Project Report Appendices

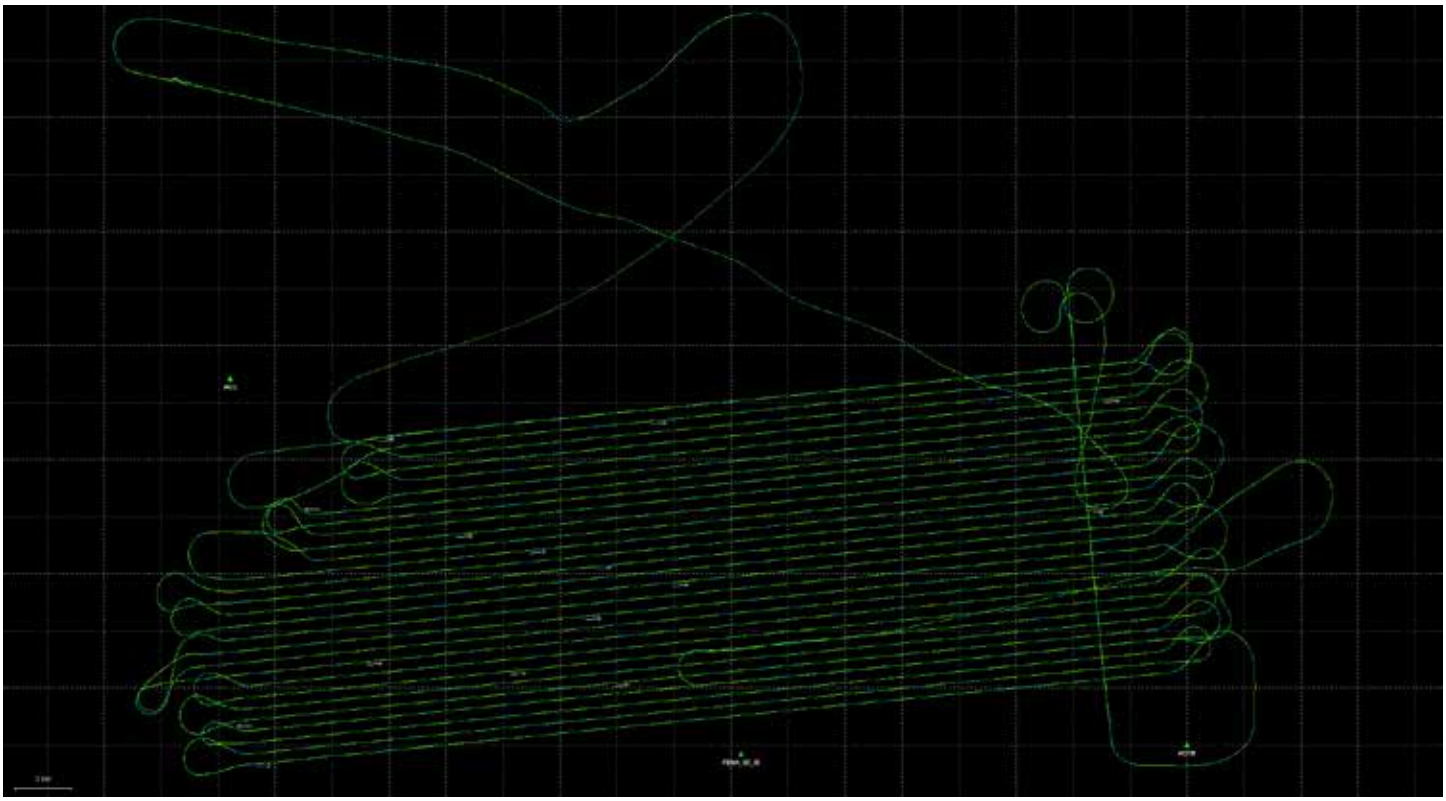
The following section contains the appendices as listed in the San Diego County, CA FEMA Region IX 2016 QL2 LiDAR Project Report.

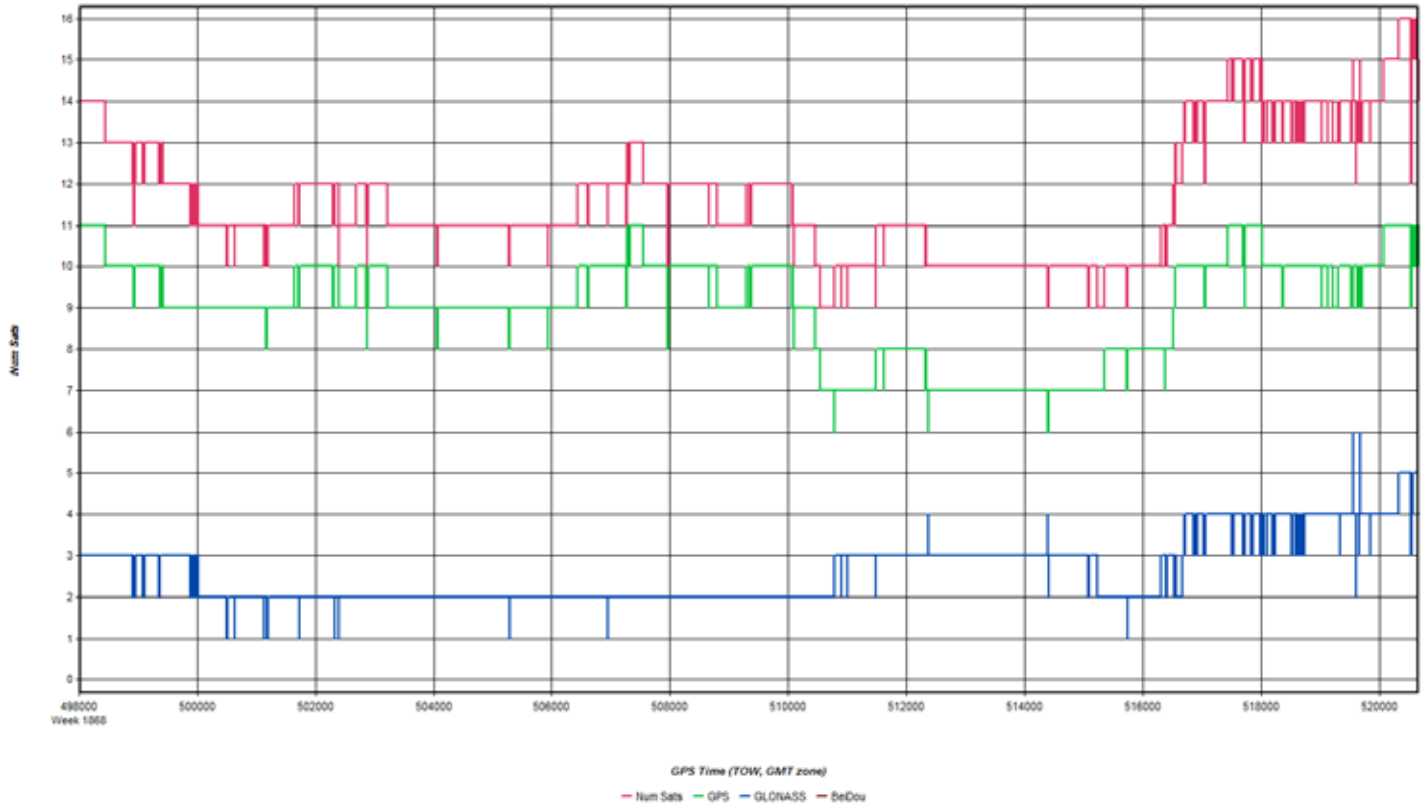
Appendix A

GPS/IMU Processing Statistics
Flight Logs

There were 23 total lifts. Graph reports generated from processing software and flight logs are found on the following pages.

Oct 30, 2015-A




Num Sats
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1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
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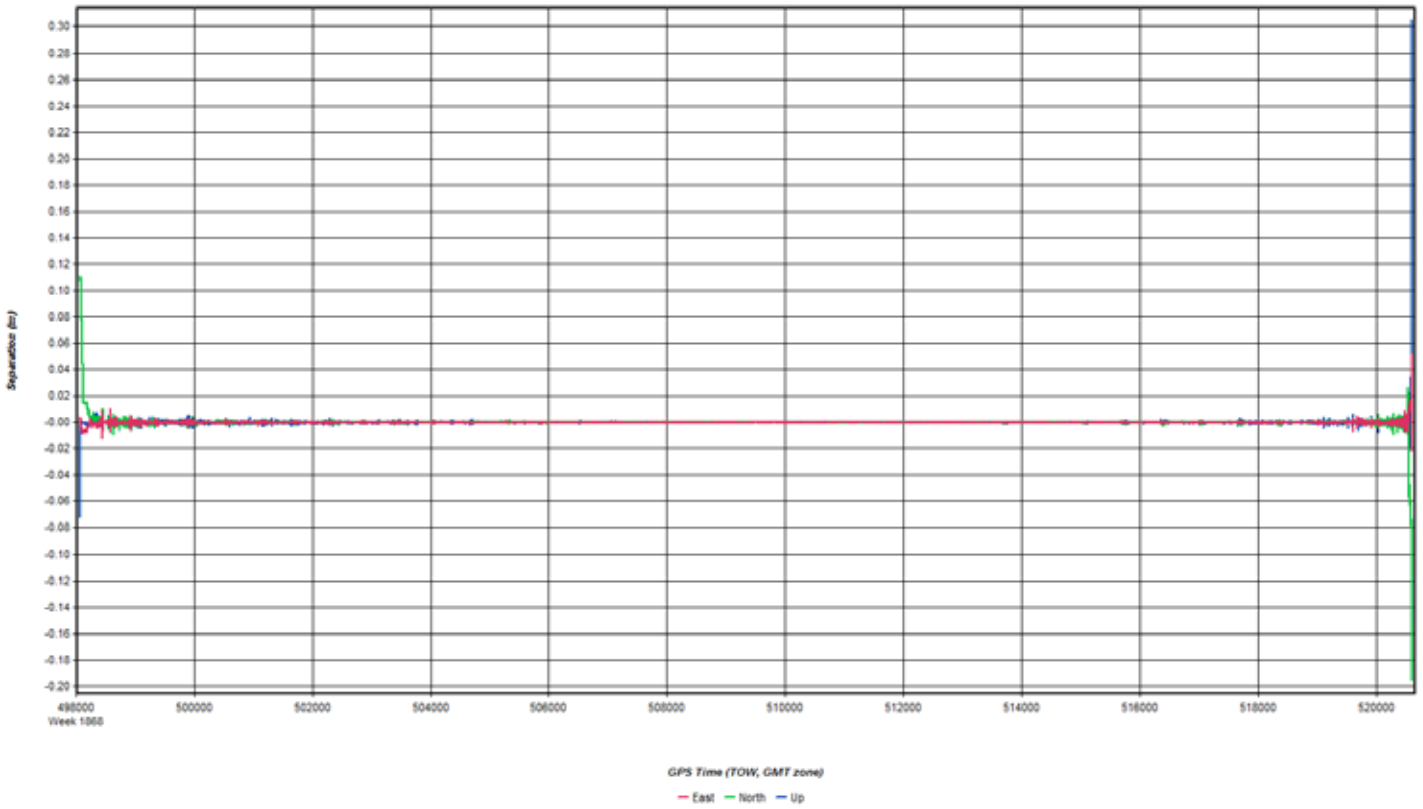
Week 1868
500000
502000
504000
506000
508000
510000
512000
514000
516000
518000
520000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou


Separation (m)
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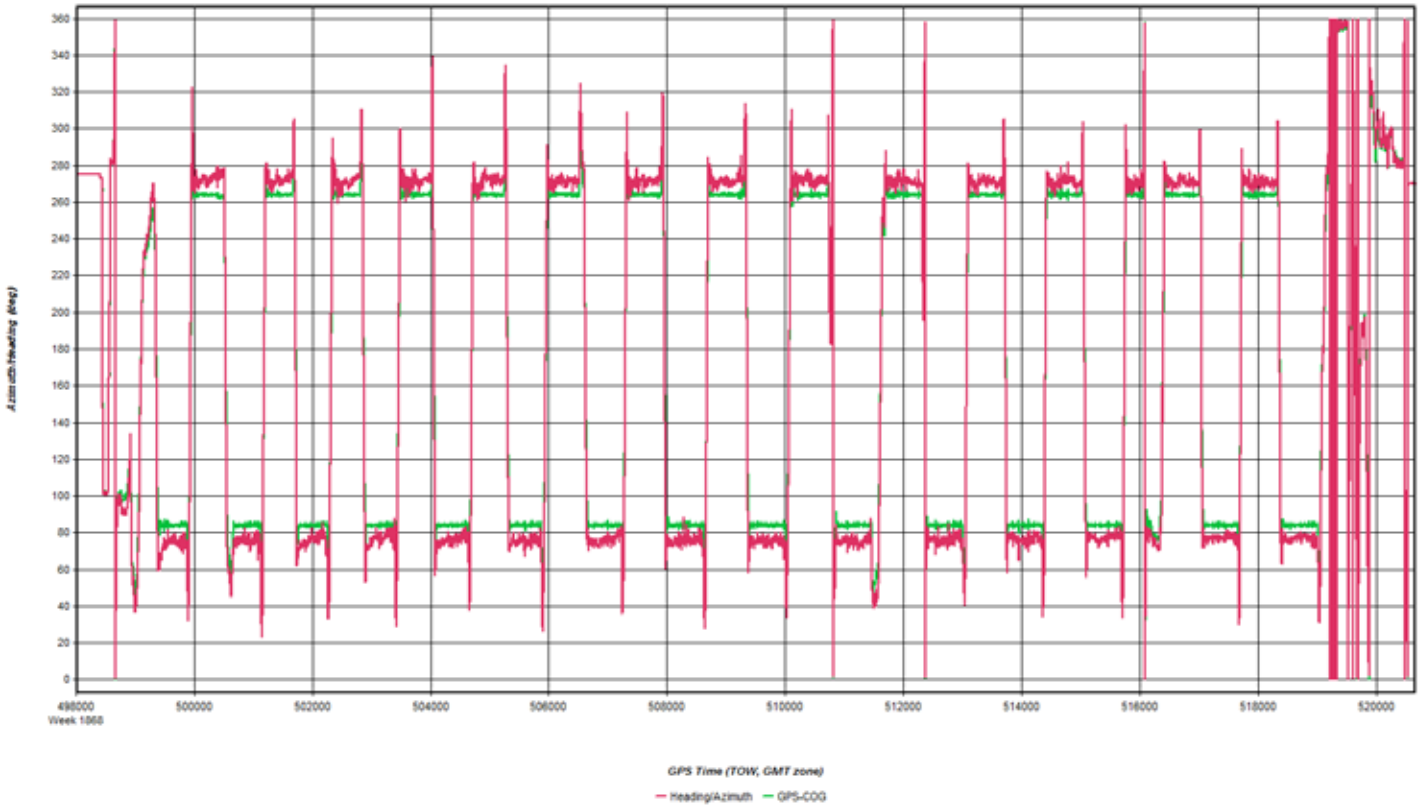
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
-0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
-0.16
-0.18
-0.20
498000
Week 1868
500000
502000
504000
506000
508000
510000
512000
514000
516000
518000
520000
GPS Time (TOW, GMT zone)
East
North
Up


Azimuth/Heading (deg)
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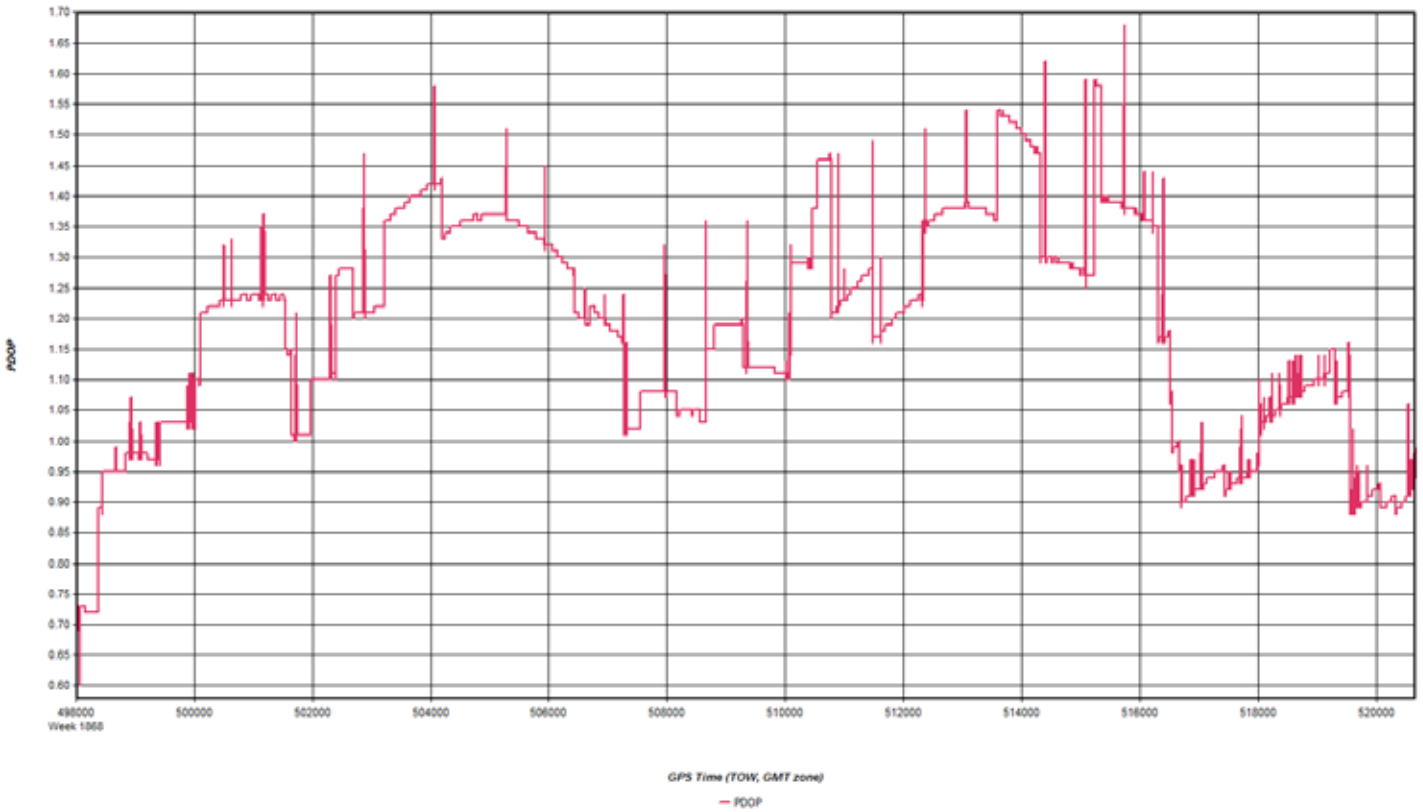
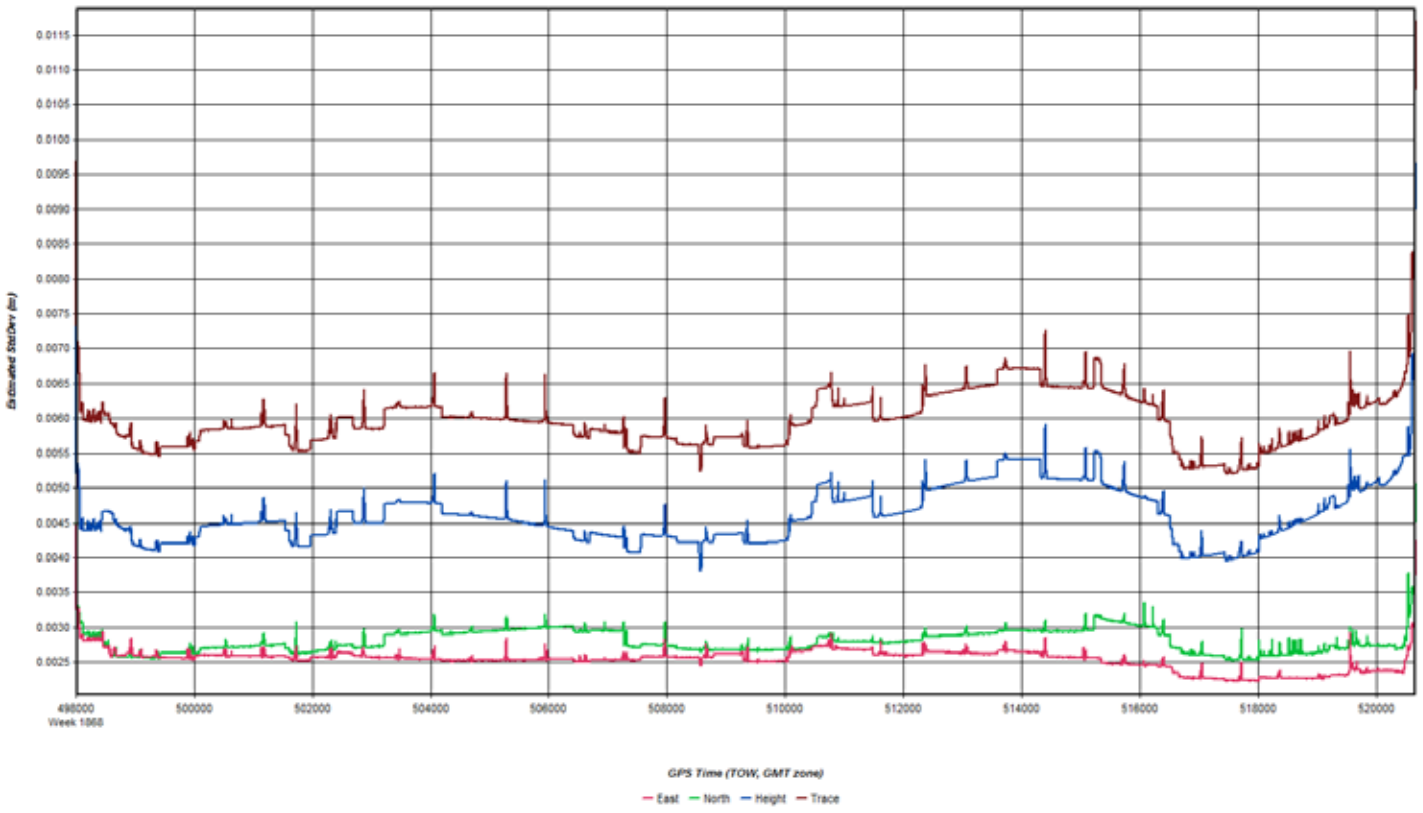
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
498000
Week 1868
500000
502000
504000
506000
508000
510000
512000
514000
516000
518000
520000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
498000
Week 1868
500000
502000
504000
506000
508000
510000
512000
514000
516000
518000
520000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
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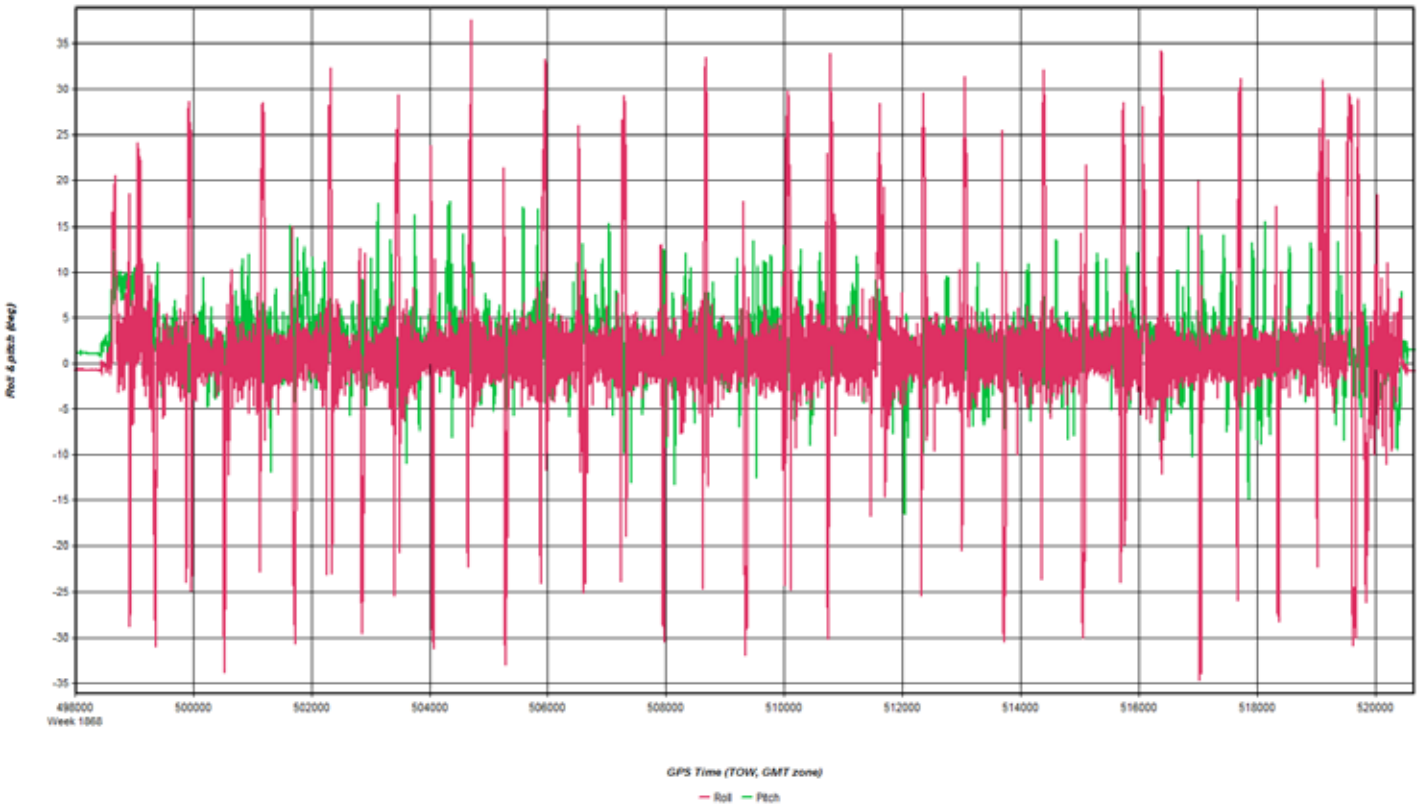
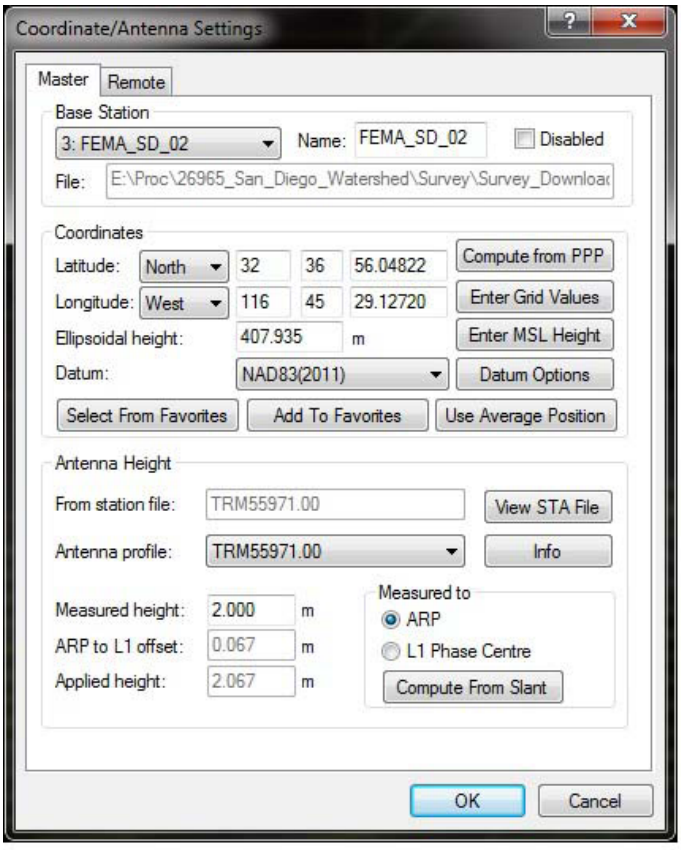
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
498000
Week 1868
500000
502000
504000
506000
508000
510000
512000
514000
516000
518000
520000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
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Remote
Base Station
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Name: FEMA_SD_02
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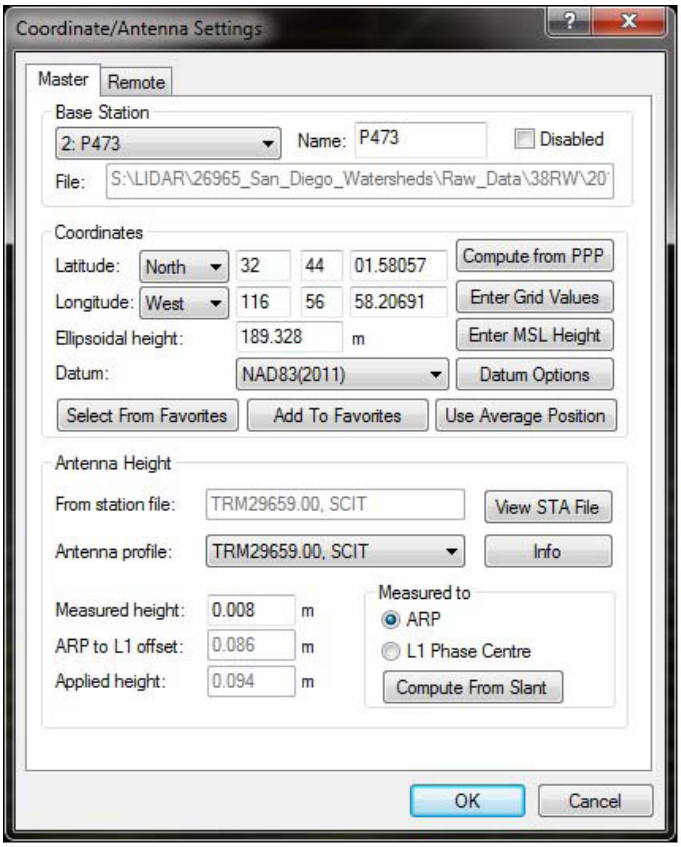
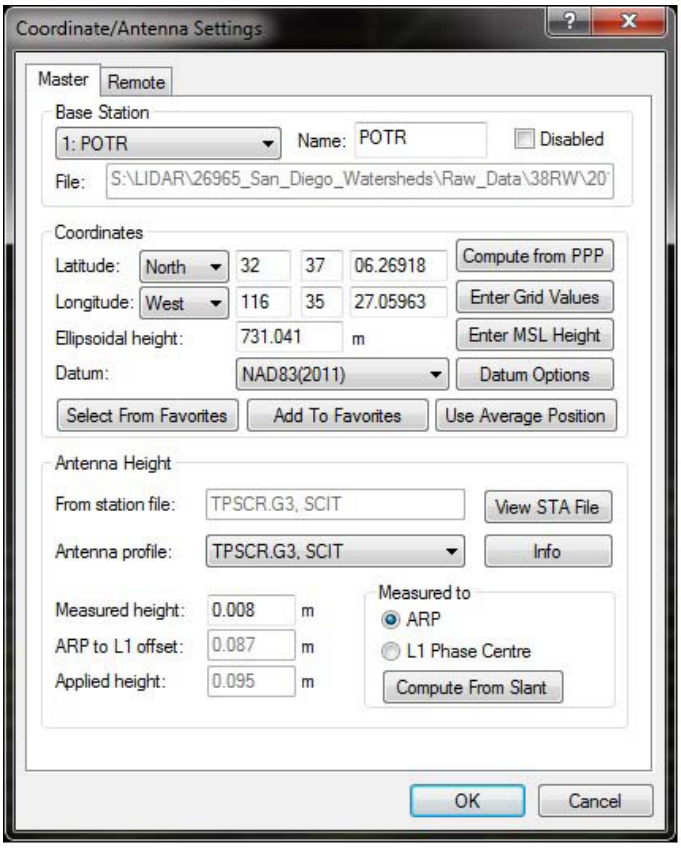
File: E:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloa
Coordinates
Latitude: North 32 36 56.04822
Longitude: West 116 45 29.12720
Ellipsoidal height: 407.935 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average 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


Coordinate/Antenna Settings
Master
Remote
Base Station
2: P473
Name: P473
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Raw_Data\38RW\20
Coordinates
Latitude: North 32 44 01.58057
Longitude: West 116 56 58.20691
Ellipsoidal height: 189.328 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM29659.00, SCIT
Antenna profile: TRM29659.00, SCIT
View STA File
Info
Measured height: 0.008 m
ARP to L1 offset: 0.086 m
Applied height: 0.094 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: POTR
Name: POTR
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Raw_Data\38RW\20
Coordinates
Latitude: North 32 37 06.26918
Longitude: West 116 35 27.05963
Ellipsoidal height: 731.041 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TPSCR.G3, SCIT
Antenna profile: TPSCR.G3, SCIT
View STA File
Info
Measured height: 0.008 m
ARP to L1 offset: 0.087 m
Applied height: 0.095 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	A001
Stop Line Name	A020
Turn Time (min)	3
Buffer (%)	10
Acquisition Time (hrs)	#N/A

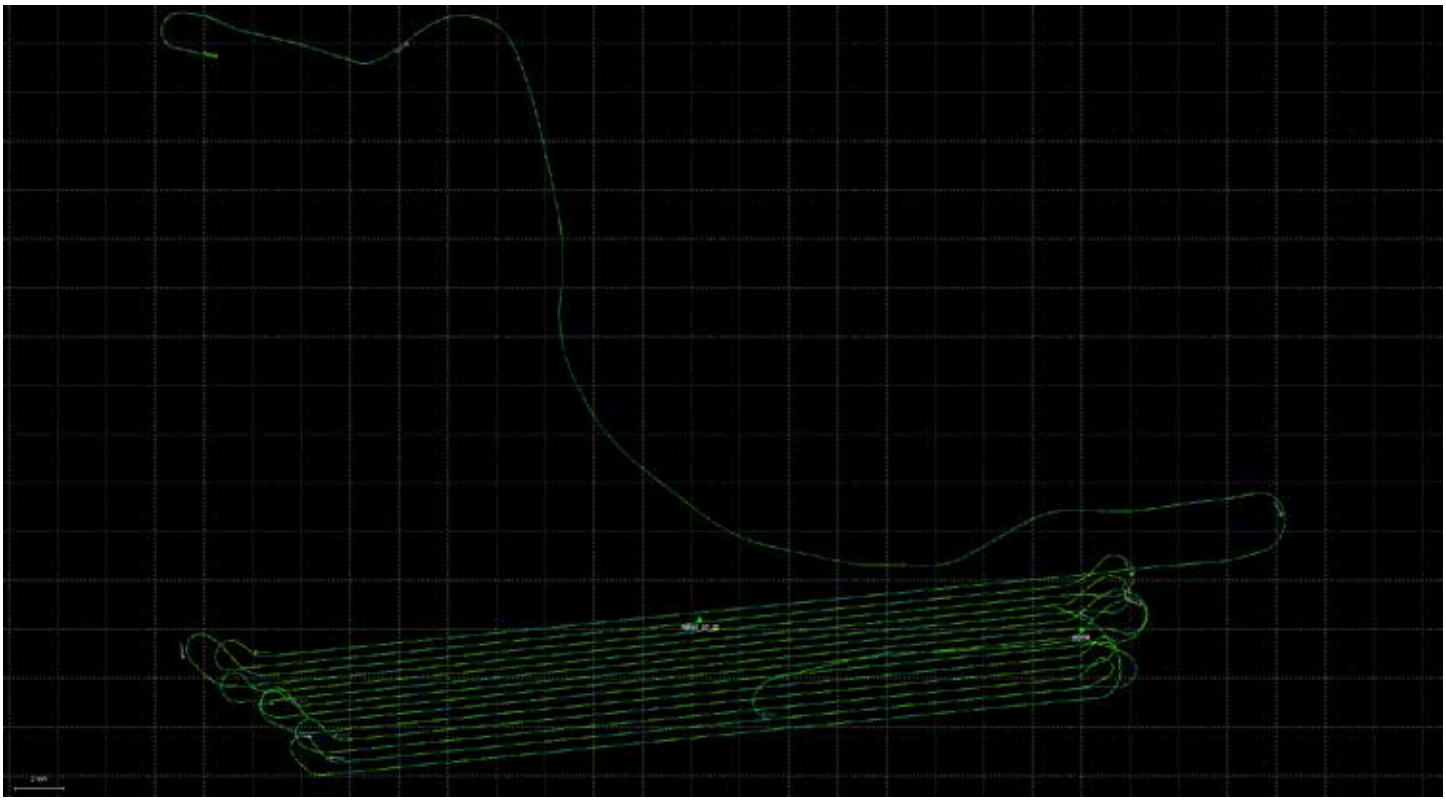
Other Acquisition Notes:

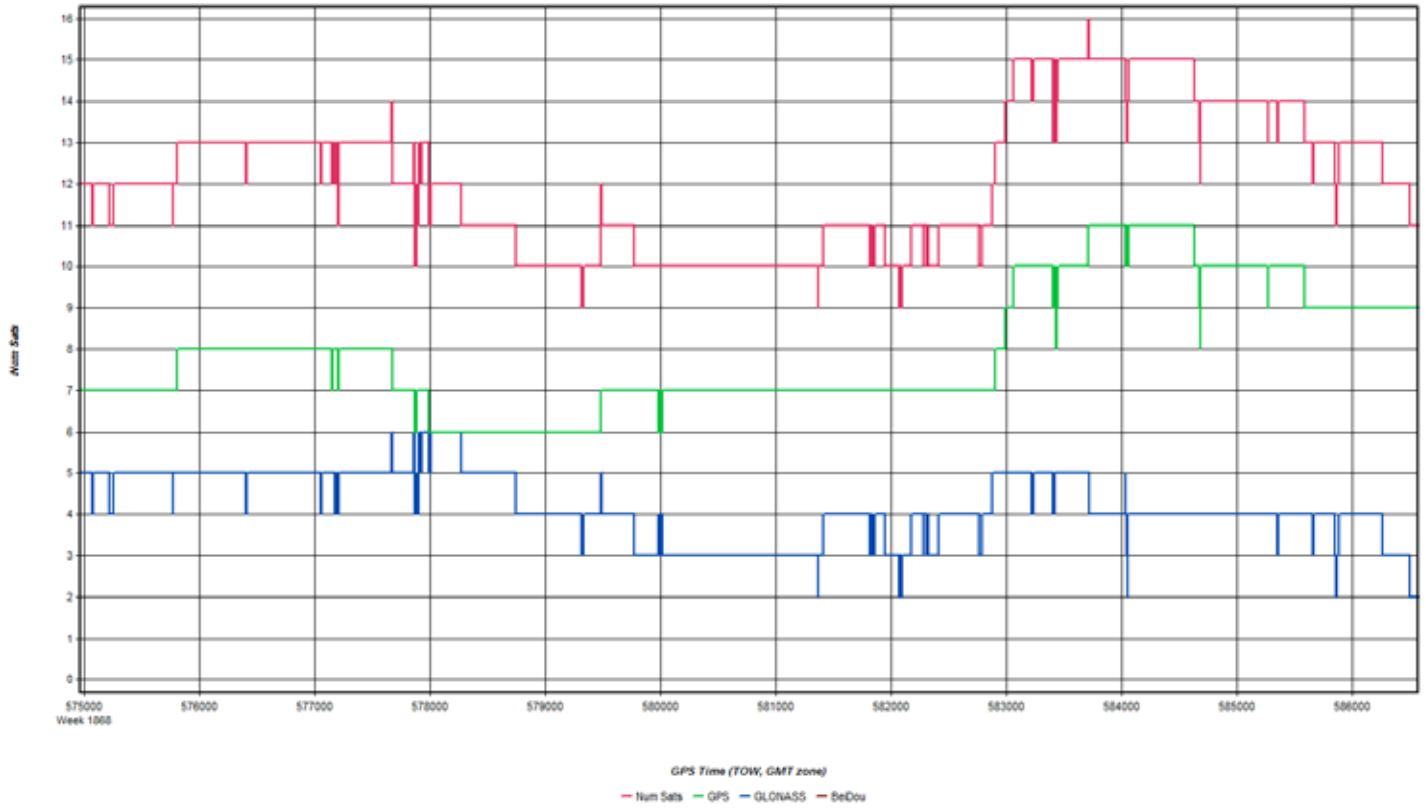
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
190	13.02	6378	184347	185259		Flew line while collecting kinematic W to E, Refly E to W
191	13.06	6336	190429			w to e
192	13.45	6316	191334			e to w
193	13.46	6293	192245			
194	13.46	6270	193235			
195	13.47	6260	194153			
196	15.02	6244	195137			
197	15.04	6224	200139			
198	15.07	6211	201210			e to w
199	15.1	6191	202221			
200	15.54	6139	203309			
201	16.67	6024	204419			
202	16.99	6017	205530			
203	17.15	6001	210645			
204	17.16	5991	211820			
205	17.28	5978	212944			w to e
206	17.29	5958	214151			
207	17.29	5932	215422			
208	17.3	5932	220840			
209	17.3	5932	222016			Crossline: 001311
210	16.97	5925	223147			
211	17.03	5919	224235			
212	17.05	5919	225346			
213	17.1	5919	230457			
214	17.1	5919	231606	232707		Pulled off line for traffic e to w, refly e to w
215	17.15	5925	233742			
216	17.15	5925	234845			
217	17.17	5850	235956			Final Line W to E

Oct 31, 2015-A

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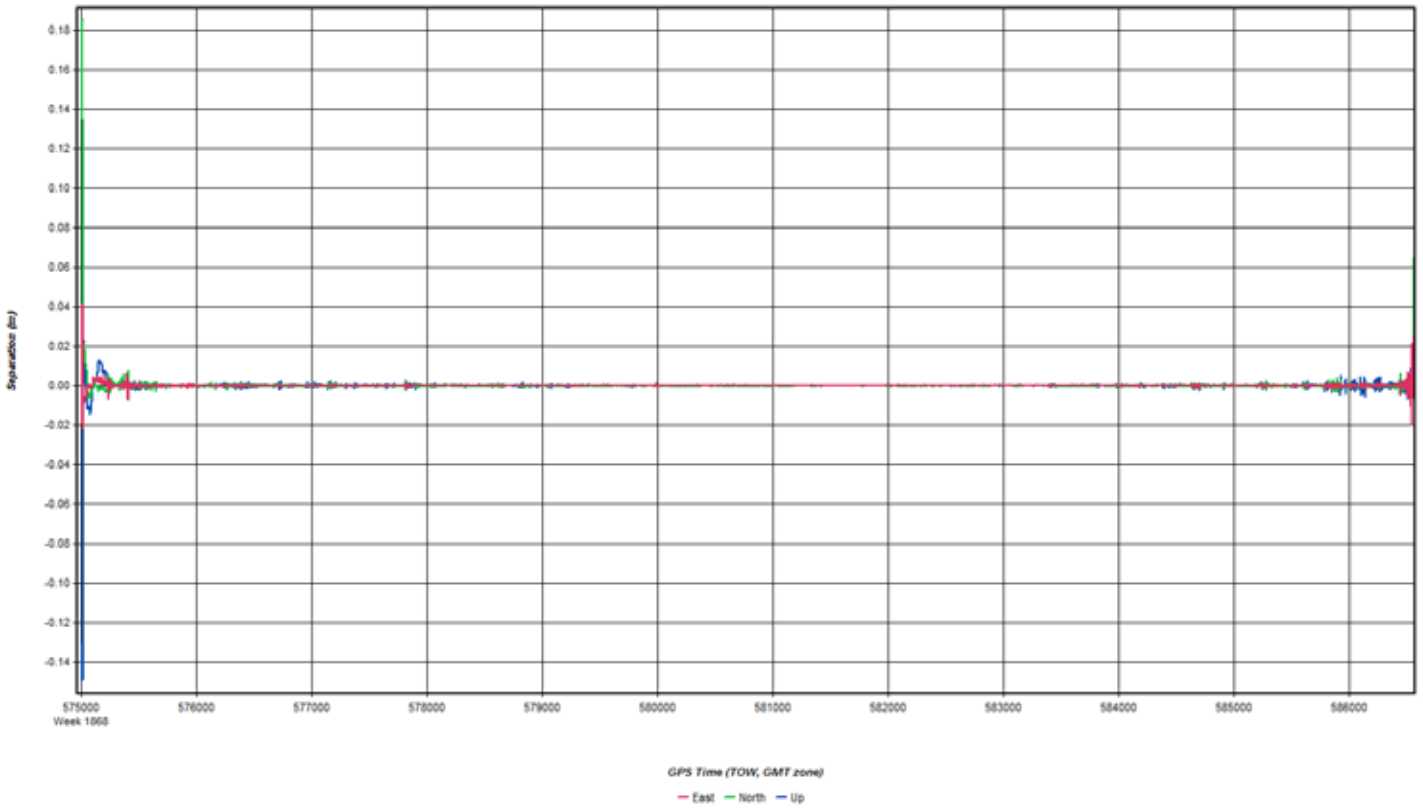
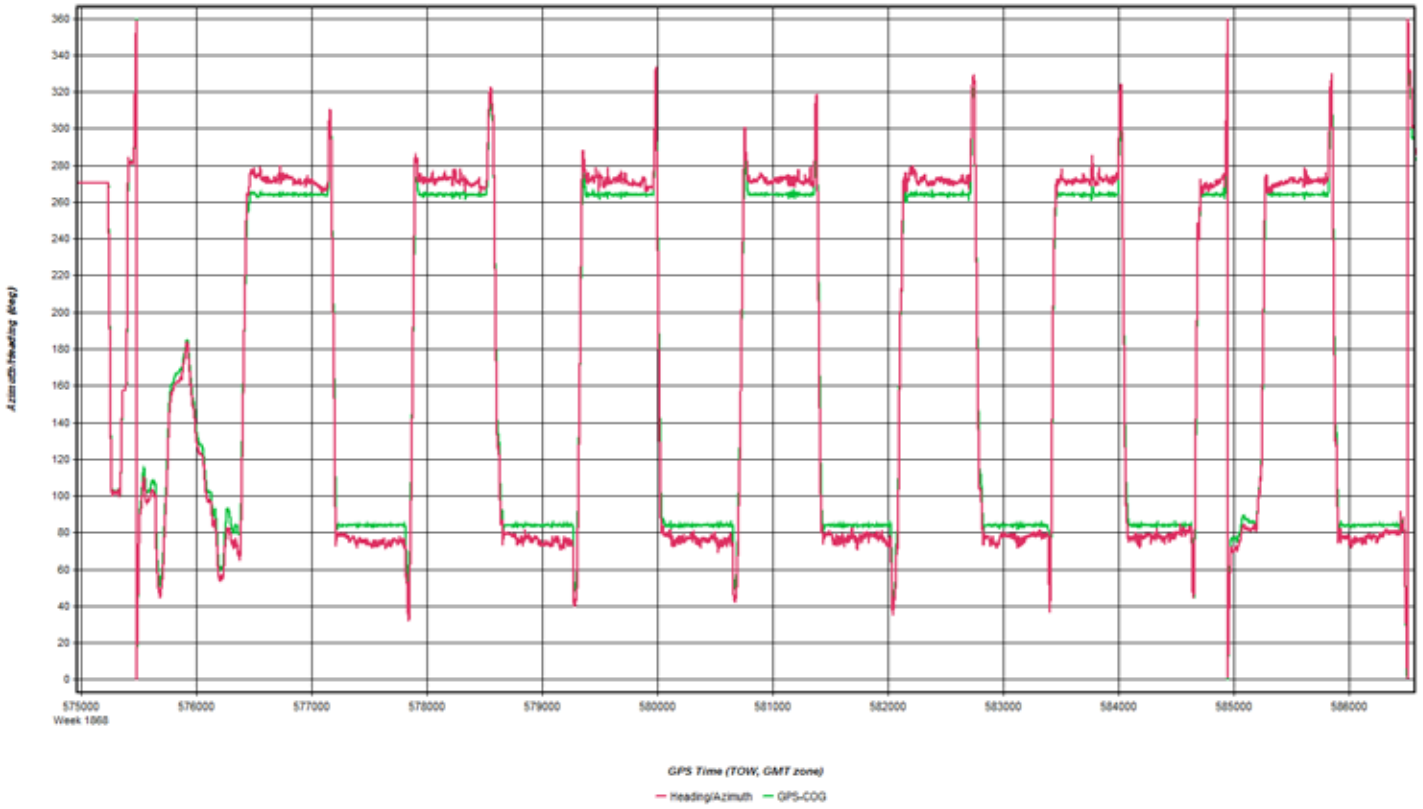
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
575000
Week 1868
576000
577000
578000
579000
580000
581000
582000
583000
584000
585000
586000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou


Separation (m)
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
575000
Week 1868
576000
577000
578000
579000
580000
581000
582000
583000
584000
585000
586000
GPS Time (TOW, GMT zone)
East
North
Up


Azimuth/Heading (deg)
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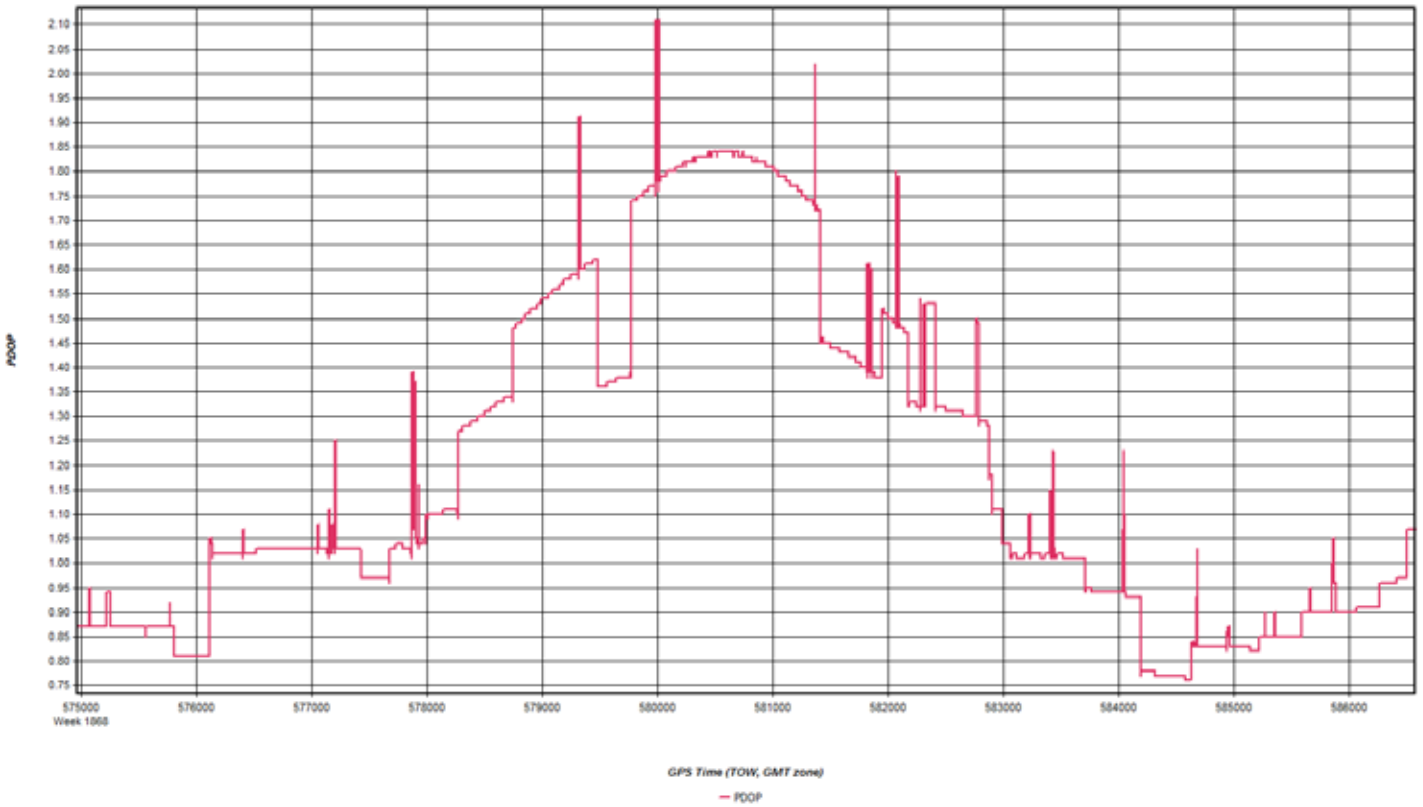
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
575000
Week 1868
576000
577000
578000
579000
580000
581000
582000
583000
584000
585000
586000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
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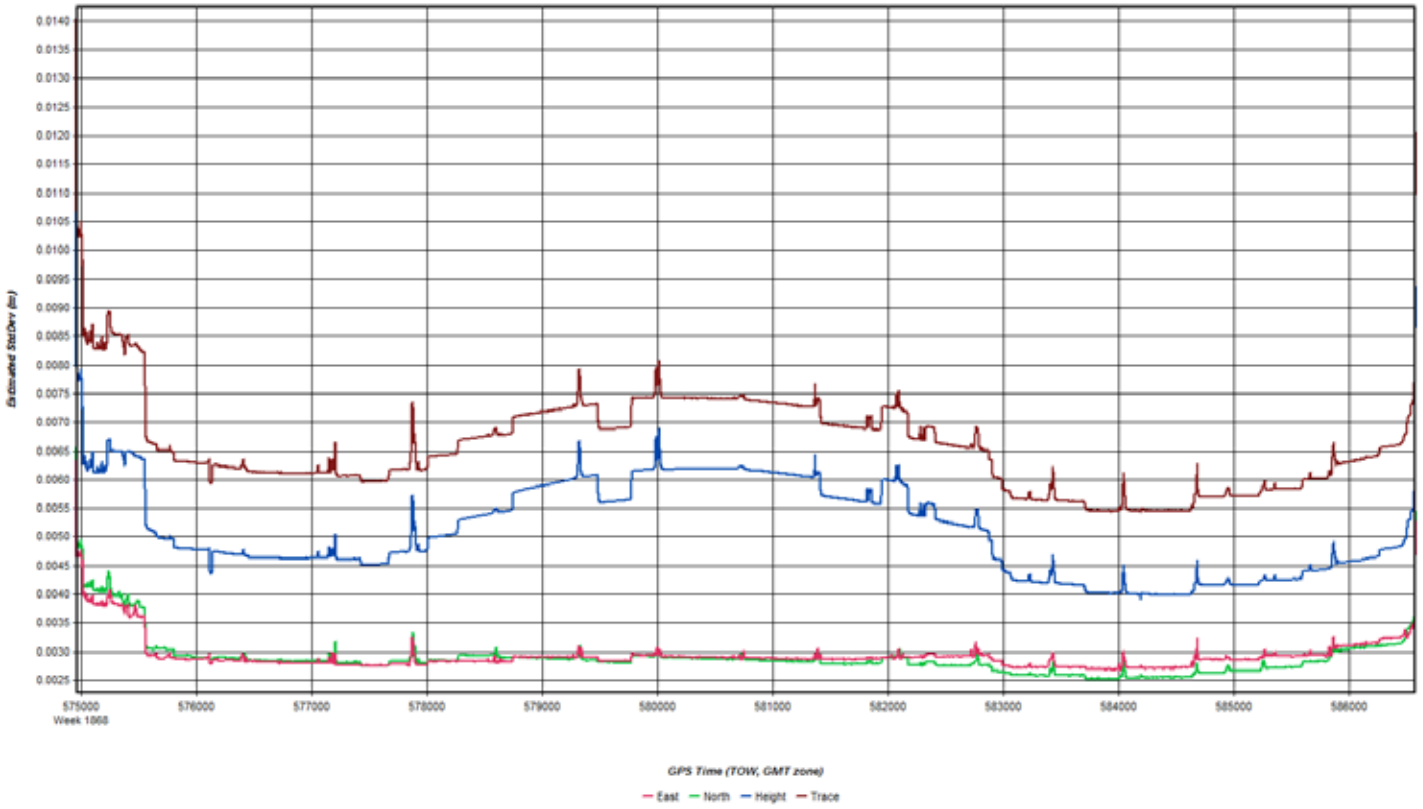
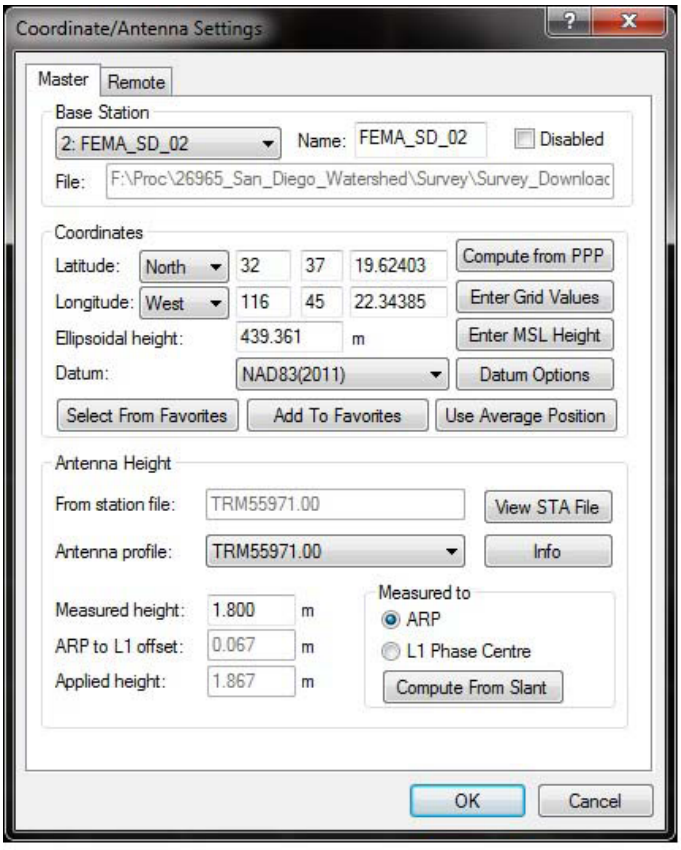
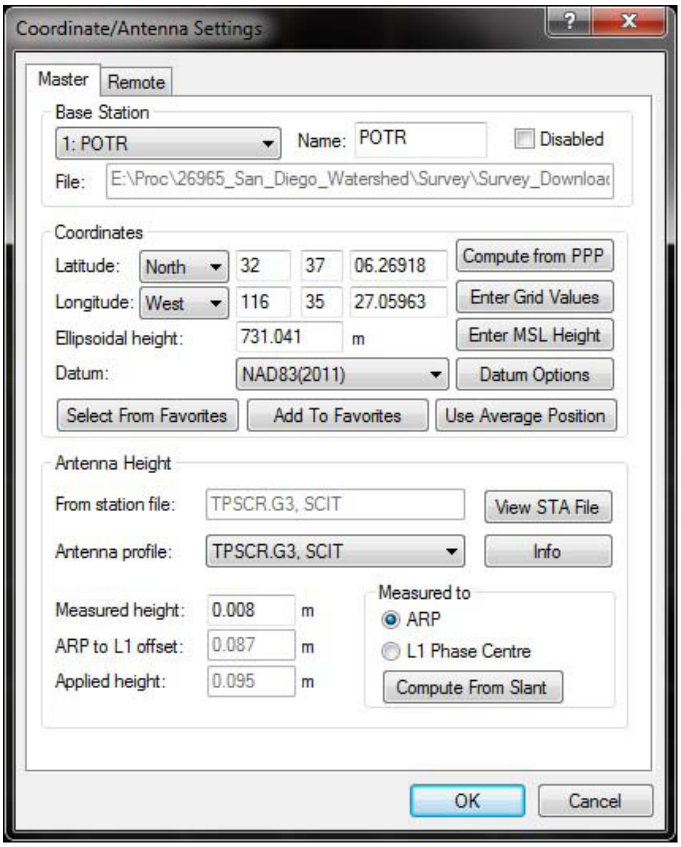
Week 1868
576000
577000
578000
579000
580000
581000
582000
583000
584000
585000
586000
GPS Time (TOW, GMT zone)
PDOP


575000
Week 1868
576000
577000
578000
579000
580000
581000
582000
583000
584000
585000
586000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
575000
Week 1868
576000
577000
578000
579000
580000
581000
582000
583000
584000
585000
586000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_02
Name: FEMA_SD_02
Disabled
File: F:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloac
Coordinates
Latitude: North 32 37 19.62403
Longitude: West 116 45 22.34385
Ellipsoidal height: 439.361 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: POTR
Name: POTR
Disabled
File: E:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloa
Coordinates
Latitude: North 32 37 06.26918
Longitude: West 116 35 27.05963
Ellipsoidal height: 731.041 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TPSCR.G3, SCIT
View STA File
Antenna profile: TPSCR.G3, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.087 m
Applied height: 0.095 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	A001
Stop Line Name	A020
Turn Time (min)	3
Buffer (%)	10
Acquisition Time (hrs)	#N/A

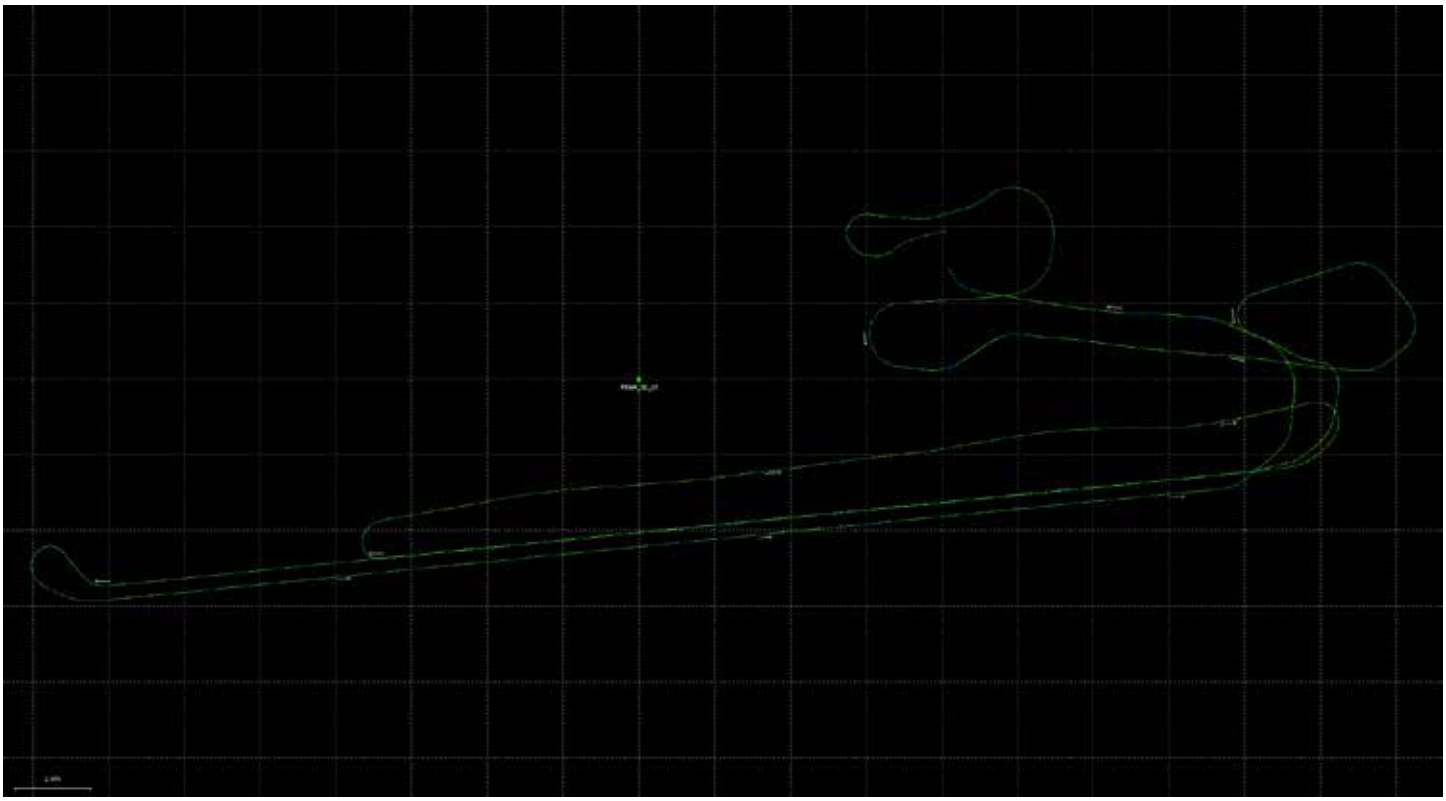
Other Acquisition Notes:

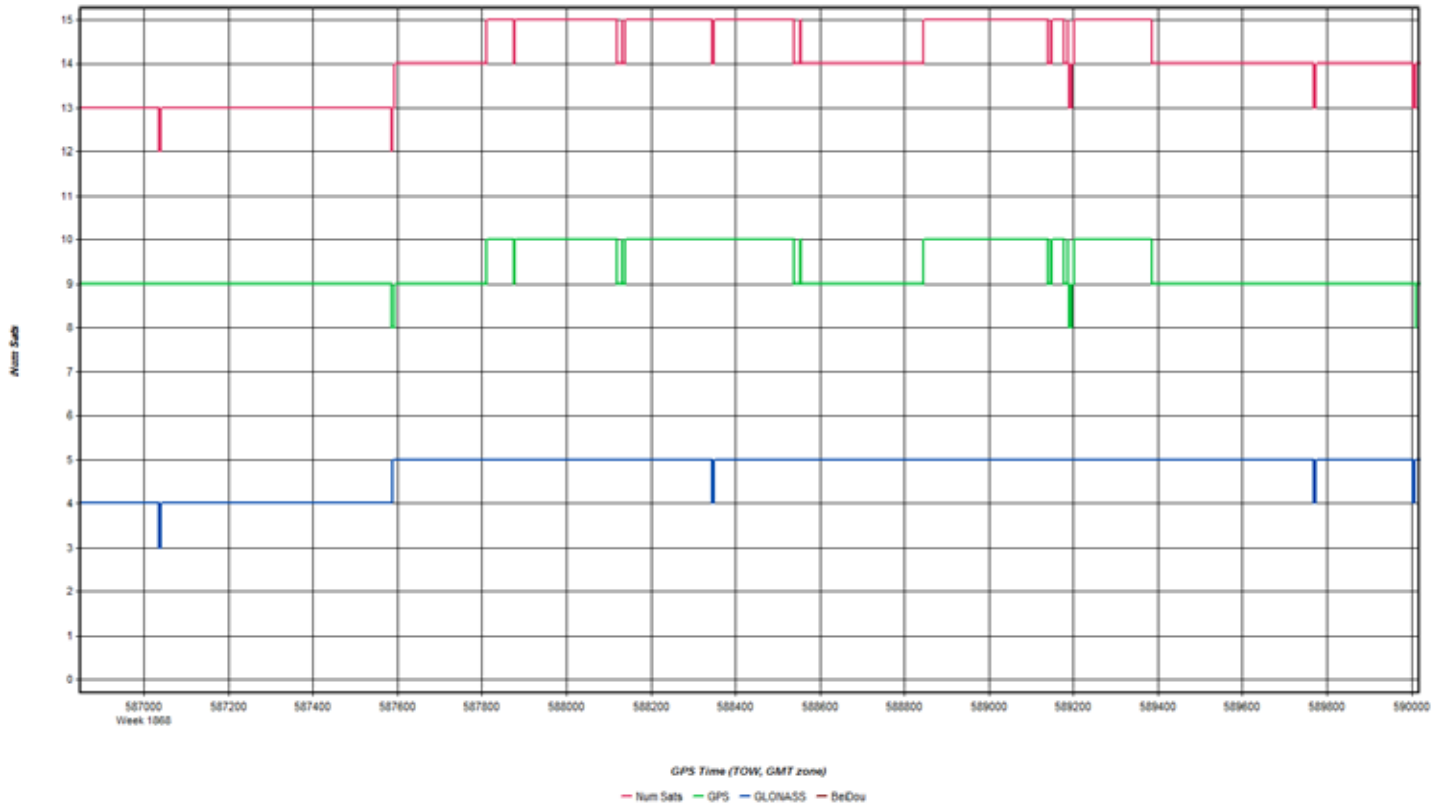
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

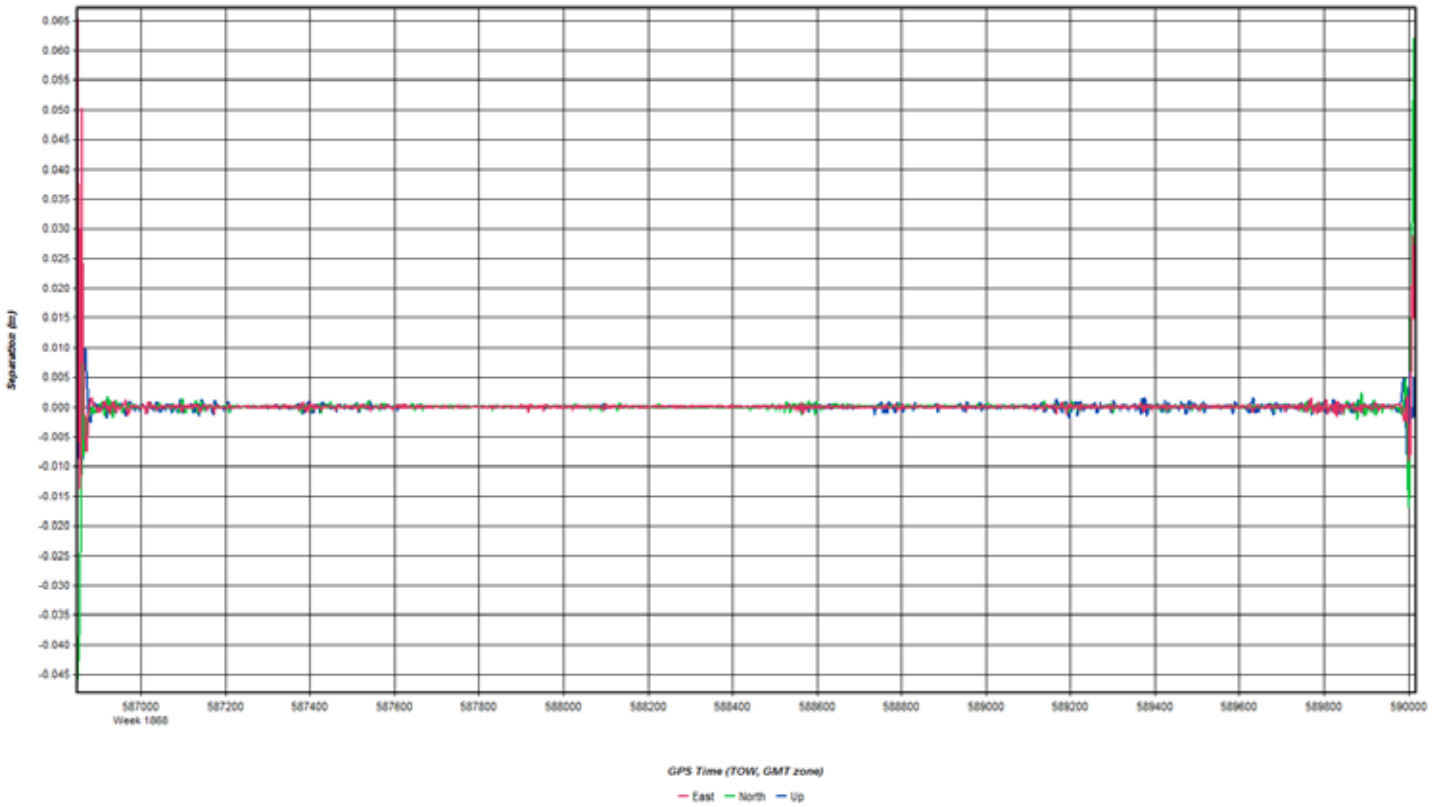
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
218	17.17	5781	160910			Start Line E to W
219	17.18	5732	162021			
220	17.18	5732	163154			
221	17.18	5732	164414			
222	17.17	5732	156605			
223	17.04	5794	170728			w to e
224	16.51	6037	171941			
225	16.51	5909	173032			
226	16.12	6063	174238			e to w
227	16.13	6119	175337			
228	15.77	6113	180413			CROSSLINE: 213355
229	15.78	6086	181435			
230	15.78	6070	182459			Pulled off line for traffic, e to w
231	15.79	6027	184509			W to E, Ranges Froze at end of line. System Restart 11:50-12:12, Refly E to W

Oct 31, 2015-B




Num Sats
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
587000
Week 1868
587200
587400
587600
587800
588000
588200
588400
588600
588800
589000
589200
589400
589600
589800
590000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou


Separation (m)
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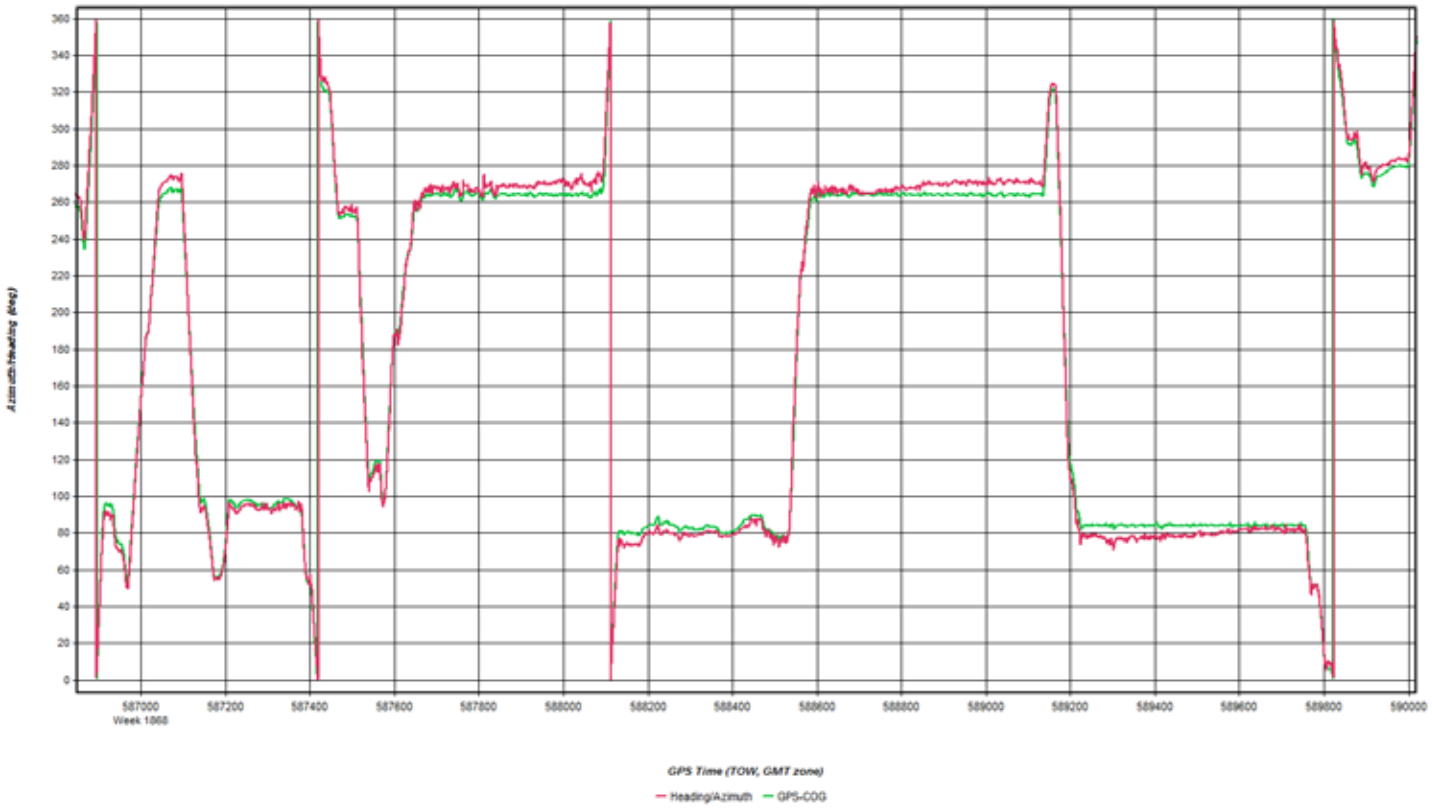
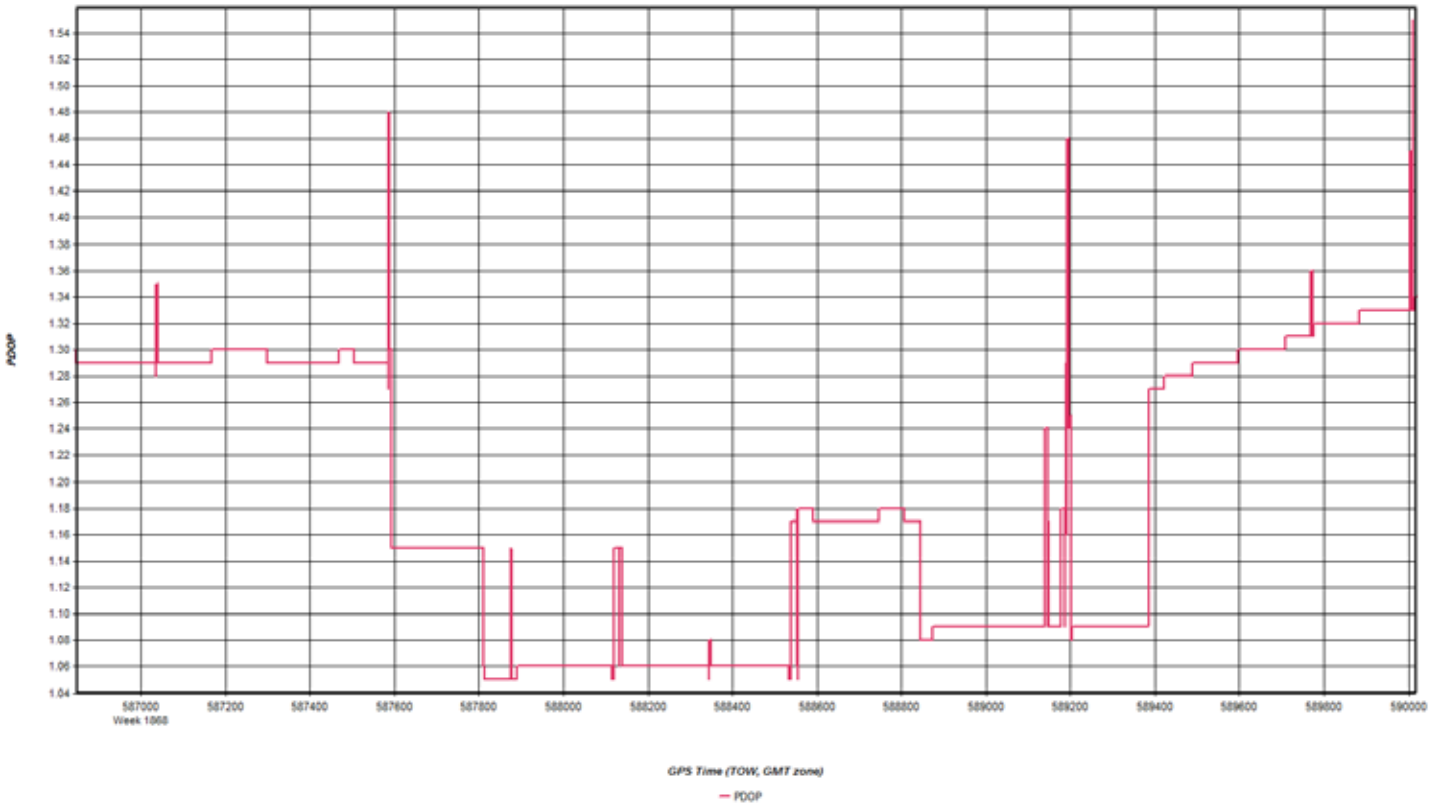
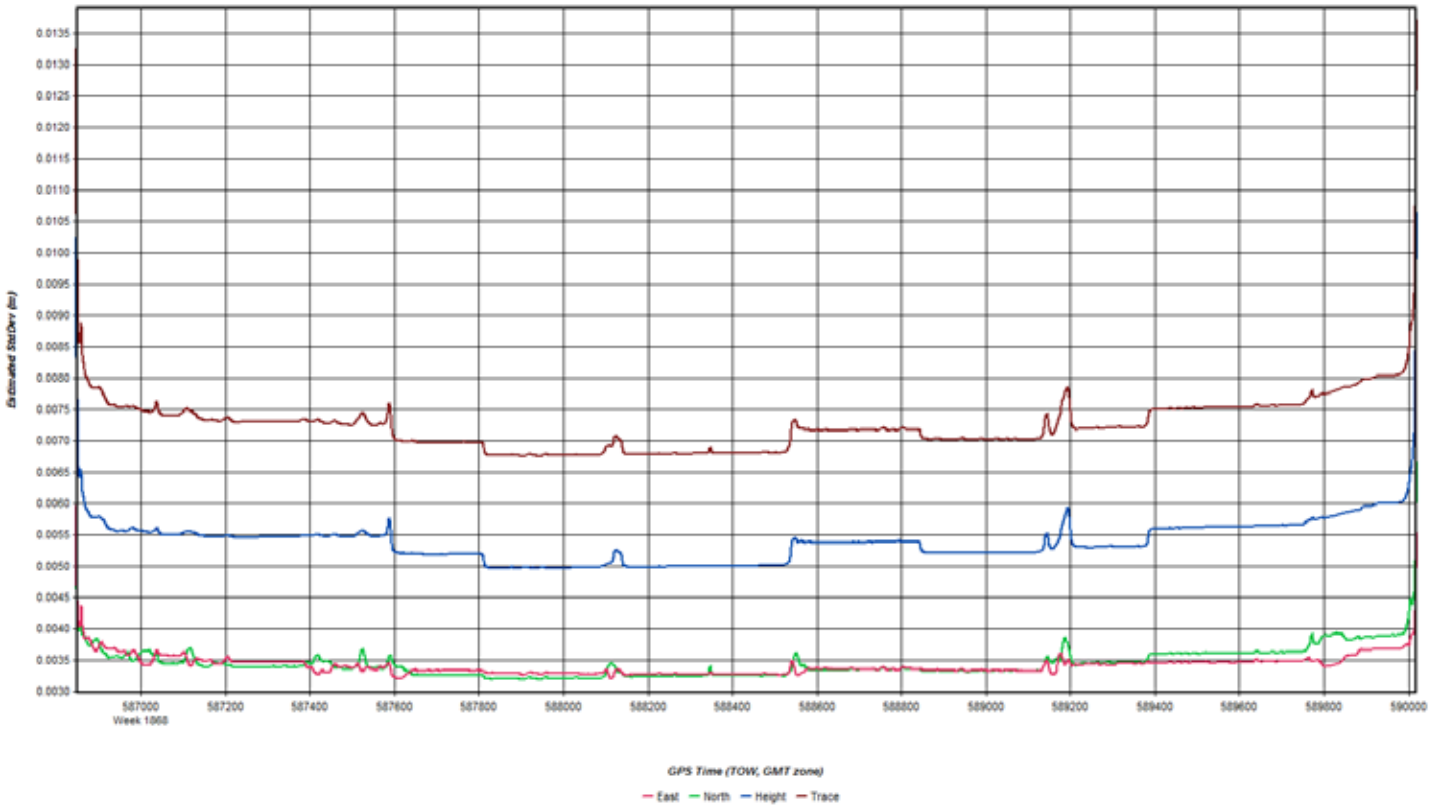
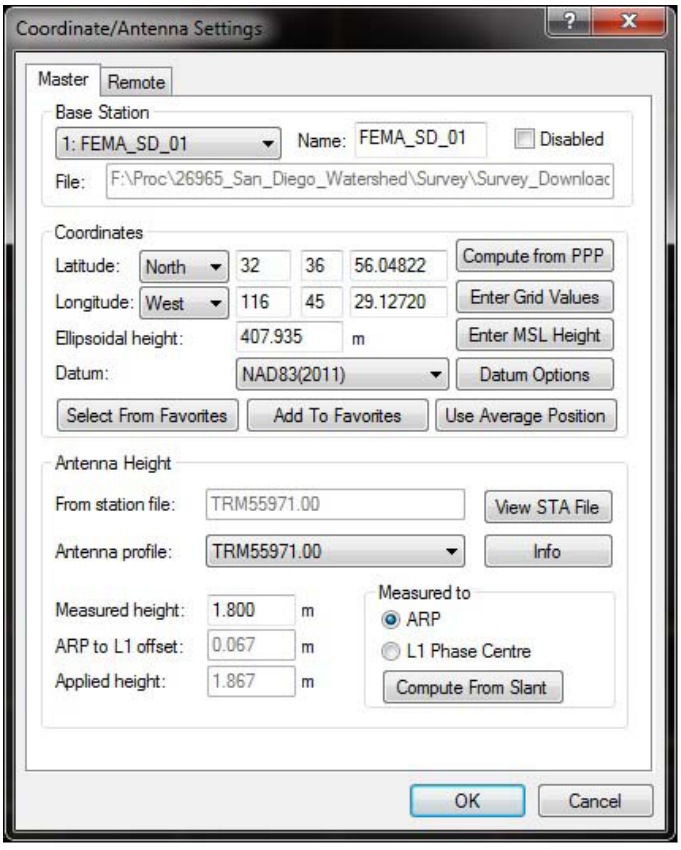
0.055
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.030
-0.035
-0.040
-0.045
587000
Week 1868
587200
587400
587600
587800
588000
588200
588400
588600
588800
589000
589200
589400
589600
589800
590000
GPS Time (TOW, GMT zone)
East
North
Up


Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
587000
Week 1868
587200
587400
587600
587800
588000
588200
588400
588600
588800
589000
589200
589400
589600
589800
590000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
1.54
1.52
1.50
1.48
1.46
1.44
1.42
1.40
1.38
1.36
1.34
1.32
1.30
1.28
1.26
1.24
1.22
1.20
1.18
1.16
1.14
1.12
1.10
1.08
1.06
1.04
587000
Week 1868
587200
587400
587600
587800
588000
588200
588400
588600
588800
589000
589200
589400
589600
589800
590000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
587000
Week 1868
587200
587400
587600
587800
588000
588200
588400
588600
588800
589000
589200
589400
589600
589800
590000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
587000
Week 1868
587200
587400
587600
587800
588000
588200
588400
588600
588800
589000
589200
589400
589600
589800
590000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
1: FEMA_SD_01
Name: FEMA_SD_01
Disabled
File: F:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloac
Coordinates
Latitude: North 32 36 56.04822
Longitude: West 116 45 29.12720
Ellipsoidal height: 407.935 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	A001
Stop Line Name	A020
Turn Time (min)	3
Buffer (%)	10
Acquisition Time (hrs)	#N/A

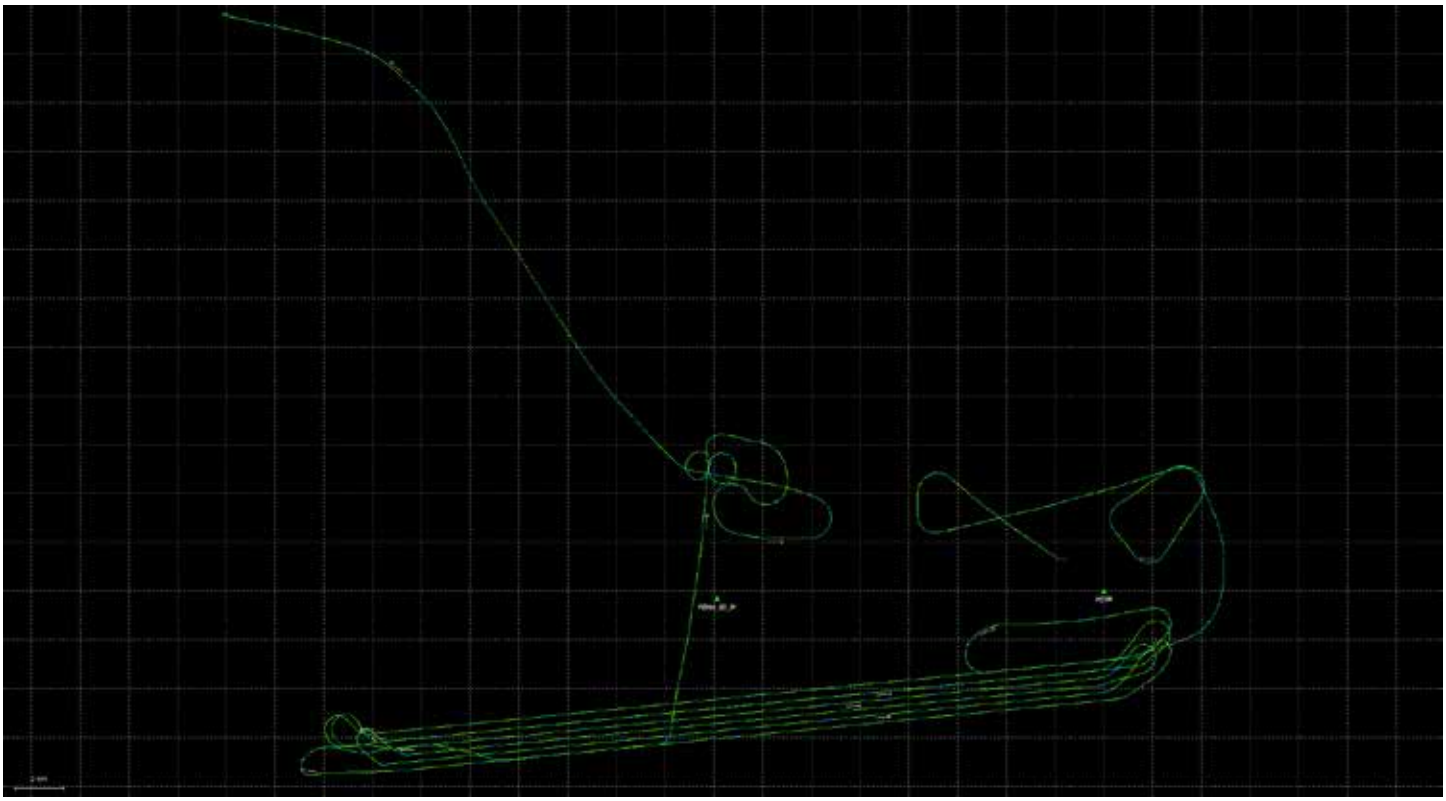
Other Acquisition Notes:

