

## General Information

### Mission Information

Project name	11936
Processing date	2020-12-30 00:42:07
Mission date	2020-12-22 21:28:49
Mission duration	02:22:57.018
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N10633
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
201222F2.778	POS Data
201222F2.779	POS Data
201222F2.780	POS Data
201222F2.781	POS Data
201222F2.782	POS Data
201222F2.783	POS Data
201222F2.784	POS Data
201222F2.785	POS Data
201222F2.786	POS Data
201222F2.787	POS Data
201222F2.788	POS Data
201222F2.789	POS Data
201222F2.790	POS Data
201222F2.791	POS Data
201222F2.792	POS Data
201222F2.793	POS Data
201222F2.794	POS Data
201222F2.795	POS Data
201222F2.796	POS Data

### Input Files

File Name	File Type
Ephm3570.20g	GLONASS Broadcast Ephemeris
Ephm3570.20n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_11936.out	SBET Trajectory File
eo_11936.txt	ZI Imaging POSEO Output
sbet_11936_NAD83(2011).out	Custom Smoothed BET Export Output
lever_arm_values.txt	ReferenceToPrimaryLeverArms Export Output

## Rover Data Summary

First raw data file	201222F2.778		
Last raw data file	201222F2.796		
Start GPS week	2137		
Start time	250129.356 (12/22/2020 21:28:49)		
End time	258706.374 (12/22/2020 23:51:46)		
Start of fine alignment	250462.200 (12/22/2020 21:34:22)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
<b>IMU Installation Lever Arms &amp; Mounting Angles</b>			
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	180.000
Reference to Primary GNSS lever arm (m)	-0.485	-0.379	-1.087
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

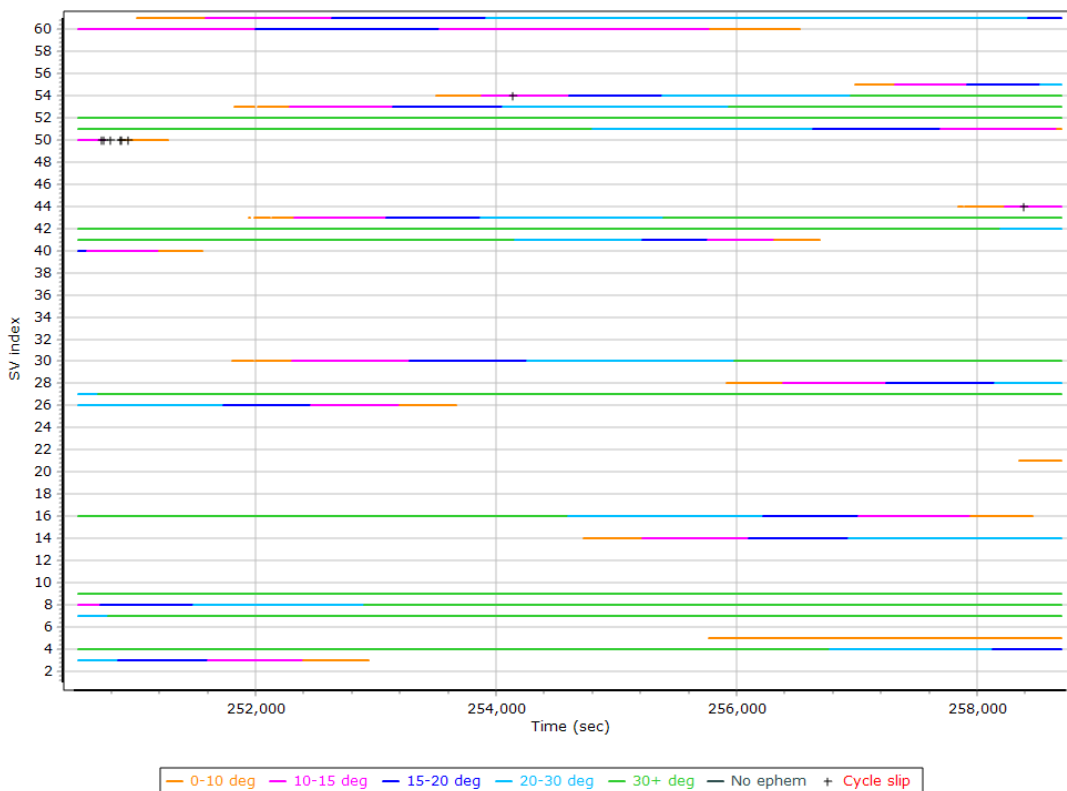
## Rover Data QC

### Raw IMU Import QC Summary

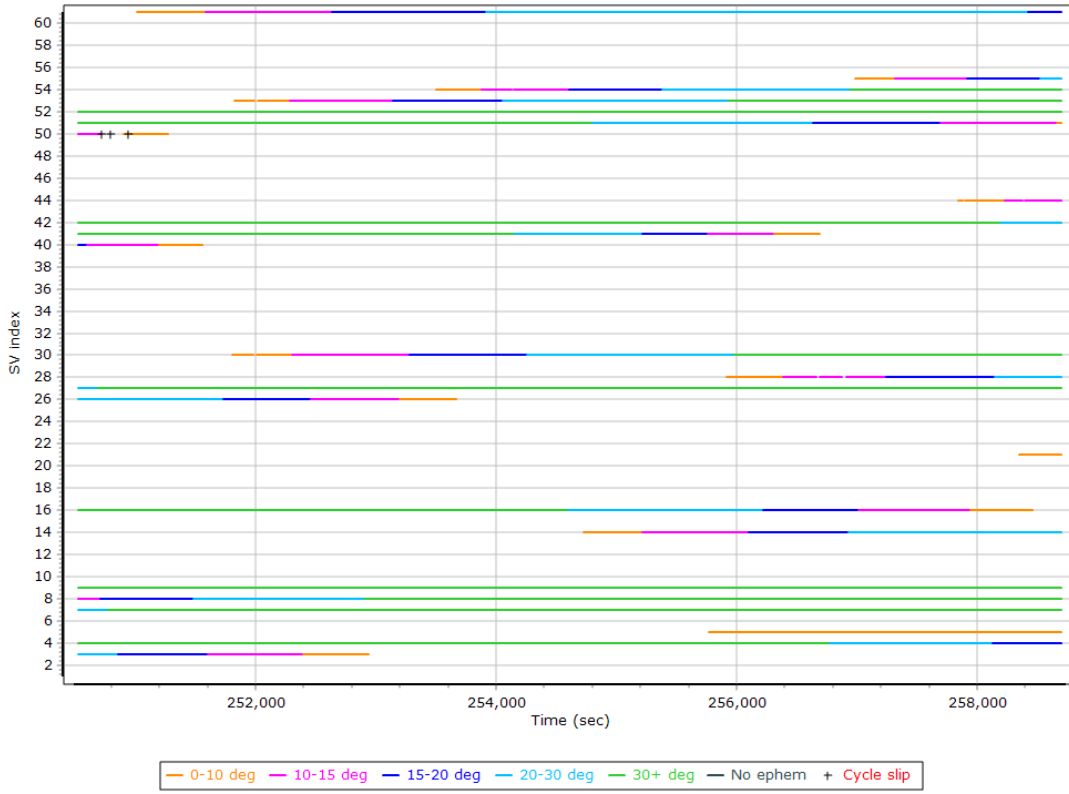
IMU data input file	imu_11936.dat
IMU data check log file	imudt_11936.log
IMU Records Processed	1715178
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
250129.111 : WARNING : Gap of 250107.1225 seconds in CHECKDT input data	

## Primary Observables & Satellite Data

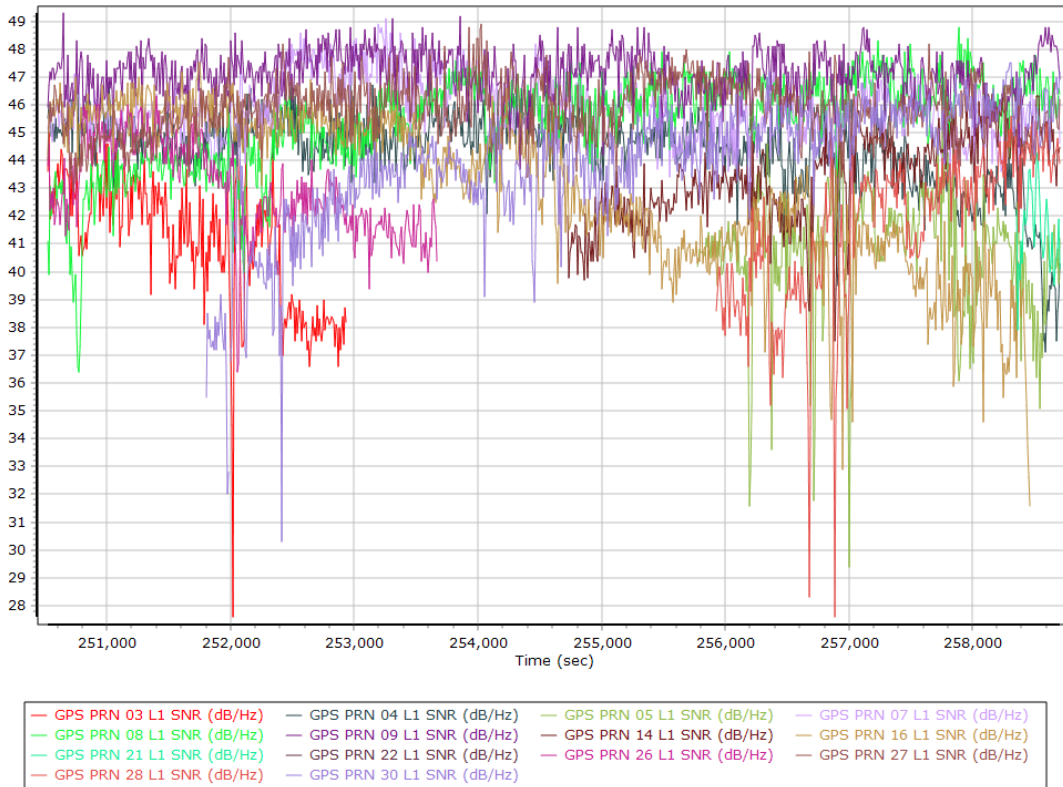
### L1 Satellite Lock/Elevation



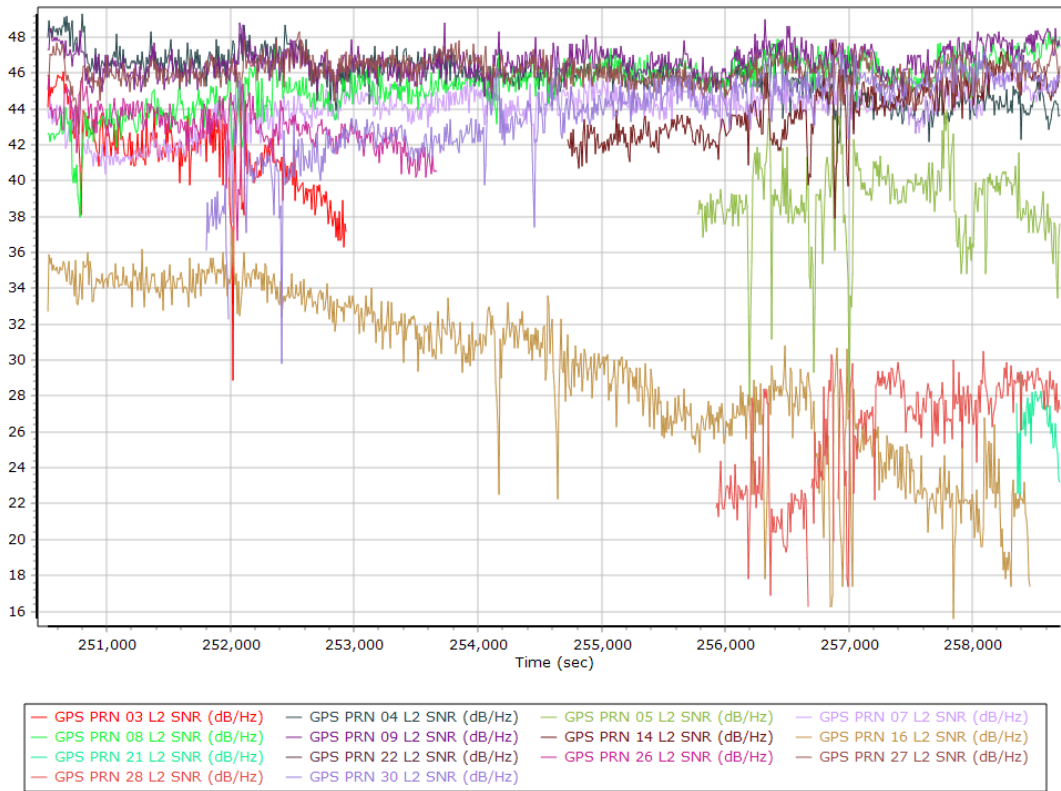
### L2 Satellite Lock/Elevation



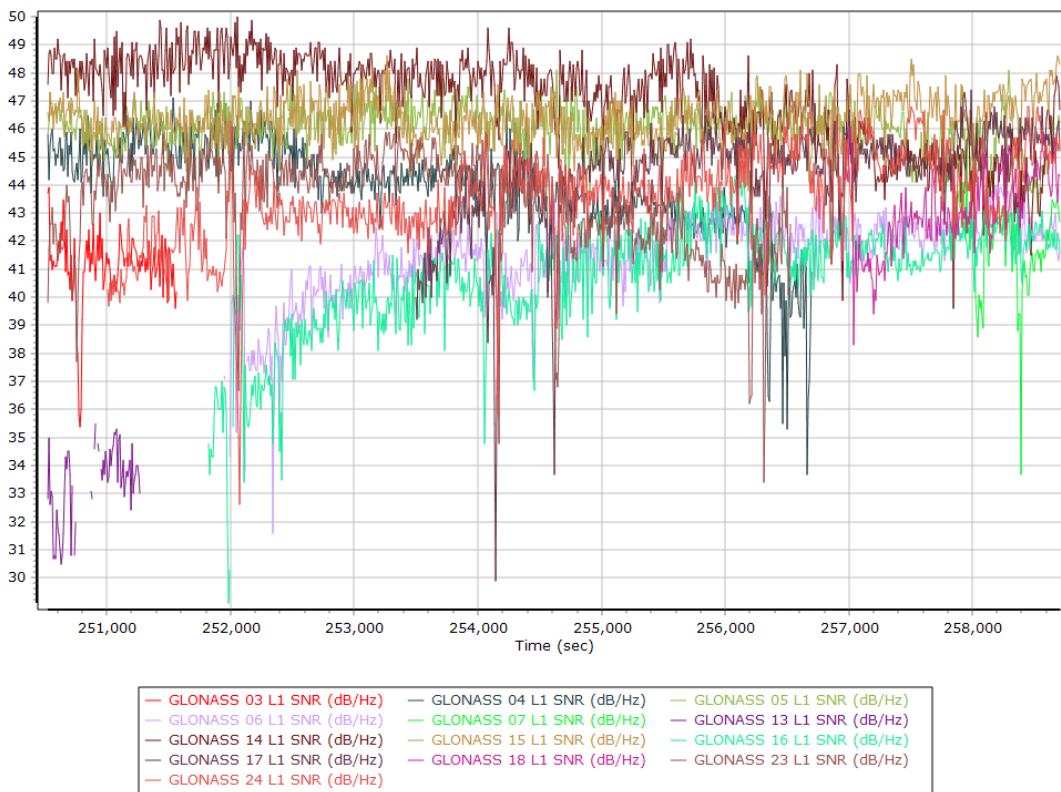
### GPS L1 SNR



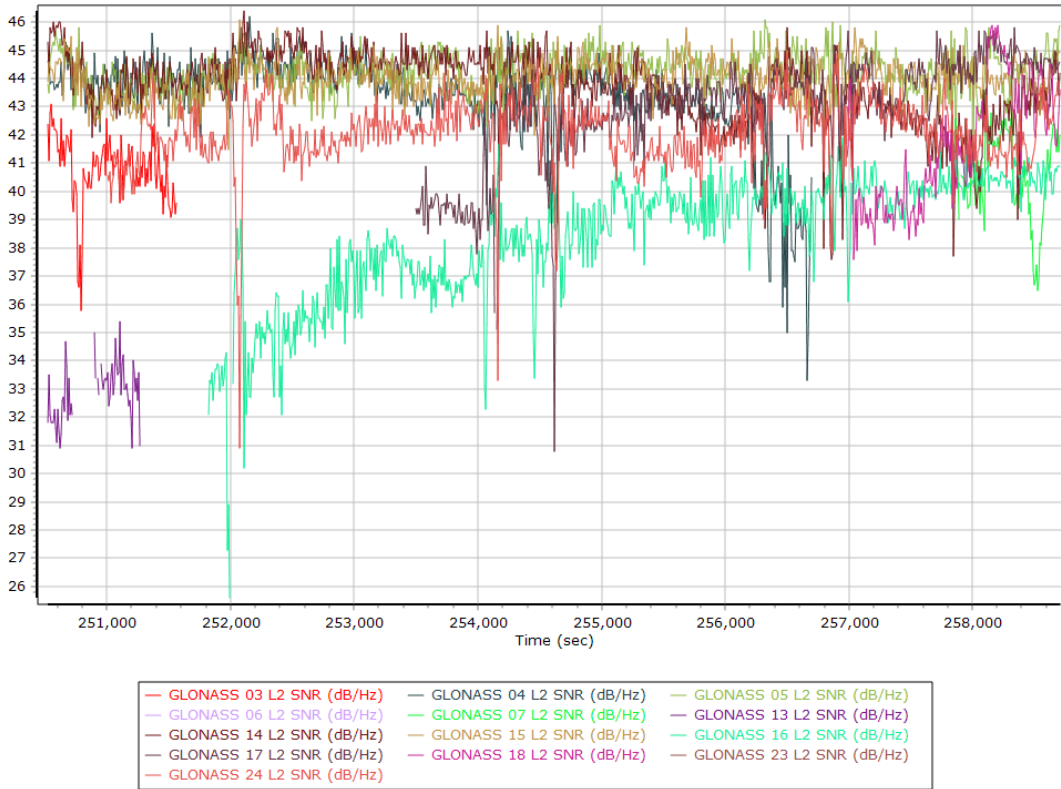
### GPS L2 SNR



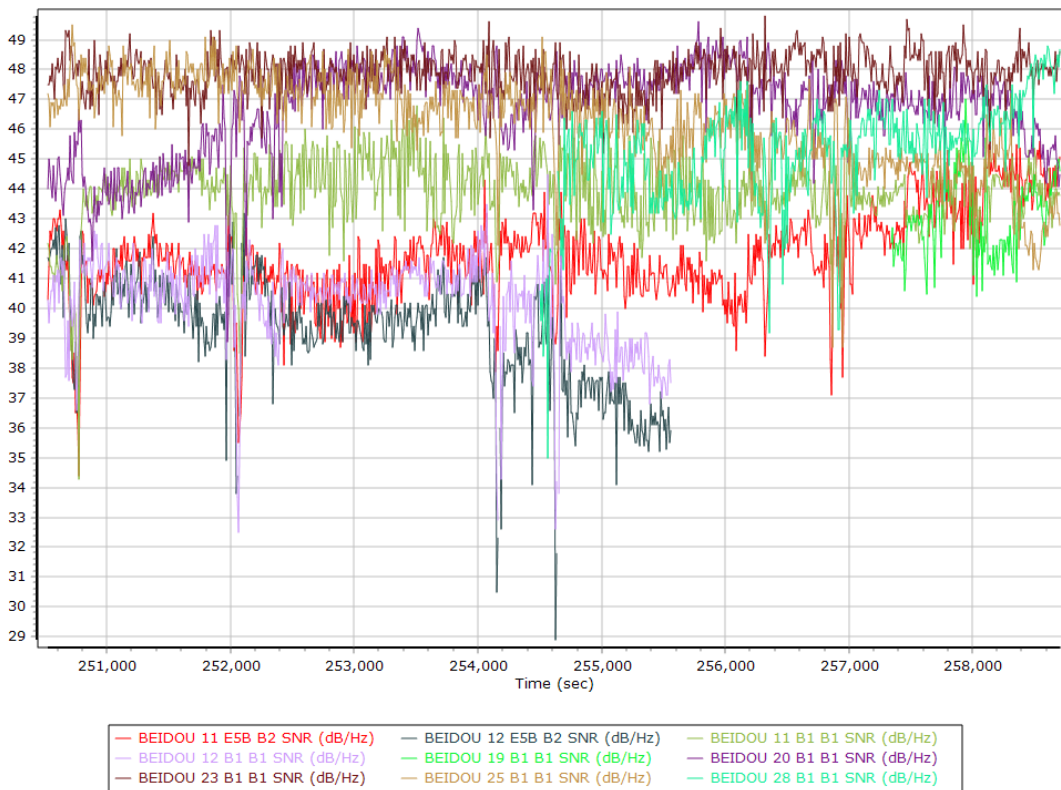
### GLONASS L1 SNR



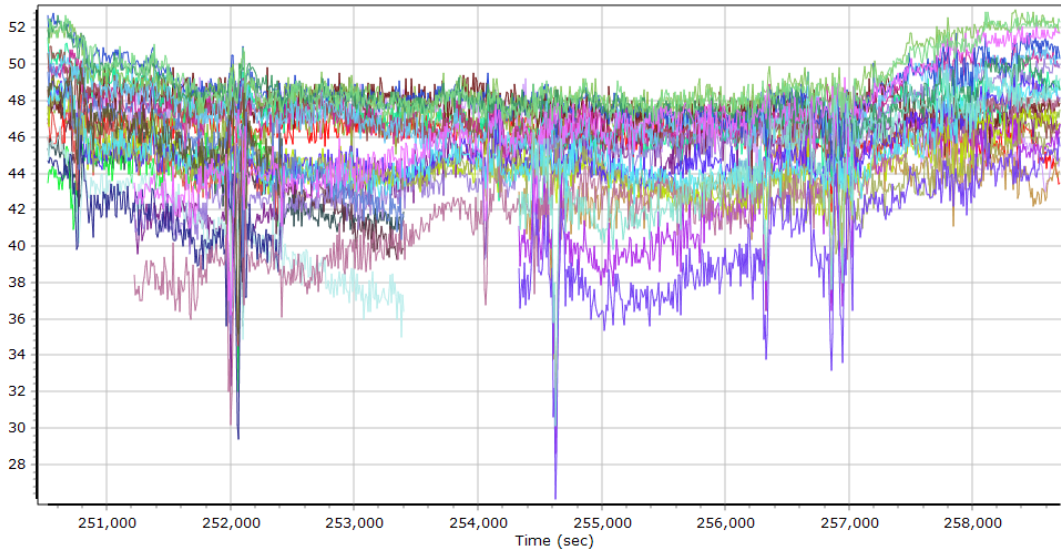
### GLONASS L2 SNR



### BEIDOU SNR



## GALILEO SNR

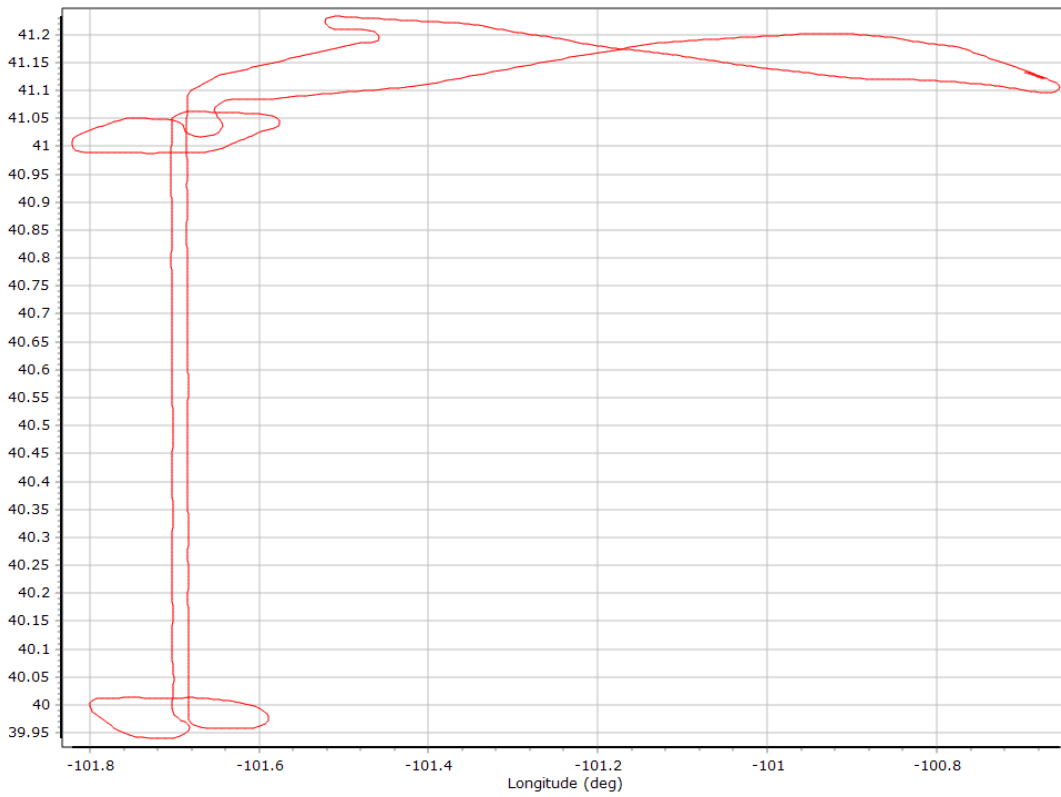


— GALILEO 02 L1 BOC_1_1_D_MBOC SNR (dB/Hz)	— GALILEO 03 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
— GALILEO 07 L1 BOC_1_1_D_MBOC SNR (dB/Hz)	— GALILEO 08 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
— GALILEO 25 L1 BOC_1_1_D_MBOC SNR (dB/Hz)	— GALILEO 27 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
— GALILEO 30 L1 BOC_1_1_D_MBOC SNR (dB/Hz)	— GALILEO 36 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
— GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)	— GALILEO 03 L5E5A BPSK10_PD SNR (dB/Hz)
— GALILEO 07 L5E5A BPSK10_PD SNR (dB/Hz)	— GALILEO 08 L5E5A BPSK10_PD SNR (dB/Hz)
— GALILEO 25 L5E5A BPSK10_PD SNR (dB/Hz)	— GALILEO 27 L5E5A BPSK10_PD SNR (dB/Hz)
— GALILEO 30 L5E5A BPSK10_PD SNR (dB/Hz)	— GALILEO 36 L5E5A BPSK10_PD SNR (dB/Hz)
— GALILEO 02 E5B BPSK10_PD SNR (dB/Hz)	— GALILEO 03 E5B BPSK10_PD SNR (dB/Hz)
— GALILEO 07 E5B BPSK10_PD SNR (dB/Hz)	— GALILEO 08 E5B BPSK10_PD SNR (dB/Hz)

