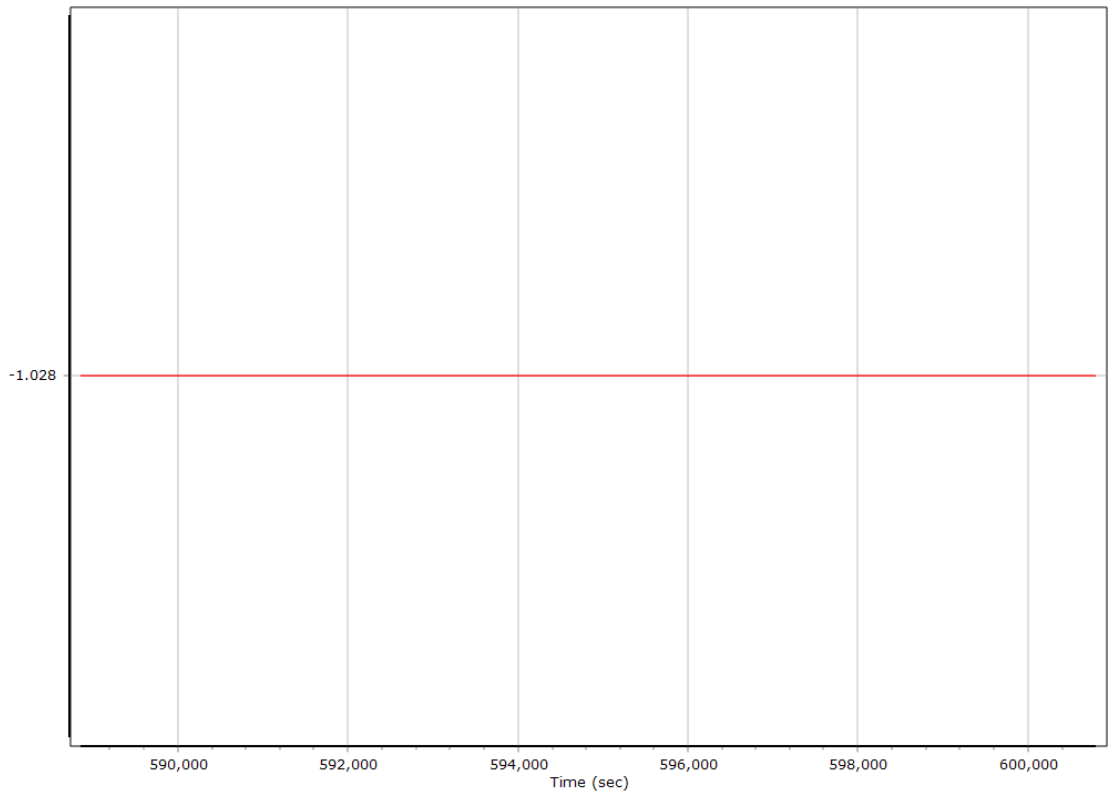
X Reference-Primary GNSS Lever Arm (m)



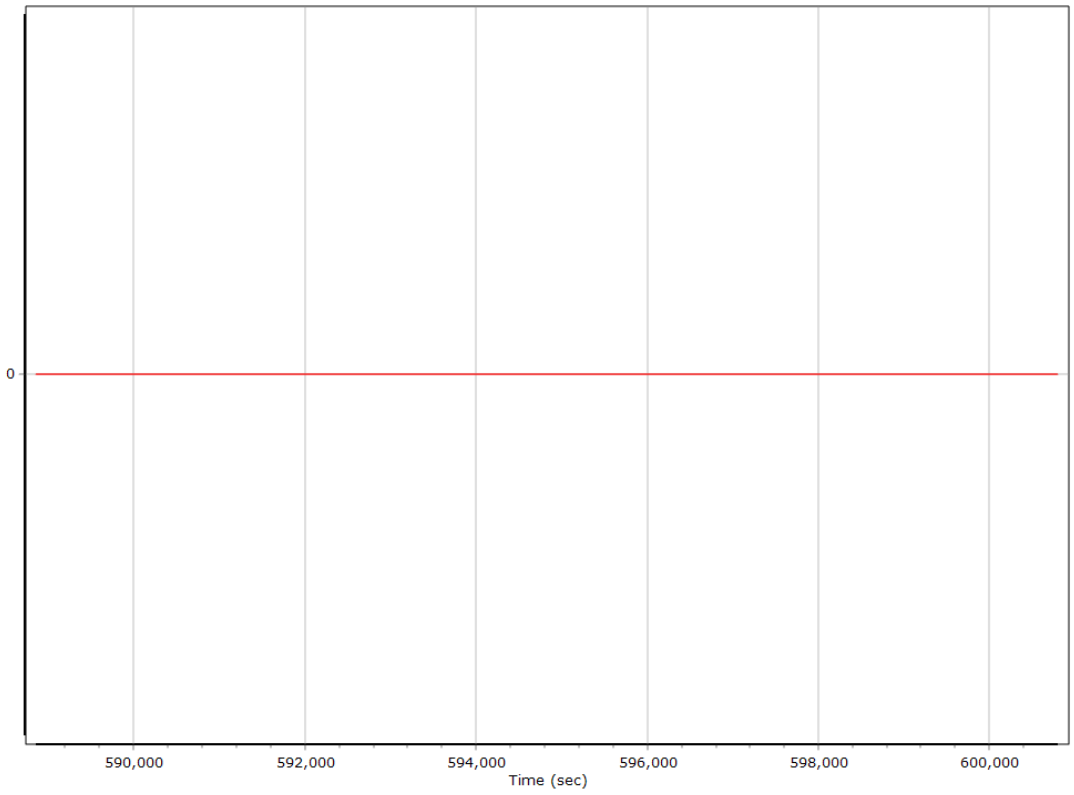
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



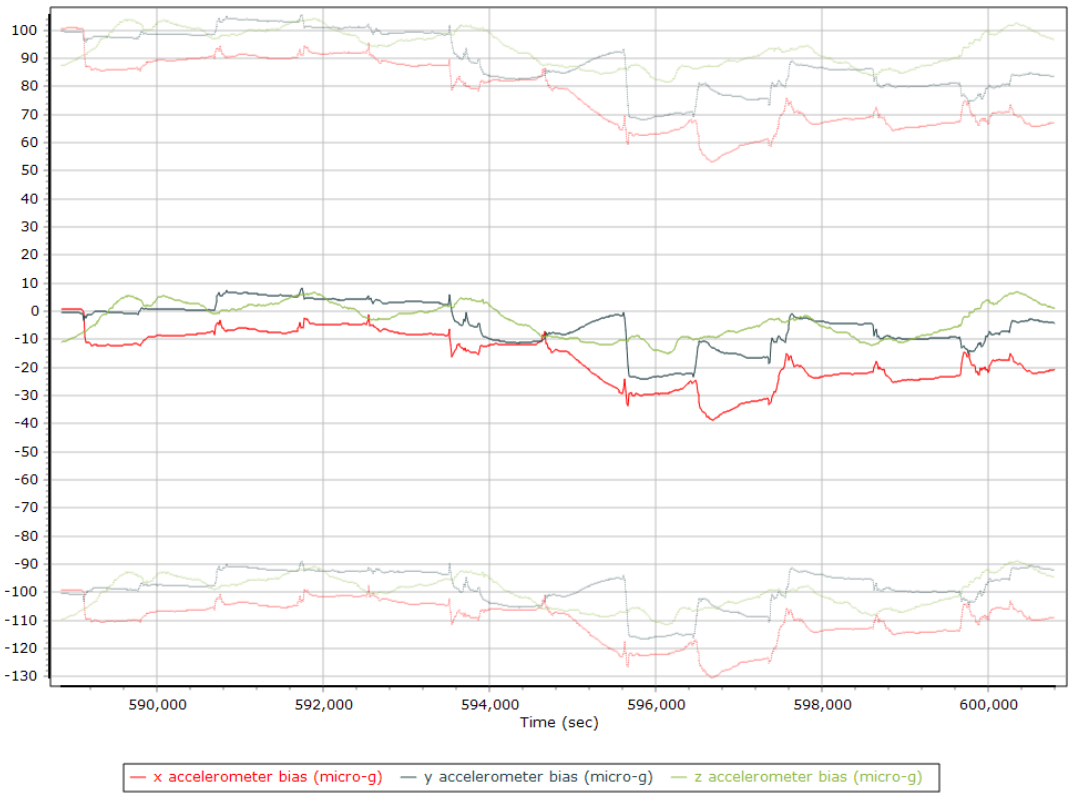
Reference-Primary GNSS Lever Arm Figure of Merit



