

## General Information

### Mission Information

Project name	230620_A_5060475_nad2011_FINAL
Processing date	2023-06-22 14:18:19
Mission date	2023-06-20 14:24:06
Mission duration	04:33:46.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N7881
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
survey1.pos	POS Data

### Input Files

File Name	File Type
Ephm1710.23g	GLONASS Broadcast Ephemeris
Ephm1710.23n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_230620_A_5060475_nad2011_FINAL.out	SBET Trajectory File
sbet_230620_A_5060475_nad2011_FINAL.shp	Shapefile Export Output

## Rover Data Summary

First raw data file	survey1.pos		
Last raw data file	survey1.pos		
Start GPS week	2267		
Start time	224663.335 (06/20/2023 14:24:05)		
End time	241090.271 (06/20/2023 18:57:52)		
Start of fine alignment	225112.507 (06/20/2023 14:31:34)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
<b>IMU Installation Lever Arms &amp; Mounting Angles</b>			
Gimbal to IMU lever arm (m)	-0.230	-0.036	-0.133
Gimbal to IMU mounting angles (deg)	0.000	0.000	180.000
Gimbal to Primary GNSS lever arm (m)	0.415	-0.172	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

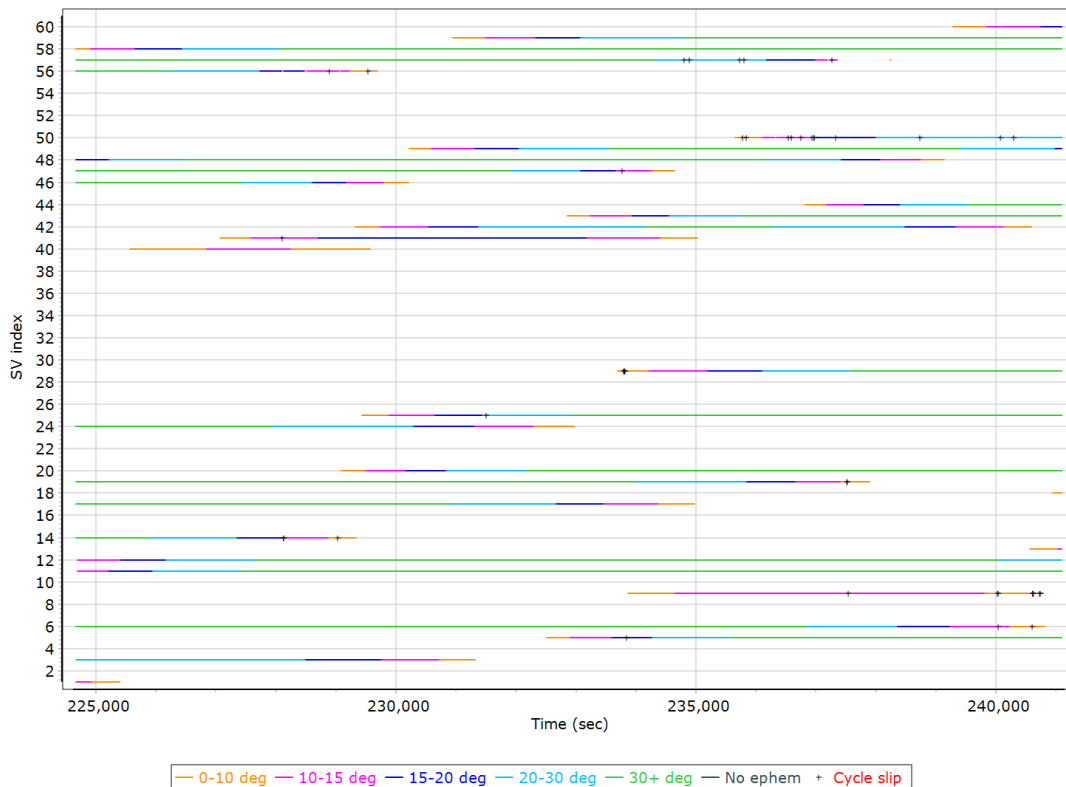
## Rover Data QC

### Raw IMU Import QC Summary

IMU data input file	imu_230620_A_5060475_nad2011_FINAL.dat
IMU data check log file	imudt_230620_A_5060475_nad2011_FINAL.log
IMU Records Processed	3284606
Termination Status	Normal
IMU Anomalies	0

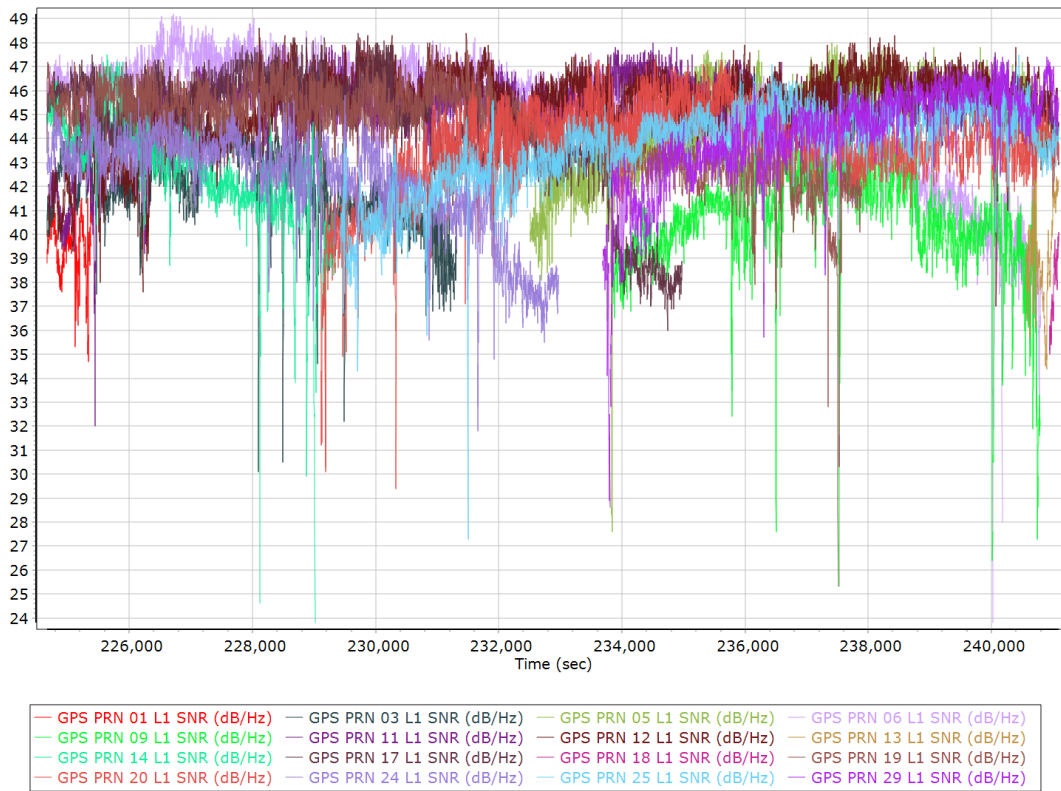
## Primary Observables & Satellite Data

### GPS/GLONASS L1 Satellite Lock/Elevation

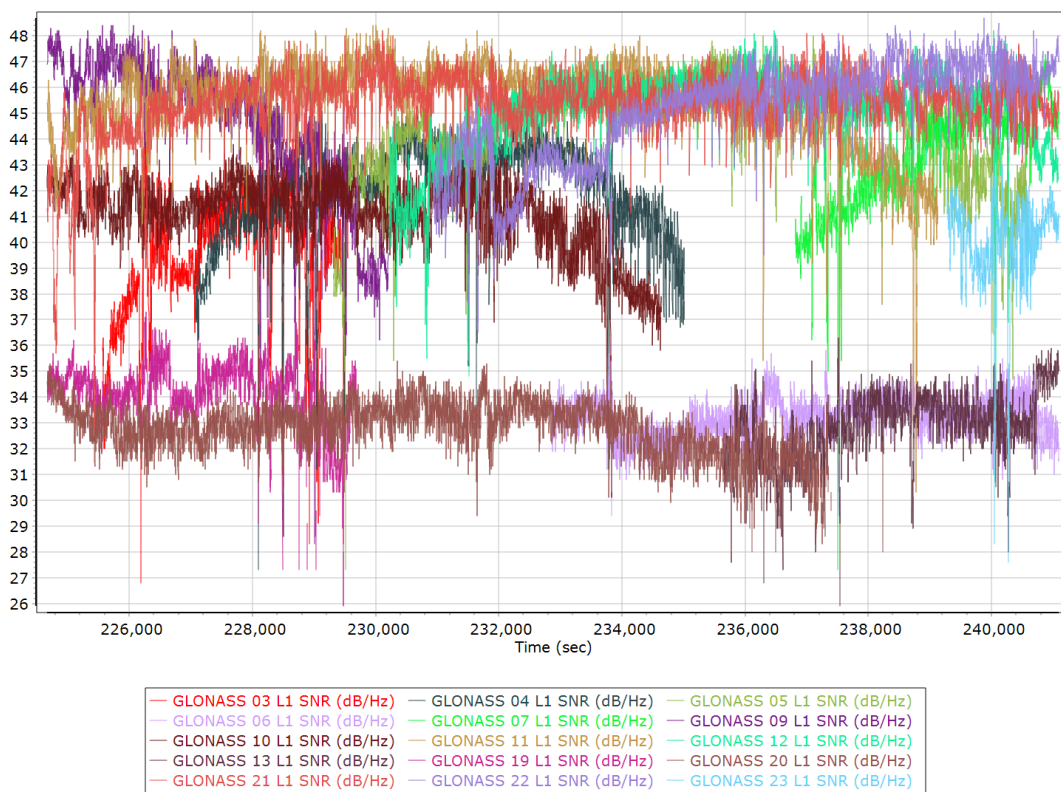




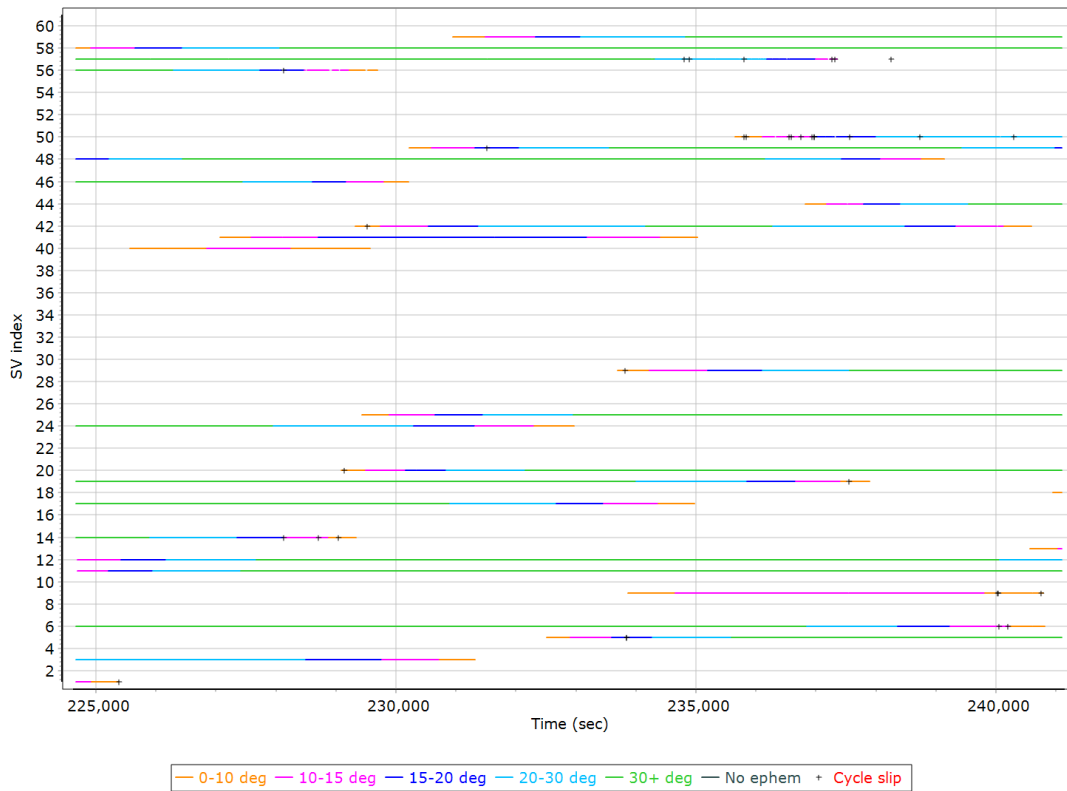
### GPS L1 SNR



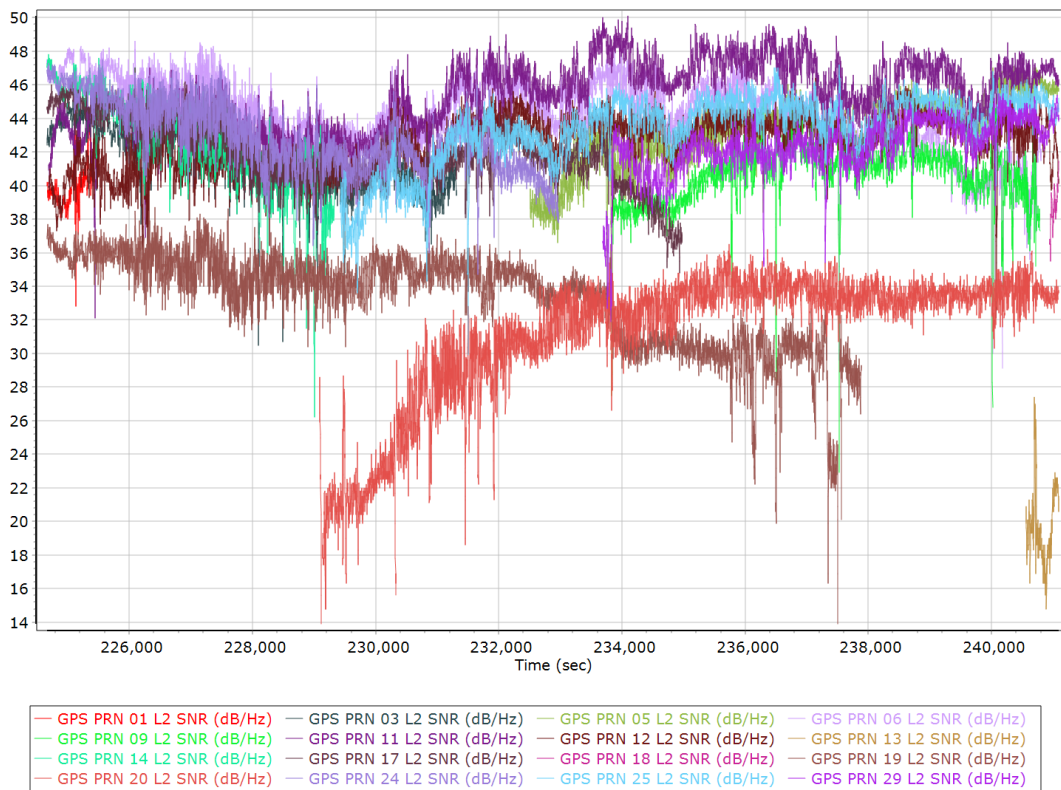
### GLONASS L1 SNR



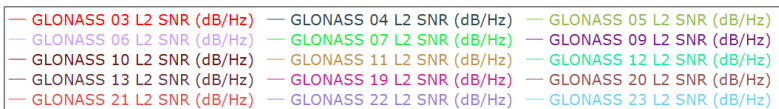
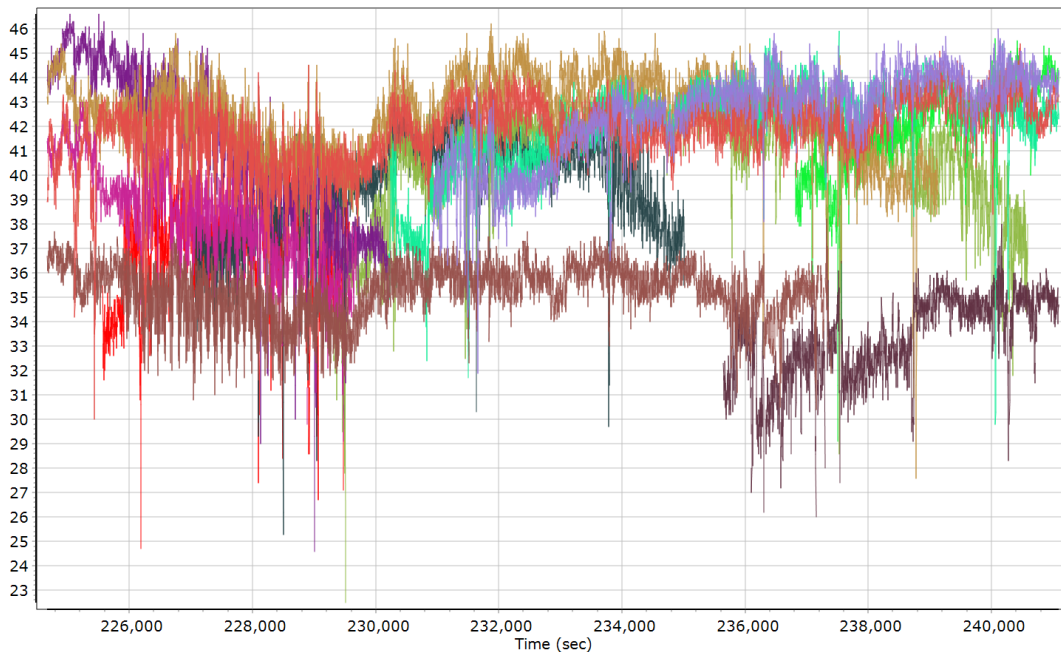
### GPS/GLONASS L2 Satellite Lock/Elevation



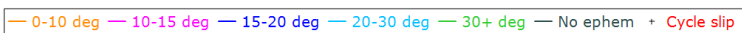
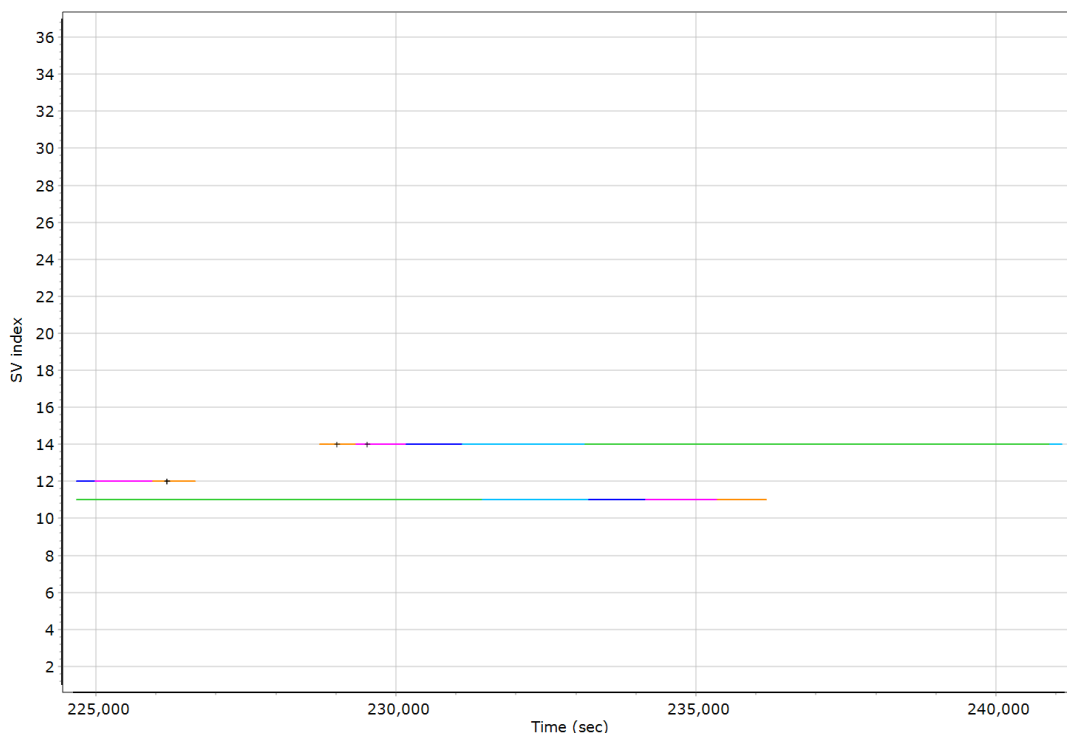
### GPS L2 SNR



