FUGRO GEOSPATIAL, INC.

Collection Report

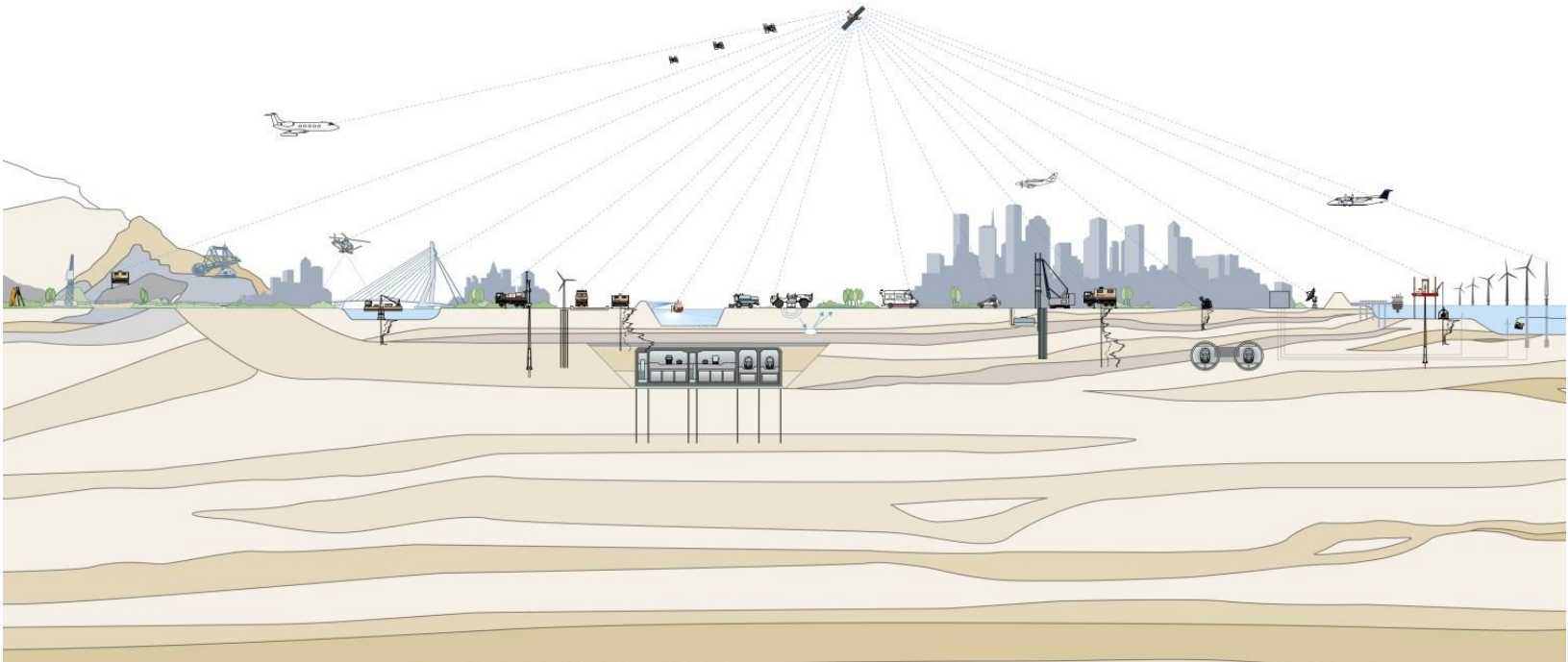
TX_Matagorda Bay_2018_D18

Prepared for:

United States Geological Survey
1400 Independence Road
Rolla, MO 65401
(573) 308-3689

September 17, 2019

USGS Contract: G17PC00015
USGS Task Order: 140G0218F0088



Fugro was tasked with planning, acquiring, processing, and producing derivative products of high resolution lidar data (QL2+) collected at an aggregate nominal pulse spacing (ANPS) of 0.5 meters (4ppsm), including overlap, over coastal Texas along Matagorda Bay. The area of interest (AOI) covers approximately 705 square miles. A 100-meter buffer was added to the AOI; all products will be generated to the limit of this buffered boundary.

Lidar data, and derivative products produced in compliance with the task order will be based on the **"U.S. Geological Survey National Geospatial Program Lidar Base Specification Version 1.2"**.

The acquisition occurred during the acceptable collection windows that existed between 01/24/2019 and 01/29/2019.

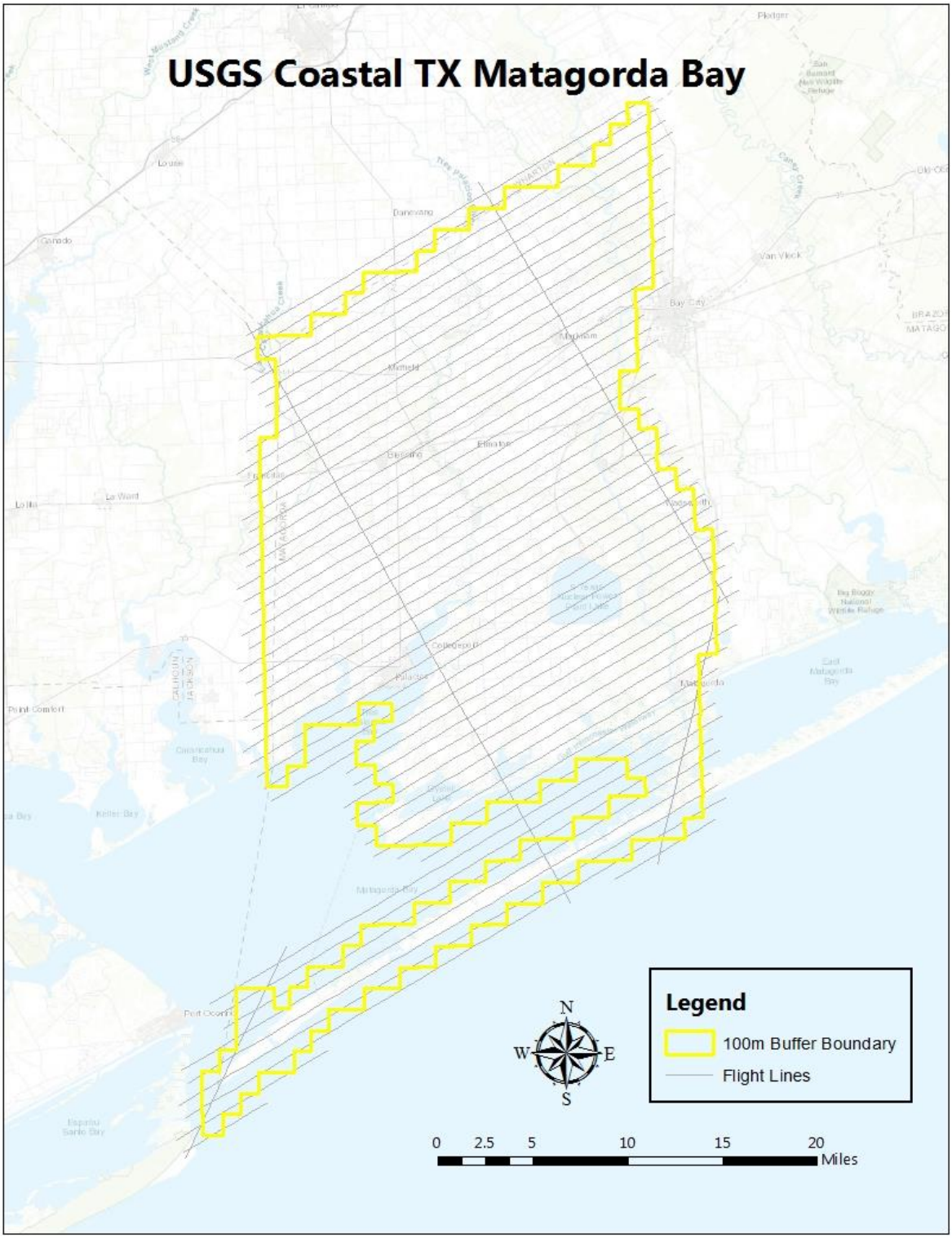


Figure 1: Flight plan

The following is detail on lidar acquisition covering the Matagorda Bay AOI buffered boundary.

Collections:	7
Collection Dates:	January 24th – 29th, 2019
Field of View (FOV):	29 deg
Average Point Density (planned):	4 ppsm
Flight Level(s) AMT:	9100 ft
Sensor Type(s):	Leica ALS80
Sensor Serial Number(s):	130, 133

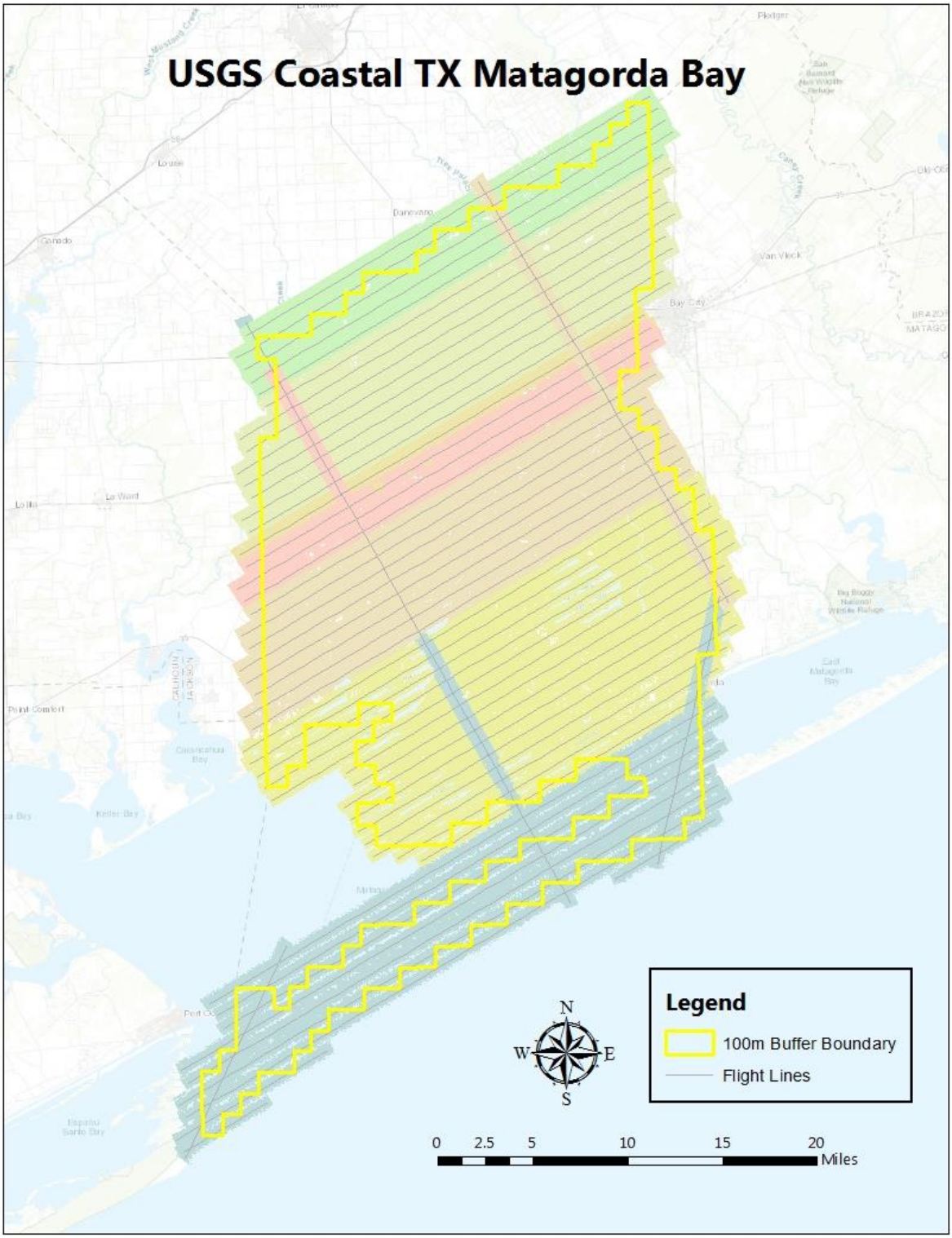


Figure 2: Executed Collection Footprints

All acquired lidar data was assessed and accepted for processing.

Below are the acquisition logs and GPS plots from the collections covering the Matagorda Bay buffered boundary:

Acquisition and Processing details ----- (January 24, 2019)

Log: 190124_133_33780026_01

Menu

19.023

Fugro USA Land, Inc.

ALS Flight Log

AC80-44-00-02

	Lift Begin			Lift End			Flt	Flt	Hobbs	
	Airport	Chocks	Hobbs	Airport	Chocks	Hobbs	Duration	Hrs	Hrs	Actvity
1	KHYI	21:05	8153.9	KBAZ	1:20	8158.5	4:15	4.25	4.6	0900-Production
2										
3										

FGI Job #	Project Name	System	Unit	IMU	PIA	SW1	SW2-Gain	Aper	AutoScan	Ground Temp°C		Min Range Gate	Data Logger Drive
33780026	US CoastalTX Matagorda Bay	ALS80	133	uIRS	6		255	60°	Yes	17.0	10.0	8718	MM70-04

Flight Date	GPS Day	Lift			Sun°	Solar Times (UTC)	Laser Power	Pattern	Flying Temp °C		Max Range Gate	Download Drive
24-Jan-19	19-024	1			NA	NA	70%	Triangle	0.0	0.0	9615	NS1TB-65

Mission ID (yymmdd_Sen_Job_Lift)	Aircraft	Airport ID	FMS	UTC	AMT (ft)	Speed	Scan Hz	Pulse Rate	FOV	km/WPT	Altm Setting		Shipping Track
190124_133_33780026_01	N76JN	KBAZ	FCMS		9,101	150	49.0	610,000	29	1.668	30.12	30.12	

Pilot #1	Pilot #2	Operator #1	Operator #2
Randy Green	Maison Collins	Adam Mueller	

Base 1 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
FGI 8003	KBAZ	Unit 4	Unit 4	1.8	24-Jan-19 14:05	25-Jan-19 01:25	GR3-40124o	Adam Mueller	With AB

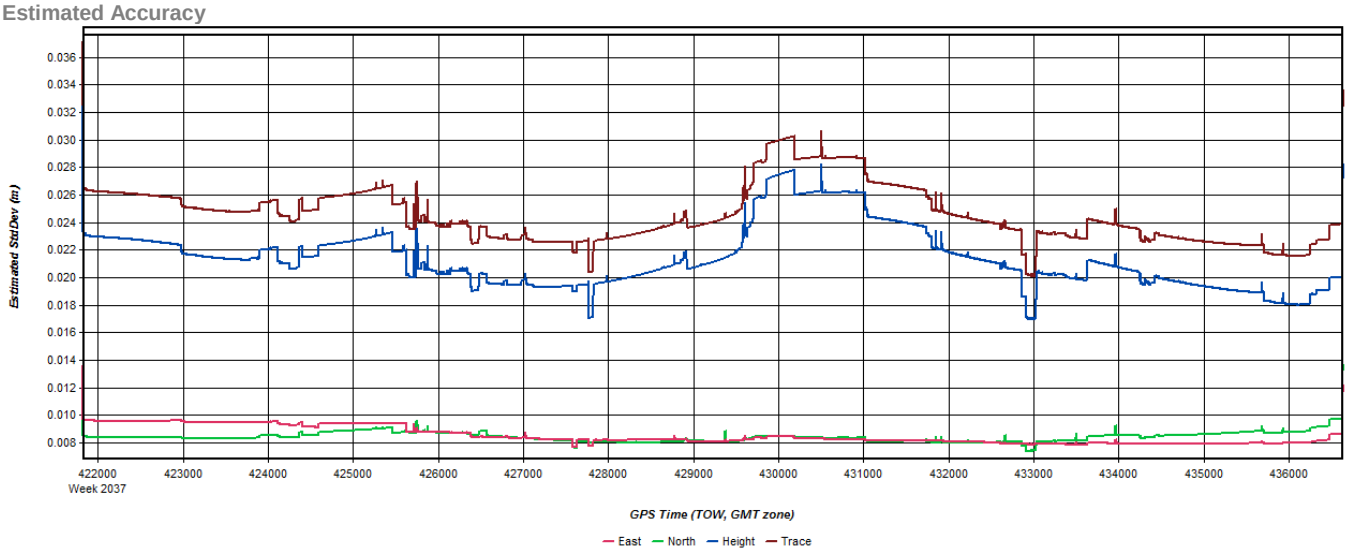
Base 2 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
TXMG CORS	TX				CORS		CORS		

Base 3 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
TXPV CORS	TX				CORS		CORS		

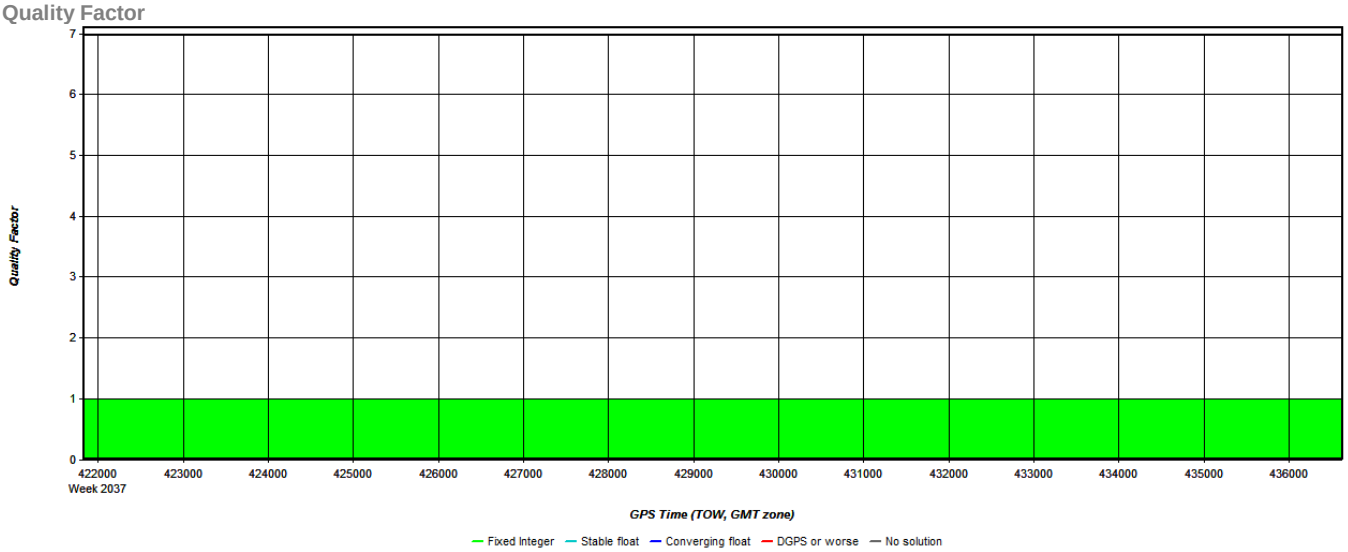
Area	Flight # FGI	Flight # Client's	Wpt From	Wpt To	Distance Begin	Distance End	UTC Start	UTC End	Flt Dir	Altitude (GPS)	Speed (knots)	Scan Rate	Comments and Conditions	SVs	PDOP
							22:04:50	22:09:50					Over Flight TXMG CORS	24	1.1
							22:14:48	22:17:19					S Turn	24	1.1
MataTX4p	53		1	26	0	41.7	22:21:51	22:31:21	N	9012	145	49.0	Cross line	25	1.0
	49		25	1	40	0	22:39:58	22:49:37	W	9062	135	49.0		23	1.2
	48		1	25	0	40	22:55:07	23:04:25	E	9062	150	49.0	speeds up to 155 at times due to winds	23	1.2
	48		26	16	41.7	25	23:09:02	23:14:09	W	9062	130	49.0	Calibration line	24	1.2
	47		26	1	41.7	0	23:22:08	23:32:22	W	9062	135	49.0		24	1.2
	46		1	26	0	41.7	23:46:29	23:55:58	E	9012	148	49.0	speeds up to 153 at times due to winds	24	1.3
	45		25	1	40	0	23:59:58	00:09:31	W	9012	140	49.0	little turbulence	24	1.2
							00:09:58	00:12:00					S Turn	24	1.3
							00:17:50	00:22:50					Over Flight TXPV CORS	24	1.2
							01:13:00	01:16:00					3 min Ground Static at KBAZ	24	1.1

Trajectory and GPS Plots:

Estimated Accuracy



Quality Factor



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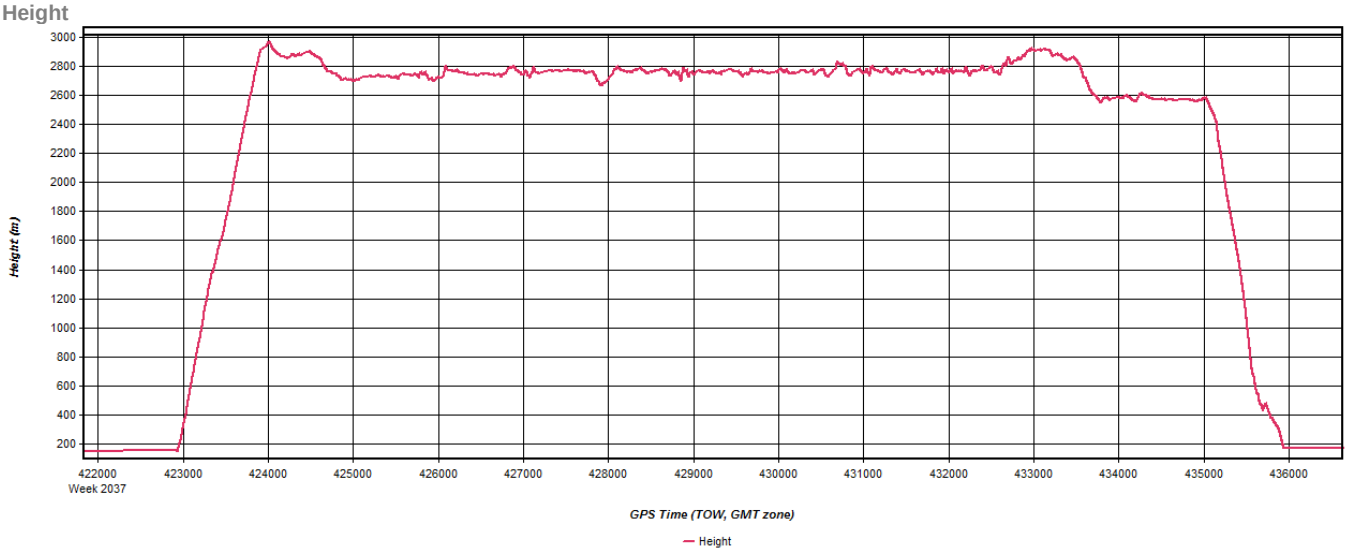
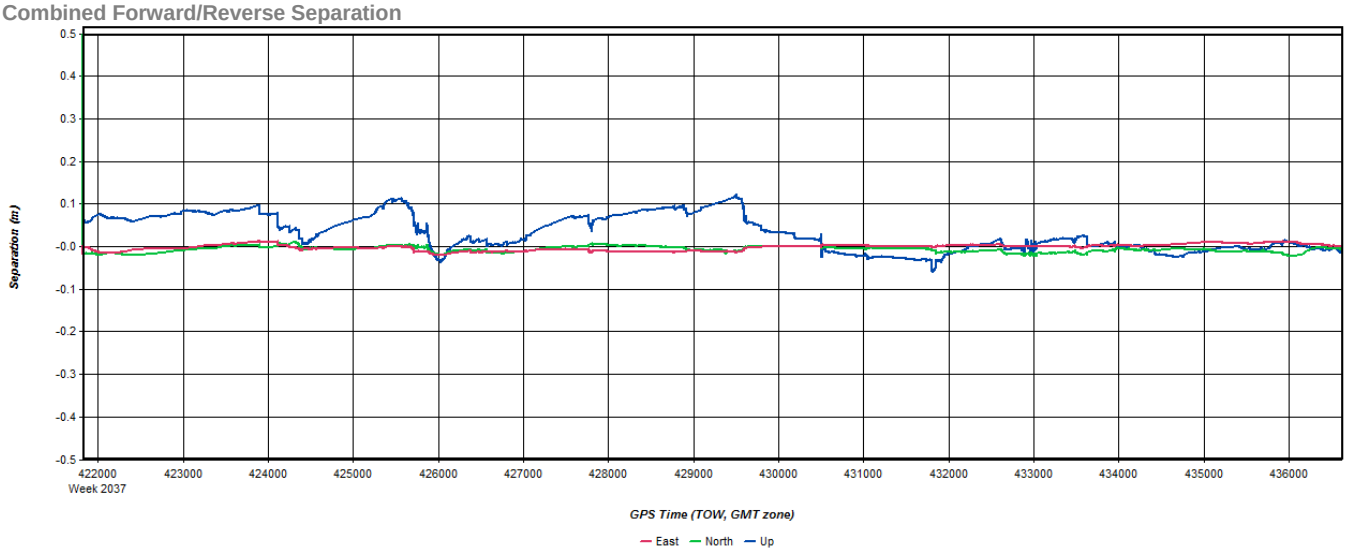
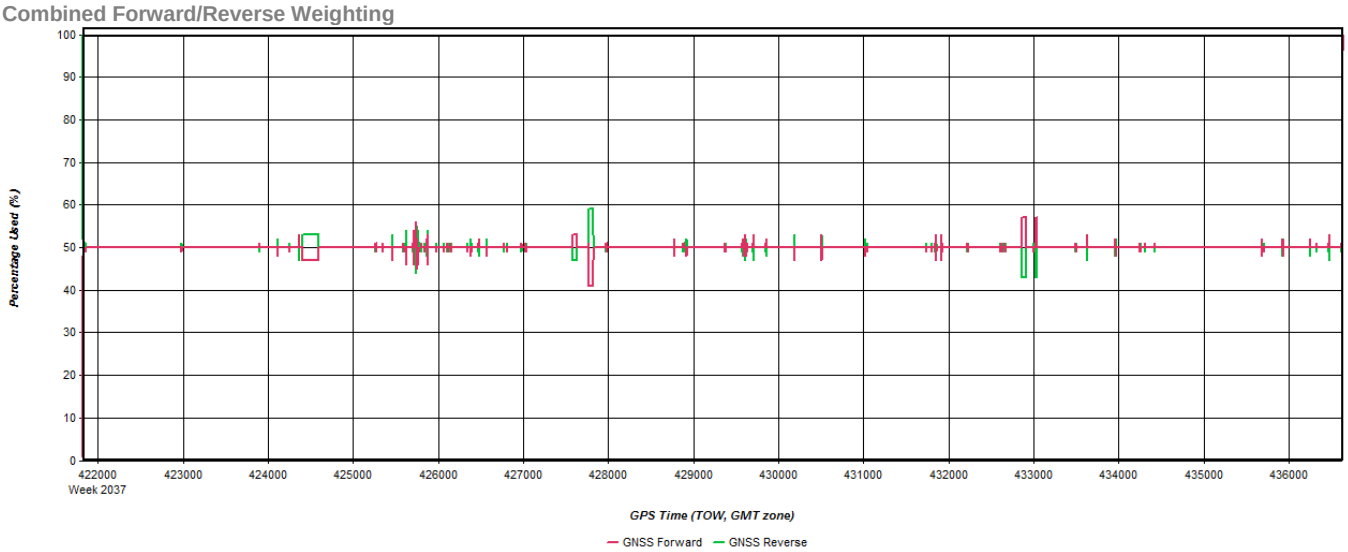


