

Project Report Appendices

The following section contains the appendices as listed in the Utah 2016 - Great Salt Lake AOI Project Report.

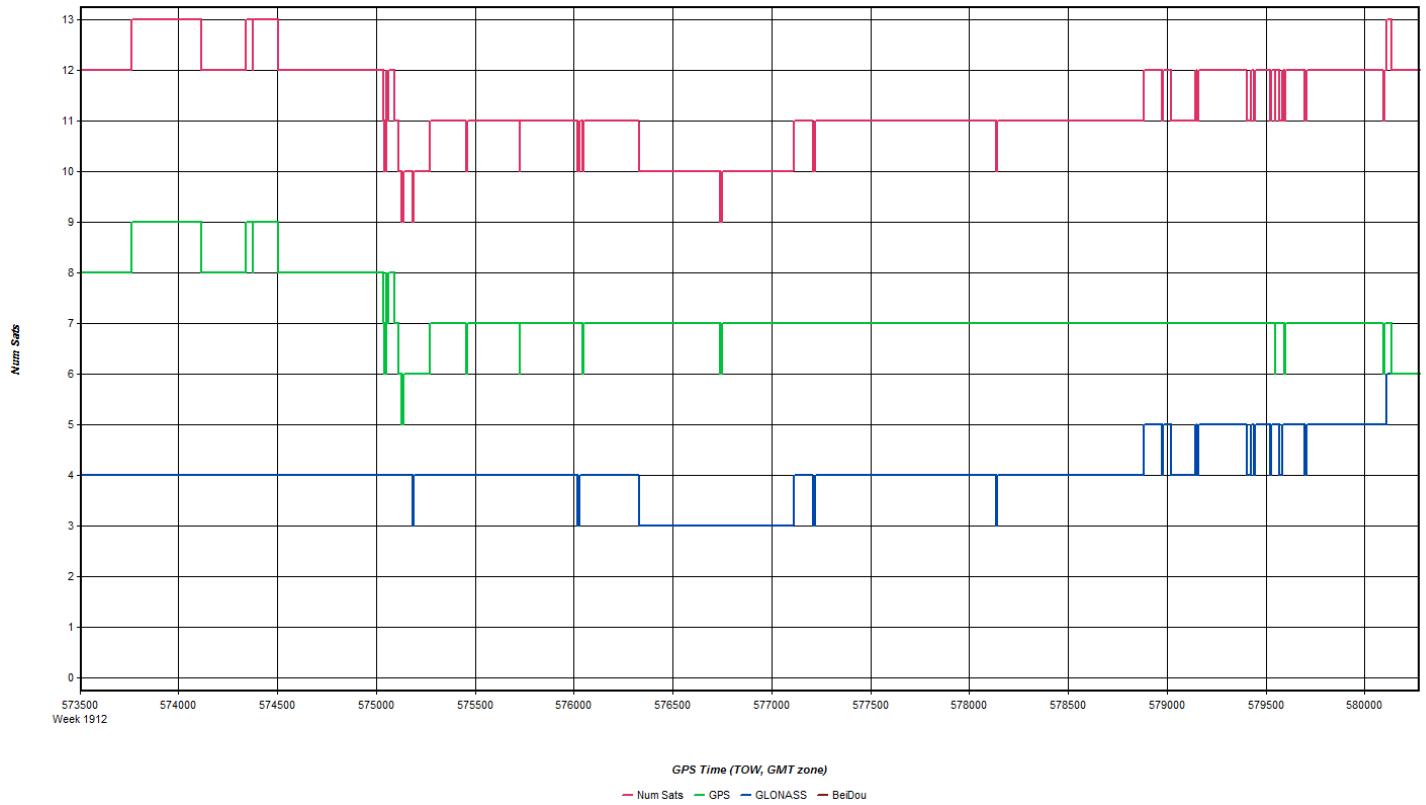
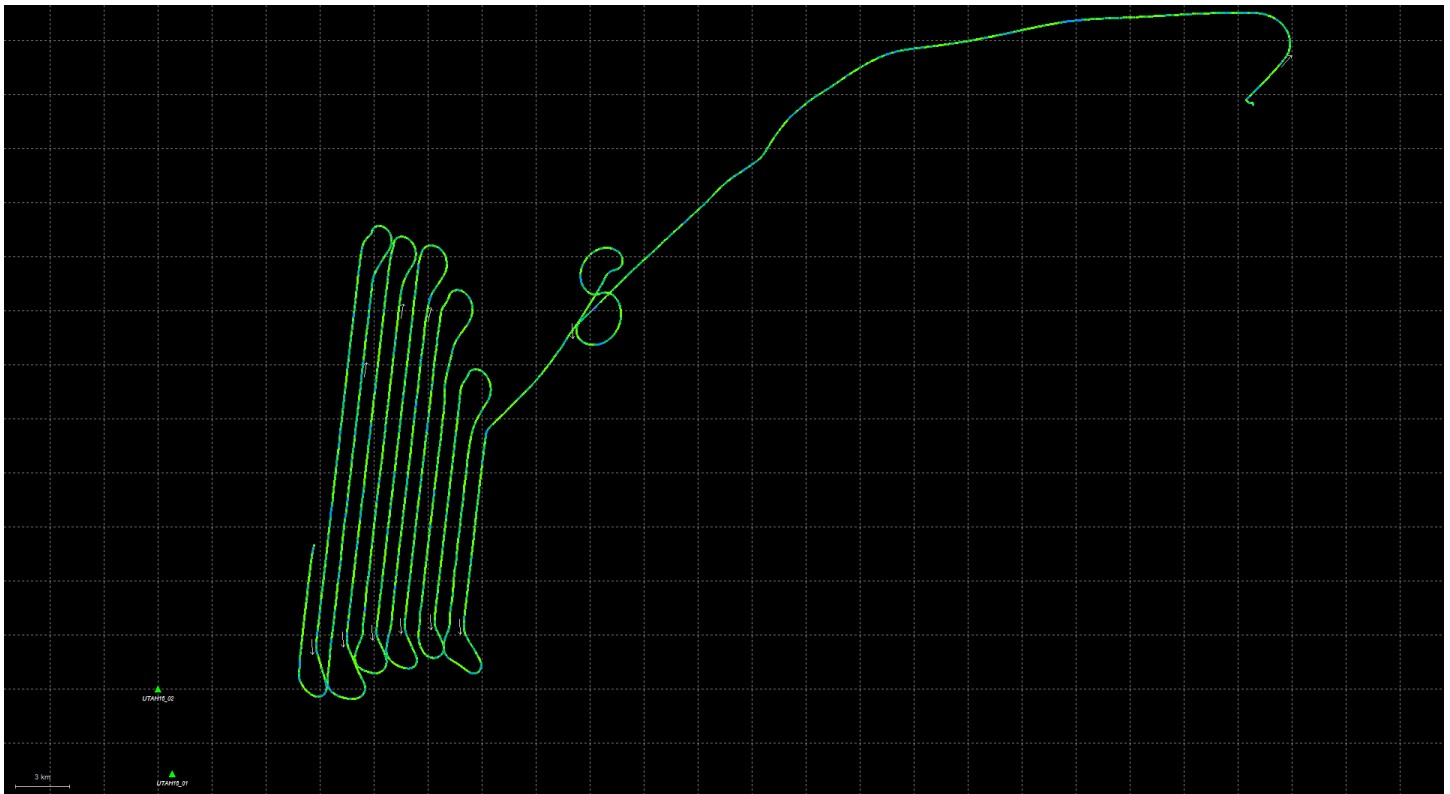
Appendix A

GPS/IMU Statistics Flight Logs

There were 48 total lifts. Graph reports generated from processing software and flight logs are found on the following pages.

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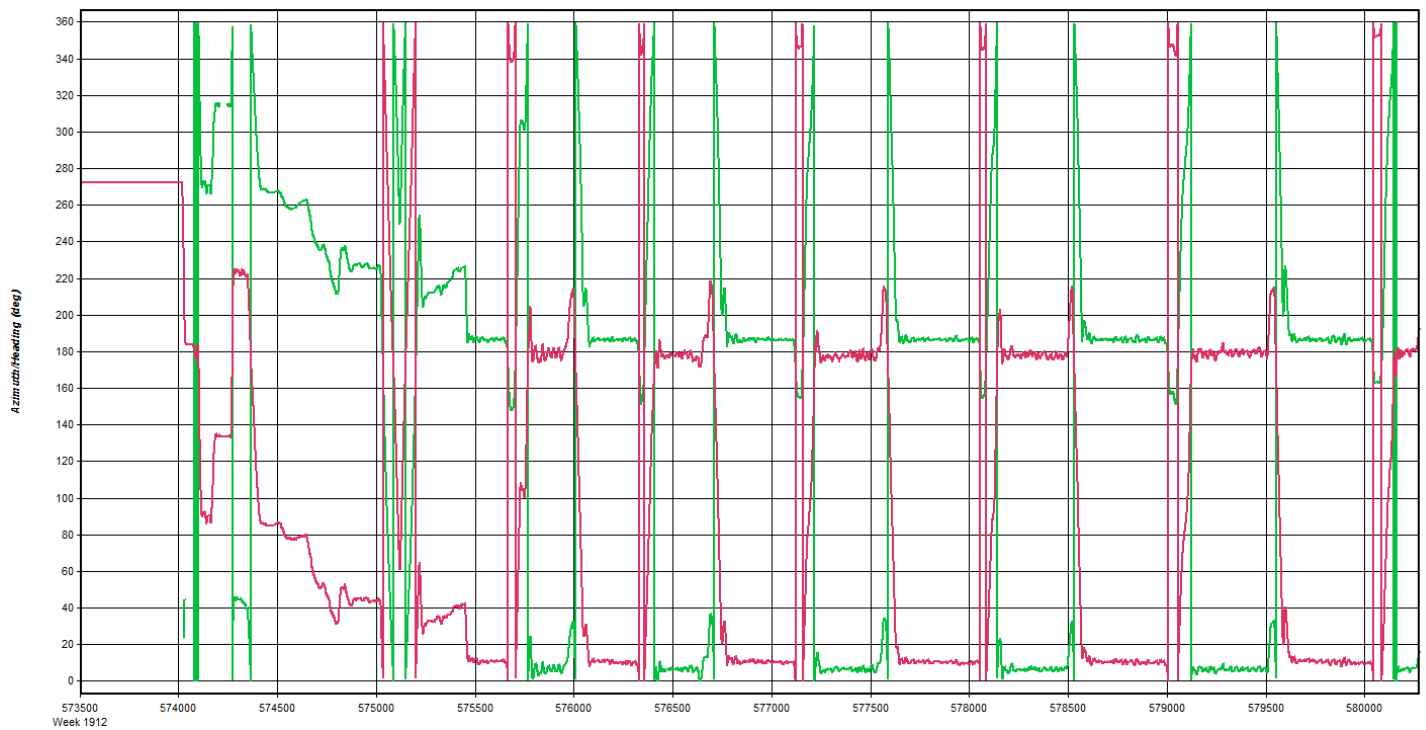
Sep 3, 2016-A (N704MD, SN7161)





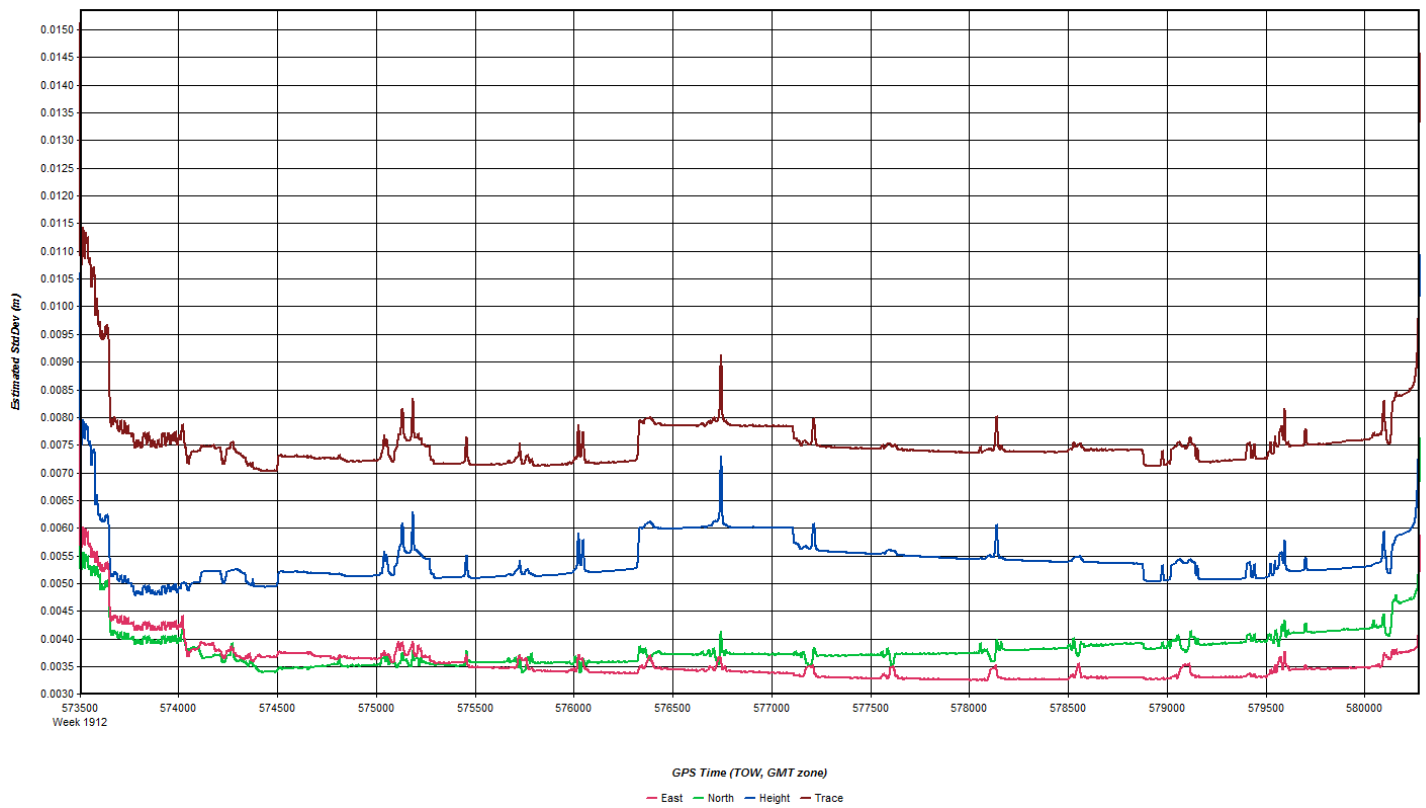
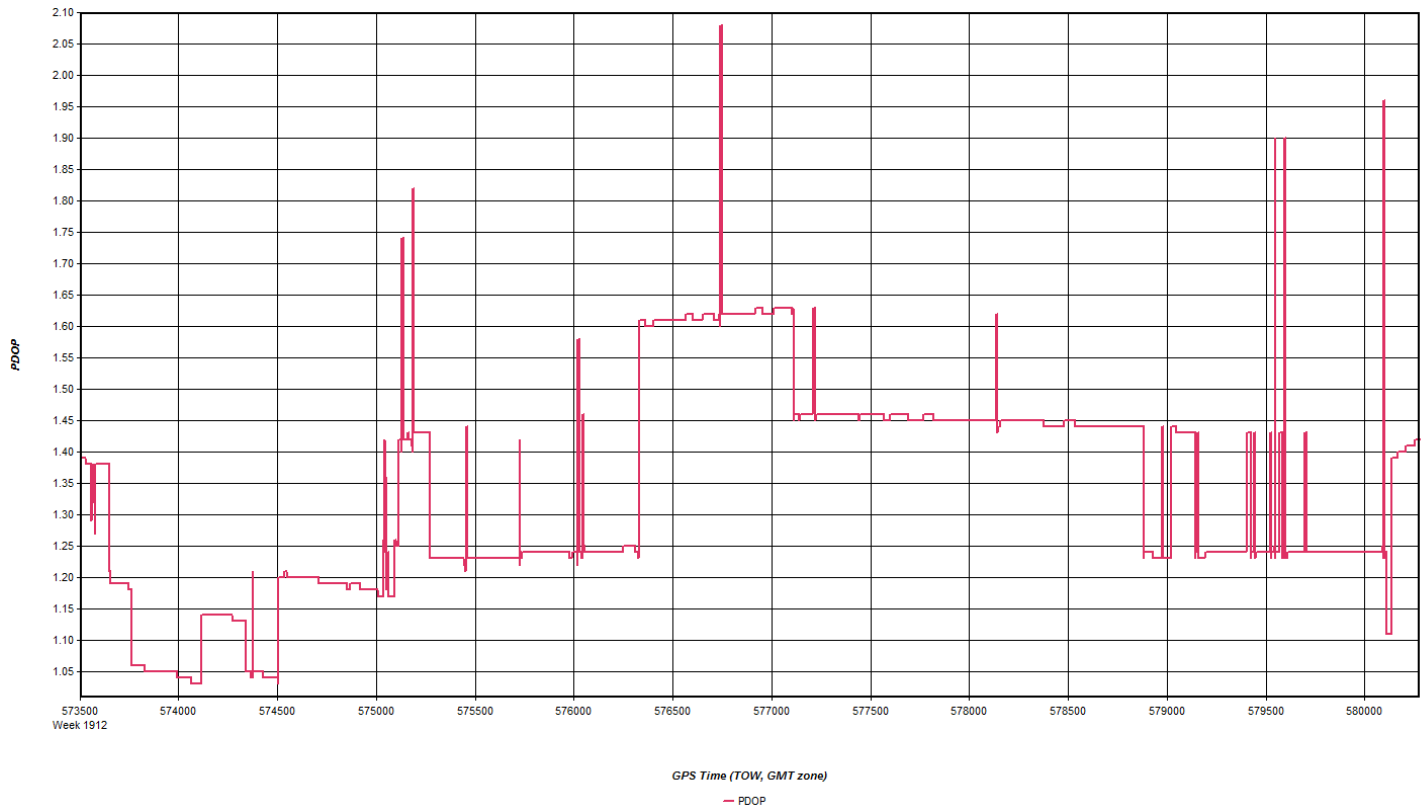
GPS Time (TOW, GMT zone)

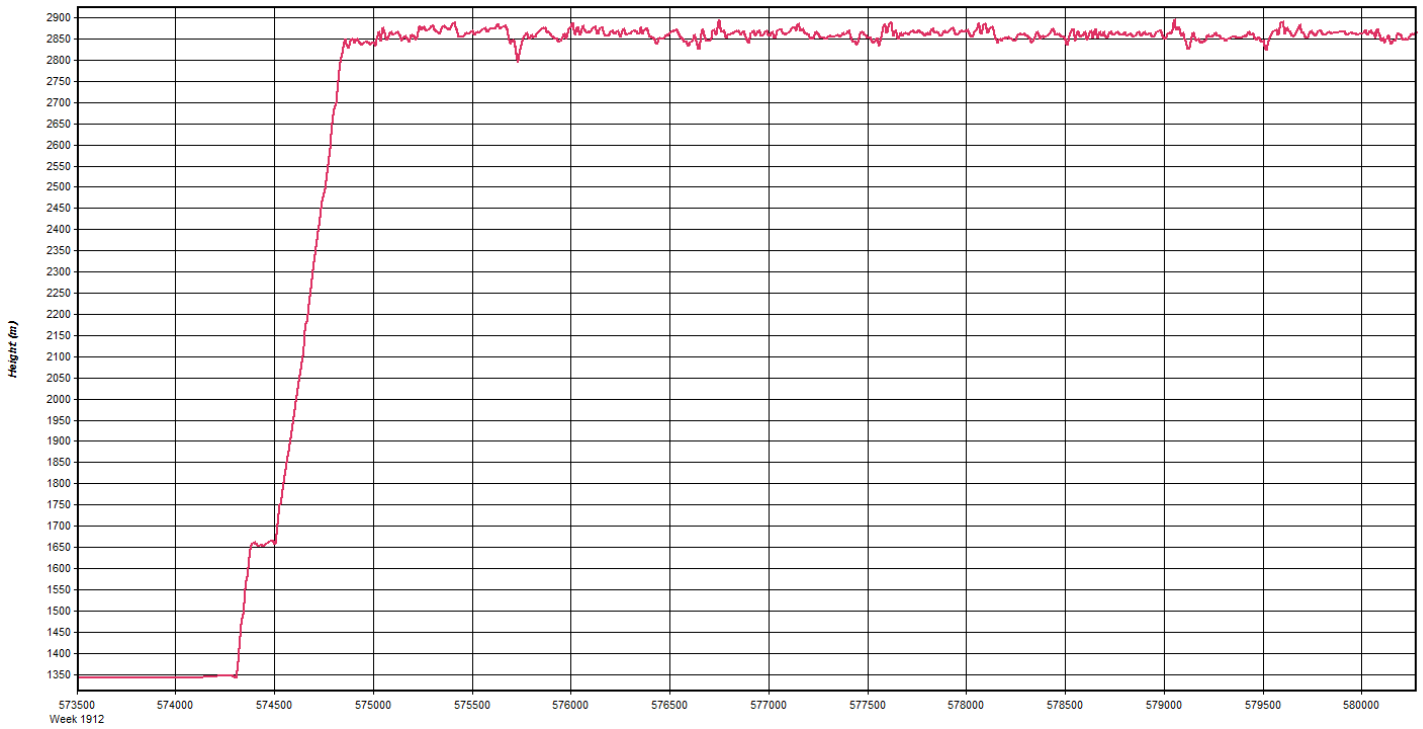
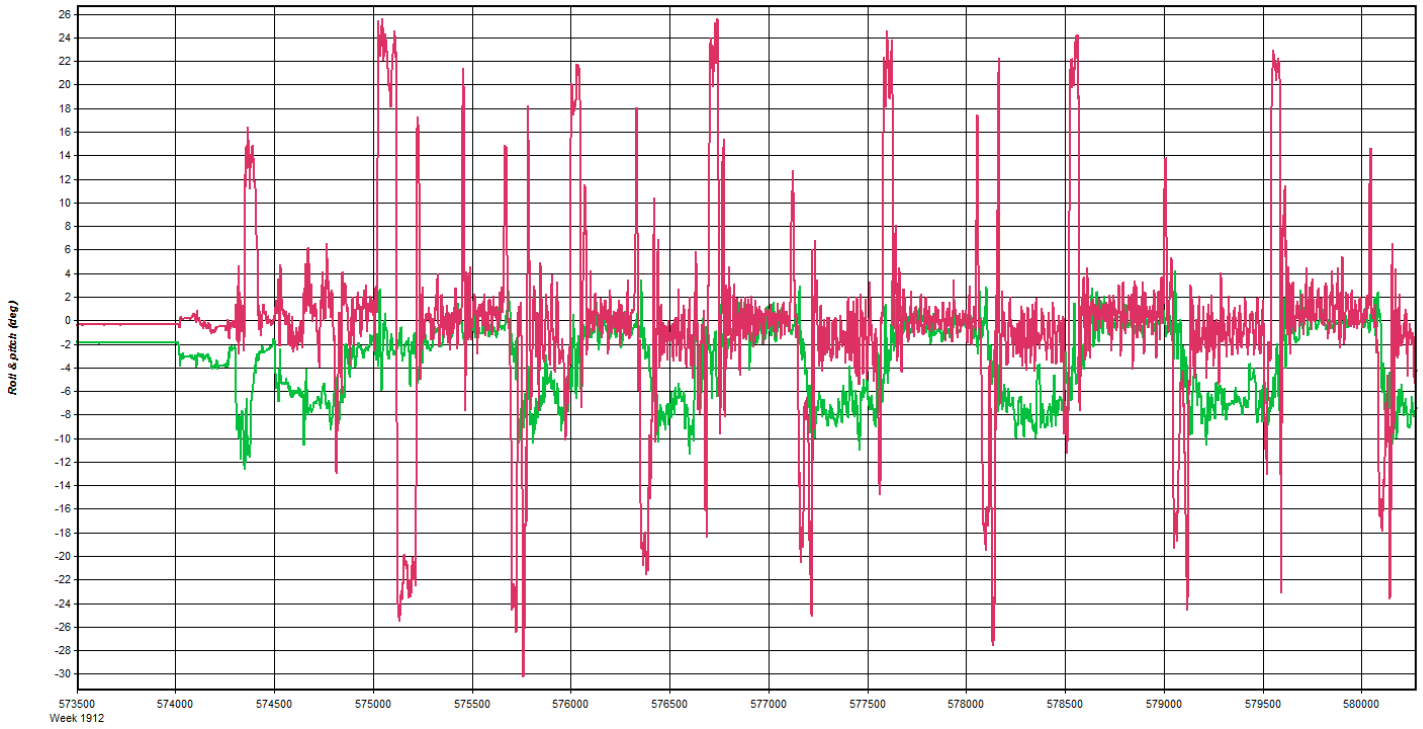
— East — North — Up

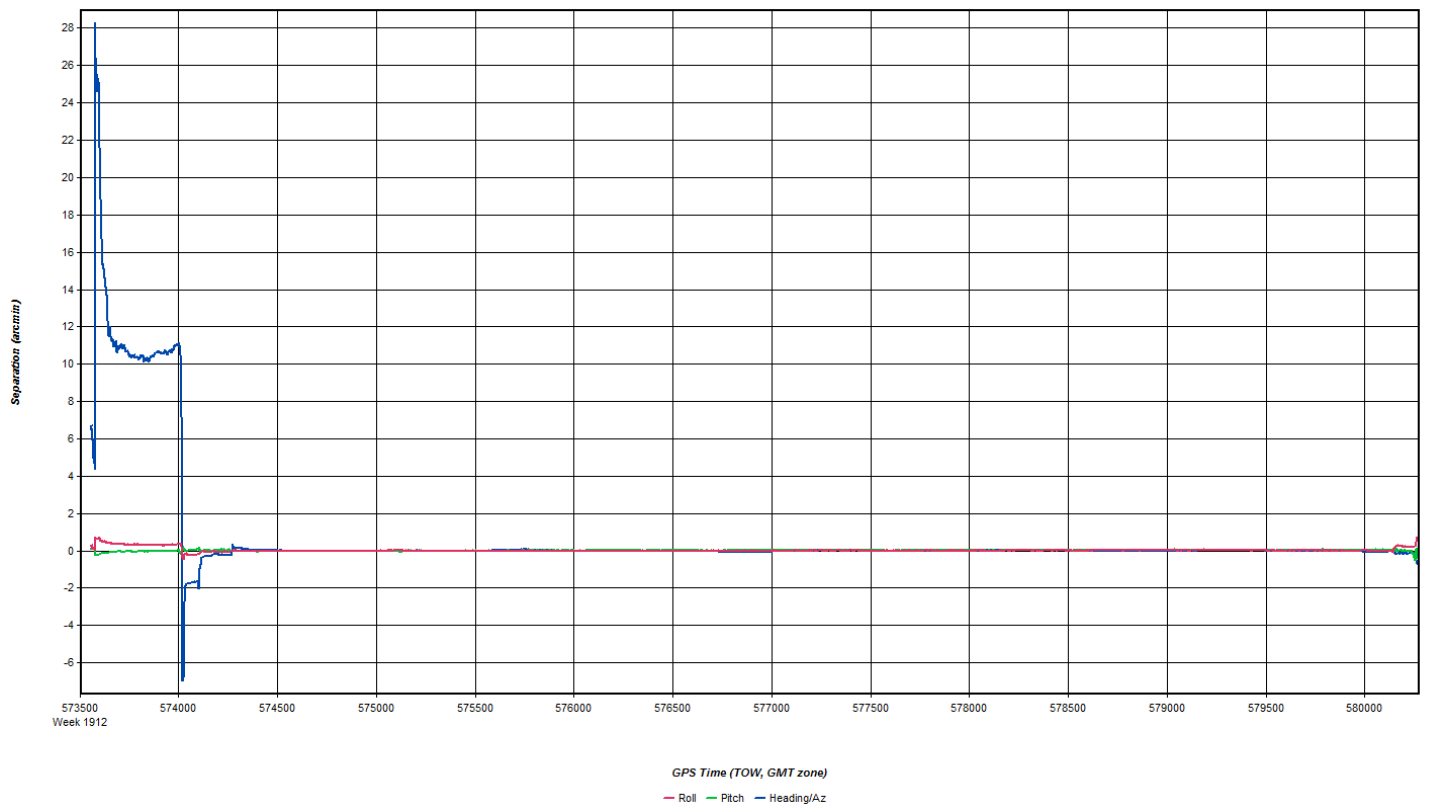
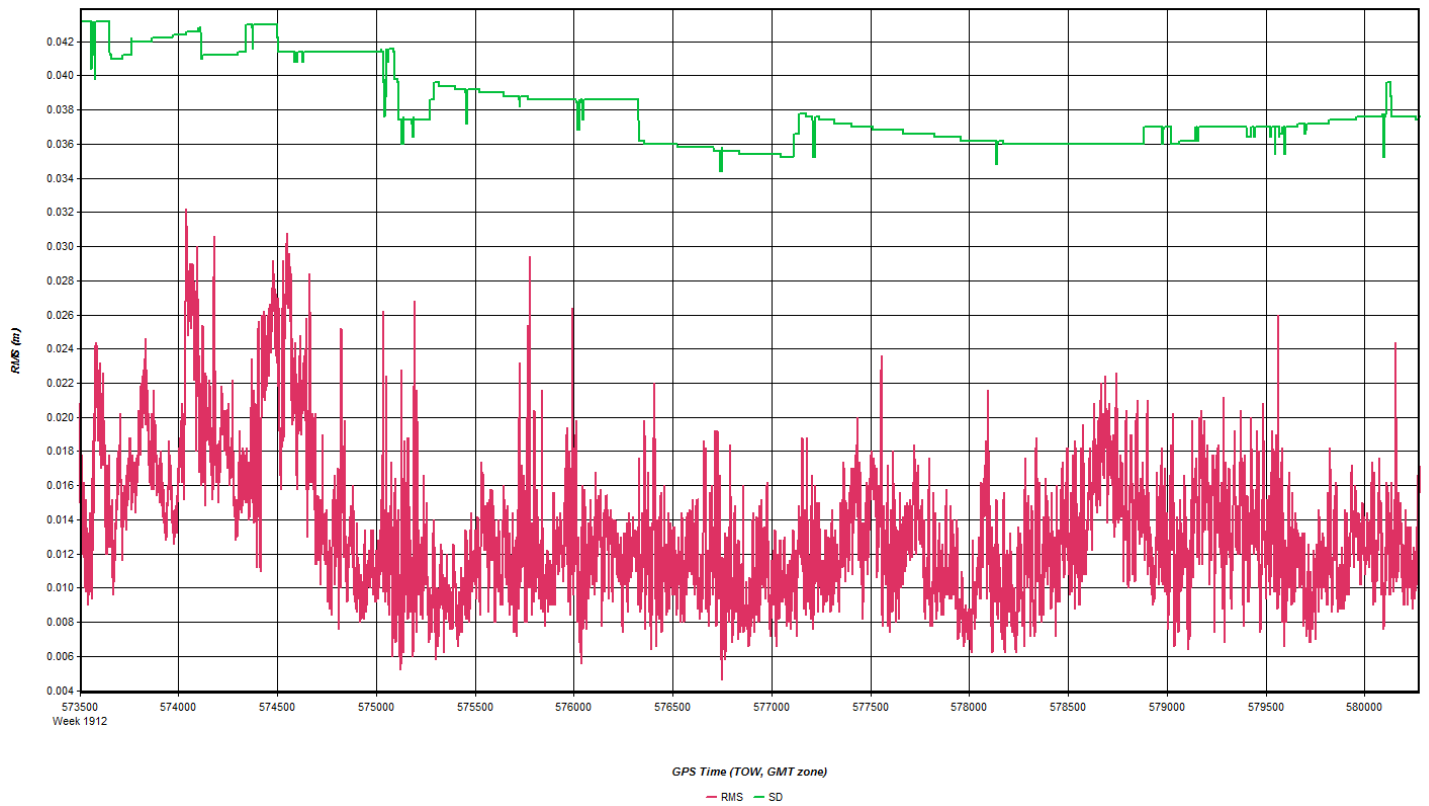


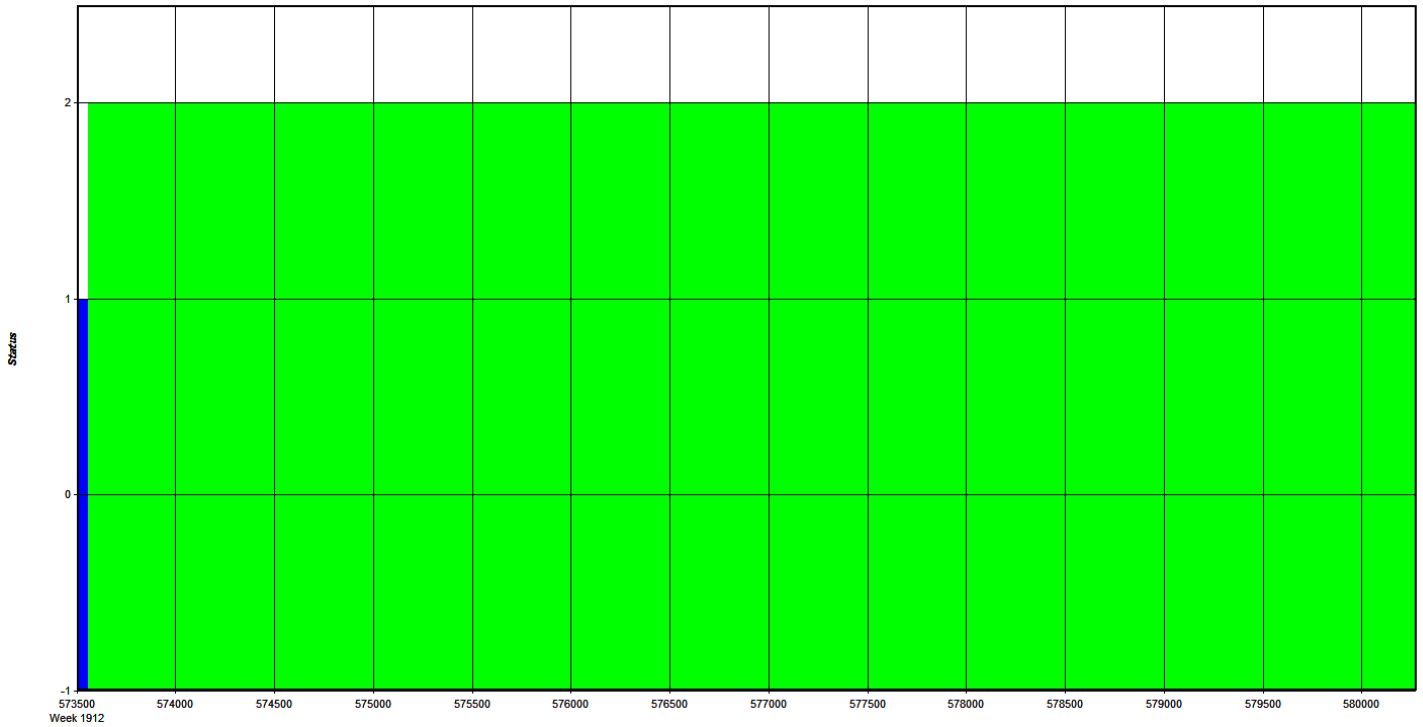
GPS Time (TOW, GMT zone)

— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_01 Name: UTAH16_01 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD247_704MD_CPB\R7_2?

Coordinates
 Latitude: North 40 51 20.49869 Compute from PPP
 Longitude: West 112 43 25.61210 Enter Grid Values
 Ellipsoidal height: 1271.297 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
1: UTAH16_02 Name: UTAH16_02 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD247_704MD_CPB\R7_76

Coordinates
Latitude: North 40 53 50.80260 Compute from PPP
Longitude: West 112 43 59.98011 Enter Grid Values
Ellipsoidal height: 1267.906 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 2.000 m
ARP to L1 offset: 0.067 m
Applied height: 2.067 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Project: Utah

Project #: 29083

Flight Mgmt File:

Aircraft: N704MD **Begin Hobbs:** 1287.4 **End Hobbs:** 1293.5 **Total:** 6.1 **Pilot:** Wagner **Co-Pilot:** Iverson **Tech:** Iverson

Dep Apt: 06D **Dep Time (Lcl):** 0931 **(Z):** 1531 **Arr Apt:** 06D **Arr Time (Local):** 1542 **(Z):** 2142 **Tot Time Aloft:** 6:11

CORS: Y / (N) **Sta 1:** STA 1: WTAH16-01 **Sta 2:** WTAH16-02 **Flyovers:** Y / N **IF Y, times: Sta 1** **Sta 2**

GPS Unit: Y / N **Sta 1:** WTAH16-01 **Sta 2:** WTAH16-02 **Flyovers:** Y / N **IF Y, times: Sta 1** **Sta 2**

Gd Temp beg: °C **End:** °C **OAT beg:** °C **End:** °C **Altimeter begin:** end:

Date: 07/03/2016

Lift: (A) B C D E Pg. 1 of 3

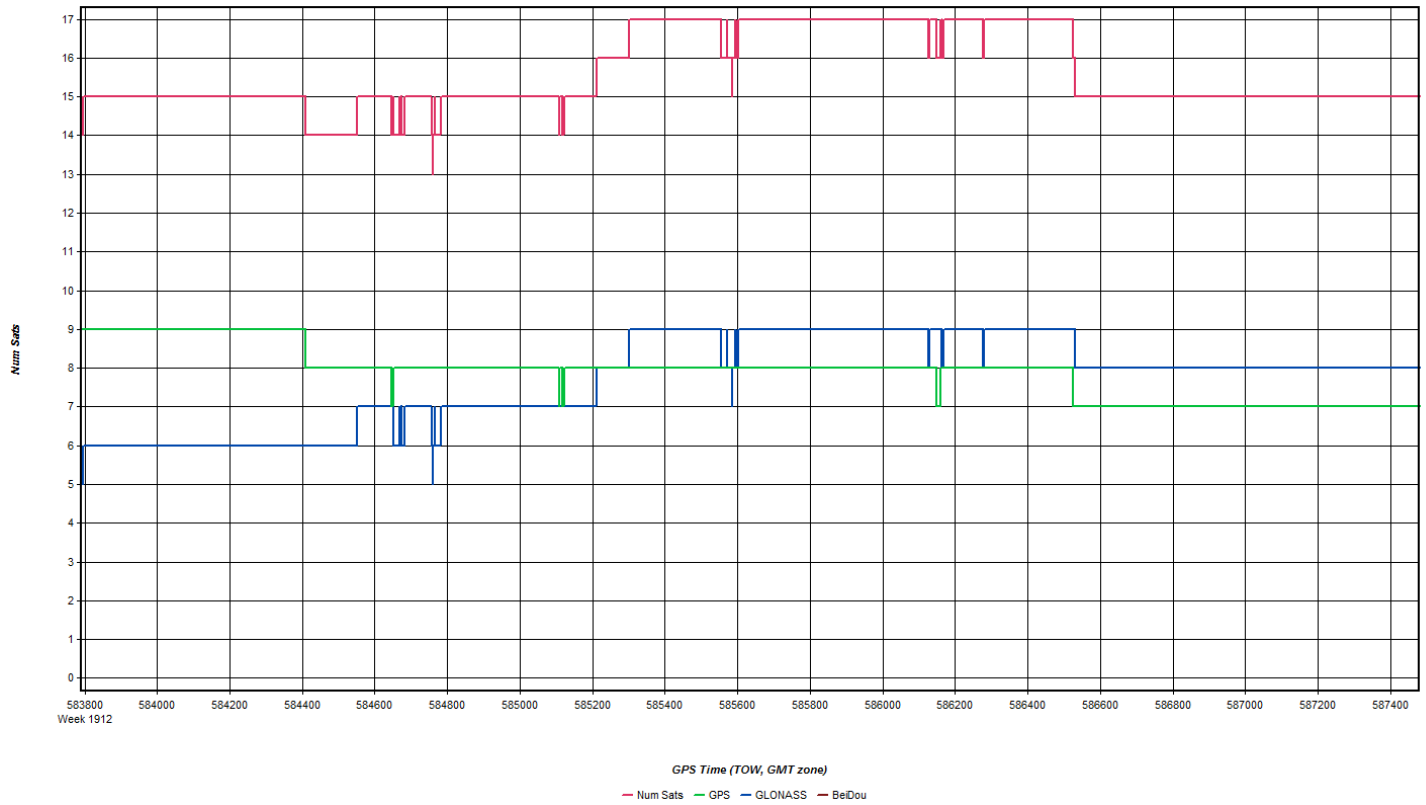
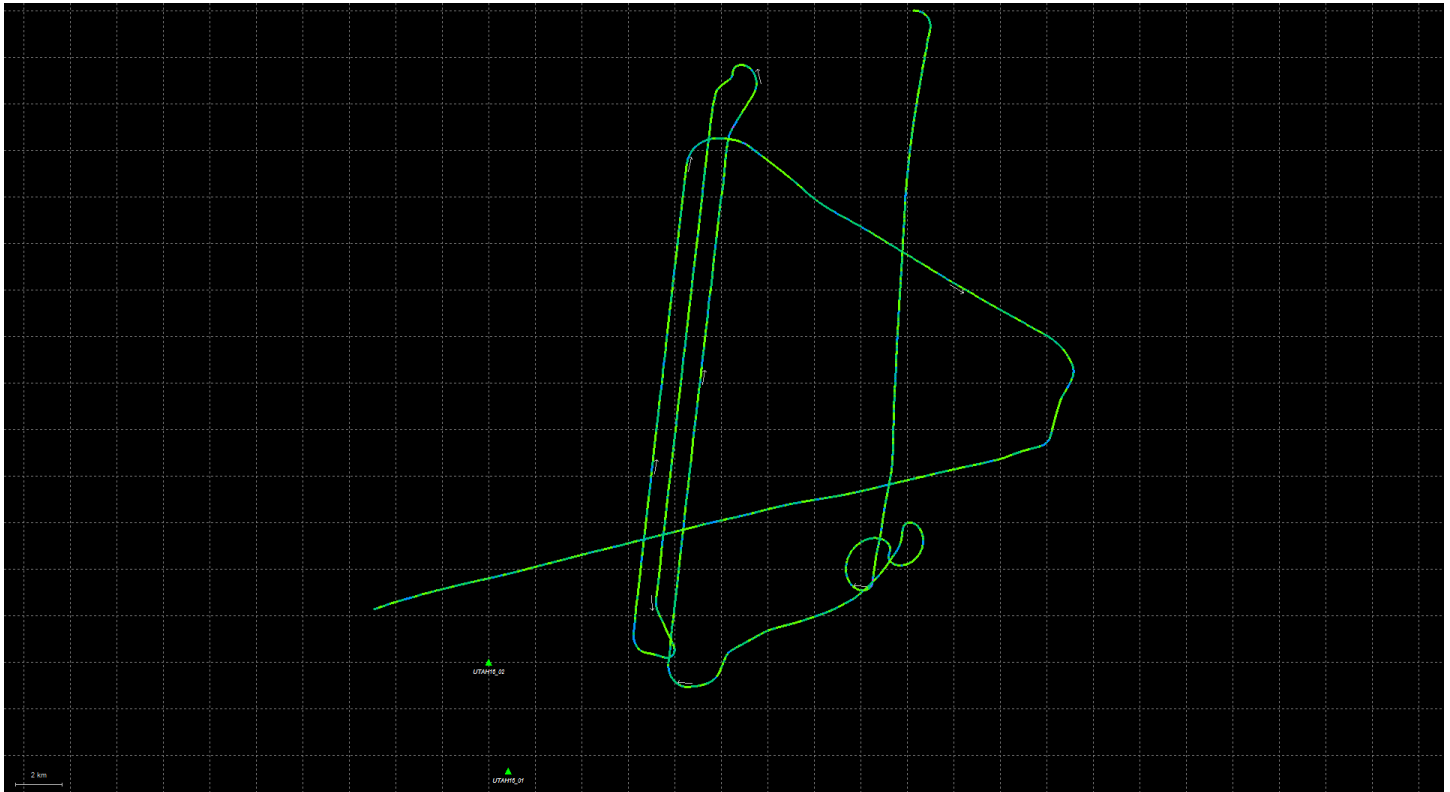
SN7161 090316A
Quantum Spatial, Inc
(email: Log daily to flight_log_distribution_list@quantumspatial.com)

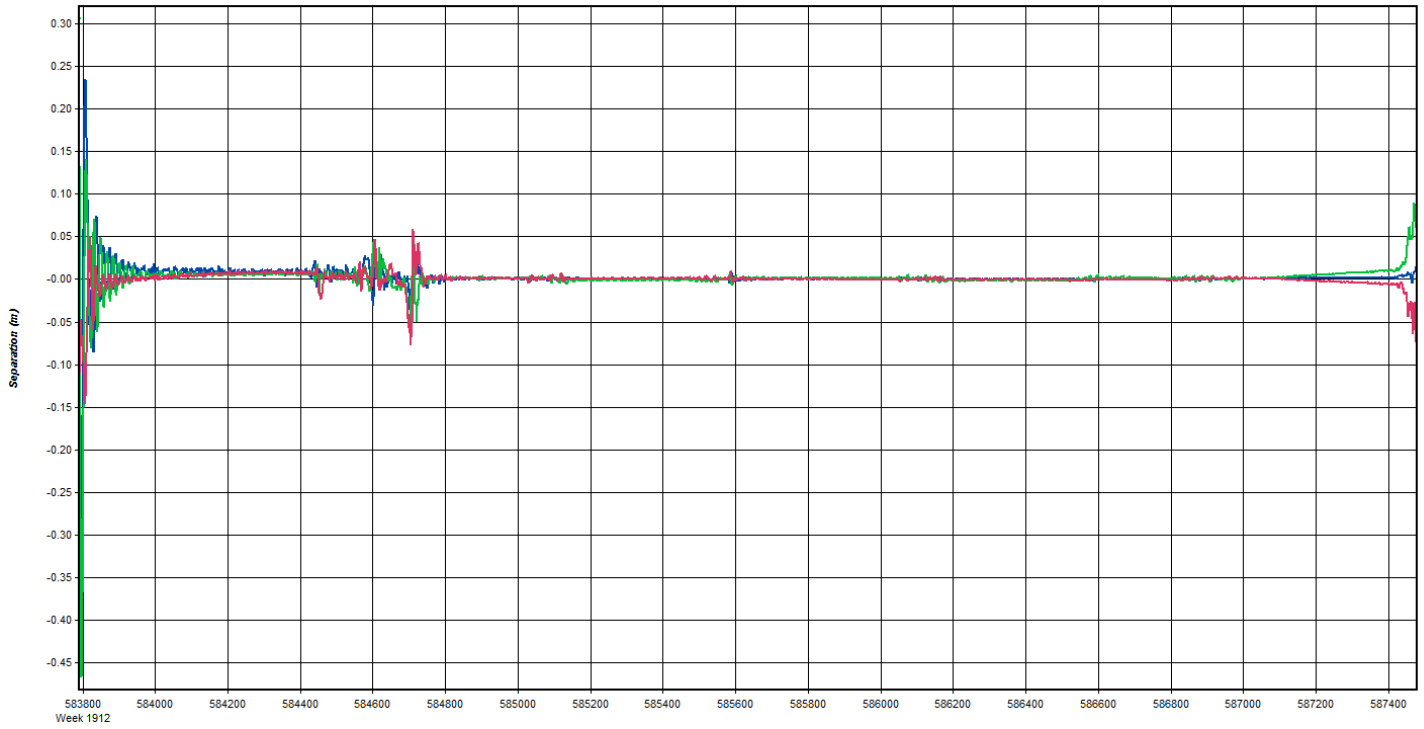
LIDAR	Type	Serial #	Alt AGL	Alt AMSL	Avg Terr Ht	Max Gdepd	Avg Pt Spacing	Power	PPSM	Beg GB	End GB	Tot GB	Storage Name/e
	FOV	Scan Freq	Mpi/A	Pulses In Air	Pulse Rate	Power							
		ALS70	7161					90%					
		40	43Hz					170kHz					
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PDP/pts	GPS Altitude	Crab	Turb (0..+)	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.				
		1519							Static 0919 1287.4 Hobbs				
		1531							Take OFF 06D 0931				
615L		1543	1547						figure 8				
2038	S	1551	1554						FMSL - Utah - GSL - QL2 - SN 7161 160903-155110				
2037	N	1556	1558	14/1.1					155613 +70				
2036	S	1601	1604	13/1.2					160135 160135				
2035	N	1606	1610	109					160652 30ktn Tail wind				
2034	S	1609	1618	97					160903 - 161317				
2033	N	1620	1625	111					162026				
2032	S	1627	1634	98					162749 13/1.3				
2031	N	1635	1641	113					163551				
2030	S	1643	1649	104					164338				
2029	N	1652	1658	110					165227				
2028	S	1700	1707	94					170049 104				
2027	N								data logger Error				
									Reboot system				

Total Proj Lines: 1018 / USB30FD /

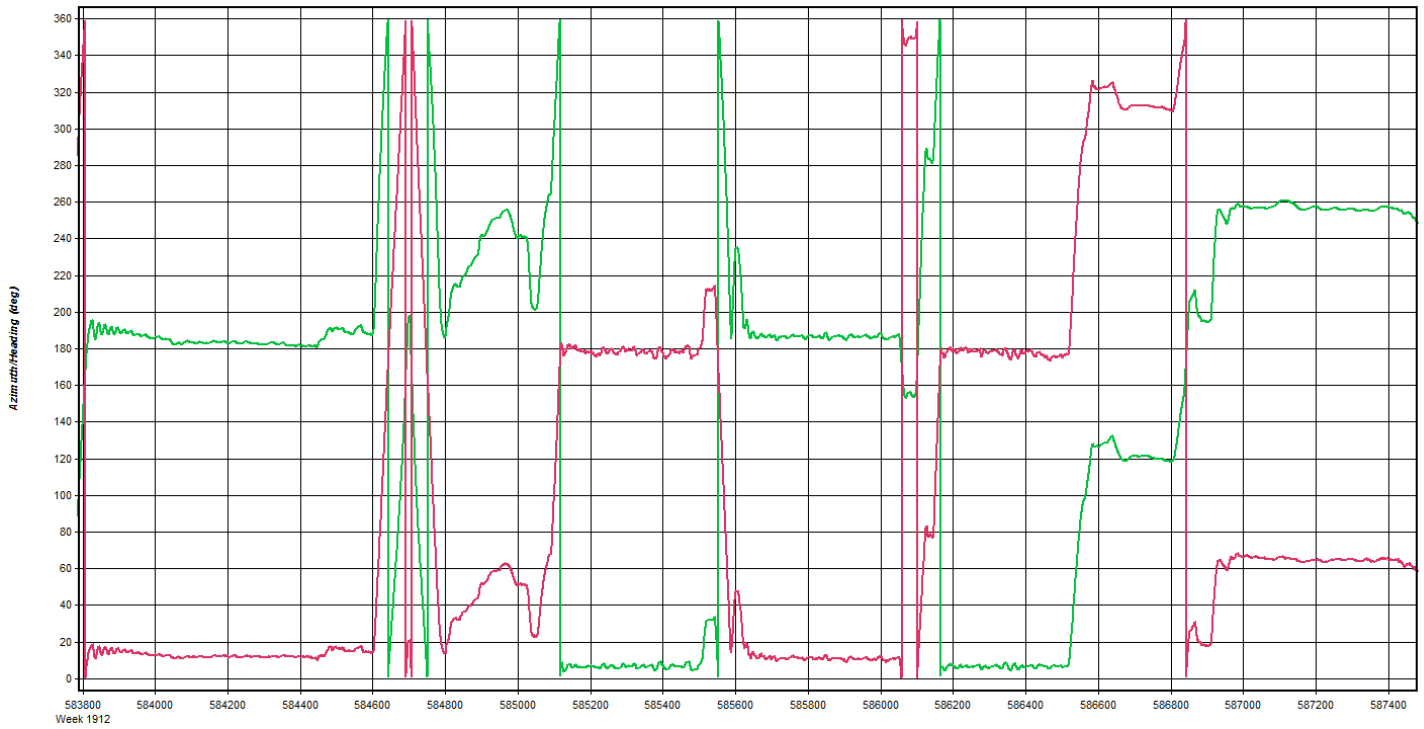
Lines Flown: 30 **Lines Remain:** 9 bunch Online Time: 5.7 **Mob Time:** .4 **Notes:** / Ordnance / UTM12

Sep 3, 2016-B (N704MD, SN7161)

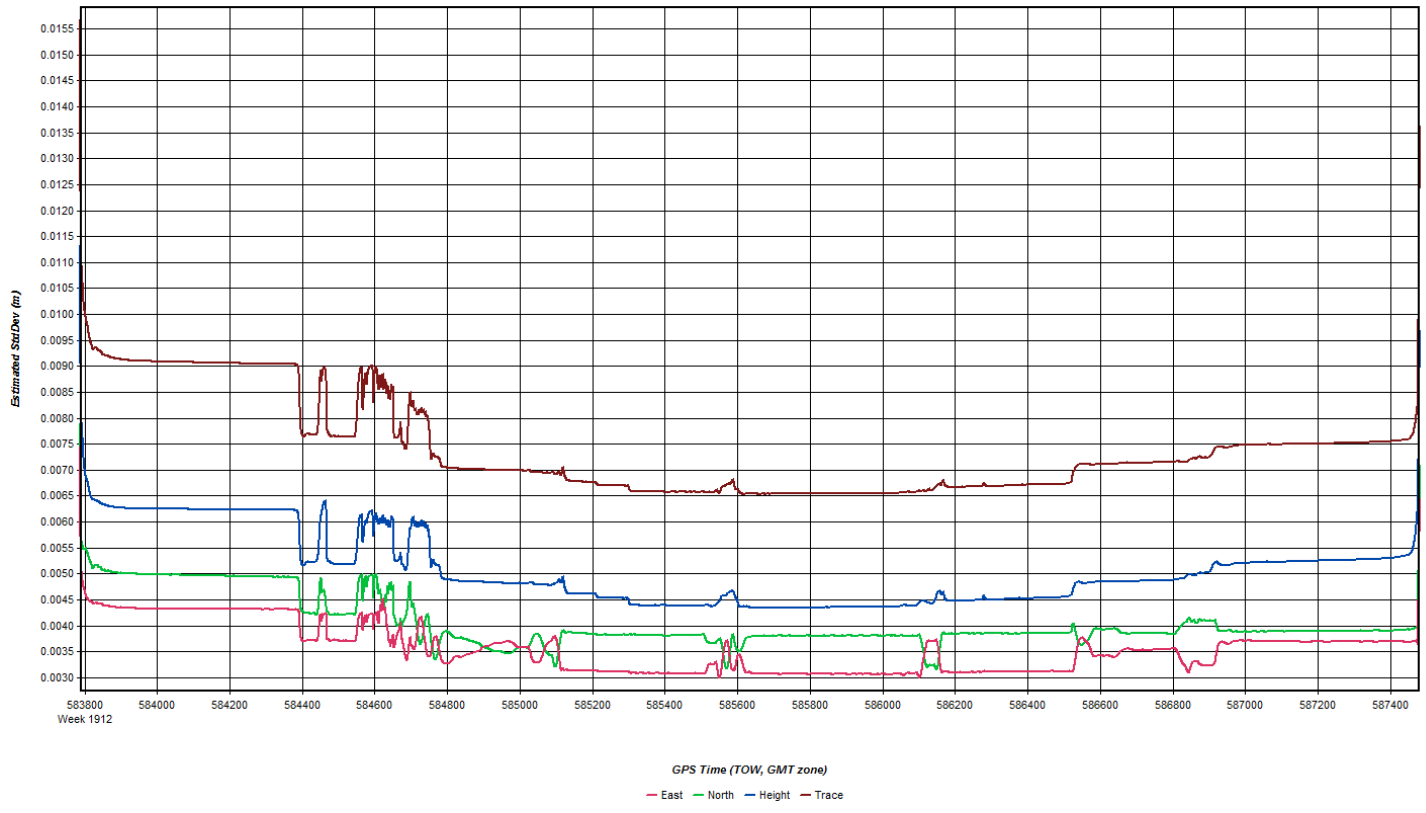
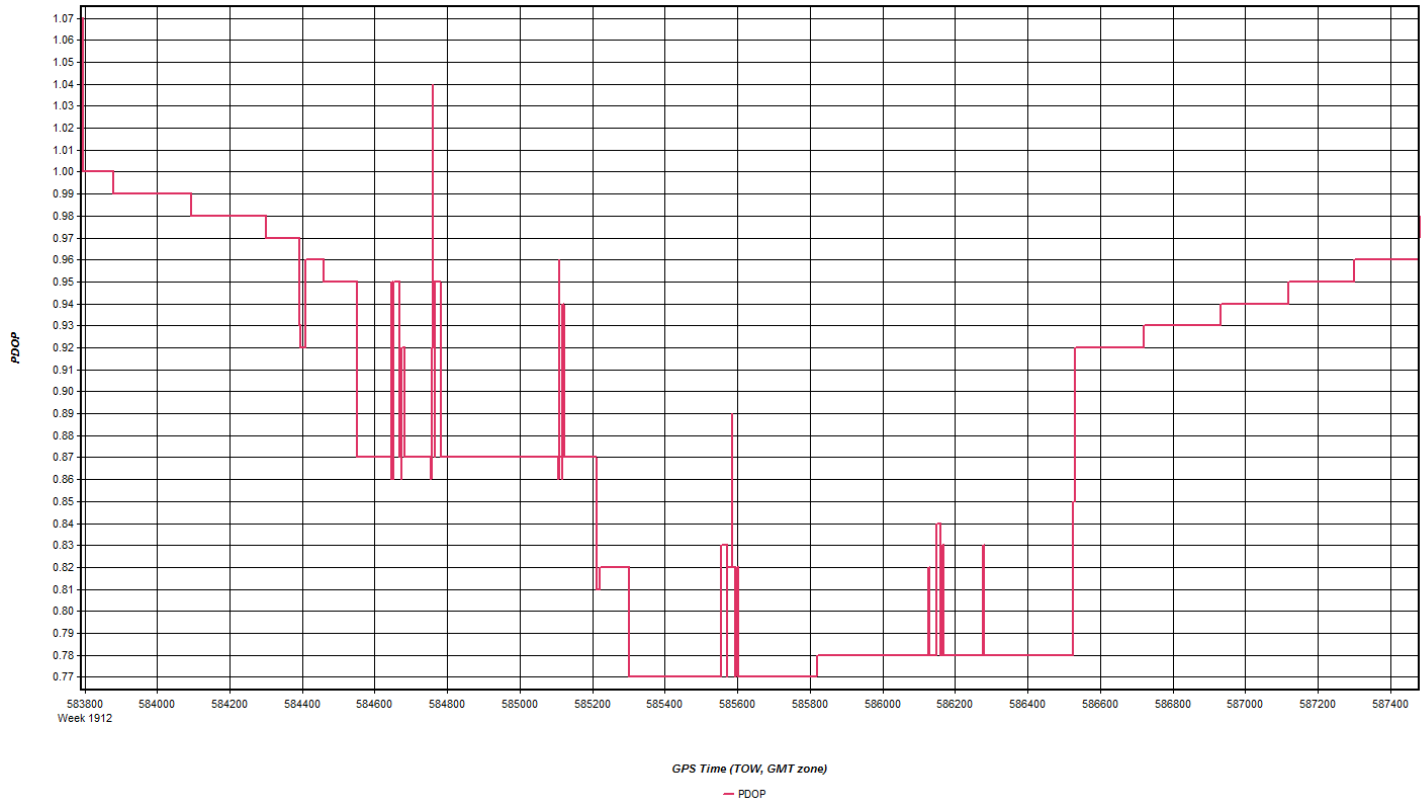


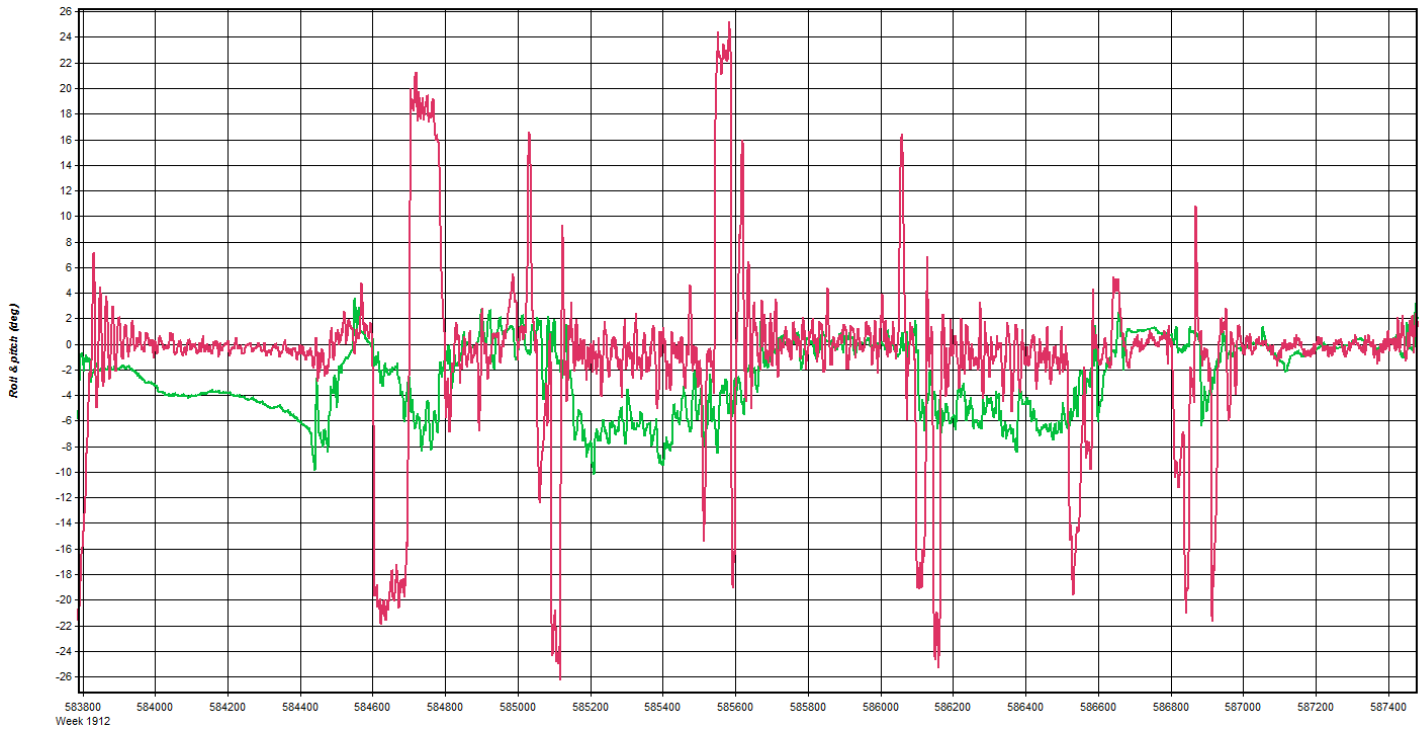


GPS Time (TOW, GMT zone)
— East — North — Up

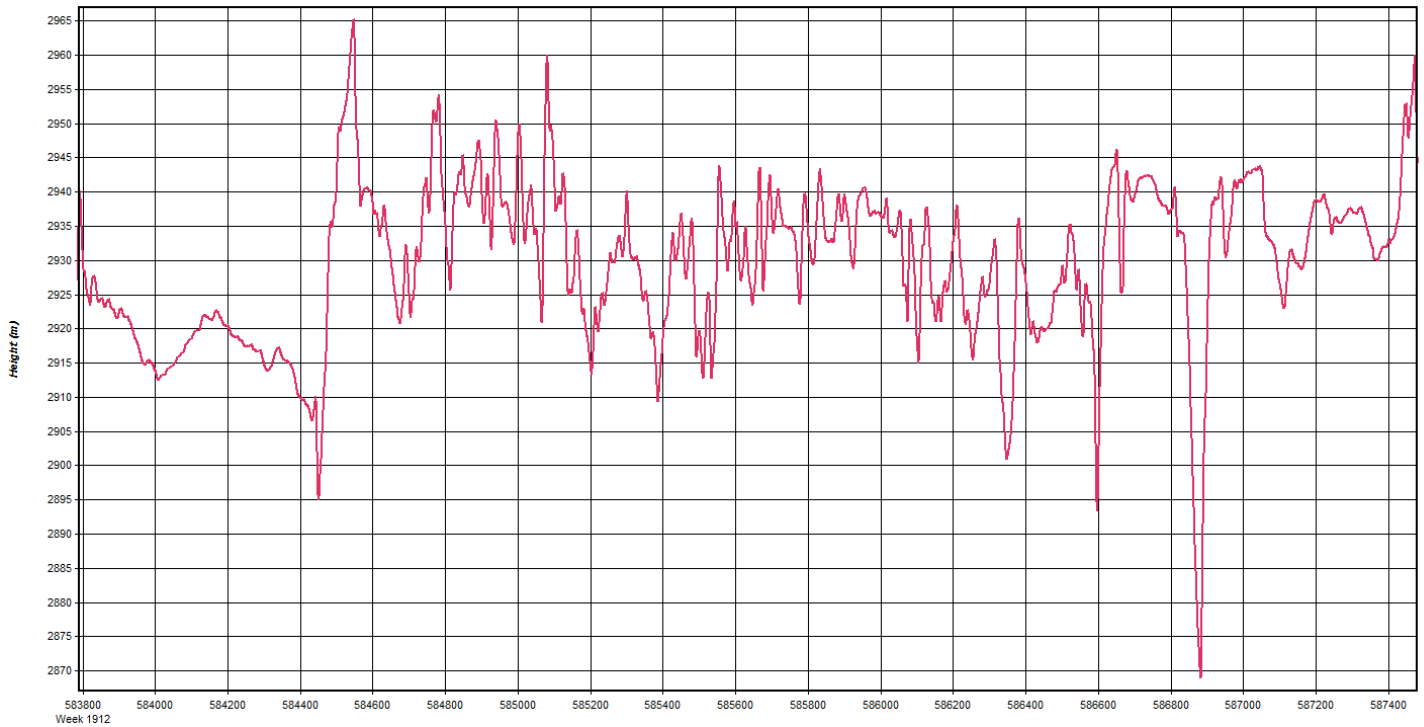


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG

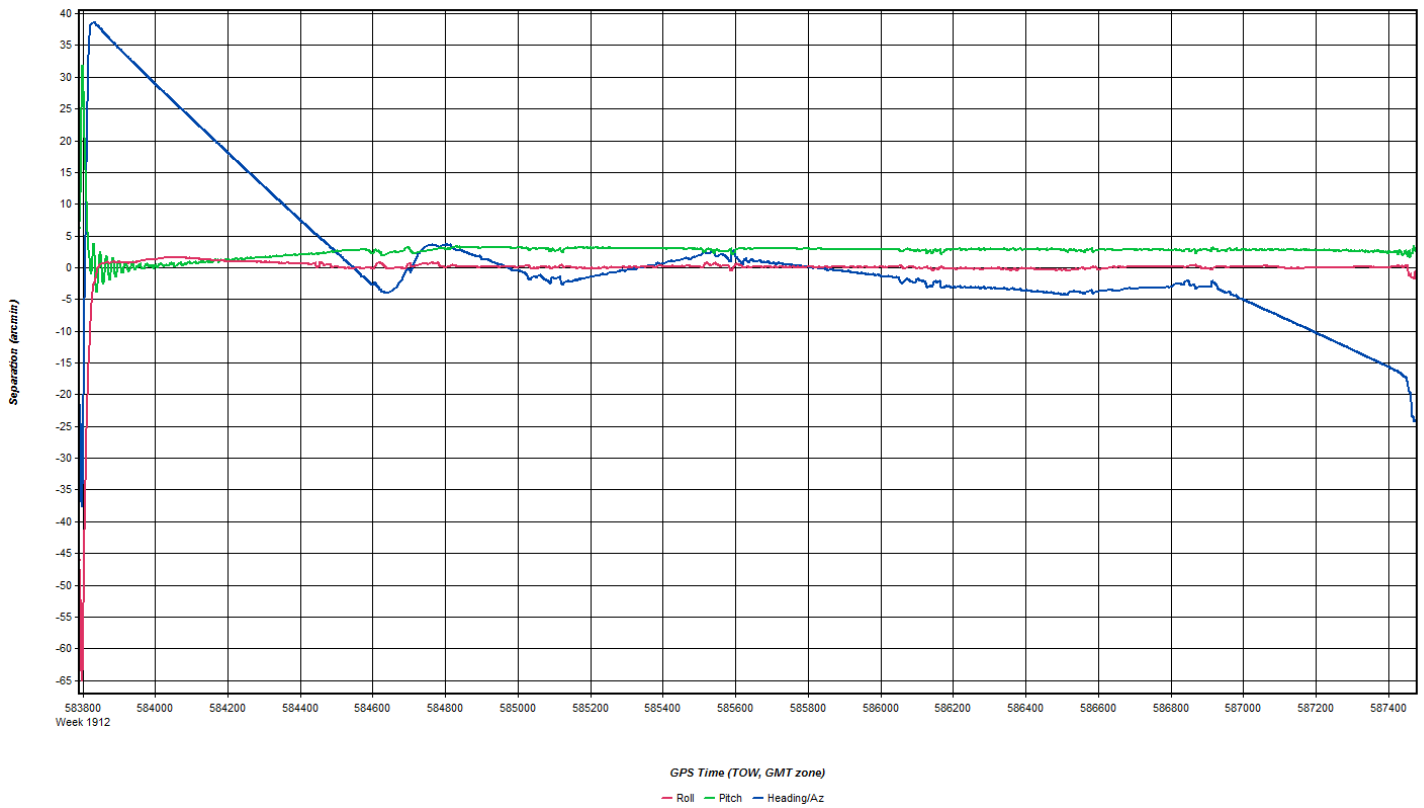
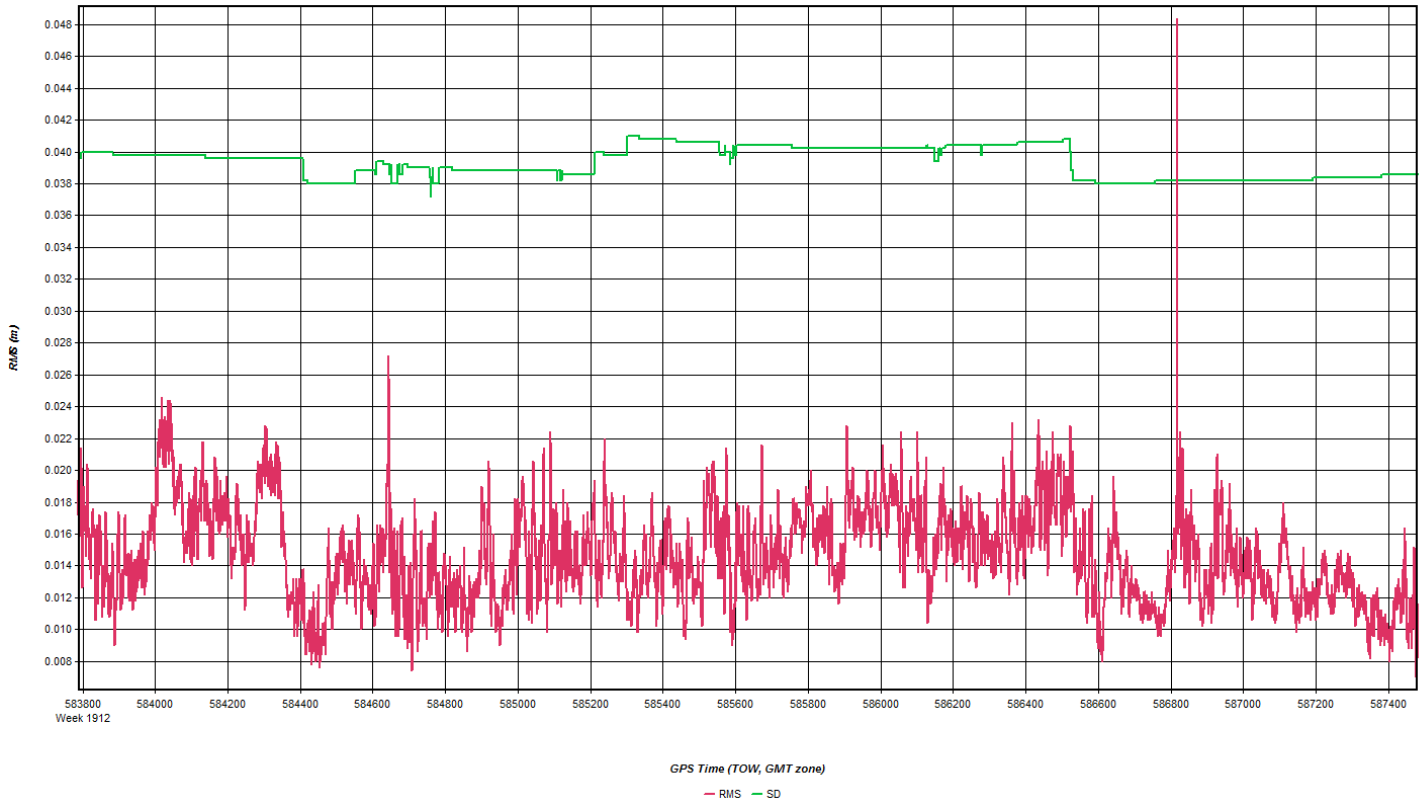


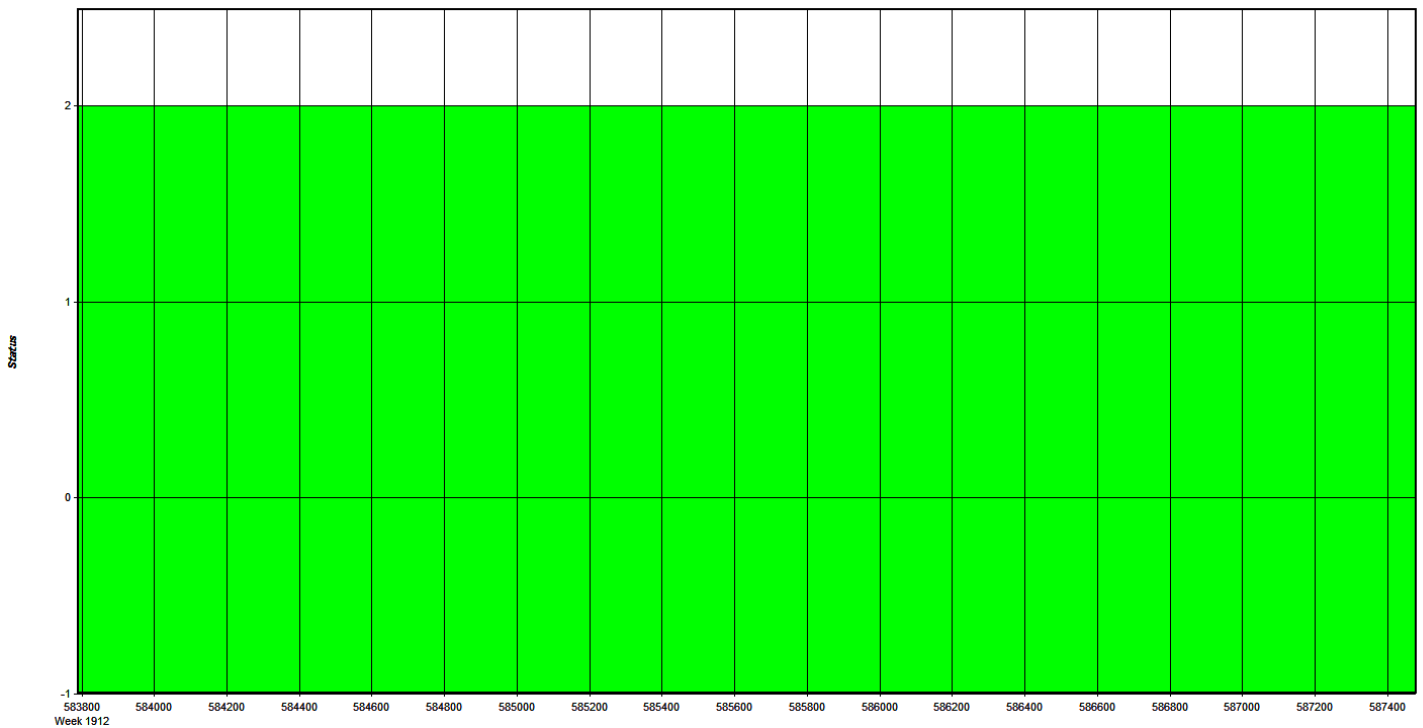


GPS Time (TOW, GMT zone)
— Roll — Pitch



GPS Time (TOW, GMT zone)
— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_01 Name: UTAH16_01 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD247_704MD_CPB\R7_2?

Coordinates
 Latitude: North 40 51 20.49869 Compute from PPP
 Longitude: West 112 43 25.61210 Enter Grid Values
 Ellipsoidal height: 1271.297 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_02 Name: UTAH16_02 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD247_704MD_CPB\R7_7

Coordinates
 Latitude: North 40 53 50.80260 Compute from PPP
 Longitude: West 112 43 59.98011 Enter Grid Values
 Ellipsoidal height: 1267.906 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Project: Utah

Alcraft: N704MP

Dep Apt: Y / N

CORS: Y / N

Gd Temp beg: °C End: °C

LIDAR

Date: 09/03/2016

Flight Mgmt File: SN7161-0903160A

Proj #: 29083

End Hobbs: Total: 7161

Dep Time (Lcl): [Z]:

Altimeter begin: °C End: °C

Serial #: 7161

Scan Freq: 40

FOV: 40

Altcraft: N704MP **Begin Hobbs:** Total: 7161 **Pilot:** Wagner **Co-Pilot:** Iverson **Tech:** Iverson

Dep Time (Lcl): [Z]: **Arr Apt:** Arr Time (Local): [Z]: **Tot Time Aloft:**

CORS: Y / N **Sta 1:** **Sta 2:** **Flyovers:** Y / N IF Y, times: Sta 1) **Sta 2)**

GPS Unit: Y / N **Sta 1:** **Sta 2:** **Flyovers:** Y / N IF Y, times: Sta 1) **Sta 2)**

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PDOP/sats	GPS Altitude	Crab	Turb (0..3)	Alt AMSL	Pulses In Air	Alt AGL	MplA	Y / N	Altitude	Max Gddpd	Power	Avg Ft Spacing	PPSM	Storage Name/ #	
65L		1719																		
2027	N	1732	1734	109	15/13															
2026	S	1753		93	16/11															
65L		1812																		
2027	N	1823	1827	109	18/11															
2026	S	1841	1847	96	17/12															
2025	N	1849	1855	115	17/12															
U1001	W	1902	1909	102	18/11															

Total Proj Lines: **Lines Flown:** **Lines Remain:** **Online Time:** **Mob Time:** **Notes:**

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

Static 1119 FMSL-Utah-GSL-QL2-SN7161

Figure 8

168903-174415

175315 system Eratic off Abort

system Eratic - Reboot

static

Figure 8

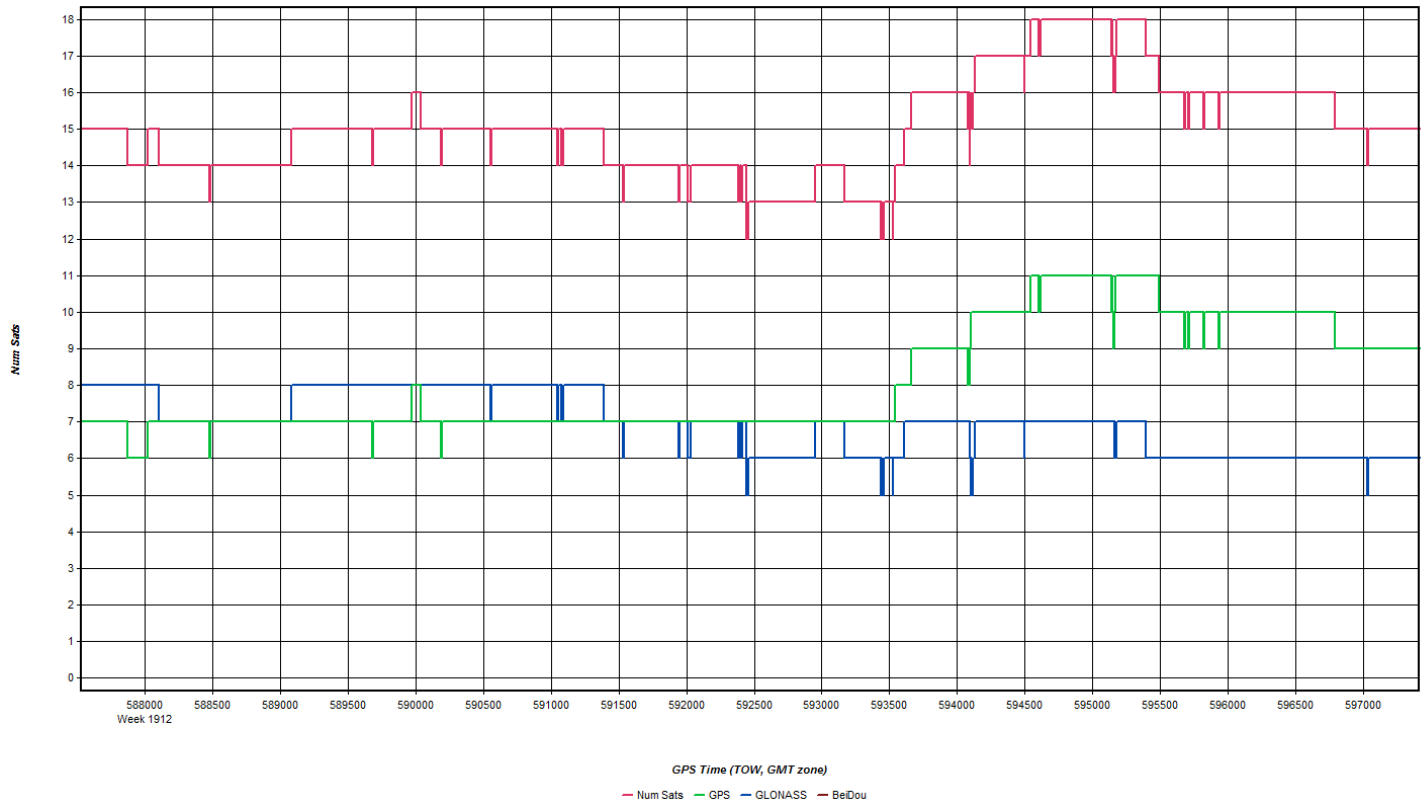
160903-183221 green Swath Lines

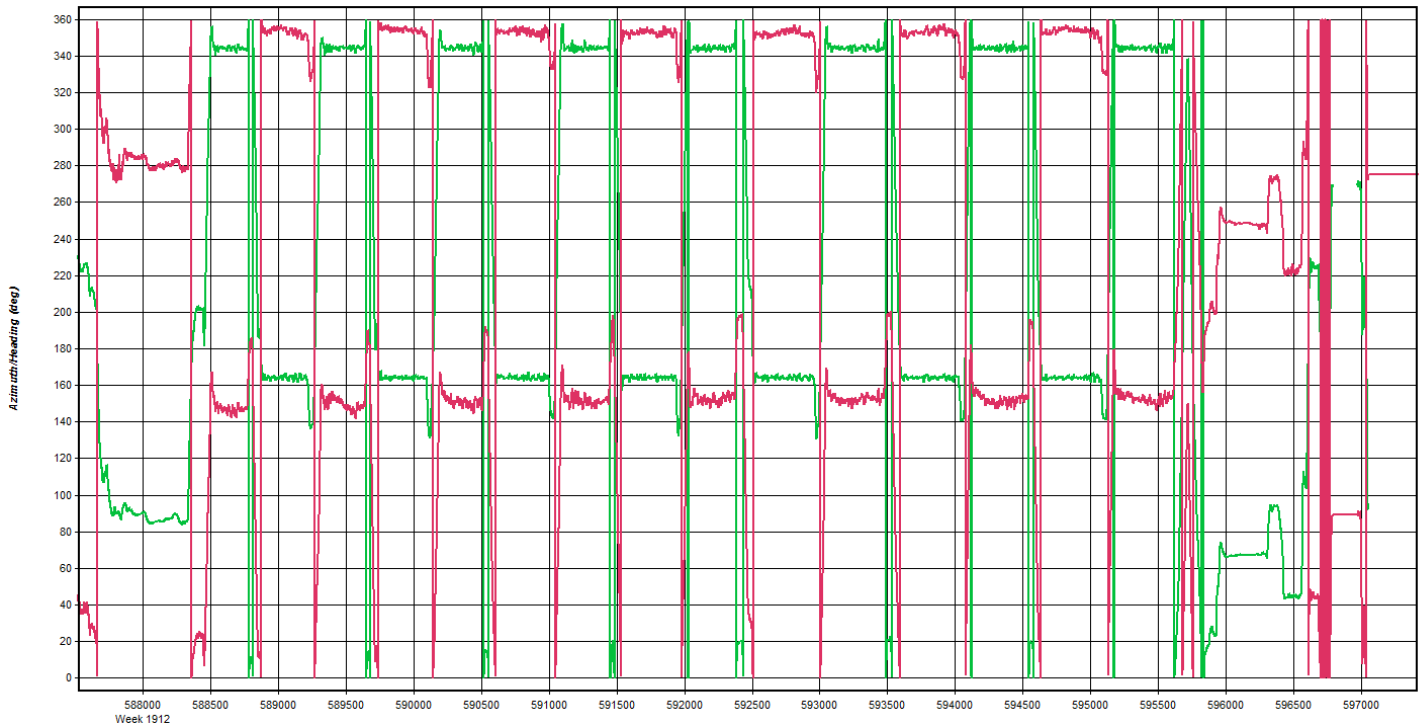
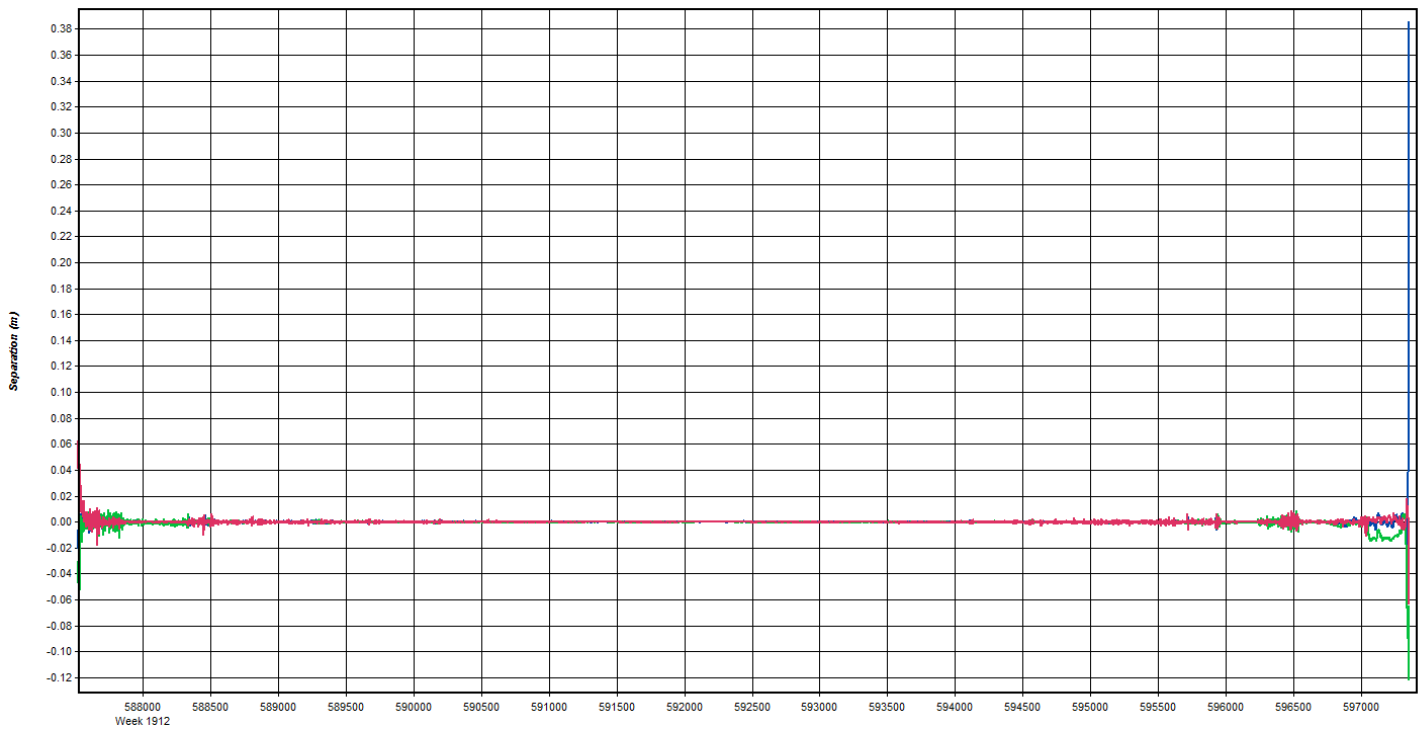
184101 not showing on

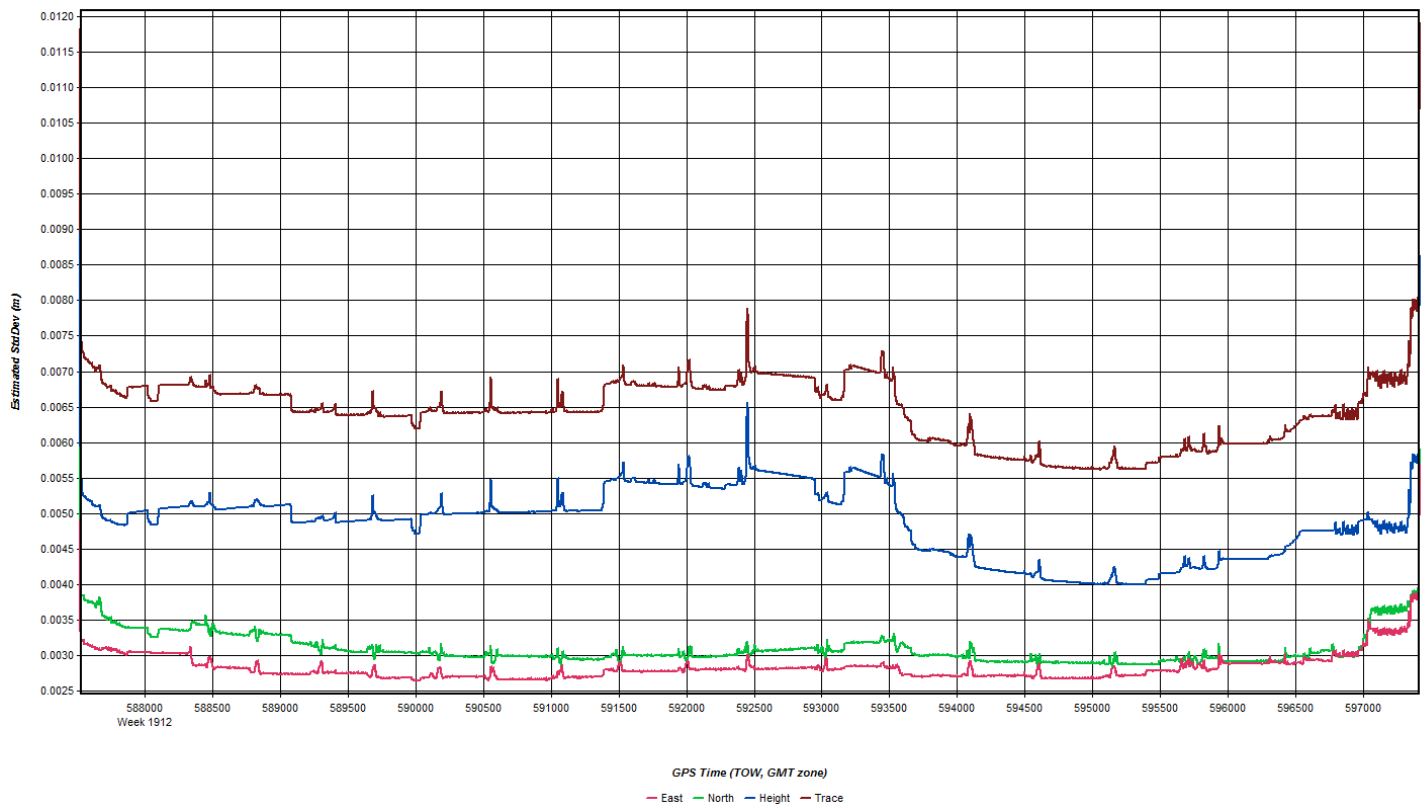
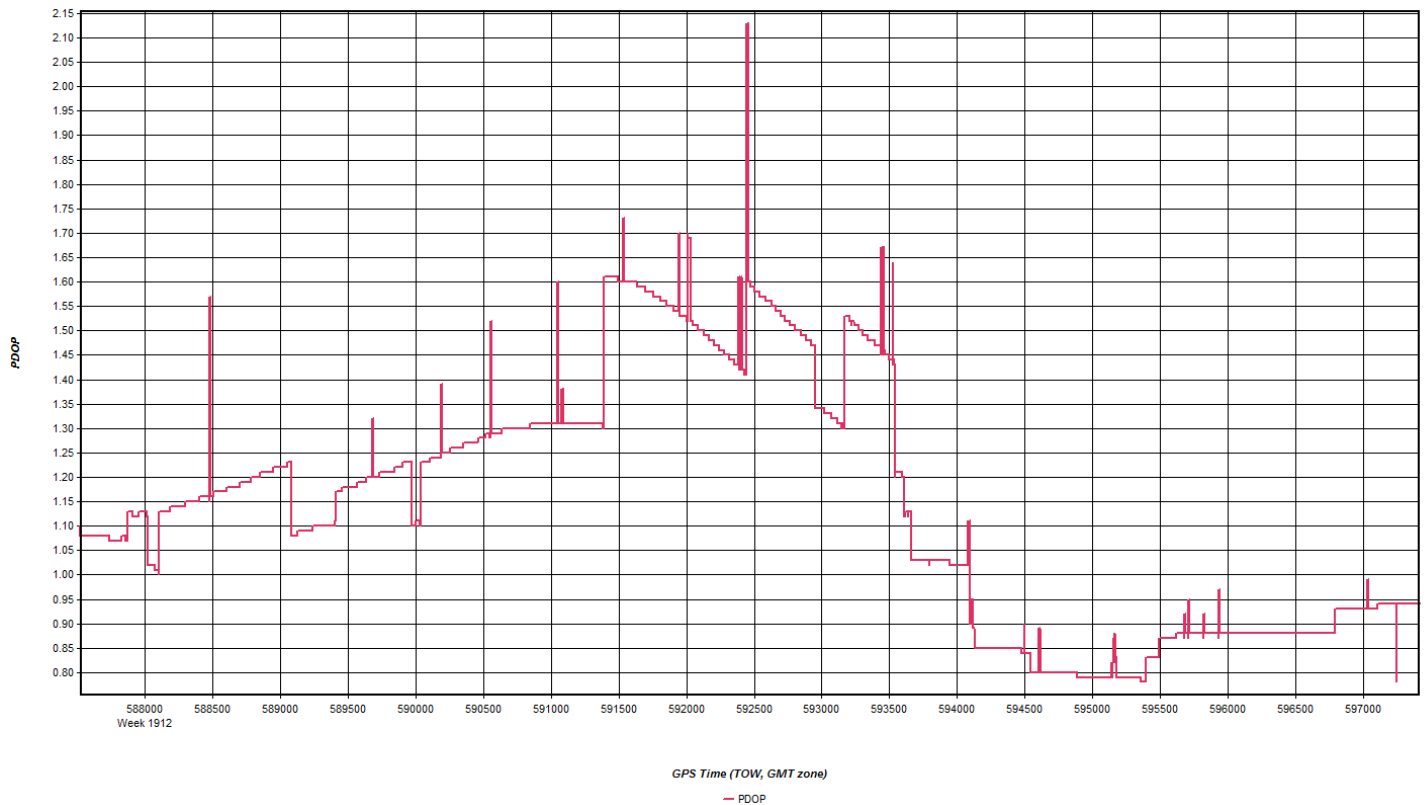
184932 Trac GUI

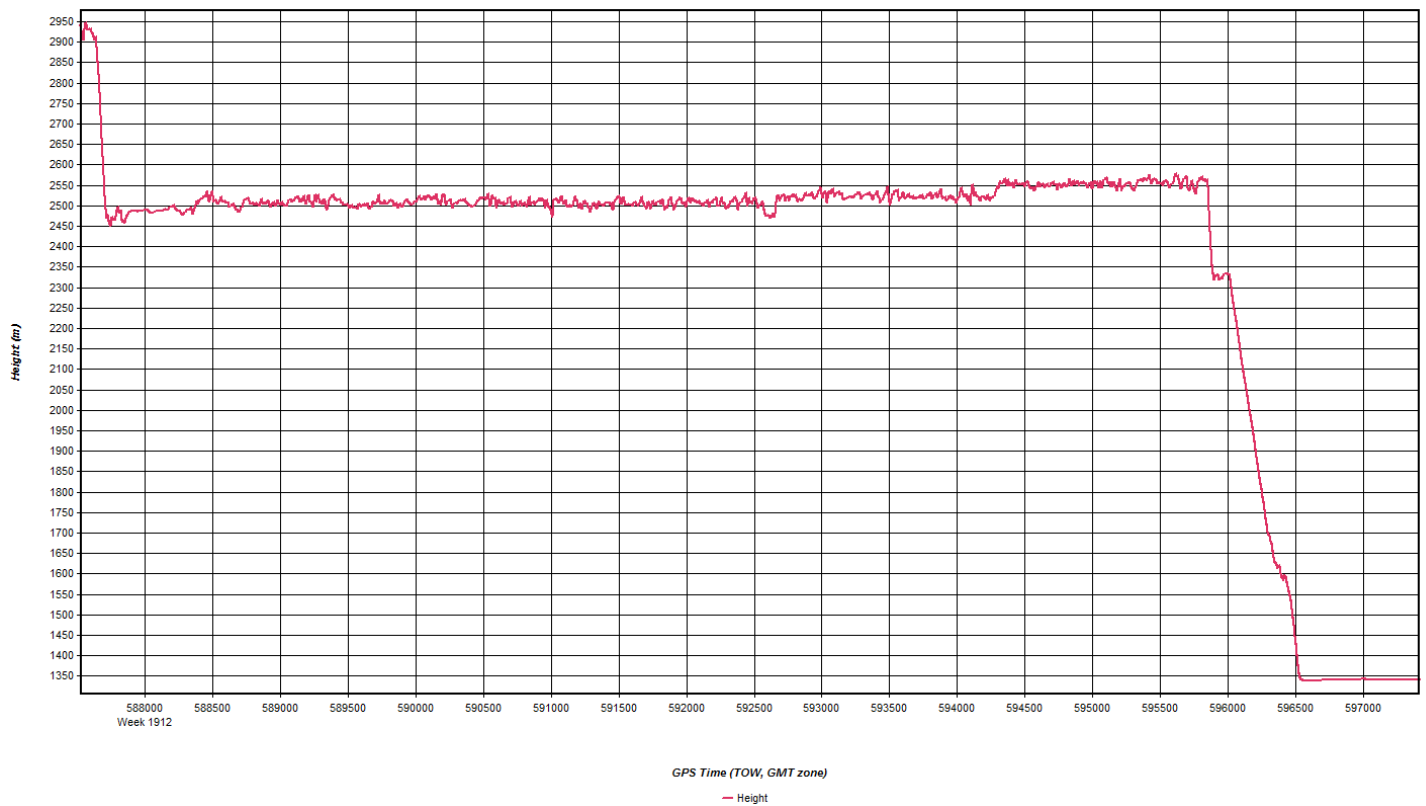
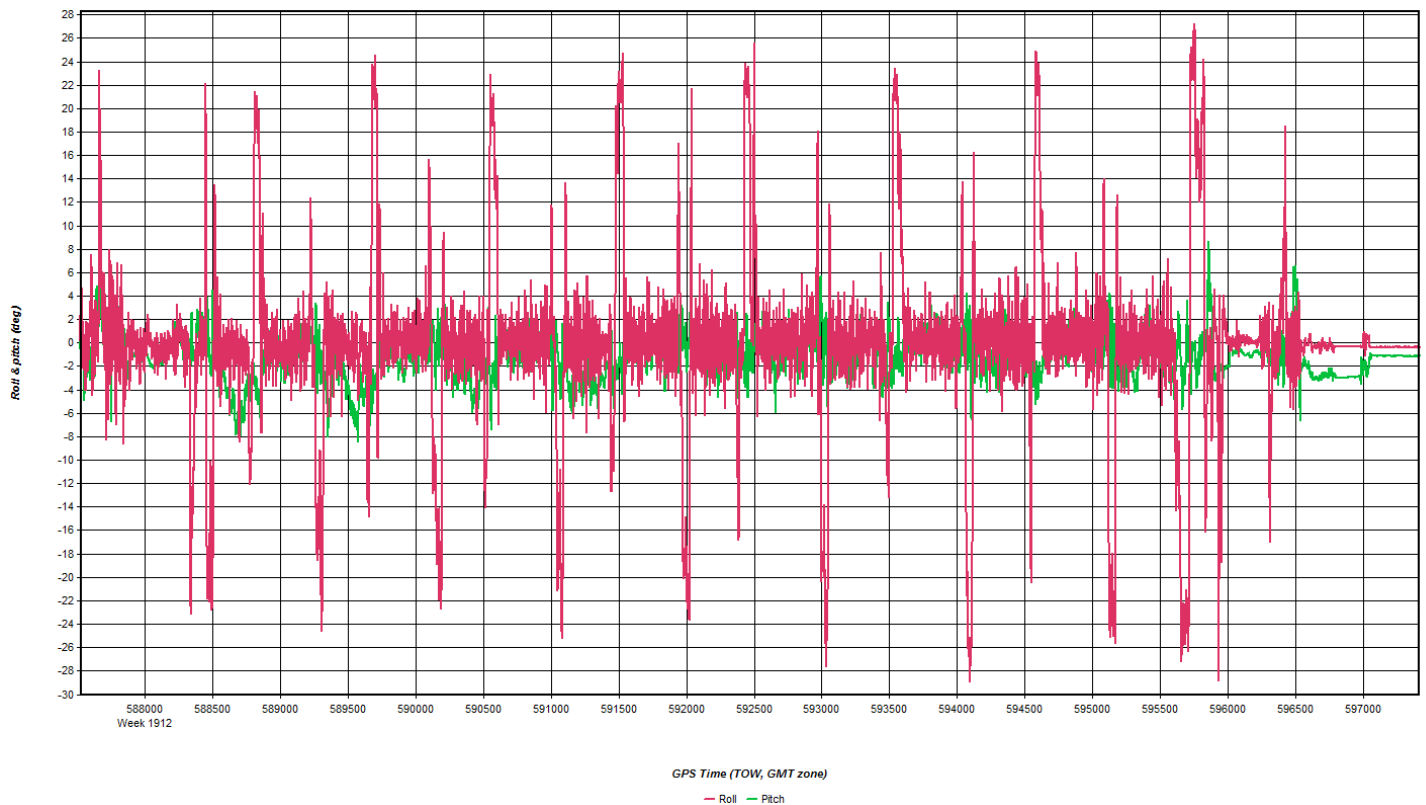
Cross Flight 190205

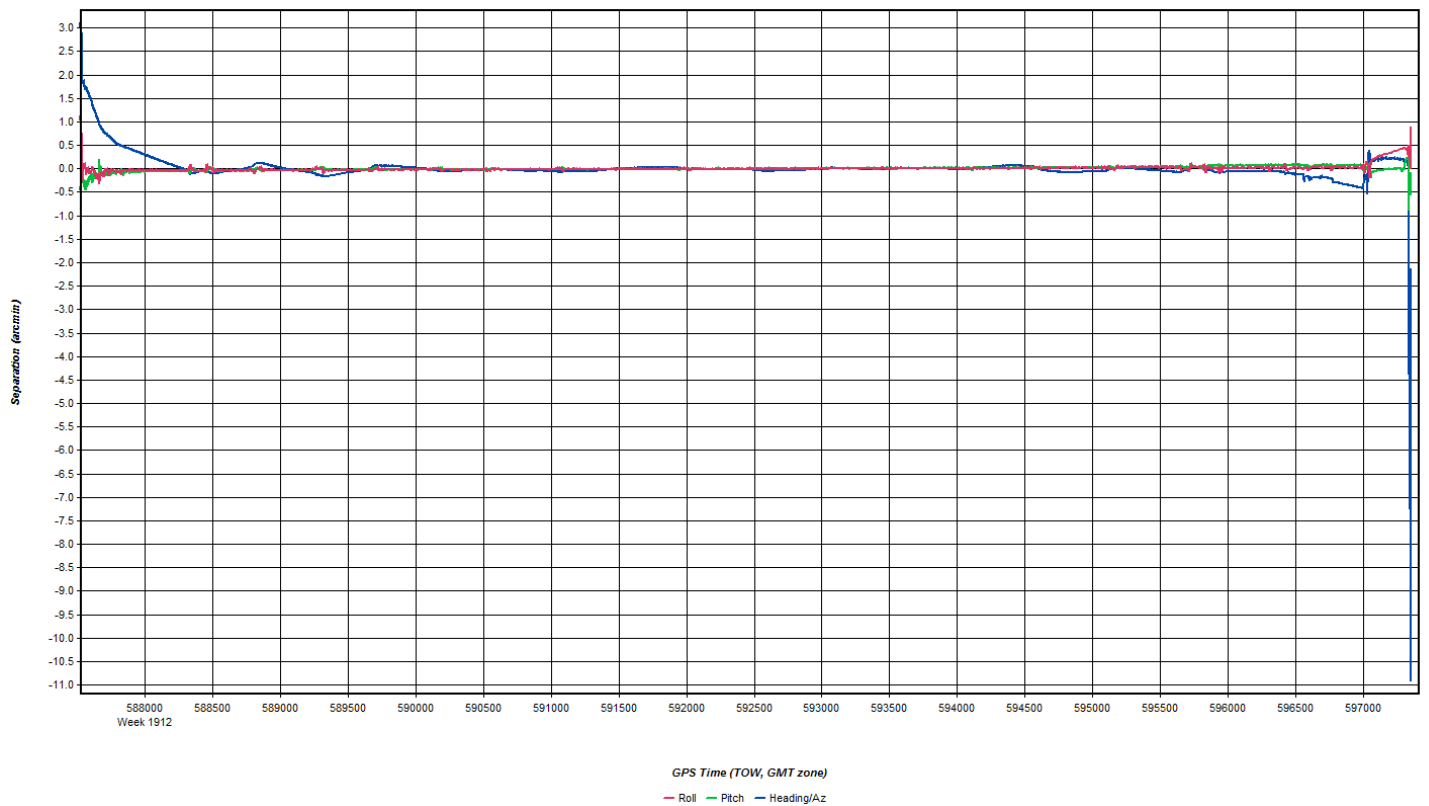
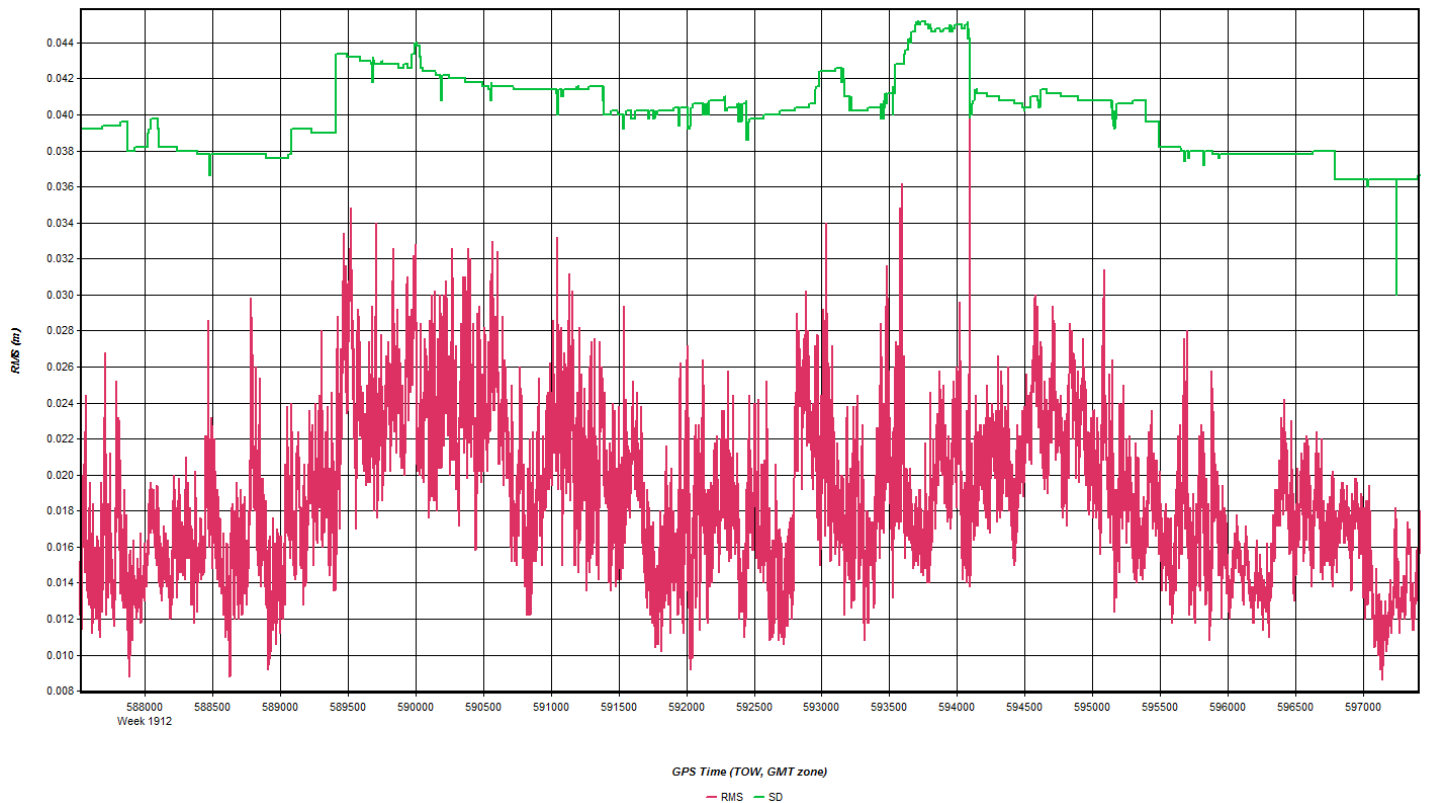
Sep 3, 2016-B (N704MD, SN7161)

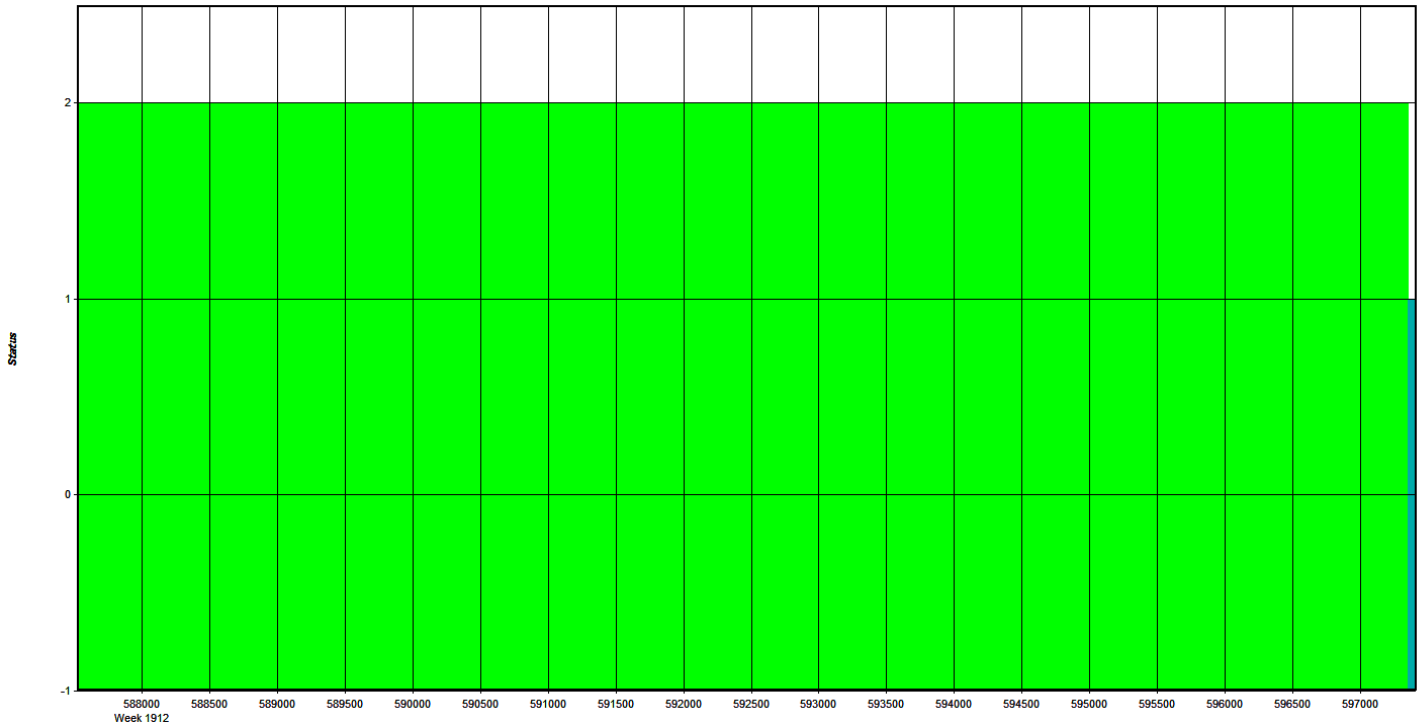












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_01 Name: UTAH16_01 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD247_704MD_CPB\R7_2?

Coordinates
 Latitude: North 40 51 20.49869 Compute from PPP
 Longitude: West 112 43 25.61210 Enter Grid Values
 Ellipsoidal height: 1271.297 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM57971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
1: UTAH16_02 Name: UTAH16_02 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD247_704MD_CPB\R7_7

Coordinates
Latitude: North 40 53 50.80260 Compute from PPP
Longitude: West 112 43 59.98011 Enter Grid Values
Ellipsoidal height: 1267.906 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 2.000 m
ARP to L1 offset: 0.067 m
Applied height: 2.067 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 9/03/2016
Lift: A B C D E Pg 3 of 3

SN7161-090316A
Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email Log daily to flight_log_distribution_list@quantumspatial.com)

Project: Utah Flight Mgmt File: 29083

Alcraft: Iverson Pilot: Wagner Co-Pilot: Tech: Iverson

Dep Apt: Dep Time (Lcl): Arr Apt: Arr Time (Local): (Z): Tot Time Aloft:

CORS: Y / N Sta 1: Flyovers: Y / N If Y, times: Sta 1) Sta 2)

GPS Unit: Y / N Sta 1: Flyovers: Y / N If Y, times: Sta 1) Sta 2)

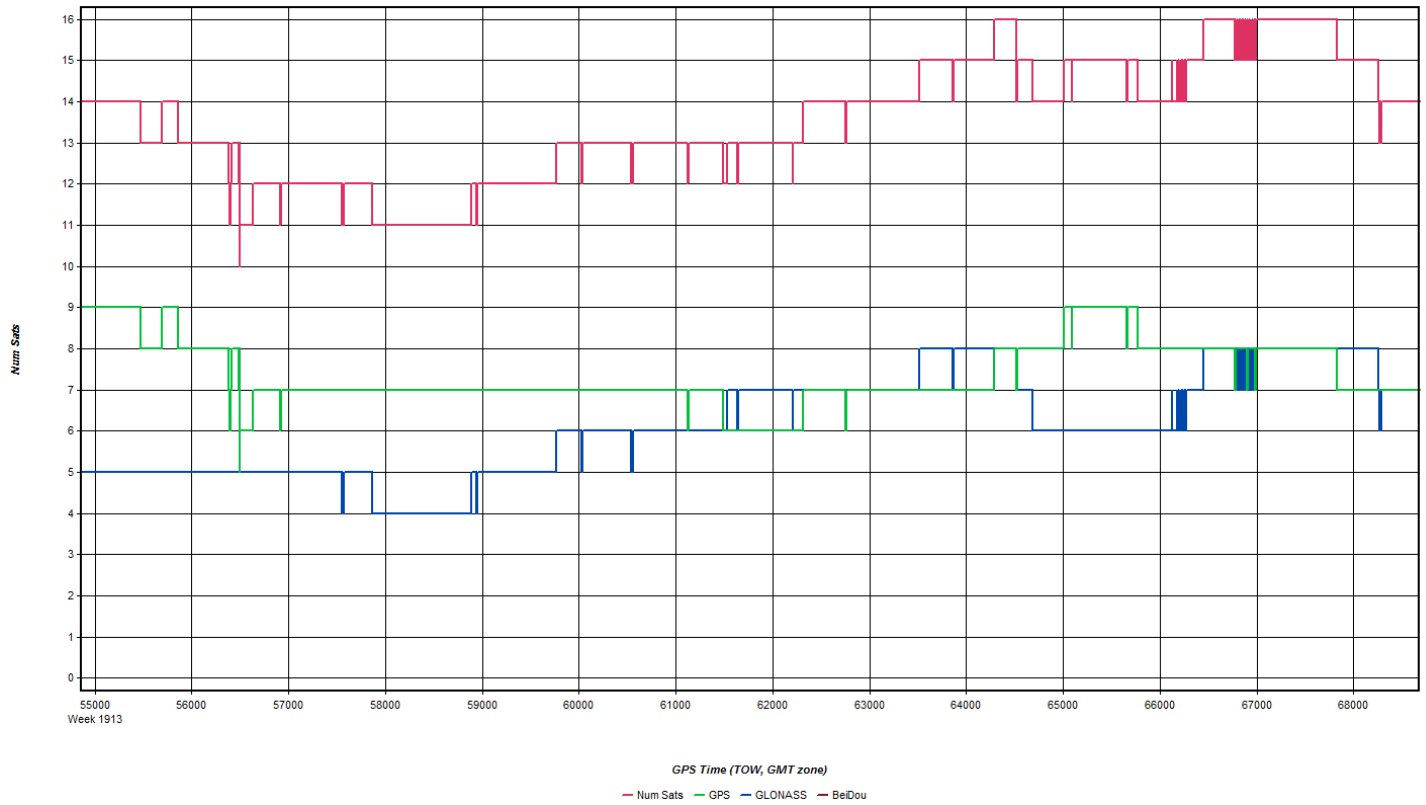
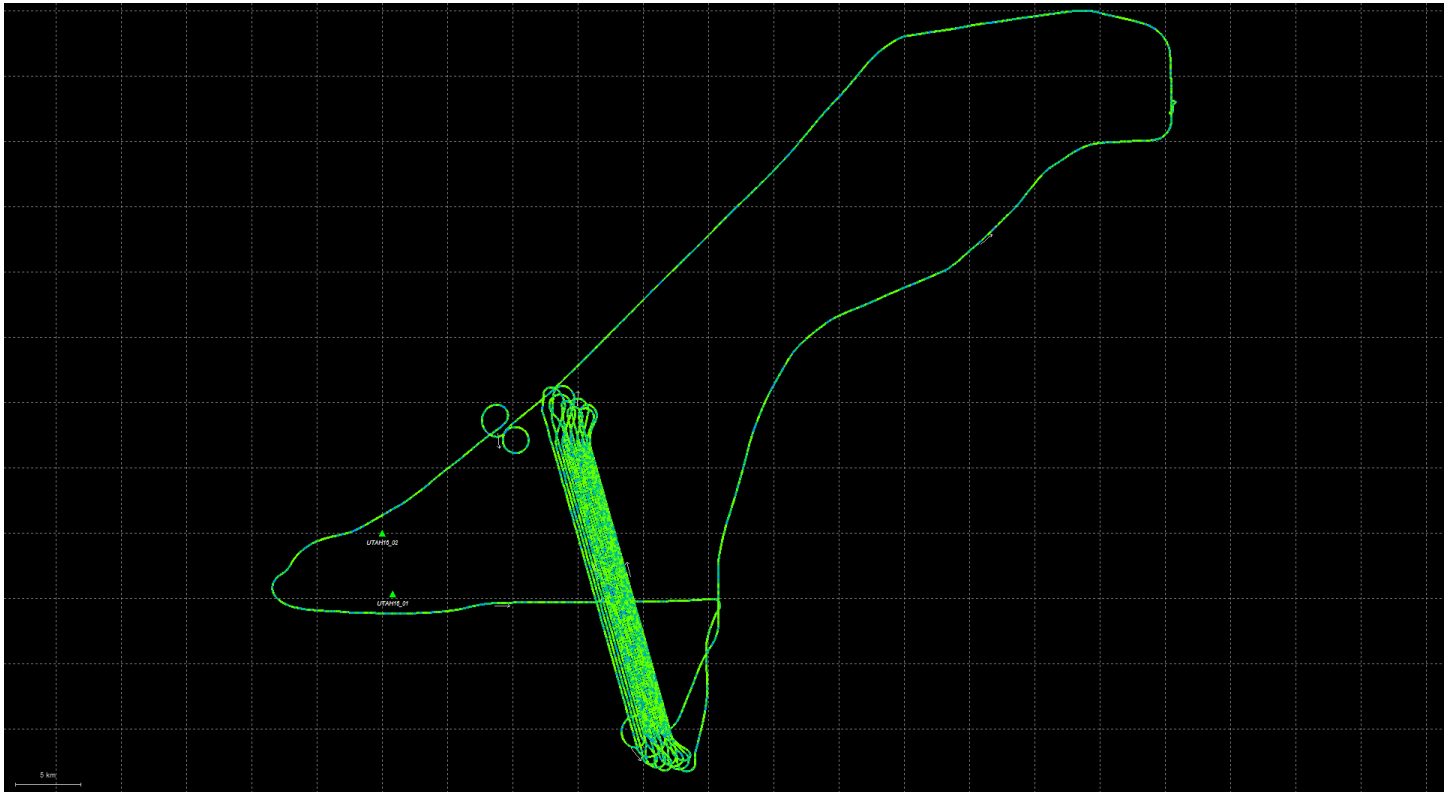
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/sats	GPS Altitude	Crab	Turb (0..1)	Altitude			Max Gdspd	Power	Altimeter begin:			Storage Name/ps	
									Alt AGL	Alt AMSL	Pulses In Air			Avg Terr Ht	Avg Pt Spacing	PPSM		beg GB
4400	E	1916	1925	104	17/1.1				191640									
652W									FMSL - Utah - GSL - W - QLI - SN7161									
1093	N	1928	1932	107	18/1.1				160903 - 192839									
1092	S	1935	1939	97	16/1.2				193508									
1091	N	1942	1947	109	17/1.2				194223									
1090	S	1949	1954	96	17/1.2				194936									
1089	N	1958	2001	107	17/1.2				195656									
1088	S	2004	2009	101	17/1.2				200414									
1087	N	2011	2017	103	16/1.3				201143									
1086	S	2019	2025	101	16/1.2				201948									
1085	N	2027	2033	105	17/1.2				202717									
1084	S	2035	2041	103	17/1.1				202717									
1083	N	2044	2051	102	19/1				203559									
1082	S	2053	2100	108	18/1				204448									
1081	N	2102	2108	111	18/1.1				205351									
1080	S	2111	2117	106	19/1.1				210209									
1079	N	2119	2126	100	19/1				211189									
		2127	2130						211958									
									figure 8									

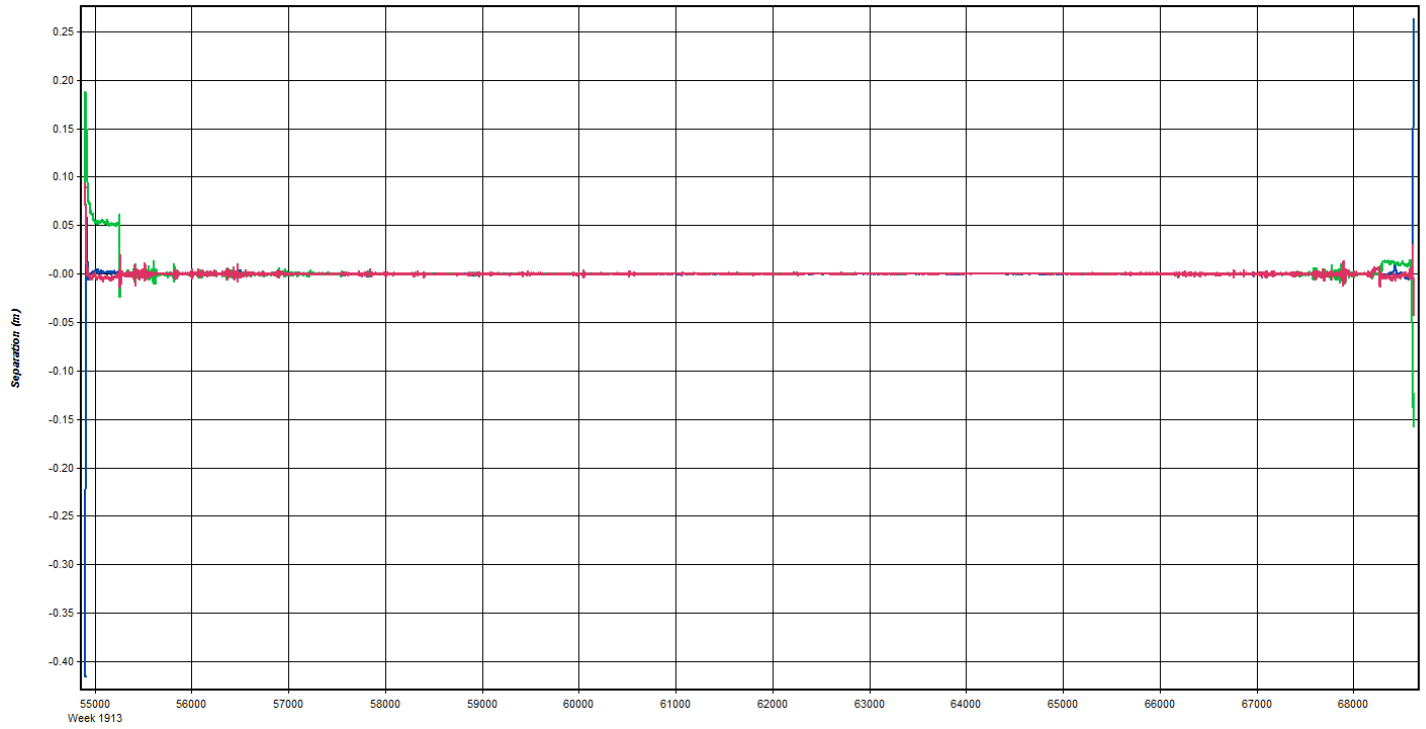
FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

Total Proj Lines: 30 Lines Remain: 1542 Online Time: 1293.5 Hobbs Mob Time: Notes: static 2155

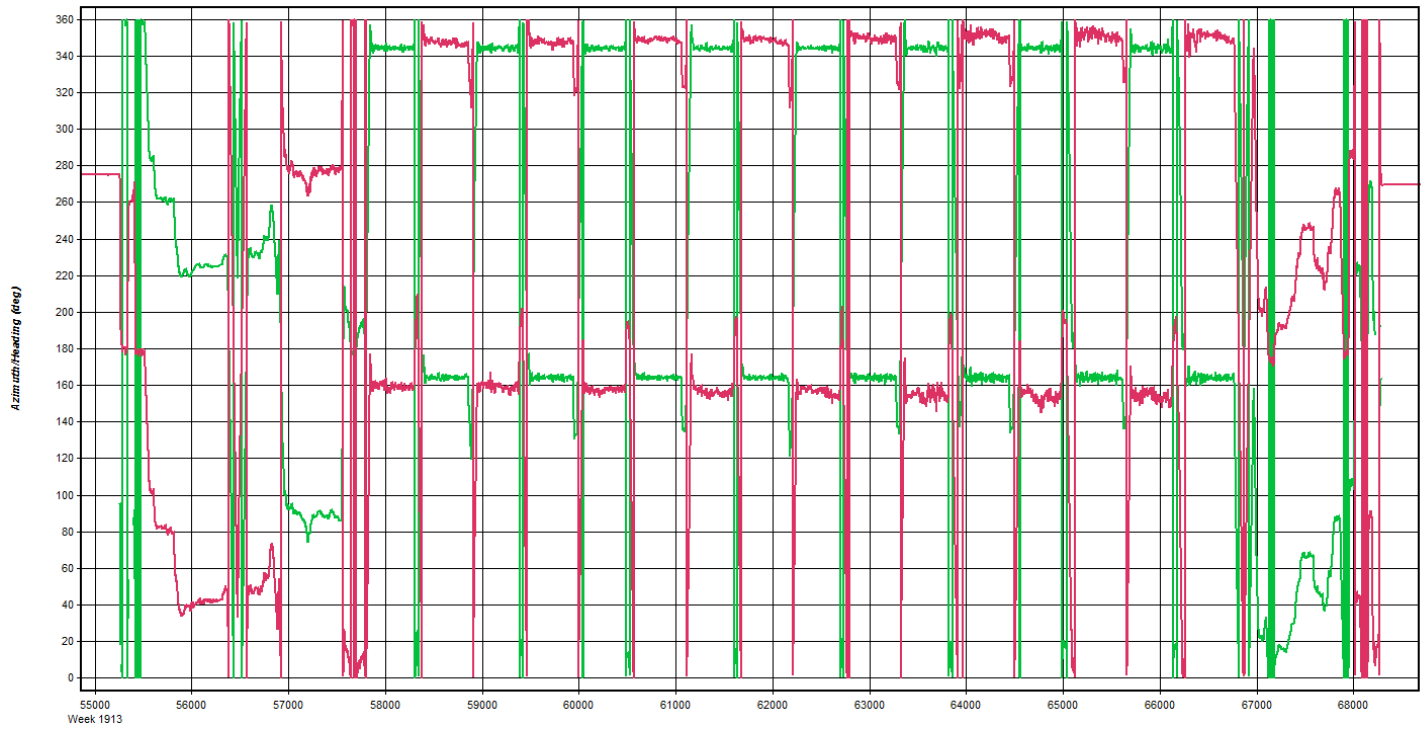
Land OGD 2142 1542 1293.5 Hobbs static 2155

Sep 4, 2016-A (N704MD, SN7161)

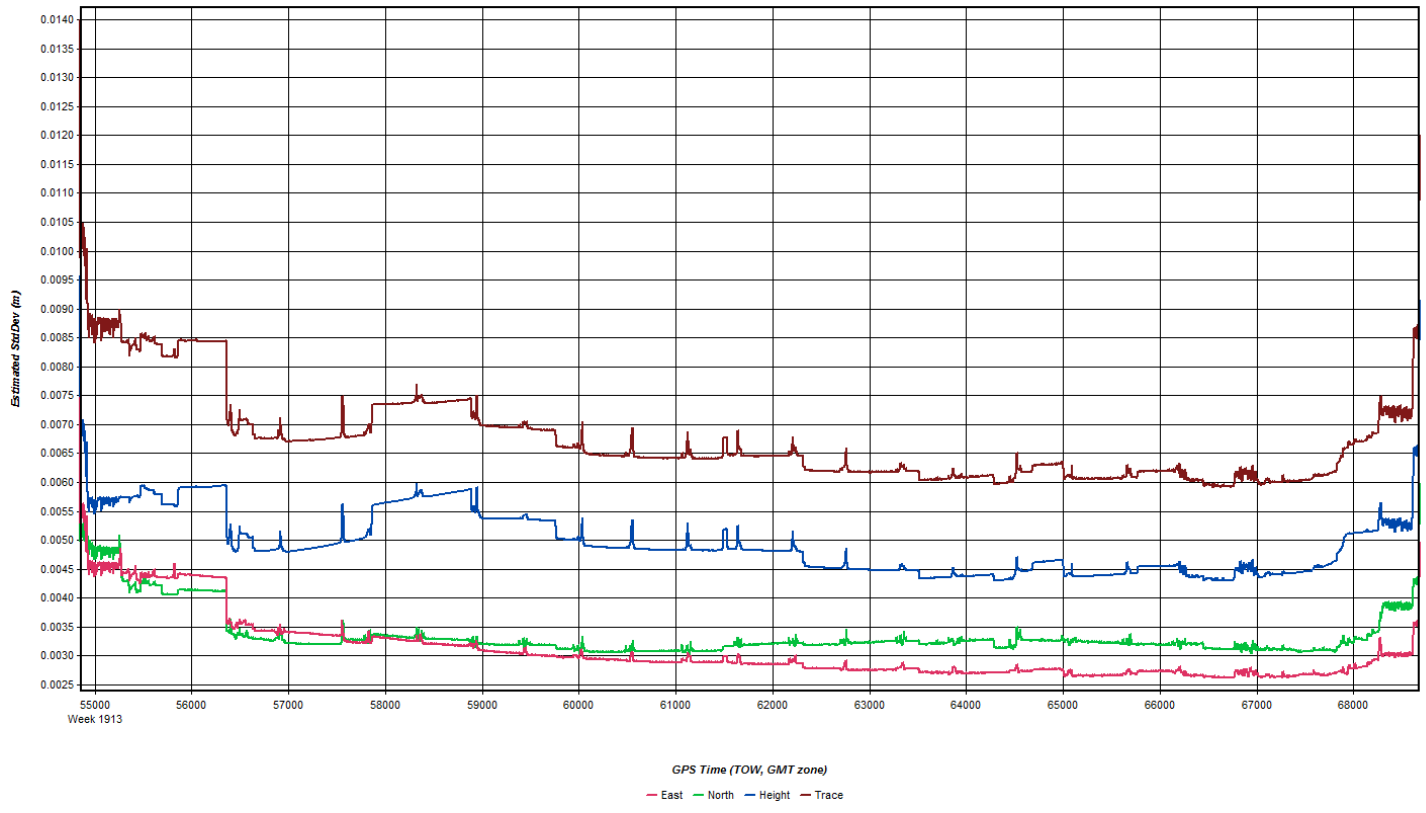
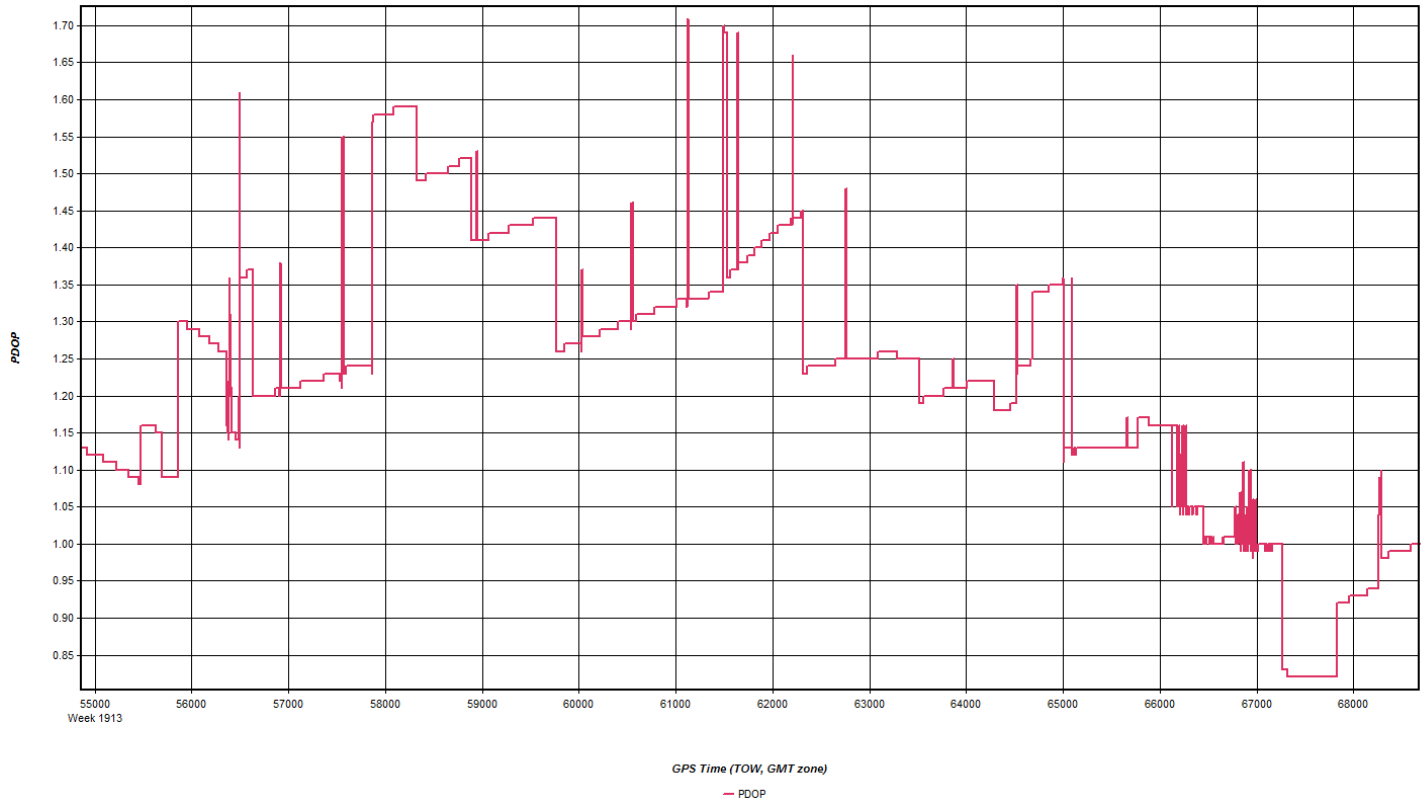


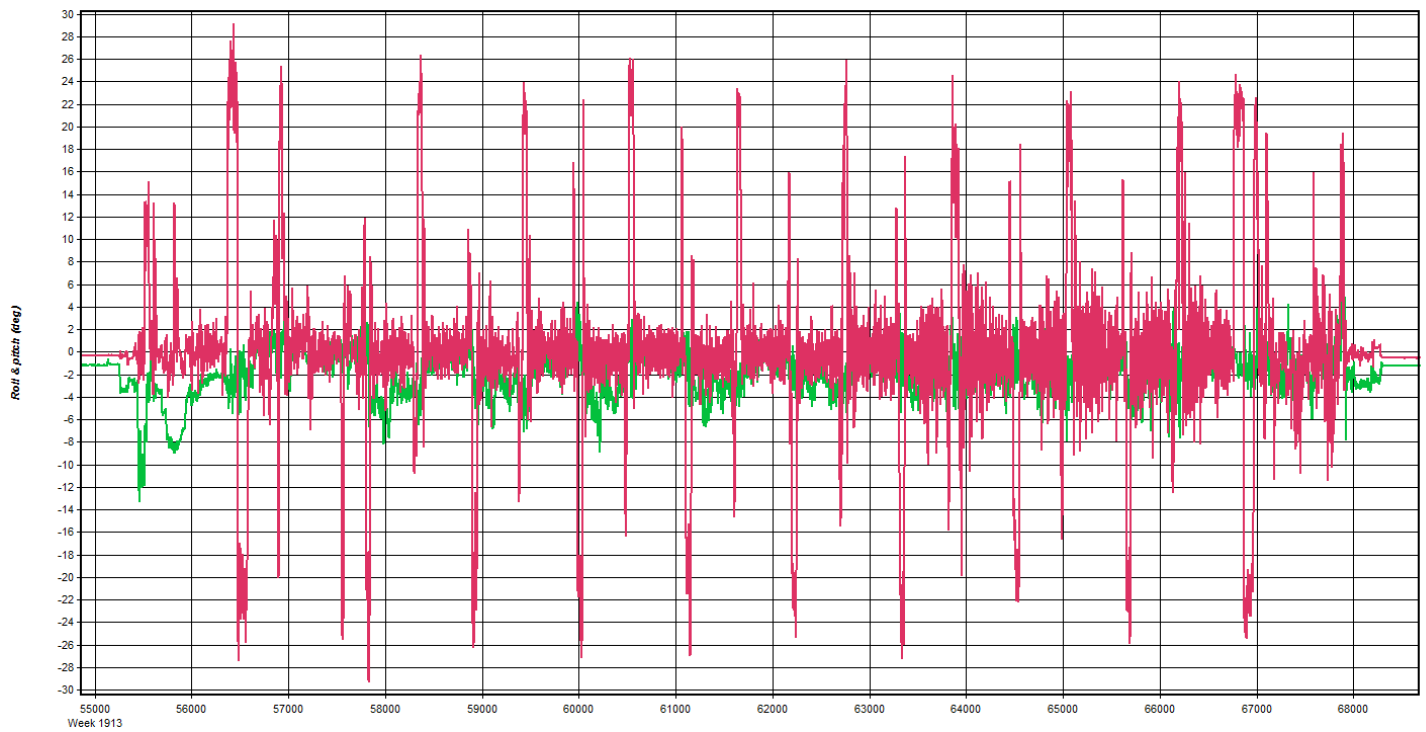


GPS Time (TOW, GMT zone)
— East — North — Up



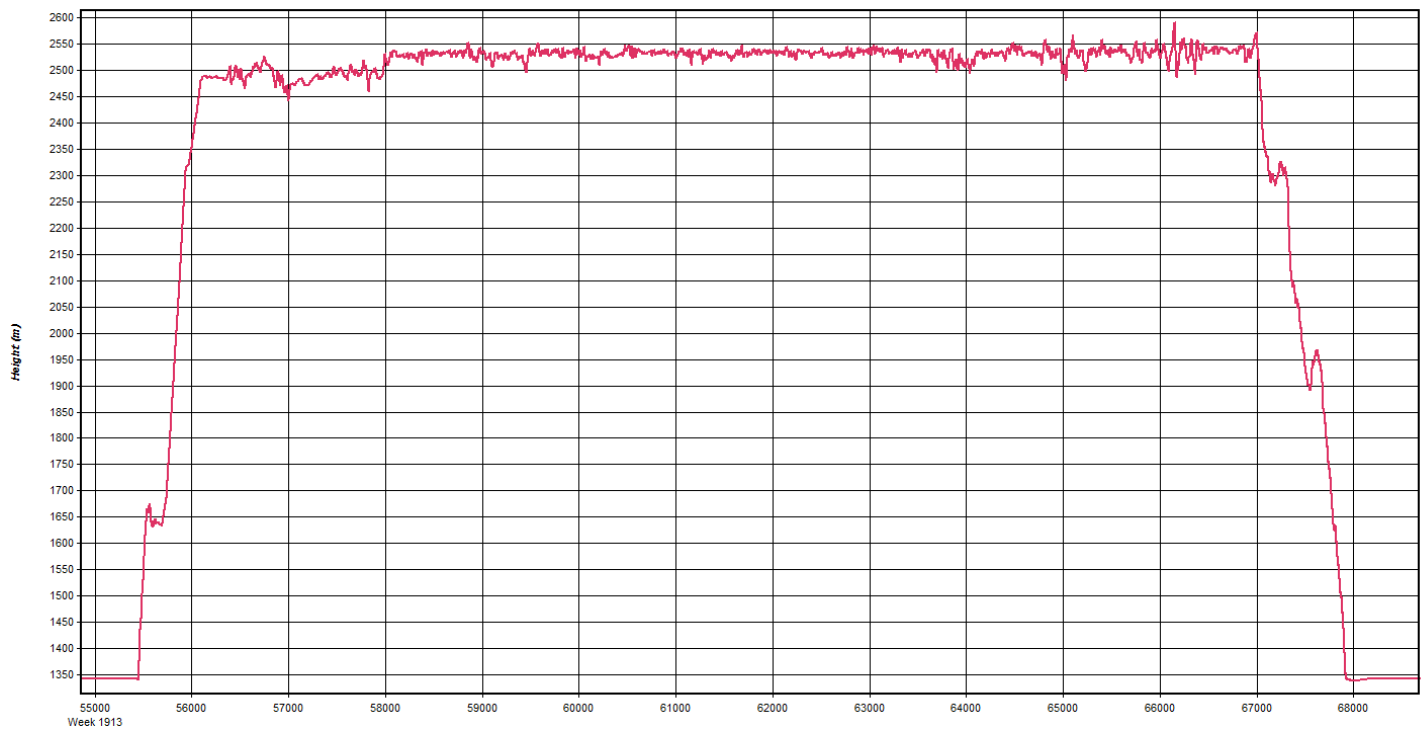
GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG





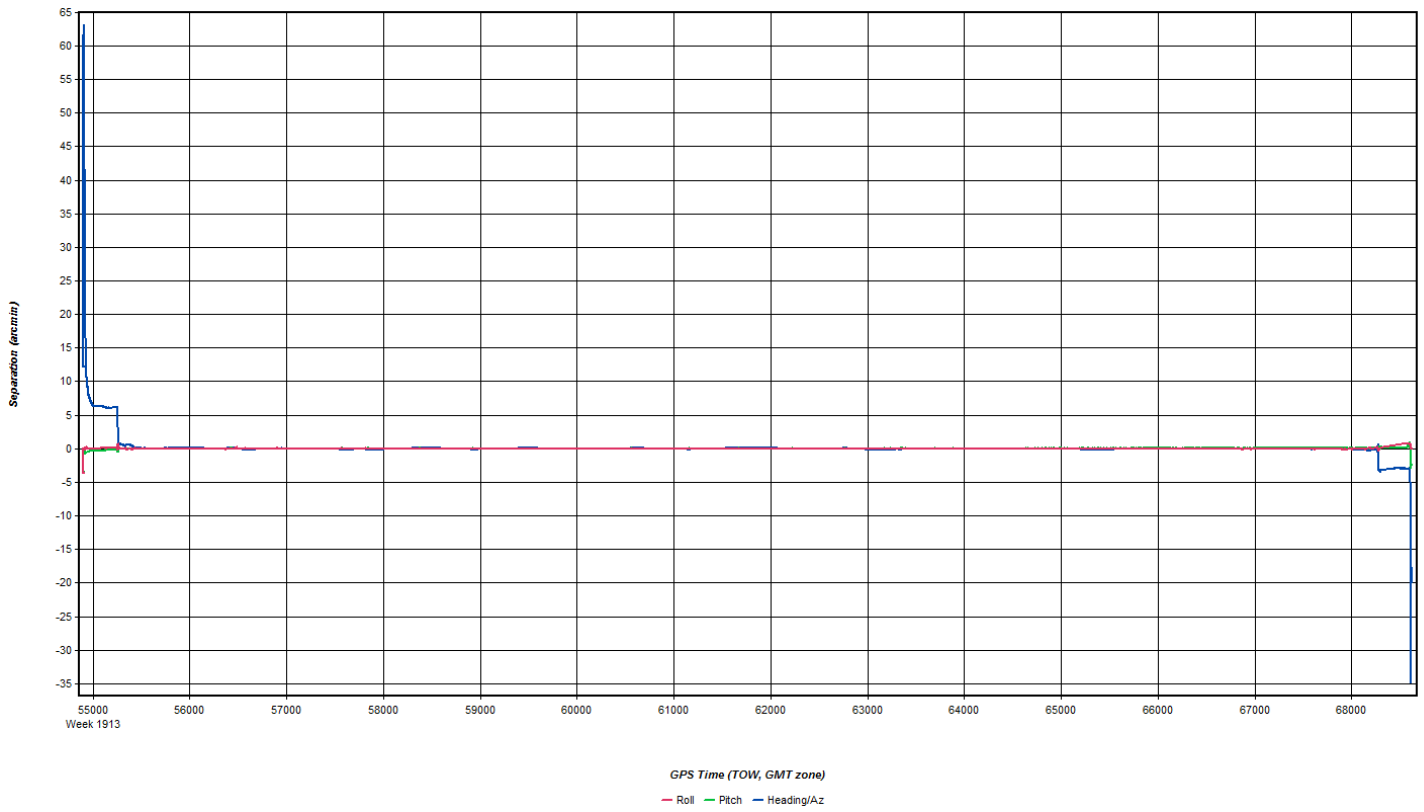
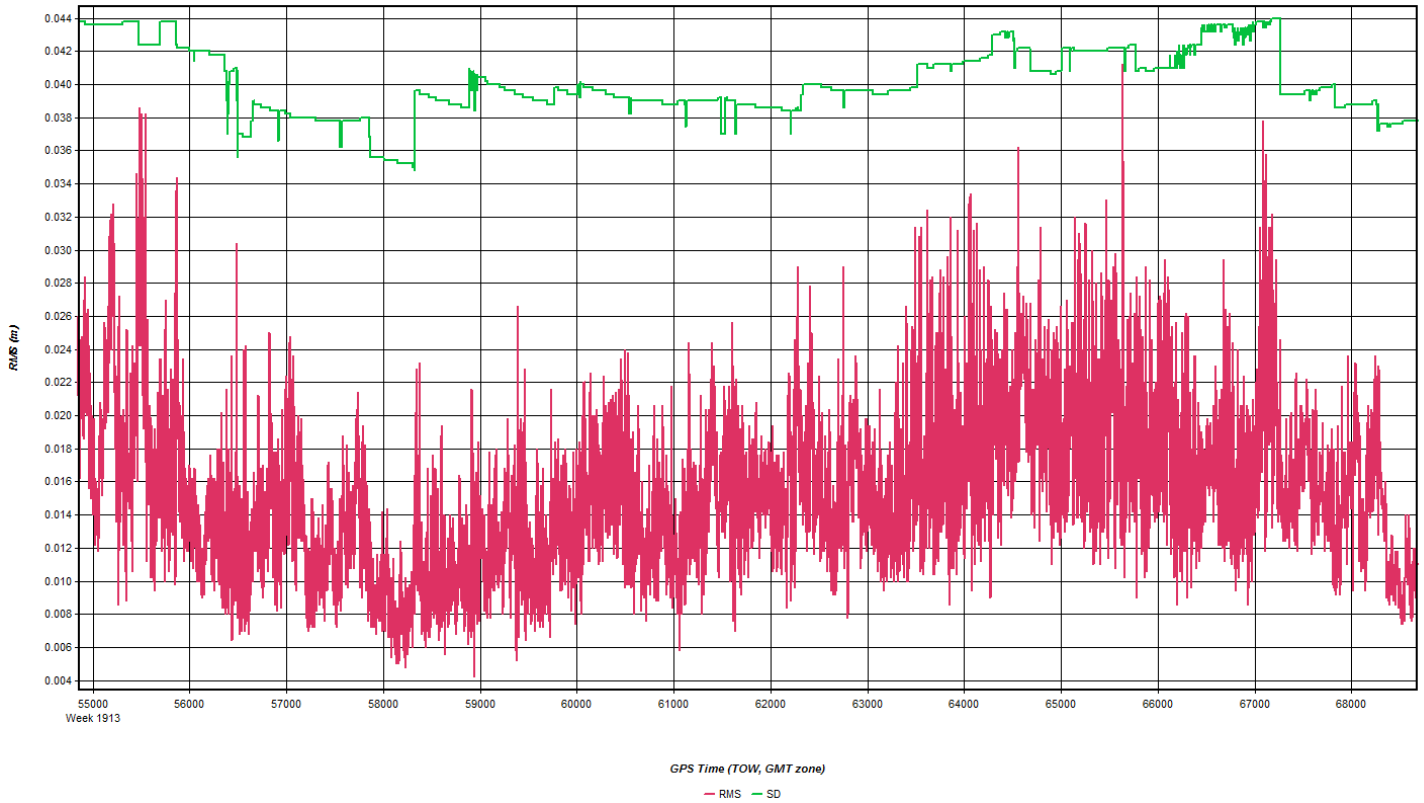
GPS Time (TOW, GMT zone)

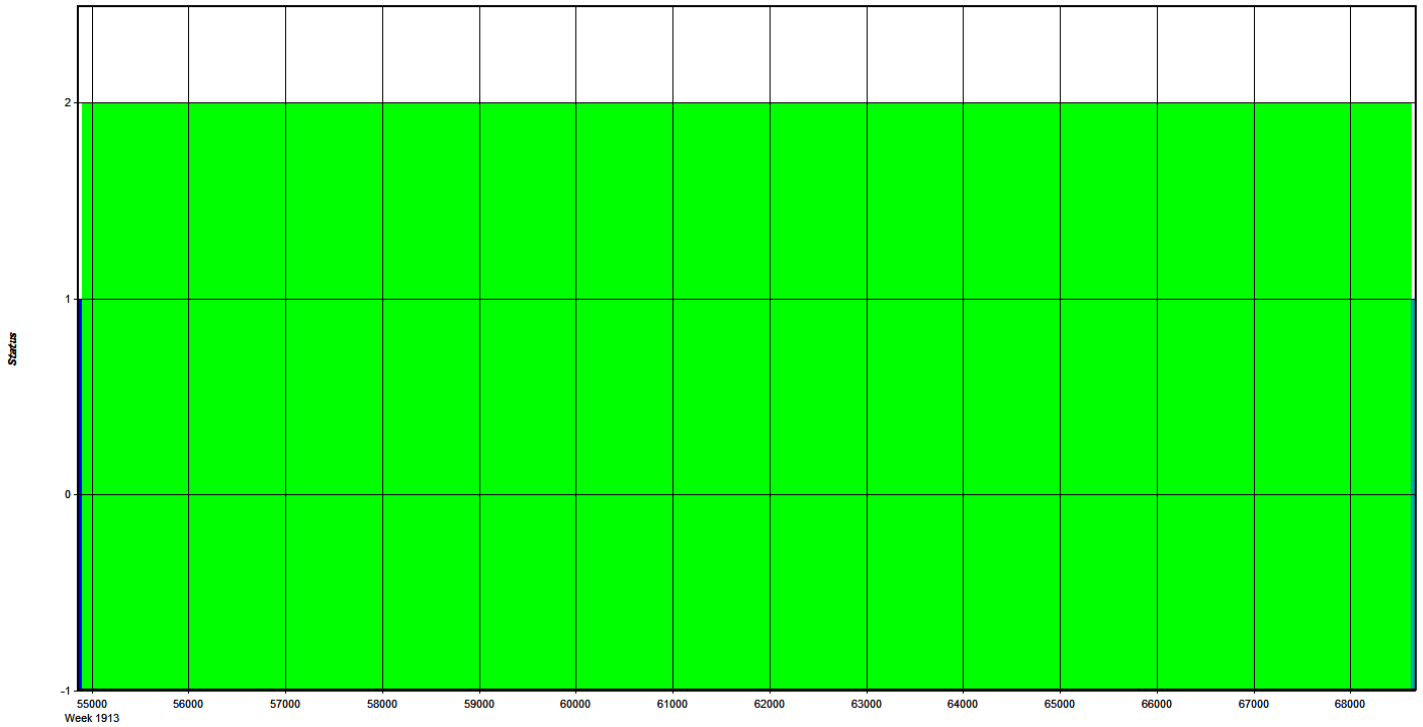
— Roll — Pitch



GPS Time (TOW, GMT zone)

— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_01 Name: UTAH16_01 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD248_704MD_SS\R7_257

Coordinates
 Latitude: North 40 51 20.49869 Compute from PPP
 Longitude: West 112 43 25.61210 Enter Grid Values
 Ellipsoidal height: 1271.297 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
1: UTAH16_02 Name: UTAH16_02 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD248_704MD_SS\R7_76C

Coordinates
Latitude: North 40 53 50.80260 Compute from PPP
Longitude: West 112 43 59.98011 Enter Grid Values
Ellipsoidal height: 1267.906 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 9/4/16
Lift: A B C D E Pg 1 of 2

SN7161-090416A
Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email Log daily to flight_Log_distribution_list@quantumspatial.com)

Project: Utah
Flight Mgmt File: 20160904-150946
Tech: Iverson

Aircraft: 704MB Begin Hobbs: 1293.5 End Hobbs: 1297.0 Total: 3.5 Pilot: Wagner Co-Pilot: Iverson

Dep Apt: 06D Dep Time (Lcl): 0923 (Z): 1523 Arr Apt: 06D Arr Time (Local): 1252 (Z): 1852 Tot Time Aloft: 3:29

CORS: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta1) Sta2)

GPS Unit: Y / N Sta 1: Utah16-01 Sta 2: UTAH16-02 Flyovers: Y / N If Y, times: Sta1) Sta2)

Gd Temp beg:	°C	End:	°C	OAT beg:	°C	End:	°C	Altimeter begin:	end:	Alt	Avg Terr	Max	Avg Pt	Storage
Type	Serial #	Scan	Alt	Alt	Alt	Pulses	Pulses	Gdspd	Power	AVG Pt	Spacing	PPSM	End	Name#
FOV	40	53Hz	AGL	AMSL	In Air	In Air	Rate	Power	60%	Spacing	PPSM	End	End	End
LIDAR	AL570	40	7161	7161	1 PPIA	225kHz	225kHz	60%	60%					
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/s/s	GPS Altitude	Crab	Turb	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc					
		1515	1523						1293.5 Hobbs					
		1539	1543						static					
		1544	1545						Take OFF 06D 0923					
UL001	W	1544	1545						Figure 8					
UL003	E	1549	1558						cross flight					
GSLW									test strip UL001					
1078	N	1604	1611	105	13/1.4				cross flight over ground points 154945					
1077	S	1613	1620	105	14/1.2				FMSL - Utah - GSL - W - QLA - SN7161					
1076	N	1622	1629	111	13/1.3				160904 - 160441 AGL + 150 feet					
1075	S	1631	1638	107	15/1.2				1601349					
1074	N	1640	1647	105	15/1.2				1620904 - 162246					
1073	S	1650	1657	99	16/1.2				163147					
1072	N	1659	1706	105	16/1.2				164056					
1071	S	1708	1715	99	17/1.1				165014					
1070	N	1717	1724	112	16/1.2				165937					
1069	S	1727	1734	98	15/1.3				170838					
1068	N	1736	1743	107	16/1.2				171745					
										AGL + 150 feet				
										turbulence & cross winds				

Total Proj Lines: 1018 / USB30FD / Ordnance / UTM12
Lines Remain: 1018 / Ordnance / UTM12
Online Time: 2.8 Mob Time: 1.7 Notes:

Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email log daily to flight_log_distribution_list@quantumspatial.com)

Date: 9/14/2016
Lift: A B C D E Pg 2 of 2

Project: Utah
Flight Mgmt File: 20160904-150946
Tech: Iveson

Proj #: 29083
Pilot: Wagner
Co-Pilot: Iveson

Aircraft: 704MP
End Hobbs: 29083
Total: 29083
Arr Time (Local): [Z]
Arr Apt: [Z]
Tot Time Aloft: [Z]

Dep Apt: [Z]
Dep Time (Lcl): [Z]
Sta 2: [Z]
Sta 2: [Z]
Flyovers: Y / N If Y, times: Sta 1
Flyovers: Y / N If Y, times: Sta 1

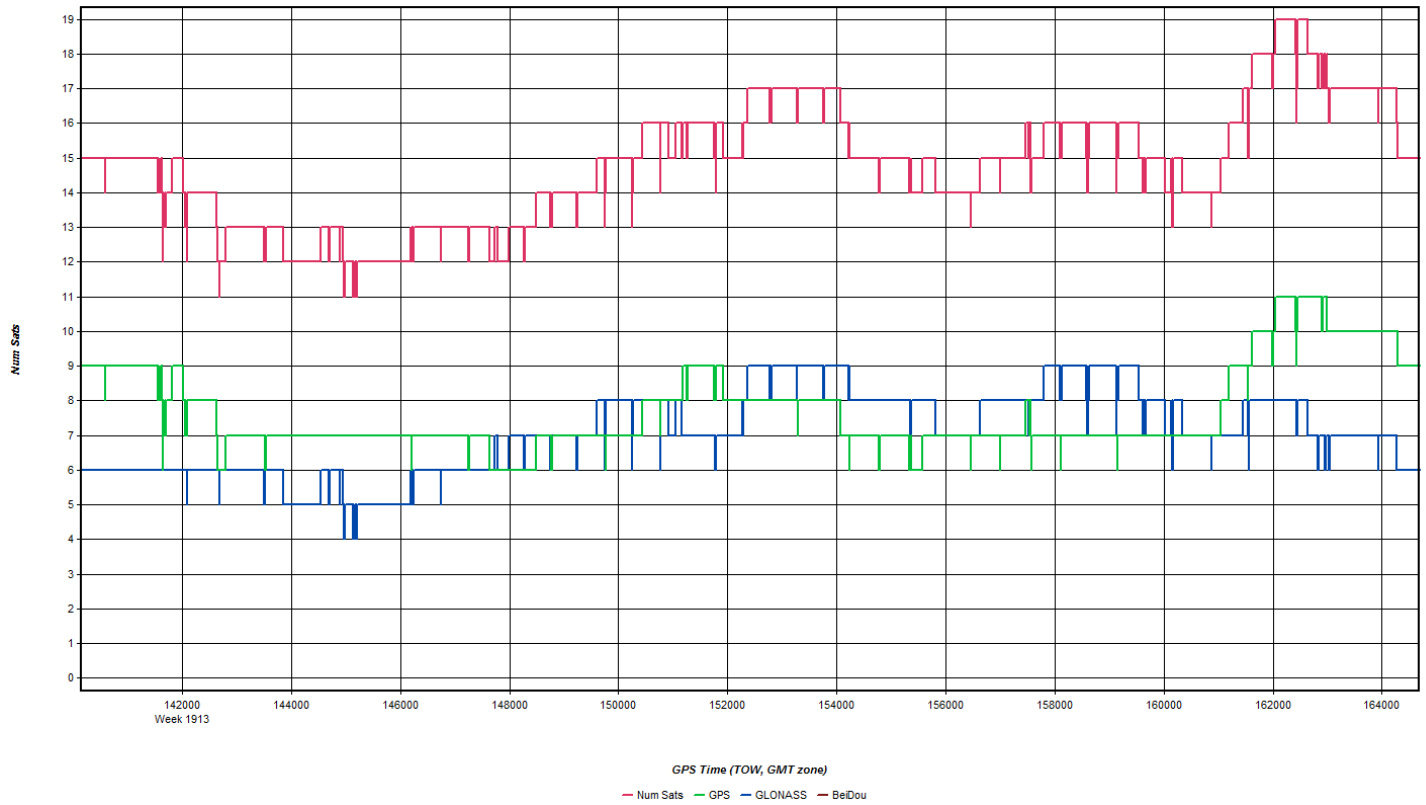
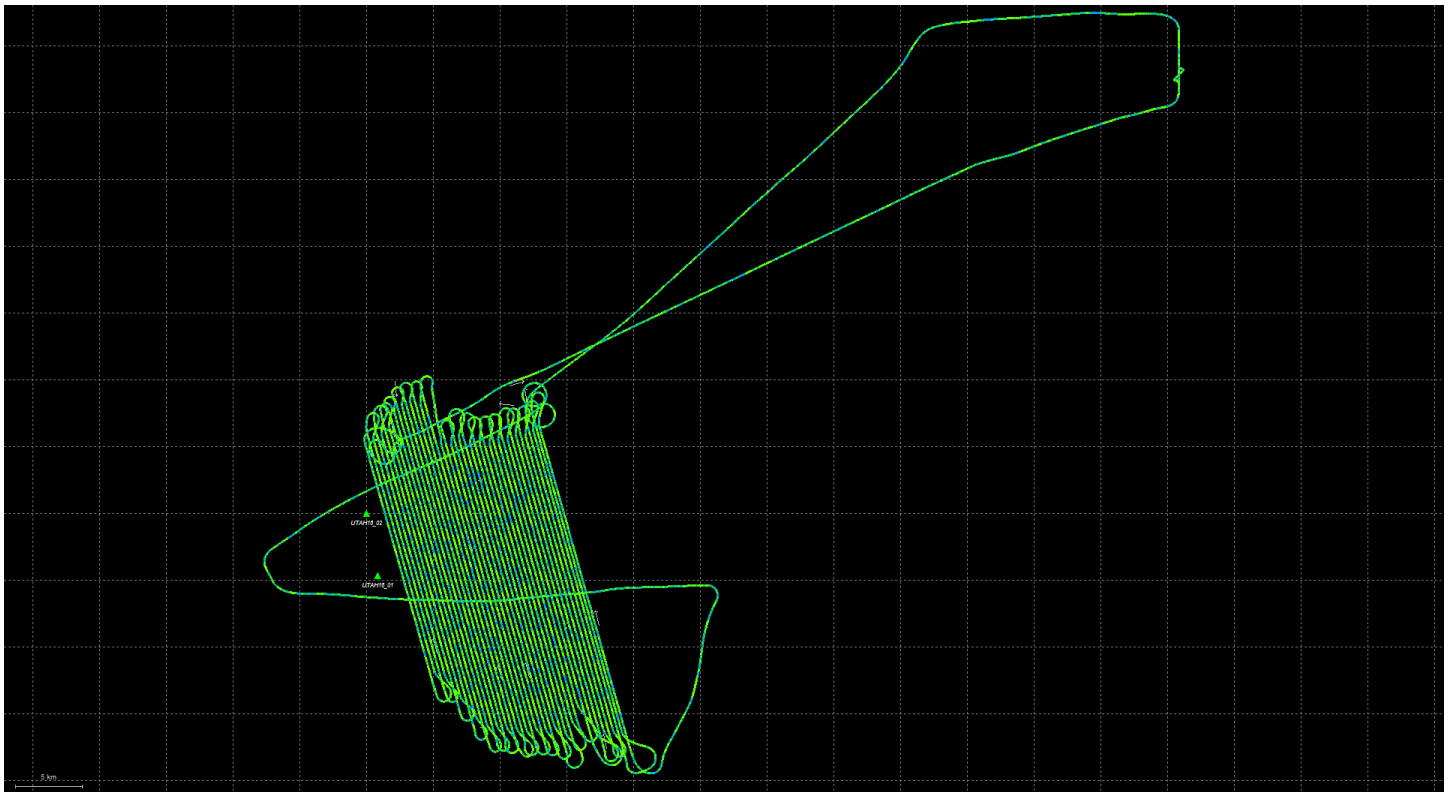
Gd Temp beg: °C End: °C OAT beg: °C End: °C Altimeter begin: end:
Type ALS70 Serial # 7161 Alt AMSL Max Gdspd Avg Pt Spacing
FOV 40 Scan Freq 53 Hz MpiA Y 10 Pulses In Air 1 P: A Power 60% PPSM

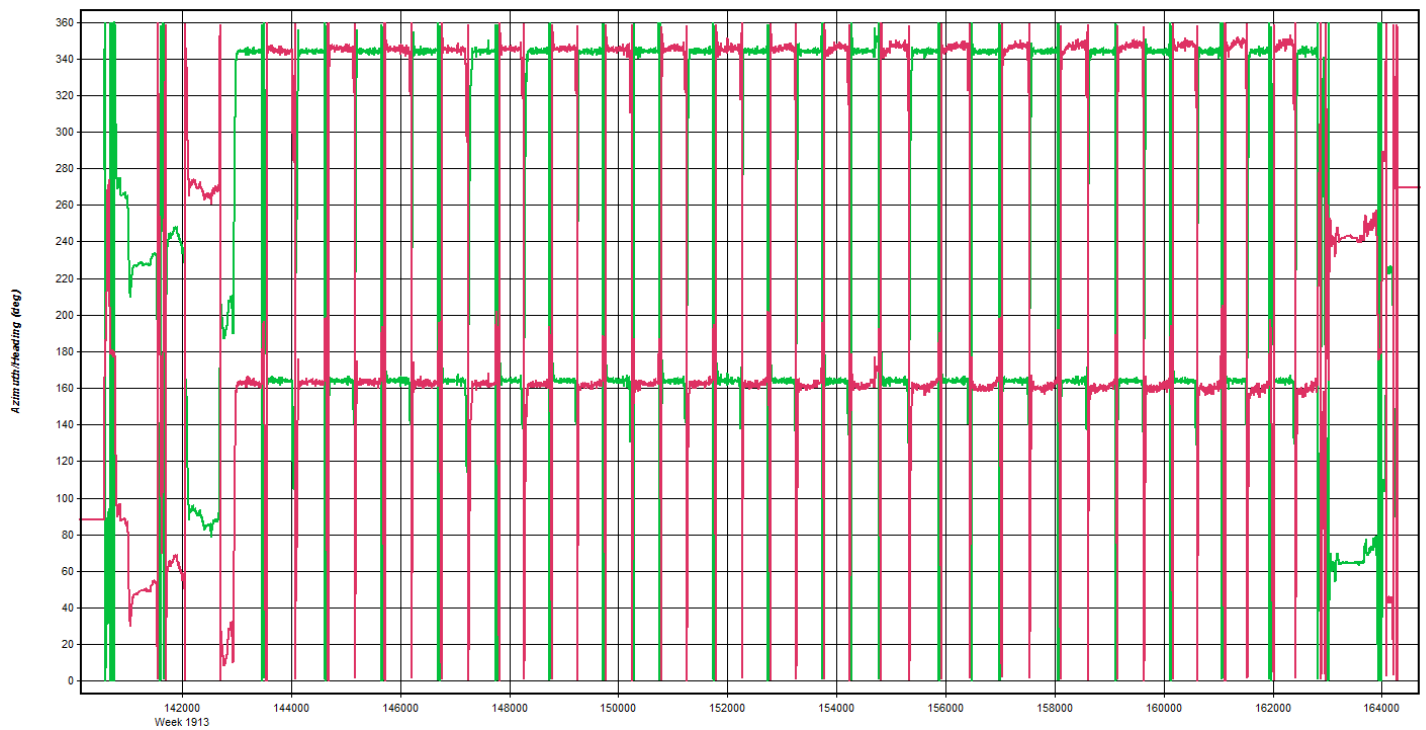
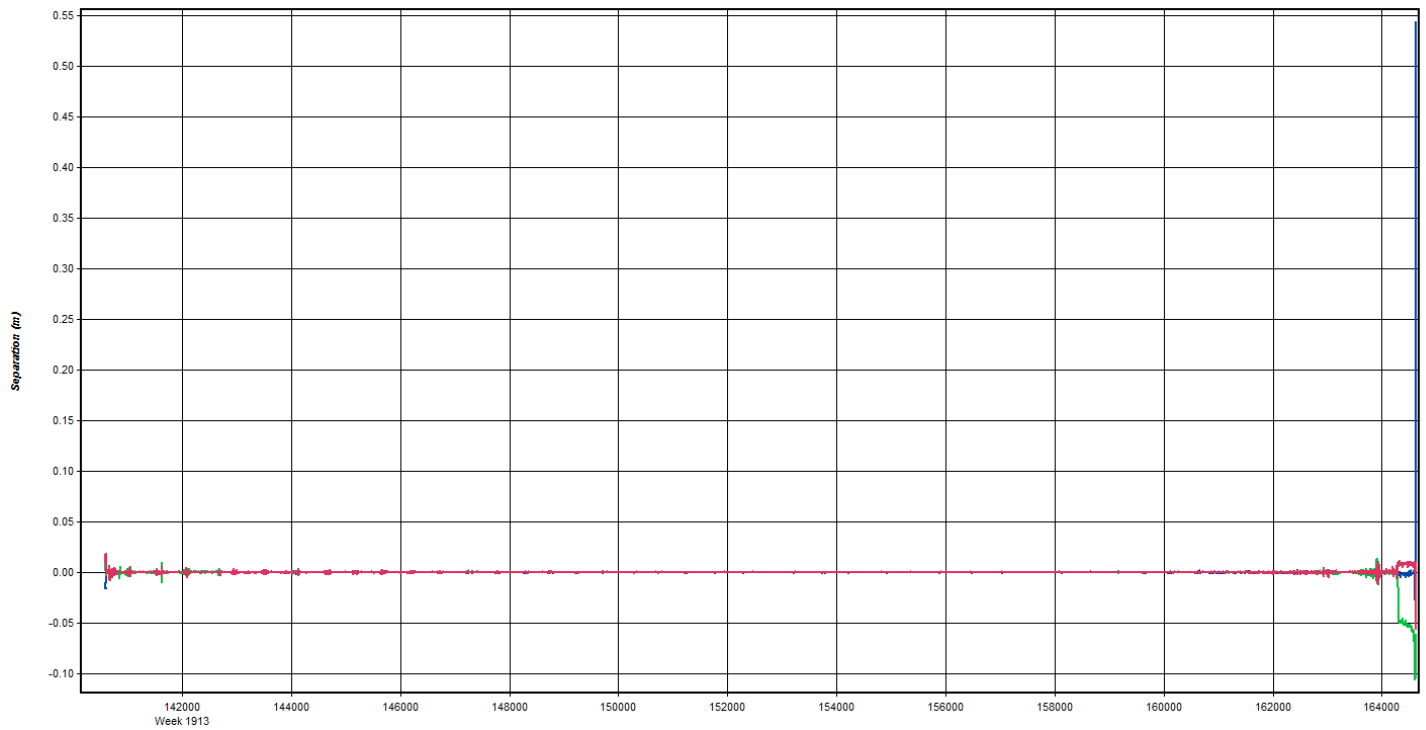
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PDOP/#sats	GPS Altitude	Crab	Turb (0..*)	Notes
1067	S	1746	1754	96	17/13	1711.3			turbulence cross winds ↑
1066	N	1755	1802	106	17/11				turbulence ↑
1065	S	1805	1813	94	17/12				turbulence
1064	N	1815	1821	112	17/12				turbulence
1063	S	1825	1832	90	17/12				turbulence AGL + 150 feet ↓
		1833	1836						figure 8
		1852							Land OGD
		1903							static 1297.0 Hobbs

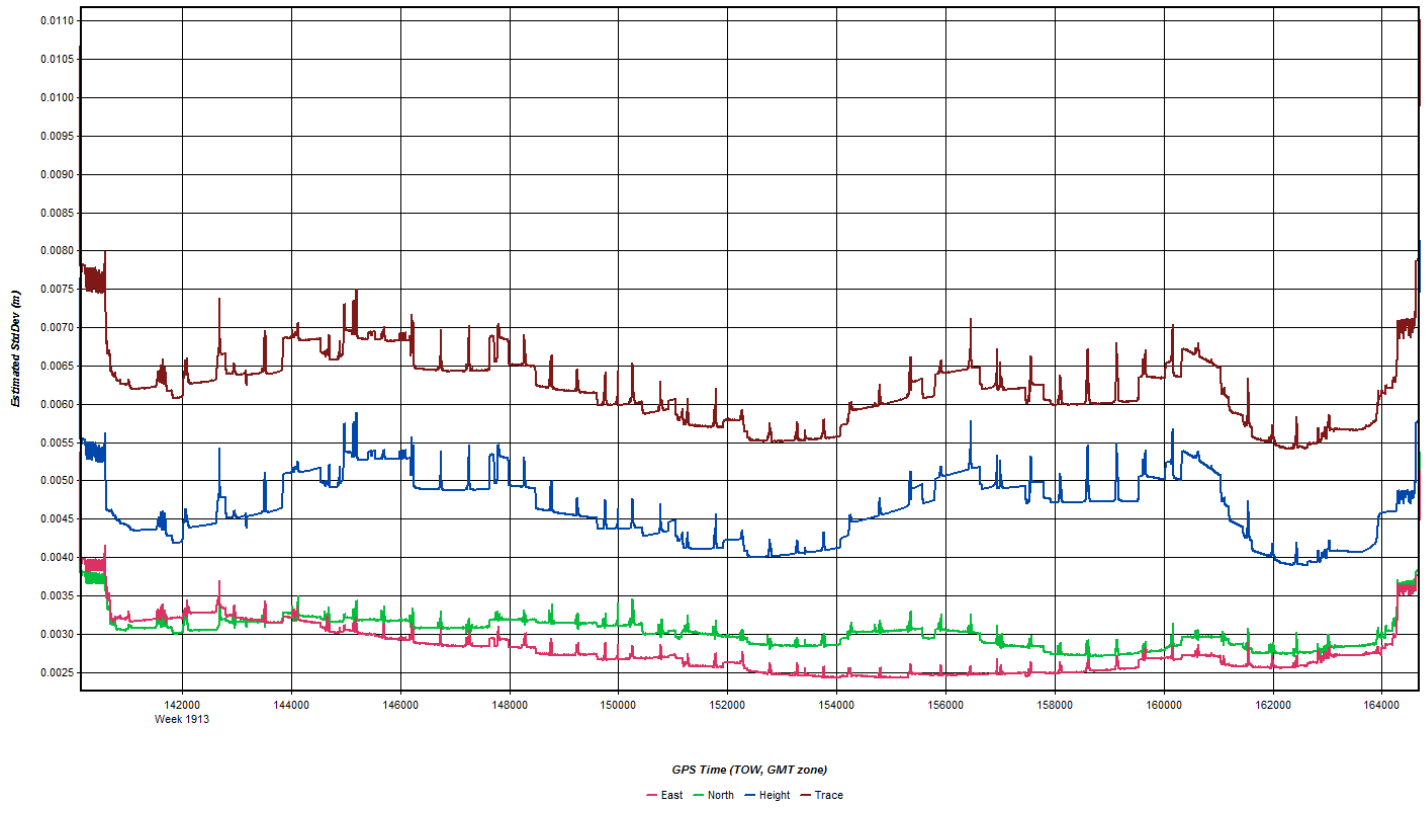
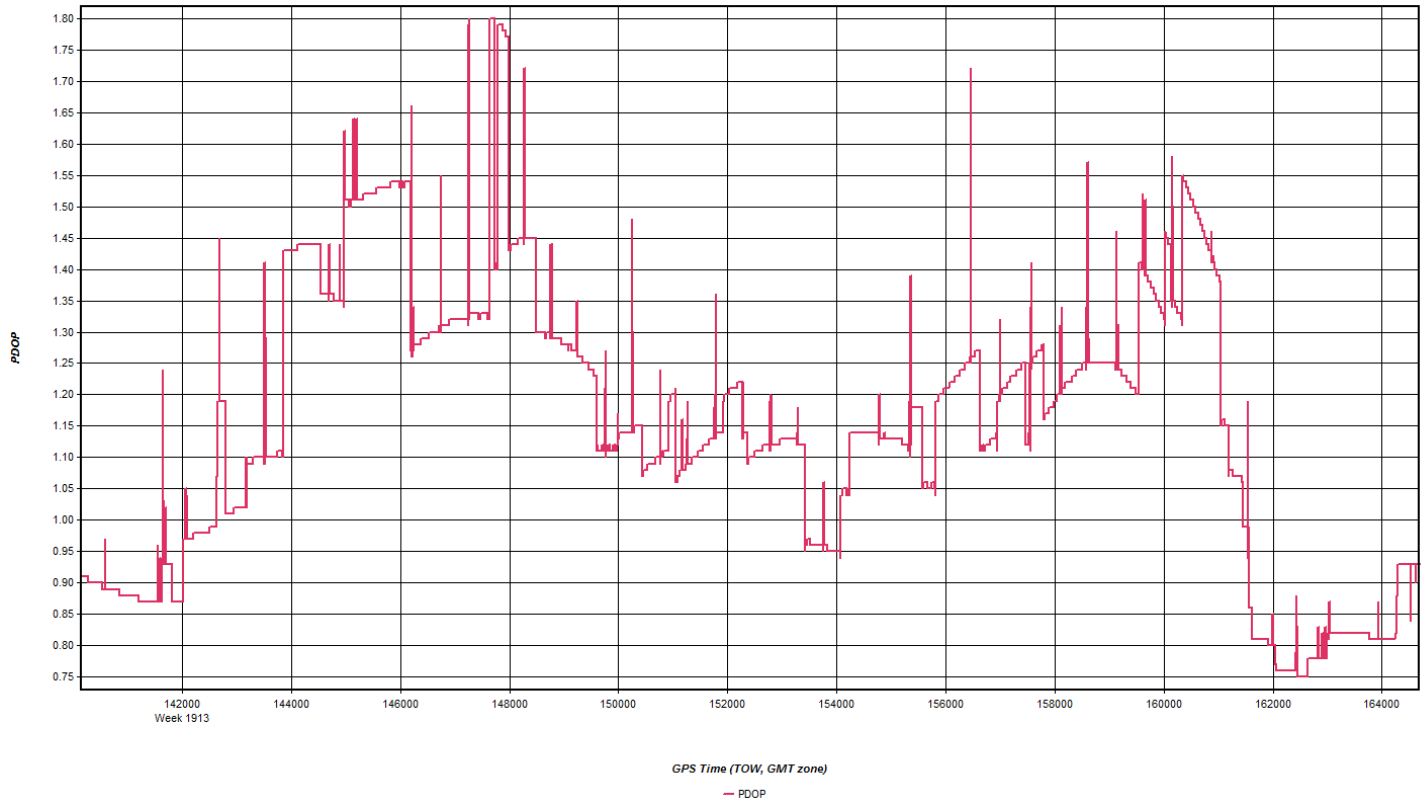
FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

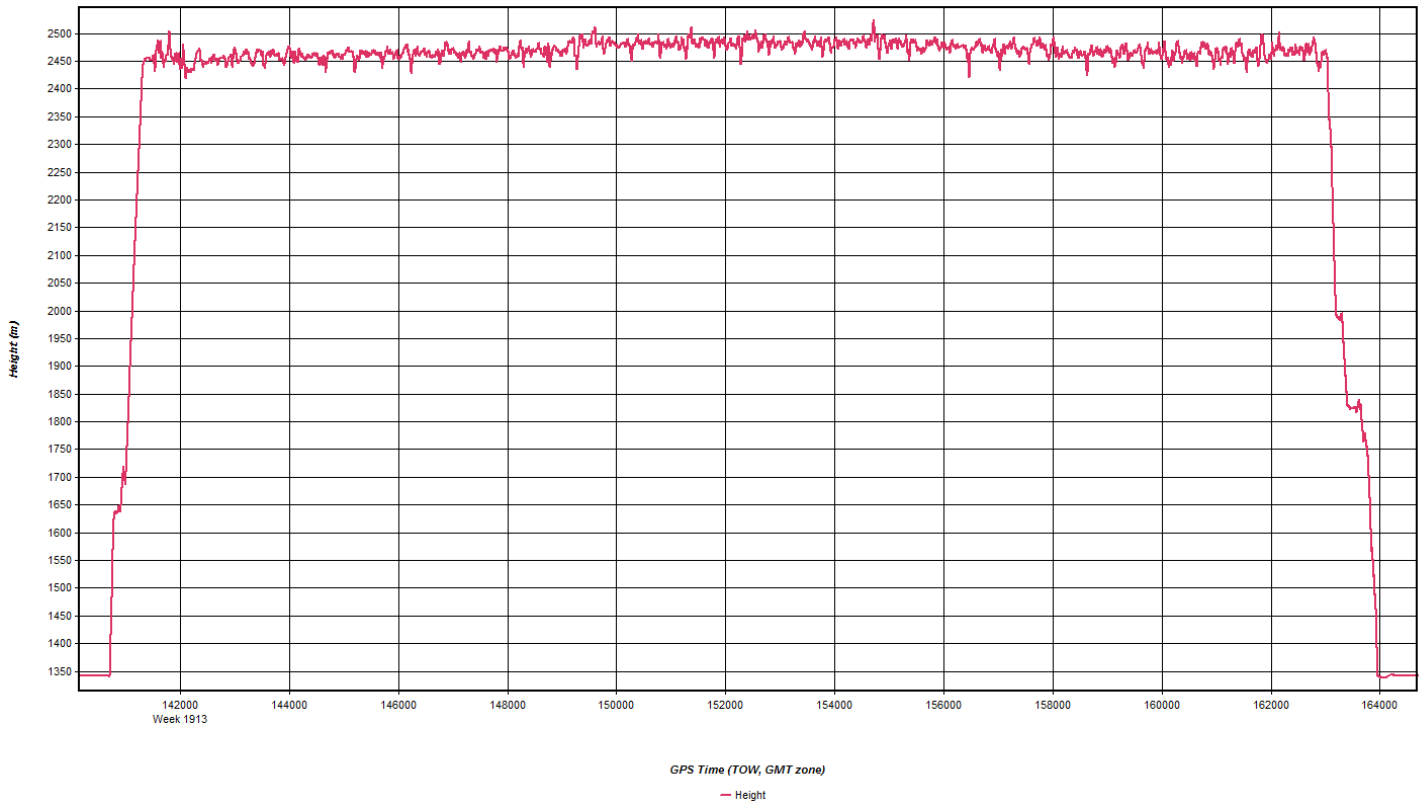
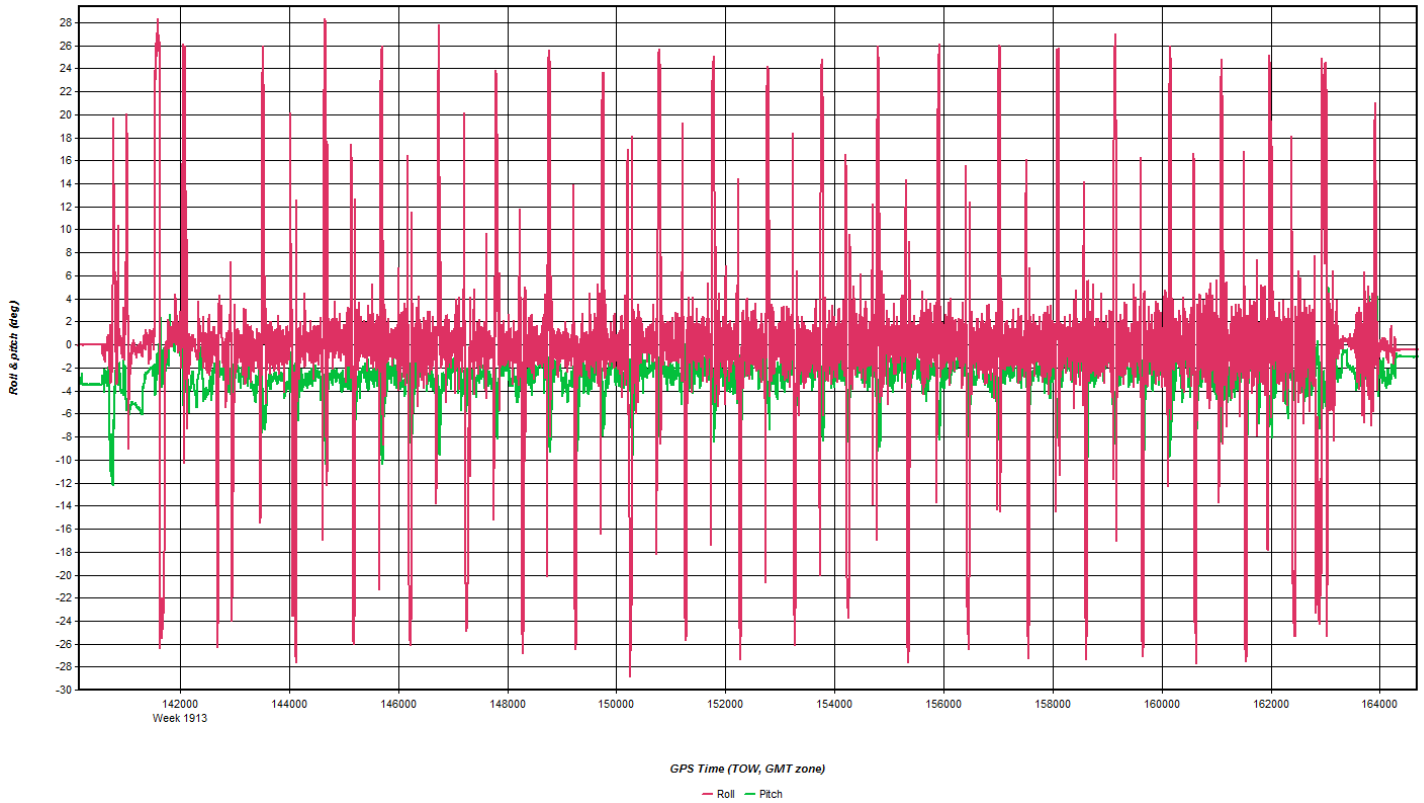
Total Proj Lines: [] Lines Flown: [] Lines Remain: [] Online Time: [] Mob Time: [] Notes: []

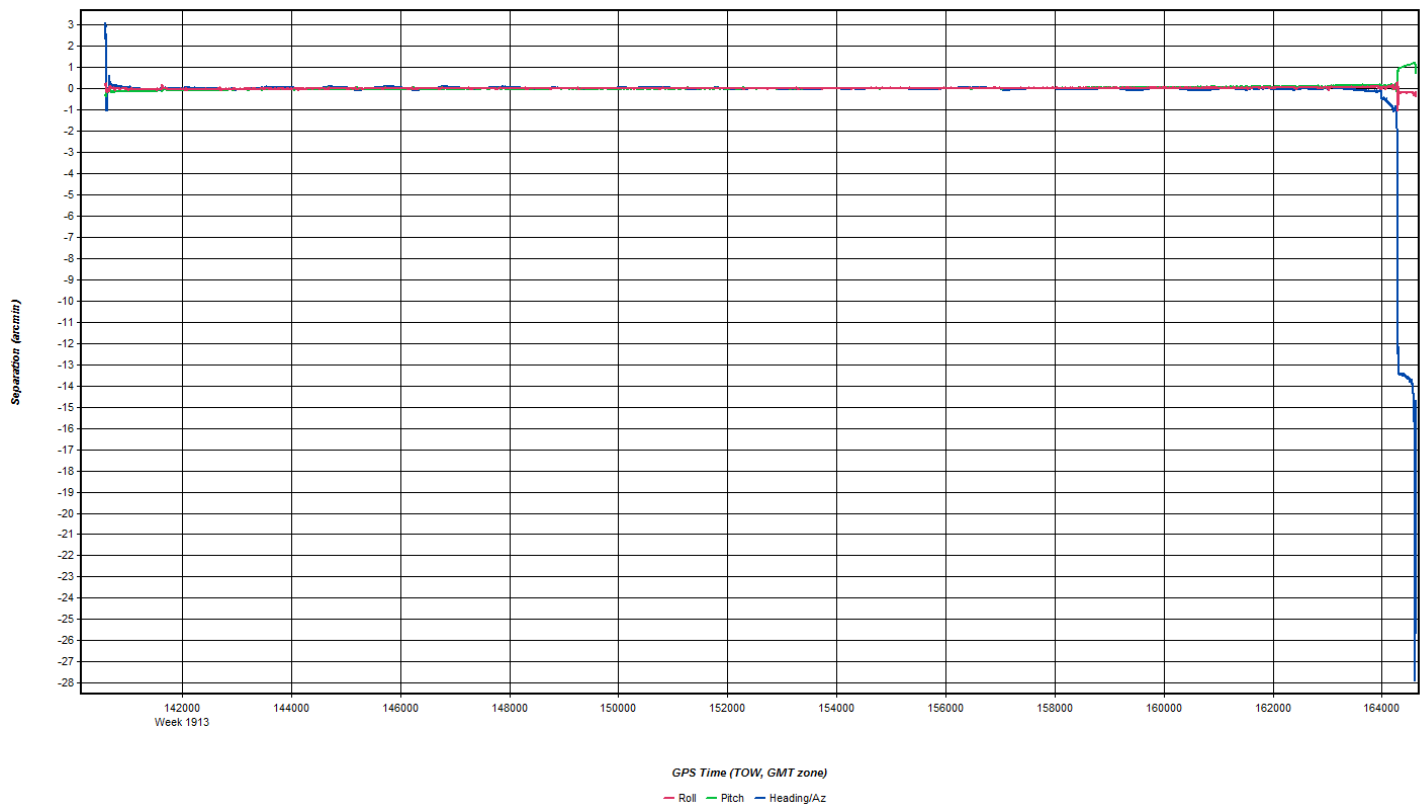
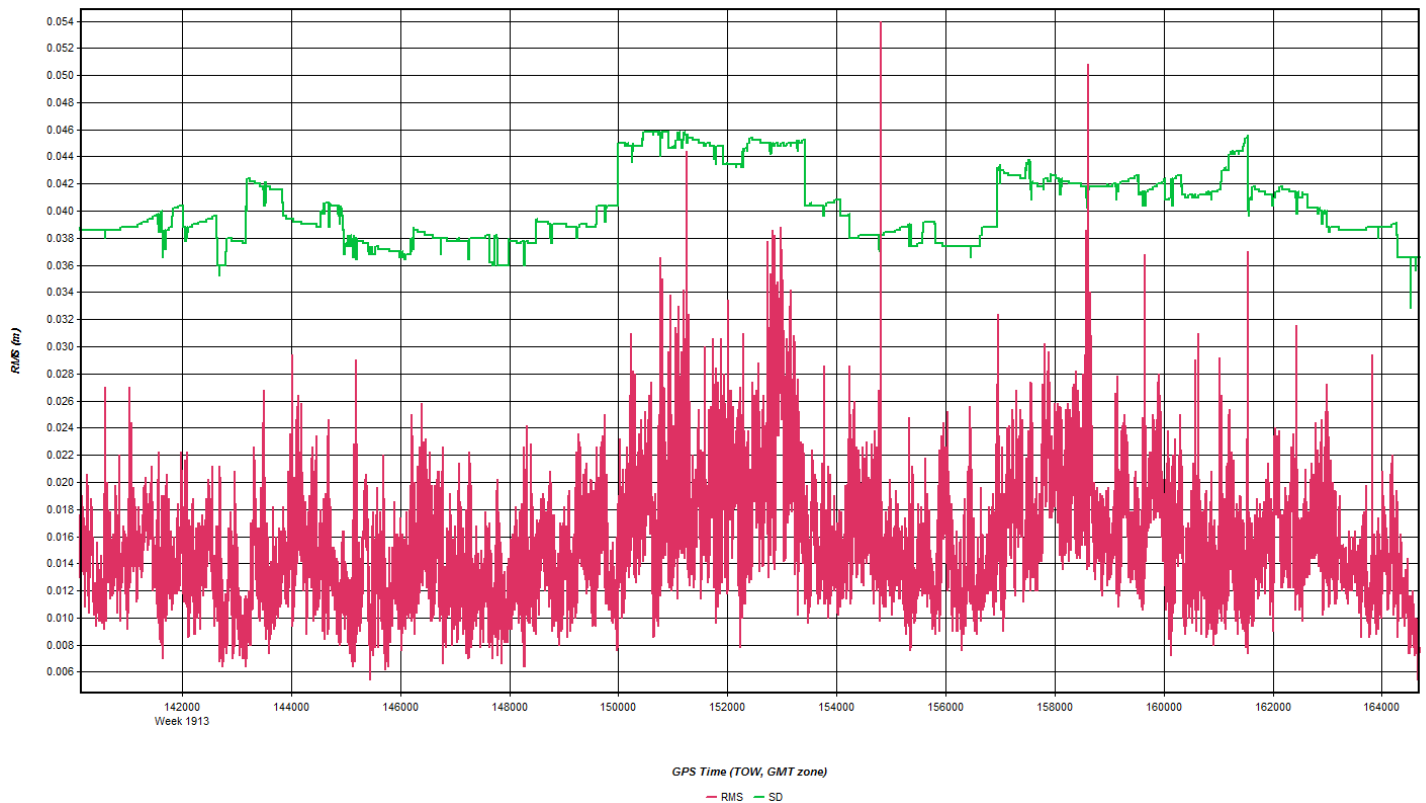
Sep 5, 2016-A (N704MD, SN7161)

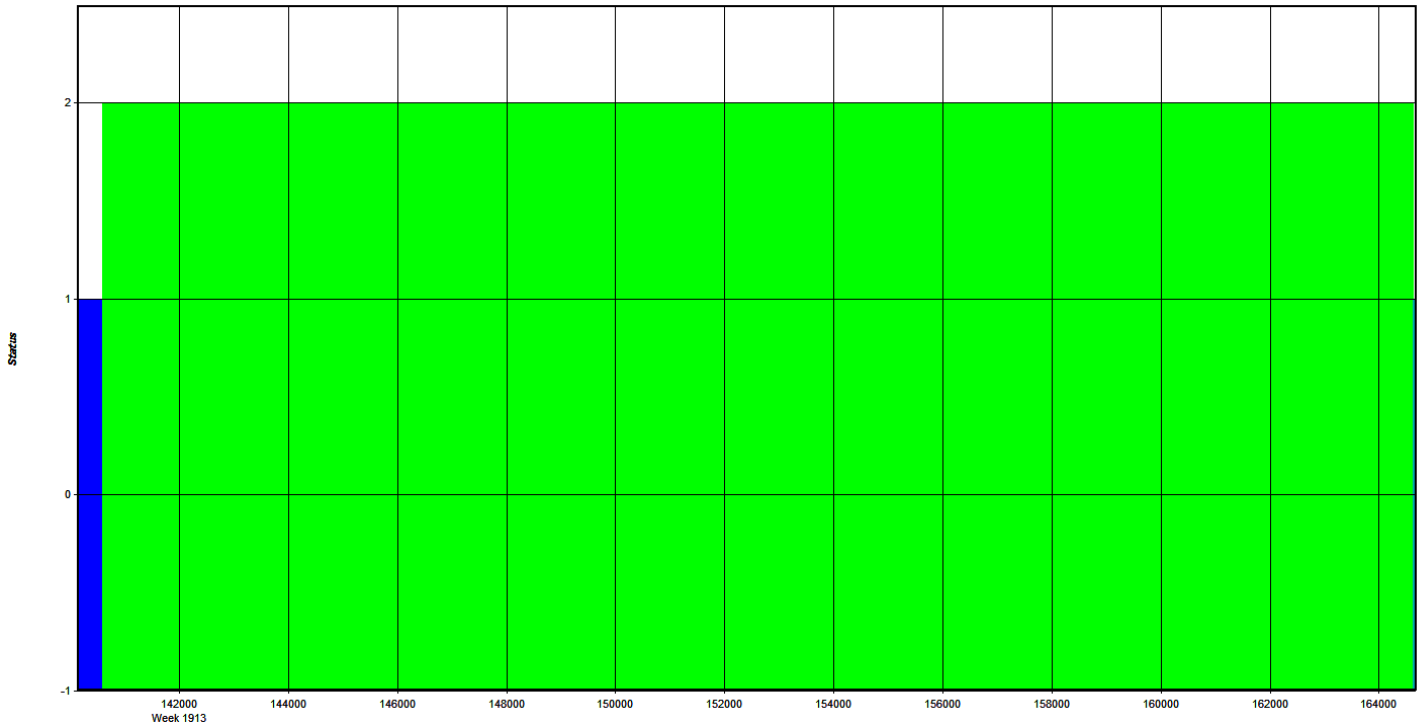












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_01 Name: UTAH16_01 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD249_704MD_SS\R7_257