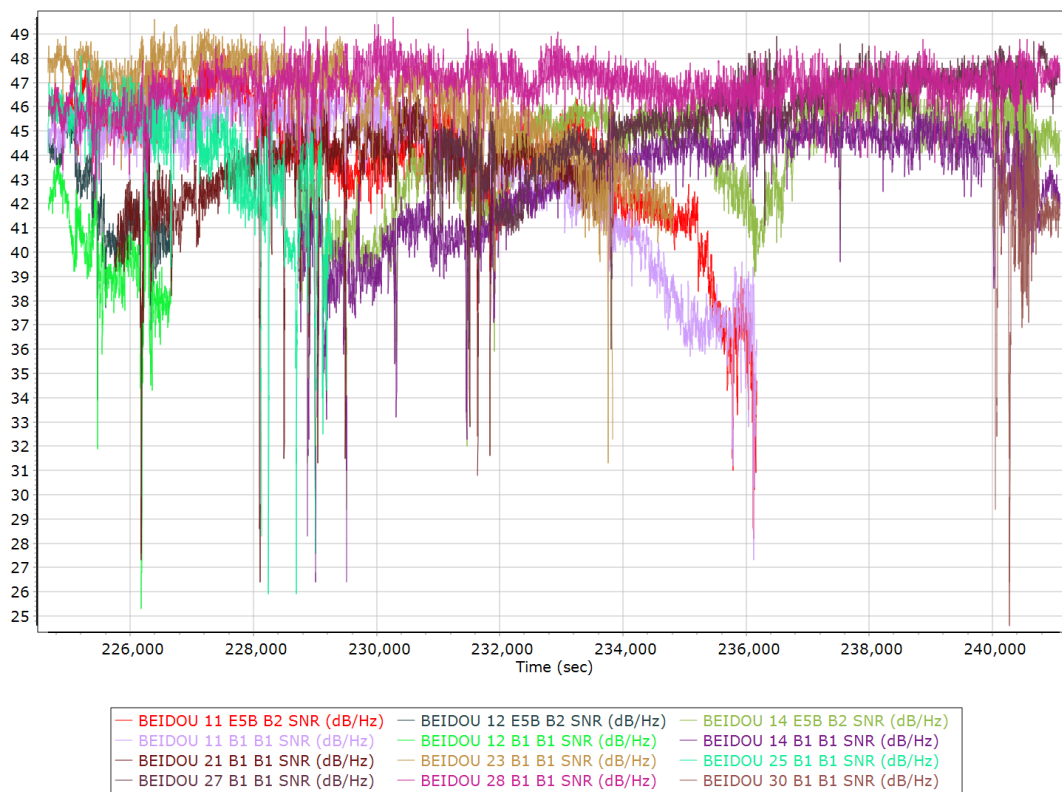
### GLONASS L2 SNR



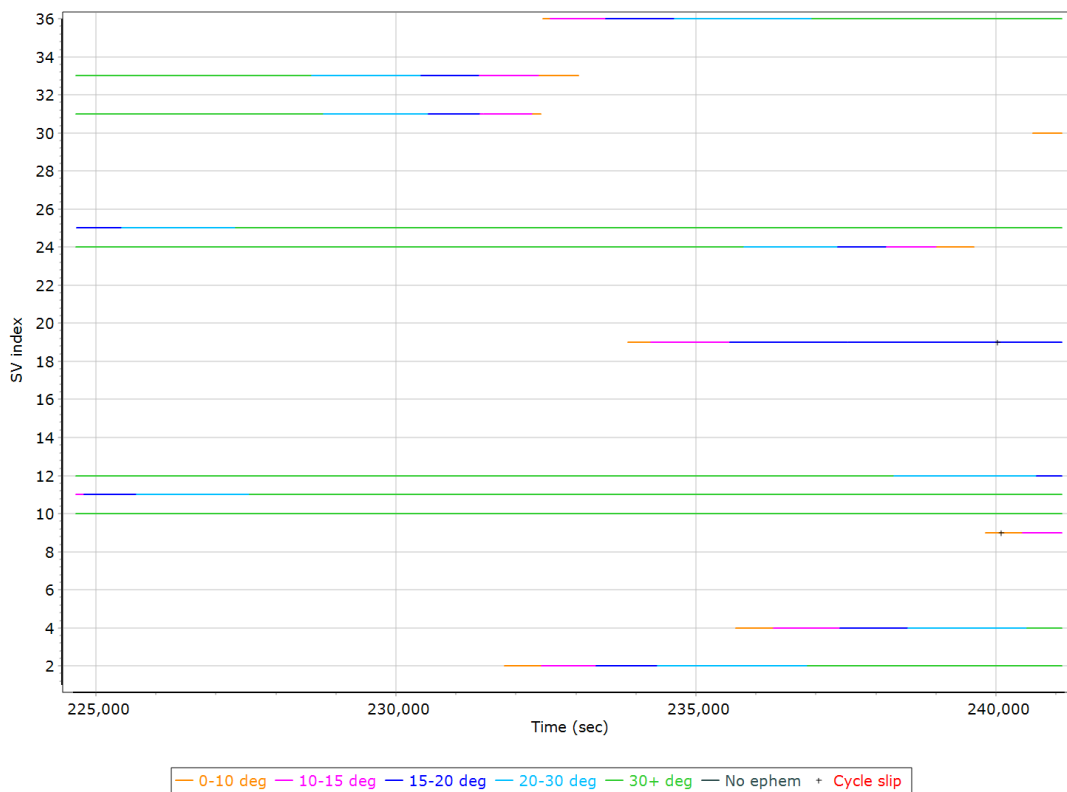
### BEIDOU Satellite Lock/Elevation



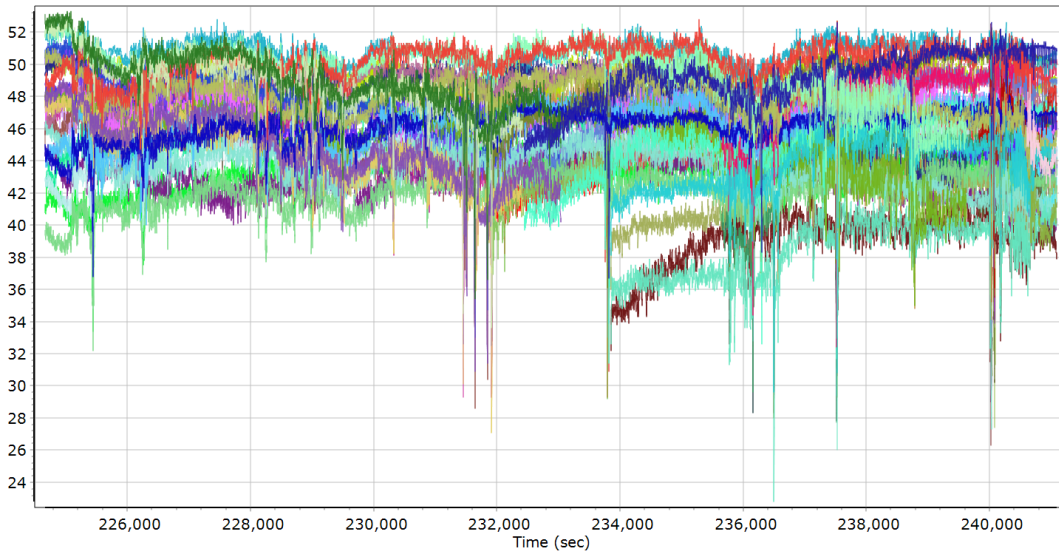
### BEIDOU SNR



### GALILEO Satellite Lock/Elevation



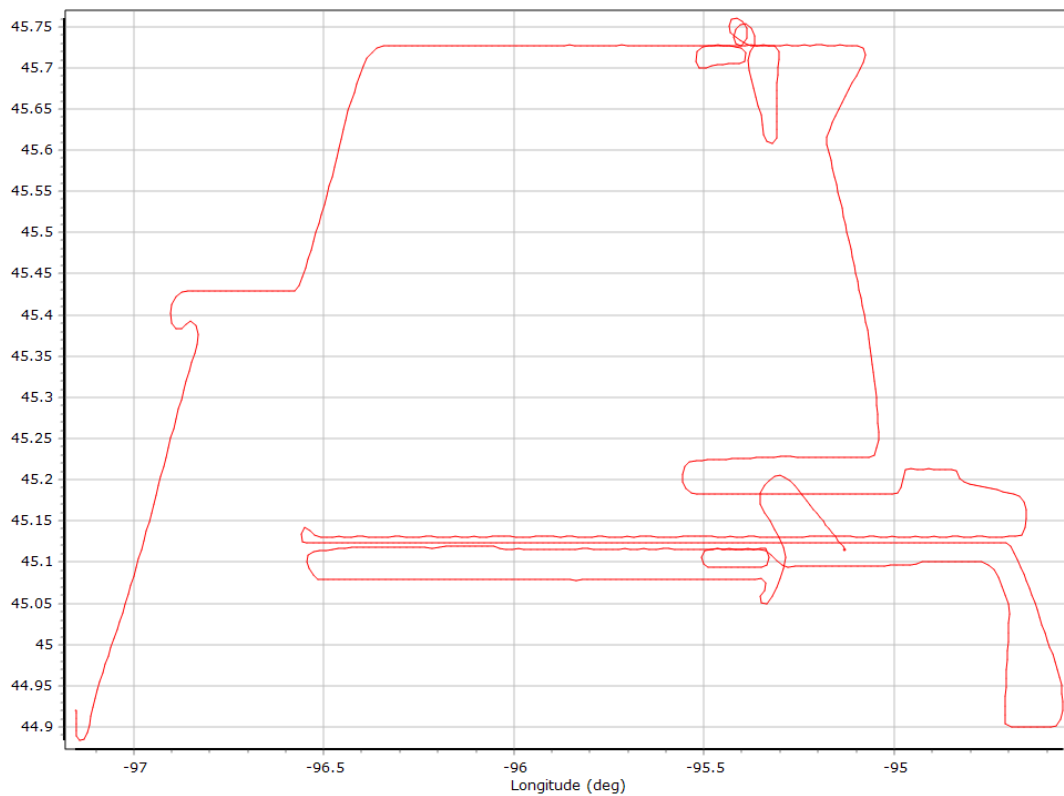
## GALILEO SNR



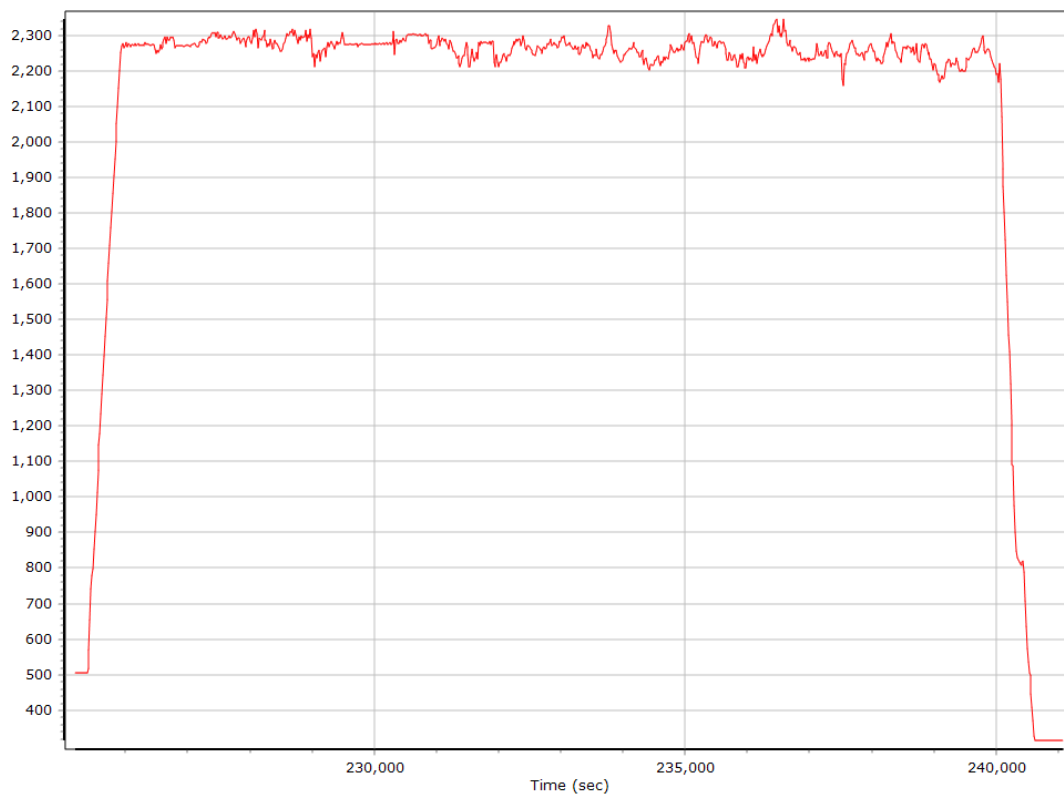
— GALILEO 02 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)	— GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
— GALILEO 09 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)	— GALILEO 10 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
— GALILEO 11 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)	— GALILEO 12 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
— GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)	— GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
— GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)	— GALILEO 30 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
— GALILEO 31 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)	— GALILEO 33 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
— GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)	— GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
— GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)	— GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)
— GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)	— GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)
— GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)	— GALILEO 19 L5E5A BPSK10_PD SNR (dB/Hz)