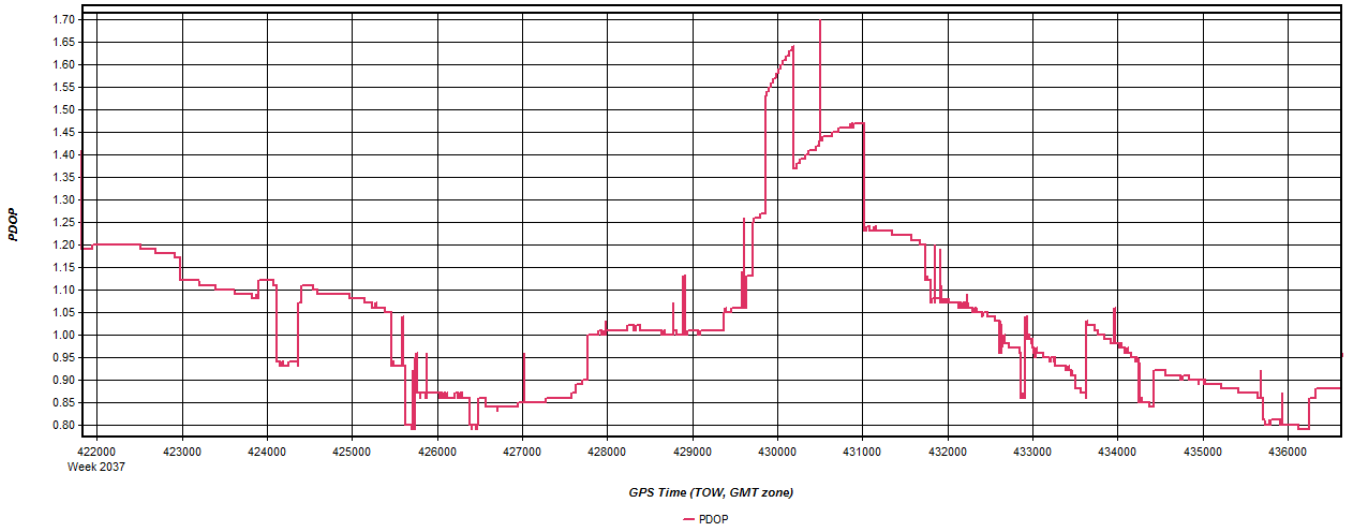
Combined Forward/Reverse Separation



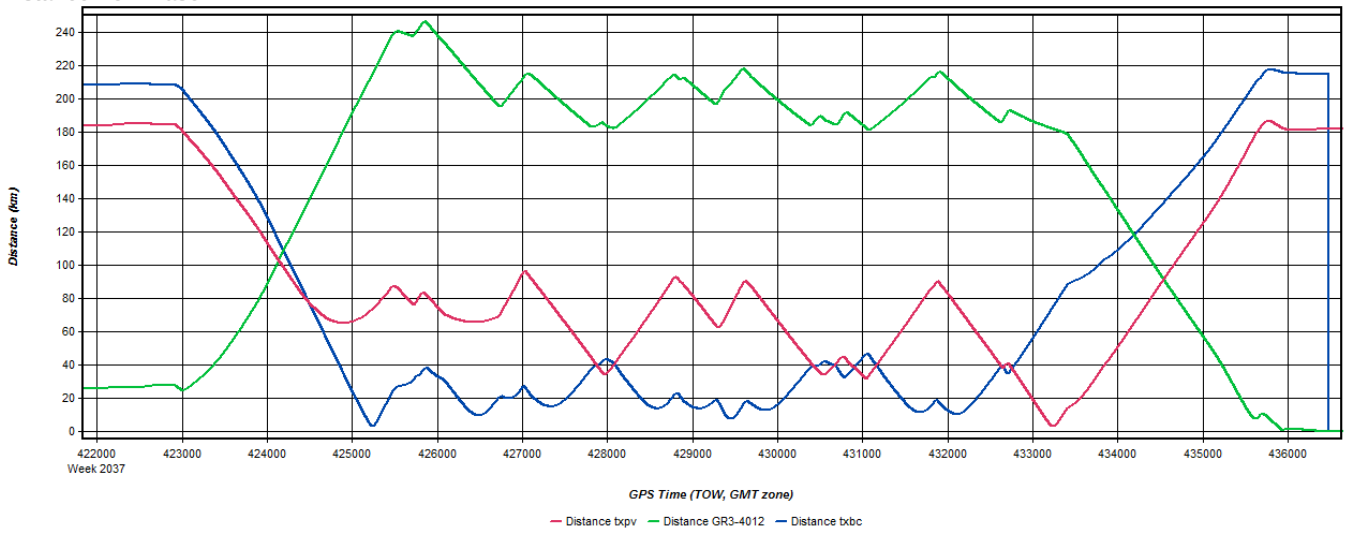
Combined Forward/Reverse Weighting



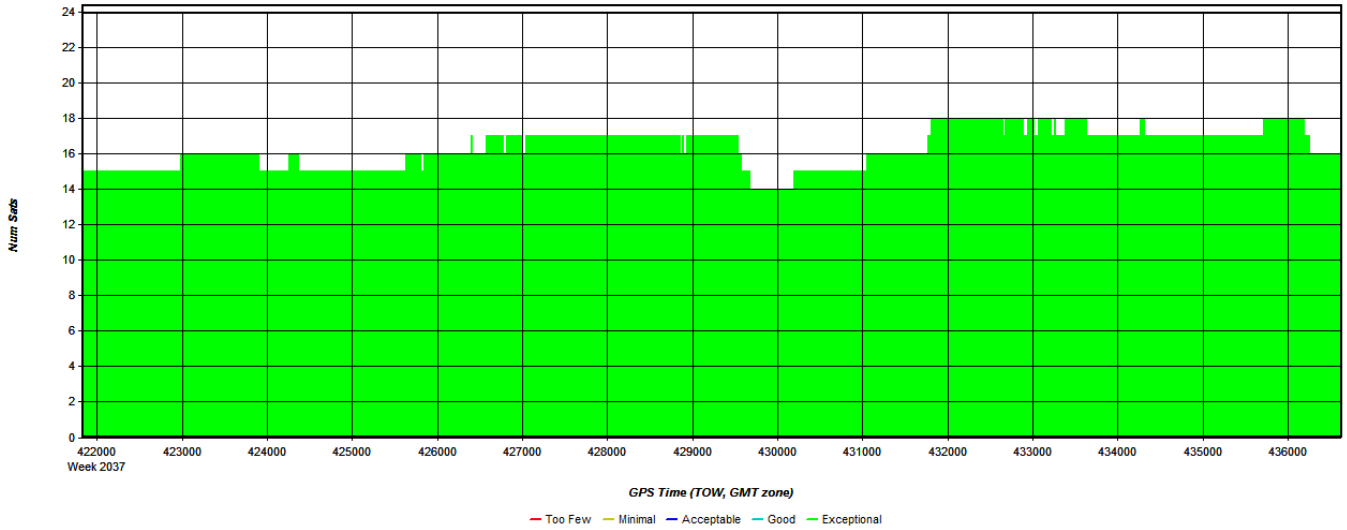
PDOP



Distance from Base



SVs


Num Sats
24
22
20
18
16
14
12
10
8
6
4
2
0
422000
Week 2037
423000
424000
425000
426000
427000
428000
429000
430000
431000
432000
433000
434000
435000
436000
GPS Time (TOW, GMT zone)
Too Few
Minimal
Acceptable
Good
Exceptional

Acquisition and Processing details ----- (January 25, 2019)

Log: 190125_130_33780026_01

Menu

18.165

Fugro USA Land, Inc.

ALS Flight Log

AC80-44-00-02

	Lift Begin Airport	Lift Begin Chocks	Lift Begin Hobbs	Lift End Airport	Lift End Chocks	Lift End Hobbs	Flt Duration	Flt Hrs	Hobbs Hrs	Actvity
1	KBAZ	15:38	1356.3	KLBX	20:09	1360.5	4:31	4.50	4.2	0900-Production
2										
3										

FGI Job #	Project Name	System	Unit	IMU	PIA	SW1	SW2-Gain	Aper	AutoScan	Ground Temp°C		Min Range Gate	Data Logger Drive
33780026	USGS CoastalTX MatagordaBay	ALS80	130	uIRS	6					9.0	16.0	2657	LG101

Flight Date	GPS Day	Lift			Sun°	Solar Times (UTC)	Laser Power	Pattern	Flying Temp °C		Max Range Gate	Download Drive
25-Jan-19	19-025	1					70%	Triangle	-4.0	-2.0	2931	NS1TB-73

Mission ID (yymmdd_Sen_Job_Lift)	Aircraft	Airport ID	FMS	UTC	AMT (ft)	Speed	Scan Hz	Pulse Rate	FOV	km/WPT	Altm Setting		Shipping Track
190125_130_33780026_01	N97HC	KBAZ	CCNS 8	-6	9,101	150	53.0	610,000	29	1.668	30.31	30.27	7743 1867 4731

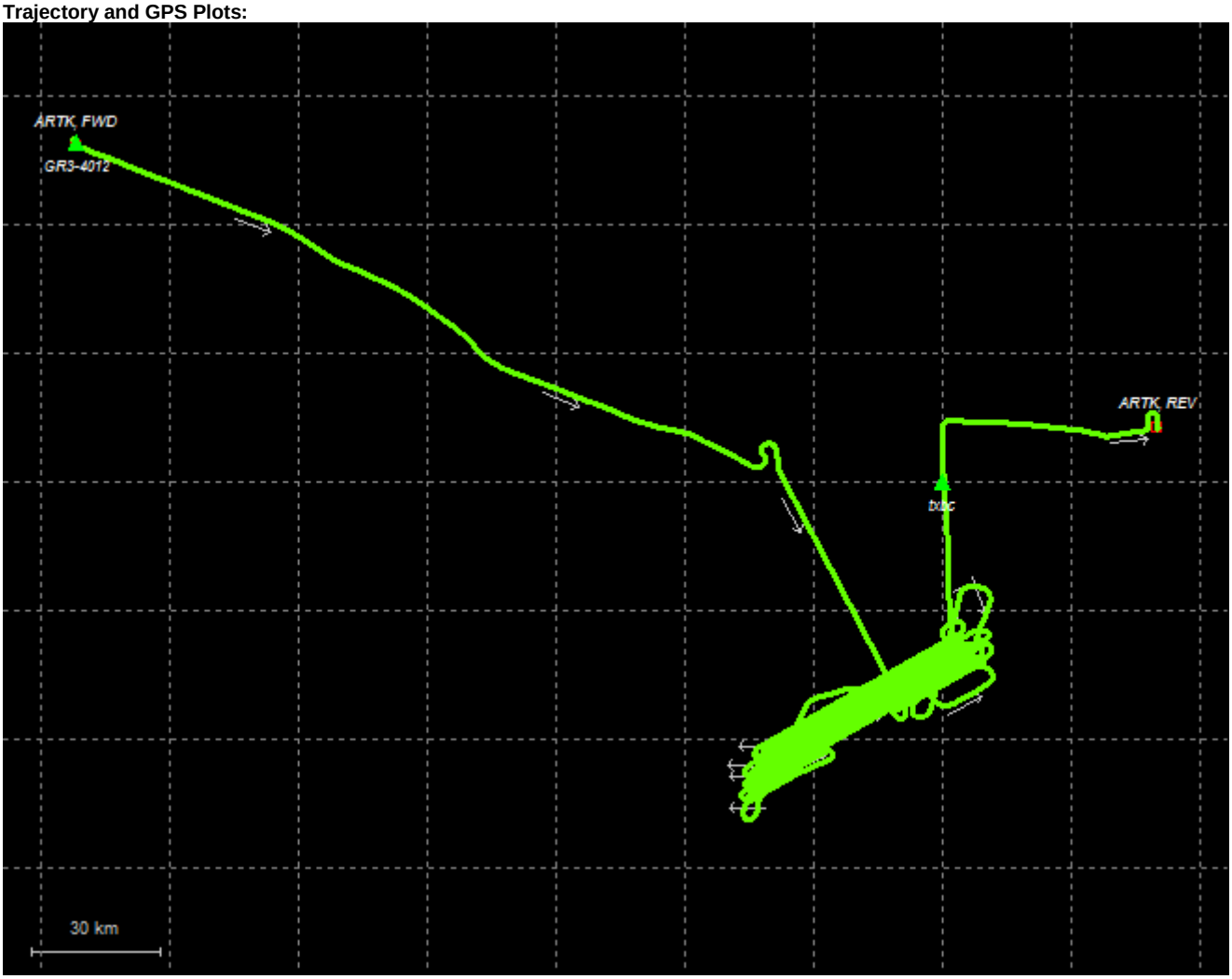
Pilot #1	Pilot #2	Operator #1	Operator #2
Grant Cassell		David Verhey	

Base 1 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
FGI 8003	KBAZ	Unit 4	U4	1.8	25-Jan-19 14:58	25-Jan-19 21:33	GR3-40125o	Adam Mueller	FTP

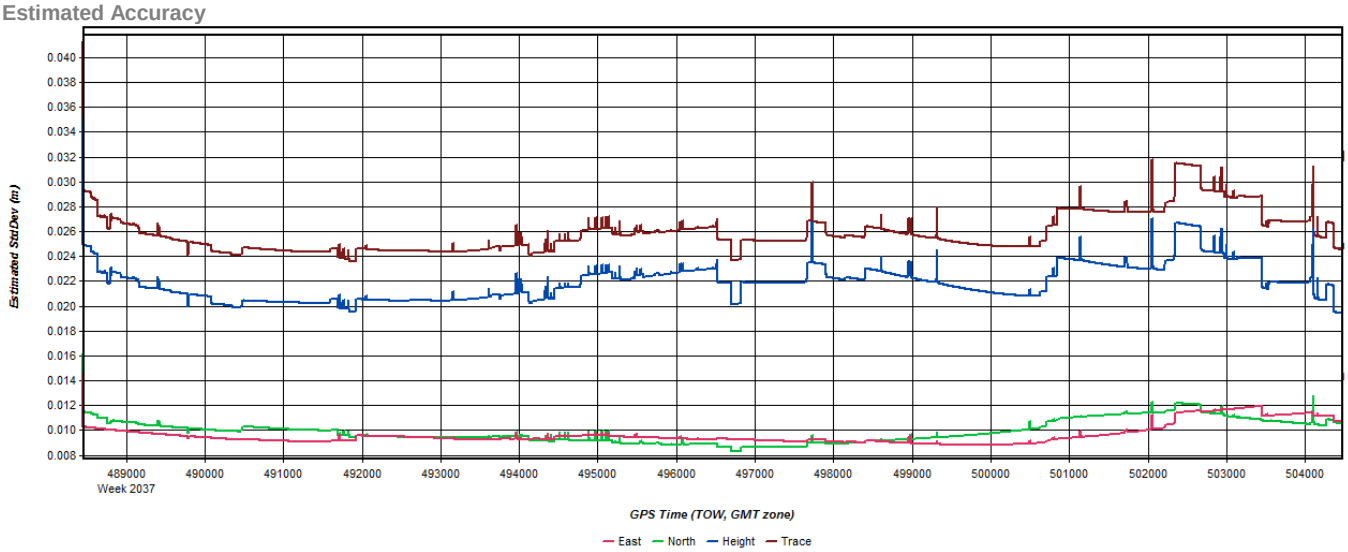
Base 2 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
TXBC	TXBC							CORS	

Area	Flight # FGI	Flight # Client's	Wpt From	Wpt To	Distance Begin	Distance End	UTC Start	UTC End	Flt Dir	Altitude (GPS)	Speed (knots)	Scan Rate	Comments and Conditions	SVs	PDOP
							15:40:56	15:45:56					Ground Static at KBAZ	29	1.0
							16:33:55	16:36:07					S-Turn	26	1.1
MataTX4p	51		35	1	56.7	0	16:38:46	16:51:50	149.1	9047	142		Tie line in entirety; open water 26-20,14-0 km	27	1.1
	50		13	1	20	0	16:59:58	17:04:48	203.8	9055	137		Tie line in entirety; open water entire line	24	1.2
	1		1	6	0	8.3	17:08:21	17:10:28	57.5	9036	142		Open water entire line	25	1.2
	2		10	1	15	0	17:14:01	17:17:52	237.6	9039	128		Majority open water 15-4 km	25	1.2
	4		1	33	0	53.4	17:20:16	17:32:38	57.5	9012	140		Majority open water 1-50	24	1.2
	4		33	23	53.4	36.7	17:35:27	17:38:29	238.0	9044	133		Calibration Line, abandoned due to lack of land	24	1.3
	3		7	1	10	0	17:43:52	17:46:29	238.0	9004	135		Open water entire line	23	1.4
	52		1	15	0	23.4	17:49:15	18:13:39	11.8	8977	138		Tie line in entirety; majority open water km 0-4 km	24	1.2
	5		33	1	53.4	0	18:00:50	18:13:22	238.0	9000	133		Majority open water 42-15 km	24	1.2
	6		1	32	0	51.7	18:15:53	18:27:56	57.5	9031	144			23	1.2
	6		32	22	51.7	35	18:31:11	18:35:20	238	9078	134		Calibration line	21	1.2
	7		33	1	53.4	0	18:43:20	18:56:00	237.9	9014	137			19	1.3
	8		1	30	0	48.4	18:59:14	19:10:29	57.5	8998	139			19	1.2
	9		31	1	50	0	19:14:02	19:26:10	238.0	9048	135			18	1.3
	10		1	31	0	50	19:28:32	19:40:08	57.5	9036	143			19	1.3
							19:40:12	19:42:53					S-Turn	18	1.5
							19:46:54	19:51:54					Overflight of CORS at TXBC	20	1.2

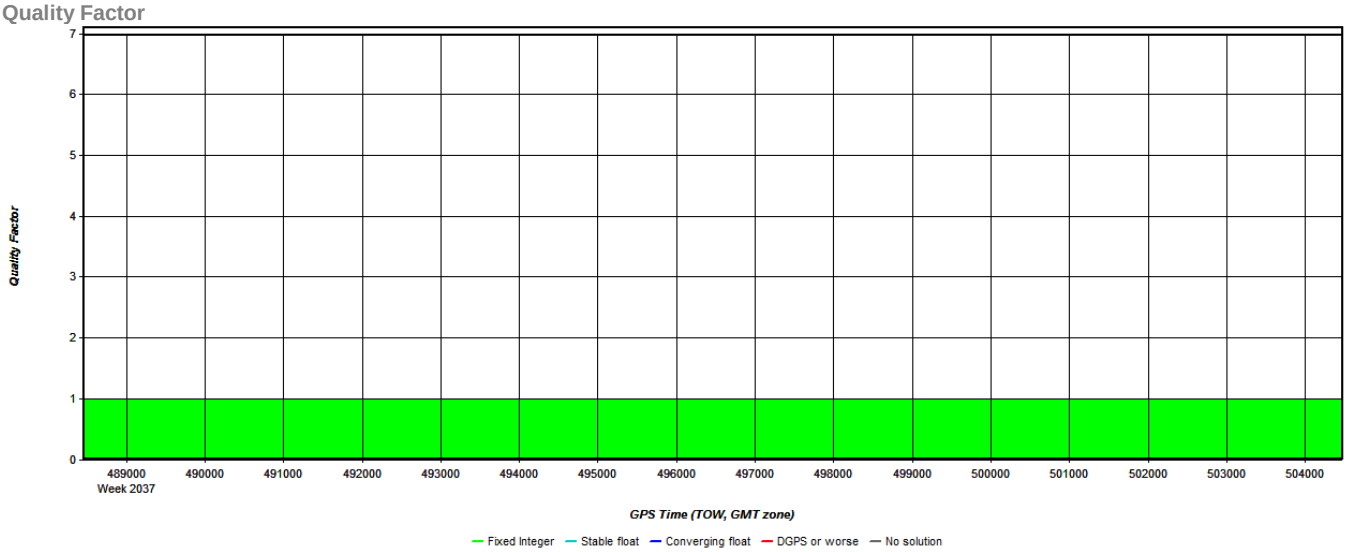
Trajectory and GPS Plots:



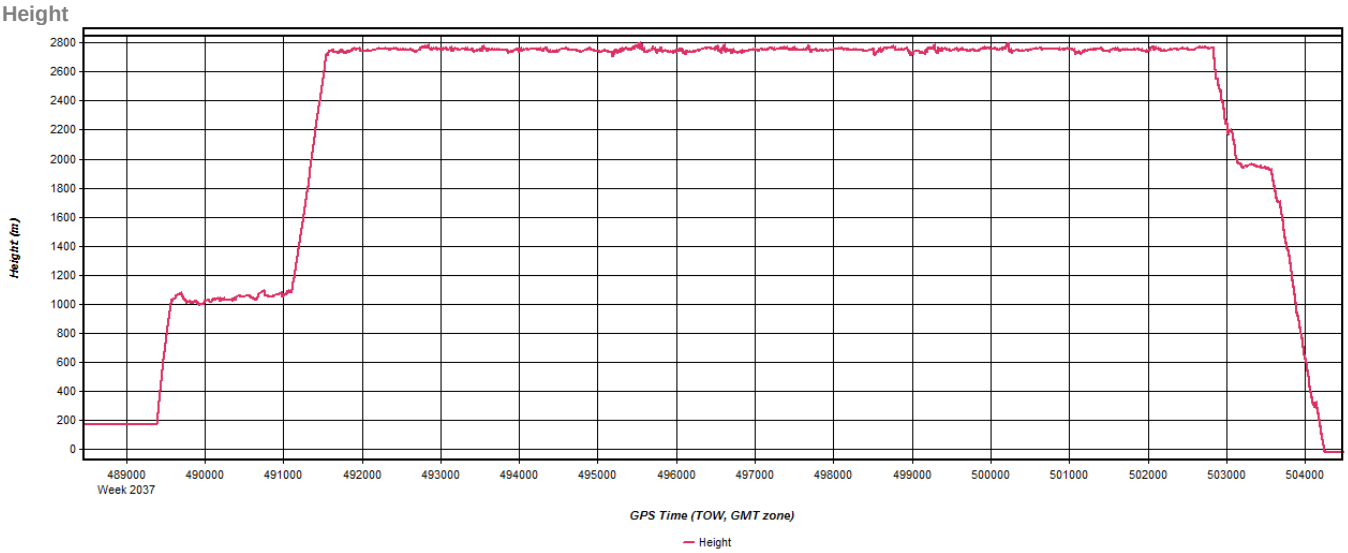
Estimated Accuracy



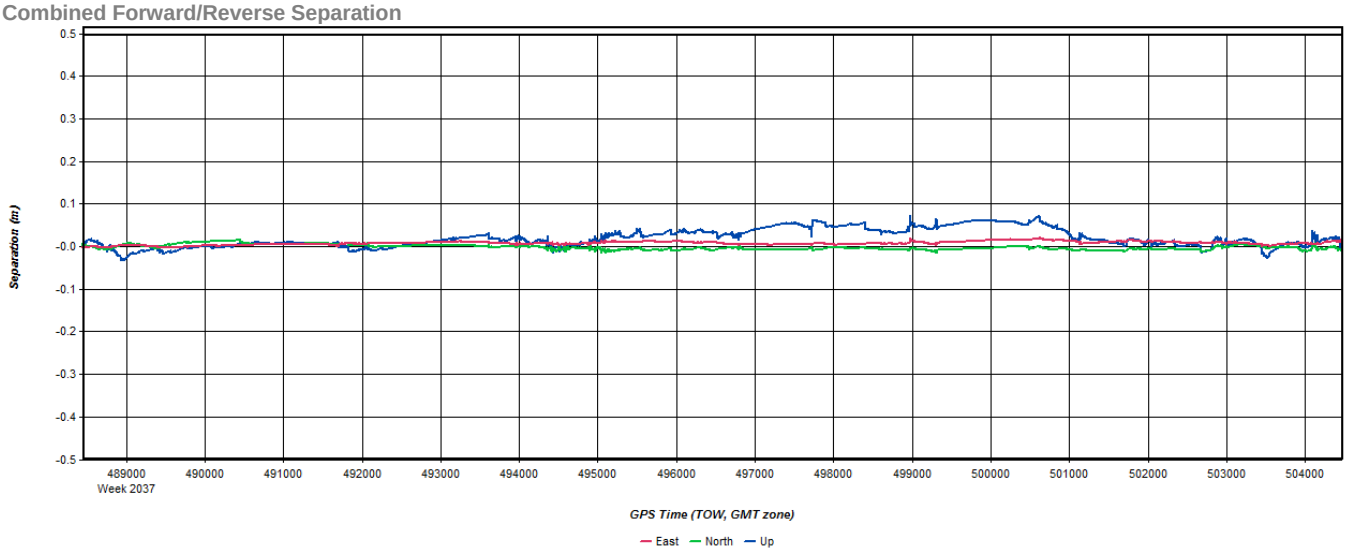
Quality Factor



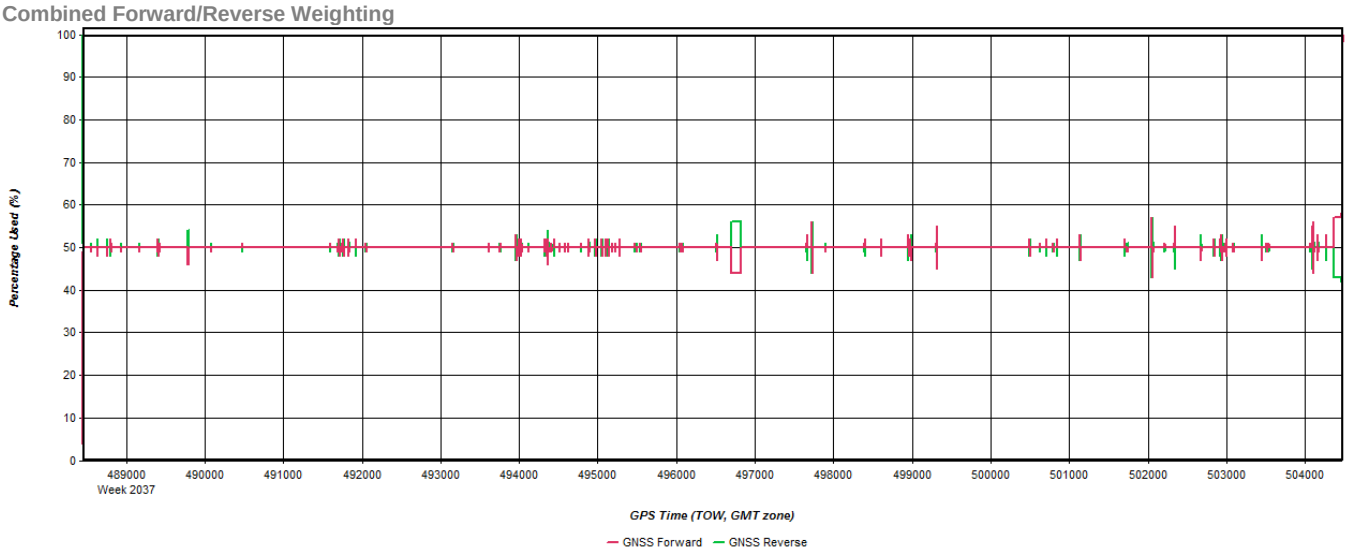
Height



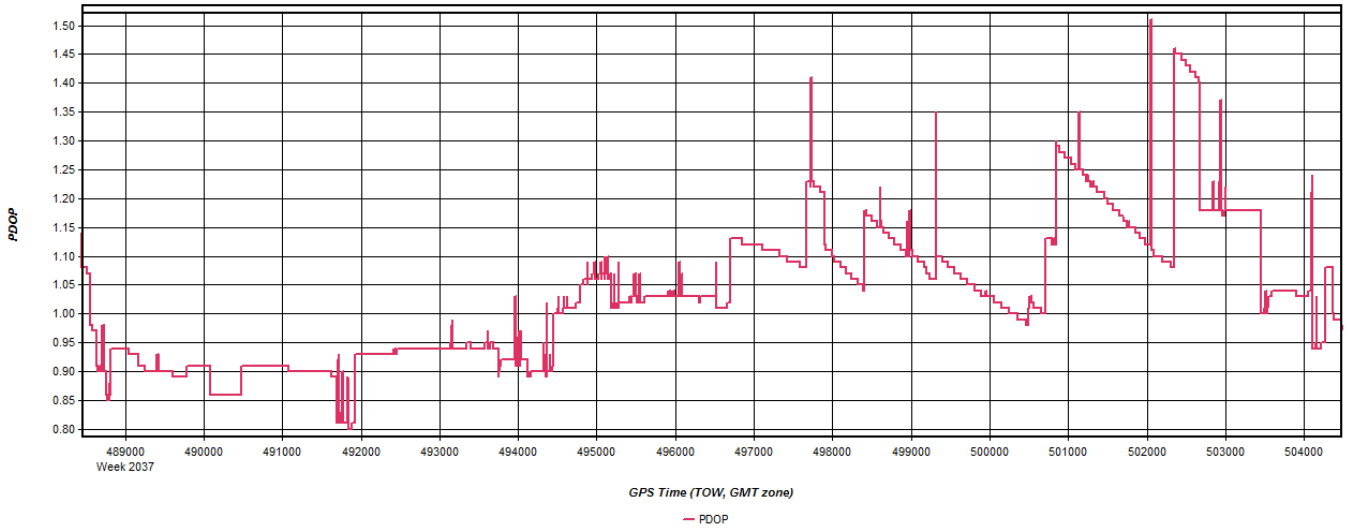
Combined Forward/Reverse Separation



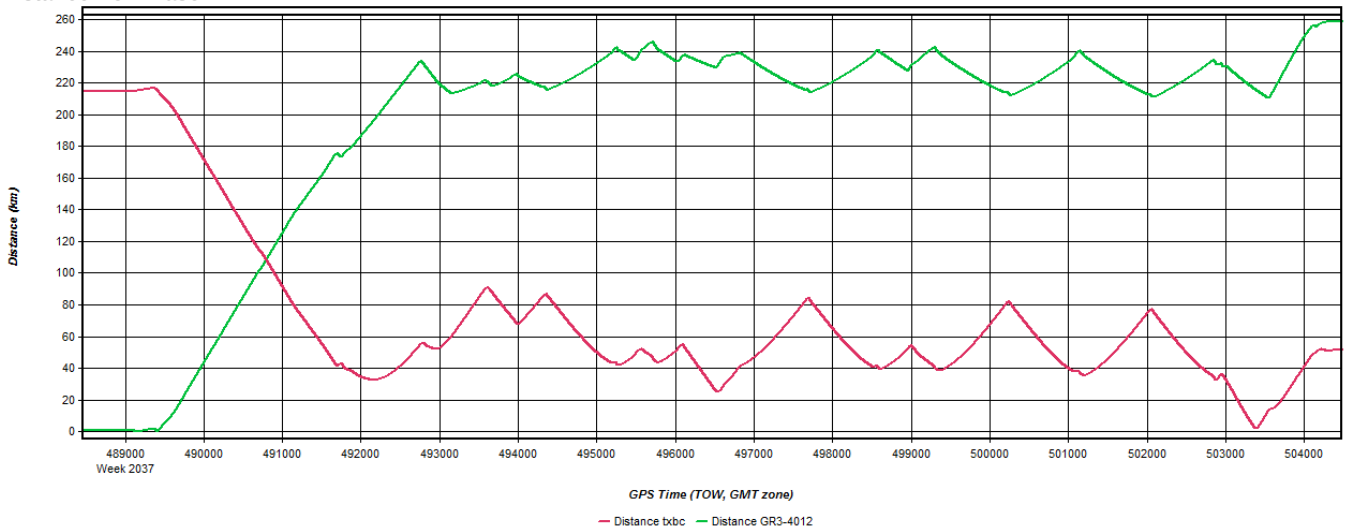
Combined Forward/Reverse Weighting



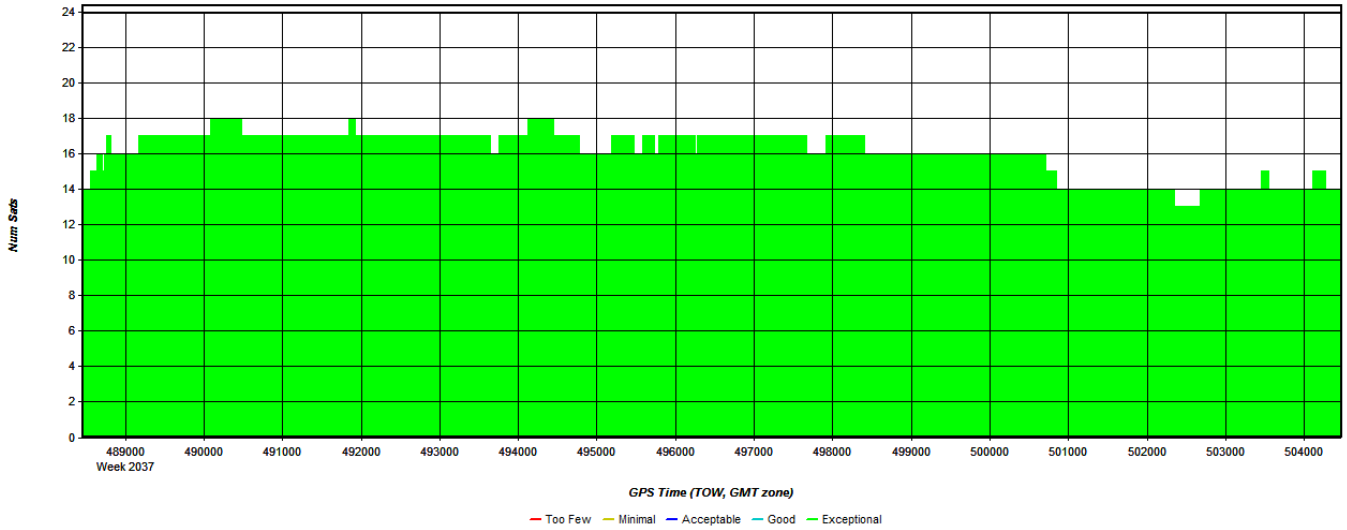
PDOP



Distance from Base



SVs


Num Sats
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22
20
18
16
14
12
10
8
6
4
2
0
489000
Week 2037
490000
491000
492000
493000
494000
495000
496000
497000
498000
499000
500000
501000
502000
503000
504000
GPS Time (TOW, GMT zone)
Too Few
Minimal
Acceptable
Good
Exceptional

Acquisition and Processing details ----- (January 25, 2019)

Log: 190125_130_33780026_02

Menu

18.165

Fugro USA Land, Inc.

ALS Flight Log

AC80-44-00-02

	Lift Begin			Lift End			Flt	Flt	Hobbs	
	Airport	Chocks	Hobbs	Airport	Chocks	Hobbs	Duration	Hrs	Hrs	Actvity
1	KLBX	21:40	1360.5	KLBX	2:07	1364.5	4:27	4.50	4.0	0900-Production
2										
3										

FGI Job #	Project Name	System	Unit	IMU	PIA	SW1	SW2-Gain	Aper	AutoScan	Ground Temp°C		Min Range Gate	Data Logger Drive
33780026	USGS CoastalTX MatagordaBay	ALS80	130	uIRS	6					15.0	9.0	2657	LG101

Flight Date	GPS Day	Lift			Sun°	Solar Times (UTC)	Laser Power	Pattern	Flying Temp °C		Max Range Gate	Download Drive
25-Jan-19	19-025	2					70%	Triangle	-1.0	0.0	2931	NS1TB-73

Mission ID (yymmdd_Sen_Job_Lift)	Aircraft	Airport ID	FMS	UTC	AMT (ft)	Speed	Scan Hz	Pulse Rate	FOV	km/WPT	Altm Setting		Shipping Track
190125_130_33780026_02	N97HC	KLBX	CCNS 8	-6	9,101	150	53.0	610,000	29	1.668	30.27	30.28	7743 1867 4731

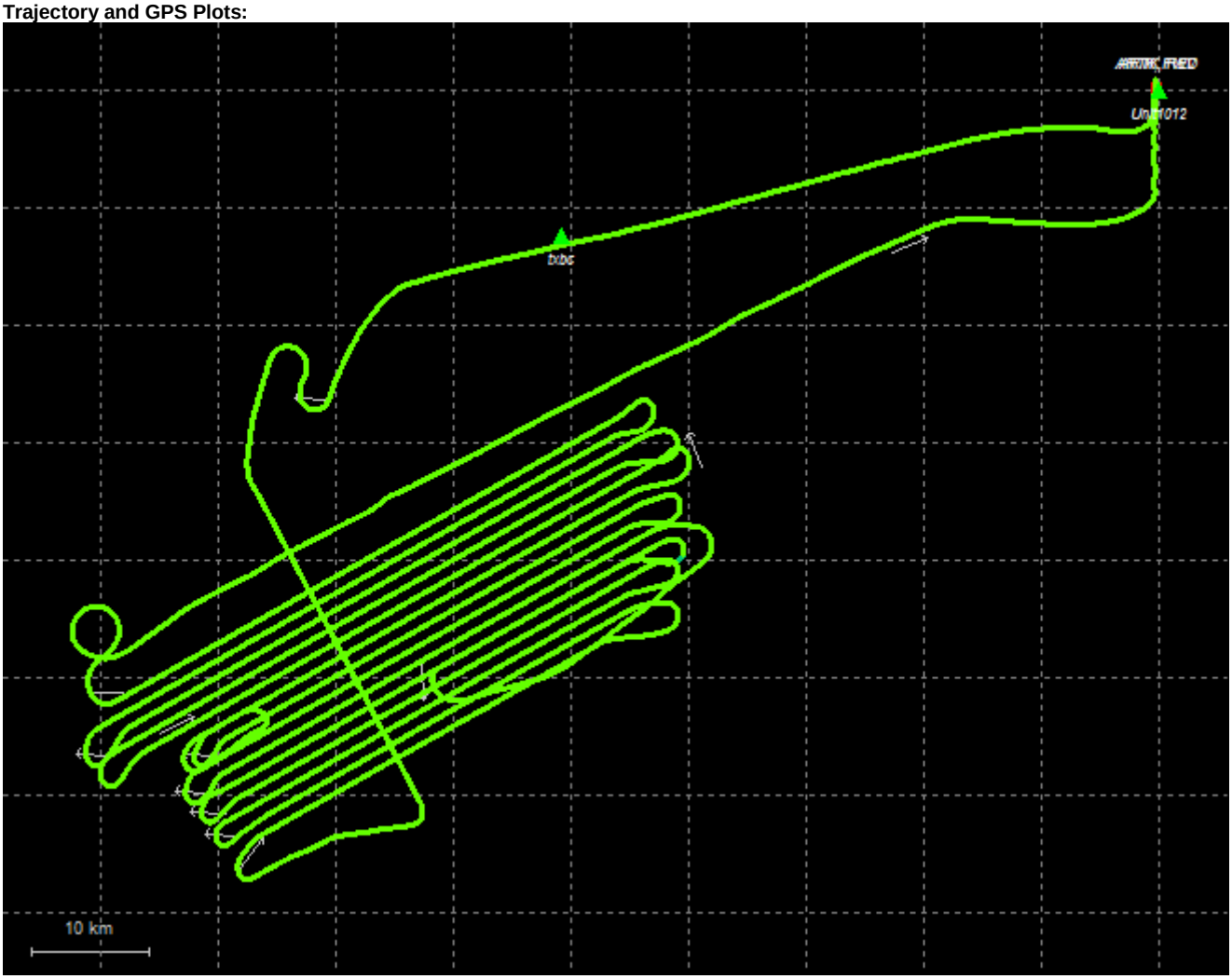
Pilot #1	Pilot #2	Operator #1	Operator #2
Grant Cassell		David Verhey	

Base 1 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
FUSAL 100	KLBX	GR3-1	GR3-1	1.8	25-Jan-19 21:35	26-Jan-19 02:25	Unit10125v	David Verhey	FTP

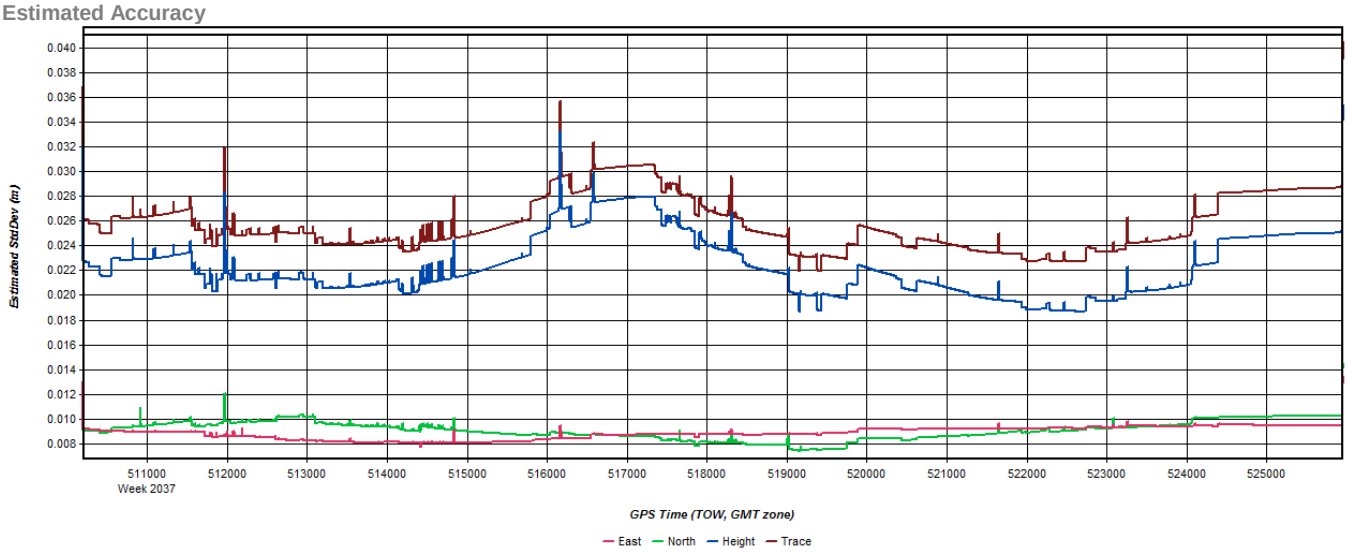
Base 2 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
TXBC	TXBC							CORS	

Area	Flight # FGI	Flight # Client's	Wpt From	Wpt To	Distance Begin	Distance End	UTC Start	UTC End	Flt Dir	Altitude (GPS)	Speed (knots)	Scan Rate	Comments and Conditions	SVs	PDOP
							21:43:24	21:48:24					Ground Static at KLBX	21	1.2
							22:04:30	22:09:30					Overflight of CORS at TXBC	23	1.1
							22:12:10	22:14:29					S-turn	22	1.1
MataTX4p	51		18	5	28.4	6.7	22:18:06	22:23:36	149.4	9026	138		Tie line	24	1.0
	11		1	18	0	28.4	22:30:09	22:36:51	57.7	9060	140			24	1.1
	12		20	1	31.7	0	22:40:07	22:48:11	238.0	9059	132			23	1.1
	13		1	22	0	35	22:50:43	22:59:06	57.7	9030	143			23	1.1
	14		23	1	36.7	0	23:01:28	23:10:37	238.0	9049	130			23	1.1
	15		1	23	0	36.7	23:12:49	23:21:22	57.7	9006	141			23	1.2
	15		23	13	36.7	20	23:24:13	23:28:27	238.0	8988	136		Calibration line	22	1.2
	16		24	1	38.4	0	23:35:51	23:45:28	238.0	8978	134			23	1.2
	17		1	24	0	38.4	23:47:54	23:56:49	57.7	8976	143			24	1.3
	18		23	1	36.7	0	23:59:38	0:08:55	238.0	9022	129			24	1.2
	19		1	24	0	38.4	0:16:03	0:24:57	57.7	8982	143			23	1.2
	20		28	1	45	0	0:28:00	0:39:16	238.0	9039	134			24	1.1
	21		1	28	0	45	0:41:58	0:52:21	57.6	9042	143			23	1.2
	22		28	1	45	0	0:55:22	1:06:12	238.0	8987	140			23	1.1
	23		1	28	0	45	1:08:59	1:19:38	57.6	8995	144			23	1.1
	24		28	1	45	0	1:22:13	1:32:51	238.0	9030	133			21	1.2
							1:32:55	1:35:19					S-turn	21	1.2
							2:00:25	2:05:25					Ground static at KLBX	20	1.2