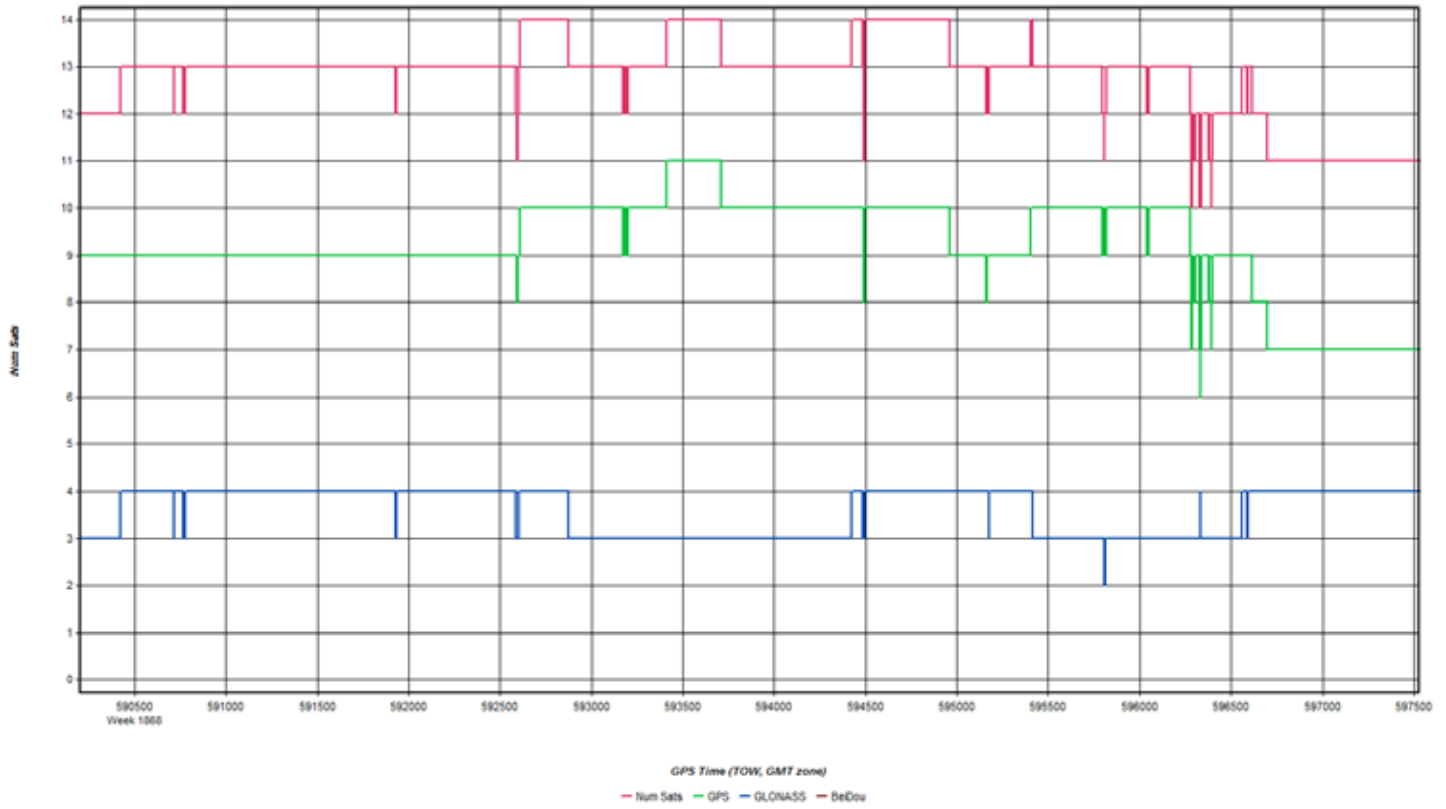
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

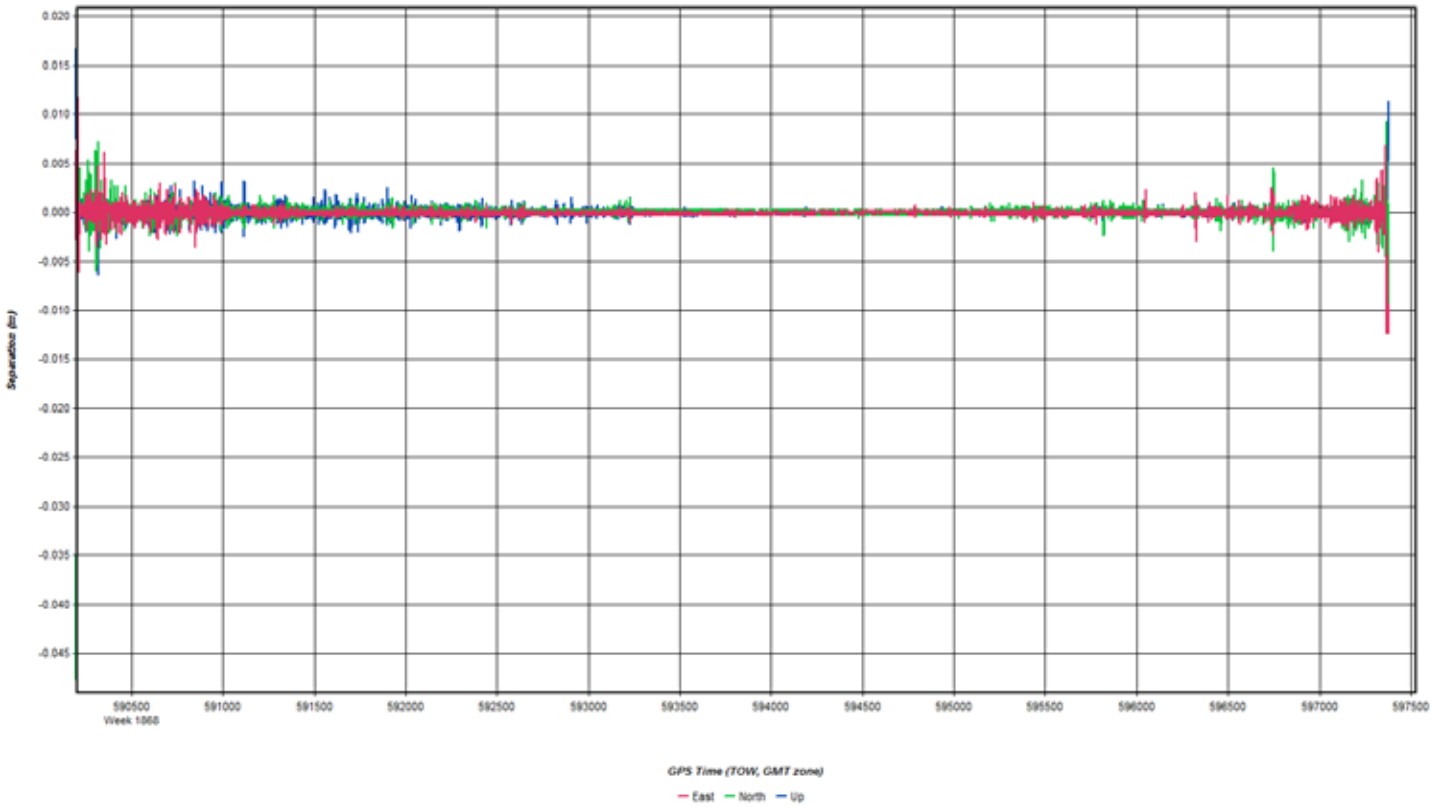
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

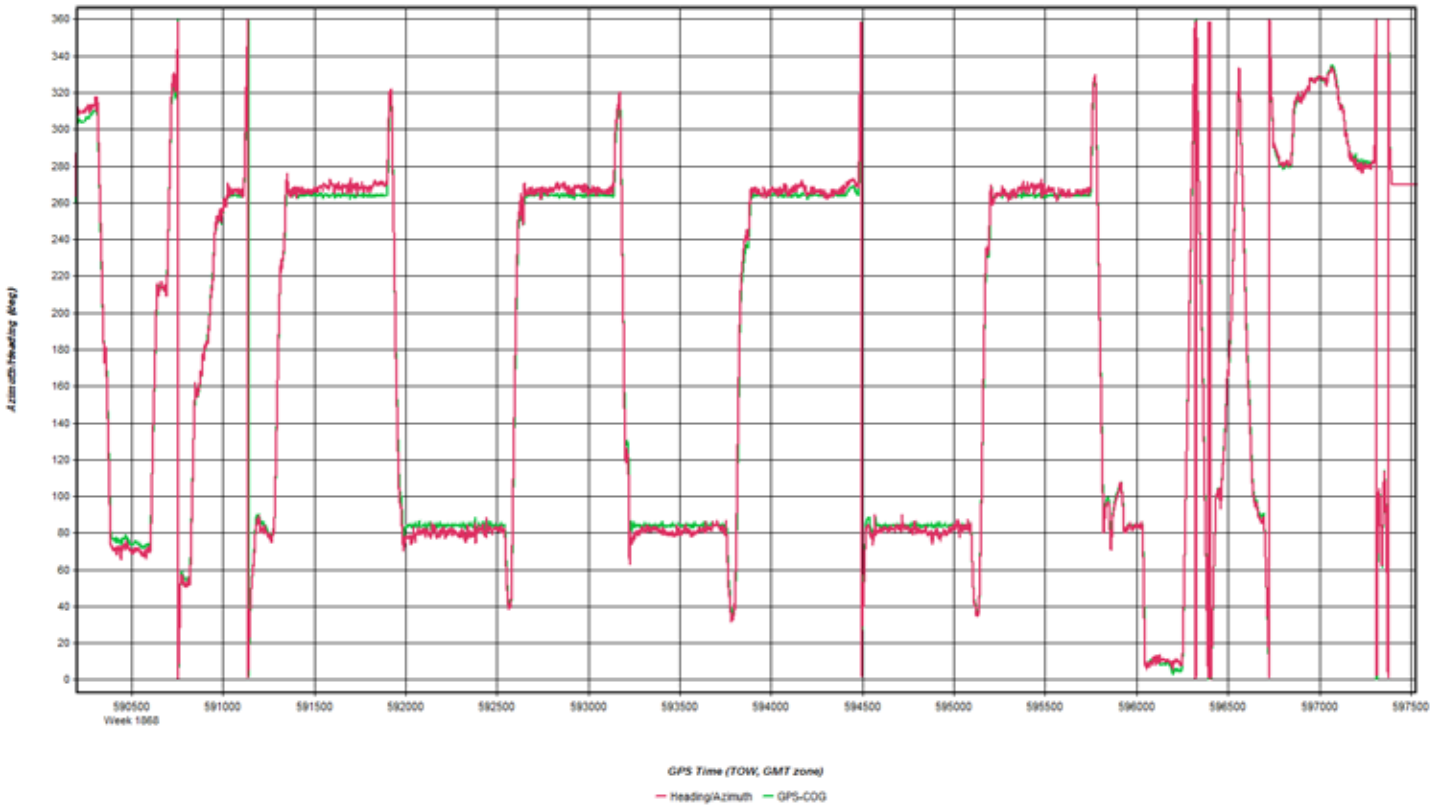
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
231	15.79	6027	184509	191419		Upon 1st system restart, started to refly 231 again; Then had traffic and had to stop midline, Finally reflew line.
232	15.37	6001	194018	210912		System Error, Flight To Shutdown, Then had to refly again starting at 231

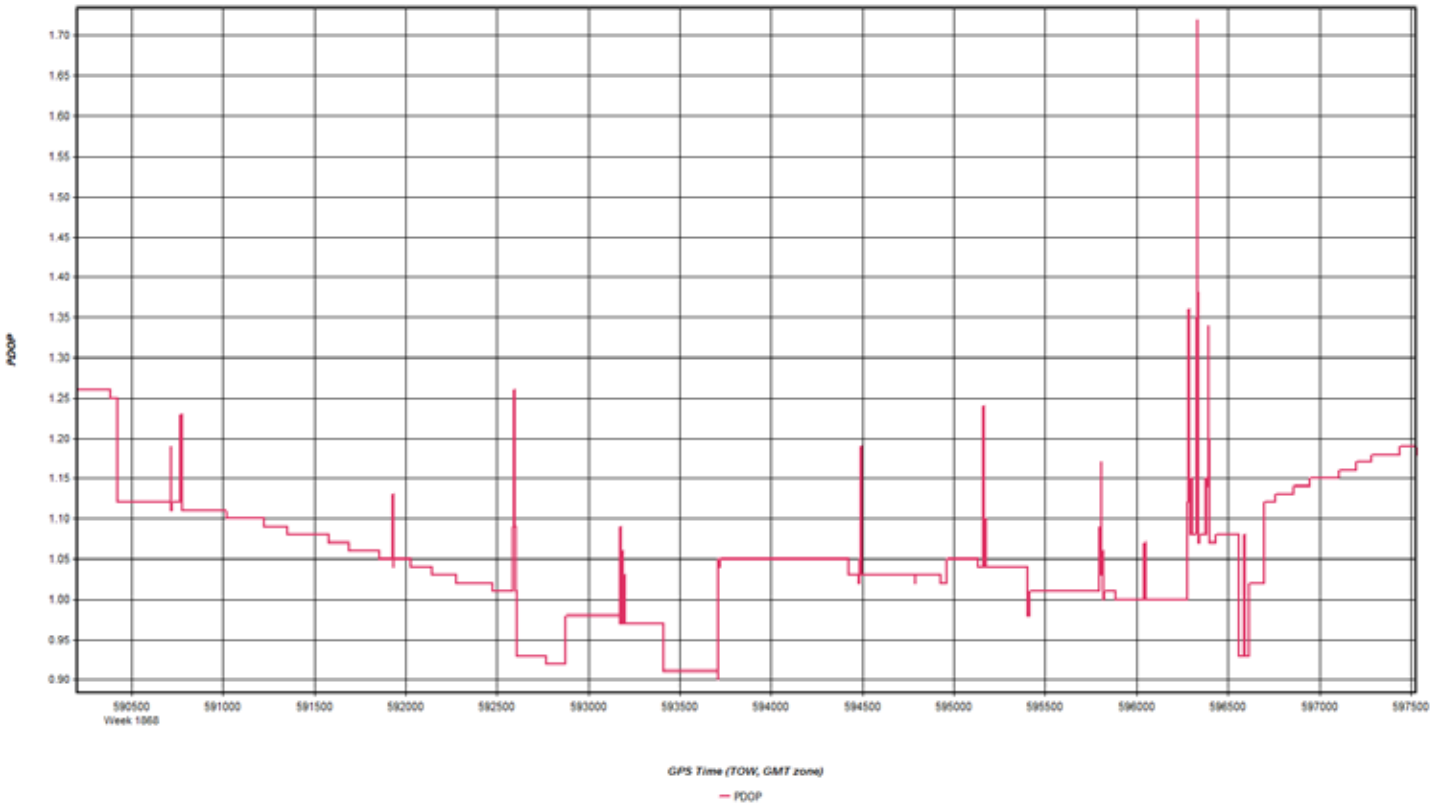
Oct 31, 2015-C

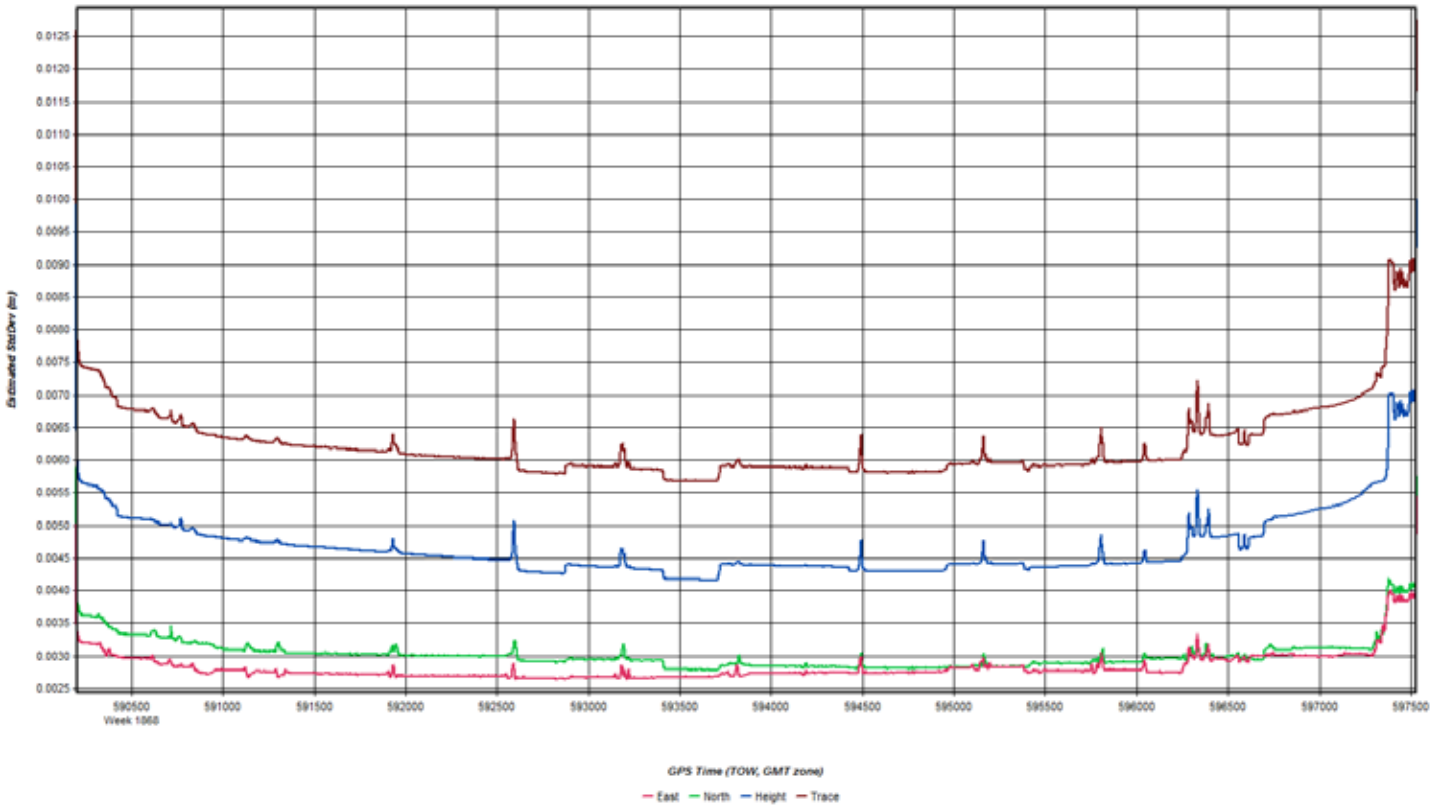



Num Sats
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
590500
Week 1868
591000
591500
592000
592500
593000
593500
594000
594500
595000
595500
596000
596500
597000
597500
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

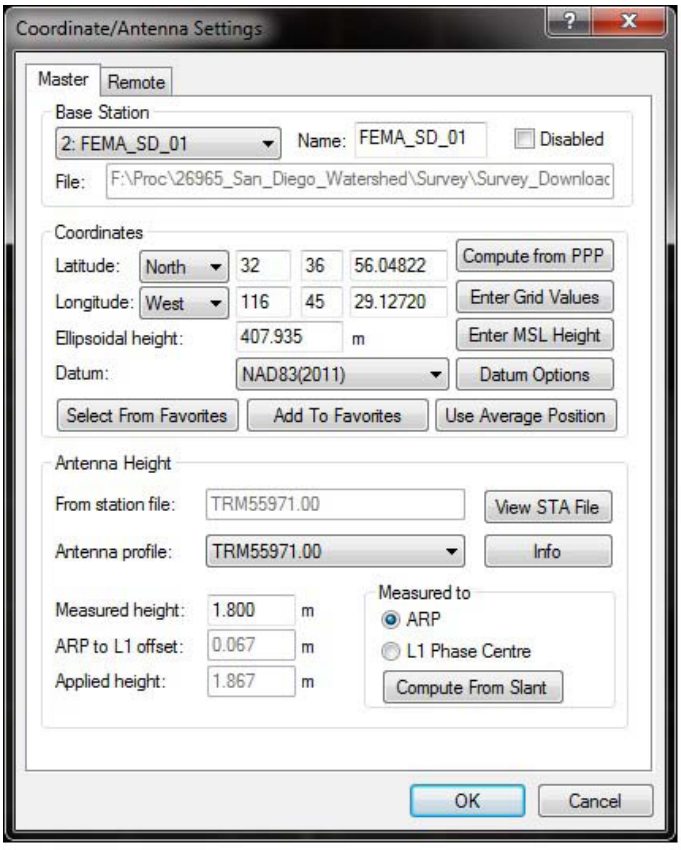

Separation (m)
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.030
-0.035
-0.040
-0.045
590500
Week 1868
591000
591500
592000
592500
593000
593500
594000
594500
595000
595500
596000
596500
597000
597500
GPS Time (TOW, GMT zone)
East
North
Up

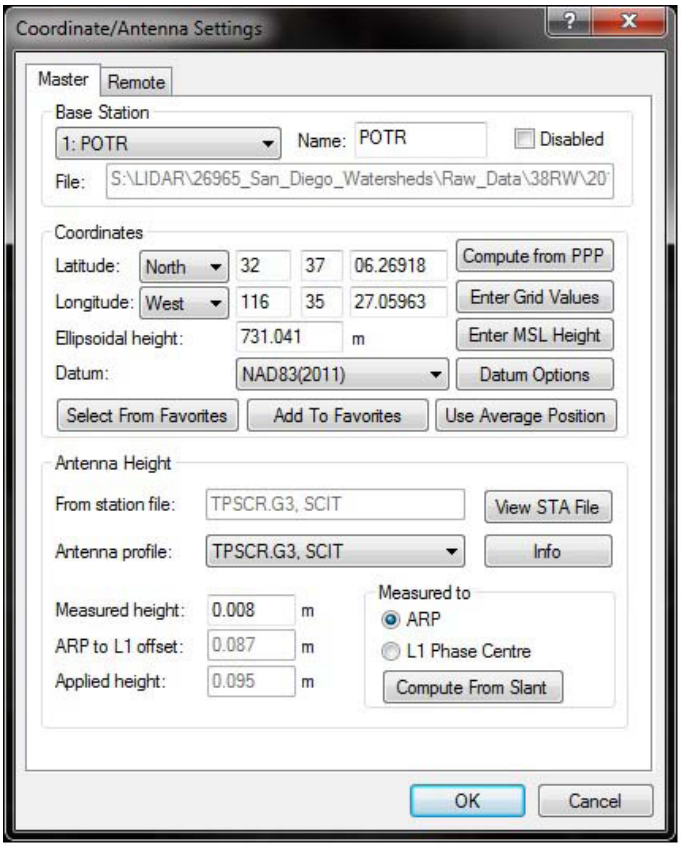

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
590500
Week 1868
591000
591500
592000
592500
593000
593500
594000
594500
595000
595500
596000
596500
597000
597500
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
590500
Week 1868
591000
591500
592000
592500
593000
593500
594000
594500
595000
595500
596000
596500
597000
597500
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
590500
Week 1868
591000
591500
592000
592500
593000
593500
594000
594500
595000
595500
596000
596500
597000
597500
GPS Time (TOW, GMT zone)
East
North
Height
Trace


GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_01
Name: FEMA_SD_01
Disabled
File: F:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloac
Coordinates
Latitude: North 32 36 56.04822
Longitude: West 116 45 29.12720
Ellipsoidal height: 407.935 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: POTR
Name: POTR
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Raw_Data\38RW\20
Coordinates
Latitude: North 32 37 06.26918
Longitude: West 116 35 27.05963
Ellipsoidal height: 731.041 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TPSCR.G3, SCIT
View STA File
Antenna profile: TPSCR.G3, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.087 m
Applied height: 0.095 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	A001
Stop Line Name	A020
Turn Time (min)	3
Buffer (%)	10
Acquisition Time (hrs)	#N/A

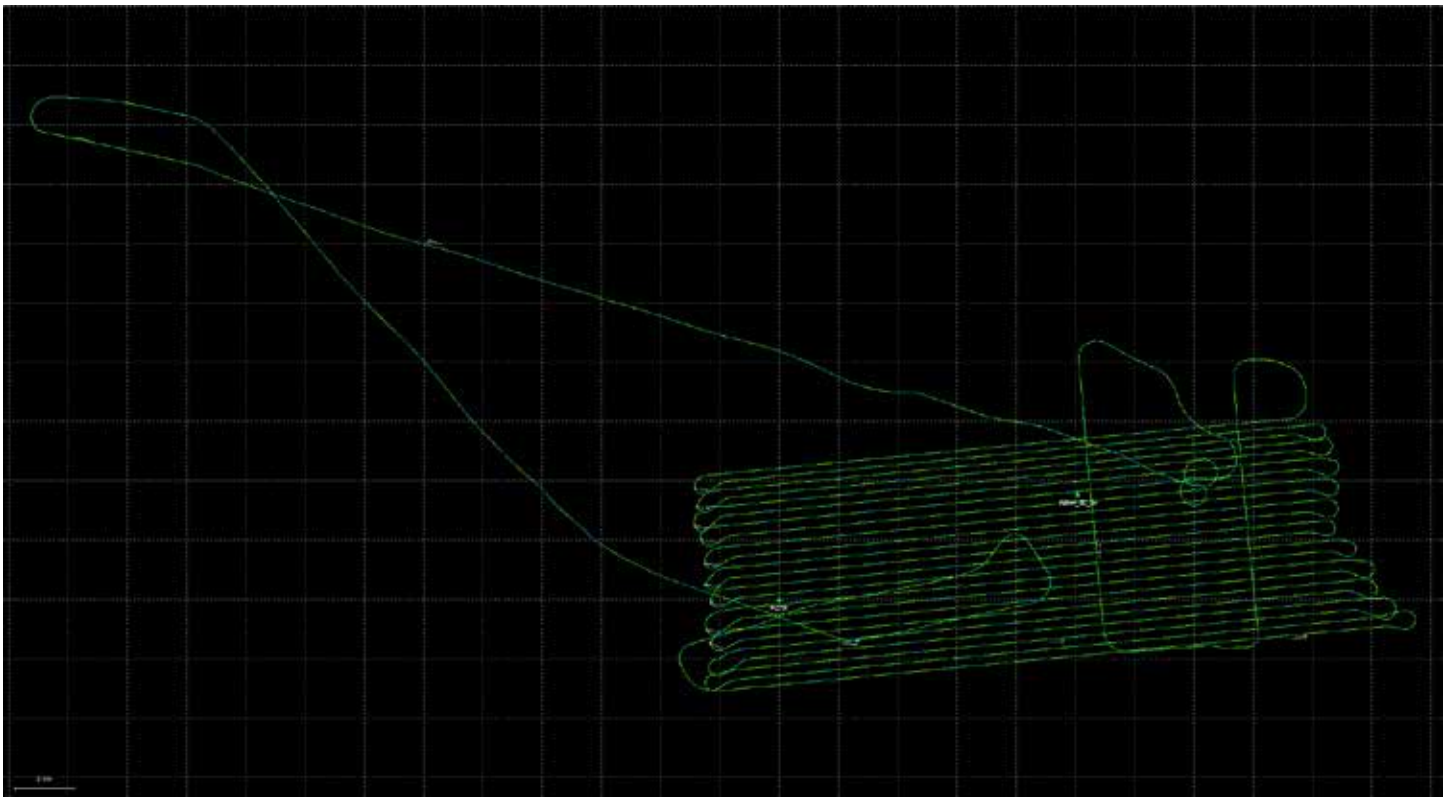
Other Acquisition Notes:

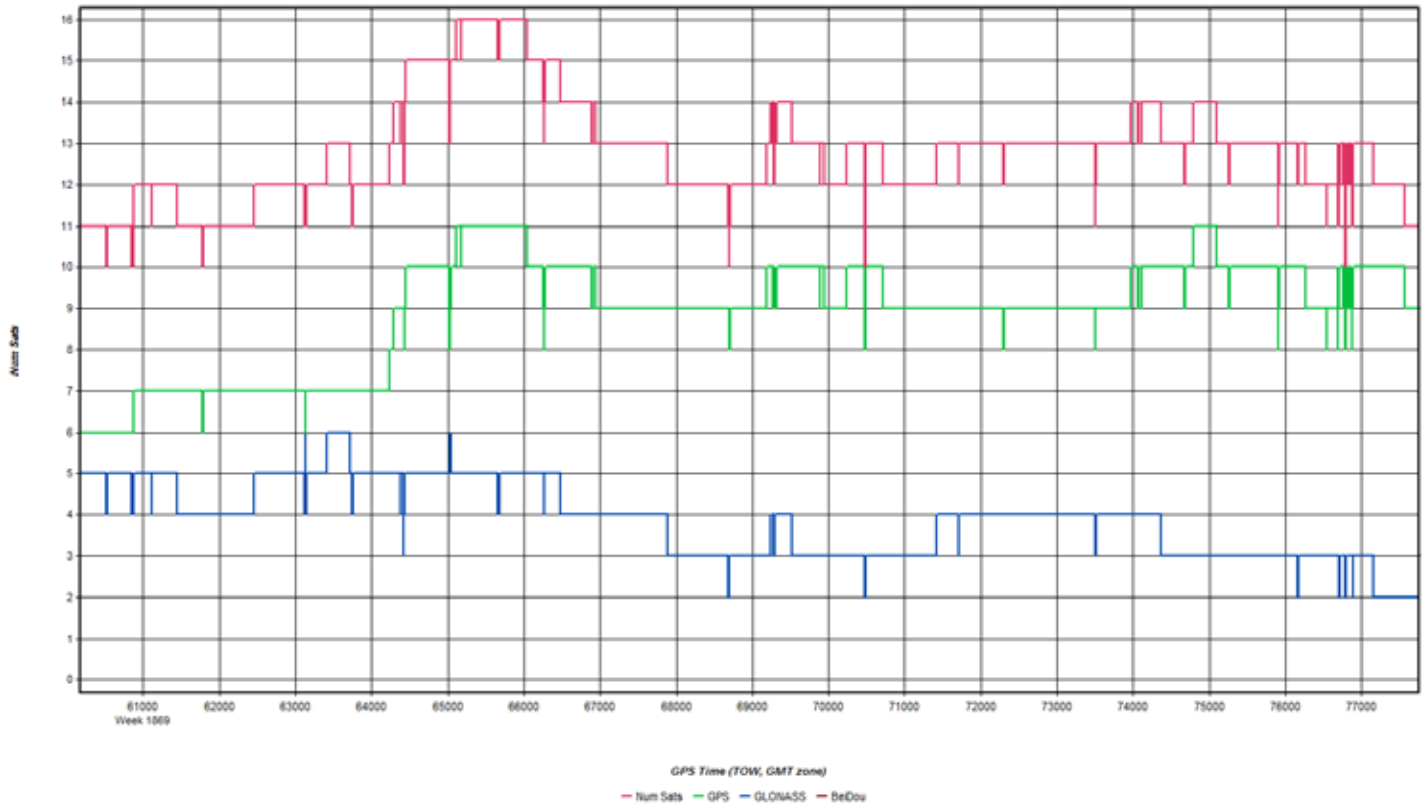
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

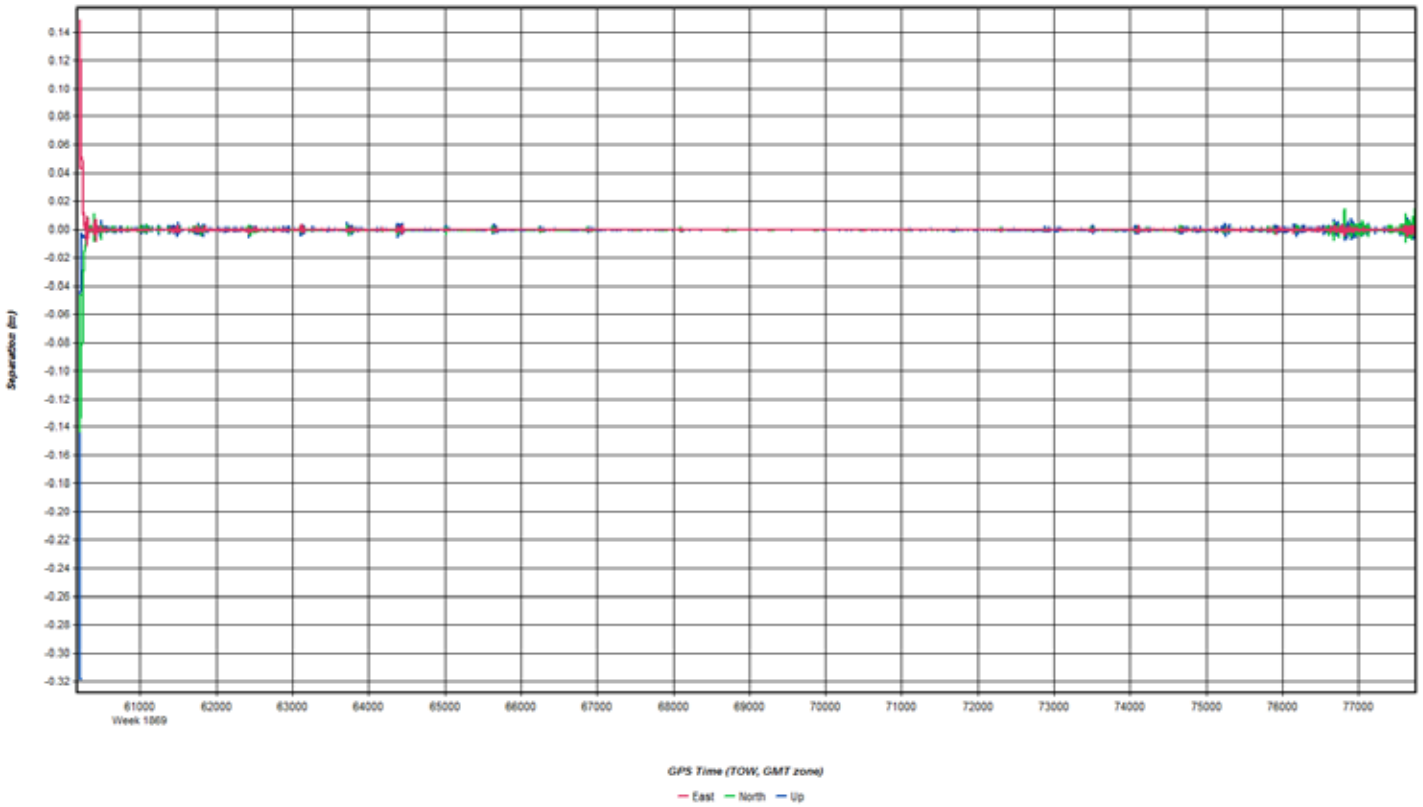
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

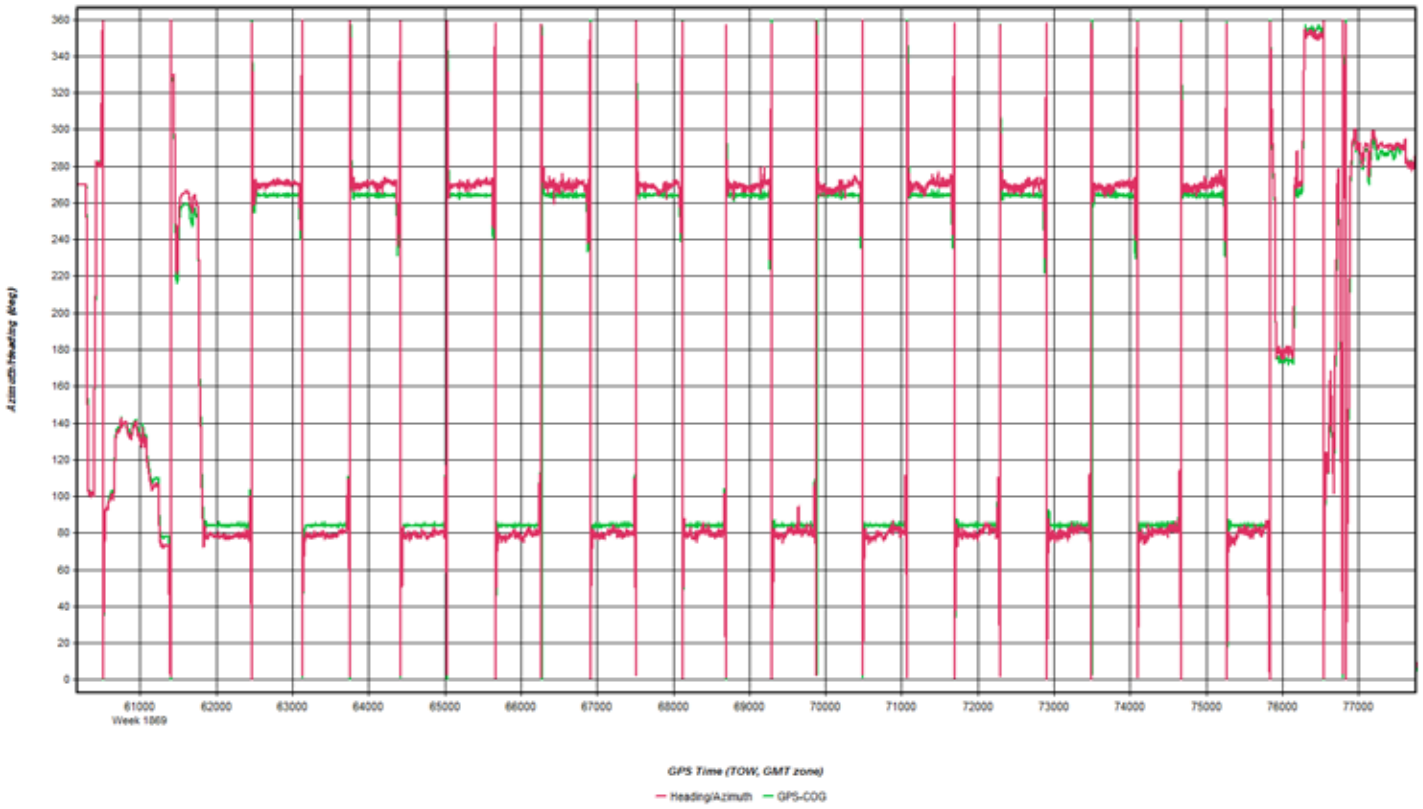
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
231	15.79	6027	184509	191419	192957	After 2nd restart, 201015 e to w, shutter closed due to detecting something too close; Refly again 201553
232	15.37	6001	194018	210912	212011.00	During the reflies on 2nd shutdown, system went from 231 to 233 and I did not notice, so we had to go back and refly 232 in both directions
233	15.34	5991	202623			w to e
234	14.97	5850	203713			e to w
235	14.97	5820	204710			w to e
236	14.83	5775	205804			e to w finish

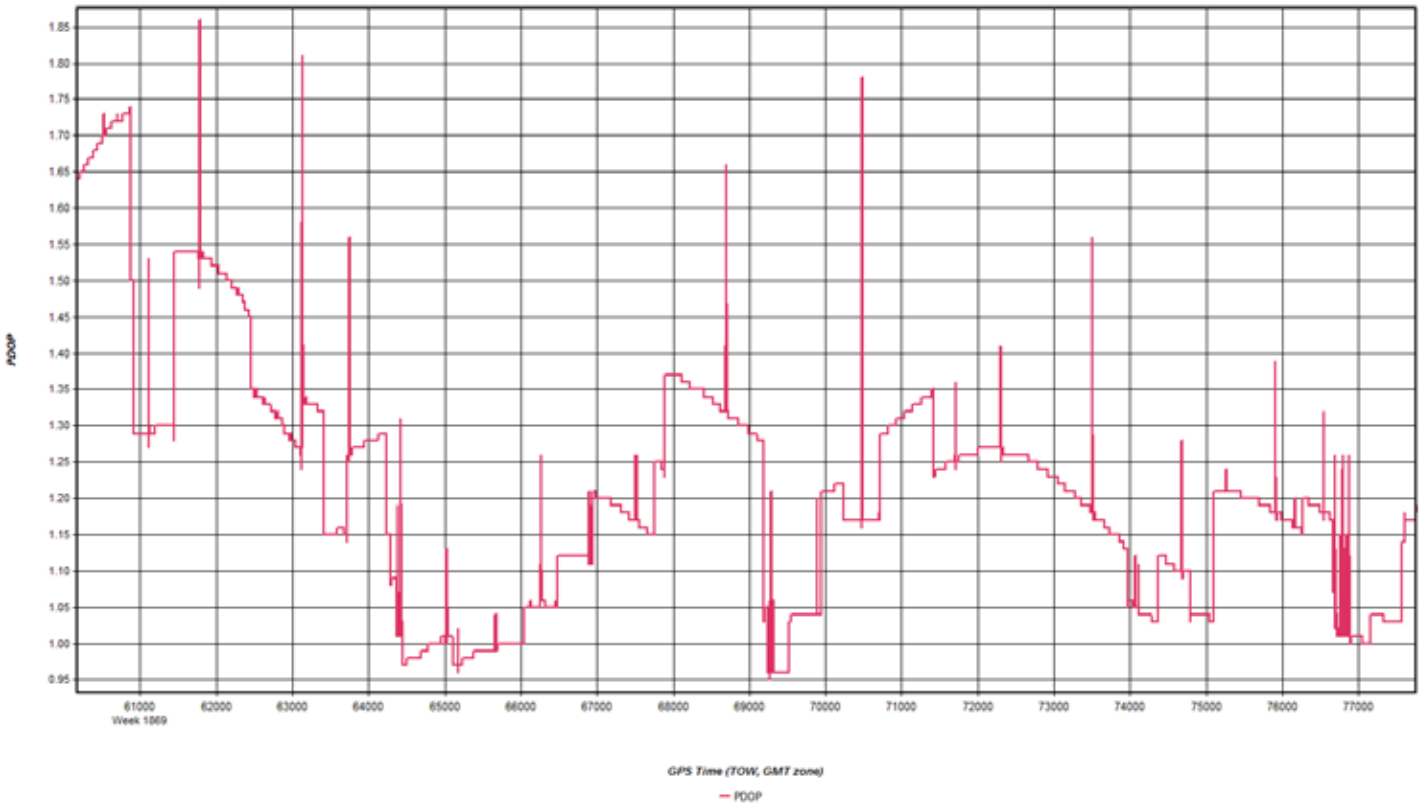
Nov 01, 2015-A

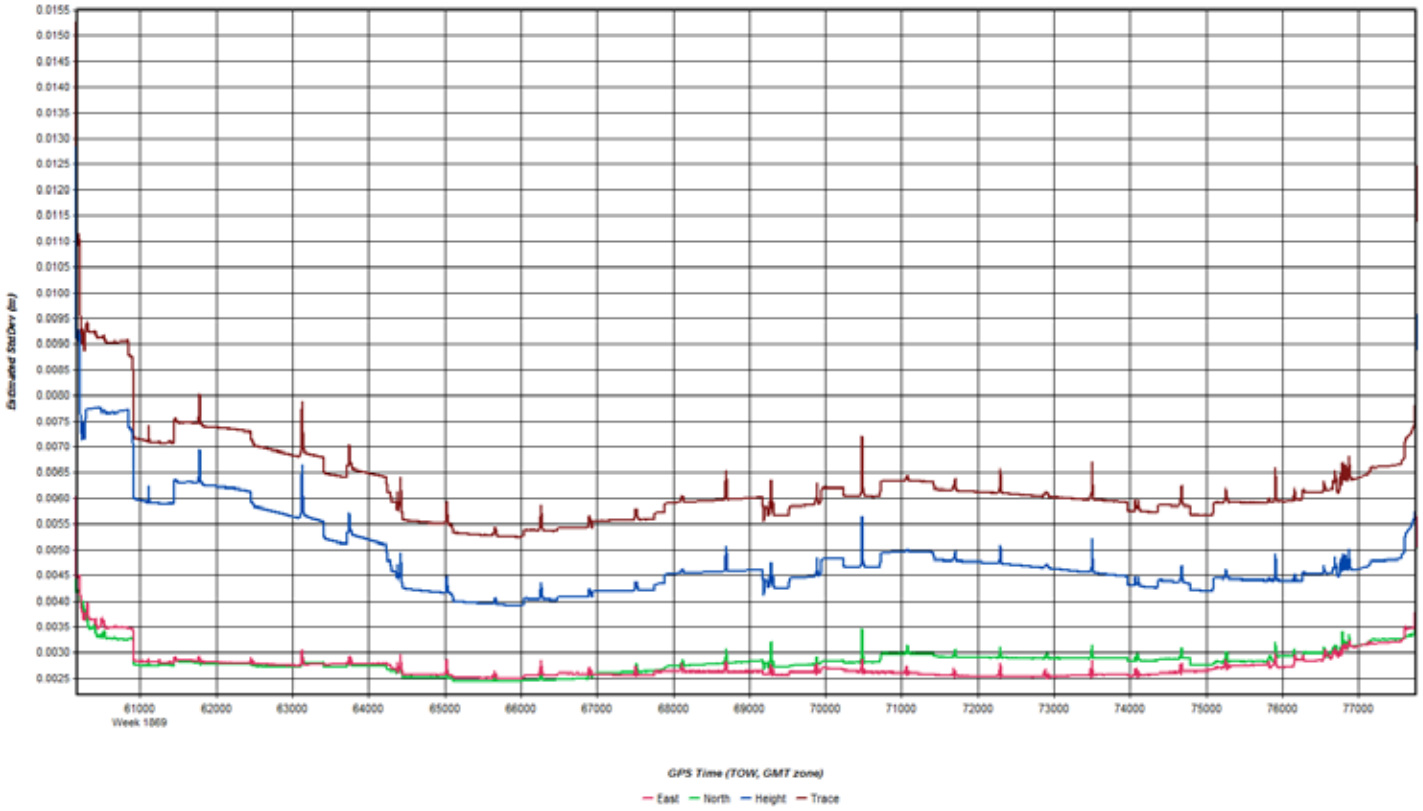


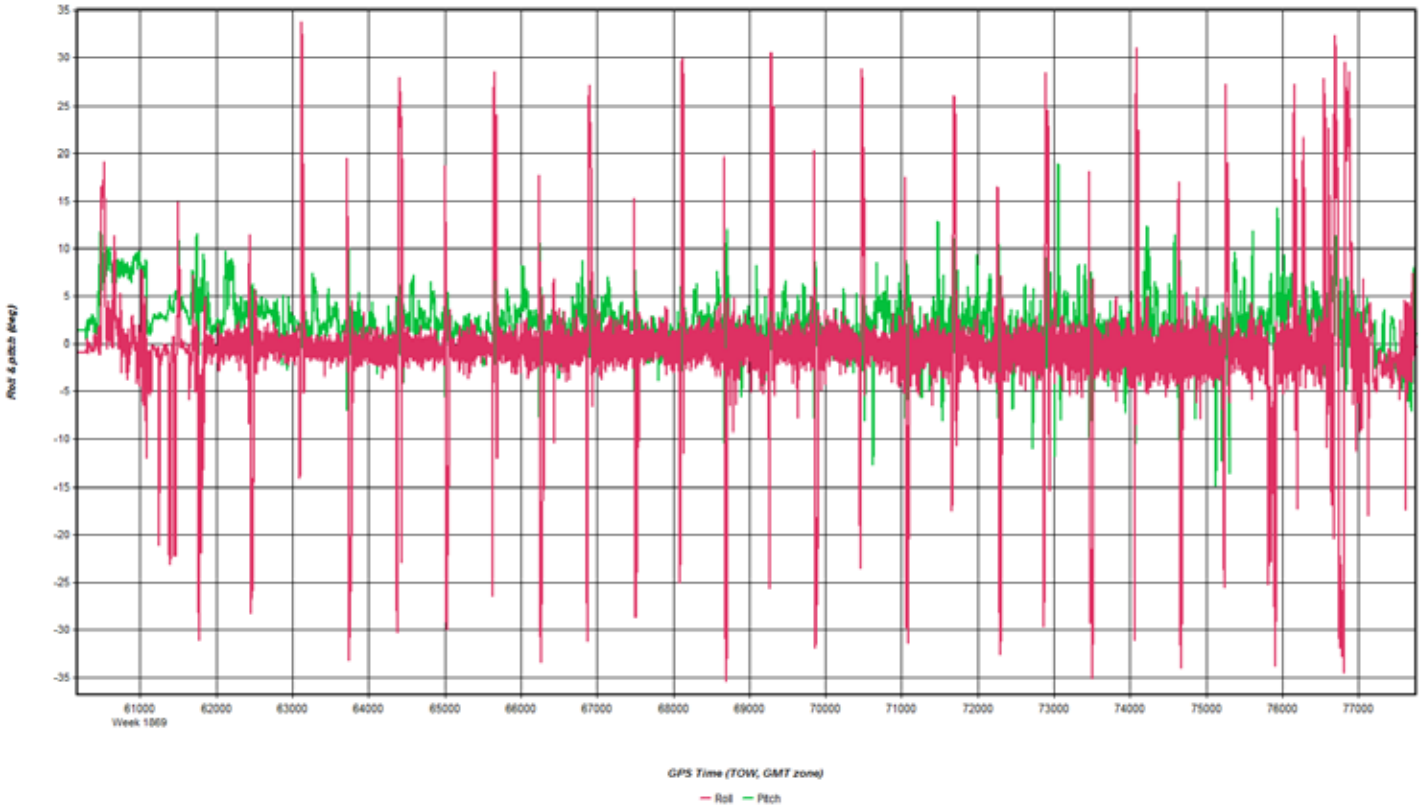

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
61000
Week 1869
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

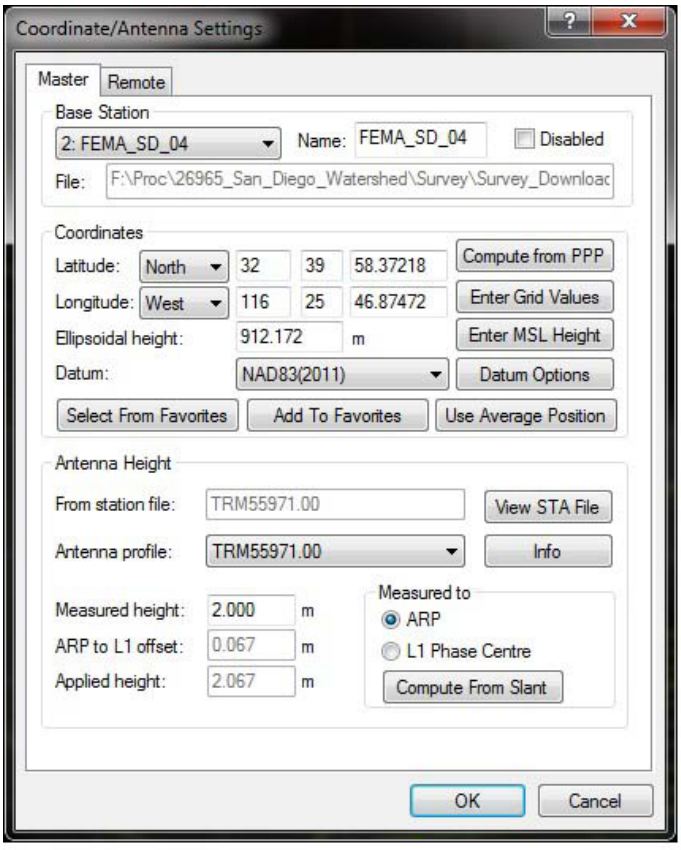

Separation (m)
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
-0.16
-0.18
-0.20
-0.22
-0.24
-0.26
-0.28
-0.30
-0.32
61000
Week 1869
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
GPS Time (TOW, GMT zone)
East
North
Up

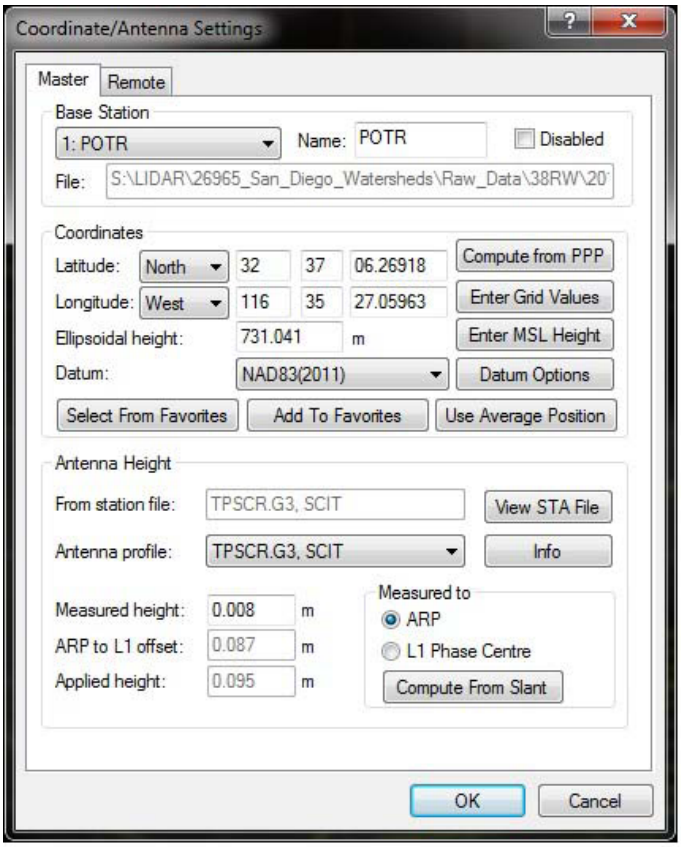

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
61000
Week 1869
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
61000
Week 1869
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0155
0.0150
0.0145
0.0140
0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
61000
Week 1869
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
61000
Week 1869
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_04
Name: FEMA_SD_04
Disabled
File: F:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloac
Coordinates
Latitude: North 32 39 58.37218
Compute from PPP
Longitude: West 116 25 46.87472
Enter Grid Values
Ellipsoidal height: 912.172 m
Enter MSL Height
Datum: NAD83(2011)
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


Coordinate/Antenna Settings
Master
Remote
Base Station
1: POTR
Name: POTR
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Raw_Data\38RW\20
Coordinates
Latitude: North 32 37 06.26918
Compute from PPP
Longitude: West 116 35 27.05963
Enter Grid Values
Ellipsoidal height: 731.041 m
Enter MSL Height
Datum: NAD83(2011)
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TPSCR.G3, SCIT
View STA File
Antenna profile: TPSCR.G3, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.087 m
Applied height: 0.095 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	A001
Stop Line Name	A020
Turn Time (min)	3
Buffer (%)	10
Acquisition Time (hrs)	#N/A

Other Acquisition Notes:

Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
167	15.23	7110	205449			W to E last line
168	15.23	7116	204452			
169	15.22	7166	203514			
170	15.22	7261	202519			
171	15.4	7441	201529			
172	15.47	7664	200515			Crossline:210505
173	15.47	7766	195514			Crossline: 211115
174	15.46	7861	194456			
175	15.46	7858	193508			w to e
176	15.43	7845	192502			
177	15.32	7822	191511			
178	15.32	7822	190512			
179	15.35	7769	185537			
180	15.38	7769	184546			
181	15.75	7769	183536			
182	15.94	7812	182458			e to w
183	16.08	7868	181447			
184	16.07	7815	18419			
185	16.1	7582	175405			
186	16.33	7523	174312			
187	16.33	7392	173243			
188	16.32	7317	172157			e to w
189	16.32	7271	171040			Start line w to e

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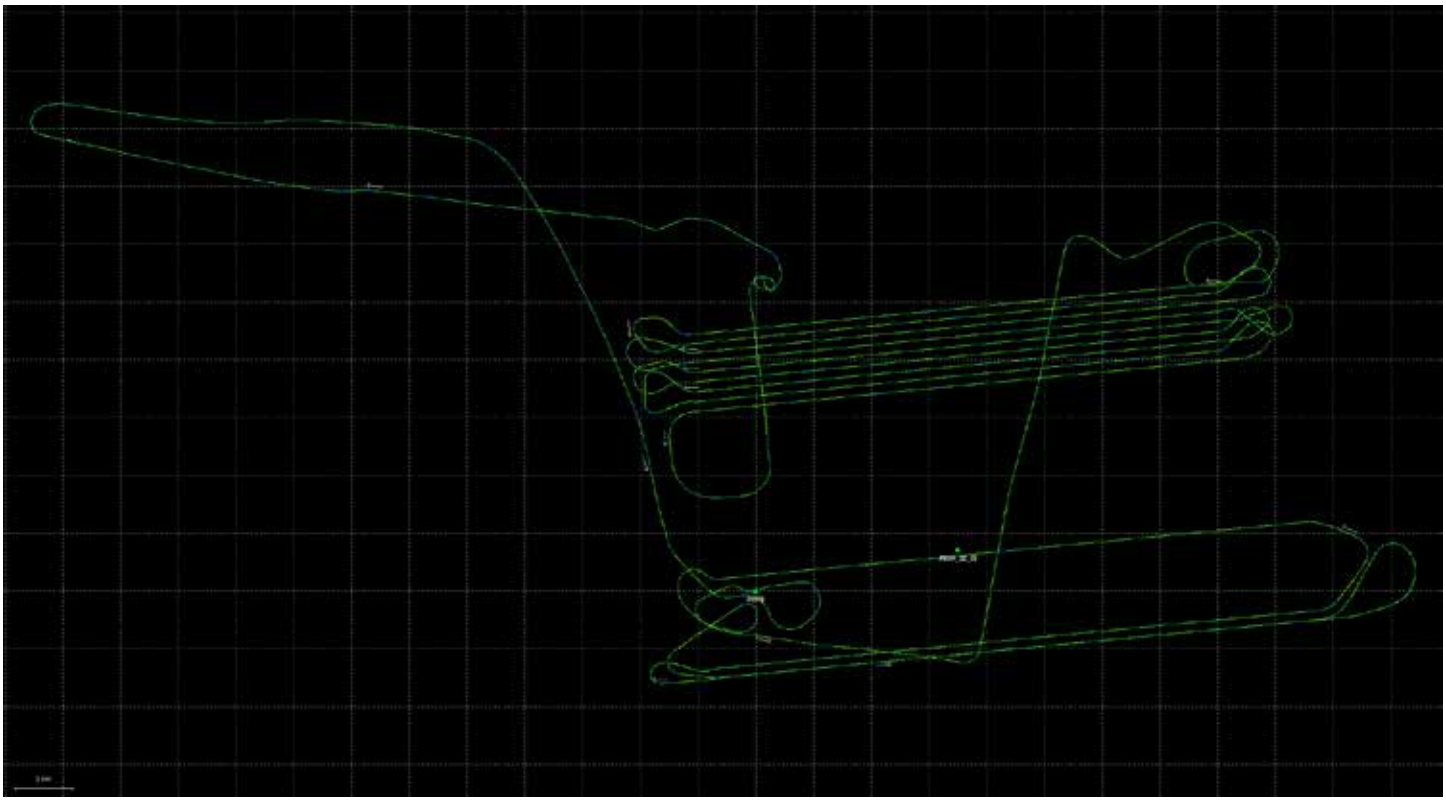
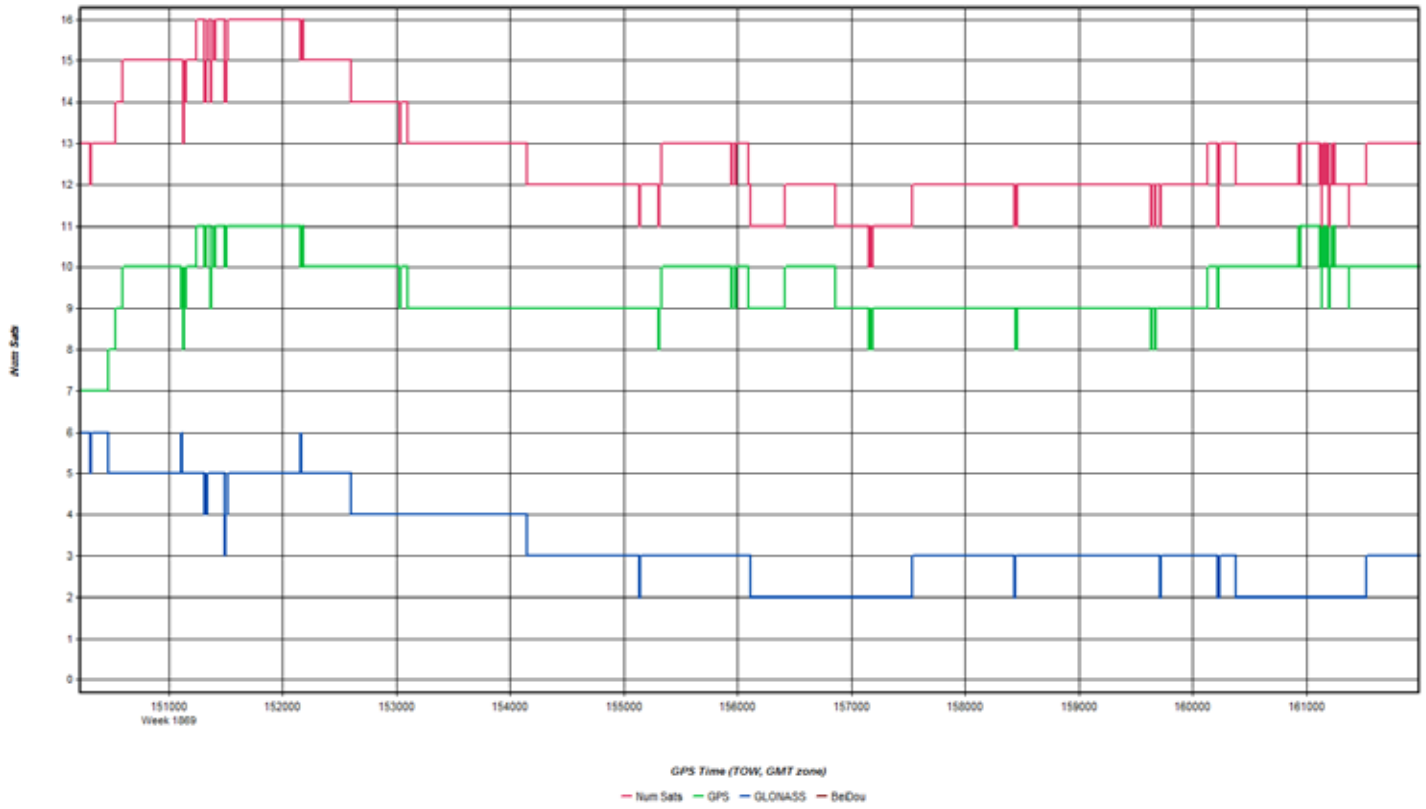
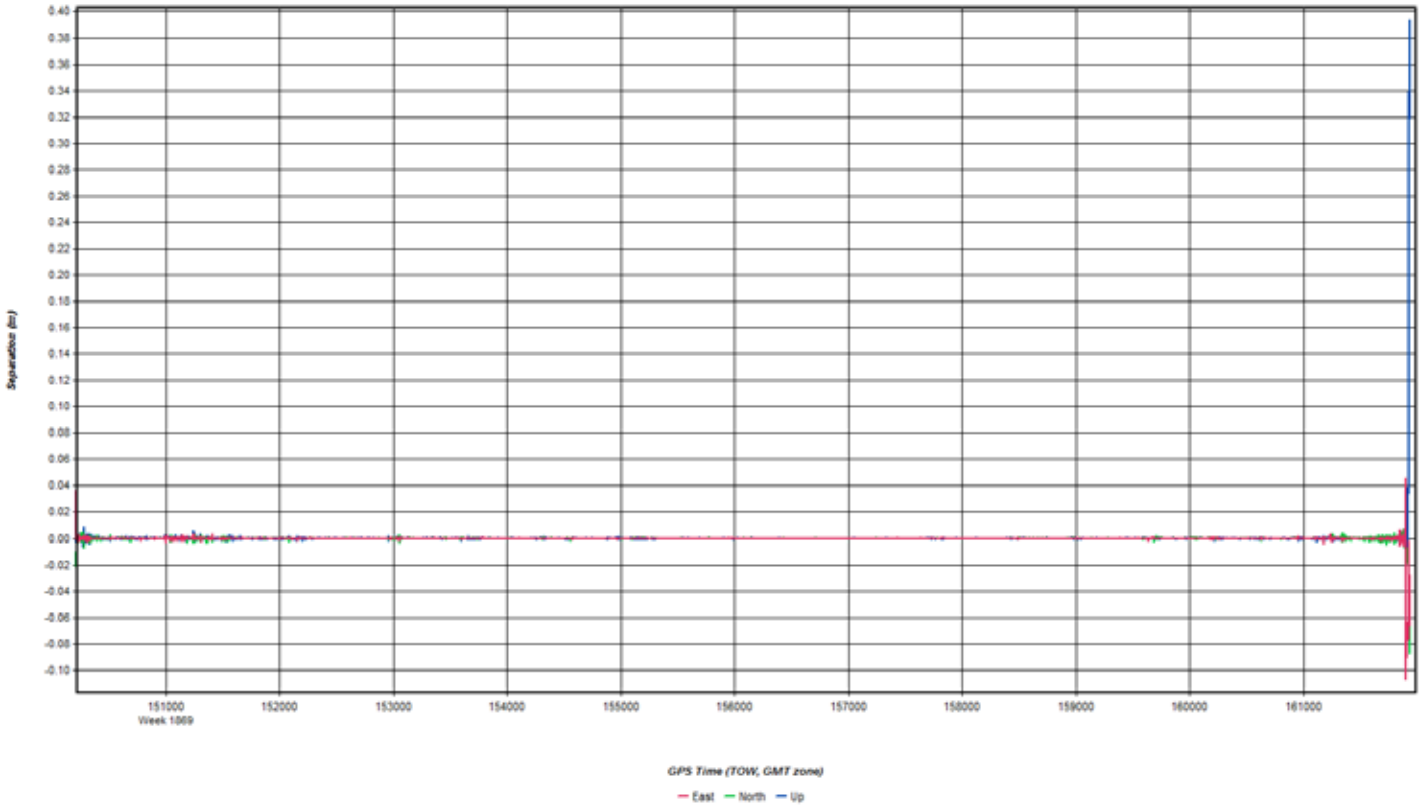
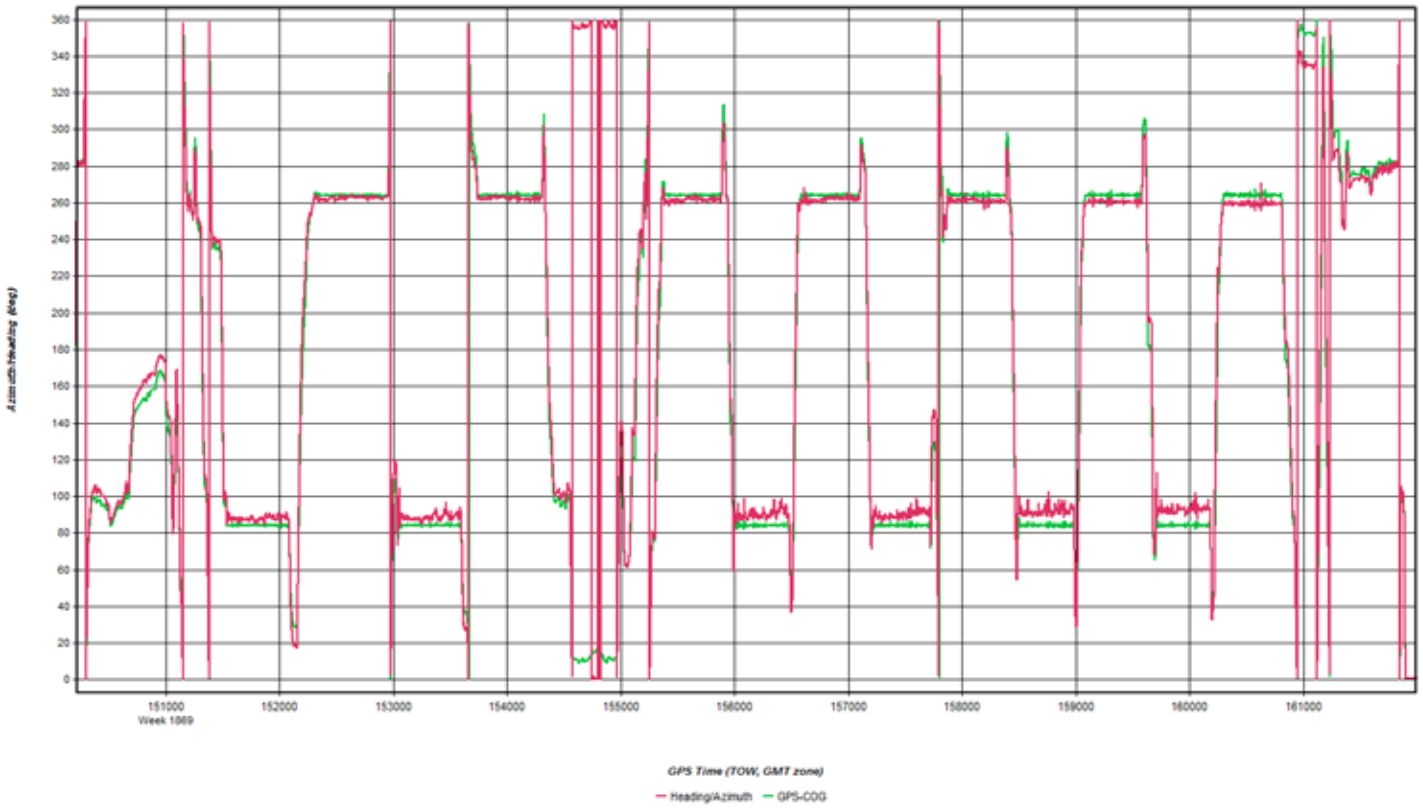
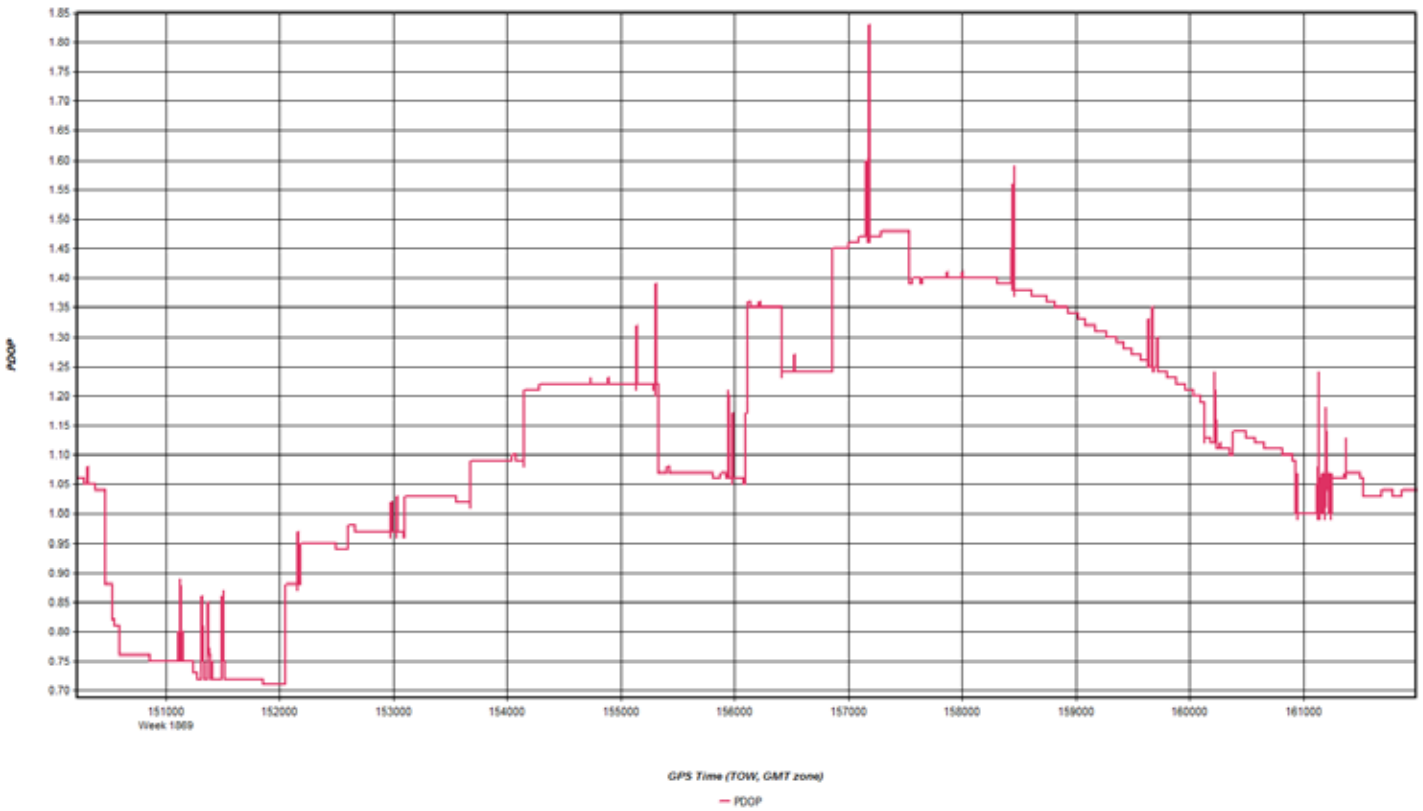
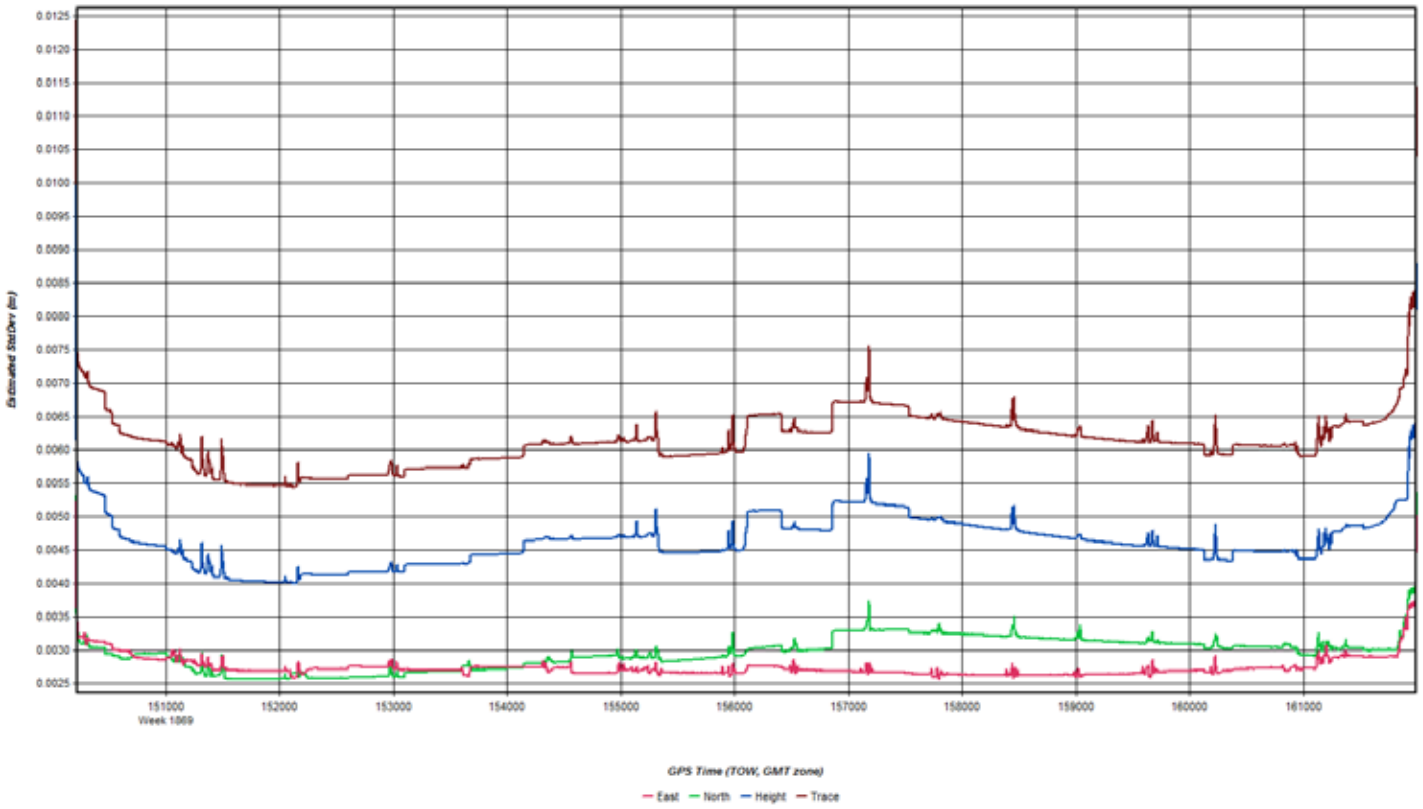



Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
151000
Week 1869
152000
153000
154000
155000
156000
157000
158000
159000
160000
161000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

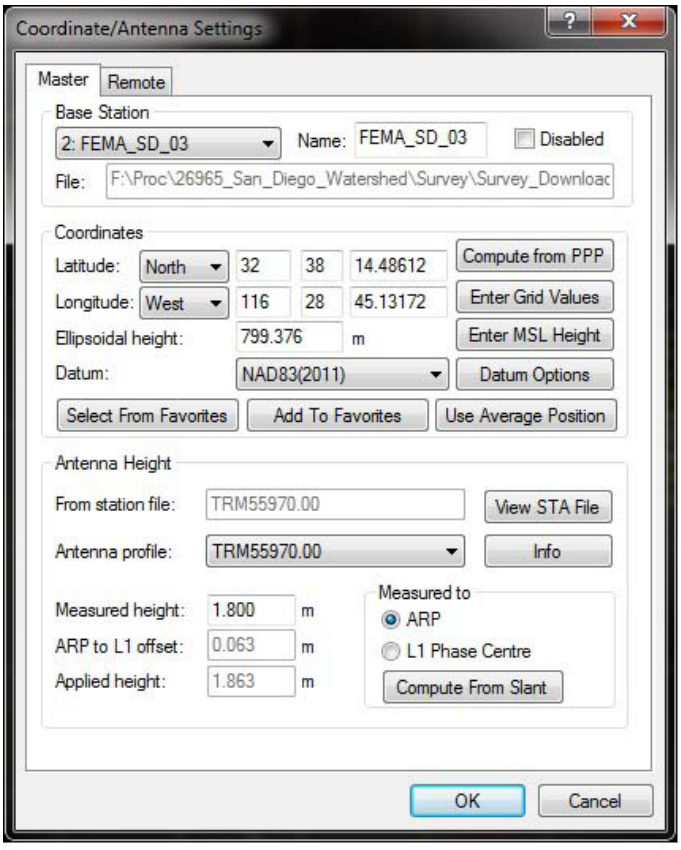

Separation (m)
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
151000
Week 1869
152000
153000
154000
155000
156000
157000
158000
159000
160000
161000
GPS Time (TOW, GMT zone)
East
North
Up

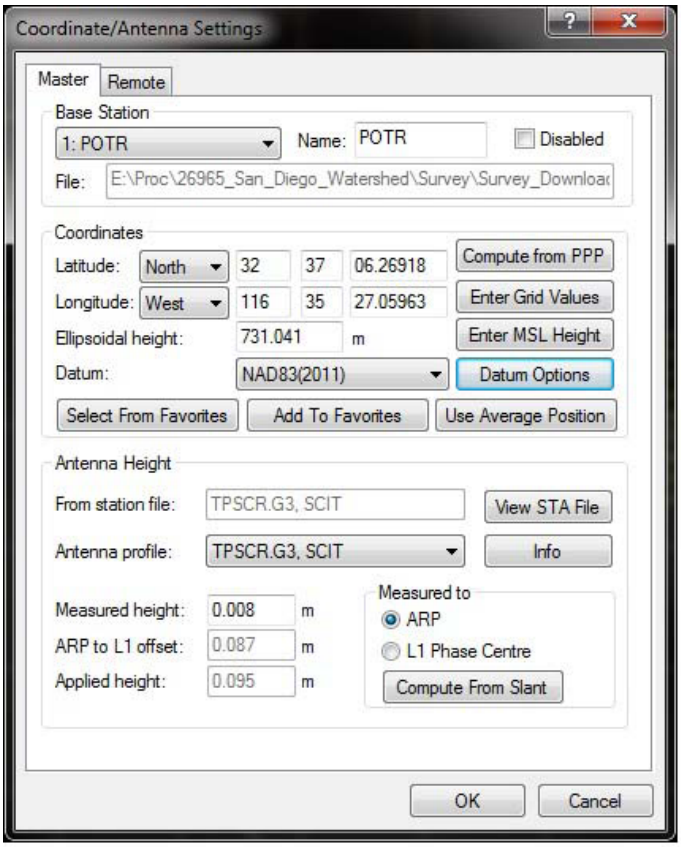

Azimuth Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
151000
Week 1869
152000
153000
154000
155000
156000
157000
158000
159000
160000
161000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
151000
Week 1869
152000
153000
154000
155000
156000
157000
158000
159000
160000
161000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
151000
Week 1869
152000
153000
154000
155000
156000
157000
158000
159000
160000
161000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
151000
Week 1869
152000
153000
154000
155000
156000
157000
158000
159000
160000
161000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_03
Name: FEMA_SD_03
Disabled
File: F:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloac
Coordinates
Latitude: North 32 38 14.48612
Longitude: West 116 28 45.13172
Ellipsoidal height: 799.376 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM55970.00
View STA File
Antenna profile: TRM55970.00
Info
Measured height: 1.800 m
ARP to L1 offset: 0.063 m
Applied height: 1.863 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: POTR
Name: POTR
Disabled
File: E:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloa
Coordinates
Latitude: North 32 37 06.26918
Longitude: West 116 35 27.05963
Ellipsoidal height: 731.041 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TPSCR.G3, SCIT
View STA File
Antenna profile: TPSCR.G3, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.087 m
Applied height: 0.095 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	A001
Stop Line Name	A020
Turn Time (min)	3
Buffer (%)	10
Acquisition Time (hrs)	#N/A

Other Acquisition Notes:

Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
152	14.37	8373	190637	190949		E to w start, refly wind blew off line at the start
153	14.41	8245	191951			
154	14.42	8160	192945			E to w
155	14.46	8160	194012			w to e
156	14.45	8242	195111			
157	14.45	8242	200130			Crossline: 185559
158	14.44	8242	201118			Crossline: 204226
159	14.39	8301	202136			
160	14.49	8301	203130	173748		Finish E to W
179	15.35	7769	185537	184238		missing chunk from 11/1, refly e to w
188	16.32	7317	172157	183036		refly w to e
189	16.32	7271	171040	180524	181829.00	dropouts from 11/1, refly w to e, over speed at start; refly again e to w