## Smoothed Trajectory Information

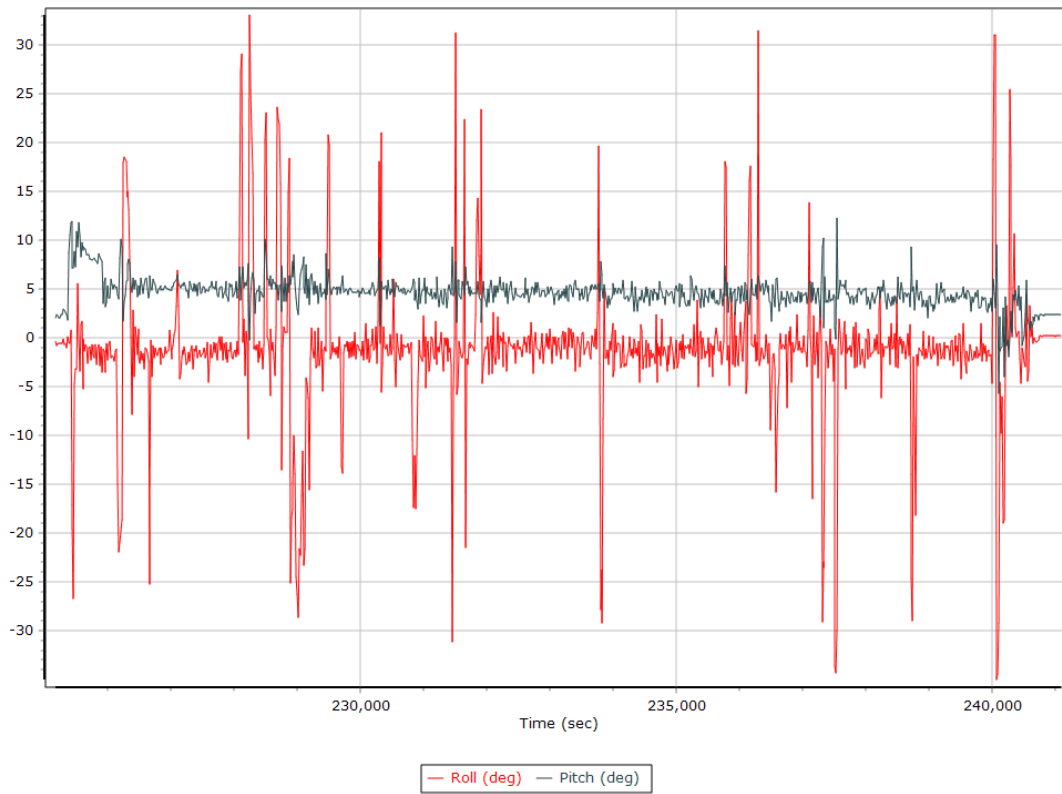
### Top View



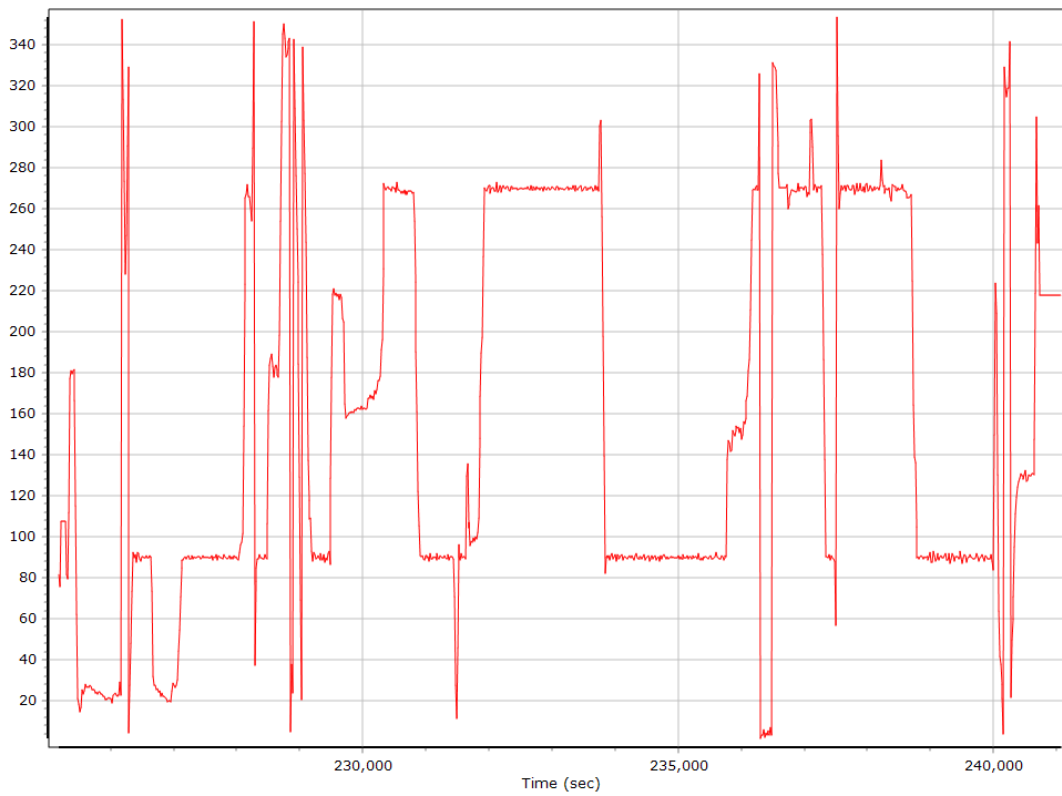
### Altitude



## Roll/Pitch

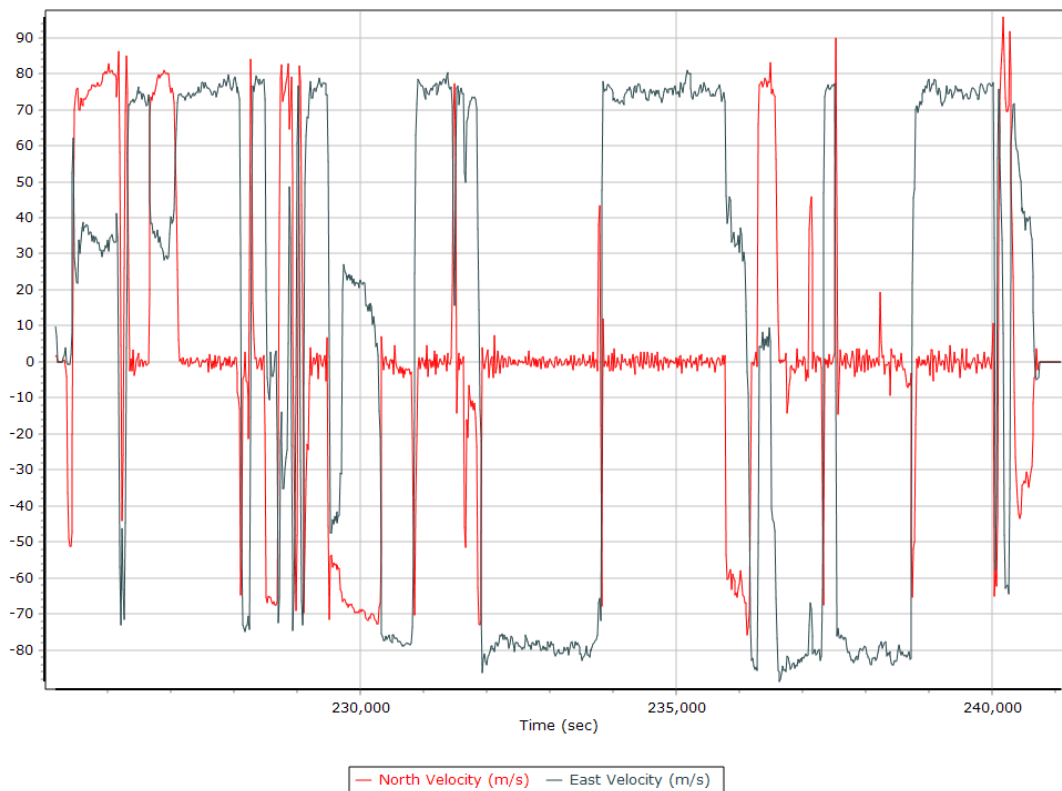


## Heading

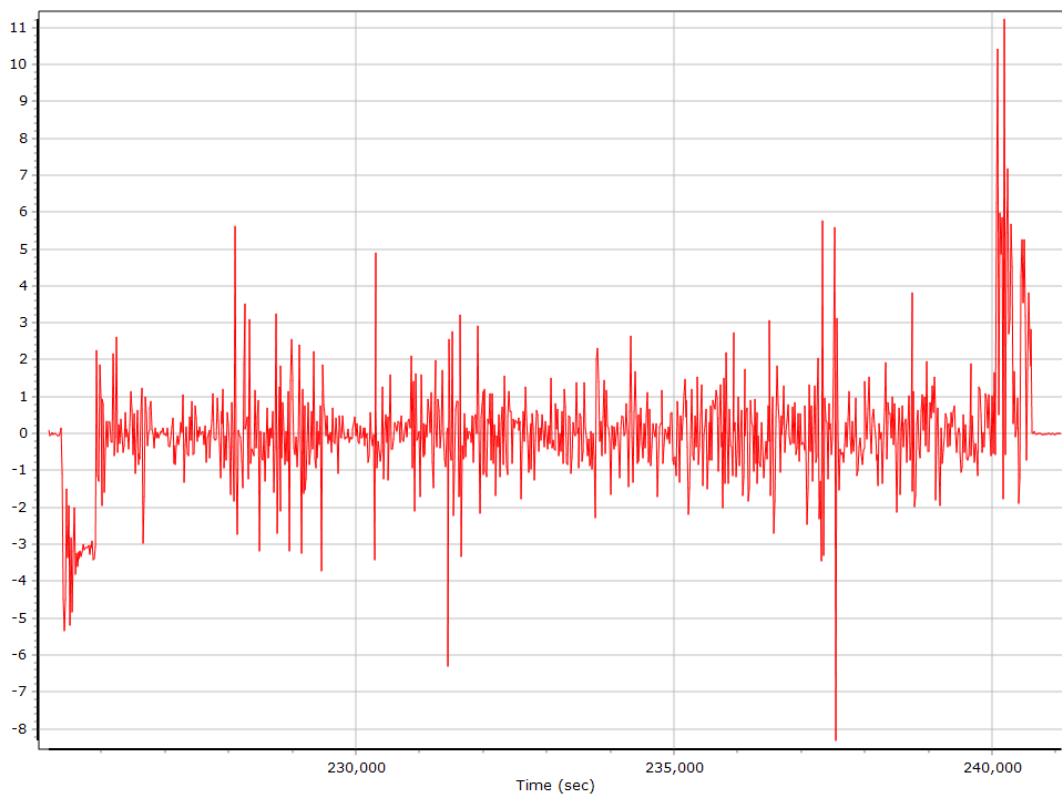




### North/East Velocity

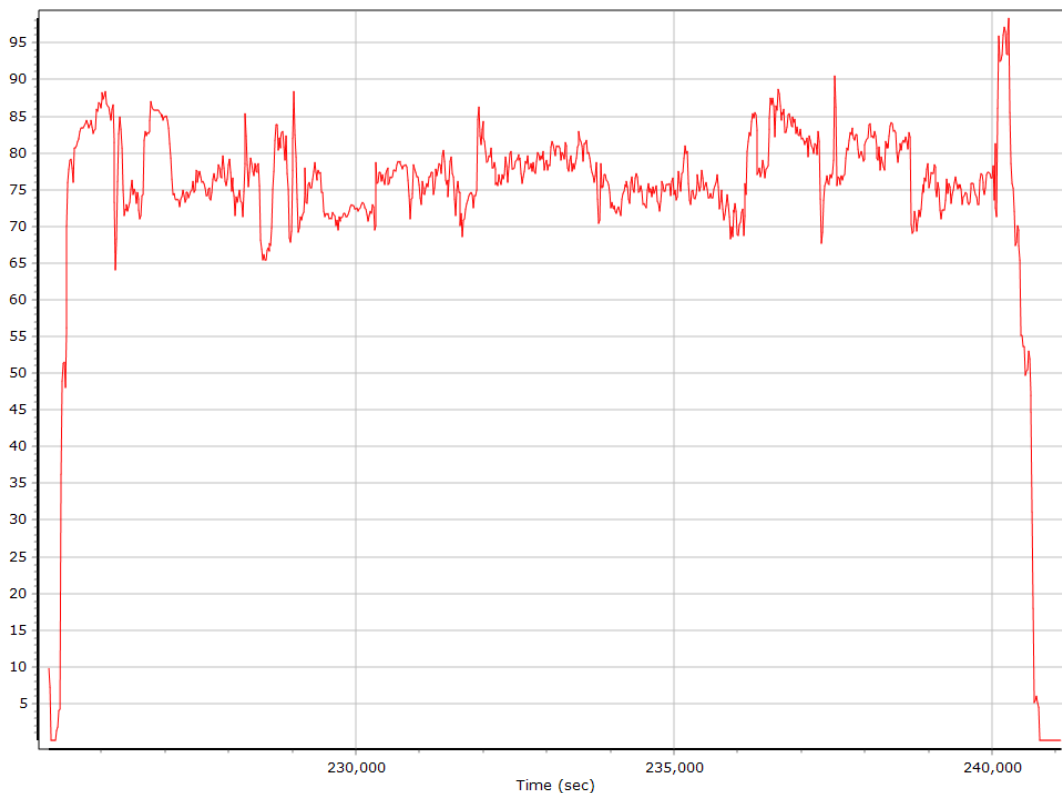


### Down Velocity

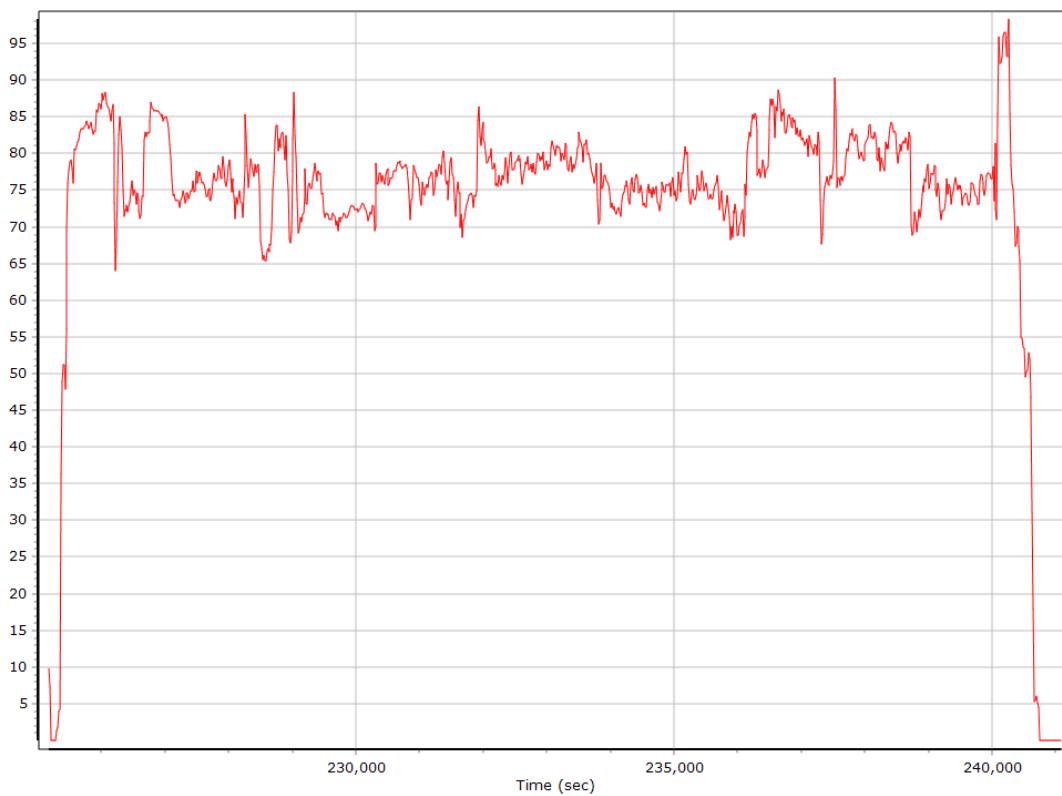




### Total Speed



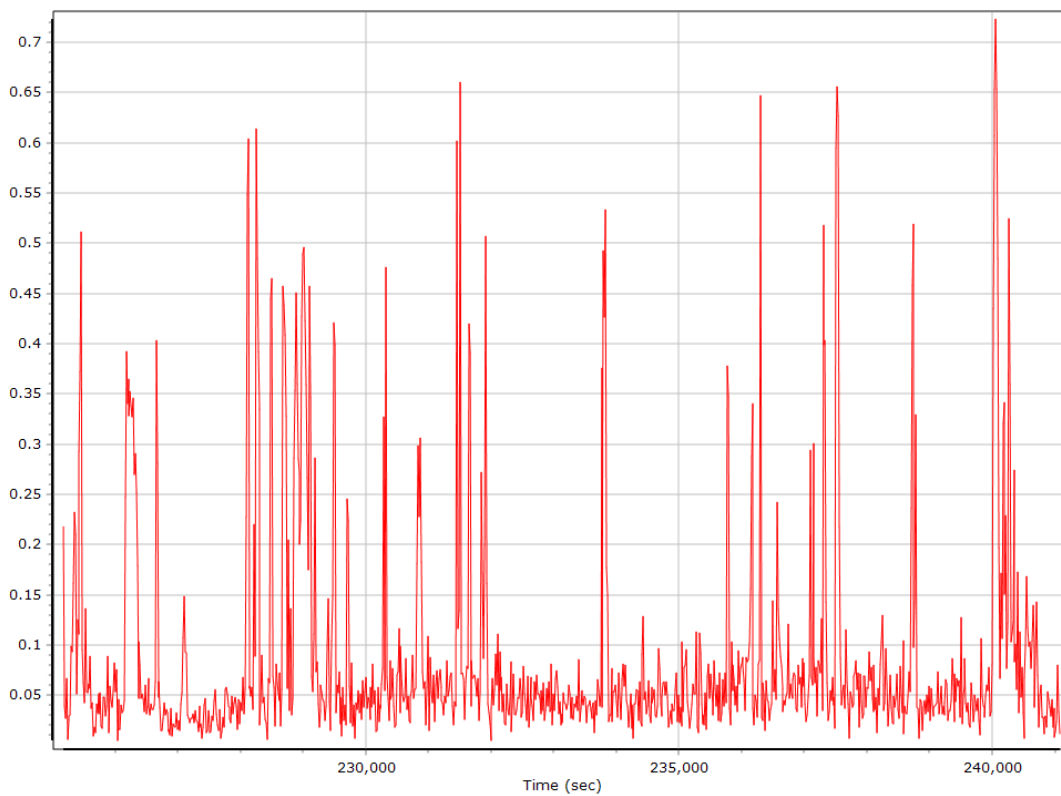
### Ground Speed



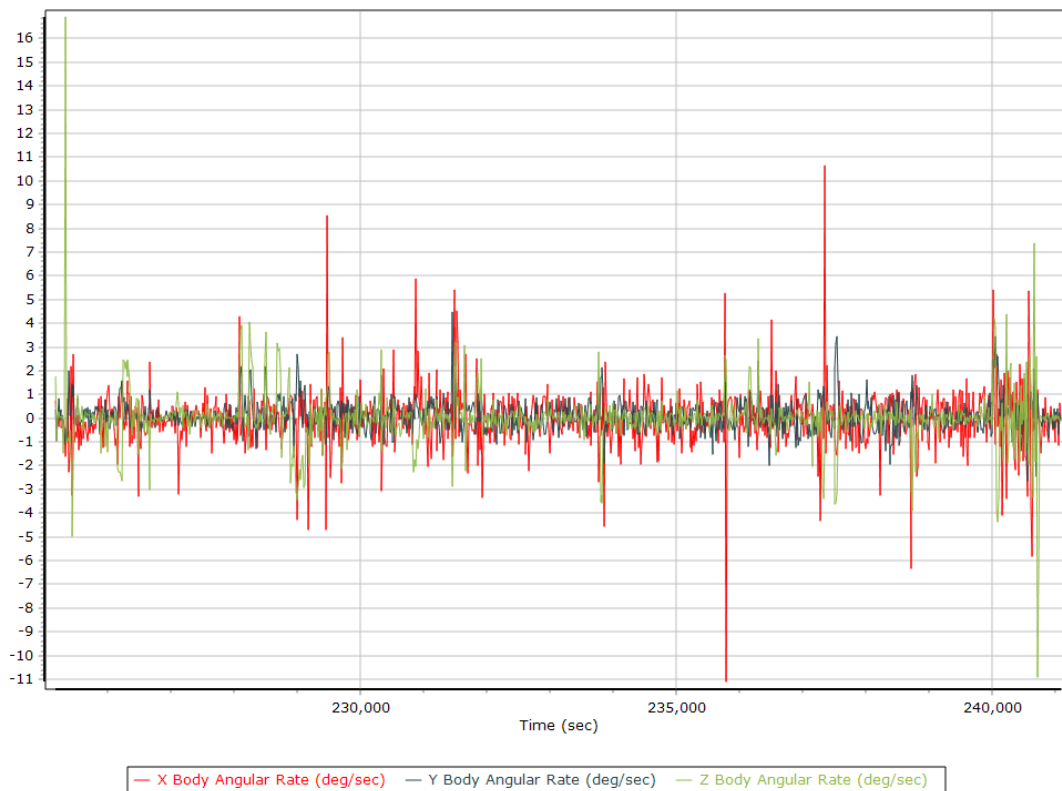
## Body Acceleration



## Total Body Acceleration

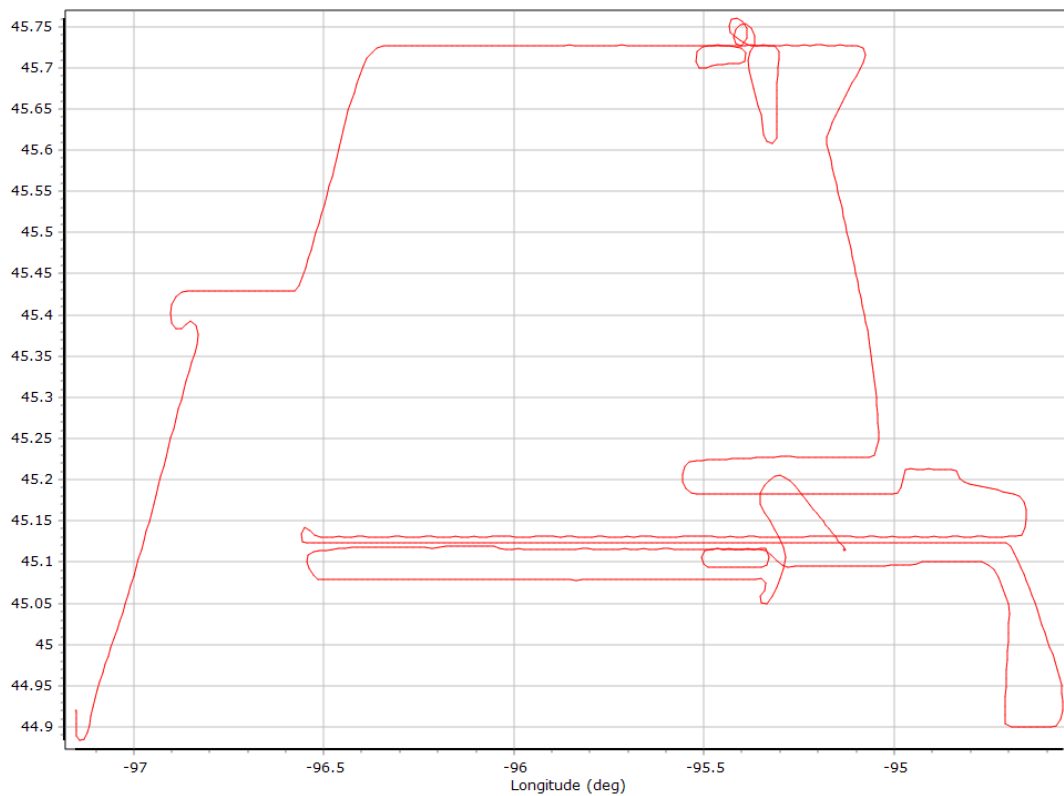


## Body Angular Rate

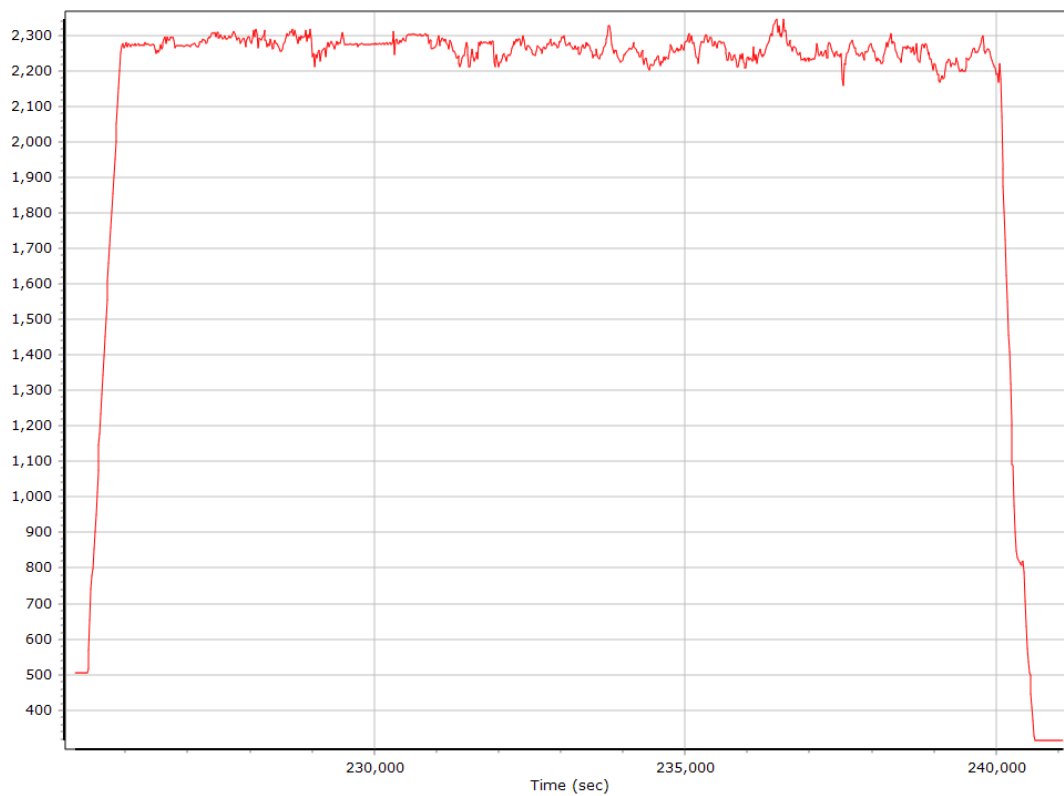


## Forward Processed Trajectory Information

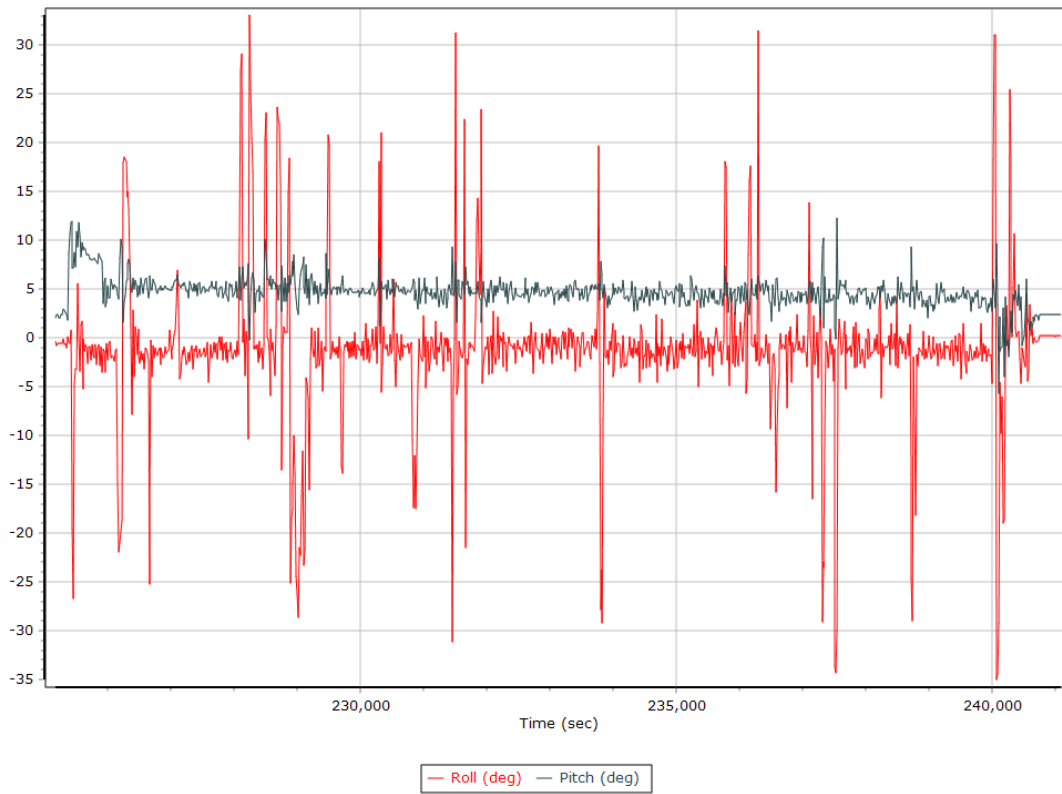
### Top View



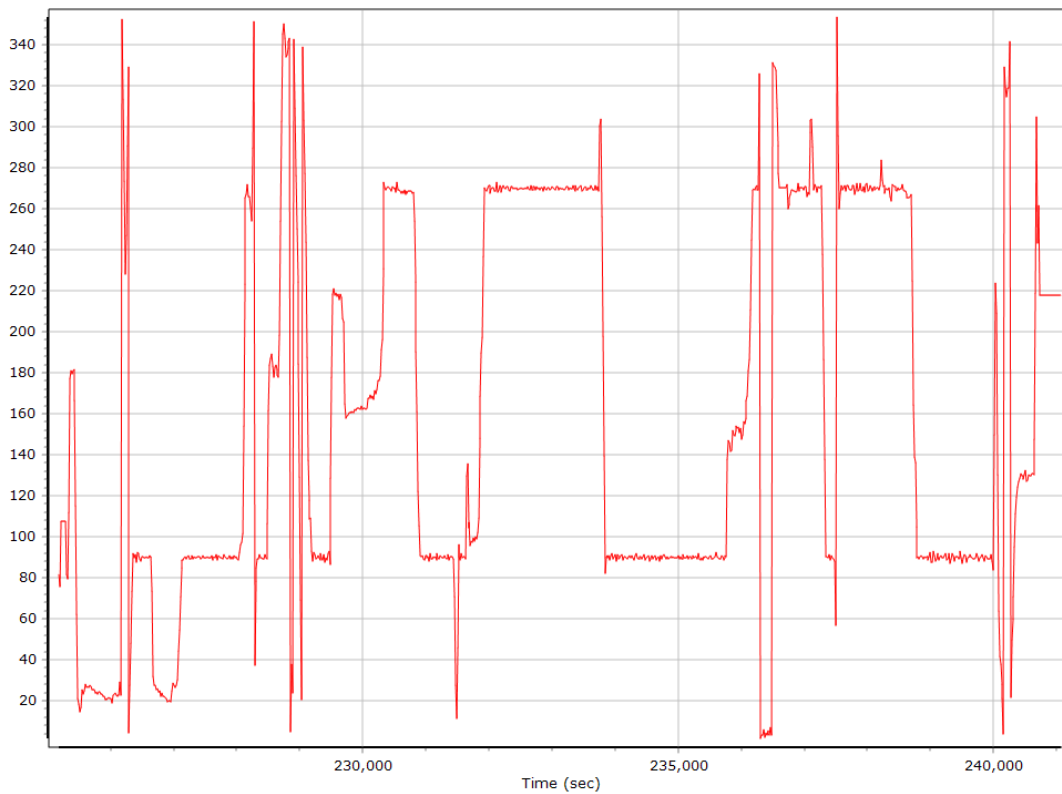