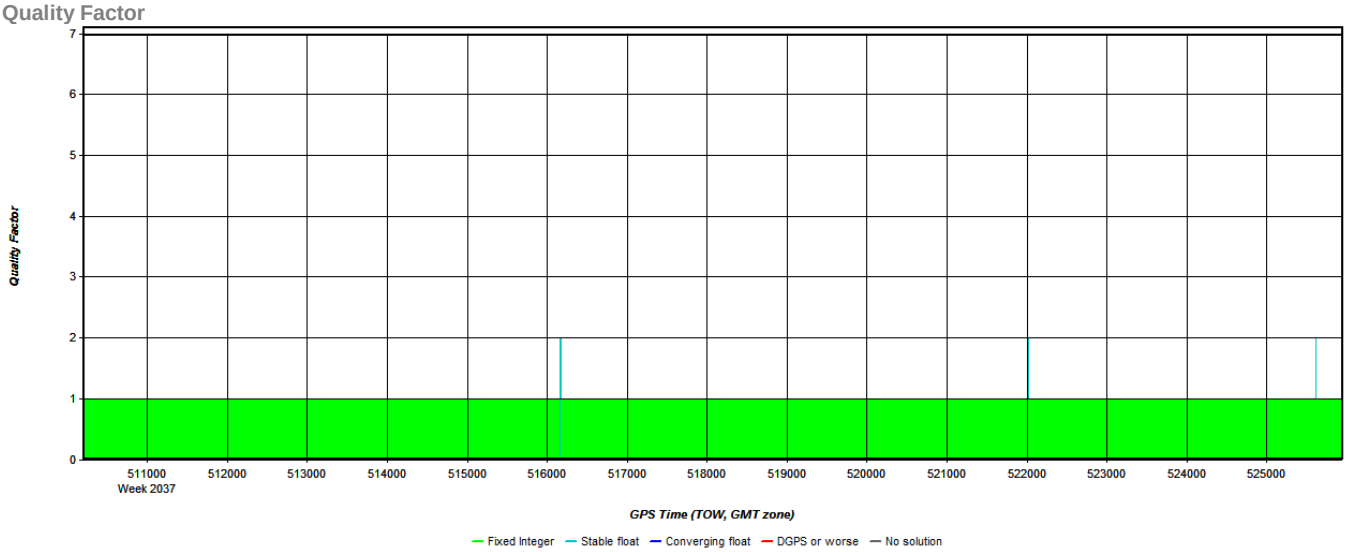
Trajectory and GPS Plots:



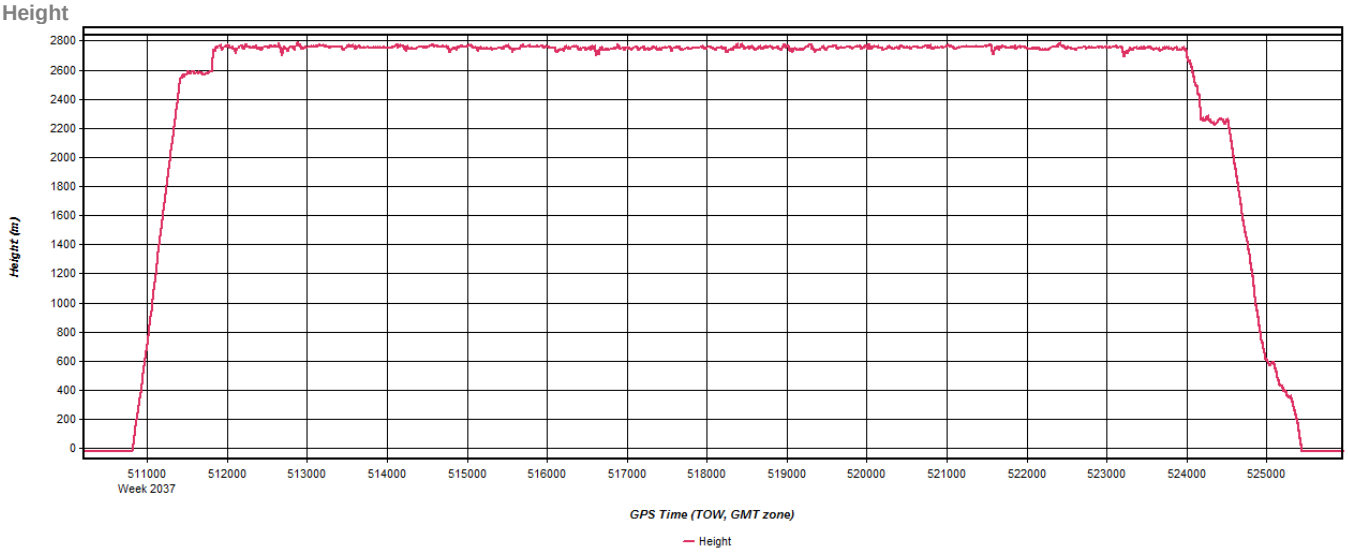
Estimated Accuracy



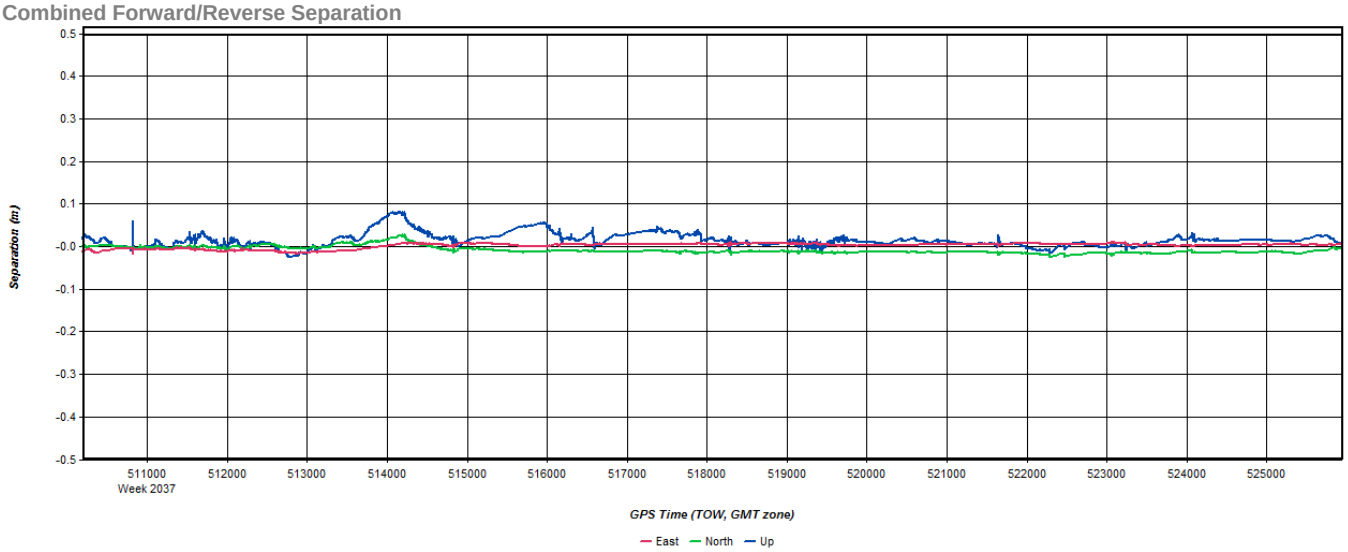
Quality Factor



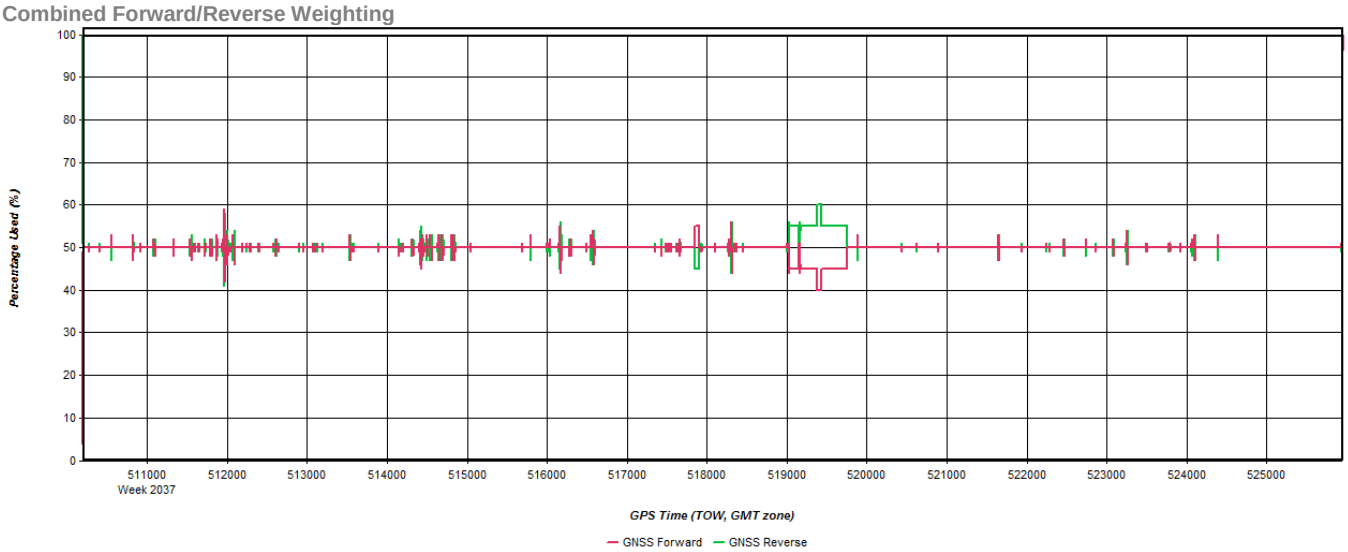
Height



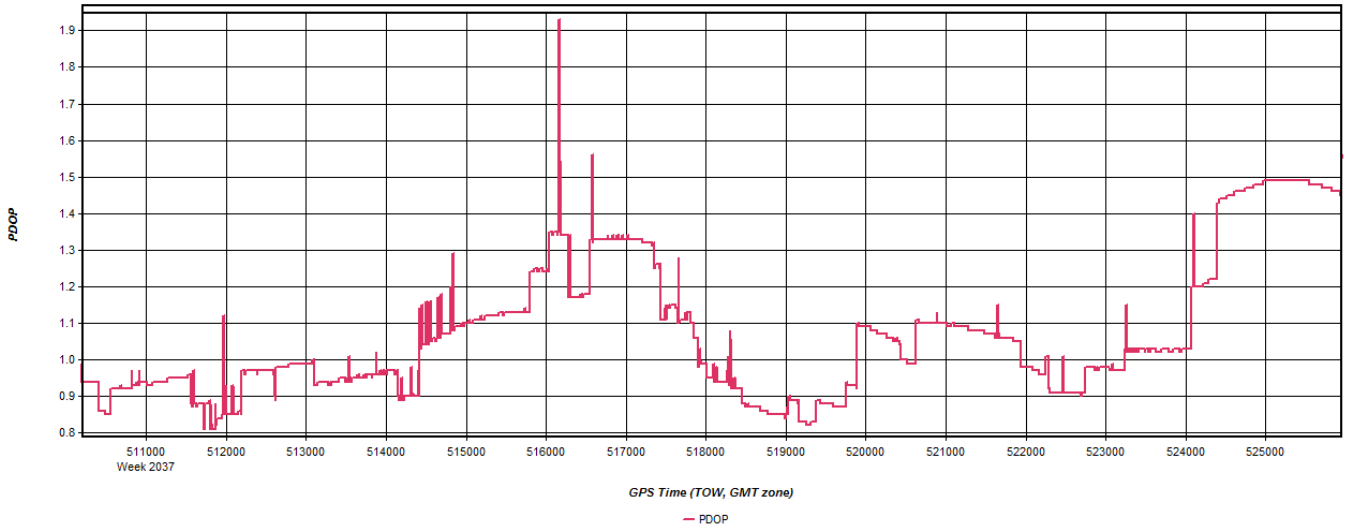
Combined Forward/Reverse Separation



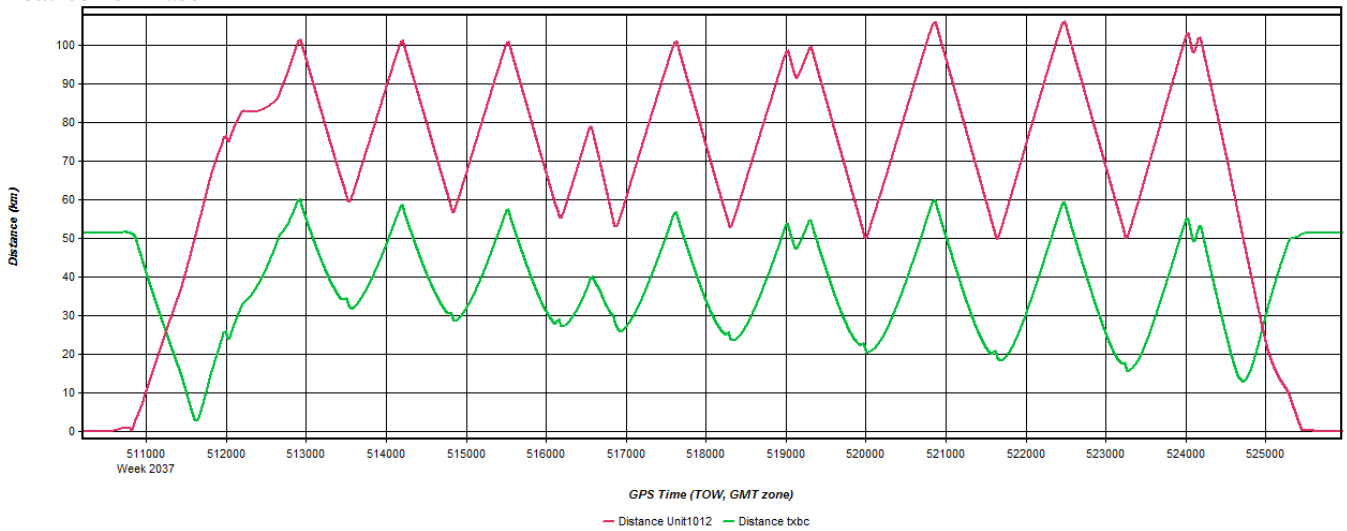
Combined Forward/Reverse Weighting



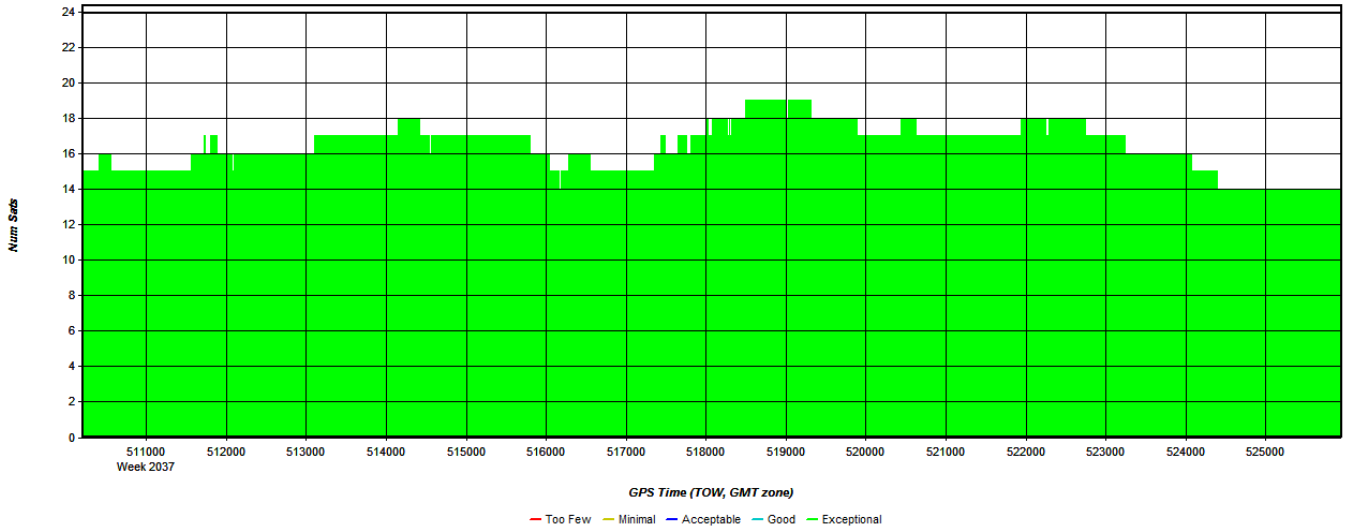
PDOP



Distance from Base



SVs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8
6
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2
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Week 2037
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514000
515000
516000
517000
518000
519000
520000
521000
522000
523000
524000
525000
GPS Time (TOW, GMT zone)
Too Few
Minimal
Acceptable
Good
Exceptional

Acquisition and Processing details ----- (January 25, 2019)

Log: 190125_133_33780026_02

Menu

Fugro USA Land, Inc.

ALS Flight Log

AC80-44-00-02

19.023

	Lift Begin			Lift End			Flt	Flt	Hobbs	
	Airport	Chocks	Hobbs	Airport	Chocks	Hobbs	Duration	Hrs	Hrs	Actvity
1	KHYI	15:27	8158.5	KBYY	19:37	8162.6	4:10	4.25	4.1	0900-Production
2	KBYY	20:20	8162.6	KBAZ	21:28	8163.8	1:08	1.25	1.2	0103-Mob/DeMob
3										

FGI Job #	Project Name	System	Unit	IMU	PIA	SW1	SW2-Gain	Aper	AutoScan	Ground Temp°C		Min Range Gate	Data Logger Drive
33780026	US CoastalTX Matagorda Bay	ALS80	133	uIRS	6		255	60°	Yes	7.2	17.0	8718	MM70-04

Flight Date	GPS Day	Lift	Sun°	Solar Times (UTC)	Laser Power	Pattern	Flying Temp °C		Max Range Gate	Download Drive
25-Jan-19	19-025	2	NA	NA	70%	Triangle	-3.0	-3.0	9615	NS1TB-65

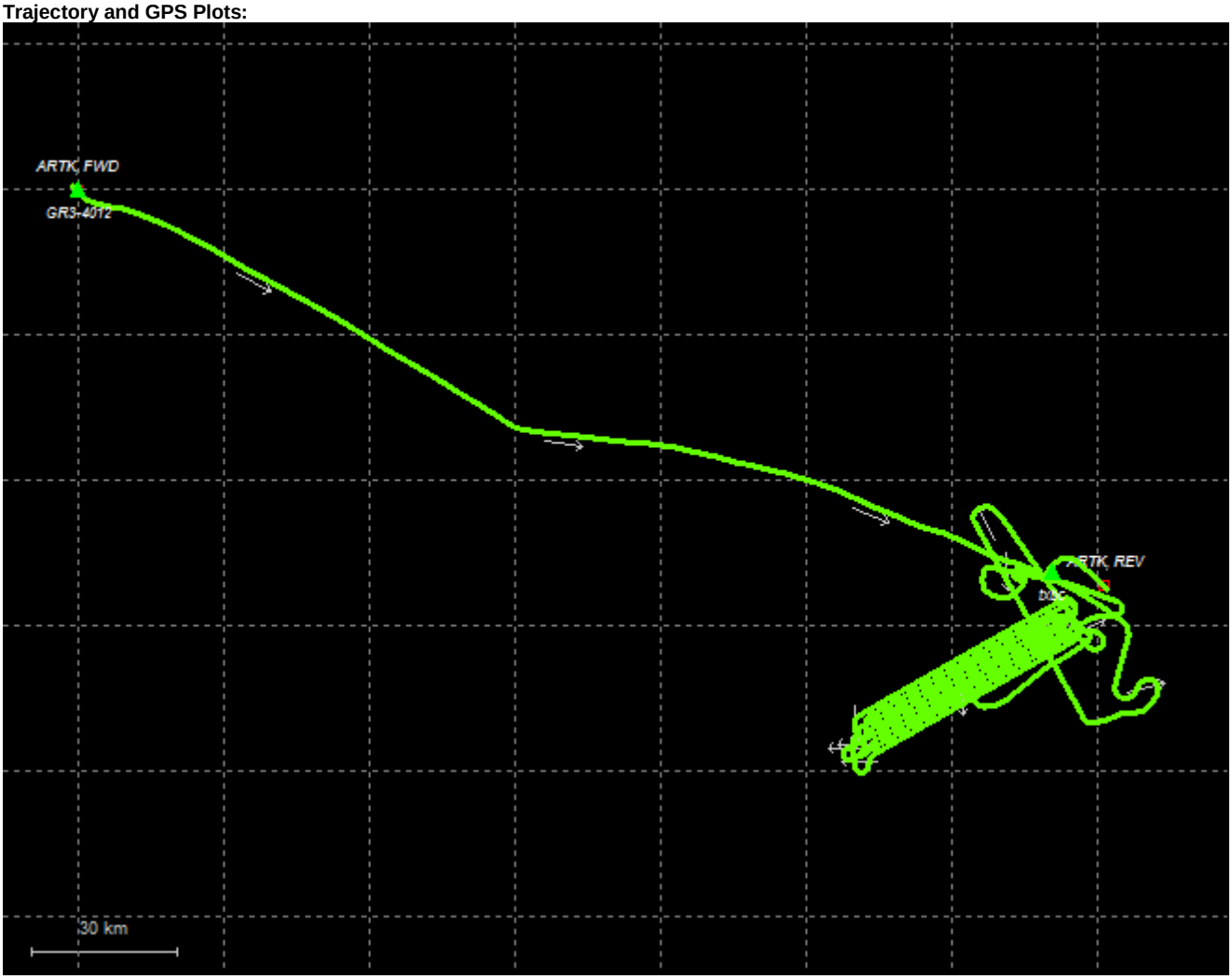
Mission ID (yymmdd_Sen_Job_Lift)	Aircraft	Airport ID	FMS	UTC	AMT (ft)	Speed	Scan Hz	Pulse Rate	FOV	km/WPT	Altm Setting		Shipping Track
190125_133_33780026_02	N76JN	KBAZ	FCMS		9,101	150	49.0	610,000	29	1.668	30.30	30.27	774317680362

Pilot #1	Pilot #2	Operator #1	Operator #2
Randy Green	Maison Collins	Adam Mueller	

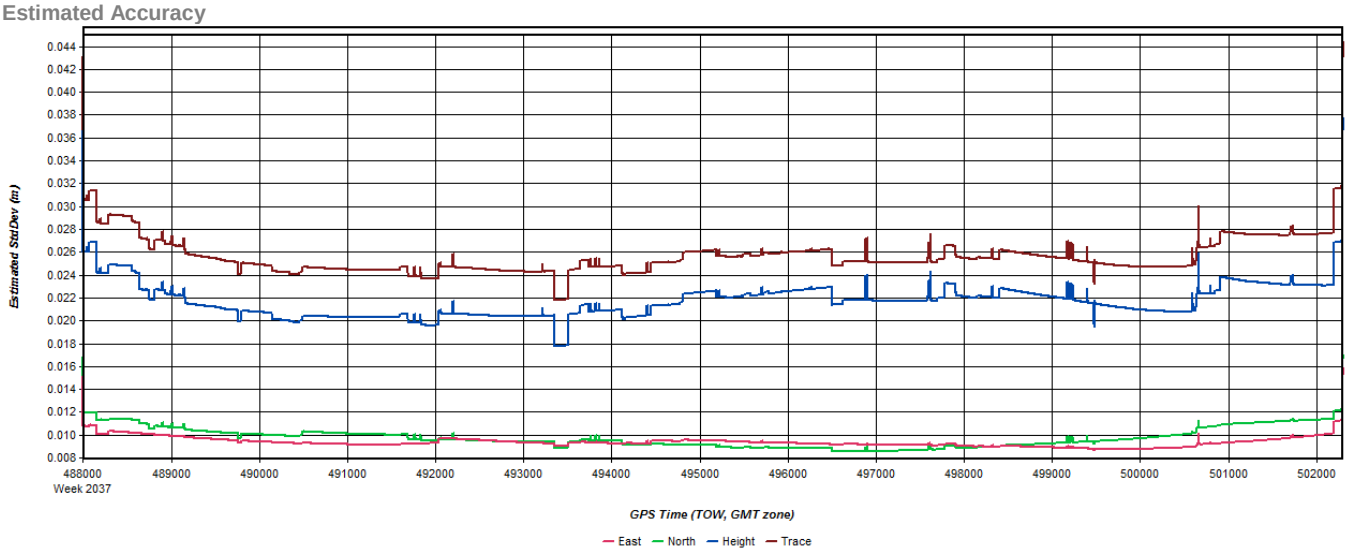
Base 1 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
FGI 8003	KBAZ	Unit 4	Unit 4	1.8	25-Jan-19 14:58	25-Jan-19 21:33	GR3-40125o	Adam Mueller	With AB
Base 2 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
TXMG CORS	TX				CORS		CORS		
Base 3 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data