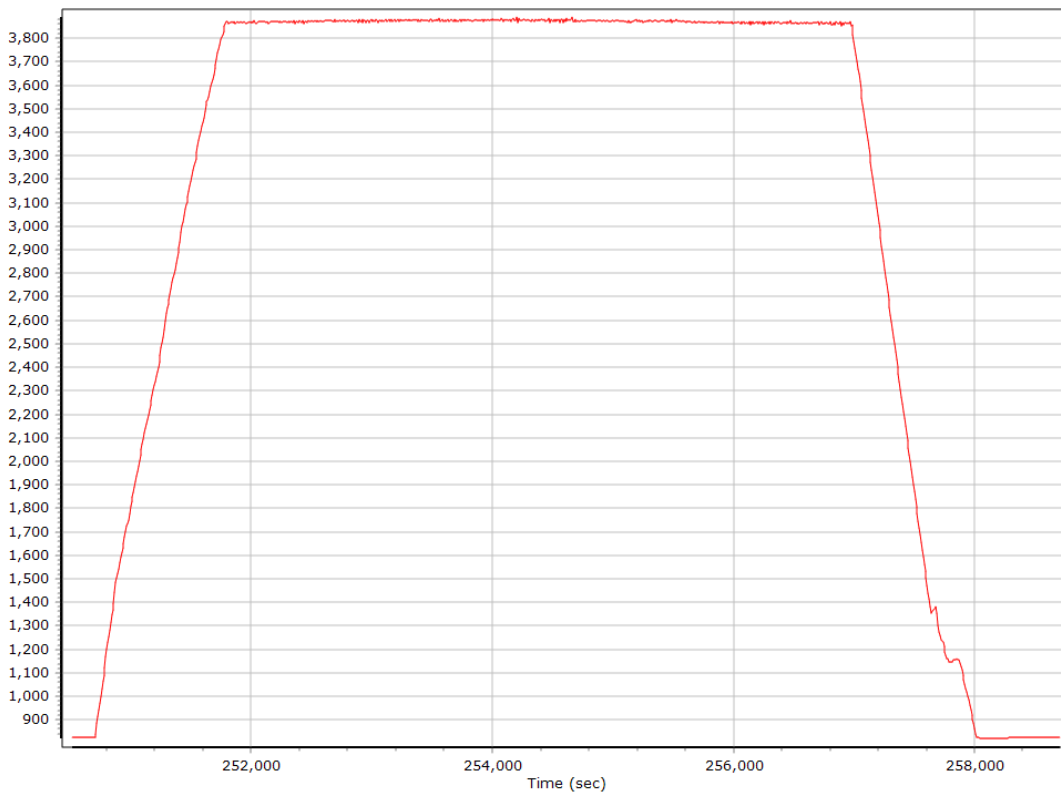


## Smoothed Trajectory Information

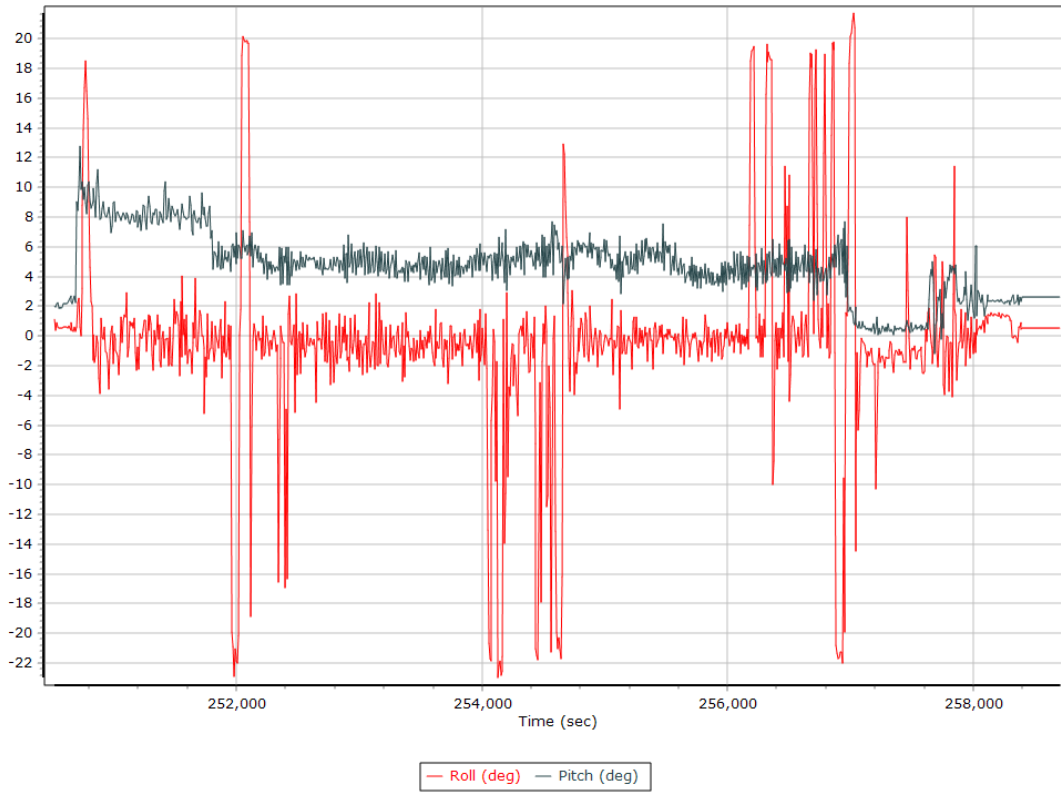
### Top View



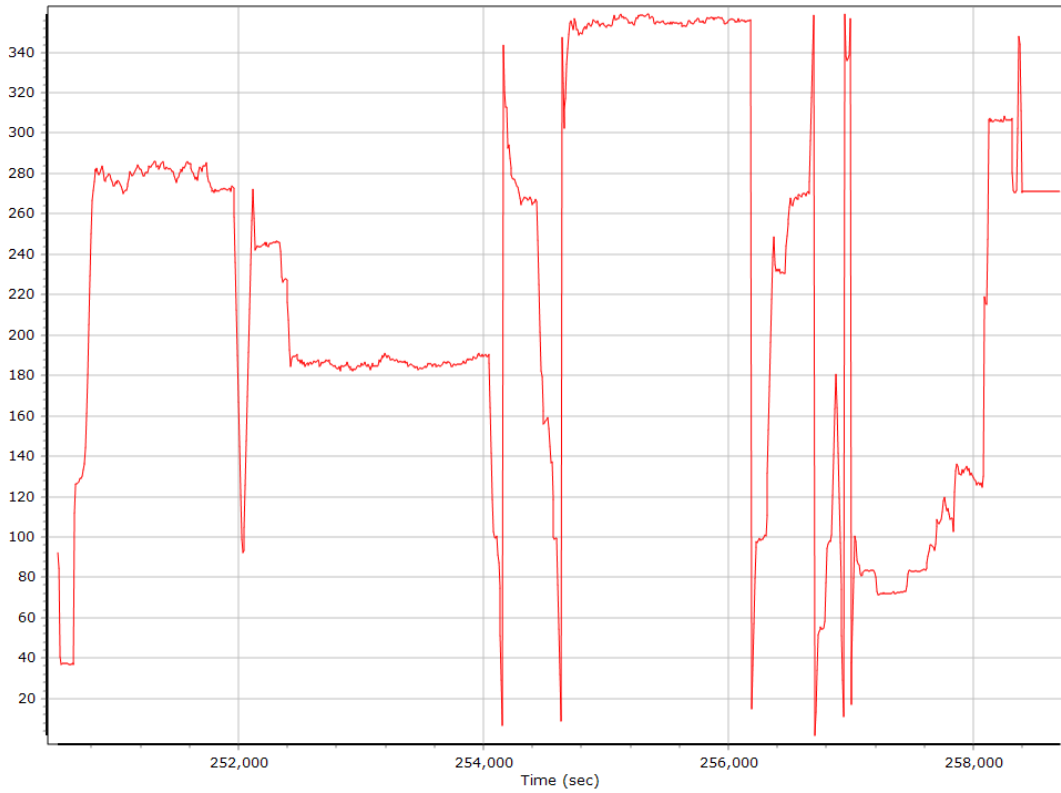
### Altitude



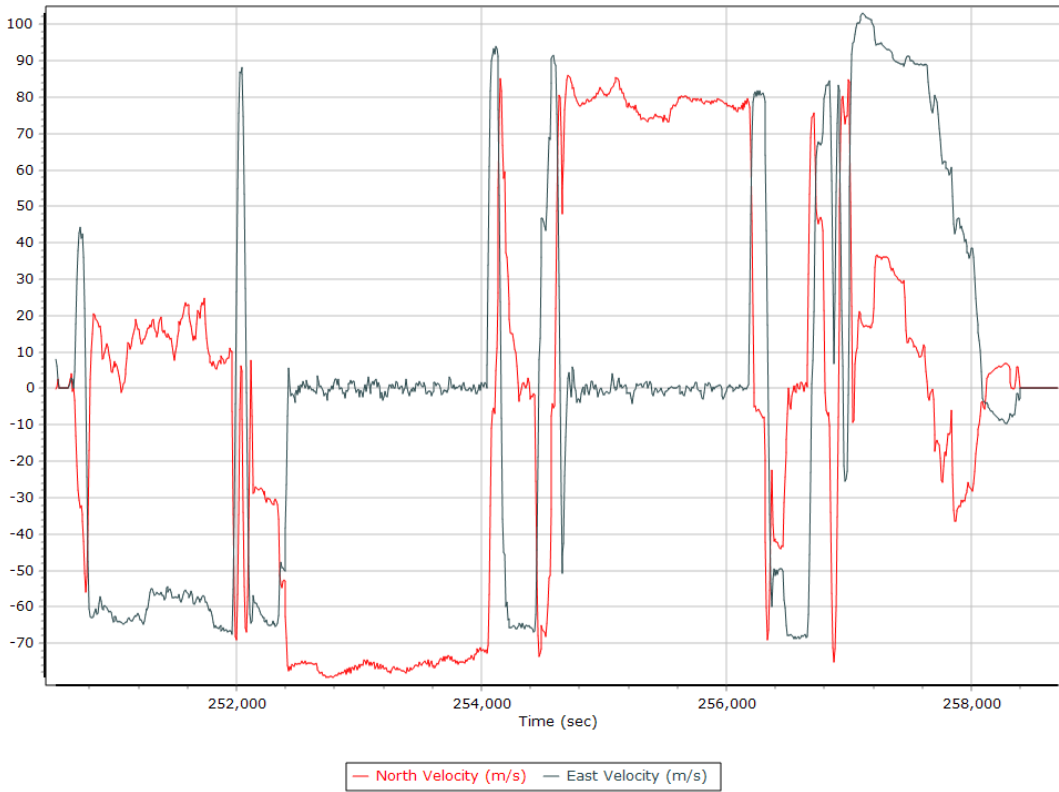
## Roll/Pitch



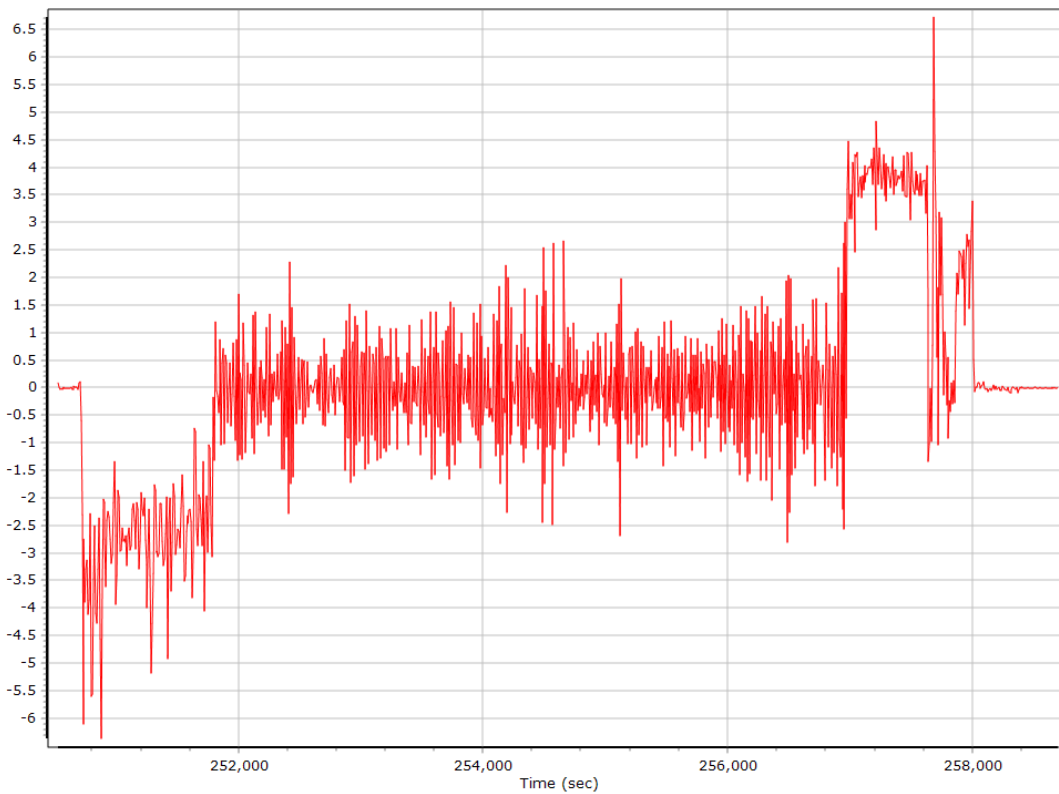
## Heading



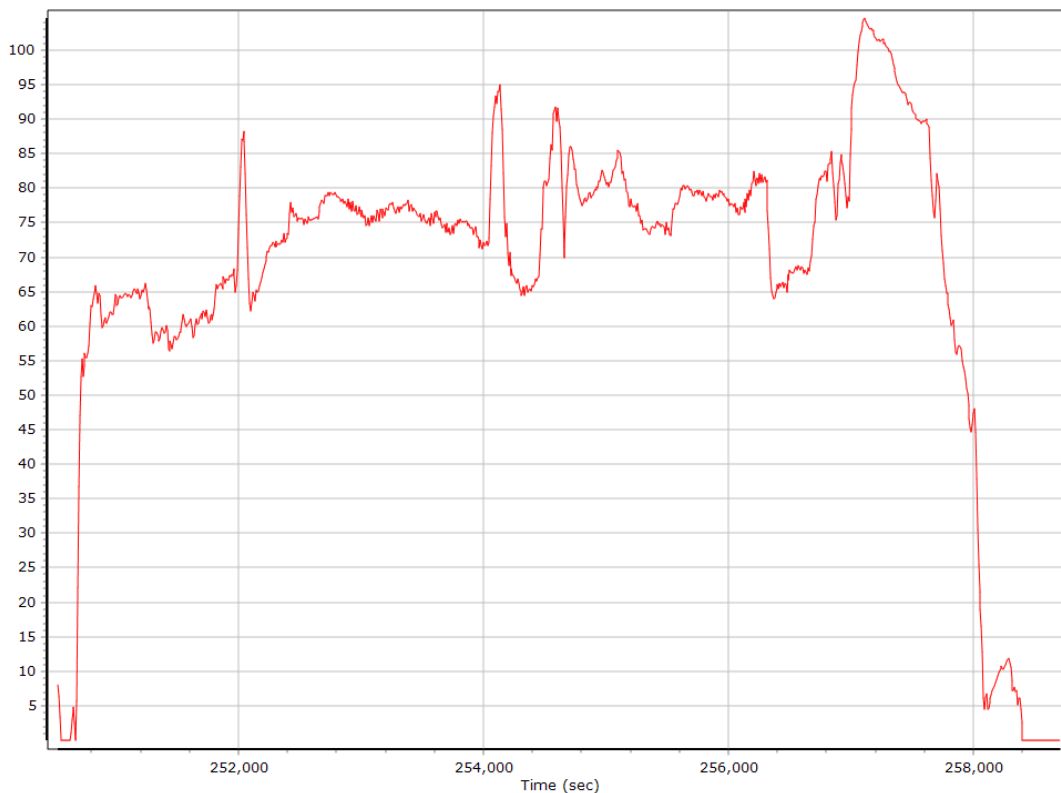
## North/East Velocity



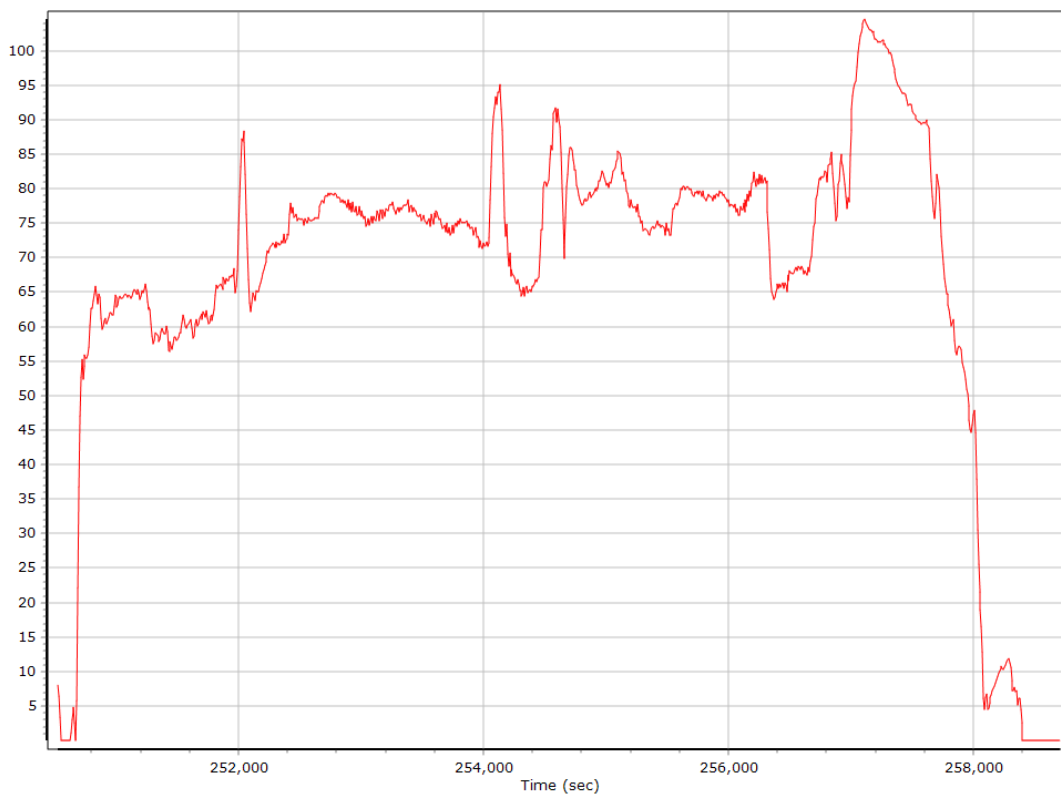
## Down Velocity



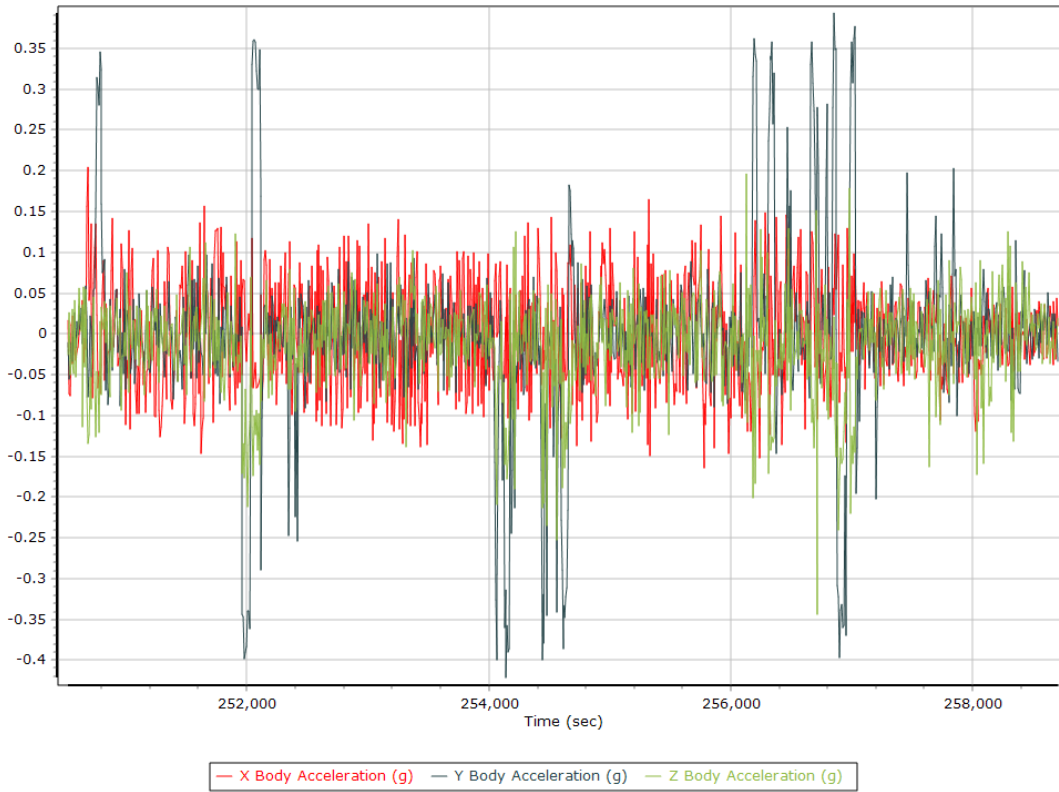
### Total Speed



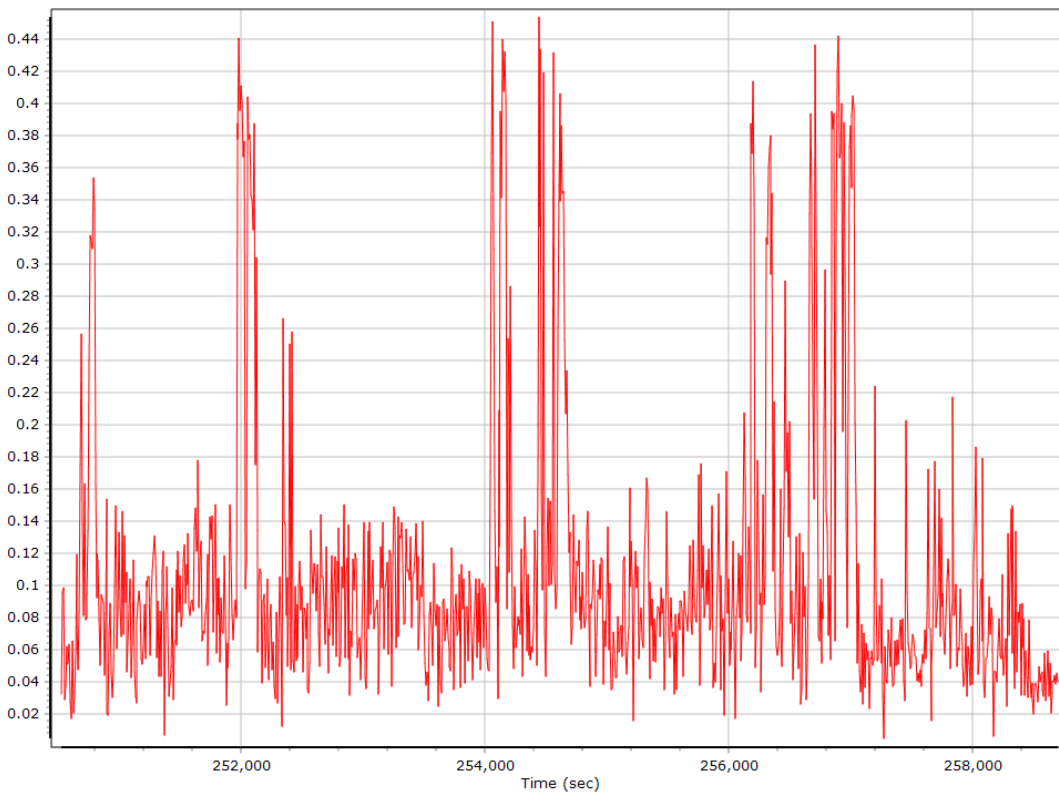
### Ground Speed



## Body Acceleration



## Total Body Acceleration

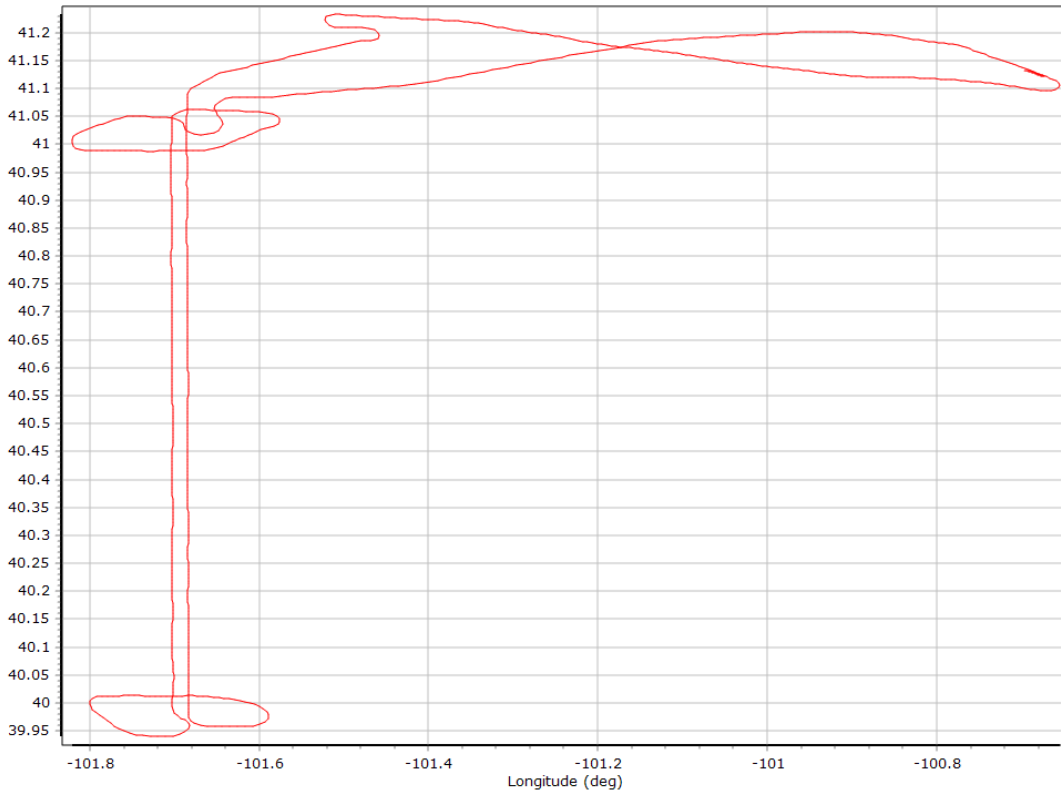


## Body Angular Rate

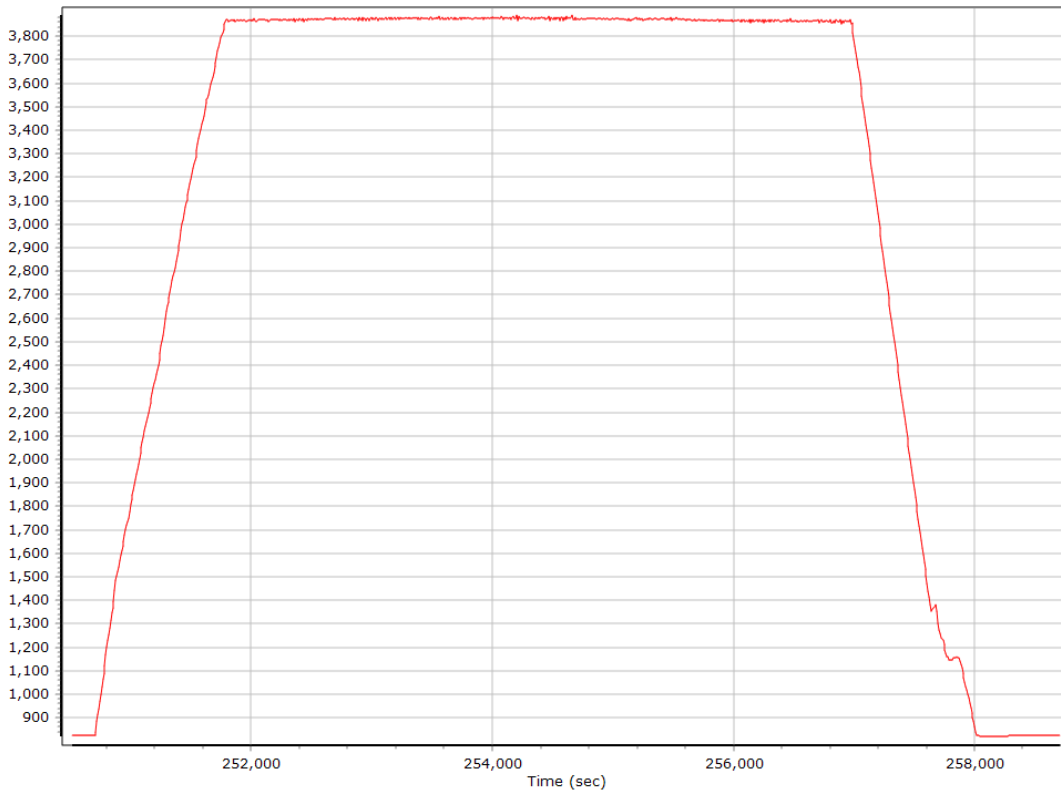


## Forward Processed Trajectory Information

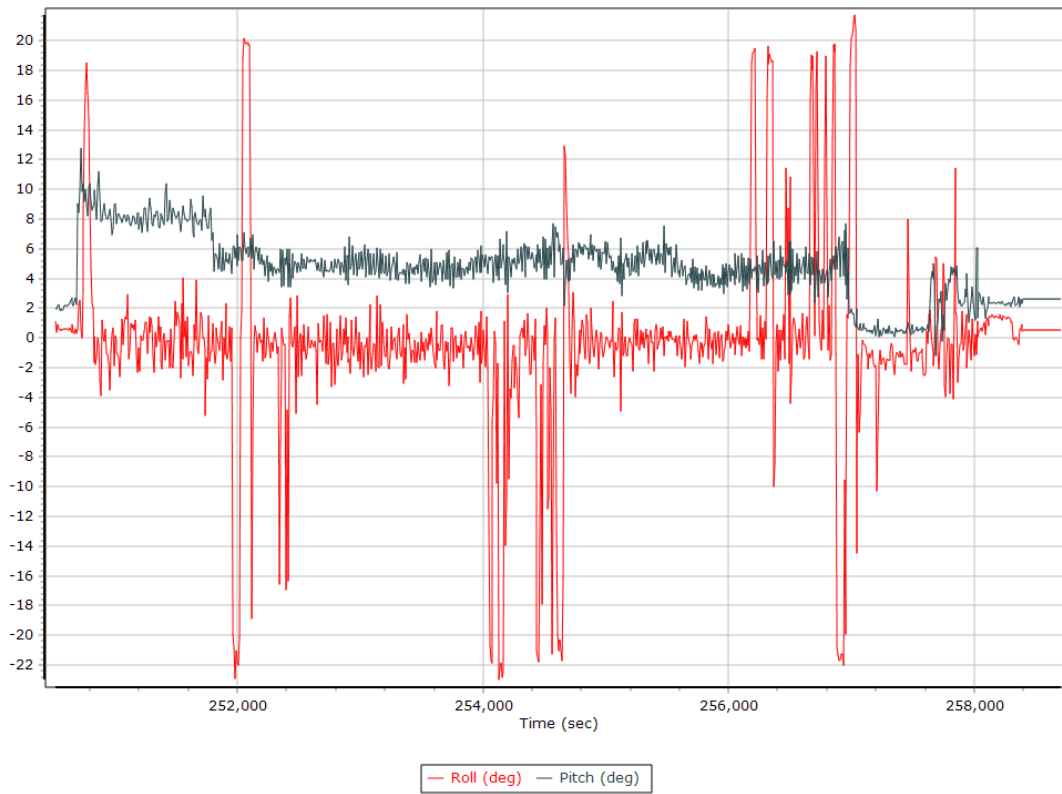
### Top View



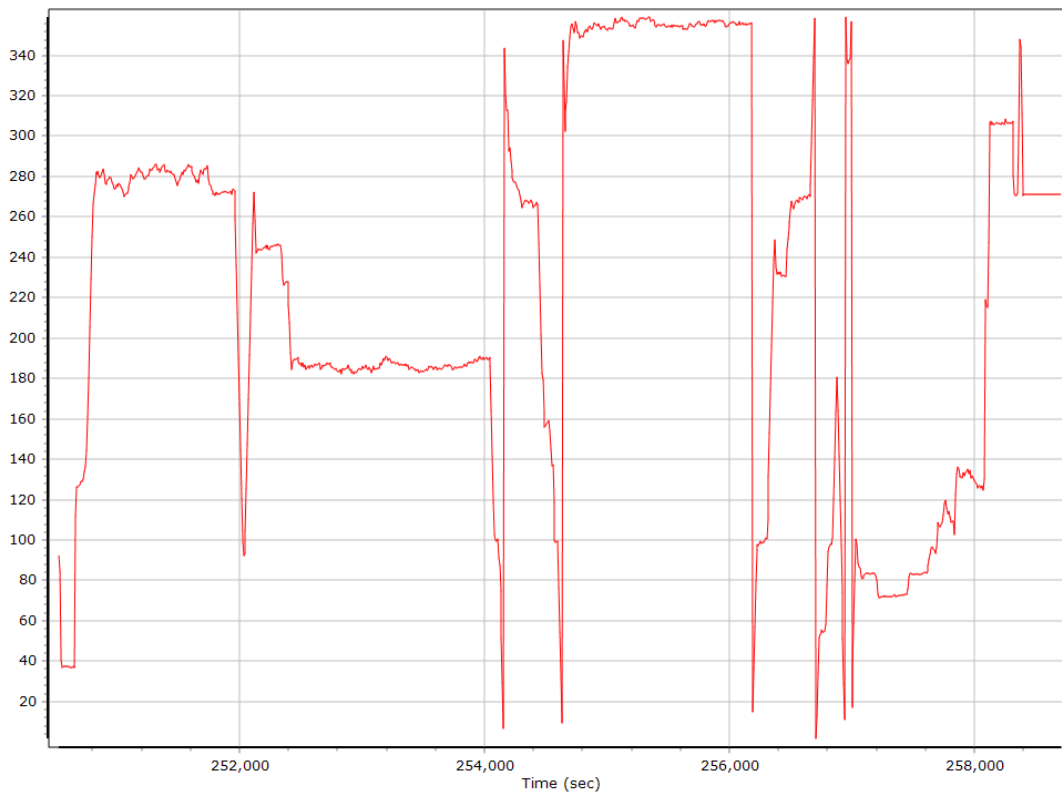
### Altitude



## Roll/Pitch

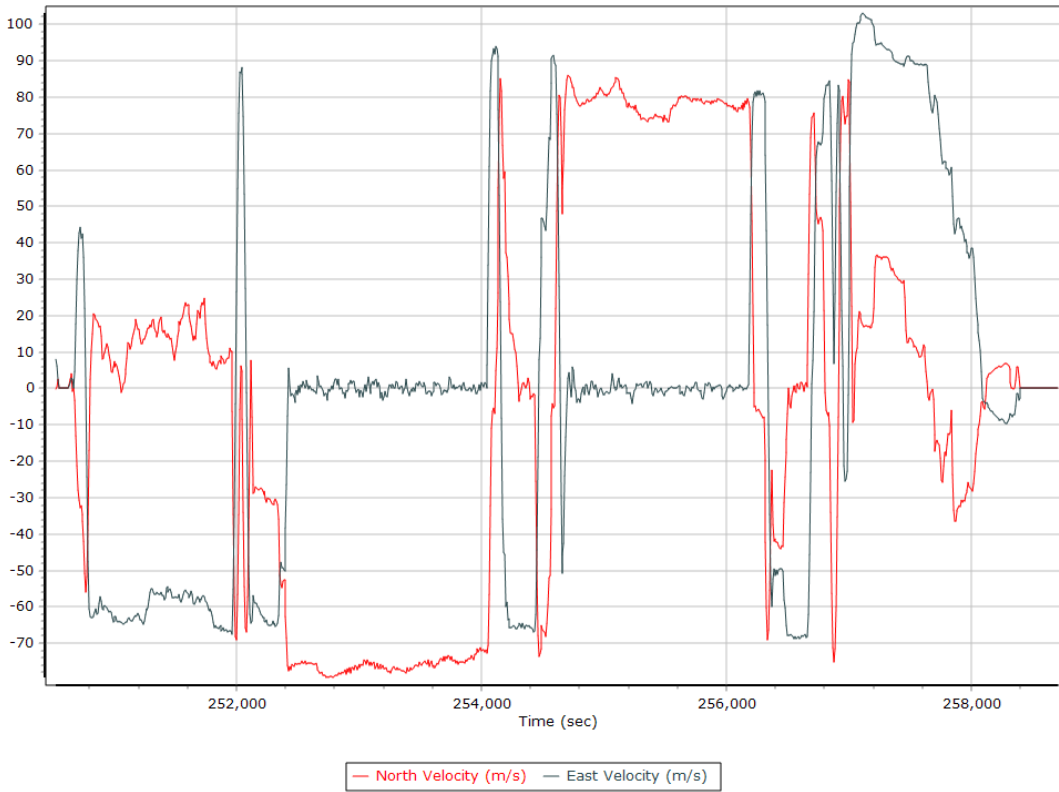


## Heading

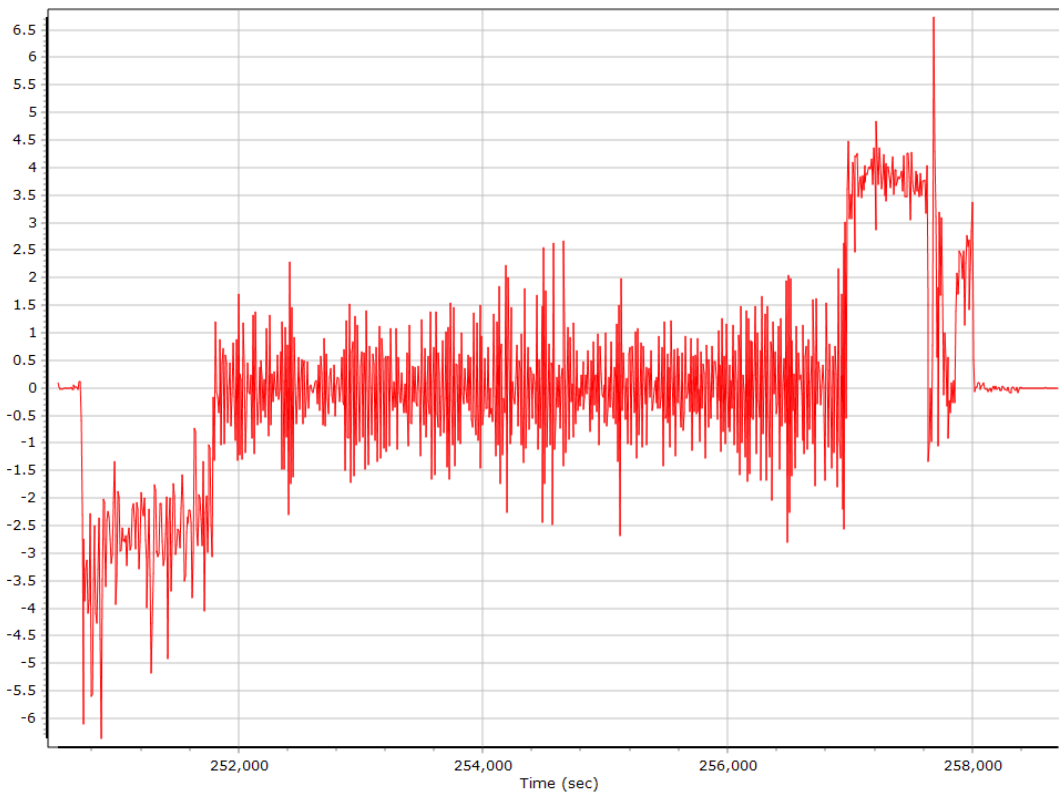




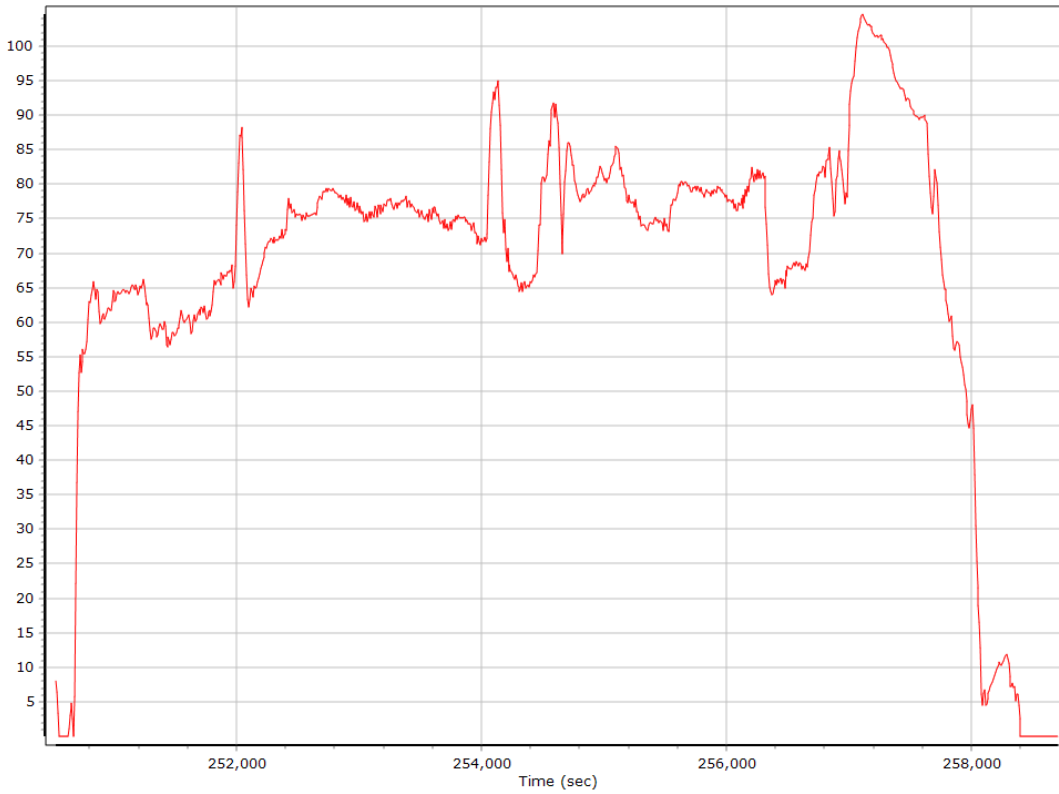
## North/East Velocity



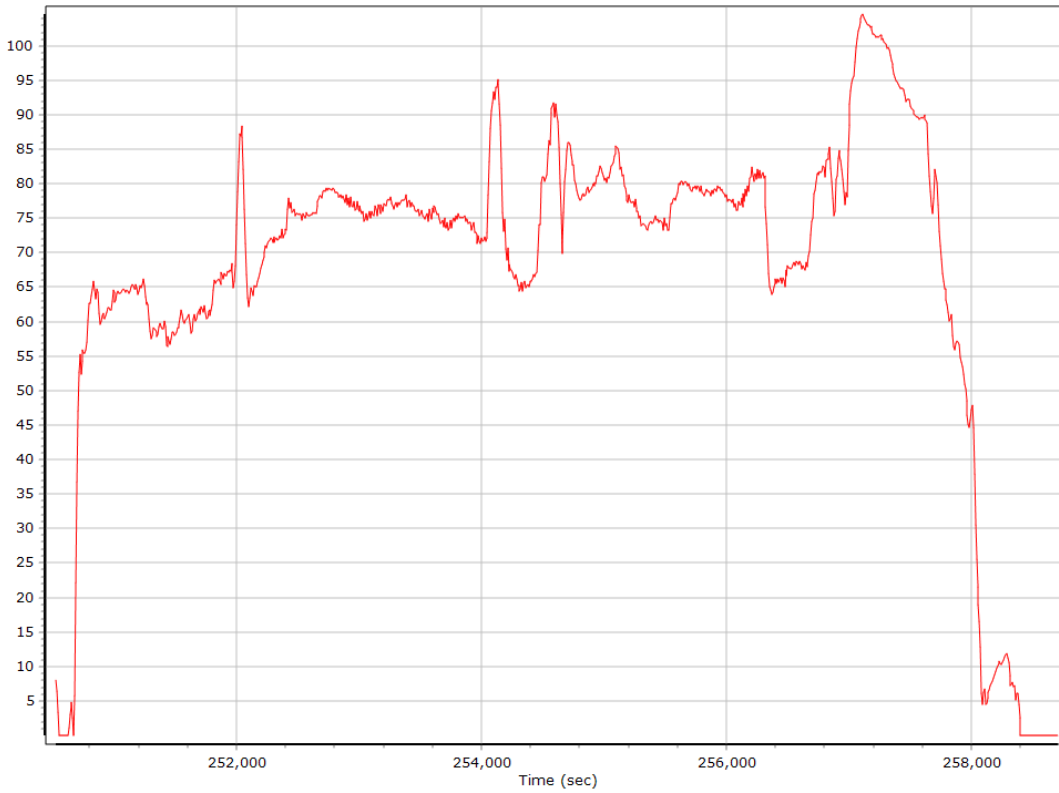
## Down Velocity



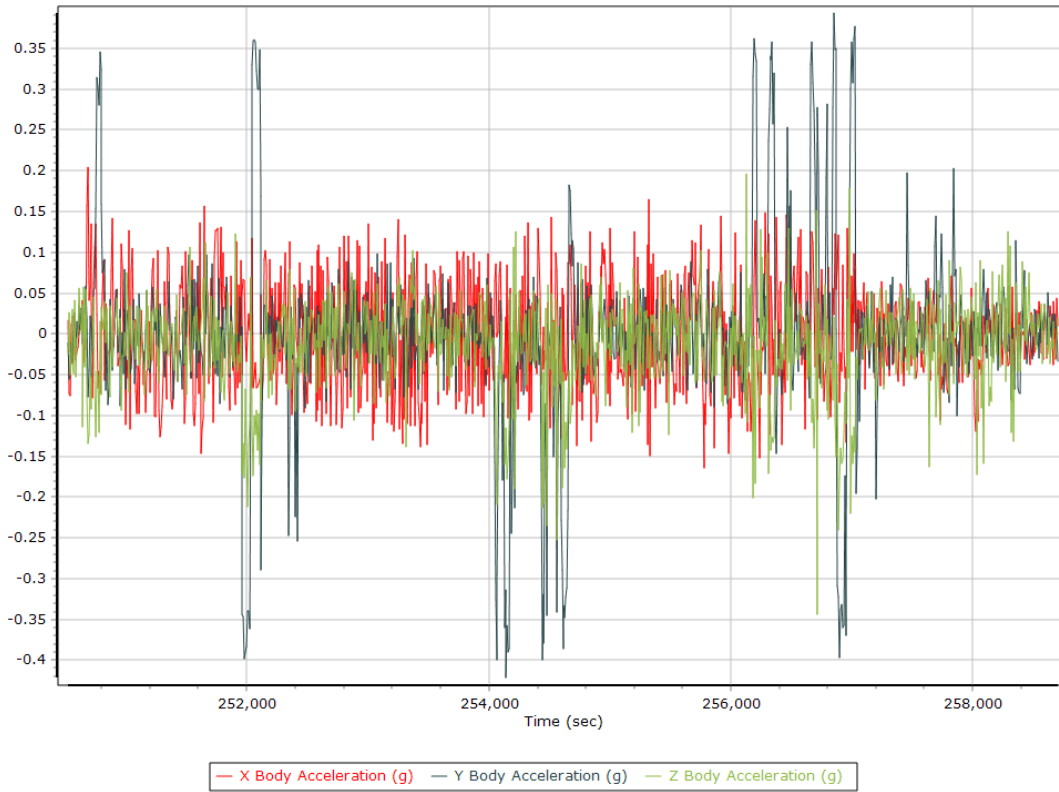
## Total Speed



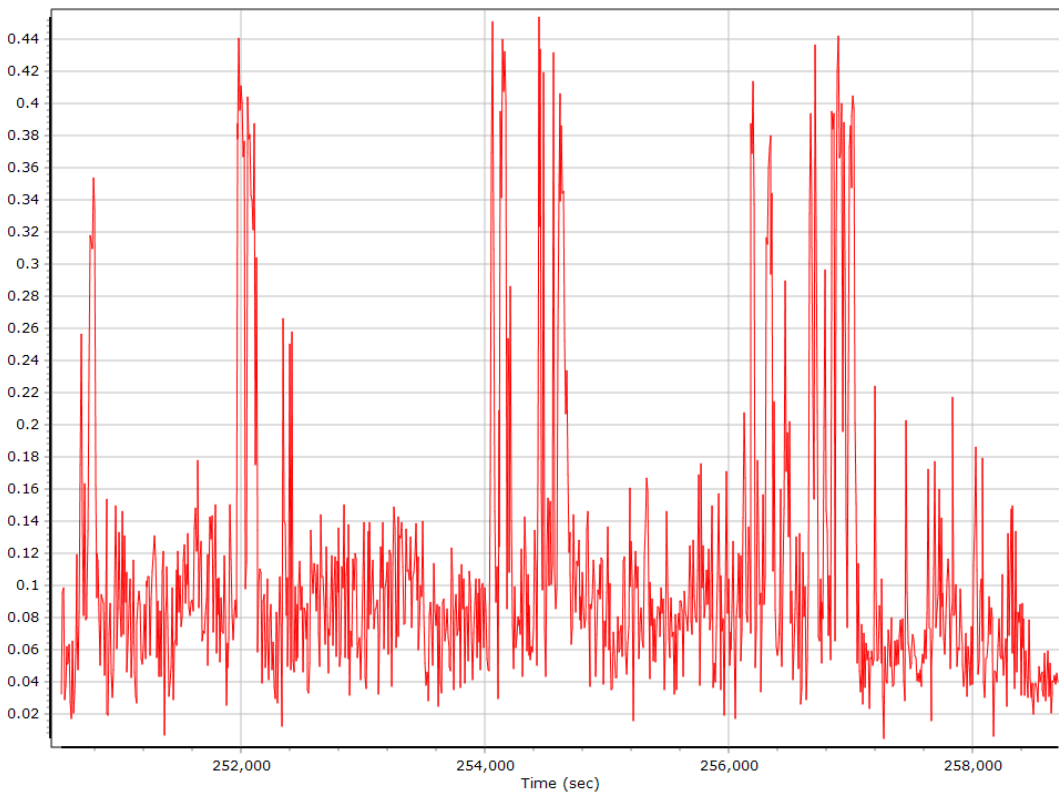
