

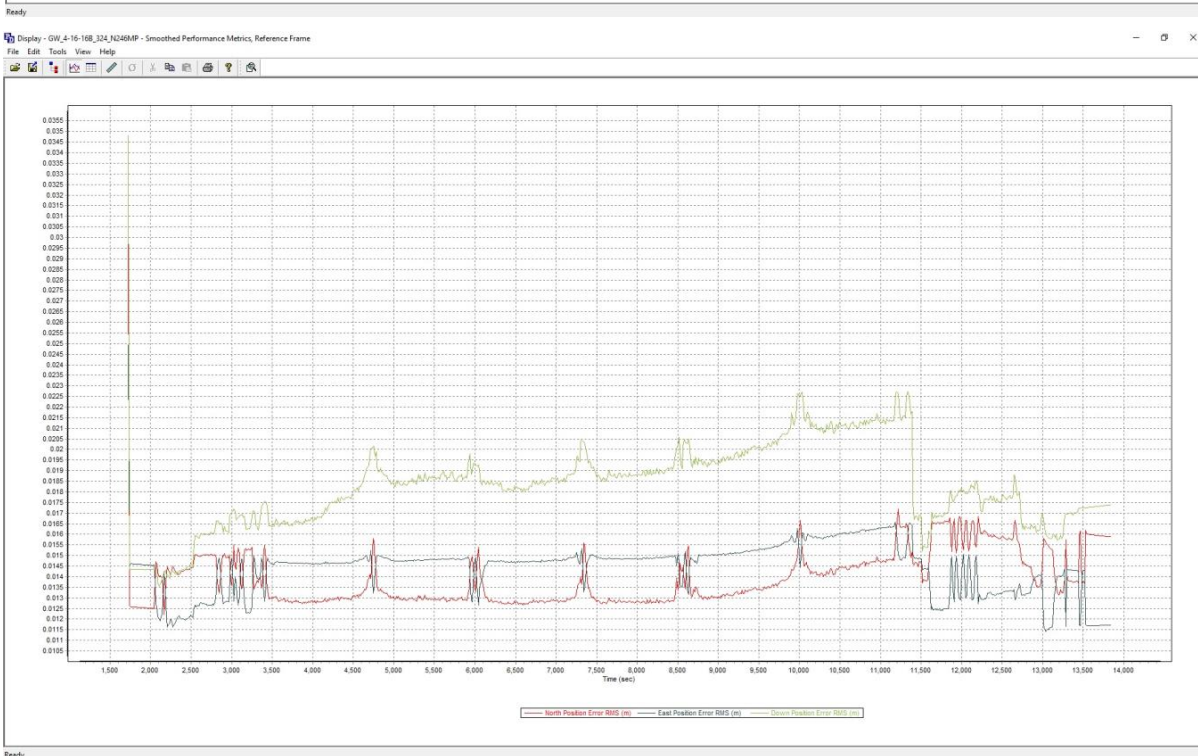
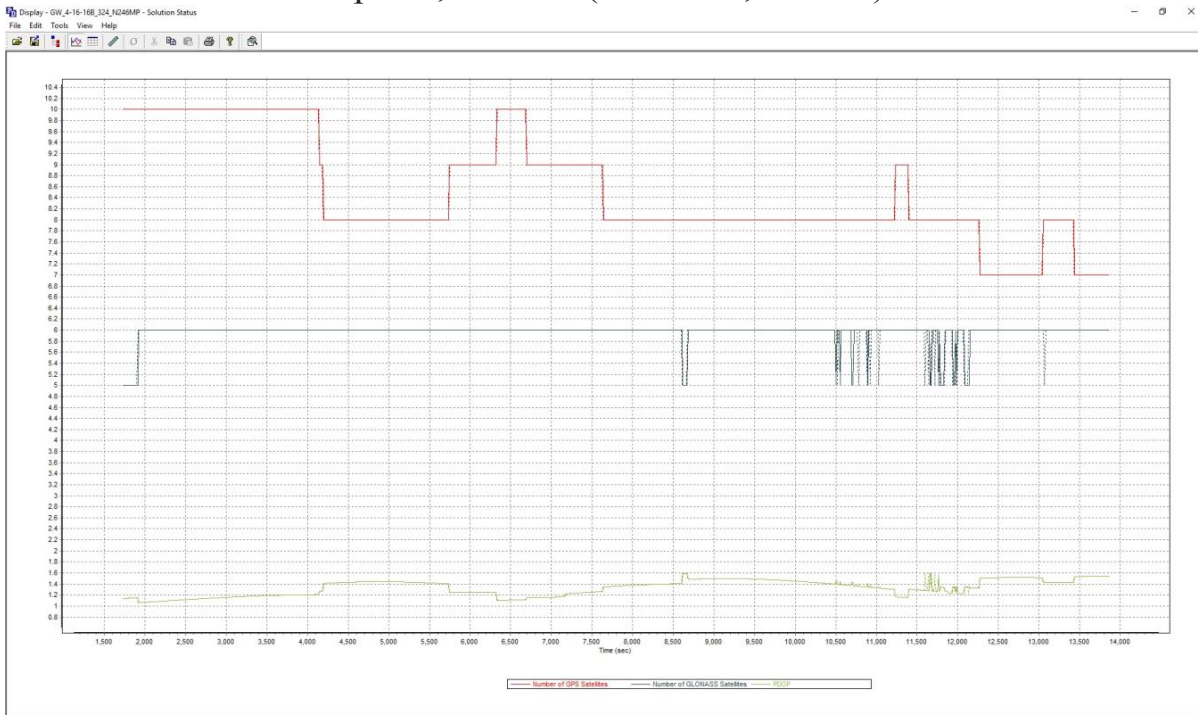
Appendix A:

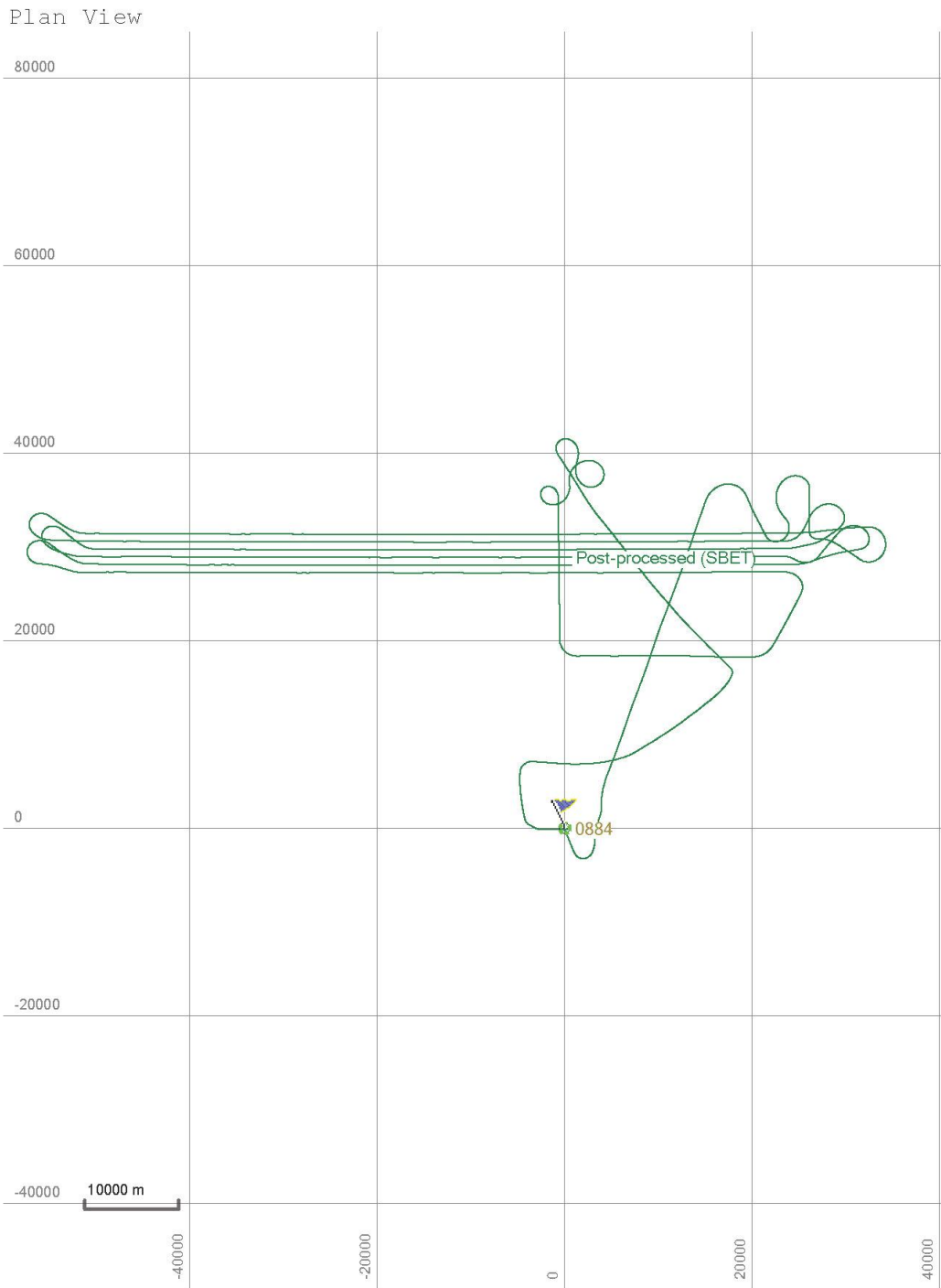
GPS/IMU Statistics, Flight Logs, and Base Station Logs