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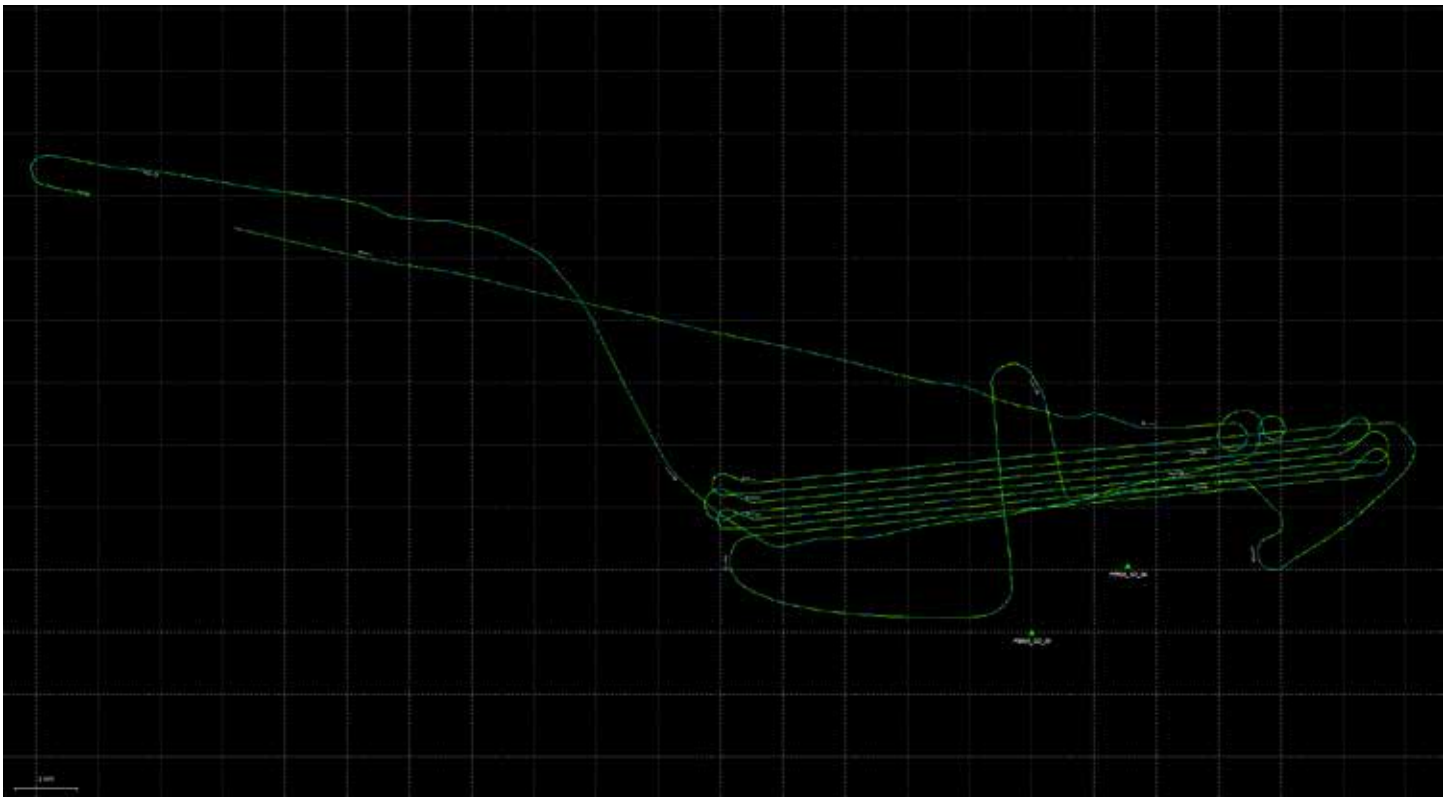
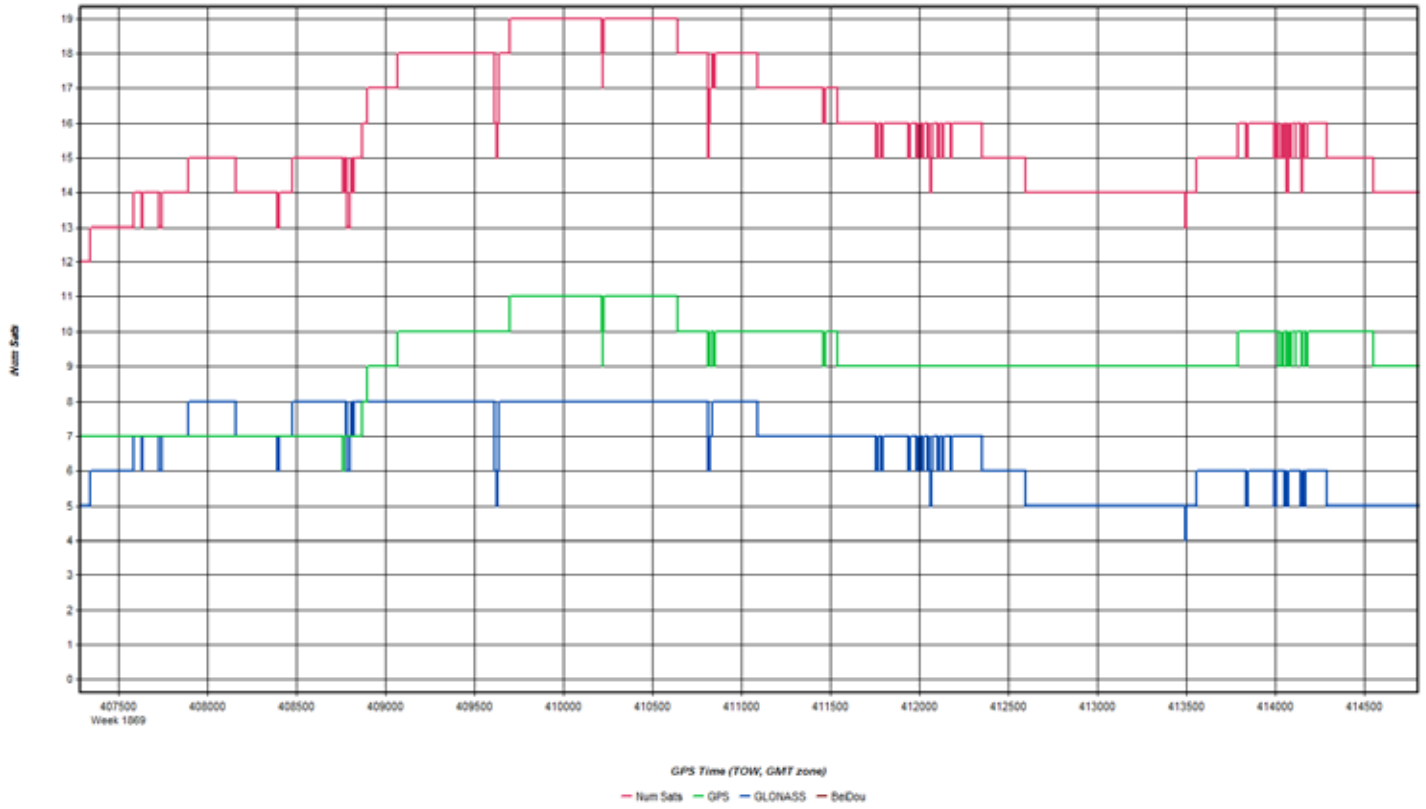
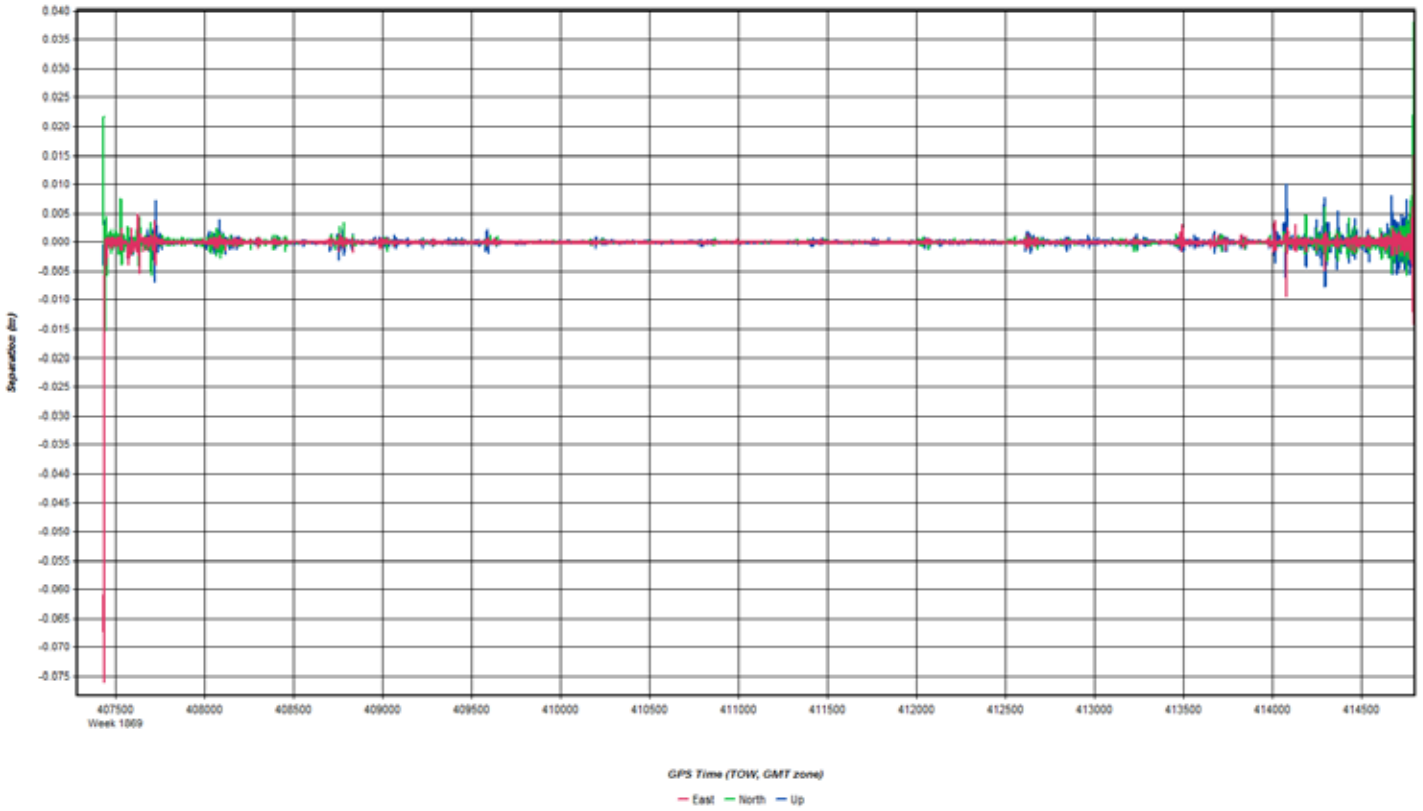
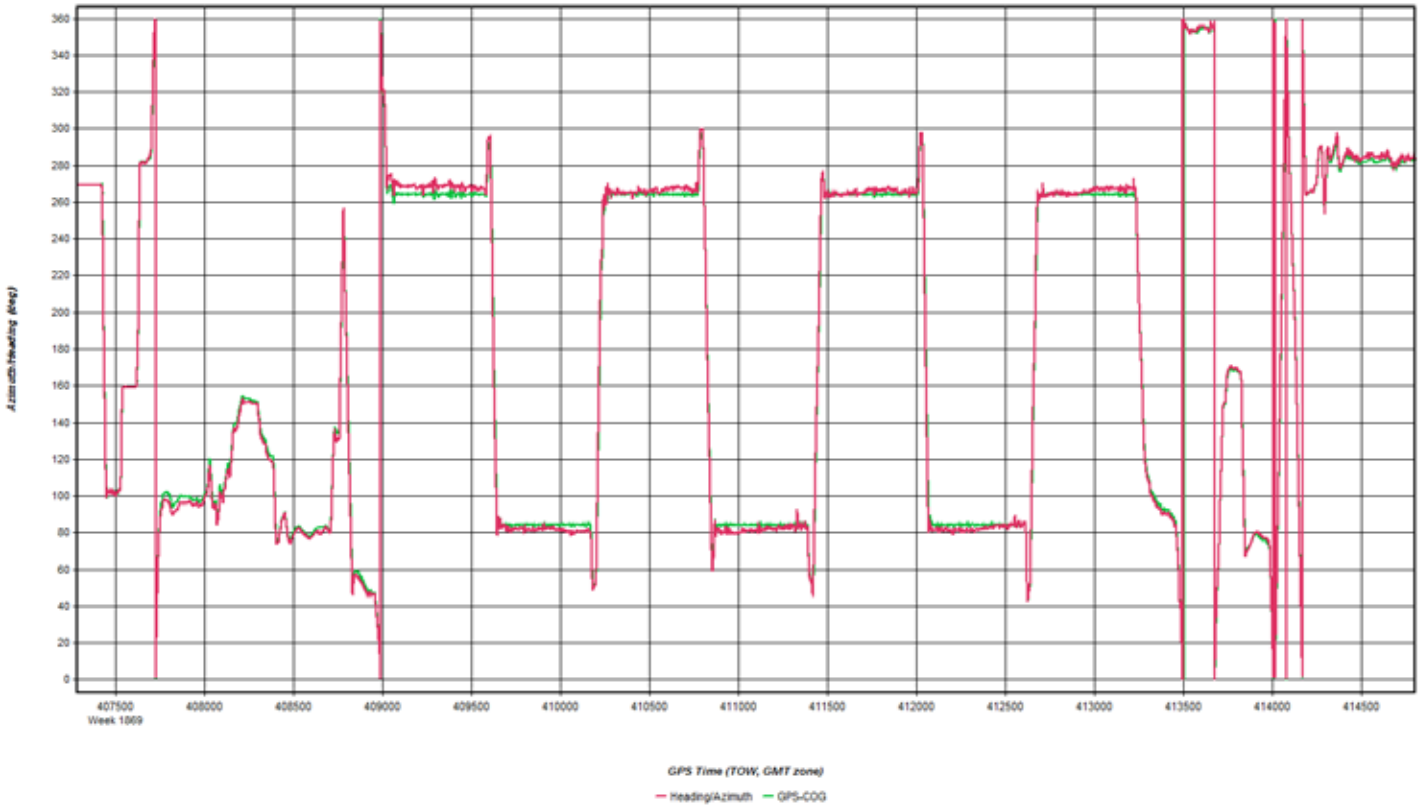
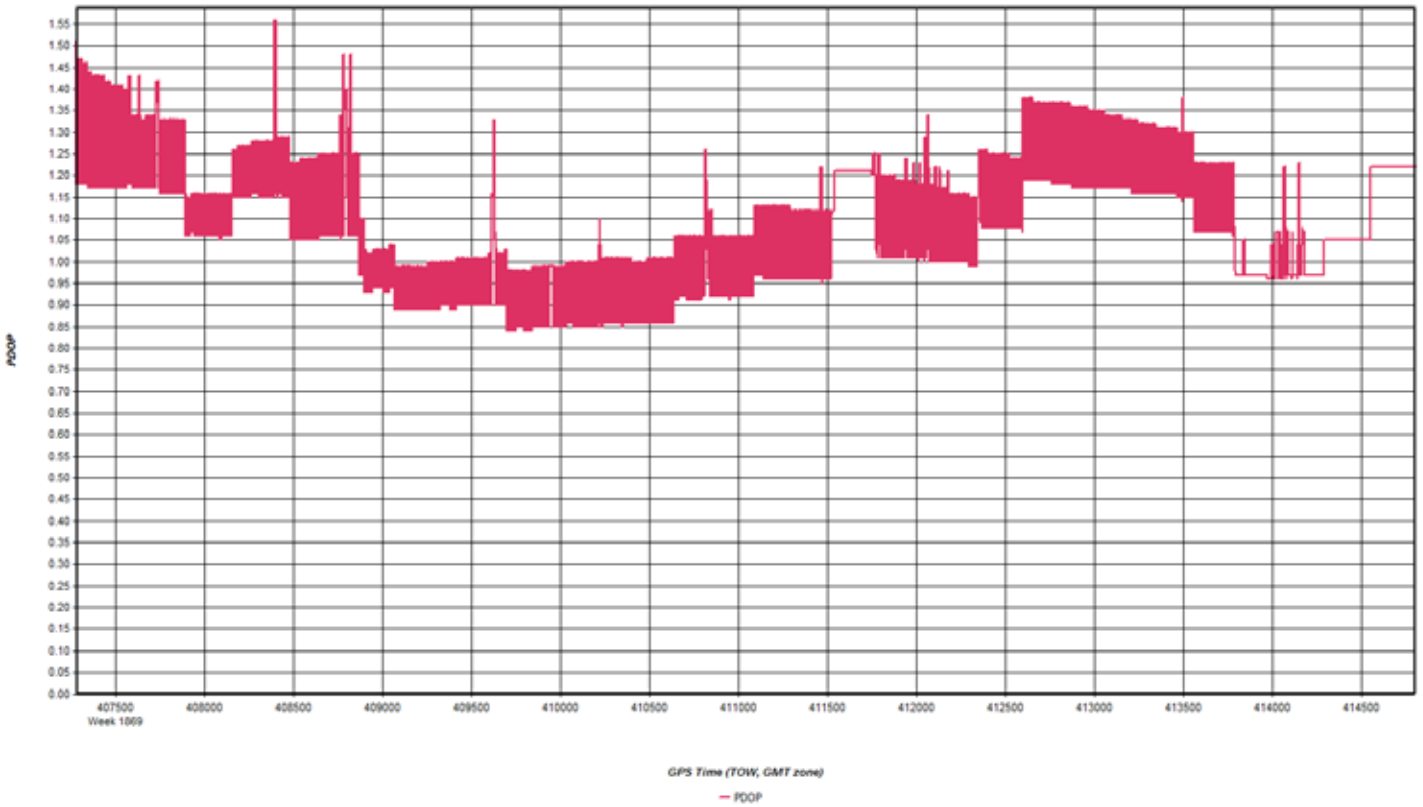
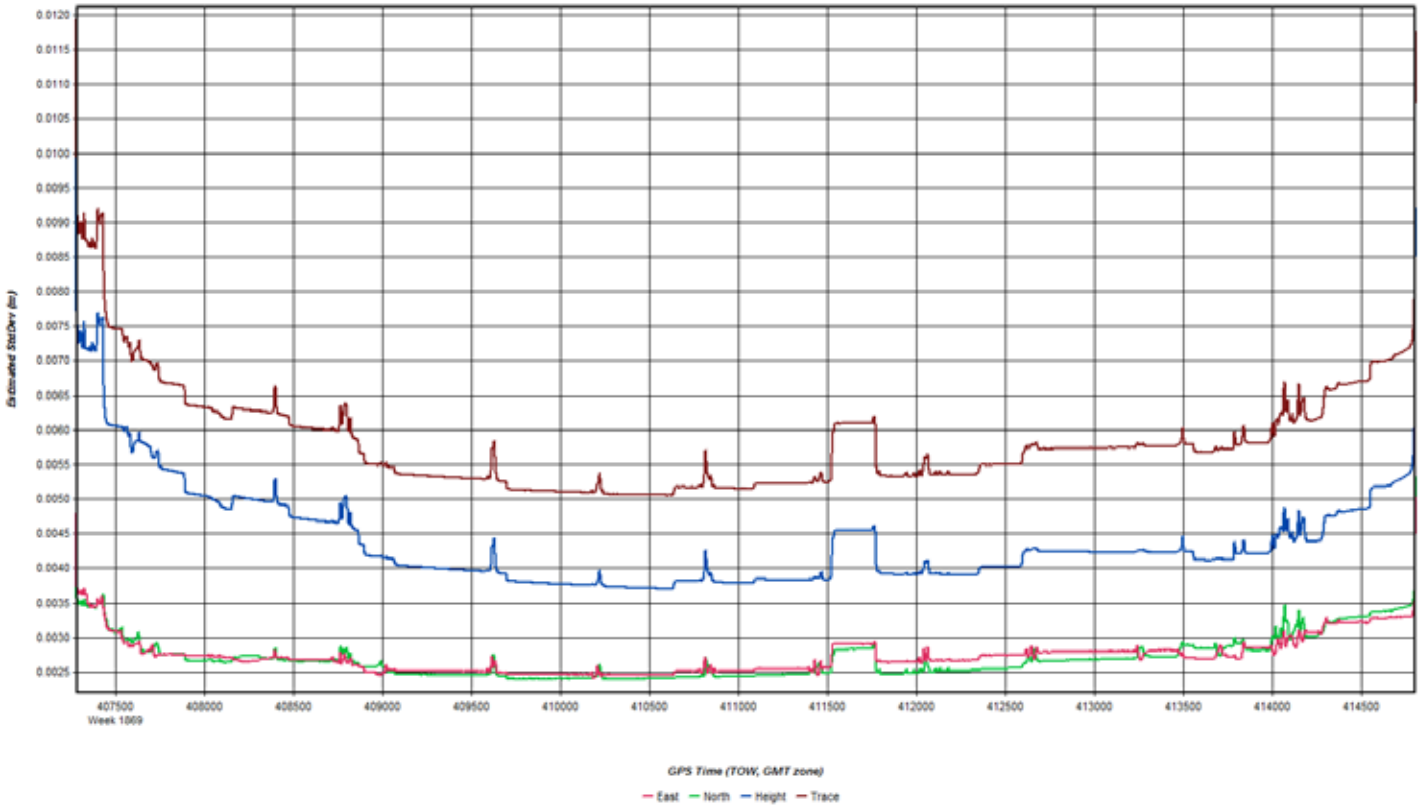


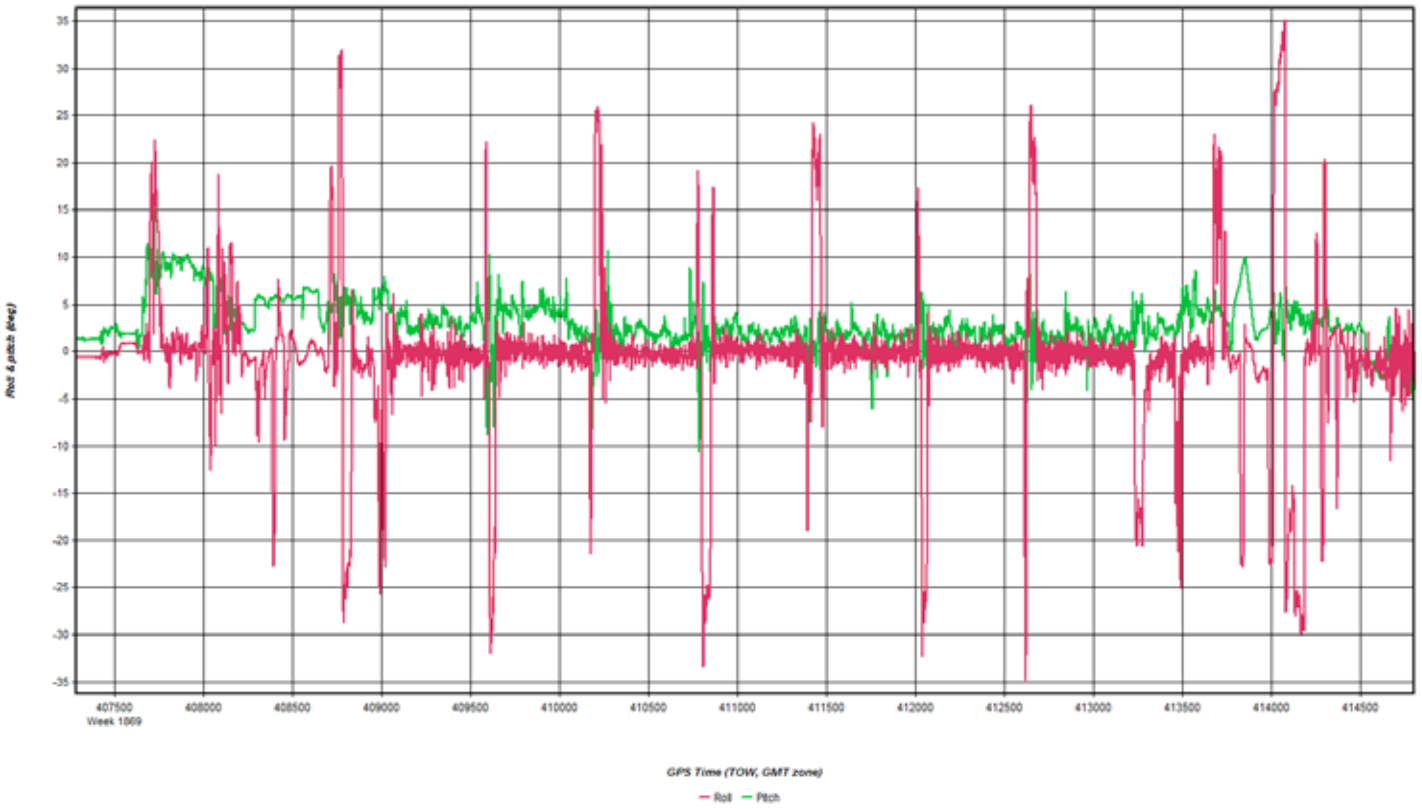

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
407500
Week 1869
408000
408500
409000
409500
410000
410500
411000
411500
412000
412500
413000
413500
414000
414500
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

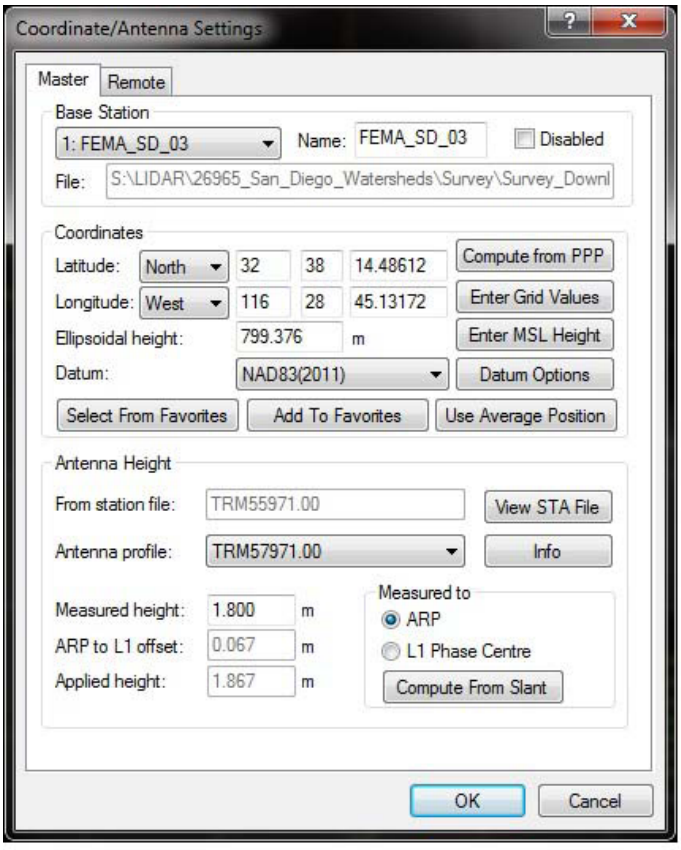

Separation (m)
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.030
-0.035
-0.040
-0.045
-0.050
-0.055
-0.060
-0.065
-0.070
-0.075
407500
Week 1869
408000
408500
409000
409500
410000
410500
411000
411500
412000
412500
413000
413500
414000
414500
GPS Time (TOW, GMT zone)
East
North
Up

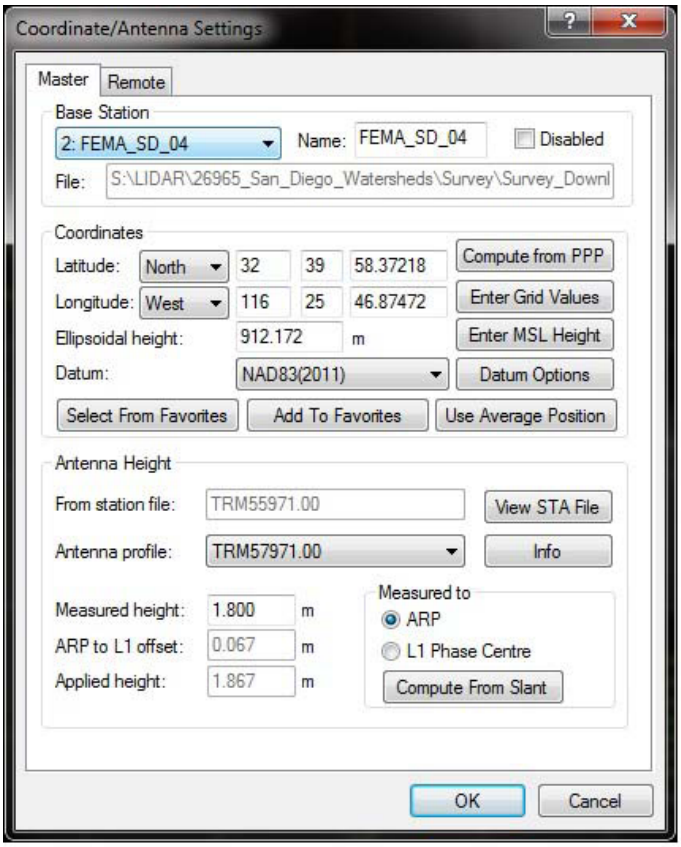

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
407500
Week 1869
408000
408500
409000
409500
410000
410500
411000
411500
412000
412500
413000
413500
414000
414500
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
407500
Week 1869
408000
408500
409000
409500
410000
410500
411000
411500
412000
412500
413000
413500
414000
414500
GPS Time (TOW, GMT zone)
PDOP


0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
407500
Week 1869
408000
408500
409000
409500
410000
410500
411000
411500
412000
412500
413000
413500
414000
414500
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
407500
Week 1869
408000
408500
409000
409500
410000
410500
411000
411500
412000
412500
413000
413500
414000
414500
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
1: FEMA_SD_03
Name: FEMA_SD_03
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 38 14.48612
Compute from PPP
Longitude: West 116 28 45.13172
Enter Grid Values
Ellipsoidal height: 799.376 m
Enter MSL Height
Datum: NAD83(2011)
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: FEMA_SD_04
Name: FEMA_SD_04
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 39 58.37218
Longitude: West 116 25 46.87472
Ellipsoidal height: 912.172 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	089
Stop Line Name	091
Turn Time (min)	2
Buffer (%)	0
Acquisition Time (hrs)	0.7

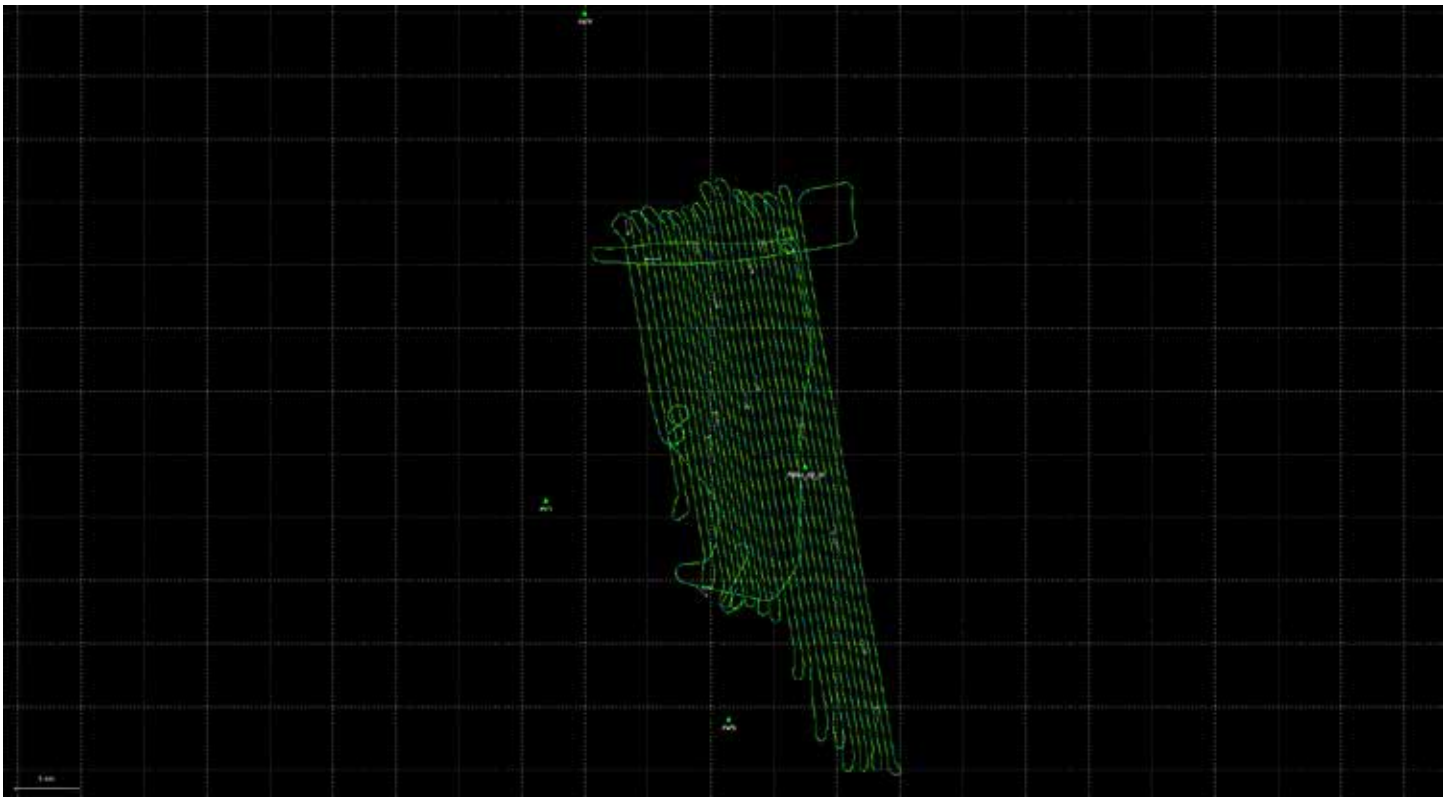
Other Acquisition Notes:

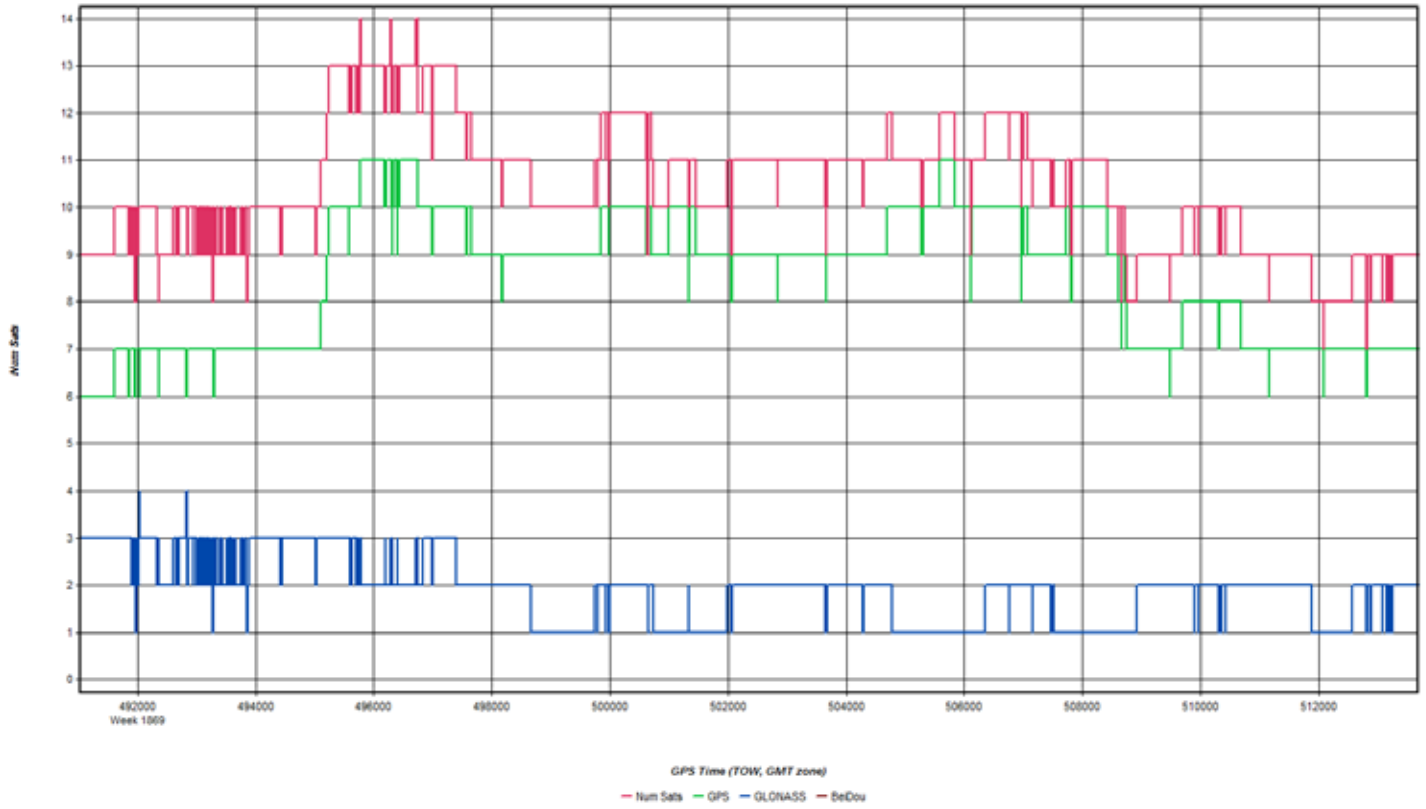
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

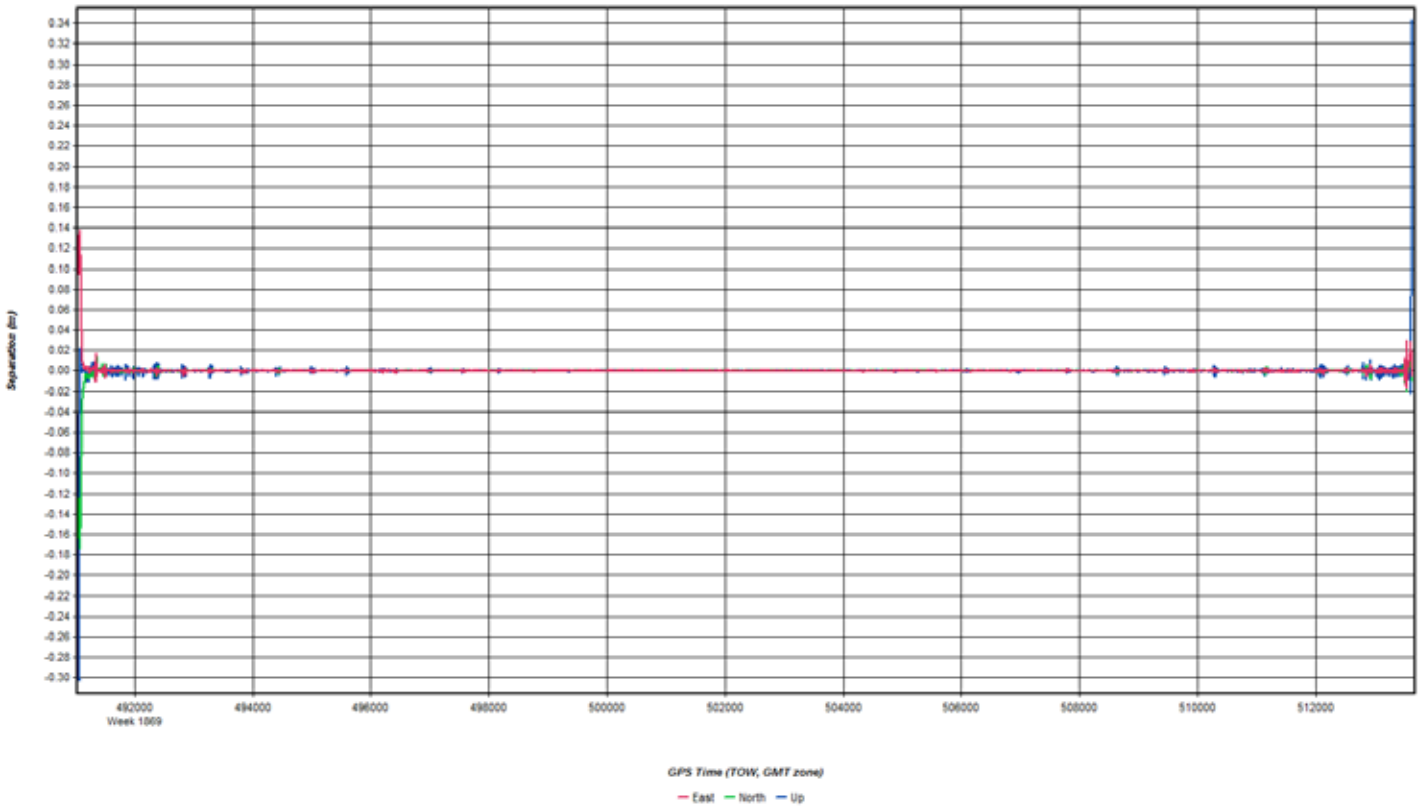
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

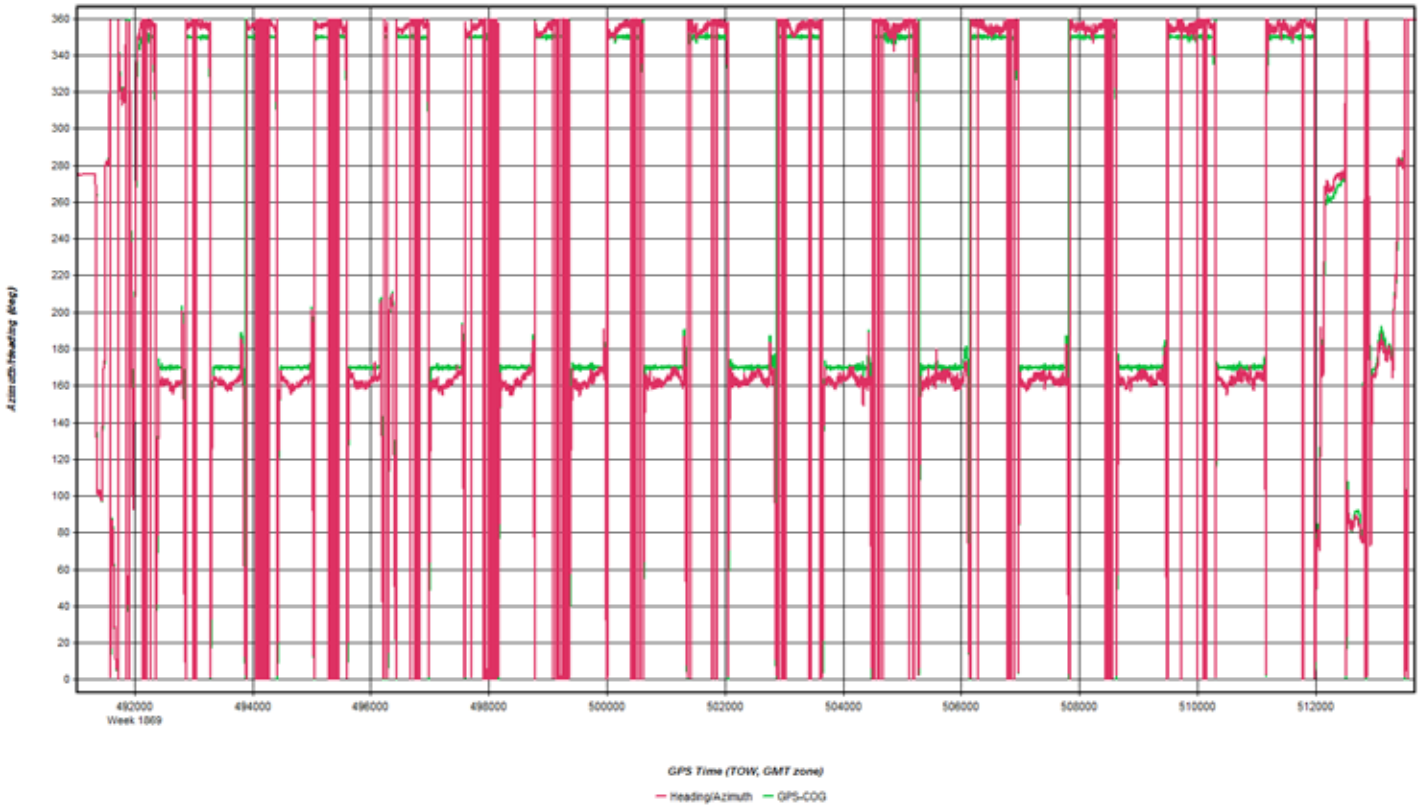
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
160	14.49	8301	203130	173748		Refly Just in case not enough kinematic at end of 11/2 flight; Refly e to w start
161	14.65	8048	174733			w to e
162	14.88	7691	175725			
163	14.95	7422	180738			Crossline: 185120
164	15.09	7139	181758			
165	15.19	7110	182758			
166	15.24	7110	183807			E to w last line

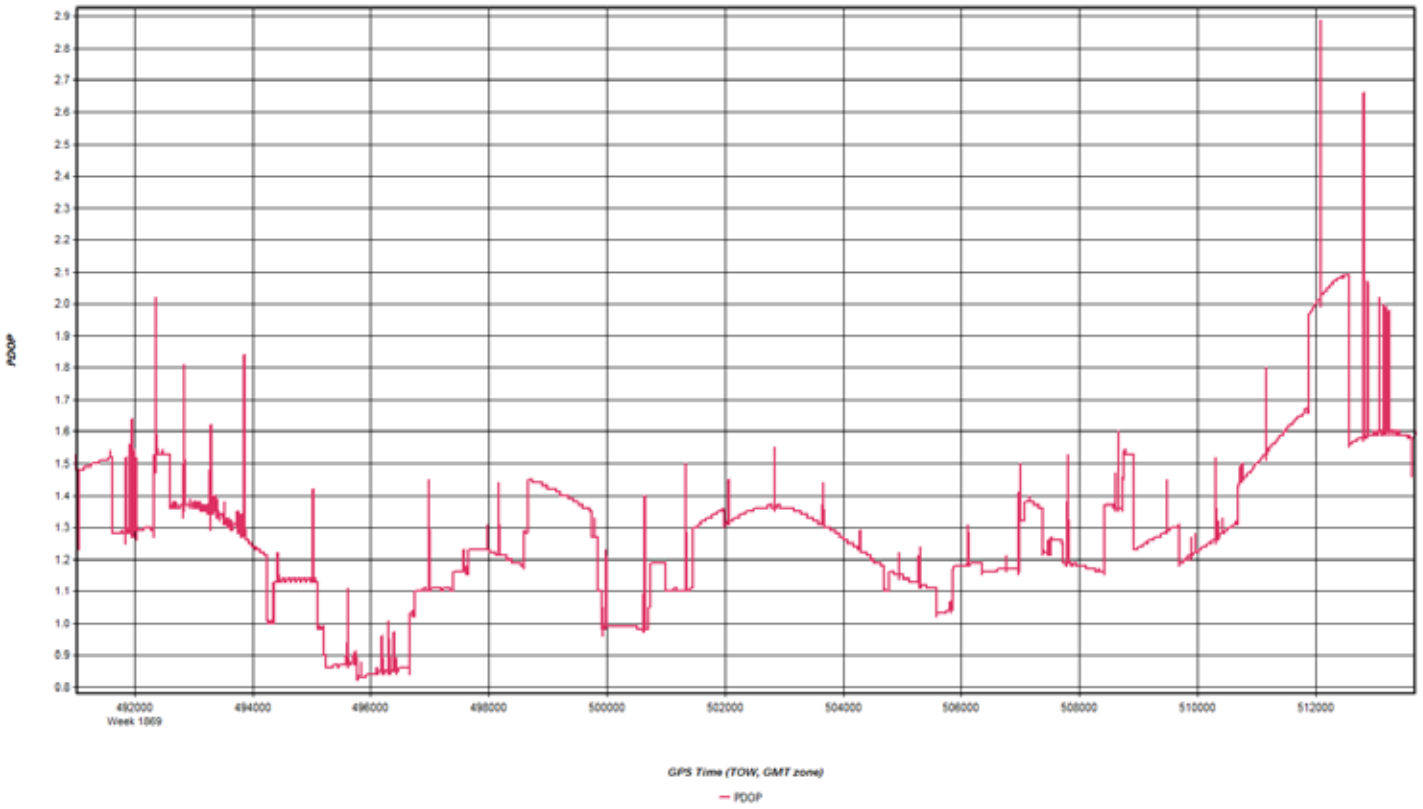
Nov 06, 2015-A

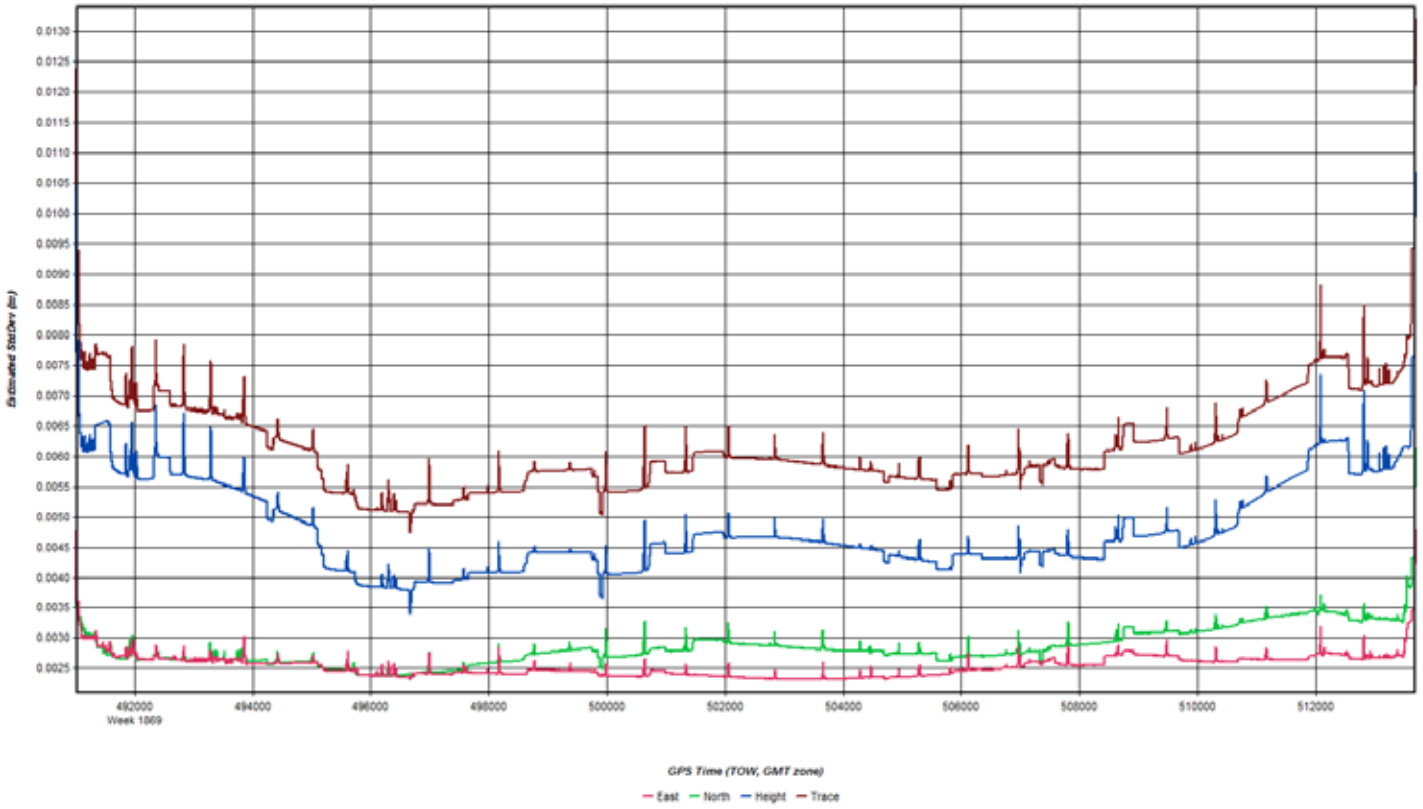


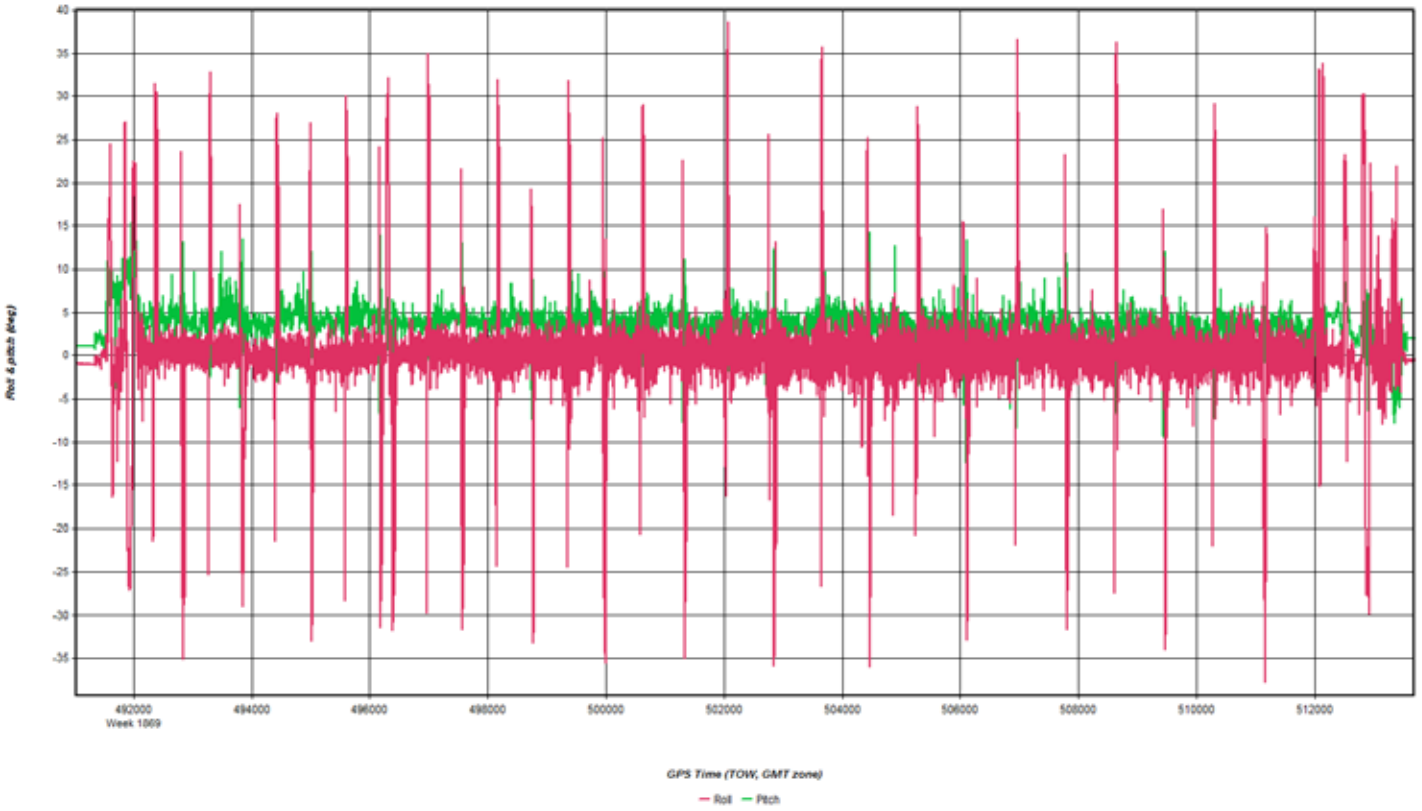

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
492000
Week 1869
494000
496000
498000
500000
502000
504000
506000
508000
510000
512000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

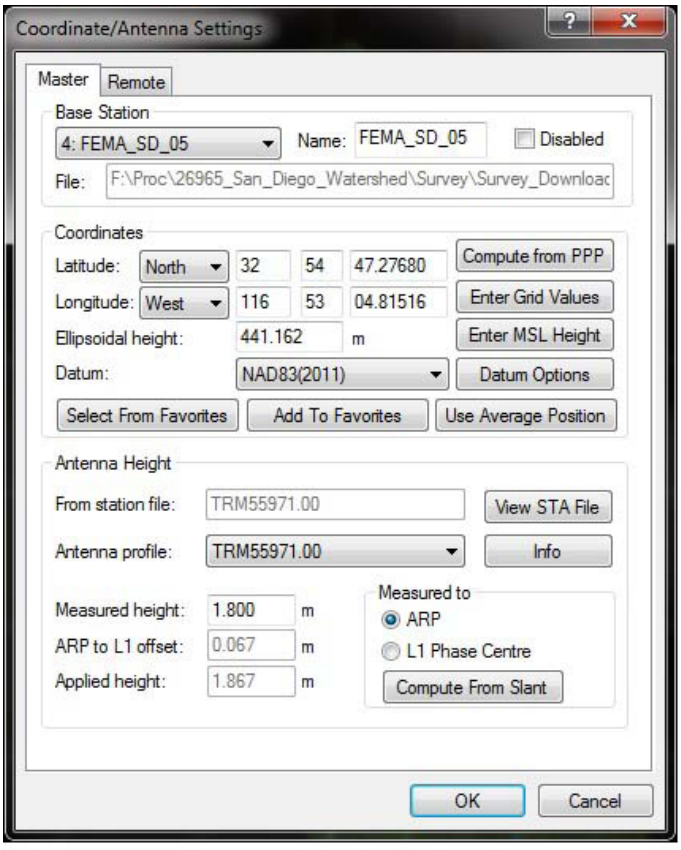

Separation (m)
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
-0.16
-0.18
-0.20
-0.22
-0.24
-0.26
-0.28
-0.30
492000
Week 1869
494000
496000
498000
500000
502000
504000
506000
508000
510000
512000
GPS Time (TOW, GMT zone)
East
North
Up

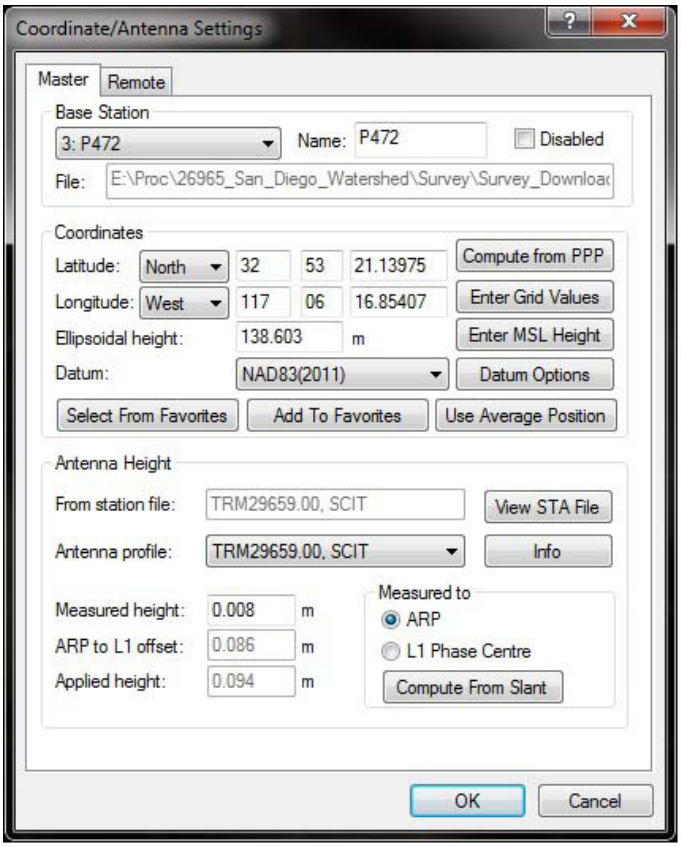

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
492000
Week 1869
494000
496000
498000
500000
502000
504000
506000
508000
510000
512000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

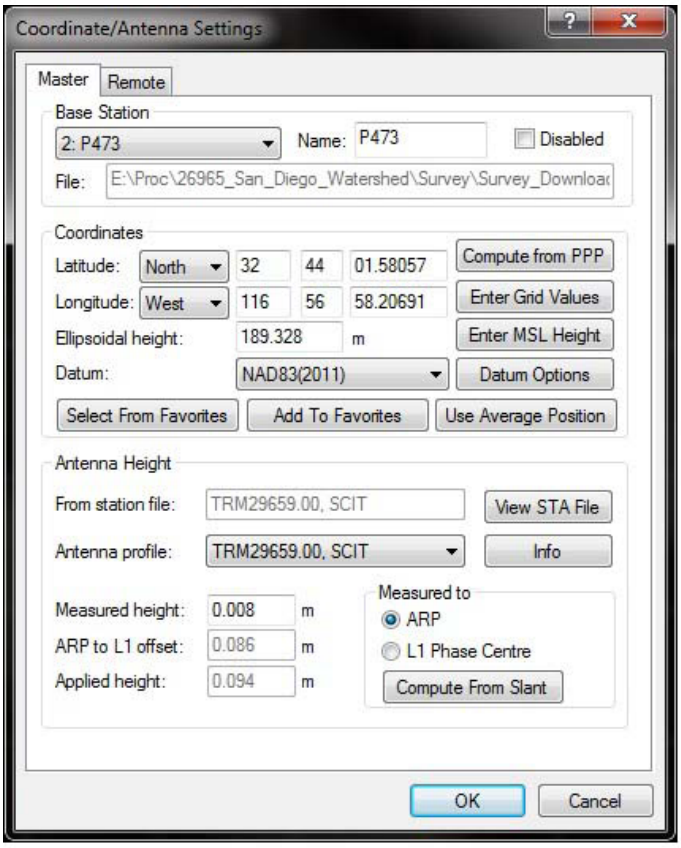

PDOP
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
492000
Week 1869
494000
496000
498000
500000
502000
504000
506000
508000
510000
512000
GPS Time (TOW, GMT zone)
PDOP

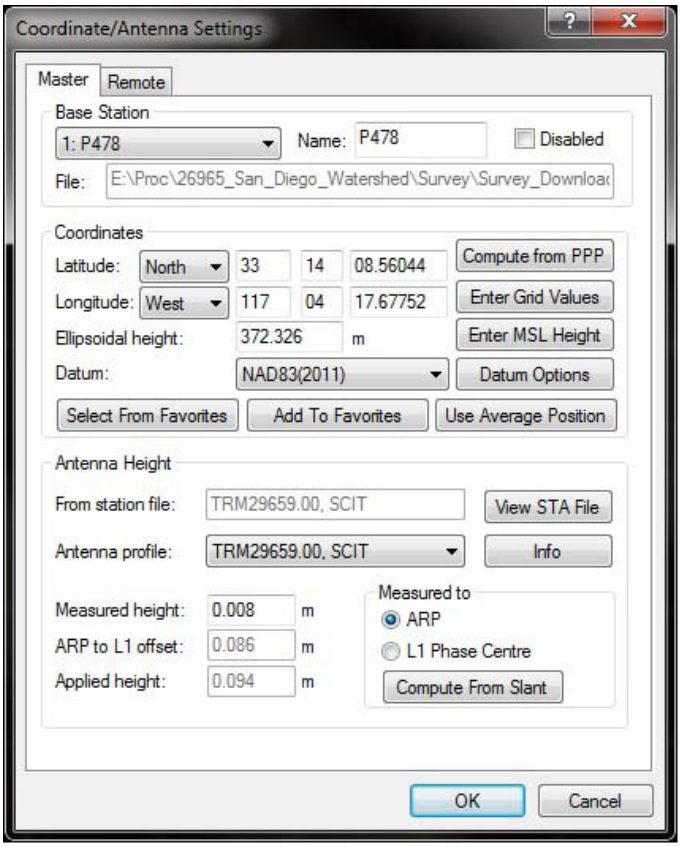

0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
492000
Week 1869
494000
496000
498000
500000
502000
504000
506000
508000
510000
512000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
40
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
492000
Week 1869
494000
496000
498000
500000
502000
504000
506000
508000
510000
512000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
4: FEMA_SD_05
Name: FEMA_SD_05
Disabled
File: F:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloac
Coordinates
Latitude: North 32 54 47.27680
Longitude: West 116 53 04.81516
Ellipsoidal height: 441.162 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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
3: P472
Name: P472
Disabled
File: E:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloa
Coordinates
Latitude: North 32 53 21.13975
Longitude: West 117 06 16.85407
Ellipsoidal height: 138.603 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM29659.00, SCIT
View STA File
Antenna profile: TRM29659.00, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.086 m
Applied height: 0.094 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
2: P473
Name: P473
Disabled
File: E:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloa
Coordinates
Latitude: North 32 44 01.58057
Longitude: West 116 56 58.20691
Ellipsoidal height: 189.328 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM29659.00, SCIT
View STA File
Antenna profile: TRM29659.00, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.086 m
Applied height: 0.094 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: P478
Name: P478
Disabled
File: E:\Proc\26965_San_Diego_Watershed\Survey\Survey_Downloa
Coordinates
Latitude: North 33 14 08.56044
Longitude: West 117 04 17.67752
Ellipsoidal height: 372.326 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM29659.00, SCIT
View STA File
Antenna profile: TRM29659.00, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.086 m
Applied height: 0.094 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	070
Stop Line Name	133
Turn Time (min)	3
Buffer (%)	10
Acquisition Time (hrs)	14.4

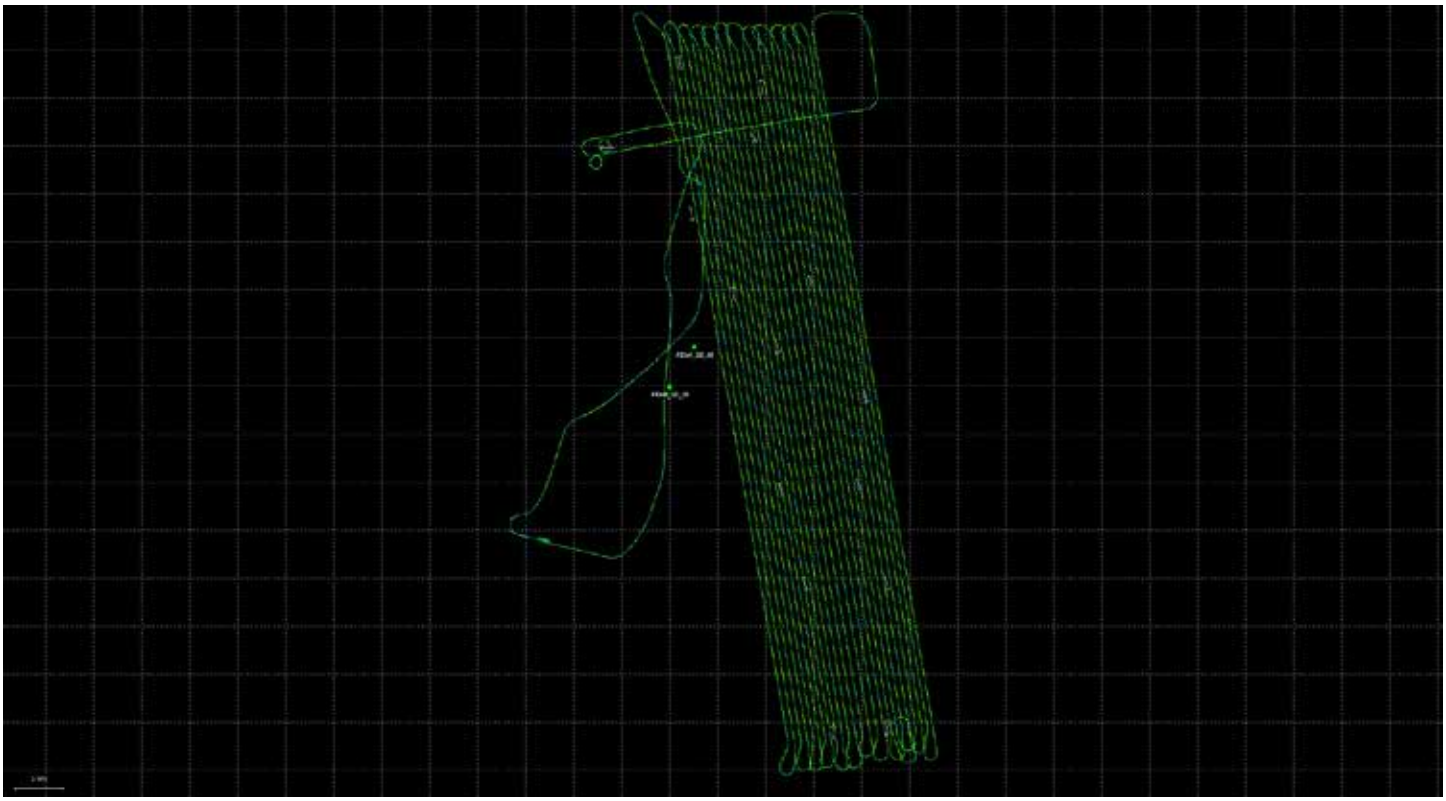
Other Acquisition Notes:

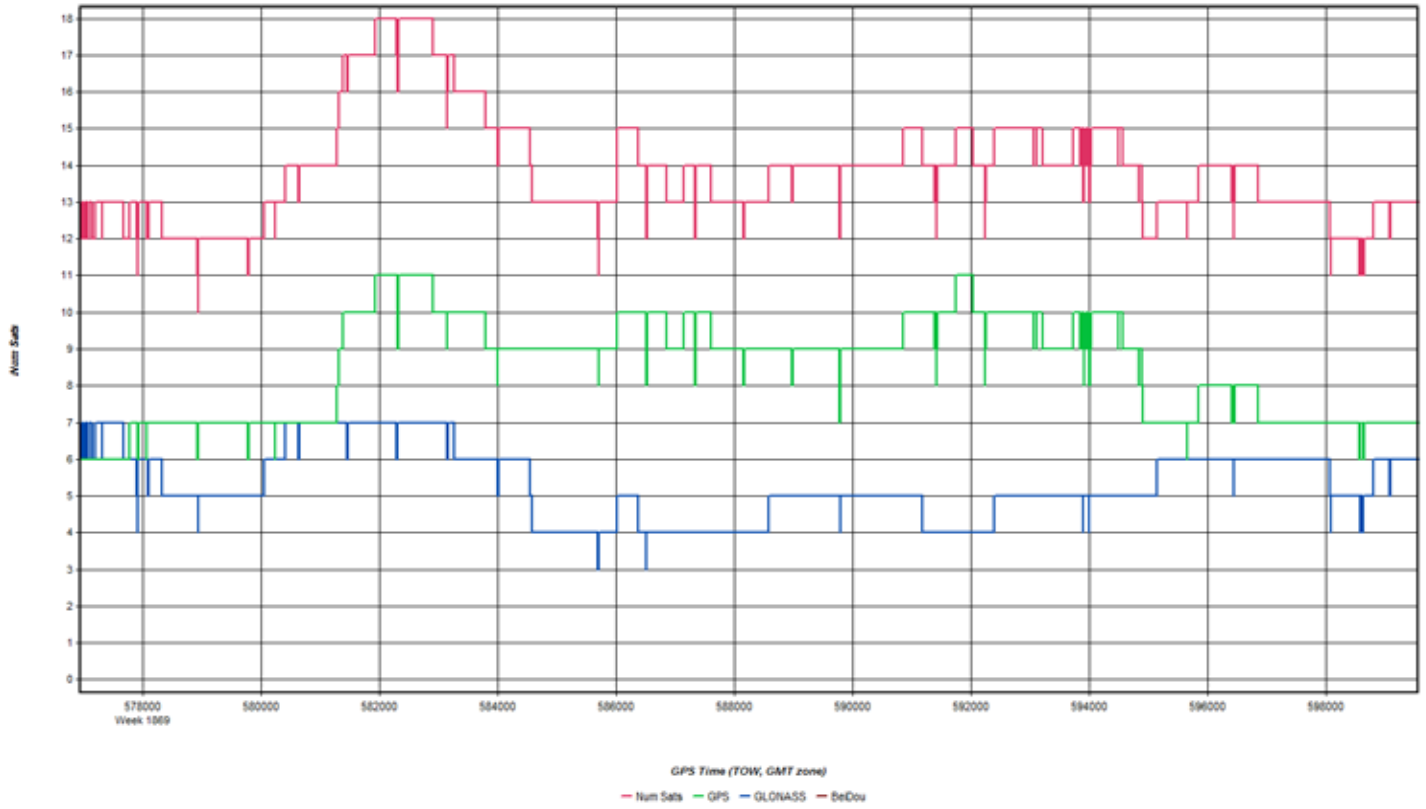
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

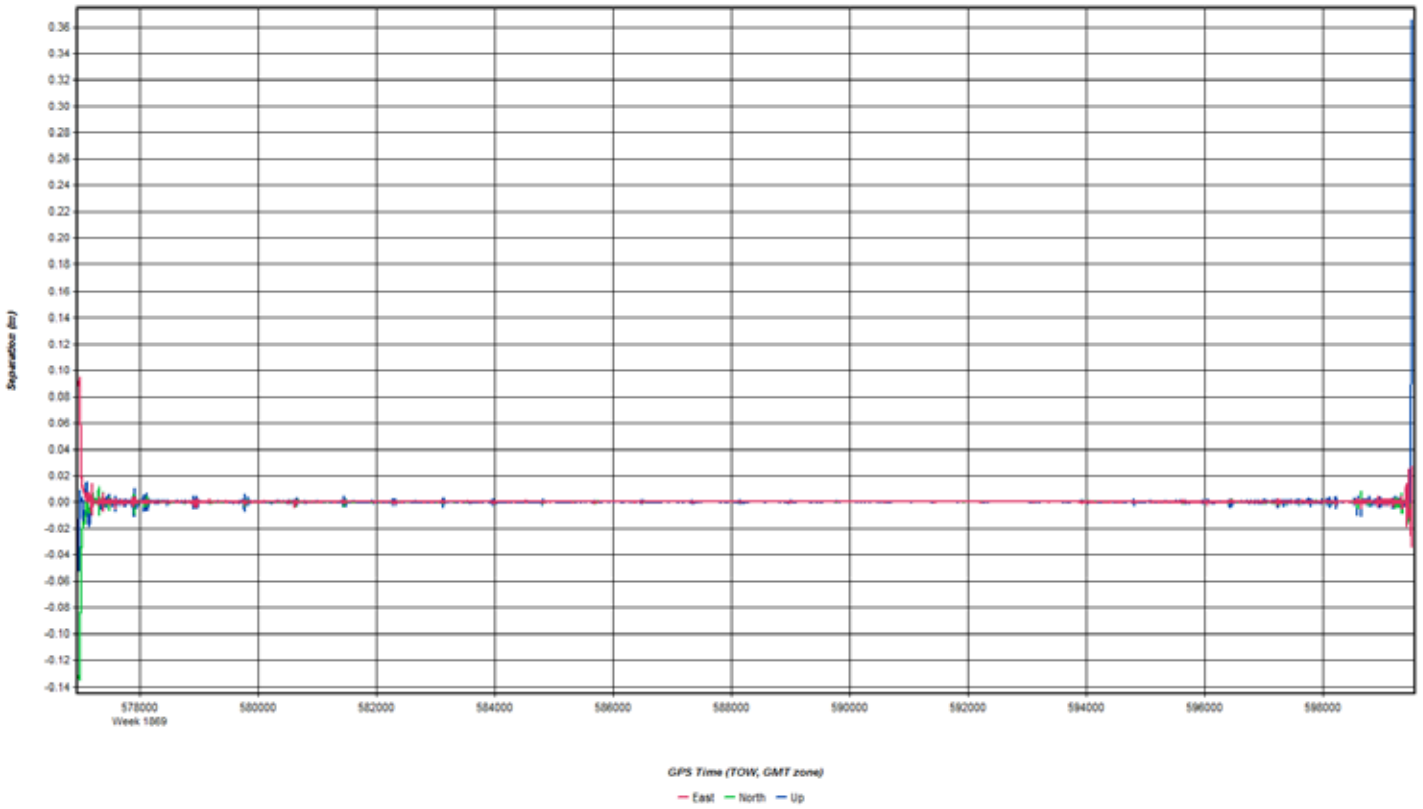
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

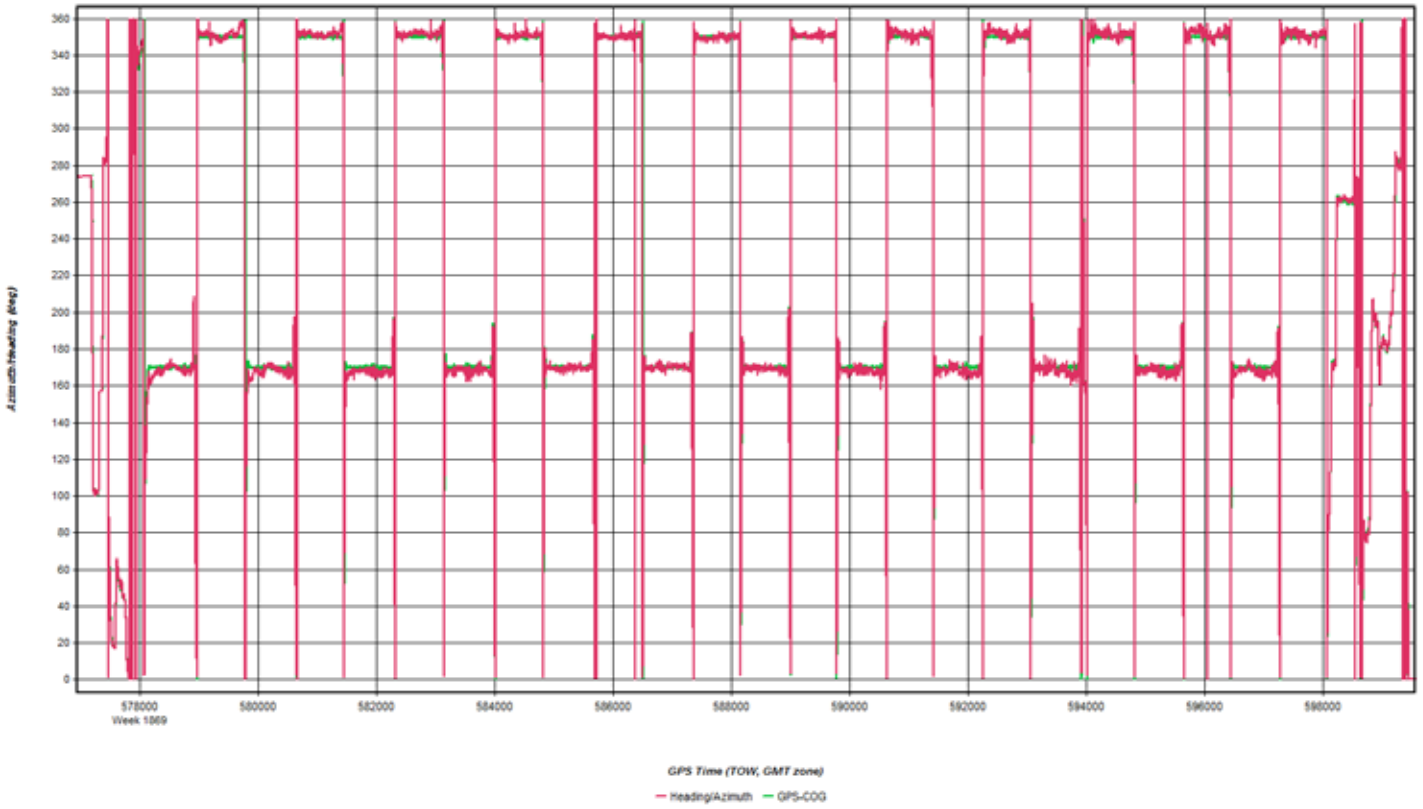
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
001	1.02	5798	164431			s to n start
002	10.87	5798	164654			
003	11.08	5798	165431			
004	13.68	5820	170206			n to s
005	14.07	5804	171133			
006	15.09	5798	172102			
007	15.09	5798	173046			
008	15.09	5801	174032			
009	15.08	5804	175021	175352		Pulled off line for traffic, s to n
010	15.08	5817	180335			
011	15.32	5817	181318			
012	15.69	5817	182311			
013	15.73	5817	183312			s to n
014	15.8	5837	184316			
015	16.42	5843	185324			
016	19.25	5843	190405			n to s
017	19.3	5866	191601			
018	19.81	5866	192806			
019	22.04	5866	194116			
020	21.13	5876	195457			
021	21.56	5876	200817	202203		Refly got ~100 feet lateral off line
022	22.66	5893	203545			
023	22.97	5903	204951			
024	22.99	5903	210351			
025	23.01	5922	211736			CROSSLINE: 221548
026	23.03	5922	213133			
027	23.04	5939	214529			
028	23.02	5948	215957			S to N last line

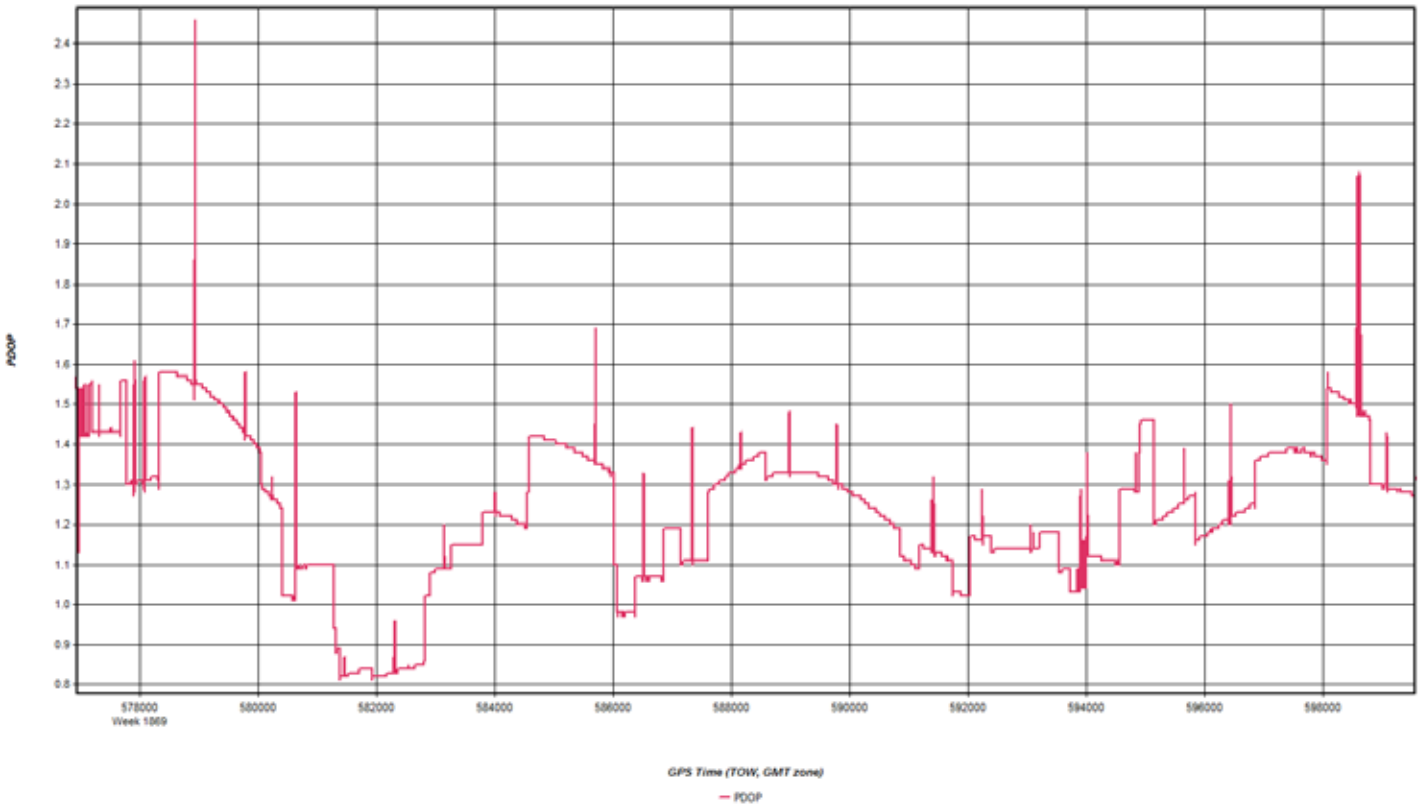
Nov 07, 2015-A

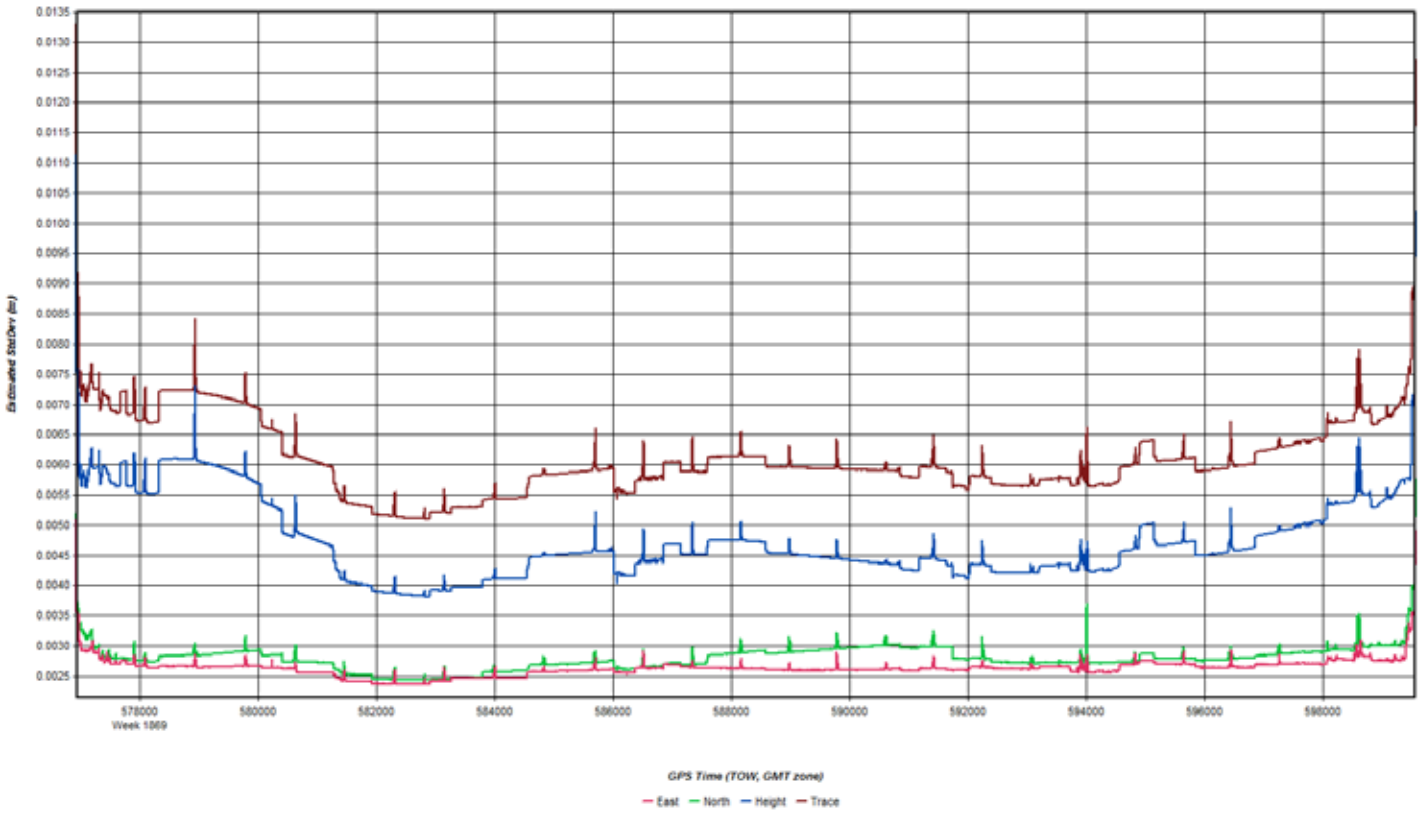


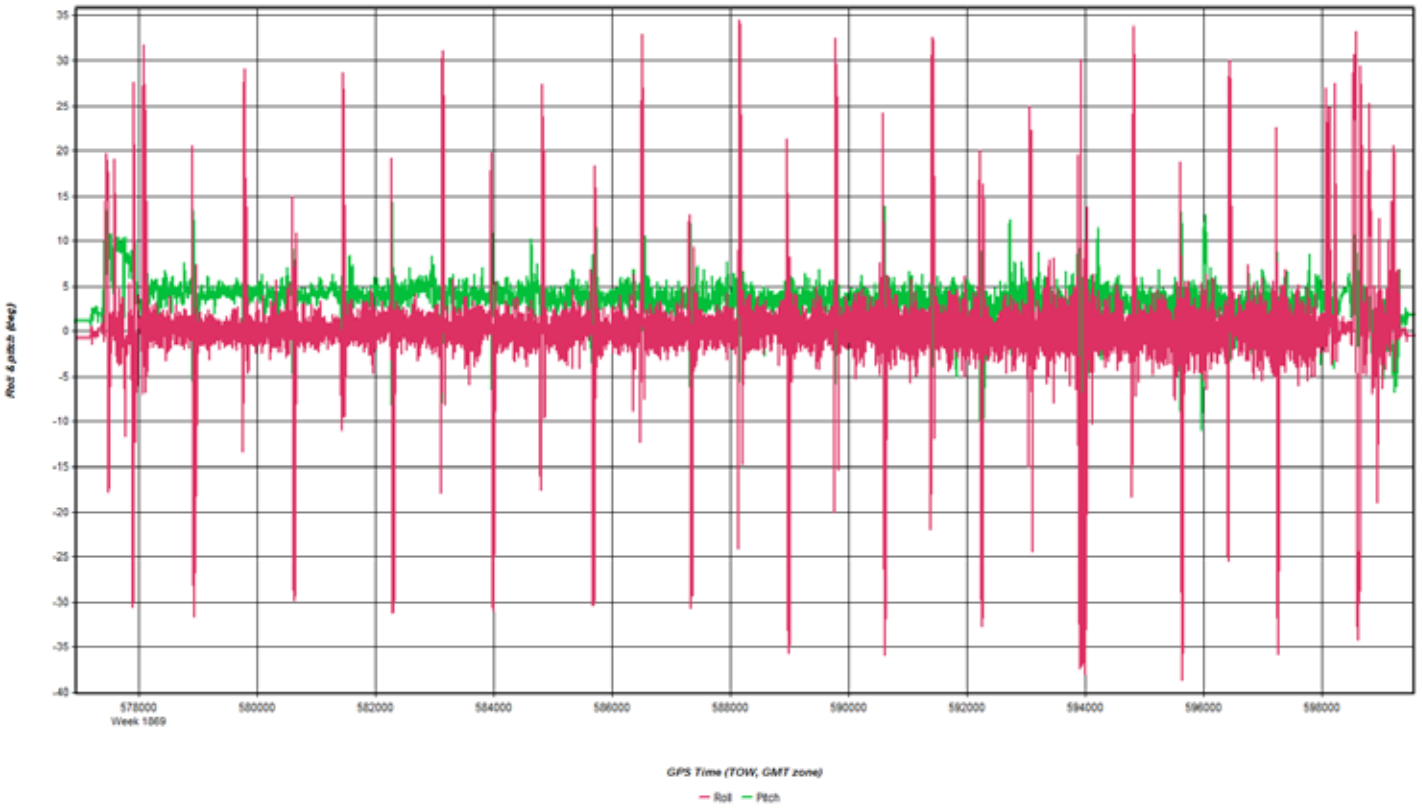

Num Sats
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
578000
Week 1869
580000
582000
584000
586000
588000
590000
592000
594000
596000
598000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

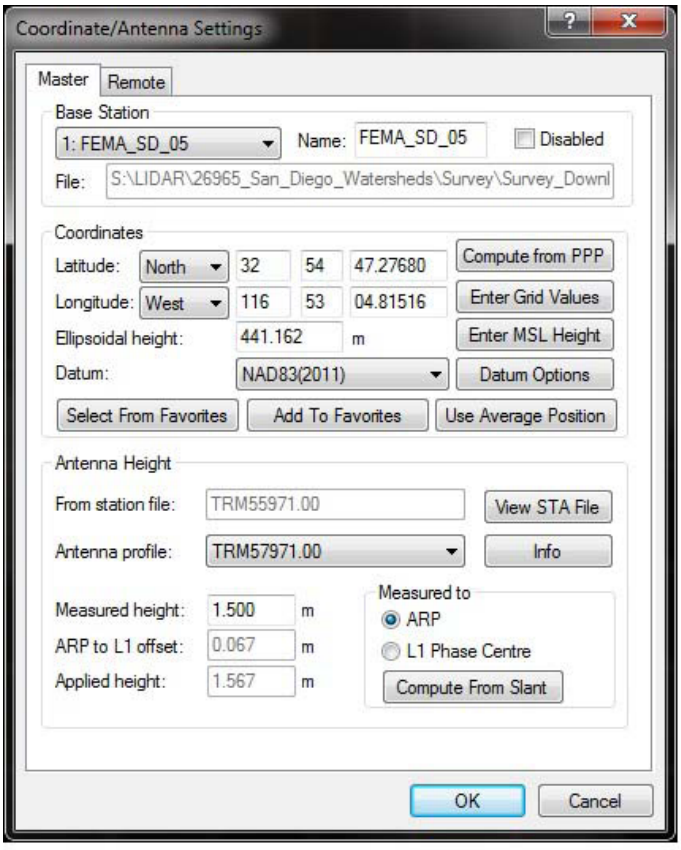

Separation (m)
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
578000
Week 1869
580000
582000
584000
586000
588000
590000
592000
594000
596000
598000
GPS Time (TOW, GMT zone)
East
North
Up

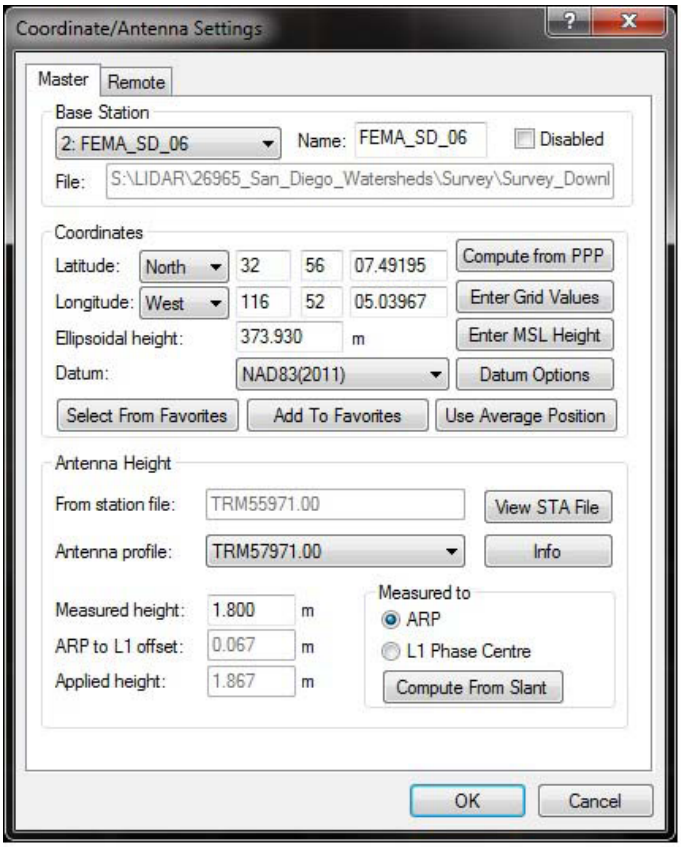

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
578000
Week 1869
580000
582000
584000
586000
588000
590000
592000
594000
596000
598000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
578000
Week 1869
580000
582000
584000
586000
588000
590000
592000
594000
596000
598000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
578000
Week 1869
580000
582000
584000
586000
588000
590000
592000
594000
596000
598000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
578000
Week 1869
580000
582000
584000
586000
588000
590000
592000
594000
596000
598000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
1: FEMA_SD_05
Name: FEMA_SD_05
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 54 47.27680
Longitude: West 116 53 04.81516
Ellipsoidal height: 441.162 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_06
Name: FEMA_SD_06
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 56 07.49195
Longitude: West 116 52 05.03967
Ellipsoidal height: 373.930 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	052
Stop Line Name	133
Turn Time (min)	3
Buffer (%)	10
Acquisition Time (hrs)	19.7

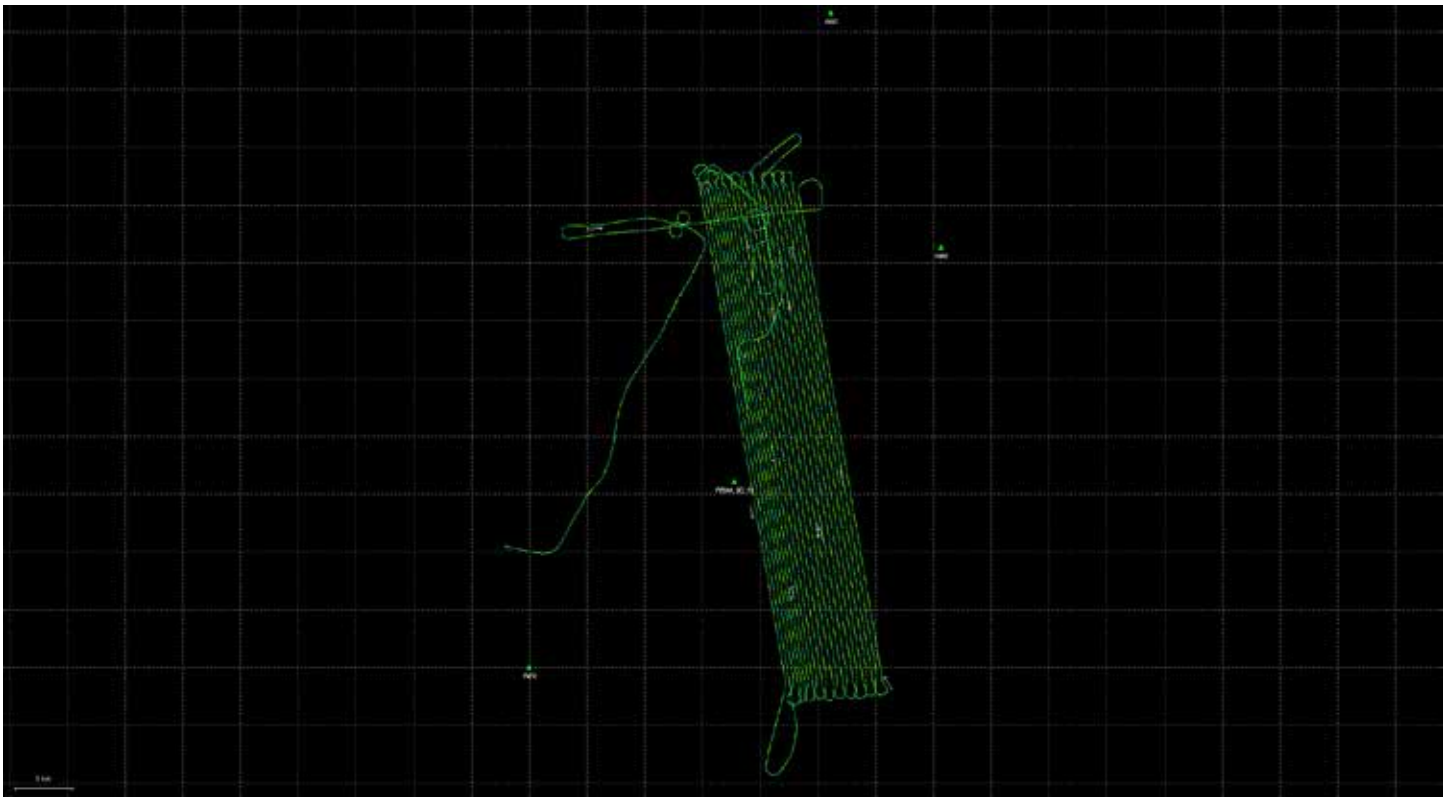
Other Acquisition Notes:

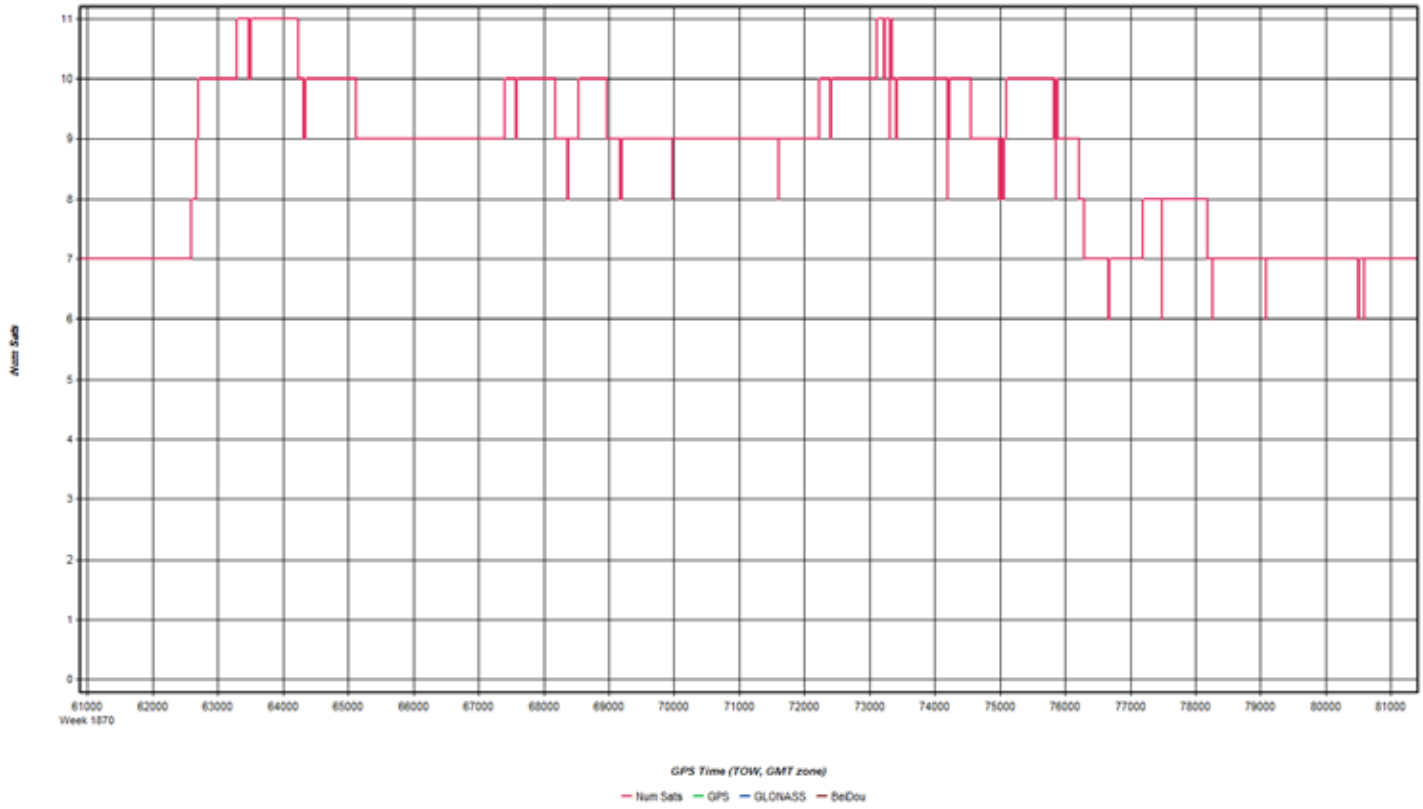
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