## Ground Speed



## Body Acceleration



## Total Body Acceleration



## Body Angular Rate

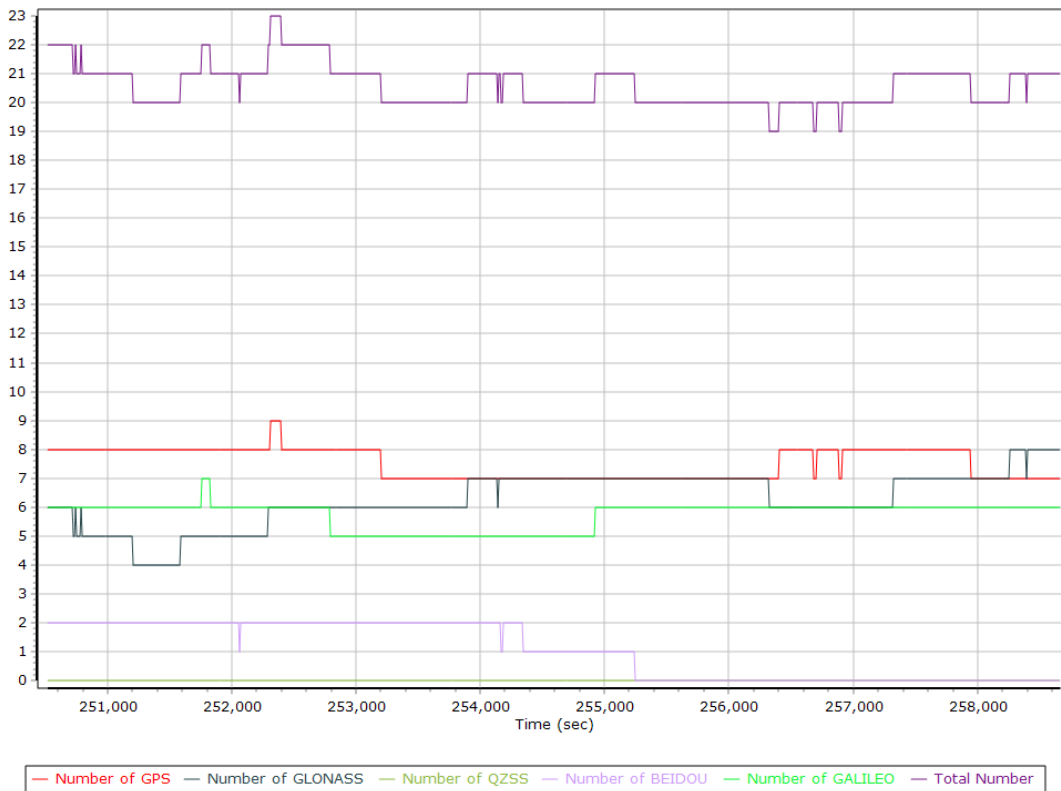


## GNSS QC

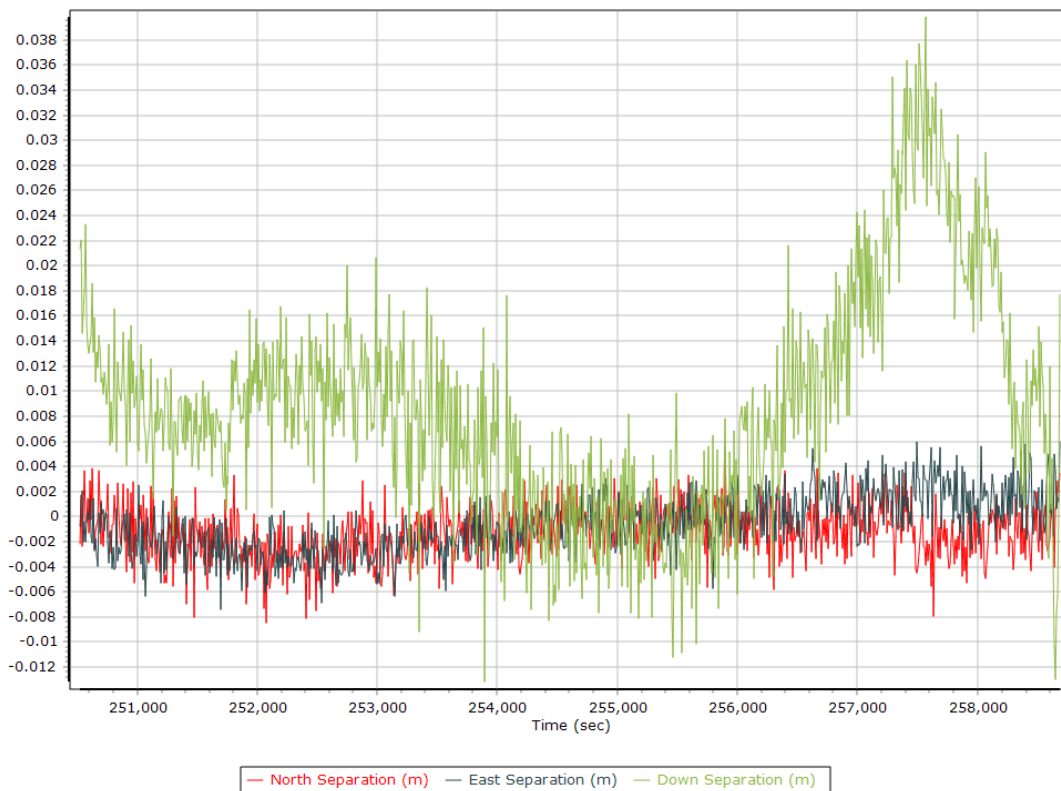
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	7	9	8
Number of GLONASS SV	4	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	2	1
Number of GALILEO SV	5	7	6
Total number of SV	19	23	21
PDOP	1.01	1.45	1.24
QC Solution Gaps	1.00	1.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	8528.00	0.00	2.00
Percentage	99.98	0.00	0.02

### Num SVs in solution



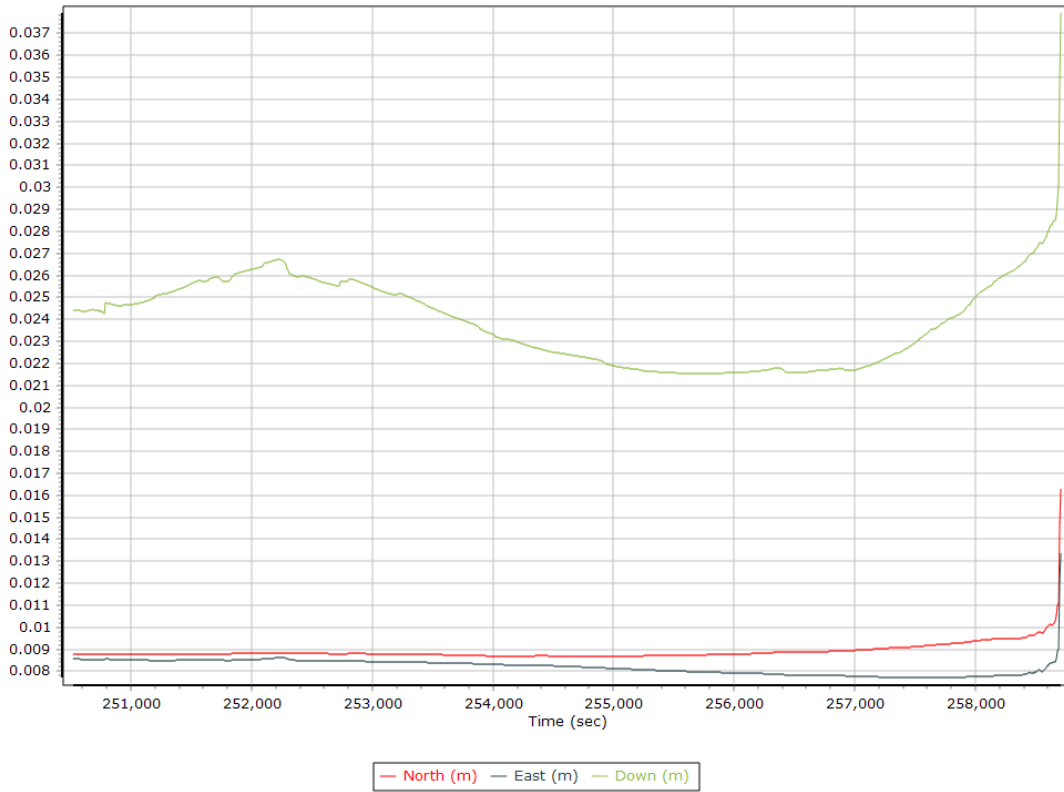
### Forward/Reverse Separation



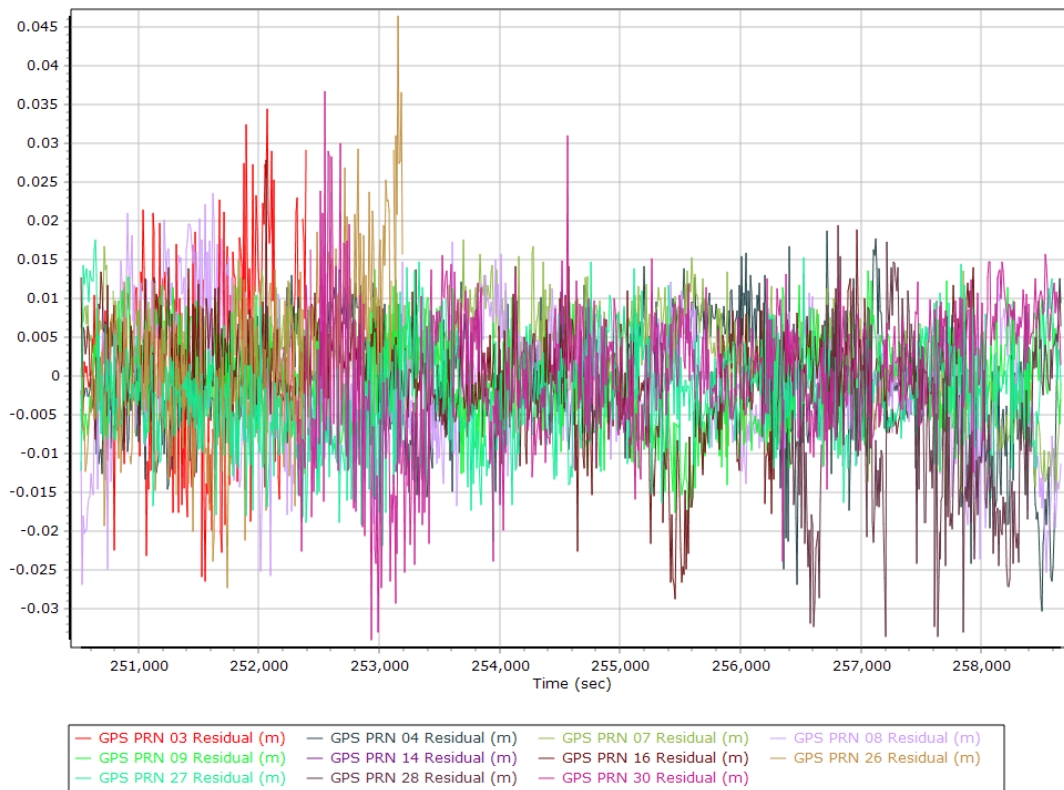
### PDOP



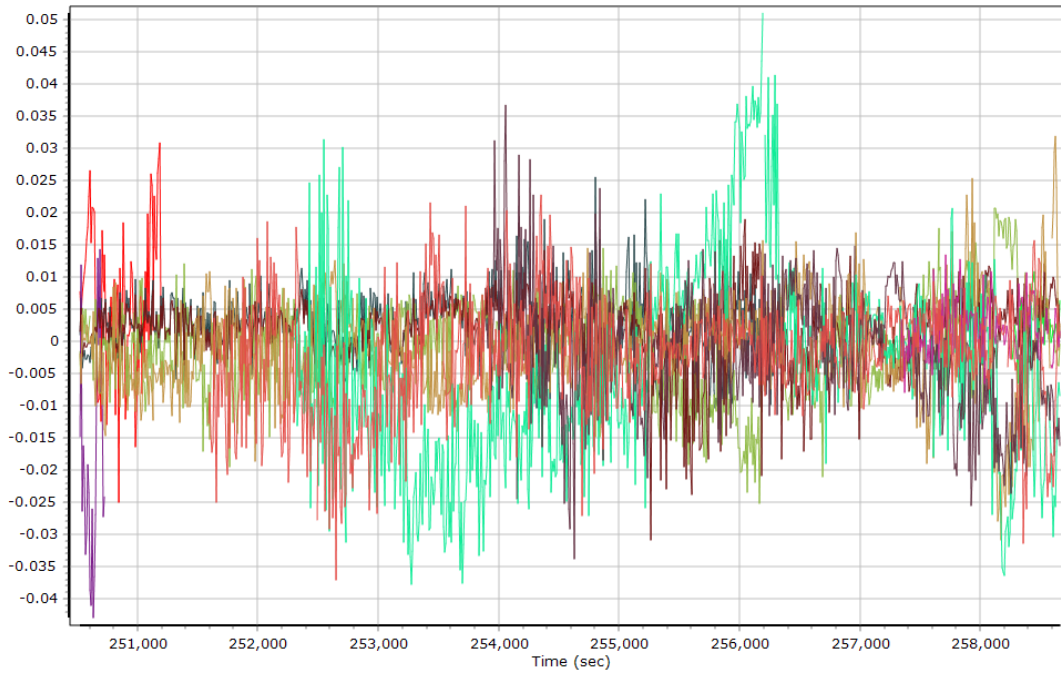
## Estimated Position Accuracy



## GPS Residuals

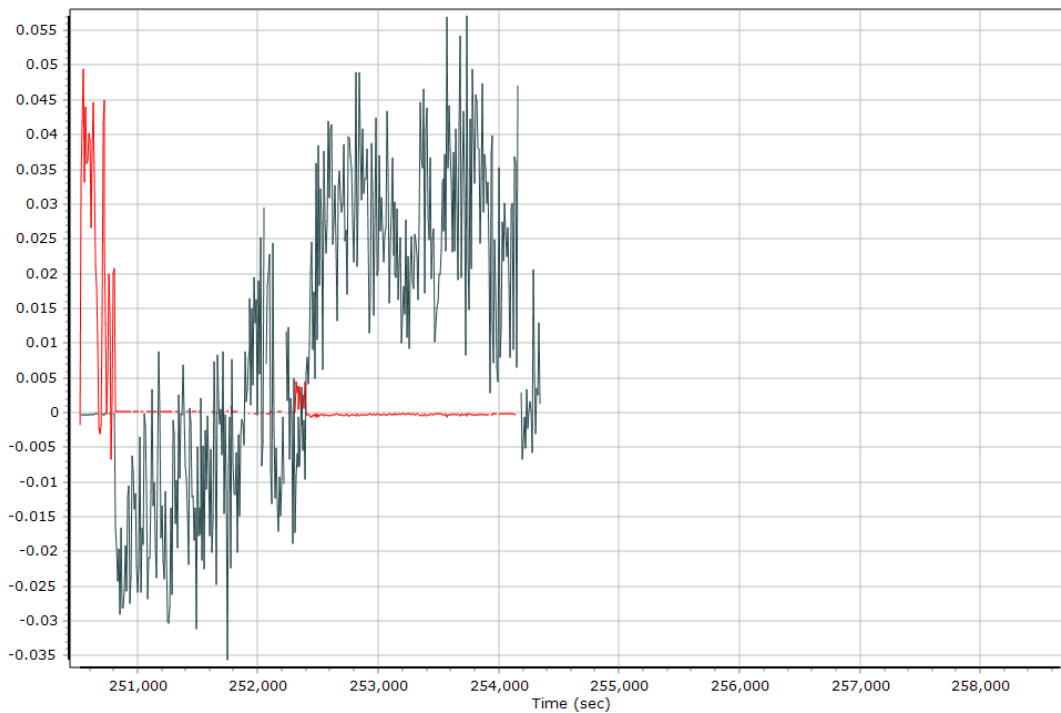


## GLONASS Residuals



- |                         |                         |                         |                         |
|-------------------------|-------------------------|-------------------------|-------------------------|
| GLONASS 03 Residual (m) | GLONASS 04 Residual (m) | GLONASS 05 Residual (m) | GLONASS 06 Residual (m) |