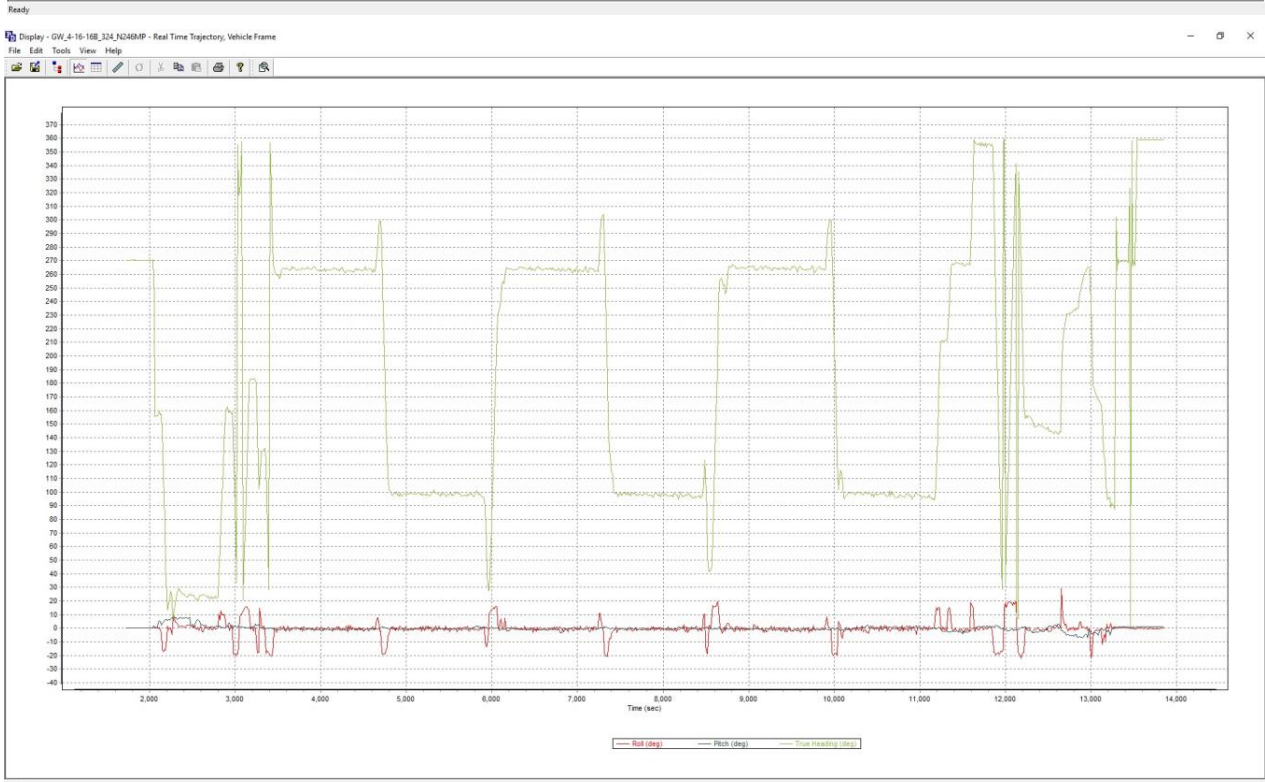
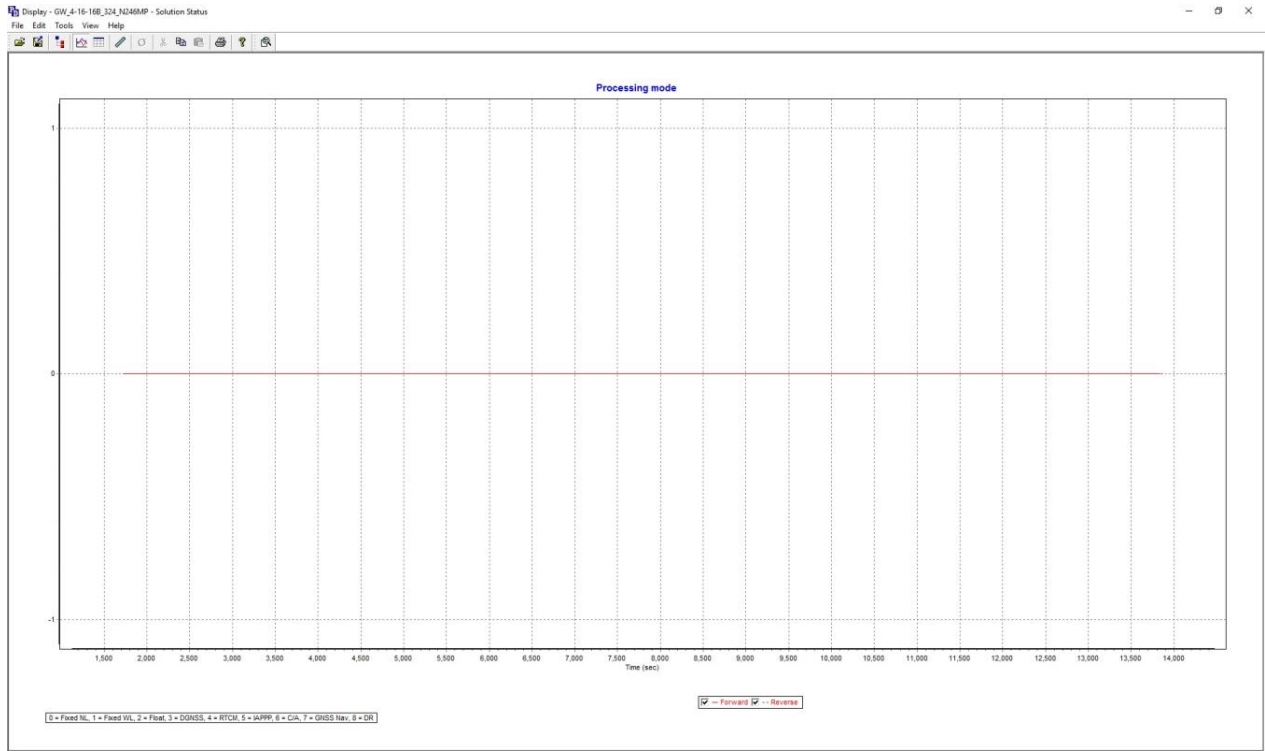
There were five total lifts. Graph reports generated from processing software, flight logs, and base station logs are found on the following pages.

Apr 14, 2016-B (N246MP, SN324)	2
Apr 15, 2016-A (N246MP, SN324)	7
Apr 15, 2016-B (N246MP, SN324)	12
Apr 16, 2016-A (N246MP, SN324)	18
Apr 16, 2016-B (N246MP, SN324)	23

Apr 14, 2016-B (N246MP, SN324)







Coordinate Manager

Station Information

Station ID:

Coordinates

Latitude:

Longitude:

Altitude: m

Decimal Degrees

Antenna Reference Point (ARP) coordinates Apply Changes

Antenna **Frame**

Height:

Method:

Manufacturer:

Type:

Offset from Measured Point to APC:

Station Database

Station ID: Station Fullname:

Primary Service ID: Edit Coordinate Accuracy:

Secondary Service ID: Edit Add Delete Update

Station ID	Station Full...	Frame	Epoch	Ellipsoid	Latitude	Longitude	Altitude	Coord Acc

Import Coordinates Export Coordinates Close

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

(email log daily to flight_log_distribution_list@quantumspatial.com)

Date: 4/14/2016
Lift: A B C D E Pg 2 of 2

Project: WROC = AYRES_3DEP
Flight Mgmt File: 2016-114B / AYRES_3DEP - Taylor County

Aircraft: 246MP Begin Hobbs: 977.1 End Hobbs: 973.1 Total: 6.0 Pilot: Gary McDaniel Co-Pilot: Tech:

Dep Apt: KSTE Dep Time (Lcl): 20:47Z Arr Apt: KSTE Arr Time (Local): 9:47Z 02:47 Tot Time Aloft: 6.0 hrs

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

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

Gd Temp beg:	Type	Serial#	Alt AGL	Alt AMSL	Alt in Air	Pulse In Air	Pulse Rate	Power	Max Gdspd	Avg Ft Spacing	PPSM	Mag CB	End CB	Tot CB	Storage Name#
	FOV	19/38	52	MPIA 71N	3	3	225		140	2-19	267				

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/skts	GPS Altitude	Crab	Turb (0...)
12	W	01:17	01:33	124	119/17	200m	51.0	
11	E	01:37	01:51	134	119/16	205m	73.0	
10	W	01:55	02:10	134	112/17	285m	35.0	
XDE	N	02:17	02:19	128	131/15	207m	43.0	
		02:19	02:24					
		02:26	02:31	150				

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

Proceeding to STLØ Cols for Taylor County

Flyover of STLØ Fig 8

TEST fire → 2100 GPS alt

Taylor County AOI X

CROSS TIE ↓

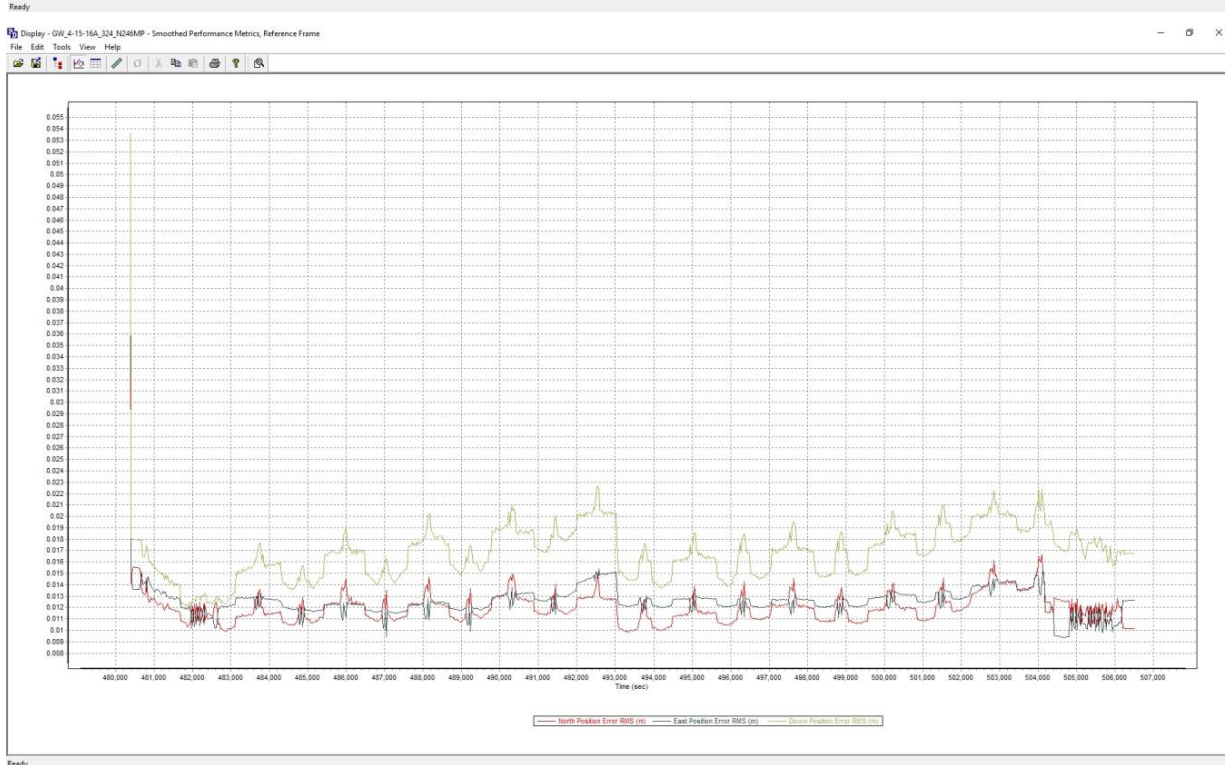
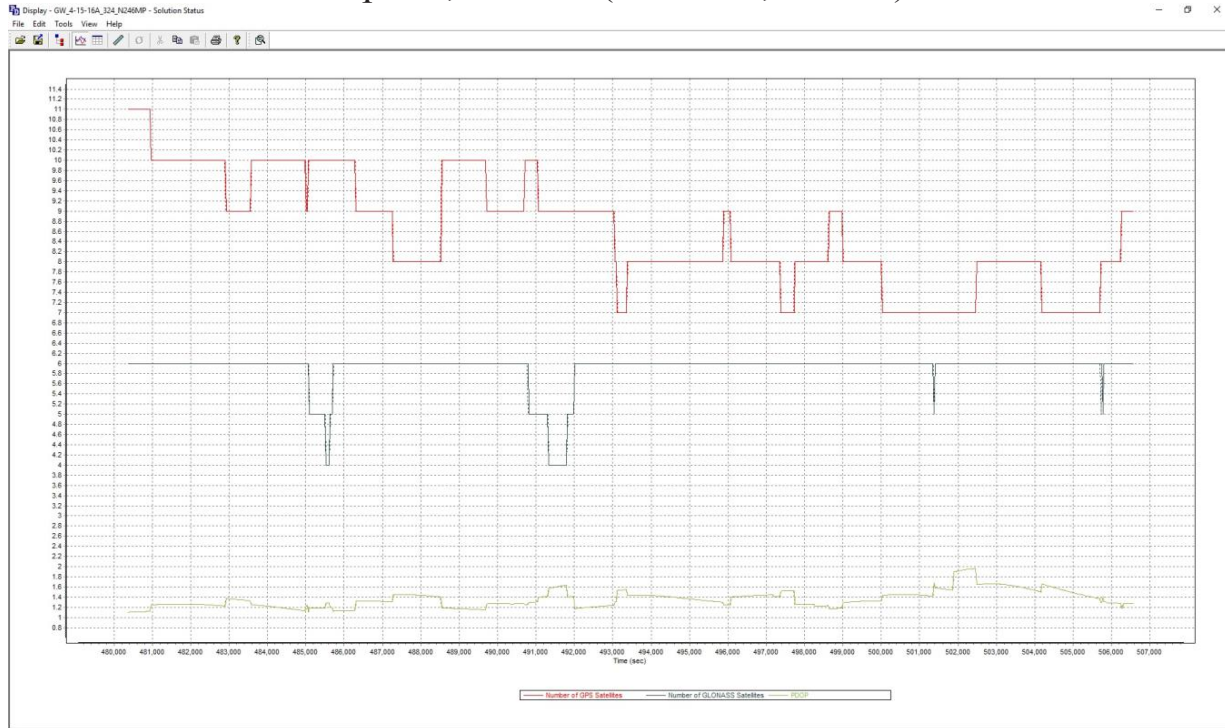
Fig 8 Closeout

