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**Coconino, AZ**

**Project ID: 224808**

**Work Unit ID: 300220**

# Lidar Mapping Report

April 2022

## EXECUTIVE SUMMARY

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[The Sanborn Map Company, Inc.](#) (Sanborn) was tasked to provide remote sensing services in the form of lidar. Utilizing a multi-return system, Light Detection and Ranging (Lidar) detects 3-dimensional positions and attributes to form a point cloud. The high accuracy airborne system is integrated with both Global Navigation Satellite System (GNSS) and an Inertial Measure Unit (IMU) for accurate position and orientation. Acquisition of the project area's ~3516 mi<sup>2</sup> was completed on August 28<sup>th</sup>, 2022.

The VeriDaaS Geiger Mode Lidar (GML) was used to collect data for the aerial survey campaign. The sensor is attached to the aircraft's underside and emits rapid laser pulses that are used to calculate ranges between the aircraft and subsequent terrain below. The Airborne Lidar System (ALS) is boresighted by completing multiple passes over a known ground surface before the project acquisition. During data processing, the system calibration parameters are updated and used during post-processing of the lidar point cloud.

Differential GNSS unit in aircraft sampled positions at 2Hz or higher frequency. Lidar data was only acquired when GNSS PDOP is  $\leq 4$  and at least 6 satellites are in view. The atmosphere was free of clouds and fog between the aircraft and ground. The ground was free of snow and extensive flooding or any other type of inundation.

The contents of this report summarize the methods used to establish the base station coordinates, perform the lidar data acquisition and processing as well as the results of these methods.

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ALONG WITH THE REST OF THE SHAPEFILE METADATA, LOW CONFIDENCE POLYGONS WERE DELIVERED. IN A FEW ISOLATED, FLAT AREAS, SMALL UNDULATIONS/ARTIFACTS CAN BE SEEN IN THE SURFACE. THESE APPEAR TO HAVE BEEN CAUSED BY A MINOR SENSOR ANOMALY DURING COLLECTION. AFTER DISCUSSING THE ISSUE WITH THE DATA-COLLECTION PROVIDER, THE ARTIFACTS WERE SOMETHING THAT COULD NOT BE CORRECTED THROUGH REPROCESSING. ALTHOUGH VISUALLY NOTICEABLE, THEY ARE WITHIN THE ERROR SPECIFICATIONS OF THE PROJECT. THE ABSOLUTE VERTICAL ACCURACY OF THE PROJECT WAS NOT AFFECTED. THE LOW CONFIDENCE POLYGONS WERE MANUALLY CREATED THROUGH HEADS-UP DIGITIZATION AND PROVIDED IN SHAPEFILE FORMAT (.SHP).	
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## 1.0 INTRODUCTION

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This document contains the technical write-up of the lidar campaign, including system calibration techniques, and the collection and processing of the lidar data.

### 1.1 Contact Information

Questions regarding the technical aspects of this report should be addressed to:

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### 1.2 Purpose of Lidar Acquisition

The objective of this project is to collect accurate measurements of the bare-earth surface as well as above ground features to be provided as geometric inputs for surface and/or change modeling as is relates survey assessments.

### 1.3 Project Location

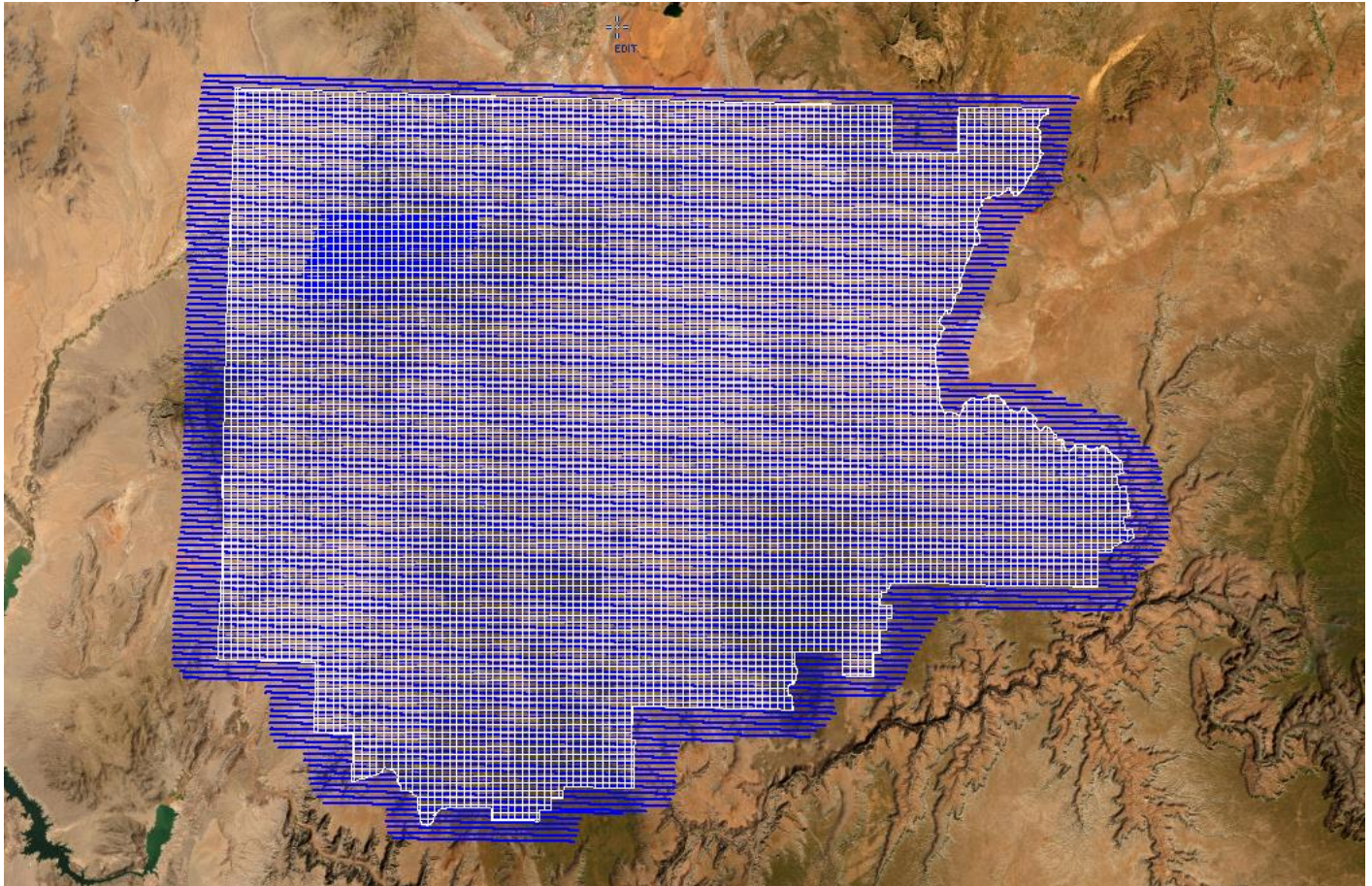


Figure 1: Tile Index and Trajectories As-Flown

## 2.0 ACQUISITION

### 2.1 Introduction

This section outlines the lidar system, flight reporting, and data acquisition methodology used during the collection of the lidar campaign. Although Sanborn conducts all lidar missions with the same rigorous and strict procedures and processes, all lidar collections are unique.

### 2.2 Acquisition Parameters

Sanborn specifically defined the collection parameters to accomplish the desired project specifications. **Table 1** shows the planned acquisition parameters utilized for this aerial survey with the sensor(s) installed.

Planned Acquisition Parameters		
Aircraft	N3533Q - SA2270DC	
Sensor	VeriDaaS Geiger Mode LiDAR	
Maximum Number of Returns	1	
Point Spacing (m)	0.35	*
Point Density (pts/m <sup>2</sup> )	8	*
Flying Height (AGL) (m)	4,700	
Ground Speed (kts)	220	
Field of View (deg)	15	
Scan Rate (Hz)	15.77	
Pulse Rate (kHz)	50	
Laser Footprint (m)	0.16	
Wavelength (nm)	1,064	
Multi-Pulse	Yes	
Swath Width (m)	2,100	
Overlap (%)	55	

\* for data as delivered. Data collected at higher density; +30 ppsm

Table 1: Lidar Acquisition Parameters

### 2.3 Field Work Procedures

Sanborn's standard procedure before every mission is to perform pre-flight checks to ensure correct operation of all systems. All cables were checked, and the sensor head glass was cleaned. A three-minute static session was conducted on the ground with the engines running prior to take-off to establish fine-alignment of the IMU and to resolve GNSS ambiguities.

The project acquisition consisted of Thirty-two (32) mission(s). During the data collection, the operator recorded information on log sheets which includes weather conditions, lidar operation parameters, flight line statistics and PDOP.

Preliminary data processing was performed in the field immediately following the missions for quality control of GNSS data and to ensure sufficient coverage of the project AOI. Any problematic data could then be re-flown immediately as required. Final data processing was completed in the Colorado Springs, CO office. **Table 2** below shows the flight acquisition metrics for the entire collection.

Sortie ID	Date	Tail #	Flight Duration	Number of Lines	Approximate Line Miles	Approximate Area
a07-s03-0503	6/27/2022	N3533Q	3.5	15	188	92
a07-s03-0504	6/29/2022	N3533Q	1.5	7	111	54
a07-s03-0505	6/30/2022	N3533Q	4	18	625	318
a07-s03-0506	7/1/2022	N3533Q	6	14	834	419
a07-s03-0507	7/2/2022	N3533Q	5	11	830	443
a07-s03-0508	7/6/2022	N3533Q	5	17	609	306
a07-s03-0513	7/18/2022	N3533Q	2.2	4	332	157
a07-s03-0514	7/19/2022	N3533Q	4.2	7	578	275
a07-s03-0515	7/20/2022	N3533Q	4.9	11	882	419
a07-s03-0516	7/22/2022	N3533Q	5	12	839	405
a07-s03-0522	8/19/2022	N3533Q	5.7	14	960	466
a07-s03-0523	8/22/2022	N3533Q	5.8	13	943	472
a07-s03-0524	8/28/2022	N3533Q	5	12	904	468

Table 2: Collection Date by Mission

## 3.0 PROCESSING

### 3.1 Introduction

The GNSS/IMU data was post-processed using Applanix POSPac MMS software to create Smoothed Best Estimate Trajectory (SBET) file(s). The SBET was then combined with the laser range measurements in VeriDaaS Software to produce the 3-dimensional coordinates resulting in an accurate set of Raw Point Cloud (RPC) mass points. These raw swath (\*.las) files are output in WGS84, UTM, Ellipsoid, Meters and transformed to the project Coordinate Reference System (CRS) upon ingest into GeoCue.

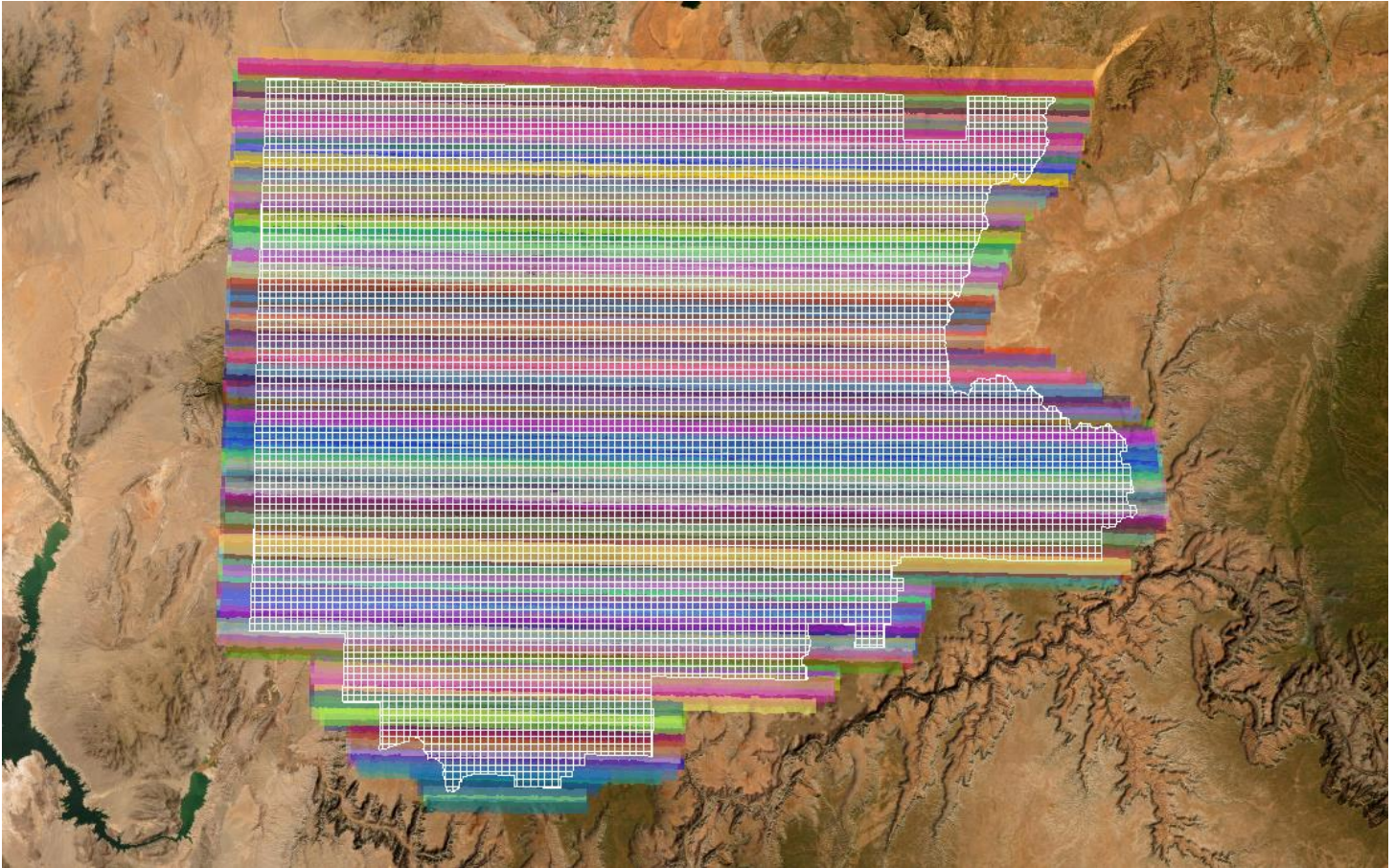


Figure 2: Raw Swath Coverage

The VeriDaaS Software pre-processing software created raw swath files with all return values. This multi-return information was processed and classified to obtain the required feature for delivery. All lidar data is processed using the ASPRS binary LAS format version 1.4. **Table 3** illustrates the achieved point cloud statistics.

Category	Value
Aggregate Total Points	158,120,031,275
Aggregate Nominal Pulse Spacing (m)	0.26
Aggregate Nominal Pulse Density (pls/m <sup>2</sup> )	14.8
Aggregate Nominal Pulse Spacing (ft)	0.85
Aggregate Nominal Pulse Density (pls/ft <sup>2</sup> )	1.4

Table 3: Point Cloud Statistics

VeriDaaS's Geiger-Mode Lidar sensor collects over 200 million measurements each second. The culmination of those measurements results in every spot on the ground being illuminated dozens of times from multiple angles to build an accurate model of the terrain. This vast amount of raw data is resolved in our proprietary software, which compares each discrete measurement within the collection of measurements to determine the most probable points to represent the surface.

It all begins with the GmAPD (Geiger-Mode Avalanche Photo Diode) sensor that has the potential to capture up to 4,096 detections each laser pulse with its 32 x 128 pixel array. Each actual detection records meta data such as time, scanner angle, time of flight (of the laser pulse), and navigation solution information. The laser generates 50,000 such pulses per second each with metadata enabling subsequent processes to determine X,Y,Z position for each detection. The amalgamation of these is an un-filtered point cloud that is an interim product prepared for a final aggregation step which selects the best points that best characterize the surface.

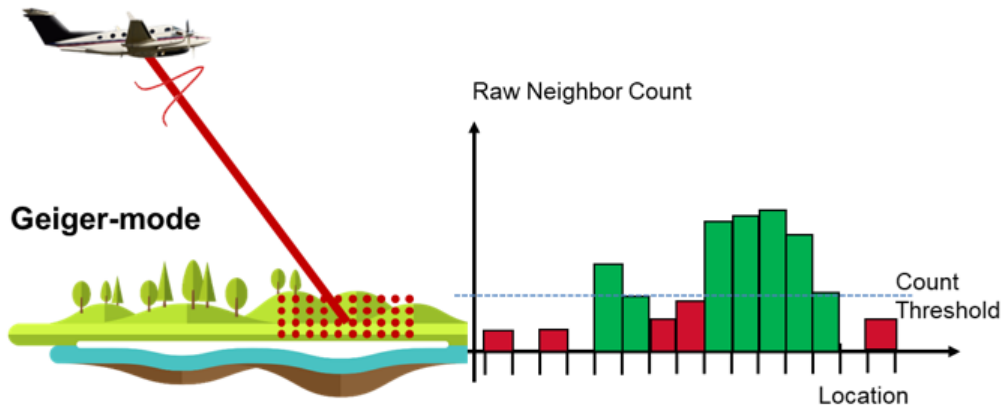


Figure 3: Individual Detections Grouped by Location

Depending on the initial collection parameters, the data can produce final point clouds of varying densities to meet the needs of specific end uses. Once an output density is chosen, 3D cells are created known as a Voxel matrix whose size is governed by the selected density. The size of the cells is set to guarantee the density on flat terrain so when vertical features like vegetation and buildings are present, the resultant density is higher. For the given Voxel matrix, the software compares the numerous unfiltered points within that cell to each other as well as the neighboring cells and statistically selects the best point to represent that location. It repeats this process for all the Voxel cells until a calibrated point cloud is determined for the selected resolution. The result of the entire process is a highly uniform, accurate representation of the surface.

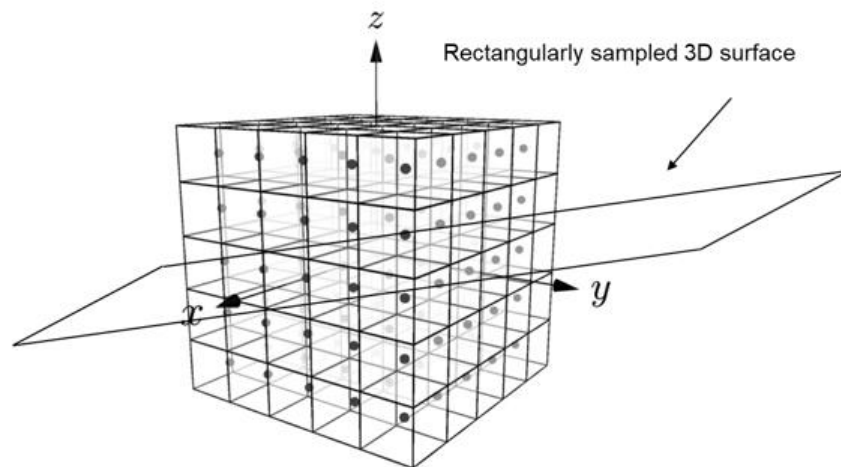


Figure 4: 3D Voxel Matrix

In the case where a higher resolution point cloud was initially created, a lower density product can be down sampled by decimating, however, this is less precise method than rebuilding the lower density product from the start utilizing all of the points within the original unfiltered point cloud to determine the best point to represent the specified Voxel cell. For all USGS deliveries, VeriDaaS is creating the product at the delivered density to provide the best representation of the surface.

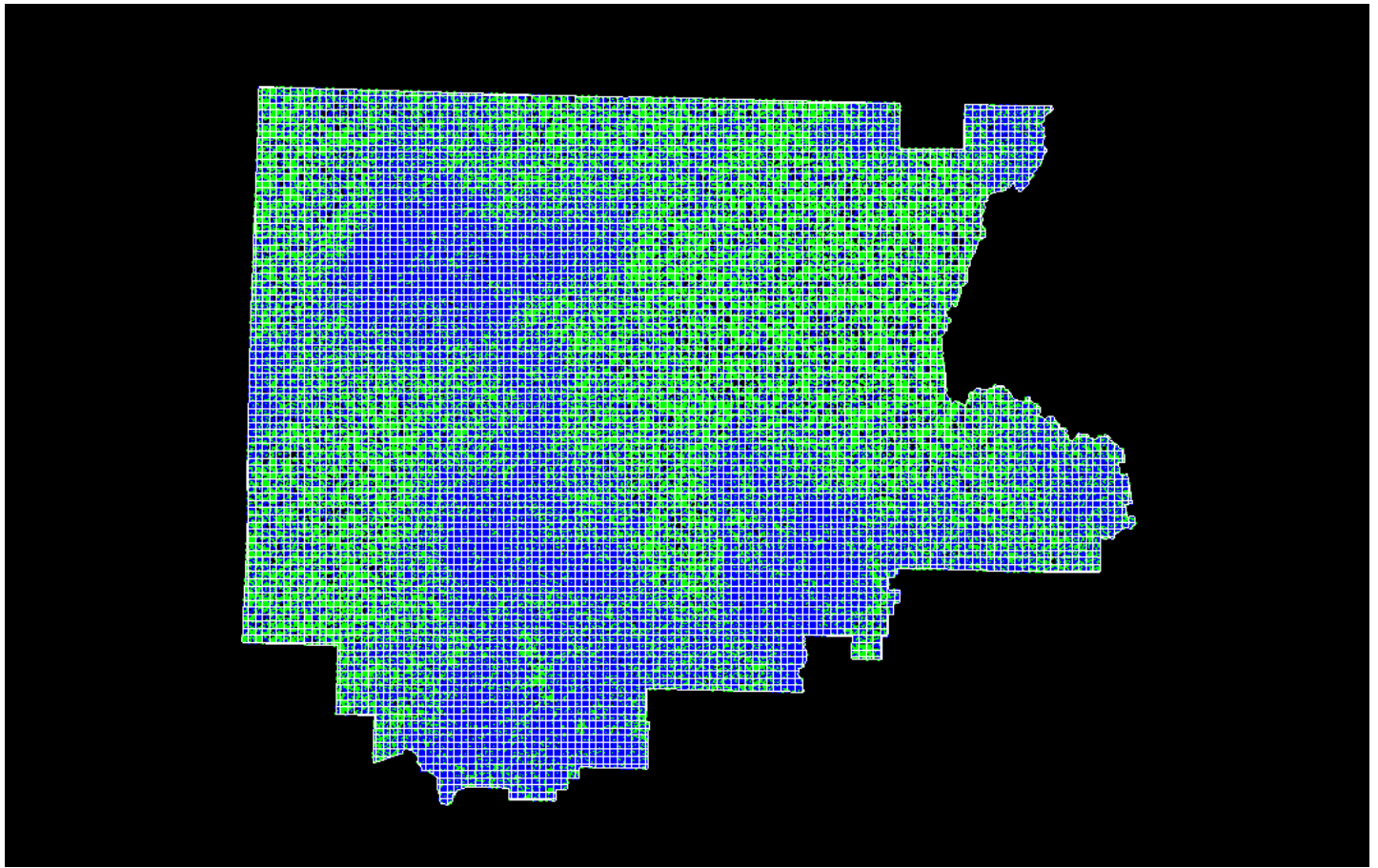


Figure 5: Point Cloud Density

### 3.2 Coordinate Reference System

**Horizontal Datum:** North American Datum of 1983 (2011)  
**Projection:** Universal Transverse Mercator Zone 12 North  
**Vertical Datum:** North American Vertical Datum of 1988  
**Geoid Model:** Geoid18  
**Units:** Meters



### 3.3 Lidar Matching

Sanborn uses pre-processing software and the latest boresight values to combine the processed SBET with the laser scan files to produce the lidar point cloud. The data is processed by mission and/or block and is output in ASPRS LASv1.4 Point Data Record Format (PDRF) 6 with 16bit linearly scaled intensities to the nearest 0.001 3D position. Each mission is produced in WGS84, UTM, Ellipsoid, Meters and transformed to the project CRS upon import into GeoCue.

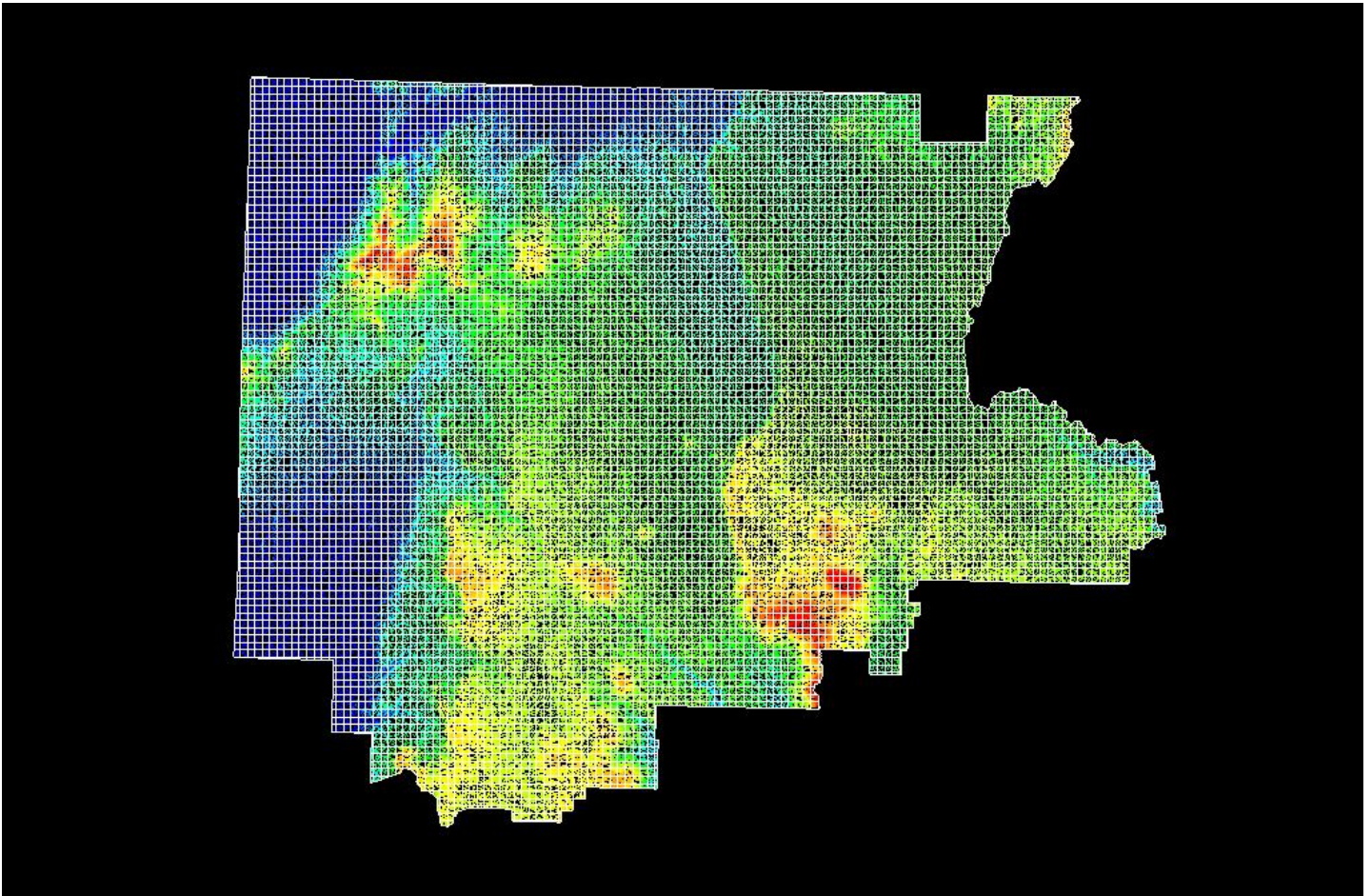


Figure 6: Point Cloud Elevation

To determine the relative accuracy for the VeriDaaS Geiger Mode Lidar system, key information is utilized during the data processing. The process employs a Bundle Adjustment approach to optimize the flight line trajectories by minimizing “pseudo tie points” within the project boundary. The finalized Adjustment files provide residuals (or errors) for each “pseudo tie point” and these can then be used to understand a Geiger Mode’s relative accuracy. The concept of using a Bundle Adjustment is very similar to the photogrammetric approach applied during photo surveys. There are two differences between photogrammetric surveys and GML surveys. First, the GML process uses “pseudo tie points” in the Bundle Adjustment. These pseudo tie points are small lidar point cloud chips from overlapping flight lines that are then compared. Because the chips come from overlapping flight lines there will be residuals in these point clouds – that is, differences in the spatial locations. Typically, road intersections, building edges, and other “hard targets” are used in the process.

In this sense these point cloud chips act like traditional photogrammetry tie points. The second difference is the number of tie points used. The GML process uses many tens of thousands of tie points in the Bundle Adjustment, whereas a photogrammetry session would typically use far less. As would be expected, once the Bundle Adjustment has been run, the resulting output are optimized flight line trajectories such that each pseudo tie point (point cloud chip) residual has been minimized. **Figure 7** shows how the Bundle Adjustment works for the GML data. On the left, the pre and post corrected point cloud chips are shown (before and after the adjusted trajectory). On the right, the adjustments in the trajectory are shown via the effects those adjustments have on the 3D point cloud.

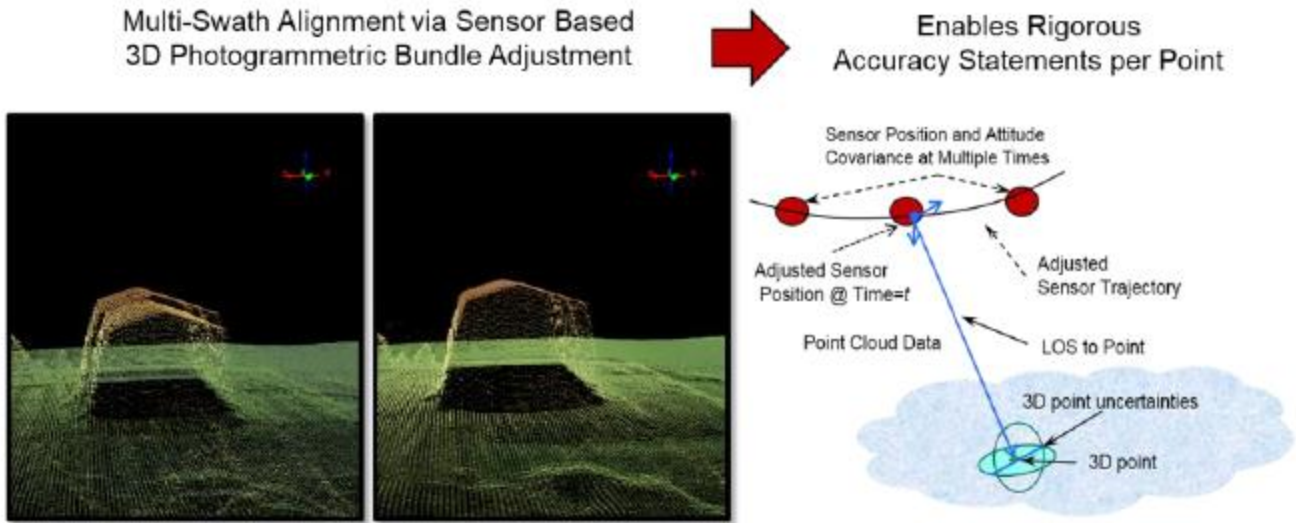


Figure 7: Photogrammetric Style Bundle Adjustment

After the Bundle Adjustment is complete, the final pseudo tie point residuals from the adjustment report are harvested. In these reports, each tie point not only details the 3D residual but also the geo location. This allows the process to plot these residuals geo-spatially across the project.

To provide a graphic like the USGS expectation for the Swath Separation Images, a geospatial plot of the vertical residuals ( $\sigma_v$ ), color-coded with the following schema can be provided:

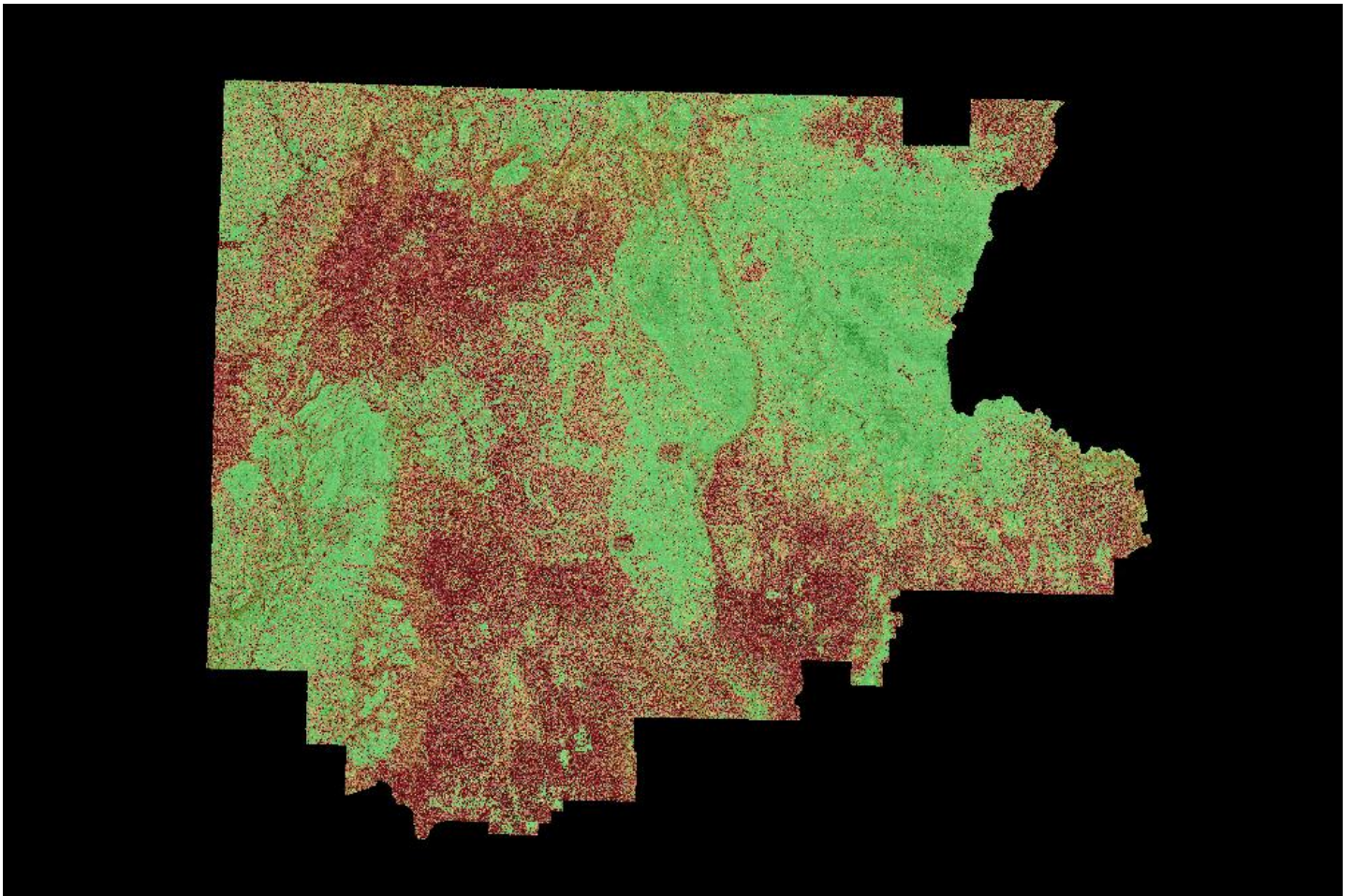
- All residuals with an absolute vertical error less than 8 cm are green:  $\sigma_v < 8$  cm
- All residuals with an absolute vertical error between 8 and 16 cm are yellow:  $8 \text{ cm} \leq \sigma_v \leq 16 \text{ cm}$
- All residuals with an absolute vertical error greater than 16 cm are red:  $\sigma_v > 16$  cm

This vertical residual color-coded plot can also be super-imposed over the lidar intensity image. This intensity image is important because it is an image layer that is captured at the same time as the lidar point cloud itself. This means there is zero temporal decorrelation. Also, the intensity image gives context to the residual plot and allows the observer to see why certain vertical errors may be large, e.g. due to certain terrain features or ground cover.

Sanborn takes advantage of both visual and statistical validation methodologies to review and ensure both the individual precision and alignment of the lidar dataset. Swath Precision Images are representative of the intraswath alignment and provide a holistic qualitative look at the goodness of fit within each swath. Swath Separation Images are representative of the interswath alignment and provide a holistic qualitative look at the positional quality of the point cloud. The images are reviewed in their entirety. This visual and statistical review guarantees the relative accuracy of the lidar dataset. **Table 4** outlines the relative accuracy requirements of the project. **Figure 10** is the achieved relative accuracy distribution generated from the pseudo tie point residuals .

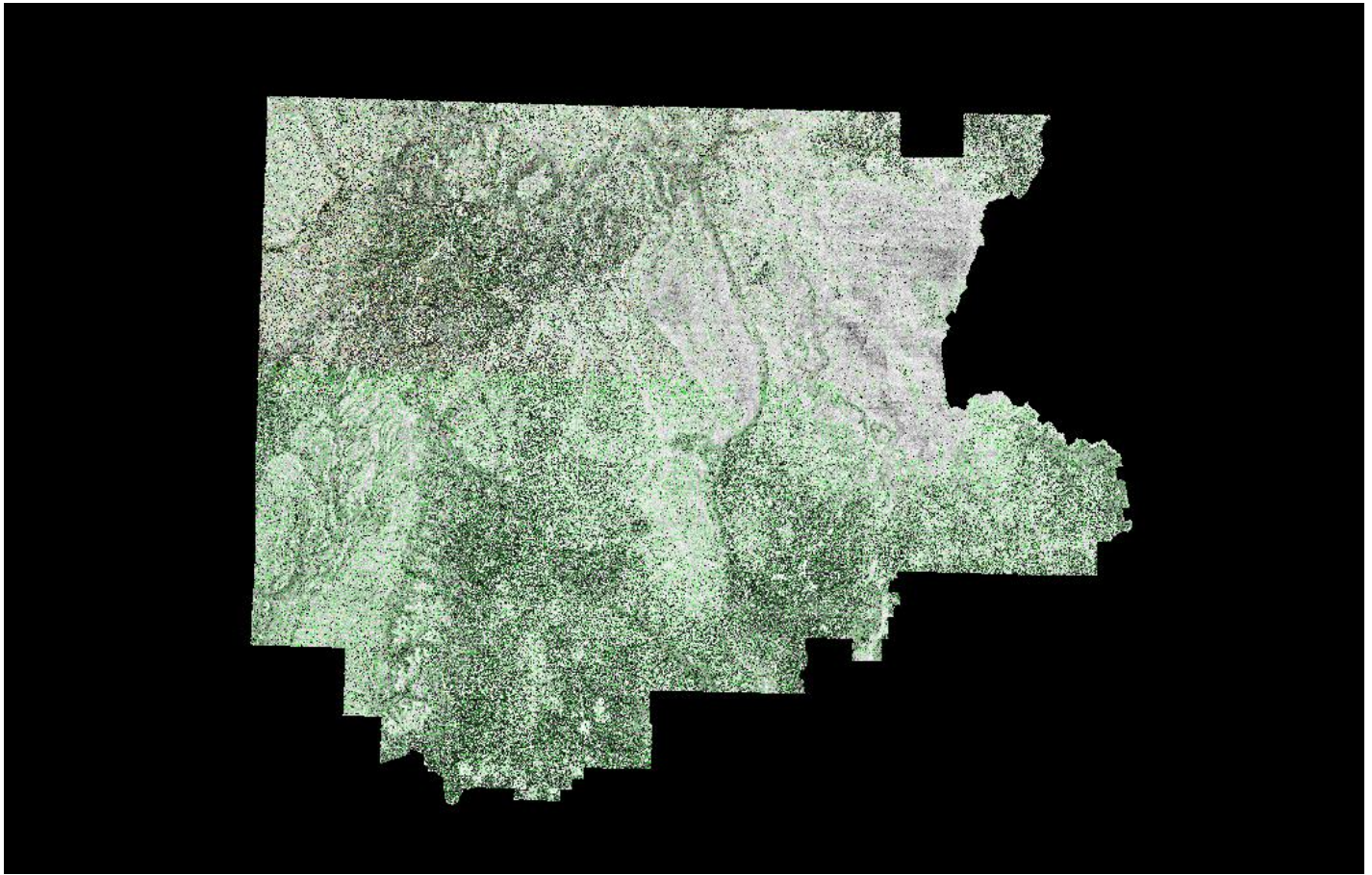
Category	Value (m)	Value (ft)
Smooth Surface Repeatability	$\leq 0.060$	$\leq 0.197$
Swath overlap difference, RMSDz	$\leq 0.080$	$\leq 0.262$

Table 4: Relative Accuracy Requirements



No Data	< 0.06m	0.06m to 0.12m	0.12m to 0.18m	> 0.18m
No Data	< 0.197ft	0.197ft to 0.394ft	0.394ft to 0.591ft	> 0.591ft

Figure 8: Swath Precision



No Data	< 0.08m	0.08m to 0.16m	0.16m to 0.24m	> 0.24m
No Data	< 0.262ft	0.262ft to 0.524ft	0.524ft to 0.786ft	> 0.786ft

Figure 9: Swath Separation

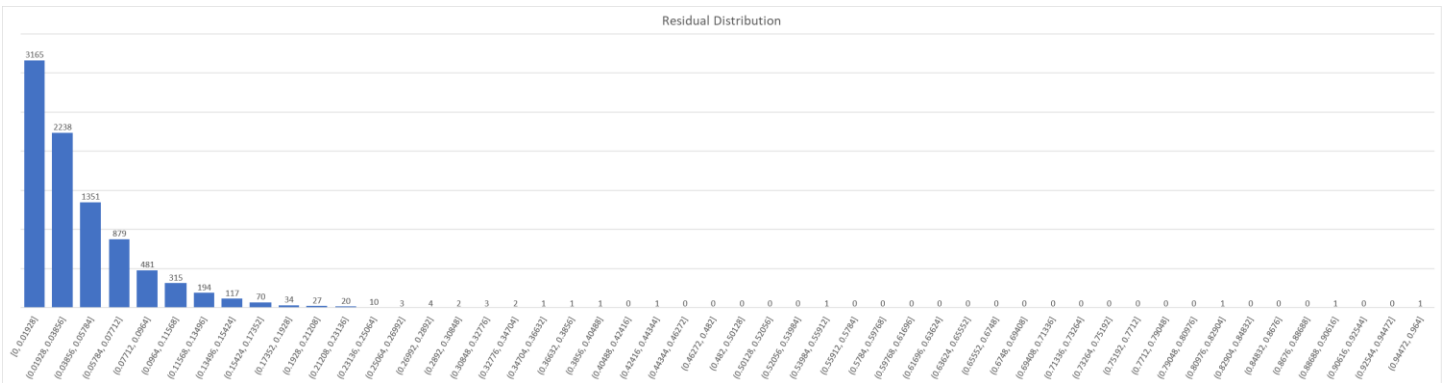


Figure 10: Pseudo Tie Point Residuals Distribution

### 3.4 Lidar Classification

Lidar filtering was accomplished using GeoCue with TerraSolid processing and modeling software. The filtering process reclassifies all the data into classes within the point cloud classification scheme. Once the data is classified, the entire dataset is reviewed and manually edited for anomalies that are outside the required guidelines of the product specification or contract requirements. This can include, but is not limited to, classifying bridges, structures, filling culverts, and manually analyzing the bare-earth surface by classifying features that belong in non-extraneous classification codes. **Table 5** outlines a statistical summary of the point classes leveraged in the lidar dataset.

Point Classification Statistics		
Code	Class	Points
1	Unclassified	4,727,613,710
2	Ground	74,293,290,144
3	Low Vegetation	56,288,975,764
4	Medium Vegetation	18,161,718,668
5	High Vegetation	2,057,200,195
6	Buildings	7,040,595
7	Low Noise	2,578,567,633
9	Water	318,616
17	Bridge Decks	317,818
18	High Noise	4,973,417
20	Ignored Ground	14,711
22	Temporal Exclusion	4
Flag	Withheld	2,583,541,050

Table 5: Lidar Classification Statistics

In certain instances, objects with high reflectance can cause anomalies in lidar data. The objects cause the beam to deflect abnormally creating a burst in the data which has been termed Buckshot. The Buckshot occurrences correlate with urban and industrial areas where such reflective objects are more prevalent. With VeriDaaS’s Geiger-Mode system, in most cases when this phenomenon occurs, good data is also collected that defines the actual ground and objects in the area.

Since the inception of the USGS Arizona project, VeriDaaS has been working to ensure Buckshot occurrences are properly classify as noise while maintaining the surrounding good measurements. In addition, VeriDaaS has been characterizing the Buckshot events and developing signature profiles to identify the instances through Machine Learning (ML) routines. Specific objectives have been:

- First, identify the instances of the Buckshot in the datasets so they can be properly classified in subsequent processes,
- Second, automatically locate then auto classify the Buckshot points as noise before entering normal classification processes,
- Third, eliminate the error points during the aggregation routines using the developed ML routines.

Progress on the initiative has been brisk. The prototype routines have correlated well with manual inspections and the tuning of the algorithms have shown continuous improvement towards identifying occurrences.

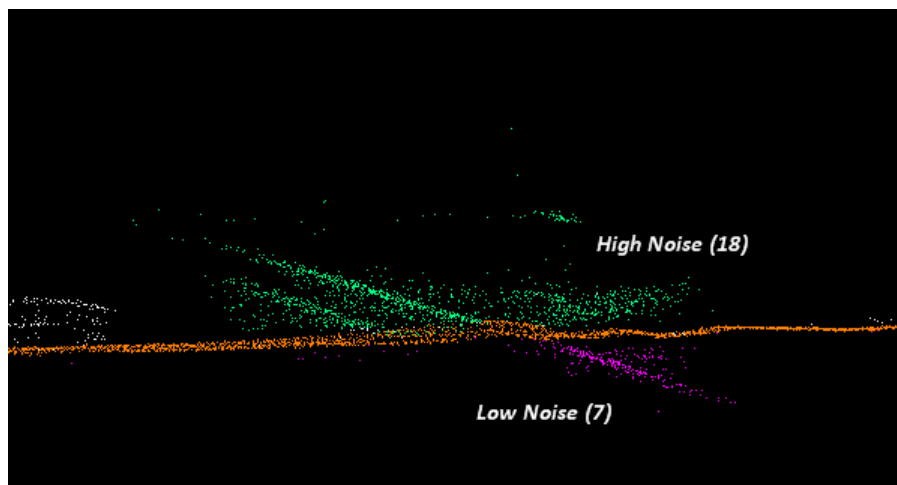


Figure 11: Buckshot Identification and Classification

Along with the rest of the shapefile metadata, Low Confidence Polygons were delivered. In a few isolated, flat areas, small undulations/artifacts can be seen in the surface. These appear to have been caused by a minor sensor anomaly during collection. After discussing the issue with the data-collection provider, the artifacts were something that could not be corrected through reprocessing. Although visually noticeable, they are within the error specifications of the project. The absolute vertical accuracy of the project was not affected. The Low Confidence Polygons were manually created through heads-up digitization and provided in Shapefile format (.shp).

### 3.5 Accuracy Assessment

The lidar dataset was evaluated using a total of two hundred and thirty-three (233) check points (134 NVA + 99 VVA). The result provided a vertical accuracy that fell within project specifications. Please see the **Attachment A** for the full Vertical Accuracy Report and the project *Metadata* for an in-depth accuracy assessment. **Table 6** outlines the absolute accuracy requirements of the project. **Table 7** shows high level statistics and mean errors for this area processed by Sanborn.

Category	Value (m)	Value (ft)
RMSEz	≤0.100	≤0.328
@ 95-Percent Confidence Level	≤0.196	≤0.643
@ 95 <sup>th</sup> Percentile	≤0.300	≤0.984

Table 6: Absolute Accuracy Requirements

Broad Land Cover Type	# of Points	RMSEz	95% Confidence Level	95th Percentile
NVA of Point Cloud	80	0.058	0.114	
NVA of Bare Earth	80	0.061	0.120	
NVA of DEM	80	0.061	0.120	
VVA of Bare Earth	61	0.095		0.174
VVA of DEM	61	0.093		0.167

Table 7: Vertical Accuracy Assessment of Check Points (Meters)

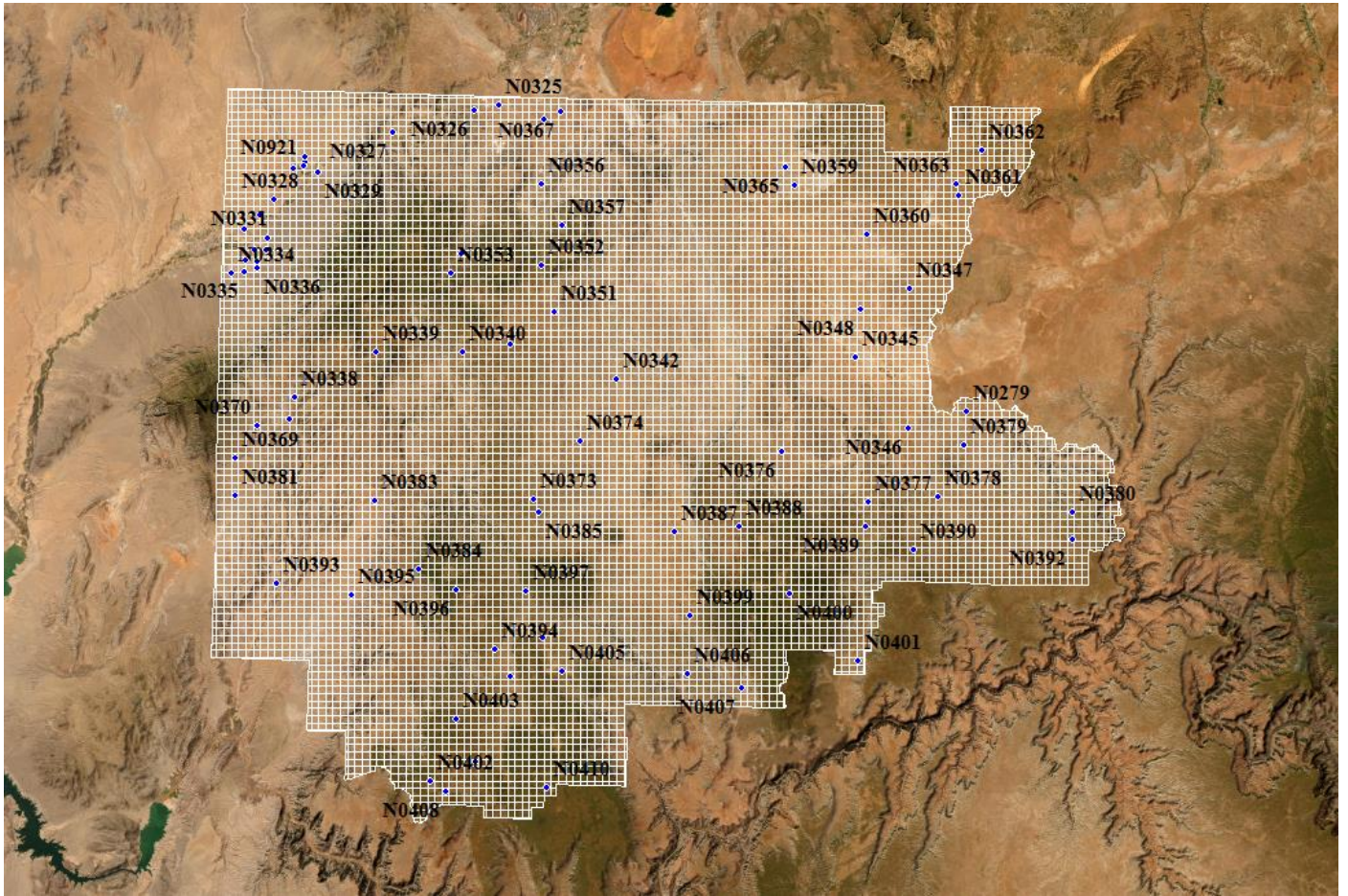


Figure 12: Non-vegetated Check Point Distribution

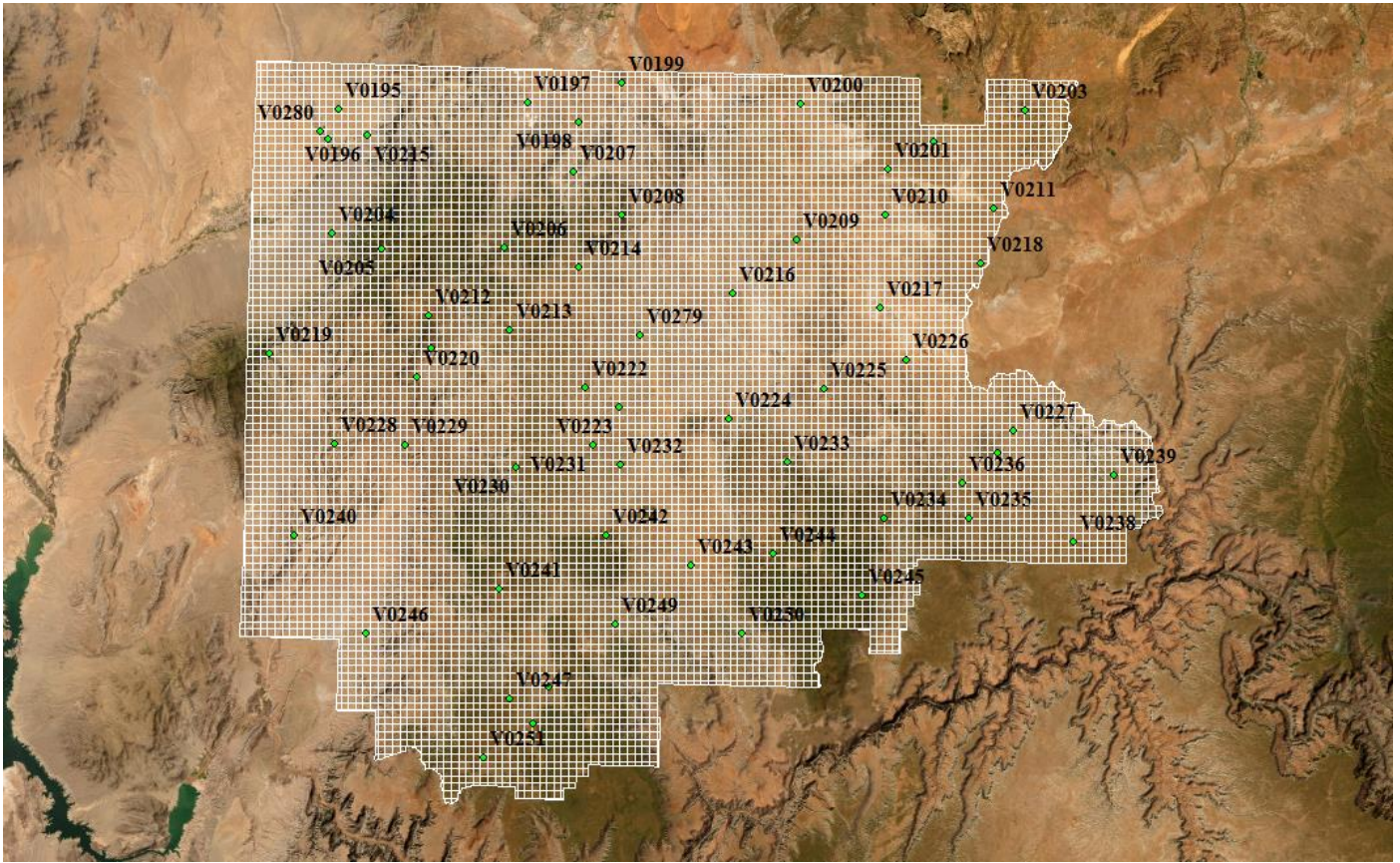


Figure 13: Vegetated Check Point Distribution



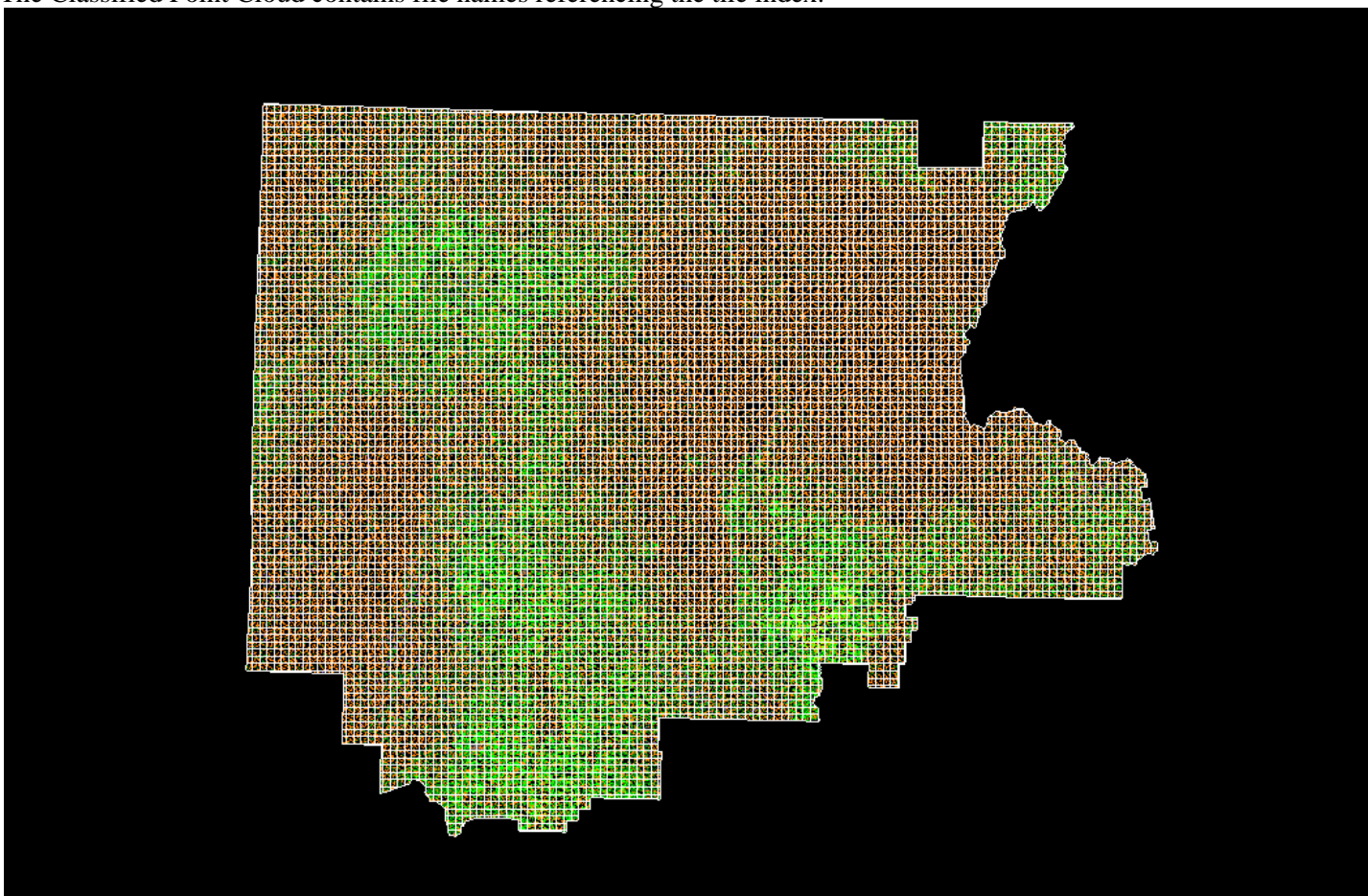
## 4.0 PRODUCT GENERATION

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The following products were generated using the final coordinate system as defined in the contract:

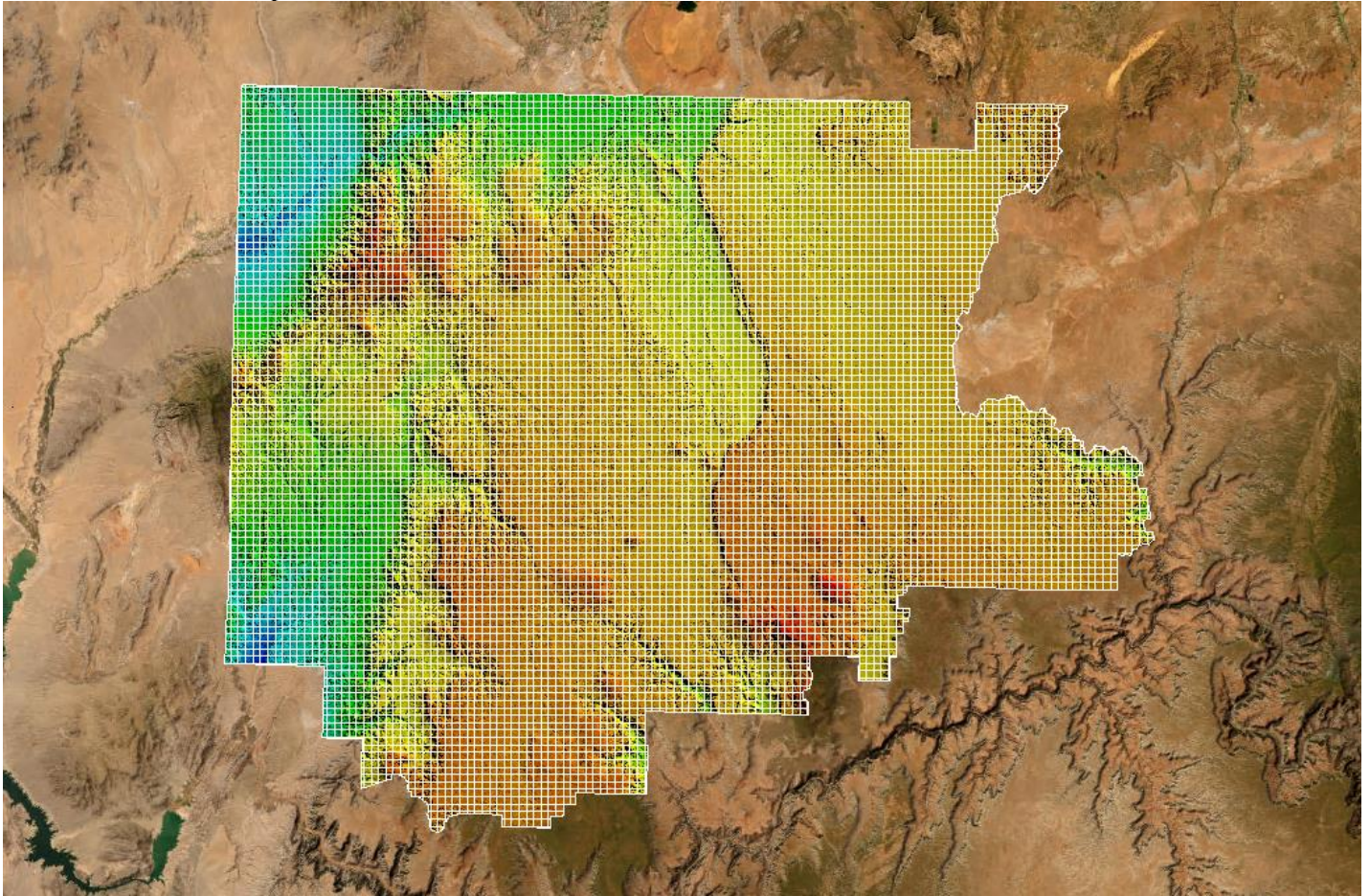
### Classified Point Cloud

The Classified Point Cloud, containing all returns, is delivered in LASv1.4 (\*.las) format and meets project specifications. The Classified Point Cloud contains file names referencing the tile index.



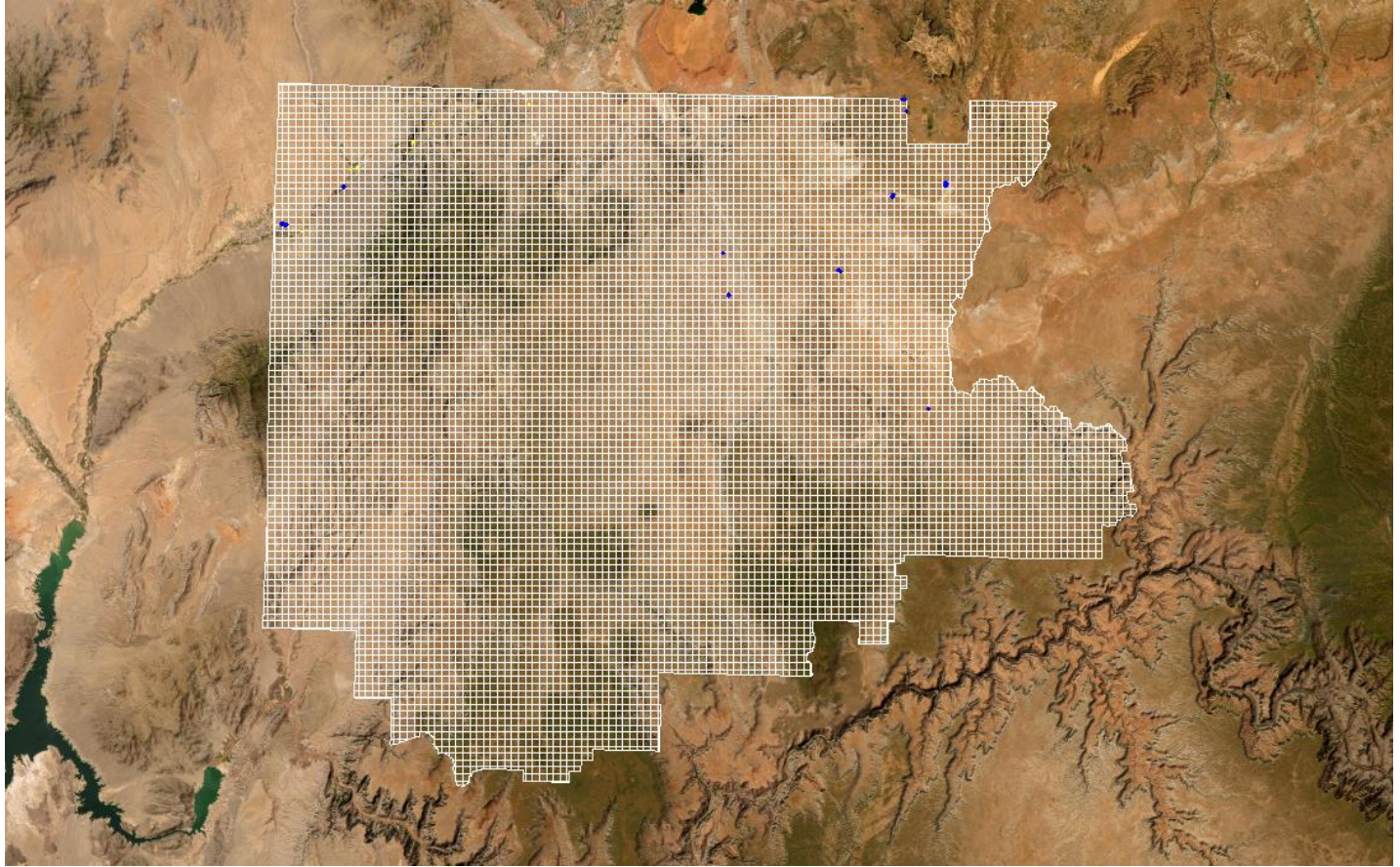
## Bare-earth Digital Elevation Model (DEM)

32-bit GeoTIFF (\*.tif) elevation rasters were created from the bare-earth points in the processed lidar dataset and hydro-flattened breaklines. Bare-earth rasters were produced the bilinear interpolation methodology and GDAL v2.4.0 was used to define the CRS. Each pixel contains an elevation.