| GLONASS 07 Residual (m) | GLONASS 13 Residual (m) | GLONASS 14 Residual (m) | GLONASS 15 Residual (m) |
| GLONASS 16 Residual (m) | GLONASS 17 Residual (m) | GLONASS 18 Residual (m) | GLONASS 23 Residual (m) |
| GLONASS 24 Residual (m) |                         |                         |                         |

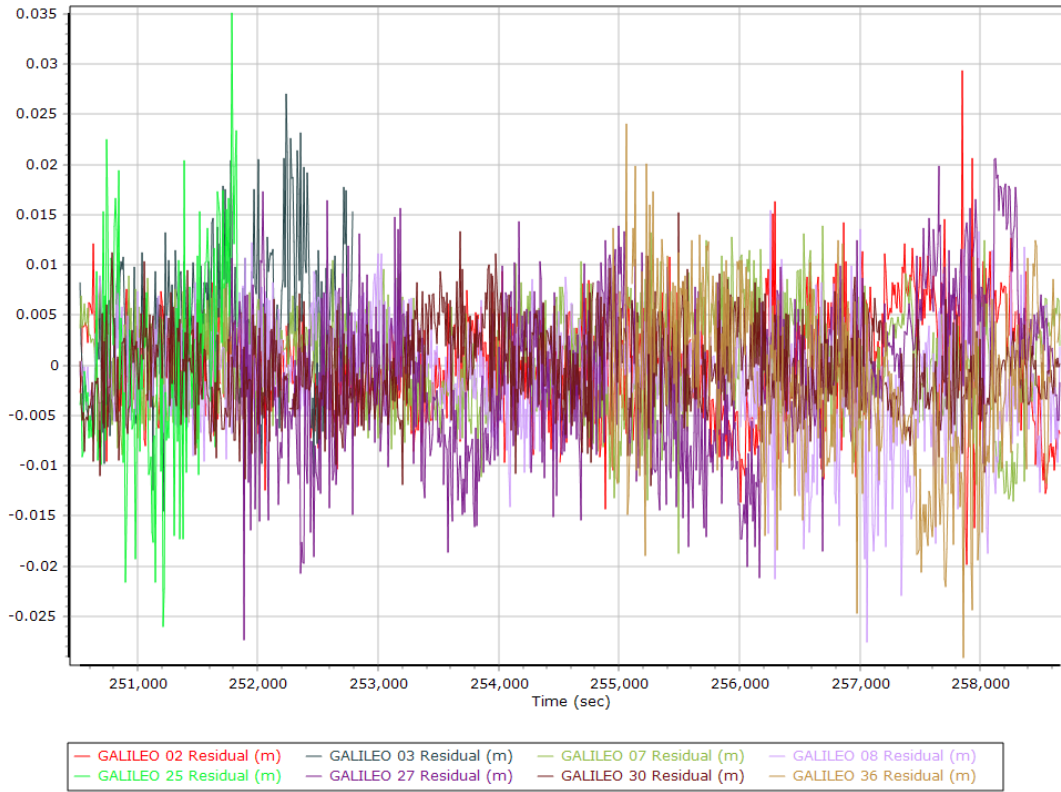
## BEIDOU Residuals



- |                        |                        |                        |                        |
|------------------------|------------------------|------------------------|------------------------|
| BEIDOU 11 Residual (m) | BEIDOU 12 Residual (m) | BEIDOU 20 Residual (m) | BEIDOU 23 Residual (m) |
| BEIDOU 25 Residual (m) | BEIDOU 28 Residual (m) |                        |                        |



## GALILEO Residuals



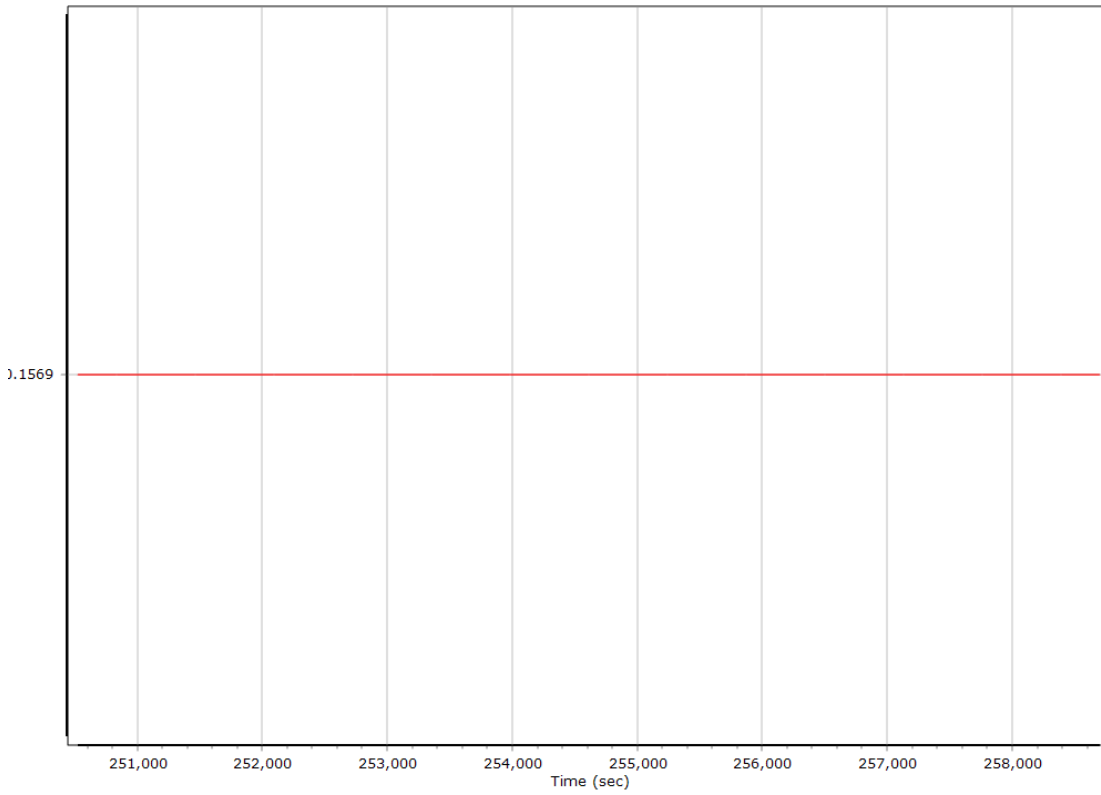
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	250129.000 (12/22/2020 21:28:49)		
Processing end time	258706.000 (12/22/2020 23:51:46)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	180.000
Reference to Primary GNSS lever arm (m)	0.157	-0.150	-1.090
Reference to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