Coordinates
 Latitude: North 40 51 20.49869 Compute from PPP
 Longitude: West 112 43 25.61210 Enter Grid Values
 Ellipsoidal height: 1271.297 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_02 Name: UTAH16_02 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD249_704MD_SS\R7_76

Coordinates
 Latitude: North 40 53 50.80260 Compute from PPP
 Longitude: West 112 43 59.98011 Enter Grid Values
 Ellipsoidal height: 1267.906 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

SN7161-090516A
Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email: Log daily to flight_log_distribution_list@quantumspatial.com)

Date: **9/15/2016** Pg. **3** of **3**

Project: **Utah** Flight Mgmt File: **20160905-145102**

Aircraft: **704MD** Begin Hobbs: **1297.0** End Hobbs: **1303.5** Total: **6.5** Pilot: **Wagner** Co-Pilot: **Tech: Iverson**

Dep Apt: **OGD** Dep Time (Lcl): **0904** (Z): **1504** Arr Apt: **OGD** Arr Time (Local): **1532** (Z): **2132** Tot Time Aloft: **6:28**

CORS: **Y / N** Sta 1: **Utah16_01** Sta 2: **UTAH16-02** Flyovers: **Y / N** If Y, times: **Sta 1** **Sta 2**

GPS Unit: **Y / N** OAT beg: **°C** End: **°C** Altimeter begin: **end:**

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/s	GPS Altitude	Crab	Turb (0-3)	Alt			Max Gdspd	Power	PPSM	Storage (Nimble)
									Alt AGL	Alt ANSL	Avg Ft Ht				
		1457													
		1504													
		1518	1521												
UL001	E	1528	1537	108	17/1										
GSLW															
1062	N	1543	1550	107	16/1.1										
1061	S	1552	1559	107	15/1.1										
1060	N	1602	1609	104	15/1.1										
1059	S	1611	1607	108	14/1.2										
1058	N	1609	1627	105	14/1.3										
1057	S	1628	1635	108	15/1.3										
1056	N	1637	1644	111	15/1.3										
1055	S	1646	1653	106	16/1.3										
1054	N	1656	1702	102	16/1.3										
1053	S	1704	1710	108	17/1.2										
1052	N	1712	1718	105	16/1.2										
1051	S	1720	1726	110	16/1.2										
1050	N	1728	1734	104	15/1.4										

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

1297.0 Hobbs

Static

Takeoff OGD 0904

Figure 8 FMSL - Utah - GSL - W - QL1 - SN761

cross-flight over ground points 152820

160905_154344

160905_154344

155244

160249

161137

160905

162854

163751

164619

165601 + 100 feet right of line

170401

171212

172007

172820

Total Proj Lines: **39** Lines Remain: **6** Mob Time: **5** Notes: **1018 / USB-3-128GB/sandisk / Ordnance / UTM 12**

SN7161-090516A

Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email: Log daily to flight_Log_distribution_list@quantumspatial.com)

Project: Utah **Date:** 9/15/2016

Proj #: 29083 **Flight Mgmt File:** 20160905-145102

End Hobbs: **Pilot:** Wagner **Co-Pilot:** Iveyson

Aircraft: F04MD **Total:** **Arr Time (Local):** (Z): **Tot Time Aloft:**

Dep Apt: 06D **Arr Apt:** **Flyovers:** Y / N **If Y, times: Sta 1)** **Sta 2)**

CORS: Y / N **Sta 1:** **Flyovers:** Y / N **If Y, times: Sta 1)** **Sta 2)**

GPS Unit: Y / N **Sta 1:** **Flyovers:** Y / N **If Y, times: Sta 1)** **Sta 2)**

Gd Temp beg: °C **End:** °C **OAT beg:** °C **End:** °C **Altimeter begin:** **end:**

Type: ALS70 **Serial #:** 7161 **Alt:** **Avg Pt:** **Max:** **Avg Pt:**

FOV: 40 **Scan:** 53Hz **AGL:** Mpia Y 10 **Ht:** **Gdspd:** **Spacing:** **PPSM:**

Pulse Rate: 225kHz **Power:** 60%

Bag GB: **End GB:** **Tot GB:** **Storage (Num/yr):**

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/s	GPS Altitude	Crab	Turb (0..*)	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.			
									Alt ANSL	Pulses In Air	Alt	Power
6510									6SLW = FMSL-Utah-6SL-W-QL1-SN7161			
1049	S	1736	1743	104	16/1.3				173633			
1048	N	1745	1751	105	18/1.1				174528			
1047	S	1753	1800	111	18/1.1				175339			
1046	N	1801	1808	106	19/1				180155			
1045	S	1810	1816	110	18/1.1				181022			
1044	N	1818	1825	109	18/1.1				181836			
1043	S	1827	1833	109	18/1.1				182705			
1042	N	1835	1841	106	17/1.2				183516			
1041	S	1843	1849	109	17/1.2				184321			
1040	N	1851	1858	112	17/1.2				185130			
1039	S	1900	1908	105	19/1				190036			
1038	N	1909	1917	111	17/1.2				190955			
1037	S	1919	1926	105	18/1.2				191900			
1036	N	1928	1935	111	17/1.2				192810			
1035	S	1937	1944	104	18/1.1				193731			
1034	N	1946	1954	105	18/1.1				194629			
1033	S	1955	2002	107	18/1.2				195523			

Total Proj Lines: **Lines Flown:** **Lines Remain:** **Online Time:** **Mobile Time:** **Notes:**

SN 7171-090516A
Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email Log daily to flight_Log_distribution_list@quantumspatial.com)

Date: 9/5/2016
Life: A B C D E Pg. 3 of 3

Project: Utah
Proj #: 29083
Flight Mgmt File: 20160905-145102
Pilot: Wagner
Co-Pilot: Iverson
Total: _____
End Hobbs: _____
Arr Apt: _____
Arr Time (Local): (Z): _____
Tot Time Aloft: _____

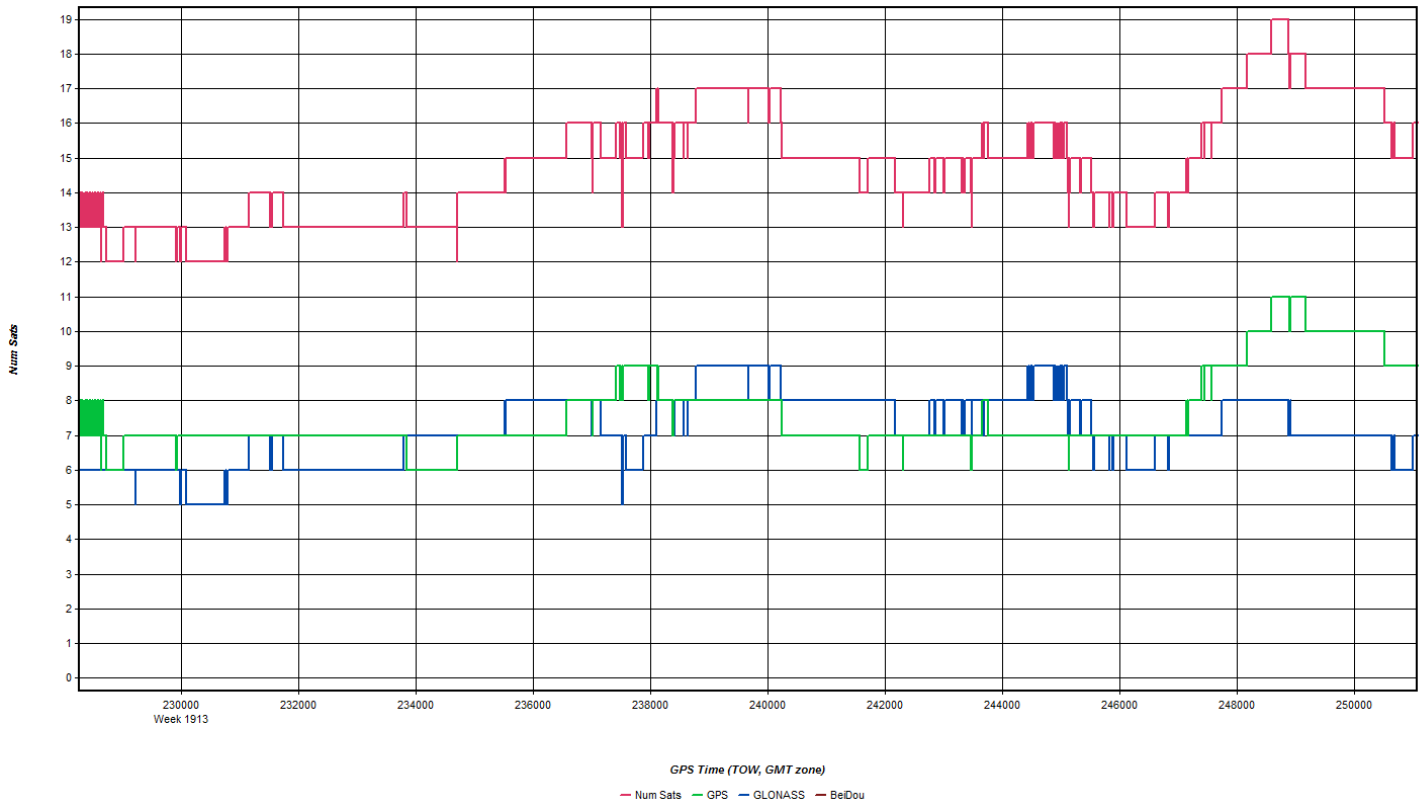
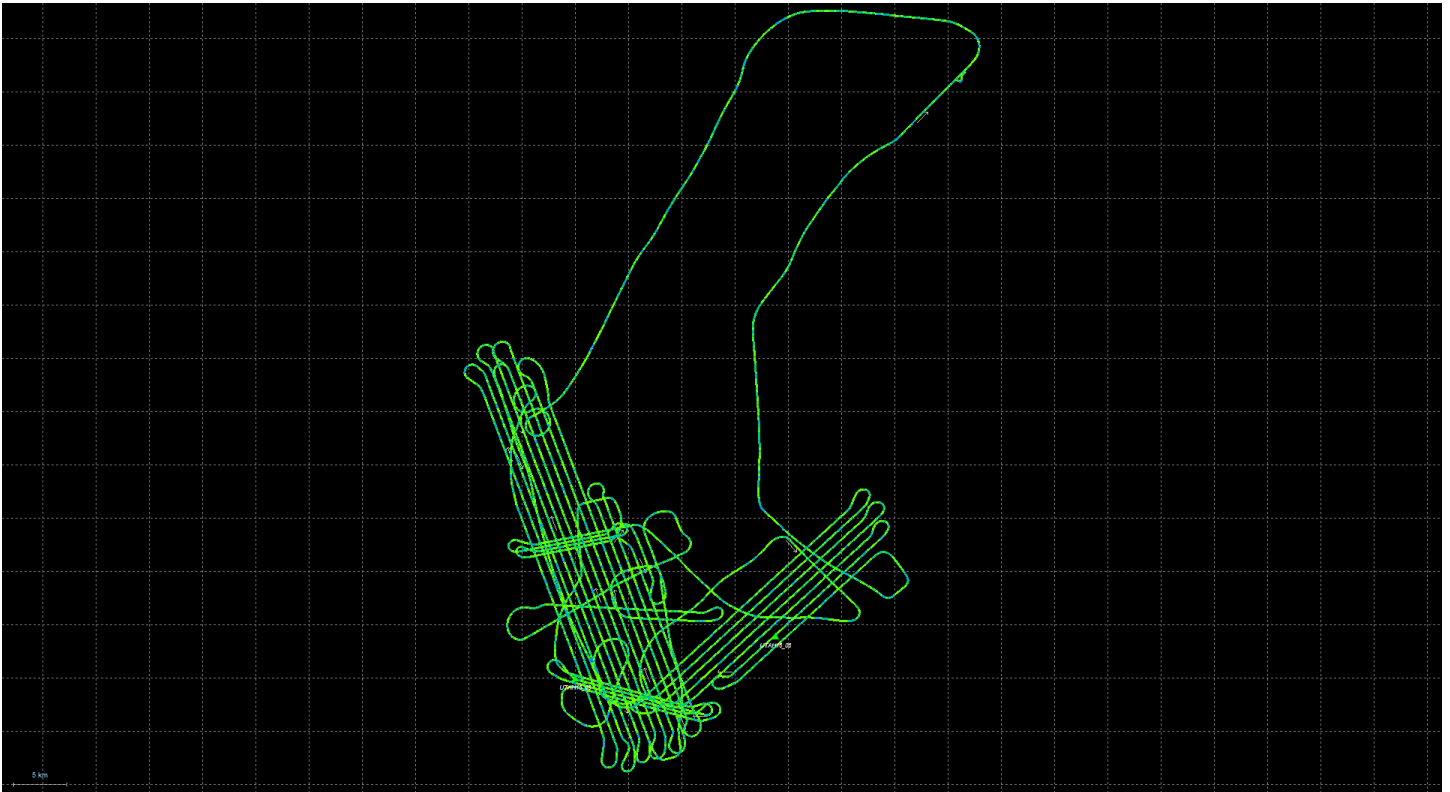
Aircraft: 704MD
Begin Hobbs: _____
Sta 2: _____
Dep Apt: 06D
Dep Time (Lcl): (Z): _____
Sta 1: _____
CORS: Y / N
Flyovers: Y / N IF Y, times: Sta 1) _____
GPS Unit: Y / N
Flyovers: Y / N IF Y, times: Sta 2) _____

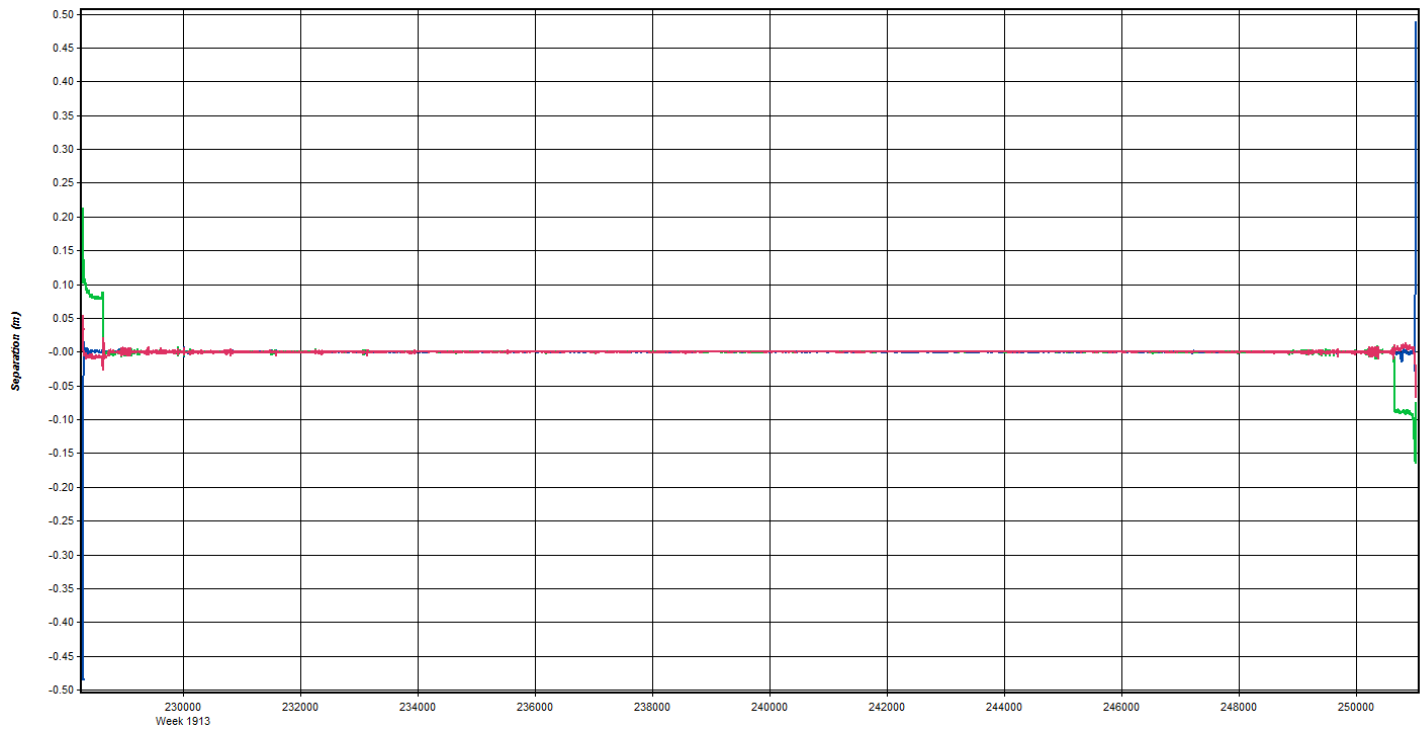
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PDOP/# Sats	GPS Altitude	Crab	Turb (0,+,*)	Altimeter begin:			Altimeter end:			Storage Name/FP
									Alt AGL	Alt AMSL	Pulse In Air	Avg Terr Ht	Max Gdspd	Power	
1032	N	2004	2011	110	17/13				160905	200426	6%				6SLW 1032
	S	2012	2020	104	18/12				201253						
	N	2021	2028	110	18/12				202142						
	S	2029	2036	103	19/11				202948						
	N	2038	2043	103	19/11				203809						
	S	2045	2051	101	18/11				204541						
	N	2053	2058	108	19/11				205311						turbulence, bumpy
	S	2100	2106	99	19/11				210028						
	N	2108	2113	106	19/11				210801						turbulence - 79 feet off line
		2114	2117						Figure 8						
			2132						Land 06D						1303.5 Hobbs
			2143						static						

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.
 6SLW 1032

Total Proj Lines: _____
Lines Flown: _____
Lines Remain: _____
Online Time: _____
Mobile Time: _____
Notes: _____

Sep 6, 2016-A (N704MD, SN7161)





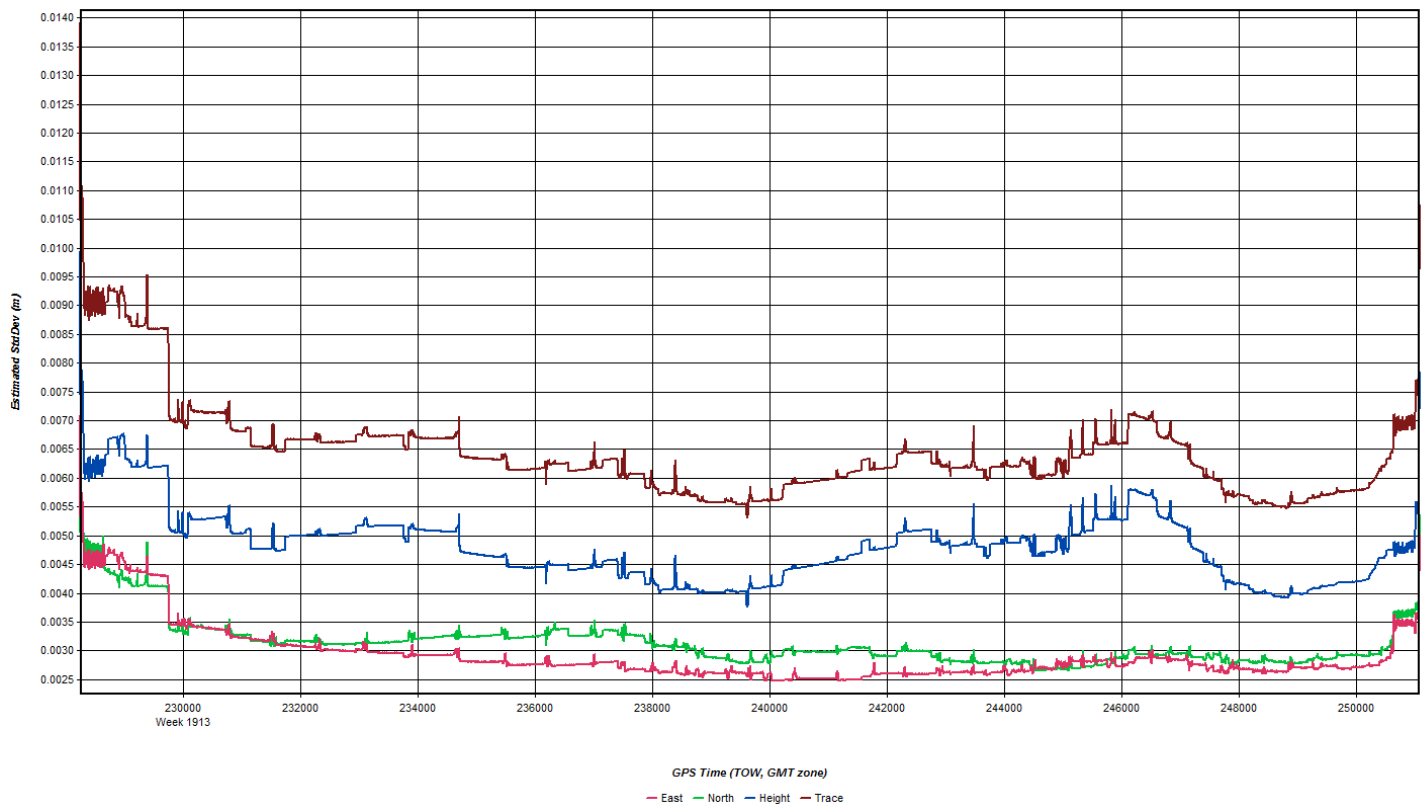
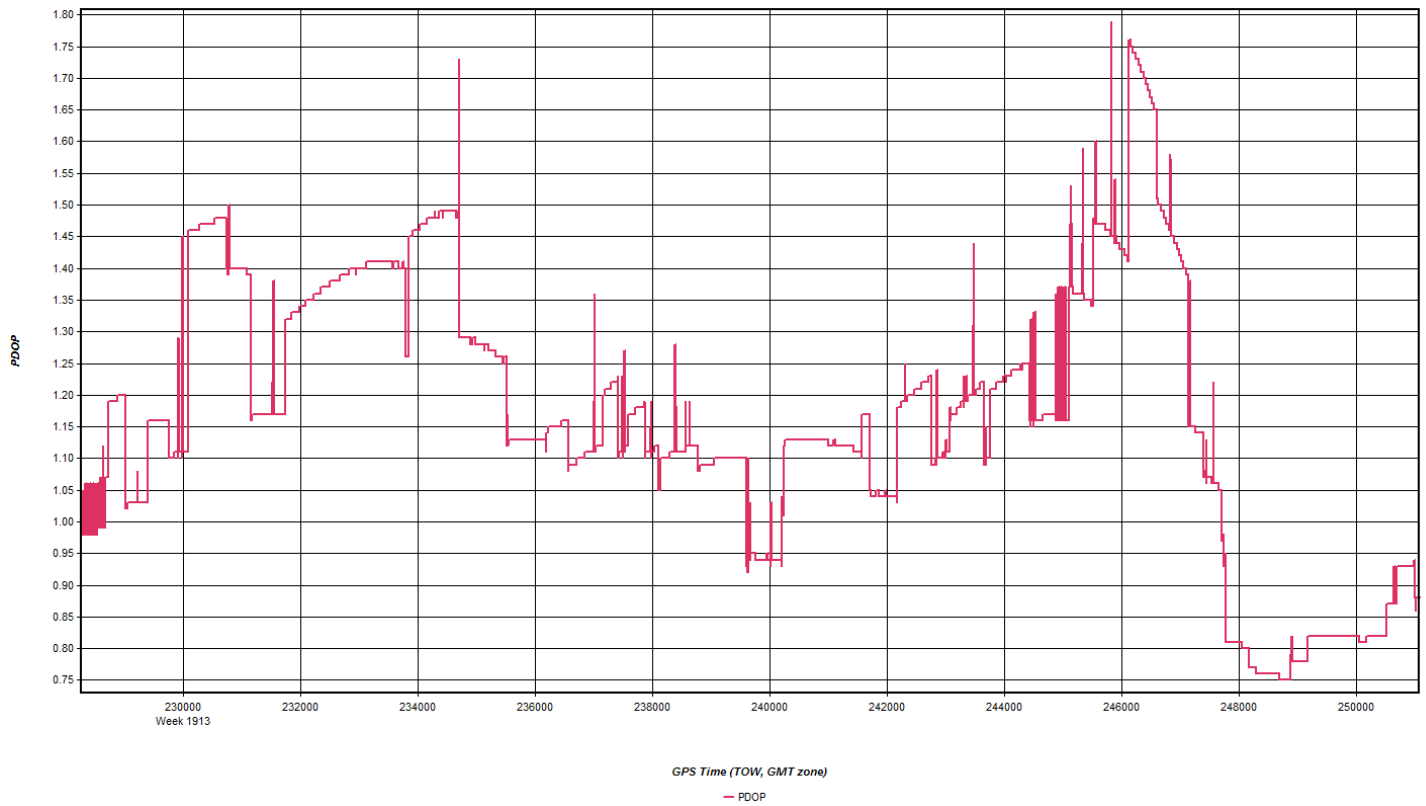
GPS Time (TOW, GMT zone)

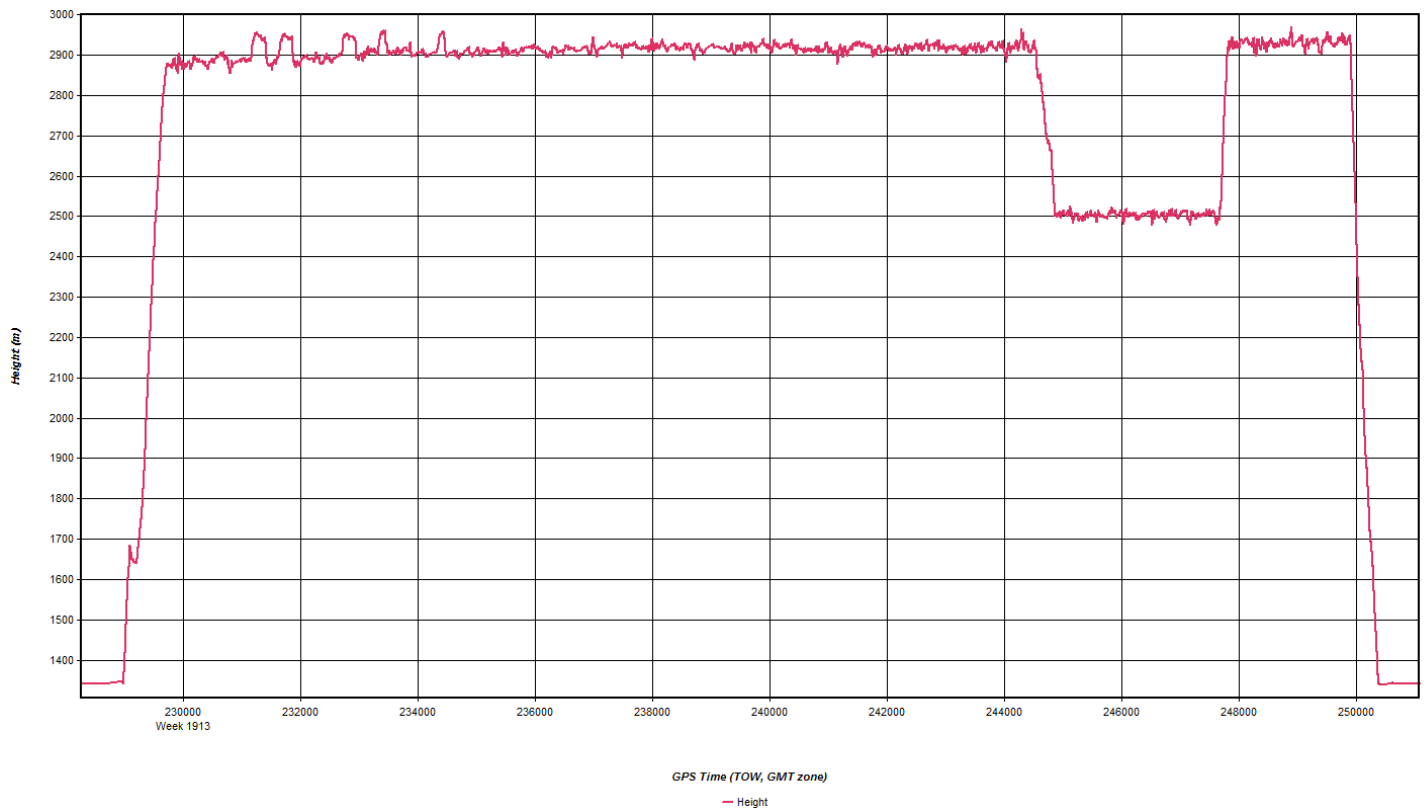
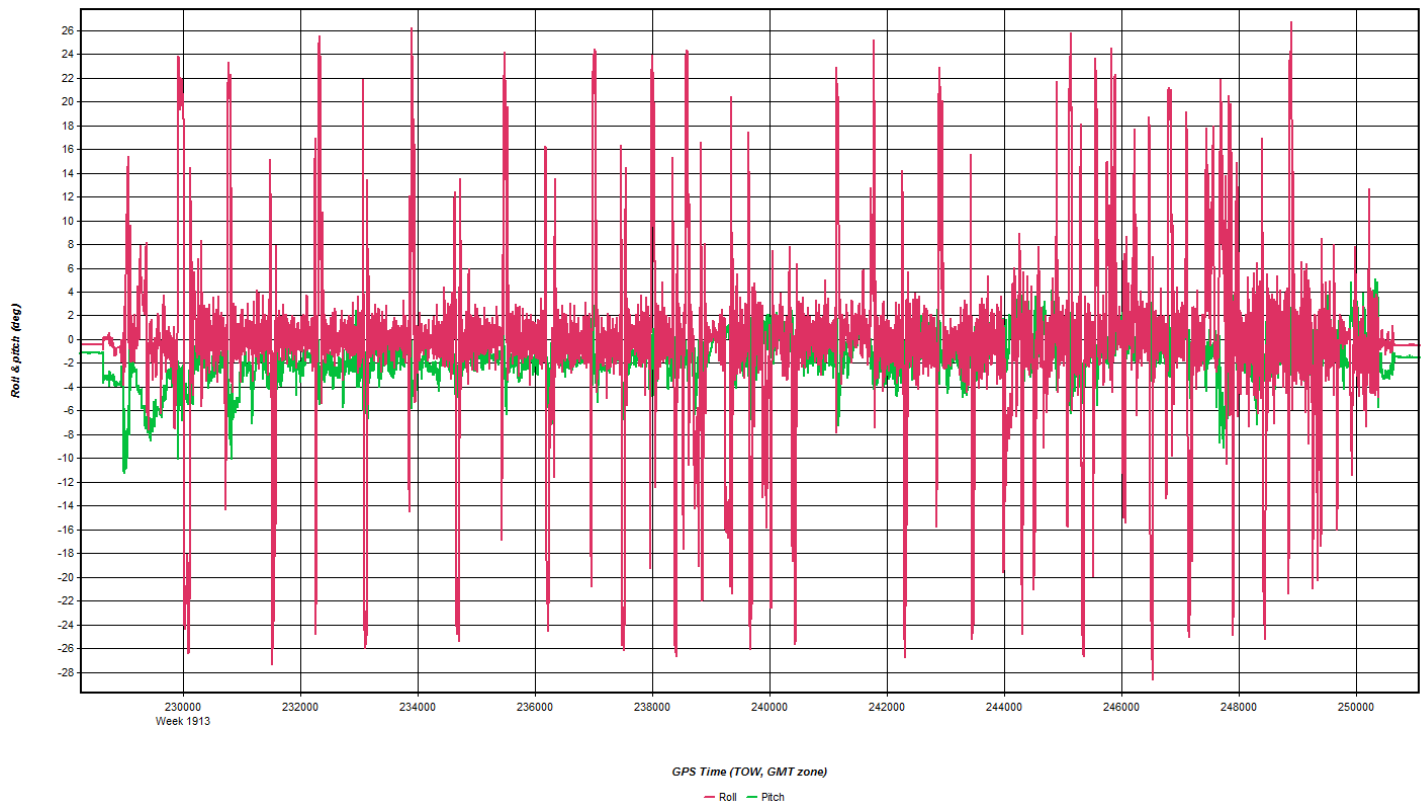
— East — North — Up

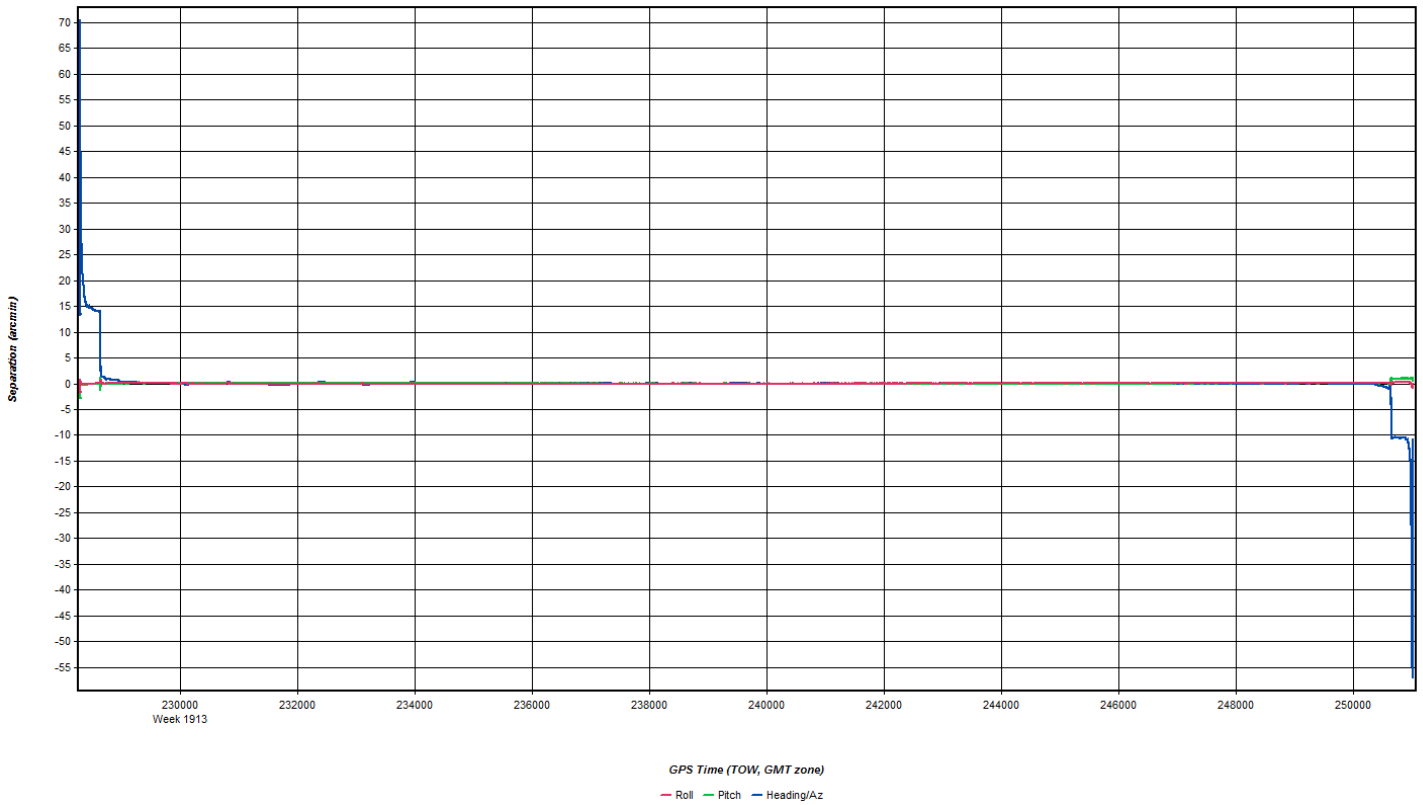
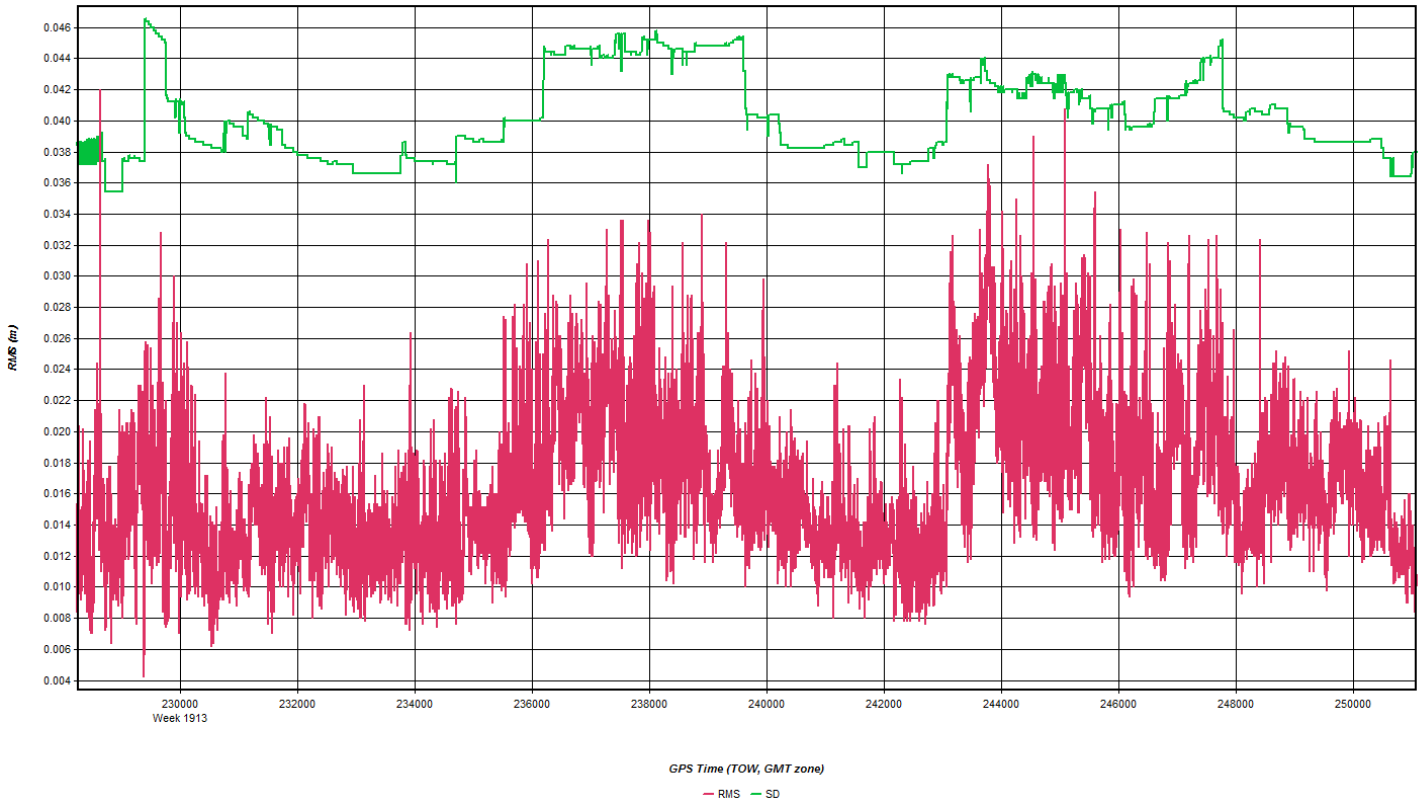


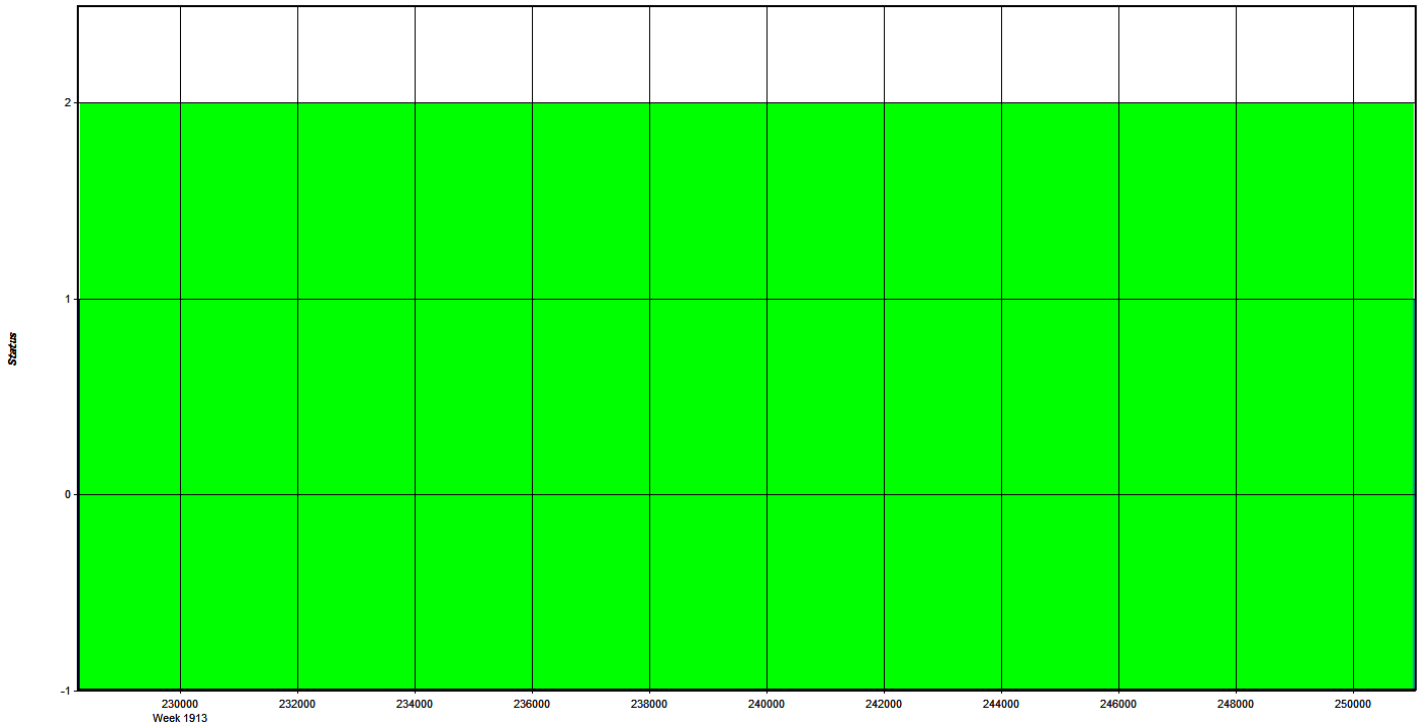
GPS Time (TOW, GMT zone)

— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_05 Name: UTAH16_05 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD250_704MD_SS\R7_76

Coordinates
 Latitude: North 40 41 11.85346 Compute from PPP
 Longitude: West 112 26 34.06501 Enter Grid Values
 Ellipsoidal height: 1267.522 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
2: UTAH16_06 Name: UTAH16_06 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD250_704MD_SS\R7_257

Coordinates
Latitude: North 40 43 17.59509 Compute from PPP
Longitude: West 112 13 16.54181 Enter Grid Values
Ellipsoidal height: 1286.613 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 2.000 m
ARP to L1 offset: 0.067 m
Applied height: 2.067 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log - QL1

Date: 9/6/2016
Pg 1 of 3

SN7161 090616A
Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email Log daily to flight_Log_distribution_list@quantumspatial.com)

Project: UTAH Proj #: 29083 Flight Mgmt File: 20160906-151415 Tech: Iverson

Aircraft: N704MD Begin Hobbs: 1303.5 End Hobbs: 1309.4 Total: 5.9 Pilot: Wagner Co-Pilot: Tot Time Aloft:

Dep Apt: 06D Dep Time (Lcl): 0936 (Z): 1536 Arr Apt: Arr Time (Local): (Z): Tot Time Aloft:

CORS: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta 1) Sta 2)

GPS Unit: Y / N Sta 1: UTAH16-05 Sta 2: UTAH16-06 Flyovers: Y / N If Y, times: Sta 1) Sta 2)

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PDOP/sats	GPS Altitude	Crab	Turb (0..+)	Alt			Pulse Rate	Pulse Rate	Power	Avg Pz Spacing PPSM	end:	Beg GB	End GB	Tot GB	Storage Num/ls		
									ALS70	Alt AGL	Alt AMSL											
		1525																				
		1536																				
		1551																				
		1559	1604	108	15/11																	
		1607		105	15/11																	
		1619	1630	101	16/12																	
		1632	1644	109	15/13																	
		1646	1657	103	16/13																	
		1659	1710	101	17/12	ReFly	below															
		1712	1723	100	16/12																	
		1725	1736	109	15/14																	
		1741	1748	102	17/12																	
		1750	1757	107	19/12																	
		1800	1806	108	19/11																	
		1809	1812	107	19/11																	
		1814	1815	91	18/11																	
		1817	1817	110	18/11																	
		1821	1826	83	18/11																	

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

1303.5 Hobbs

static

TAKE OFF 06D 0936

FIGURE 8 FMSL-Utah-GSL-QL2-SN7161

160906-155916

160712 + AGL+150 over mt

161940 (+ AGL+150 feet over Ridge)

163257

164615

165906 (RF (missing .25) (cont) + AGL+150 feet over Ridge)

171221

172532

174152

175058

180033

180956

181410

181700

cross flight 182116

Total Proj Lines: 3 Lines Flown: 3 Lines Remains: Online Time: 5.3 Job Time: .6 Notes: /Ordnance/ UTM12

Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email log daily to flight_log_distribution_list@quantumspatial.com)

SN7161-090616A
Date: 9/6/2016
Lift: A B C D E Pg 2 of 3

Project: Utah
Flight Mgmt File: 20160906-151415
Tech: Iverson

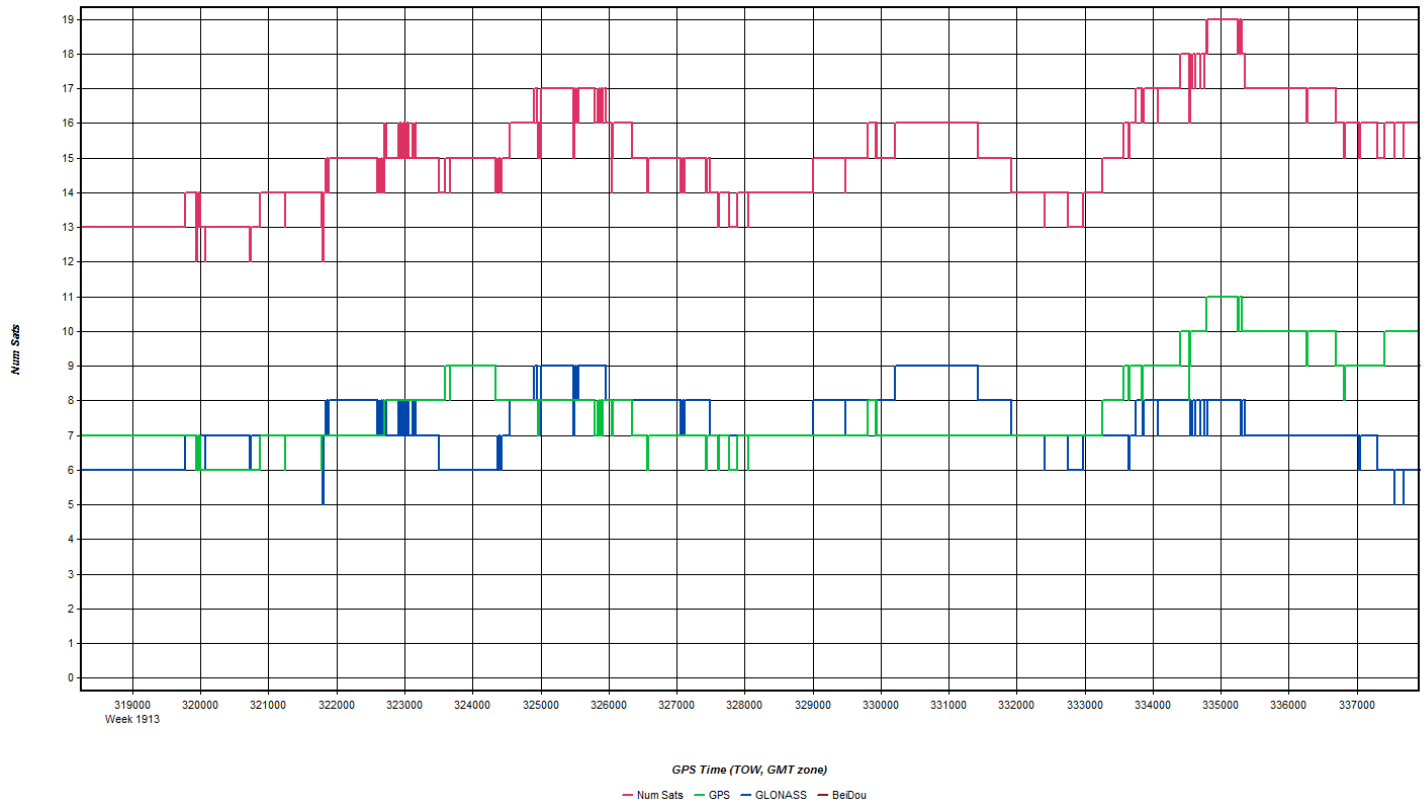
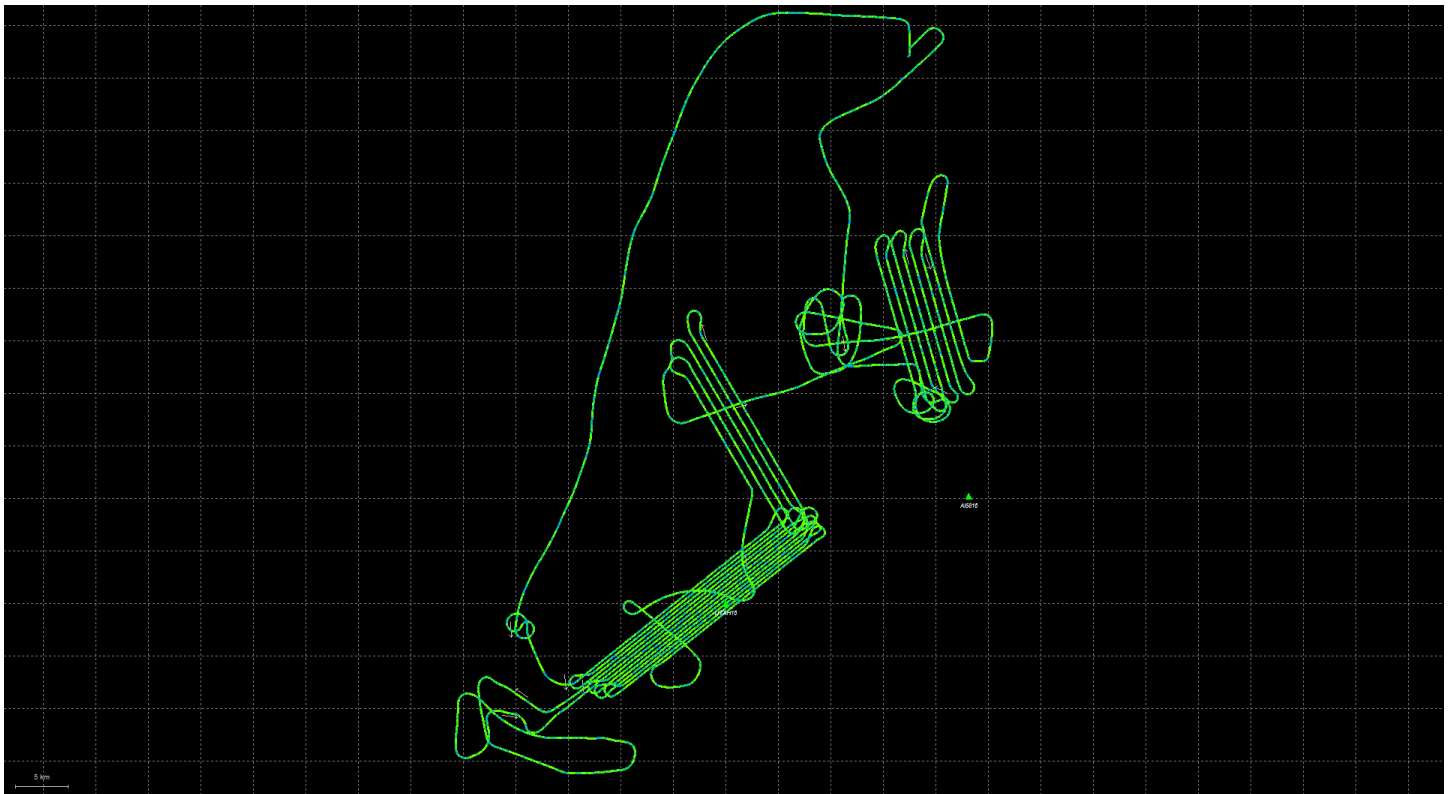
Aircraft: 704MD Begin Hobbs: End Hobbs: Pilot: Wagner Co-Pilot:
Dep Apt: OGD Dep Time (Lcl): [Z]: Air Apt: Air Time (Local): [Z]: Tot Time Aloft:

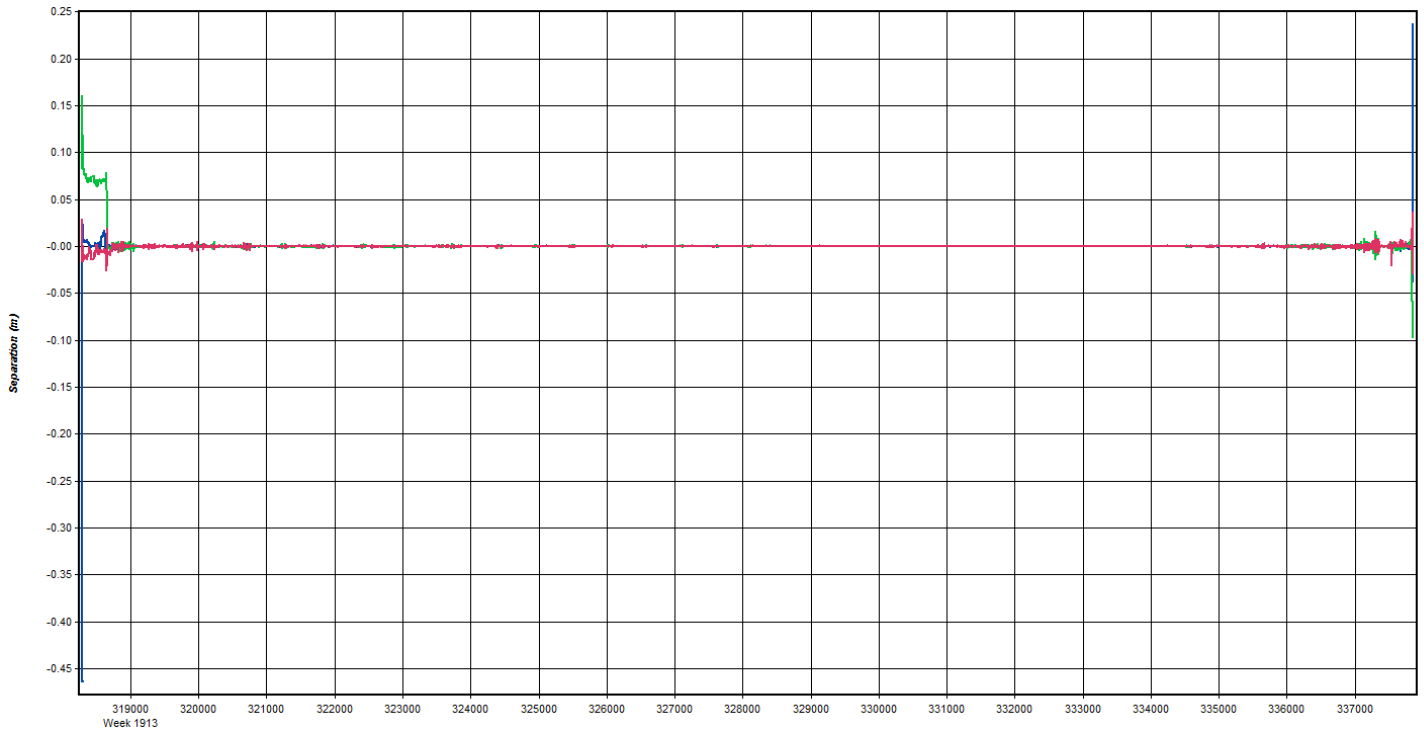
CORS: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta1) Sta2)
GPS Unit: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta1) Sta2)

Gd Temp beg:	°C	End:	°C	OAT beg:	°C	Alt AGL	Alt AMSL	Pulses In Air	Turb (0-3)	Altimeter begin:			end:	Storage Name/#		
										Avg Terr Ht	Max Gdspd	Power				
LIDAR	Type	Serial #	FOV	Scan Freq	MpA	Y / N	Pulses In Air <td>Pulse Rate</td> <td>170kHz</td> <td>90%</td> <td>Avg Pt Spacing</td> <td>PPSM</td> <td>beg GB</td> <td>End GB</td> <td>Tot GB</td>	Pulse Rate	170kHz	90%	Avg Pt Spacing	PPSM	beg GB	End GB	Tot GB	
	4570	7161	40	43 Hz	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.																
2131	E	1831	1833	101	171.2								183139	FM SL - Utah - GSL - Q12 - SN 7161		
2132	W	1835	1836	93	171.2								183525			
U1002	S	1840	1842	94	171.2								cross flight	184020		
2006	N	1847	1858	110	171.2								191014			
2124	E	1910	1917	106	171.2								191921			
2125	W	1919	1926	102	181.1								192923			
2126	E	1929	1936	103	171.1								193842			
2127	W	1938	1946	93	181.1								cross flight	195152		
U1004	S	1951	1954	95	181.1											
2128	E	2053	2059	112	191.1								205324	bumpy		
2129	W	2101	2107	100	191.1								210129	bumpy		
2130	E	2110	2114	105	191.1								211055			
													cross flight	Abort		
														Air traffic Kicked out of Airspace		
														Land OGD 1532		
														Hobbs		

Total Proj Lines: Lines Flown: Lines Remain: Online Time: Mob Time: Notes:

Sep 7, 2016-A (N704MD, SN7161)

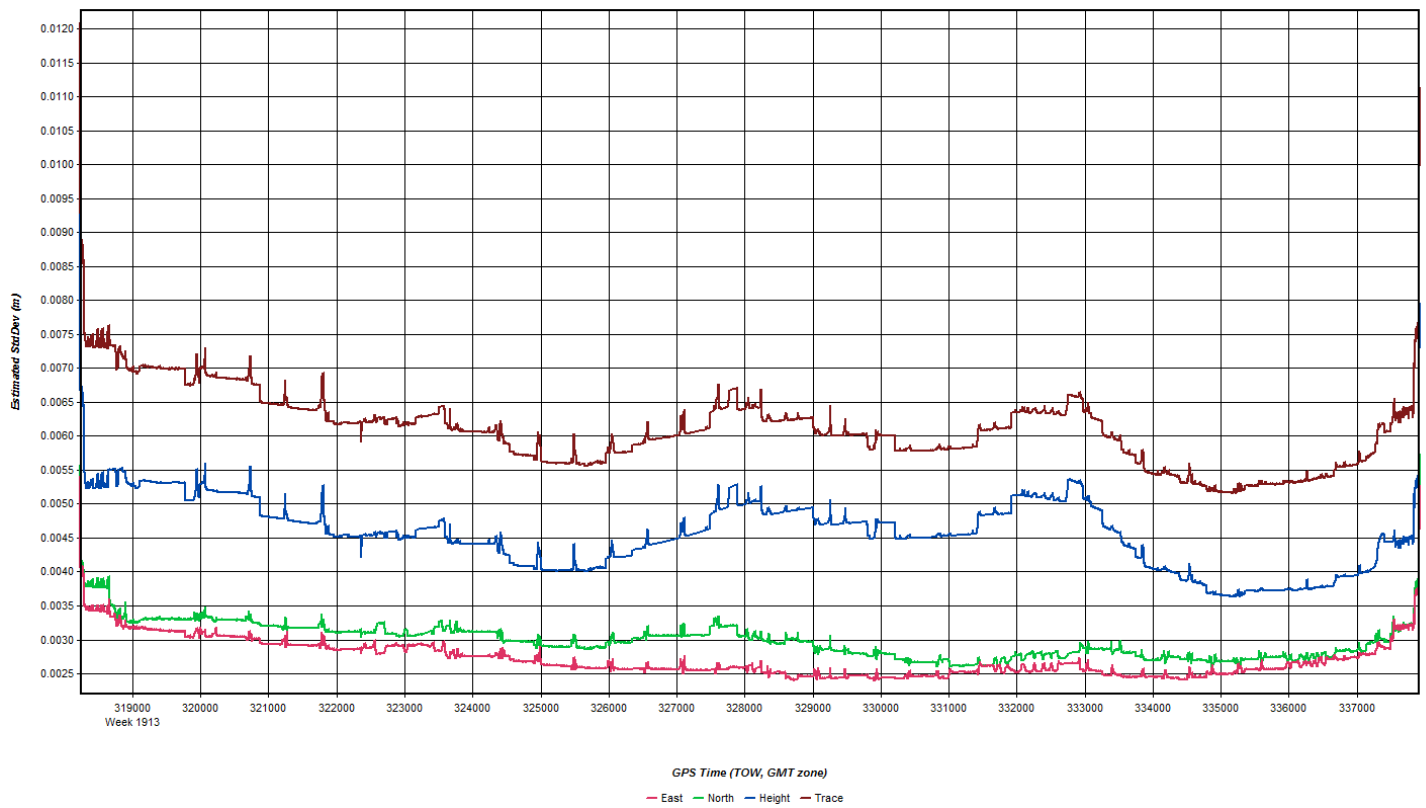
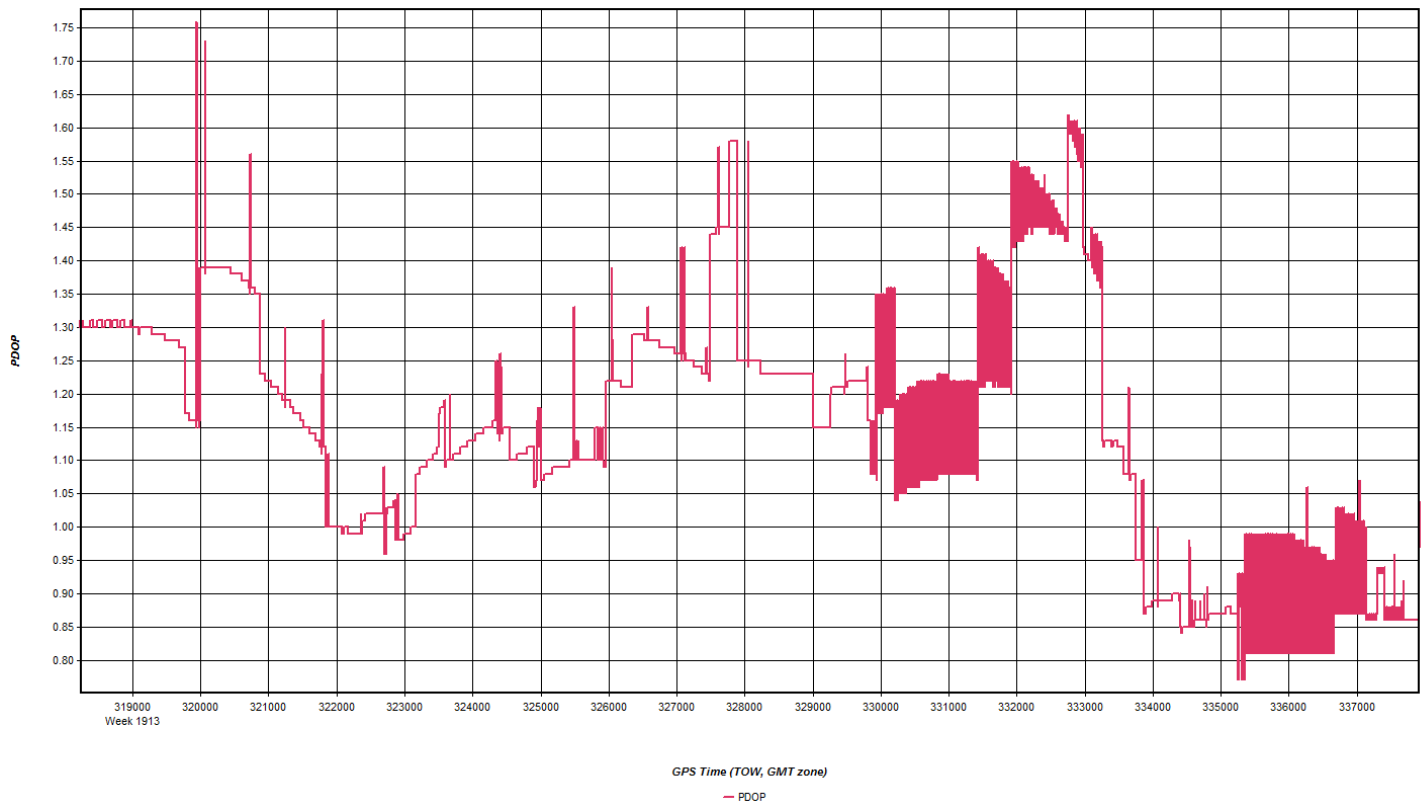


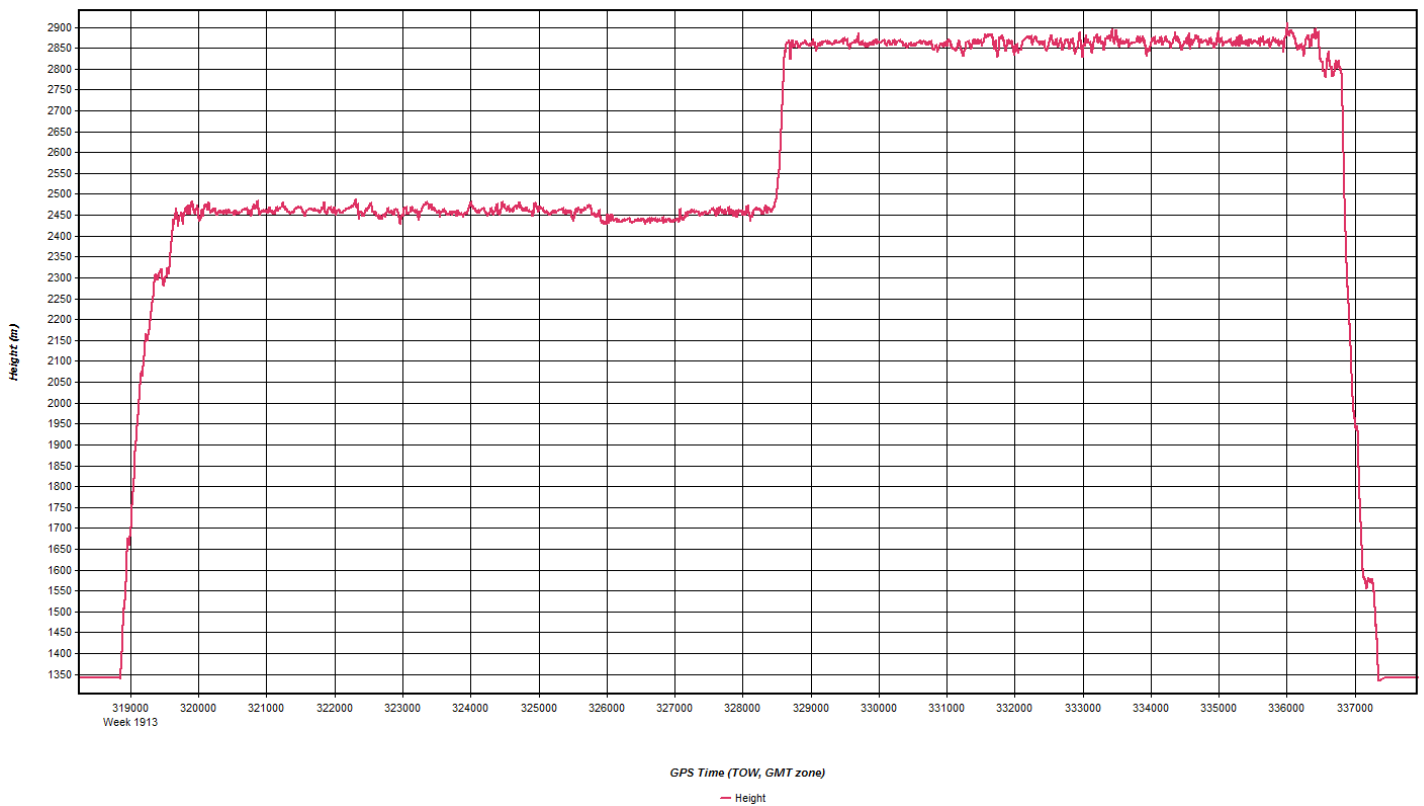
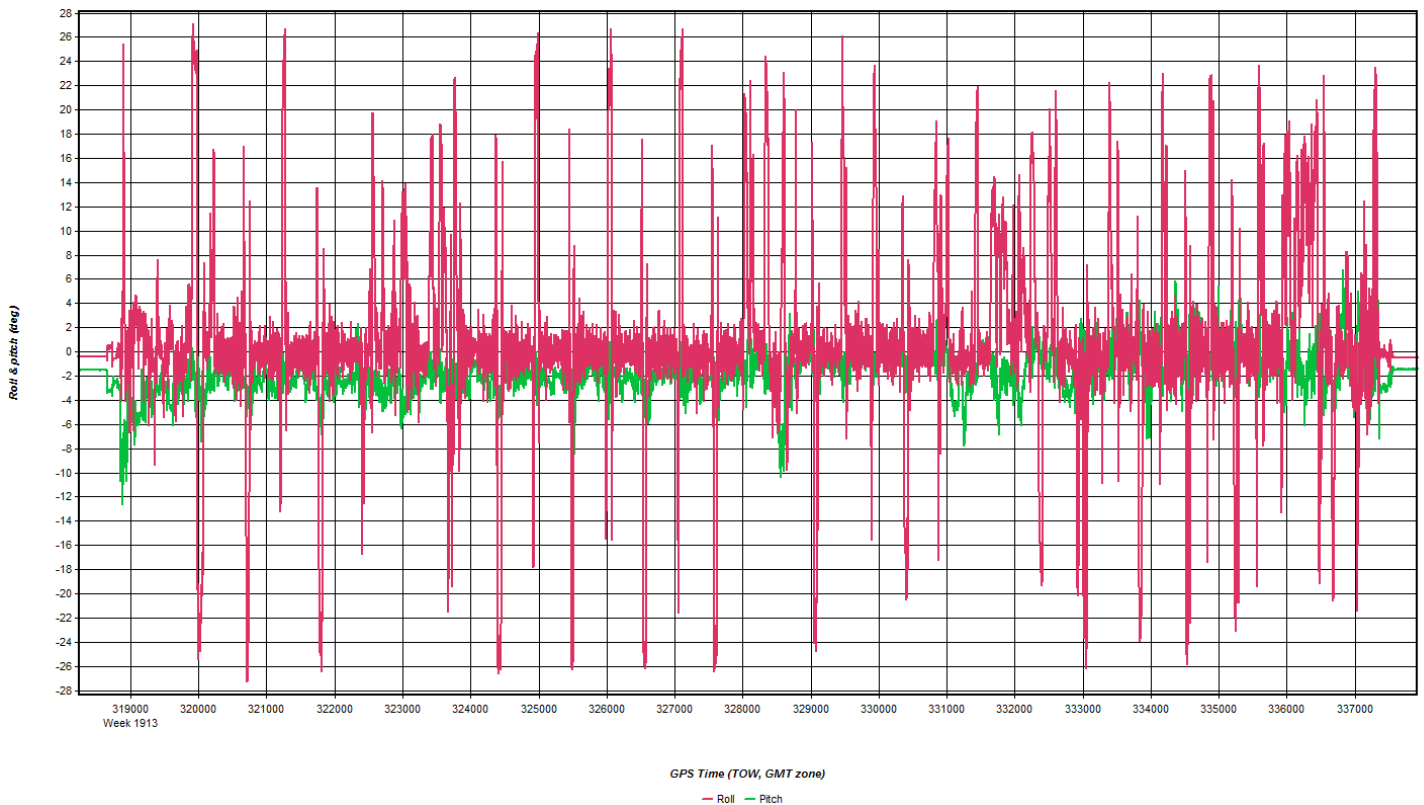


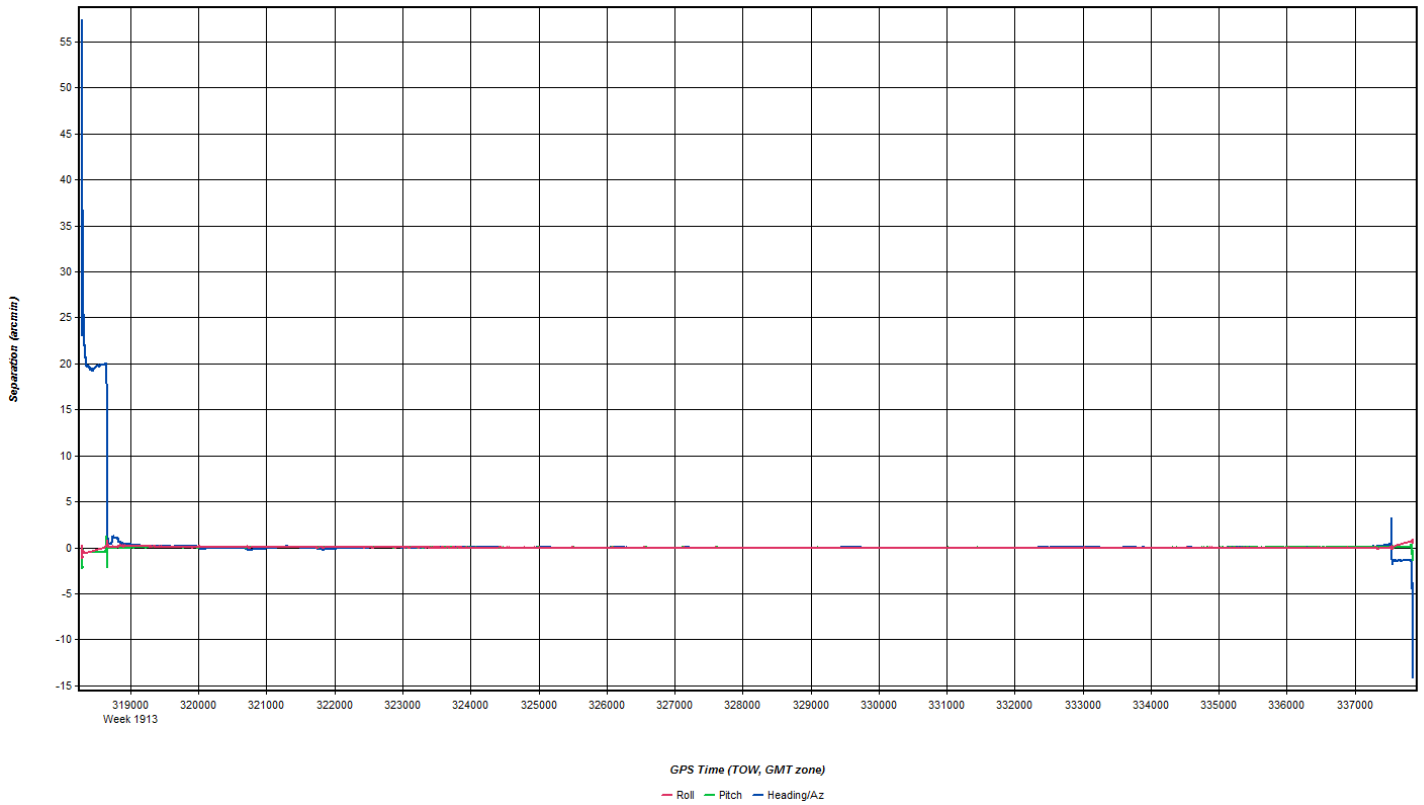
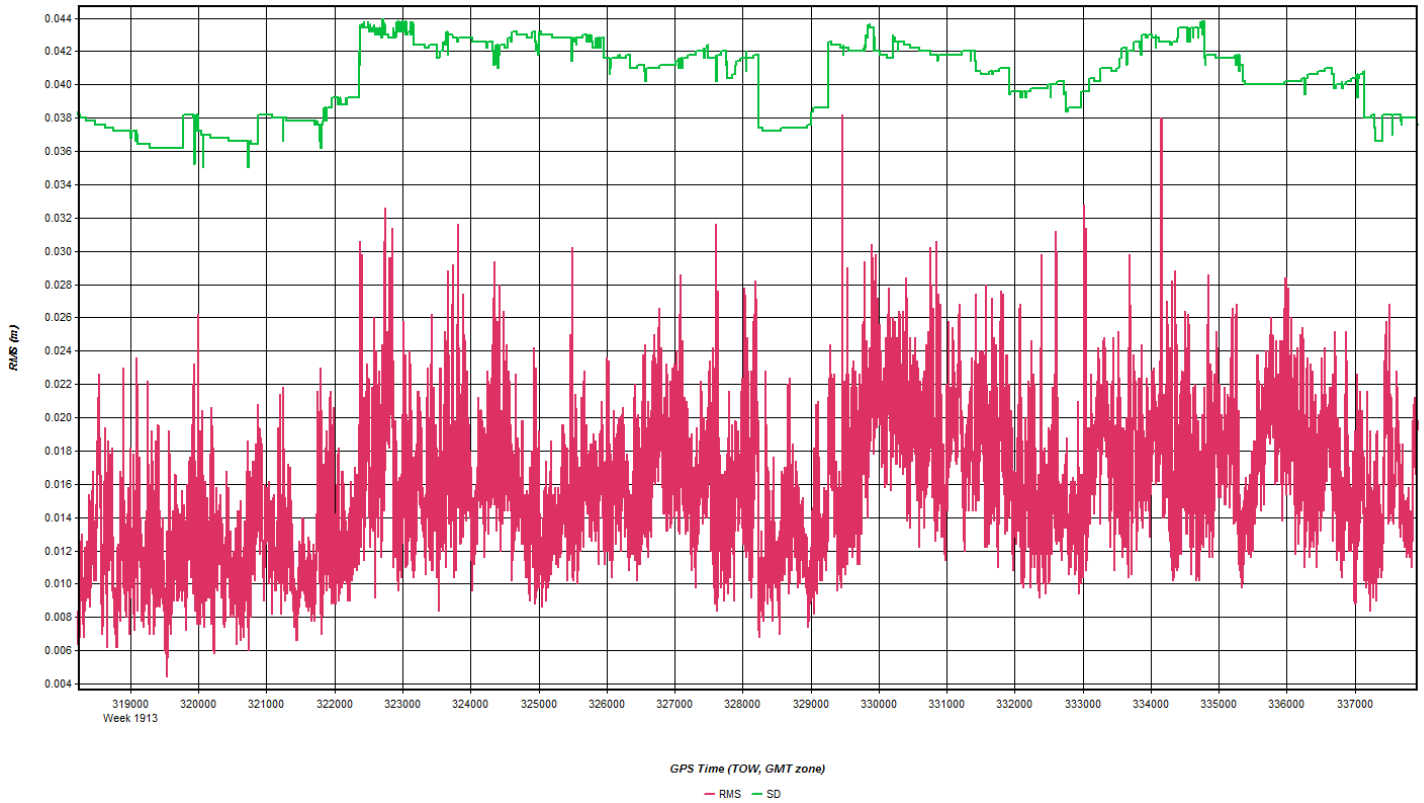
GPS Time (TOW, GMT zone)
— East — North — Up

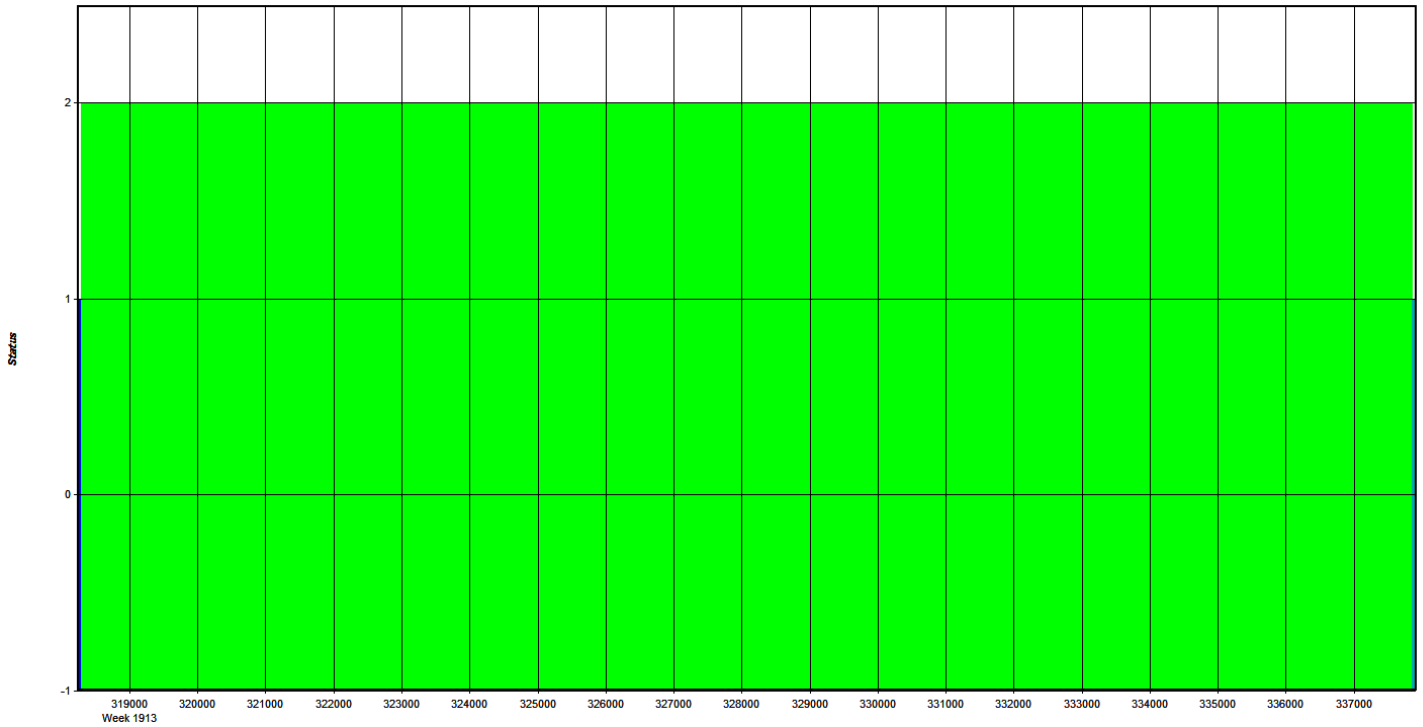


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: AI5816 Name: AI5816 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD251_704MD_SS\R7_257

Coordinates
 Latitude: North 40 48 46.70340 Compute from PPP
 Longitude: West 111 56 54.21205 Enter Grid Values
 Ellipsoidal height: 1274.976 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
1: UTAH16 Name: UTAH16 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD251_704MD_SS\R7_76

Coordinates
Latitude: North 40 43 17.59509 Compute from PPP
Longitude: West 112 13 16.54181 Enter Grid Values
Ellipsoidal height: 1286.613 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log - QL1

SN7161-090716A

Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email: Log daily to flight_log_distribution_list@quantumspatial.com)

Project: Utah

Aircraft: 704MB

Dep Apt: 6

CORS: Y / N Sta 1: Sta 2:

GPS Unit: Y / N Sta 1: Sta 2:

Gd Temp beg: °C End: °C OAT beg: °C End: °C

Date: 9/7/2016

Flight Mgmt File: 20160907-160402

Proj #: 29083

Pilot: Wagner

Co-Pilot:

Tech: Iverson

Total:

Arr Time (Local): (Z):

Arr Apt:

Alt: ANSL

Alt AGL: 7161

Alt MSL:

MPJA: Y / N

POOP/s:

GPS Altitude:

Crab:

Turb (0..*):

End (UTC):

Gd Spd:

Serial #: 7161

Scan Freq:

Type: ALS70

FOV:

Max Gdspd:

Power:

Avg Ft Spacing:

PPSM:

Storage (Name/P):

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/s	GPS Altitude	Crab	Turb (0..*)	Alt ANSL	Alt AGL	Alt MSL	Avg Ft Spacing	PPSM	Max Gdspd	Power	Storage (Name/P)
UL002	N	1909	1911	97	16/1.2											
GSL																
2119	N	1920	1923	98	17/1.2											
2120	S	1925	1929	100	17/1.2											
2123	N	1932	1937	98	18/1.2											
2122	S	1939	1945	103	18/1.2											
2121	N	1947	1952	100	18/1.2											
UL001	E	1956	2003	105	17/1.3											
		UL002	Junk													
UL003	E	2024	2028	105	17/1.2											
2065	N	2031	2033	97	19/1.1											
2064	S	2039	2042	105	18/1.1											
2063	N	2044	2048	92	19/1.1											
2062	S	2050	2054	95	19/1.1											
2061	N	2056	2059	103	19/1.2											
2060	S	2102	2106	91	19/1.1											
2059	N	2108	2112	105	19/1.1											

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

cross flight 190908
= setting on Next Page =
FMSL - Utah - GSL - QL2 - SN7161 - rev.1
- 192028
192536
193218
193958
194746
cross flight 195657
Air traffic on Hold waiting for clearance
cross flight 202403
203117
203921
204449
205042
205622
210206
210830

Total Proj Lines:	Lines Flown:	Lines Remain:	Online Time:	Job Time:	Notes:
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SN716L090716A

Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email: Log daily to flight_log_distribution_list@quantumspatial.com)

Date: 9/7/2016
Lifts (A) B C D E Pg 3 of 3

Project: Utah
 Aircraft: 704MD
 Flight Mgmt File: 20160907_160402
 Pilot: Wagner
 Co-Pilot: Iveson
 Tech: Iveson

Proj #: 29083
 Total: 29083
 End Hobbs: 704MD
 Flight Mgmt File: 20160907_160402

Dep Apt: OGD
 Arr Apt: OGD
 Arr Time (Local): [Z]
 Tot Time Aloft: [Z]

CORS: Y/N Sta 1: [Z]
 Sta 2: [Z]
 Flyovers: Y/N If Y, times: Sta 1
 Sta 2

GPS Unit: Y/N Sta 1: [Z]
 Sta 2: [Z]
 Flyovers: Y/N If Y, times: Sta 1
 Sta 2

Gd Temp beg: °C End: °C OAT beg: °C End: °C
 Alt ANSL
 Alt AGL
 Alt MSL
 Alt in Air

Line #	Type	Serial #	Scan Freq	End (UTC)	Gd Spd	PDOP/sats	GPS Altitude	Crb	Turb (0-+)	Alt		Max Gdepd	Power	Avg Pt Spacing PPSM	Storage		
										FOV	Scan Freq				Alt ANSL	Alt AGL	Alt MSL
2058	S	ALS70	40	2114	98	20/1							8896				
				2119													
				2124													
				2142													
				2150													

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

211405 FMSL - Utah - GSL - SN716L rev 1
 Figure 8
 Land Obd 1314.6 Hobbs
 static

Total Proj Lines: 2.5 Lines Flown: 2.5 Lines Remain: 0
 Online Time: 4:00 Mob Time: 0:00 Notes:

Flight Log - QL2

SN7161 090716A
Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email: Log daily to flight_log_distribution_list@quantumspatial.com)

Date: 9/7/2016
Lift: (A) B C D E Pg 1 of 3

Project: Utah
Flight Mgmt File: 20160907-160402
Tech: IVERSON

Aircraft: N704MD Begin Hobbs: 1309.4 End Hobbs: 1314.6 Total: 5.2 Pilot: Wagner Co-Pilot:
Dep Apt: OGD Dep Time (Lcl): 1633 Arr Apt: OGD Arr Time (Local): 1542 (Z): 2142 Tot Time Aloft: 5:09

CORS: Y/N Sta 1: STA16-06 Sta 2: AI5826 Flyovers: Y/N IF Y, times: Sta1) Sta2)
GPS Unit: Y/N Sta 1: UTAH16-06 Sta 2: AI5826 Flyovers: Y/N IF Y, times: Sta1) Sta2)

Gd Temp beg:	°C	End:	°C	OAT beg:	°C	End:	°C	Altimeter begin:	°C	end:		Storage Name/#
										Avg Pt Ht	Max Gdspd	
LIDAR	Type ALS70	Serid # 7161	Alt AGL 7161	Alt ANSL	Pulses in Air	Rate	Mpi/A	Y/N	Power	57%		
FOV	40	Scan Freq	53 Hz									

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PDOP/sats	GPS Altitude	Crab	Turb (0..3)	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.
GSLW		1625							Static 1309.4 Hobbs
GSLW		1633							Take OFF OGD 1033
		1644							Figure 8 FMSL - Utah - GSL - W - QL2 - SN7161 rev 1
		1644							test strip UL 001
1012	E	1657	1704	103	17/1.2				160907-165735 % RL 8/16 water 19%
1013	W	1706	1713	98	16/1.2				170608 RL 13% water 38% 81% 100%
1014	E	1715	1722	97	15/1.4				171501 RL 59% water 100%
1015	W	1724	1731	98	16/1.2				172404 RL 23% water 70% 50% 100%
									AirSpace - Access - wait for traffic
1016	E	1758	1805	103	19/1				175842 RL 50% water 100%
1017	W	1807	1815	103	18/1.1				180753 RL 14% 47% water 96% 100%
1018	E	1816	1824	103	18/1.1				181651
1019	W	1825	1832	94	17/1.2				182544
1020	E	1834	1841	105	17/1.2				183448
1021	W	1843	1850	92	17/1.1				184327
1022	E	1853	1858	102	18/1.1				185318
1023	W	1901	1906	98	17/1.1				190137

Total Proj Lines: 25 Lines Flown: 25 Lines Remain: 4 Online Time: 4 Mob Time: 1.2 Notes: 1018 / Sandisk_usb_128 / Ordinance / UTM 12

SN7161-090716A

Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email: Log daily to flight_log_distribution_list@quantumspatial.com)

Project: Utah

Aircraft: 704MB

Dep Apt: 6

CORS: Y / N

GPS Unit: Y / N

Gd Temp beg: °C

Date: 9/7/2016

Flight Mgmt File: 20160907-160402

Pilot: Wagner

Co-Pilot:

Tech: Iverson

Proj #: 29083

End Hobbs:

Dep Time (Lcl): (Z)

Arr Apt:

Arr Time (Local): (Z)

Tot Time Aloft:

Flyovers: Y / N

Flyovers: Y / N

Alt: °C

OAT beg: °C

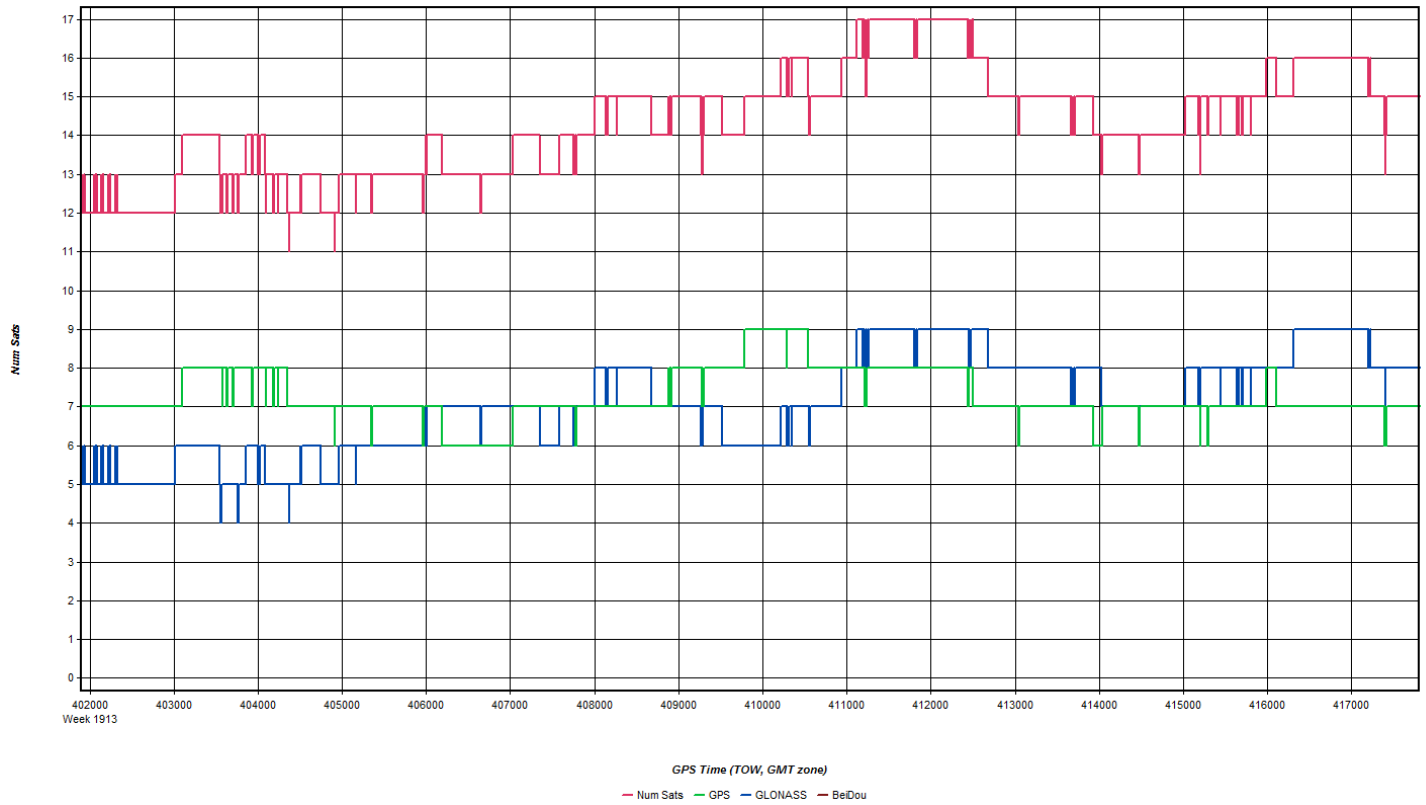
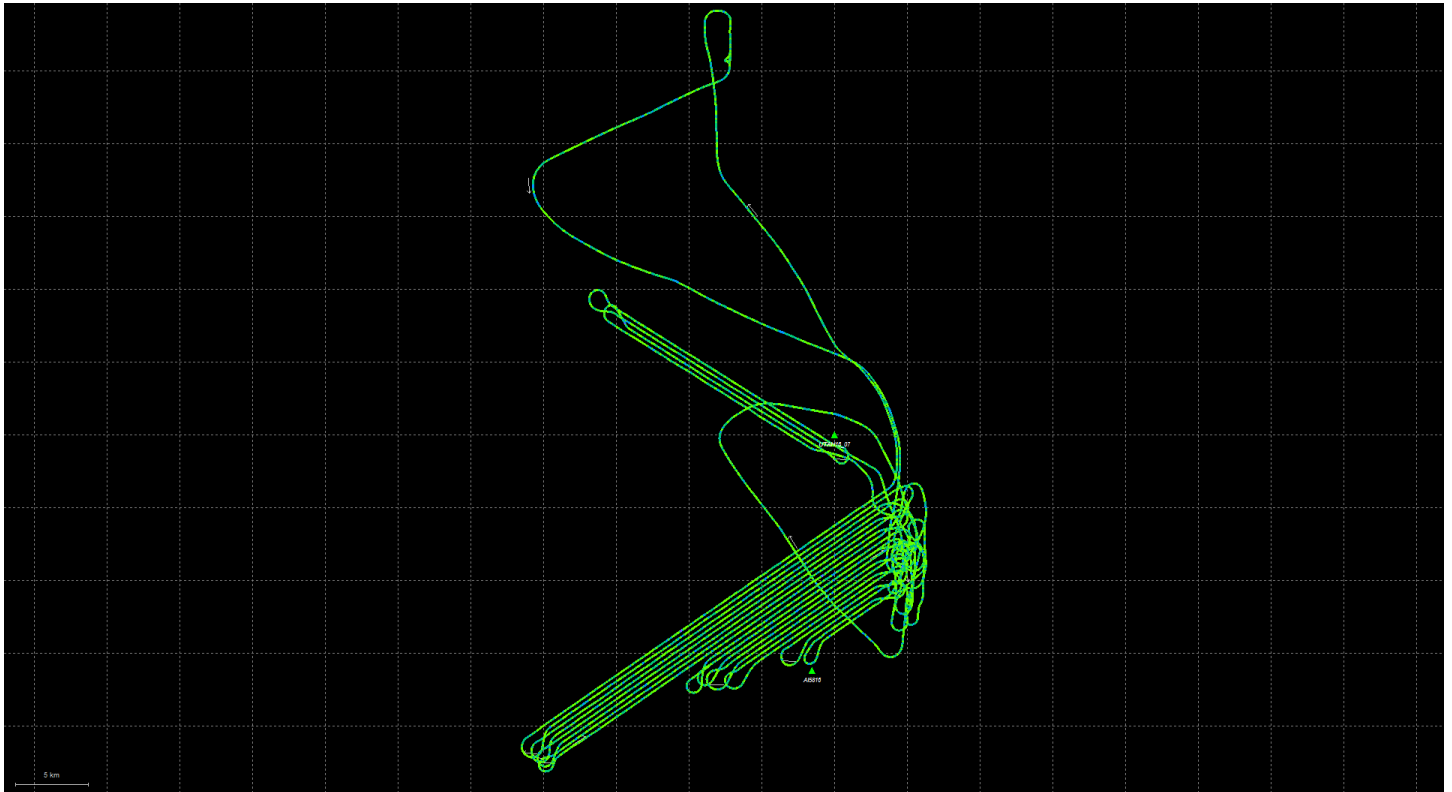
End: °C

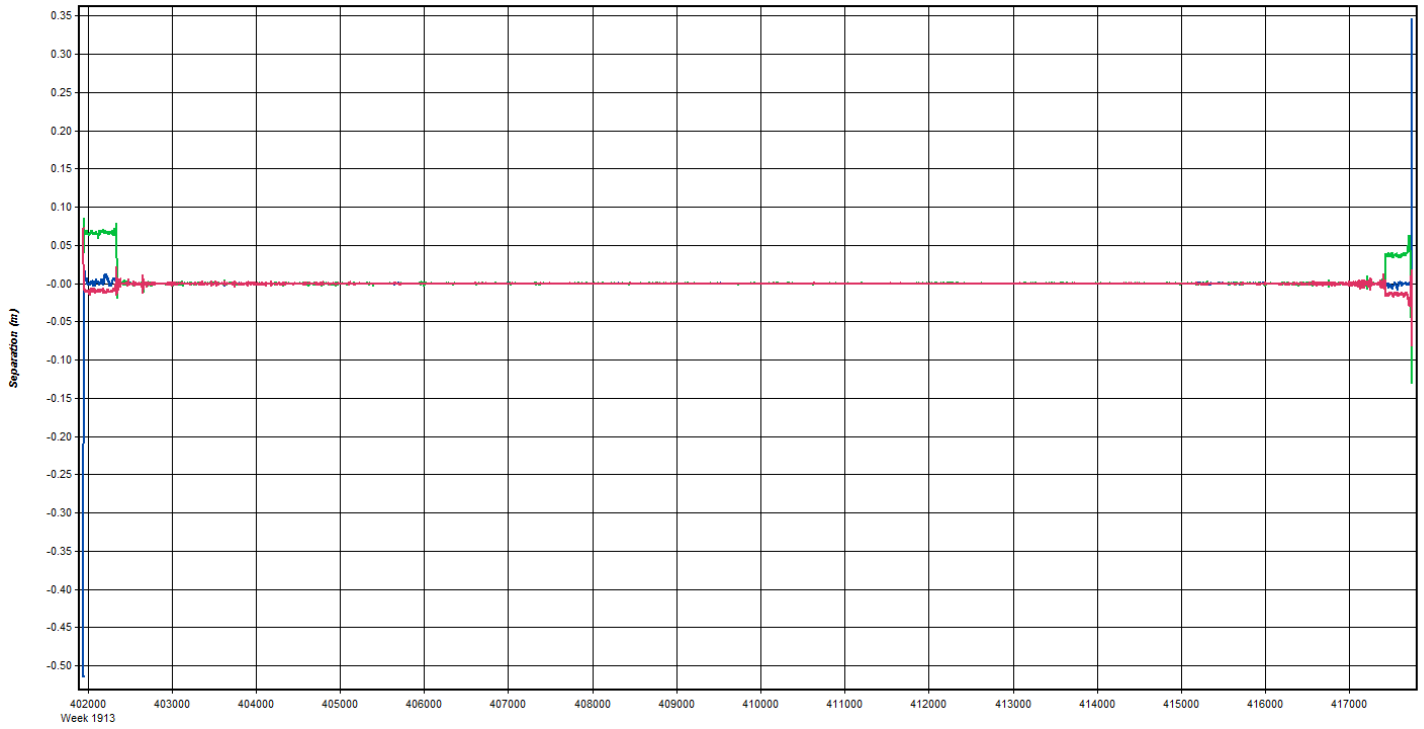
Line #	Type	Serial #	Start (UTC)	End (UTC)	Gd Spd	POOP/s	GPS Altitude	Crab	Turb (0..*)	Alt AGL	Alt AMSL	Pulses In Air	Pulse Rate	Avg Ht	Max Gdspd	Power	PPSM	Altitude begin:			Storage Name/P		
																		°C	°C	°C			
UL002	N	1909	1911	97	16/1.2																		
GSL																							
2119	N	1920	1923	98	17/1.2																		
2120	S	1925	1929	100	17/1.2																		
2123	N	1932	1937	98	18/1.2																		
2122	S	1939	1945	103	18/1.2																		
2121	N	1947	1952	100	18/1.2																		
UL001	E	1956	2003	105	17/1.3																		
UL003	E	2024	2028	105	17/1.2																		
2065	N	2031	2033	97	19/1.1																		
2064	S	2039	2042	105	18/1.1																		
2063	N	2044	2048	92	19/1.1																		
2062	S	2050	2054	95	19/1.1																		
2061	N	2056	2059	103	19/1.2																		
2060	S	2102	2106	91	19/1.1																		
2059	N	2108	2112	105	19/1.1																		

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

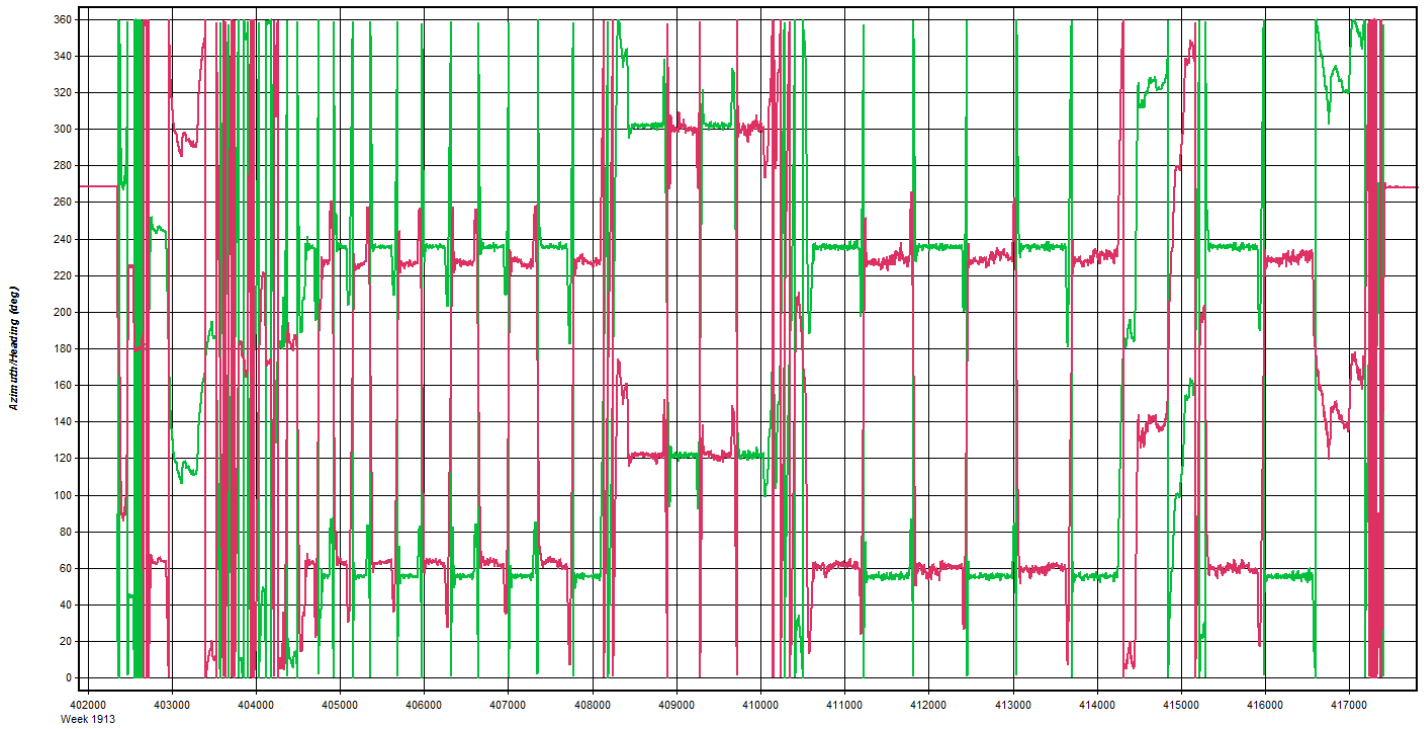
cross flight 190908
= setting on Next Page =
FMSL - Utah - GSL - QL2 - SN7161 - rev 1
- 192028
192536
193218
193958
194746
cross flight 195657
Air traffic on Hold waiting for clearance
cross flight 202403
203117
203921
204449
205042
205622
210206
210830

Sep 8, 2016-A (N704MD, SN7161)

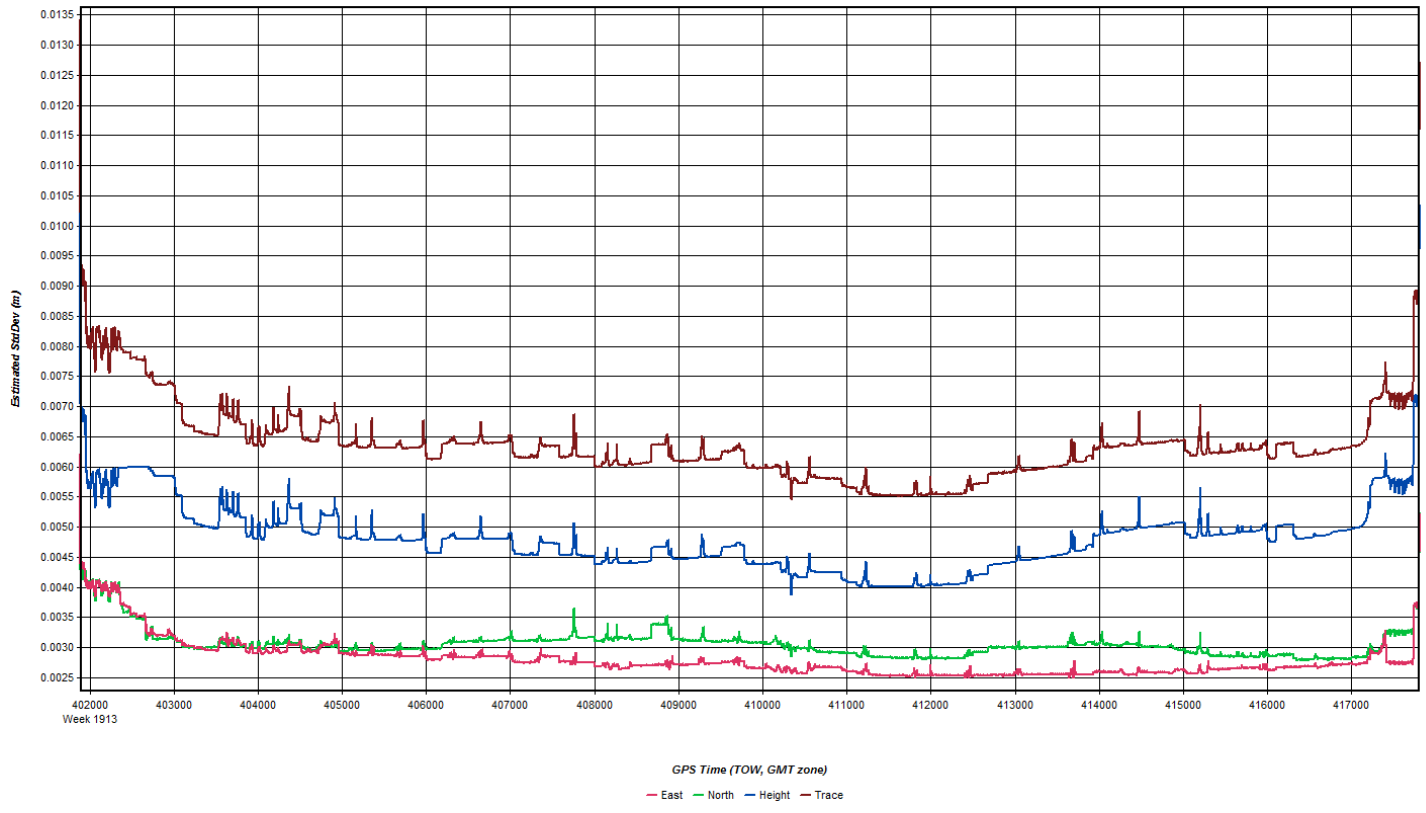
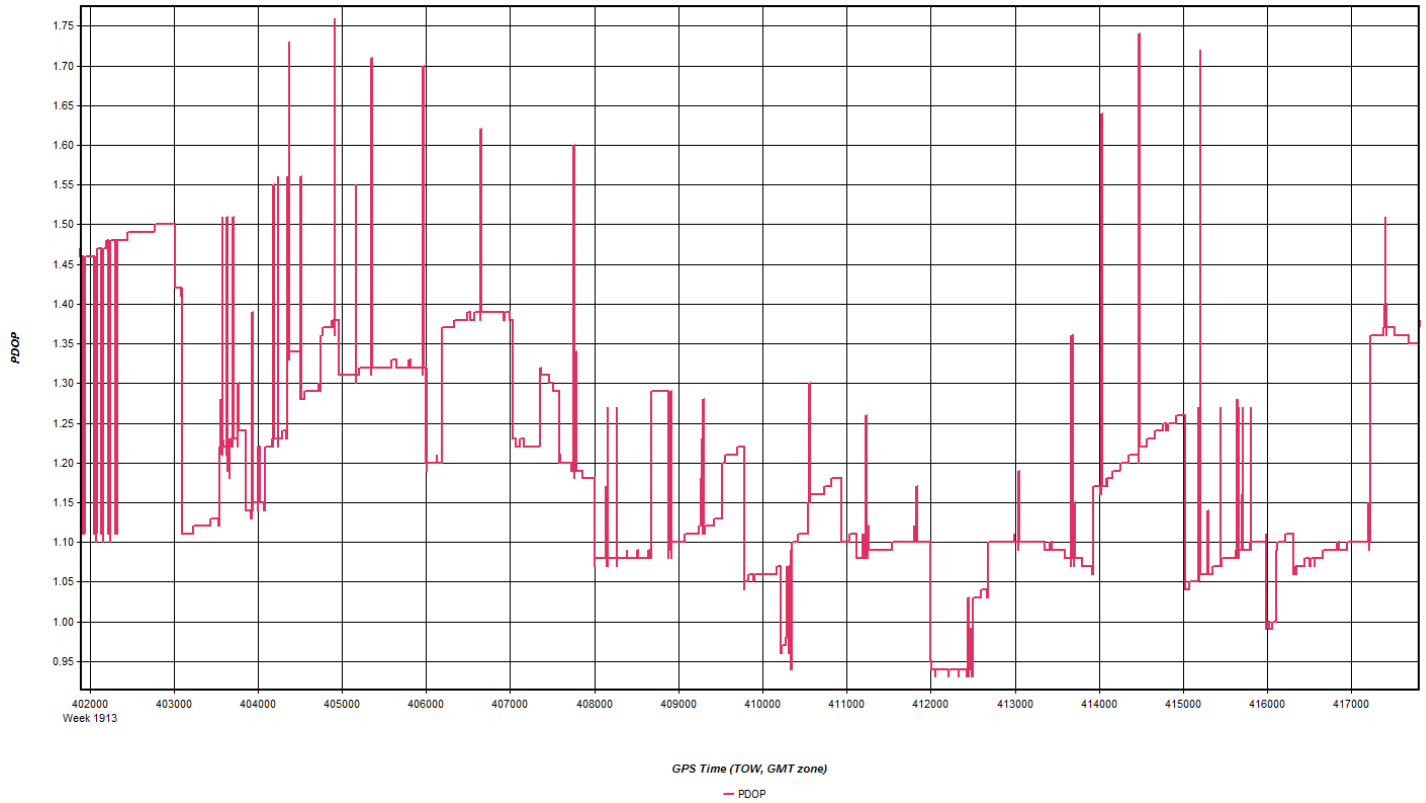


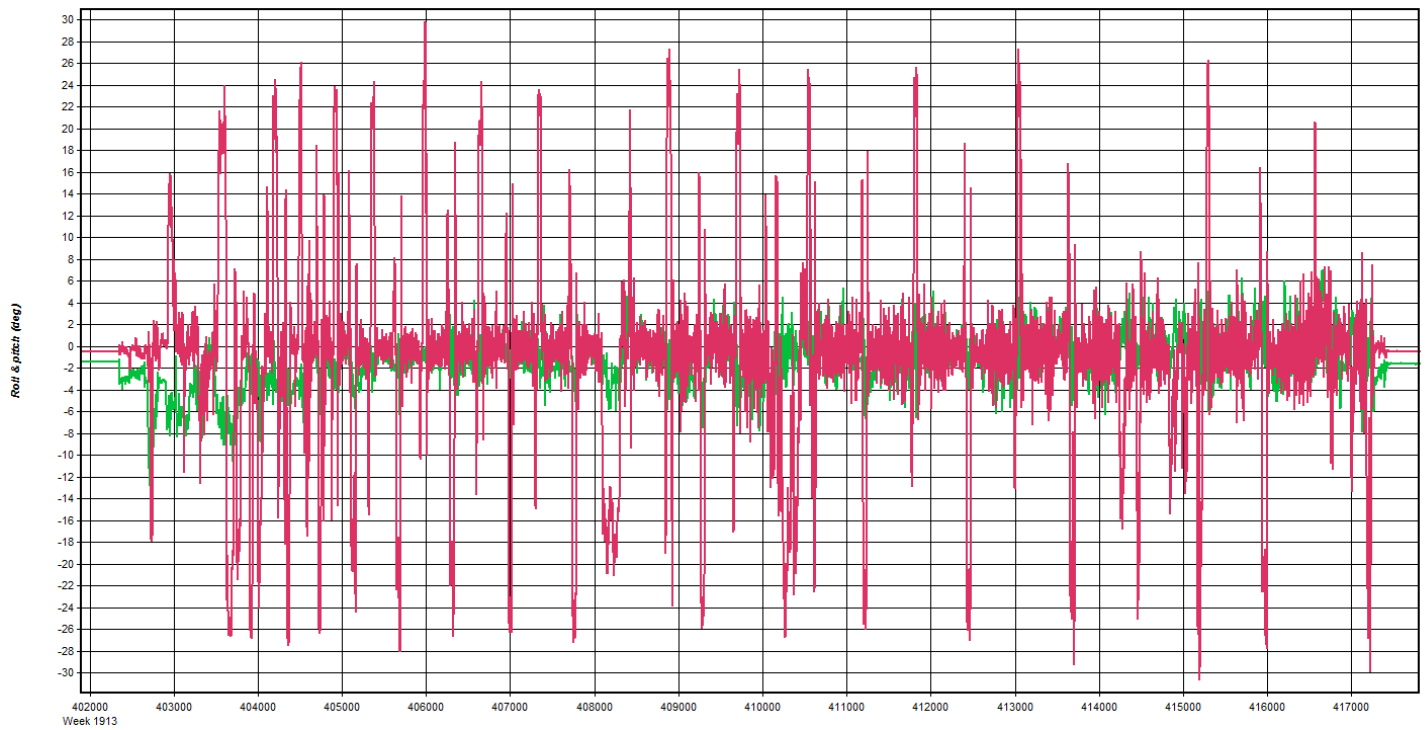


GPS Time (TOW, GMT zone)
— East — North — Up



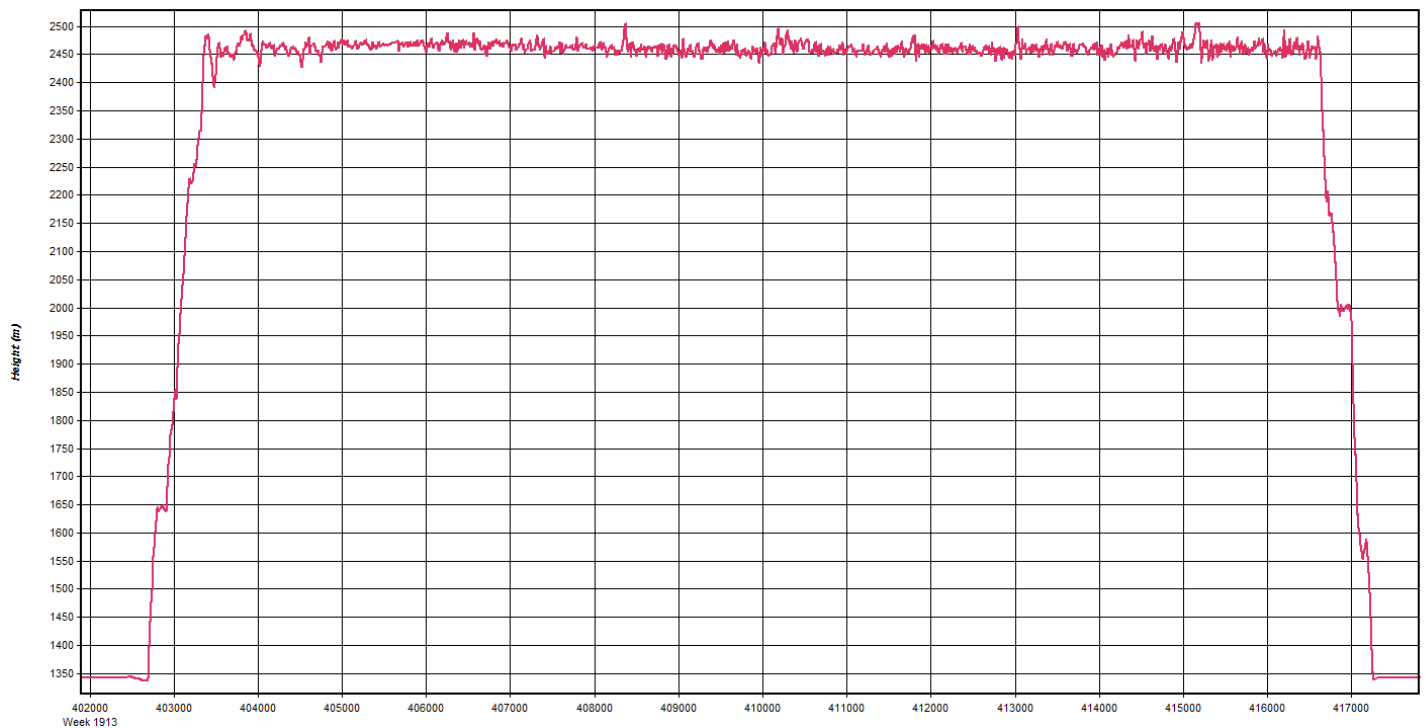
GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG





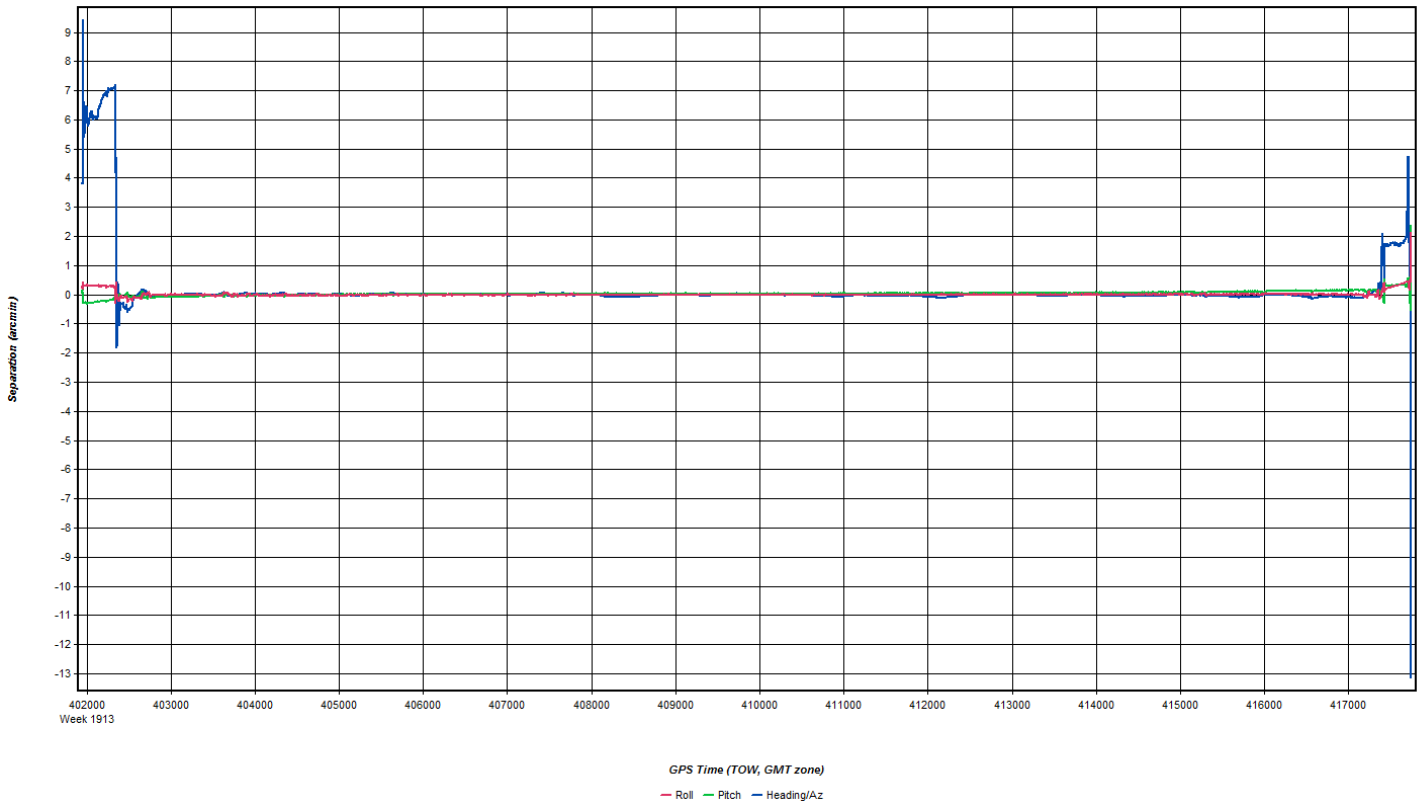
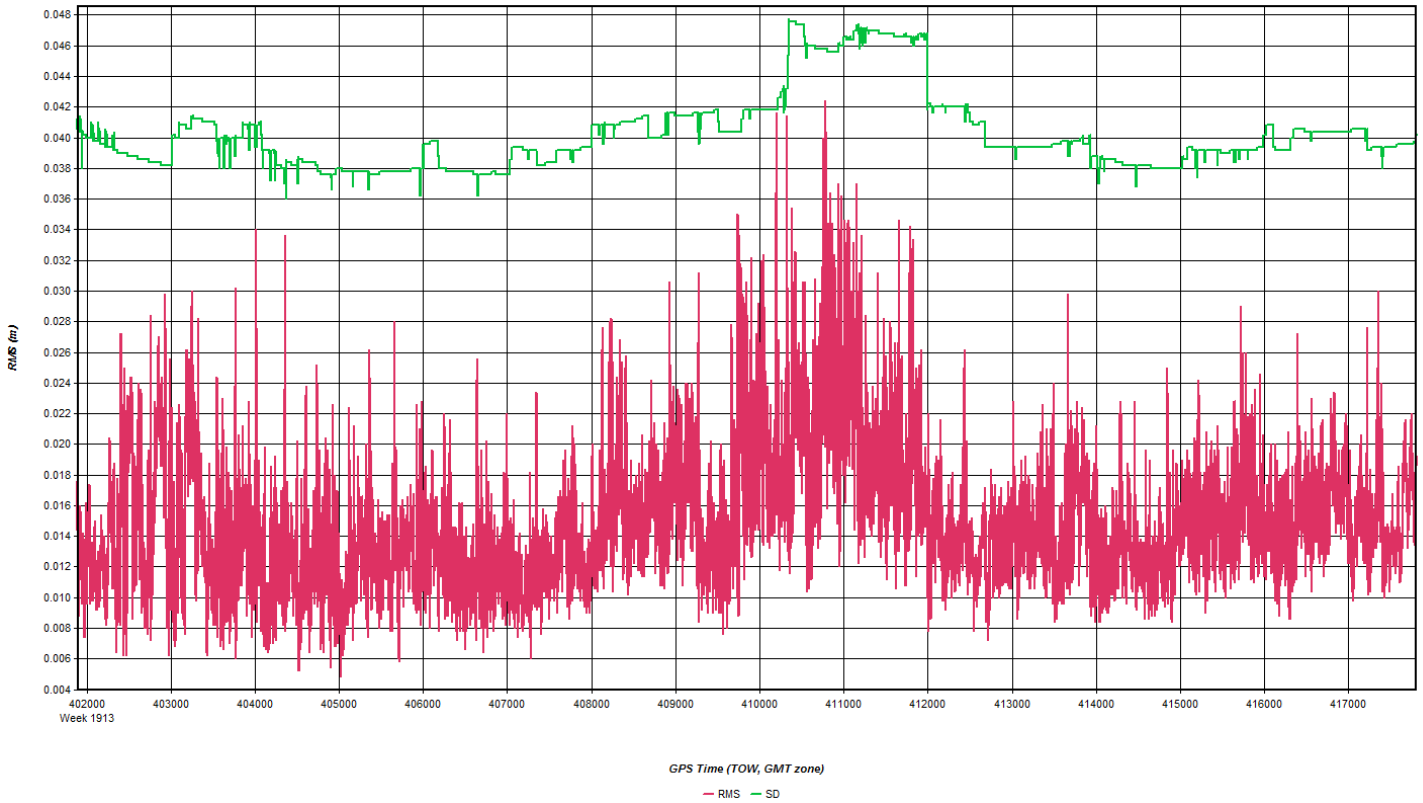
GPS Time (TOW, GMT zone)

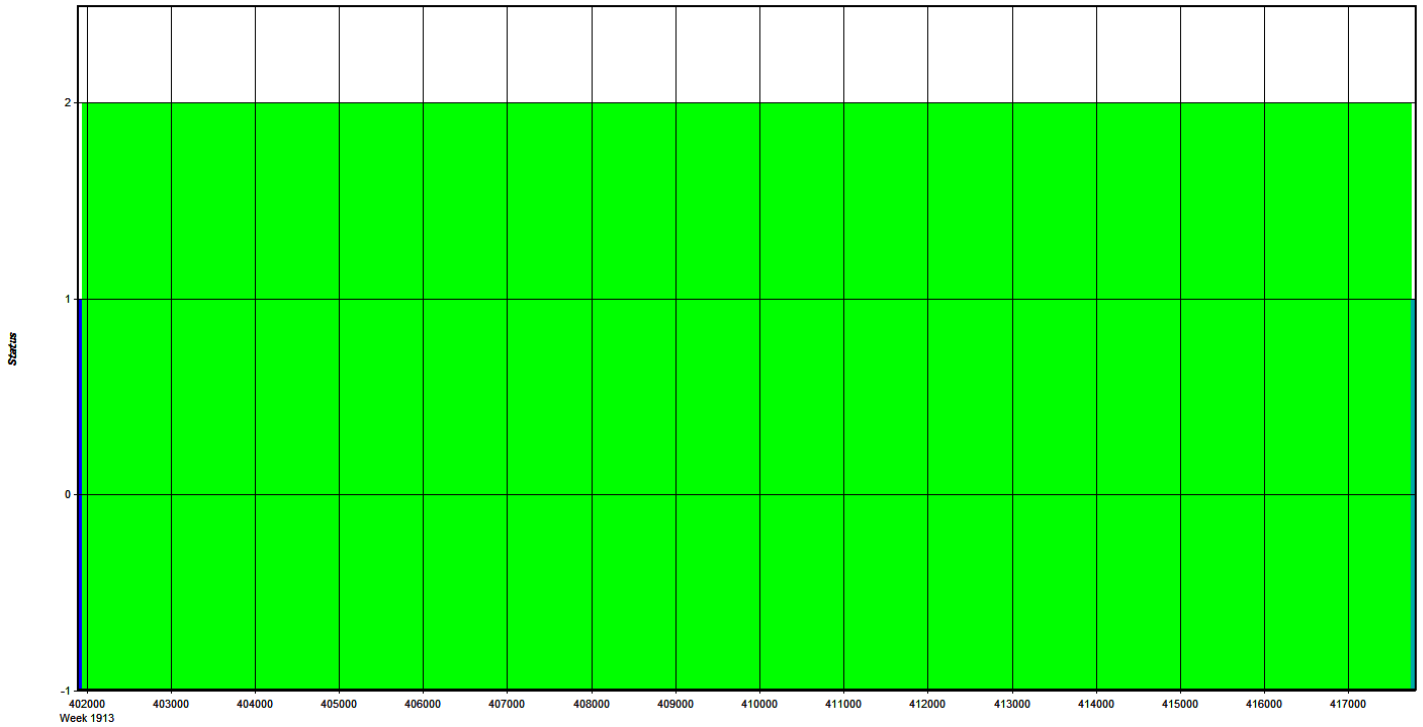
— Roll — Pitch



GPS Time (TOW, GMT zone)

— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: AI5816 Name: AI5816 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD252_704MD_SS\R7_257

Coordinates
 Latitude: North 40 48 46.70340 Compute from PPP
 Longitude: West 111 56 54.21205 Enter Grid Values
 Ellipsoidal height: 1274.976 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
 1: UTAH16_07 Name: UTAH16_07 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD252_704MD_SS\R7_76C

Coordinates
 Latitude: North 40 57 27.00288 Compute from PPP
 Longitude: West 111 55 47.23107 Enter Grid Values
 Ellipsoidal height: 1273.978 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Project: *Utah* **SN7161 090816A**
(email Log daily to flight_Log_distribution_list@quantumspatial.com)

Date: *9/8/2016*
Lift: A B C D E Pg 1 of 2

Proj #: *29083* **Flight Mgmt File:** *20160908-153203*

Aircraft: N704MD **Begin Hobbs:** *1314.6* **Total:** *4* **Pilot:** *Wagner* **Co-Pilot:** *Iverson*

Dep Apt: *OGD* **Dep Time (Lcl):** *0951* **Arr Apt:** *OGD* **Arr Time (Local):** *1954* **Tot Time Aloft:** *4:03*

CORS: Y / N **Sta 1:** *AY516* **Flyovers:** Y / N **IF Y, times:** *Sta 1* **Sta 2:**

GPS Unit: Y / N **Sta 1:** *UTAH16-07* **Flyovers:** Y / N **IF Y, times:** *Sta 1* **Sta 2:**

Line #	Type	Gd Temp beg:		°C		OAT beg:		°C		Alt		Pulse Rate	Max Gdspd	Power	PPSM	Storage			
		Start(UTC)	End(UTC)	Serial #	Alt AGL	Alt AHSL	Pulses In Air	Beg GB	End GB	Tot GB	Name/#								
	LIDAR																		
1161	W	1605	1608		7161														
1160	E	1626	1627		53 HZ														
1159	W	1629	1630																
1158	E	1633	1634																
1157	W	1636	1639																
1156	E	1642	1645																
1155	W	1646	1650																
1154	E	1652	1658																
1153	W	1658	1700																
1152	E	1703	1707																
1151	W	1709	1714																
1152	E	1716	1720																
1221	N	1728	1733																
1222	S	1735	1740																
1223	N	1742	1747																

FLIGHT LINE NOTES: - visibility, clouds, smoke, partial, etc.

static *1314.6 Hobbs*

Take OFF OGD 0951

Figure 8 FMS - Utah - GRS L - E - QL1 - SN7161 -
160908 - 162326

162619

162927

163309

163649

164202

164659

165238

165813

170354 ~~eye safe cut off - Refly~~

170959

171655

172814

173535 *turbulence*

174219 *turbulence*

Total Proj Lines: *10181*

Lines Flown: *23*

Lines Remain: *10158*

Online Time: *3.7*

Mob Time: *.3*

Notes: *ordnance / UTM 12*

SN761-090816A

Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email Log daily to flight_Log_distribution_list@quantumspatial.com)

Date: 9/8/2016
Page 2 of 2

LiDAR: B C D E

Project: Utah

Aircraft: 704MD

Dep Apt: Y / N

CORS: Y / N

GPS Unit: Y / N

Gd Temp beg: °C

Proj #: 29083

End Hobbs:

Air Apt: [Z]

Sta 1: A1516

Sta 2: UTAH16-07

Alt: °C

Pilot: Wagner

Flyovers: Y / N

Flyovers: Y / N

Altimeter begin: °C

Co-Pilot: Iveson

Sta 1: If Y, times: Sta1

Sta 2: If Y, times: Sta1

end:

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	Alt AGL	Alt AMSL	Pulses In Air	GPS Altitude	Turb (0-4)	Crab	Power	Storage		
												Max Gdspd	Avg Pt Spacing PPSM	Bag GB
1224	S	1749	1753	102	17/1.2						5796			
1150	W	1803	1811	99	18/1.2									
1149	E	1814	1822	97	18/1.2									
1148	W	1824	1833	102	17/1.2									
1147	E	1834	1843	103	17/1.2									
1146	W	1844	1853	101	18/1.1									
1145	E	1855	1903	107	17/1.1									
UL001	N	1908	1916	106	18/1.1									
1144	W	1922	1931	88	18/1.2									
1143	E	1933	1942	103	18/1.1									
			1954											
			2002											

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

174903 FMS-Utah-GSL-E-QL1-SN761-rev1

180347 turbulence

181419 turbulence

182422 turbulence

183439 turbulence

184447 turbulence

185516 turbulence

Cross Flight 190800 turbulence

192216 W

E 193325 A lot of Air traffic

Kicked out of Airspace by ATC

Land gap 1354 1318.6 Hobbs

Static

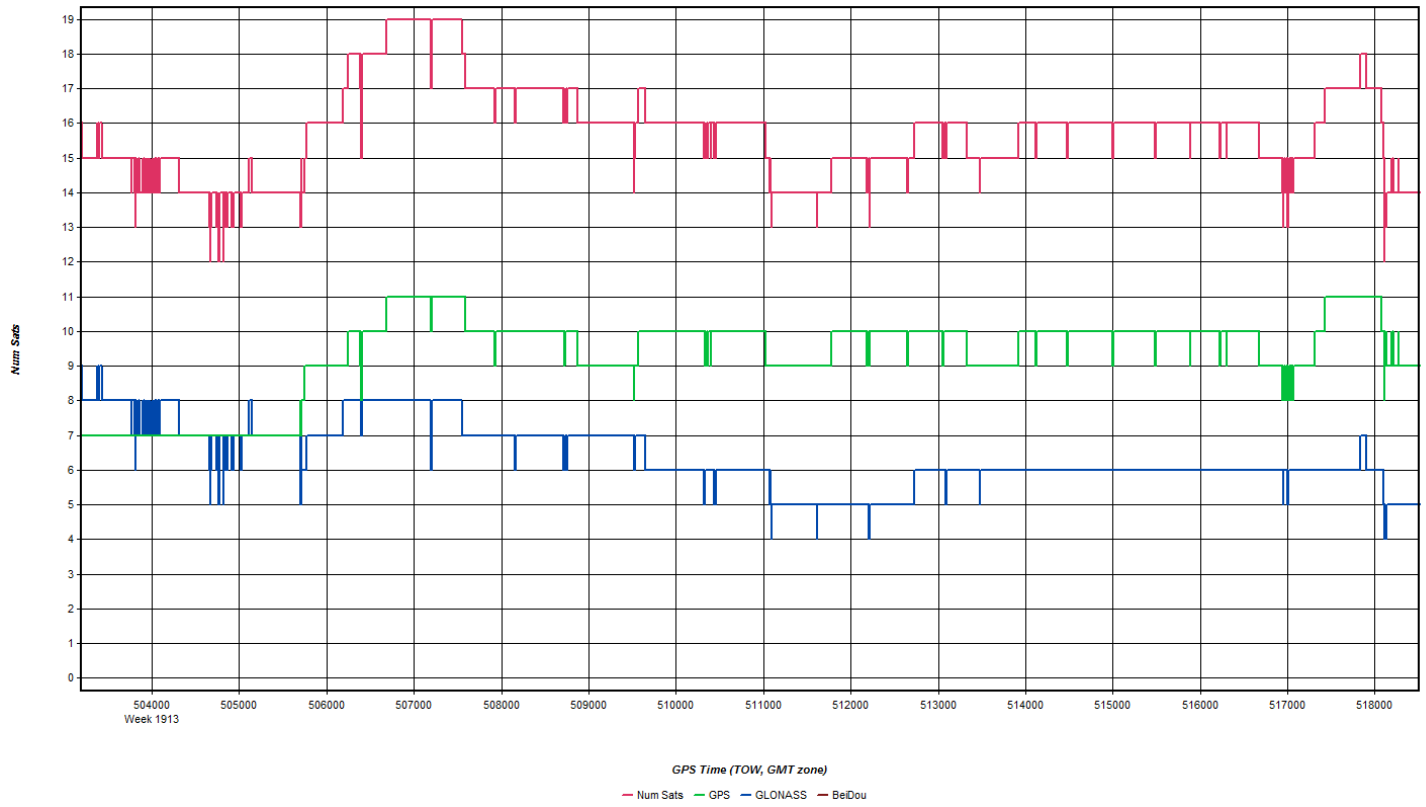
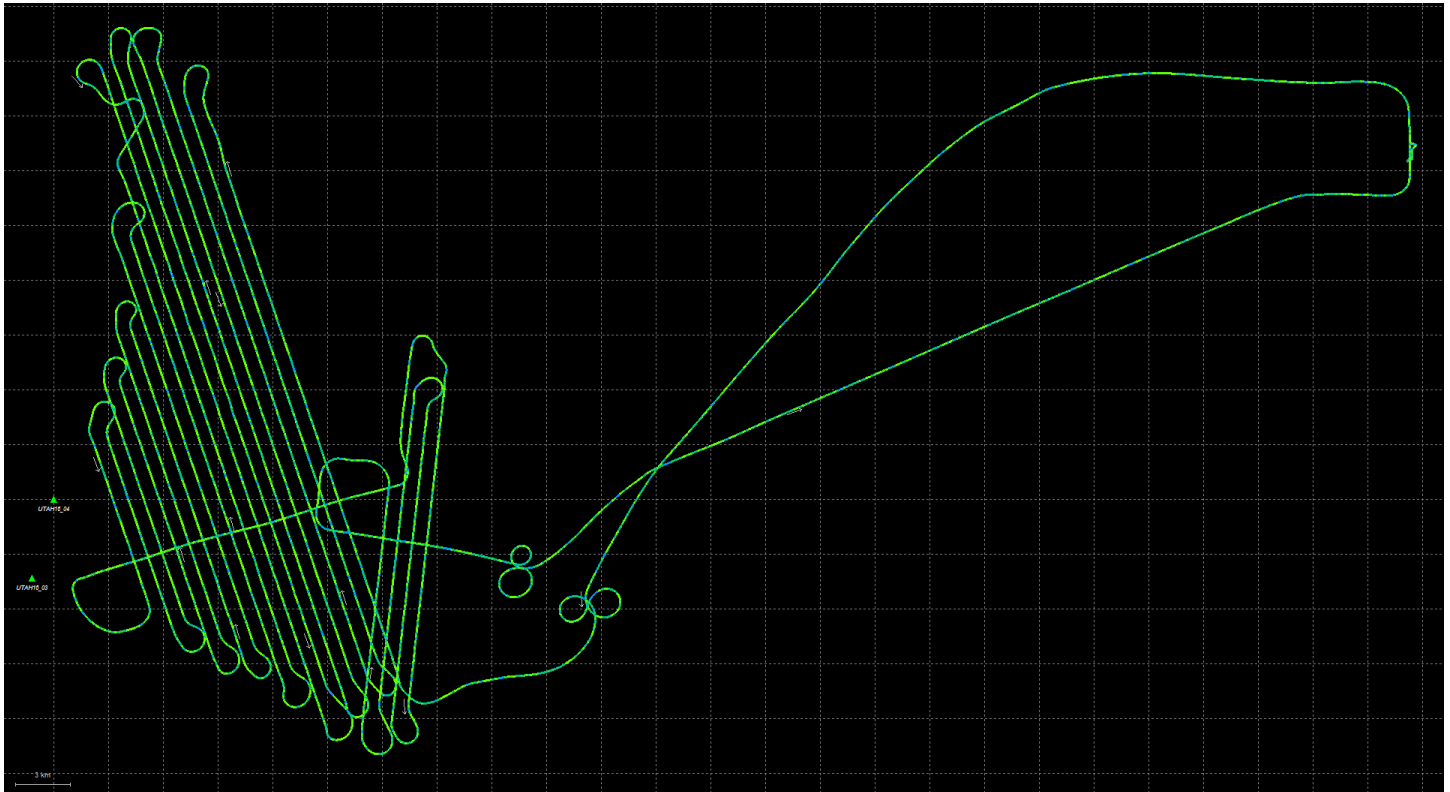
Still need to cross flight over 1221-1223.

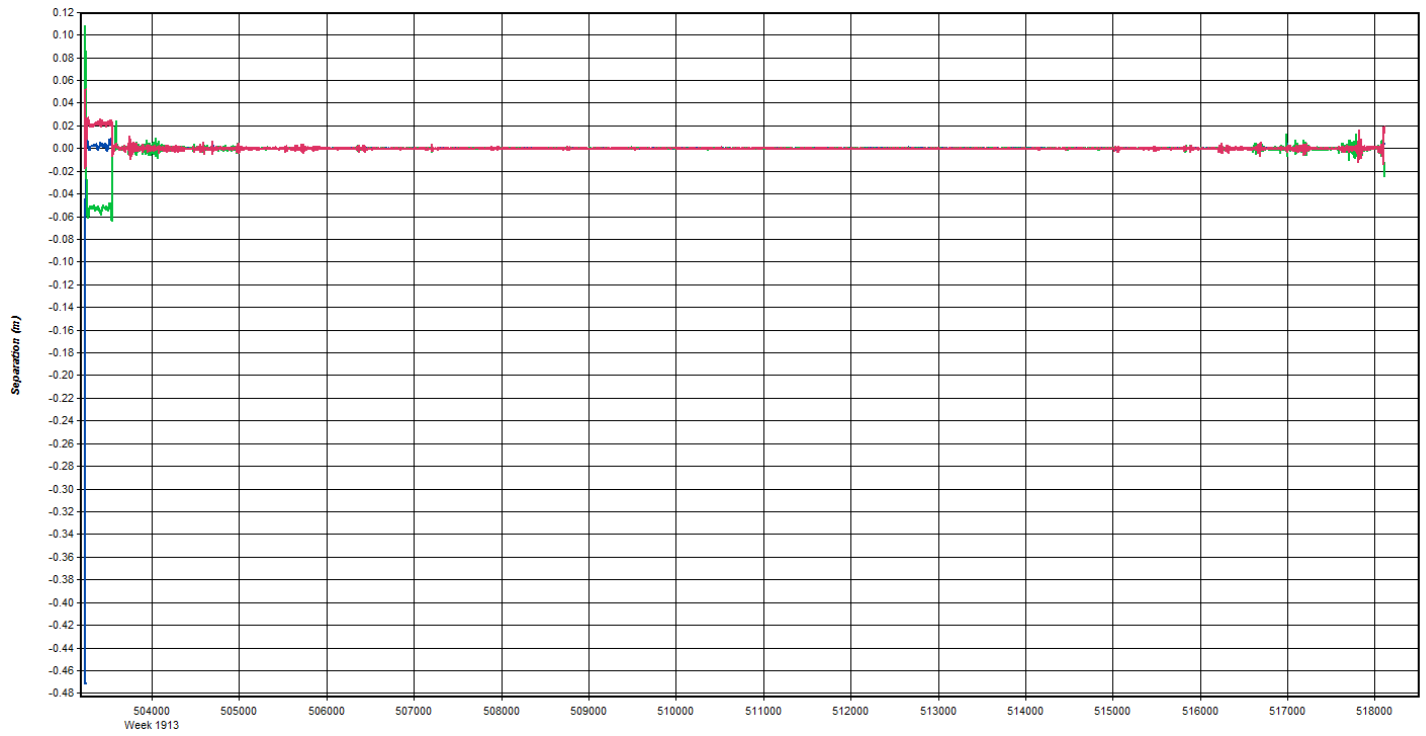
Prevented from that cross flight due to ATC.

Total Proj Lines:

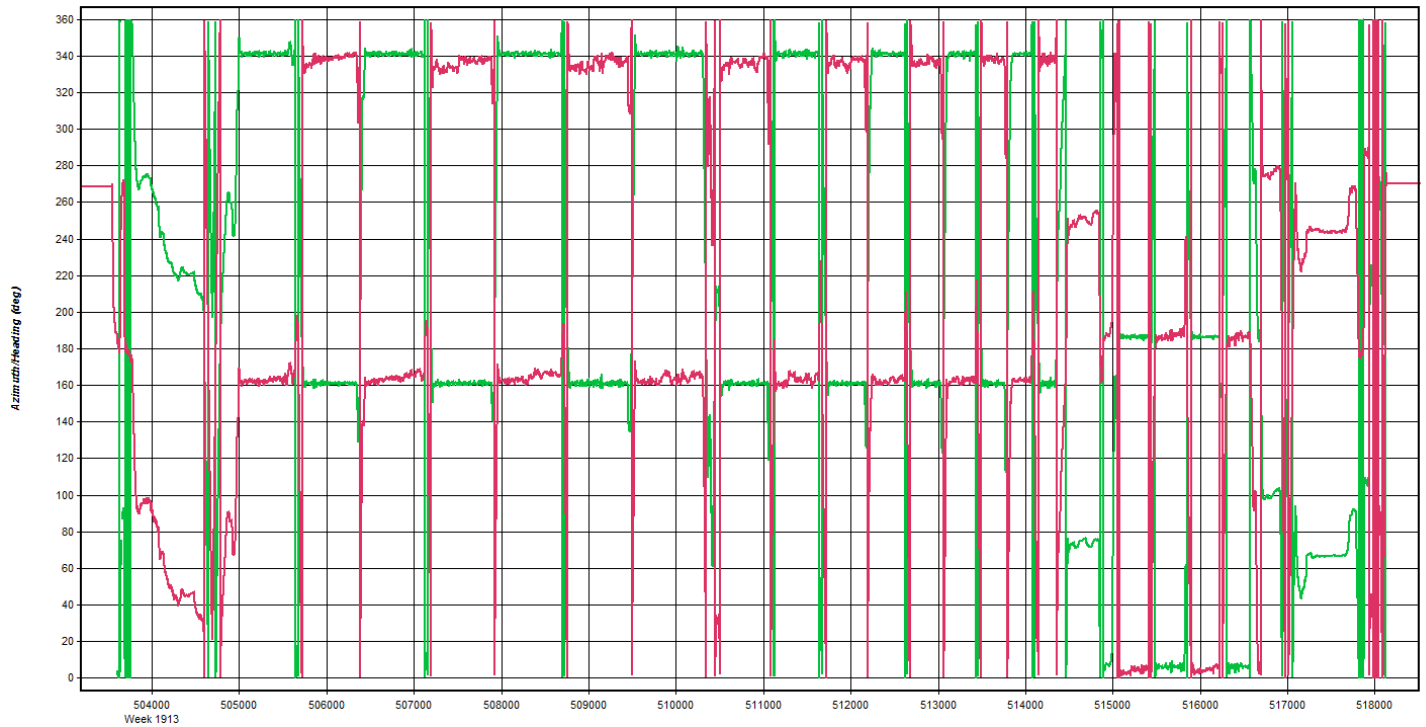
Lines Flown: **Lines Remain:** **Online Time:** **Mobile Time:** **Notes:**

Sep 9, 2016-A (N704MD, SN7161)

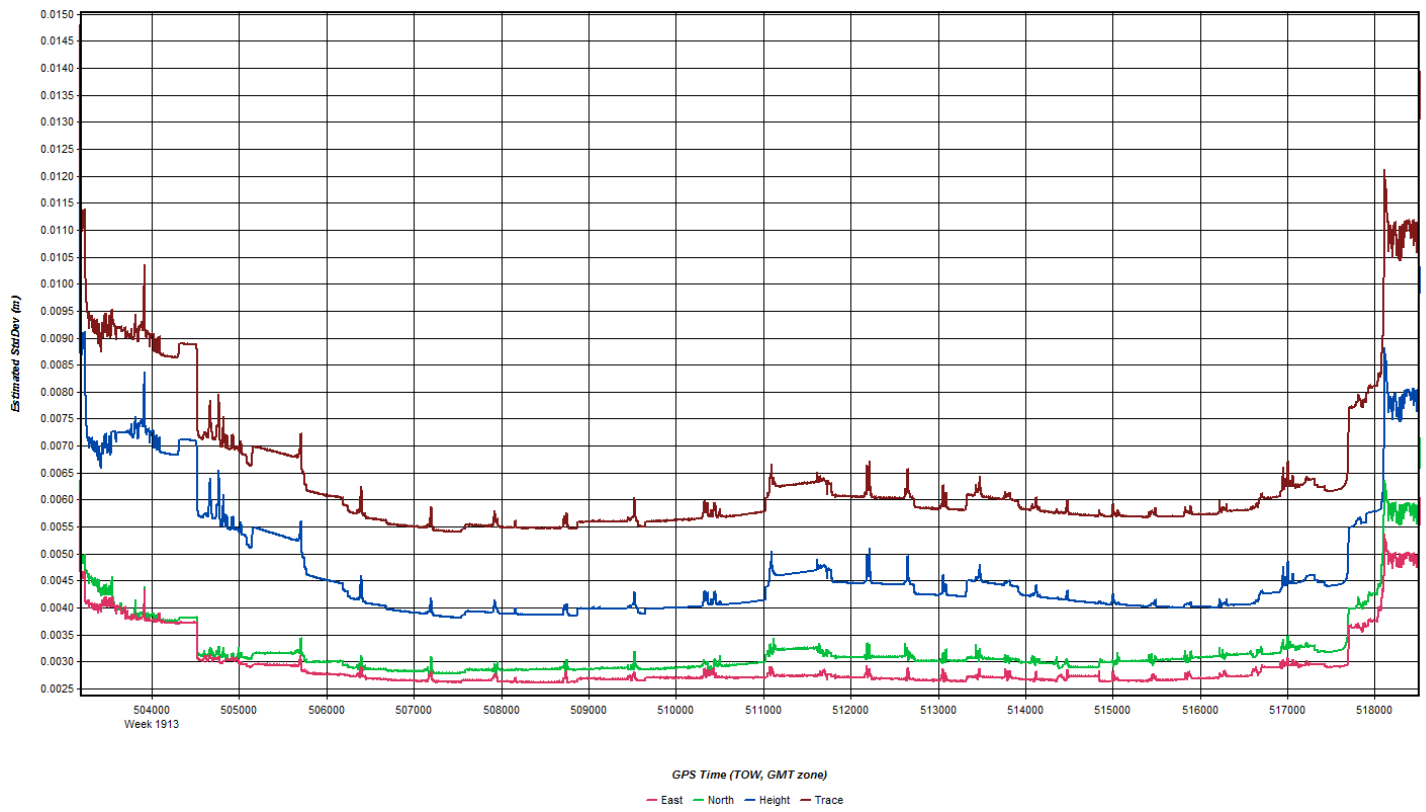
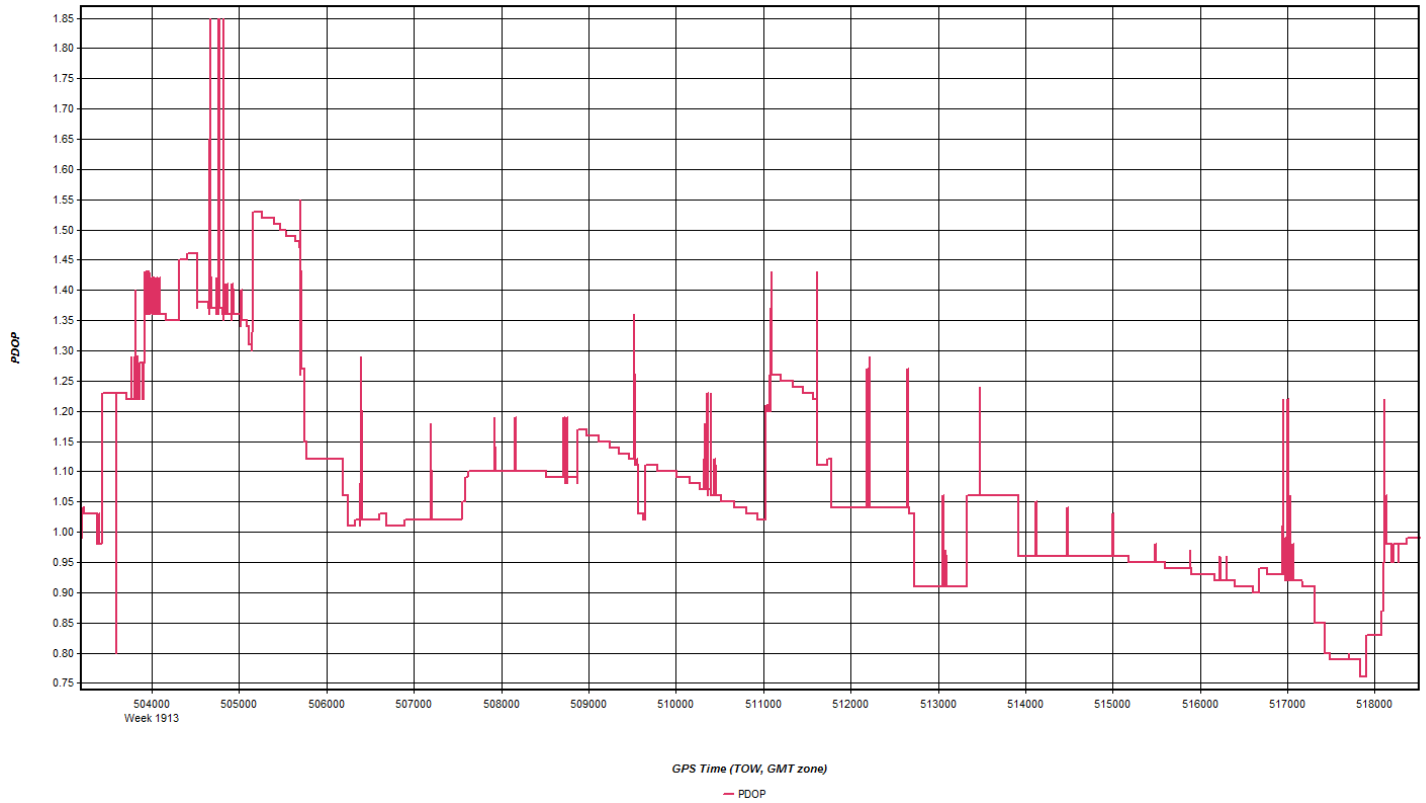


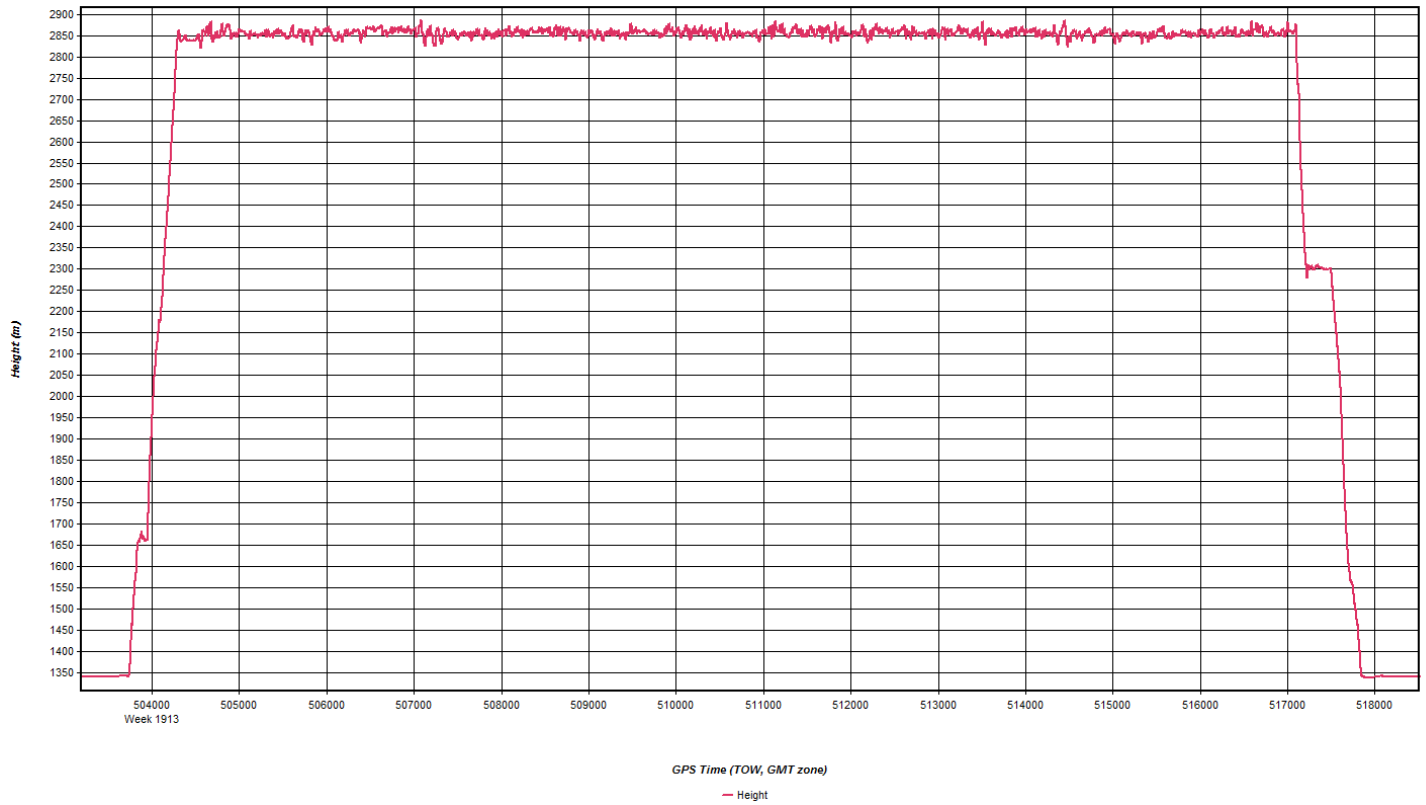
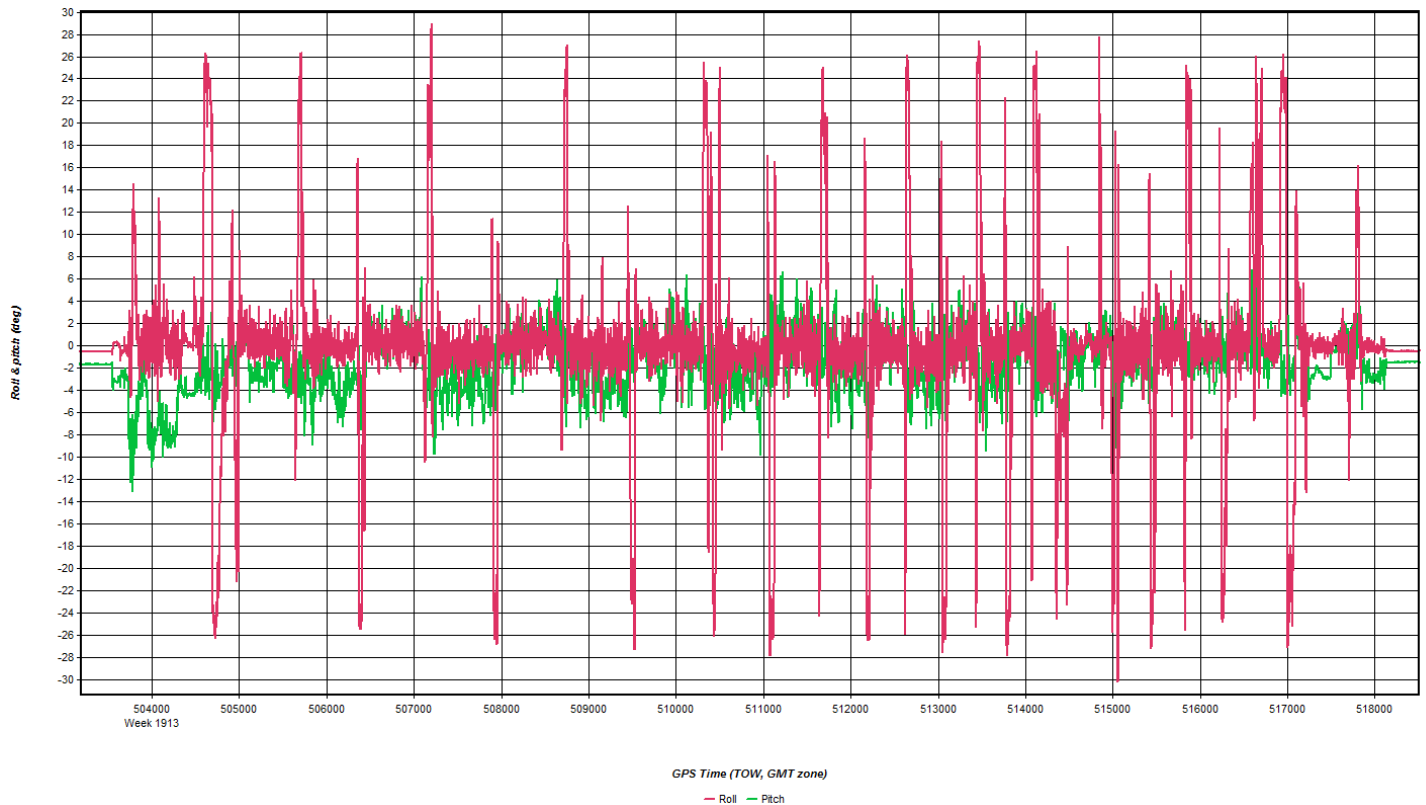


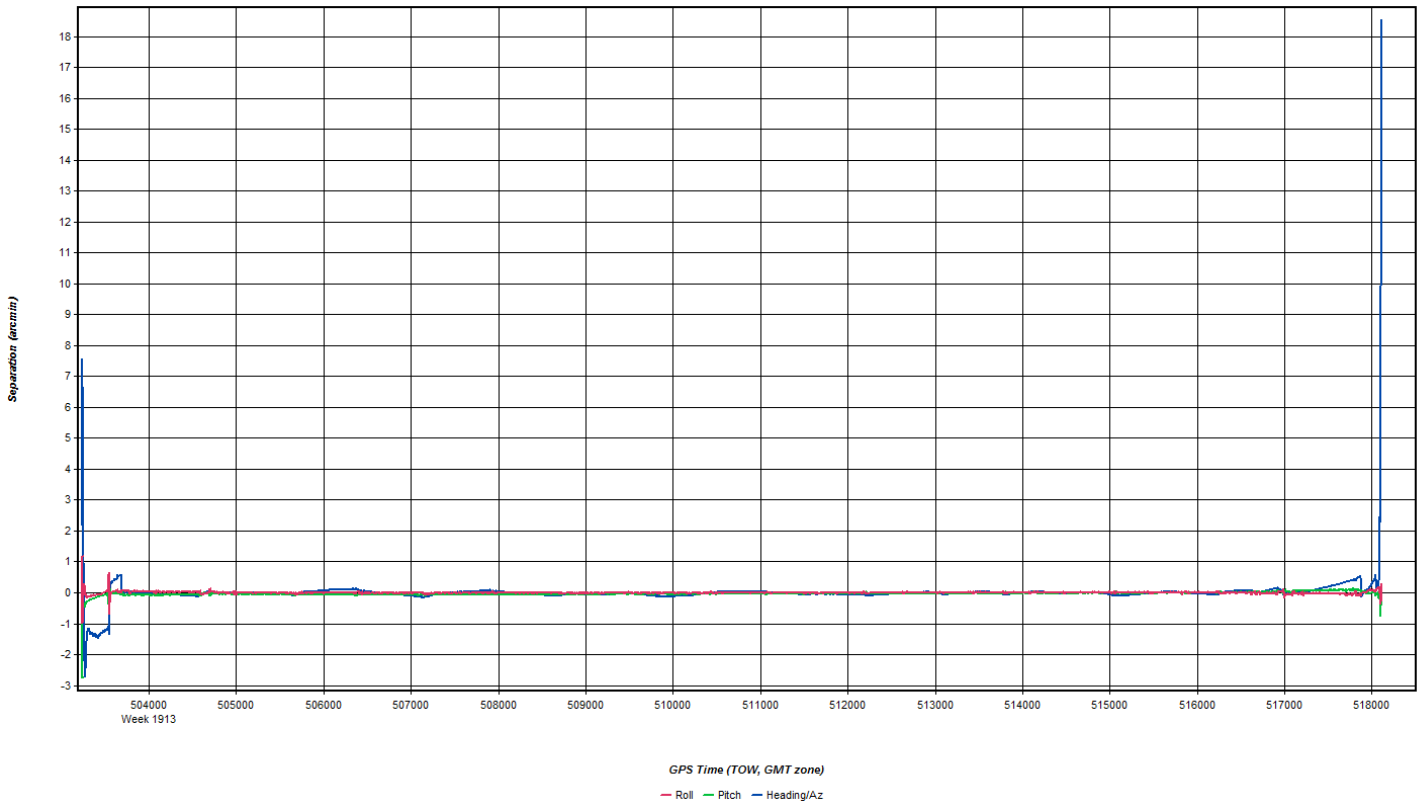
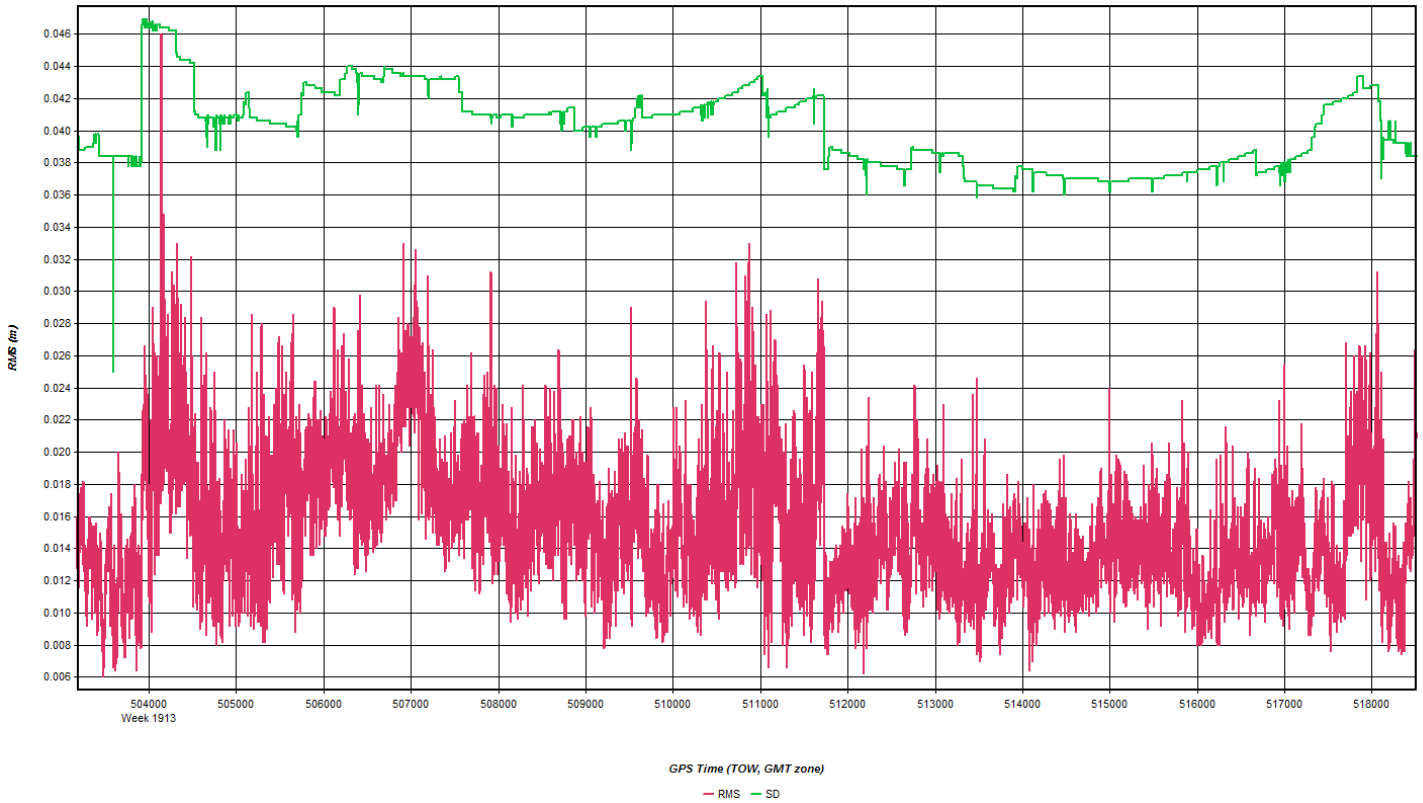
GPS Time (TOW, GMT zone)
— East — North — Up

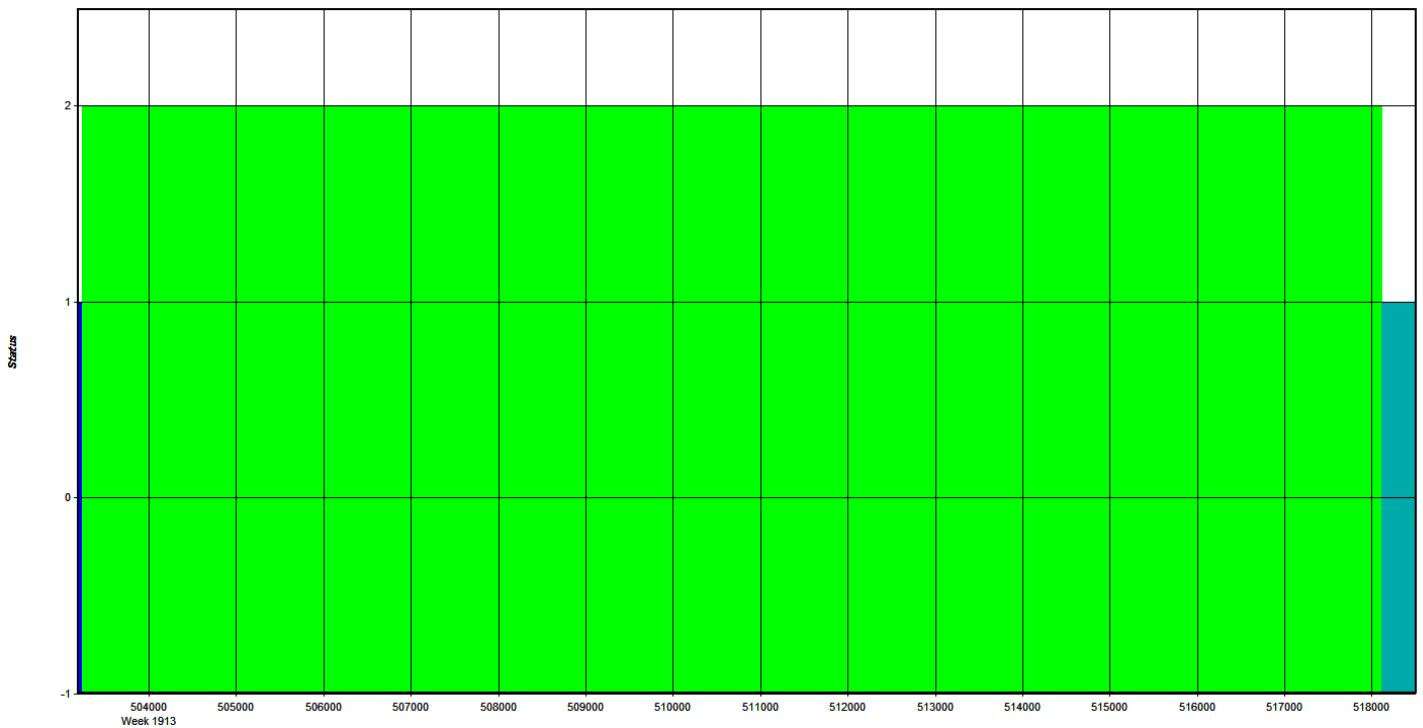


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_03 Name: UTAH16_03 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD253_704MD_SS\R7_257

Coordinates
 Latitude: North 40 58 51.26495 Compute from PPP
 Longitude: West 112 54 50.87139 Enter Grid Values
 Ellipsoidal height: 1306.892 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_04 Name: UTAH16_04 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD253_704MD_SS\R7_76

Coordinates
 Latitude: North 41 01 10.60837 Compute from PPP
 Longitude: West 112 53 59.62739 Enter Grid Values
 Ellipsoidal height: 1410.162 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

SN7161 09 09 16 A
Quantum Spatial, Inc
(email log daily to flight_log_distribution_list@quantumspatial.com)

Date: 09/09/2016
Lit: (A) B C D E Pg 1 of 2

Flight Mgmt File: 20160909-1942.08

Tech: IVERSON

Project: Utah **Proj #:** 29083 **Pilot:** Wagner **Co-Pilot:**

Aircraft: N704MD **Begin Hobbs:** 1318.6 **End Hobbs:** 1322.6 **Total:** 4 **Arr Apt:** OGD **Arr Time (Local):** 1750 (Z): 2350 **Tot Time Aloft:** 3:55

Dep Apt: OGD **Dep Time (Lcl):** 1355 (Z): 1955 **Flyovers:** Y / N **Sta 1:** **Sta 2:**

CORS: Y / N **Sta 1:** UTAH16-03 **Sta 2:** UTAH16-04 **Flyovers:** Y / N **Sta 1:** **Sta 2:**

GPS Unit: 81N **OAT beg:** °C **End:** °C **Altimeter begin:** **end:**

Type	ALS70	Serial #	°C	End	Alt AGL	Alt APL	Pulses in Air	1PIA	Pulse Rate	Max Cdspd	Power	Avg Pt Spacing		Storage Name/#
												PPSM	PPSM	
FOV	40	41112	MpiA	Y / N					160KHZ	88%				

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PODF/s	GPS Altitude	Crab	Turb	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.	
		1947								1318.6 Hobbs
		1955								static
		2009	2013							Take off OGD 1355
										Figure 8 FMSL_Utah - GSL - QL2 - SN7161 - rev 1
2081	N	2017	2025	100	18/1.1					160909-201702 water
2080	S	2028	2038	105	19/1					202848
2079	N	2040	2051	105	19/1.1					204030
2078	S	2053	2104	112	19/1.1					205335
2077	N	2106	2117	101	20/1					210618
2076	S	2119	2130	102	19/1.1					211933
2075	N	2132	2134	95	19/1					213253
2074	S	2149	2157	104	18/1.1					214900
2073	N	2159	2207	99	19/1					215913
2072	S	2209	2215	105	18/1					220953
2071	N	2217	2223	105	17/1.1					221730
2070	S	2225	2230	105	16/1.2					222507
2069	N	2232	2236	96	17/1.2					223214
2068	S	2238	2242	98	17/1.2					223841

Total Proj Lines: 10181

Lines Remain: / QSI - SANI /

Online Time: 3.5 **Mob Time:** **Notes:** Ordnance

Airborne LIDAR Data Collection Log Sheet :: SN7161 09 09 16 A
Quantum Spatial, Inc

Date: 09/09 /2016
Pg 2 of 2

Flight Mgmt File: 20160909_194208

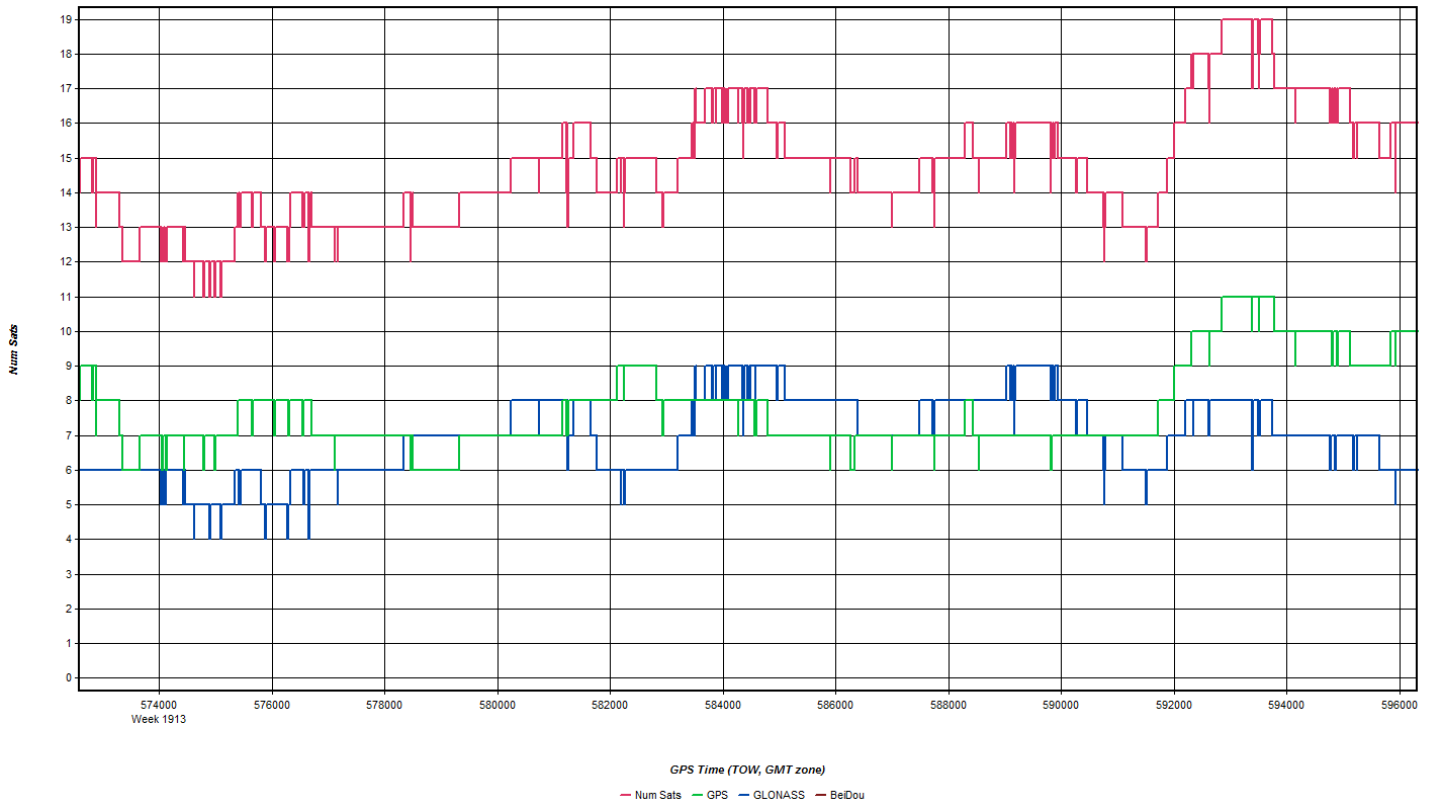
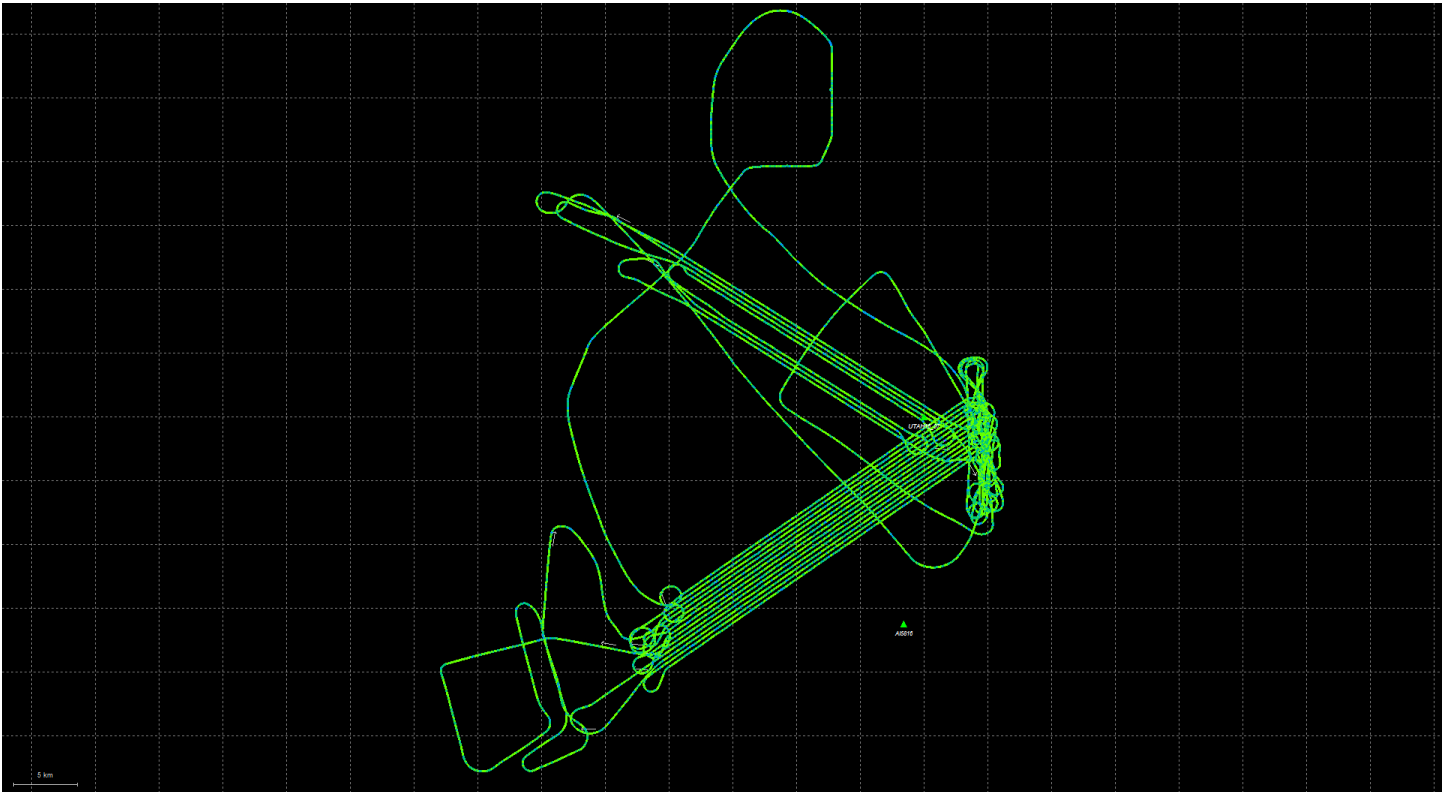
Project: Utah
 Aircraft: N704MD Begin Hobbs: End Hobbs: Pilot: Wagner Co-Pilot: Iverson
 Dep Apt: OGD Dep Time (Lcl): (Z): Arr Apt: OGD Arr Time (Local): (Z): Tot Time Aloft:
 CORS: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta1) Sta2)
 GPS Unit: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta1) Sta2)

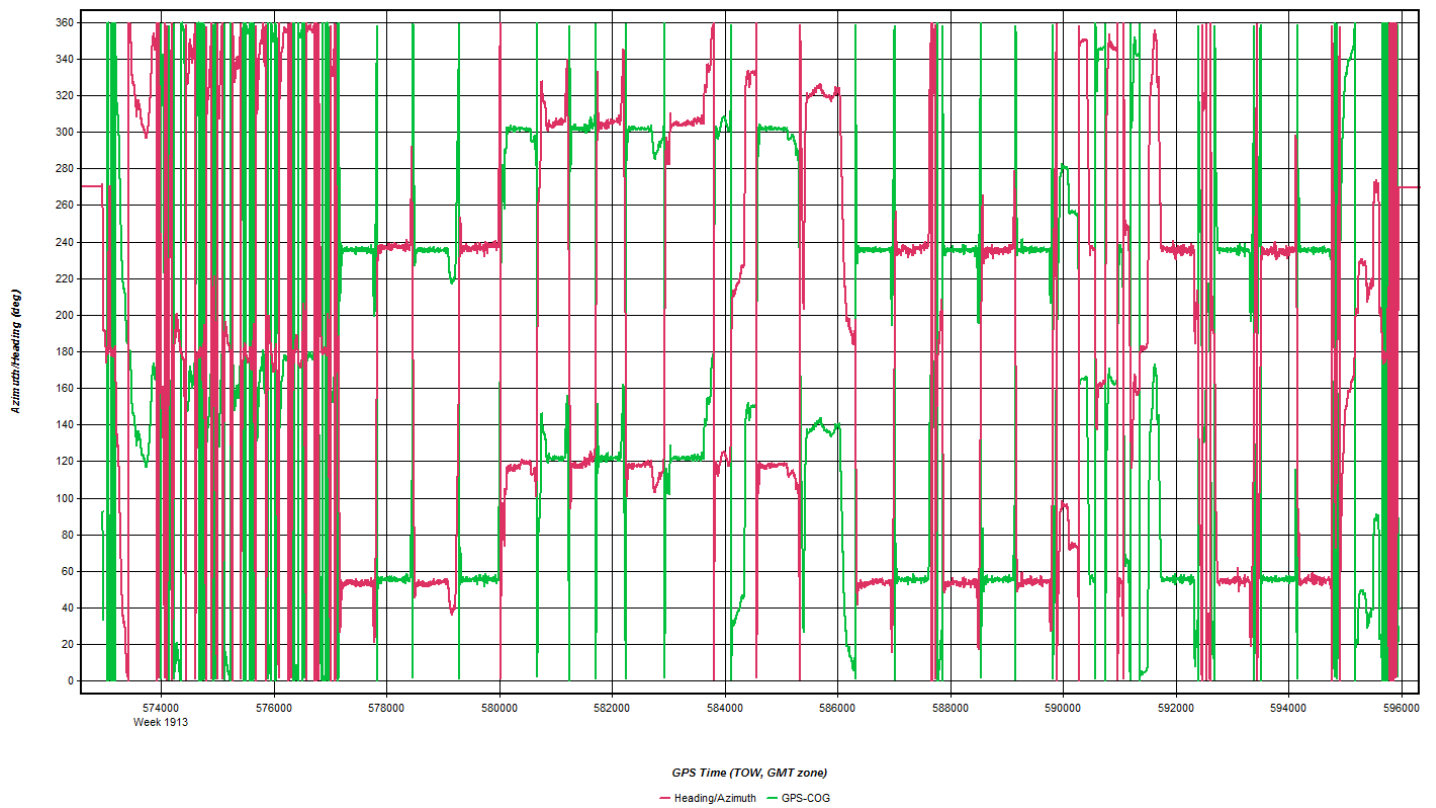
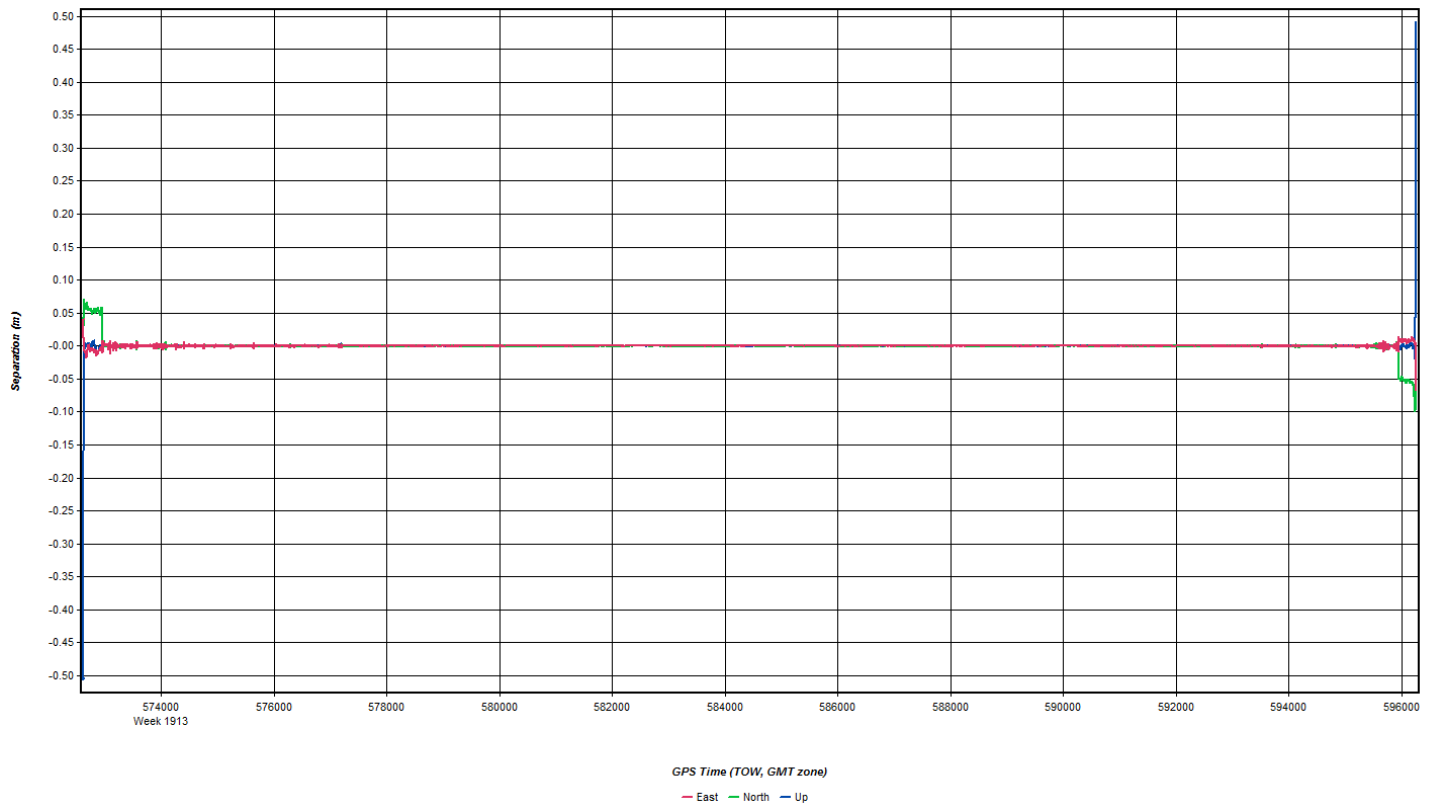
Type	Serial #	Alt AGL	Alt AMSL	Pulses In Air	Pulse Rate	Max Gdspd	Power	Altimeter begin:			Storage Name/#
								°C	End:	end:	
LIDAR	ALS70	7161			1604 Hz		88%				
FOV	40	4 Hz	MplA Y / N	1PIA							

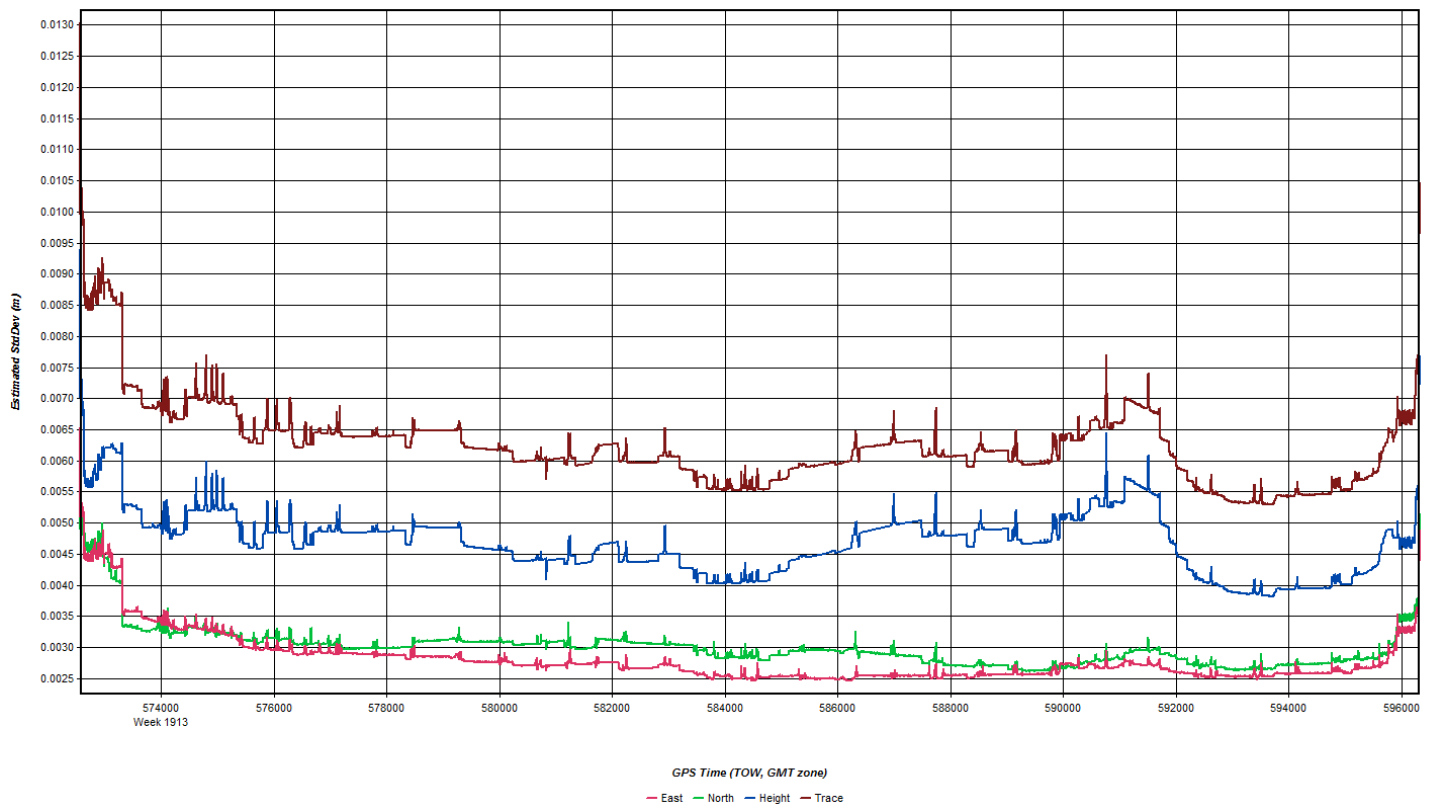
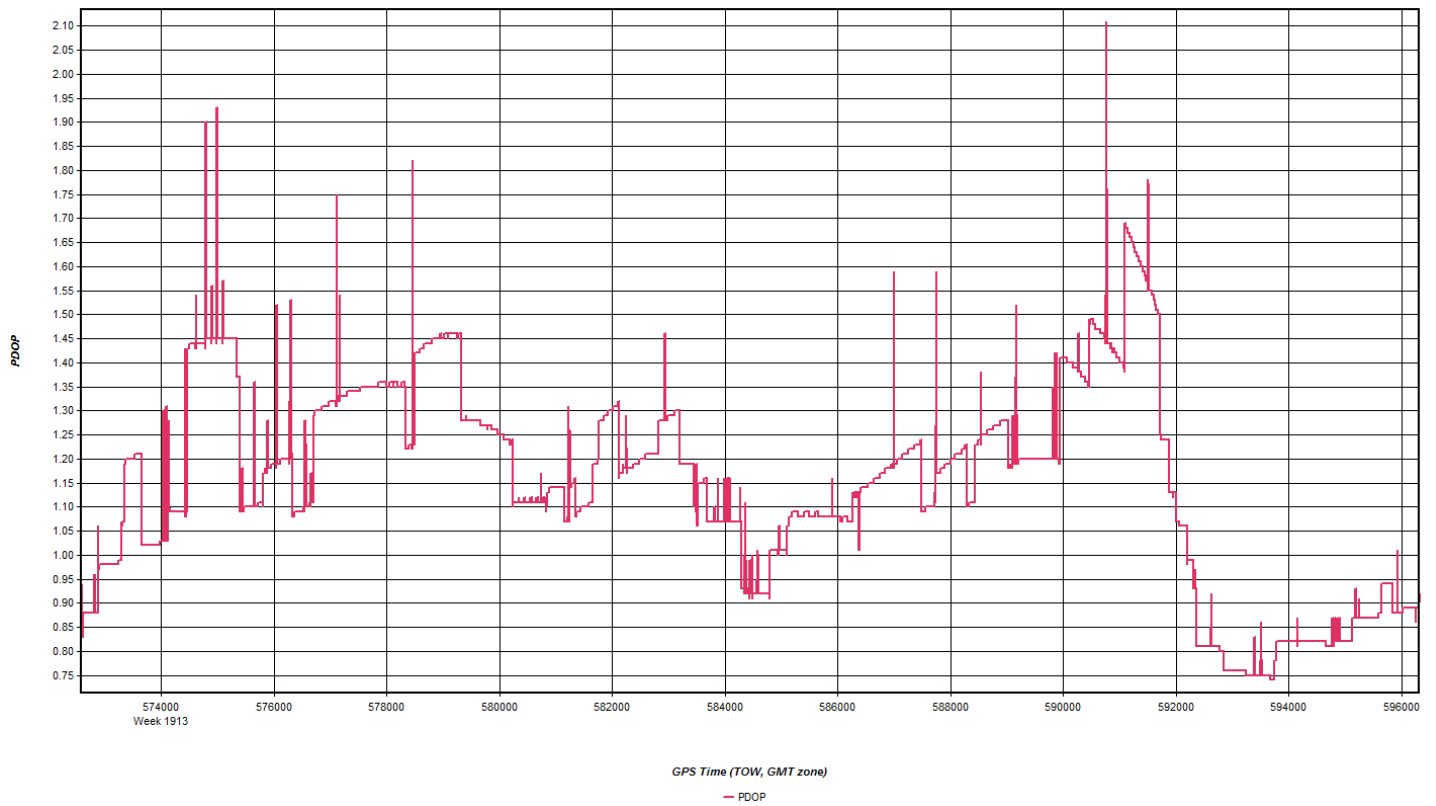
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POD/Sec	GPS Altitude	Crab	Turb (0..+)	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.		
2067	N	2249	2247	104	171.2				224420		
2066	S	2249	2251	97	161.4				224926		
2001	E	2254	2300	92	161.4				cross flight 225438		
2024	S	2304	2309	95	161.4				230417		
2023	N	2311	2316	101	161.3				231136		
2022	S	2319	2323	106	161.2				231904		
2021	N	2325	2329	101	171.1				232531		
2002	E	2331	2334	99	181.1				cross flight 233143		
		2335	2338						Figure 8		
									Land 000 1750		
									static		
											1322.6 Hobbs