### Altitude



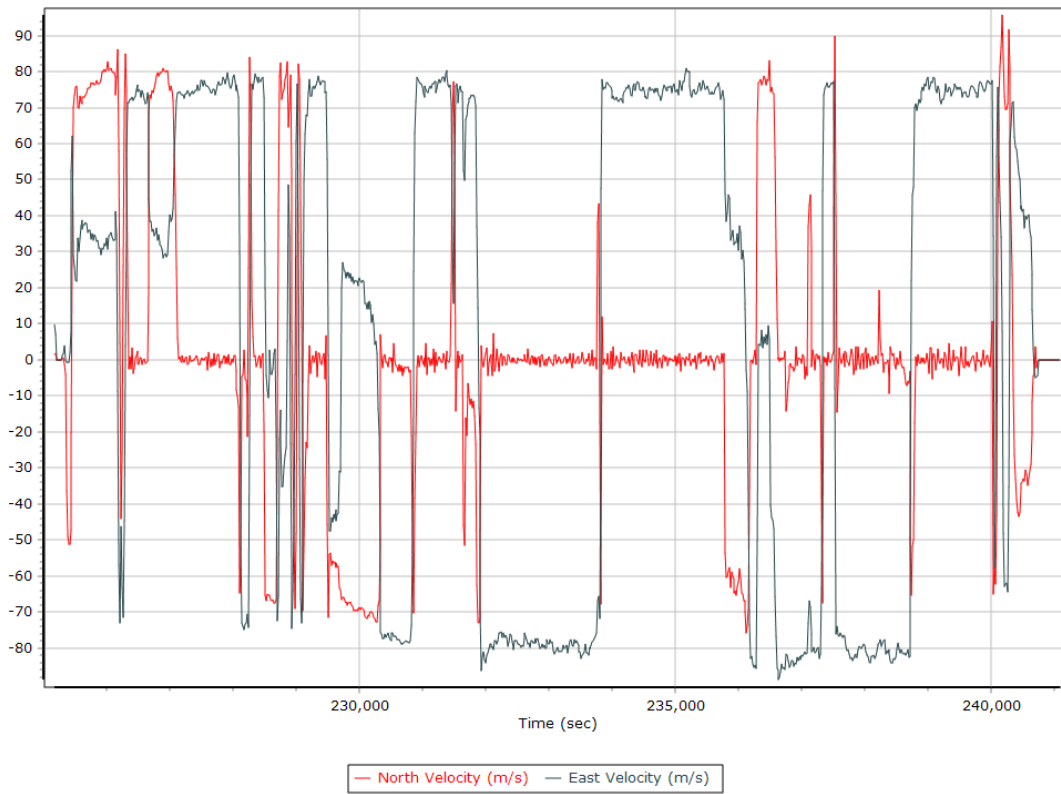
## Roll/Pitch



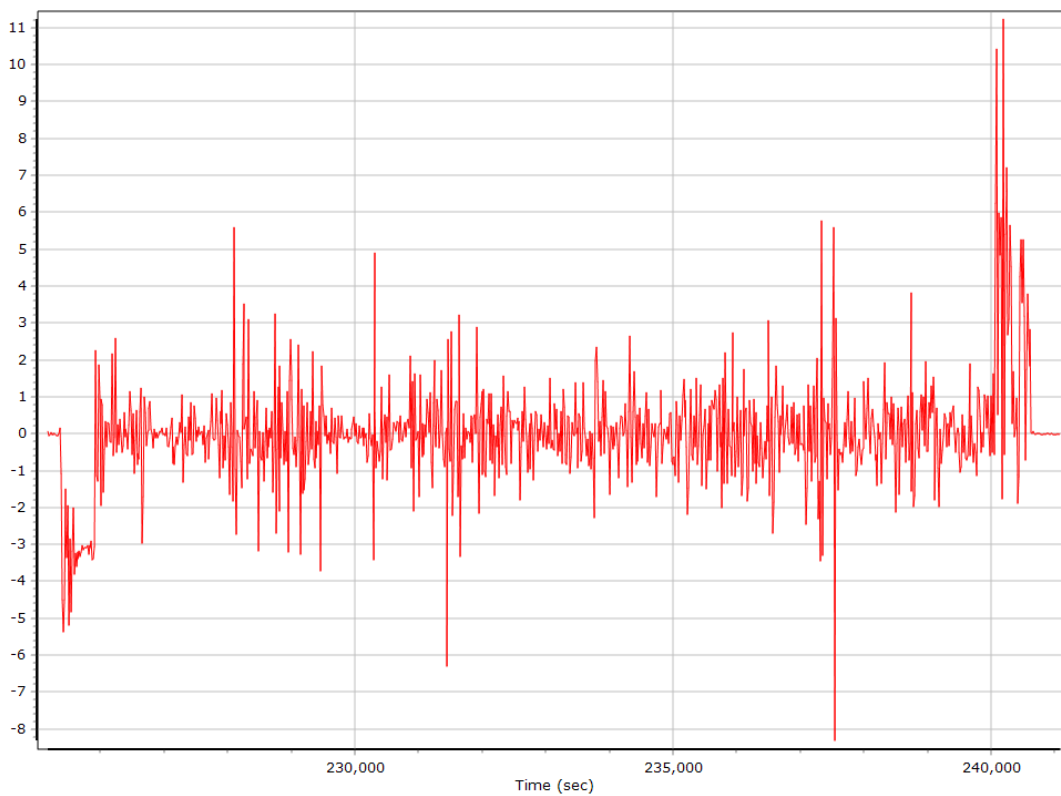
## Heading



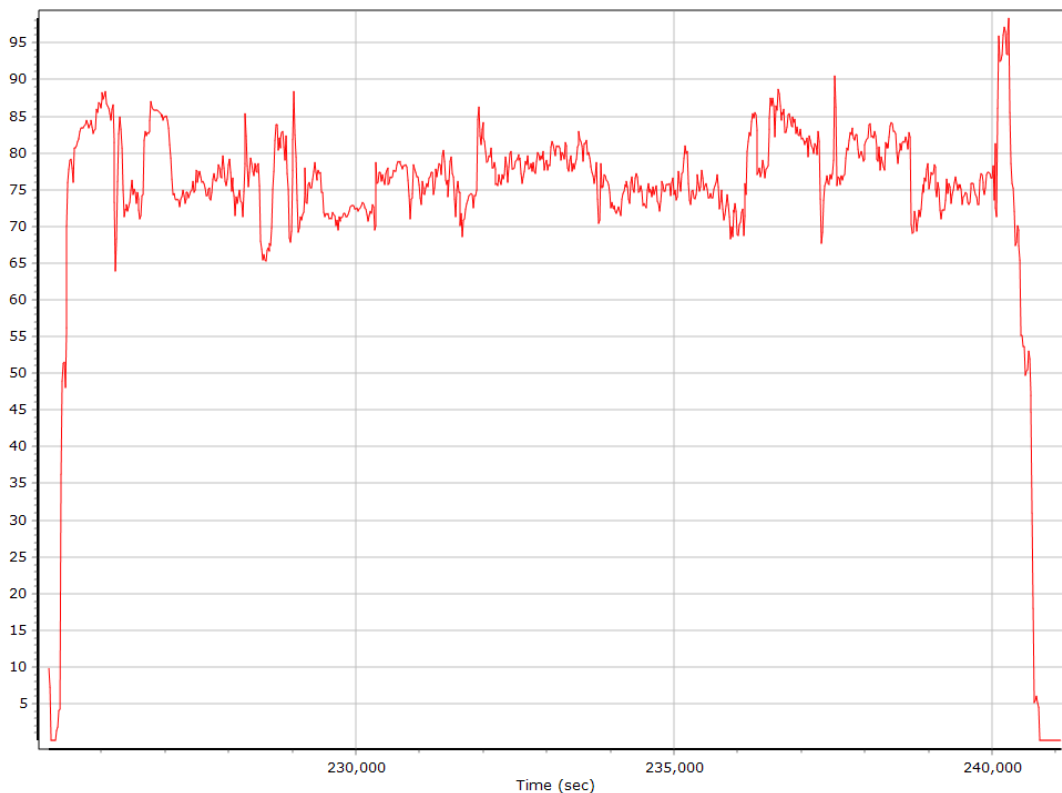
## North/East Velocity



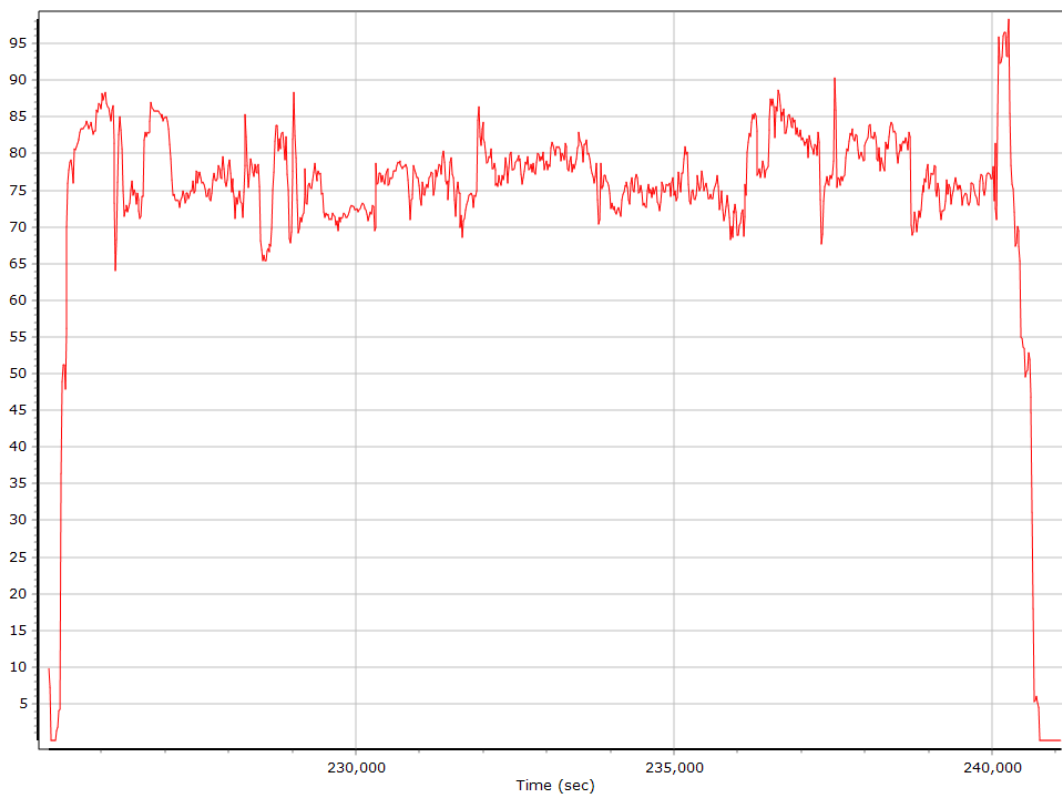
## Down Velocity



### Total Speed



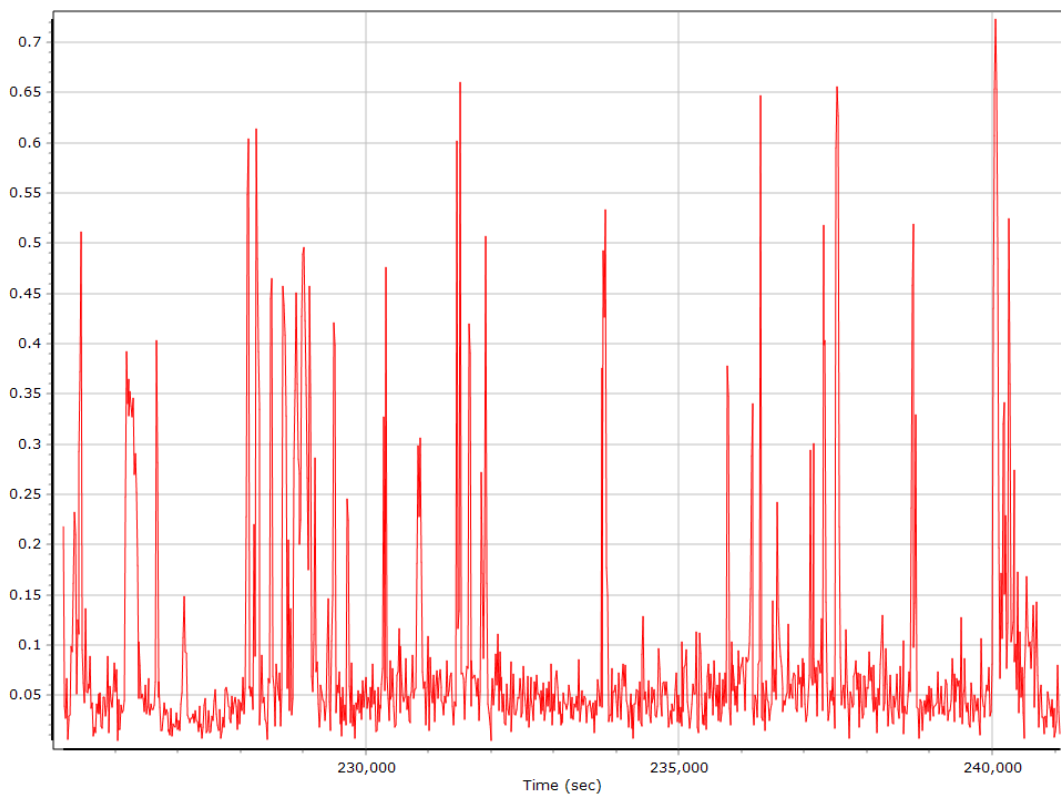
### Ground Speed



## Body Acceleration

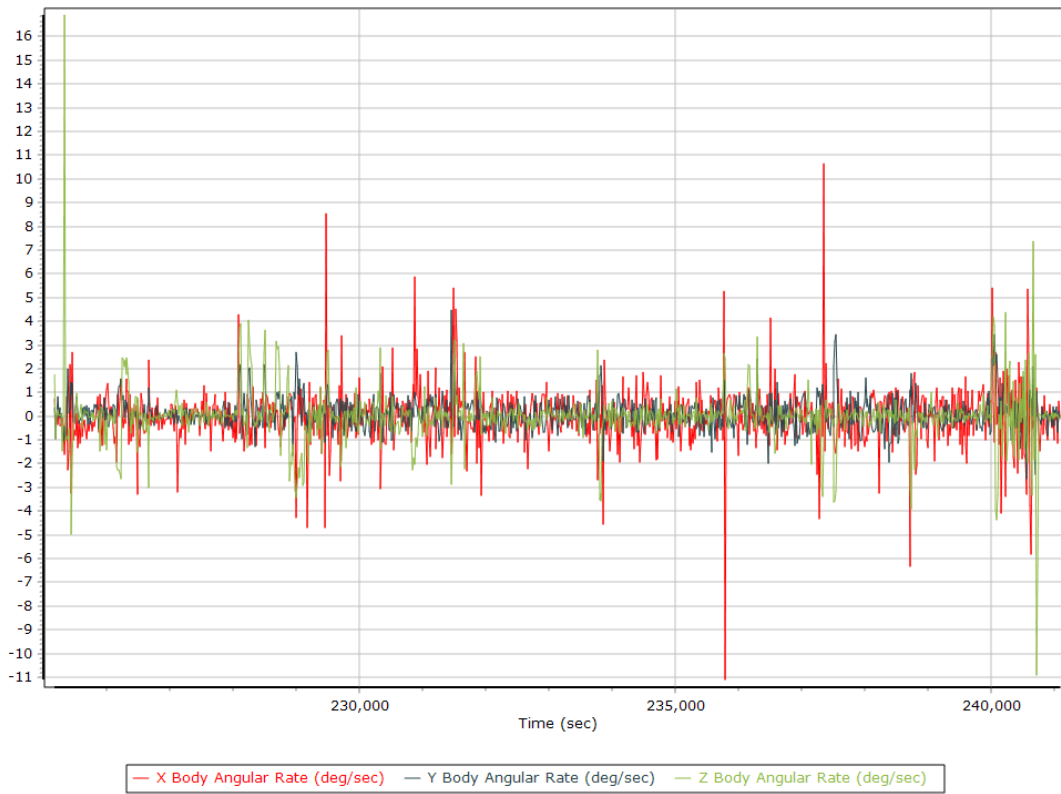


## Total Body Acceleration





## Body Angular Rate

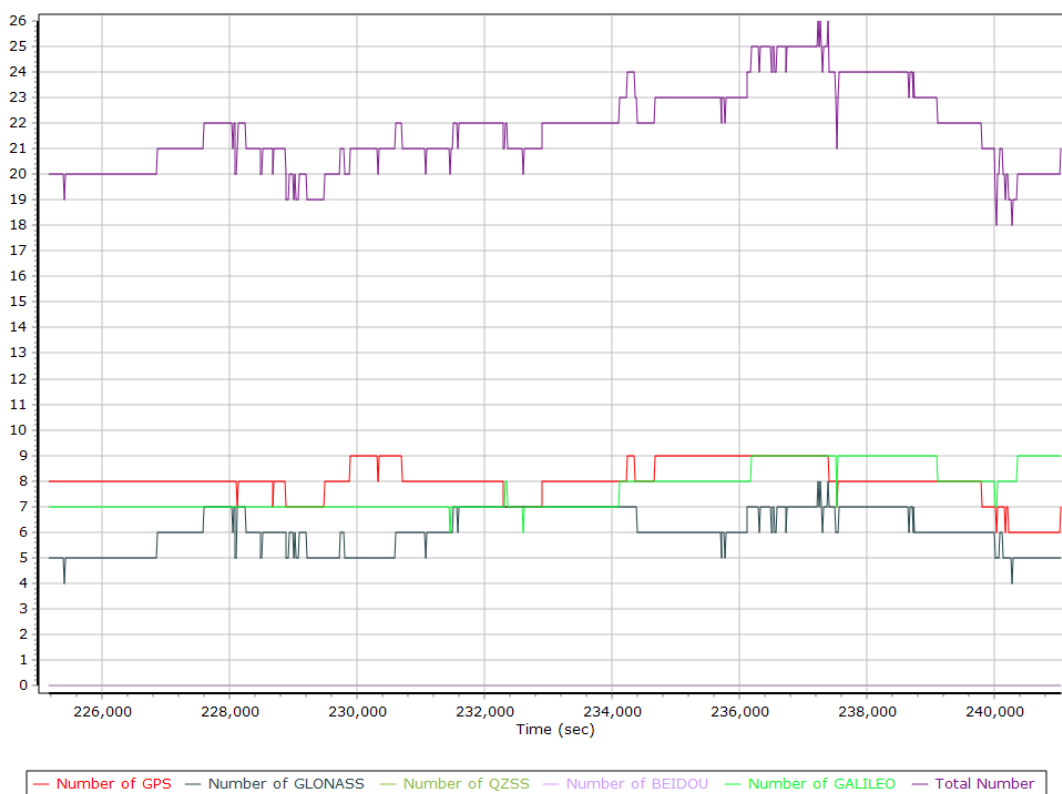


## GNSS QC

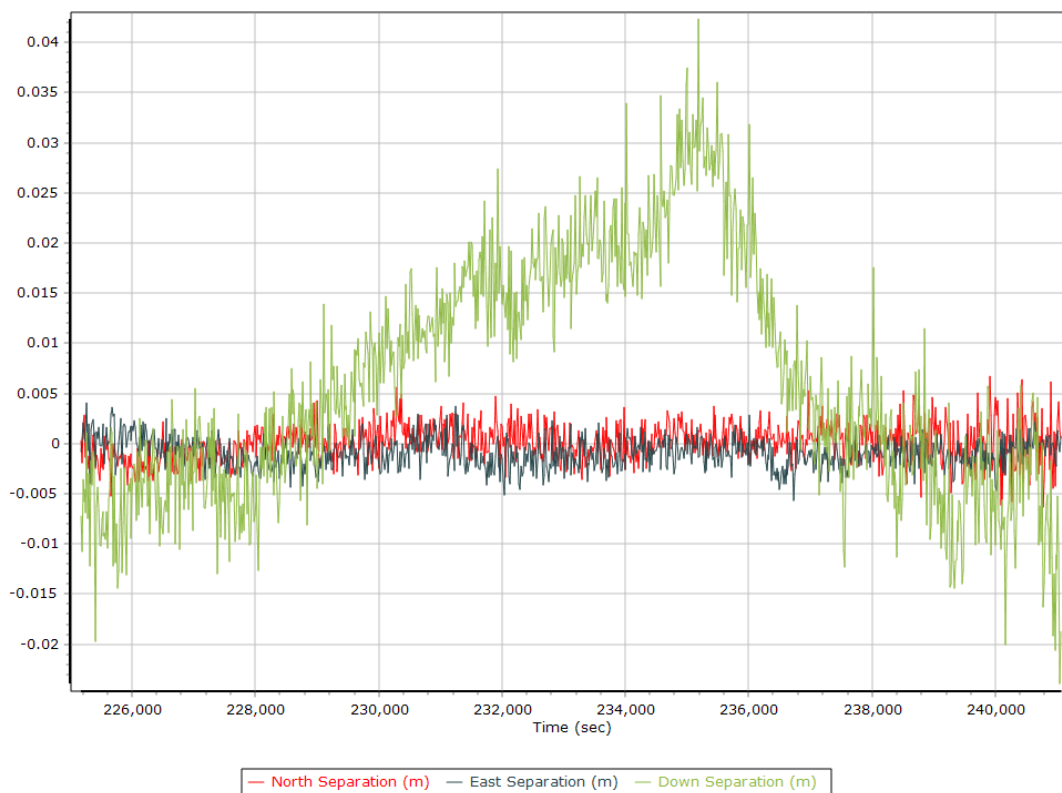
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	9	8
Number of GLONASS SV	0	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	2	9	8
Total number of SV	9	26	22
PDOP	0.99	2.24	1.13
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	16379.00	0.00	0.00
Percentage	100.00	0.00	0.00