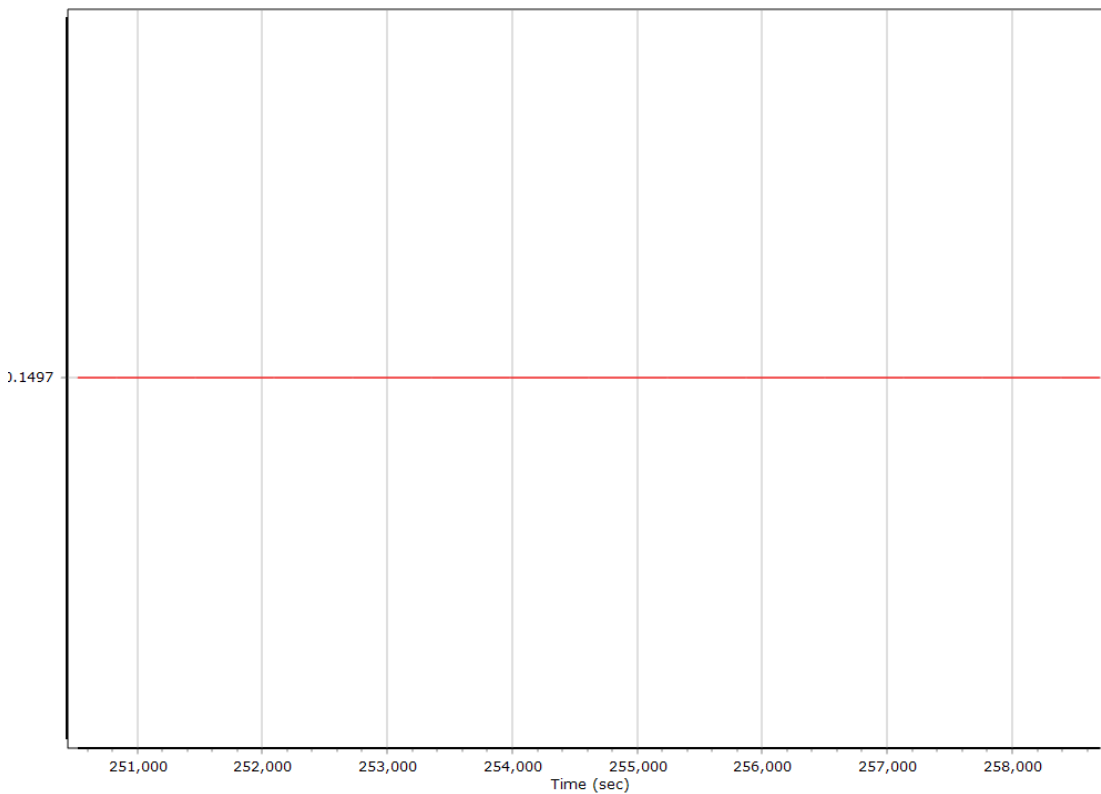
## Calibrated Installation Parameters

### Reference-Primary GNSS Lever Arm (m)

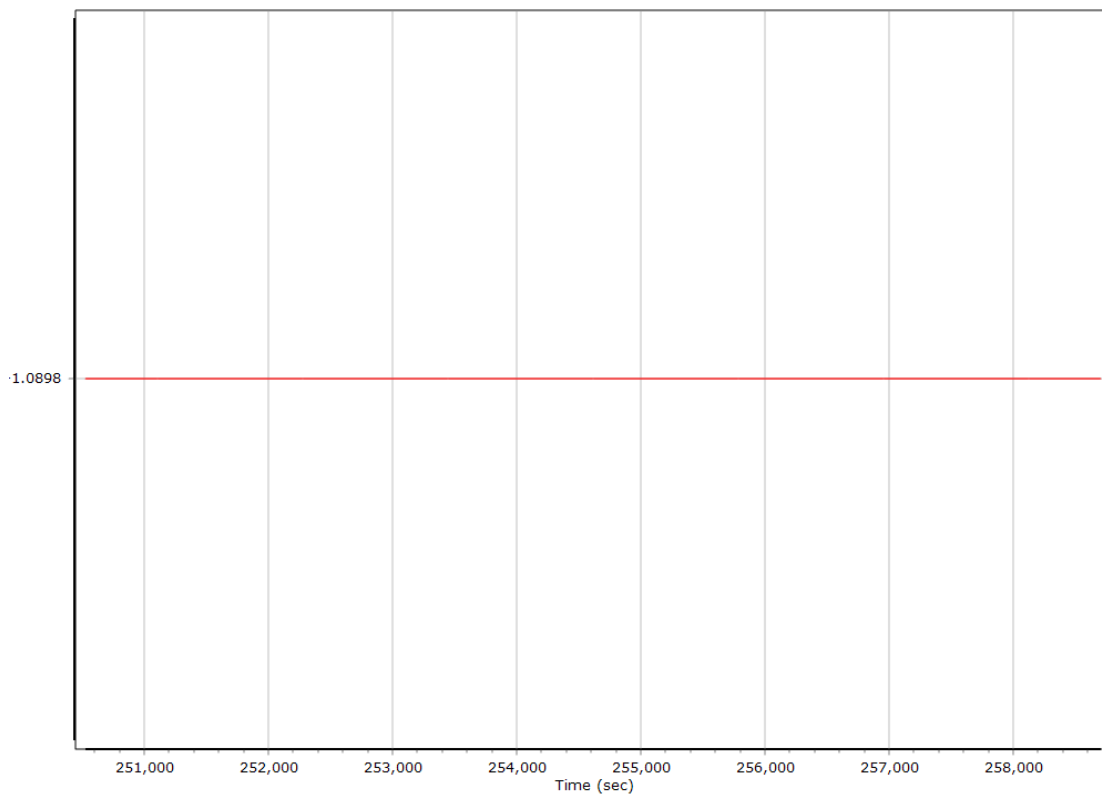
#### X Reference-Primary GNSS Lever Arm (m)



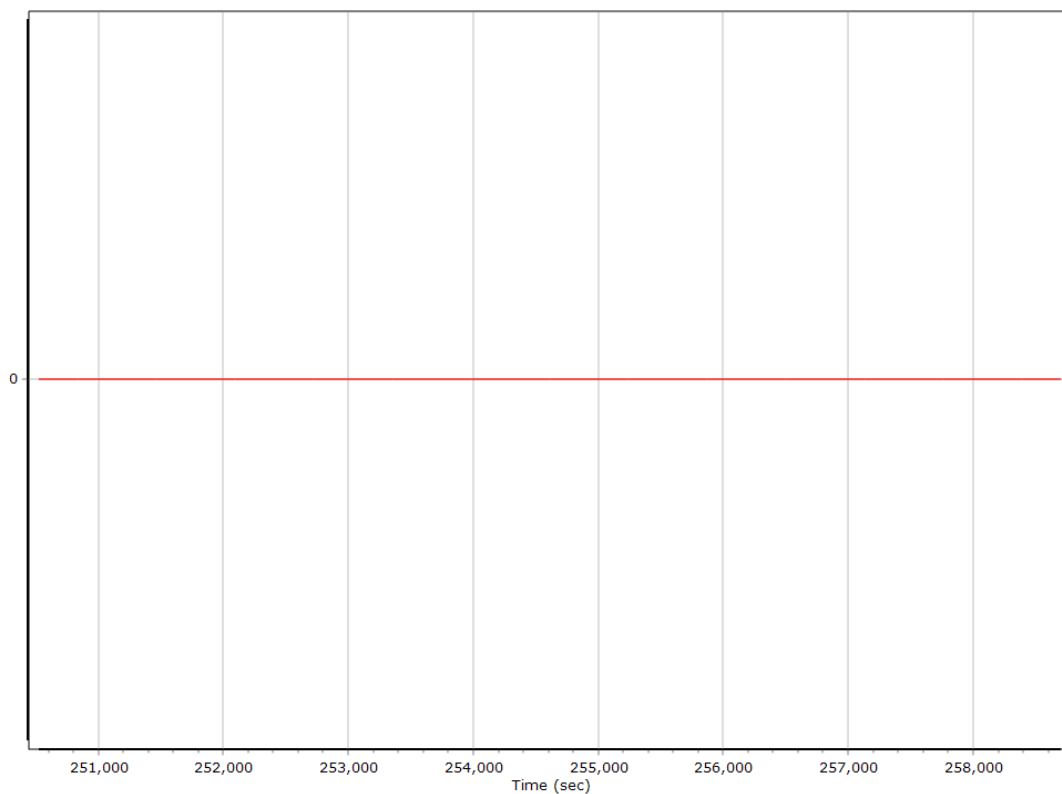
#### Y Reference-Primary GNSS Lever Arm (m)



### Z Reference-Primary GNSS Lever Arm (m)



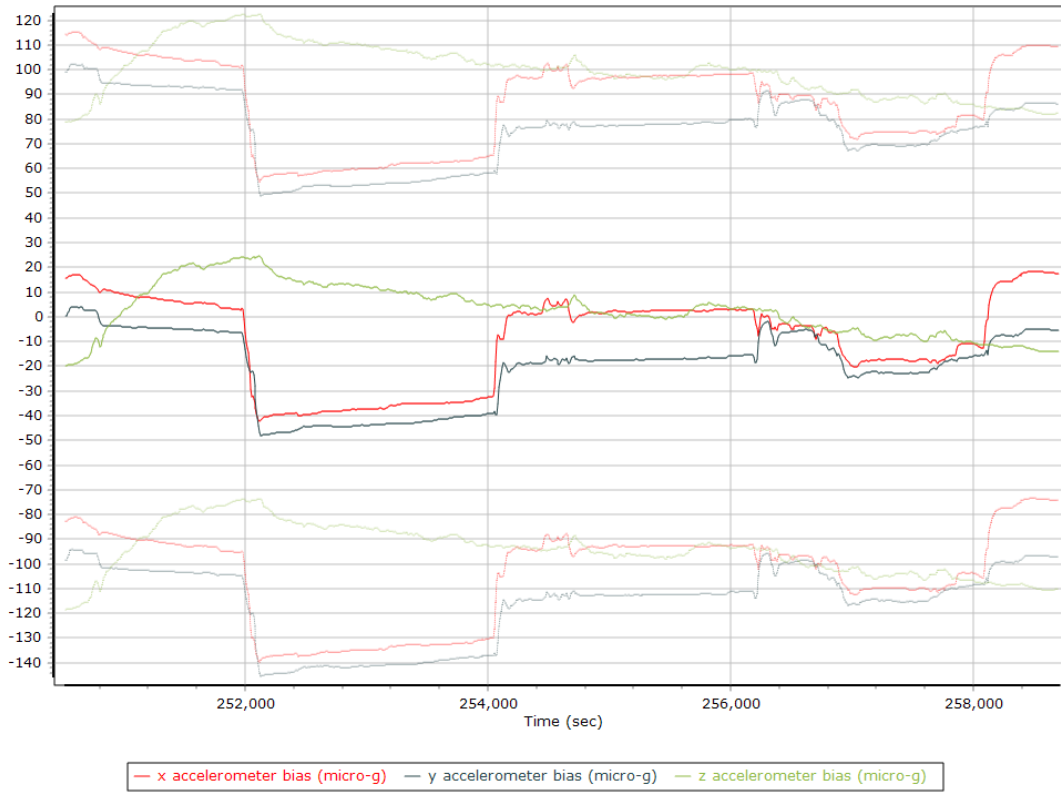
### Reference-Primary GNSS Lever Arm Figure of Merit



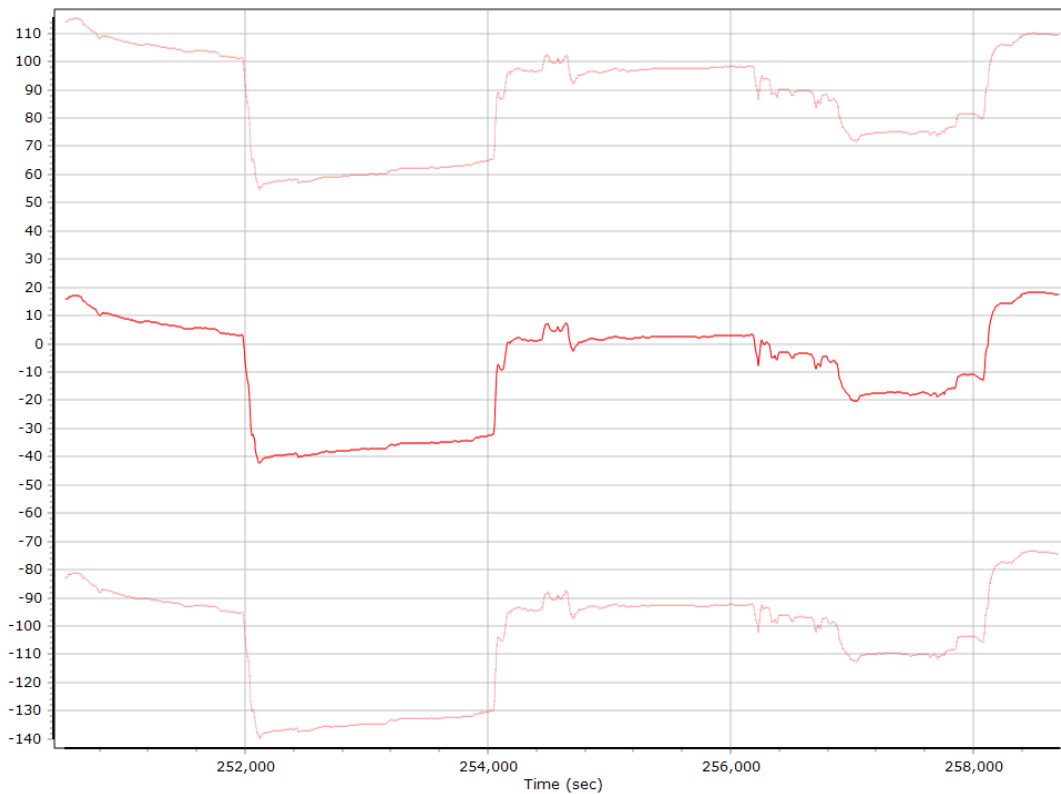
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

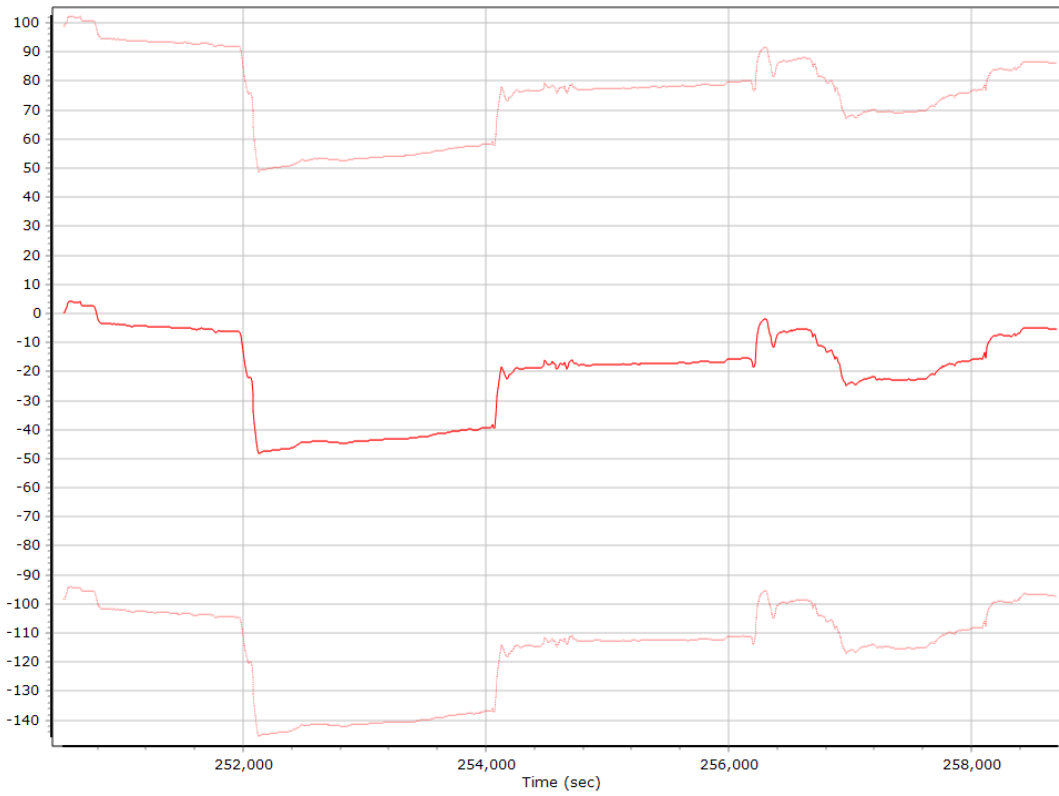
#### Accelerometer Bias (micro-g)



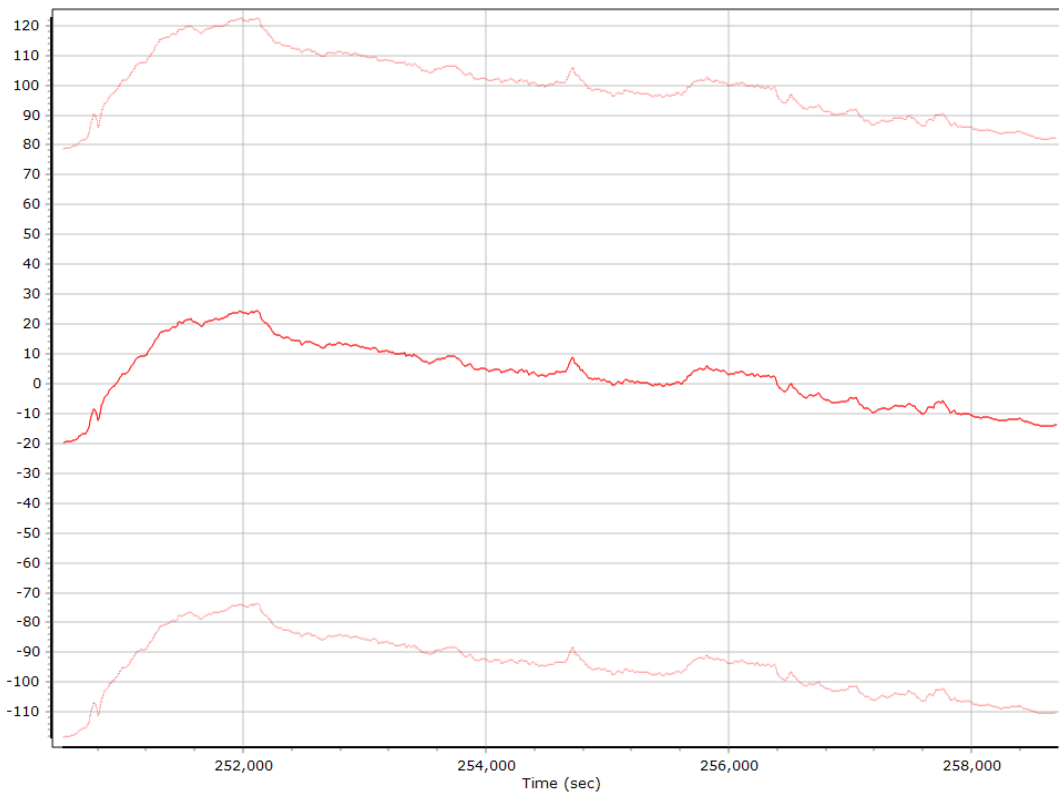
#### X Accelerometer Bias (micro-g)



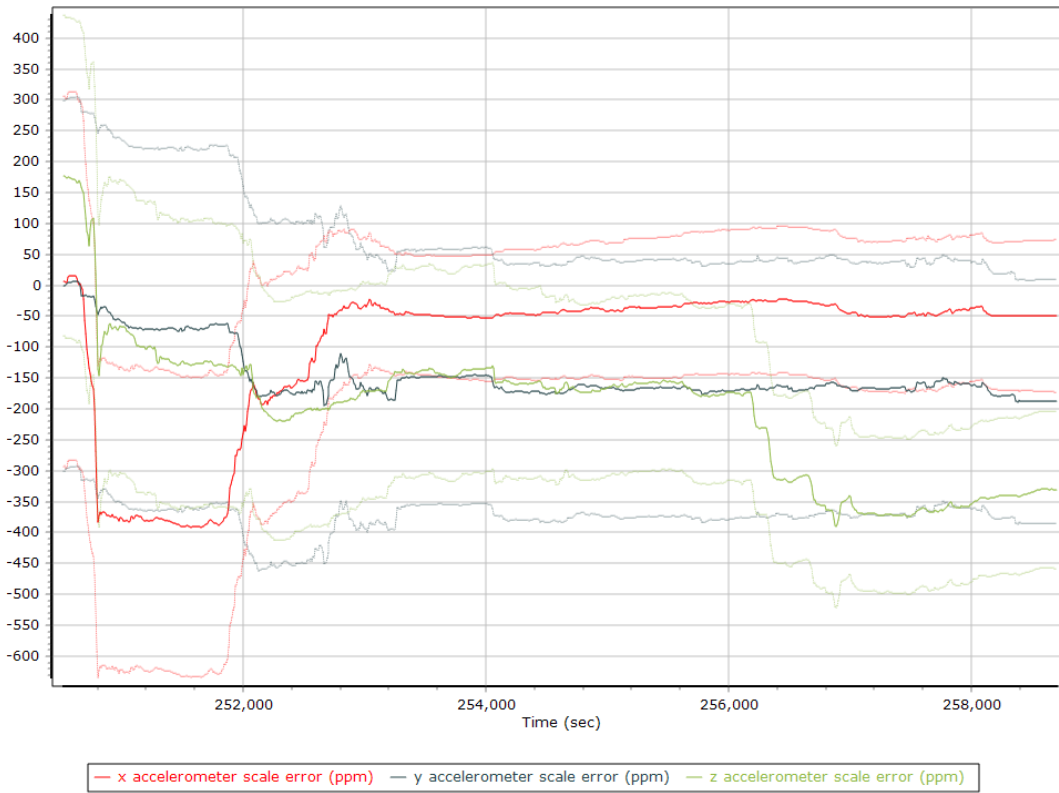
### Y Accelerometer Bias (micro-g)



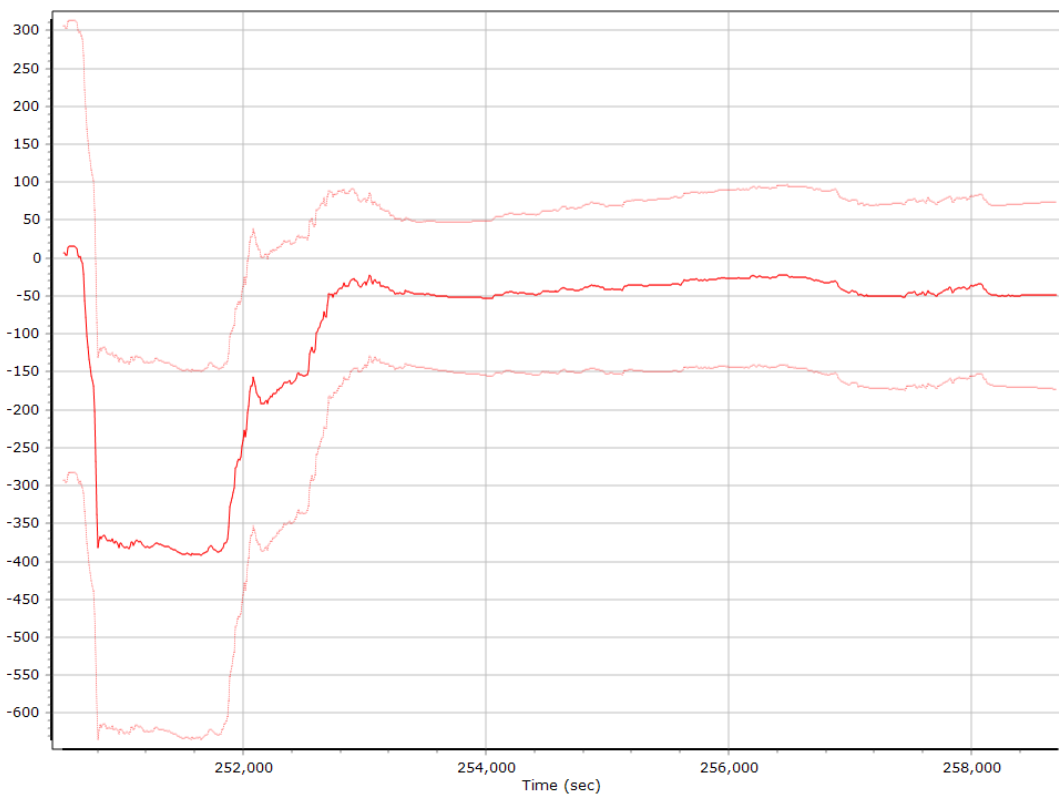
### Z Accelerometer Bias (micro-g)



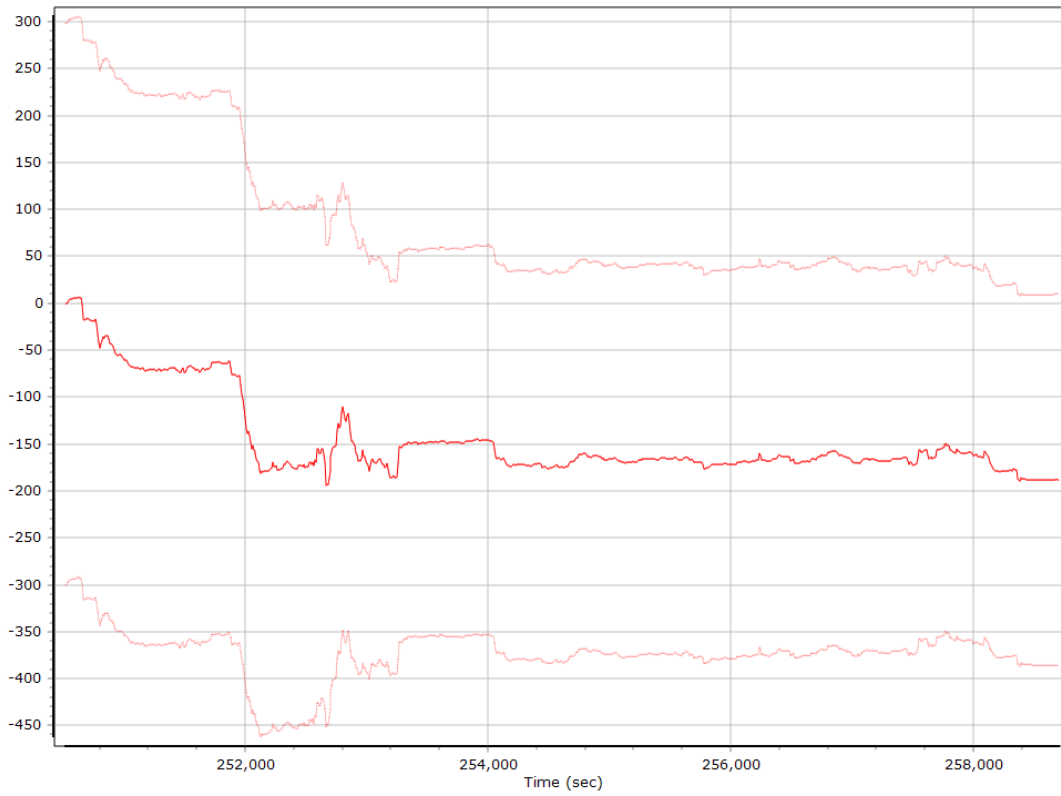
### Accelerometer Scale Error (ppm)