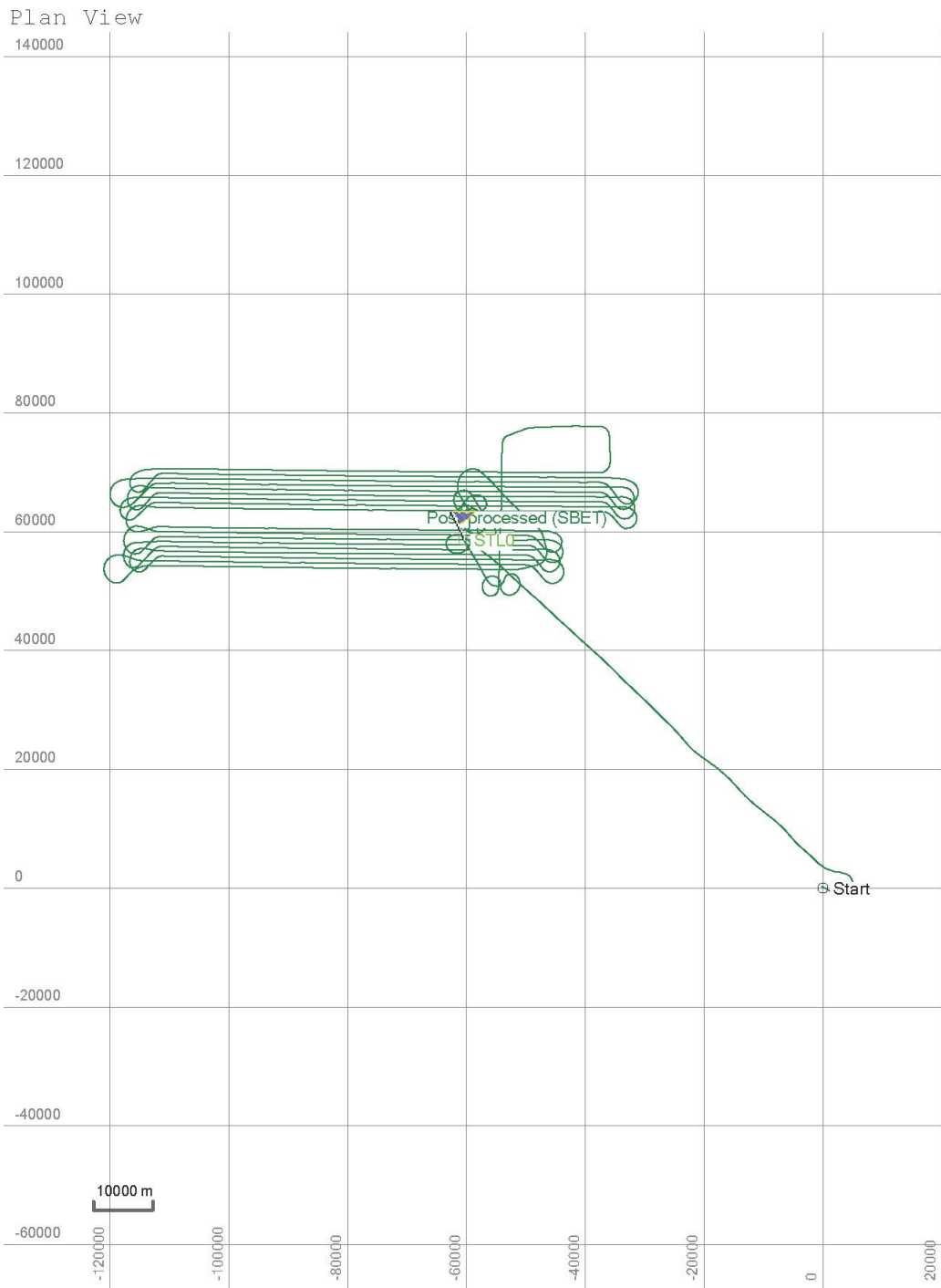
Flyover of STLØ Cols

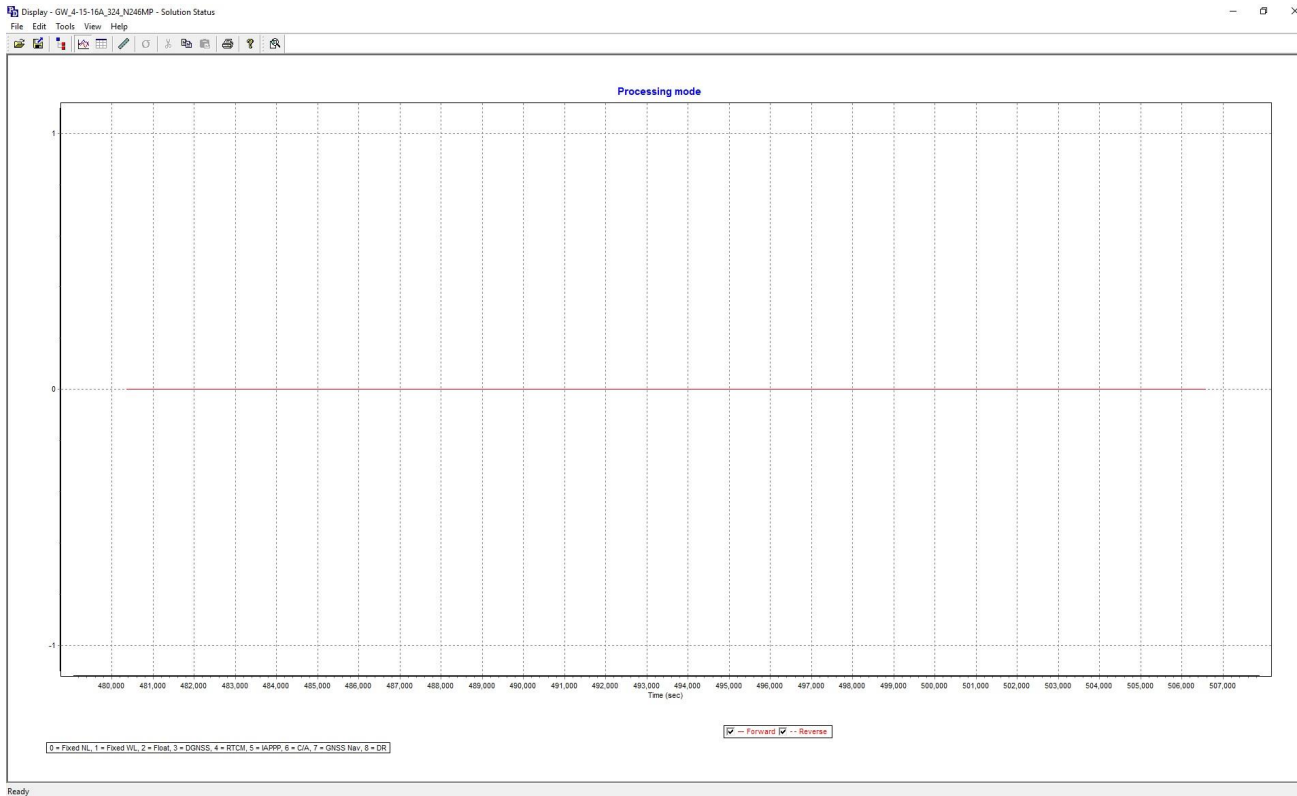
Total Proj Lines: 51 Lines Flown: 3 Lines Remain: 48 (Taylor Co)

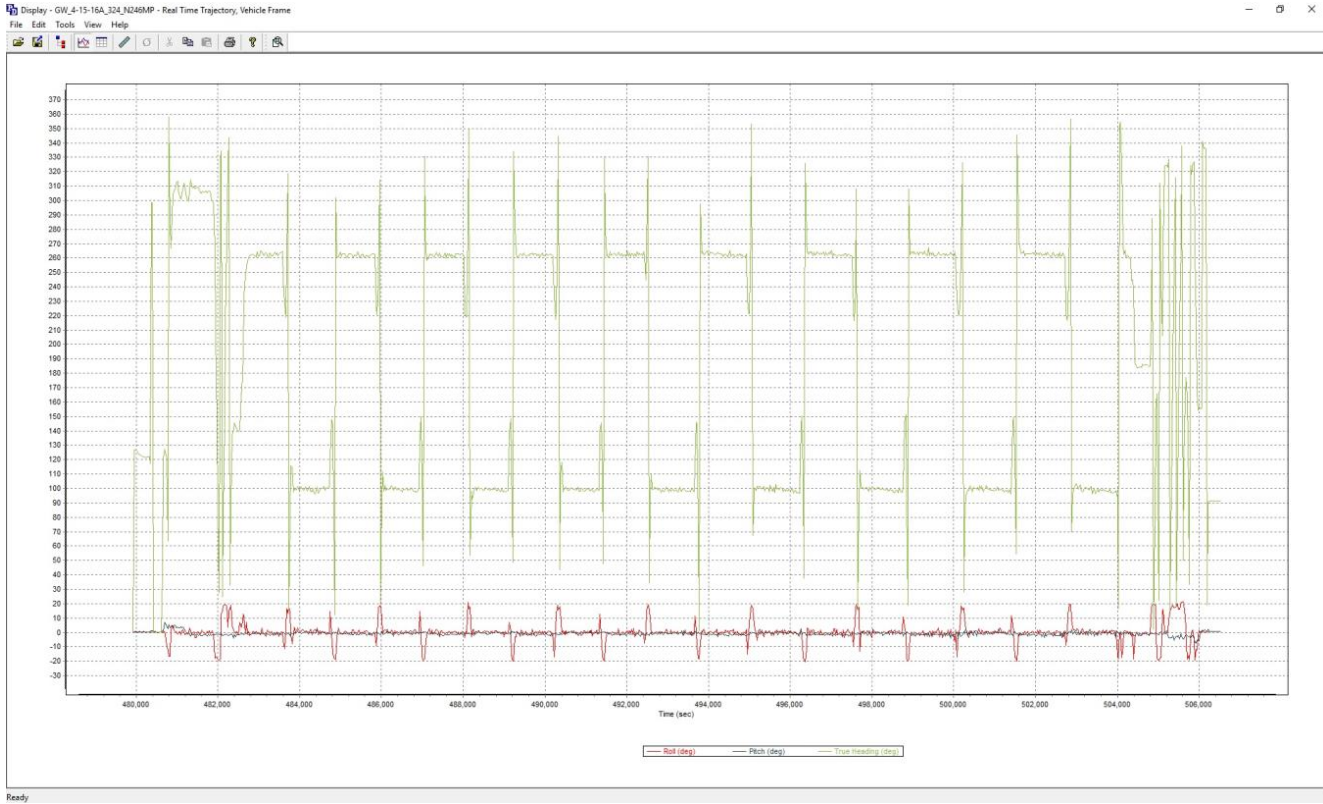
Online Time: 5:3 Mob Time: 7 Notes:

Apr 15, 2016-A (N246MP, SN324)









Coordinate Manager

Station Information

Station ID: **STL0**

Coordinates

Latitude: N 45 4 11.79823000

Longitude: W 90 18 13.73660000

Altitude: 407.9730 m

Decimal Degrees

Antenna Phase Center (APC) coordinates

Antenna Frame

Height: 0.000 m

Method: Antenna Phase Center

Manufacturer: Trimble

Type: Zephyr Geodetic 2 RoHS

Offset from Measured Point to APC: 0.000 m

Apply Changes

Station Database

Station ID: STL0 Station Fullname: STL0

Primary Service ID: Edit Coordinate Accuracy: UNKNOWN_ACC

Secondary Service ID: Edit Add Delete Update

Station ID	Station Full...	Frame	Epoch	Ellipsoid	Latitude	Longitude	Altitude	Coord Acc
[Empty Table]								

Import Coordinates Export Coordinates

Close

Date: 4/15/16
Pg 1 of 1

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

Project: TAYLOR CO Proj #: 27131 Flight Mgmt File: 20160415A

Aircraft: N226MP Begin Hobbs: 973.1 End Hobbs: 980.1 Total: 7.0 Pilot: CHRISTOPHER Co-Pilot: Tech: NELSON

Dep Apt: KSTE Dep Time (Local): 8:30 Arr Apt: KMDZ Arr Time (Local): 13:30 Air Time (Local): (Z): Tot Time Aloft:

CORS: Y/N Sta 1: STLO Sta 2: Flyovers: Y/N If Y, times: Sta 1 | 35 | 2021 Sta 2)