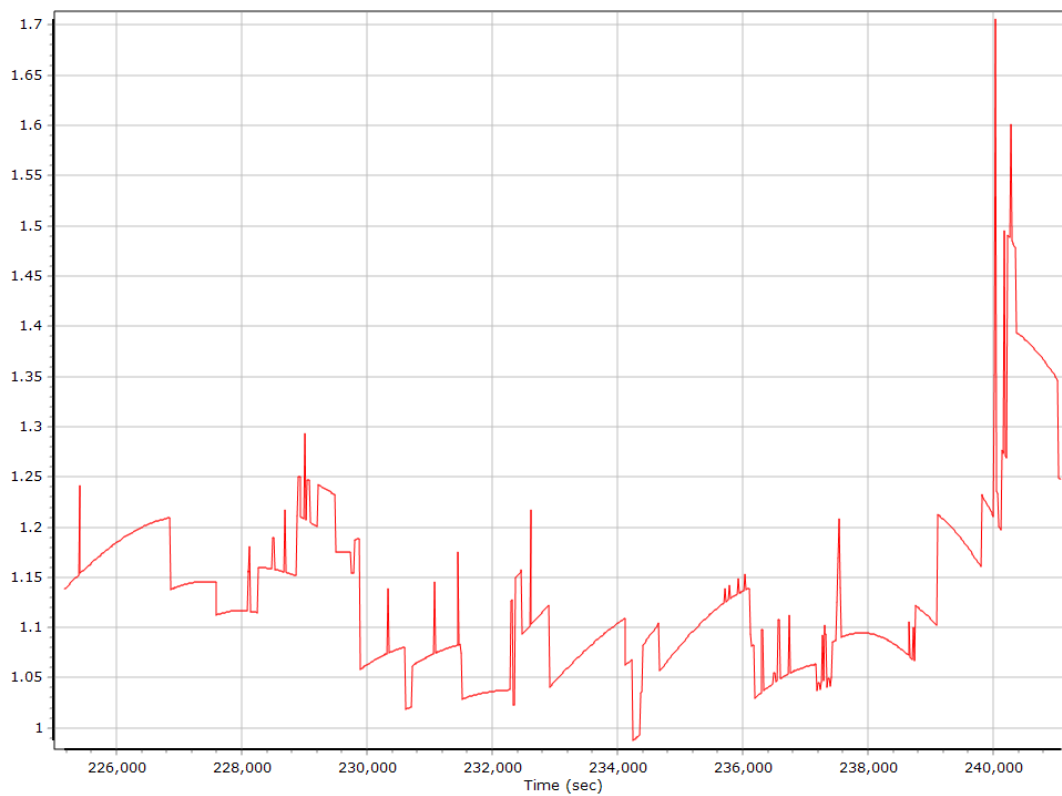
### Num SVs in solution



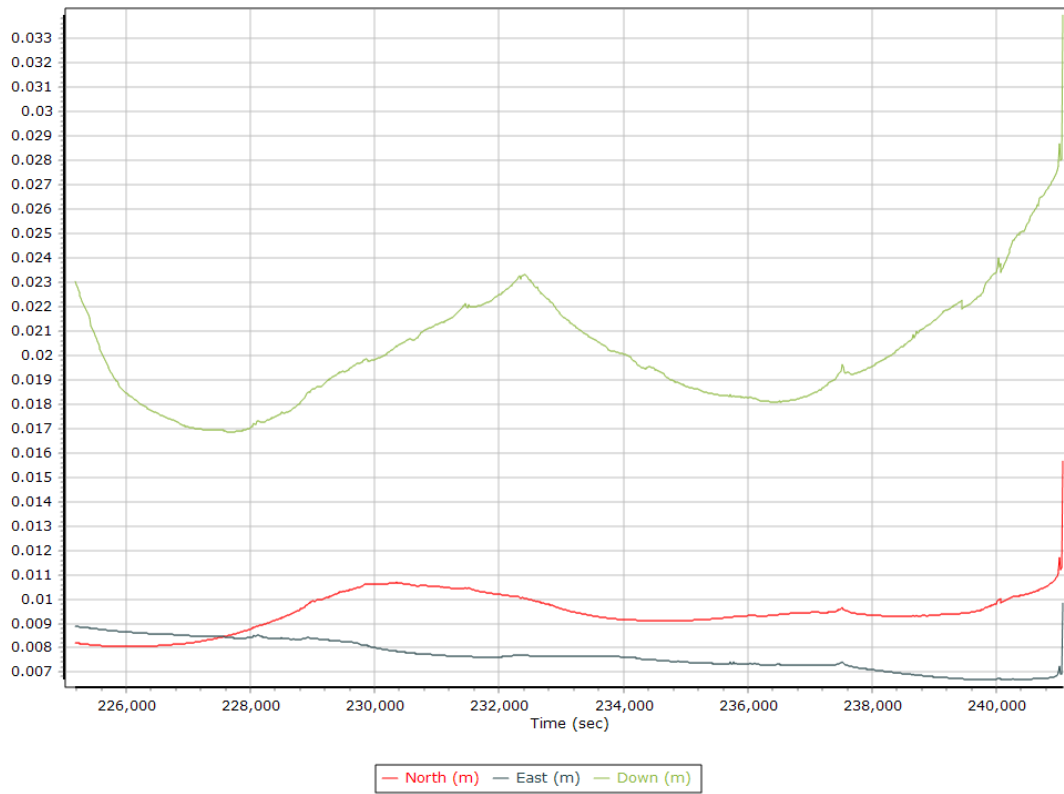
### Forward/Reverse Separation



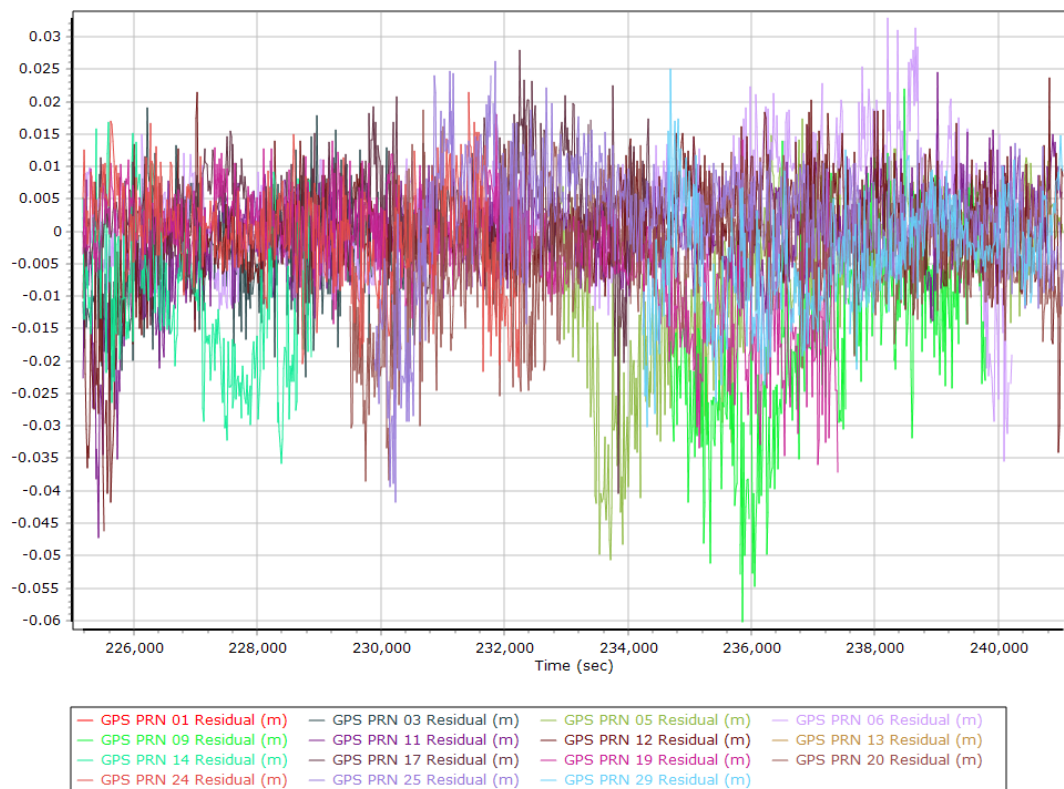
### PDOP



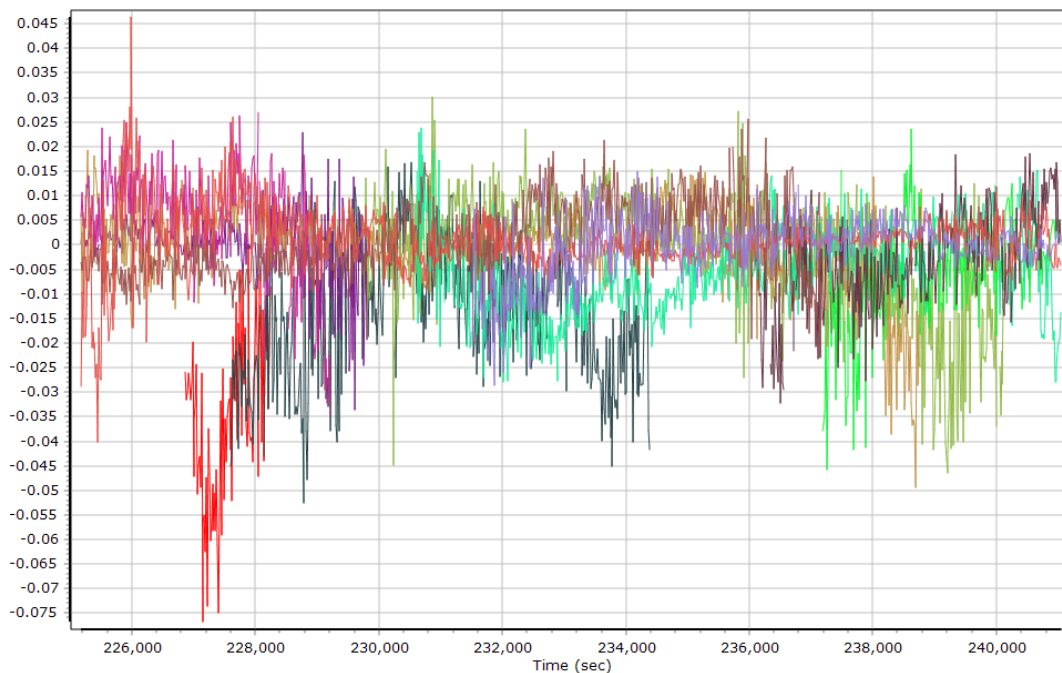
## Estimated Position Accuracy



## GPS Residuals

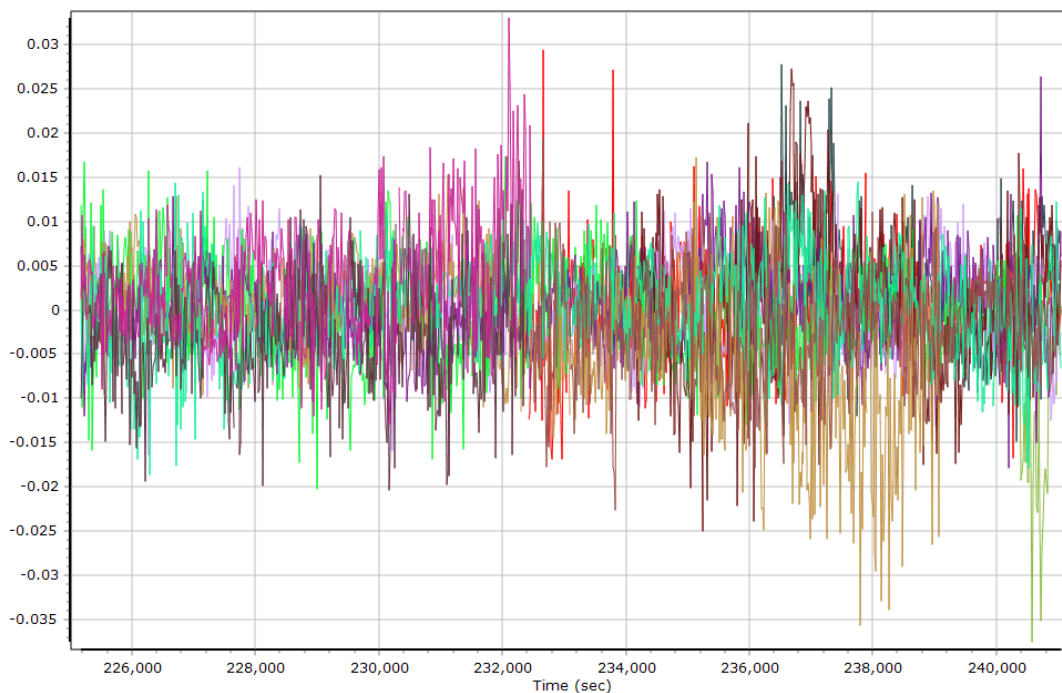


## GLONASS Residuals



- |                         |                         |                         |                         |
|-------------------------|-------------------------|-------------------------|-------------------------|
| GLONASS 03 Residual (m) | GLONASS 04 Residual (m) | GLONASS 05 Residual (m) | GLONASS 06 Residual (m) |
| GLONASS 07 Residual (m) | GLONASS 09 Residual (m) | GLONASS 10 Residual (m) | GLONASS 11 Residual (m) |
| GLONASS 12 Residual (m) | GLONASS 13 Residual (m) | GLONASS 19 Residual (m) | GLONASS 20 Residual (m) |
| GLONASS 21 Residual (m) | GLONASS 22 Residual (m) | GLONASS 23 Residual (m) |                         |

## GALILEO Residuals



- |                         |                         |                         |                         |
|-------------------------|-------------------------|-------------------------|-------------------------|
| GALILEO 02 Residual (m) | GALILEO 04 Residual (m) | GALILEO 09 Residual (m) | GALILEO 10 Residual (m) |
| GALILEO 11 Residual (m) | GALILEO 12 Residual (m) | GALILEO 19 Residual (m) | GALILEO 24 Residual (m) |
| GALILEO 25 Residual (m) | GALILEO 31 Residual (m) | GALILEO 33 Residual (m) | GALILEO 36 Residual (m) |

## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	224664.000 (06/20/2023 14:24:06)		
Processing end time	241090.000 (06/20/2023 18:57:52)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.230	-0.036	-0.133
Gimbal to IMU mounting angles (deg)	0.000	0.000	180.000
Gimbal to Primary GNSS lever arm (m)	0.100	-0.006	-1.266
Gimbal 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

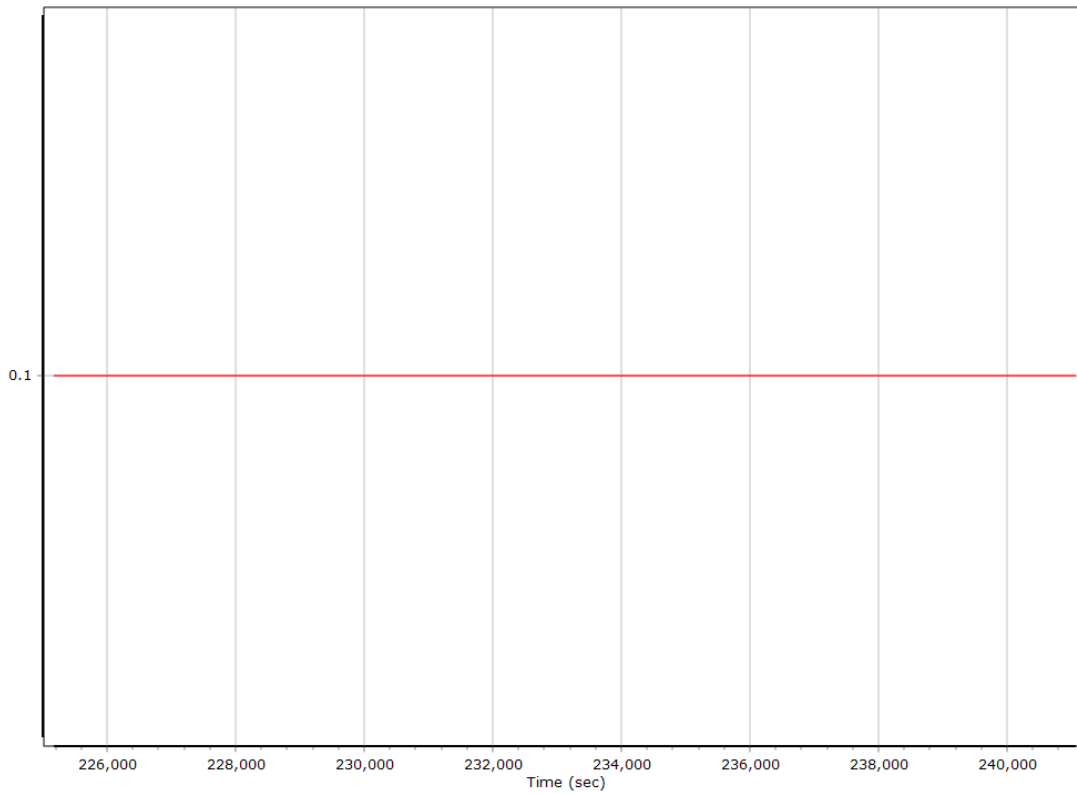
## Calibrated Installation Parameters

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

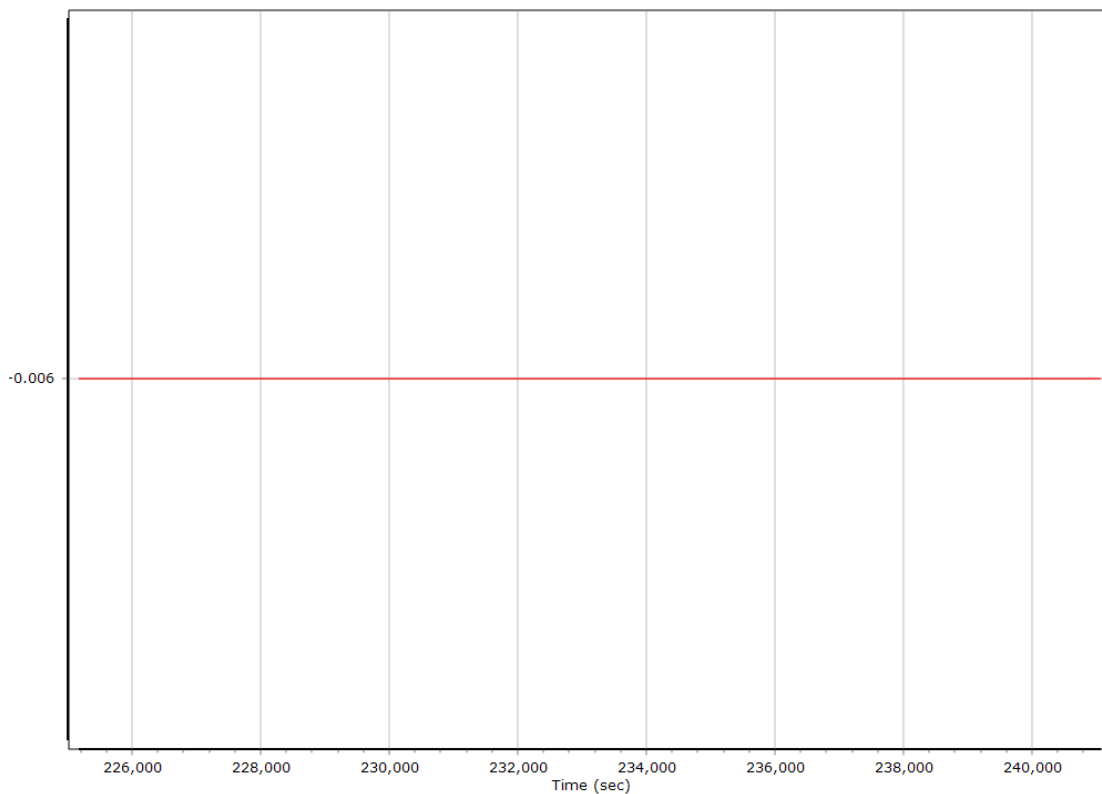
#### Reference-Primary GNSS Lever Arm Automatic Calibration Results

Original Reference to Primary GNSS lever arm (m)	0.415	-0.172	-1.279
Iteration 1 Reference to Primary GNSS lever arm (m)	0.108	-0.009	-1.266
Iteration 2 Reference to Primary GNSS lever arm (m)	0.100	-0.006	-1.266
Primary GNSS Lever Arm In use	Iteration 2		

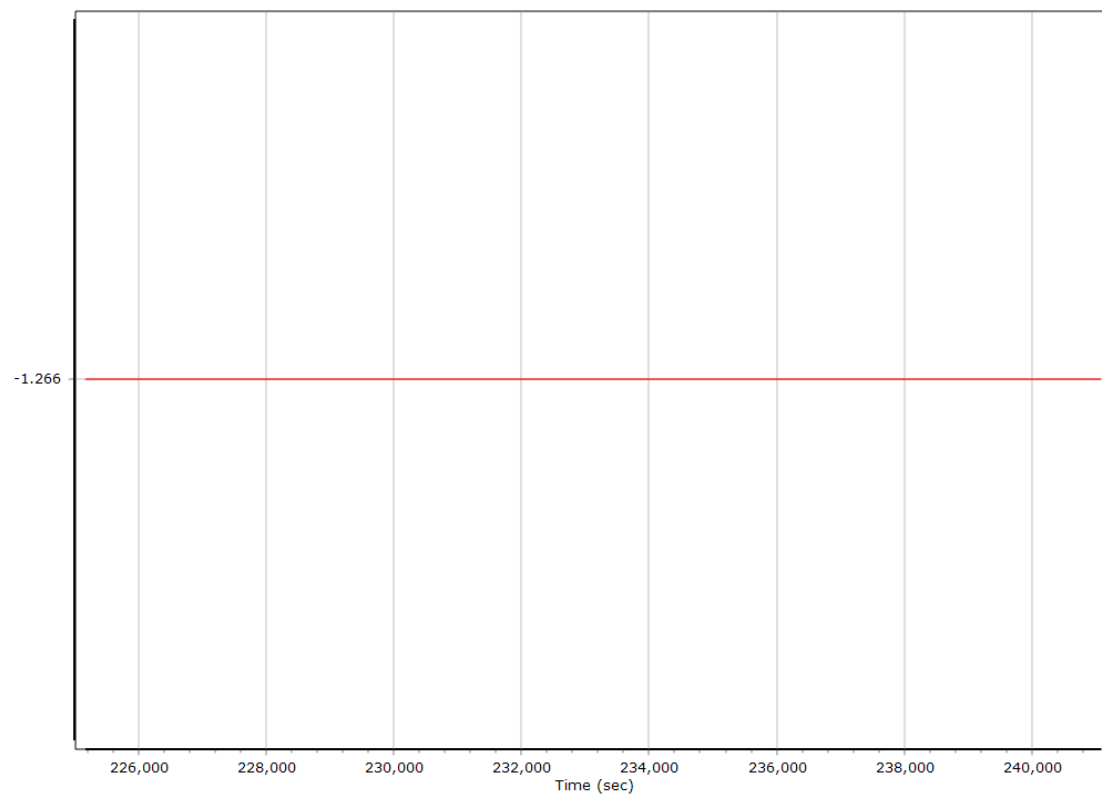
### X Reference-Primary GNSS Lever Arm (m)