Area	Flight # FGI	Flight # Client's	Wpt From	Wpt To	Distance Begin	Distance End	UTC Start	UTC End	Flt Dir	Altitude (GPS)	Speed (knots)	Scan Rate	Comments and Conditions	SVs	PDOP
							15:34:44	15:39:44					Ground Static at KBAZ	22	1.2
							16:34:19	16:39:19					Over Flight TXMG CORS	24	1.1
							16:42:25	16:45:02					S Turn	23	1.1
MataTX4p	53		1	26	0	41.7	16:49:54	16:59:27	N	9012	144	49.0		23	1.1
	25		27	1	43.4	0	17:08:26	17:18:39	W	9012	135	49.0		23	1.2
	26		1	27	0	43.4	17:21:52	17:31:39	E	9012	145	49.0		22	1.2
	26		27	17	43.4	26.7	17:36:09	17:41:20	W	9012	140	49.0	Calibration line	22	1.3
	27		26	1	41.7	0	17:48:46	17:58:39	W	9012	140	49.0		22	1.2
	28		1	26	0	41.7	18:02:45	18:12:23	E	9012	145	49.0		22	1.2
	29		26	1	41.7	0	18:13:56	18:23:28	W	9012	145	49.0		21	1.2
	30		1	25	0	40	18:27:54	18:36:52	E	9012	145	49.0		19	1.3
	31		25	1	40	0	18:39:59	18:49:06	W	9012	145	49.0		19	1.4
	32		1	25	0	40	18:52:54	19:02:08	E	9012	150	49.0		19	1.2
							19:02:39	19:05:00					S Turn	19	1.2
							19:07:19	19:12:19					Over Flight TXMG CORS	19	1.2

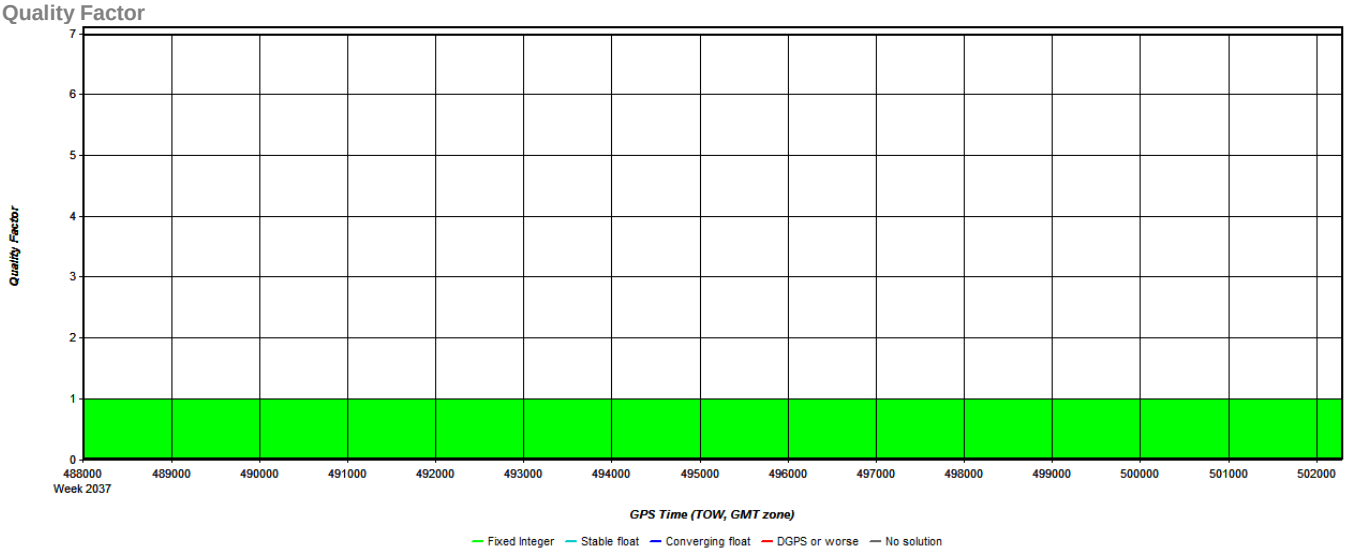
Trajectory and GPS Plots:



Estimated Accuracy



Quality Factor



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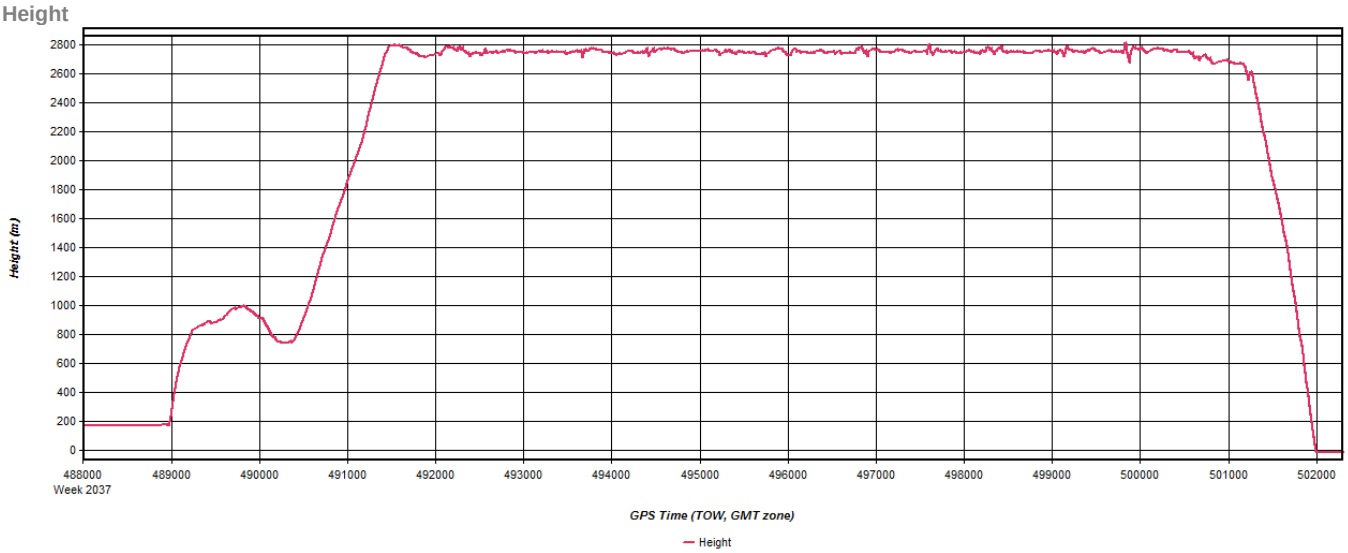
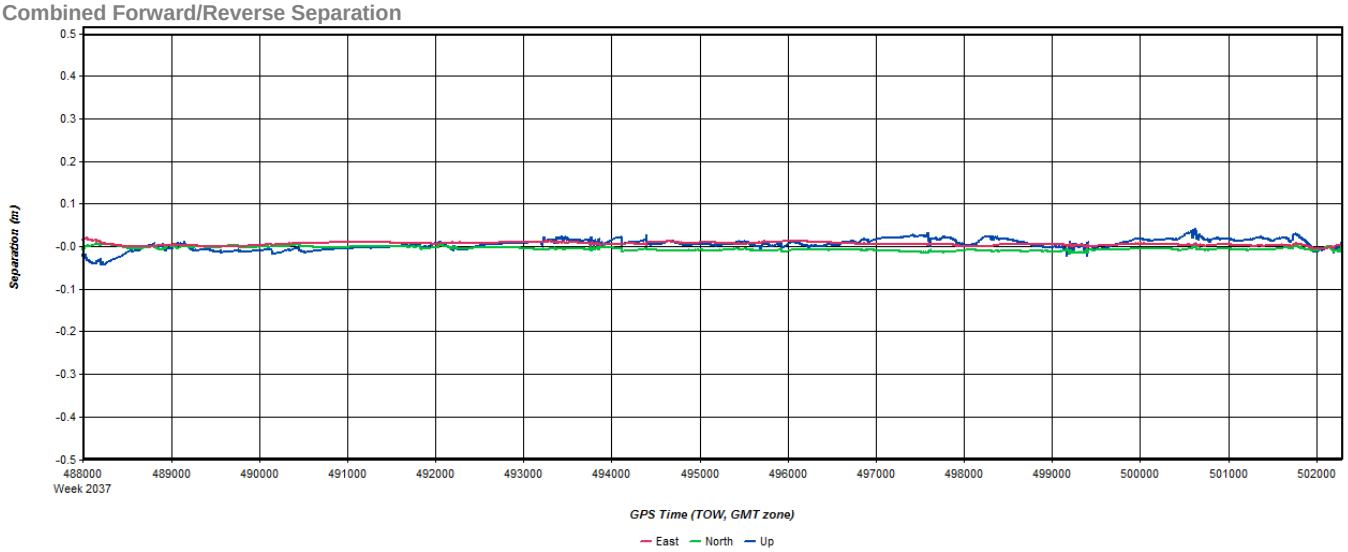
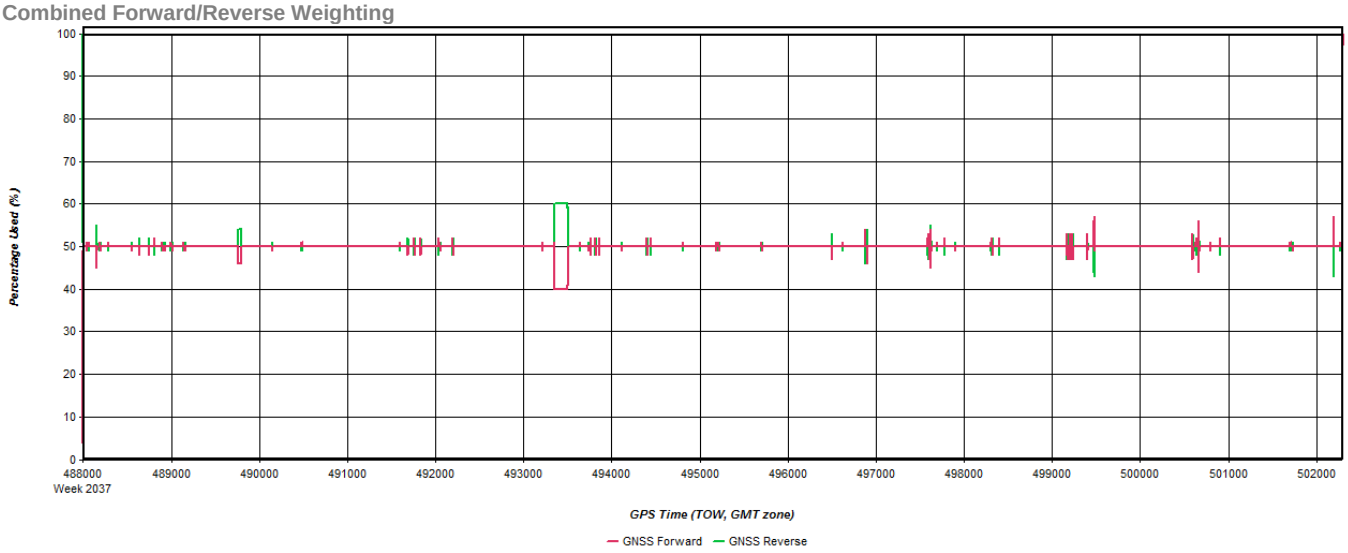


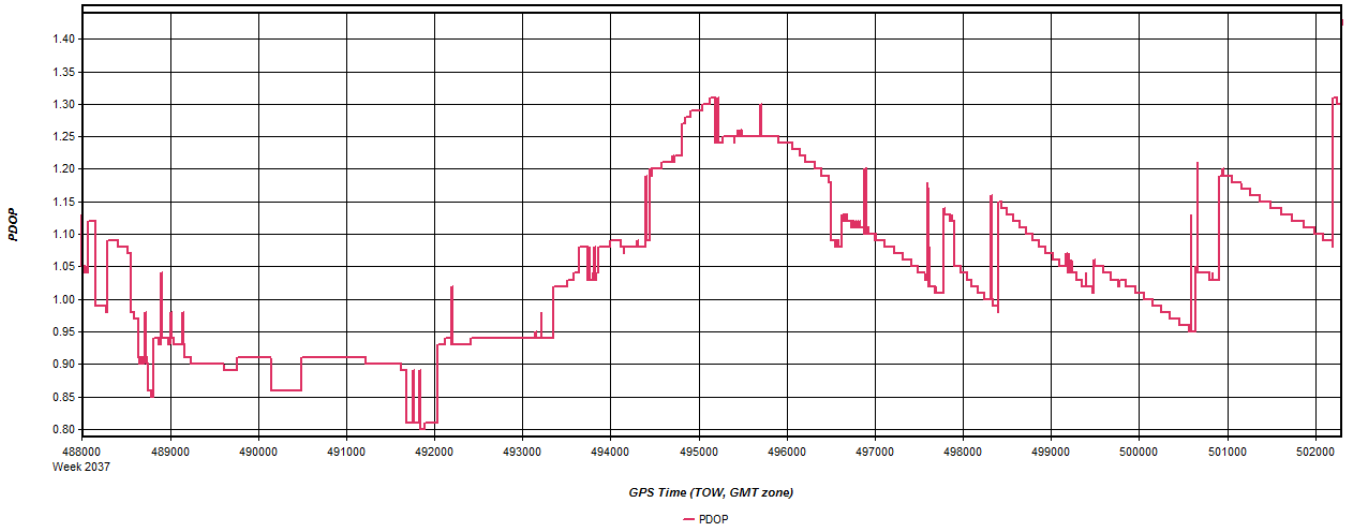
Combined Forward/Reverse Separation



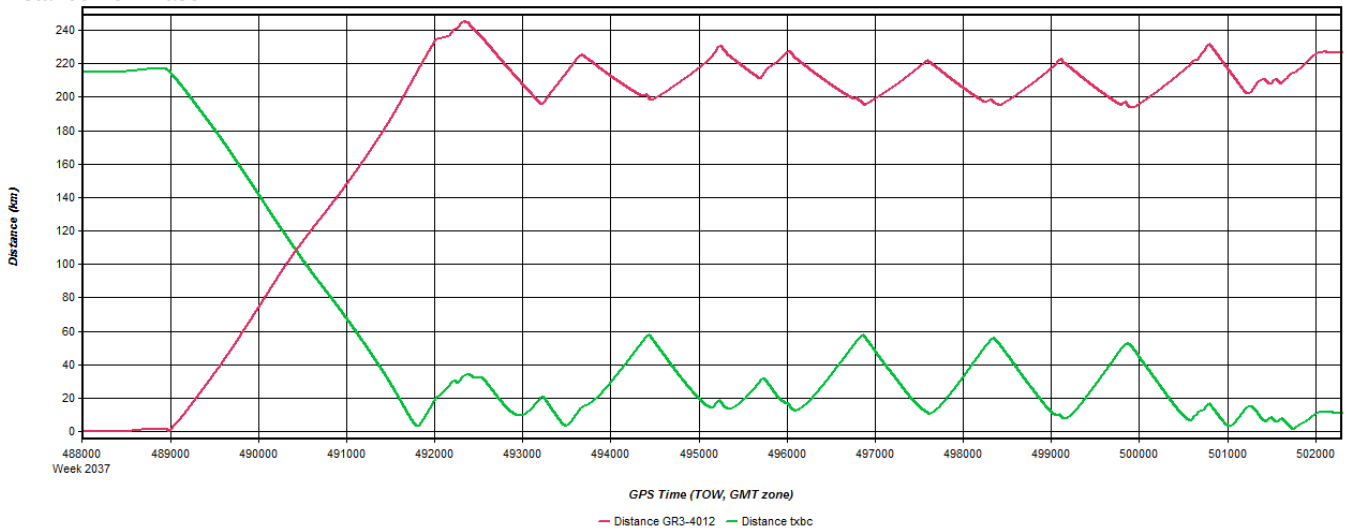
Combined Forward/Reverse Weighting



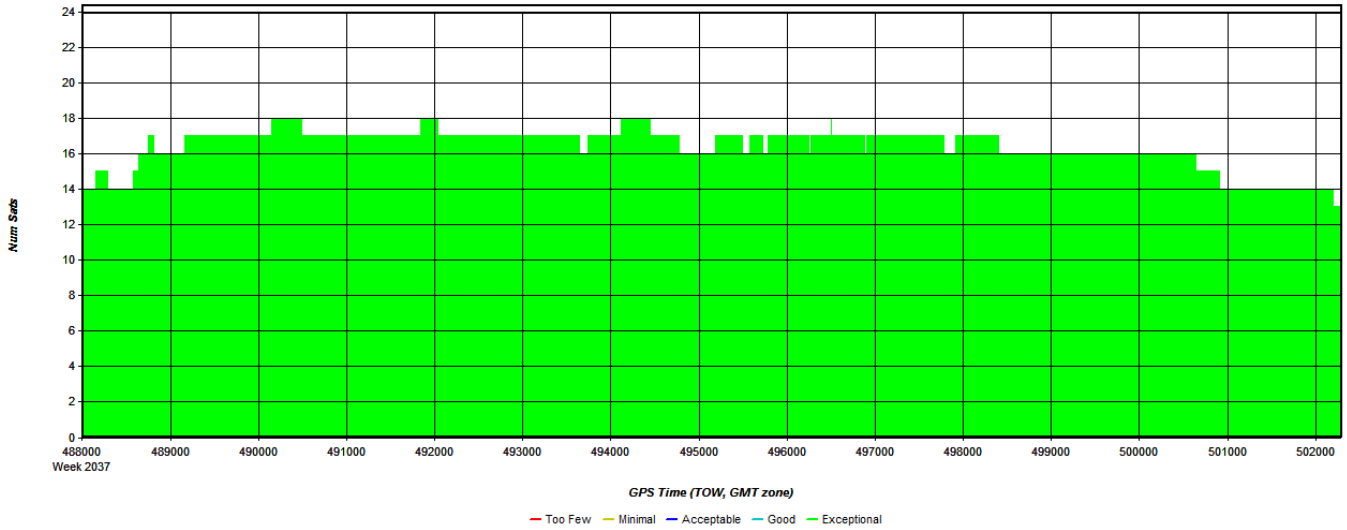
PDOP



Distance from Base



SVs


Num Sats
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12
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4
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488000
Week 2037
489000
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491000
492000
493000
494000
495000
496000
497000
498000
499000
500000
501000
502000
GPS Time (TOW, GMT zone)
Too Few
Minimal
Acceptable
Good
Exceptional

Acquisition and Processing details ----- (January 27, 2019)

Log: 190127_130_33780026_03

Menu

19.023

Fugro USA Land, Inc.

ALS Flight Log

AC80-44-00-02

	Lift Begin			Lift End			Flt	Flt	Hobbs	
	Airport	Chocks	Hobbs	Airport	Chocks	Hobbs	Duration	Hrs	Hrs	Actvity
1	KLBX	15:20	1364.5	KLBX	17:24	1366.2	2:03	2.00	1.7	0900-Production
2										
3										

FGI Job #	Project Name	System	Unit	IMU	PIA	SW1	SW2-Gain	Aper	AutoScan	Ground Temp°C		Min Range Gate	Data Logger Drive
33780026	USGS CoastalTX MatagordaBay	ALS80	130	uIRS	6					13.0	16.0	2657	LG102

Flight Date	GPS Day	Lift			Sun°	Solar Times (UTC)	Laser Power	Pattern	Flying Temp °C		Max Range Gate	Dow nload Drive
27-Jan-19	19-027	3					70%	Triangle	-5.0	-5.0	2931	NS1TB#12

Mission ID (yymmdd_Sen_Job_Lift)	Aircraft	Airport ID	FMS	UTC	AMT (ft)	Speed	Scan Hz	Pulse Rate	FOV	km/WPT	Altm Setting		Shipping Track
190127_130_33780026_03	N97HC	KLBX	CCNS 8	-6	9,101	150	53.0	610,000	29	1.668	30.21	30.22	7743 1999 3374

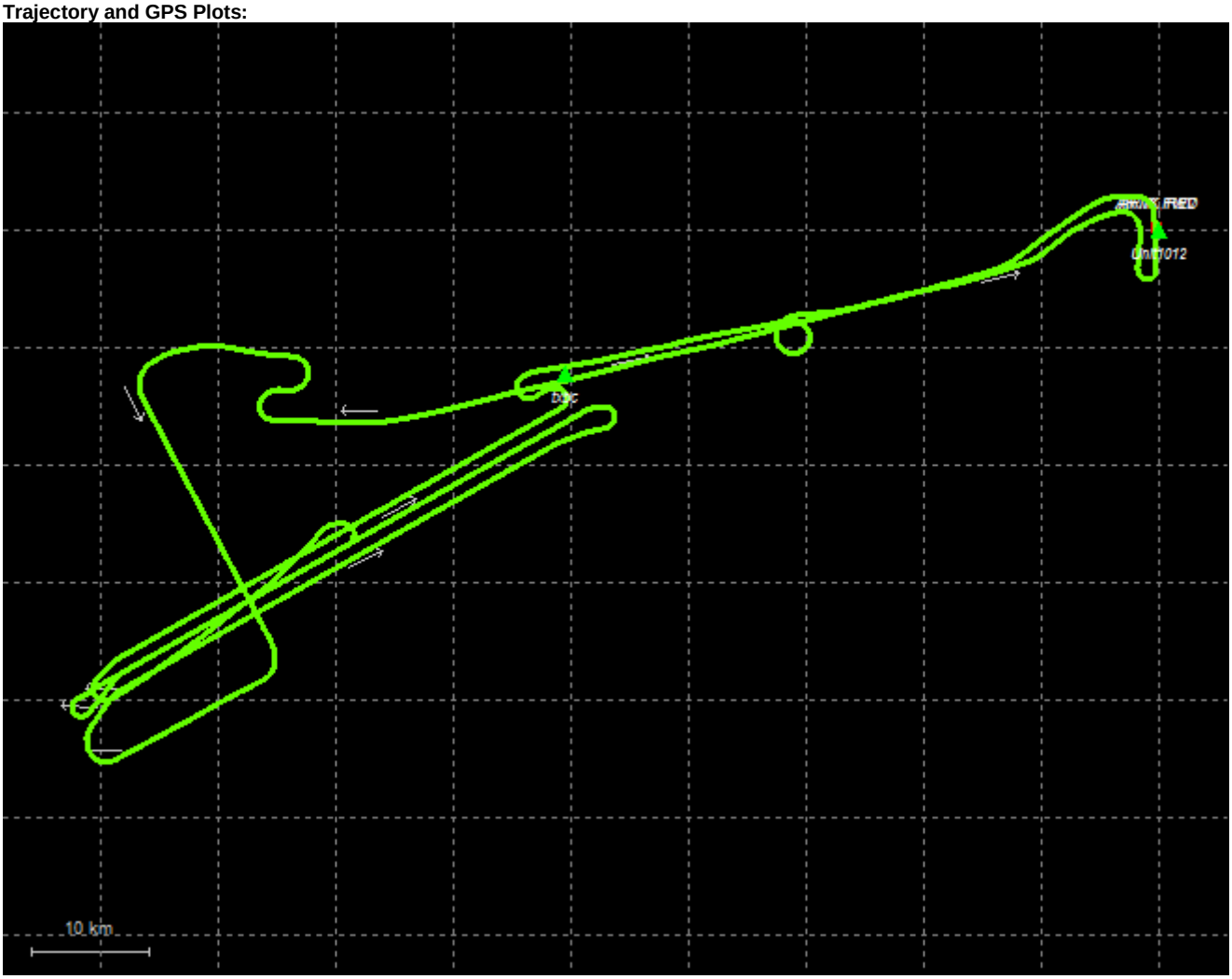
Pilot #1	Pilot #2	Operator #1	Operator #2
Grant Cassell		Dave Verhey	

Base 1 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
FUSAL 100	KLBX	GR3-1	GR3-1	1.8	27-Jan-19 15:05	27-Jan-19 17:51	Unit10127p	Dave Verhey	FTP