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

Gd Temp beg: 8 °C End: 19 °C OAT beg: °C End: °C Altimeter begin: 3022 end: 3015

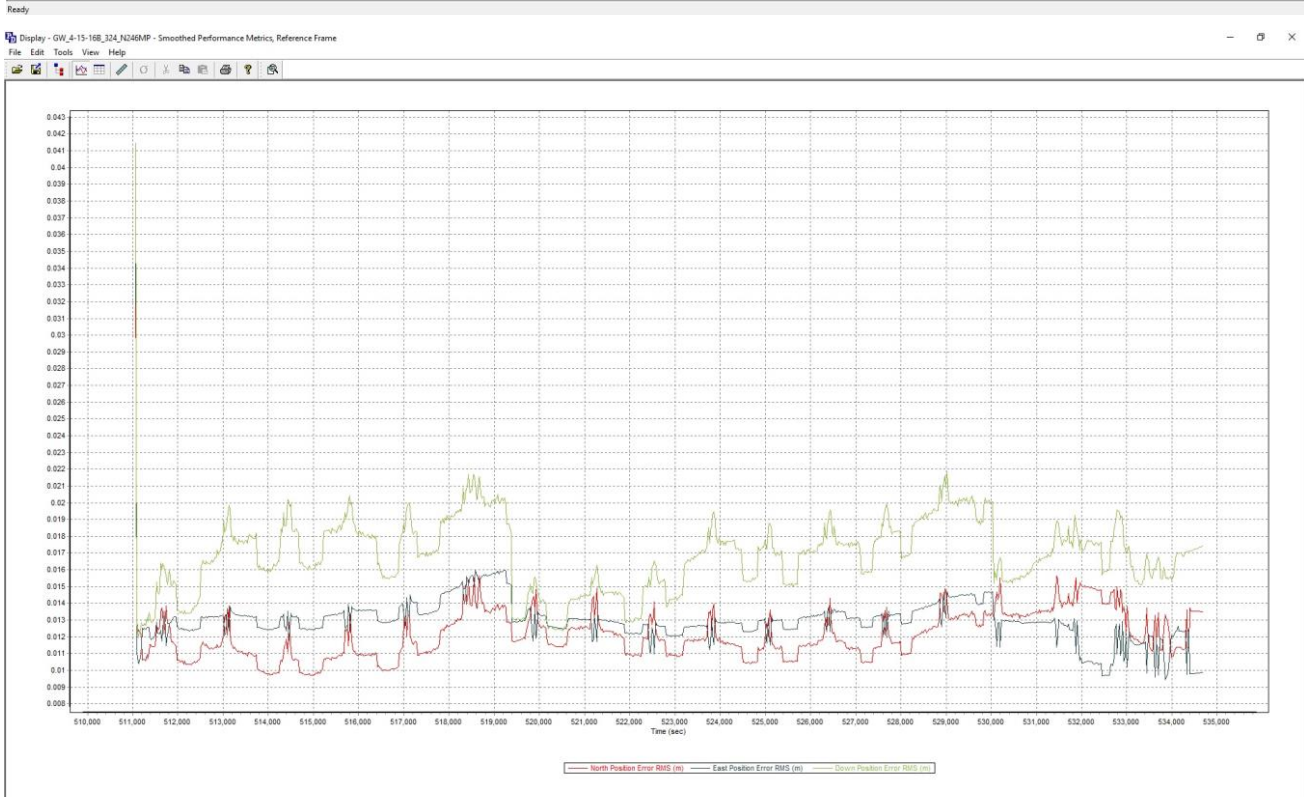
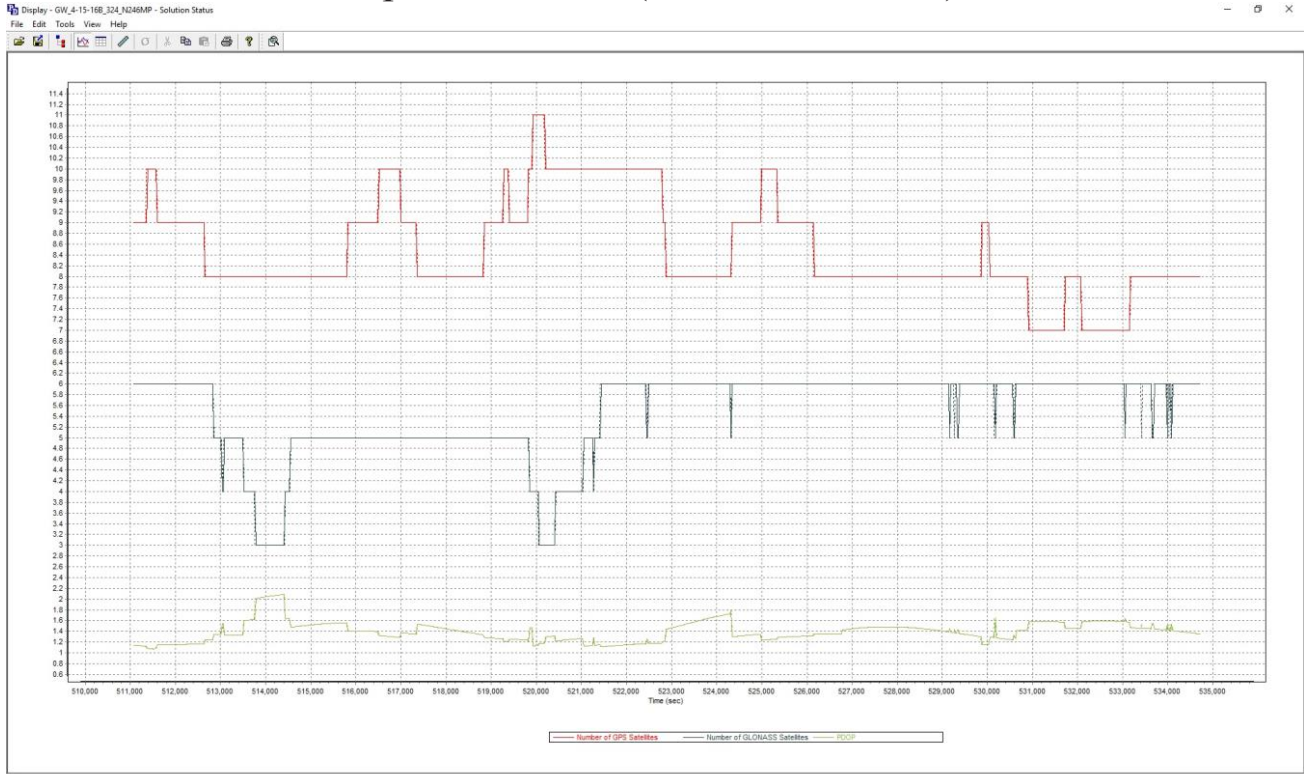
Type	Serial #	Alt AGL	Alt AMSL	Alt in Air	Pulse Rate	Max Gdspd	Power	Avg Pt Spacing	IPP3M	Storage Name
LIDAR	ORION H	324	5600	7000	1400	140	HIGH	2.2	2.6	124767
FOV	38	52	MplA Y (N)	3	225					238405

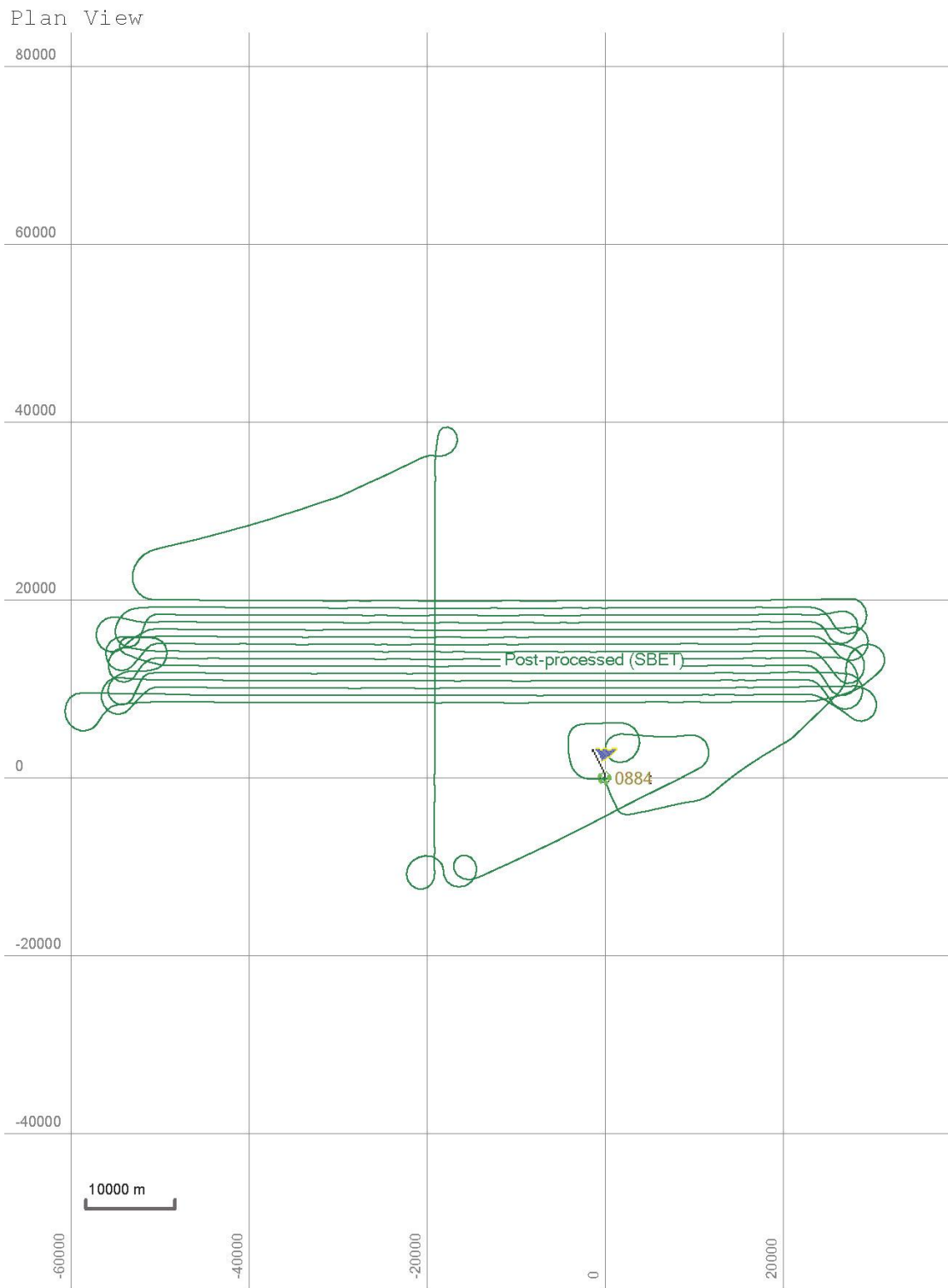
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	PDOP/sats	GPS Altitude	Crab	Turb (0--4)	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.
1	270	14:05	14:19	140	1.1-18	2080	6		
2	90	14:25	14:38	135	1.1-17	2020	8		
3	270	14:42	14:57	135	1.0-18	2050	6		
4	90	15:01	15:15	140	1.1-16	2040	8		
5	270	15:19	15:33	130	1.3-15	2060	7		
6	90	15:37	15:51	140	1.2-16	2050	8		
7	270	15:56	16:10	130	1.2-16	2070	7		
8	90	16:14	16:28	135	1.2-17	2050	8		
9	270	16:32	16:47	130	1.2-16	2070	7		
13	90	16:50	17:07	140	1.2-16	2050	9		
14	270	17:11	17:28	135	1.3-16	2070	7		
15	90	17:33	17:50	140	1.3-16	2040	9		
16	270	17:54	18:11	135	1.3-18	2070	7		
17	90	18:16	18:32	140	1.4-17	2030	9		
18	270	18:36	18:54	135	1.2-16	2070	7		
19	90	18:59	19:16	140	1.2-17	2030	10		
20	270	19:21	19:38	135	1.3-17	2080	6		