## Breaklines

Hydro-flattened breaklines were generated from digitized water features conflated to the elevations derived from the bare-earth points in the processed lidar dataset. Delivered in Esri (\*.gdb) format.



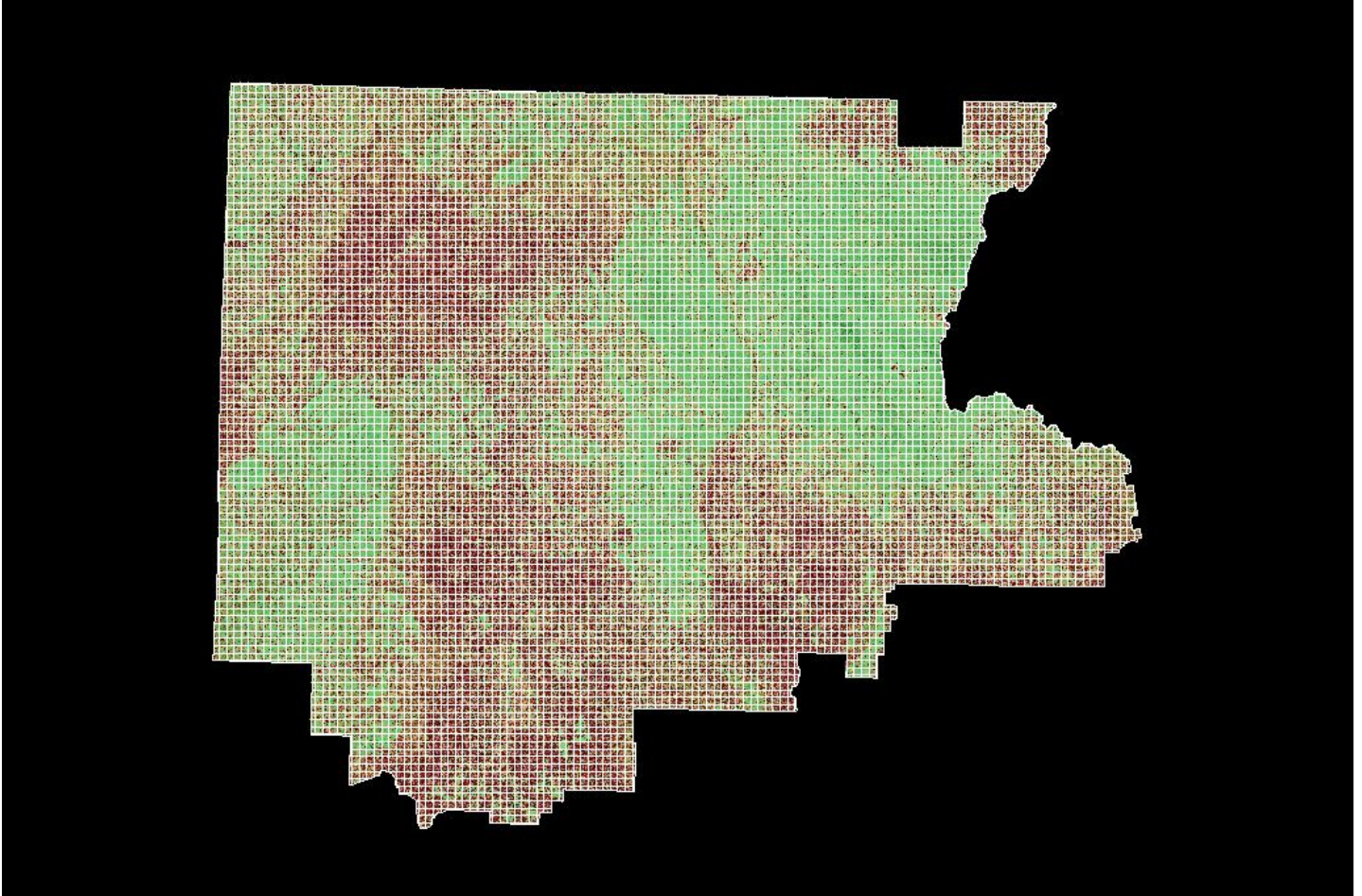
## First-return Intensity Images

8-bit GeoTIFF (\*.tif) intensity rasters were created from the first-return points in the processed lidar dataset. All overlap classes were ignored during this process. GDAL v2.4.0 was used to define the CRS.



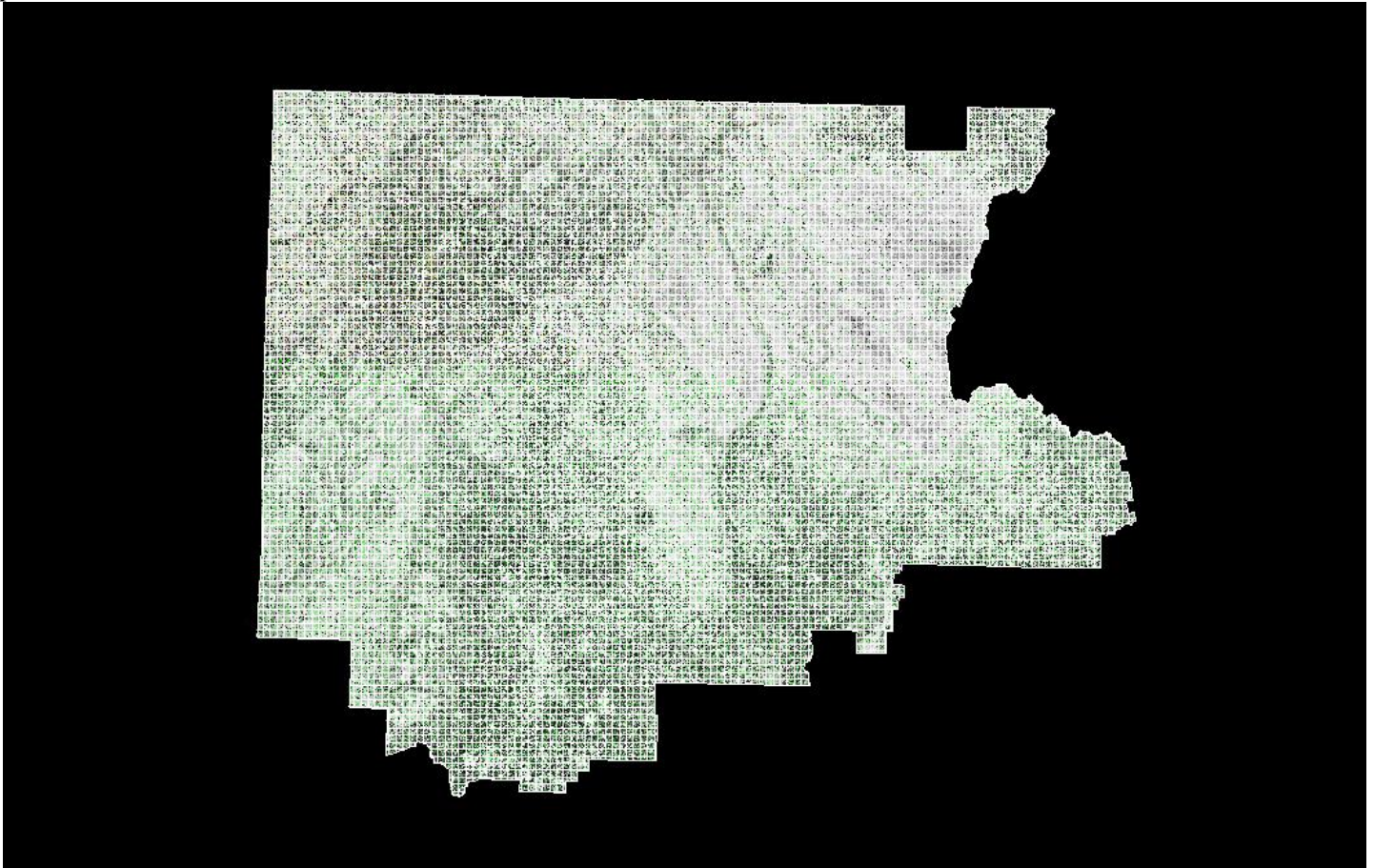
## Last-return Swath Precision Images

24-bit GeoTIFF (\*.tif) swath precision images modulated by intensity were created from the last-return points in the processed lidar dataset. All overlap classes were ignored during this process. GDAL v2.4.0 was used to define the CRS.



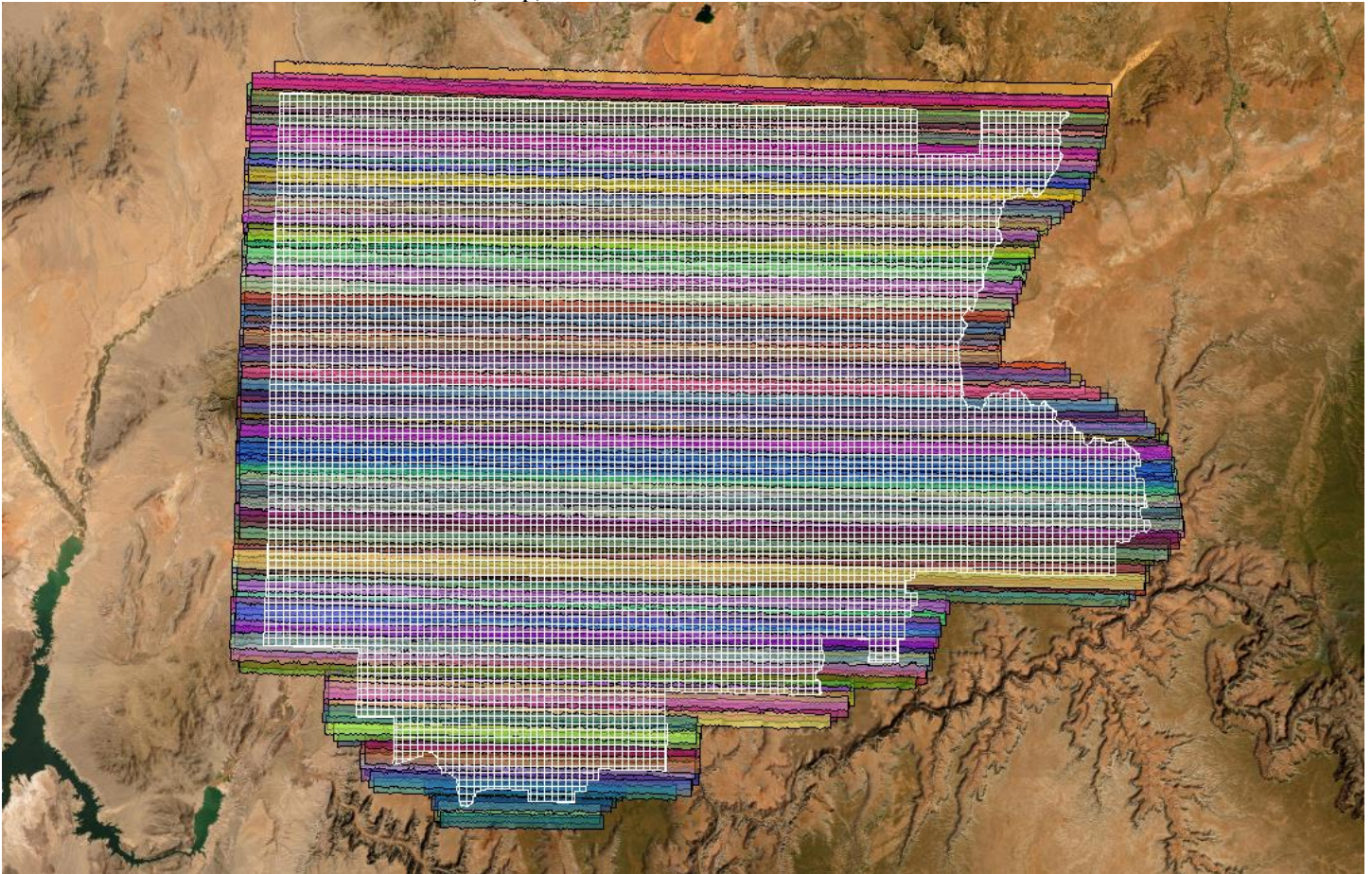
## Last-return Swath Separation Images

24-bit GeoTIFF (\*.tif) swath separation images modulated by intensity were created from the last-return points in the processed lidar dataset. GDAL v2.4.0 was used to define the CRS.



## Swath Polygons

Polygons features representing either the convex or concave hull of swaths, where each record is an individual swath or channel within a swath. Delivered in Esri (\*.shp) format.



## Other Deliverables

Metadata

Survey Report

Vertical Accuracy Report

A final quality assurance process was undertaken to validate all deliverables for the project. Prior to release of data for delivery, Sanborn's Quality Control/Quality Assurance department reviews the data and then releases it for delivery.

## **APPENDIX A – ABGNSS/IMU PLOTS**

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The following pages contain the processing reports for the airborne trajectories.



## General Information

### Mission Information

Project name	a07-s03-0503
Processing date	2022-06-28 15:19:54
Mission date	2022-06-28 03:59:27
Mission duration	04:09:23.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0628_035928.000	POS Data
default0628_035928.001	POS Data
default0628_035928.002	POS Data
default0628_035928.003	POS Data
default0628_035928.004	POS Data
default0628_035928.005	POS Data
default0628_035928.006	POS Data
default0628_035928.007	POS Data
default0628_035928.008	POS Data
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default0628_035928.017	POS Data
default0628_035928.018	POS Data
default0628_035928.019	POS Data
default0628_035928.020	POS Data

### Input Files

File Name	File Type
Ephm1790.22g	GLONASS Broadcast Ephemeris
Ephm1790.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0503.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0628_035928.000		
Last raw data file	default0628_035928.020		
Start GPS week	2216		
Start time	187149.926 (6/28/2022 3:59:09 AM)		
End time	202112.800 (6/28/2022 8:08:32 AM)		
Start of fine alignment	187556.904 (6/28/2022 4:05:56 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

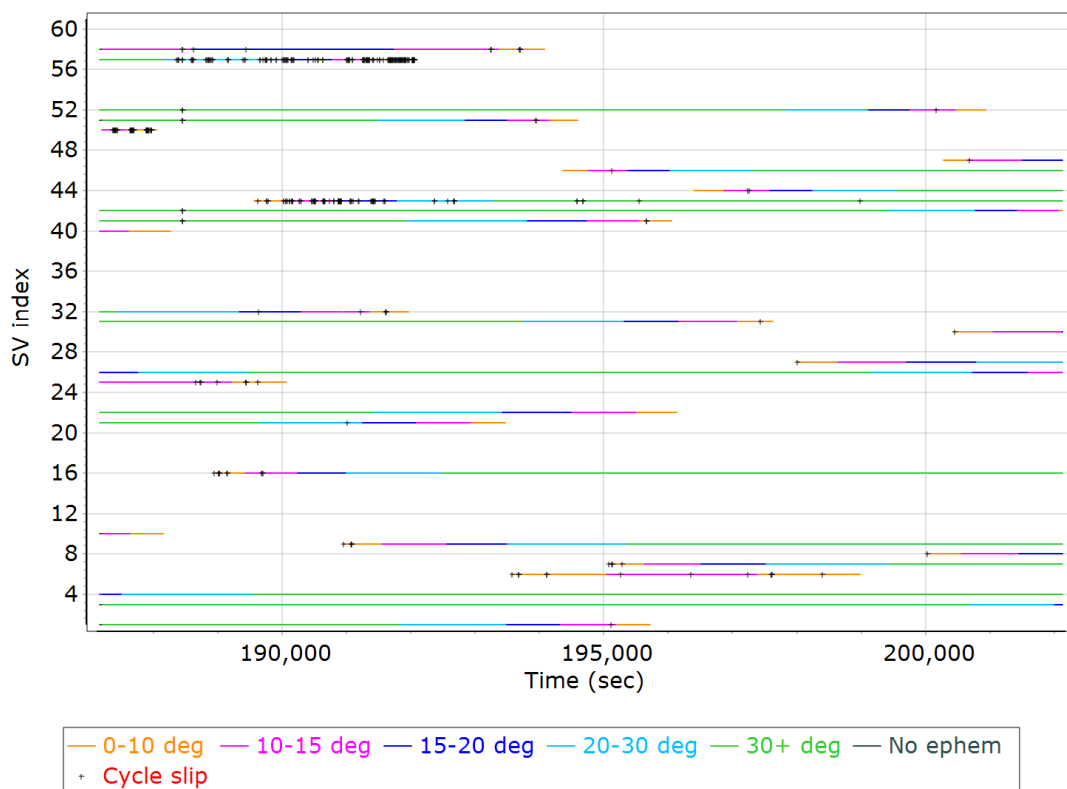
## Rover Data QC

### Raw IMU Import QC Summary

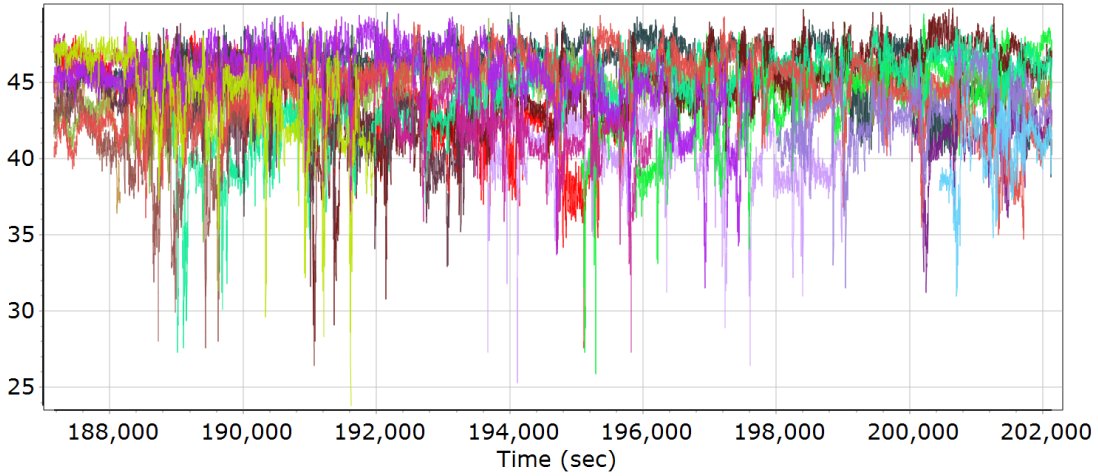
IMU data input file	imu_a07-s03-0503.dat
IMU data check log file	imudt_a07-s03-0503.log
IMU Records Processed	2992369
Termination Status	Warnings
IMU Anomalies	2
<b>IMU Failure Messages</b>	
187149.316 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
187149.186 : WARNING : Gap of 187131.8242 seconds in CHECKDT input data	

## Primary Observables & Satellite Data

### GPS/GLONASS L1 Satellite Lock/Elevation

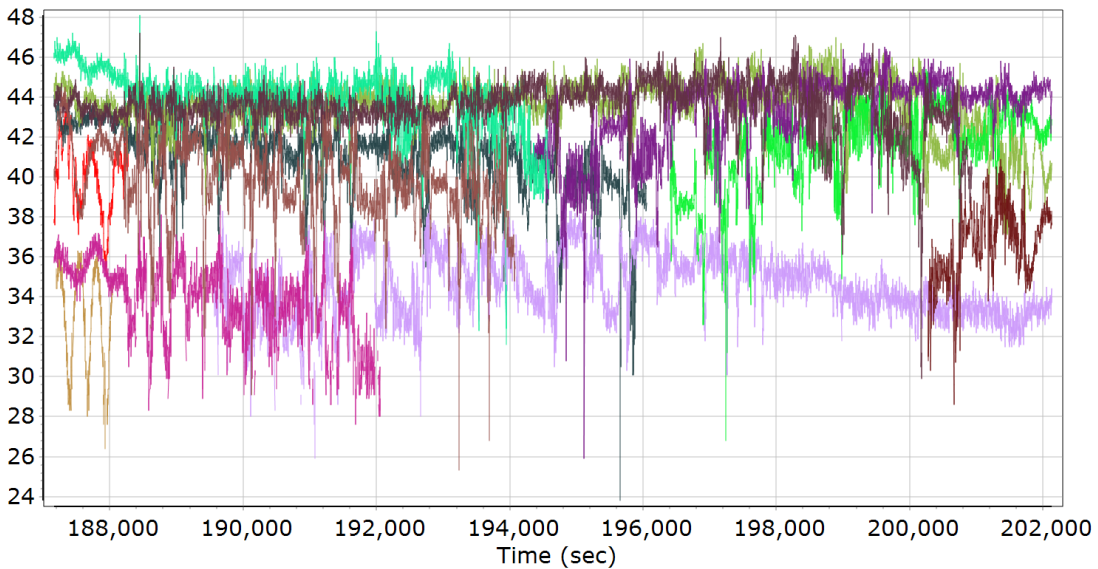


**GPS L1 SNR**



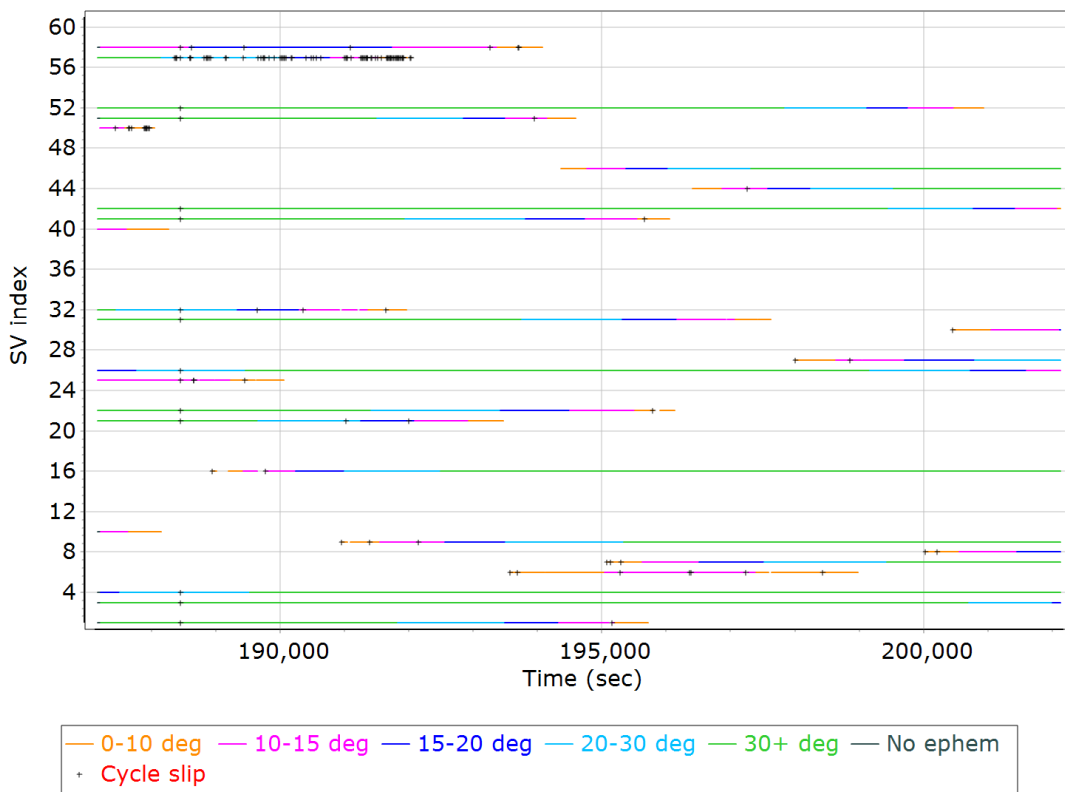
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 03 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 06 L1 SNR (dB/Hz) |
| — GPS PRN 07 L1 SNR (dB/Hz) | — GPS PRN 08 L1 SNR (dB/Hz) |
| — GPS PRN 09 L1 SNR (dB/Hz) | — GPS PRN 10 L1 SNR (dB/Hz) |
| — GPS PRN 16 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 22 L1 SNR (dB/Hz) | — GPS PRN 25 L1 SNR (dB/Hz) |
| — GPS PRN 26 L1 SNR (dB/Hz) | — GPS PRN 27 L1 SNR (dB/Hz) |
| — GPS PRN 30 L1 SNR (dB/Hz) | — GPS PRN 31 L1 SNR (dB/Hz) |
| — GPS PRN 32 L1 SNR (dB/Hz) |                             |

**GLONASS L1 SNR**

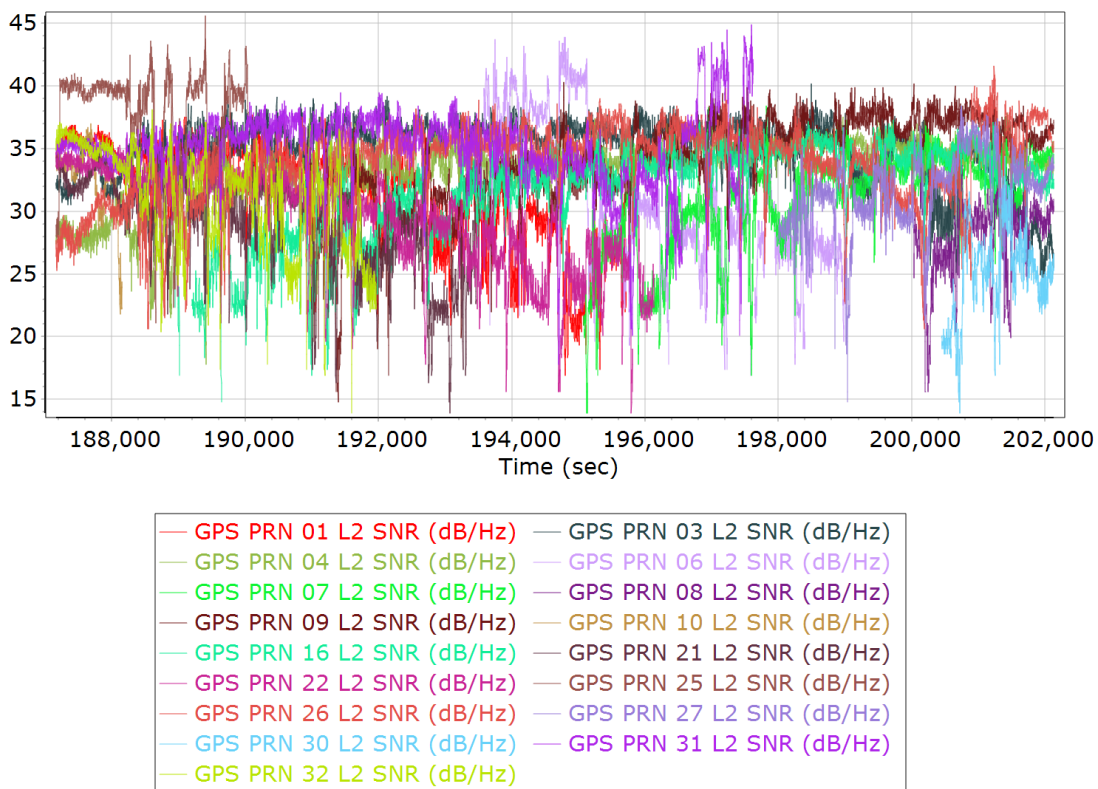


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 03 L1 SNR (dB/Hz) | — GLONASS 04 L1 SNR (dB/Hz) |
| — GLONASS 05 L1 SNR (dB/Hz) | — GLONASS 06 L1 SNR (dB/Hz) |
| — GLONASS 07 L1 SNR (dB/Hz) | — GLONASS 09 L1 SNR (dB/Hz) |
| — GLONASS 10 L1 SNR (dB/Hz) | — GLONASS 13 L1 SNR (dB/Hz) |
| — GLONASS 14 L1 SNR (dB/Hz) | — GLONASS 15 L1 SNR (dB/Hz) |
| — GLONASS 20 L1 SNR (dB/Hz) | — GLONASS 21 L1 SNR (dB/Hz) |

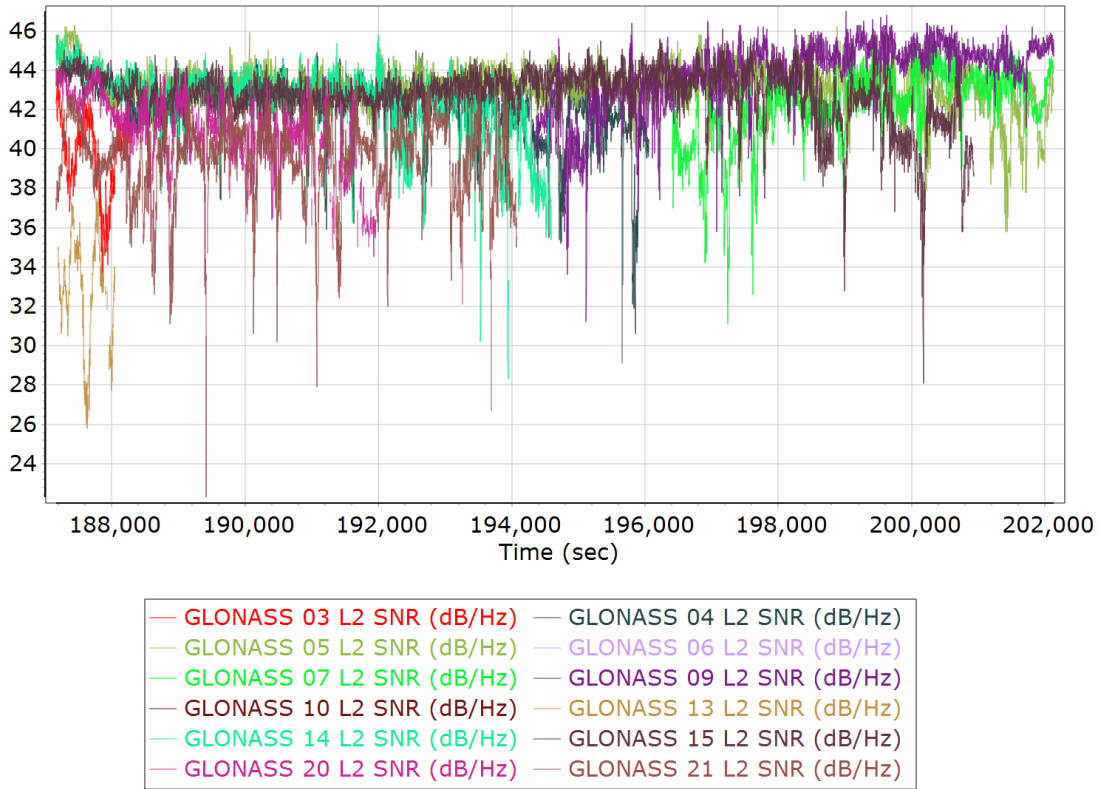
### GPS/GLONASS L2 Satellite Lock/Elevation



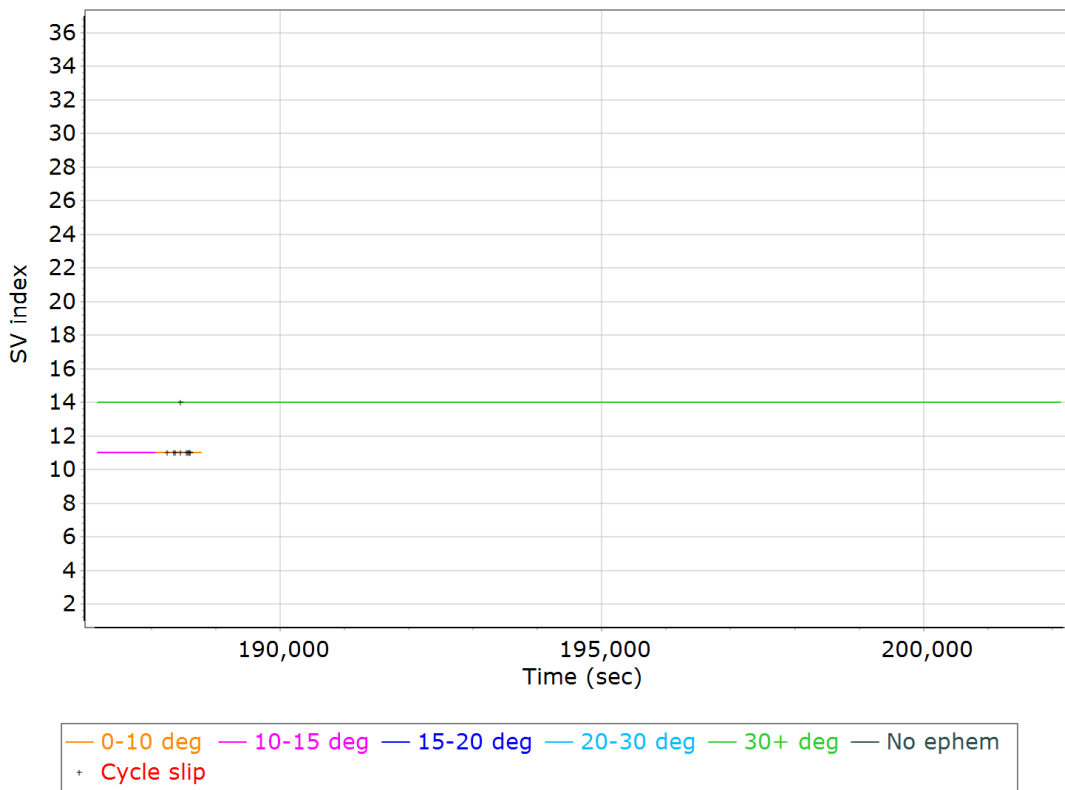
### GPS L2 SNR



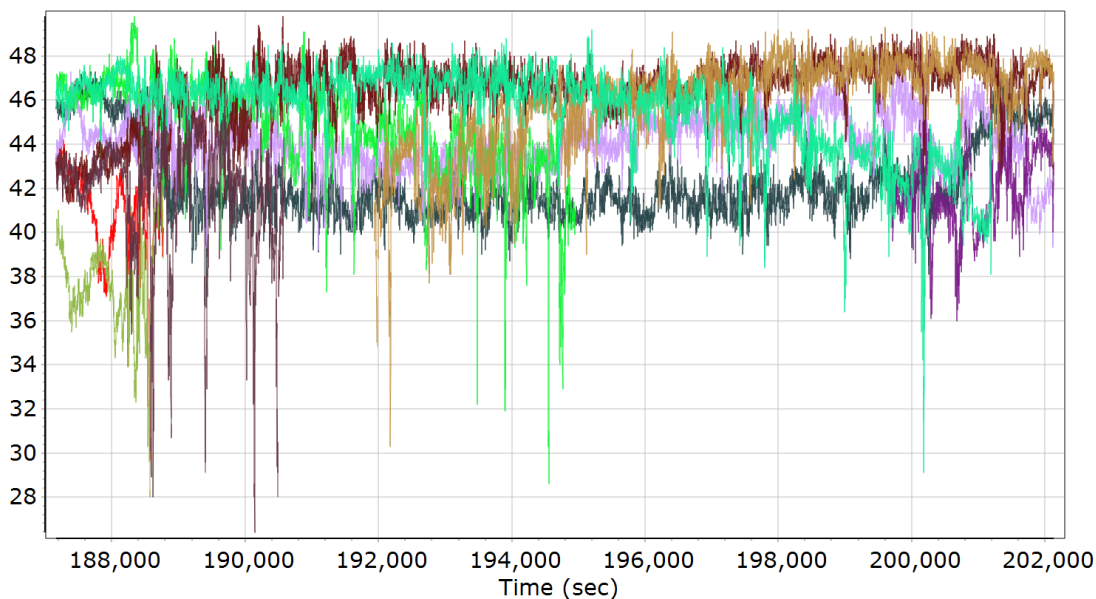
### GLONASS L2 SNR



### BEIDOU Satellite Lock/Elevation

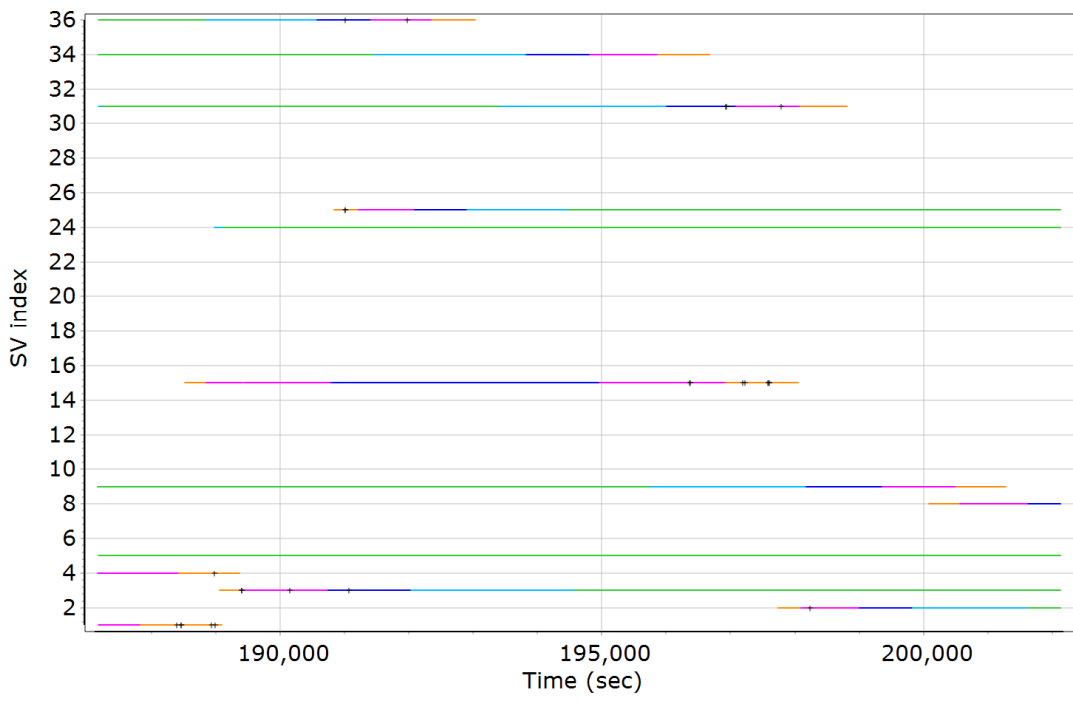


### BEIDOU SNR



- BEIDOU 11 E5B B2 SNR (dB/Hz)
- BEIDOU 14 E5B B2 SNR (dB/Hz)
- BEIDOU 11 B1 B1 SNR (dB/Hz)
- BEIDOU 14 B1 B1 SNR (dB/Hz)
- BEIDOU 21 B1 B1 SNR (dB/Hz)
- BEIDOU 23 B1 B1 SNR (dB/Hz)
- BEIDOU 24 B1 B1 SNR (dB/Hz)
- BEIDOU 25 B1 B1 SNR (dB/Hz)
- BEIDOU 26 B1 B1 SNR (dB/Hz)
- BEIDOU 28 B1 B1 SNR (dB/Hz)

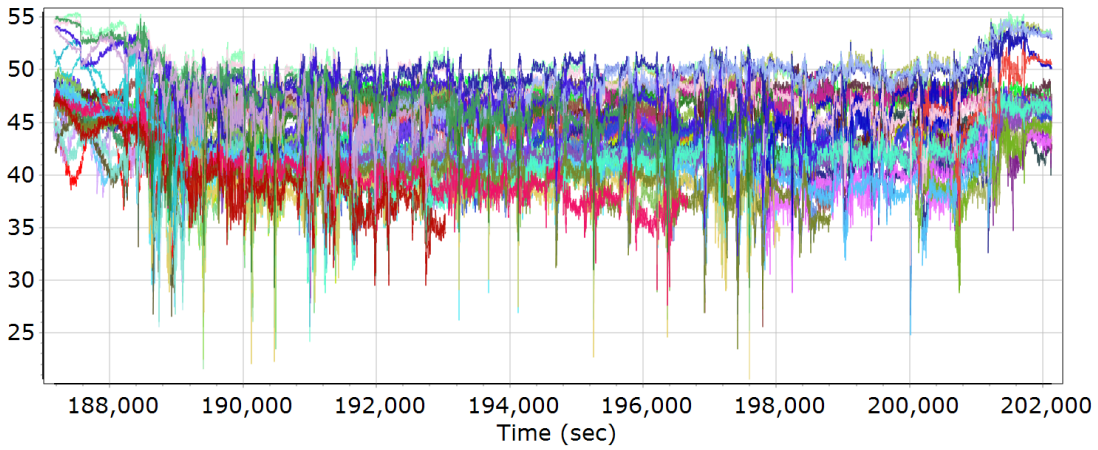
### GALILEO Satellite Lock/Elevation



- 0-10 deg
- 10-15 deg
- 15-20 deg
- 20-30 deg
- 30+ deg
- No ephem
- + Cycle slip



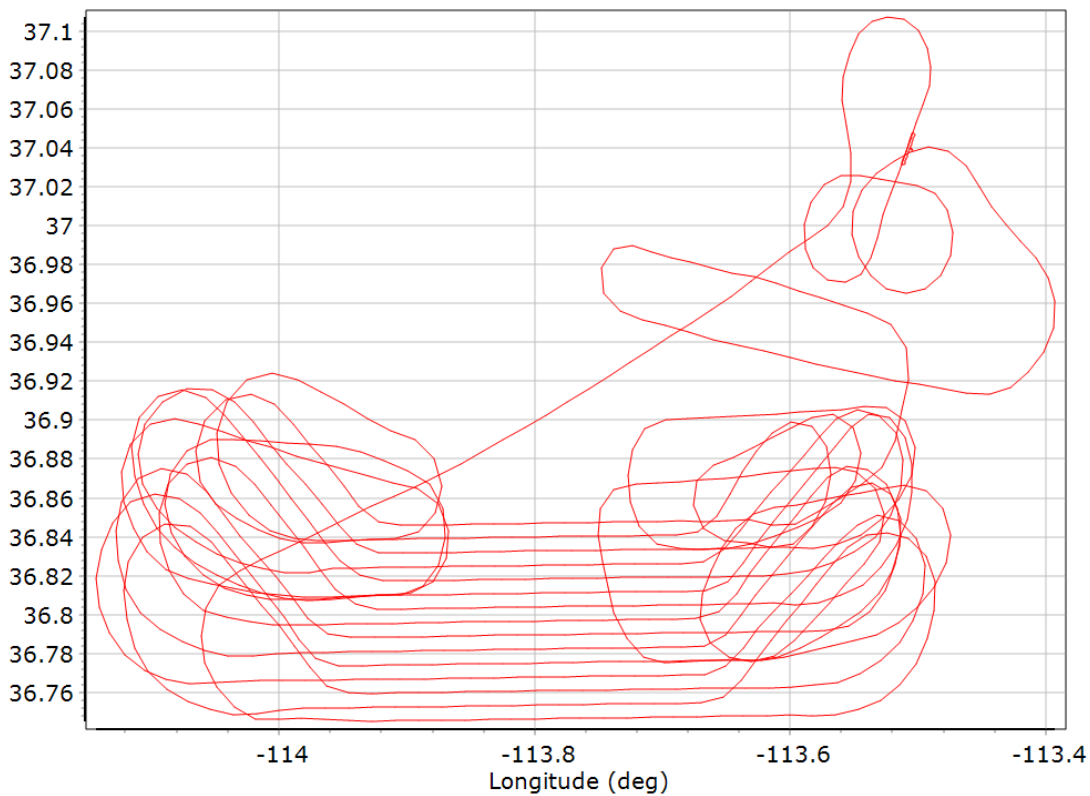
## GALILEO SNR



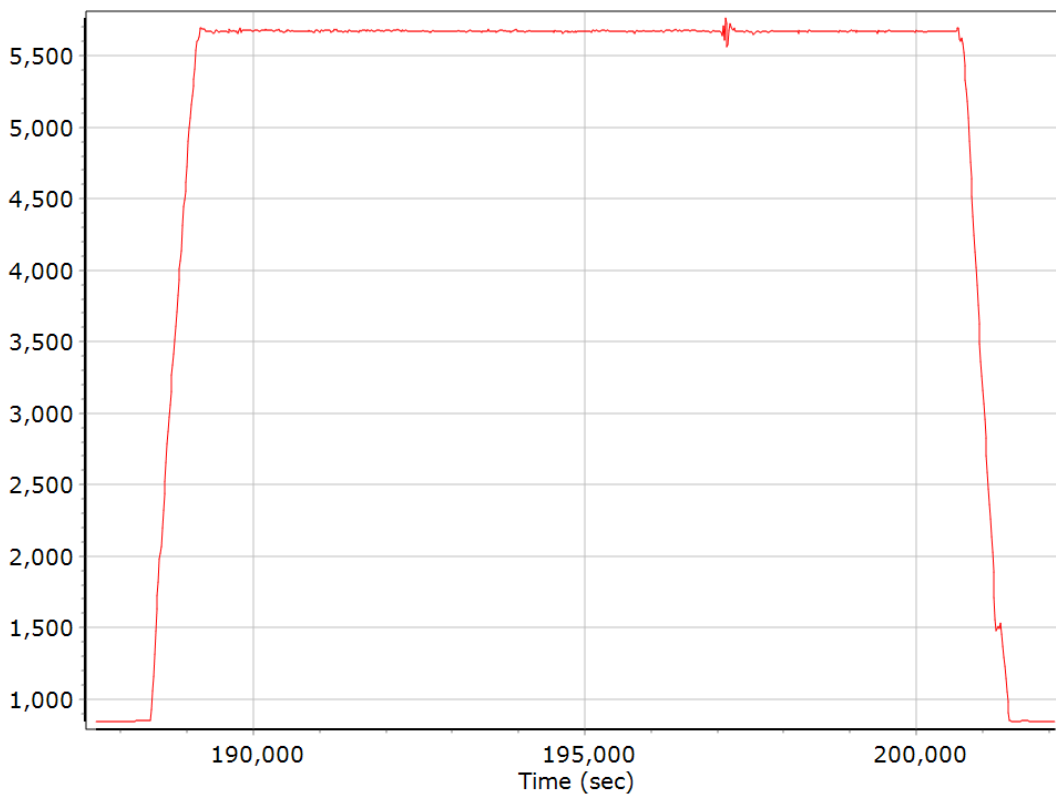
- GALILEO 01 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 02 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 03 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 04 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 05 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 08 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 09 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 14 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 15 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 24 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