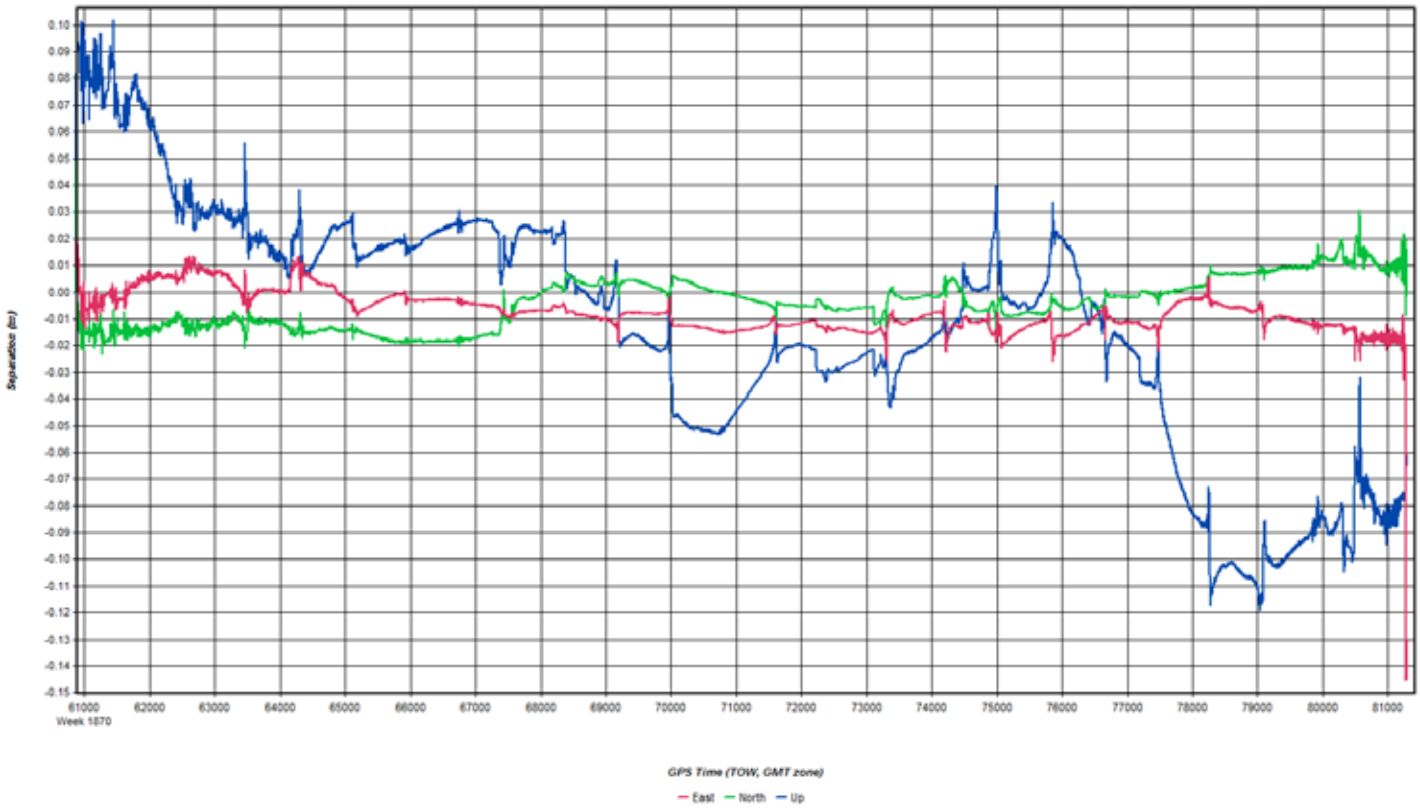
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

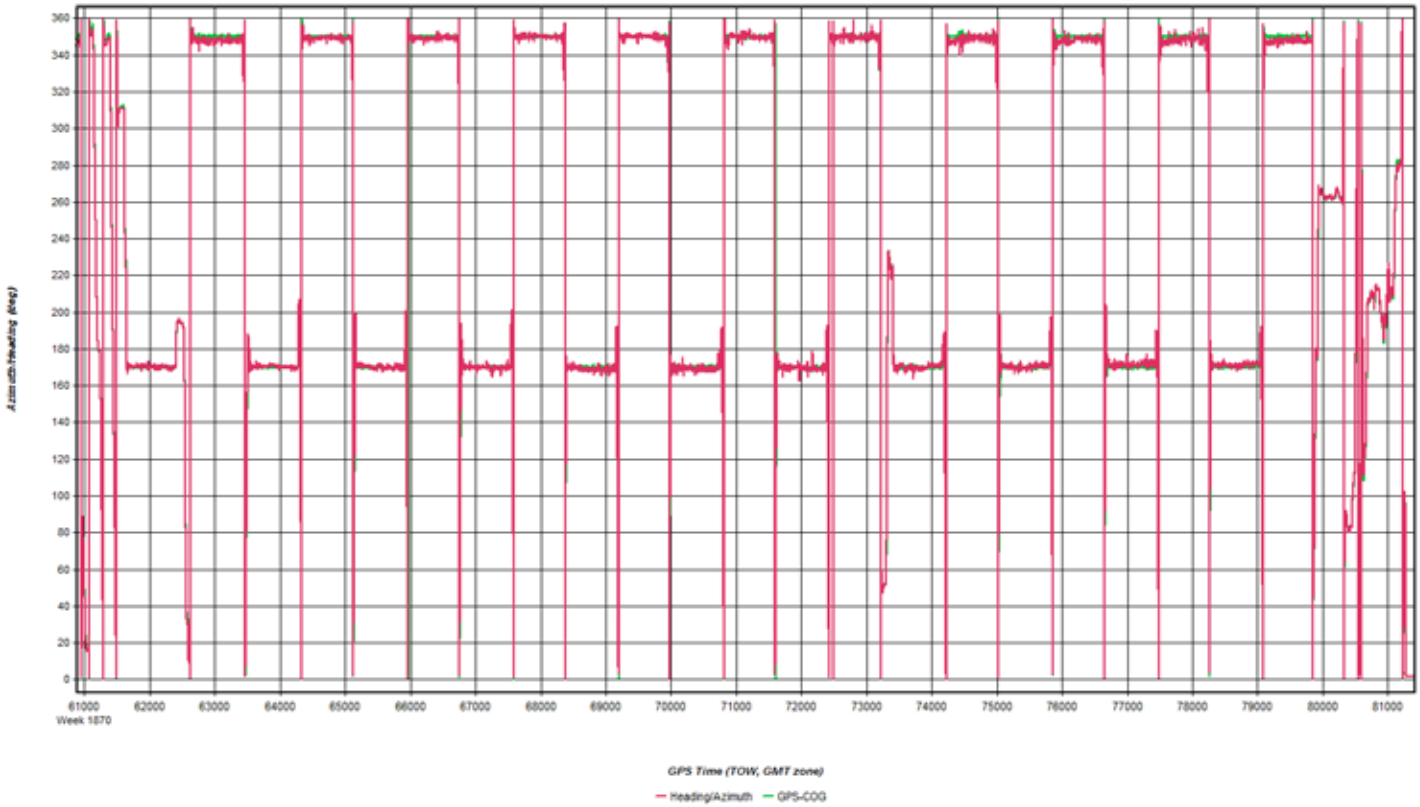
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
029	23.01	5965	163542			Start N to S
030	22.99	5971	164939			
031	22.98	5971	170356			
032	22.96	5985	171743			
033	22.95	5998	173135			
034	22.94	6014	174537			s to n
035	22.92	6034	175935			n to s
036	22.91	6037	181343			
037	22.9	6037	182741			
038	22.88	6063	184159			
039	22.87	6155	185543			
040	22.85	6155	190936			
041	22.84	6155	192318			n to s
042	22.82	6162	193647			
043	22.8	6165	195017			
044	22.79	6165	200359			CROSSLINE: 221033
045	22.77	6165	201725			
046	22.76	6145	203115			s to n
047	22.74	6145	204503			
048	22.73	6145	205838	210034		missed start point, refly
049	22.71	6145	211402			n to s
050	22.7	6165	212736			
051	22.69	6172	214109			
052	22.68	6178	215449			s to n last line

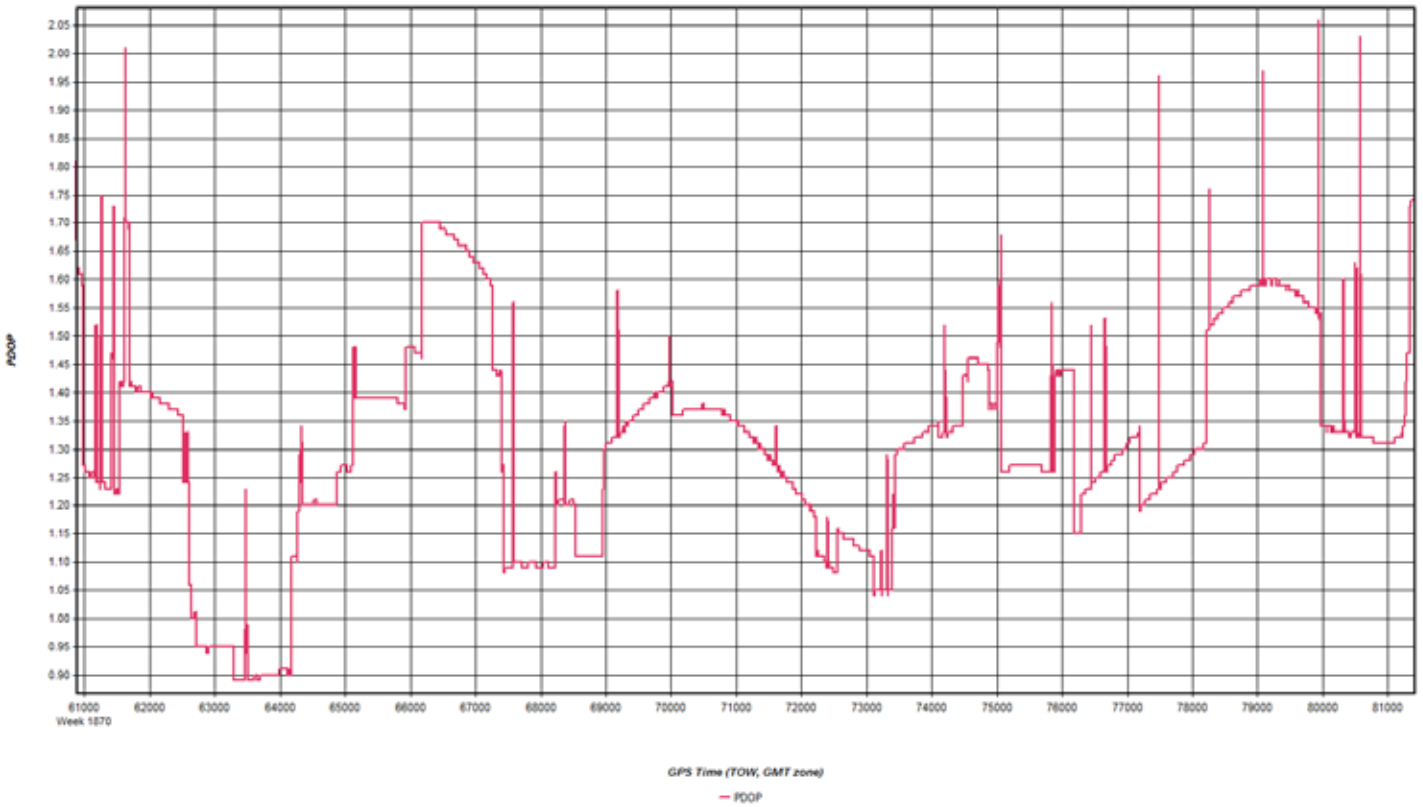
Nov 08, 2015-A

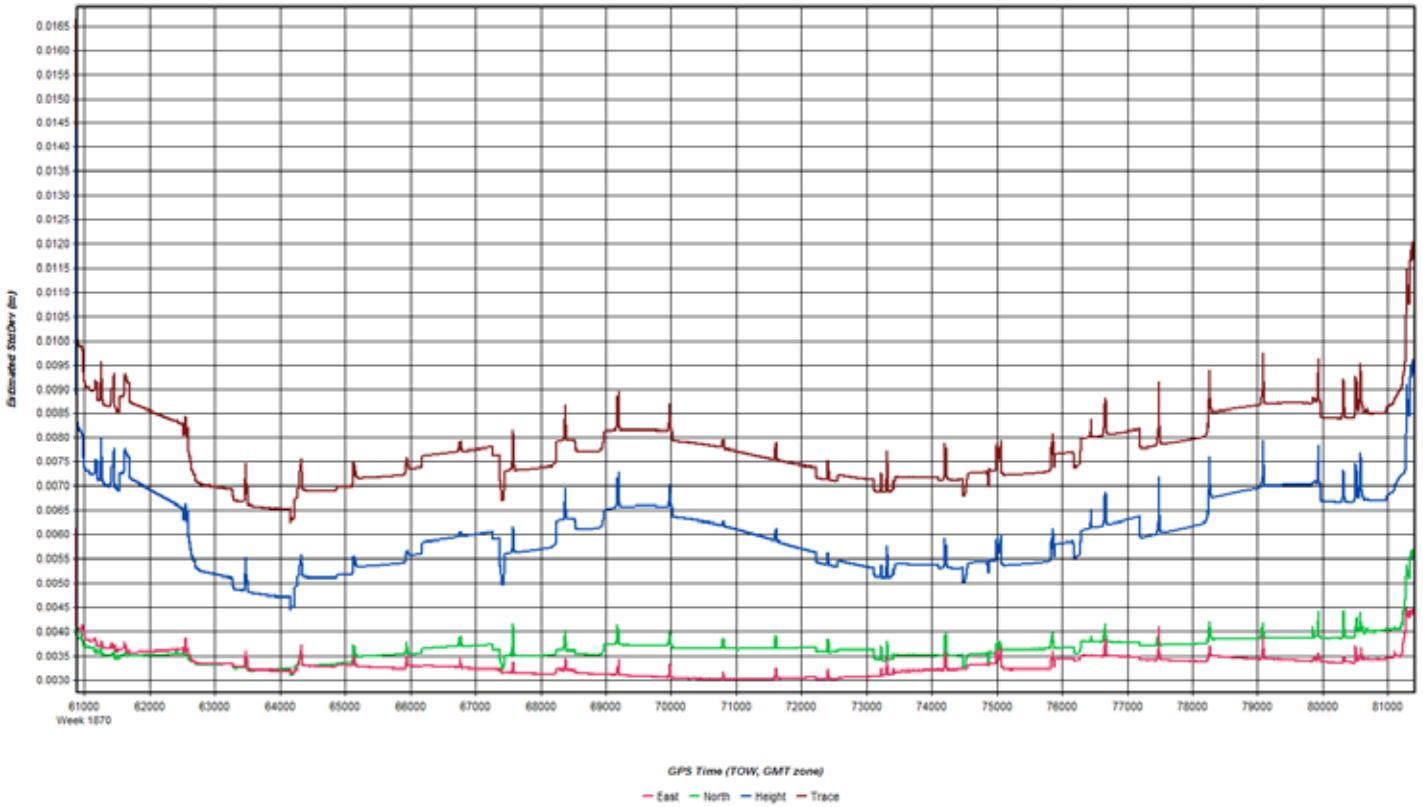


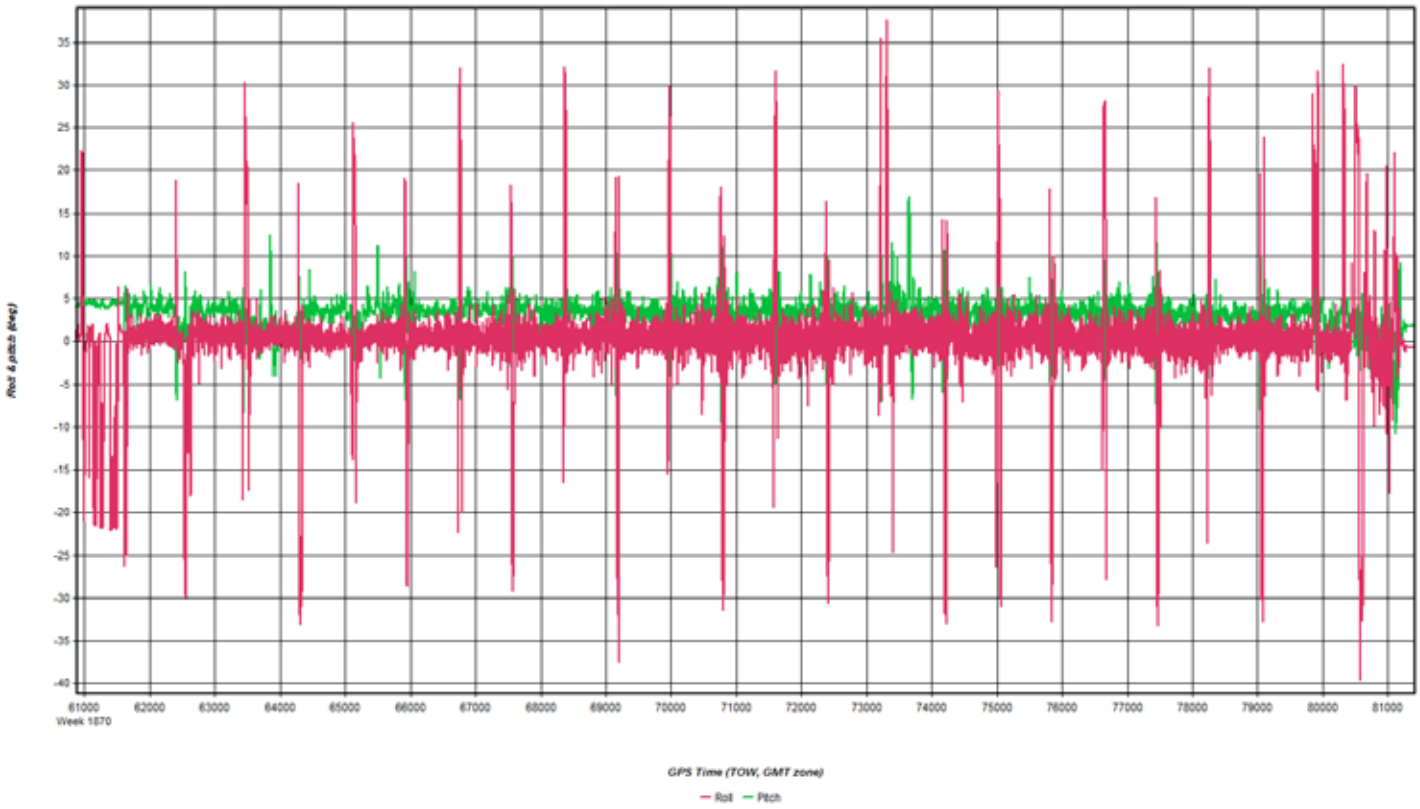

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
61000
Week 1870
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
78000
79000
80000
81000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

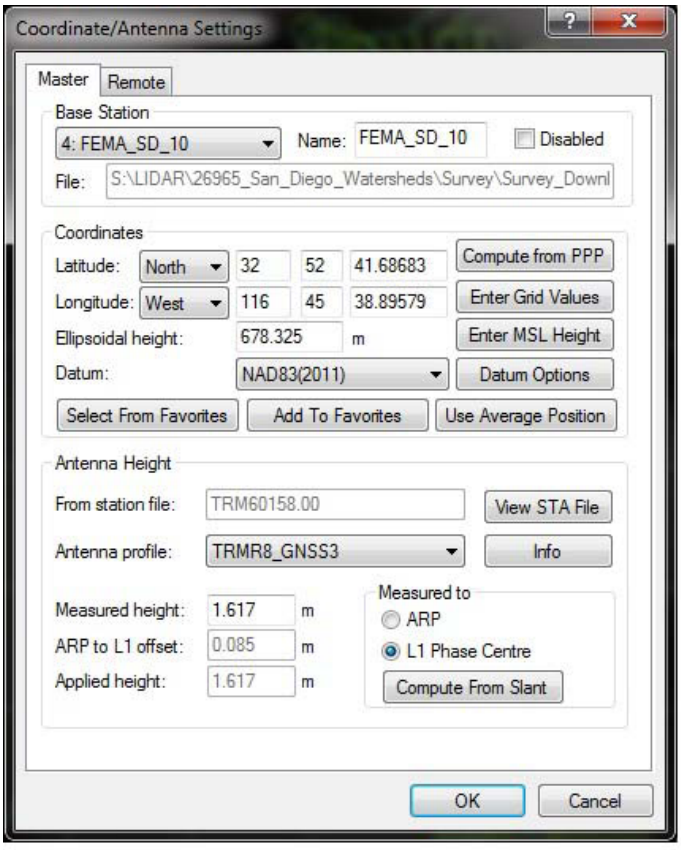

Separation (m)
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
-0.01
-0.02
-0.03
-0.04
-0.05
-0.06
-0.07
-0.08
-0.09
-0.10
-0.11
-0.12
-0.13
-0.14
-0.15
61000
Week 1870
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
78000
79000
80000
81000
GPS Time (TOW, GMT zone)
East
North
Up

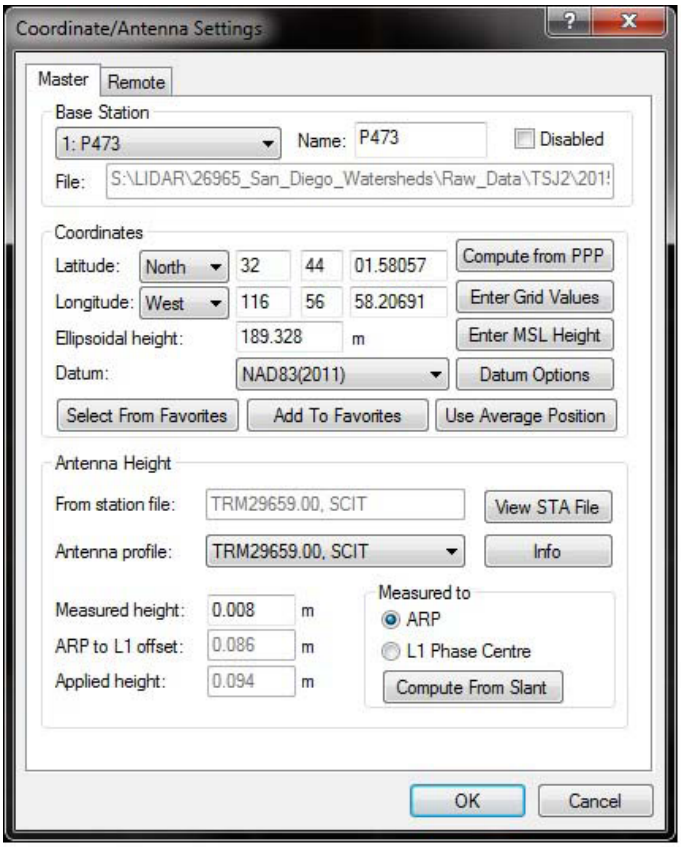

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
61000
Week 1870
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
78000
79000
80000
81000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

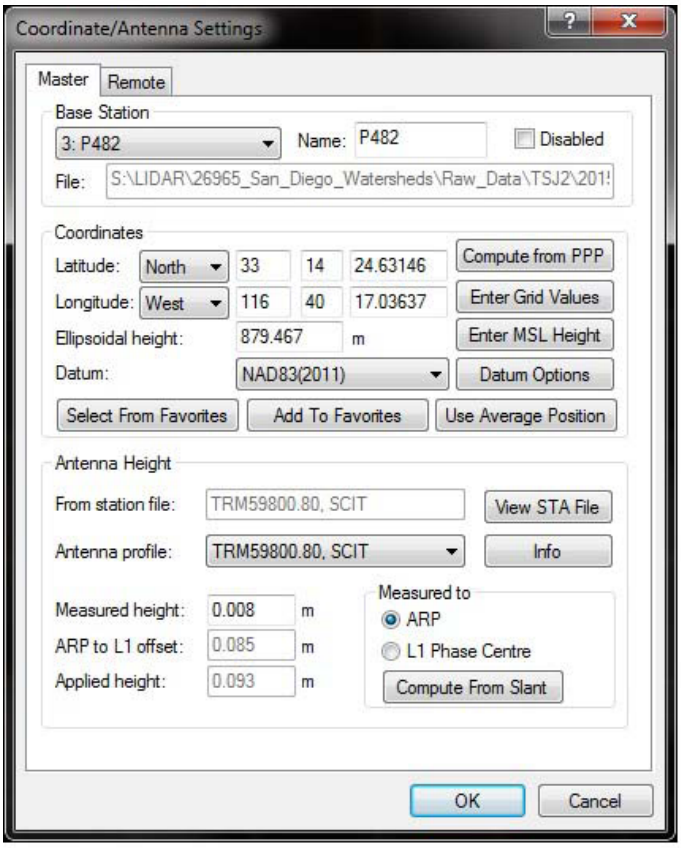

PDOP
2.05
2.00
1.95
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
61000
Week 1870
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
78000
79000
80000
81000
GPS Time (TOW, GMT zone)
PDOP

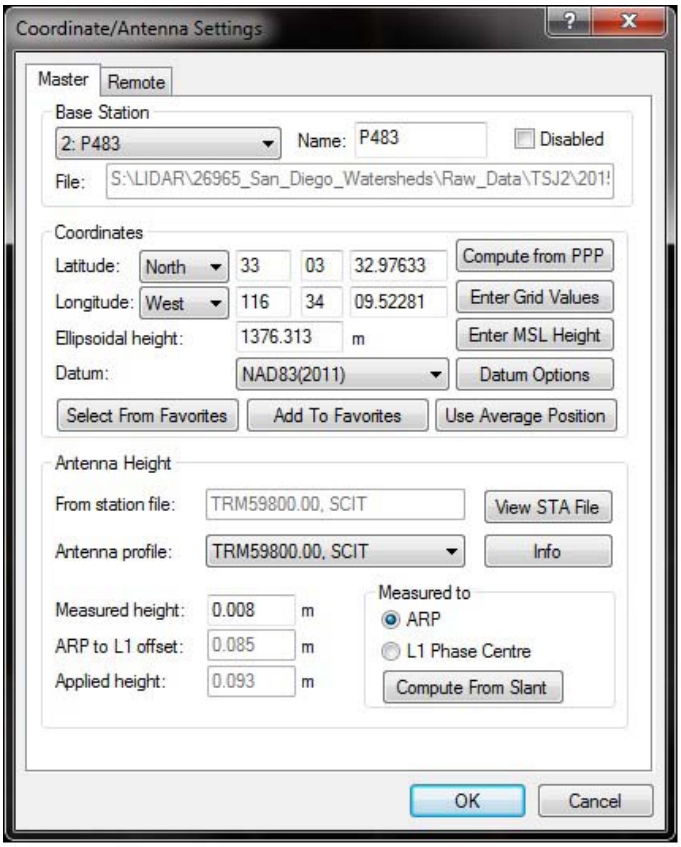

Estimated StdDev (m)
0.0165
0.0160
0.0155
0.0150
0.0145
0.0140
0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
61000
Week 1870
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
78000
79000
80000
81000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
61000
Week 1870
62000
63000
64000
65000
66000
67000
68000
69000
70000
71000
72000
73000
74000
75000
76000
77000
78000
79000
80000
81000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
4: FEMA_SD_10
Name: FEMA_SD_10
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 52 41.68683
Compute from PPP
Longitude: West 116 45 38.89579
Enter Grid Values
Ellipsoidal height: 678.325 m
Enter MSL Height
Datum: NAD83(2011)
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM60158.00
View STA File
Antenna profile: TRMR8_GNSS3
Info
Measured height: 1.617 m
ARP to L1 offset: 0.085 m
Applied height: 1.617 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: P473
Name: P473
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Raw_Data\TSJ2\201
Coordinates
Latitude: North 32 44 01.58057
Longitude: West 116 56 58.20691
Ellipsoidal height: 189.328 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM29659.00, SCIT
Antenna profile: TRM29659.00, SCIT
View STA File
Info
Measured height: 0.008 m
ARP to L1 offset: 0.086 m
Applied height: 0.094 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
3: P482
Name: P482
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Raw_Data\TSJ2\201
Coordinates
Latitude: North 33 14 24.63146
Longitude: West 116 40 17.03637
Ellipsoidal height: 879.467 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM59800.80, SCIT
Antenna profile: TRM59800.80, SCIT
View STA File
Info
Measured height: 0.008 m
ARP to L1 offset: 0.085 m
Applied height: 0.093 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
2: P483
Name: P483
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Raw_Data\TSJ2\201
Coordinates
Latitude: North 33 03 32.97633
Longitude: West 116 34 09.52281
Ellipsoidal height: 1376.313 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM59800.00, SCIT
View STA File
Antenna profile: TRM59800.00, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.085 m
Applied height: 0.093 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	052
Stop Line Name	133
Turn Time (min)	3
Buffer (%)	10
Acquisition Time (hrs)	19.7

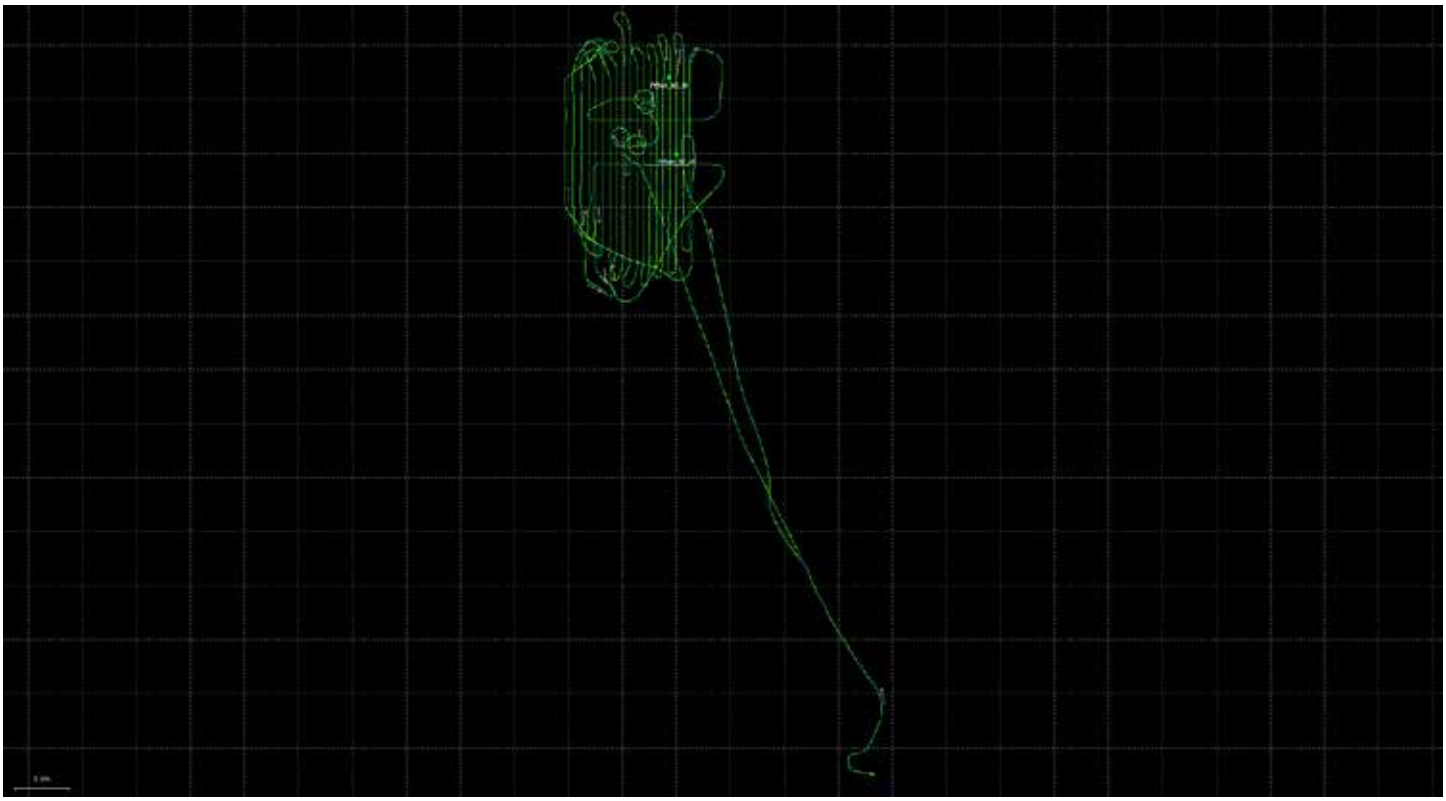
Other Acquisition Notes:

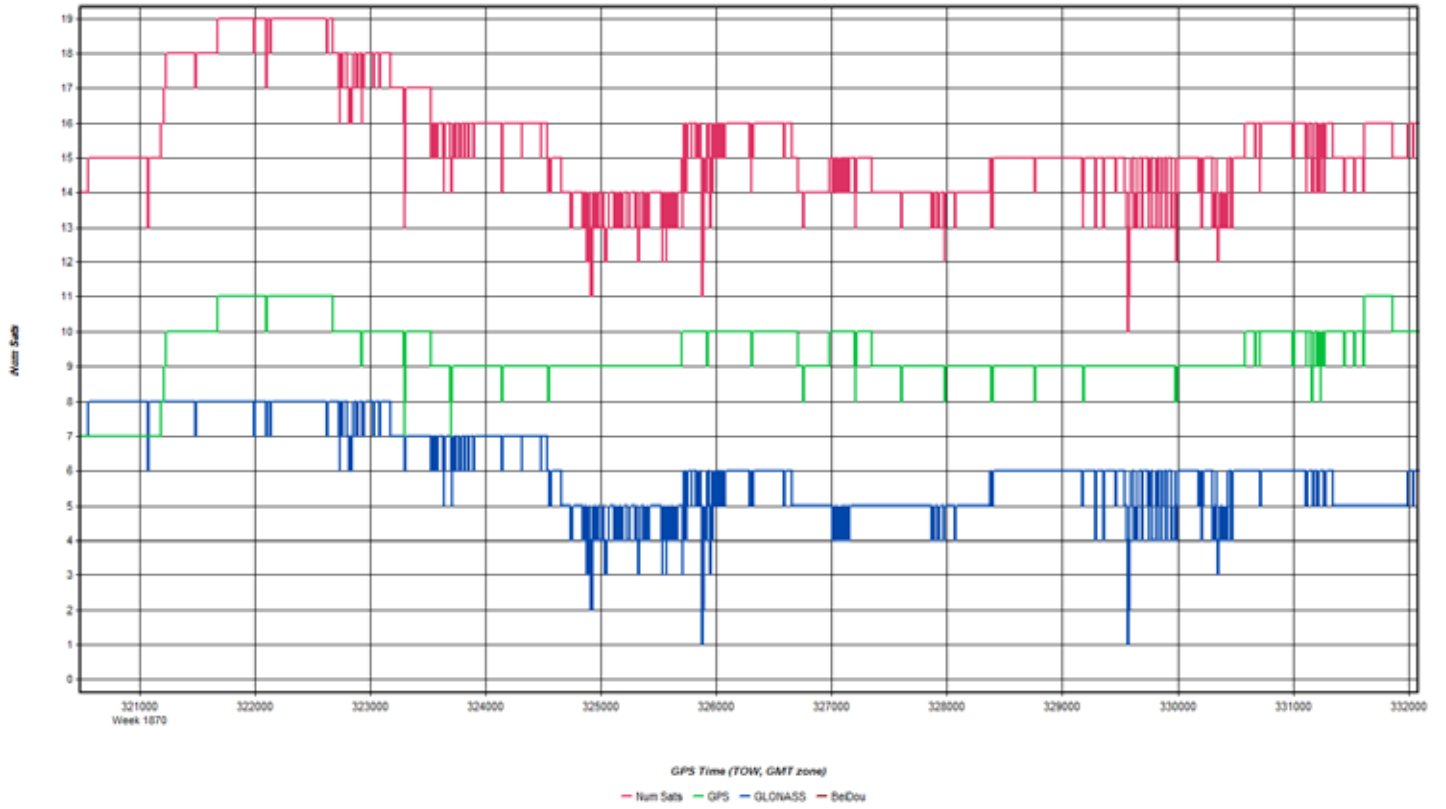
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

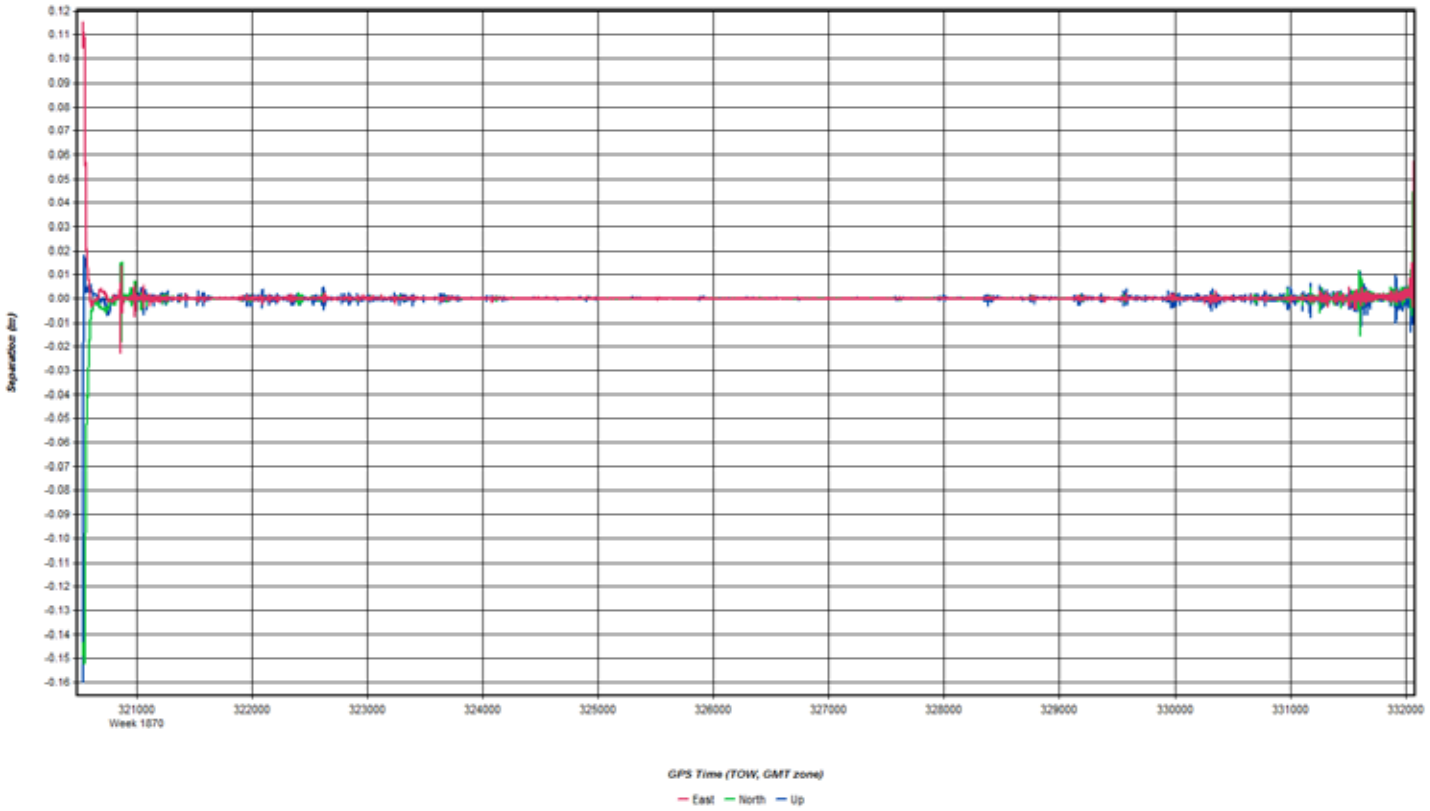
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

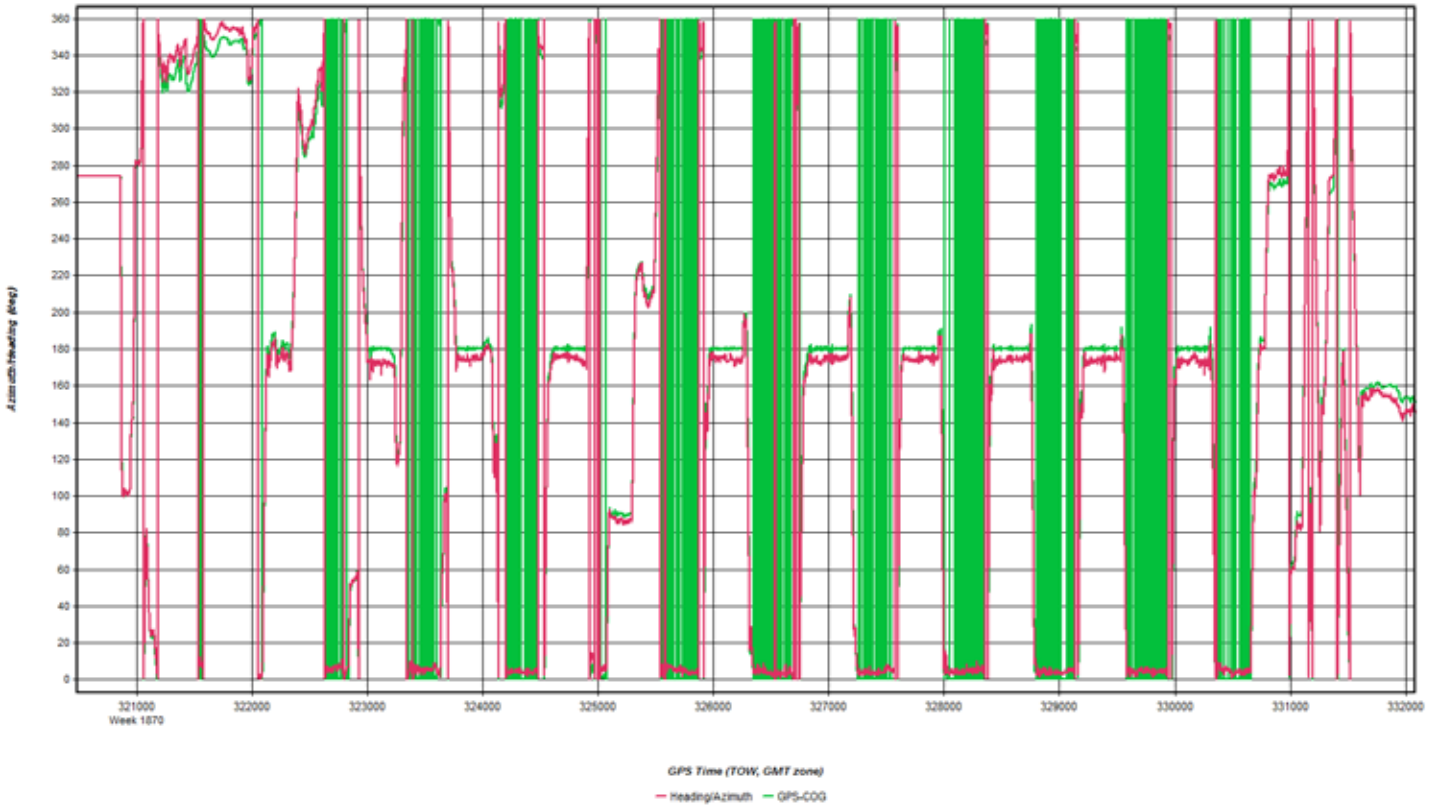
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
051	22.69	6172	214109	163349	170733	Weird data 11/7, reflown N to S; First attempt let to shutdown error; reflown again
052	22.68	6178	215449	172436		reflown s to n
053	22.66	6191	173841			n to s
054	22.65	6204	175224			
055	22.64	6227	180605			
056	22.63	6231	181934			
057	22.62	6237	183306			
058	22.6	6250	184641			
059	22.59	6273	190000			
060	22.57	6313	191324			
061	22.56	6352	192642			
062	22.54	6405	194023			
063	22.53	6493	195348			
064	22.51	6546	200714			
065	22.49	6719	202332			
066	22.48	6792	203713			
067	22.46	6828	205053			n to s
068	22.45	6861	210432			
069	22.43	6926	211755			n to s
070	22.42	6989	213139			CROSSLINE: 221159
071	22.4	7087	214448			n to s
072	22.39	7189	215816			s to n, last line

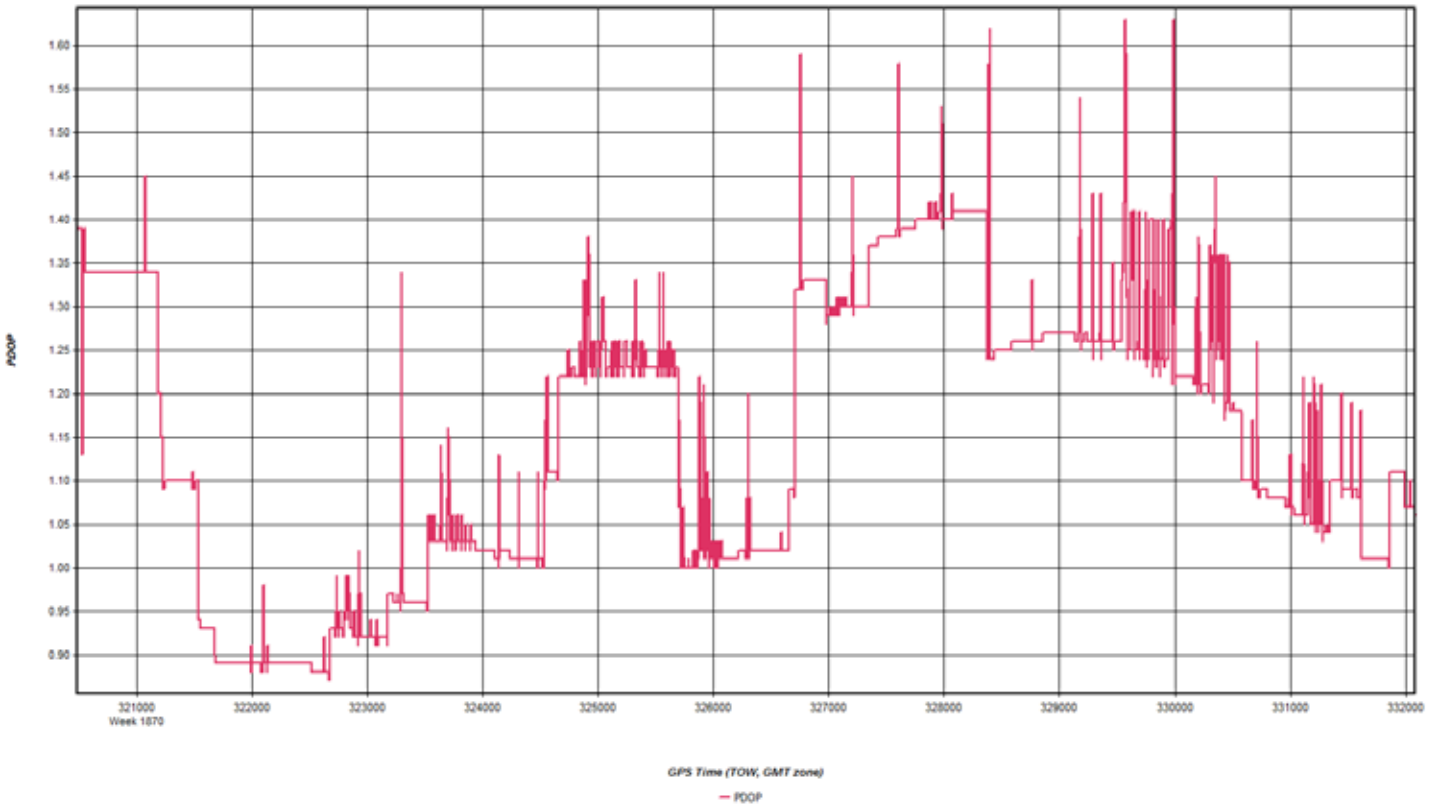
Nov 11, 2015-A

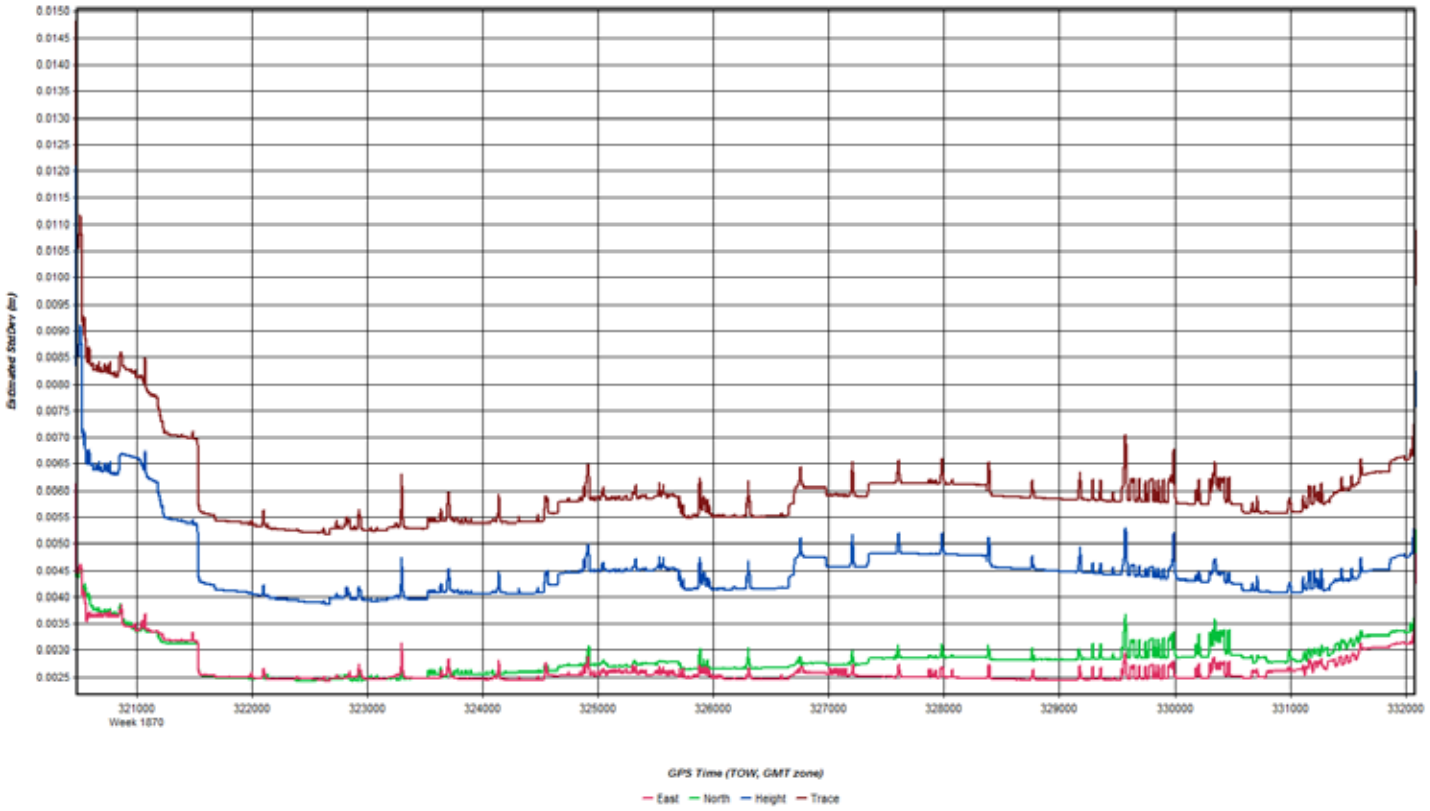


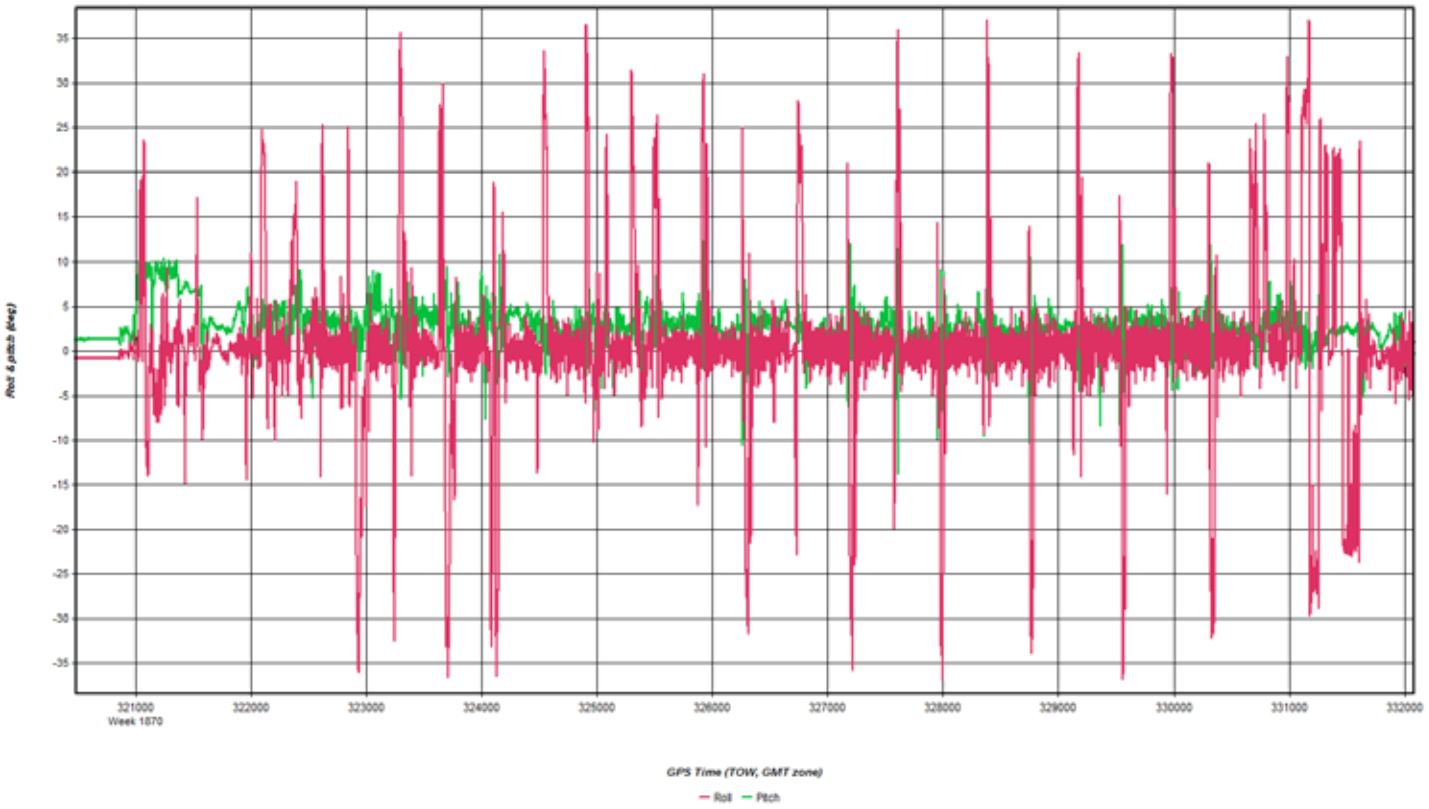

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
321000
Week 1870
322000
323000
324000
325000
326000
327000
328000
329000
330000
331000
332000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

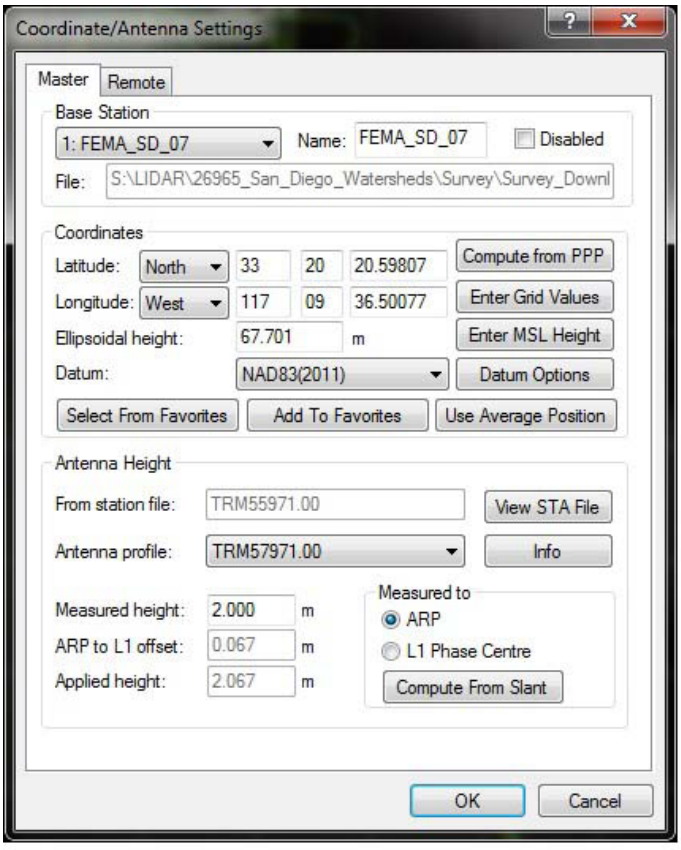

Separation (m)
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
-0.01
-0.02
-0.03
-0.04
-0.05
-0.06
-0.07
-0.08
-0.09
-0.10
-0.11
-0.12
-0.13
-0.14
-0.15
-0.16
321000
Week 1870
322000
323000
324000
325000
326000
327000
328000
329000
330000
331000
332000
GPS Time (TOW, GMT zone)
East
North
Up

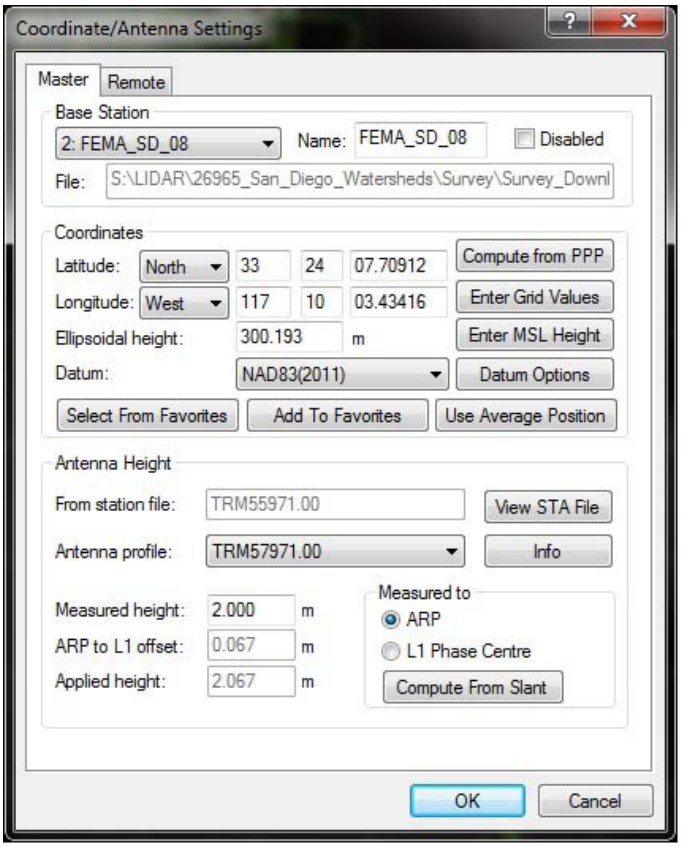

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
321000
Week 1870
322000
323000
324000
325000
326000
327000
328000
329000
330000
331000
332000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
321000
Week 1870
322000
323000
324000
325000
326000
327000
328000
329000
330000
331000
332000
GPS Time (TOW, GMT zone)
PDOP


0.0150
0.0145
0.0140
0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
321000
Week 1870
322000
323000
324000
325000
326000
327000
328000
329000
330000
331000
332000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
321000
Week 1870
322000
323000
324000
325000
326000
327000
328000
329000
330000
331000
332000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
1: FEMA_SD_07
Name: FEMA_SD_07
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 20 20.59807
Compute from PPP
Longitude: West 117 09 36.50077
Enter Grid Values
Ellipsoidal height: 67.701 m
Enter MSL Height
Datum: NAD83(2011)
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
2: FEMA_SD_08
Name: FEMA_SD_08
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 24 07.70912
Longitude: West 117 10 03.43416
Ellipsoidal height: 300.193 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	40	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed 255	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	464	1700
Flying Alt. MSL Range (ft)	5601	10145
Swath Width Range (m)	338	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	2238
Total Line Time (hrs, no buffer)	21.3
Total Number of Lines	182
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	9.1
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	7
Total Acquisition Time (hrs)	37.5

Mission Flight Time Estimate	
Start Line Name	375
Stop Line Name	399
Turn Time (min)	1
Buffer (%)	10
Acquisition Time (hrs)	2.8

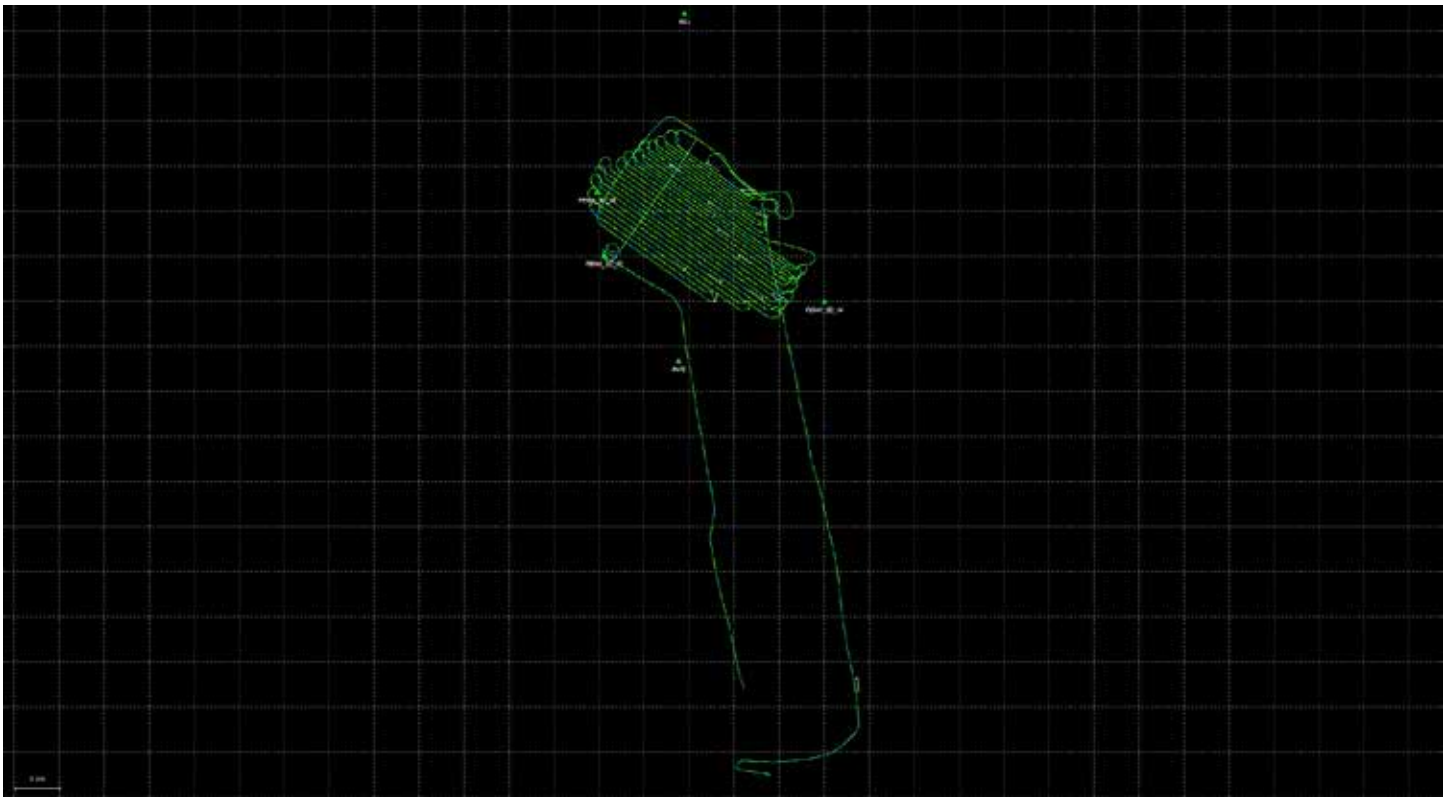
Other Acquisition Notes:

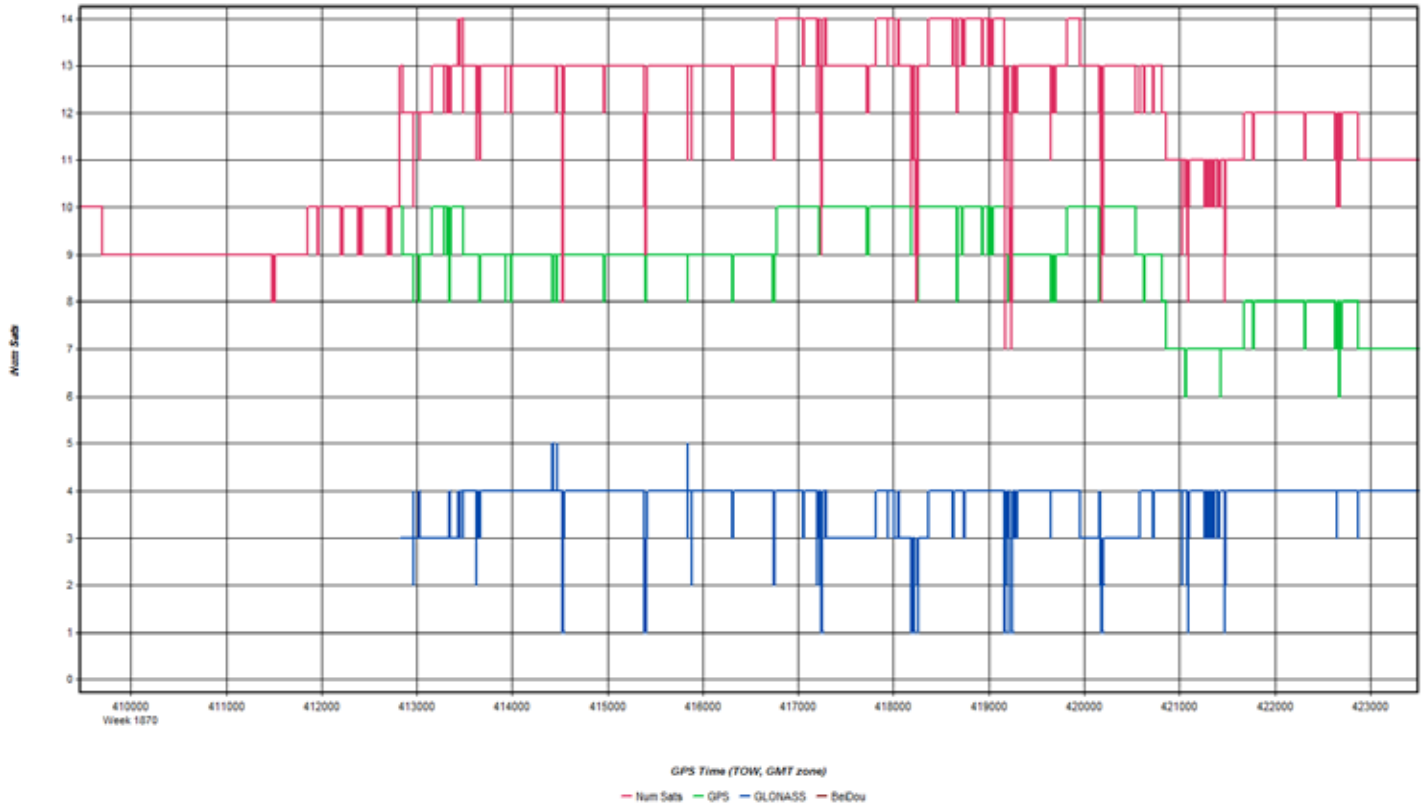
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

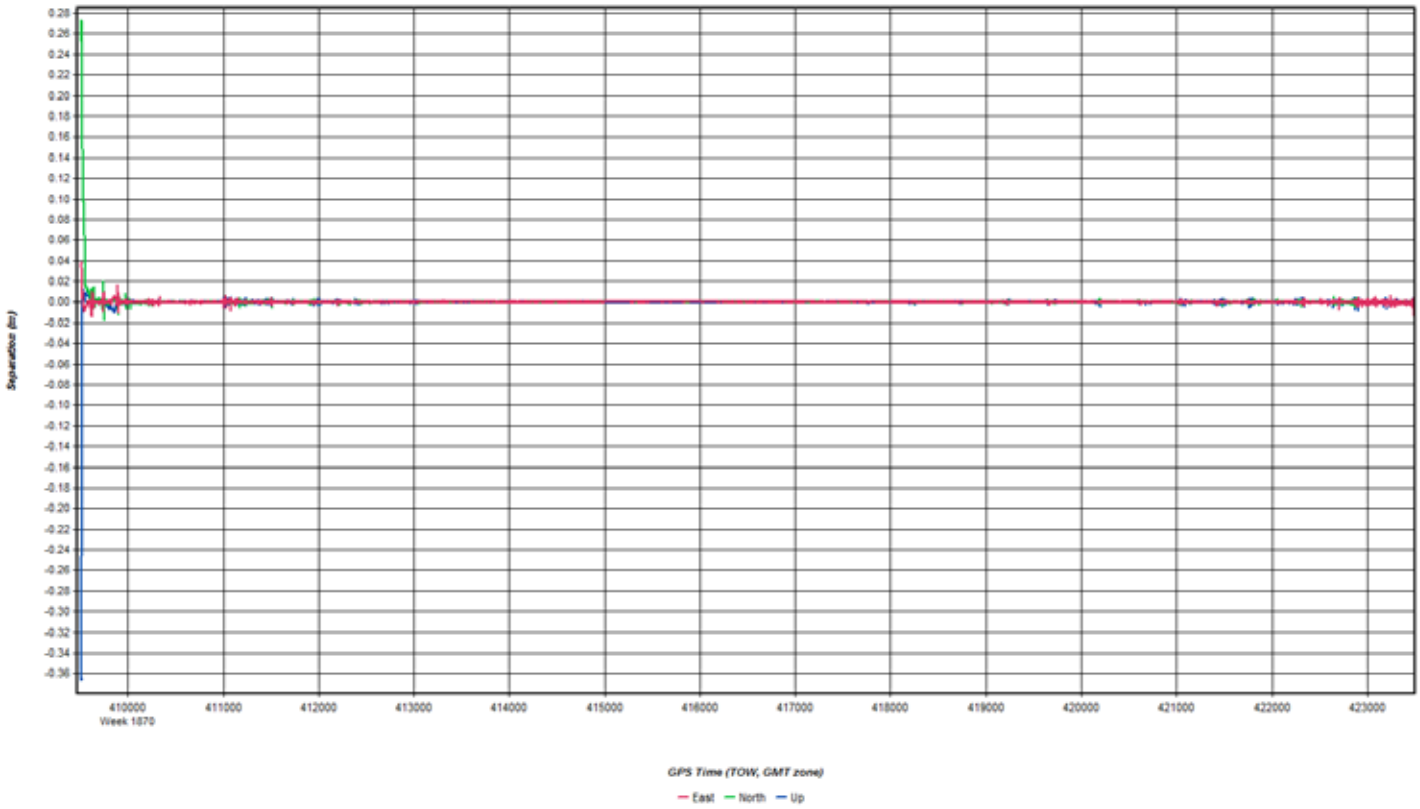
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

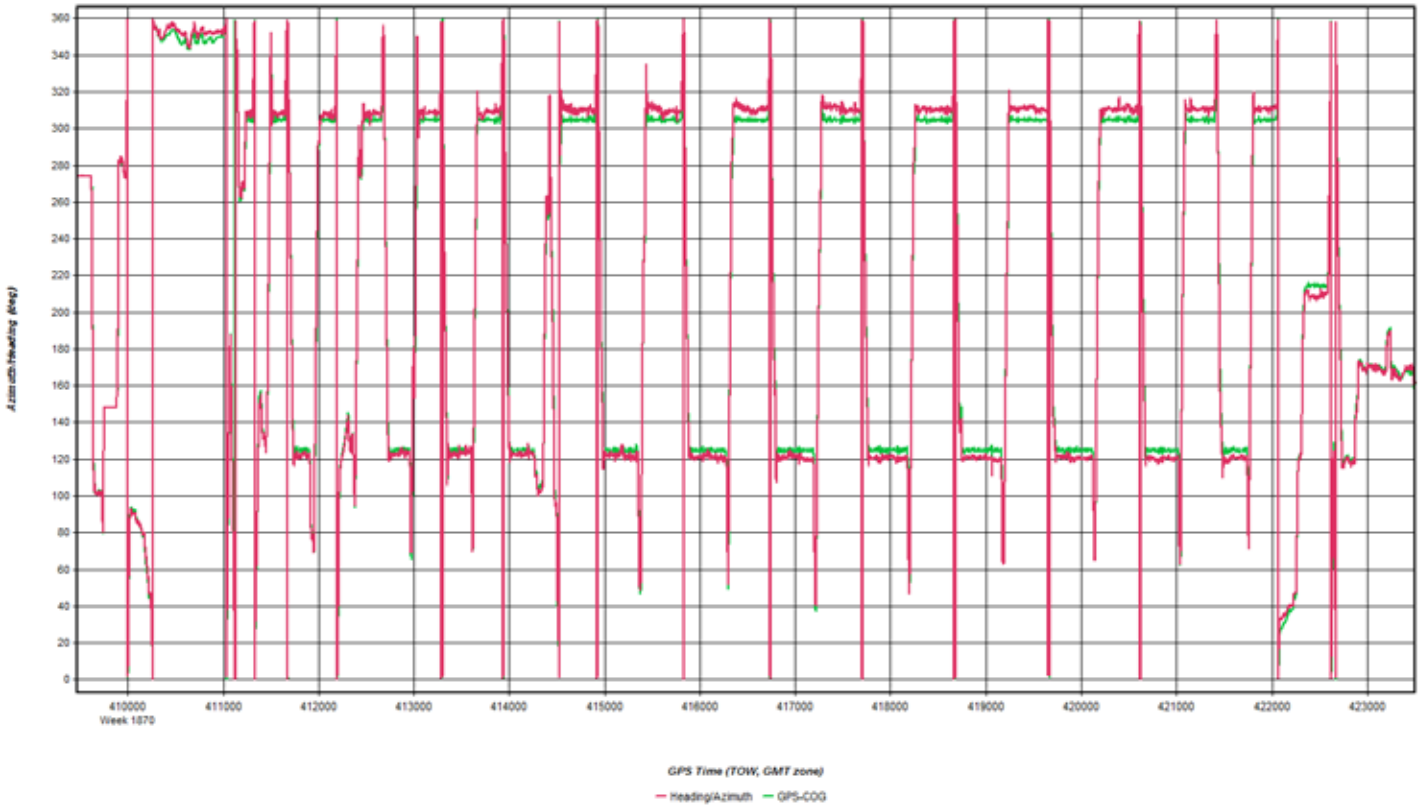
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
134	3.59	5889	173709			Start S to N
135	4.22	5958	174356			
136	4.6	5935	174954			
137	5.09	5906	175623			
138	7.64	5601	180326			s to n
139	7.75	5601	181010			n to s
140	8.18	5601	182625			
141	8.4	5604	183240			
142	8.49	5620	183859			Crossline: 181801
143	8.96	5624	184733			
144	9.35	5637	185402			Crossline2: 195315
145	9.35	5647	190029			
146	9.35	5660	190029			
147	9.35	5663	190657			
148	9.2	5663	191336			
149	9.37	5673	192003			FLOWN 20151111
150	9.39	5679	192642			
151	8.36	5693	193313			
152	8.12	5696	194009			n to s
237	5.28	9282	194608			S to N last line

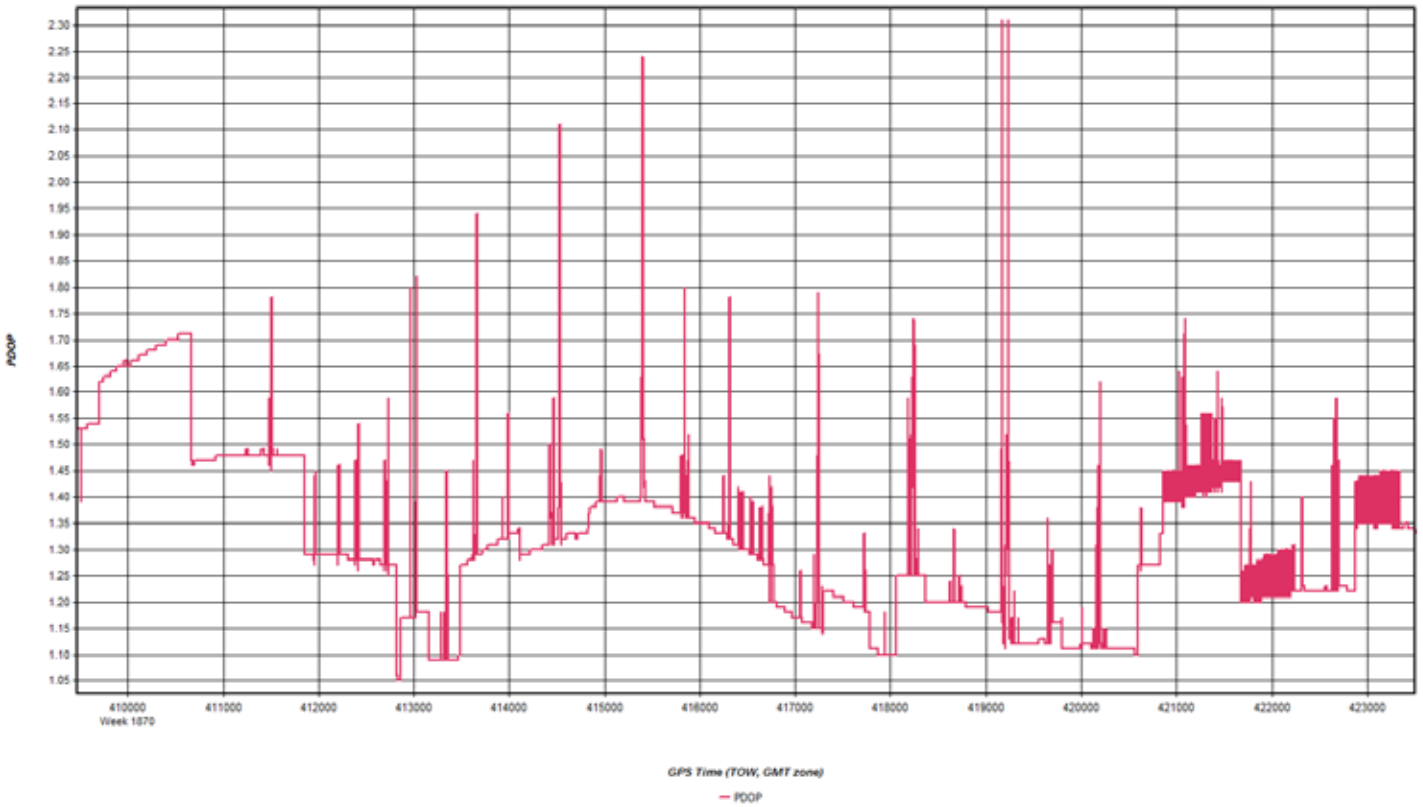
Nov 12, 2015-A

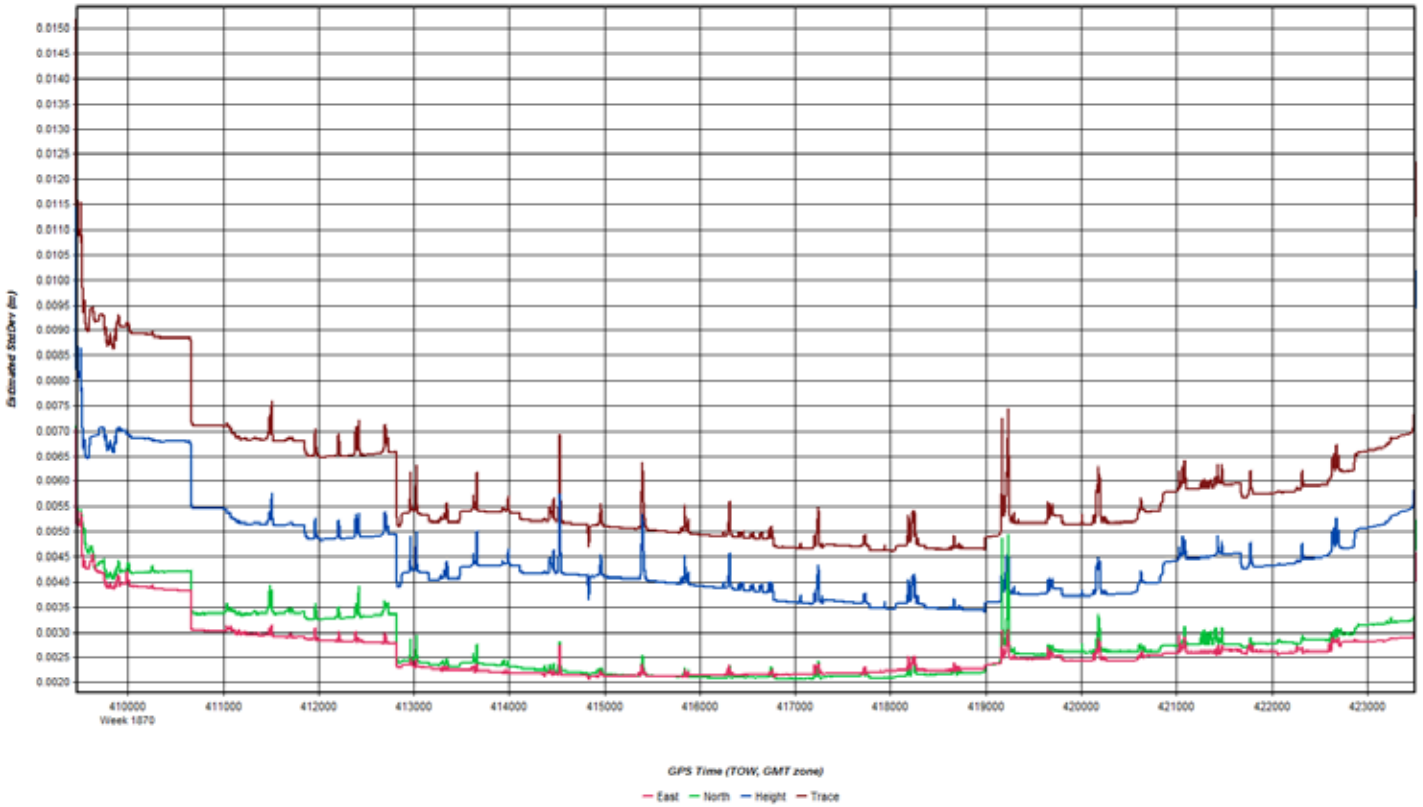


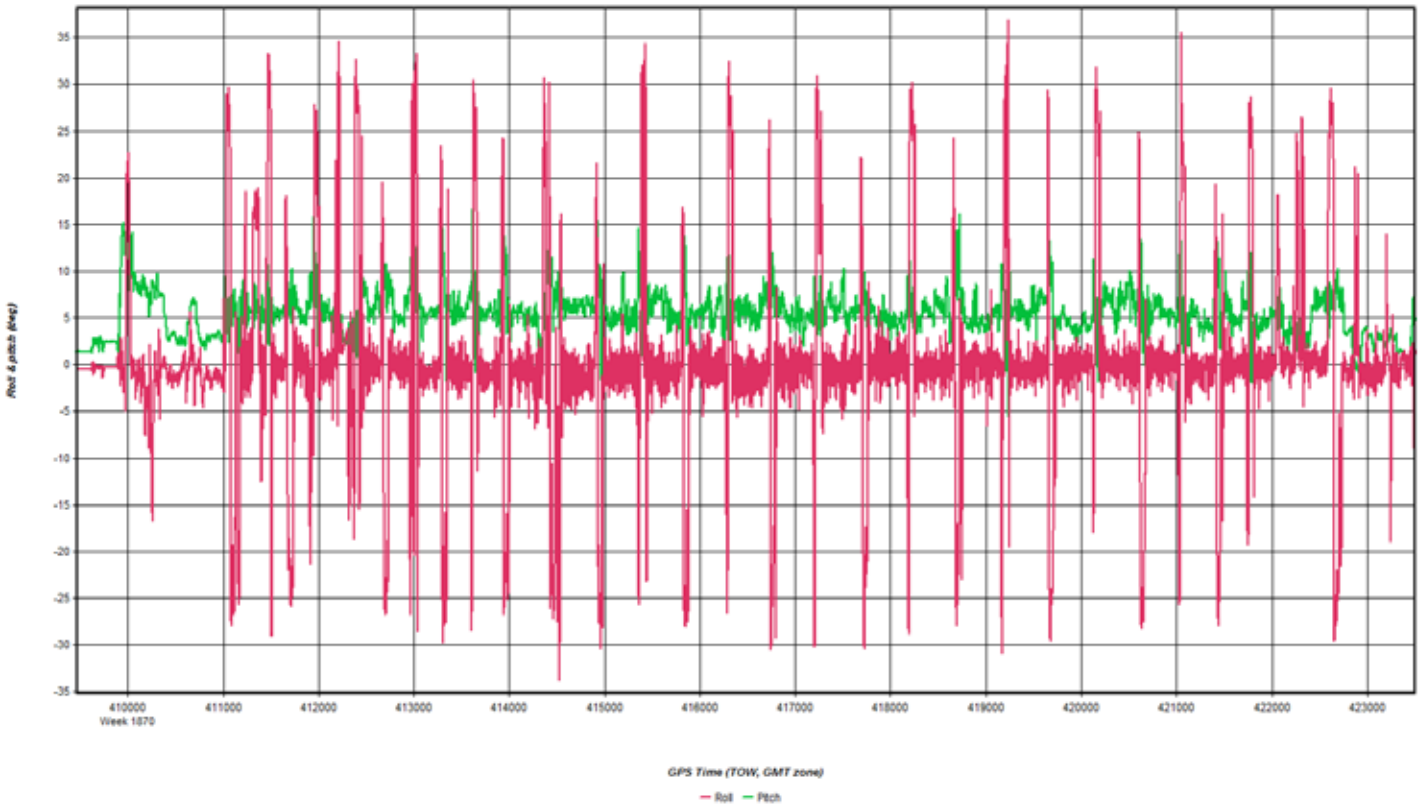

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
410000
Week 1870
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

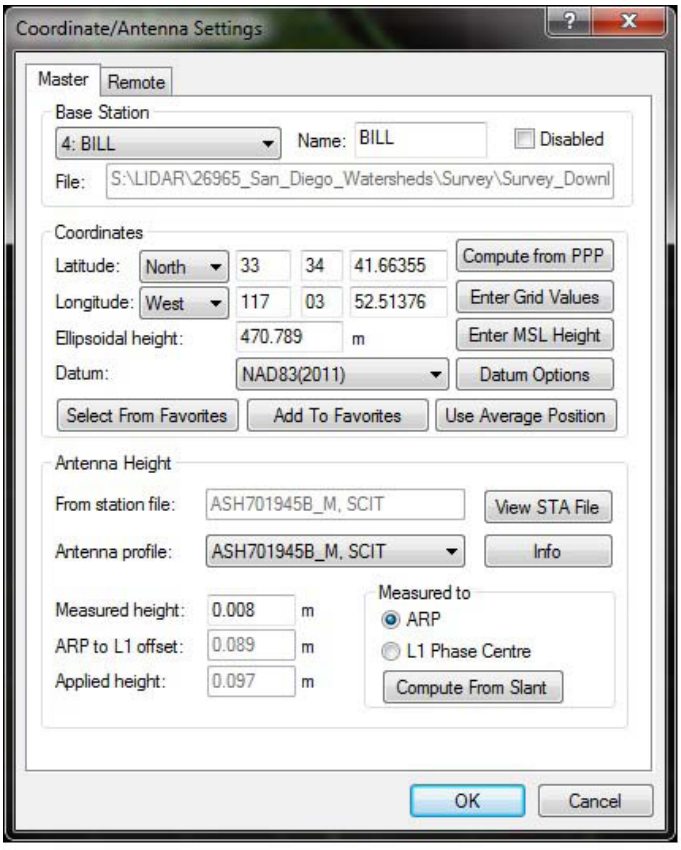

Separation (m)
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
-0.16
-0.18
-0.20
-0.22
-0.24
-0.26
-0.28
-0.30
-0.32
-0.34
-0.36
410000
Week 1870
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
GPS Time (TOW, GMT zone)
East
North
Up

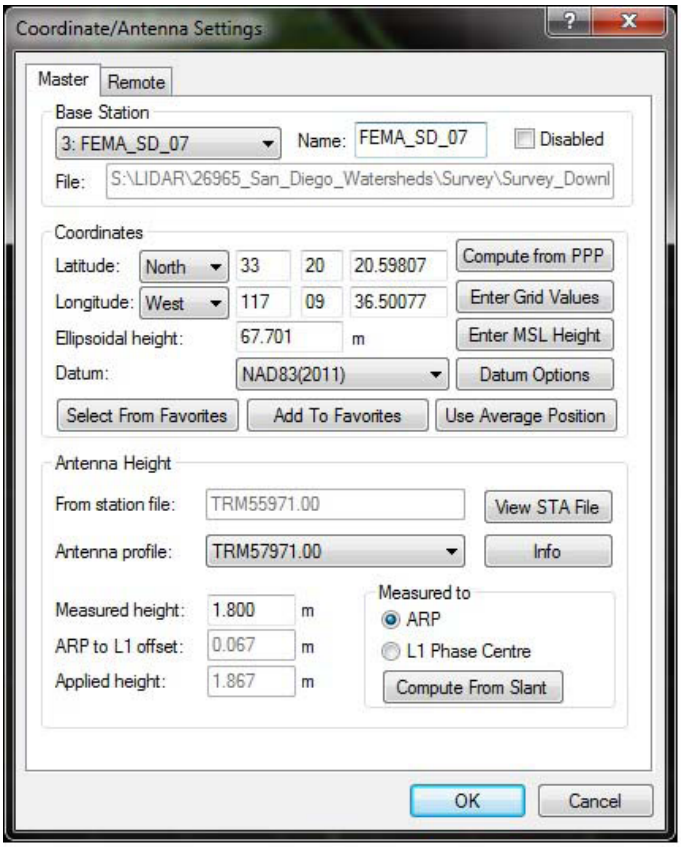

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
410000
Week 1870
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