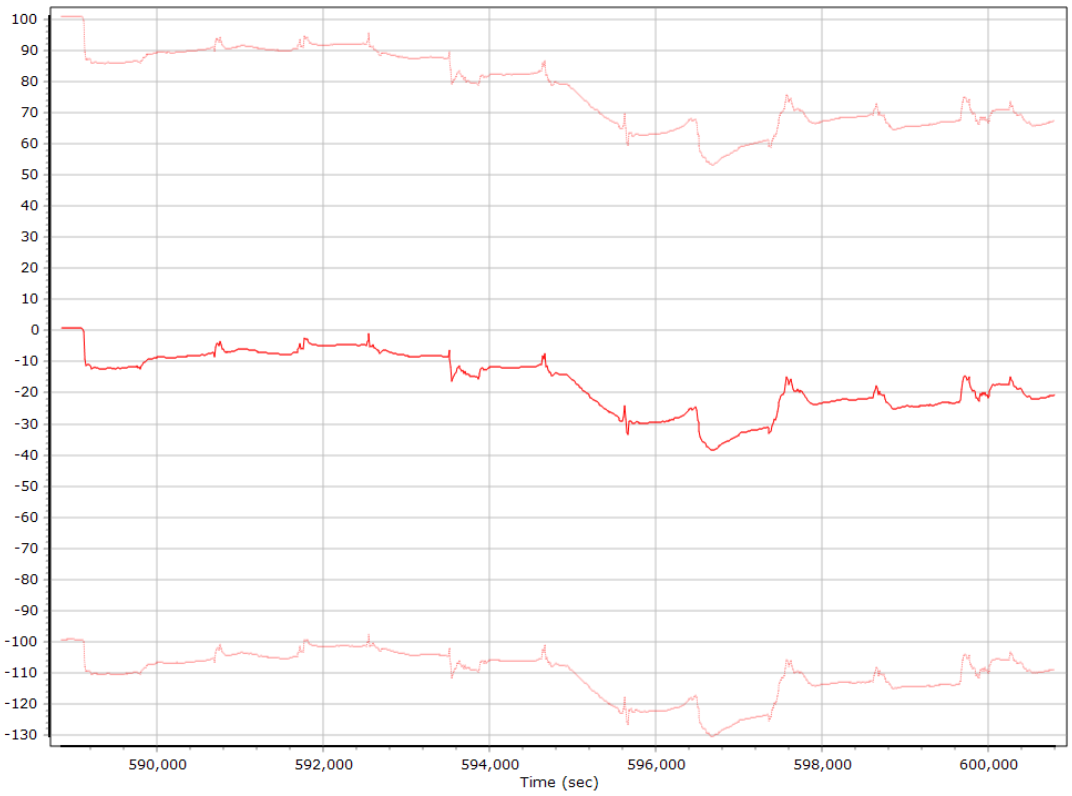
Foward Processed IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

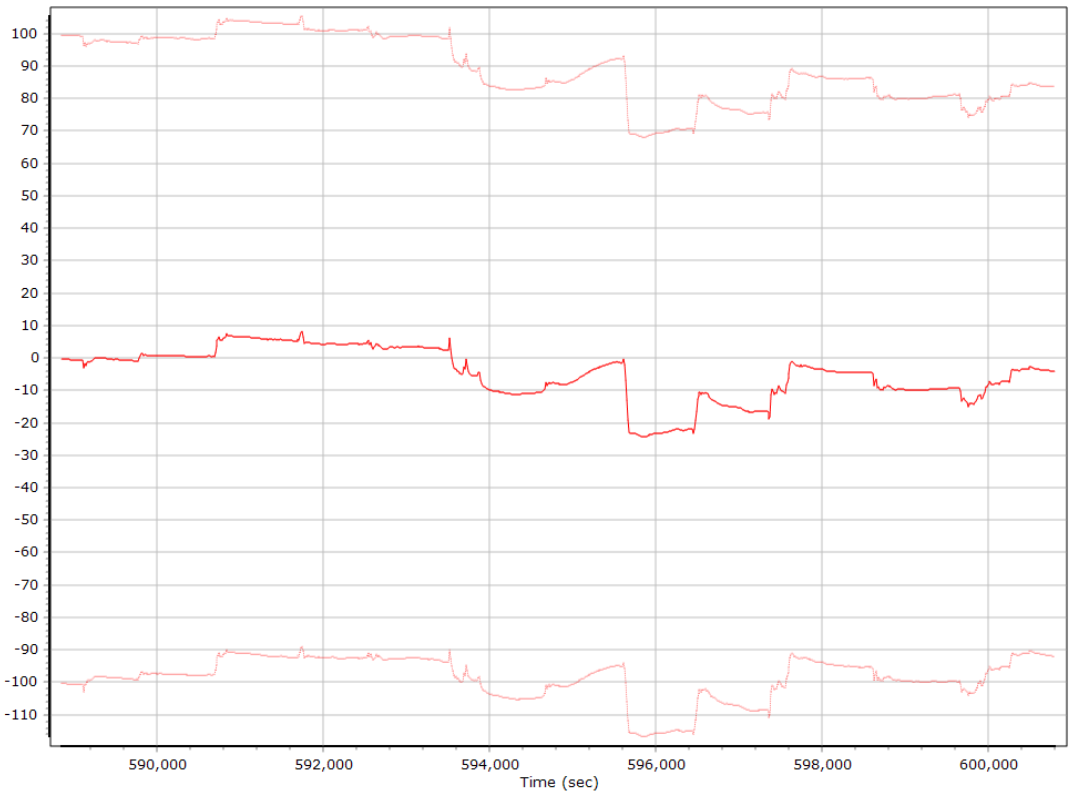
Accelerometer Bias (micro-g)



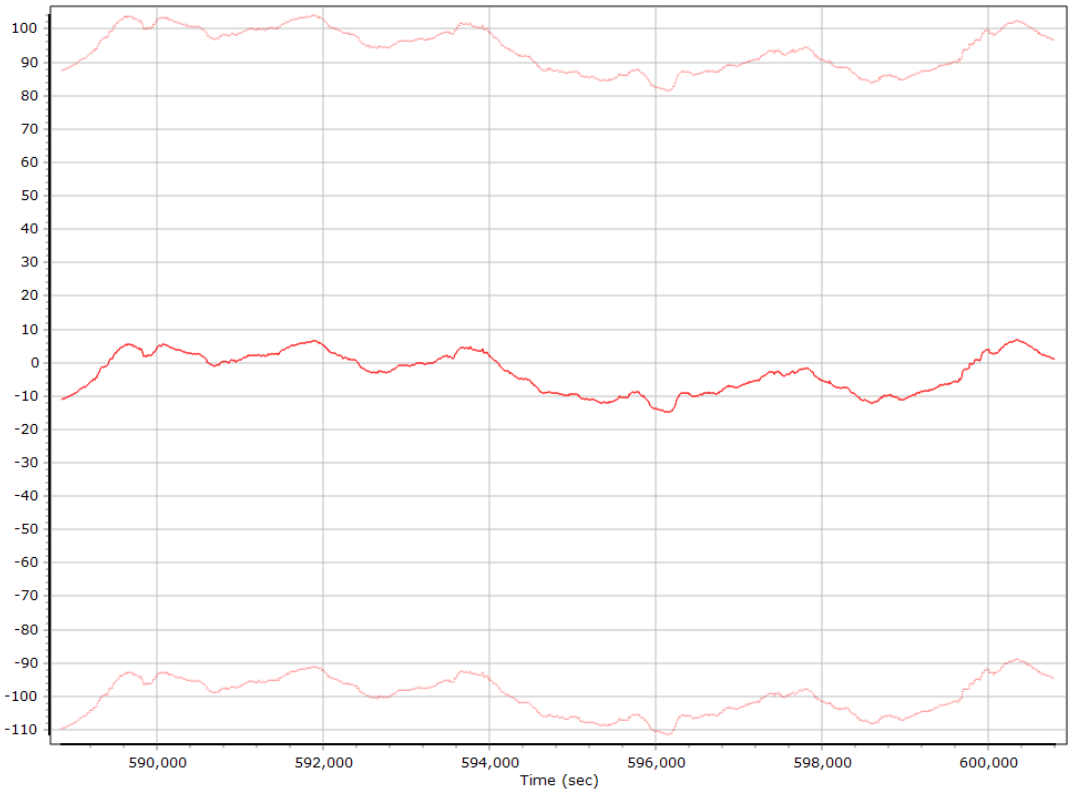
X Accelerometer Bias (micro-g)