## Smoothed Trajectory Information

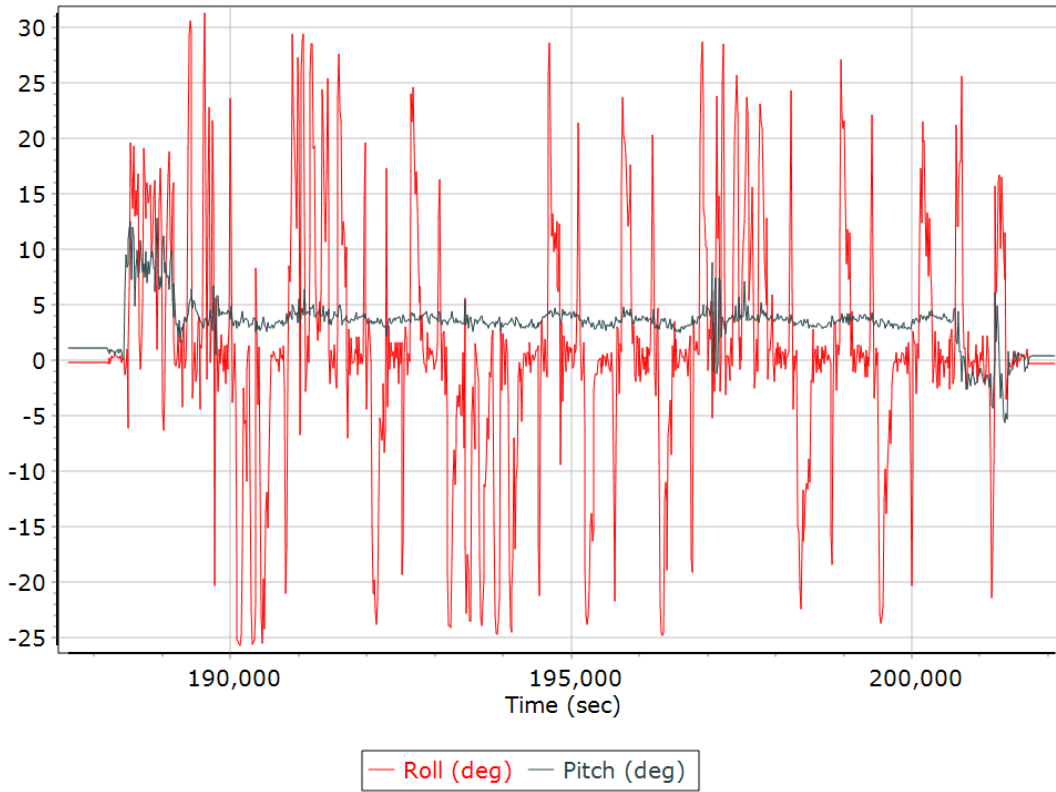
### Top View



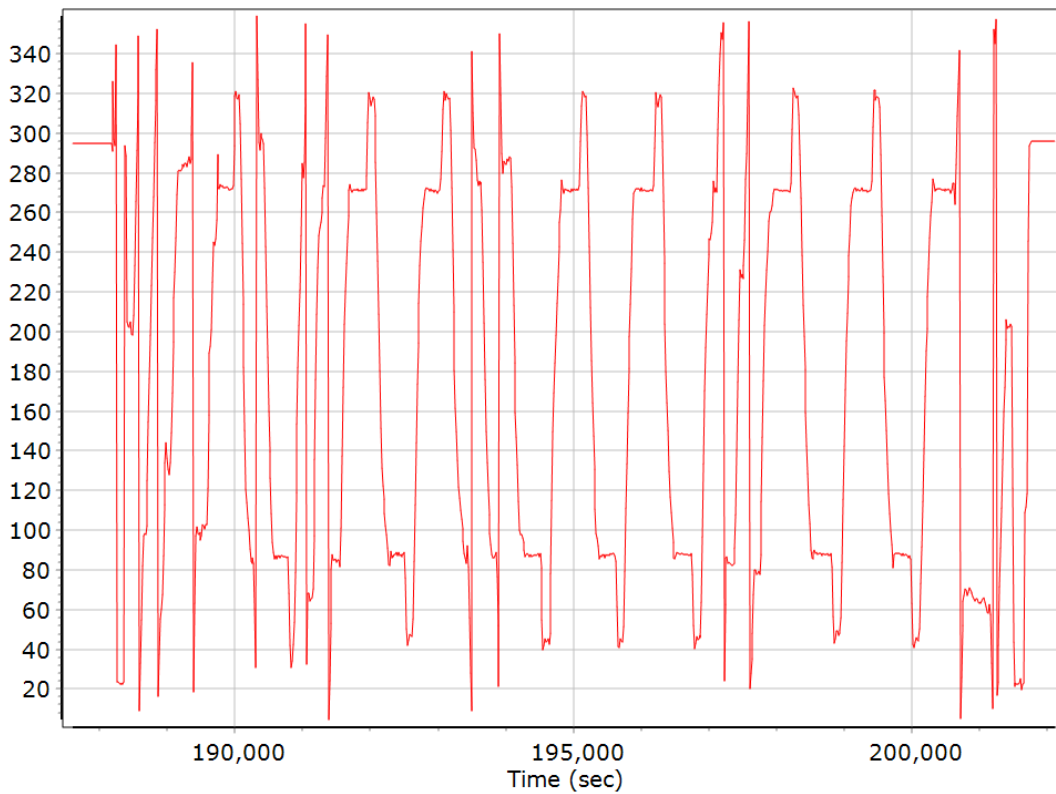
### Altitude



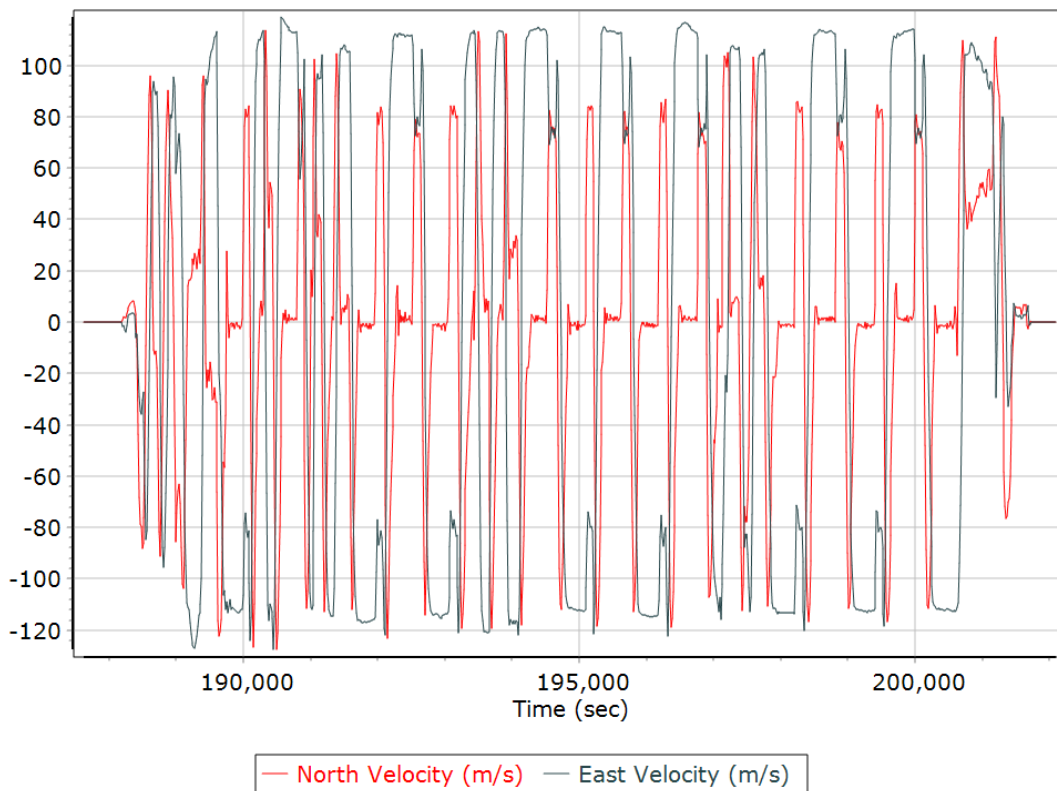
## Roll/Pitch



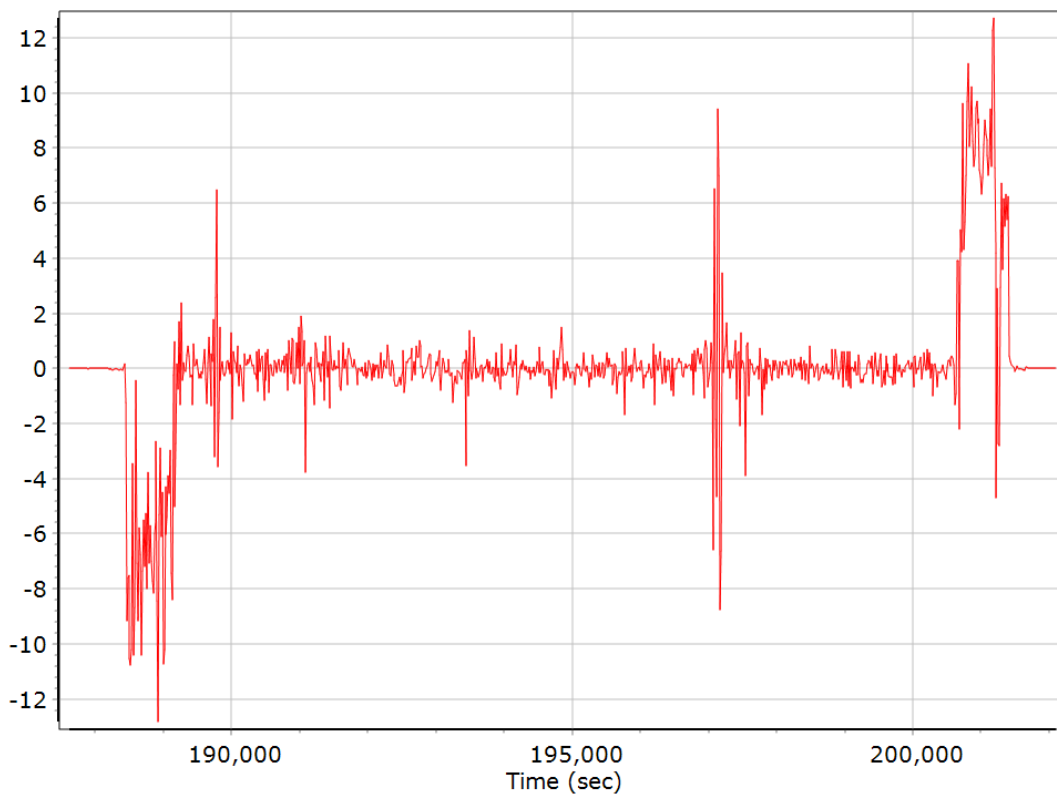
## Heading



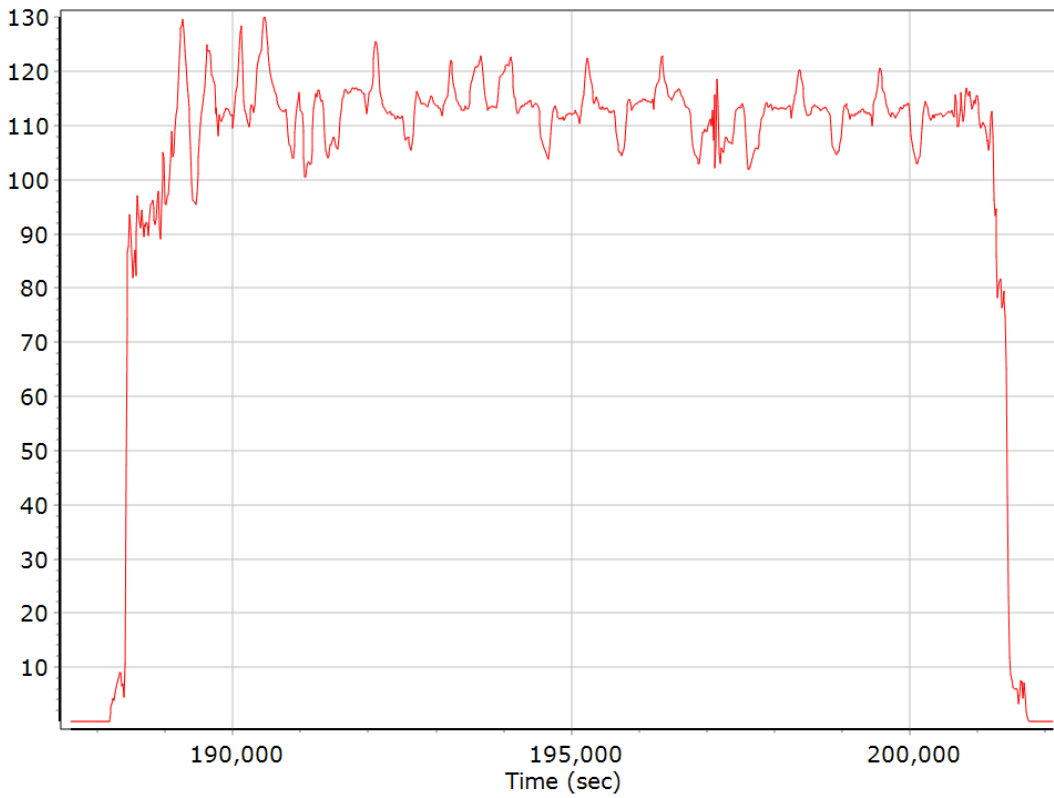
### North/East Velocity



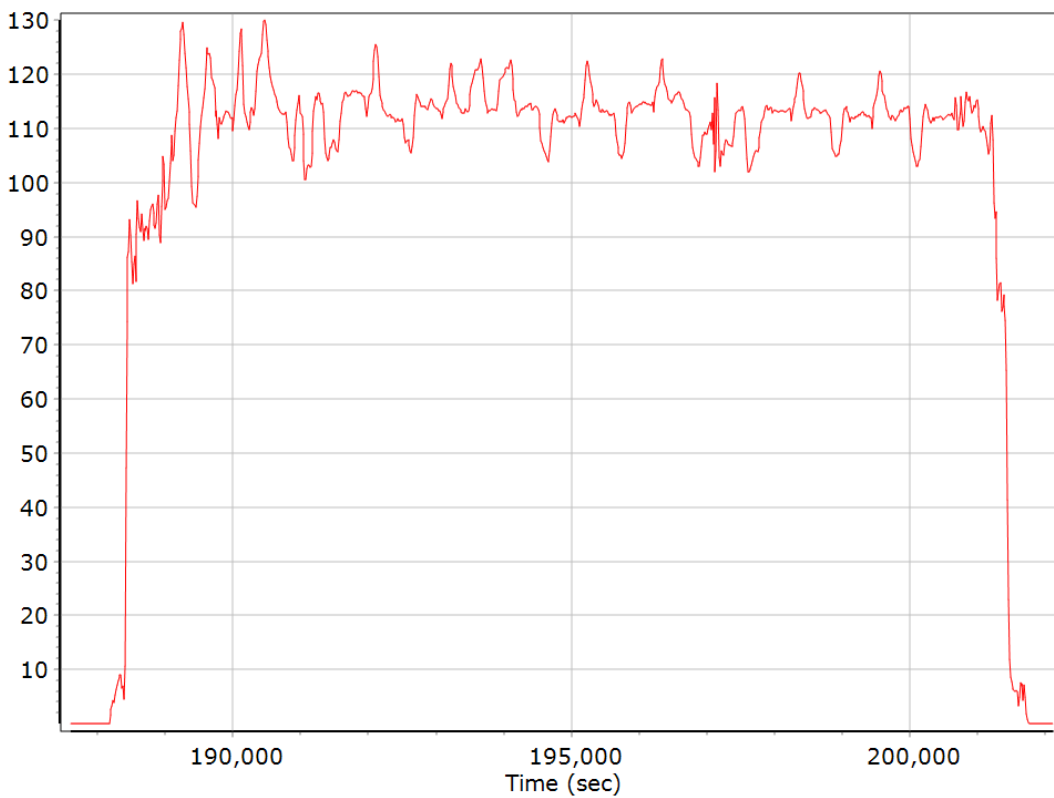
### Down Velocity



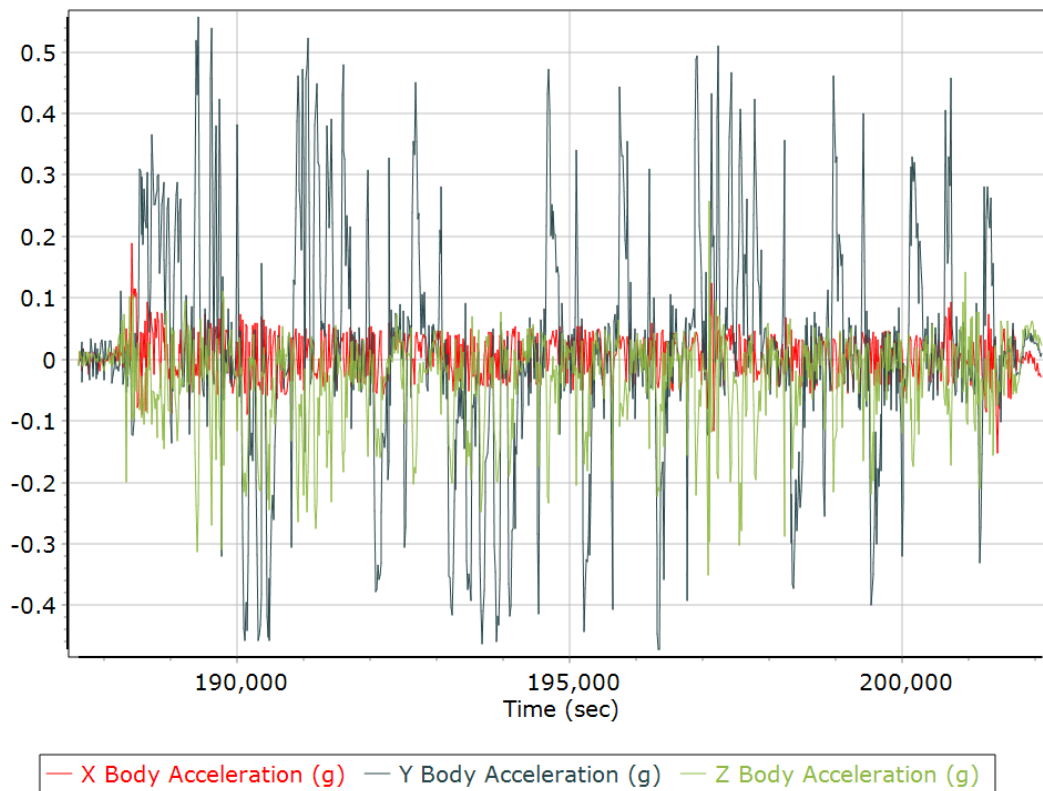
## Total Speed



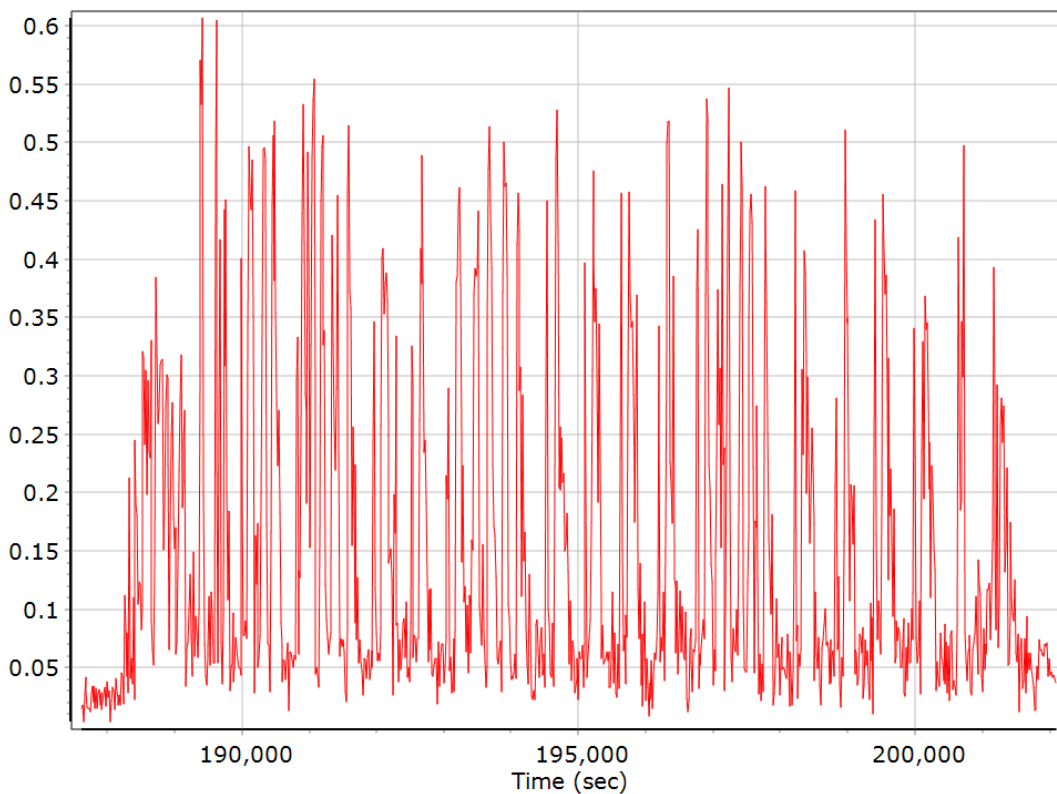
## Ground Speed



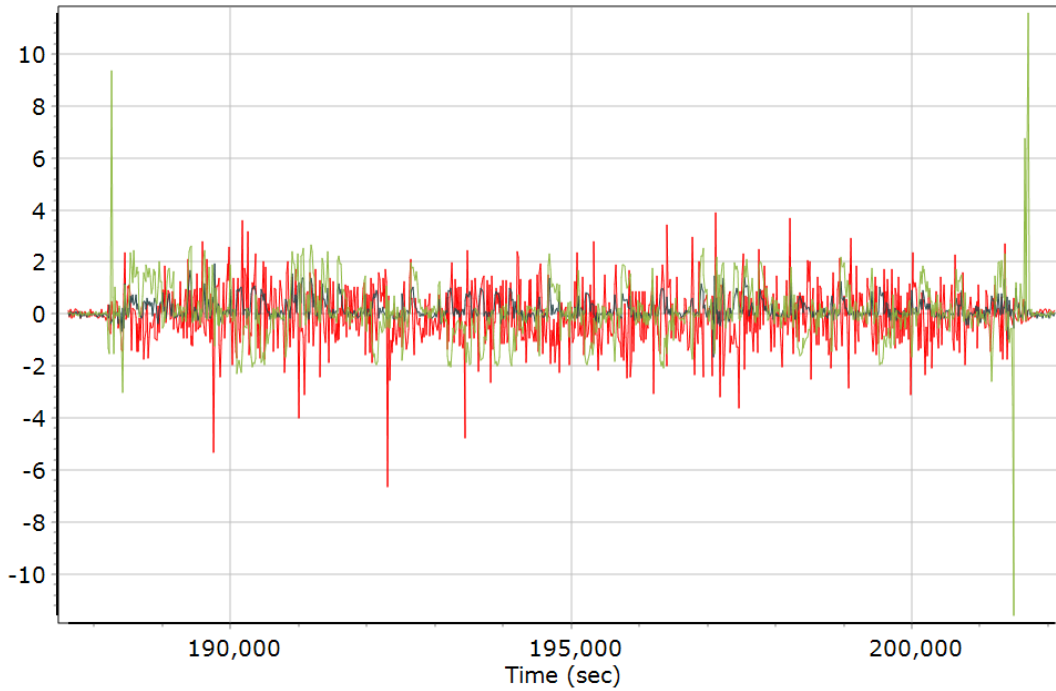
### Body Acceleration



### Total Body Acceleration



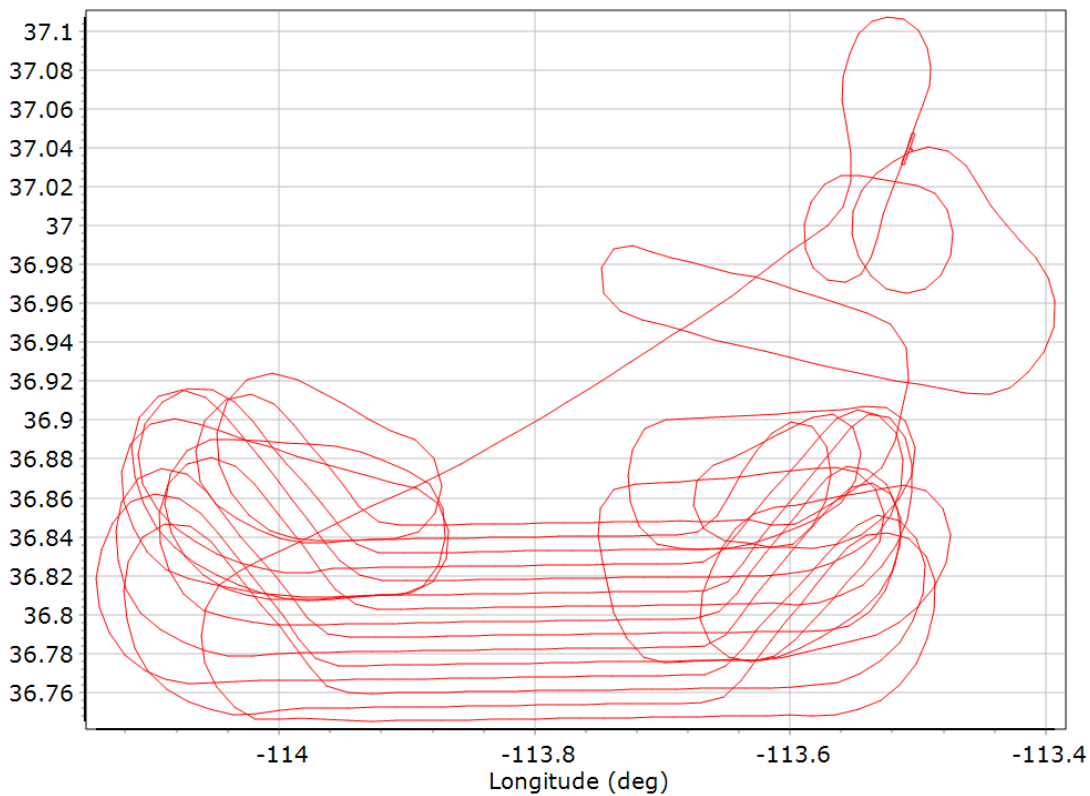
## Body Angular Rate



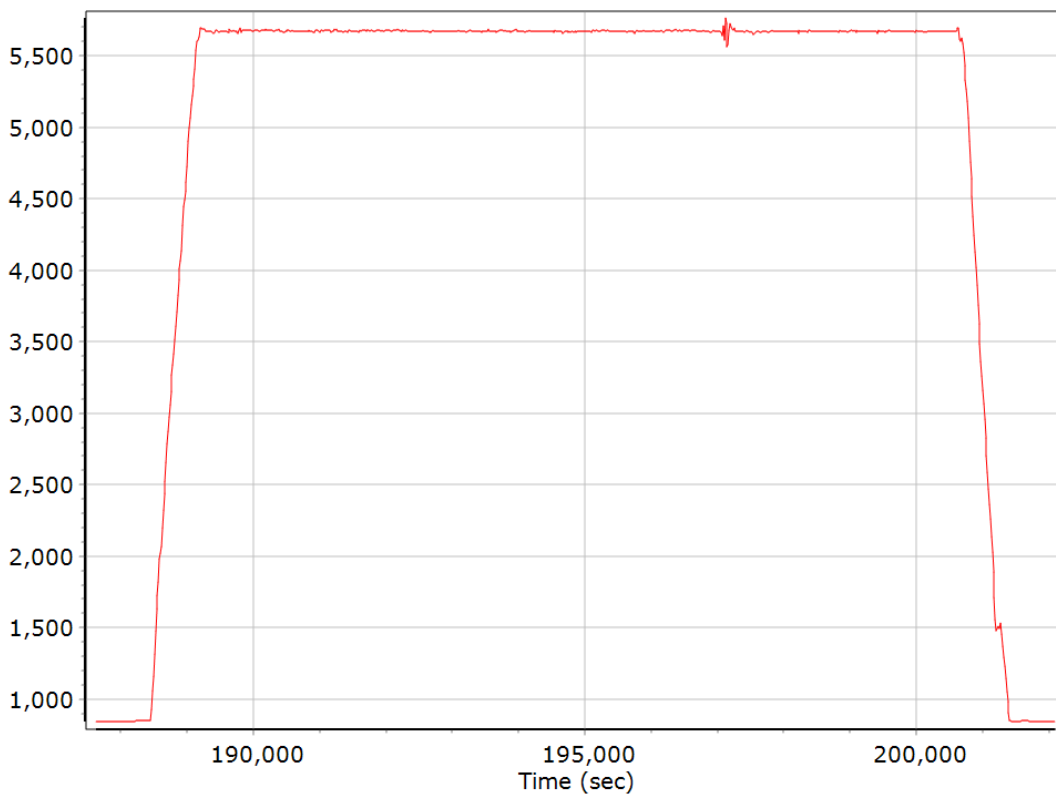
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## Forward Processed Trajectory Information

### Top View

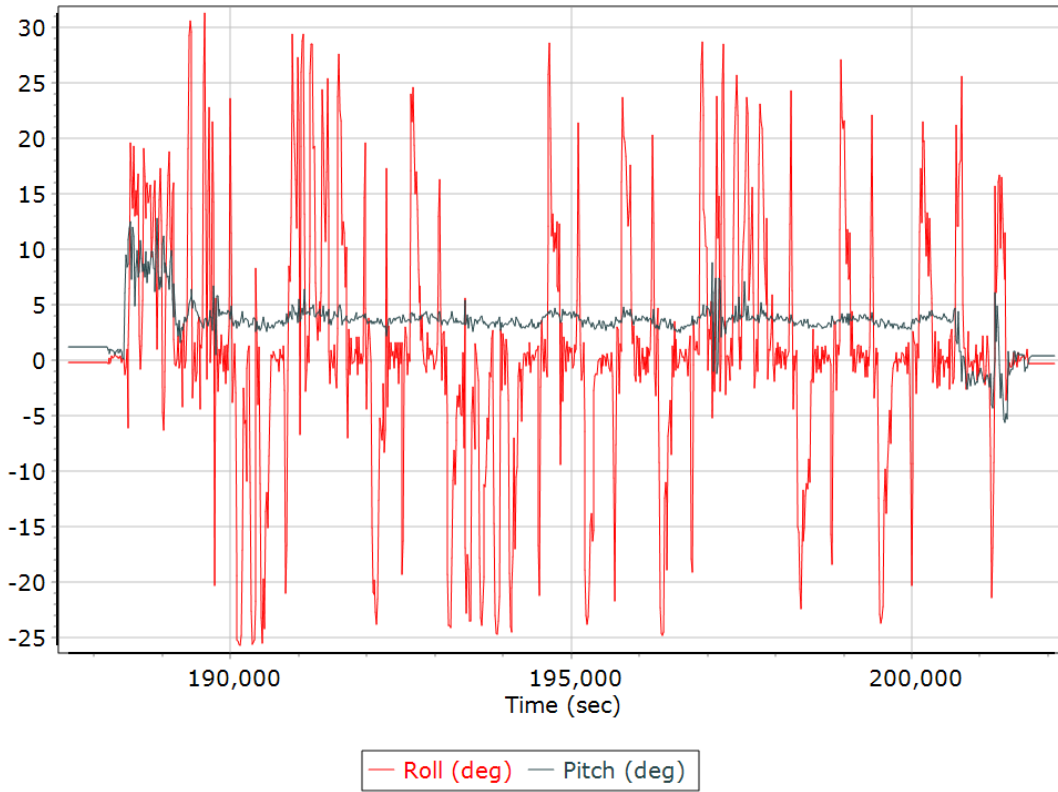


### Altitude

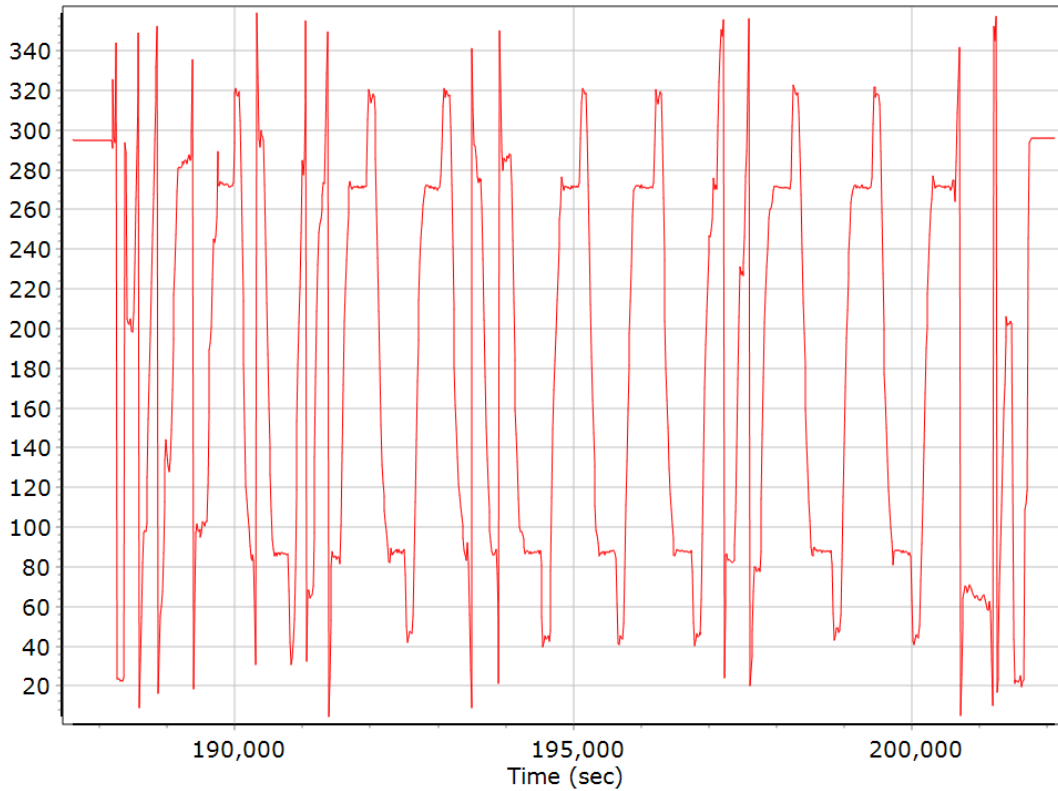




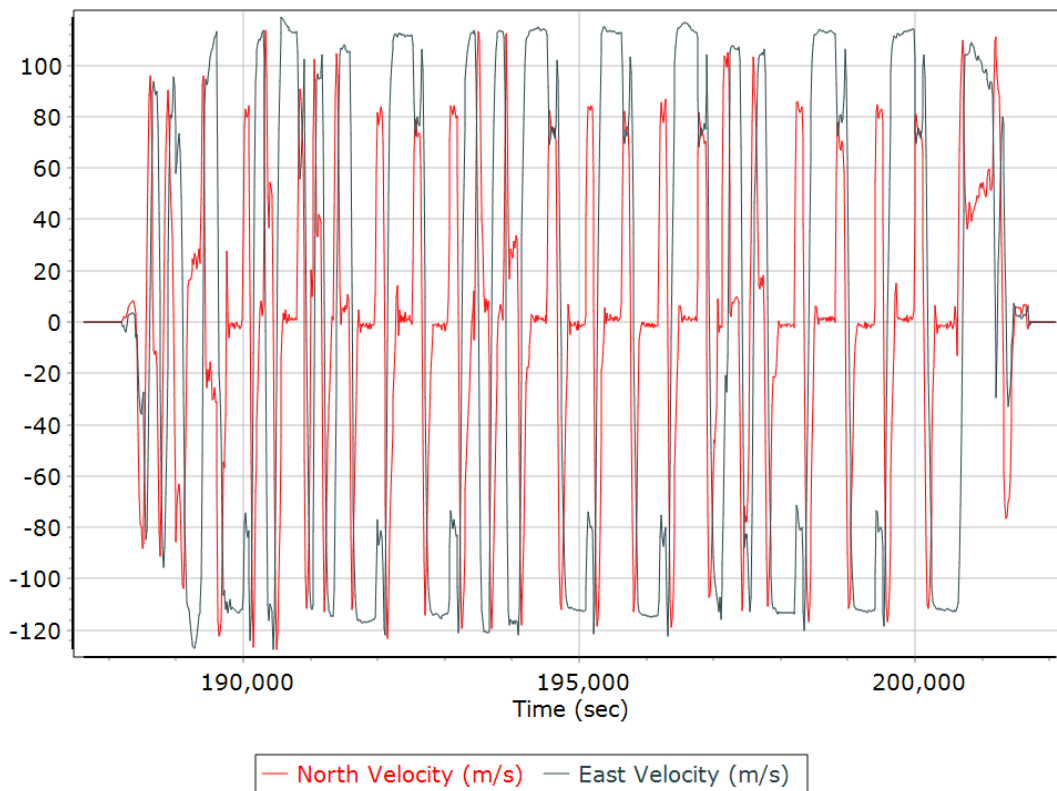
### Roll/Pitch



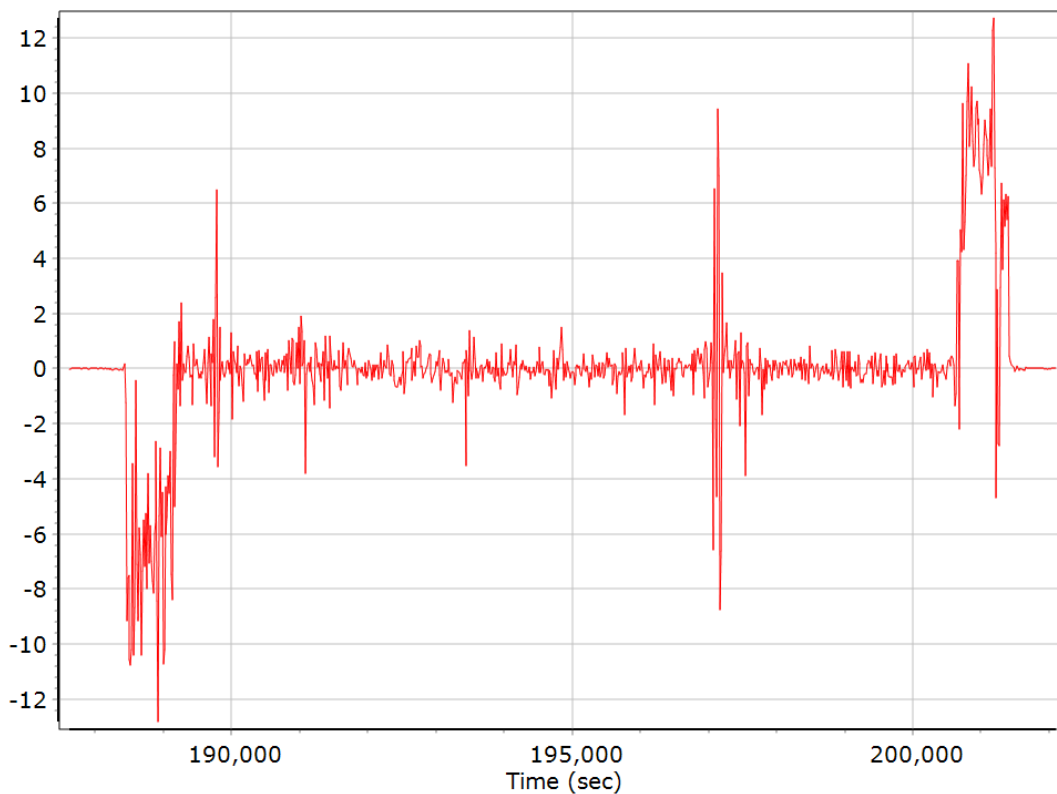
### Heading



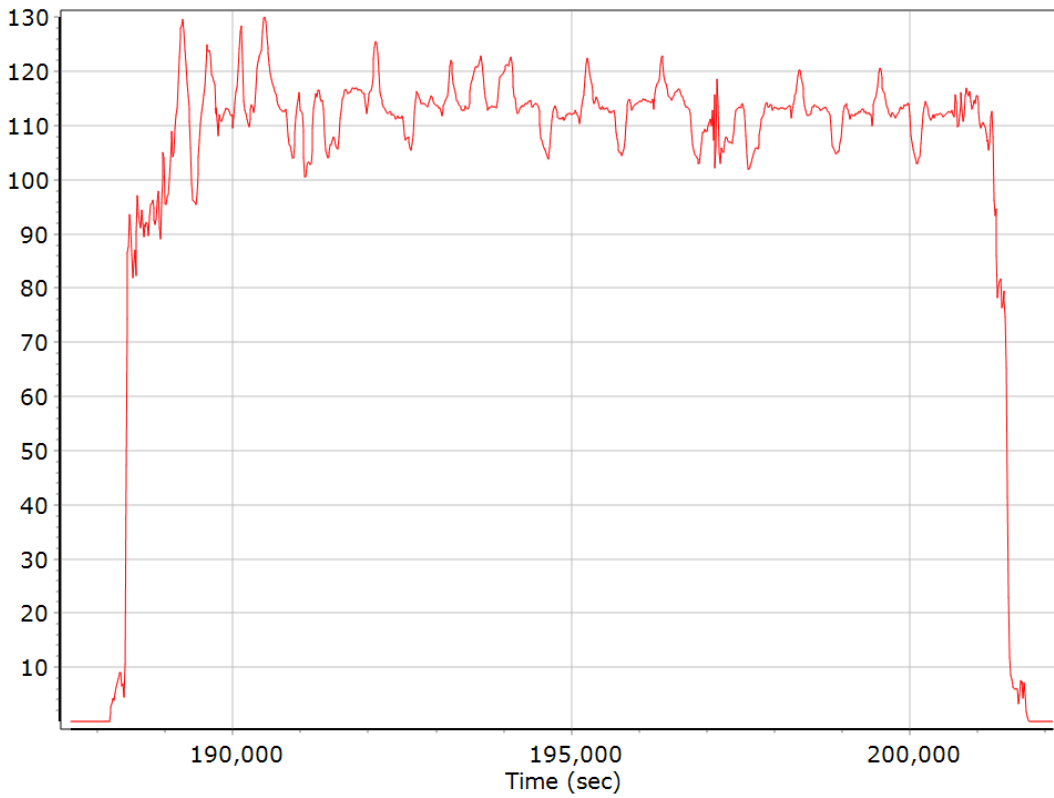
### North/East Velocity



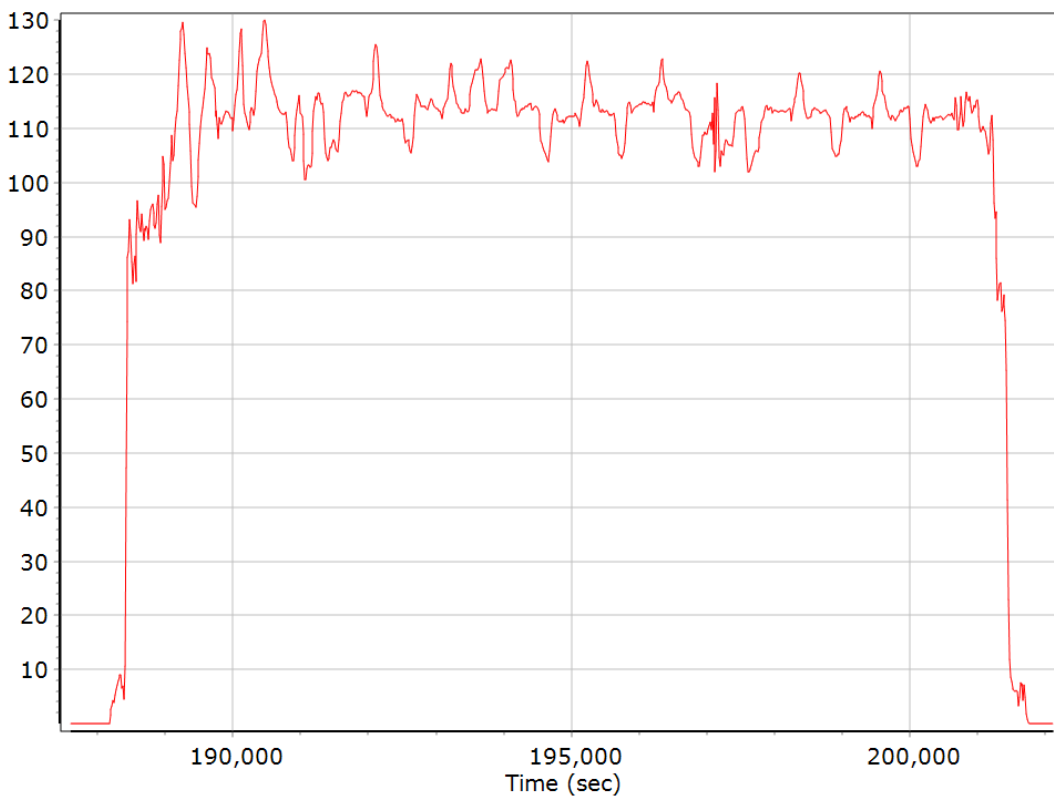
### Down Velocity



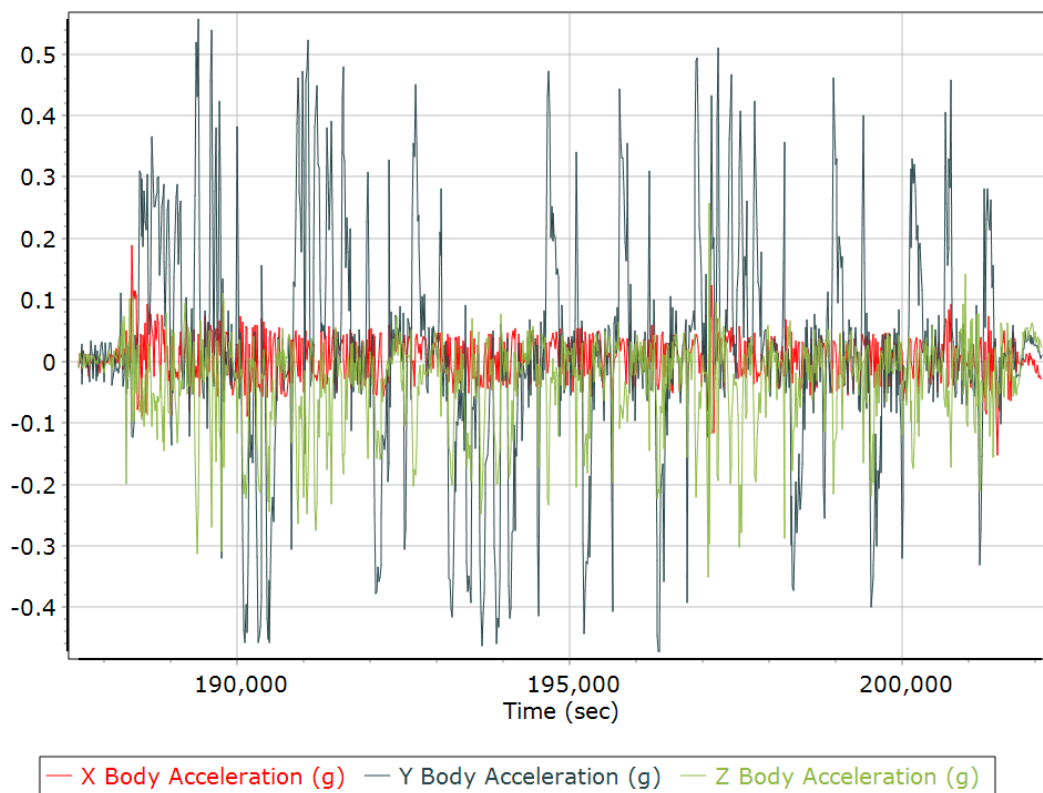
## Total Speed



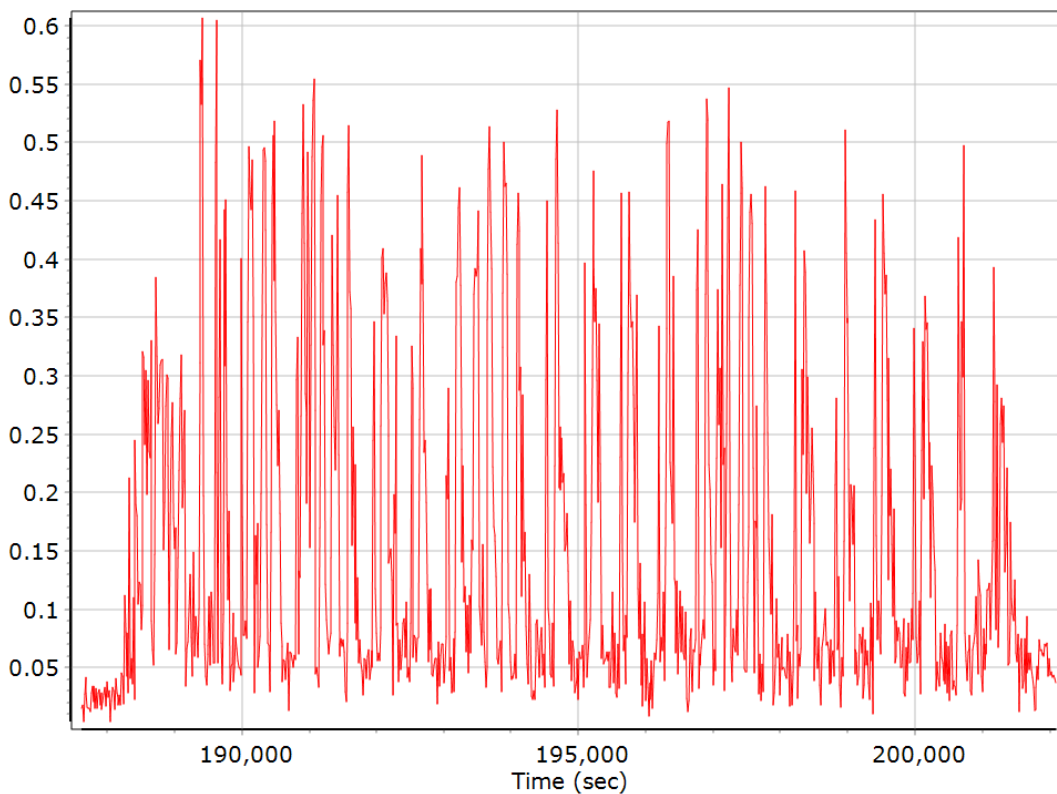
## Ground Speed



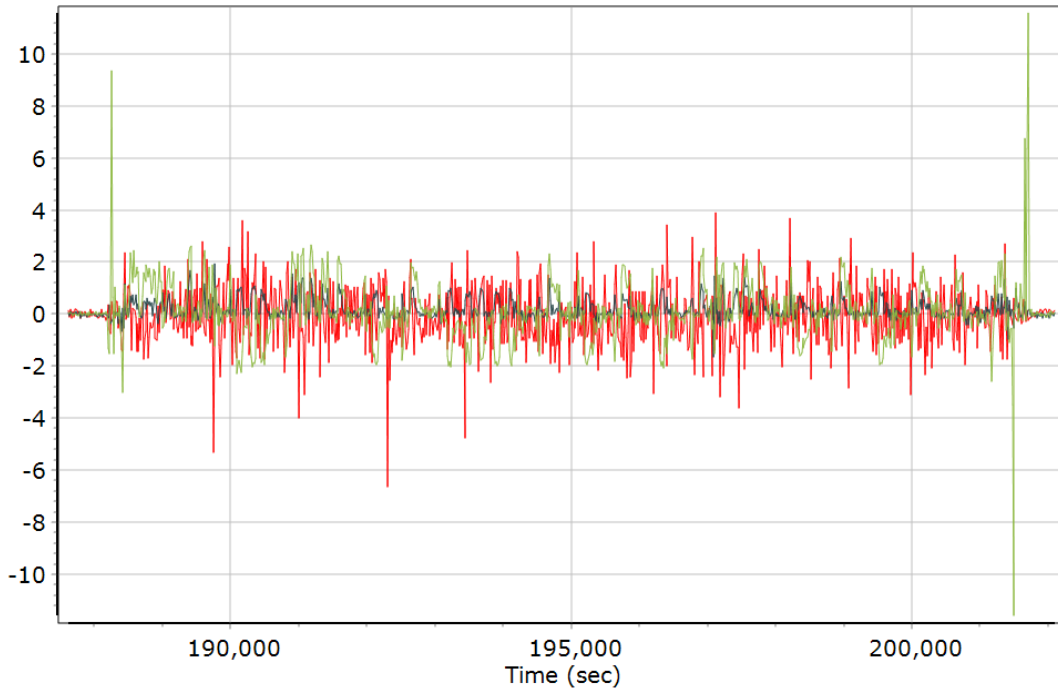
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



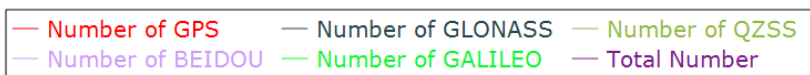
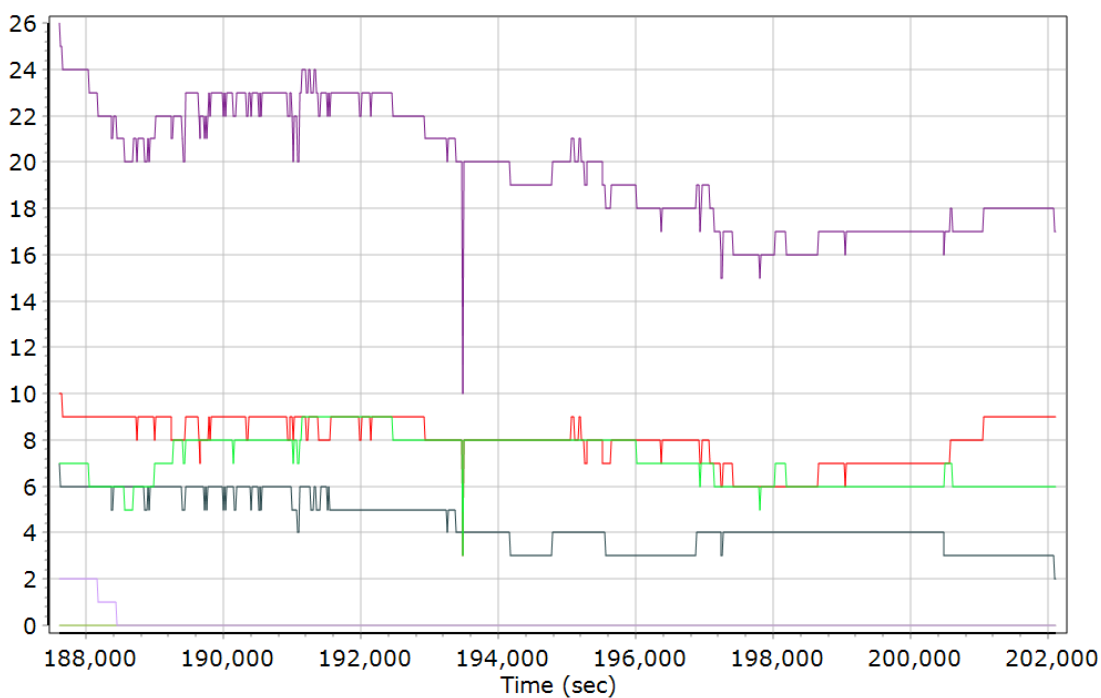
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

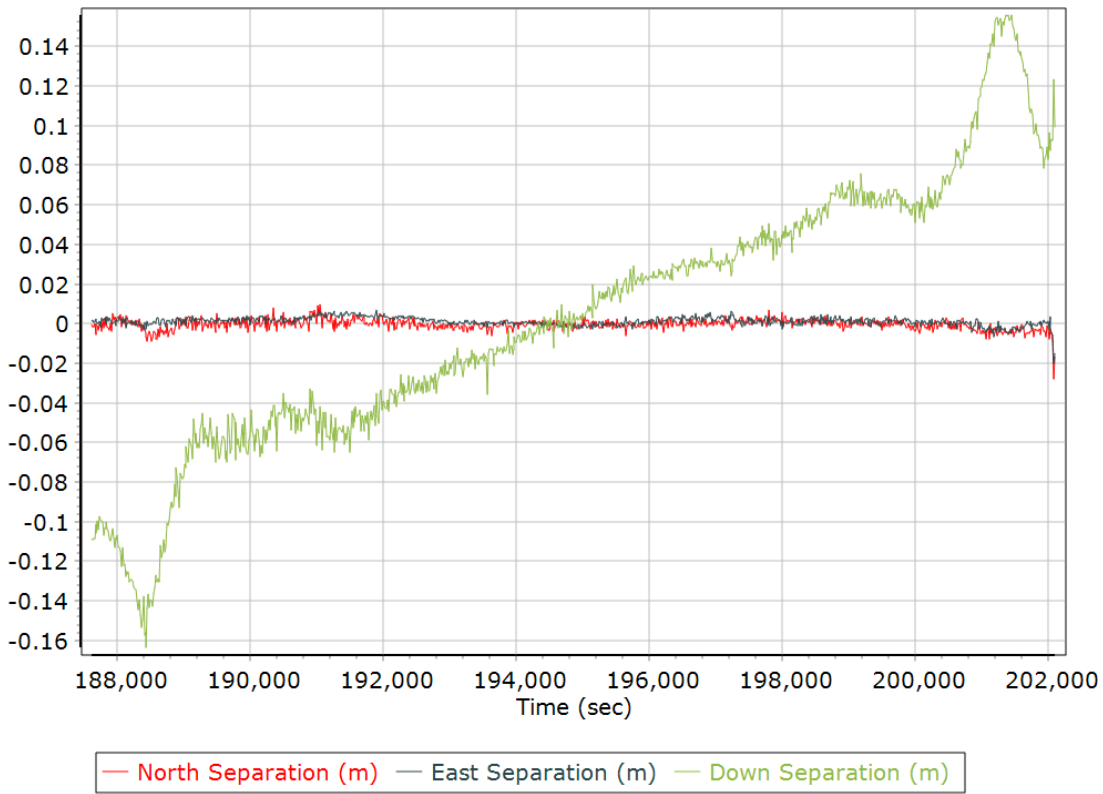
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	3	10	8
Number of GLONASS SV	0	8	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	2	0
Number of GALILEO SV	2	9	7
Total number of SV	9	27	20
PDOP	0.99	2.43	1.22
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	14956.00	0.00	0.00
Percentage	100.00	0.00	0.00

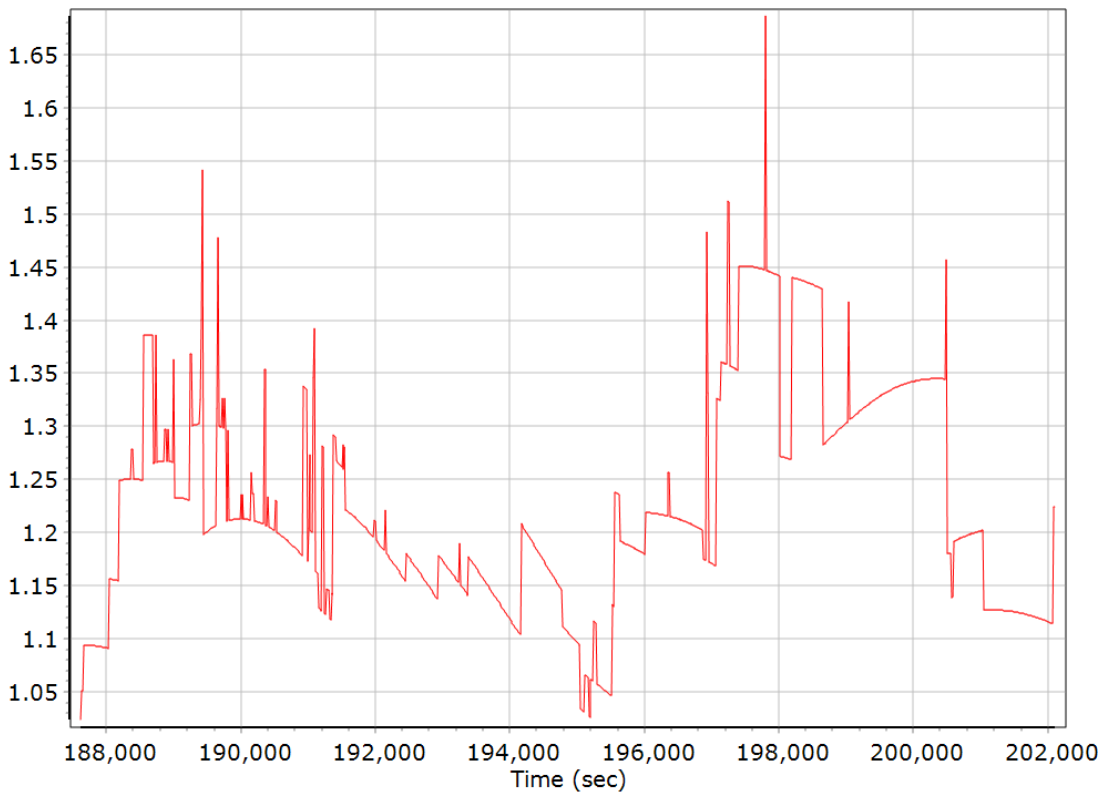
### Num SVs in solution



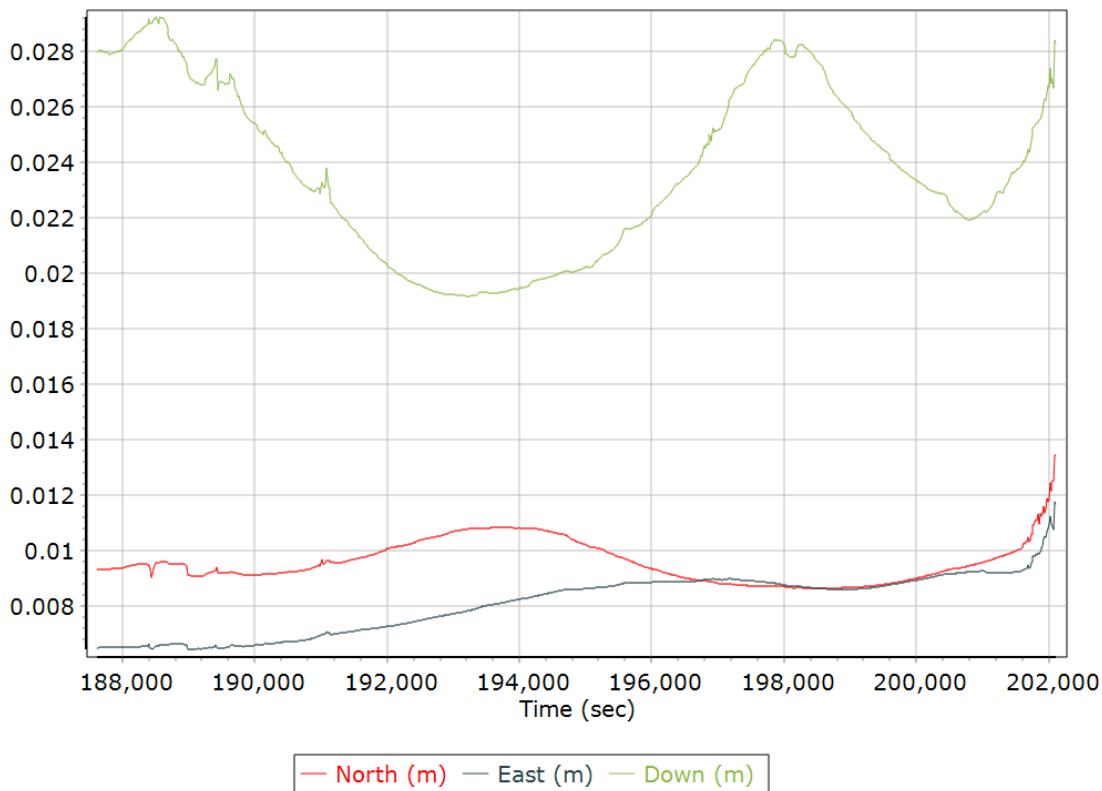
### Forward/Reverse Separation



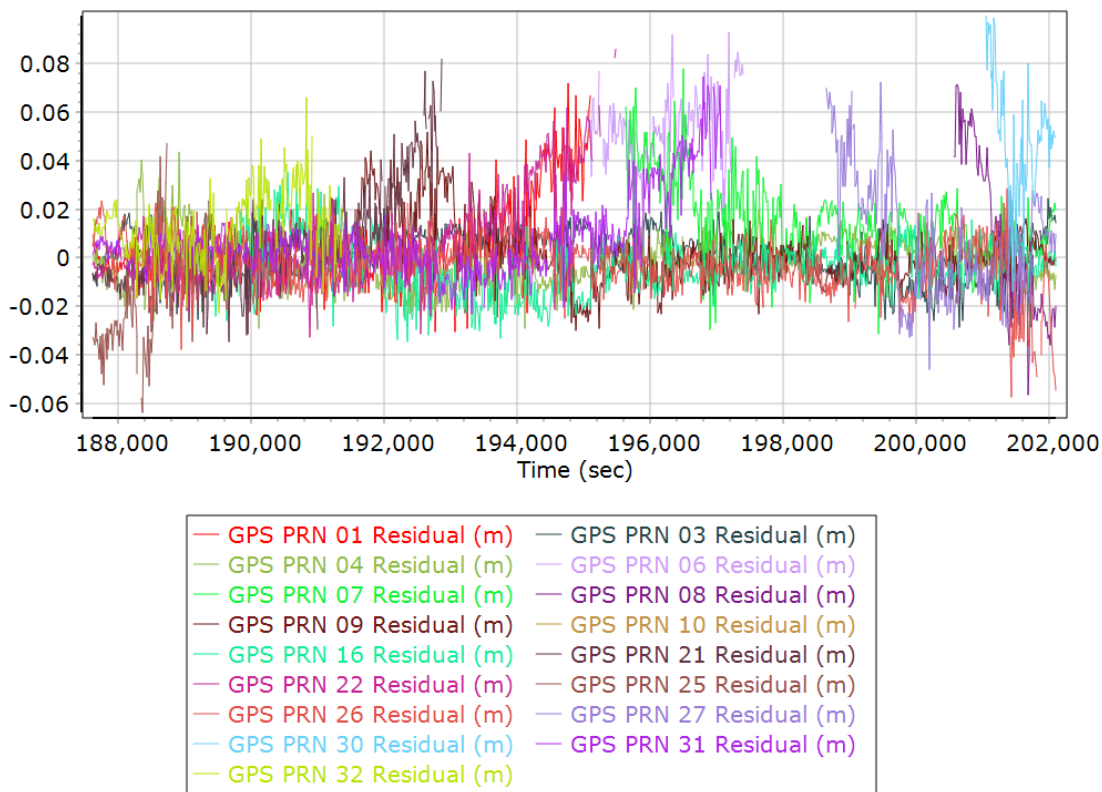
### PDOP



### Estimated Position Accuracy

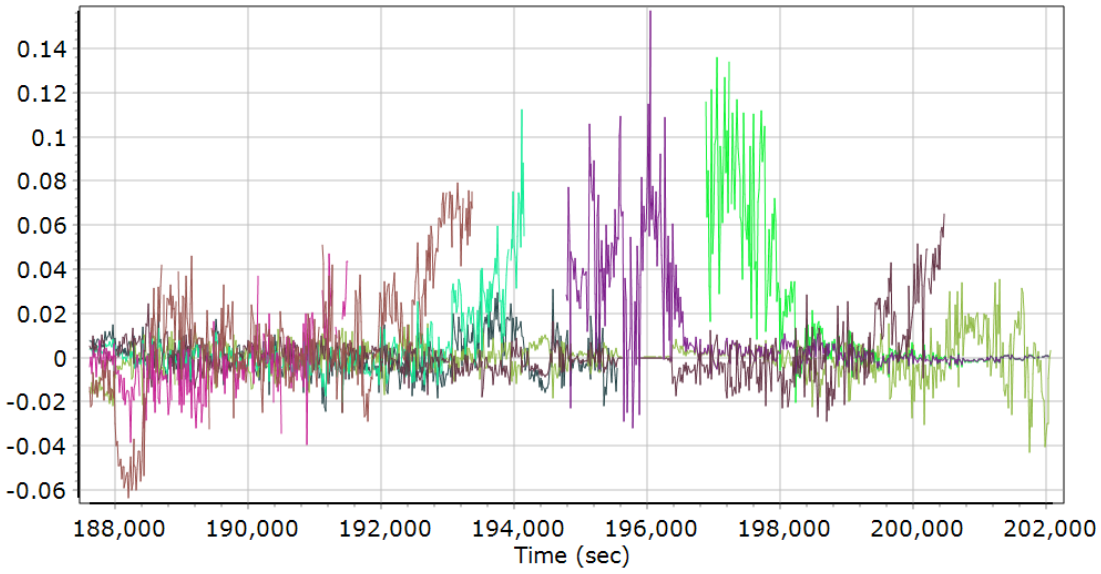


### GPS Residuals



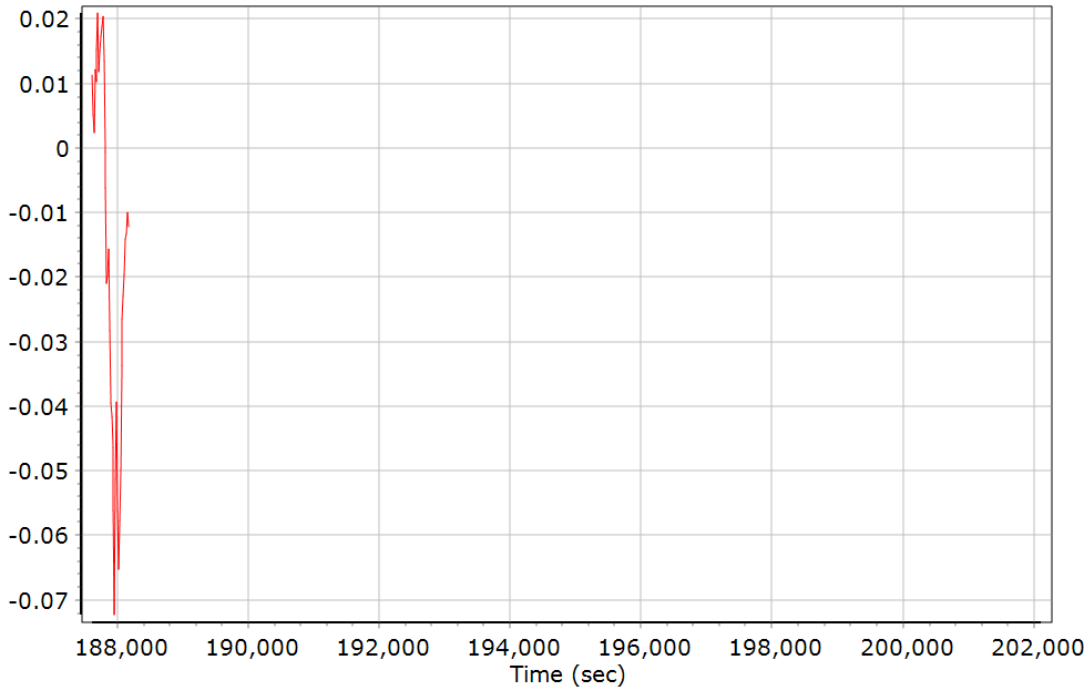


### GLONASS Residuals



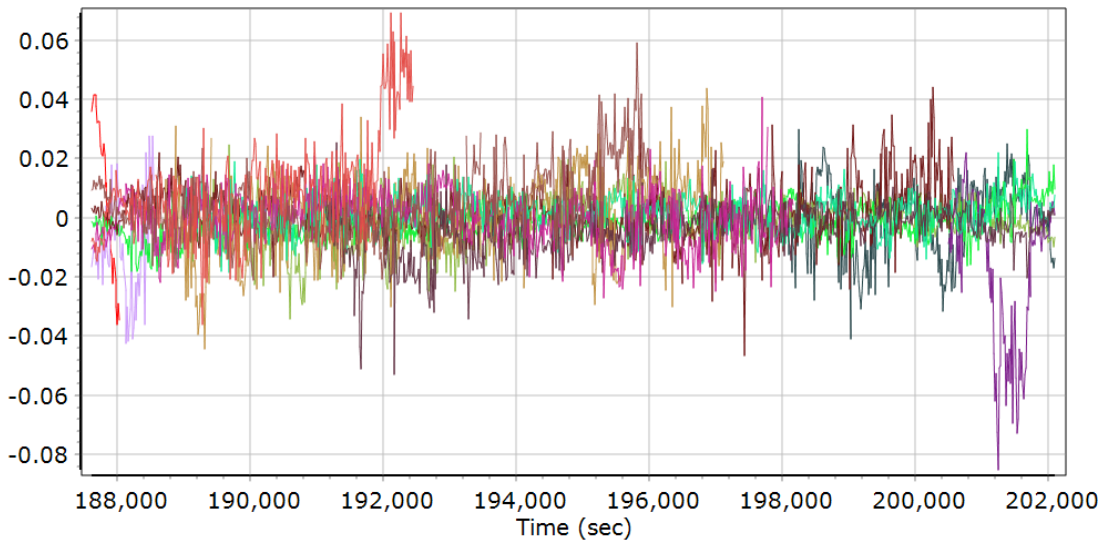
- |                           |                           |
|---------------------------|---------------------------|
| — GLONASS 03 Residual (m) | — GLONASS 04 Residual (m) |
| — GLONASS 05 Residual (m) | — GLONASS 06 Residual (m) |
| — GLONASS 07 Residual (m) | — GLONASS 09 Residual (m) |
| — GLONASS 10 Residual (m) | — GLONASS 13 Residual (m) |
| — GLONASS 14 Residual (m) | — GLONASS 15 Residual (m) |
| — GLONASS 20 Residual (m) | — GLONASS 21 Residual (m) |

### BEIDOU Residuals



- |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|
| — BEIDOU 11 Residual (m) | — BEIDOU 14 Residual (m) | — BEIDOU 21 Residual (m) |
| — BEIDOU 24 Residual (m) | — BEIDOU 26 Residual (m) | — BEIDOU 28 Residual (m) |

## GALILEO Residuals



- |                           |                           |
|---------------------------|---------------------------|
| — GALILEO 01 Residual (m) | — GALILEO 02 Residual (m) |
| — GALILEO 03 Residual (m) | — GALILEO 04 Residual (m) |
| — GALILEO 05 Residual (m) | — GALILEO 08 Residual (m) |
| — GALILEO 09 Residual (m) | — GALILEO 15 Residual (m) |
| — GALILEO 24 Residual (m) | — GALILEO 25 Residual (m) |
| — GALILEO 31 Residual (m) | — GALILEO 34 Residual (m) |
| — GALILEO 36 Residual (m) |                           |

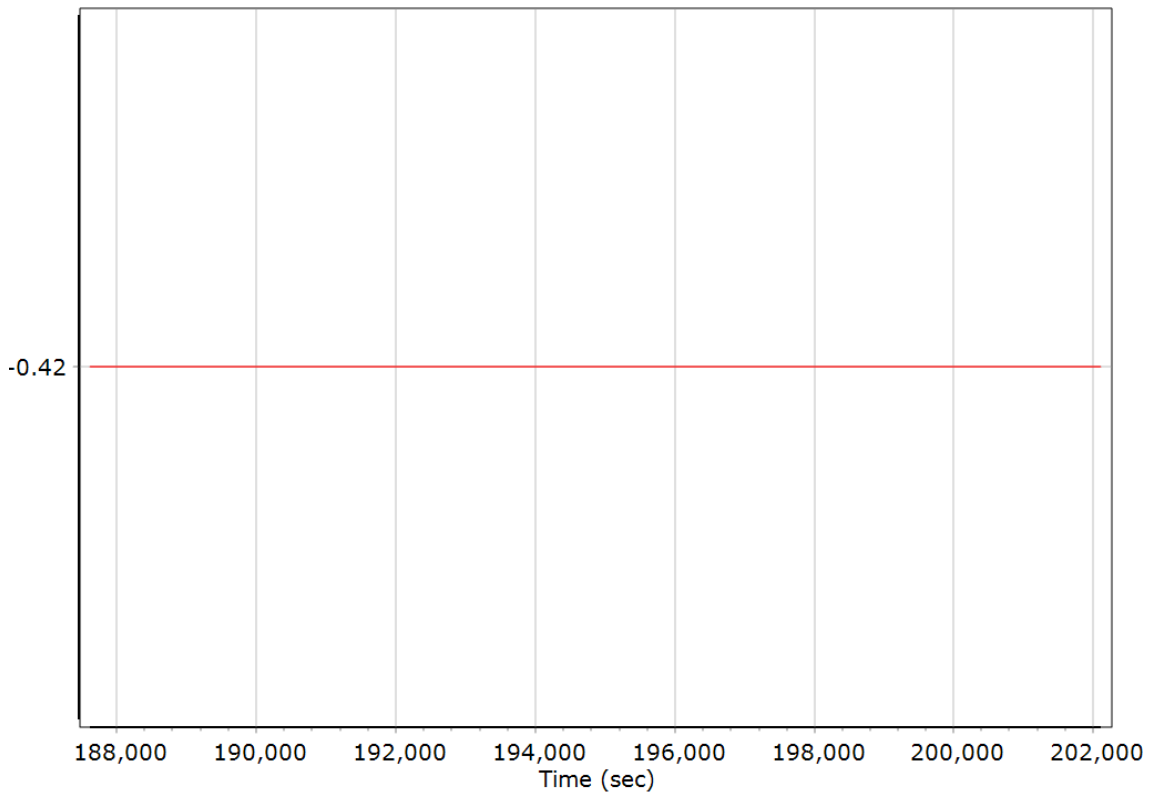
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	187149.000 (6/28/2022 3:59:09 AM)		
Processing end time	202112.000 (6/28/2022 8:08:32 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.420	-0.285	-1.282
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

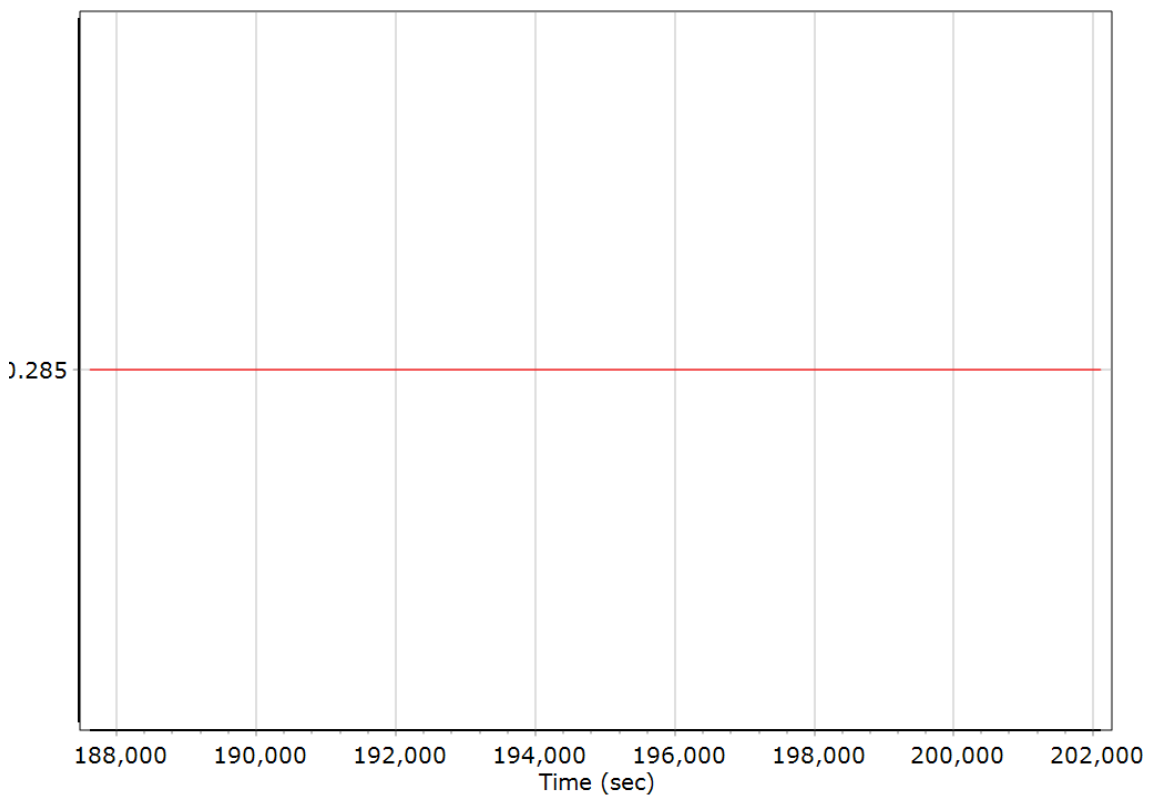
## Calibrated Installation Parameters

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

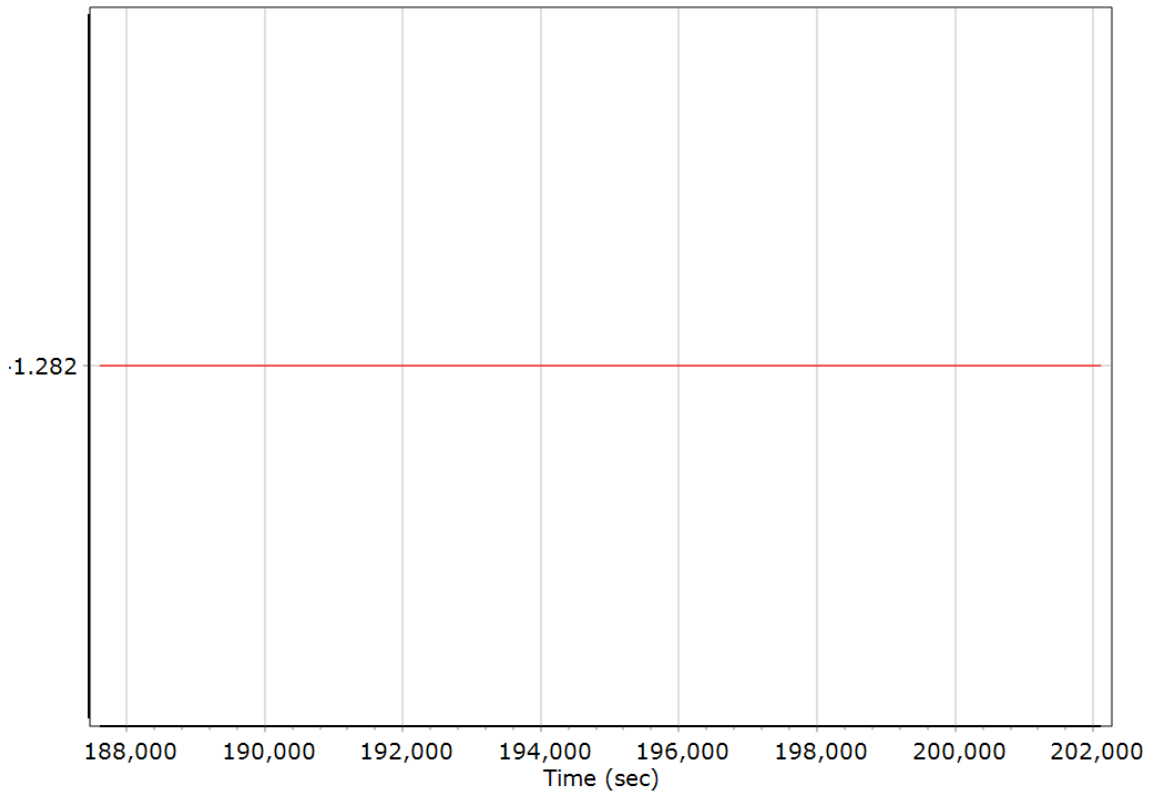
#### X Reference-Primary GNSS Lever Arm (m)