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

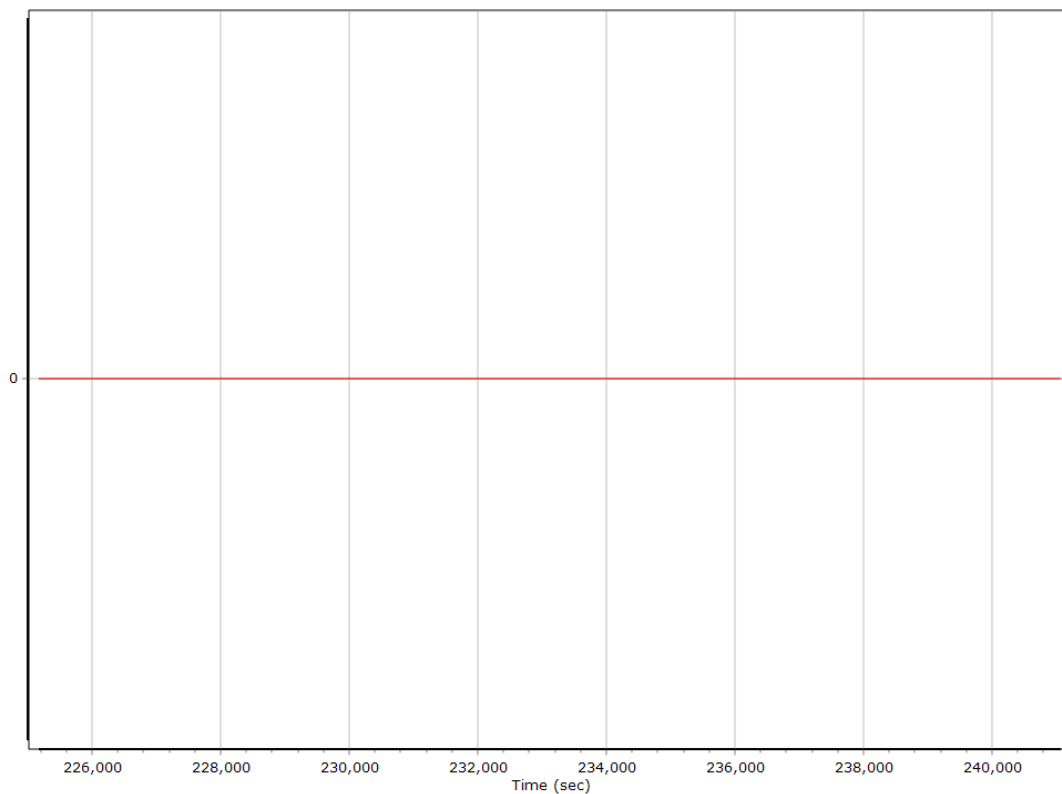


### Z Reference-Primary GNSS Lever Arm (m)





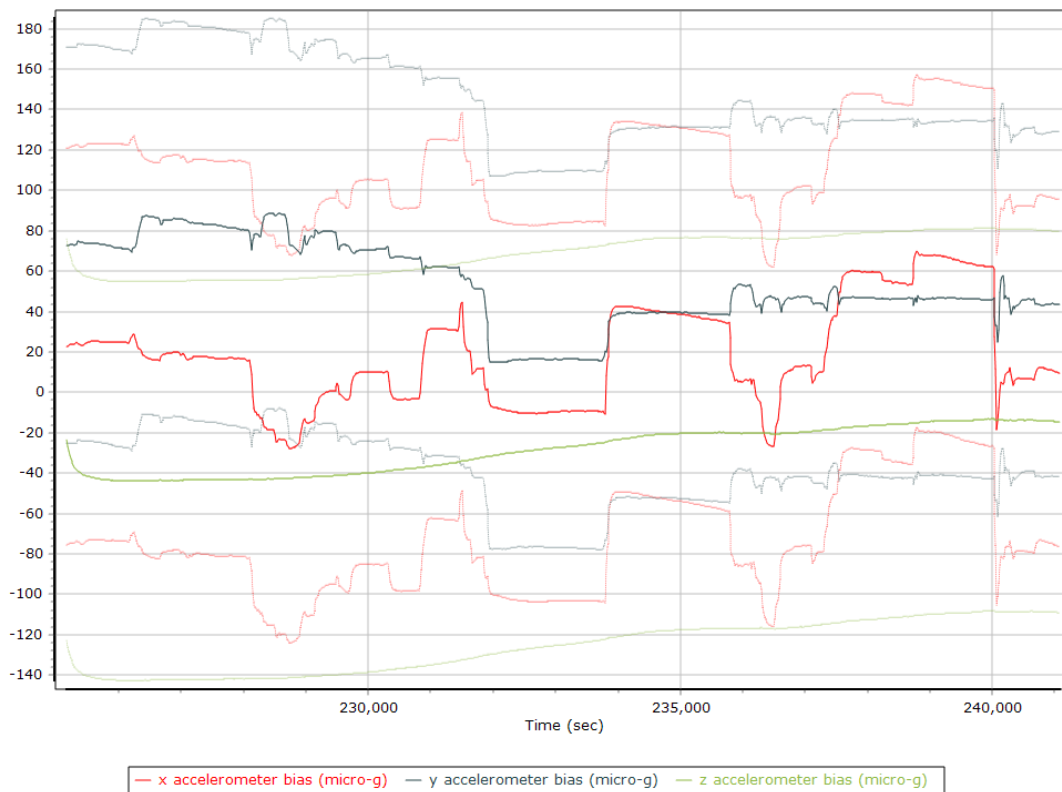
### Reference-Primary GNSS Lever Arm Figure of Merit



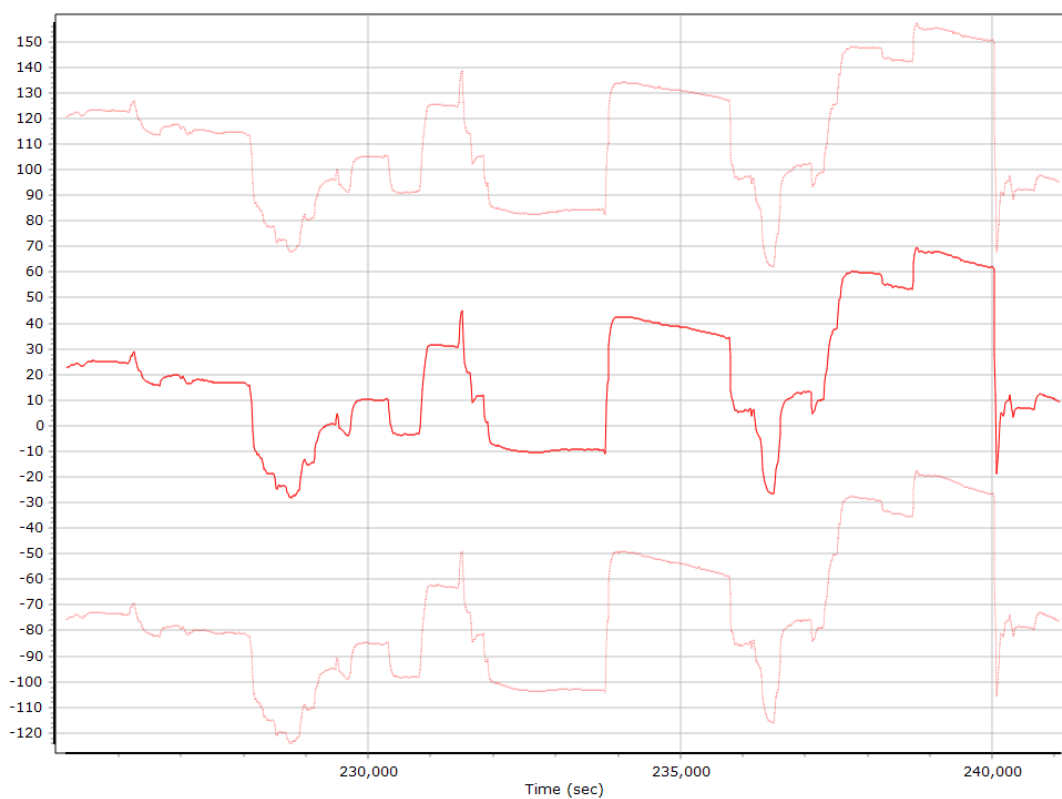
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

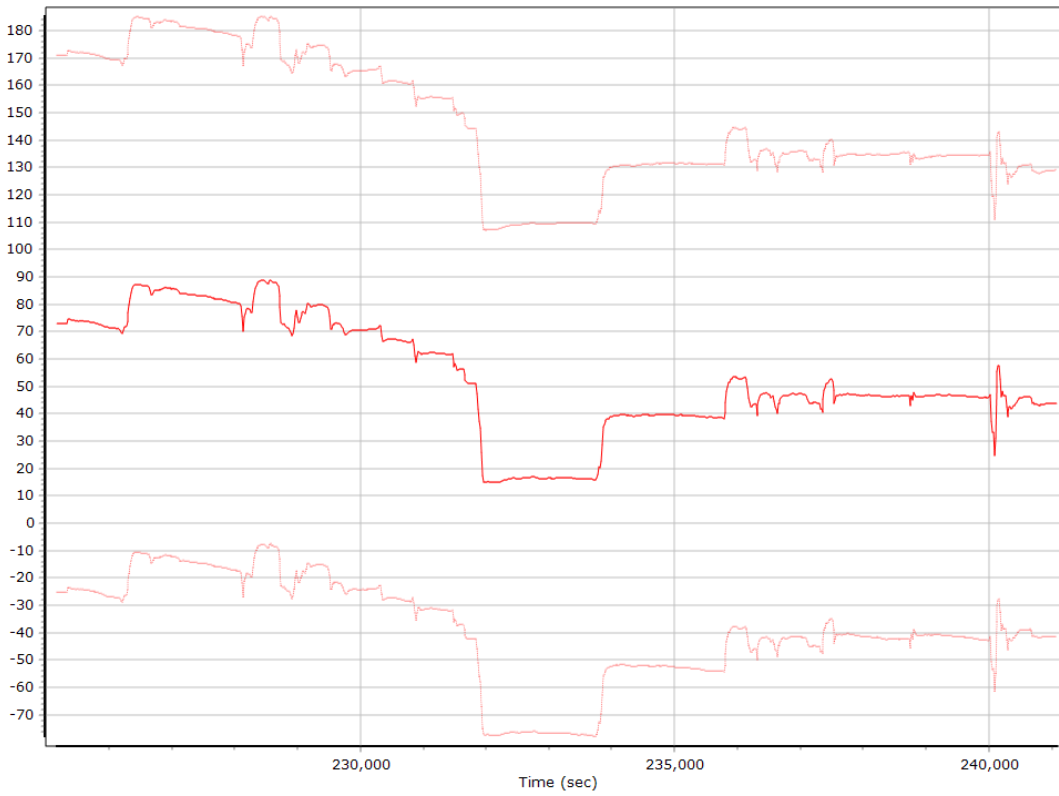
#### Accelerometer Bias (micro-g)



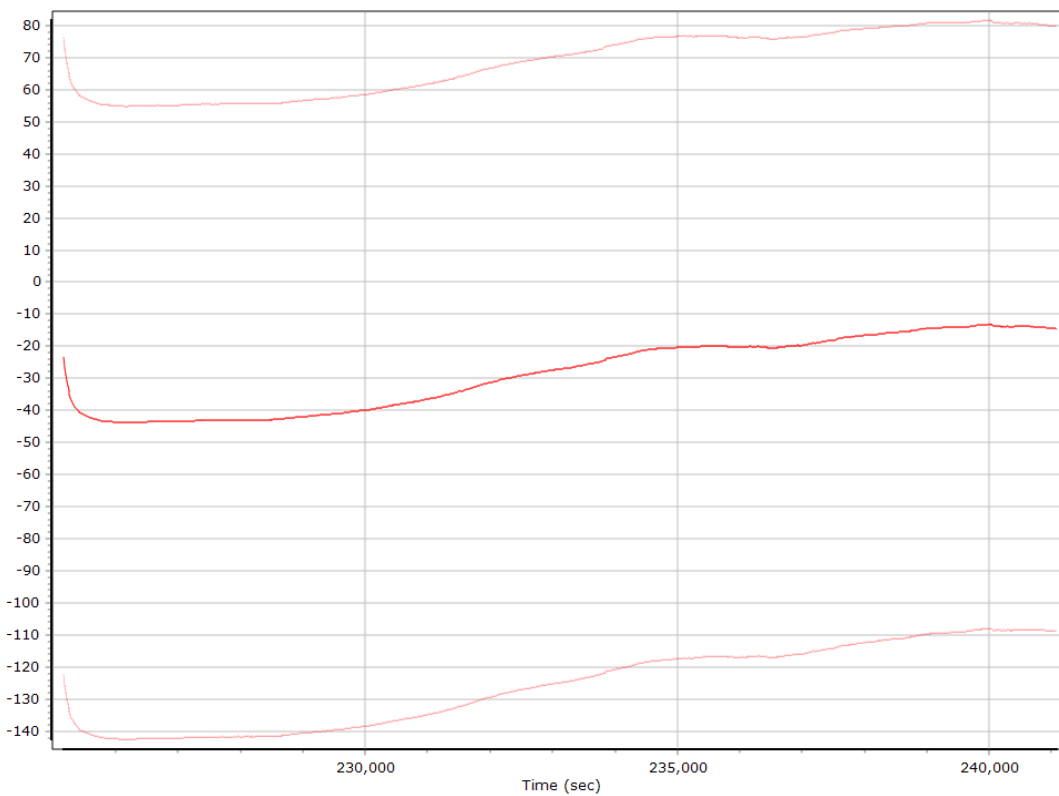
#### X Accelerometer Bias (micro-g)



### Y Accelerometer Bias (micro-g)



### Z Accelerometer Bias (micro-g)



### Accelerometer Scale Error (ppm)



### X Accelerometer Scale Error (ppm)



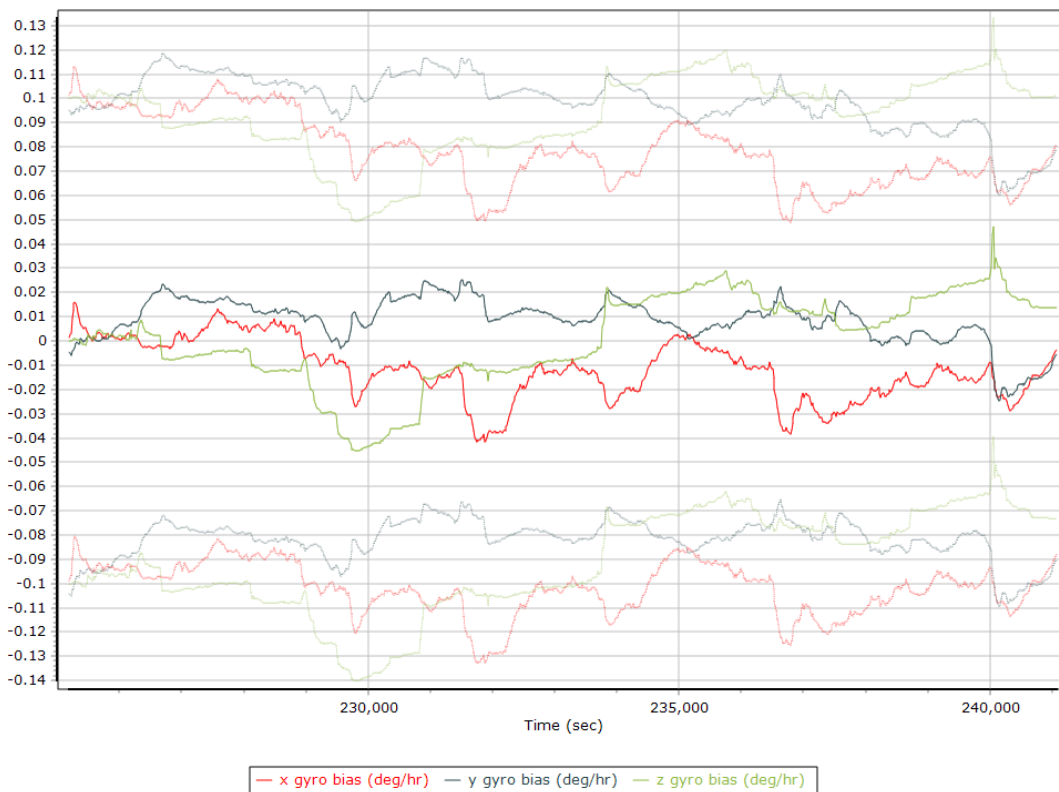
### Y Accelerometer Scale Error (ppm)



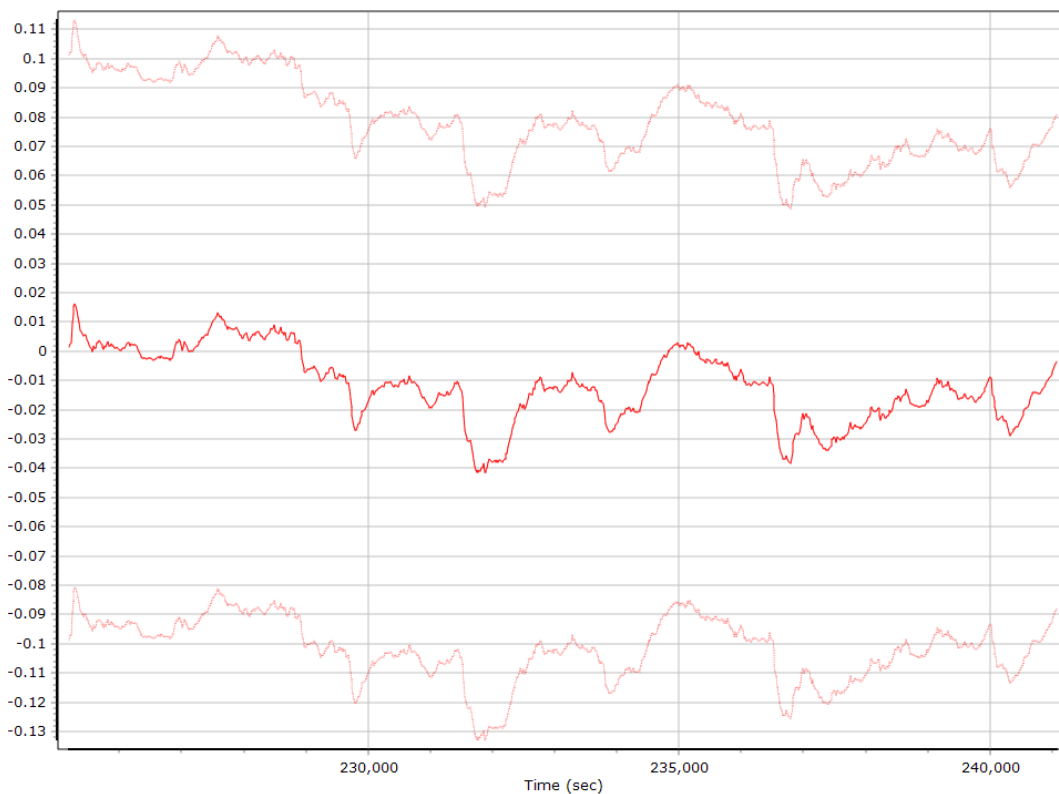
### Z Accelerometer Scale Error (ppm)



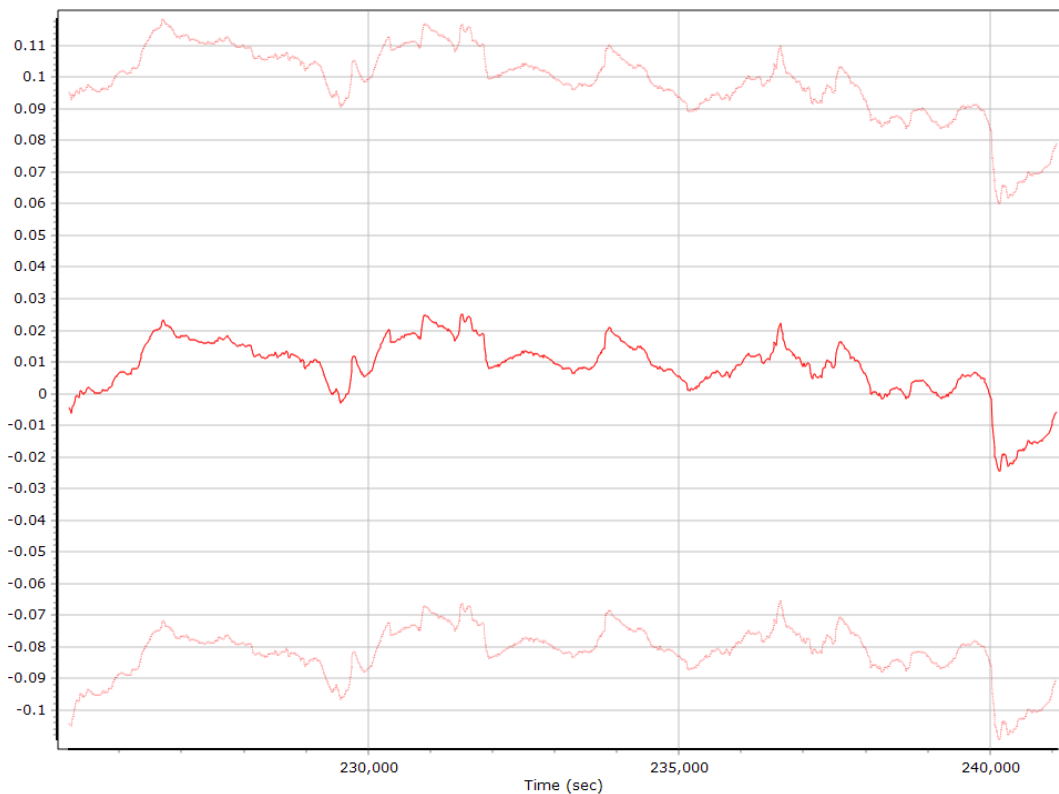
### Gyro Bias (deg/h)