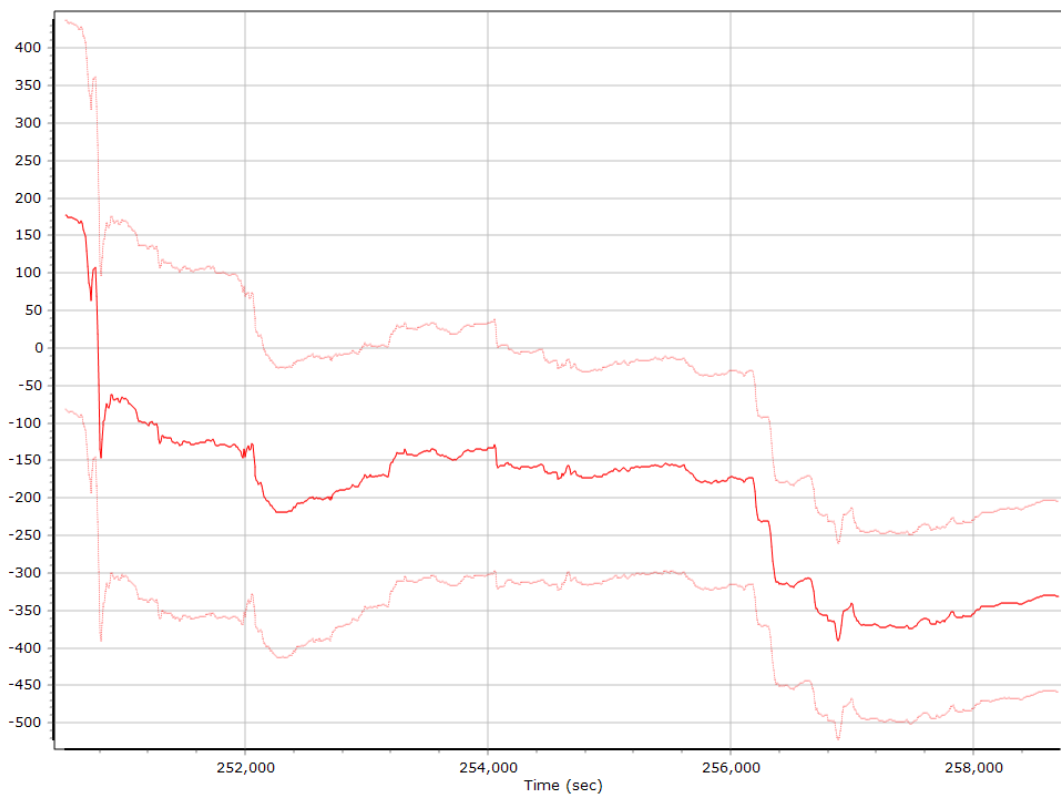
### X Accelerometer Scale Error (ppm)



### Y Accelerometer Scale Error (ppm)

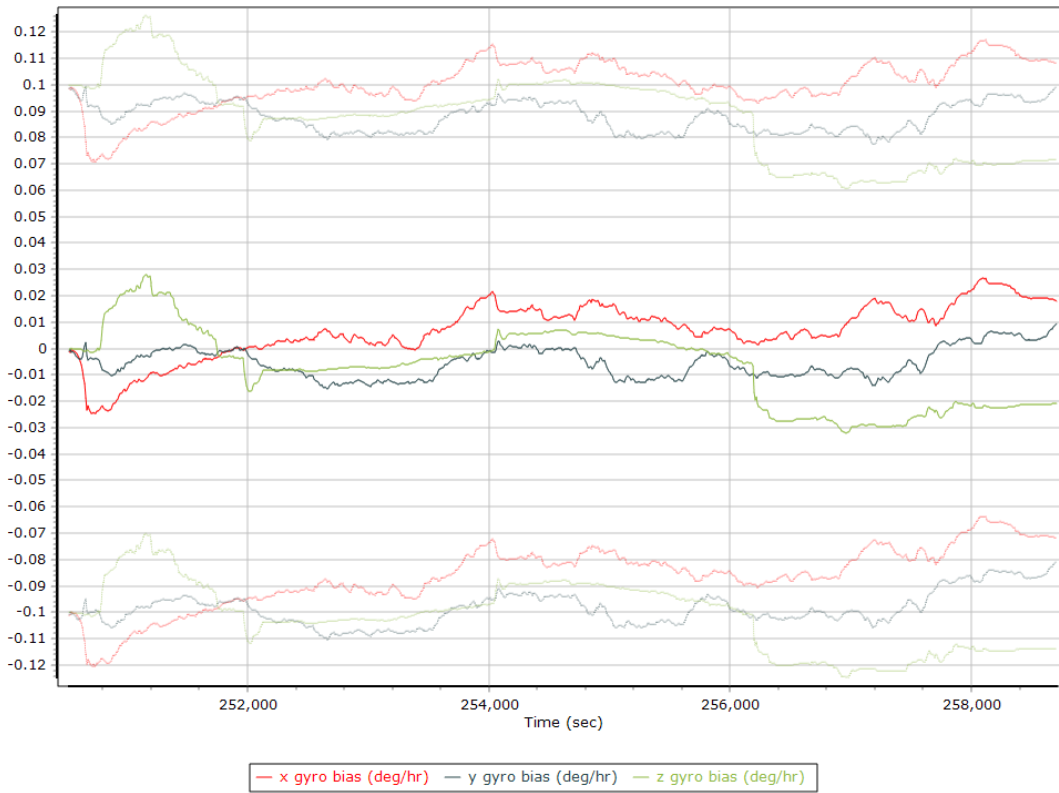


### Z Accelerometer Scale Error (ppm)

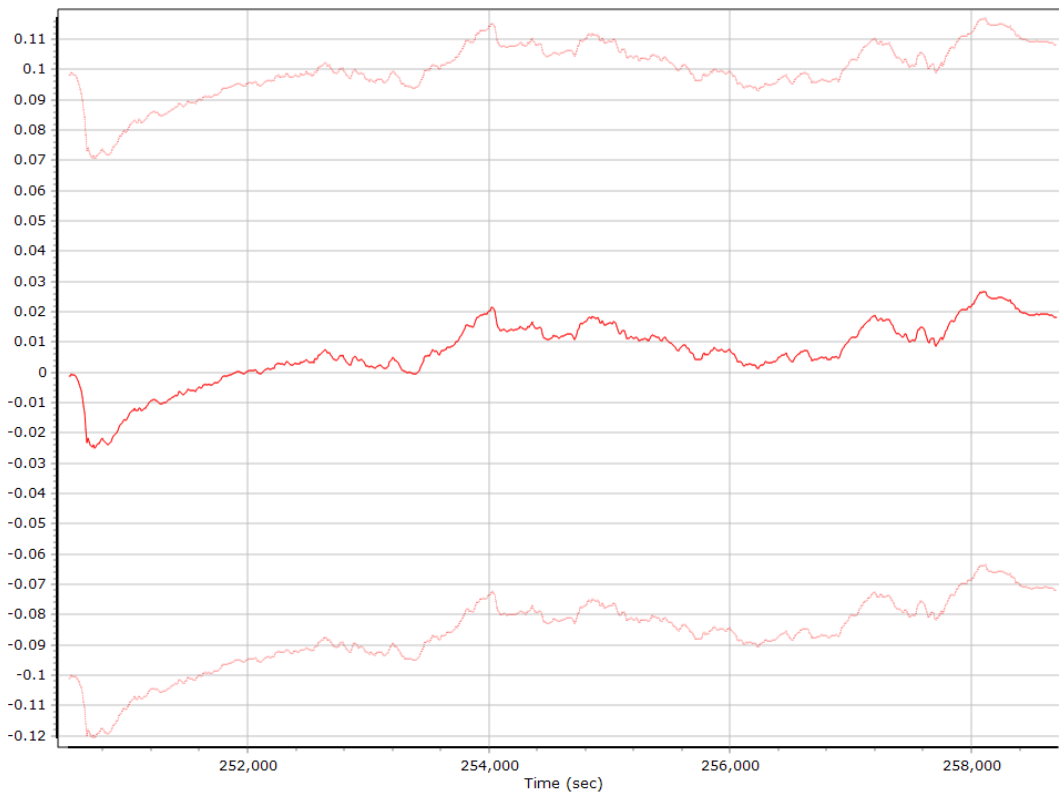




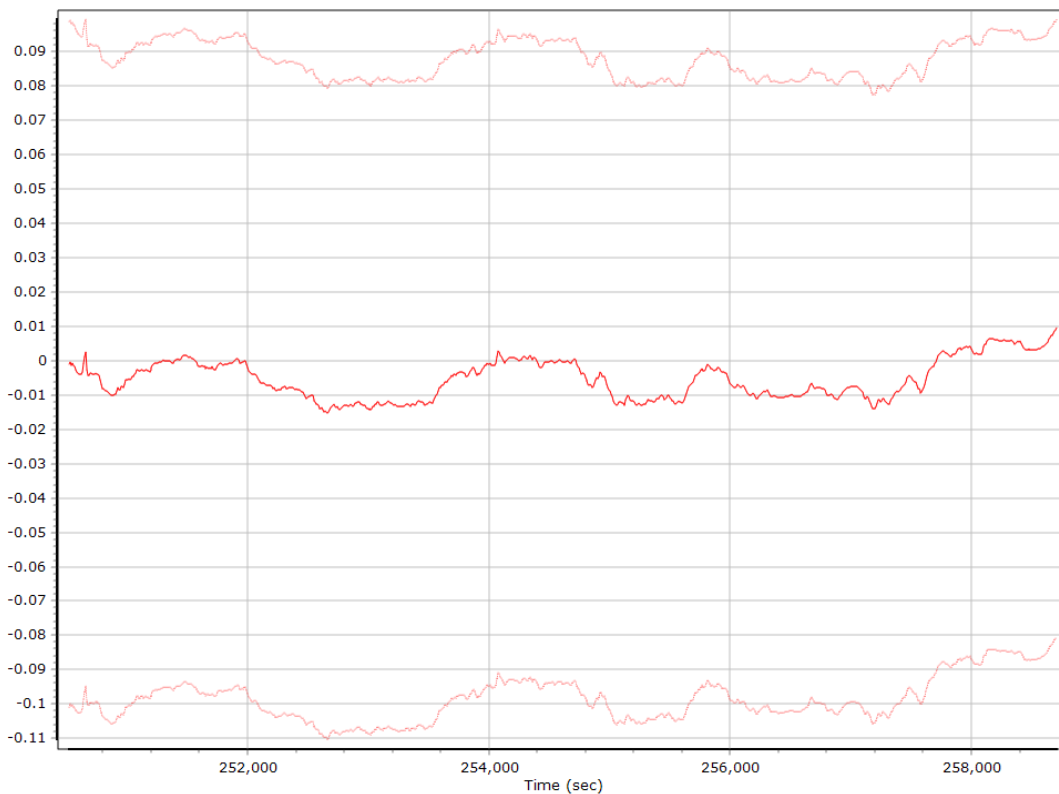
### Gyro Bias (deg/h)



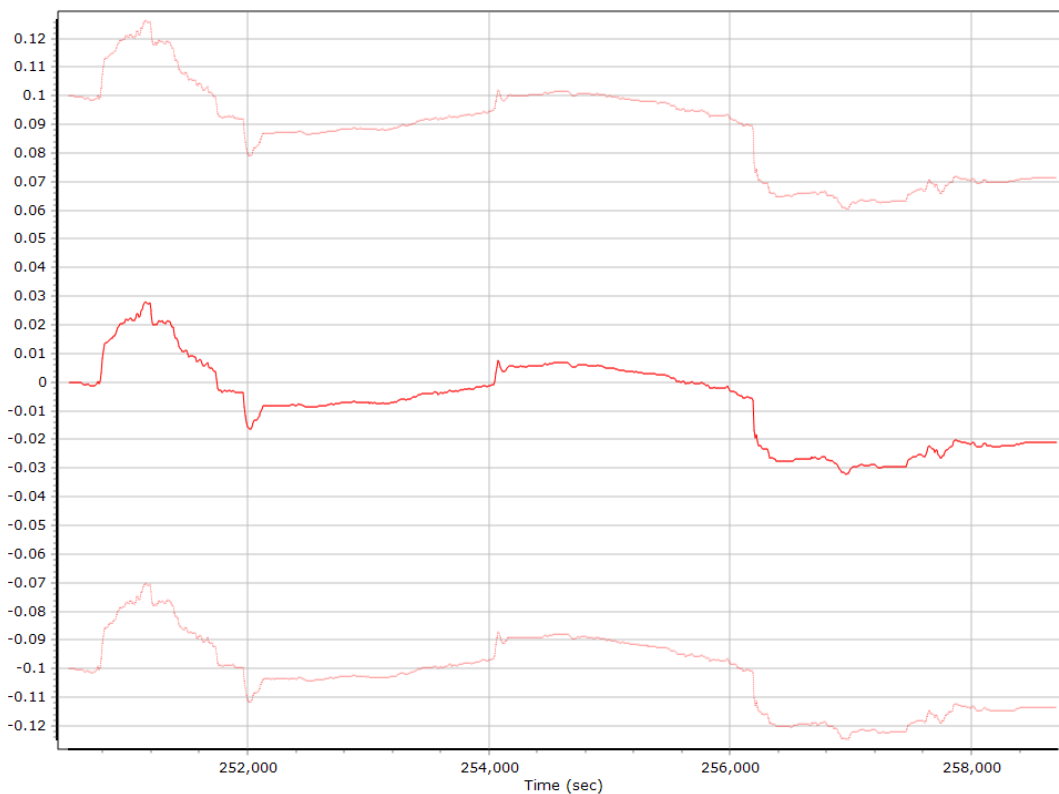
### X Gyro Bias (deg/h)



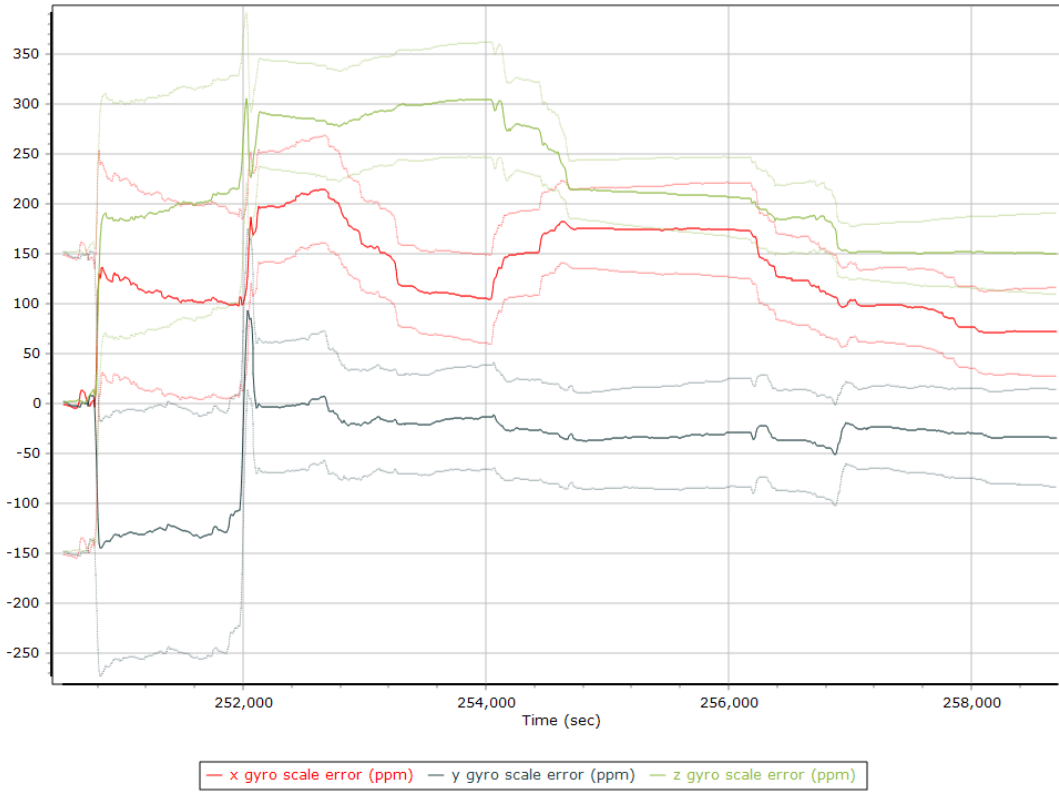
### Y Gyro Bias (deg/h)



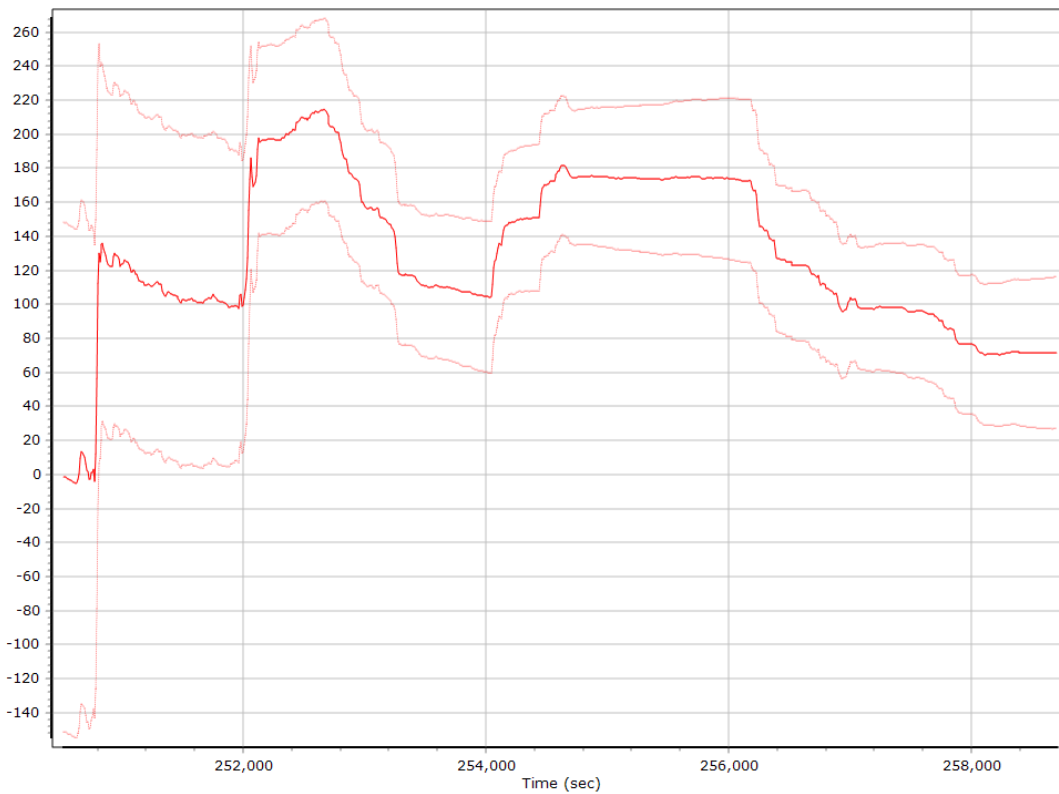
### Z Gyro Bias (deg/h)



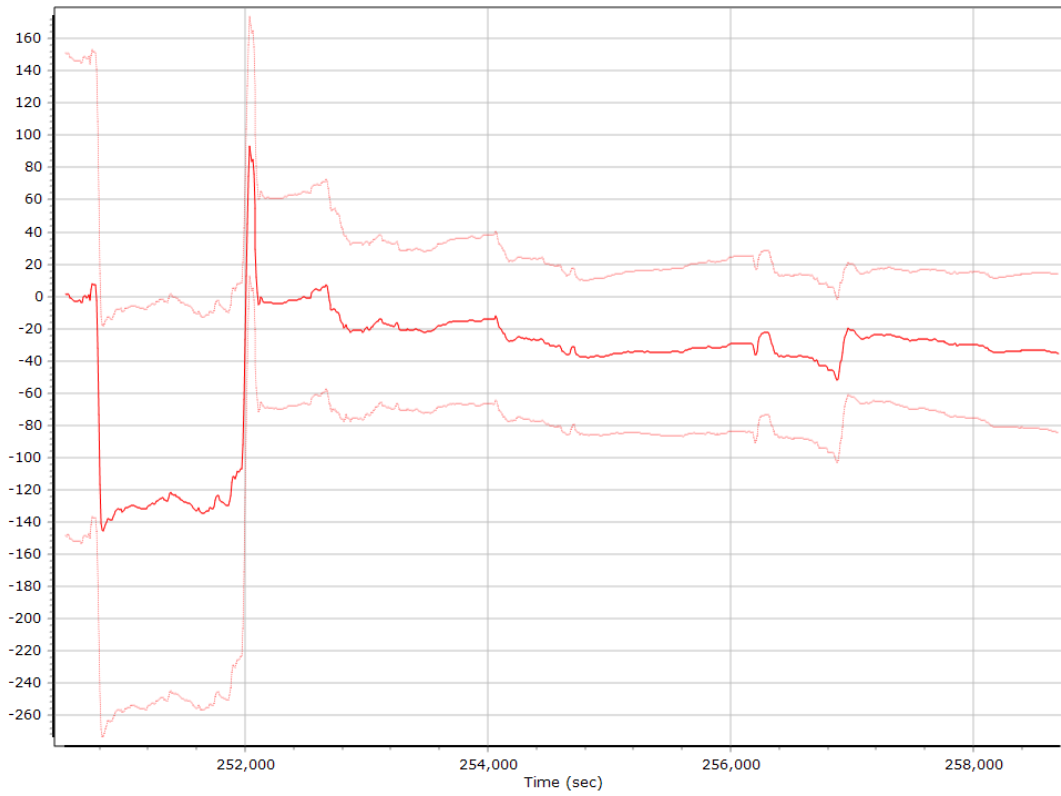
### Gyro Scale Error (ppm)



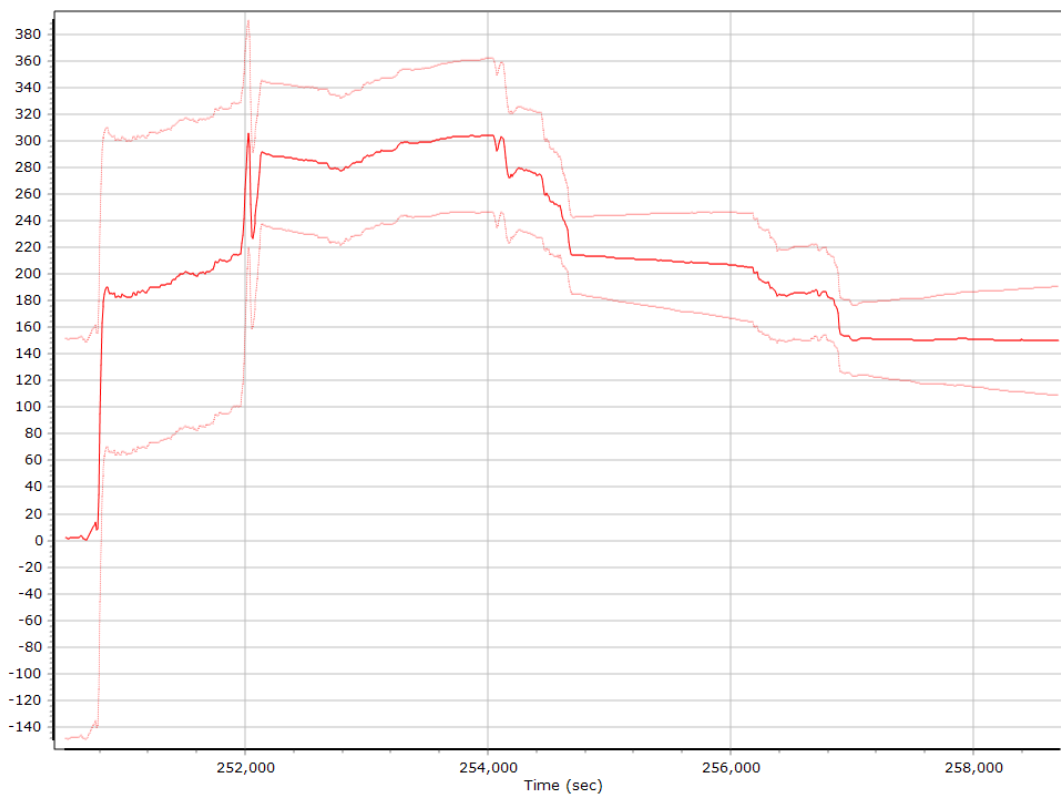
### X Gyro Scale Error (ppm)