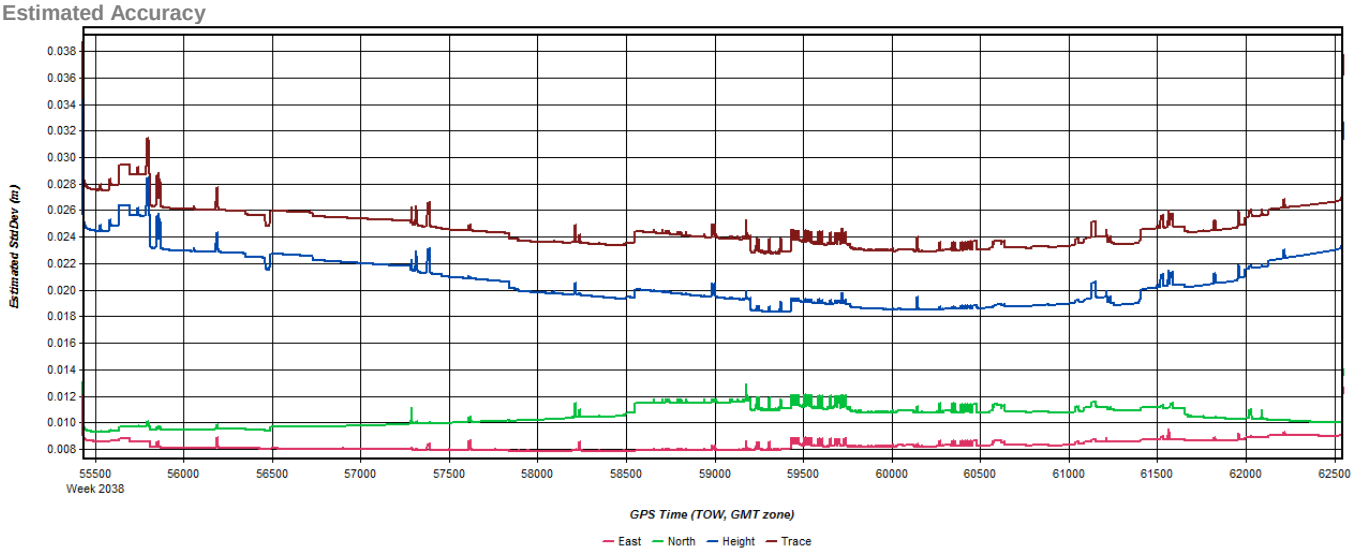
Base 2 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
TXBC	TXBC							CORS	

Area	Flight # FGI	Flight # Client's	Wpt From	Wpt To	Distance Begin	Distance End	UTC Start	UTC End	Flt Dir	Altitude (GPS)	Speed (knots)	Scan Rate	Comments and Conditions	SVs	PDOP
							15:24:12	15:29:12					Ground static at KLBX	22	1.3
							15:47:19	15:52:19					Overflight of CORS at TXBC	23	1.1
							15:54:25	15:56:36					S-turn	24	1.2
MataTX4p	51		32	22	51.7	35	16:01:15	16:05:20	149.6	9051	138		Tie line	24	1.2
	33		1	25	0	40	16:12:07	16:21:25	57.6	9020	138			24	1.2
	34		26	1	41.7	0	16:24:11	16:33:54	238.0	9015	140			24	1.1
	34		1	14	0	21	16:36:40	16:41:34	57.6	8991	140		Calibration line	24	1.1
	35		1	25	0	40	16:48:48	16:58:09	57.6	9007	142			22	1.2
													Clouded out, ceasing production		
							16:58:13	17:00:23					S-turn	23	1.1
							17:16:54	17:21:54					Ground static at KLBX	24	1.3

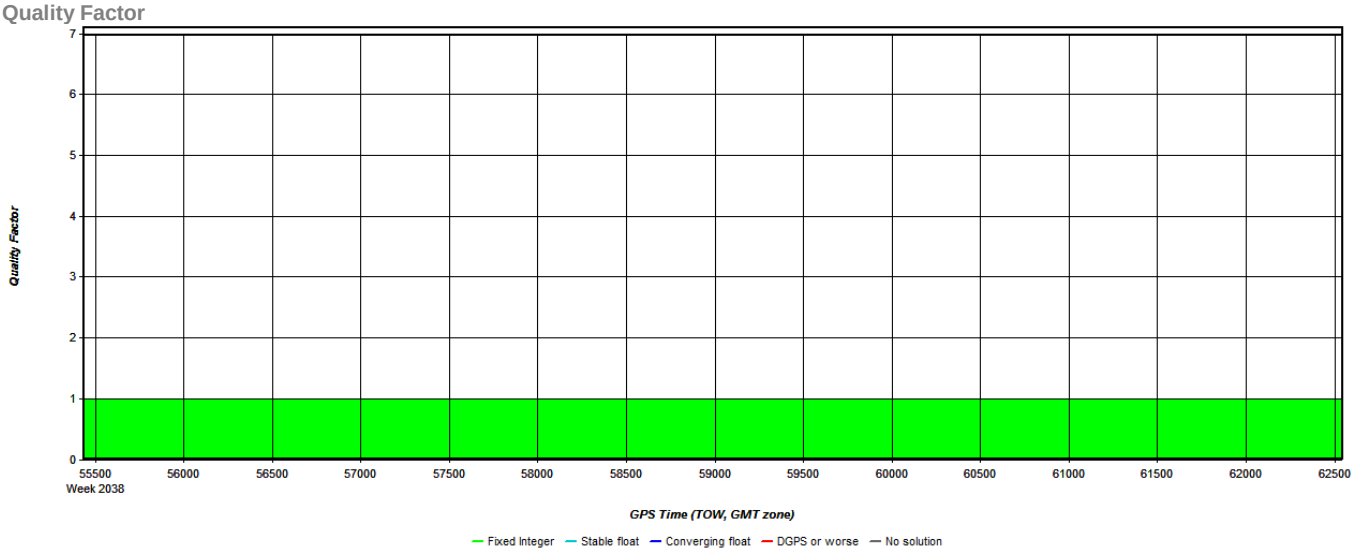
Trajectory and GPS Plots:



Estimated Accuracy



Quality Factor



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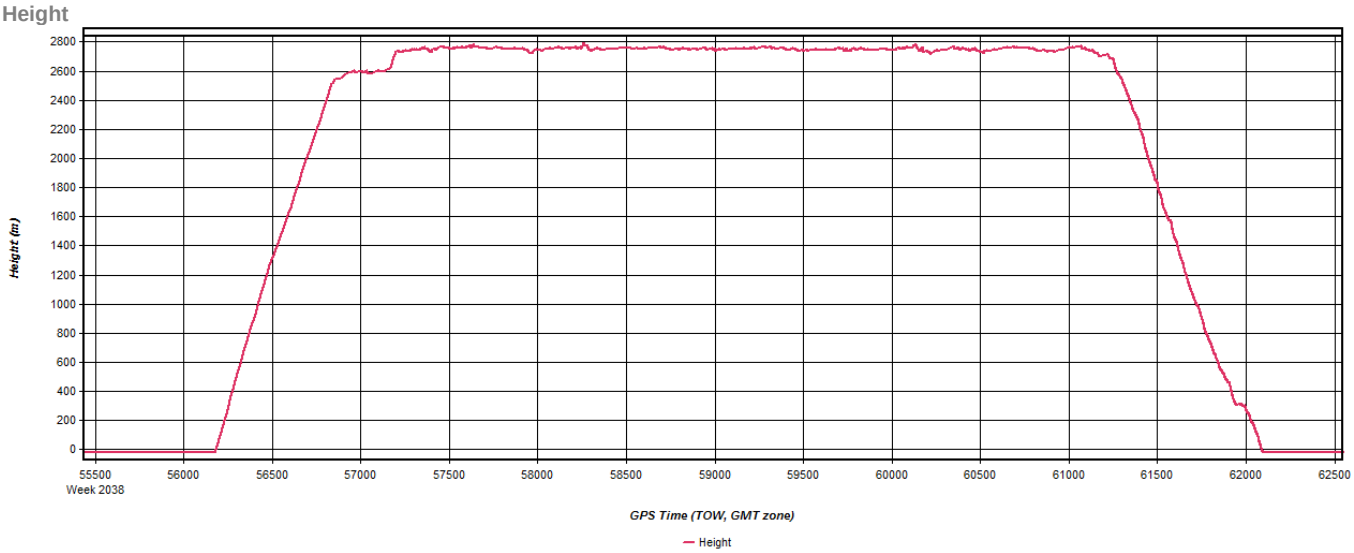
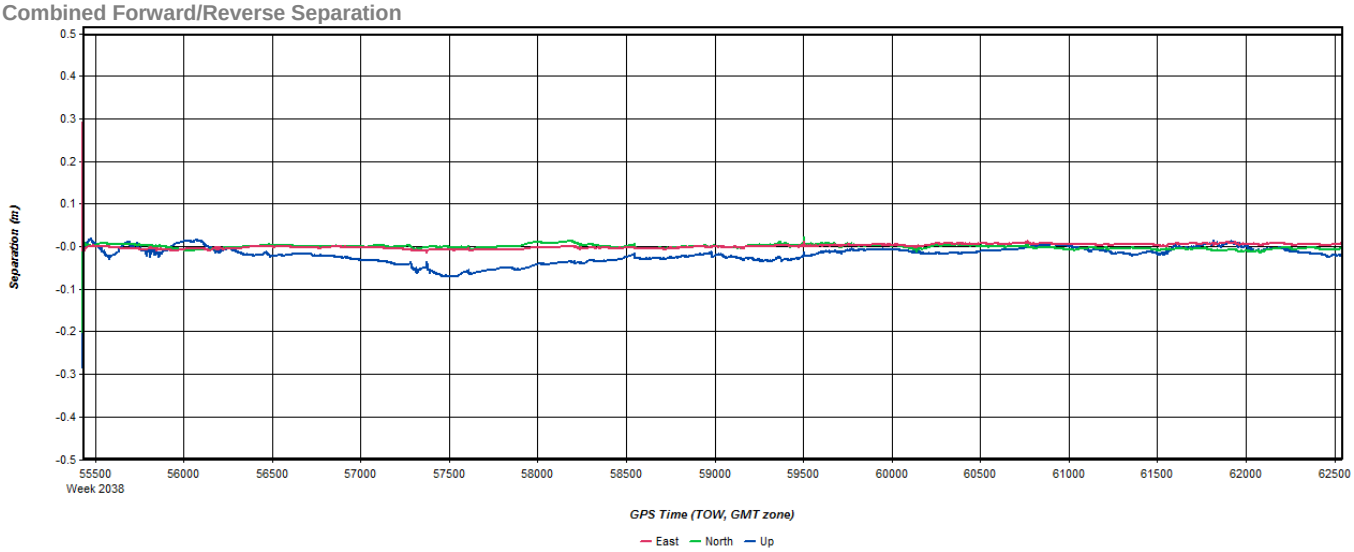
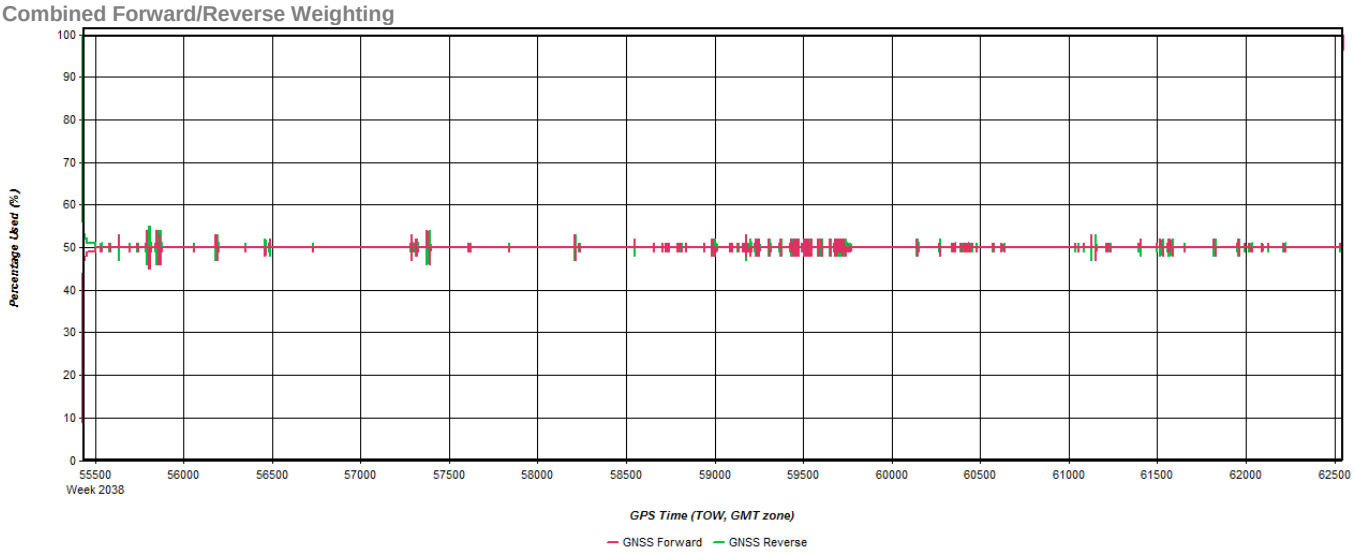


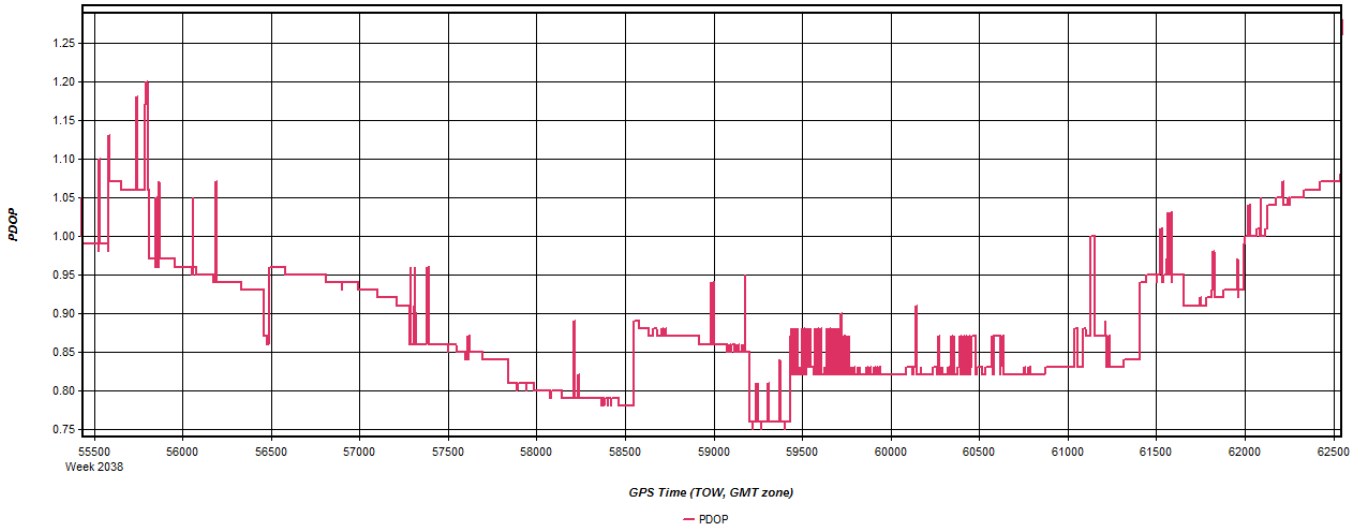
Combined Forward/Reverse Separation



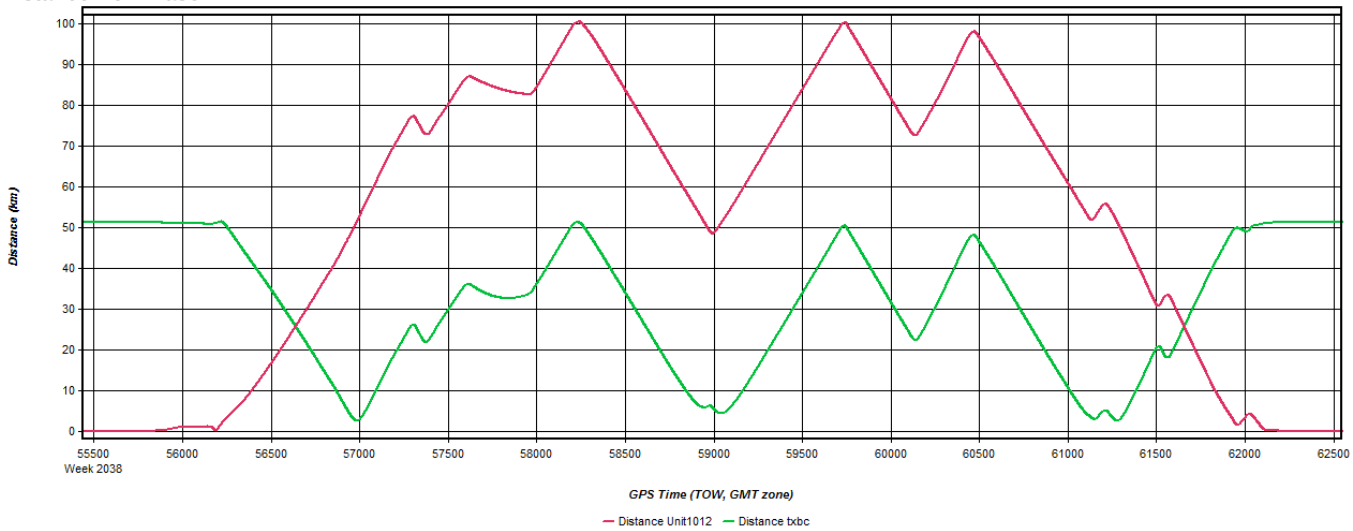
Combined Forward/Reverse Weighting



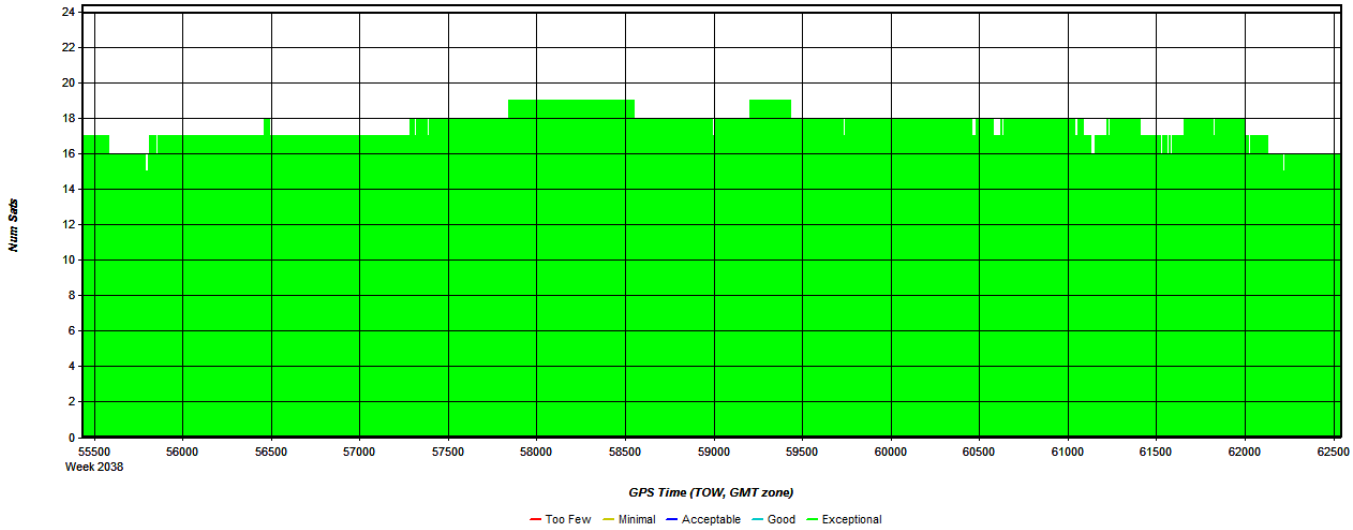
PDOP



Distance from Base



SVs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2
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55500
Week 2038
56000
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57500
58000
58500
59000
59500
60000
60500
61000
61500
62000
62500
GPS Time (TOW, GMT zone)
Too Few
Minimal
Acceptable
Good
Exceptional

Acquisition and Processing details ----- (January 28, 2019)

Log: 190128_130_33780026_04

Menu

Fugro USA Land, Inc.

ALS Flight Log AC80-44-00-02

	Lift Begin Airport	Lift Begin Chocks	Lift Begin Hobbs	Lift End Airport	Lift End Chocks	Lift End Hobbs	Flt Duration	Flt Hrs	Hobbs Hrs	Actvity
1	KLBX	14:46	1366.2	KLBX	16:54	1367.9	2:08	2.25	1.7	
2										
3										

FGI Job #	Project Name	System	Unit	IMU	PIA	SW1	SW2-Gain	Aper	AutoScan	Ground Temp°C		Min Range Gate	Data Logger Drive
33780026	USGS CoastalTX MatagordaBay	ALS80	130	uIRS	6					13.0	17.0	2657	LG 102

Flight Date	GPS Day	Lift			Sun°	Solar Times (UTC)	Laser Power	Pattern	Flying Temp °C		Max Range Gate	Download Drive
28-Jan-19	19-028	4					70%	Triangle	0.0	1.0	2931	NS1TB#12

Mission ID (yymmdd_Sen_Job_Lift)	Aircraft	Airport ID	FMS	UTC	AMT (ft)	Speed	Scan Hz	Pulse Rate	FOV	km/WPT	Altm Setting		Shipping Track
190128_130_33780026_04	N97HC	KLBX	CCNS 8	-6	9,101	150	53.0	610,000	29	1.668	29.96	29.97	7743 1999 3374

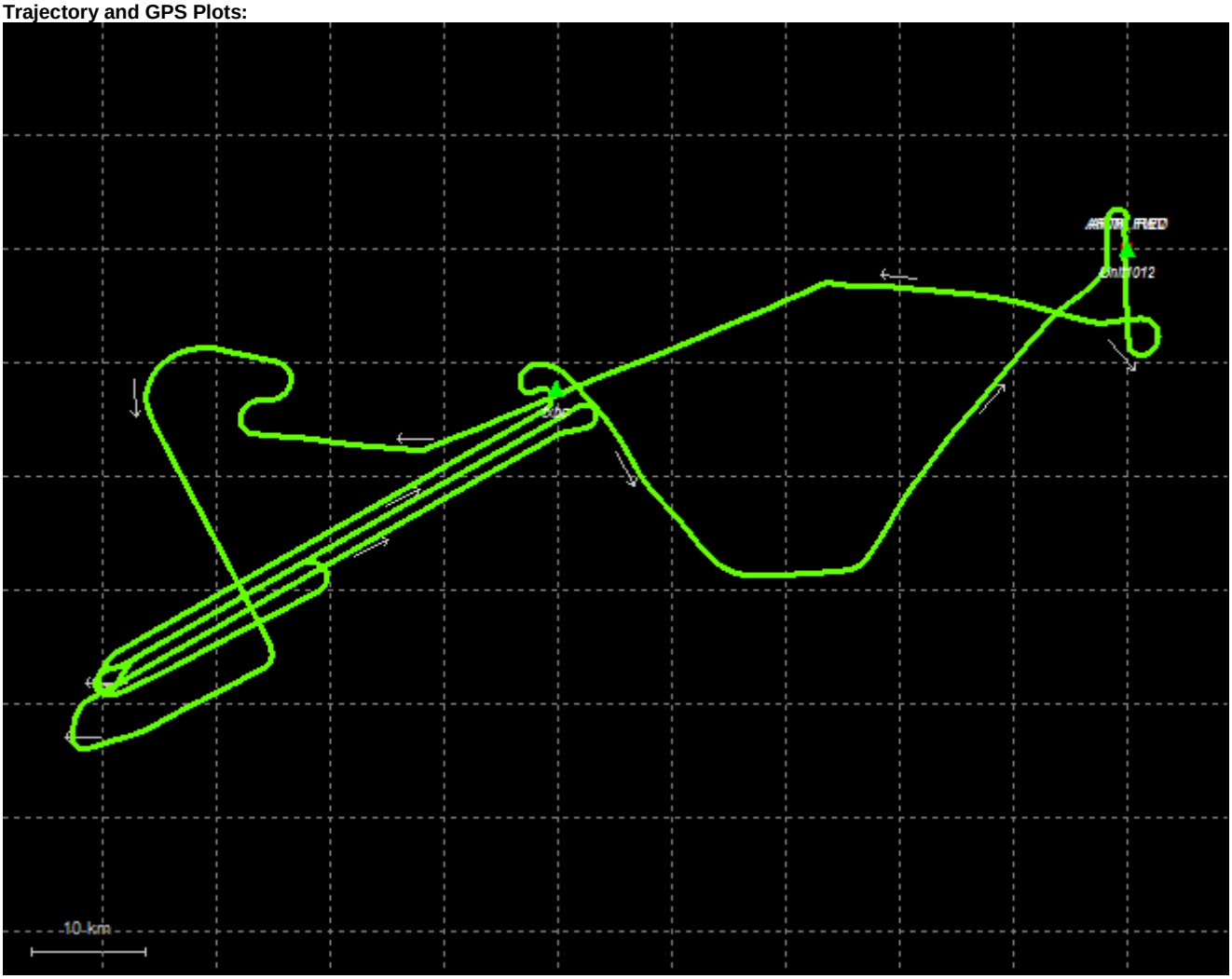
Pilot #1	Pilot #2	Operator #1	Operator #2
Grant Cassell		Dave Verhey	