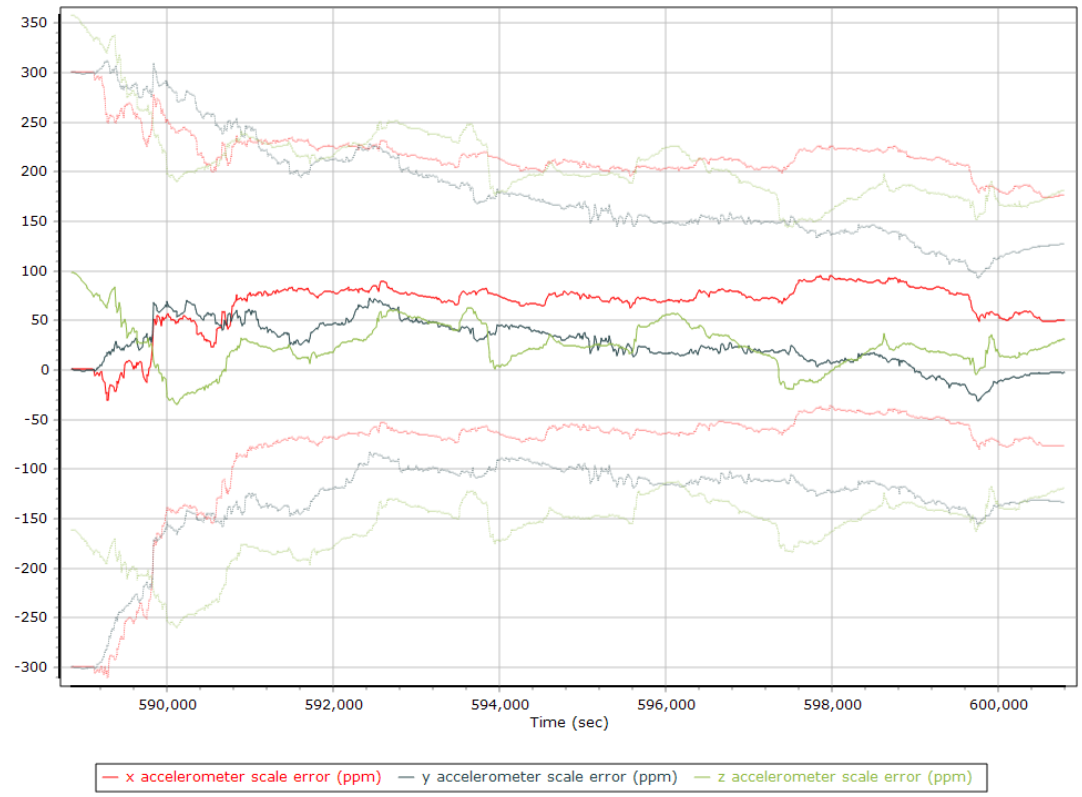
Y Accelerometer Bias (micro-g)



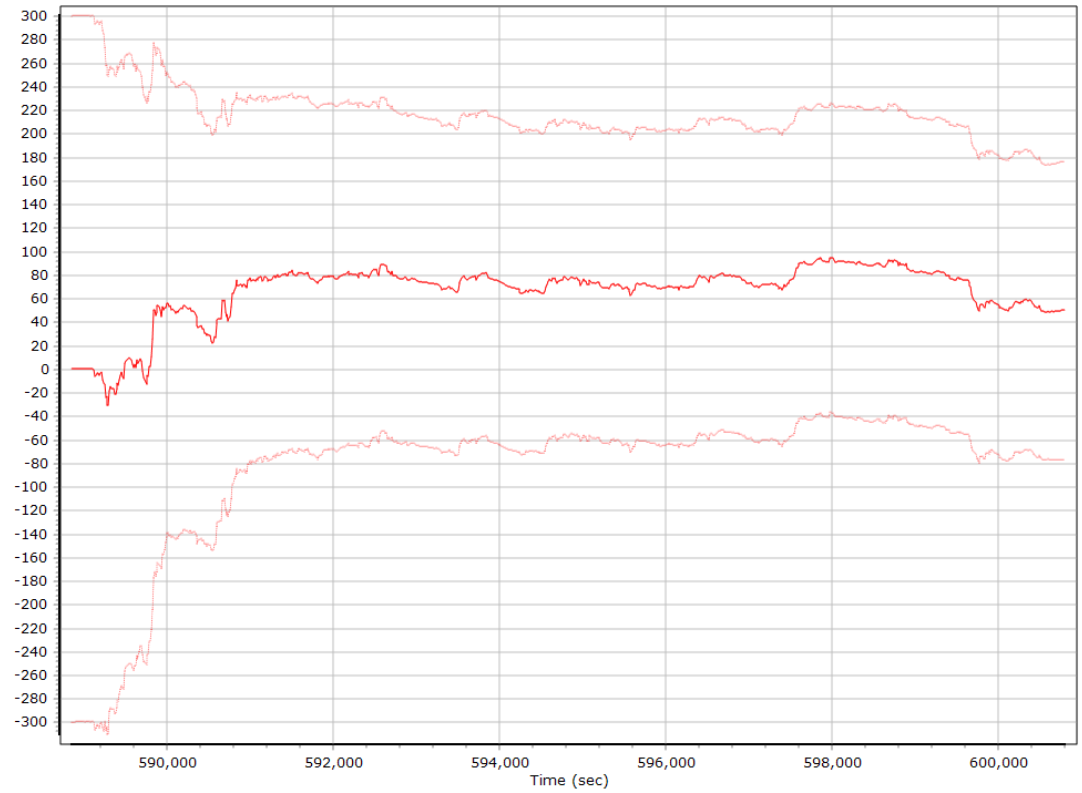
Z Accelerometer Bias (micro-g)



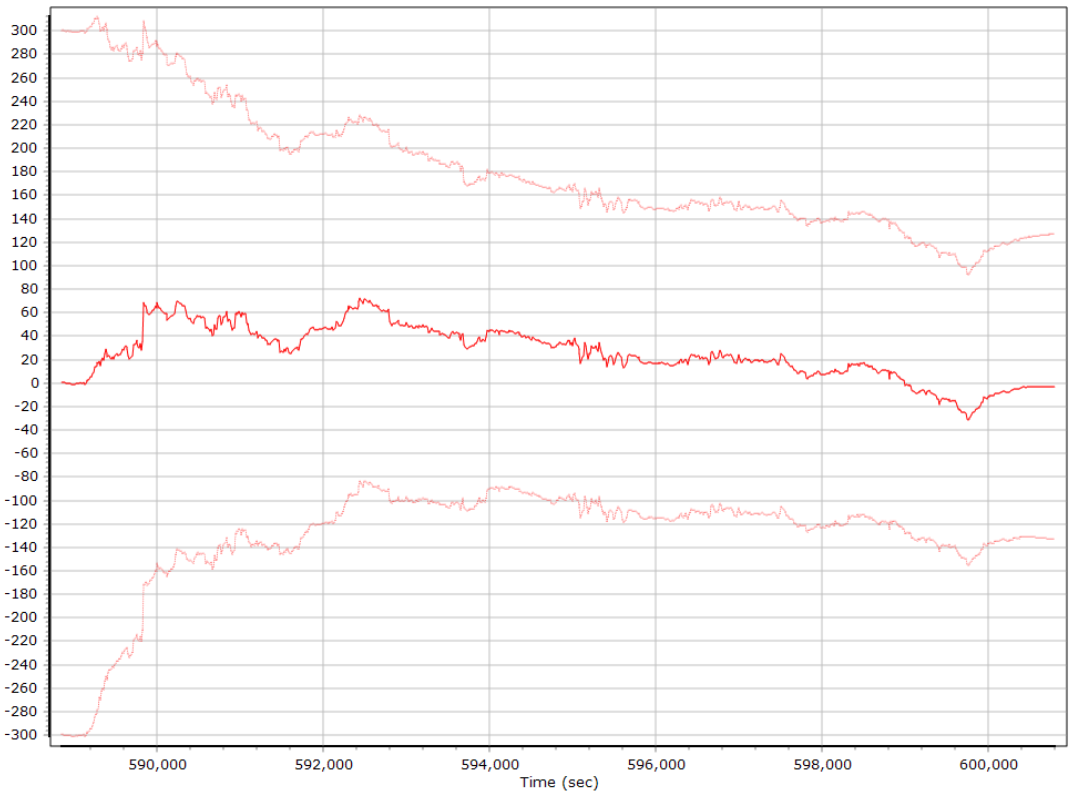
Accelerometer Scale Error (ppm)