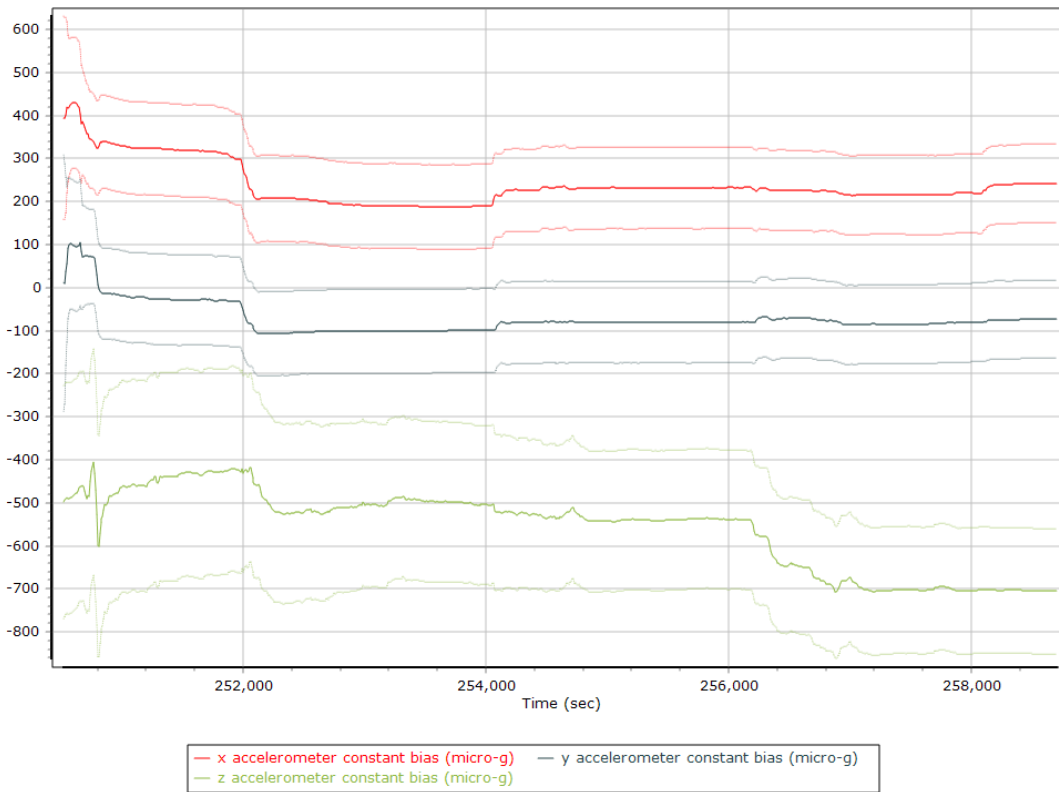
### Y Gyro Scale Error (ppm)



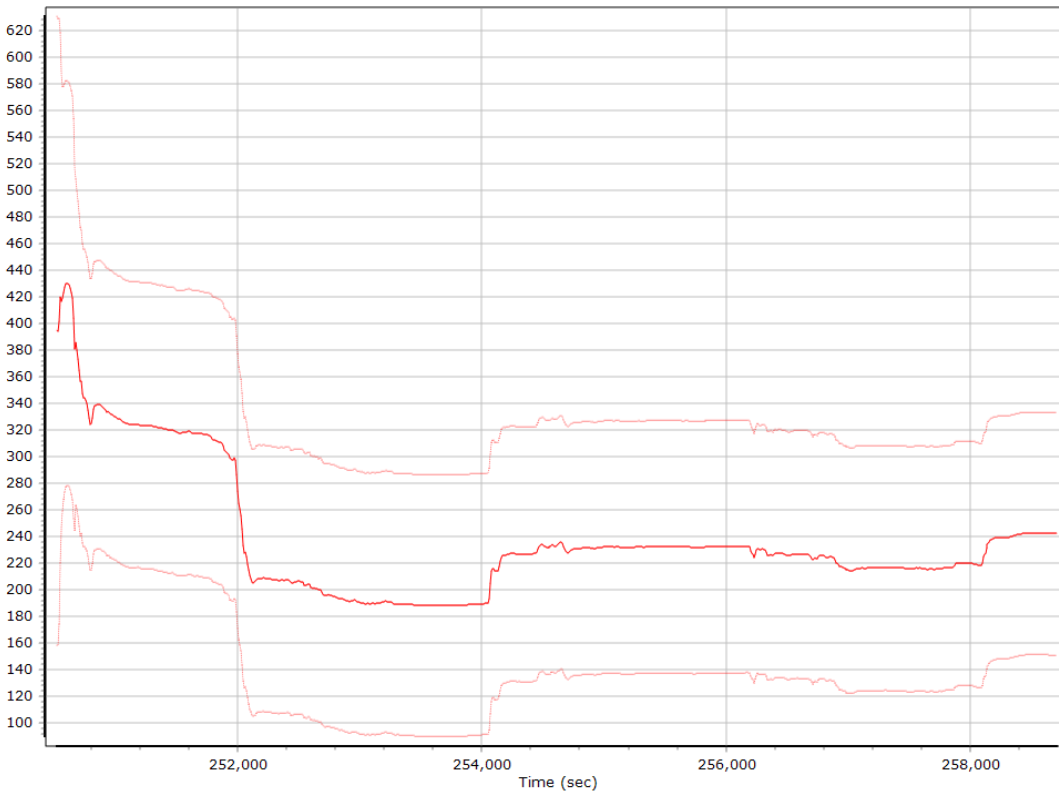
### Z Gyro Scale Error (ppm)



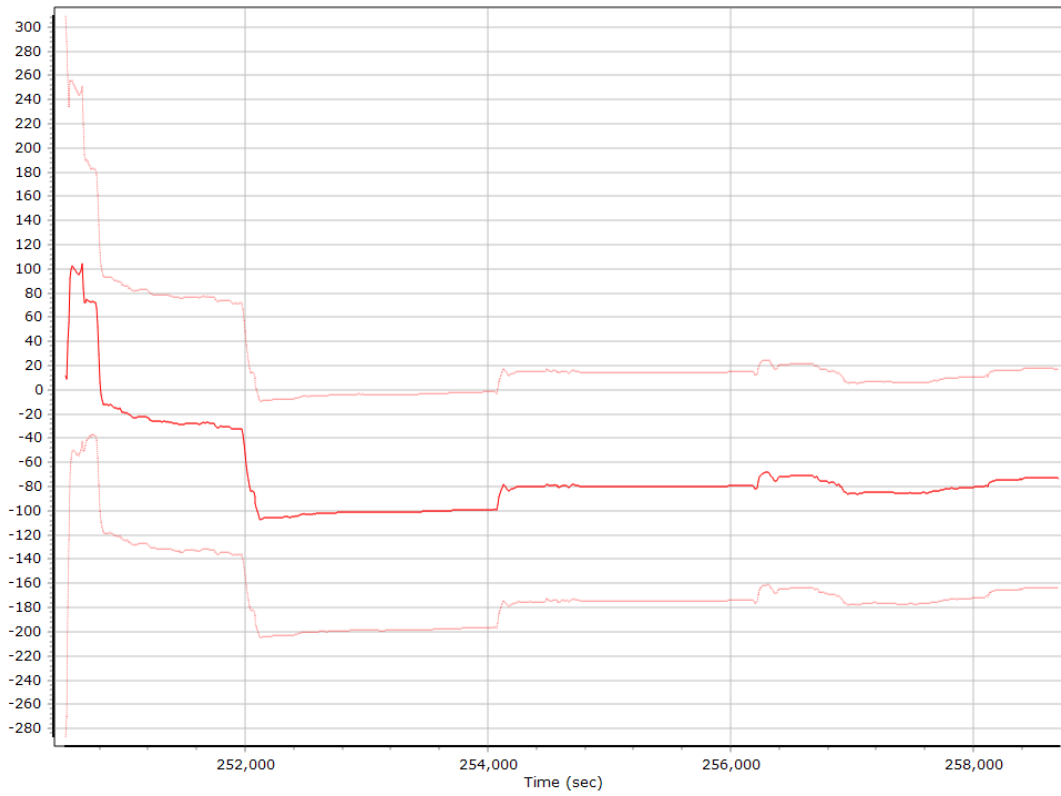
## Forward Processed Estimated Constant Errors, Reference Frame Accelerometer Bias (micro-g)



## X Accelerometer Bias (micro-g)



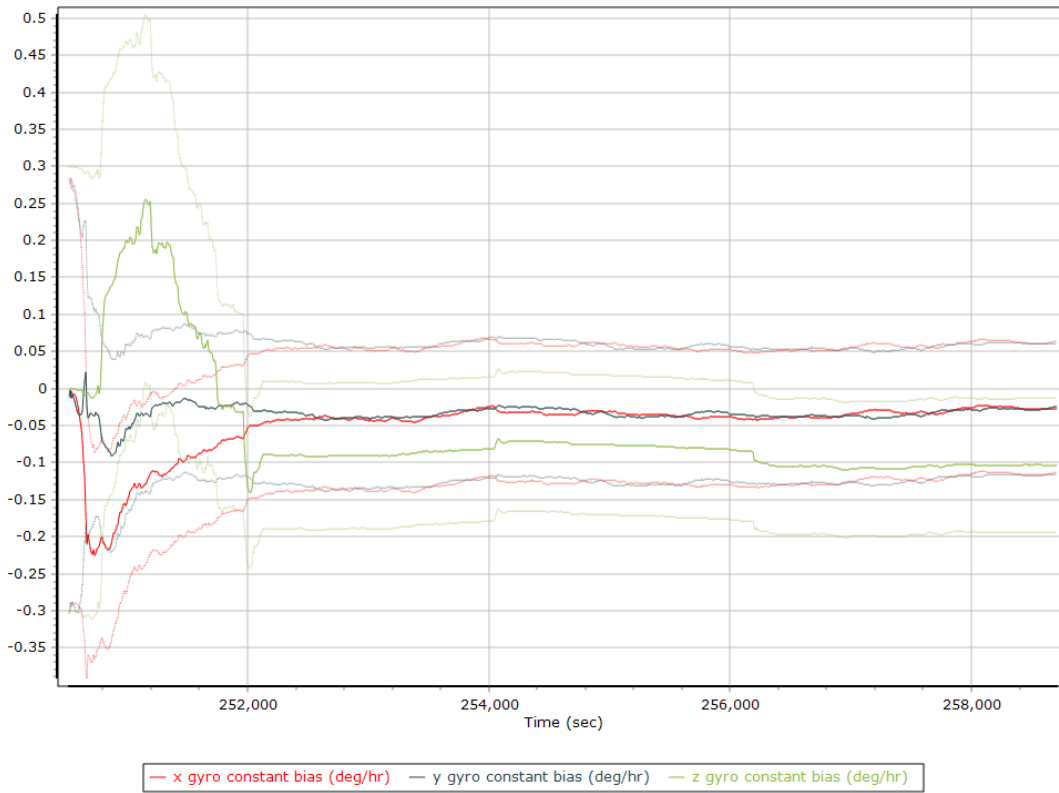
### Y Accelerometer Bias (micro-g)



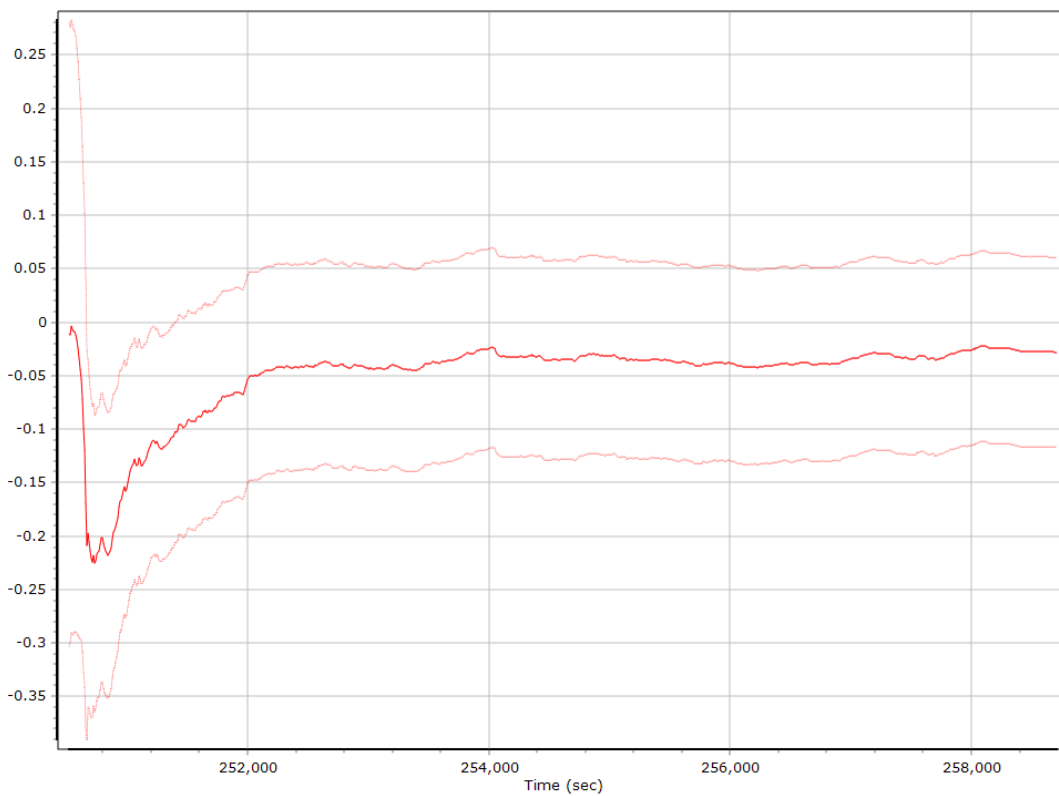
### Z Accelerometer Bias (micro-g)



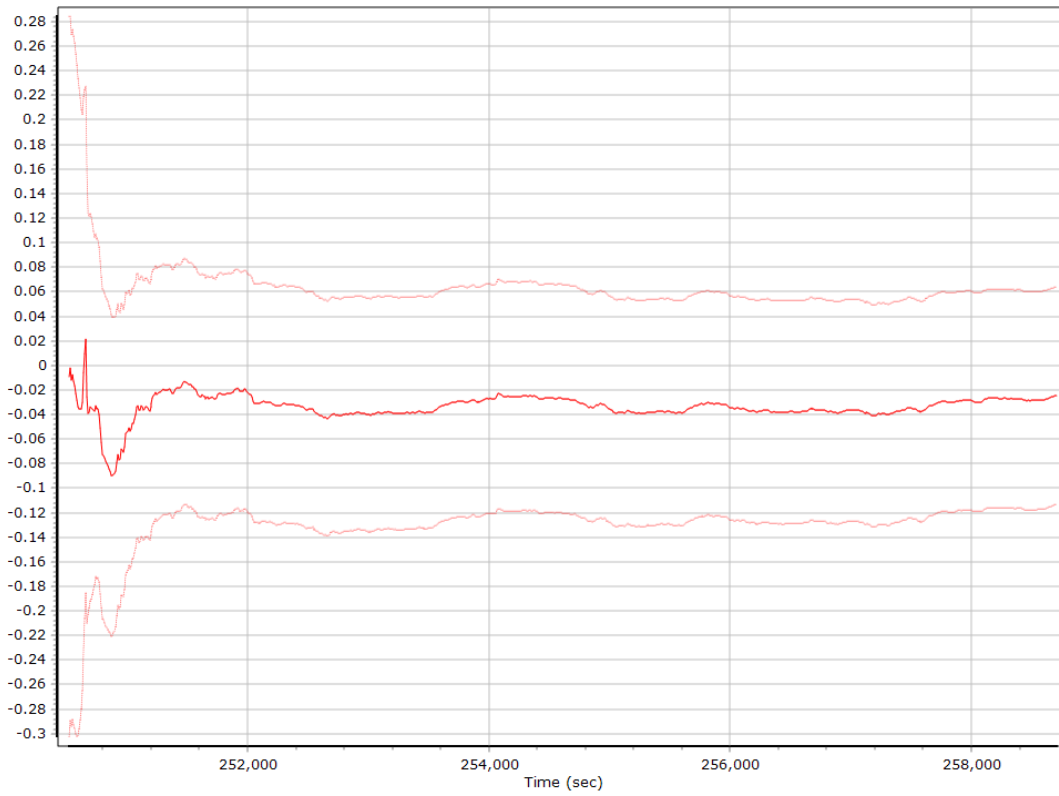
### Gyro Bias (deg/h)



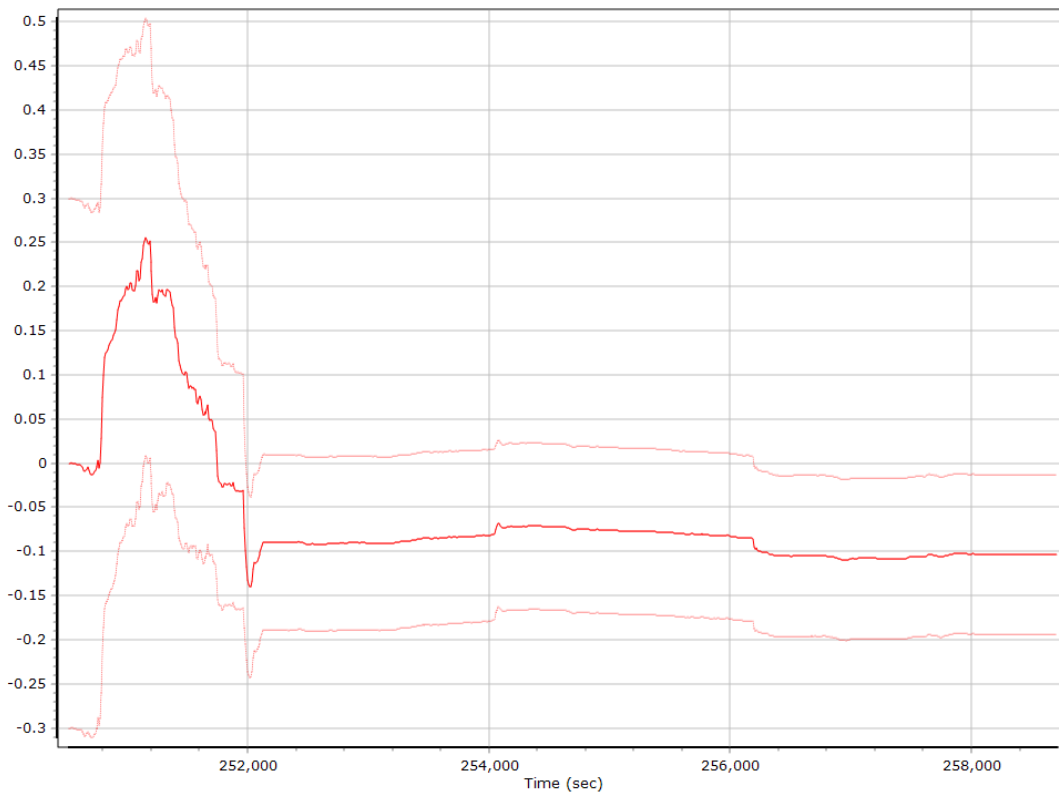
### X Gyro Bias (deg/h)



### Y Gyro Bias (deg/h)



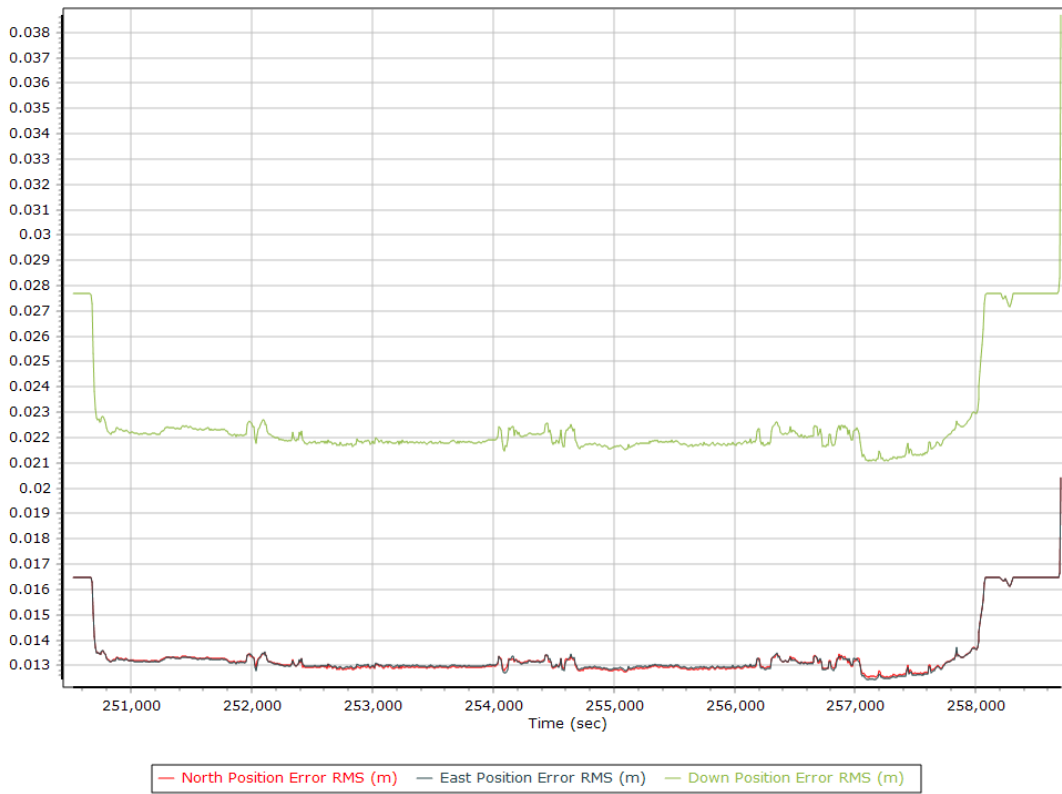
### Z Gyro Bias (deg/h)



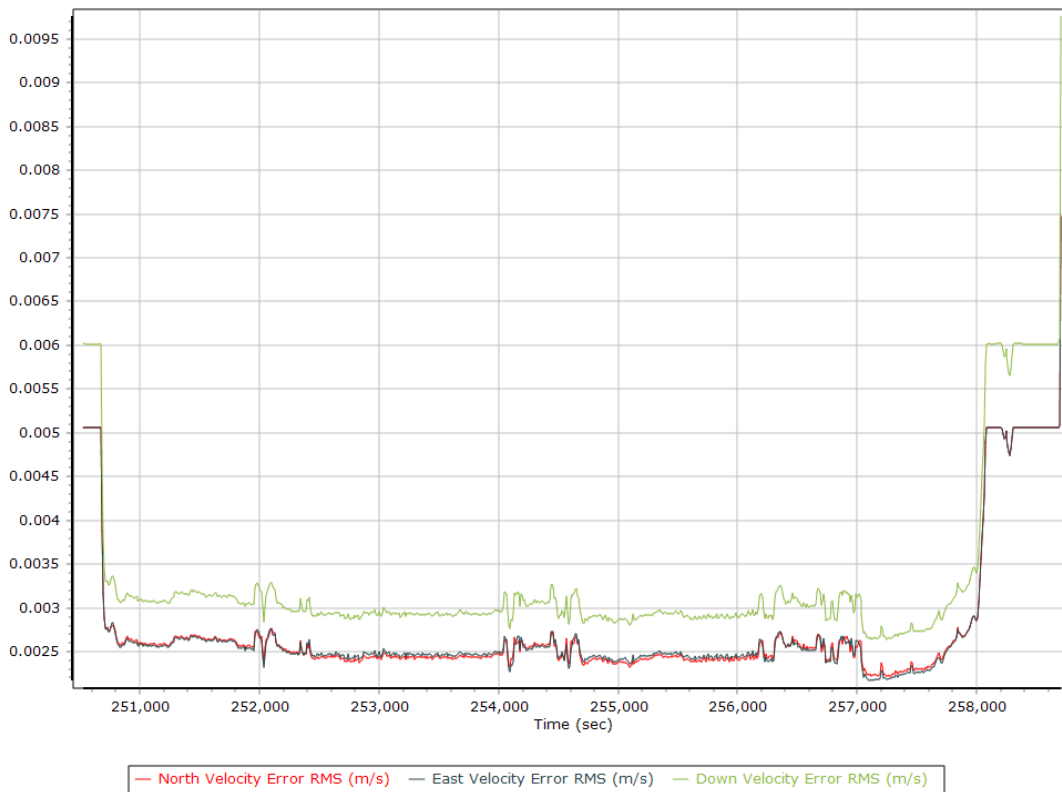


## Smoothed Performance Metrics

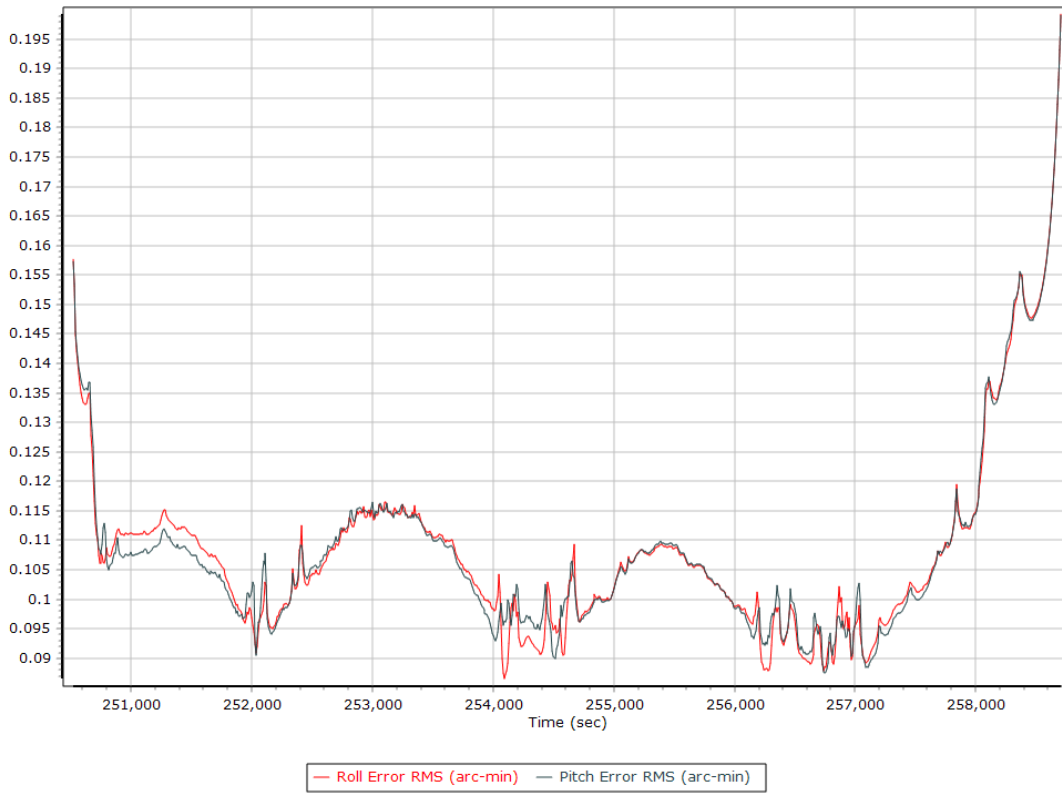
### Position Error RMS (m)