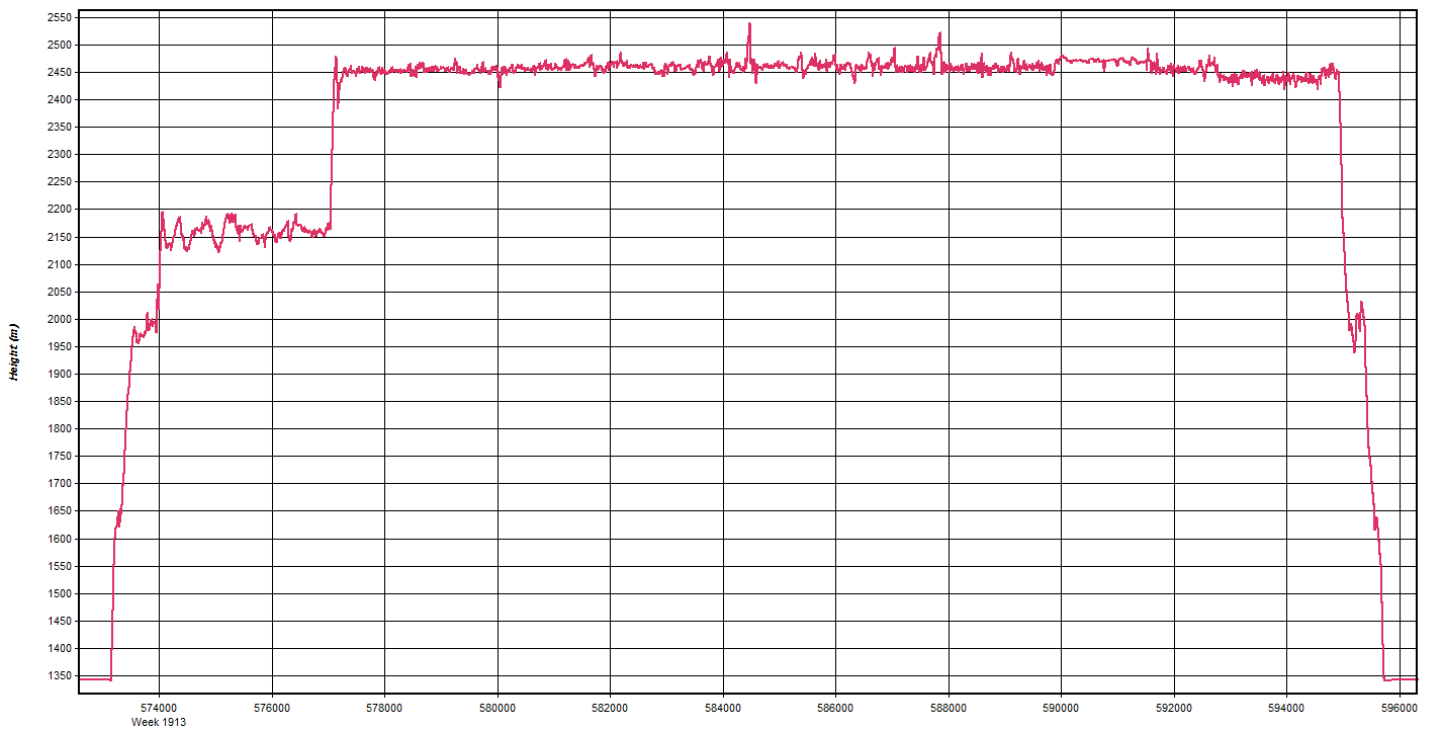
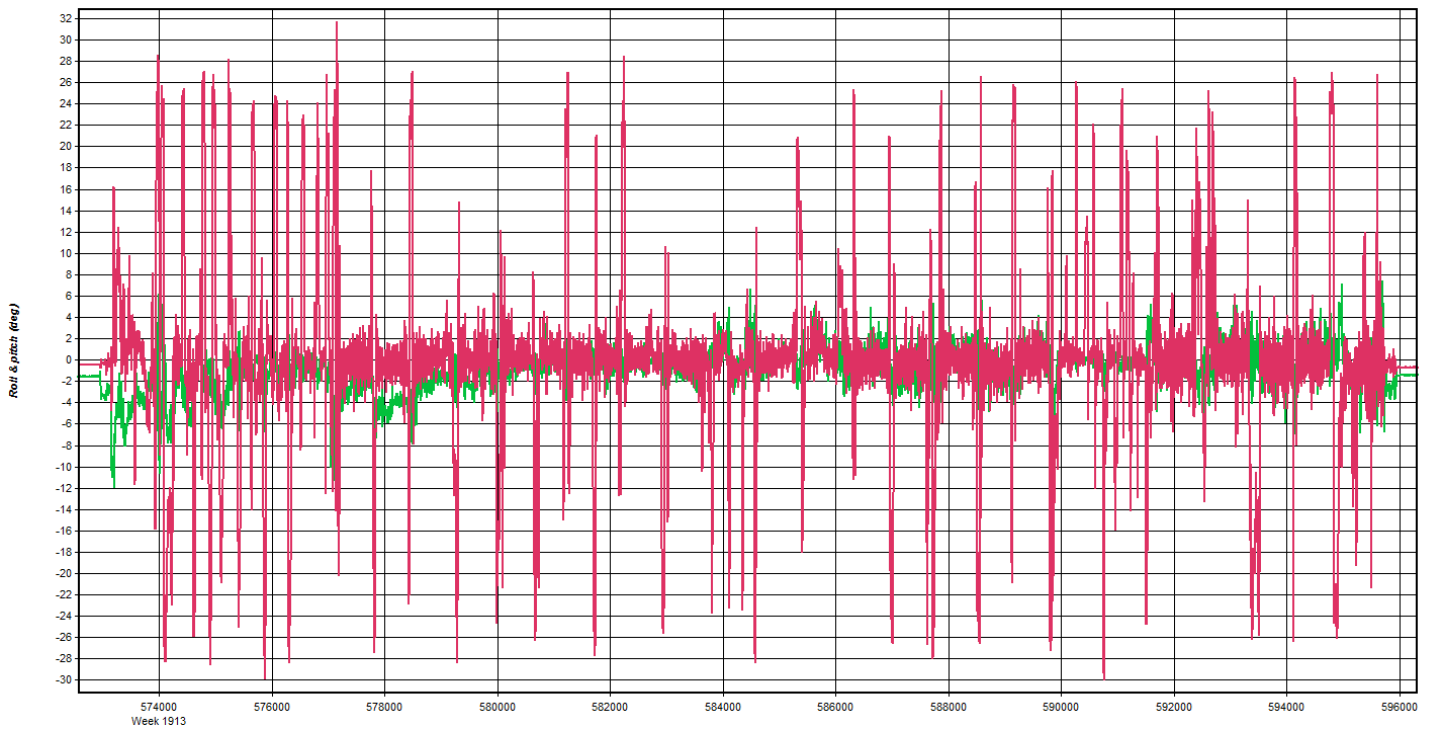
Total Proj Lines: Lines Flown: Lines Remain: Online Time: Mob Time: Notes: Ordnance UTM 12

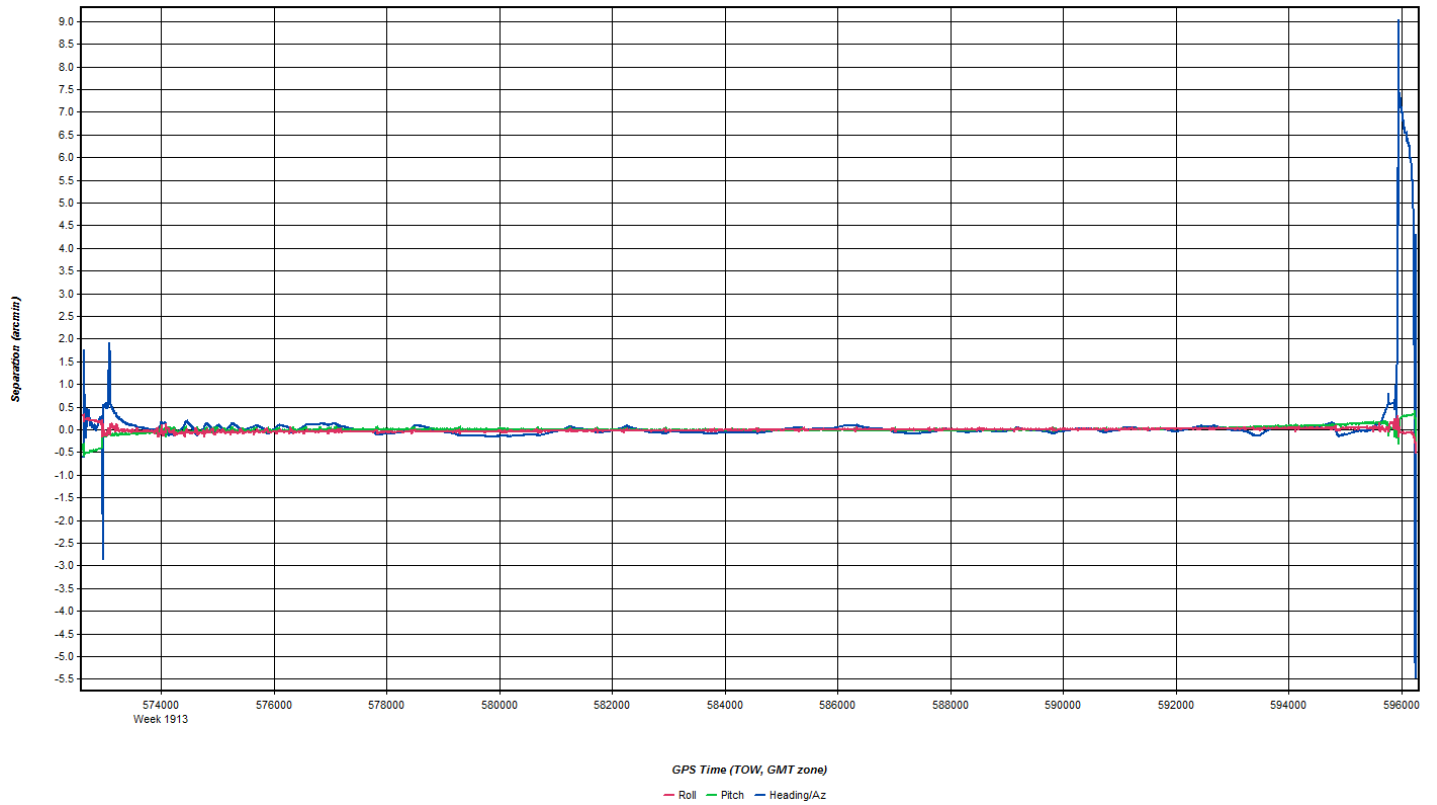
Sep 10, 2016-A (N704MD, SN7161)

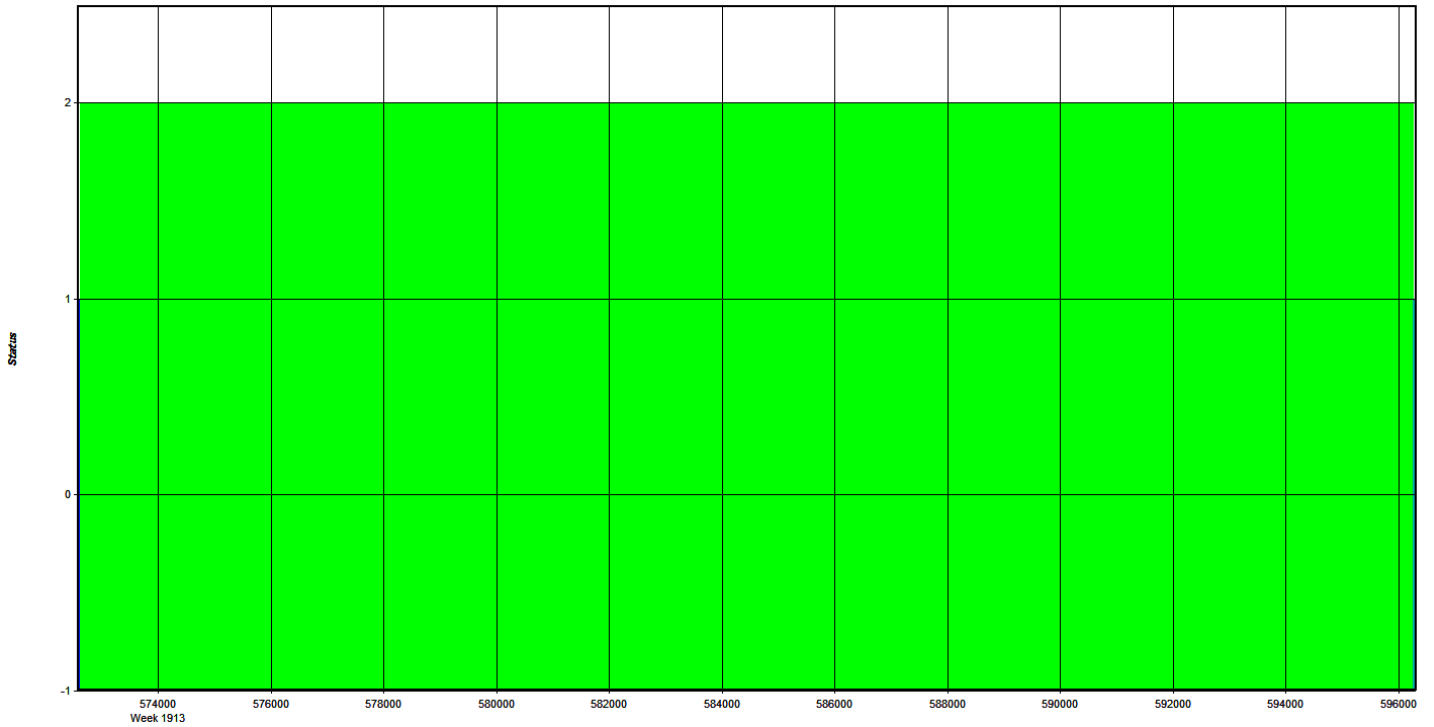












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_07 Name: UTAH16_07 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD254_704MD_SS\R7_76C

Coordinates
 Latitude: North 40 57 27.00288 Compute from PPP
 Longitude: West 111 55 47.23107 Enter Grid Values
 Ellipsoidal height: 1273.978 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
 2: AI5816 Name: AI5816 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD254_704MD_SS\R7_257

Coordinates
 Latitude: North 40 48 46.70340 Compute from PPP
 Longitude: West 111 56 54.21205 Enter Grid Values
 Ellipsoidal height: 1274.976 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

SN7161 09 10 16 A
Quantum Spatial, Inc
(email log daily to flight_log_distribution_list@quantumspatial.com)

Date: 09/10/2016
Uplift: A B C D E Pg. 1 of 2

Project: Utah
Flight Mgmt File: 2016-0910-145840

Proj #: 29083
Pilot: Wagner
Co-Pilot: Iverson

Aircraft: N704MD
Begin Hobbs: 1322.6
End Hobbs: 1328.8
Total: 6.2

Dep Apt: OGD
Arr Time (Local): 1528(Z)
Tot Time Aloft: 6:16

CORS: Y / N
Flyovers: Y / N
Sta 1: UTAH16 07
Sta 2: A15816

GPS Unit: Y / N
Alt: 7161
Alt AGL: 53 Hz
MPIA: Y / N
Pulses In Air: 1PIA

Gd Temp beg: °C
End: °C
OAT beg: °C
End: °C

Type	Serial #	Alt	Alt AGL	MPiA	Pulses In Air	1PIA	Pulse Rate	Power	PPSM	Altimeter begin:			Storage Name/#
										Avg Terr Ht	Max Gdspd	Avg Pt Spacing	
LIDAR	ALS70	7161					215 KHz	57%					
FOV	40	53 Hz											

Line #	Hdg	Start (UTC)	End (UTC)	Gd spd	POOP/s	GPS Altitude	Crab	Turb	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.			
		1503							1322.6 Hobbs			
		1512							static			
		1526	1529						Take OFF 06D 0912			
65LE		1619	1629	93	16/1.3				Figure 8 FMSL-Utah-GSL-E-QL1-SN7161- 160910~181944			
1141	E	1630	1640	106	16/1.3				163057			
1140	W	1641	1651	90	17/1.3				164148			
1039	E	1656	1707	102	16/1.4				165650			
1226	N	1709	1714	100	15/1.4				170936			
1225	S	1721	1726	102	16/1.3				172128			
1224	N	1727	1731	102	17/1.2				172758			
1220	S	1735	1742	100	17/1.2				173559			
1219	N	1744	1753	104	18/1.1				174442			
1218	S	1758	1806	97	18/1.1				175839			
1201	E	1815	1818	102	17/1.2				Cross flight 181519			
1217	N	1823	1831	98	17/1.2				182354			
1202	S	1843	1847	96	18/1.1				Cross flight 184345			
1138	W	1852	1902	98	17/1.2				185232			
1137	E	1904	1913	97	17/1.1				190430			

Total Proj Lines: 1018 / **Lines Flow:** 20 / **Lines Remain:** 1018

Online Time: 5,2 / **Mob Time:** / **Notes:** Ordinance

UTM 12

Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc

SN7161 09 10 16 A

(email Log daily to flight_log_distribution_list@quantumspatial.com)

Date: 09/10/2016

Page 2 of 2

Project: Utah Flight Mgmt File: 20160910-145840

Proj #: 29083 End Hobbs: Total: Pilot: Wagner Co-Pilot: Iverson Tech: Iverson

Aircraft: N704MD Begin Hobbs: Arr Apt: OGD Arr Time (Local): [Z]: Tot Time Aloft:

Dep Apt: OGD Dep Time (Lcl): [Z]: Flyovers: Y / N If Y, times: Sta1) Sta2)

CORS: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta1) Sta2)

GPS Unit: Y / N Sta 1: Sta 2:

Gd Temp beg: °C End: °C OAT beg: °C End: °C Altimeter begin: end:

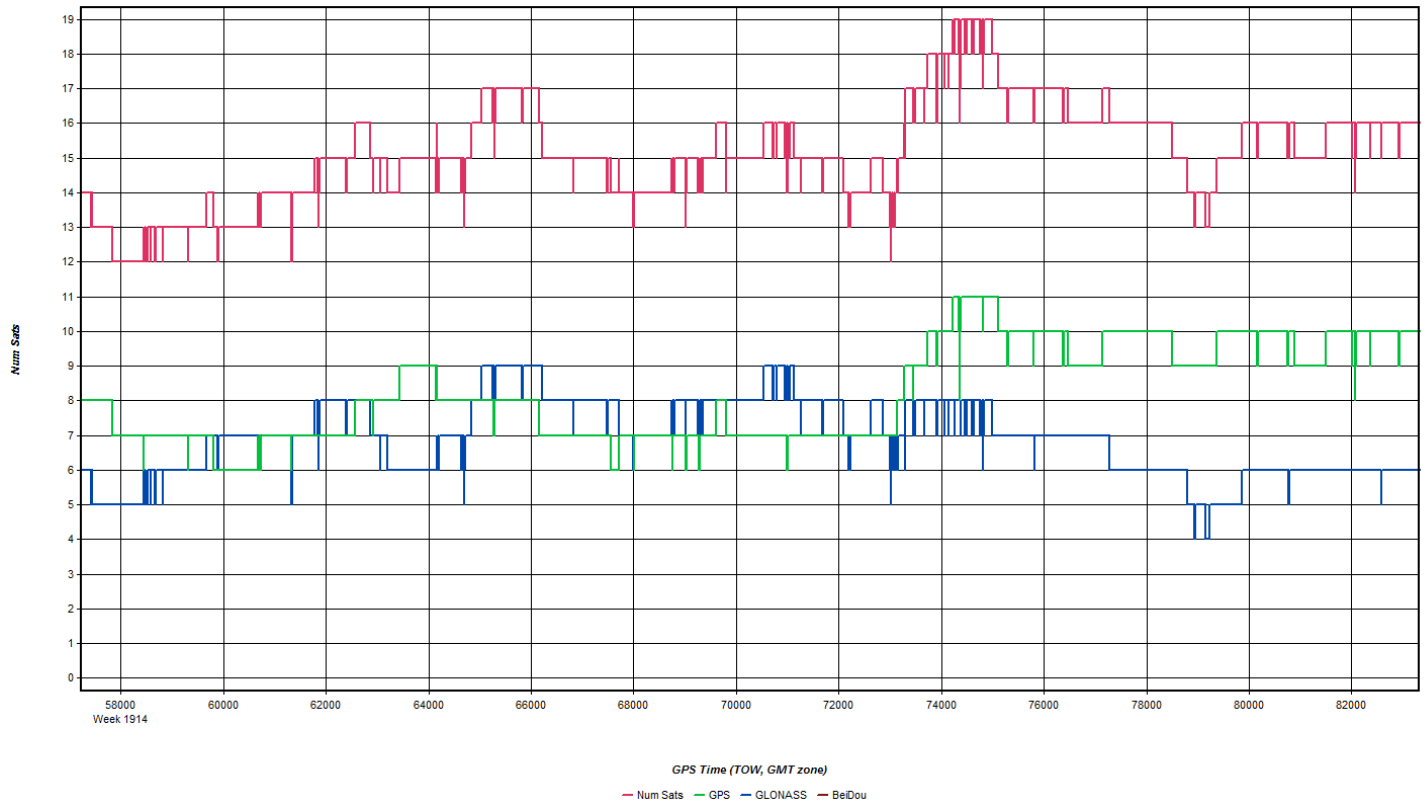
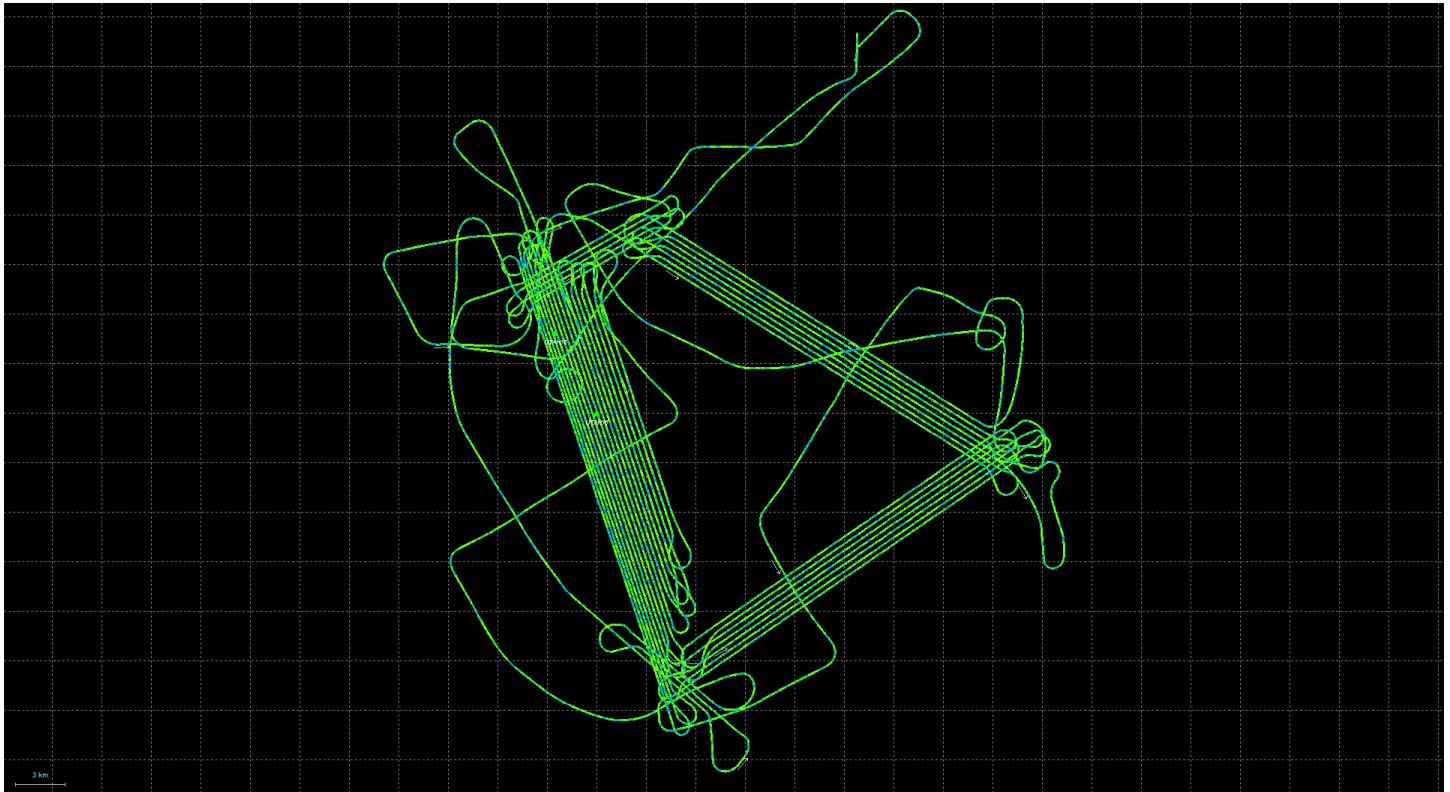
Type	ALS70	Serial #	7161	Alt AGL	Alt AMSL	Pulses In Air	1PIA	Pulse Rate	215 kHz	Power	5706	Storage Name/ #		
												Reg GB	End GB	Tot GB
LIDAR	FOV	40	53 Hz	MPIA Y / N										

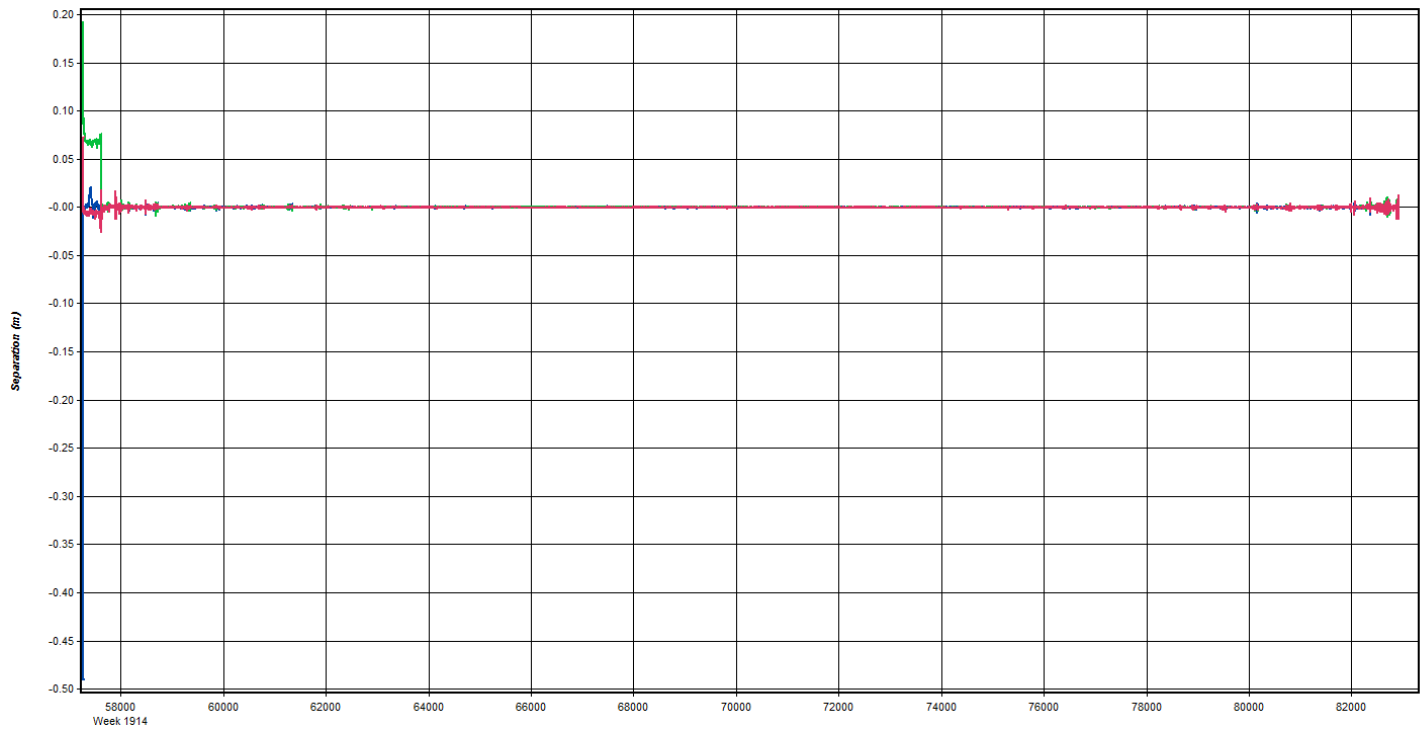
Line #	Hdg	Start(UTC)	End(UTC)	Gd Spd	POB/ft/s	GPS Altitude	Crab	Turb (0..1)	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.	
1136	W	1918	1928	103	17/1.2				191820	
1135	E	1929	1938	105	18/1.1				192931	
1134	W	1939	1949	98	18/1.1				193947	
1133	E	2022	2032	99	18/1.1				202235	
1132	W	2038	2048	104	19/1.1				203847	turbulence → 100 feet
1131	E	2053	2101	98	19/1.1				205323	turbulence
1130	W	2103	2111	97	19/1.1				210300	
		2112	2115						Figure 8	
		2128							Land OnD 1528	
		2137							static	
										Hobbs

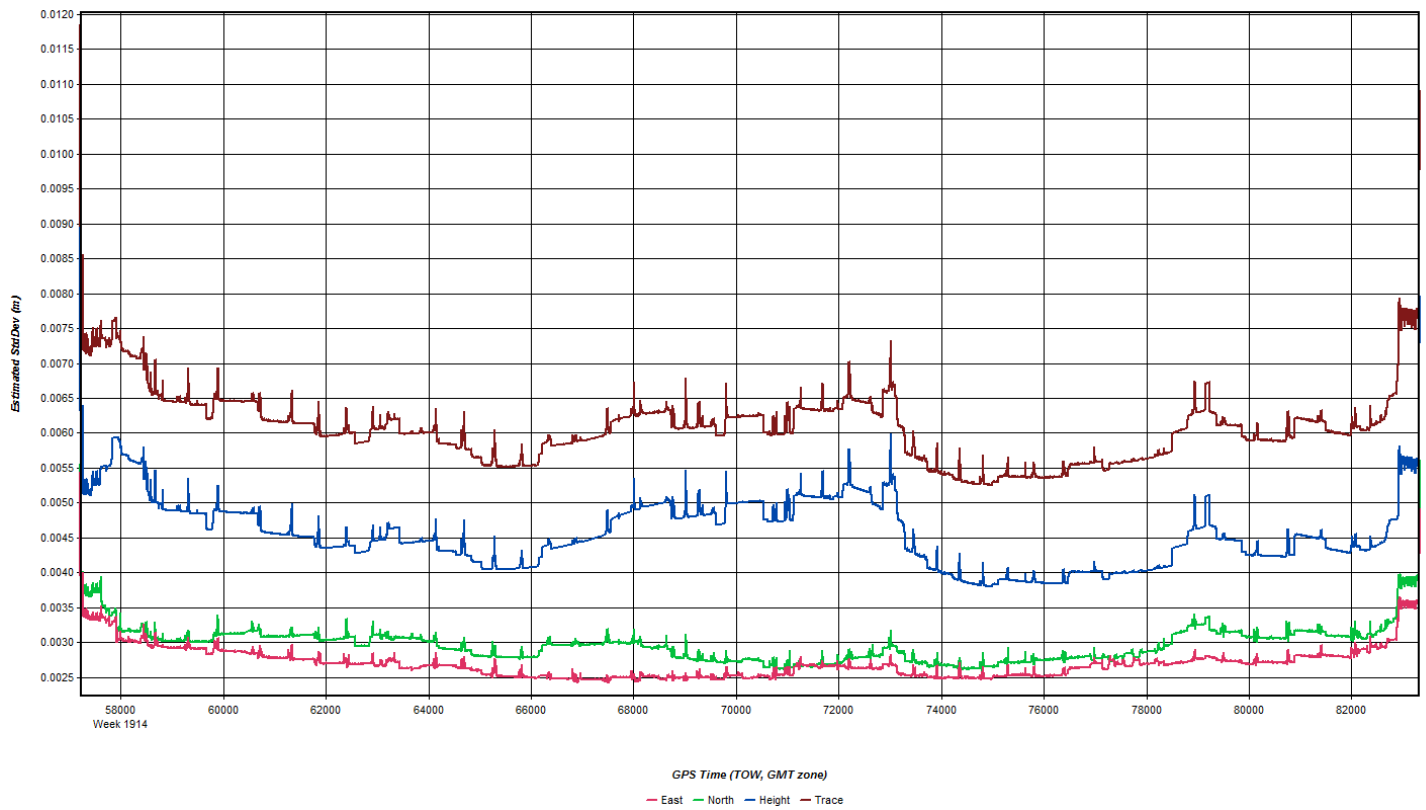
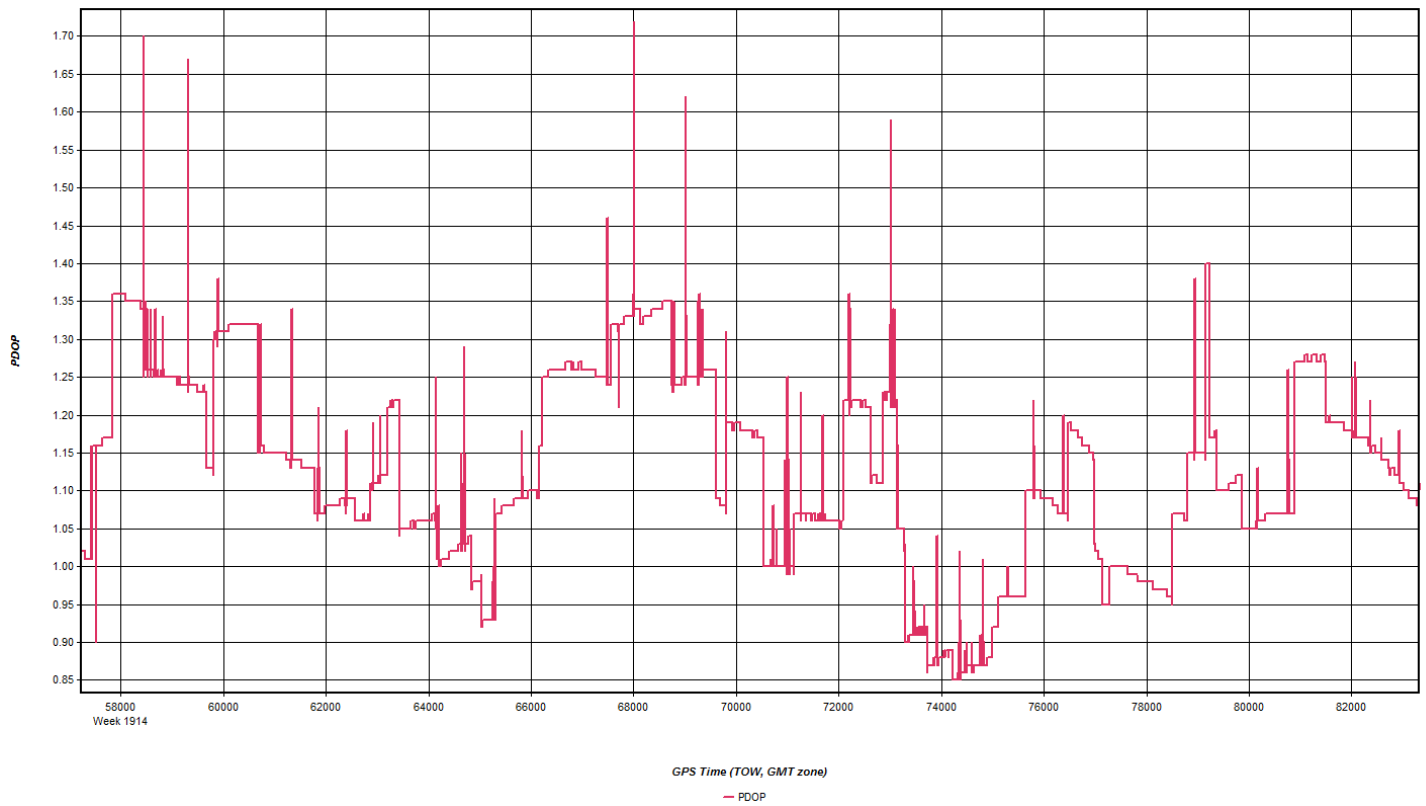
Total Proj Lines: Lines Flown: Lines Remain: Online Time: 5.2 Mob Time: Notes: Ordnance UTM 12

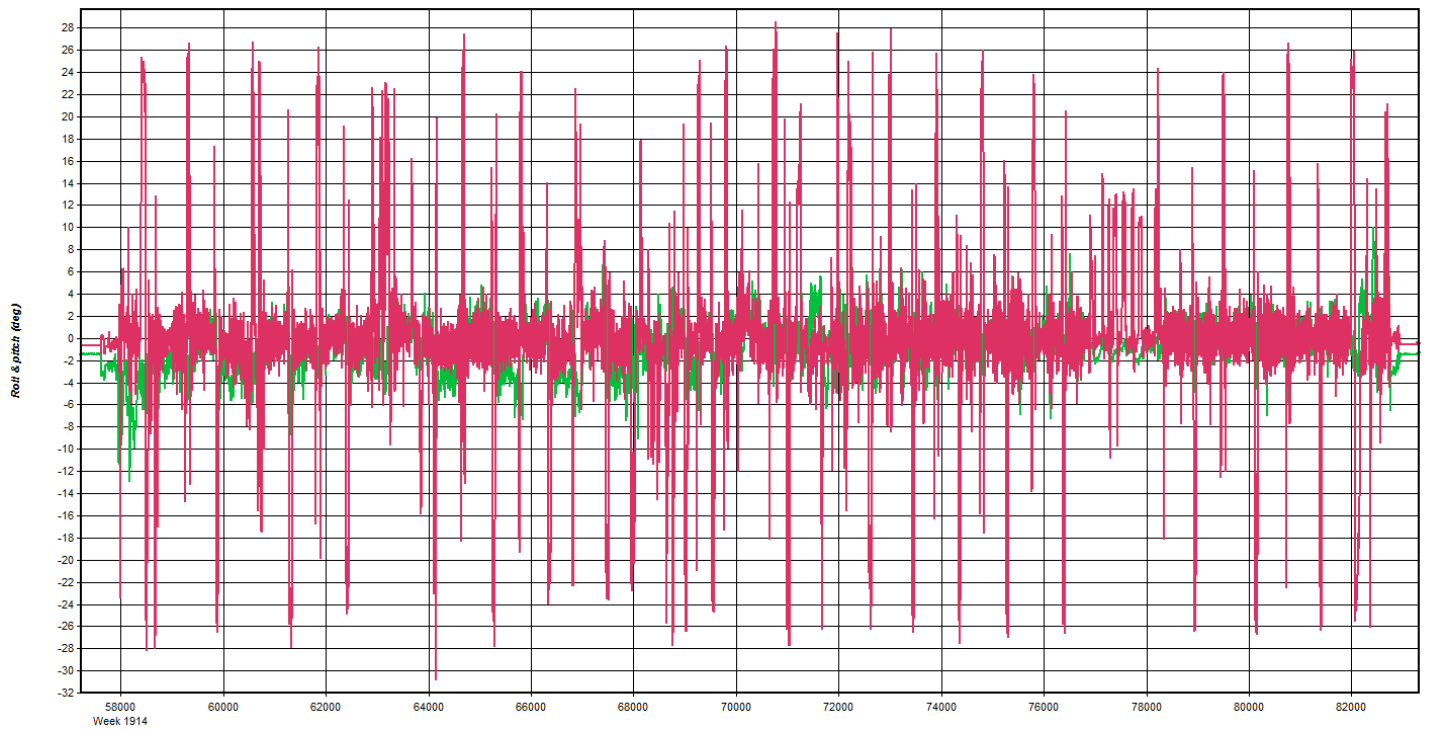
GSLE

Sep 11, 2016-A (N704MD, SN7161)



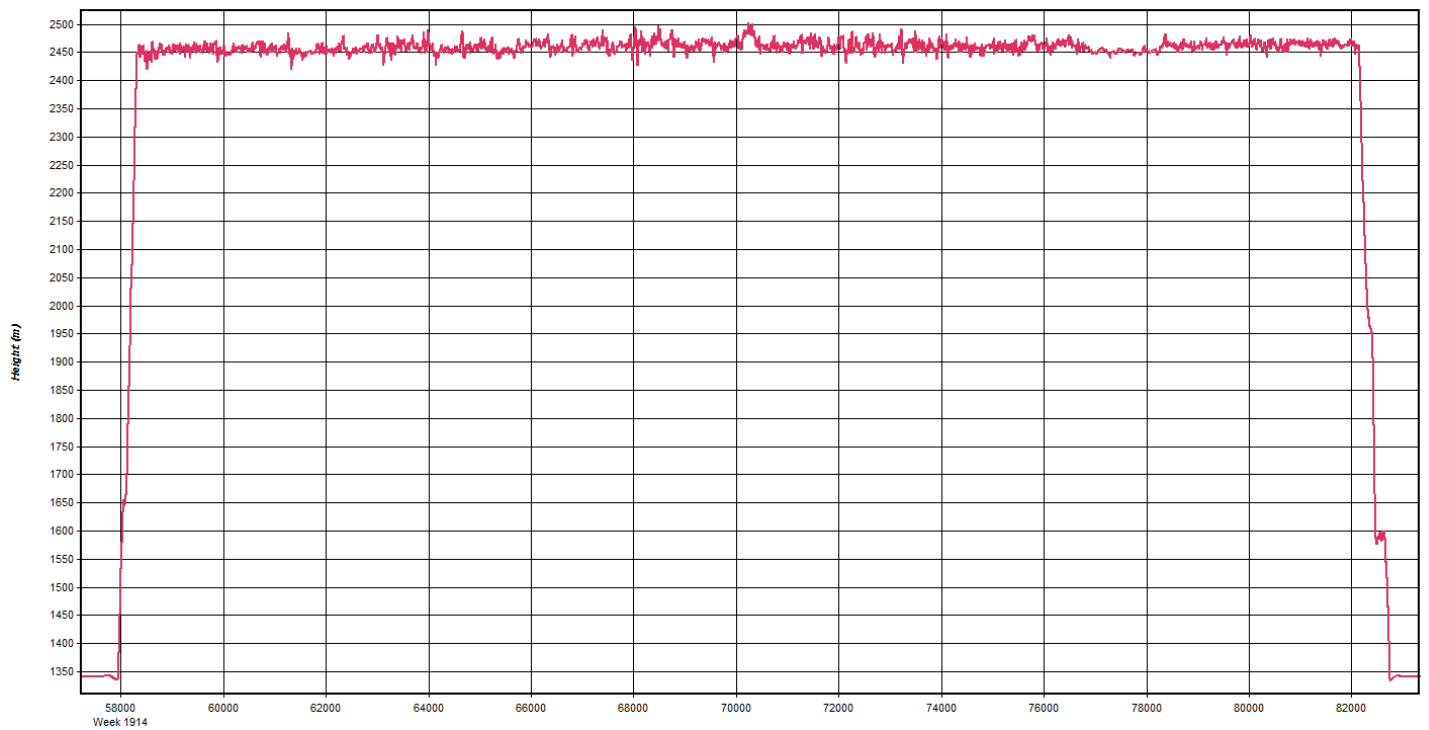






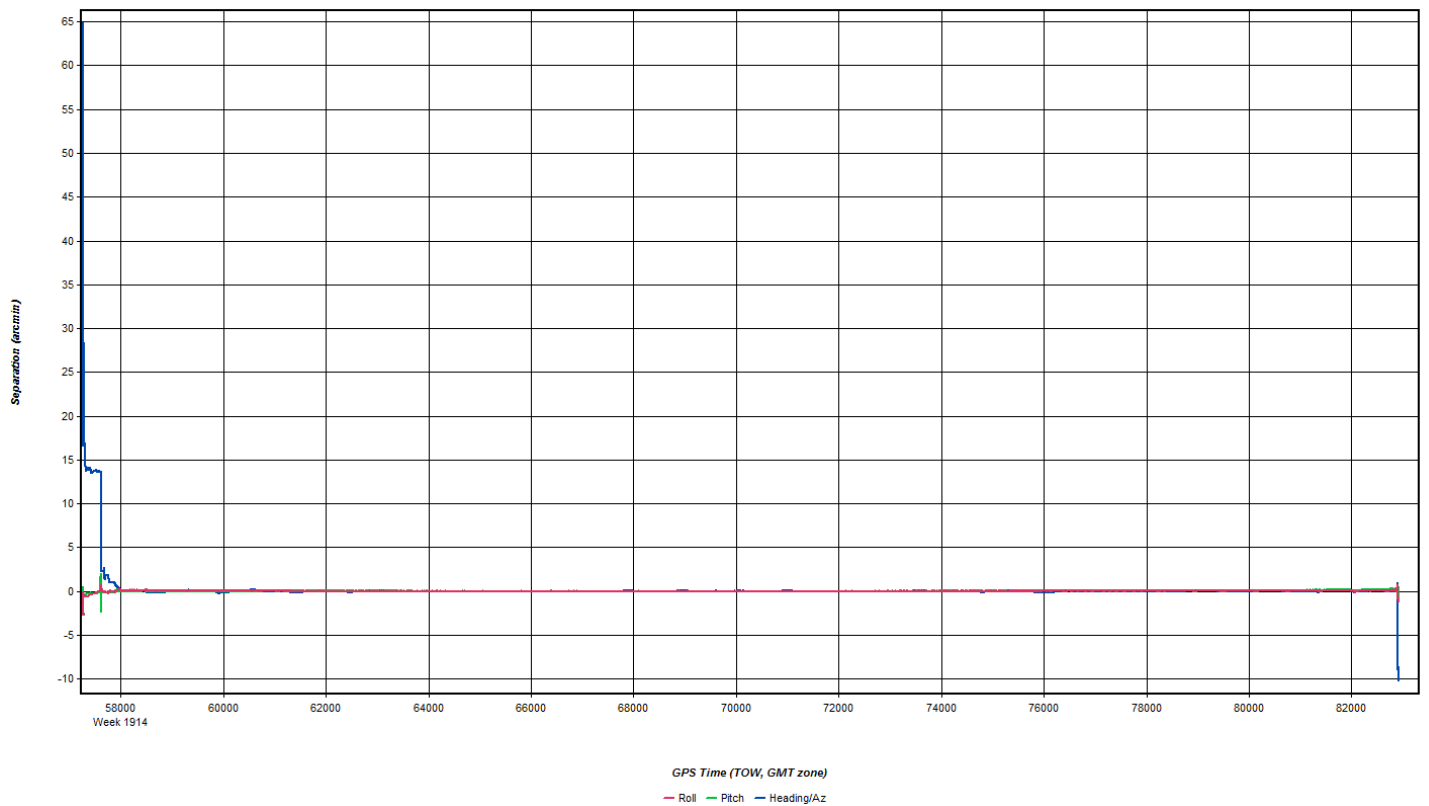
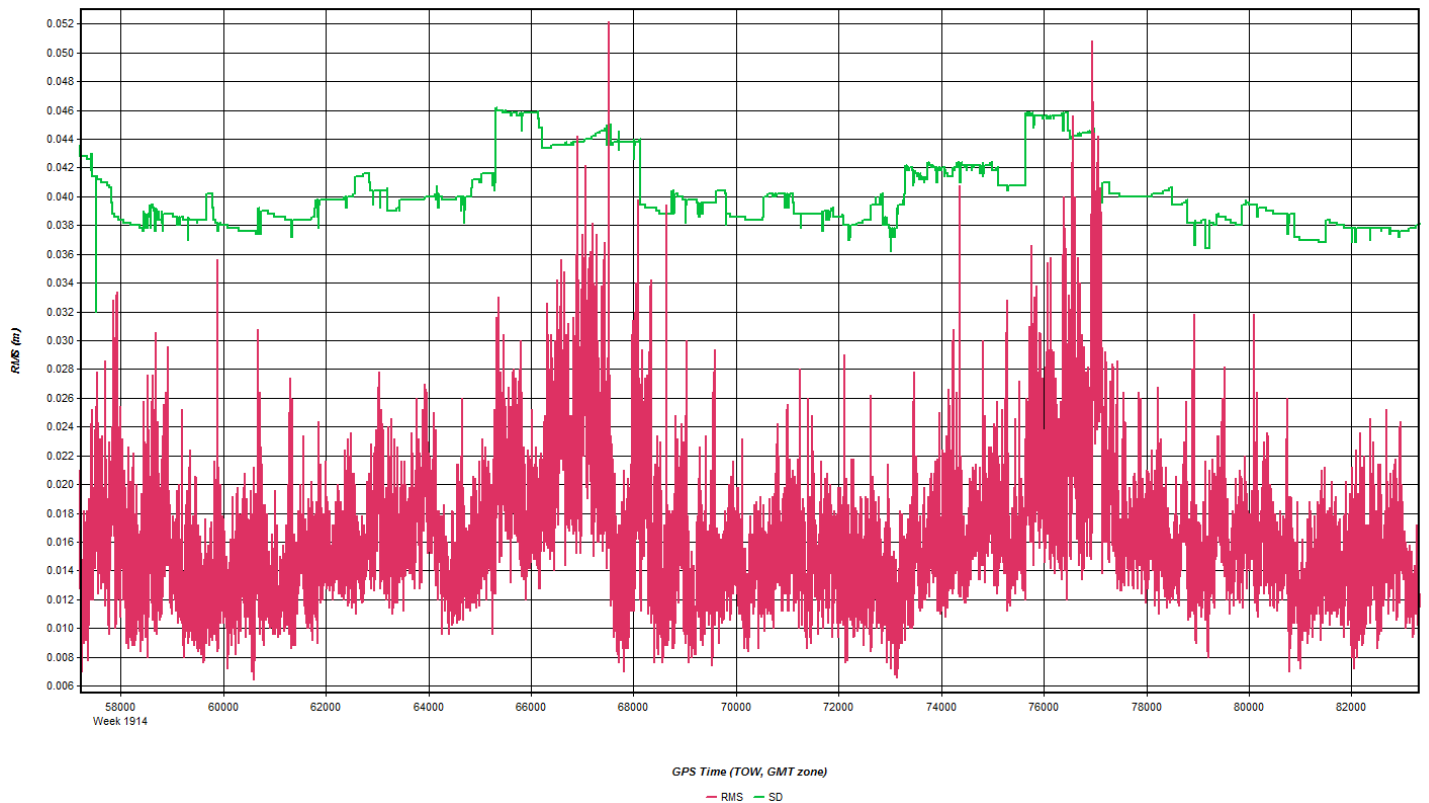
GPS Time (TOW, GMT zone)

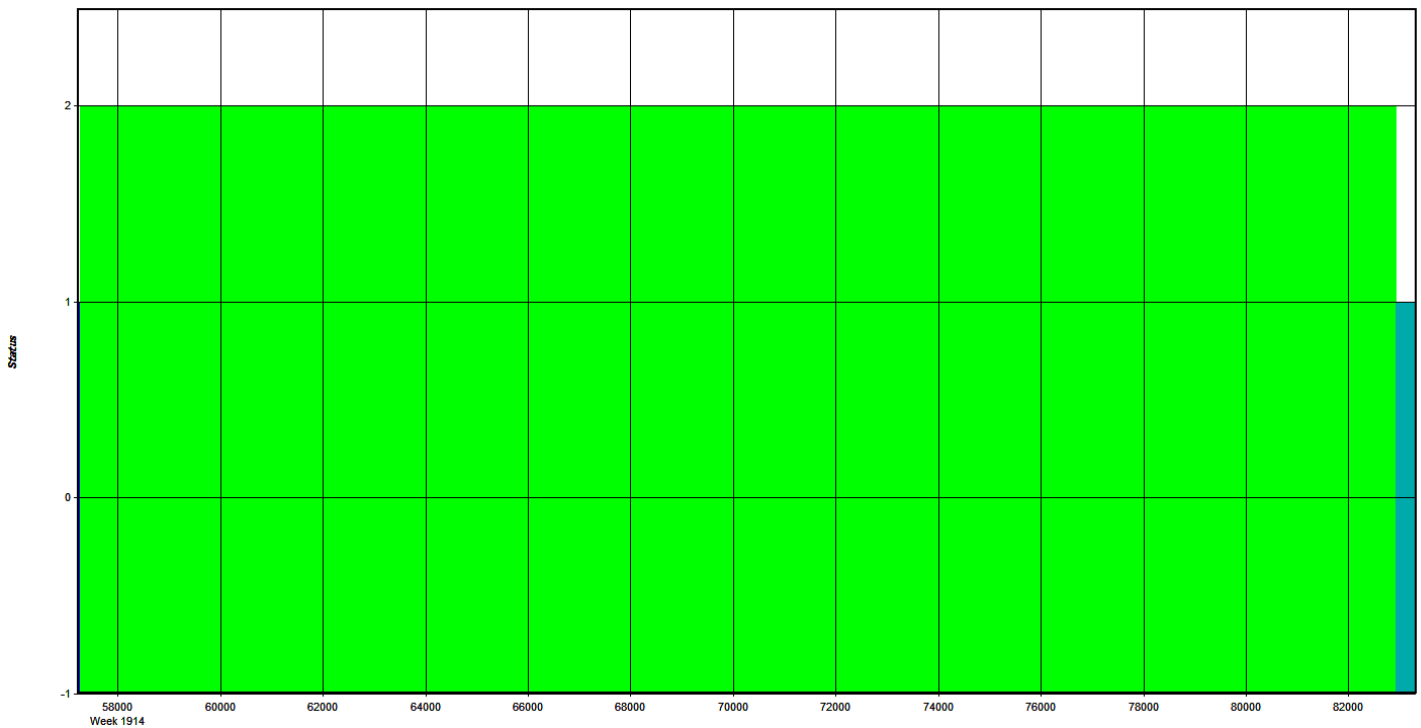
— Roll — Pitch



GPS Time (TOW, GMT zone)

— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_08 Name: UTAH16_08 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD255_704MD_SS\R7_257

Coordinates
 Latitude: North 41 02 17.36223 Compute from PPP
 Longitude: West 112 13 55.55965 Enter Grid Values
 Ellipsoidal height: 1338.735 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM57971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
 1: UTAH16_09 Name: UTAH16_09 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD255_704MD_SS\R7_76C

Coordinates
 Latitude: North 40 59 39.21278 Compute from PPP
 Longitude: West 112 12 07.73734 Enter Grid Values
 Ellipsoidal height: 1361.339 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

SN7161 09 11 16A
Quantum Spatial, Inc

Date: 09/11/2016
Lift: B C D E Pg 1 of 3

Project: Utah
Flight Mgmt File: 20160911-154628

Aircraft: N704MD Begin Hobbs: 1328.8 End Hobbs: 1335.7 Total: 6.9 Pilot: Wagner Co-Pilot: Iverson
Tech: Iverson

Dep Apt: OGD Dep Time (Lcl): 1005 (Z): 1605 Arr Apt: OGD Arr Time (Local): 1659 (Z): 22:59 Tot Time Aloft: 6:54

CORS: Y / N Sta 1: STA 2: UTAH16-8 Sta 2: UTAH16-09 Flyovers: Y / N If Y, times: Sta 1) Sta 2)

GPS Unit: Y / N Sta 1: UTAH16-8 Sta 2: UTAH16-09 Flyovers: Y / N If Y, times: Sta 1) Sta 2)

Gd Temp beg: °C End: °C OAT beg: °C End: °C Altimeter begin: end:

Type	Serial #	Alt AGL	Alt AMSL	Pulses in Air	1PIA	Pulse Rate	Max Gdspd	Avg Pt Spacing	Storage Name/ #			
									Bag GB	End GB	Tot GB	
LIDAR	ALS70	7161				215 kHz	Power 57%					
FOV	40	53 Hz	MPIA Y / N									

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOF/Sec	GPS Altitude	Crab	Turb	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.		
		1554							1328.8 Hobbs		
		1605							static		
		1613	1615						Take OFF OGD 1005		
									5 TURNS		
									Orange Block FMSL - Utah - OSL - E - QL1 - SN7161 - REV1		
									160911-161952		
									162920		
									163847		
									165318		
									170232		
									171135		
									172115		
									Cross flight orange Block 173535		
									Cross flight Red Block 174137		
									Red Block 174919		
									175841		
									180911		
									181742		
									182655		

Total Proj Lines: 38 Lines Remain: 1018 / QSI - YJOT Online Time: 6.5 Mob Time: .4 Notes: Ordnance UTM 12

Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email Log daily to flight_log_distribution_list@quantumspatial.com)

Date: 09/ 11 /2016
 Lift: B C D E Pg. 2 of 3

Project: Utah Flight Mgmt File: 20160911-154628 Tech: Iverson

Aircraft: N704MD End Hobbs: Total: Pilot: Wagner Co-Pilot: Tot Time Aloft:

Dep Apt: OGD Dep Time (Lcl): (Z): Arr Apt: OGD Arr Time (Local): (Z): Tot Time Aloft:

CORS: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta 1 Sta 2)

GPS Unit: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta 1 Sta 2)

Gd Temp beg:		°C		End:		°C		OAT beg:		°C		End:		°C		Altimeter begin:		end:		Storage Name/#	
Type	Serial #	Alt AGL	Alt AMSL	Pulses In Air	1PIA	Avg Terr Ht	Max Gdepd	Avg Pt Spacing	Power	PPSM	Begin GB	End GB	Tot GB								
LIDAR	ALS70	7161							57%												
	FOV	40	Mp/A	Y / N																	
	Scan Freq	53 Hz																			
	End(UTC)																				
	Start(UTC)																				
	Hdg																				
	Line #																				
	1124	W	1837	1873	99	18/1.1								183702	FMSL-Utah-GSL-E	-QL1-SN7161-REV1					
	1123	E	1845	1852	103	17/1.1								184546							
	11004	N	1901	1903	103	17/1.1									Pink Block	cross flight	190119				
	1205	W	1906	1909	91	17/1.1								190642							
	1204	E	1911	1913	98	17/1.2								191104							
	1203	W	1915	1918	94	17/1.2								191531							
	1202	E	1919	1922	102	18/1.2								191955							
	1201	W	1924	1926	96	18/1.2								192430							
														193529							
	1122	S	1935	1936	102	18/1.2								193529	Green Block						
	1121	N	1940	1941	105	17/1.3								194025							
	1120	S	1944	1945	103	17/1.3								194420							
	11005	W	1947	194	79	17/1.2									cross flight	194754					
	11006	E	1954	1959	104	18/1.2									Blue Block	cross flight	195443				
	1200	S	2004	2008	93	18/1.1								200433							
	1199	N	2011	2015	94	19/1								201111							
	1198	S	2017	2023	94	19/1								201731							
	1197	N	2025	2030	97	19/1.1								202533							

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

193529

cross flight 194754

Blue Block cross flight 195443 turbulence

200433 turbulence

201111

201731 turbulence

202533 turbulence

Total Proj Lines: Lines Flown: Lines Remain: Online Time: Mob Time: Notes: Ordnance UTM 12

GSL E

SN7161 09 11 16 A
Airborne LiDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email: log.daily.to.flight_log_distribution_list@quantumspatial.com)

Date: 09 / 11 / 2016
 Lift: B C D E Pg 3 of 3

Project: Utah Flight Mgmt File: 20160911-154628 Tech: Iverson

Proj #: 29083 Pilot: Wagner Co-Pilot: _____

Aircraft: N704MD Begin Hobbs: _____ Total: _____ Arr Apt: OGD Arr Time (Local): _____ (Z): _____ Tot Time Aloft: _____

Dep Apt: OGD Dep Time (Lcl): _____ Sta 2: _____ Flyovers: Y / N If Y, times: Sta1) Sta2)

CORS: Y / N Sta 1: _____ Sta 2: _____ Flyovers: Y / N If Y, times: Sta1) Sta2)

GPS Unit: Y / N Sta 1: _____ Sta 2: _____

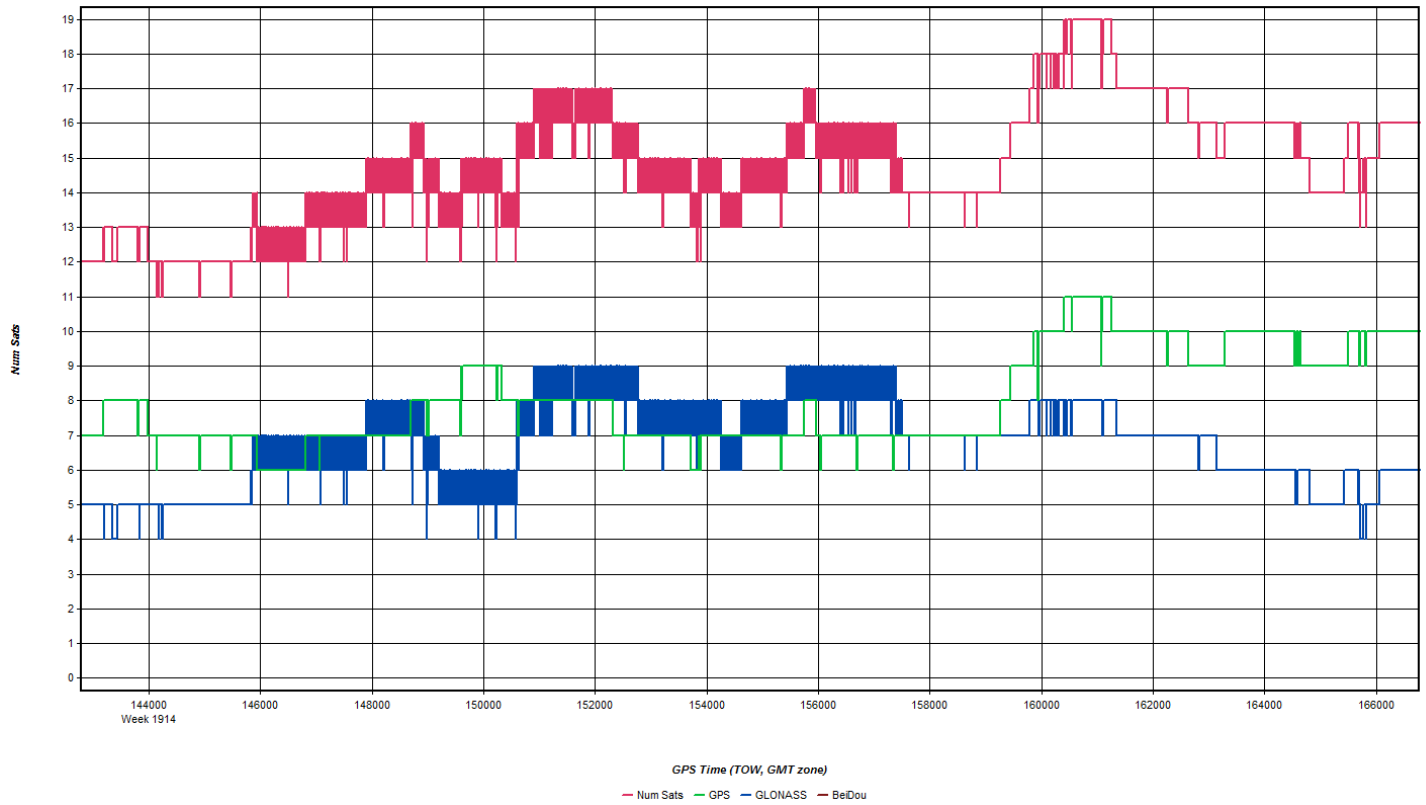
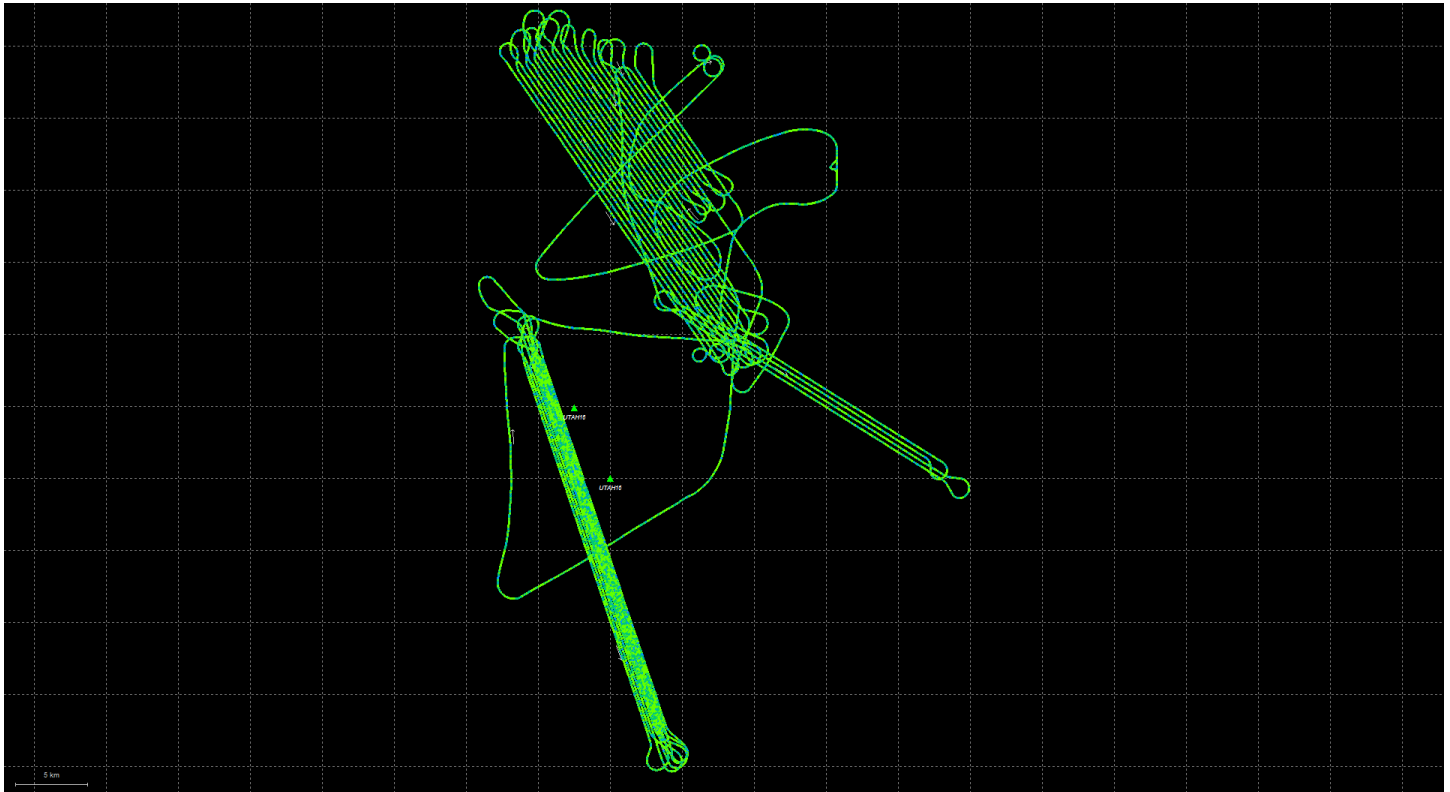
Gd Temp beg: °C End: °C OAT beg: °C End: °C Altimeter begin: end: _____

Line #	Type	Serial #	Start (UTC)	End (UTC)	Gd Spd	Alt AGL	Alt AMSL	Pulses in Air	Pulse Rate	Avg Terr Ht	Max Gdspd	Power	Storage		
													Beg GB	End GB	
1196	S	2032	2038	94	19/1.1	7161	1PIA	5706	203238						
1195	N	2039	2045	99	20/1.1				203958						down drafts
1194	S	2047	2053	97	20/1.1				204725						↓ turbulence down drafts
1193	N	2055	2102	101	20/1.1				205530						
1192	S	2104	2112	90	19/1.2				210431						
1191	N	2113	2120	98	19/1.1				211354						
1190	S	2147	2154	99	17/1.1				214702						
1189	N	2156	2203	103	19/1.1				215626						
1188	S	2205	2214	95	17/1.1				220553						
1187	N	2216	2225	95	16/1.2				221622						
1186	S	2226	2235	97	17/1.2				222651						
1185	N	2237	2246	106	17/1.2				223732						
			2246	2248					Figure 8						
			2259	2307					Land OGD 16.59						1335.7 Hobbs
									static						

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

Total Proj Lines: _____ Lines Flown: _____ Lines Remain: _____ Online Time: _____ Mob Time: _____ Notes: Ordinance UTM 12

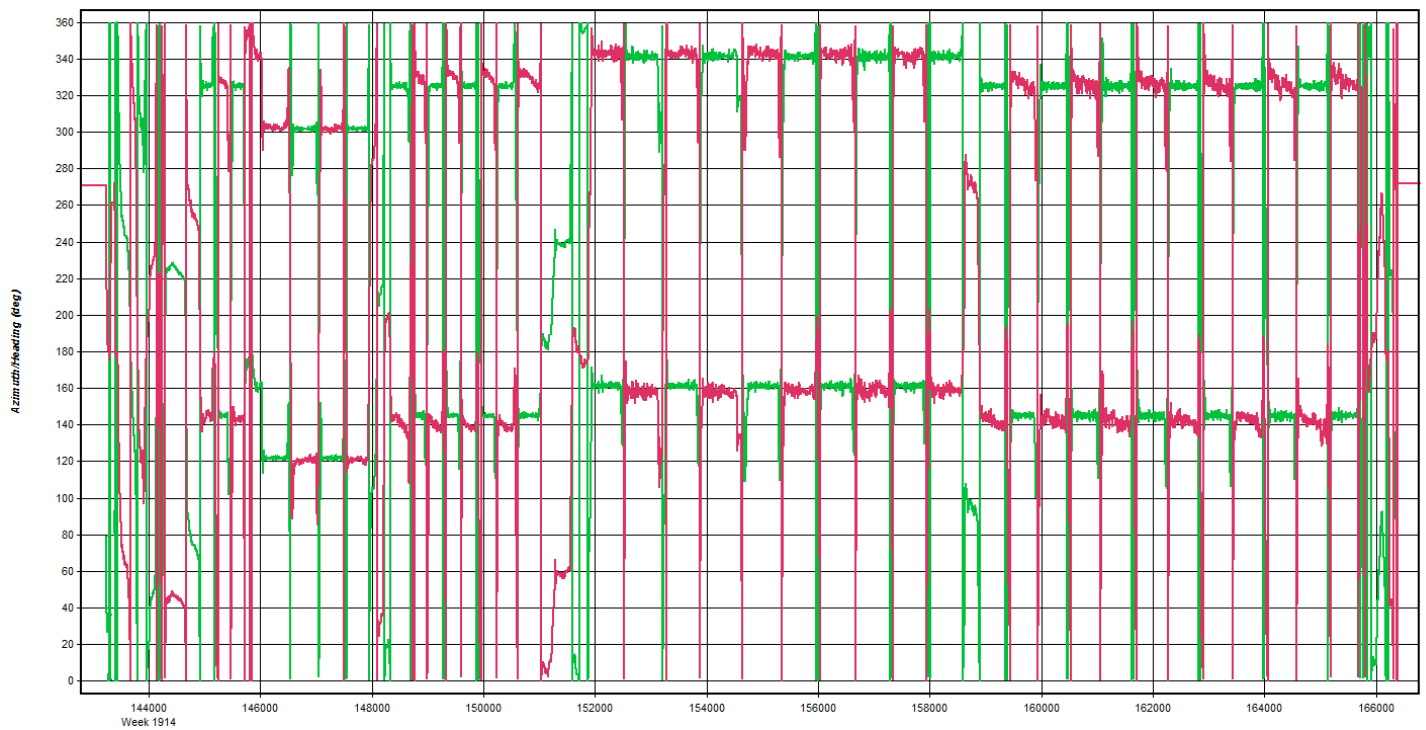
Sep 12, 2016-A (N704MD, SN7161)





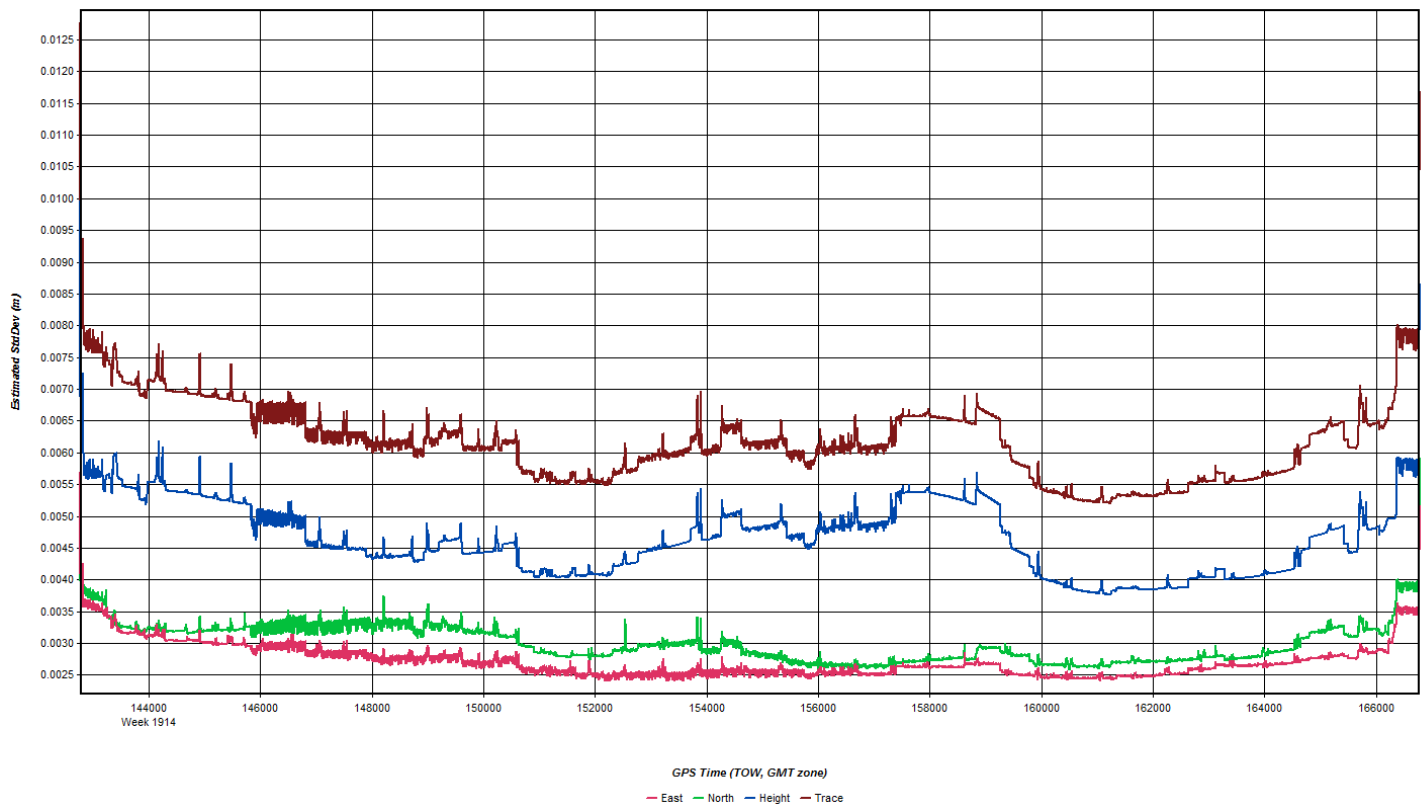
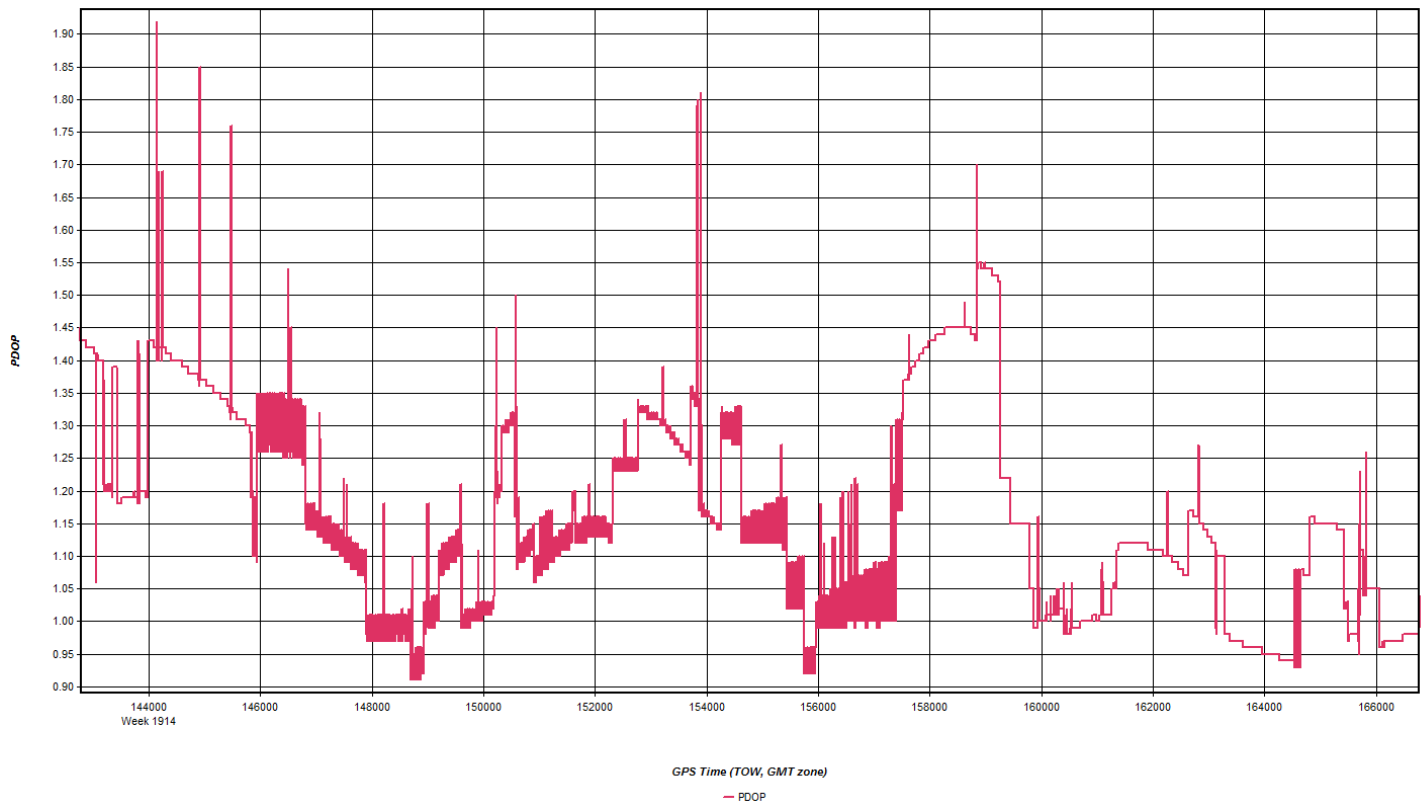
GPS Time (TOW, GMT zone)

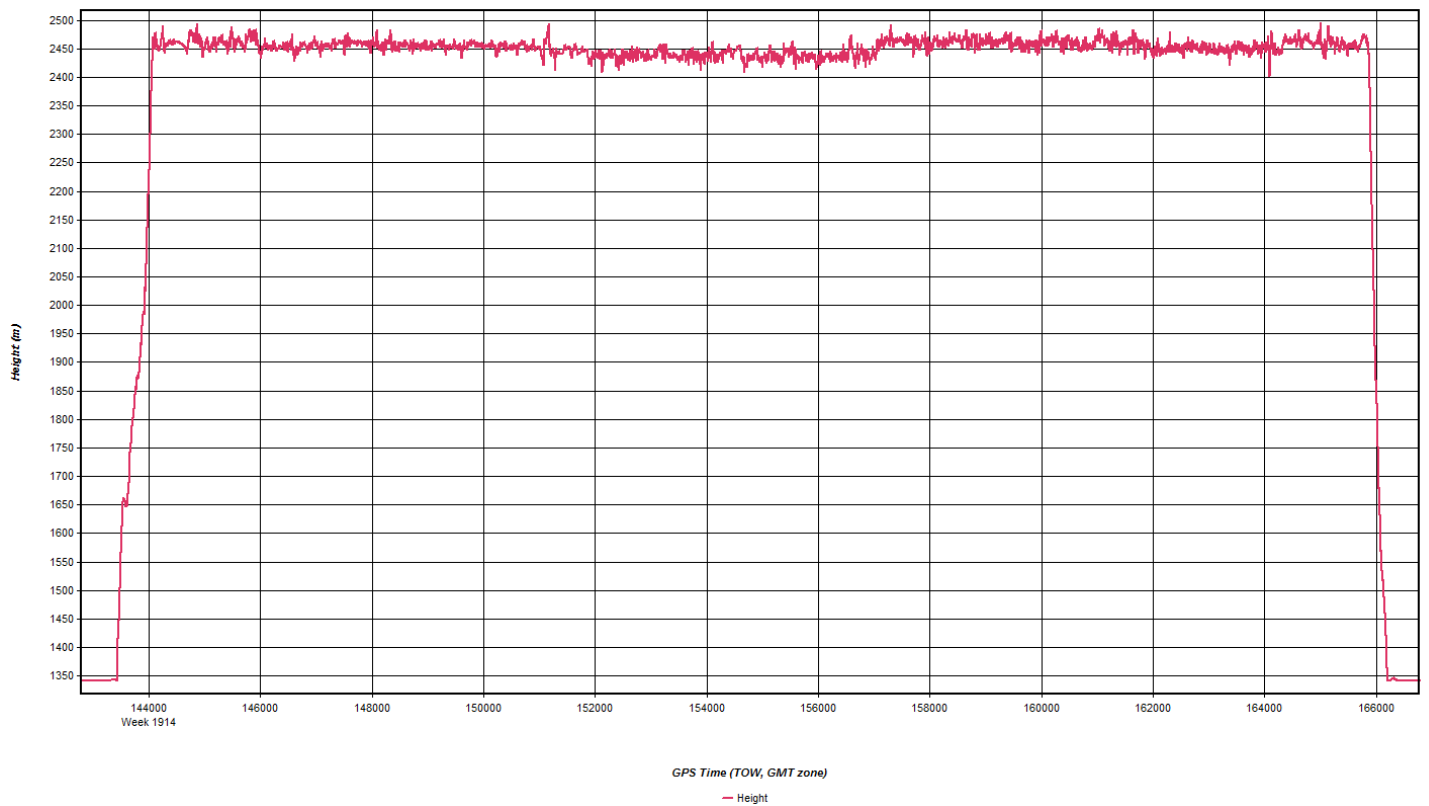
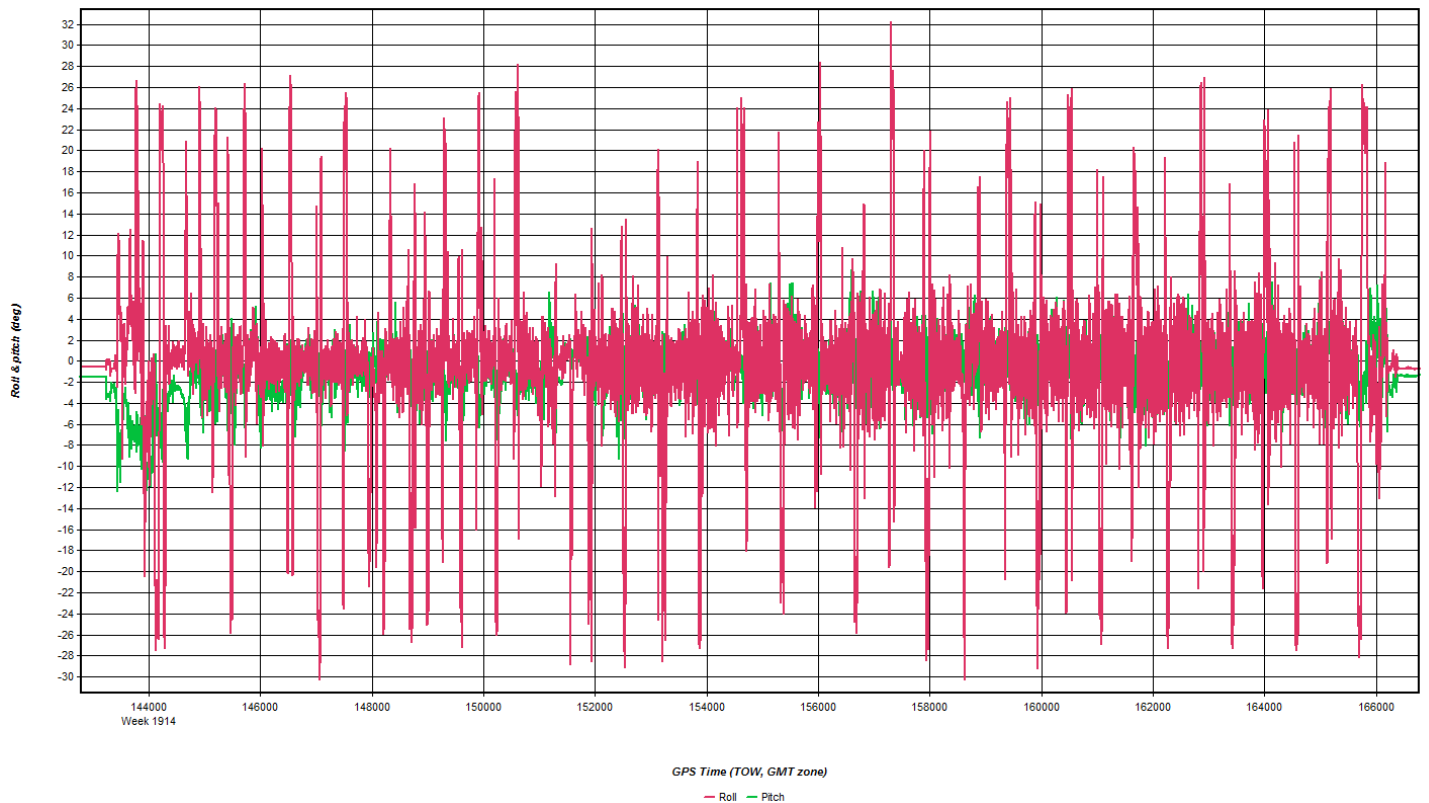
— East — North — Up

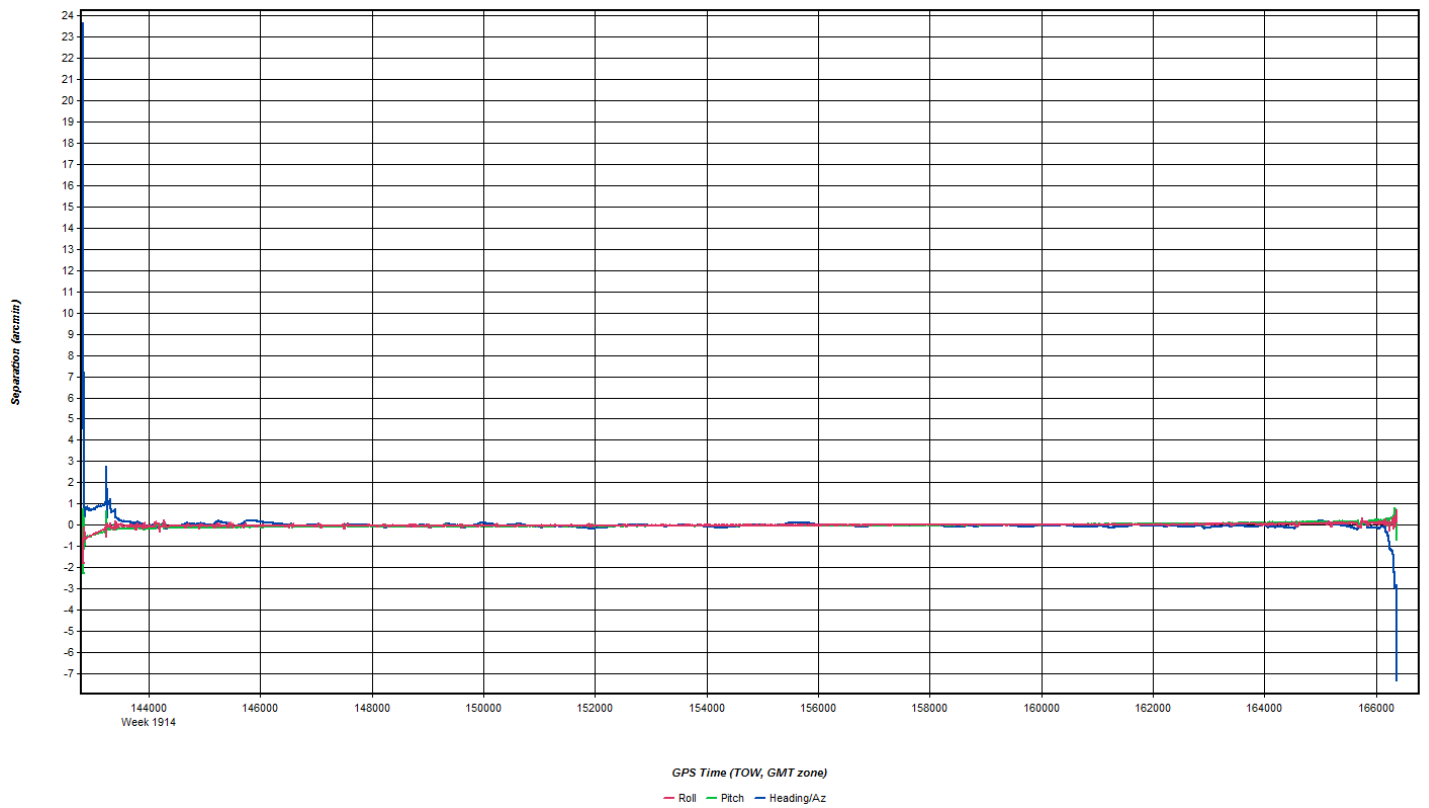
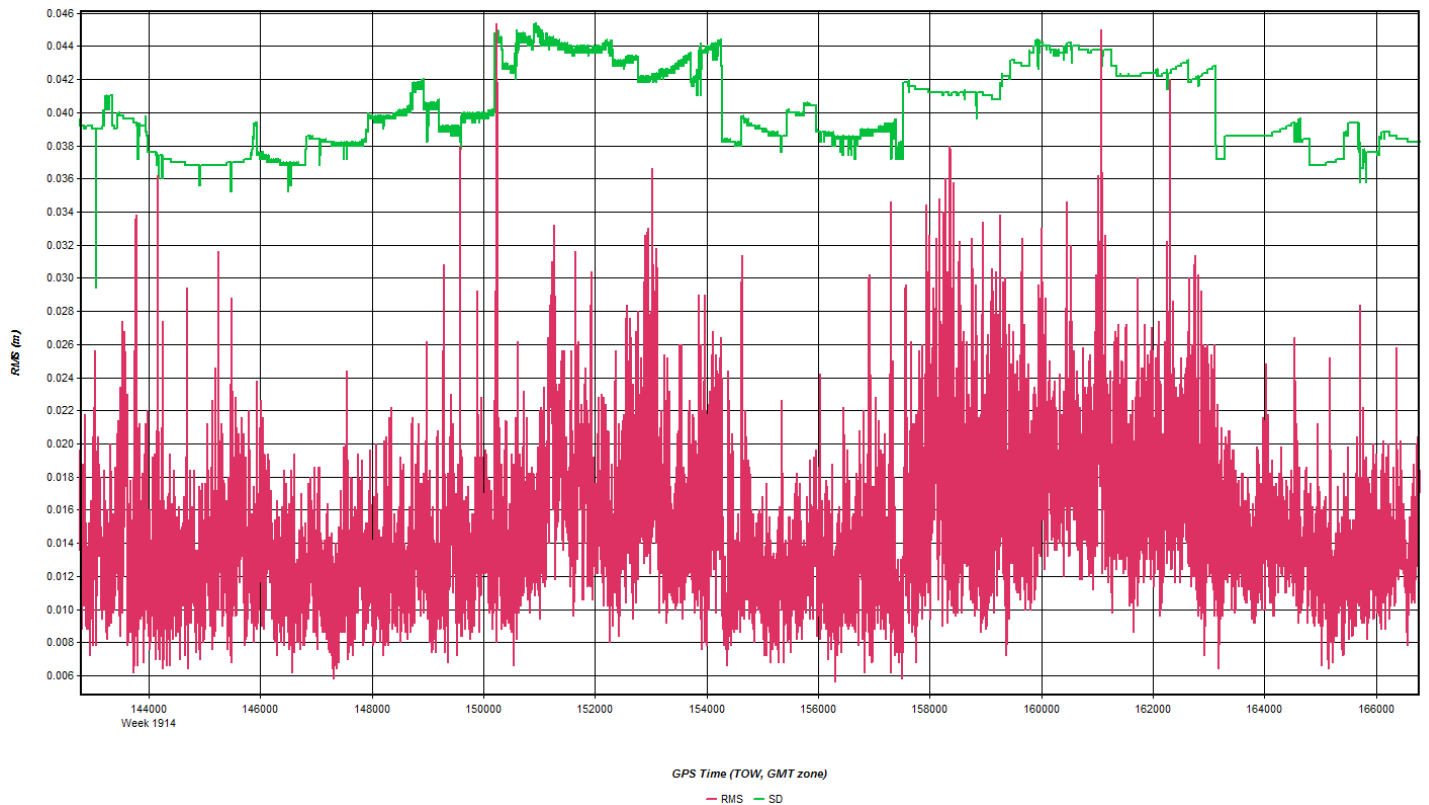


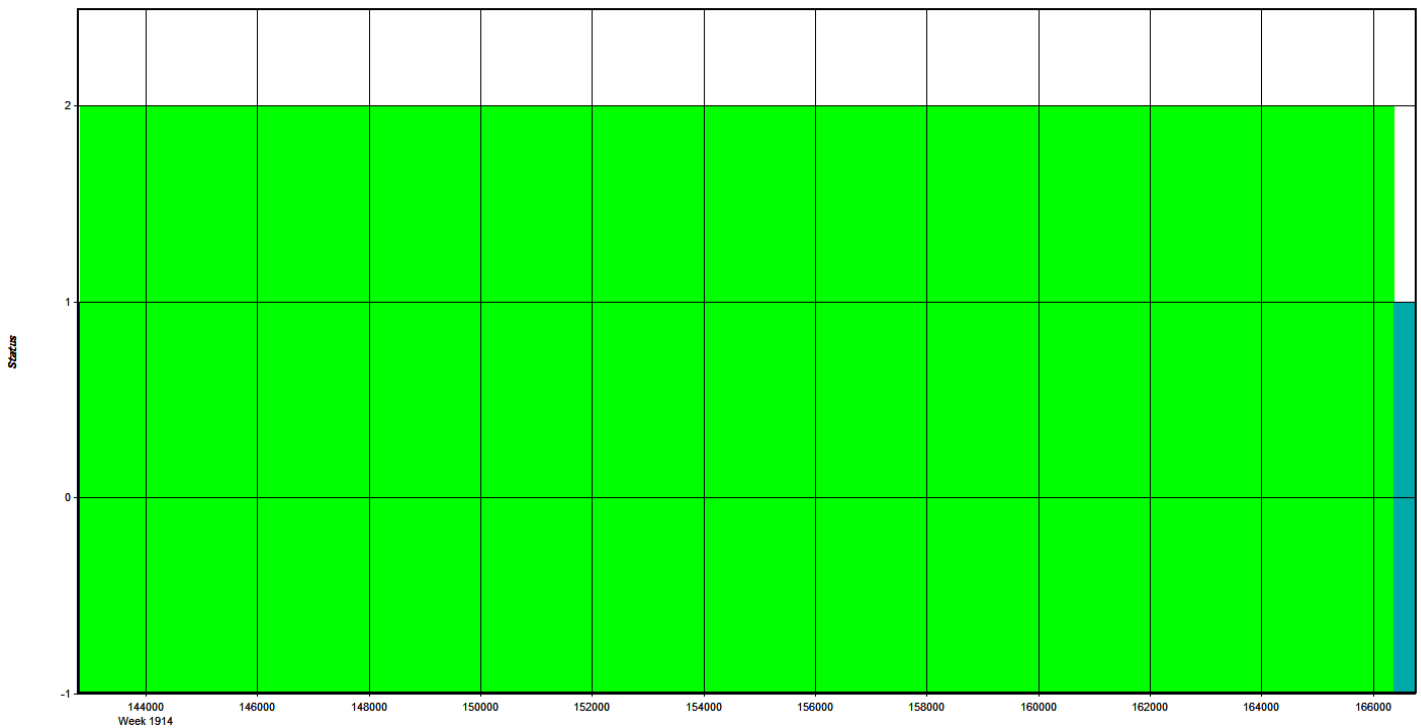
GPS Time (TOW, GMT zone)

— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_08 Name: UTAH16_08 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD256_704MD_SS\R7_257

Coordinates
 Latitude: North 41 02 17.36223 Compute from PPP
 Longitude: West 112 13 55.55965 Enter Grid Values
 Ellipsoidal height: 1338.735 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
1: UTAH16_09 Name: UTAH16_09 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD256_704MD_SS\R7_76

Coordinates
Latitude: North 40 59 39.21278 Compute from PPP
Longitude: West 112 12 07.73734 Enter Grid Values
Ellipsoidal height: 1361.339 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

SN7161 09 12.16 A
Quantum Spatial, Inc

Date: 09/12/2016
Lift: (A) B C D E Pg. 1 of 3

Project: Utah Flight Mgmt File: 20160912-153515

Proj #: 29083

Aircraft: N704MD Begin Hobbs: 1335.7 End Hobbs: 1342.1 Total: 6.4 Pilot: Wagner Co-Pilot: Iverson

Dep Apt: OGD Dep Time (Lcl): 950 (Z): 1550 Arr Apt: OGD Arr Time (Local): 1609 (Z): 2209 Tot Time Aloft: 6:59

CORS: Y / N Sta 1: STA 1: UTAH16-08 Sta 2: UTAH16-09 Flyovers: Y / N IF Y, times: Sta 1) Sta 2)

GPS Unit: O / N Sta 1: UTAH16-08 Sta 2: UTAH16-09 Flyovers: Y / N IF Y, times: Sta 1) Sta 2)

Gd Temp beg: °C End: °C OAT beg: °C End: °C Altimeter begin: end:

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/ft/s	GPS Altitude	Crab	Turb	0, 1, 2	Alt A/VSL	Pulses In Air	1PIA	Avg Terr ht	Max Gdspd	Power	PPSM	Storage Name/#
		1541															
		1550															
65LE		1601	1604														1335.7 Hobbs
11001 W		1605	1610	98	15/1.3												Take OFF OGD 0950
1030 N		1616	1618	103	15/1.3												Figure 8 FMSL-Utah_GSL-E_QL2-SN7161-rev 1
1029 S		1621	1623	95	15/1.3												Y cross flight brown 160912-160501
1028 N		1625	1627	87	16/1.3												161656 ~100
																	162109 -103
																	162526 -106
1209 S		1634	1641	105	17/1.1												orange Black 163413
1208 N		1643	1649	97	16/1.1												164311
1207 S		1651	1657	98	15/1.3												165156
1206 N		1700	1705	103	15/1.3												170009
11002 W		1708	1709	97	16/1.3												cross flight orange 170815
																	Back to Brown Block
1026 N		1714	1717	94	15/1.3												T = Turbulence
1027 S		1719	1722	96	16/1.1												171413
1025 N		1724	1727	90	16/1.1												171927
1024 S		1729	1732	102	17/1.2												172416
																	172917

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

Total Proj Lines: 37

Lines Remain: 0

Online Time: 6

Mob Time: 4

Notes: Ordnance

UTM 12

Airborne LIDAR Data Collection Log Sheet :: SN7161 09 12 16 A
Quantum Spatial, Inc

Date: 09/12/2016
Lift: B C D E Pg 2 of 3

Flight Mgmt File: 20160912-153515

Project: Utah
 Aircraft: N704MD Begin Hobbs: End Hobbs: Total: Pilot: Wagner Co-Pilot: Tech: Iverson
 Dep Apt: OGD Dep Time (Lcl): (Z): Arr Apt: OGD Arr Time (Local): (Z): Tot Time Aloft:
 CORS: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta 1) Sta 2)
 GPS Unit: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta 1) Sta 2)

Type	Serial #	Alt AGL	Alt AMSL	Pulses In Air	MplA	OAT beg:	°C	End:	°C	Altimeter begin:	end:	Avg Terr Ht	Max Gdspd	Avg Pt Spacing	Power	PPSM	Beg GB	End GB	Tot GB	Storage Name/#	
																					Scan Freq
LIDAR	ALS70	7161			1PIA																
	40	53 Hz											215 kHz		57%						

Line #	Hdg	Start(UTC)	End(UTC)	Gd Spd	POD/Stats	GPS Altitude	Crab	Turb (0..1)	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.											
1023	N	1734	1737	96	16/1.2			T	FMSL-Utah-GSL-E-SN7161-REV1											
1022	S	1737	1742	101	18/1.1															
1021	N	1744	1748	95	18/1.2															
1020	S	1750	1756	103	18/1.2															
4L003																				
4L004	W	1801	1805	92	17/1.3			T	Go to Blue Block cross flight Junk											
1184	S	1812	1821	101	17/1.3			T	Blue Block 18039 cross flight on											
1183	N	1823	1831	87	17/1.2			T	181225											
1182	S	1835	1843	99	17/1.1			T	182307 → 100 Turbulence on											
1181	N	1845	1854	93	17/1.1			T	183510 → 70 ALL LINES											
1180	S	1859	1907	97	17/1.1			T	184548 T = Turbulance											
1179	N	1910	1918	105	17/1.1			T	185921											
1178	S	1921	1929	102	17/1.2			T	191020 → 150 + + 100 ↑											
1177	N	1932	1940	97	17/1.2			T	192122											
1176	S	1943	1951	104	17/1.3			T	193222											
1175	N	1953	2002	87	18/1.2			T	194306											
									195338											
									Go to BROWN Block											

Total Proj Lines: Lines Flown: Lines Remain: Online Time: Mob Time: Notes: Ordnance UTM 12

GSL E

SN7161 09 12 16A
Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email Log daily to flight_Log_distribution_List@quantumspatial.com)

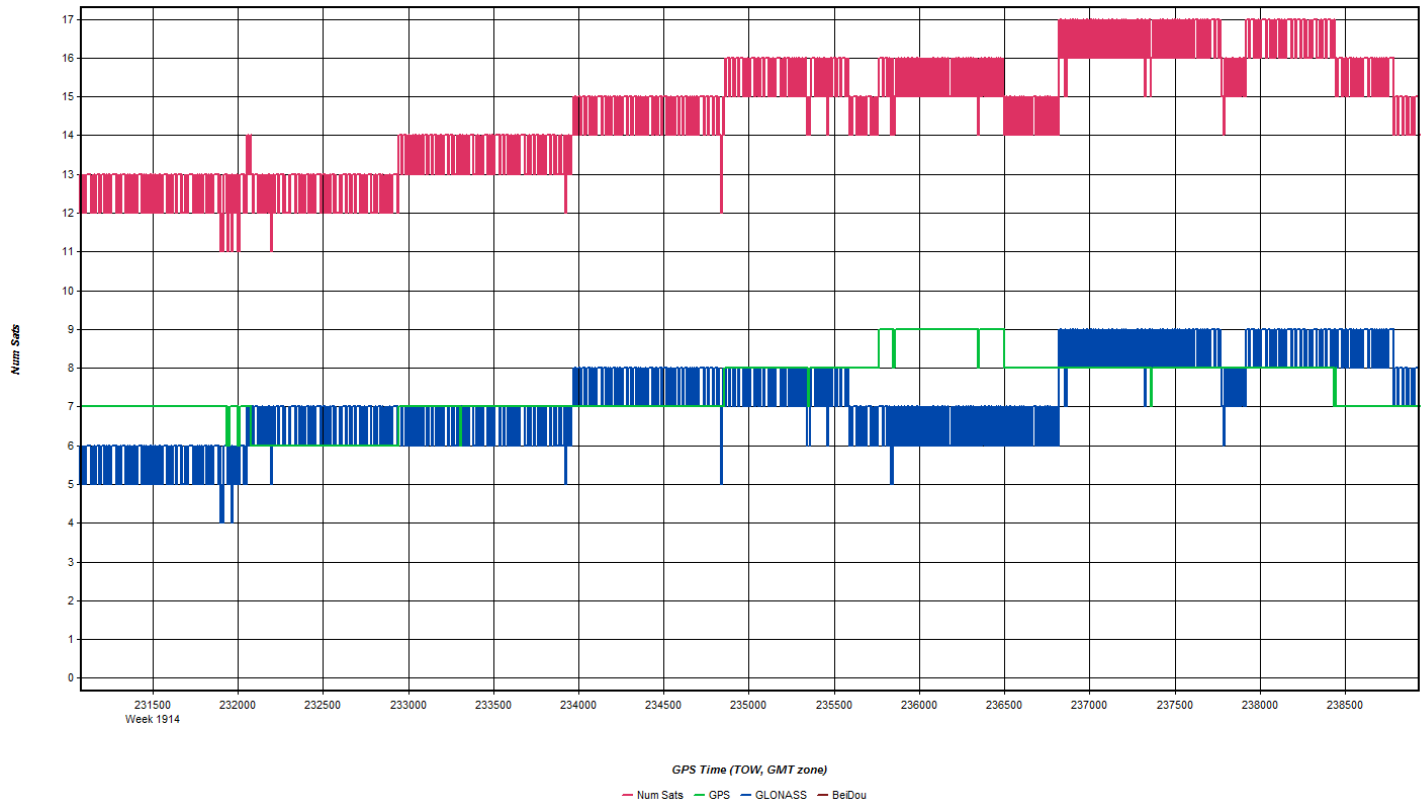
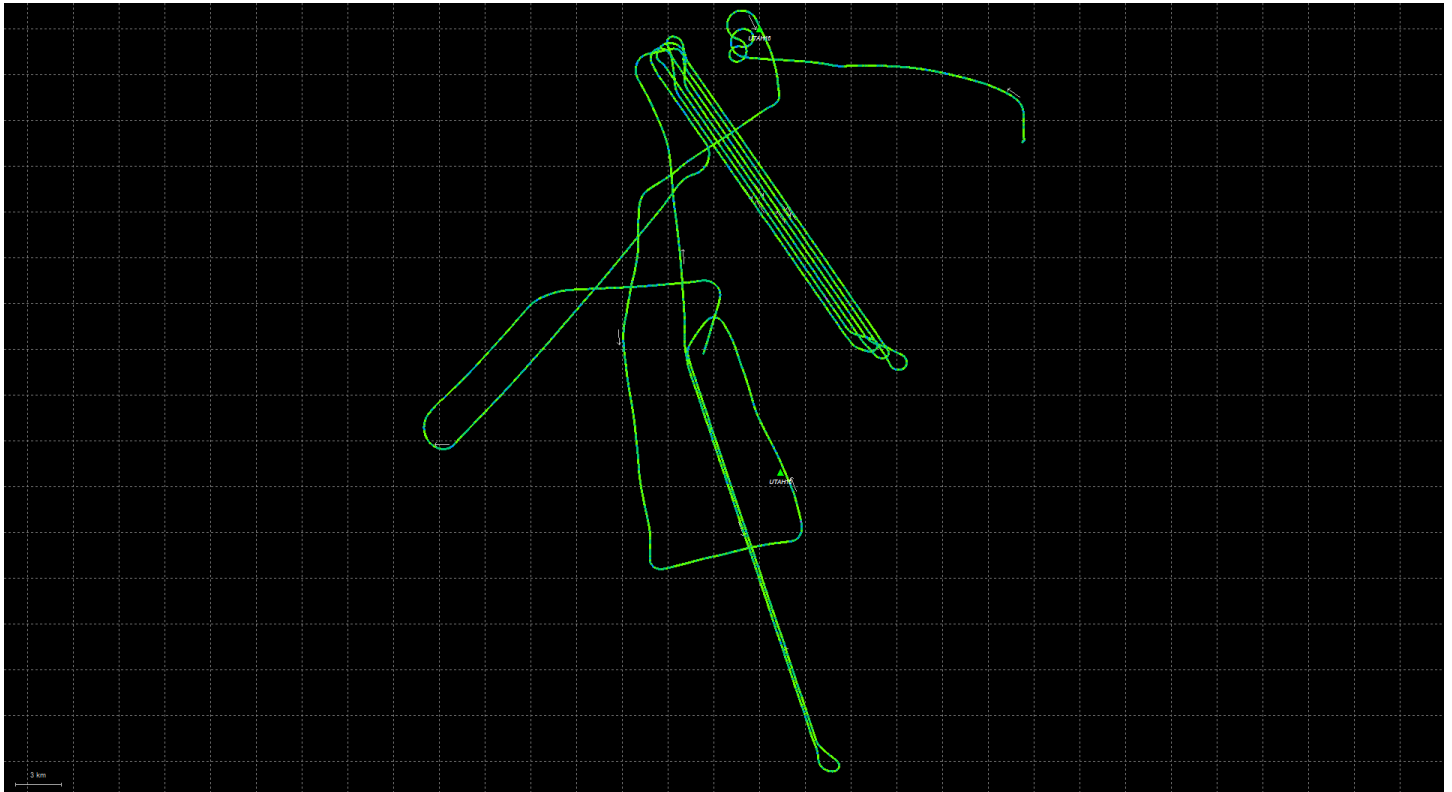
Date: 09/12/2016
Lift: A B C D E Pg 3 of 3

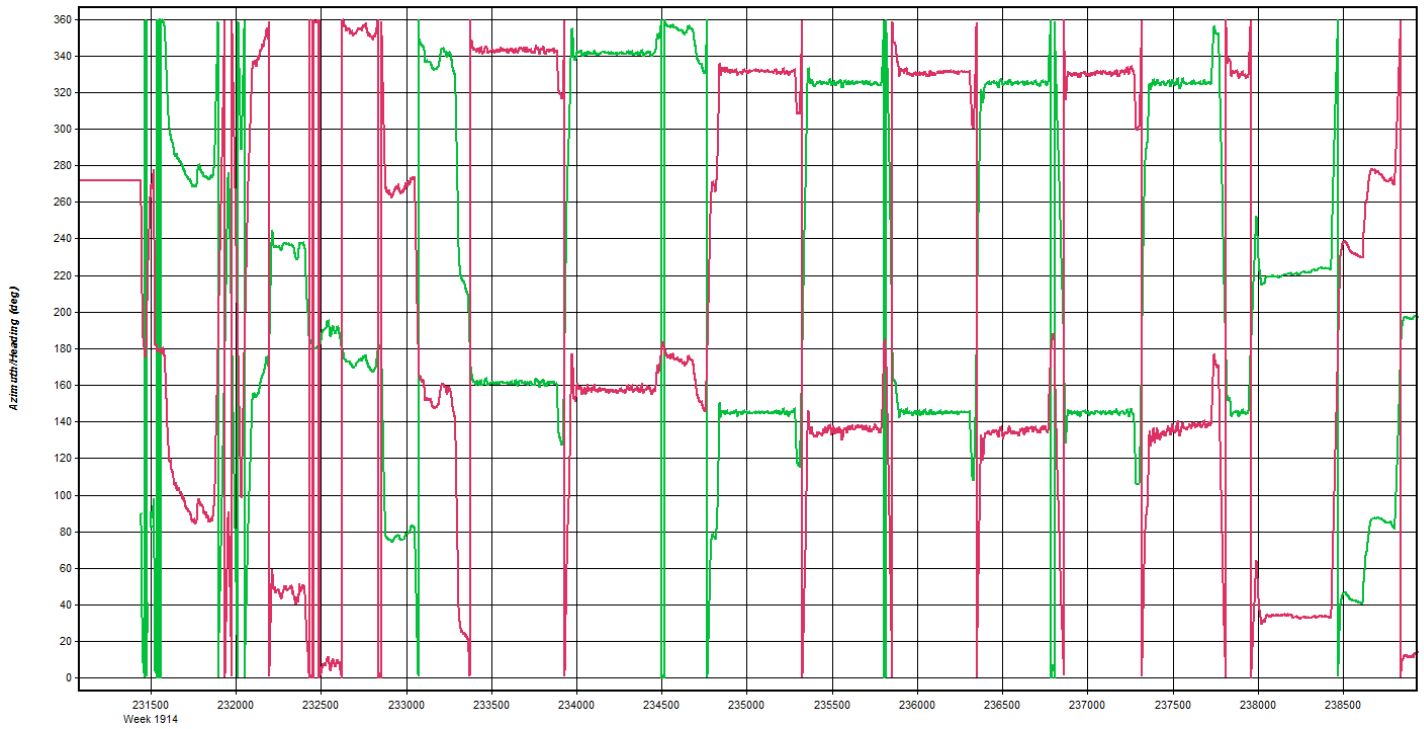
Project: Utah Flight Mgmt File: 20160912-153515 Tech: Iverson
 Proj #: 29083 Pilot: Wagner Co-Pilot:
 Aircraft: N704MD Begin Hobbs: Total: Arr Apt: OGD Arr Time (Local): (Z): Tot Time Aloft:
 Dep Apt: OGD Dep Time (Lcl): (Z): Flyers: Y / N If Y, times: Sta1 Sta2)
 CORS: Y / N Sta 1: Sta 2: Flyers: Y / N If Y, times: Sta1 Sta2)
 GPS Unit: Y / N Sta 1: Sta 2:
 Gd Temp beg: °C End: °C OAT beg: °C End: °C Altimeter begin: end:
 Type ALS70 Serial # 7161 Alt AGL 1811.1 Avg Terr Ht 200910 Max Glidpd FMSL-Utah-65L-E-QL1-SN7161 Storage Name/ #
 FOV 40° Scan Freq 53Hz MPA Y/N Pulses in Air 1PIA Pulse Rate 215kHz Power 57% End GB
 Beg GB
 End GB
 Tot GB

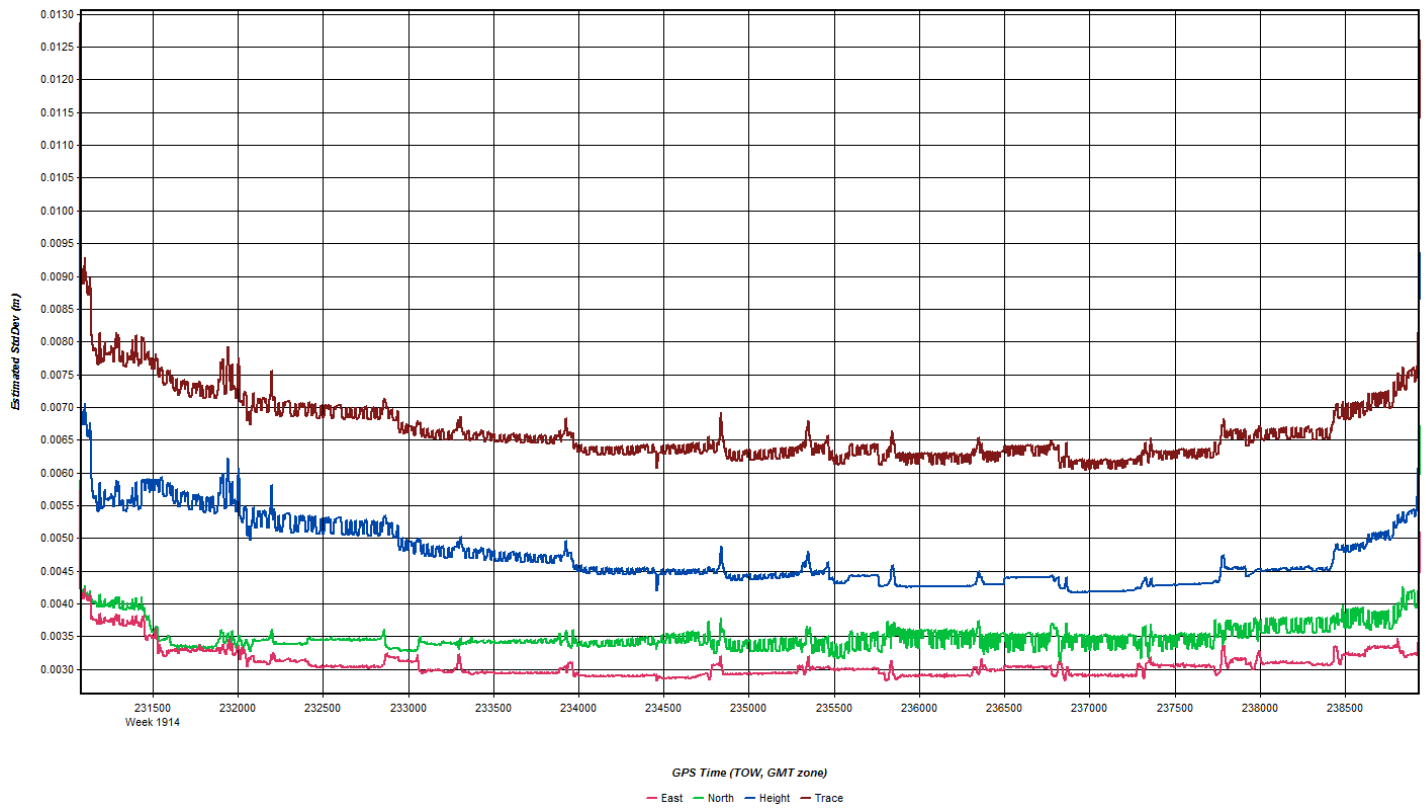
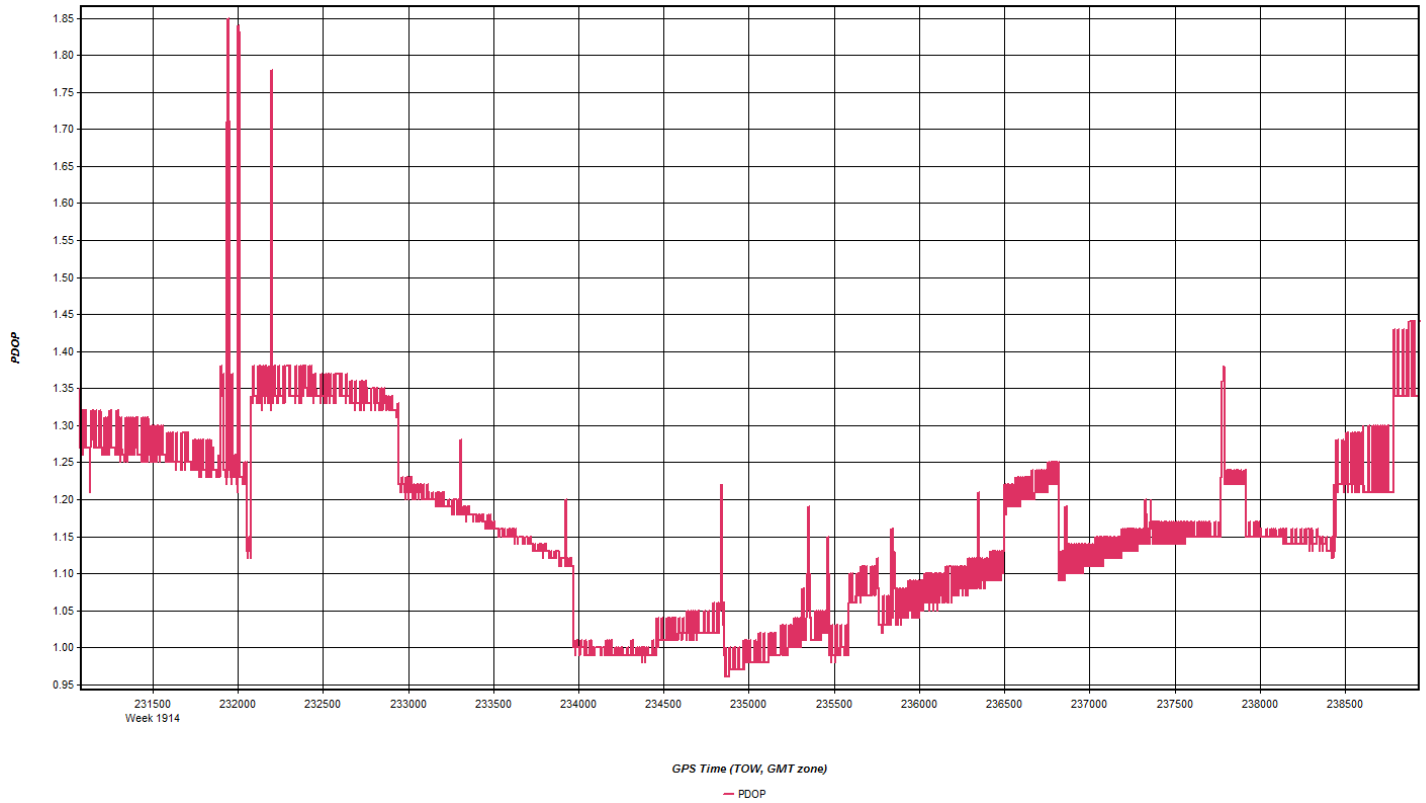
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PODPI/s	GPS Altitude	Crab	Turb (0..1)	Alt	Alt/SL	Pulses in Air	1PIA	Avg Pt Spacing	PPSM	Power
1019	N	2009	2015	98	1811.1			T	200910	FMSL-Utah-65L-E-QL1-SN7161					
1018	S	2017	2024	105	1911.1			T	201751	T = Turbulence					
1017	N	2026	2033	87	1911.1			T	202644						
1016	S	2035	2042	99	1911.1			T	203547						
1015	N	2045	2054	86	1911.1			T	204524						
1014	S	2055	2103	99	2011.1			T	205549						
1013	N	2105	2113	95	1911.1			T	210533						
1012	S	2115	2122	94	1911.1			T	211514	→ + 133 OFF					
1011	N	2124	2132	100	1911.1			T	212445						
1010	S	2134	2141	97	1711.1			T	213434	→ + 65					
1009	N	2143	2151	87	1811.1			T	214357						
1008	S	2154	2200	100	2019.9			T	215431						
		2201	2203						Figure 8						
		2209							Land OGD 1609						
		2218							Static						
									1342.1 Hobbs						

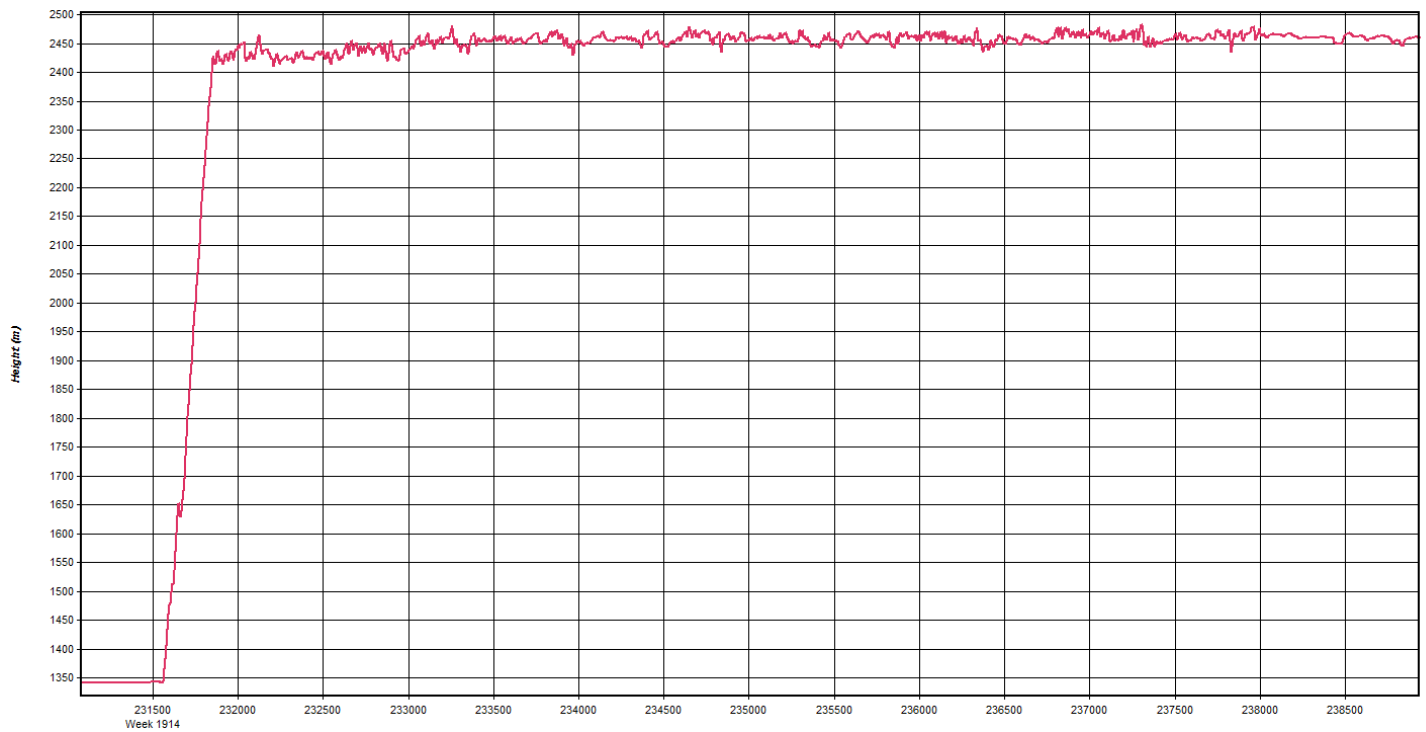
Total Proj Lines: _____ Lines Flown: _____ Lines Remain: _____ Online Time: _____ Mob Time: _____ Notes: _____ UTM 12

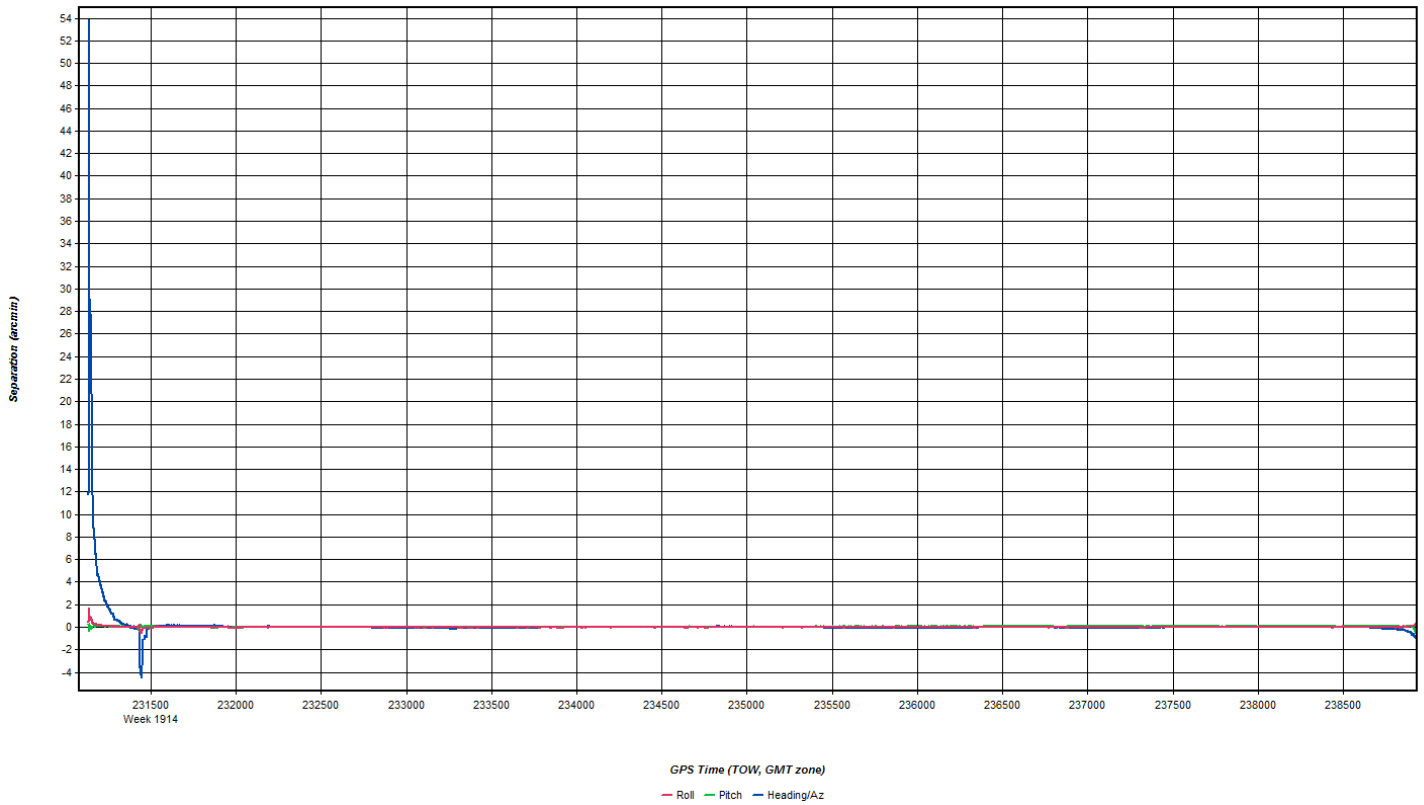
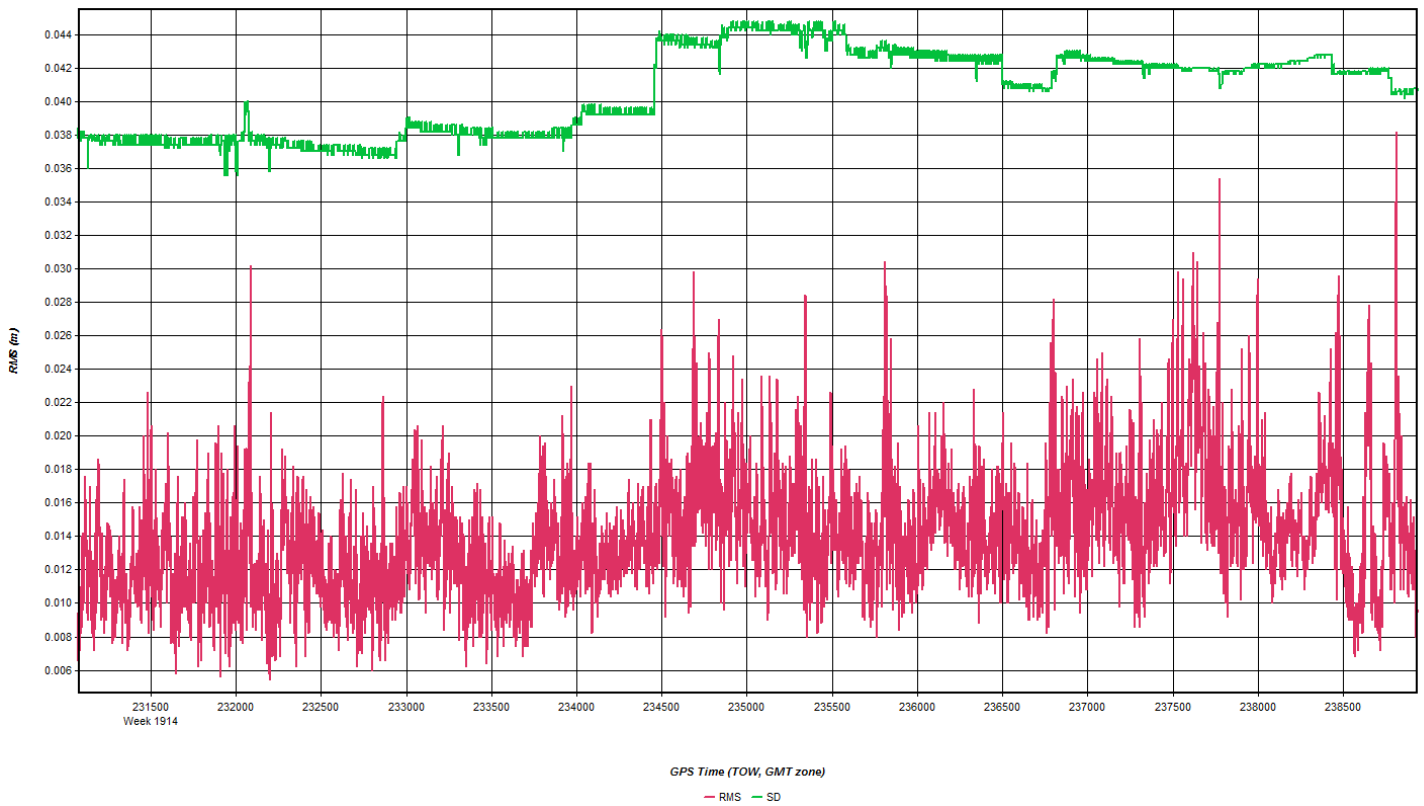
Sep 13, 2016-A (N704MD, SN7161)

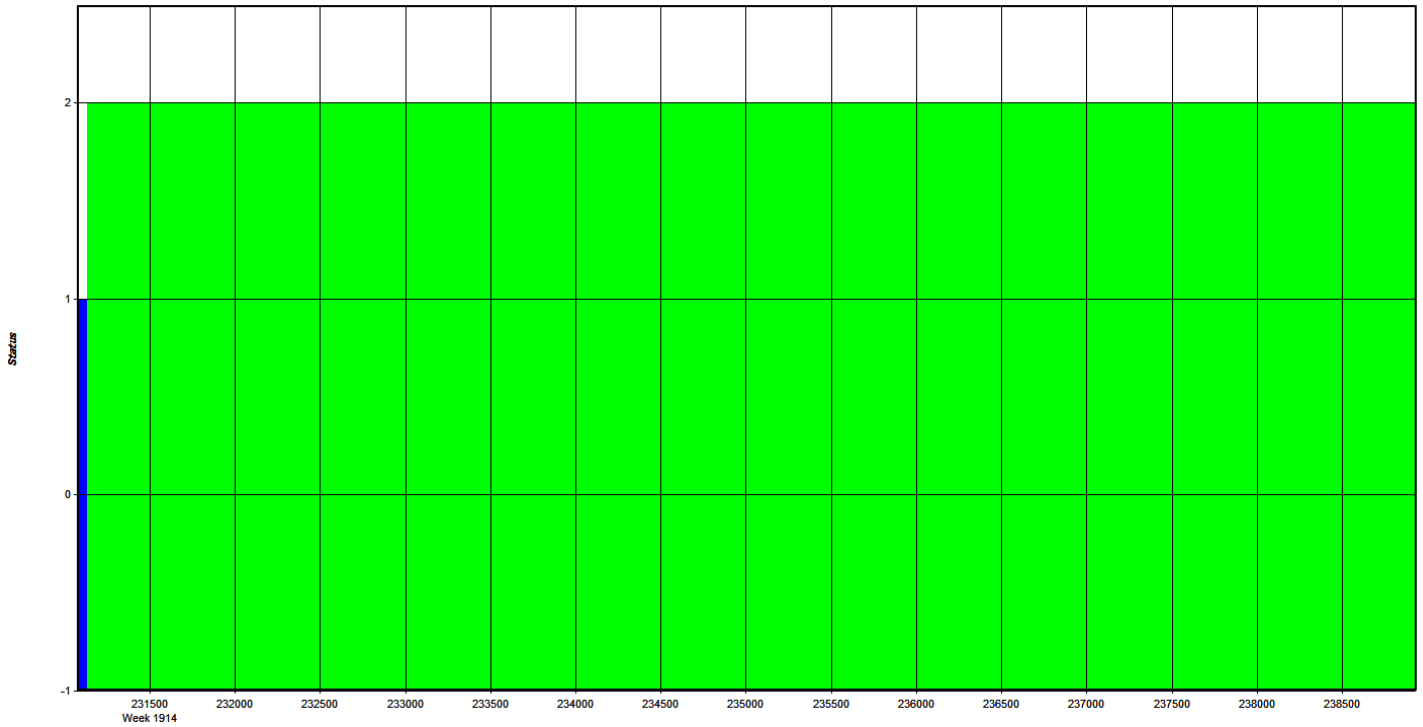












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_09 Name: UTAH16_09 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD257_704MD_SS\R7_257

Coordinates
 Latitude: North 40 59 39.21278 Compute from PPP
 Longitude: West 112 12 07.73734 Enter Grid Values
 Ellipsoidal height: 1361.339 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_10 Name: UTAH16_10 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD257_704MD_SS\R7_76

Coordinates
 Latitude: North 41 15 04.88969 Compute from PPP
 Longitude: West 112 13 07.06672 Enter Grid Values
 Ellipsoidal height: 1269.980 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Project: Utah

Alcraft: N704MD **Begin Hobbs:** 1342.1 **End Hobbs:** 1348.1 **Total:** 6

Dep Apt: OGD **Dep Time (Lcl):** 1019 (Z): 1619 **Arr Apt:** OGD **Arr Time (Local):** ~~1619~~ (Z): 1913 **Tot Time Aloft:** 2:54 + 3:05

CORS: Y / N **Sta 1:** ~~UTAH16-09~~ **Sta 2:** UTAH16-10 **Flyovers:** Y / N **IF Y, times: Sta 1:** 1913 **Sta 2:** **Total** 5:59

GPS Unit: ~~Q1N~~ **Sta 1:** UTAH16-09 **Sta 2:** UTAH16-10 **Flyovers:** Y / N **IF Y, times: Sta 1:** **Sta 2:**

Date: 09/13/2016

Lift: (A) B C D E **Page:** 1 of 3

Flight Mgmt File: 20160913_160105

Pilot: Wagner **Co-Pilot:** Iverson

Proj #: 29083

Alt: 7161 **Alt AMSL:** **Alt AGL:** **Alt MSL:**

Scan Freq: 53 HZ **MP/A:** Y / N **Power:** 57% **Pulse Rate:** 215 kHz

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PDP/1-Sats	GPS Altitude	Crab	Turb (0-5)	Altimeter begin:		Storage Name/#
									°C	°C	
GSLE		1612									
		1619									
		1624	1626								
U001	W	1630	1632	105		1711.2					1342.1 Hobbs
U002	E	1641	1643	90		1611.2					static
1174	S	1649	1657	102		1511.3					Take OFF OGD 1019
1173	N	1659	1707	103		1511.3					Figure 8 FMSL-Utah-GSL-E-QL1-SN7161-rev1
GSLE											cross flight brown 160913-162956
1007	S	1714	1721	98		1811.1					cross flight Blue 164103
1006	N	1723	1729	103		1711.1					164947
1005	S	1731	1738	105		1911.1					165935
1004	N	1739	1746	105		1711.1					back to Brown Block
1003	S	1748	1754	103		1711.2					171435
1002	N	1756	1801	105		1711.2					172313
1001											173156
											173959
											174825
											175607
											System crash
											Reboot
											taking a very long time to shut down
											cut off power Reboot

Total Proj Lines: 18

Lines Flown: 18

Lines Remain: 0

Online Time: 5

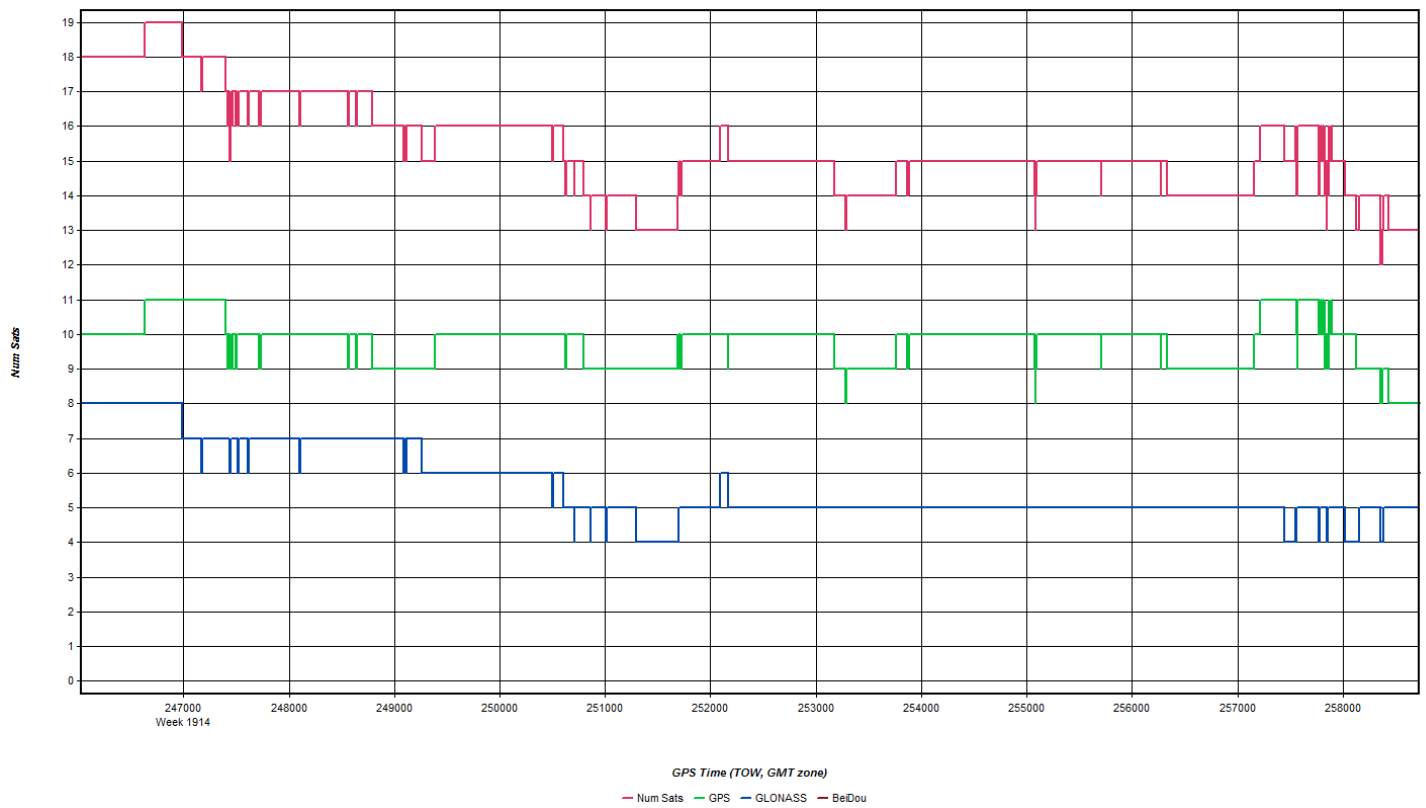
Mobile Time: 1

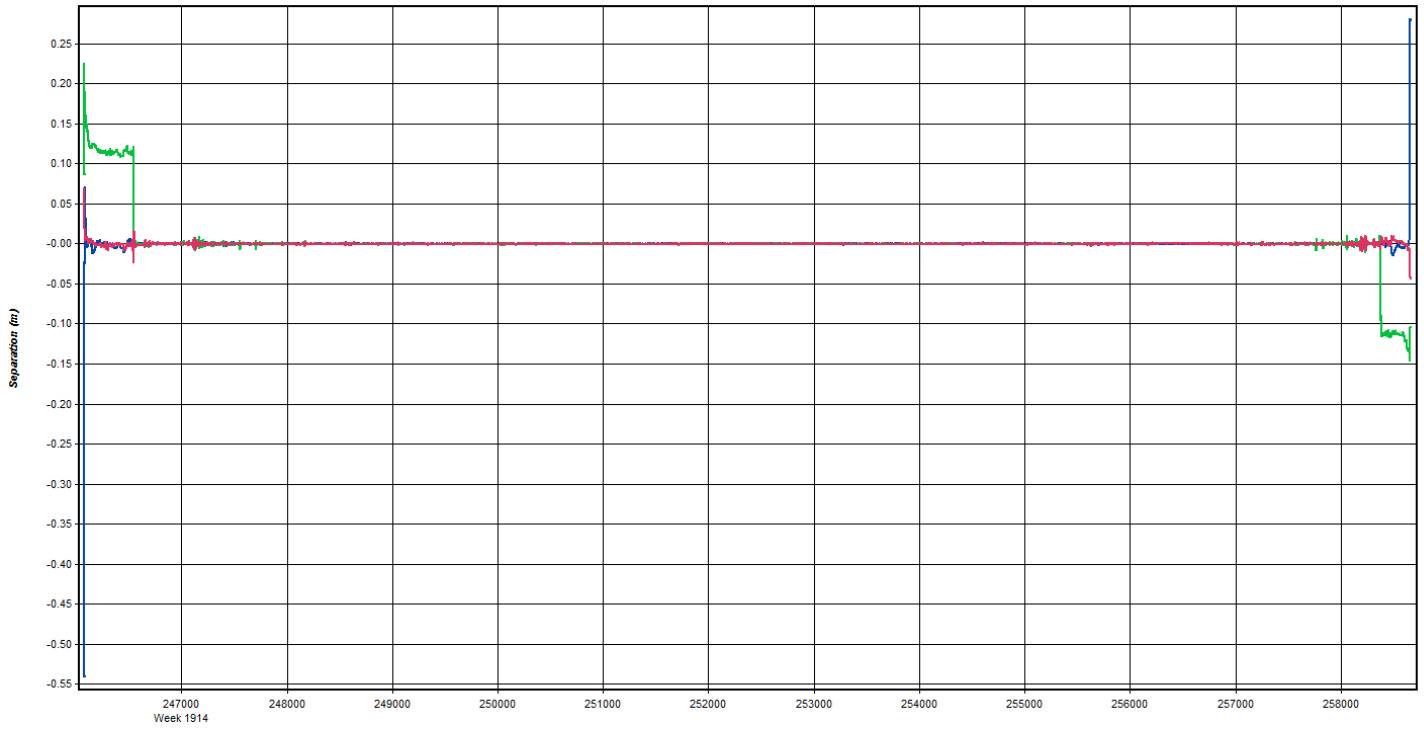
Notes: Ordnance

UTM 12

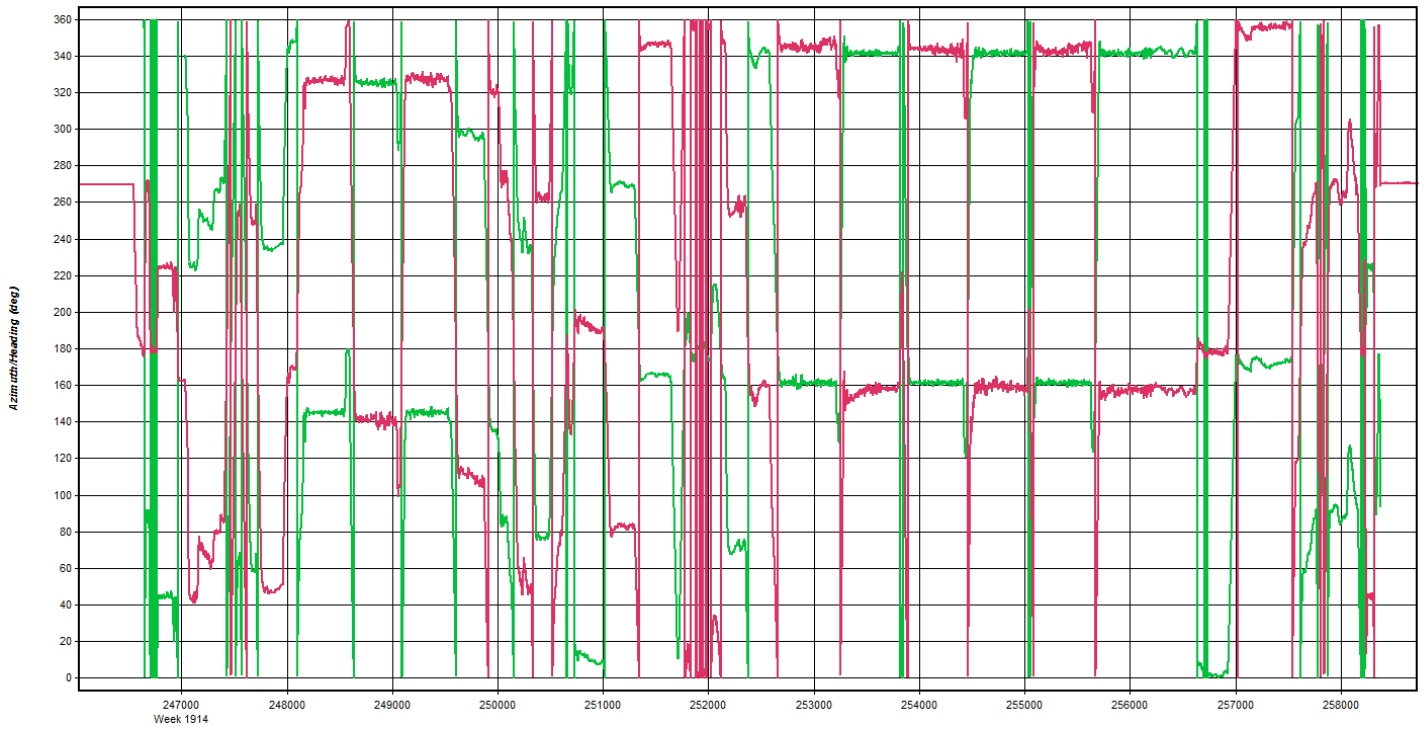
1016 / RF=2 / QSI-TKZ1

Sep 13, 2016-C (N704MD, SN7161)

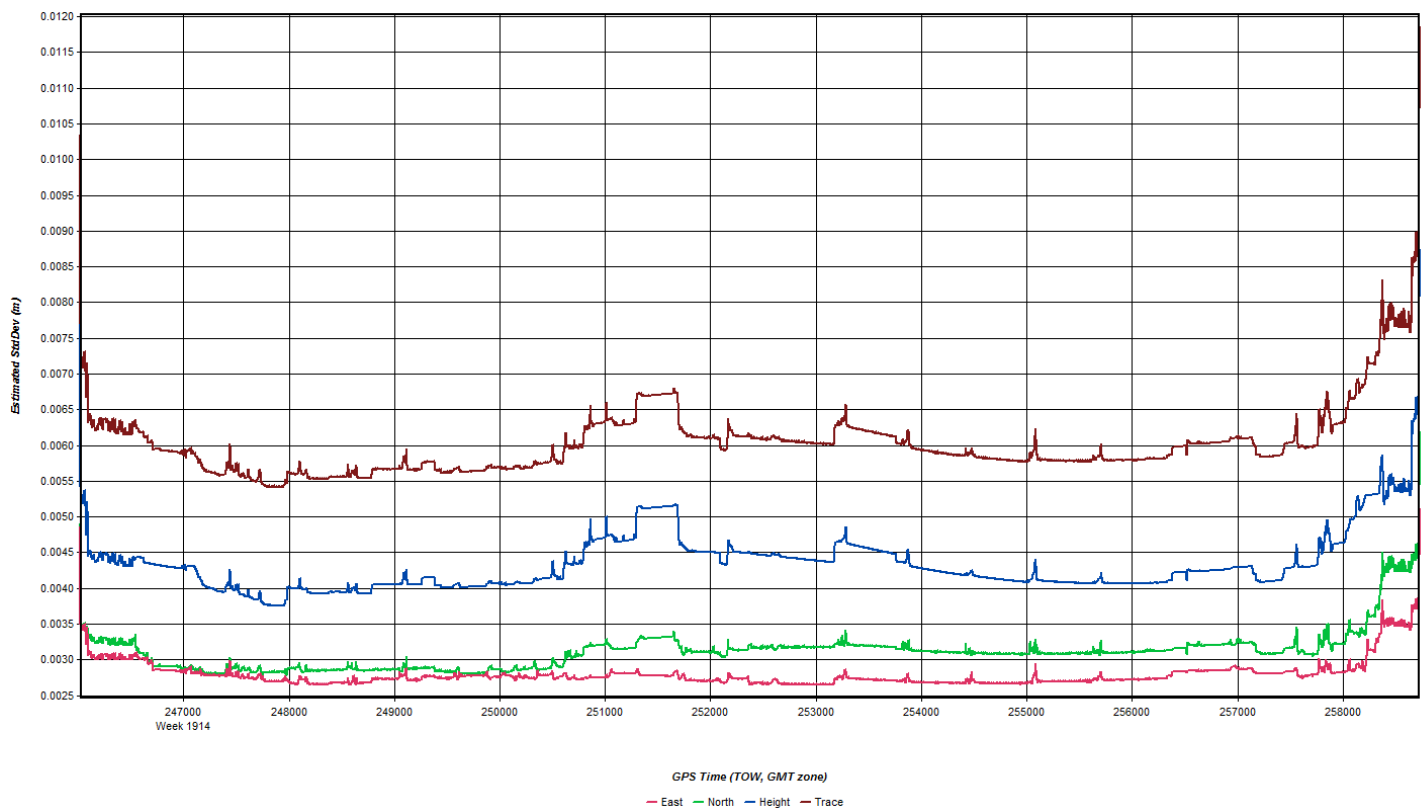


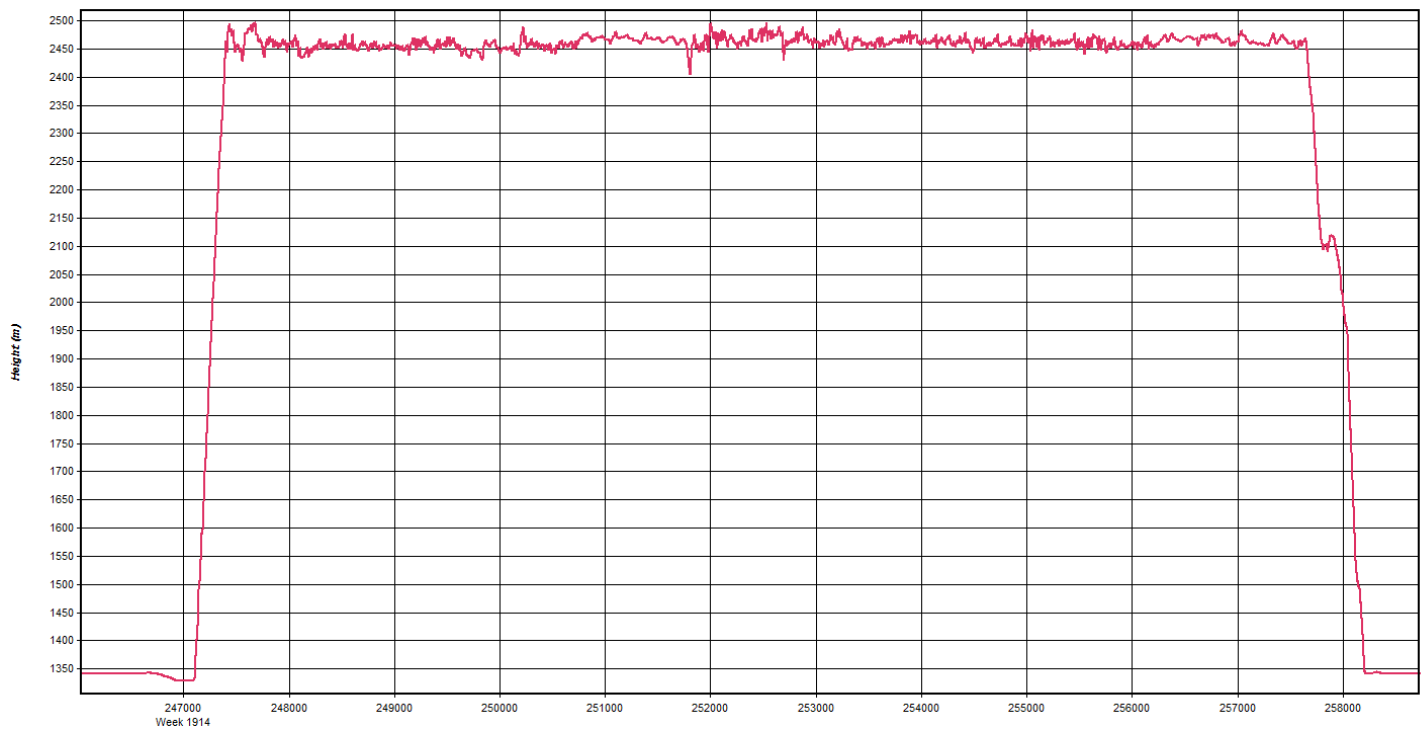


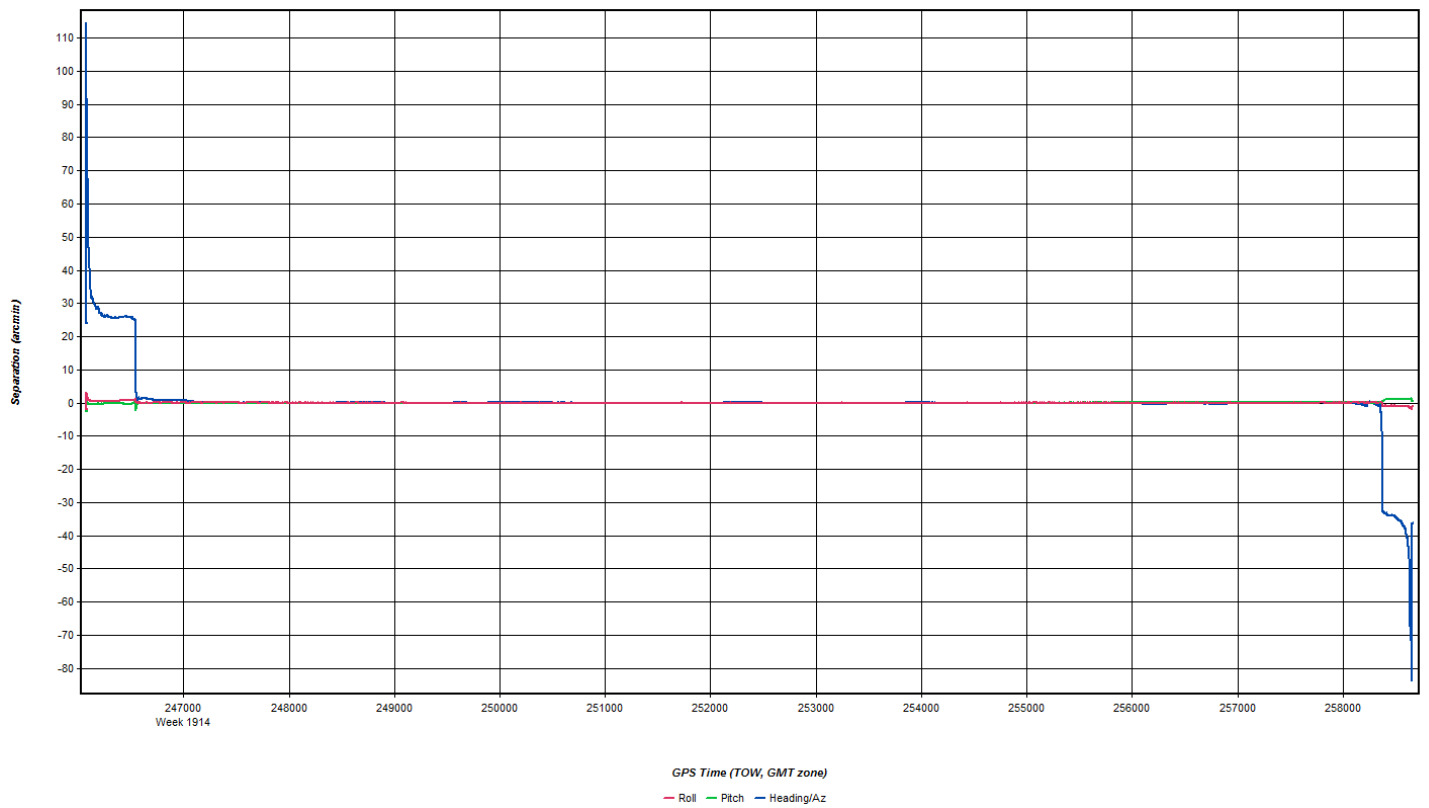
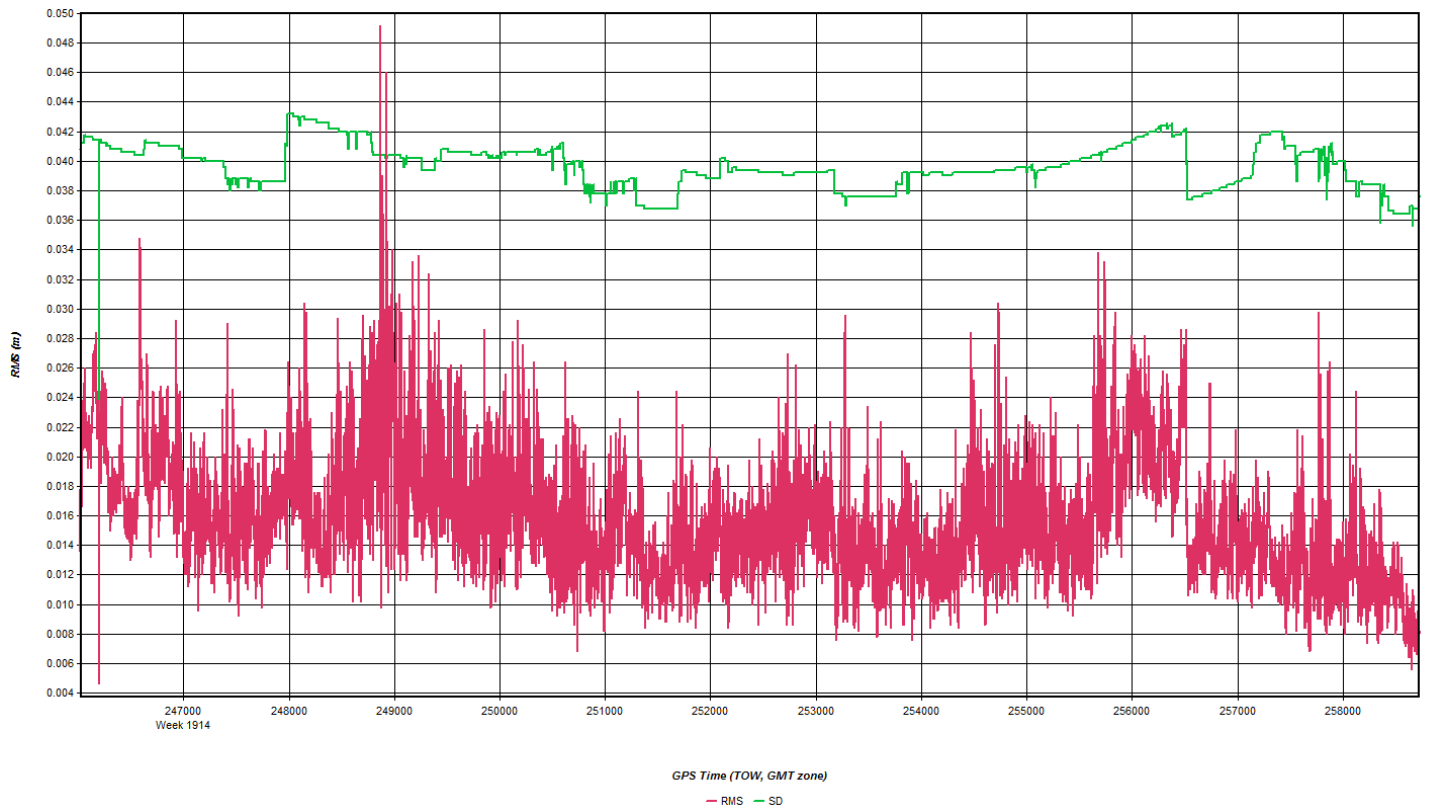
GPS Time (TOW, GMT zone)
— East — North — Up

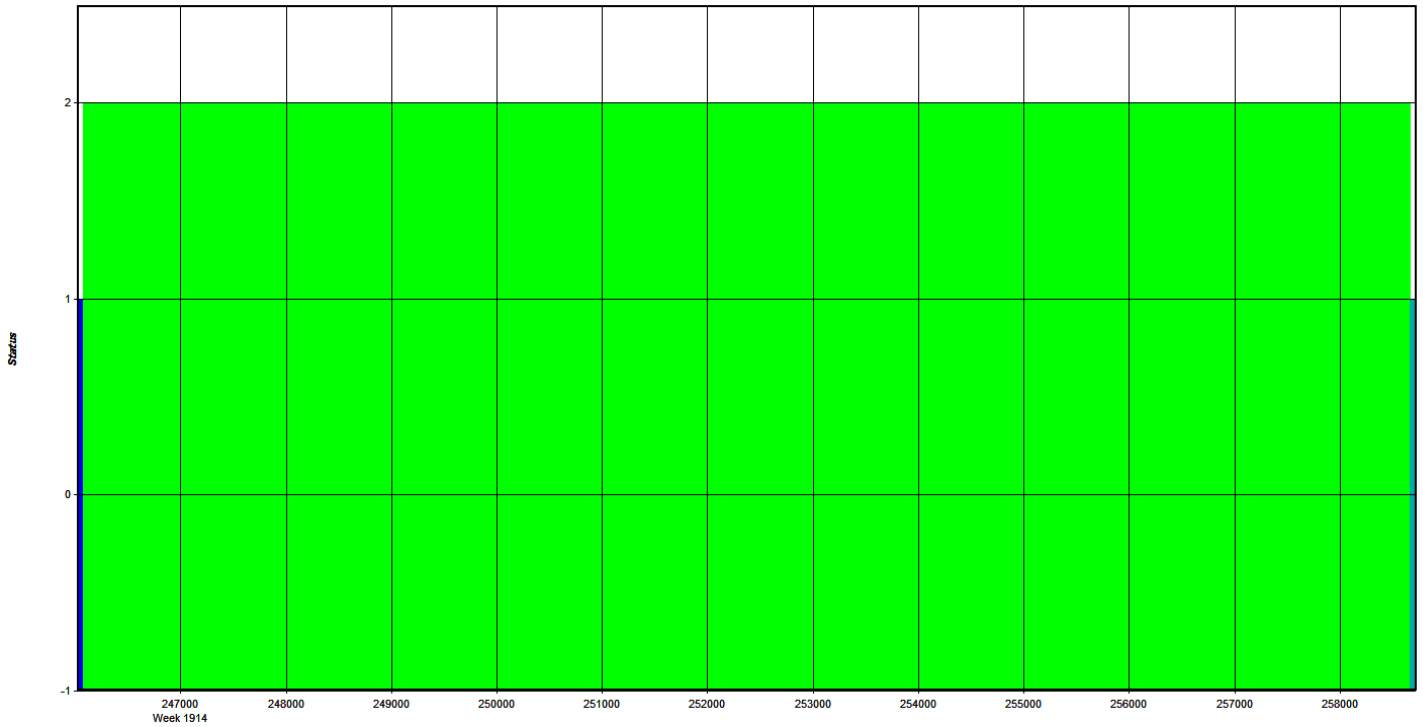


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_09 Name: UTAH16_09 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD257_704MD_SS\R7_257

Coordinates
 Latitude: North 40 59 39.21278 Compute from PPP
 Longitude: West 112 12 07.73734 Enter Grid Values
 Ellipsoidal height: 1361.339 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_10 Name: UTAH16_10 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD257_704MD_SS\R7_76

Coordinates
 Latitude: North 41 15 04.88969 Compute from PPP
 Longitude: West 112 13 07.06672 Enter Grid Values
 Ellipsoidal height: 1269.980 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 2.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 2.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Project: Utah

Aircraft: N704MD **Begin Hobbs:** 1345.0 **End Hobbs:** 1348.1

Dep Apt: OGD **Dep Time (Lcl):** 1438 (Z): 2038 **Arr Apt:** OGD **Arr Time (Local):** 1443 (Z): 2343 **Tot Time Aloft:** 3:05

CORS: Y / N **Sta 1:** **Sta 2:**

GPS Unit: Y / N **Sta 1:** **Sta 2:**

Gd Temp beg: °C **End:** °C **OAT beg:** °C **End:** °C

Alt AMSL: 7161 **Alt AGL:** 40° **Scan Freq:** 53 Hz **MPIA:** Y / N **1PIA:** 1PIA

Serial #: ALS70 **Scan Freq:** 40°

Date: 09/13/2016 **Page:** 3 of 3

Lift: A C D E

Flight Mgmt File: 20160913-201606

Pilot: Wagner **Co-Pilot:** Iverson

Flyovers: Y / N **if Y, times:** Sta1) **Sta2)**

Altimeter begin: end:

Max Gdspd: **Power:** 57.06

Avg Pt Spacing: **PPSM:**

Reg GB: **End GB:** **Tot GB:**

Storage Name/ID:

Line #	Hdg	Start(UTC)	End(UTC)	GdSpd	PDOP/sats	GPS Altitude	Crab	Turb (0..+)	Notes
		2022							Static
		2038							Take OFF OGD FMSL-Utah-OGSL-E-QL1-SN7161- Figure 8 1438
		2043	2047						
		2049	2052	100		18/11			Crossflight Brown 160913-204909 Brown Block
		2056	2101	102		18/11			205620
		2104	2110	105		19/11			210436
		2112		96		19/11			211239
		2203	2205	105		16/14			Cross flight Blue 220314
		2211	2219	91		16/12			221134 → +134'
		2221	2229	96		17/12			222150
		2231	2240	101		17/12			223158
		2241	2249	101		16/14			224157
		2251	2300	105		16/13			225159
		2335	2338						Figure 8
		2343							Land OGD 1543 2350 static 1348.1 Hobbs

Total Proj Lines: 1015/

Lines Flown: /OGSI-TKZ1/

Lines Remain:

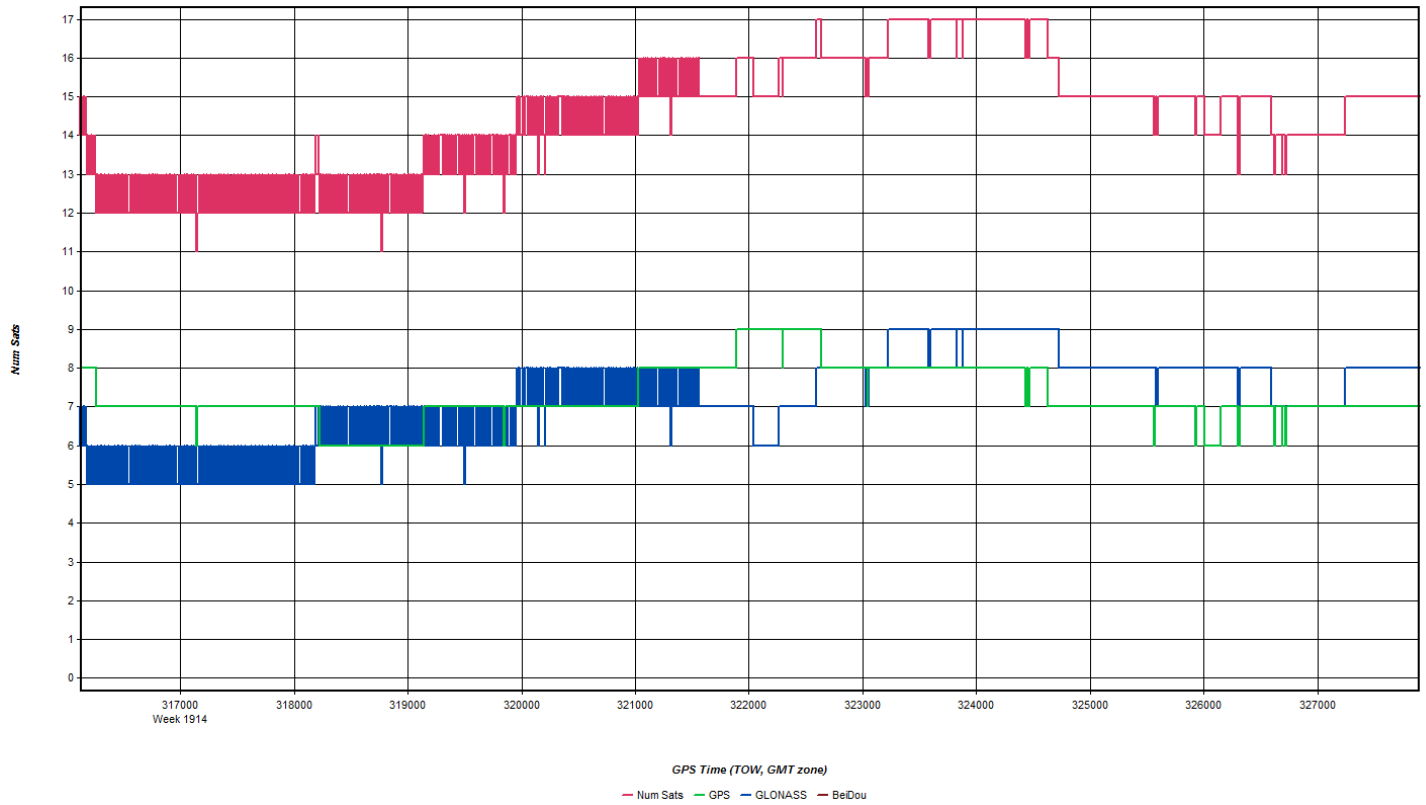
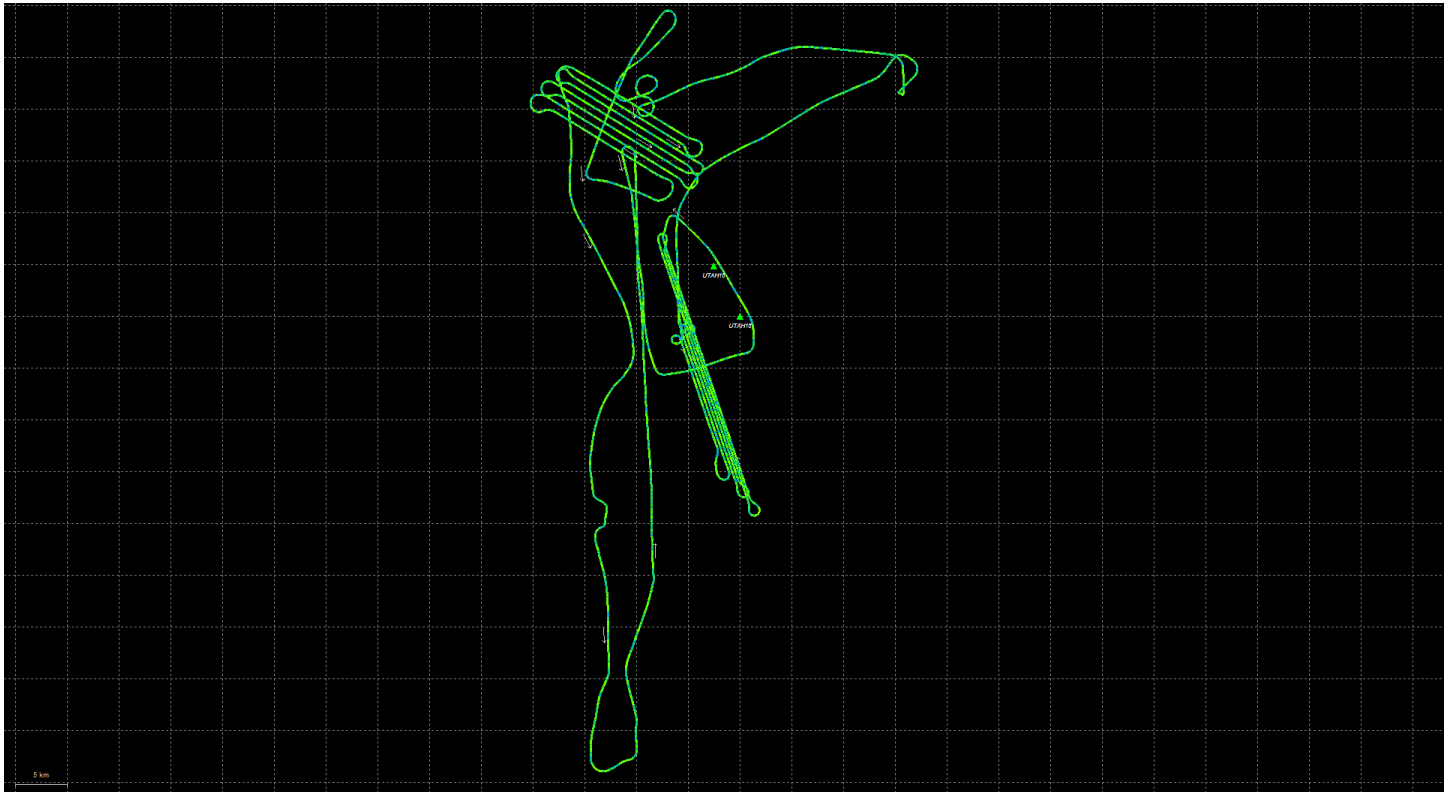
Online Time:

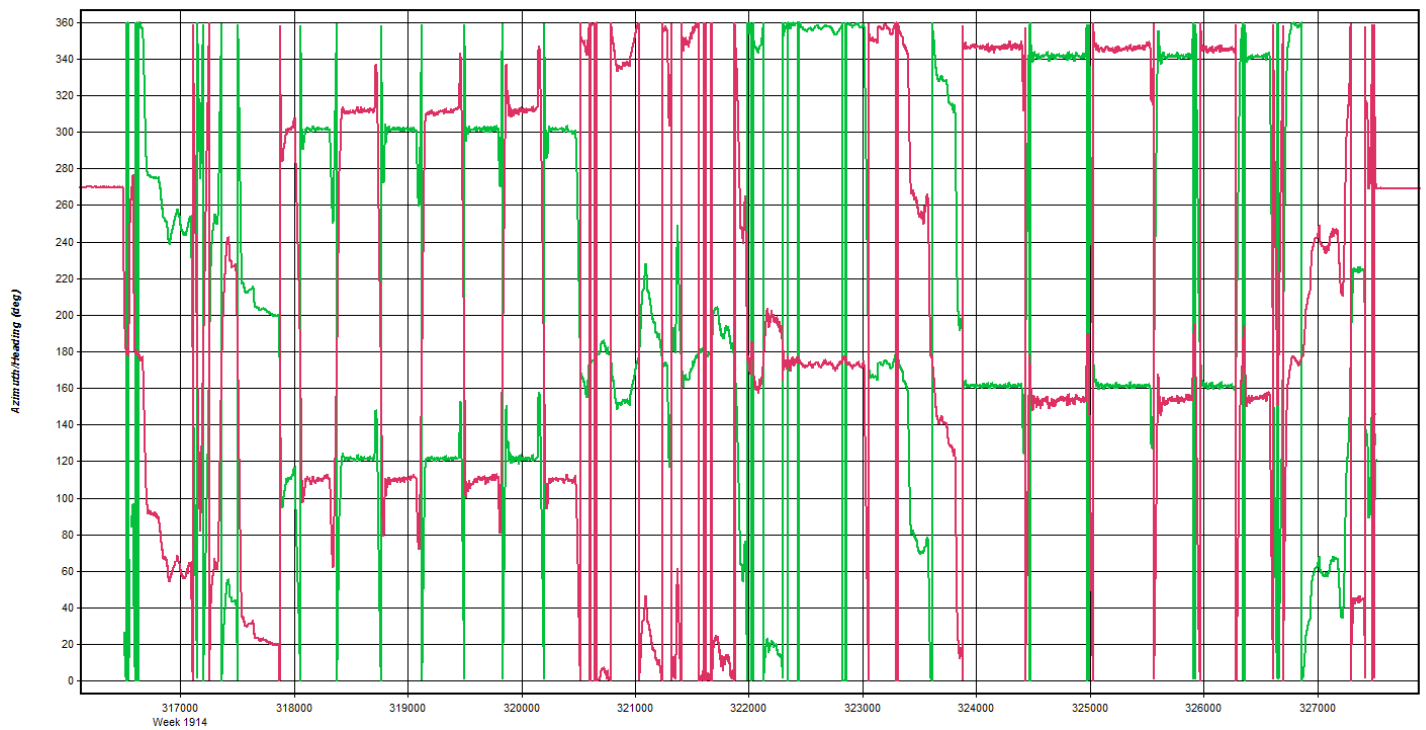
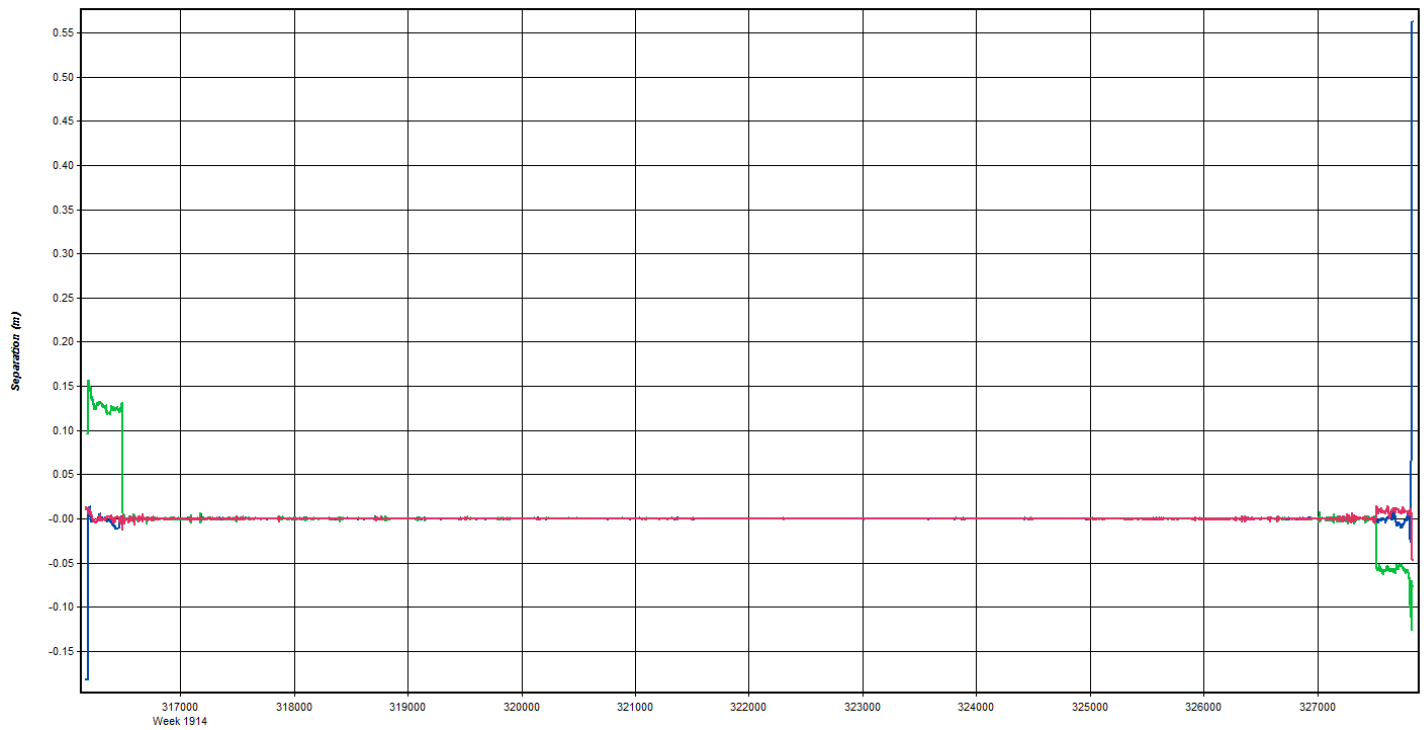
Mob Time:

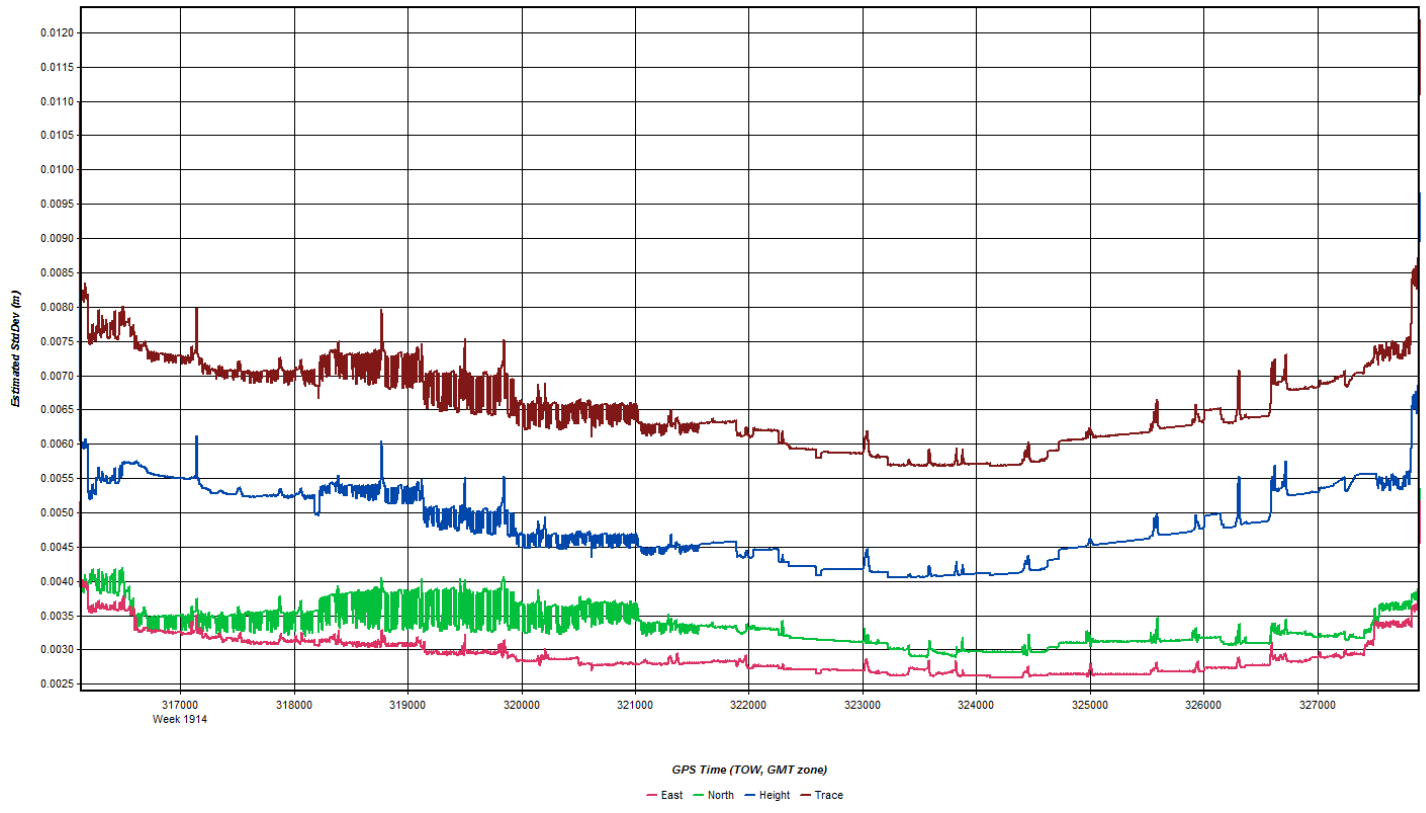
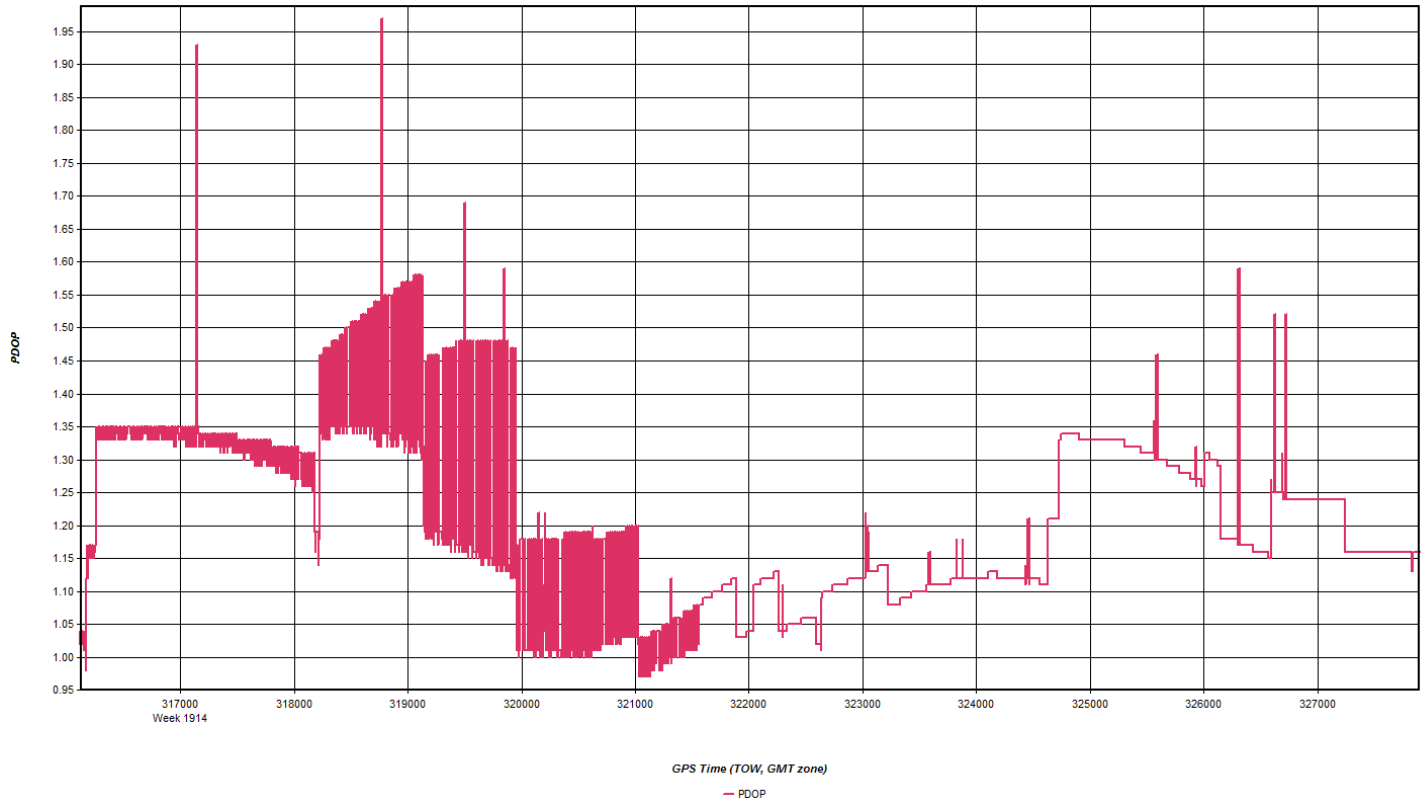
Notes: Ordnance

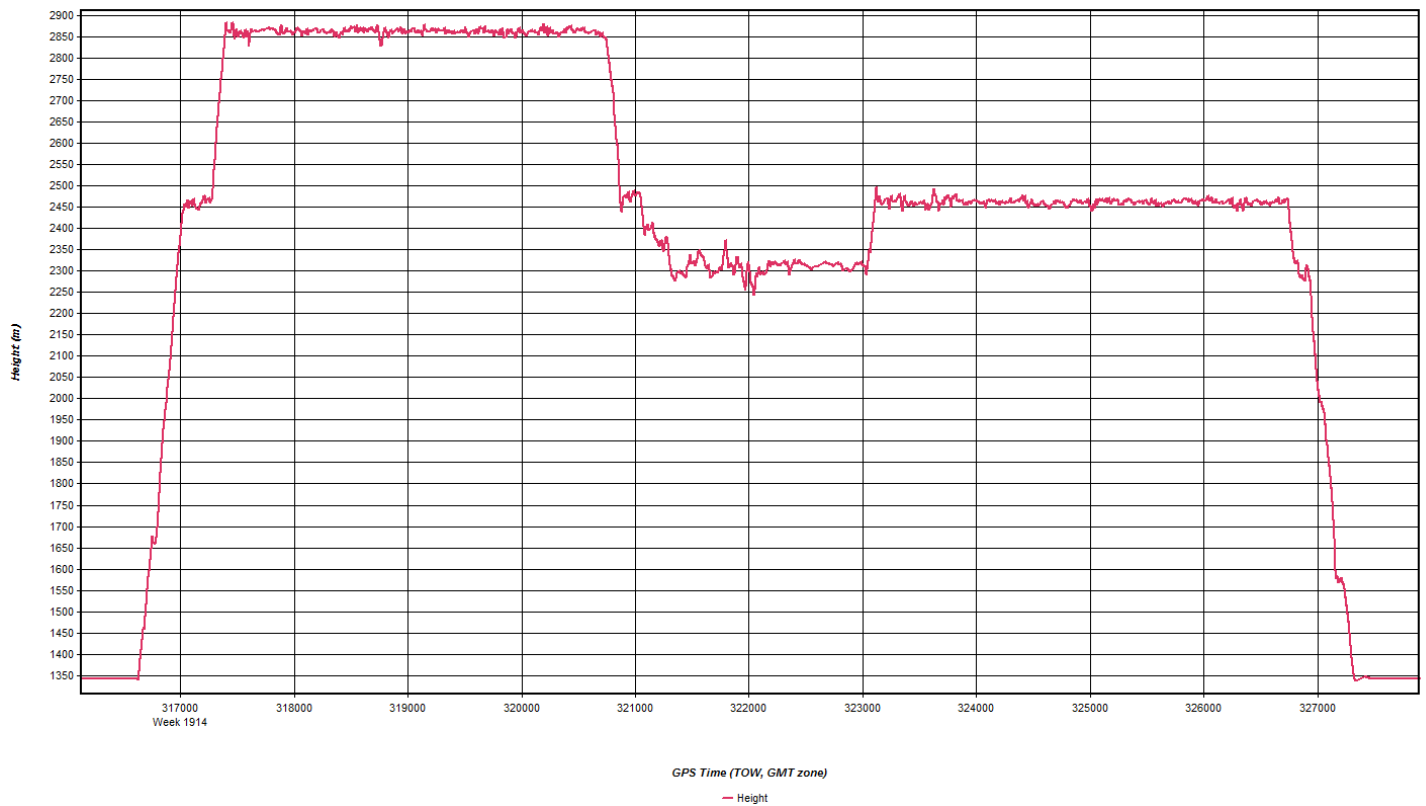
UTM 12

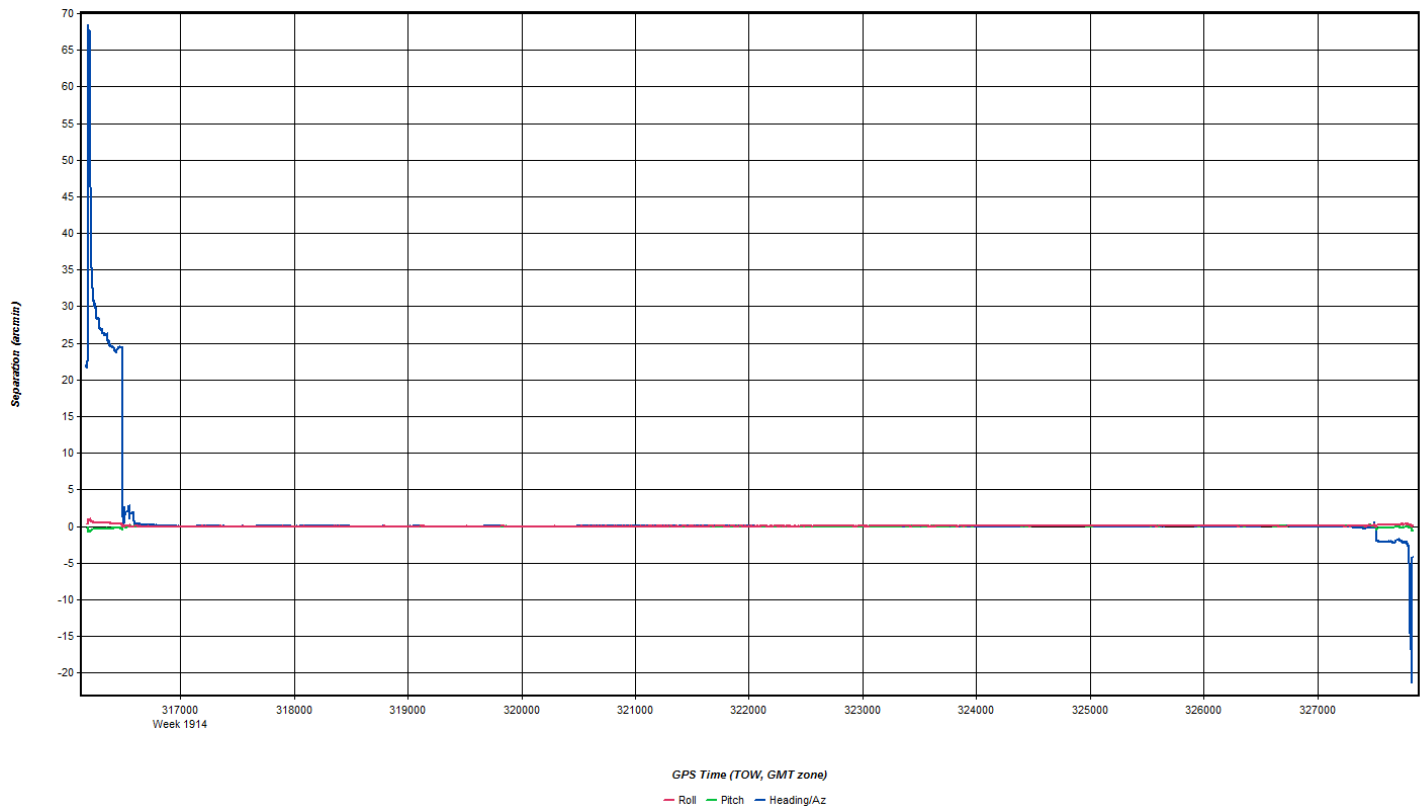
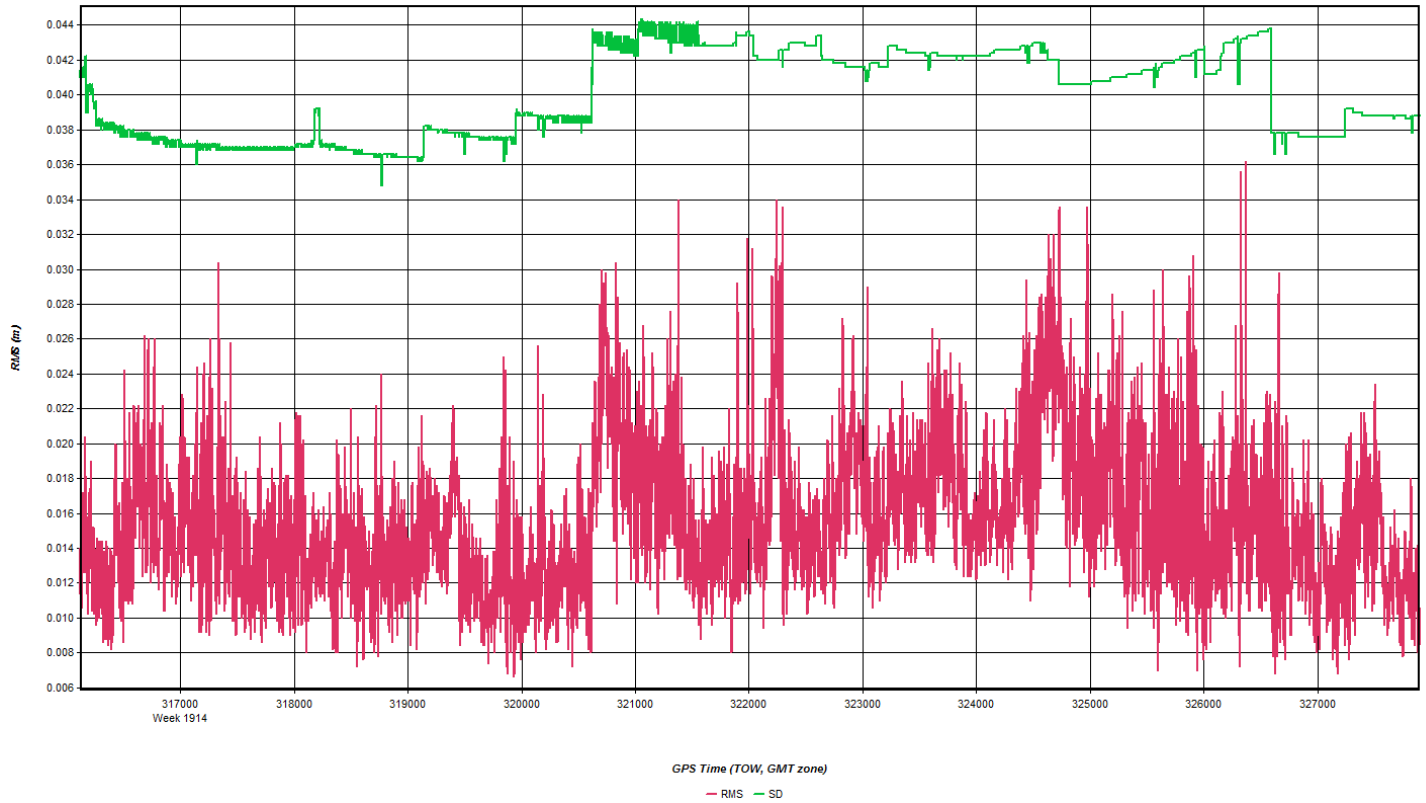
Sep 14, 2016-A (N704MD, SN7161)

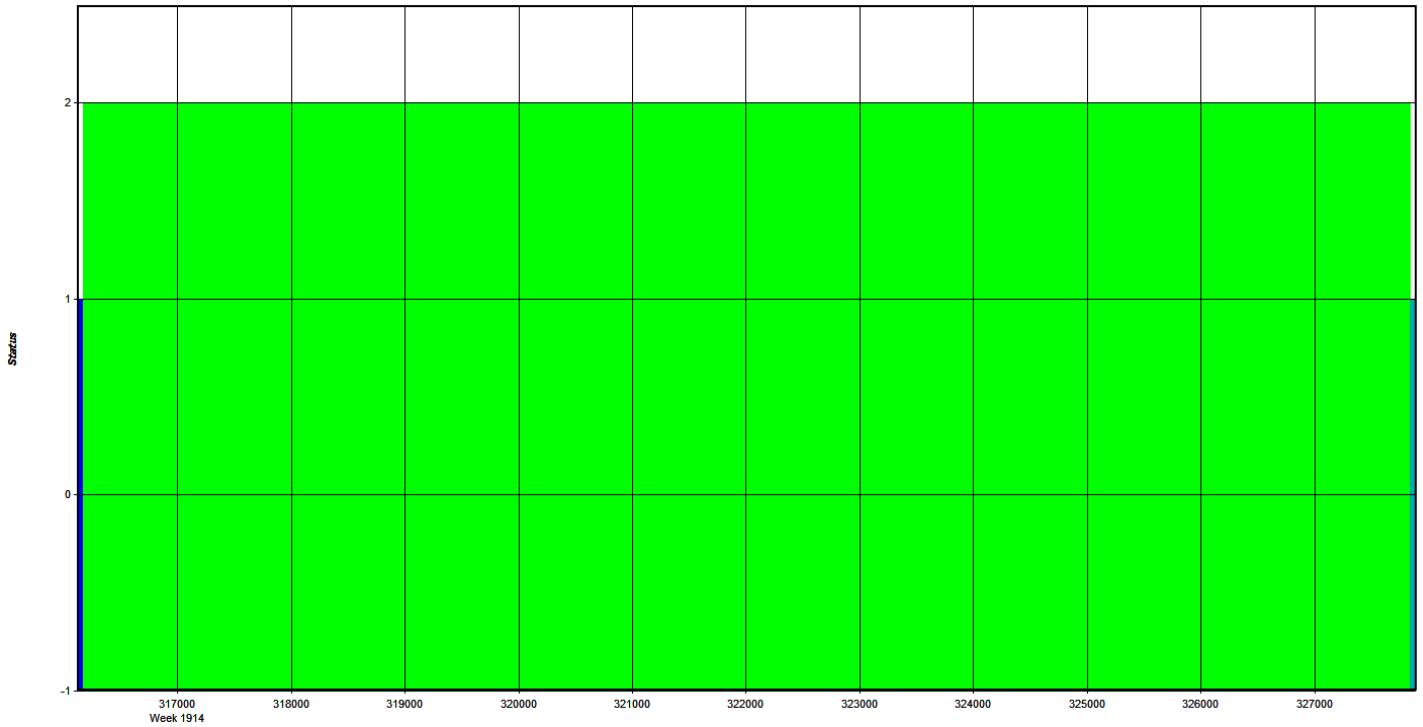












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_08 Name: UTAH16_08 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD258_704MD_SS\R7_257

Coordinates
 Latitude: North 41 02 17.36223 Compute from PPP
 Longitude: West 112 13 55.55965 Enter Grid Values
 Ellipsoidal height: 1338.735 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_09 Name: UTAH16_09 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD258_704MD_SS\R7_76

Coordinates
 Latitude: North 40 59 39.21278 Compute from PPP
 Longitude: West 112 12 07.73734 Enter Grid Values
 Ellipsoidal height: 1361.339 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log - QL1

Project: Utah

Aircraft: N704MD

Dep Apt: OGD

CORS: Y / N

GPS Unit: AN

Gd Temp beg: °C End: °C

LIDAR

Date: 09/14 /2016

Flight Mgmt File: 20160914_154427

Pilot: Wagner

Co-Pilot: Iverson

Arr Time (Local): 1255 (Z): 1855

Tot Time Aloft: 2:59

Sta 1: UTAH16-08

Sta 2: UTAH16-09

Alt: 7161

Scan Freq: 41 HZ

Serial #: ALS70

End (UTC):

Proj #: 29083

Begin Hobbs: 1348.1

End Hobbs: 1348.1

Total: 3

Alt AMSL: 7161

Alt AGL: MPIA Y / N

Scan Freq: 41 HZ

Serial #: ALS70

End (UTC):

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PDOP/# sats	GPS Altitude	Crab	Turb (0-1)	Alt AMSL	Alt AGL	Pulses In Air	Avg Terr Ht	Max Gdspd	Avg Pt Spacing	Power	PPSM	end:	Storage Name/#	
		1550																	
		1556																	
		1605	1608																
U1001	W	1612	1617	91	15/13														
GSL																			
2216	W	1621	1625	104	15/14														
2215	E	1627	1631	92	17/12														
2214	W	1633	1637	94	16/12														
2213	E	1639	1644	96	15/13														
2212	W	1645	1649	88	16/13														
2211	E	1651	1655	85	15/15														
2210	W	1657	1701	102	16/14														

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

1348.1 Hobbs

static

Take off OGD 956

Figure 8

160914-161232 cross flights Red Block

~~162129~~ FMSL-Utah-bSL-QL2-SN7161_rev 1

162129

162712

163307

163931

164530

165147

165756

Red Block Complete!