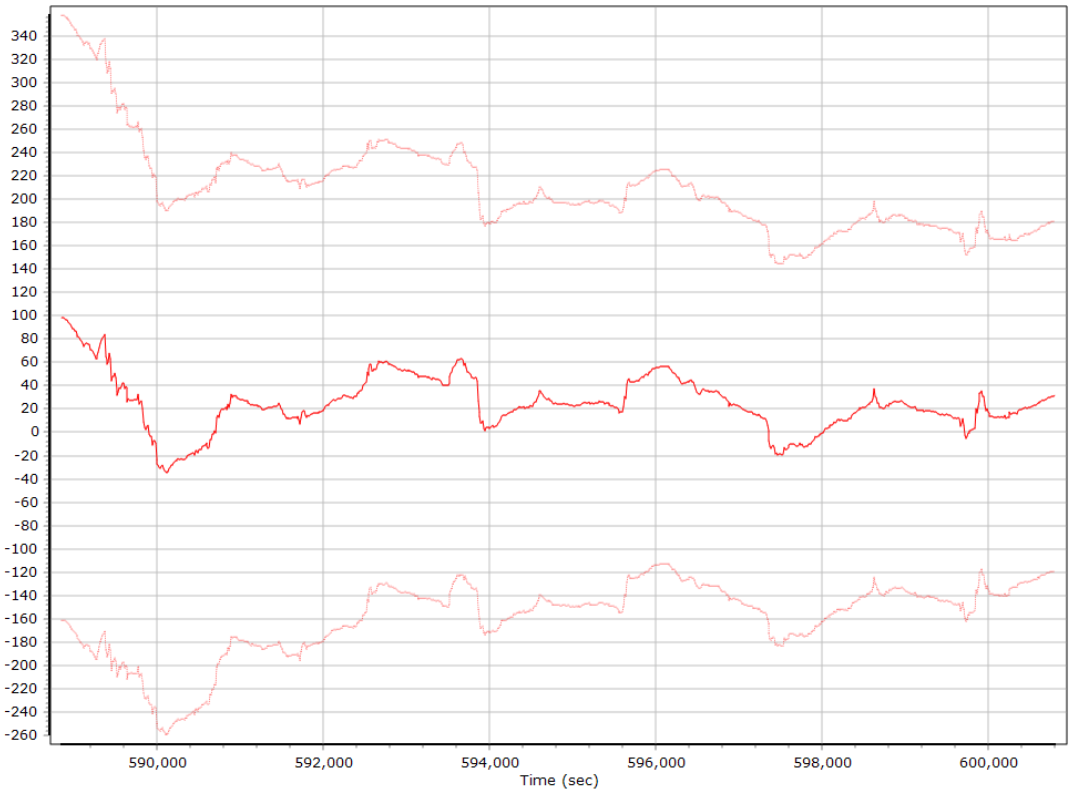
X Accelerometer Scale Error (ppm)



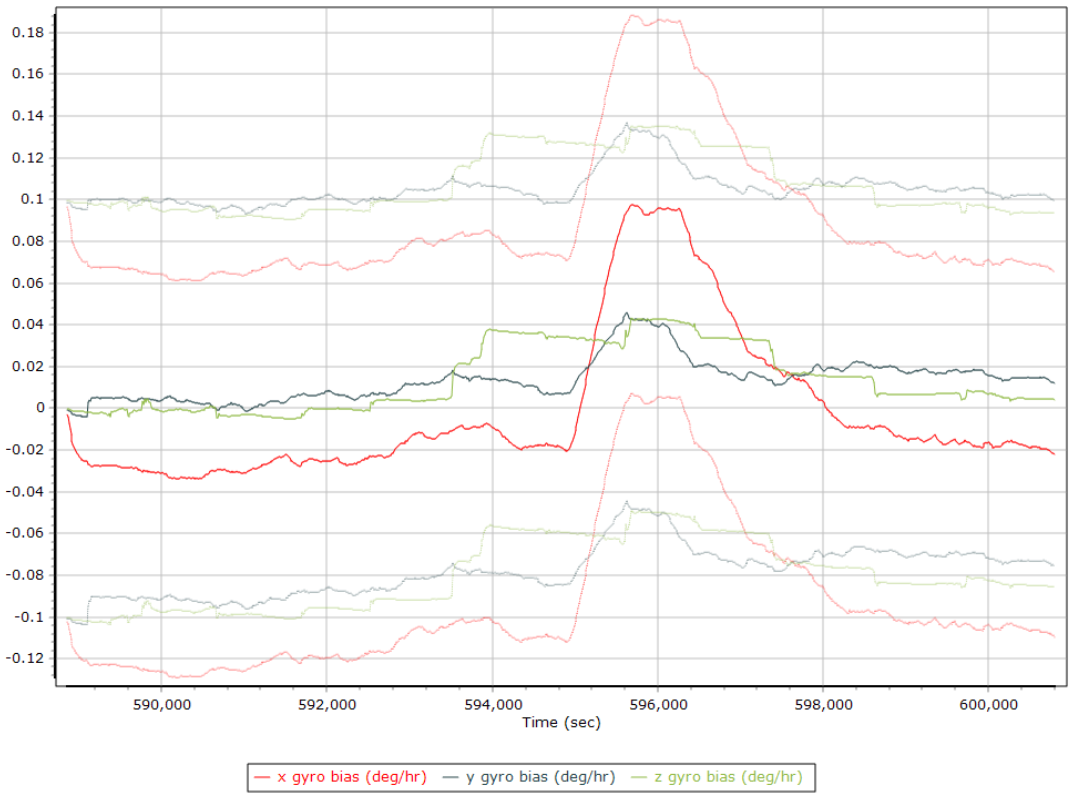
Y Accelerometer Scale Error (ppm)



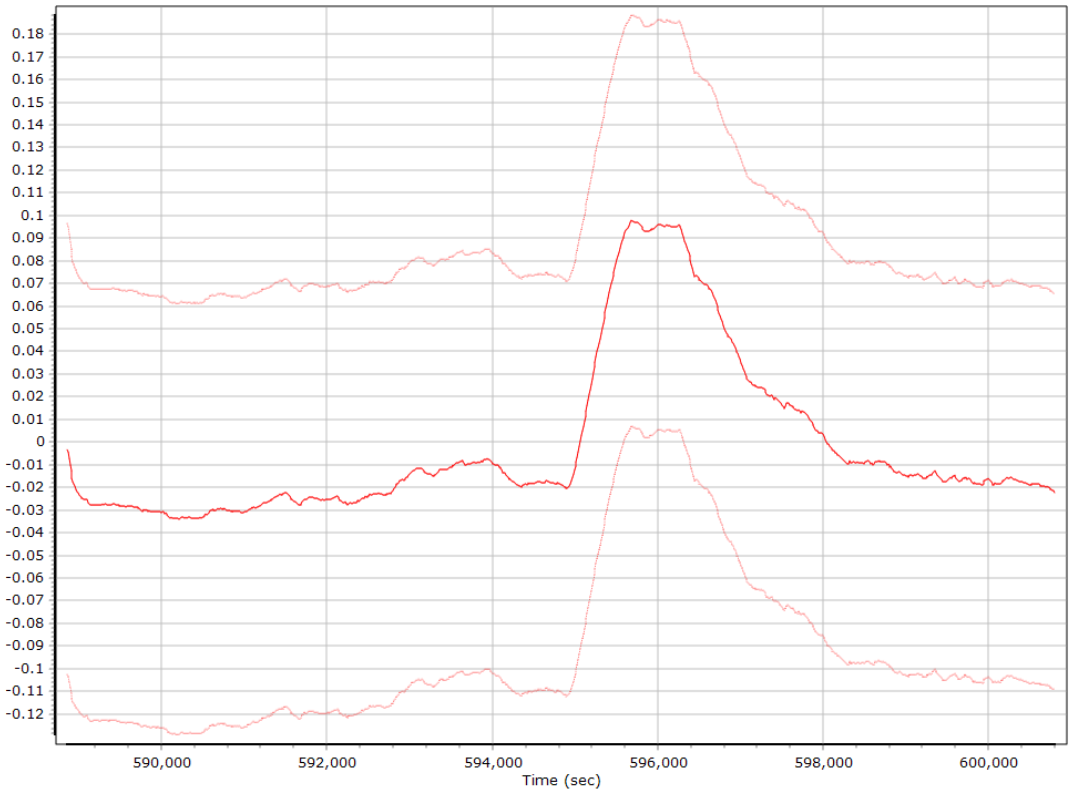
Z Accelerometer Scale Error (ppm)



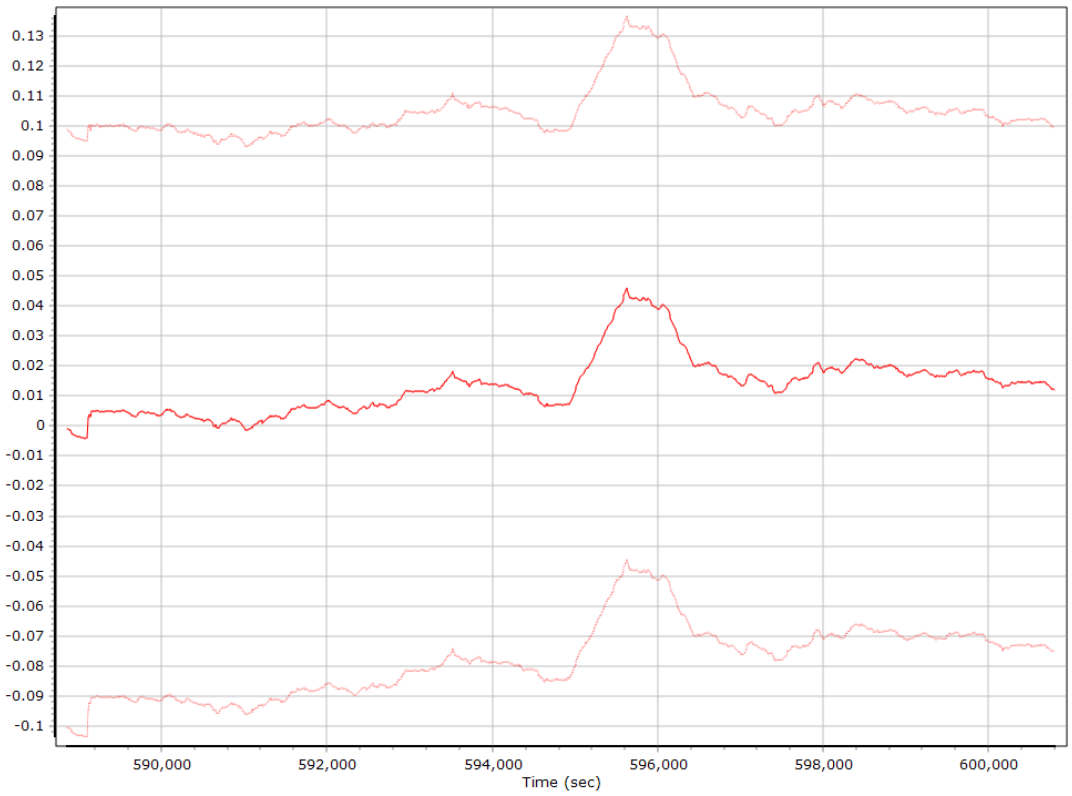
Gyro Bias (deg/h)