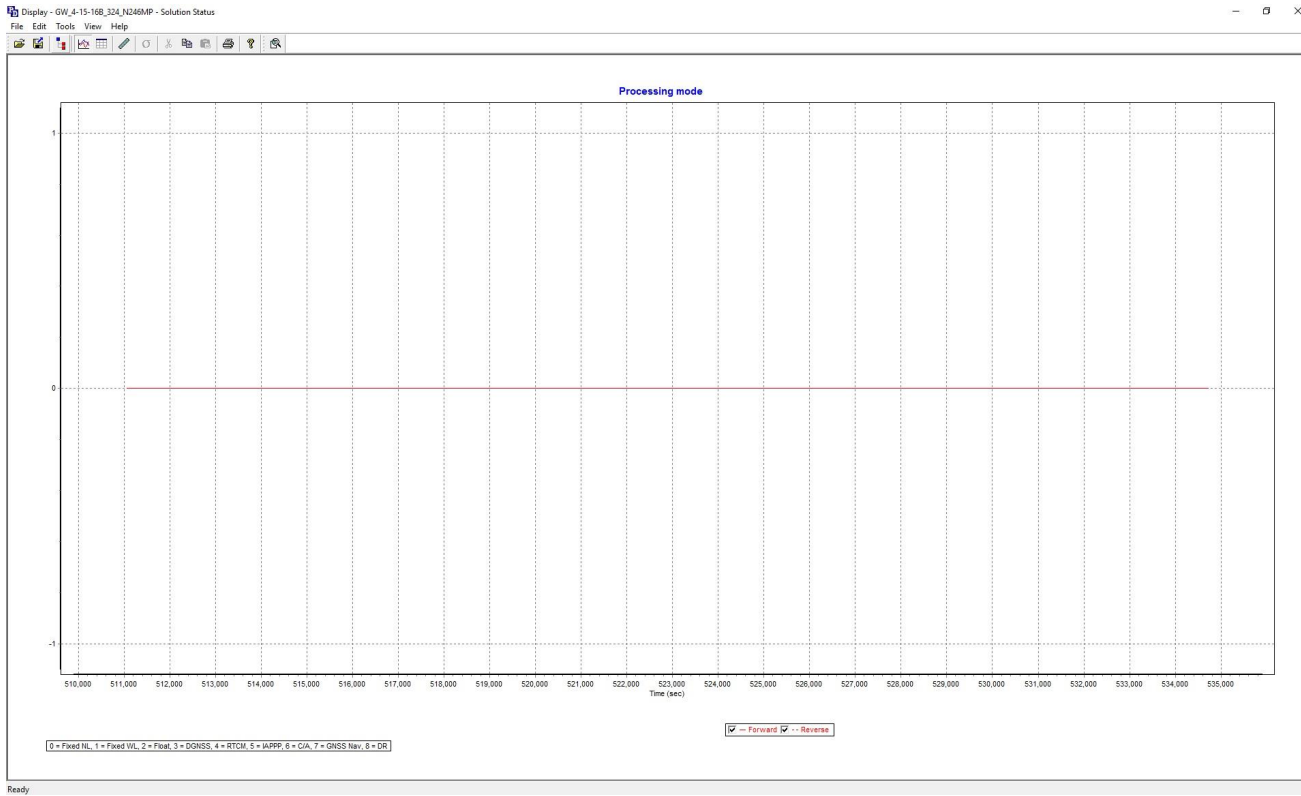
TWO TEST FIRES

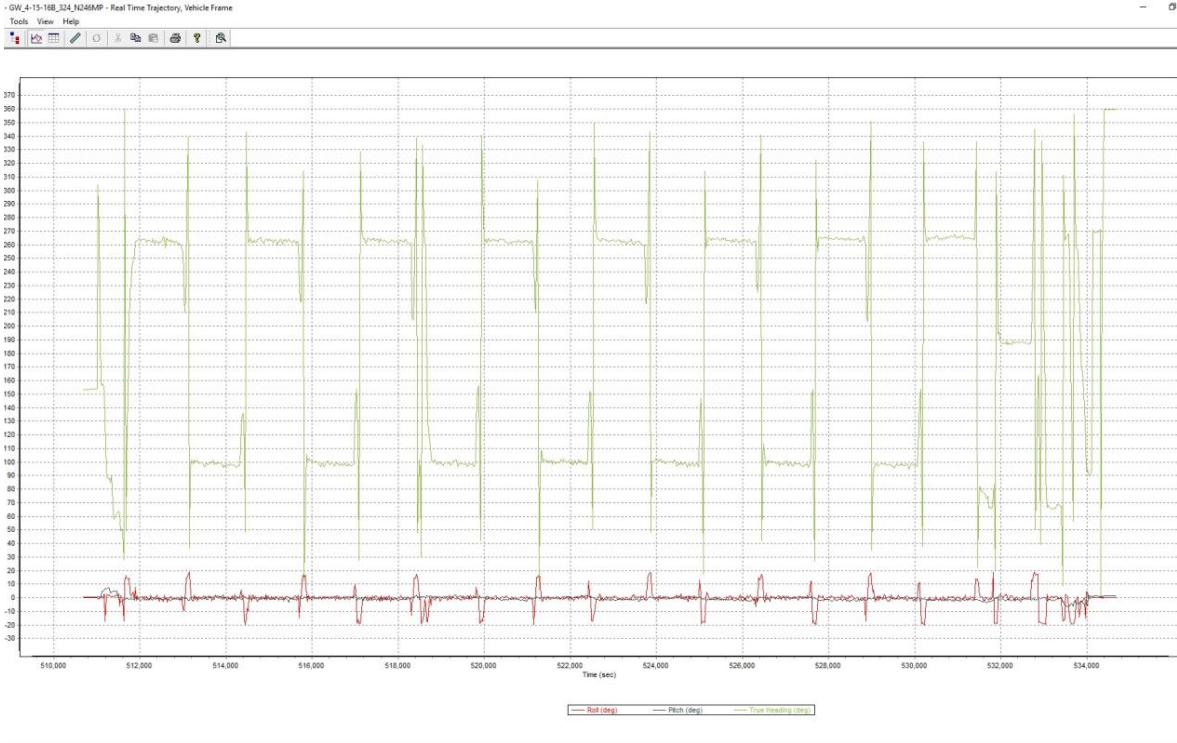
Total Proj Lines:	51	Lines Flown:	18	Lines Remain:	30	Online Time:	6.1	Job Time:	0.9	Notes:
21	90	19:42	19:59	130	1.6-15	2030	10			SIGHT TURBULANCE
X-PR	5	20:07	20:13	120	1.4-17	2090	X			CROSSLIGHT

Apr 15, 2016-B (N246MP, SN324)









Coordinate Manager

Station Information

Station ID: 0884

Coordinates

Latitude: N 45 6 14.78590000

Longitude: W 90 18 32.40171000

Altitude: 412.8200 m

Decimal Degrees

Antenna Frame

Height: 1.553 m

Method: Bottom of notch

Manufacturer: Trimble

Type: Zephyr Geodetic 2

Offset from Measured Point to APC: 0.032 m

Ground Reference Point (GRP) coordinates Apply Changes

Station Database

Station ID: 0884 Station Fullname: 0884

Primary Service ID: Edit Coordinate Accuracy: UNKNOWN_ACC

Secondary Service ID: Edit Add Delete Update

Station ID	Station Full...	Frame	Epoch	Ellipsoid	Latitude	Longitude	Altitude	Coord Acc
[Empty Table]								

Import Coordinates Export Coordinates

Project: WROC AYRES 3DEP - Taylor County LiDAR 2016-17

Date: 4/15/2016

Lift: A B C D E

Page: 1 of 2

Flight Mgmt File: 2016 04 15B/AYRES-3DEP-TAYLOR

Aircraft: N246MP

Begin Hobbs: 980.1

End Hobbs: 986.5

Total: 6.4

Pilot: Gary McDermott

Co-Pilot:

Dep Apt: KMDZ

Dep Time (Lcl): 4:58 (Z): 21:58

Air Apt: KMDZ

Air Time (Local): 1:20 (Z): 04:20

Tot Time Aloft: 6.4

CORS: Y/N

Sta 1: STL6

Sta 2:

Flyovers: Y/N

IF Y, times: Sta 1: 04:08

IF Y, times: Sta 2:

GPS Unit: Y/N

Sta 1: KMDZ (static)

Sta 2:

Flyovers: Y/N

IF Y, times: Sta 1:

IF Y, times: Sta 2:

Gd Temp beg: °C End: °C

OAT beg: °C End: °C

Alt: AGL 1700m AMSL 2100m

Alt: AGL 1700m AMSL 2100m

Scan Freq: 52

MPIA: Y/N

Pulses In Air: 3

Avg Terr Ht: 460

Max Gdspd: 140

Power: High

Avg Pt Spacing: 2.19

PPSM: 2.67

Mag GB: 0

End GB: 105

Ter GB: 286

Storage Name/ID: 13SEM 331A

Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	POOP/P/s	GPS Altitude	Crb	Turb	Alt	AMS	Pulses In Air	Avg Terr Ht	Max Gdspd	Power	End	Storage Name/ID
22	W	22:07	22:10	136	111/17	2082m	5.2	+								
23	E	22:55	22:51	136	127/14	2070m	8.5	-								
24	V	22:57	23:14	122	143/14	2080m	7	0								
25	E	23:19	23:36	126	135/15	2090m	9	0								
26	W	23:40	23:58	134	127/15	2090	8.2	0								
27	E	00:06	00:24	130	142/16	2079m	10.5	0								
28	W	00:27	00:40	122	109/16	2090m	5.8	0								
29	E	00:49	01:01	130	113/16	2070m	11.6	0								
30	W	01:11	01:29	130	118/17	2100m	6.3	0								
31	E	01:33	01:50	134	122/16	2060m	12.1	0								
32	W	01:54	02:12	132	124/18	2100m	4.9	0								
33	E	02:16	02:33	138	126/17	2070m	10.6	0								
34	W	02:37	02:54	132	133/16	2070m	5.2	0								
35	E	02:58	03:15	140	133/17	2070m	11	0								
36	W	03:18	03:37	128	133/17	2090m	4.3	0								