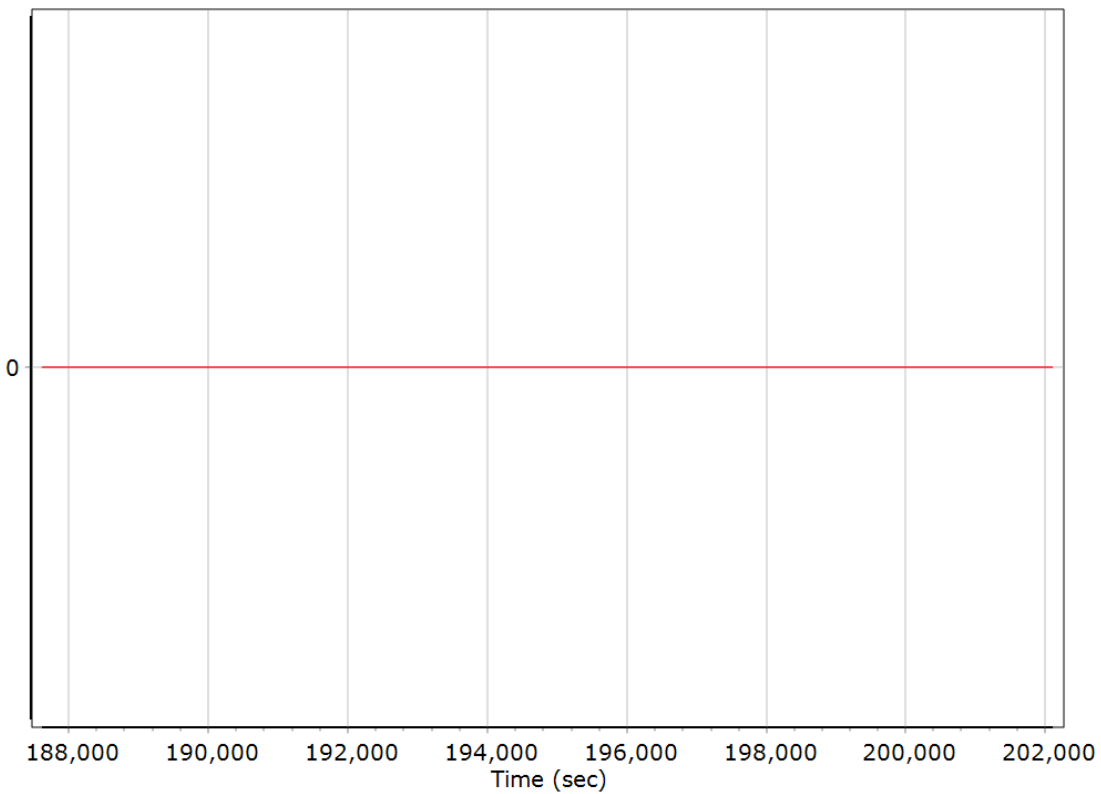
#### Y Reference-Primary GNSS Lever Arm (m)



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



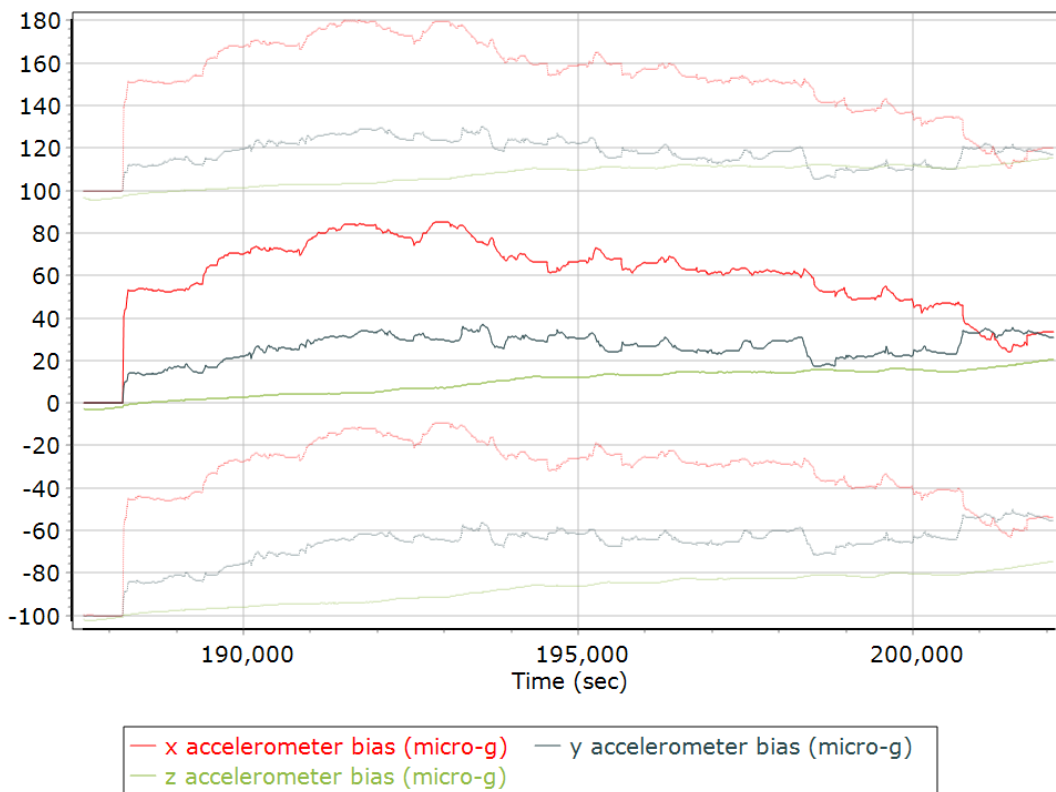
### Reference-Primary GNSS Lever Arm Figure of Merit



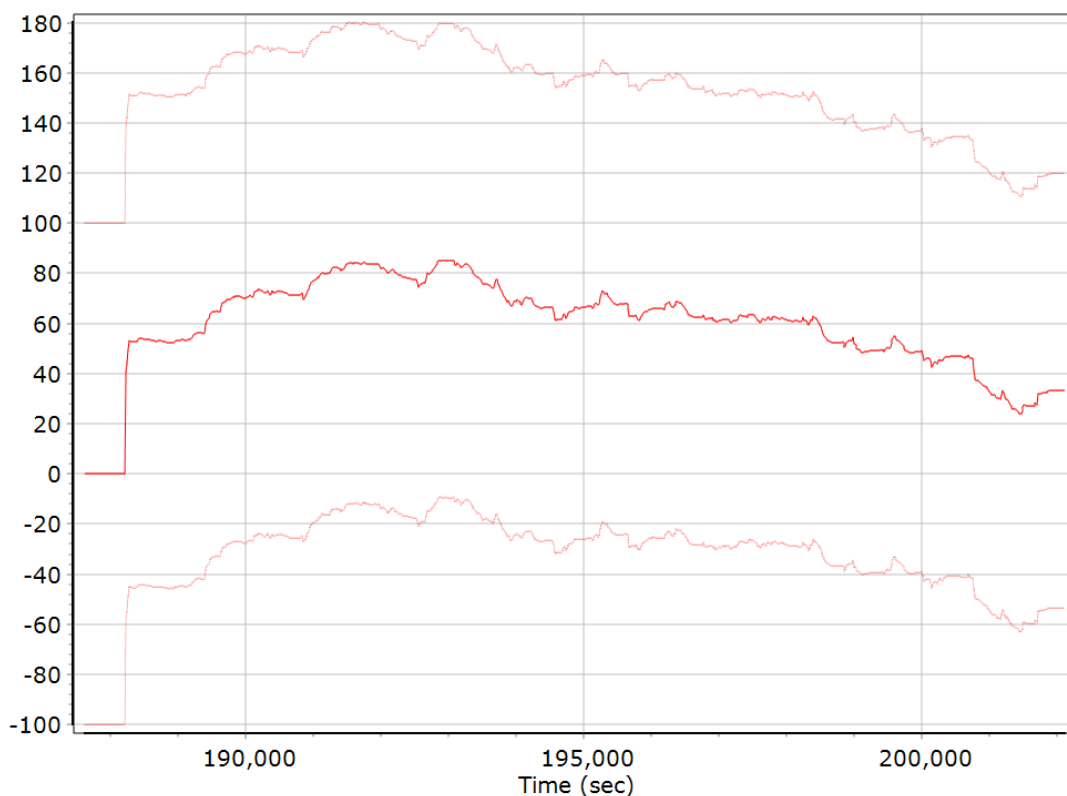
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

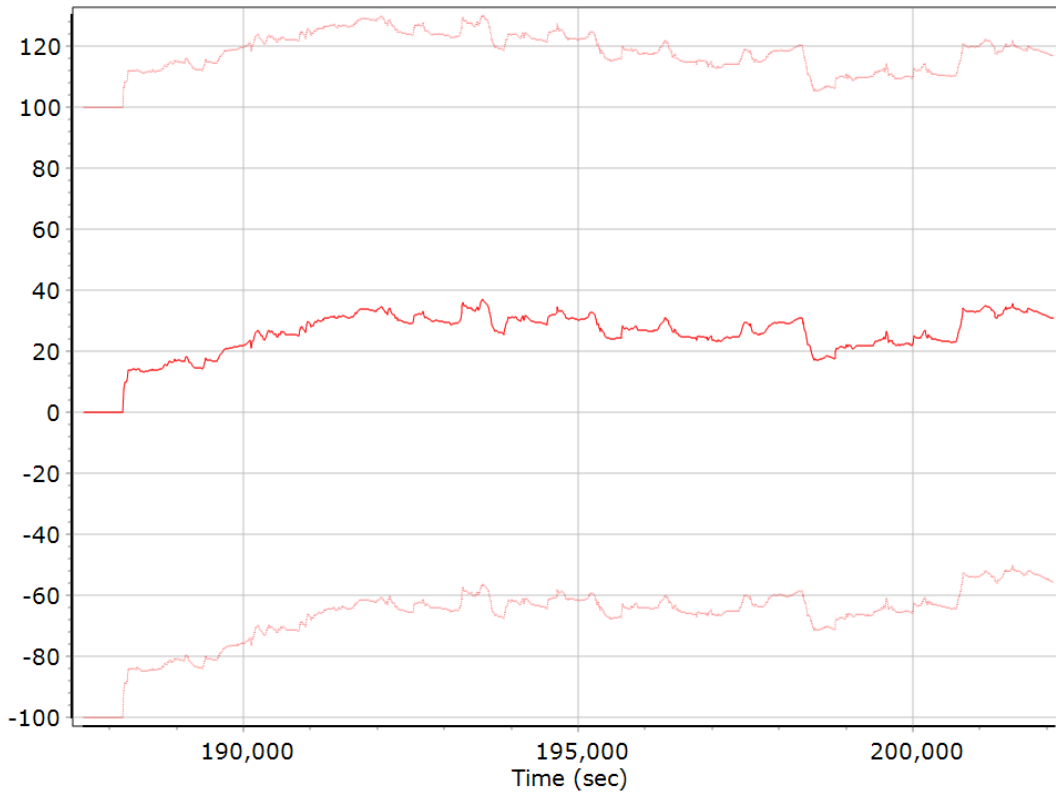
#### Accelerometer Bias (micro-g)



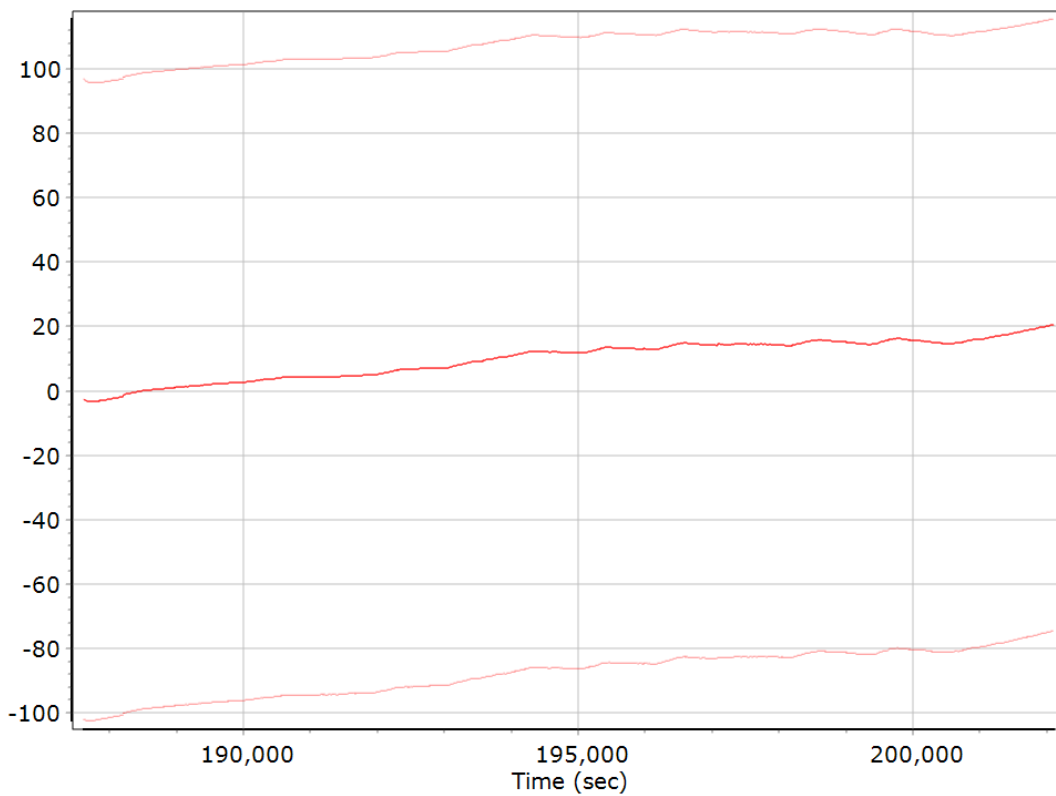
#### X Accelerometer Bias (micro-g)



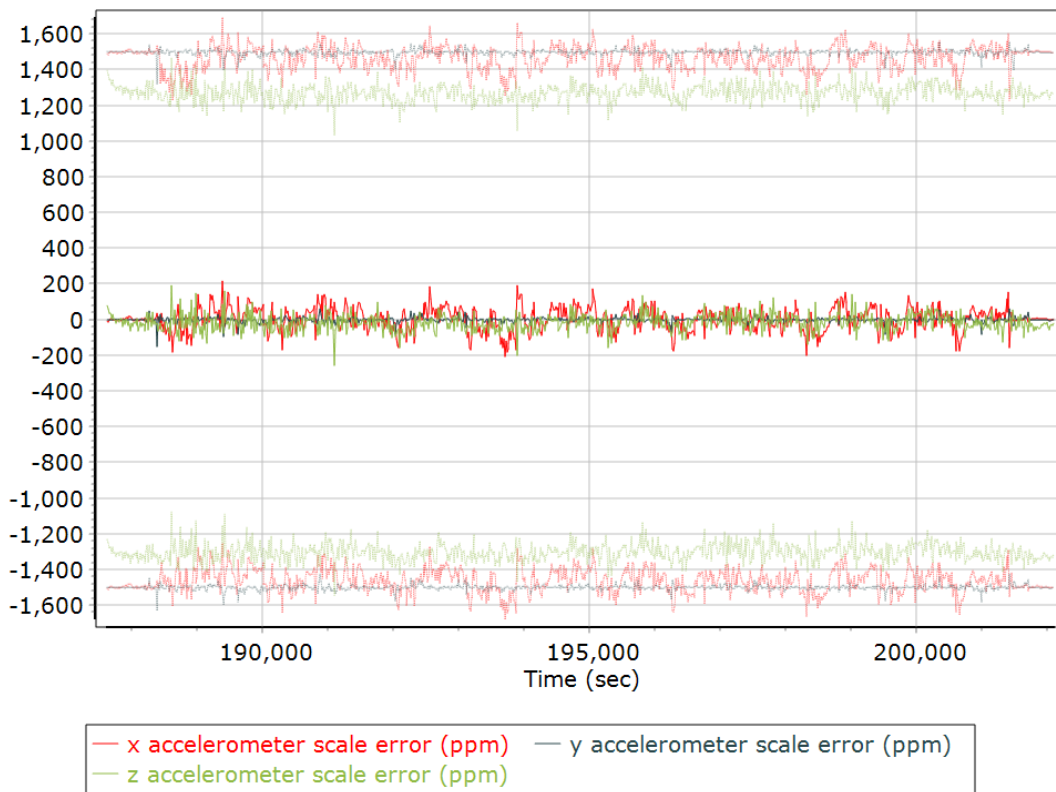
### Y Accelerometer Bias (micro-g)



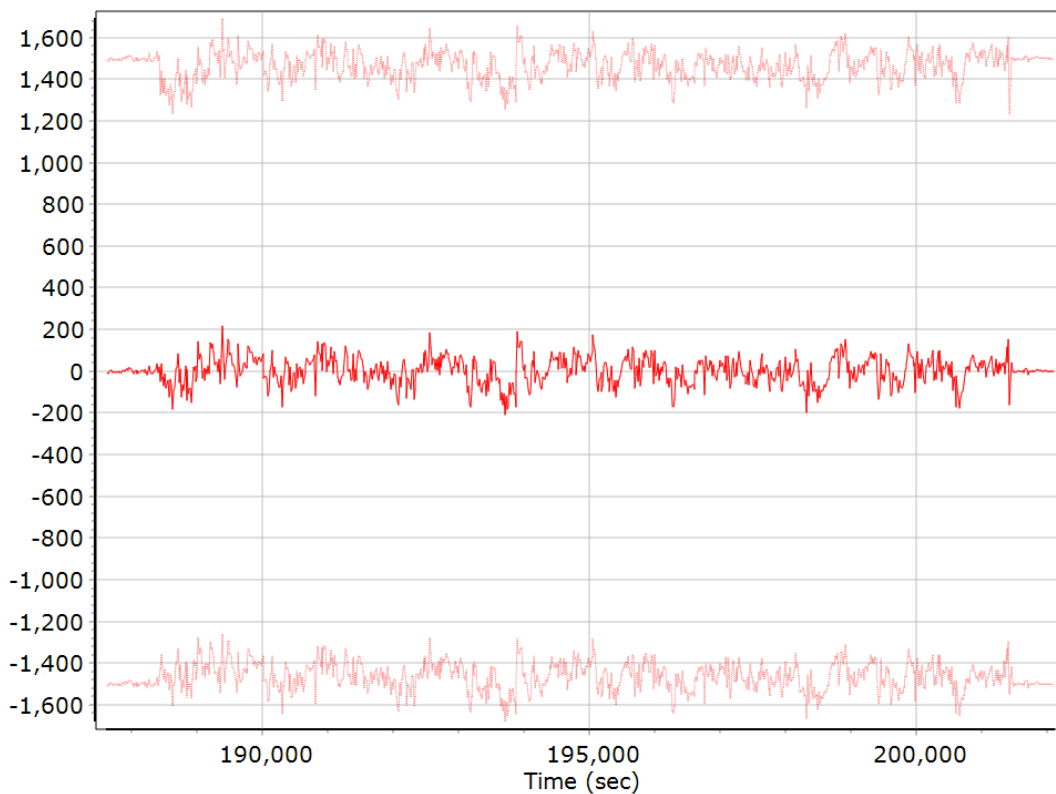
### Z Accelerometer Bias (micro-g)



### Accelerometer Scale Error (ppm)

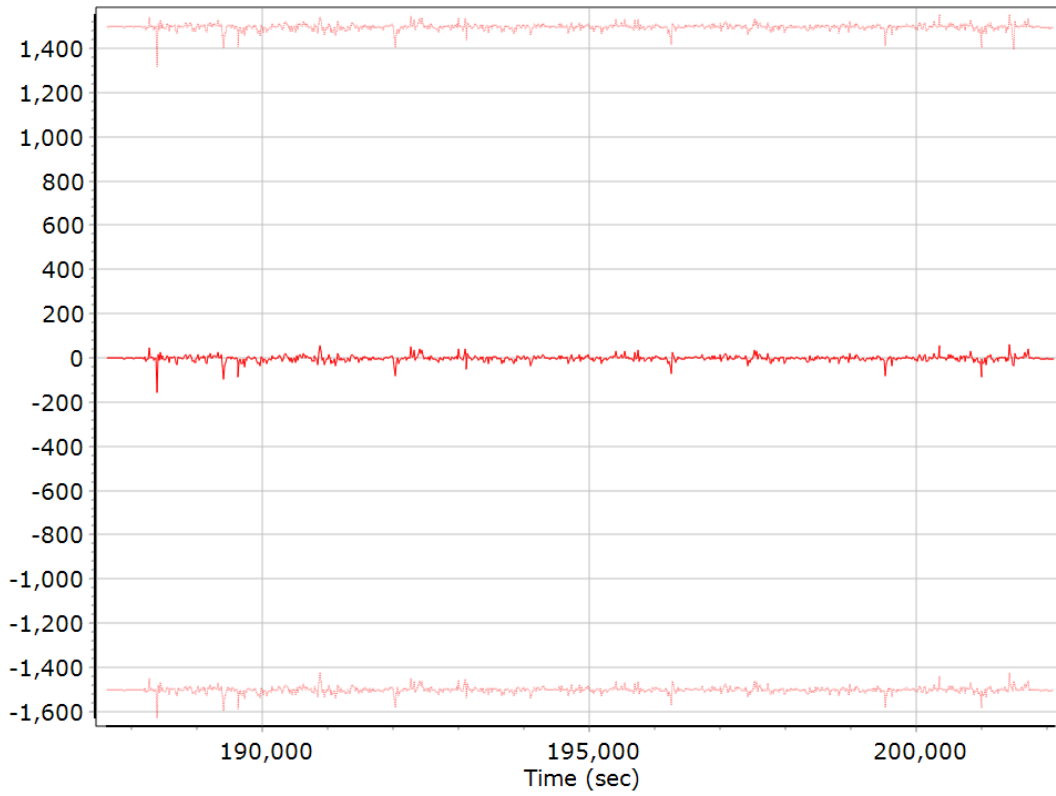


### X Accelerometer Scale Error (ppm)

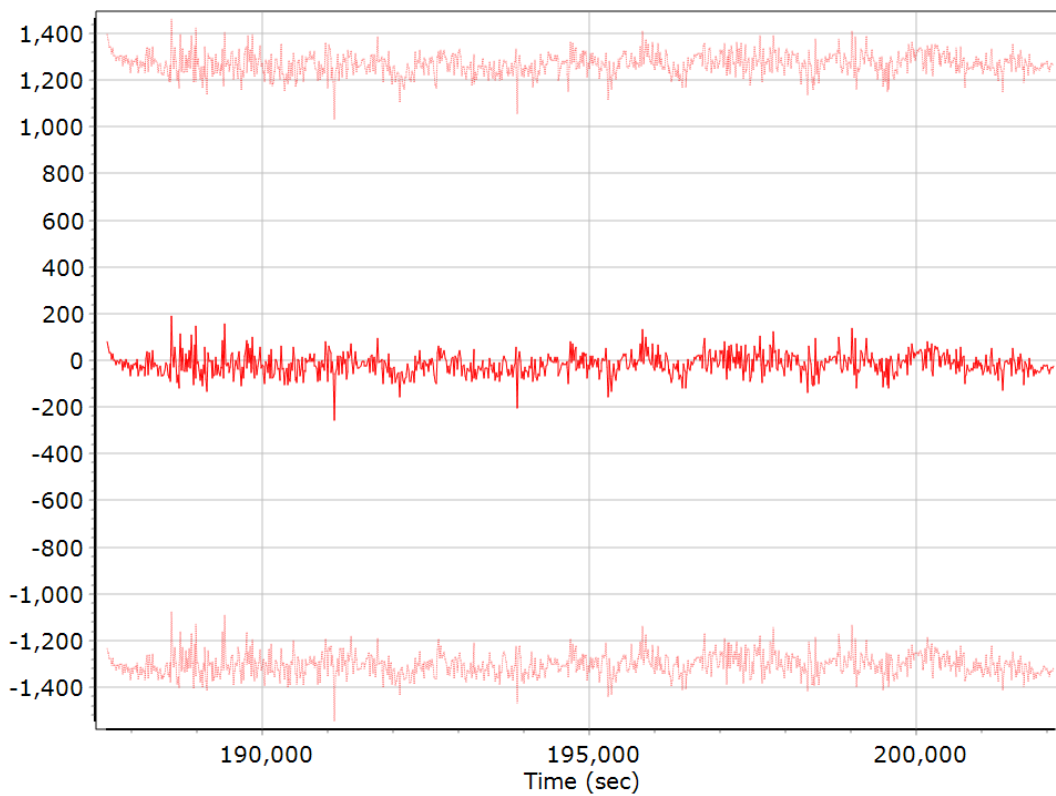




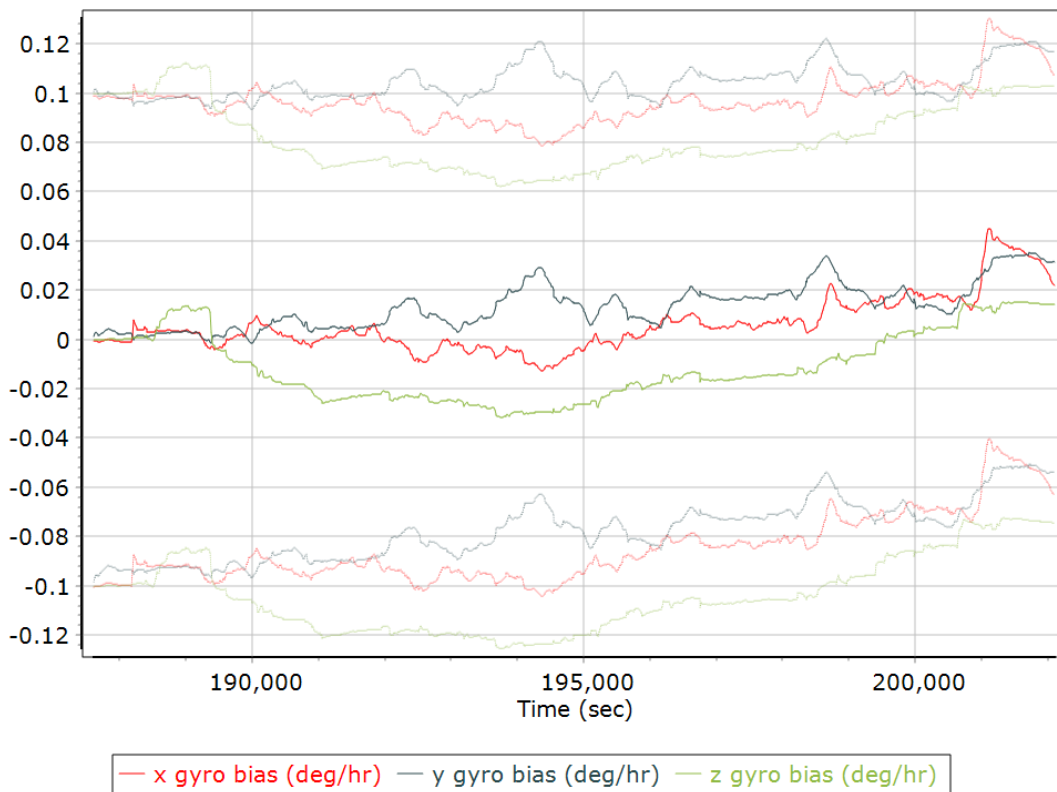
### Y Accelerometer Scale Error (ppm)



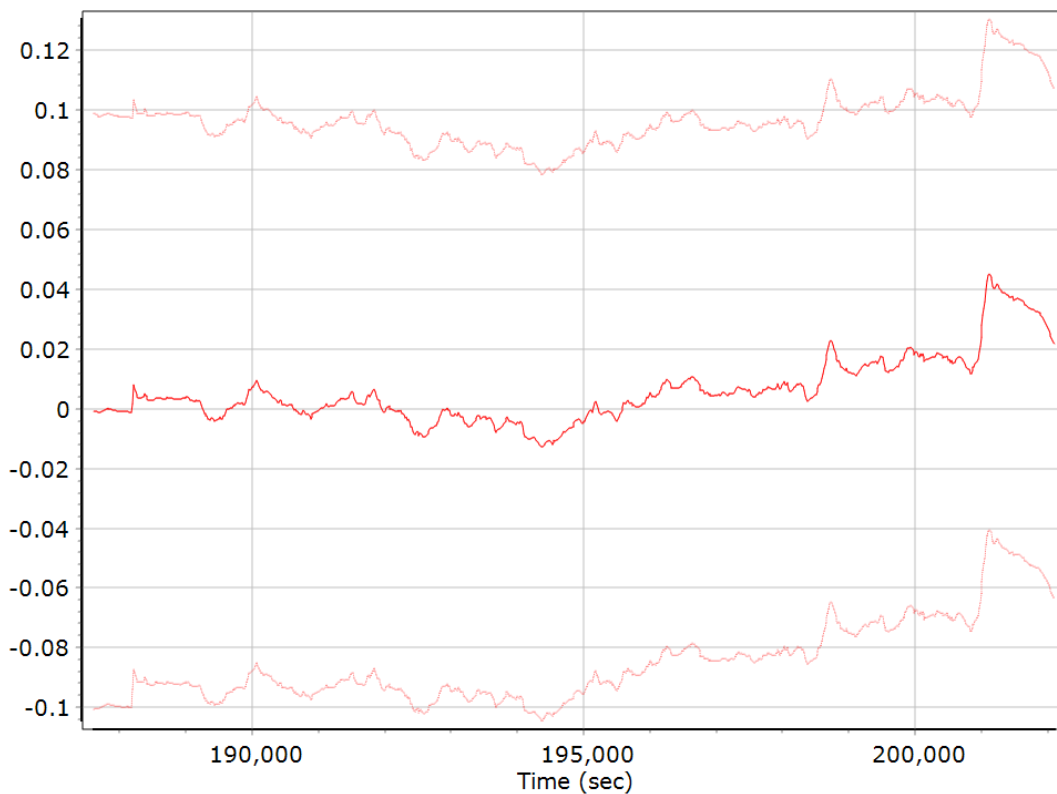
### Z Accelerometer Scale Error (ppm)



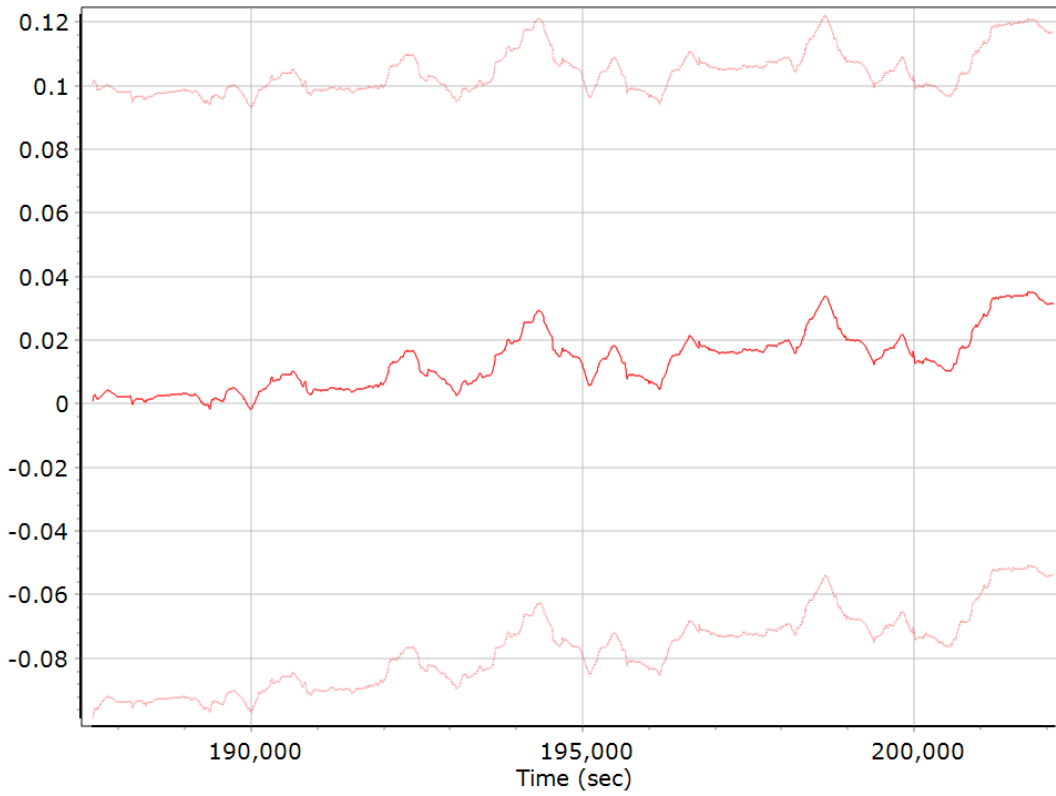
### Gyro Bias (deg/h)



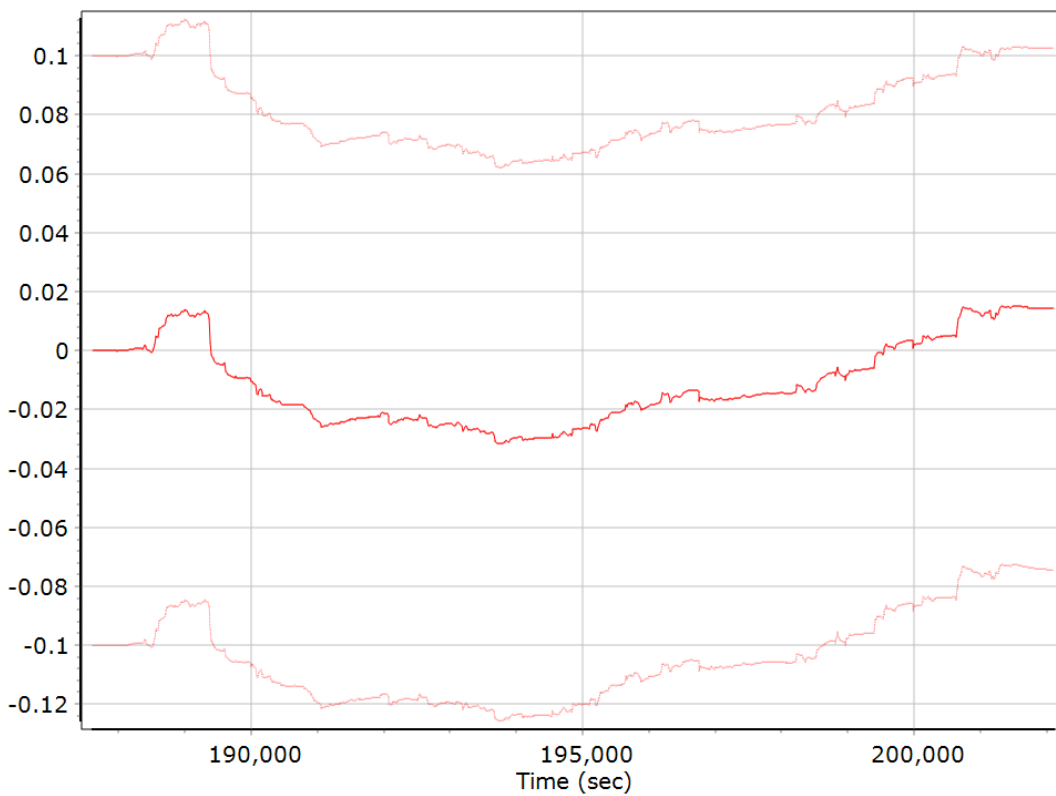
### X Gyro Bias (deg/h)



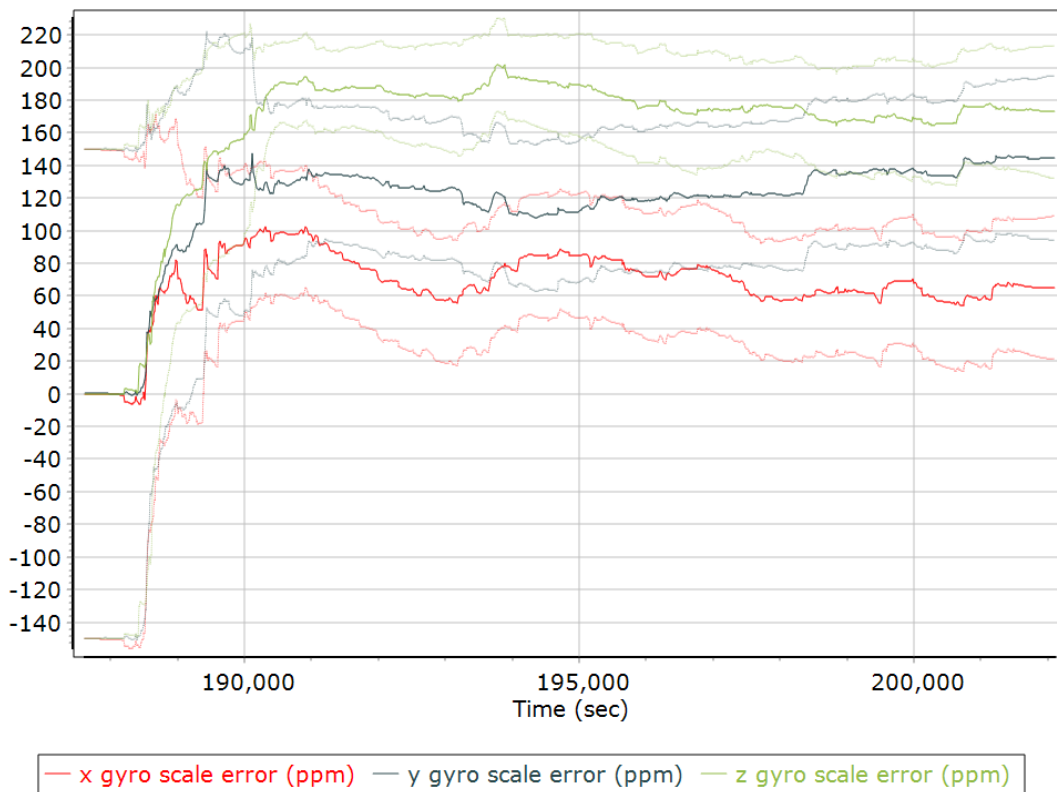
### Y Gyro Bias (deg/h)



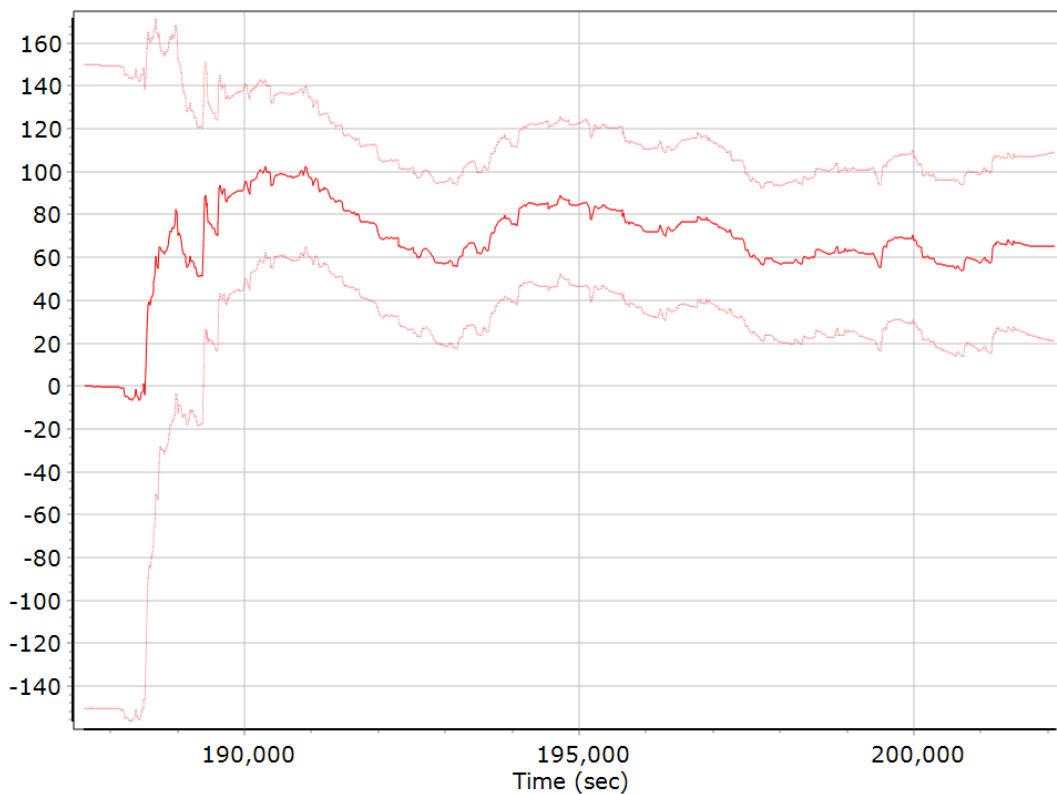
### Z Gyro Bias (deg/h)



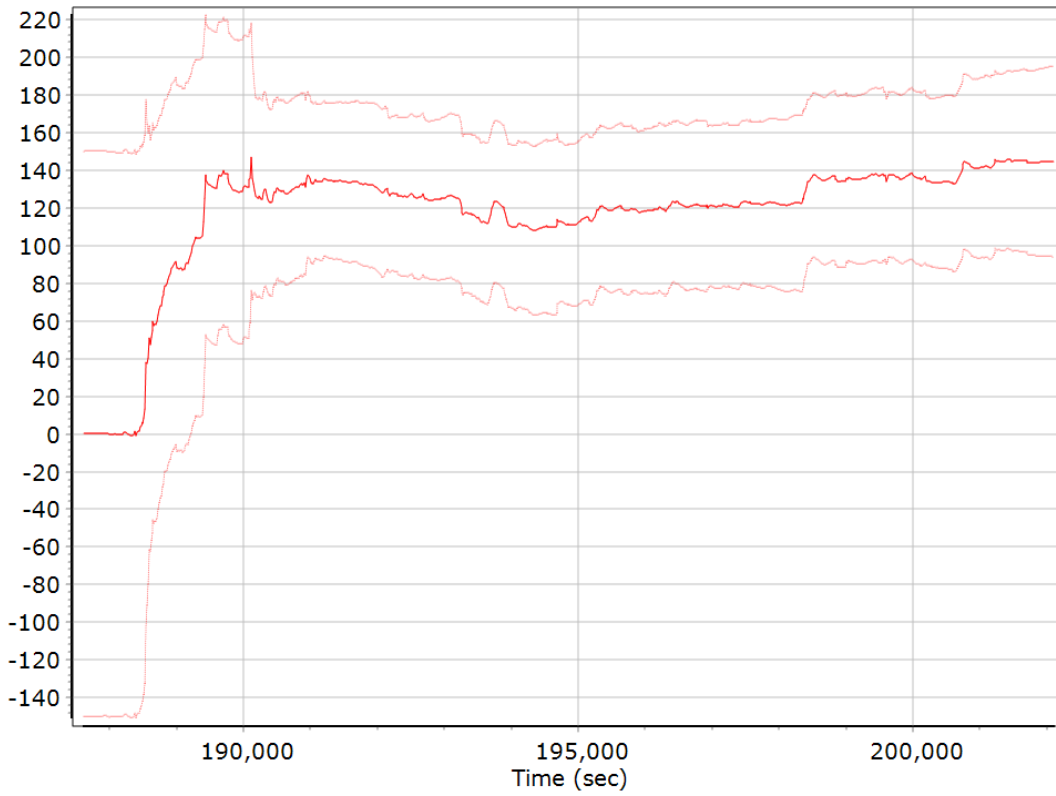
### Gyro Scale Error (ppm)



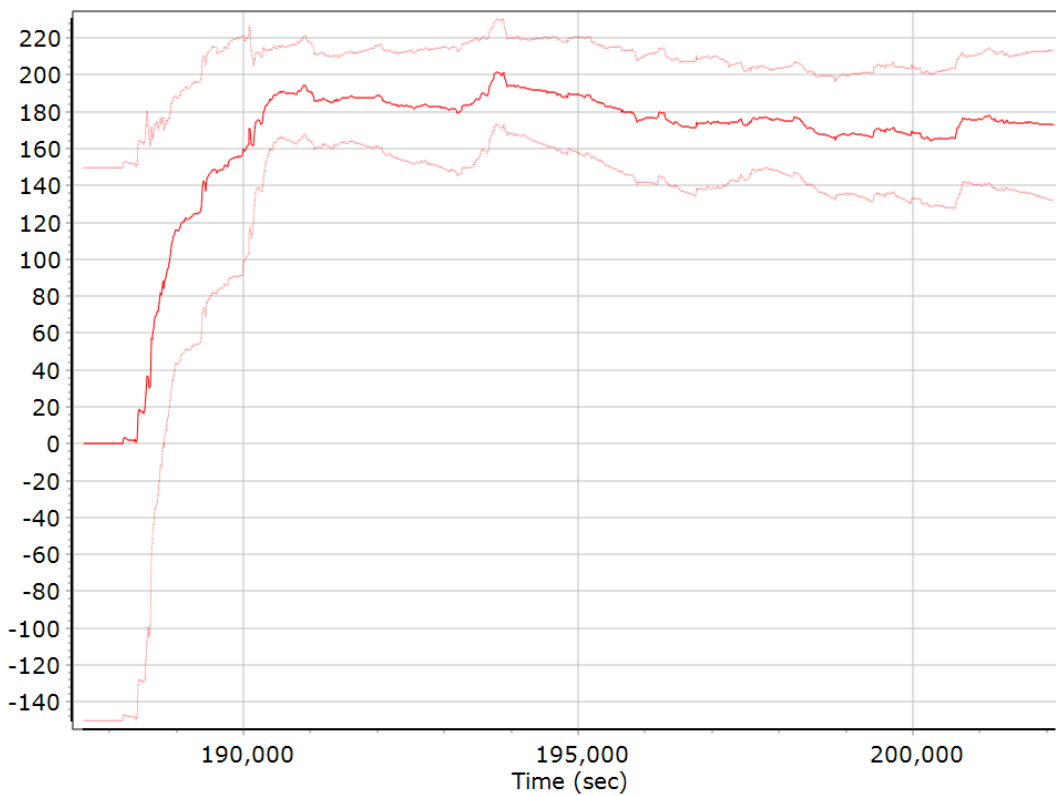
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)

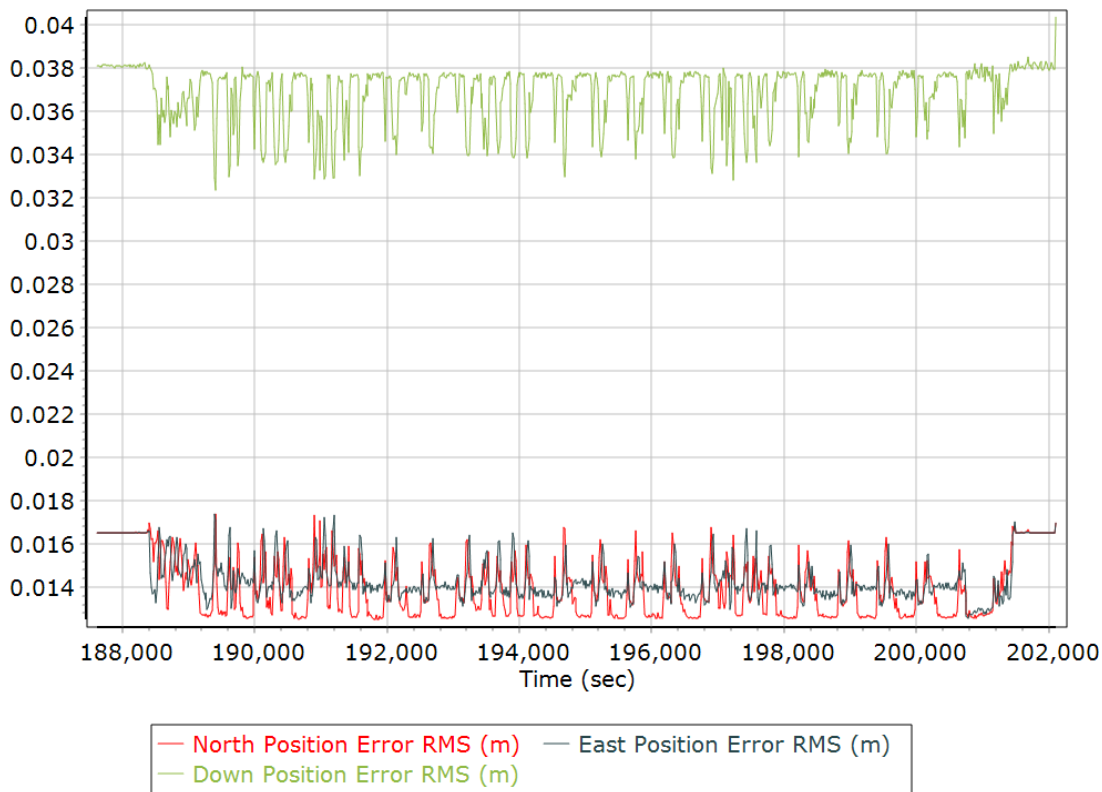


### Z Gyro Scale Error (ppm)

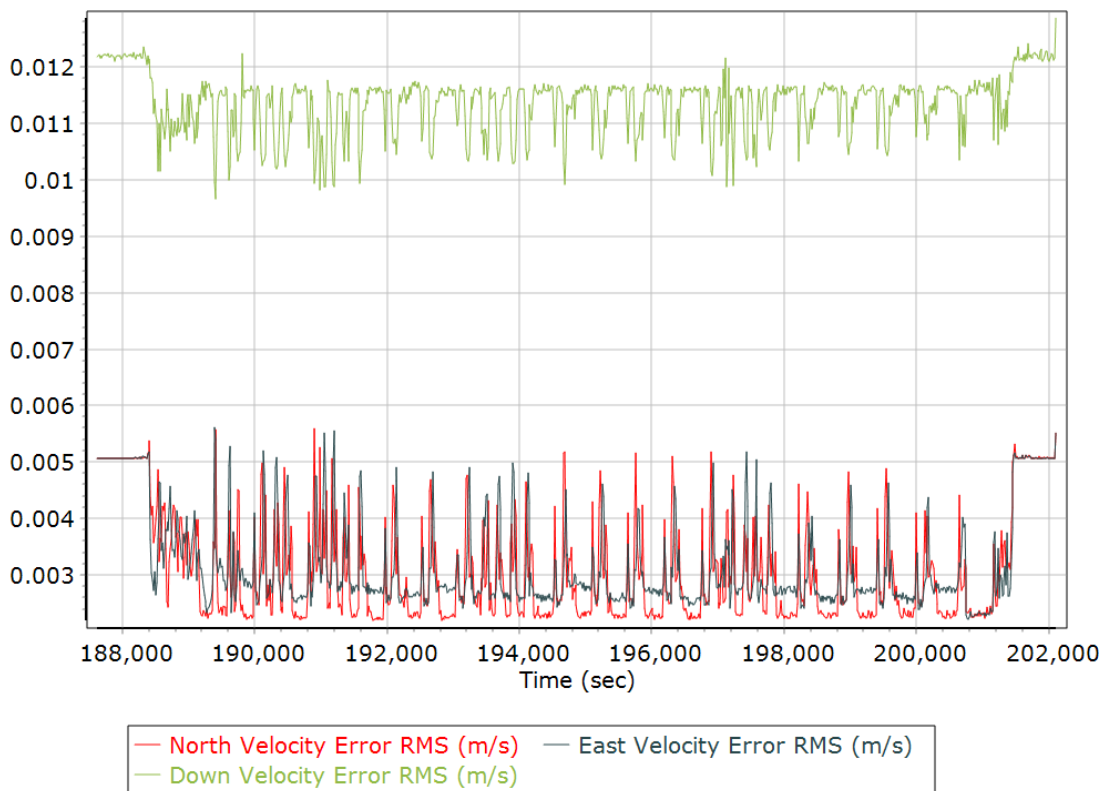


## Smoothed Performance Metrics

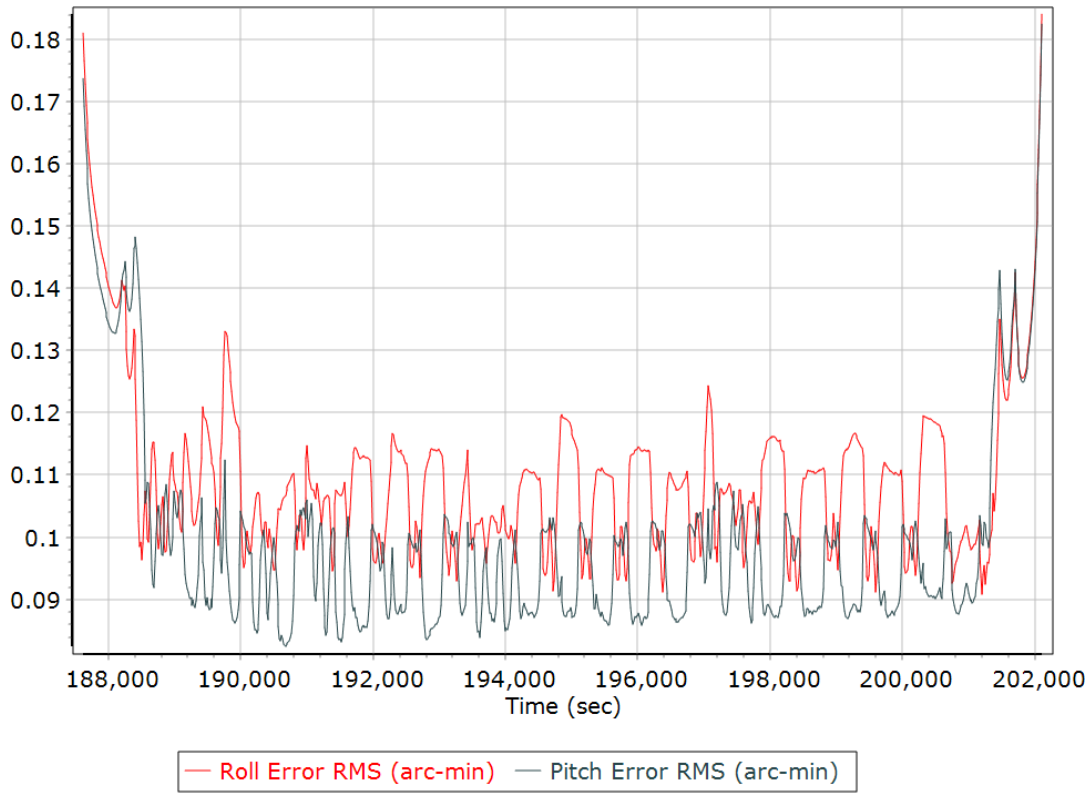
### Position Error RMS (m)



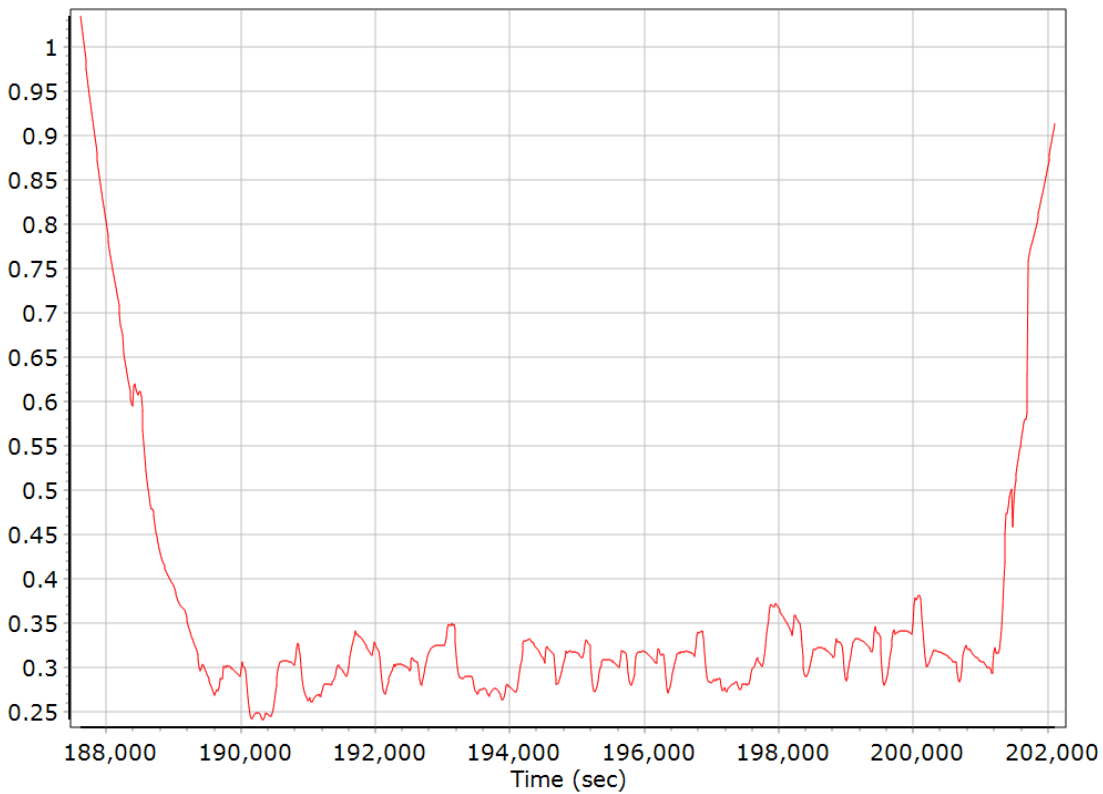
### Velocity Error RMS (m/s)



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

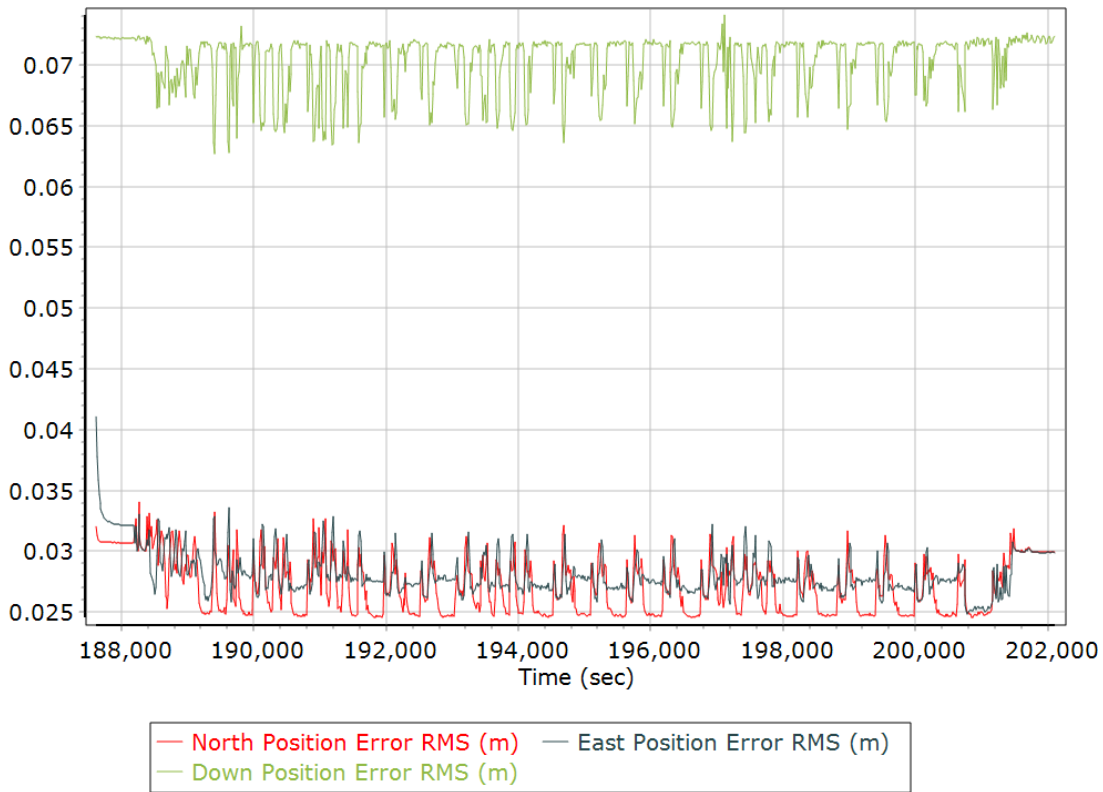


### Heading Error RMS (arc-min)

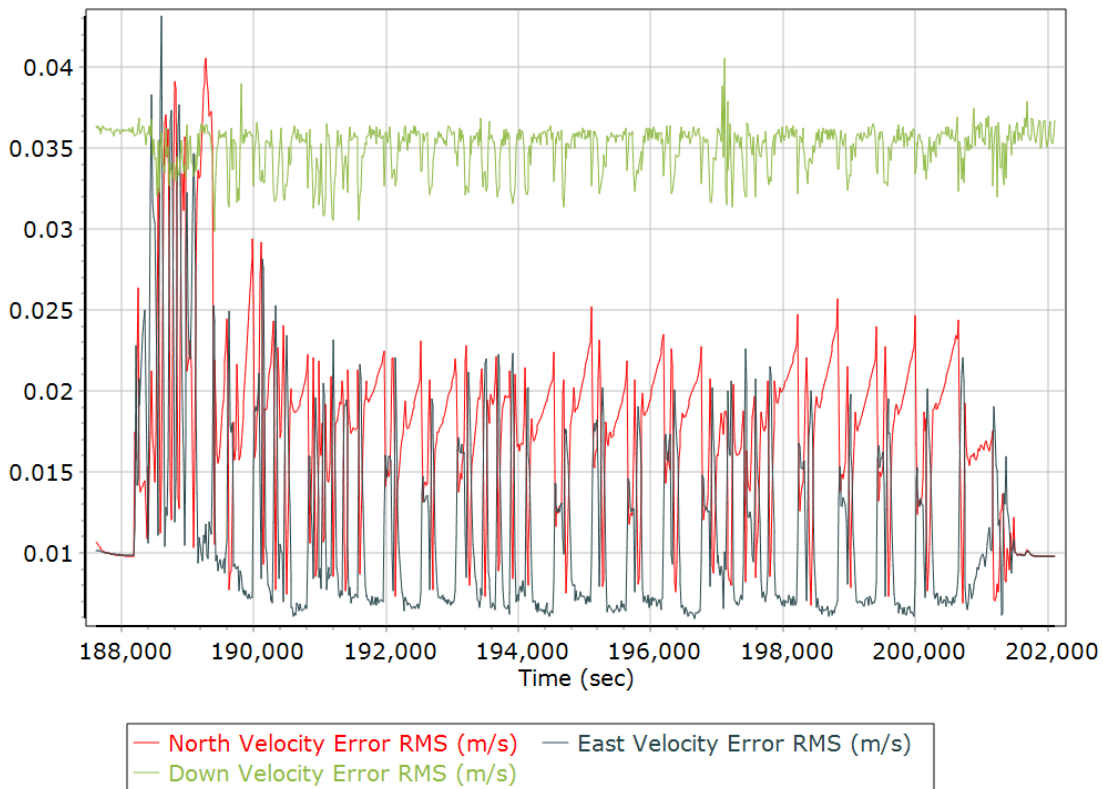


## Forward Processed Performance Metrics

### Position Error RMS (m)

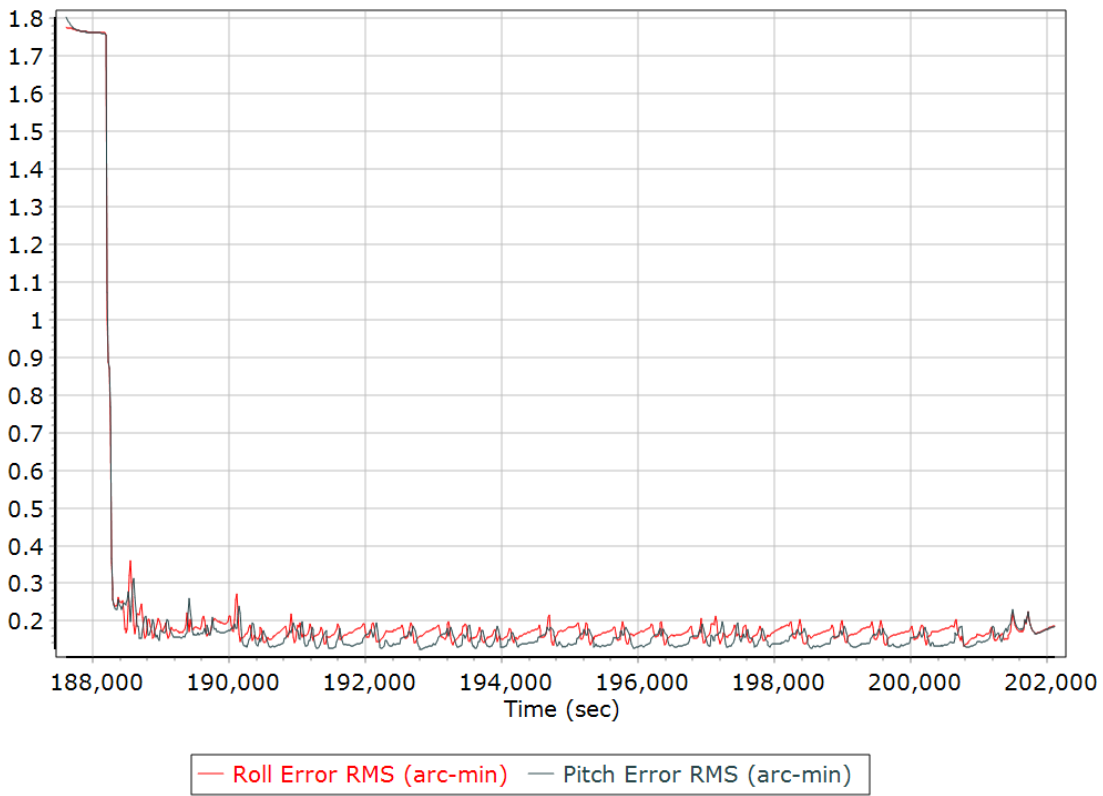


### Velocity Error RMS (m/s)

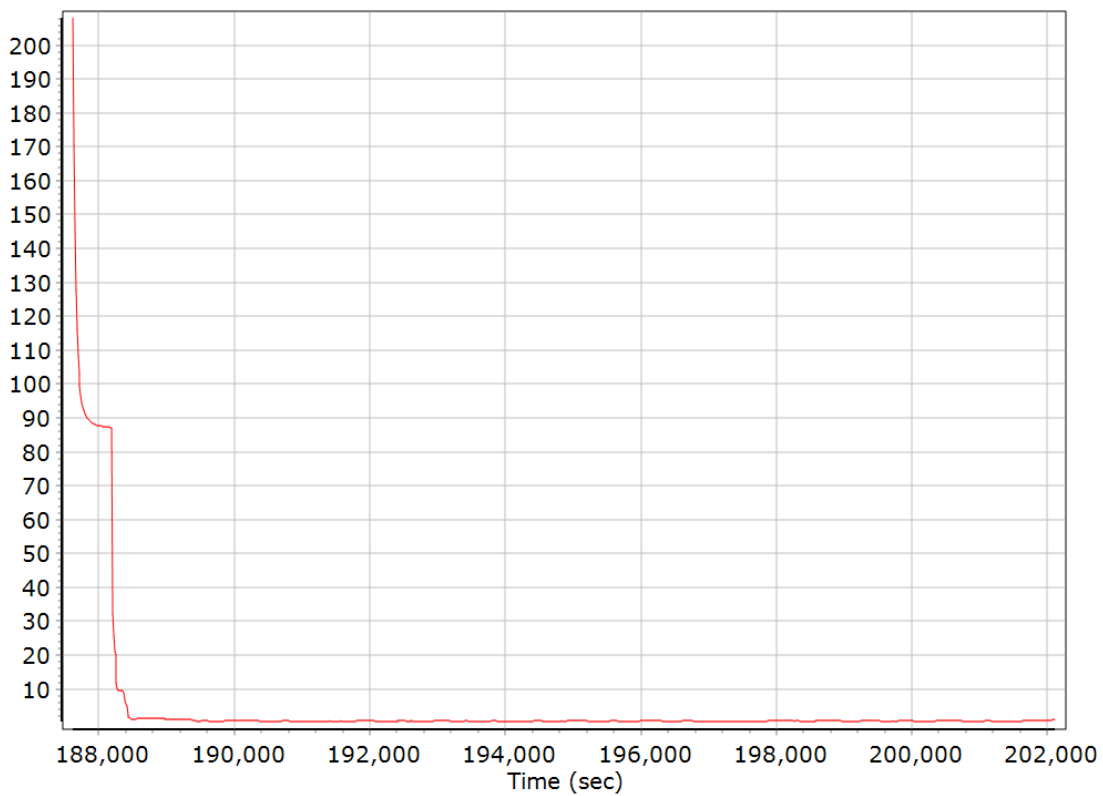




### Roll/Pitch Error RMS (arc-min)

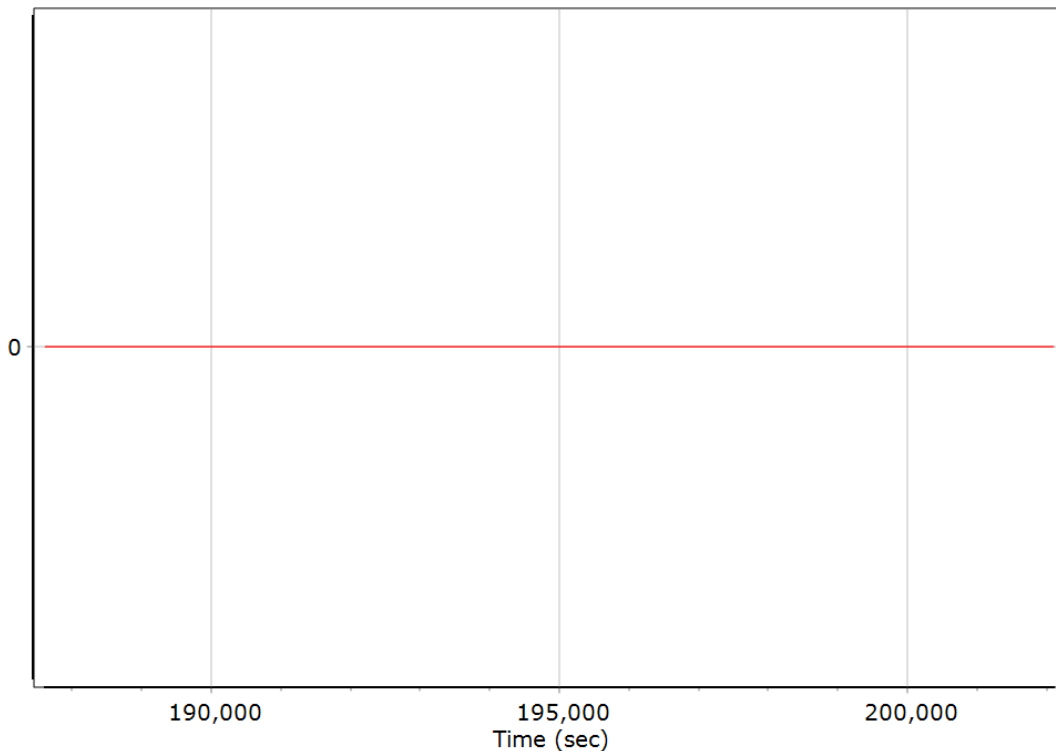


### Heading Error RMS (arc-min)



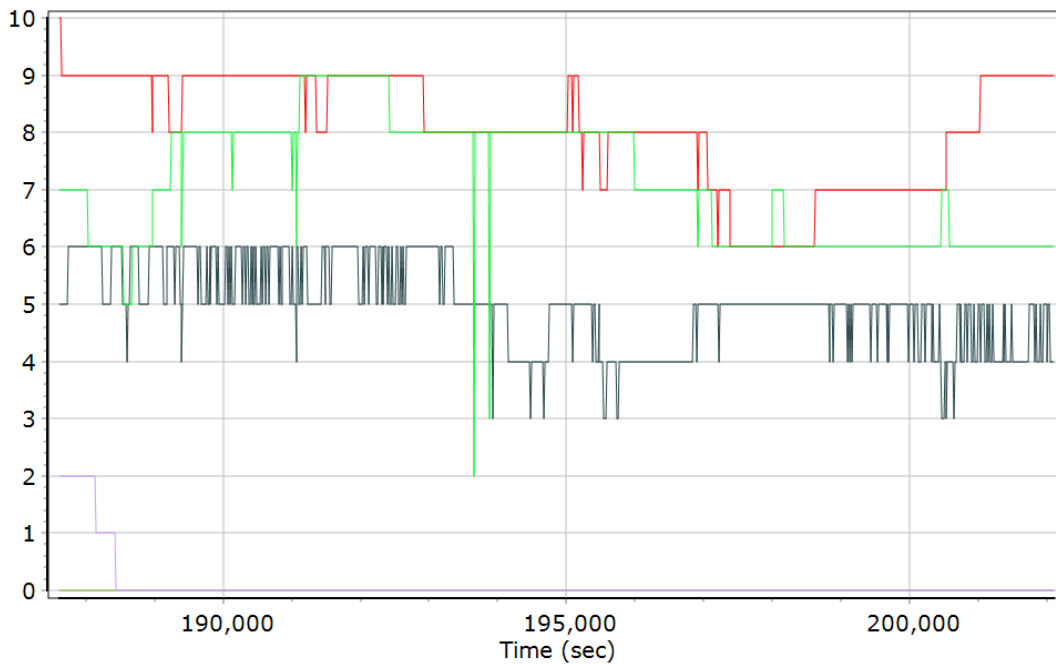
## Forward Processed Solution Status

### Processing Mode



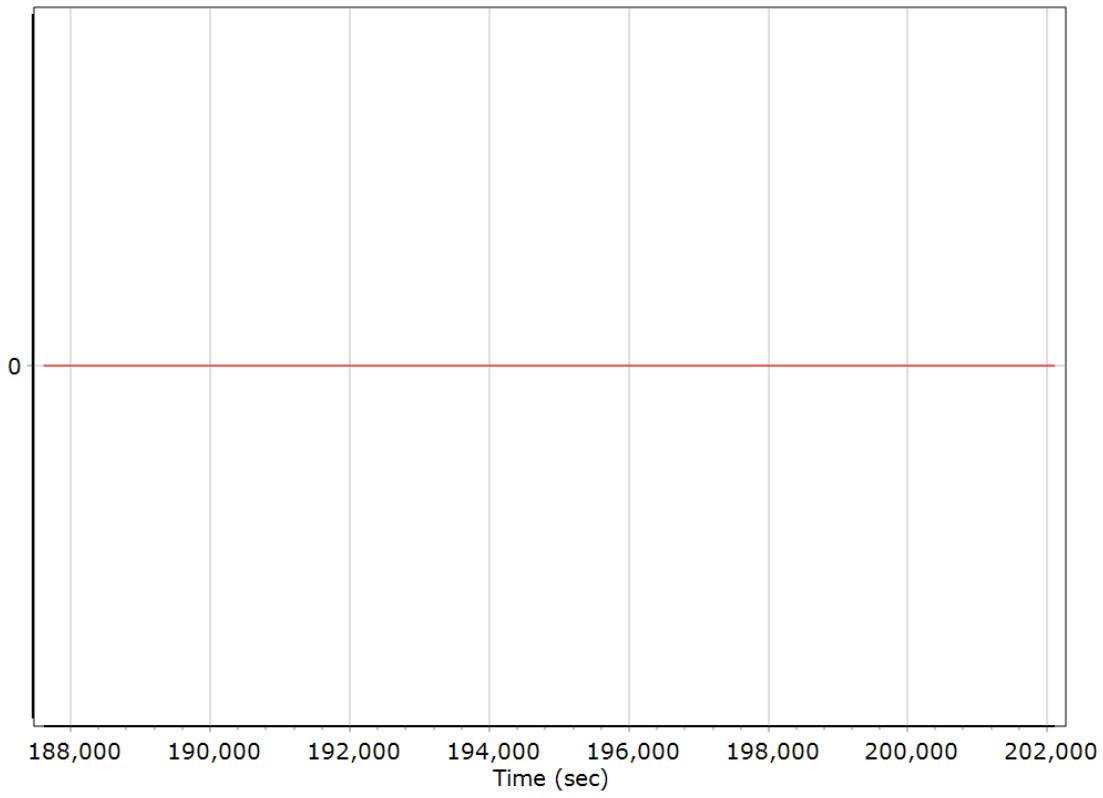
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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