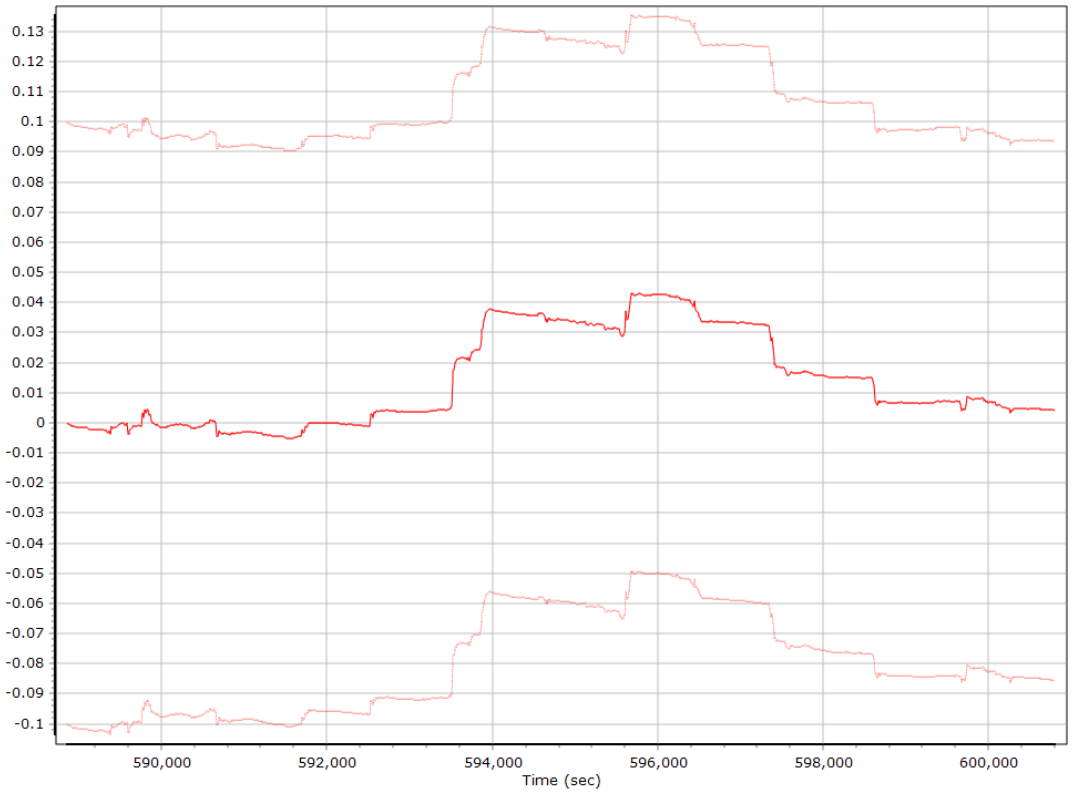
X Gyro Bias (deg/h)



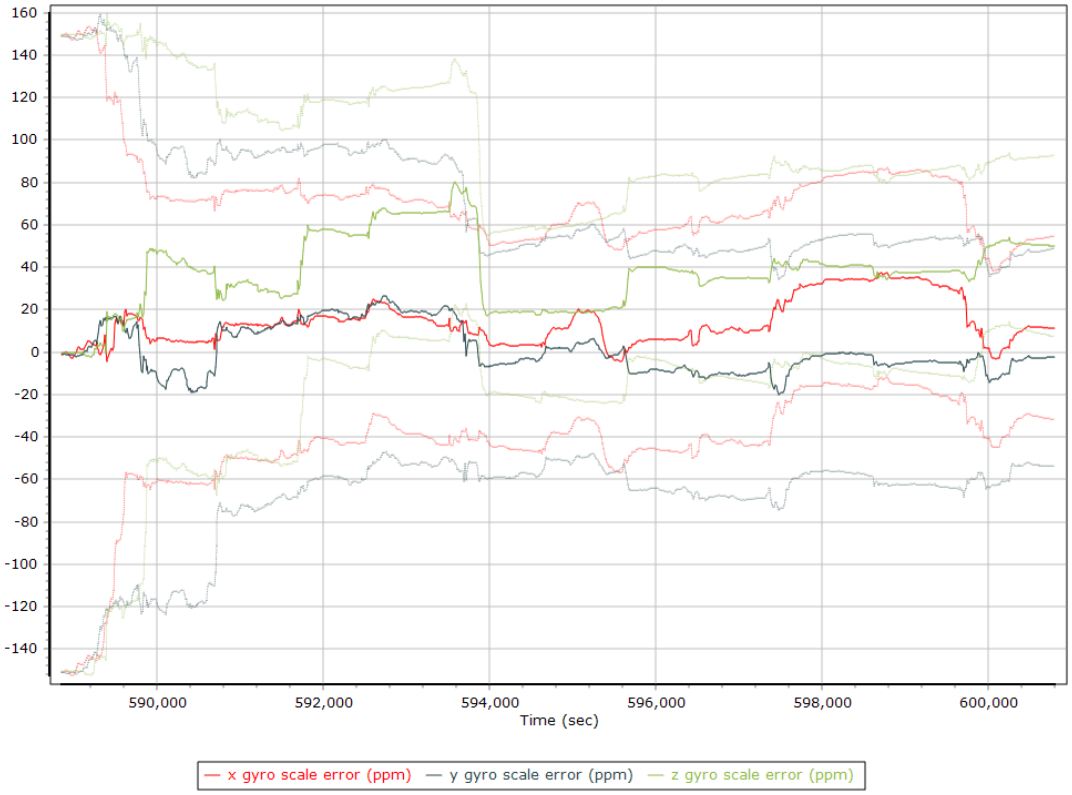
Y Gyro Bias (deg/h)



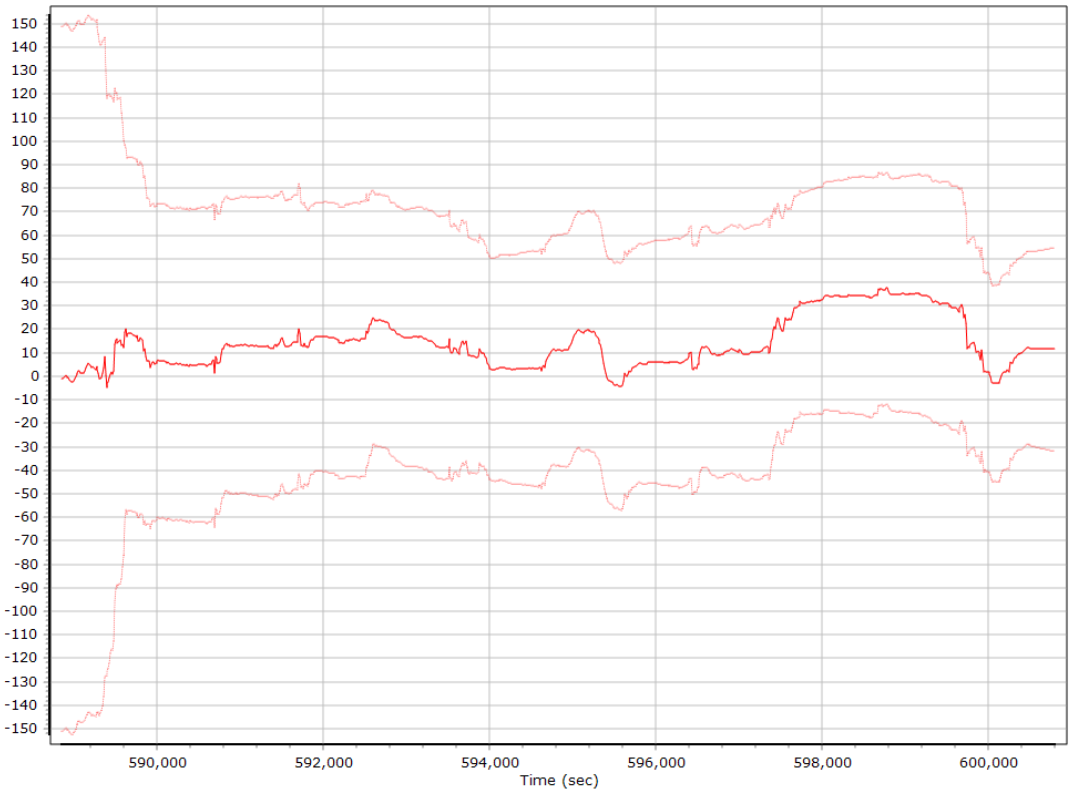
Z Gyro Bias (deg/h)