ATC on Hold for Airspace

waiting permission to fly on Blue

Total Proj Lines: 13

Lines Flown: 13

Lines Remain: 0

Online Time: 2:7

Mobile Time:

Notes: Ordnance

UTM 12

Flight Log - QL2

Project: Utah

Aircraft: N704MD

Dep Apt: OGD

CORS: Y / N

GPS Unit: Y / N

Gd Temp beg: °C

LIDAR

Date: 09/14/2016

Flight Mgmt File: 20160914-154427

Pilot: Wagner

Arr Apt: OGD

Flyovers: Y / N

Alt: 7161

Serial #: ALS70

Scan Freq: 40

End (UTC): 1752

Proj #: 29083

End Hobbs:

Arr Time (Local): [Z]

Flyovers: Y / N

Sta 2:

OAT beg: °C

Alt AGL: 7161

Scan Freq: 40

End (UTC): 1752

Total: Wagner

Arr Time (Local): [Z]

Flyovers: Y / N

Sta 2:

OAT beg: °C

Alt AGL: 7161

Scan Freq: 40

End (UTC): 1752

Co-Pilot: Iverson

Tot Time Aloft:

Sta 2:

Altimeter begin: end:

Max Gdspd: 98

Power: 57%

Reg GB:

Storage Name/Id:

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

Blue Block FMSL-Utah-615LE-QL2-SN7161-rev1
cross flight Blue 175015
T = Turbulence

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/sats	GPS Altitude	Crab	Turb (0-4)	Alt AMSL	Alt in Air	Pulses	Avg Terr Ht	Max Gdspd	Avg Pt Spacing	PPSM	Reg GB	End GB	Tot GB	Storage Name/Id
615LE																			
1167	E	1750	1752	98	18/1.1				7161		1PIA	215 KHz	57%						
1166	S	1758	1806	91	17/1.2														
1165	N	1808	1815	101	17/1.2														
1164	S	1817	1825	92	18/1.1														
1163	N	1826	1831	98	18/1.1														
1162	S	1833	1837	100	17/1.2														
	N	1840	1842	102	17/1.2														
		1842	1845																
		1855																	
		1903																	

Figure 8

Land Oad 1255

1351.1 Hobbs

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

Blue Block FMSL-Utah-615LE-QL2-SN7161-rev1
cross flight Blue 175015
T = Turbulence

Total Proj Lines: 10151

Lines Flown: 10151

Lines Remain: / ASI - USB 1 /

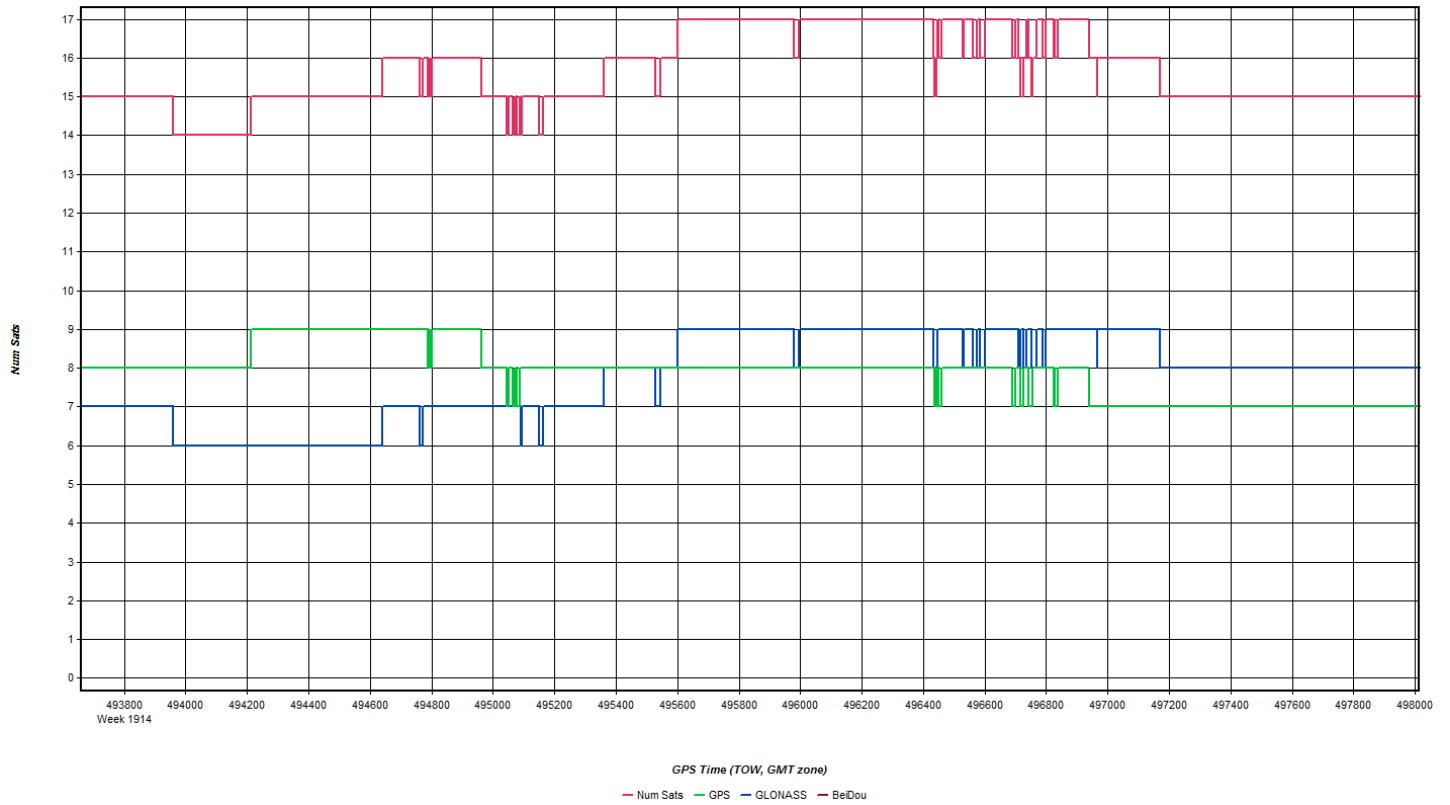
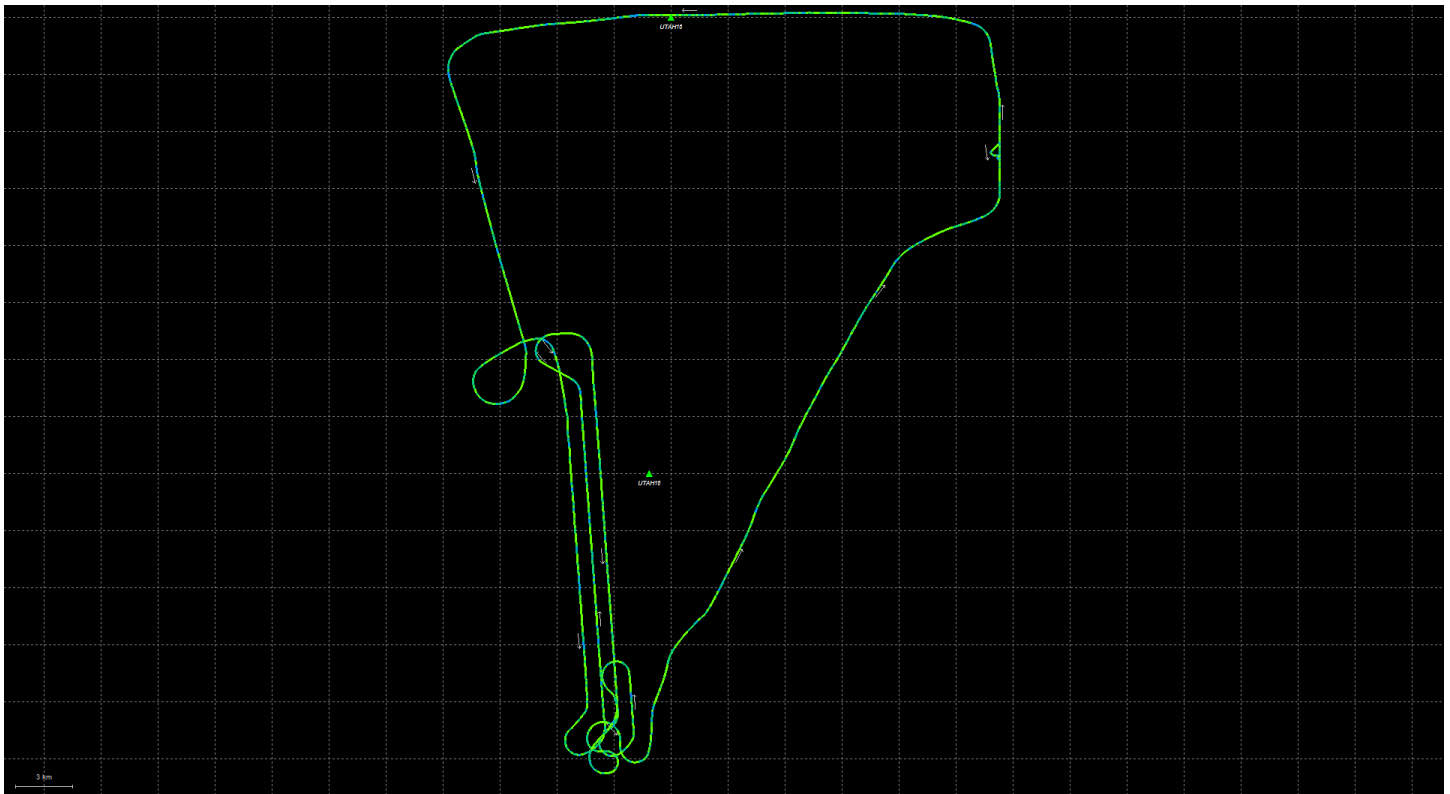
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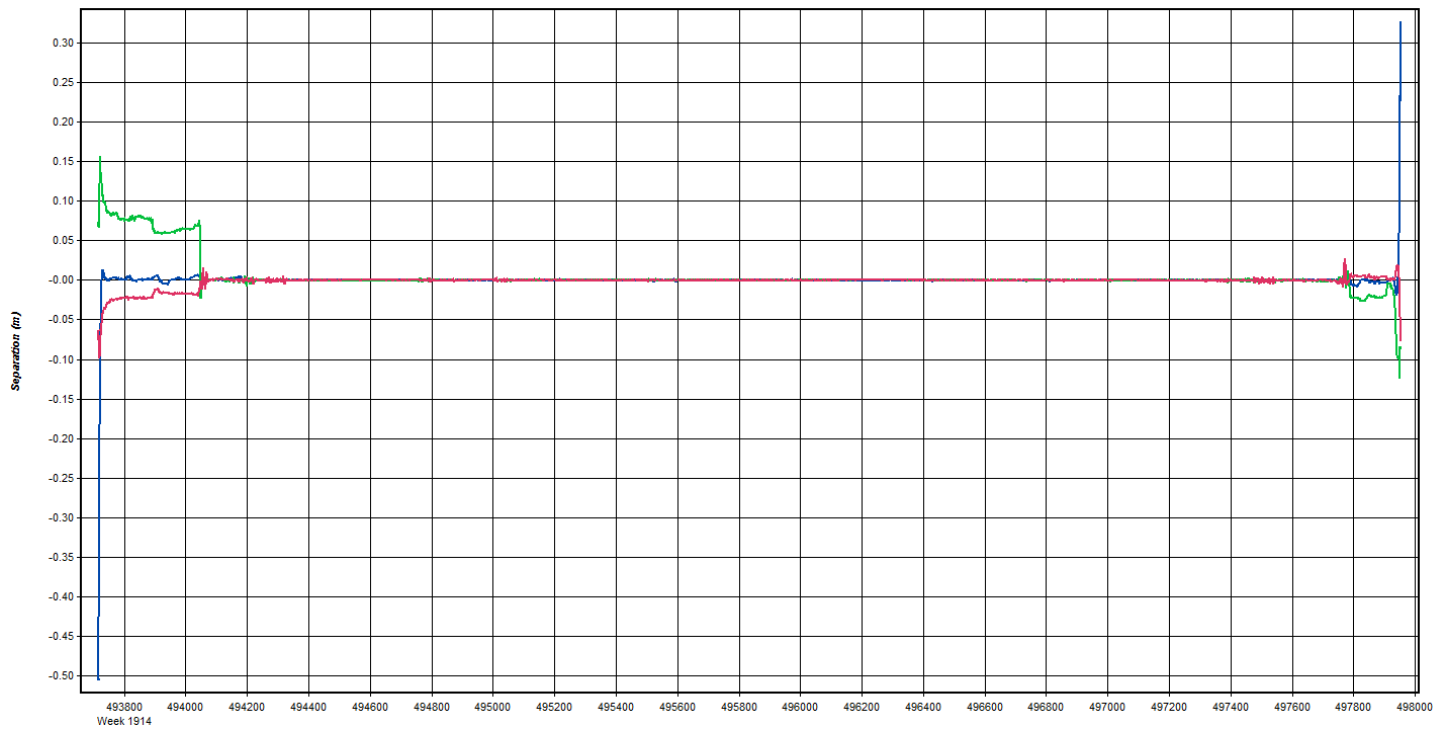
Mob Time:

Notes: Ordnance

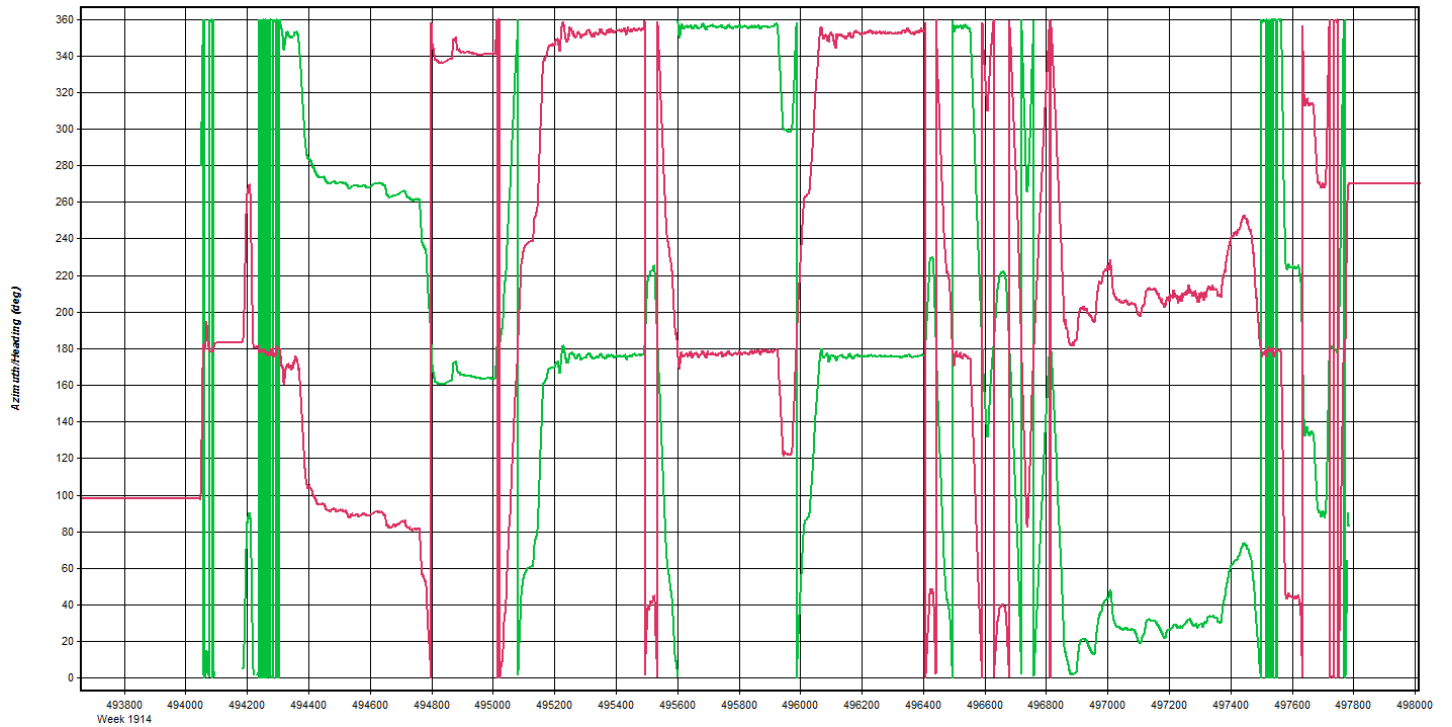
UTM 12

Sep 16, 2016-A (N704MD, SN7161)

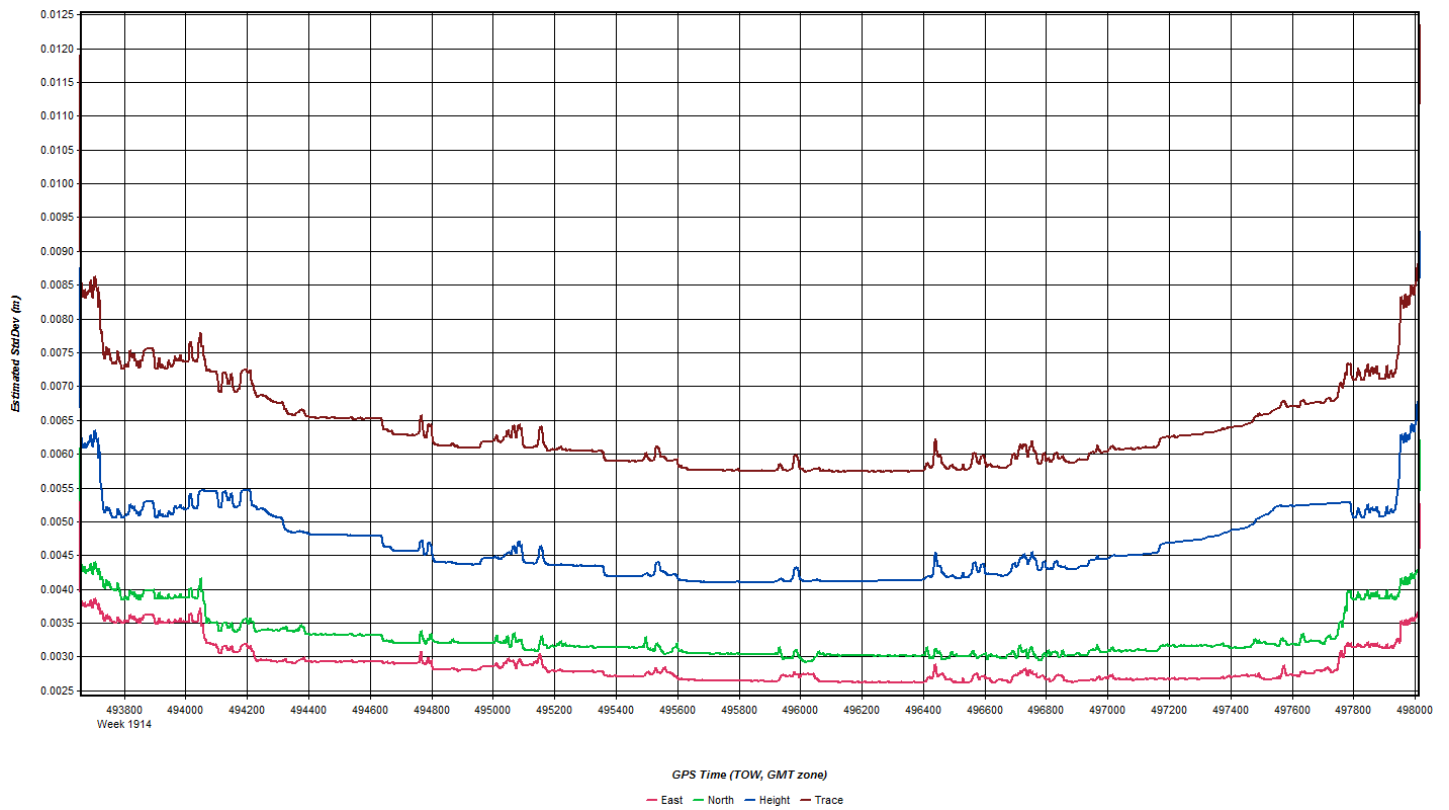
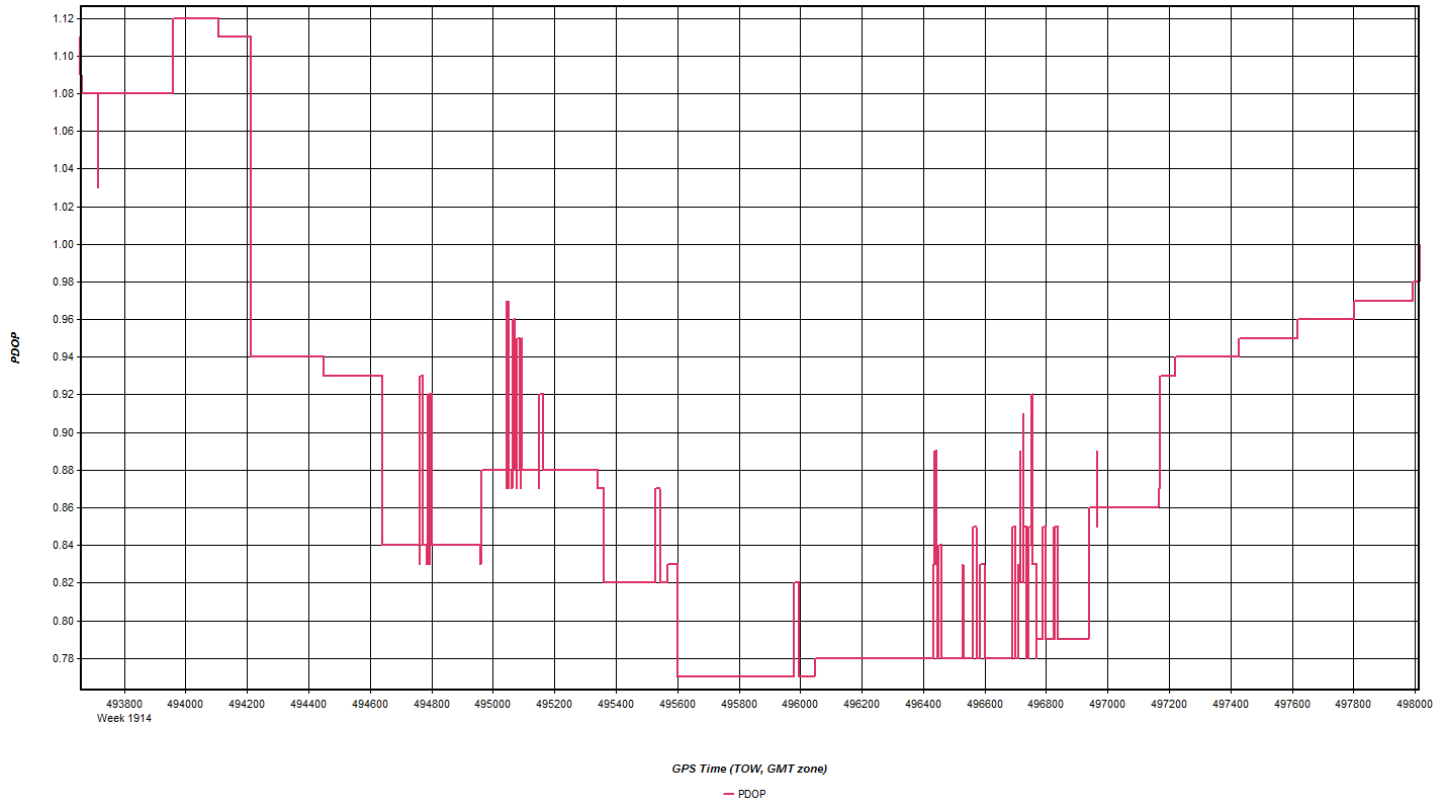


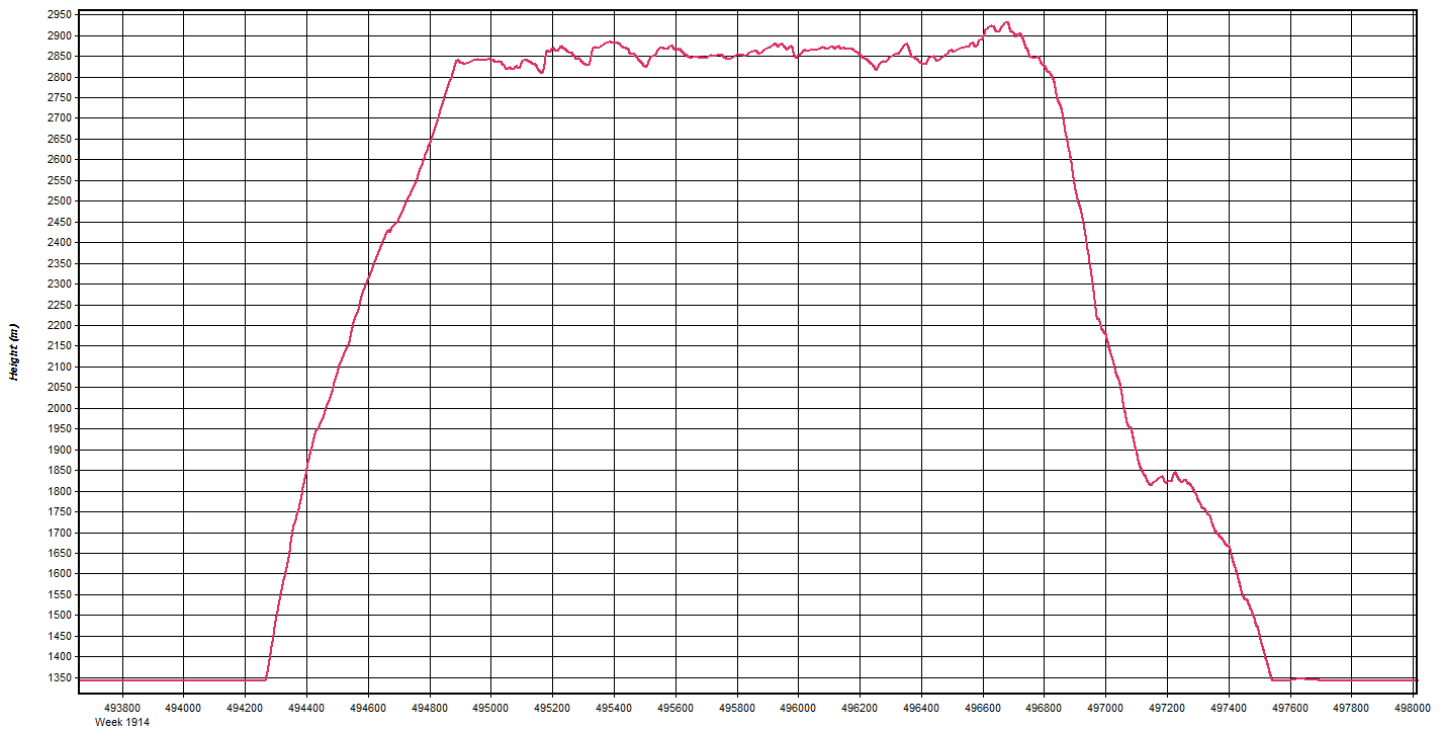
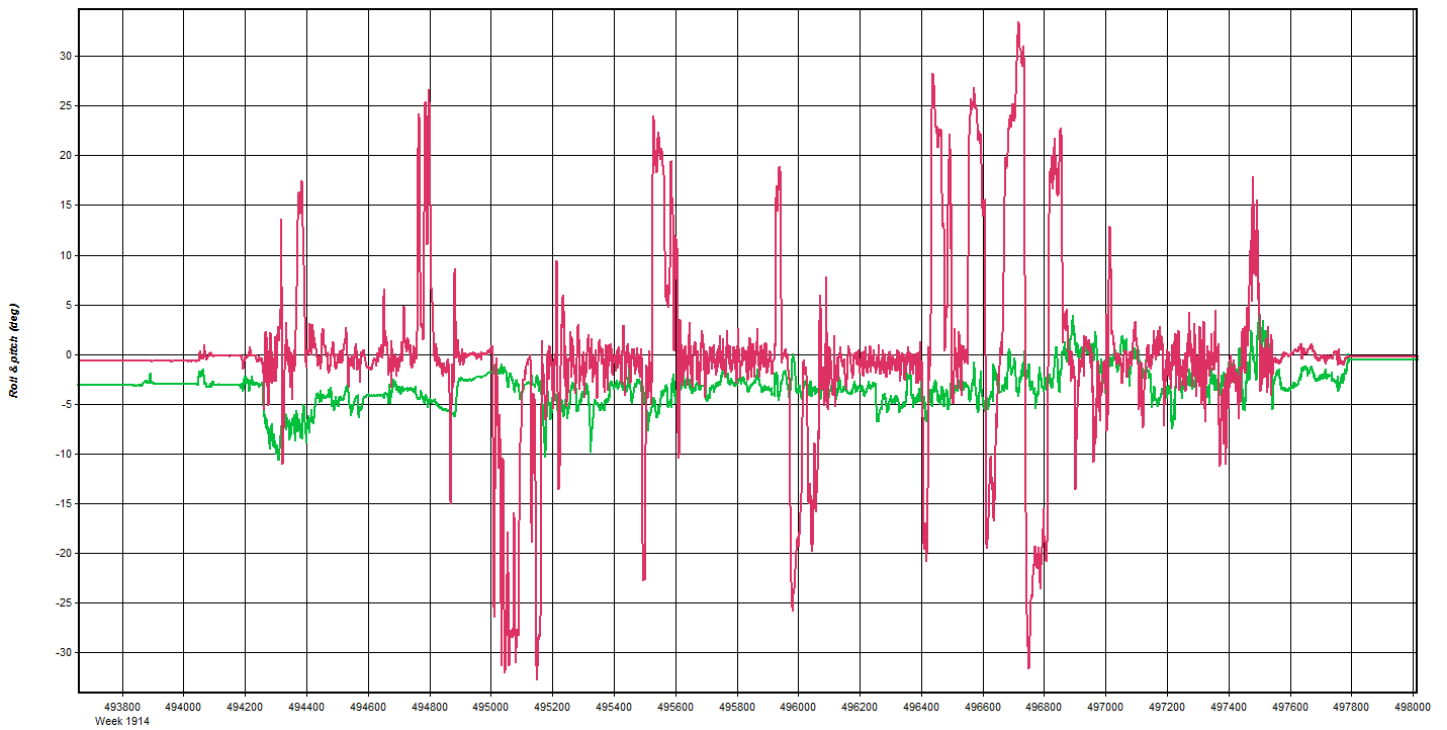


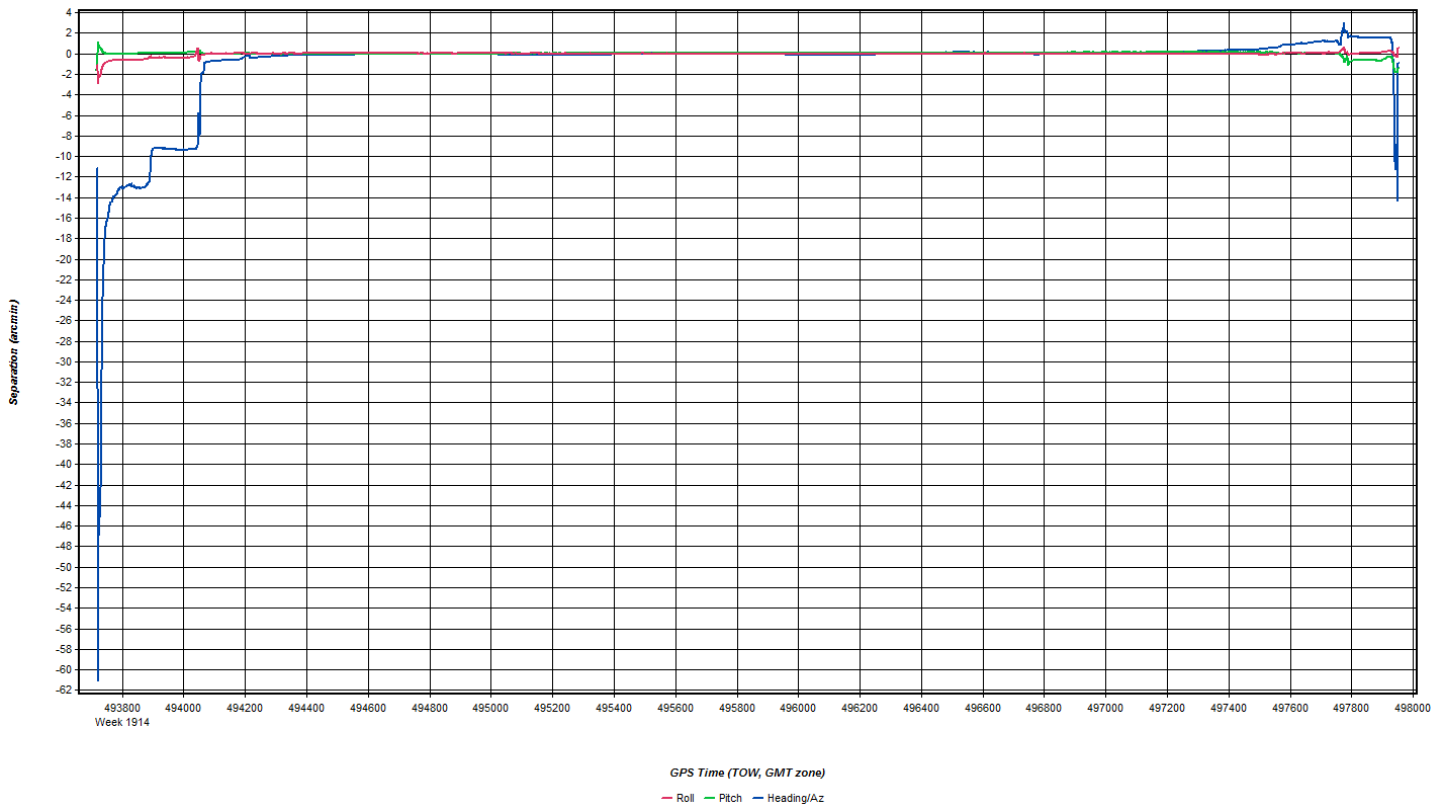
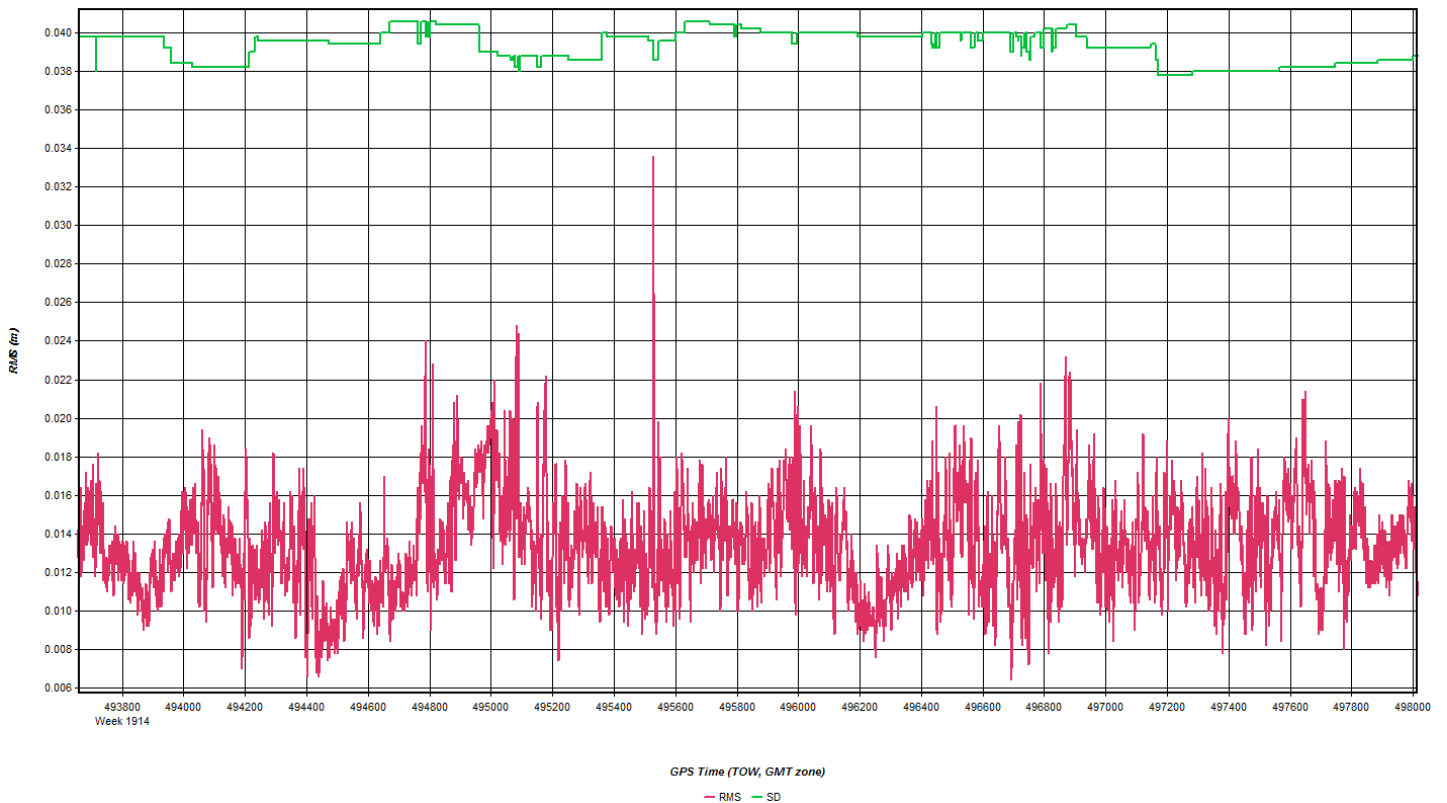
GPS Time (TOW, GMT zone)
— East — North — Up

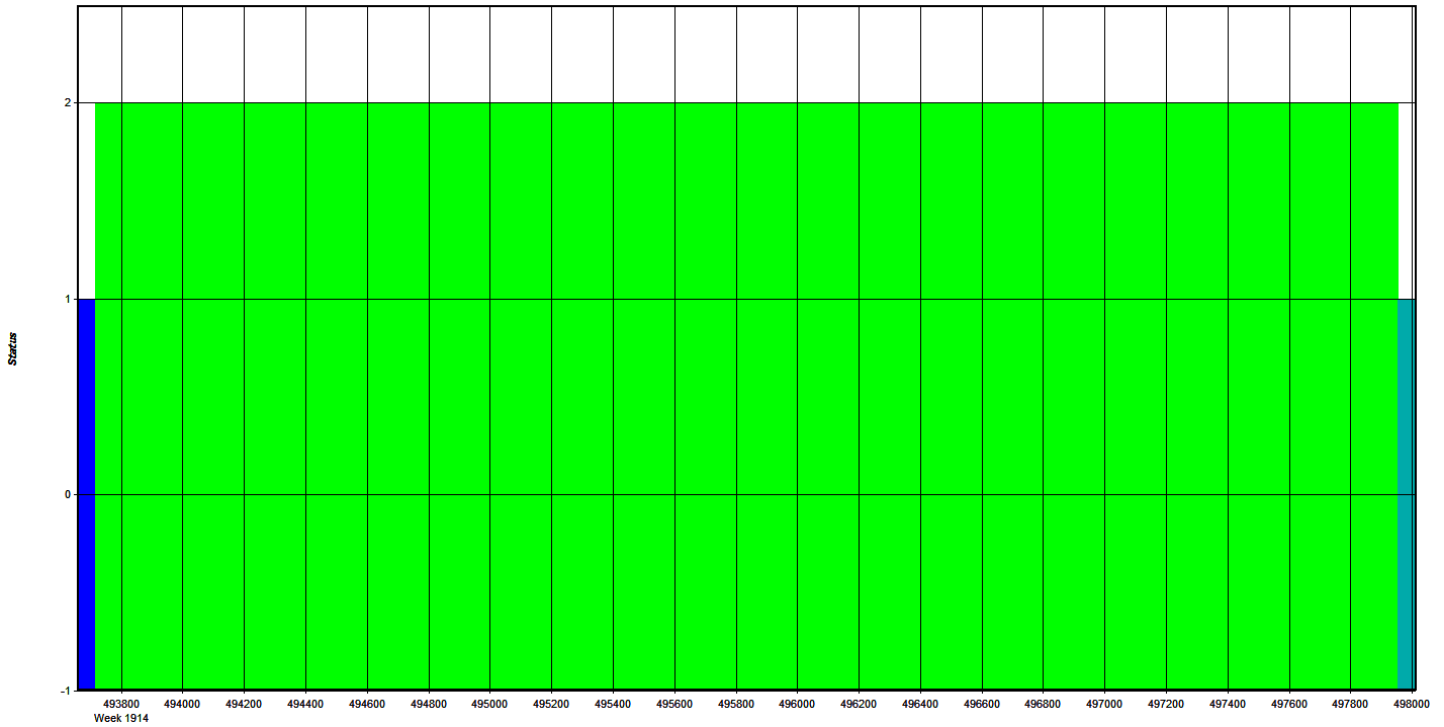


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_08 Name: UTAH16_08 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD260_704MD_MN\R7_25

Coordinates
 Latitude: North 41 02 17.36223 Compute from PPP
 Longitude: West 112 13 55.55965 Enter Grid Values
 Ellipsoidal height: 1338.735 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
1: UTAH16_10 Name: UTAH16_10 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD260_704MD_MN\R7_76

Coordinates
Latitude: North 41 15 04.88969 Compute from PPP
Longitude: West 112 13 07.06672 Enter Grid Values
Ellipsoidal height: 1269.980 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 9/16/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_Utah_GSL_QL2_SN7161_rev1		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	11:16:00 AM	1:25:00 PM		
Wheels Down	12:11:00 PM	6:00:00 PM		
Begin Hobbs		11352		
End Hobbs	11352	11356.6		
On-line Hobbs: 5.1		Mob Hobbs: 0.5		

Notes

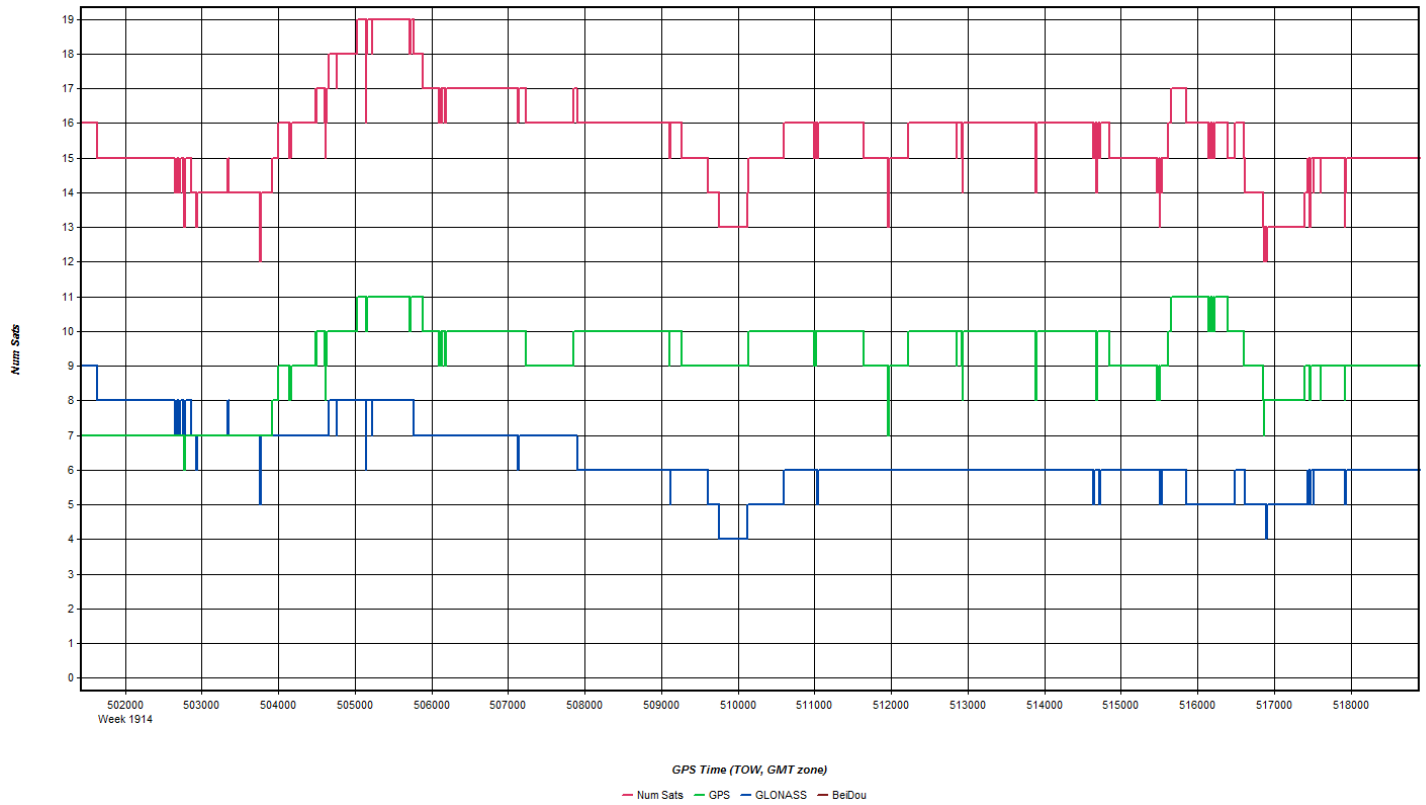
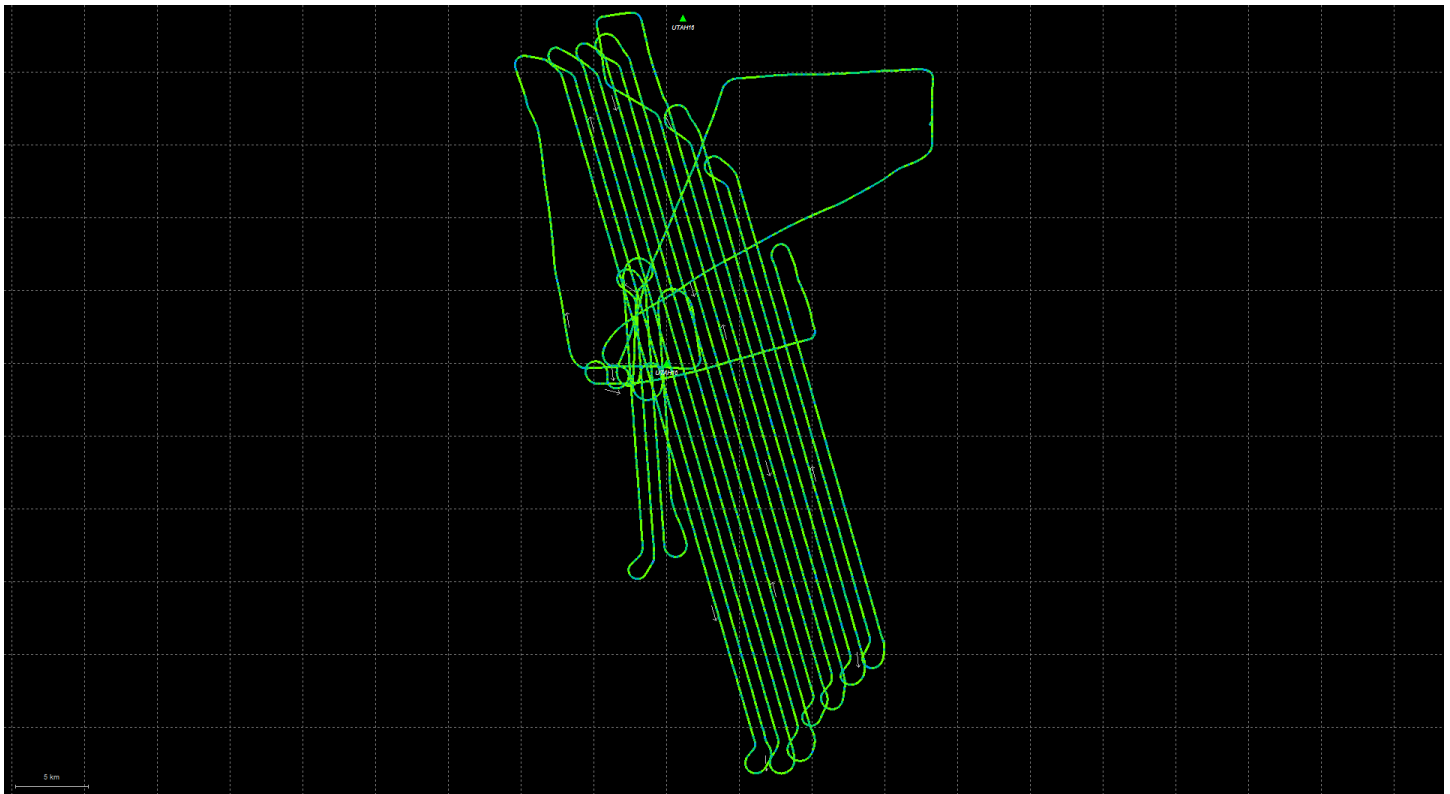
MN moved the one base south which delayed us an hour for wheels up until just after 11:00am. We had prepared a very clear plan for ATC the night before, so they were ready for us. At about that exact same time, the sensor crapped out on me. The message read "ALS did not start recording" and the shutter lens button and two other buttons disappeared off the bottom display of the monitor. I attempted to end the line, switch flightplans, and various other troubleshooting efforts which proved to be futile. We landed the plane, static'd, and shut down. EP checked with Sheboygan and Jeremy to confirm if it was ok to fly. We were given the greenlight and lifted again. We experienced no other issues with the sensor for the rest of the afternoon.

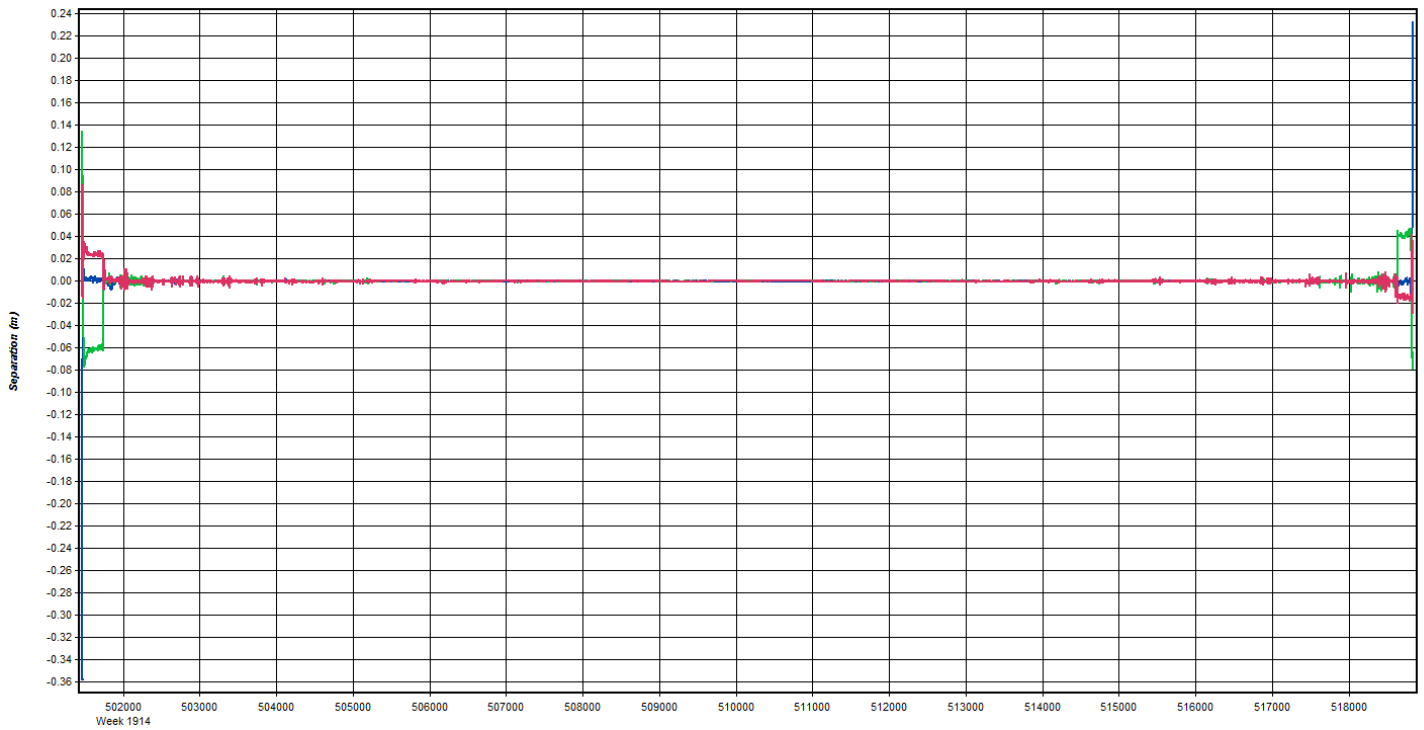
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Lines Flown:

F1-GSL2015-2017

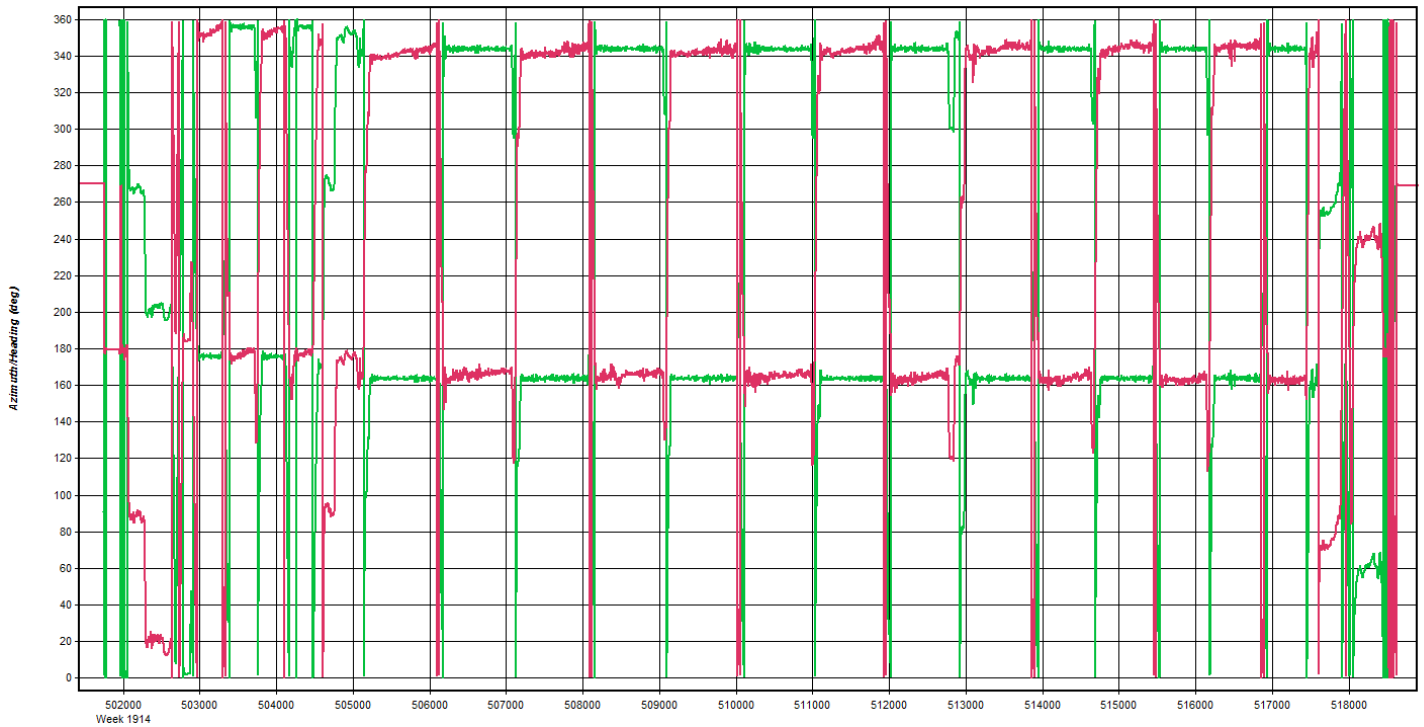
Sep 16, 2016-B (N704MD, SN7161)





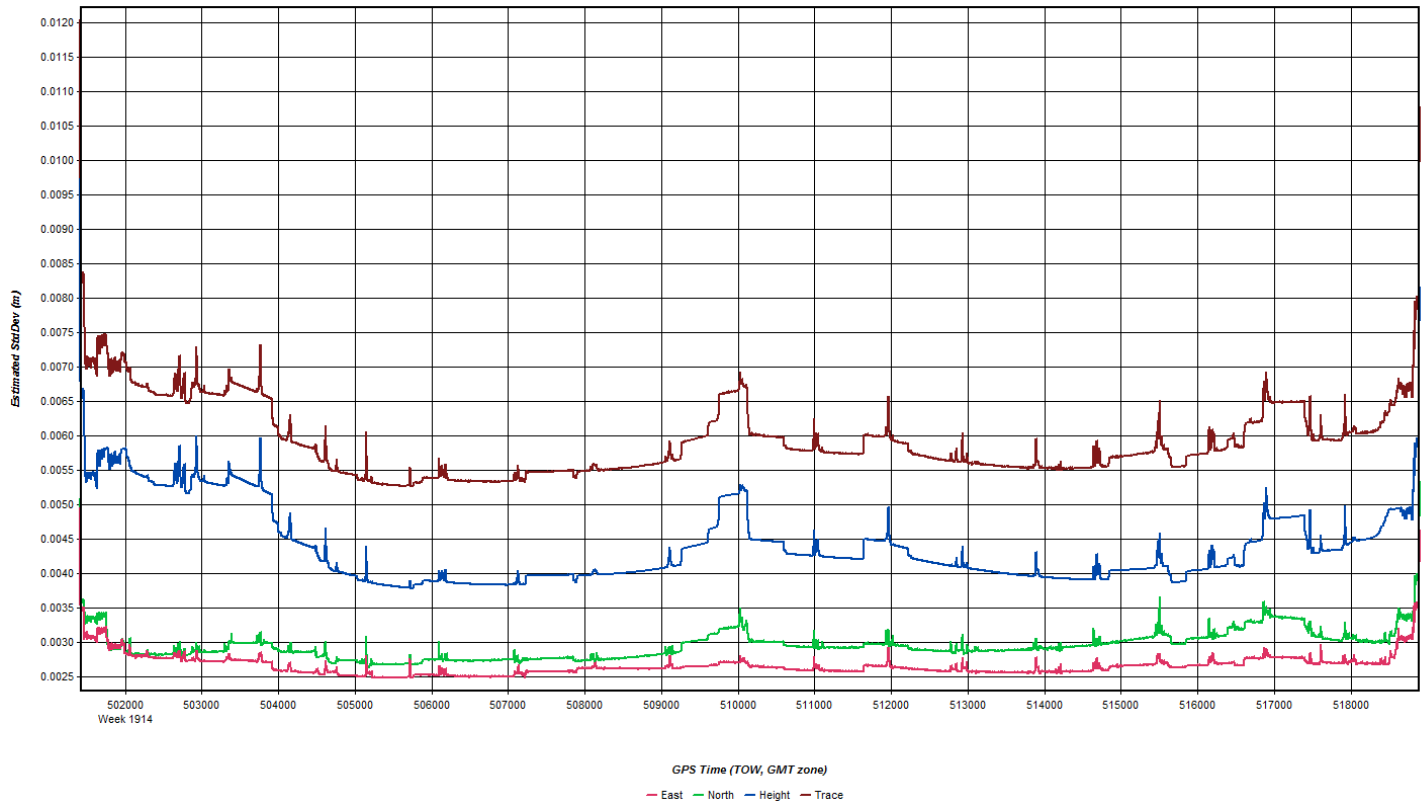
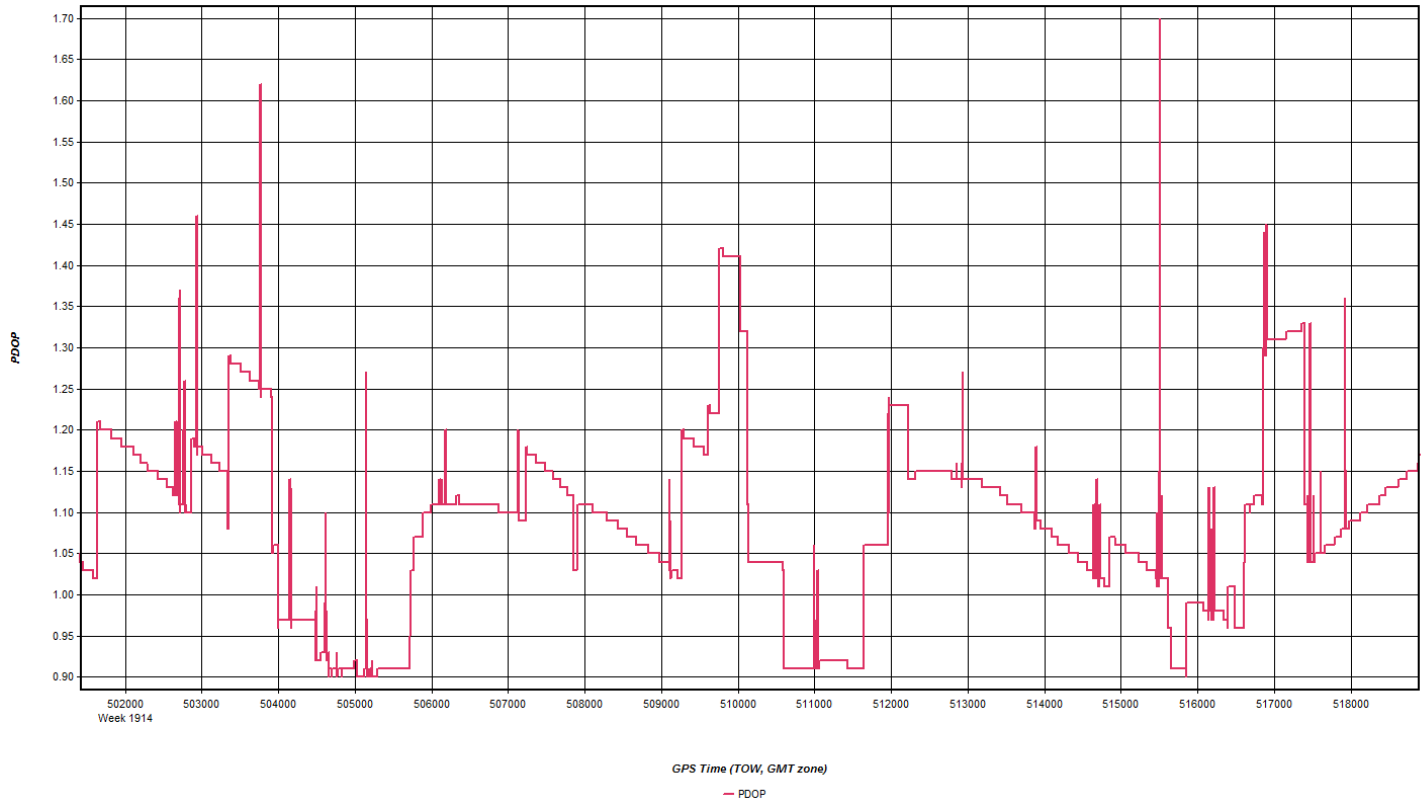
GPS Time (TOW, GMT zone)

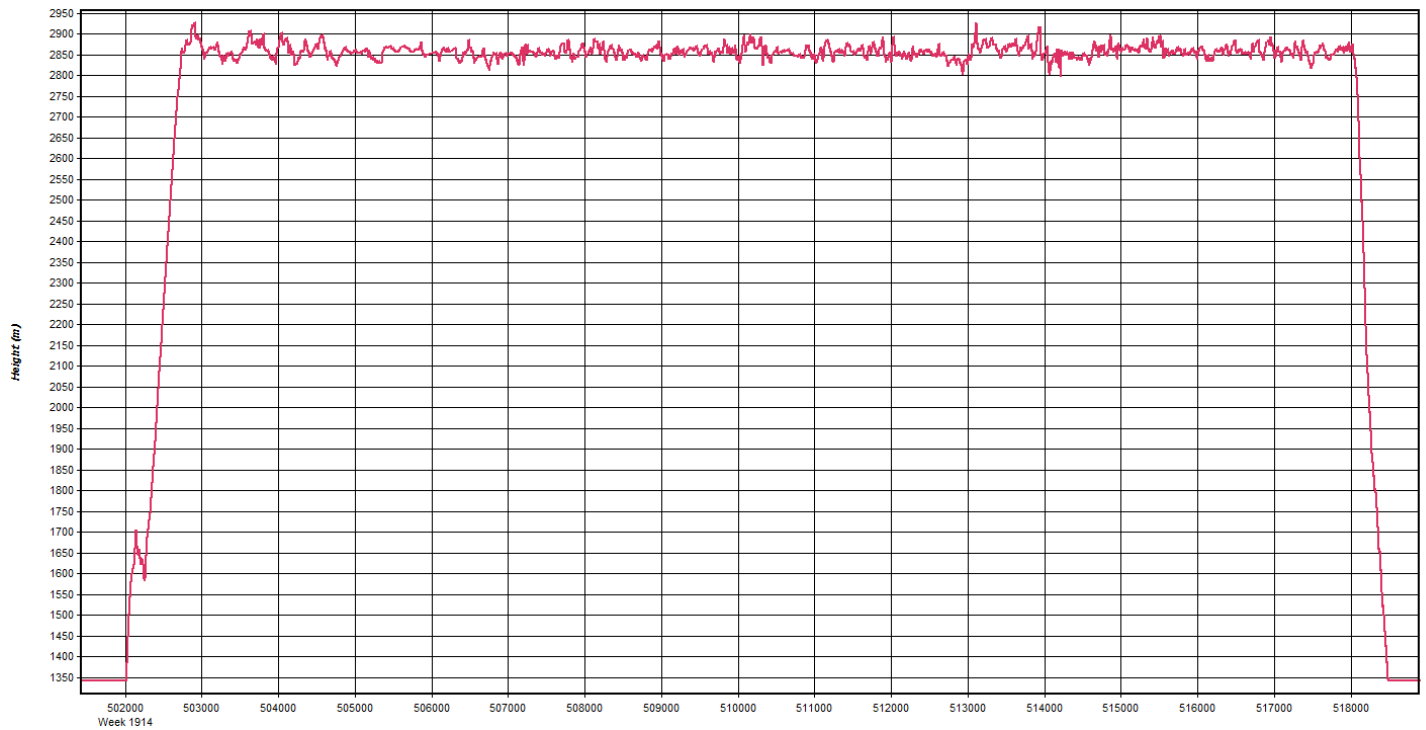
— East — North — Up

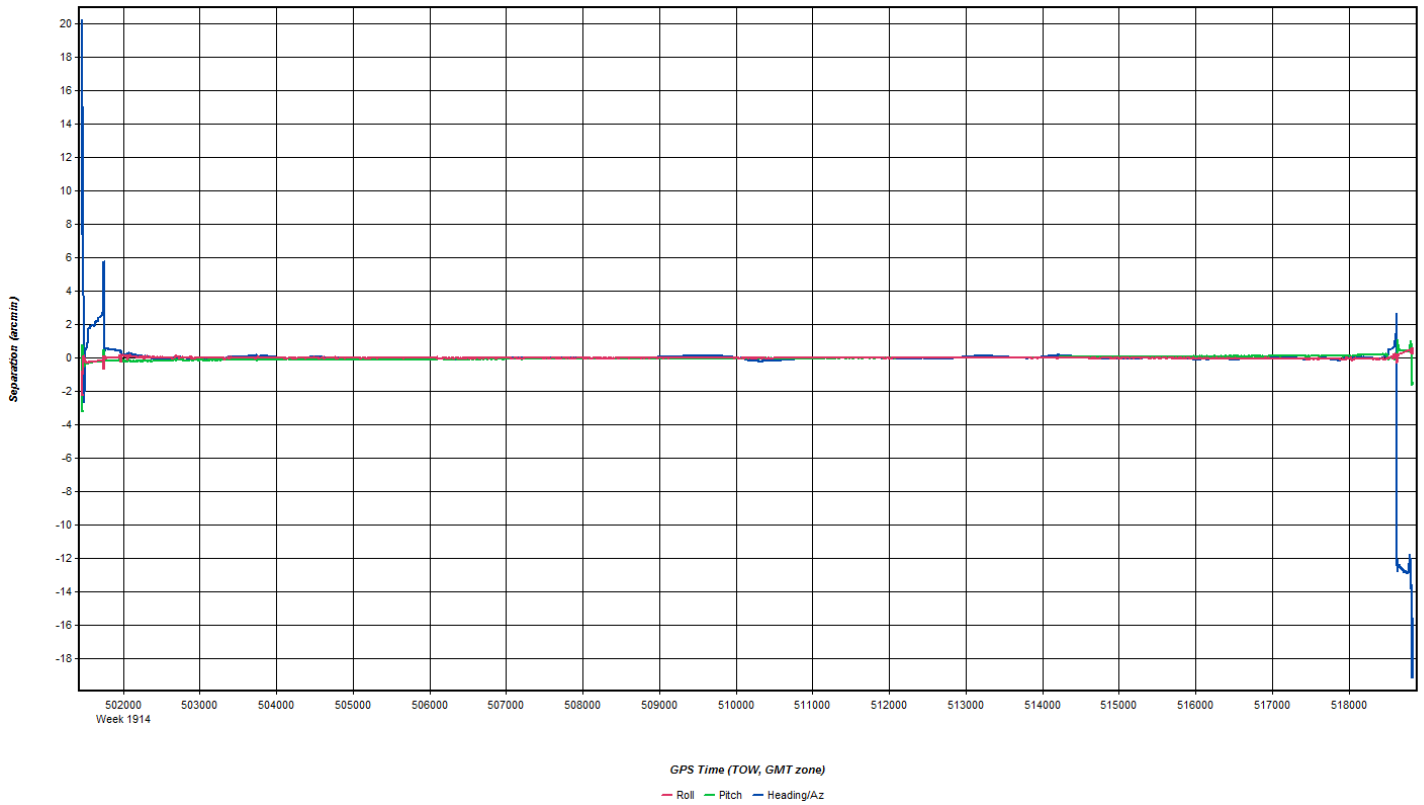
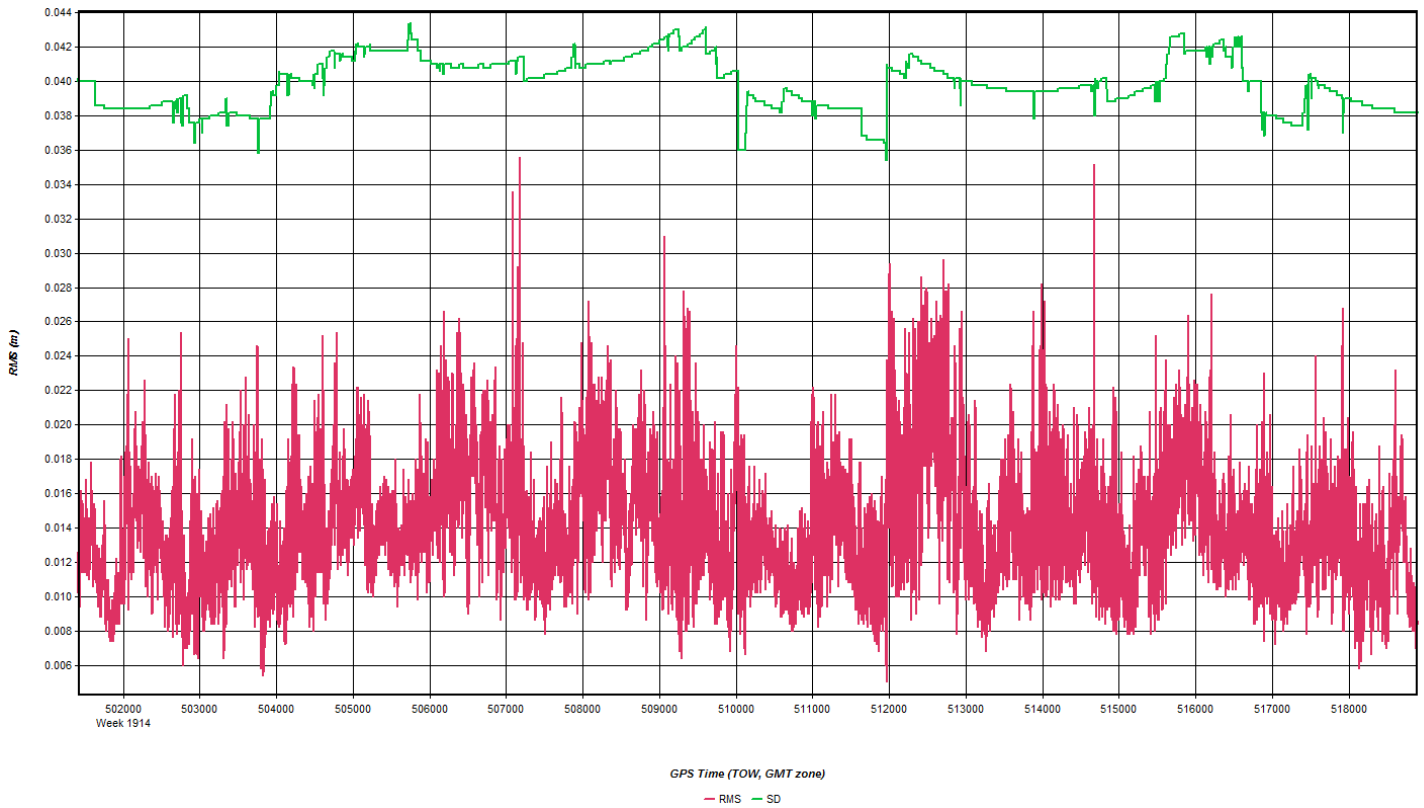


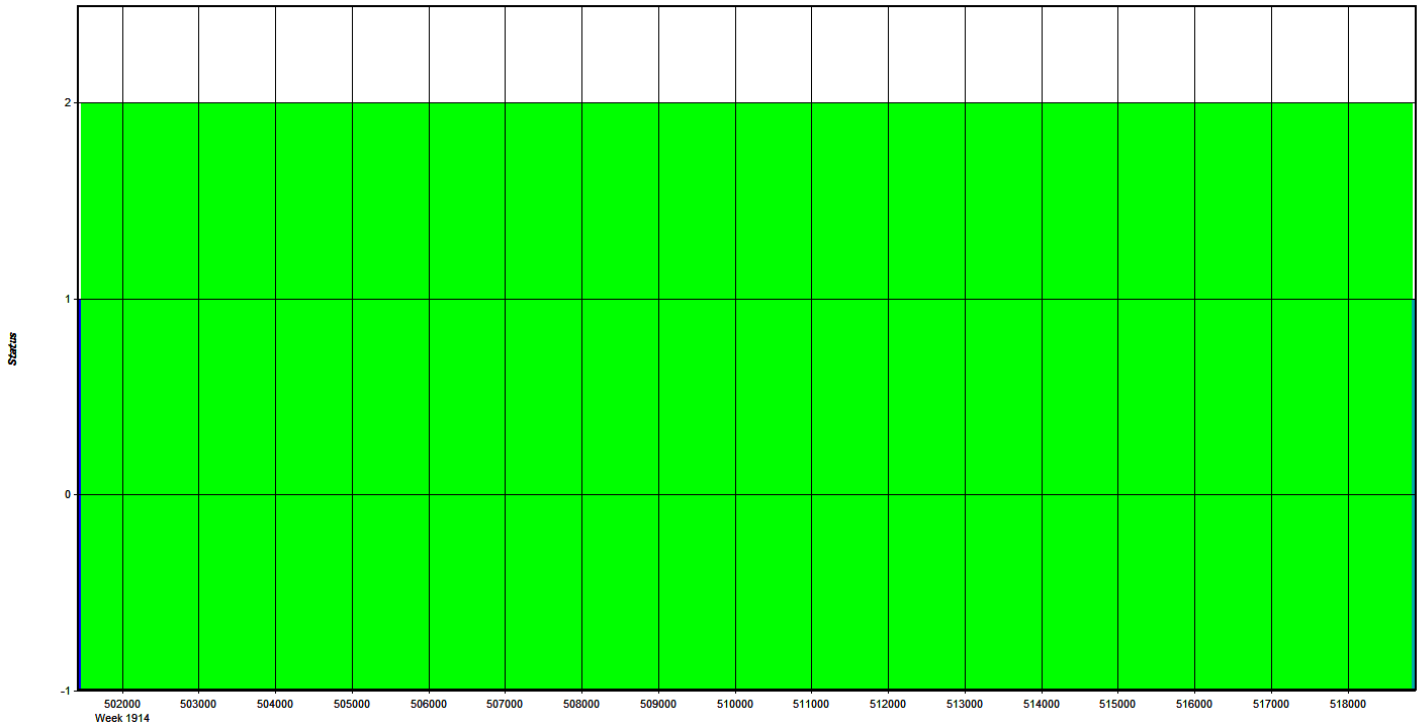
GPS Time (TOW, GMT zone)

— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_08 Name: UTAH16_08 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD260_704MD_MN\R7_25

Coordinates
 Latitude: North 41 02 17.36223 Compute from PPP
 Longitude: West 112 13 55.55965 Enter Grid Values
 Ellipsoidal height: 1338.735 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings
? X

Master

Remote

Base Station

2: UTAH16_10

Name: UTAH16_10

Disabled

File: E:\Proc\Utah_2016\Survey\2_Static\JD260_704MD_MN\R7_76

Coordinates

Latitude: North

41

15

04.88969

Compute from PPP

Longitude: West

112

13

07.06672

Enter Grid Values

Ellipsoidal height: 1269.980

m

Enter MSL Height

Datum: WGS84

Datum Options

Select From Favorites

Add To Favorites

Use Average Position

Antenna Height

From station file: TRM55971.00

View STA File

Antenna profile: TRM57971.00

Info

Measured height: 1.800

m

ARP to L1 offset: 0.067

m

Applied height: 1.867

m

Measured to

ARP

L1 Phase Centre

Compute From Slant

OK

Cancel

Flight Log

Date: 9/16/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_Utah_GSL_QL2_SN7161_rev1		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	11:16:00 AM	1:25:00 PM		
Wheels Down	12:11:00 PM	6:00:00 PM		
Begin Hobbs		11352		
End Hobbs	11352	11356.6		
On-line Hobbs: 5.1		Mob Hobbs: 0.5		

Notes

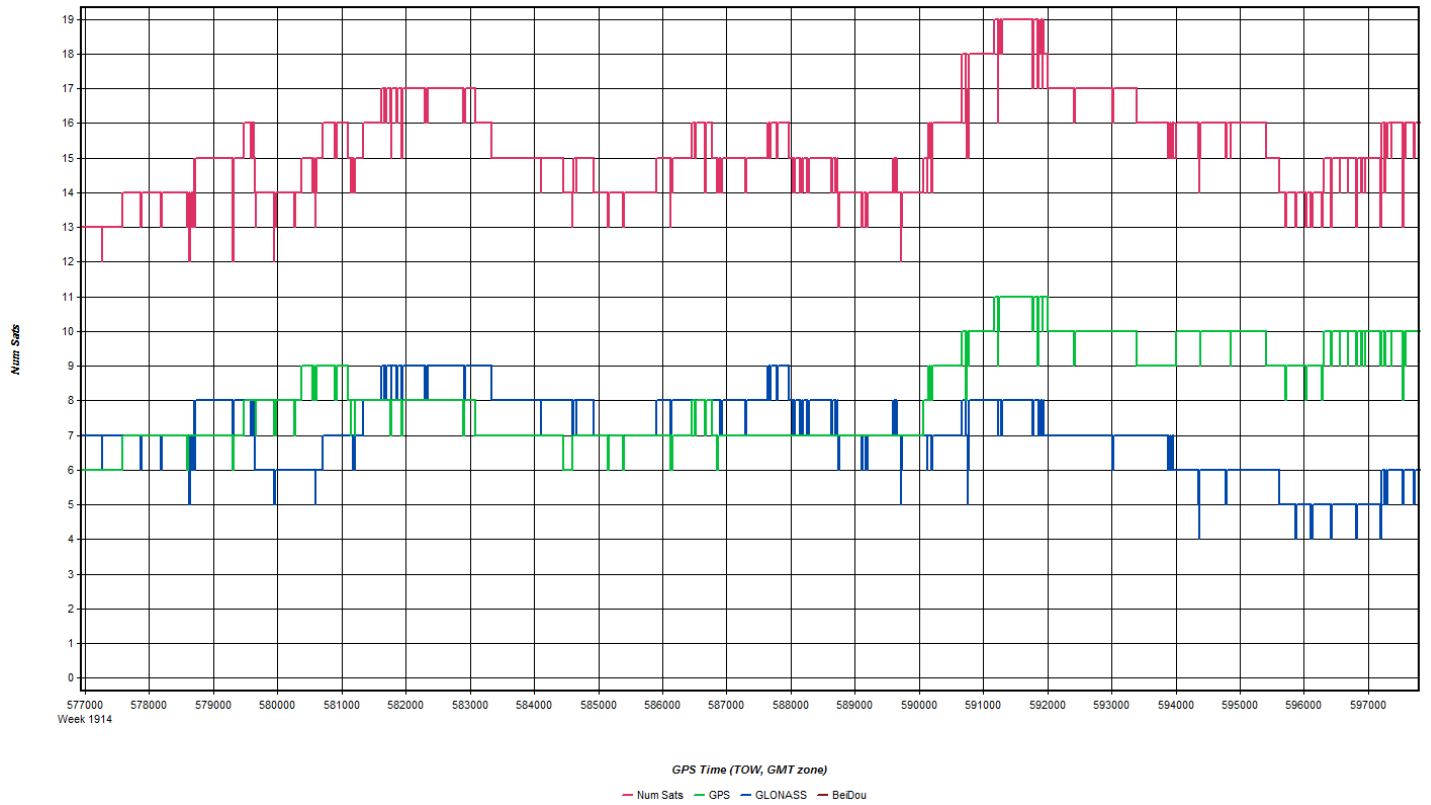
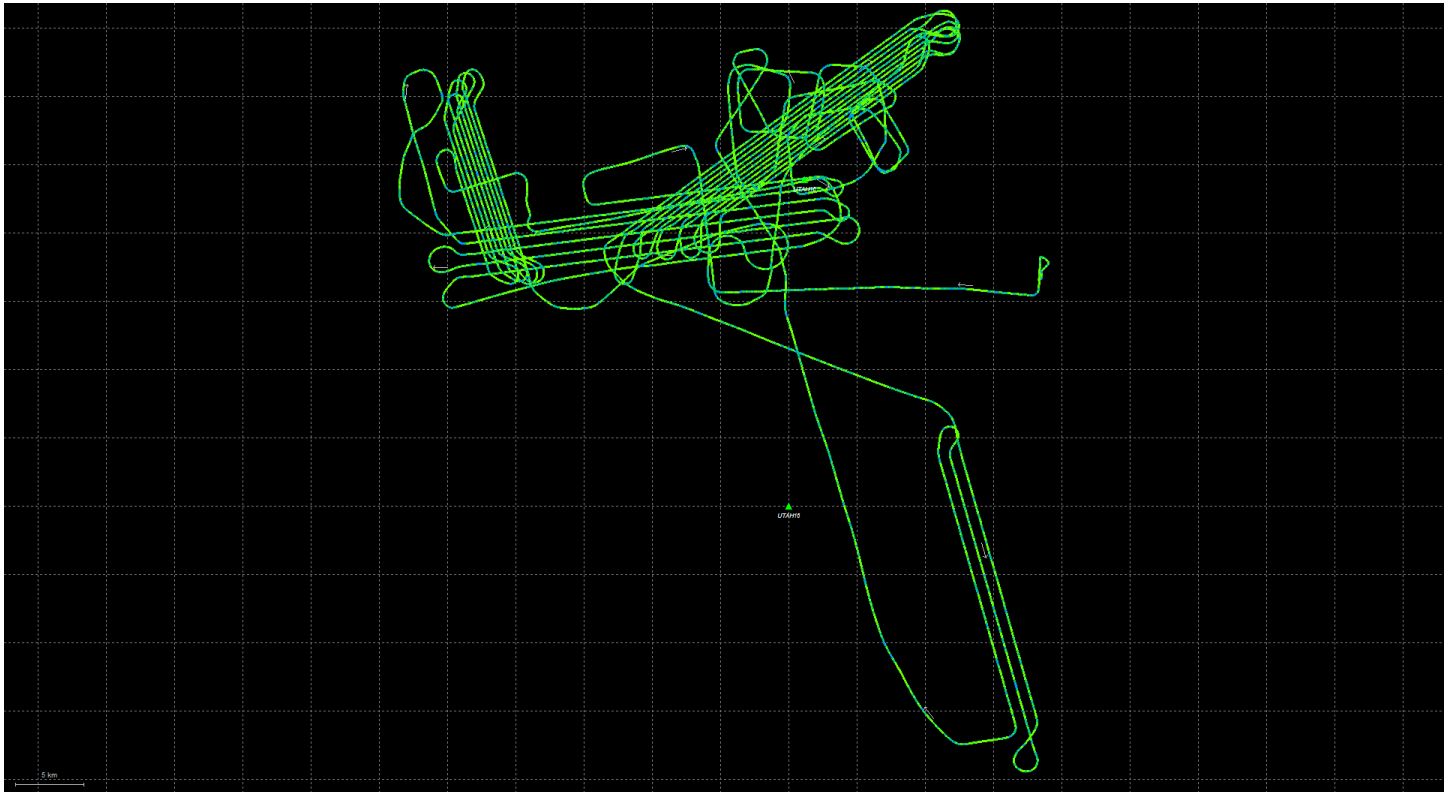
MN moved the one base south which delayed us an hour for wheels up until just after 11:00am. We had prepared a very clear plan for ATC the night before, so they were ready for us. At about that exact same time, the sensor crapped out on me. The message read "ALS did not start recording" and the shutter lens button and two other buttons disappeared off the bottom display of the monitor. I attempted to end the line, switch flightplans, and various other troubleshooting efforts which proved to be futile. We landed the plane, static'd, and shut down. EP checked with Sheboygan and Jeremy to confirm if it was ok to fly. We were given the greenlight and lifted again. We experienced no other issues with the sensor for the rest of the afternoon.

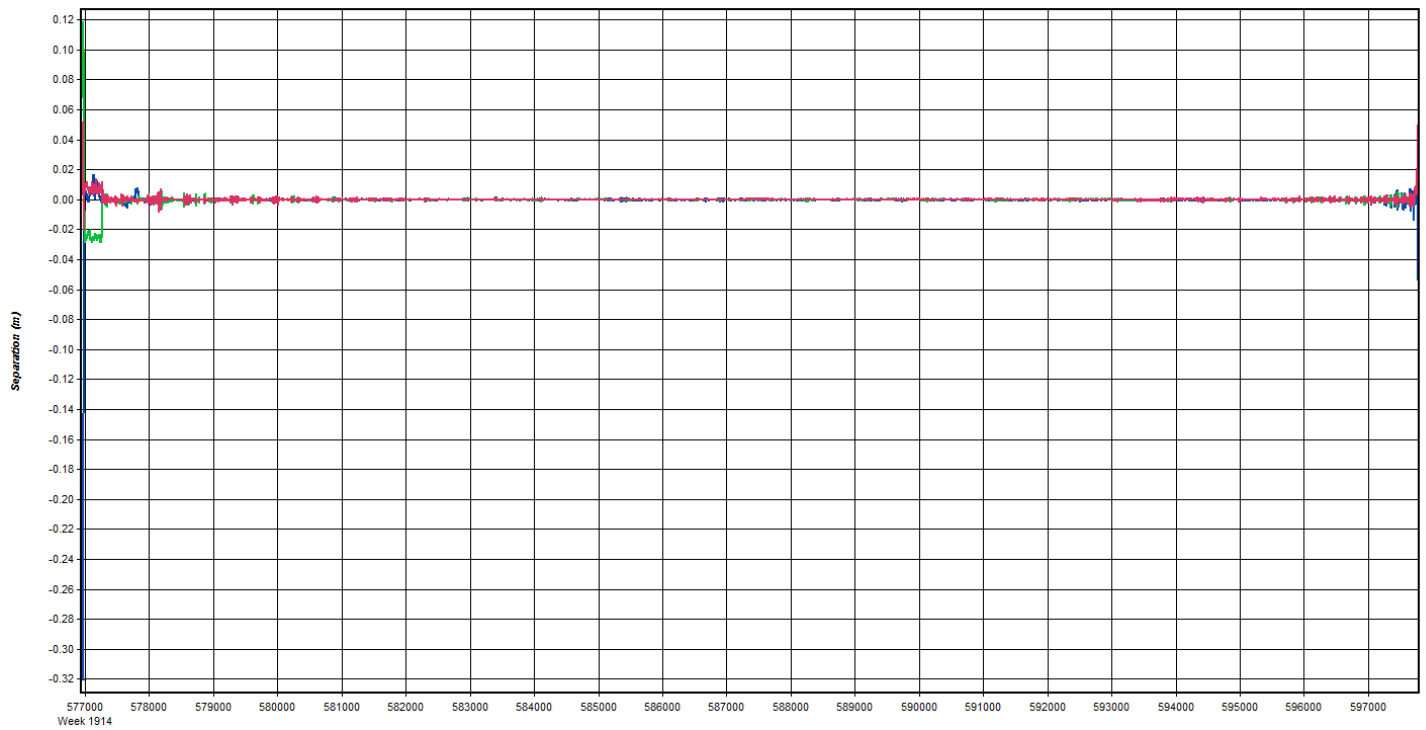
Flt Mgmt File: FMSL_Utah_GSL_QL2_SN7161_rev1

Lines Flown:

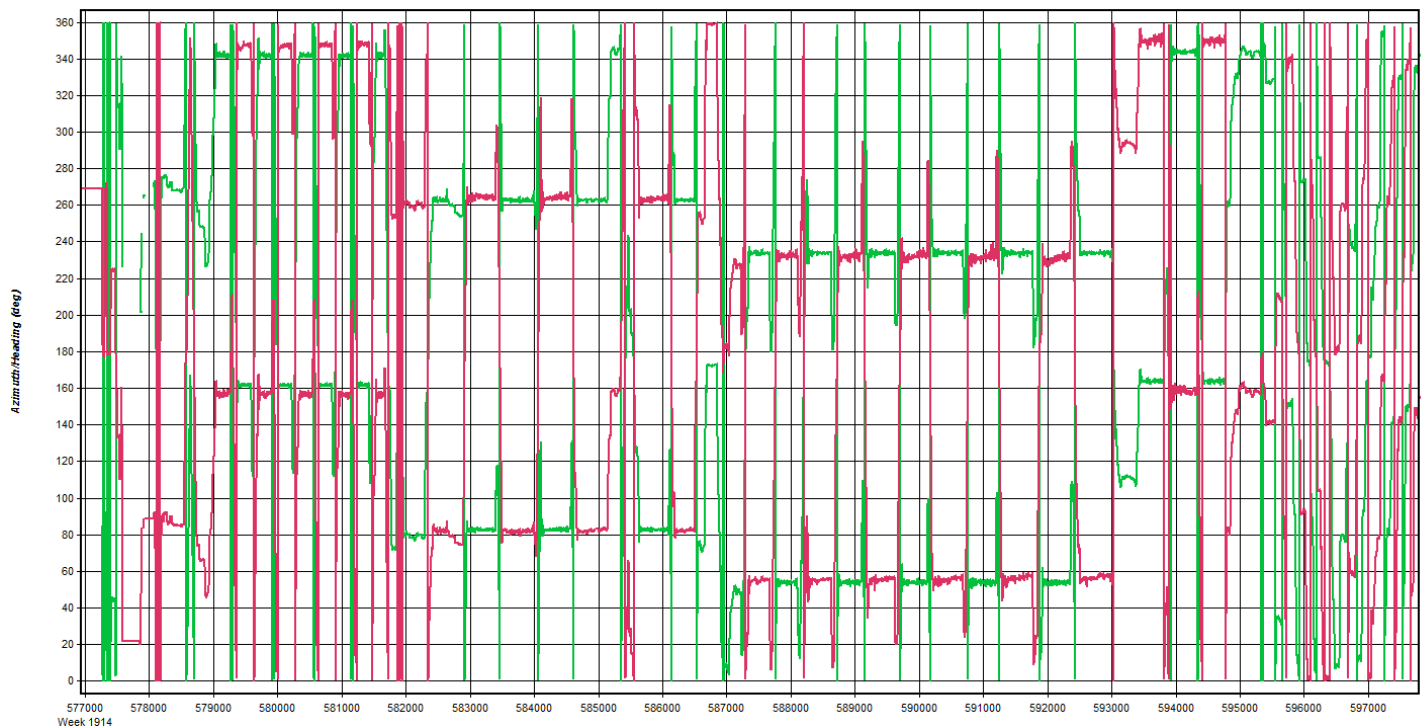
F2-GSL2017-2020, 2039-2052

Sep 17, 2016-A (N704MD, SN7161)

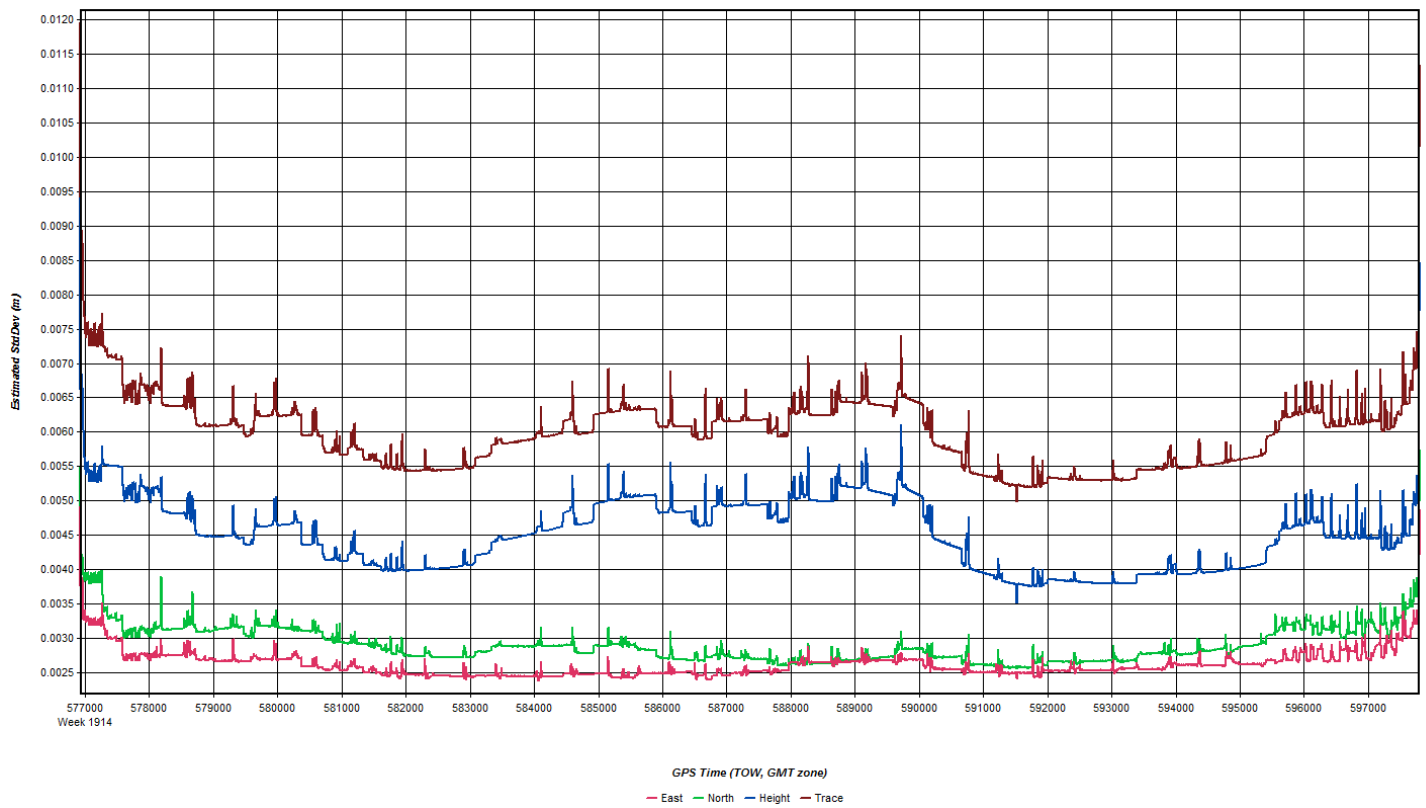
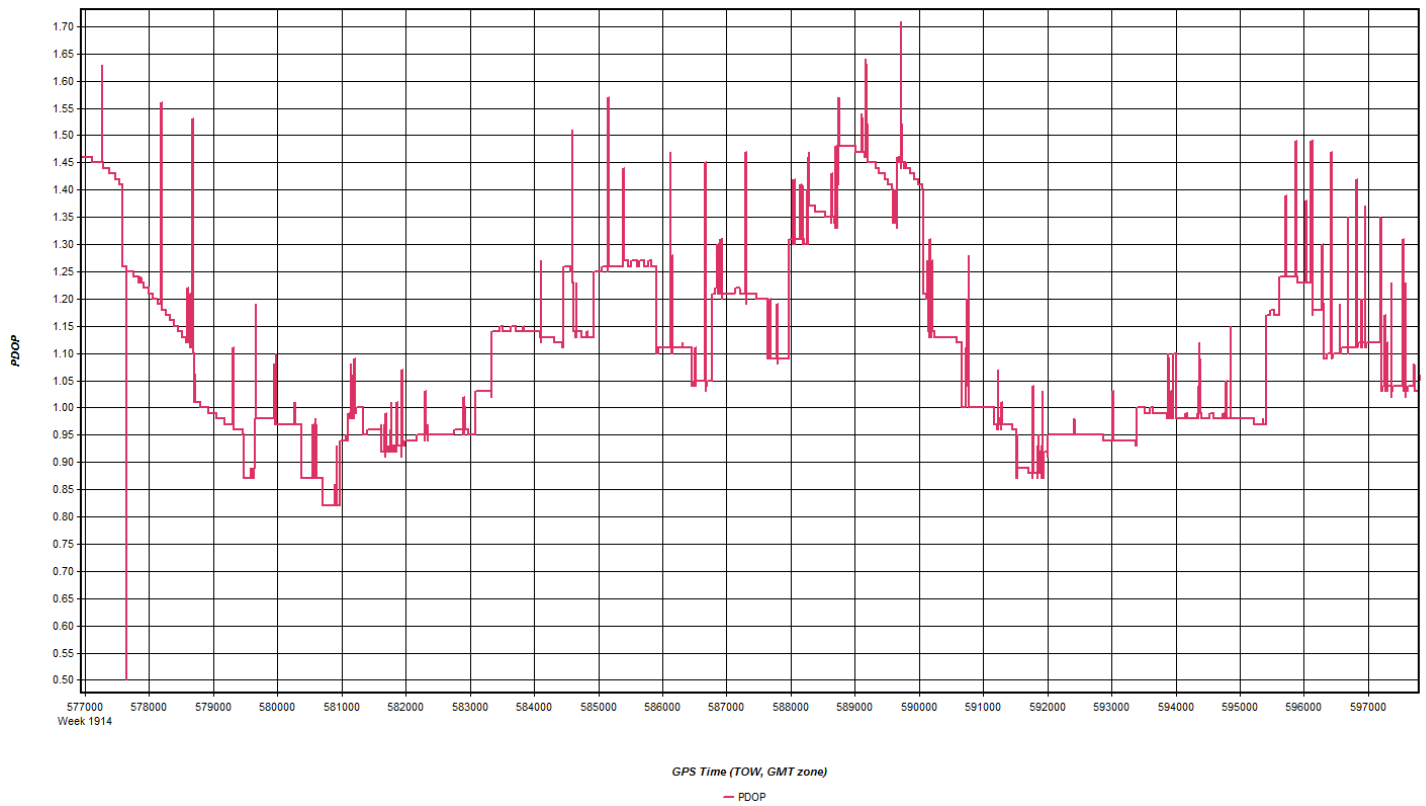


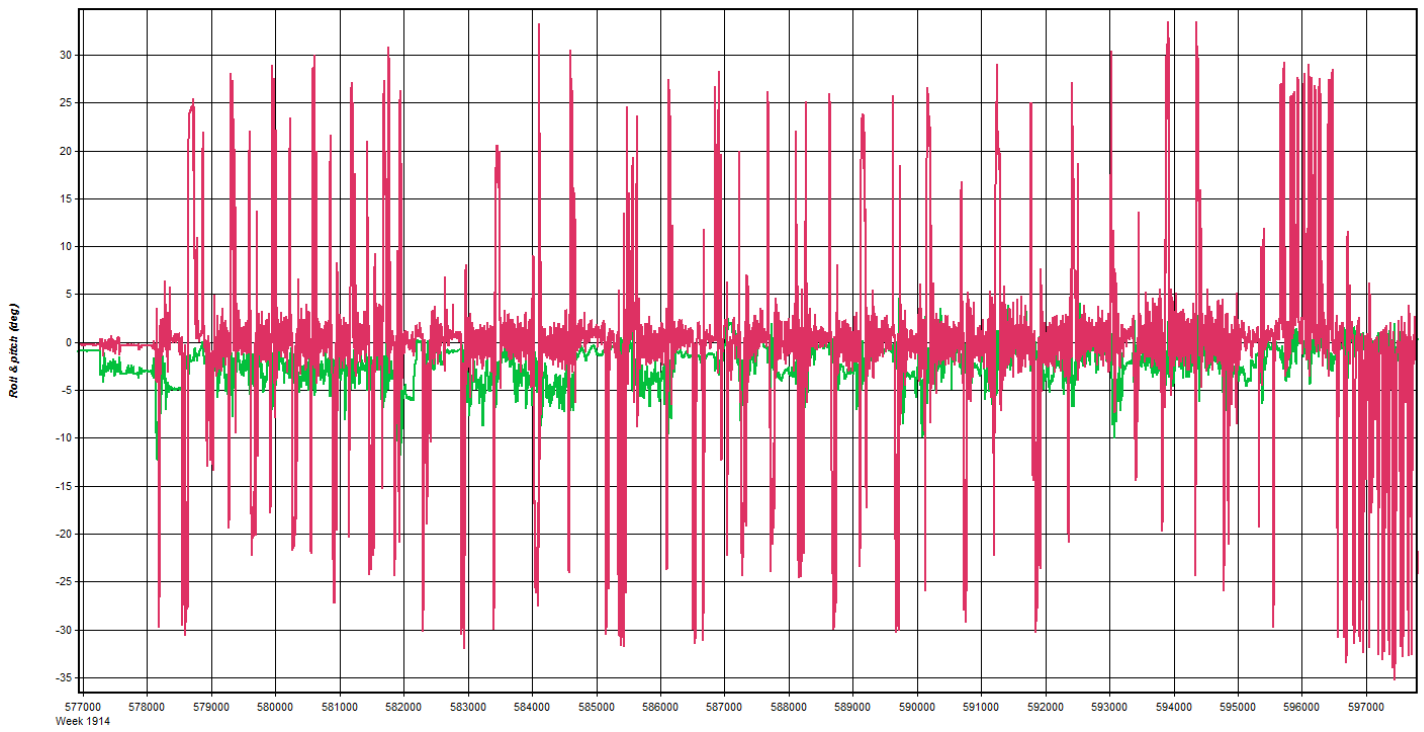


GPS Time (TOW, GMT zone)
— East — North — Up



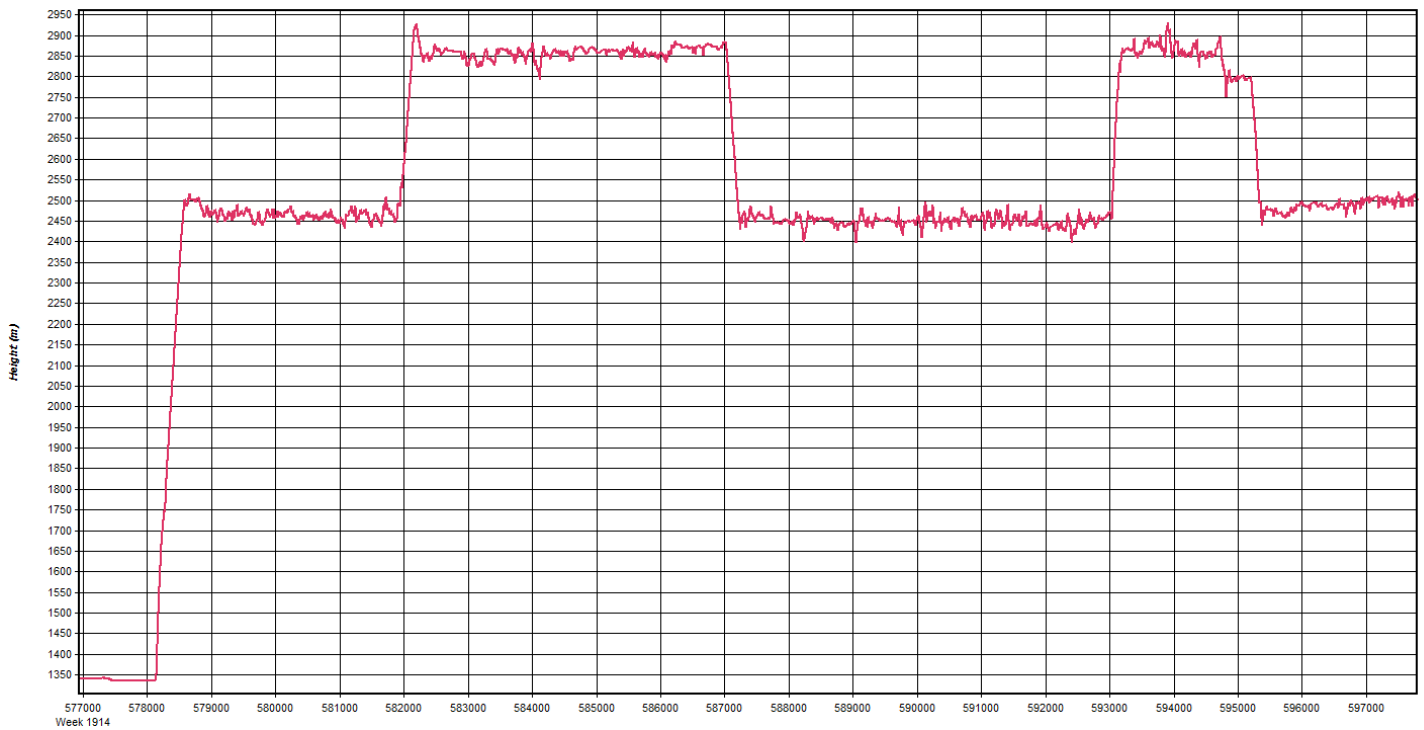
GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG





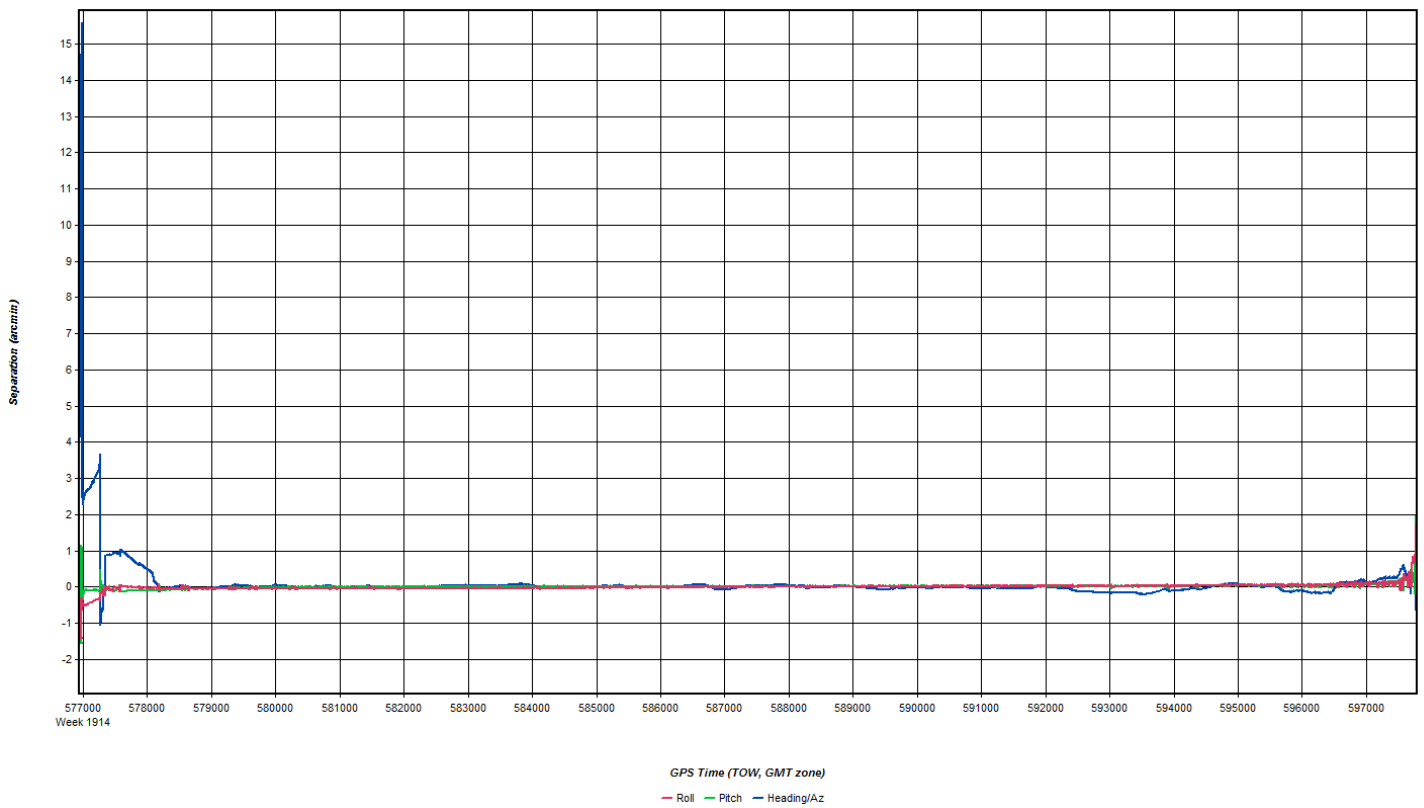
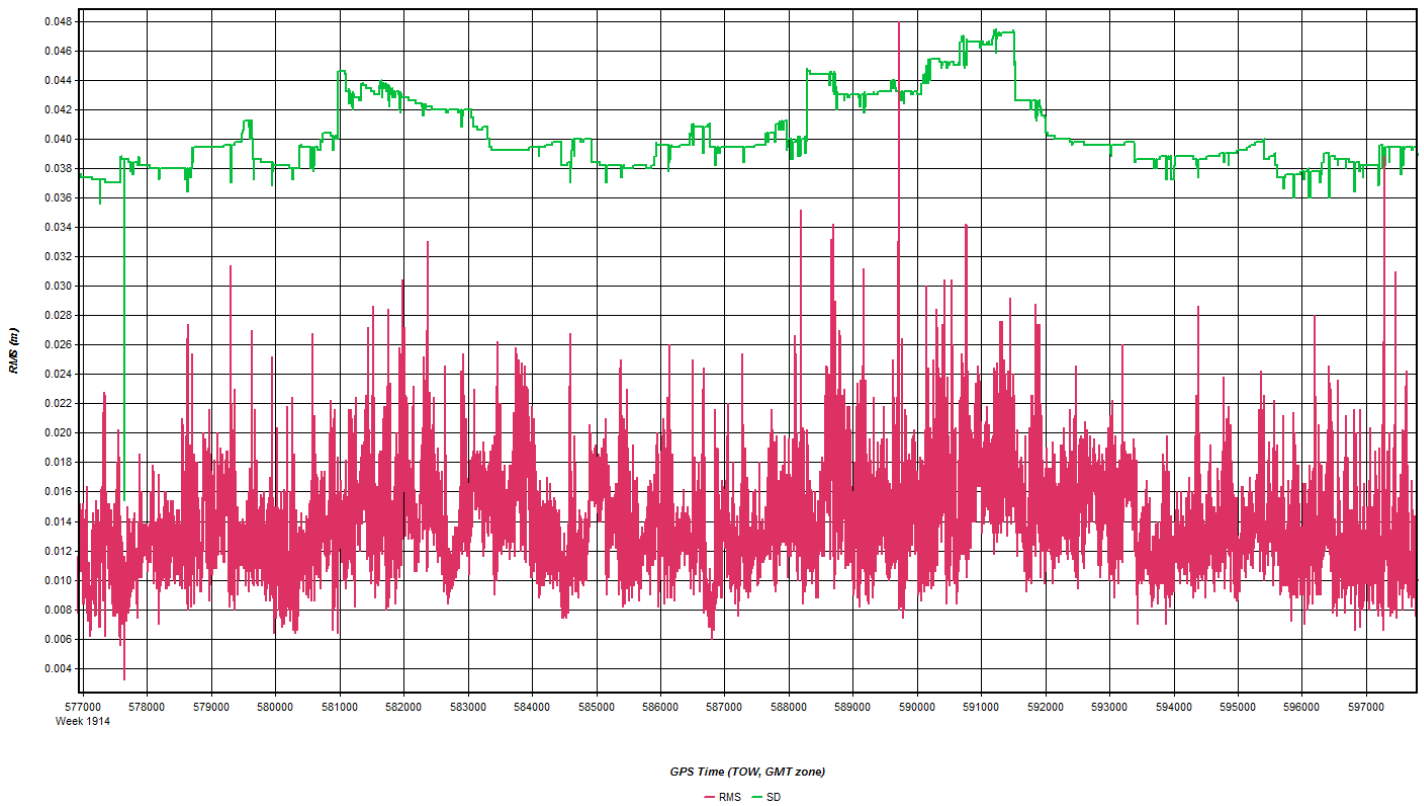
GPS Time (TOW, GMT zone)

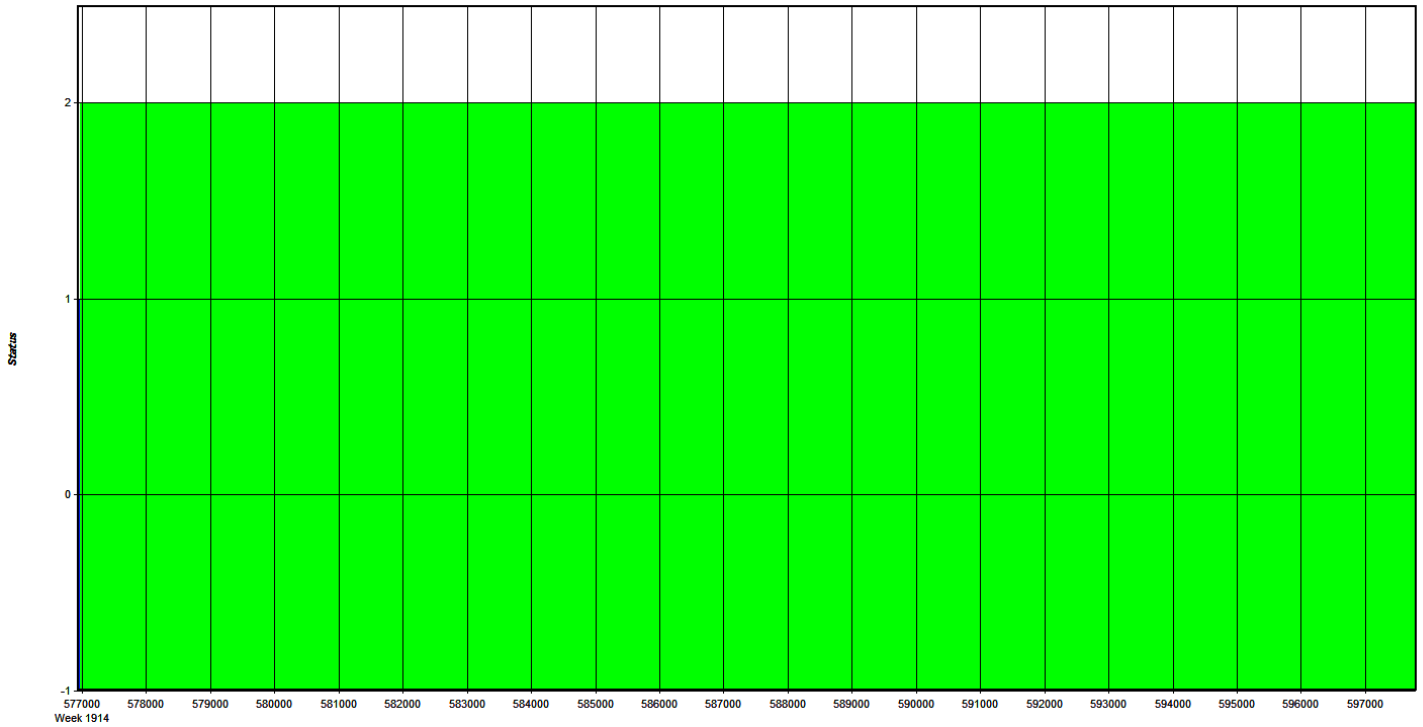
— Roll — Pitch



GPS Time (TOW, GMT zone)

— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_08 Name: UTAH16_08 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD261_704MD_MN\R7_25

Coordinates
 Latitude: North 41 02 17.36223 Compute from PPP
 Longitude: West 112 13 55.55965 Enter Grid Values
 Ellipsoidal height: 1338.735 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_10 Name: UTAH16_10 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD261_704MD_MN\R7_76

Coordinates
 Latitude: North 41 15 04.88969 Compute from PPP
 Longitude: West 112 13 07.06672 Enter Grid Values
 Ellipsoidal height: 1269.980 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log - QL1

Date: 9/17/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File:		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	10:25:00 AM			
Wheels Down	4:36:00 PM			
Begin Hobbs	11356.6			
End Hobbs	11362.2			
On-line Hobbs: 5.1		Mob Hobbs: 0.5		

We got busy to the north chipping away at various blocks from the three flightplans. Into the afternoon, we finally received clearance to acquire the last lines near SLC but would have to jump in for 20 minutes, then jump out, then come back in because of various departure patterns from the ground.

I tried to manual fire a cross line on a block we had wrapped up to the north but did not cross over because we rushed down to the SLC airspace to grab the last five lines down there. I received the "ALS did not record" error message which resulted in the record button, and two other major buttons on the bottom panel of the display disappeared. I tried troubleshooting various ways and ultimately did a shutdown in the air. The sensor was not shutting down either, it froze as it was exiting the Leica program. Upon restarting I received a message saying, "GNSS-IMU is in course align status, position accuracy is reduced" which basically translates to: your attitude, position, and velocity are not being read by the satellites. We stayed in base range for more than ten minutes, performing s-turns and various maneuvers with no results for green lights on the GNSS-IMU status. The lights turned green but the error warning persisted and when we got online to finish the last three lines, the guidance line was all sorts of inaccurate. I called the flight.

There seems to be extra coverage in the north showing the trajectory of some maneuvers. We were unable to cross line the southern-most line set and the northern-most line set.

Flt Mgmt File:

Lines Flown:

GSLW 1169-1161
GSL 2209-2203
GSLE 1119-1109
GSL 2057-2055

Flight Log - QL2

Date: 9/17/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File:		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	10:25:00 AM			
Wheels Down	4:36:00 PM			
Begin Hobbs	11356.6			
End Hobbs	11362.2			
On-line Hobbs: 5.1		Mob Hobbs: 0.5		

Notes

We got busy to the north chipping away at various blocks from the three flightplans. Into the afternoon, we finally received clearance to acquire the last lines near SLC but would have to jump in for 20 minutes, then jump out, then come back in because of various departure patterns from the ground.

I tried to manual fire a cross line on a block we had wrapped up to the north but did not cross over because we rushed down to the SLC airspace to grab the last five lines down there. I received the "ALS did not record" error message which resulted in the record button, and two other major buttons on the bottom panel of the display disappeared. I tried troubleshooting various ways and ultimately did a shutdown in the air. The sensor was not shutting down either, it froze as it was exiting the Leica program. Upon restarting I received a message saying, "GNSS-IMU is in course align status, position accuracy is reduced" which basically translates to: your attitude, position, and velocity are not being read by the satellites. We stayed in base range for more than ten minutes, performing s-turns and various maneuvers with no results for green lights on the GNSS-IMU status. The lights turned green but the error warning persisted and when we got online to finish the last three lines, the guidance line was all sorts of inaccurate. I called the flight.

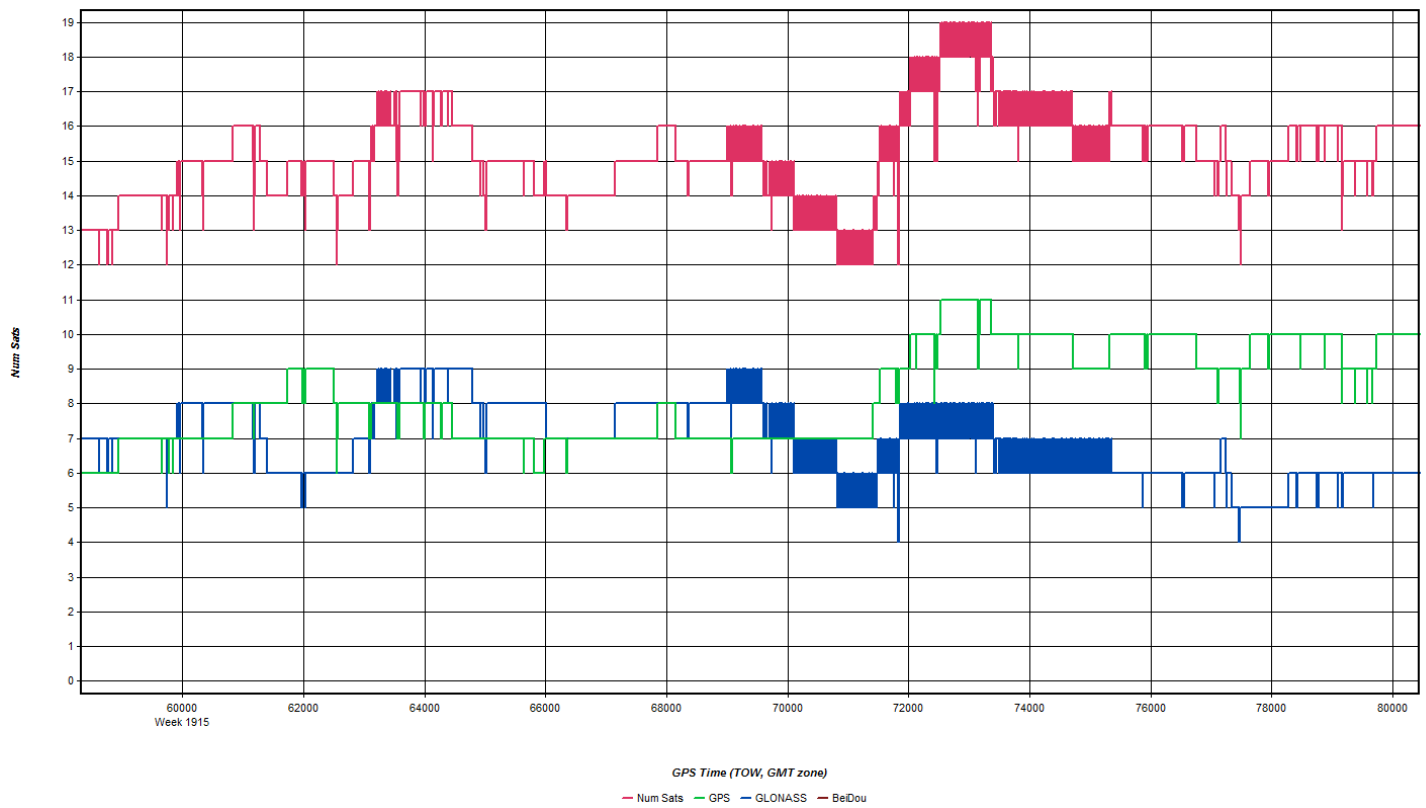
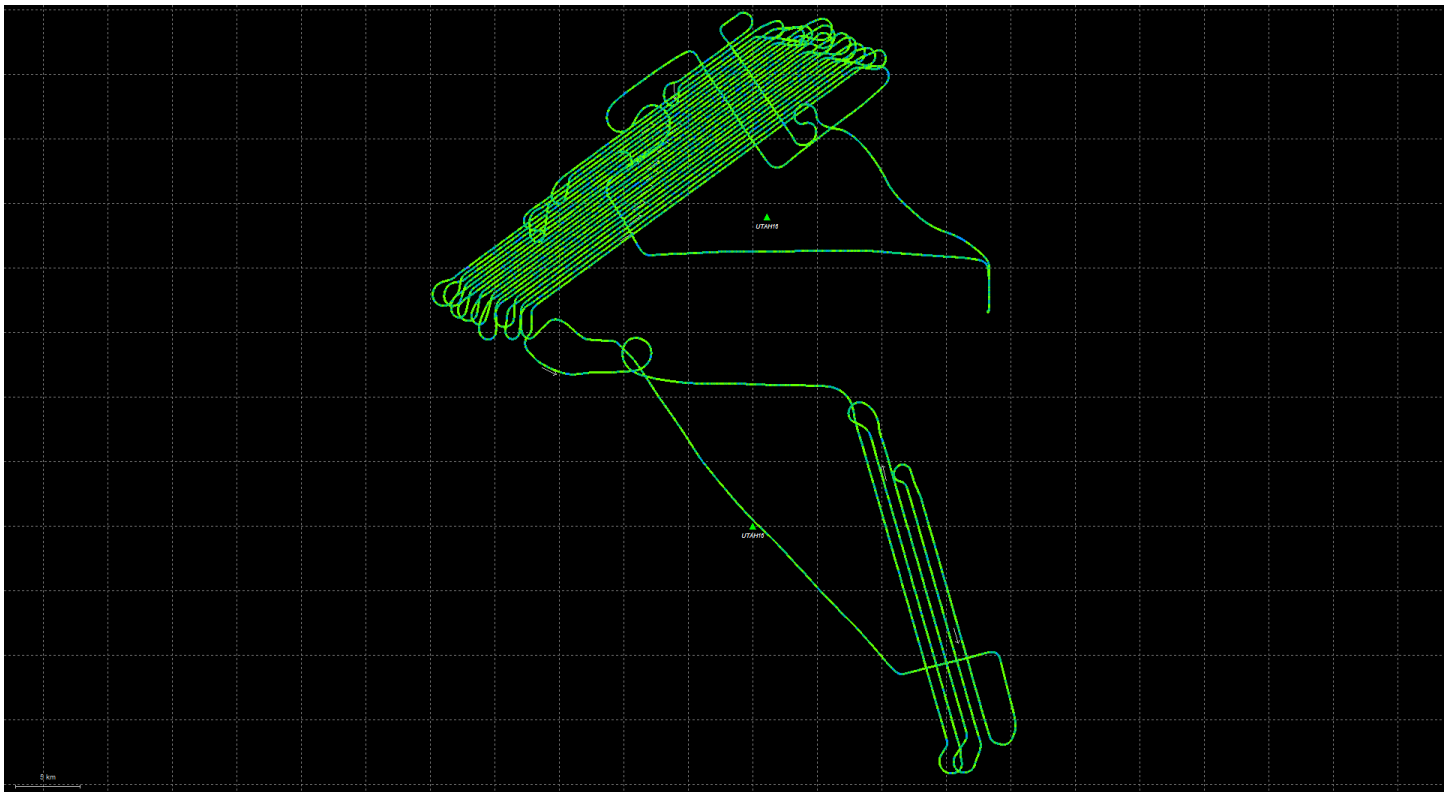
There seems to be extra coverage in the north showing the trajectory of some maneuvers. We were unable to cross line the southern-most line set and the northern-most line set.

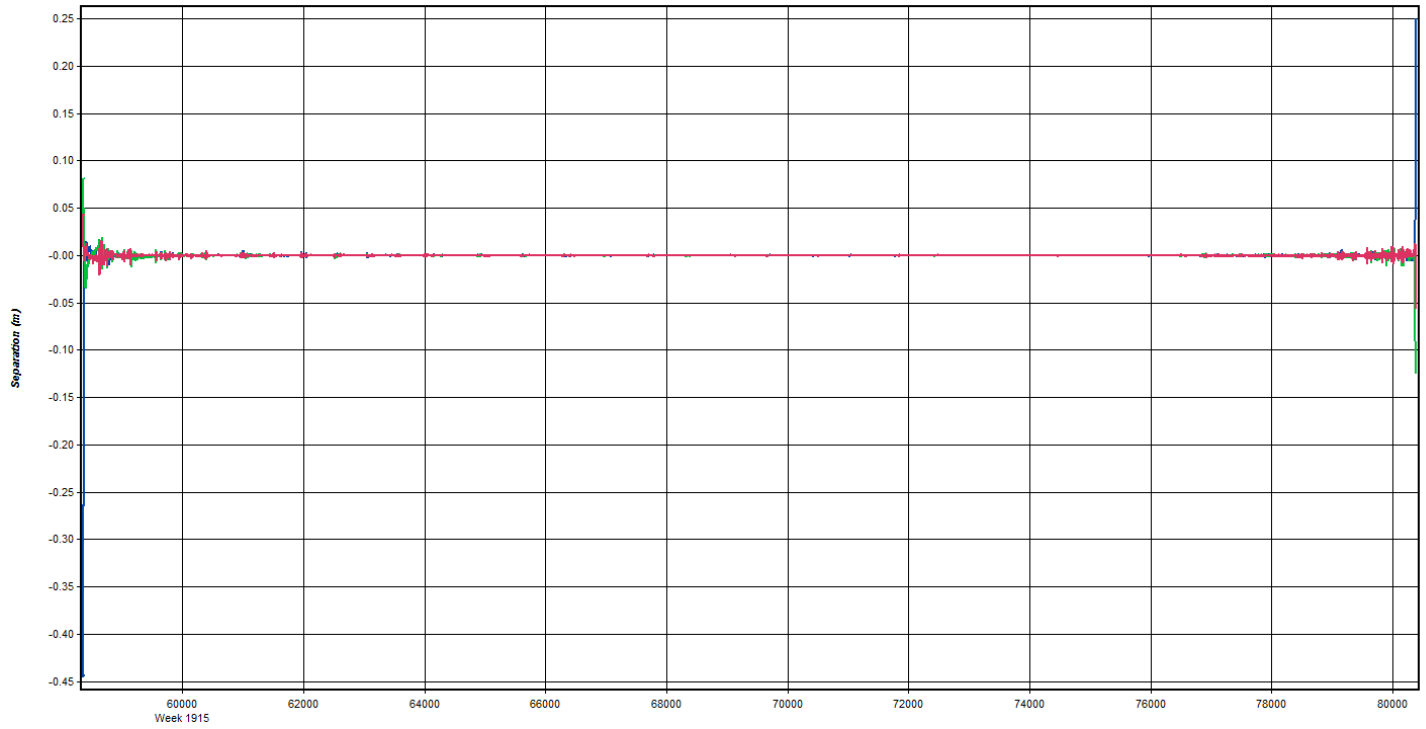
Flt Mgmt File:

Lines Flown:

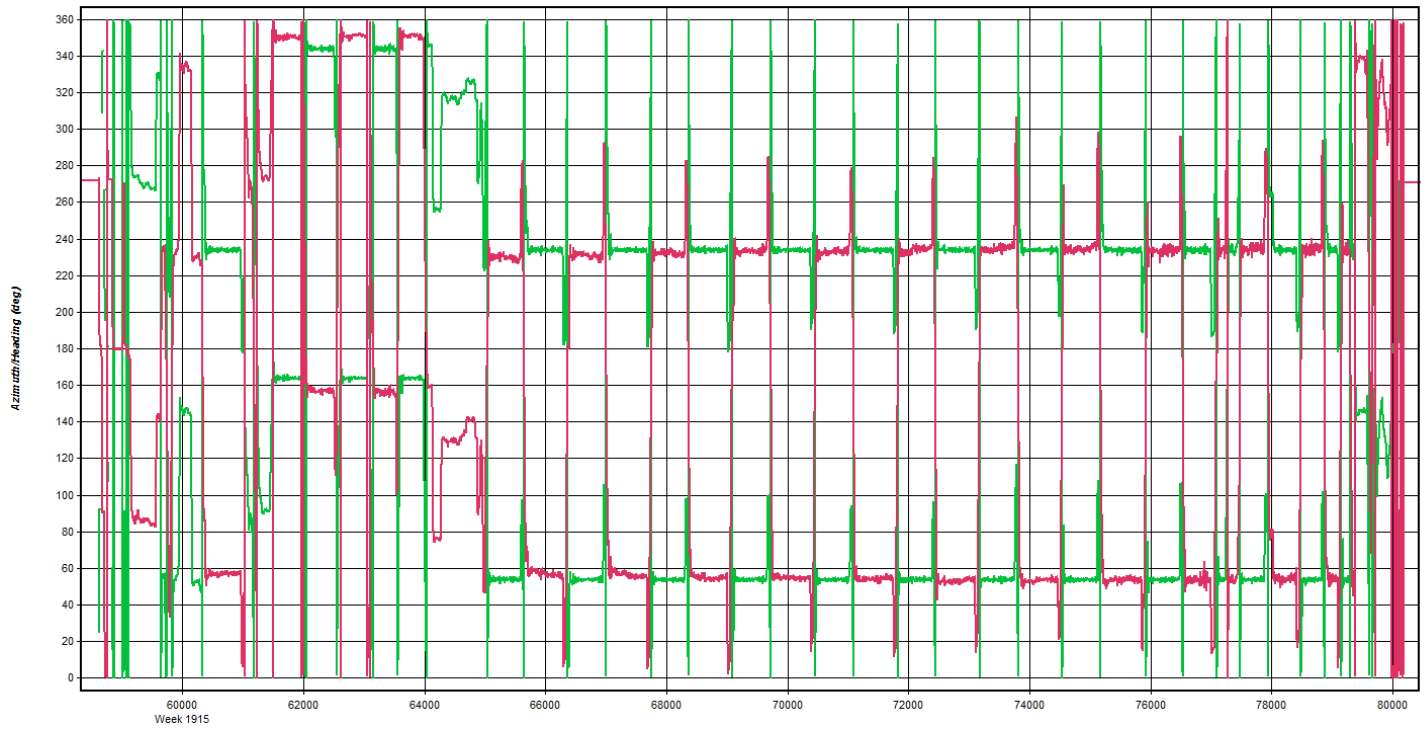
GSLW 1169-1161
GSL 2209-2203
GSLE 1119-1109
GSL 2057-2055

Sep 18, 2016-A (N704MD, SN7161)

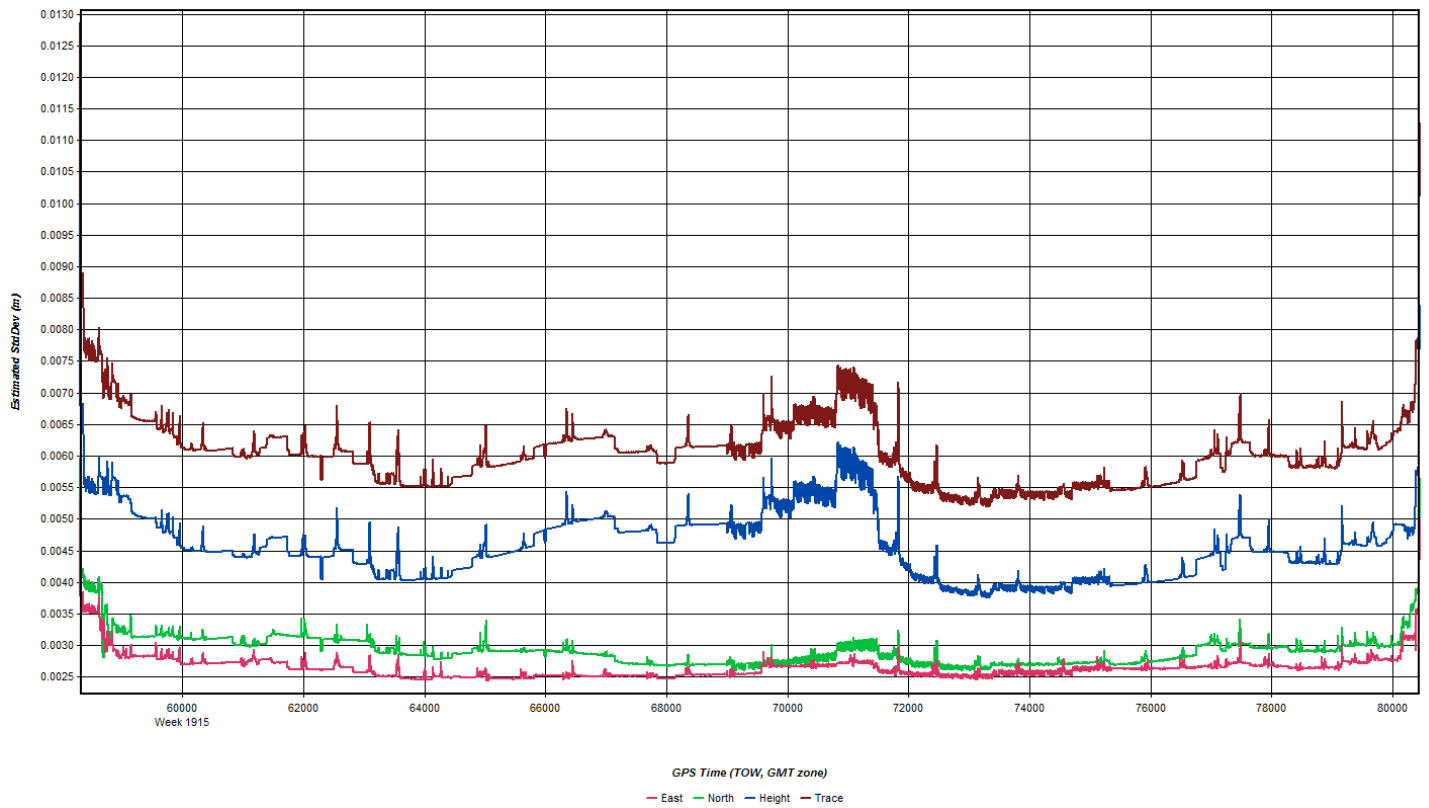
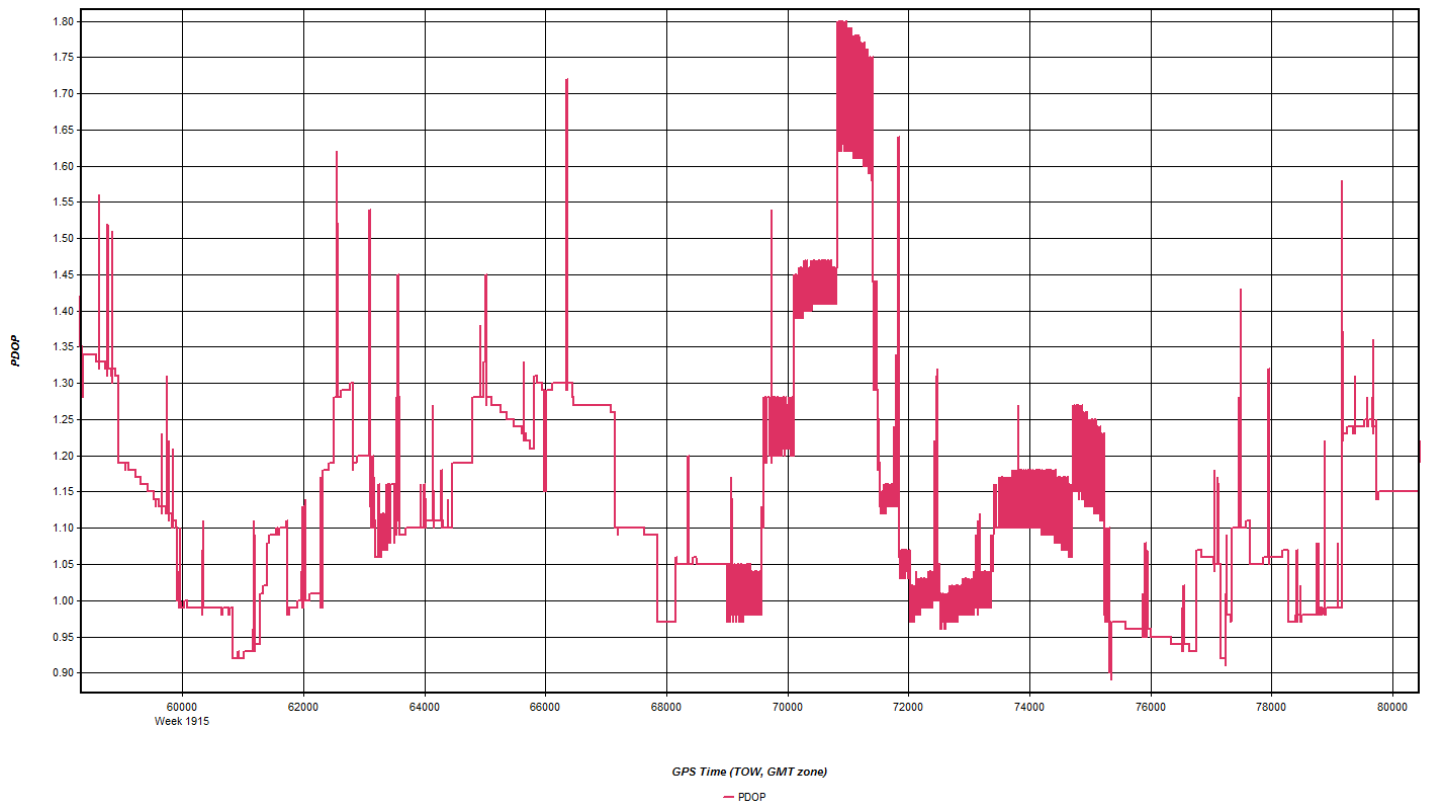


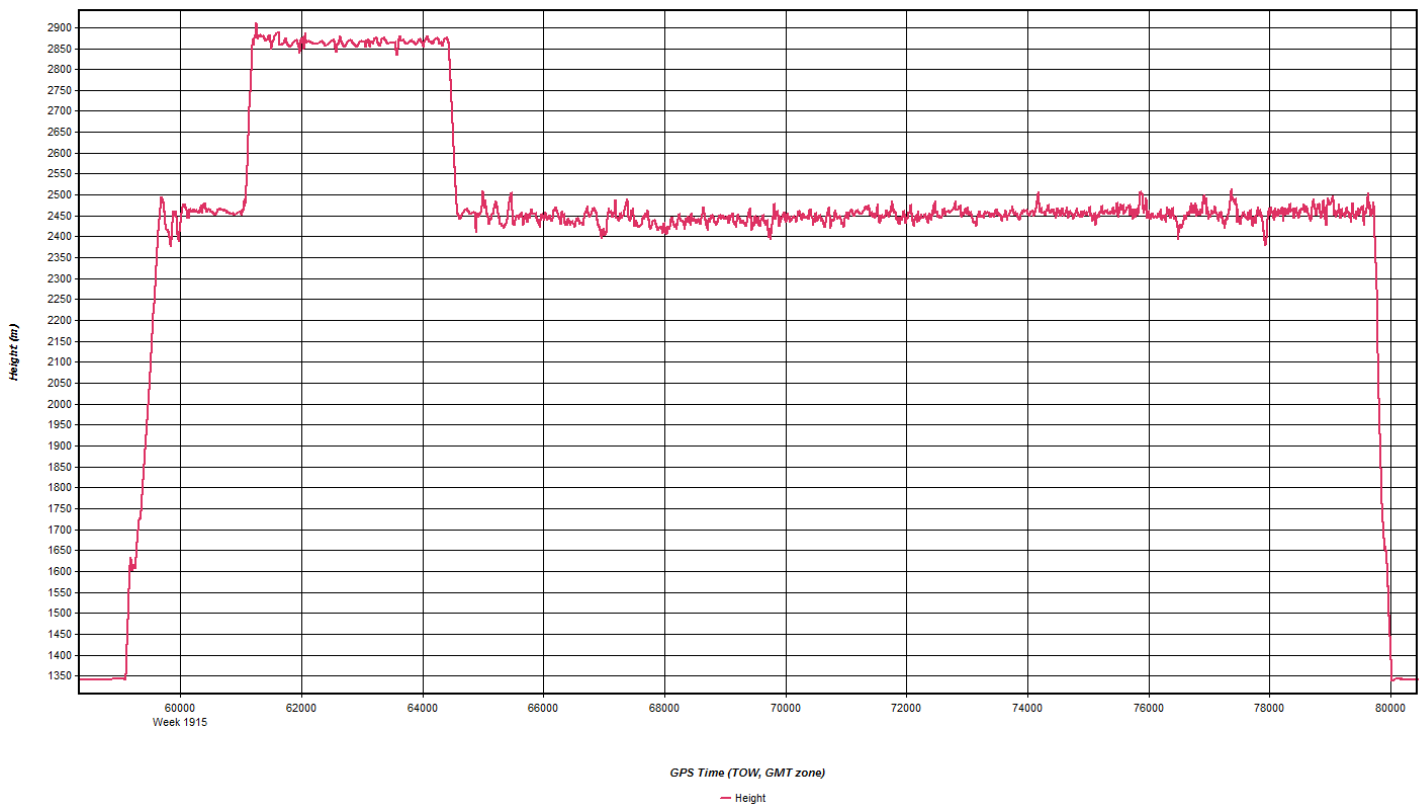
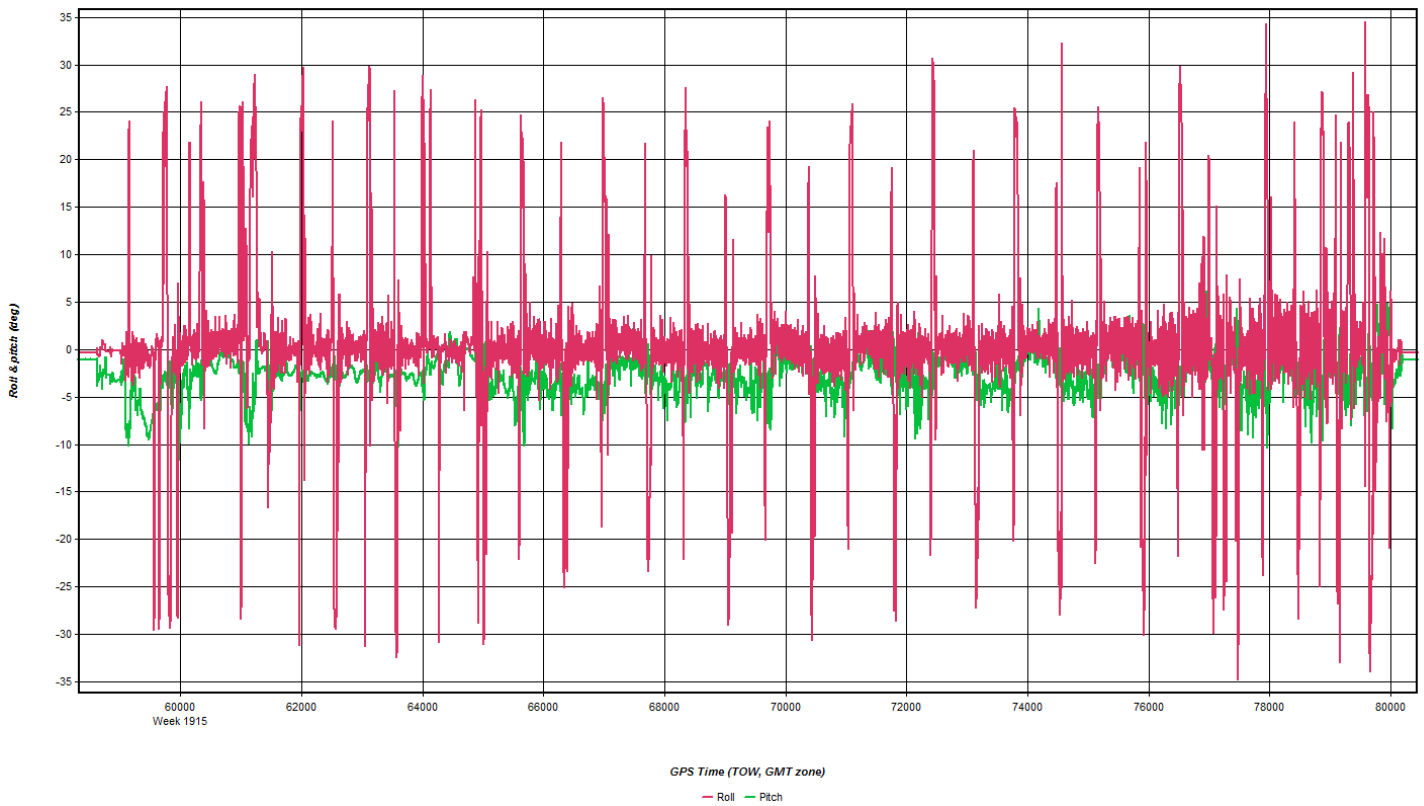


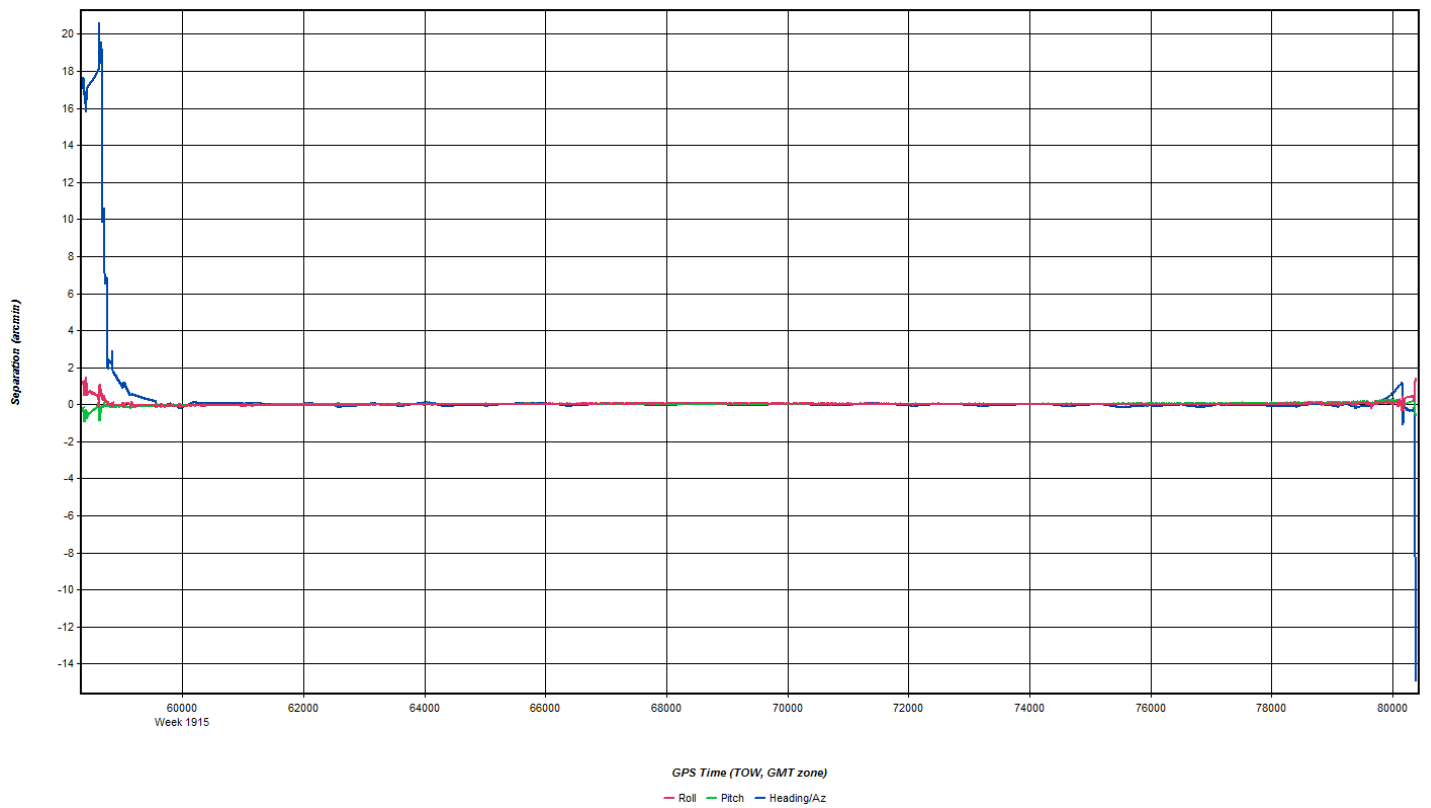
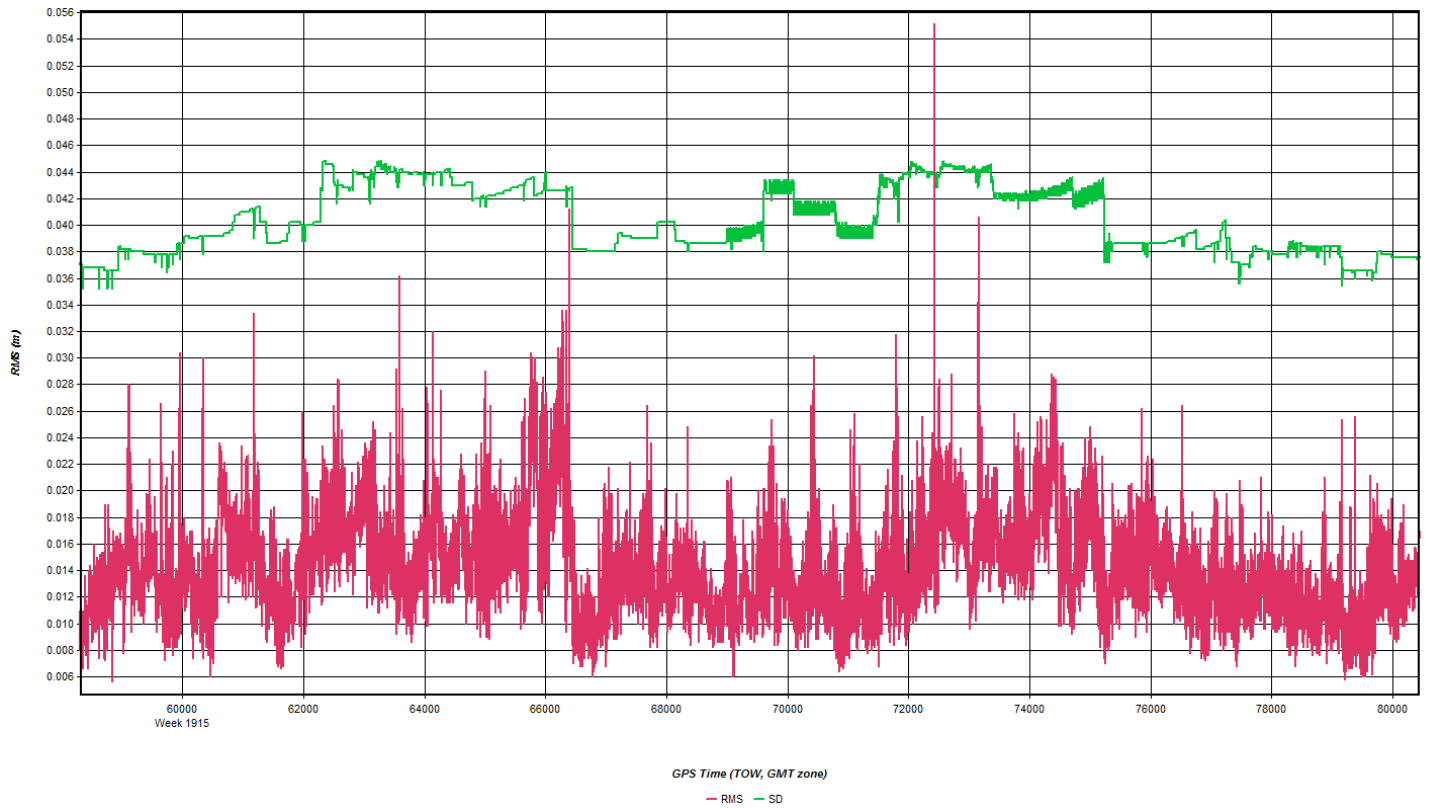
GPS Time (TOW, GMT zone)
— East — North — Up

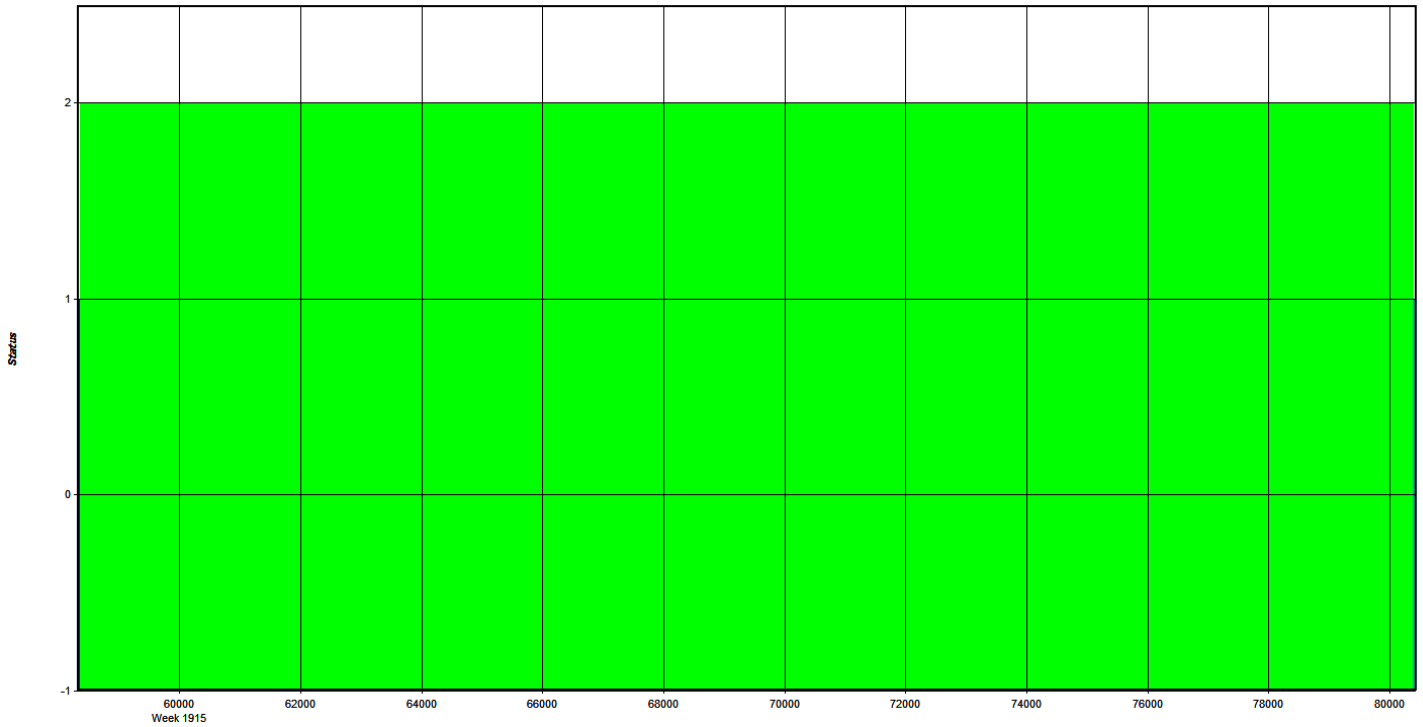


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_08 Name: UTAH16_08 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD262_704MD_MN\R7_25

Coordinates
 Latitude: North 41 02 17.36223 Compute from PPP
 Longitude: West 112 13 55.55965 Enter Grid Values
 Ellipsoidal height: 1338.735 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM57971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
2: UTAH16_10 Name: UTAH16_10 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD262_704MD_MN\R7_76

Coordinates
Latitude: North 41 15 04.88969 Compute from PPP
Longitude: West 112 13 07.06672 Enter Grid Values
Ellipsoidal height: 1269.980 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log - QL1

Date: 9/17/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File:		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	10:25:00 AM			
Wheels Down	4:36:00 PM			
Begin Hobbs	11356.6			
End Hobbs	11362.2			
On-line Hobbs: 5.1		Mob Hobbs: 0.5		

We got busy to the north chipping away at various blocks from the three flightplans. Into the afternoon, we finally received clearance to acquire the last lines near SLC but would have to jump in for 20 minutes, then jump out, then come back in because of various departure patterns from the ground.

I tried to manual fire a cross line on a block we had wrapped up to the north but did not cross over because we rushed down to the SLC airspace to grab the last five lines down there. I received the "ALS did not record" error message which resulted in the record button, and two other major buttons on the bottom panel of the display disappeared. I tried troubleshooting various ways and ultimately did a shutdown in the air. The sensor was not shutting down either, it froze as it was exiting the Leica program. Upon restarting I received a message saying, "GNSS-IMU is in course align status, position accuracy is reduced" which basically translates to: your attitude, position, and velocity are not being read by the satellites. We stayed in base range for more than ten minutes, performing s-turns and various maneuvers with no results for green lights on the GNSS-IMU status. The lights turned green but the error warning persisted and when we got online to finish the last three lines, the guidance line was all sorts of inaccurate. I called the flight.

There seems to be extra coverage in the north showing the trajectory of some maneuvers. We were unable to cross line the southern-most line set and the northern-most line set.

Flt Mgmt File:

Lines Flown:

GSLW 1169-1161
GSL 2209-2203
GSLE 1119-1109
GSL 2057-2055

Flight Log - QL2

Date: 9/17/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File:		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	10:25:00 AM			
Wheels Down	4:36:00 PM			
Begin Hobbs	11356.6			
End Hobbs	11362.2			
On-line Hobbs: 5.1		Mob Hobbs: 0.5		

Notes

We got busy to the north chipping away at various blocks from the three flightplans. Into the afternoon, we finally received clearance to acquire the last lines near SLC but would have to jump in for 20 minutes, then jump out, then come back in because of various departure patterns from the ground.

I tried to manual fire a cross line on a block we had wrapped up to the north but did not cross over because we rushed down to the SLC airspace to grab the last five lines down there. I received the "ALS did not record" error message which resulted in the record button, and two other major buttons on the bottom panel of the display disappeared. I tried troubleshooting various ways and ultimately did a shutdown in the air. The sensor was not shutting down either, it froze as it was exiting the Leica program. Upon restarting I received a message saying, "GNSS-IMU is in course align status, position accuracy is reduced" which basically translates to: your attitude, position, and velocity are not being read by the satellites. We stayed in base range for more than ten minutes, performing s-turns and various maneuvers with no results for green lights on the GNSS-IMU status. The lights turned green but the error warning persisted and when we got online to finish the last three lines, the guidance line was all sorts of inaccurate. I called the flight.

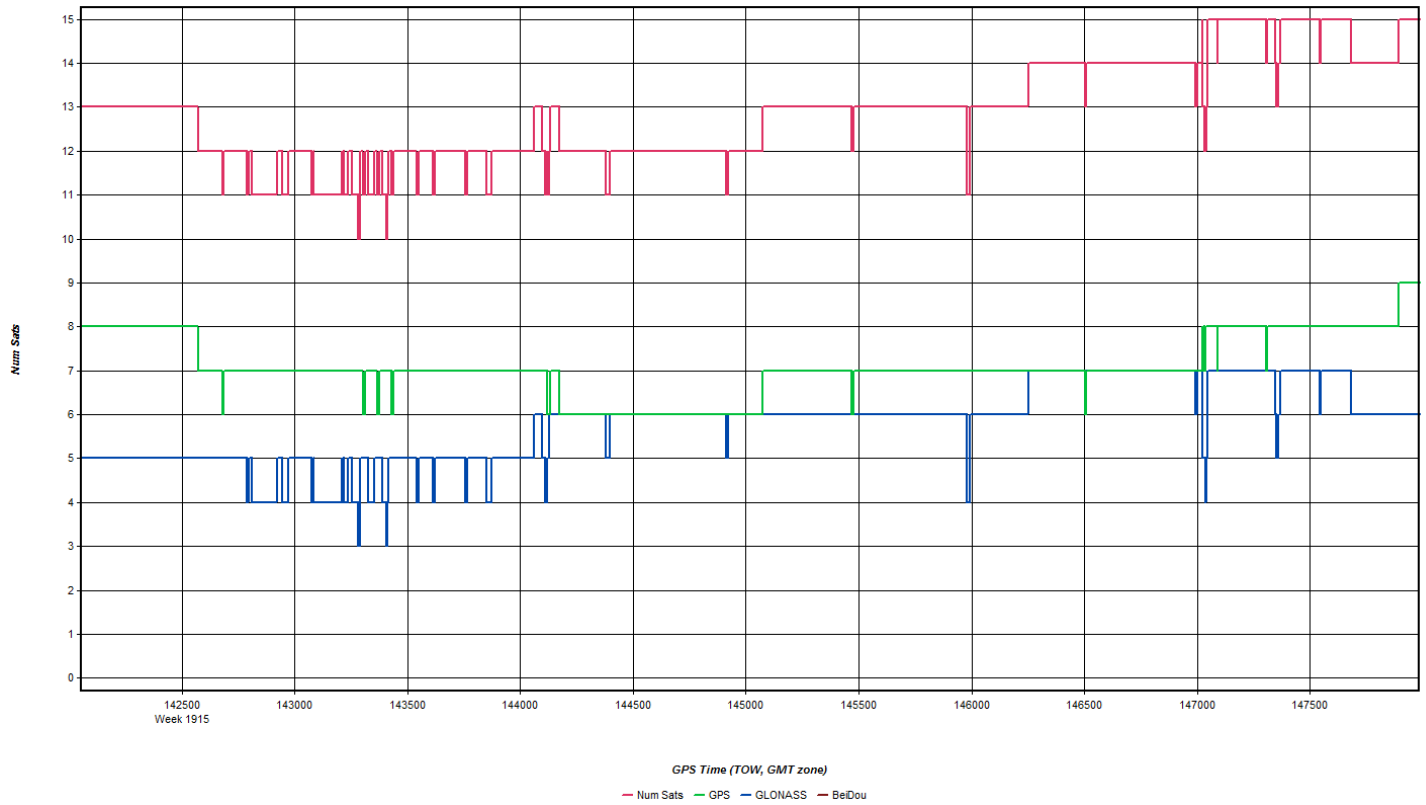
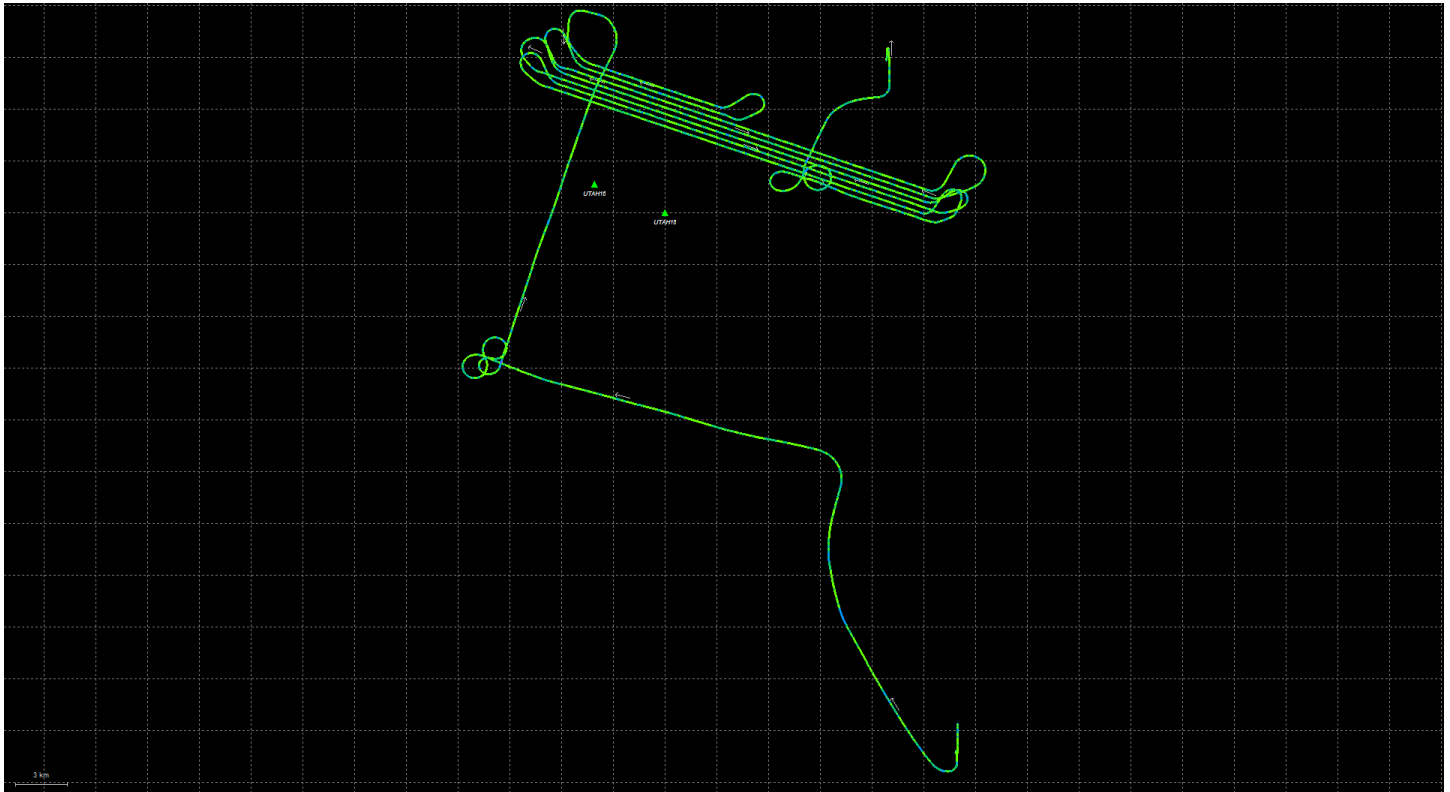
There seems to be extra coverage in the north showing the trajectory of some maneuvers. We were unable to cross line the southern-most line set and the northern-most line set.