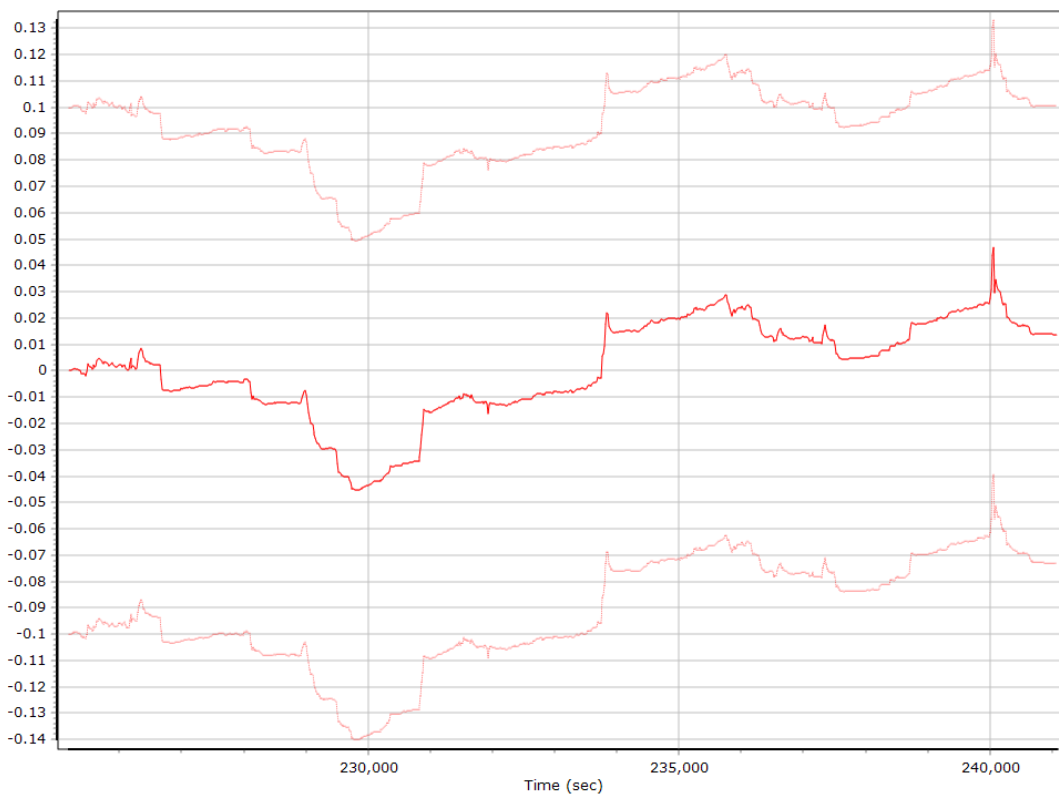
### X Gyro Bias (deg/h)



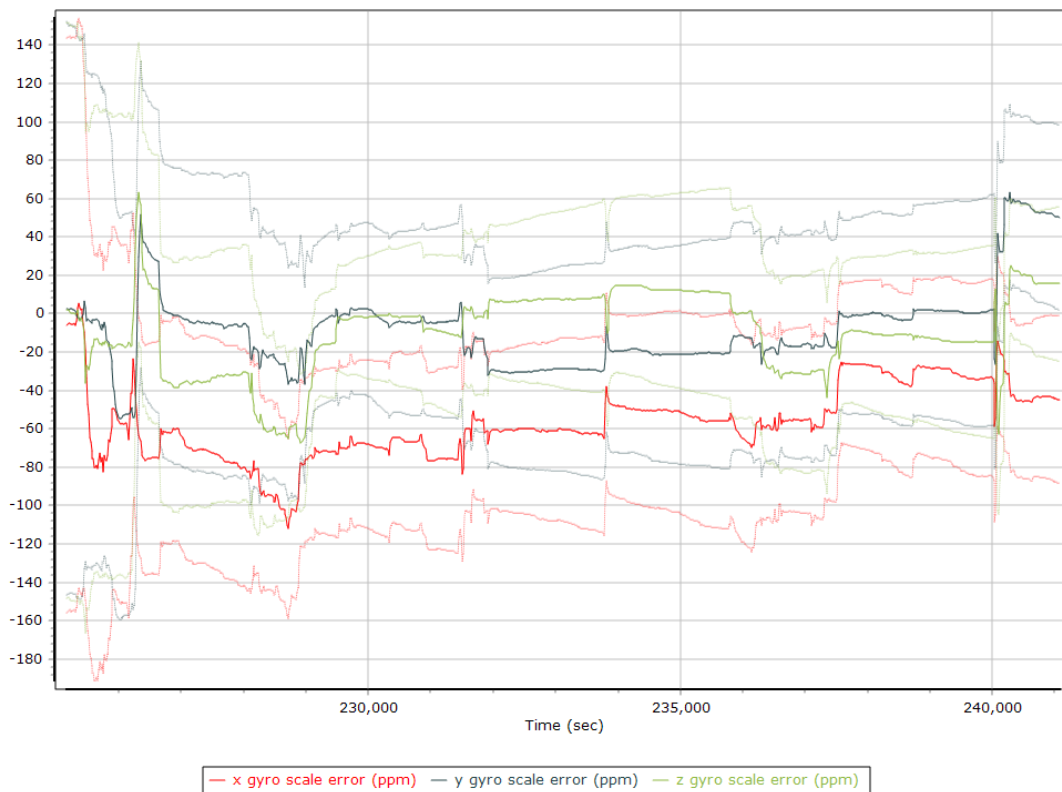
### Y Gyro Bias (deg/h)



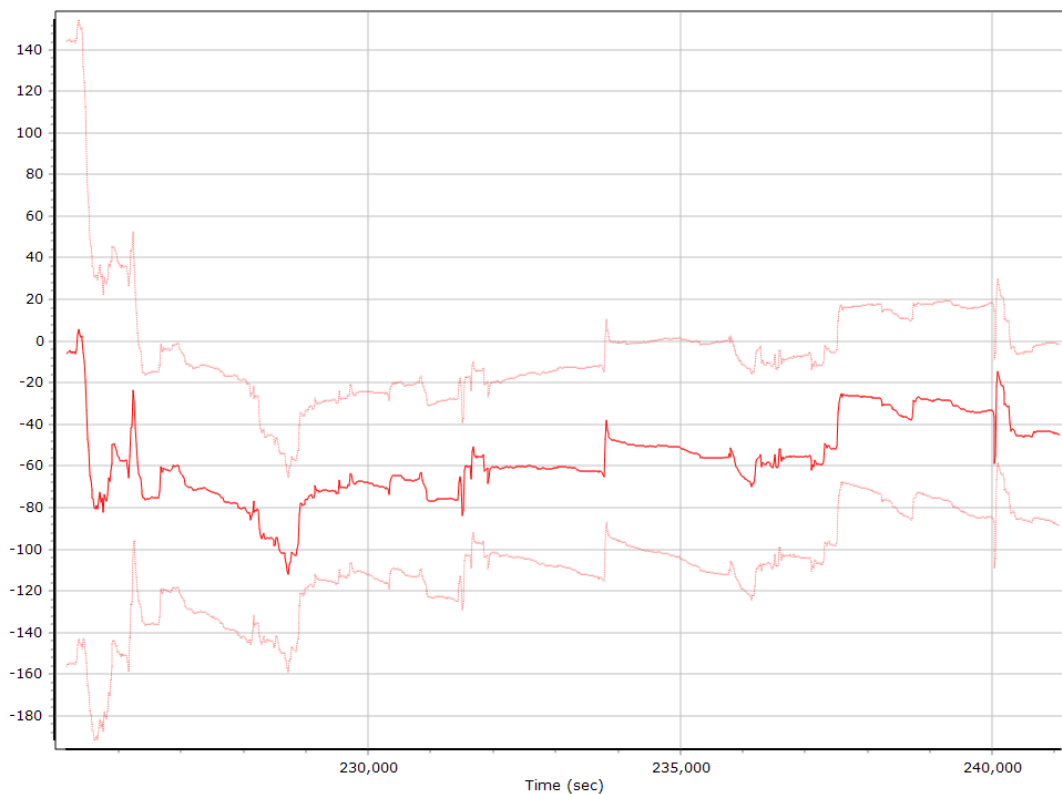
### Z Gyro Bias (deg/h)



### Gyro Scale Error (ppm)

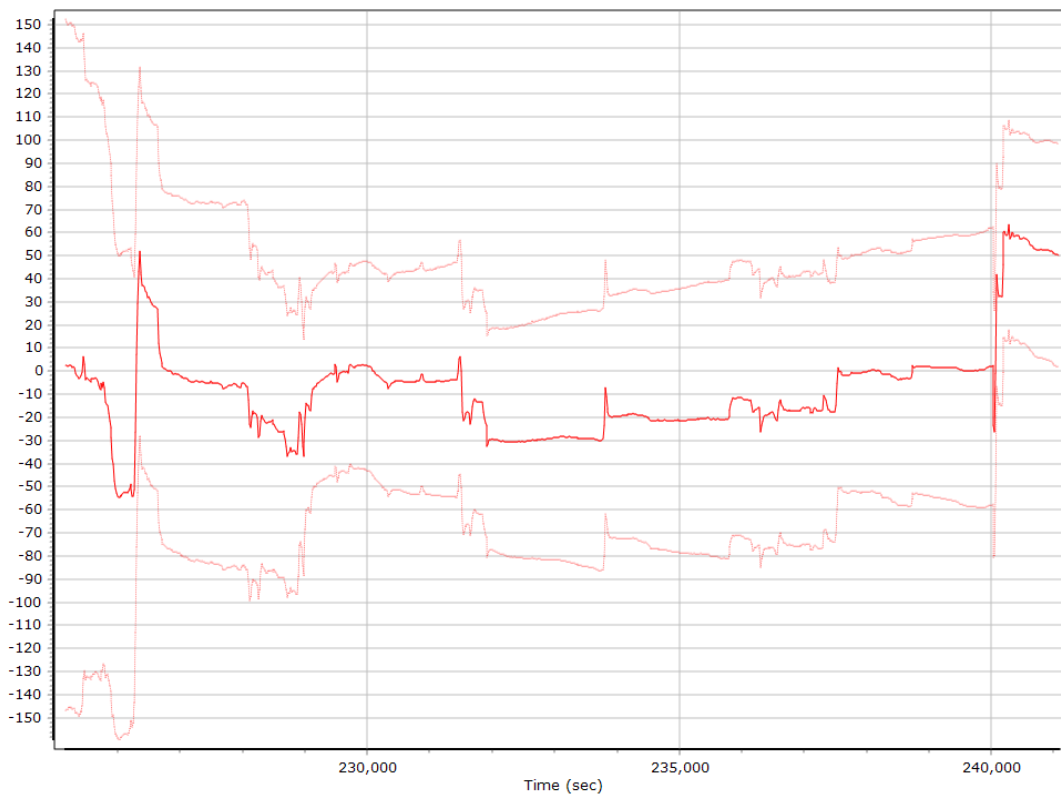


### X Gyro Scale Error (ppm)

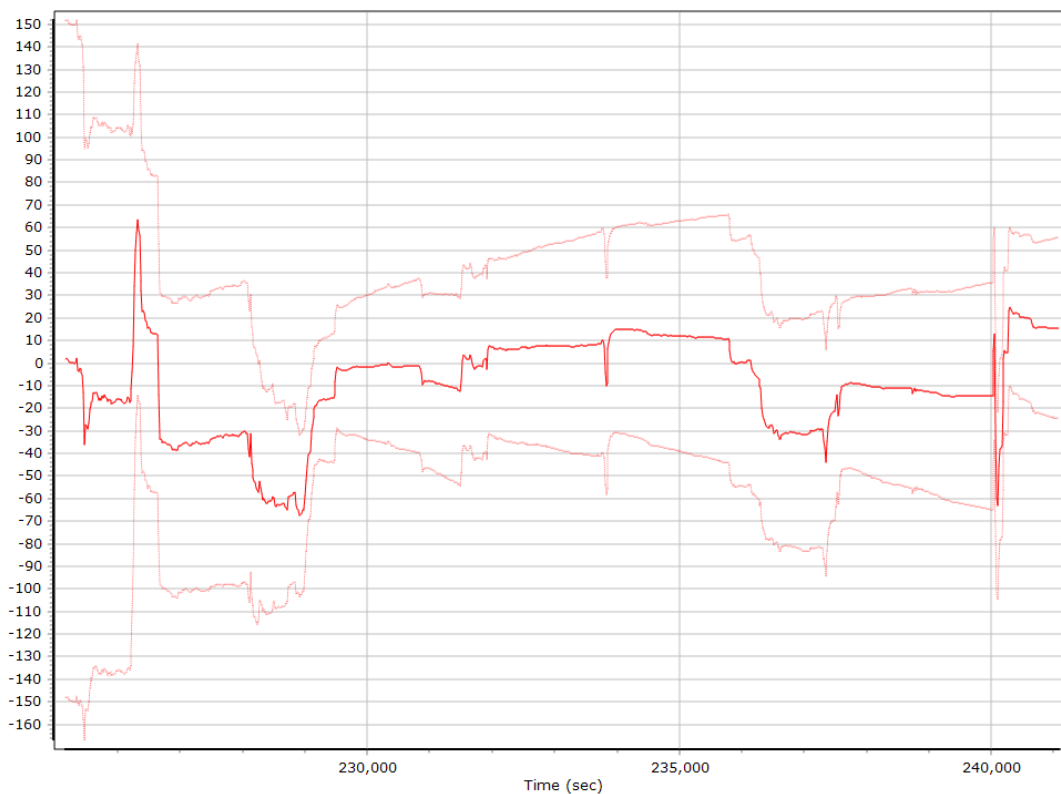




### Y Gyro Scale Error (ppm)

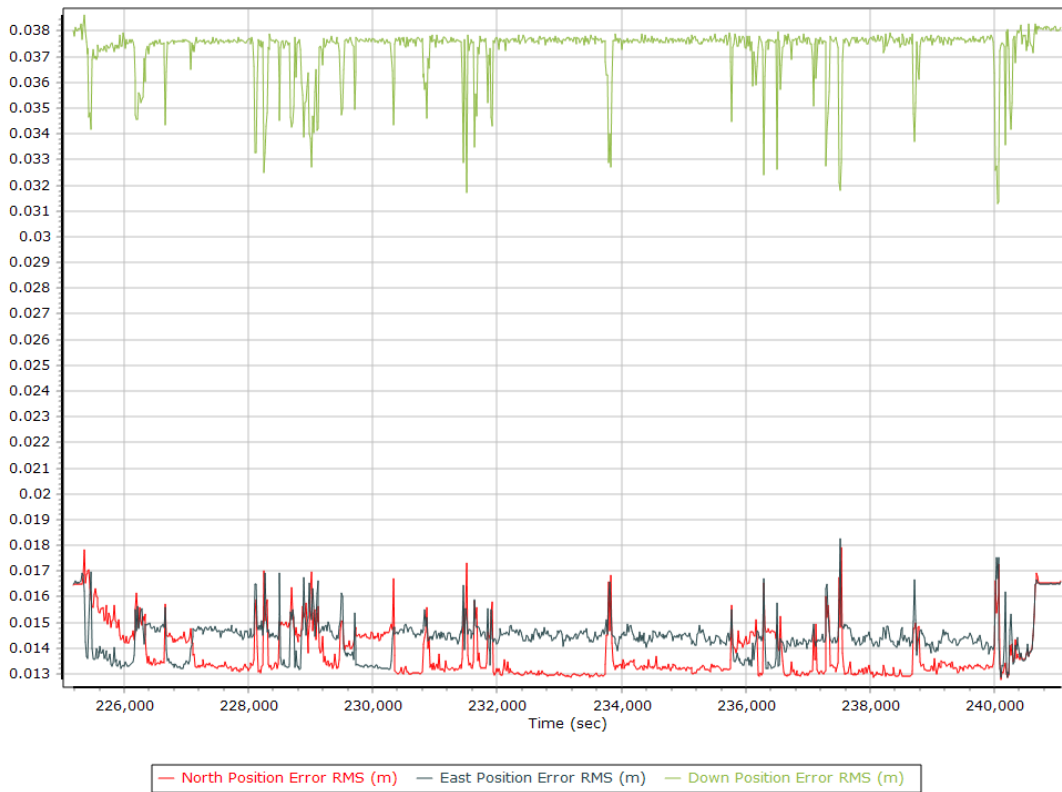


### Z Gyro Scale Error (ppm)

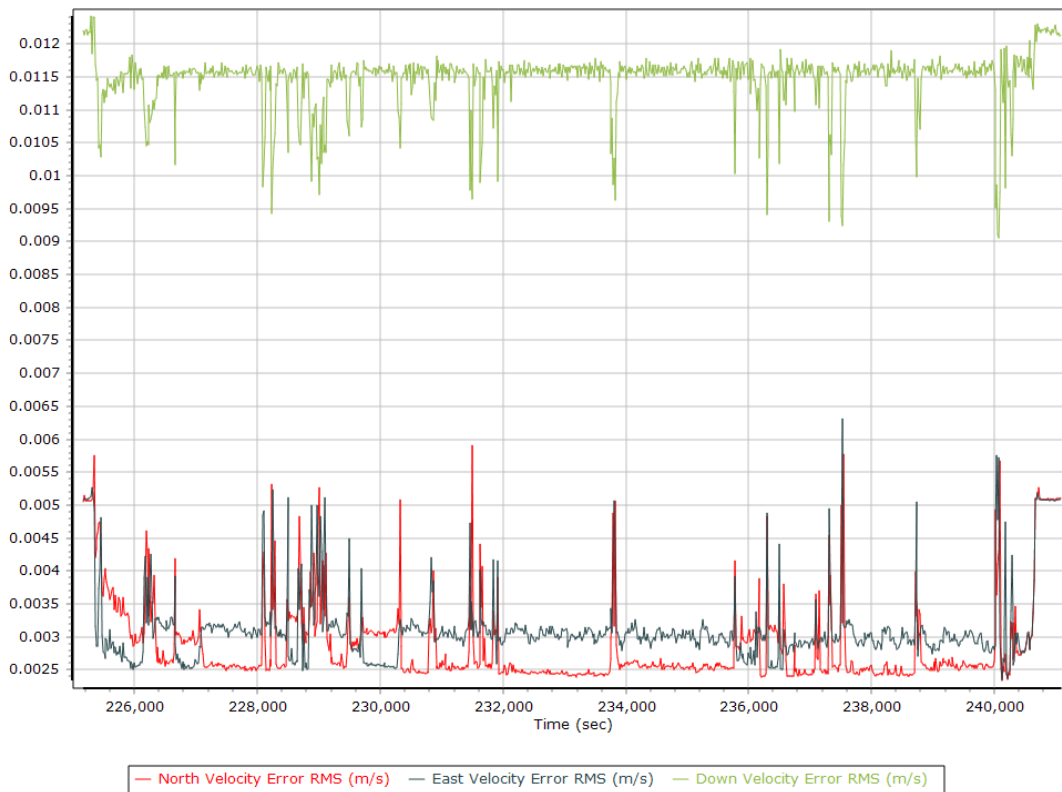


## Smoothed Performance Metrics

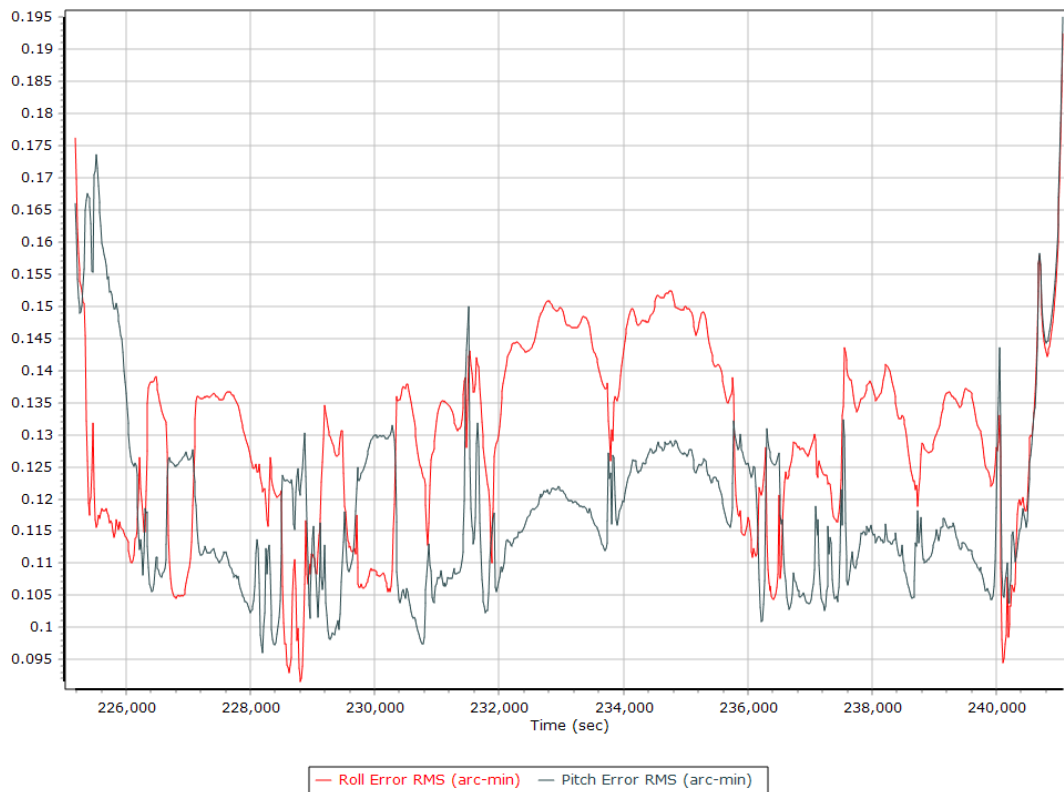
### Position Error RMS (m)