## General Information

### Mission Information

Project name	a07-s03-0504
Processing date	2022-06-30 16:05:29
Mission date	2022-06-30 09:41:06
Mission duration	02:15:34.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0630_094108.000	POS Data
default0630_094108.001	POS Data
default0630_094108.002	POS Data
default0630_094108.003	POS Data
default0630_094108.004	POS Data
default0630_094108.005	POS Data
default0630_094108.006	POS Data
default0630_094108.007	POS Data
default0630_094108.008	POS Data
default0630_094108.009	POS Data
default0630_094108.010	POS Data
default0630_094108.011	POS Data

### Input Files

File Name	File Type
Ephm1810.22g	GLONASS Broadcast Ephemeris
Ephm1810.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0504.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0630_094108.000		
Last raw data file	default0630_094108.011		
Start GPS week	2216		
Start time	380449.179 (6/30/2022 9:40:49 AM)		
End time	388582.749 (6/30/2022 11:56:22 AM)		
Start of fine alignment	380929.170 (6/30/2022 9:48:49 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

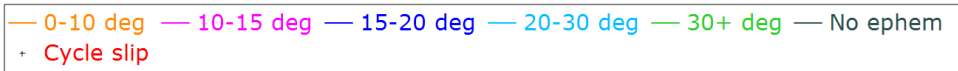
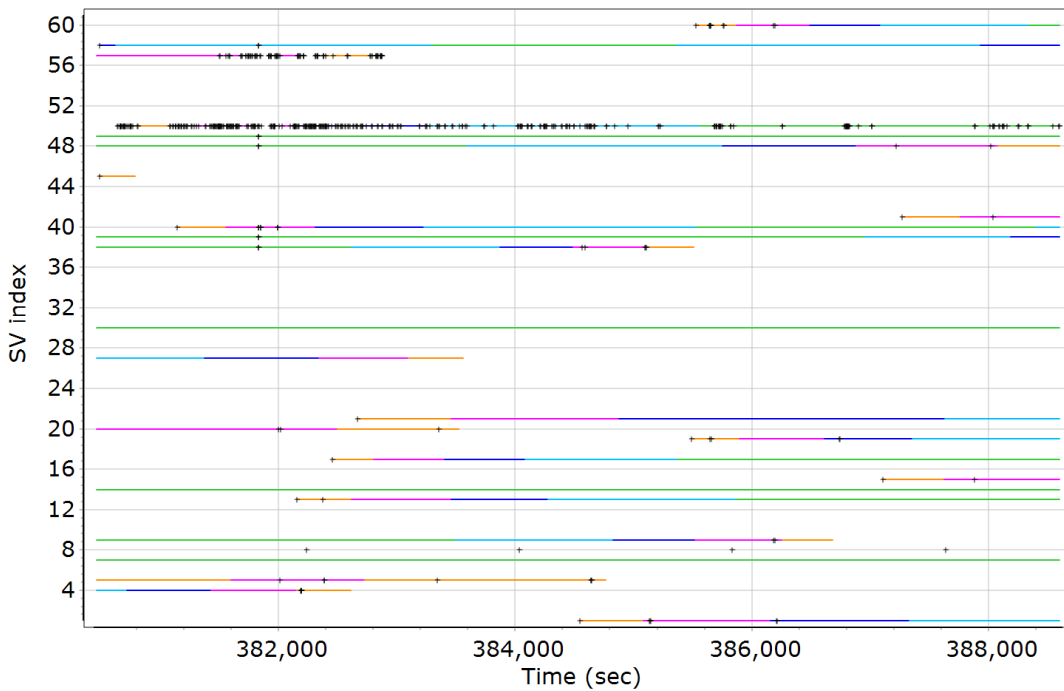
## Rover Data QC

### Raw IMU Import QC Summary

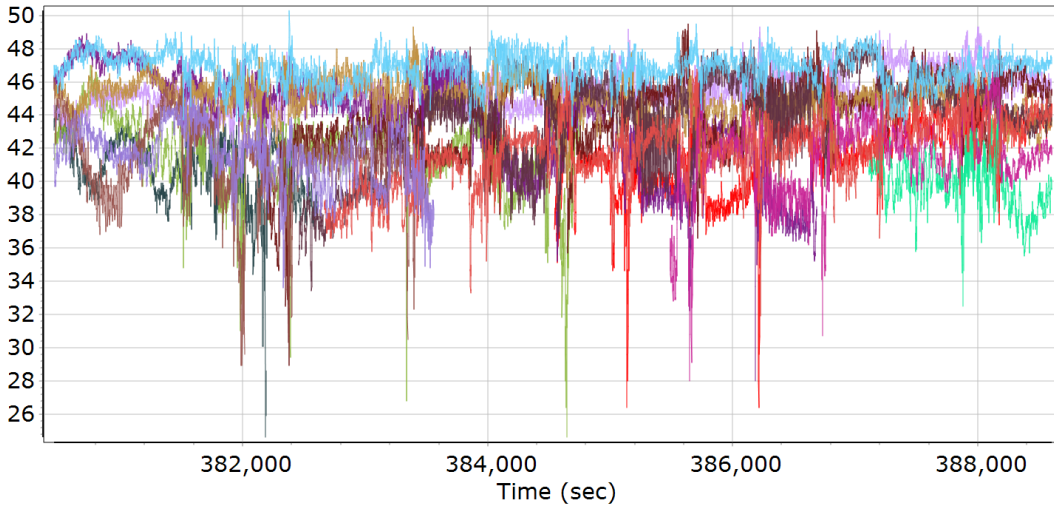
IMU data input file	imu_a07-s03-0504.dat
IMU data check log file	imudt_a07-s03-0504.log
IMU Records Processed	1626793
Termination Status	Warnings
IMU Anomalies	2
<b>IMU Failure Messages</b>	
380448.569 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
380448.434 : WARNING : Gap of 380431.0767 seconds in CHECKDT input data	

## Primary Observables & Satellite Data

### GPS/GLONASS L1 Satellite Lock/Elevation

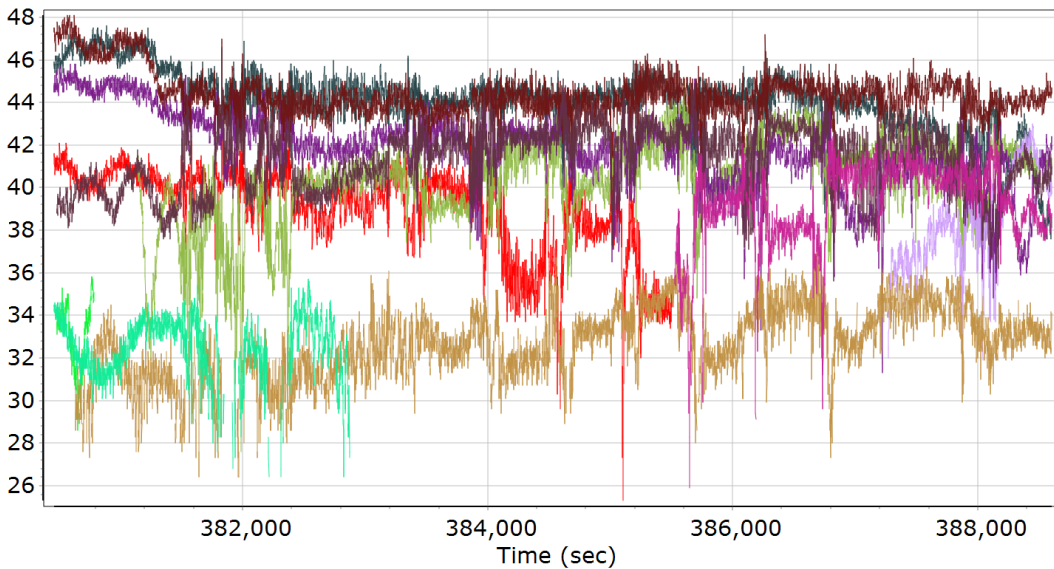


**GPS L1 SNR**



- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 04 L1 SNR (dB/Hz) |
| — GPS PRN 05 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 15 L1 SNR (dB/Hz) | — GPS PRN 17 L1 SNR (dB/Hz) |
| — GPS PRN 19 L1 SNR (dB/Hz) | — GPS PRN 20 L1 SNR (dB/Hz) |
| — GPS PRN 21 L1 SNR (dB/Hz) | — GPS PRN 27 L1 SNR (dB/Hz) |
| — GPS PRN 30 L1 SNR (dB/Hz) |                             |

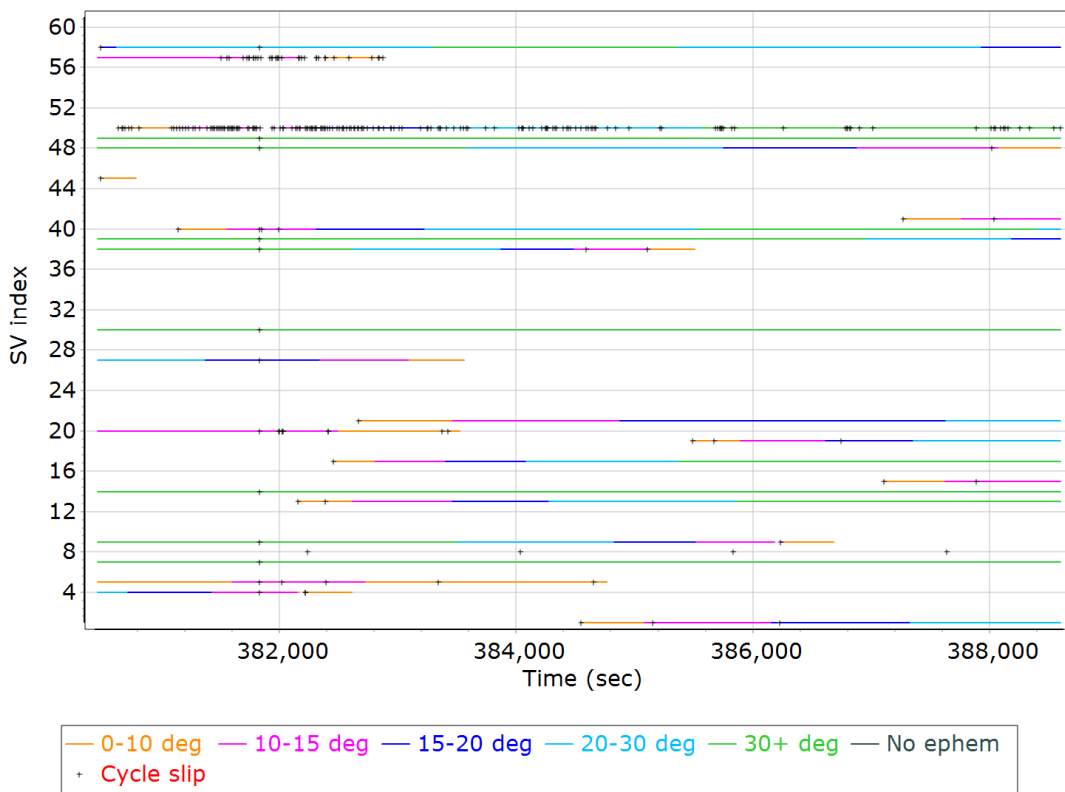
**GLONASS L1 SNR**



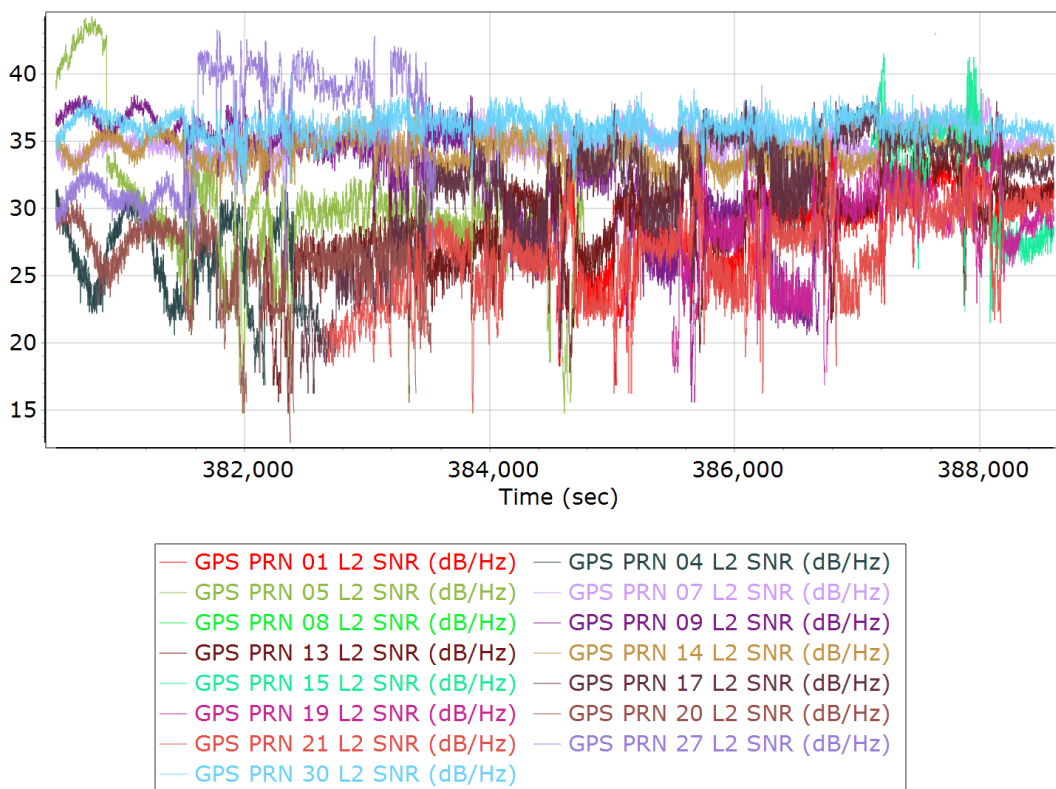
- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 01 L1 SNR (dB/Hz) | — GLONASS 02 L1 SNR (dB/Hz) |
| — GLONASS 03 L1 SNR (dB/Hz) | — GLONASS 04 L1 SNR (dB/Hz) |
| — GLONASS 08 L1 SNR (dB/Hz) | — GLONASS 11 L1 SNR (dB/Hz) |
| — GLONASS 12 L1 SNR (dB/Hz) | — GLONASS 13 L1 SNR (dB/Hz) |
| — GLONASS 20 L1 SNR (dB/Hz) | — GLONASS 21 L1 SNR (dB/Hz) |
| — GLONASS 23 L1 SNR (dB/Hz) |                             |



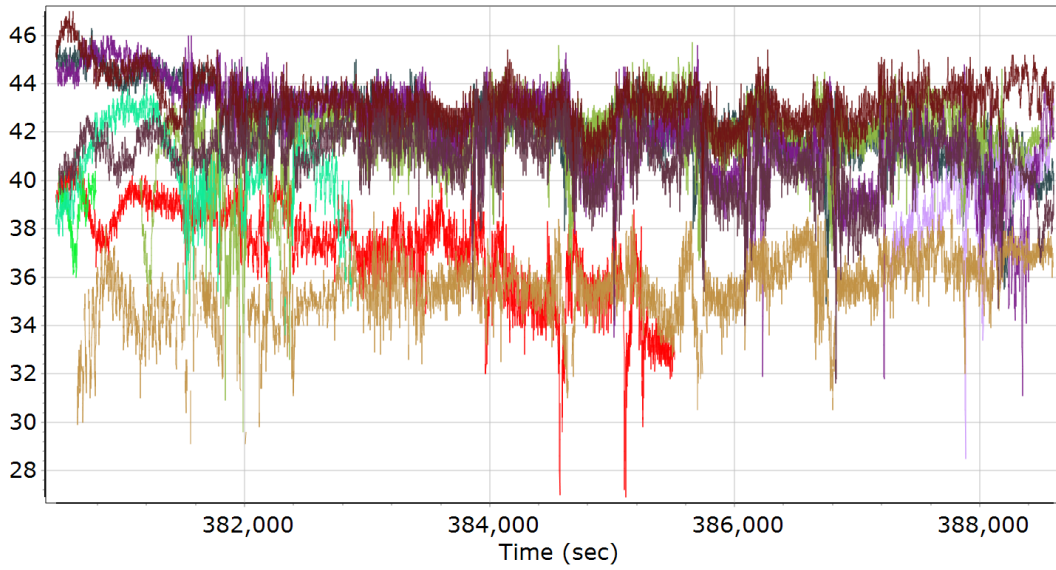
### GPS/GLONASS L2 Satellite Lock/Elevation



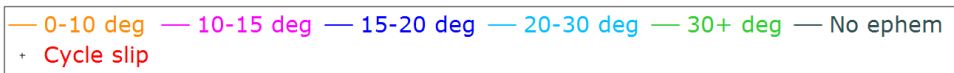
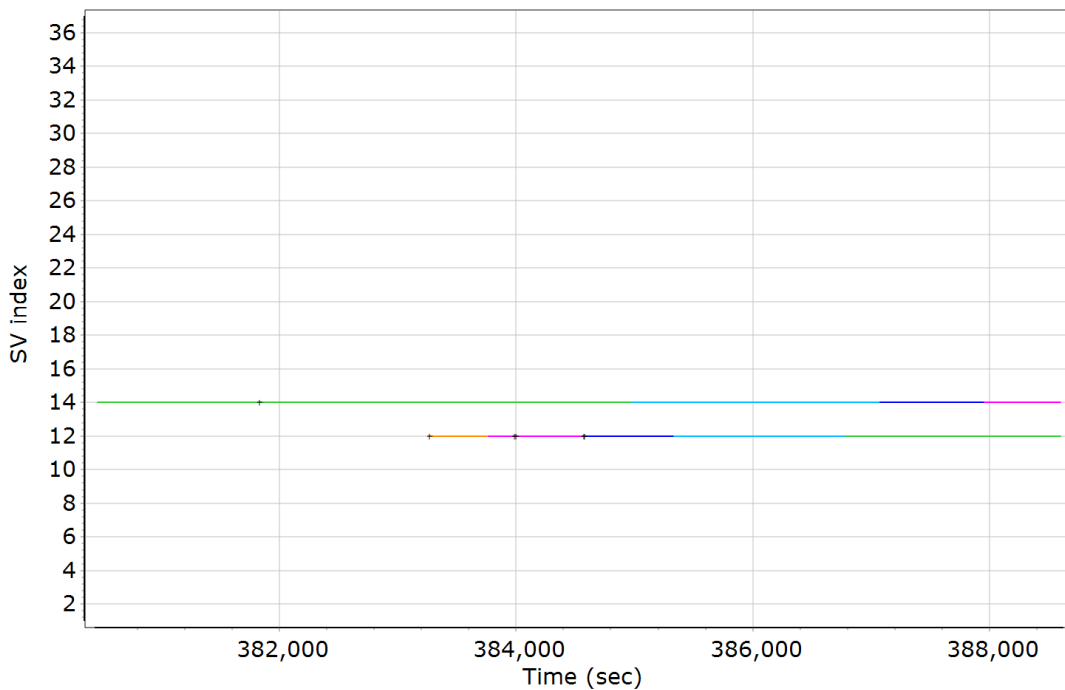
### GPS L2 SNR



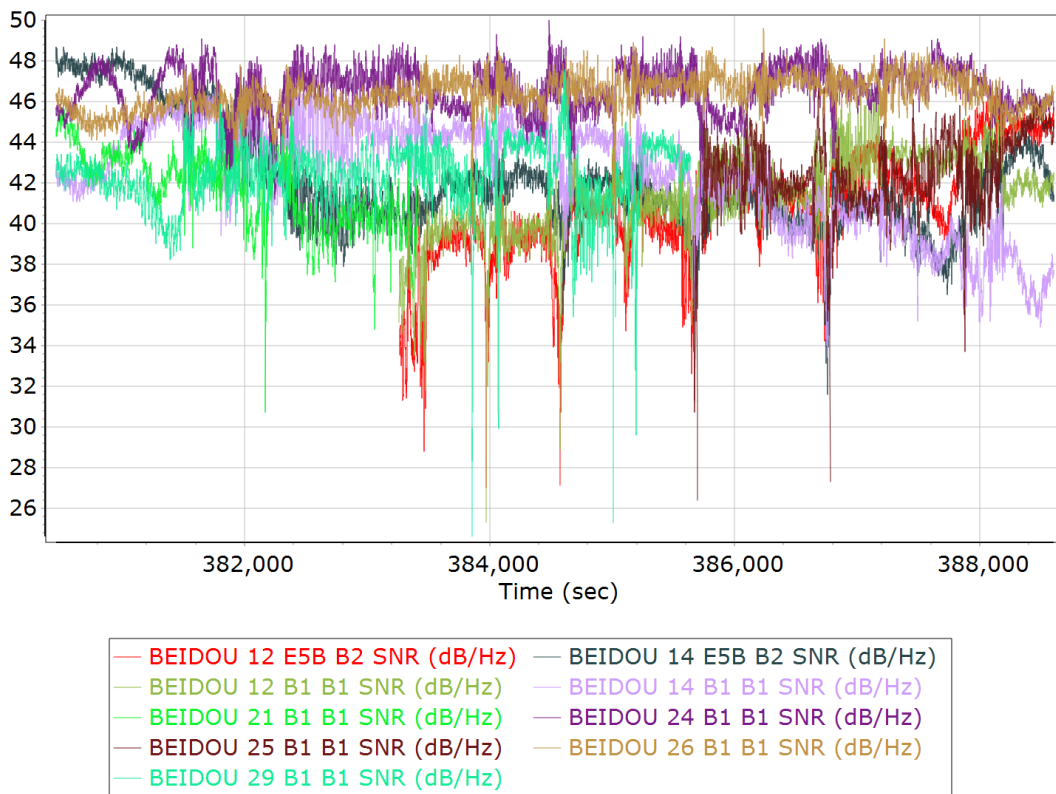
### GLONASS L2 SNR



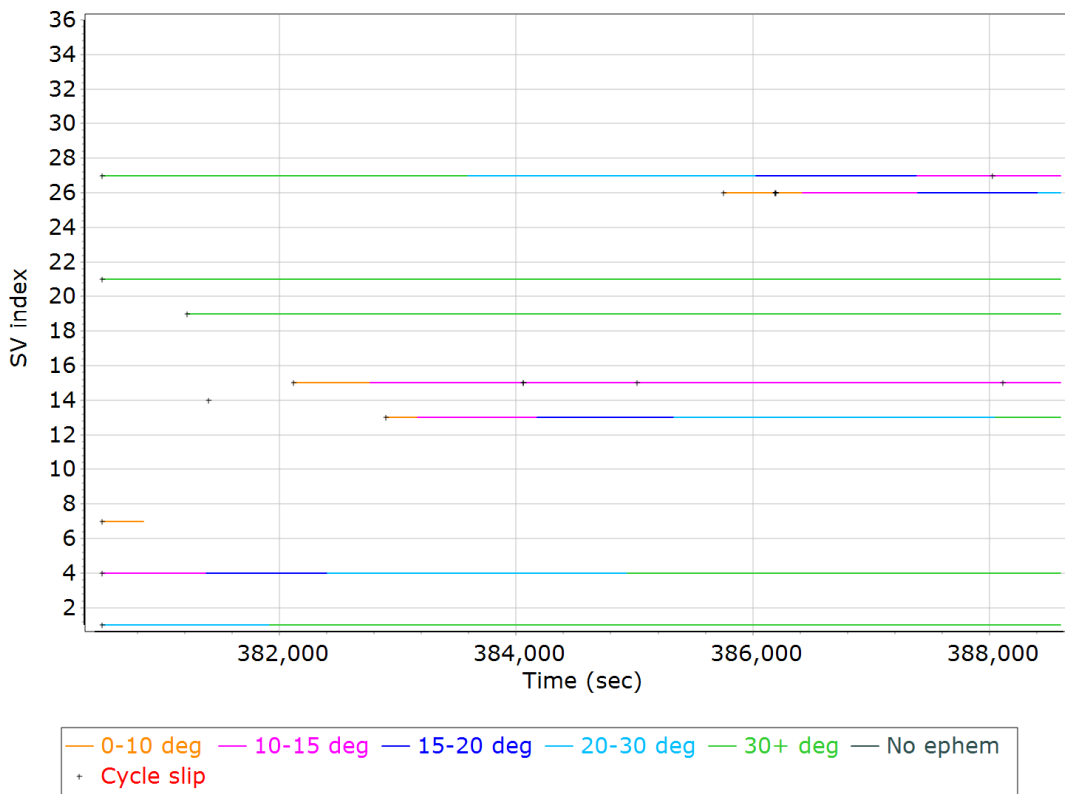
### BEIDOU Satellite Lock/Elevation



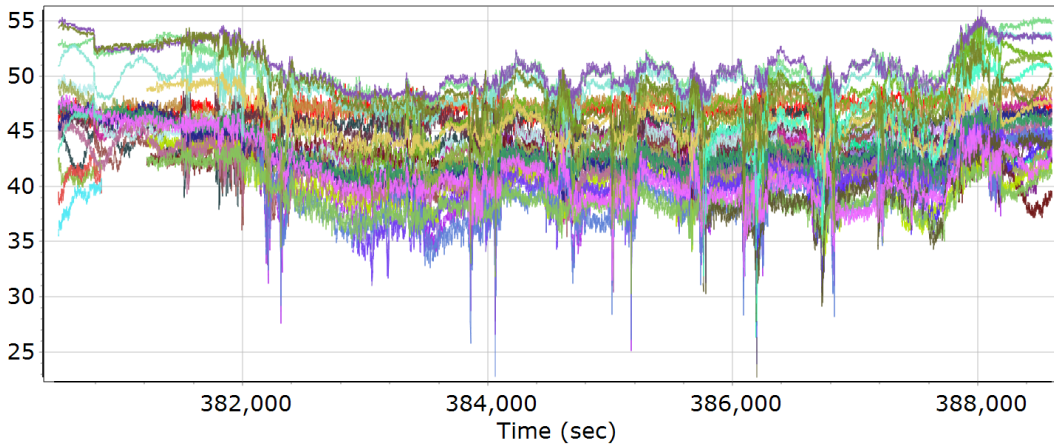
### BEIDOU SNR



### GALILEO Satellite Lock/Elevation



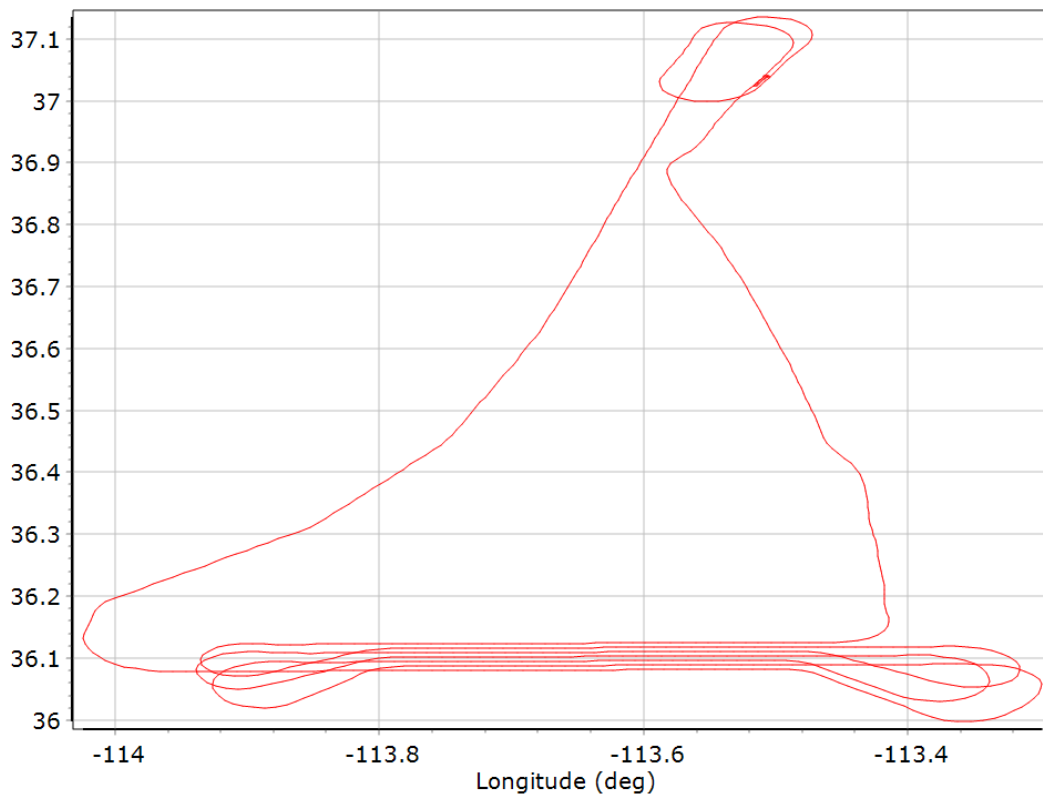
## GALILEO SNR



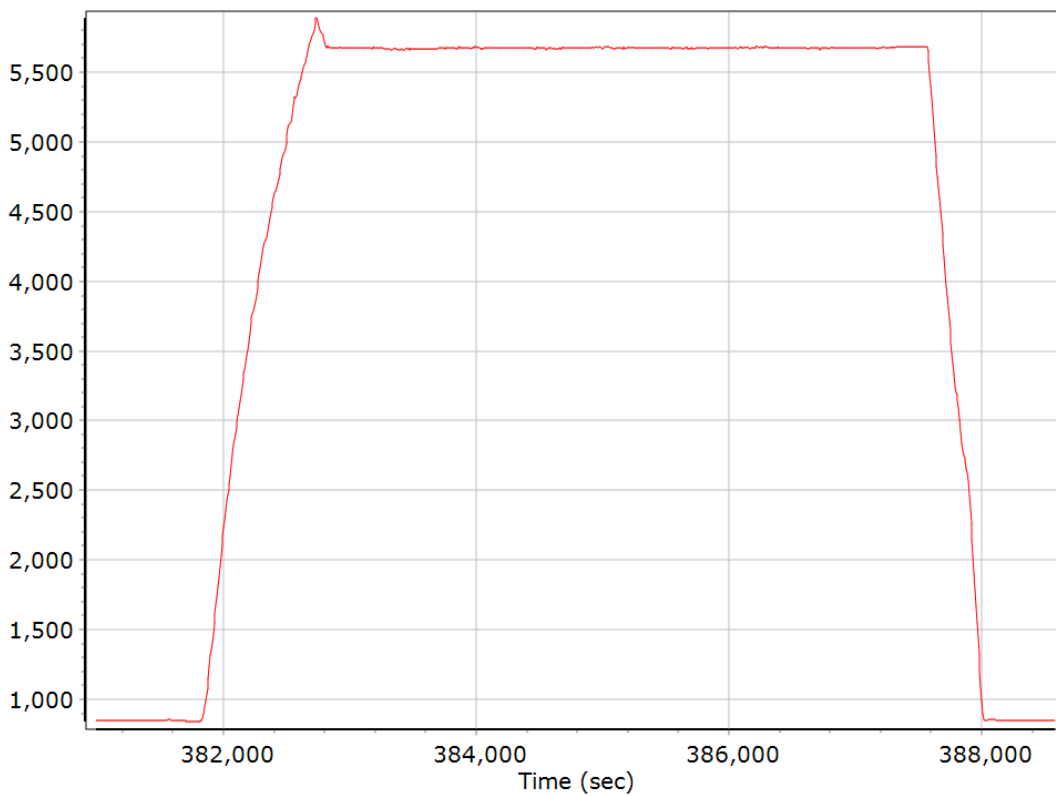
- GALILEO 01 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 04 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 07 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 13 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 14 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 15 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 19 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 21 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 26 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 27 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