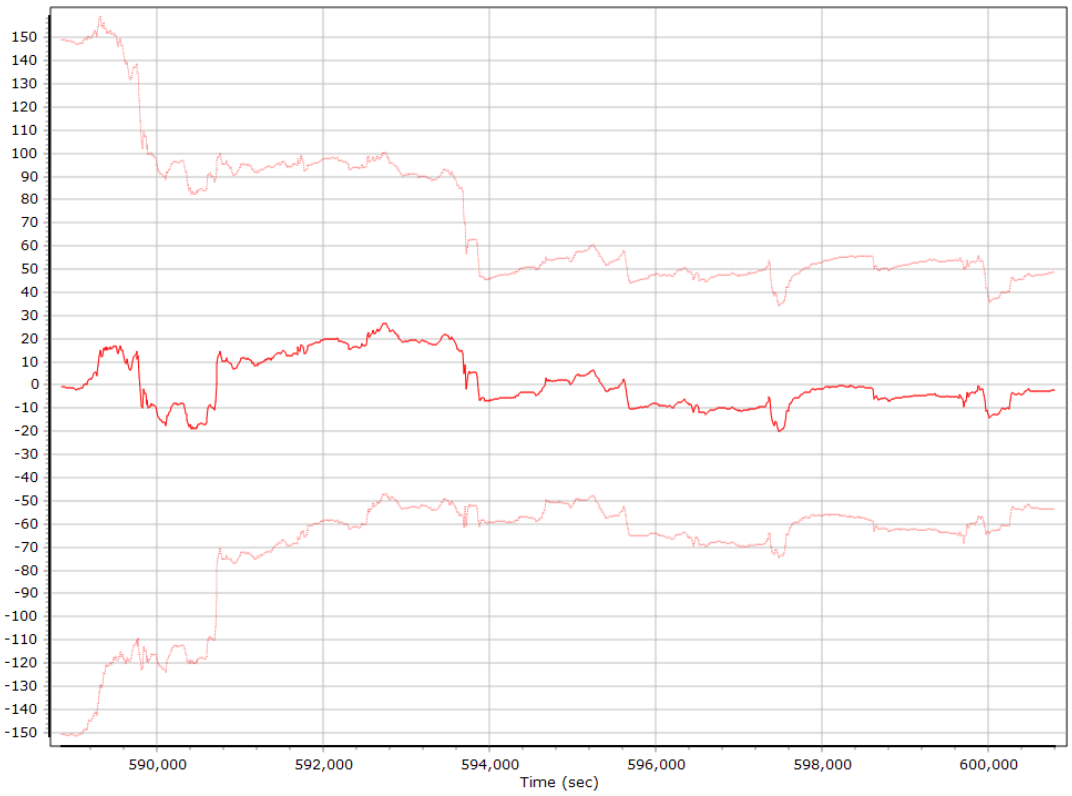
Gyro Scale Error (ppm)



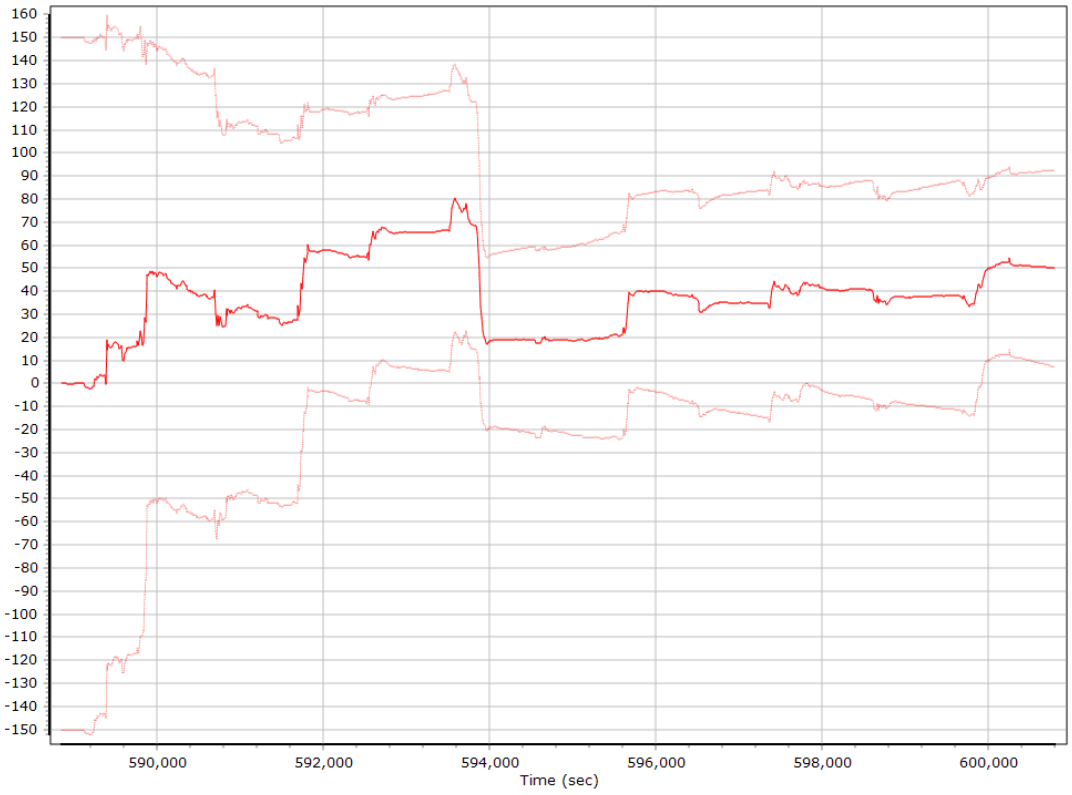
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

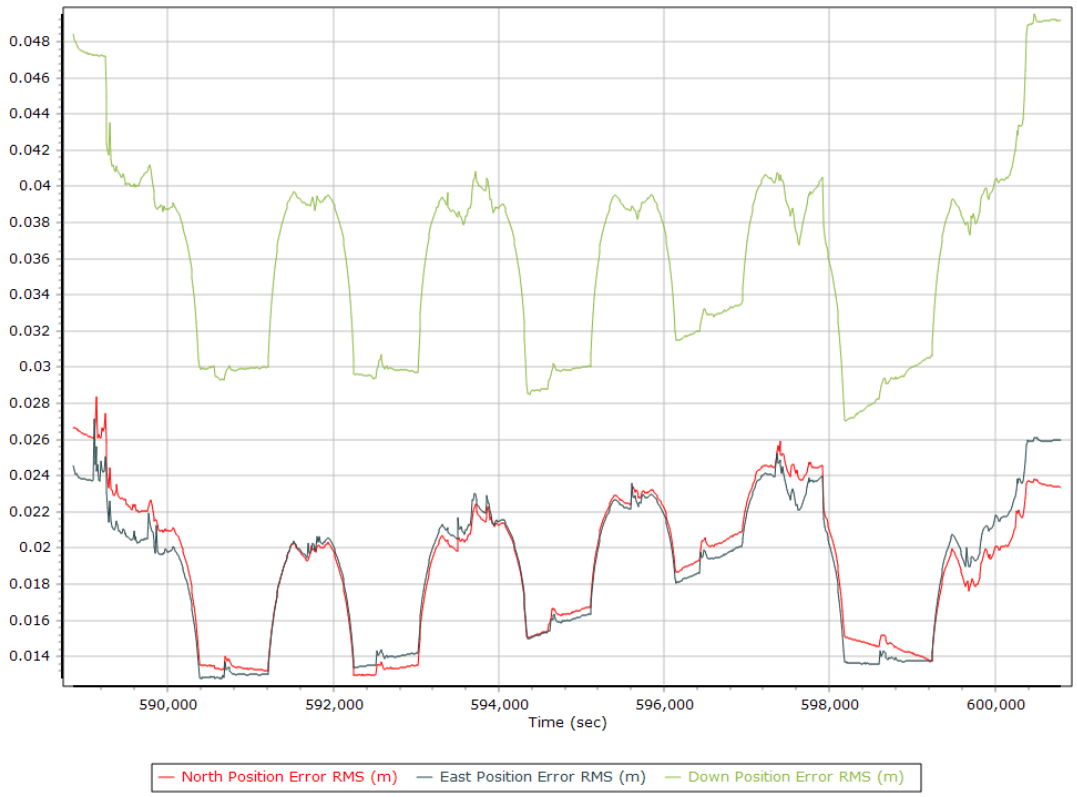


Z Gyro Scale Error (ppm)