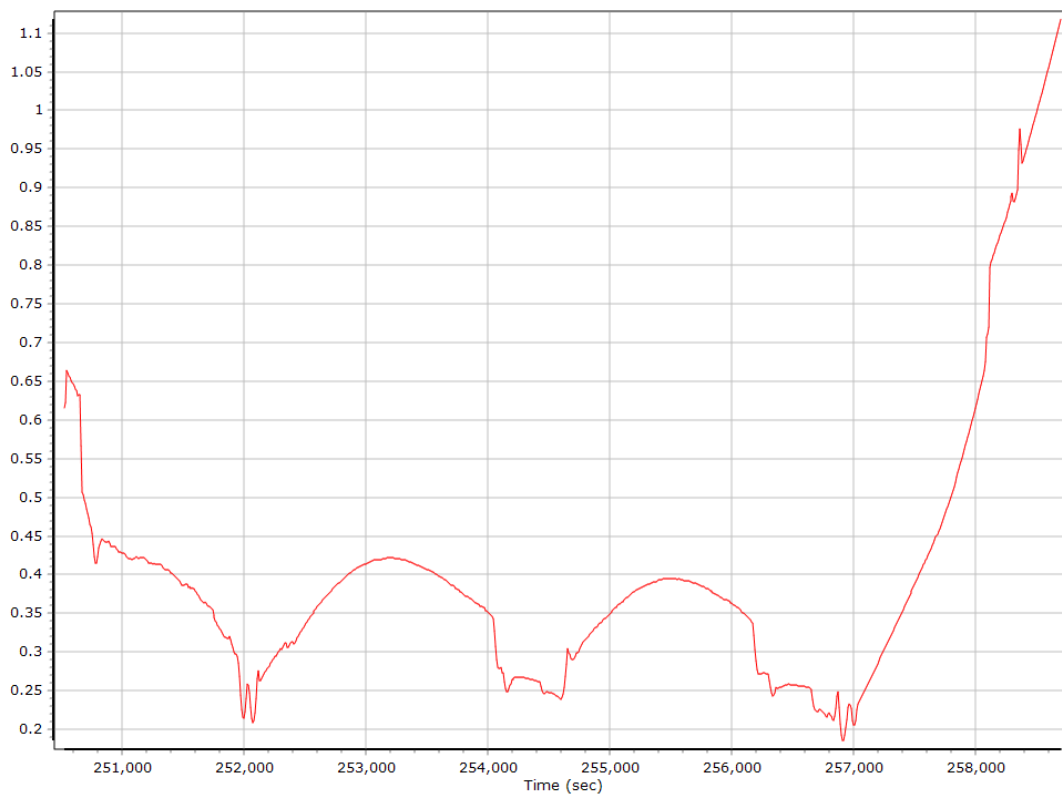
### Velocity Error RMS (m/s)



### Roll/Pitch Error RMS (arc-min)

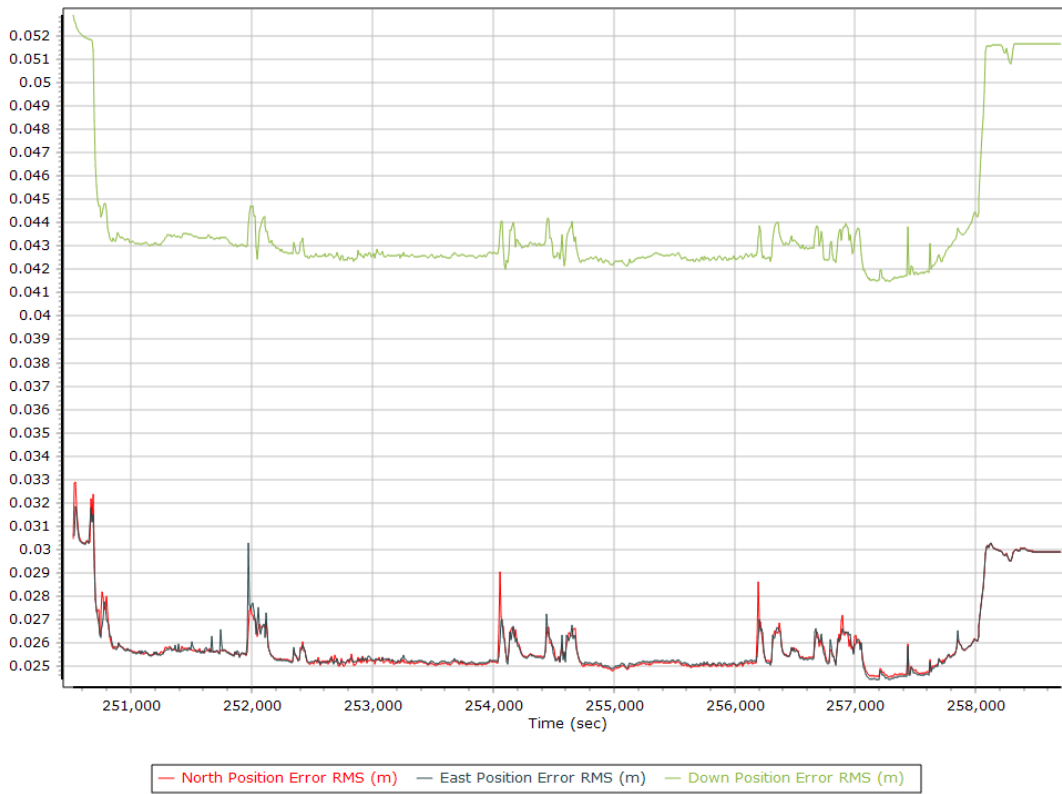


### Heading Error RMS (arc-min)

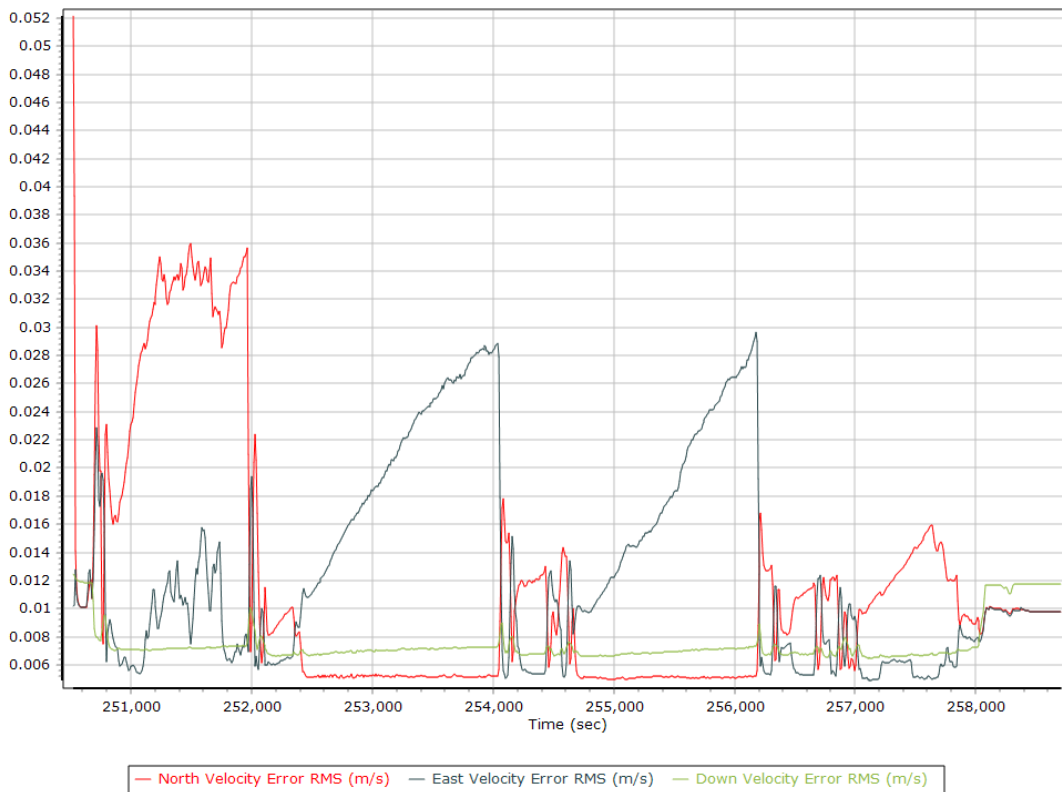


## Forward Processed Performance Metrics

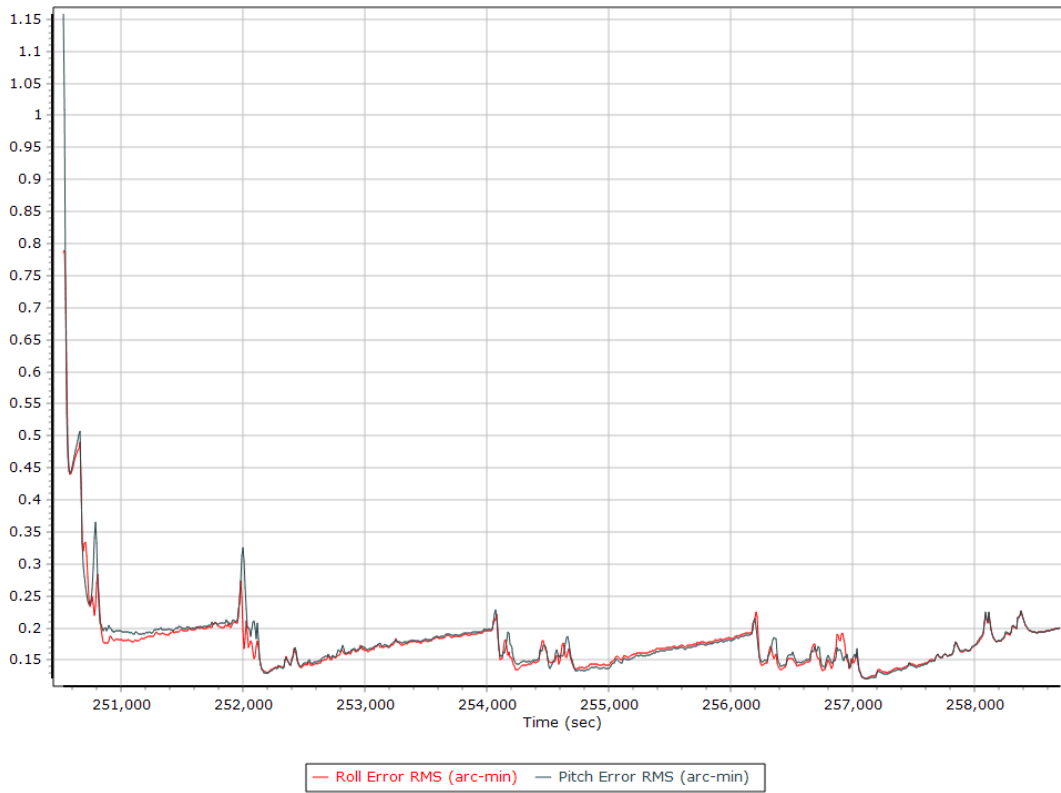
### Position Error RMS (m)



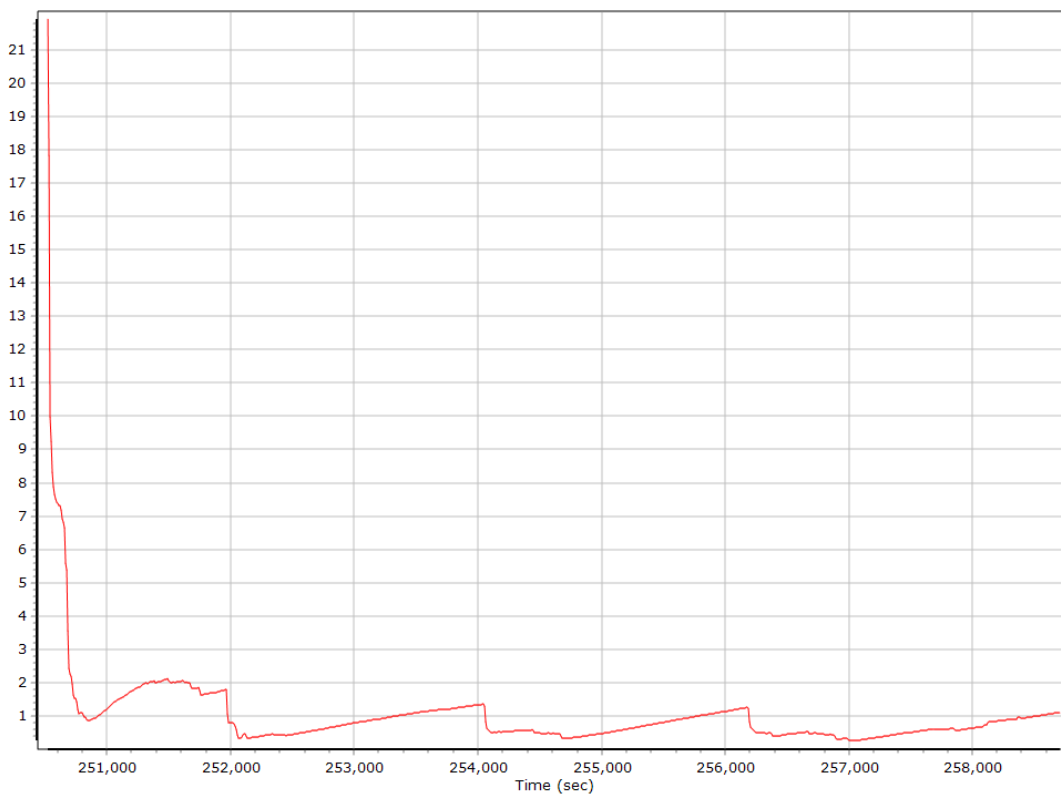
### Velocity Error RMS (m/s)



### Roll/Pitch Error RMS (arc-min)

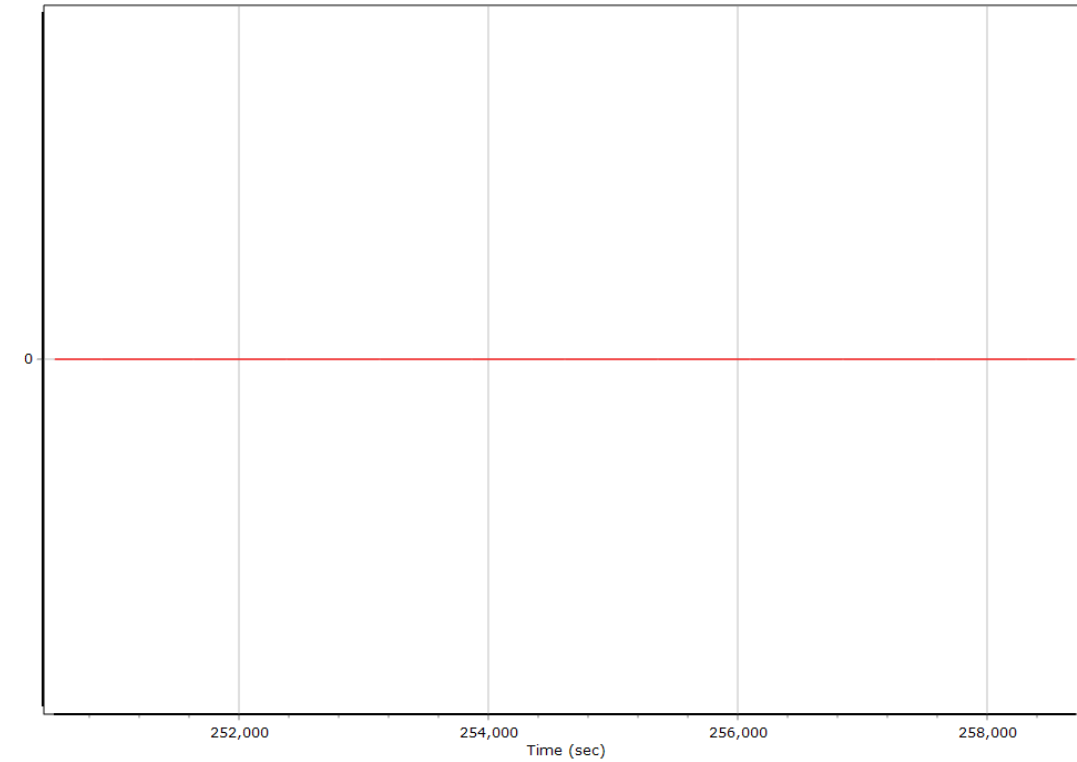


### Heading Error RMS (arc-min)



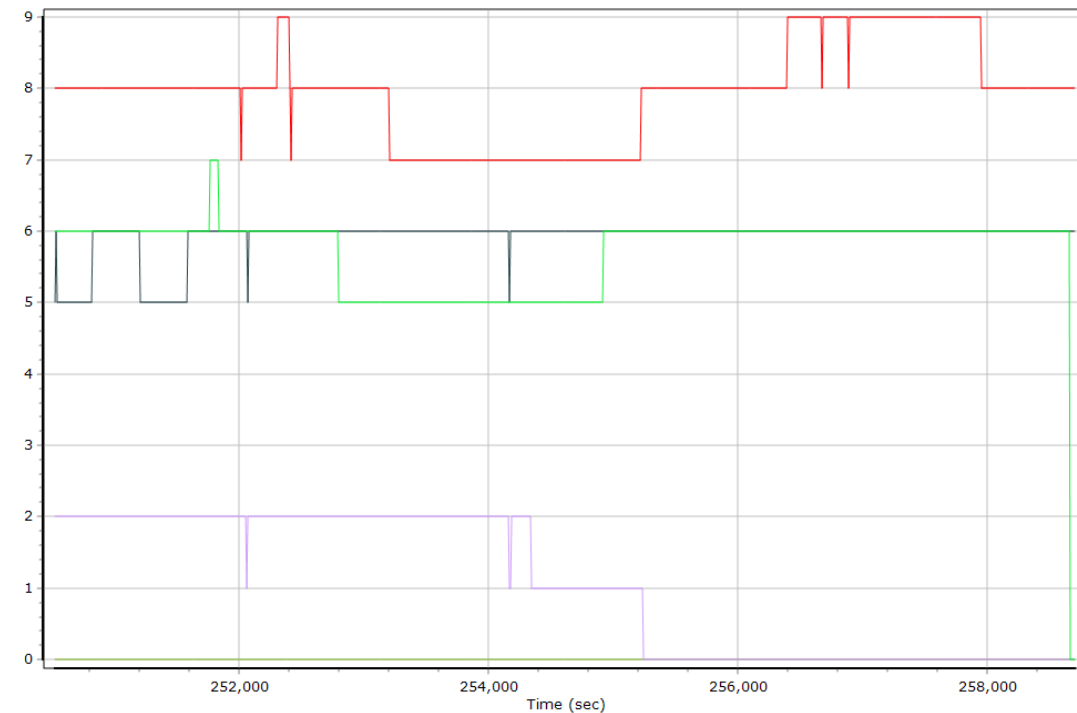
## Forward Processed Solution Status

### Processing Mode



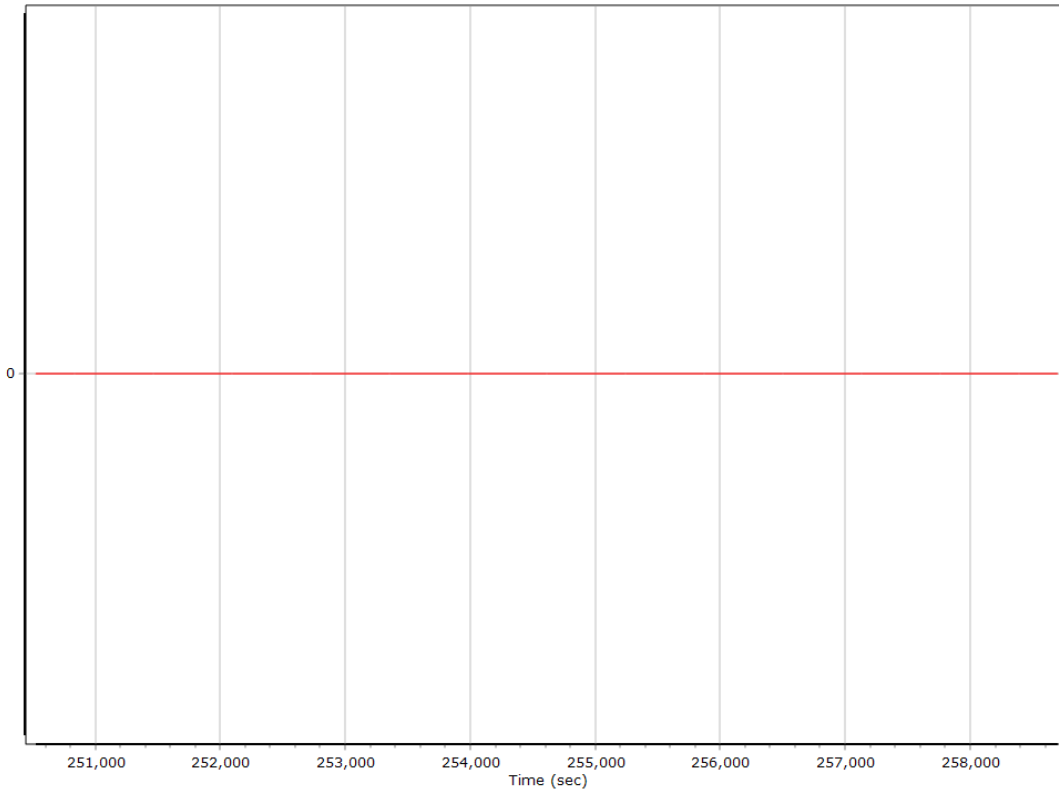
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Nav, 8 = DR

### Number of Satellites



— Number of GPS Satellites   
 — Number of GLONASS Satellites   
 — Number of QZSS Satellites  
— Number of BEIDOU Satellites   
 — Number of GALILEO Satellites

### Baseline Length



## Export Summary Section 1

Export file	sbet_11936_NAD83(2011).out		
Export format	Custom Smoothed BET		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Meter	
Export start time	250464.001 (12/22/2020 21:34:24)		
Export end time	258706.004 (12/22/2020 23:51:46)		
Height option	Ellipsoid Height		
WGS84 height flag	False		
Grid			
Zone			
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation			
Target Epoch	2010		

## Export Summary Section 2

Export file	lever_arm_values.txt		
Export format	ReferenceToPrimaryLeverArms		
Solution in use	Post-processed		
Output rate	All Records		
Reference to Output lever arm (m)	0.000	0.000	0.000
Reference mounting angles (deg)	0.000	0.000	0.000
Output units (Coordinate / Lat & Lon)	Meter	Meter	
Export start time	250464.001 (12/22/2020 21:34:24)		
Export end time	258706.004 (12/22/2020 23:51:46)		
Height option	Ellipsoid Height		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 14 (102W to 96W)		
Datum	WGS84		
Ellipsoid	WGS84		
Local Transformation	NONE		
Target Epoch	2010		



## EO Summary Section 1

EO file			
EO format	ZI Imaging		
Lever arm (m)	0.000	0.000	0.000
Boresight angles (arcmin)	0.0000	0.0000	0.0000
Output rate	All Records		
Rotation sequence	x omega	y phi	z kappa
Local shift (m)	0.000	0.000	0.000
Output units (coordinate / angle / lat & lon)	Meter	Degree	Deg Decimal
Height option	Ellipsoid Height		
WGS84 height flag	False		
Scale height option	False		
Kappa cardinal rotation (deg)	0		
Solution in use	Post-processed		
EO start time	250464.001 (12/22/2020 21:34:24)		
EO end time	258706.004 (12/22/2020 23:51:46)		
Grid	Universal Transverse Mercator		
Zone	UTM North 14 (102W to 96W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2010		