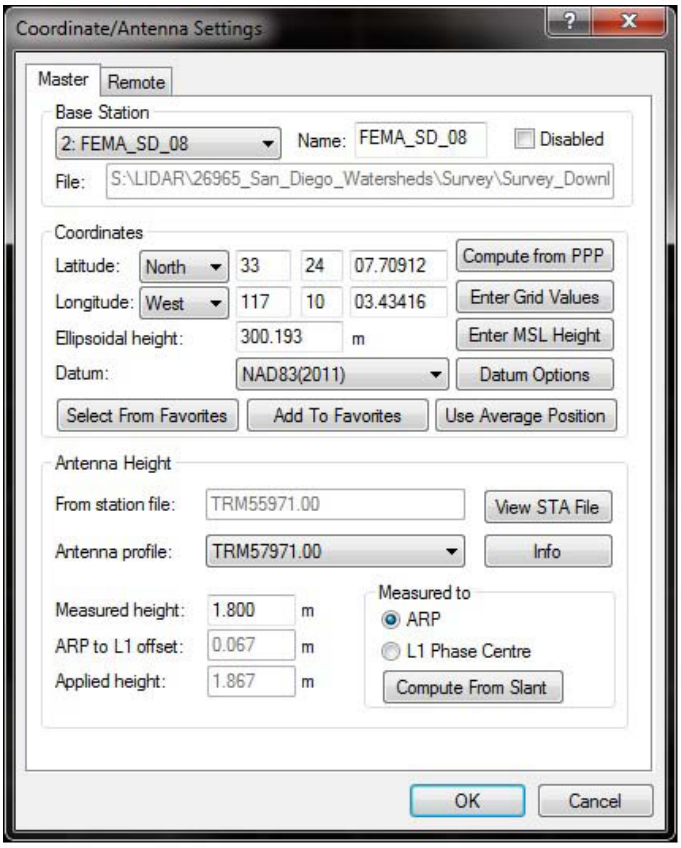

PDOP
2.30
2.25
2.20
2.15
2.10
2.05
2.00
1.95
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
410000
Week 1870
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
GPS Time (TOW, GMT zone)
PDOP

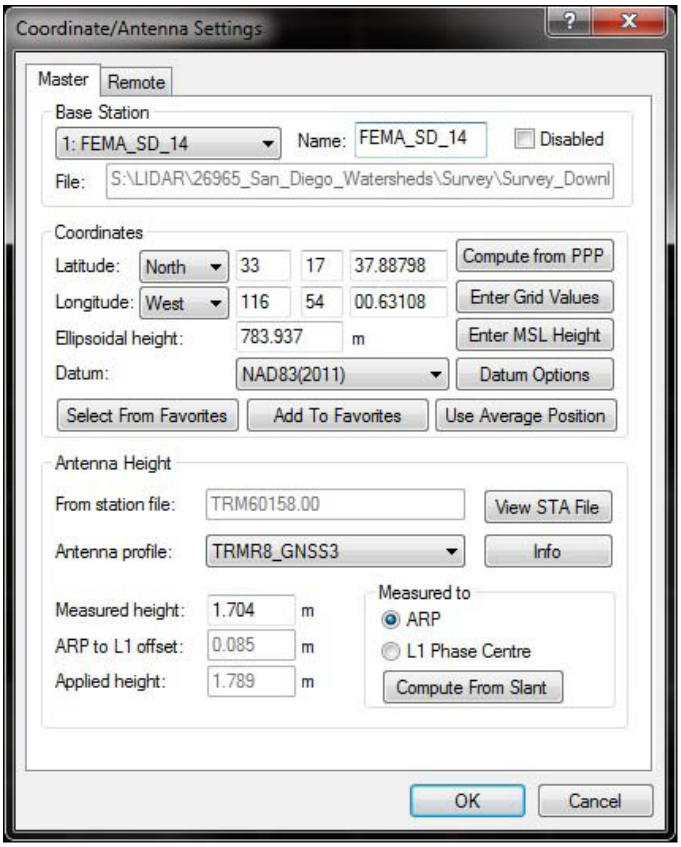

0.0150
0.0145
0.0140
0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
410000
Week 1870
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
GPS Time (TOW, GMT zone)
East
North
Height
Trace

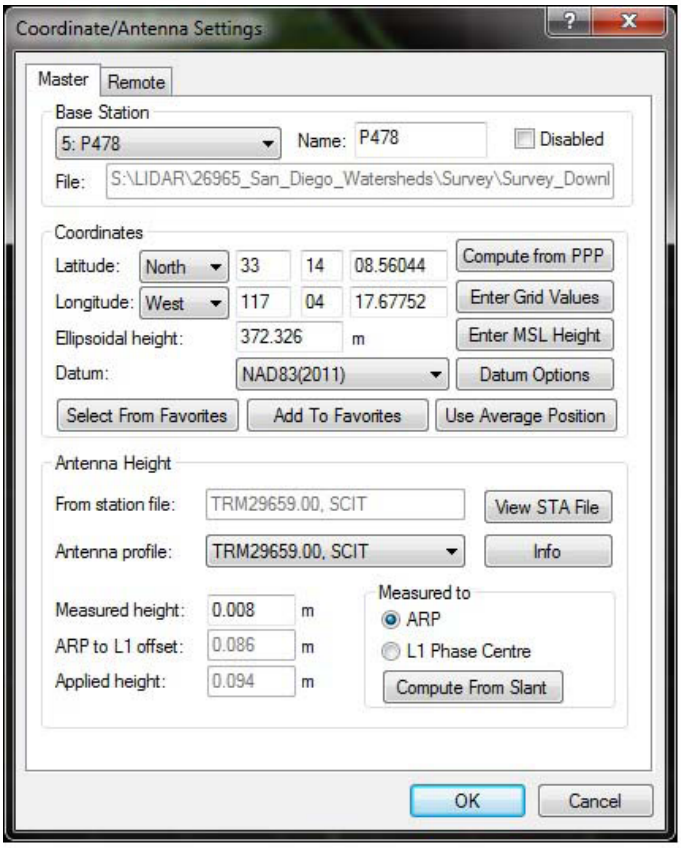

Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
410000
Week 1870
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
4: BILL
Name: BILL
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 34 41.66355
Compute from PPP
Longitude: West 117 03 52.51376
Enter Grid Values
Ellipsoidal height: 470.789 m
Enter MSL Height
Datum: NAD83(2011)
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: ASH701945B_M, SCIT
View STA File
Antenna profile: ASH701945B_M, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.089 m
Applied height: 0.097 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
3: FEMA_SD_07
Name: FEMA_SD_07
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 20 20.59807
Longitude: West 117 09 36.50077
Ellipsoidal height: 67.701 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: FEMA_SD_08
Name: FEMA_SD_08
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 24 07.70912
Longitude: West 117 10 03.43416
Ellipsoidal height: 300.193 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: FEMA_SD_14
Name: FEMA_SD_14
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 17 37.88798
Longitude: West 116 54 00.63108
Ellipsoidal height: 783.937 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM60158.00
View STA File
Antenna profile: TRMR8_GNSS3
Info
Measured height: 1.704 m
ARP to L1 offset: 0.085 m
Applied height: 1.789 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
5: P478
Name: P478
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 14 08.56044
Longitude: West 117 04 17.67752
Ellipsoidal height: 372.326 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM29659.00, SCIT
View STA File
Antenna profile: TRM29659.00, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.086 m
Applied height: 0.094 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings	
DEM Used for Planning	
Target Speed (kts)	
Max Bank Angle in Turns (°)	
Minimum Line Overlap (%)	
Pulses in Air Mode	
Scan Pattern	
Gain Up	
Gain Down	
FOV (°)	
Scan Rate (Hz)	
Autoscan	
Laser Power (%)	

	Min.	Max
AGL Range (m)		
Flying Alt. MSL Range (ft)		
Swath Width Range (m)		
Pulse Rate Range (Hz)		

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	
Total Line Time (hrs, no buffer)	
Total Number of Lines	
Turn Time (min)	
Total Turn Time (hrs, no buffer)	
Buffer (%)	
MOB Dist. Round Trip (nmi)	
Number of MOBs	
Total Acquisition Time (hrs)	

Mission Flight Time Estimate	
Start Line Name	
Stop Line Name	
Turn Time (min)	
Buffer (%)	
Acquisition Time (hrs)	

Other Acquisition Notes:

Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
375	3.32	6818	181834	182713		181404 - BAD, BINO SHUTOFF, 181834-Sensor not recording, error
376	4.19	6782	182226			
377	5.1	6716	183417			
378	5.91	6690	183858			
379	6.75	6660	184353			
380	6.96	6503	184902			
381	7.04	6418	185415			
382	7.13	6237	190003			
383	10.17	6188	190851			
384	10.37	6178	191620			
385	10.58	6149	192350			crossline: 211902
386	10.74	6096	193124			
387	10.75	6011	193858			
388	11.16	5912	194629			
389	11.73	5870	195434			N840JA
390	11.74	5847	200244			TC, CB, SW, EMP
391	11.75	5824	201053			
392	11.75	5811	201858			
393	11.64	5798	202721			
394	11.43	5788	203523			
395	11.22	5765	204314			
396	9.45	5765	205121			
397	7.74	5765	205849			
398	7.01	5765	210441			
399	6.25	5765	211019			

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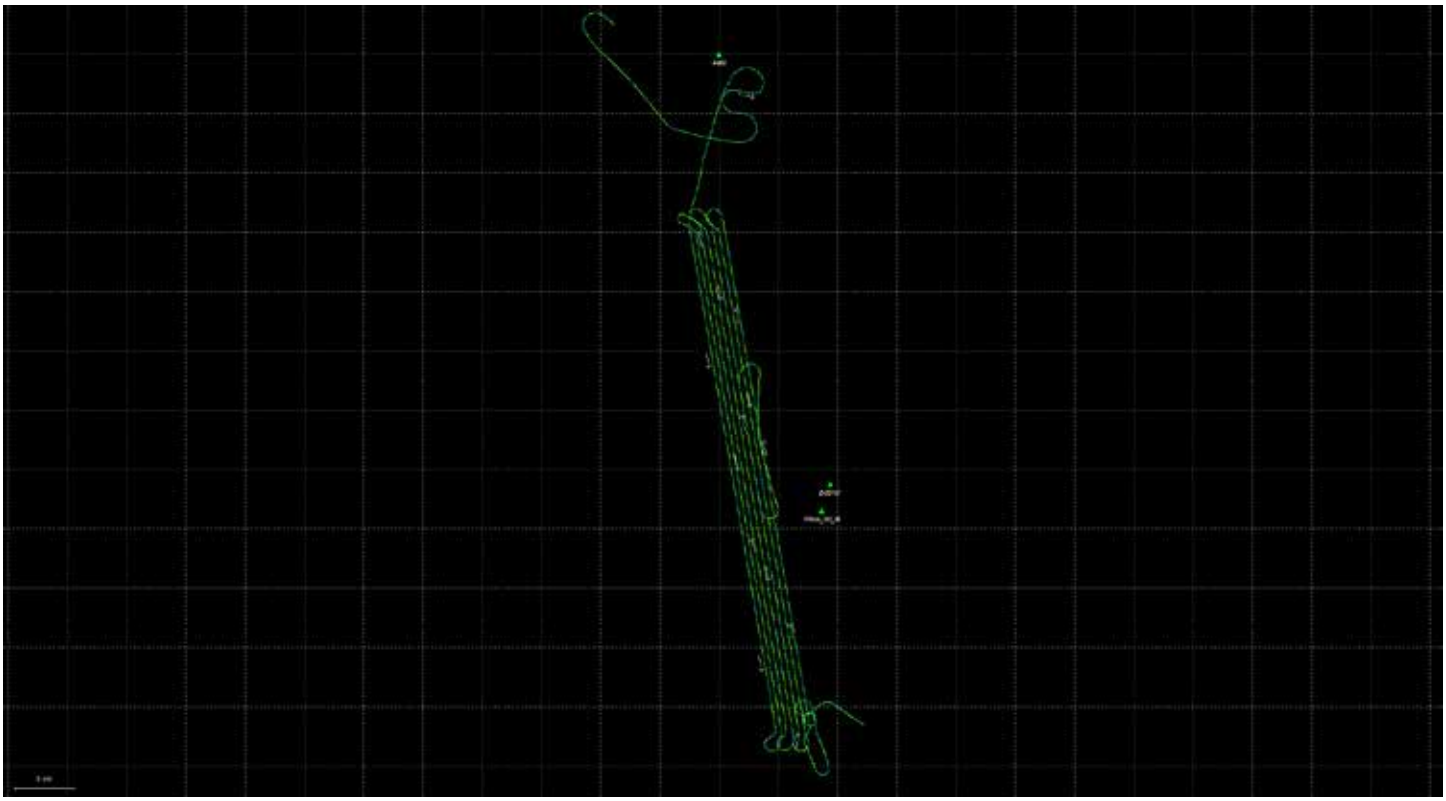
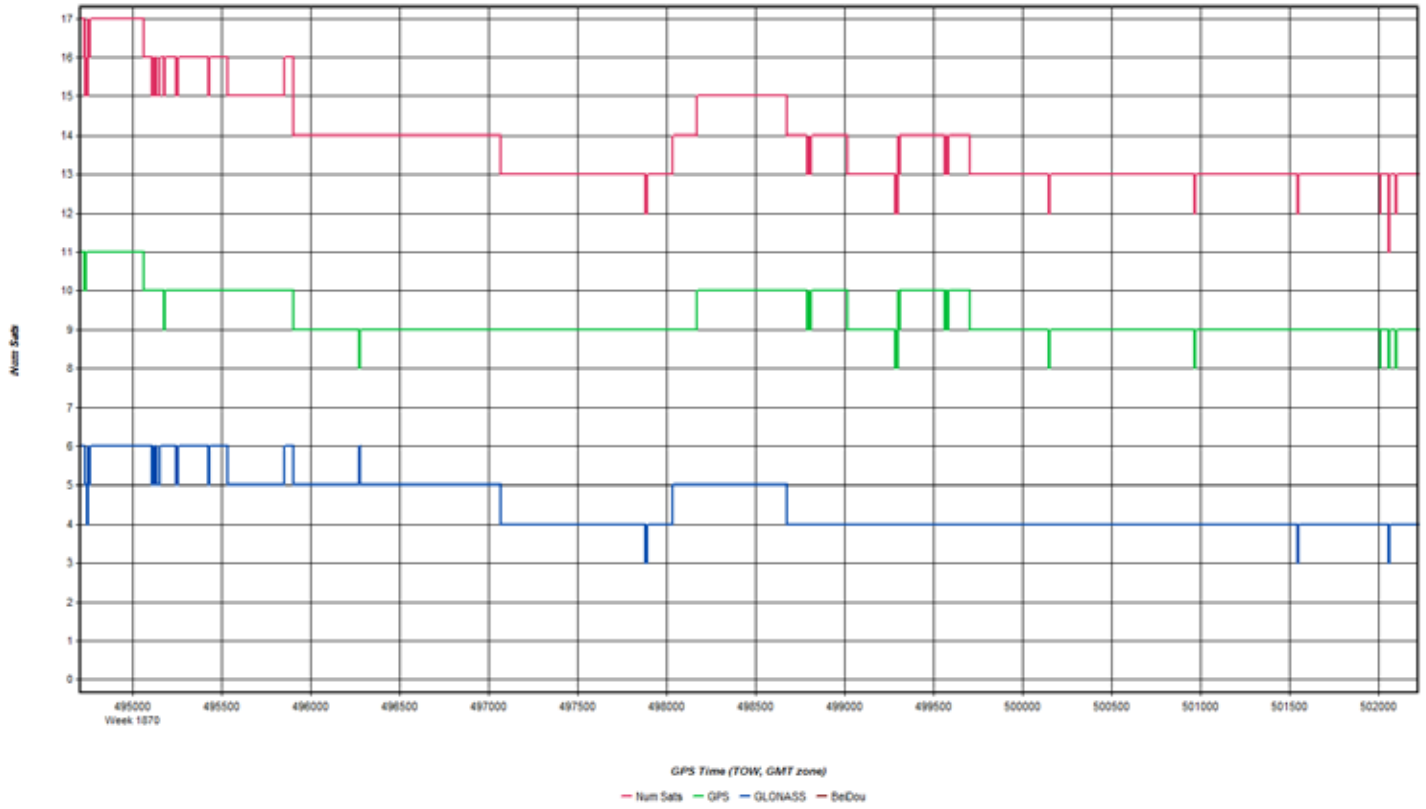
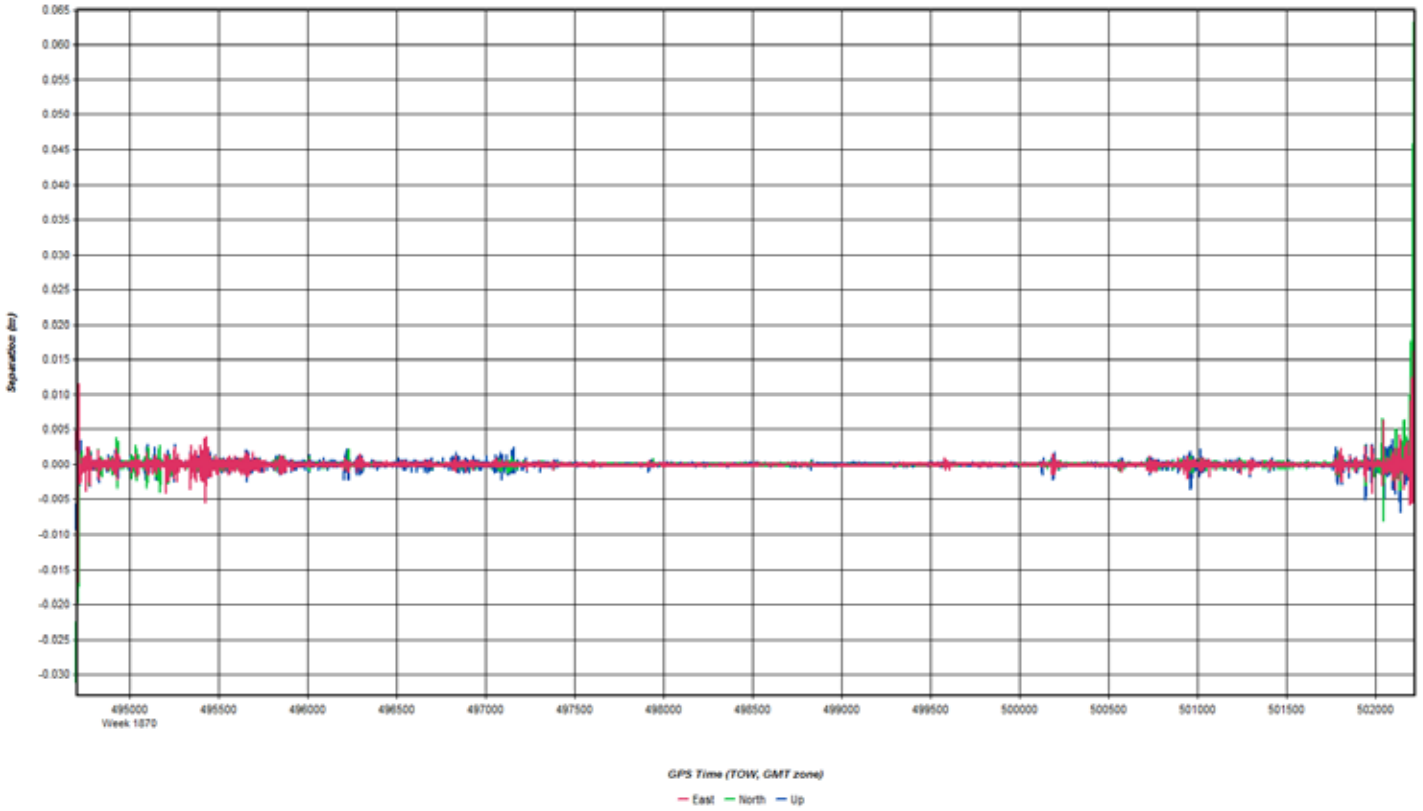
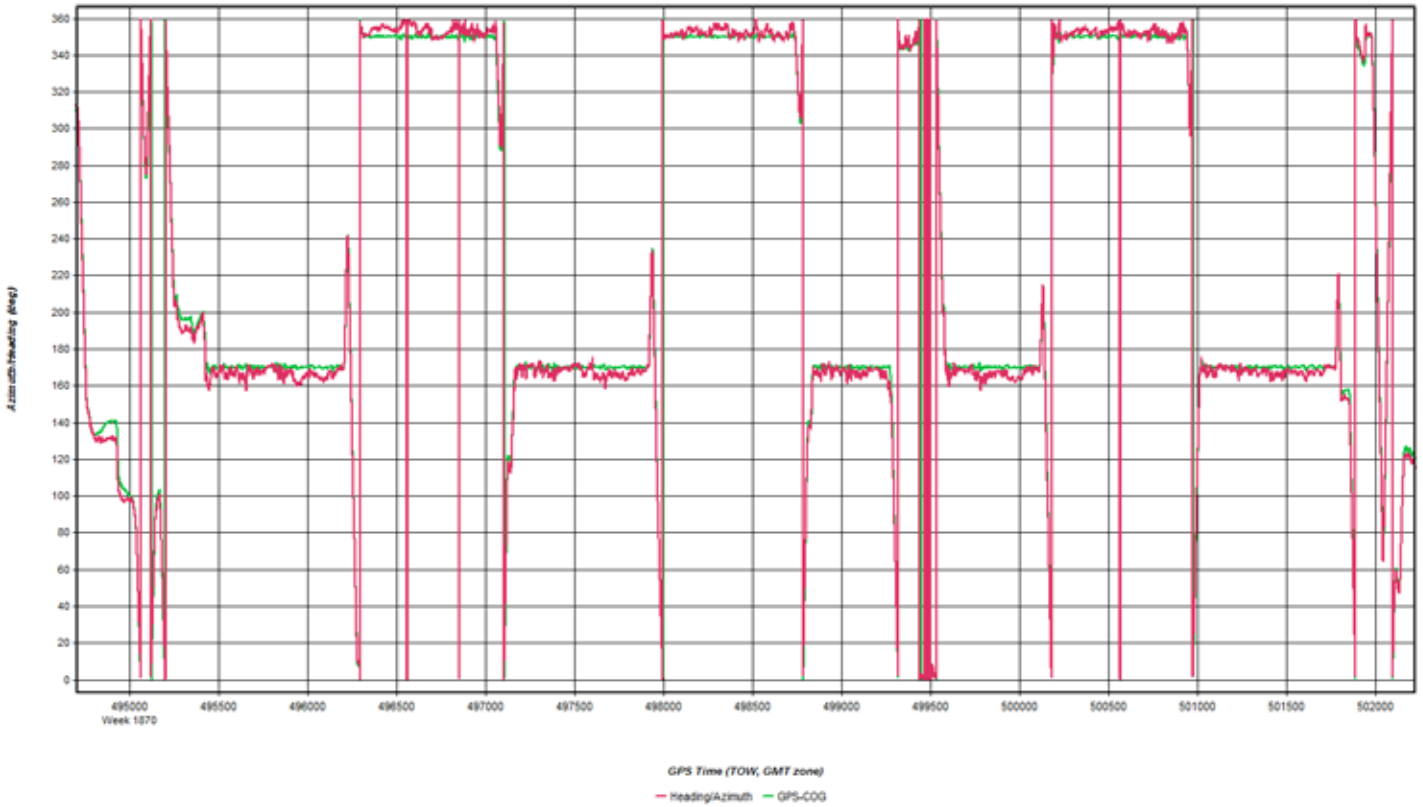
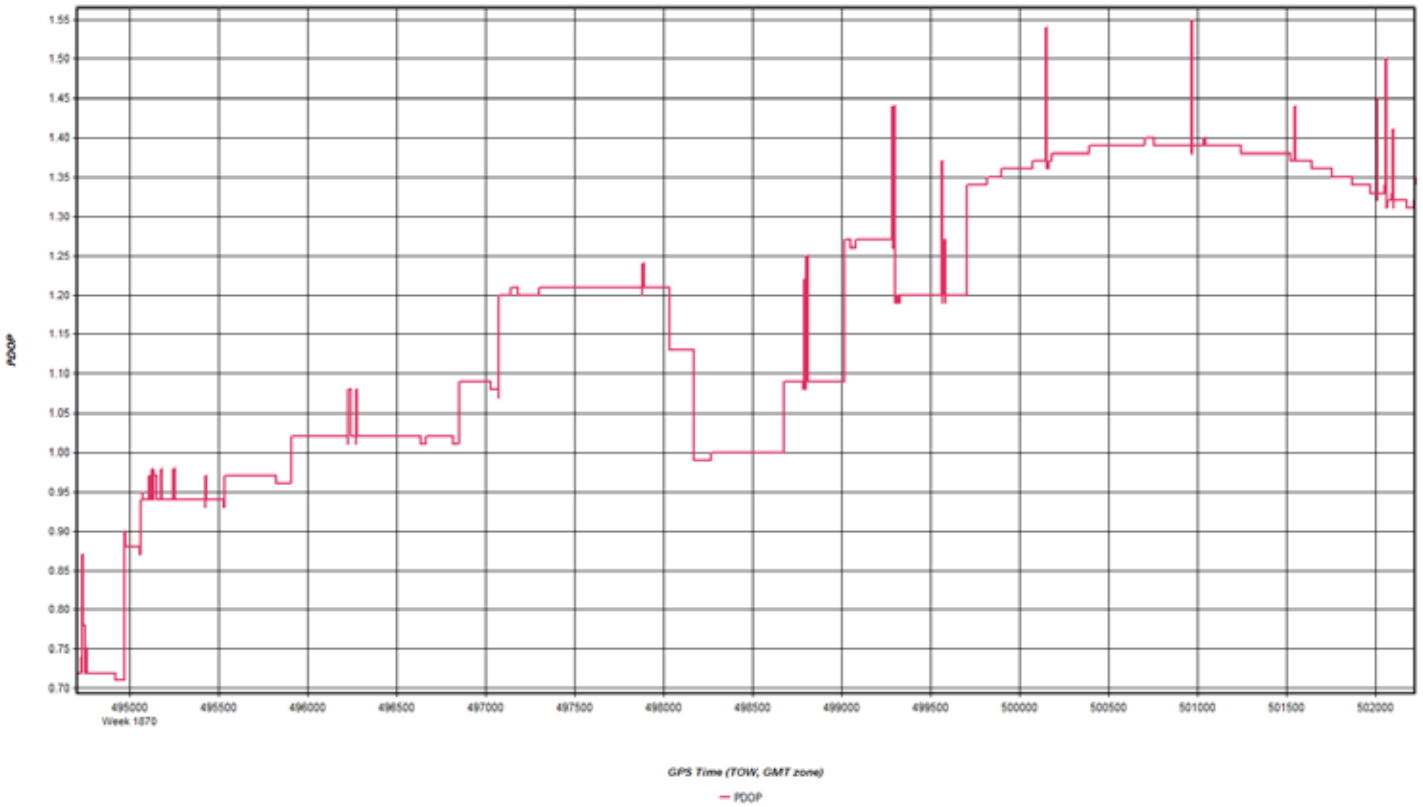
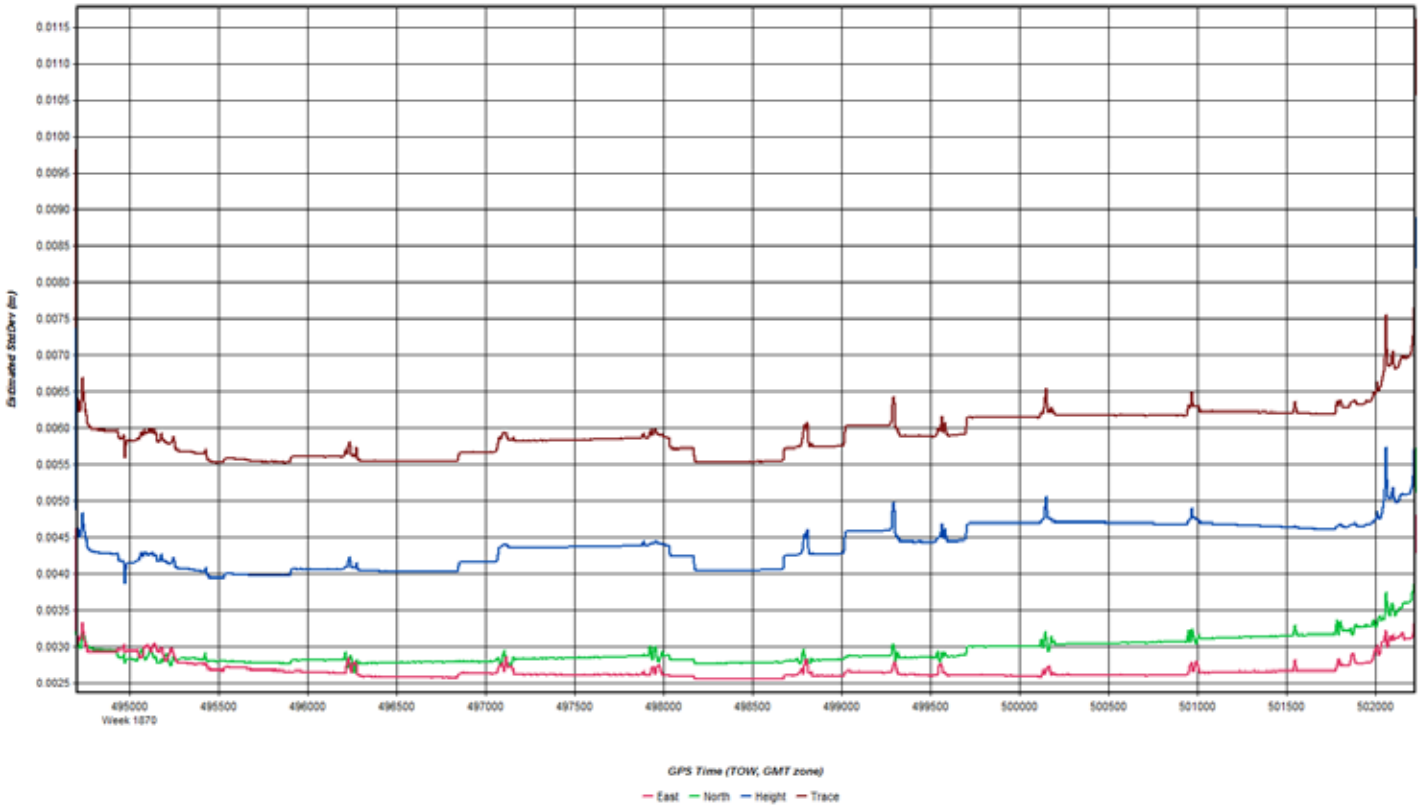


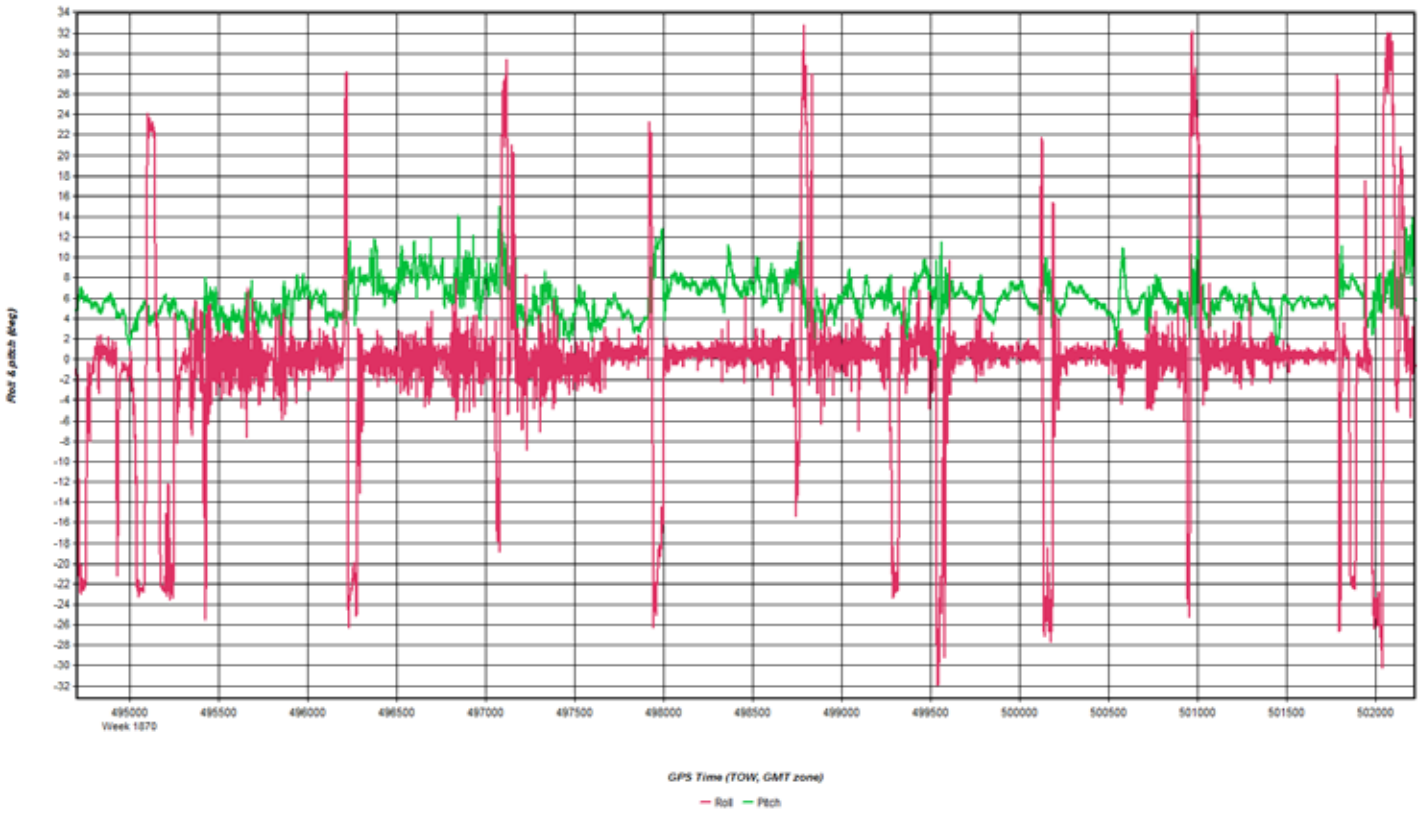

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
495000
Week 1870
495500
496000
496500
497000
497500
498000
498500
499000
499500
500000
500500
501000
501500
502000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

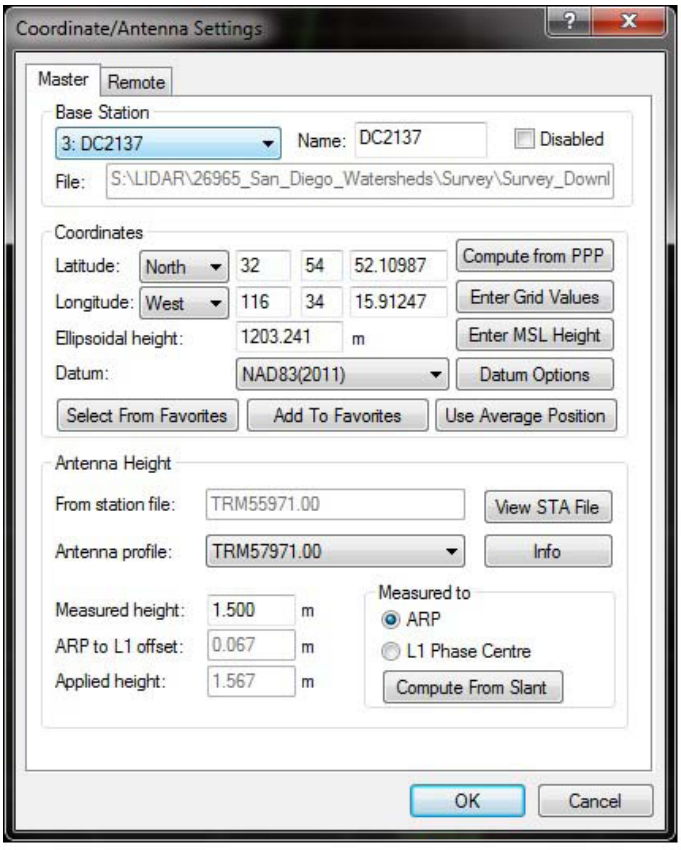

Separation (m)
0.065
0.060
0.055
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.030
495000
Week 1870
496500
496000
496500
497000
497500
498000
498500
499000
499500
500000
500500
501000
501500
502000
GPS Time (TOW, GMT zone)
East
North
Up

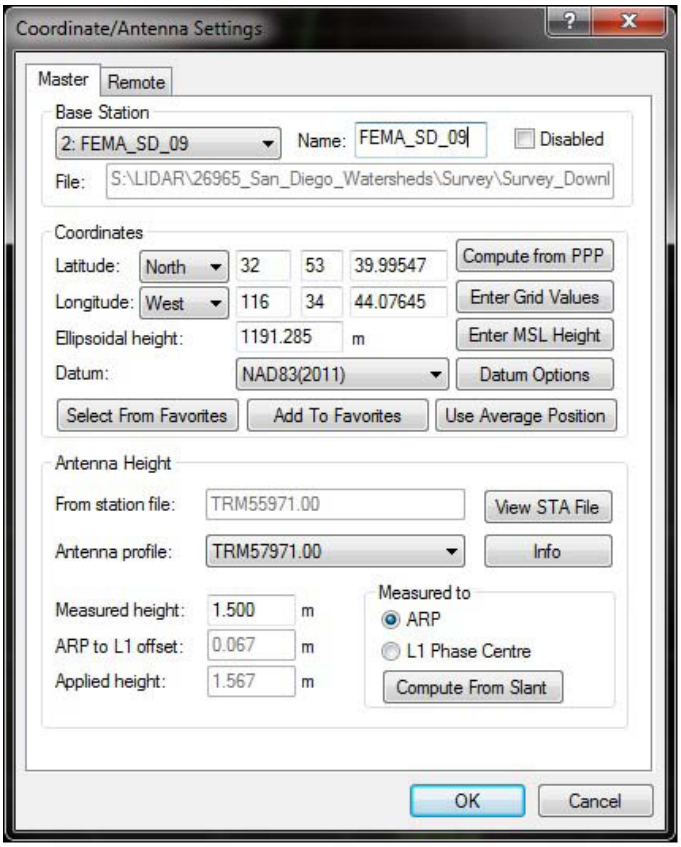

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
495000
Week 1870
496500
496000
496500
497000
497500
498000
498500
499000
499500
500000
500500
501000
501500
502000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

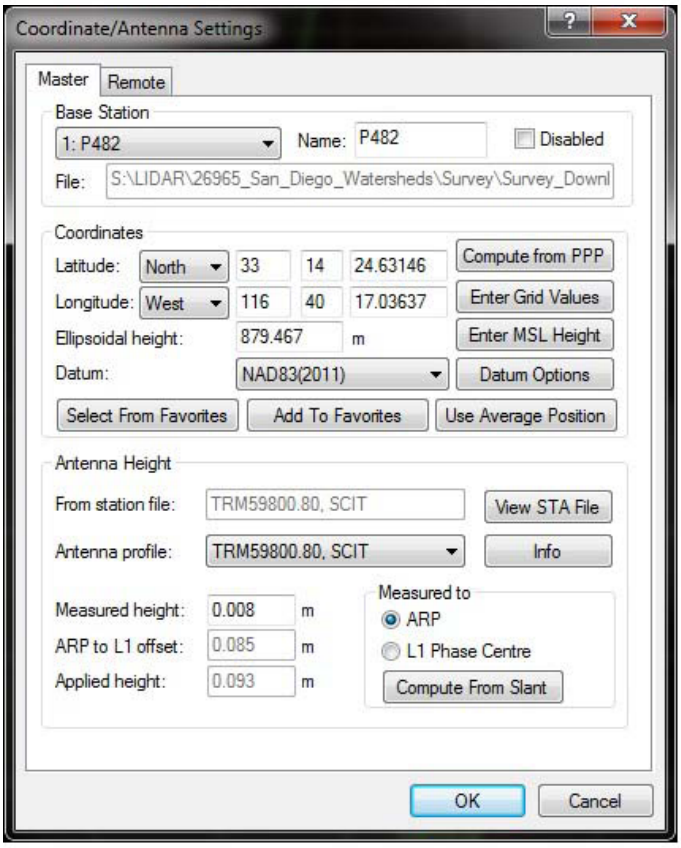

PDOP
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
495000
Week 1870
496500
496000
496500
497000
497500
498000
498500
499000
499500
500000
500500
501000
501500
502000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
495000
Week 1870
496500
496000
496500
497000
497500
498000
498500
499000
499500
500000
500500
501000
501500
502000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
-28
-30
-32
495000
Week 1870
496500
496000
496500
497000
497500
498000
498500
499000
499500
500000
500500
501000
501500
502000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
3: DC2137
Name: DC2137
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 54 52.10987
Compute from PPP
Longitude: West 116 34 15.91247
Enter Grid Values
Ellipsoidal height: 1203.241 m
Enter MSL Height
Datum: NAD83(2011)
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_09
Name: FEMA_SD_09
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 53 39.99547
Longitude: West 116 34 44.07645
Ellipsoidal height: 1191.285 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: P482
Name: P482
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 14 24.63146
Longitude: West 116 40 17.03637
Ellipsoidal height: 879.467 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM59800.80, SCIT
View STA File
Antenna profile: TRM59800.80, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.085 m
Applied height: 0.093 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	096
Stop Line Name	133
Turn Time (min)	2
Buffer (%)	0
Acquisition Time (hrs)	5.7

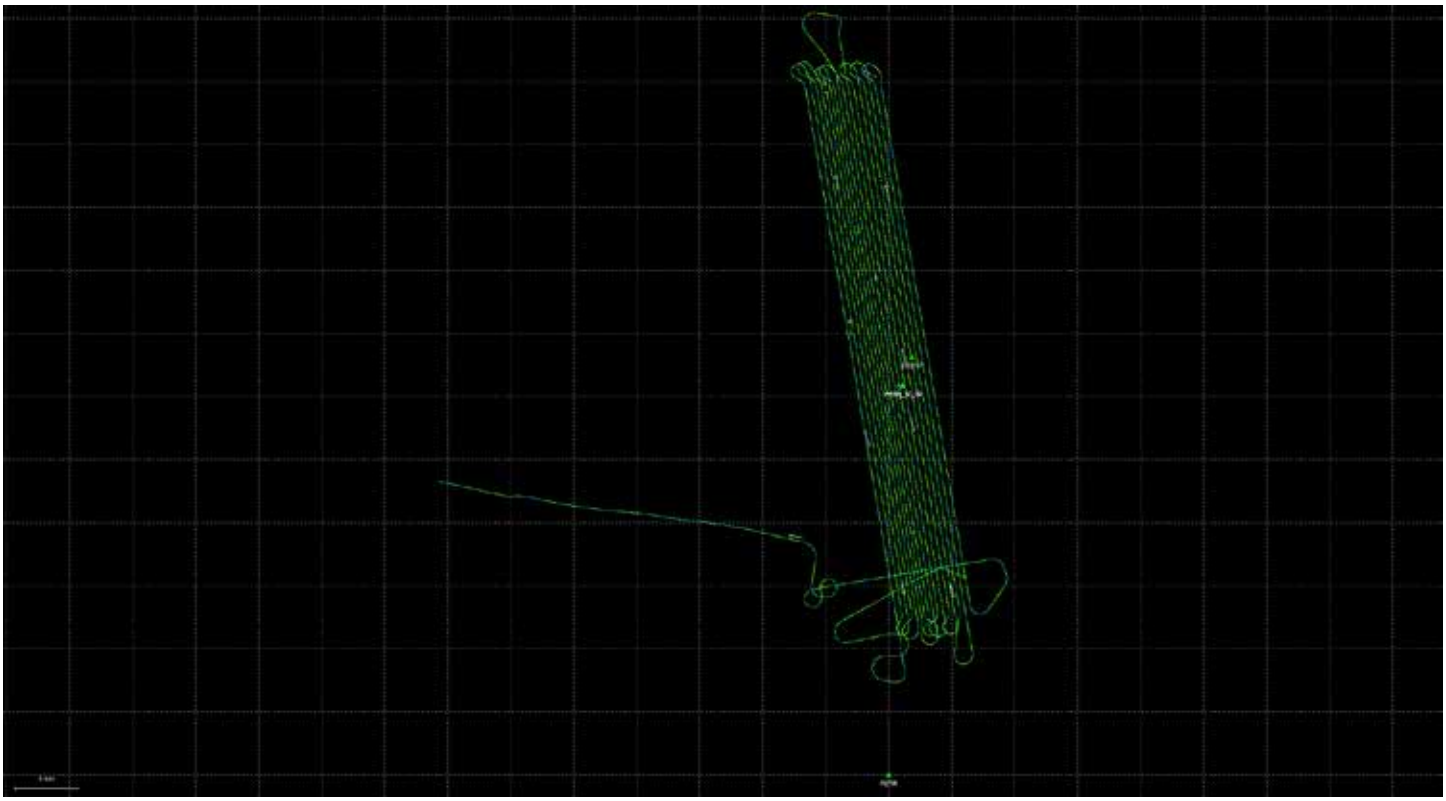
Other Acquisition Notes:

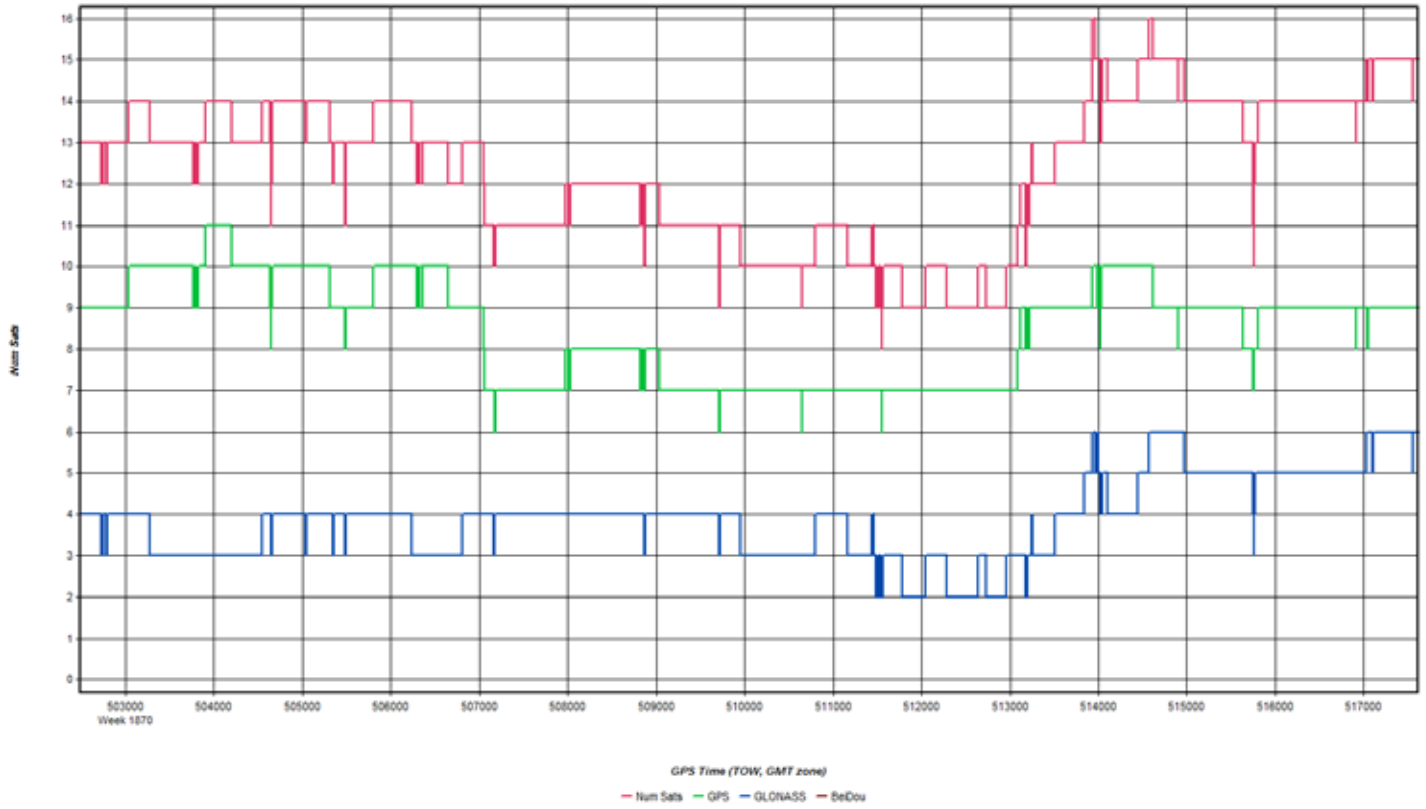
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

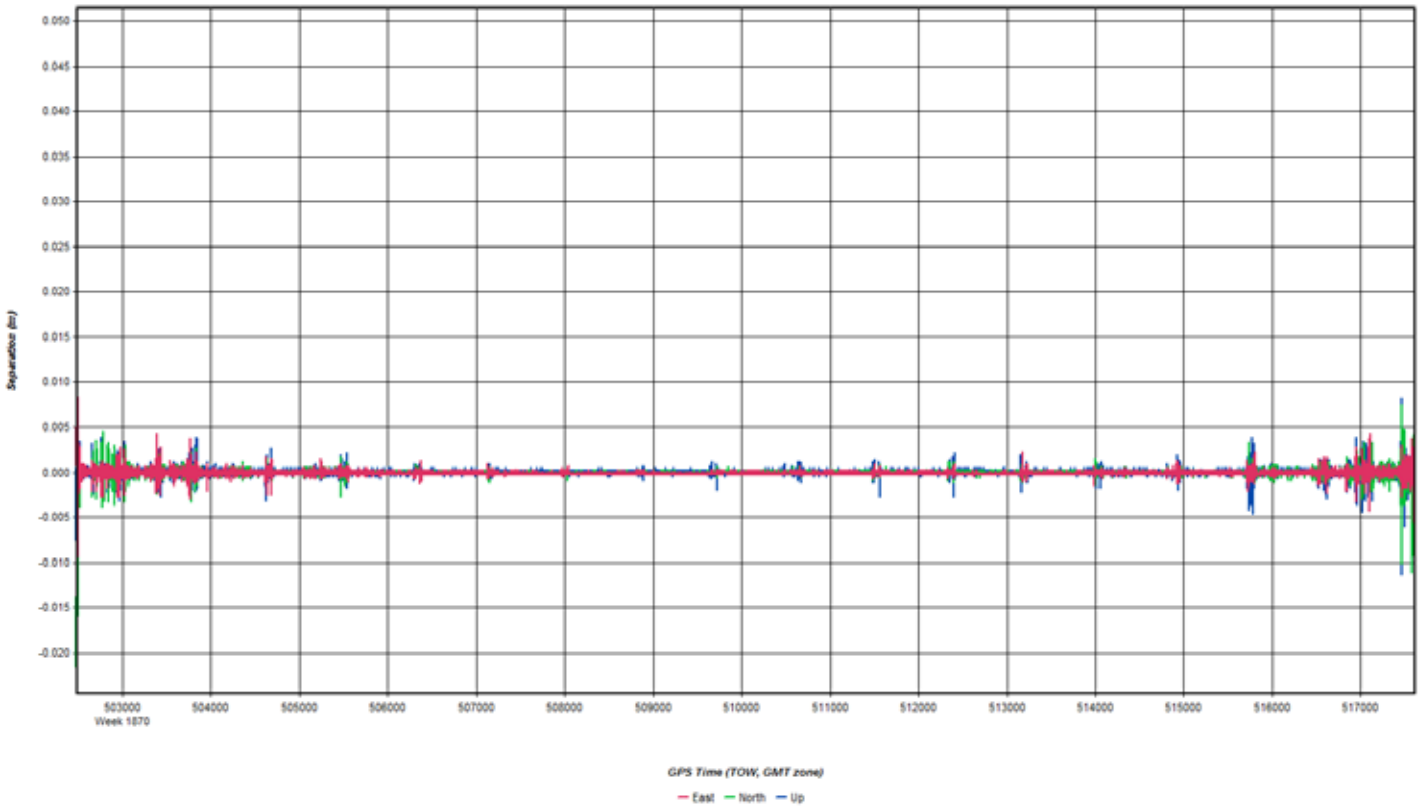
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

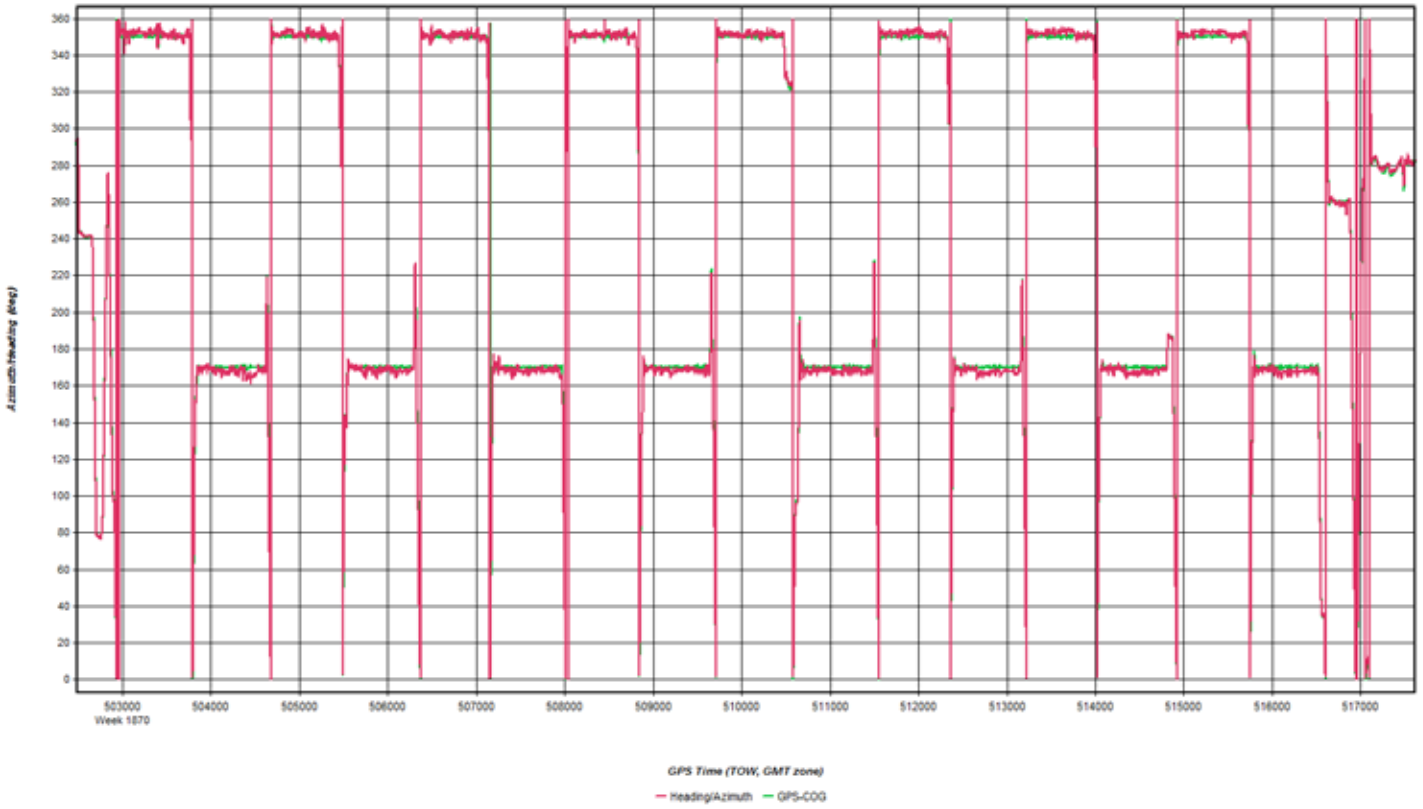
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
073	22.37	7215	173714			start n to s, 7 degree roll due to turbulence
074	22.35	7300	175129			8 degree roll due to turbulence
075	22.34	7507	180558			
076	22.32	7641	182001			
077	22.3	7737	183354	184627		183354 - Ranges stopped halfway, 184627 - partial refly
078	22.28	7799	185631			
079	22.26	8006	191022			After the line end, got an ALS config error

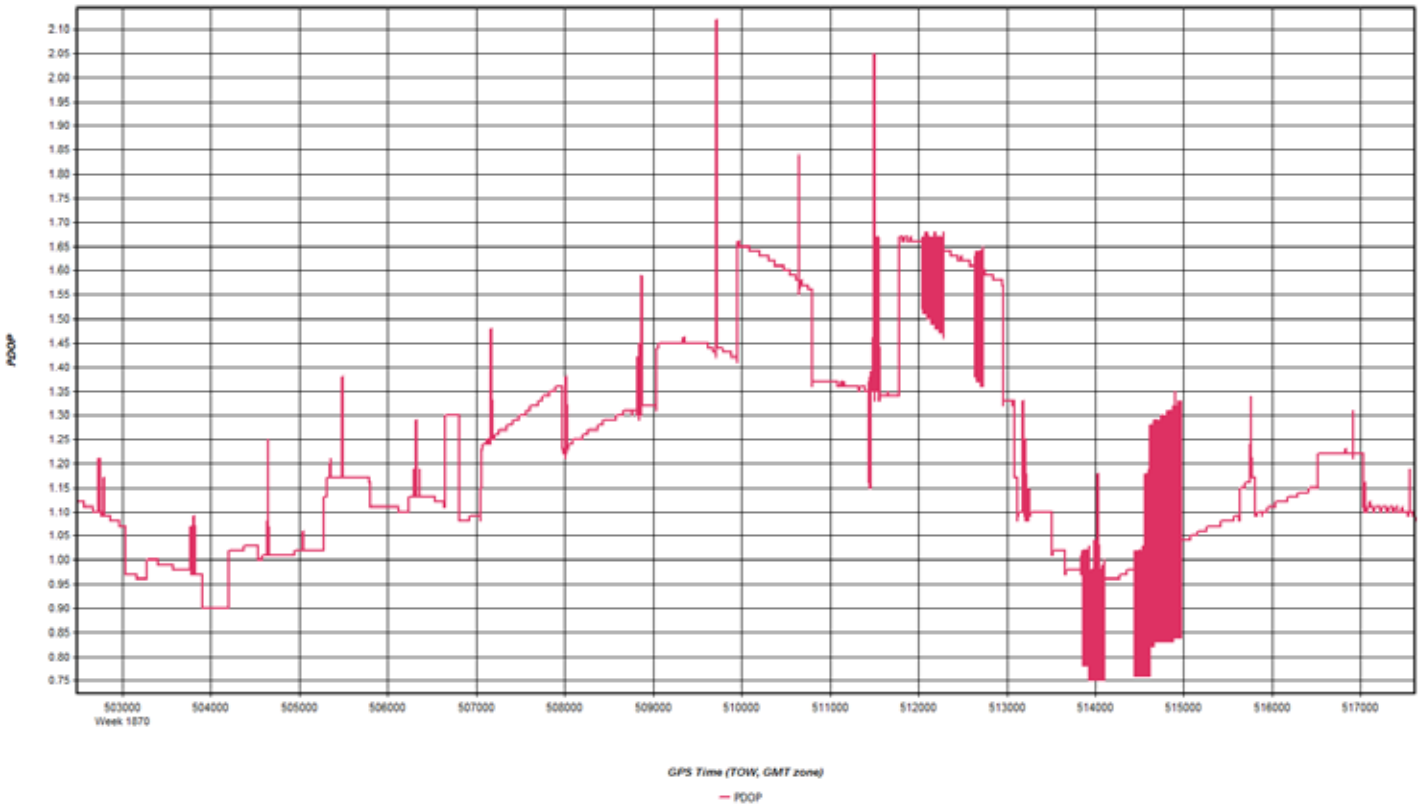
Nov 13, 2015-B

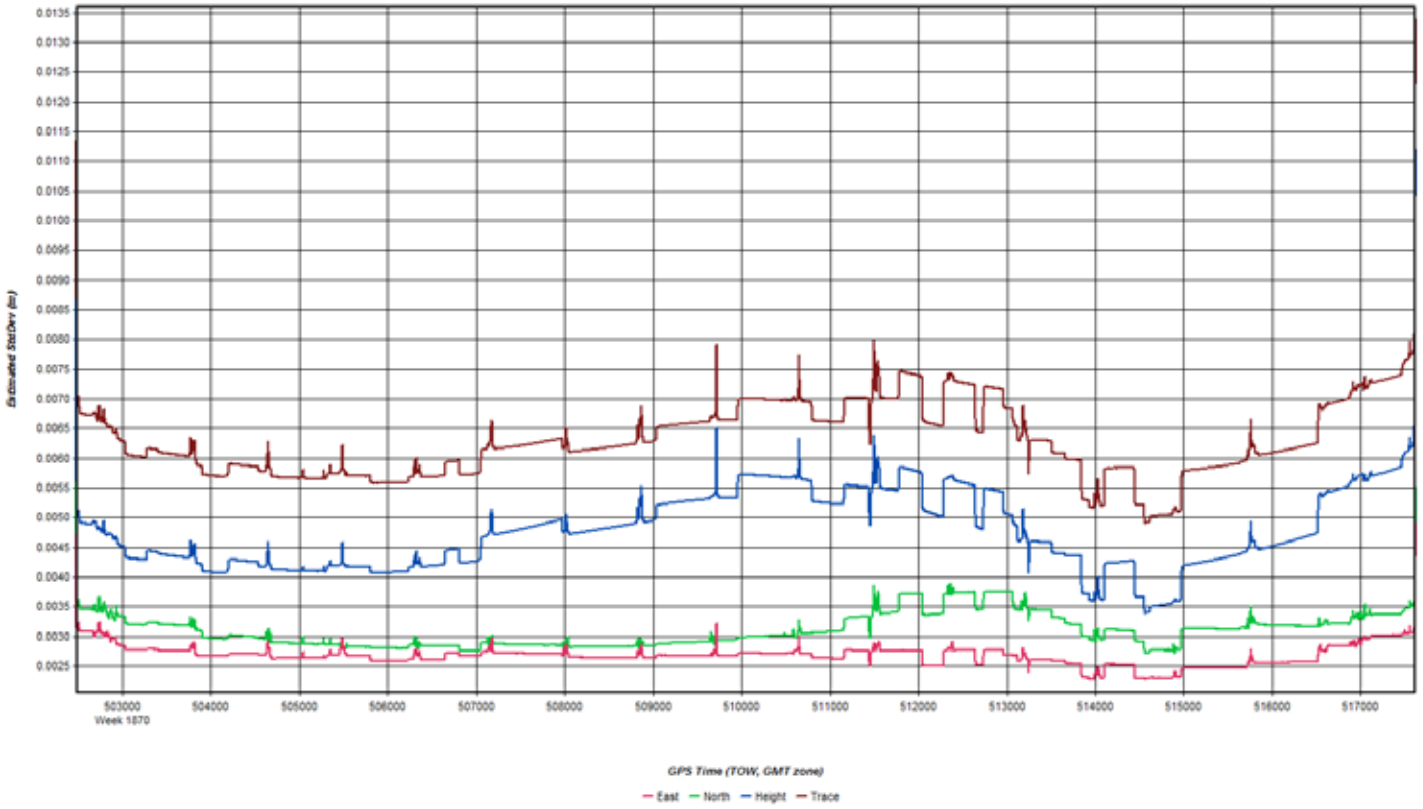


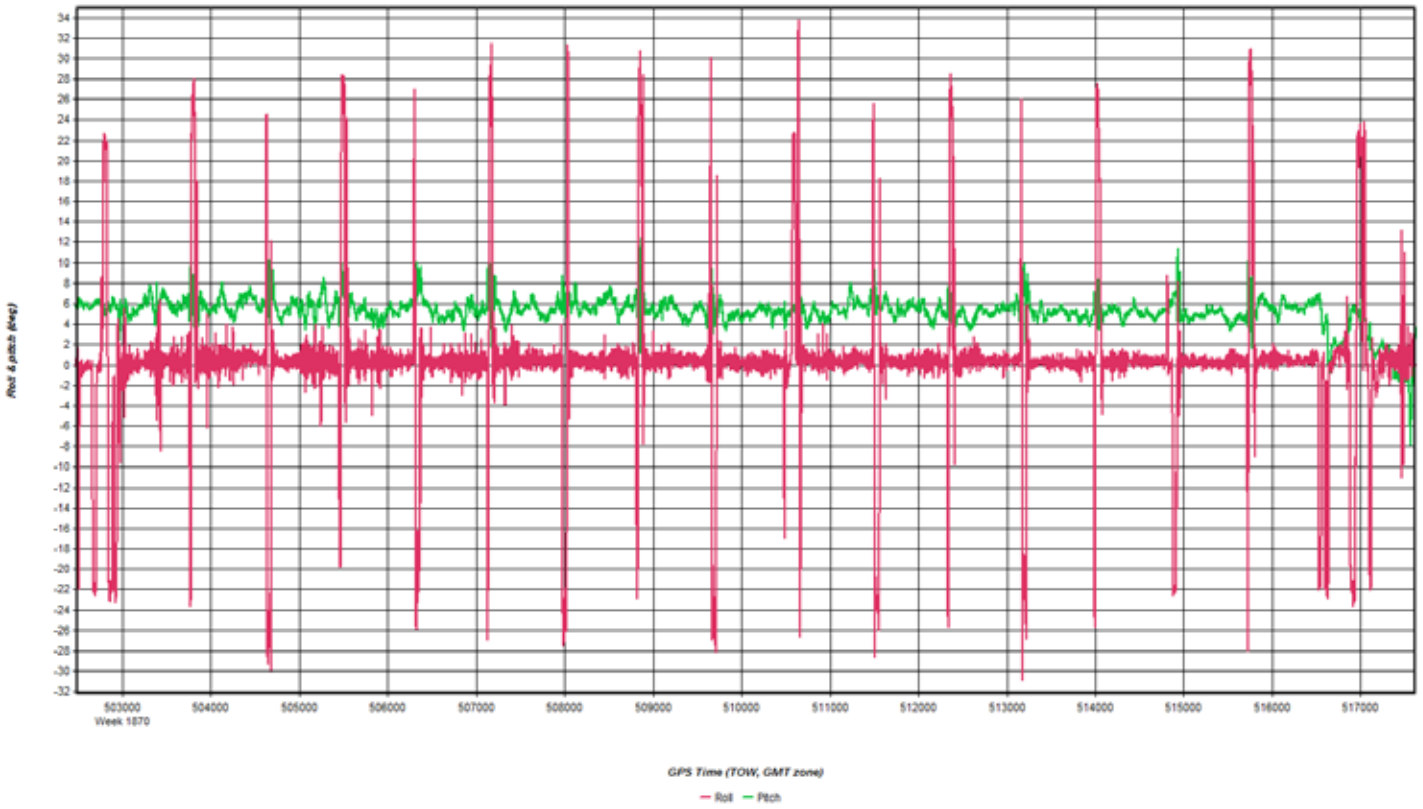

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
503000
Week 1870
504000
505000
506000
507000
508000
509000
510000
511000
512000
513000
514000
515000
516000
517000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

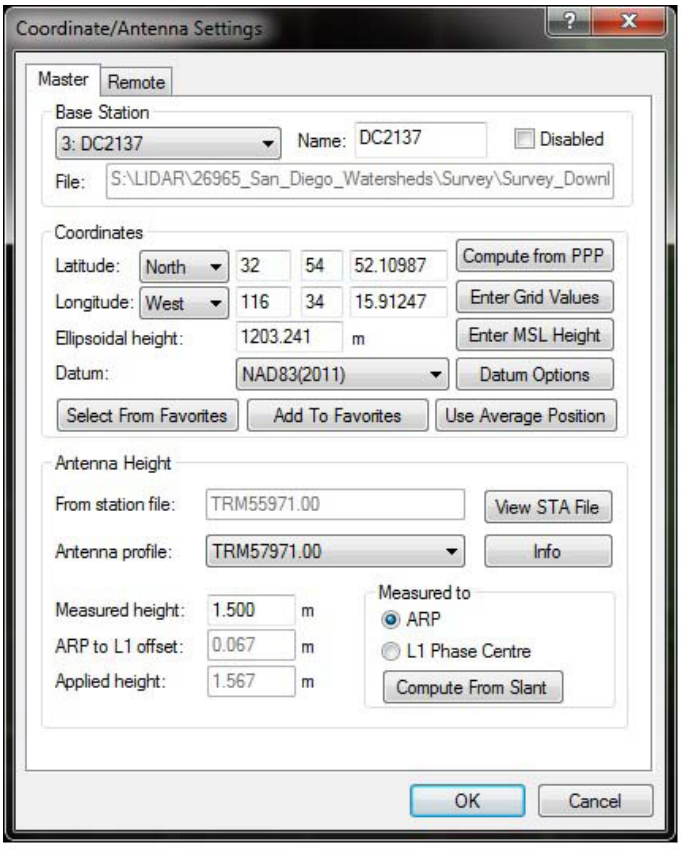

Separation (m)
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
503000
Week 1870
504000
505000
506000
507000
508000
509000
510000
511000
512000
513000
514000
515000
516000
517000
GPS Time (TOW, GMT zone)
East
North
Up

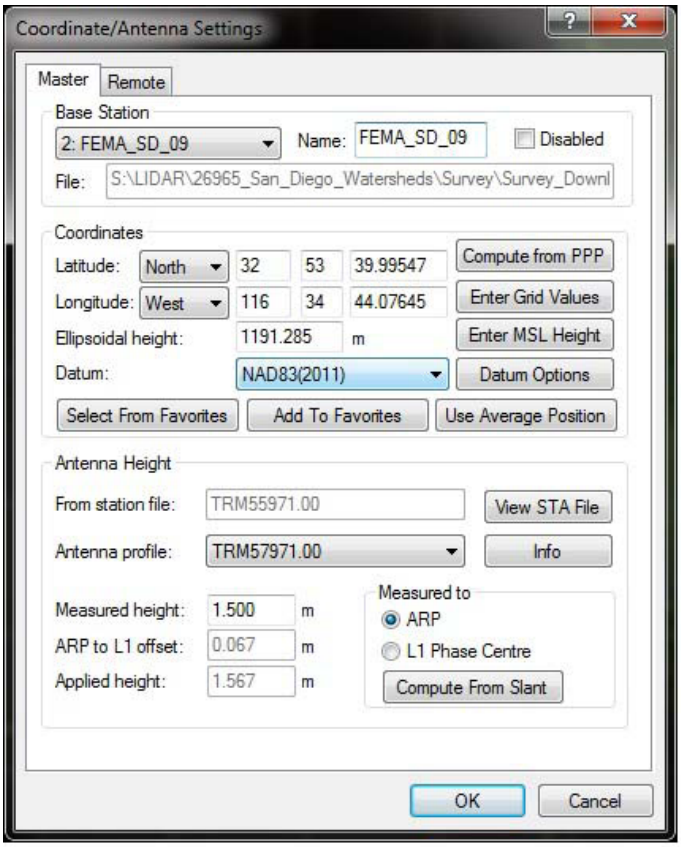

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
503000
Week 1870
504000
505000
506000
507000
508000
509000
510000
511000
512000
513000
514000
515000
516000
517000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

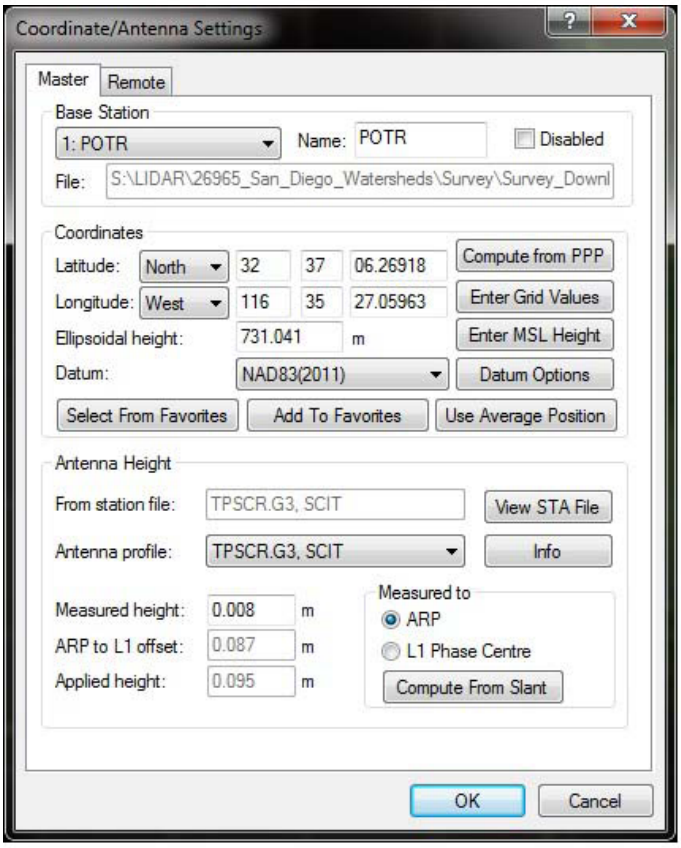

PDOP
2.10
2.05
2.00
1.95
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
503000
Week 1870
504000
505000
506000
507000
508000
509000
510000
511000
512000
513000
514000
515000
516000
517000
GPS Time (TOW, GMT zone)
PDOP


0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
503000
Week 1870
504000
505000
506000
507000
508000
509000
510000
511000
512000
513000
514000
515000
516000
517000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
503000
Week 1870
504000
505000
506000
507000
508000
509000
510000
511000
512000
513000
514000
515000
516000
517000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
3: DC2137
Name: DC2137
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 54 52.10987
Longitude: West 116 34 15.91247
Ellipsoidal height: 1203.241 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_09
Name: FEMA_SD_09
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 53 39.99547
Longitude: West 116 34 44.07645
Ellipsoidal height: 1191.285 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: POTR
Name: POTR
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 37 06.26918
Longitude: West 116 35 27.05963
Ellipsoidal height: 731.041 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TPSCR.G3, SCIT
View STA File
Antenna profile: TPSCR.G3, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.087 m
Applied height: 0.095 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	096
Stop Line Name	133
Turn Time (min)	2
Buffer (%)	0
Acquisition Time (hrs)	5.7

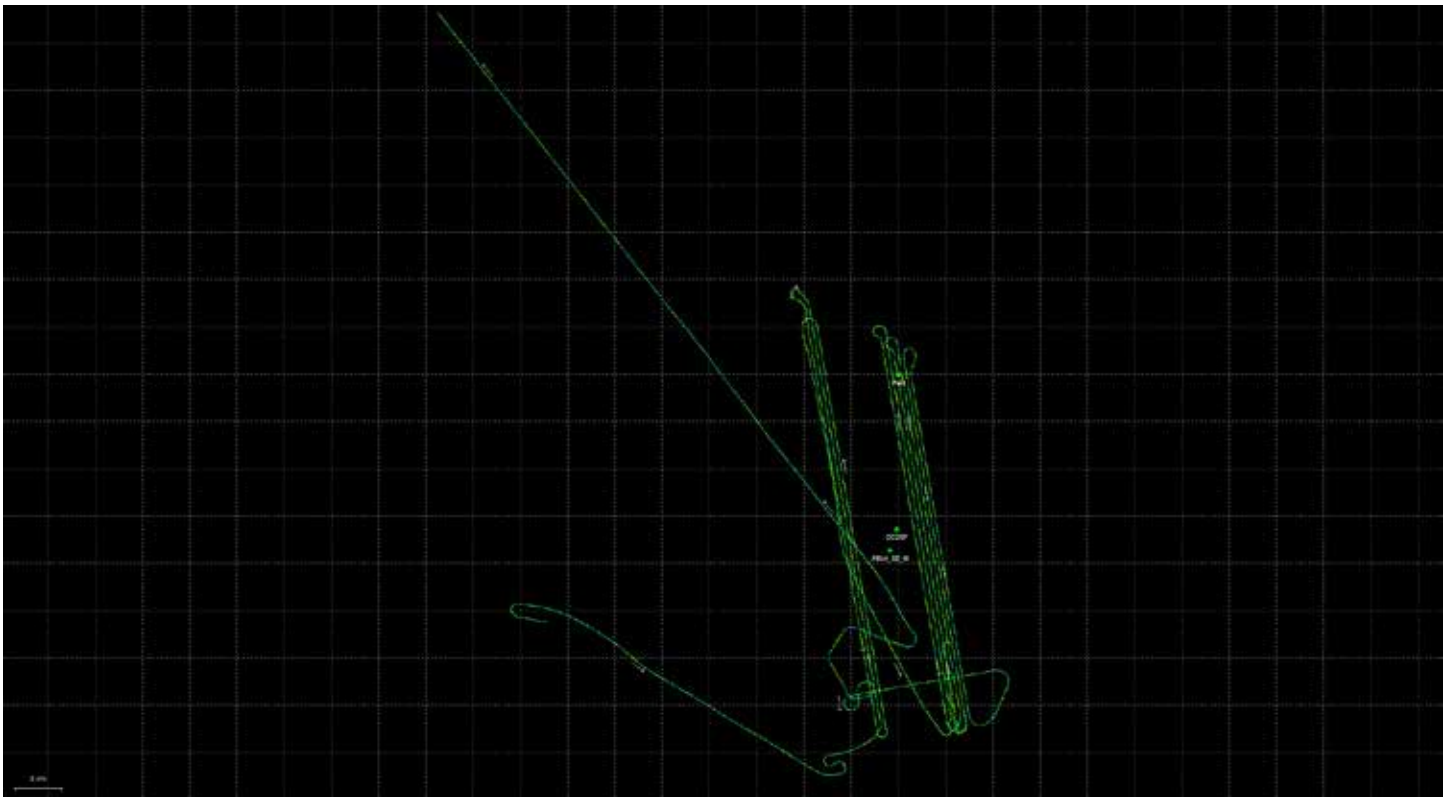
Other Acquisition Notes:

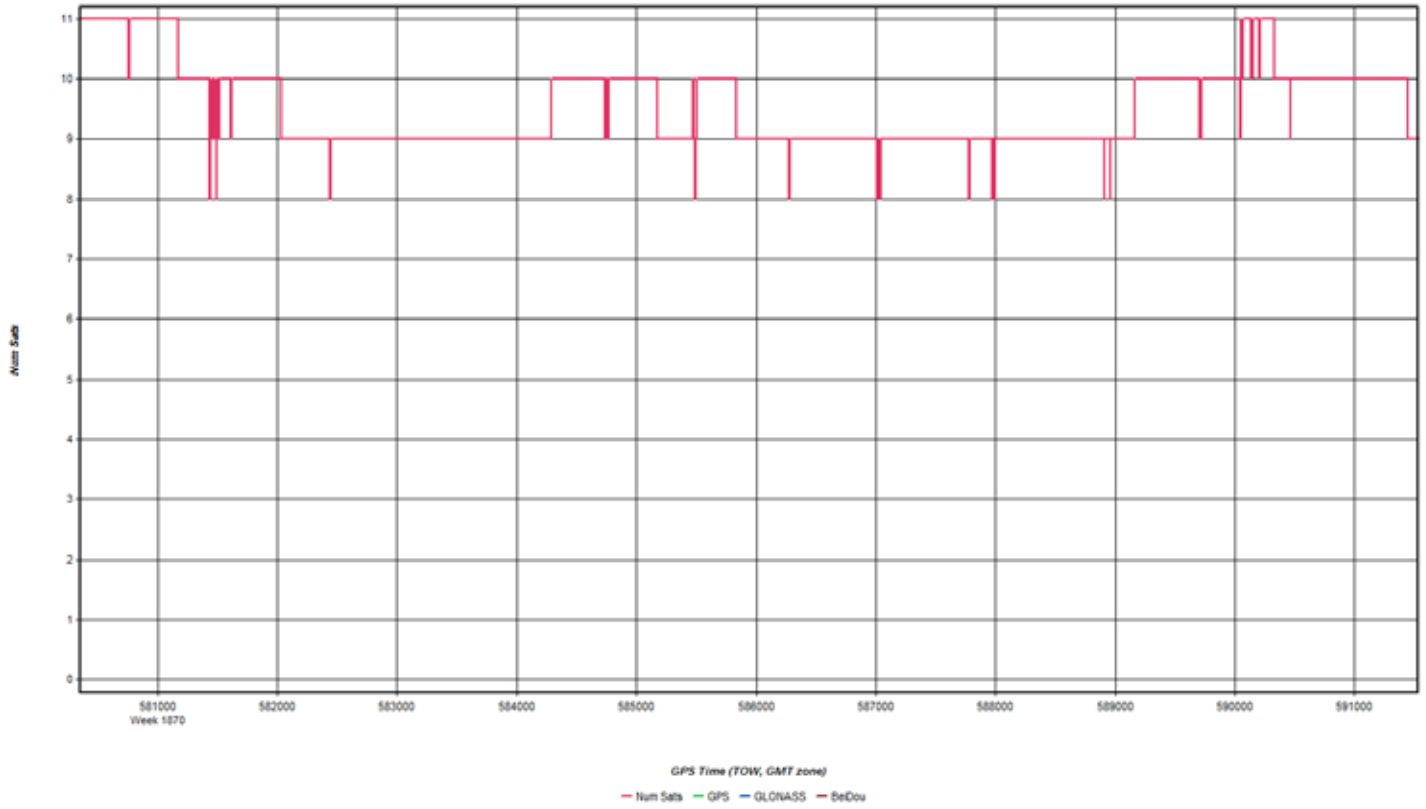
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

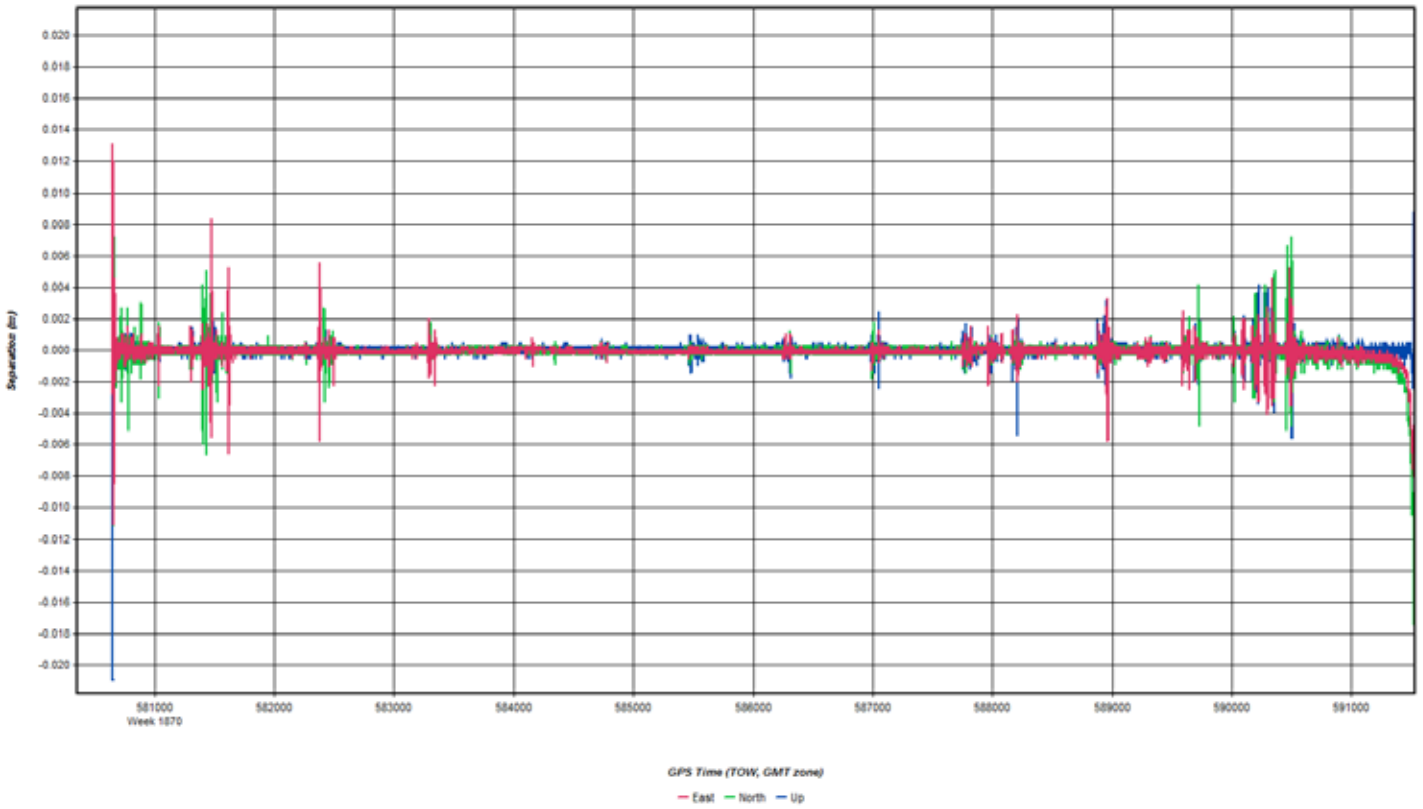
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

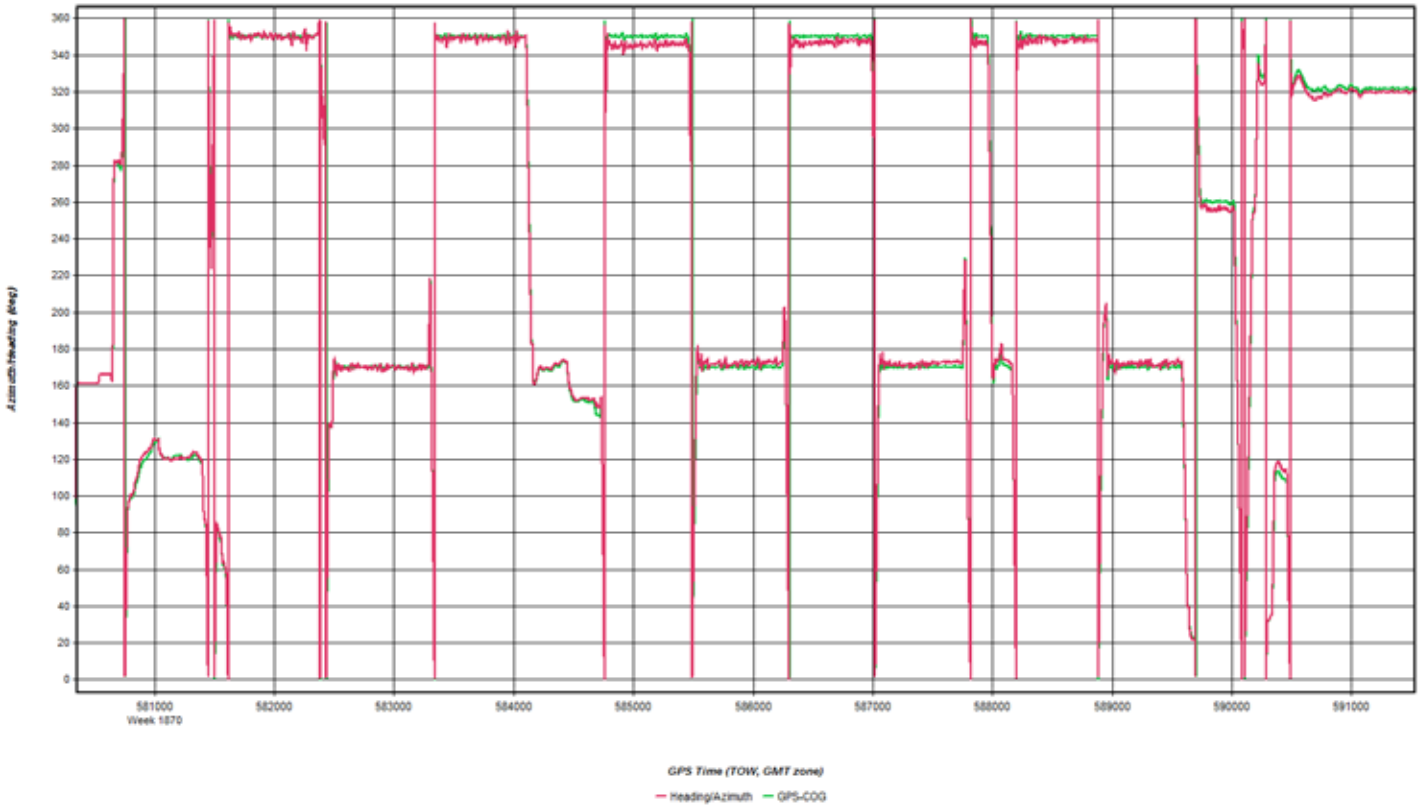
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
080	22.25	8104	194318			
081	22.23	8173	195719			
082	22.22	8265	201128			
083	22.2	8367	202540			
084	22.19	8504	203942			
085	22.18	8517	205312			
086	22.17	8550	210713			CROSSLINE:233052
087	22.15	8600	212127			
088	22.14	8701	213532			
089	22.13	8773	215202			
090	22.11	8800	220607			Saw return drop out temperarily
091	22.09	8800	222005			
092	22.08	8832	223354			
093	22.06	8980	224746			N to S
094	22.05	9023	230256			
095	22.03	9056	231629			N to S