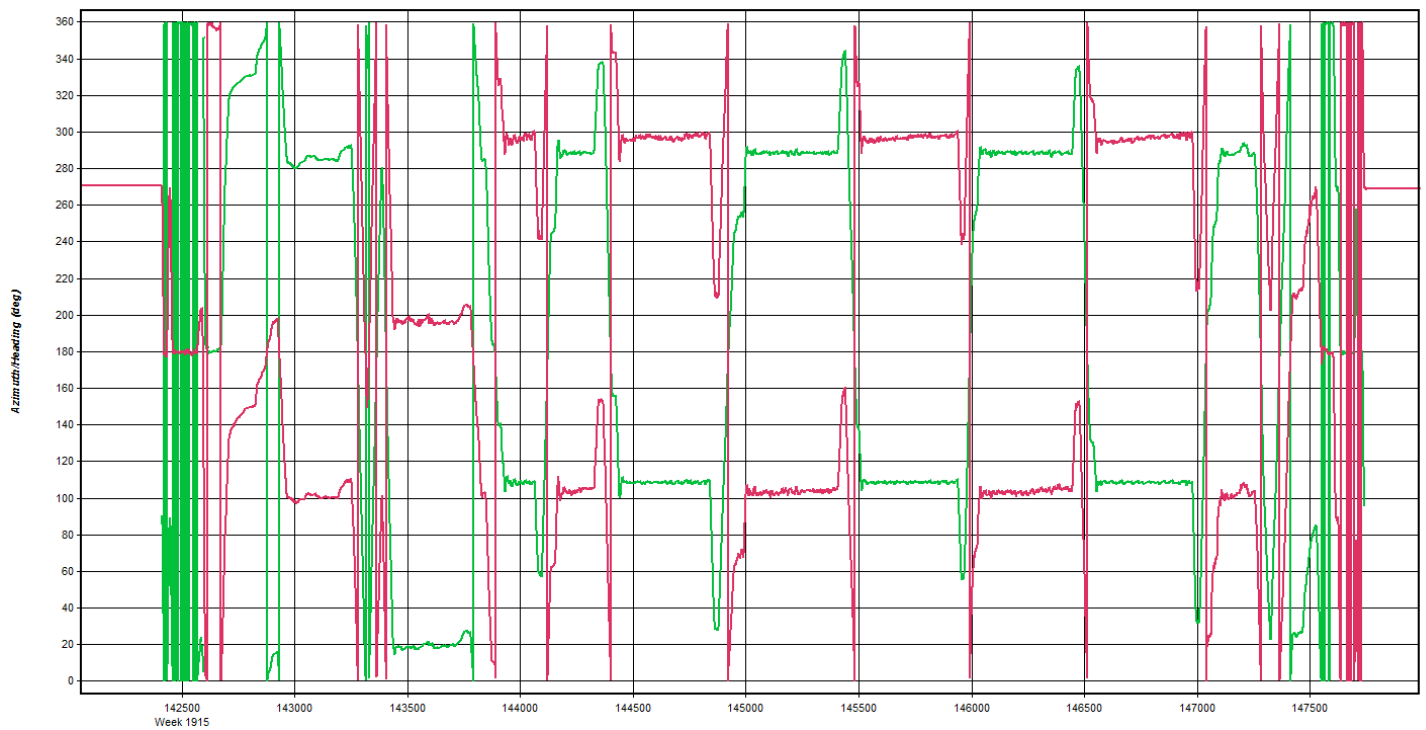
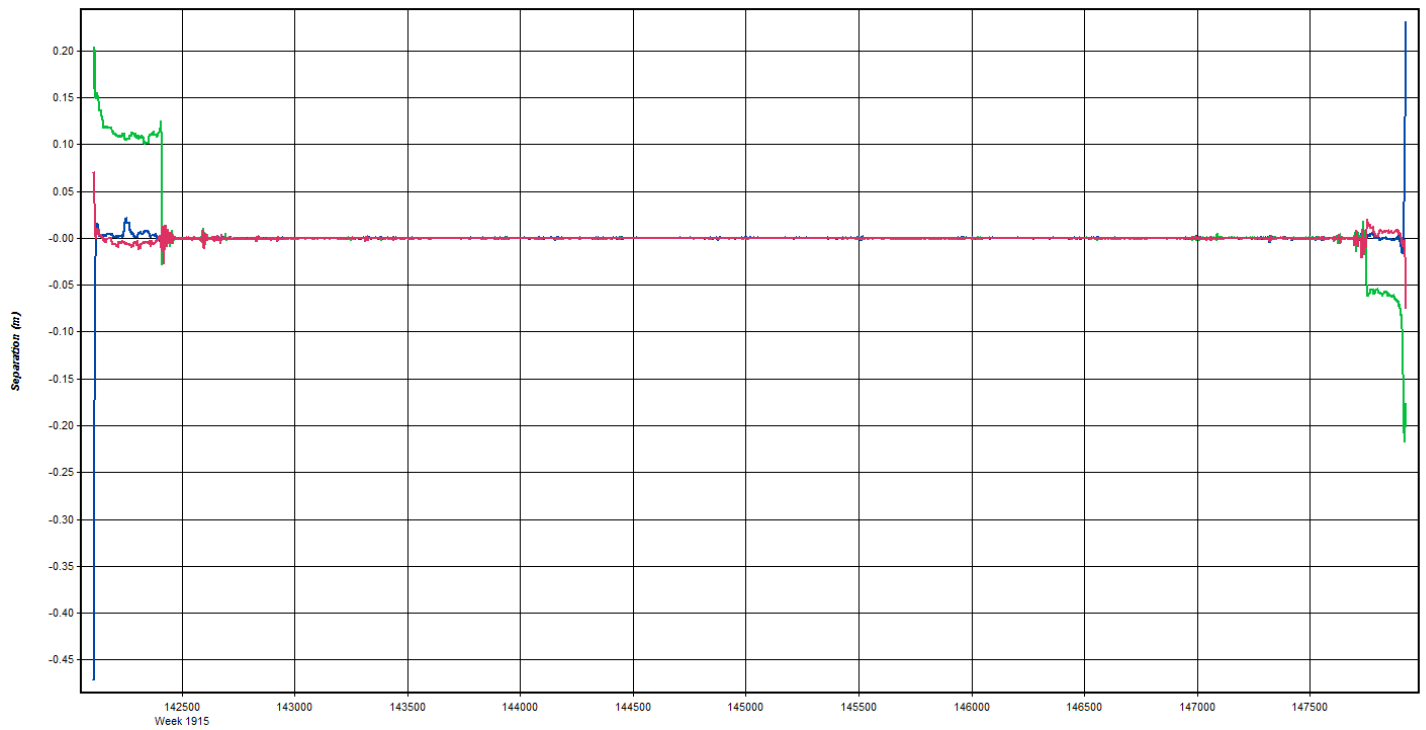
Flt Mgmt File:

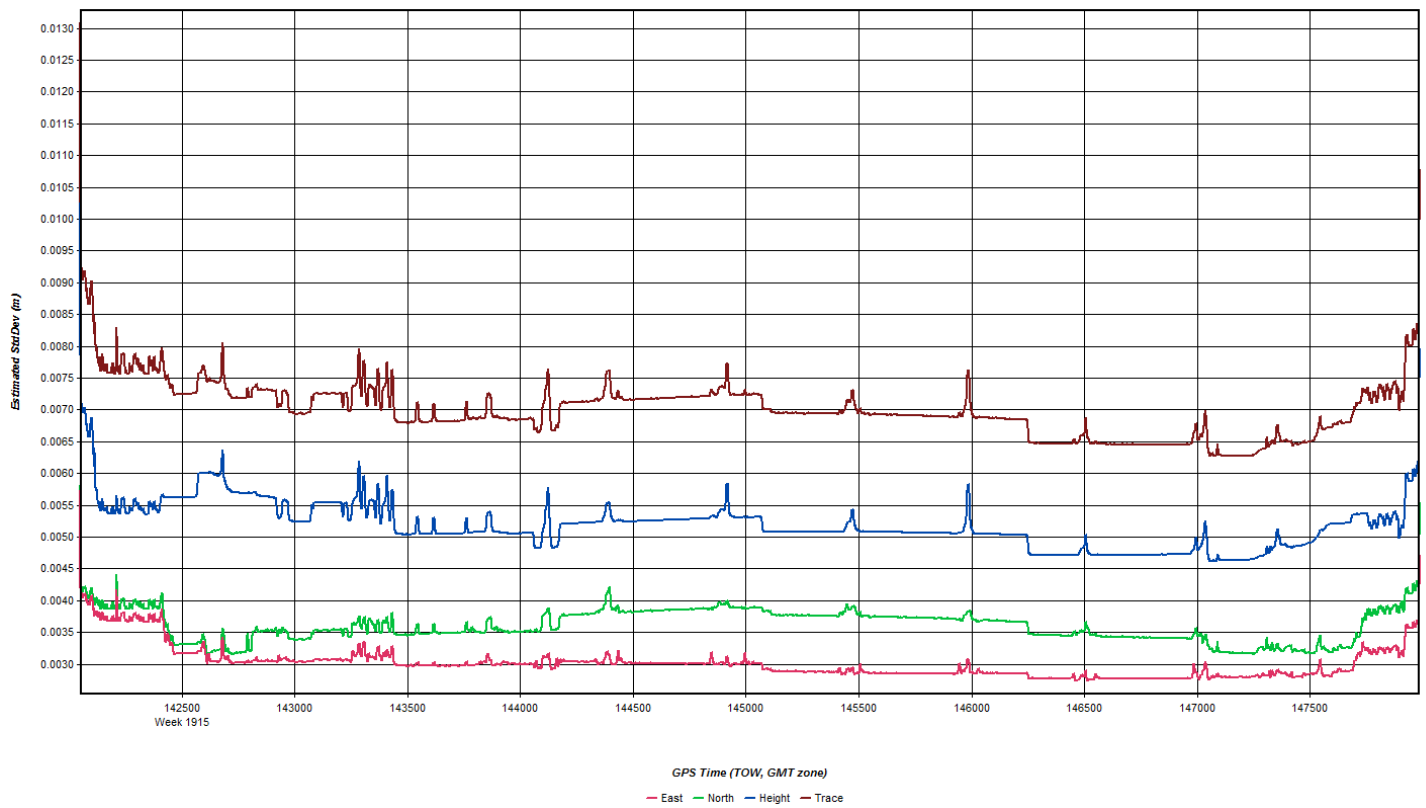
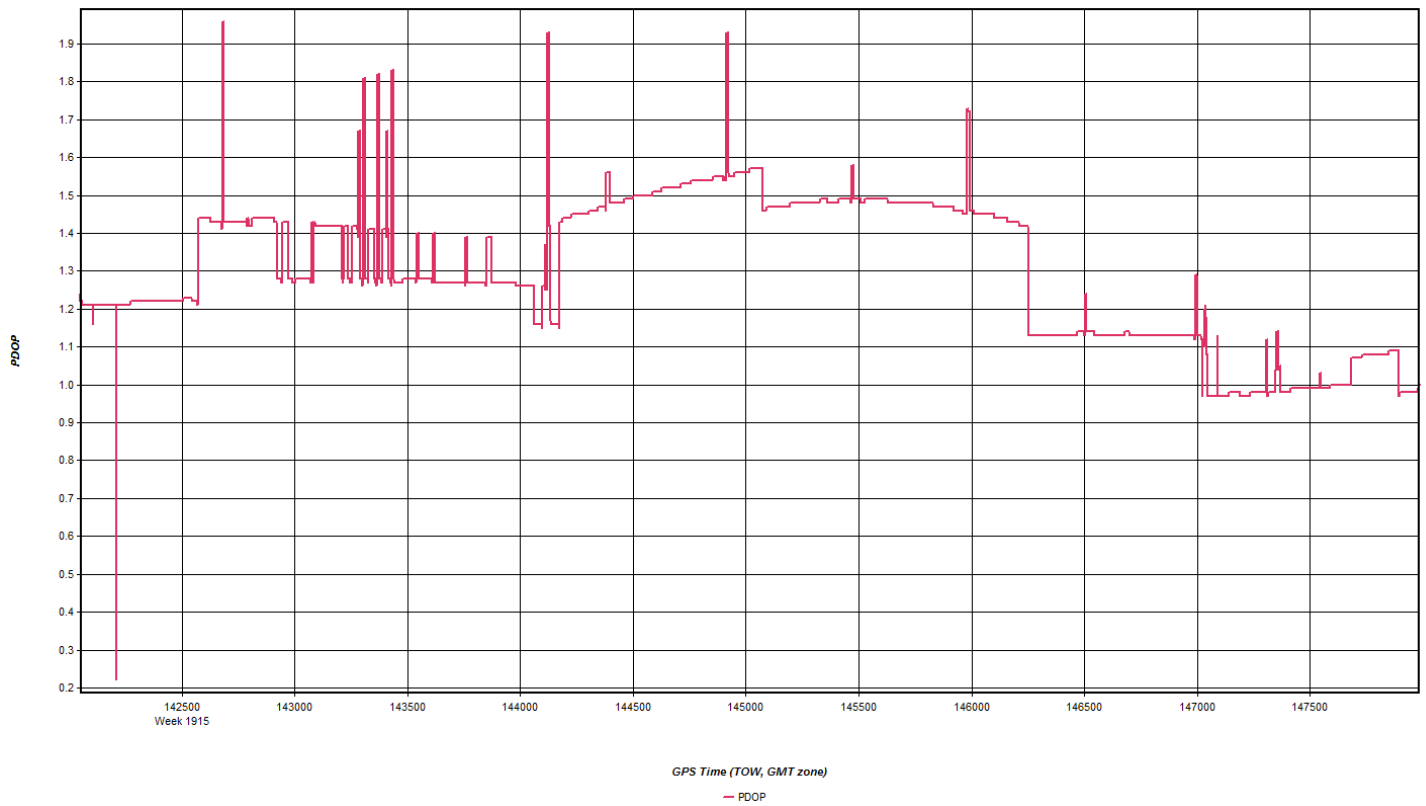
Lines Flown:

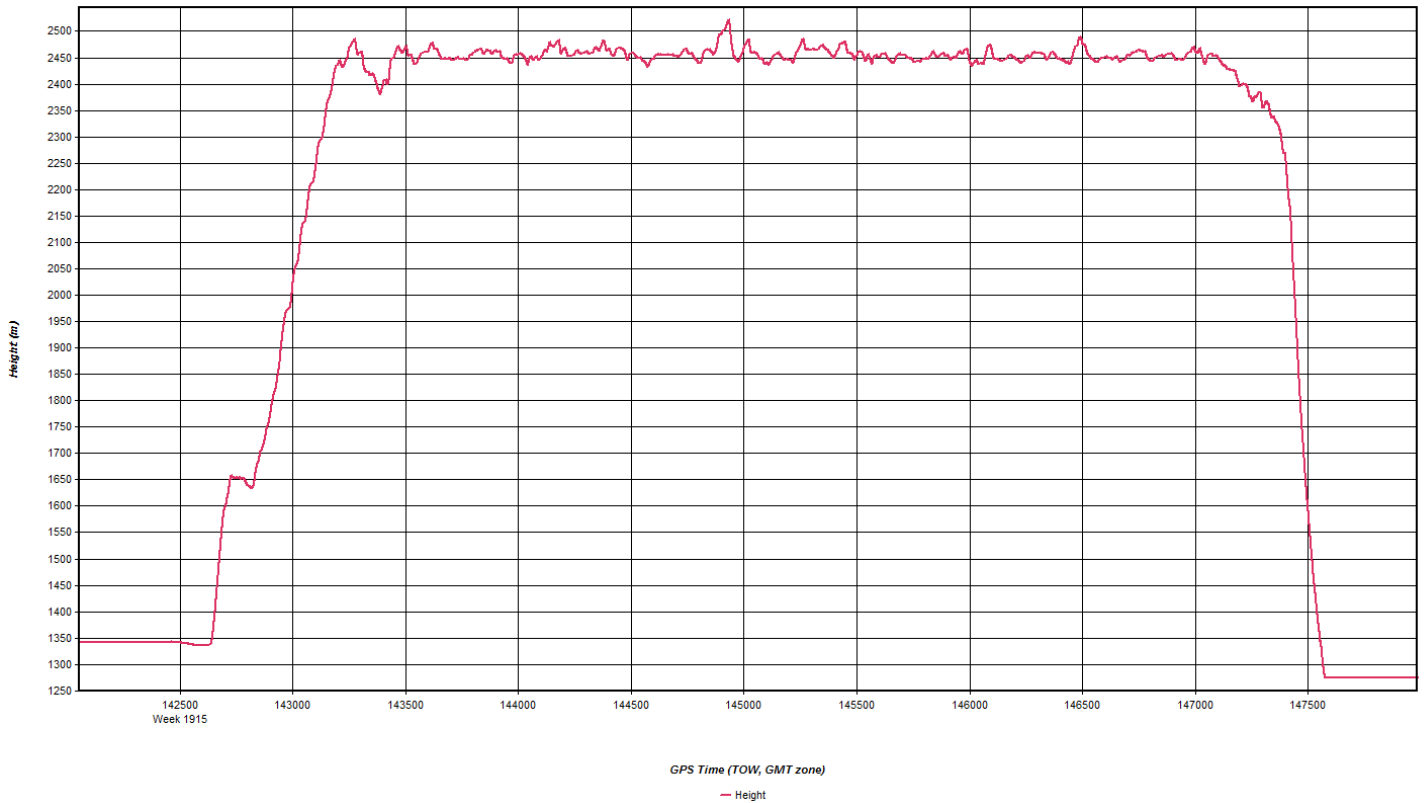
GSLW 1169-1161
GSL 2209-2203
GSLE 1119-1109
GSL 2057-2055

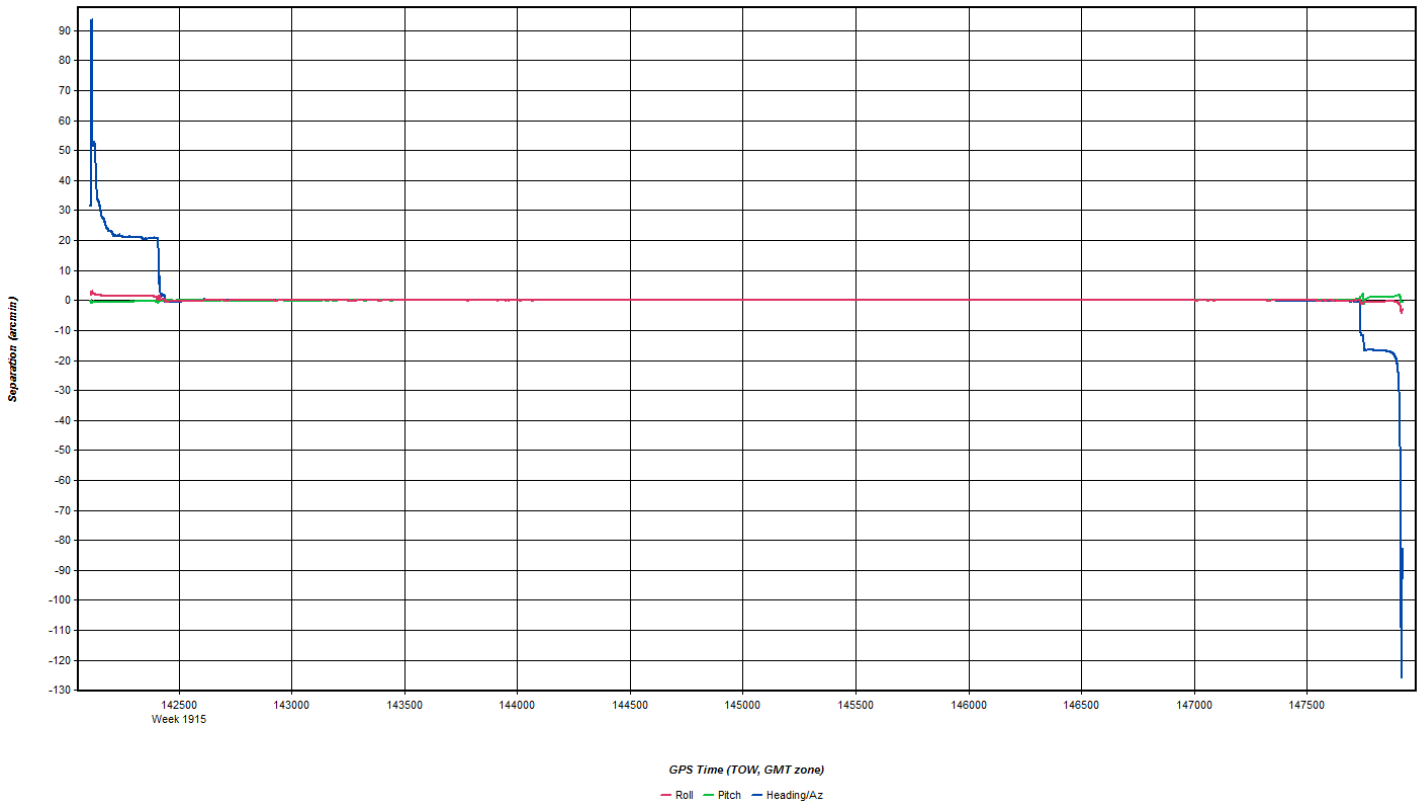
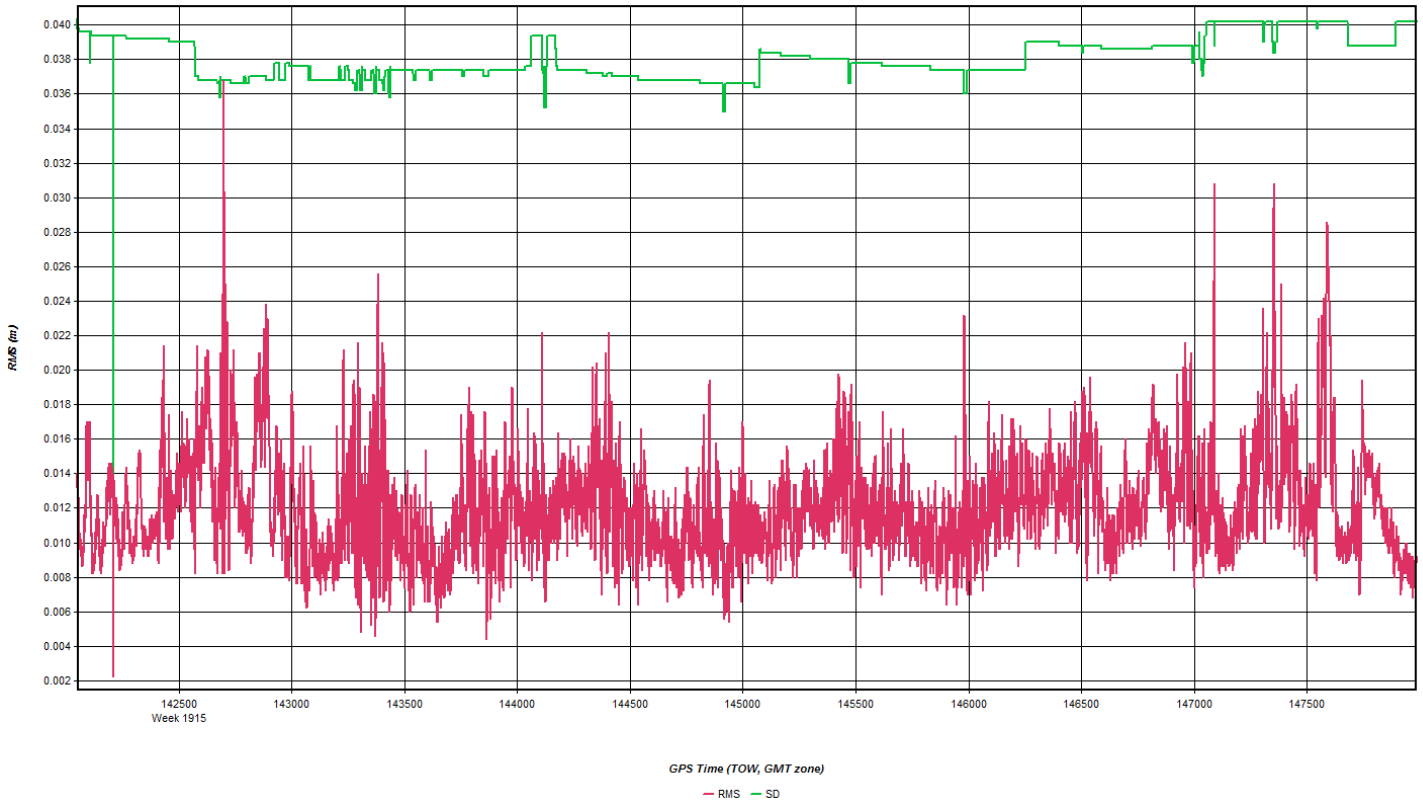
Sep 19, 2016-A (N704MD, SN7161)

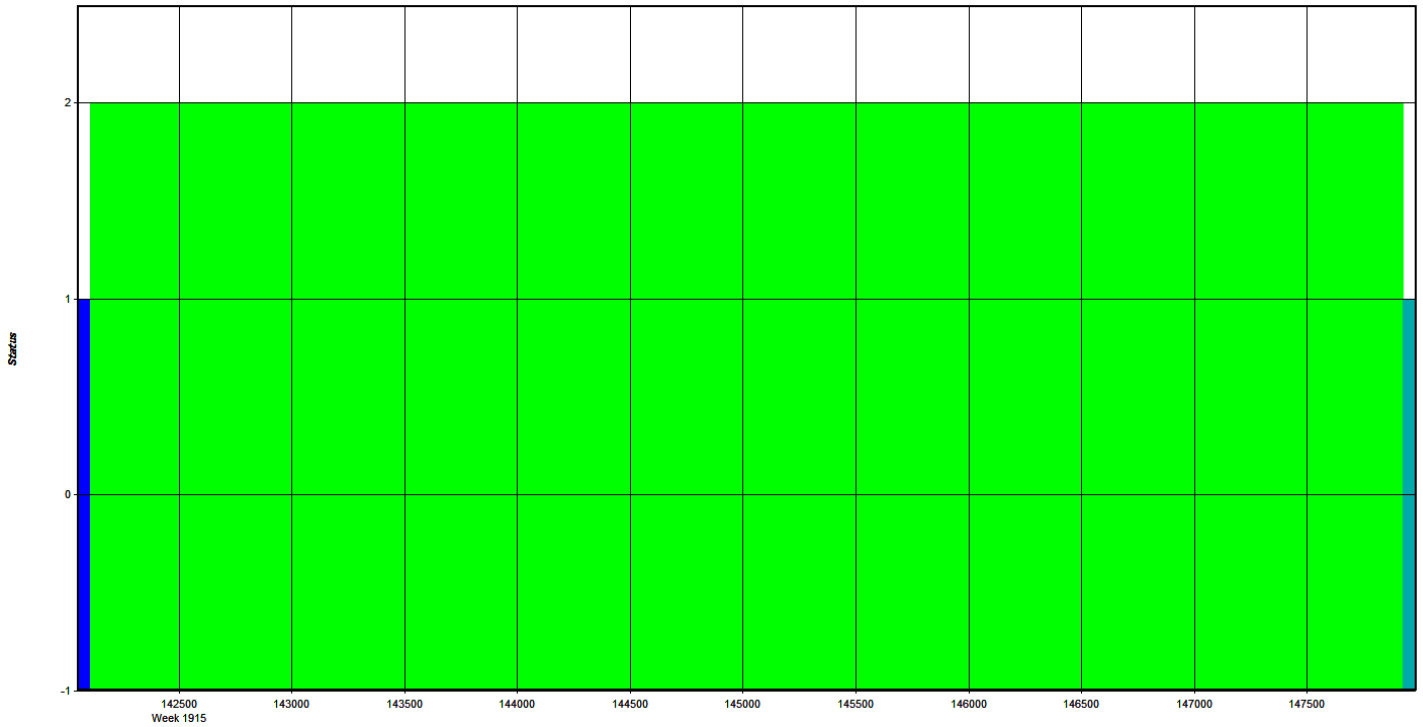












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_11 Name: UTAH16_11 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD263_704MD_MN\R7_76

Coordinates
 Latitude: North 41 28 47.27155 Compute from PPP
 Longitude: West 112 15 53.76380 Enter Grid Values
 Ellipsoidal height: 1267.280 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
1: UTAH16_12 Name: UTAH16_12 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD263_704MD_MN\R7_25

Coordinates
Latitude: North 41 27 55.05608 Compute from PPP
Longitude: West 112 12 59.28876 Enter Grid Values
Ellipsoidal height: 1267.698 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM55971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 9/19/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_Utah_GSL_E_QL1_SN7161_rev1		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	9:35:00 AM	11:20:00 AM		
Wheels Down	11:00:00 AM	3:10:00 PM		
Begin Hobbs	11368.4			
End Hobbs	11373.6	11373.6		
On-line Hobbs: 4.1		Mob Hobbs: 1.1		

Notes

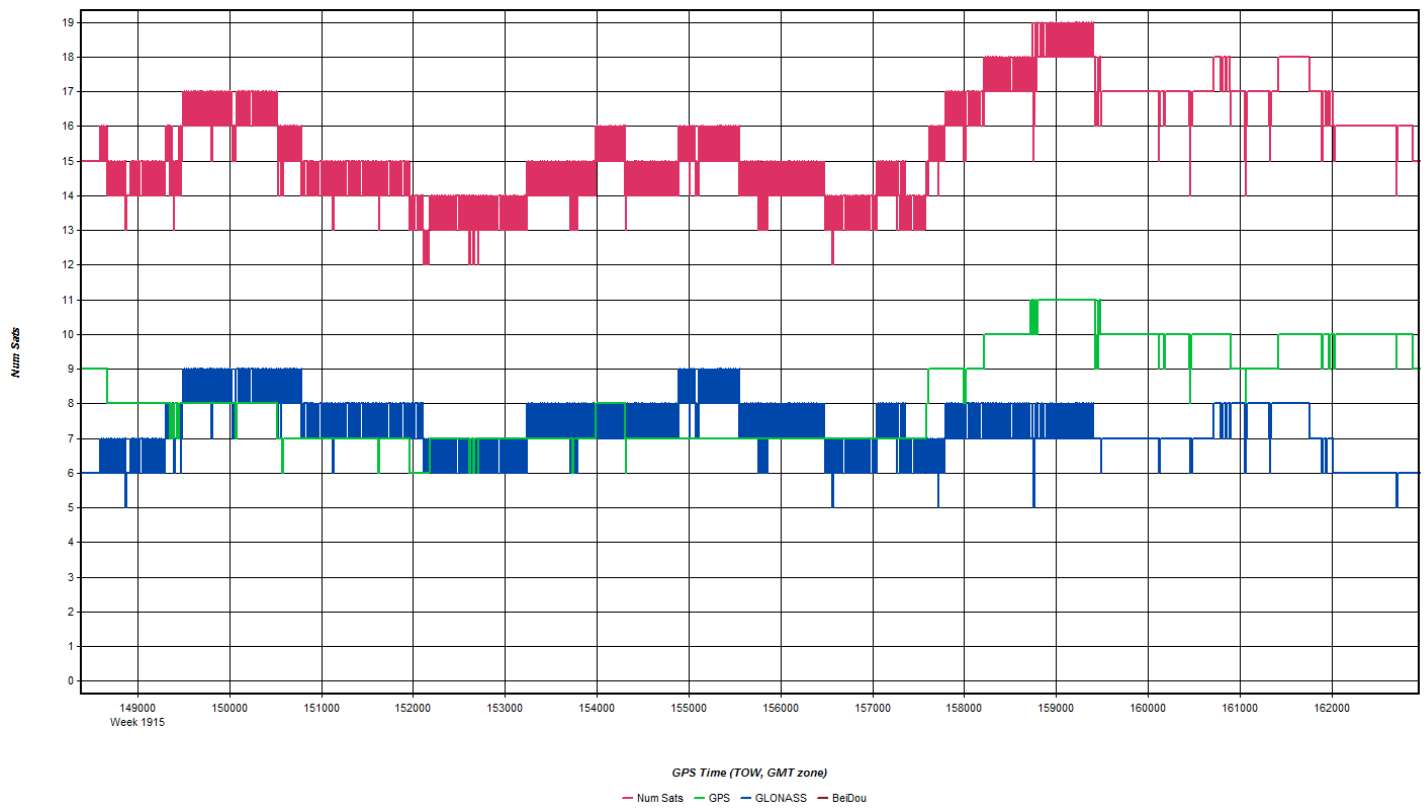
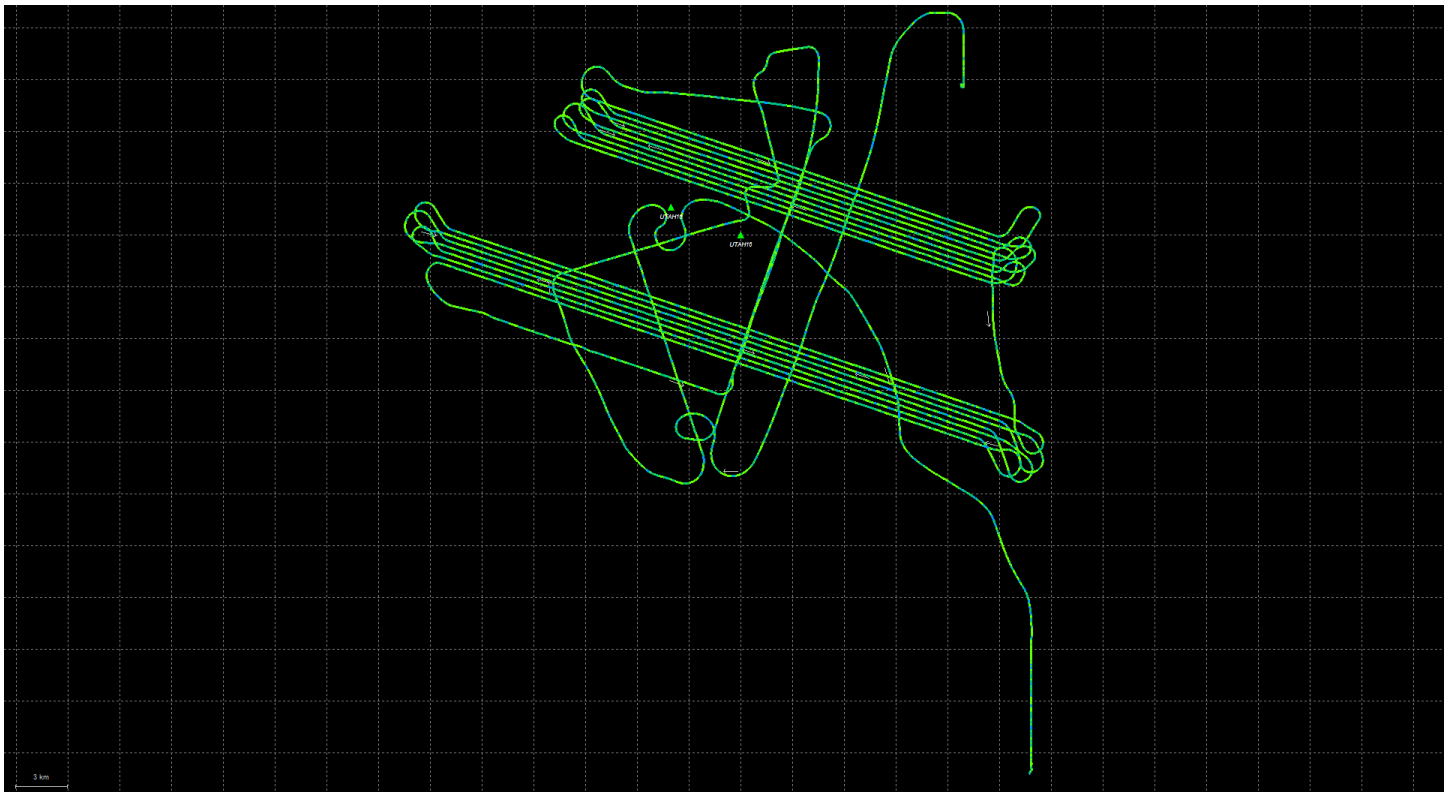
Sensors failed again after 7 lines or so. We performed a static restart in Bringham City. We picked up the block in the south and decided to continue to the bottom to attempt to complete as much as possible. The thermals off of the salt flats were causing roll and pitch exceedences like crazy. We tried switching the the QL2 flightplan but it was still jsut as bad.

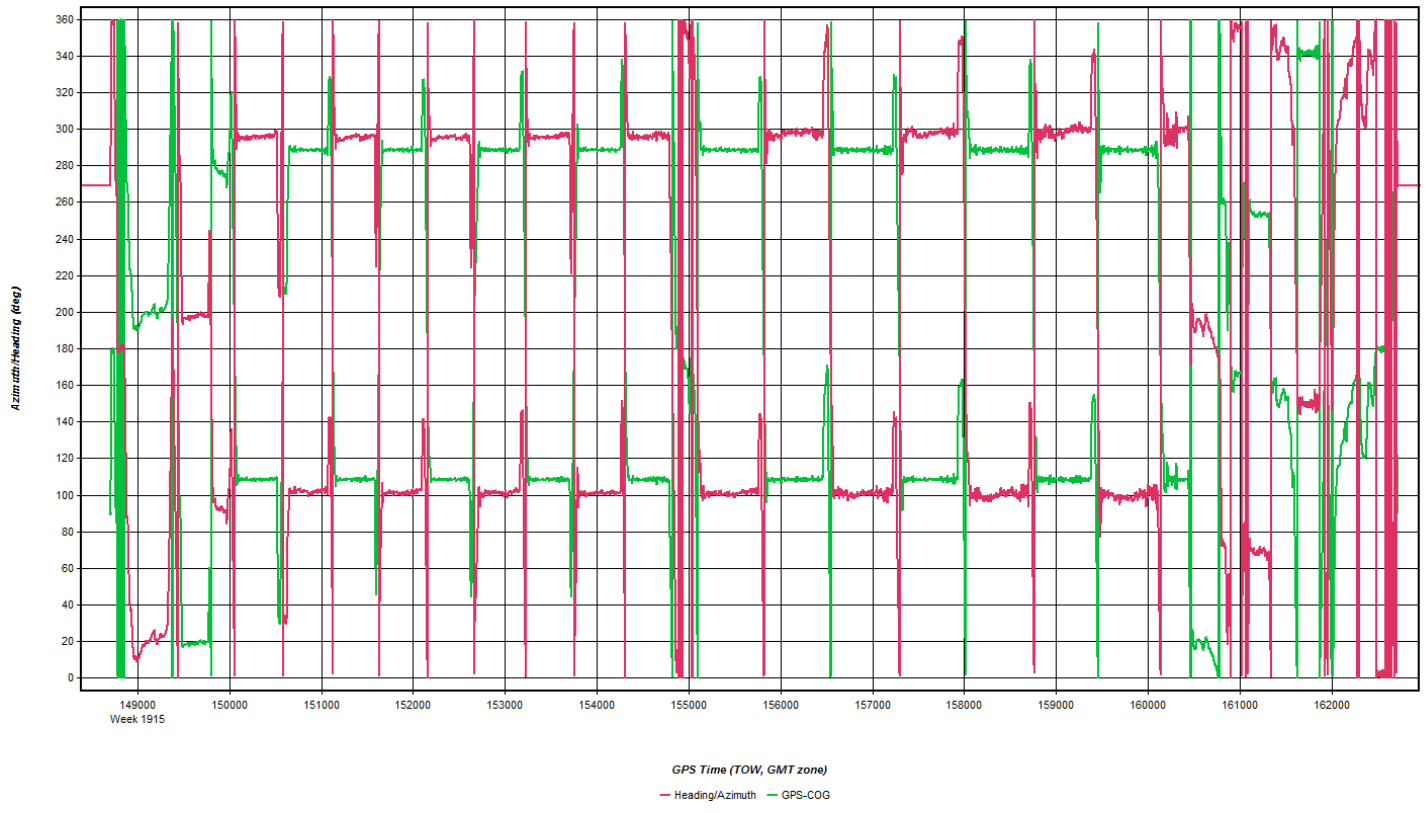
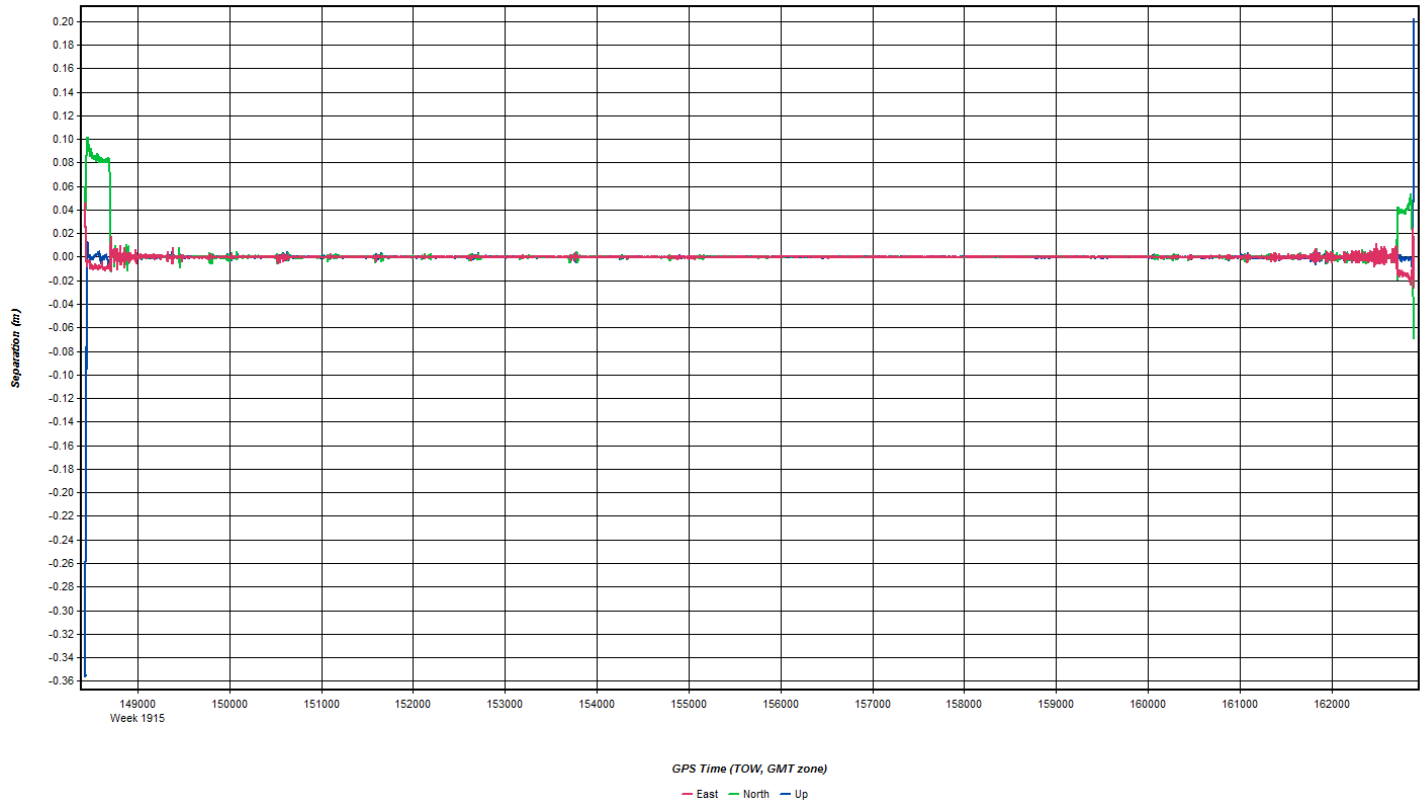
Flt Mgmt File: FMSL_Utah_GSL_E_QL1_SN7161_rev1

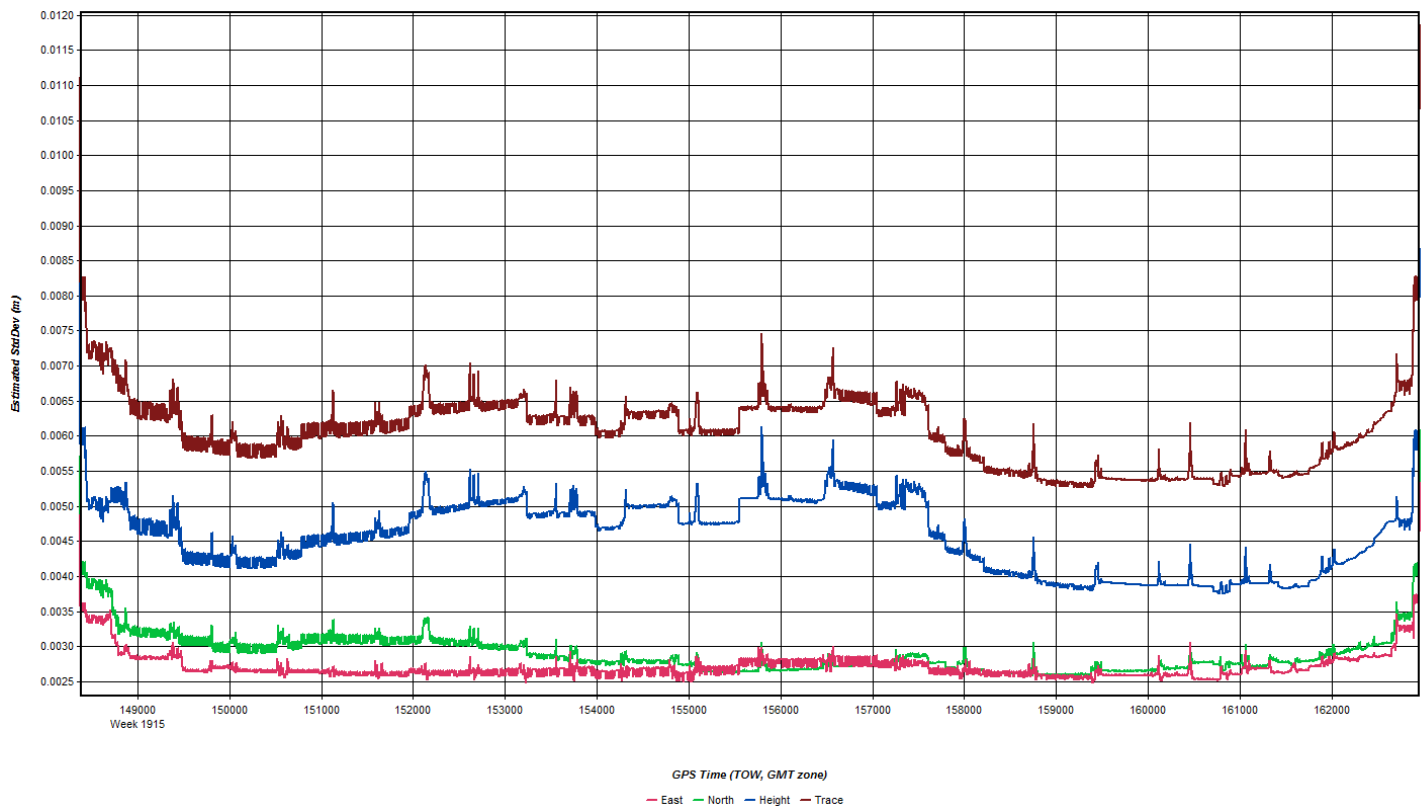
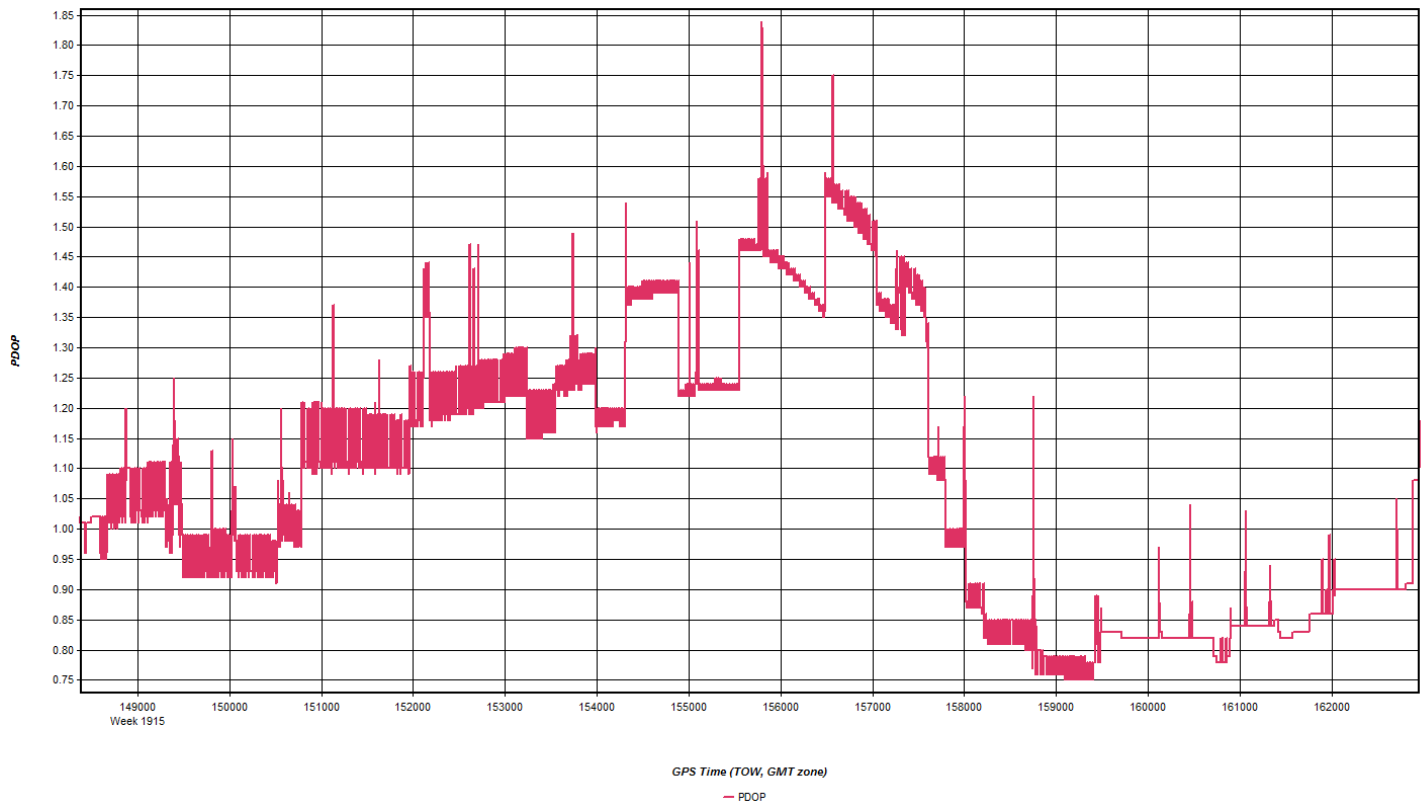
Lines Flown:

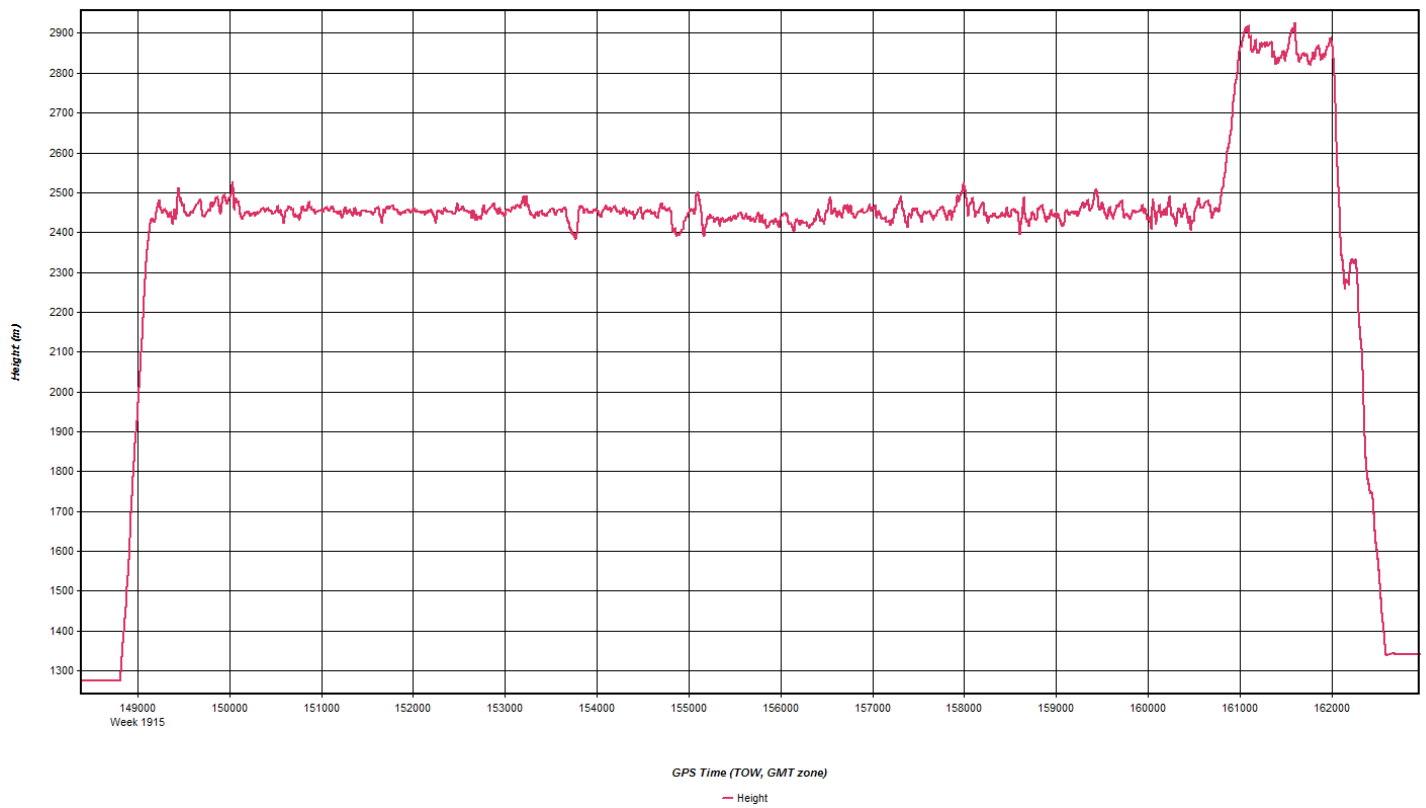
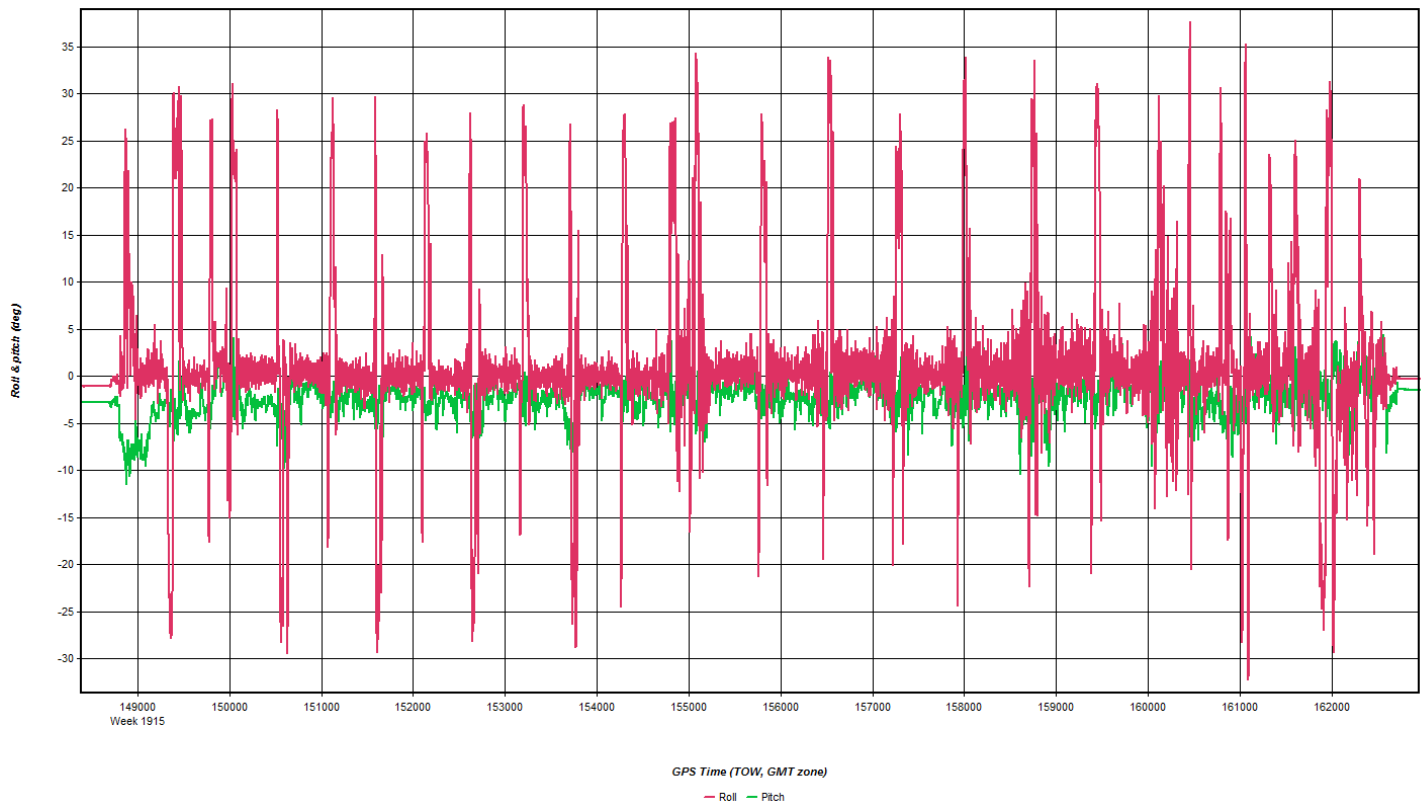
GSLE 1031-1037 F1
GSLE 1037-1045, 1066-1071

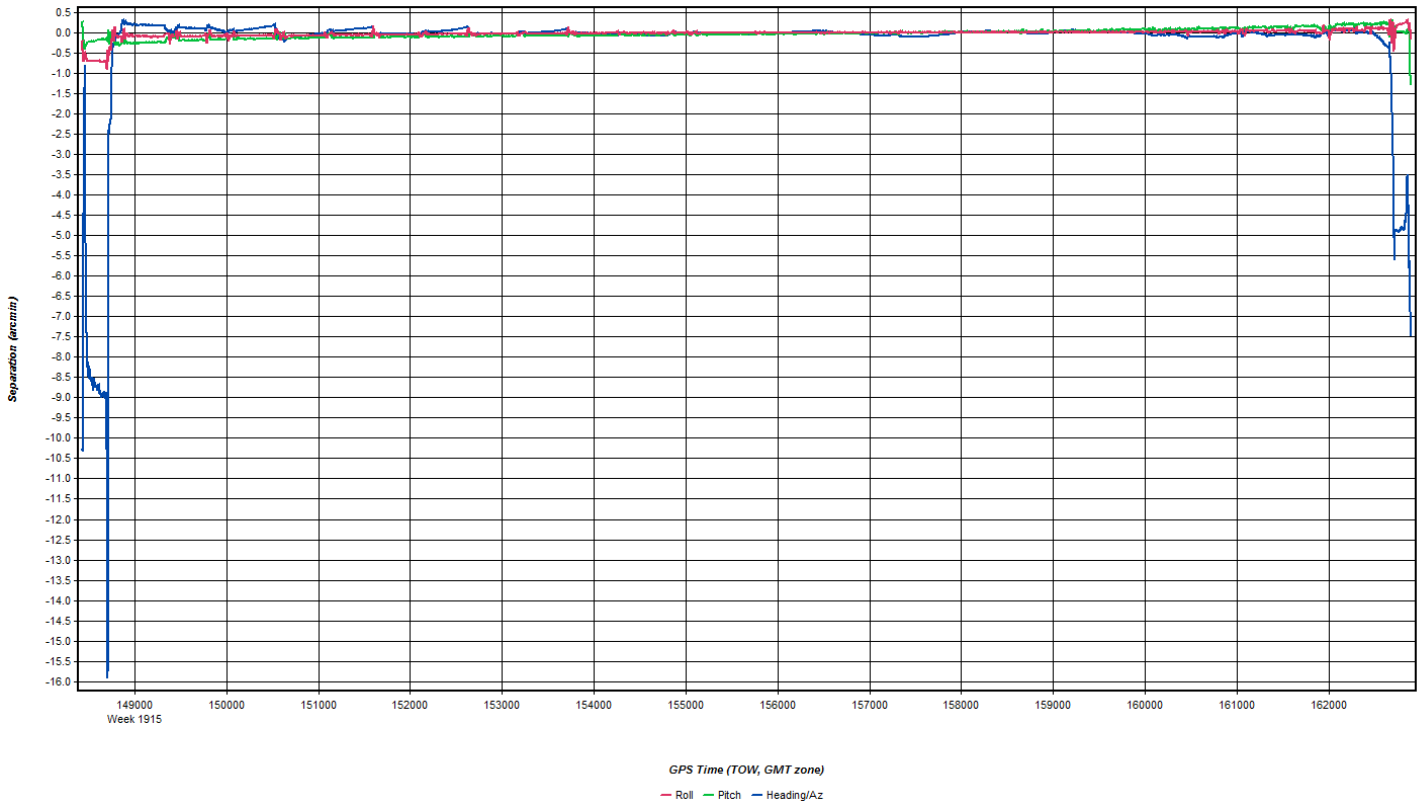
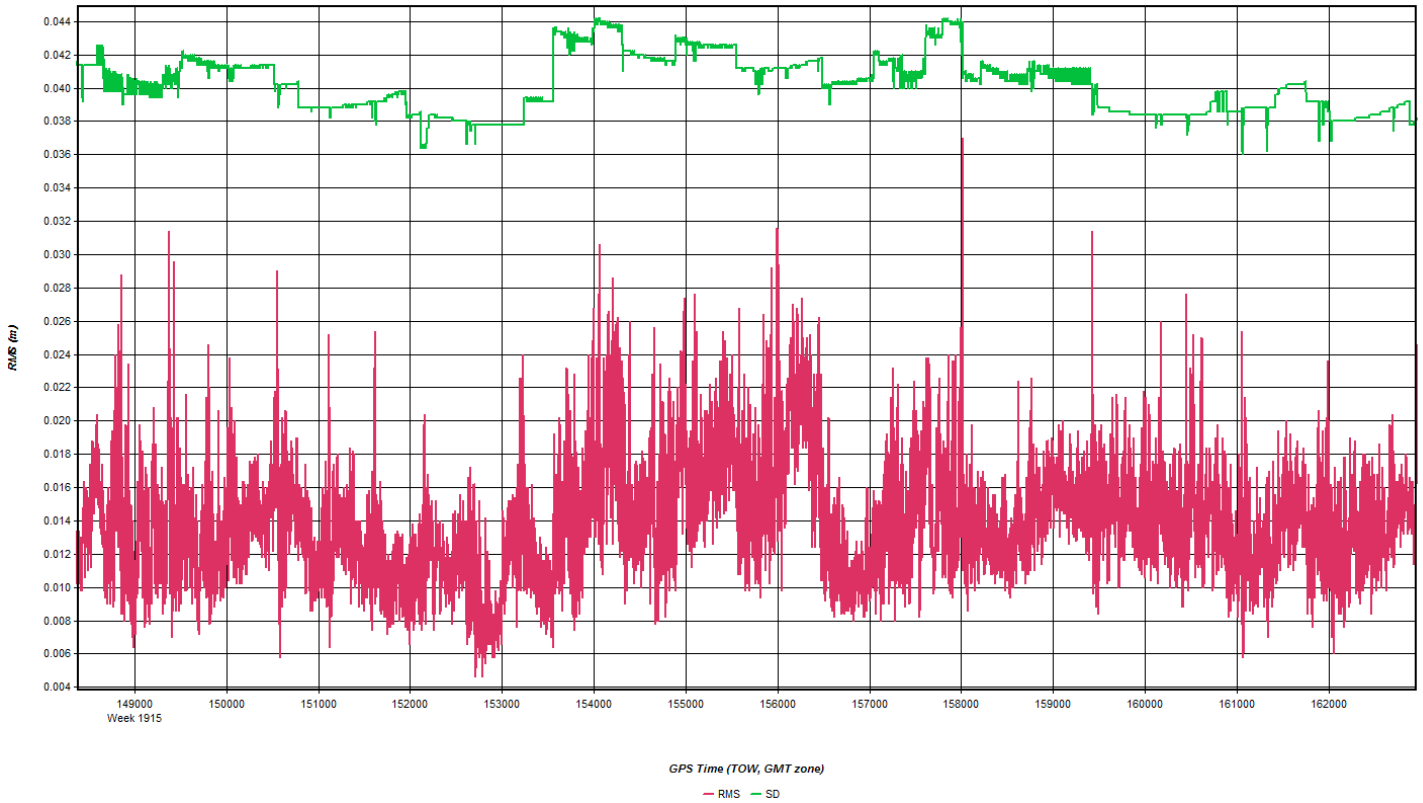
Sep 19, 2016-B (N704MD, SN7161)

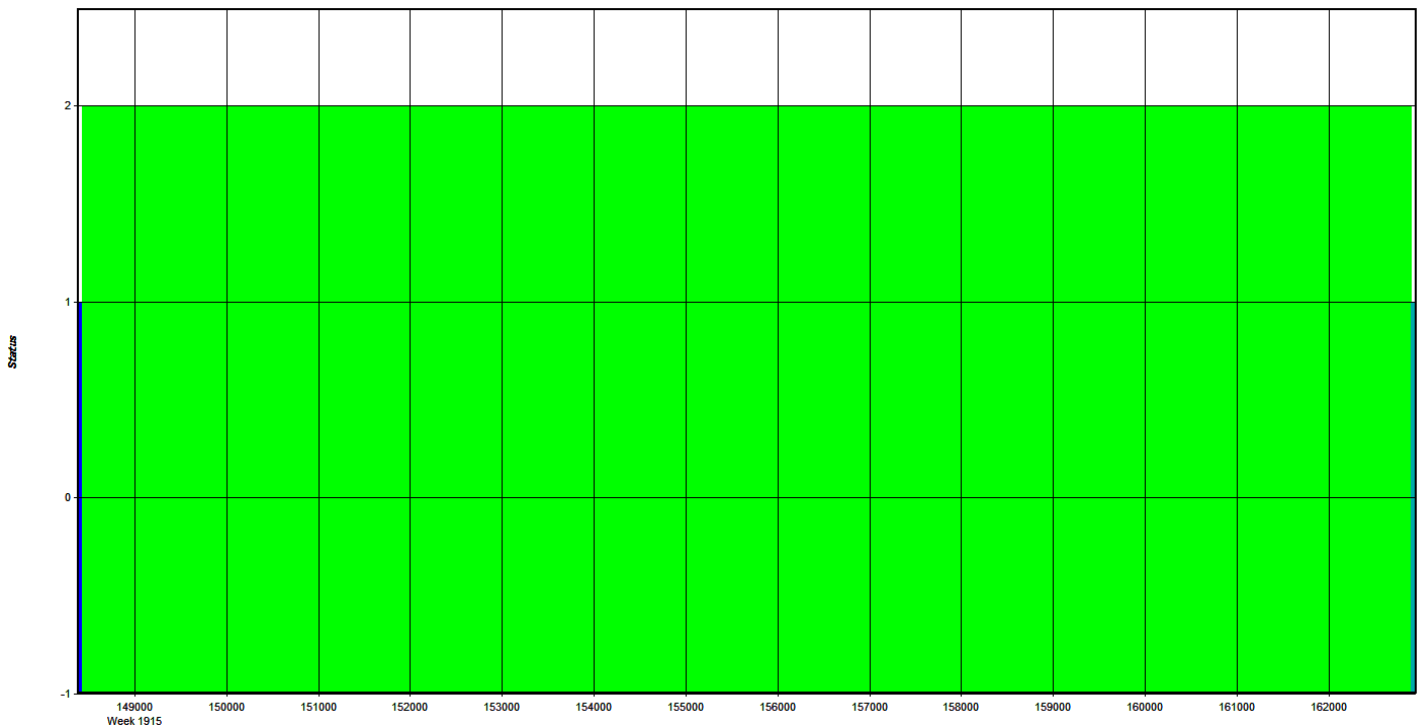












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_11 Name: UTAH16_11 Disabled
 File: E:\Proc\Utah_2016\Survey\2_Static\JD263_704MD_MN\R7_76

Coordinates
 Latitude: North 41 28 47.27155 Compute from PPP
 Longitude: West 112 15 53.76380 Enter Grid Values
 Ellipsoidal height: 1267.280 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
1: UTAH16_12 Name: UTAH16_12 Disabled
File: E:\Proc\Utah_2016\Survey\2_Static\JD263_704MD_MN\R7_25

Coordinates
Latitude: North 41 27 55.05608 Compute from PPP
Longitude: West 112 12 59.28876 Enter Grid Values
Ellipsoidal height: 1267.698 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 9/19/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_Utah_GSL_E_QL1_SN7161_rev1		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	9:35:00 AM	11:20:00 AM		
Wheels Down	11:00:00 AM	3:10:00 PM		
Begin Hobbs	11368.4			
End Hobbs	11373.6	11373.6		
On-line Hobbs: 4.1		Mob Hobbs: 1.1		

Notes

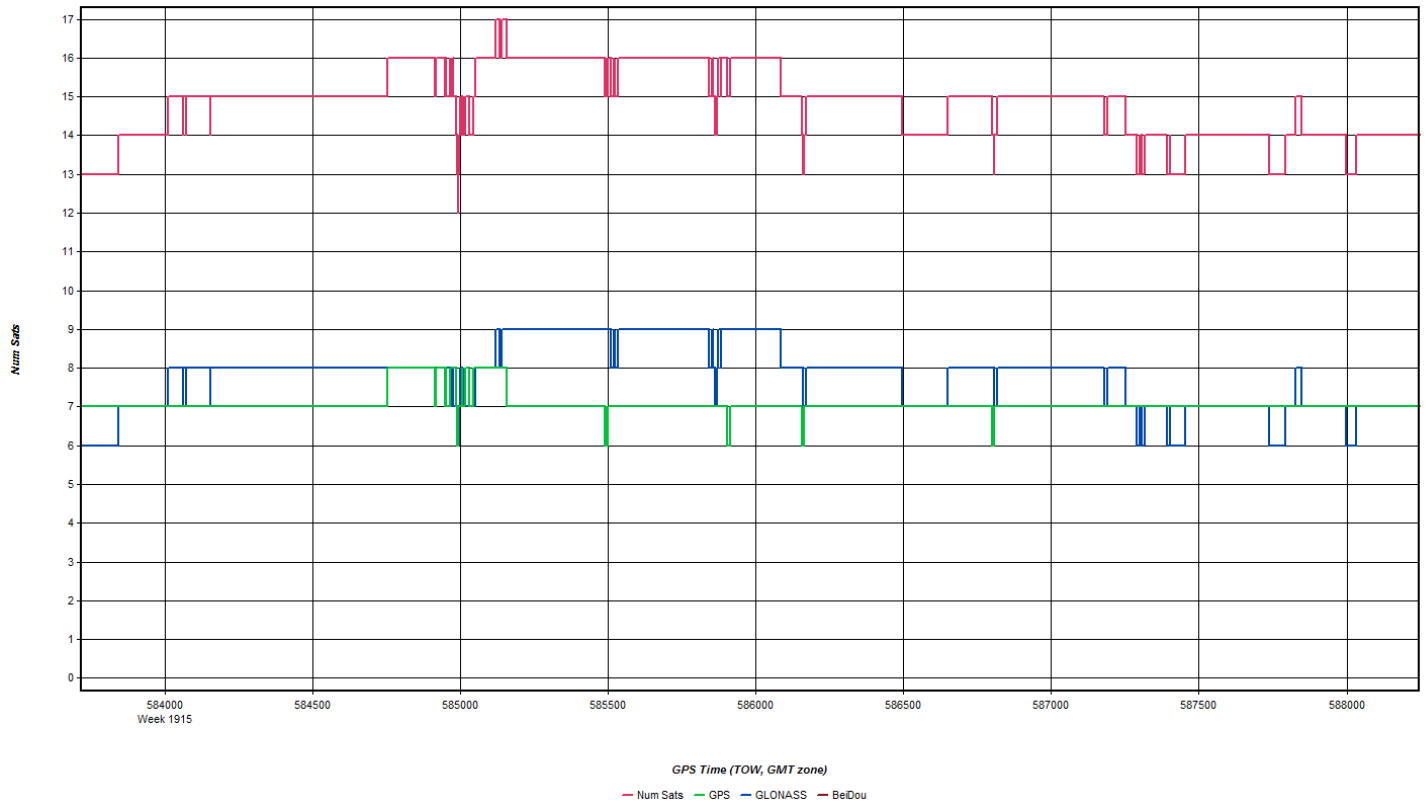
Sensors failed again after 7 lines or so. We performed a static restart in Bringham City. We picked up the block in the south and decided to continue to the bottom to attempt to complete as much as possible. The thermals off of the salt flats were causing roll and pitch exceedences like crazy. We tried switching the the QL2 flightplan but it was still jsut as bad.

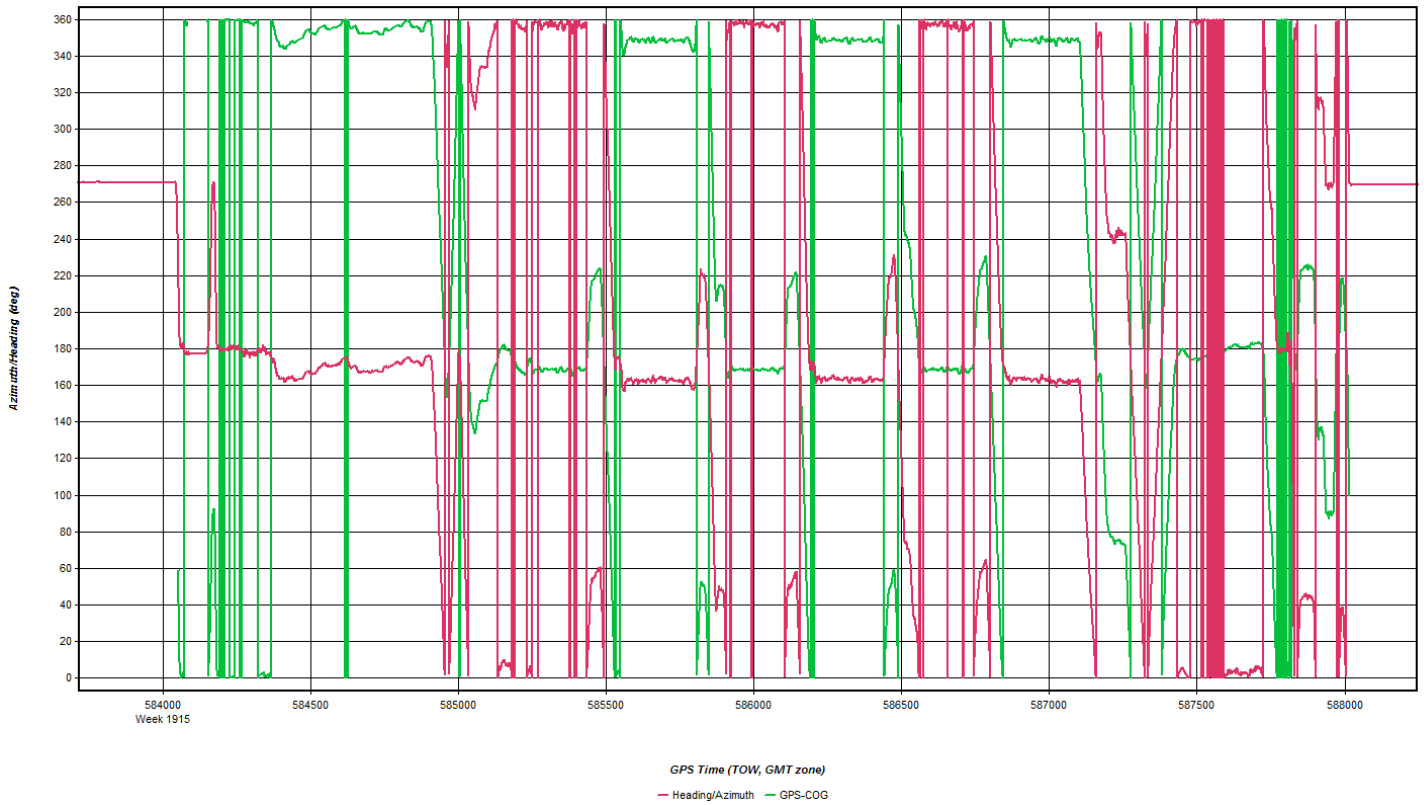
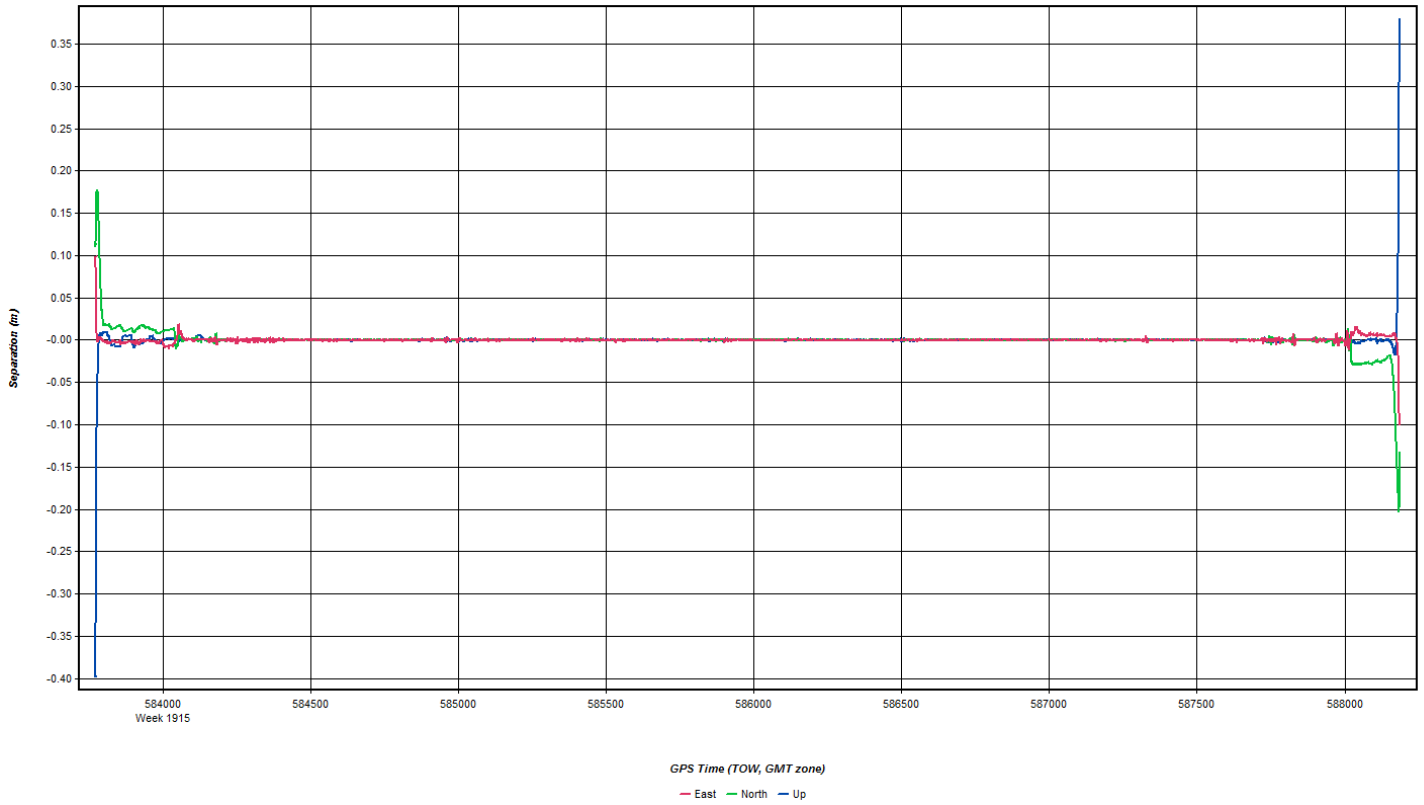
Flt Mgmt File: FMSL_Utah_GSL_E_QL1_SN7161_rev1

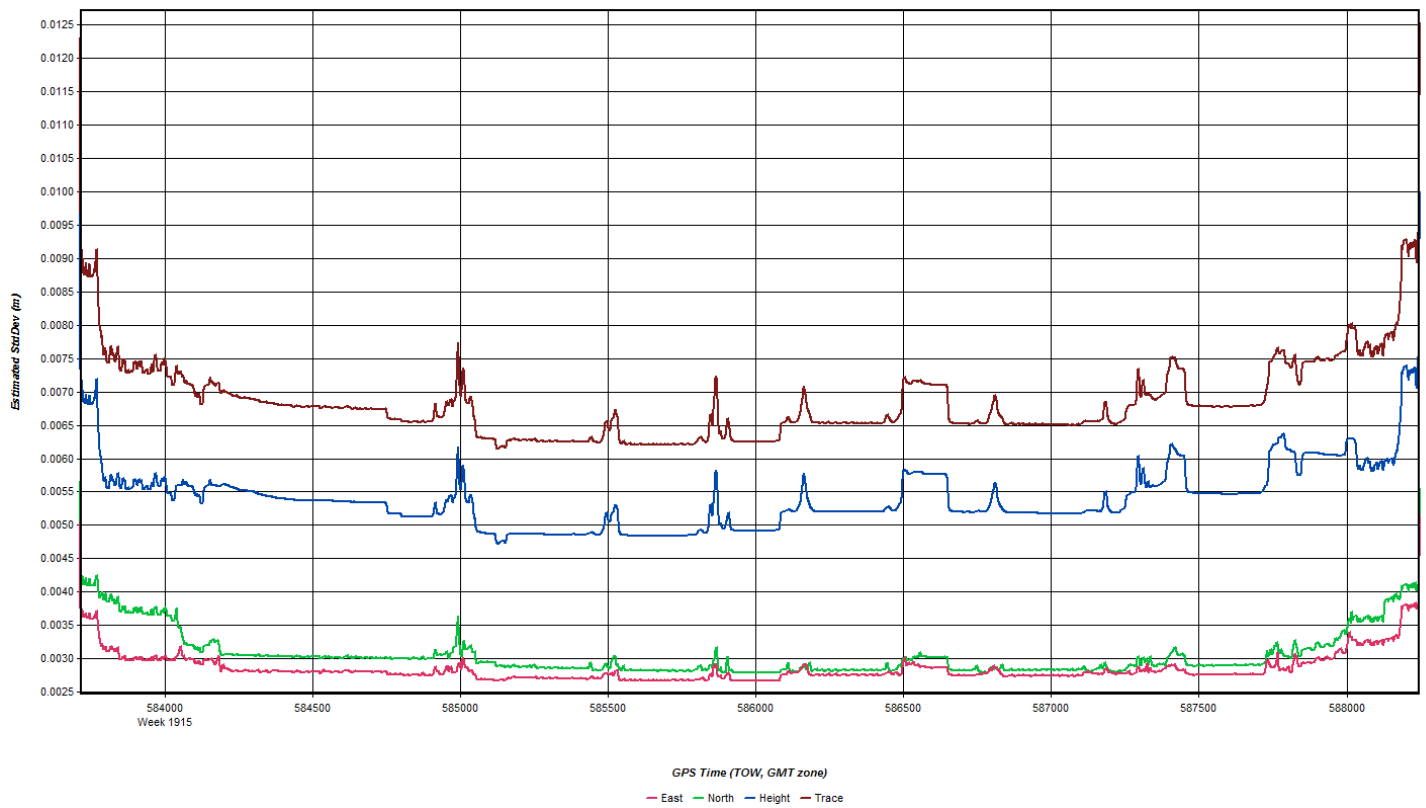
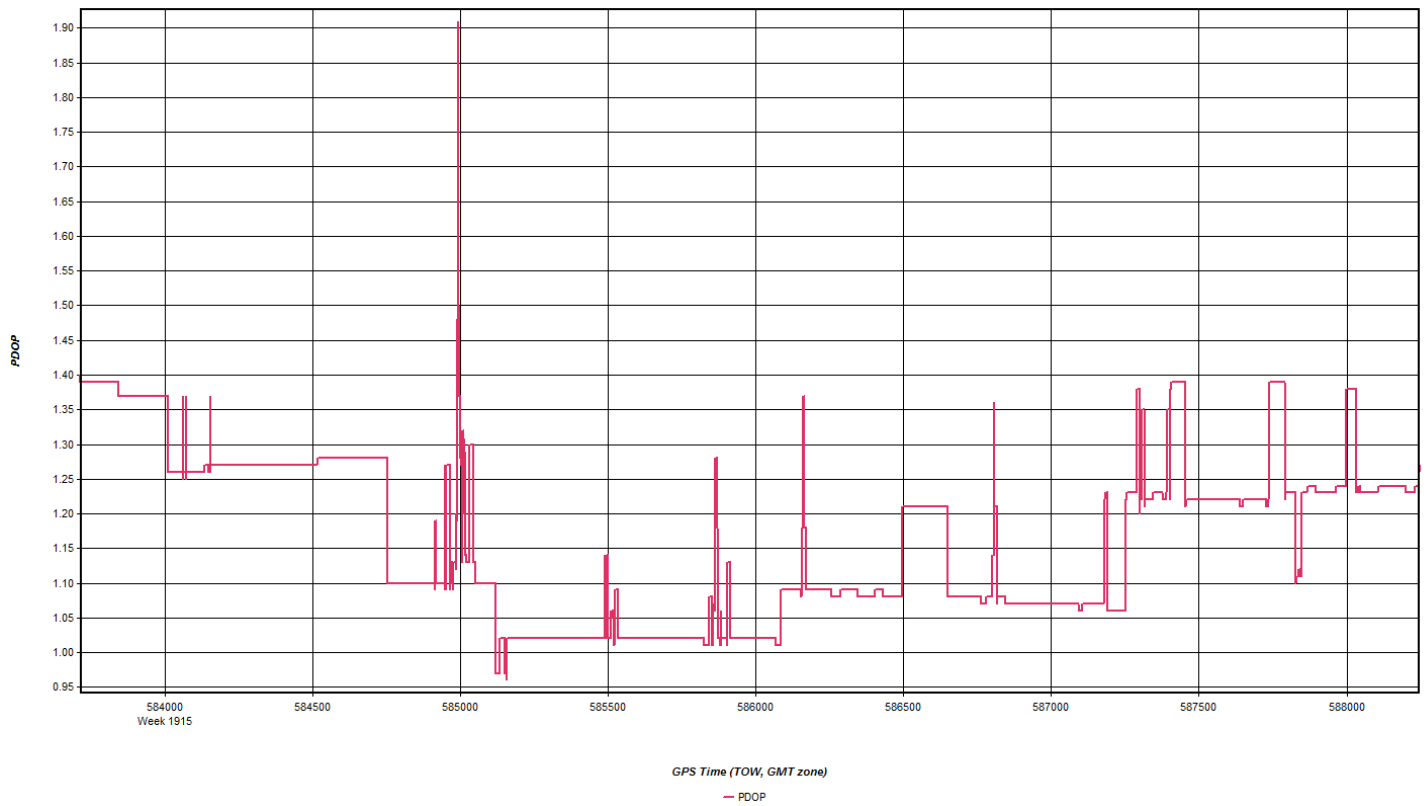
Lines Flown:

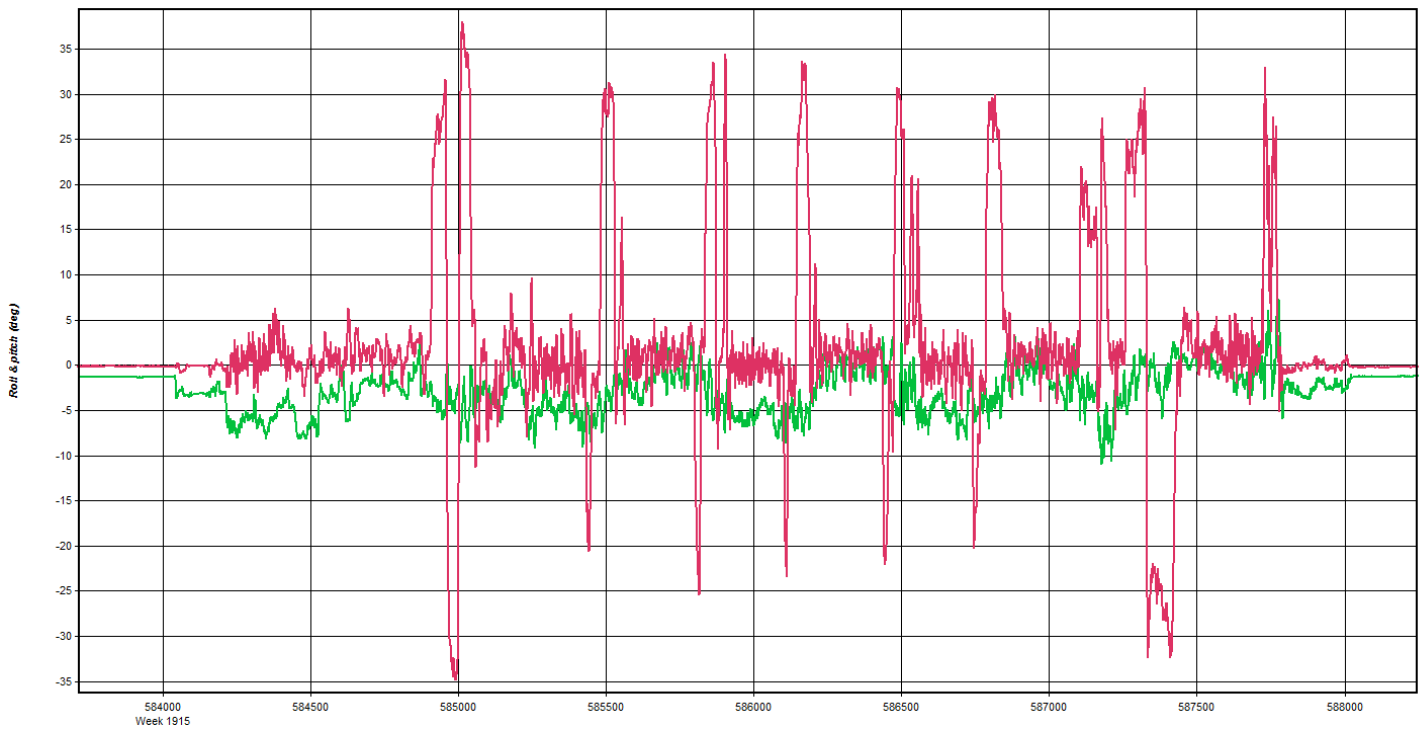
GSLE 1031-1037 F1
GSLE 1037-1045, 1066-1071

Sep 24, 2016-A (N704MD, SN7161)

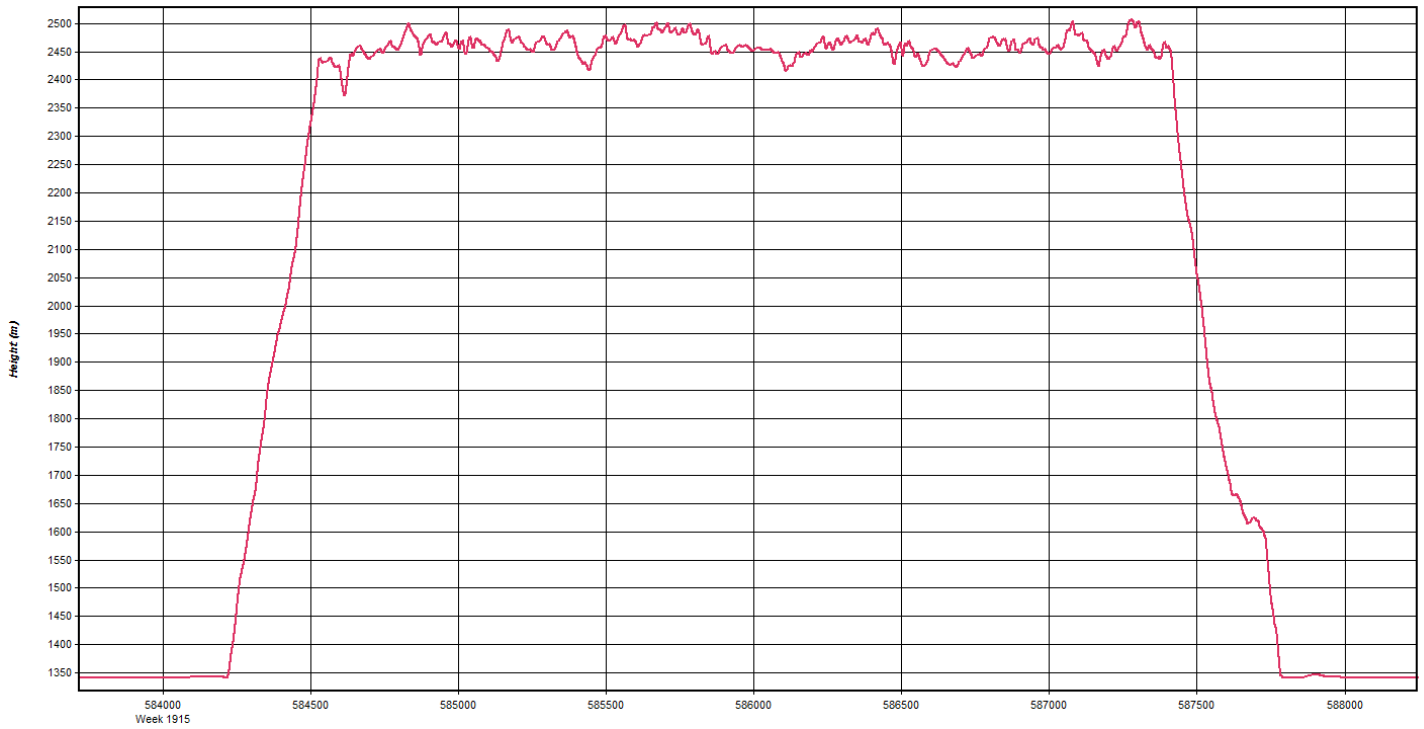




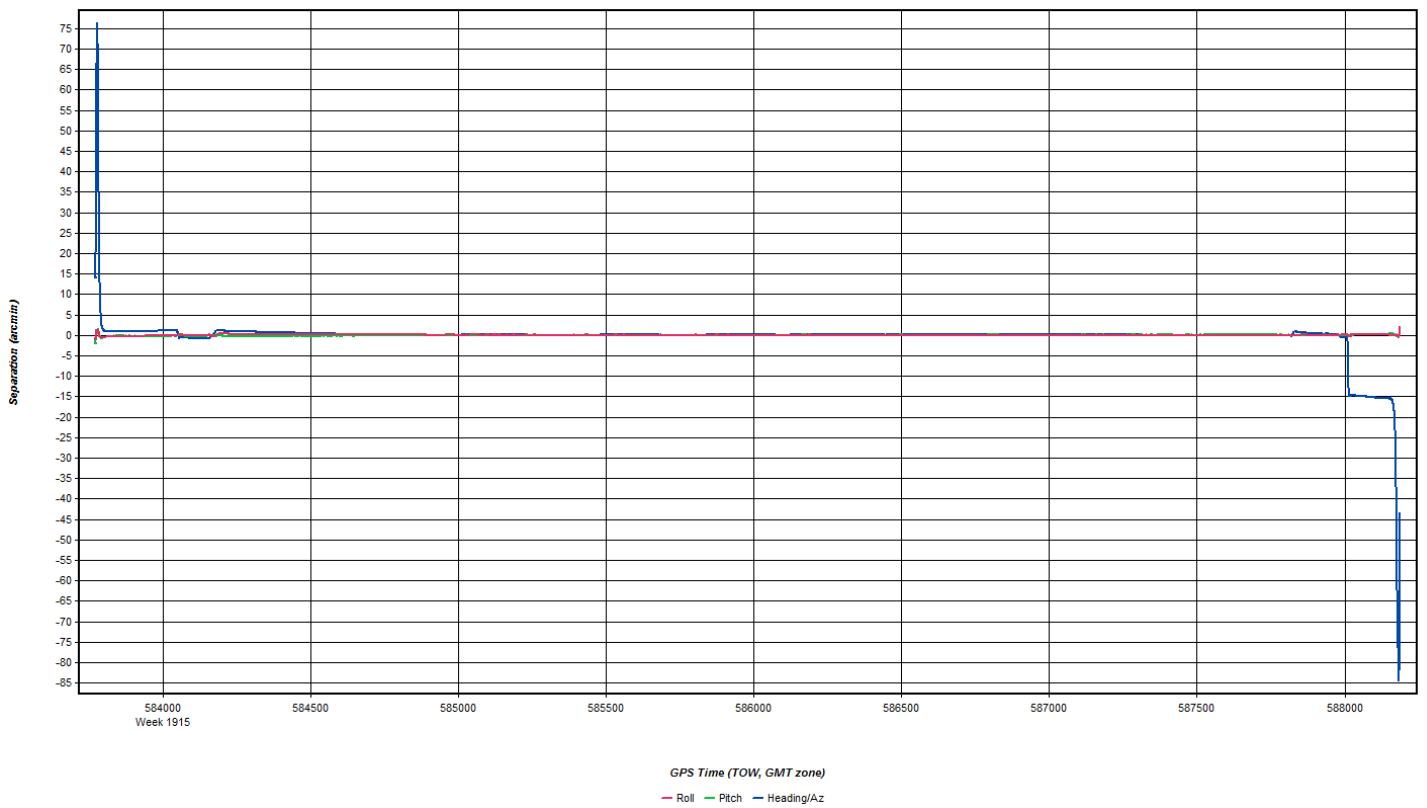


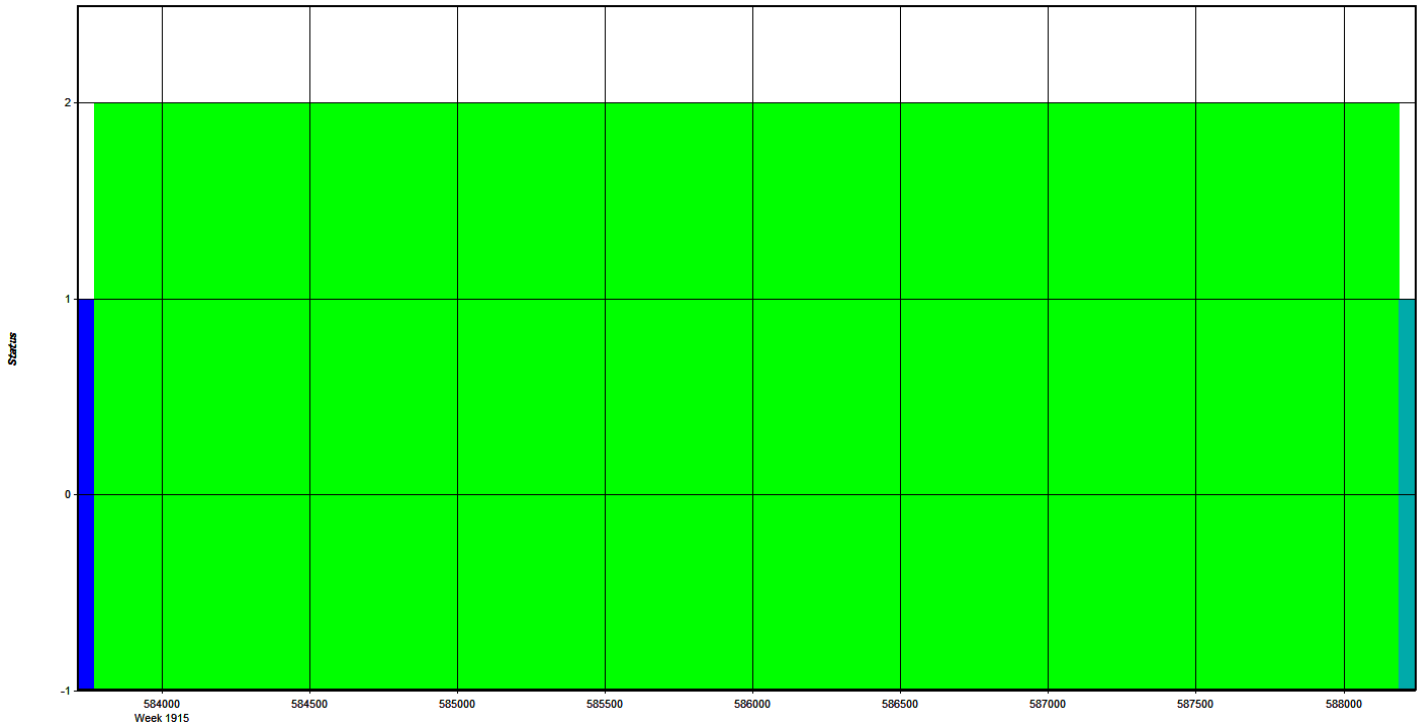


GPS Time (TOW, GMT zone)
— Roll — Pitch



GPS Time (TOW, GMT zone)
— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_12 Name: UTAH16_12 Disabled
 File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD268_

Coordinates
 Latitude: North 41 27 55.05608 Compute from PPP
 Longitude: West 112 12 59.28876 Enter Grid Values
 Ellipsoidal height: 1267.698 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
1: MS0690 Name: MS0690 Disabled
File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD268

Coordinates
Latitude: North 41 38 03.88146 Compute from PPP
Longitude: West 112 06 08.47082 Enter Grid Values
Ellipsoidal height: 1285.809 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 9/24/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_Utah_Bear_QL1_SN7161_rev1		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	12:15:00 PM			
Wheels Down	1:15:00 PM			
Begin Hobbs	11384.3			
End Hobbs	11385.3			
On-line Hobbs: 0.5		Mob Hobbs: 0.5		

Notes

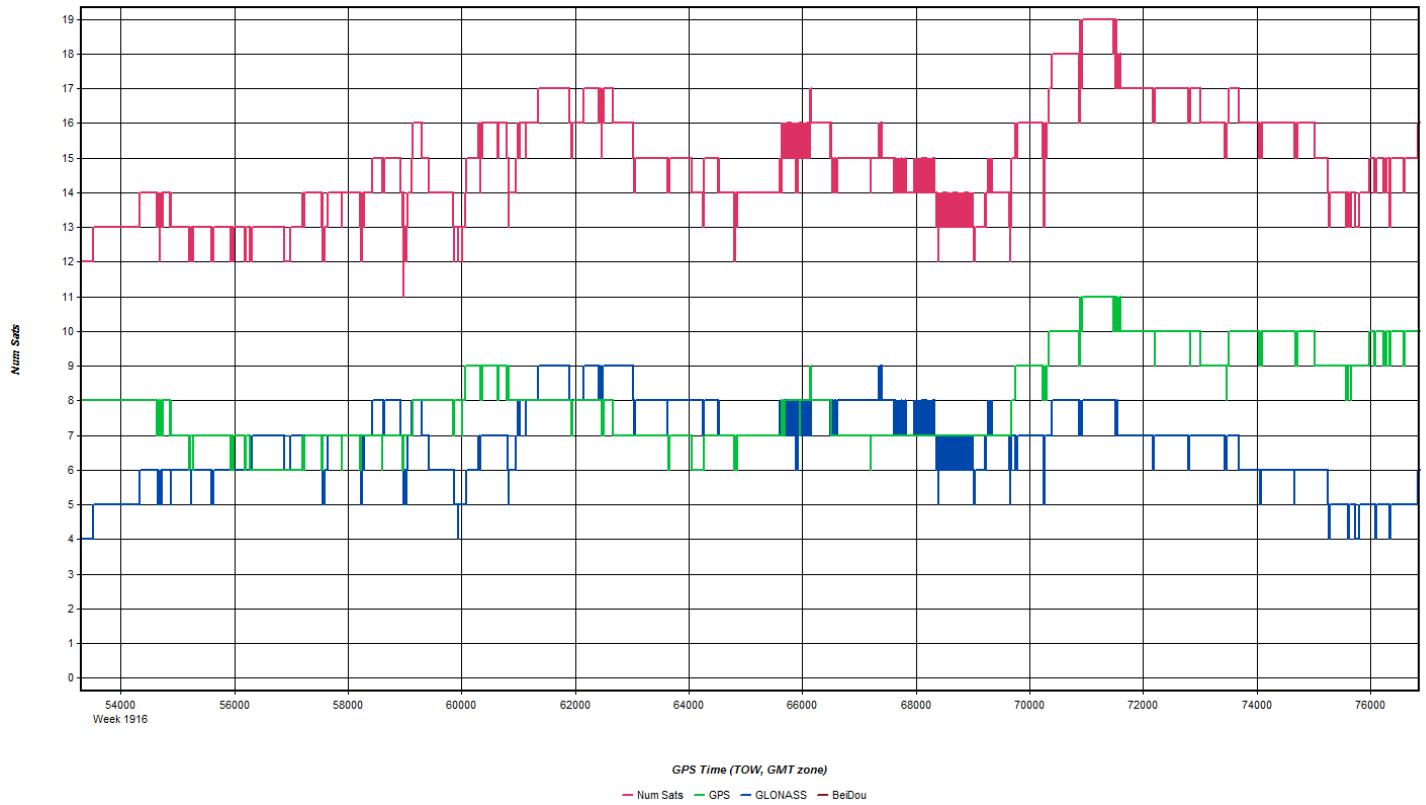
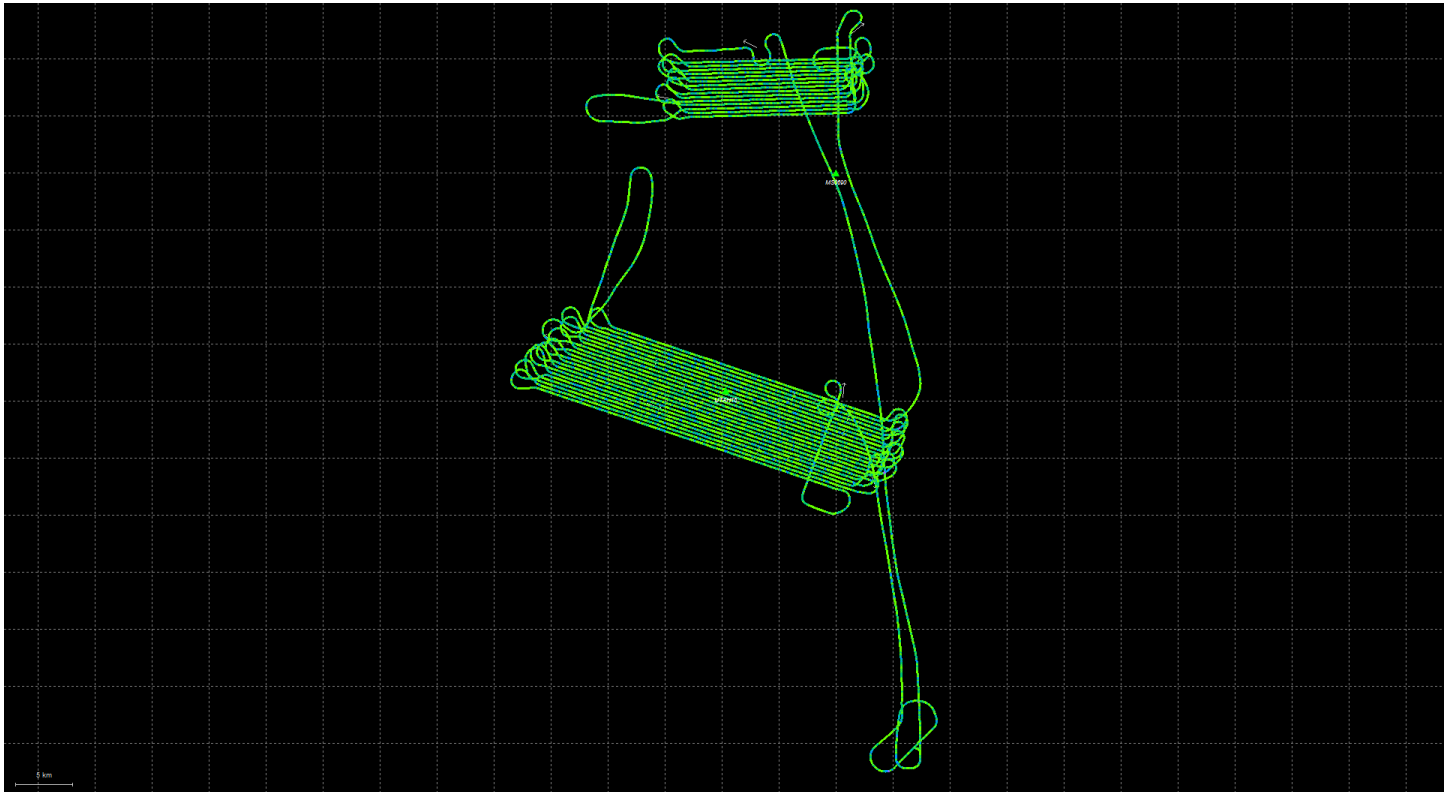
Cloudy in the AM. We waited at the FBO for several hours for the clouds to dissipate. The block to the north actually had the ceilings get lower than they had been when we left, while the block to the south was cloudy the whole time. We were able to grab the east side arm (Lines 043-038) while we were up there.

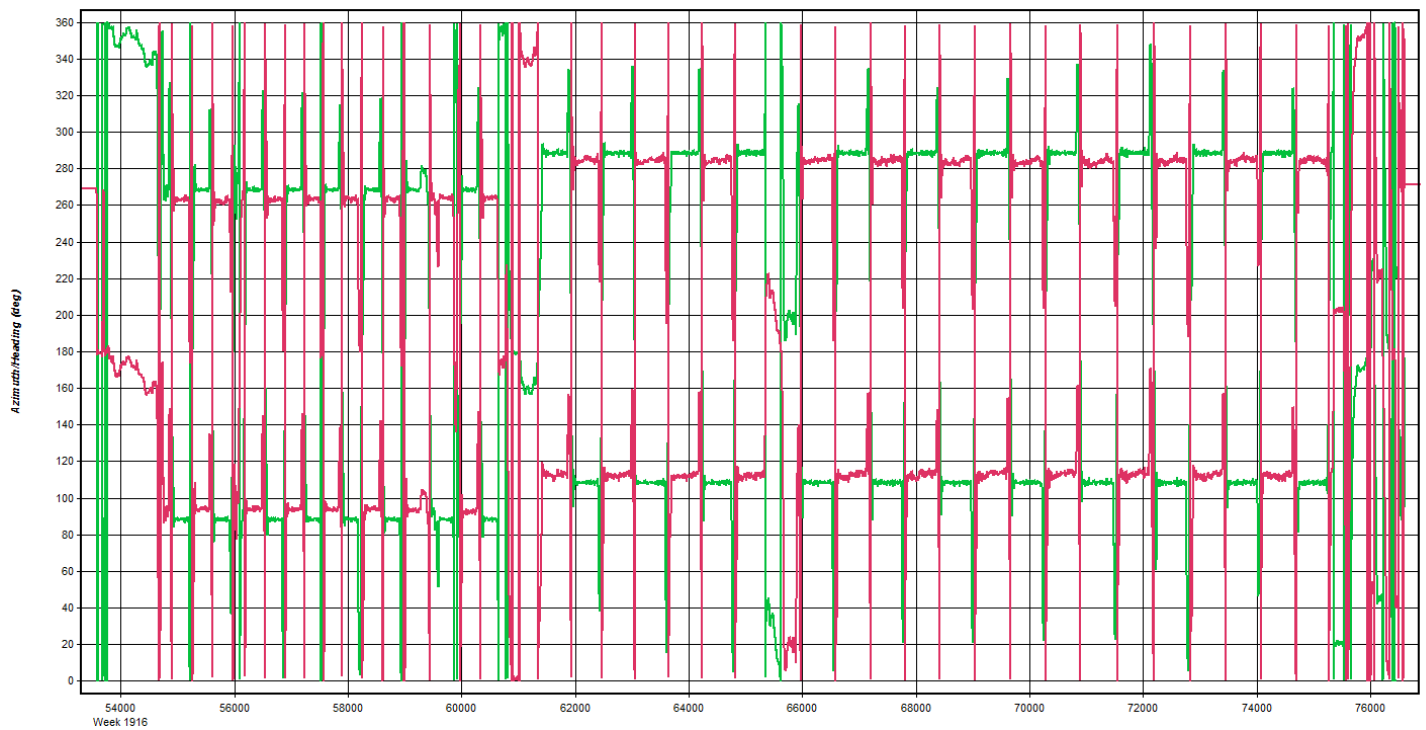
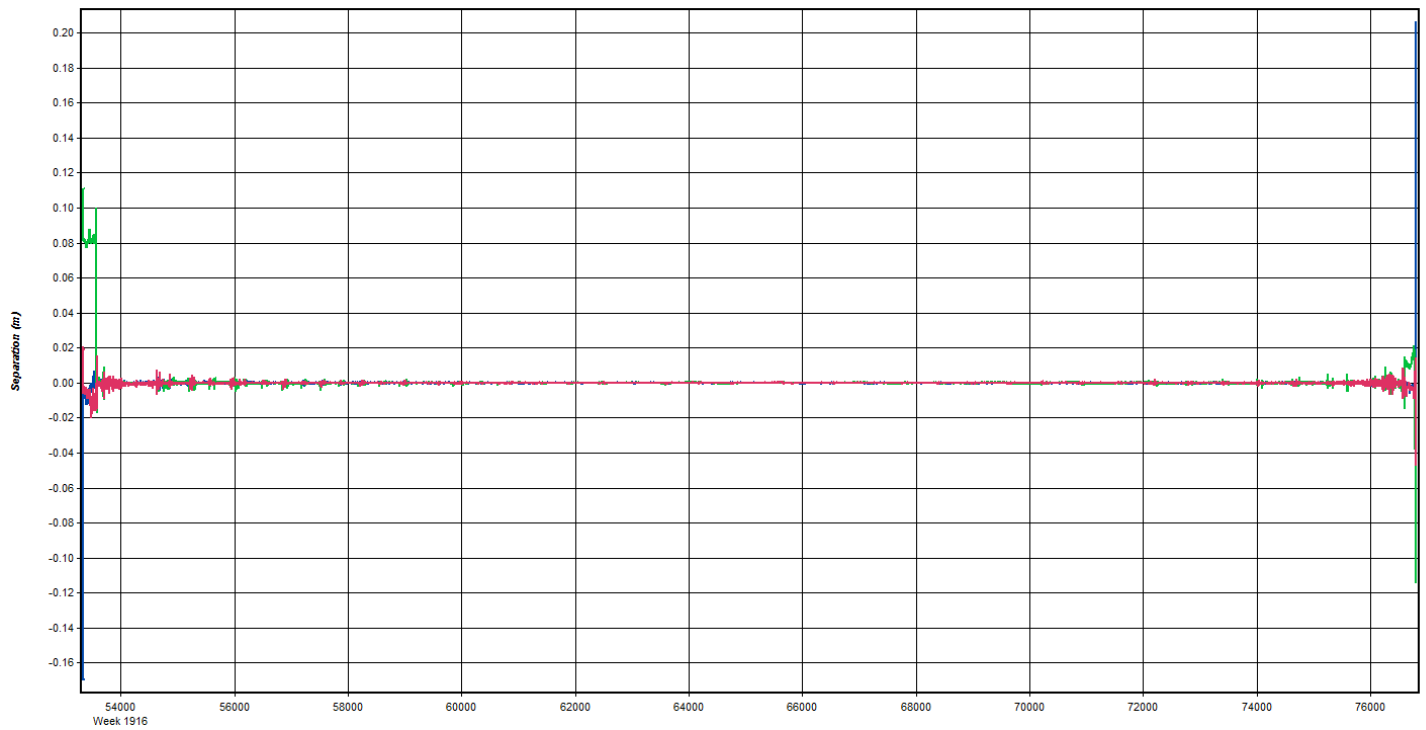
Flt Mgmt File: FMSL_Utah_Bear_QL1_SN7161_rev1

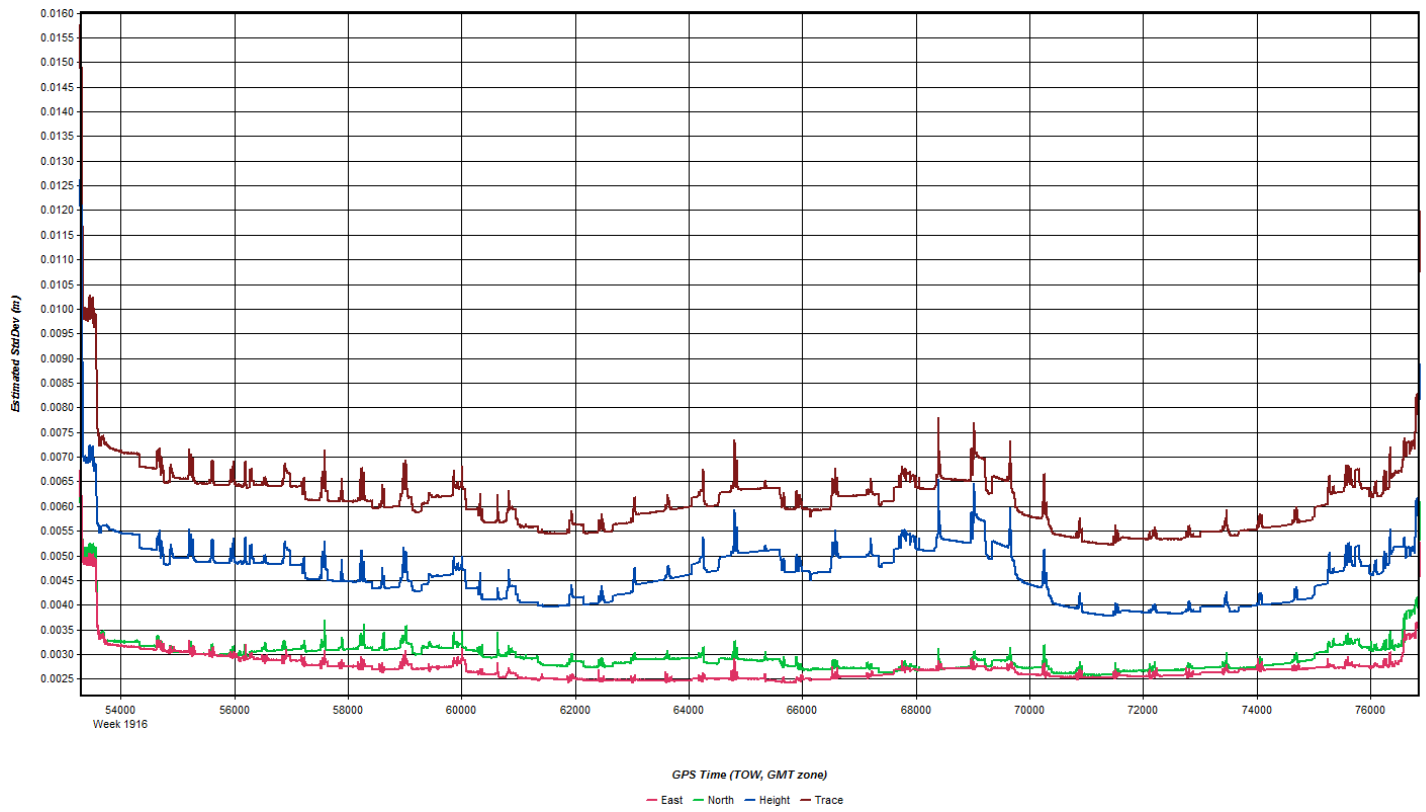
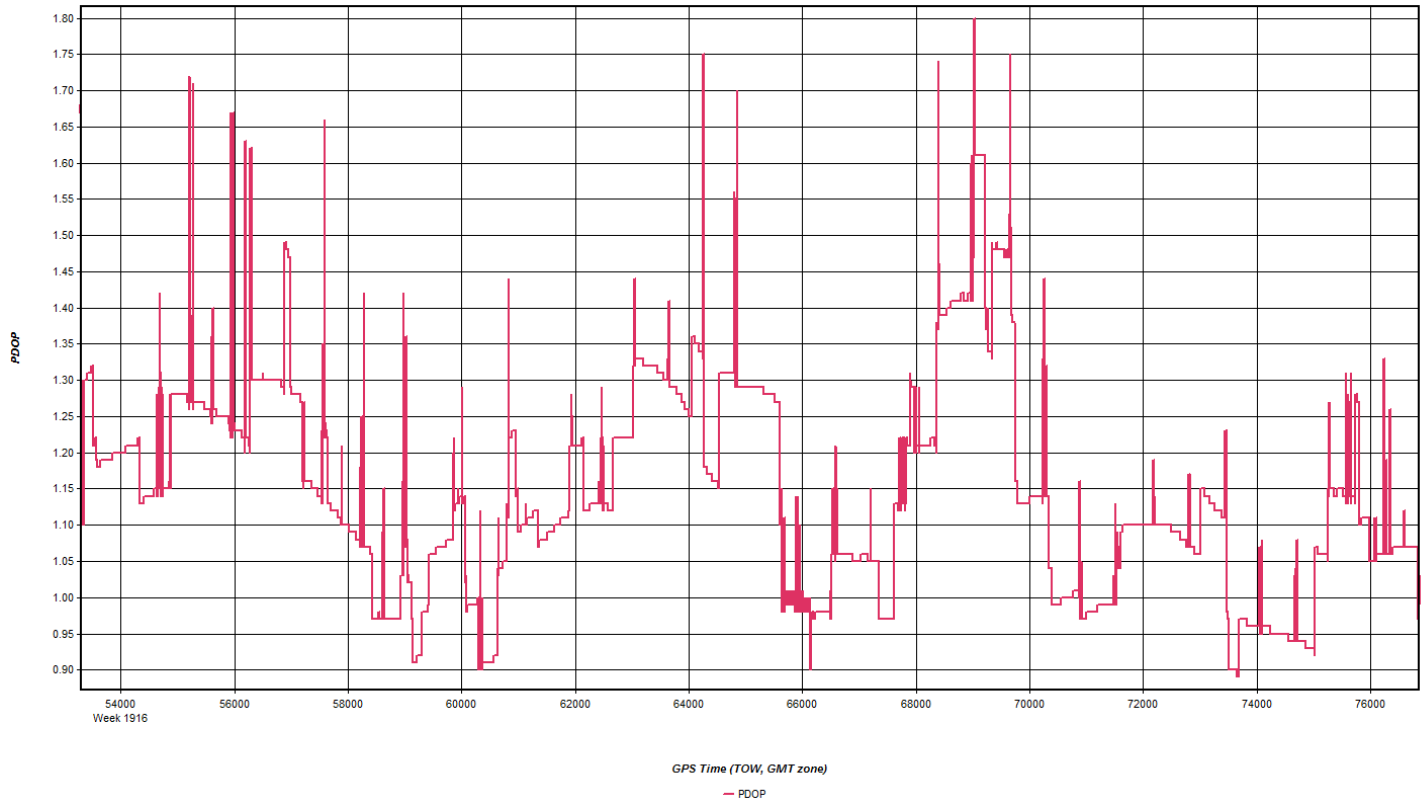
Lines Flown:

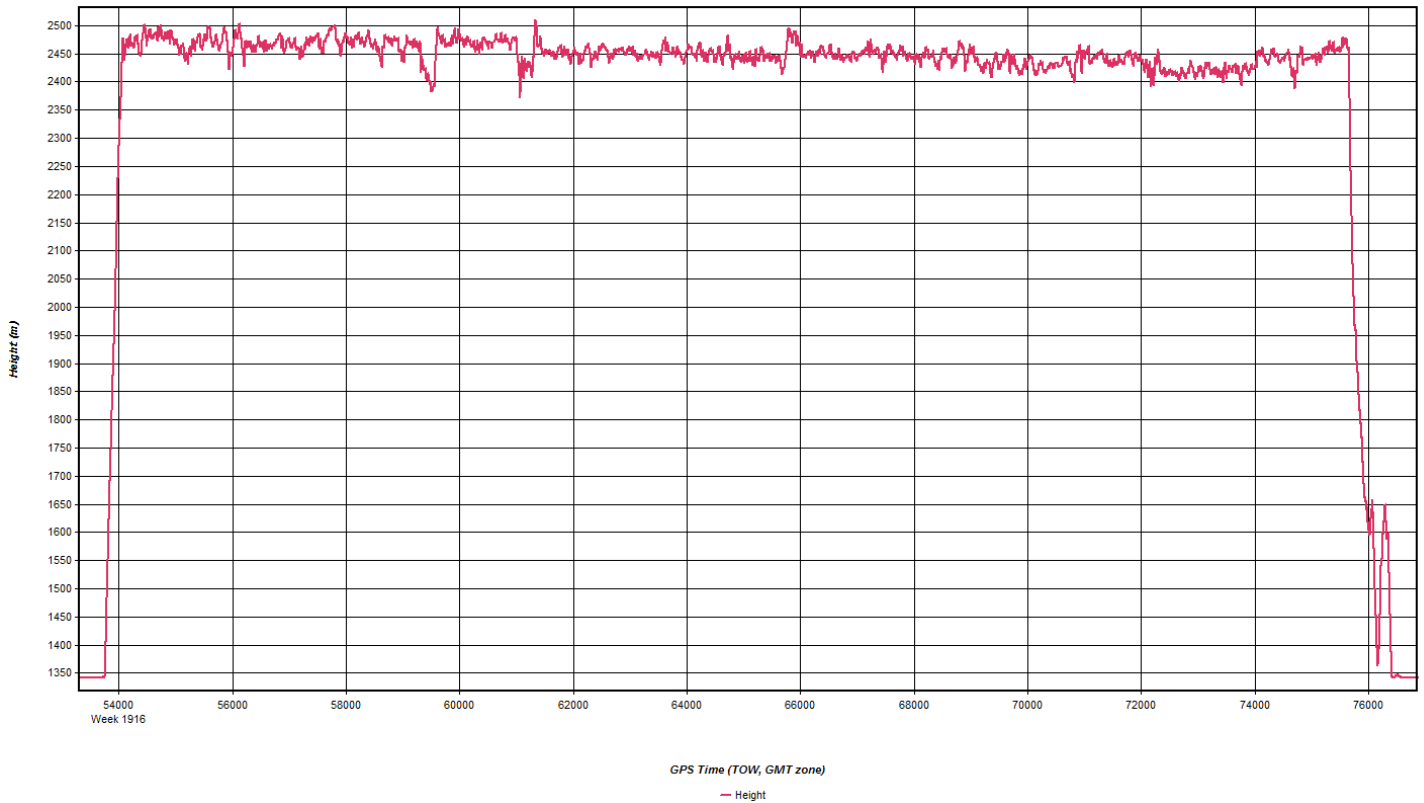
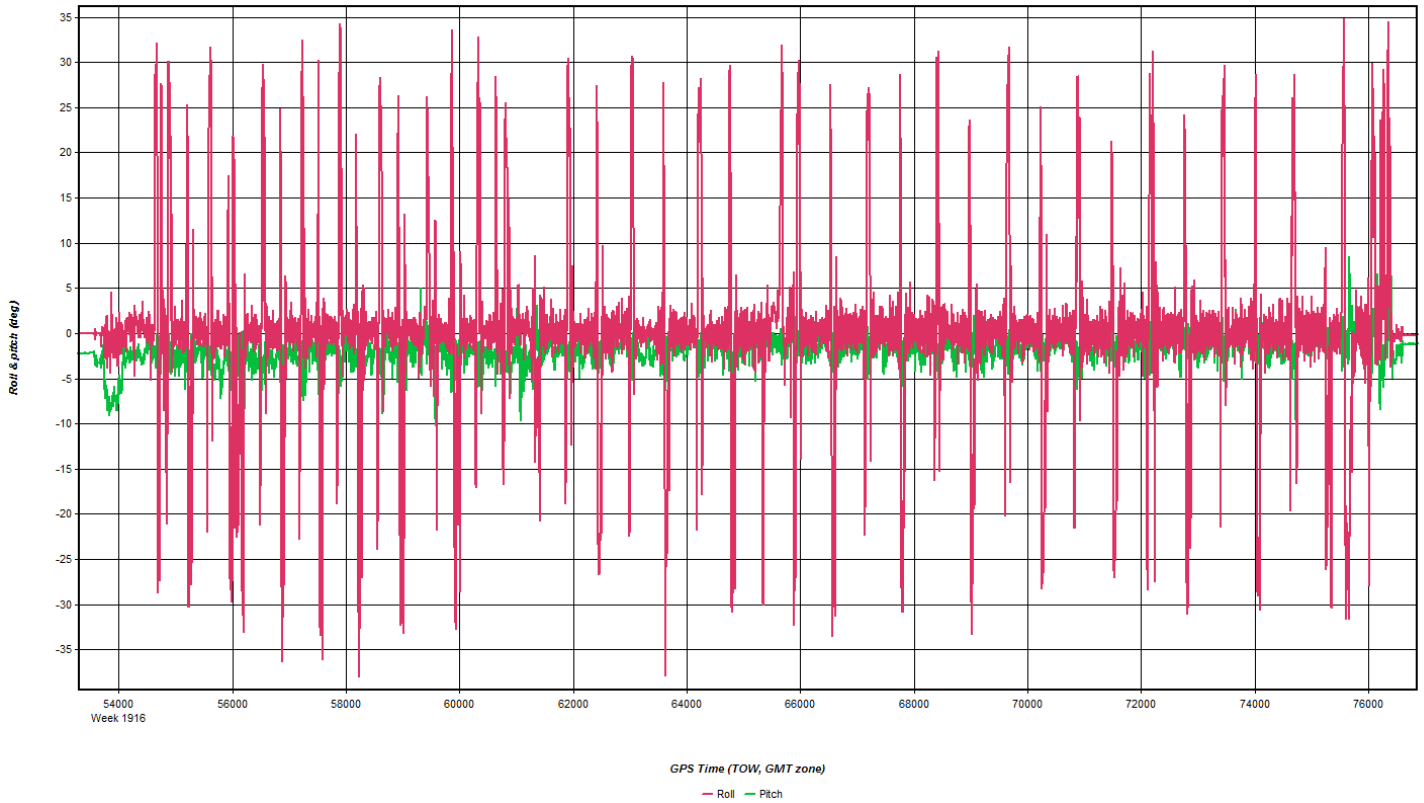
043-038

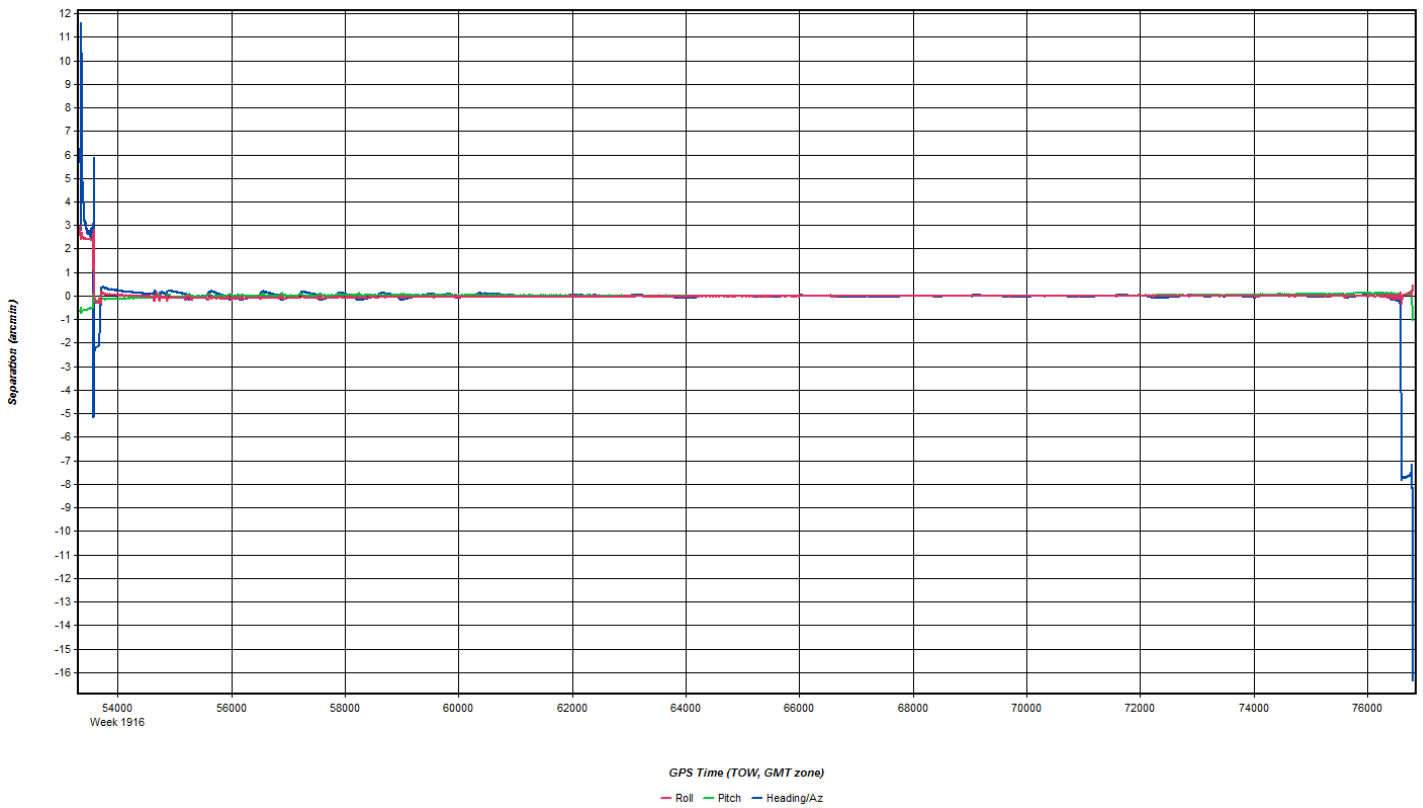
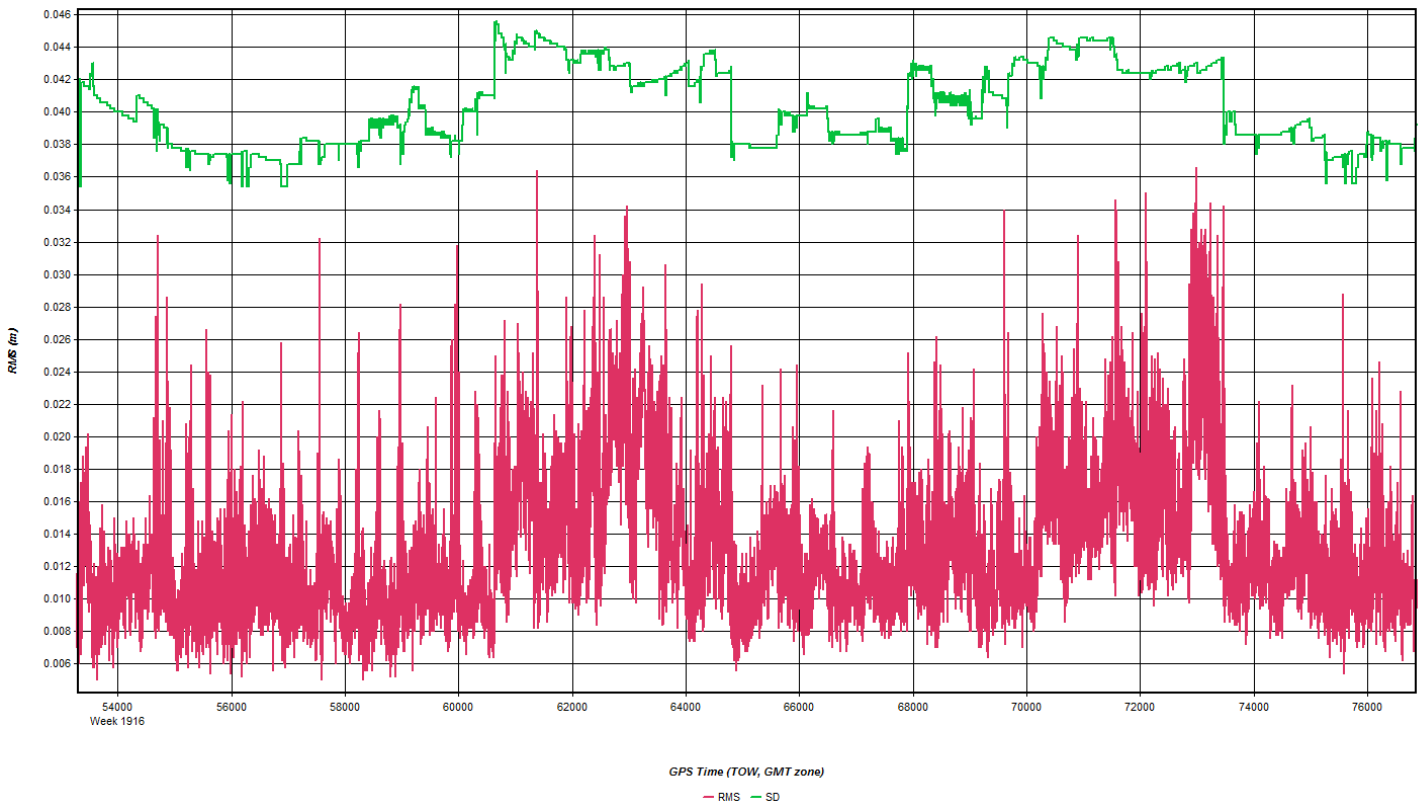
Sep 25, 2016-A (N704MD, SN7161)

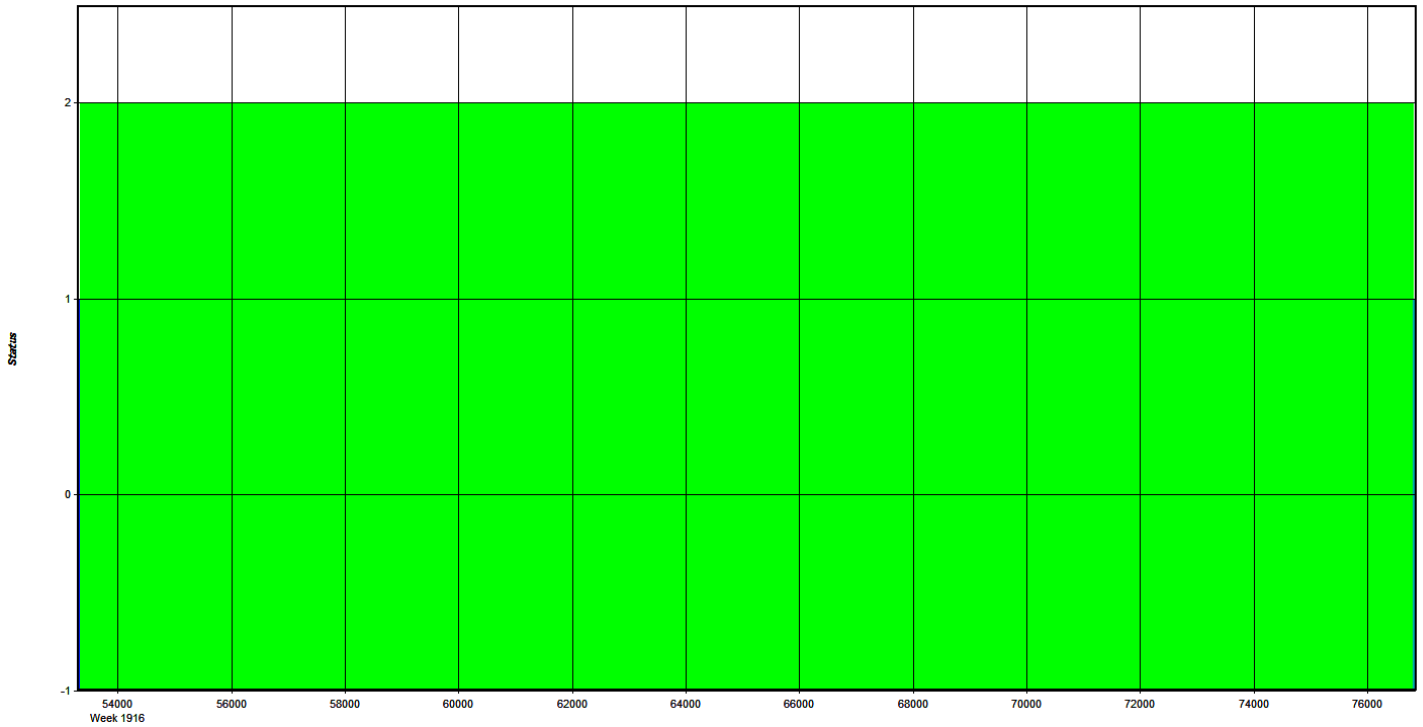












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTAH16_12 Name: UTAH16_12 Disabled
 File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD269

Coordinates
 Latitude: North 41 27 55.05608 Compute from PPP
 Longitude: West 112 12 59.28876 Enter Grid Values
 Ellipsoidal height: 1267.698 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM57971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
1: MS0690 Name: MS0690 Disabled
File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD269_

Coordinates
Latitude: North 41 38 03.88146 Compute from PPP
Longitude: West 112 06 08.47082 Enter Grid Values
Ellipsoidal height: 1285.809 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 9/25/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_Utah_QL1_SN7161_cut_for_mountain_turns		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	8:55:00 AM			
Wheels Down	3:15:00 PM			
Begin Hobbs	11385.3			
End Hobbs	11391.6			
On-line Hobbs: 5.5		Mob Hobbs: 0.8		

Notes

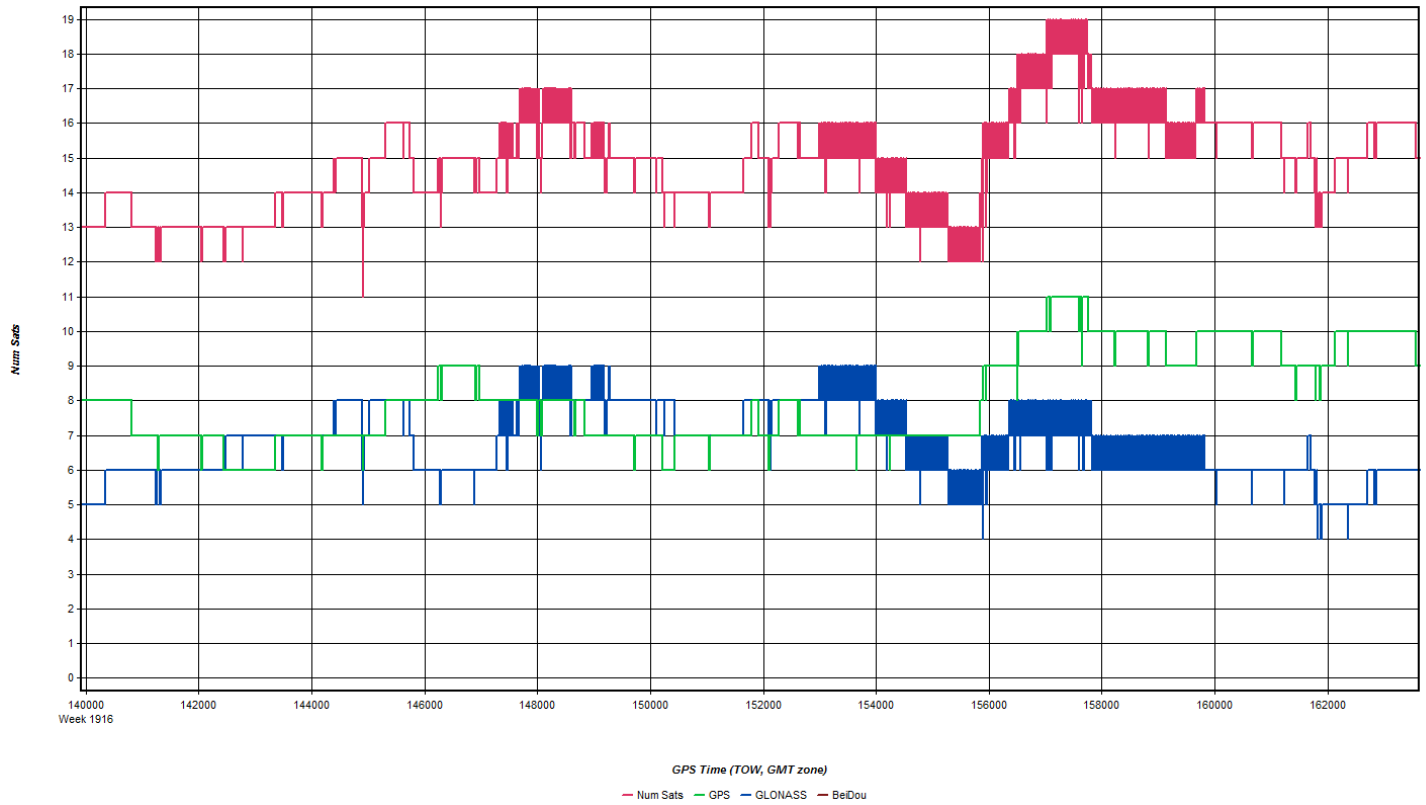
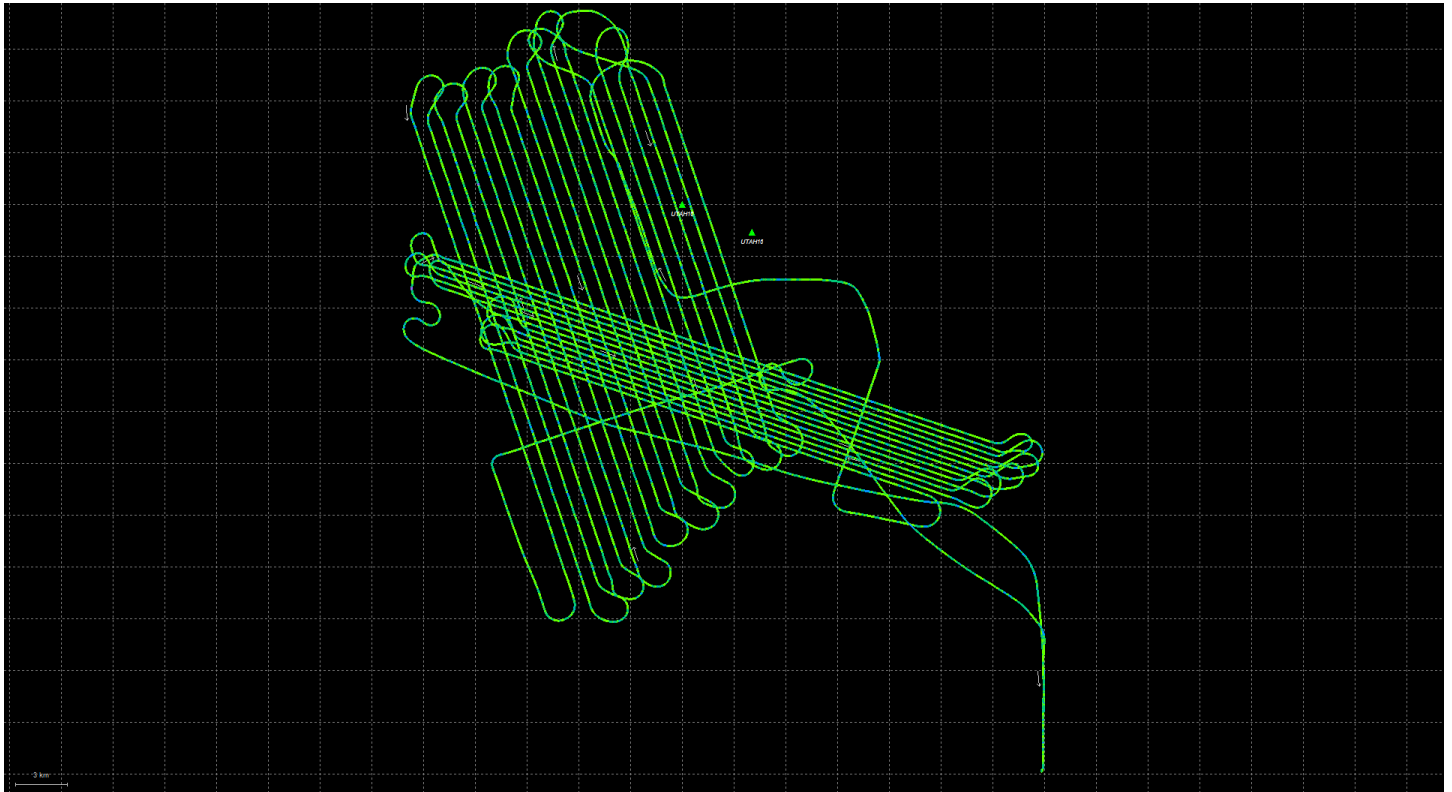
Full flight today. Tackled and completed the Bear River blocks. Was given an "ALS datalogger error" warning in the beginning, but remedied the issue by tightening cables. Today's conditions were exceptionally calm and smooth and sunny and happy and boring and finally a full flight of FMSL acquisition with no problems.

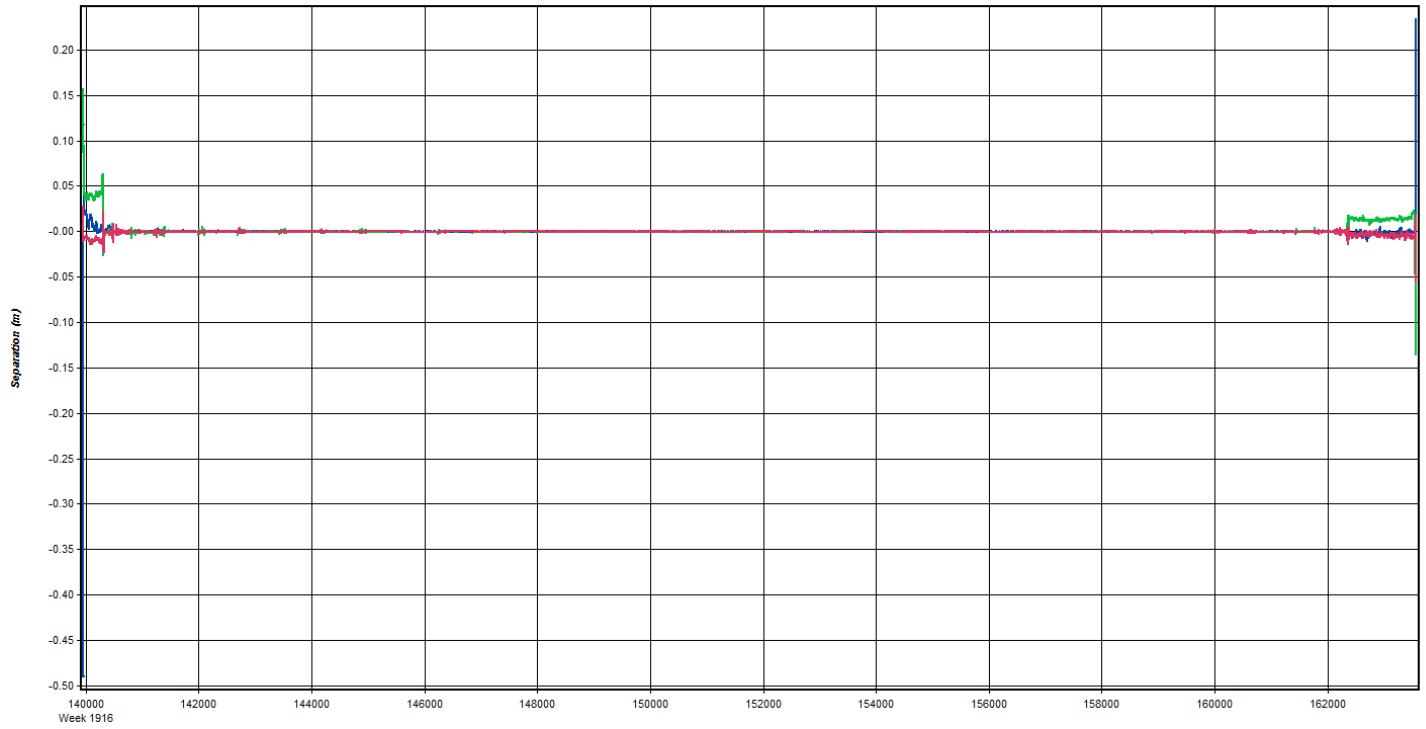
Flt Mgmt File: FMSL_Utah_QL1_SN7161_cut_for_mountain_turns

Lines Flown:

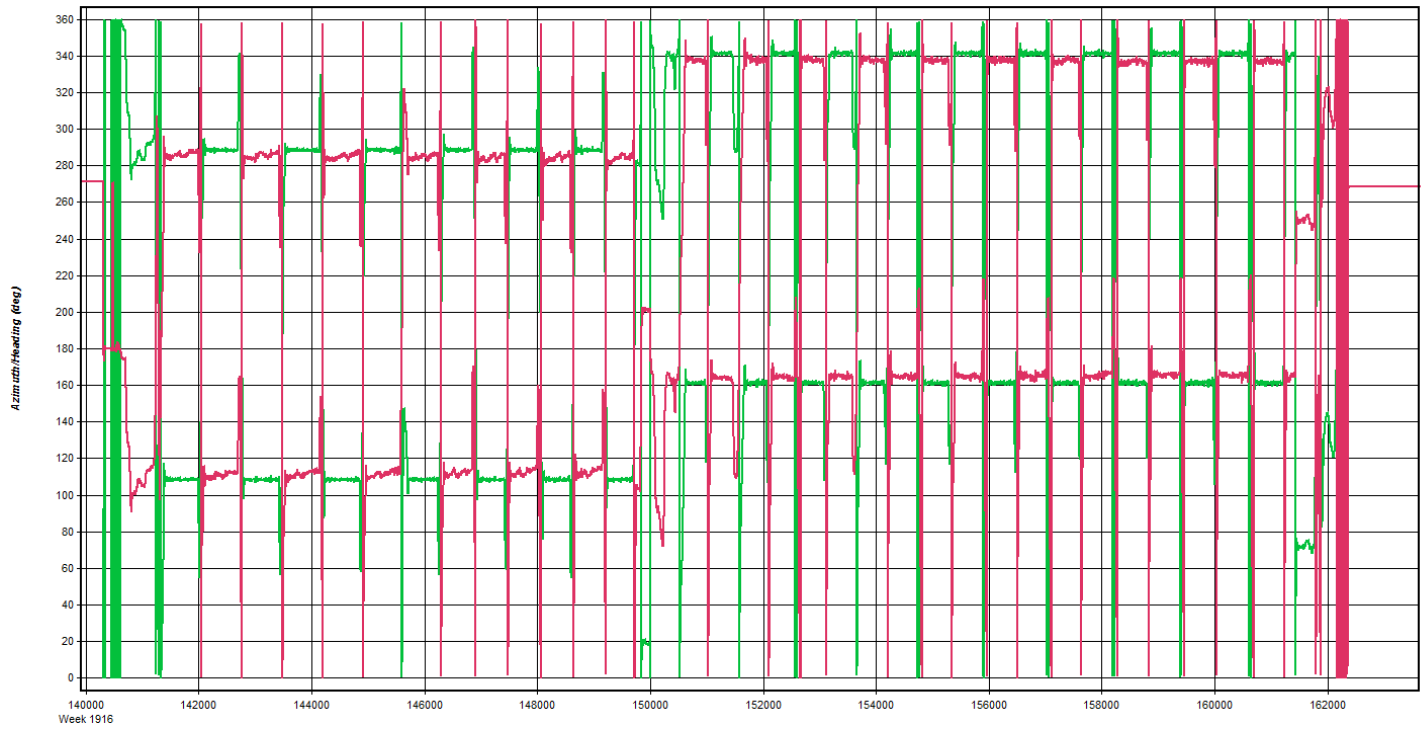
023-037
001-022

Sep 26, 2016-A (N704MD, SN7161)

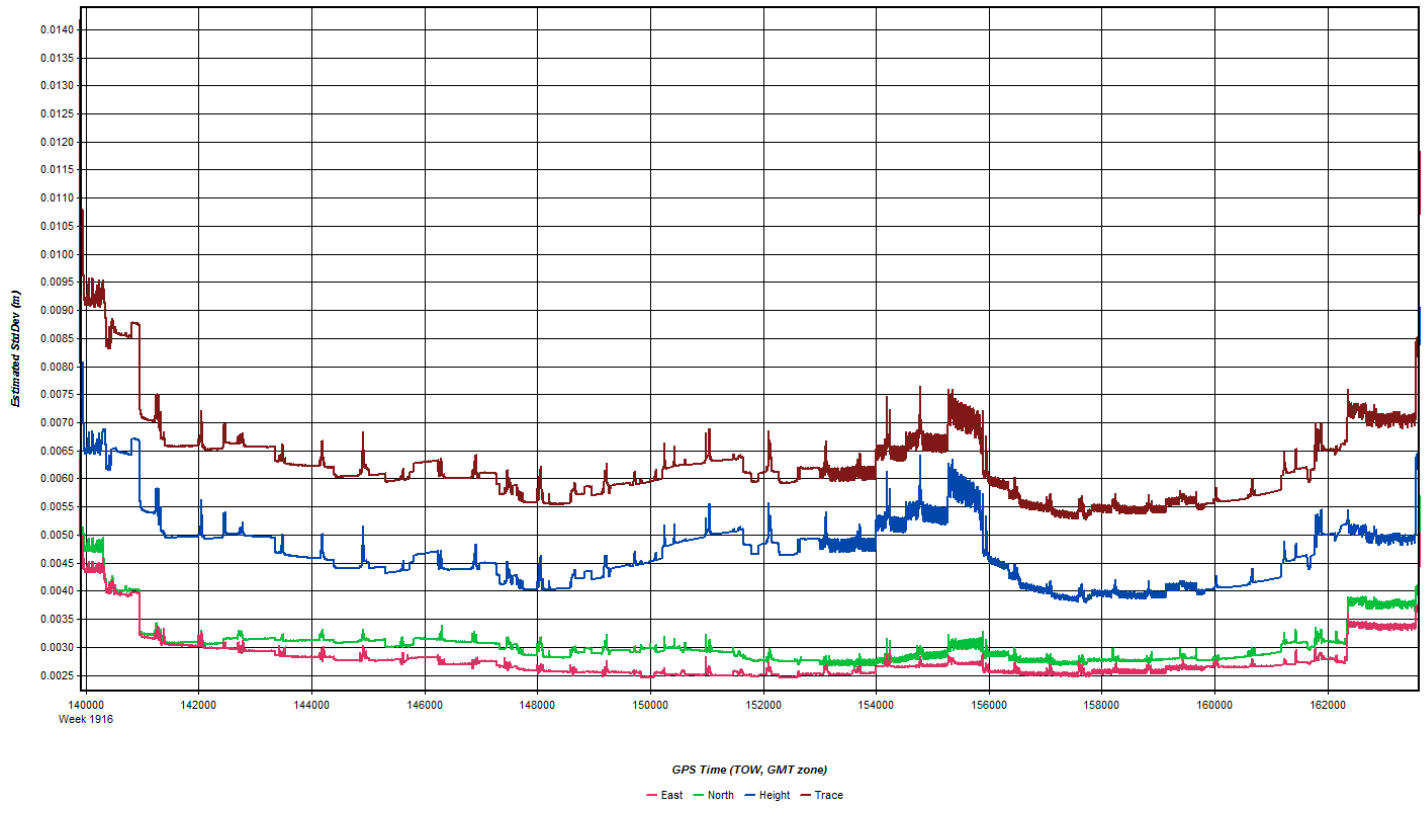


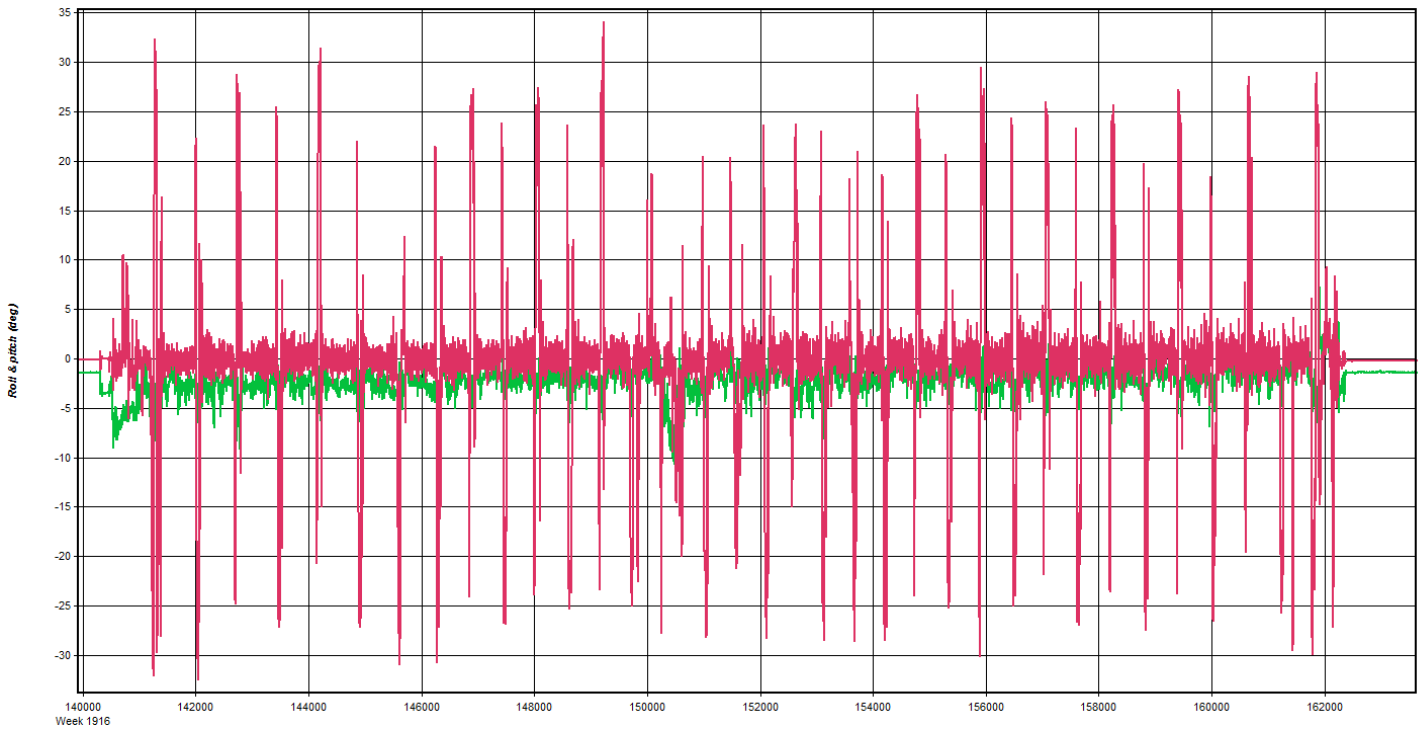


GPS Time (TOW, GMT zone)
— East — North — Up

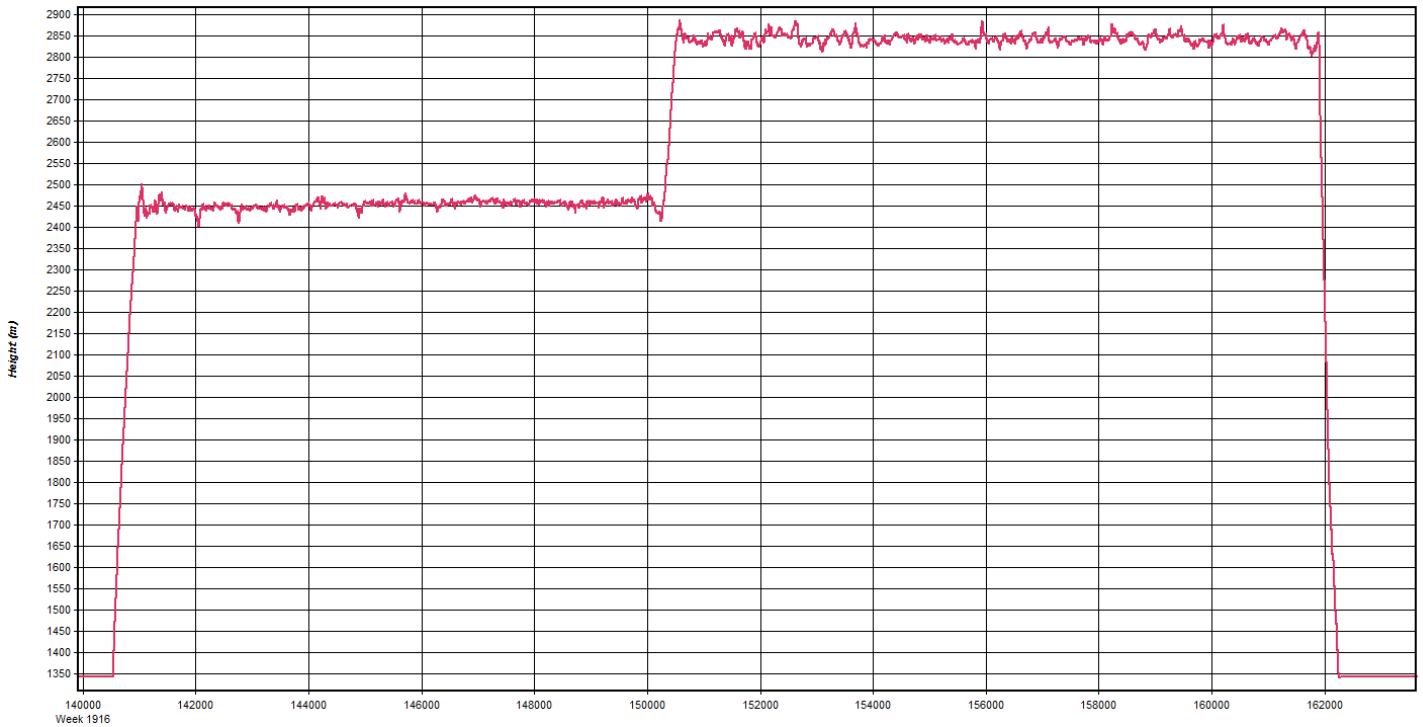


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG

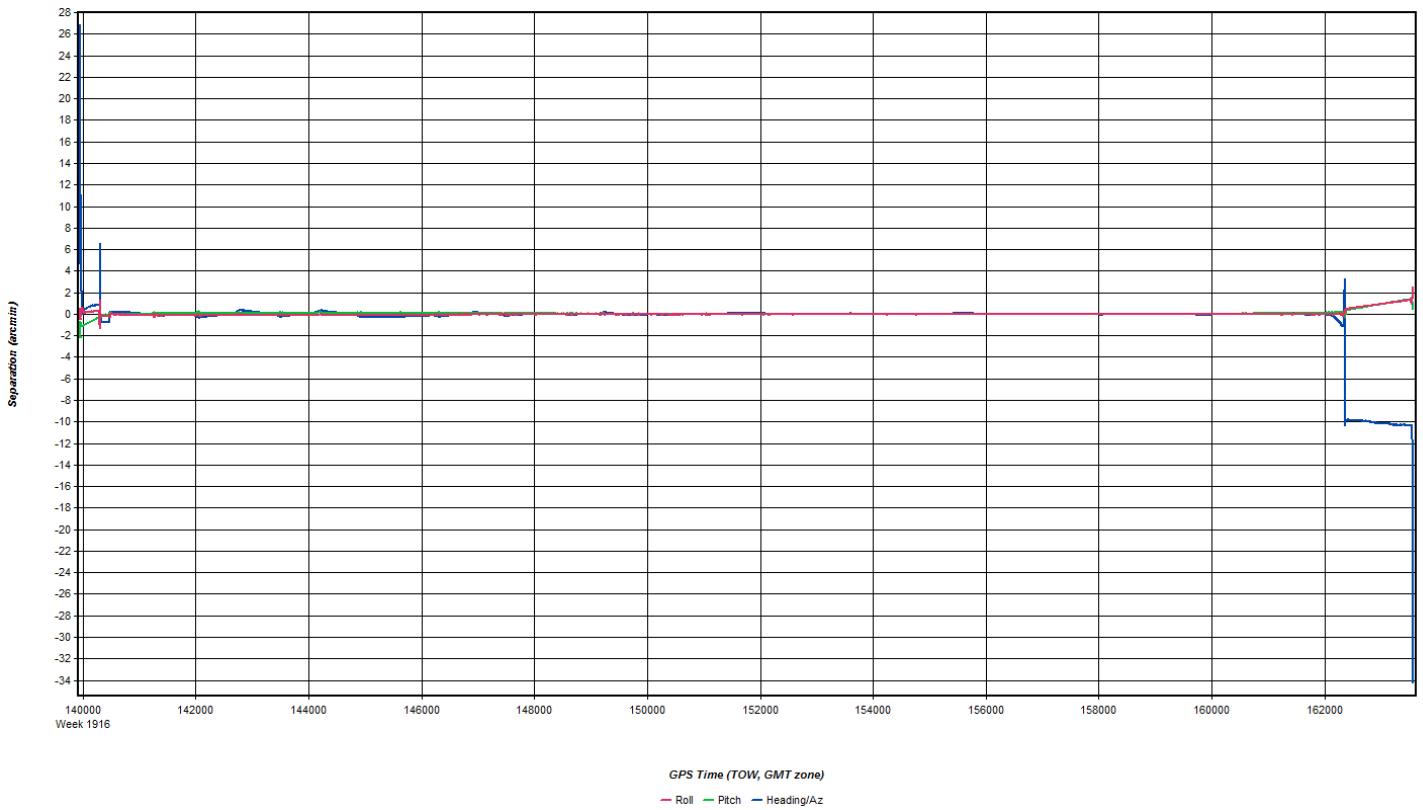
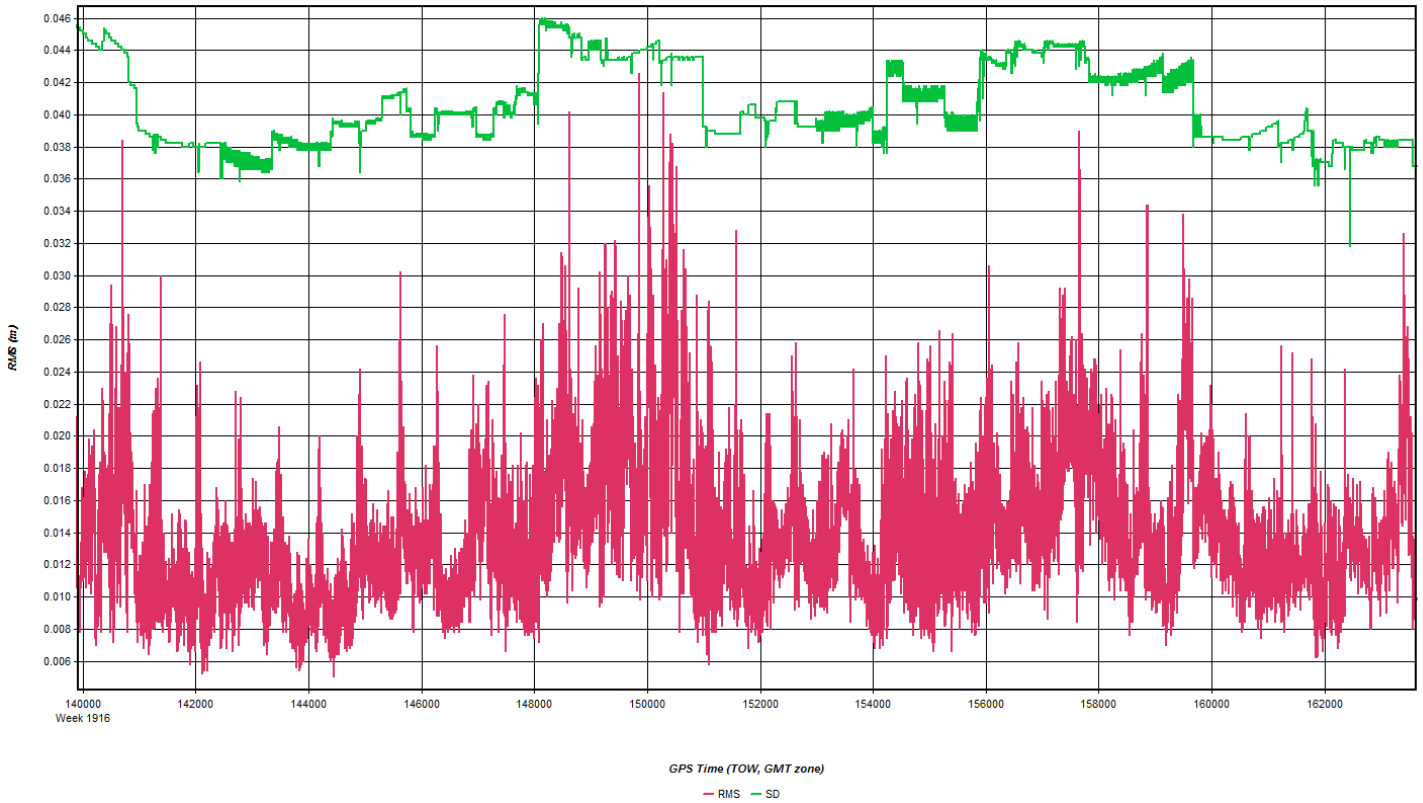


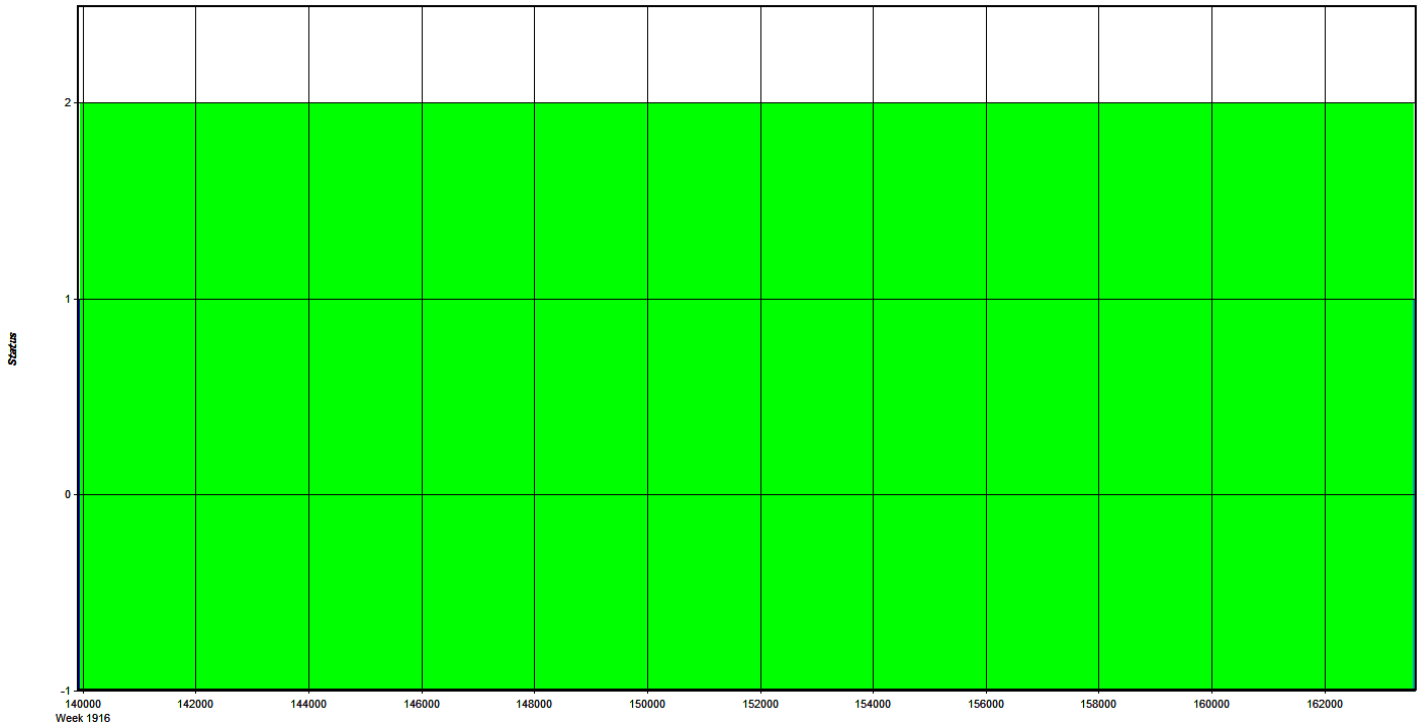


GPS Time (TOW, GMT zone)
— Roll — Pitch



GPS Time (TOW, GMT zone)
— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_11 Name: UTAH16_11 Disabled
 File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD270_

Coordinates
 Latitude: North 41 28 47.27155 Compute from PPP
 Longitude: West 112 15 53.76380 Enter Grid Values
 Ellipsoidal height: 1267.280 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
2: UTAH16_12 Name: UTAH16_12 Disabled
File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD270_

Coordinates
Latitude: North 41 27 55.05608 Compute from PPP
Longitude: West 112 12 59.28876 Enter Grid Values
Ellipsoidal height: 1267.698 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log - QL1

Date: 9/26/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: EQL		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	9:00:00 AM			
Wheels Down	3:05:00 PM			
Begin Hobbs	11391.6			
End Hobbs	11397.6			
On-line Hobbs: 5.5		Mob Hobbs: 0.5		

Notes

Perfect conditions for acquisition.

Flt Mgmt File: EQL

Lines Flown:

GSLE1072-1084

Flight Log - QL2

Date: 9/26/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: QL2		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	9:00:00 AM			
Wheels Down	3:05:00 PM			
Begin Hobbs	11391.6			
End Hobbs	11397.6			
On-line Hobbs: 2.5		Mob Hobbs: 0.5		

Notes

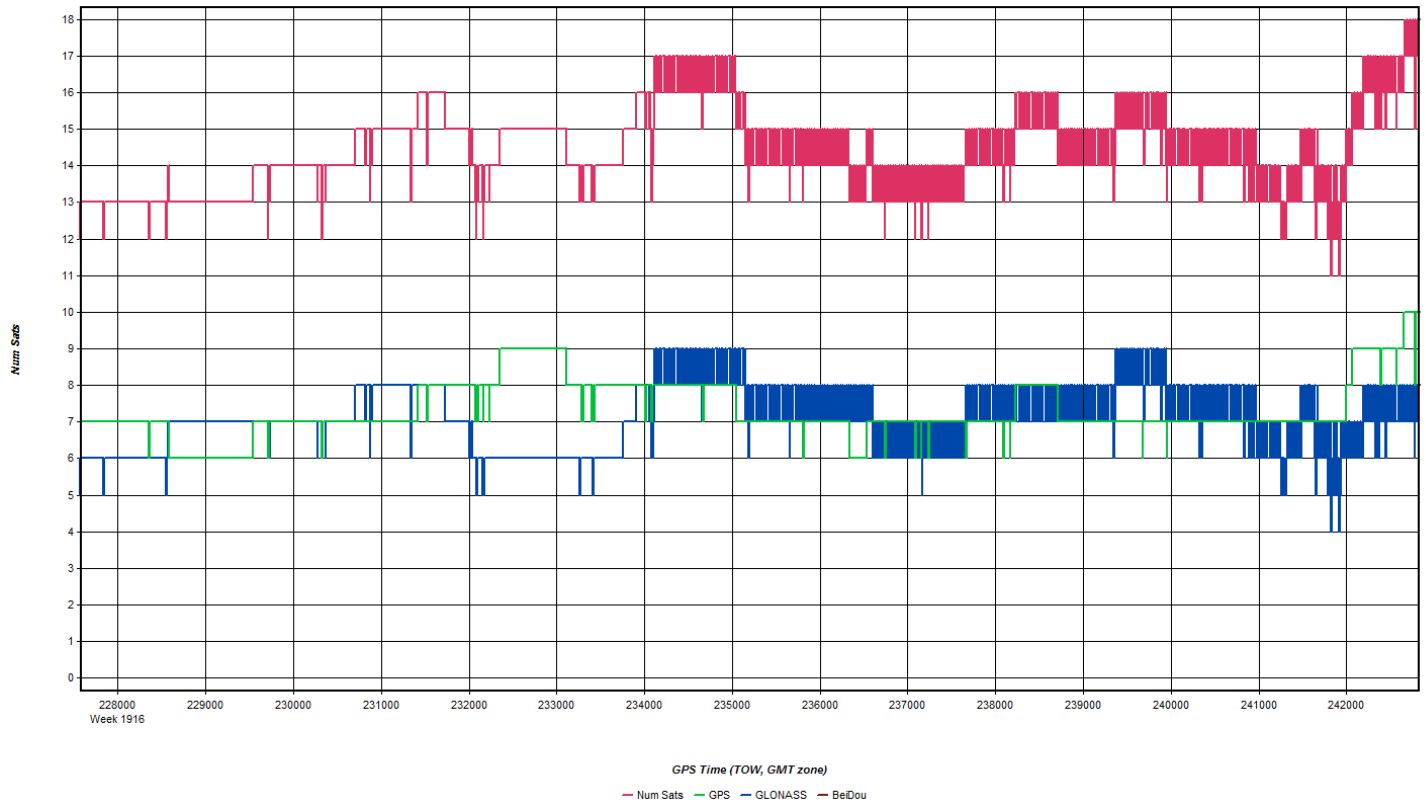
Perfect conditions for acquisition.

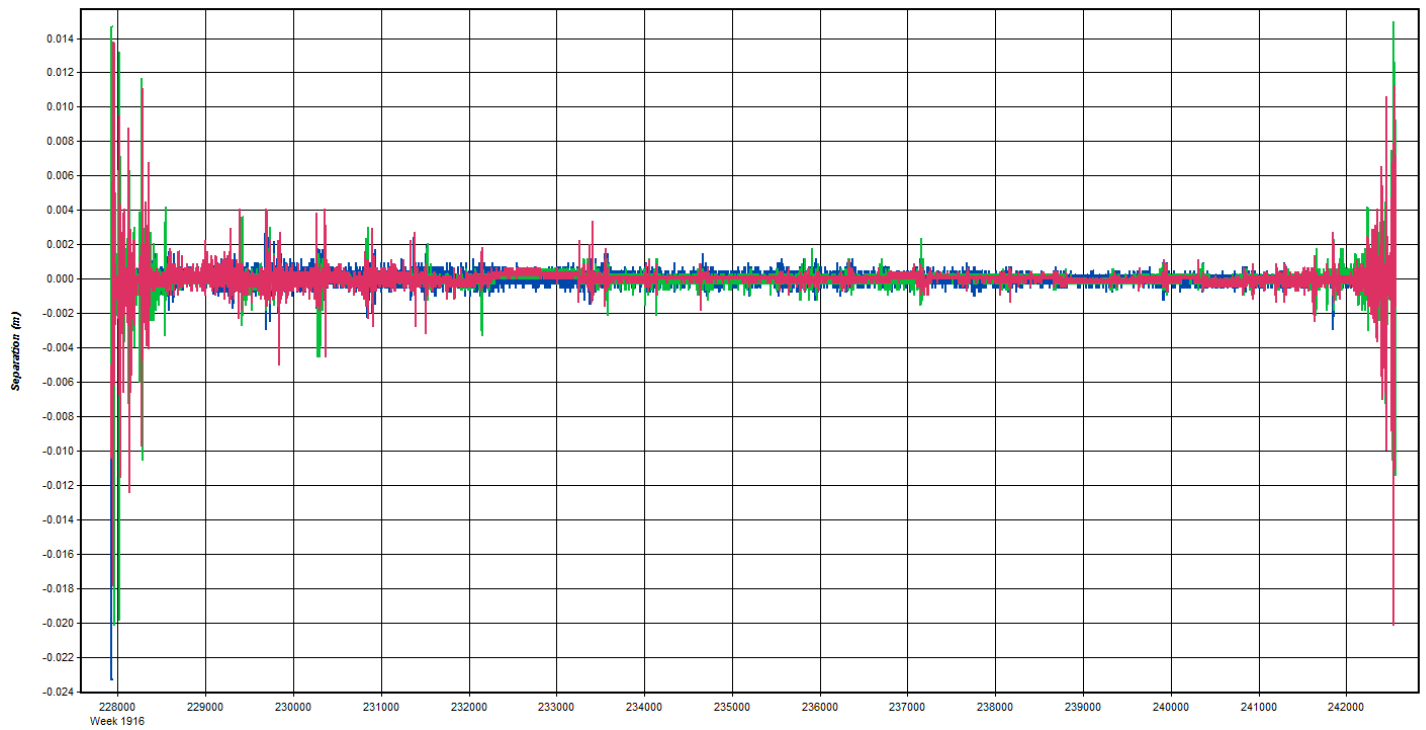
Flt Mgmt File: QL2

Lines Flown:

GSL2118-2100

Sep 27, 2016-A (N704MD, SN7161)

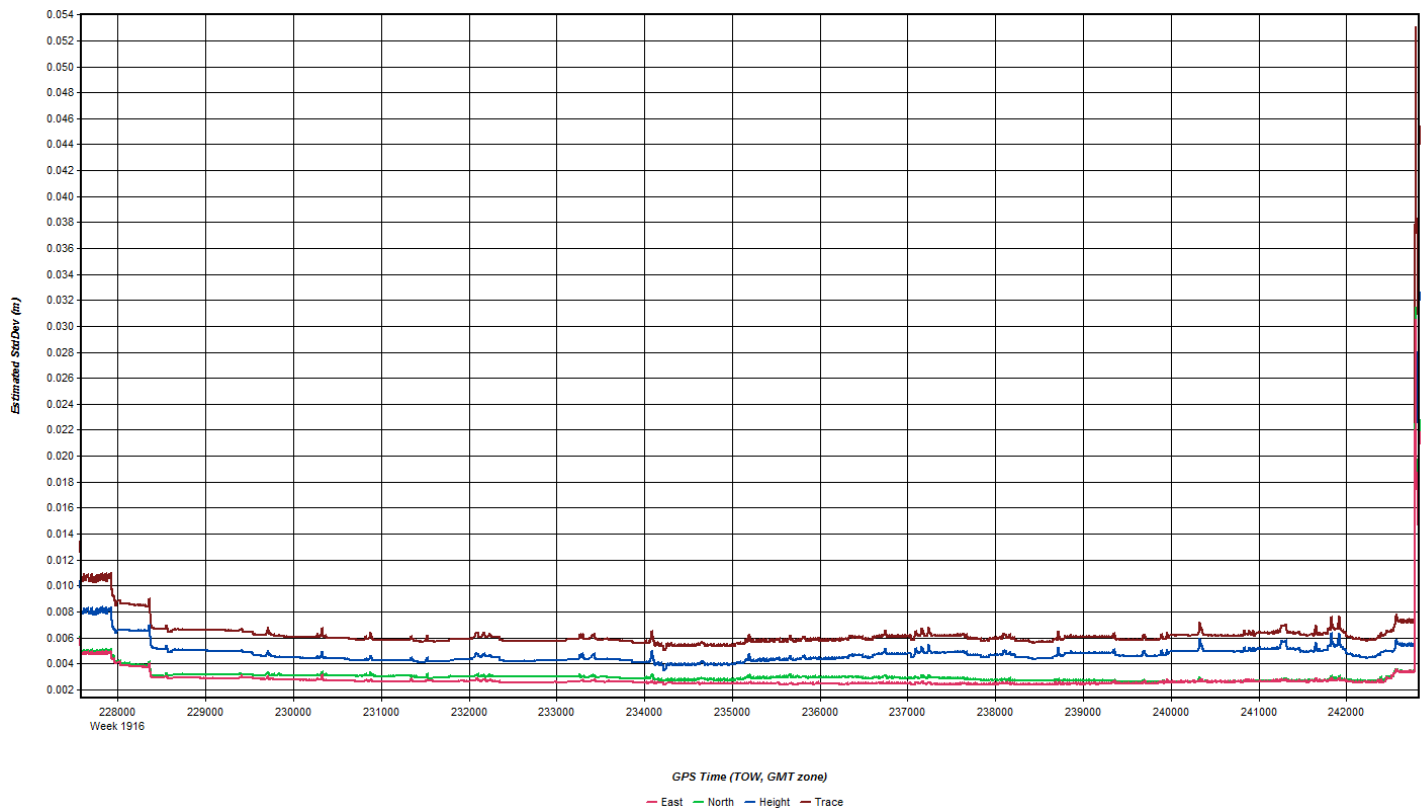
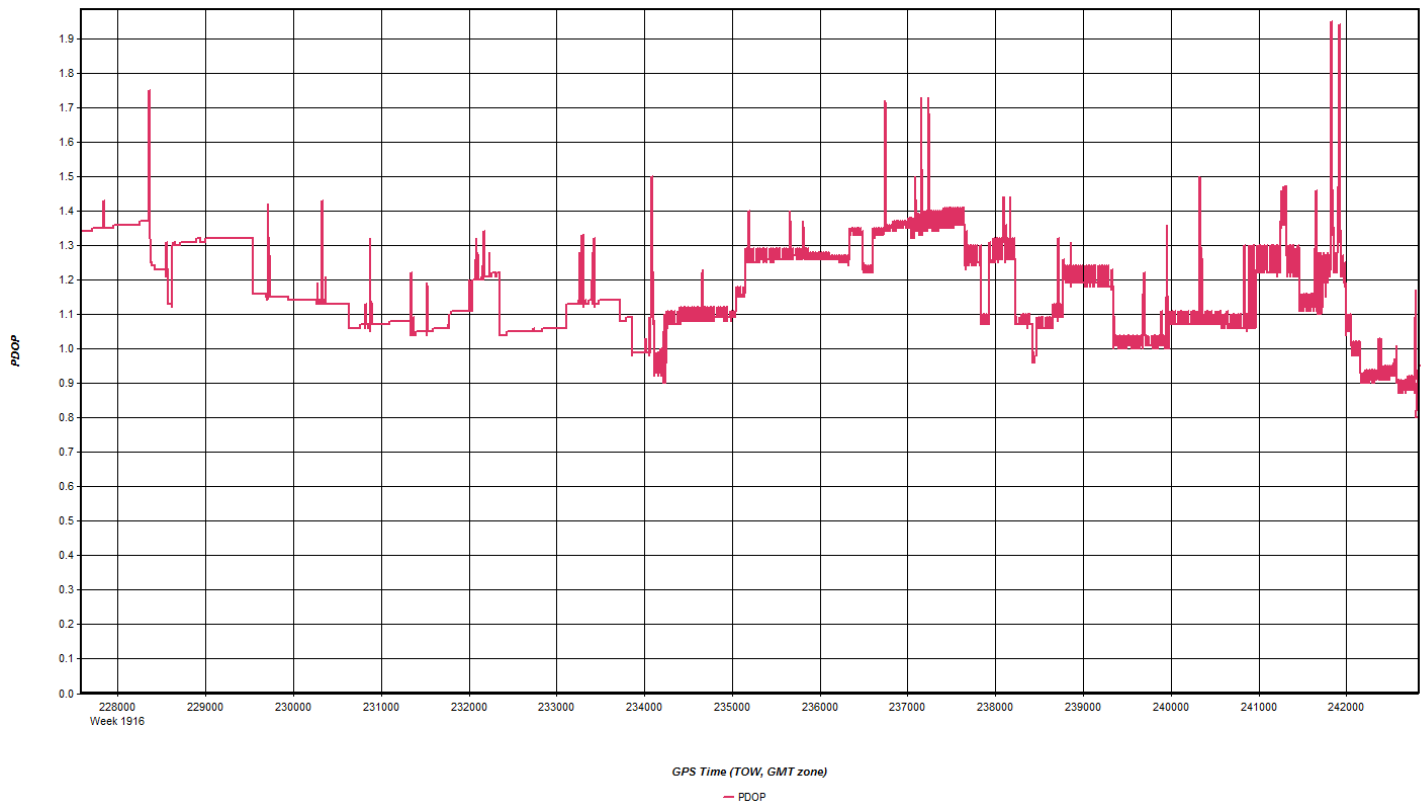


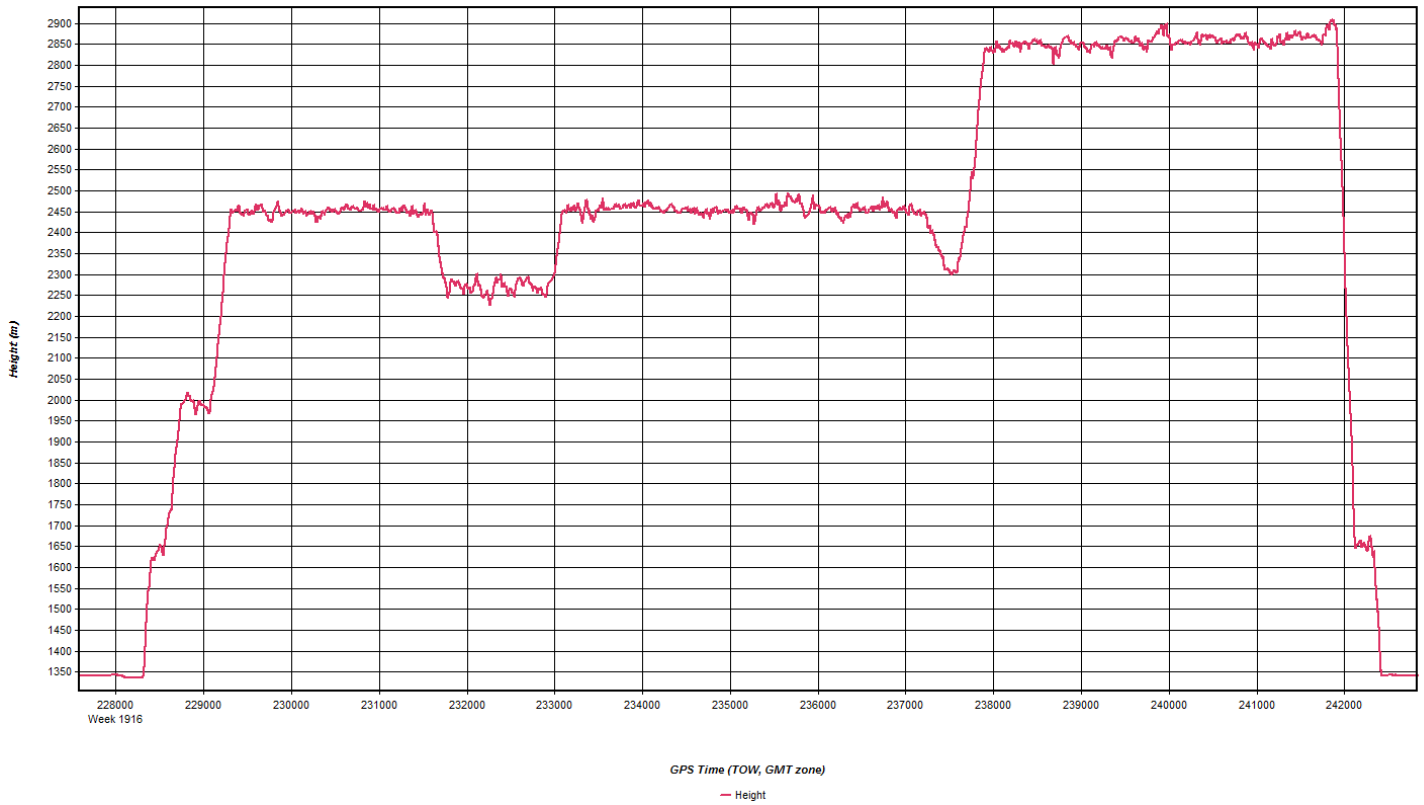


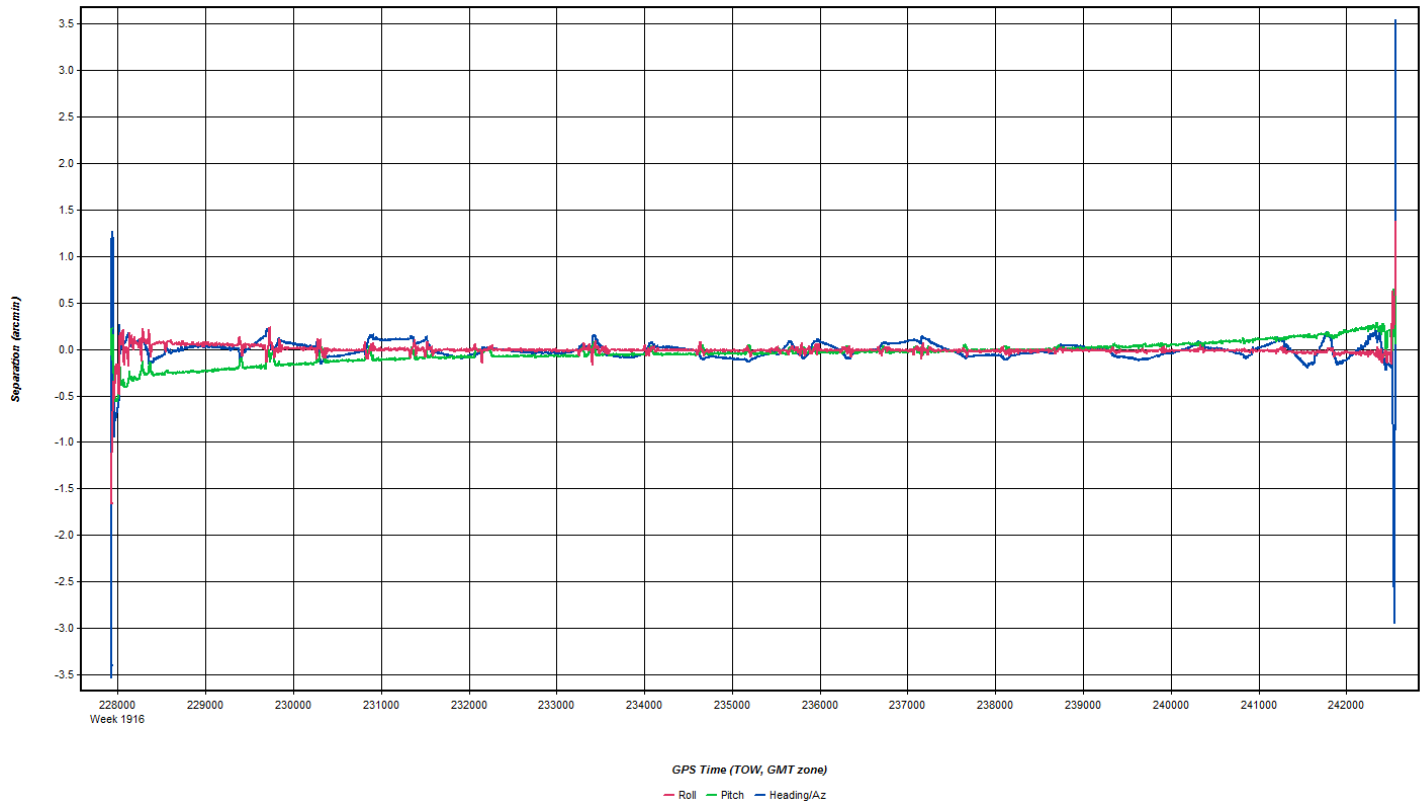
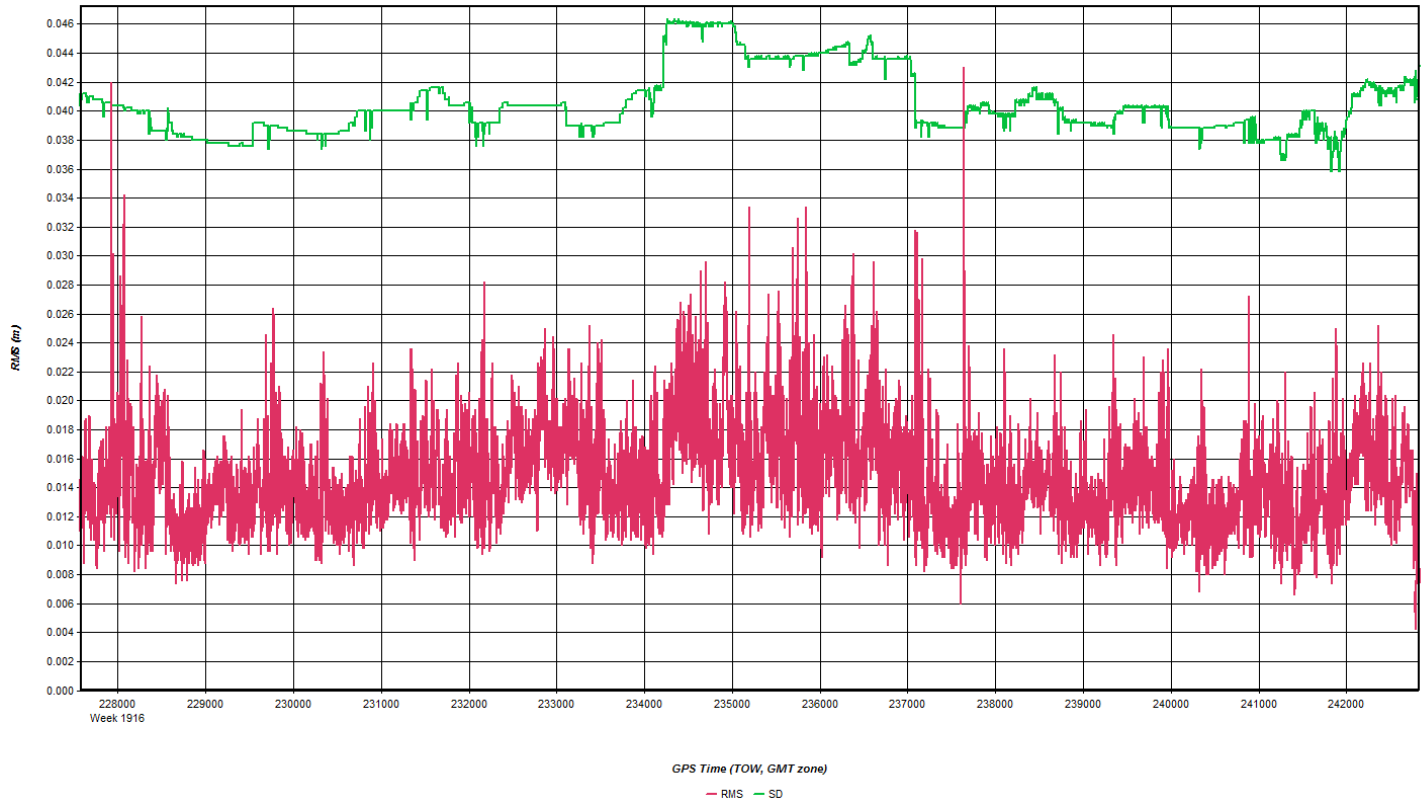
GPS Time (TOW, GMT zone)
— East — North — Up

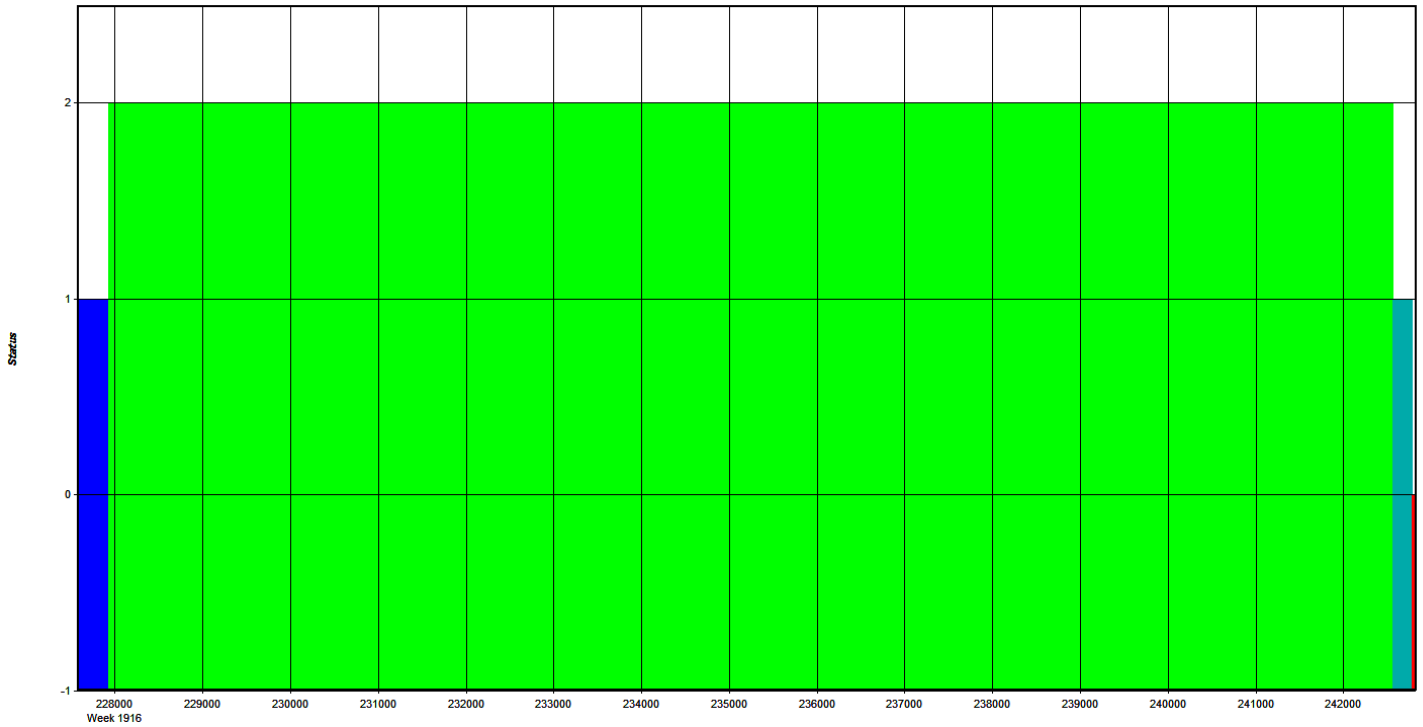


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 3: UTAH16_15 Name: UTAH16_15 Disabled
 File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD271_

Coordinates
 Latitude: North 41 23 27.45072 Compute from PPP
 Longitude: West 112 25 44.98407 Enter Grid Values
 Ellipsoidal height: 1349.584 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings
? X

Master
Remote

Base Station

2: 76

Name:

Disabled

File:

Coordinates

Latitude:	North	41	13	30.28256	Compute from PPP
Longitude:	West	112	29	05.40581	Enter Grid Values
Ellipsoidal height:		1270.554	m		Enter MSL Height
Datum:		WGS84			Datum Options

Select From Favorites
Add To Favorites
Use Average Position

Antenna Height

From station file:	TRM55971.00	View STA File
Antenna profile:	TRM57971.00	Info

Measured height:	1.800	m	Measured to <input checked="" type="radio"/> ARP <input type="radio"/> L1 Phase Centre <input type="button" value="Compute From Slant"/>
ARP to L1 offset:	0.067	m	
Applied height:	1.867	m	

OK
Cancel

Coordinate/Antenna Settings
? X

Master
Remote

Base Station

1: UTGR

Name:

Disabled

File:

Coordinates

Latitude:	North	40	36	17.44205	Compute from PPP
Longitude:	West	112	29	11.80159	Enter Grid Values
Ellipsoidal height:		1319.914	m		Enter MSL Height
Datum:		WGS84			Datum Options

Select From Favorites
Add To Favorites
Use Average Position

Antenna Height

From station file:	TRM55971.00, NONE	View STA File
Antenna profile:	TRM55971.00	Info

Measured height:	0.000	m	Measured to <input checked="" type="radio"/> ARP <input type="radio"/> L1 Phase Centre <input type="button" value="Compute From Slant"/>
ARP to L1 offset:	0.067	m	
Applied height:	0.067	m	

OK
Cancel

Utah 2016 - Great Salt Lake AOI
 QL1/QL2 LiDAR Project

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August 14, 2017

Flight Log - QL1

Date: 9/27/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_Utah_GSL_W_QL1_SN7161_rev1 FMSL_Utah_GSL_Ye_Olde_Railroade FMSL_Utah_GSL_E_QL1_SN7161_rev1		
Pilot: Eric Petersen		Sensor Operator: Drew Johnston

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	9:24:00 AM			
Wheels Down	1:20:00 PM			
Begin Hobbs	11397.6			
End Hobbs	11401.5			
On-line Hobbs: 2.5		Mob Hobbs: 1.4		

Notes

Juggled 4 flightplans between two blocks of reflies, the railroad across the lake, and moving E-W in the QL2 lines. We experienced lag again on startup when deleting old plans from internal memory, and again when switching through plans in flight. We flew over CORS Station P086 for W_QL1 reflly lines 1063-1065. We landed early as EP was experiencing pain and stiffness towards the end of the flight.

Flt Mgmt File: FMSL_Utah_GSL_W_QL1_SN7161_rev1

Lines Flown:

W_QL1: 1063-1065 reflies

Flt Mgmt File: FMSL_Utah_GSL_Ye_Olde_Railroade

Lines Flown:

RR: 101-103

Flt Mgmt File: FMSL_Utah_GSL_E_QL1_SN7161_rev1

Lines Flown:

E_QL_1: 1091-1093

Flight Log - QL2

Date: 9/27/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_Utah_GSL_QL2_SN7161_rev1		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	9:24:00 AM			
Wheels Down	1:20:00 PM			
Begin Hobbs	11397.6			
End Hobbs	11401.5			
On-line Hobbs: 2.5		Mob Hobbs: 1.4		

Notes

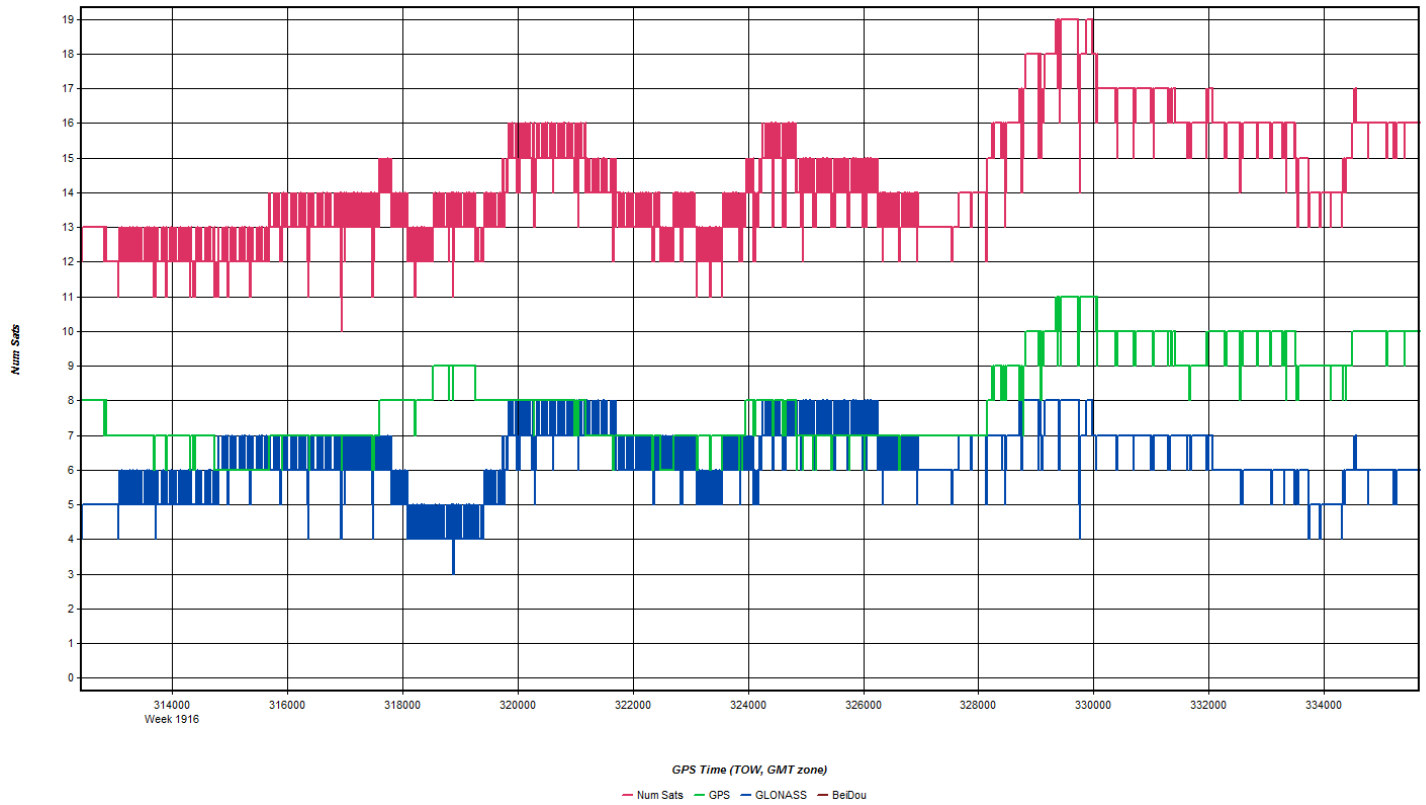
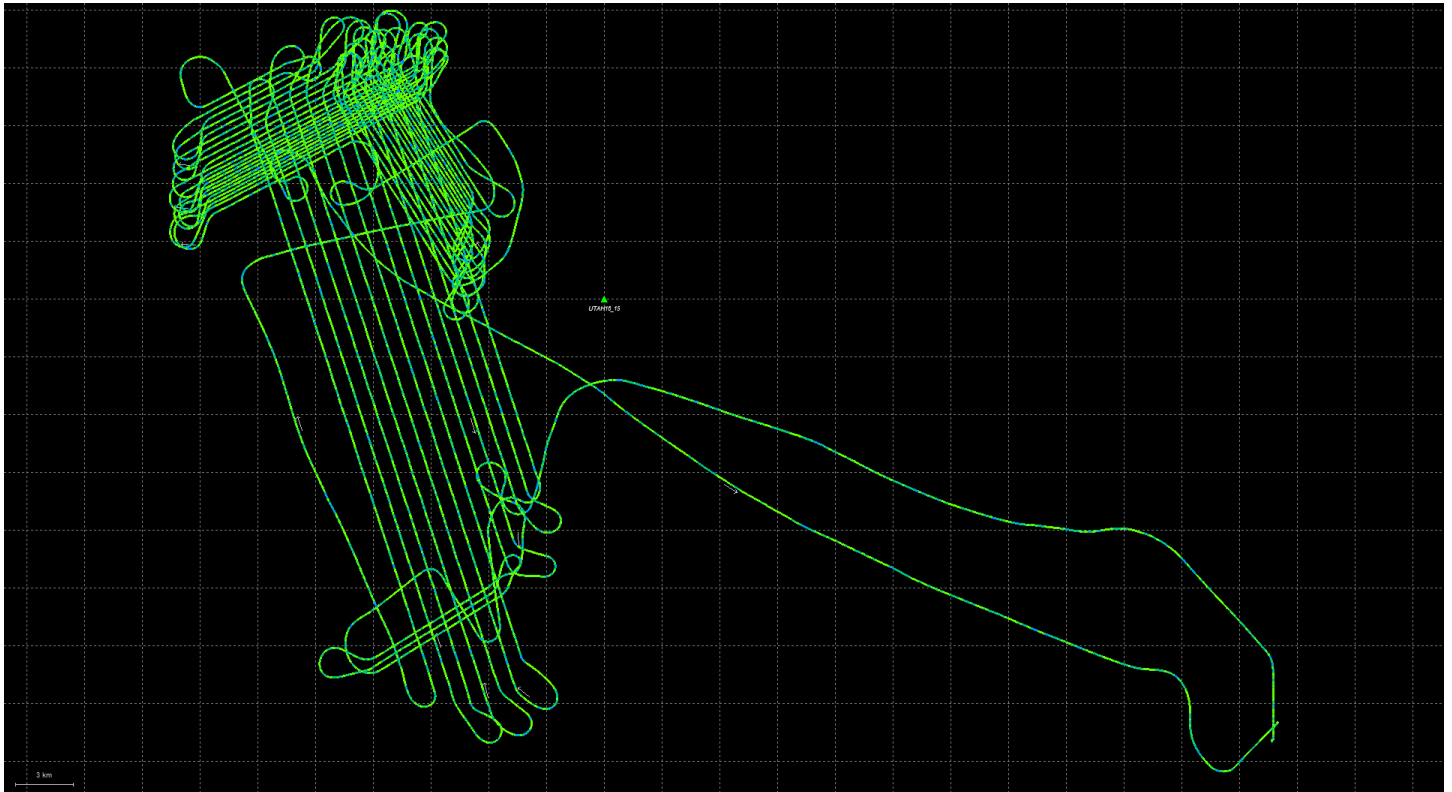
Juggled 4 flightplans between two blocks of reflies, the railroad across the lake, and moving E-W in the QL2 lines. We experienced lag again on startup when deleting old plans from internal memory, and again when switching through plans in flight. We flew over CORS Station P086 for W_QL1 reflly lines 1063-1065. We landed early as EP was experiencing pain and stiffness towards the end of the flight.