## Smoothed Trajectory Information

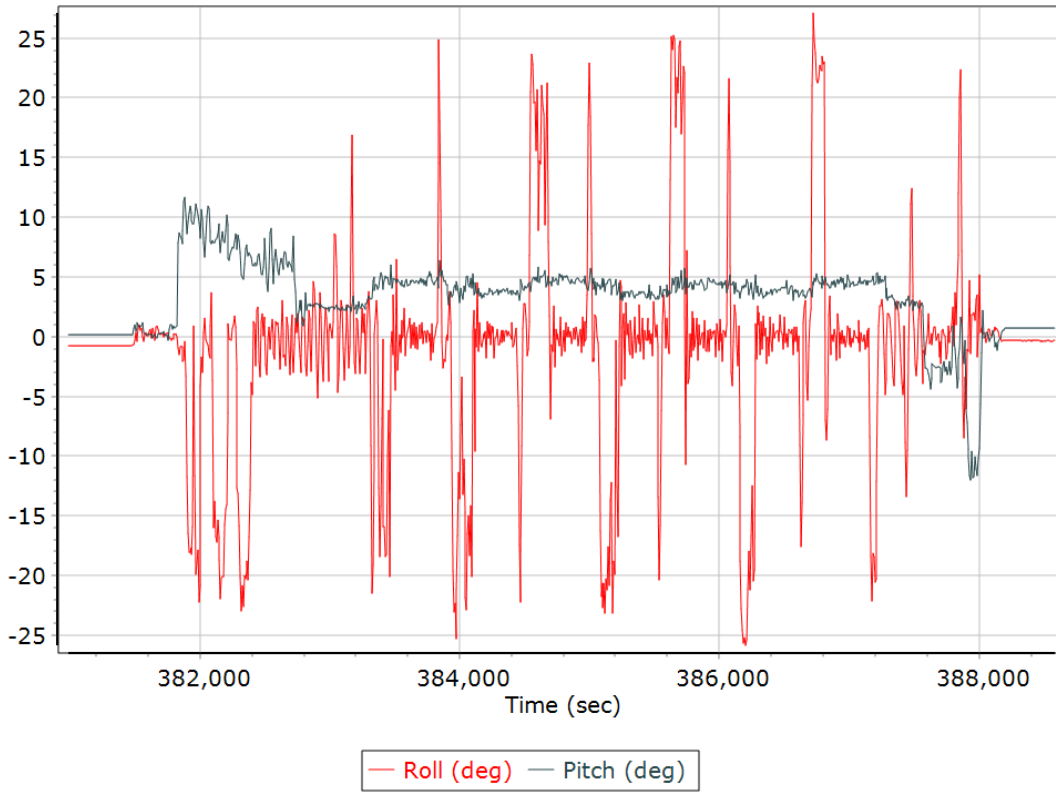
### Top View



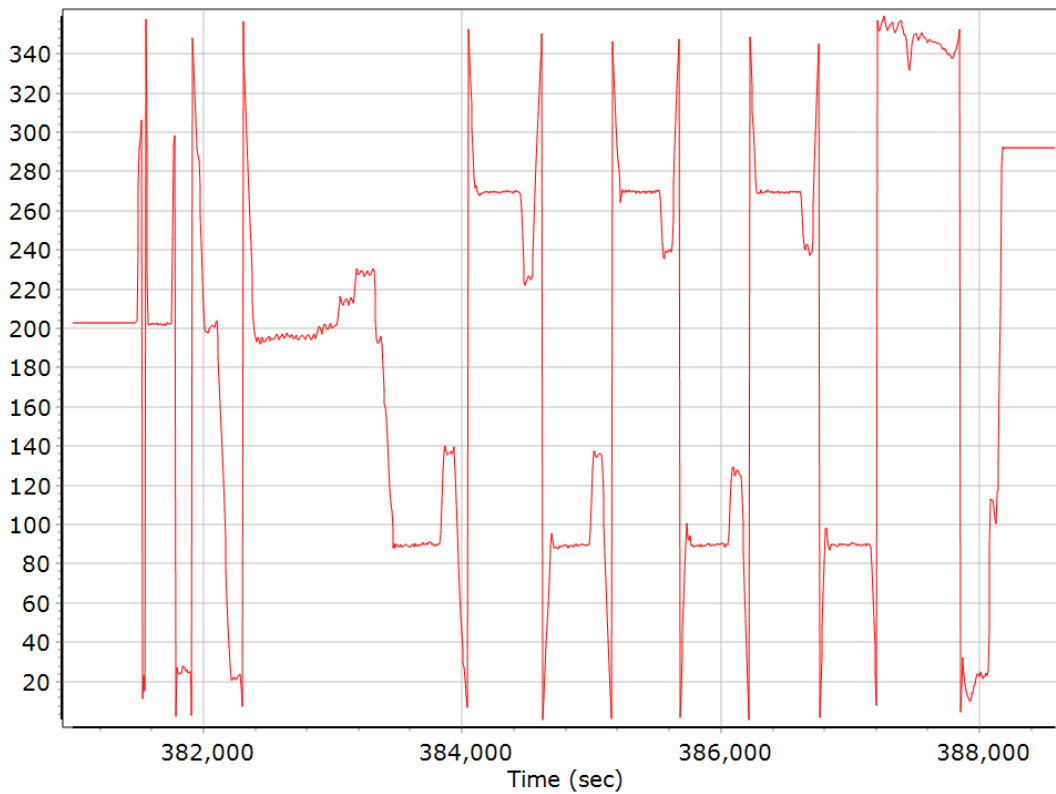
### Altitude



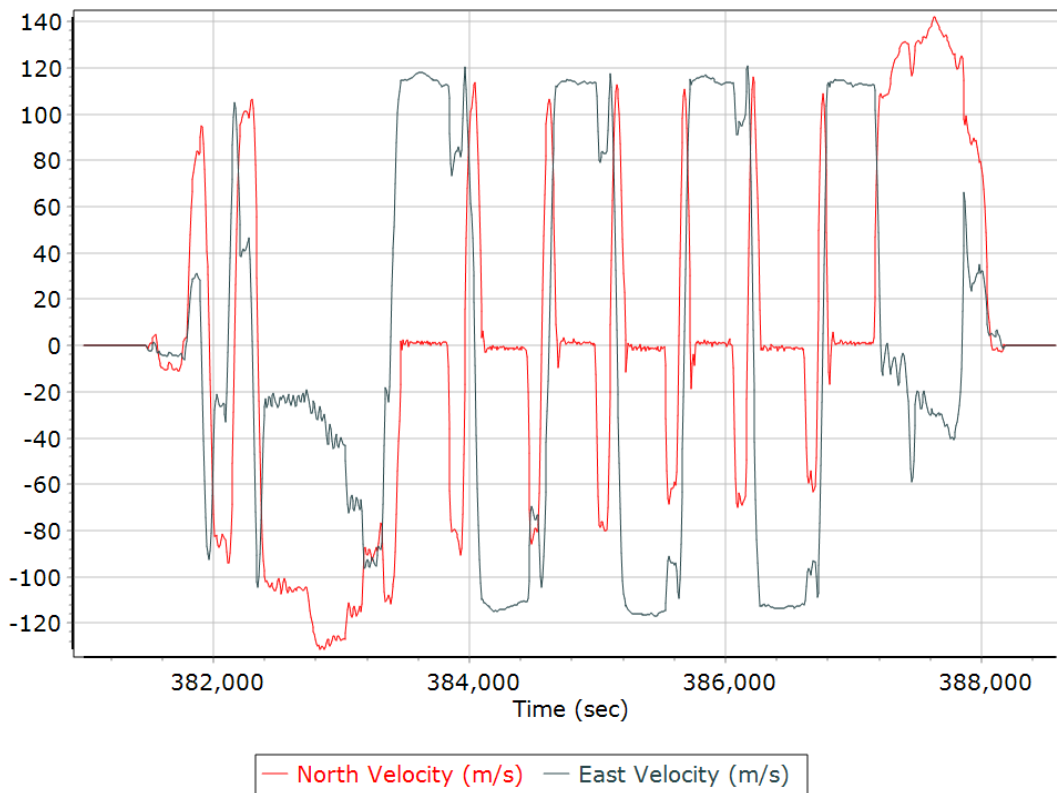
## Roll/Pitch



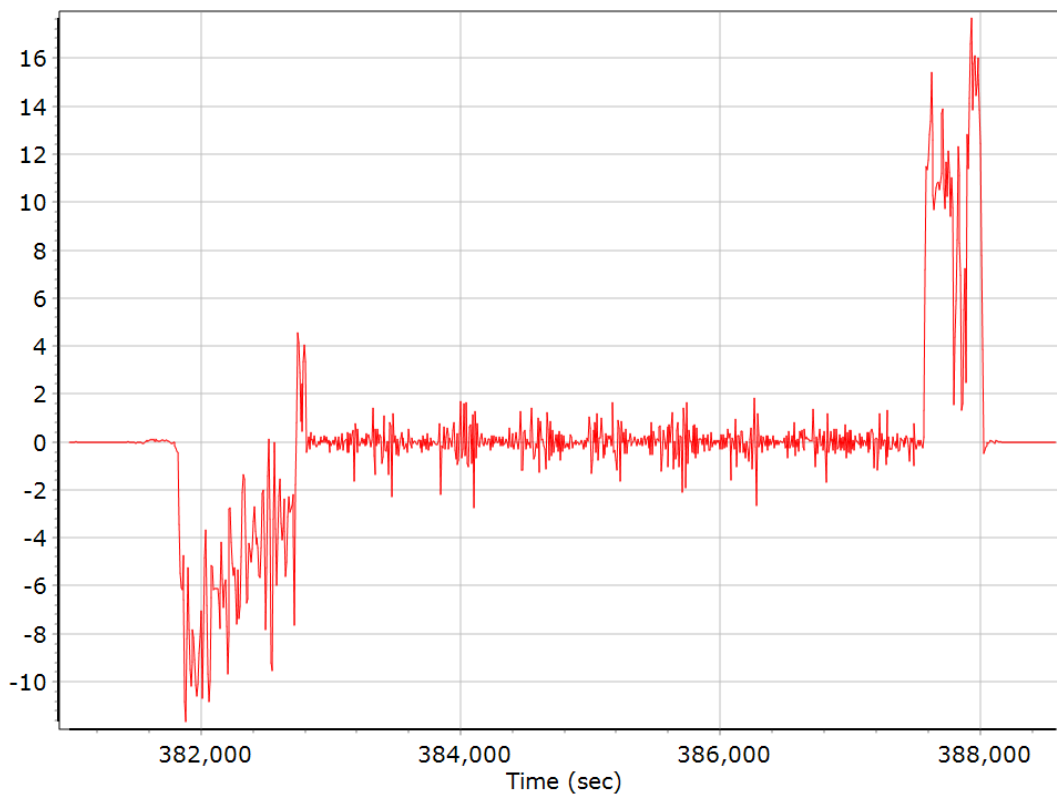
## Heading



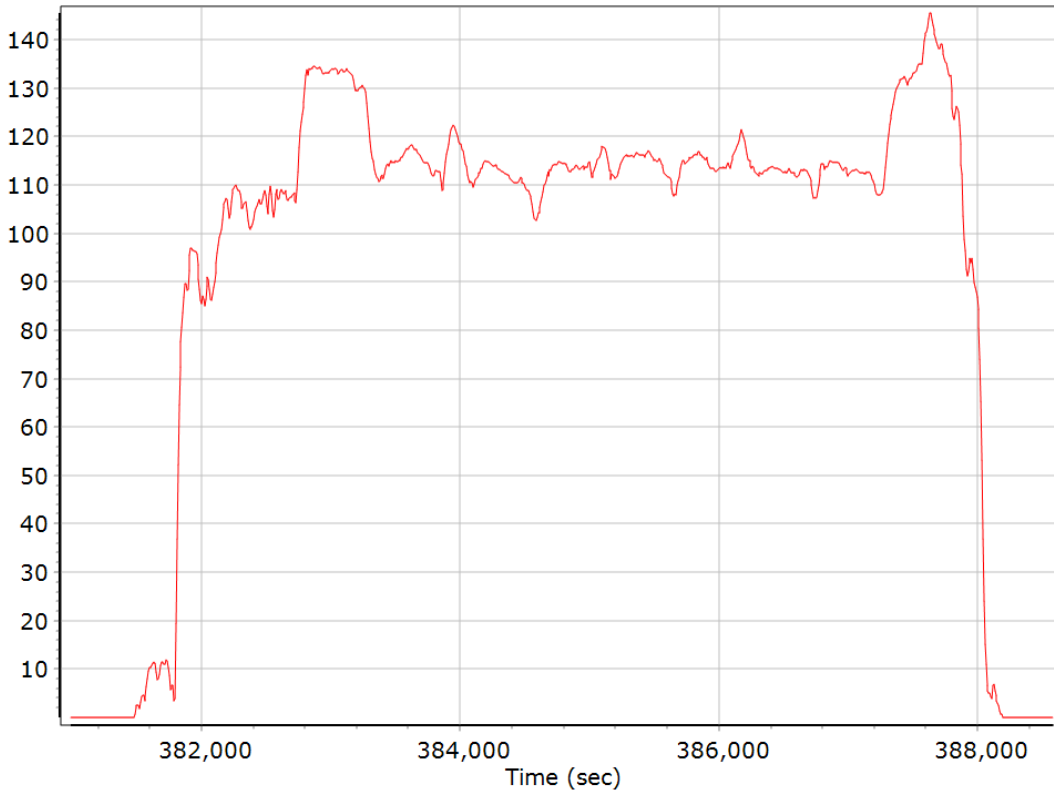
### North/East Velocity



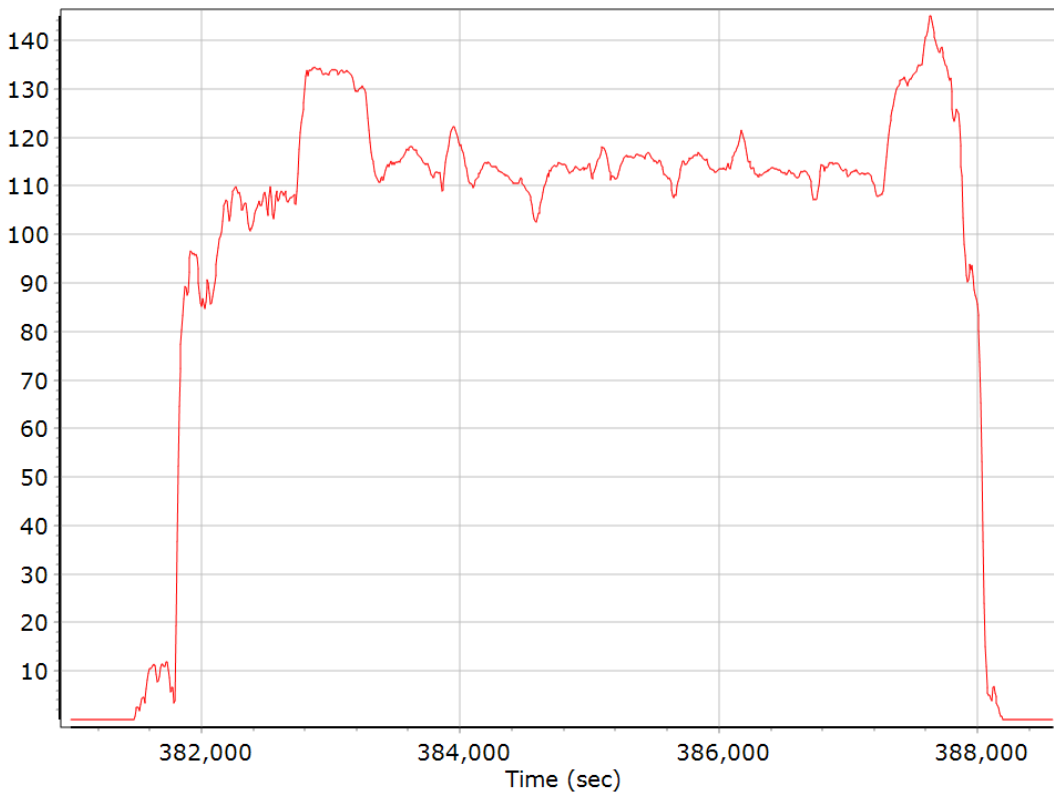
### Down Velocity



## Total Speed



## Ground Speed

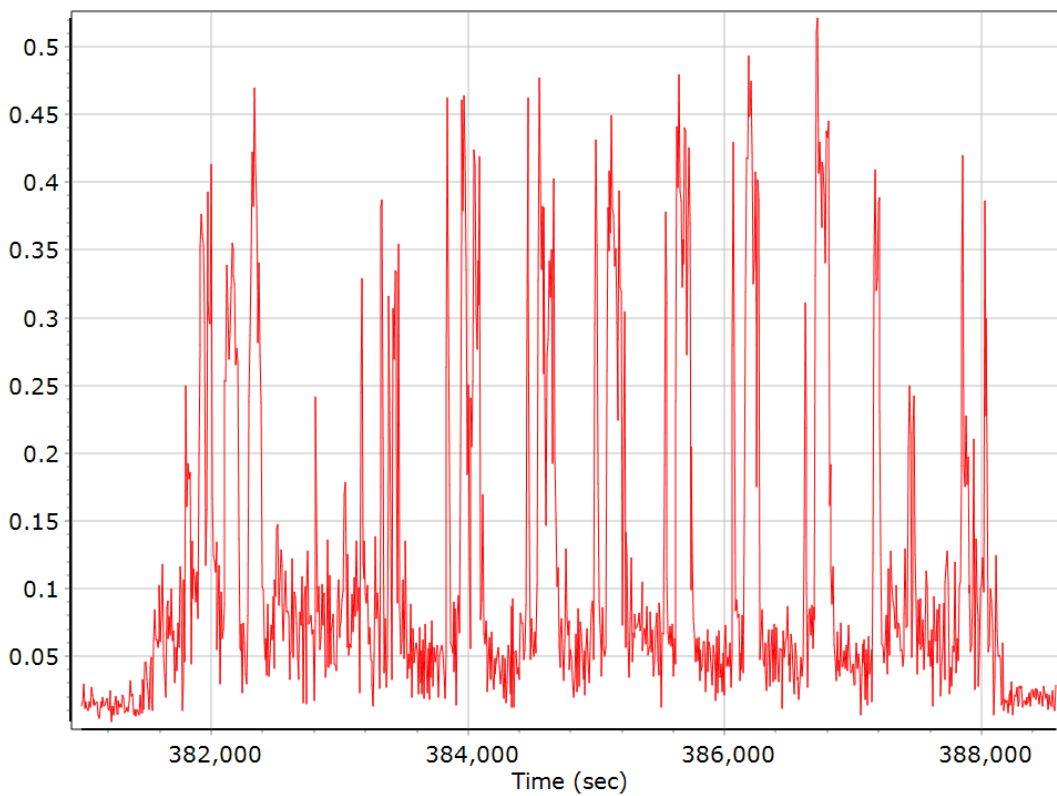




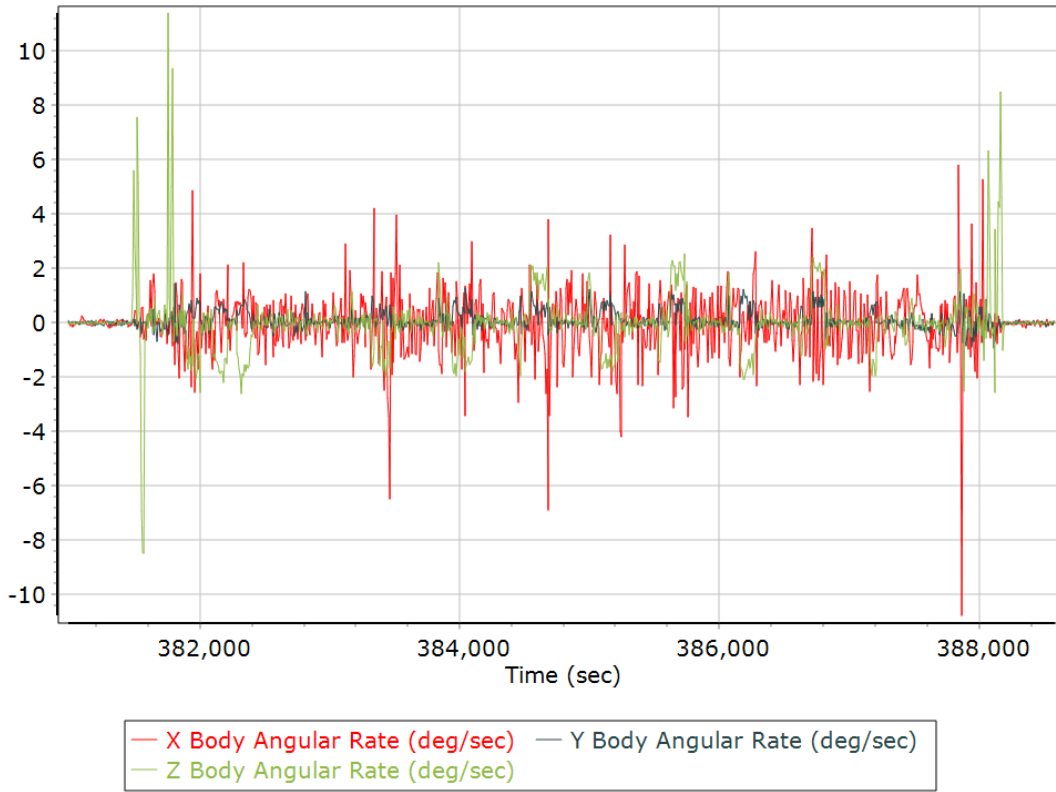
## Body Acceleration



## Total Body Acceleration

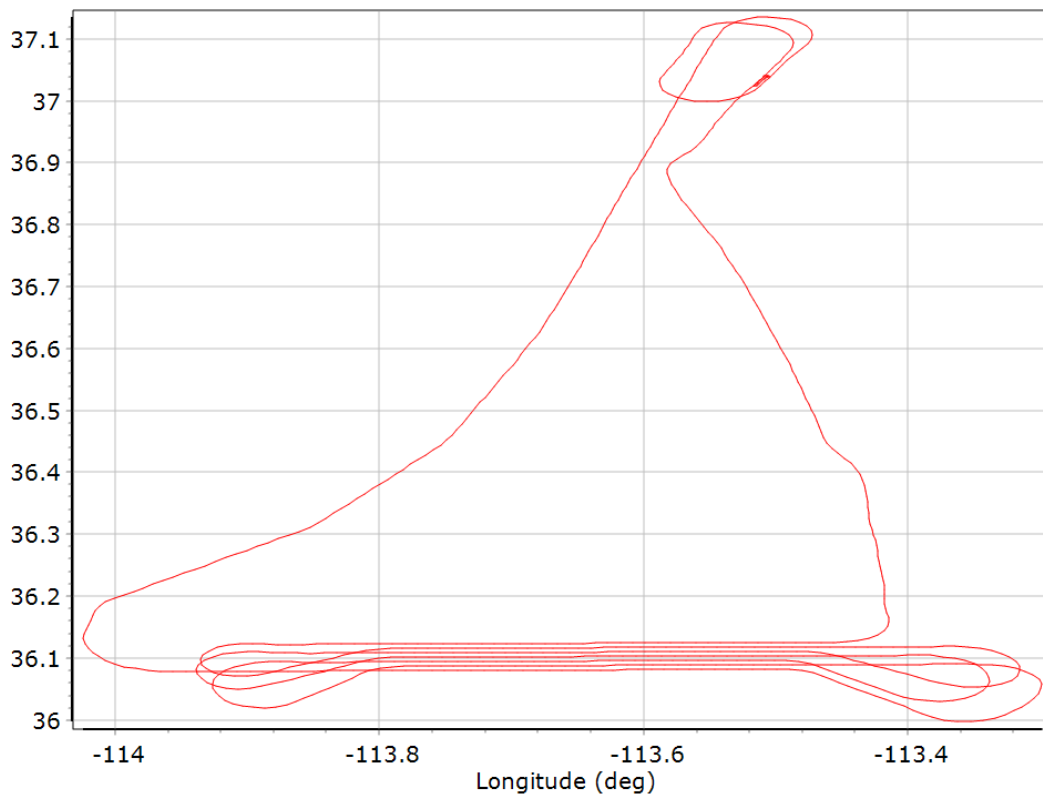


## Body Angular Rate

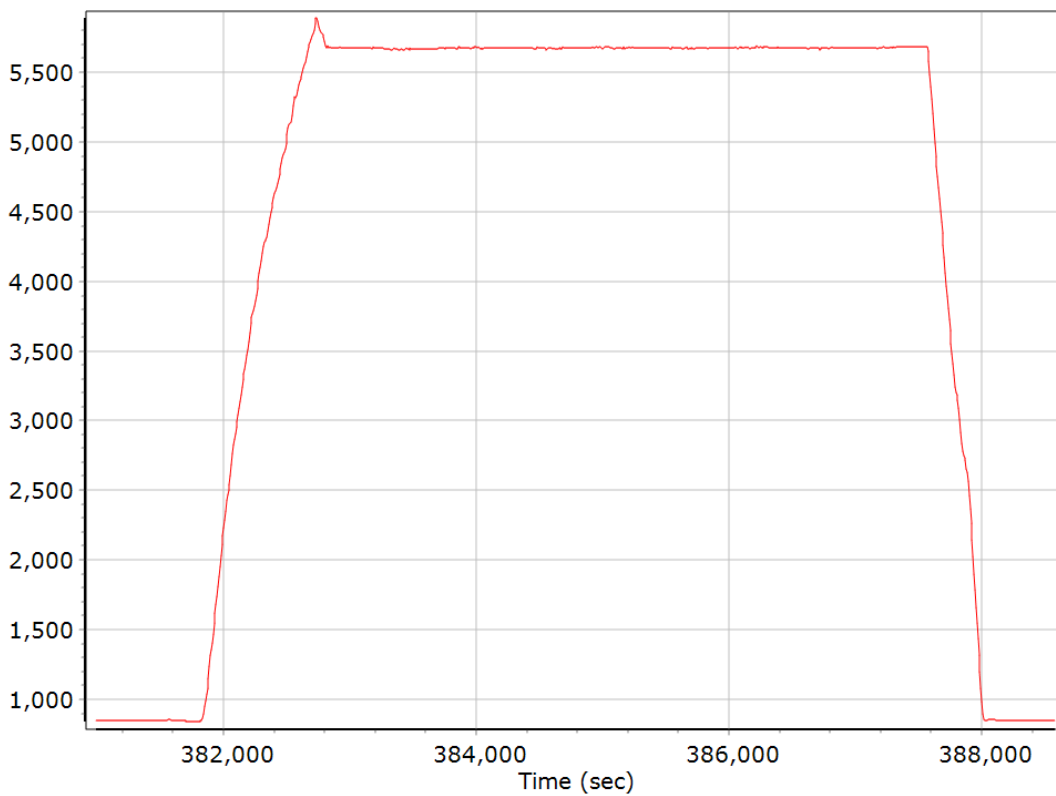


## Forward Processed Trajectory Information

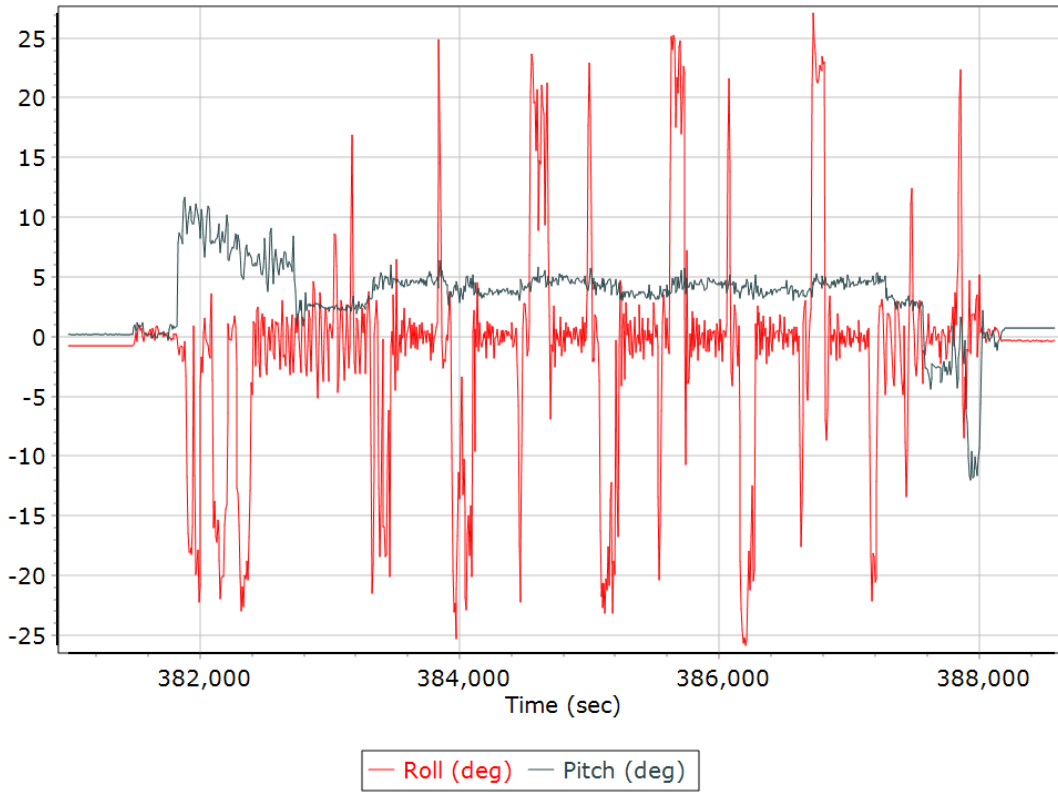
### Top View



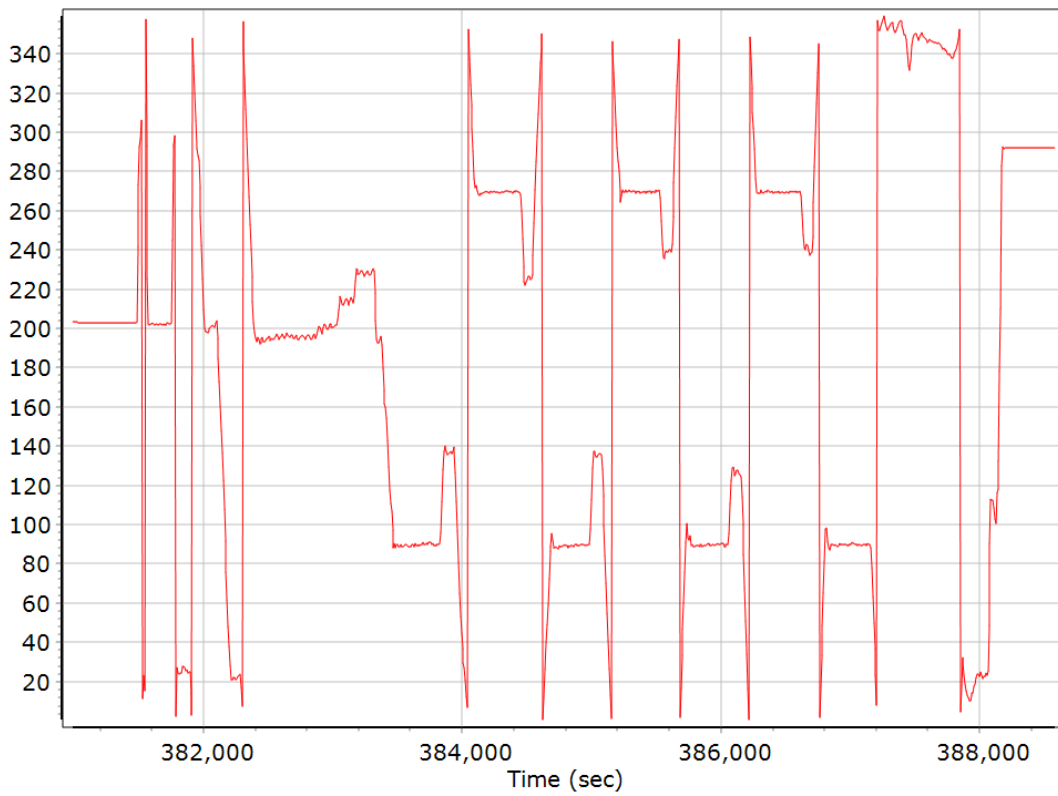
### Altitude



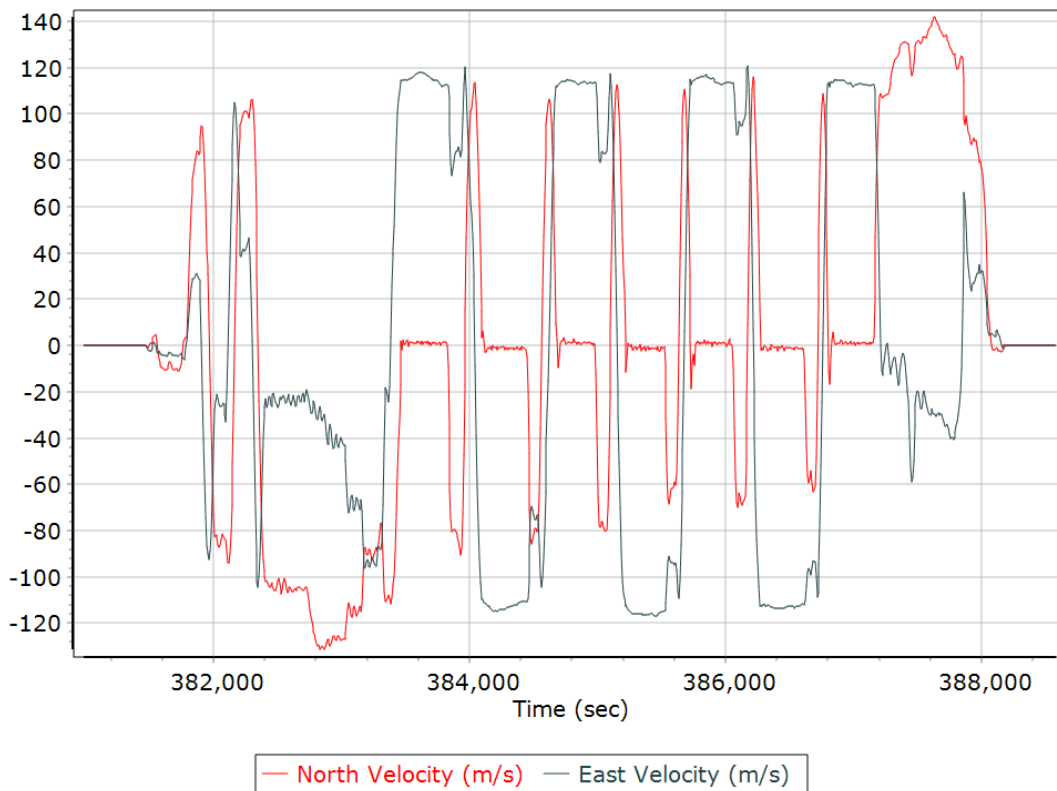
## Roll/Pitch



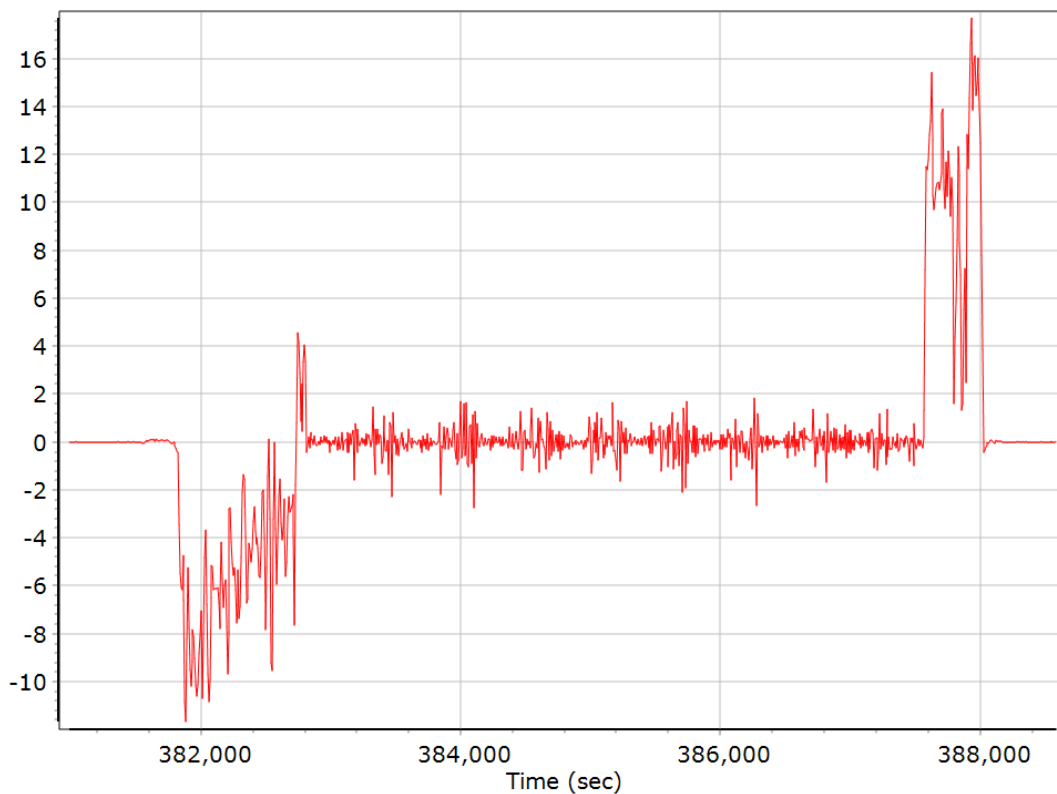
## Heading



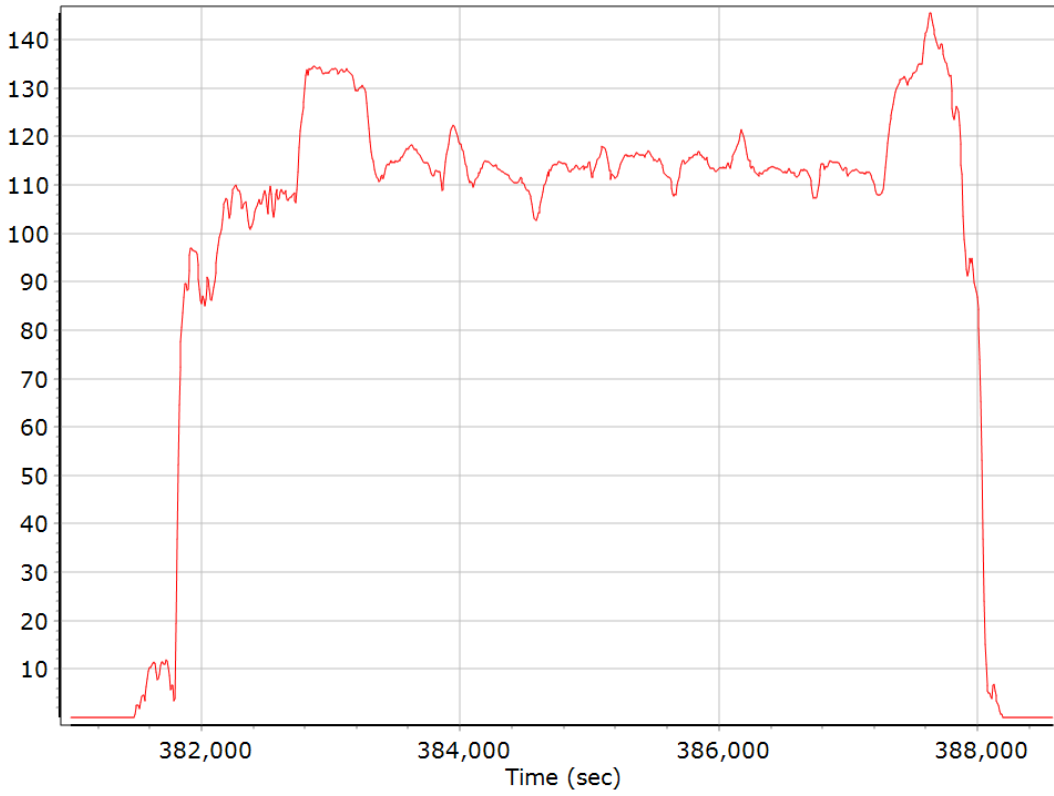
### North/East Velocity



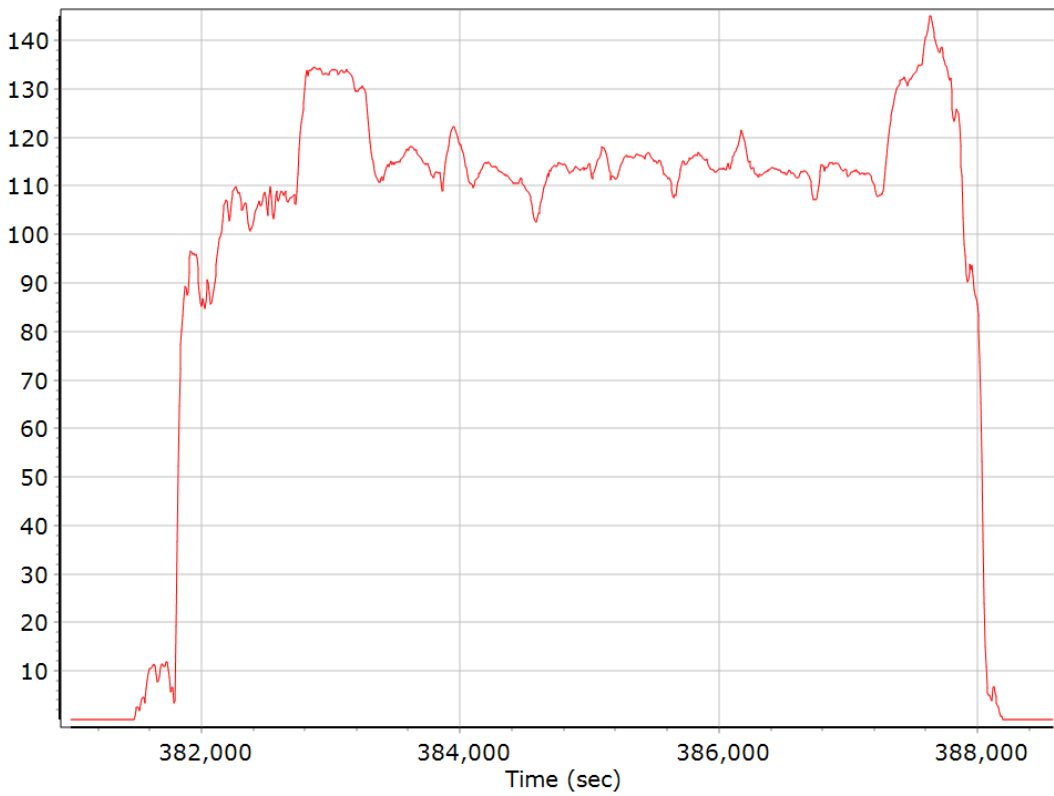
### Down Velocity



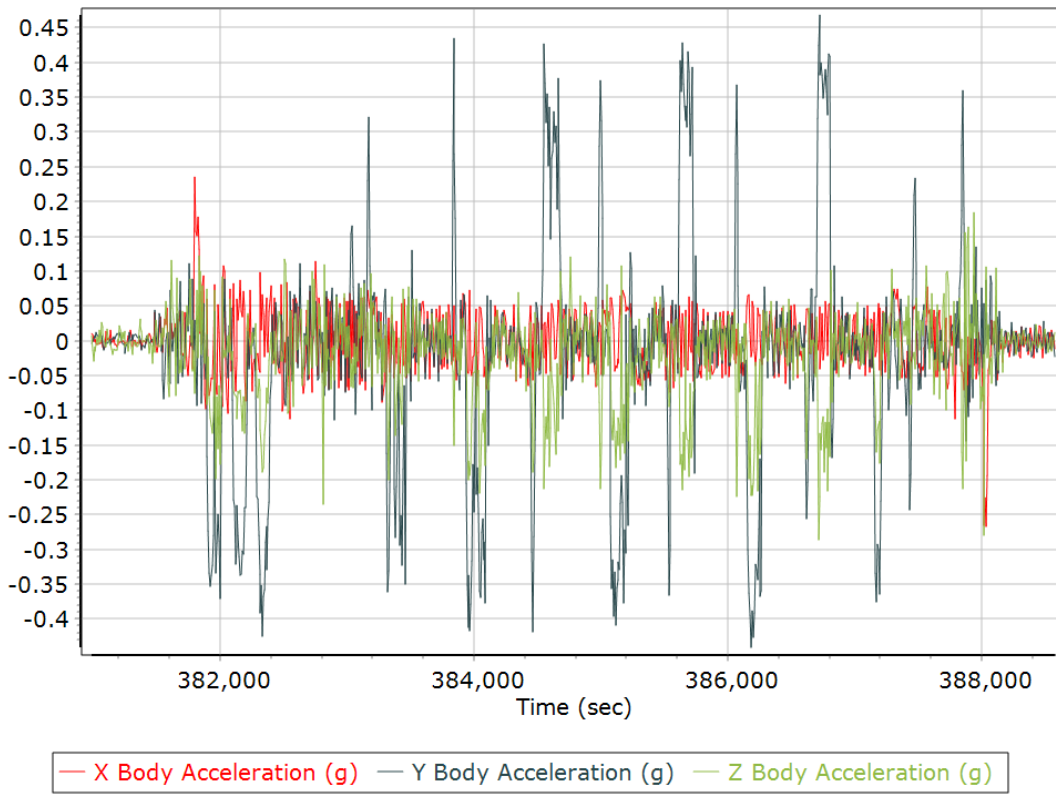
## Total Speed



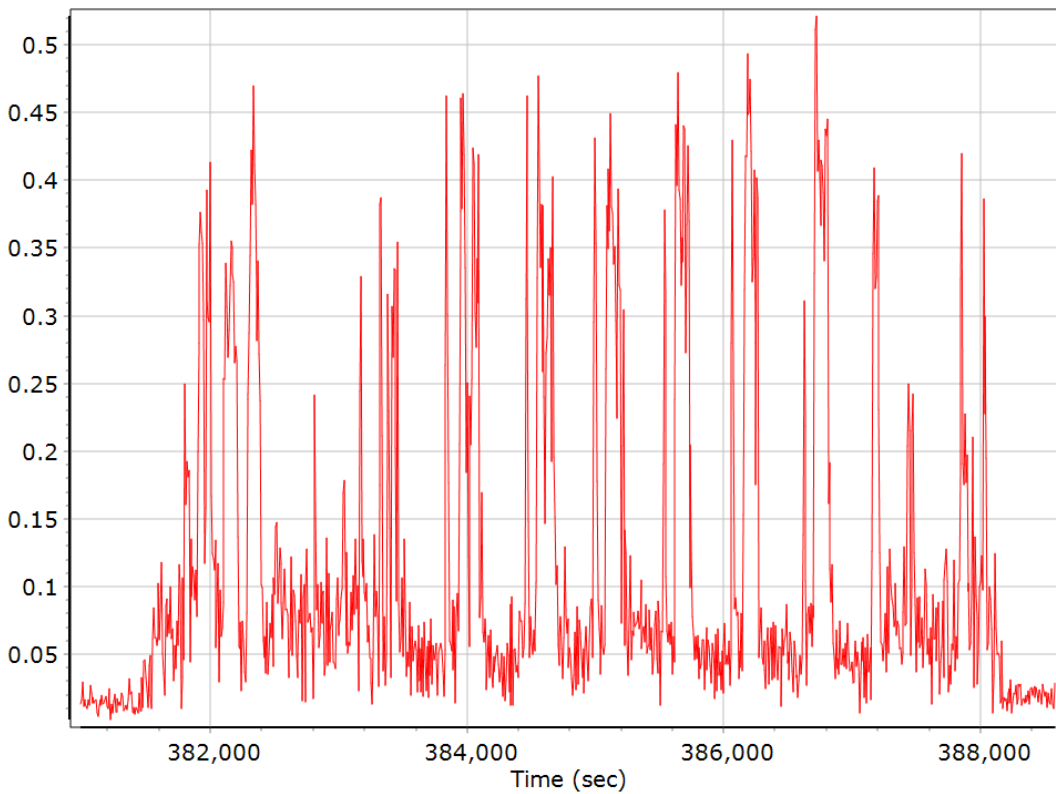
## Ground Speed



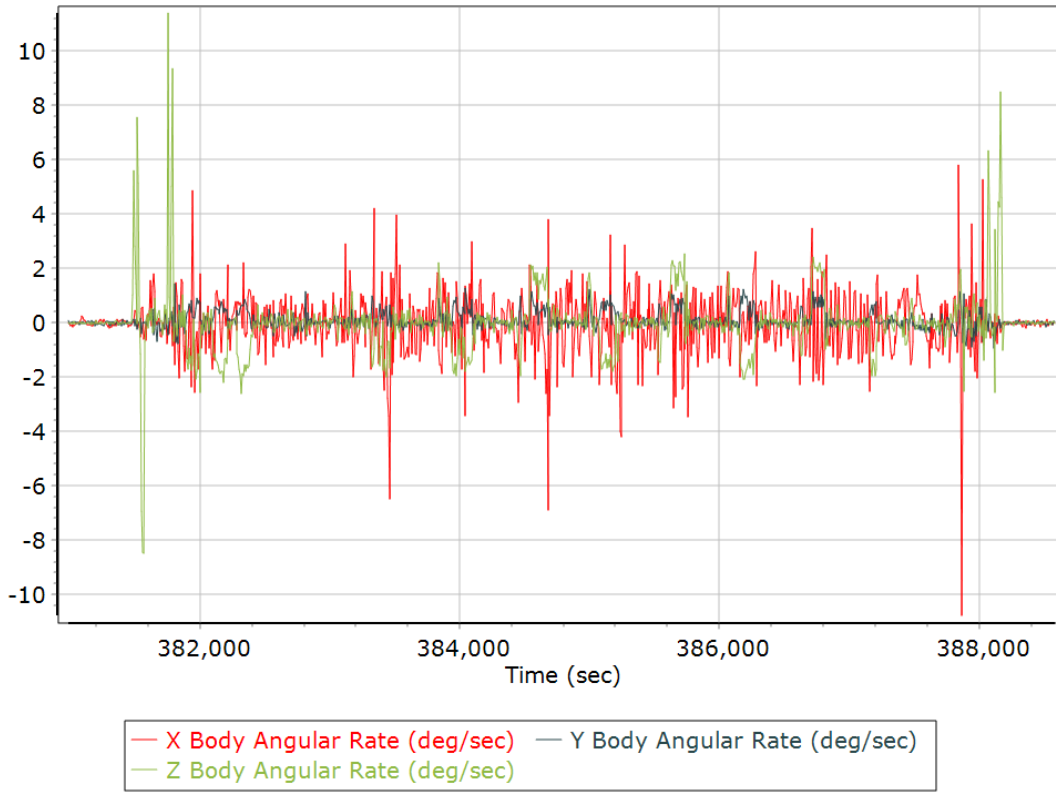
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



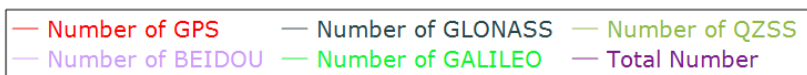
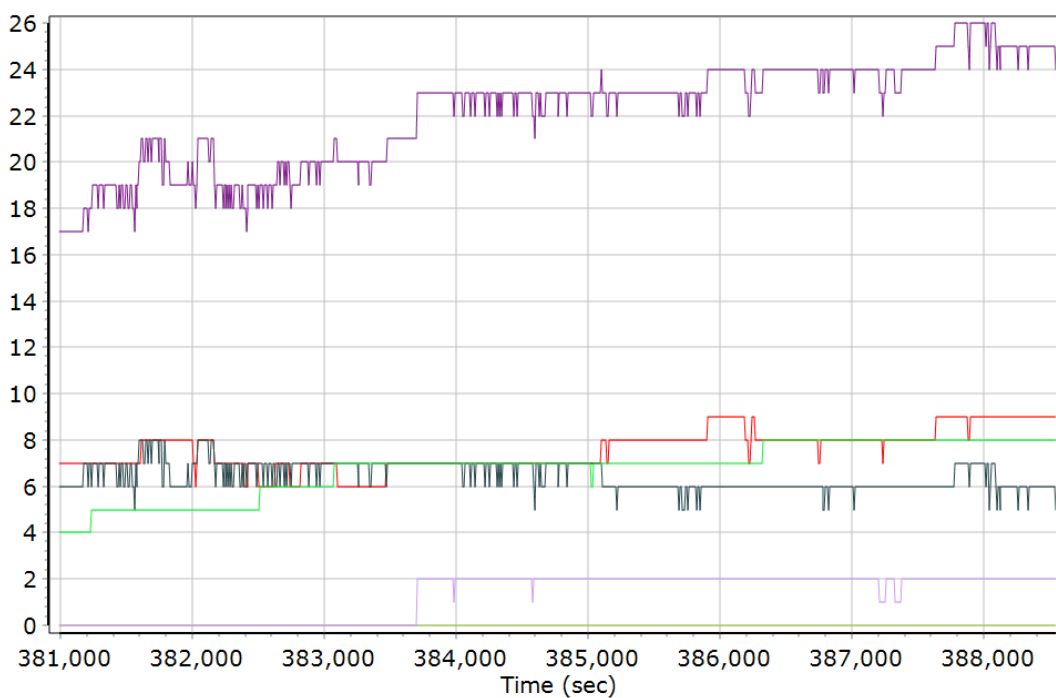


## GNSS QC

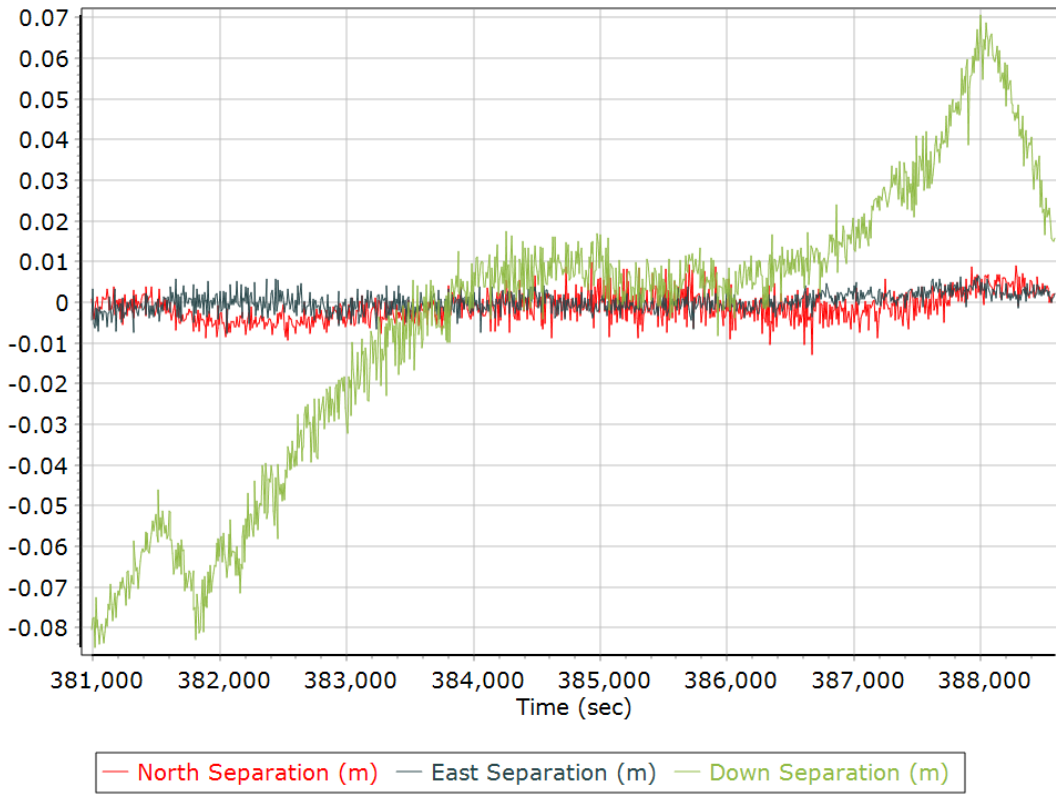
### GNSS QC Statistics

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	2	1
Number of GALILEO SV	0	8	7
Total number of SV	12	26	22
PDOP	1.02	1.60	1.17
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	8073.00	0.00	0.00
Percentage	100.00	0.00	0.00

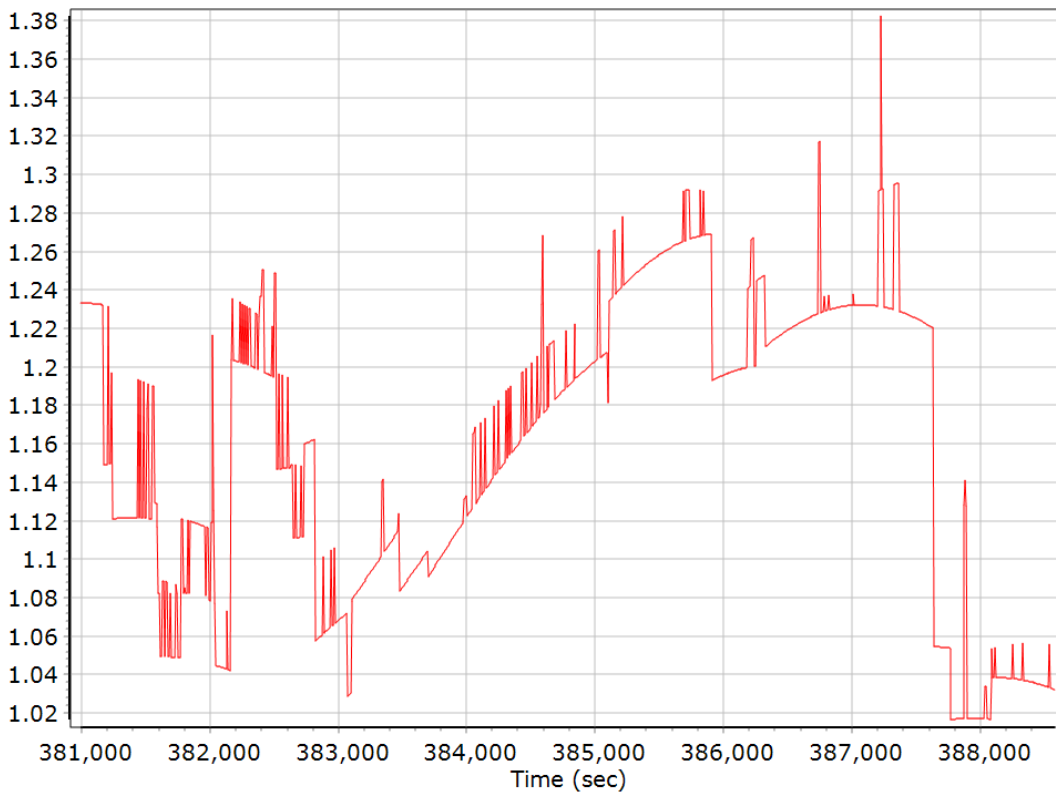
### Num SVs in solution



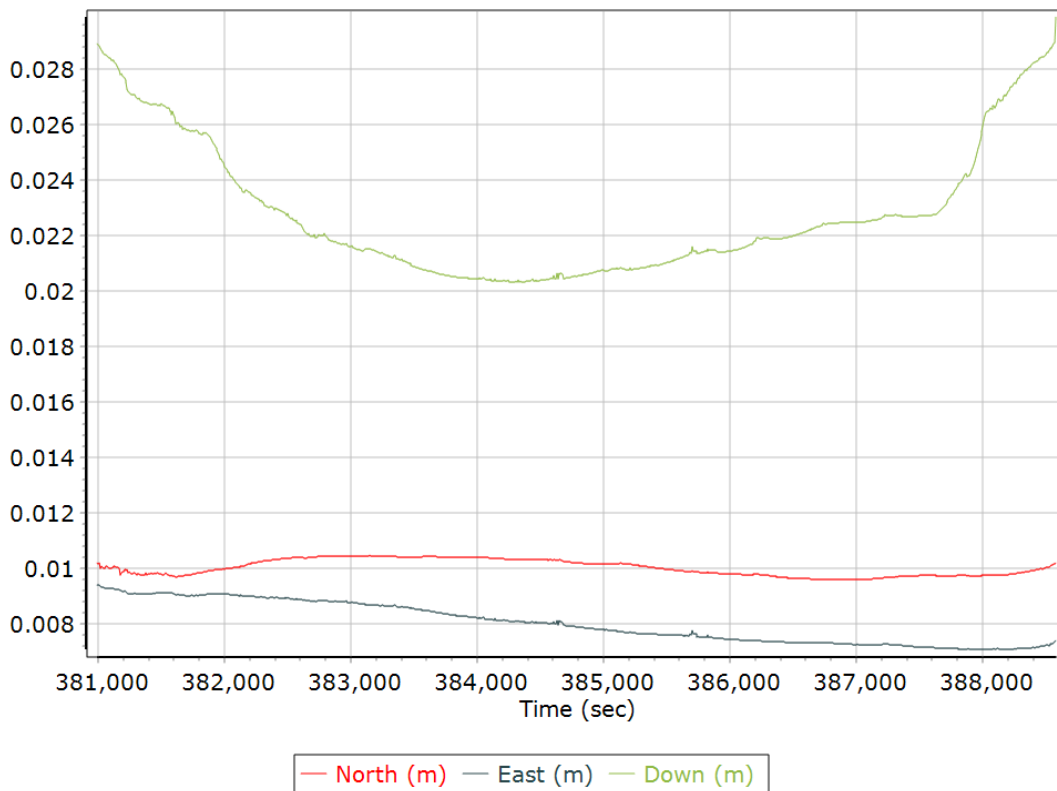
### Forward/Reverse Separation



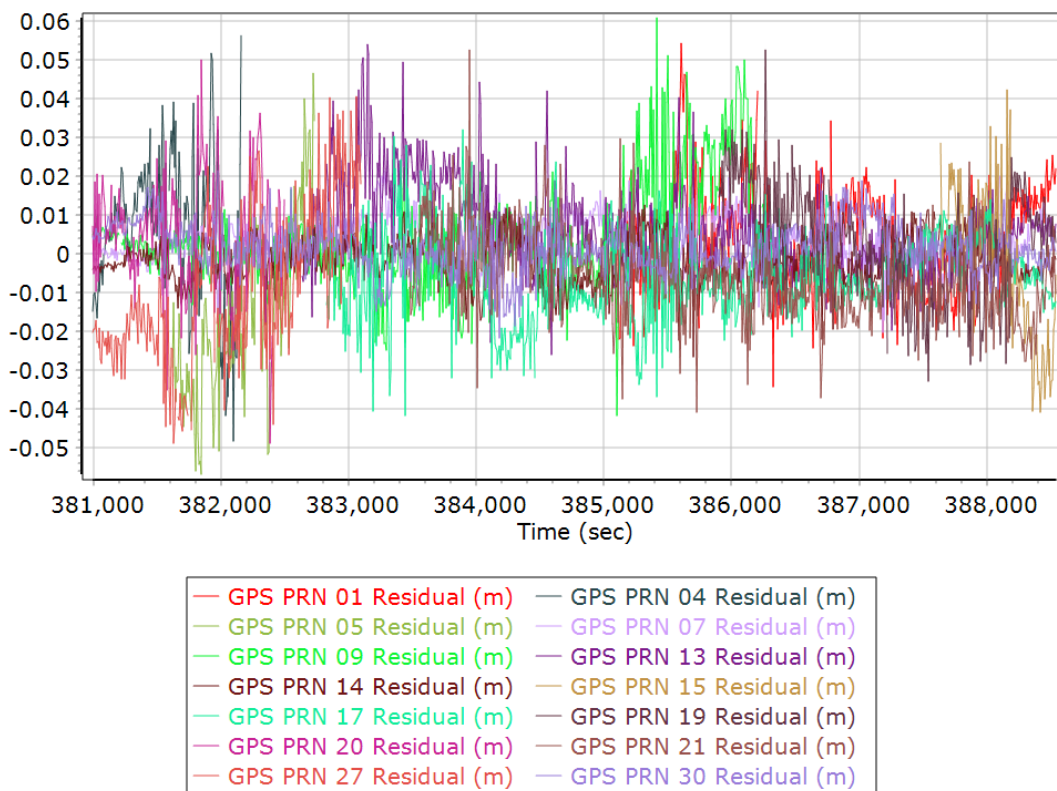
### PDOP



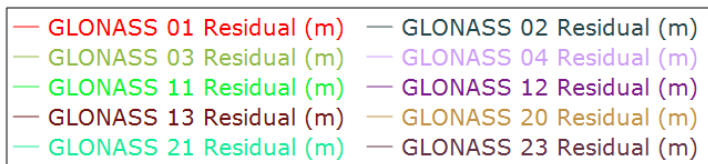
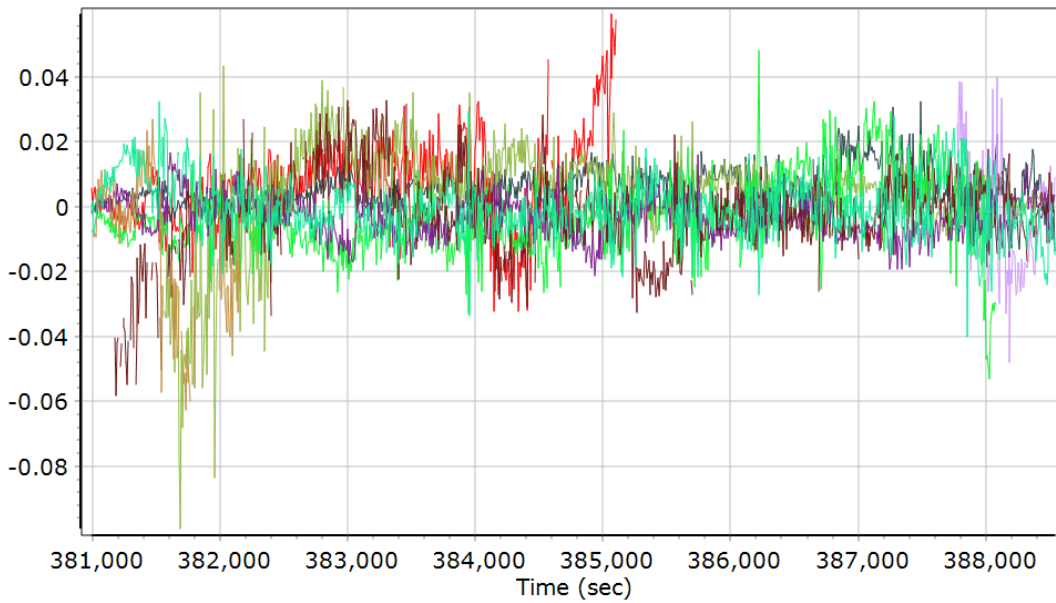
### Estimated Position Accuracy



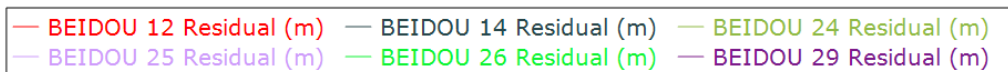
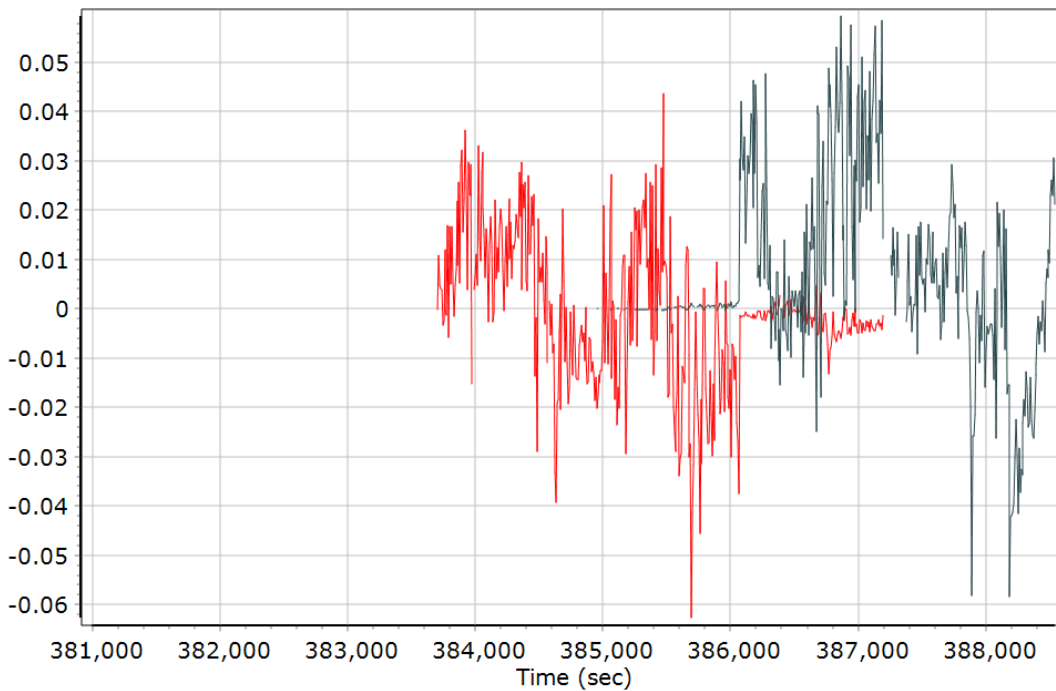
### GPS Residuals



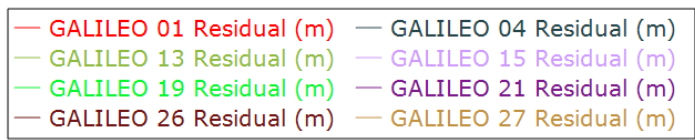
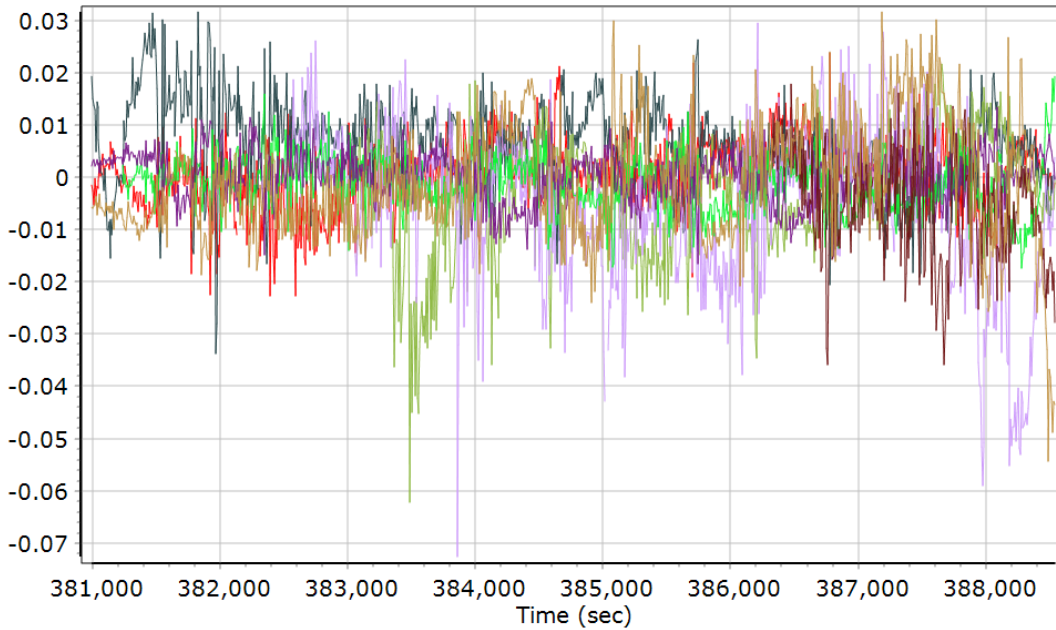
## GLONASS Residuals



## BEIDOU Residuals



## GALILEO Residuals



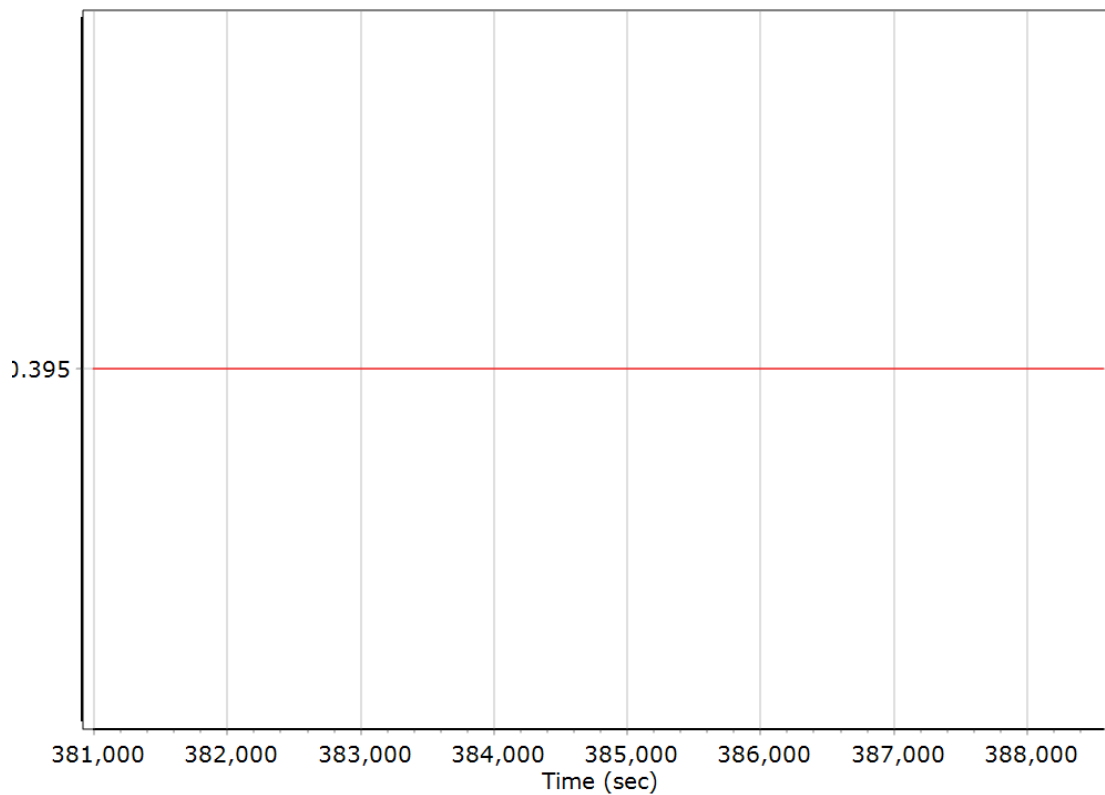
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	380448.000 (6/30/2022 9:40:48 AM)		
Processing end time	388582.000 (6/30/2022 11:56:22 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.395	-0.301	-1.268
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

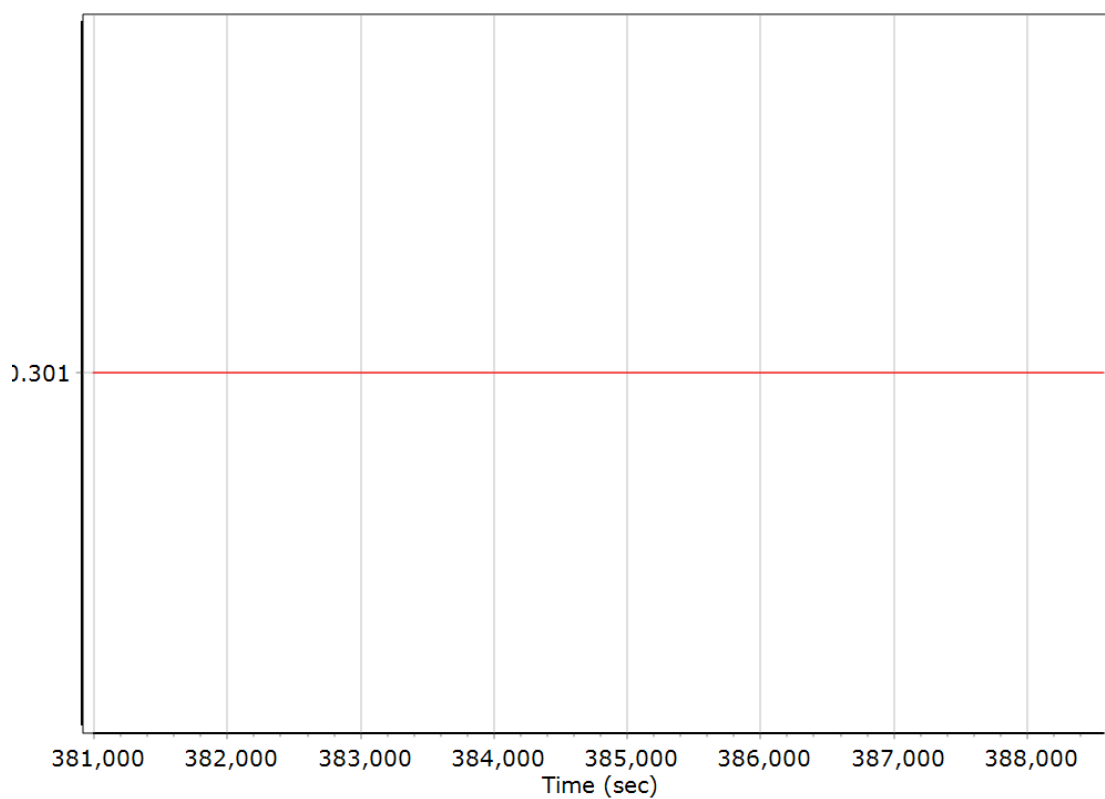
## Calibrated Installation Parameters

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

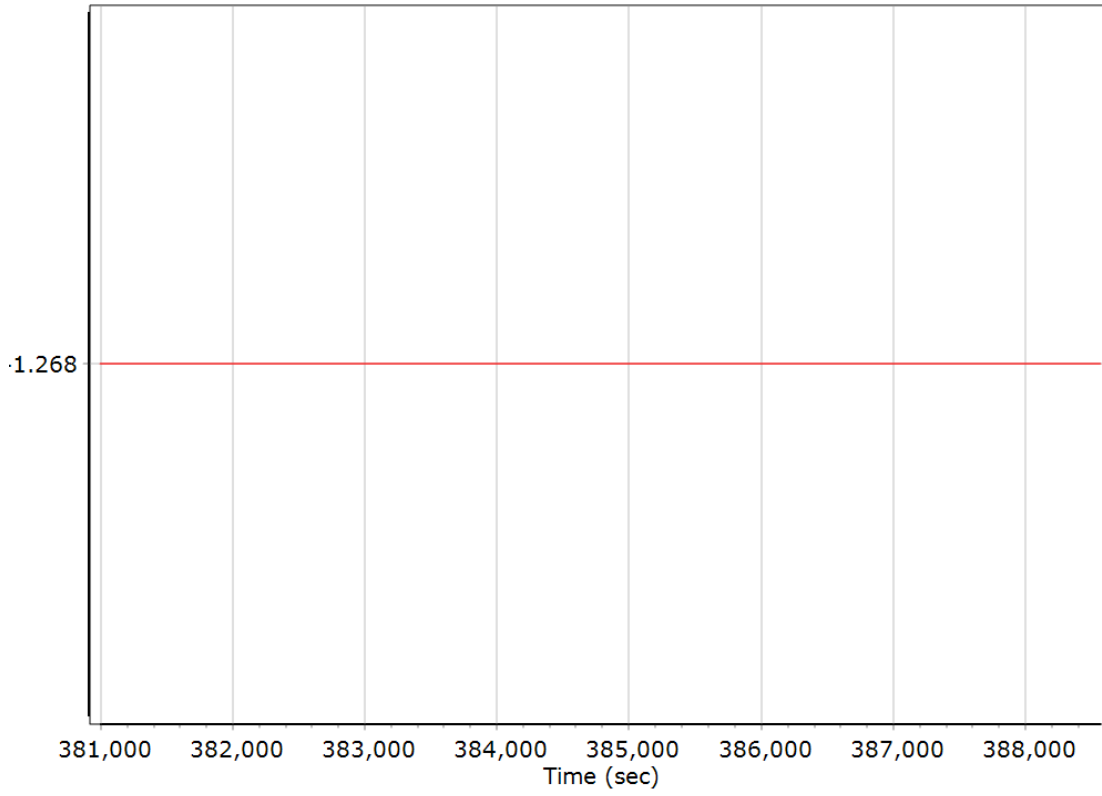
#### X Reference-Primary GNSS Lever Arm (m)



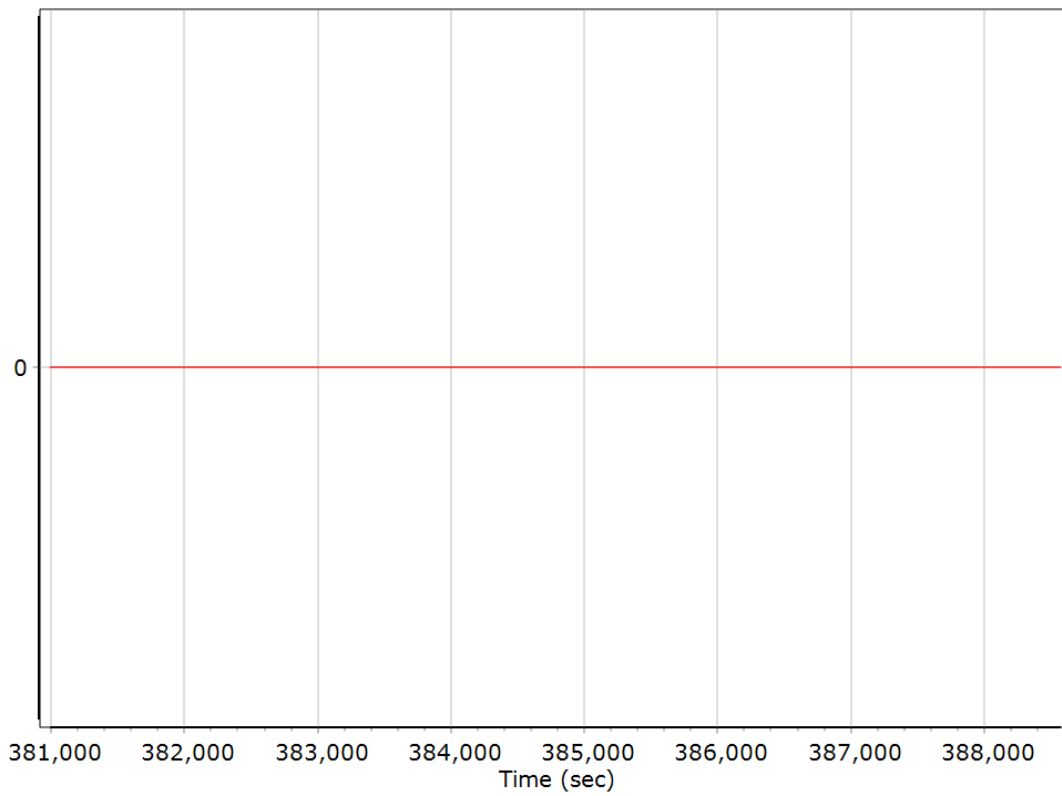
#### Y Reference-Primary GNSS Lever Arm (m)



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



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

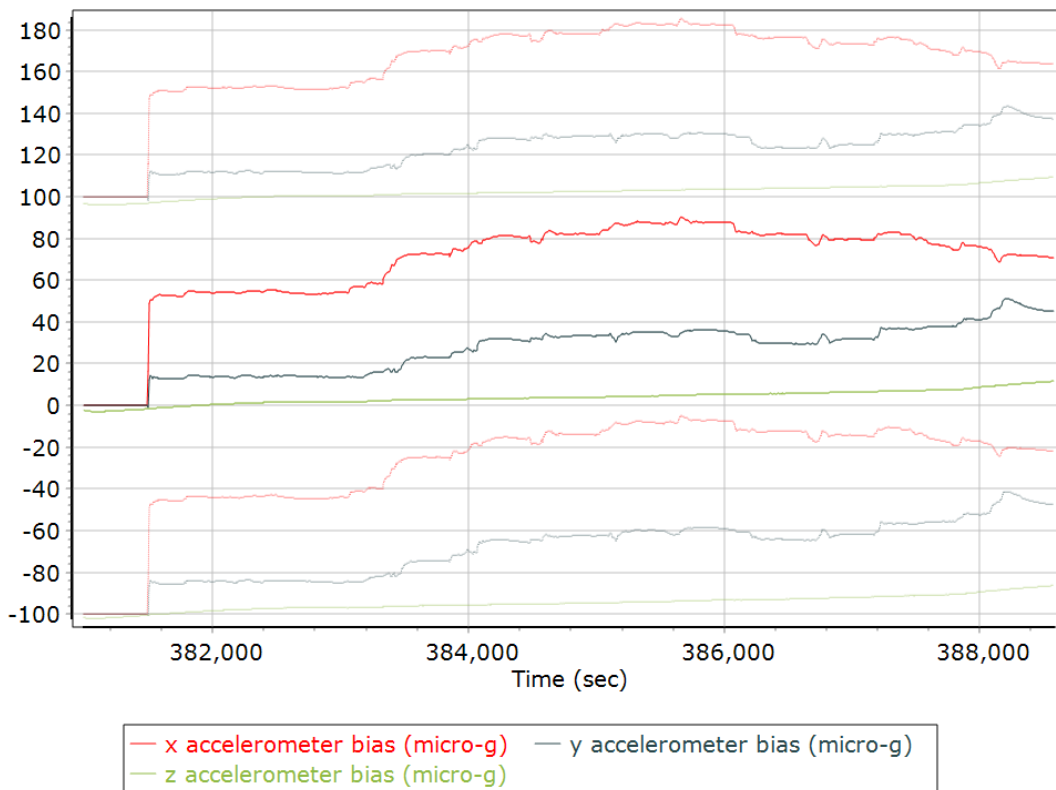




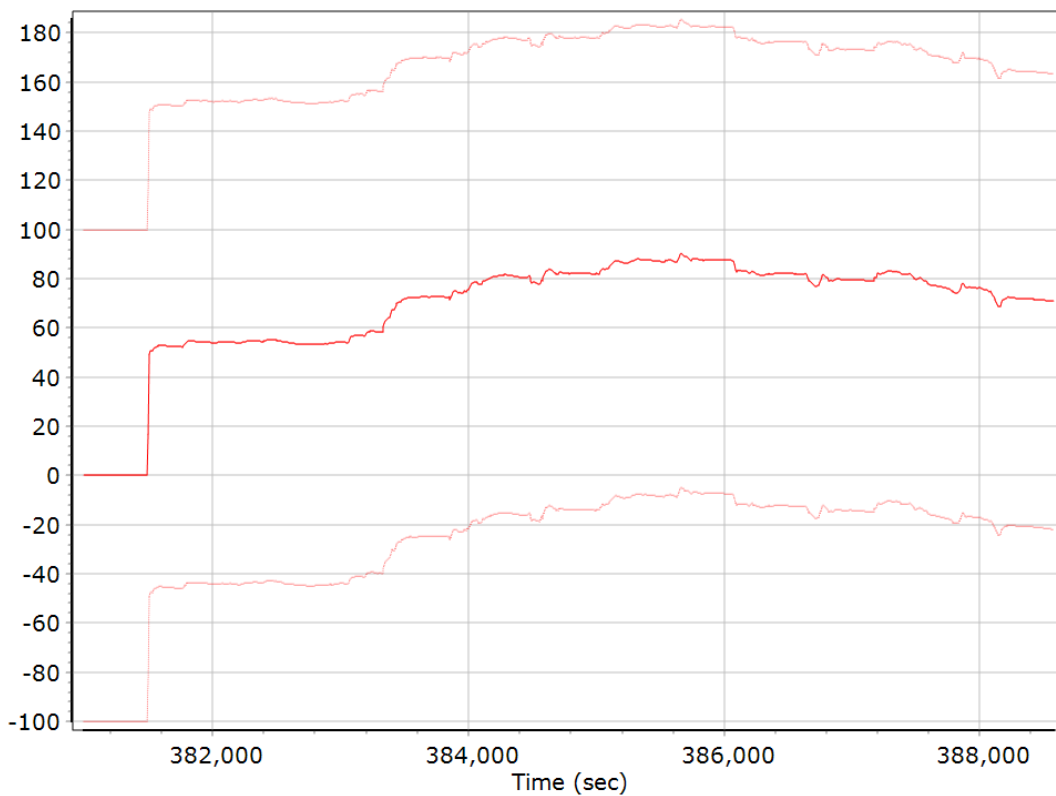
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

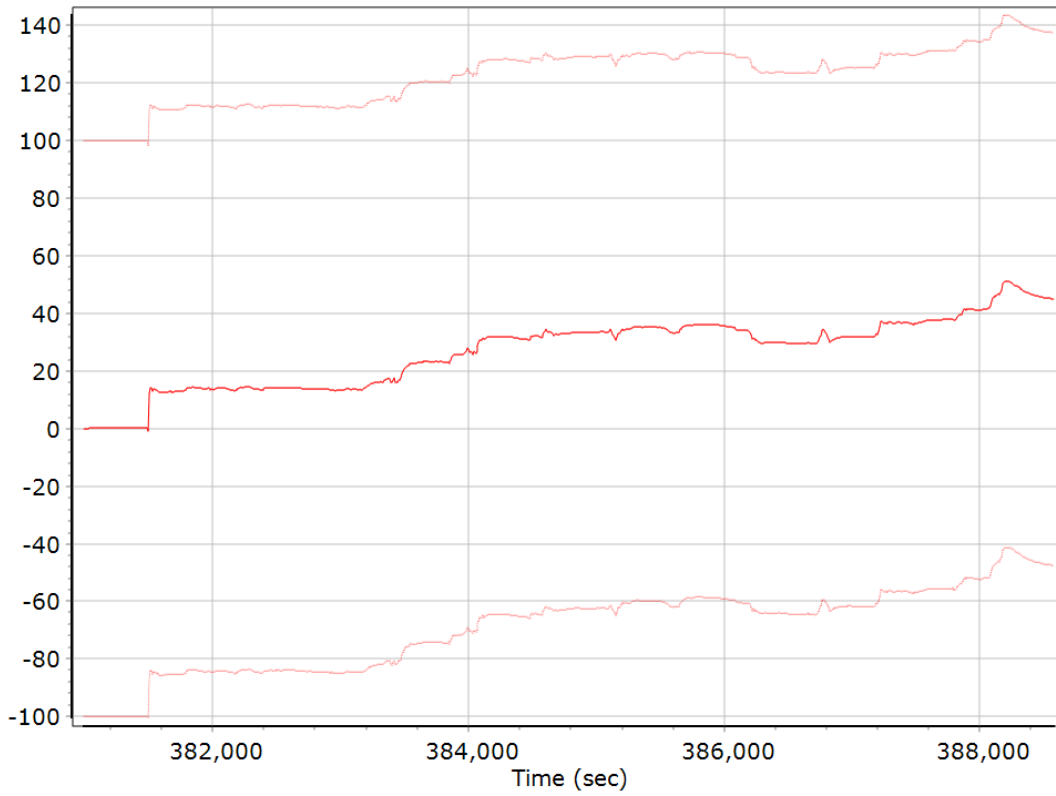
#### Accelerometer Bias (micro-g)