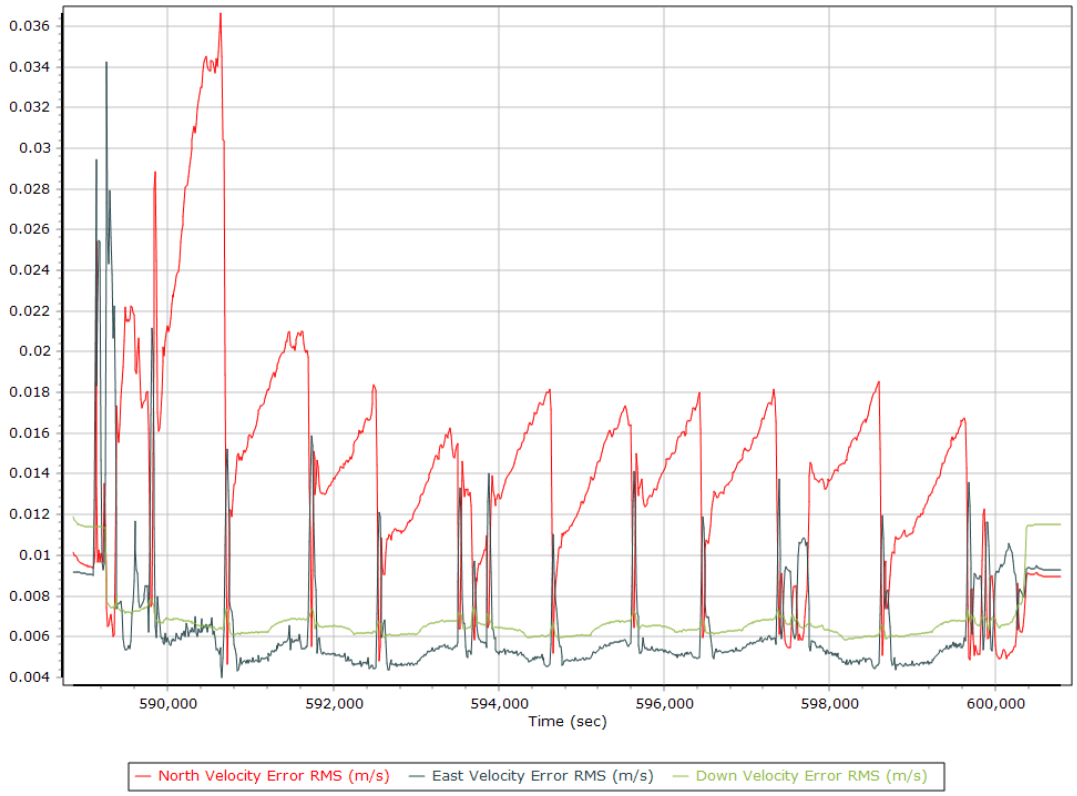


Foward Processed Performance Metrics

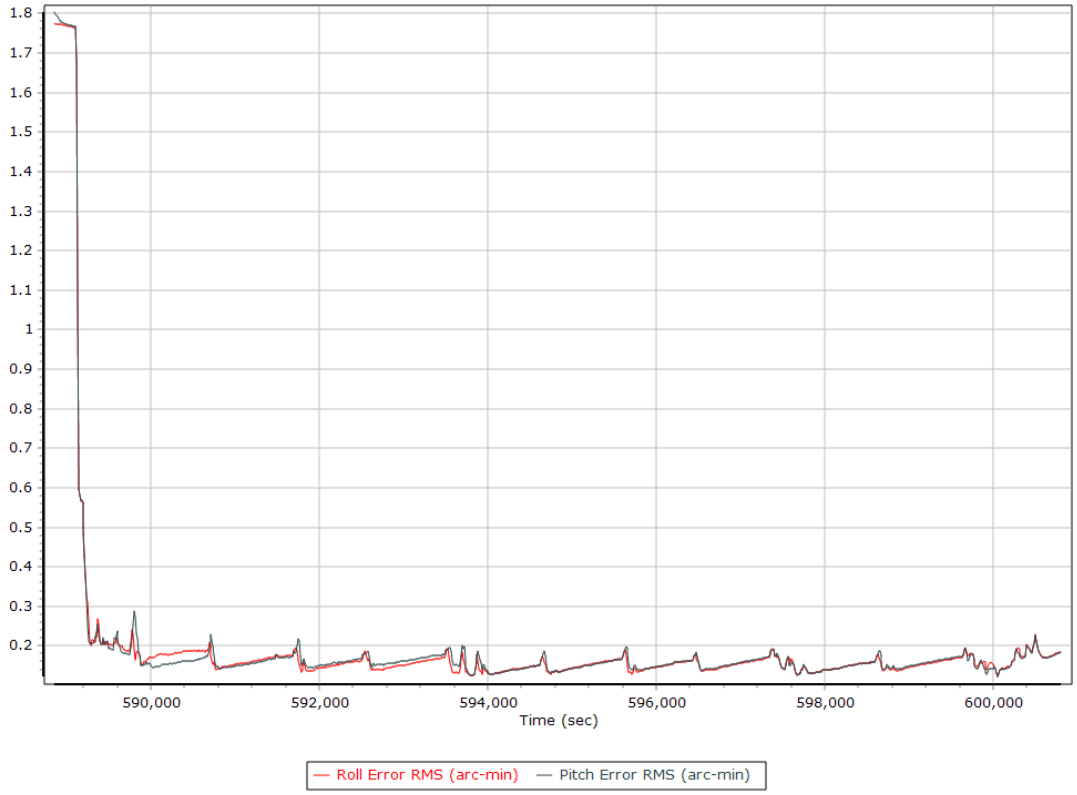
Position Error RMS (m)



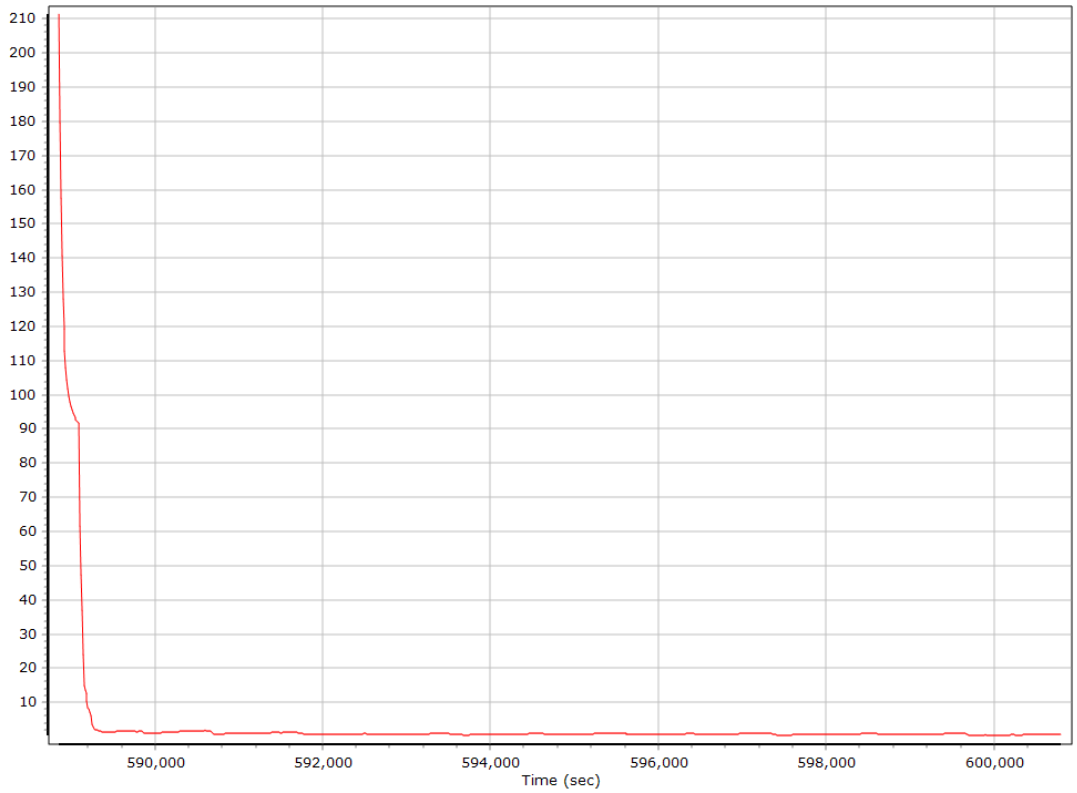
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