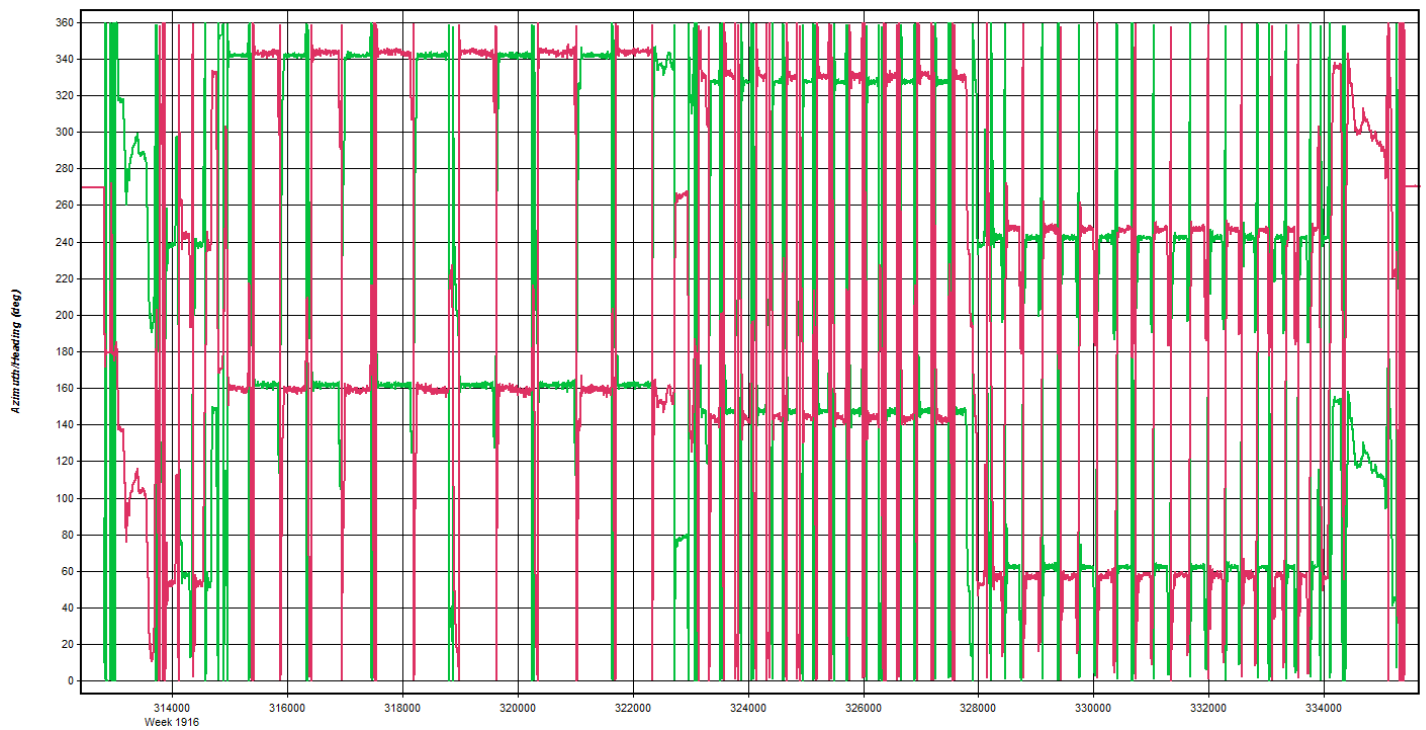
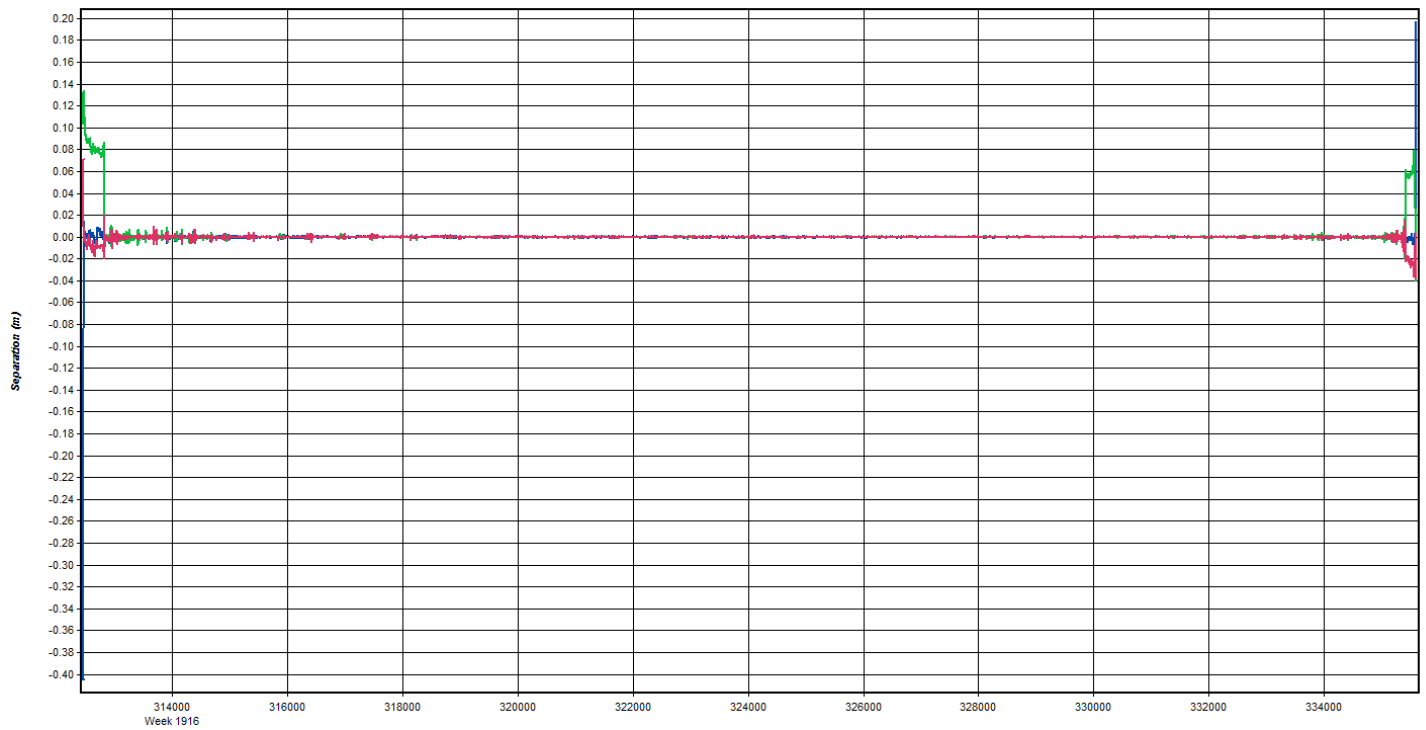
Flt Mgmt File: FMSL_Utah_GSL_QL2_SN7161_rev1

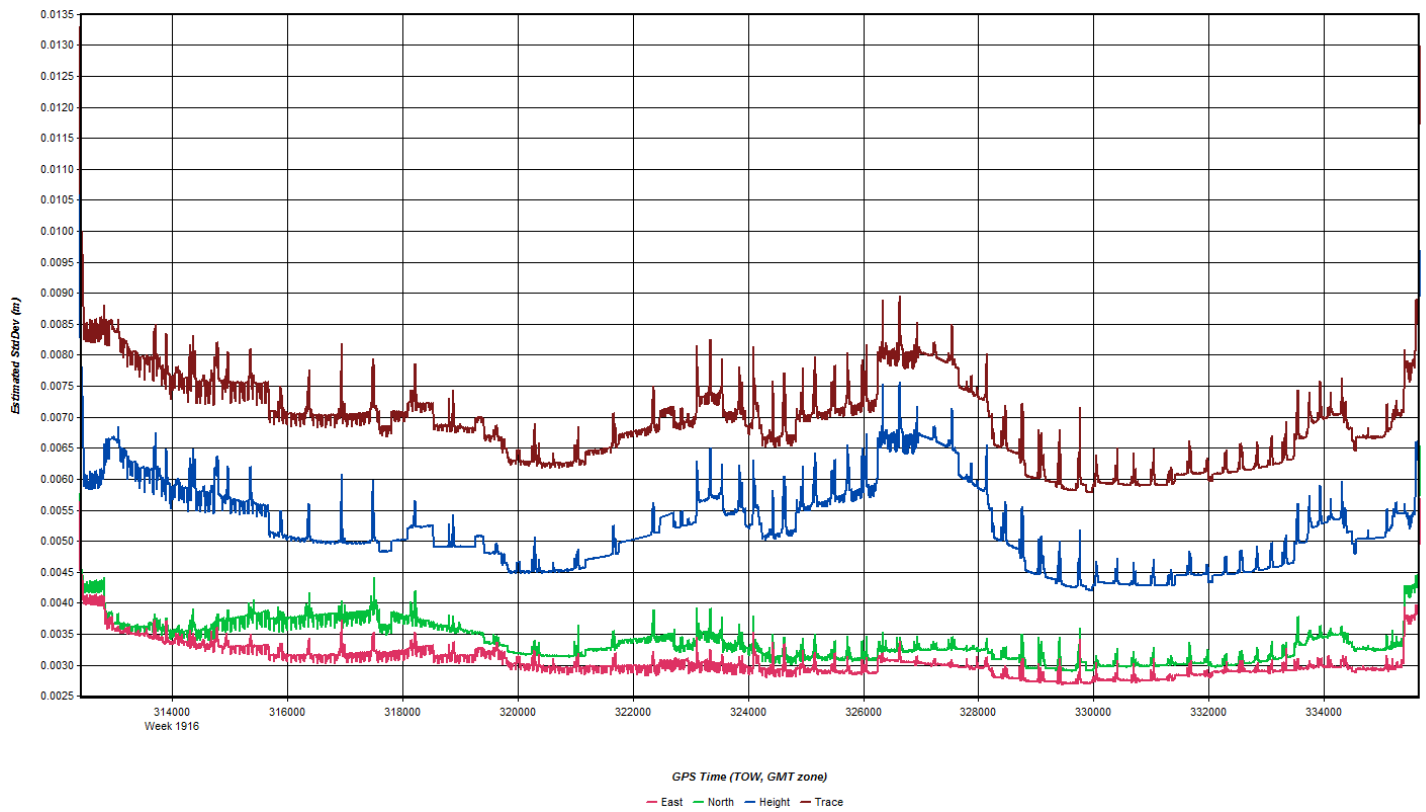
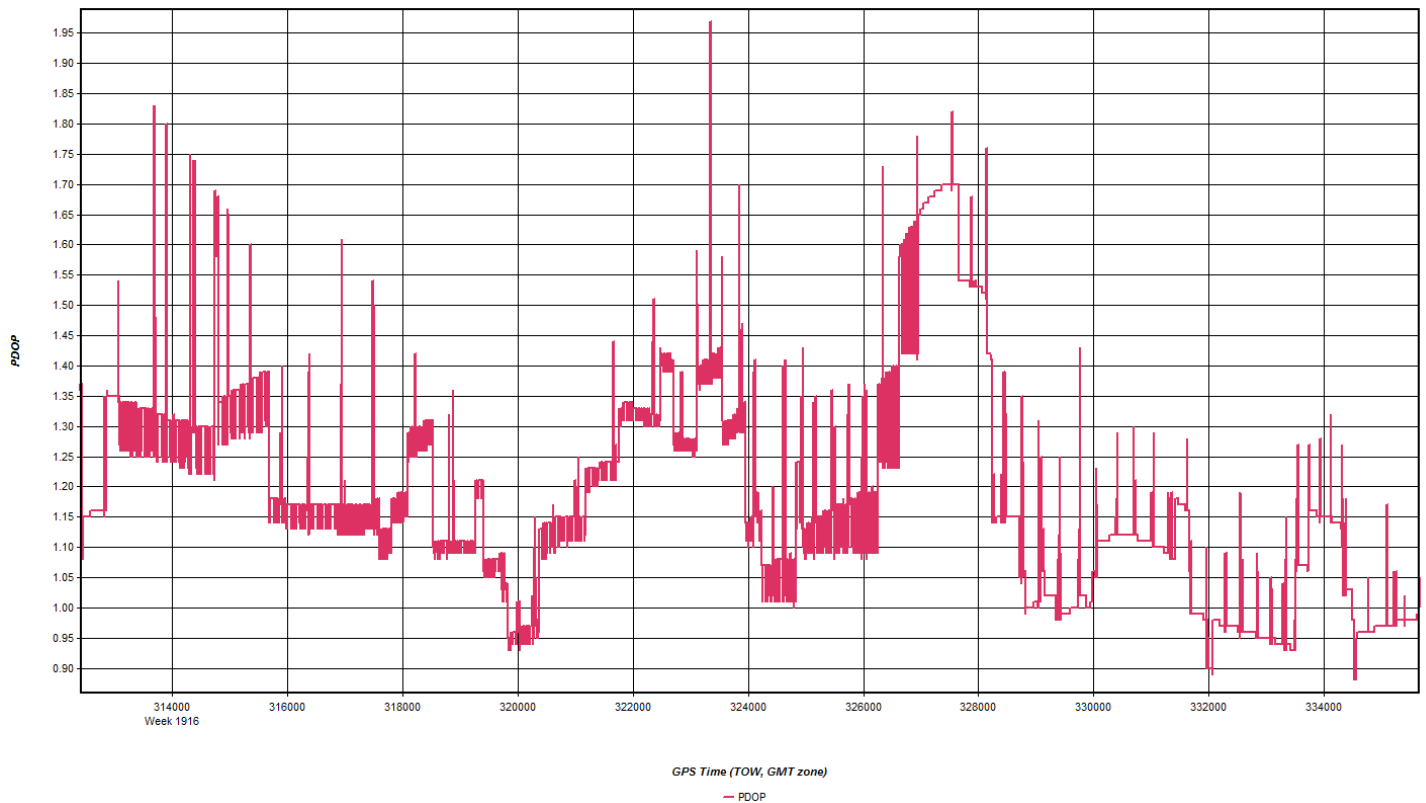
Lines Flown:

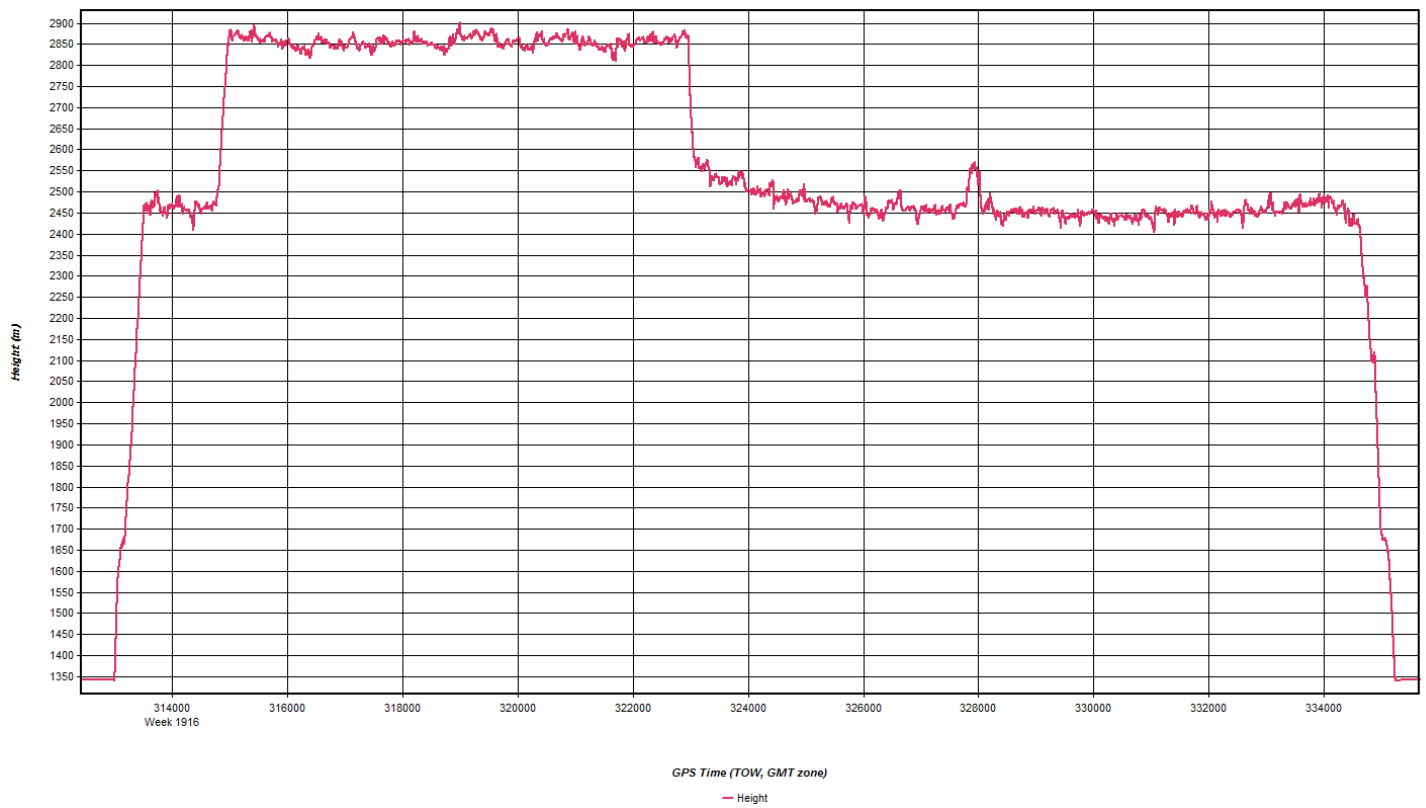
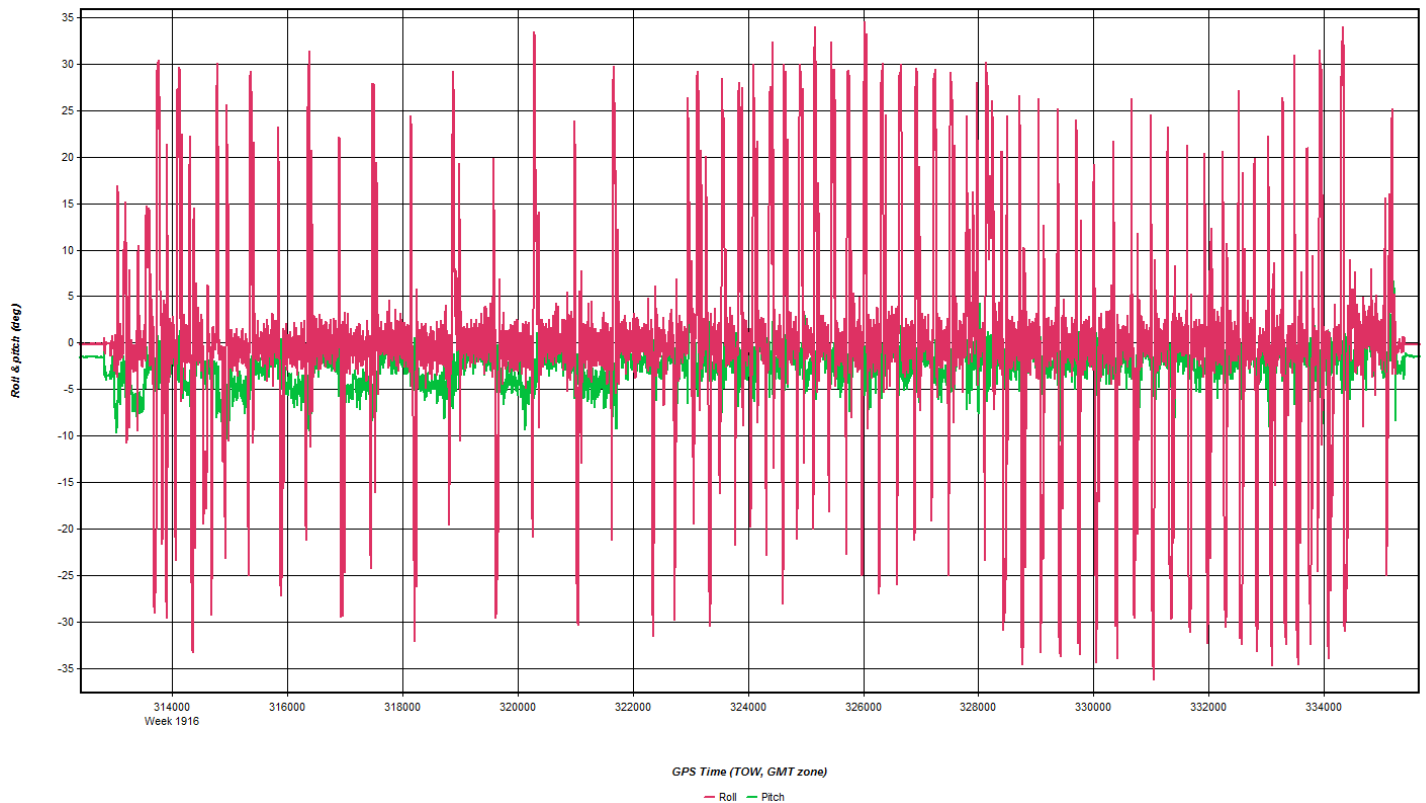
QL2: 2099-2094

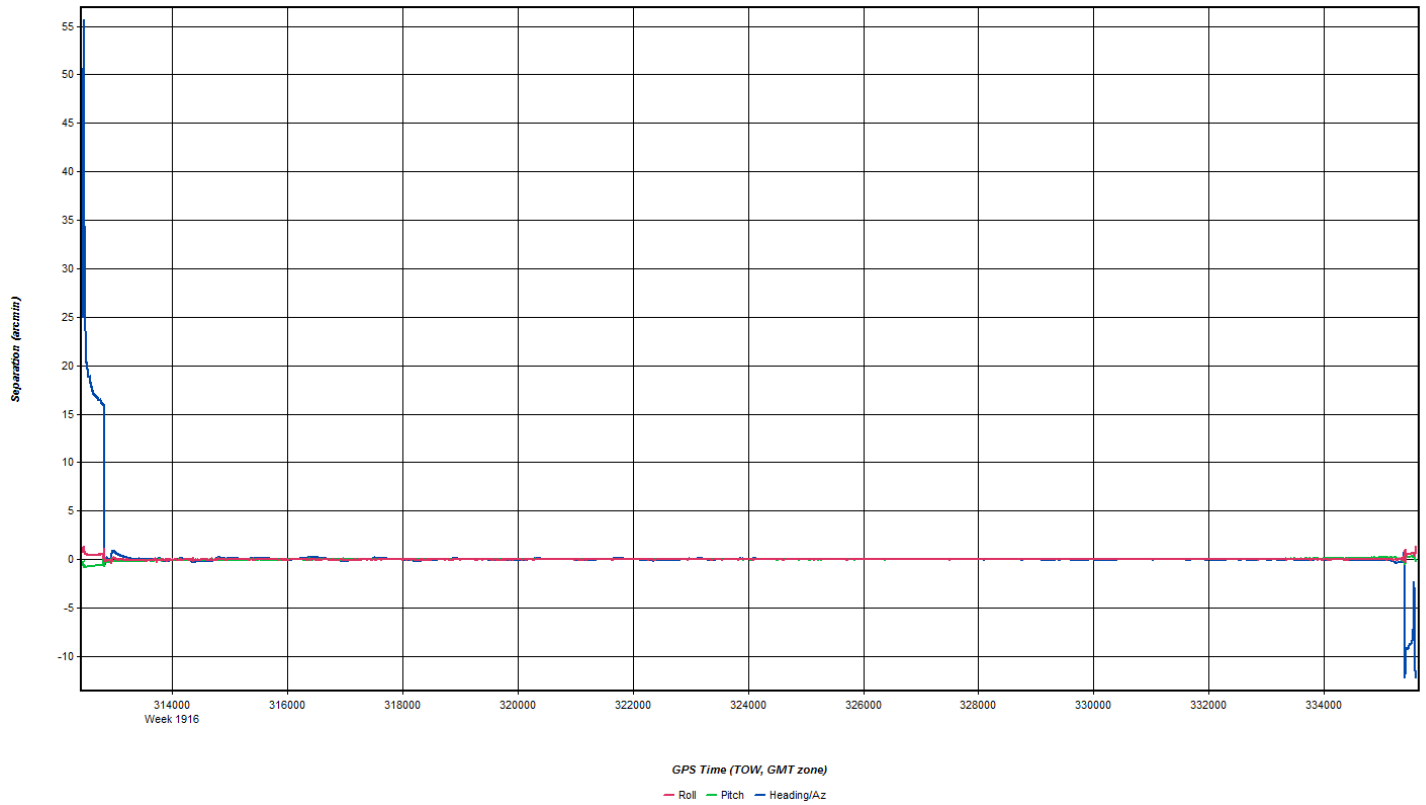
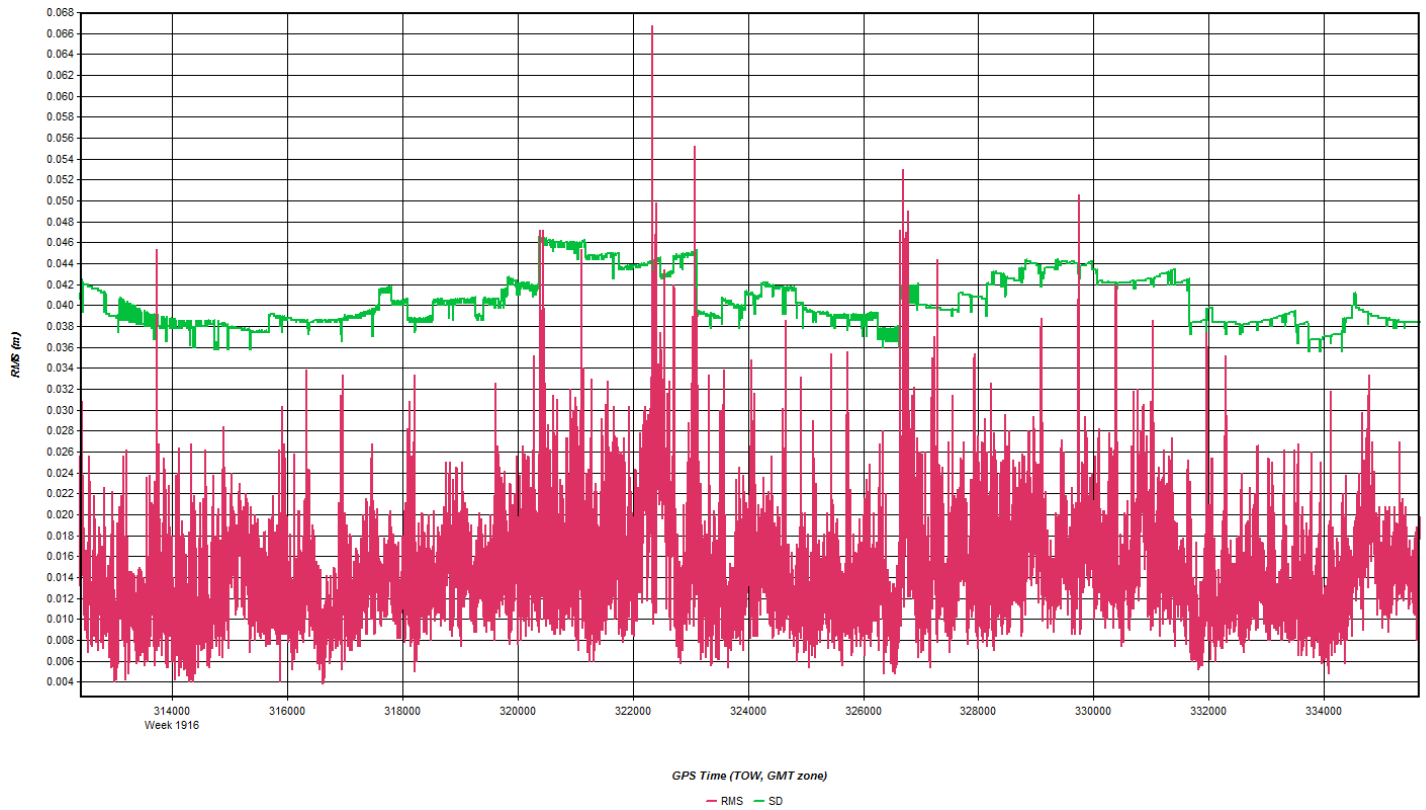
Sep 28, 2016-A (N704MD, SN7161)

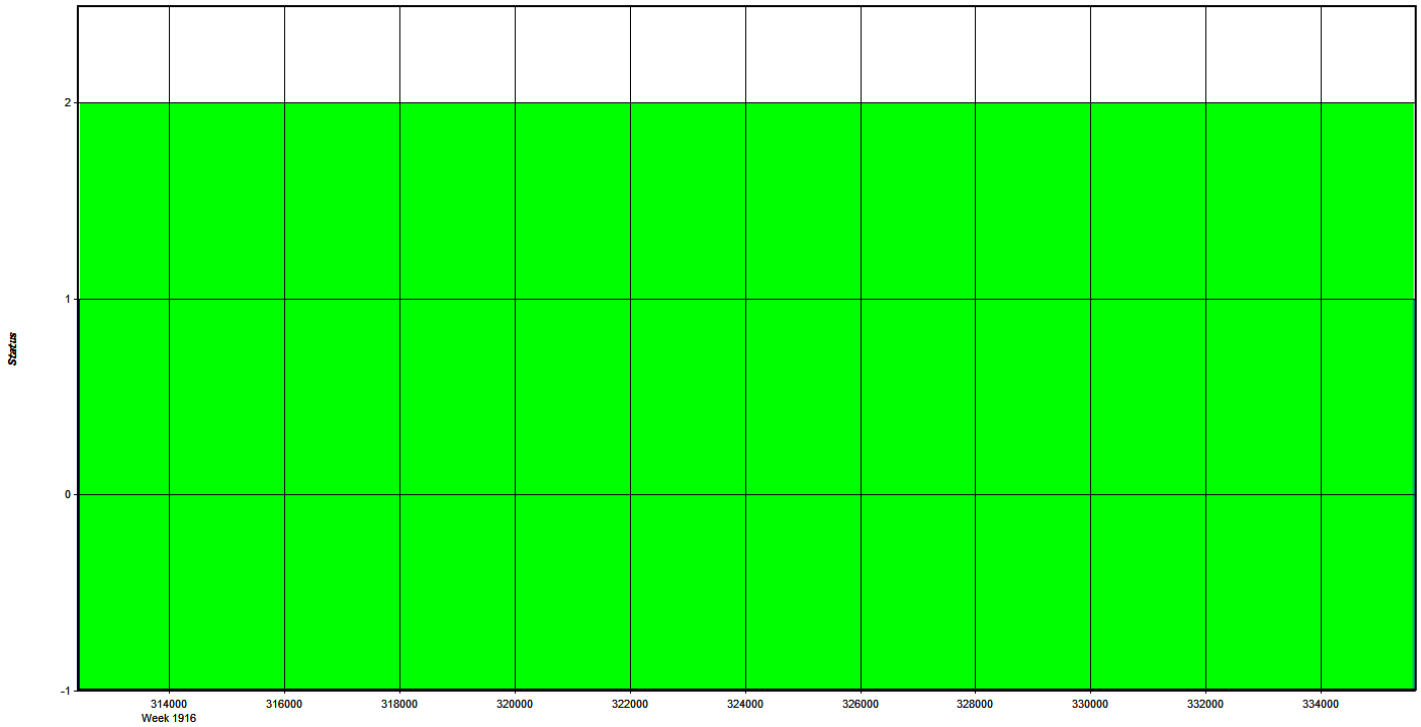












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_15 Name: UTAH16_15 Disabled
 File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD272_

Coordinates
 Latitude: North 41 23 27.45072 Compute from PPP
 Longitude: West 112 25 44.98407 Enter Grid Values
 Ellipsoidal height: 1349.594 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log - QL1

Date: 9/28/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_Utah_GSL_W_QL1_SN7161_rev1		
Pilot: Eric Petersen		Sensor Operator: Drew Johnston

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	8:55:00 AM			
Wheels Down	3:07:00 PM			
Begin Hobbs	11401.5			
End Hobbs	11407.7			
On-line Hobbs: 5.6		Mob Hobbs: 0.6		

Notes

Solid day with no sensor issues.

Flt Mgmt File: FMSL_Utah_GSL_W_QL1_SN7161_rev1

Lines Flown:

GSLW 1158-1160

GSLW 1136-1152

GSLW 1094-1114

Flight Log - QL2

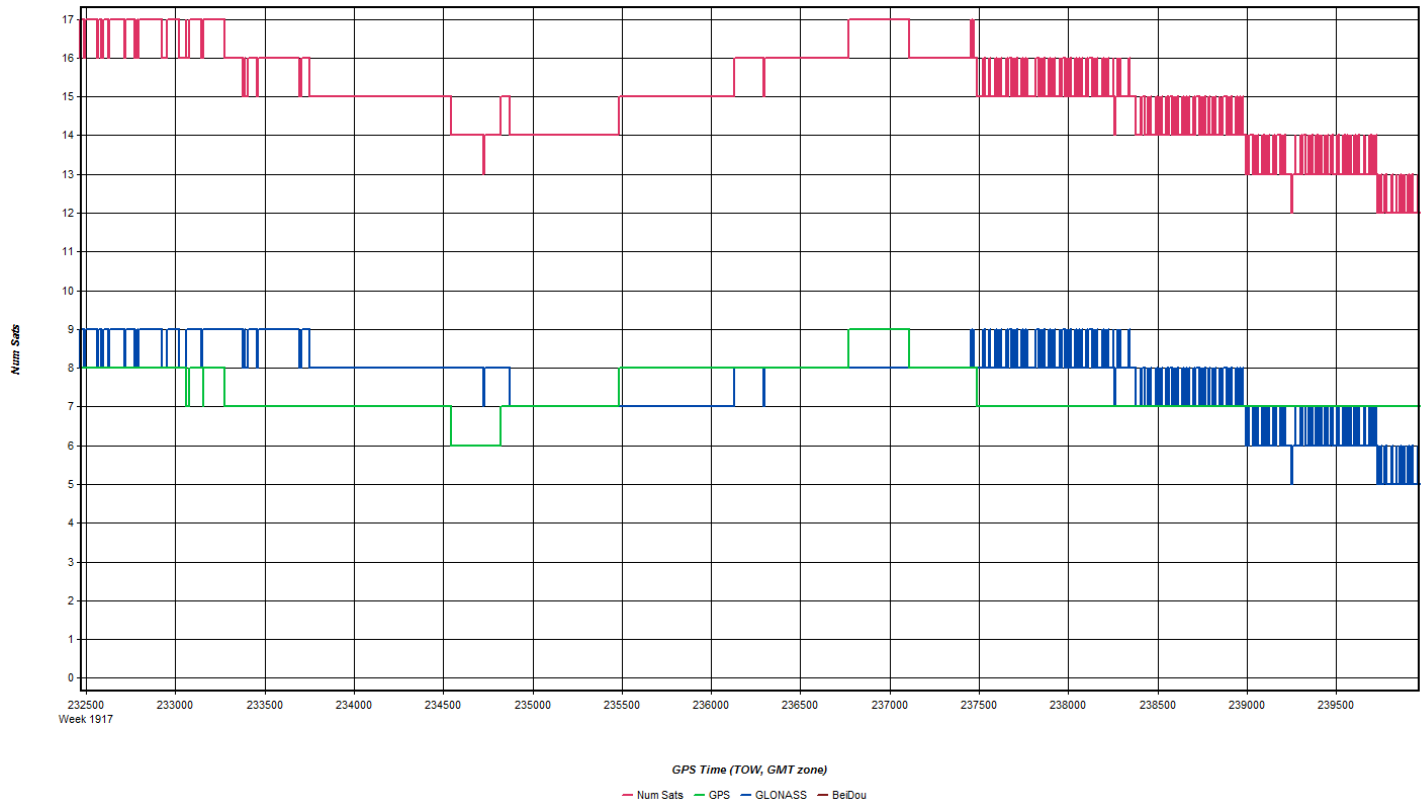
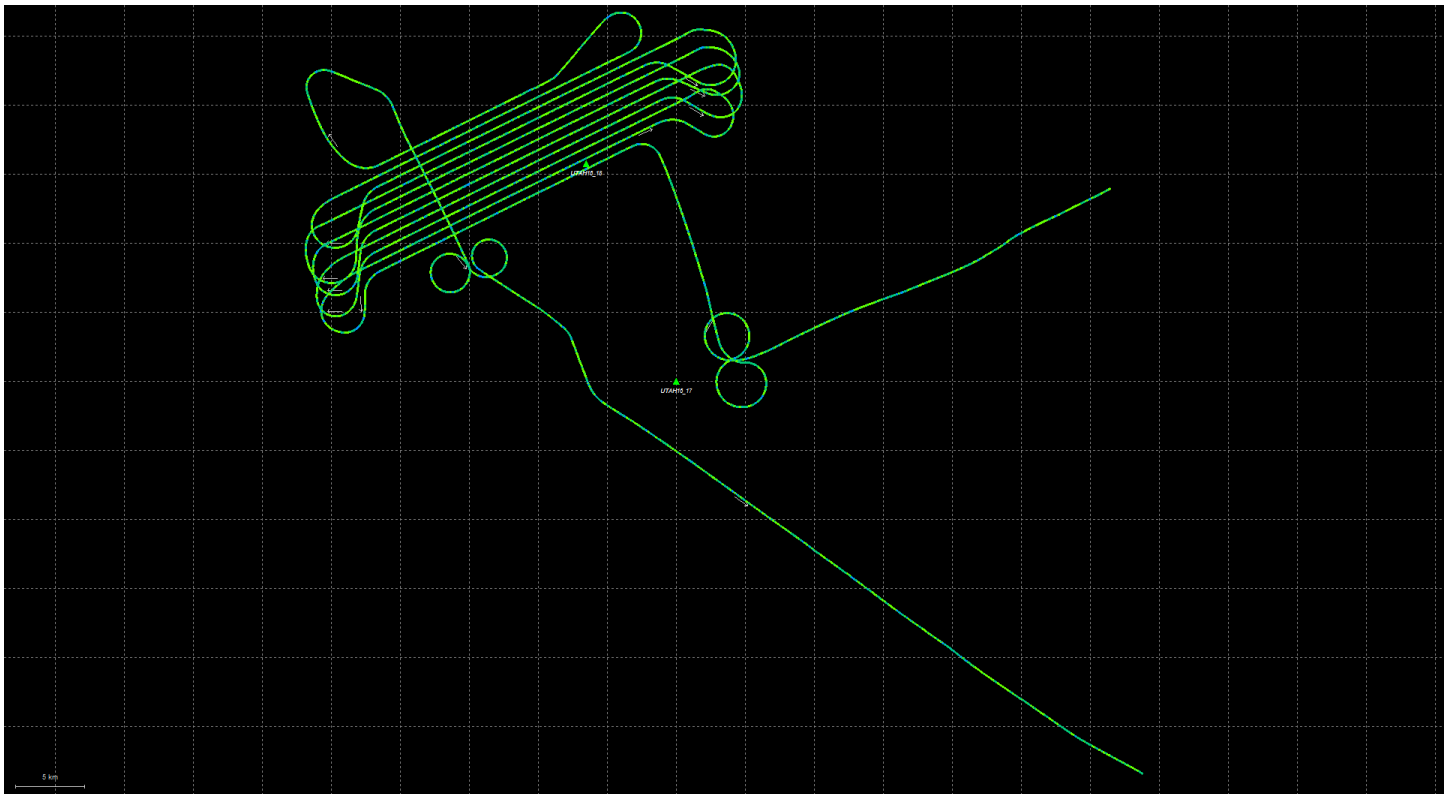
Date: 9/28/2016	Aircraft: N704MD	Sensor: 7161
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File:		
Pilot: Eric Petersen		Sensor Operator: Ian Romansky

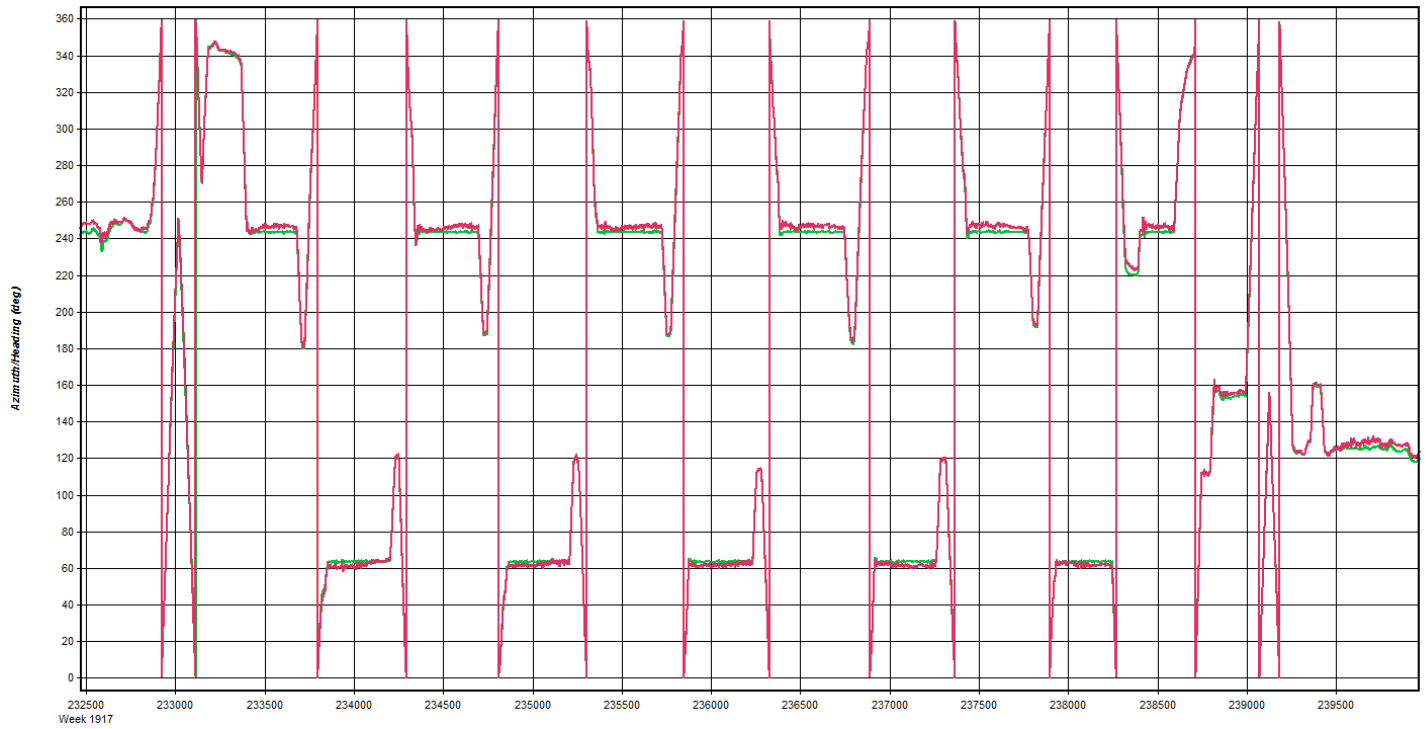
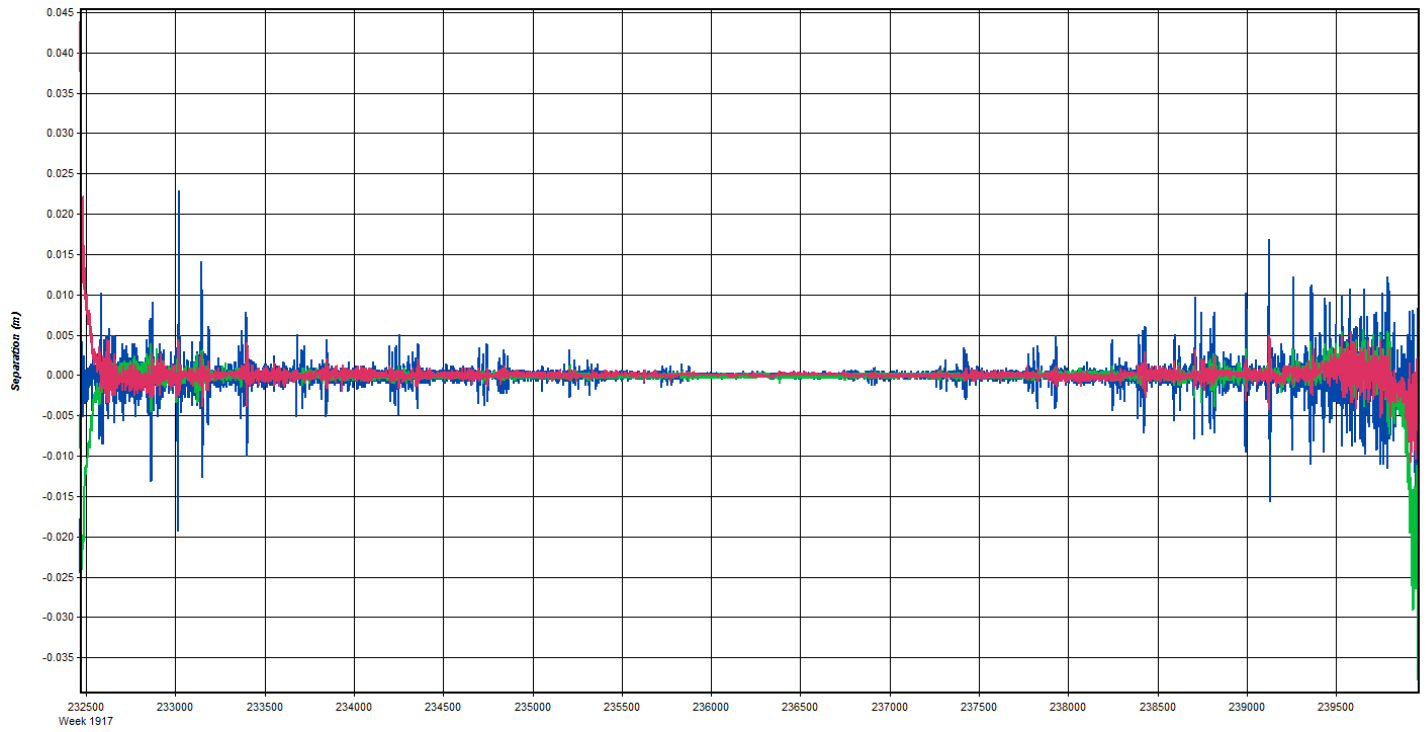
	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	8:55:00 AM			
Wheels Down	3:07:00 PM			
Begin Hobbs	11401.5			
End Hobbs	11407.7			
On-line Hobbs:		Mob Hobbs:		

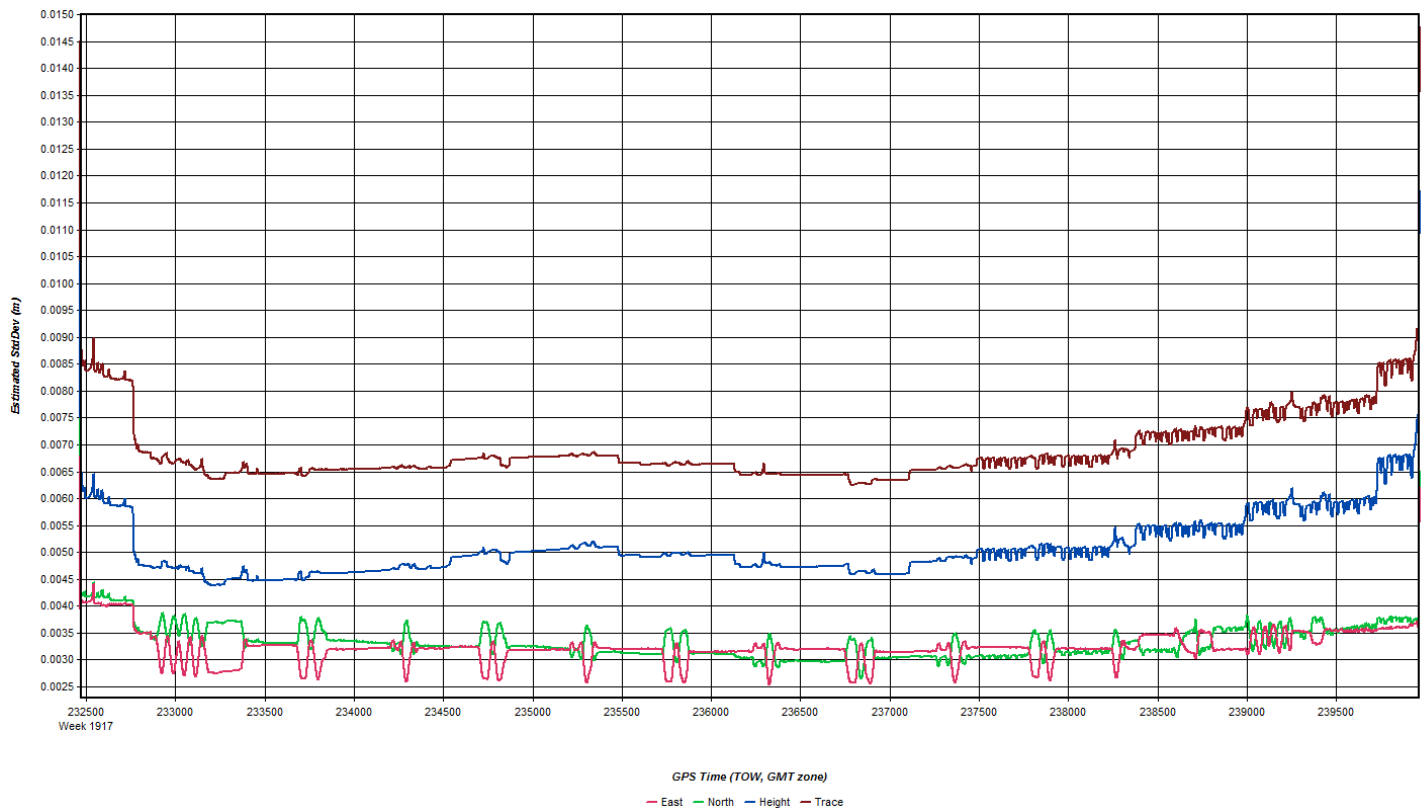
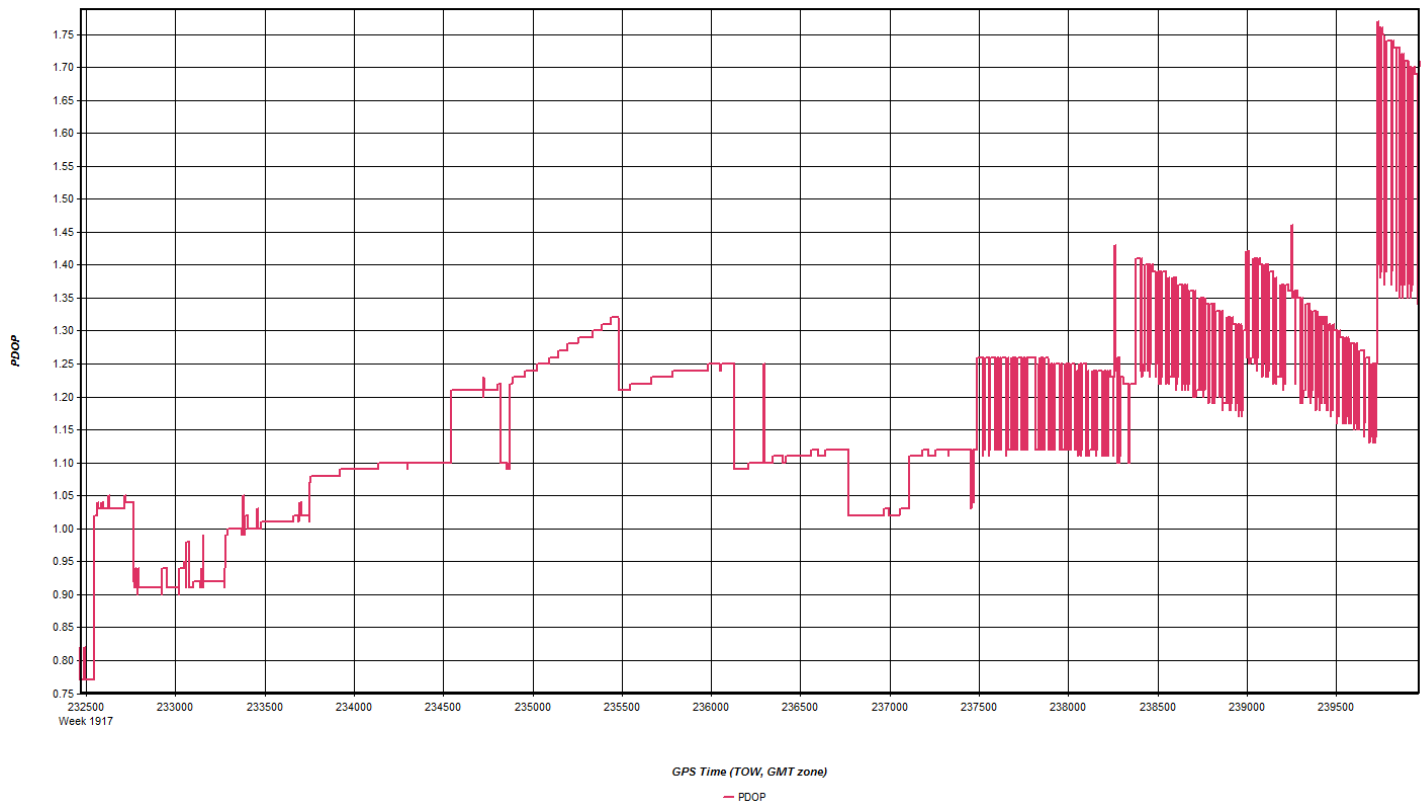
Notes

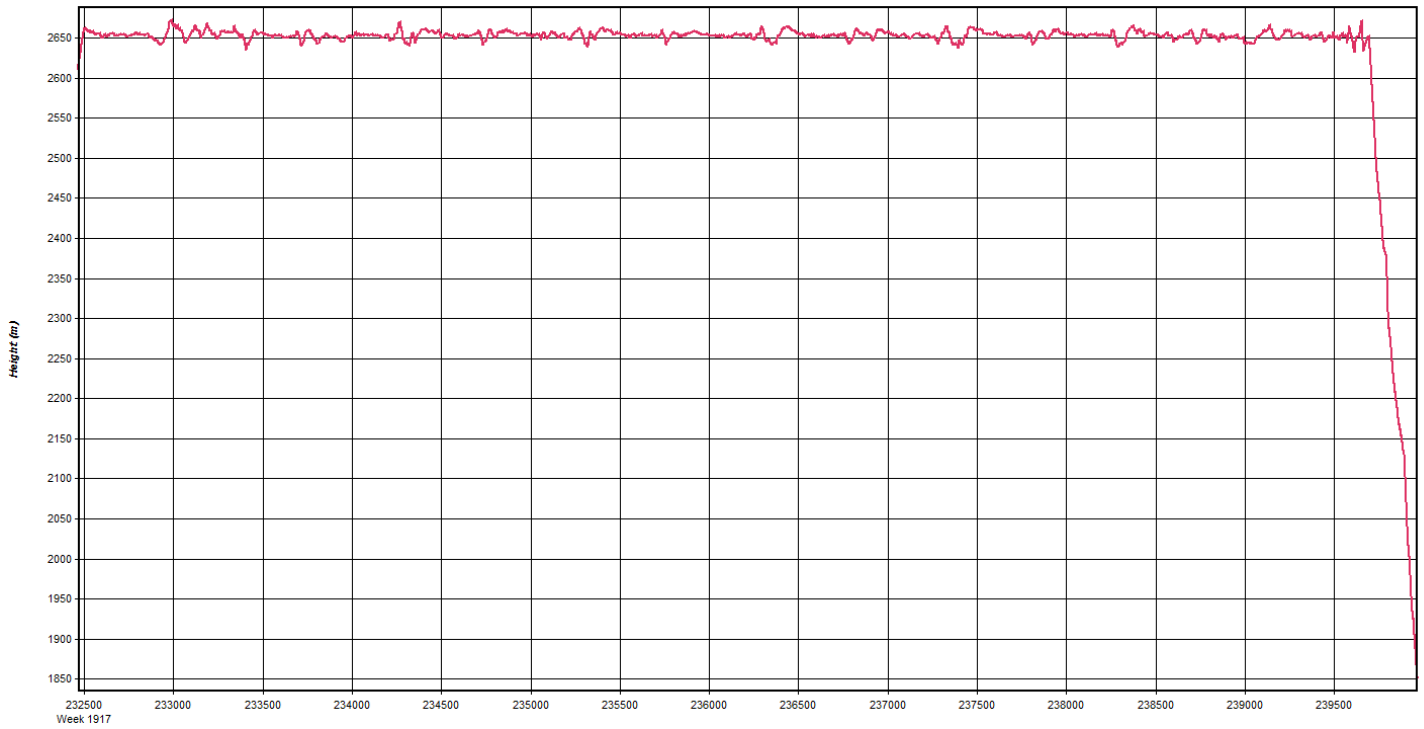
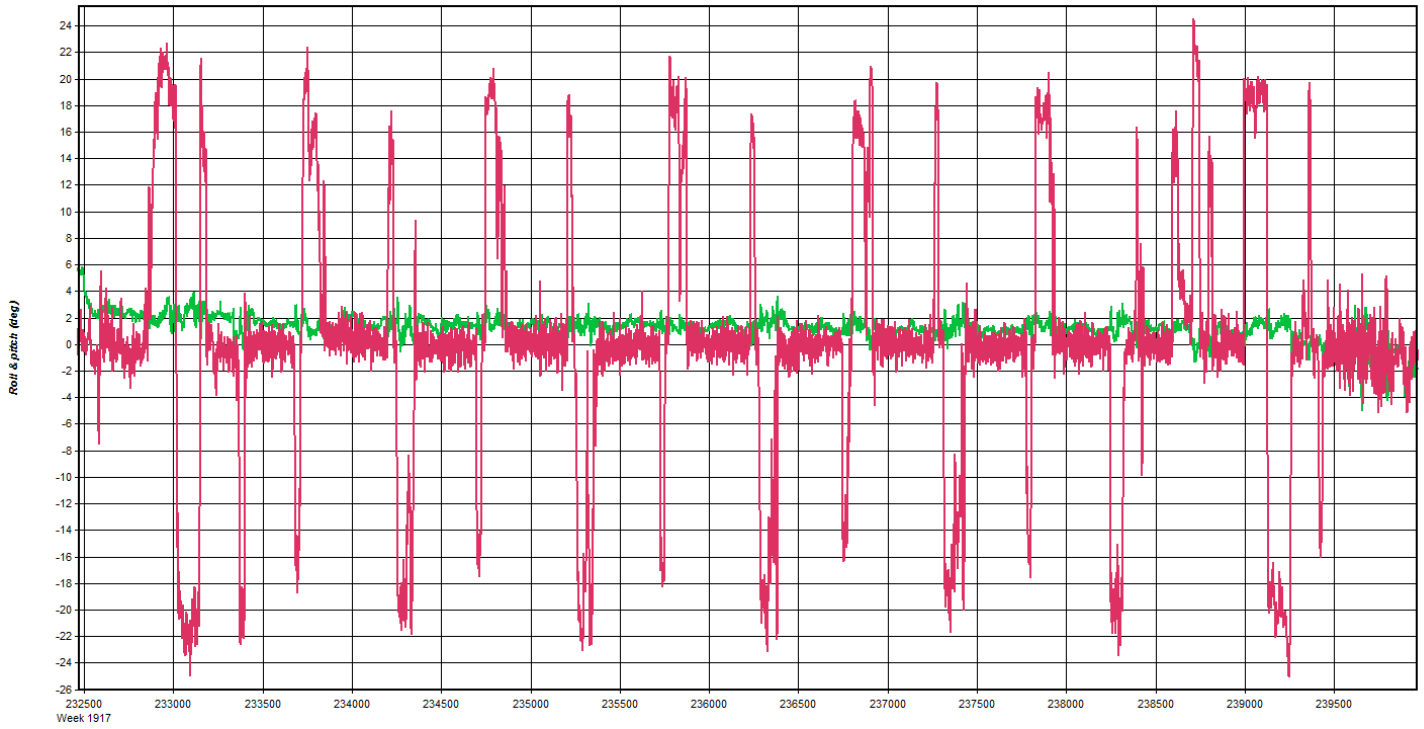
Solid day with no sensor issues.

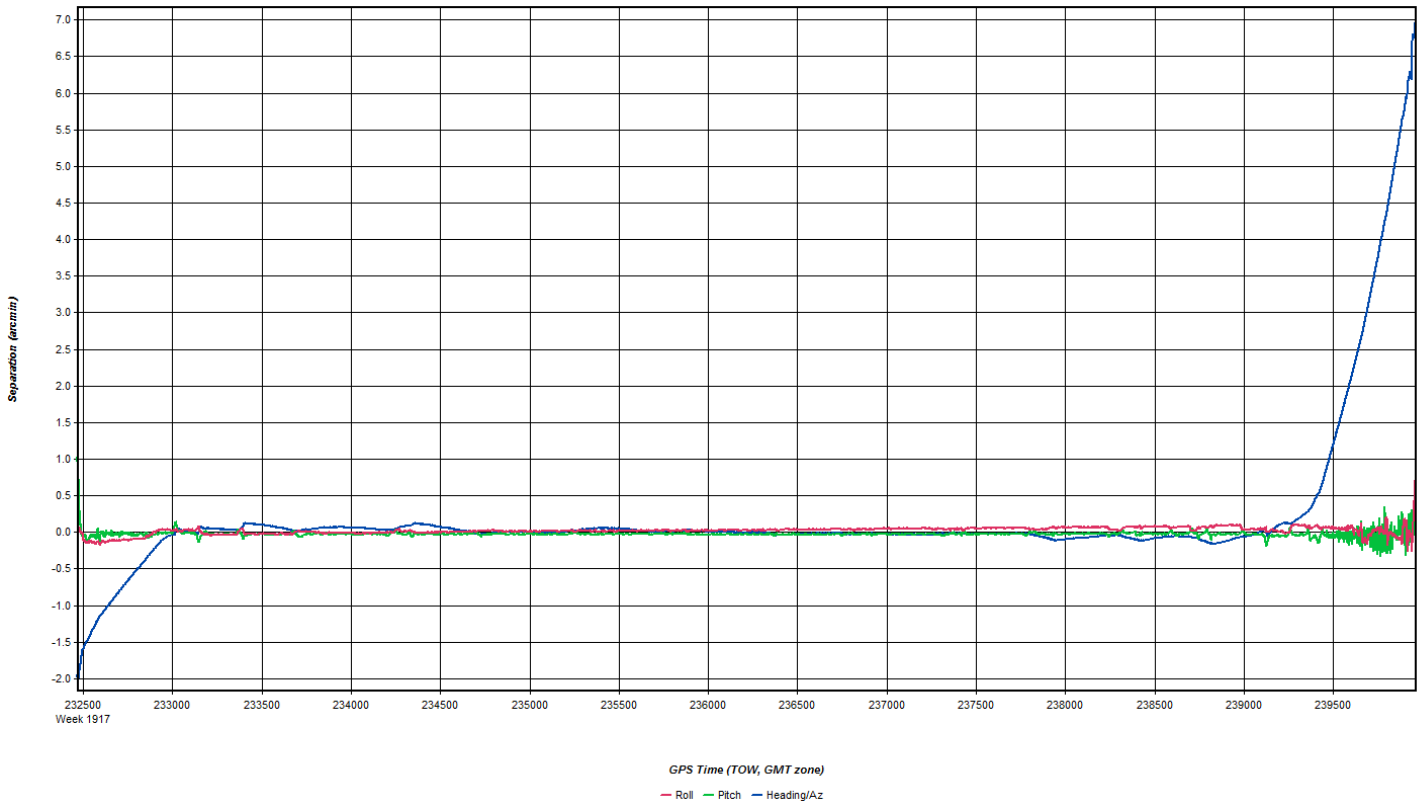
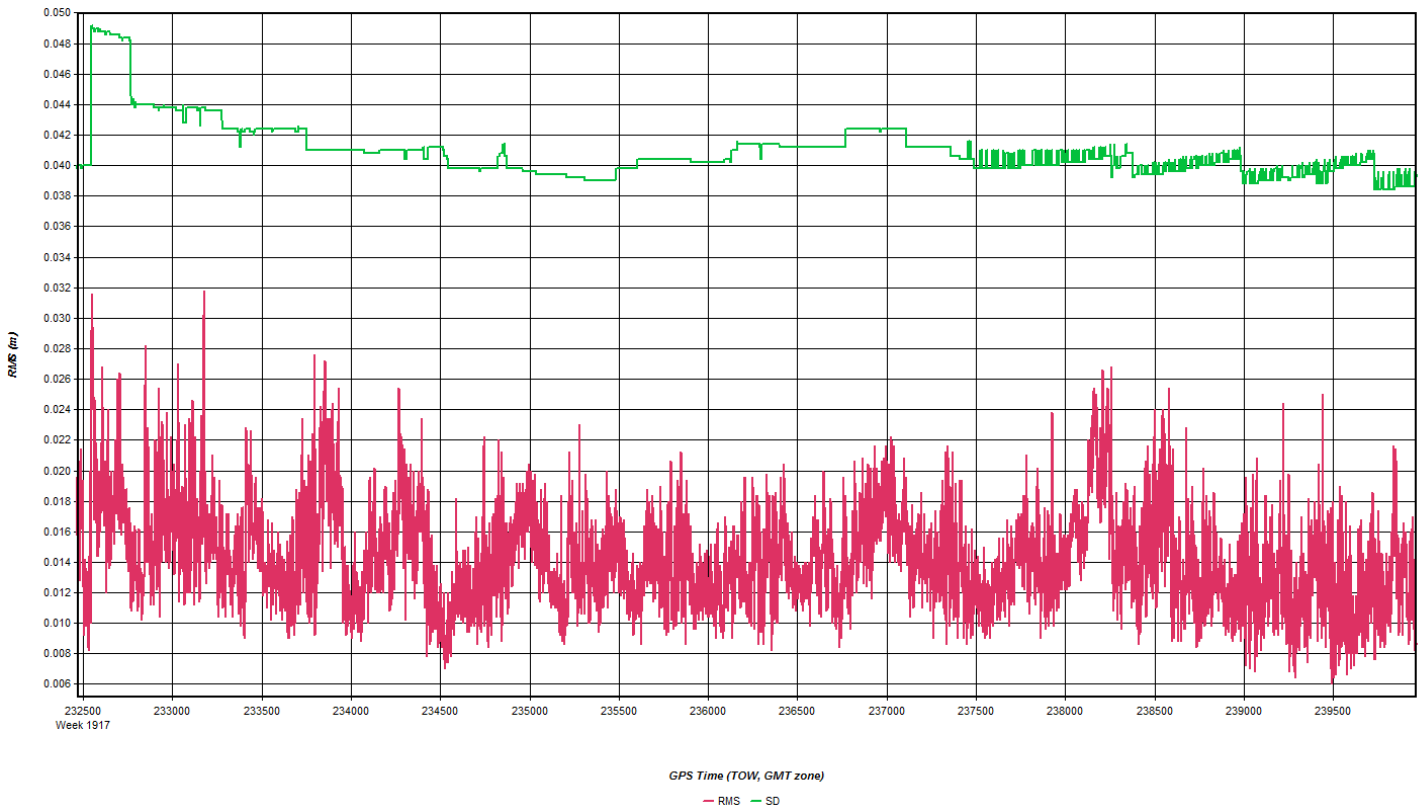
Oct 4, 2016-A (N22GE, SN7161)

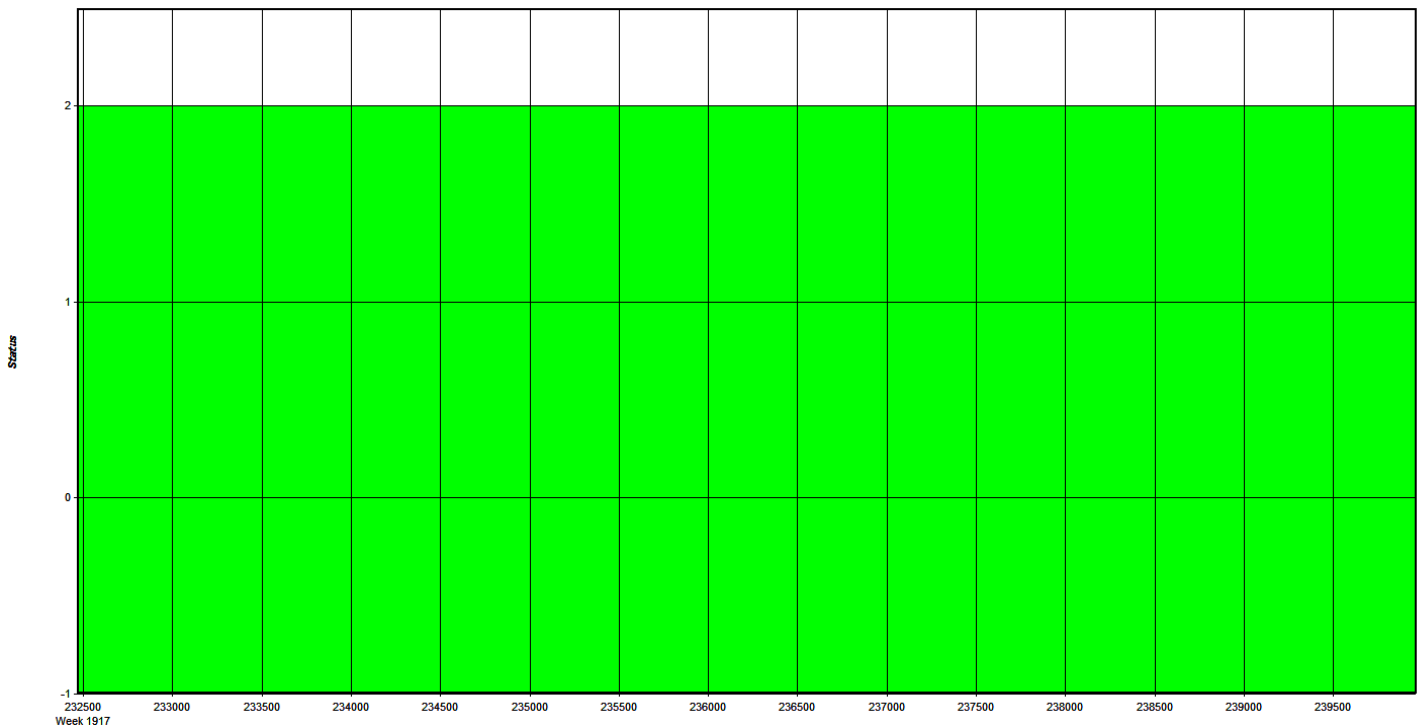












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_17 Name: UTAH16_17 Disabled
 File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD278_

Coordinates
 Latitude: North 41 33 34.80892 Compute from PPP
 Longitude: West 112 37 16.88050 Enter Grid Values
 Ellipsoidal height: 1384.178 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
2: UTAH16_18 Name: UTAH16_18 Disabled
File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD278_

Coordinates
Latitude: North 41 42 03.90037 Compute from PPP
Longitude: West 112 41 57.05219 Enter Grid Values
Ellipsoidal height: 1289.380 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Project: 2016 UTAH LIDAR **Proj #:** 27083 **Flight Mgmt File:** 20161004

Aircraft: 226E **Begin Hobbs:** 8823.8 **End Hobbs:** 8874.4 **Total:** 3.6 **Pilot:** CAM S **Co-Pilot:** Tech: M Alast

Dep Apt: 050 **Dep Time (Lcl):** 9:00 (Z): 15:00 **Arr Apt:** 050 **Arr Time (Local):** 1844 (Z): 1844 **Tot Time Aloft:** 3.75

CORS: Y / N **Sta 1:** **Sta 2:** **Flyovers:** Y / N **If Y, times:** Sta 1) **Sta 2)**

GPS Unit: Y / N **Sta 1:** KTAH16.17318 **Sta 2:** **Flyovers:** Y / N **If Y, times:** Sta 1) **Sta 2)**

Gd Temp beg: 9 °C **End:** 12 °C **OAT beg:** -4 °C **End:** -4 °C **Altimeter begin:** 2994 **end:** 2995

Date: 10-11-17 **Page:** 1 of 1

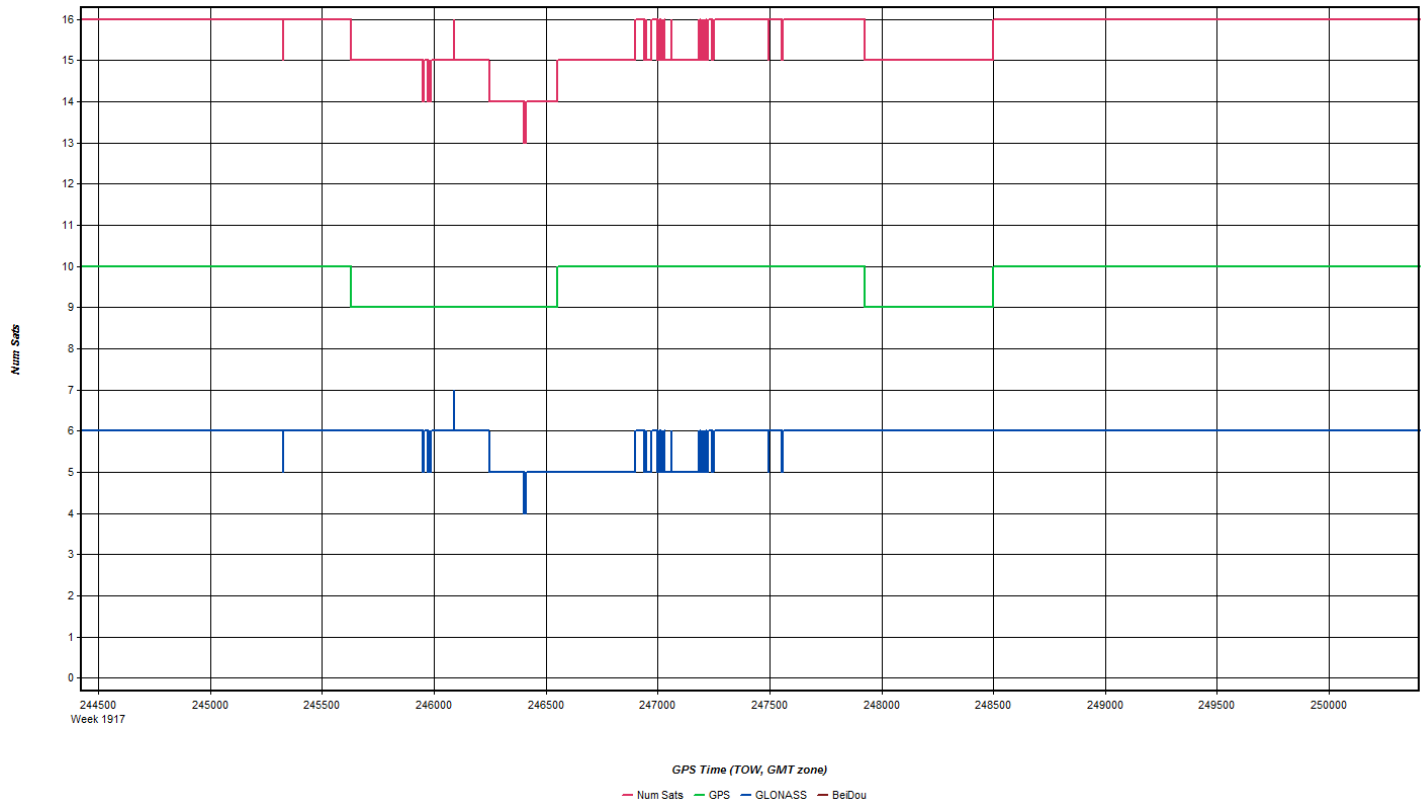
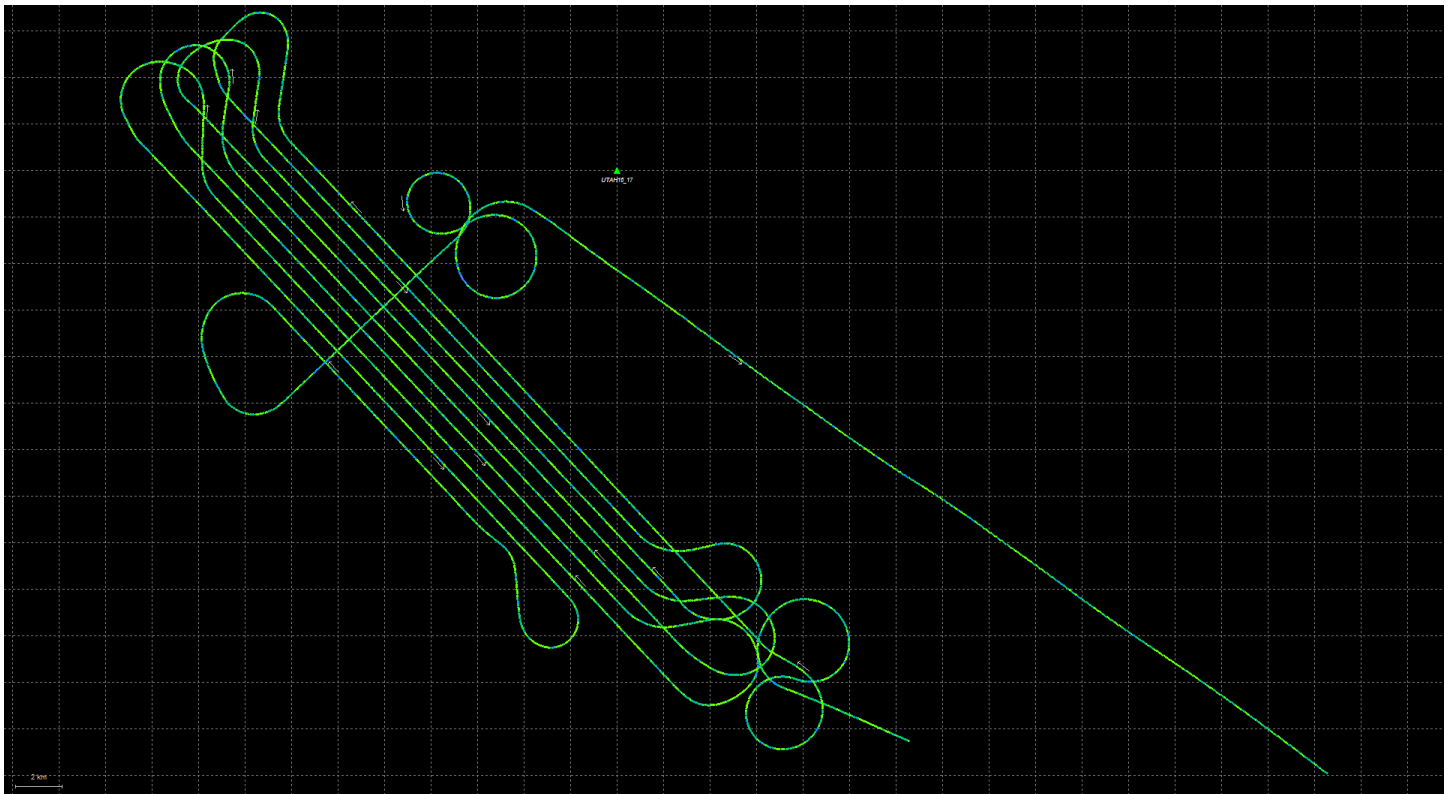
Life: B C D E

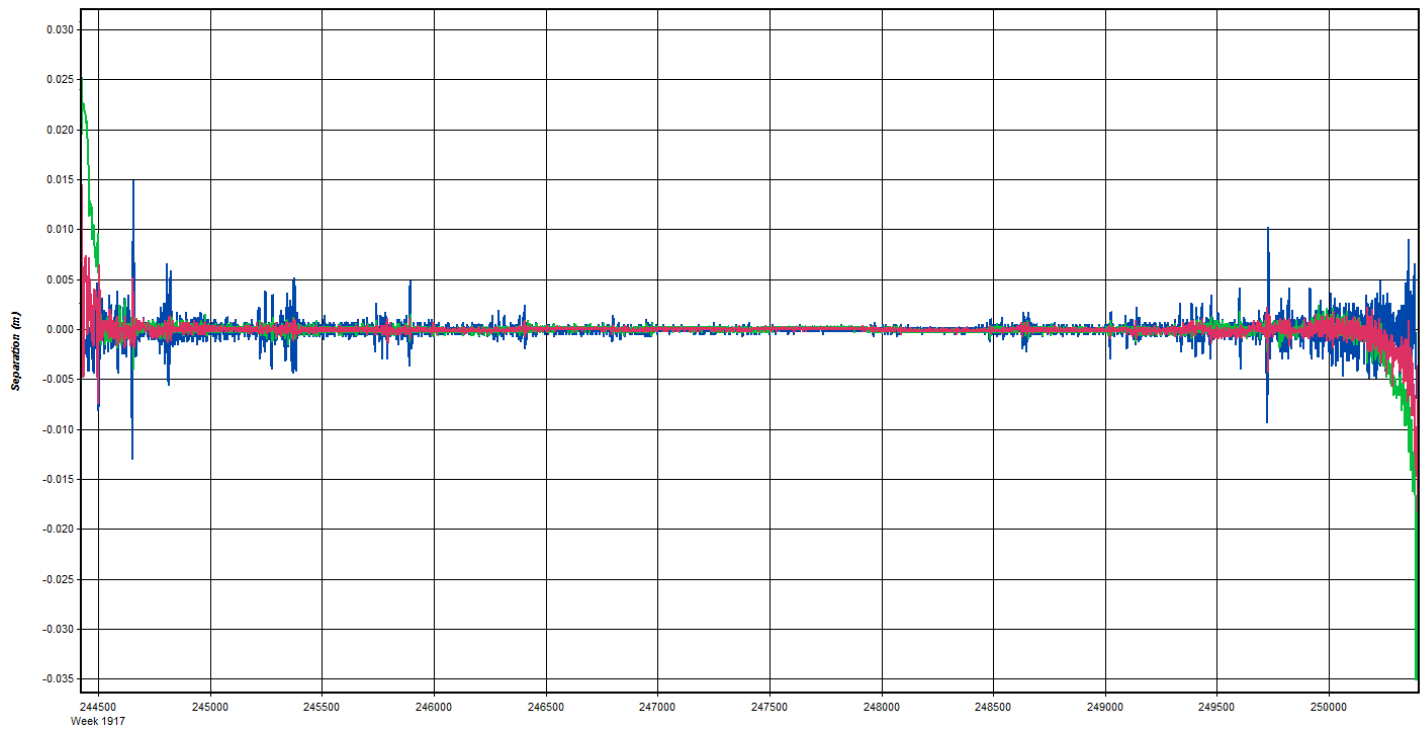
Log CB: 425 **End CB:** 706 **Tot CB:** **Storage Name:** 017

Line #	Type	Serial #	Alt AGL	Alt AMSL	GPS Altitude	PDOP/sats	Gd Spd	End (UTC)	Scan Freq	MPLA	Y / N	Pulse Rate	Pulse in Air	Pulse Rate	Power	PPSM	Avg Pt Spacing	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc			
																		Max Gdepd	Avg Terr Ht	Turb (0..3)	
2057	LIDAR	1654	7161	87	8.7	1.1/18	139	1711	53	194	Y / N	194	72	72	72	72	72	72			
2058	LIDAR	1702	7161	87	8.7	1.1/18	131	1719	53	194	Y / N	194	72	72	72	72	72	72			
2059	LIDAR	1714	7161	87	8.7	1.2/17	145	1723	53	194	Y / N	194	72	72	72	72	72	72			
2050	LIDAR	1723	7161	87	8.7	1.2/17	139	1732	53	194	Y / N	194	72	72	72	72	72	72			
2051	LIDAR	1740	7161	87	8.7	1.2/17	147	1745	53	194	Y / N	194	72	72	72	72	72	72			
2052	LIDAR	1749	7161	87	8.7	1.2/17	145	1754	53	194	Y / N	194	72	72	72	72	72	72			
2053	LIDAR	1757	7161	87	8.7	1.2/18	142	1802	53	194	Y / N	194	72	72	72	72	72	72			
2054	LIDAR	1806	7161	87	8.7	1.3/16	146	1810	53	194	Y / N	194	72	72	72	72	72	72			
2055	LIDAR	1814	7161	87	8.7	1.2/16	141	1816	53	194	Y / N	194	72	72	72	72	72	72			
2056	LIDAR	1820	7161	87	8.7	1.2/17	139	1822	53	194	Y / N	194	72	72	72	72	72	72			
TRAFFIC IN AOI																					
CROSSFLIGHT																					

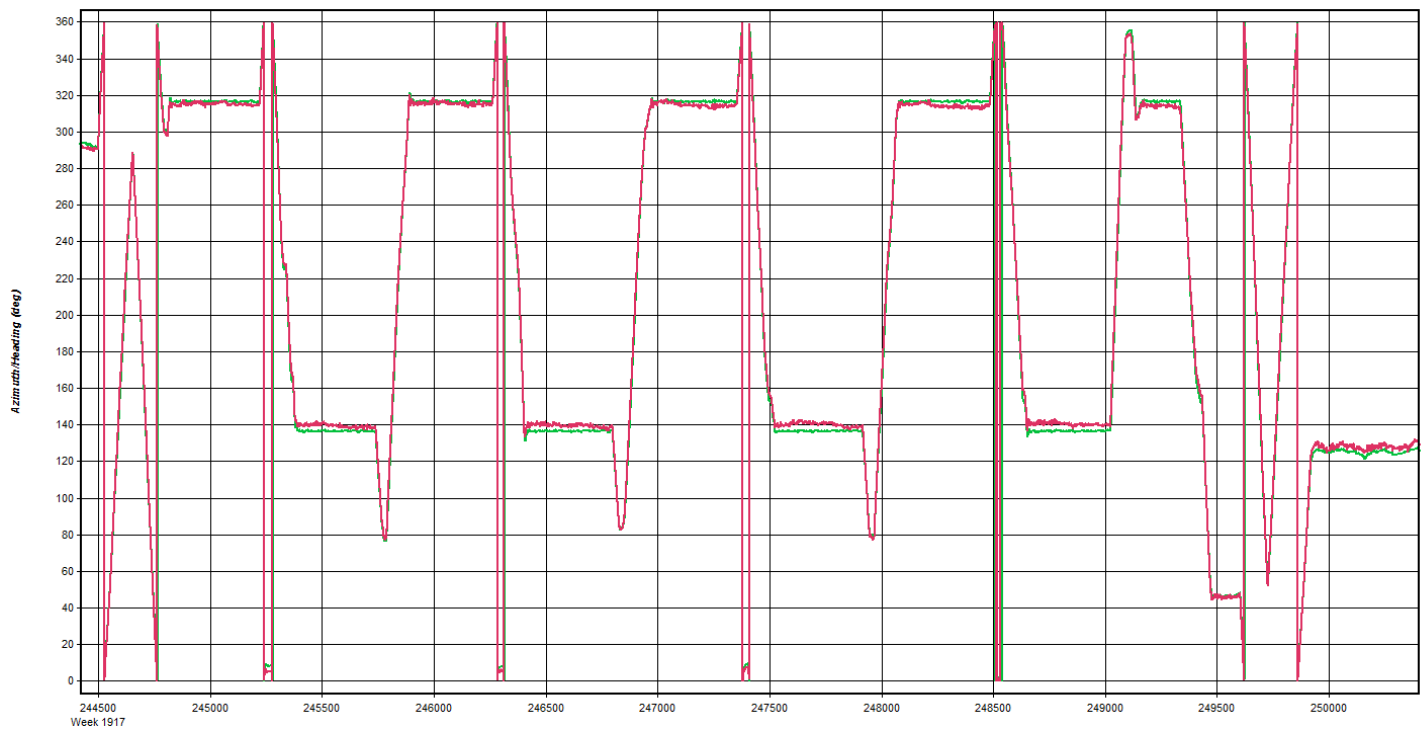
Total Proj Lines: **Lines Flown:** **Lines Remain:** **Online Time:** 1.5 **Job Time:** 1 **Notes:**

Oct 4, 2016-B (N22GE, SN7161)

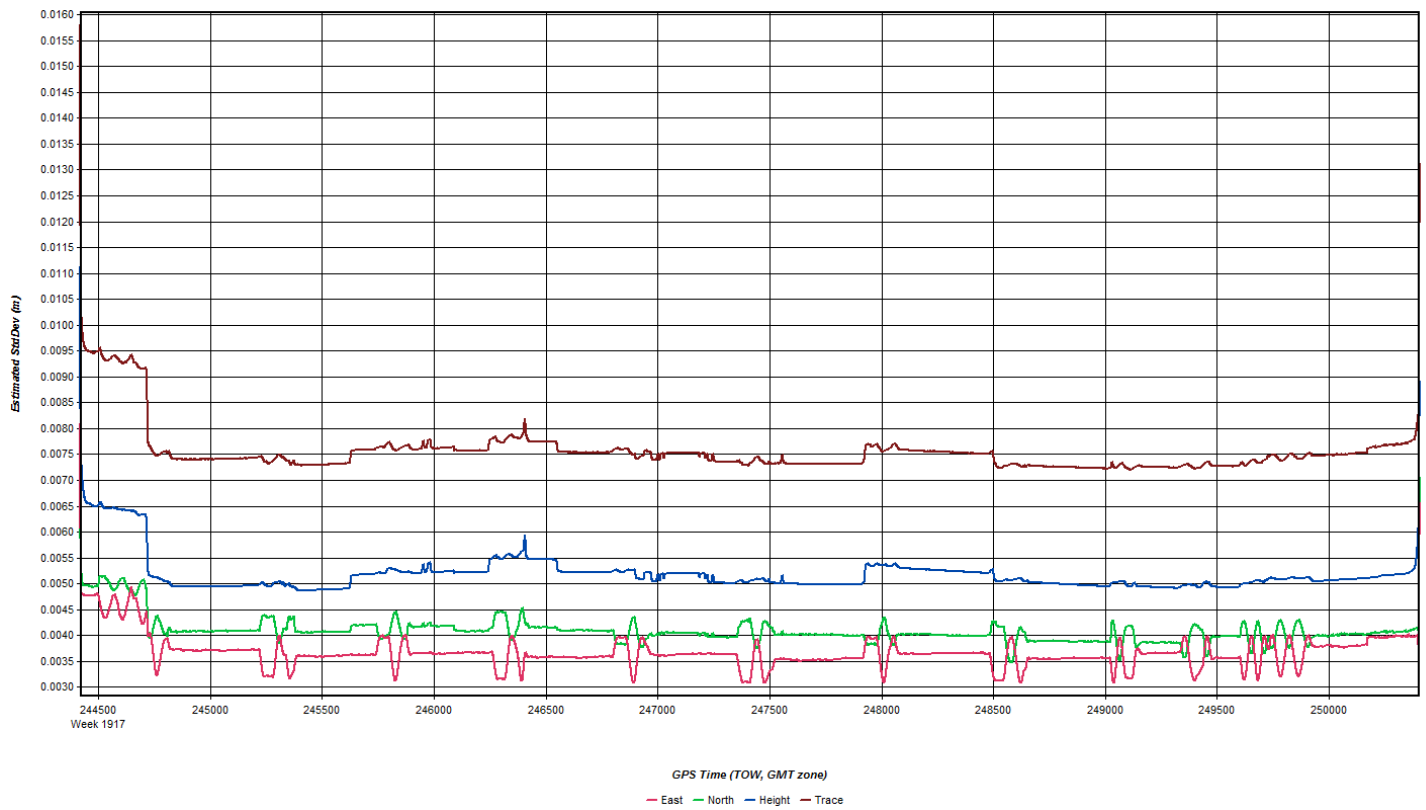
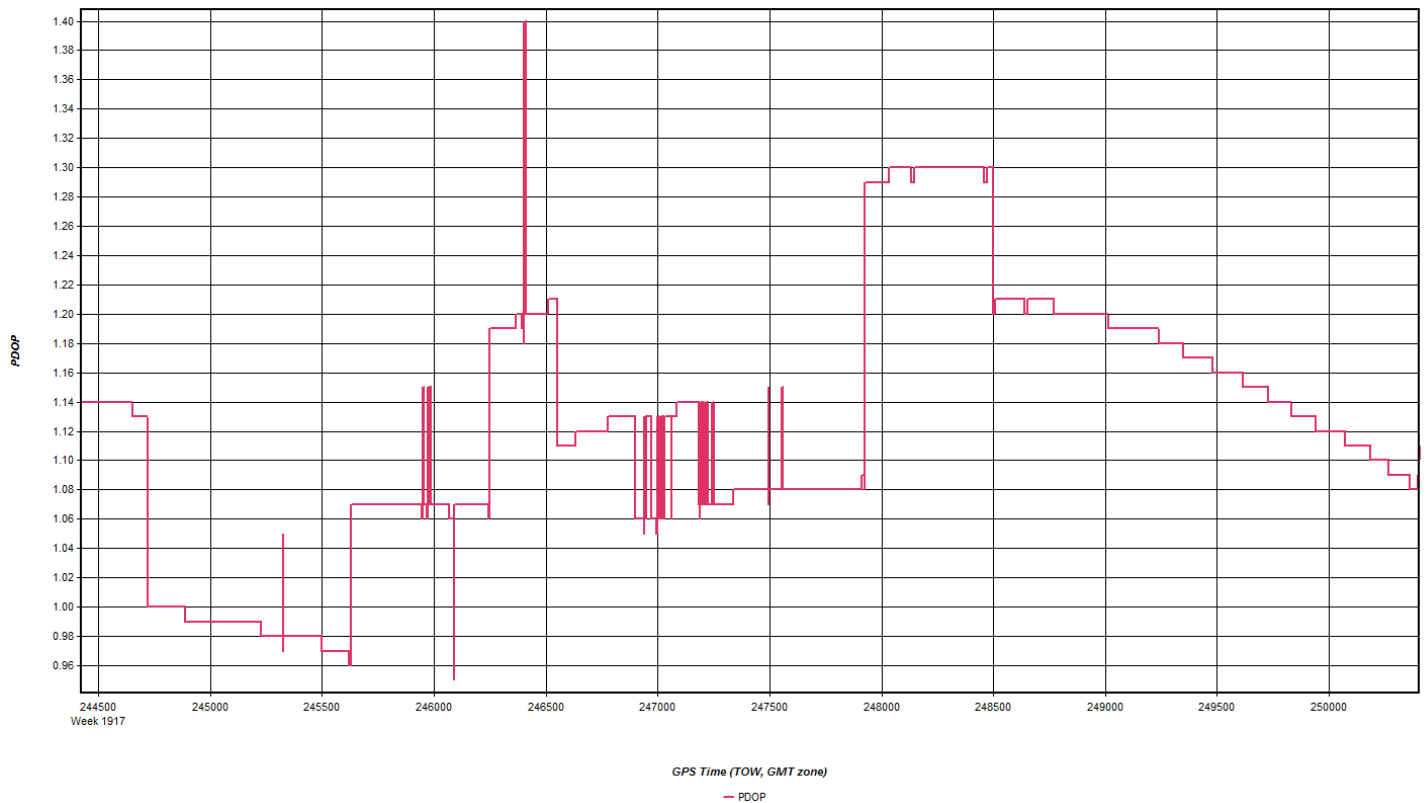


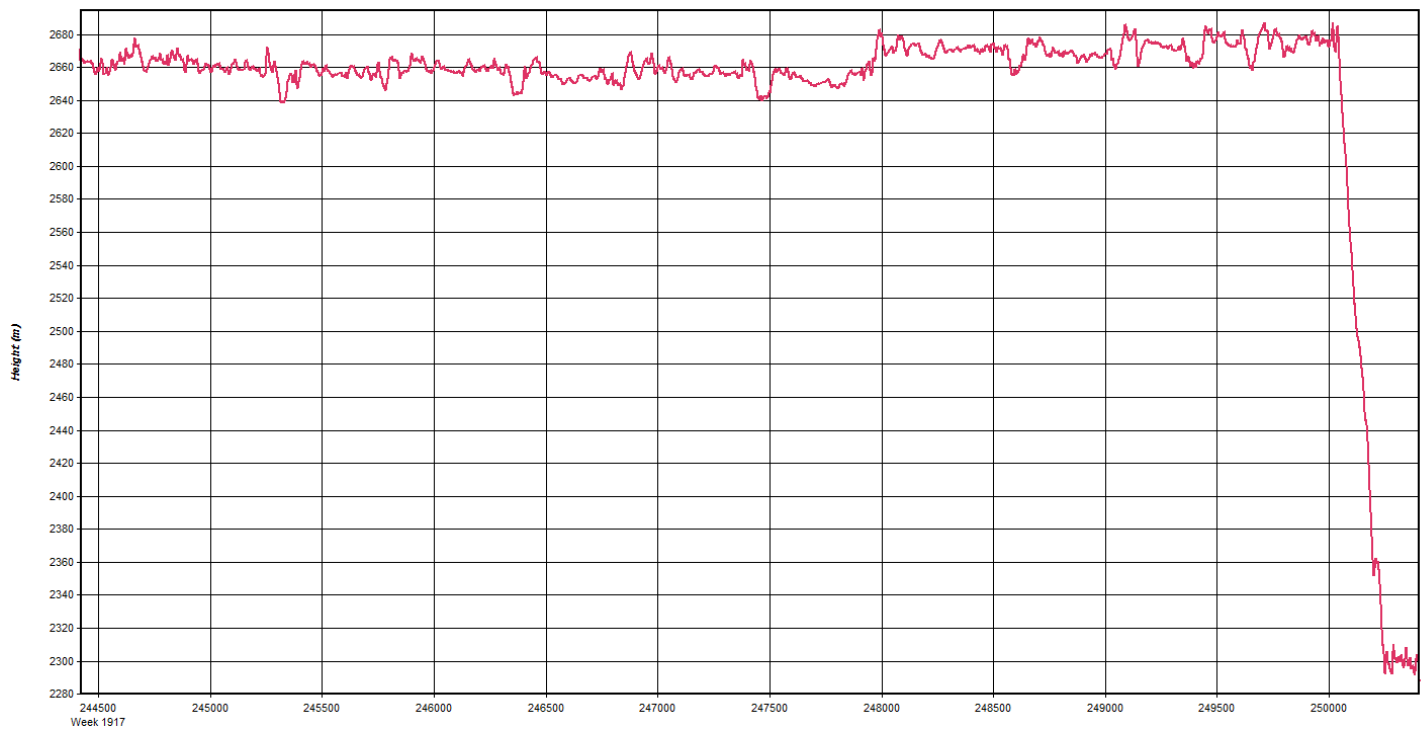


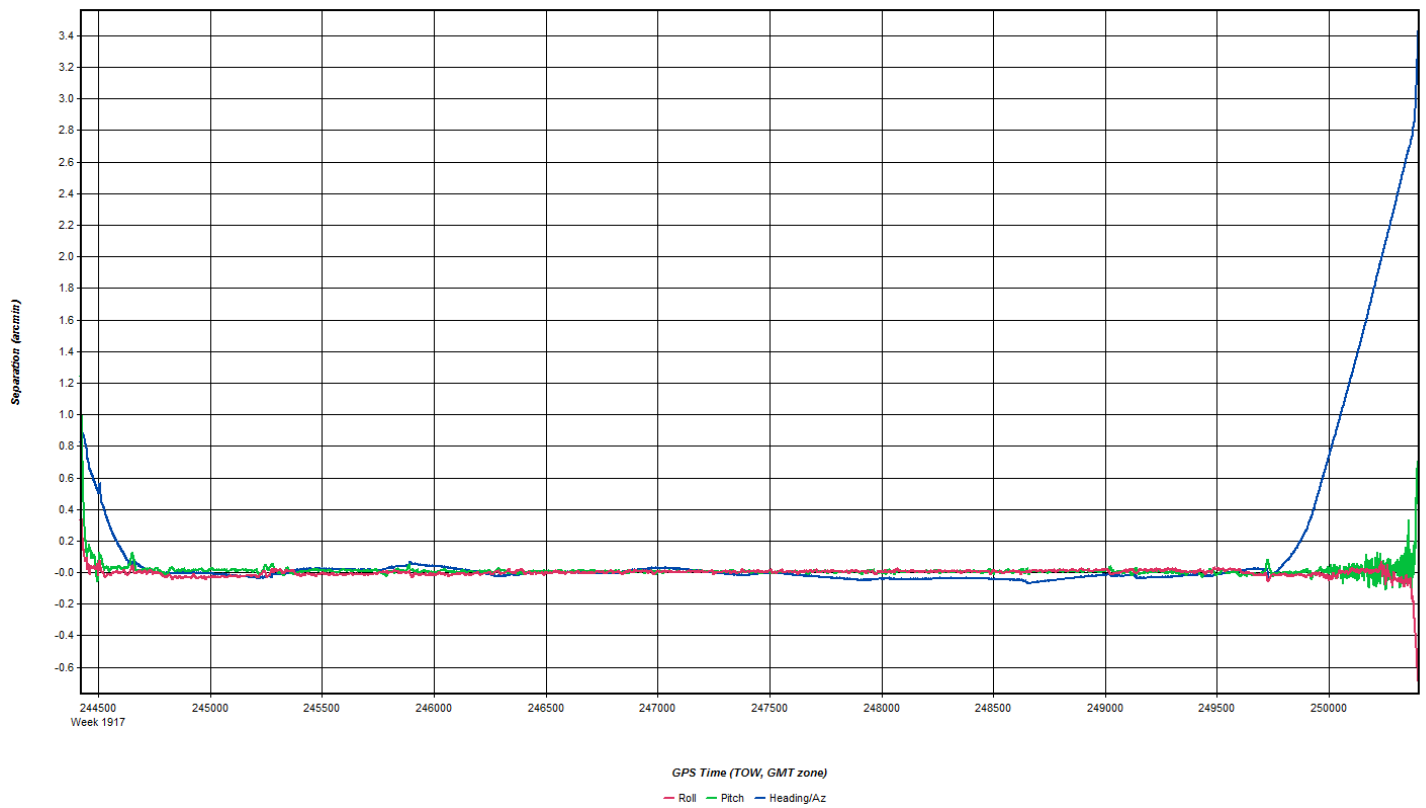
GPS Time (TOW, GMT zone)
— East — North — Up

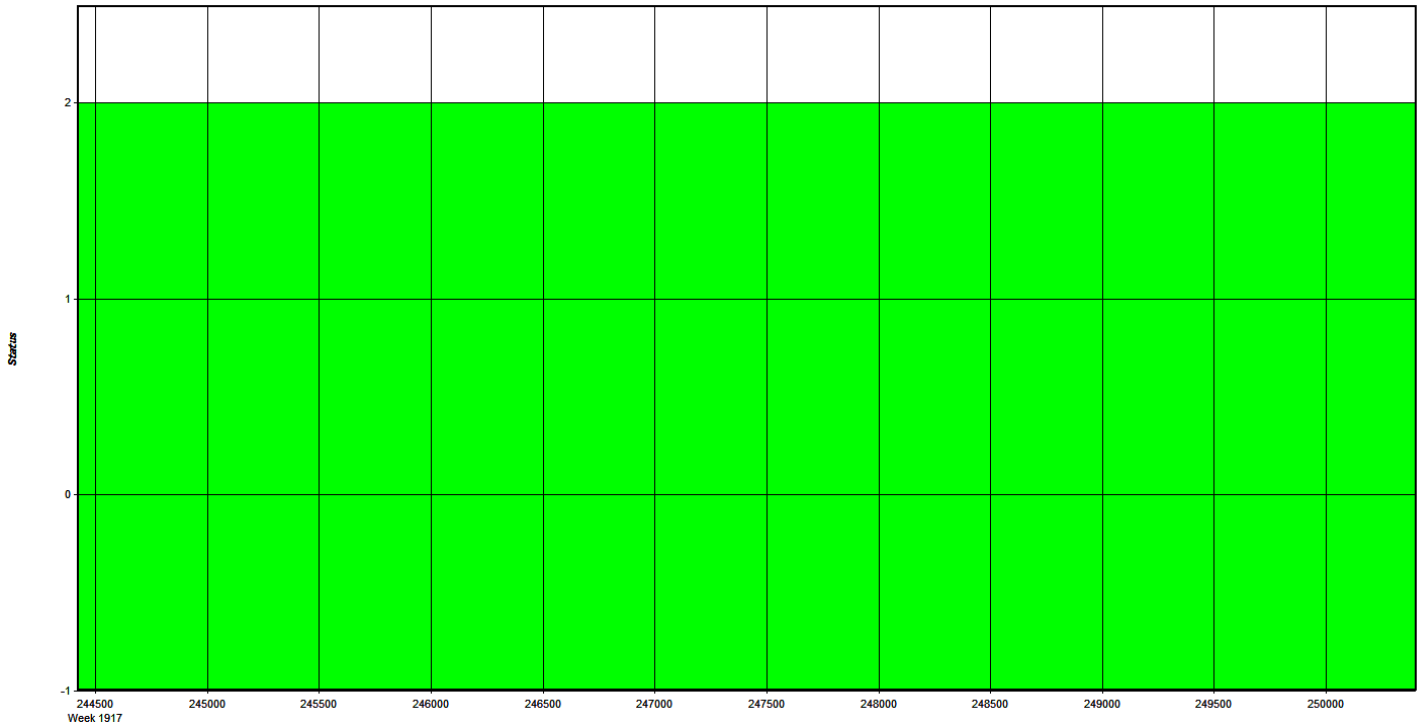


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_17 Name: UTAH16_17 Disabled
 File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD278_

Coordinates
 Latitude: North 41 33 34.80892 Compute from PPP
 Longitude: West 112 37 16.88050 Enter Grid Values
 Ellipsoidal height: 1384.178 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc

(email Log daily to flight_log_distribution_list@quantumspatial.com)

Date: 10-11-16
Lift: A C D E Pg. 1 of 1

Project: 2016 UTAH LIDAR Proj #: 27023 Flight Mgmt File: 20161011
Aircraft: 226E Begin Hobbs: 8867.4 End Hobbs: 8869.3 Total: 19 Pilot: Cam S Co-Pilot: Tech: JM Aust
Dep Apt: OGD Dep Time (Lcl): 135 (Z): 1935 Arr Apt: OGD Arr Time (Local): 3:40 (Z): 2140 Tot Time Aloft: 2

CORS: Y / N Sta 1: Sta 2: Flyovers: Y / N If Y, times: Sta 1) Sta 2)
GPS Unit: Y / N Sta 1: UTAH 4-17-18 Sta 2: Flyovers: Y / N If Y, times: Sta 1) Sta 2)

Gd Temp beg: 12 °C End: 13 °C OAT beg: 4 °C End: -4 °C Altimeter begin: 29.95 end: 29.93
LIDAR Type: ALS70 Serial #: 741 Alt: AMSL: 8.7 Avg Terr: Avg Pt Spacing
FOV: 40 Scan Freq: 53 MpiA Y / N Pulse Rate: 194 Power: 72

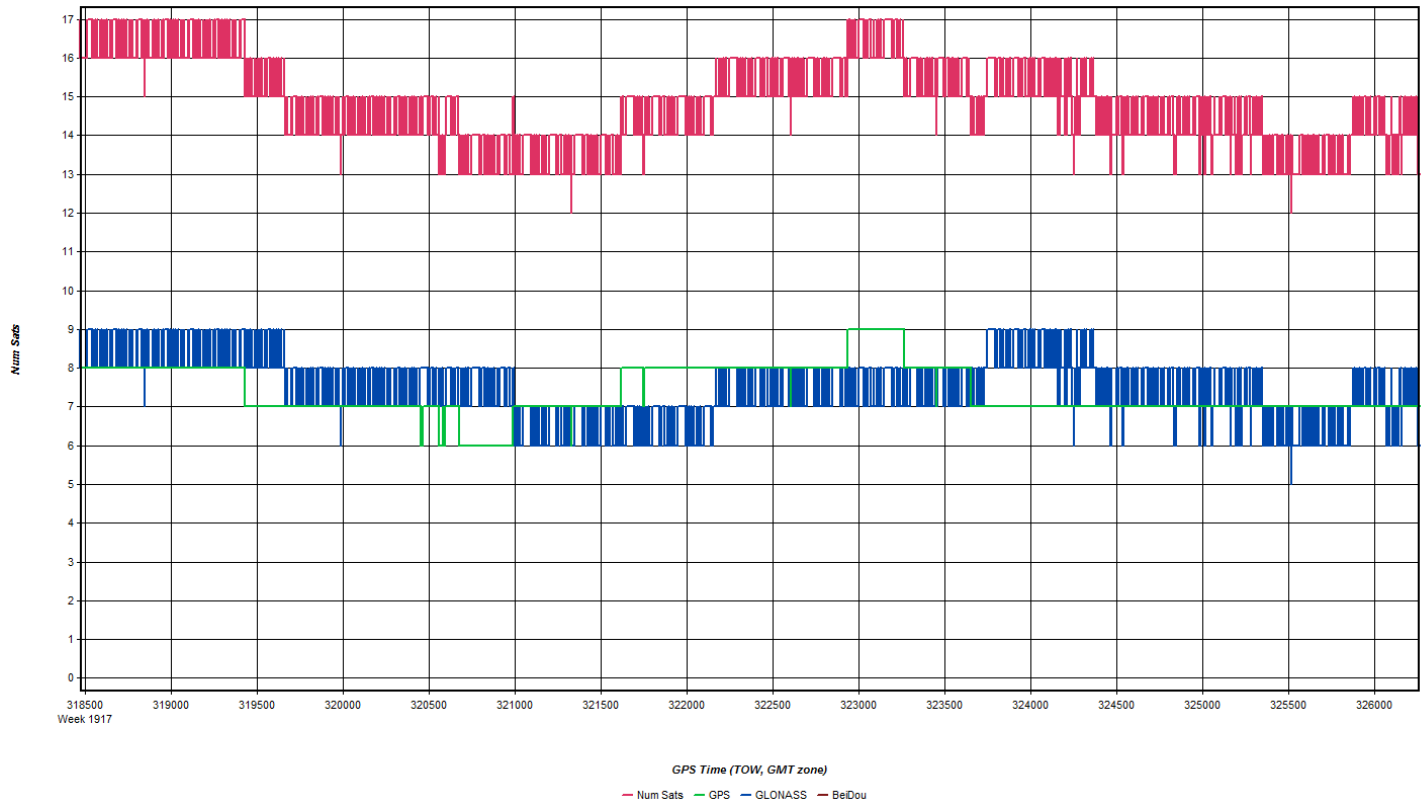
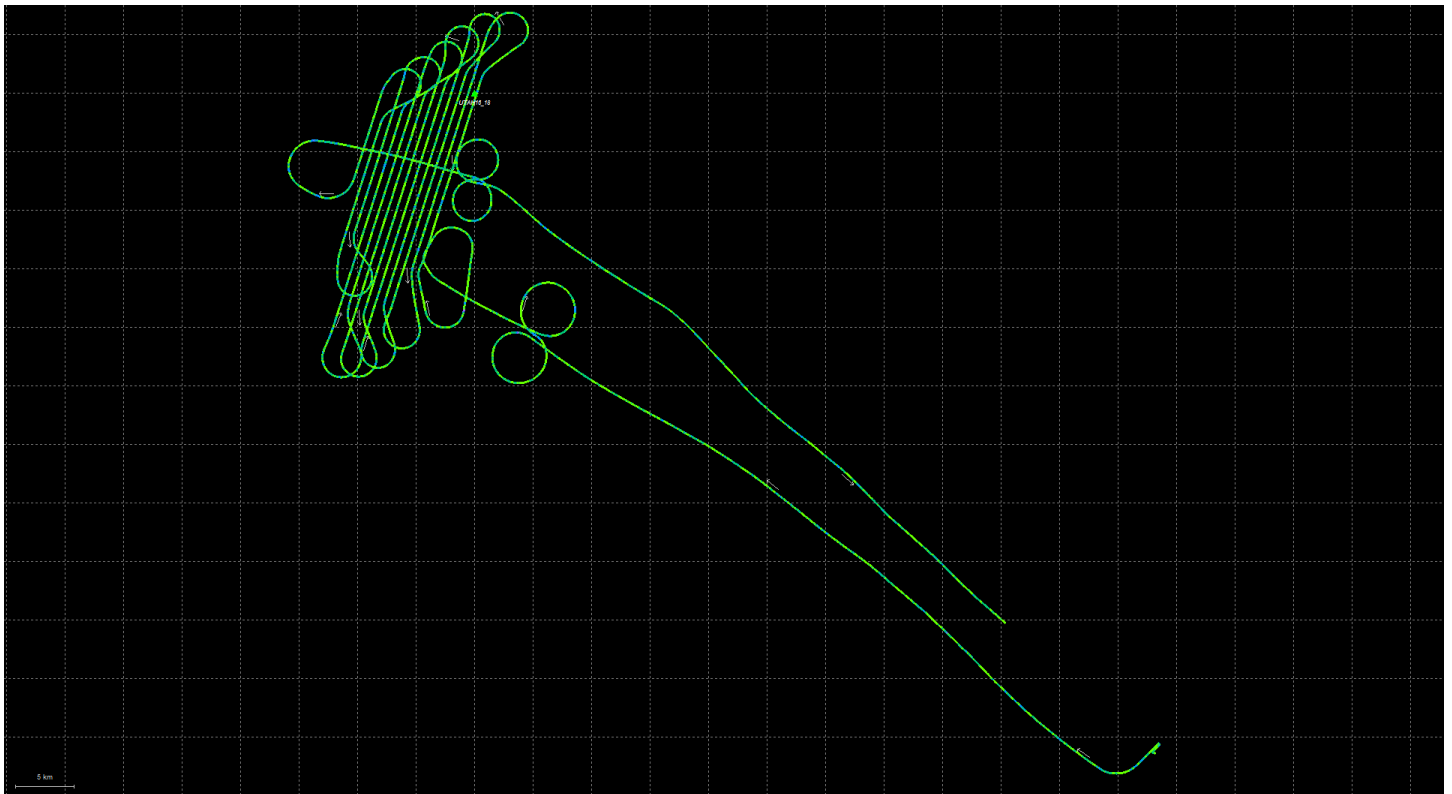
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	FOV/s	GPS Altitude	Crab	Turb	Alt	Avg Terr	Max Gapped	Pulse Rate	Power	PPSM
2080	316	2001	2006	143	1.2/18	8.7								
2079	336	2010	2015	134	1.2/18	8.7								
2078	316	2018	2023	138	1.0/19	8.7								
2077	136	2027	2032	144	1.0/19	8.7								
2076	316	2036	2042	140	1.2/17	8.7								
2075	136	2045	2051	132	1.3/16	8.7								
2074	316	2055	2101	138	1.2/17	8.7								
2073	136	2105	2109	142	1.4/16	8.7								
2072	316	2112	2115	137	1.4/16	8.7								
2001	46	2118	2119	153	1.4/16	8.7								

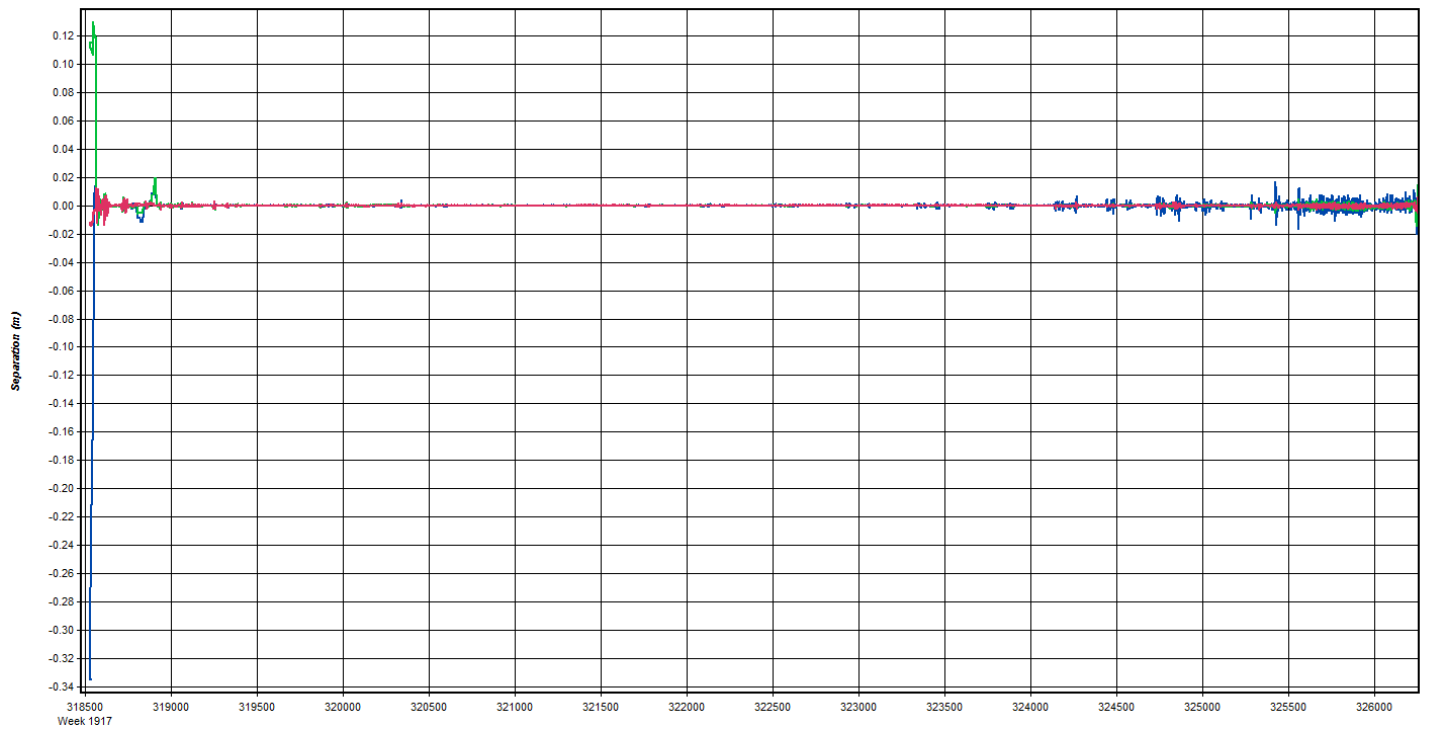
Crossflight

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

Total Proj Lines: Lines Flown: Lines Remain: Online Time: 1.25 Mob Time: 7.5 Notes:

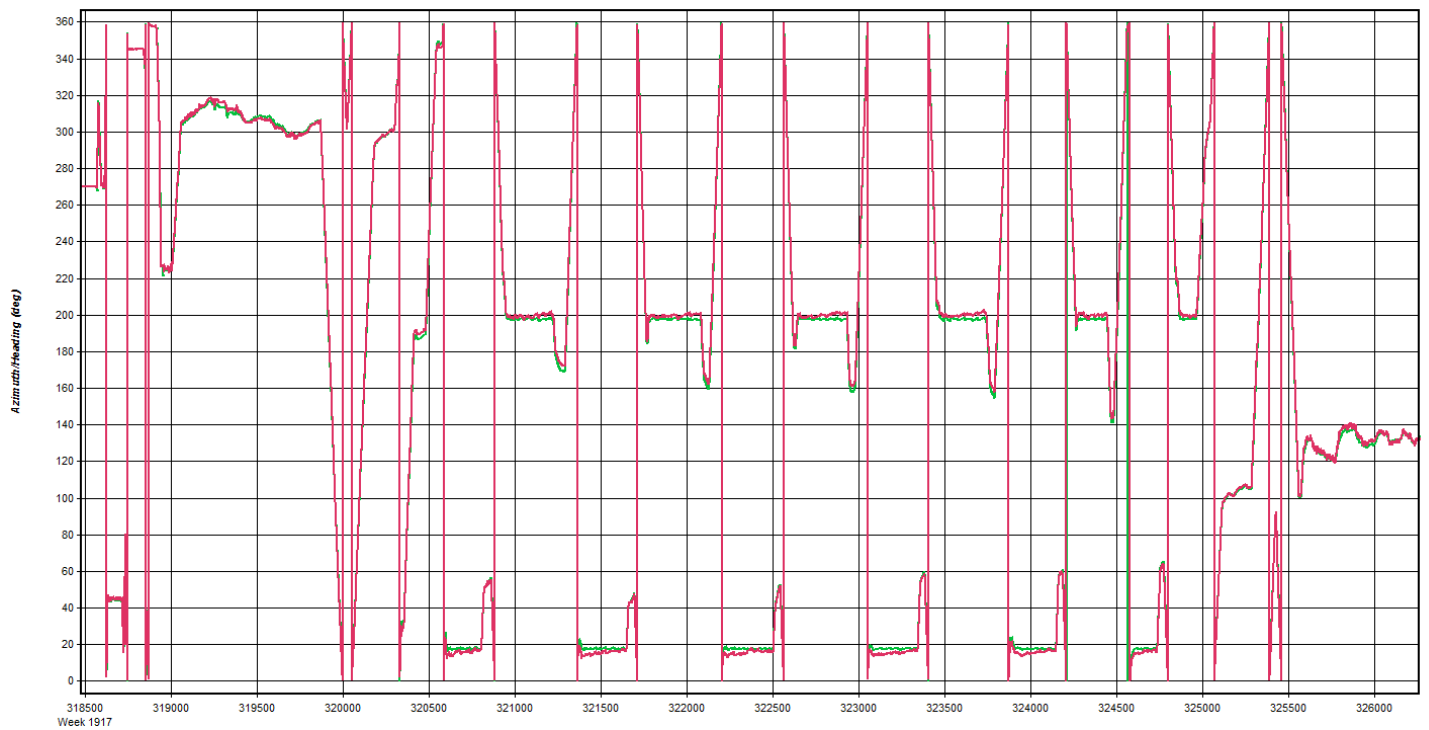
Oct 5, 2016-A (N22GE, SN7161)





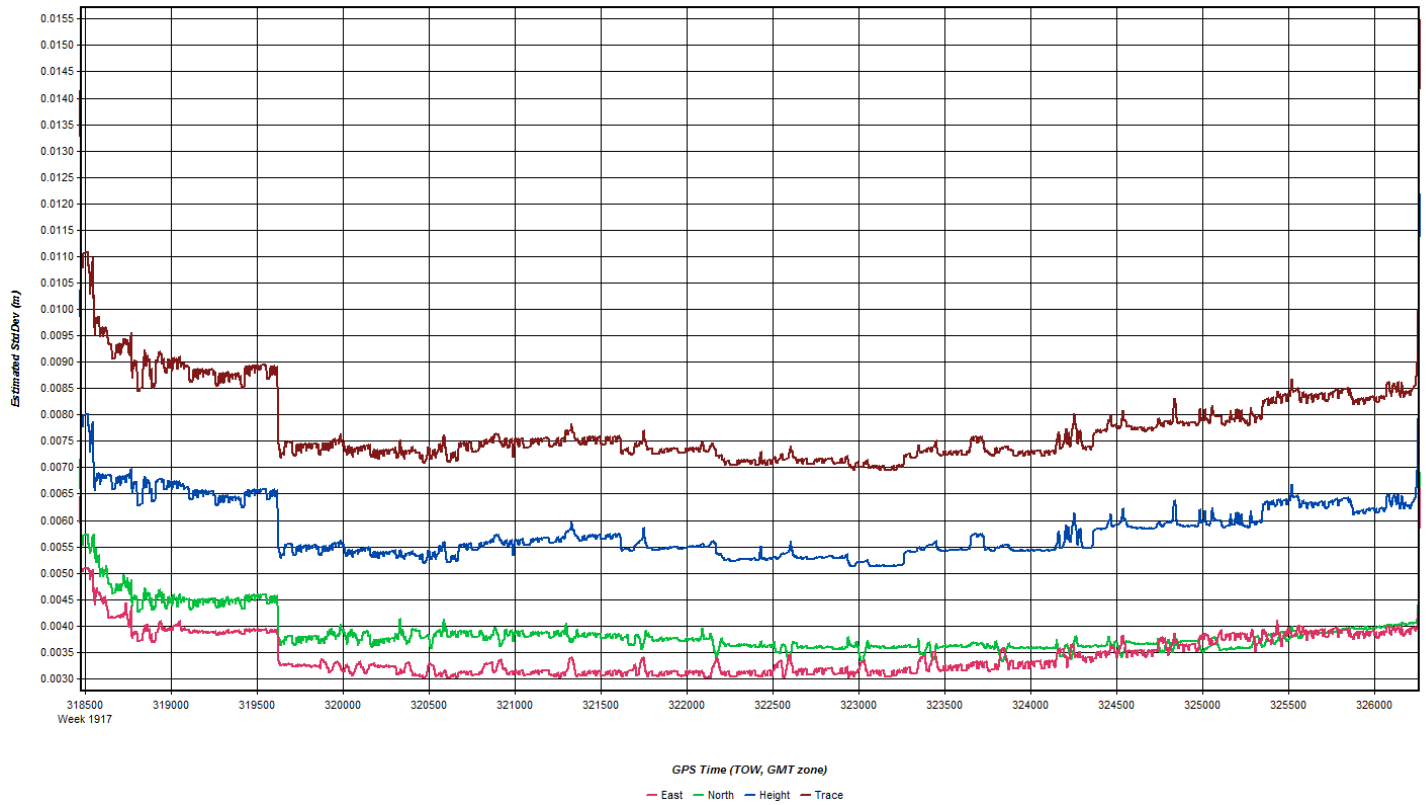
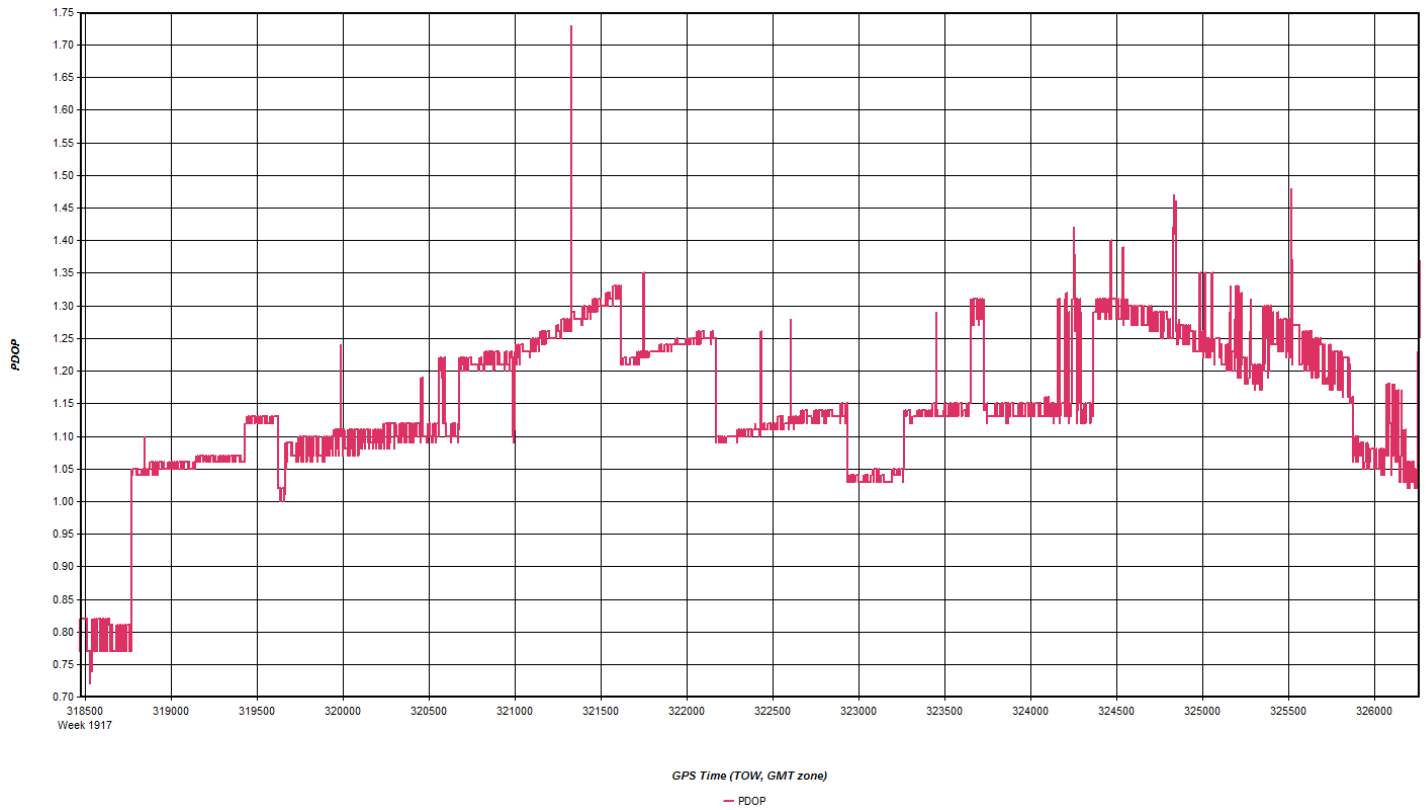
GPS Time (TOW, GMT zone)

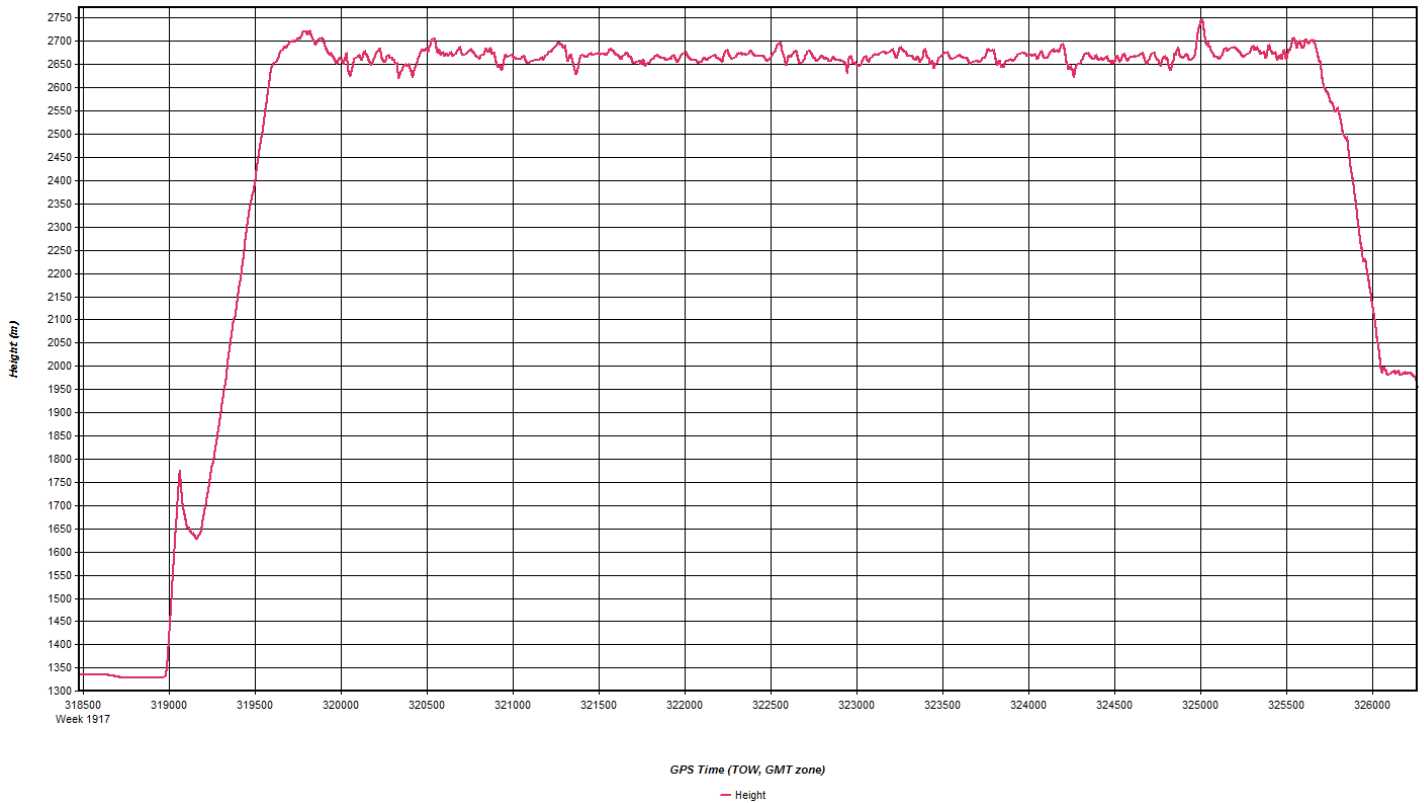
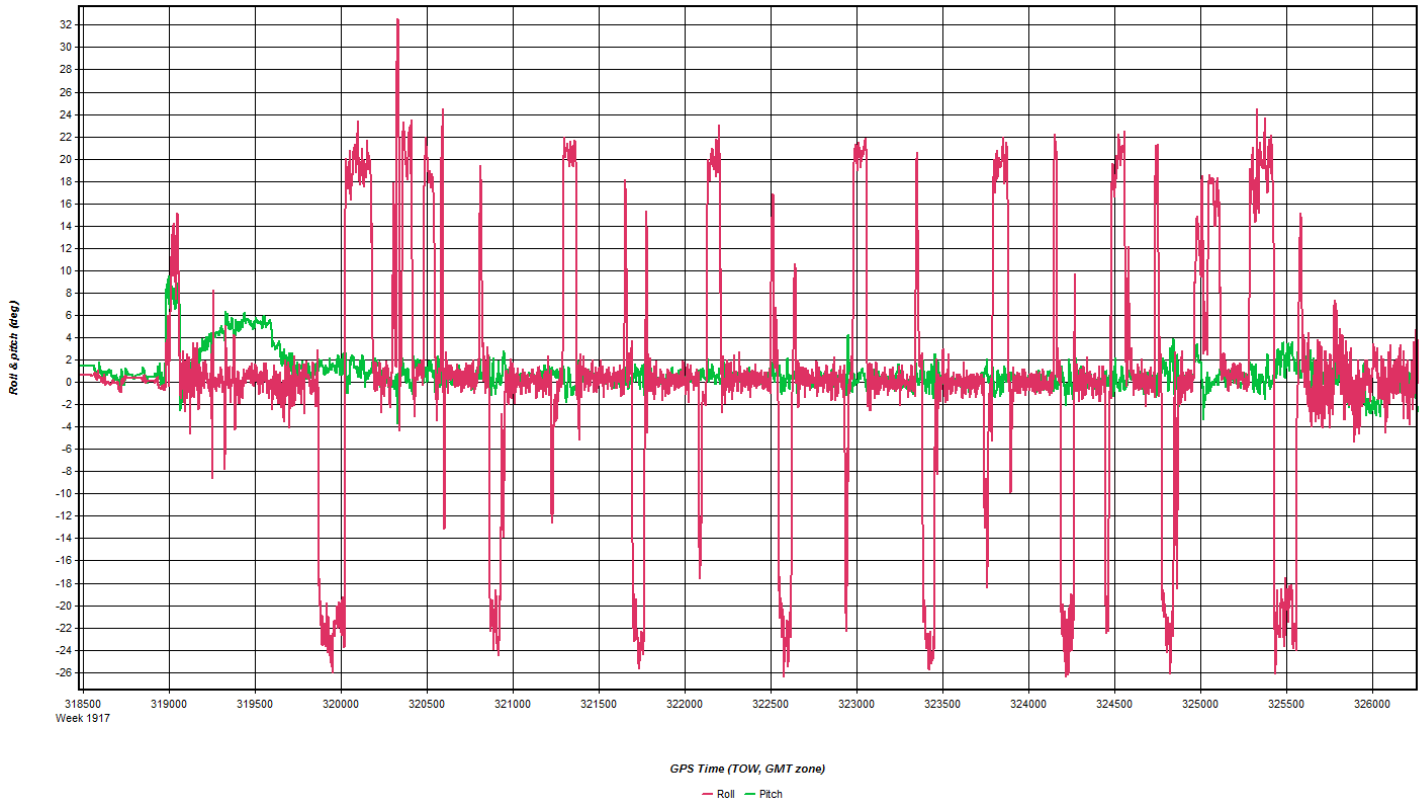
— East — North — Up

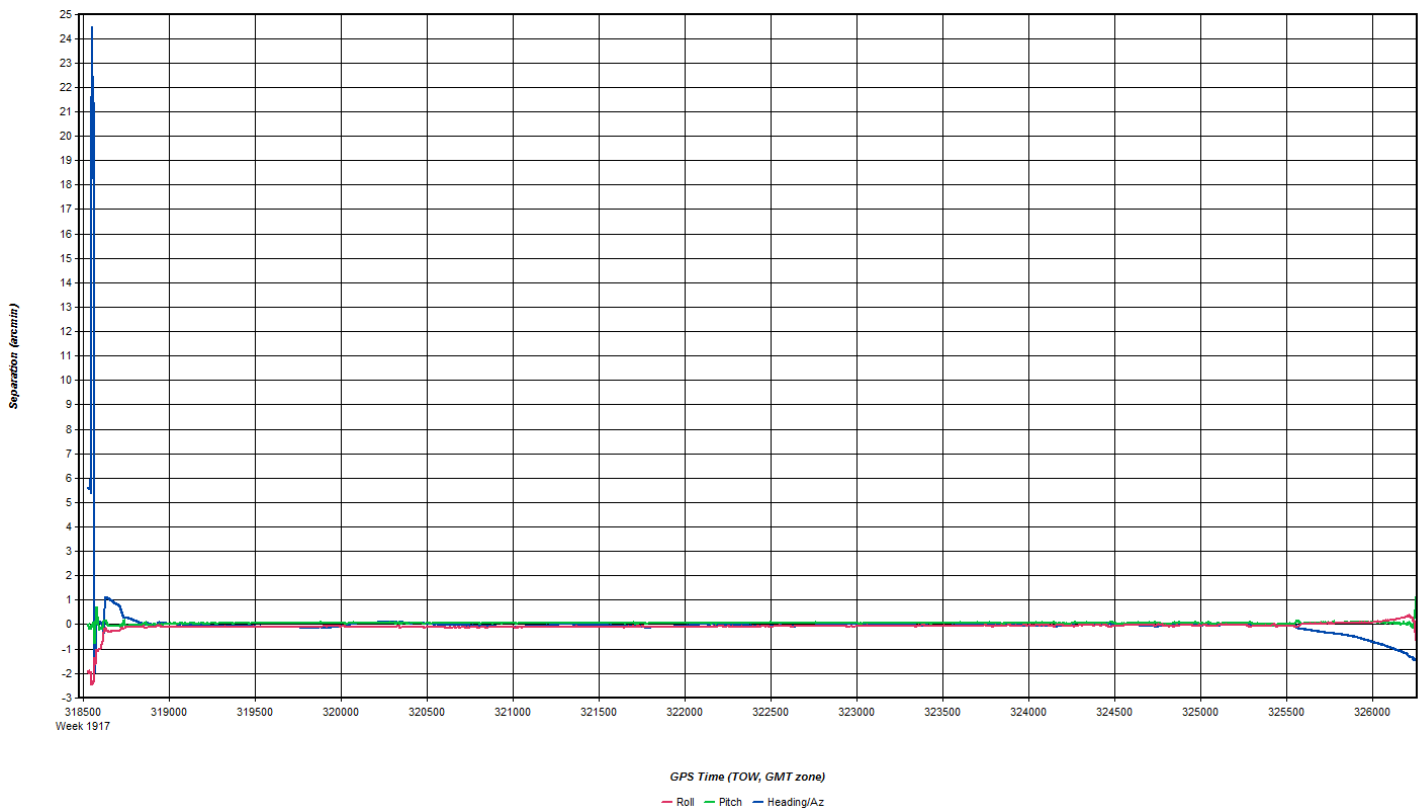


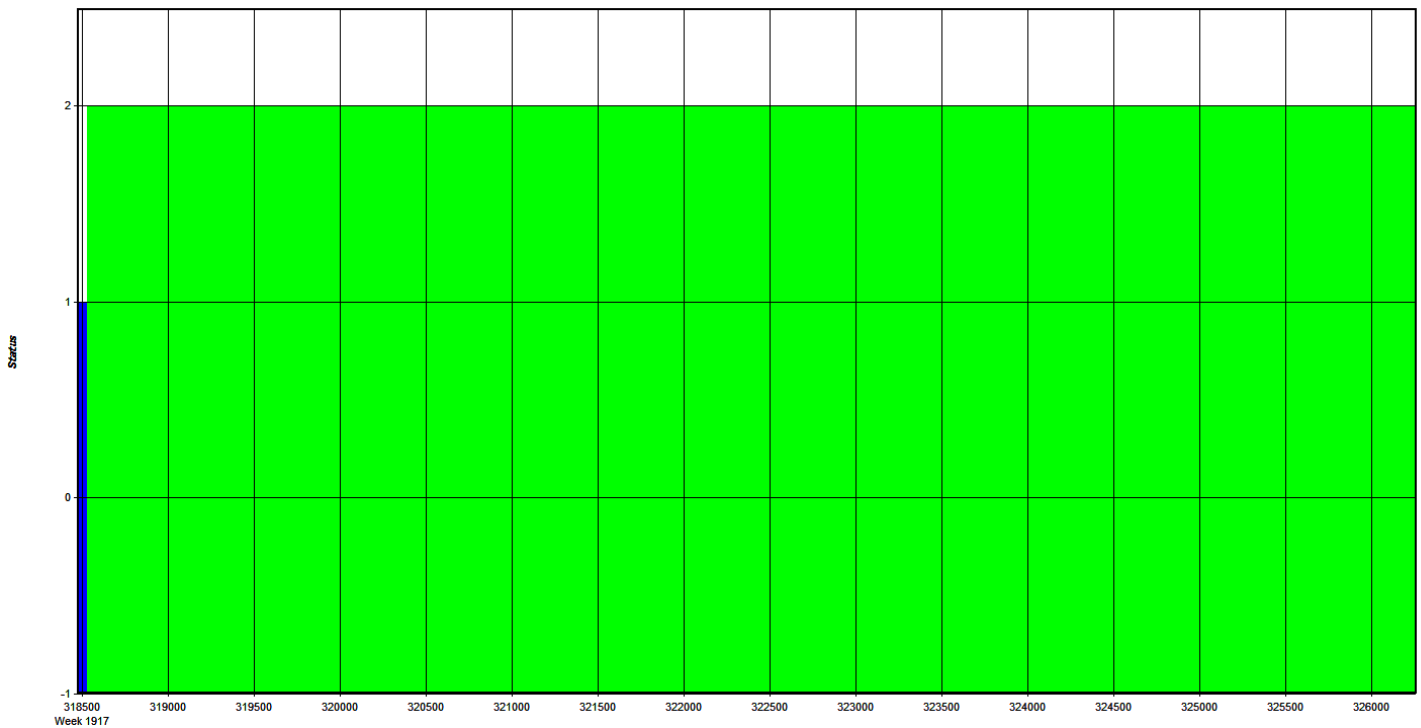
GPS Time (TOW, GMT zone)

— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_18 Name: UTAH16_18 Disabled
 File: E:\Proc\Utah_2016\Received_10-13-16\Survey\2_Static\JD279_

Coordinates
 Latitude: North 41 42 03.90037 Compute from PPP
 Longitude: West 112 41 57.05219 Enter Grid Values
 Ellipsoidal height: 1289.380 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Project: 2016 UTAH LIDAR **Proj #:** 29083 **Flight Mgmt File:**

Aircraft: 226E **Begin Hobbs:** 8871.4 **Total:** 2.1 **Pilot:** JED R **Co-Pilot:** Tech: M AUST

Dep Apt: OGD **Dep Time (Lcl):** 10:30 [Z] **Arr Apt:** OGD **Arr Time (Local):** 12:50 [Z] **Tot Time Aloft:** 2:25

CORS: Y / N **Sta 1:** **Sta 2:** **Flyovers:** Y / N **If Y, times: Sta 1)** **Sta 2)**

GPS Unit: Y / N **Sta 1:** KTAH 16.18 **Sta 2:** **Flyovers:** Y / N **If Y, times: Sta 1)** **Sta 2)**

Gd Temp beg: 12 °C **End:** 12 °C **OAT beg:** °C **End:** °C **Altimeter begin:** 2997 **end:** 2997

Date: 10-5-16 **Pg** 1 **of** 1

Alt: A B C D E

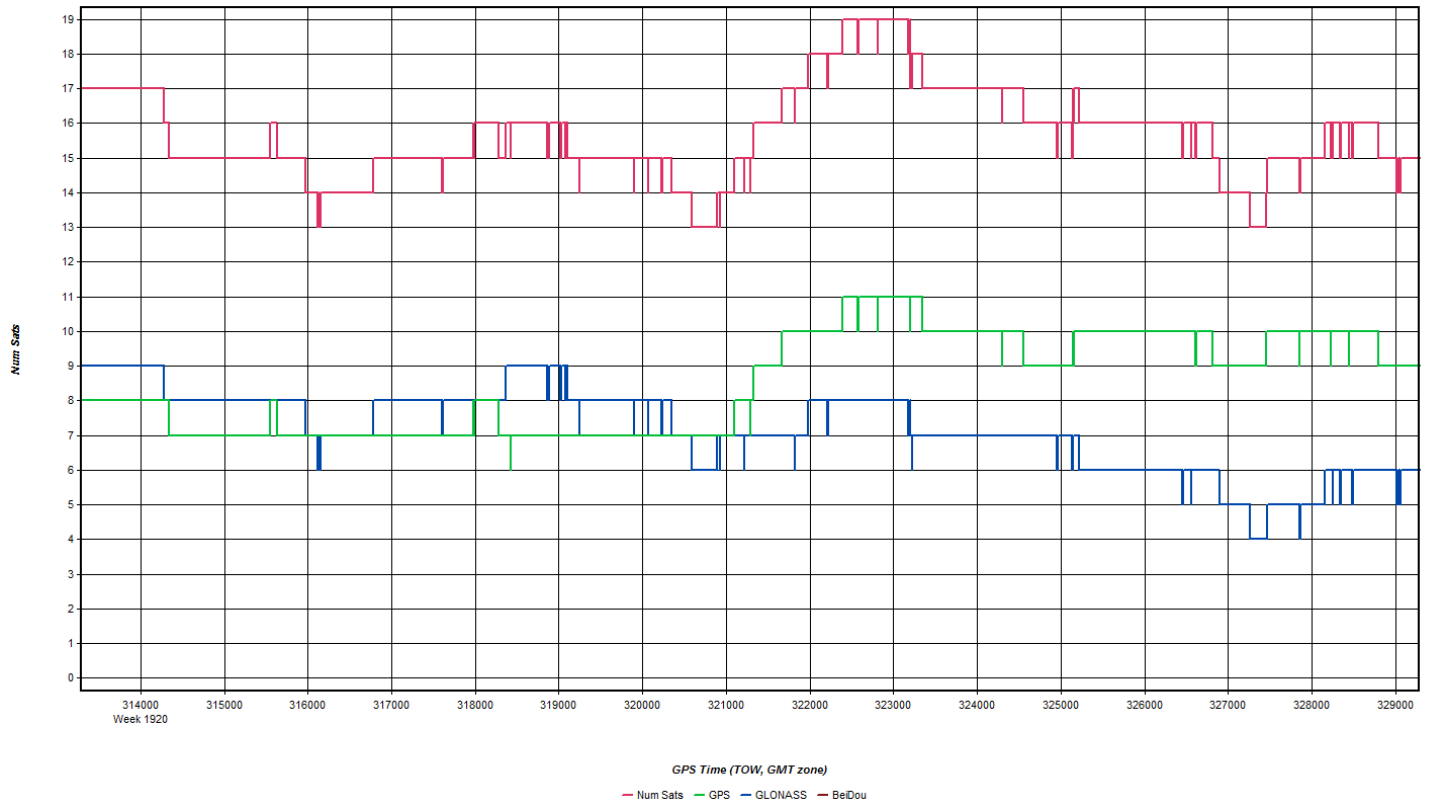
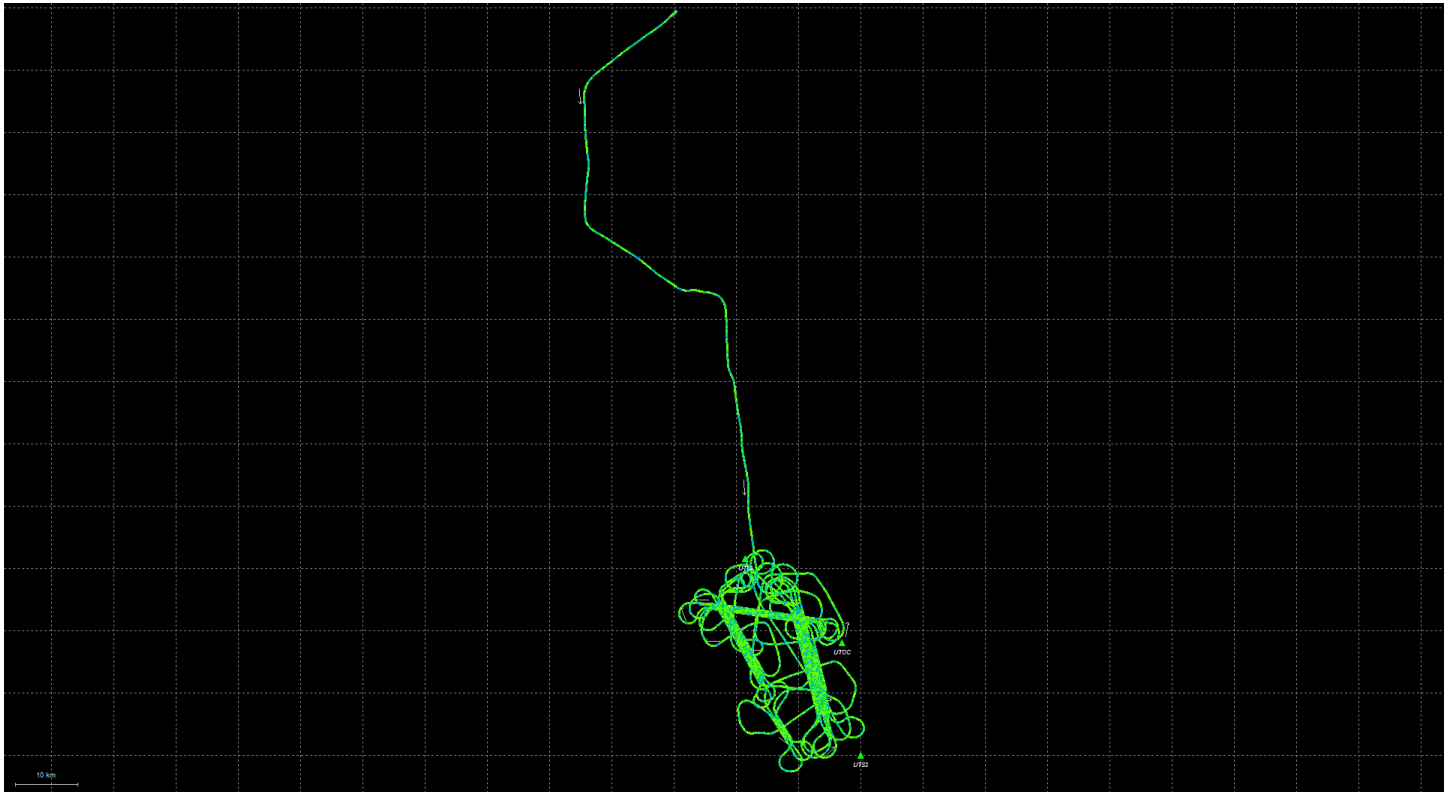
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/ses	GPS Altitude	Crab	Turb (0..4)	Alt AMSL	Alt AGL	MPLA	Y / N	Pulses In Air	Pulse Rate	Avg Terr Ht	Max Gdspd	Power	PPSM	Avg Pt Spacing	Storage			
																				Req CB	End CB	Tot CB	
2071	17°	1703	1706	157	1.1/18	8.7			8.7												527		017
2070	197°	1709	1713	148	1.2/16	8.7			8.7														
2069	17	1716	1720	148	1.1/17	8.7			8.7														
2068	197	1723	1727	145	1.2/15	8.7			8.7														
2067	17	1730	1734	153	1.2/17	8.7			8.7														
2066	197	1737	1741	146	1.2/16	8.7			8.7														
2065	17	1744	1748	152	1.2/18	8.7			8.7														
2064	197	1751	1755	155	1.2/18	8.7			8.7														
2063	17	1758	1802	153	1.3/17	8.7			8.7														
2062	197	1804	1807	150	1.3/16	8.7			8.7														
2061	17	1810	1811	154	1.3/16	8.7			8.7														
2060	197	1814	1815	152	1.2/18	8.7			8.7														
2059	101	1818	1821	155	1.2/18	8.7			8.7														

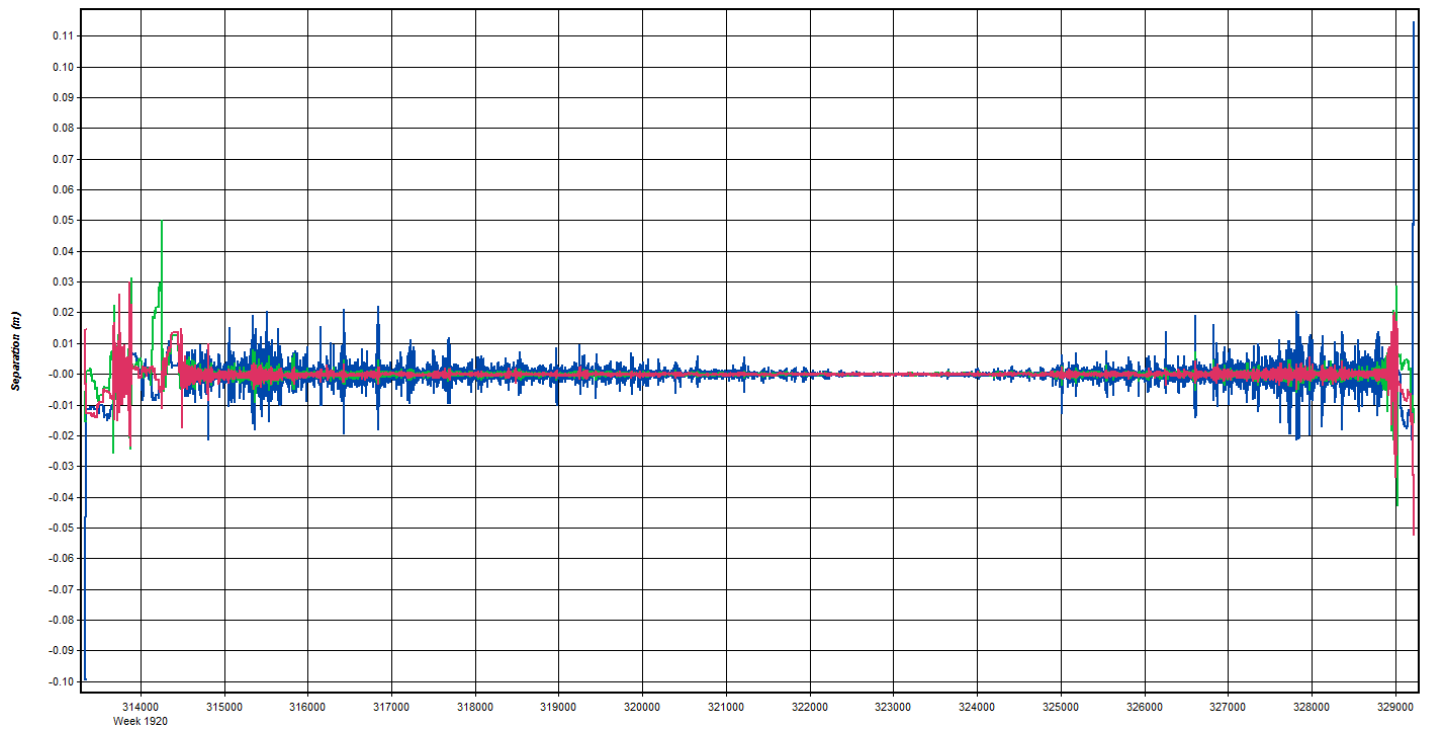
FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

Total Proj Lines: **Lines Flown:** **Lines Remain:**

Online Time: 1:35 **Mob Time:** 1:75 **Notes:**

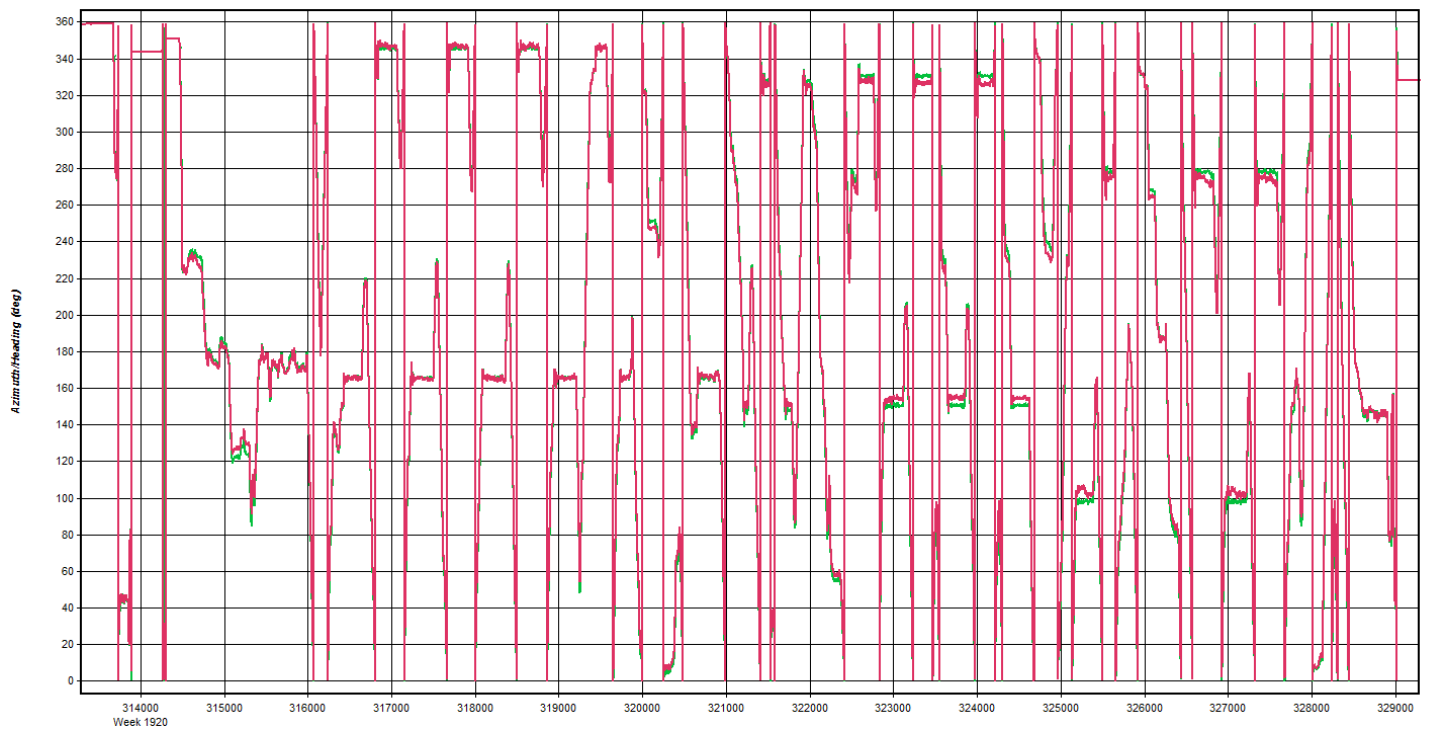
Oct 26, 2016-A (N22GE, SN7161)





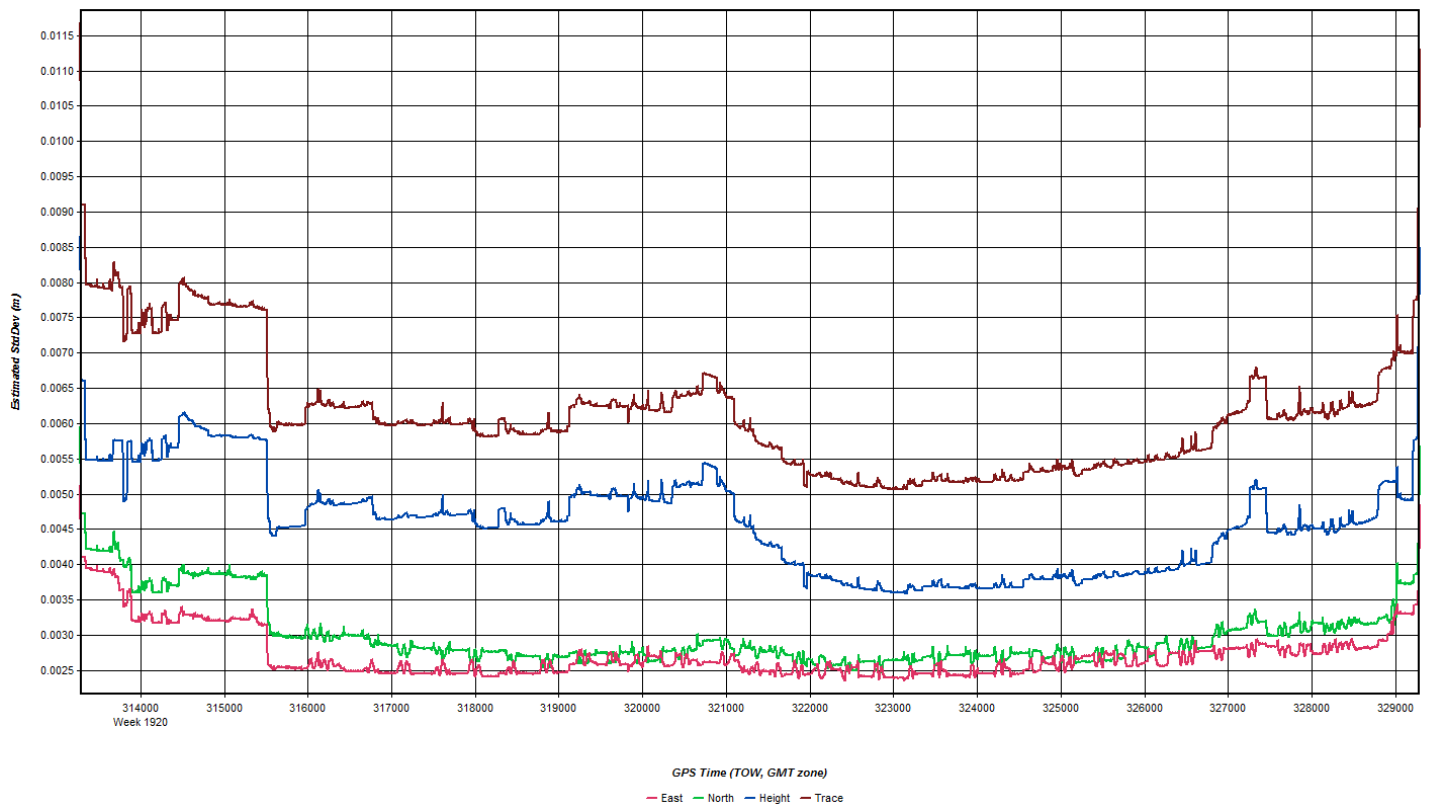
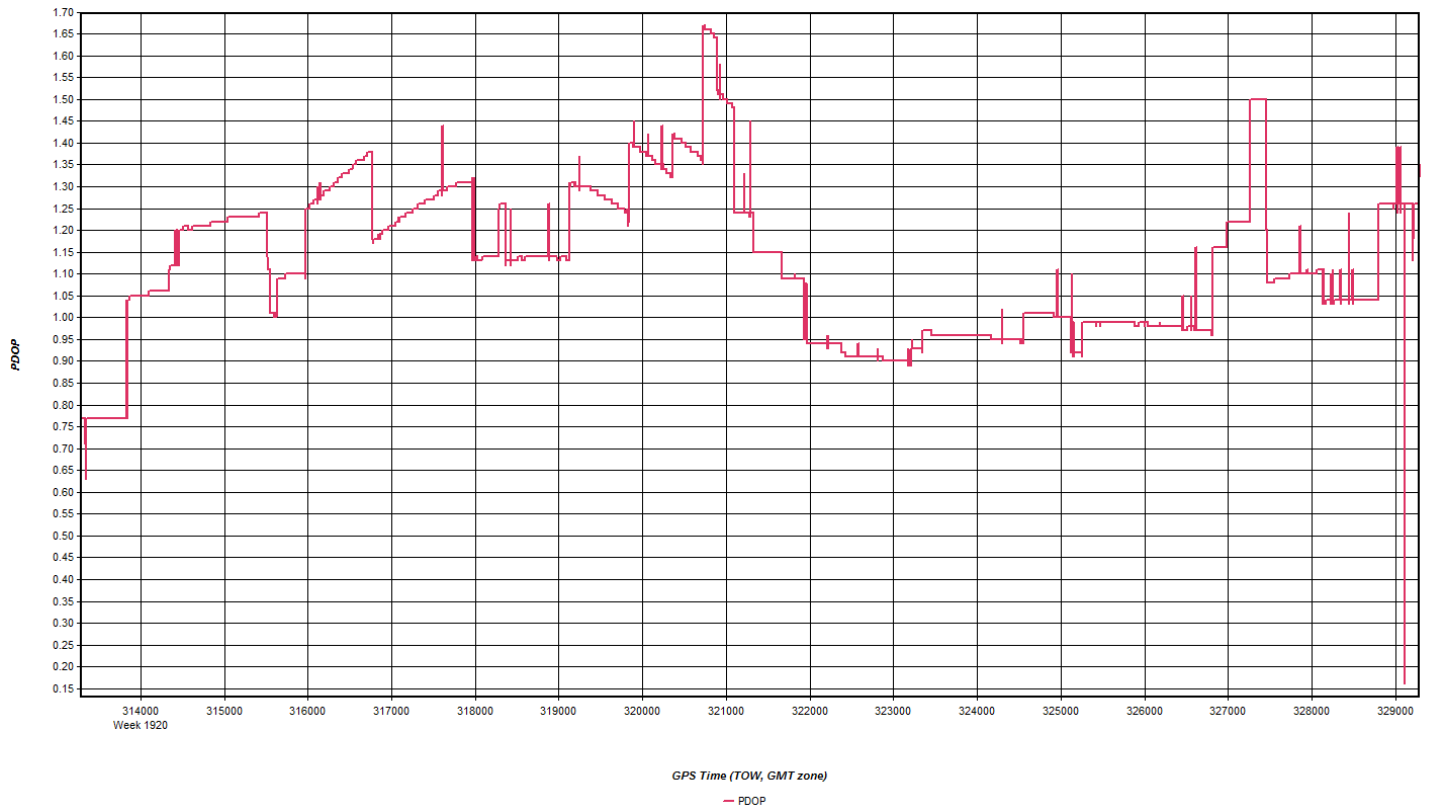
GPS Time (TOW, GMT zone)

— East — North — Up



GPS Time (TOW, GMT zone)

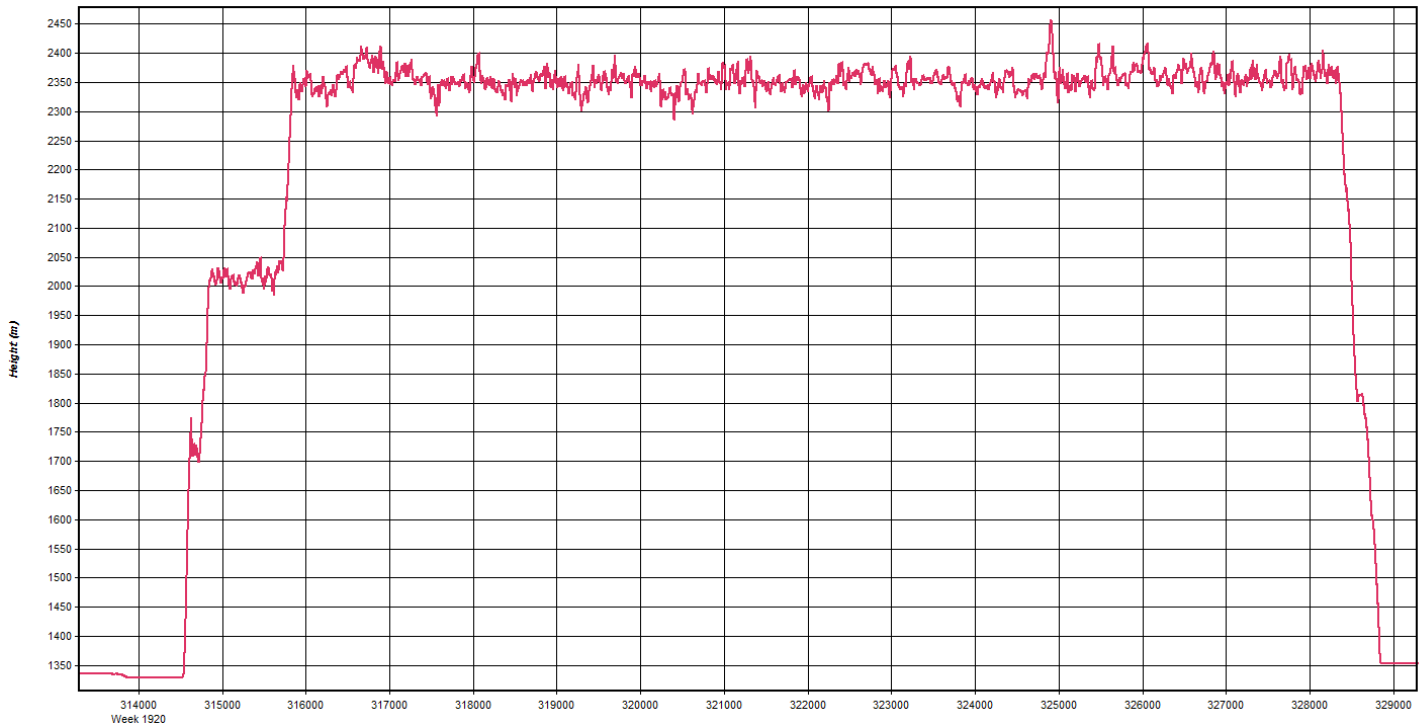
— Heading/Azimuth — GPS-COG





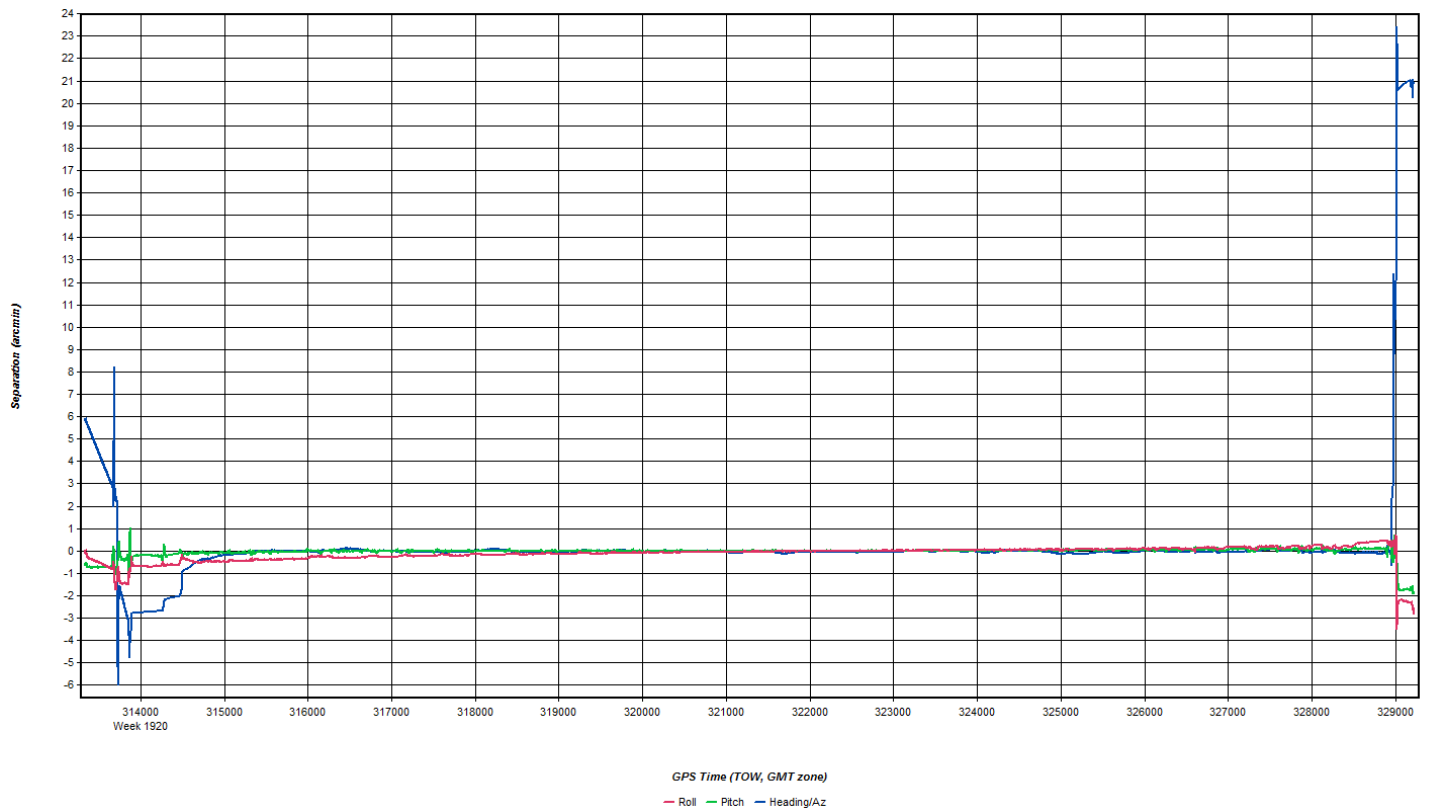
GPS Time (TOW, GMT zone)

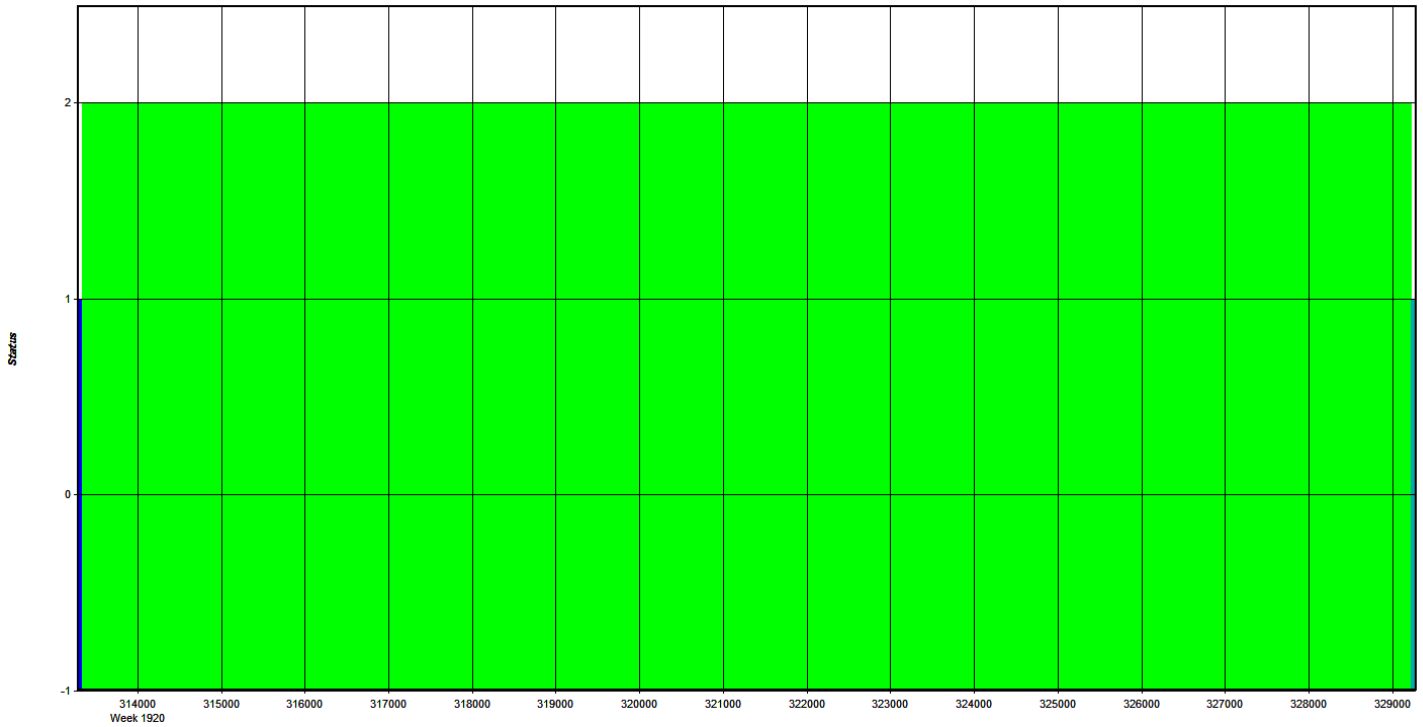
— Roll — Pitch



GPS Time (TOW, GMT zone)

— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 3: UTL2 Name: UTL2 Disabled
 File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates
 Latitude: North 40 25 09.49565 Compute from PPP
 Longitude: West 111 52 13.08922 Enter Grid Values
 Ellipsoidal height: 1391.436 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00, NONE View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 0.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 0.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings
? X

Master
Remote

Base Station
 Disabled

2: UTOC
Name: UTOC

File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates
Compute from PPP

Latitude: North
40
17
54.89014

Longitude: West
111
41
11.47676

Ellipsoidal height:
1453.351
m

Datum:
WGS84

Select From Favorites
Add To Favorites
Use Average Position

Antenna Height
View STA File

From station file:
TRM55971.00, NONE

Antenna profile:
TRM55971.00

Measured height:
0.000
m

ARP to L1 offset:
0.067
m

Applied height:
0.067
m

Measured to
 ARP
 L1 Phase Centre
Compute From Slant

OK
Cancel

Coordinate/Antenna Settings
? X

Master
Remote

Base Station
 Disabled

1: UTS2
Name: UTS2

File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates
Compute from PPP

Latitude: North
40
08
16.20885

Longitude: West
111
39
05.50612

Ellipsoidal height:
1371.470
m

Datum:
WGS84

Select From Favorites
Add To Favorites
Use Average Position

Antenna Height
View STA File

From station file:
TRM55971.00, NONE

Antenna profile:
TRM55971.00

Measured height:
0.000
m

ARP to L1 offset:
0.067
m

Applied height:
0.067
m

Measured to
 ARP
 L1 Phase Centre
Compute From Slant

OK
Cancel

Flight Log

Date: 10/26/2016
Lift: (A) B C D E Pg. 4 of 3

Project: UTAH LIDAR 2016 Proj #: 29083 Flight Mgmt File: FMSL-UTAH-LK-2L1 5N161-22 GE

Aircraft: P22GE Begin Hobbs: 814.4 End Hobbs: 818.4 Total: 4.0 Pilot: Garl Christy Co-Pilot: Gary Lee Tech: Gary Lee

Dep Apt: KOGD Dep Time (Lcl): 9:21 (Z): 15:21 Arr Apt: KPVK Arr Time (Local): 1:23 (Z): 19:23 Tot Time Aloft: 4:02

CORS: Y/N Sta 1: UTL2 Sta 2: UTOC Flyovers: Y/N IF Y, times: Sta 1) Sta 2)

GPS Unit: Y/N Sta 1: Sta 2: Flyovers: Y/N IF Y, times: Sta 1) Sta 2)

Gd Temp beg:	°C	End:	°C	OAT beg:	°C	End:	°C	Altimeter begin:	end:	log	Storage Name
Type ALS70	71.61	Alt AGL 3200'	Alt AMSL 7710'	Avg Temp/Ht 4500'	Max Gdep 195	Avg Pt Spading				250	19170
FOV 40	Scan Freq 53Hz	MPIA Y/N	Pulse In Air	Pulse Rate 248kHz	Power 45%	PPSM 8				271	-017

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POD/Hz	GPS Altitude	Crab	Turb (0-+)	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc
UL001		15:46	15:51						UTAH Lake AOI
1064	166	15:51	15:57	144	1.1/8	7800	0°	0	Initial Fly8
1065	348	16:01	16:04	154	1.3/16	7750	2°	0	Test Shot
1066	166	16:08	16:11	140	1.2/7	7730	0°	0	161026-155351
1067	348	16:15	16:18	157	1.4/8	7704	2°	0	161026-160051 200 high @ start
1068	166	16:22	16:25	150	1.1/8	7720	0°	0	- 160755
1069	348	16:30	16:33	151	1.1/8	7755	2°	0	- 161502
1070	166	16:36	16:40	148	1.1/8	7700	1°	0	VoIP - chatter was opened through external control
1071	348	16:44	16:46	142	1.2/7	7730	0°	0	error 3 - will refly
1072	166	16:49	16:50	142	1.2/7	7747	1°	0	161026-162917
UL002		16:54	16:56	156		775	0	0	161026-163619
1068B	166	17:08	17:08	139	1.1/8	7712	1°	0	161026-16421
1068C	166	17:08	17:08	139	1.1/8	7712	1°	0	161026-164925
1068D	166	17:08	17:08	139	1.1/8	7712	1°	0	6 Rows IEEE
1068E	166	17:08	17:08	139	1.1/8	7712	1°	0	refly at 1068, 33° on roll in, 161026-170415
1100	488	17:13	17:14	148	1.1/8	7750	0°	0	- 171332
1100	328	17:17	17:18	142	1.1/8	7706	2°	0	- 171739

Total Proj Lines: 23 Lines Flown: 23 Online Time: 3.3 Mob Time: 7 Notes:

Alberne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc

Project: UTAH LIDAR 2016 Date: 10/26/2016
(email log daily to flight_log_distribution_list@quantumspatial.com) Ltr: A B C D E Pg: 2 of 3

Project #: 29083 Flight Mgmt File: _____ Tech: Garrett

Aircraft: N22BE Begin Hobbs: 8914.4 End Hobbs: 8918.4 Total: 4.0 Pilot: Carl Christofor Co-Pilot: _____

Dep Apt: KOGD Dep Time (Lo): 7:21 [Z]: 15:21 Arr Apt: KPM Air Time (Local): 1:23 [Z]: 19:23 Tot Time Aloft: 4:02

CON: Y/N Sta 1: UTL2 Sta 2: UTOC Flyovers: Y/N IF Y, times: Sta1 Sta2: _____

GPS Unit: Y/N Sta 1: _____ Sta 2: _____ Flyovers: Y/N IF Y, times: Sta1 Sta2: _____

Gd Temp beg: _____ °C End: 15 °C OAT beg: _____ °C End: _____ °C Altimeter begin: _____ end: _____

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	FOV/Scan	GPS Altitude	Crab	Yrb (0-4)	Altimeter			Mag. Comp	Storage Number
									Alt AGL	Alt ASEL	HT		
1089	148°	17:22	17:23	125	1/19	721'	3°	-	Avg Terr: 450'	Max Glpd: 145	Avg Ft Spd: 170	Mag. Comp: 250	Storage Number: MM70
1098	328°	17:26	17:26	140	1/19	7700'	1°	0	Pulse Rate: 248KHz	Power: 45%	IMU: 8	Mag. Comp: 271	Storage Number: -017
UL003	60°	17:30	17:32	135	1/19	7700'			UTAH LAKE AOT 161026-172210				
									161026-172536				
									CROSS IFE				
1084	321°	17:36	17:39	146	1/19	7756'	3°	0	161026-173618				
1085	151°	17:41	17:45	127	1/19	7700'	2°	-	161026-174143				
1086	330°	17:49	17:51	144	1/19	7737'	4°	0	161026-174749				
1087	151°	17:54	17:57	125	1/19	7740'	4°	0	161026-175409				
1088	351°	18:00	18:03	137	1/18	7700'	5°	0	- 180018				
1089	151°	18:07	18:10	130	1/18	7750'	4°	0	32° on colla due to restricted area to NW, 161026-180658				
UL004	248°	18:13	18:15	131	1/18	7800'			CROSS IFE				
									missed line, trying again				
1083	98°	18:19	18:23	136	1/19	7705'	7°	-	161026-181914				
1082	278°	18:26			1/18	7720'			broke off due to traffic, re-fly all				
UL005	187°	18:36	18:37	145	1/18	7710'			CROSS IFE, make over water, rely later				
1082R	278°	18:43	18:46	150	1/18	7700'	6°	0	- 18421				

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

Total Proj Lines: _____ Lines Flown: 23 Lines Remain: _____ Online Time: 33 Mob Time: 7 Notes: _____

Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc

(email log daily to flight_log_distribution_list@quantumspatial.com)

Date: 10/26/2016 Pg 2 of 3

Project: UTAH LIDAR 2016 **Flight Mgmt File:** FMSL-UTAH-LK-QL1-SNT161-22 GE

Altcraft: N22GE **Begin Hobbs:** 87144 **End Hobbs:** 89184 **Total:** 4.0 **Pilot:** Carl Christopher **Co-Pilot:** Tech: Sean 1000

Dep Apt: KOGD **Dep Time (Lcl):** 9:2 [Z]: 15:21 **Arr Apt:** KPVM **Arr Time (Local):** 1:23 [Z]: 19:23 **Tot Time Aloft:** 4:02

CORS: Y/N **Sta 1:** UTL2 **Sta 2:** UTOC **Flyovers:** Y/N **If Y, times:** Sta 1) **Sta 2)**

GPS Unit: Y/N **Sta 1:** **Sta 2:** **Flyovers:** Y/N **If Y, times:** Sta 1) **Sta 2)**

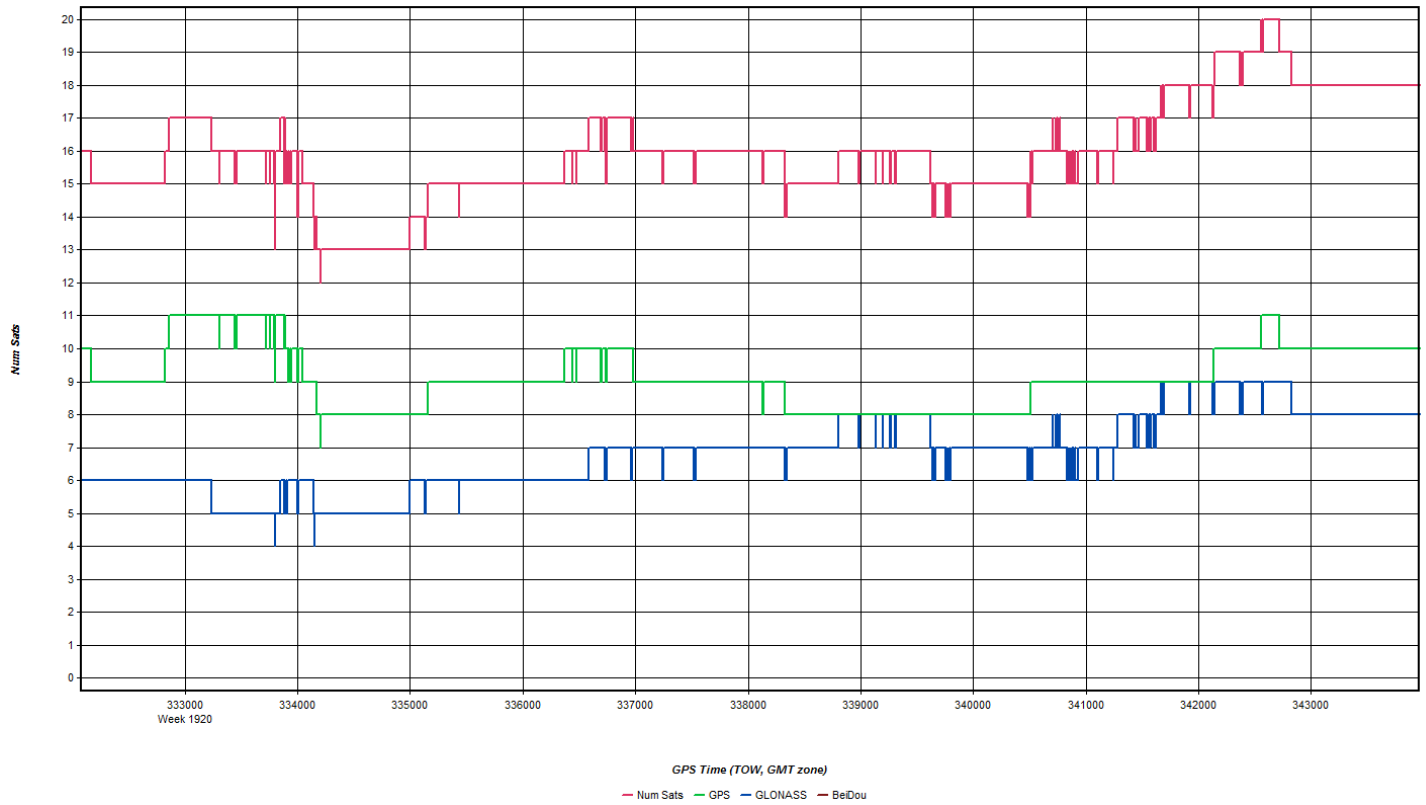
Type	ALS 70	Serial #	End: 15	°C	OAT bag:	°C	End:	°C	Alt	AVSL	Pulse	In Air	Yurb	Crab	GPS Altitude	FOOM's	Gd Spd	Gd Spd	End (UTC)	Mag	Start (UTC)	Altimeter begin:			Storage
																						Max	Avg Pt	PPM	
LIDAR	FOV	40	7161						Alt	AVSL	Pulse	In Air	Yurb	Crab	GPS Altitude	FOOM's	Gd Spd	Gd Spd	End (UTC)	Mag	Start (UTC)	Max	Avg Pt	PPM	Storage
			53 Hz						MplA	Y/N	248	1	0	0	7700	1.9	142	142	18:53	98	18:50	4590	14500	8	250
															7730	1.8	145	145	18:56	218	18:56	4590	14500	8	271
																	153	153	19:07	19:07	19:09	4590	14500	8	25
																			19:09	19:09	19:14	4590	14500	8	25

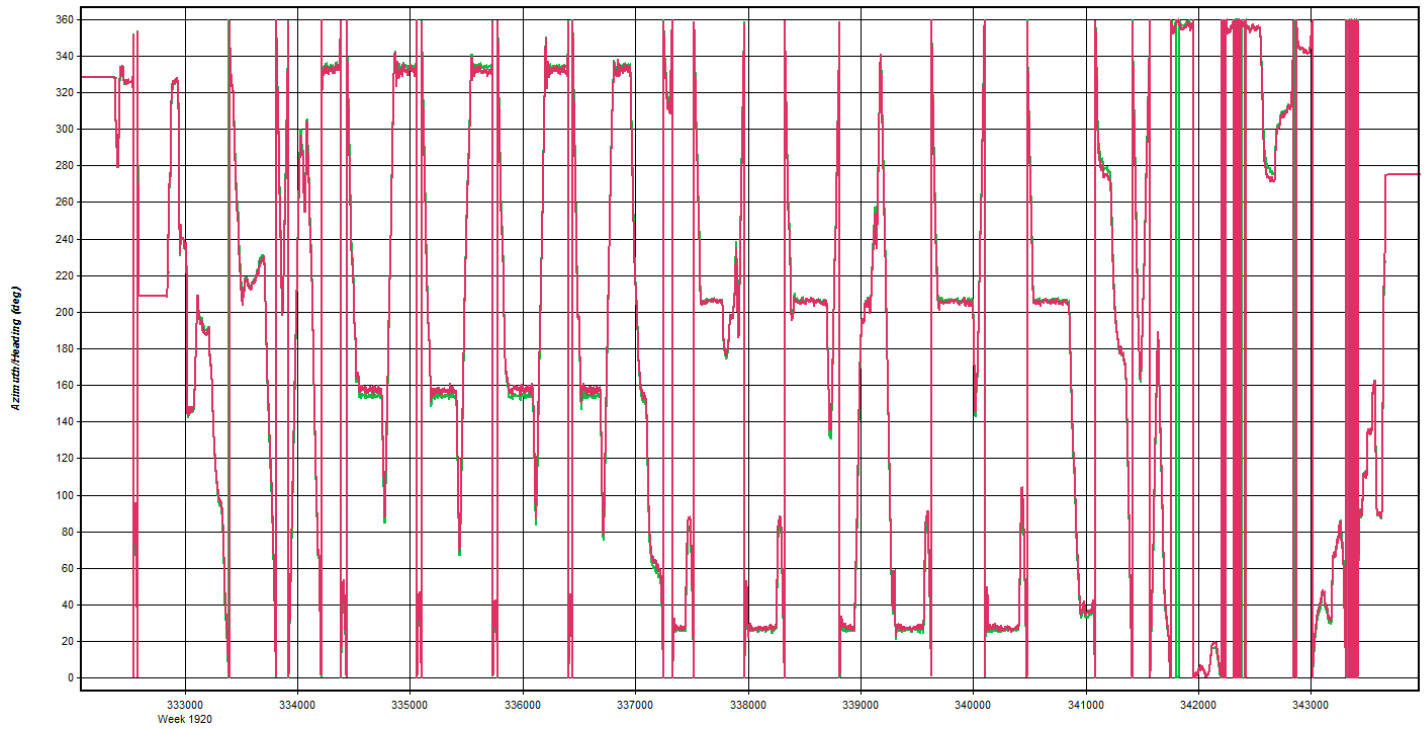
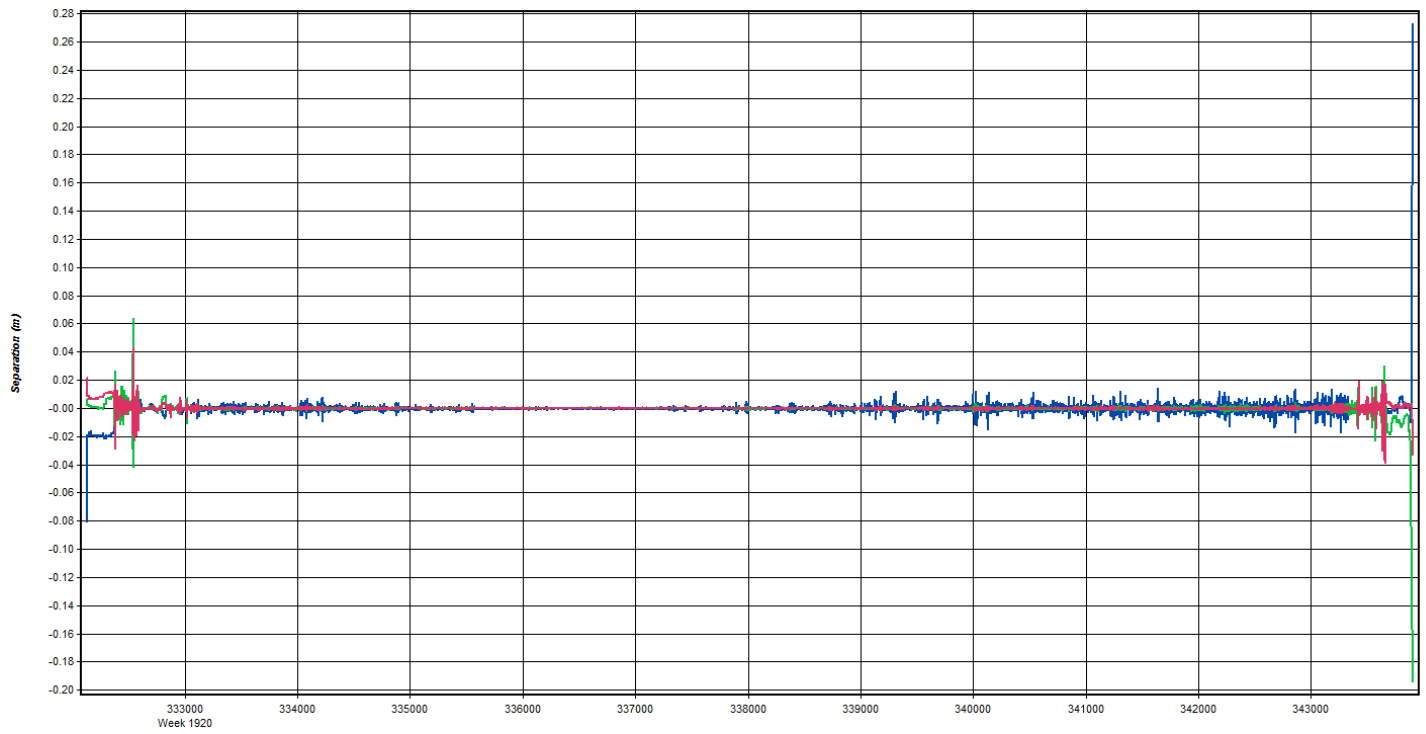
FLIGHT LINE NOTES - visibility, clouds, emats, partial, etc.