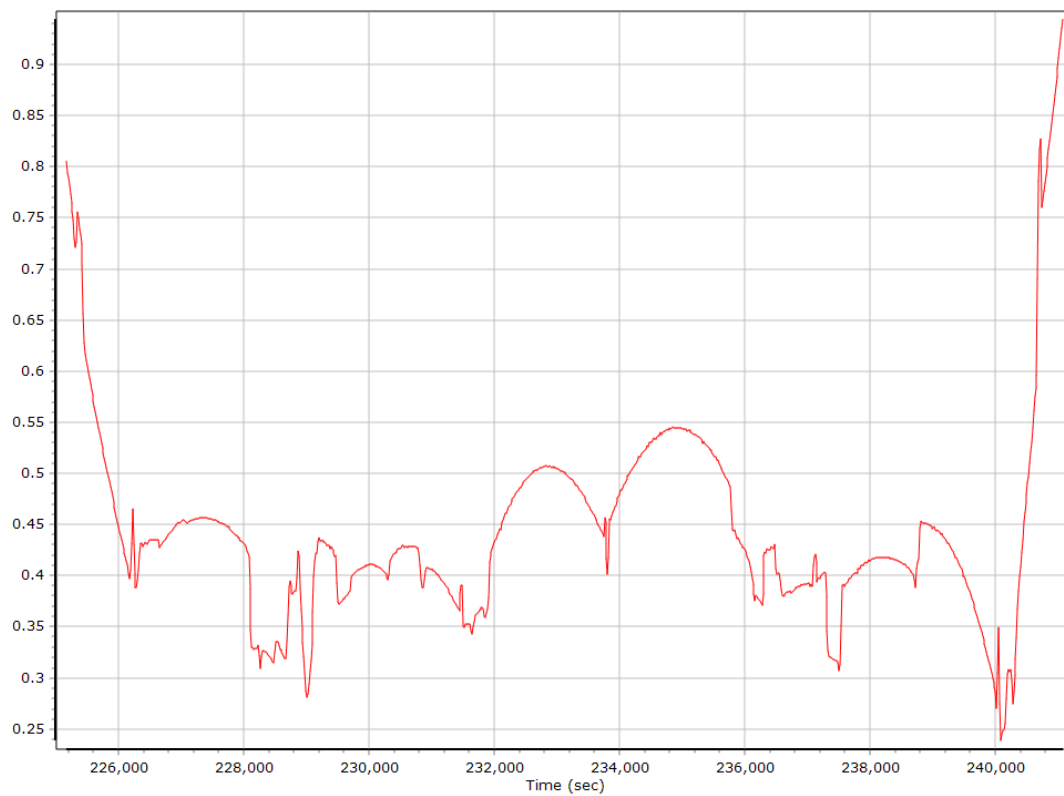
### Velocity Error RMS (m/s)



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

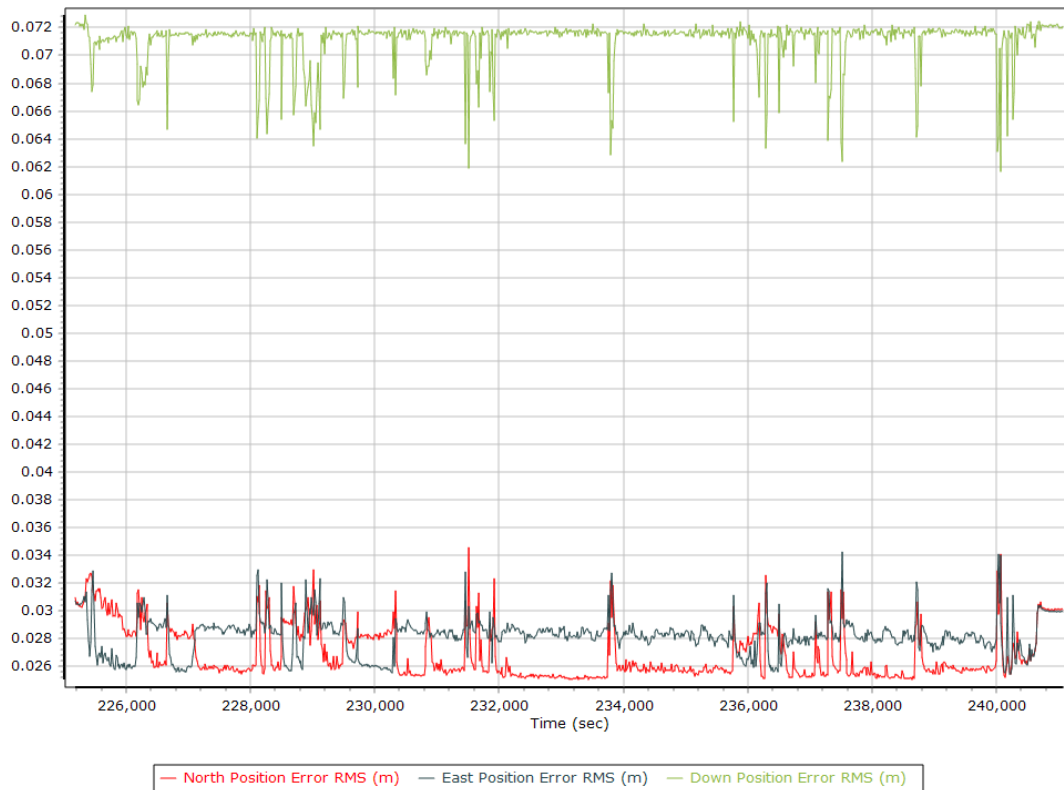


### Heading Error RMS (arc-min)

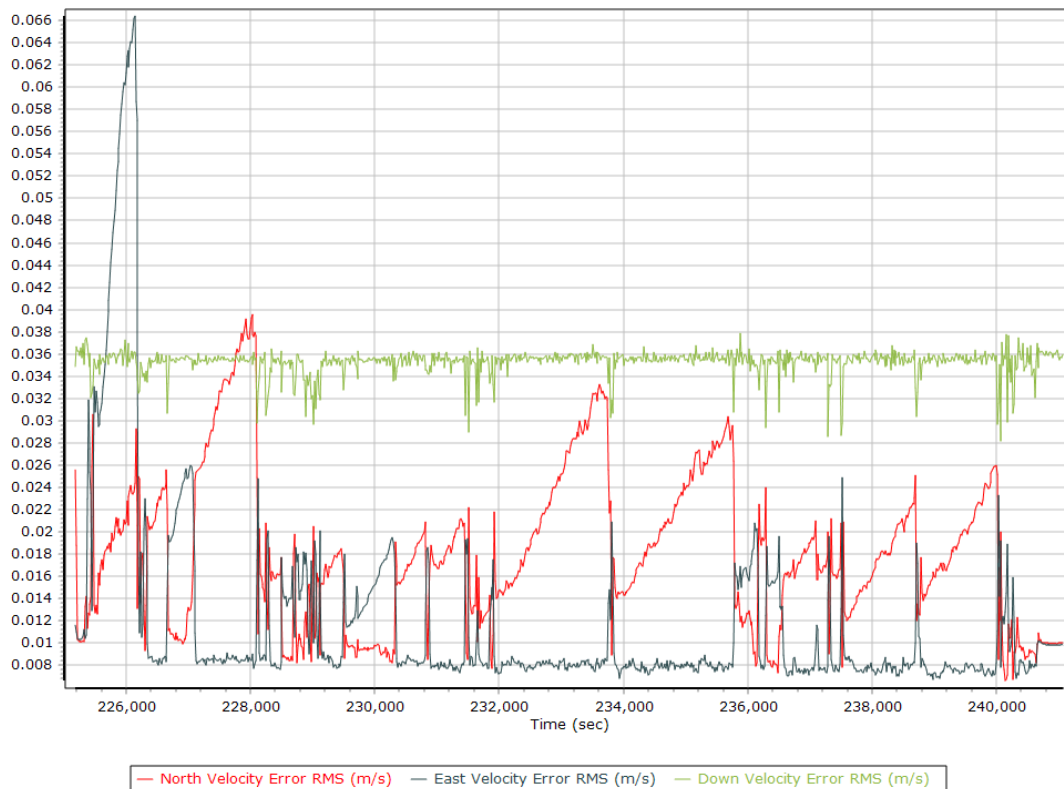


## Forward Processed Performance Metrics

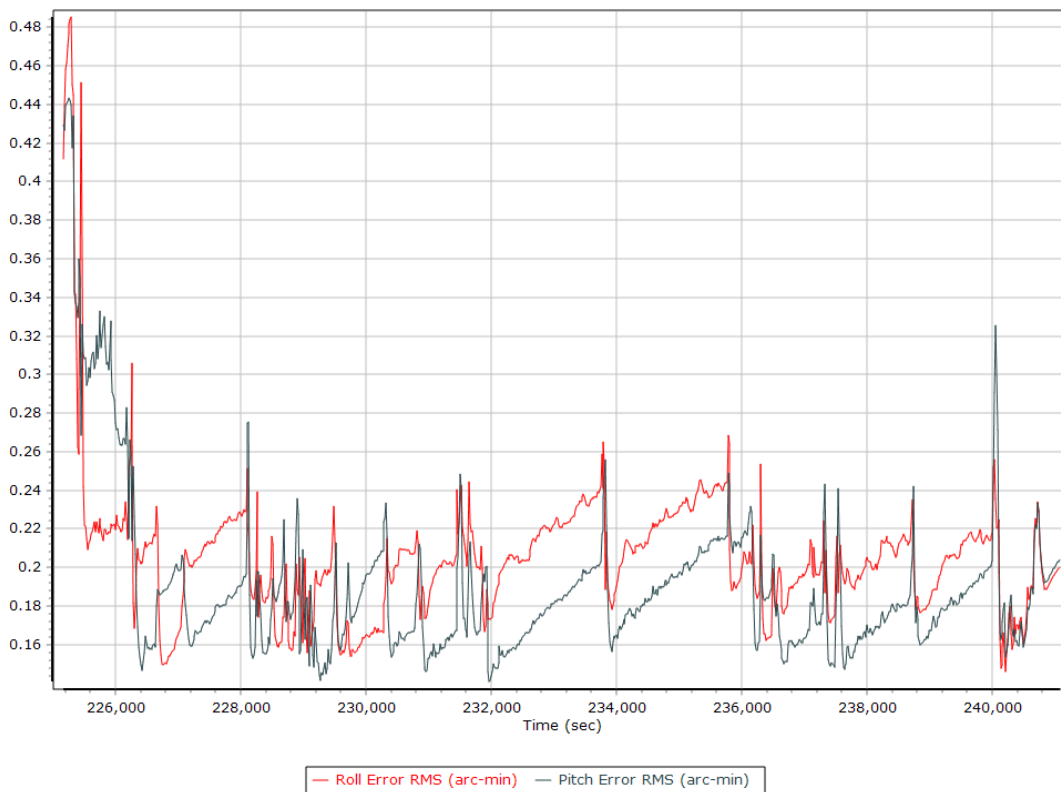
### Position Error RMS (m)



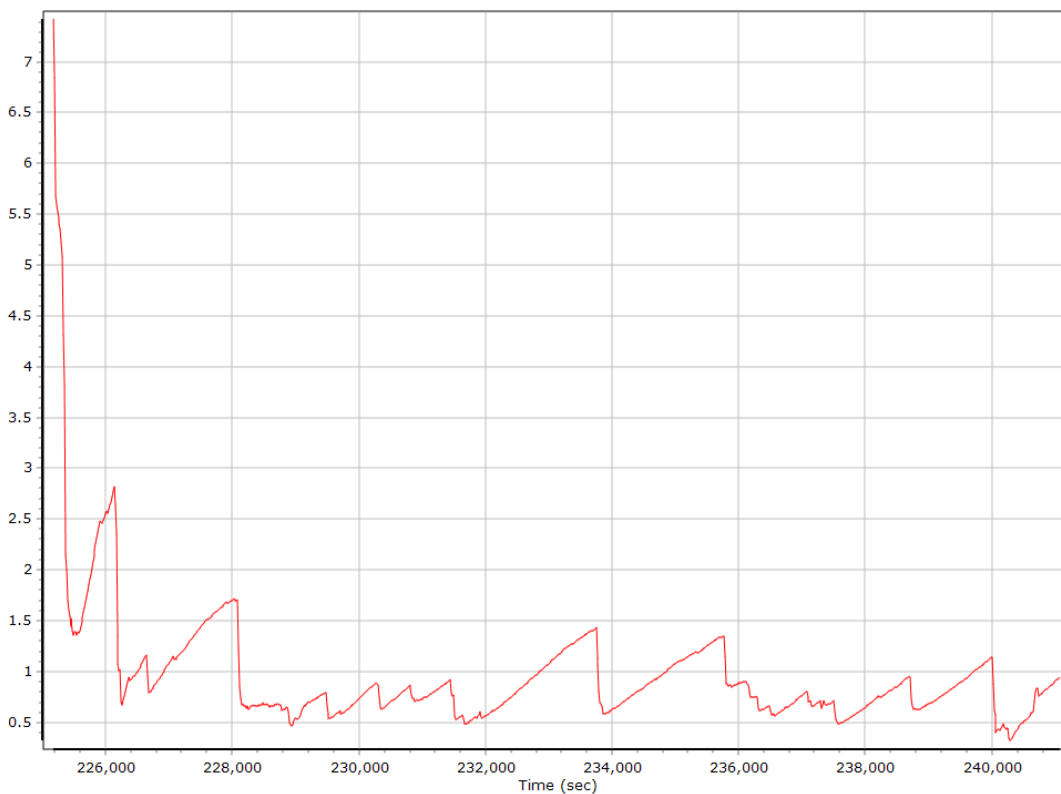
### Velocity Error RMS (m/s)



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

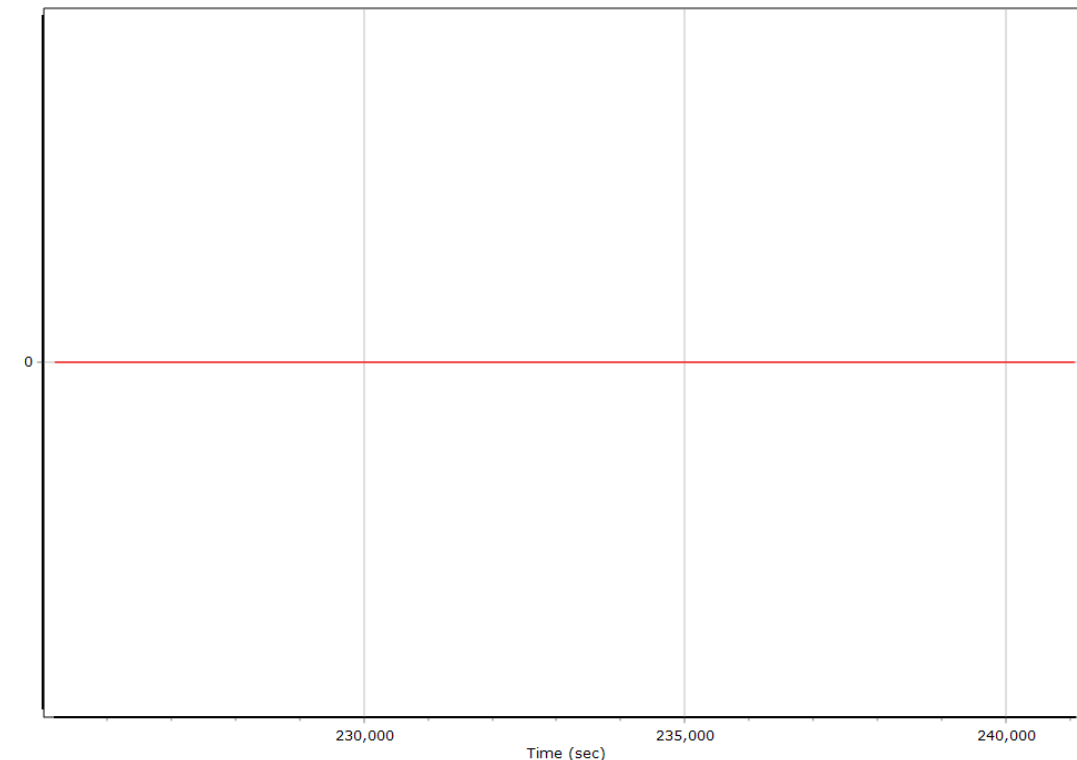


### Heading Error RMS (arc-min)



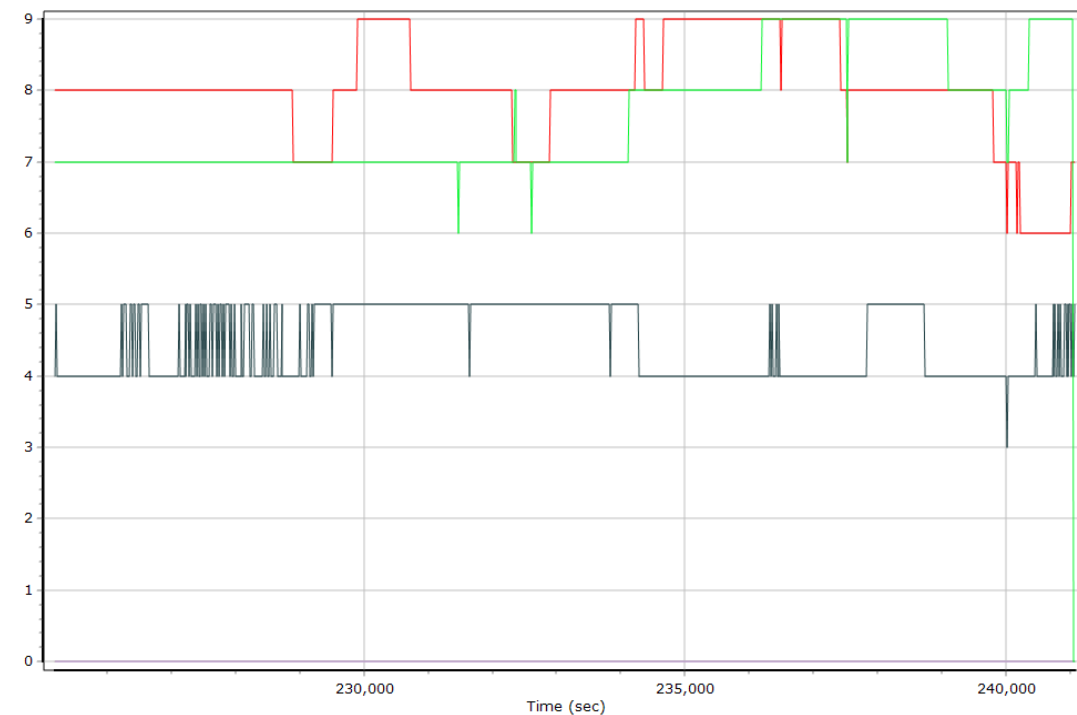
## Forward Processed Solution Status

### Processing Mode



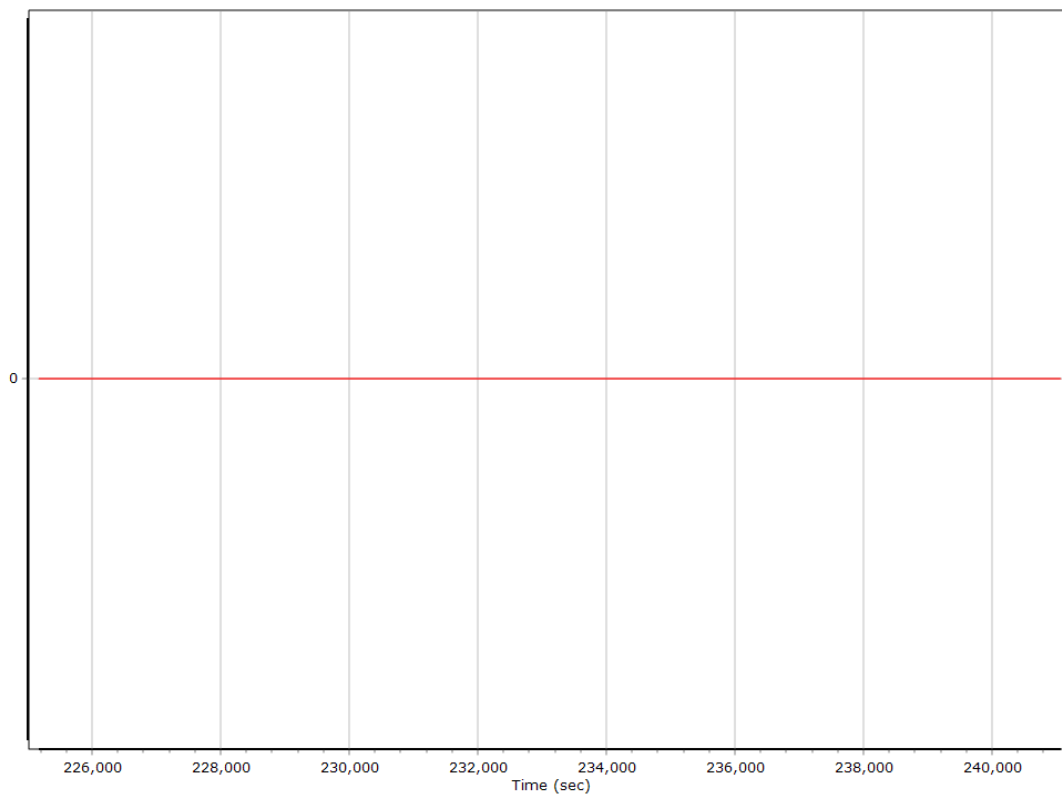
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Nav, 8 = DR

### 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

Export file	sbet_230620_A_5060475_nad2011_FINAL.shp		
Export format	Shapefile		
Solution in use	Post-processed		
Output rate	Specified Distance Interval		
Distance Interval (m)	10.000		
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	Deg Decimal	
Export start time	225114.002 (06/20/2023 14:31:36)		
Export end time	241090.000 (06/20/2023 18:57:52)		
Height option	Ellipsoid Height		
WGS84 height flag	False		
Grid	Universal Transverse Mercator		
Zone	UTM North 15 (96W to 90W)		
Datum	NAD83 (2011)		
Ellipsoid	GRS 1980		
Local Transformation	NONE		
Target Epoch	2023.465753		