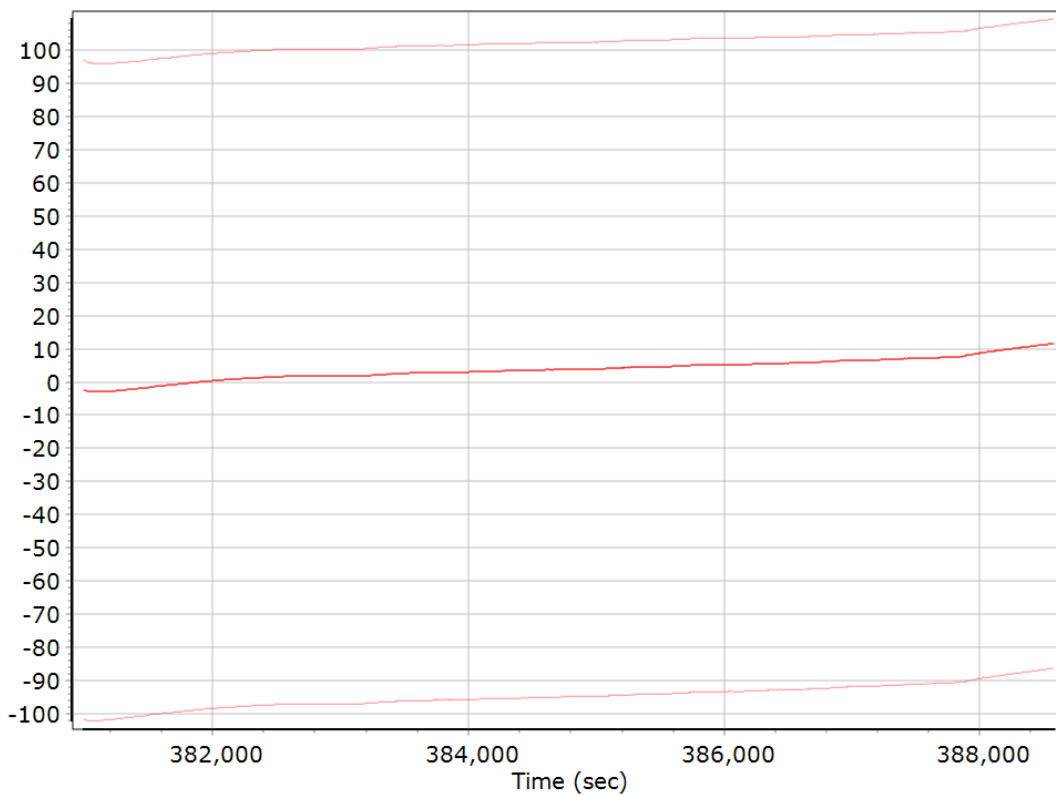
#### X Accelerometer Bias (micro-g)



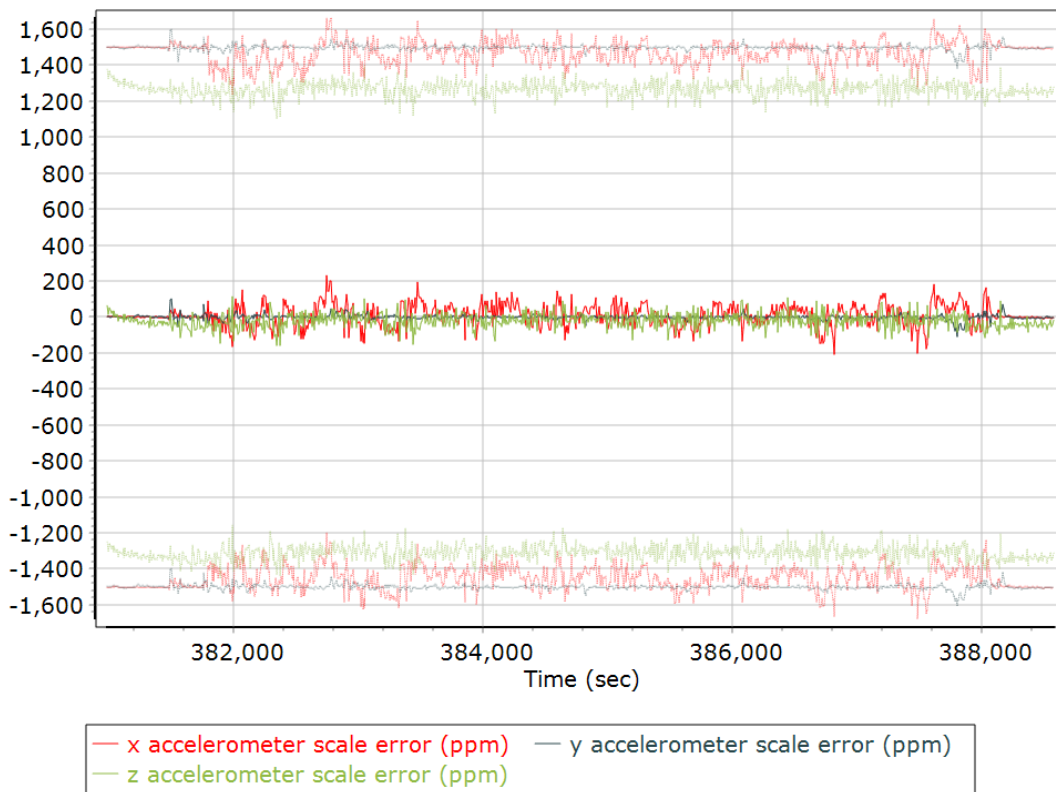
### Y Accelerometer Bias (micro-g)



### Z Accelerometer Bias (micro-g)



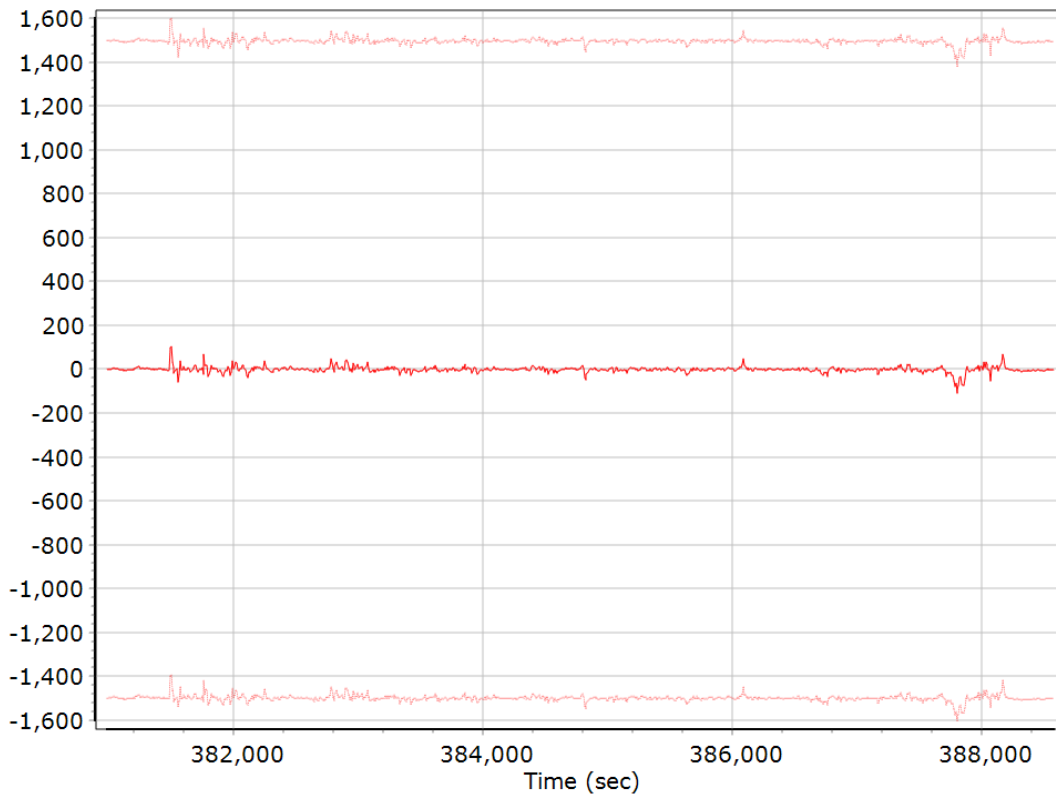
### Accelerometer Scale Error (ppm)



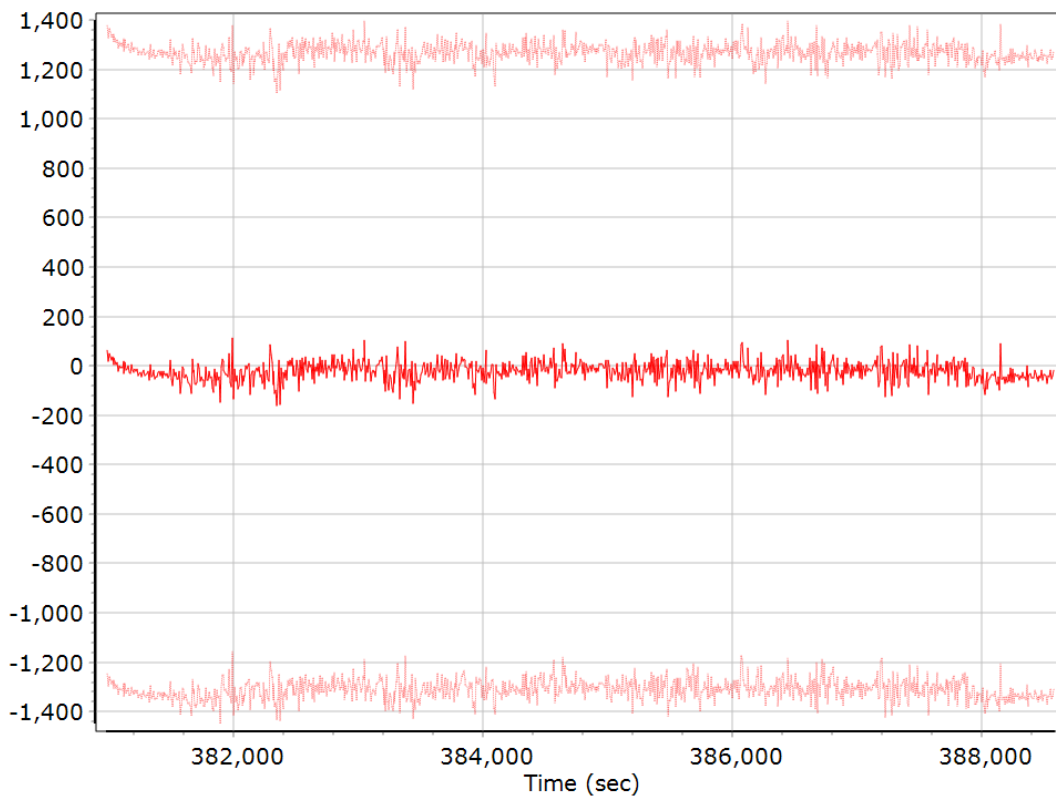
### X Accelerometer Scale Error (ppm)



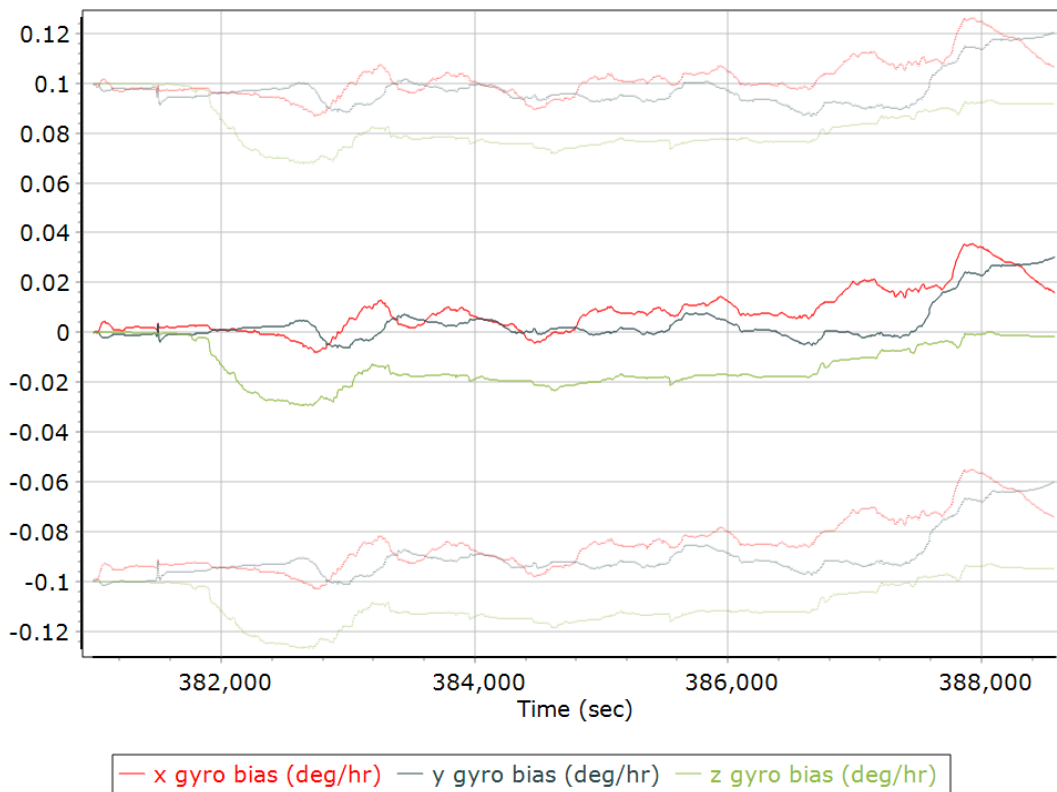
### Y Accelerometer Scale Error (ppm)



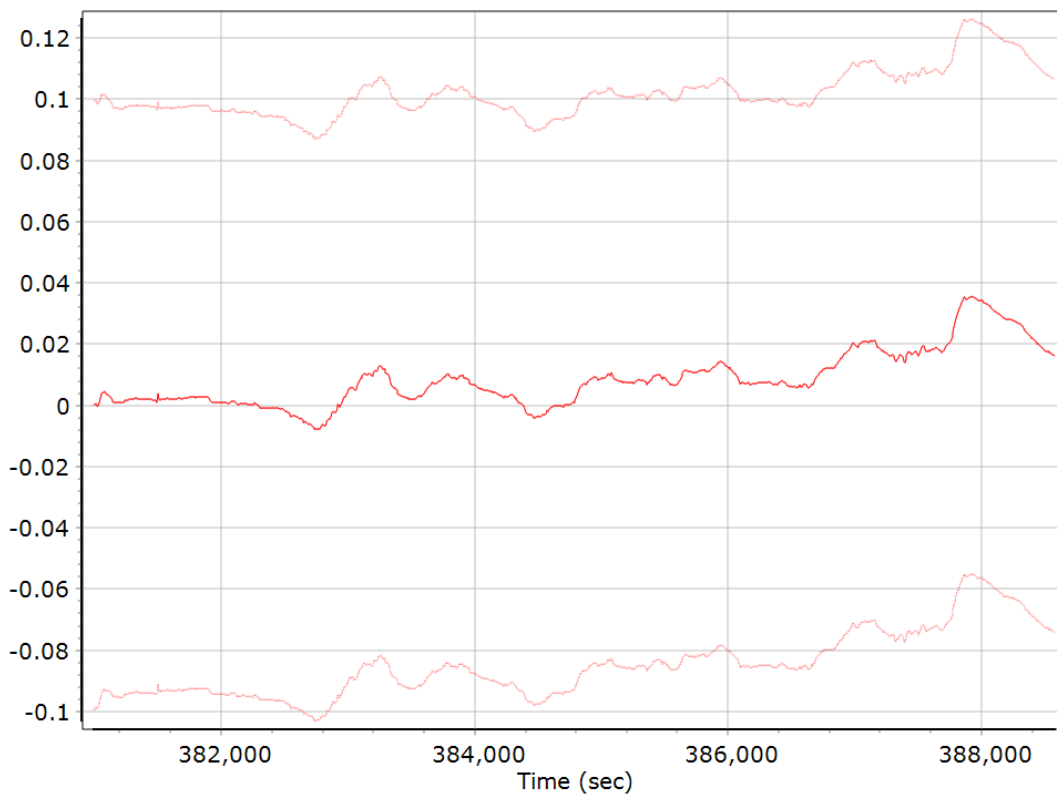
### Z Accelerometer Scale Error (ppm)



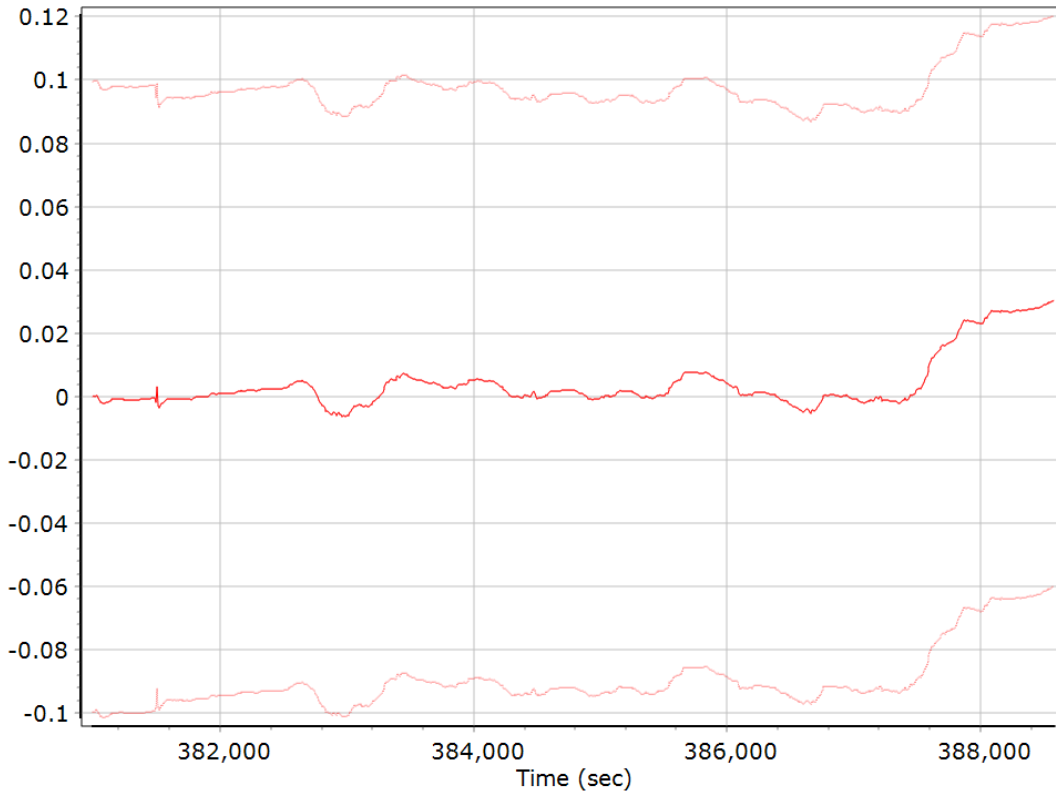
### Gyro Bias (deg/h)



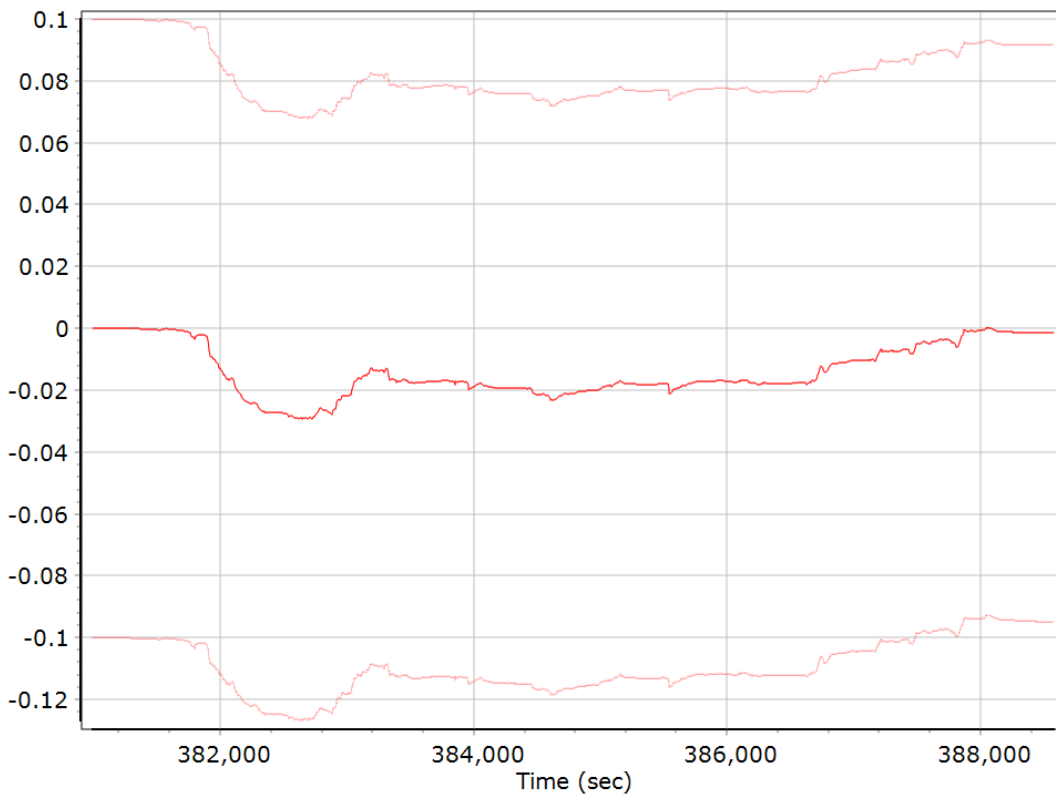
### X Gyro Bias (deg/h)



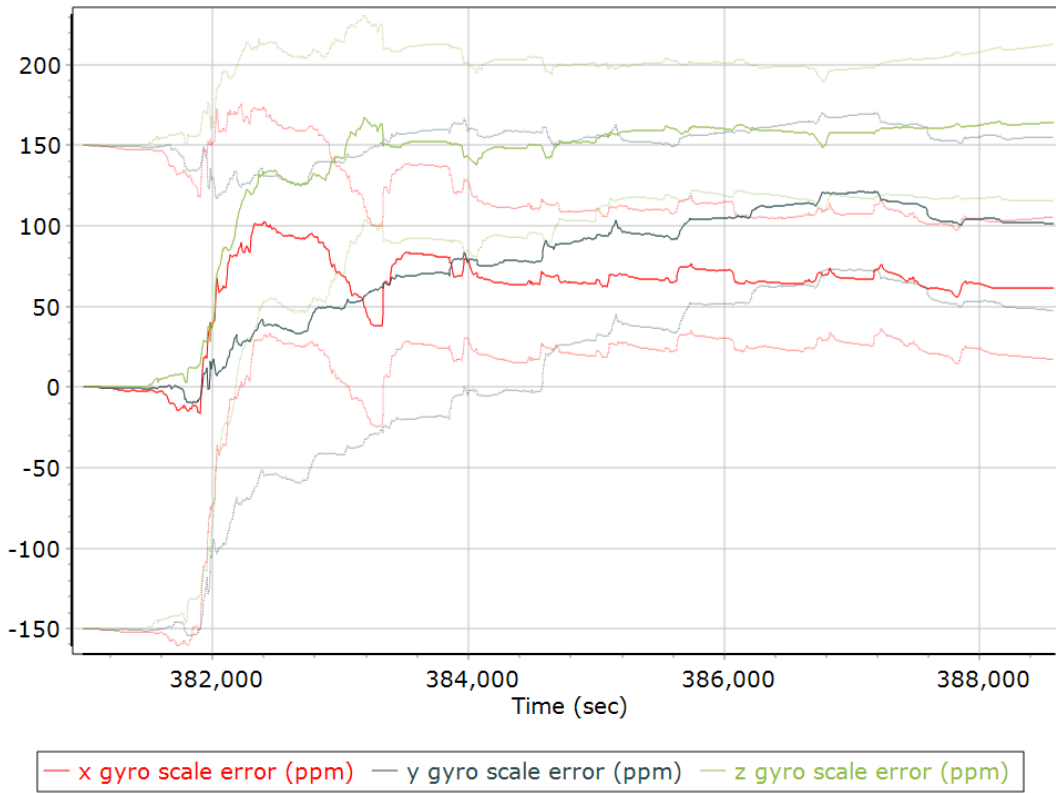
### Y Gyro Bias (deg/h)



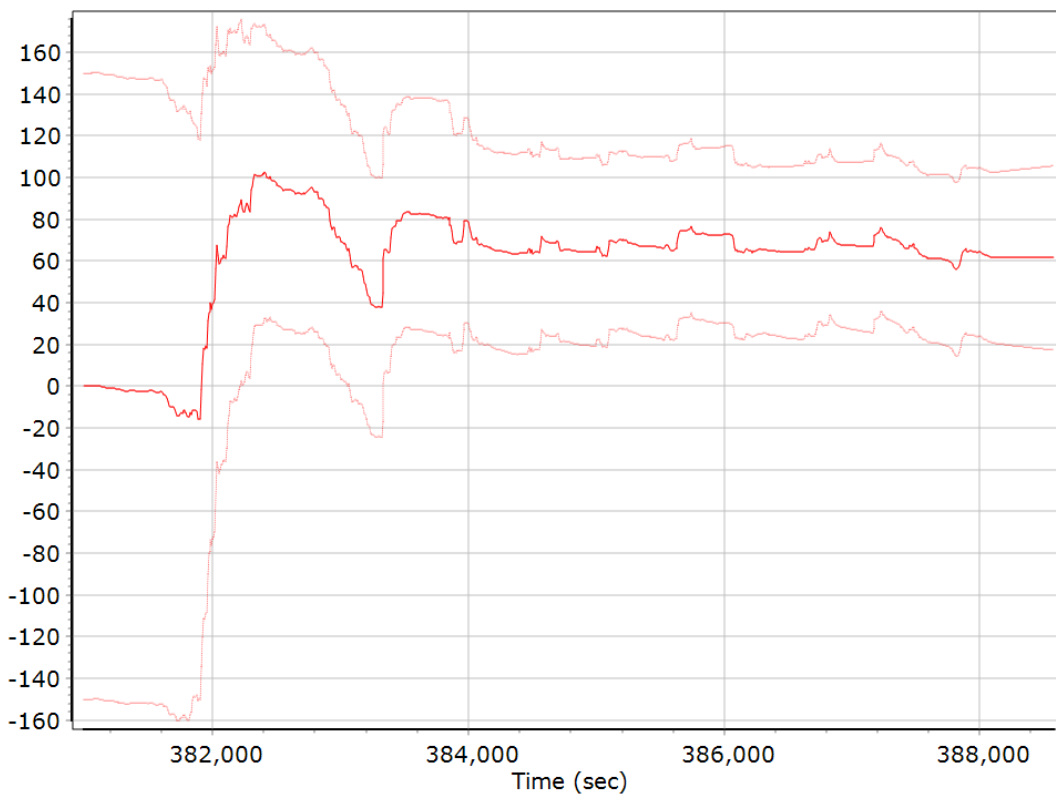
### Z Gyro Bias (deg/h)



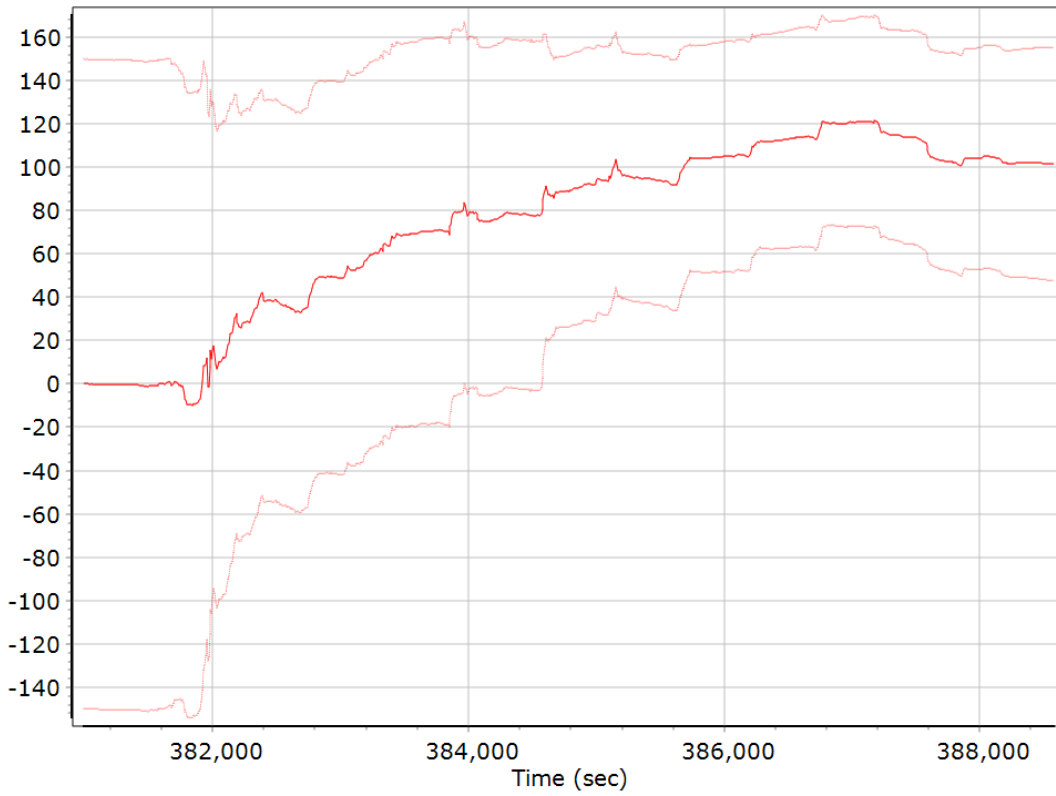
### Gyro Scale Error (ppm)



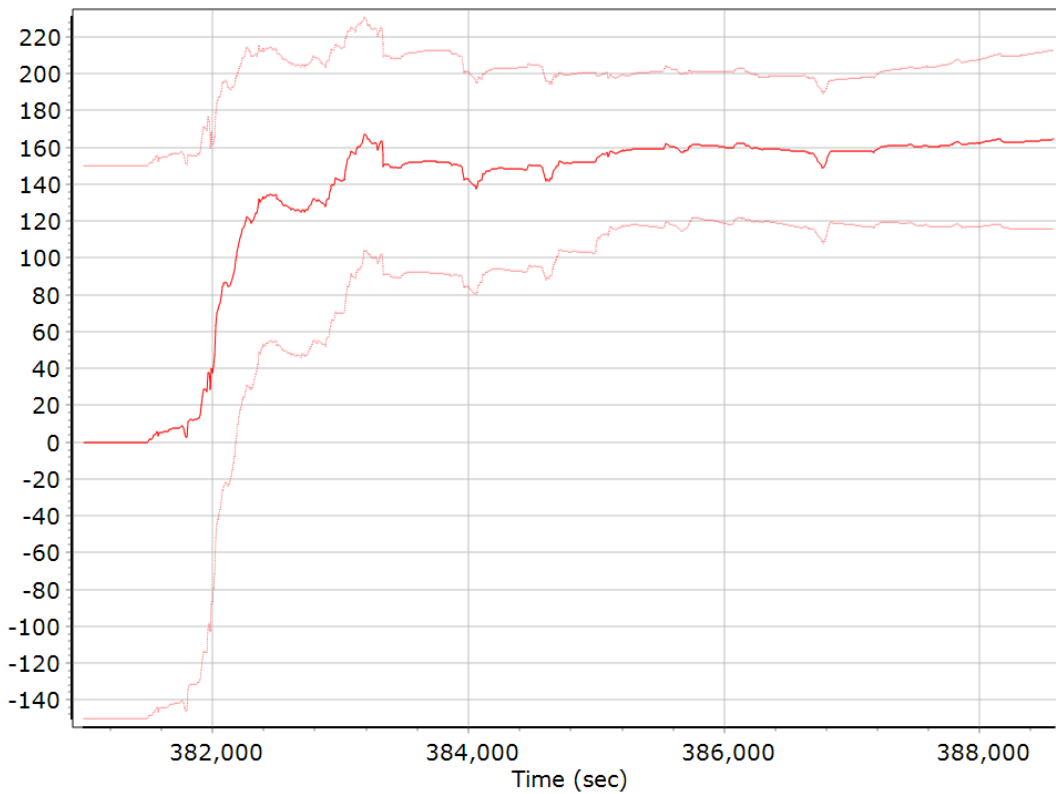
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)



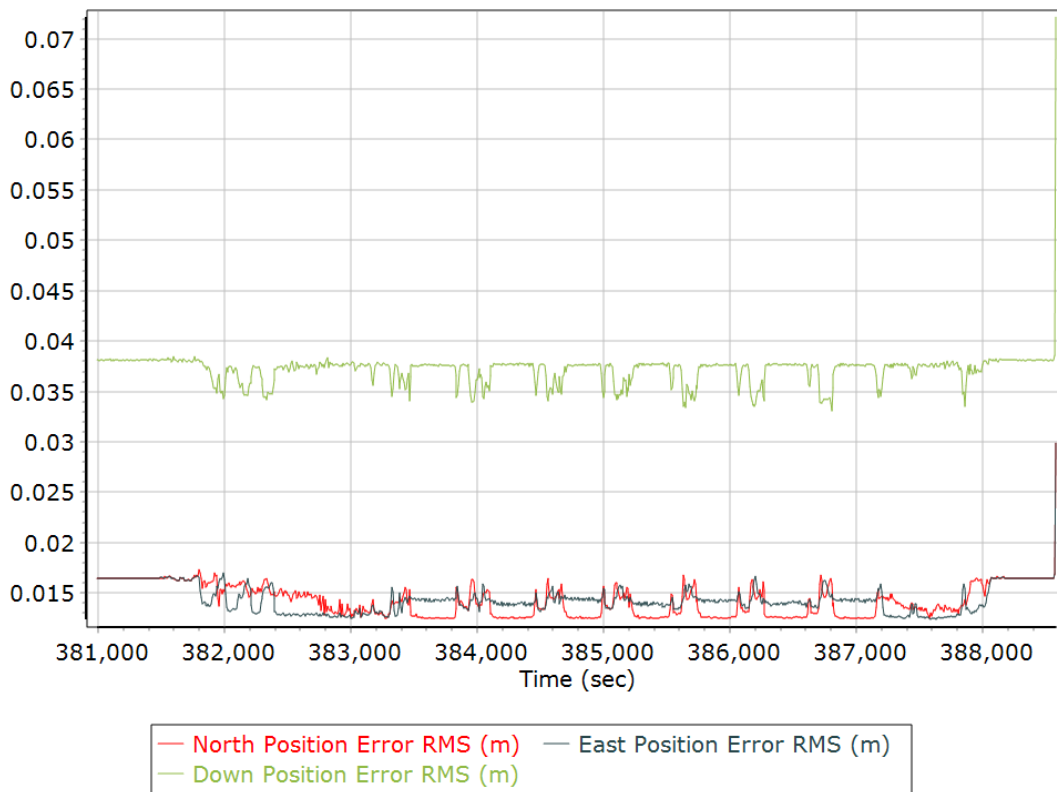
### Z Gyro Scale Error (ppm)



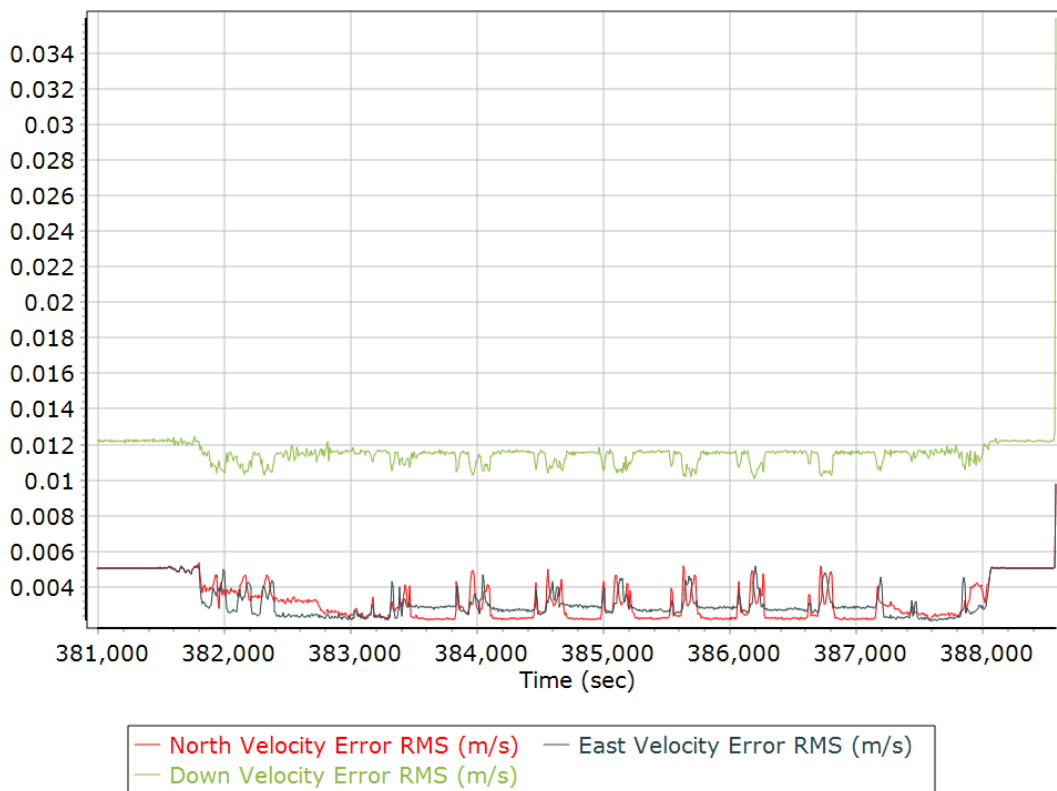


## Smoothed Performance Metrics

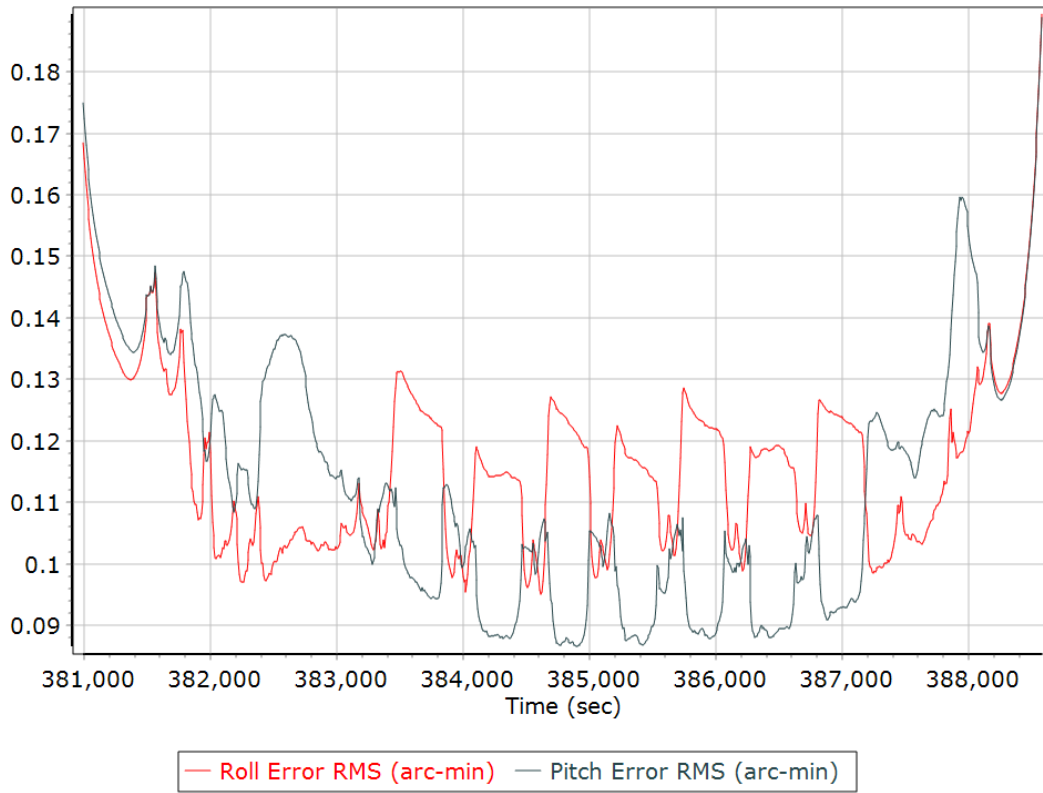
### Position Error RMS (m)



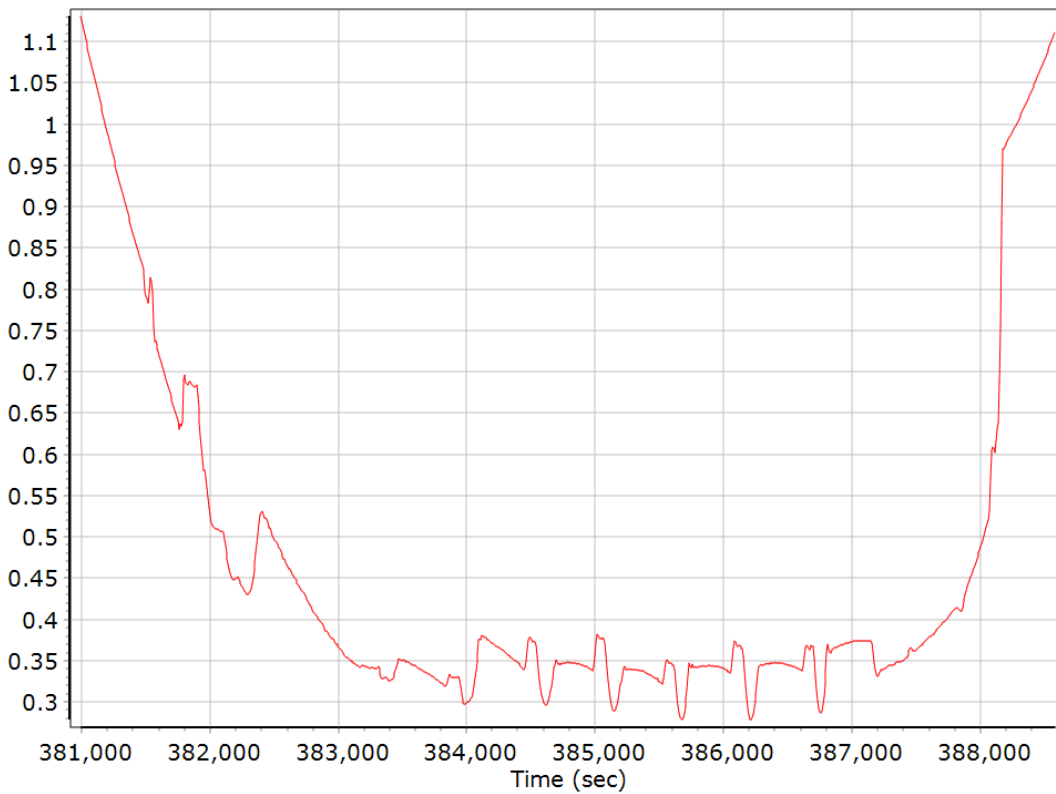
### Velocity Error RMS (m/s)



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

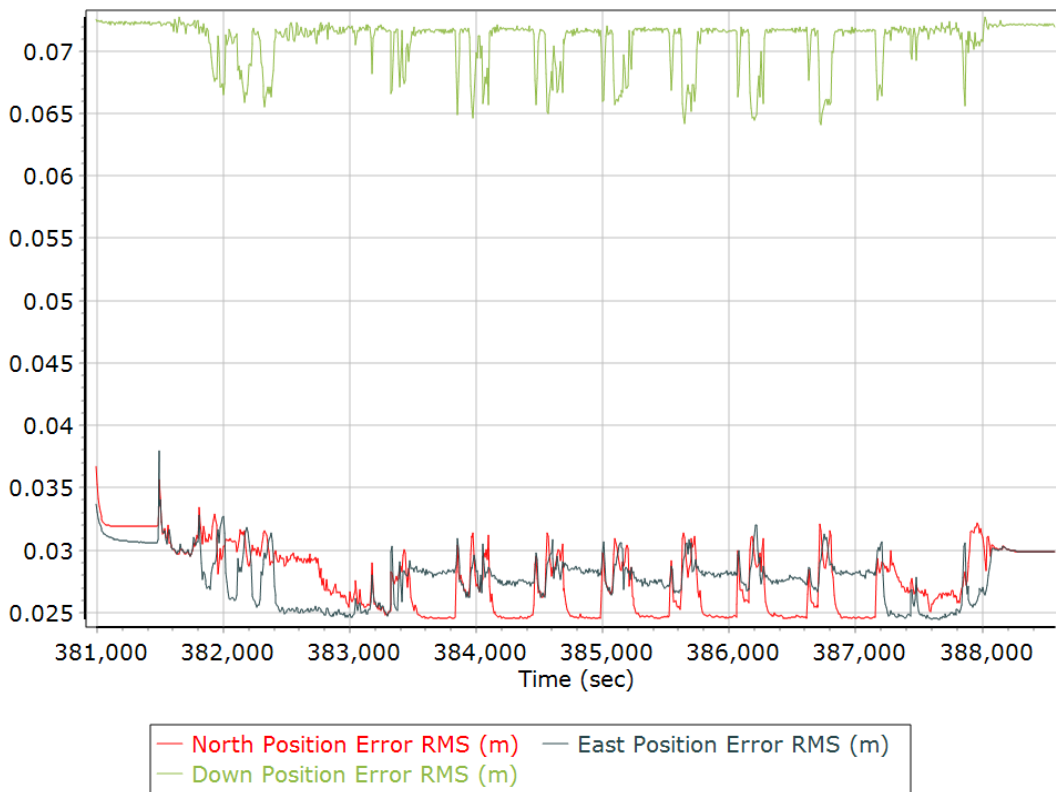


### Heading Error RMS (arc-min)

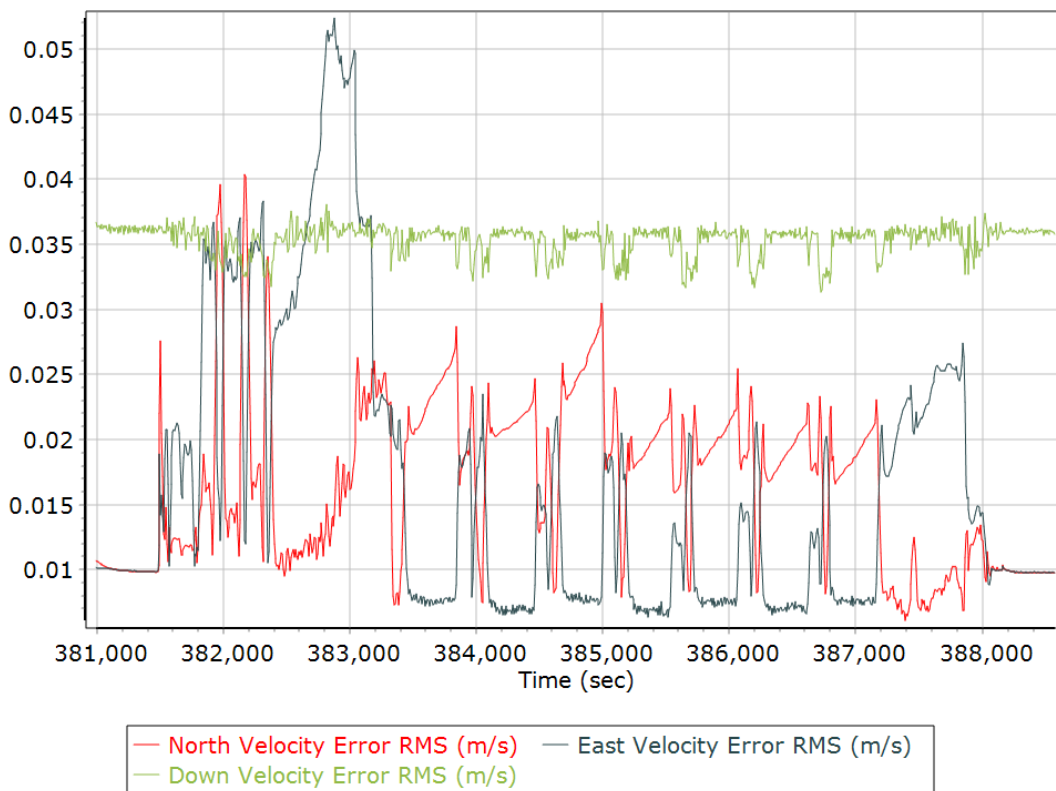


## Forward Processed Performance Metrics

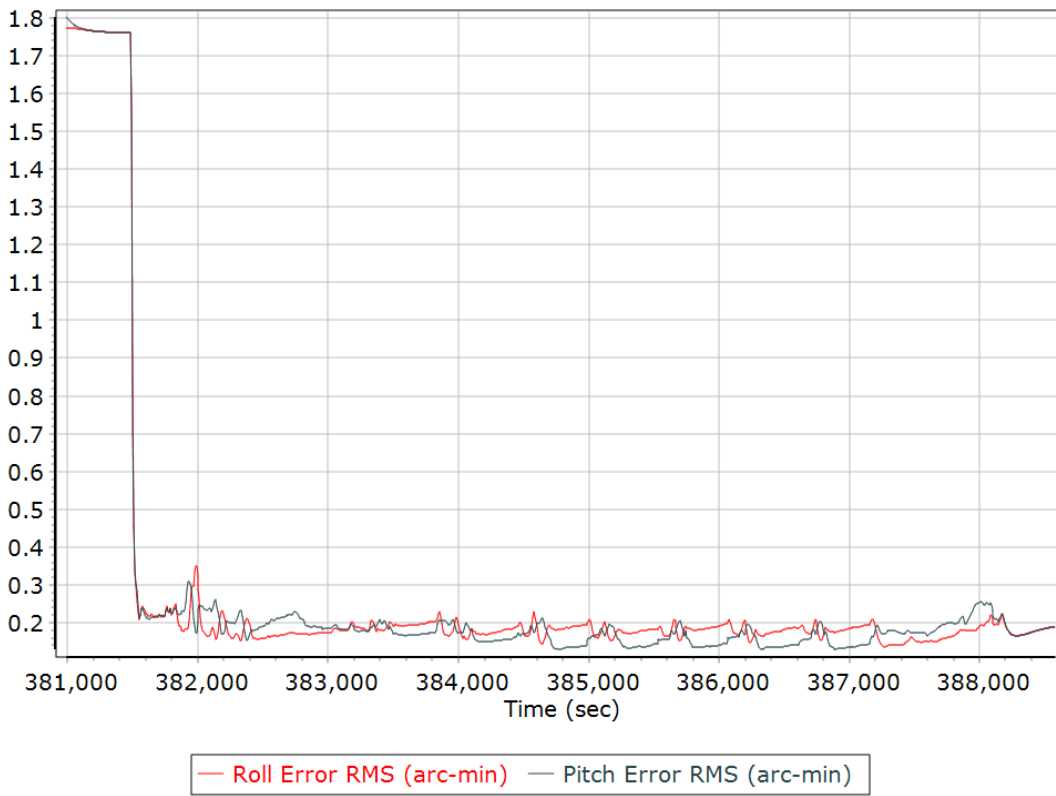
### Position Error RMS (m)



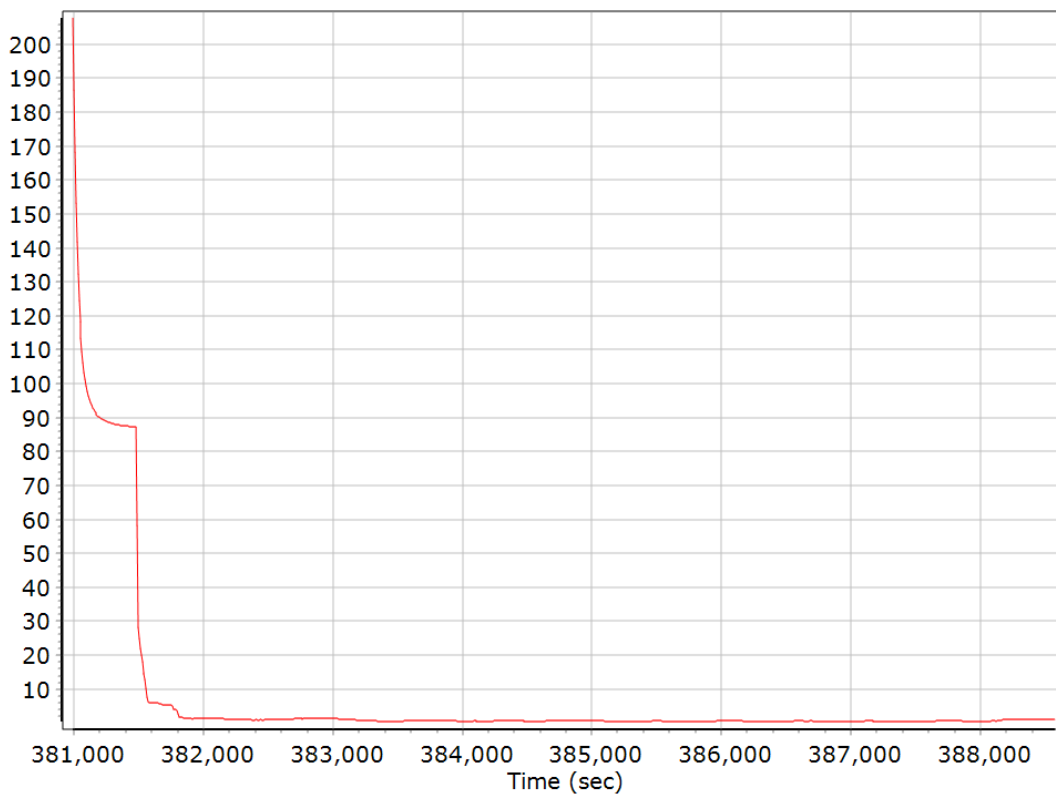
### Velocity Error RMS (m/s)



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

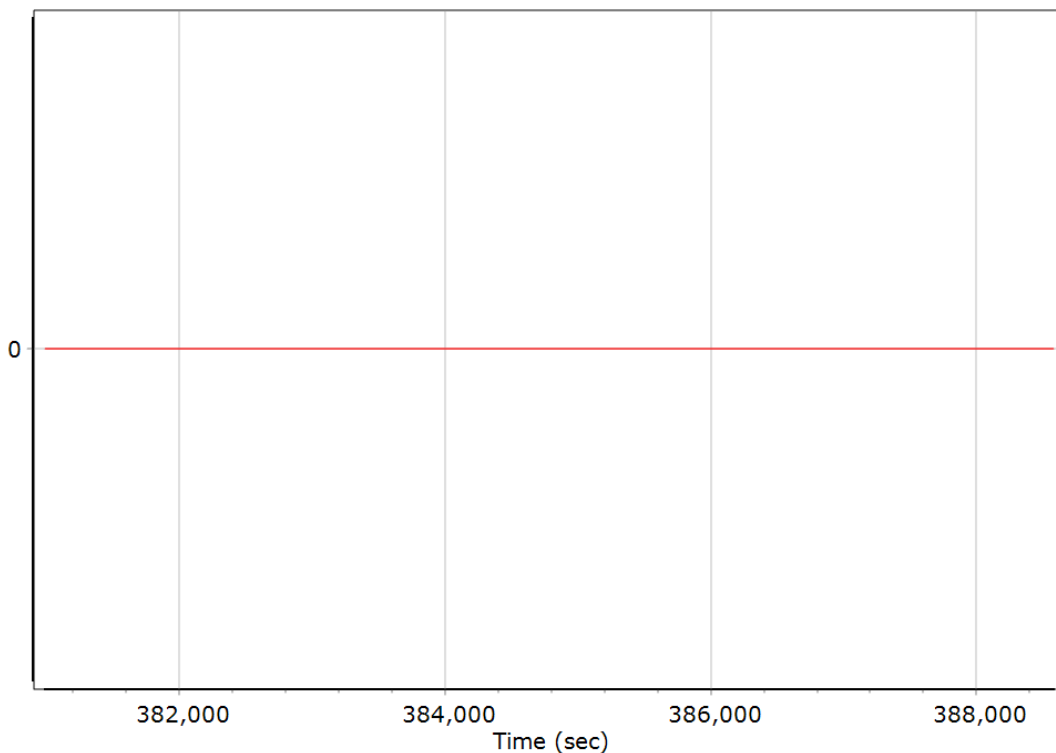


### Heading Error RMS (arc-min)



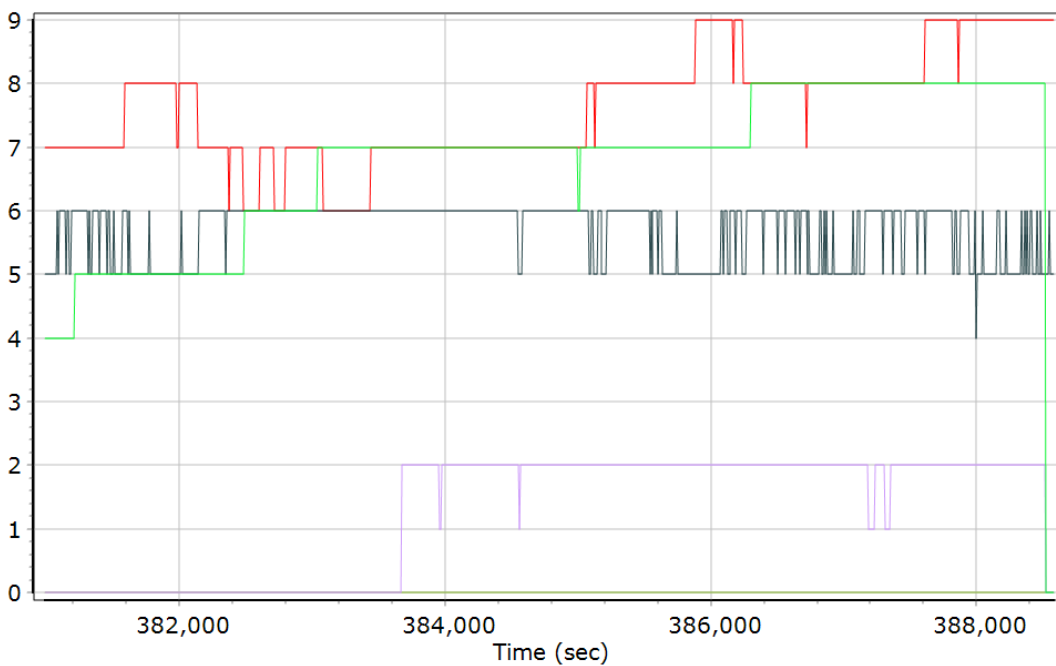
## Forward Processed Solution Status

### Processing Mode



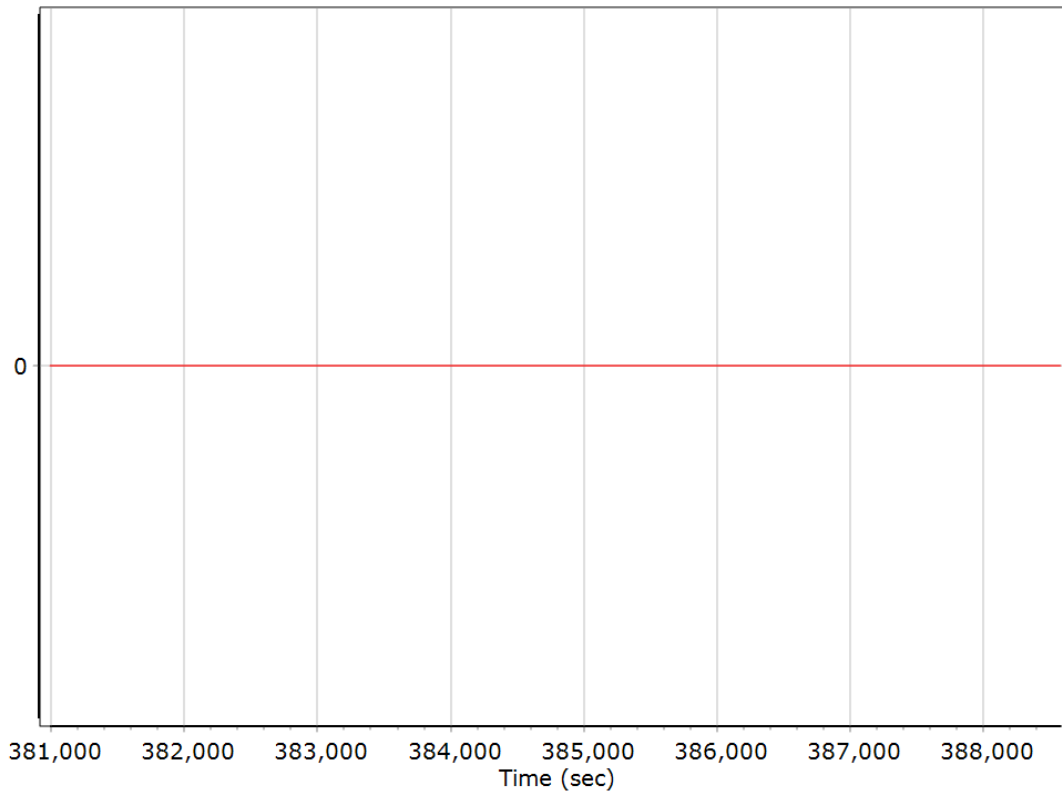
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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



## General Information

### Mission Information

Project name	a07-s03-0505
Processing date	2022-09-02 17:34:27
Mission date	2022-07-01 06:45:53
Mission duration	04:56:50.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0701_064555.000	POS Data
default0701_064555.001	POS Data
default0701_064555.002	POS Data
default0701_064555.003	POS Data
default0701_064555.004	POS Data
default0701_064555.005	POS Data
default0701_064555.006	POS Data
default0701_064555.007	POS Data
default0701_064555.008	POS Data
default0701_064555.009	POS Data
default0701_064555.010	POS Data
default0701_064555.011	POS Data
default0701_064555.012	POS Data
default0701_064555.013	POS Data
default0701_064555.014	POS Data
default0701_064555.015	POS Data
default0701_064555.016	POS Data
default0701_064555.017	POS Data
default0701_064555.018	POS Data
default0701_064555.019	POS Data
default0701_064555.020	POS Data
default0701_064555.021	POS Data
default0701_064555.022	POS Data
default0701_064555.023	POS Data
default0701_064555.024	POS Data

### Input Files

File Name	File Type
Ephm1820.22g	GLONASS Broadcast Ephemeris
Ephm1820.22n	GPS Broadcast Ephemeris
igl22164.sp3	GLONASS Precise Ephemeris
igl22165.sp3	GLONASS Precise Ephemeris
igl22166.sp3	GLONASS Precise Ephemeris
igs22164.sp3	GPS Precise Ephemeris
igs22165.sp3	GPS Precise Ephemeris
igs22166.sp3	GPS Precise Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0505.out	SBET Trajectory File



## Rover Data Summary

First raw data file	default0701_064555.000		
Last raw data file	default0701_064555.024		
Start GPS week	2216		
Start time	18.107 (6/26/2022 12:00:18 AM)		
End time	474145.872 (7/1/2022 11:42:25 AM)		
Start of fine alignment	456731.634 (7/1/2022 6:52:11 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

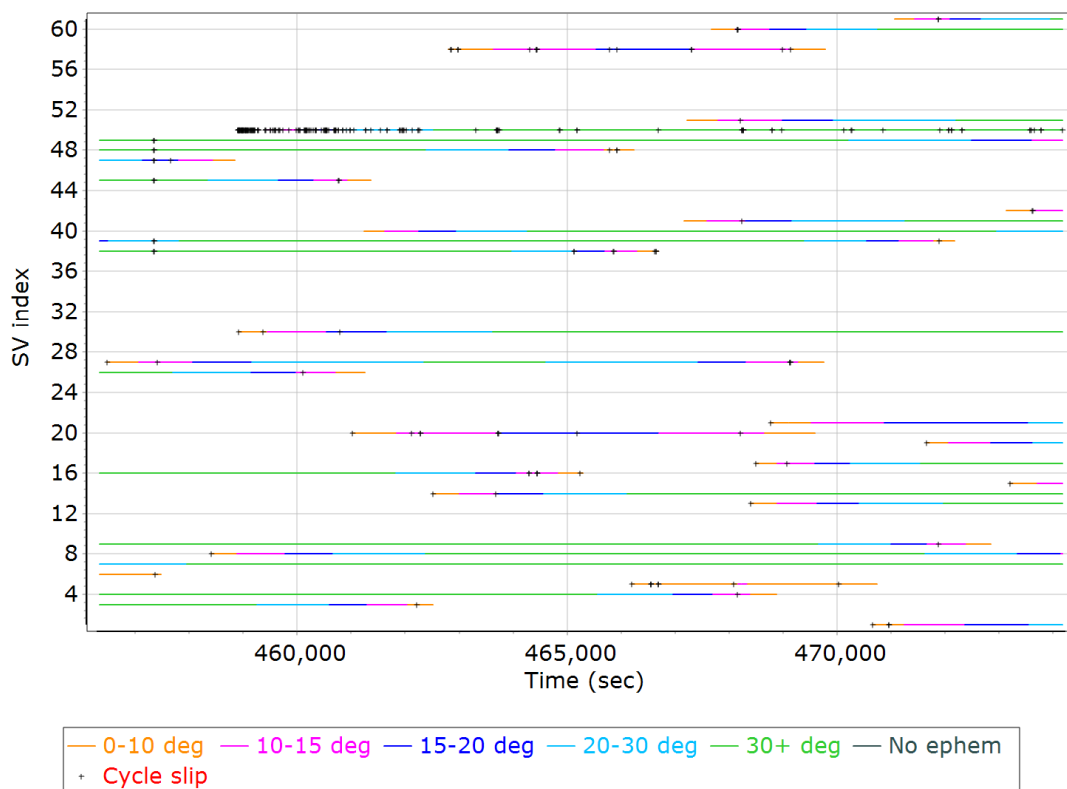
## Rover Data QC

### Raw IMU Import QC Summary

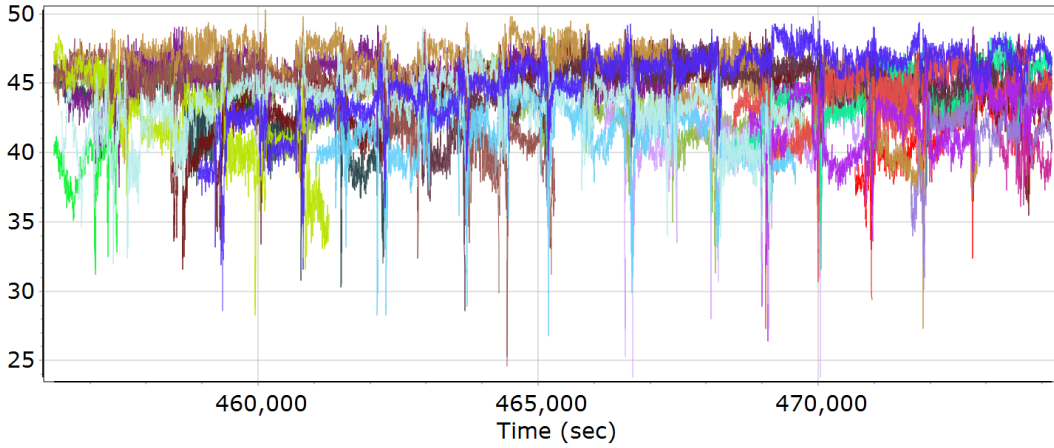
IMU data input file	imu_a07-s03-0505.dat
IMU data check log file	imudt_a07-s03-0505.log
IMU Records Processed	3561683
Termination Status	Warnings
IMU Anomalies	2
<b>IMU Failure Messages</b>	
456336.919 : WARNING : Gap of 456317.5561 seconds in CHECKDT input data	
18.542 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	