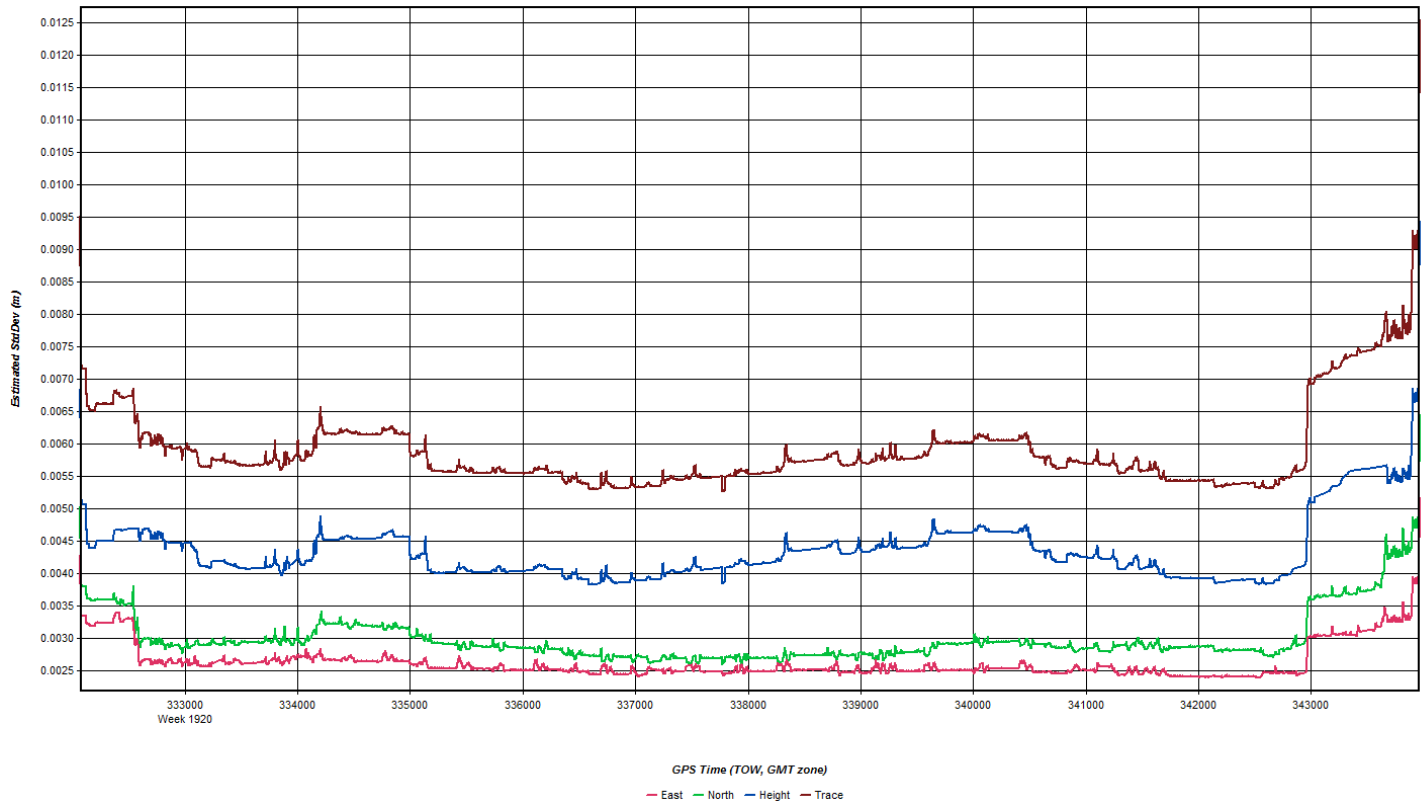
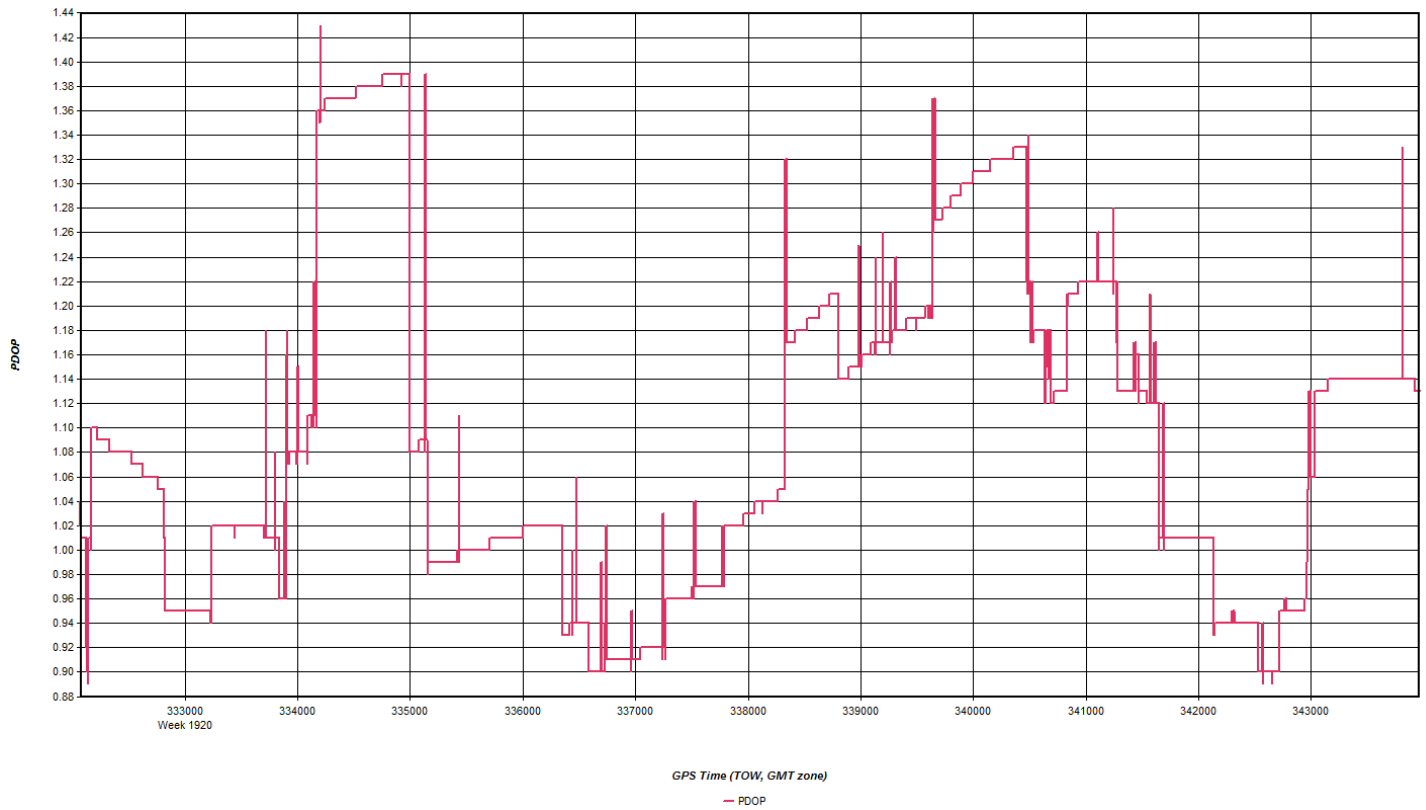
161026-185015
161026-185617
CROSS TIE along shore
Descent Fig 8
Landing in KPVM for fuel

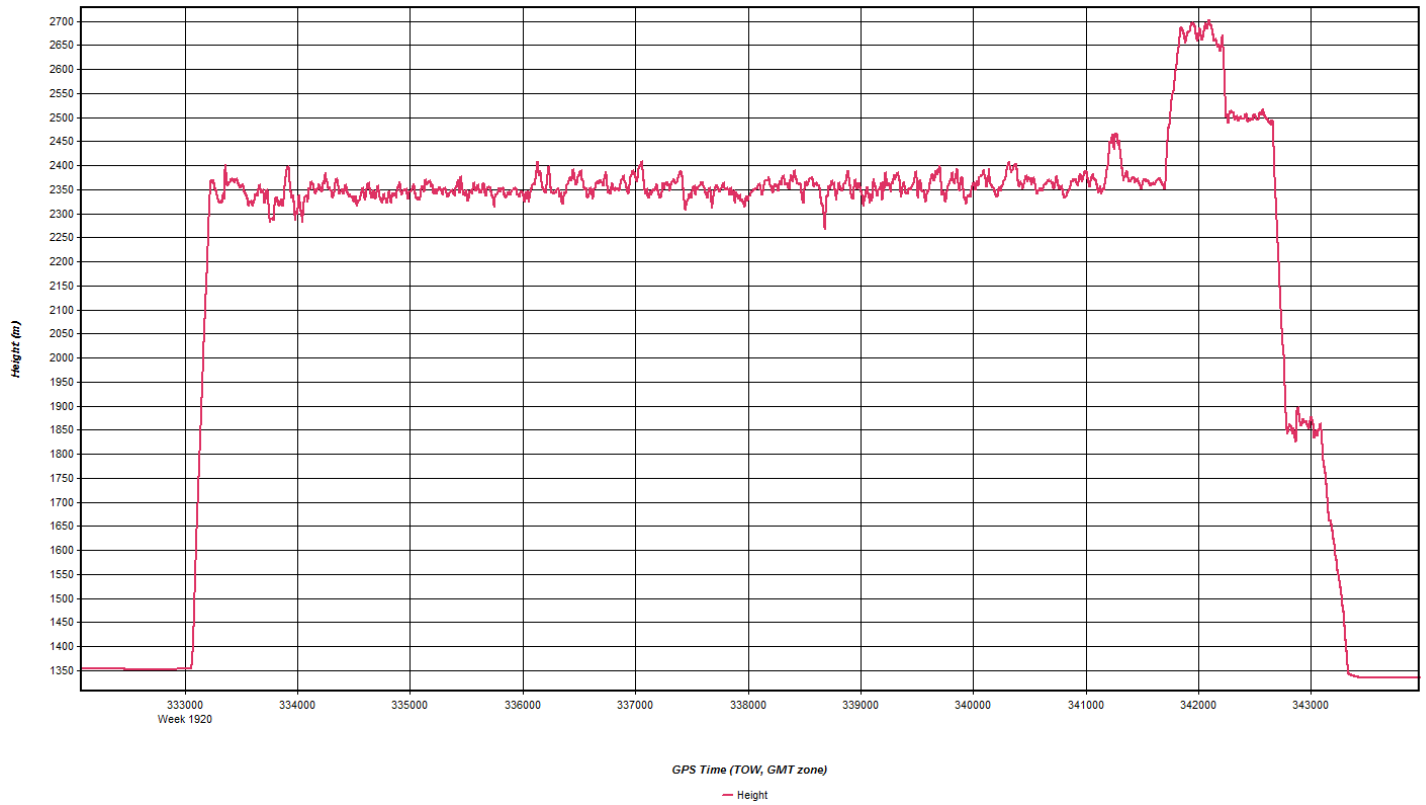
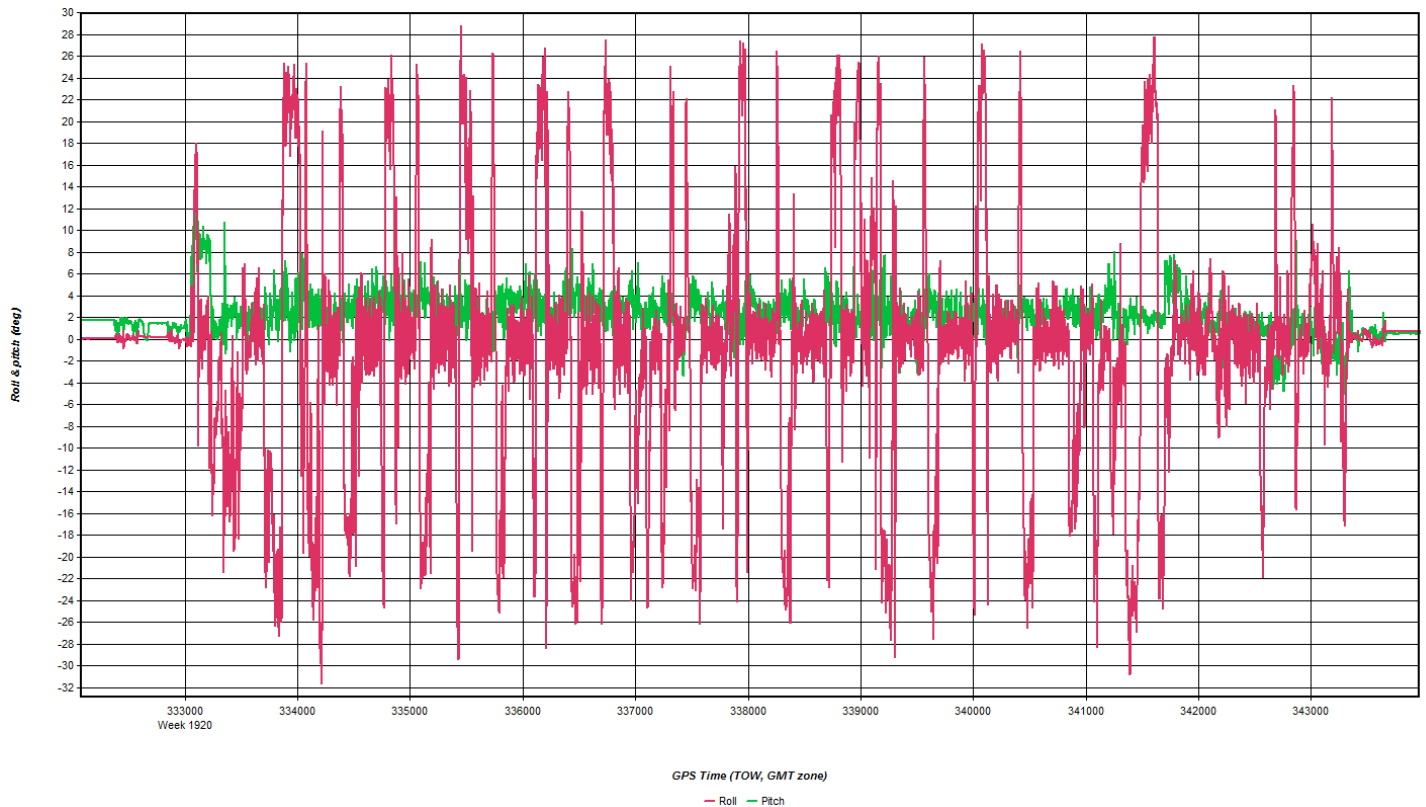
Total Proj Lines: 23 **Lines Remain:** 7 **Orbit's Time:** 33 **Job Time:** 7 **Notes:**

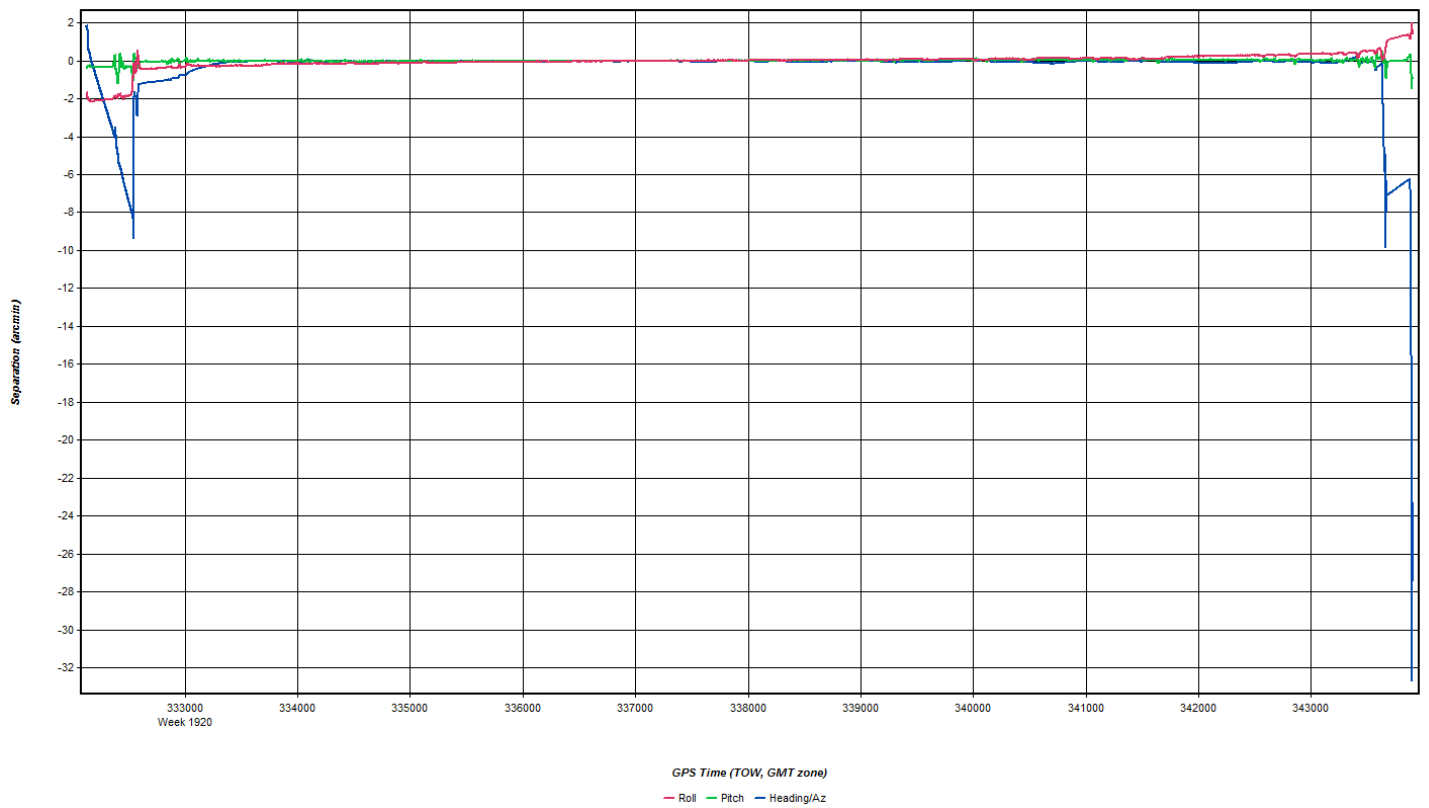
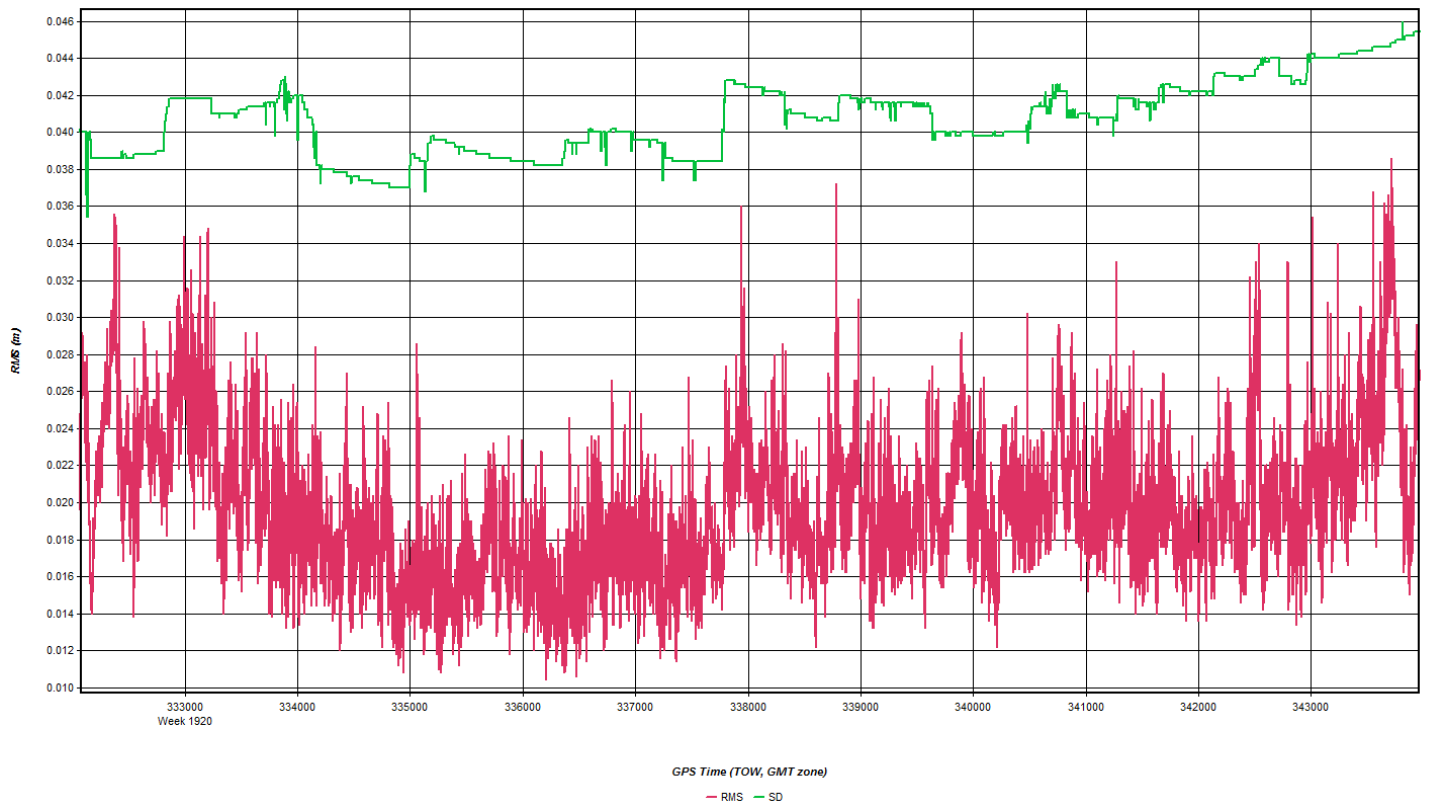
Oct 26, 2016-B (N22GE, SN7161)

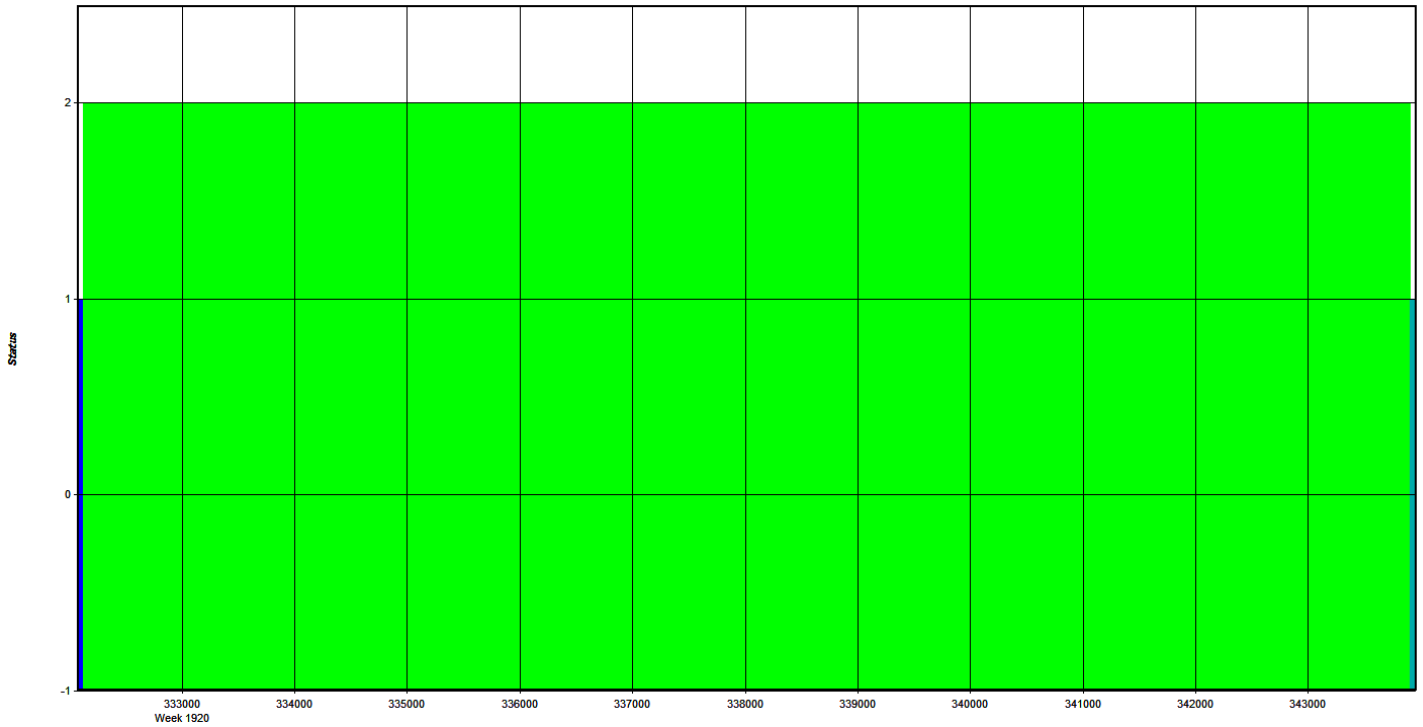












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 3: UTL2 Name: UTL2 Disabled
 File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates
 Latitude: North 40 25 09.49565 Compute from PPP
 Longitude: West 111 52 13.08922 Enter Grid Values
 Ellipsoidal height: 1391.436 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00, NONE View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 0.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 0.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings
? X

Master
Remote

Base Station

2: UTOC

Name:

UTOC

 Disabled

File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates

Latitude:	North	40	17	54.89014	Compute from PPP
Longitude:	West	111	41	11.47676	Enter Grid Values
Ellipsoidal height:		1453.351		m	Enter MSL Height
Datum:		WGS84			Datum Options

Select From Favorites
Add To Favorites
Use Average Position

Antenna Height

From station file:	TRM55971.00, NONE	View STA File
Antenna profile:	TRM55971.00	Info
Measured height:	0.000	m
ARP to L1 offset:	0.067	m
Applied height:	0.067	m

Measured to

ARP

L1 Phase Centre

Compute From Slant

OK

Cancel

Coordinate/Antenna Settings
? X

Master
Remote

Base Station

1: UTS2

Name:

UTS2

 Disabled

File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates

Latitude:	North	40	08	16.20885	Compute from PPP
Longitude:	West	111	39	05.50612	Enter Grid Values
Ellipsoidal height:		1371.470		m	Enter MSL Height
Datum:		WGS84			Datum Options

Select From Favorites
Add To Favorites
Use Average Position

Antenna Height

From station file:	TRM55971.00, NONE	View STA File
Antenna profile:	TRM55971.00	Info
Measured height:	0.000	m
ARP to L1 offset:	0.067	m
Applied height:	0.067	m

Measured to

ARP

L1 Phase Centre

Compute From Slant

OK

Cancel

Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc

Date: 10/26/2016
Page 2 of 2

Project: UTAH - LIDAR 2016 Proj #: 29083 Flight Mgmt File: FMSL-Utah-Lk-QL1-SNTIG-2016

Aircraft: N22GE Begin Hobbs: 8918.4 End Hobbs: 8921.3 Total: 2.9 Pilot: Carl Christopher Co-Pilot: Tech: Gary Lee

Dep Apt: KPVU Dep Time (Lcl): 2:30 (Z): 20:30 Arr Apt: KOGD Arr Time (Local): (Z): Tot Time Aloft: 2:52

COILS: (Y) N Sea 1: Sea 2: Flyovers: Y / (N) If Y, times: Sea 1) Sea 2)

GPS Unit: Y / (N) Sea 1: Sea 2: Flyovers: Y / N If Y, times: Sea 1) Sea 2)

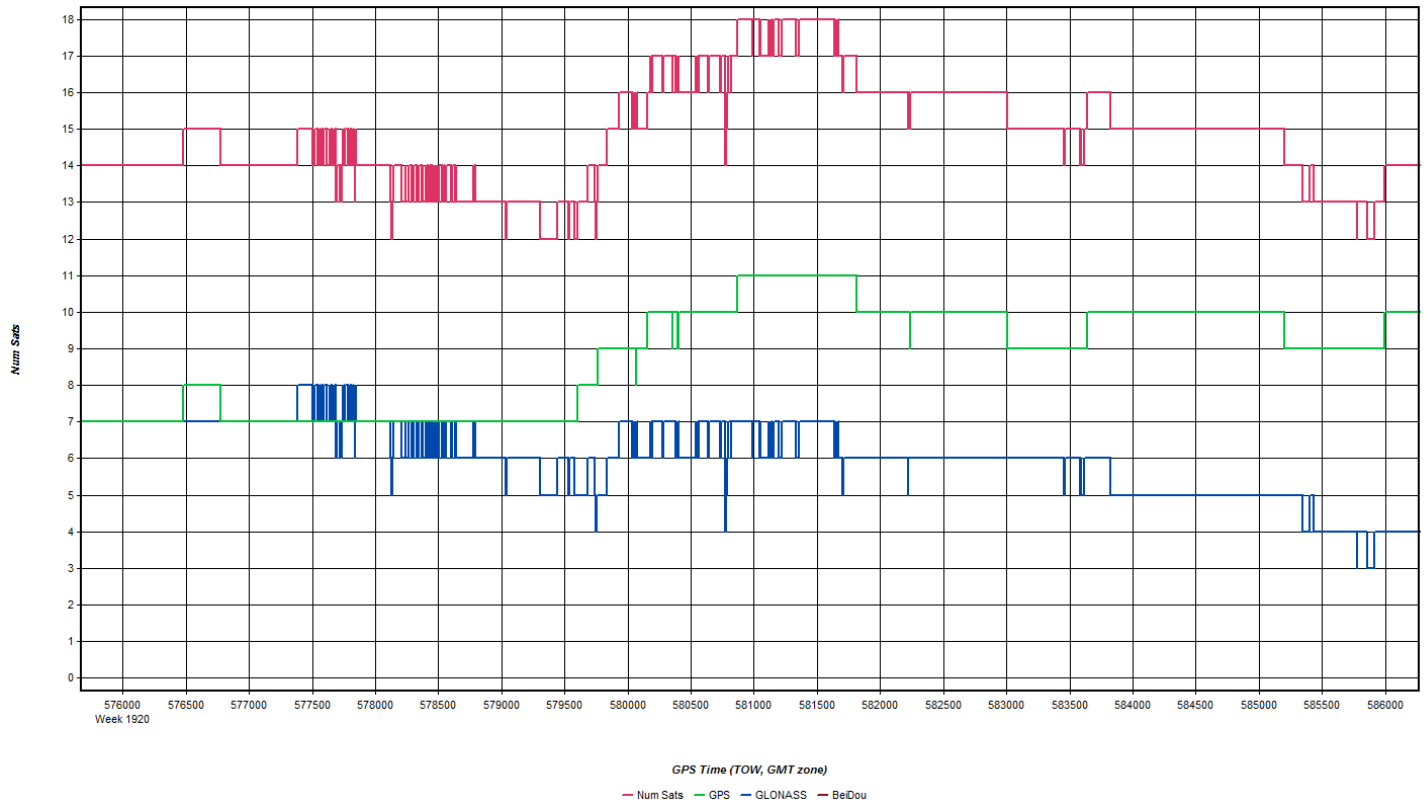
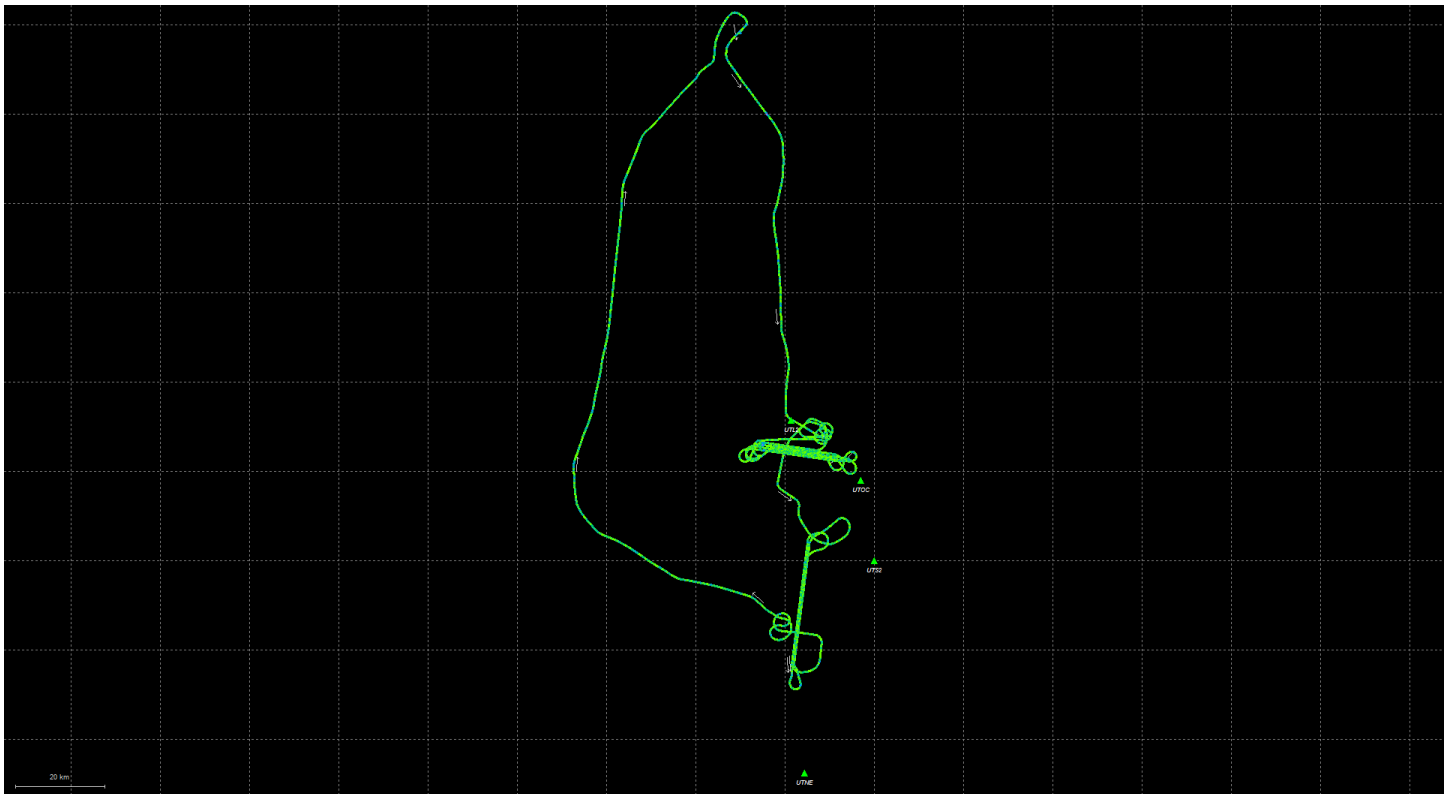
Gd Temp beg: °C End: °C OAT bag: °C End: °C Altimeter begin: 3023 end: 3019

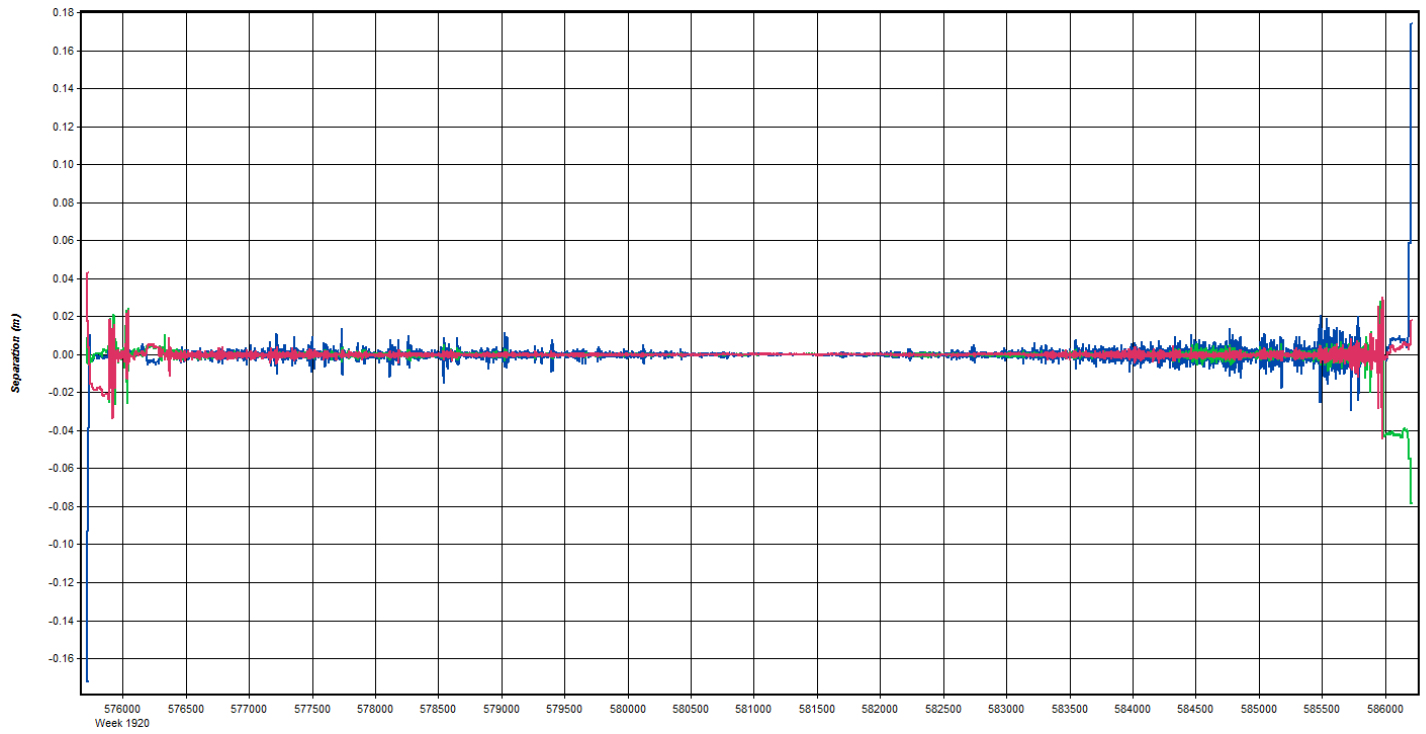
LIDAR	Type	Serial #	Scan Freq	Alt AGL	Alt AGL	Alt in AB	Prd in AB	Avg Terr Ht	Max Glpd	Power	Avg Pt. Spading	PPM	Mag. Cab	Slave Name
	FOV	400	53Hz	MPIA (Y) N	3150'	770'	1	4550'	248 kWh	4570	145kt	8	271	M170
1093	20°	22:15	22:19	141	7750'	2°	-	161026	221458					
1092	20°	22:22	22:26	145	7710'	0°	0		222153					
1091	20°	22:29	22:33	154	7730'	2°	-		222353					
1090	20°	22:36	22:41	144	7750'	0°	0		222369					
1002	20°	22:45	22:47	147	7710'	0°	0		CROSS-TIE					
		22:47	22:53						Closeout Fig 8					
									RTB					
									KOGD					

FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.

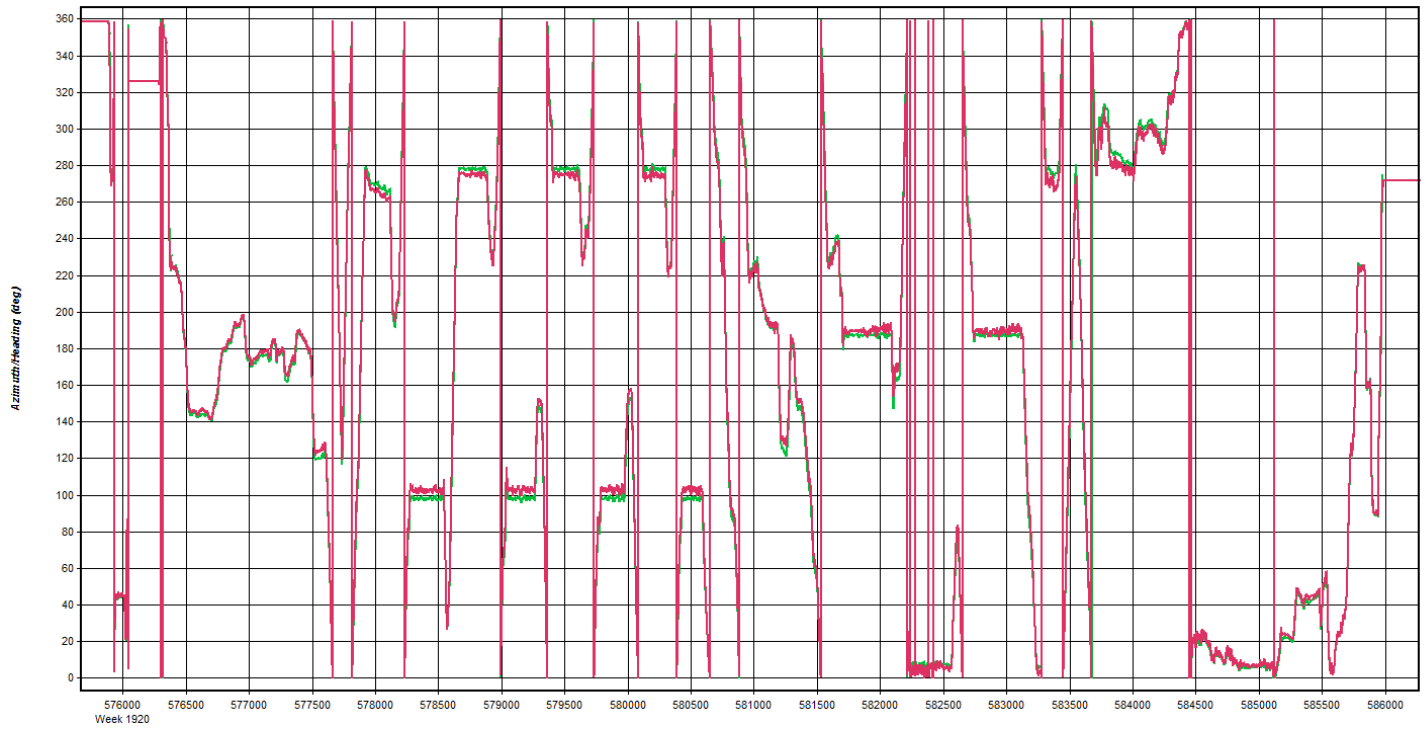
Total Proj Lines: 7 Lines Flown: 7 Lines Remain: 0 Online Time: 2 Mob Time: 9 Notes:

Oct 29, 2016-A (N22GE, SN7161)

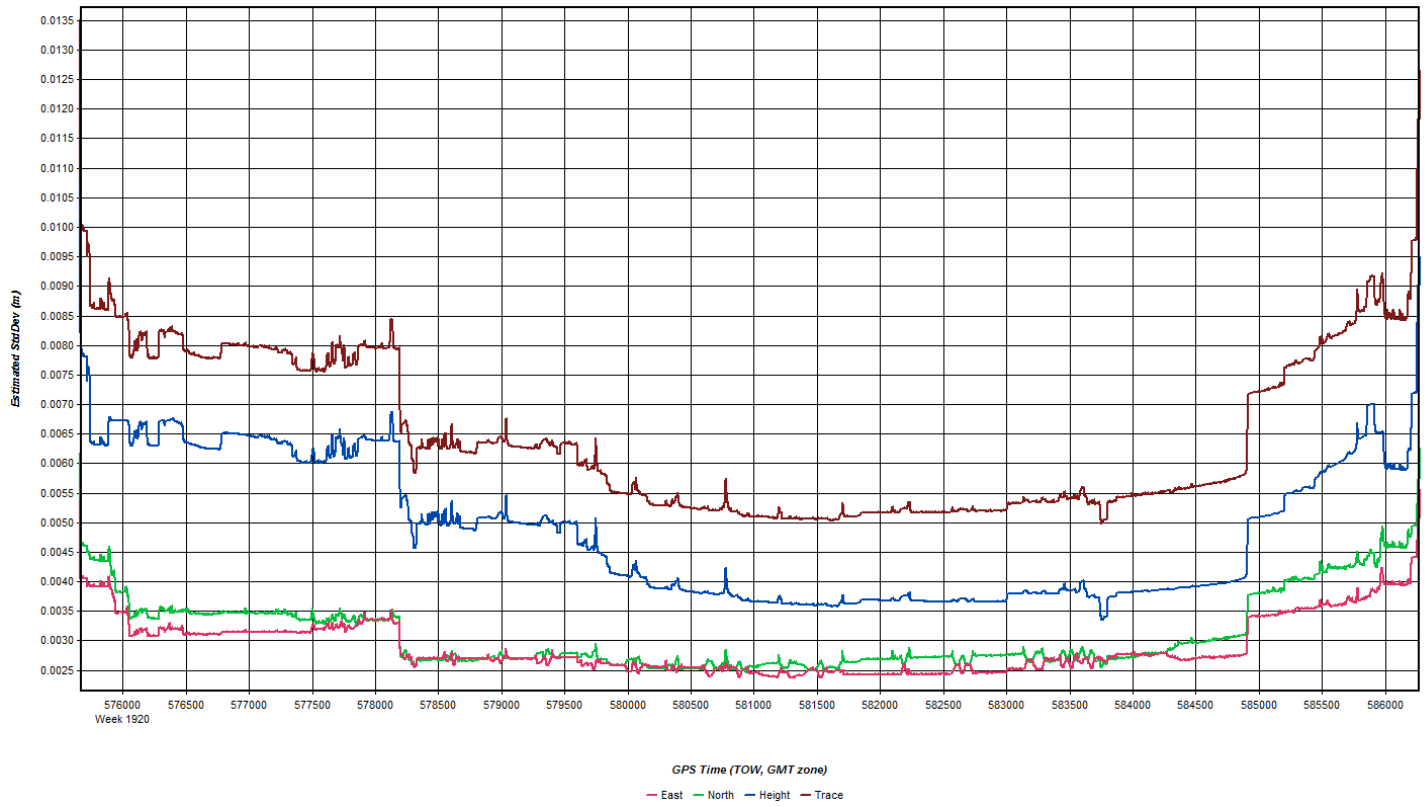
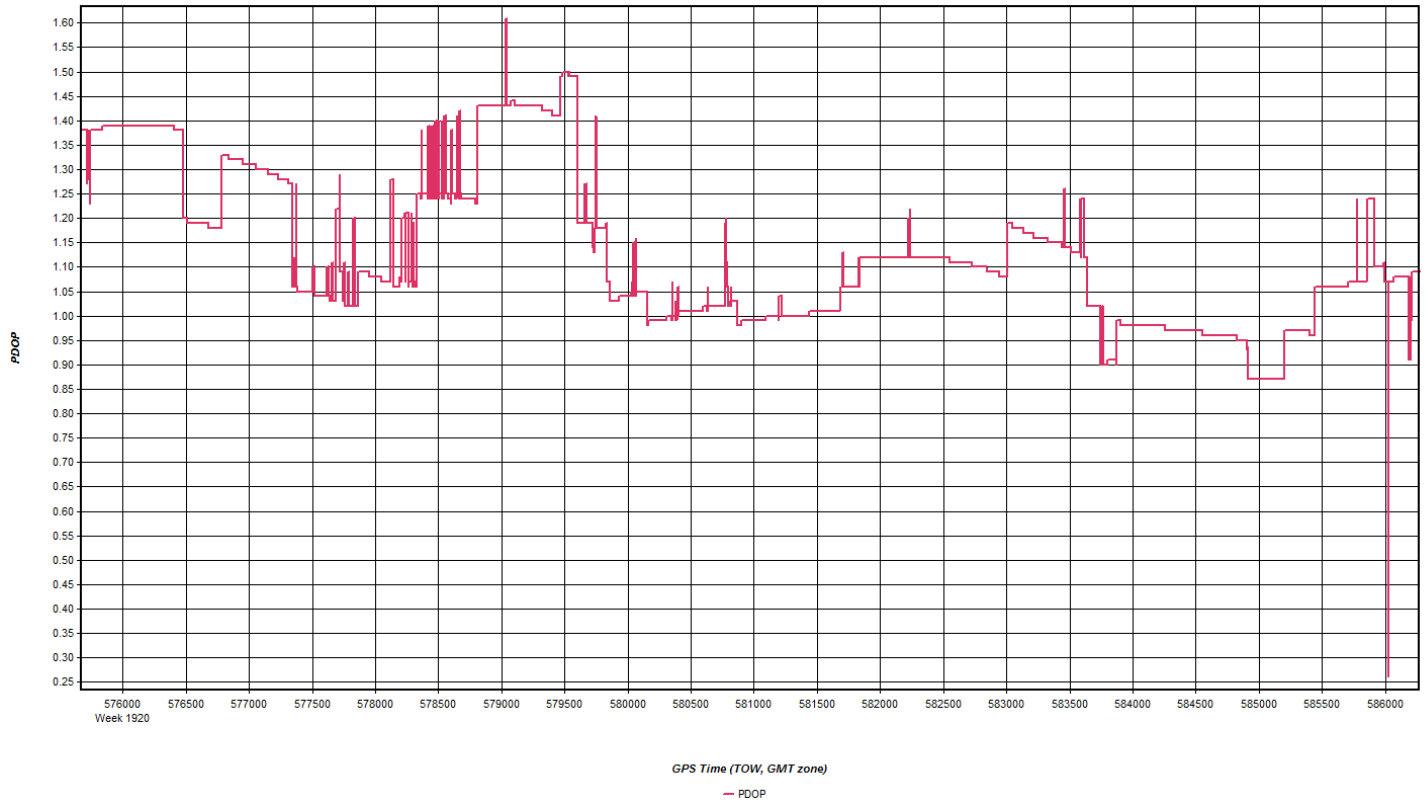


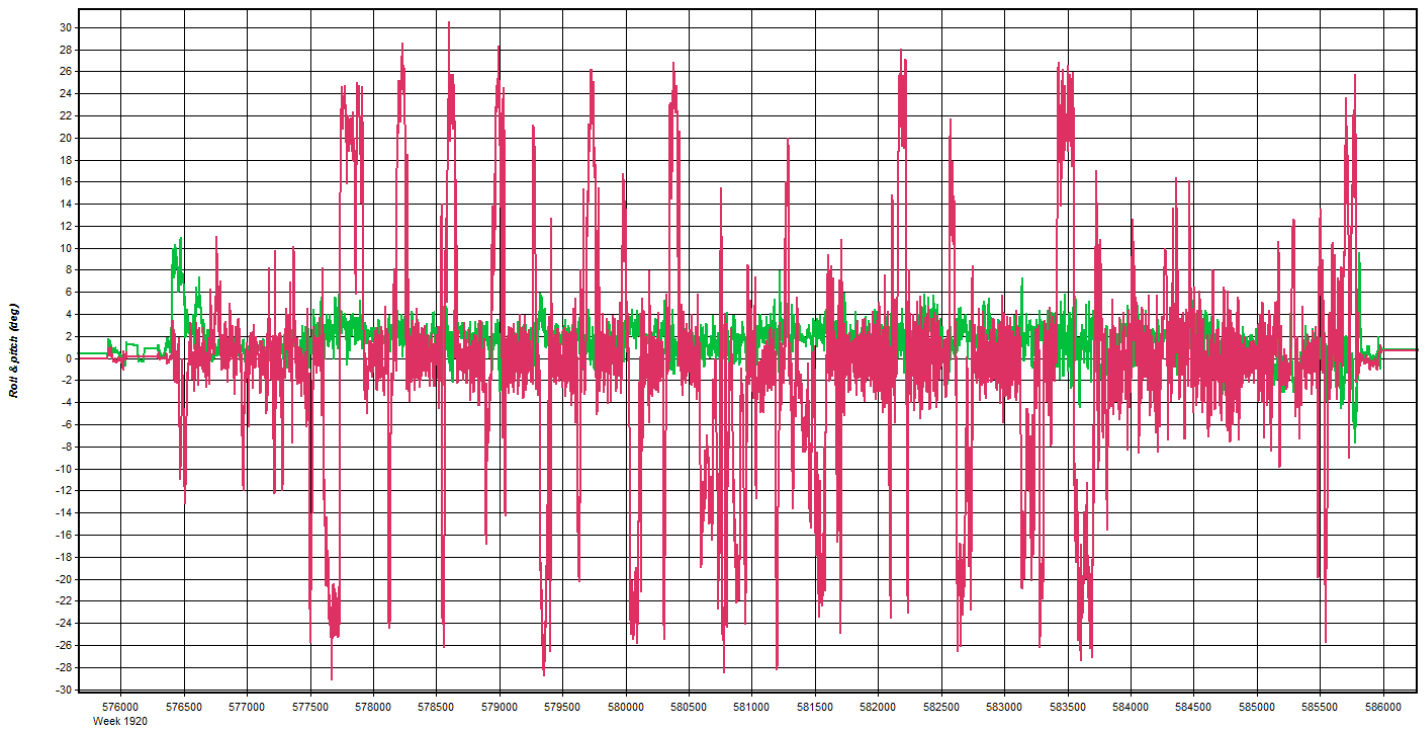


GPS Time (TOW, GMT zone)
— East — North — Up

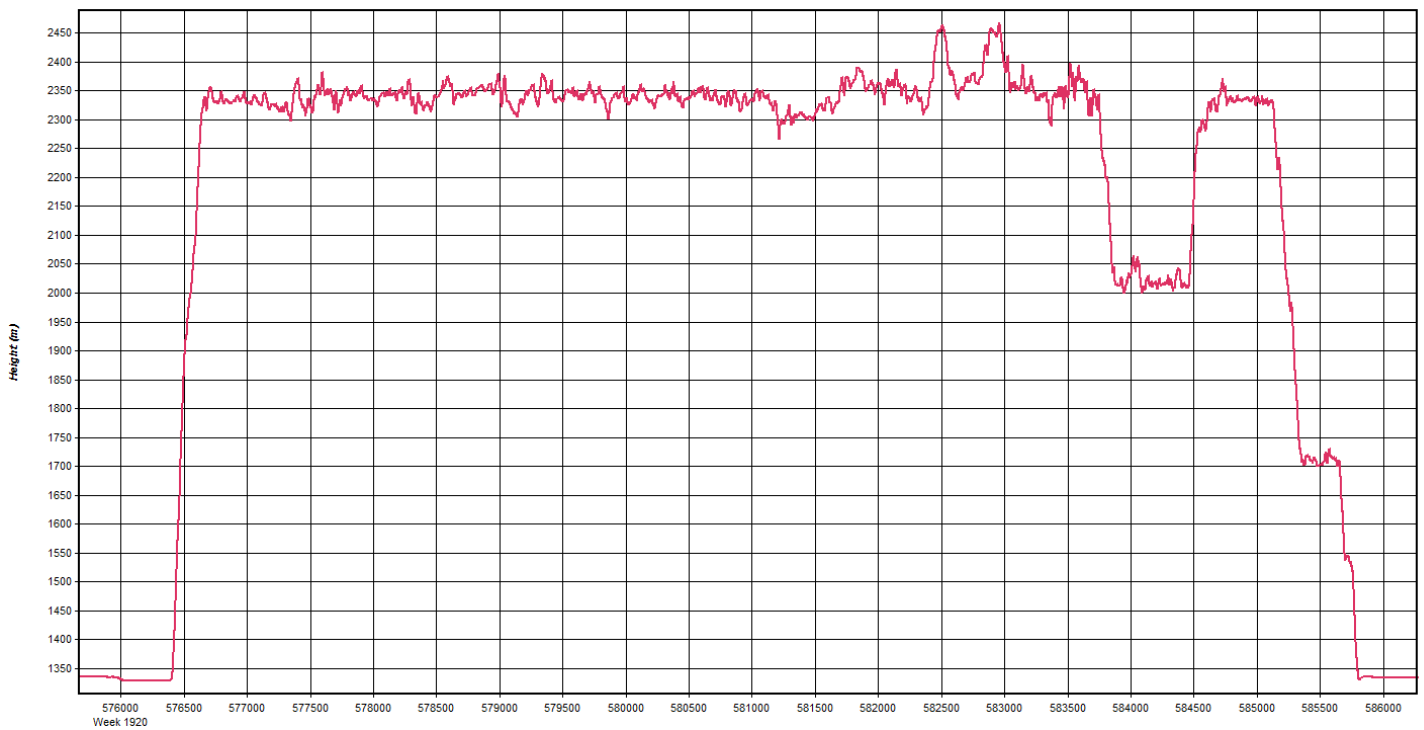


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG

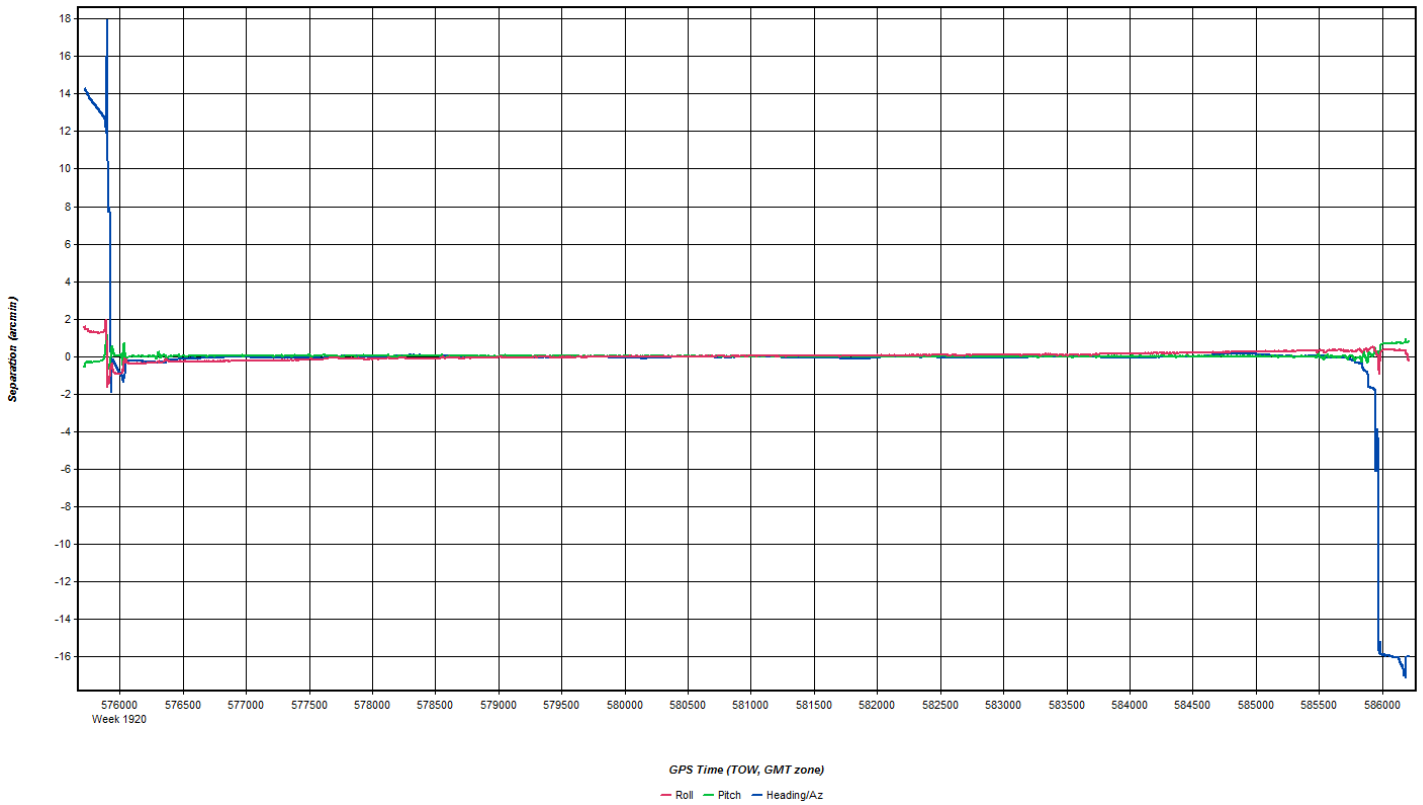
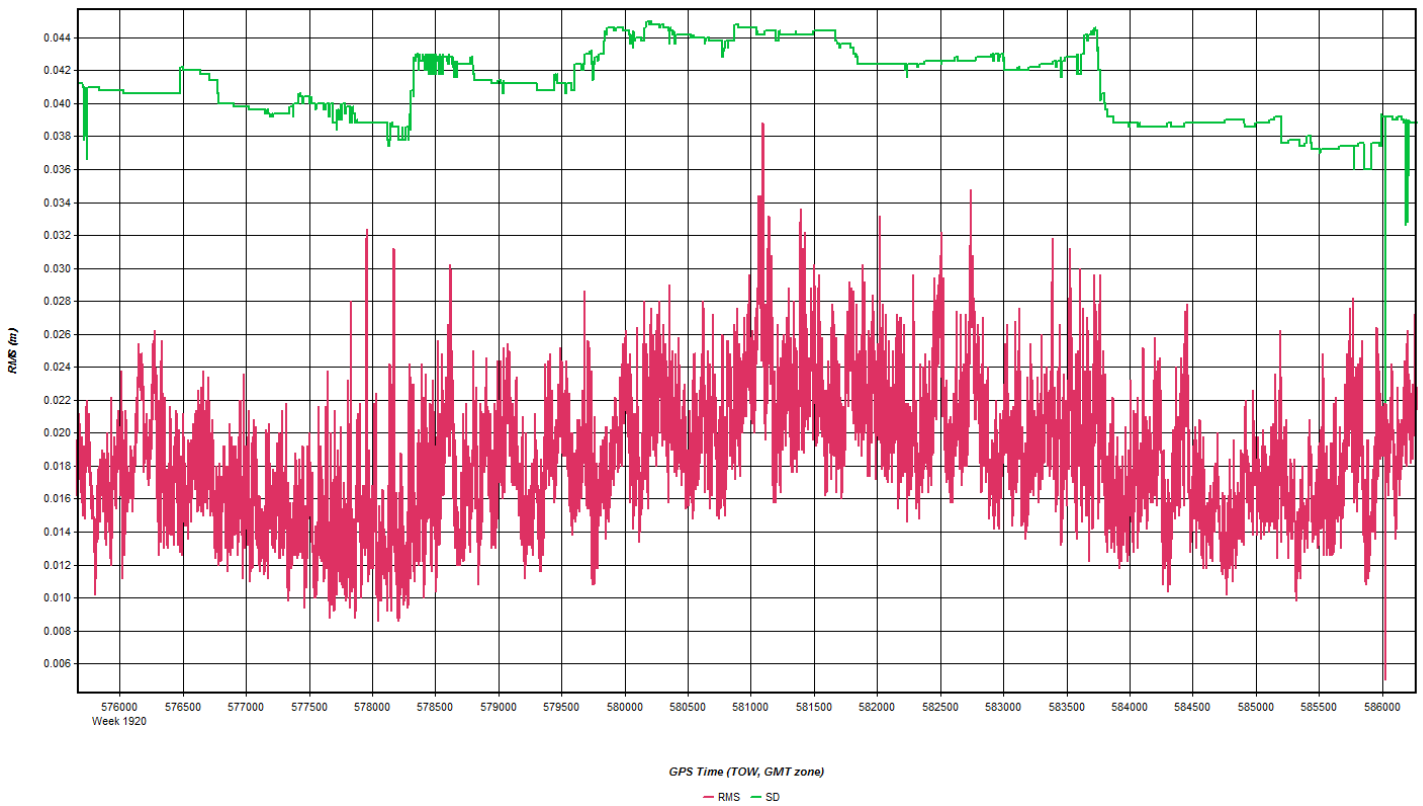


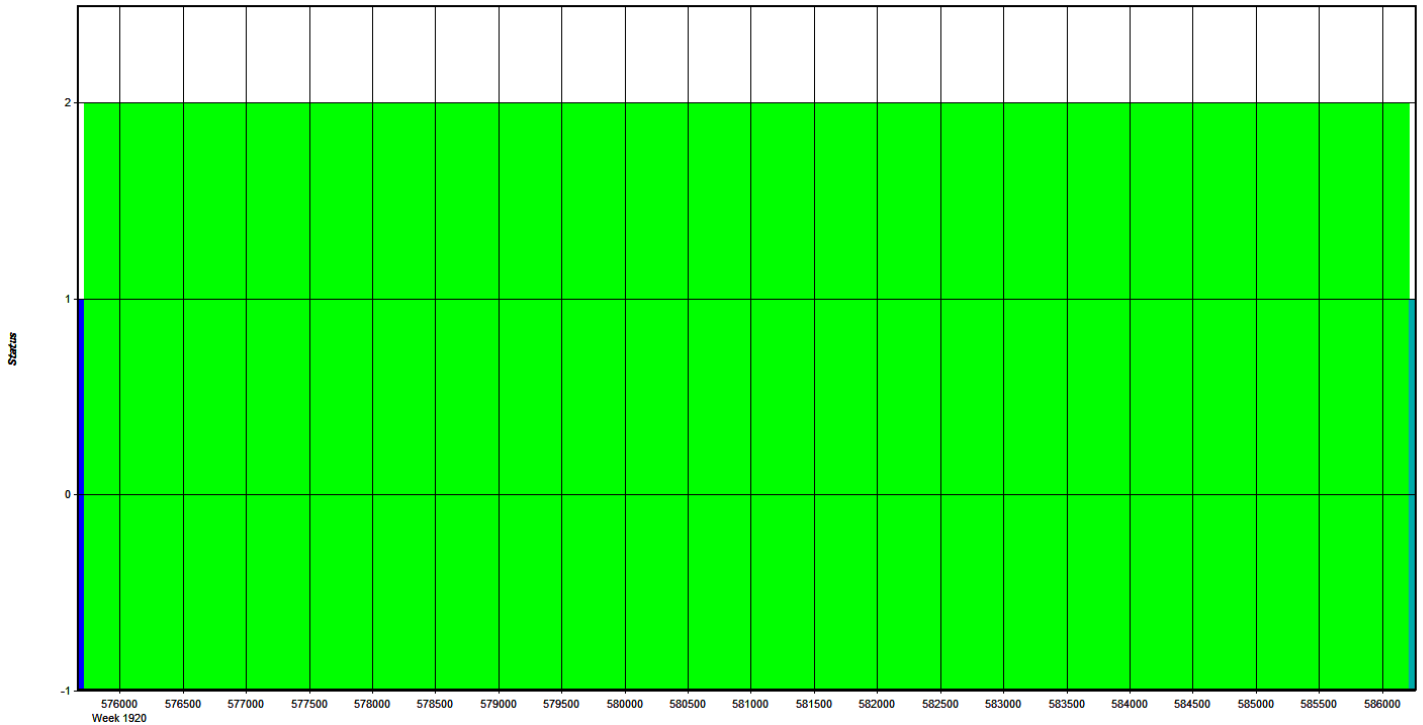


GPS Time (TOW, GMT zone)
— Roll — Pitch



GPS Time (TOW, GMT zone)
— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 4: UTL2 Name: UTL2 Disabled
 File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates
 Latitude: North 40 25 09.49565 Compute from PPP
 Longitude: West 111 52 13.08922 Enter Grid Values
 Ellipsoidal height: 1391.436 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00, NONE View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 0.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 0.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings
? X

Master
Remote

Base Station

3: UTNE
Name: UTNE
 Disabled

File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates

Latitude:	North	39	42	37.97270	Compute from PPP
Longitude:	West	111	50	08.00862	Enter Grid Values
Ellipsoidal height:	1561.007			m	Enter MSL Height
Datum:	WGS84				Datum Options

Select From Favorites
Add To Favorites
Use Average Position

Antenna Height

From station file:	TRM41249.00, NONE	View STA File
Antenna profile:	TRM41249.00	Info
Measured height:	0.000	m
ARP to L1 offset:	0.056	m
Applied height:	0.056	m

Measured to

ARP

L1 Phase Centre

Compute From Slant

OK
Cancel

Coordinate/Antenna Settings
? X

Master
Remote

Base Station

2: UTOC
Name: UTOC
 Disabled

File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates

Latitude:	North	40	17	54.89014	Compute from PPP
Longitude:	West	111	41	11.47676	Enter Grid Values
Ellipsoidal height:	1453.351			m	Enter MSL Height
Datum:	WGS84				Datum Options

Select From Favorites
Add To Favorites
Use Average Position

Antenna Height

From station file:	TRM55971.00, NONE	View STA File
Antenna profile:	TRM55971.00	Info
Measured height:	0.000	m
ARP to L1 offset:	0.067	m
Applied height:	0.067	m

Measured to

ARP

L1 Phase Centre

Compute From Slant

OK
Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
1: UTS2 Name: UTS2 Disabled
File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates
Latitude: North 40 08 16.20885 Compute from PPP
Longitude: West 111 39 05.50612 Enter Grid Values
Ellipsoidal height: 1371.470 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00, NONE View STA File
Antenna profile: TRM55971.00 Info
Measured height: 0.000 m
ARP to L1 offset: 0.067 m
Applied height: 0.067 m
Measured to
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

on 15:50
off 18:52

Airborne LIDAR Data Collection Log Sheet :: Quantum Spatial, Inc
(email log entry to flight_log_distribution_list@quantumspatial.com)

Project: UTAH - LIDAR 2016 **Proj #:** 29082 **Flight Mgmt File:** FMSL UTAH_LK_NTK1-22GE
Altcraft: V22GE **Begin Hobbs:** 8222 **End Hobbs:** 8930.8 **Total:** 2.6 **Pilot/Co-Pilot:** Todd Gordon
Dep Apt: KOGD **Dep Time (UTC):** 10:06 **Arr Apt:** KOGD **Arr Time (Local):** 12:44 **TA:** 18:44 **Tot Time Aloft:** 2:38
COND: DAY **Sea 1:** UTLZ/UTOC **Sea 2:** UTSZ/UTNE **Flyover:** Y (N) **IF Y, distance (Stat):** **Sea 2):**
GPS Unit: Y (N) **Sea 1:** **Sea 2:** **Flyover:** Y (N) **IF Y, distance (Stat):** **Sea 2):**

Gd Temp bag:	°C	End:	°C	OAT bag:	°C	End:	°C	Altimeter height:	end:
Type: AL570	71.61	77.10	77.10	Max Over:	4472	Max Over:	145	Alt:	344
FOV: 40°	53 Hz	MpA Y (N)	1	Power:	45%	Power:	8	Mag:	356

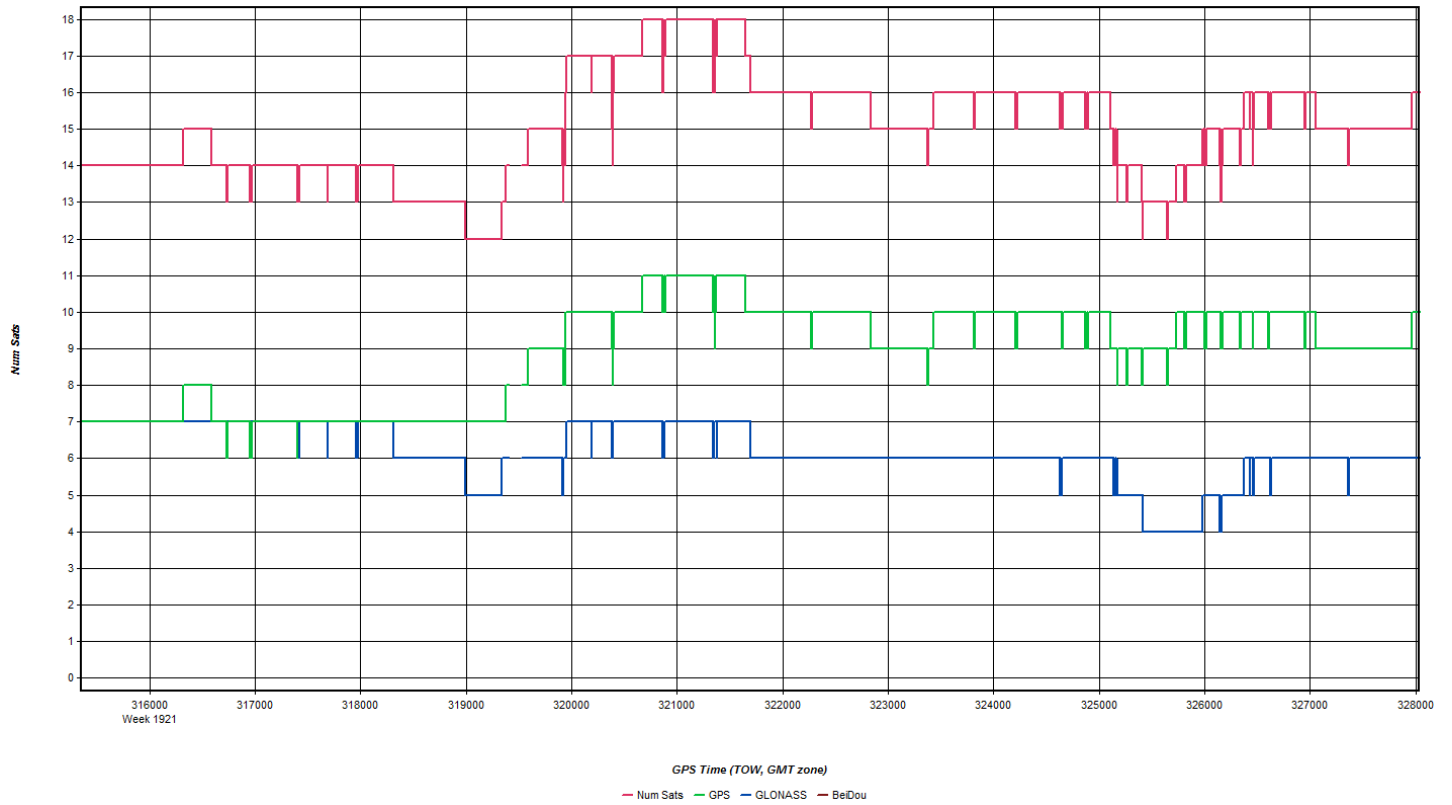
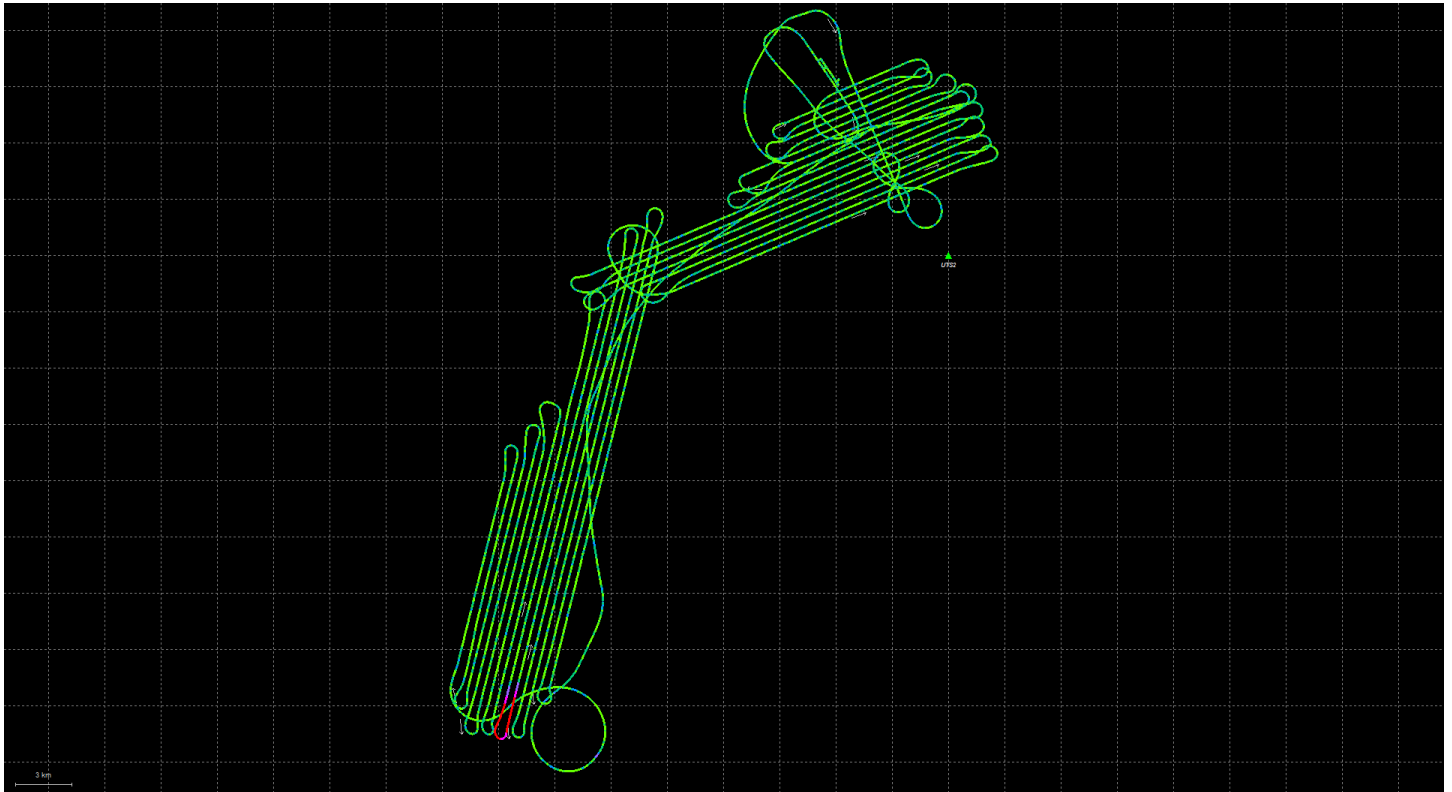
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	Position	GPS Altitude	Obs	Y/N	Notes
1079	98	16:36	16:37	141	1217 7700	40	-	-	Initial Fig 8
1078	28	16:45	16:48	46	1219 7100	30	-	-	161029 163844
1077	98	16:51	16:54	149	1217 7650	40	+	+	161029-165114
1076	28	16:57	17:00	148	1020 7650	40	-	-	161029-165712
1075	98	17:03	17:06	142	1119 7700	40	-	-	161029-170341
1074	28	17:09	17:11	145	1120 7650	40	-	-	161029-170921
1073	98	17:14	17:16	139	1119 7670	50	+	+	161029-171426
UL002	206	17:24	17:26	140	1220 7700				161029-172353
1037	188	17:36		129	1120 7800	20	+	+	161029 173545. Range very low on Northend due to mountains
1036	8	17:44	17:49	153	1120 7900	10	+	+	161029 174414, a little fast @ end
1035	188	17:53	17:57	126	1119 7800	30	+	+	161029 175306, CROSS TIE clouds dropping, Turb
UL003	70	18:01	18:03	149	7700				Close out Fig 8, RIB KOGD
		18:03	18:08						

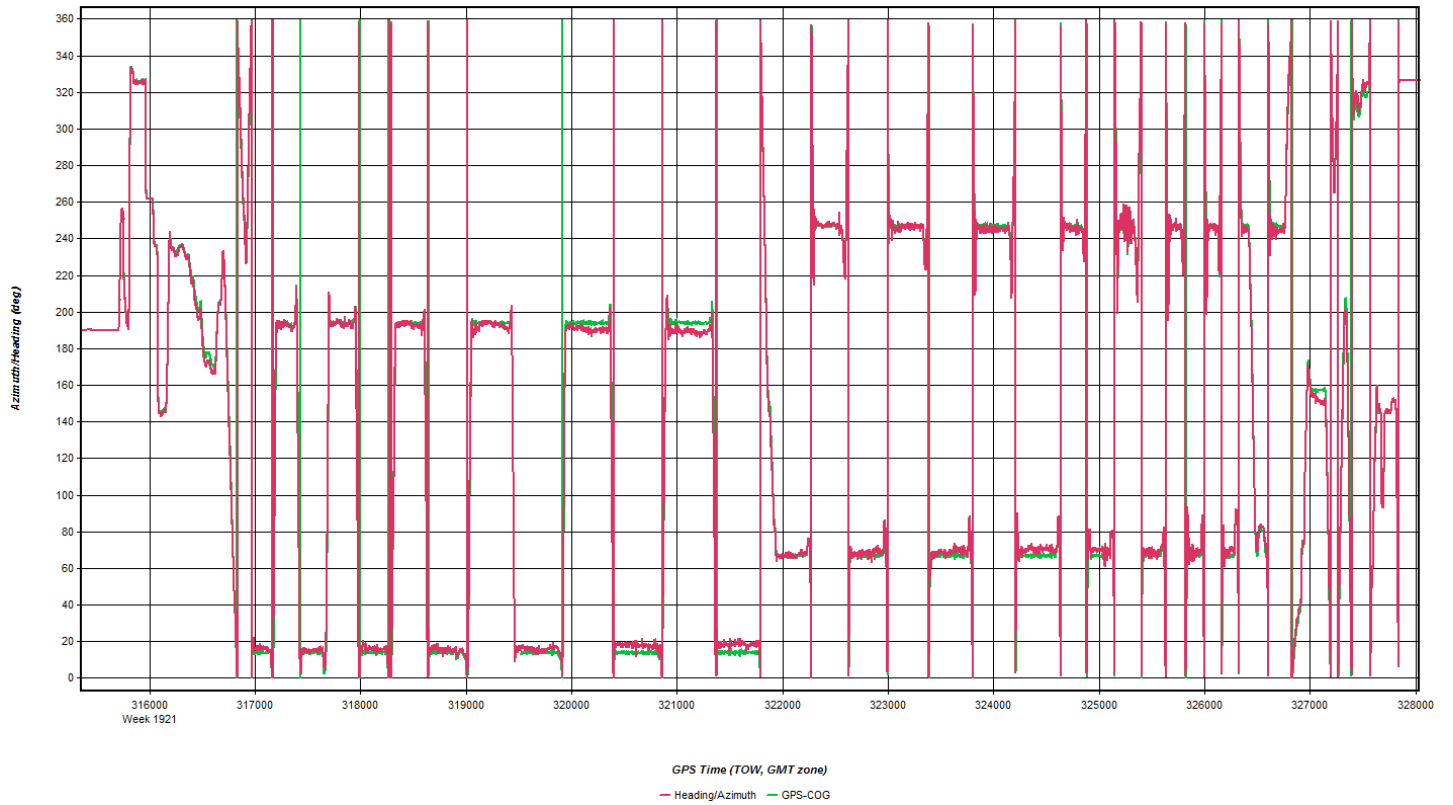
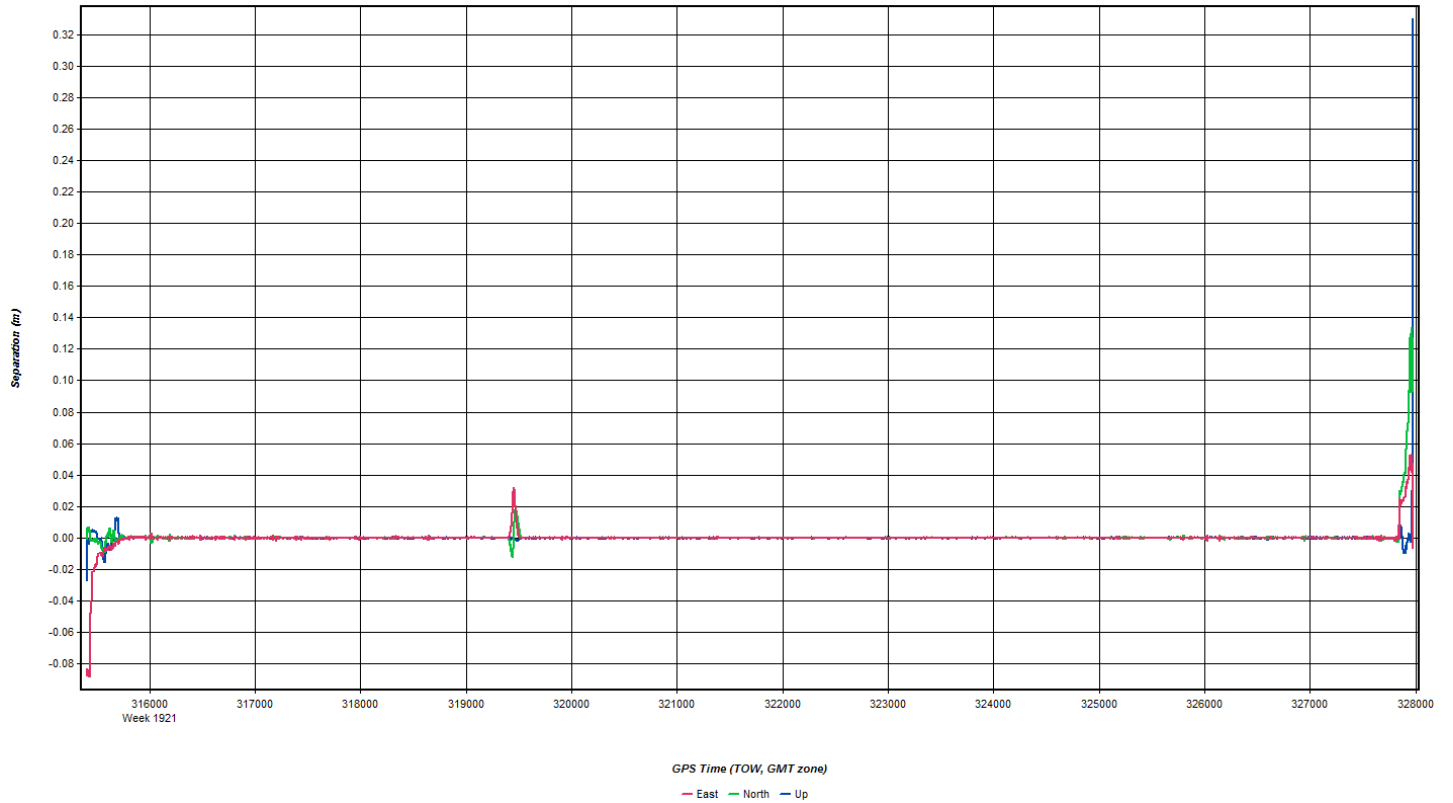
FLIGHT LINE NOTES - stability, climb, altitude, period, etc.

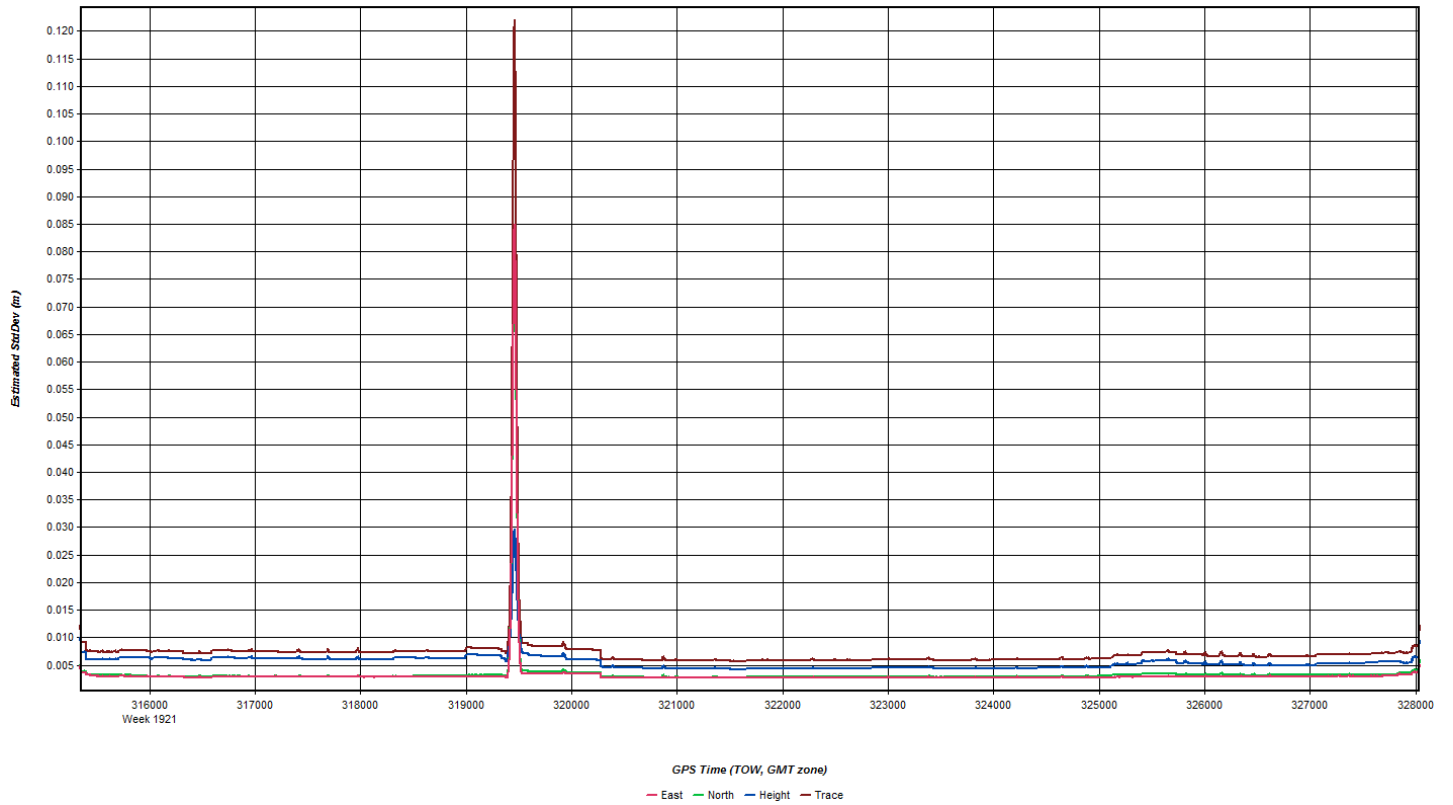
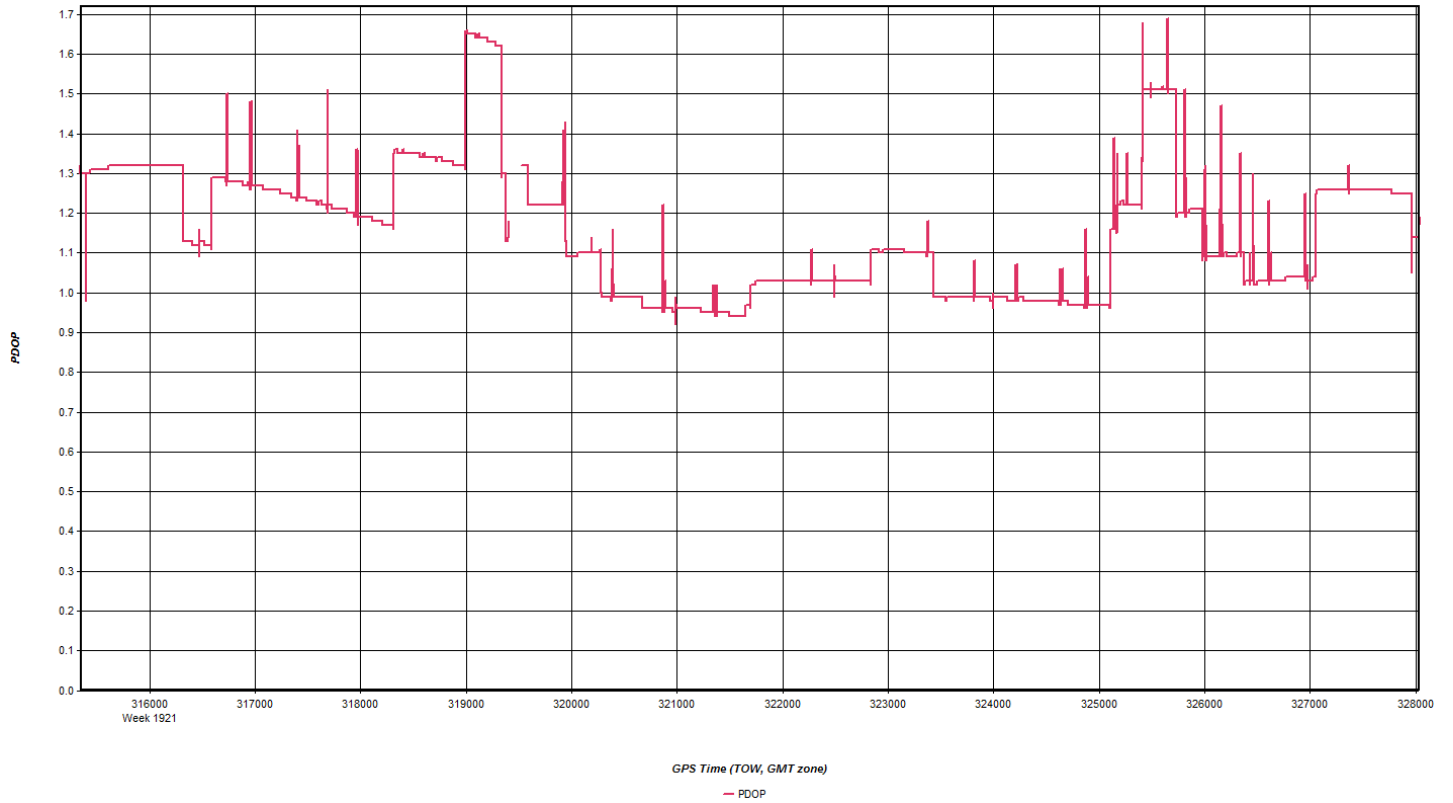
Departure delayed by VX

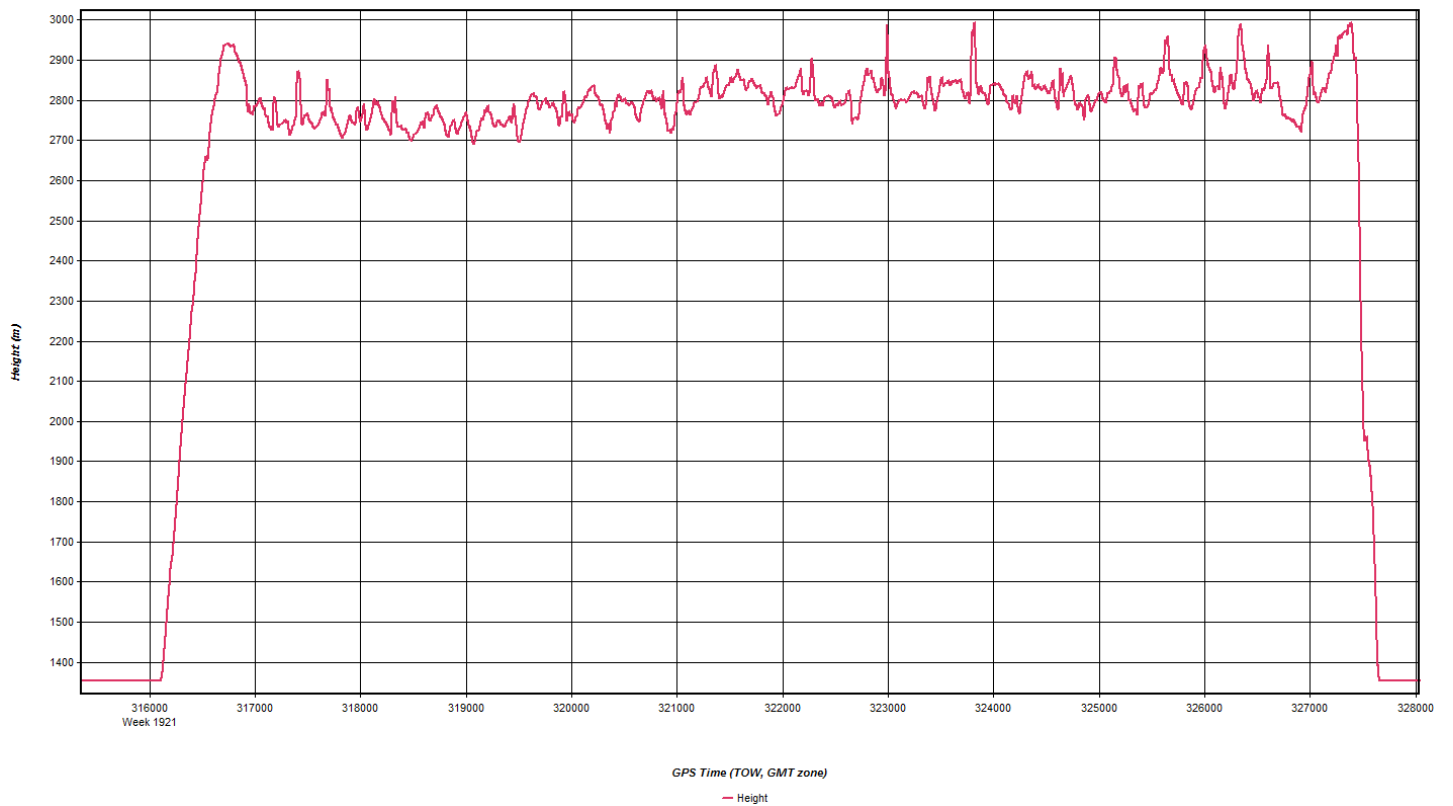
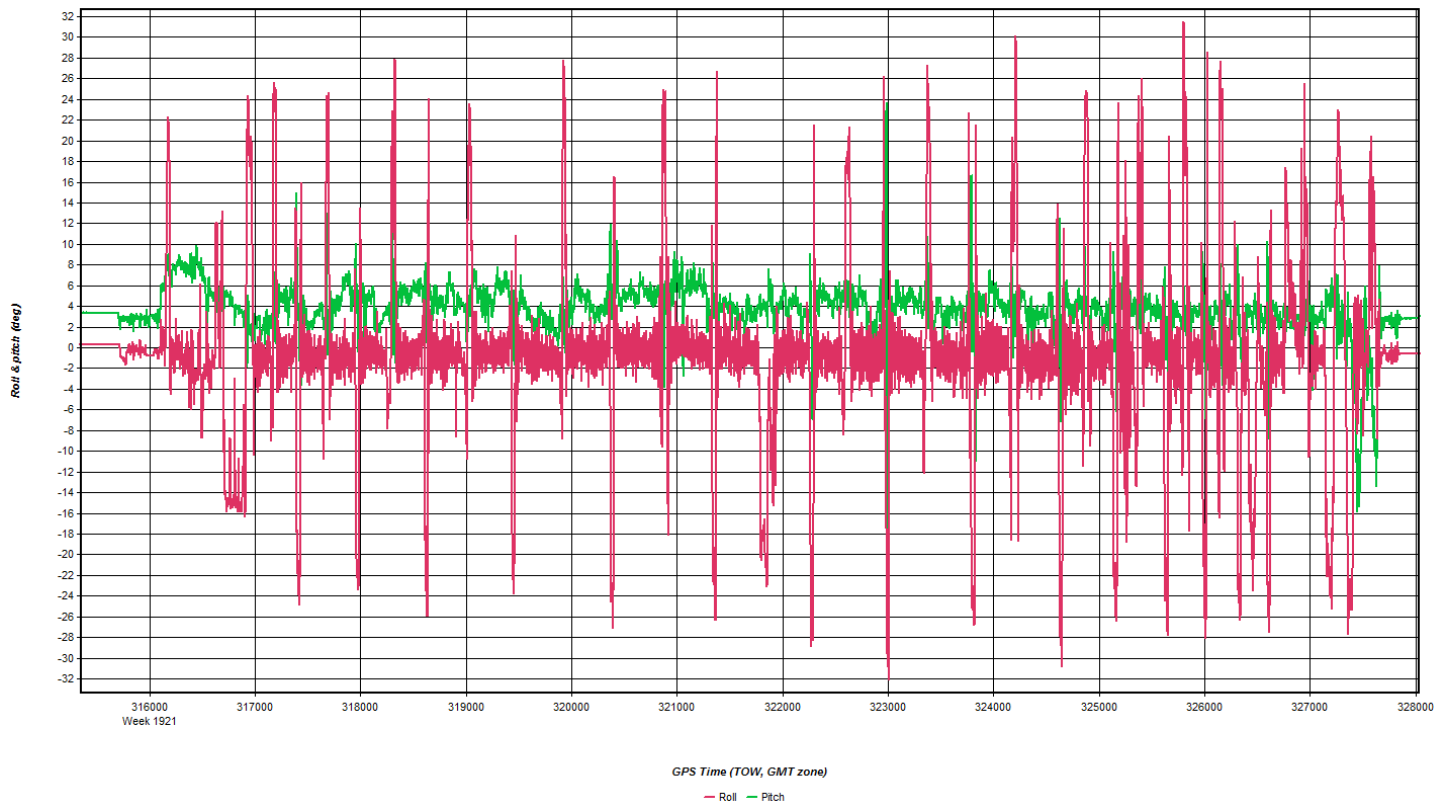
Total Proj Lines: 10 **Lines Flown:** 10 **Lines Remaining:** 0 **Online Time:** 1:4 **Job Time:** 2:2 **Notes:**

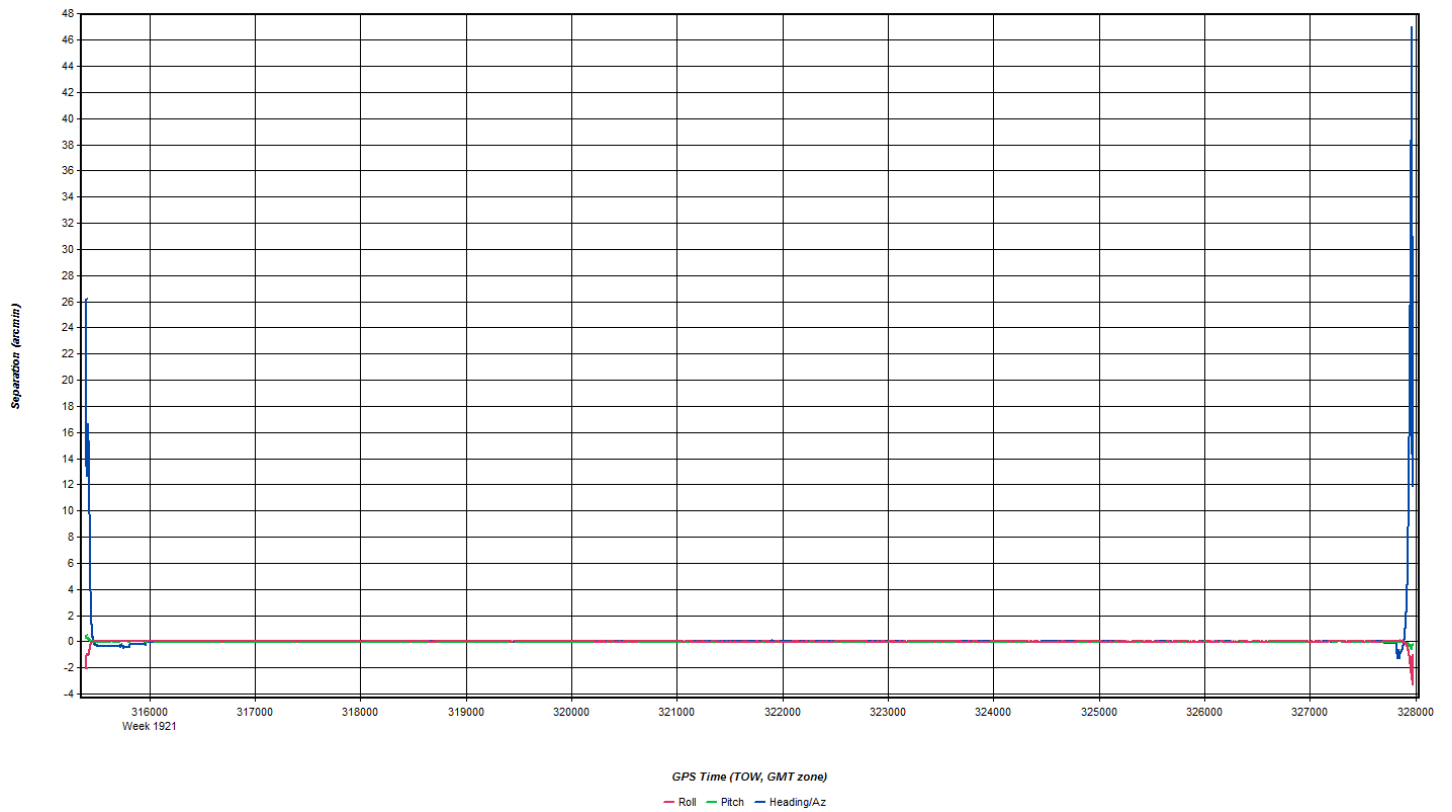
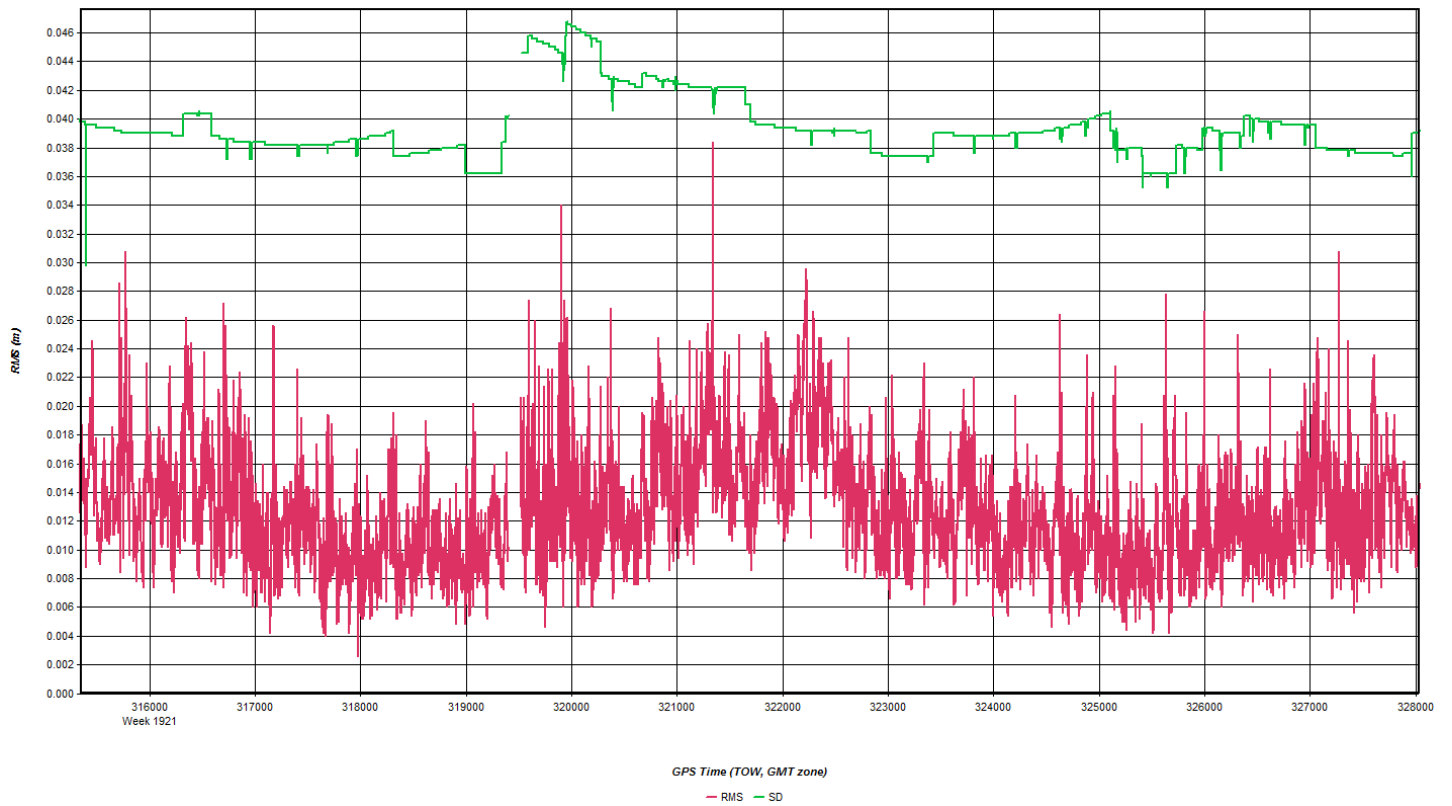
Nov 2, 2016-A (N208NR, SN8227)

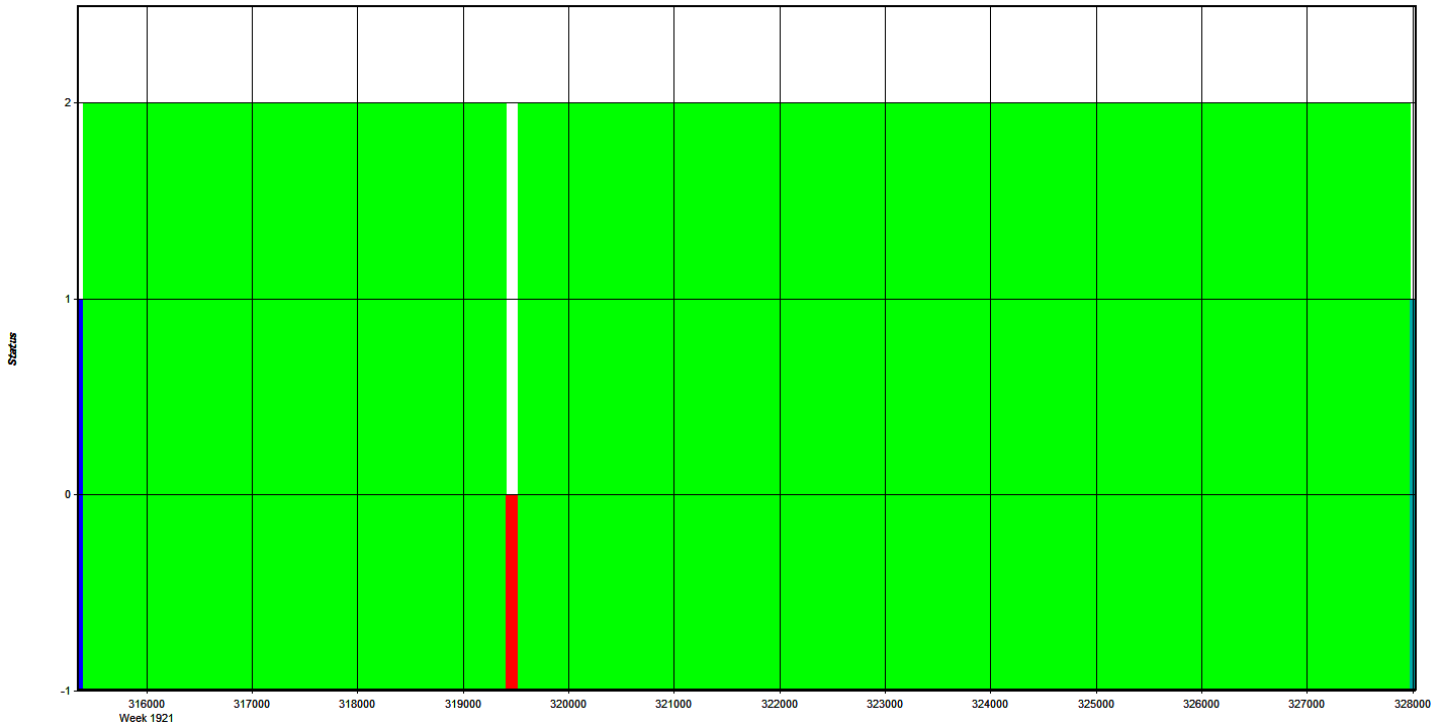












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTS2 Name: UTS2 Disabled
 File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates
 Latitude: North 40 08 16.20885 Compute from PPP
 Longitude: West 111 39 05.50612 Enter Grid Values
 Ellipsoidal height: 1371.470 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00, NONE View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 0.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 0.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Date: 11/2/2016	Aircraft: 208NR	Sensor: 8227
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FAGL_Utah_Lk_8227_QL1_1 Unplanned-20161102153610_1		
Pilot: Travis Peden		Sensor Operator: Aaron Mallon

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	9:45:00 AM			
Wheels Down	1:00:00 PM			
Begin Hobbs	4384.5			
End Hobbs	4387.7			
On-line Hobbs: 3.1		Mob Hobbs: 0.1		

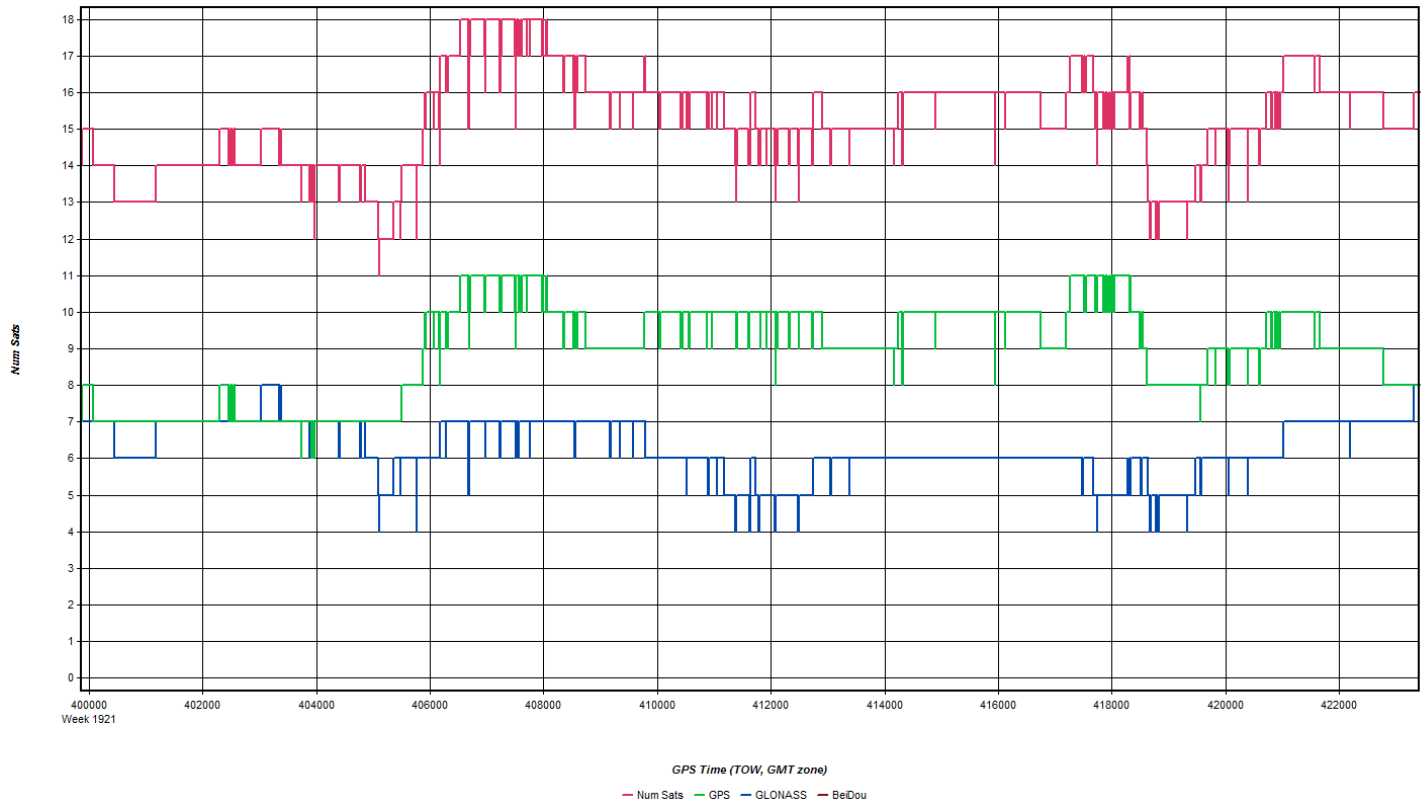
Notes

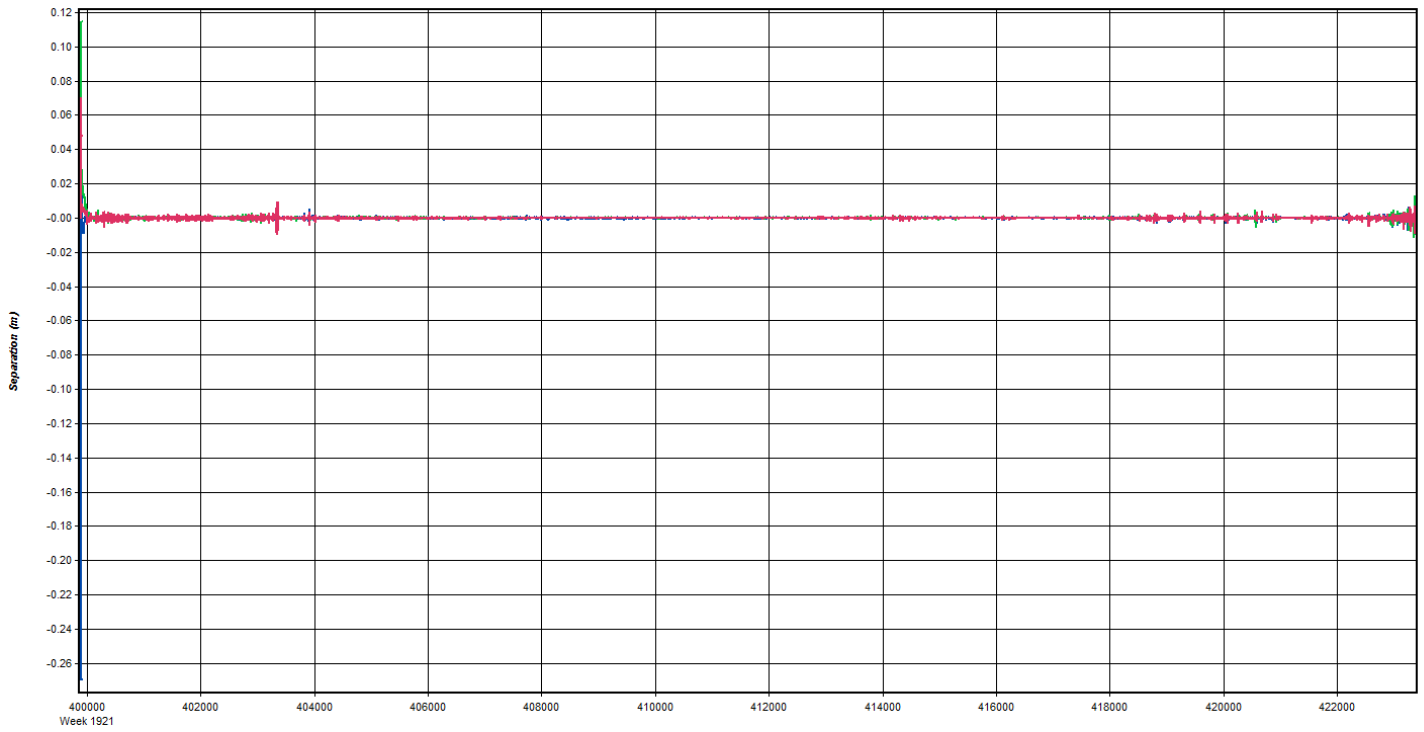
Today we had wheels up at 0945 and targeted the Utah lake block. We completed A09-A37 but were unable to complete the block due to clouds. Today we utilized the UTOC, UTS2, and UTNE CORS.

Flt Mgmt File: FAGL_Utah_Lk_8227_QL1_1

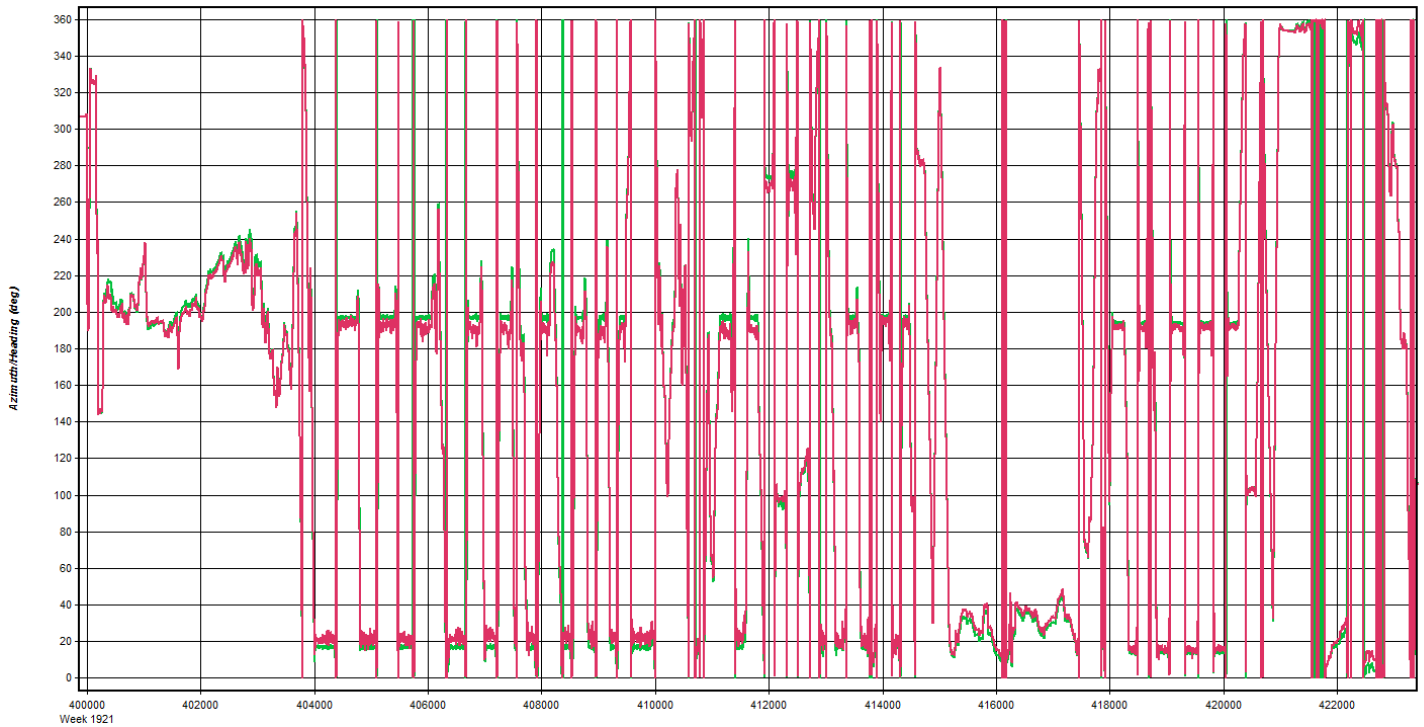
A21	2777.124 m	16:04:37	19.99105077	2730.886 m	16:05:35	20.11399215
A20	2733.760 m	16:06:49	20.29226130	2736.826 m	16:08:19	20.52821124
A19	2743.602 m	16:10:41	20.88312385	2773.036 m	16:13:48	21.26797934
A18	2779.135 m	16:15:08	21.45277756	2744.718 m	16:18:31	21.97215818
A17	2764.583 m	16:20:02	22.18280645	2738.529 m	16:23:57	22.64694258
A16	2735.310 m	16:25:43	22.88138384	2742.286 m	16:29:34	23.45403061
A15	2753.844 m	16:30:53	23.62808011	2722.084 m	16:34:50	24.06440009
A14	2716.295 m	16:38:02	24.44561426	2759.795 m	16:43:21	25.20506606
A13	2696.180 m	16:44:41	25.36993060	2743.555 m	16:50:58	25.99895862
A12	2762.413 m	16:52:28	26.17007404	2739.058 m	16:58:55	27.04633946
A11	2786.119 m	17:00:09	27.18790948	2805.734 m	17:06:49	27.77624219
A10	2723.509 m	17:08:35	27.96639542	2817.960 m	17:14:58	28.76578327
A09	2816.212 m	17:16:17	28.90331017	2834.812 m	17:22:42	29.39492428
A22	2782.251 m	17:26:11	29.74391170	2821.110 m	17:30:14	30.12658360
A23	2801.519 m	17:31:39	30.24947676	2786.979 m	17:35:45	30.59752802
A24	2757.225 m	17:37:58	30.78252057	2827.601 m	17:42:21	31.14935629
A25	2817.257 m	17:43:32	31.23984520	2786.026 m	17:48:42	31.63769315
A26	2790.524 m	17:50:17	31.75280116	2806.283 m	17:55:49	32.14785297
A27	2832.145 m	17:57:10	32.23640848	2780.794 m	18:02:16	32.58174454
A28	2828.419 m	18:04:21	32.70975676	2790.687 m	18:09:39	33.01361887
A29	2825.747 m	18:11:03	33.08890303	2786.035 m	18:13:42	33.24407127
A30	2789.569 m	18:15:39	33.34214294	2818.928 m	18:18:11	33.46086865
A31	2816.799 m	18:19:49	33.53676336	2797.507 m	18:21:13	33.61034065
A31	2798.022 m	18:21:14	33.61114612	2772.420 m	18:21:58	33.64866403
A32	2812.298 m	18:24:28	33.75637653	2875.021 m	18:26:14	33.82277271
A33	2860.575 m	18:27:45	33.88181634	2791.469 m	18:29:24	33.95860075
A34	2776.160 m	18:30:53	34.01200723	2854.323 m	18:32:31	34.06172484
A35	2873.252 m	18:33:48	34.10498492	2831.713 m	18:35:11	34.16295173
A36	2776.440 m	18:36:22	34.19829391	2831.460 m	18:37:47	34.23345329
A37	2869.089 m	18:39:33	34.28593387	2845.185 m	18:40:01	34.30352010
A31	2825.985 m	18:43:46	34.41757966	2761.412 m	18:45:49	34.48692765

Nov 3, 2016-A (N208NR, SN8227)

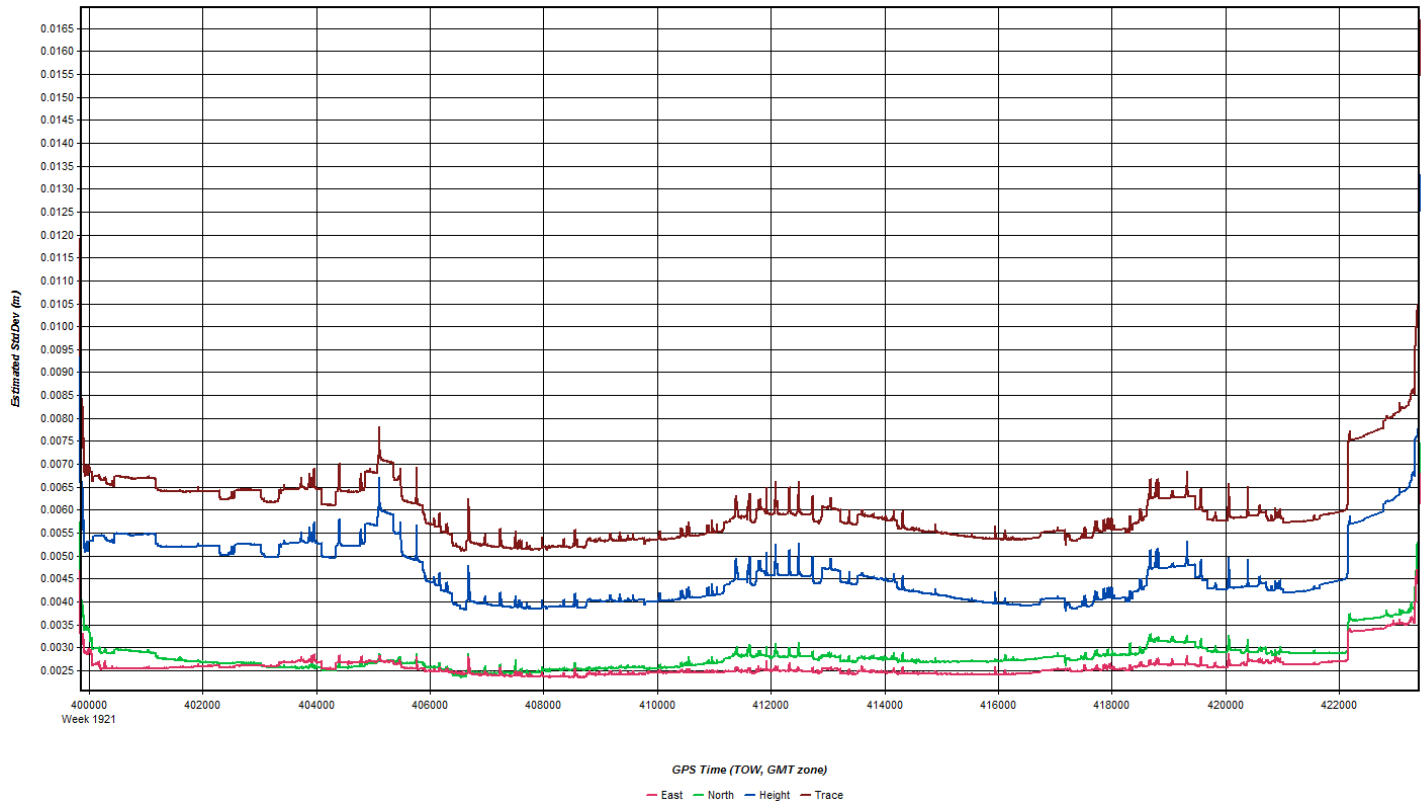
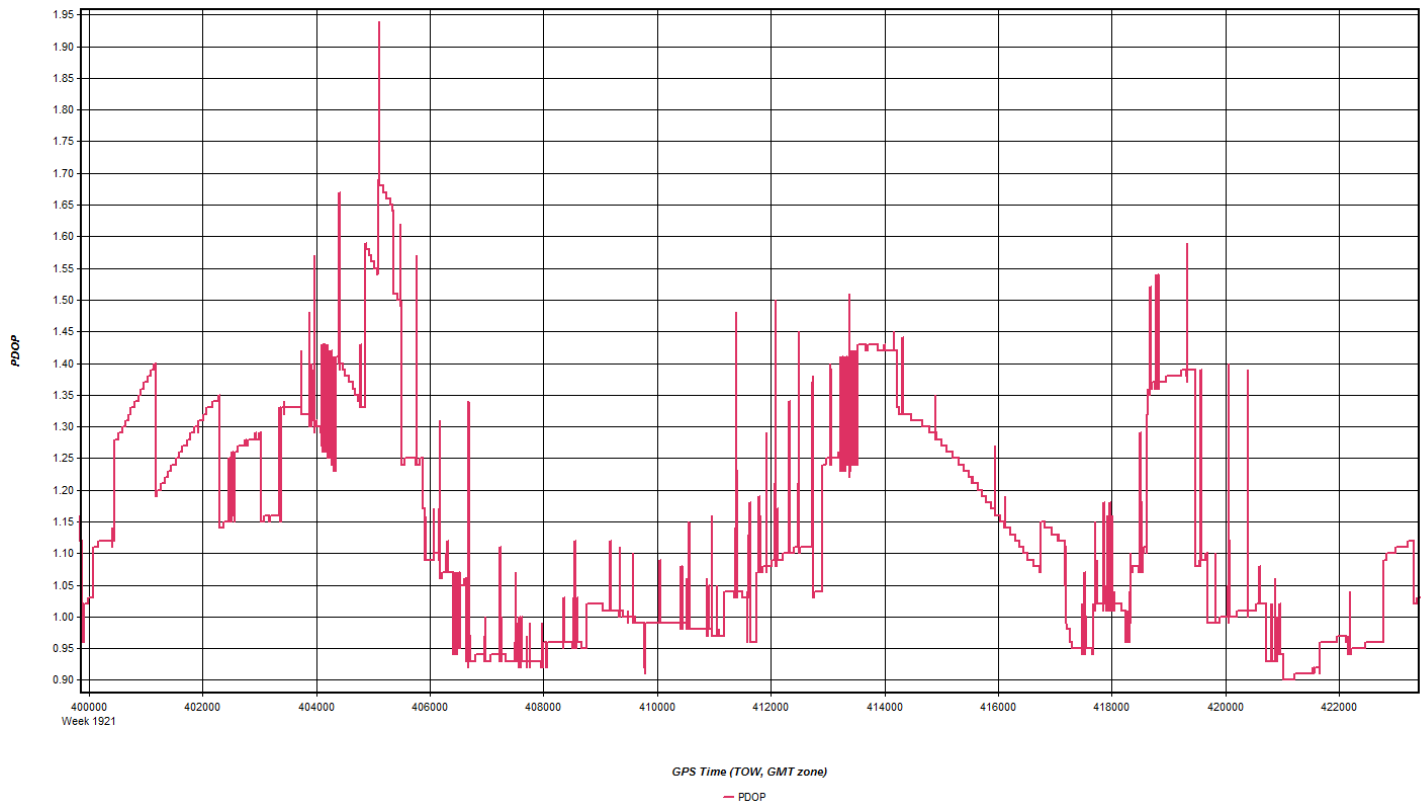




GPS Time (TOW, GMT zone)
— East — North — Up

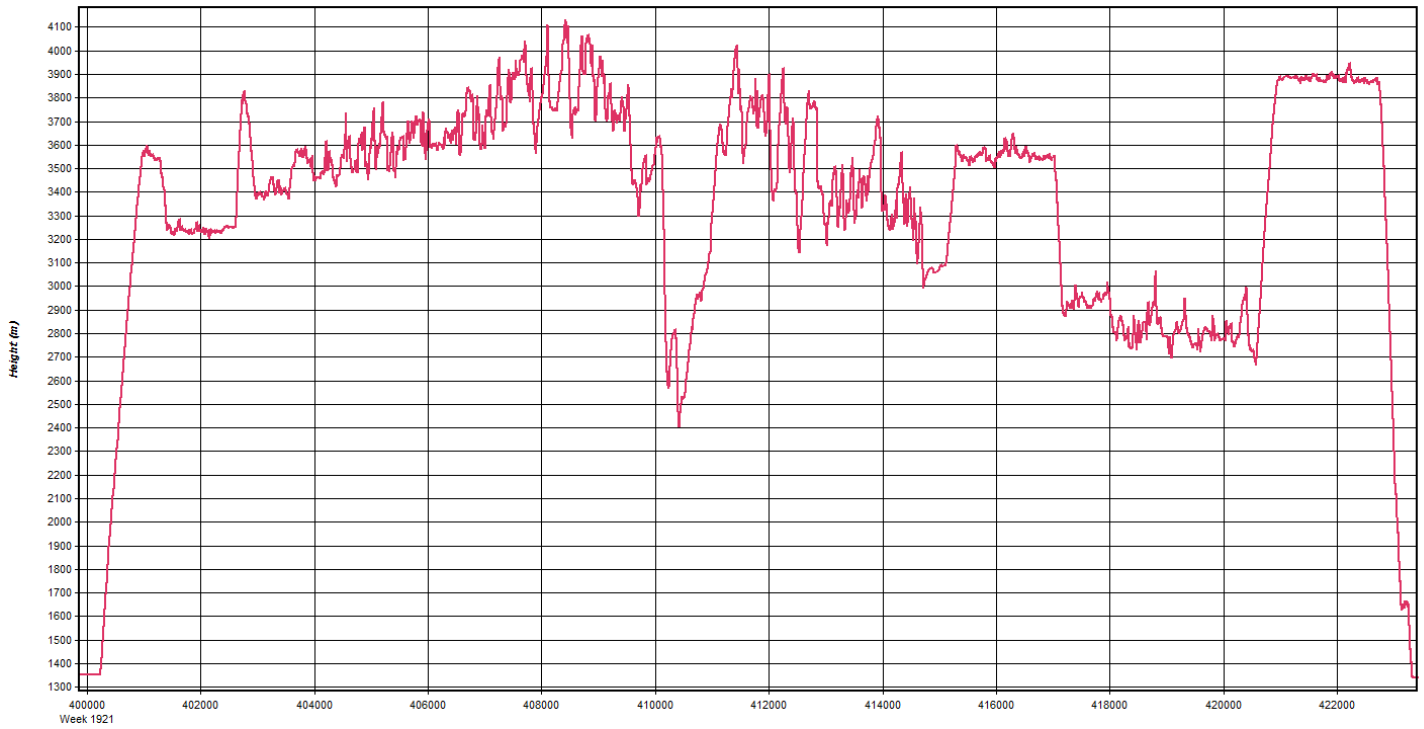


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG

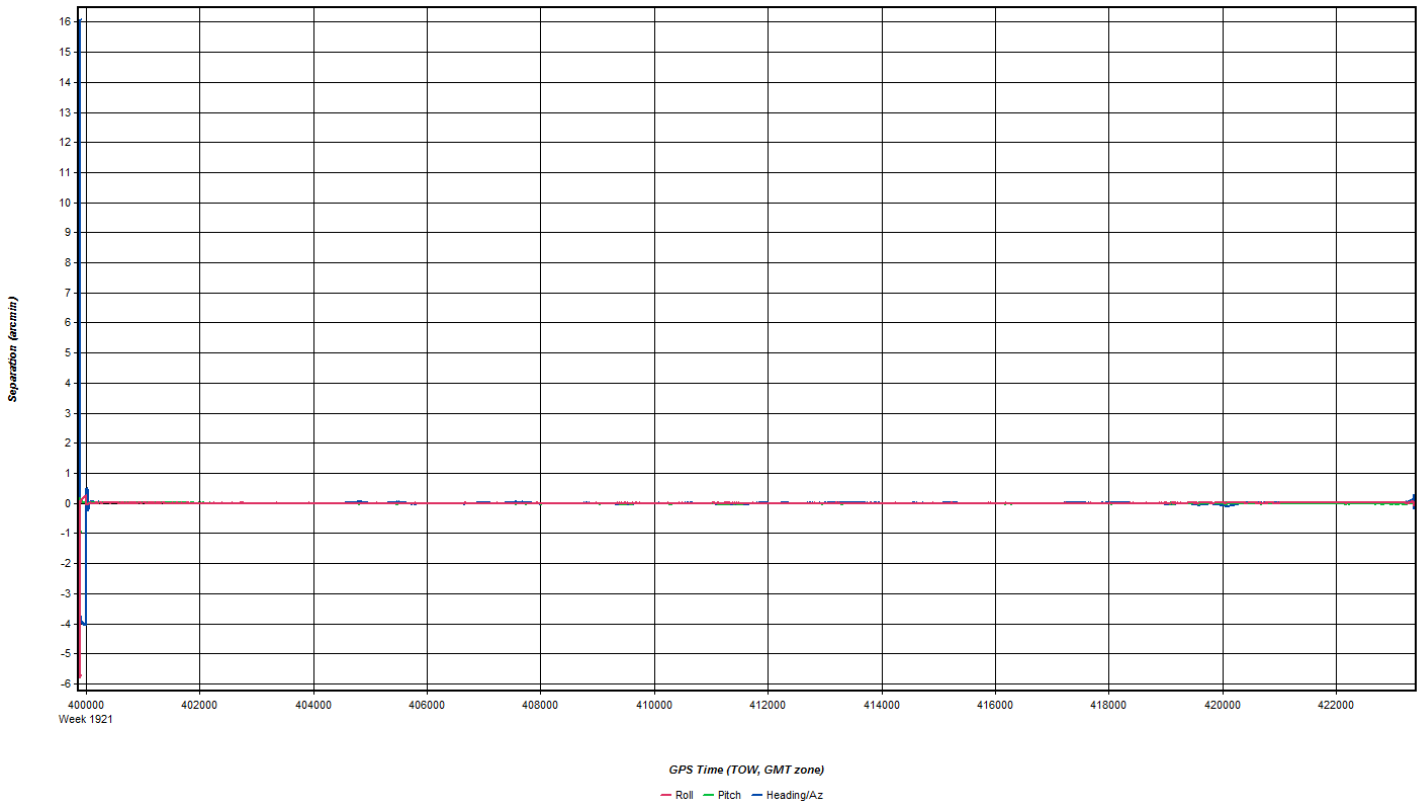
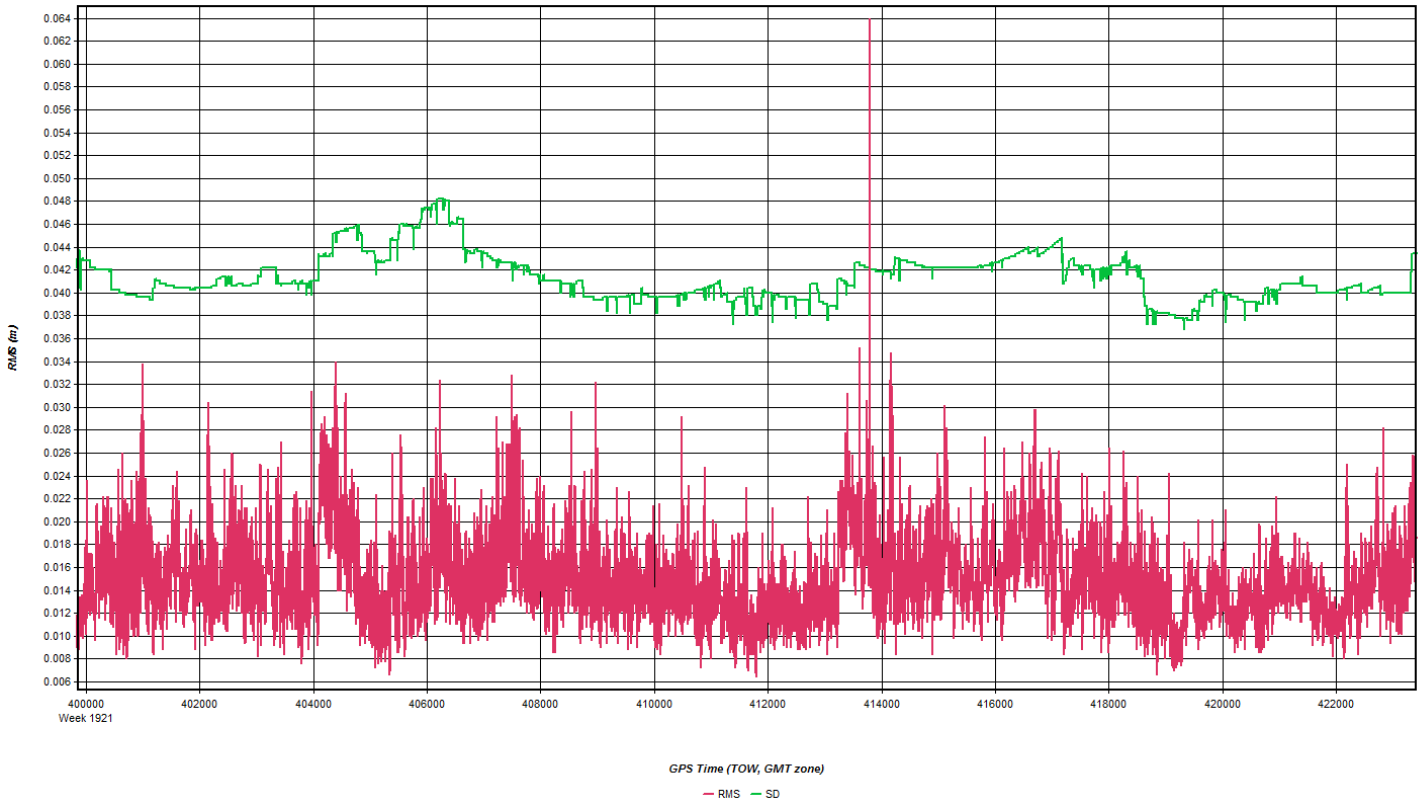


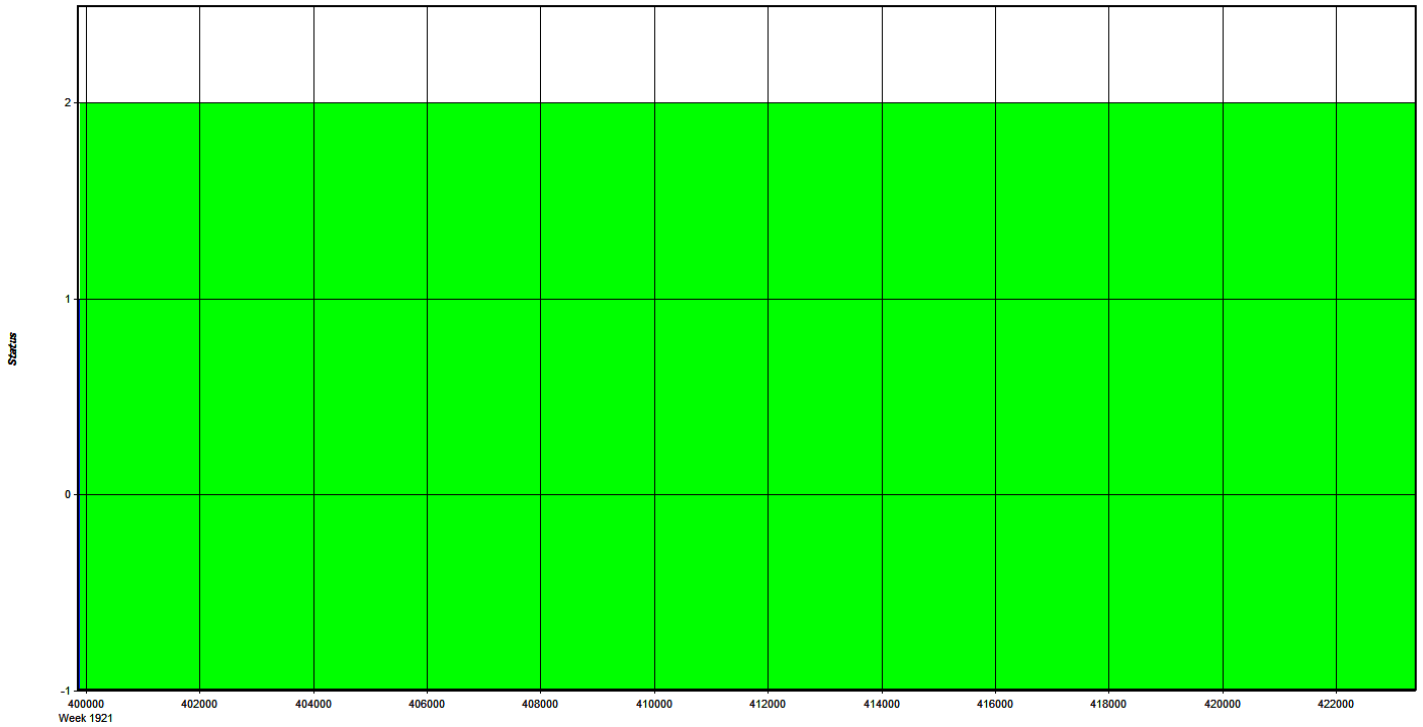


GPS Time (TOW, GMT zone)
— Roll — Pitch



GPS Time (TOW, GMT zone)
— Height





GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: UTMI Name: UTMI Disabled
 File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates
 Latitude: North 38 24 06.80981 Compute from PPP
 Longitude: West 113 00 37.18806 Enter Grid Values
 Ellipsoidal height: 1506.239 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00, NONE View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 0.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 0.067 m
 Measured to
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
1: UTS2 Name: UTS2 Disabled
File: E:\Proc\29083_Utah_2016_LiDAR\From_FTP_11-22-16\Survey\

Coordinates
Latitude: North 40 08 16.20885 Compute from PPP
Longitude: West 111 39 05.50612 Enter Grid Values
Ellipsoidal height: 1371.470 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00, NONE View STA File
Antenna profile: TRM55971.00 Info
Measured height: 0.000 m
ARP to L1 offset: 0.067 m
Applied height: 0.067 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 11/3/2016	Aircraft: 208NR	Sensor: 8227
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FAGL_Utah_Lk_8227_QL1_2 Unplanned-20161103191748_2		
Pilot: Travis Peden	Sensor Operator: Aaron Mallon	

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	9:10:00 AM			
Wheels Down	3:35:00 PM			
Begin Hobbs	4387.7			
End Hobbs	4394.1			
On-line Hobbs: 3.9		Mob Hobbs: 2.5		

Notes

Today we were out at the airport ready to take off at 0630 but the deicing trucks broke down so we were not able to take off until 0910. We then flew to the Forge area and completed the remaining lines as well as some reflies. After that we flew back to the Utah Lake area and completed the remaining lines in that block. We eventually had wheels down in Ogden UT and are currently based there.

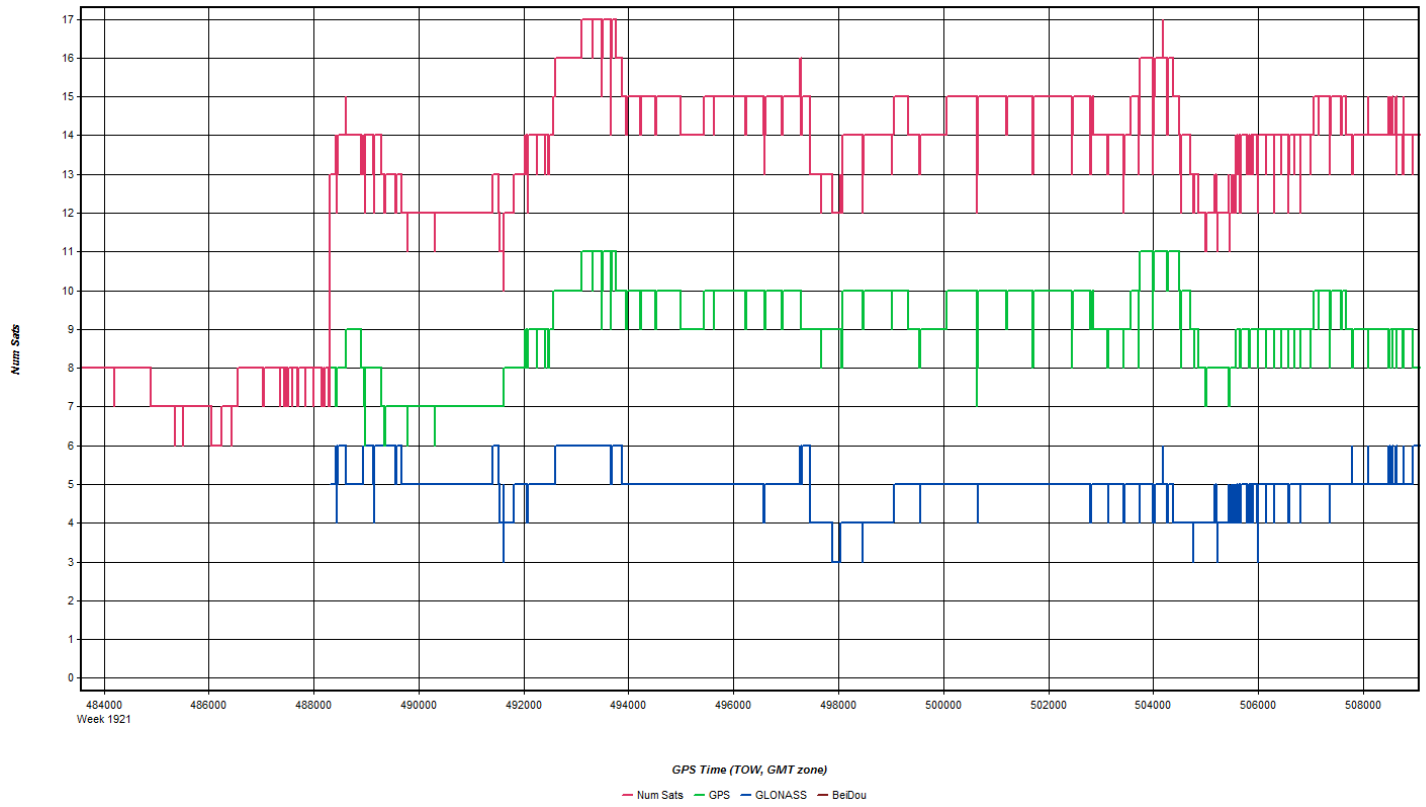
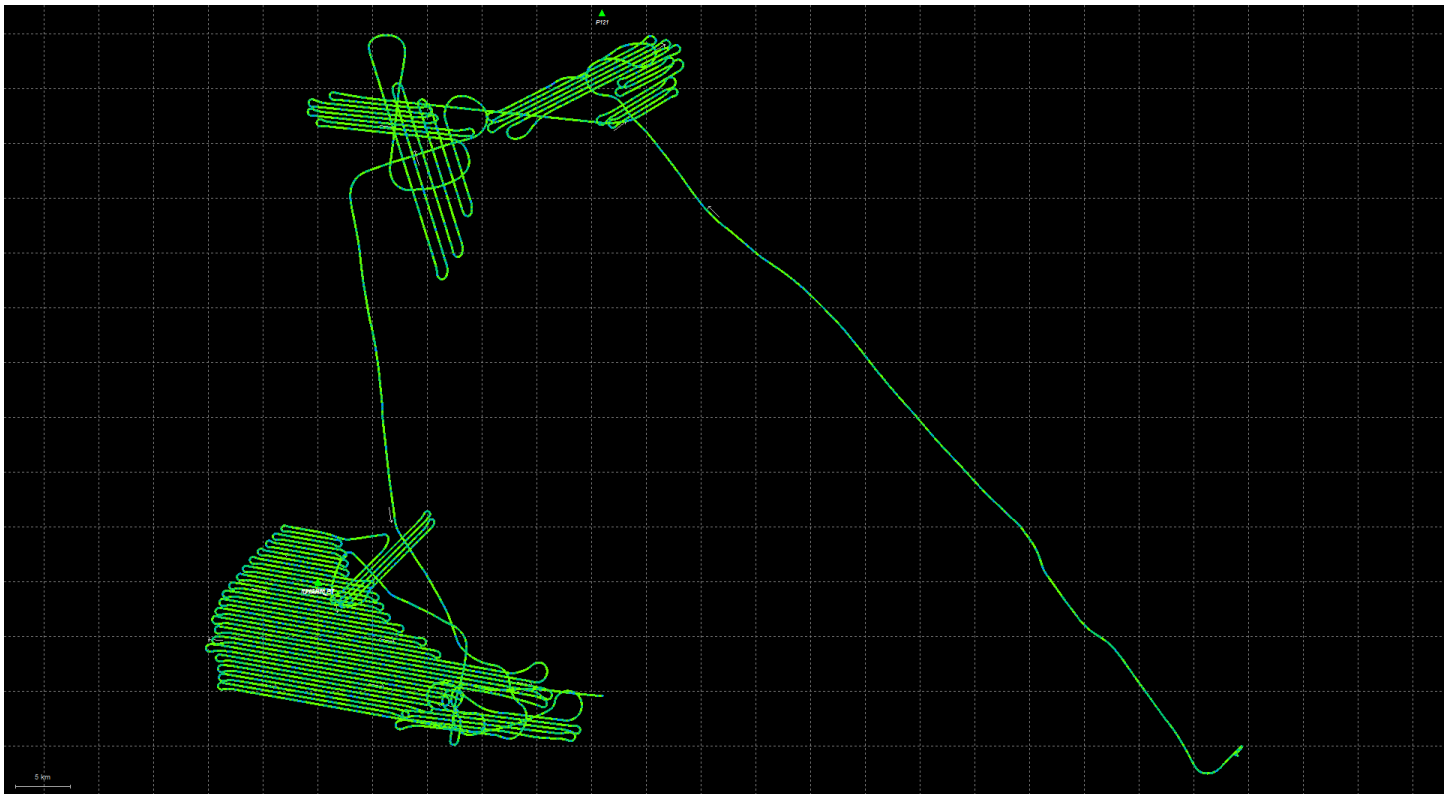
Flt Mgmt File: FAGL_Utah_Lk_8227_QL1_2

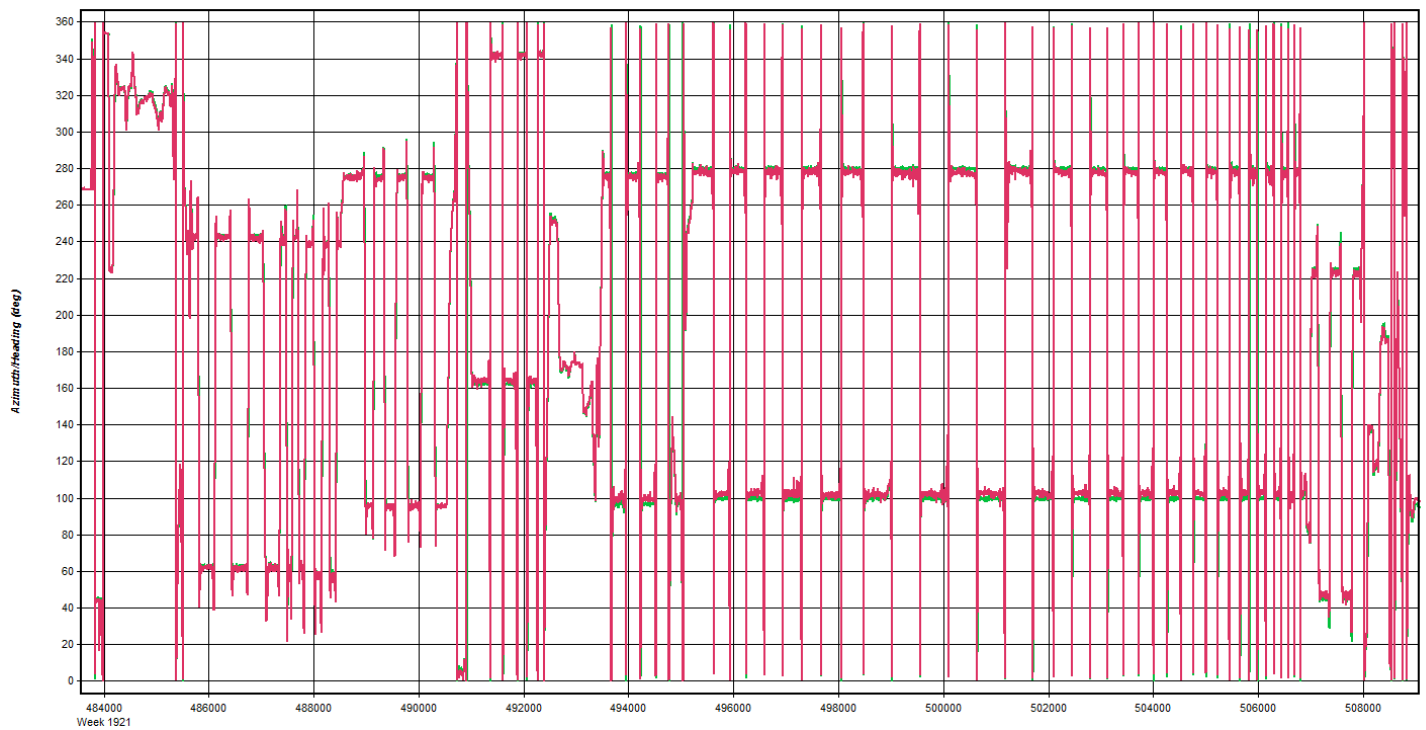
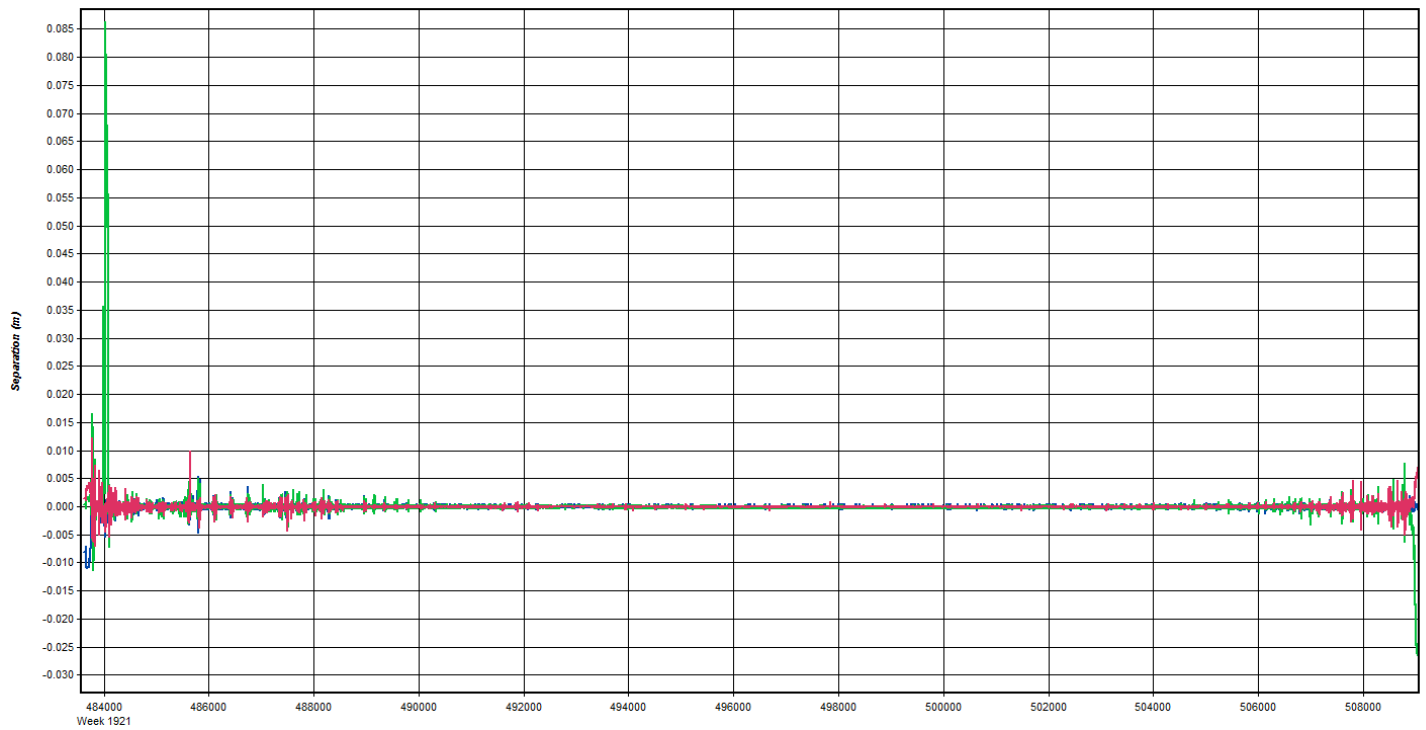
A08	2805.189 m	20:07:37	33.06162067	2786.441 m	20:10:34	32.99374536
A01	2737.933 m	20:12:37	32.86910274	2771.421 m	20:14:02	32.74068791
A02	2763.981 m	20:15:20	32.65983290	2830.405 m	20:16:55	32.61320223
A03	2860.674 m	20:18:08	32.53805006	2849.299 m	20:18:22	32.51526322
A03	2843.658 m	20:20:32	32.38290593	2746.426 m	20:23:33	32.08279844
A04	2728.785 m	20:24:38	32.00903753	2852.097 m	20:27:46	31.88788943
A05	2827.718 m	20:28:51	31.81021493	2747.560 m	20:31:54	31.48555659
A06	2738.571 m	20:33:04	31.39839973	2775.906 m	20:36:07	31.26221055
A07	2780.488 m	20:37:15	31.17292879	2779.368 m	20:40:15	30.83350440
A08	2797.725 m	20:41:11	30.76080938	2792.610 m	20:44:04	30.61341480

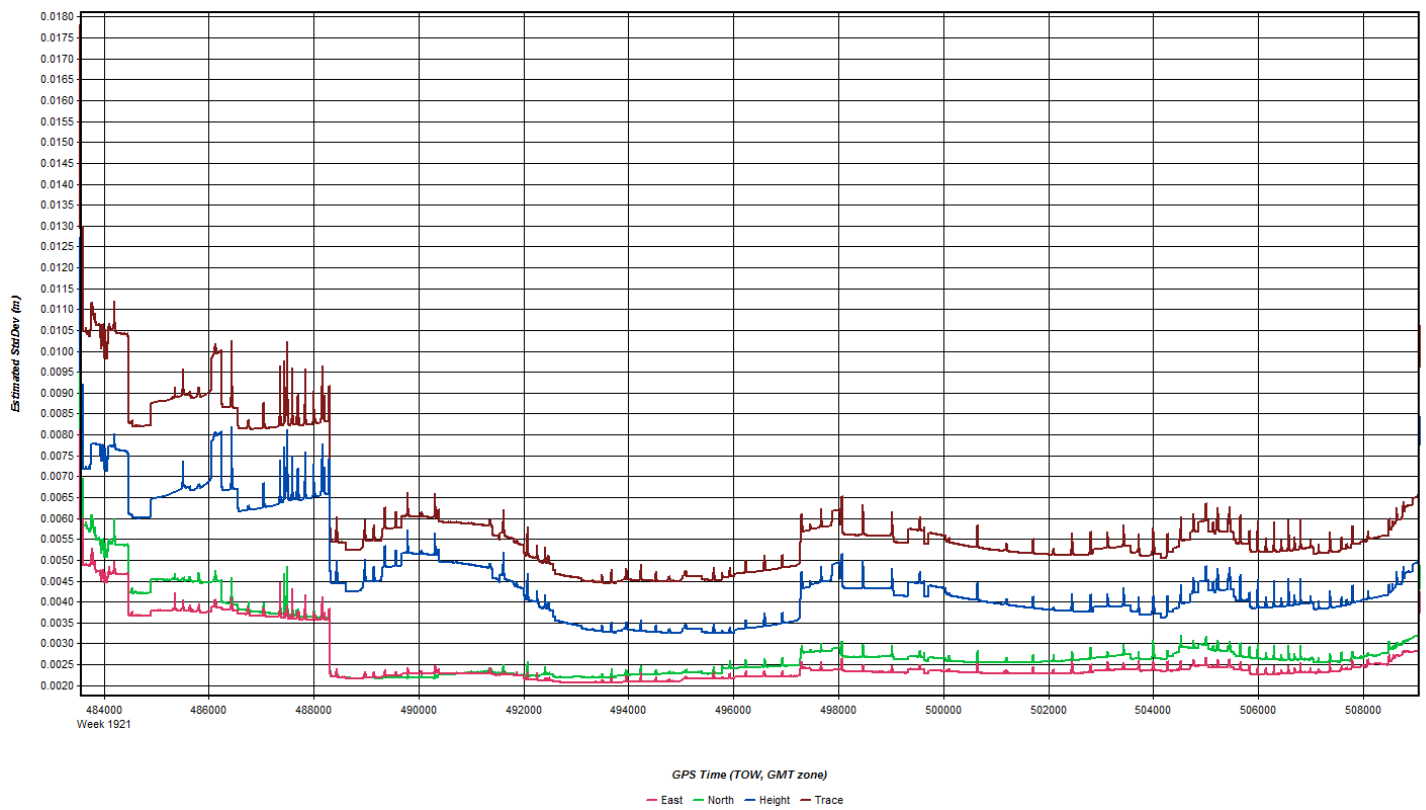
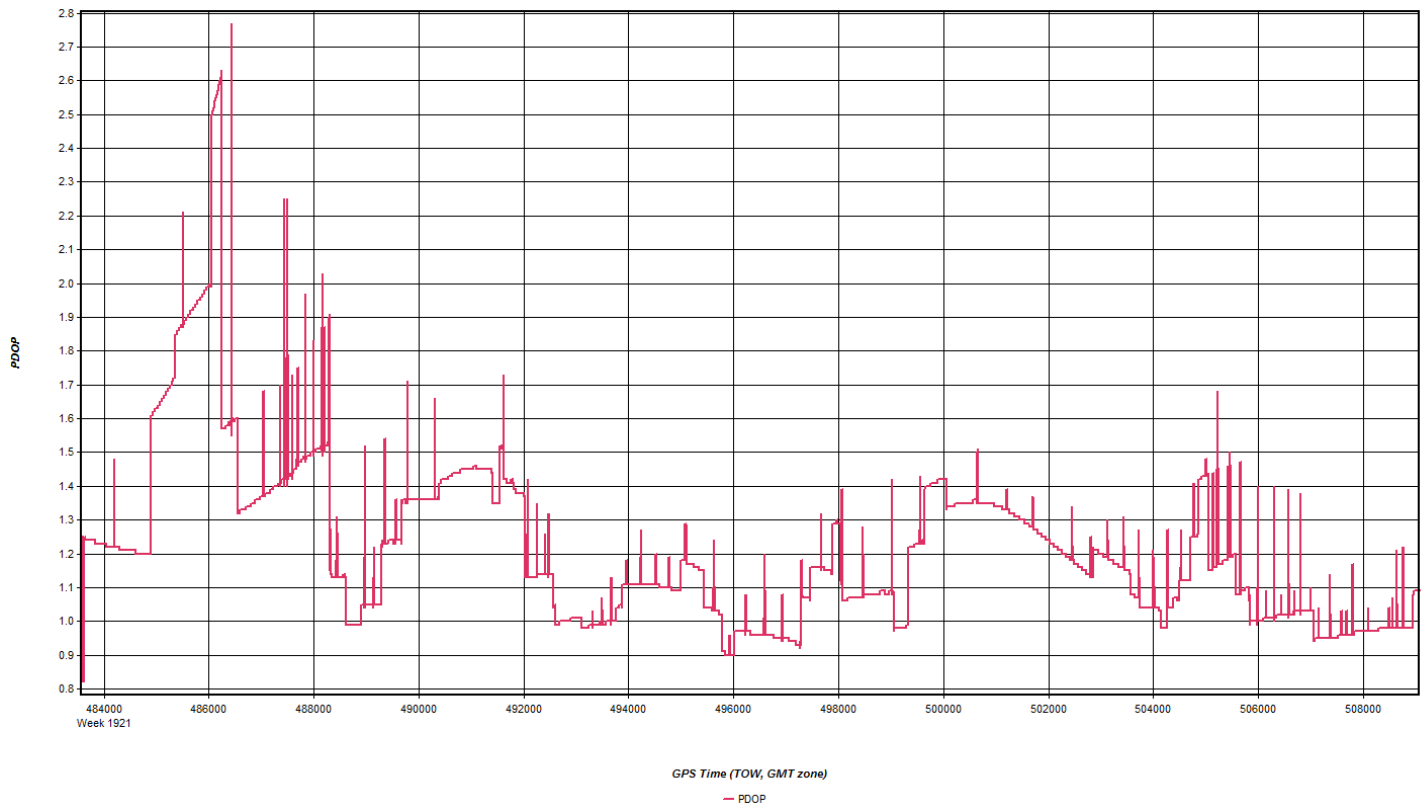
Flt Mgmt File: Unplanned-20161103191748_2

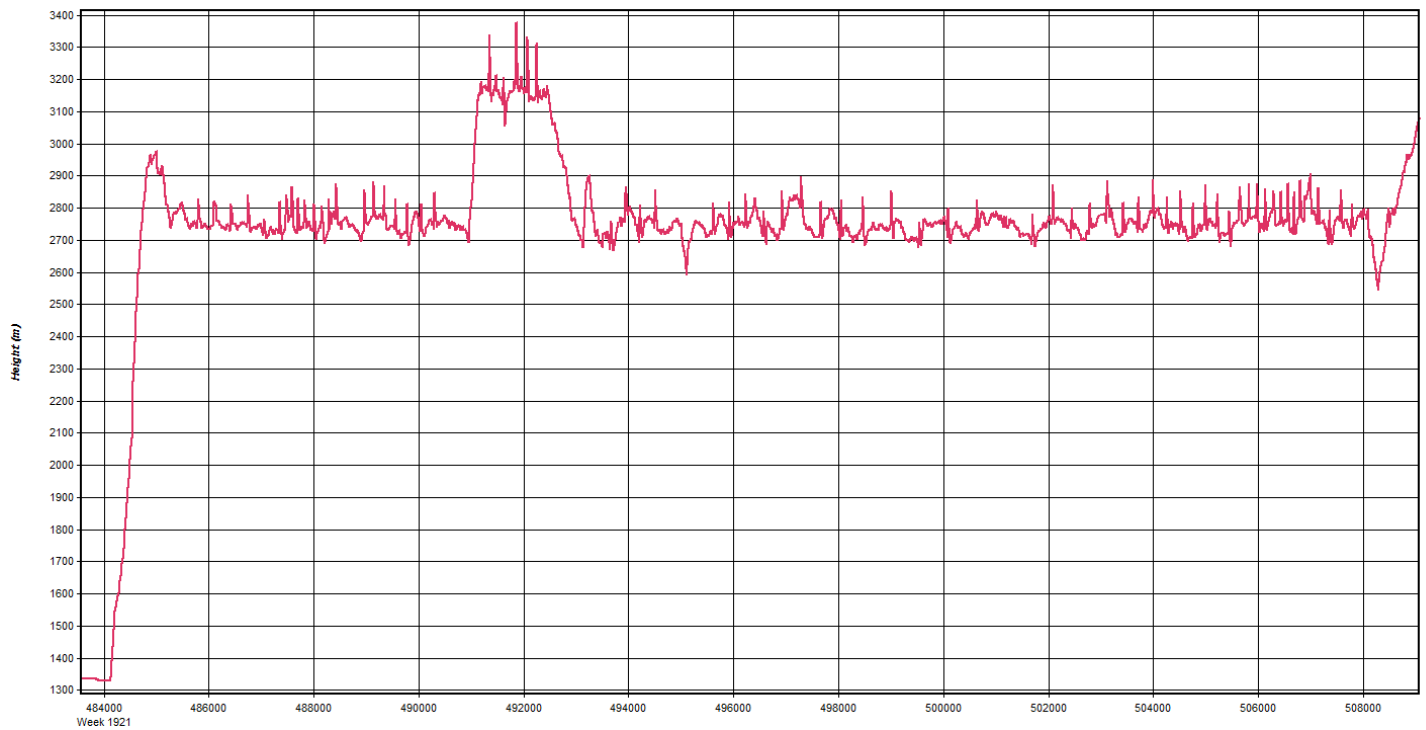
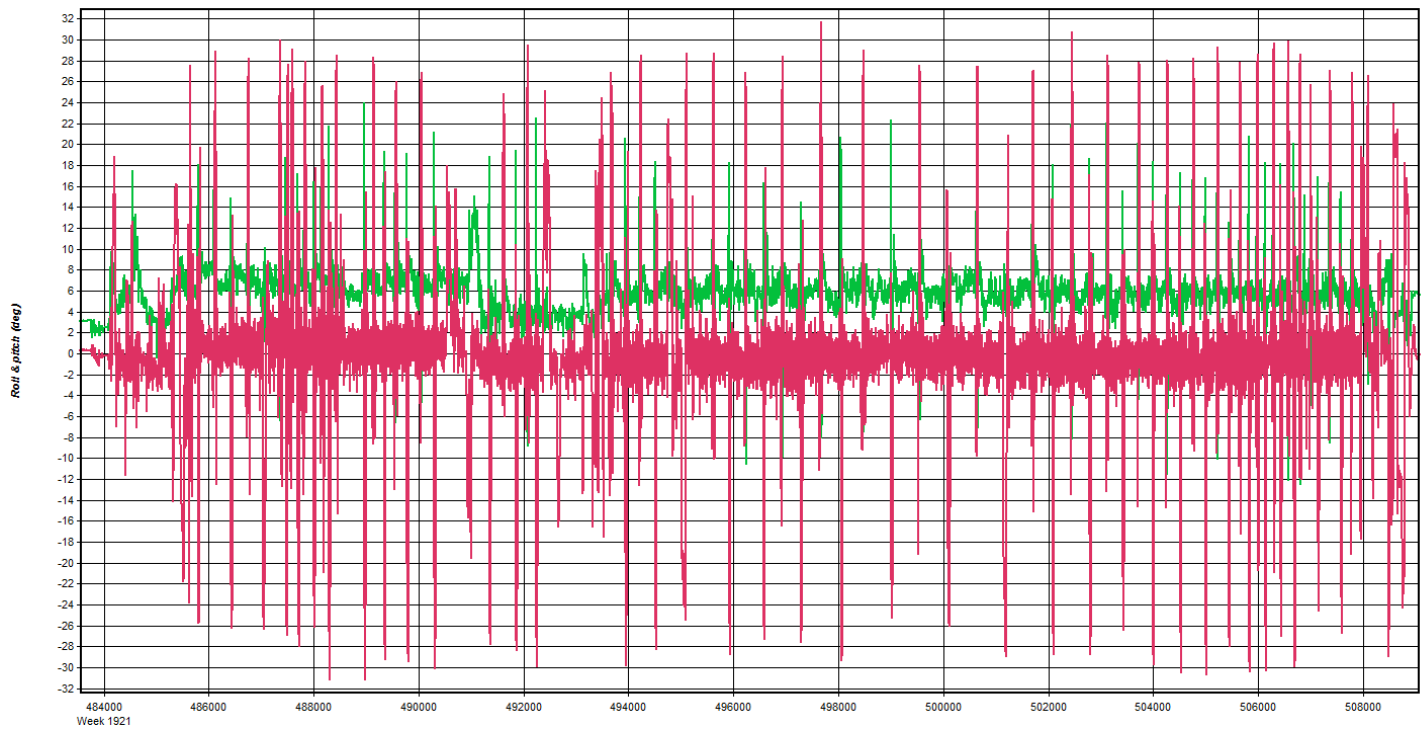
UL001	2980.487 m	20:46:29	30.39635269	2677.139 m	20:49:16	30.13082254
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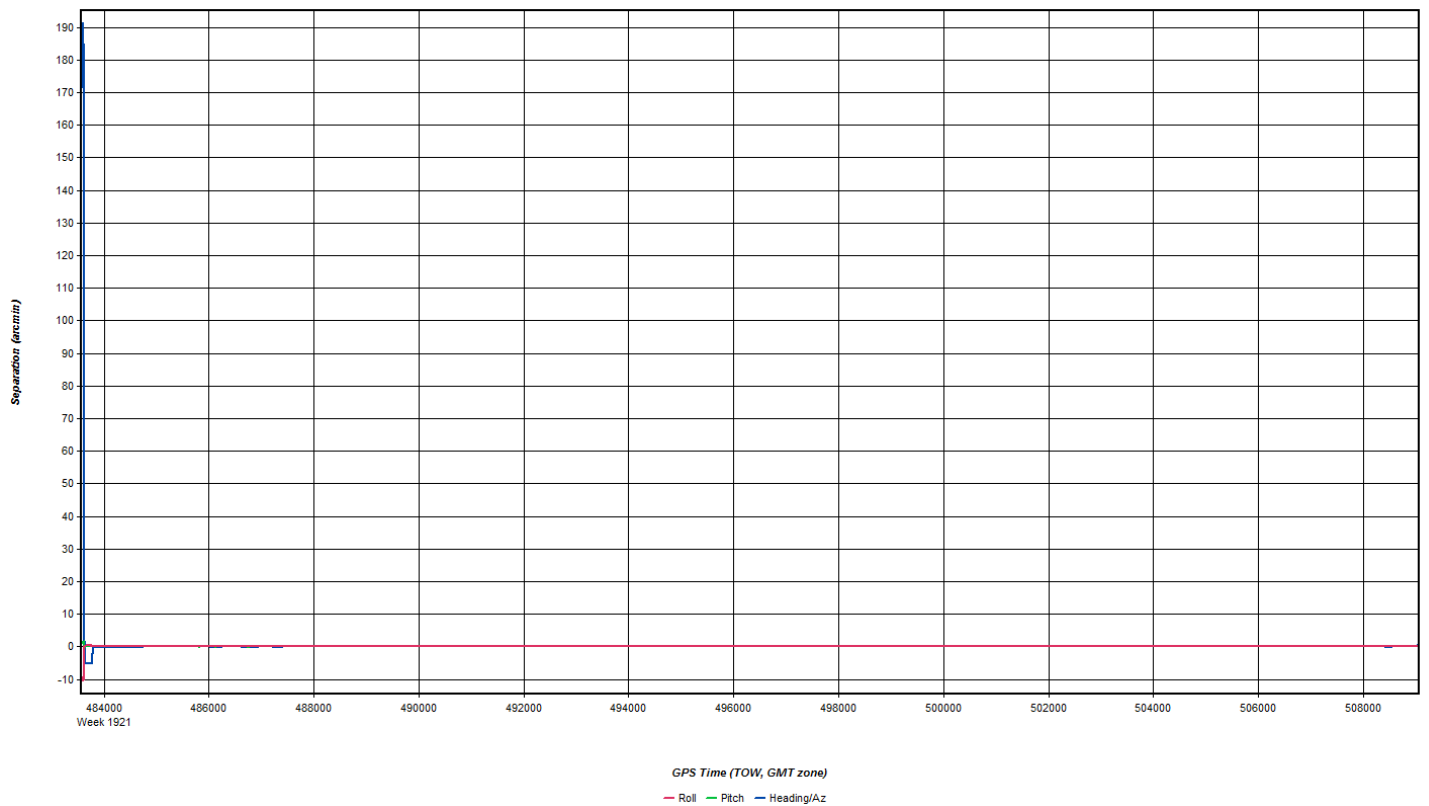
Nov 4, 2016-A (N208NR, SN8227)

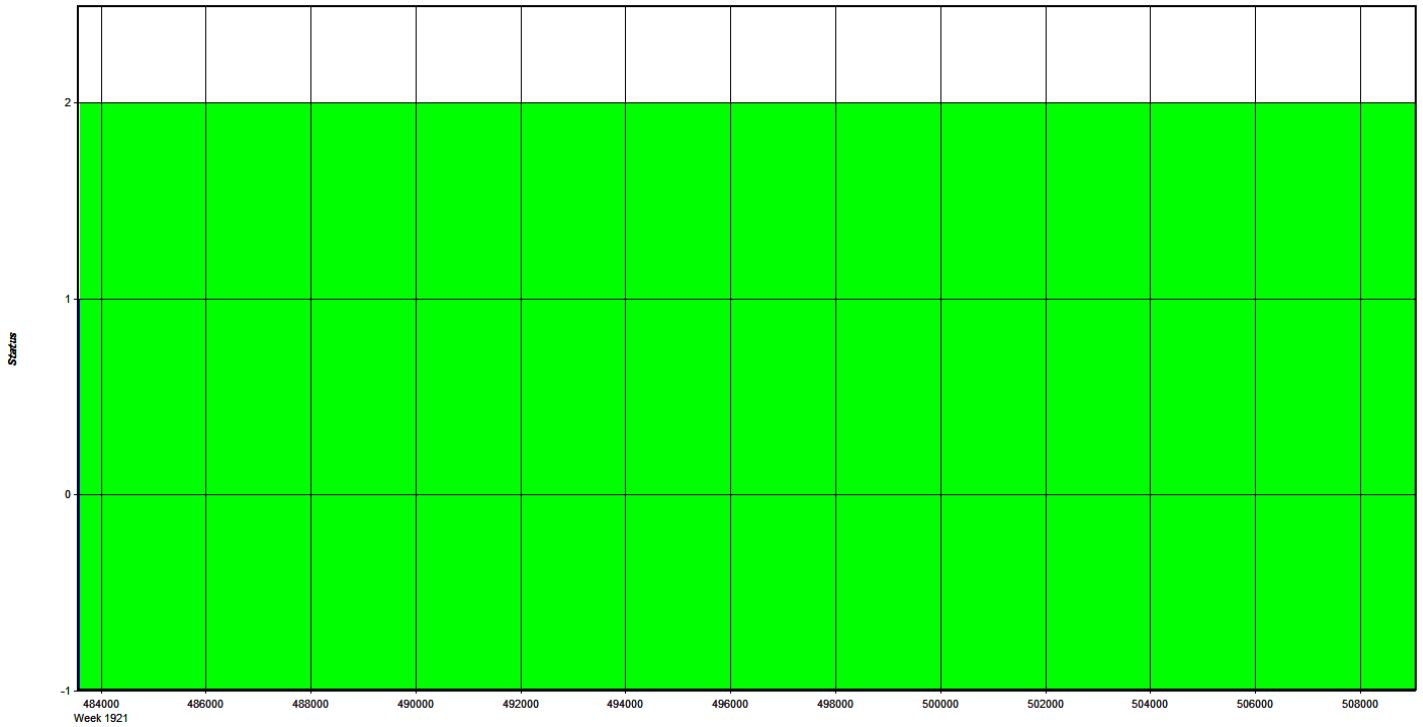












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: FINGER_PT Name: FINGER_PT Disabled
 File: E:\Proc\Utah\R029083.00_Utah_State_2016\From_FTP_11-22-1

Coordinates
 Latitude: North 41 20 16.39424 Compute from PPP
 Longitude: West 113 00 31.99185 Enter Grid Values
 Ellipsoidal height: 1269.972 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

? X

Master Remote

Base Station
3: P121 Name: P121 Disabled
 File: E:\Proc\UTAH\R029083.00_Utah_State_2016\From_FTP_11-22-

Coordinates

Latitude: North 41 48 12.17940 Compute from PPP

Longitude: West 112 41 53.79553 Enter Grid Values

Ellipsoidal height: 1453.116 m Enter MSL Height

Datum: WGS84 Datum Options

Select From Favorites Add To Favorites Use Average Position

Antenna Height

From station file: TRM29659.00, NONE View STA File

Antenna profile: TRM29659.00 Info

Measured height: 0.000 m

ARP to L1 offset: 0.091 m

Applied height: 0.091 m

Measured to
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

? X

Master Remote

Base Station
2: UTAH16_31 Name: UTAH16_31 Disabled
 File: E:\Proc\Utah\R029083.00_Utah_State_2016\From_FTP_11-22-1

Coordinates

Latitude: North 41 20 15.95115 Compute from PPP

Longitude: West 113 00 28.80842 Enter Grid Values

Ellipsoidal height: 1270.535 m Enter MSL Height

Datum: WGS84 Datum Options

Select From Favorites Add To Favorites Use Average Position

Antenna Height

From station file: TRM55971.00 View STA File

Antenna profile: TRM57971.00 Info

Measured height: 2.000 m

ARP to L1 offset: 0.067 m

Applied height: 2.067 m

Measured to
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 11/4/2016	Aircraft: N208NR	Sensor: 8227
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_GSL_QL2_8227_1 Unplanned-20161104162105_1		
Pilot: Travis Peden	Sensor Operator: Aaron Mallon	

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	8:30:00 AM			
Wheels Down	3:40:00 PM			
Begin Hobbs	4394.1			
End Hobbs	4401.3			
On-line Hobbs: 6.2		Mob Hobbs: 1		

Notes

Today we had wheels up at 0830 and targeted the QL1 and QL2 blocks. We completed the QL1 block and flew six lines from the QL2 block.