Base 1 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
temp_lbx	KLBX	GR3-1	GR3-1	1.8	28-Jan-19 14:22	28-Jan-19 17:10	Unit10128o	Dave Verhey	FTP

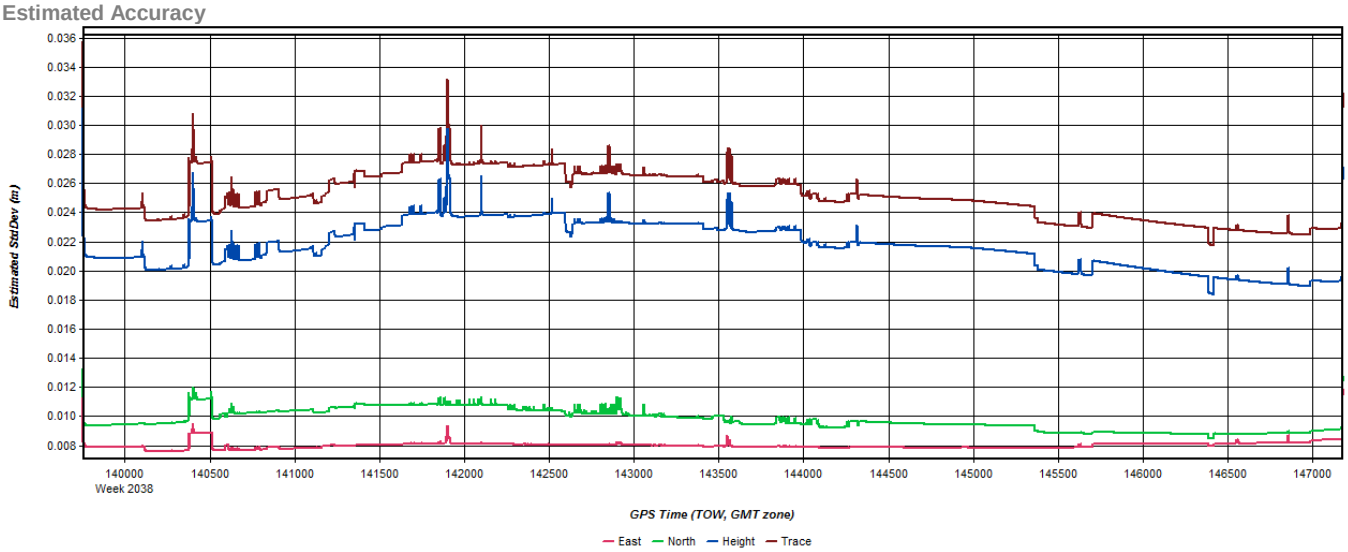
Base 2 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
TXBC	TXBC							CORS	

Area	Flight # FGI	Flight # Client's	Wpt From	Wpt To	Distance Begin	Distance End	UTC Start	UTC End	Flt Dir	Altitude (GPS)	Speed (knots)	Scan Rate	Comments and Conditions	SVs	PDOP
							14:49:26	14:54:26					Ground static at KLBX	23	1.3
							15:14:39	15:19:39					Overflight of CORS at TXBC	26	1.0
							15:23:16	15:25:30					S-turn	23	1.1
MataTX4p	51		32	22	51.7	35	15:30:16	15:34:19	149.1	8990	138		Tie line; possible flooding 11 km	25	1.0
	34		1	26	0	41.7	15:41:38	15:51:20	57.6	9021	143			24	1.1
	35		25	1	40	0	15:53:40	16:03:09	238.0	9037	137			24	1.2
	35		1	10	0	15	16:05:54	16:09:34	57.6	9043	141		Calibration line	24	1.2
	36		1	25	0	40	16:17:03	16:26:23	57.6	8999	137			24	1.1
													Production ceased due to clouds		
							16:26:25	16:28:21					S-turn	24	1.1
							16:47:22	16:52:22					Ground static at KLBX	23	1.1

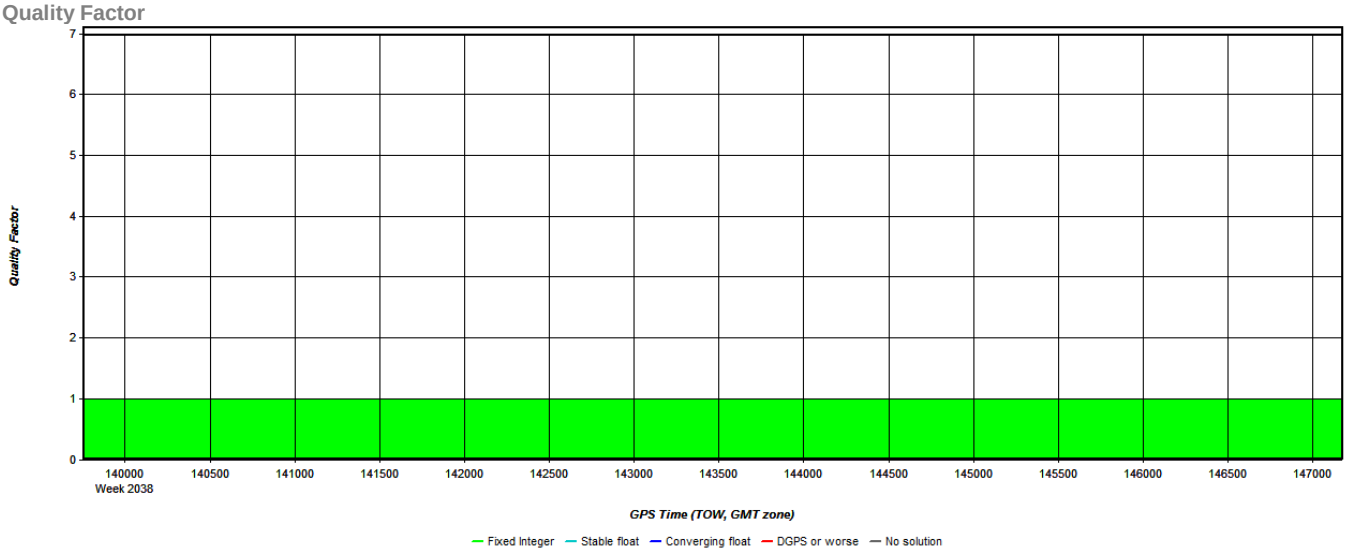
Trajectory and GPS Plots:



Estimated Accuracy



Quality Factor



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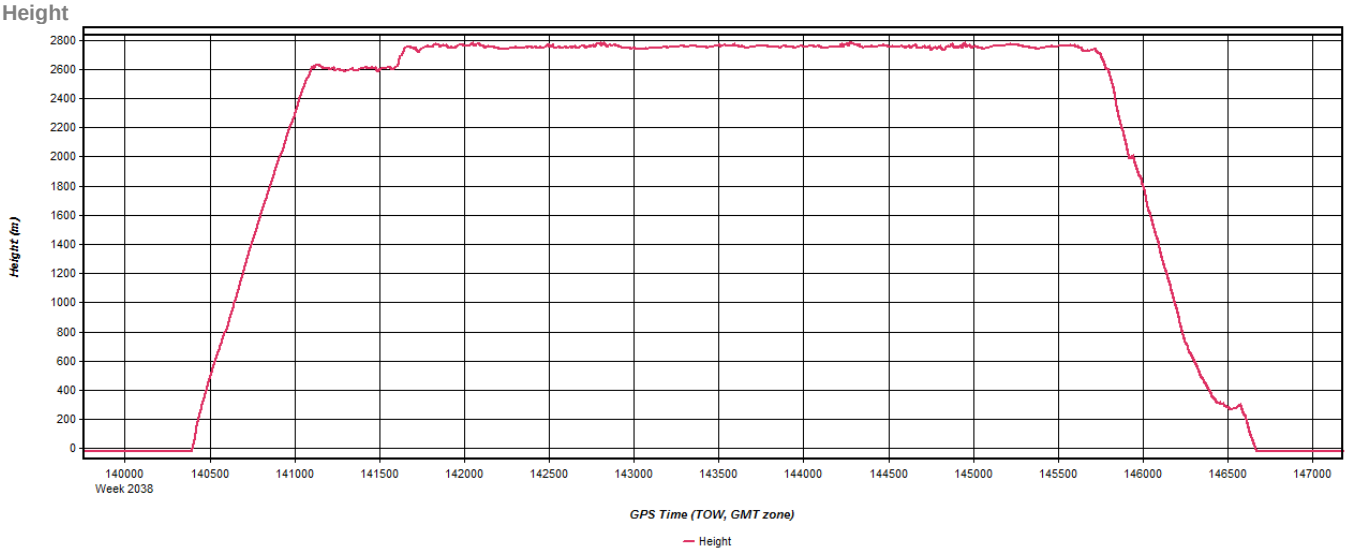
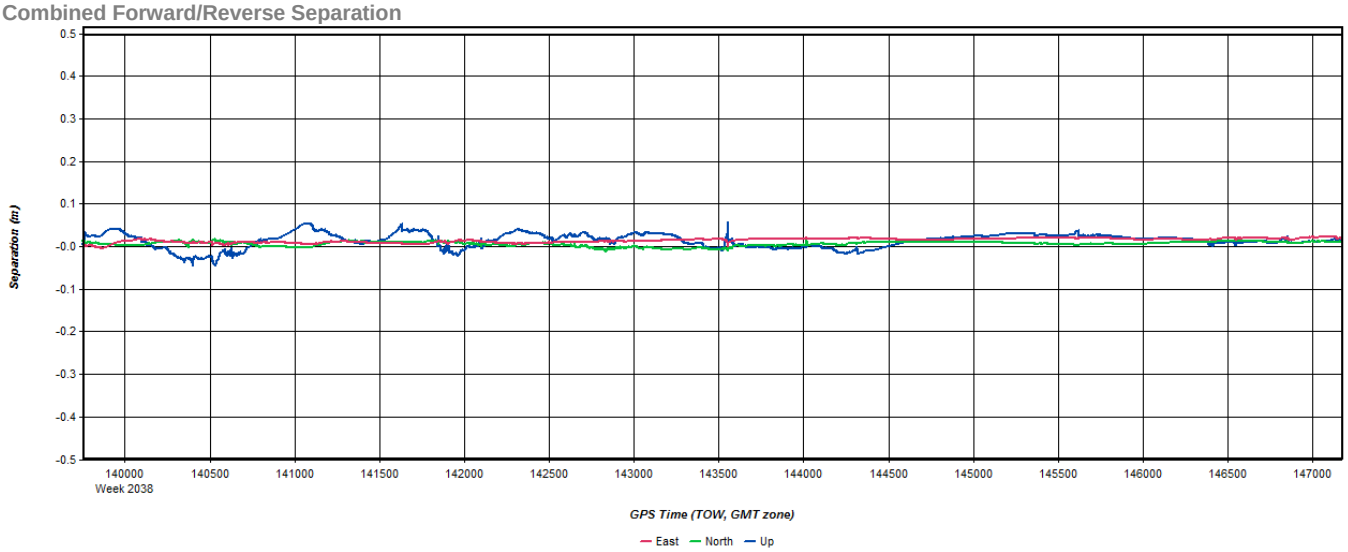
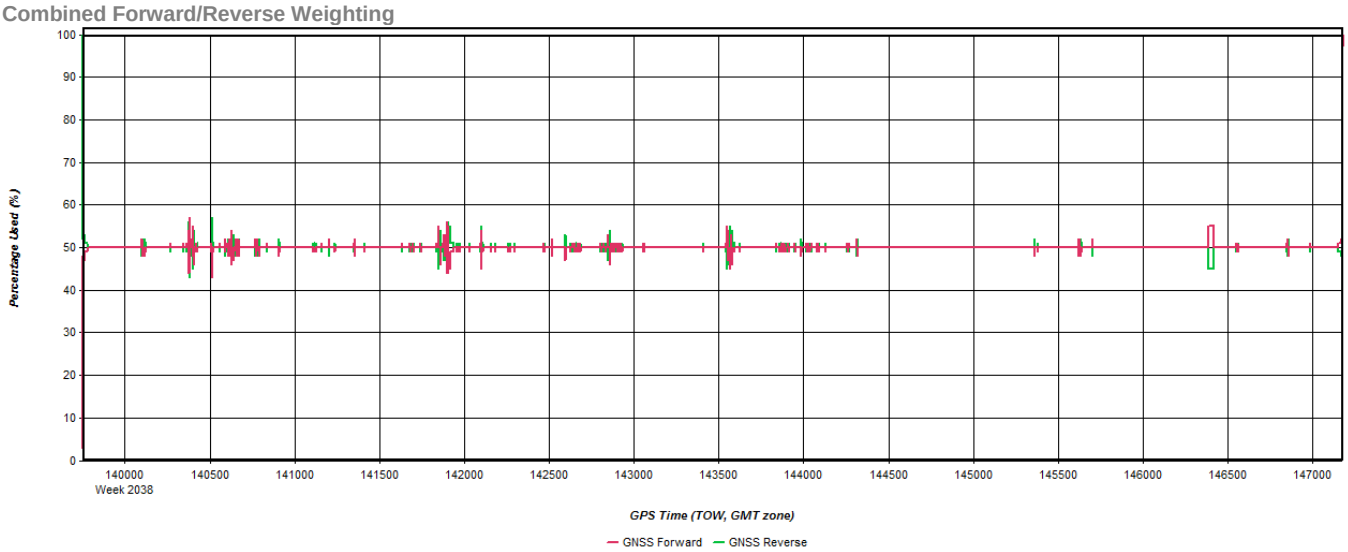


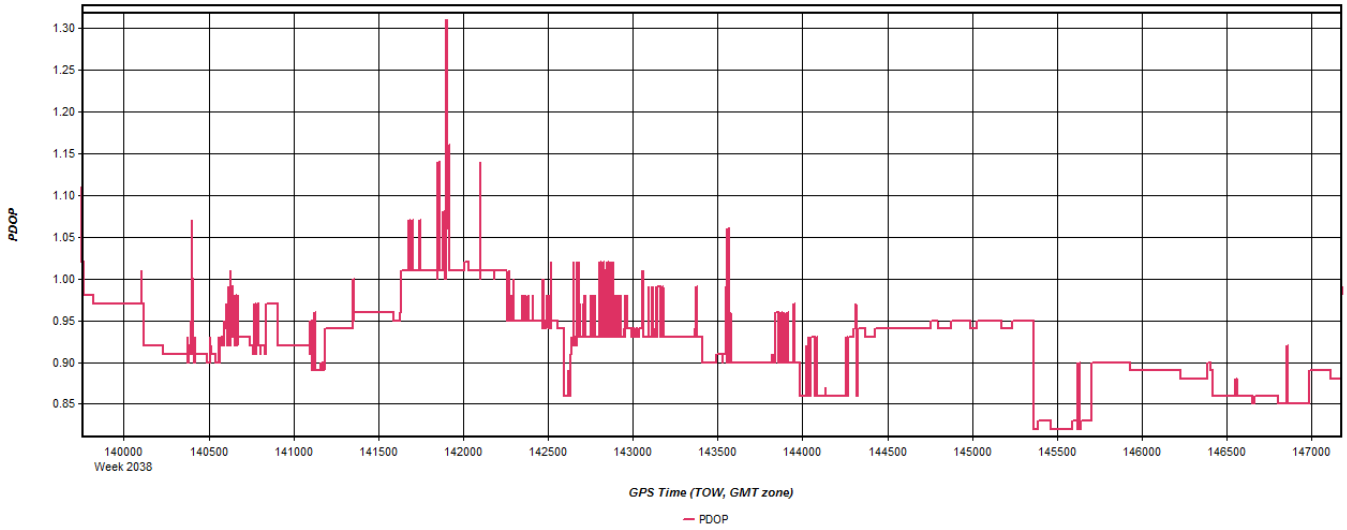
Combined Forward/Reverse Separation



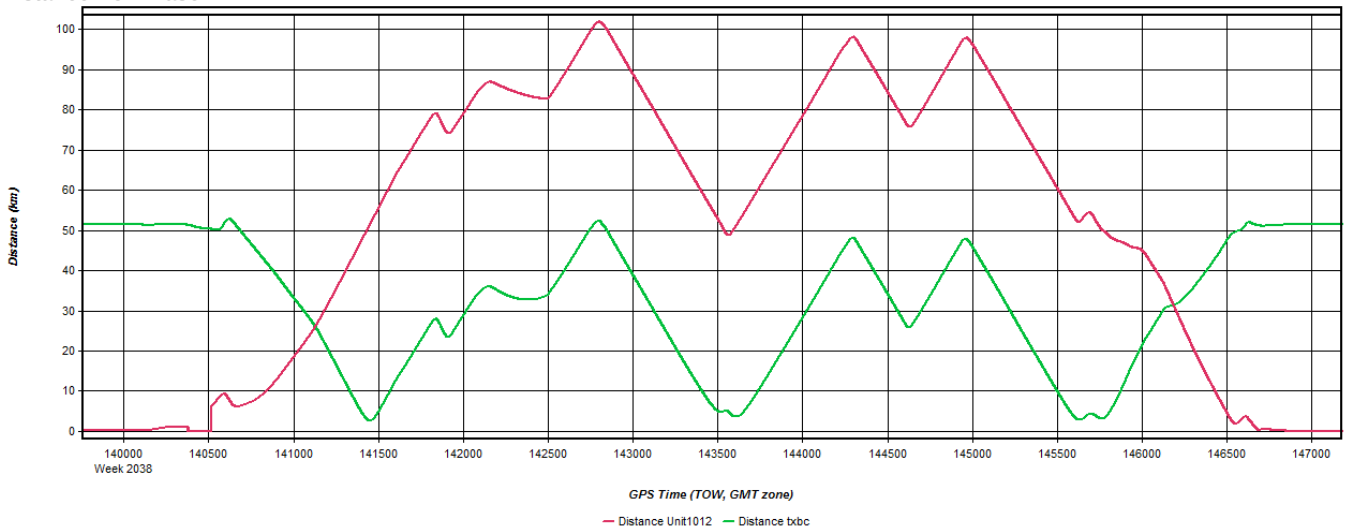
Combined Forward/Reverse Weighting



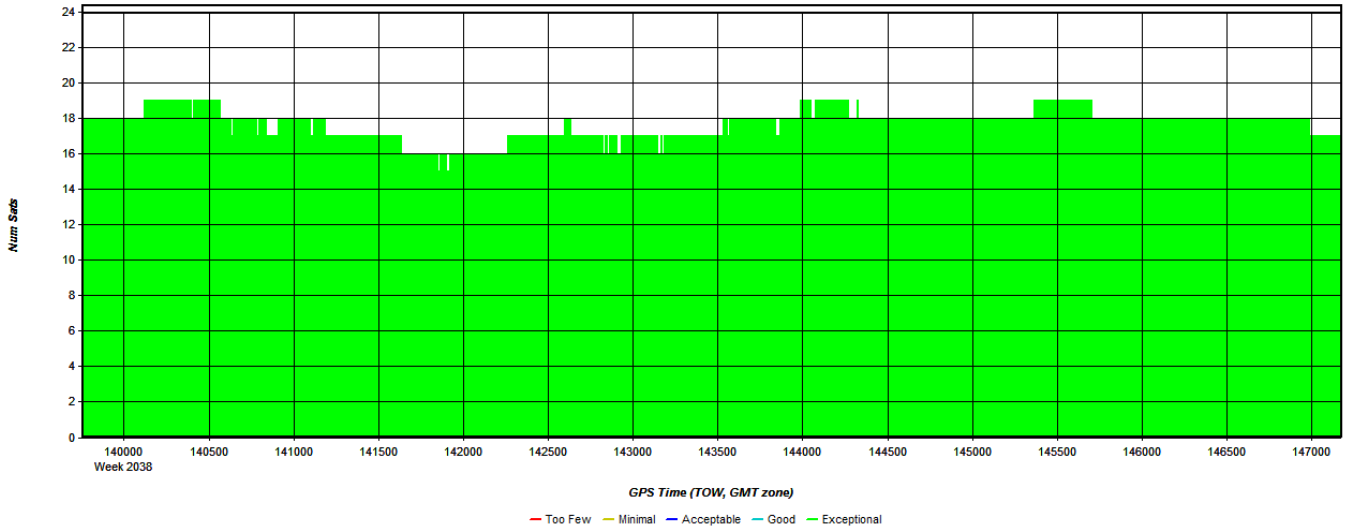
PDOP



Distance from Base



SVs


Num Sats
24
22
20
18
16
14
12
10
8
6
4
2
0
140000
Week 2038
140500
141000
141500
142000
142500
143000
143500
144000
144500
145000
145500
146000
146500
147000
GPS Time (TOW, GMT zone)
Too Few
Minimal
Acceptable
Good
Exceptional

Acquisition and Processing details ----- (January 29, 2019)

Log: 190129_130_33780026_05

Menu

Fugro USA Land, Inc.