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

Test fire
Stair

; rolled to 26° on rollout of line

Total Proj Lines: 51

Lines Flown: 16/37

Lines Remain: 14

Online Time: 5:8

Mob Time: .6

Notes: Clear

21:46 or

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

Date: 4/15/2016
Pg 2 of 2

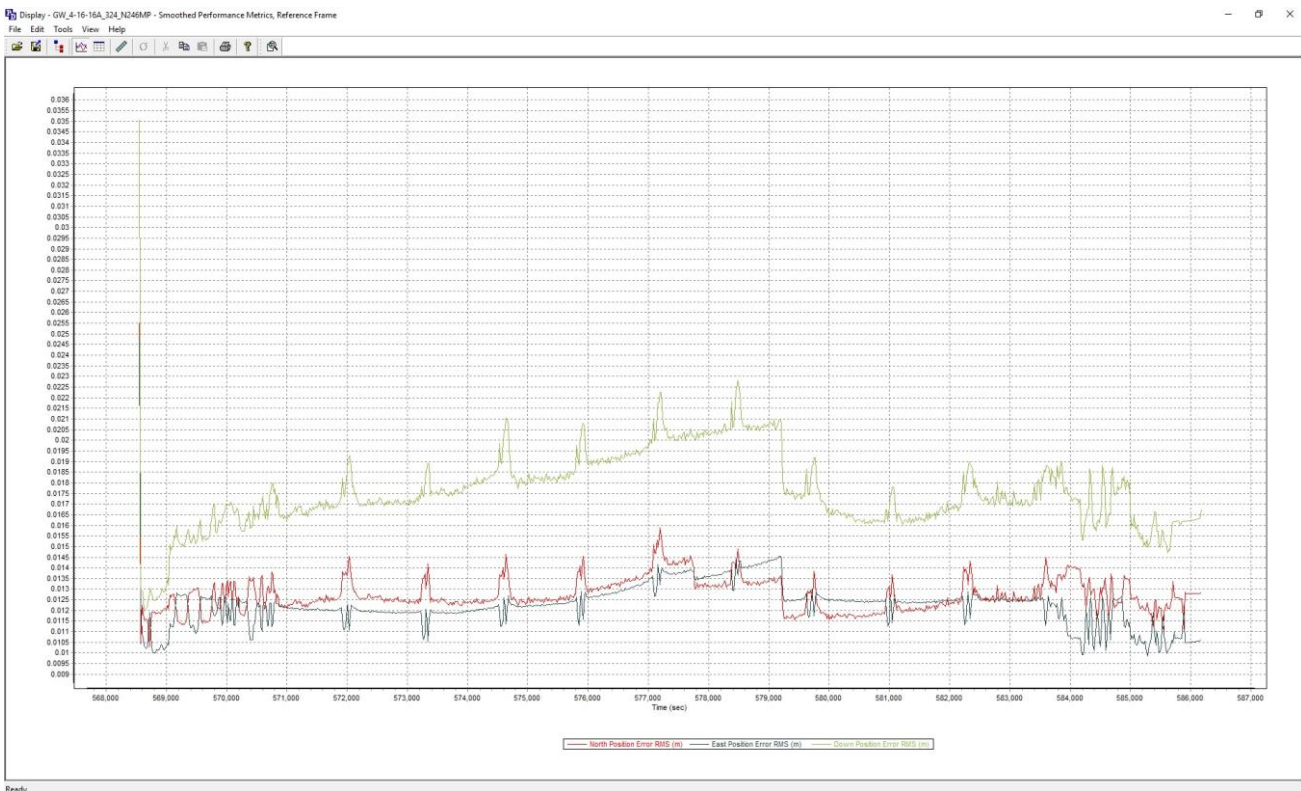
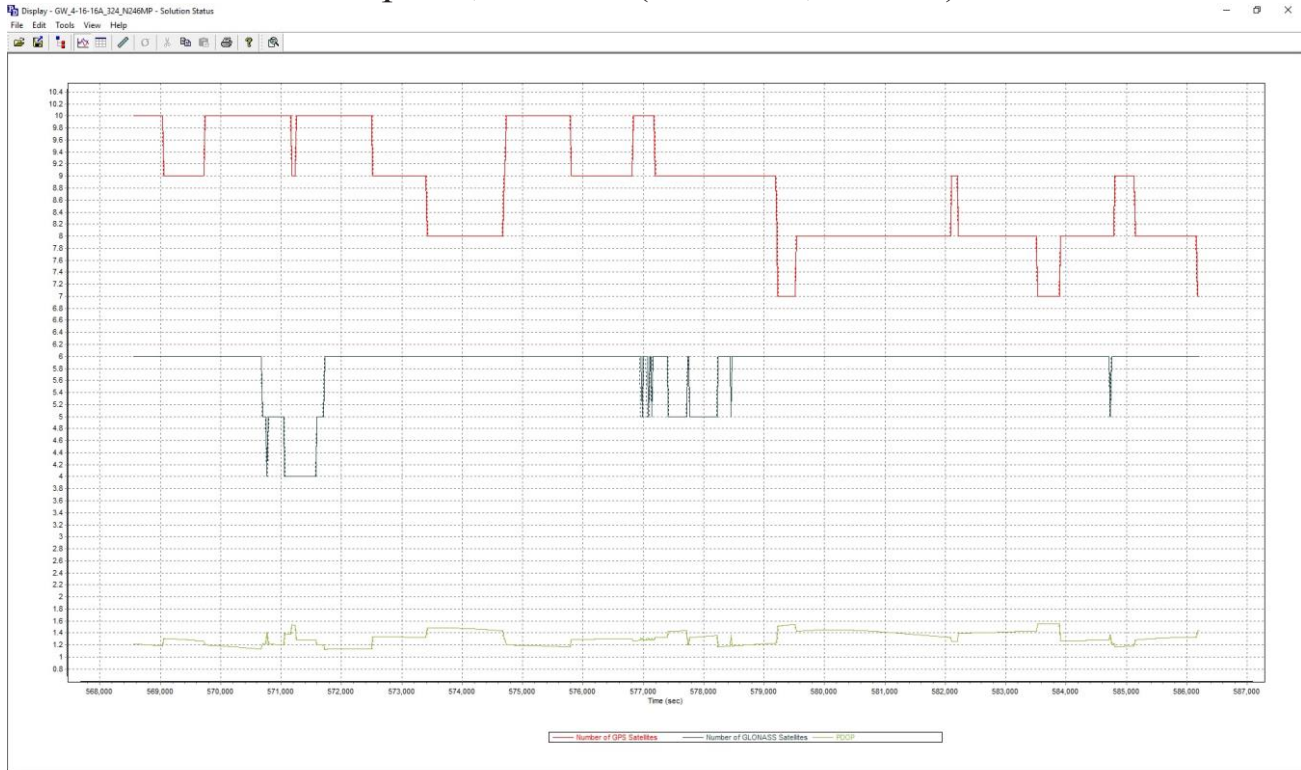
Project: WROC AVRES 3DEP (email log daily to flight_log_distribution_list@quantumspatial.com)
 Flight Mgmt File: 20160415B/AVRES 3DEP TAYLOR 1700.m
 Aircraft: N246MP Begin Hobbs: 980.1 End Hobbs: 986.5 Total: 6.4
 Pilot: Gary McDonald Co-Pilot: Gary Tiao
 Dep Apt: KMDZ Dep Time (Lcl): 4:58 (Z): 21:58 Arr Apt: KMDZ Arr Time (Local): 11:20 (Z): 04:20
 CORS: (Y) N Sta 1: STLD Sta 2: Flyovers: (Y) N If Y, times: Sta 1) 04:08 Sta 2)
 GPS Unit: (Y) N Sta 1: KMDZ (static) 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:

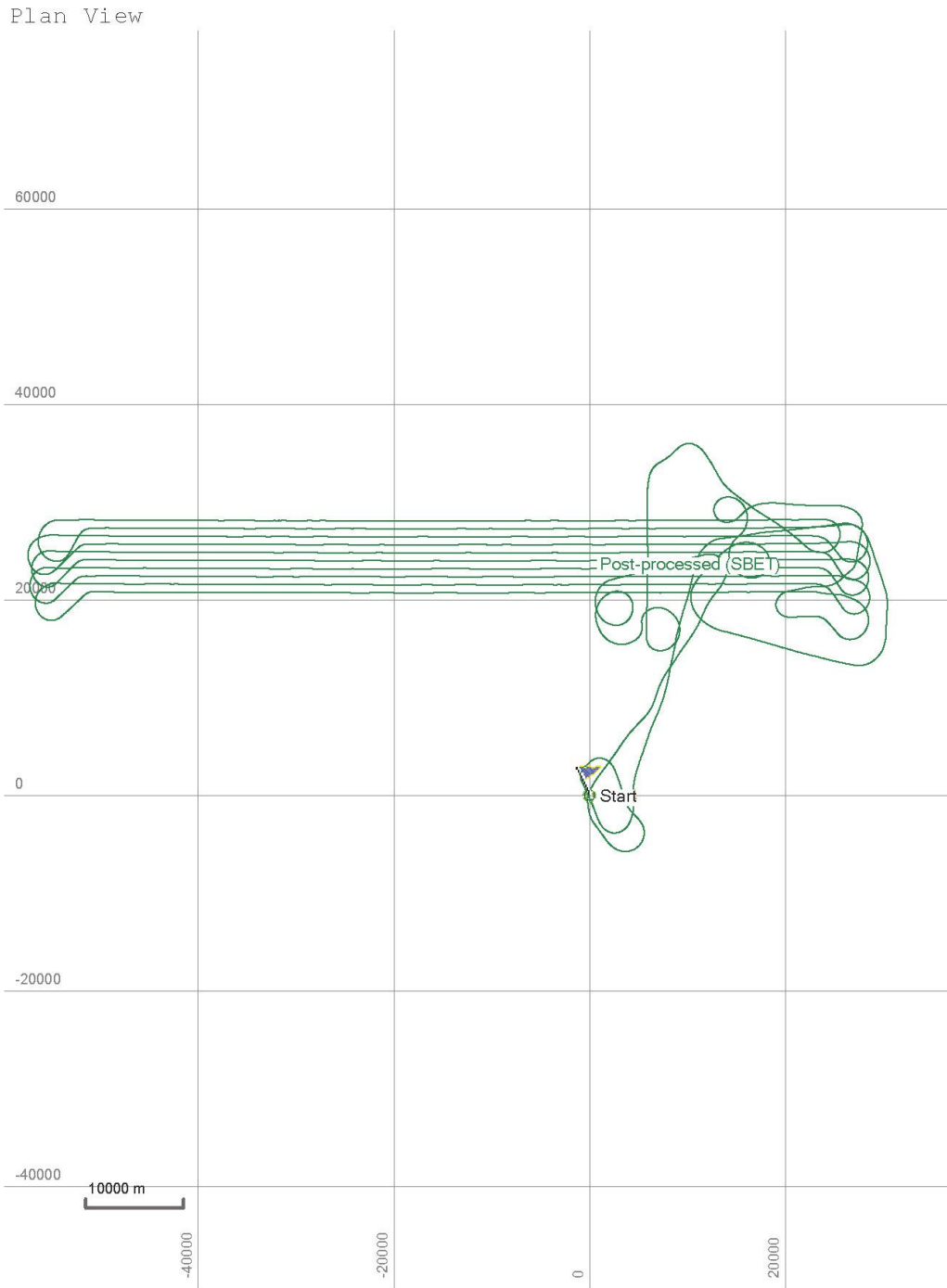
Line #	Type	Serial#	FOV	Scan Freq	Alt AGL	Alt AMSL	Pulse Rate	Pulse Rate In Air	Avg Ht	Max Gdspd	Power	Avg Pt Spacing		Mag GB	Storage Numbr
												PPSM	PPSM		
51	S	03:47	03:58	119	124/16	2087m	82	0							
		03:58	04:04											105	13 SEN
		04:05	04:10	150										286	331A