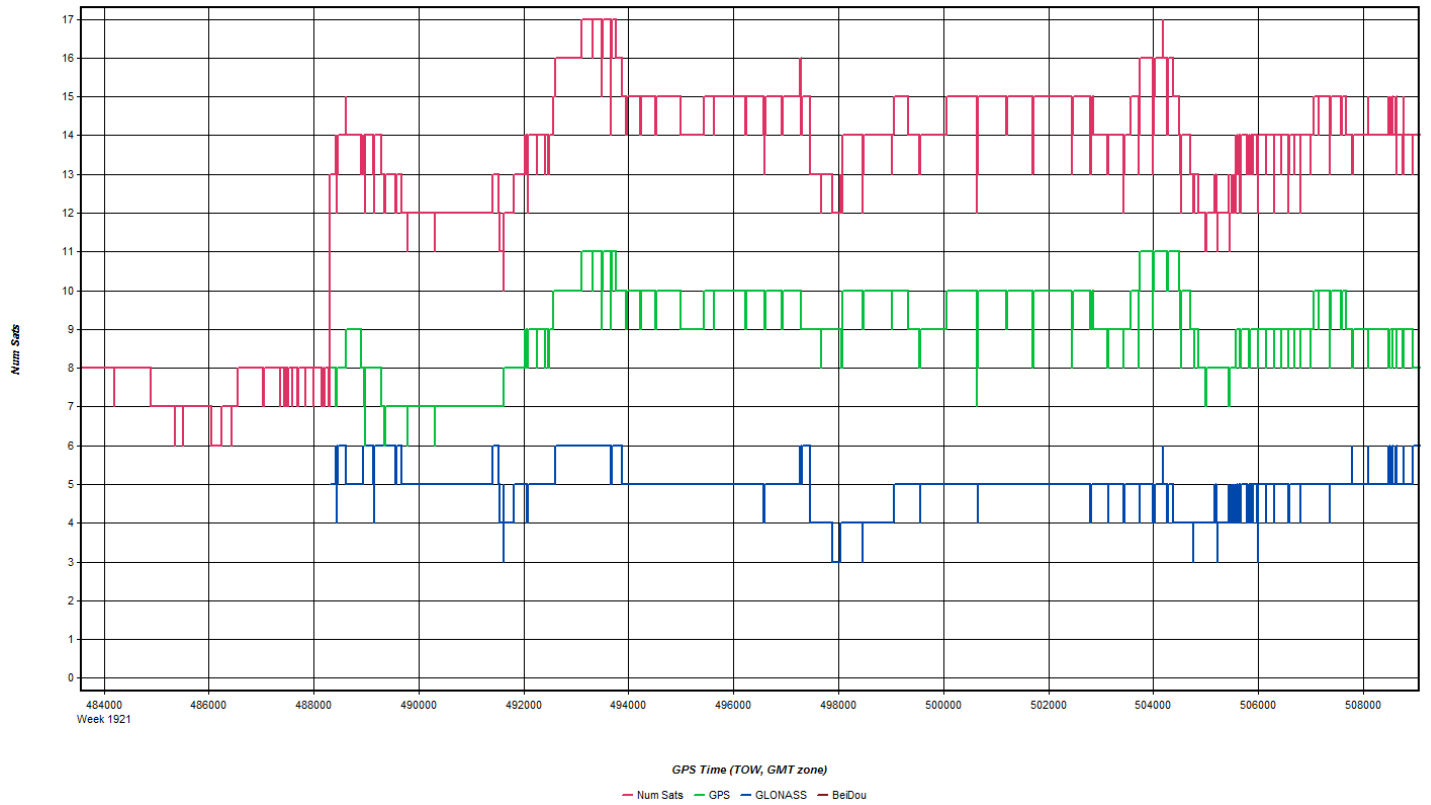
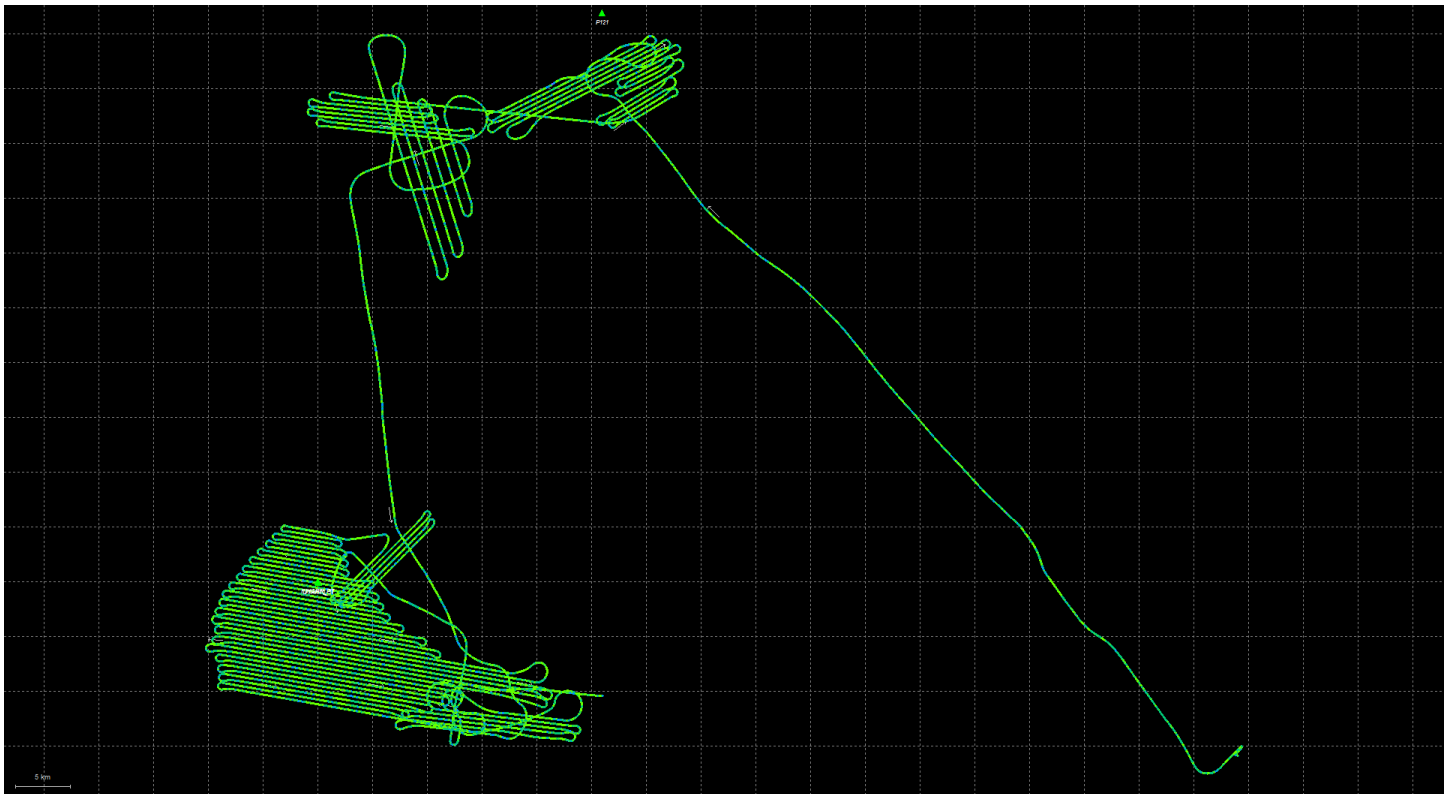
Flt Mgmt File: FMSL_GSL_QL2_8227_1

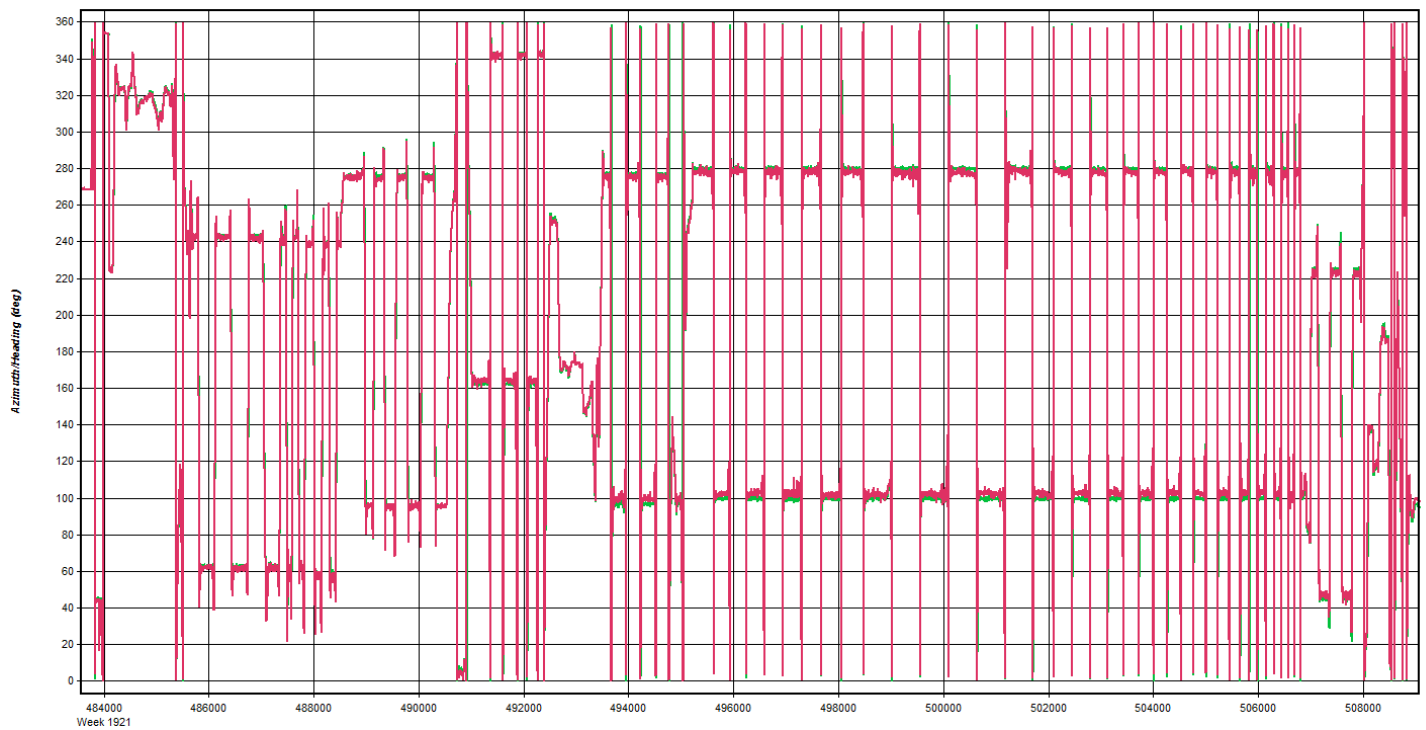
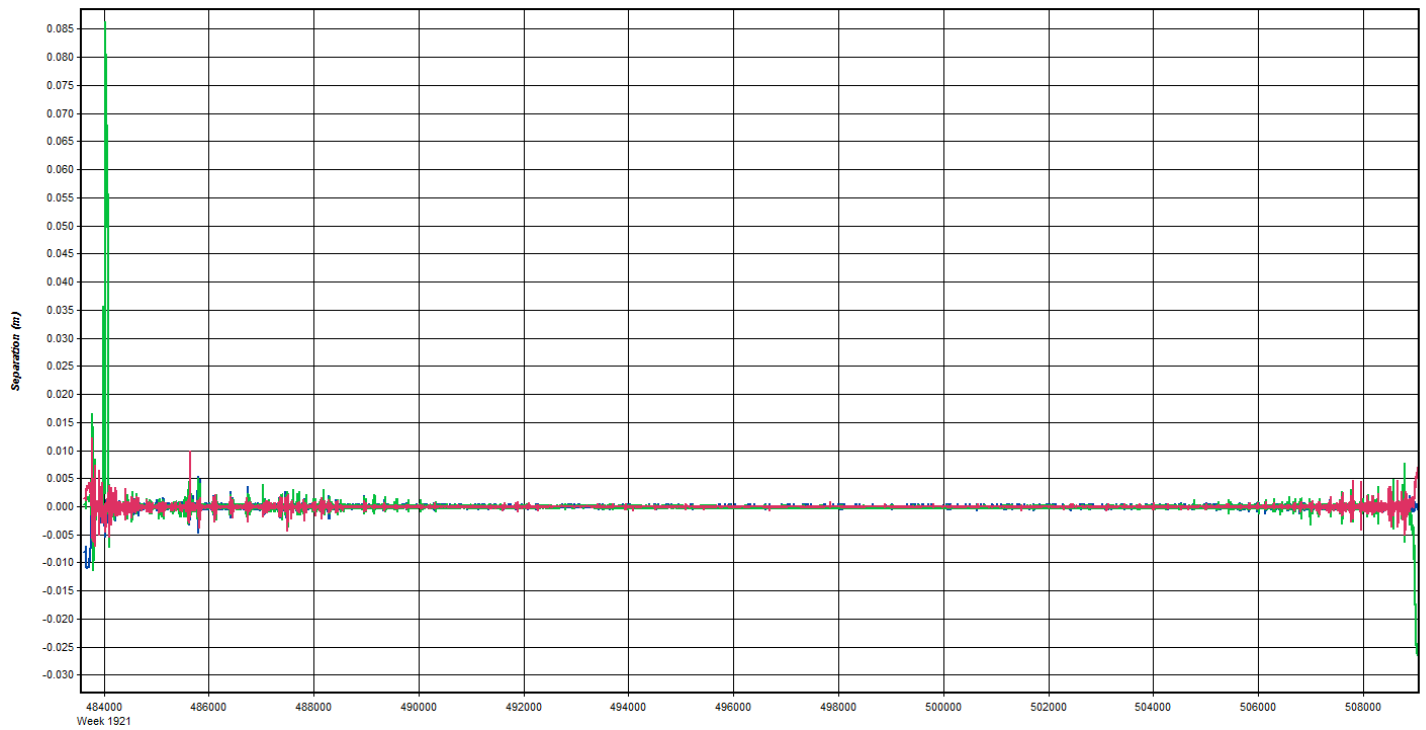
QL2006	3057.326 m	16:24:39	20.46633405	3163.818 m	16:28:34	21.09844466
QL2005	3146.958 m	16:29:38	21.23246485	3123.442 m	16:33:05	21.54386957
QL2004	3108.811 m	16:34:15	21.70899383	3192.416 m	16:37:10	22.17509881
QL2003	3165.711 m	16:38:11	22.29170292	3159.854 m	16:40:36	22.49585636
QL2002	3139.436 m	16:41:36	22.62463792	3156.649 m	16:43:39	22.94277983
QL2001	3165.239 m	16:44:47	23.06045565	3170.893 m	16:46:06	23.16777933

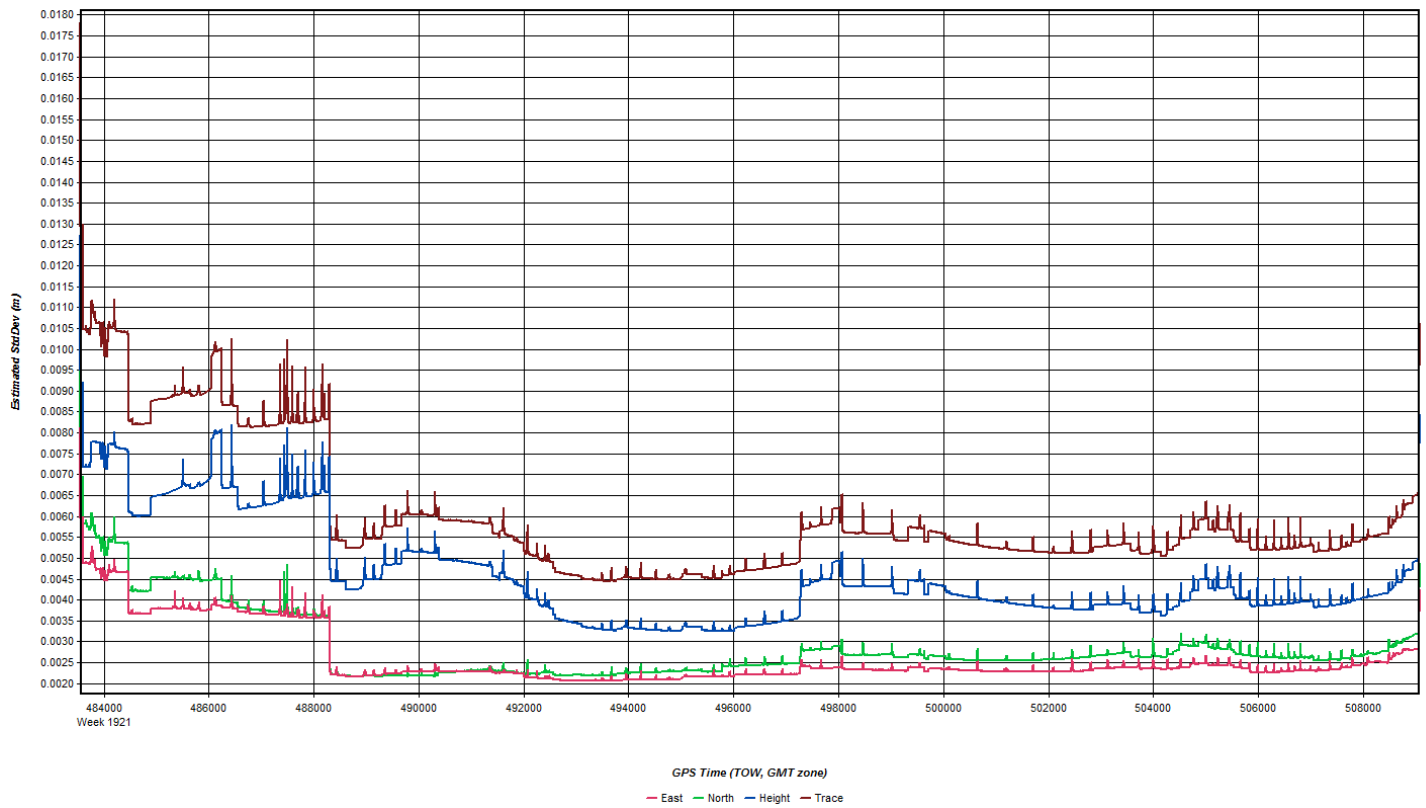
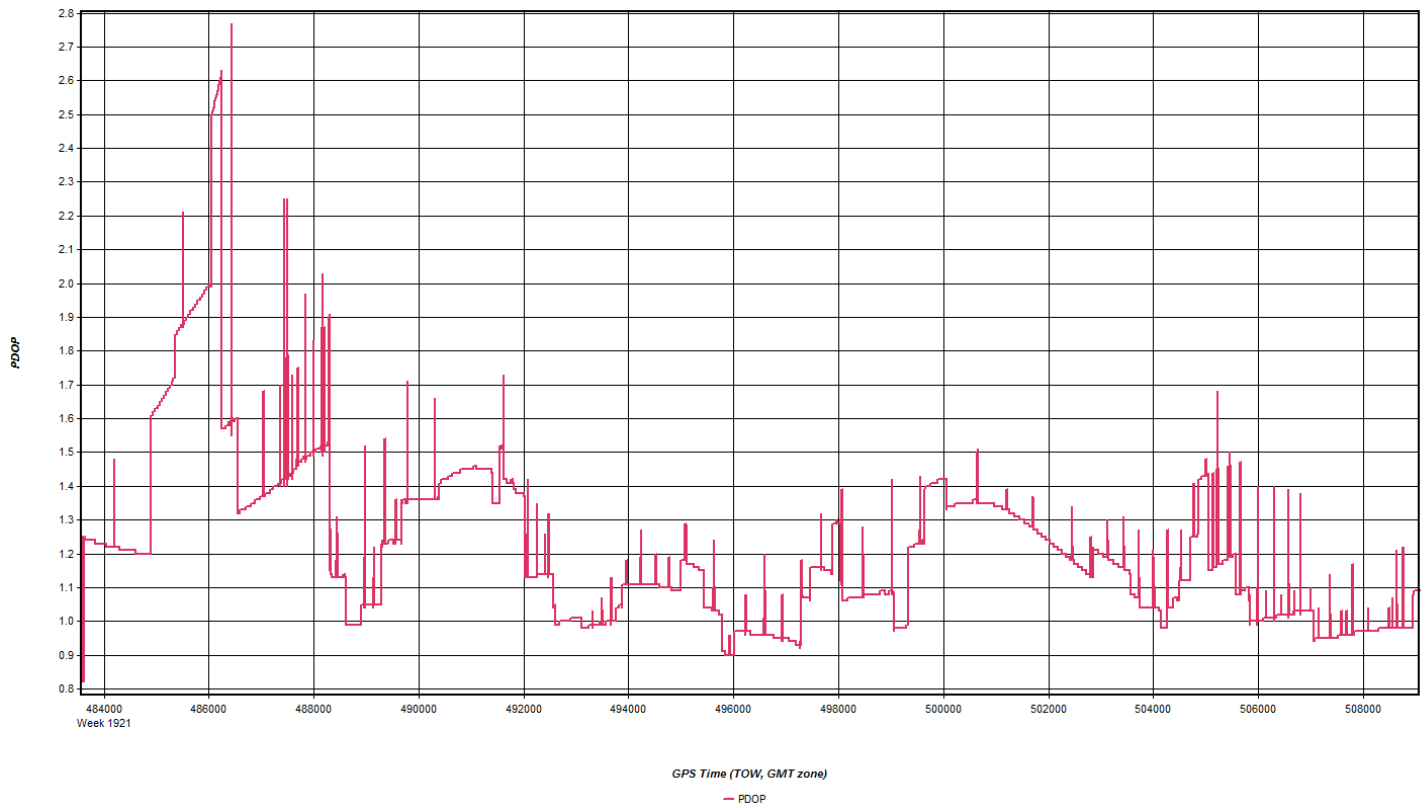
Flt Mgmt File: Unplanned-20161104162105_1

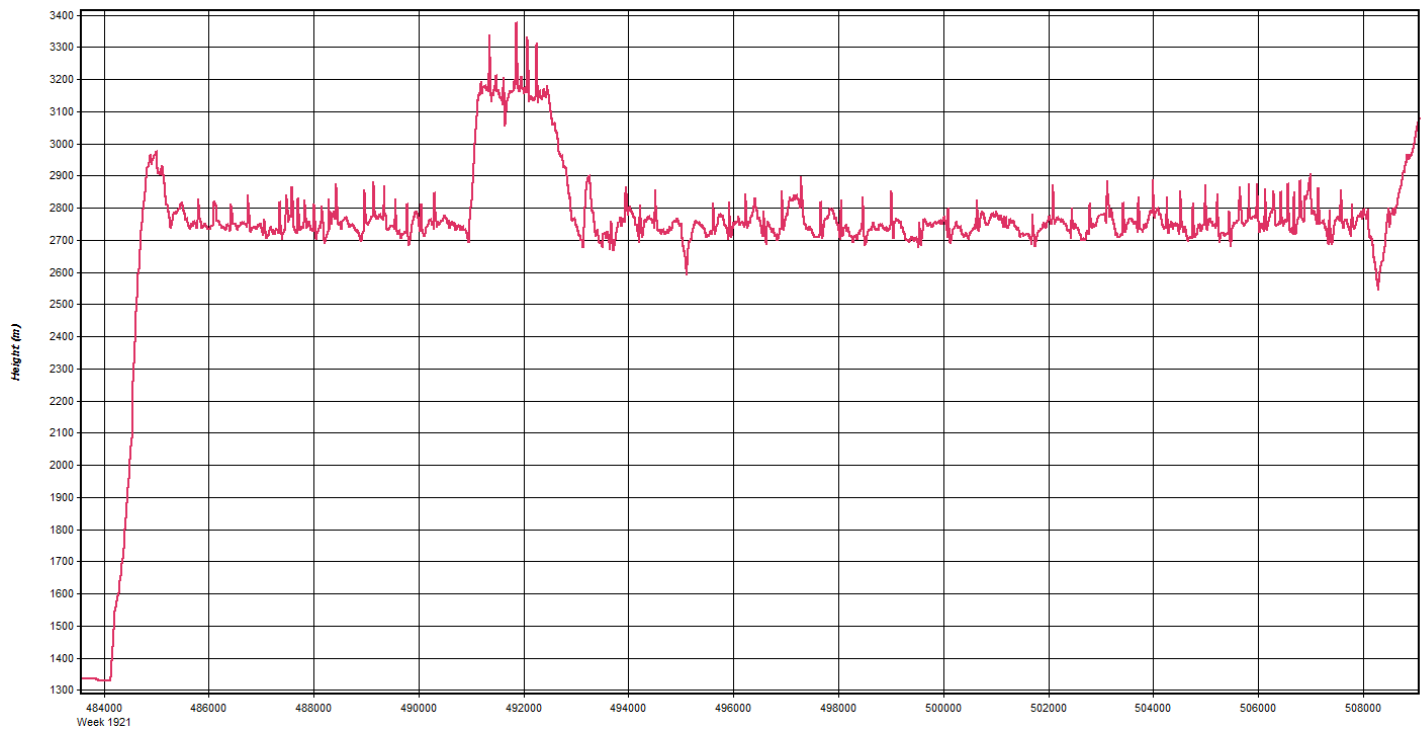
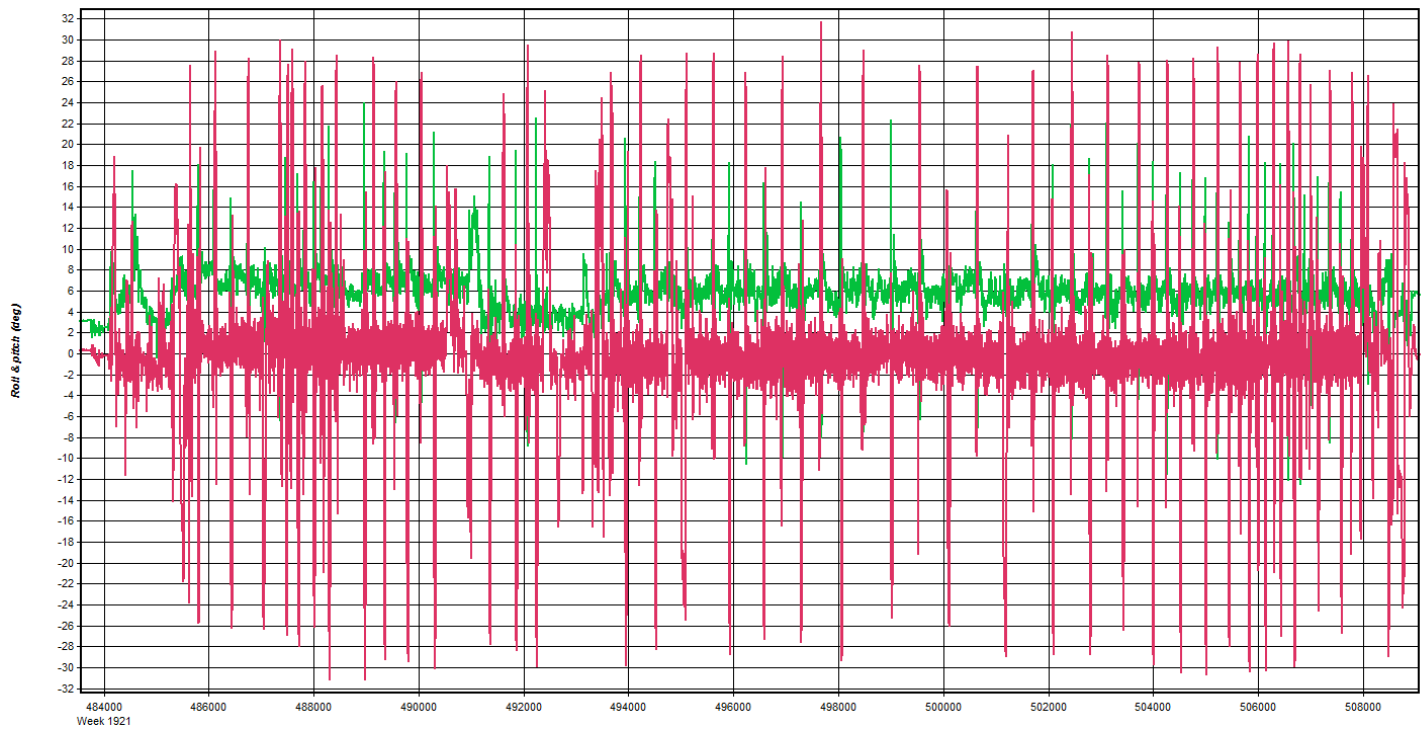
UL001	3129.028 m	16:47:56	23.40980955	3027.514 m	16:50:23	23.66228518
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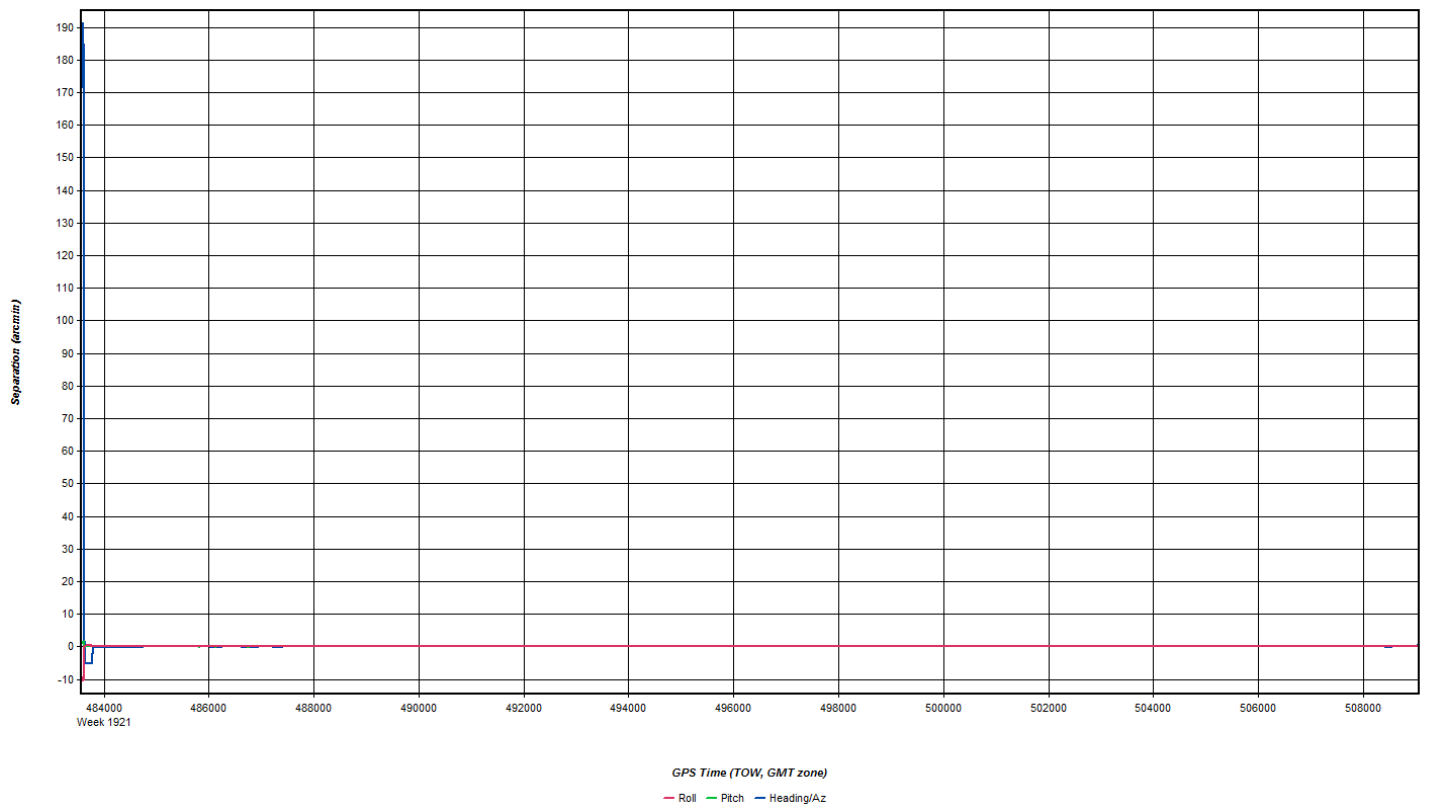
Nov 4, 2016-A (N704MD, SN8227)

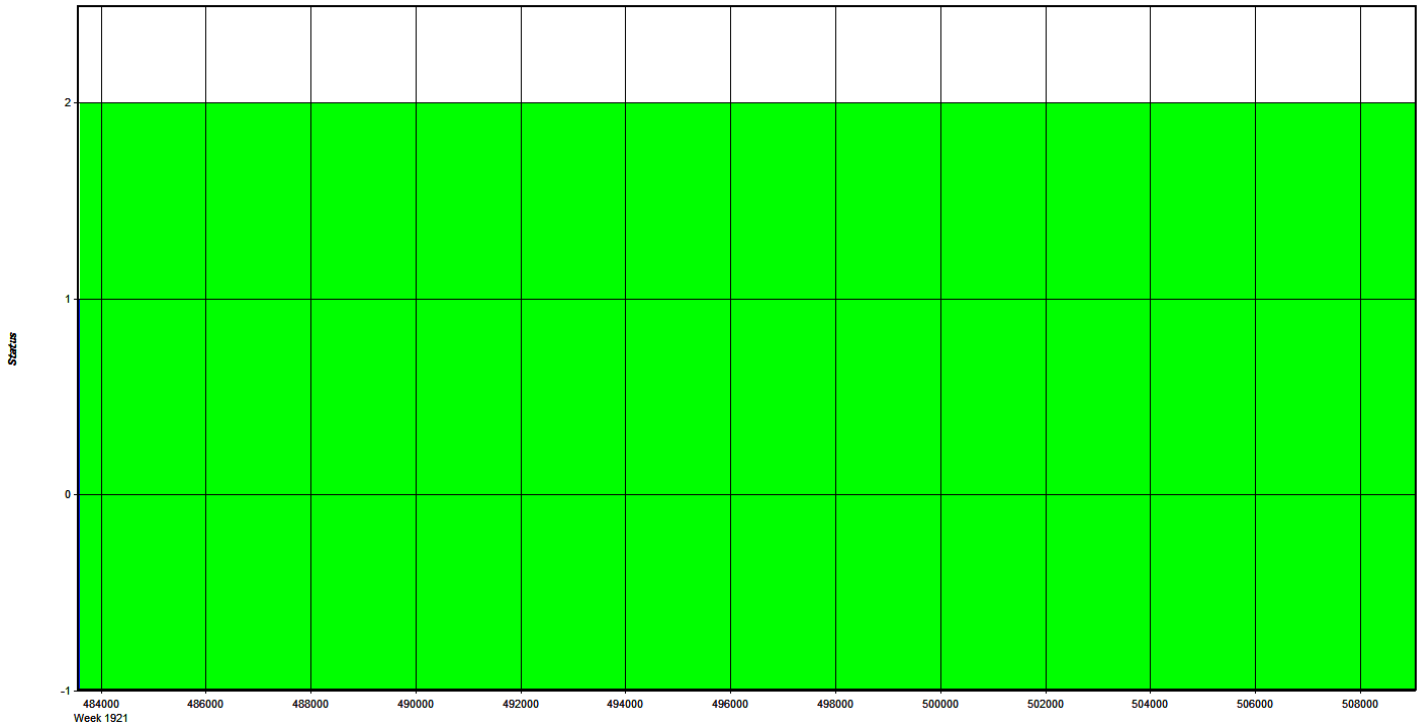












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: FINGER_PT Name: FINGER_PT Disabled
 File: E:\Proc\Utah\R029083.00_Utah_State_2016\From_FTP_11-22-1

Coordinates
 Latitude: North 41 20 16.39424 Compute from PPP
 Longitude: West 113 00 31.99185 Enter Grid Values
 Ellipsoidal height: 1269.972 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

? X

Master Remote

Base Station
 Name: Disabled
 File:

Coordinates
 Latitude: North
 Longitude: West
 Ellipsoidal height: m
 Datum: WGS84

Antenna Height
 From station file:
 Antenna profile:
 Measured height: m
 ARP to L1 offset: m
 Applied height: m
 Measured to
 ARP
 L1 Phase Centre

? X

Master Remote

Base Station
 Name: Disabled
 File:

Coordinates
 Latitude: North
 Longitude: West
 Ellipsoidal height: m
 Datum: WGS84

Antenna Height
 From station file:
 Antenna profile:
 Measured height: m
 ARP to L1 offset: m
 Applied height: m
 Measured to
 ARP
 L1 Phase Centre

Flight Log

Date: 11/3/2016	Aircraft: N208NR	Sensor: 8227
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FAGL_GSL_W_QL1_2PiA_SN8227_40FOV_8ppsm_1550m_1 Unplanned-20161104141921_1 FAGL_GSL_W_QL1_2PiA_SN8227_40FOV_8ppsm_1550m_2 Unplanned-20161104165040_2		
Pilot: Travis Peden		Sensor Operator: Aaron Mallon

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	9:10:00 AM			
Wheels Down	3:35:00 PM			
Begin Hobbs	4387.7			
End Hobbs	4394.1			
On-line Hobbs:		Mob Hobbs:		

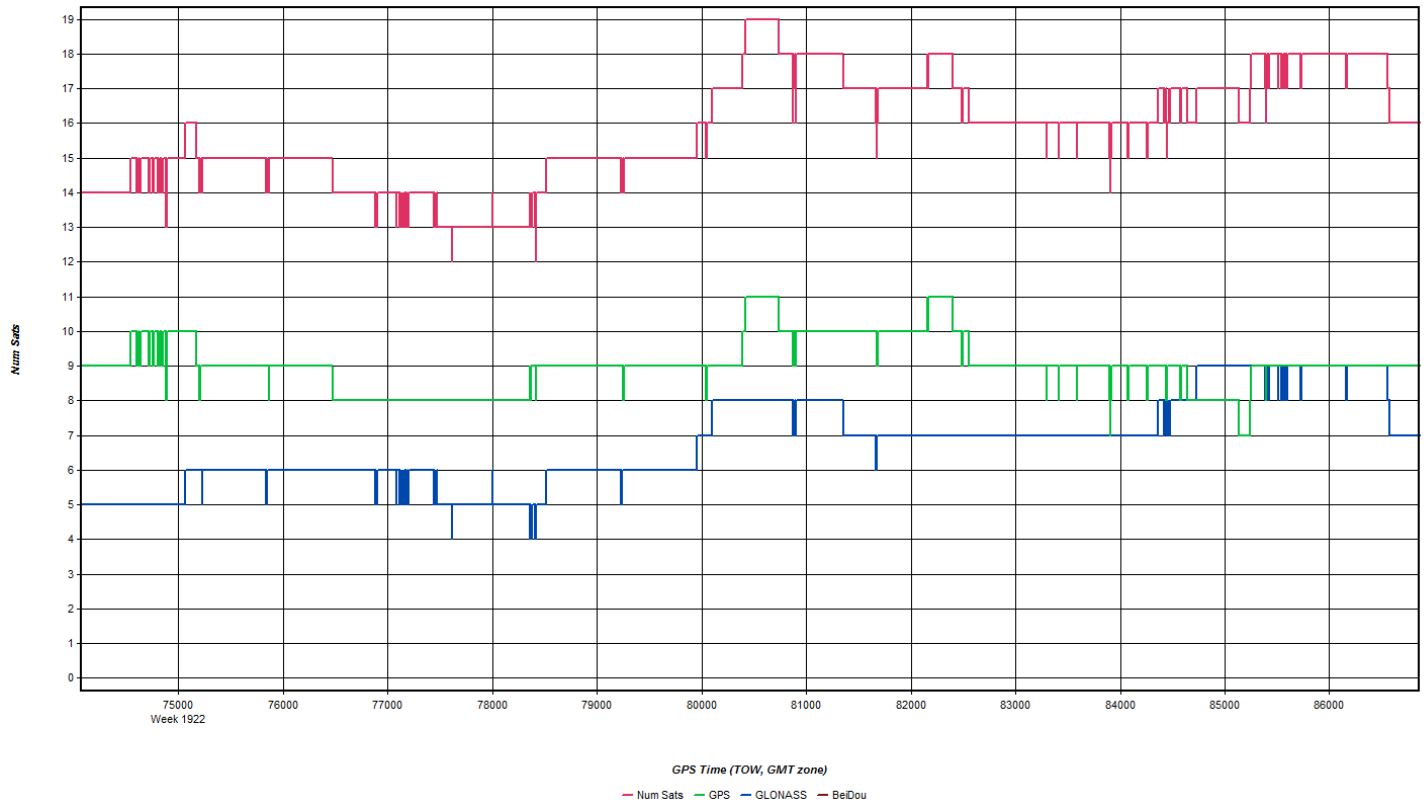
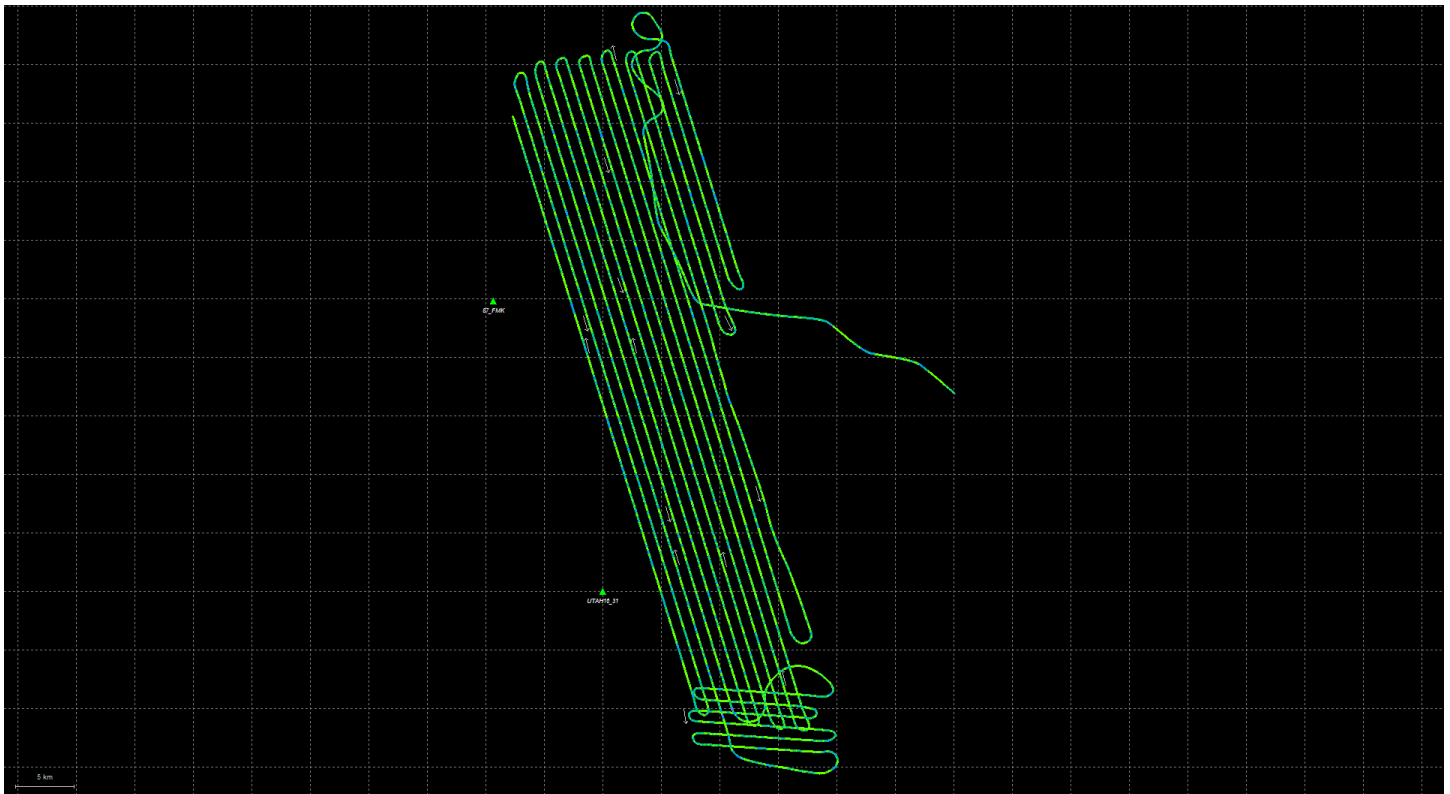
Notes

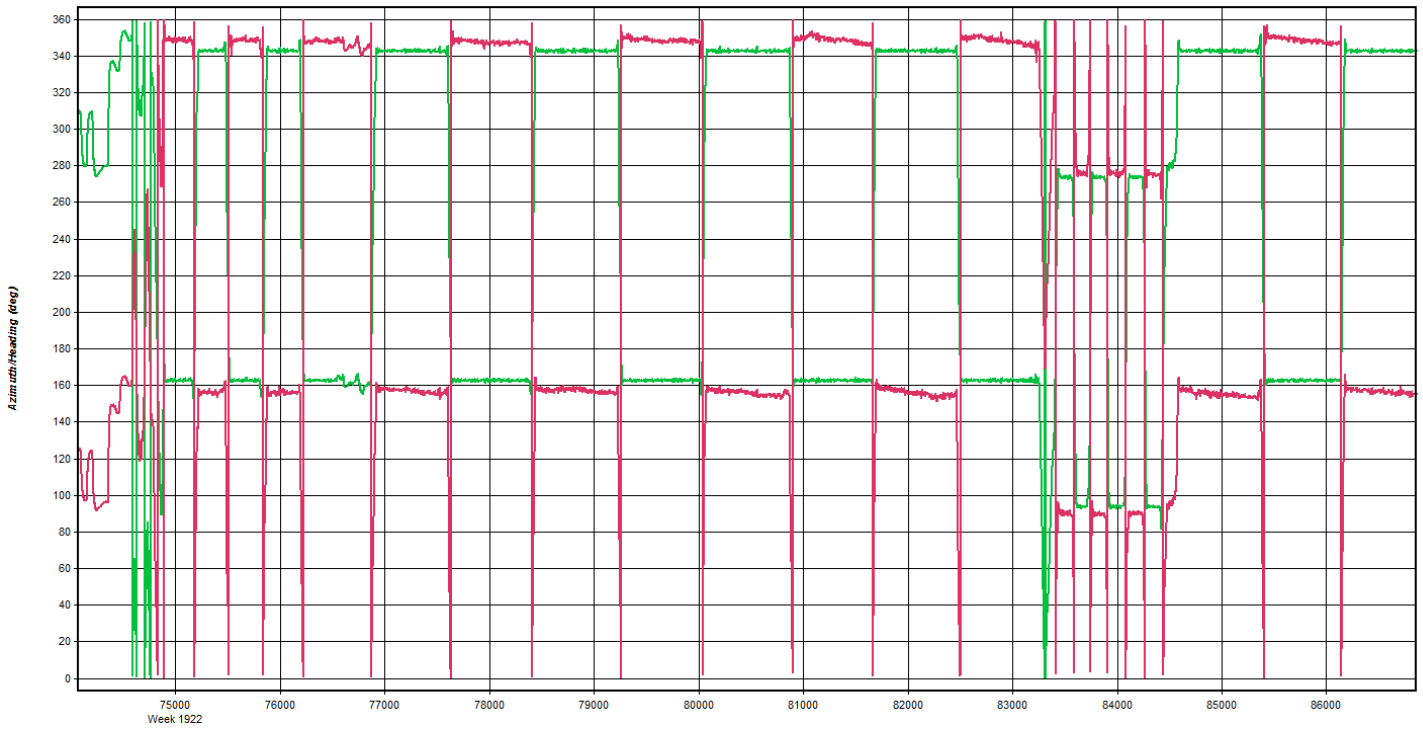
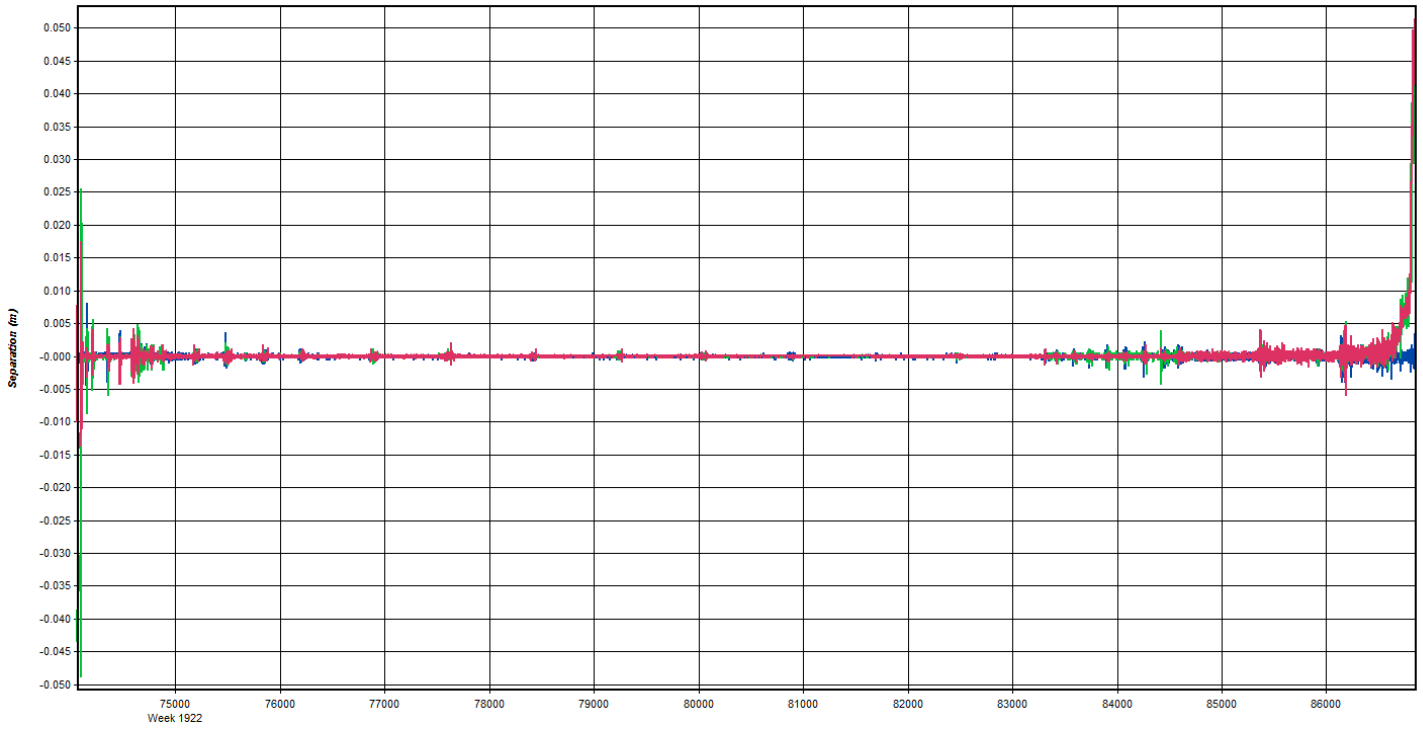
Today we were out at the airport ready to take off at 0630 but the deicing trucks broke down so we were not able to take off until 0910. We then flew to the Forge area and completed the remaining lines as well as some reflies. After that we flew back to the Utah Lake area and completed the remaining lines in that block. We eventually had wheels down in Ogden UT and are currently based there.

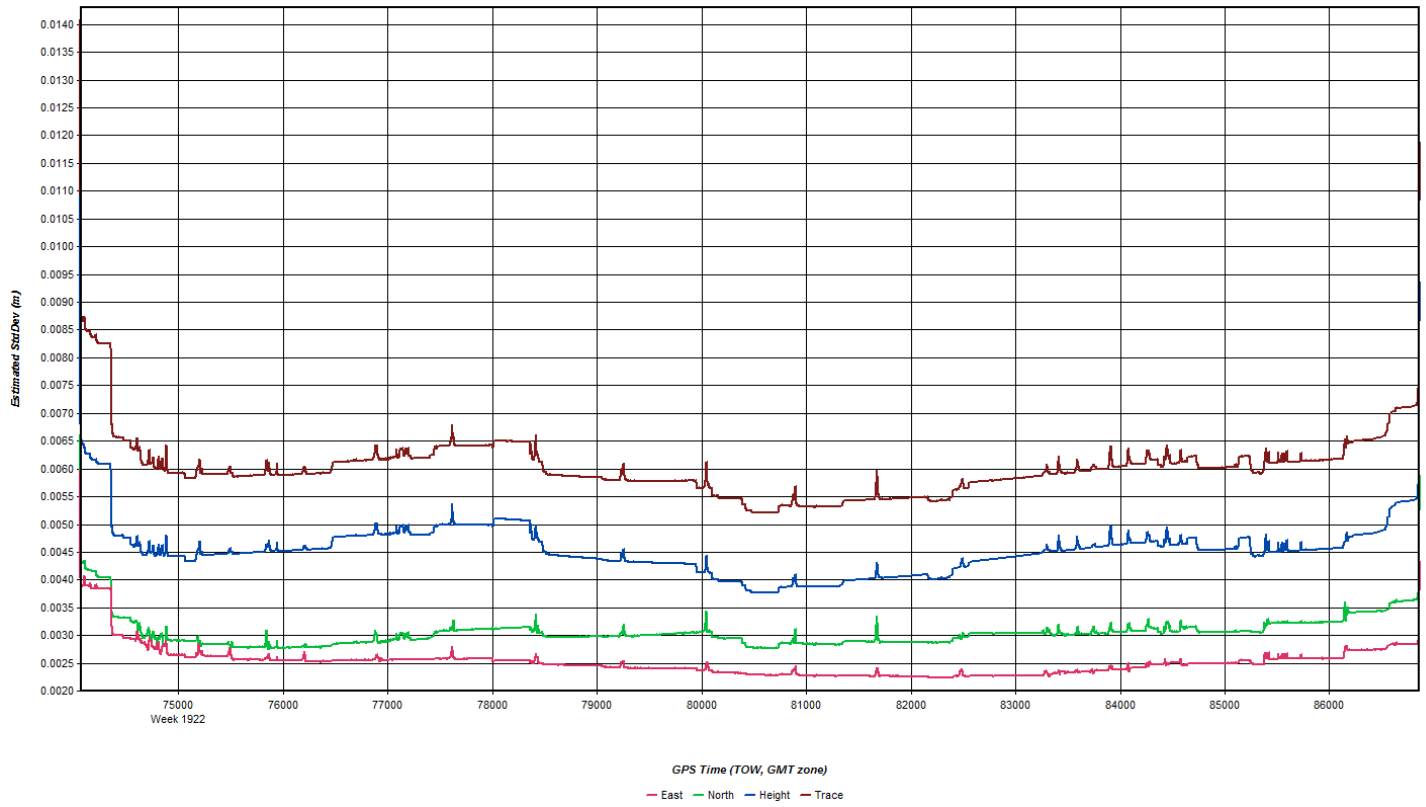
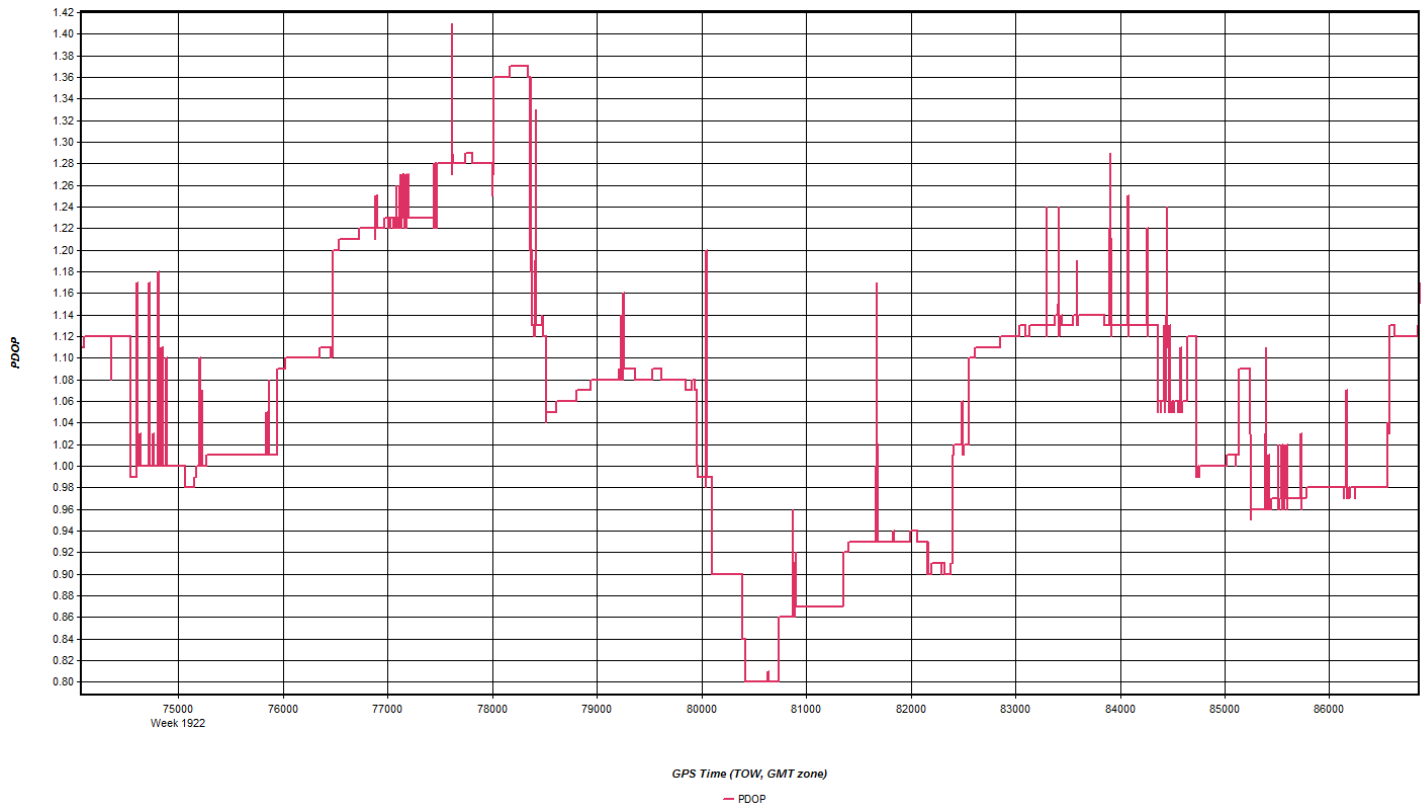
Flt Mgmt File: FAGL_GSL_W_QL1_2PiA_SN8227_40FOV_8ppsm_1550m_1

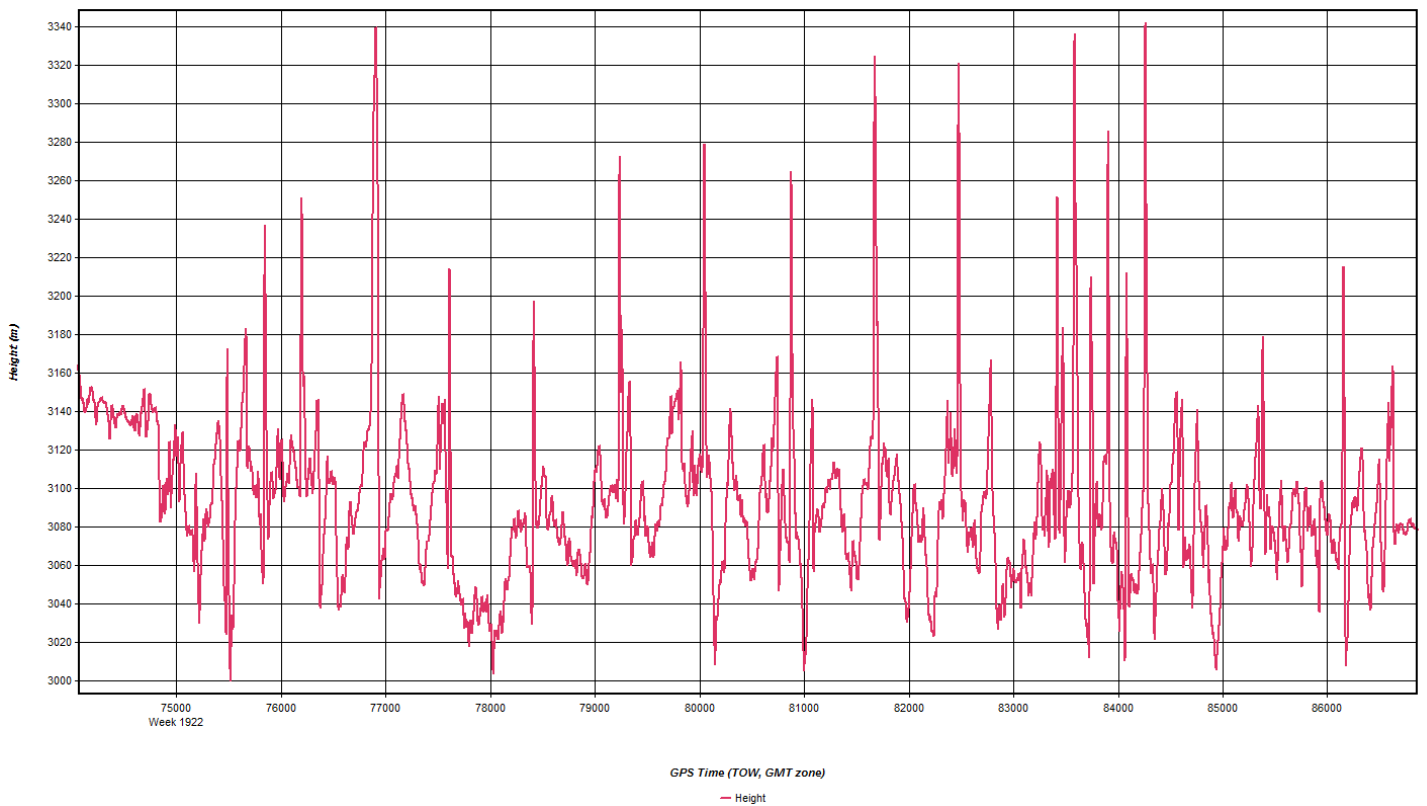
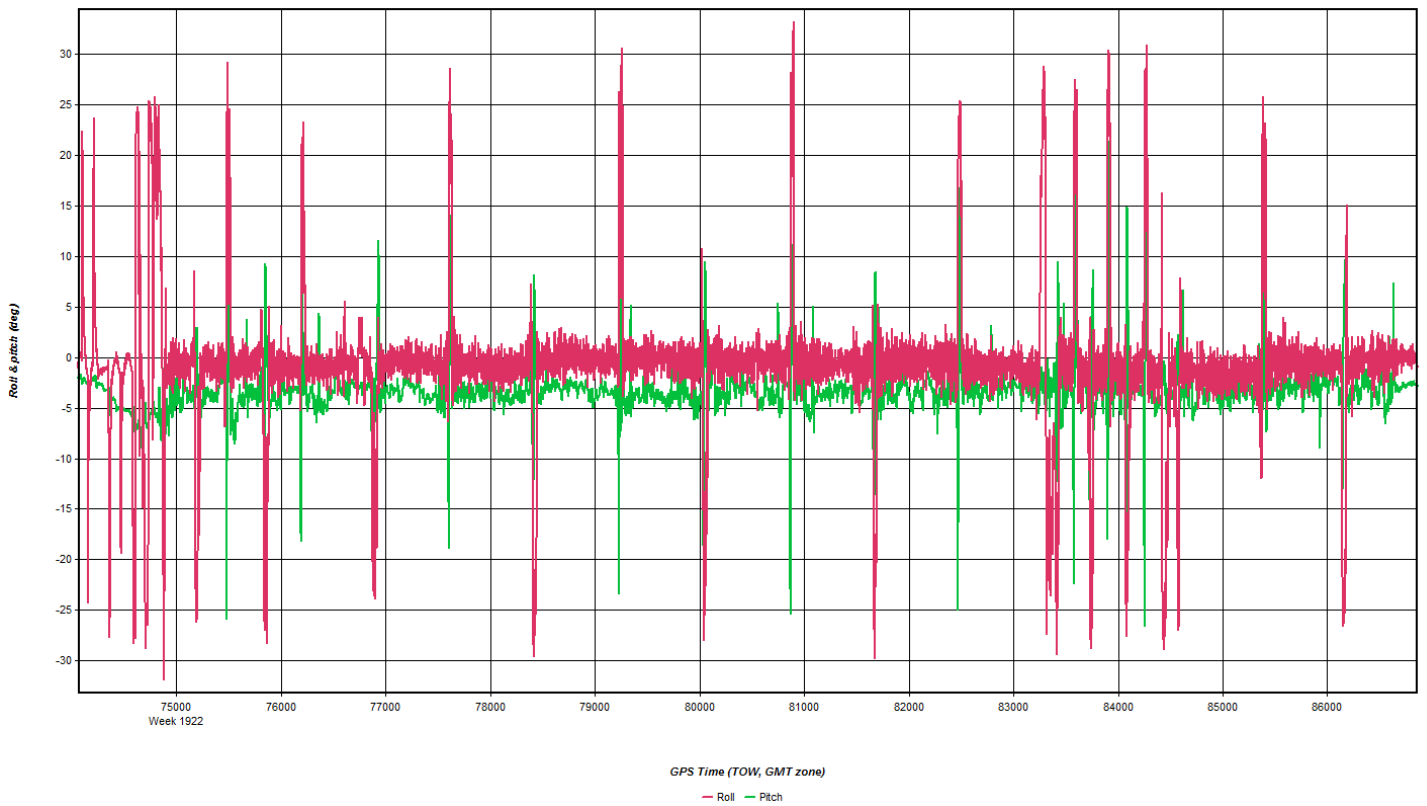
GSL1057	2753.545 m	14:55:11	7.35472162	2737.288 m	14:55:53	7.45483692
GSL1058	2753.429 m	14:57:14	7.67508255	2744.624 m	15:00:48	8.30890121
GSL1059	2759.364 m	15:02:26	8.57721705	2741.937 m	15:06:14	9.11821999
GSL1060	2749.583 m	15:07:37	9.34122424	2745.127 m	15:11:38	10.04349164
GSL1061	2728.039 m	15:12:56	10.25248161	2722.205 m	15:17:04	10.83243759
GSL1062	2718.398 m	15:20:40	11.44548071	2730.162 m	15:21:39	11.61348195
GSL1063	2717.048 m	15:23:08	11.84503587	2731.615 m	15:24:01	11.96702737
GSL1064	2758.992 m	15:24:59	12.12043962	2770.405 m	15:25:43	12.24439276
GSL1065	2735.142 m	15:26:51	12.42010315	2725.737 m	15:27:31	12.51162206
GSL1066	2735.241 m	15:28:55	12.72867508	2739.442 m	15:29:32	12.83161572
GSL1052	2757.502 m	15:31:23	13.11325273	2731.714 m	15:32:36	13.28148207
GSL1053	2704.987 m	15:33:53	13.47859460	2742.214 m	15:35:08	13.68187808
GSL1054	2691.824 m	15:36:28	13.88490113	2728.180 m	15:37:40	14.04939585
GSL1055	2759.773 m	15:38:45	14.21690954	2769.581 m	15:39:41	14.36690461
GSL1056	2747.033 m	15:40:58	14.55961417	2753.183 m	15:41:38	14.65002620
GSL1051	2723.917 m	15:47:11	15.31389892	2698.405 m	15:47:57	15.40373323
GSL1050	2752.529 m	15:49:52	15.66039079	2772.875 m	15:51:33	15.95037315
GSL1049	2771.050 m	15:52:47	16.13009009	2763.305 m	15:55:04	16.39737033
GSL1048	2742.707 m	15:56:08	16.55226851	2745.205 m	15:58:24	16.93427216
GSL1047	2721.839 m	15:59:47	17.13584543	2723.542 m	16:02:21	17.43243528
GSL1046	2691.572 m	16:03:24	17.58204543	2736.452 m	16:06:40	18.12188111
GSL1045	2719.874 m	16:07:56	18.29812848	2736.631 m	16:11:09	18.65522244
GSL1044	2746.554 m	16:12:05	18.78713790	2767.246 m	16:15:16	19.29550166

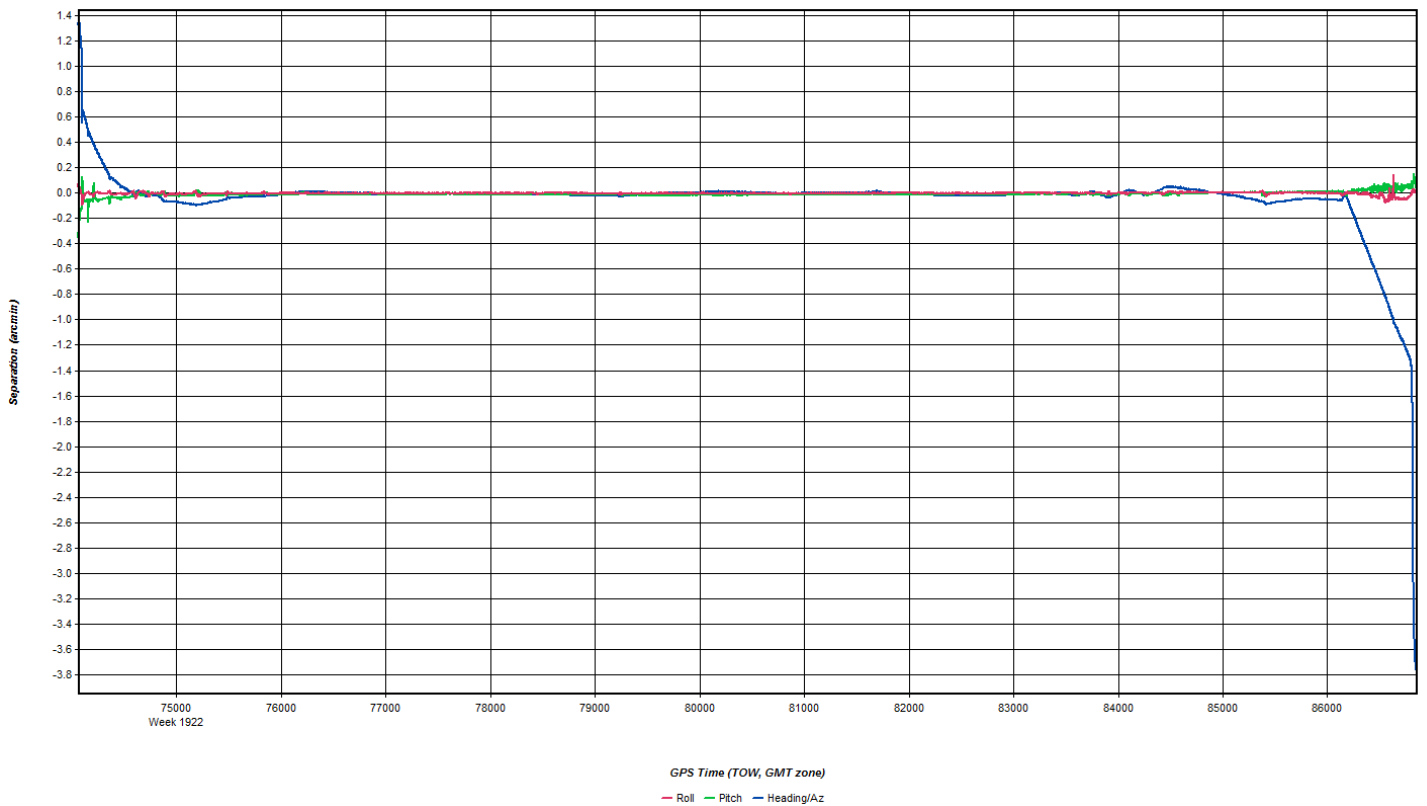
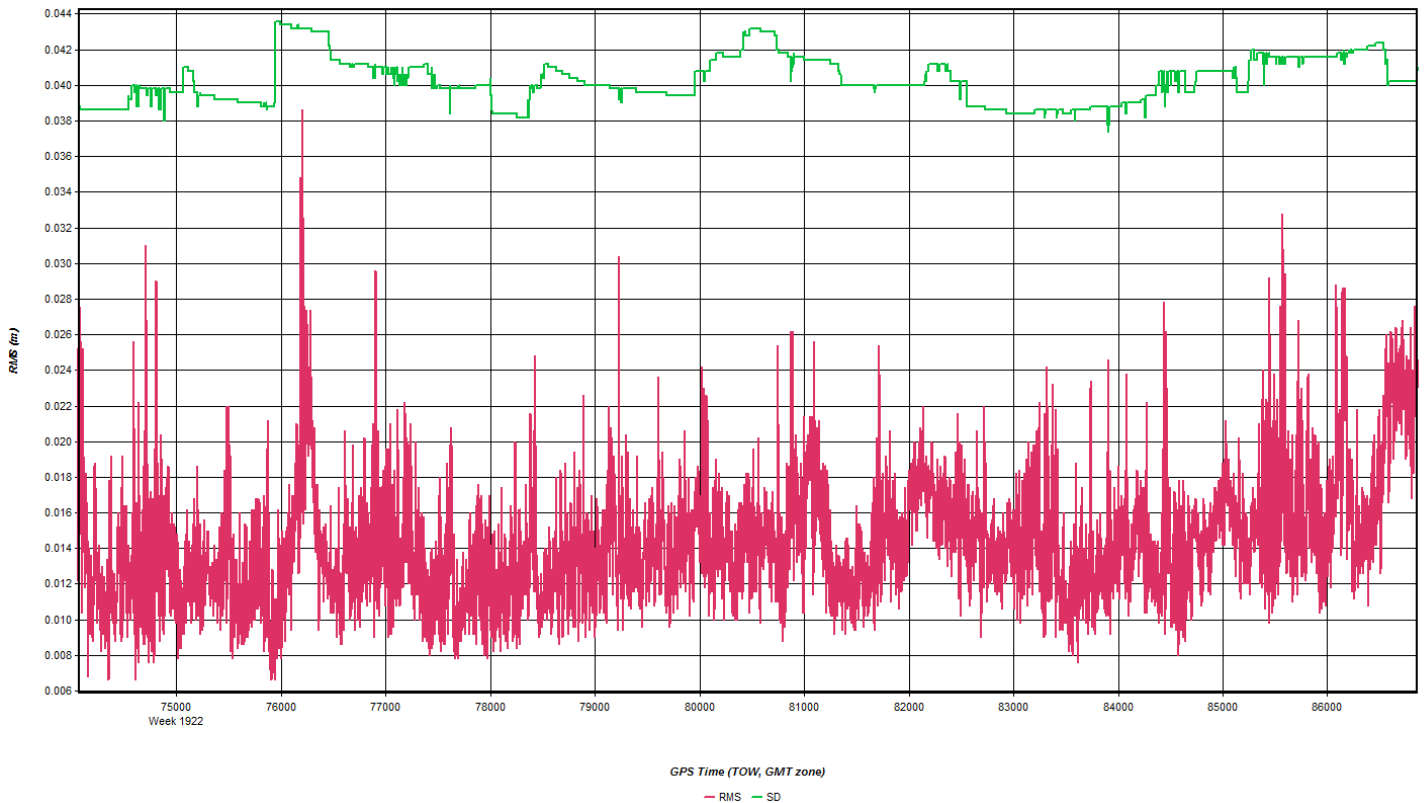
Nov 6, 2016-A (N704MD, SN8121)

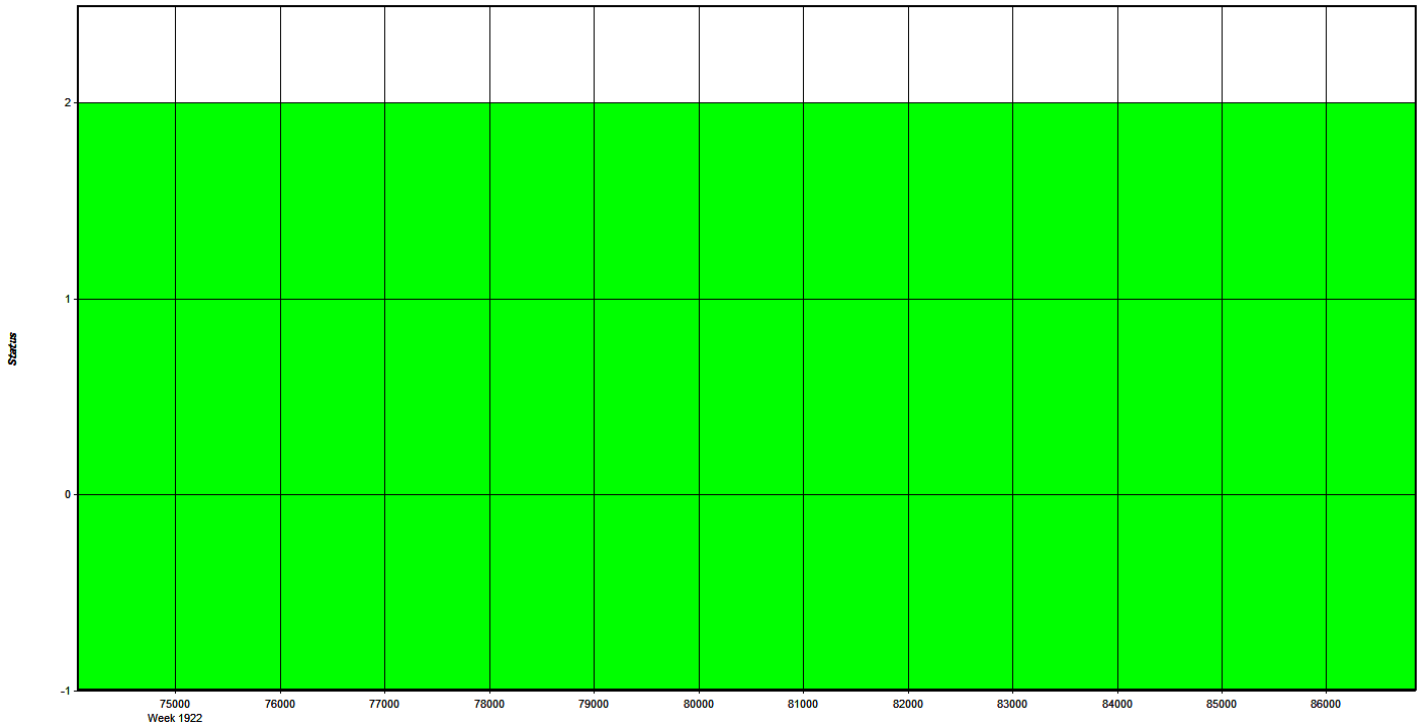












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: 87_FMK Name: 87_FMK Disabled
 File: E:\Proc\Utah\R029083.00_Utah_State_2016\From_FTP_11-22-1

Coordinates
 Latitude: North 41 33 31.74164 Compute from PPP
 Longitude: West 113 07 10.95886 Enter Grid Values
 Ellipsoidal height: 1278.703 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings ? X

Master Remote

Base Station
1: UTAH16_31 Name: UTAH16_31 Disabled
File: E:\Proc\Utah\R029083.00_Utah_State_2016\From_FTP_11-22-1

Coordinates
Latitude: North 41 20 15.95115 Compute from PPP
Longitude: West 113 00 28.80842 Enter Grid Values
Ellipsoidal height: 1270.535 m Enter MSL Height
Datum: WGS84 Datum Options
Select From Favorites Add To Favorites Use Average Position

Antenna Height
From station file: TRM55971.00 View STA File
Antenna profile: TRM57971.00 Info
Measured height: 1.800 m
ARP to L1 offset: 0.067 m
Applied height: 1.867 m
Measured to:
 ARP
 L1 Phase Centre
Compute From Slant

OK Cancel

Flight Log

Date: 11/6/2016	Aircraft: N704MD	Sensor: 8121
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: Utah_GSL_QL2_SN8121_1 Unplanned-20161106201125_1		
Pilot: Travis Peden	Sensor Operator: Aaron Mallon	

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	1:20:00 PM			
Wheels Down	7:05:00 PM			
Begin Hobbs	11530.6			
End Hobbs	11536.3			
On-line Hobbs: 5.3		Mob Hobbs: 0.4		

Notes

Today TP and I waited for 704MD to arrive in Ogden so we could use 704MD to target the remaining lines in GSL_QL2. We had wheels up at 1320 and completed GSL_QL2.

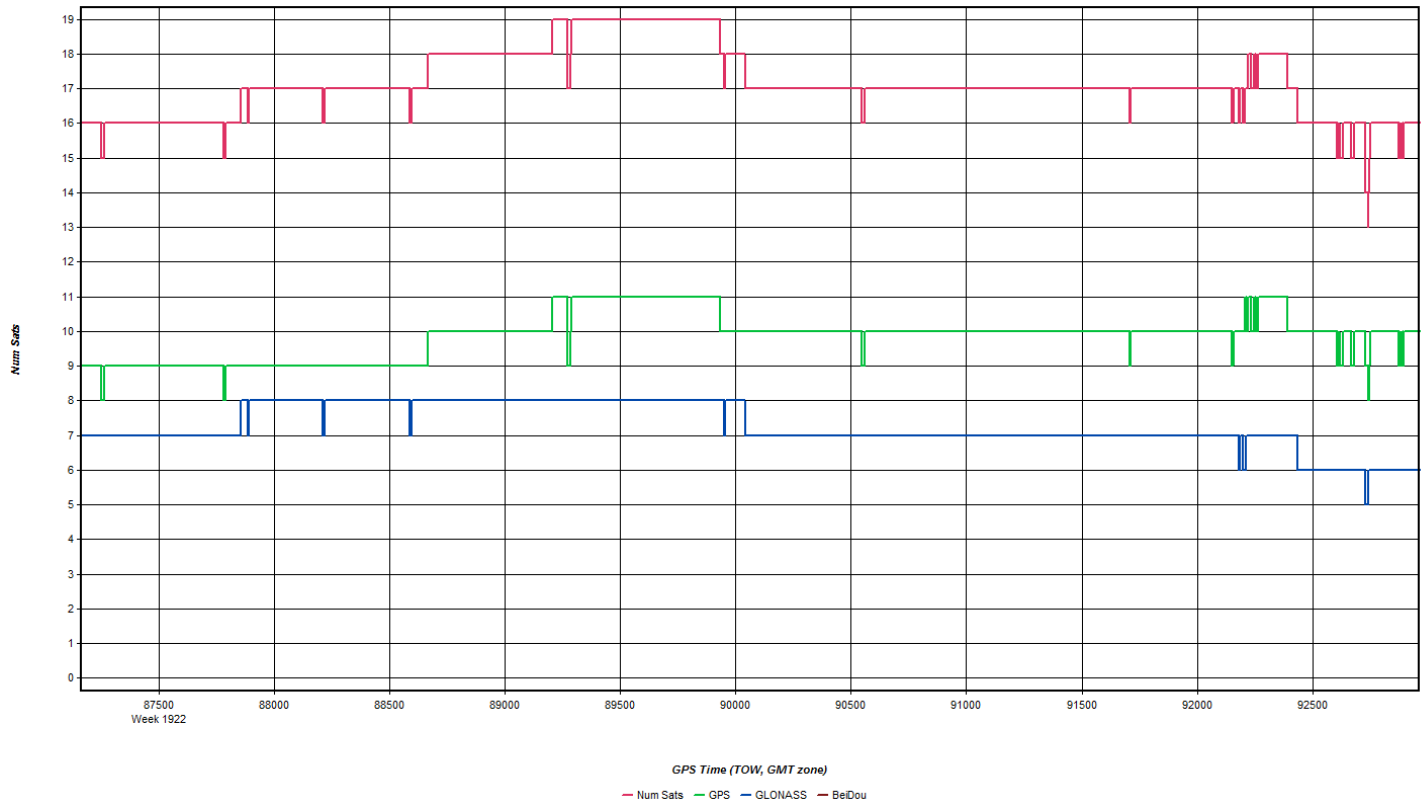
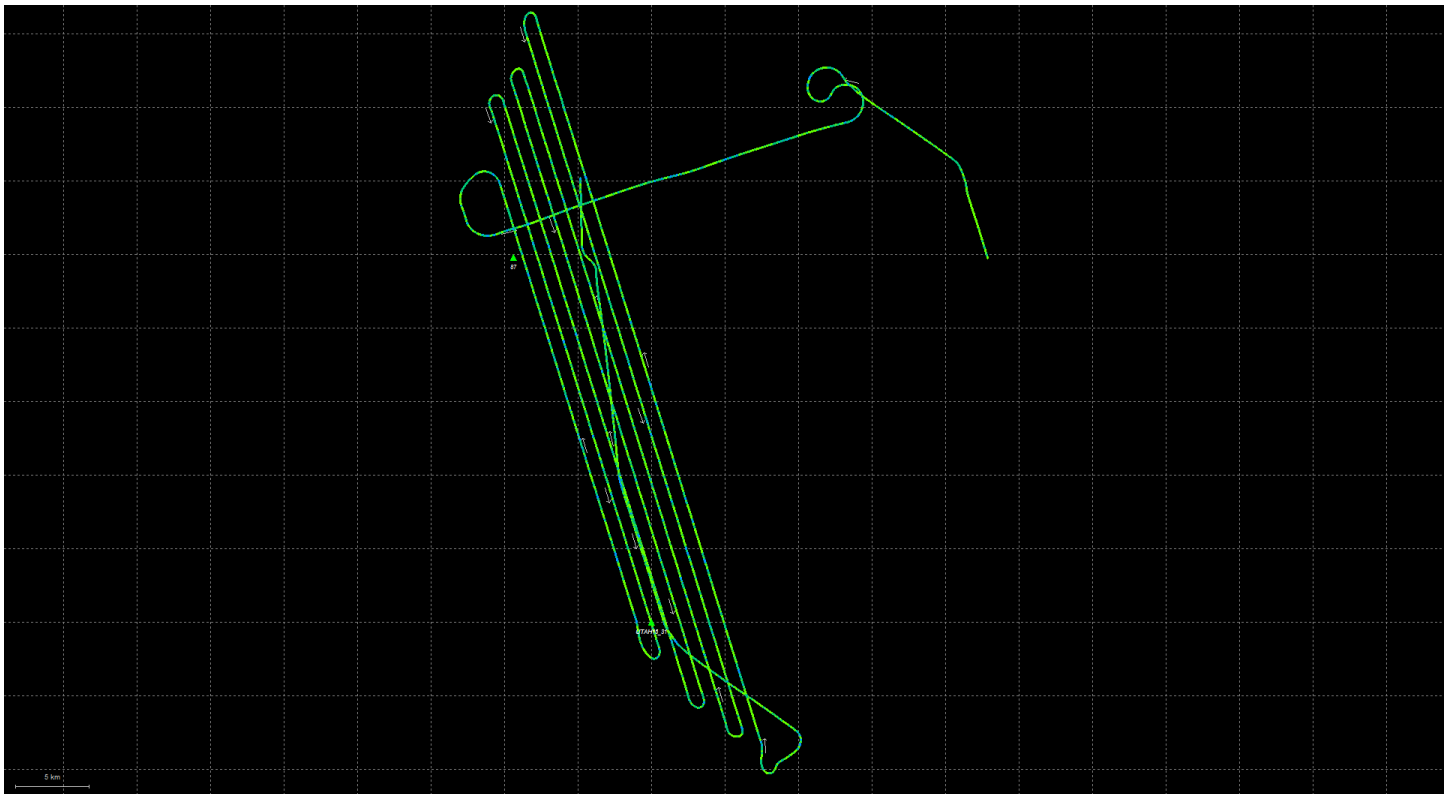
Flt Mgmt File: Utah_GSL_QL2_SN8121_1

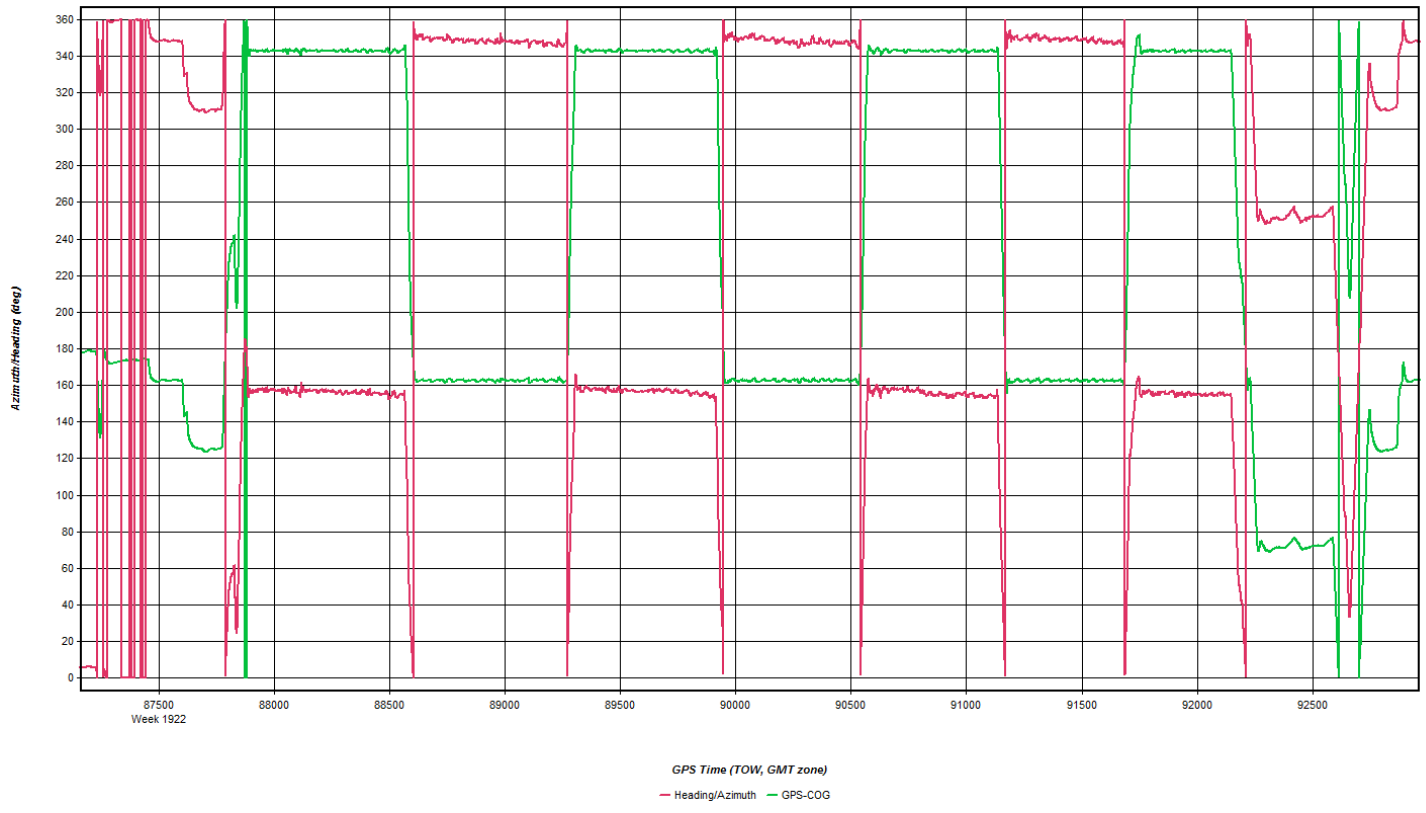
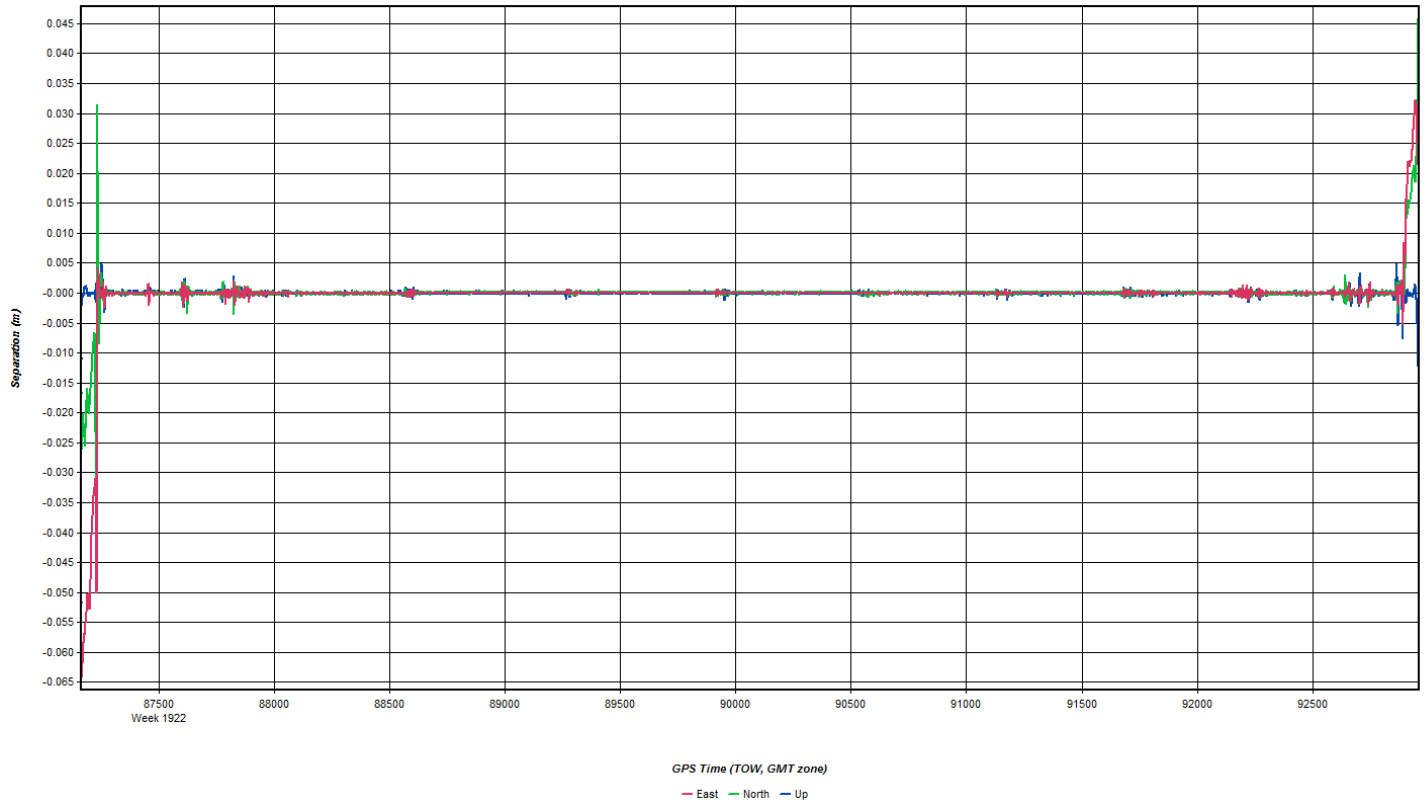
22	3098.401 m	20:48:22	28.14769119	3076.889 m	20:51:59	27.95512480
021	3059.683 m	20:53:39	27.83020695	3044.175 m	20:57:27	27.39271718
020	3036.600 m	20:58:33	27.30342428	3087.439 m	21:03:10	27.01681010
019	3083.258 m	21:04:28	26.90953220	3103.760 m	21:09:09	26.34019187
018	3105.135 m	21:10:22	26.22721736	3050.746 m	21:15:23	25.87089731
017	3117.332 m	21:21:56	25.35183792	3100.604 m	21:32:43	23.92472238
016	3062.595 m	21:33:52	23.80289571	3061.465 m	21:46:07	22.67540129
015	3087.096 m	21:47:21	22.53430947	3108.872 m	21:59:55	20.72263737
014	3091.892 m	22:00:58	20.59669584	3113.539 m	22:13:25	19.22096416
013	3116.034 m	22:14:23	19.09752336	3072.279 m	22:27:17	17.11488297
012	3093.770 m	22:28:16	16.98600731	3132.209 m	22:40:37	15.42388299
011	3141.132 m	22:41:32	15.29624024	3115.608 m	22:53:55	13.29331026
010	3088.826 m	22:54:57	13.14711316	3129.252 m	23:07:17	11.41929195
028	3138.868 m	23:10:42	10.83904679	3111.391 m	23:12:27	10.61902574
029	3112.392 m	23:13:22	10.48021382	3029.434 m	23:15:00	10.16922260
030	3074.045 m	23:15:58	10.02086434	3118.734 m	23:17:42	9.80190636
031	3066.806 m	23:18:43	9.64490196	3030.961 m	23:20:44	9.25746152
032	3050.075 m	23:21:38	9.11943371	3101.628 m	23:23:42	8.85680658
033	3093.489 m	23:24:35	8.72010124	3096.270 m	23:26:37	8.32596094
009	3067.001 m	23:30:13	7.79352083	3093.470 m	23:42:27	5.71985031
008	3095.446 m	23:43:32	5.55376946	3085.870 m	23:55:20	3.70727600
007	3056.005 m	23:56:30	3.52200186	3080.993 m	00:07:31	1.70039987

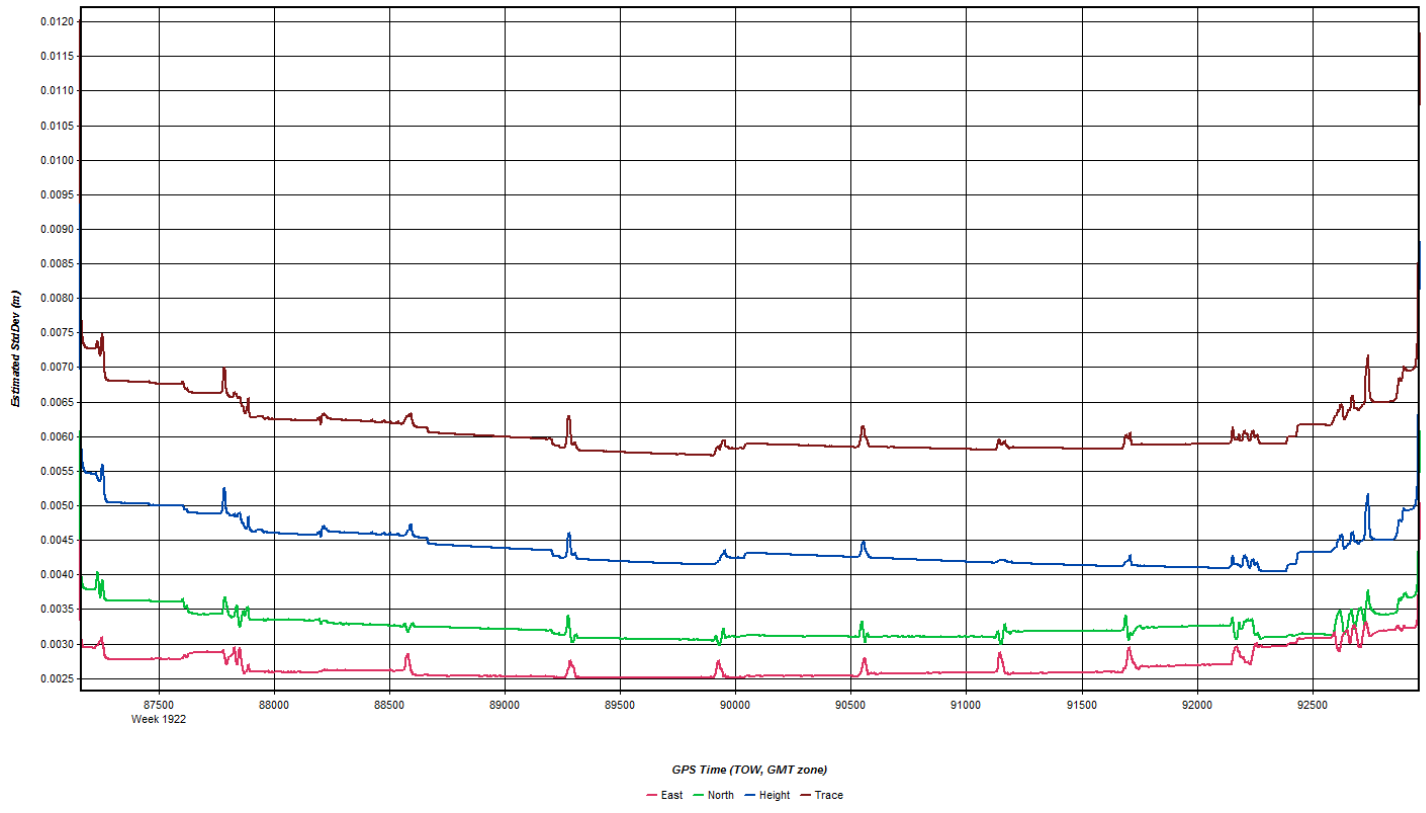
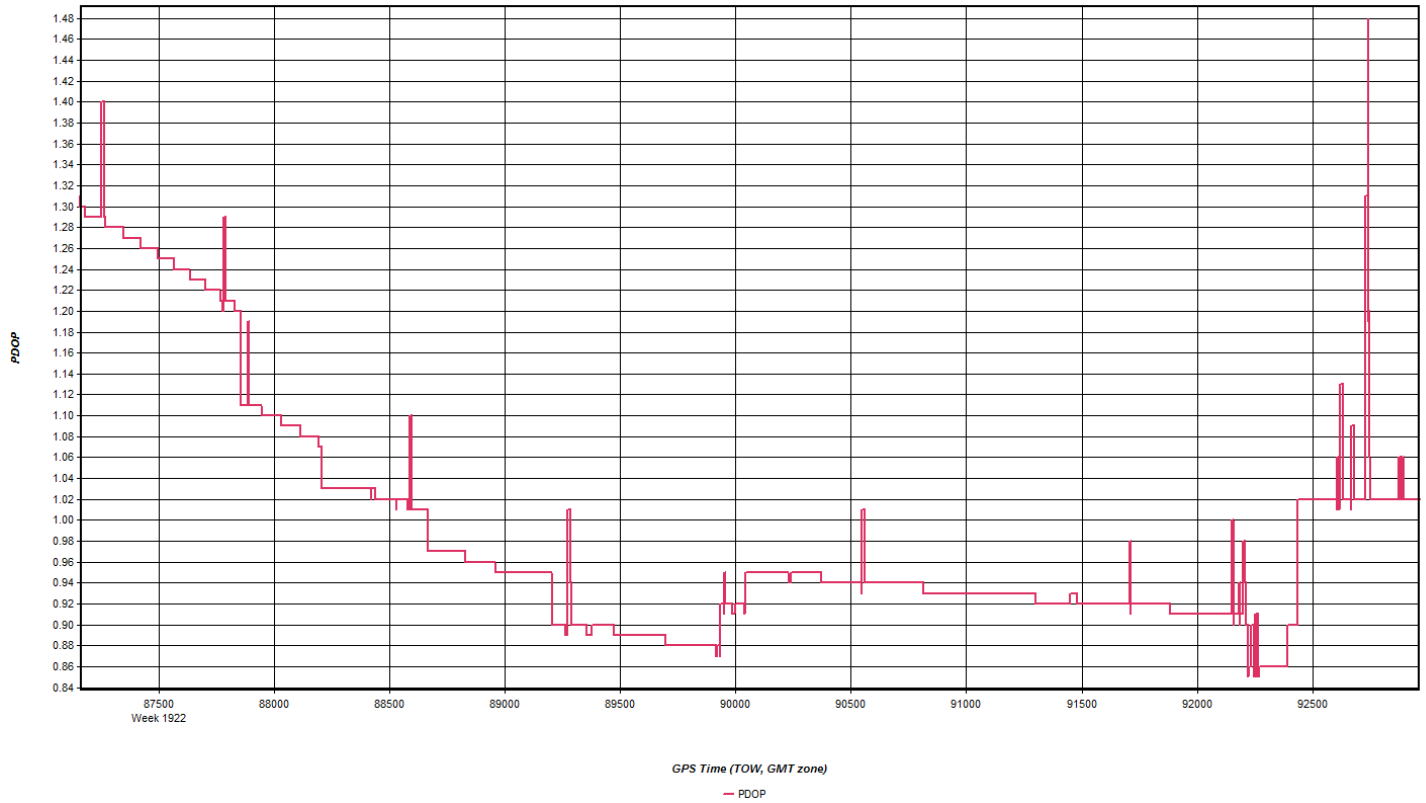
Flt Mgmt File: Unplanned-20161106201125_1

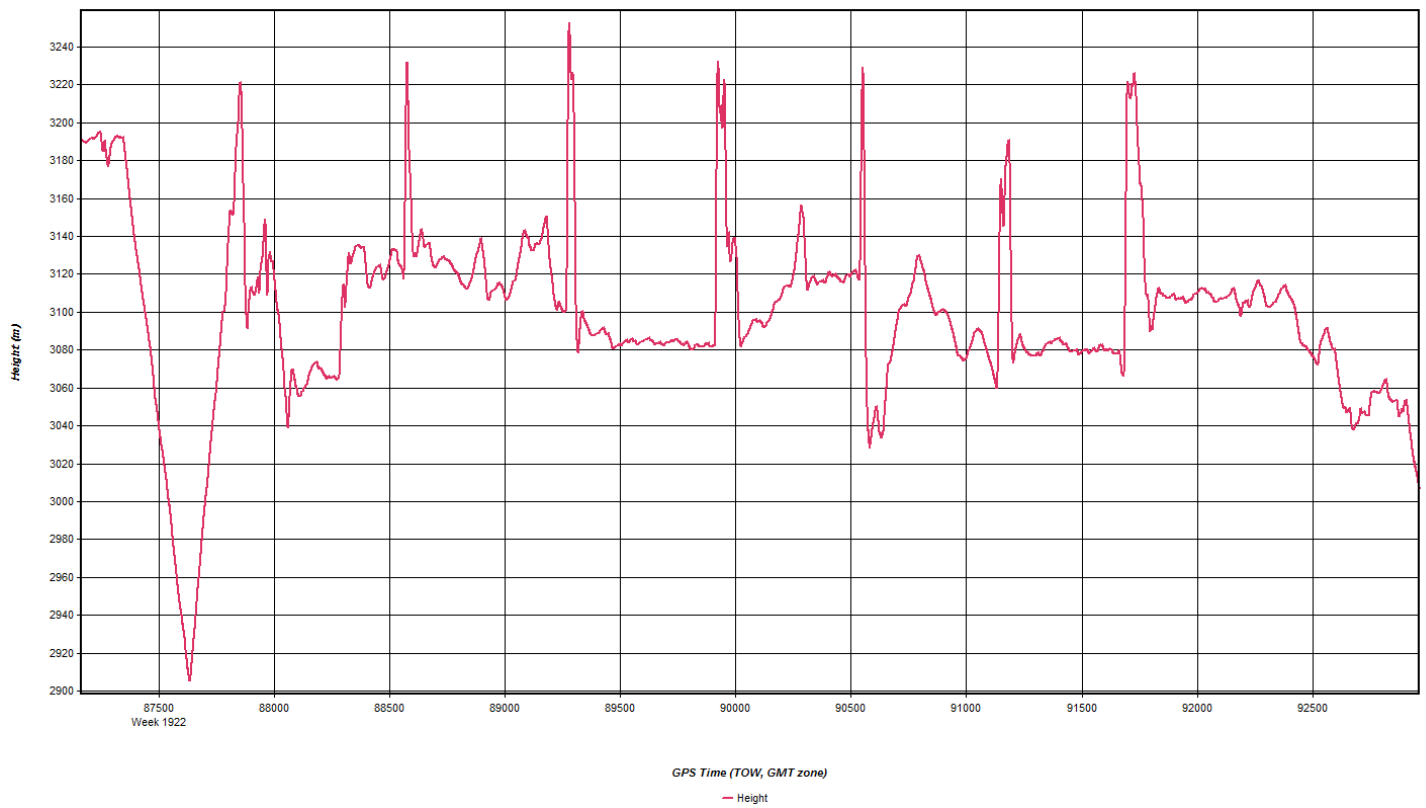
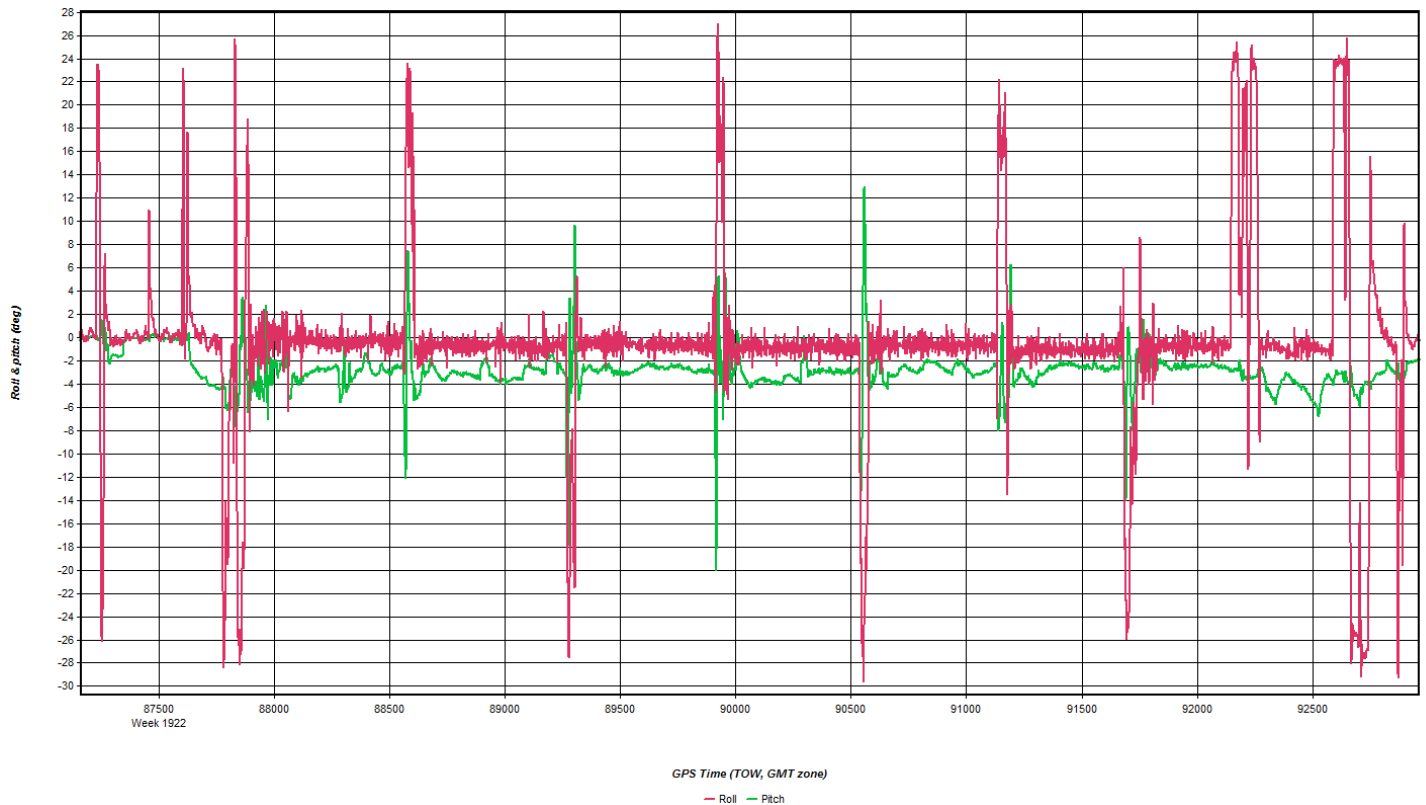
UL001	3143.369 m	20:45:55	28.31834716	3141.798 m	20:46:11	28.29249363
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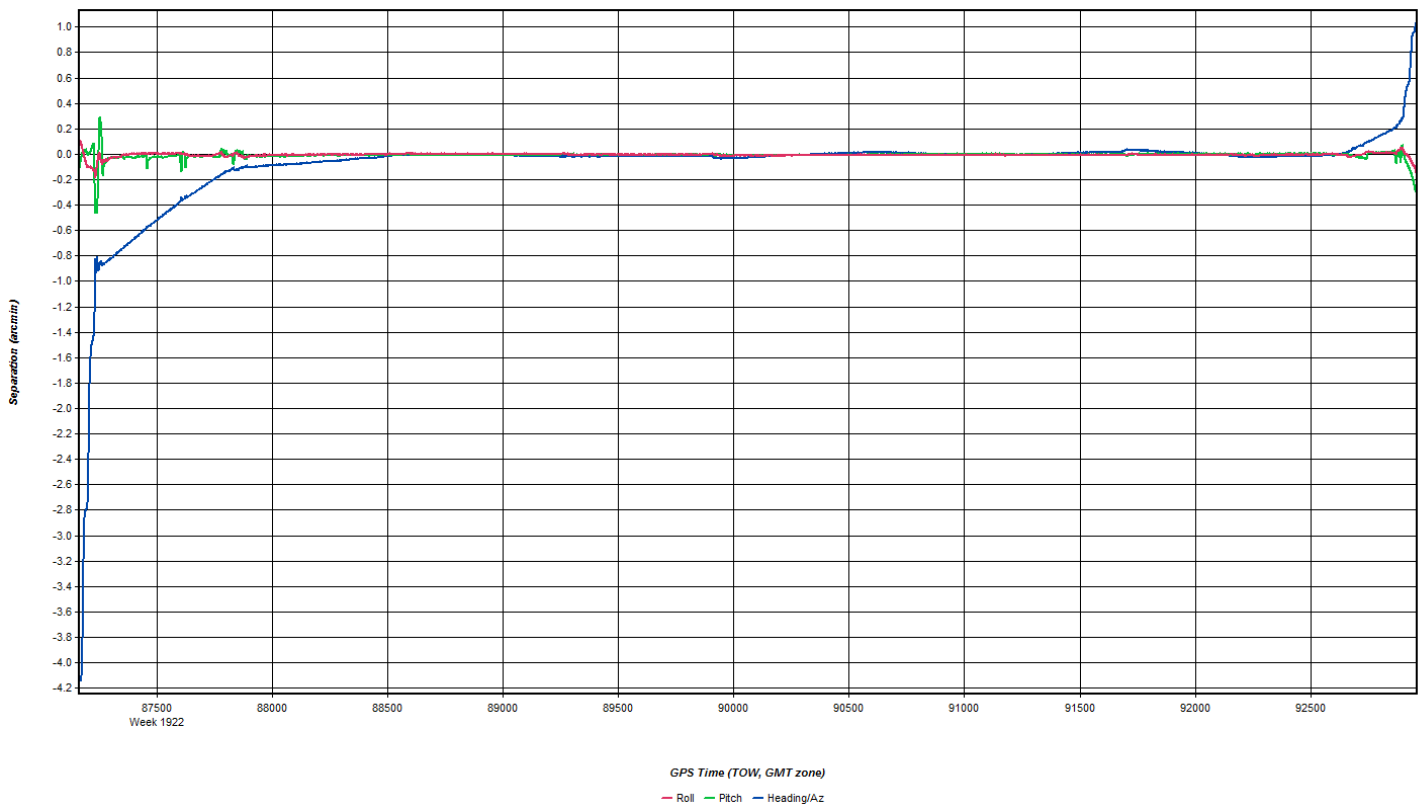
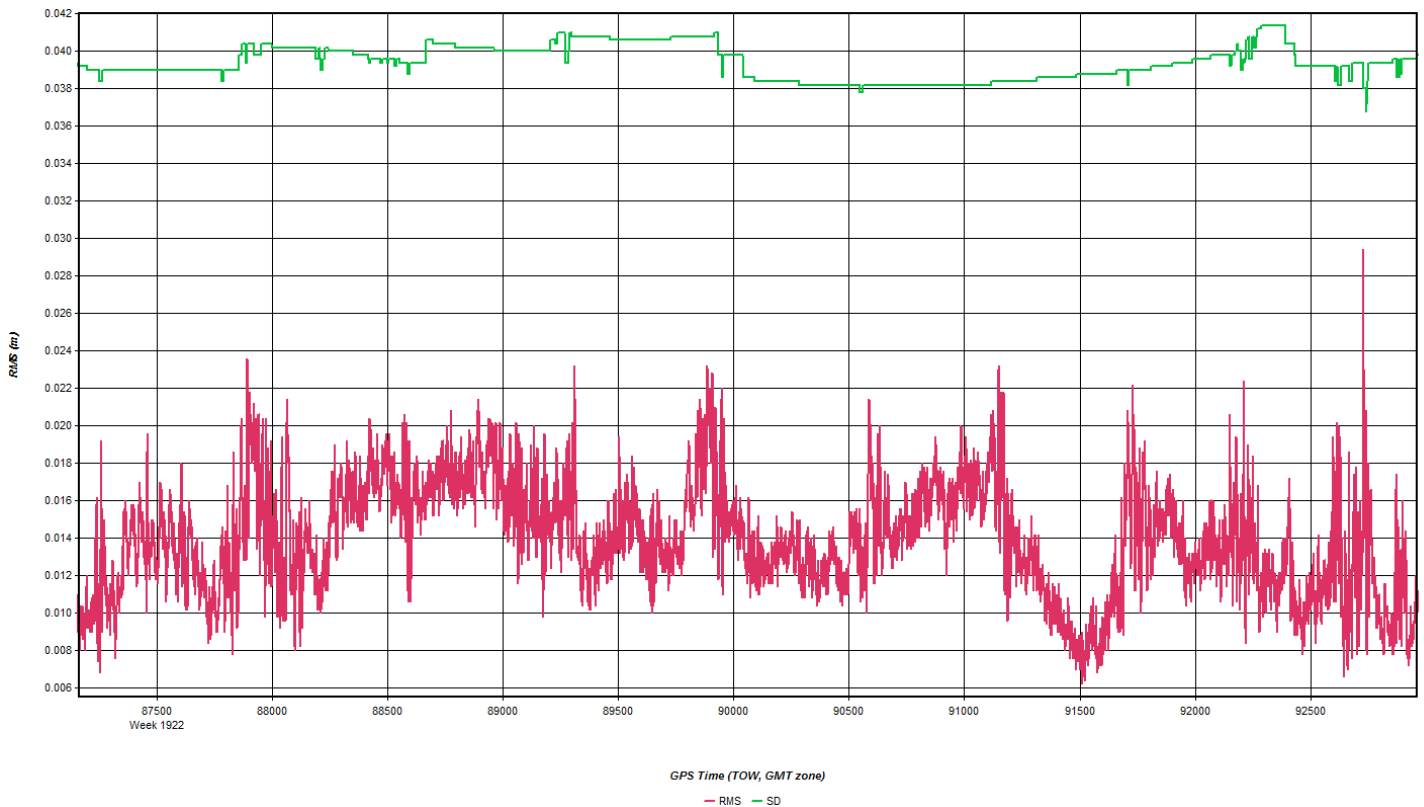
Nov 6, 2016-B (N704MD, SN8121)

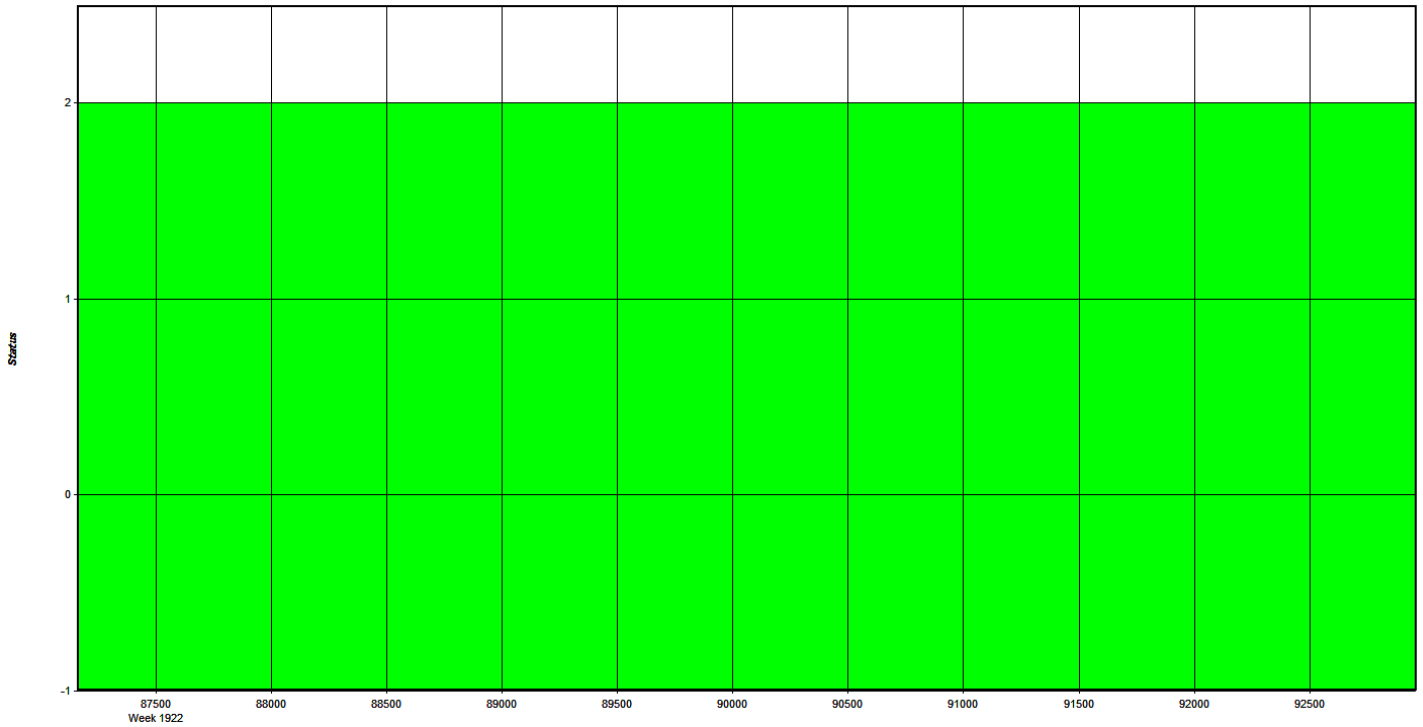












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 2: FMK_B7 Name: FMK_B7 Disabled
 File: E:\Proc\Utah\R029083.00_Utah_State_2016\From_FTP_11-22-1

Coordinates
 Latitude: North 41 33 31.74164 Compute from PPP
 Longitude: West 113 07 10.95886 Enter Grid Values
 Ellipsoidal height: 1278.703 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_31 Name: UTAH16_31 Disabled
 File: E:\Proc\Utah\R029083.00_Utah_State_2016\From_FTP_11-22-1

Coordinates
 Latitude: North 41 20 15.95115 Compute from PPP
 Longitude: West 113 00 28.80842 Enter Grid Values
 Ellipsoidal height: 1270.535 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Date: 11/6/2016	Aircraft: N704MD	Sensor: 8121
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: Utah_GSL_QL2_SN8121_1 Unplanned-20161106201125_1		
Pilot: Travis Peden		Sensor Operator: Aaron Mallon

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	1:20:00 PM			
Wheels Down	7:05:00 PM			
Begin Hobbs	11530.6			
End Hobbs	11536.3			
On-line Hobbs: 5.3		Mob Hobbs: 0.4		

Notes

Today TP and I waited for 704MD to arrive in Ogden so we could use 704MD to target the remaining lines in GSL_QL2. We had wheels up at 1320 and completed GSL_QL2.

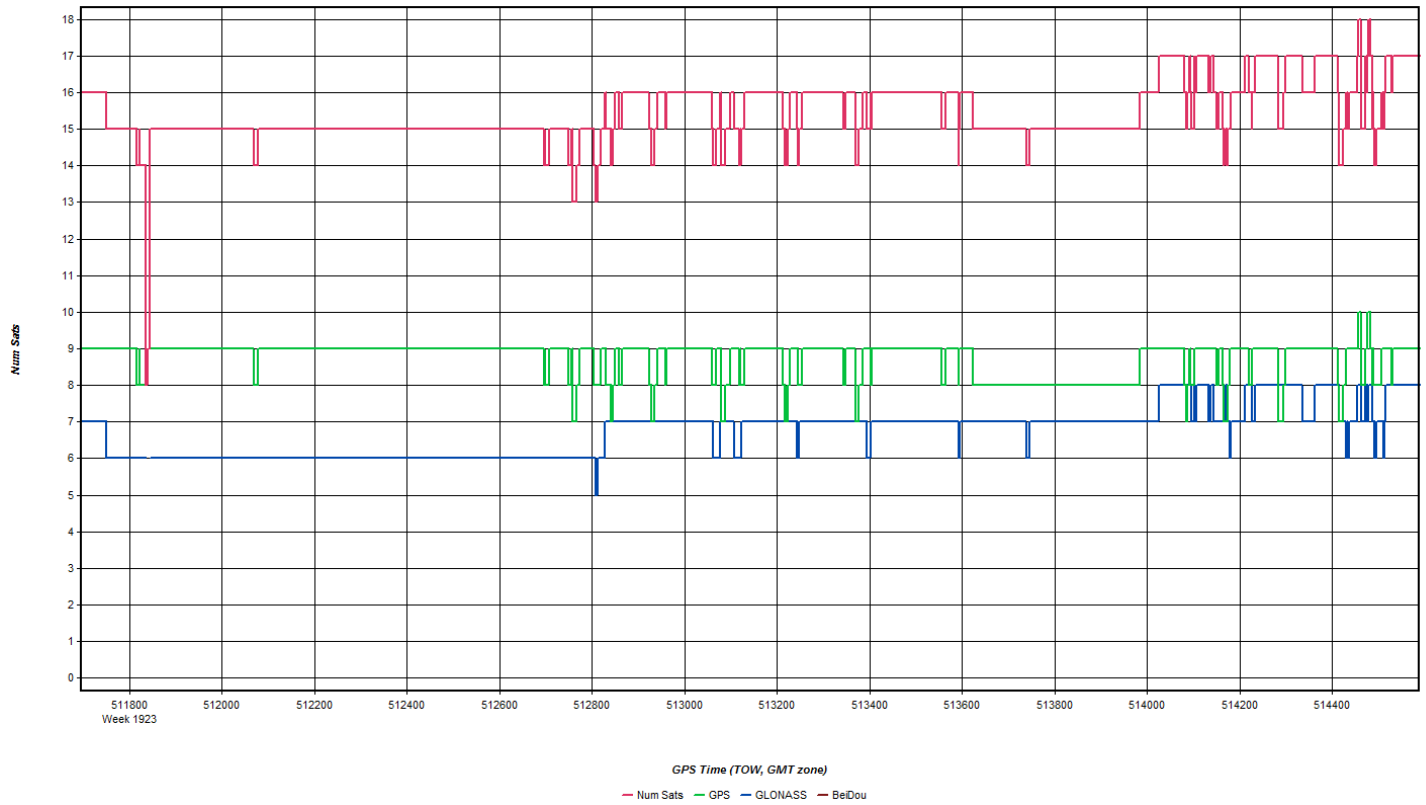
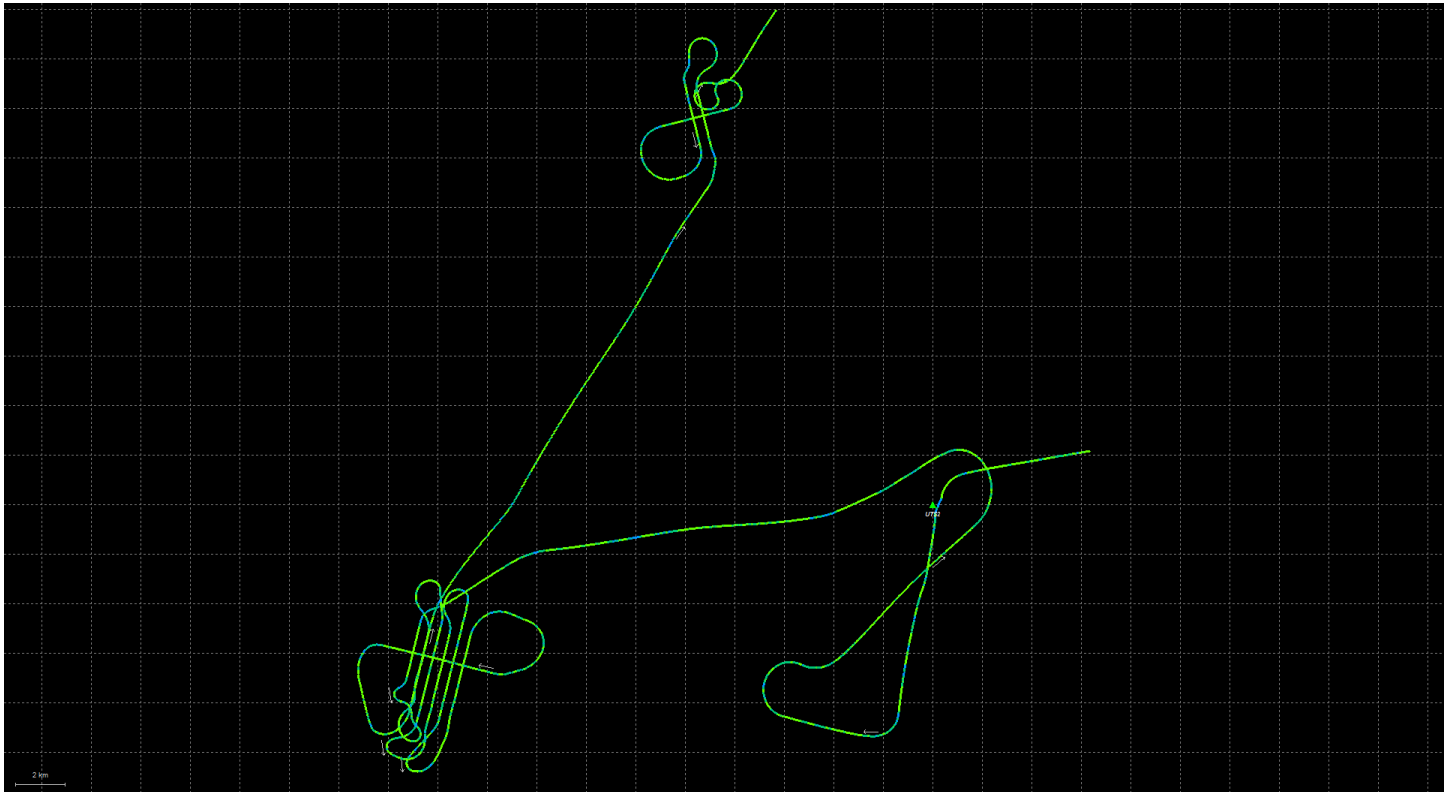
Flt Mgmt File: Utah_GSL_QL2_SN8121_1

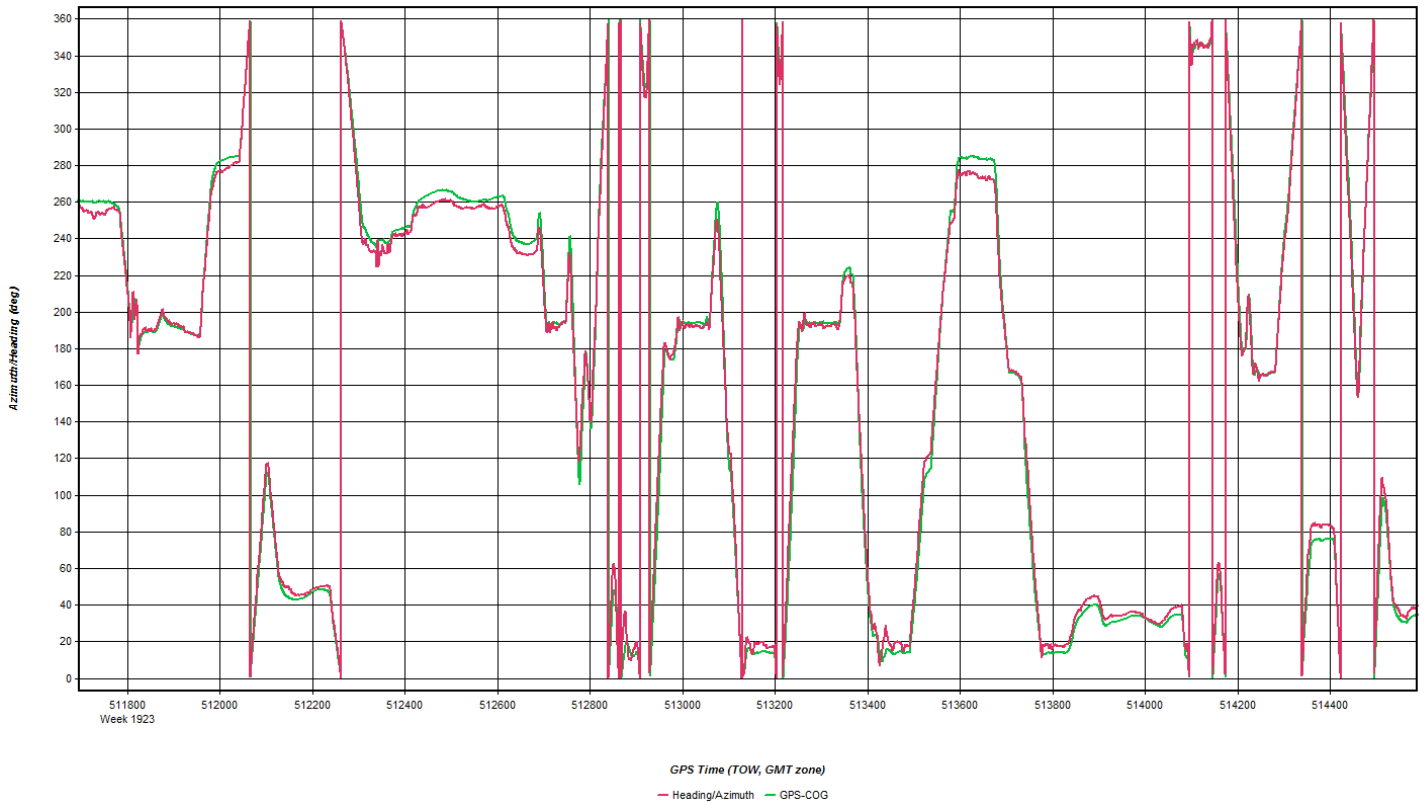
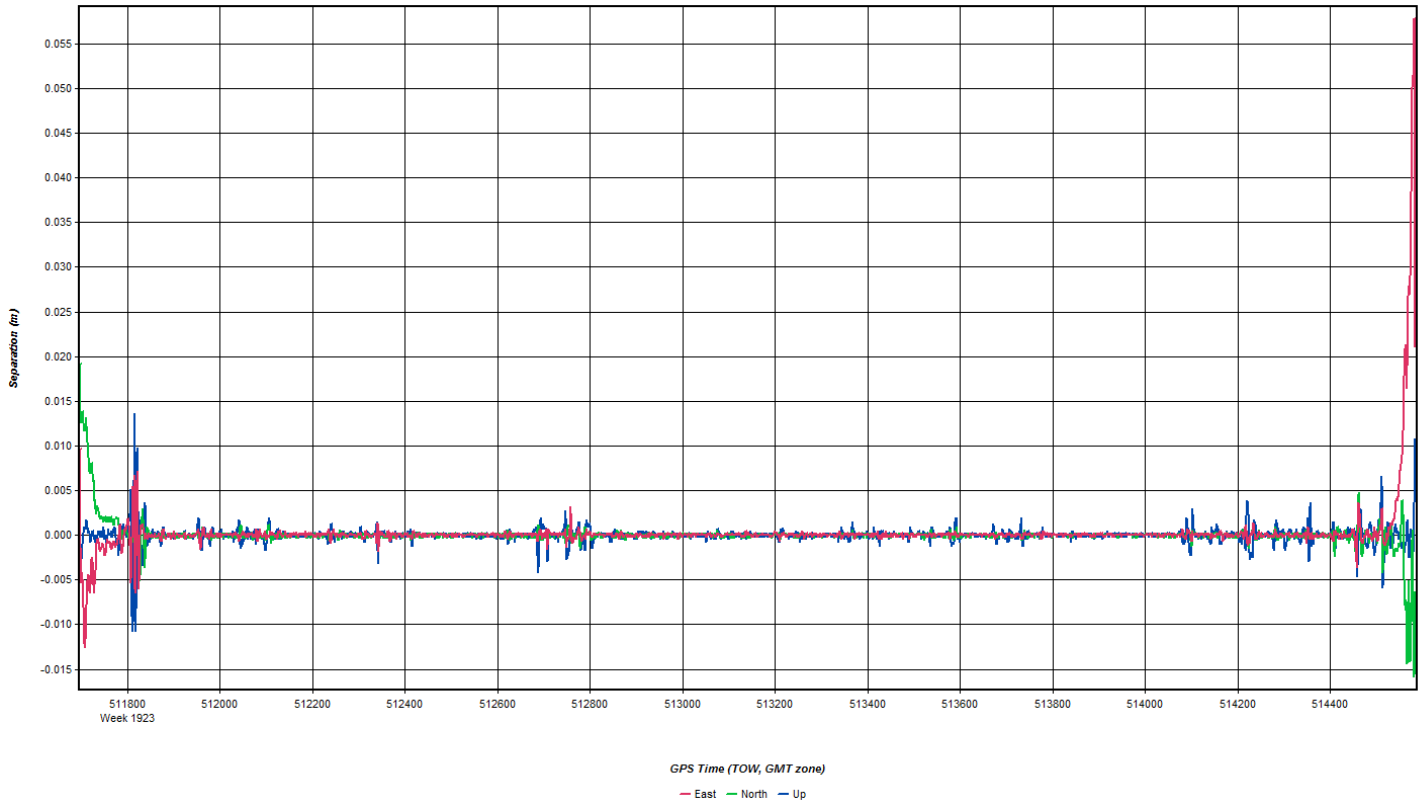
22	3098.401 m	20:48:22	28.14769119	3076.889 m	20:51:59	27.95512480
021	3059.683 m	20:53:39	27.83020695	3044.175 m	20:57:27	27.39271718
020	3036.600 m	20:58:33	27.30342428	3087.439 m	21:03:10	27.01681010
019	3083.258 m	21:04:28	26.90953220	3103.760 m	21:09:09	26.34019187
018	3105.135 m	21:10:22	26.22721736	3050.746 m	21:15:23	25.87089731
017	3117.332 m	21:21:56	25.35183792	3100.604 m	21:32:43	23.92472238
016	3062.595 m	21:33:52	23.80289571	3061.465 m	21:46:07	22.67540129
015	3087.096 m	21:47:21	22.53430947	3108.872 m	21:59:55	20.72263737
014	3091.892 m	22:00:58	20.59669584	3113.539 m	22:13:25	19.22096416
013	3116.034 m	22:14:23	19.09752336	3072.279 m	22:27:17	17.11488297
012	3093.770 m	22:28:16	16.98600731	3132.209 m	22:40:37	15.42388299
011	3141.132 m	22:41:32	15.29624024	3115.608 m	22:53:55	13.29331026
010	3088.826 m	22:54:57	13.14711316	3129.252 m	23:07:17	11.41929195
028	3138.868 m	23:10:42	10.83904679	3111.391 m	23:12:27	10.61902574
029	3112.392 m	23:13:22	10.48021382	3029.434 m	23:15:00	10.16922260
030	3074.045 m	23:15:58	10.02086434	3118.734 m	23:17:42	9.80190636
031	3066.806 m	23:18:43	9.64490196	3030.961 m	23:20:44	9.25746152
032	3050.075 m	23:21:38	9.11943371	3101.628 m	23:23:42	8.85680658
033	3093.489 m	23:24:35	8.72010124	3096.270 m	23:26:37	8.32596094
009	3067.001 m	23:30:13	7.79352083	3093.470 m	23:42:27	5.71985031
008	3095.446 m	23:43:32	5.55376946	3085.870 m	23:55:20	3.70727600
007	3056.005 m	23:56:30	3.52200186	3080.993 m	00:07:31	1.70039987

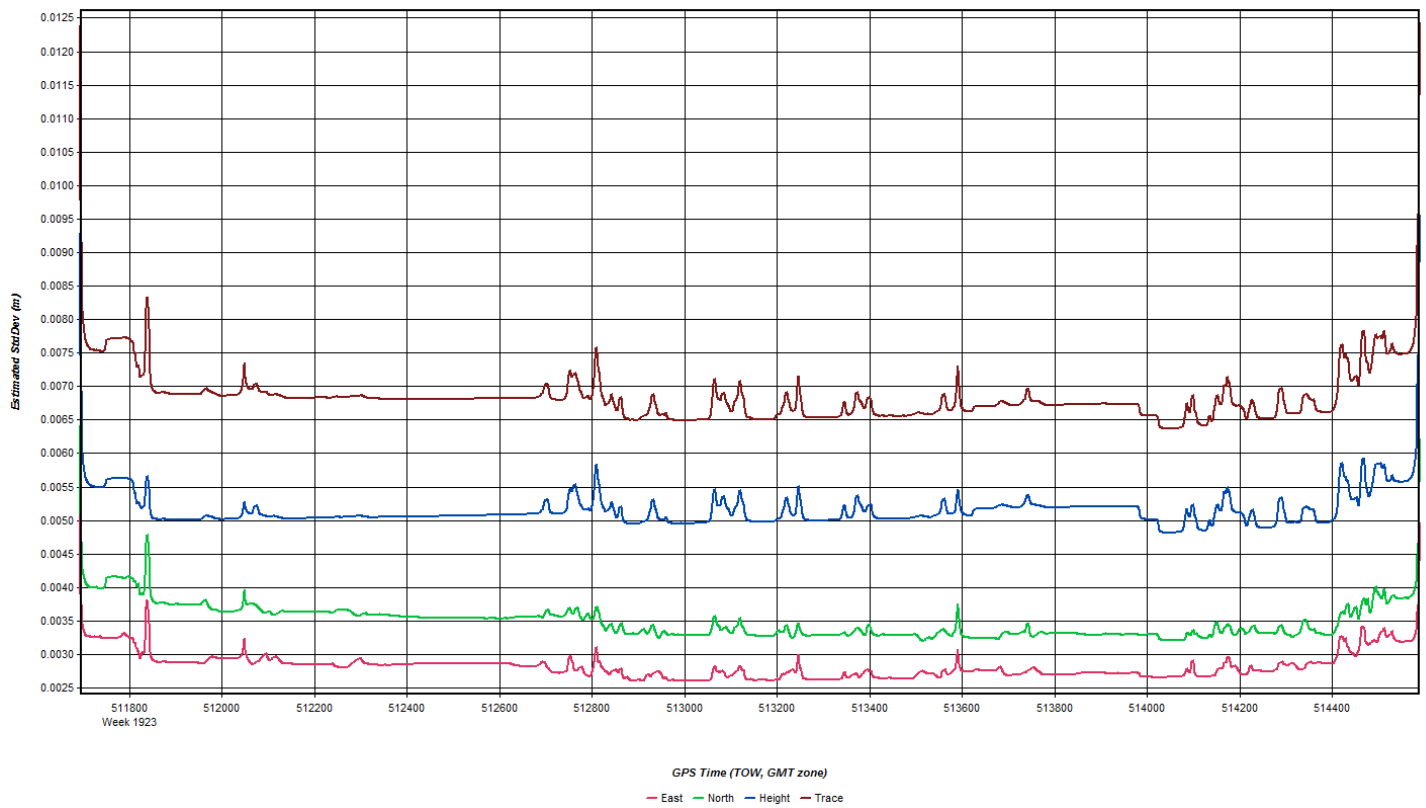
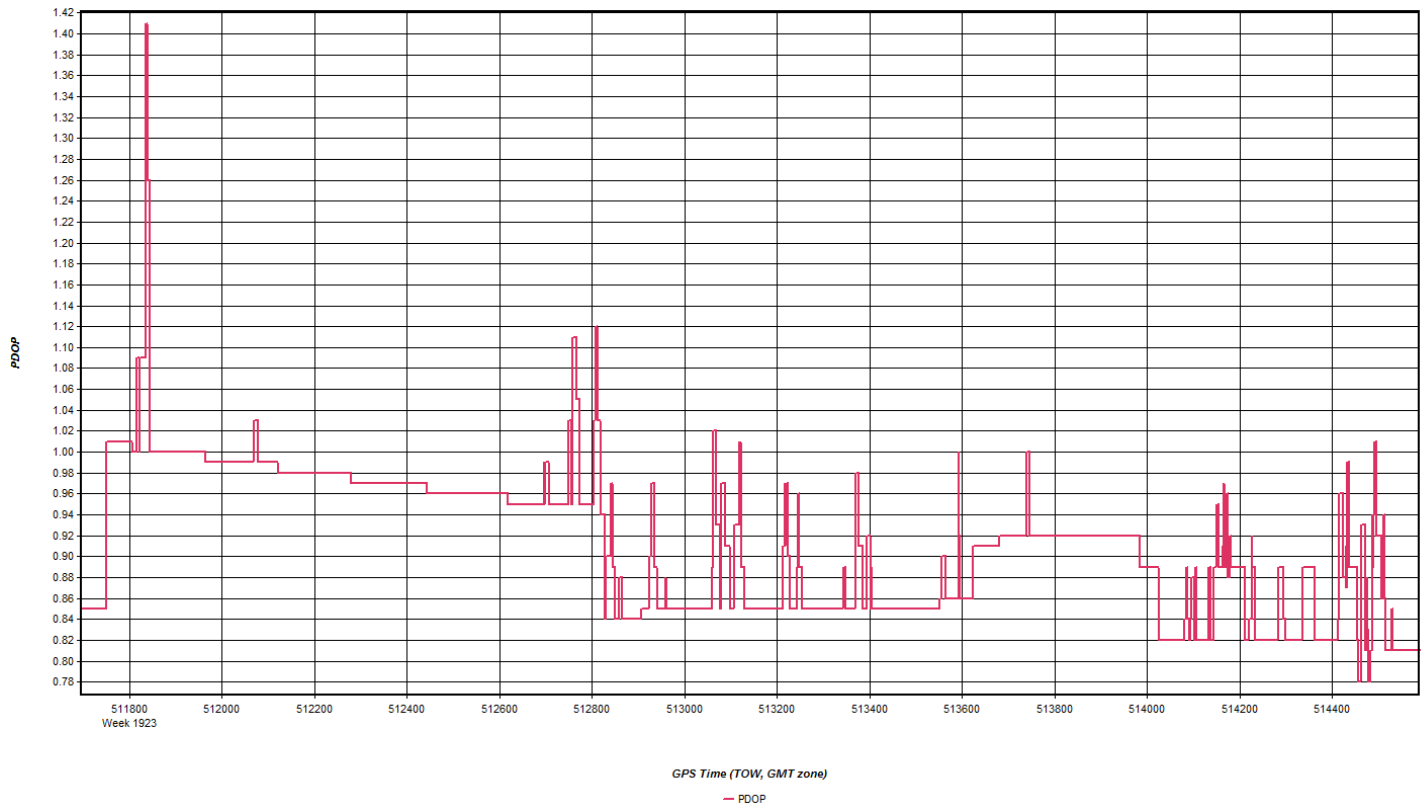
Flt Mgmt File: Unplanned-20161106201125_1

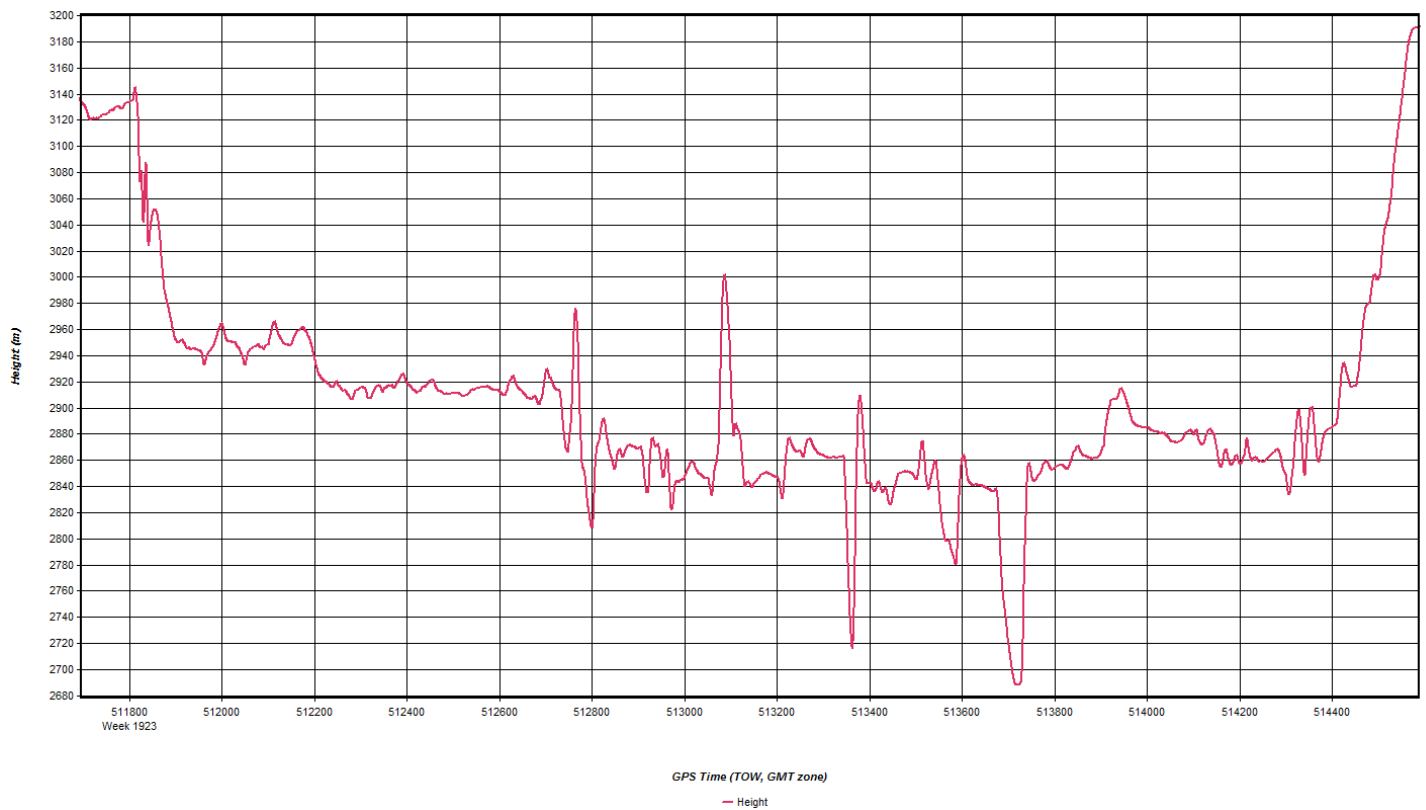
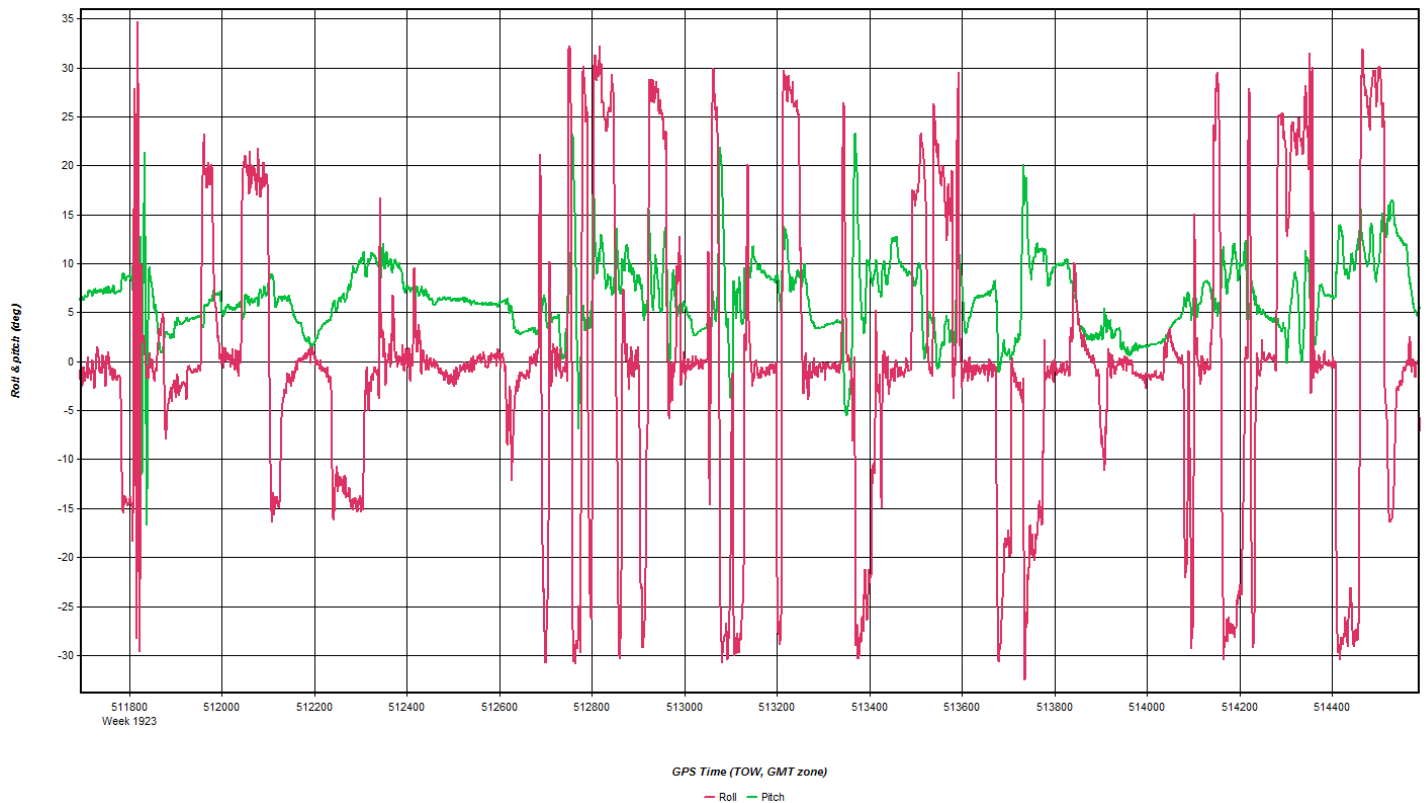
UL001	3143.369 m	20:45:55	28.31834716	3141.798 m	20:46:11	28.29249363
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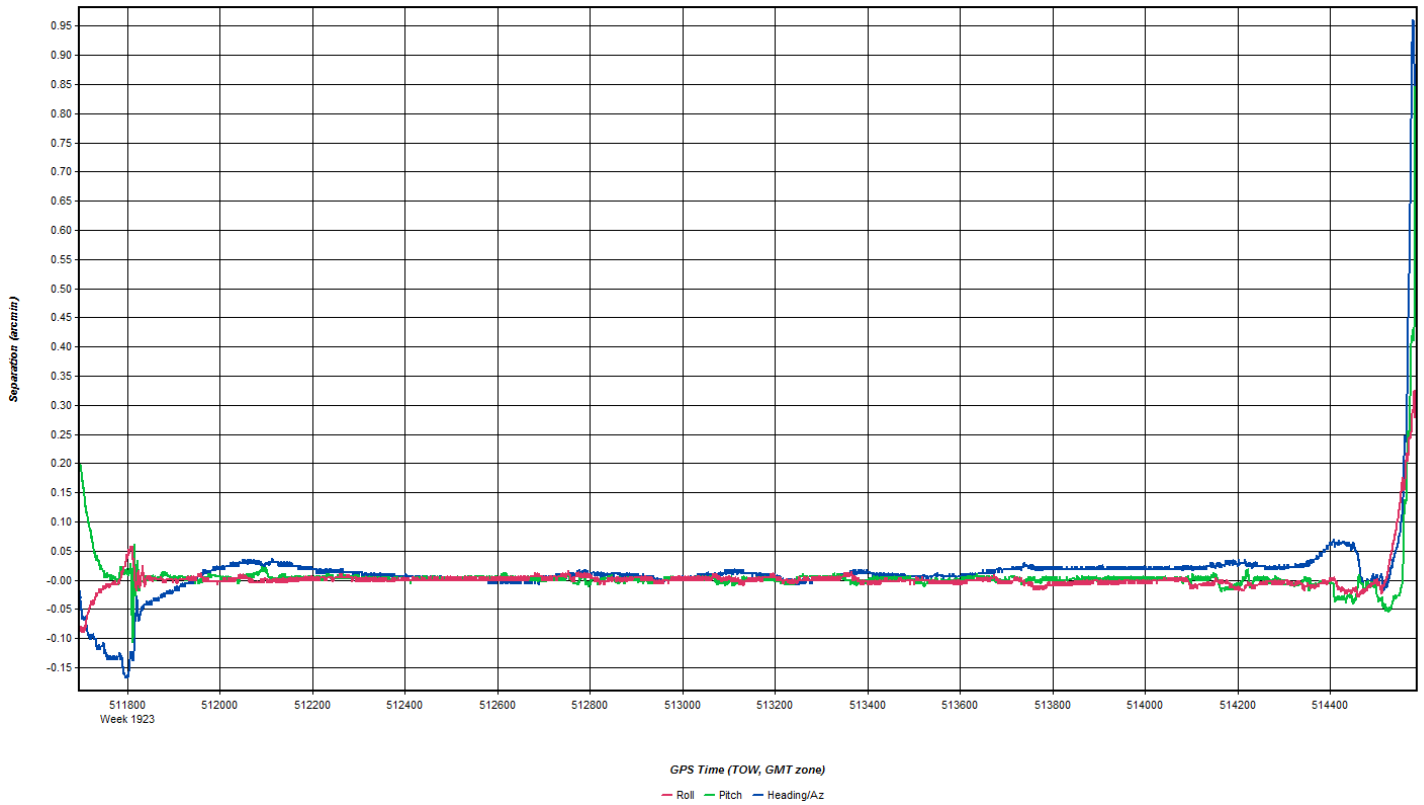
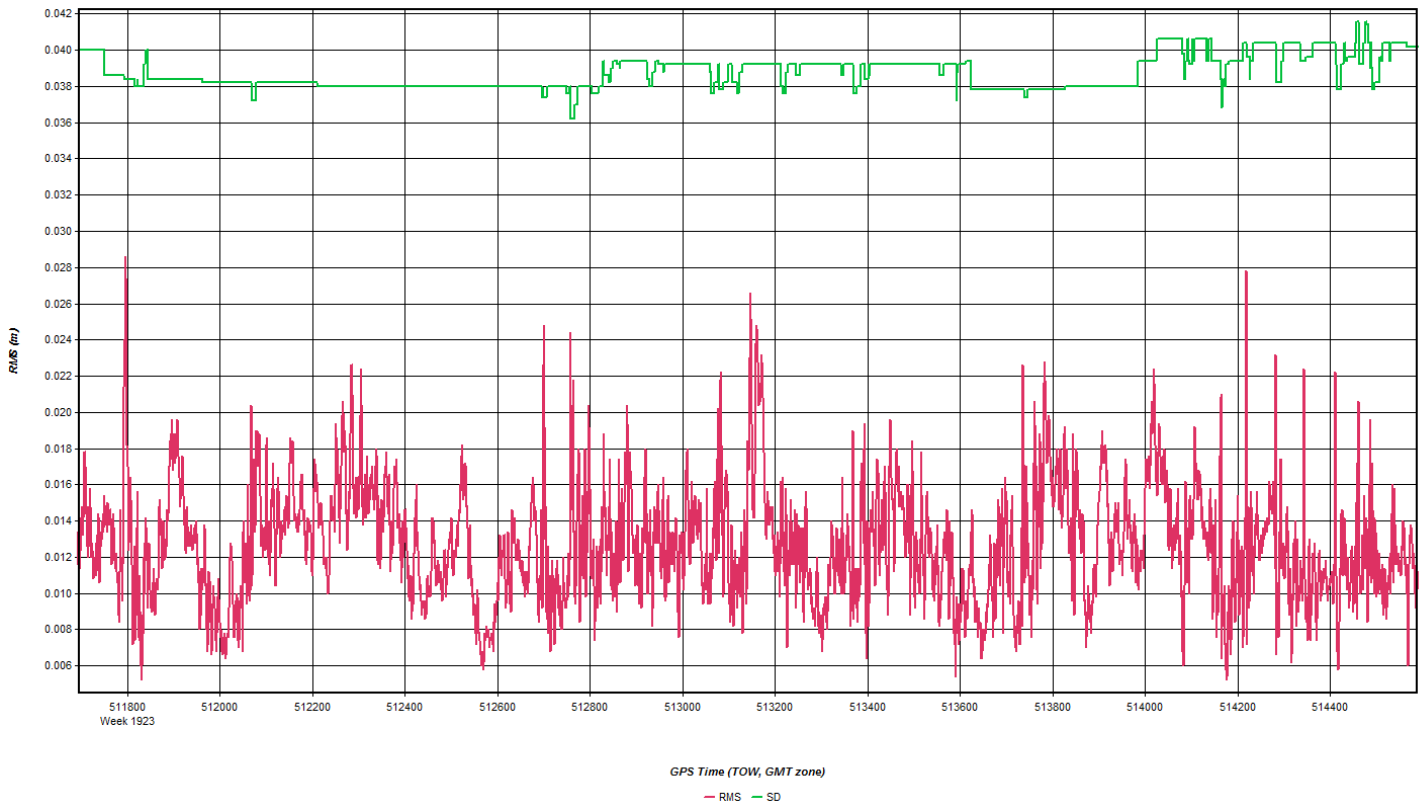
Nov 18, 2016-A (N208NR, SN8146)

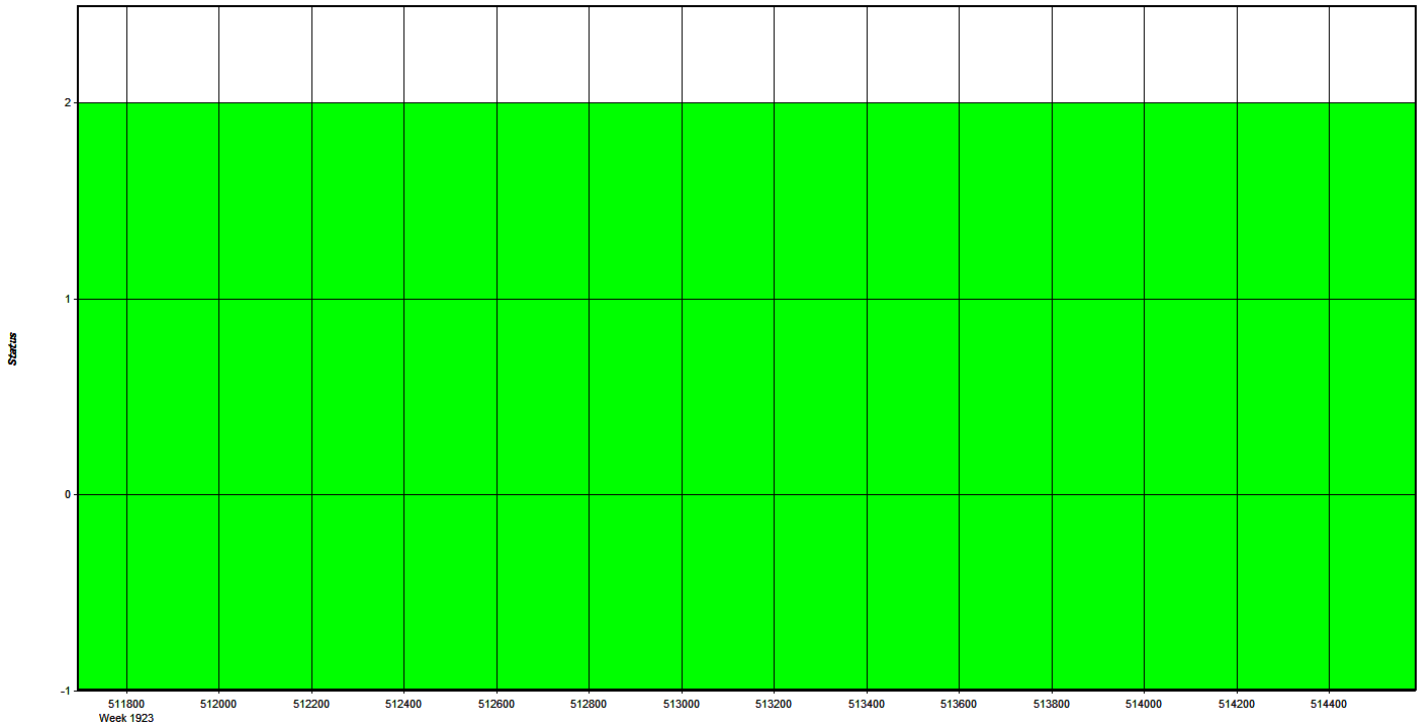












GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTS2 Name: UTS2 Disabled
 File: E:\Proc\From_Lara_Heitmeyer_12-9-16\Survey\2_Static\JD323_L

Coordinates
 Latitude: North 40 08 16.20914 Compute from PPP
 Longitude: West 111 39 05.50594 Enter Grid Values
 Ellipsoidal height: 1371.473 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00, NONE View STA File
 Antenna profile: TRM55971.00 Info
 Measured height: 0.000 m
 ARP to L1 offset: 0.067 m
 Applied height: 0.067 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Date: 11/18/2016	Aircraft: 208NR	Sensor: 8146
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FAGL_Forge_2PiA_8227_8ppsm_1550m_1 Unplanned-20161026140711_1		
Pilot: Tyler Cousins		Sensor Operator: Ian Romansky

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	12:50:00 PM			
Wheels Down	4:20:00 PM			
Begin Hobbs	4405.3			
End Hobbs	4408.8			
On-line Hobbs: 0.4		Mob Hobbs: 2.9		

Notes

We arrived at the airplane this morning right as it was being loaded into the hangar. TacAir Centennial said they'd have it hangar'd by 8:30am and we arrived around 10:30am. We got online in Utah and received GNSS/IMU errors on our sensor (SN8146). I performed a system restart and continued to have issues. I contacted BM and LR, they provided some helpful knowledge, but TC and I figured it all out. The Shoreline Reflies were quick and easy. We finished up and landed in Ogden. TODAY WE USED UTAH TURN CORS STATION "UTS2"

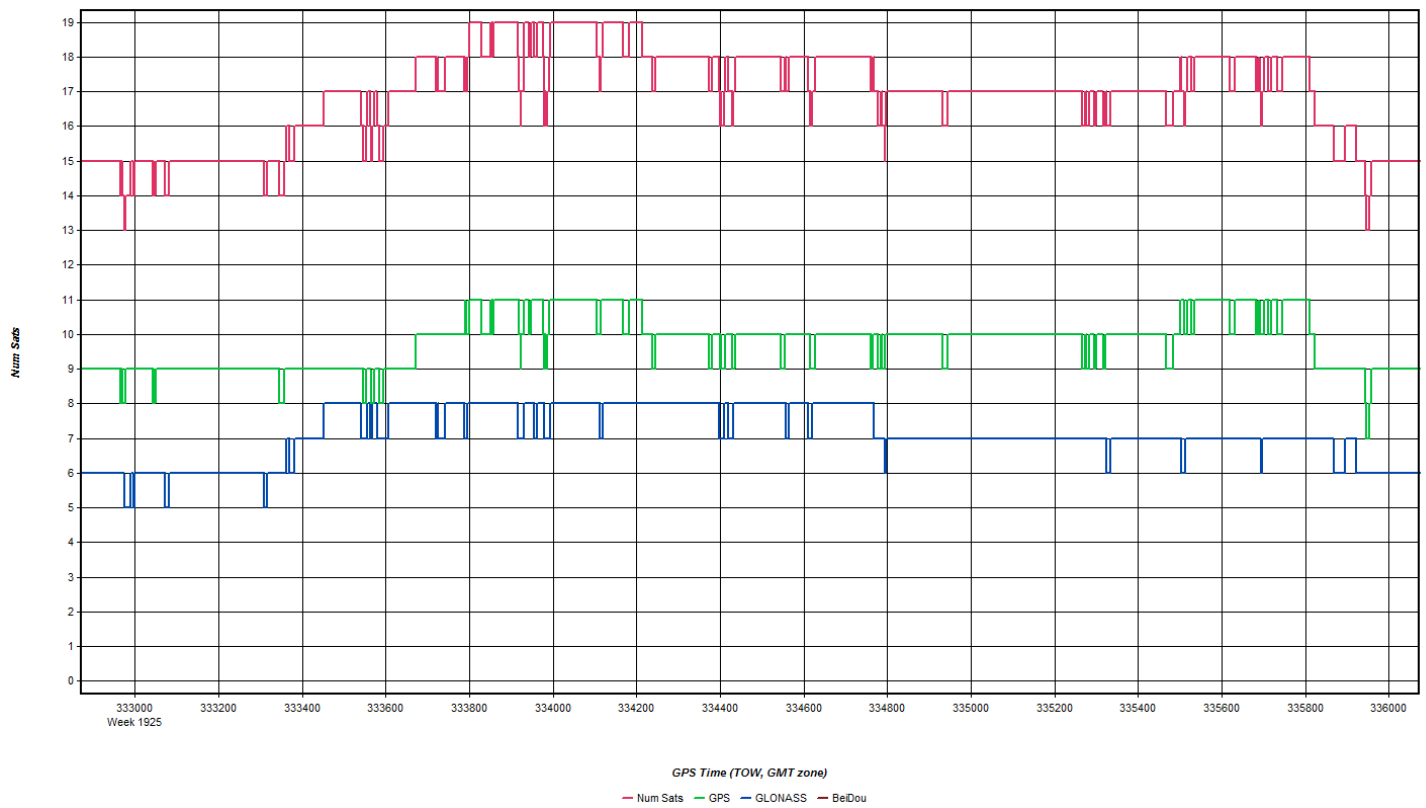
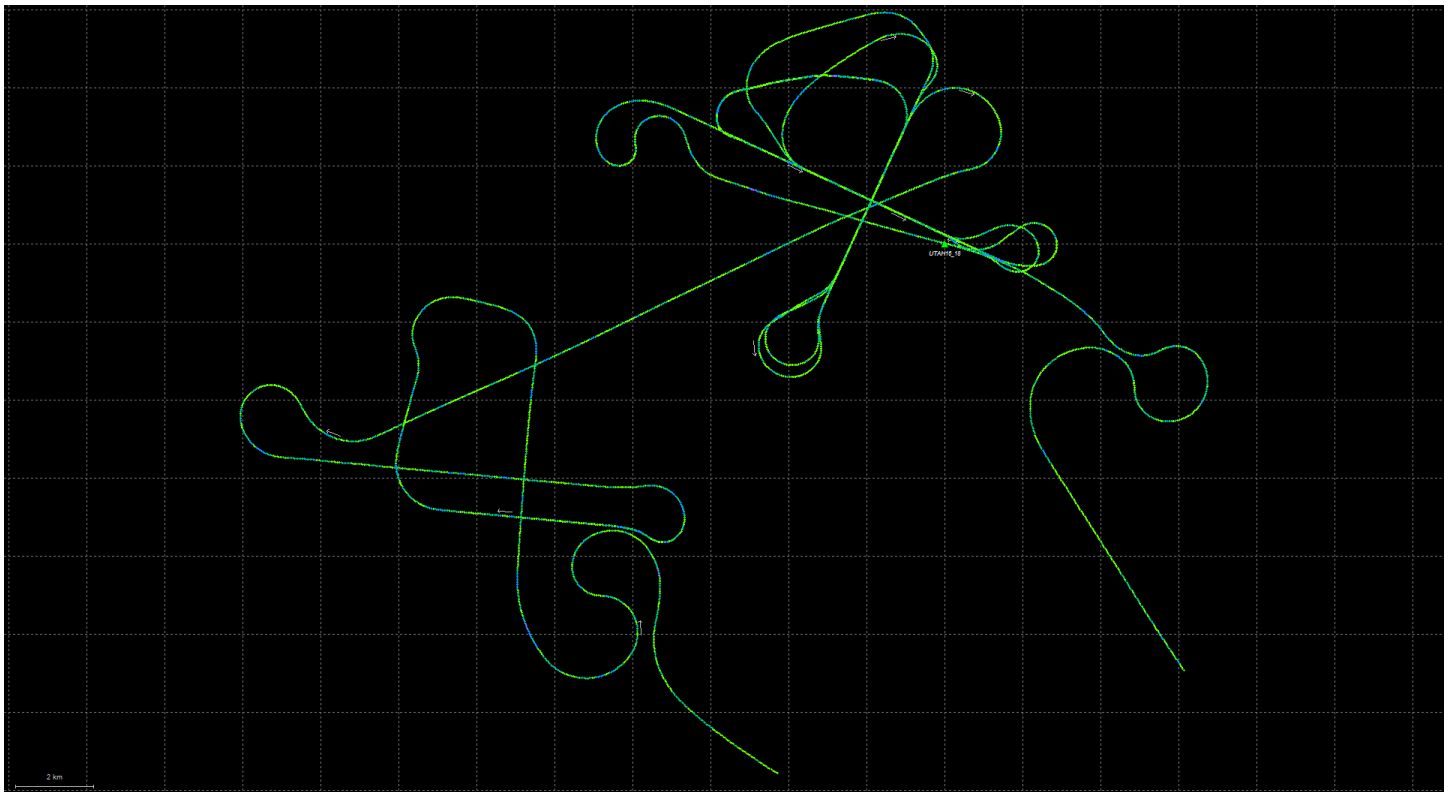
Flt Mgmt File: FAGL_Extra_Shoreline_8146_1

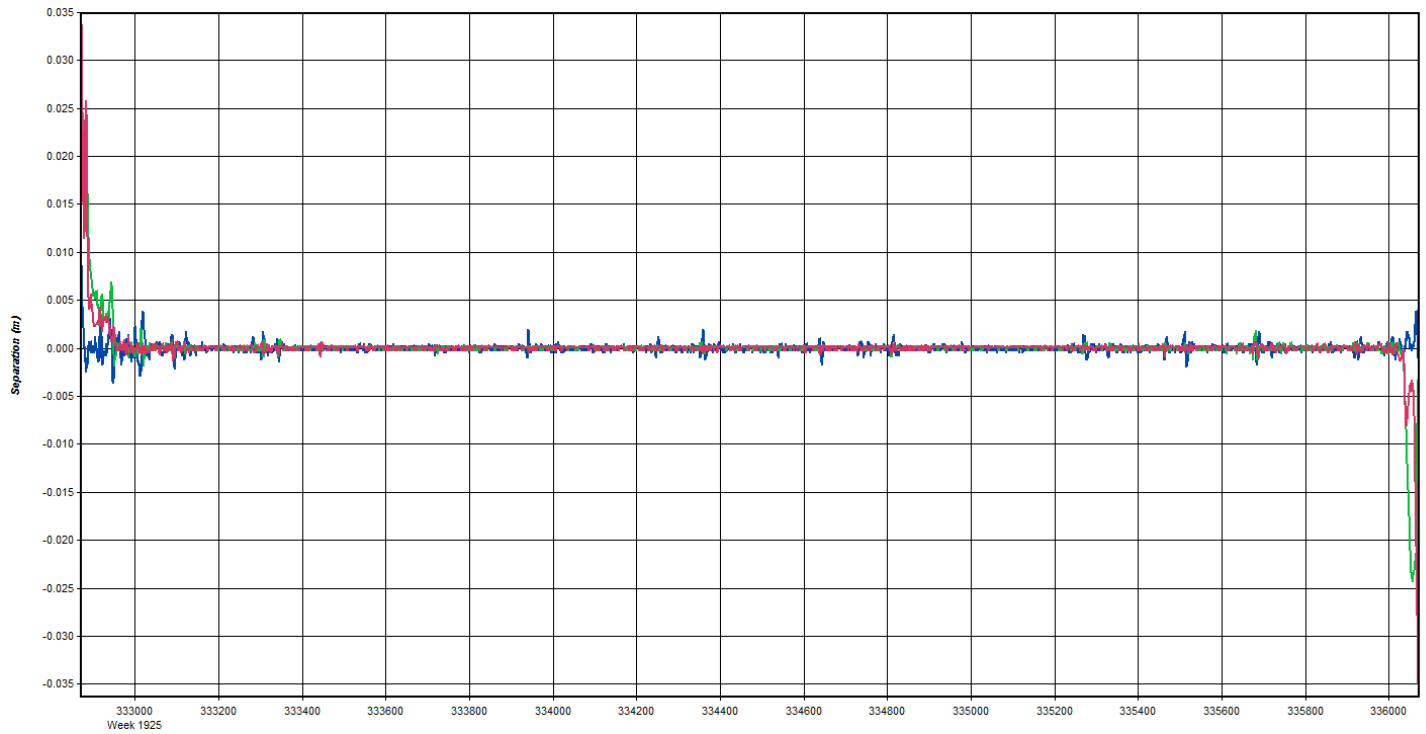
B40	2916.330 m	22:25:02	15.57309299	2874.053 m	22:25:33	15.51476228
B39	2860.444 m	22:27:26	15.25349280	2870.131 m	22:28:06	15.14185628
B38	2850.059 m	22:29:43	14.91248650	2847.978 m	22:30:34	14.81574759
B37	2839.875 m	22:32:05	14.60093640	2846.719 m	22:33:03	14.43691528
B36	2868.350 m	22:34:23	14.24426069	2864.432 m	22:35:26	14.12149104
B35	2835.517 m	22:36:54	13.90830890	2849.173 m	22:37:55	13.73486196
B39	2859.018 m	22:42:48	13.05618329	2853.593 m	22:43:29	12.93840786
B34	2881.136 m	22:48:10	12.05799921	2881.894 m	22:48:41	11.97443923
B33	2858.366 m	22:50:31	11.70614754	2868.821 m	22:51:03	11.63378522
UL002	2863.890 m	22:39:47	13.47012268	2838.980 m	22:40:56	13.32447760

Flt Mgmt File: Unplanned-20161118220426_1

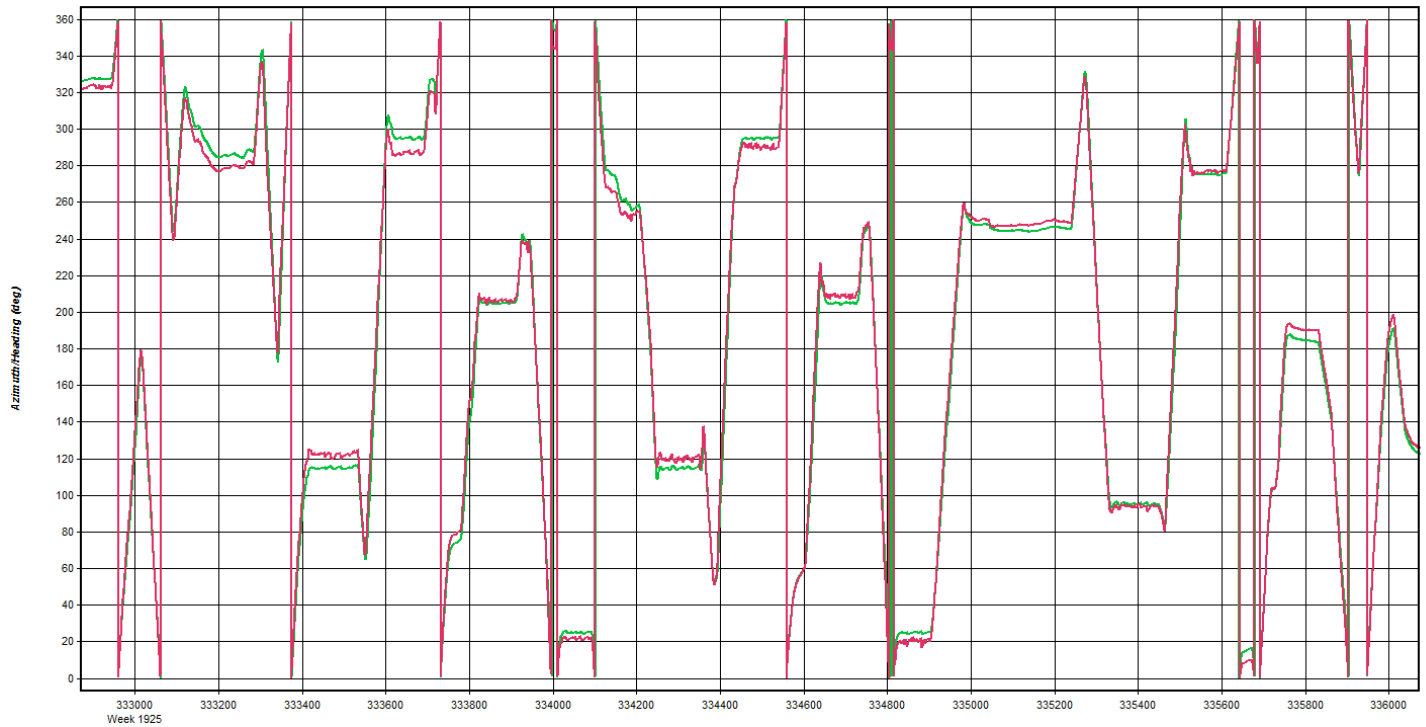
UL002	2863.890 m	22:39:47	13.47012268	2838.980 m	22:40:56	13.32447760
UL003	2865.765 m	22:52:29	11.42382347	2885.999 m	22:53:08	11.30776790

Nov 30, 2016-A (N280NR, SN8146)

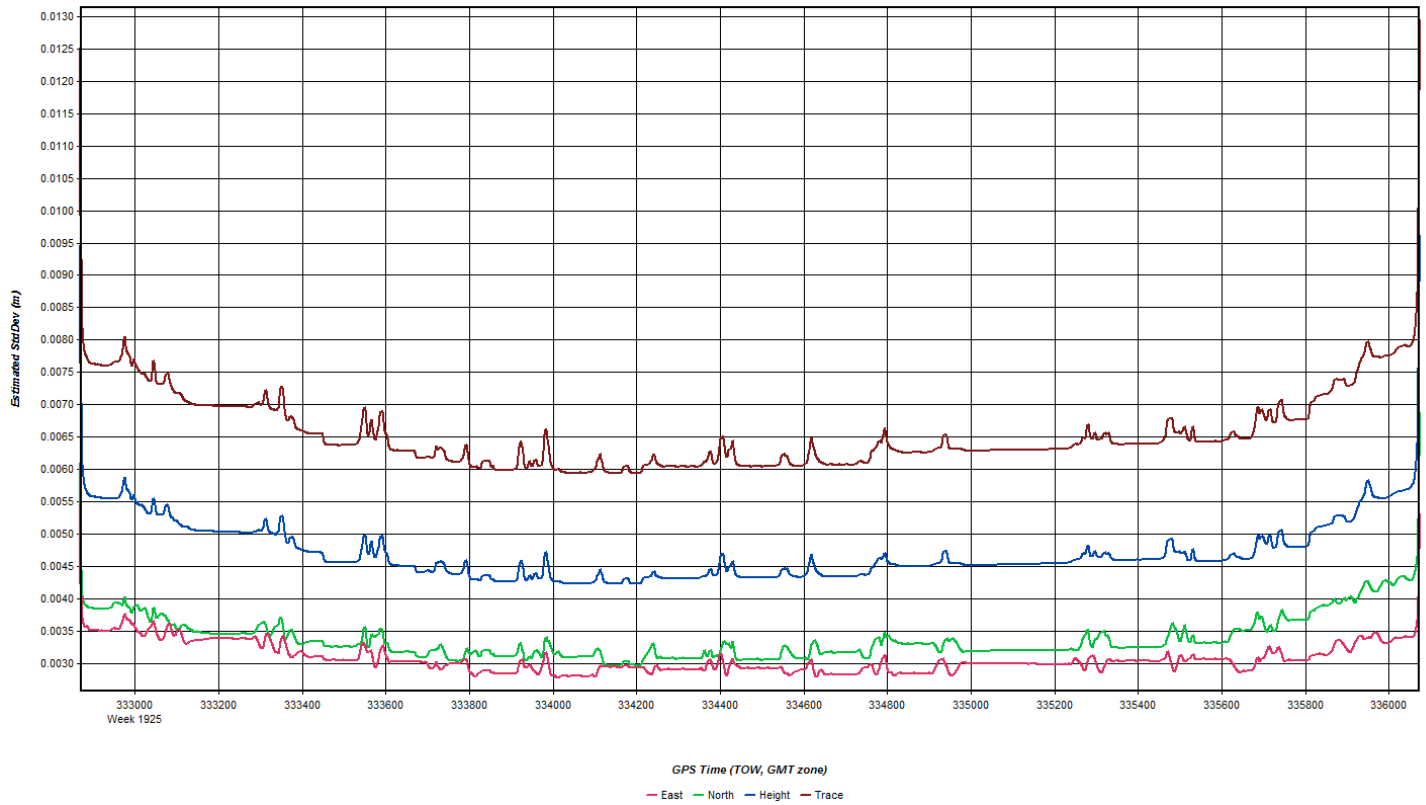
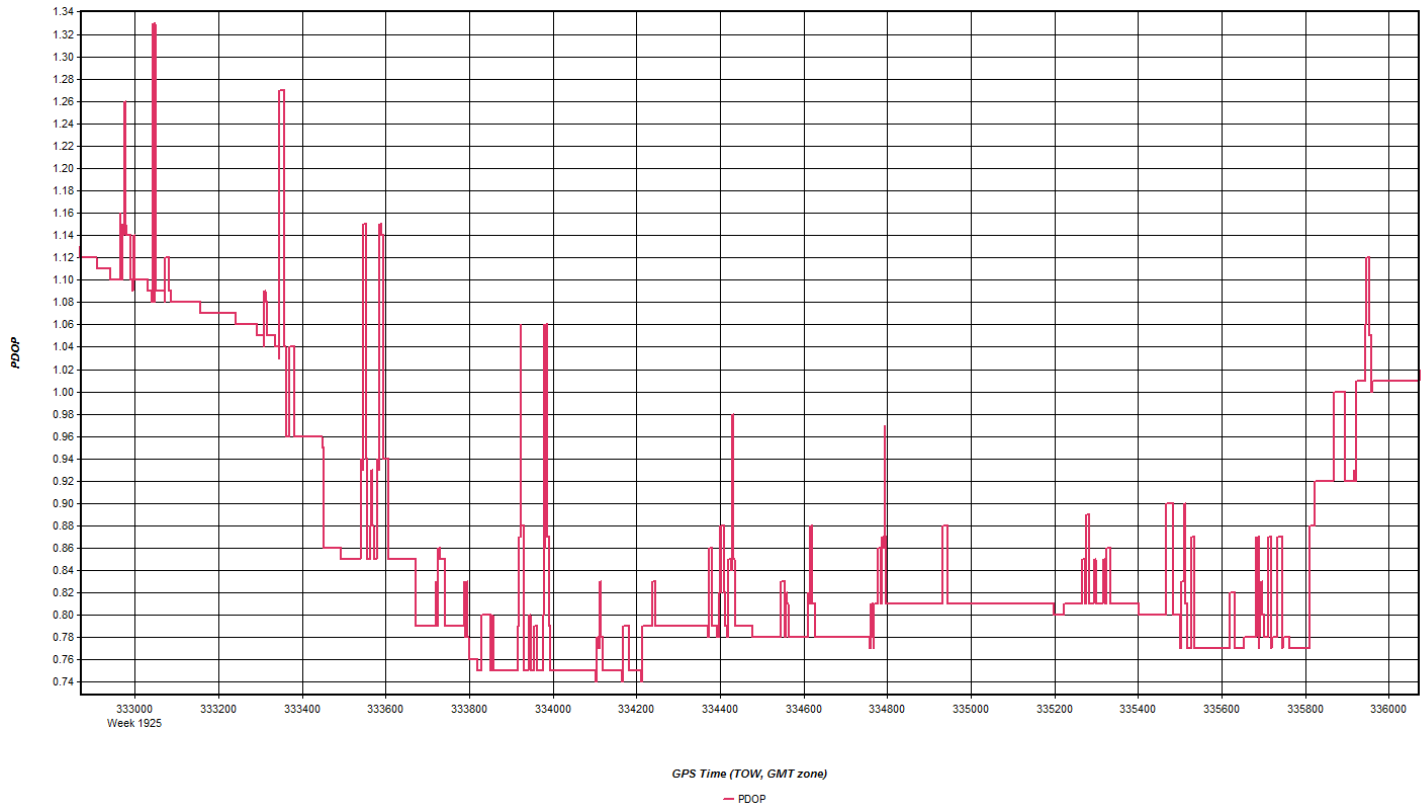


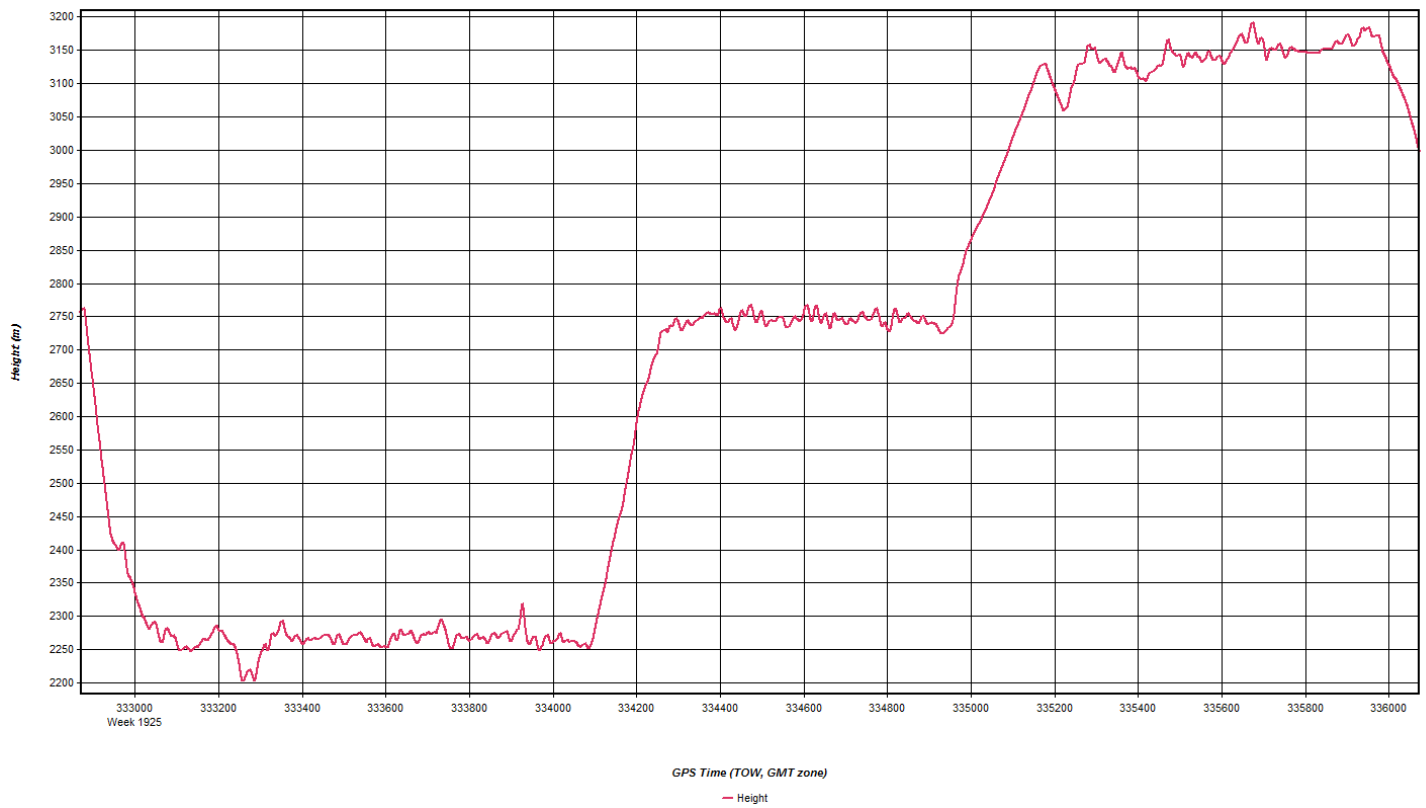
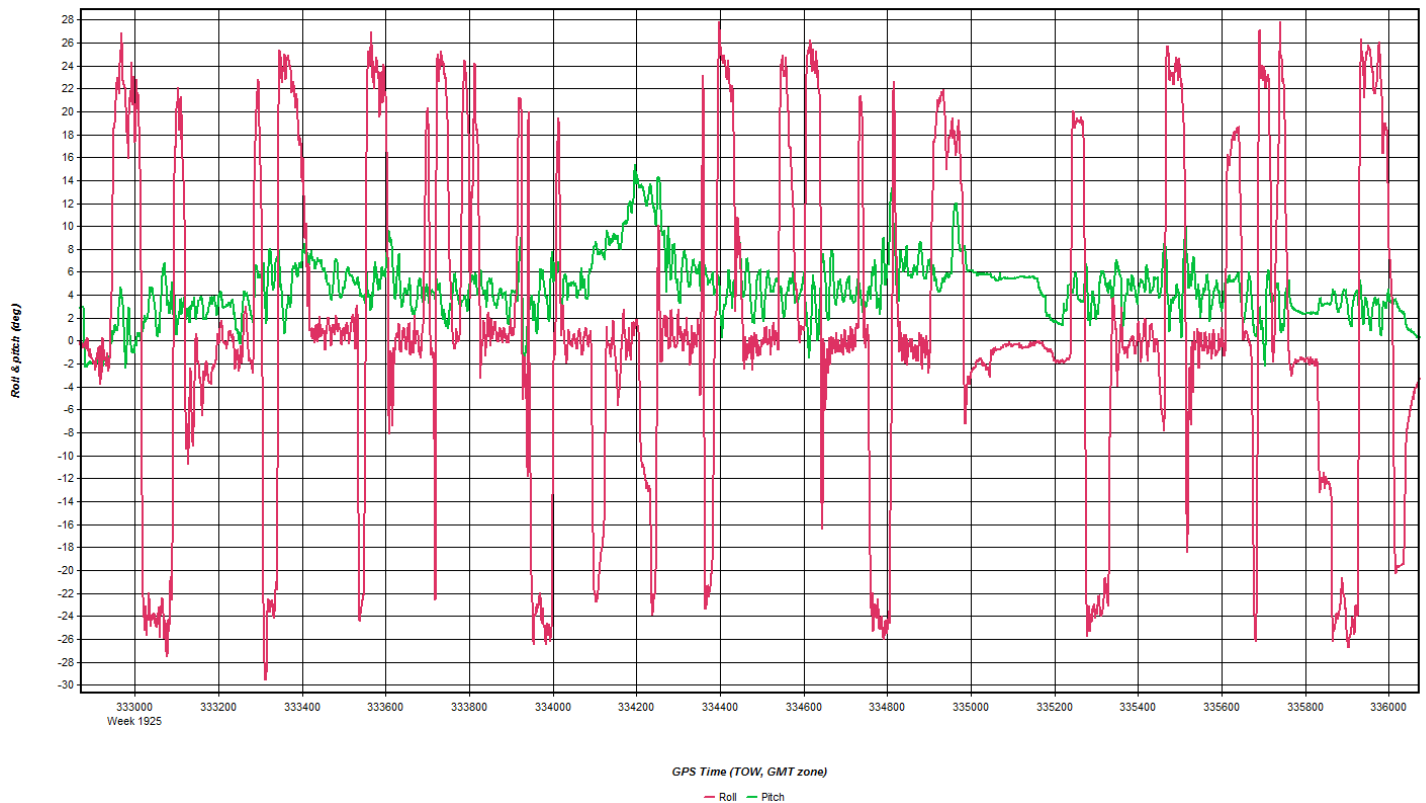


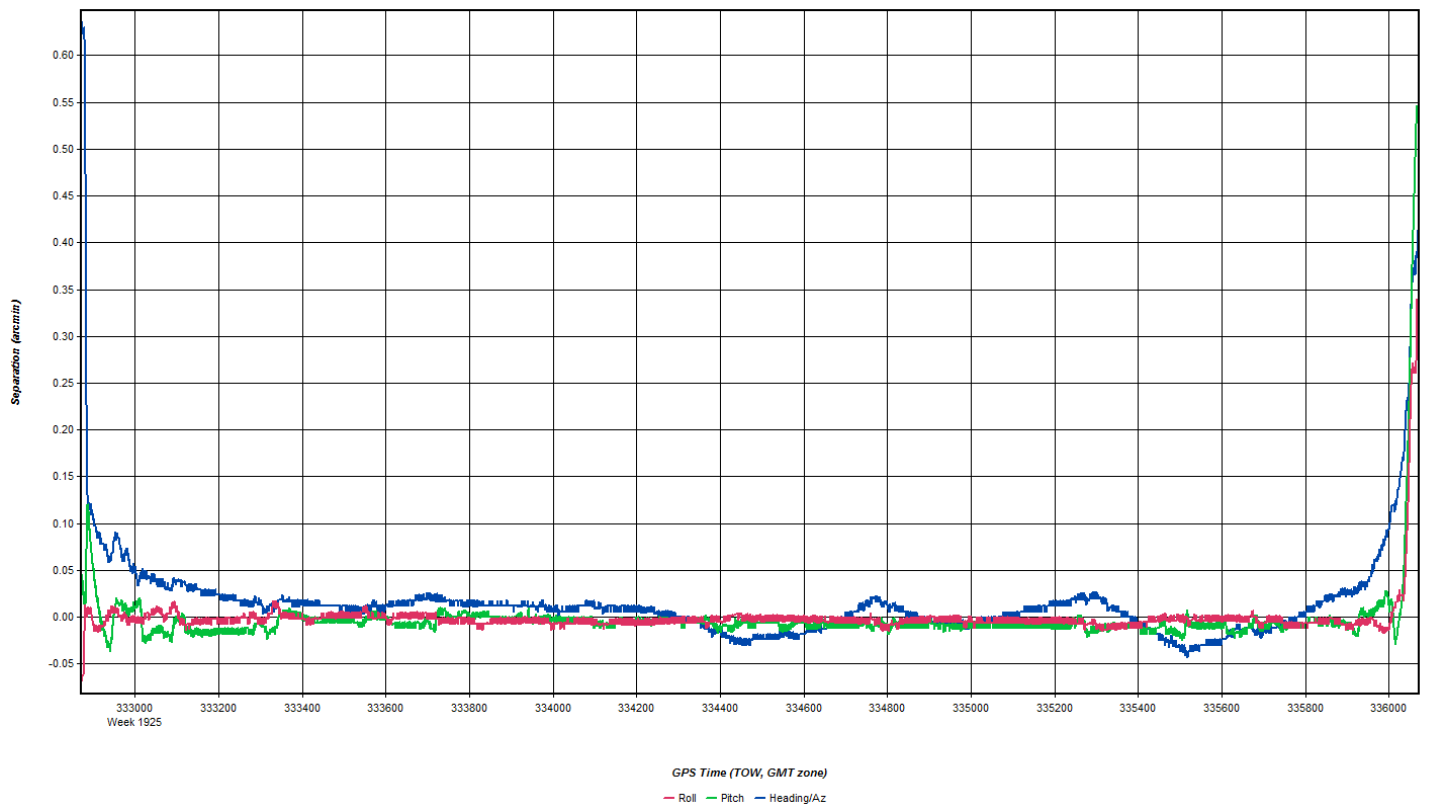
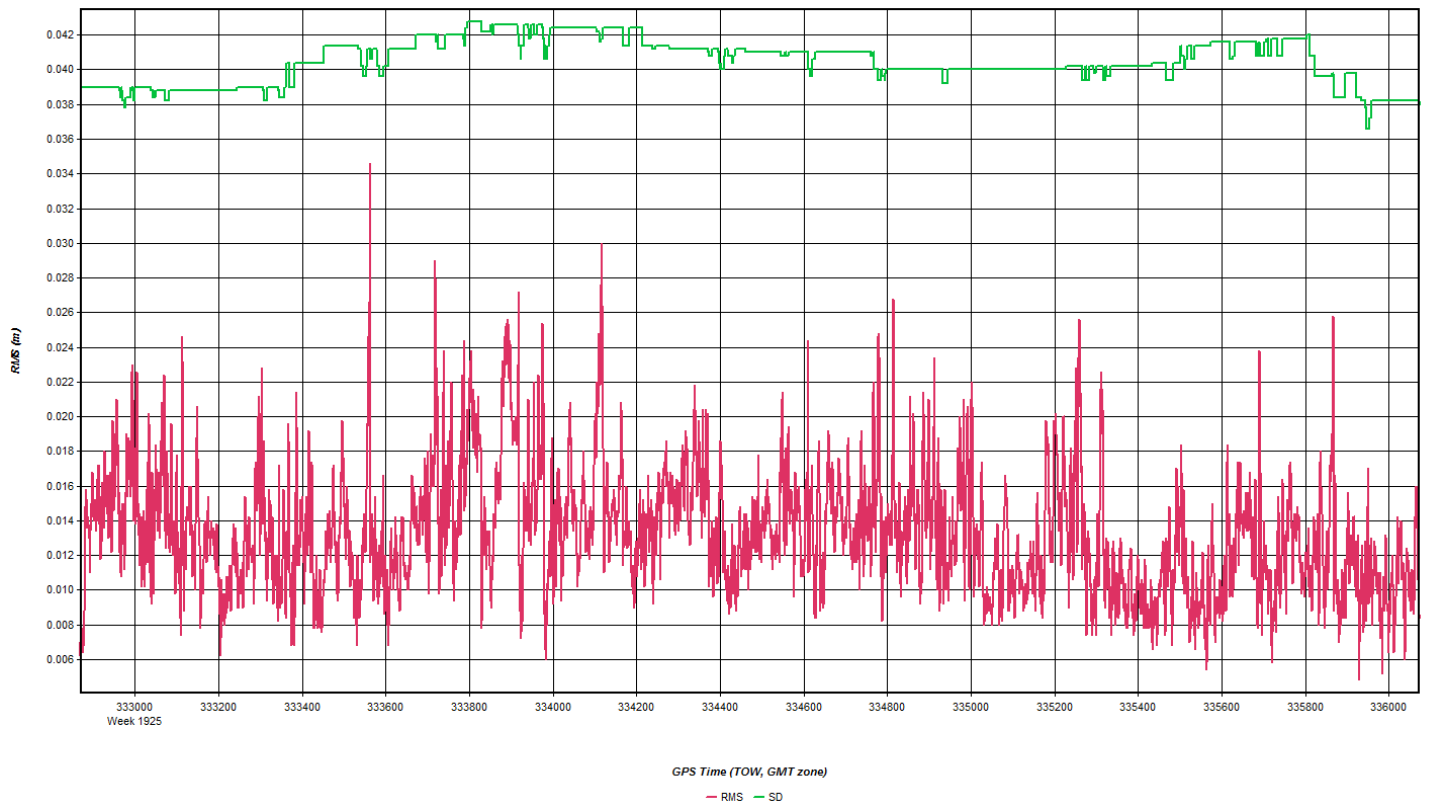
GPS Time (TOW, GMT zone)
— East — North — Up

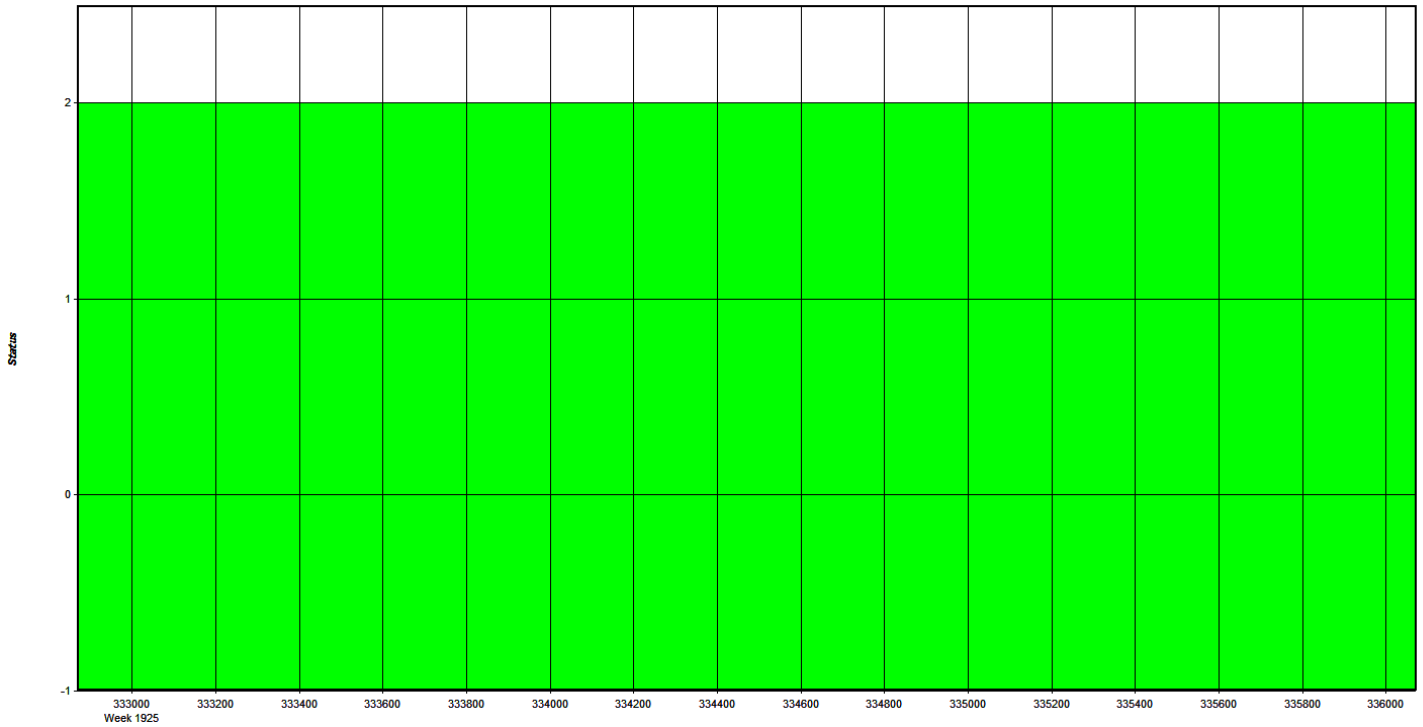


GPS Time (TOW, GMT zone)
— Heading/Azimuth — GPS-COG









GPS Time (TOW, GMT zone)
 - Float - Forward Fixed - Reverse Fixed - Fixed (2 or more)

Coordinate/Antenna Settings

Master Remote

Base Station
 1: UTAH16_18 Name: UTAH16_18 Disabled
 File: E:\Proc\From_Lara_Heitmeyer_12-9-16\Survey\2_Static\JD335_2

Coordinates
 Latitude: North 41 42 03.90037 Compute from PPP
 Longitude: West 112 41 57.05219 Enter Grid Values
 Ellipsoidal height: 1289.380 m Enter MSL Height
 Datum: WGS84 Datum Options
 Select From Favorites Add To Favorites Use Average Position

Antenna Height
 From station file: TRM55971.00 View STA File
 Antenna profile: TRM57971.00 Info
 Measured height: 1.800 m
 ARP to L1 offset: 0.067 m
 Applied height: 1.867 m
 Measured to:
 ARP
 L1 Phase Centre
 Compute From Slant

OK Cancel

Flight Log

Date: 11/30/2016	Aircraft: N208NR	Sensor: 8146
Project: Utah 2016 LiDAR		Project #: R029083
Flight Mgmt File: FMSL_GSL_Shoreline_QL2_8146_1 Unplanned-20161130210204_1		
Pilot: Brian Butler		Sensor Operator: Drew Johnston

	Flight 1	Flight 2	Flight 3	Flight 4
Wheels Up	1:11:00 PM			
Wheels Down	2:36:00 PM			
Begin Hobbs	4440.5			
End Hobbs	4441.9			
On-line Hobbs: 0.5		Mob Hobbs: 0.9		

Notes

CORS P121. We waited several hours for clouds to open up, but we got a shot and acquired the lines with no serious hiccups. The OC60 display did turn upside down with 3 lines left. We continued as advised by Brett, and on the way to KOGD I shut it down and noticed the System cable was loose. I pushed it in, restarted to make sure, and it was fixed.

Flt Mgmt File: FMSL_GSL_Shoreline_QL2_8146_1

01	3123.668 m	21:09:31	21.73476018	3128.278 m	21:10:31	21.63500980
02	3141.613 m	21:12:05	21.50744446	3136.686 m	21:13:14	21.42035137

Flt Mgmt File: Unplanned-20161130210204_1

UL001	3149.432 m	21:16:04	21.14241221	3146.698 m	21:16:51	21.09973236
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