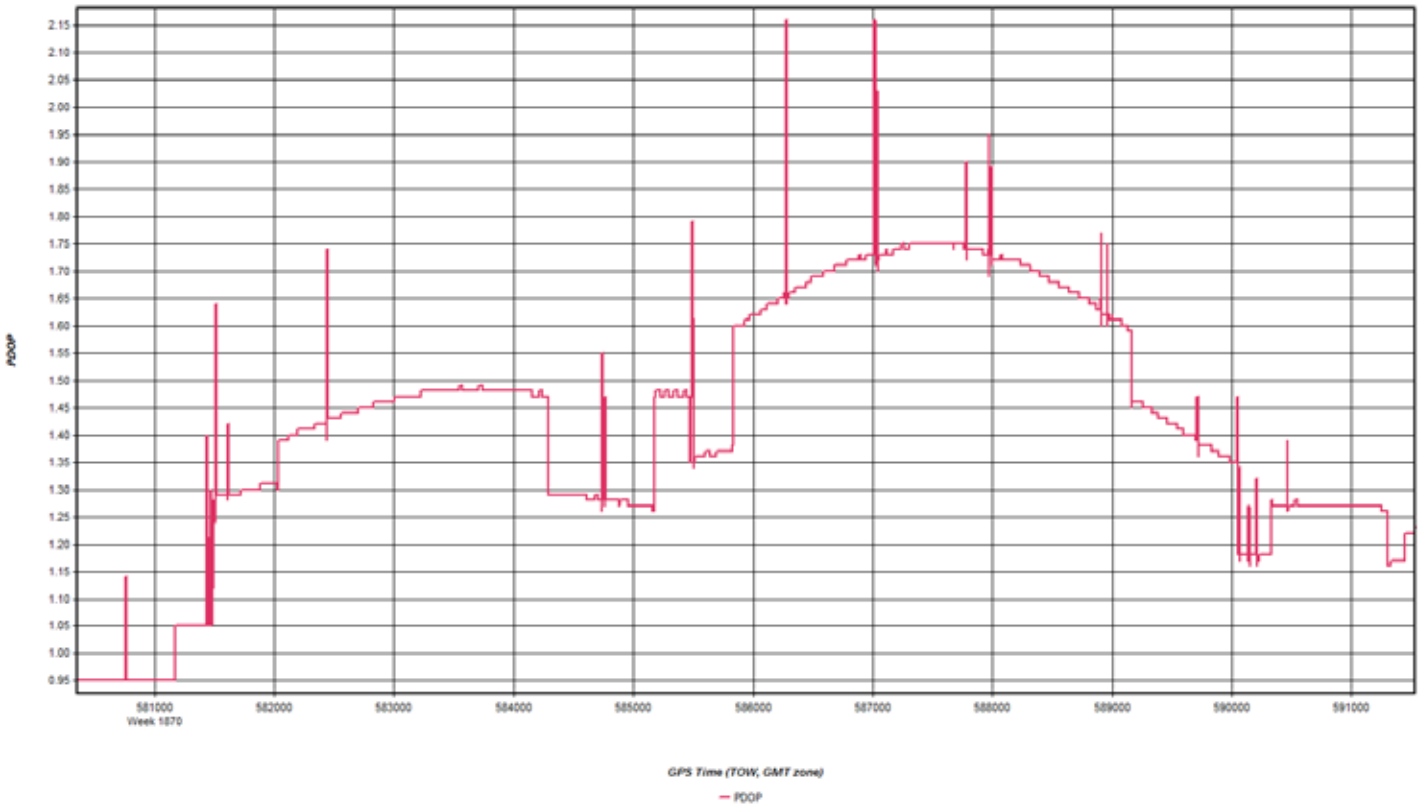
Nov 14, 2015-A

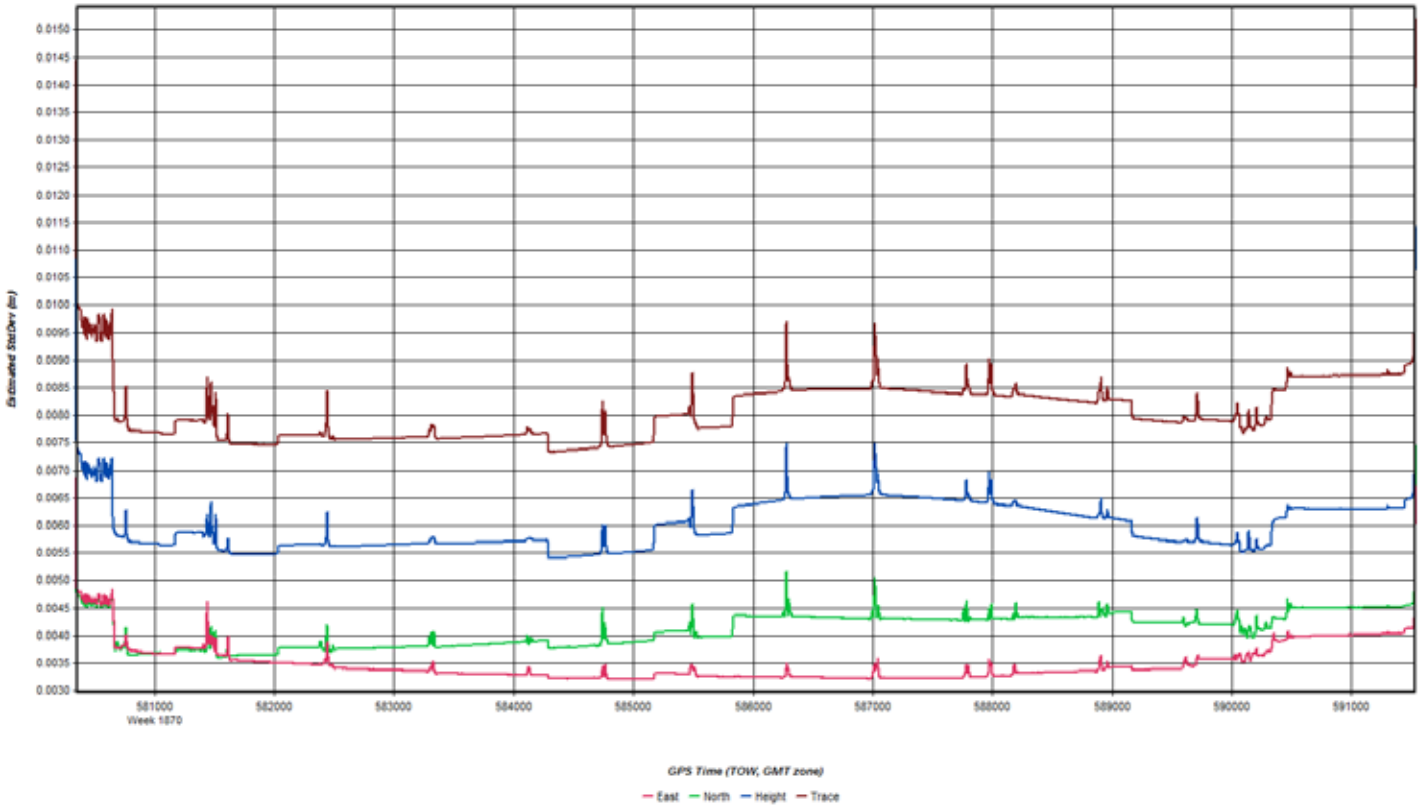


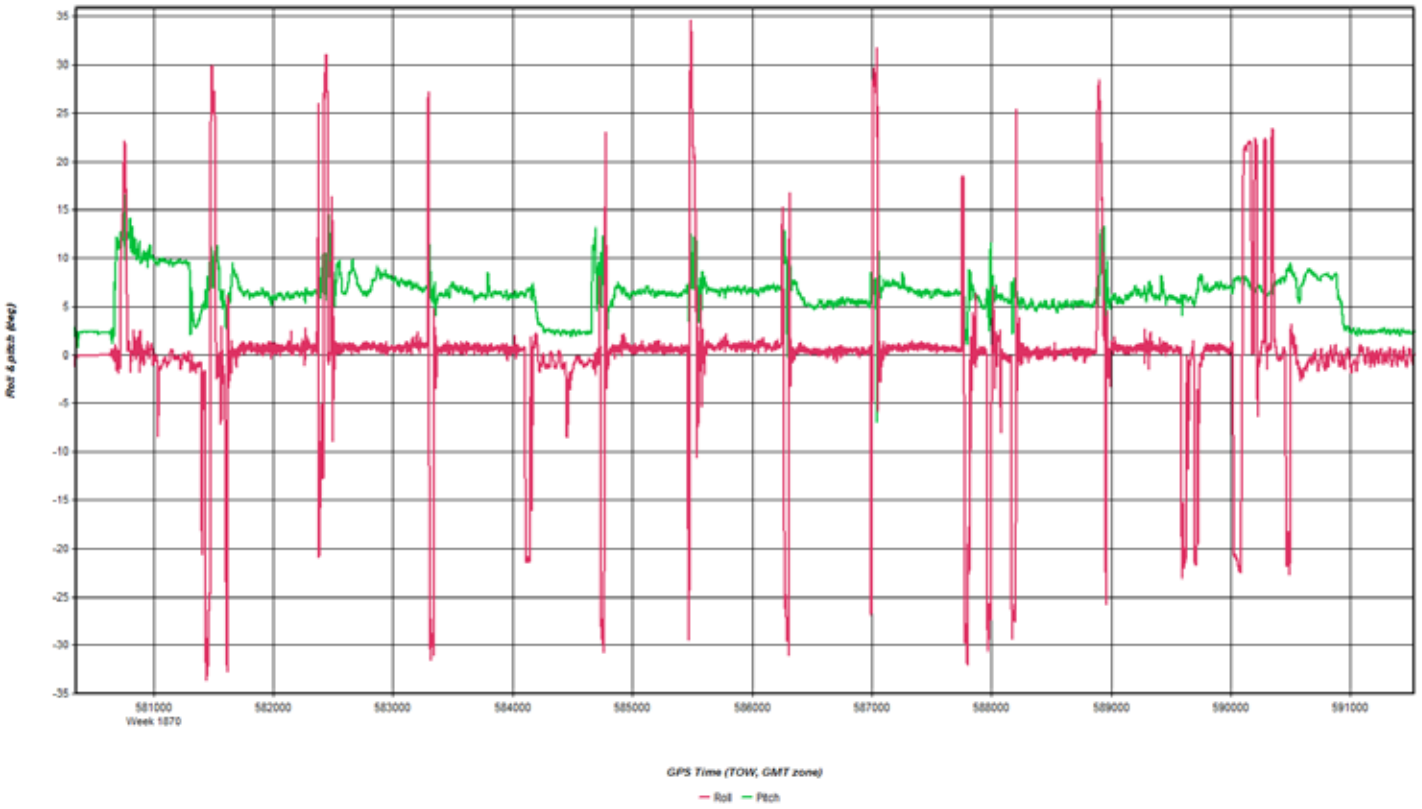

Num Sats
11
10
9
8
7
6
5
4
3
2
1
0
581000
Week 1870
582000
583000
584000
585000
586000
587000
588000
589000
590000
591000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

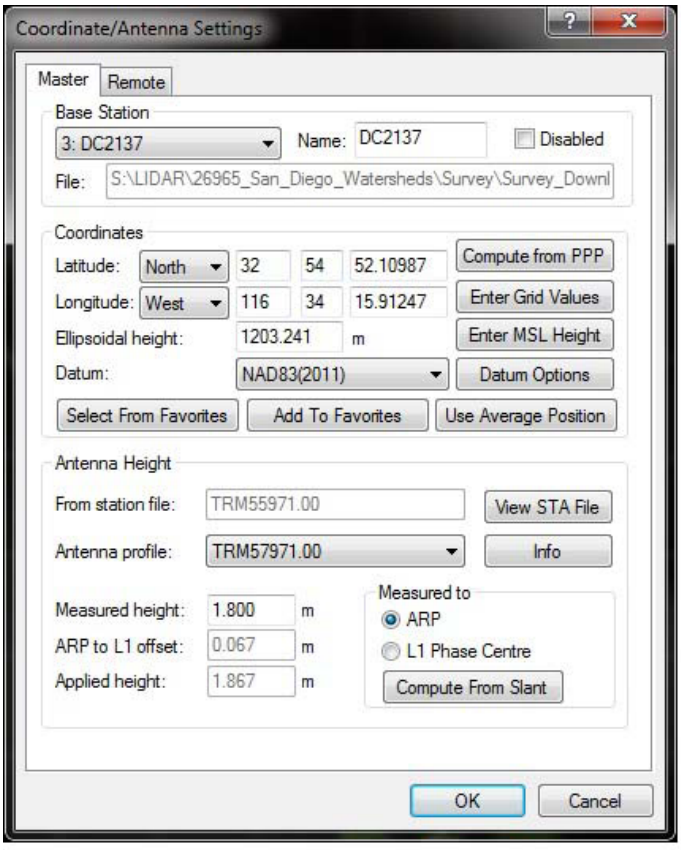

Separation (m)
0.020
0.018
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
-0.002
-0.004
-0.006
-0.008
-0.010
-0.012
-0.014
-0.016
-0.018
-0.020
581000
Week 1870
582000
583000
584000
585000
586000
587000
588000
589000
590000
591000
GPS Time (TOW, GMT zone)
East
North
Up

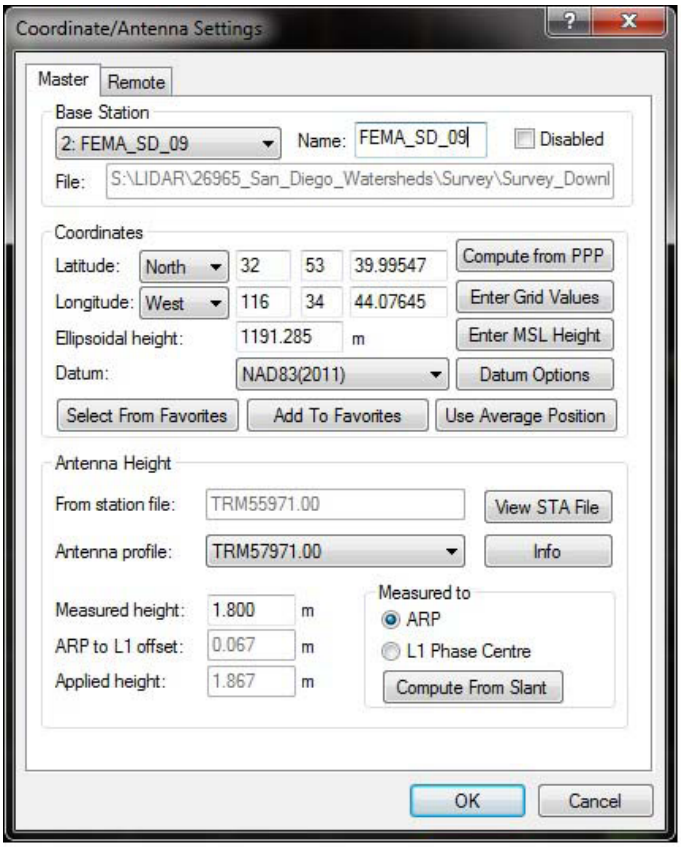

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
581000
Week 1870
582000
583000
584000
585000
586000
587000
588000
589000
590000
591000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

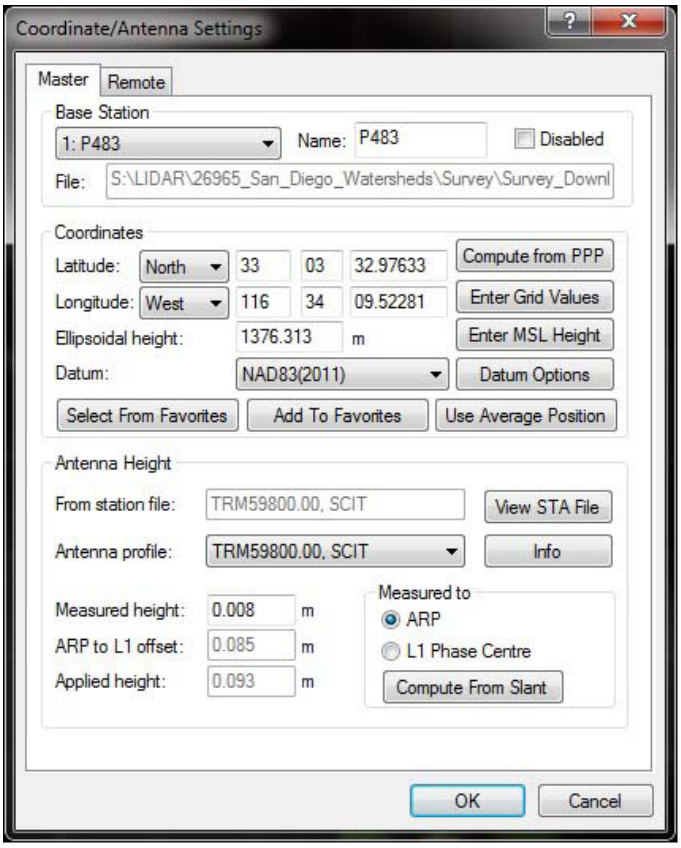

PDOP
2.15
2.10
2.05
2.00
1.95
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
581000
Week 1870
582000
583000
584000
585000
586000
587000
588000
589000
590000
591000
GPS Time (TOW, GMT zone)
PDOP


0.0150
0.0145
0.0140
0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
581000
Week 1870
582000
583000
584000
585000
586000
587000
588000
589000
590000
591000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
581000
Week 1870
582000
583000
584000
585000
586000
587000
588000
589000
590000
591000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
3: DC2137
Name: DC2137
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 54 52.10987
Longitude: West 116 34 15.91247
Ellipsoidal height: 1203.241 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: FEMA_SD_09
Name: FEMA_SD_09
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 53 39.99547
Longitude: West 116 34 44.07645
Ellipsoidal height: 1191.285 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: P483
Name: P483
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 03 32.97633
Longitude: West 116 34 09.52281
Ellipsoidal height: 1376.313 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM59800.00, SCIT
View STA File
Antenna profile: TRM59800.00, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.085 m
Applied height: 0.093 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	102
Stop Line Name	133
Turn Time (min)	2
Buffer (%)	0
Acquisition Time (hrs)	4.3

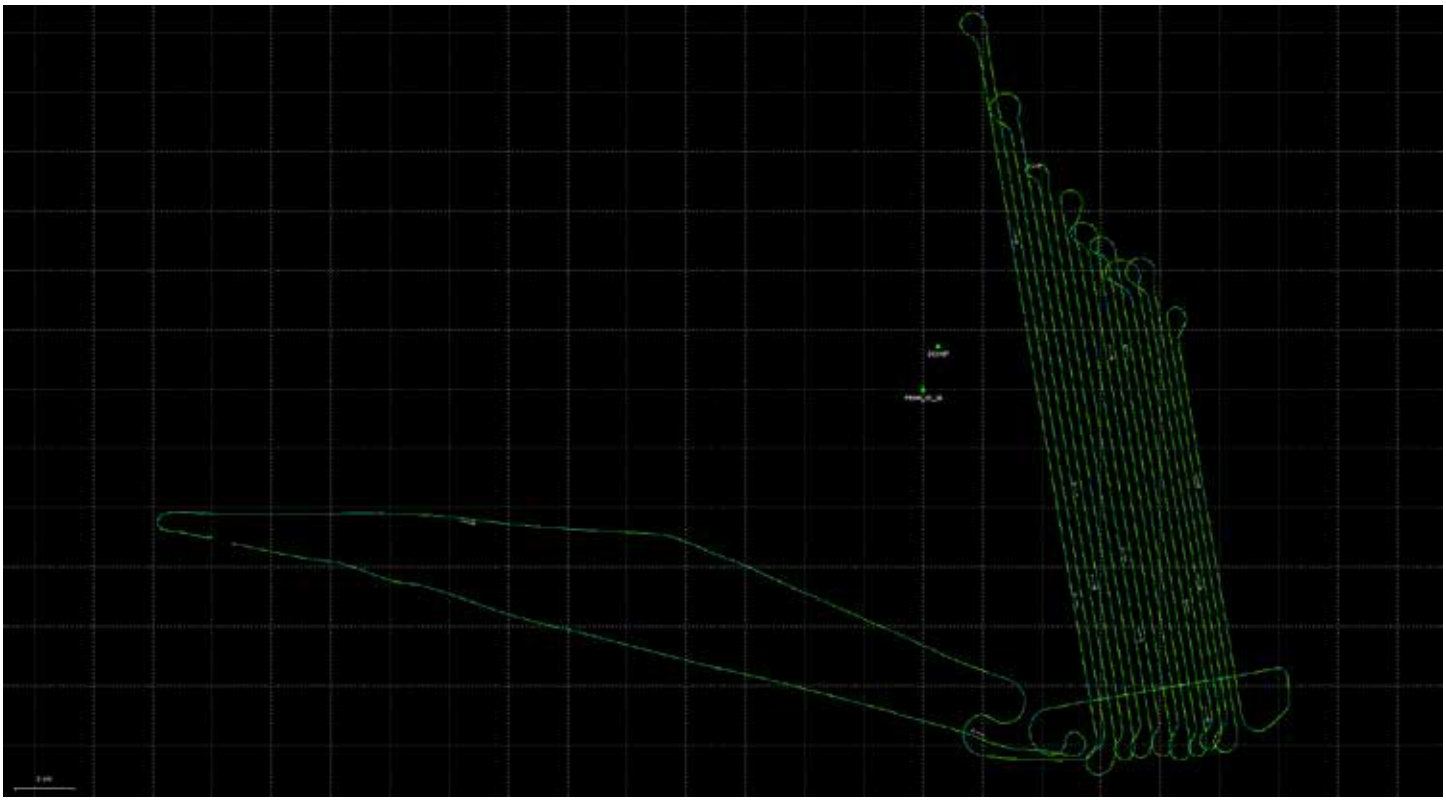
Other Acquisition Notes:

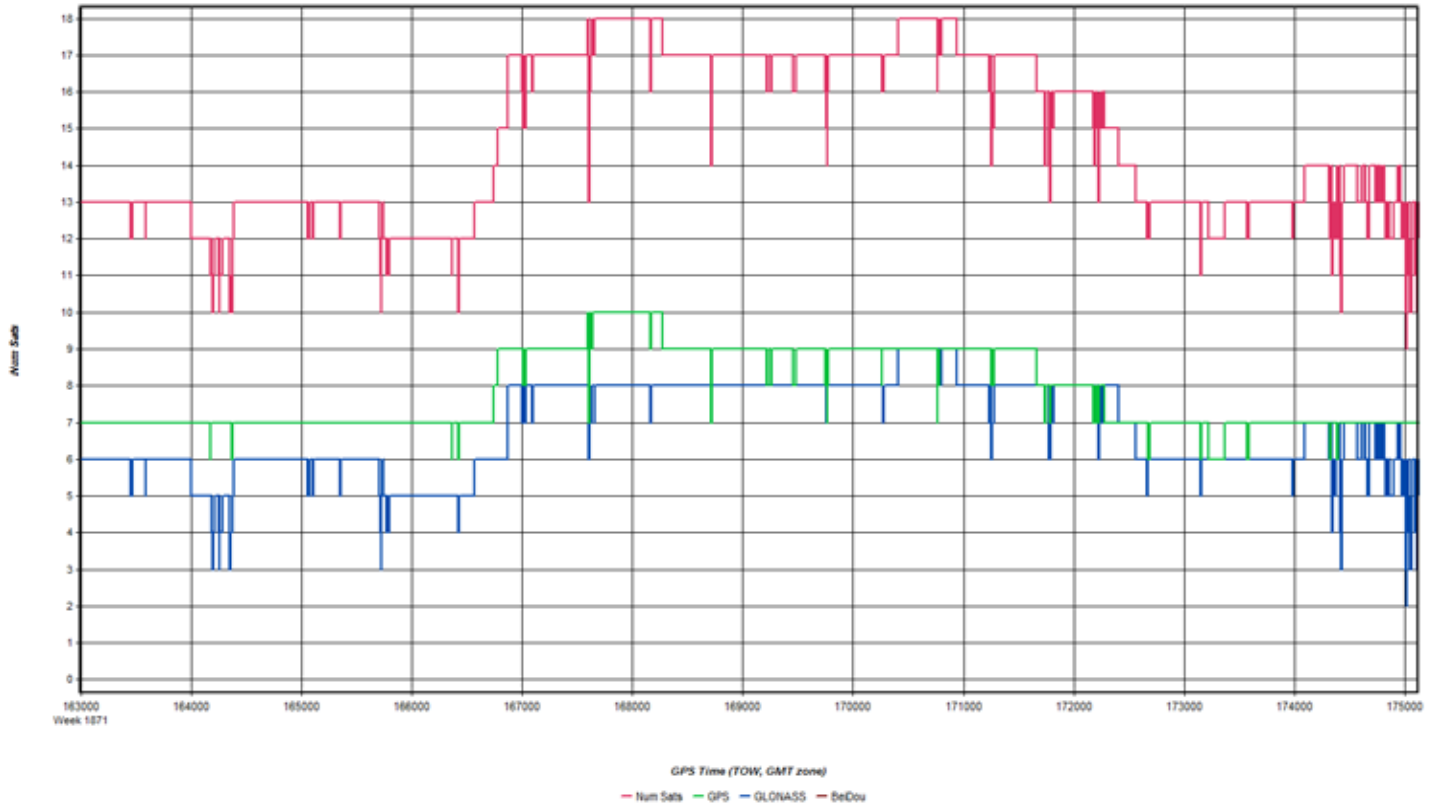
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

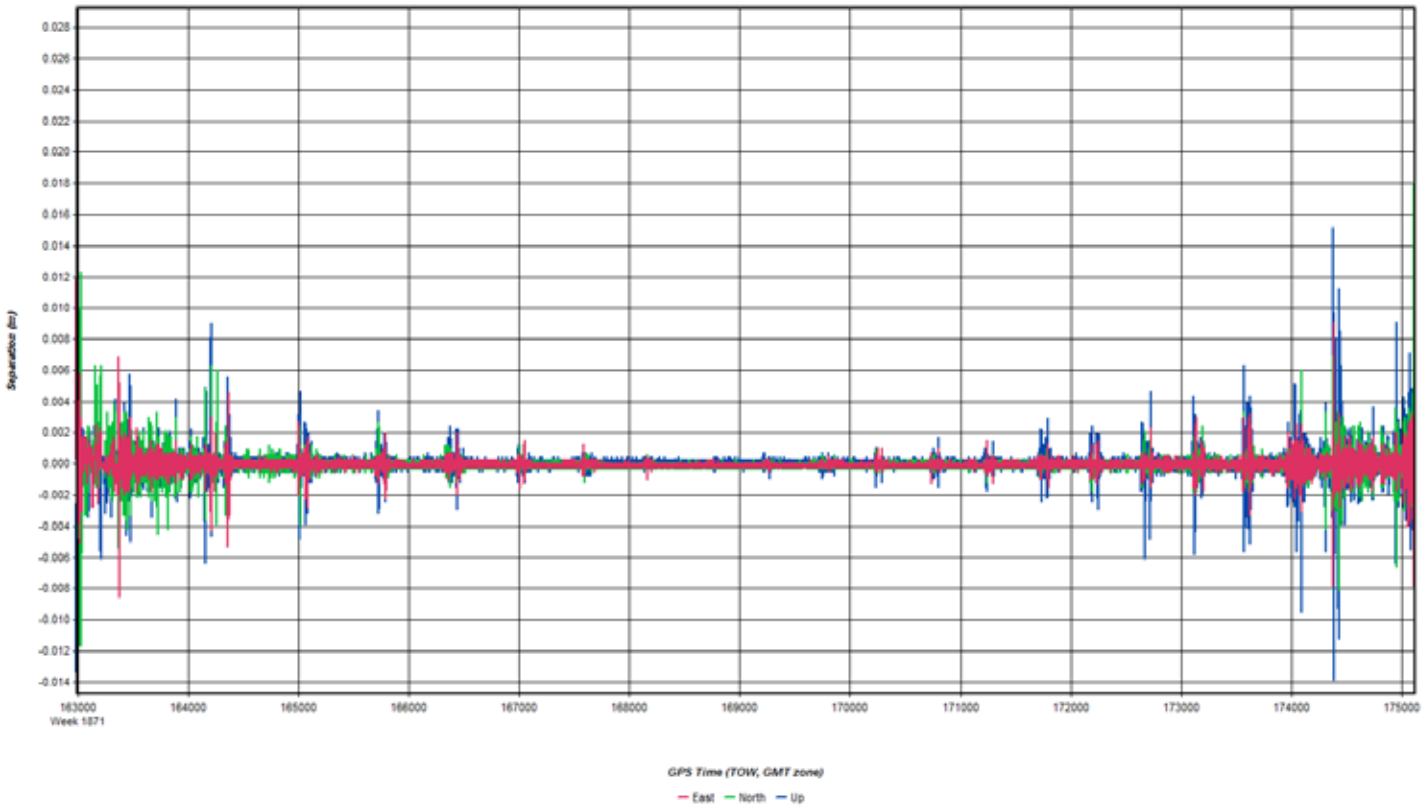
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

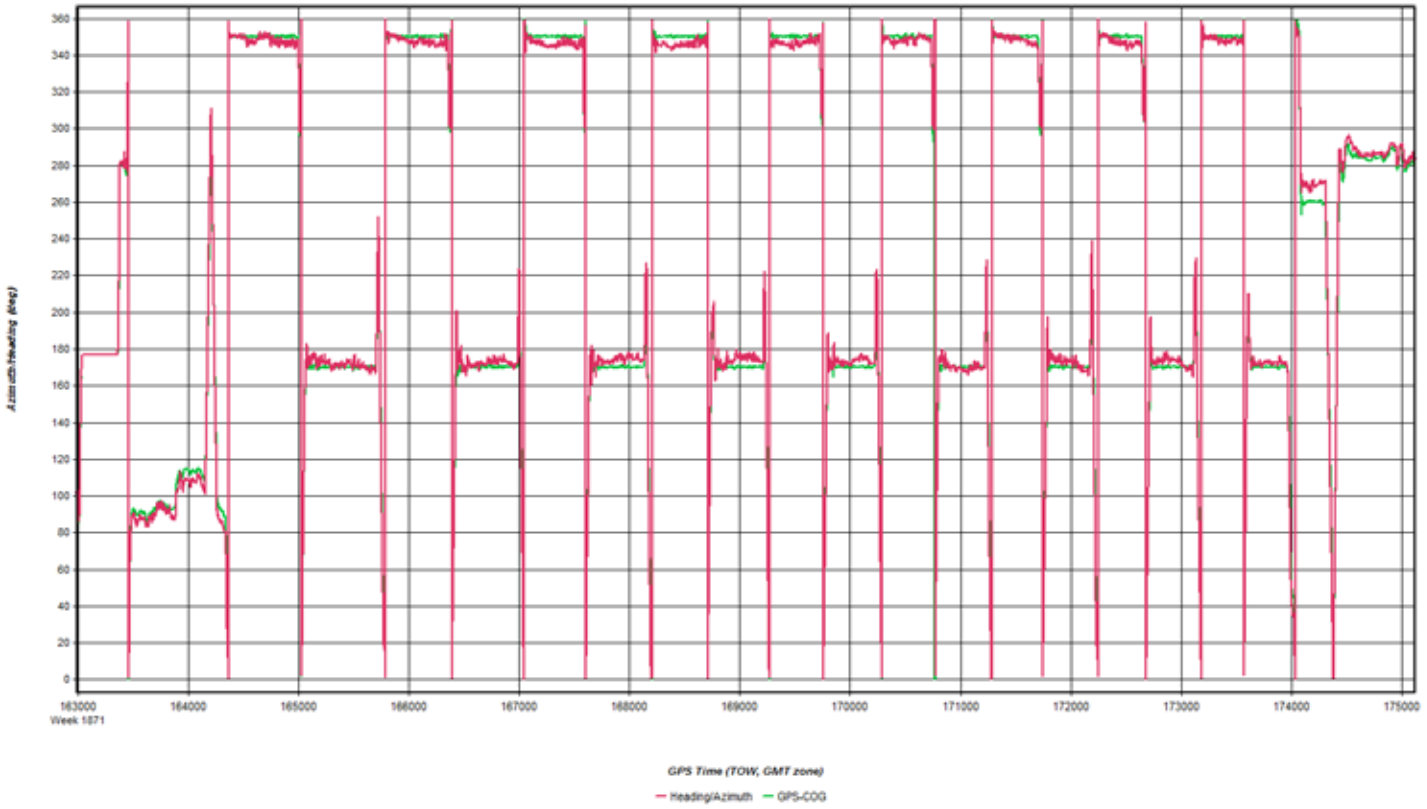
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
078	22.28	7799	173330			s to n
079	22.26	8006	174837			
080	22.25	8104	180223			s to n
096	20.87	9056	182615			s to n
097	20.48	8967	183909			
098	20.3	8757	185140			CROSSLINE: 194842
099	20.15	8672	190418			
100	20.02	8363	191705	192325		191705: bad, range went to zero
101	18.73	8636	193553			n to s

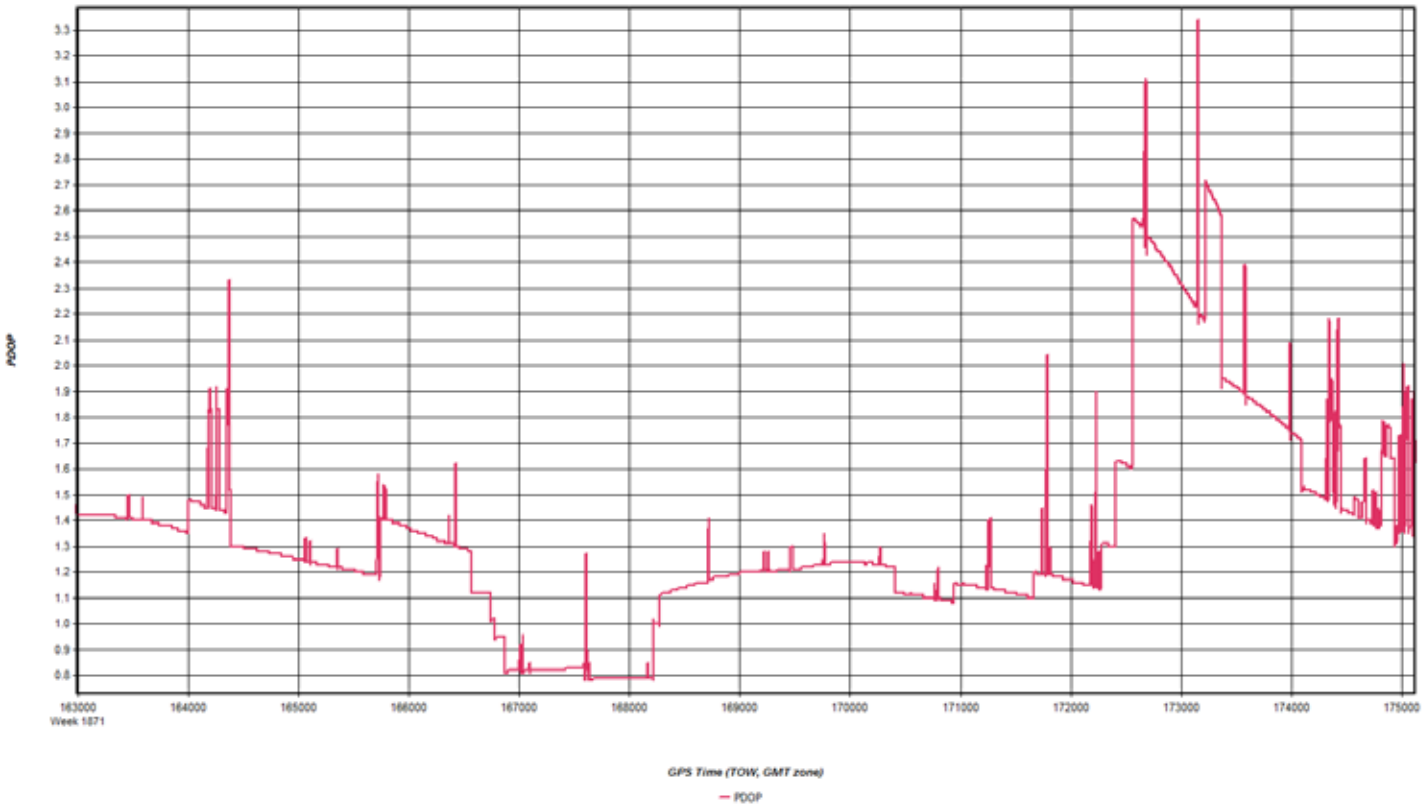
Nov 16, 2015-A

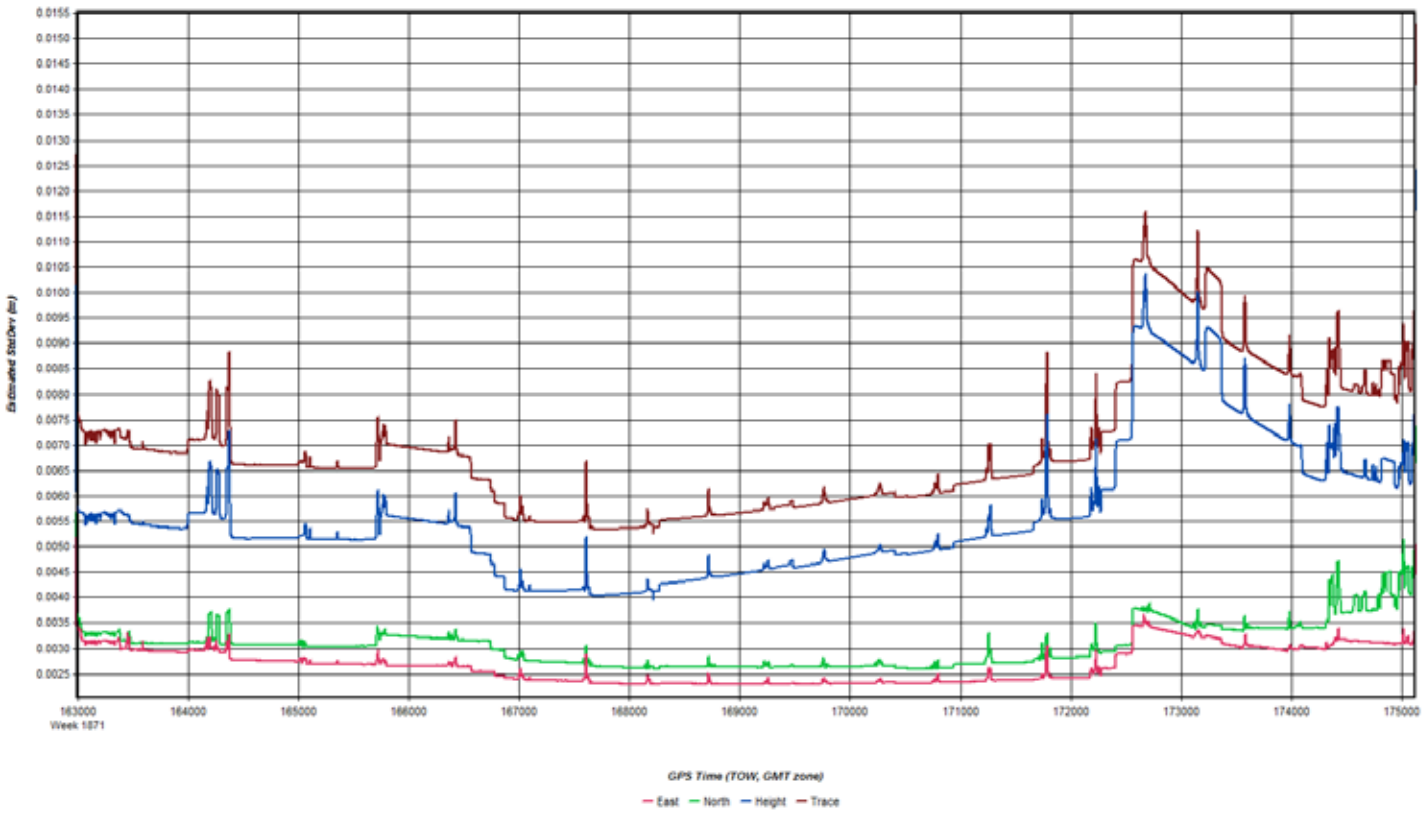


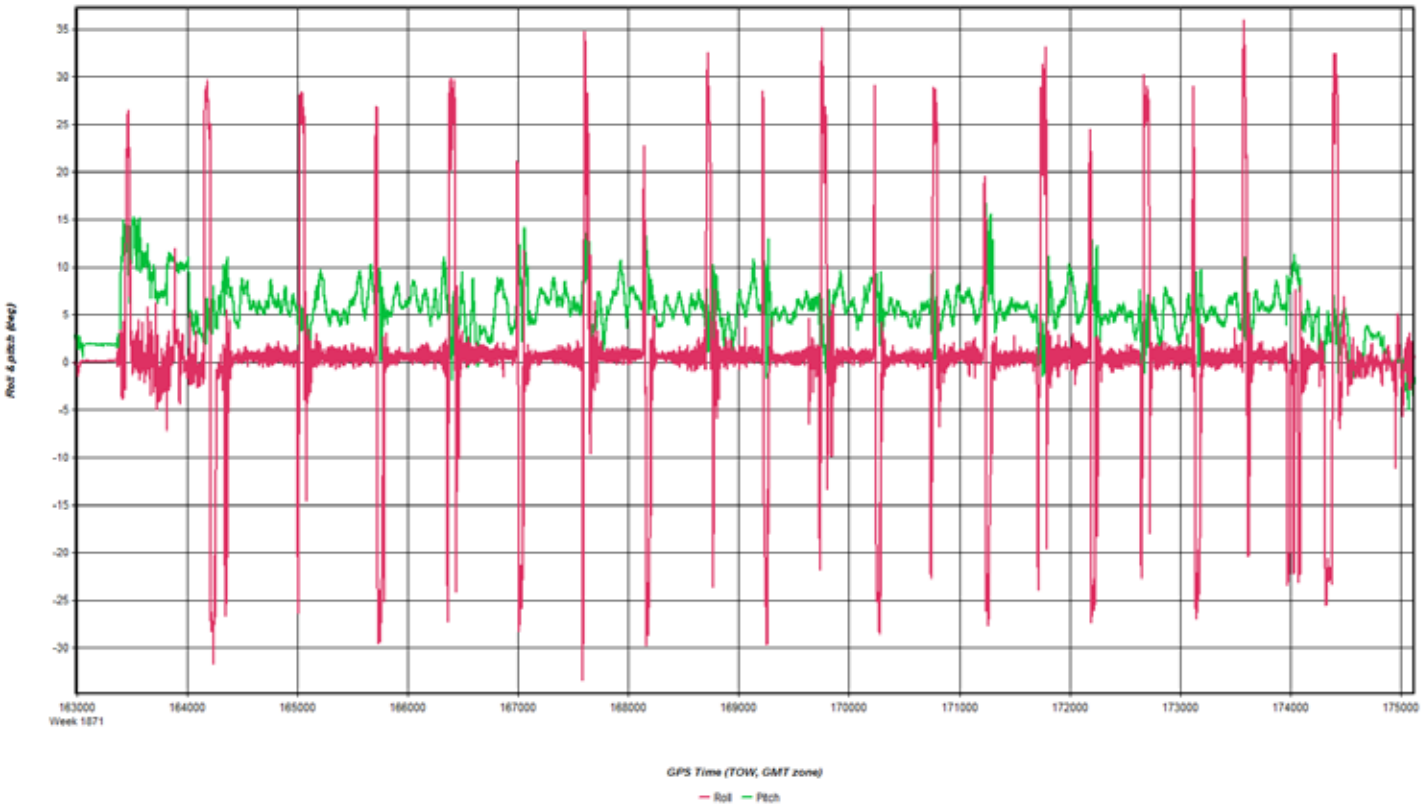

Num Sats
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
163000
Week 1871
164000
165000
166000
167000
168000
169000
170000
171000
172000
173000
174000
175000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

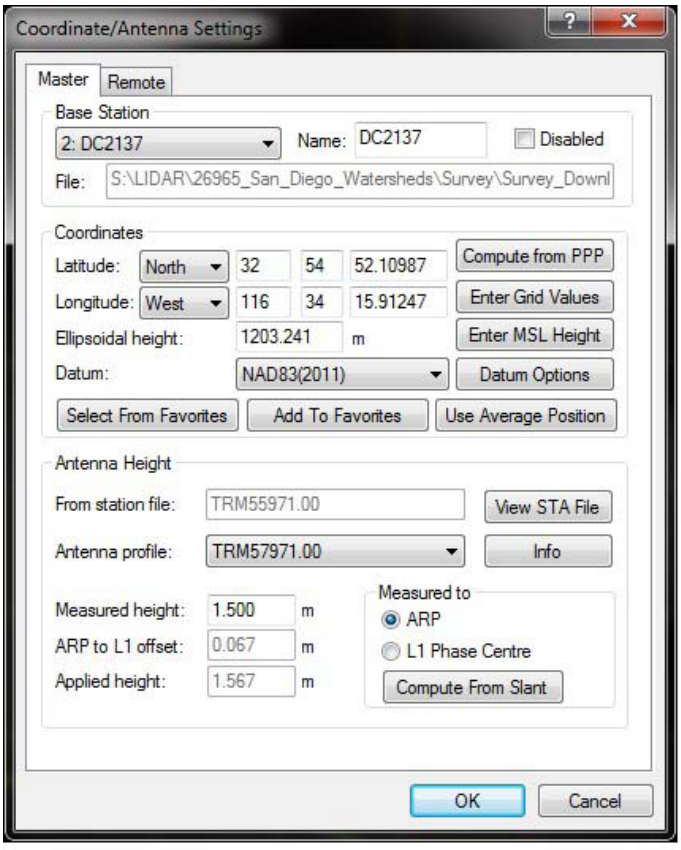

Separation (m)
0.028
0.026
0.024
0.022
0.020
0.018
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
-0.002
-0.004
-0.006
-0.008
-0.010
-0.012
-0.014
163000
Week 1871
164000
165000
166000
167000
168000
169000
170000
171000
172000
173000
174000
175000
GPS Time (TOW, GMT zone)
East
North
Up

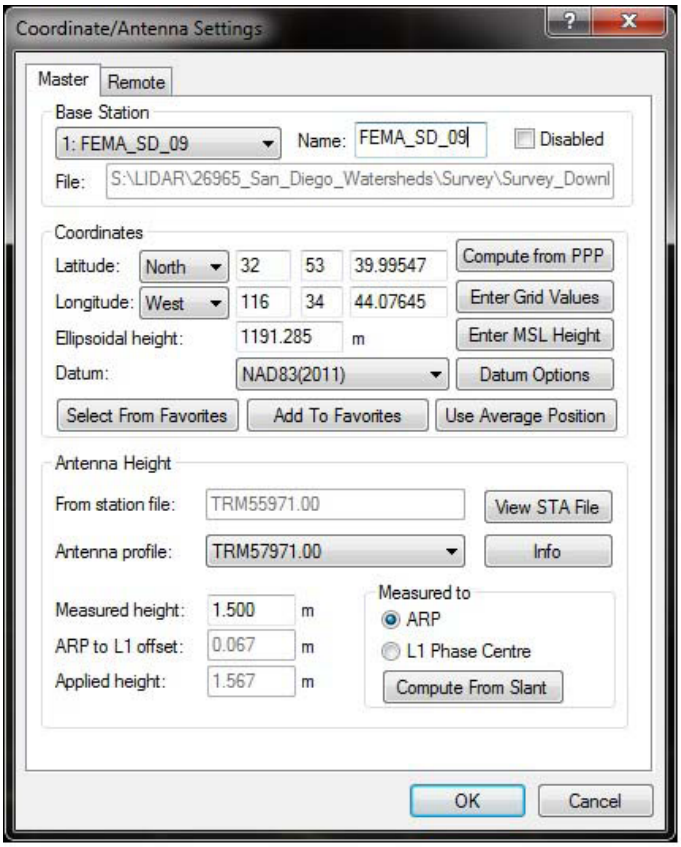

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
163000
Week 1871
164000
165000
166000
167000
168000
169000
170000
171000
172000
173000
174000
175000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
3.3
3.2
3.1
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
163000
Week 1871
164000
165000
166000
167000
168000
169000
170000
171000
172000
173000
174000
175000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0155
0.0150
0.0145
0.0140
0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
163000
Week 1871
164000
165000
166000
167000
168000
169000
170000
171000
172000
173000
174000
175000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
163000
Week 1871
164000
165000
166000
167000
168000
169000
170000
171000
172000
173000
174000
175000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
2: DC2137
Name: DC2137
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 54 52.10987
Longitude: West 116 34 15.91247
Ellipsoidal height: 1203.241 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: FEMA_SD_09
Name: FEMA_SD_09
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 53 39.99547
Longitude: West 116 34 44.07645
Ellipsoidal height: 1191.285 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	120
Stop Line Name	133
Turn Time (min)	2
Buffer (%)	0
Acquisition Time (hrs)	1.5

Other Acquisition Notes:

Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
102	18.43	8636	213930			Start s to n
103	17.48	8632	215136			
104	15.93	8645	220315			Mountain wave created speed fluctuations on north side of field area.
105	15.92	8704	221400			Speed got up129 kts due to high winds on north side
106	14.5	8832	222419			
107	14.19	9170	223408			n to s
108	13.98	9187	224328			
109	12.57	9239	225255			
110	12.47	9305	230121			s to n
111	12.31	8960	231000			Mountain wave speed fluctions north side
112	12.18	8783	231824			s to n
113	11.1	9128	232710			
114	11.12	9226	233500			CROSSLINE:002132
115	11.14	9170	234312			
116	11.15	9069	235050			s to n
117	11.08	8826	235849			
118	10.5	8770	000630			s to n
119	9.13	9010	001354			

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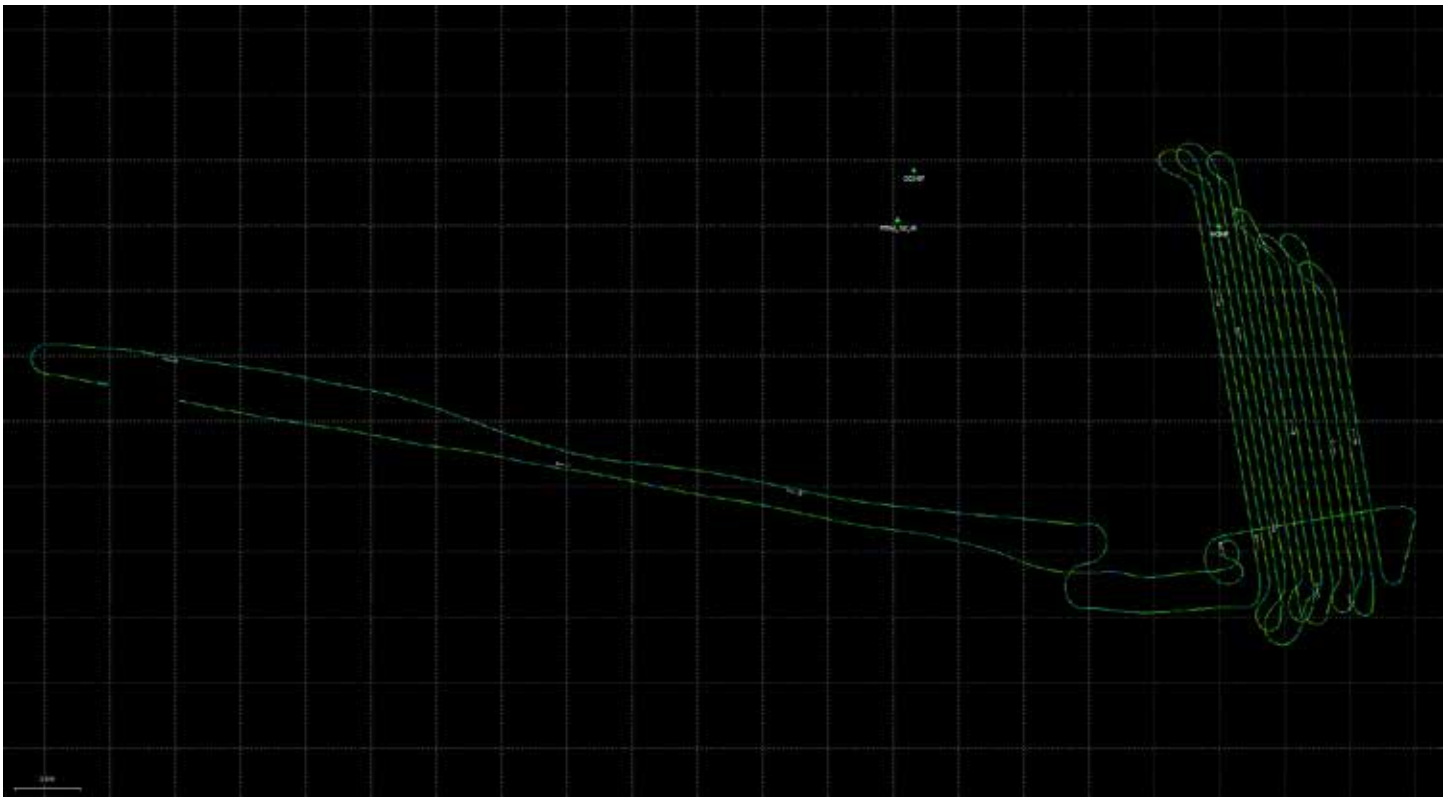
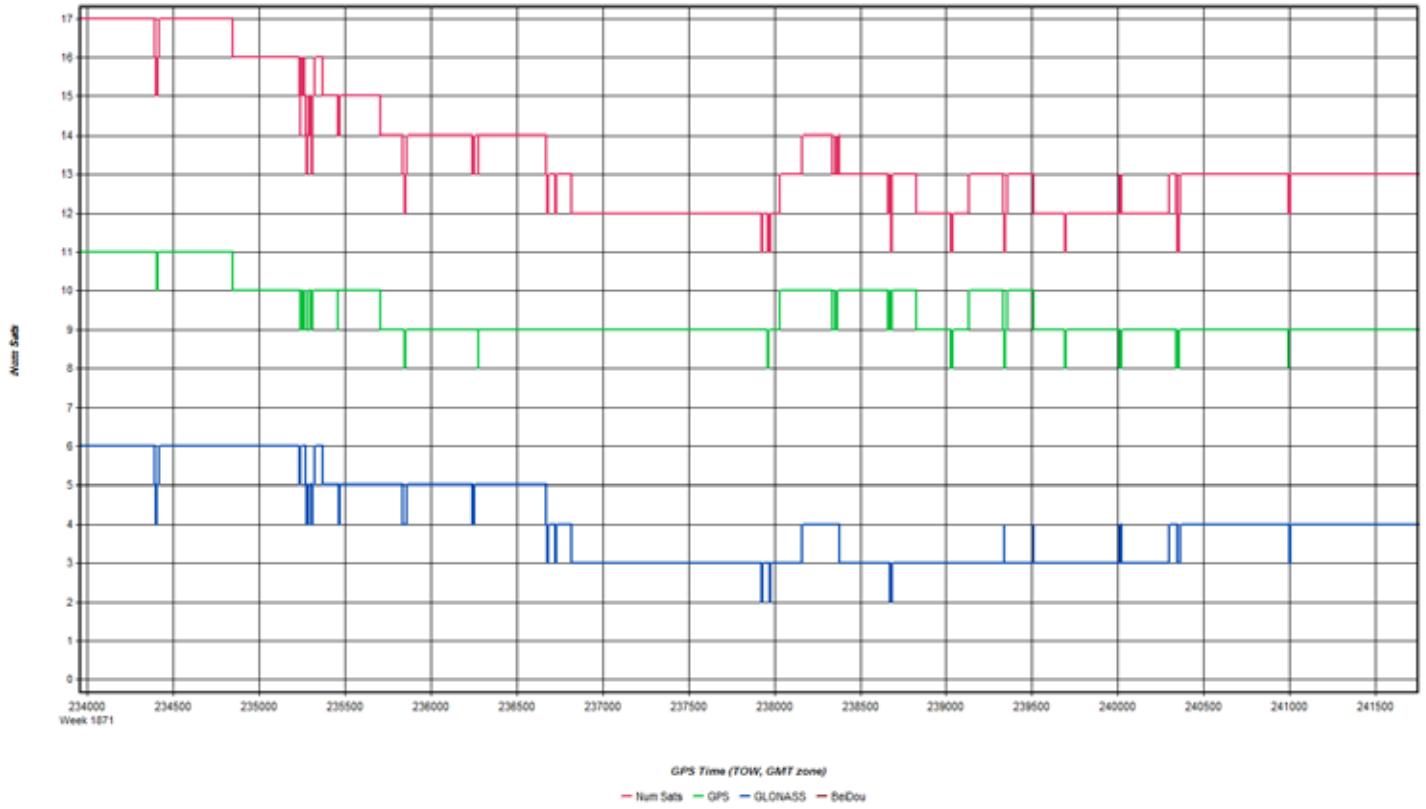
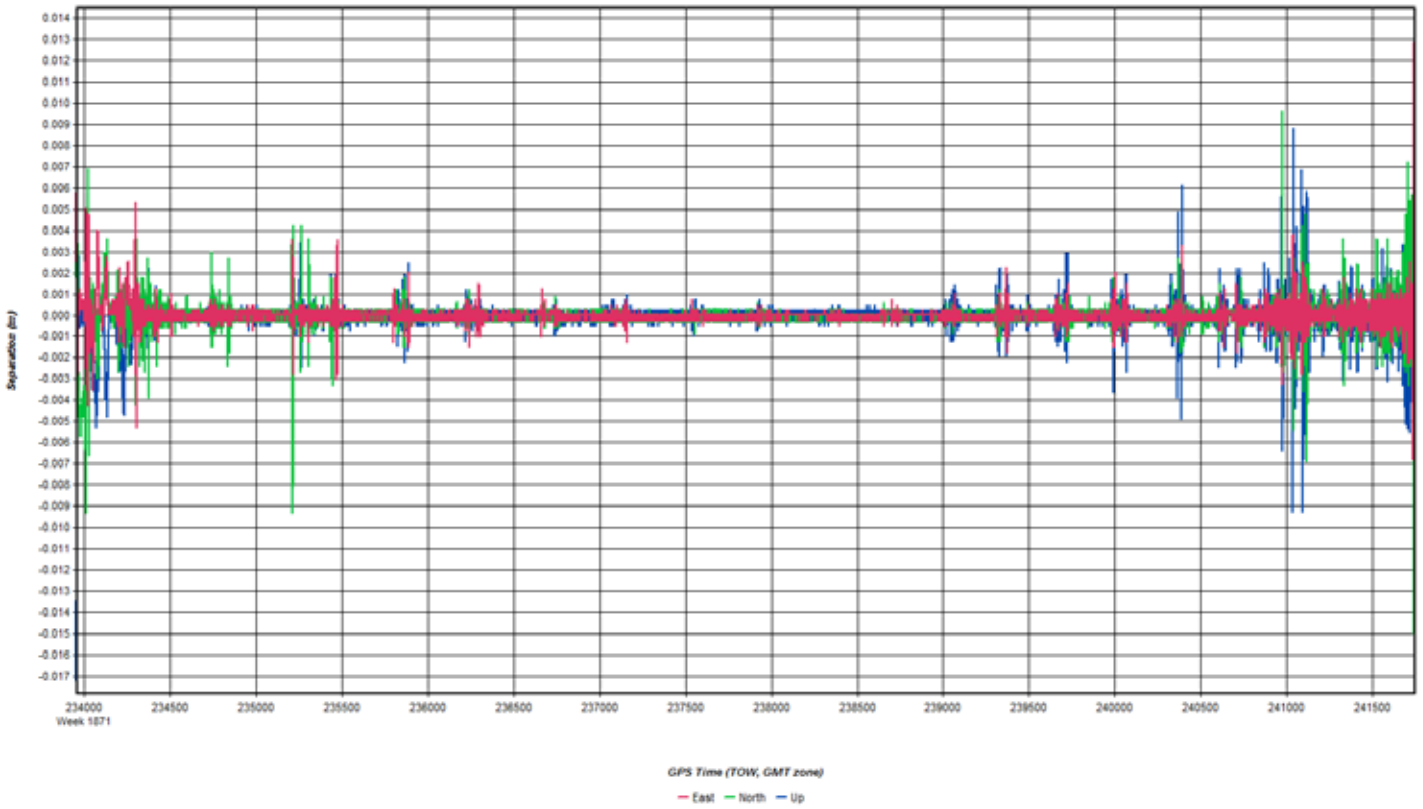
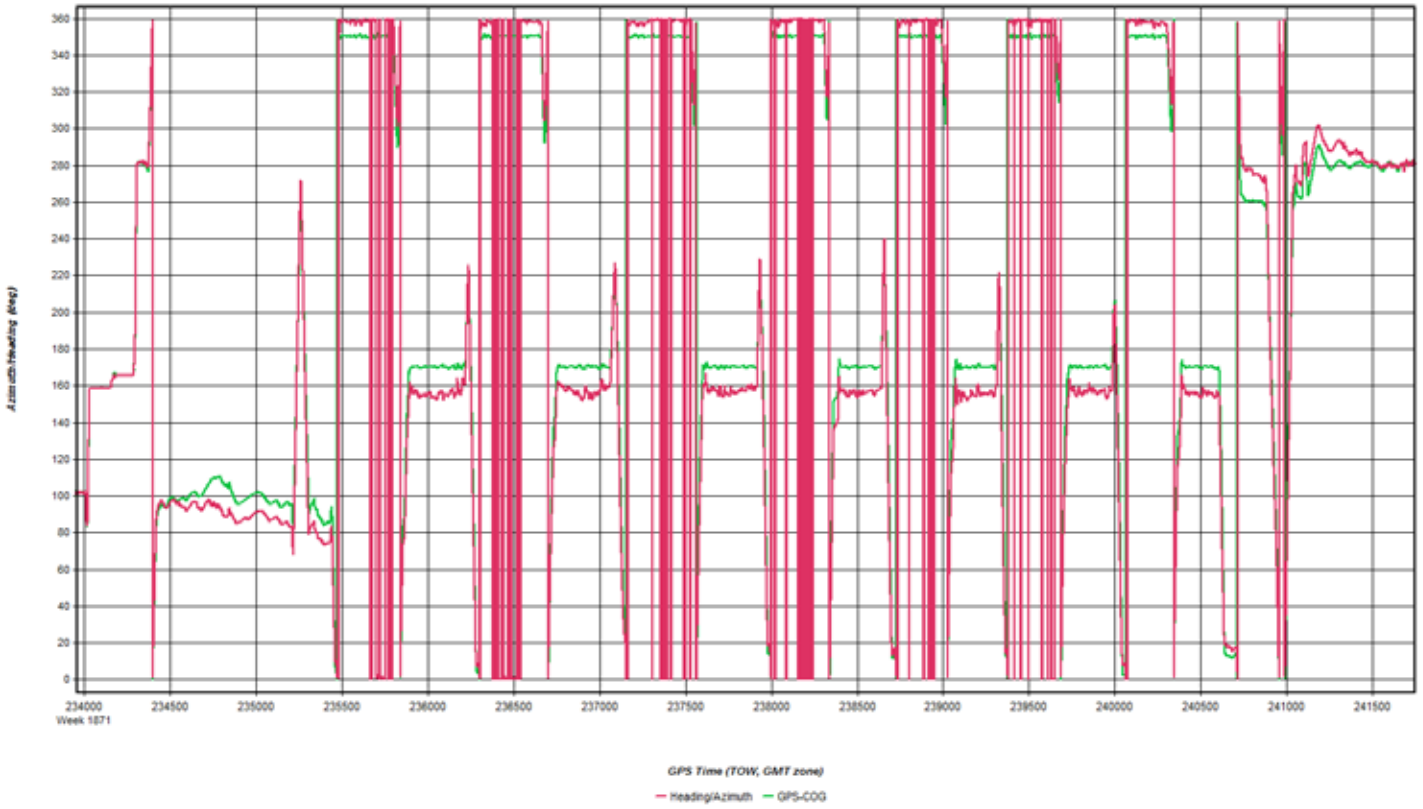
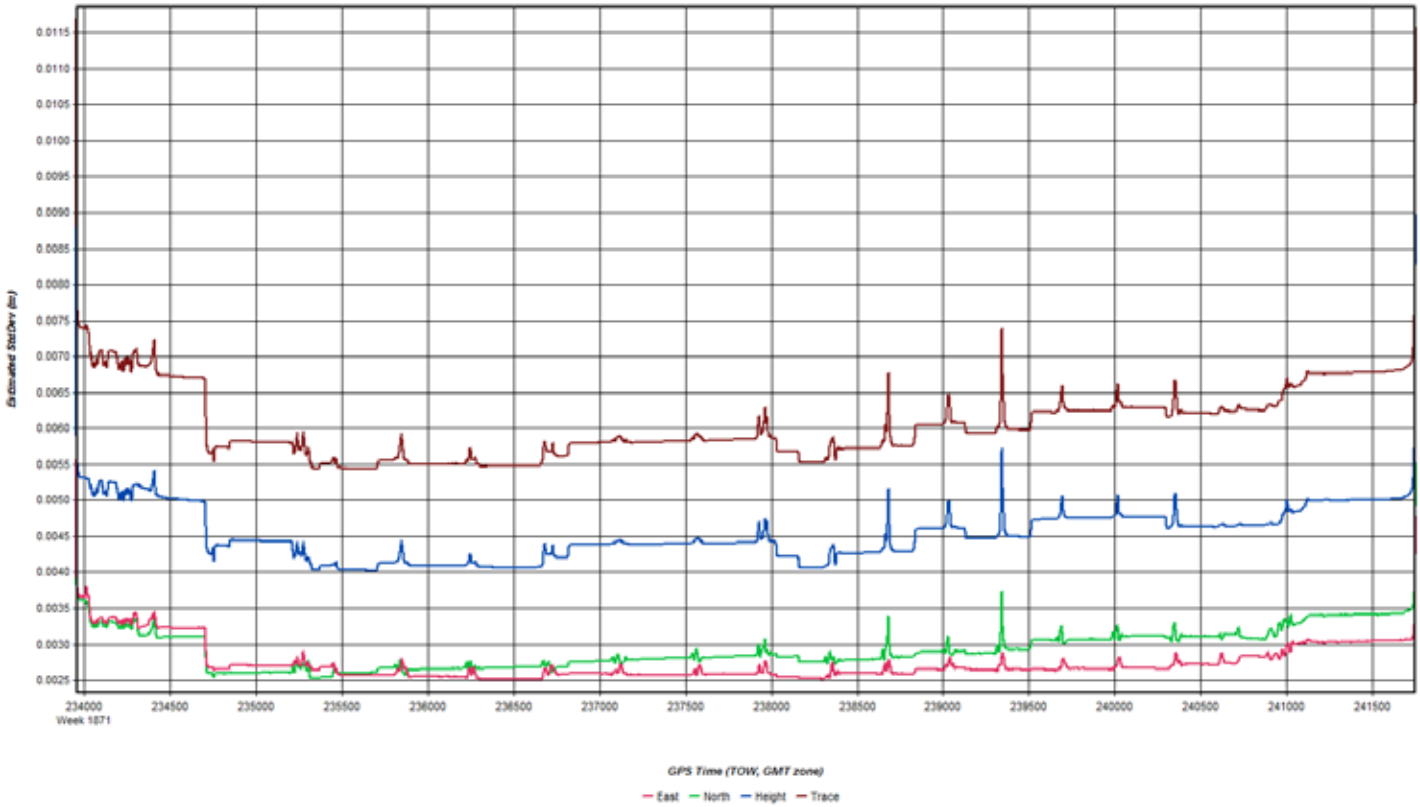


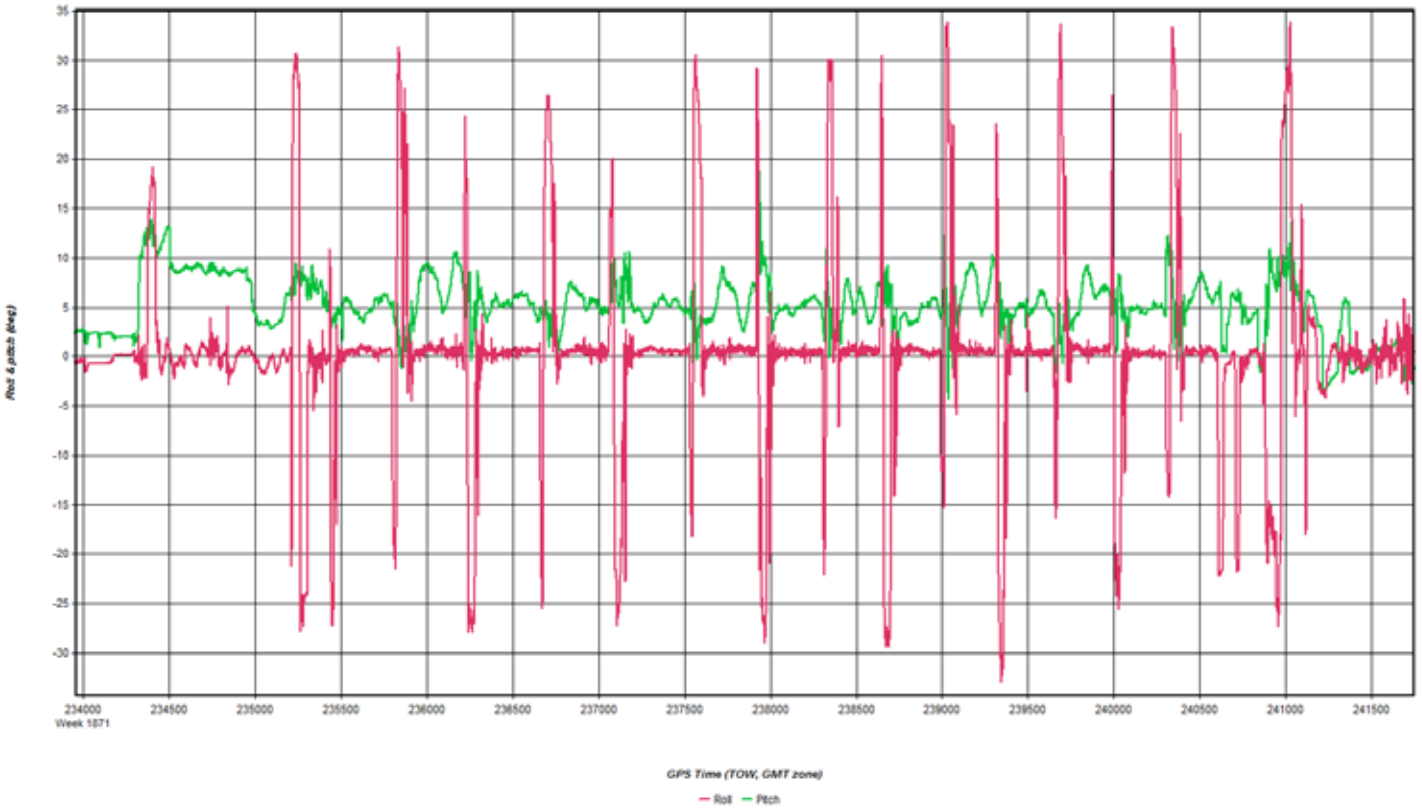

Num Sats
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
234000
Week 1871
234500
235000
235500
236000
236500
237000
237500
238000
238500
239000
239500
240000
240500
241000
241500
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

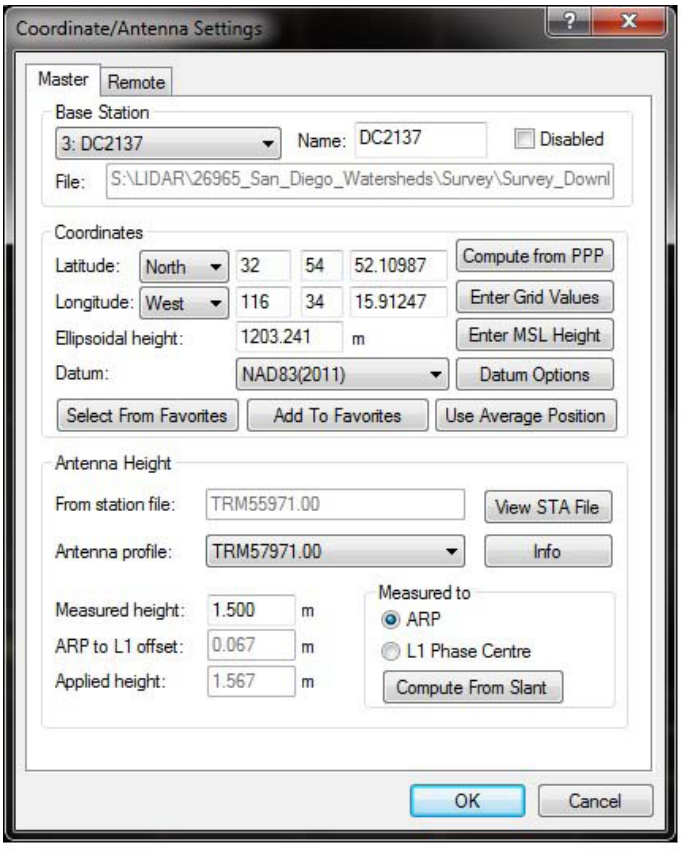

Separation (m)
0.014
0.013
0.012
0.011
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0.000
-0.001
-0.002
-0.003
-0.004
-0.005
-0.006
-0.007
-0.008
-0.009
-0.010
-0.011
-0.012
-0.013
-0.014
-0.015
-0.016
-0.017
234000
Week 1871
234500
235000
235500
236000
236500
237000
237500
238000
238500
239000
239500
240000
240500
241000
241500
GPS Time (TOW, GMT zone)
East
North
Up

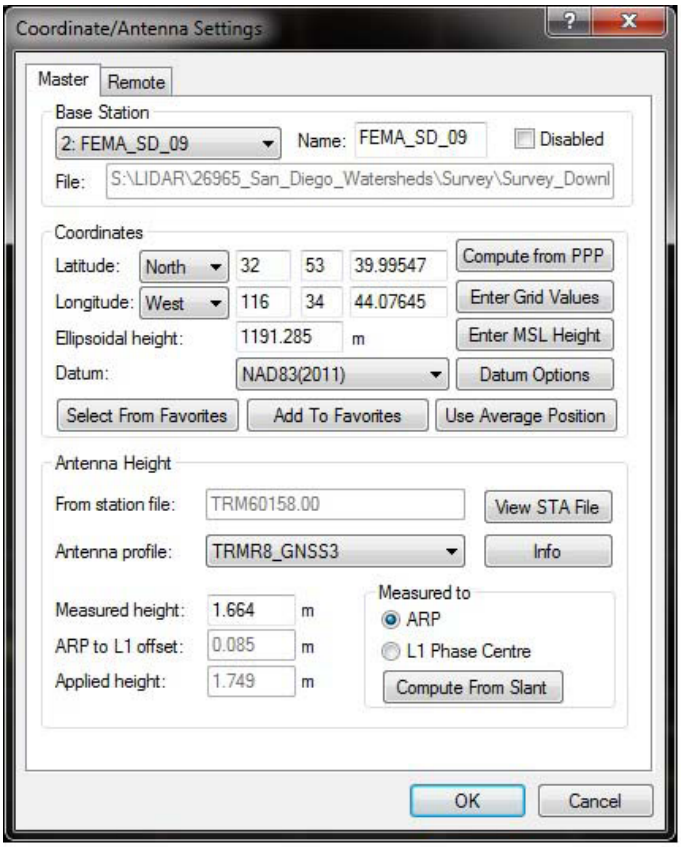

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
234000
Week 1871
234500
235000
235500
236000
236500
237000
237500
238000
238500
239000
239500
240000
240500
241000
241500
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

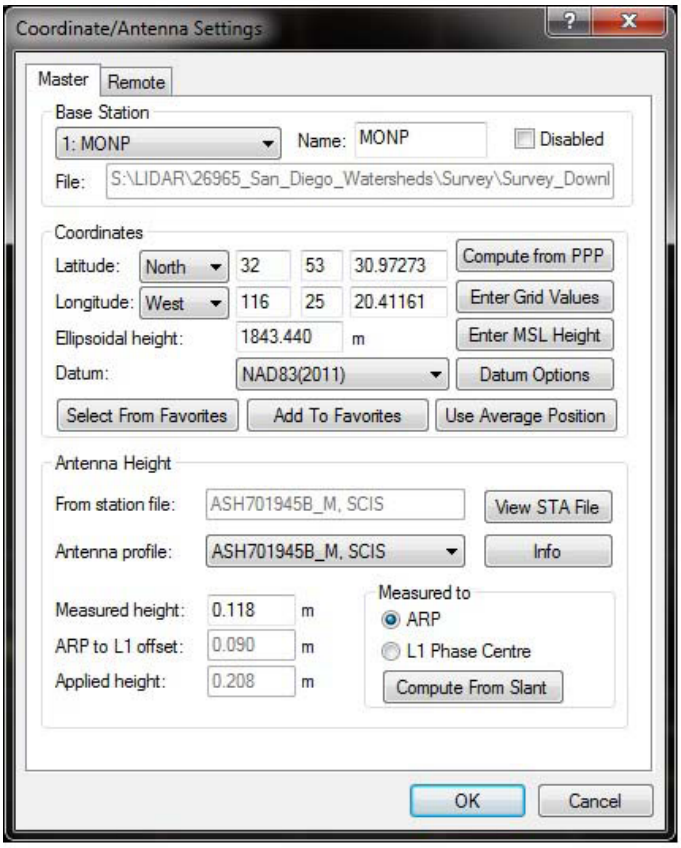

PDOP
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
234000
Week 1871
234500
235000
235500
236000
236500
237000
237500
238000
238500
239000
239500
240000
240500
241000
241500
GPS Time (TOW, GMT zone)
PDOP


0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
234000
Week 1871
234500
235000
235500
236000
236500
237000
237500
238000
238500
239000
239500
240000
240500
241000
241500
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
234000
Week 1871
234500
235000
235500
236000
236500
237000
237500
238000
238500
239000
239500
240000
240500
241000
241500
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
3: DC2137
Name: DC2137
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 54 52.10987
Compute from PPP
Longitude: West 116 34 15.91247
Enter Grid Values
Ellipsoidal height: 1203.241 m
Enter MSL Height
Datum: NAD83(2011)
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_09
Name: FEMA_SD_09
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 53 39.99547
Longitude: West 116 34 44.07645
Ellipsoidal height: 1191.285 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM60158.00
View STA File
Antenna profile: TRMR8_GNSS3
Info
Measured height: 1.664 m
ARP to L1 offset: 0.085 m
Applied height: 1.749 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: MONP
Name: MONP
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 53 30.97273
Longitude: West 116 25 20.41161
Ellipsoidal height: 1843.440 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: ASH701945B_M, SCIS
View STA File
Antenna profile: ASH701945B_M, SCIS
Info
Measured height: 0.118 m
ARP to L1 offset: 0.090 m
Applied height: 0.208 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	127
Stop Line Name	133
Turn Time (min)	2
Buffer (%)	0
Acquisition Time (hrs)	0.7

Other Acquisition Notes:

Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
120	9.14	9006	172418			start s to n
121	9.16	9010	173129			
122	9.17	9016	173827			s to n
123	9.19	9033	174547			28 kts north northeast wind, 125 kts start speed
124	9.09	9098	175305			
125	8.86	8983	180010			
126	7.85	9243	180642			s to n
127	7.09	9416	181310			31 kts north northeast wind
128	7.05	9433	181846			
129	7.06	9692	182418			35 kts north northeast wind
130	6.99	9558	182941			s to n
131	6.91	8941	183527			CROSSLINE: 185211
132	6.16	8790	184104			
133	5.7	9407	184631			end n to s

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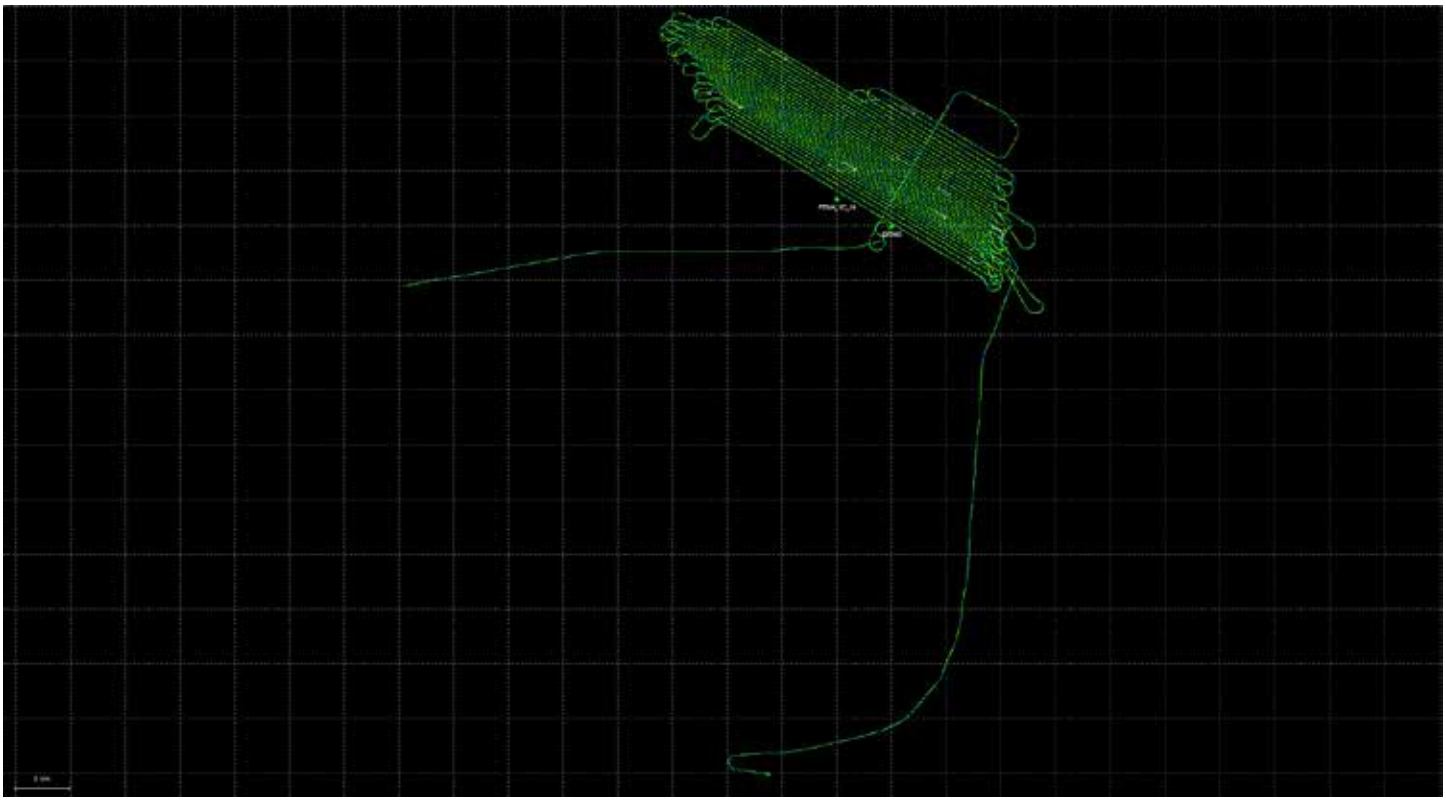
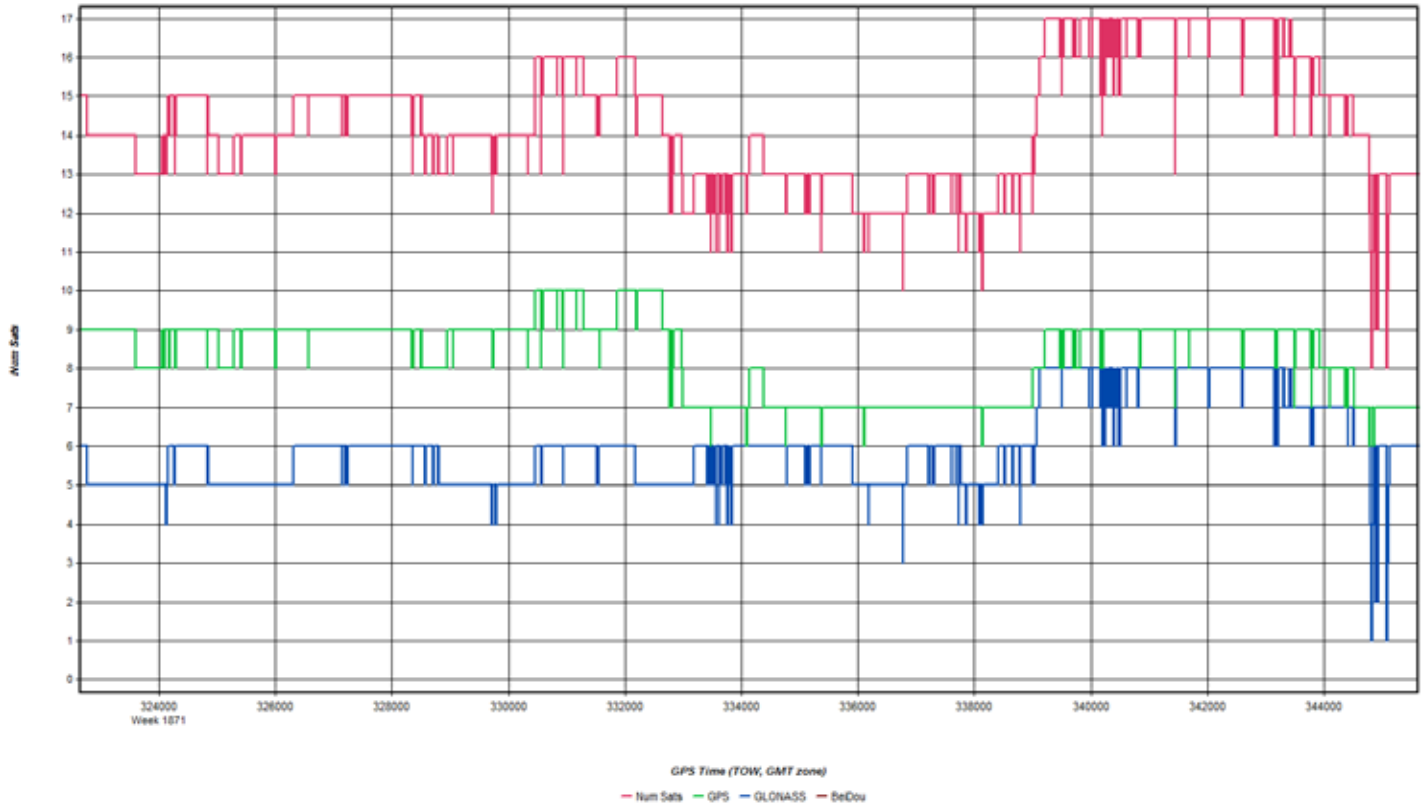
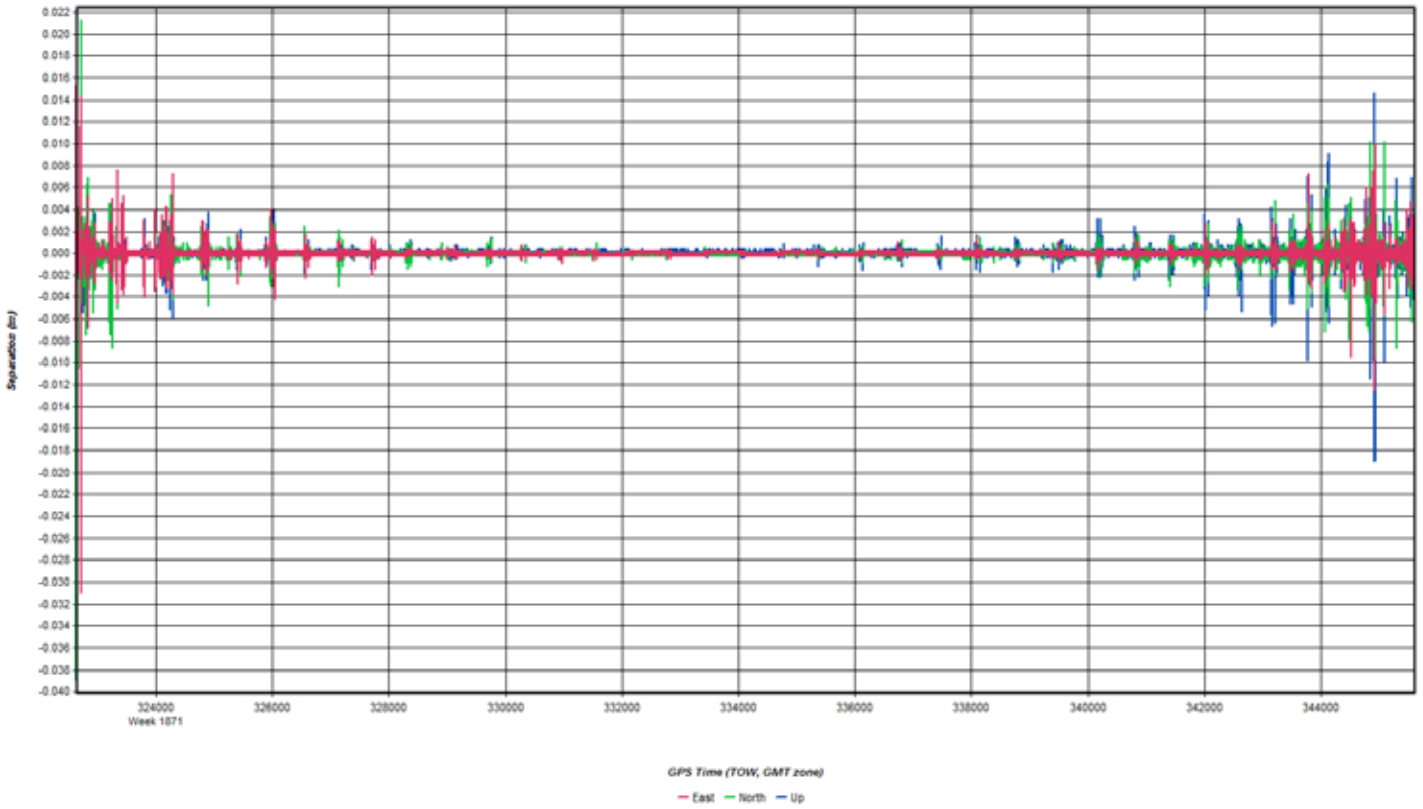
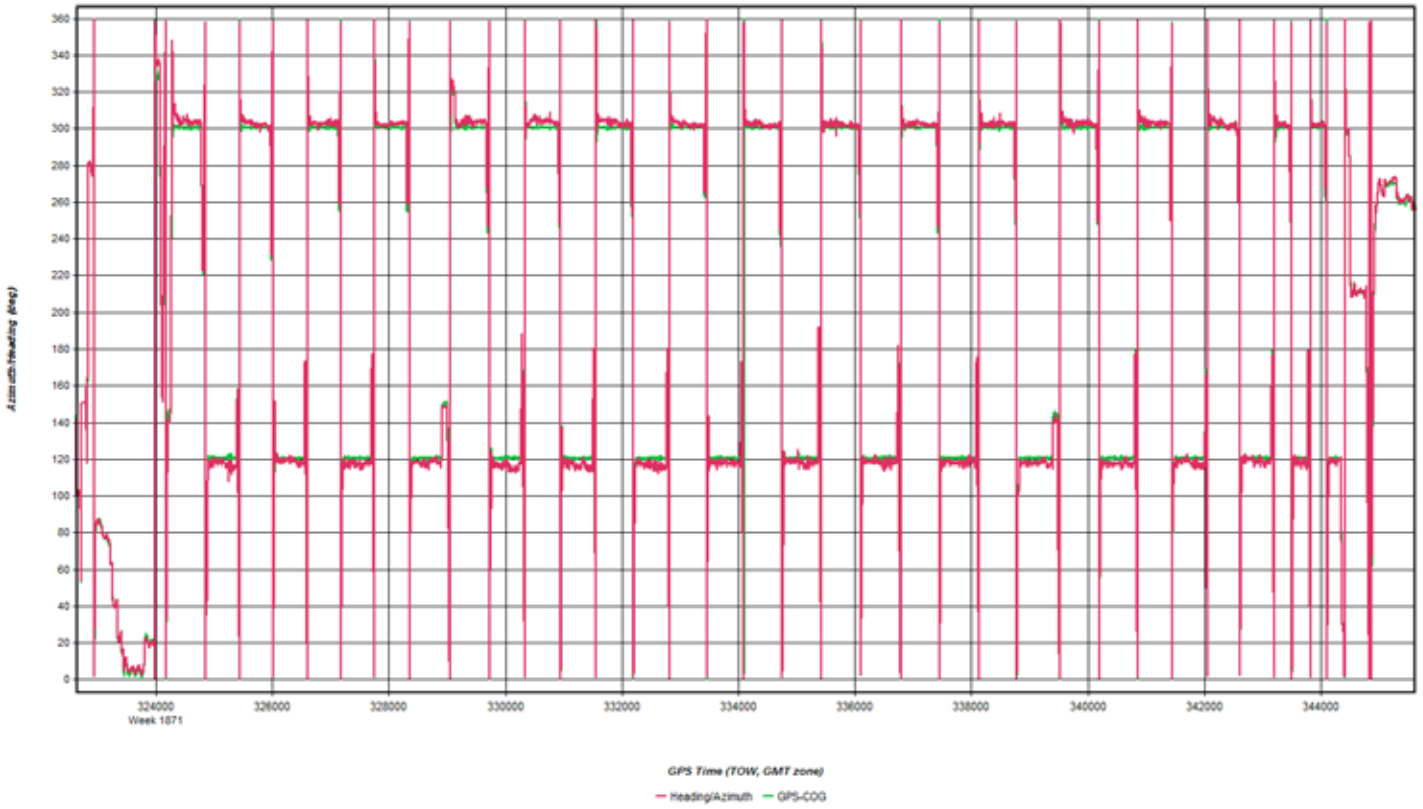
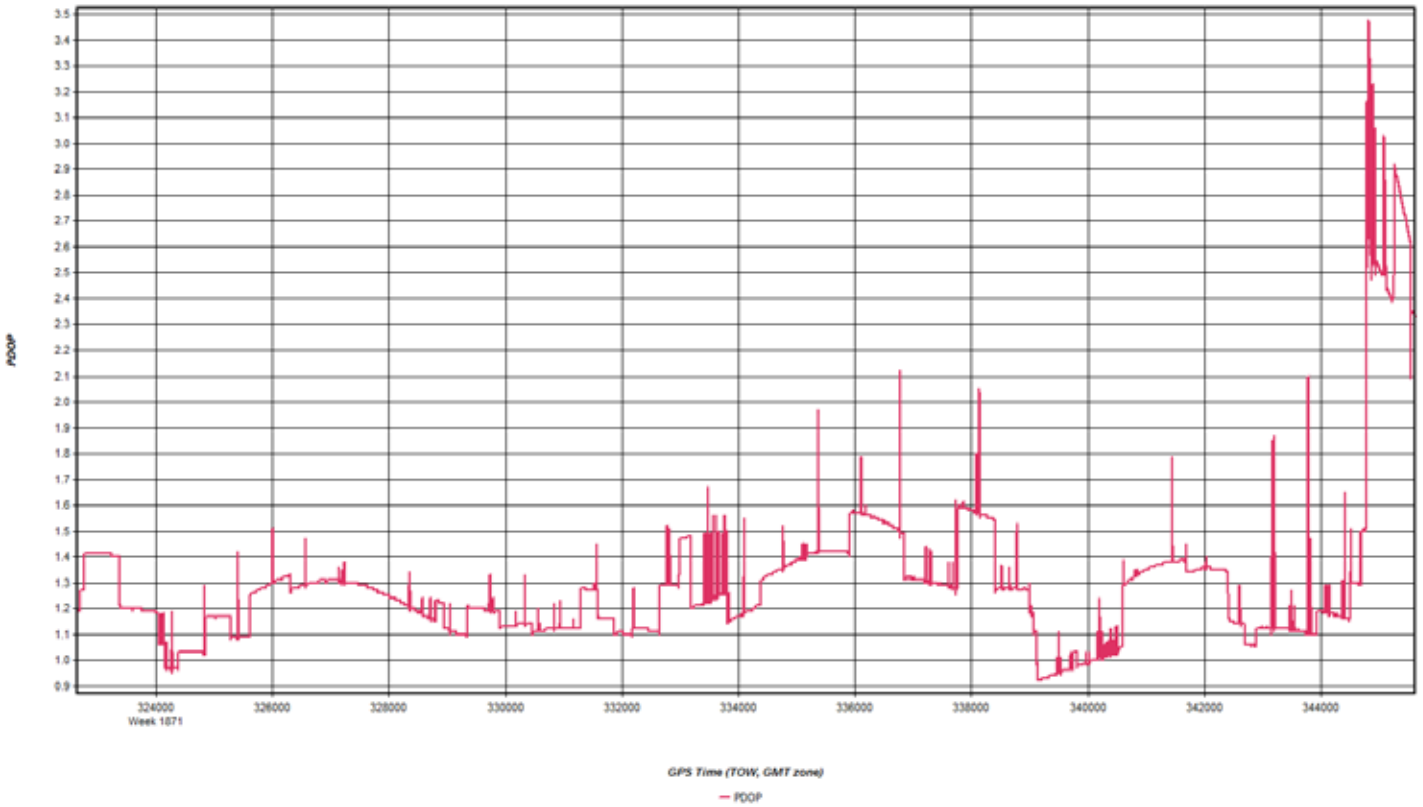
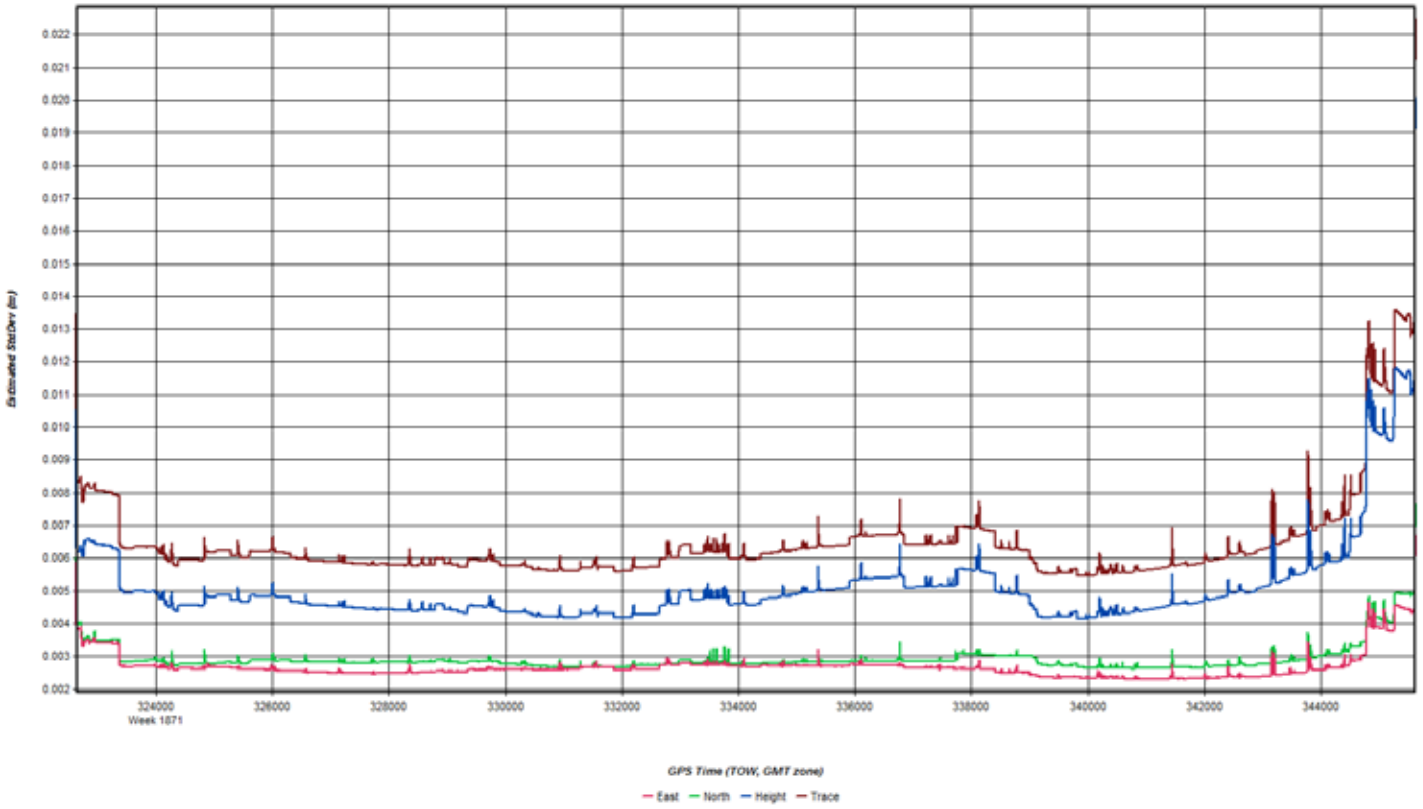