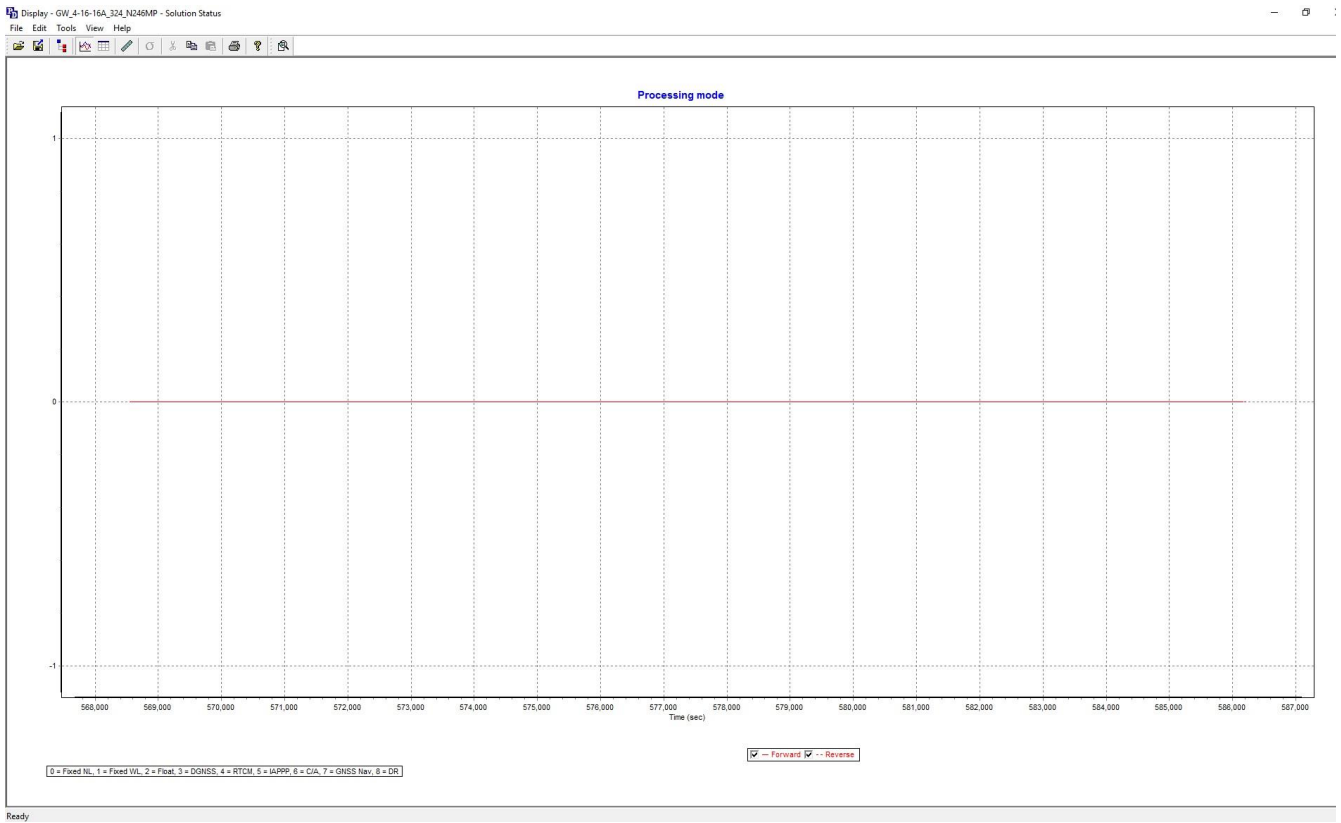
Fig 8
Flyover of STLD CORS

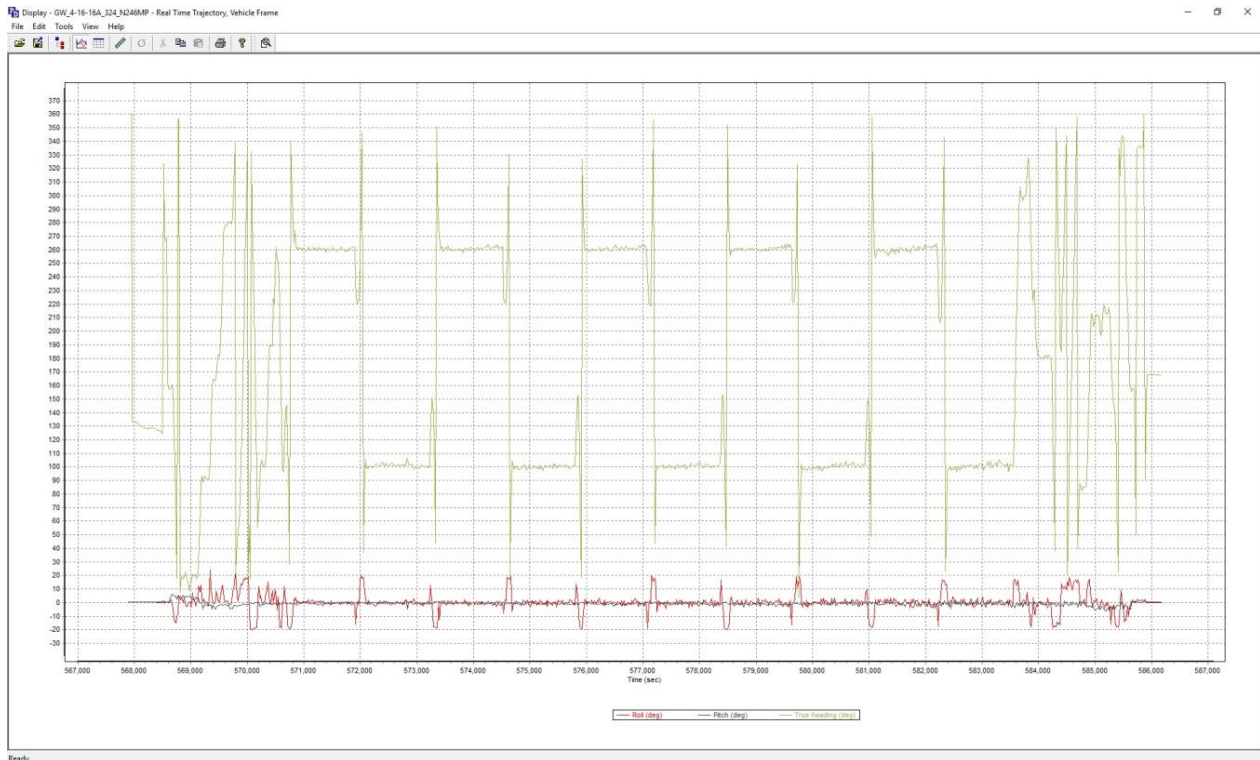
FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc.
 Total Prof Lines: 51 Lines Flown: 16/57 Lines Remain: 14 Online Time: 5:8 Mob Time: 1:6 Notes: Clear

Apr 16, 2016-A (N246MP, SN324)









Ready

Coordinate Manager

Station Information

Station ID:

Coordinates

Latitude:

Longitude:

Altitude: m

Decimal Degrees

Antenna Frame

Height: m

Method:

Manufacturer:

Type:

Offset from Measured Point to APC: m

Ground Reference Point (GRP) coordinates Apply Changes

Station Database

Station ID: Station Fullname:

Primary Service ID: Edit Coordinate Accuracy:

Secondary Service ID: Edit Add Delete Update

Station ID	Station Full...	Frame	Epoch	Ellipsoid	Latitude	Longitude	Altitude	Coord Acc
[Empty Table]								

Date: 4/16/16 Pg 1 of 1

Lit: A B C D E

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

(email log daily to flight_log_distribution_list@quantumspatial.com)

Project: TAYLOR CO Proj #: 27131 Flight Mgmt File: 20160416A 10716

Aircraft: N246MP Begin Hobbs: 986.5 End Hobbs: 991.3 Total: 4.8 Pilot: CHRISTOPHER Co-Pilot: NELSON

Dep Apt: KMDZ Dep Time (Lcl): 8:55 ZF: 13:55 Arr Apt: KMDZ Arr Time (Local): 13:40 ZF: 18:40 Tot Time Aloft: 4.8

CORS: N Sta 1: RSLA Sta 2: Flyovers: Y / N If Y, times: Sta 1) 14:05 Sta 2) 18:27

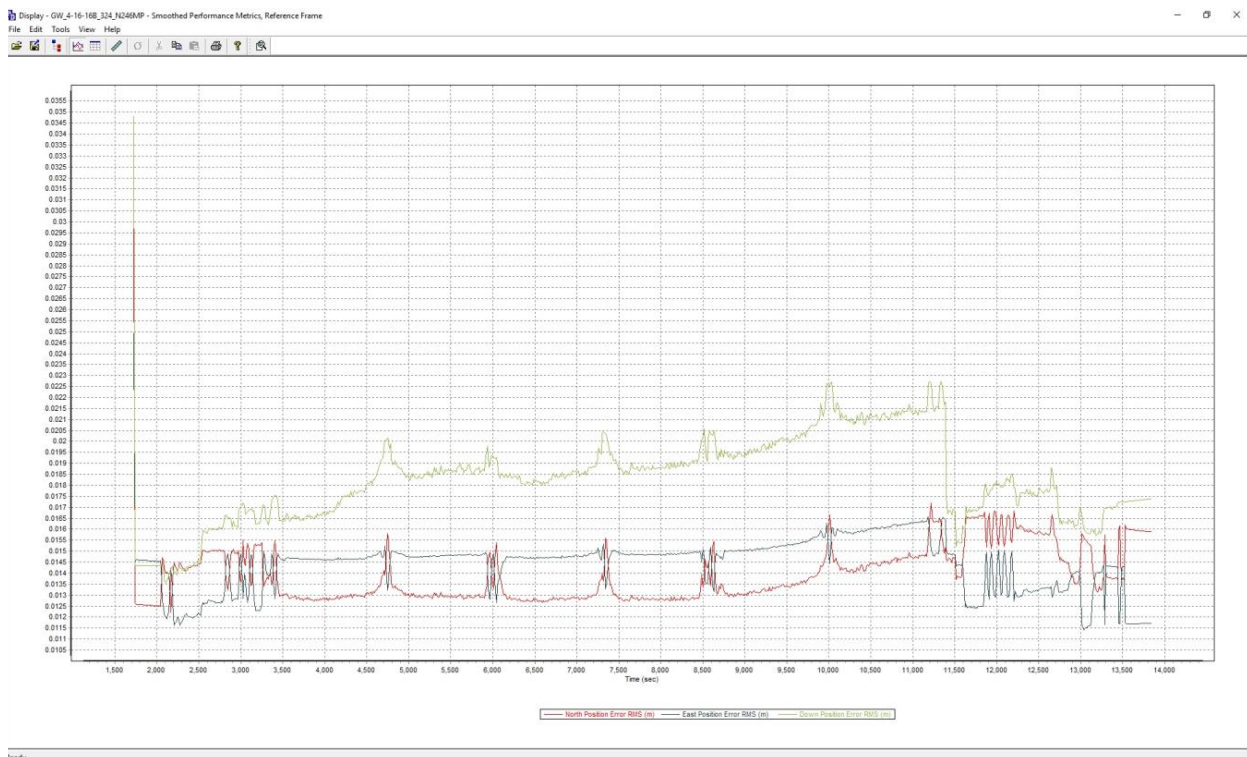
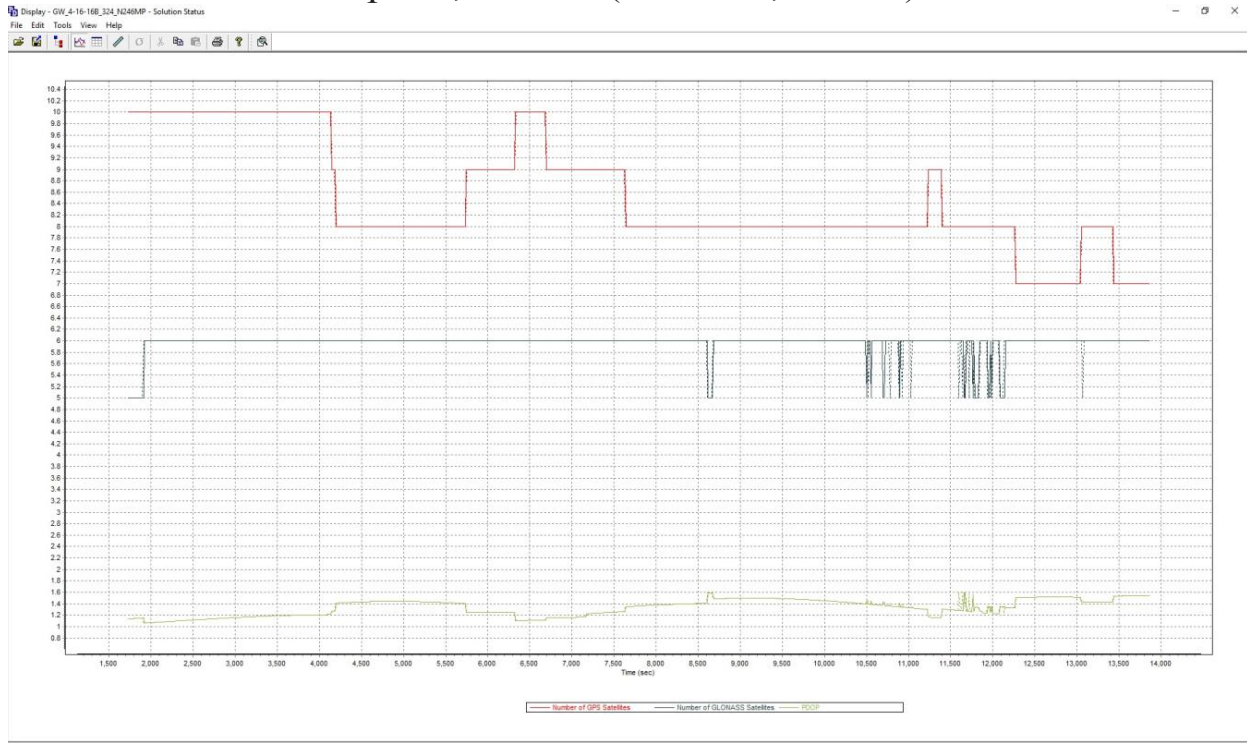
GPS Unit: N Sta 1: KMDZ Sta 2: Flyovers: Y / N If Y, times: Sta 1) Sta 2)

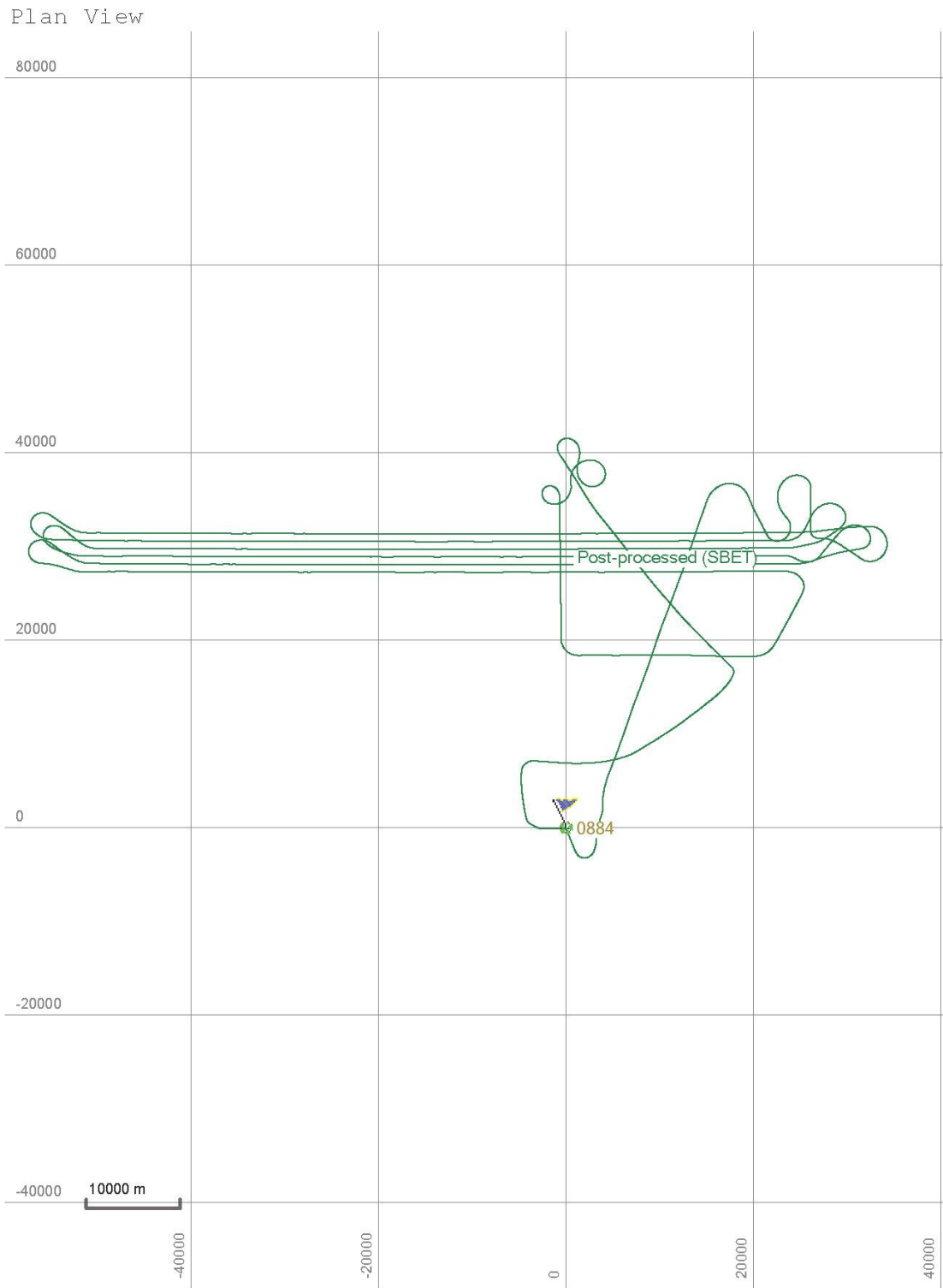
Gd Temp	beg: 12 °C		End: 22 °C		OAT beg: 5600		°C		End: 7000		Alt: 7000		Avg Terr		Alt		°C		End: 30.29		end: 30.27		
	Alt AGL	324	Alt AMSL	5600	Alt AMSL	7000	Avg Terr	140	Alt	7000	Max Gspsd	140	Avg Pt Spacing	2.2	Pulse Rate	27.5	Power	HIGH	PPSM	2.6	Reg GB	0	
LIDAR	Type	ORSON H	Scan Freq	38	Scan	52	MPIA	Y	N	Pulses In Air	3	Pulse Rate	27.5	Power	HIGH	Avg Pt Spacing	2.2	PPSM	2.6	End GB	7300	Storage Name/No	2