ALS Flight Log

AC80-44-00-02

	Lift Begin			Lift End			Flt	Flt	Hobbs	
	Airport	Chocks	Hobbs	Airport	Chocks	Hobbs	Duration	Hrs	Hrs	Actvity
1	KLBX	13:41	1367.9	KLBX	17:18	1371.2	3:37	3.50	3.3	0900-Production
2										
3										

FGI Job #	Project Name	System	Unit	IMU	PIA	SW1	SW2-Gain	Aper	AutoScan	Ground Temp°C		Min Range Gate	Data Logger Drive
33780026	USGS CoastalTX MatagordaBay	ALS80	130	uIRS	6					3.0	8.0	2657	LG 102

Flight Date	GPS Day	Lift			Sun°	Solar Times (UTC)	Laser Power	Pattern	Flying Temp °C		Max Range Gate	Download Drive
29-Jan-19	19-029	5					70%	Triangle	-5.0	-5.0	2931	NS1TB#04

Mission ID (yymmdd_Sen_Job_Lift)	Aircraft	Airport ID	FMS	UTC	AMT (ft)	Speed	Scan Hz	Pulse Rate	FOV	km/WPT	Altm Setting		Shipping Track
190129_130_33780026_05	N97HC	KLBX	CCNS 8	-6	9,101	150	53.0	610,000	29	1.668	30.28	30.33	7743 3749 1930

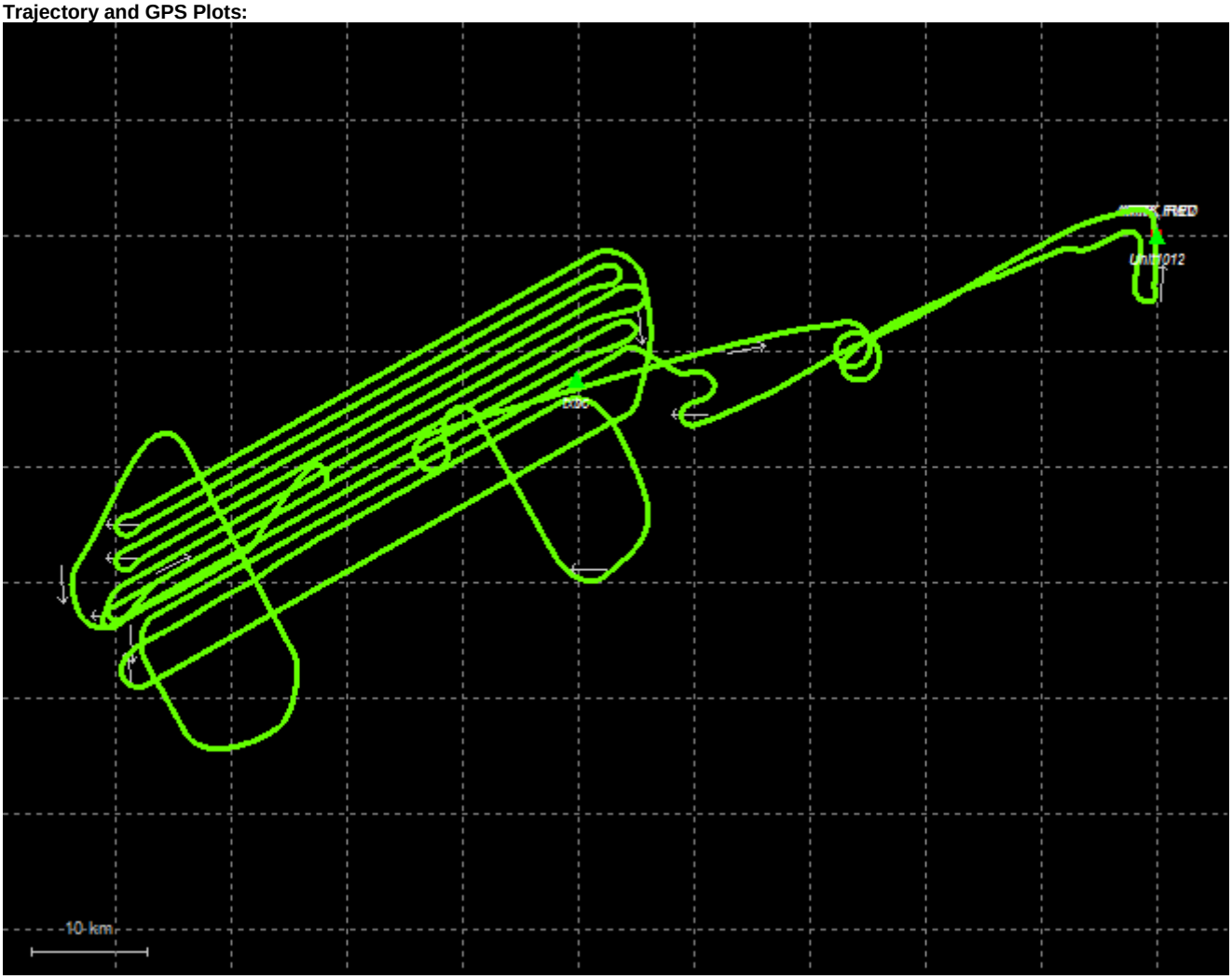
Pilot #1	Pilot #2	Operator #1	Operator #2
Grant Cassell		Dave Verhey	

Base 1 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
temp_lbx	KLBX	GR3-1	GR3-1	1.8	29-Jan-19 13:10	29-Jan-19 17:37	Unit10129n	Dave Verhey	FTP

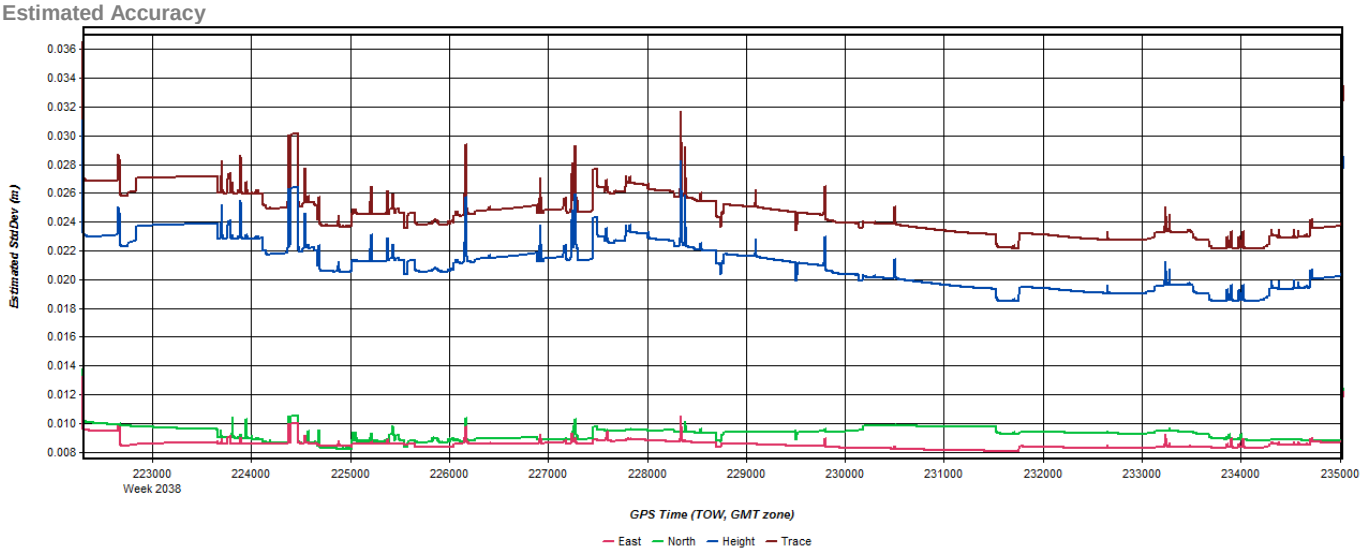
Base 2 ID	Location	Rec ID	Ant ID	ARP (m)	Start Time (UTC)	Stop Time (UTC)	GPS Filename	Operator	Data
TXBC	TXBC							CORS	

Area	Flight # FGI	Flight # Client's	Wpt From	Wpt To	Distance Begin	Distance End	UTC Start	UTC End	Flt Dir	Altitude (GPS)	Speed (knots)	Scan Rate	Comments and Conditions	SVs	PDOP
							13:45:16	13:50:16					Ground static at KLBX	18	1.5
							14:07:36	14:09:48					S-Turn	21	1.3
MataTX4p	37		26	1	41.7	0	14:12:06	14:21:50	237.9	9016	140			22	1.2
	51		24	32	38.4	51.7	14:29:00	14:32:28	329.1	9040	134		Tie line	22	1.1
	38		1	26	0	41.7	14:38:08	14:47:54	57.5	8995	145			23	1.1
	39		26	1	41.7	0	14:50:14	15:00:04	238.0	9050	140			25	1.1
	39		1	10	0	15	15:03:10	15:06:45	57.6	8995	142		Calibration line	25	1.0
	40		1	26	0	41.7	15:14:20	15:24:04	57.6	9021	142			24	1.0
	41		27	1	43.4	0	15:26:43	15:37:05	238.0	9062	141			24	1.1
	42		1	26	0	41.7	15:38:57	15:48:47	57.6	9031	139			23	1.1
	43		26	1	41.7	0	15:50:33	16:00:23	238.0	9076	143			22	1.1
	44		1	25	0	40	16:02:51	16:12:13	57.6	9104	141			23	1.1
	33		25	1	40	0	16:17:21	16:26:38	238.0	9004	145		Pre-emptive reflight	23	1.1
	36		16	25	26	40	16:33:55	16:37:21	57.8	8994	142			23	1.1
	53		12	17	18.3	26.7	16:43:45	16:46:03	328.0	8993	136		Tie line	22	1.2
							16:46:07	16:48:18					S-turn	21	1.2
							16:49:30	16:54:30					Overflight of CORS at TXBC	22	1.1
							17:11:49	17:16:49					Ground static at KLBX	21	1.2

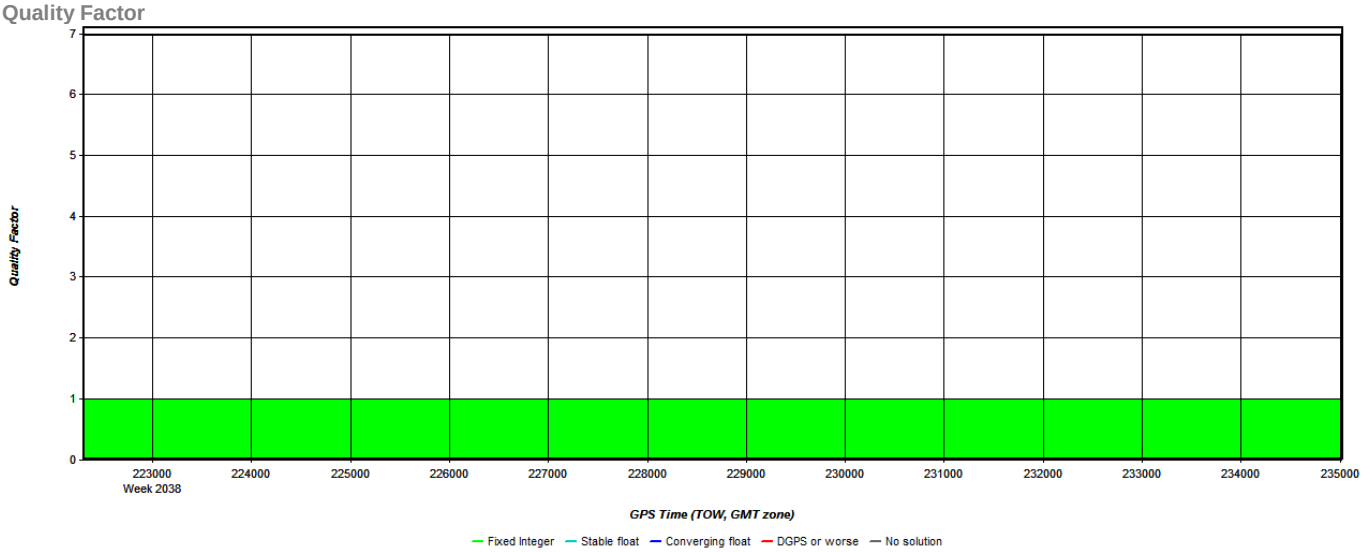
Trajectory and GPS Plots:



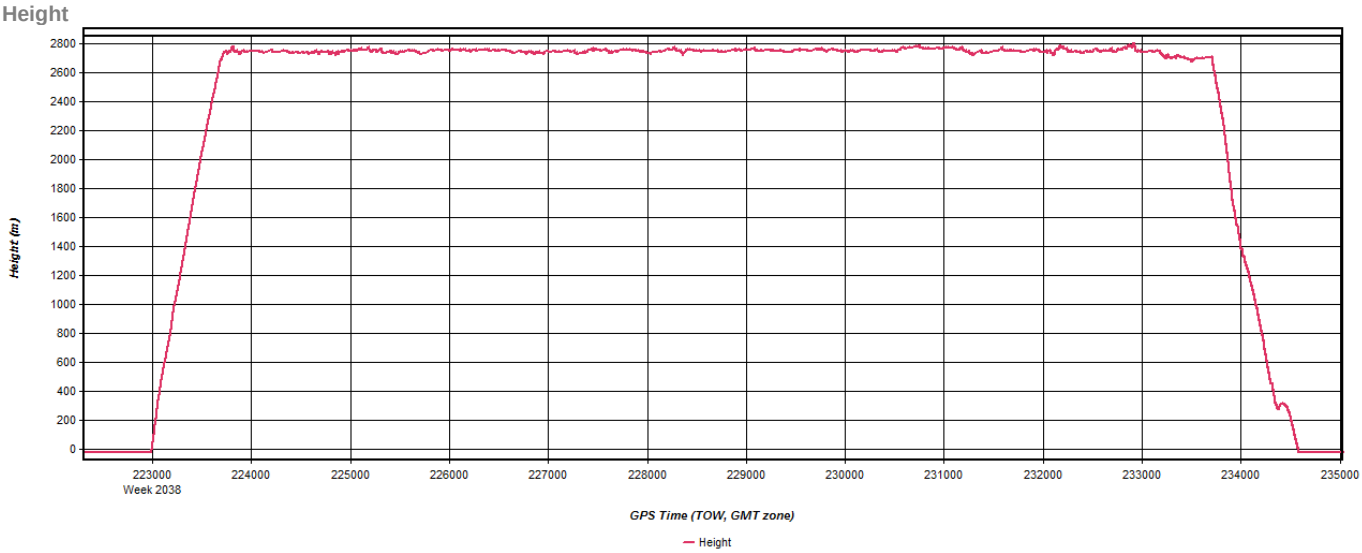
Estimated Accuracy



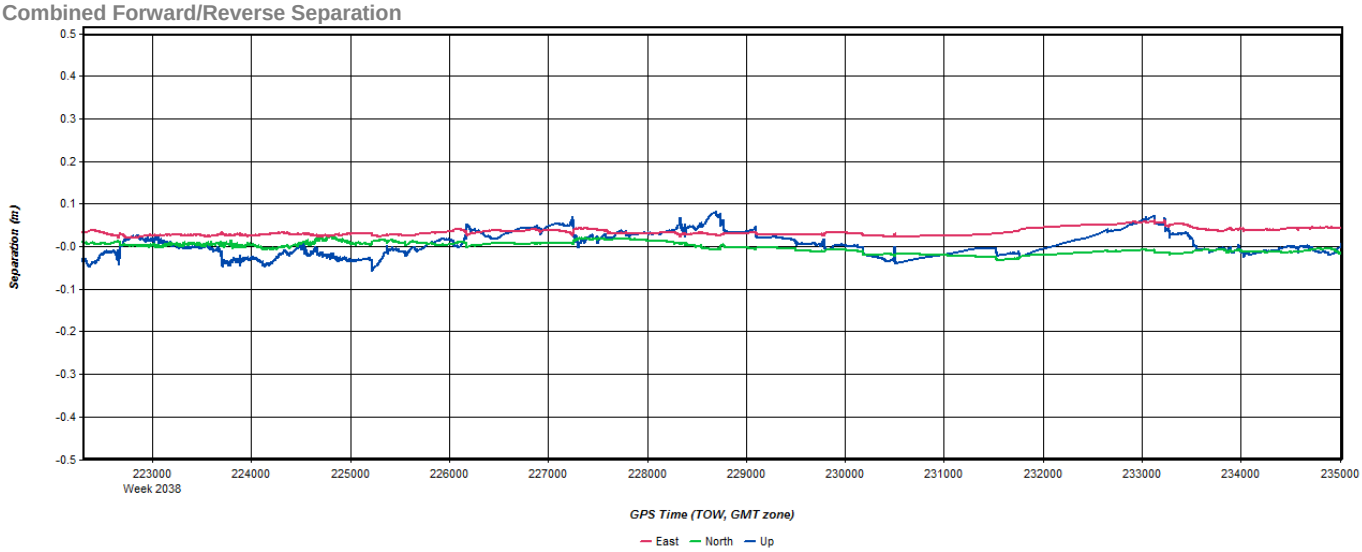
Quality Factor



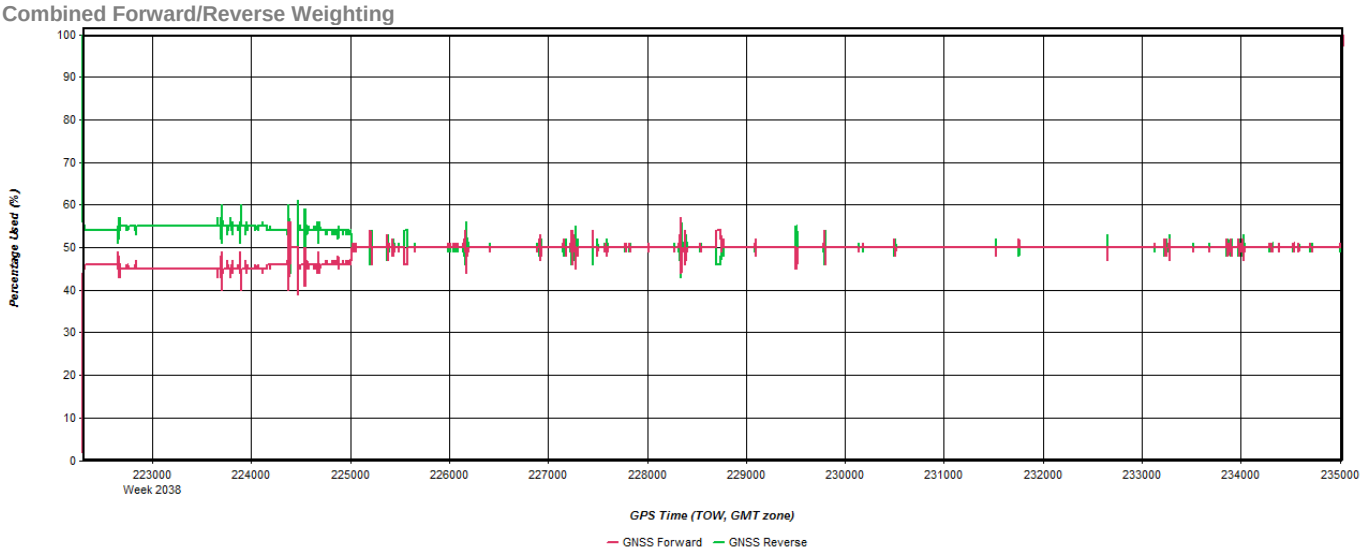
Height



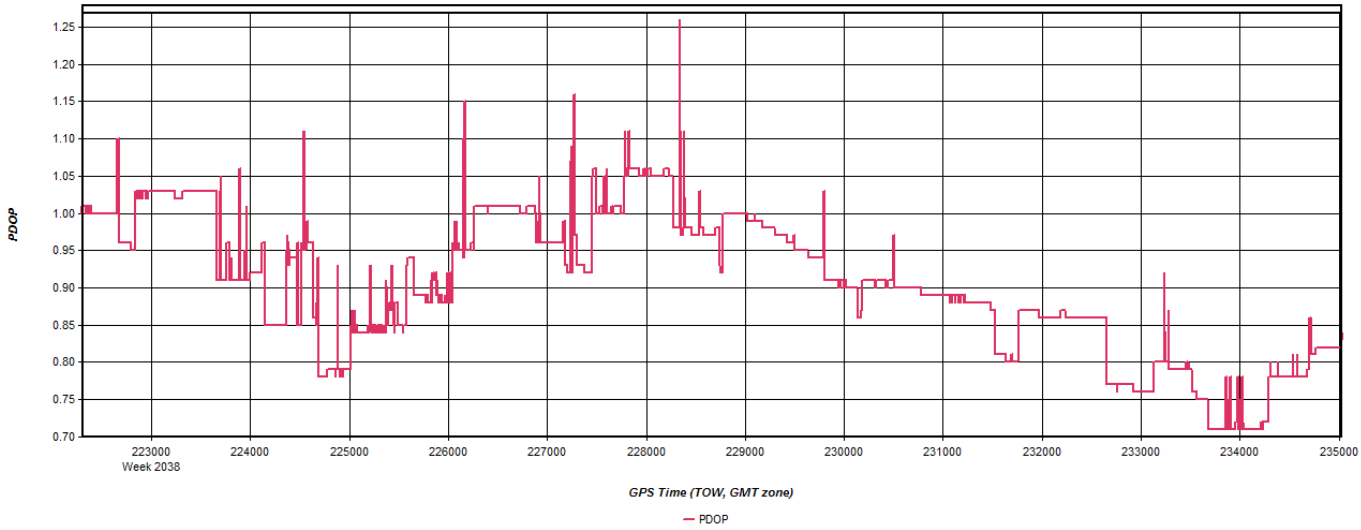
Combined Forward/Reverse Separation



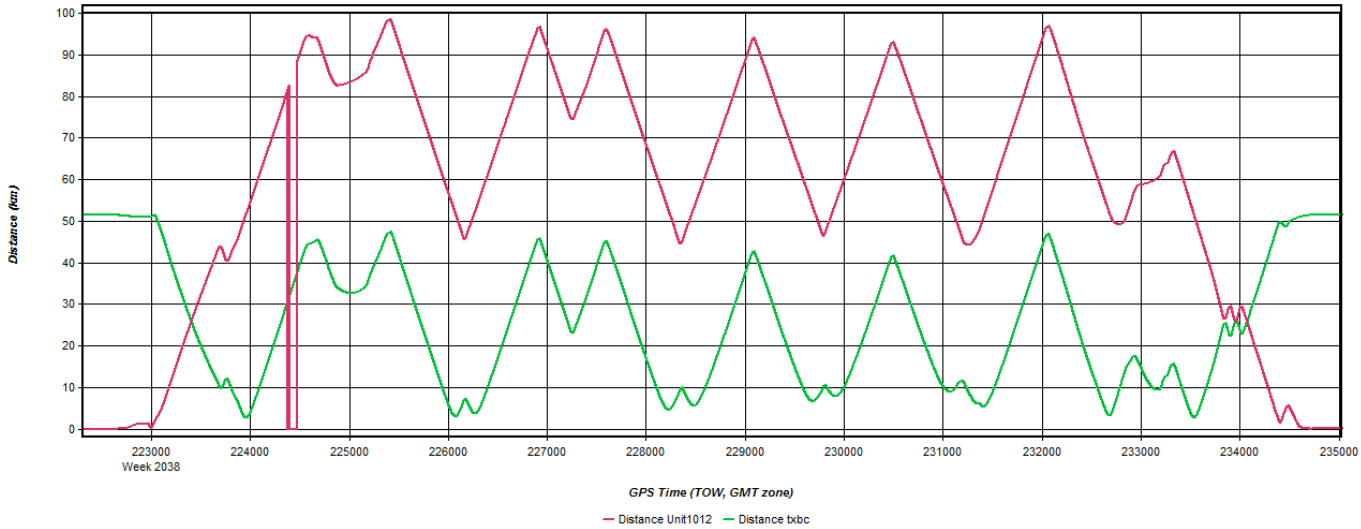
Combined Forward/Reverse Weighting



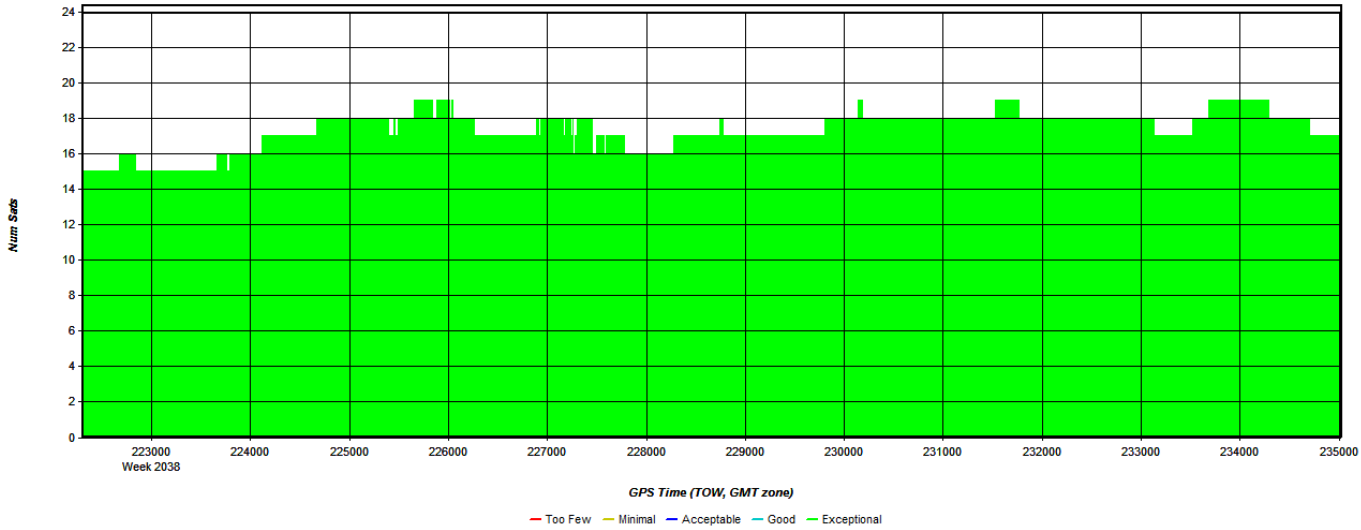
PDOP



Distance from Base



SVs


Num Sats
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20
18
16
14
12
10
8
6
4
2
0
223000
Week 2038
224000
225000
226000
227000
228000
229000
230000
231000
232000
233000
234000
235000
GPS Time (TOW, GMT zone)
Too Few
Minimal
Acceptable
Good
Exceptional