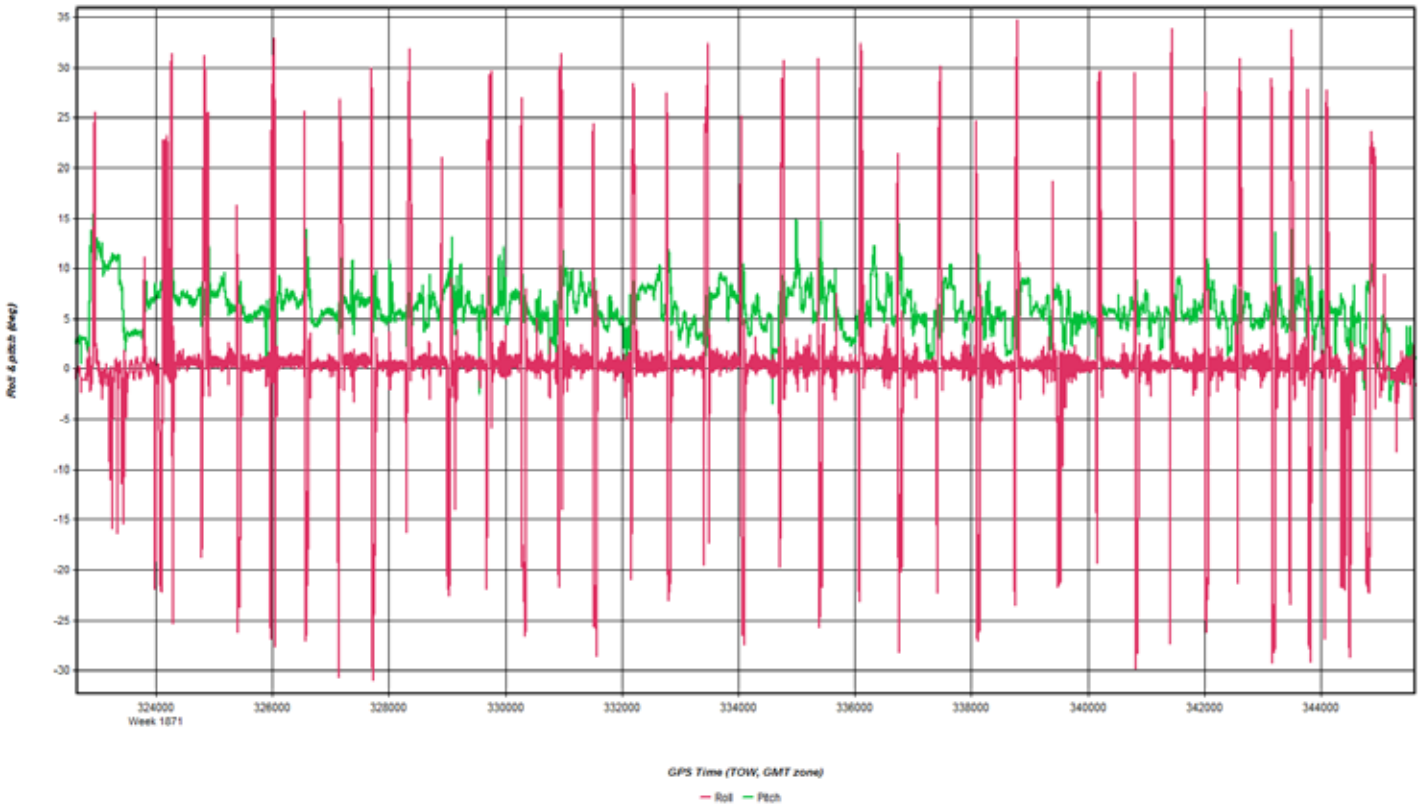

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
324000
Week 1871
326000
328000
330000
332000
334000
336000
338000
340000
342000
344000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

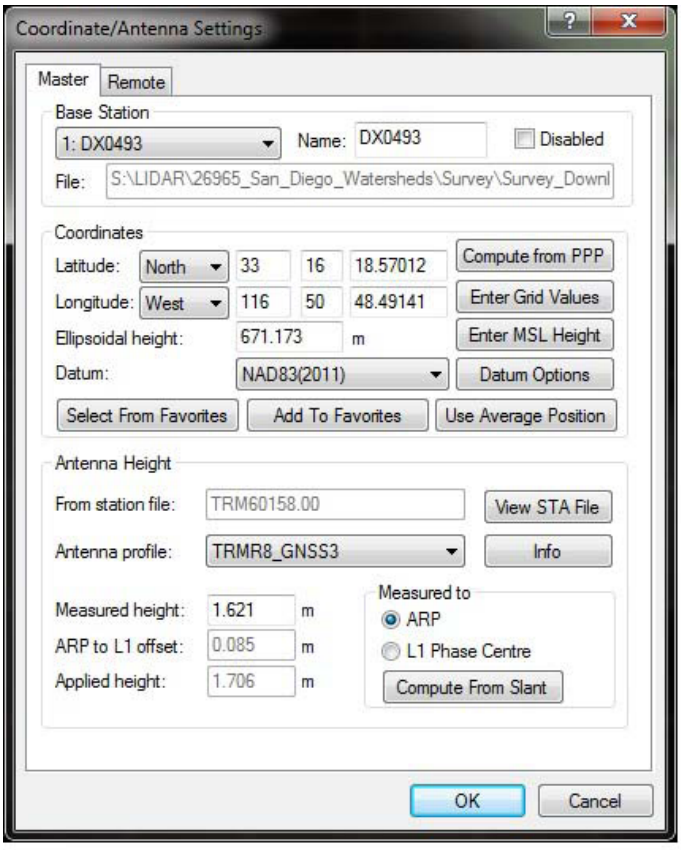

Separation (m)
0.022
0.020
0.018
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
-0.002
-0.004
-0.006
-0.008
-0.010
-0.012
-0.014
-0.016
-0.018
-0.020
-0.022
-0.024
-0.026
-0.028
-0.030
-0.032
-0.034
-0.036
-0.038
-0.040
324000
Week 1871
326000
328000
330000
332000
334000
336000
338000
340000
342000
344000
GPS Time (TOW, GMT zone)
East
North
Up

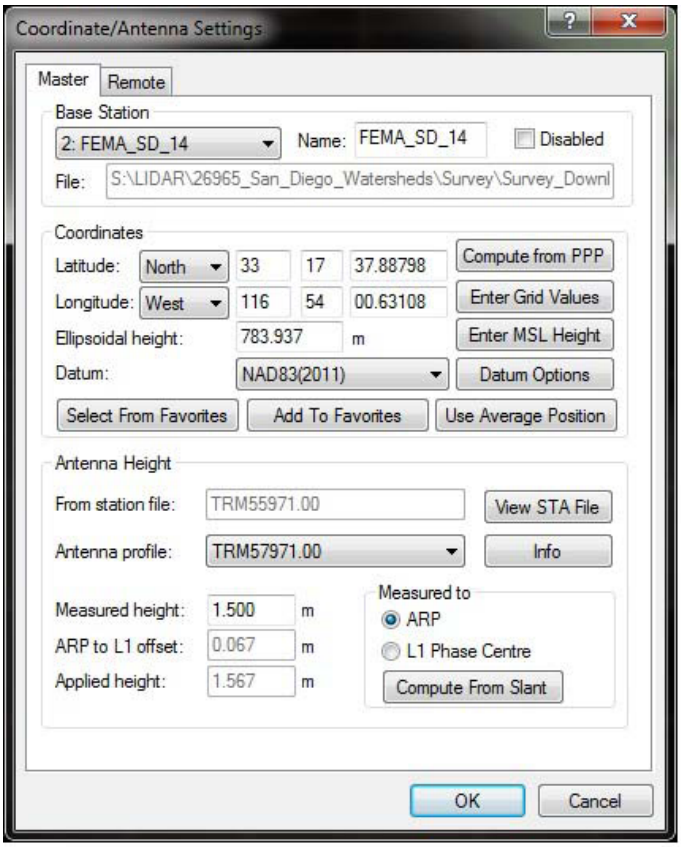

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
324000
Week 1871
326000
328000
330000
332000
334000
336000
338000
340000
342000
344000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
3.5
3.4
3.3
3.2
3.1
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
324000
Week 1871
326000
328000
330000
332000
334000
336000
338000
340000
342000
344000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.022
0.021
0.020
0.019
0.018
0.017
0.016
0.015
0.014
0.013
0.012
0.011
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
324000
Week 1871
326000
328000
330000
332000
334000
336000
338000
340000
342000
344000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
324000
Week 1871
326000
328000
330000
332000
334000
336000
338000
340000
342000
344000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
1: DX0493
Name: DX0493
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 16 18.57012
Longitude: West 116 50 48.49141
Ellipsoidal height: 671.173 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM60158.00
View STA File
Antenna profile: TRMR8_GNSS3
Info
Measured height: 1.621 m
ARP to L1 offset: 0.085 m
Applied height: 1.706 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_14
Name: FEMA_SD_14
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 17 37.88798
Longitude: West 116 54 00.63108
Ellipsoidal height: 783.937 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	40	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed 255	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	464	1700
Flying Alt. MSL Range (ft)	5601	10145
Swath Width Range (m)	338	1237
Pulse Rate Range (Hz)	158000	156000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	2238
Total Line Time (hrs, no buffer)	21.3
Total Number of Lines	182
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	9.1
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	7
Total Acquisition Time (hrs)	37.5

Mission Flight Time Estimate	
Start Line Name	269
Stop Line Name	374
Turn Time (min)	2
Buffer (%)	10
Acquisition Time (hrs)	18.7

Other Acquisition Notes:

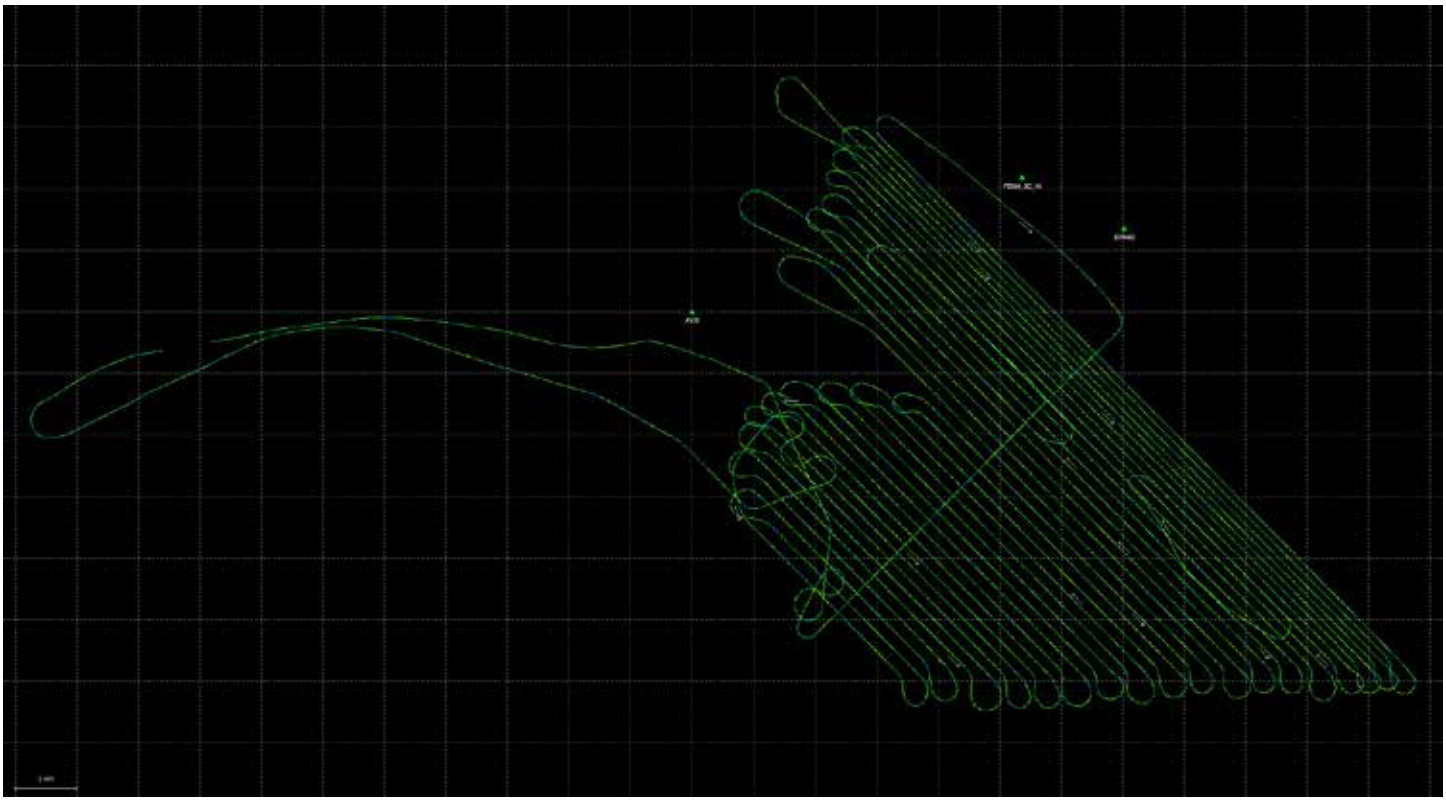
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

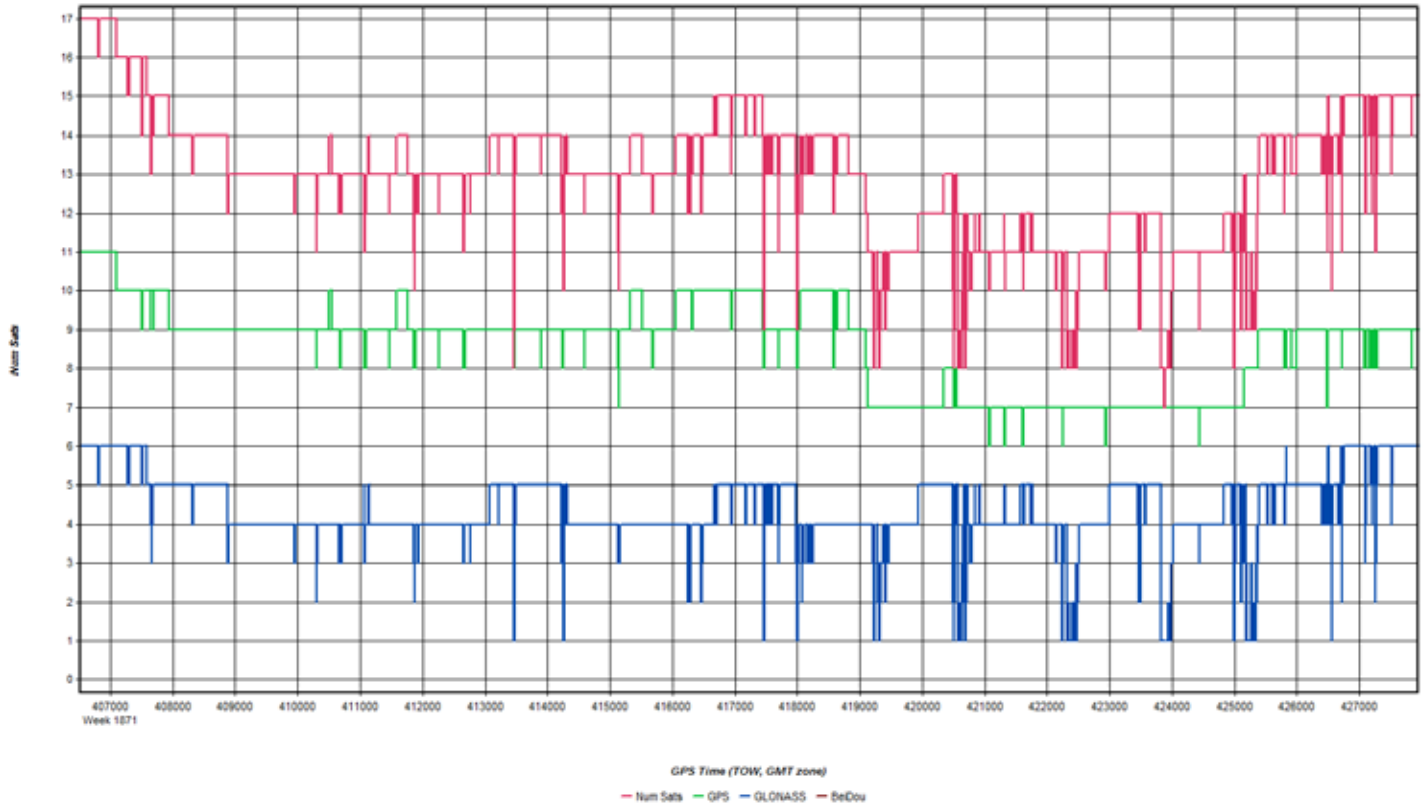
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

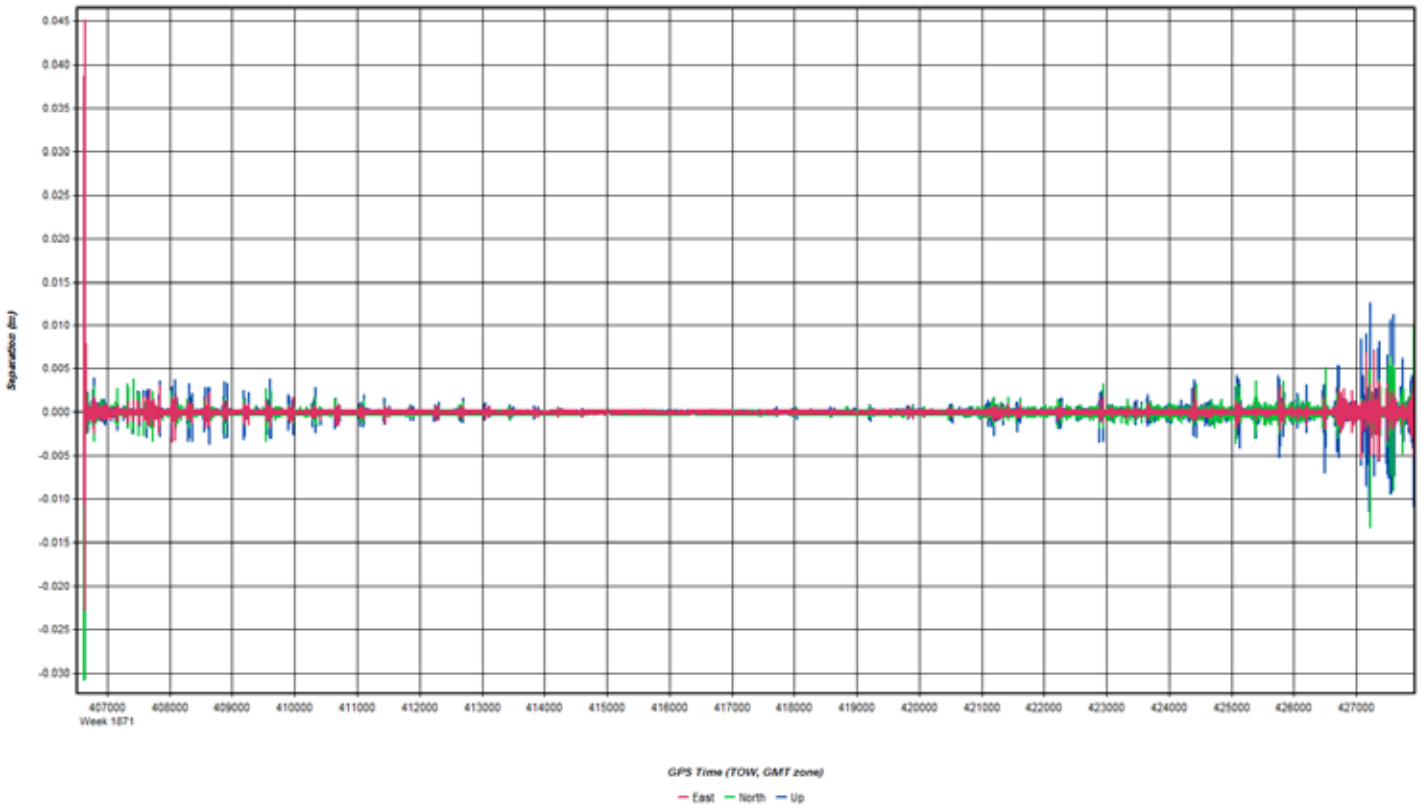
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
237	5.28	9282	233545			finish e to w
238	5.64	9449	233050			
239	6.22	9328	232541			e to w
240	6.52	9029	232027			
241	13.99	8242	231053			CROSSLINE: 234154
242	14.31	8409	230115			
243	14.42	8278	225136			
244	15.25	8262	224114			e to w
245	16.08	7897	223038			
246	16.32	7963	221955			
247	16.42	8124	220659			
248	16.5	8219	215559			e to w
249	16.64	7943	214450			
250	16.66	7687	213337			
251	16.74	7566	212221			
252	16.8	7346	211052			e to w
253	16.68	7369	205938			got a low range temperarily
254	16.45	7356	204844			
255	16.22	7372	203800			
256	16	7372	202723			e to w
257	15.78	7320	201706			
258	15.56	7261	200632			e to w
259	15.35	7120	195607			
260	15.14	7048	194614			e to w
261	14.94	6923	193556			
262	14.73	6995	191301	192557		w to e, refly ranges too low on the midpoint of the line, refly e to w
263	14.49	6910	190259			
264	14.22	7116	185328			
265	14.1	7051	184351			
266	14.07	6910	183404			
267	14.01	6805	182426			e to w

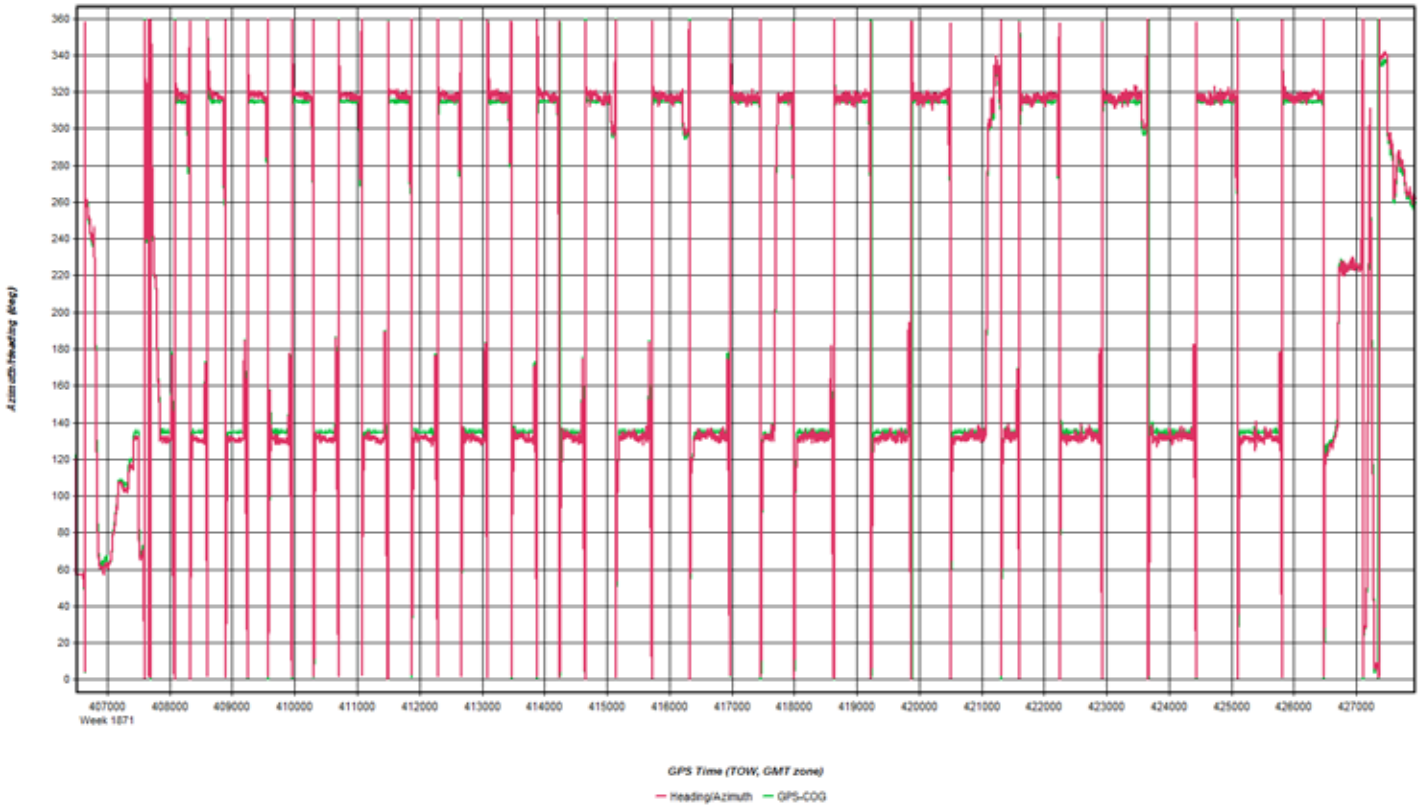
268	13.94	6805	180446	181503	start e to w, west end had low R1 value (80) for the last 2 miles of the line and higher then our max AGL range

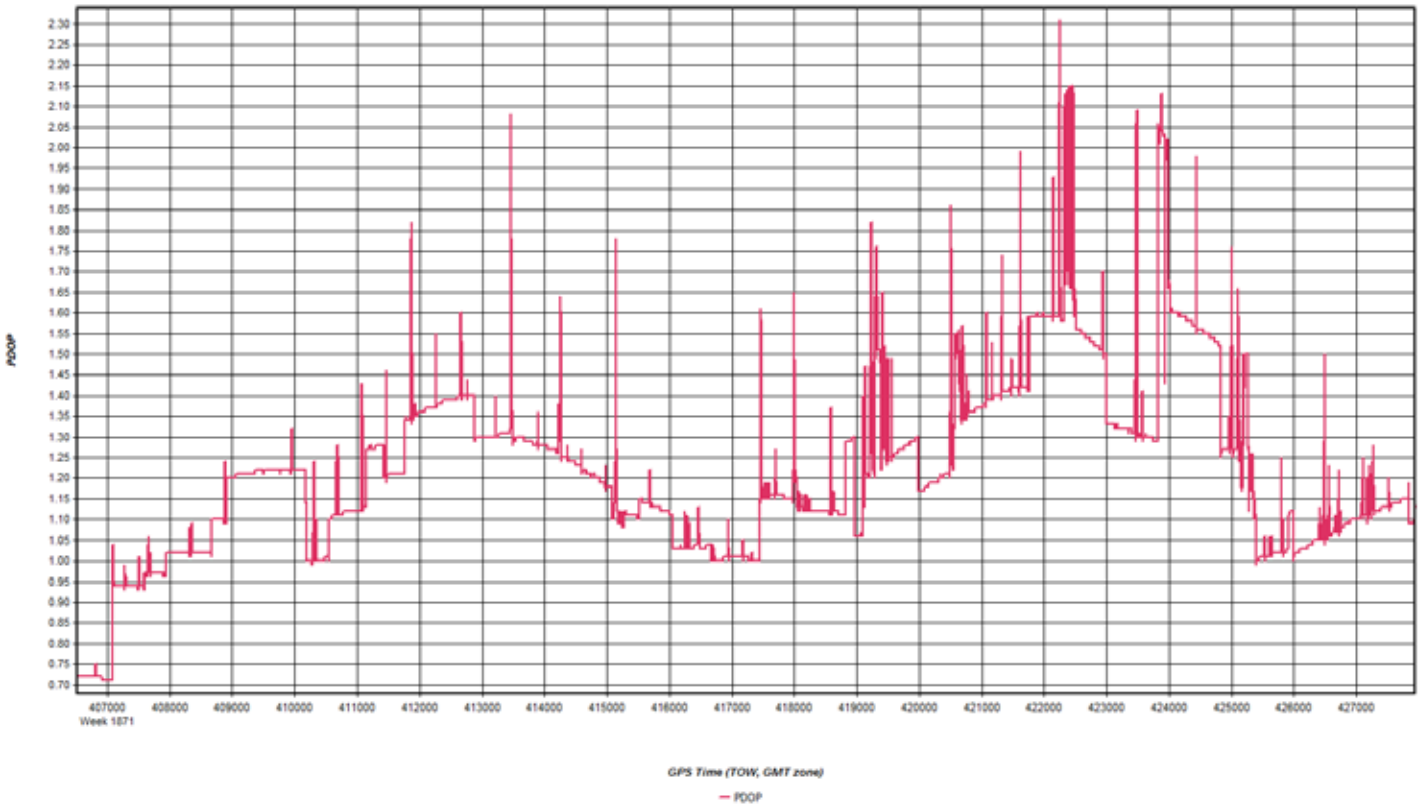
Nov 19, 2015-A

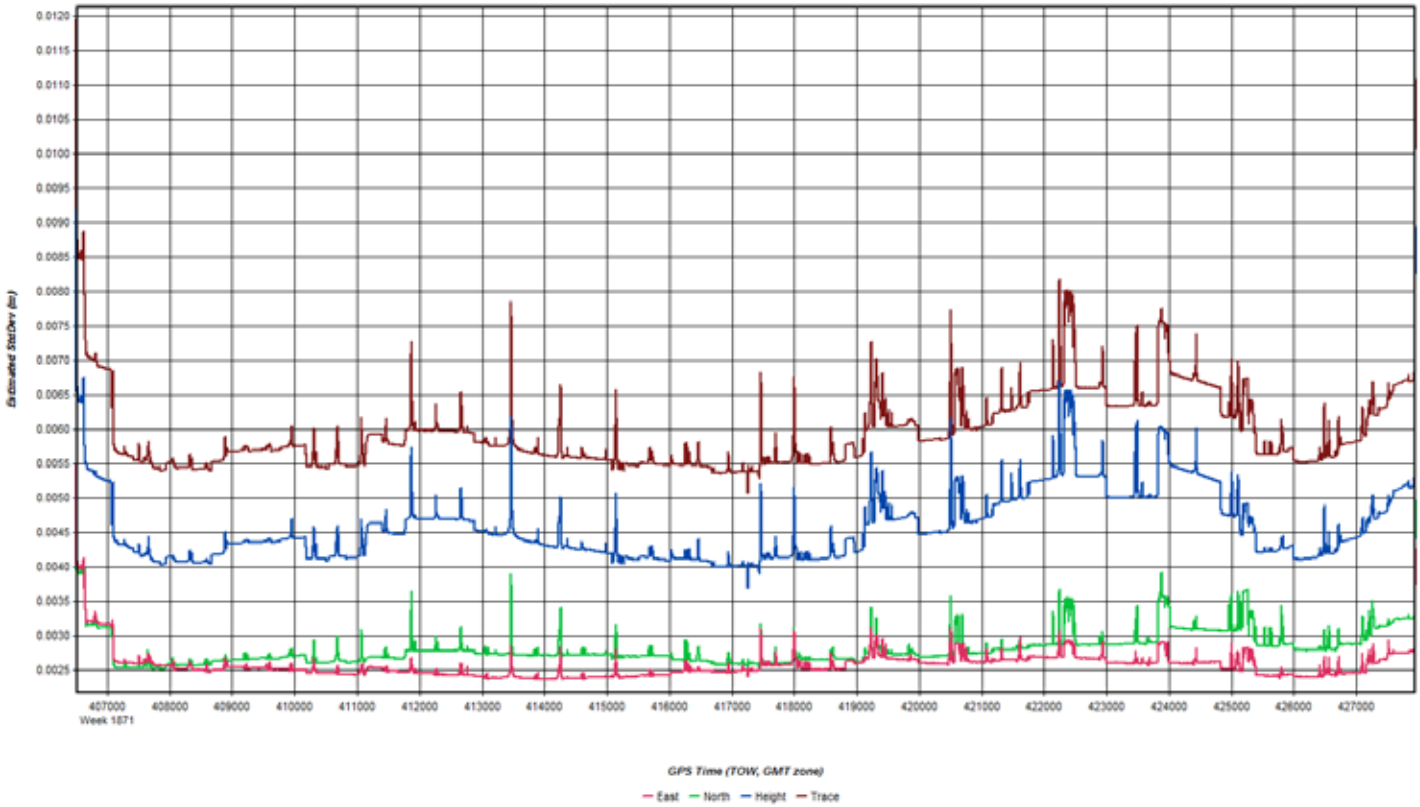


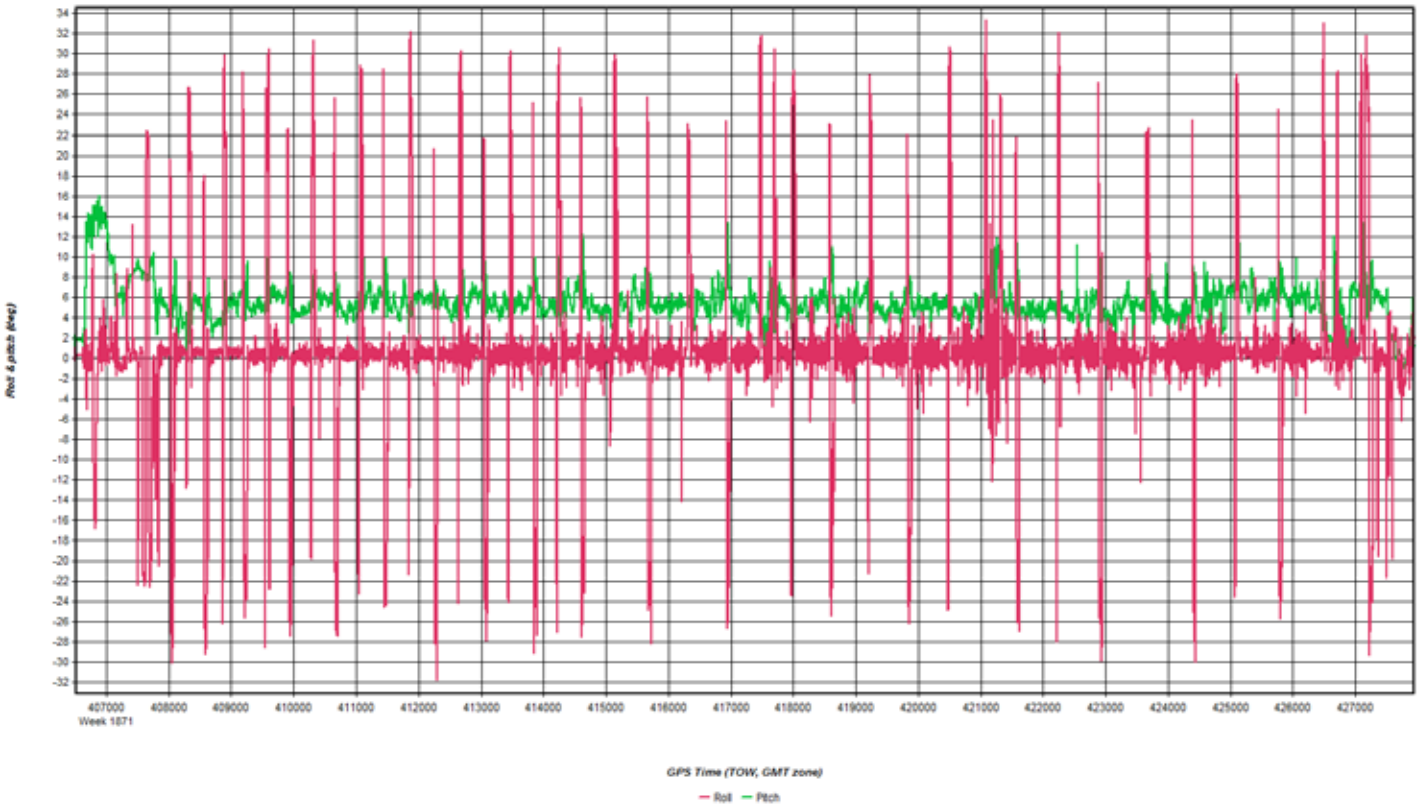

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
407000
408000
409000
410000
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
424000
425000
426000
427000
Week 1871
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

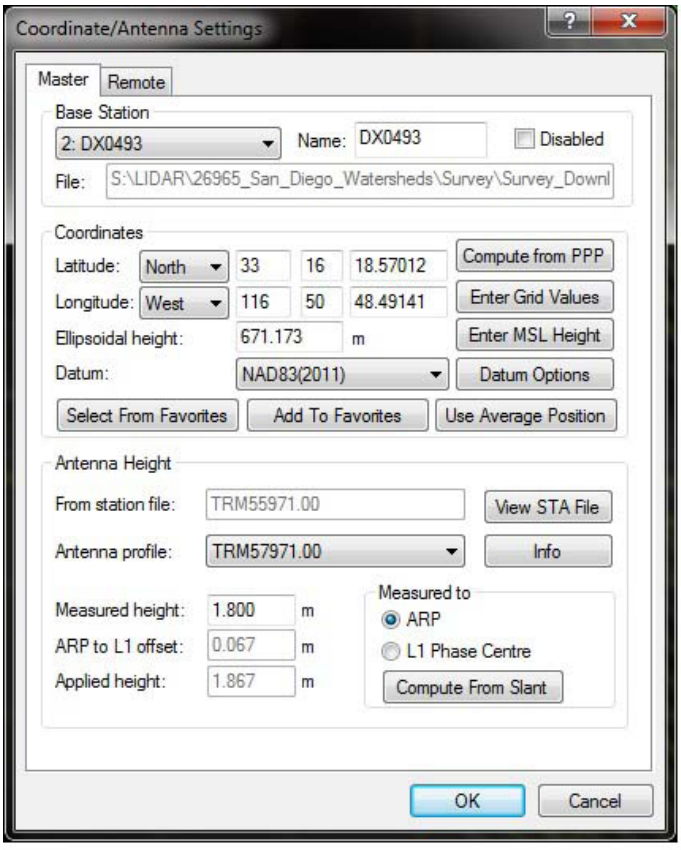

Separation (m)
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.030
407000
Week 1871
408000
409000
410000
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
424000
425000
426000
427000
GPS Time (TOW, GMT zone)
East
North
Up

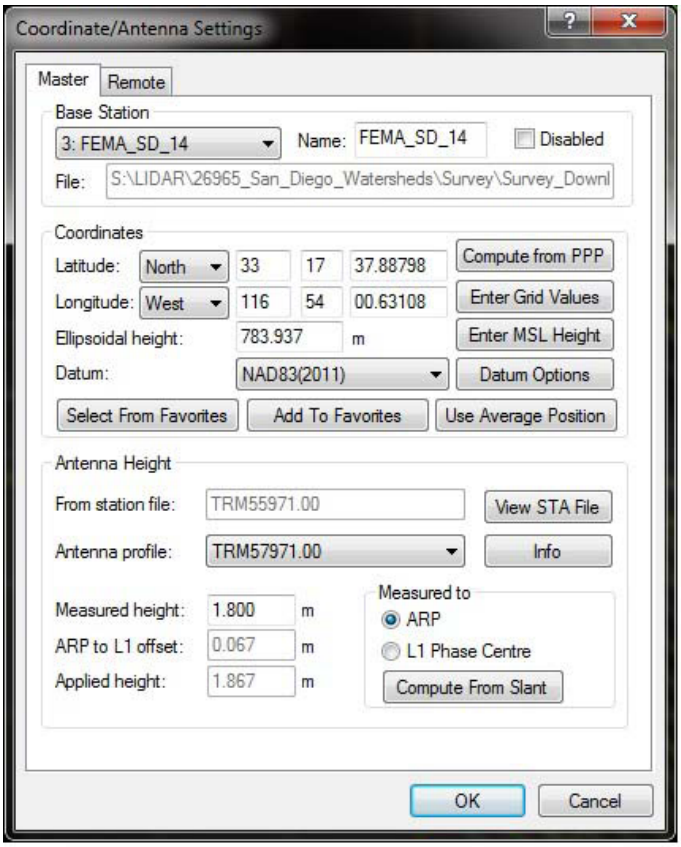

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
407000
Week 1871
408000
409000
410000
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
424000
425000
426000
427000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

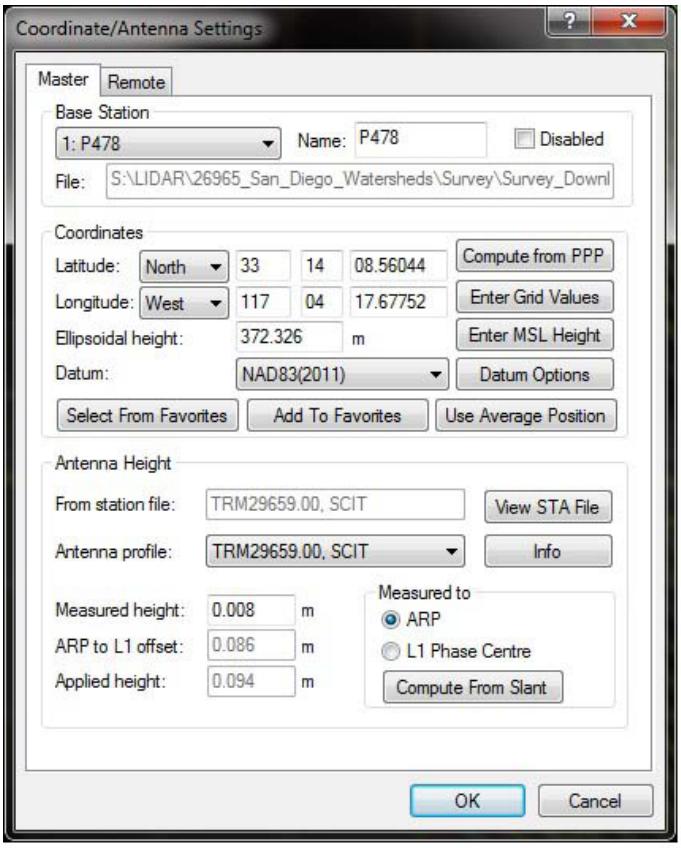

PDOP
2.30
2.25
2.20
2.15
2.10
2.05
2.00
1.95
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
407000
Week 1871
408000
409000
410000
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
424000
425000
426000
427000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
407000
Week 1871
408000
409000
410000
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
424000
425000
426000
427000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
-28
-30
-32
407000
Week 1871
408000
409000
410000
411000
412000
413000
414000
415000
416000
417000
418000
419000
420000
421000
422000
423000
424000
425000
426000
427000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
2: DX0493
Name: DX0493
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 16 18.57012
Compute from PPP
Longitude: West 116 50 48.49141
Enter Grid Values
Ellipsoidal height: 671.173 m
Enter MSL Height
Datum: NAD83(2011)
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
3: FEMA_SD_14
Name: FEMA_SD_14
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 17 37.88798
Longitude: West 116 54 00.63108
Ellipsoidal height: 783.937 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM55971.00
Antenna profile: TRM57971.00
View STA File
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: P478
Name: P478
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 14 08.56044
Longitude: West 117 04 17.67752
Ellipsoidal height: 372.326 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM29659.00, SCIT
Antenna profile: TRM29659.00, SCIT
View STA File
Info
Measured height: 0.008 m
ARP to L1 offset: 0.086 m
Applied height: 0.094 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	40	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed 255	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	464	1700
Flying Alt. MSL Range (ft)	5601	10145
Swath Width Range (m)	338	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	2238
Total Line Time (hrs, no buffer)	21.3
Total Number of Lines	182
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	9.1
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	7
Total Acquisition Time (hrs)	37.5

Mission Flight Time Estimate	
Start Line Name	336
Stop Line Name	341
Turn Time (min)	2
Buffer (%)	0
Acquisition Time (hrs)	1.3

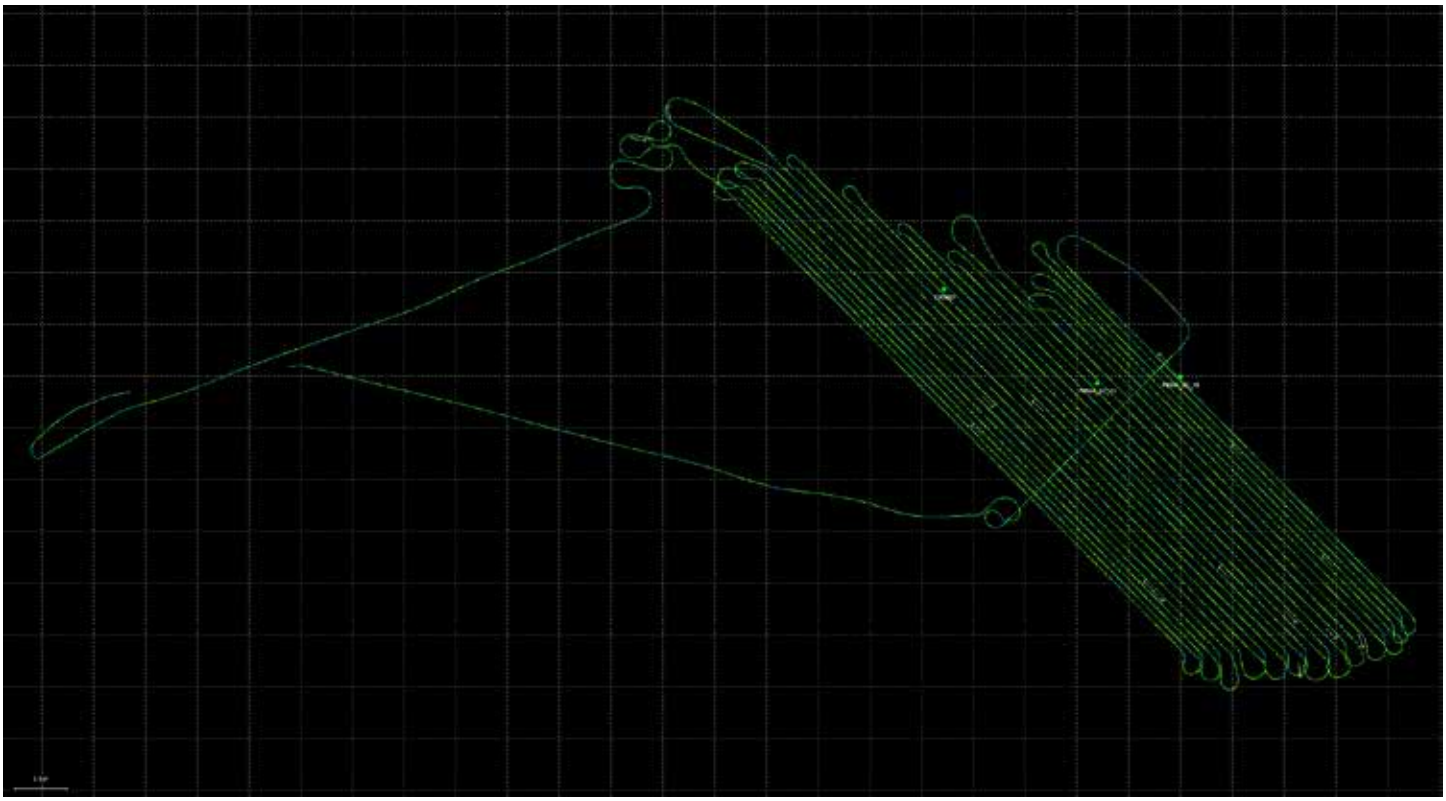
Other Acquisition Notes:

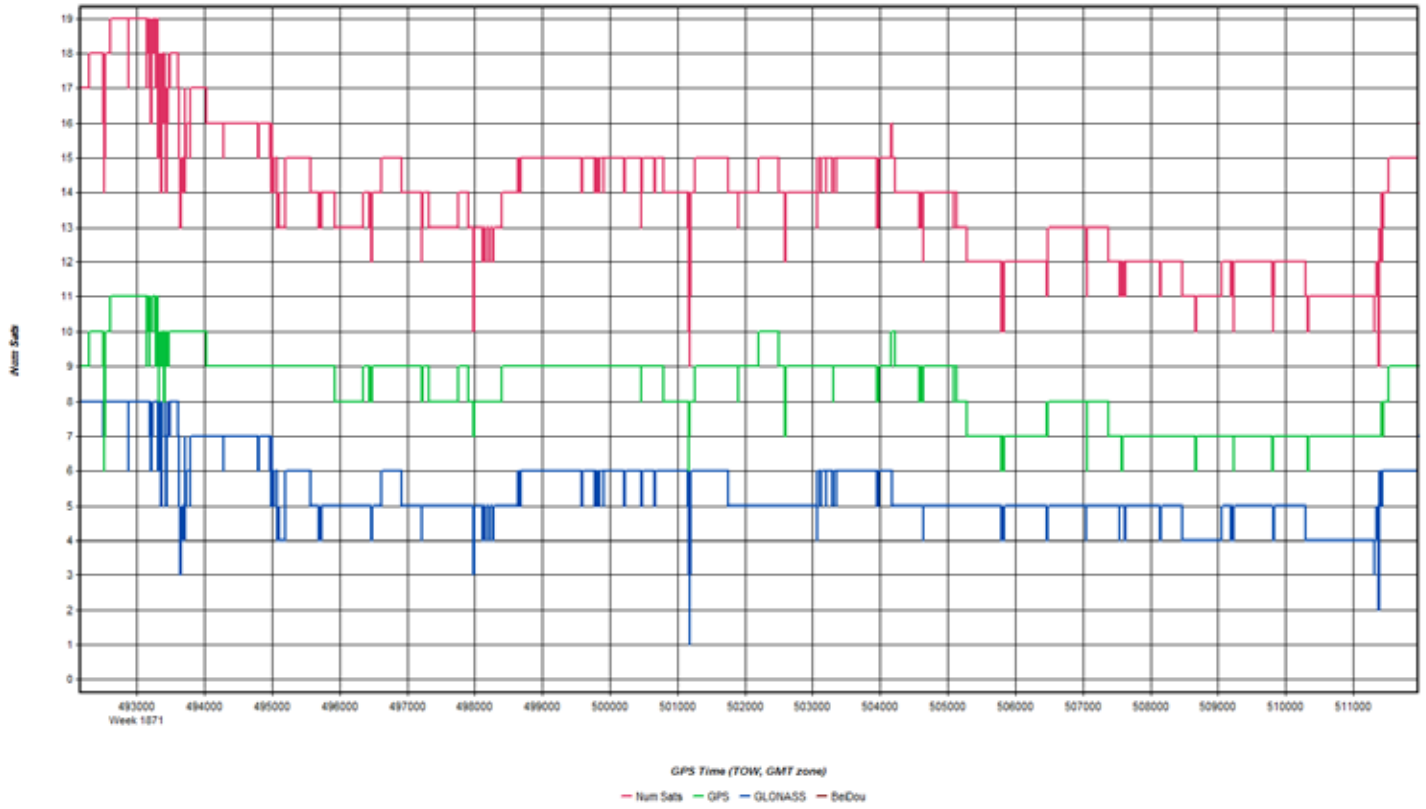
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

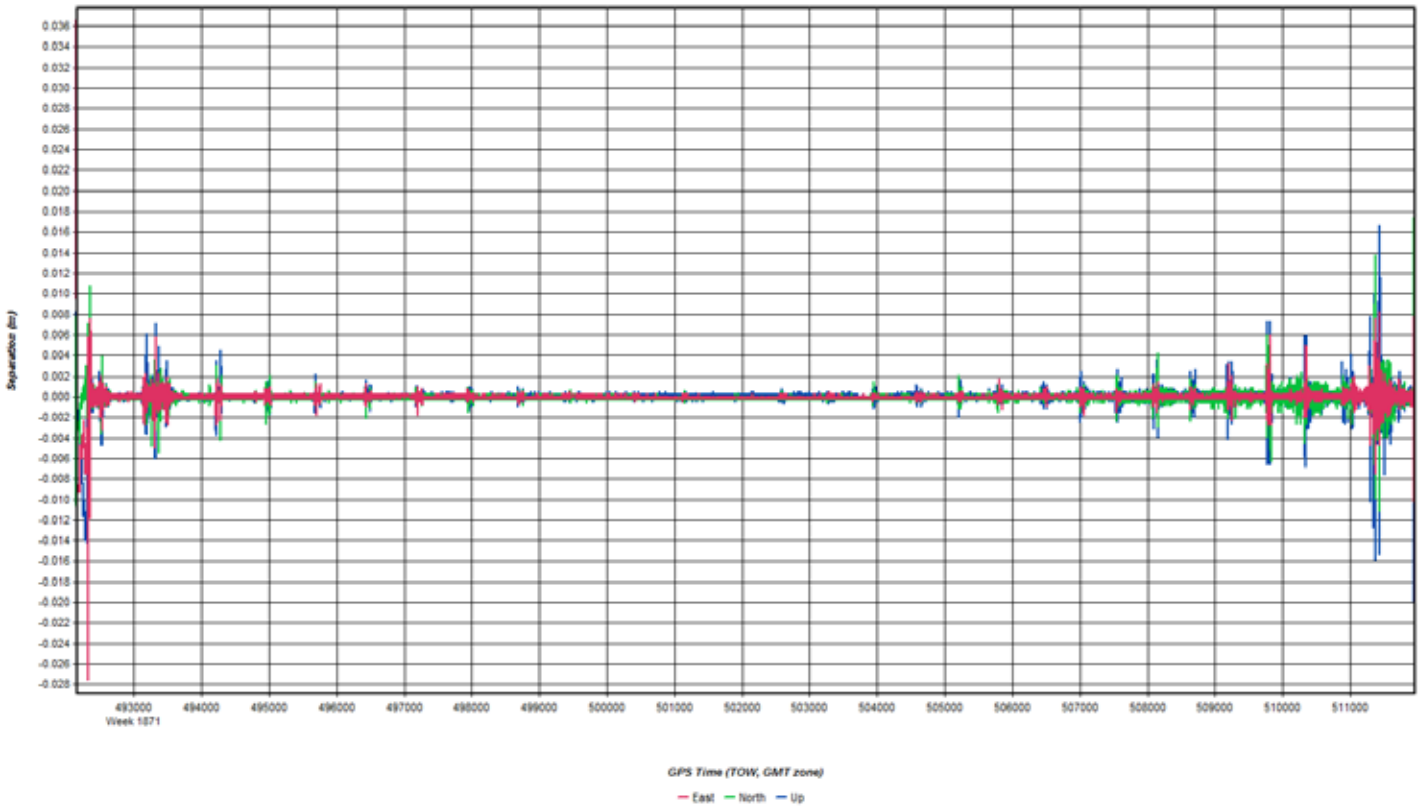
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

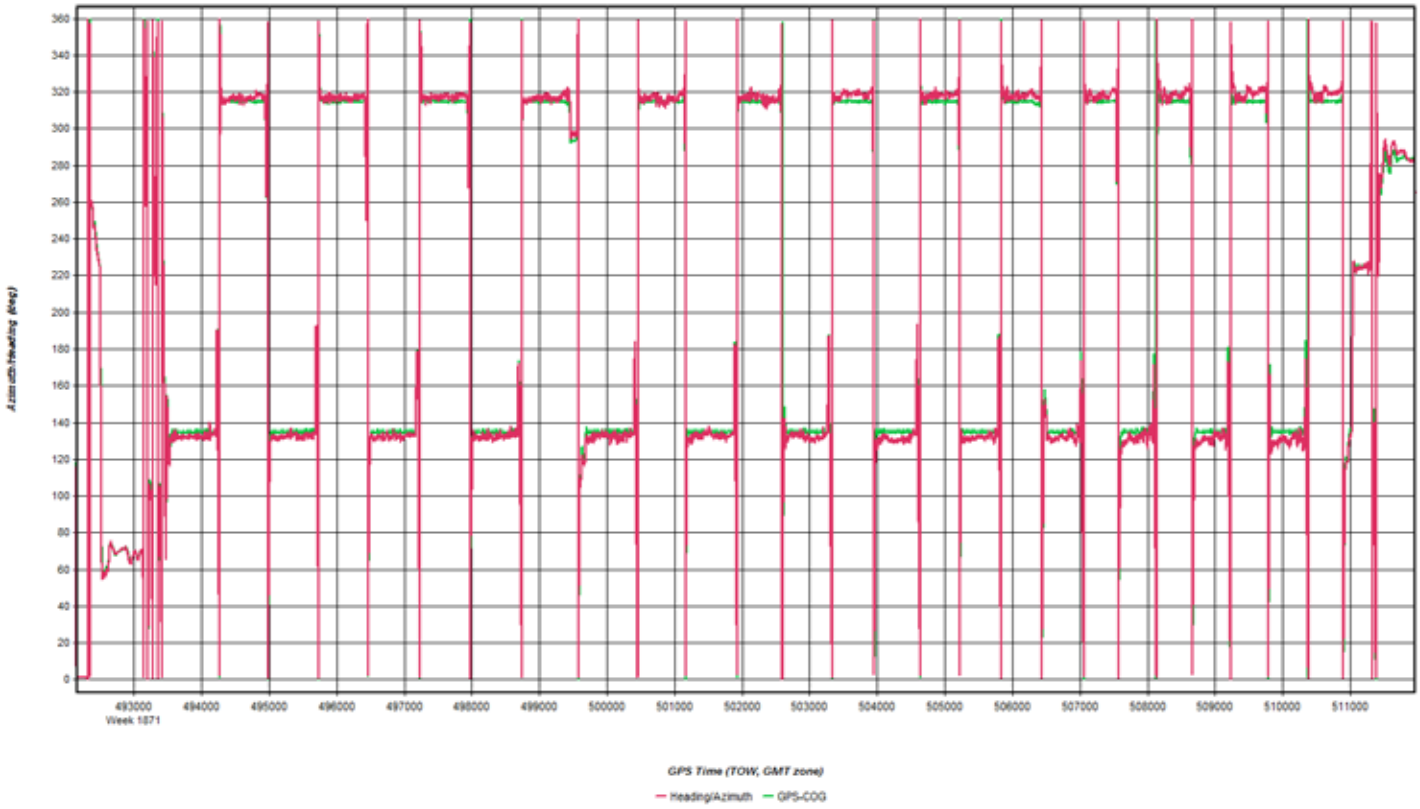
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
357	8.73	6359	185816			light turbulence
358	9.06	6339	185151			light turbulence, nw to se
359	9.09	6316	184507			light to moderate turbulence
360	9.12	6293	183829			light turbulence
361	9.14	6283	183142			light turbulence
362	9.15	6250	182519			nw to se
363	9.1	6227	181826			CROSSLINE: 223154
364	9.06	6201	181148			
365	8.78	6122	180519			
366	8.51	6011	175905			short air bubble turbulance caused 6 degree roll
367	8.26	5925	175252			
368	8	5919	174650			nw to se
369	7.57	5893	174102			
370	6.99	5886	173530			nw to se
371	6.31	5873	173022			
372	5.35	5866	172549			nw to se
373	4.67	5866	172135			
374	4.24	5866	171736			start nw to se

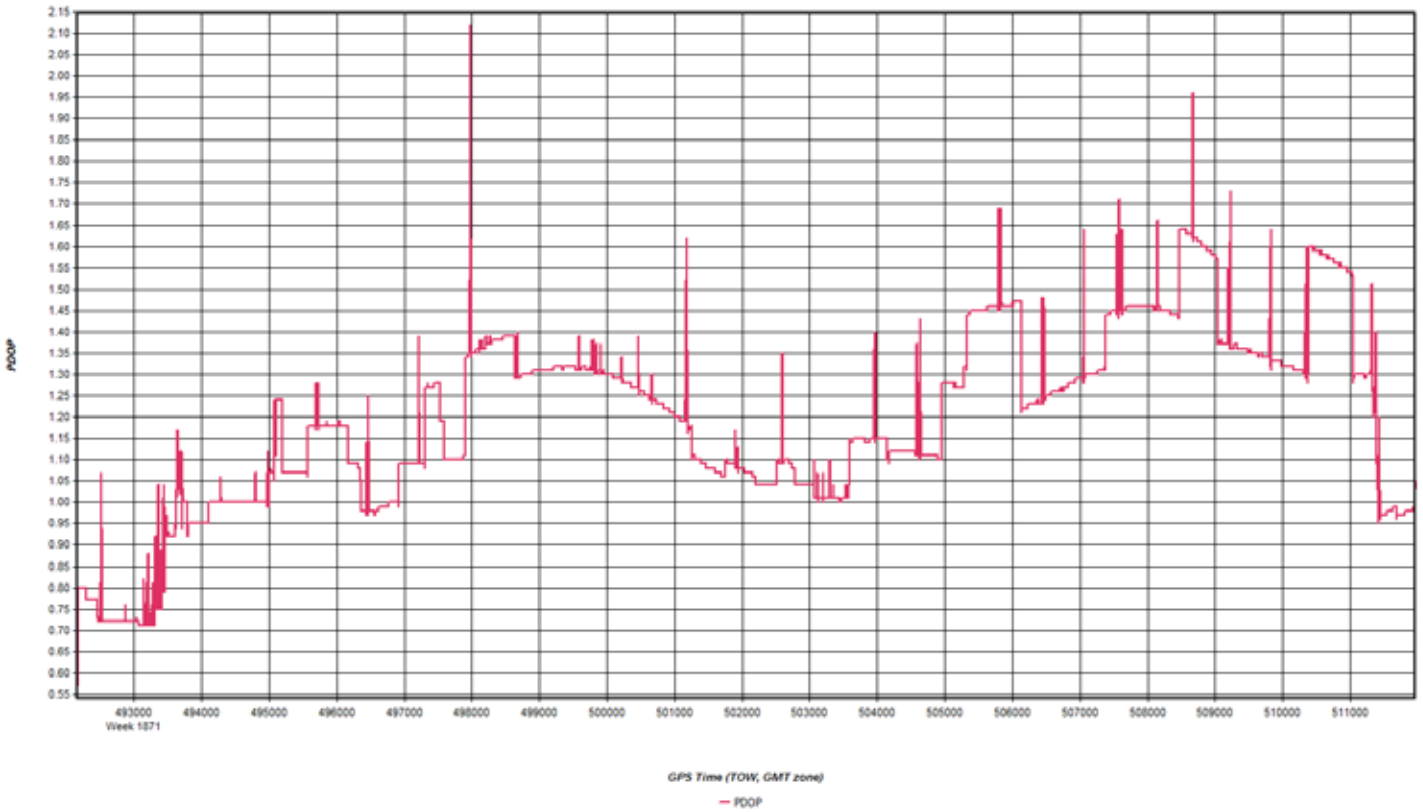
Nov 20, 2015-A

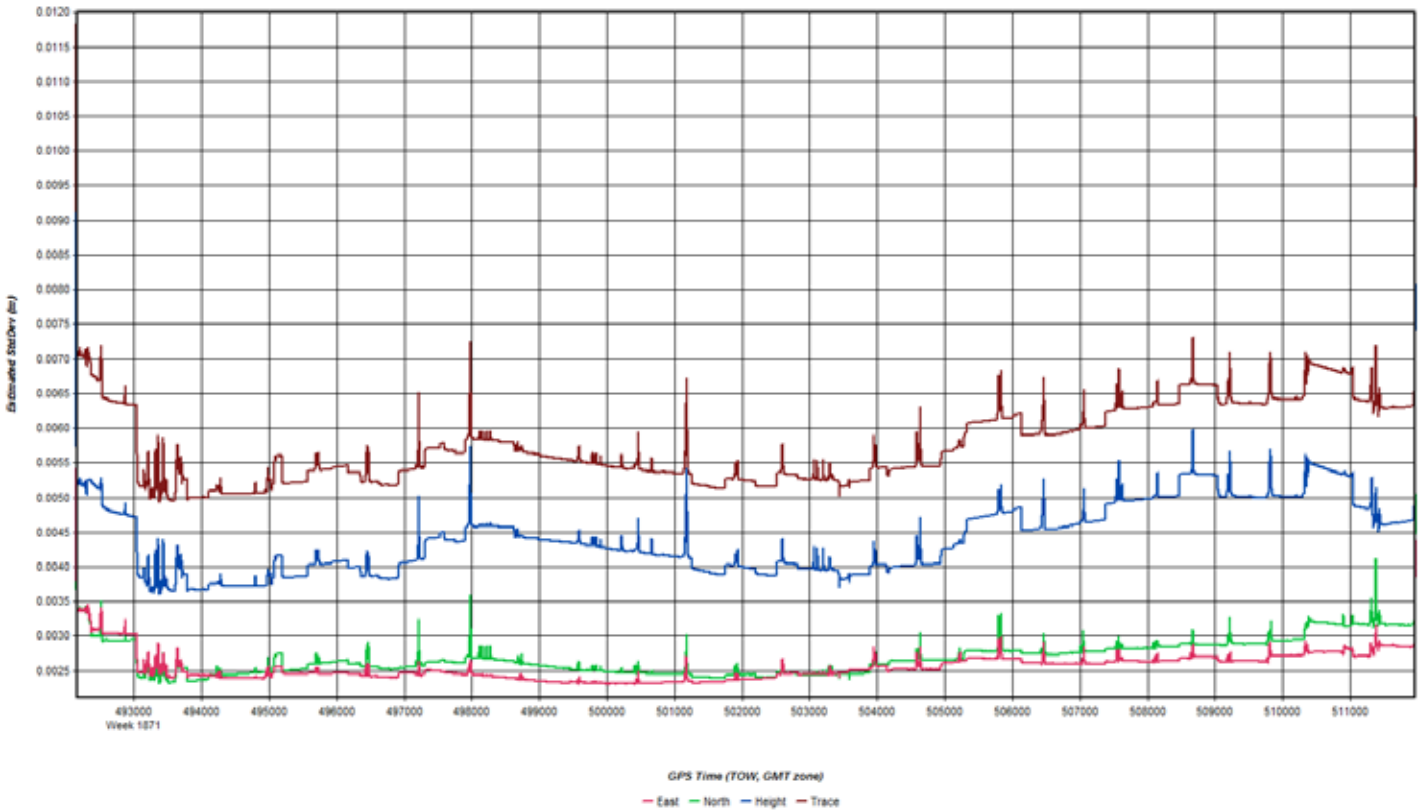


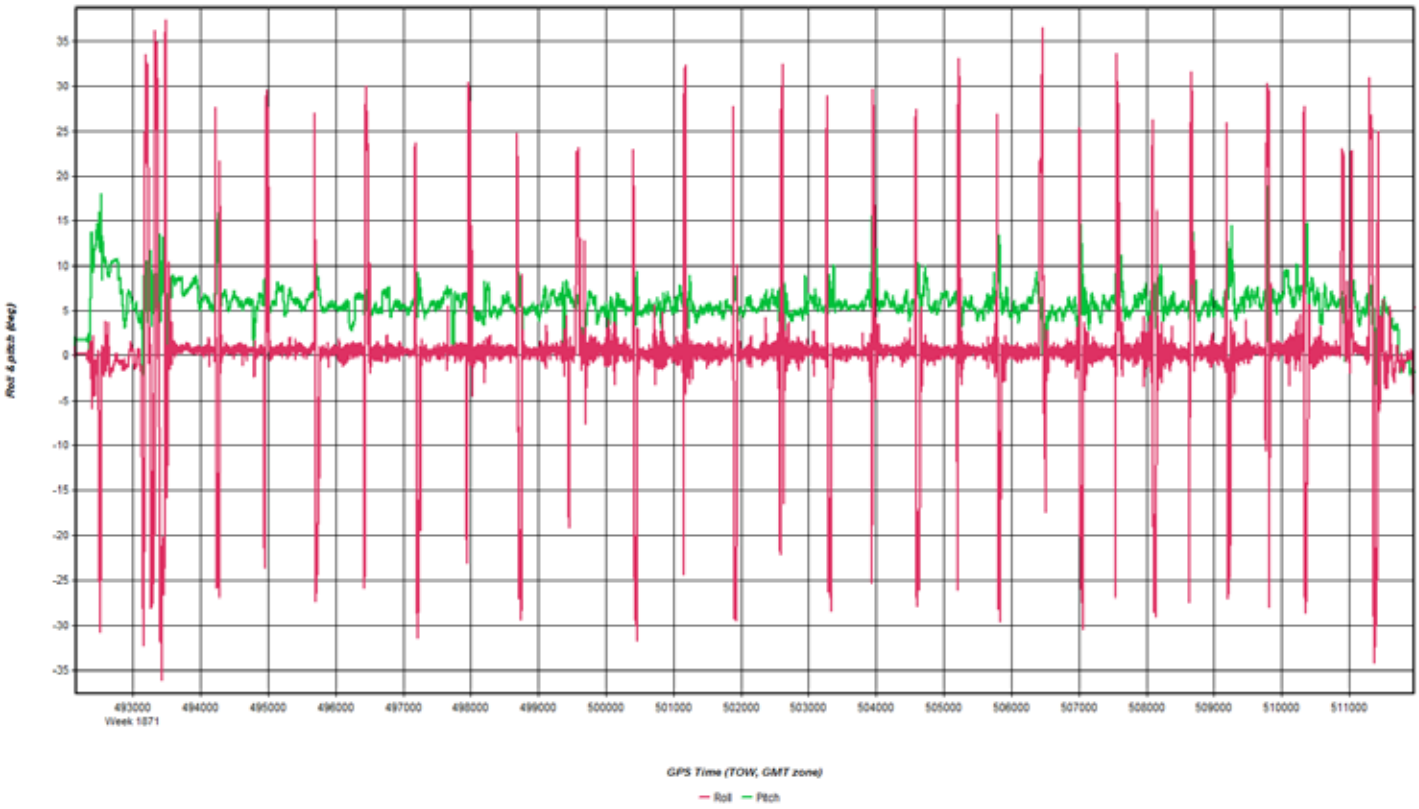

Num Sats
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
493000
Week 1871
494000
495000
496000
497000
498000
499000
500000
501000
502000
503000
504000
505000
506000
507000
508000
509000
510000
511000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

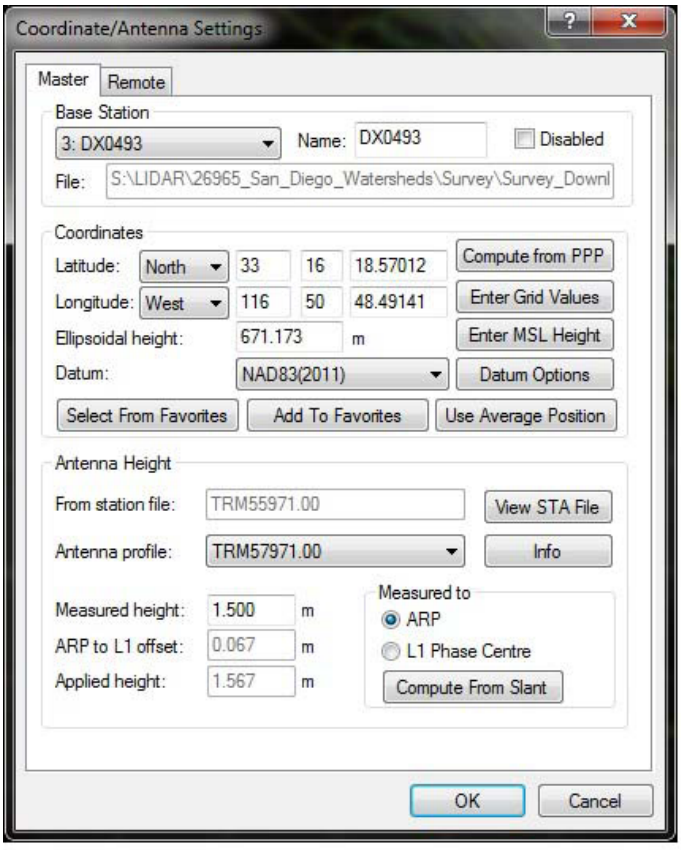

Separation (m)
0.036
0.034
0.032
0.030
0.028
0.026
0.024
0.022
0.020
0.018
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
-0.002
-0.004
-0.006
-0.008
-0.010
-0.012
-0.014
-0.016
-0.018
-0.020
-0.022
-0.024
-0.026
-0.028
493000
Week 1871
494000
495000
496000
497000
498000
499000
500000
501000
502000
503000
504000
505000
506000
507000
508000
509000
510000
511000
GPS Time (TOW, GMT zone)
East
North
Up

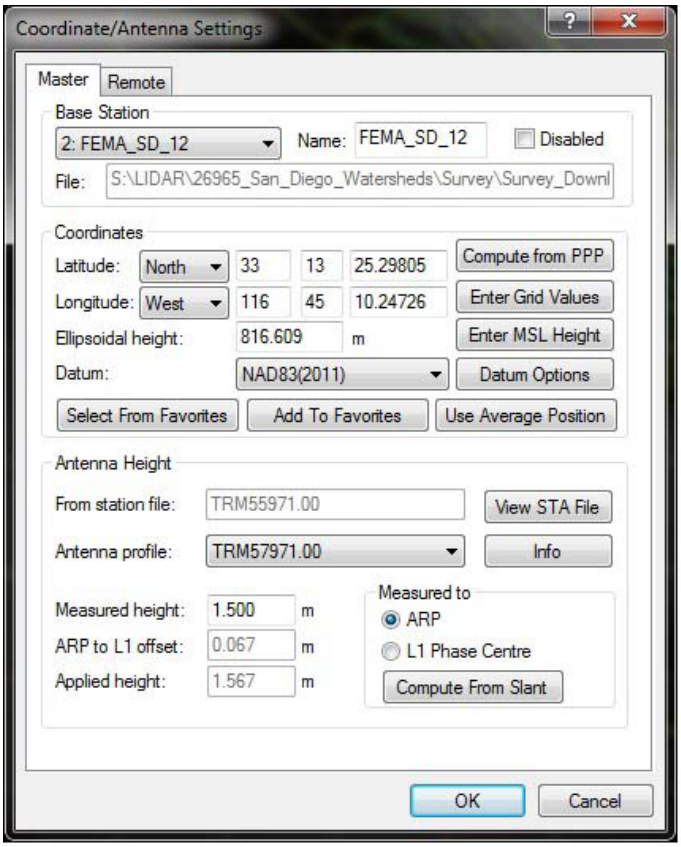

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
493000
Week 1871
494000
495000
496000
497000
498000
499000
500000
501000
502000
503000
504000
505000
506000
507000
508000
509000
510000
511000
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

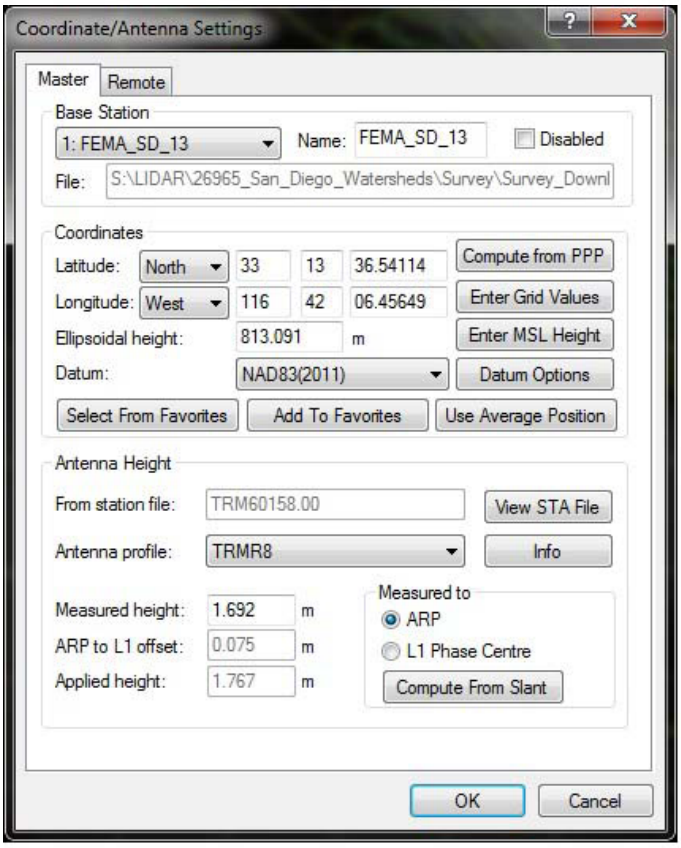

PDOP
2.15
2.10
2.05
2.00
1.95
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
493000
Week 1871
494000
495000
496000
497000
498000
499000
500000
501000
502000
503000
504000
505000
506000
507000
508000
509000
510000
511000
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
493000
Week 1871
494000
495000
496000
497000
498000
499000
500000
501000
502000
503000
504000
505000
506000
507000
508000
509000
510000
511000
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
493000
Week 1871
494000
495000
496000
497000
498000
499000
500000
501000
502000
503000
504000
505000
506000
507000
508000
509000
510000
511000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
3: DX0493
Name: DX0493
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 16 18.57012
Compute from PPP
Longitude: West 116 50 48.49141
Enter Grid Values
Ellipsoidal height: 671.173 m
Enter MSL Height
Datum: NAD83(2011)
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_12
Name: FEMA_SD_12
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 13 25.29805
Longitude: West 116 45 10.24726
Ellipsoidal height: 816.609 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM55971.00
Antenna profile: TRM57971.00
View STA File
Info
Measured height: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: FEMA_SD_13
Name: FEMA_SD_13
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 13 36.54114
Longitude: West 116 42 06.45649
Ellipsoidal height: 813.091 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM60158.00
Antenna profile: TRMR8
View STA File
Info
Measured height: 1.692 m
ARP to L1 offset: 0.075 m
Applied height: 1.767 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	40	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed 255	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	464	1700
Flying Alt. MSL Range (ft)	5601	10145
Swath Width Range (m)	338	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	2238
Total Line Time (hrs, no buffer)	21.3
Total Number of Lines	182
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	9.1
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	7
Total Acquisition Time (hrs)	37.5

Mission Flight Time Estimate	
Start Line Name	269
Stop Line Name	314
Turn Time (min)	2
Buffer (%)	10
Acquisition Time (hrs)	7.6

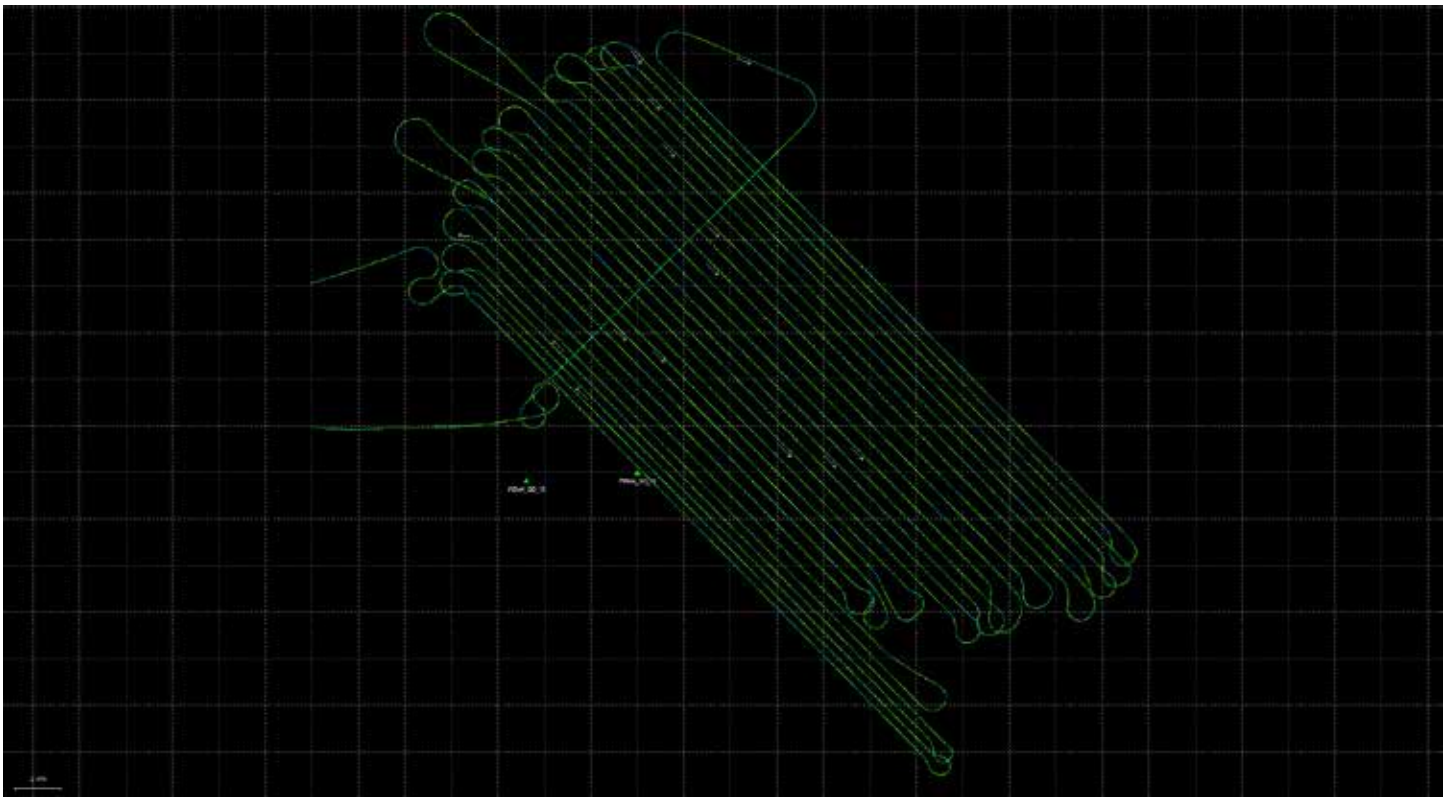
Other Acquisition Notes:

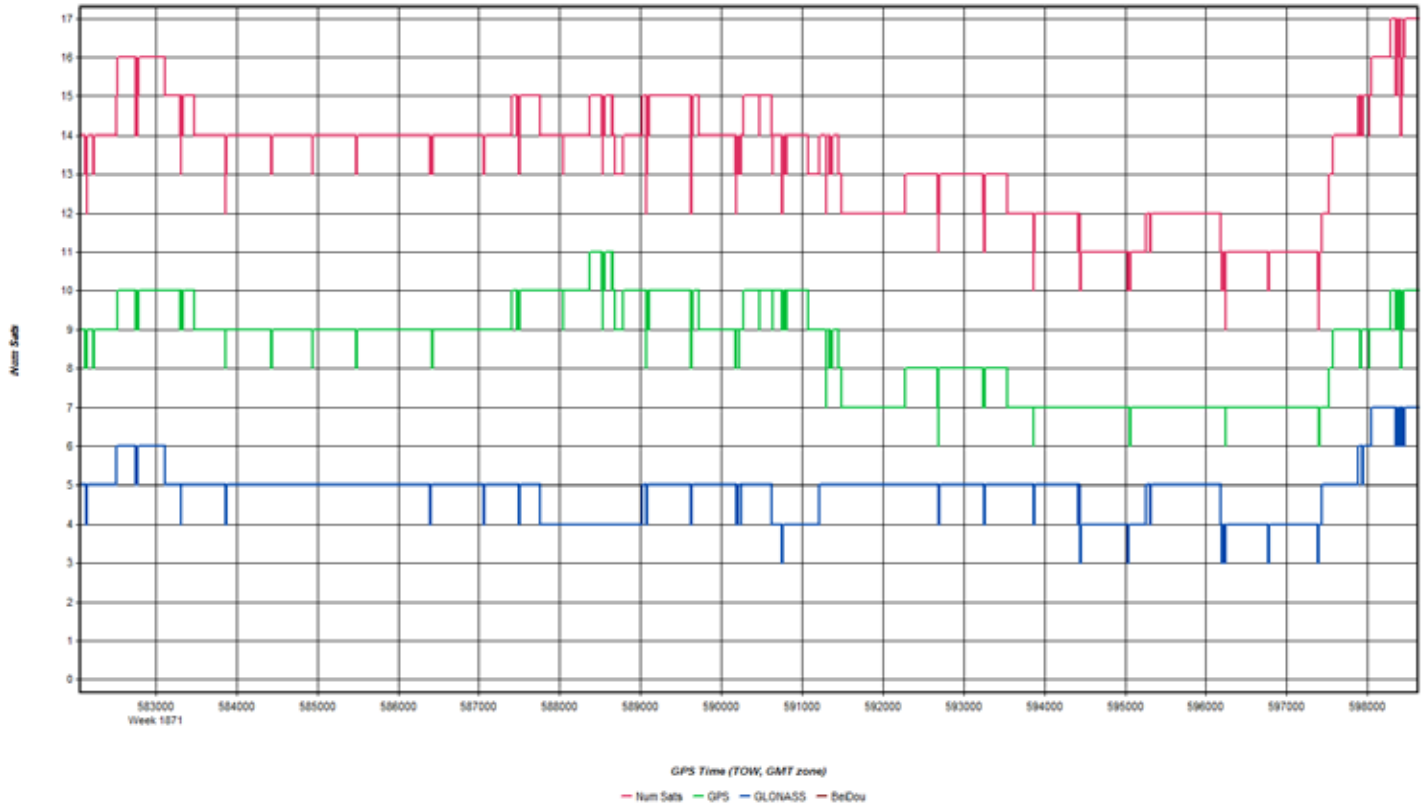
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