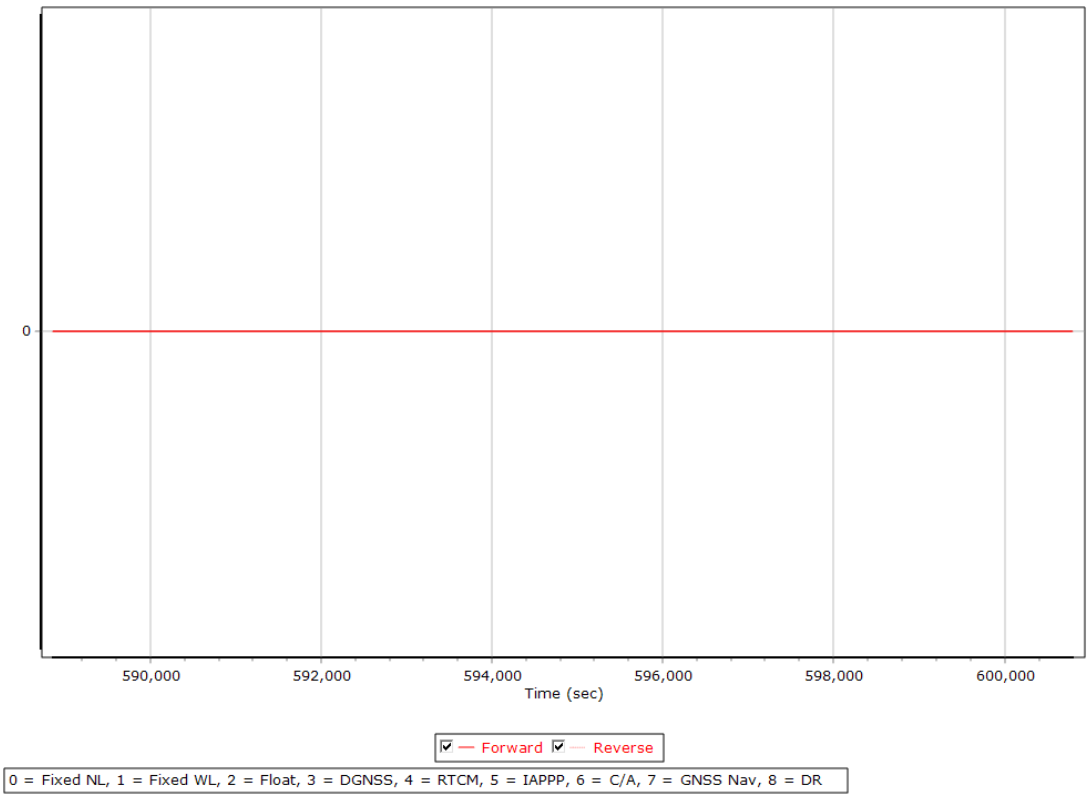


Heading Error RMS (arc-min)

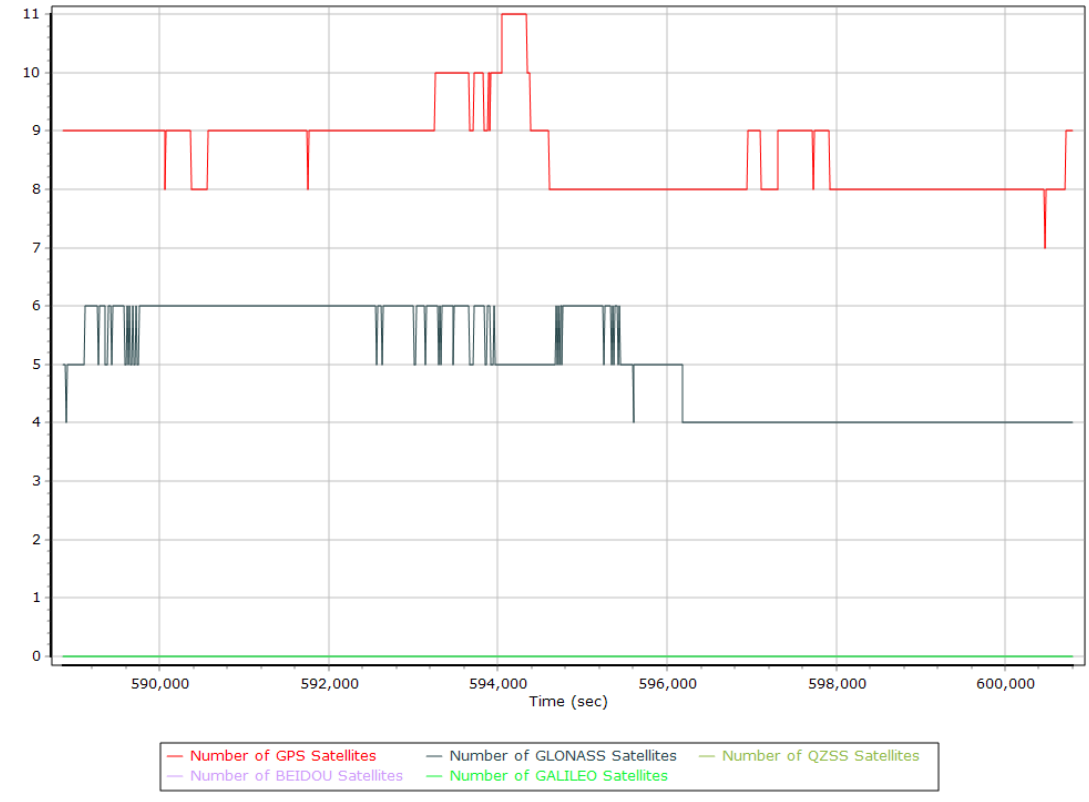


Forward Processed Solution Status

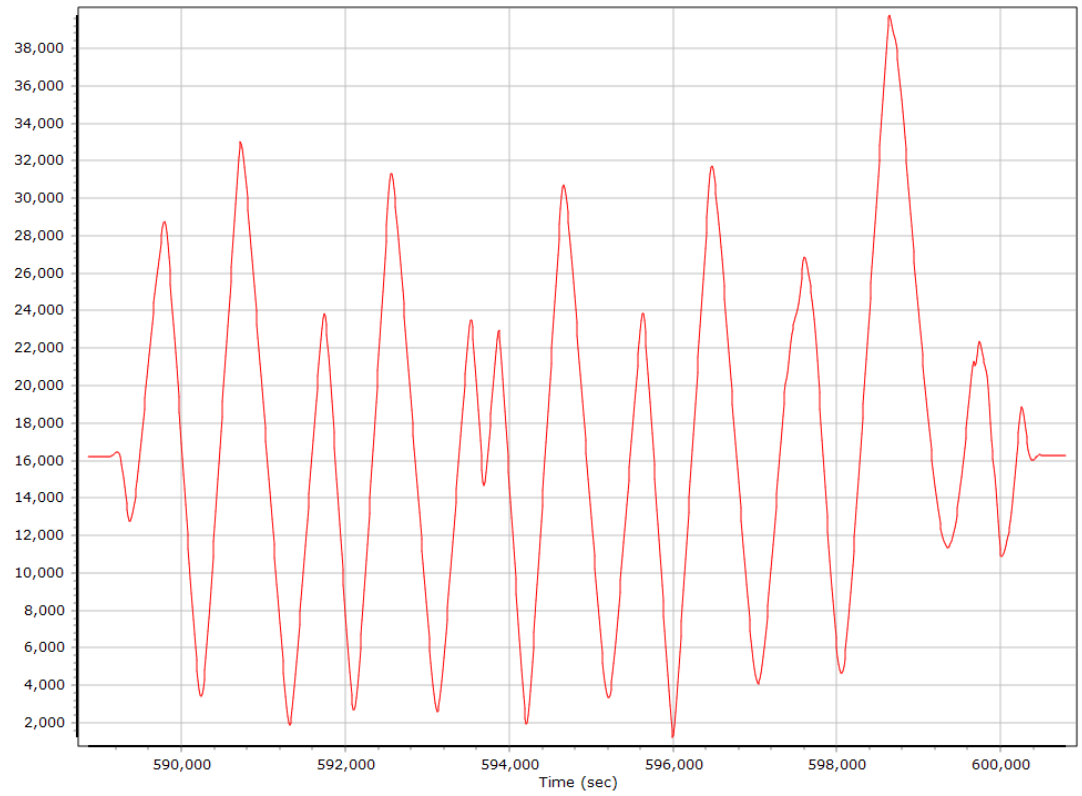
Processing Mode



Number of Satellites



Baseline Length



Export Summary

Export file	export_RBV20053B_176.shp		
Export format	Shapefile		
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	588798.004 (2/22/2020 7:33:18 PM)		
Export end time	600801.002 (2/22/2020 10:53:21 PM)		
Height option	Ellipsoid Height		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 17 (84W to 78W)		
Datum	WGS84		
Ellipsoid	WGS84		
Local Transformation	NONE		
Target Epoch	2020.142077		