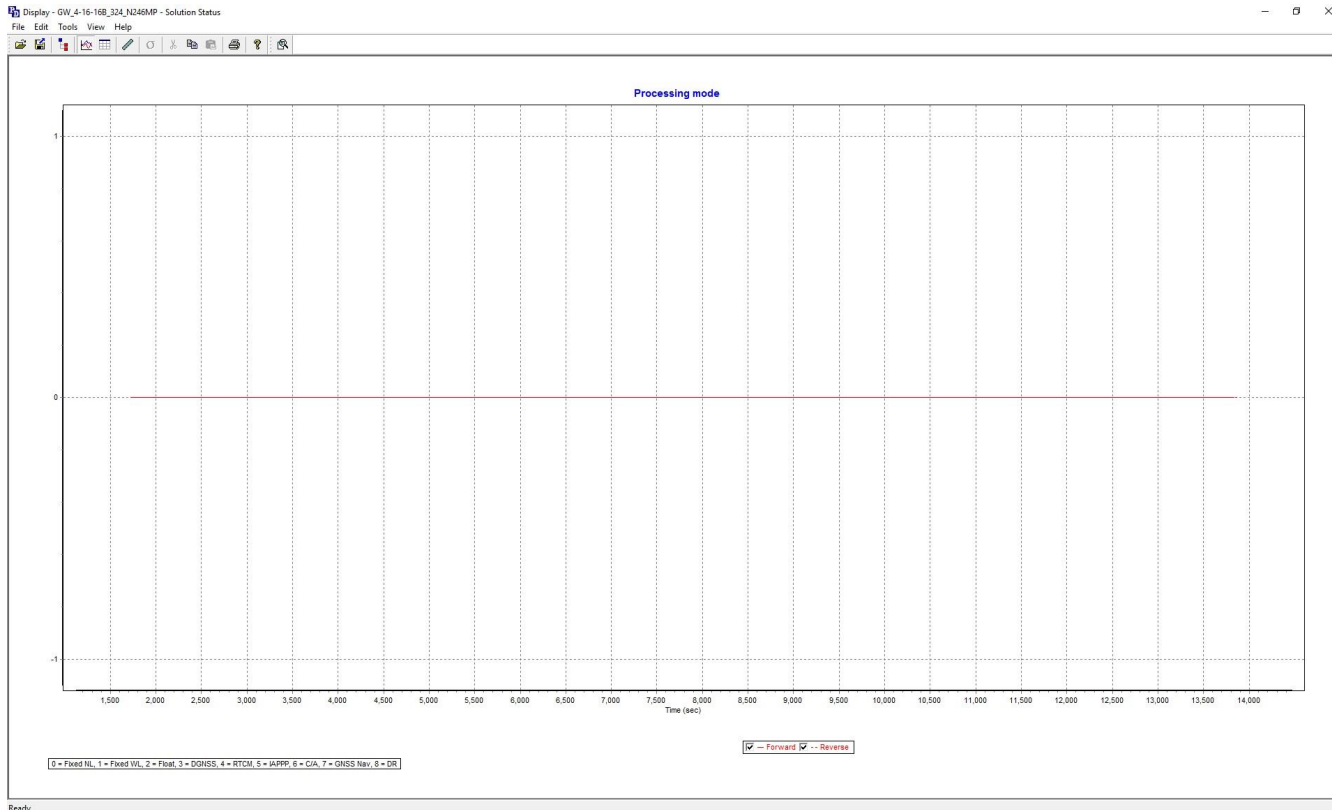
Line #	Hdg	Start (UTC)	End (UTC)	Gd Spd	FOOY/sns	GPS Altitude	Crab	Turb	FLIGHT LINE NOTES - visibility, clouds, smoke, partial, etc
37	270	14:34	14:51	140	1.18	2120	8	ACT	TEST FIRES
38	90	14:55	15:13	135	1.16	2060	9		STRIP #10 START
39	270	15:17	15:35	135	1.5	2120	9		
40	90	15:39	15:56	135	1.3	2070	10		
41	270	16:00	16:18	135	1.37	2120	10		
42	90	16:21	16:39	135	1.47	2070	10		
43	270	16:43	17:00	135	1.27	2160	9		
44	90	17:04	17:22	140	1.3	2070	9		
45	270	17:26	17:43	140	1.37	2150	10		TURB EAST SIDE
46	90	17:47	18:05	135	1.37	2050	10		BUMPS
X-FLI	S	18:12	18:16	115	1.27	2150	X		CROSSEFLIGHT
									FEW SCT CLDS WEST
									FEW SCT CLDS WEST

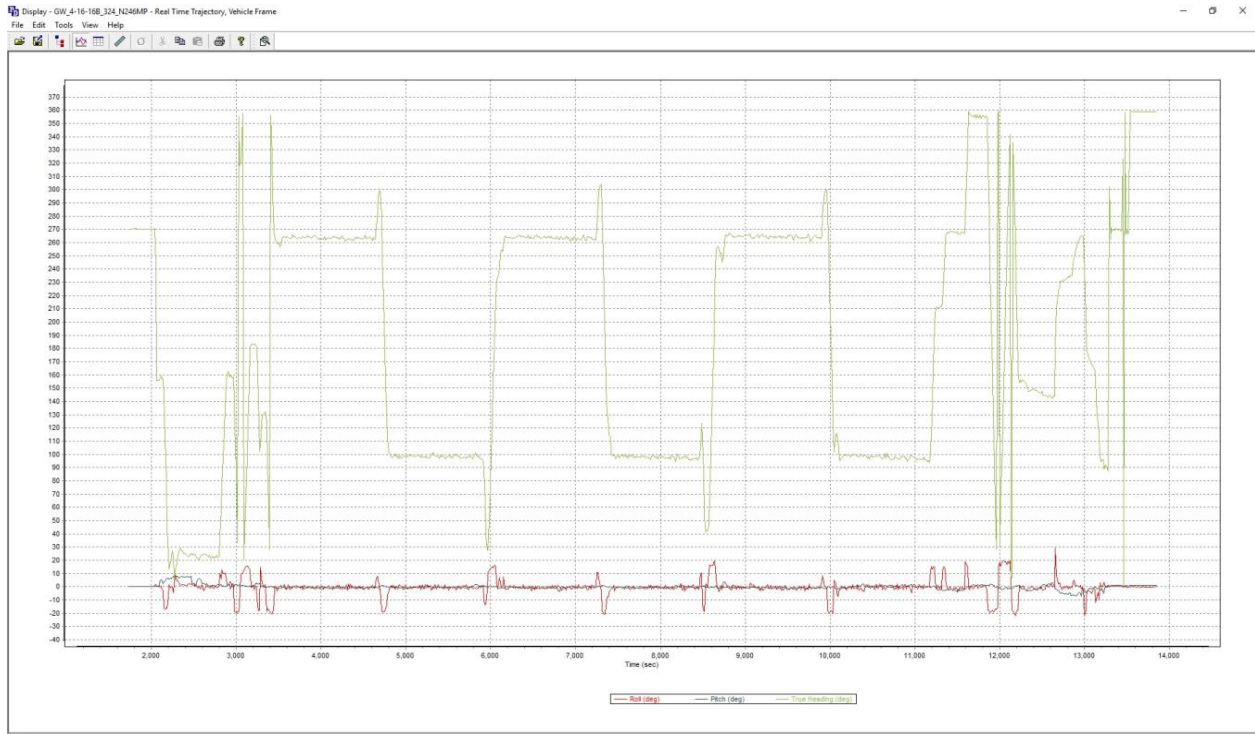
Total Proj Lines: 51	Lines Flown: 10	Lines Remain: 6	Online Time: 3:8	Mob Time: 1:0	Notes:
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Apr 16, 2016-B (N246MP, SN324)









Coordinate Manager

Station Information

Station ID: 0884

Coordinates

Latitude: N 45 6 14.78590000

Longitude: W 90 18 32.40171000

Altitude: 412.8200 m

Decimal Degrees

Antenna Frame

Height: 1.662 m

Method: Bottom of notch

Manufacturer: Trimble

Type: Zephyr Geodetic 2

Offset from Measured Point to APC: 0.032 m

Ground Reference Point (GRP) coordinates Apply Changes

Station Database

Station ID: 0884 Station Fullname: 0884

Primary Service ID: Coordinate Accuracy: UNKNOW\N_ACC

Secondary Service ID: Add Delete Update

Station ID	Station Full...	Frame	Epoch	Ellipsoid	Latitude	Longitude	Altitude	Coord Acc
[Empty Table]								

Import Coordinates Export Coordinates

Close

Project: WROC AVRES 3DEP
Aircraft: ND18 MP
Dep Apt: KMDZ
CORS: Y/N
GPS Units: Y/N
Gd Temp beg: 20 °C
LIDAR: CARON H
FOV: 19.38

Date: 4/16/2016
Flight Mgmt File: 20160417A
Plot: Gary Maden
Co-Pilot: Gary Las
Arr Time (Local): 00:35 (Z: 03:41)
Arr Apt: KMDZ
Arr Time (Local): 00:44 (Z: 03:41)
Sta 1: RILA
Sta 2: KMDZ
GPS Altitude: 2100m
GPS Altitude: 2120m
GPS Altitude: 2127m
GPS Altitude: 2128m
GPS Altitude: 2144m
GPS Altitude: 2129m

Line #	Hdg	Start [UTC]	End [UTC]	Gd Spd	000ft/Min	GPS Altitude	Crab	Turb (0..4)
269		00:42	00:47					
269		00:49	00:52					
269		00:53						
50	W	00:59	01:18	132	107/8	2100m	5	0
49	E	01:21	01:58	138	108/16	2043m	9	0
48	W	01:43	02:01	134	104/19	2145m	5	0
47	E	02:04	02:21	140	109/7	2120m	9	0
46	W	02:26	02:45	126	102/17	2120m	4	0
45	E	02:49	03:06	140	103/17	2127m	8	0
X	TIE N	03:14	03:18	134	103/18	2128m	3	0
		03:18	03:24			2144m		
		03:26	03:31	140		2129m		

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

Flower of RILA CORS
 S turn
 Test Shot
 reflight of AM mission that had cloudy/dropouts
 ' ' , a little fast @ start
 CROSS TIE, S-N
 Lossout Flight
 Flower of RILA CORS
 RTB ; Taylor County Completed

Total Prof Lines: 51

Lines Flown: 51

Lines Remain: 0

Online Time: 2:3

Mob Time: 1:8

Notes: Hazy
 File name advanced by a day
 due to Base started after GPS
 migrate