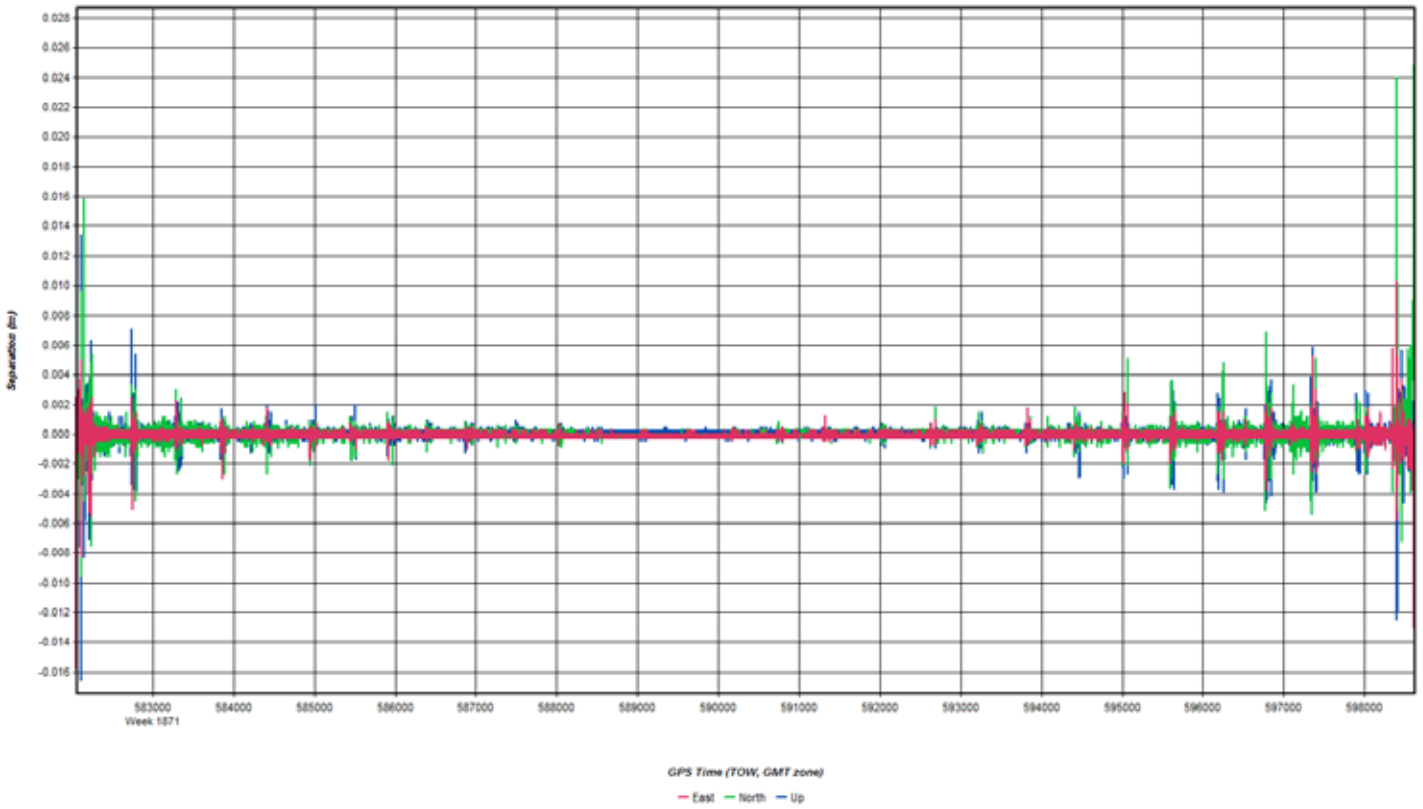
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

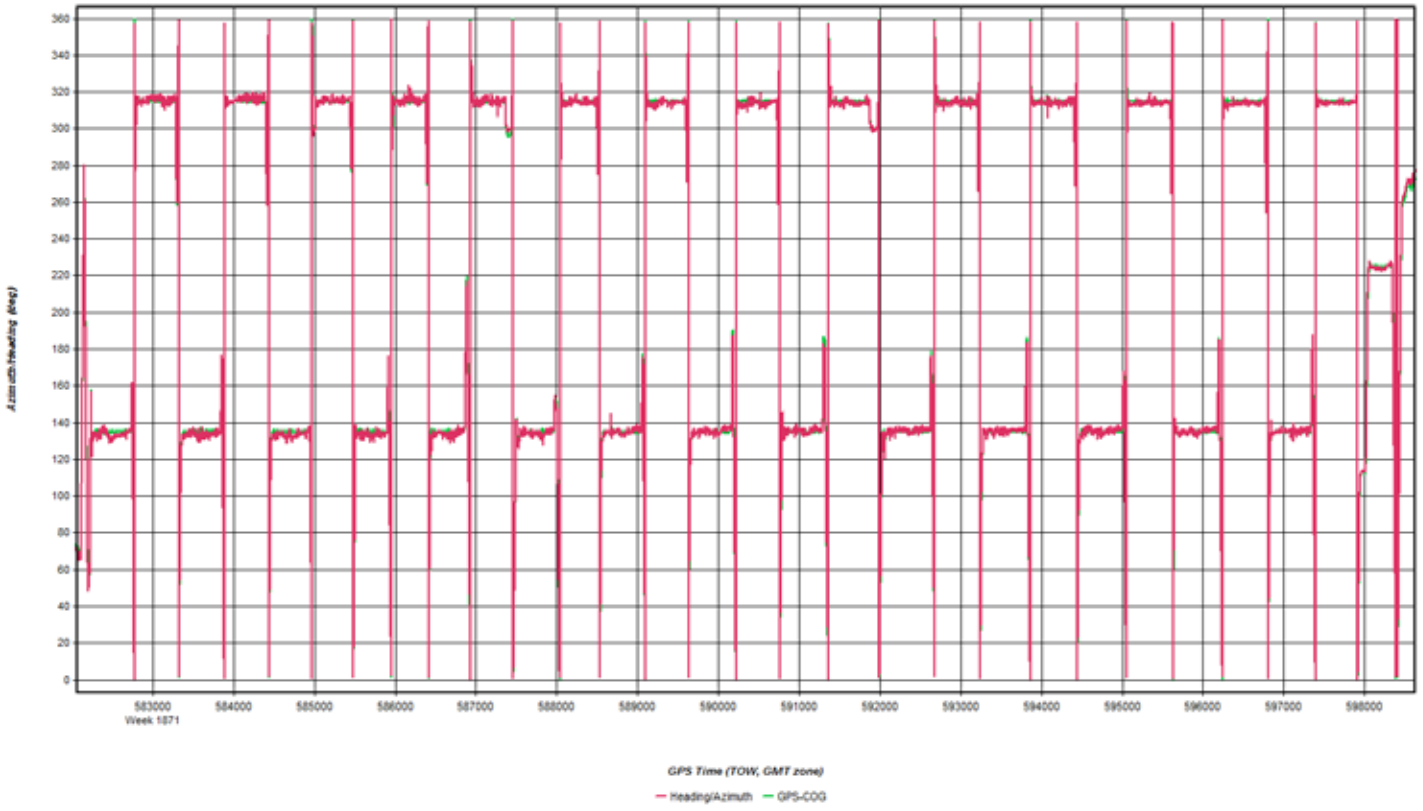
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
313	14.57	8124	214630			light turbulence, hybrid AGL, CROSSLINE: 215717
314	14.54	8117	213703			light turbulence, hybrid AGL
315	14.39	8117	212721			light turbulence, short lake dropout, hybrid AGL
316	14.22	8117	211813			light, turbulence, lake dropout, MSL
317	14.05	8117	210907			light turbulence, hybrid AGL, lake dropout
318	13.88	8117	205958			lake dropout, MSL
319	13.68	8107	205103			line start had low return then quickly went to 100, light turbulence, MSL, lake dropout
320	13.25	8098	204237			lake dropout, MSL, nw to se
321	13.96	7989	203049			lake dropout, MSL
322	15.03	7937	202110			some light turbulence, MSL, nw to se
323	16.02	7805	201045			MSL
324	16.8	7750	195959			some light turbulence, MSL
325	17.54	7714	194903			some light turbulence, MSL
326	18.23	7668	193727			light turbulence, MSL
327	18.94	7648	192536			light turbulence, MSL
328	19.67	7612	191328			light turbulence, MSL, nw to se
329	20.39	7543	190105			light turbulence, hybrid AGL
330	20.69	7428	184813			light turbulence, hybrid AGL
331	20.45	7402	183232			hybrid AGL
332	20.21	7261	182009			hybrid AGL, nw to se
333	19.97	7107	180735			hybrid AGL
334	19.74	6969	175501			hybrid AGL
335	19.5	6854	174231			hybrid AGL
336	19.28	6772	173021			hybrid AGL
337	19.06	6539	171759			hybrid AGL
338	18.85	6414	170607			start ne to sw, hybrid AGL

Nov 21, 2015-A




Num Sats
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
583000
Week 1871
584000
585000
586000
587000
588000
589000
590000
591000
592000
593000
594000
595000
596000
597000
598000
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou


Separation (m)
583000
Week 1871
GPS Time (TOW, GMT zone)
East
North
Up


Azimuth/Heading (deg)
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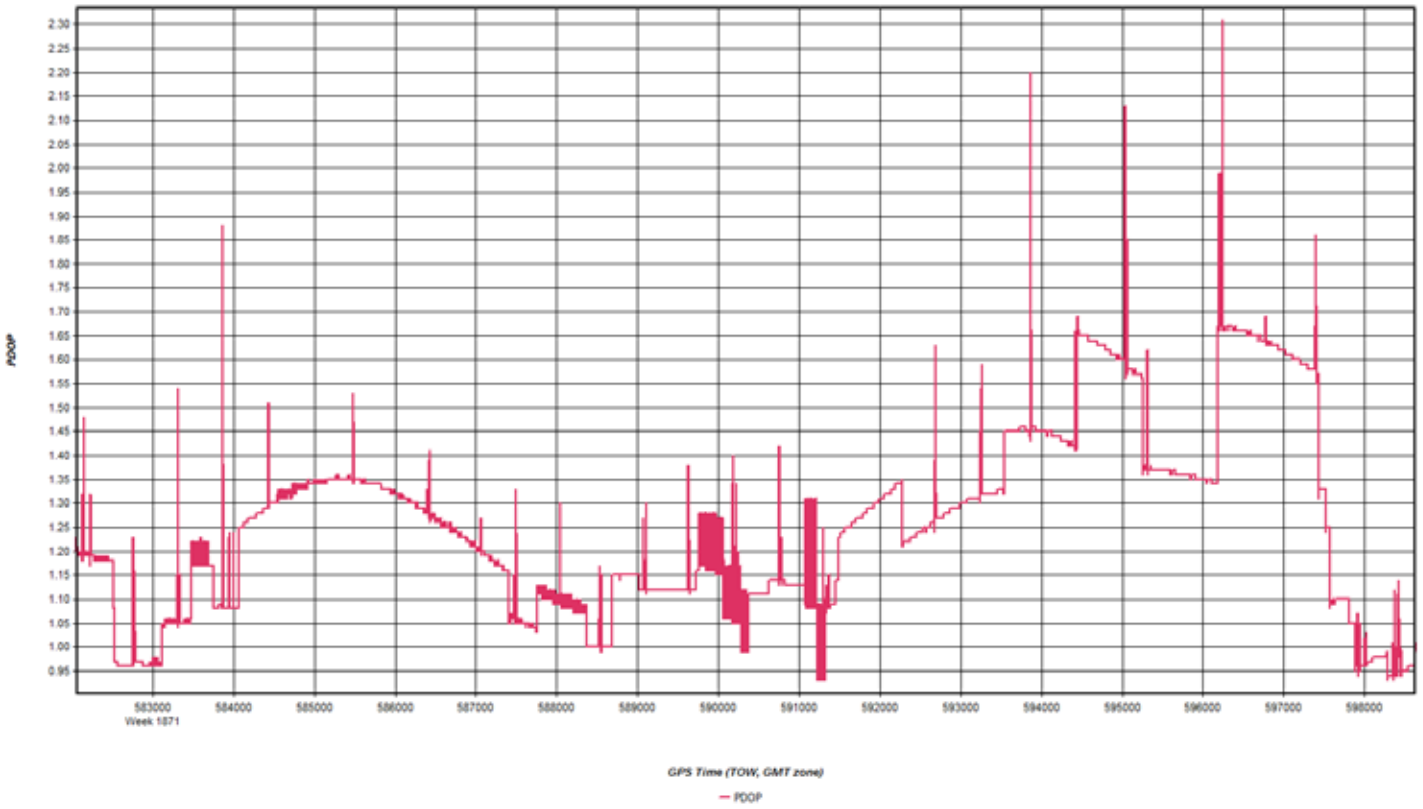
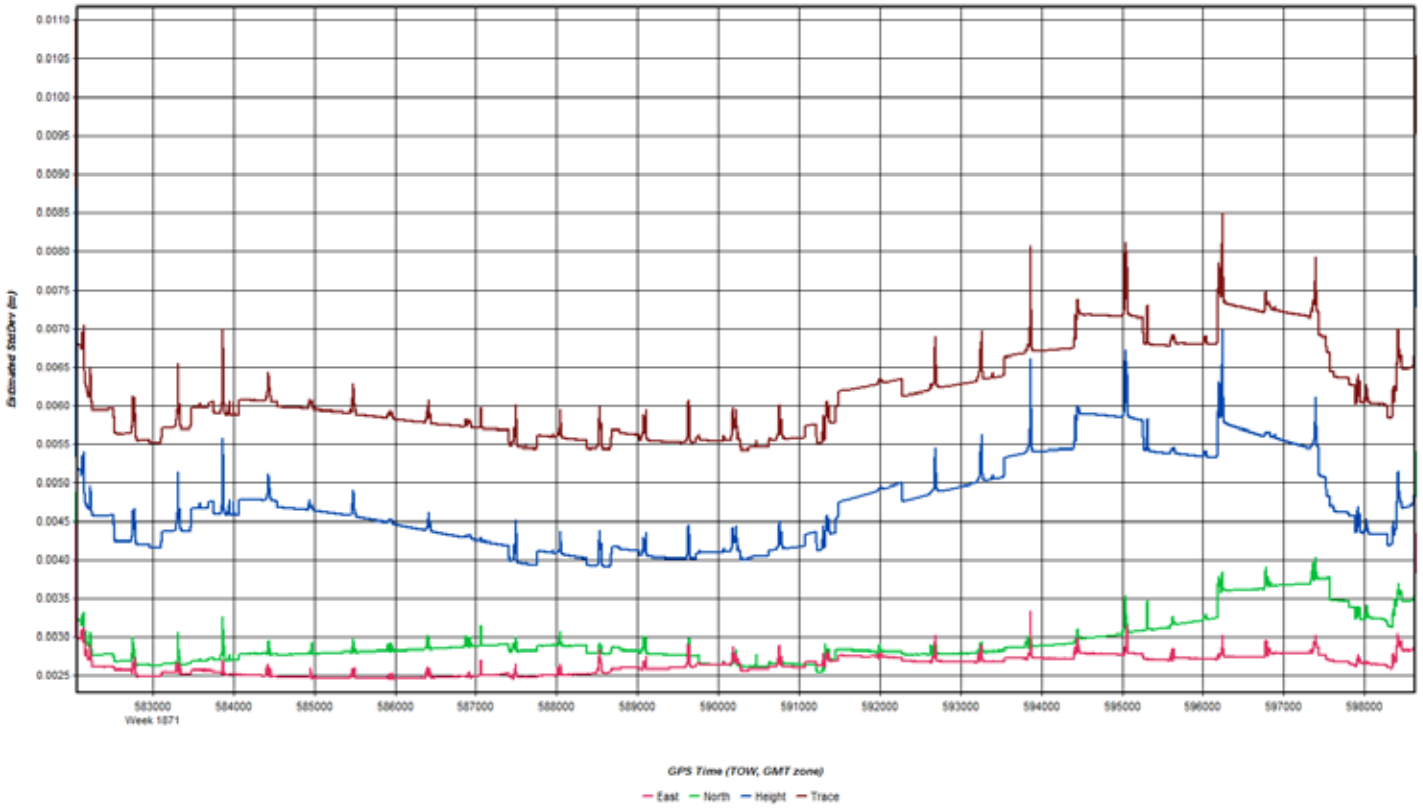
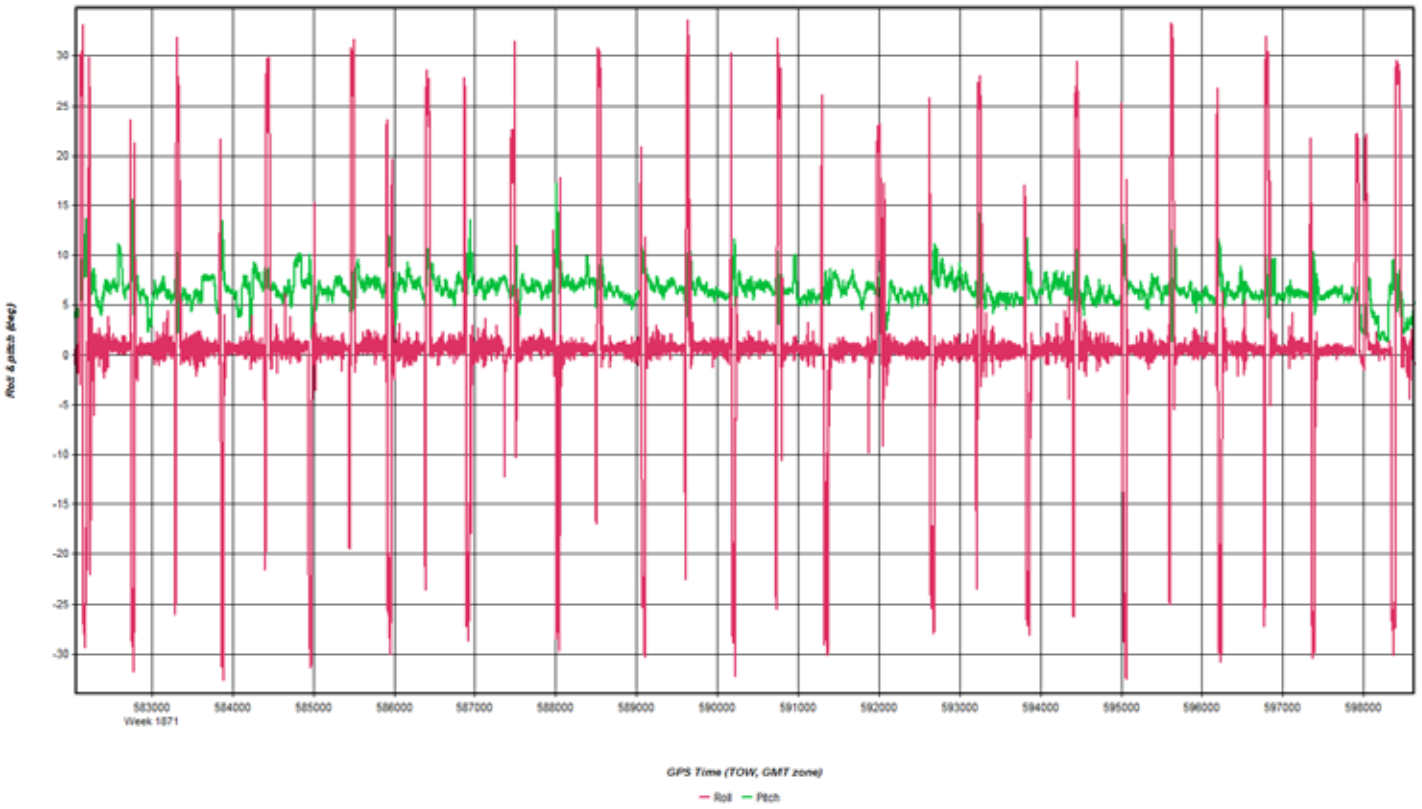
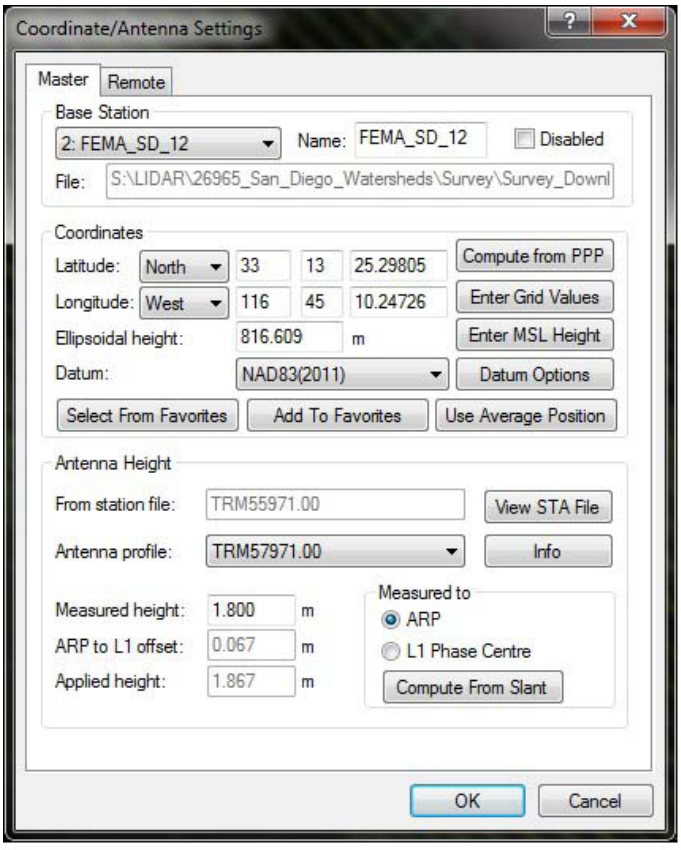
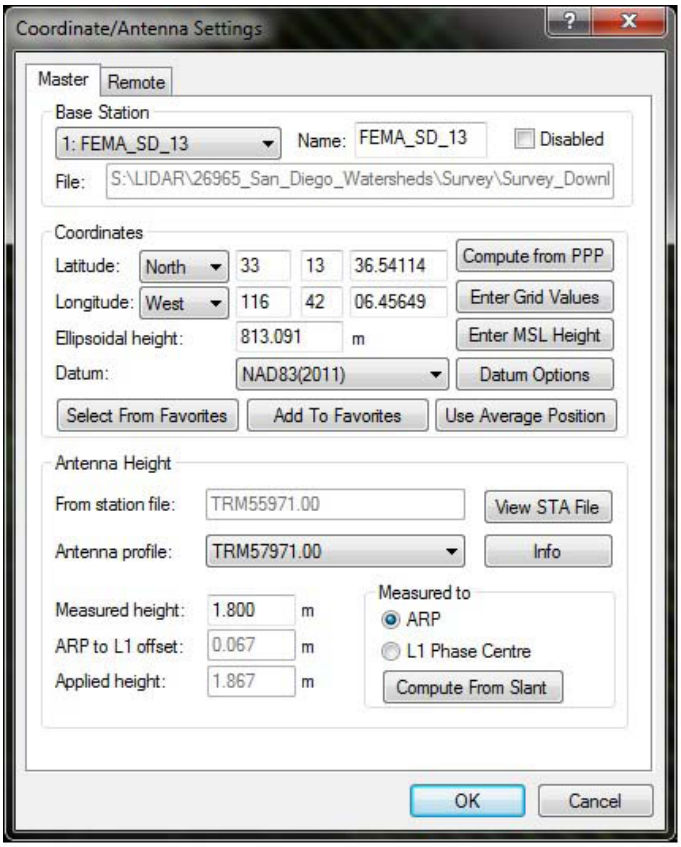
Week 1871
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
583000
Week 1871
GPS Time (TOW, GMT zone)
PDOP


583000
Week 1871
GPS Time (TOW, GMT zone)
East
North
Height
Trace


30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
583000
Week 1871
584000
585000
586000
587000
588000
589000
590000
591000
592000
593000
594000
595000
596000
597000
598000
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_12
Name: FEMA_SD_12
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 13 25.29805
Longitude: West 116 45 10.24726
Ellipsoidal height: 816.609 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: FEMA_SD_13
Name: FEMA_SD_13
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 13 36.54114
Longitude: West 116 42 06.45649
Ellipsoidal height: 813.091 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	40	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed 255	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	464	1700
Flying Alt. MSL Range (ft)	5601	10145
Swath Width Range (m)	338	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	2238
Total Line Time (hrs, no buffer)	21.3
Total Number of Lines	182
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	9.1
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	7
Total Acquisition Time (hrs)	37.5

Mission Flight Time Estimate	
Start Line Name	269
Stop Line Name	285
Turn Time (min)	2
Buffer (%)	10
Acquisition Time (hrs)	2.1

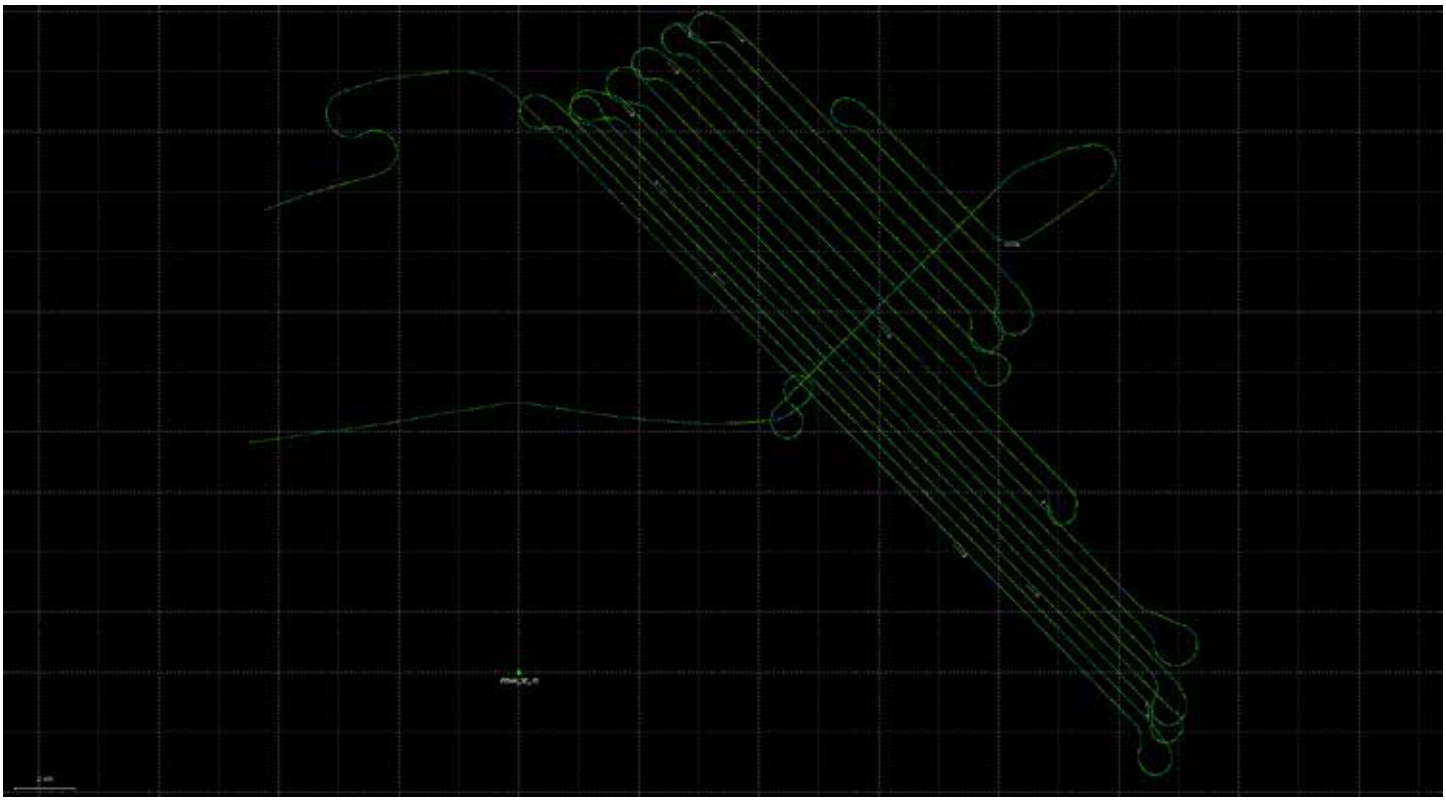
Other Acquisition Notes:

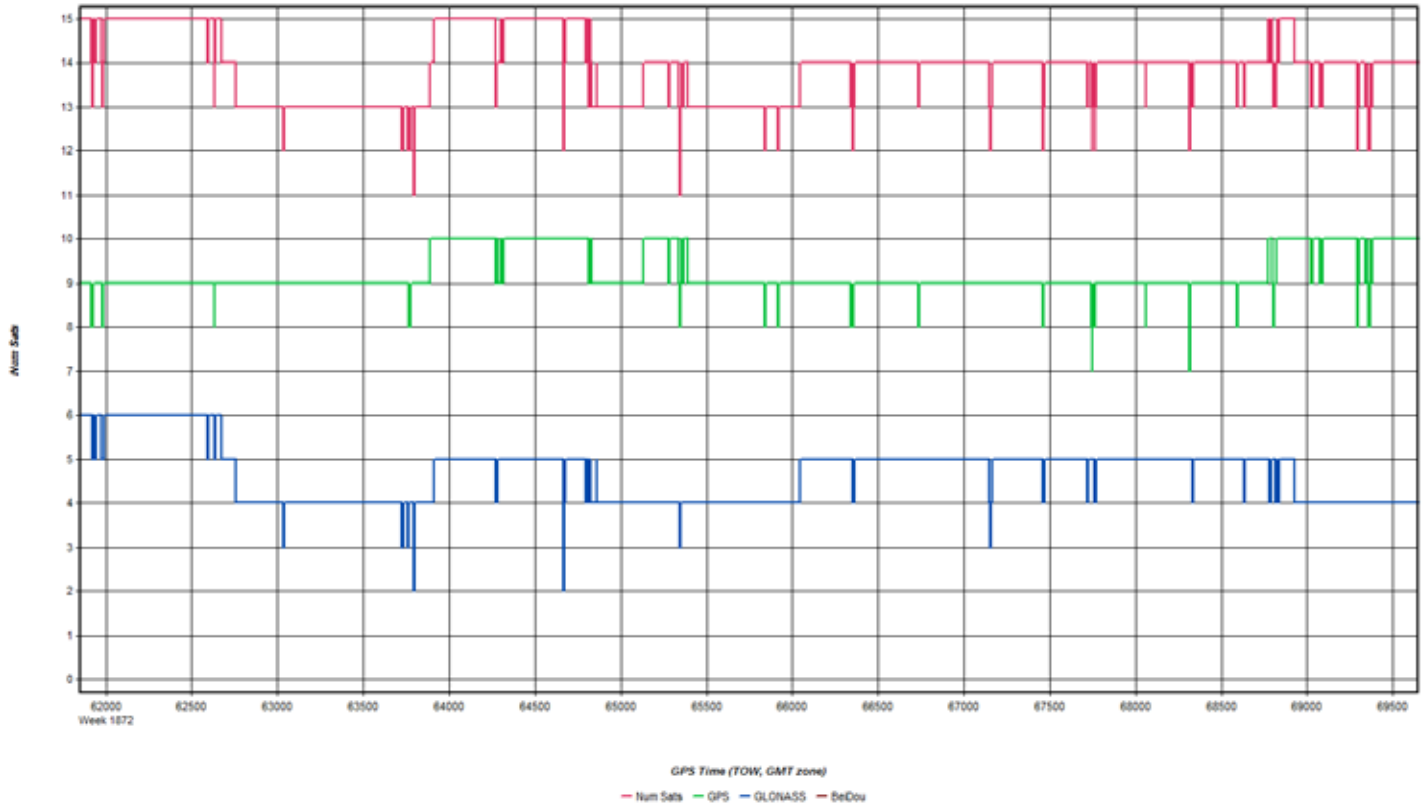
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

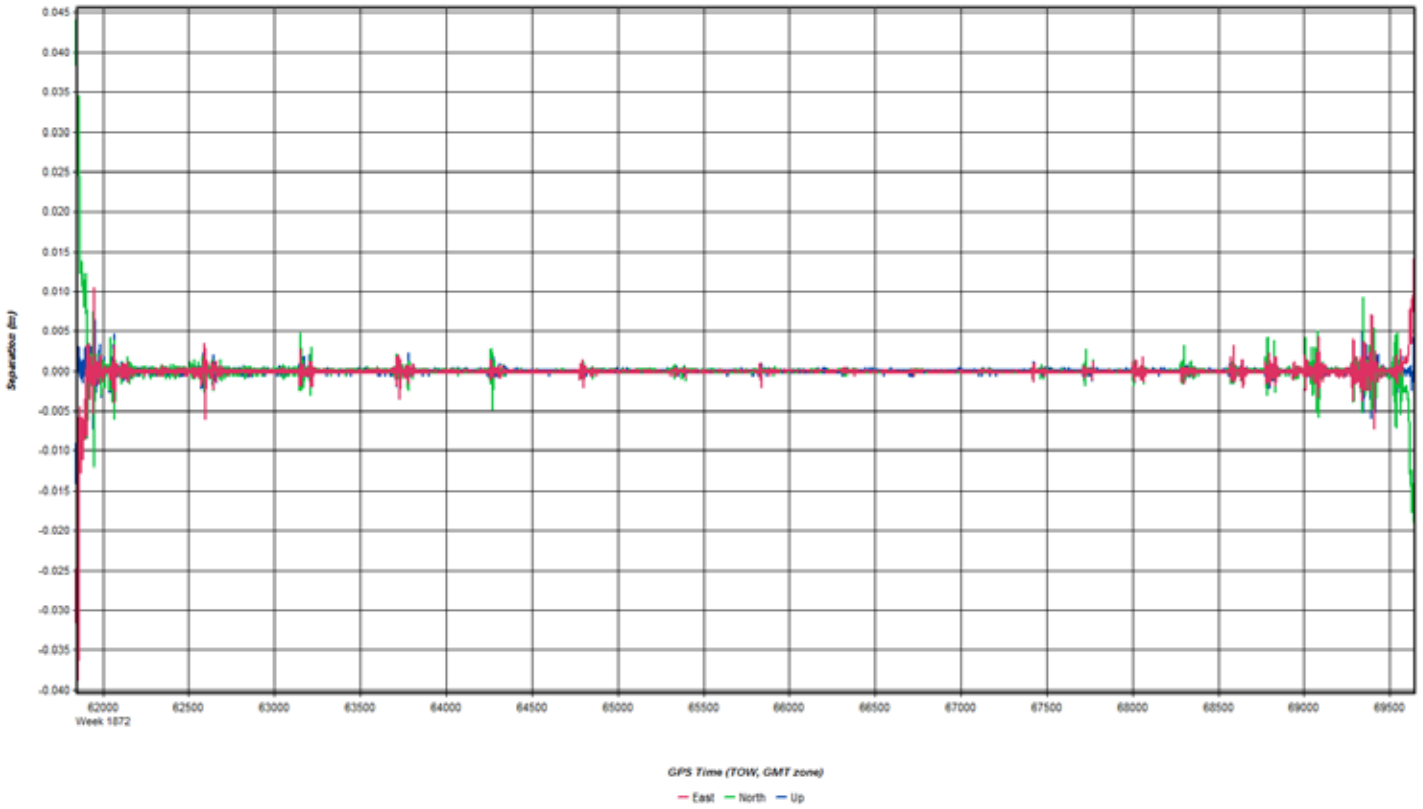
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

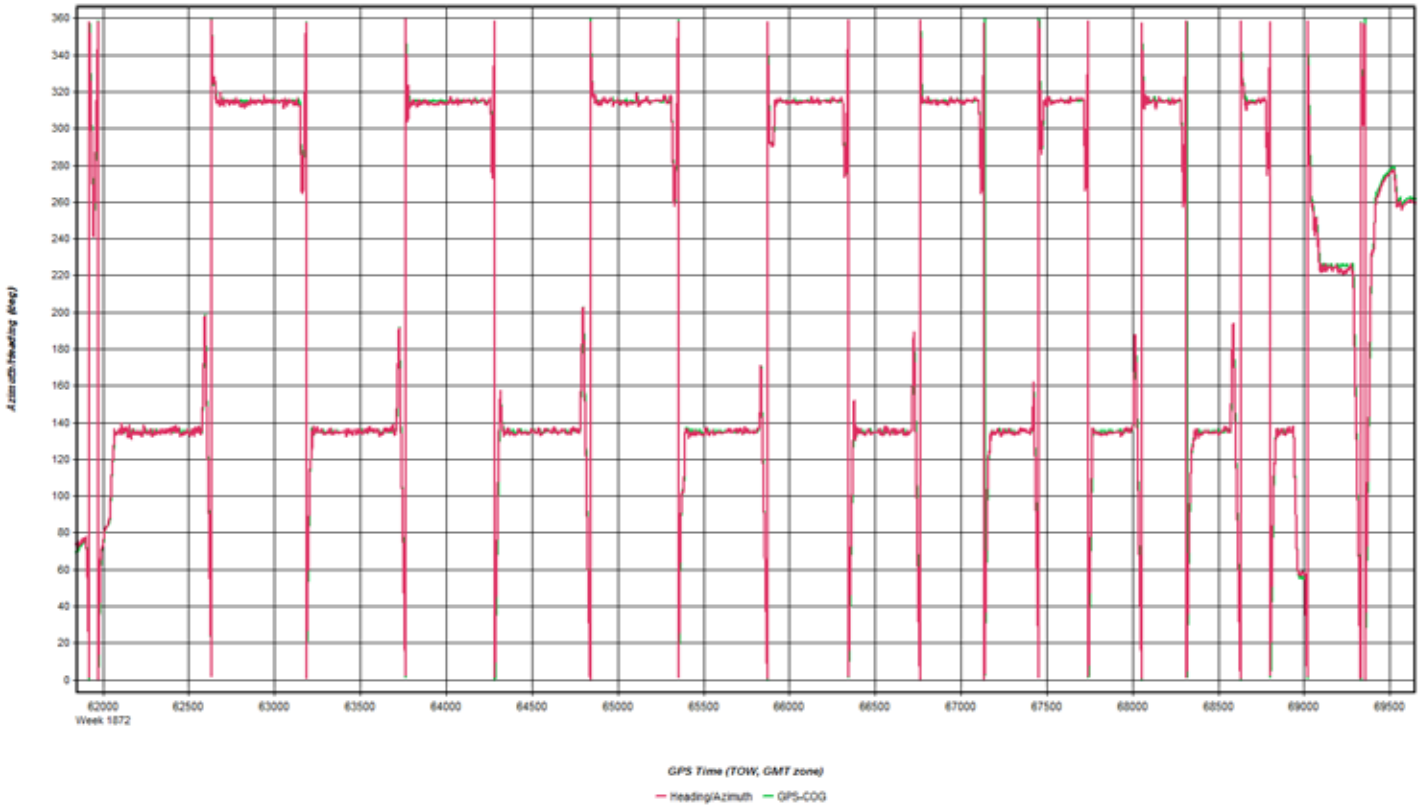
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
286	14.5	8898	215646			MSL
287	14.54	8806	214724			light turbulence, MSL
288	14.79	8734	213738			light turbulence, MSL
289	15.08	8701	212738			light turbulence, MSL
290	15.27	8642	211752			light turbulence, MSL
291	15.32	8567	210800			light turbulence, MSL
292	15.32	8498	205755			light turbulelnce, MSL
293	15.27	8429	204755			MSL, nw to se
294	14.8	8412	203805			MSL
295	14.55	8393	202835			MSL, CROSSLINE: 220724
296	14.47	8367	201612			MSL
297	14.3	8314	200633			MSL
298	14.29	8298	195713			MSL
299	14.29	8268	194742			nw to se, MSL
300	14.21	8255	193829			MSL
301	14.15	8242	192916			MSL
302	13.07	8229	192037			slight roll deviation at start se side, MSL
303	11.88	8216	191227			nw, to se, MSL
304	11.23	8206	185404	190250		refly (se to nw) due to strap going through slot in sensor
305	10.98	8189	184626			hybrid AGL
306	11.26	8173	183829			nw to se, hybrid AGL
307	11.39	8163	183048			hybrid AGL
308	14.18	8153	182104			hybrid AGL
309	14.28	8150	181142			hybid AGL
310	14.4	8147	180230			hybrid AGL
311	14.27	8143	175308			hybrid AGL
312	14.28	8137	174357			start nw to se, hybrid AGL

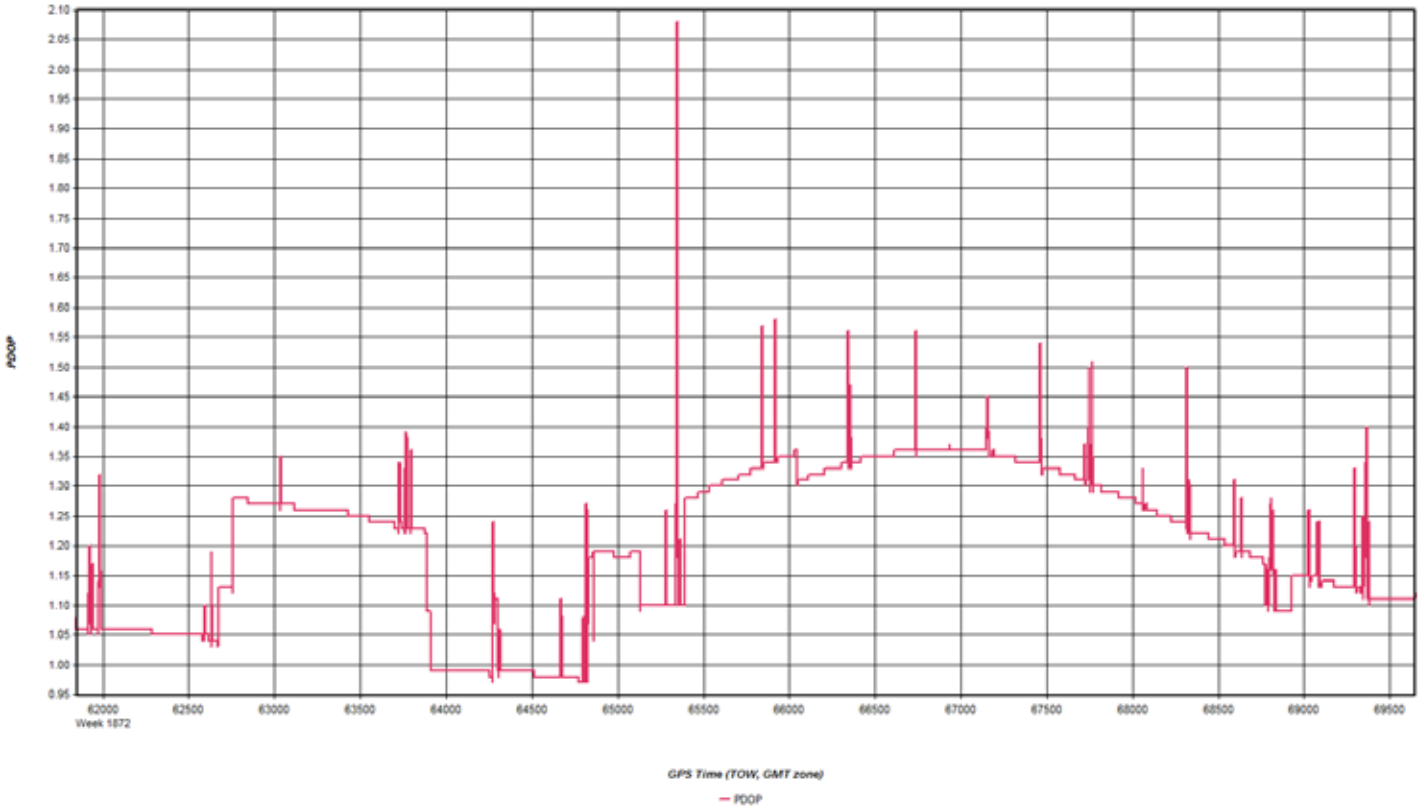
Nov 22, 2015-A

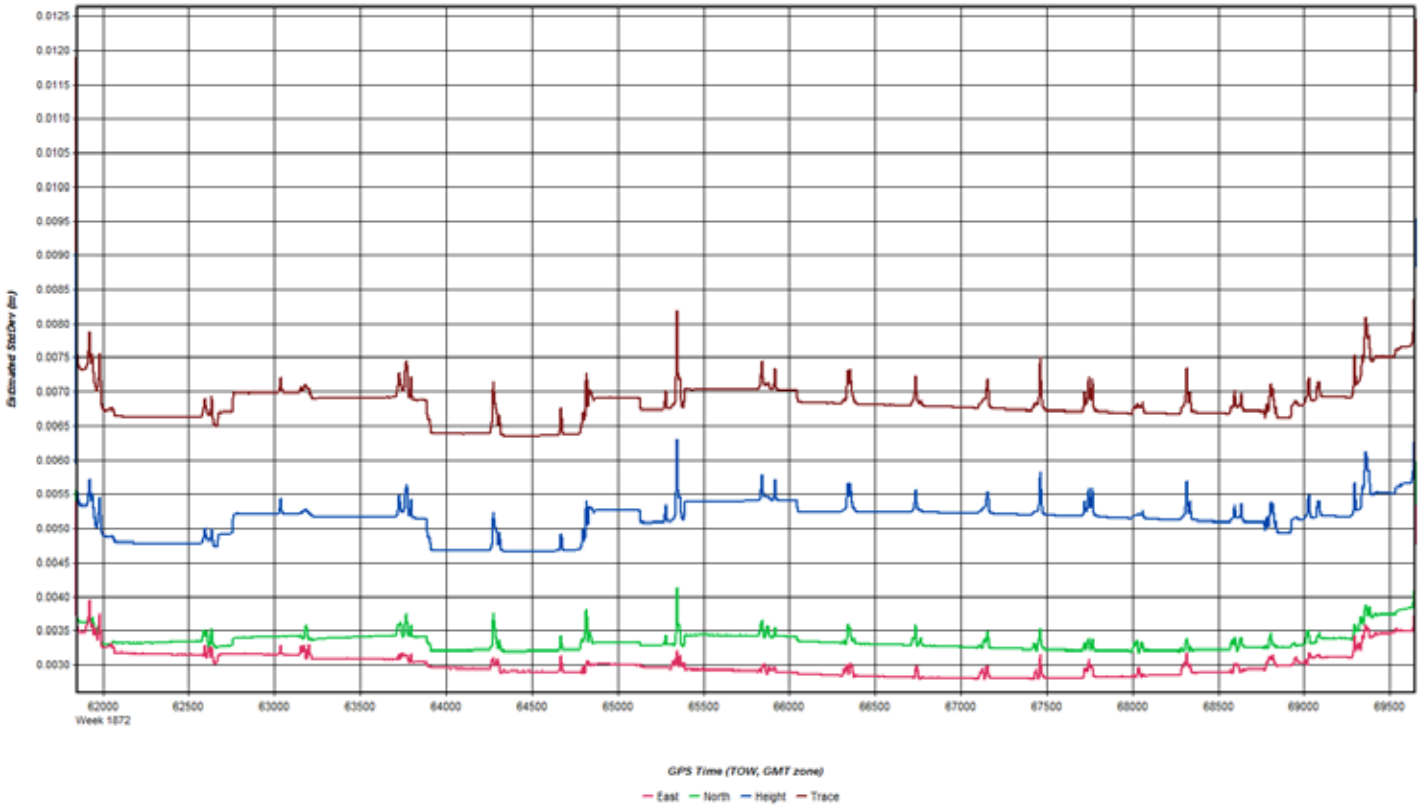


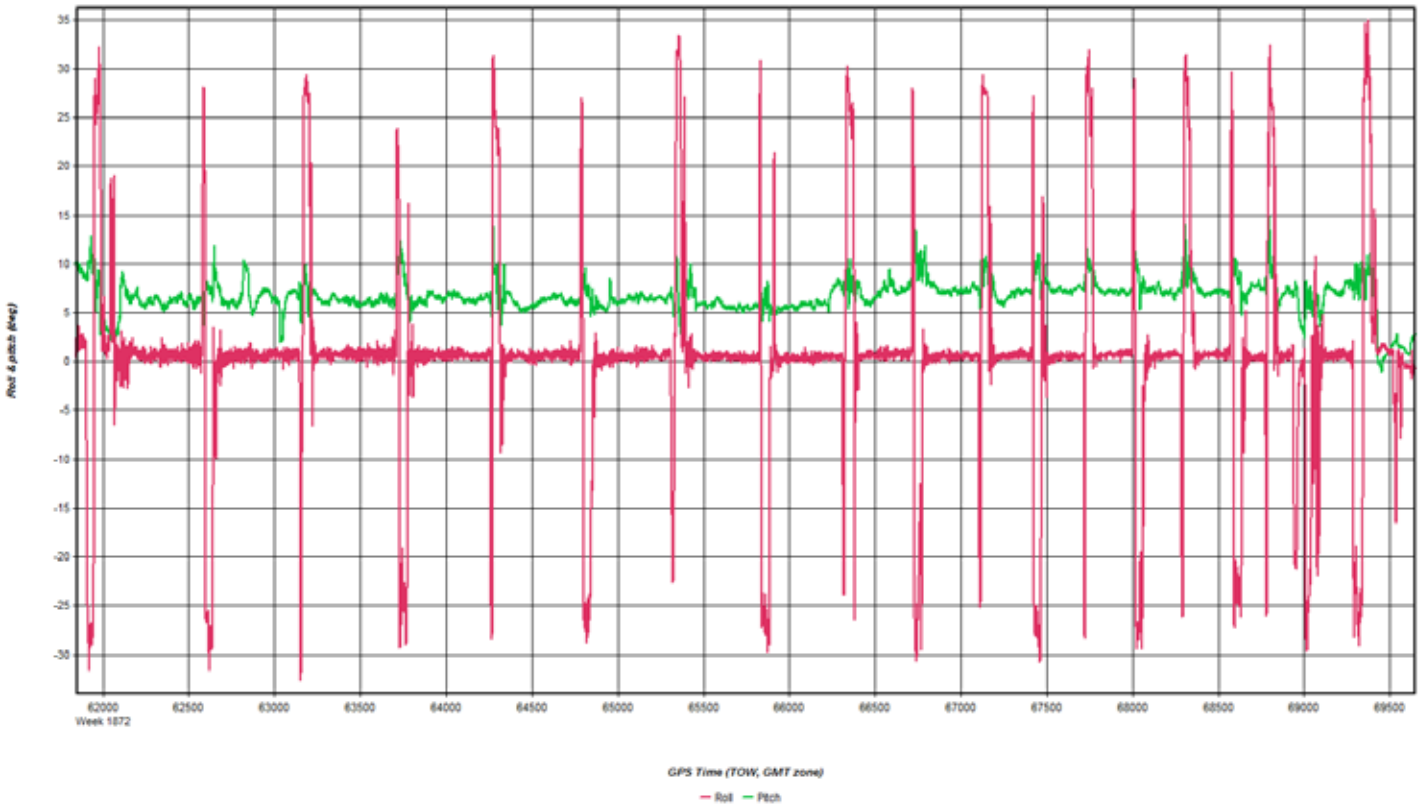

Num Sats
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
62000
Week 1872
62500
63000
63500
64000
64500
65000
65500
66000
66500
67000
67500
68000
68500
69000
69500
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

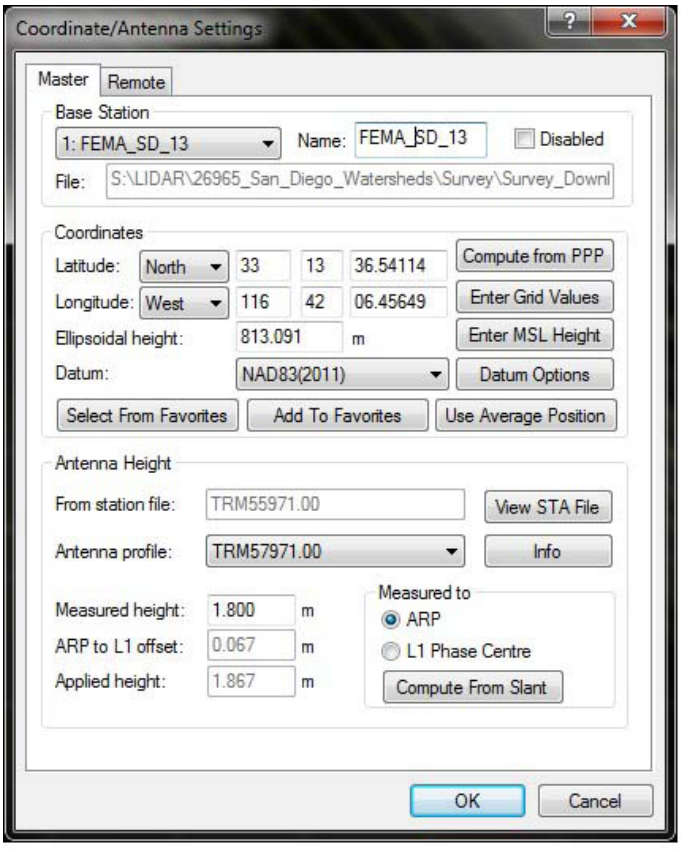

Separation (m)
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.030
-0.035
-0.040
62000
Week 1872
62500
63000
63500
64000
64500
65000
65500
66000
66500
67000
67500
68000
68500
69000
69500
GPS Time (TOW, GMT zone)
East
North
Up


Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
62000
Week 1872
62500
63000
63500
64000
64500
65000
65500
66000
66500
67000
67500
68000
68500
69000
69500
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG


PDOP
2.10
2.05
2.00
1.95
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
62000
Week 1872
62500
63000
63500
64000
64500
65000
65500
66000
66500
67000
67500
68000
68500
69000
69500
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
62000
Week 1872
62500
63000
63500
64000
64500
65000
65500
66000
66500
67000
67500
68000
68500
69000
69500
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
62000
Week 1872
62500
63000
63500
64000
64500
65000
65500
66000
66500
67000
67500
68000
68500
69000
69500
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
1: FEMA_SD_13
Name:
FEMA_SD_13
Disabled
File:
S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude:
North
33
13
36.54114
Compute from PPP
Longitude:
West
116
42
06.45649
Enter Grid Values
Ellipsoidal height:
813.091
m
Enter MSL Height
Datum:
NAD83(2011)
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

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	40	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed 255	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	464	1700
Flying Alt. MSL Range (ft)	5601	10145
Swath Width Range (m)	338	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	2238
Total Line Time (hrs, no buffer)	21.3
Total Number of Lines	182
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	9.1
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	7
Total Acquisition Time (hrs)	37.5

Mission Flight Time Estimate	
Start Line Name	269
Stop Line Name	274
Turn Time (min)	2
Buffer (%)	0
Acquisition Time (hrs)	0.5

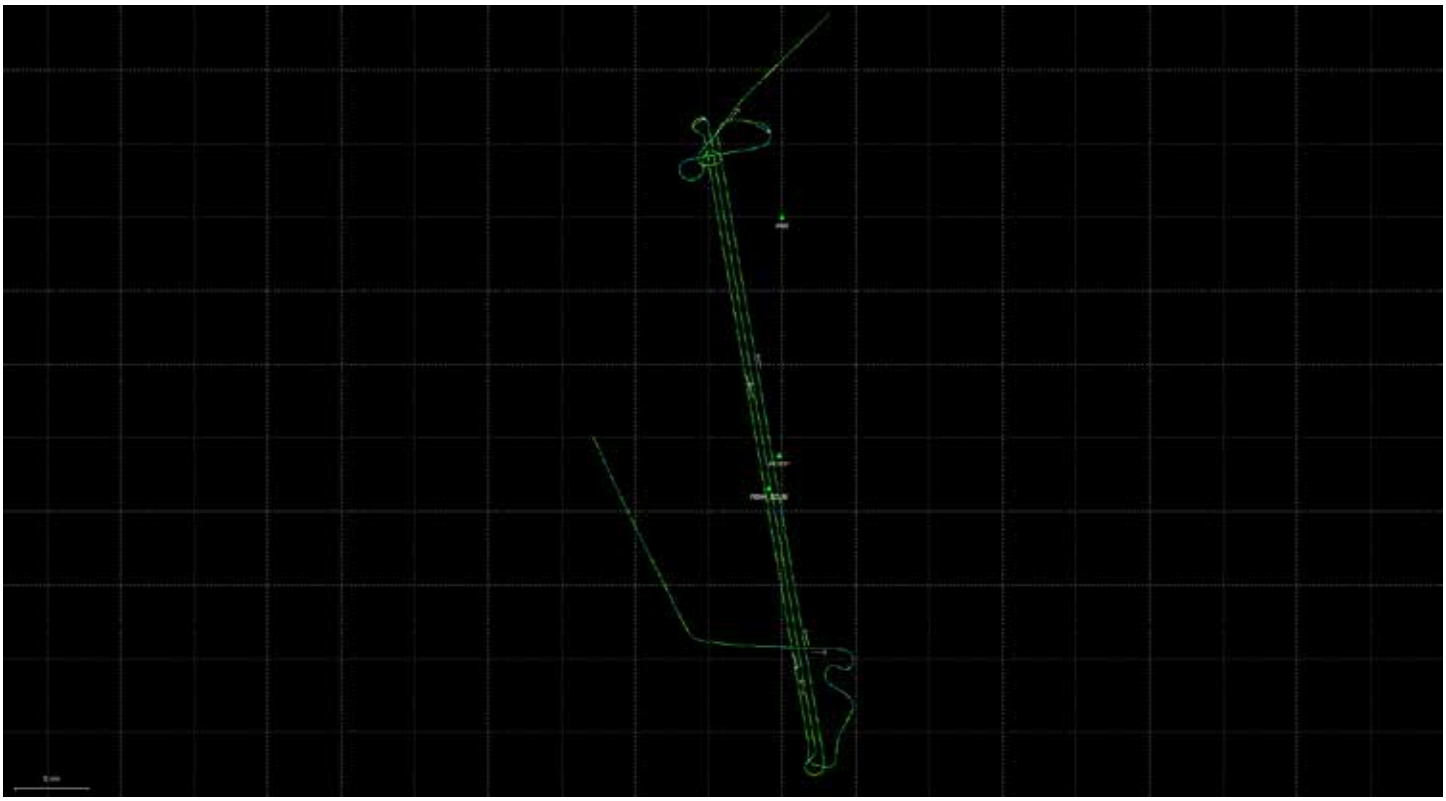
Other Acquisition Notes:

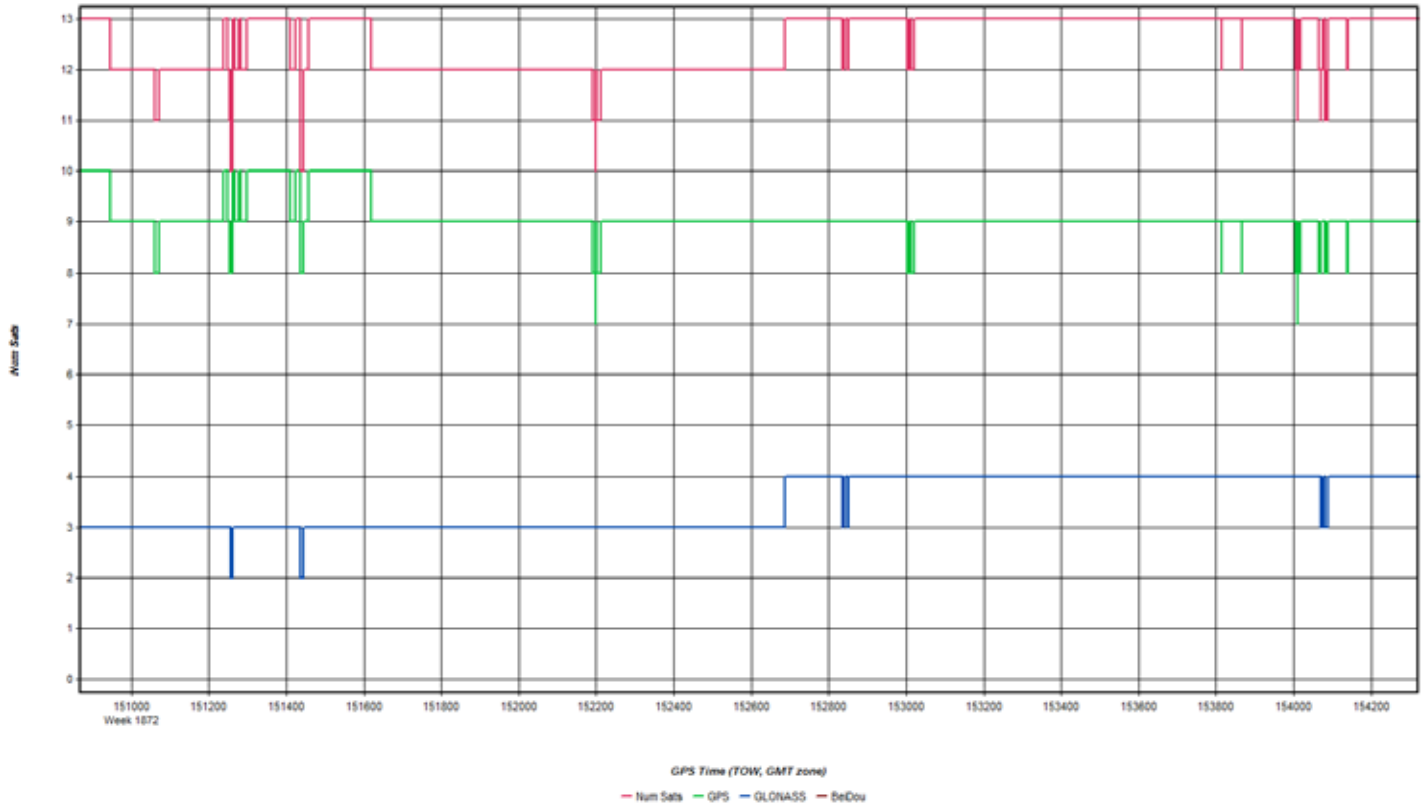
Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

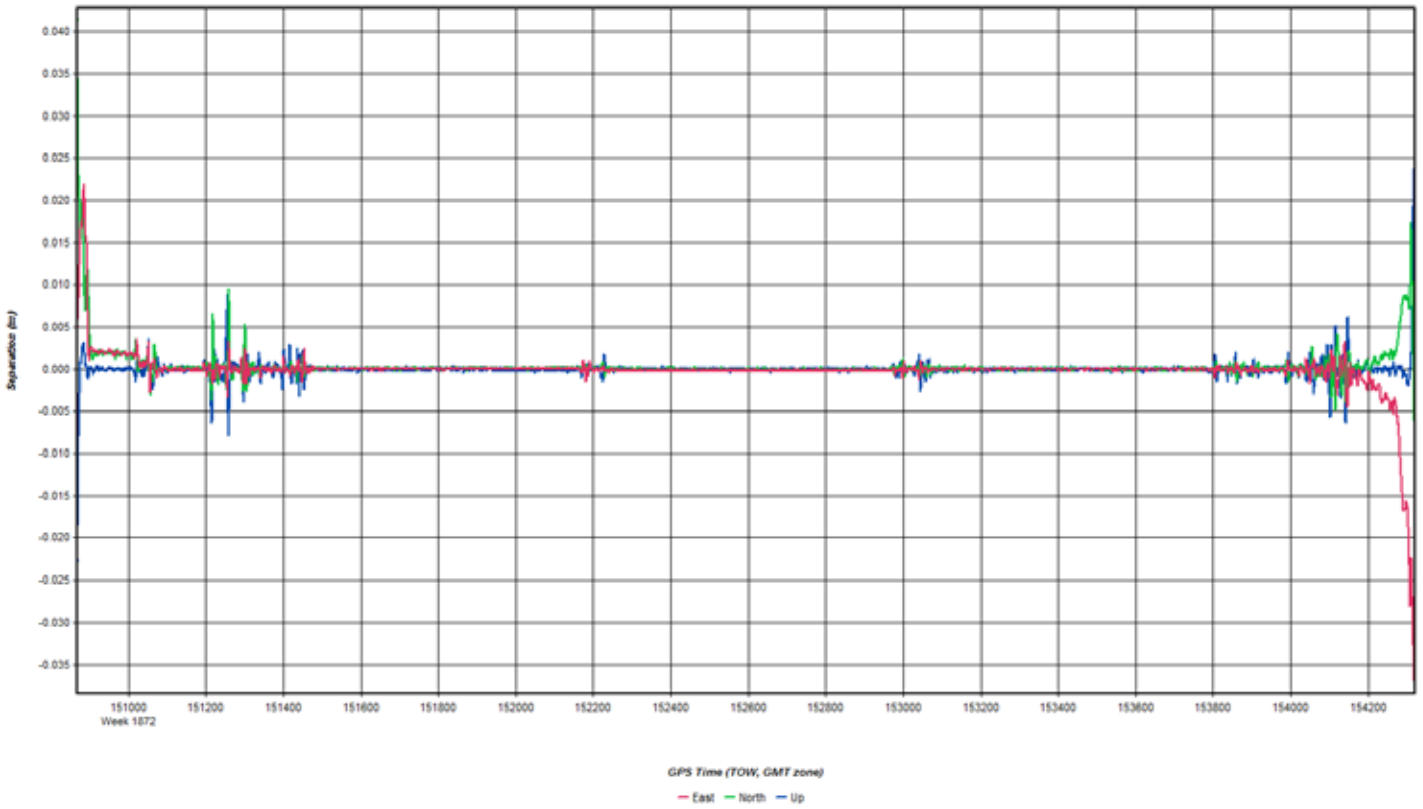
Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

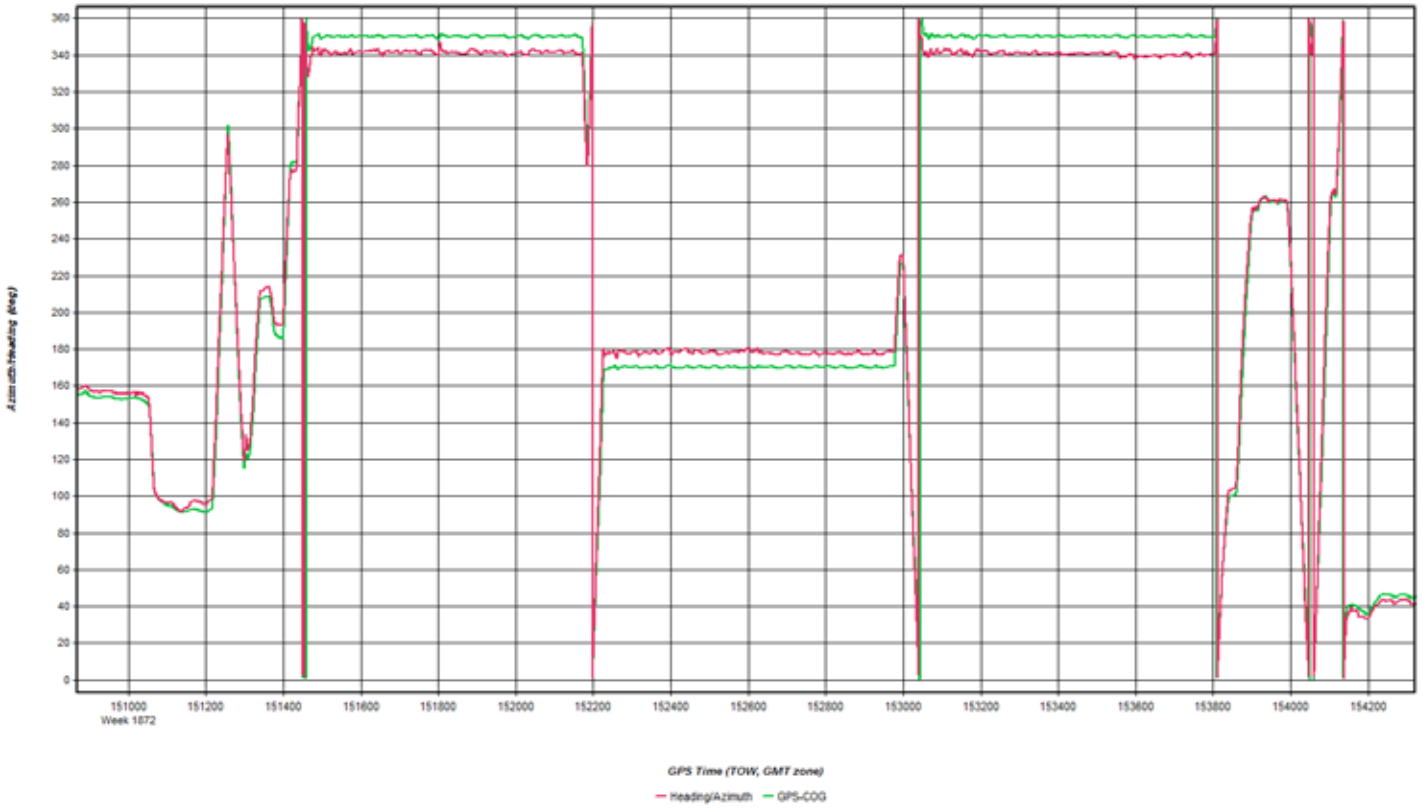
Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
269	2.34	9705	190714			end nw to se
270	2.54	10145	190425			
271	5.83	10119	185910			
272	5.88	10145	185425			
273	6.13	10066	184935			nw to se
274	6.31	10033	184447			
275	7.07	9895	183924			CROSSLINE:191122
276	9.03	9745	183310			
277	9.62	9672	182615			nw to se
278	11.87	9561	181828			
279	12.66	9476	180952			
280	12.87	9380	180103			
281	13.33	9292	175157			nw to se
282	13.63	9229	174301			
283	14.09	9111	173339			
284	14.18	9033	172416			hybrid AGL
285	14.31	8967	171439			Start nw to se

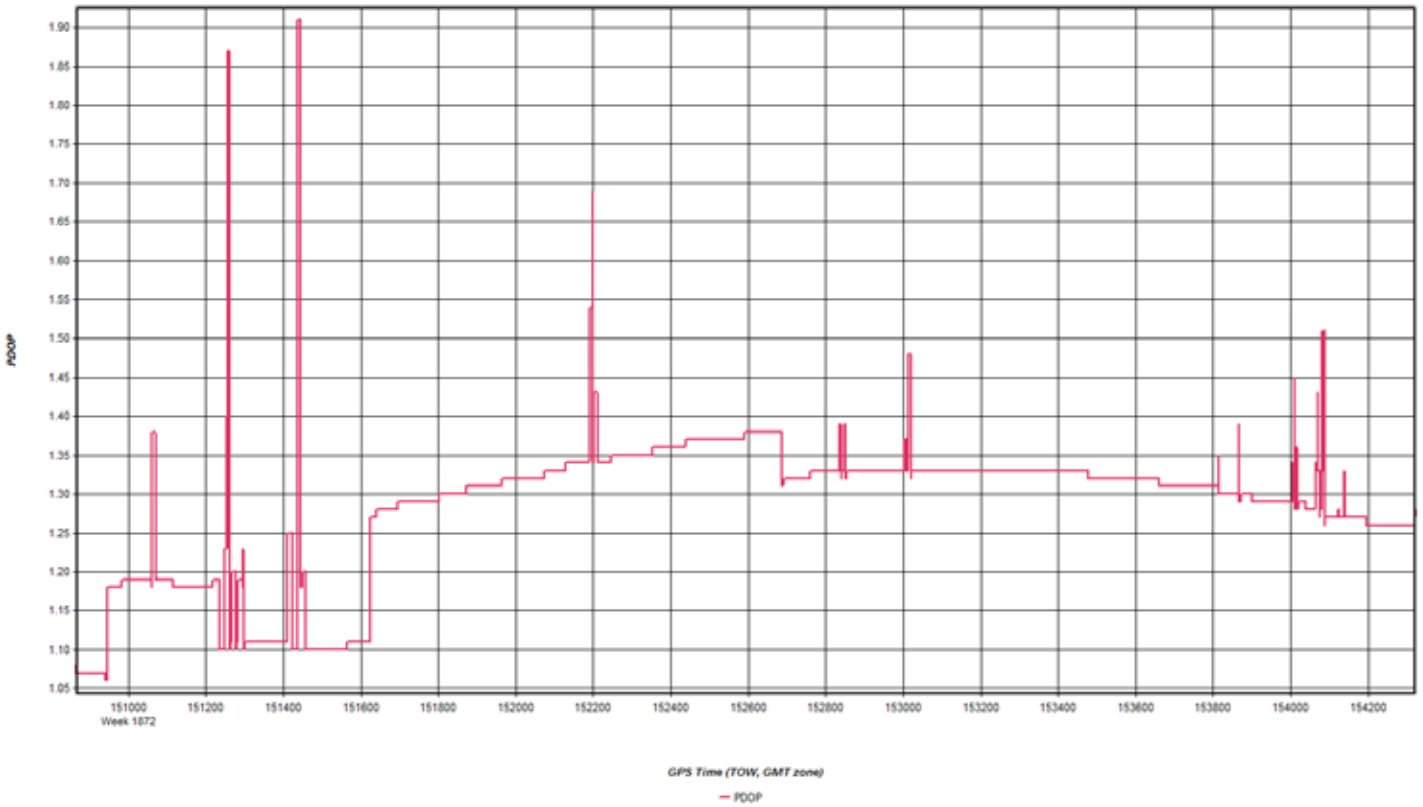
Nov 23, 2015-A

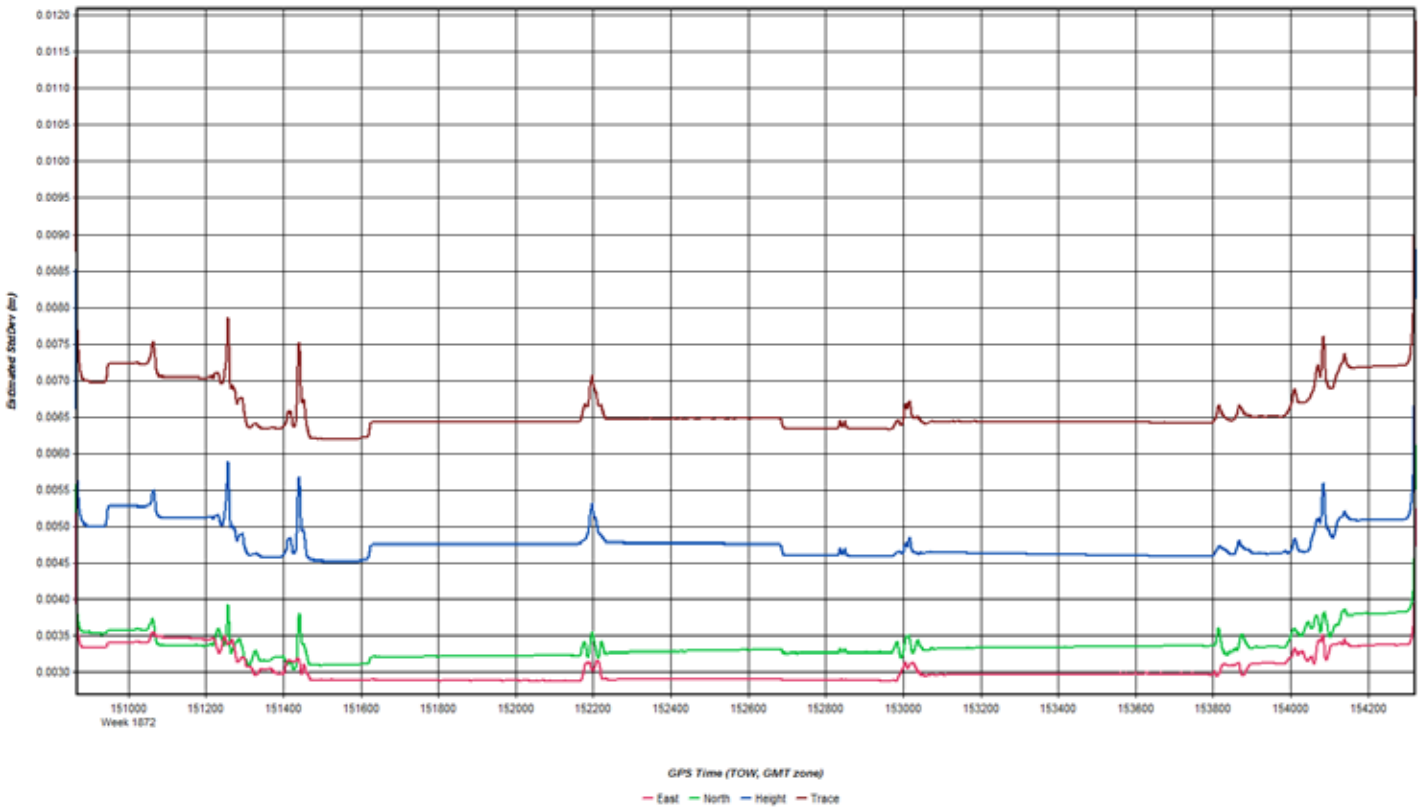


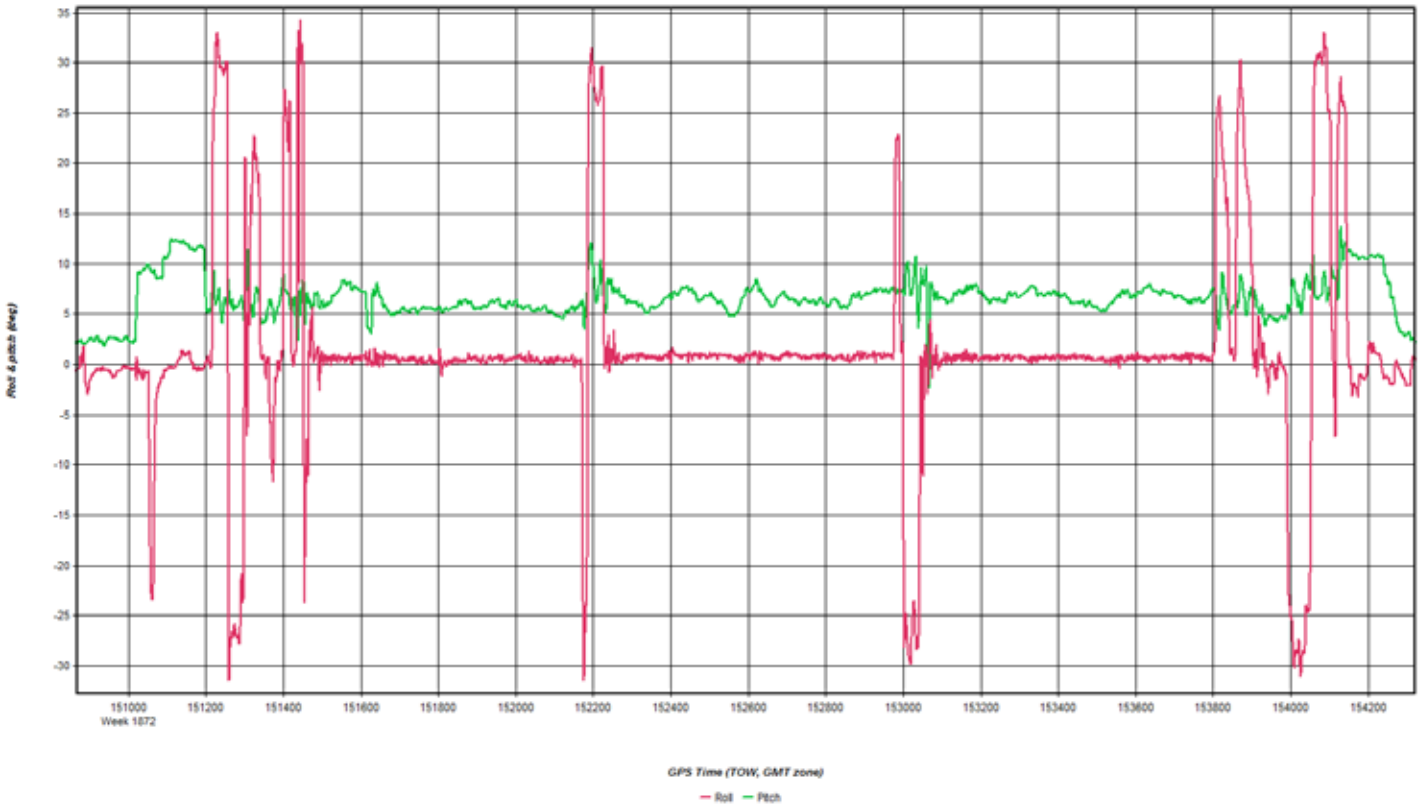

Num Sats
13
12
11
10
9
8
7
6
5
4
3
2
1
0
151000
Week 1872
151200
151400
151600
151800
152000
152200
152400
152600
152800
153000
153200
153400
153600
153800
154000
154200
GPS Time (TOW, GMT zone)
Num Sats
GPS
GLONASS
BeiDou

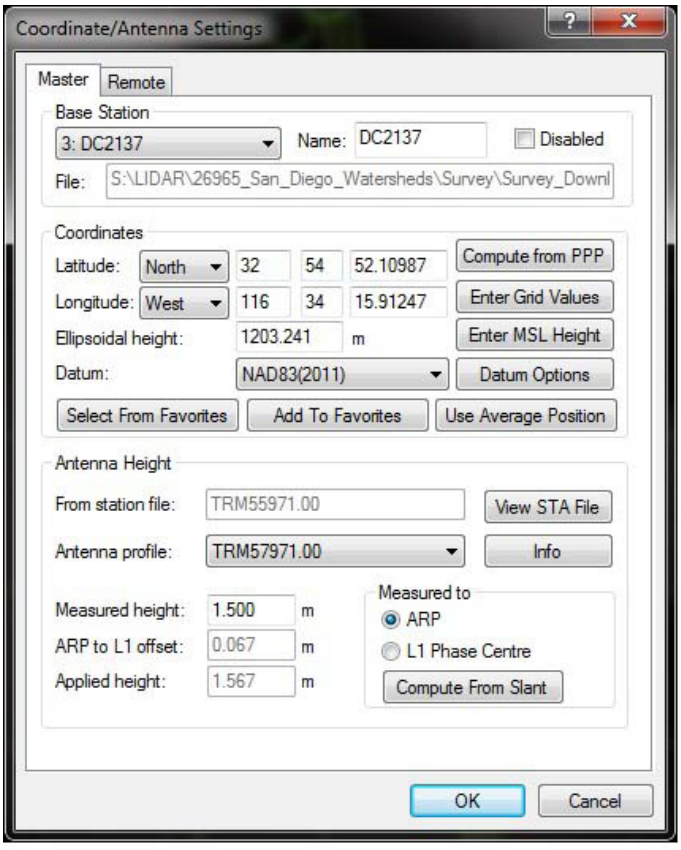

Separation (m)
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.030
-0.035
151000
Week 1872
151200
151400
151600
151800
152000
152200
152400
152600
152800
153000
153200
153400
153600
153800
154000
154200
GPS Time (TOW, GMT zone)
East
North
Up

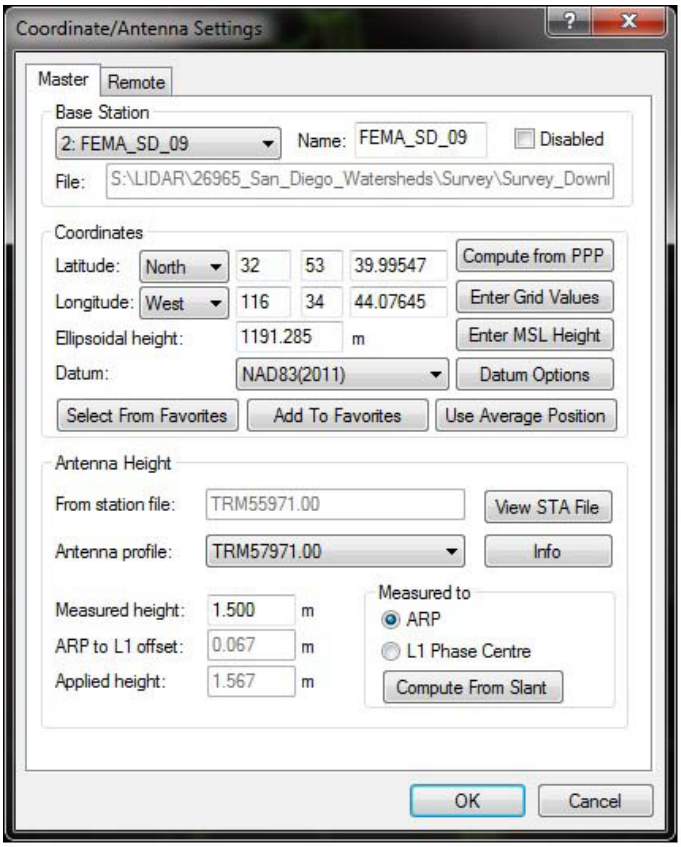

Azimuth/Heading (deg)
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
151000
Week 1872
151200
151400
151600
151800
152000
152200
152400
152600
152800
153000
153200
153400
153600
153800
154000
154200
GPS Time (TOW, GMT zone)
Heading/Azimuth
GPS-COG

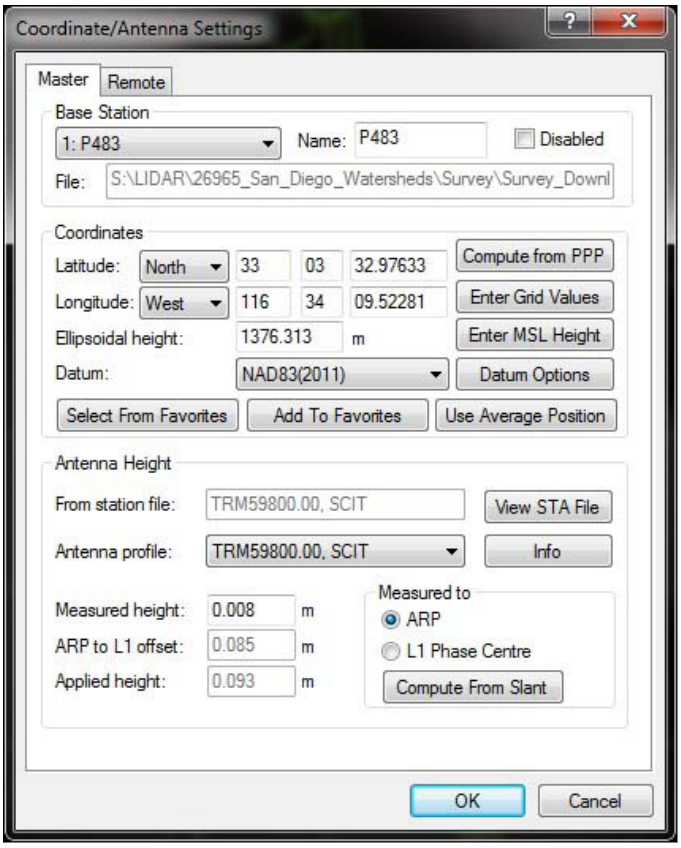

PDOP
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
151000
Week 1872
151200
151400
151600
151800
152000
152200
152400
152600
152800
153000
153200
153400
153600
153800
154000
154200
GPS Time (TOW, GMT zone)
PDOP


Estimated StdDev (m)
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
151000
Week 1872
151200
151400
151600
151800
152000
152200
152400
152600
152800
153000
153200
153400
153600
153800
154000
154200
GPS Time (TOW, GMT zone)
East
North
Height
Trace


Roll & pitch (deg)
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
151000
Week 1872
151200
151400
151600
151800
152000
152200
152400
152600
152800
153000
153200
153400
153600
153800
154000
154200
GPS Time (TOW, GMT zone)
Roll
Pitch


Coordinate/Antenna Settings
Master
Remote
Base Station
3: DC2137
Name: DC2137
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 54 52.10987
Longitude: West 116 34 15.91247
Ellipsoidal height: 1203.241 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
2: FEMA_SD_09
Name: FEMA_SD_09
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 32 53 39.99547
Longitude: West 116 34 44.07645
Ellipsoidal height: 1191.285 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
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: 1.500 m
ARP to L1 offset: 0.067 m
Applied height: 1.567 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel


Coordinate/Antenna Settings
Master
Remote
Base Station
1: P483
Name: P483
Disabled
File: S:\LIDAR\26965_San_Diego_Watersheds\Survey\Survey_Downl
Coordinates
Latitude: North 33 03 32.97633
Longitude: West 116 34 09.52281
Ellipsoidal height: 1376.313 m
Datum: NAD83(2011)
Compute from PPP
Enter Grid Values
Enter MSL Height
Datum Options
Select From Favorites
Add To Favorites
Use Average Position
Antenna Height
From station file: TRM59800.00, SCIT
View STA File
Antenna profile: TRM59800.00, SCIT
Info
Measured height: 0.008 m
ARP to L1 offset: 0.085 m
Applied height: 0.093 m
Measured to
ARP
L1 Phase Centre
Compute From Slant
OK
Cancel

Flight Log

San Diego Watersheds South SN8146

QSI Project #	26965
Project Point Density (pts/m^2)	2ppms
Sensor Name	SN8146

Flight Plan Settings		
DEM Used for Planning	Yes	
Target Speed (kts)	105	
Max Bank Angle in Turns (°)	20	
Minimum Line Overlap (%)	38	
Pulses in Air Mode	SPiA	
Scan Pattern	Triangle	
Gain Up	0	
Gain Down	Fixed	
FOV (°)	40	
Scan Rate (Hz)	39.9	
Autoscan	On	
Laser Power (%)	100.00	
	Min.	Max
AGL Range (m)	665	1700
Flying Alt. MSL Range (ft)	5732	9692
Swath Width Range (m)	484	1237
Pulse Rate Range (Hz)	158000	158000

*Shading = Auto-calculated

Project Flight Time Estimate	
Total Line Length (nmi)	3797
Total Line Time (hrs, no buffer)	36.2
Total Number of Lines	218
Turn Time (min)	3
Total Turn Time (hrs, no buffer)	10.9
Buffer (%)	10
MOB Dist. Round Trip (nmi)	60
Number of MOBs	8
Total Acquisition Time (hrs)	56.3

Mission Flight Time Estimate	
Start Line Name	089
Stop Line Name	091
Turn Time (min)	2
Buffer (%)	0
Acquisition Time (hrs)	0.7

Other Acquisition Notes:

Lines should be flown at the altitude (in FEET above sea level) indicated on the flight sheet. Give this number to the pilot for each line and have him use the altimeter on his instrument panel. The plane's altimeter is adjusted for pressure. Please note that each line is at a different altitude.

Use the "Mission Flight Time Estimate" box to estimate how long a mission will take.

Line Name	Line Length [nmi]	Flying Alt. [ft MSL]	Time Stamp	Refly Time Stamp	Sats./PDOP	Notes (Direction, Atmos. Conditions, Speed, PR, Errors)
089	22.13	8773	180400			start s to n
090	22.11	8800	181714			
091	22.09	8800	183051			end s to n, CROSSLINE: 184501