## Primary Observables & Satellite Data

### GPS/GLONASS L1 Satellite Lock/Elevation

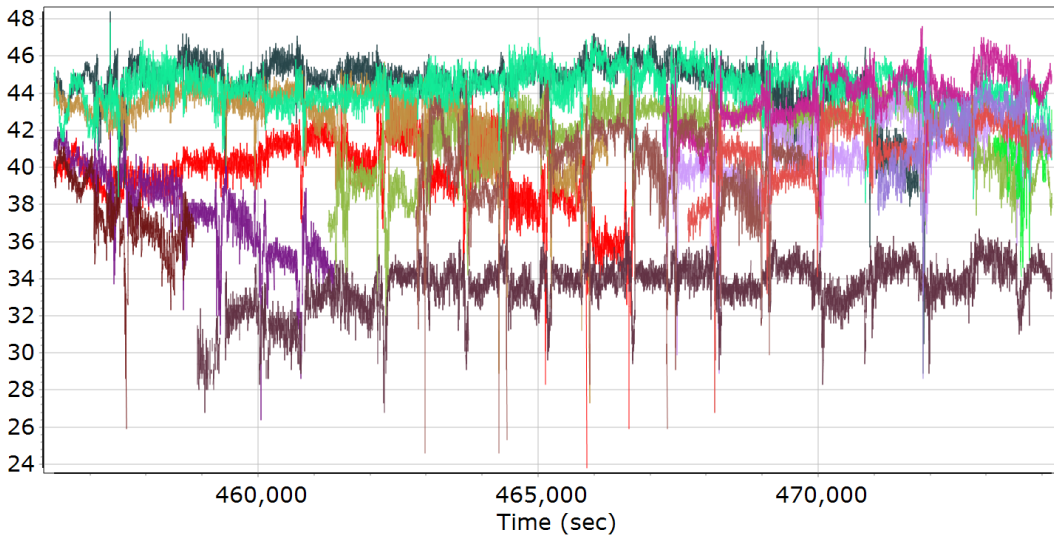


**GPS L1 SNR**



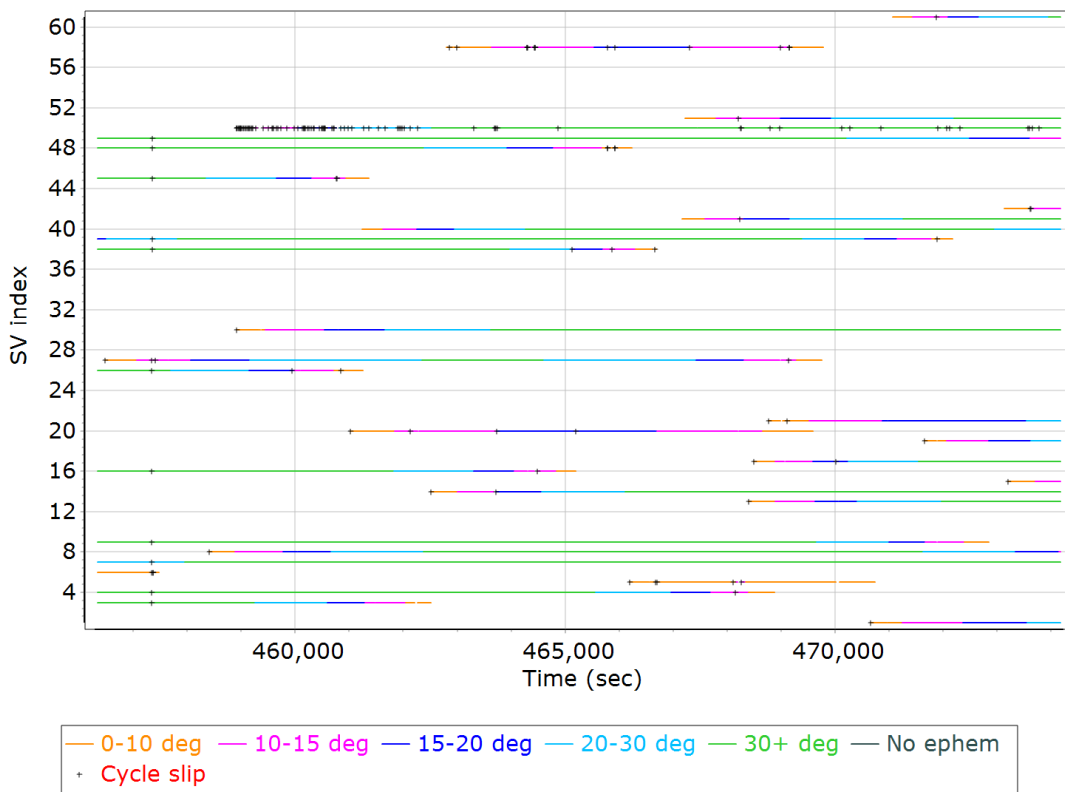
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 03 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 05 L1 SNR (dB/Hz) |
| — GPS PRN 06 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 15 L1 SNR (dB/Hz) | — GPS PRN 16 L1 SNR (dB/Hz) |
| — GPS PRN 17 L1 SNR (dB/Hz) | — GPS PRN 19 L1 SNR (dB/Hz) |
| — GPS PRN 20 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 26 L1 SNR (dB/Hz) | — GPS PRN 27 L1 SNR (dB/Hz) |
| — GPS PRN 30 L1 SNR (dB/Hz) |                             |

**GLONASS L1 SNR**

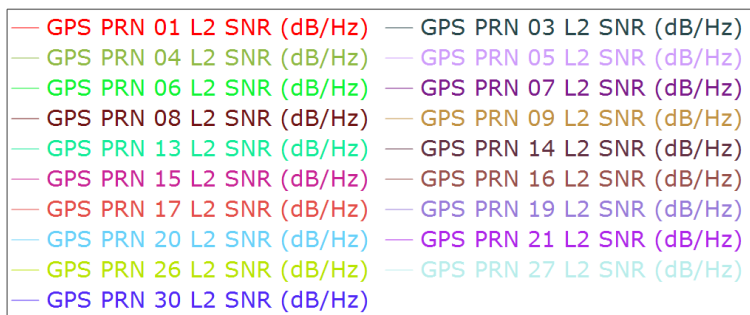
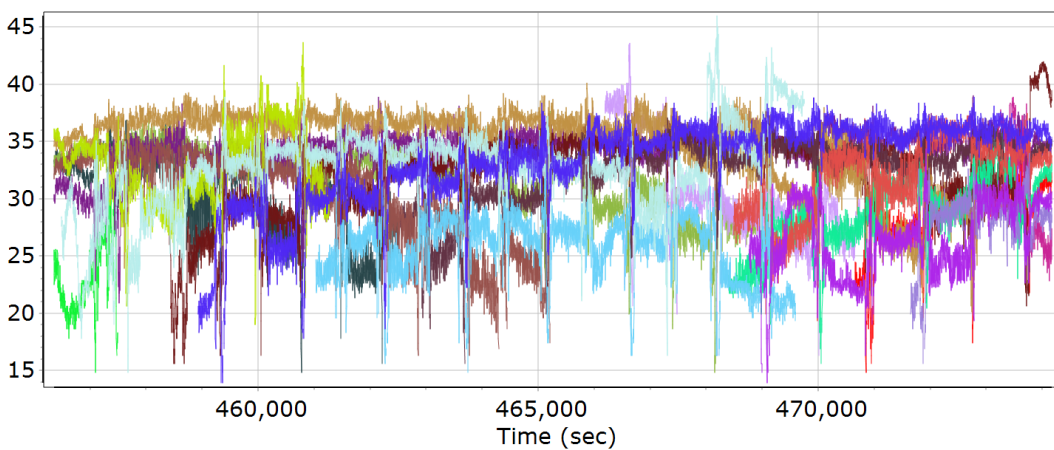


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 01 L1 SNR (dB/Hz) | — GLONASS 02 L1 SNR (dB/Hz) |
| — GLONASS 03 L1 SNR (dB/Hz) | — GLONASS 04 L1 SNR (dB/Hz) |
| — GLONASS 05 L1 SNR (dB/Hz) | — GLONASS 08 L1 SNR (dB/Hz) |
| — GLONASS 10 L1 SNR (dB/Hz) | — GLONASS 11 L1 SNR (dB/Hz) |
| — GLONASS 12 L1 SNR (dB/Hz) | — GLONASS 13 L1 SNR (dB/Hz) |
| — GLONASS 14 L1 SNR (dB/Hz) | — GLONASS 21 L1 SNR (dB/Hz) |
| — GLONASS 23 L1 SNR (dB/Hz) | — GLONASS 24 L1 SNR (dB/Hz) |

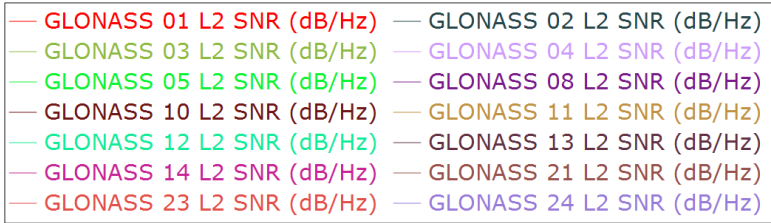
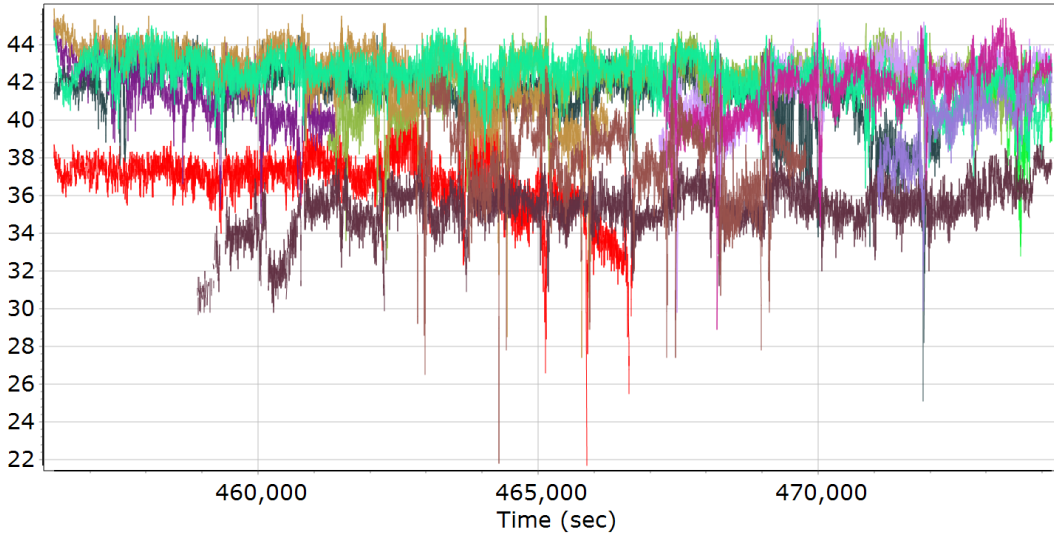
### GPS/GLONASS L2 Satellite Lock/Elevation



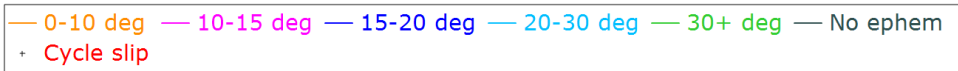
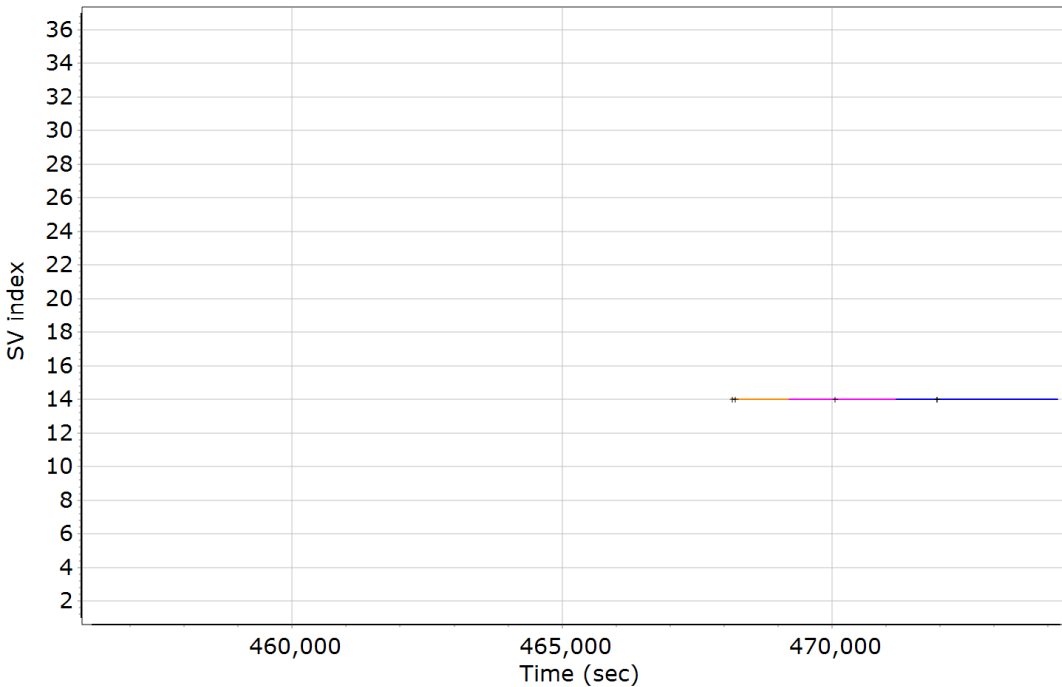
### GPS L2 SNR



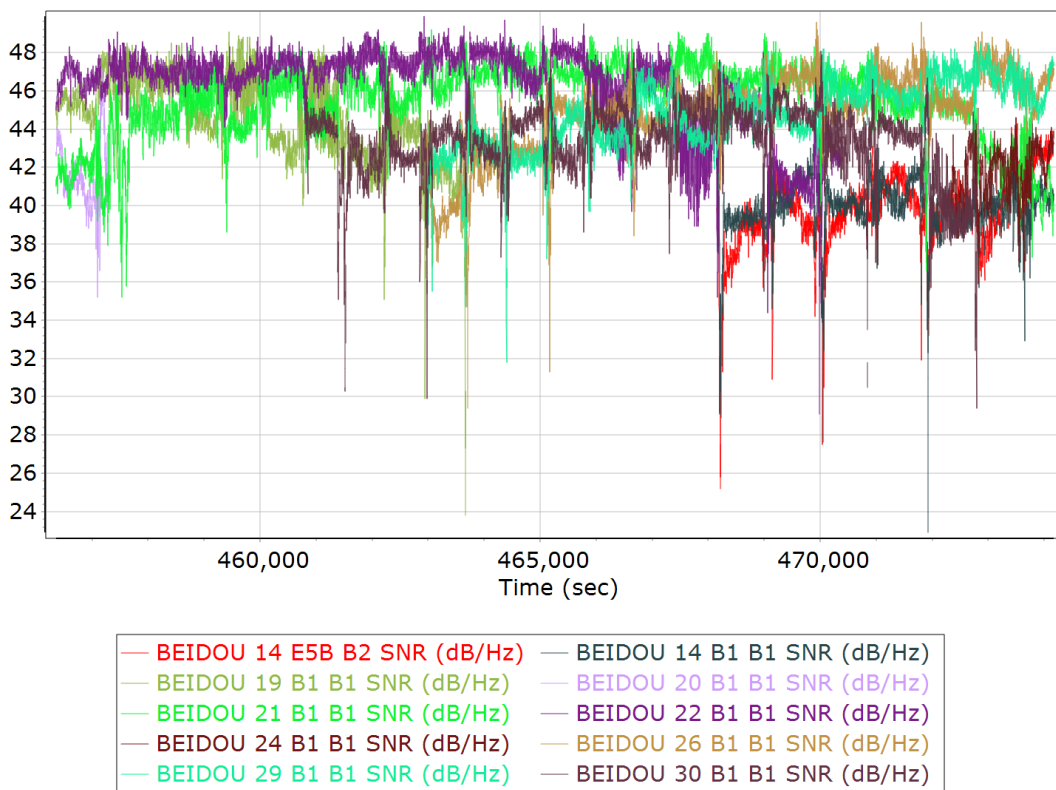
**GLONASS L2 SNR**



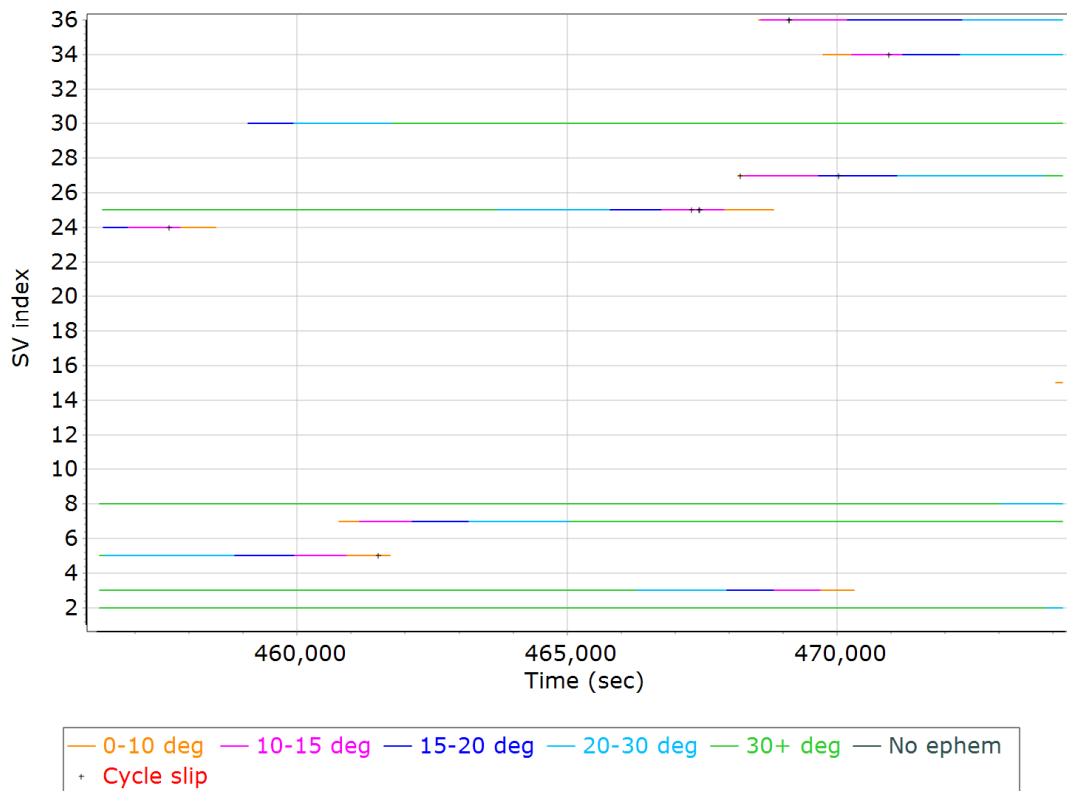
**BEIDOU Satellite Lock/Elevation**



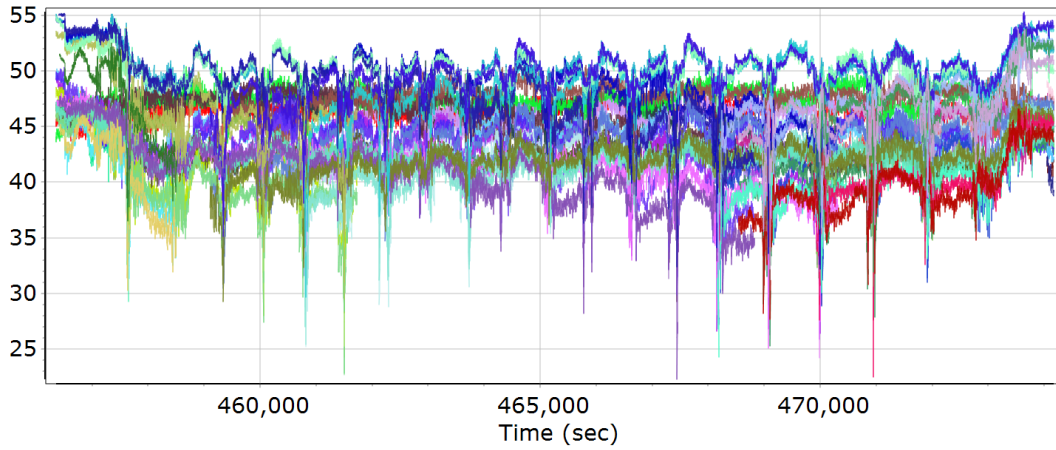
### BEIDOU SNR



### GALILEO Satellite Lock/Elevation



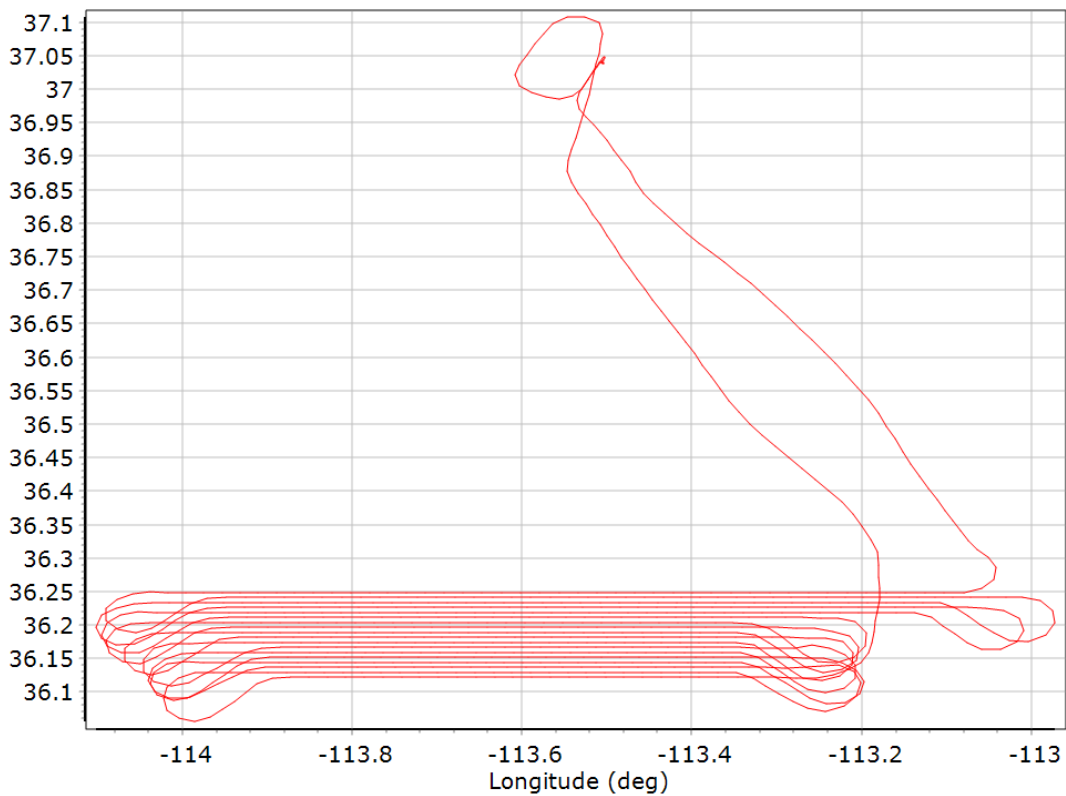
## GALILEO SNR



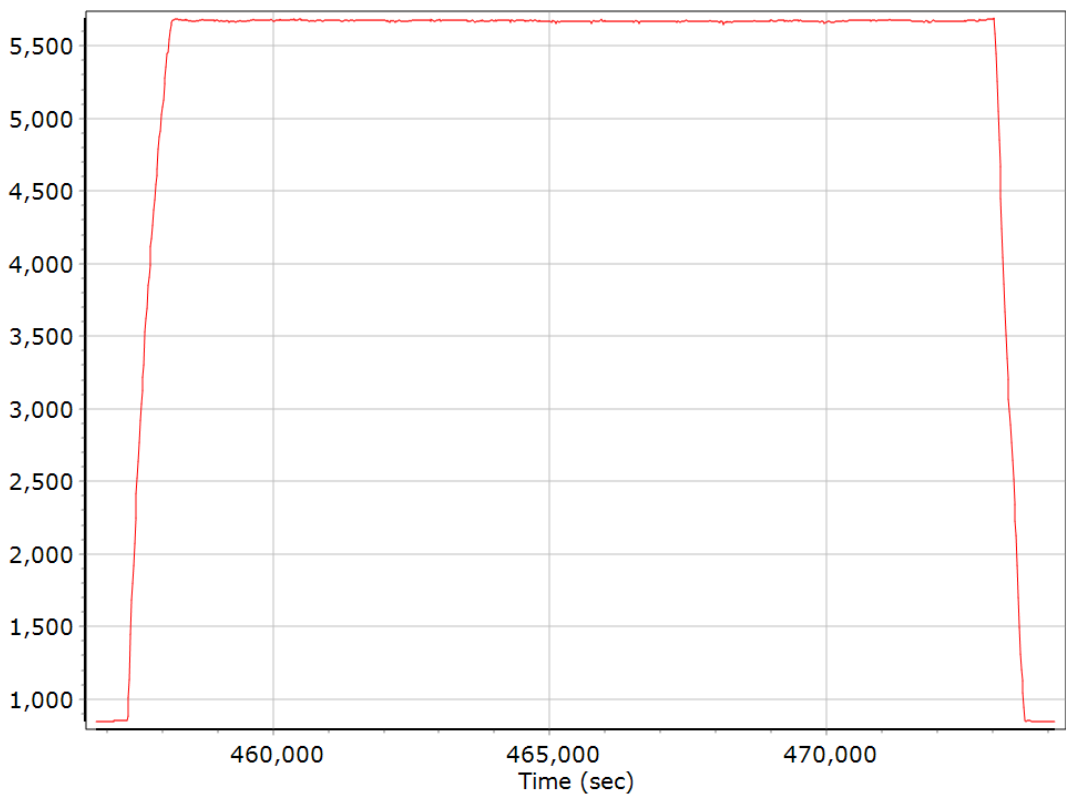
- GALILEO 02 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 03 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 05 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 07 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 08 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 14 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 15 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 18 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)

## Smoothed Trajectory Information

### Top View

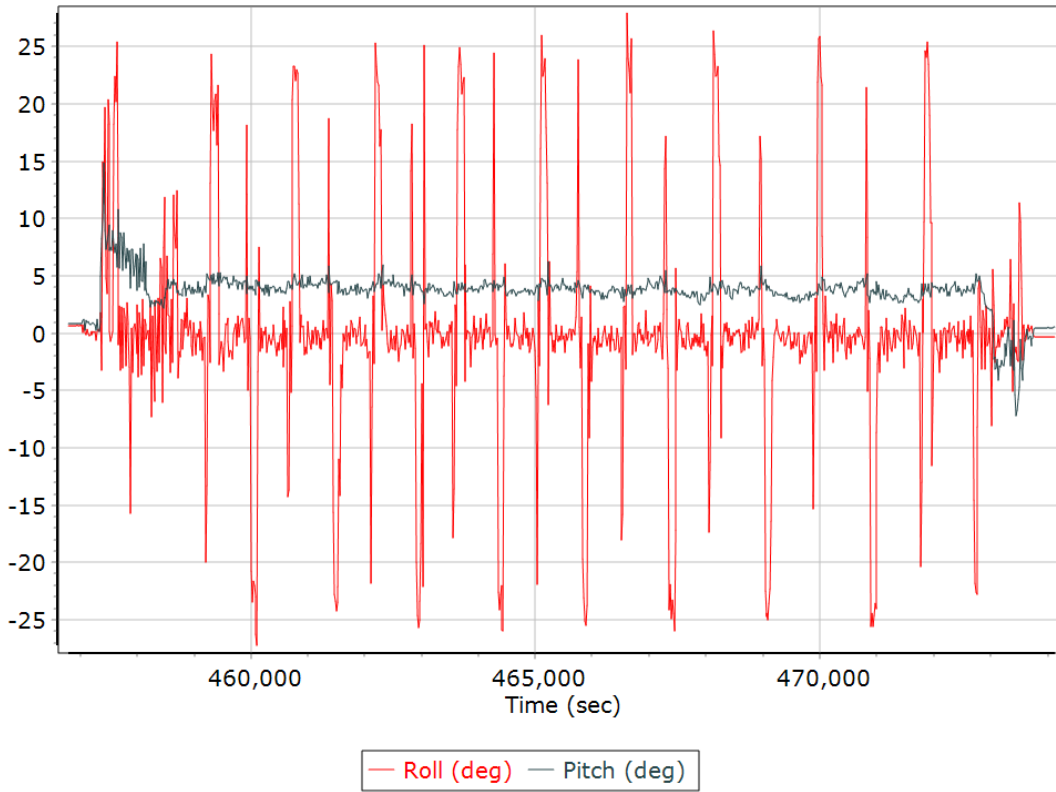


### Altitude

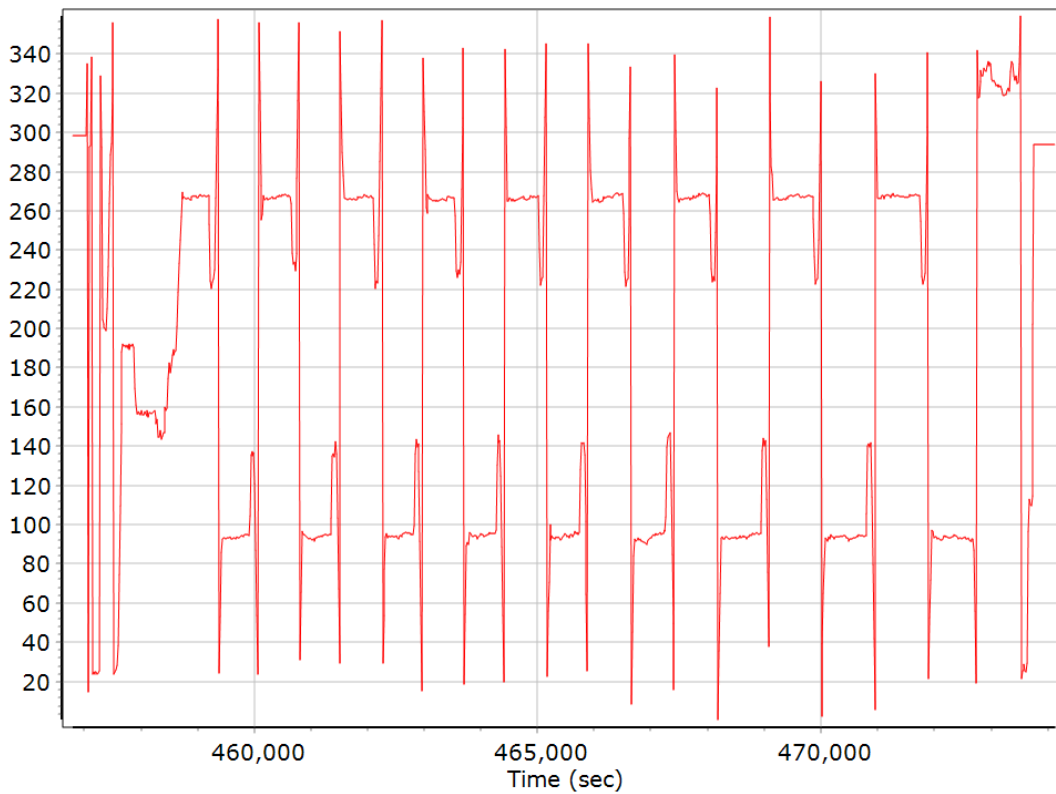




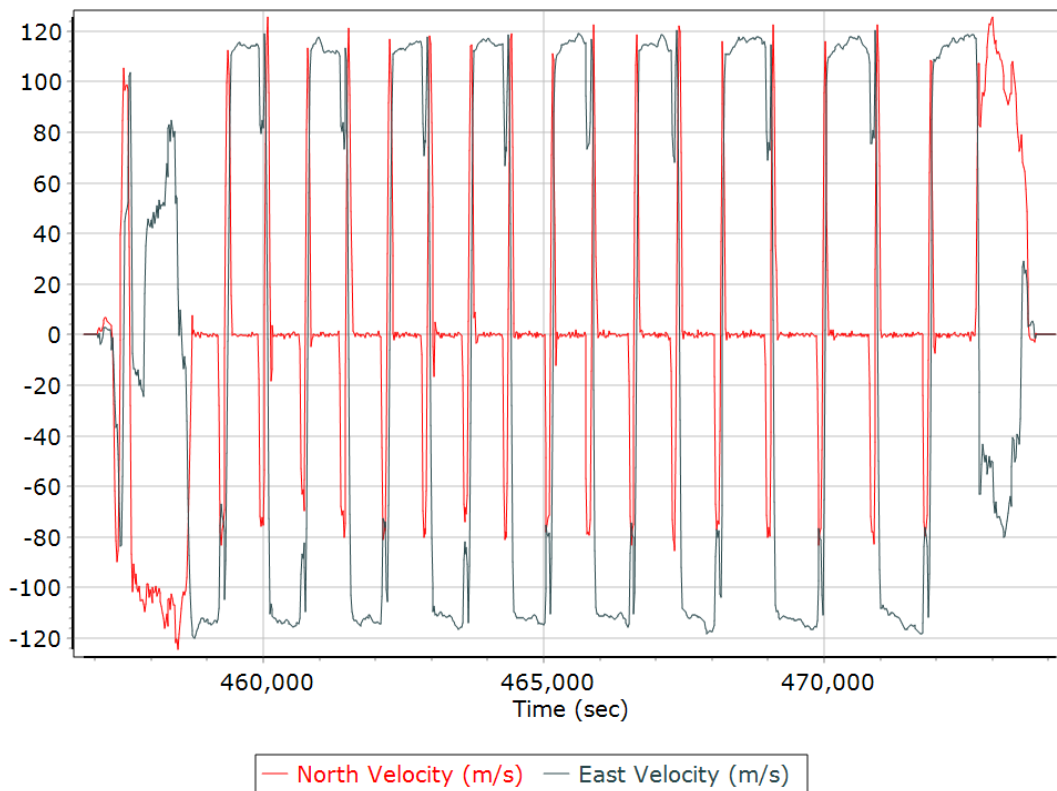
## Roll/Pitch



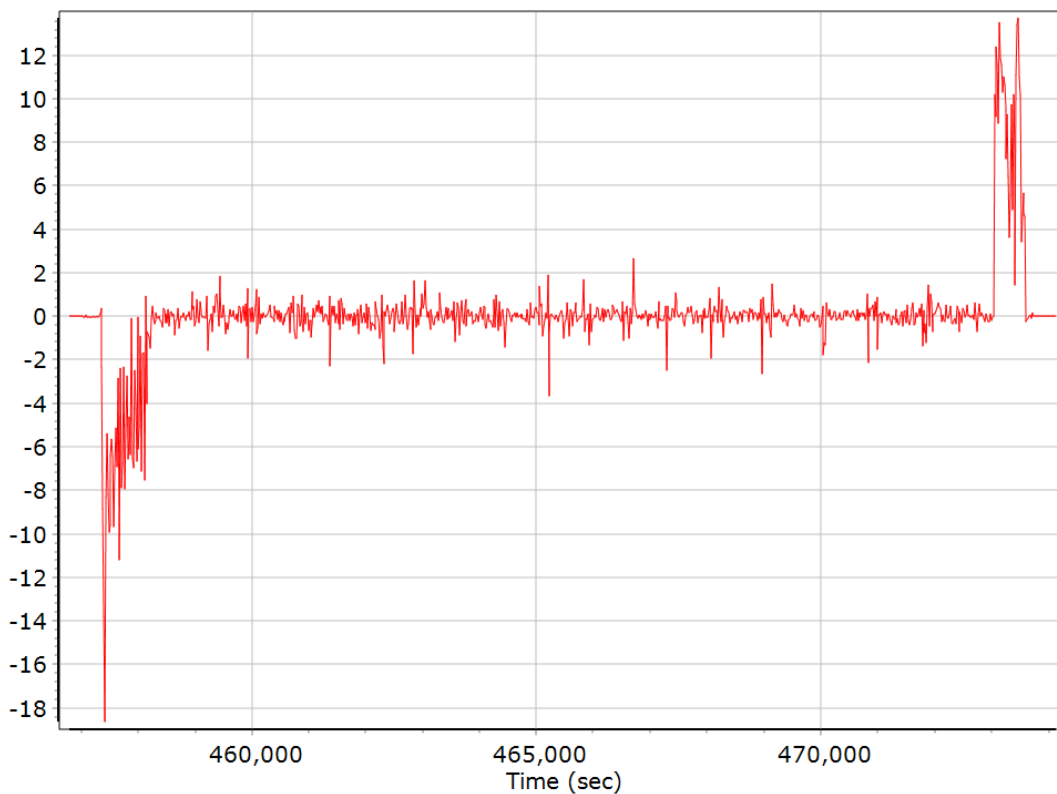
## Heading



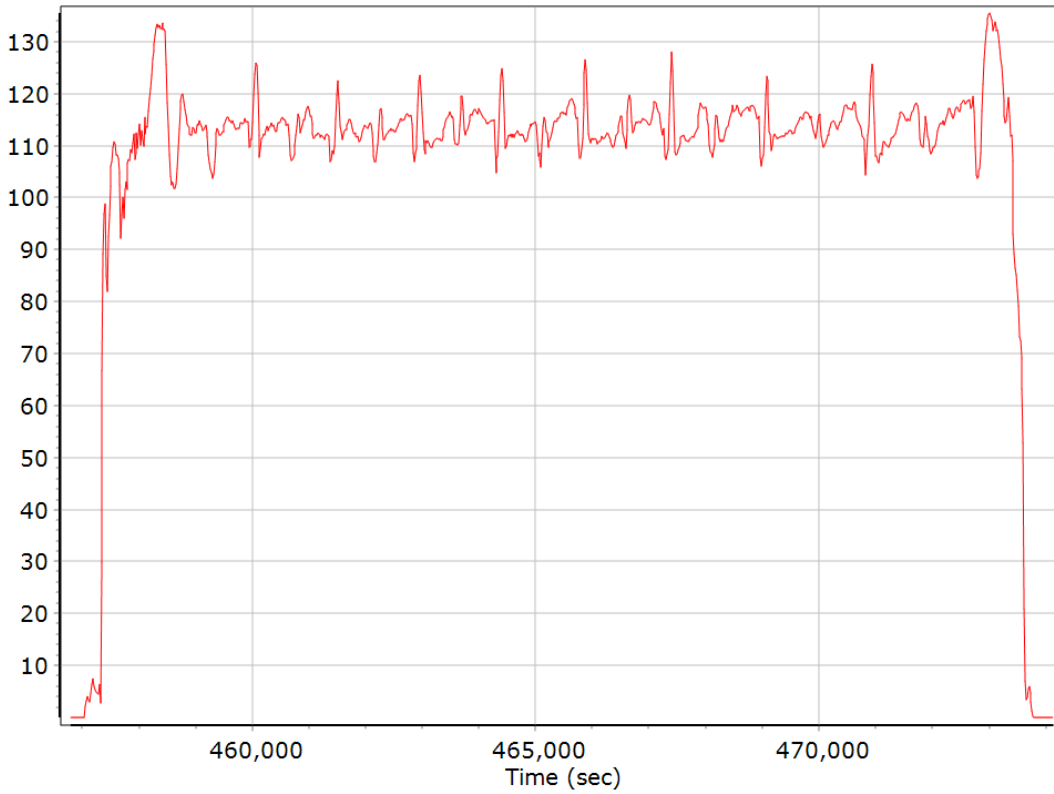
### North/East Velocity



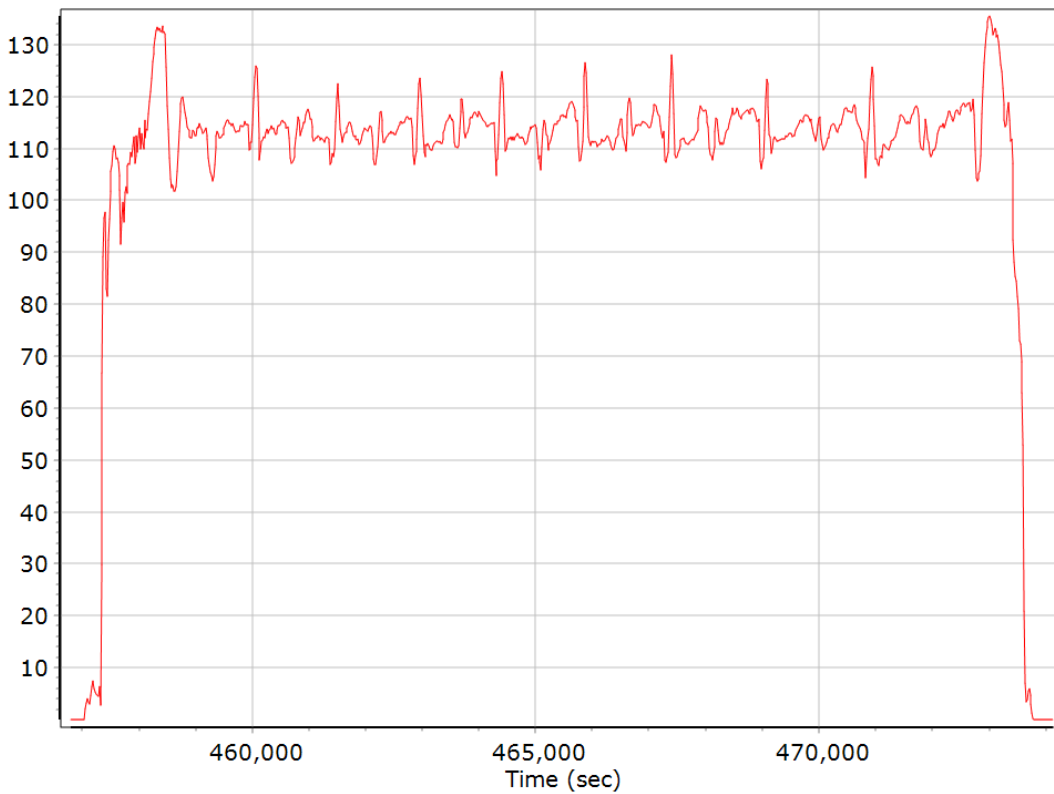
### Down Velocity



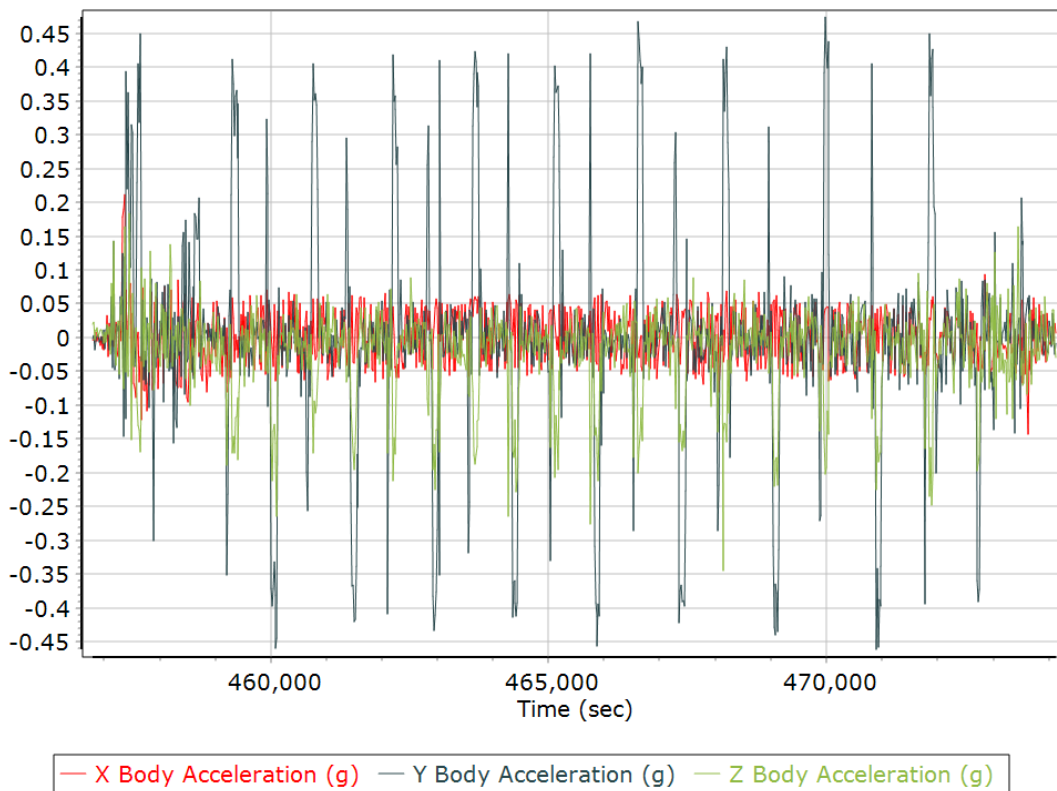
## Total Speed



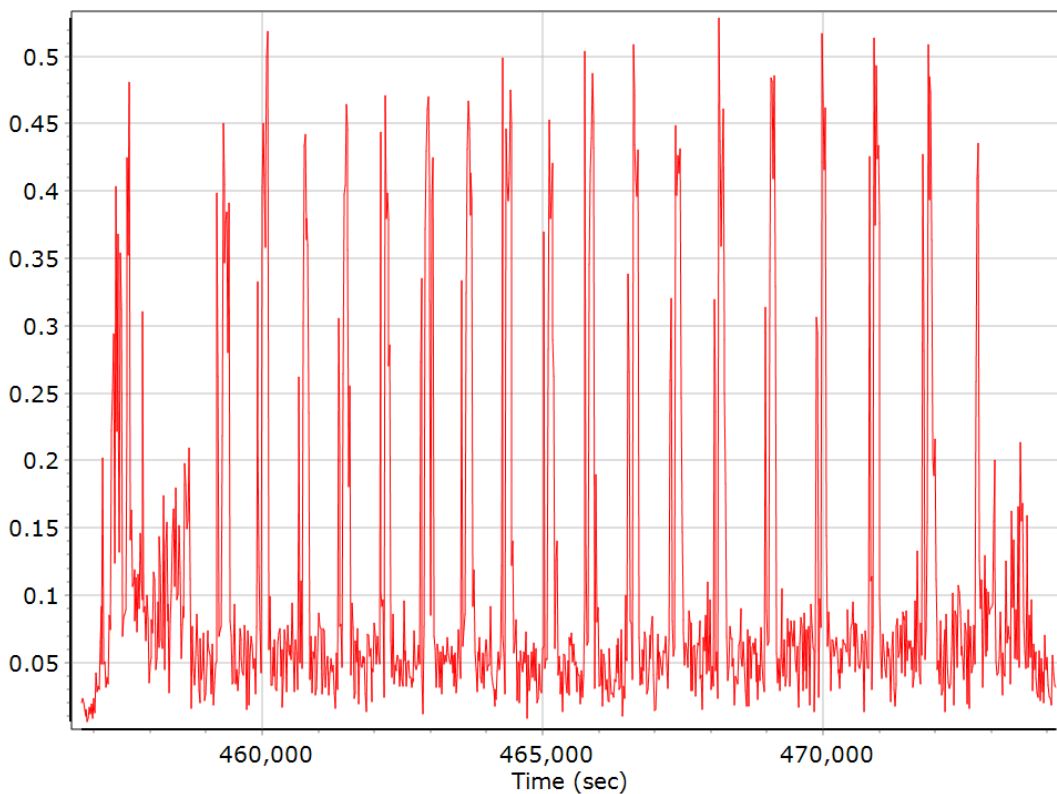
## Ground Speed



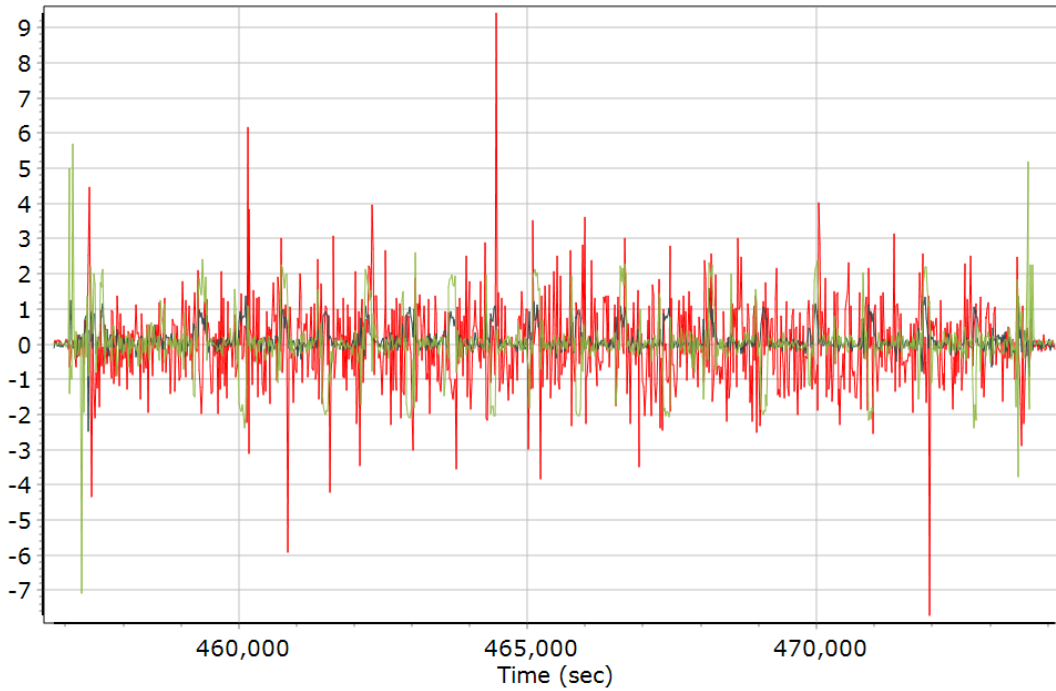
### Body Acceleration



### Total Body Acceleration



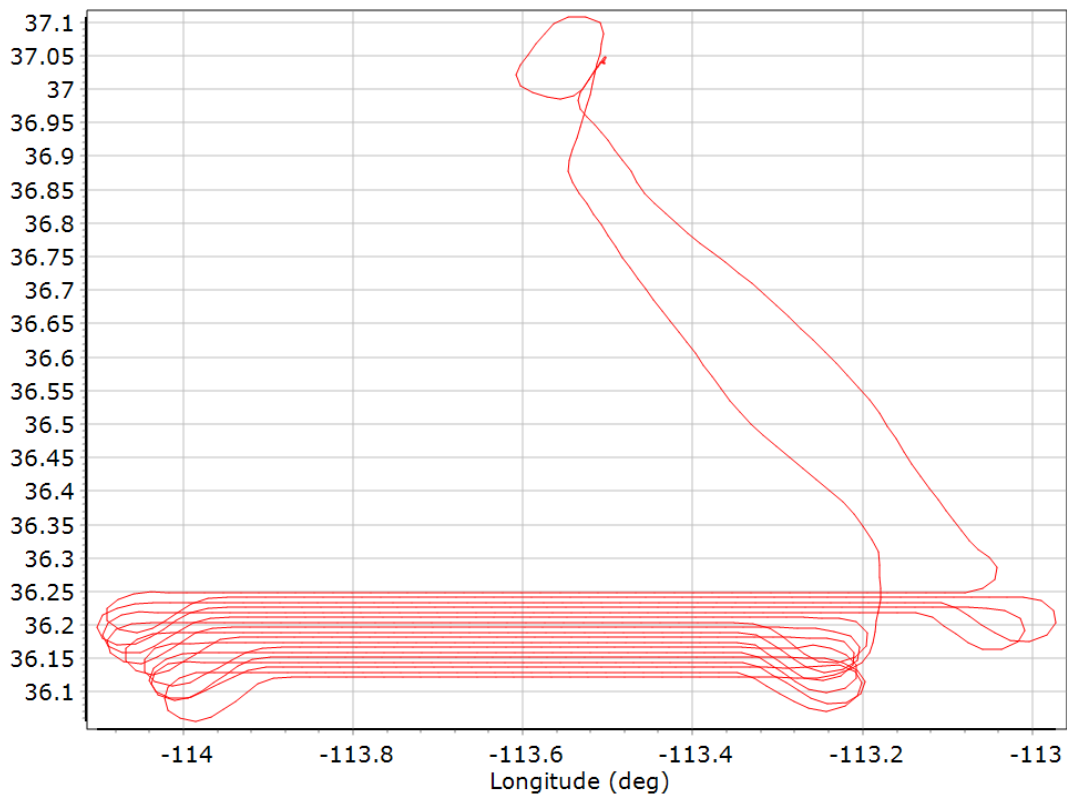
## Body Angular Rate



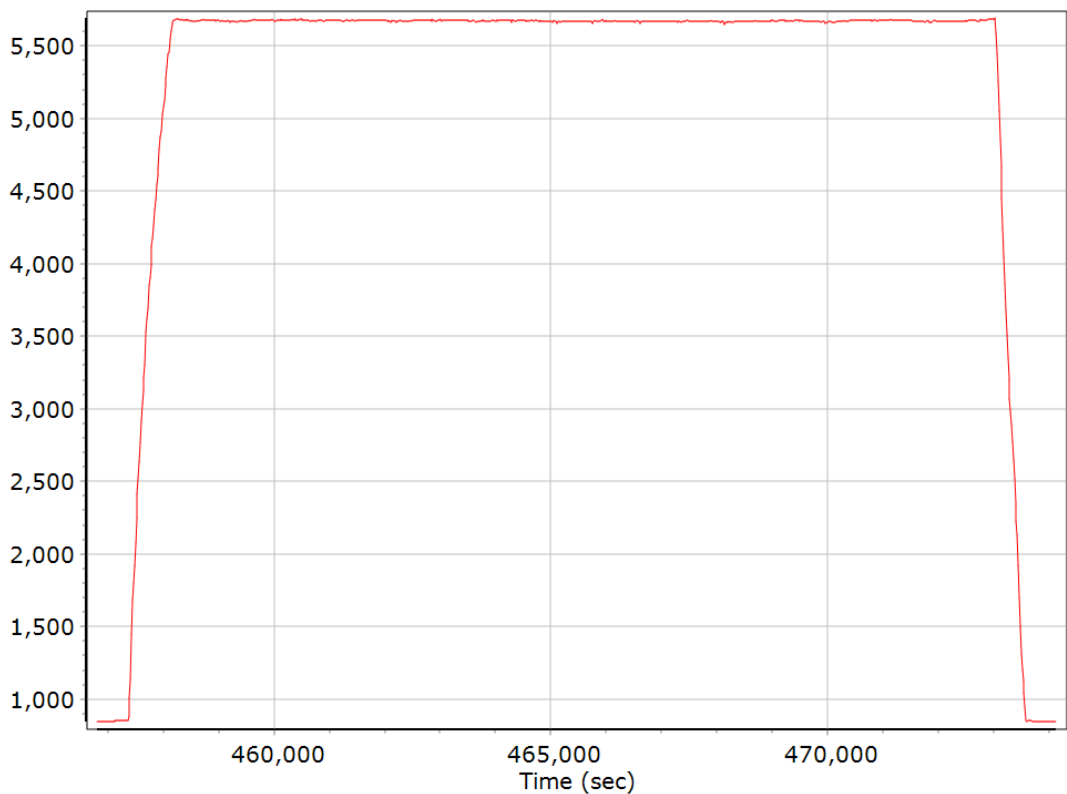
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## Forward Processed Trajectory Information

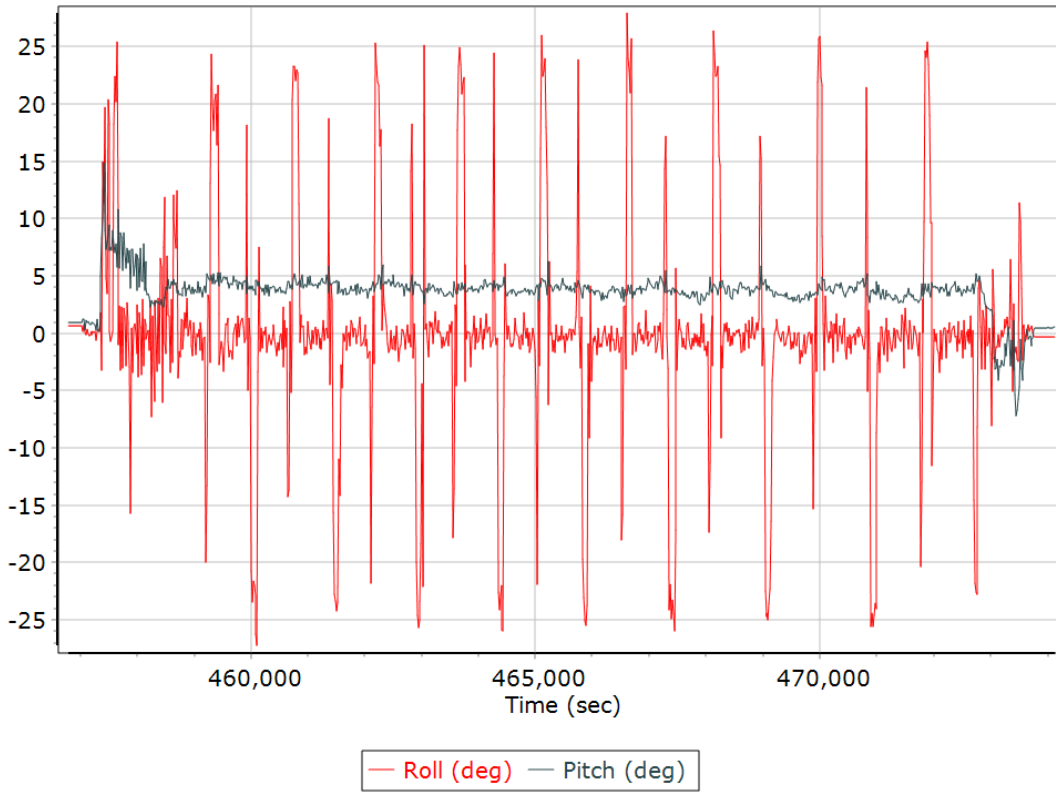
### Top View



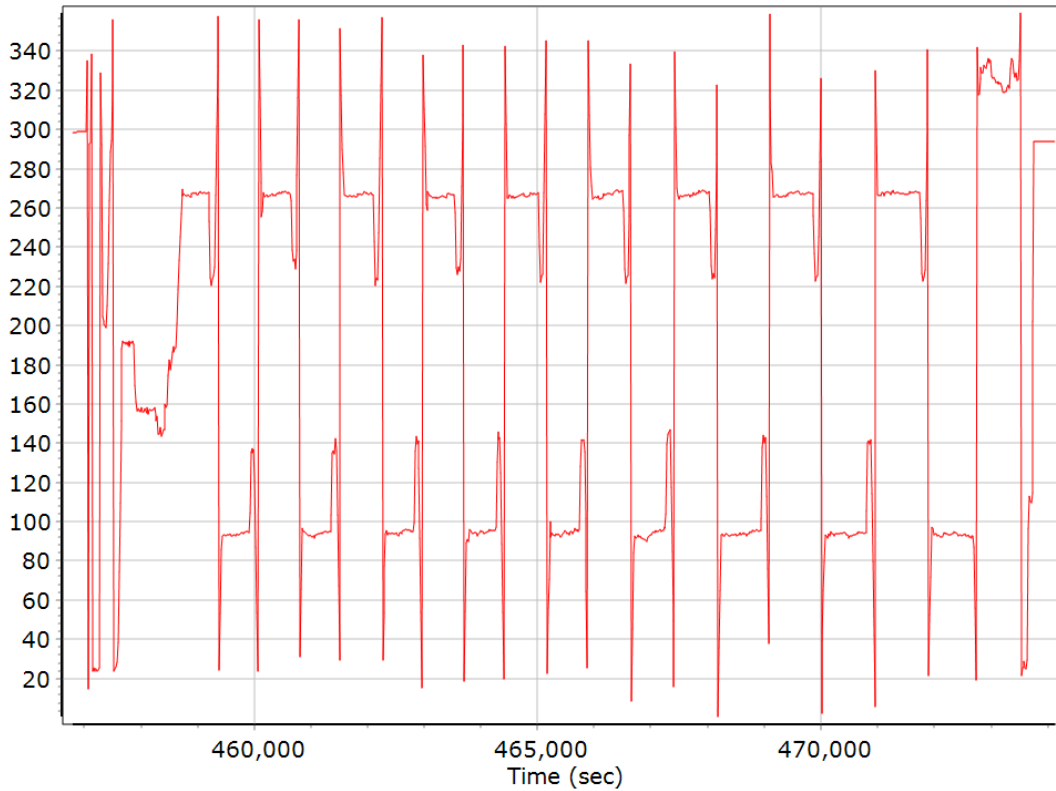
### Altitude



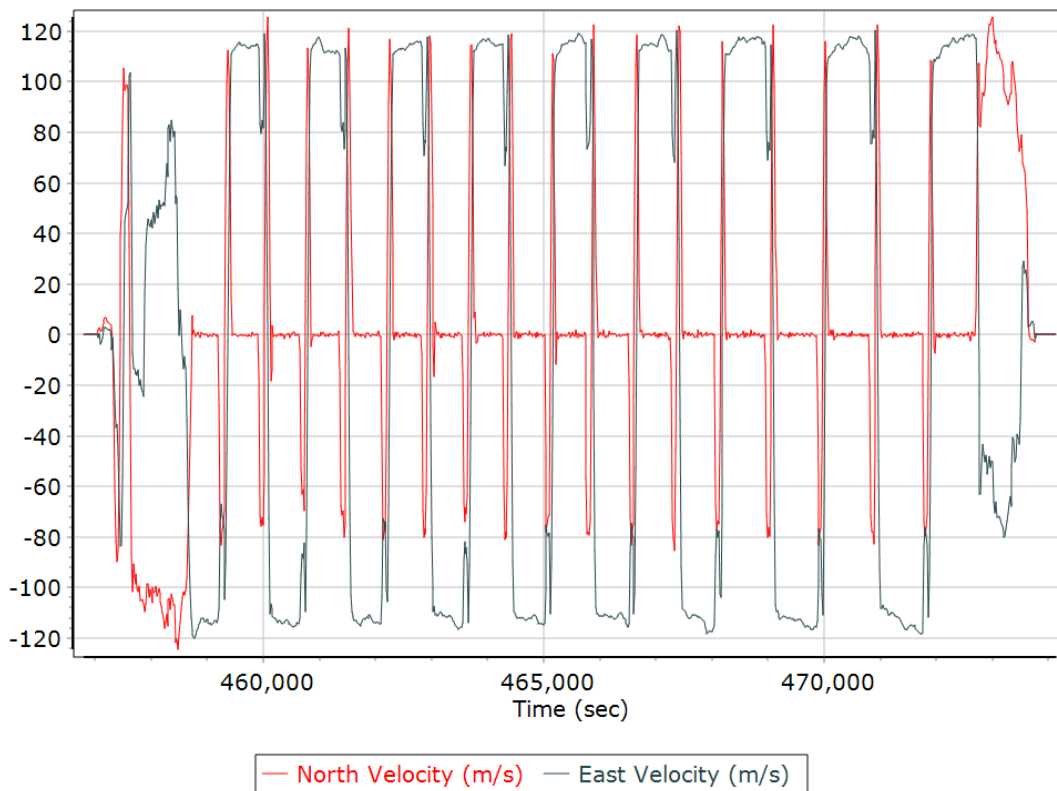
## Roll/Pitch



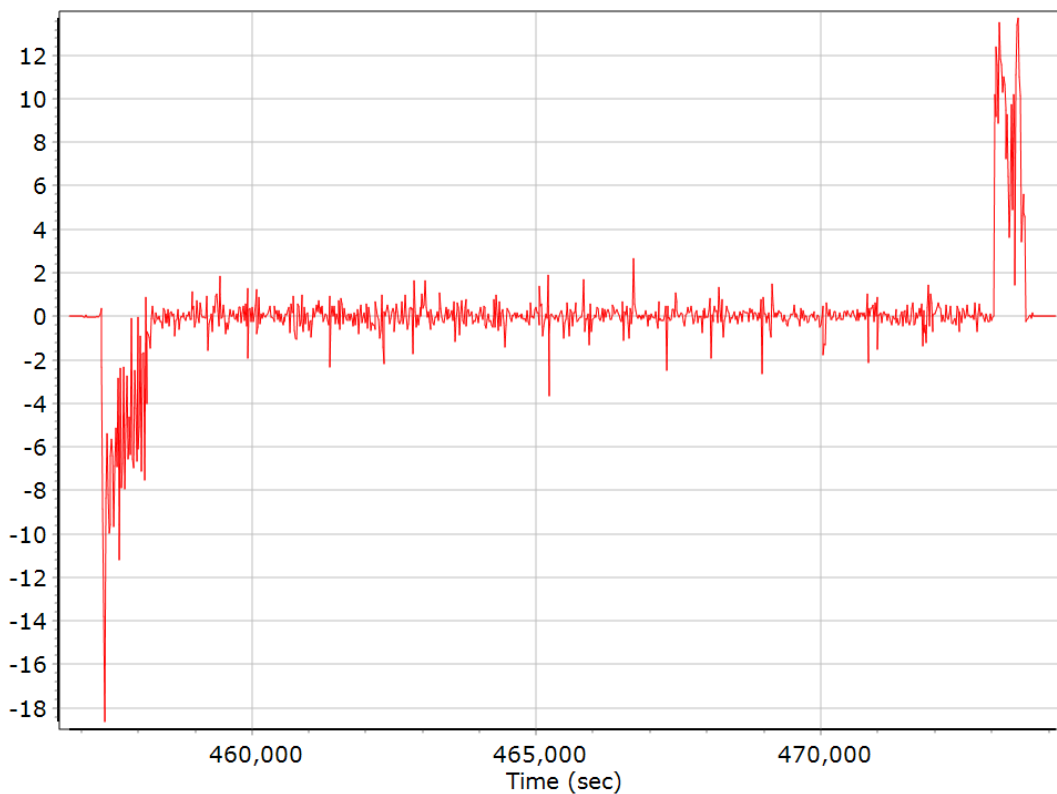
## Heading



### North/East Velocity

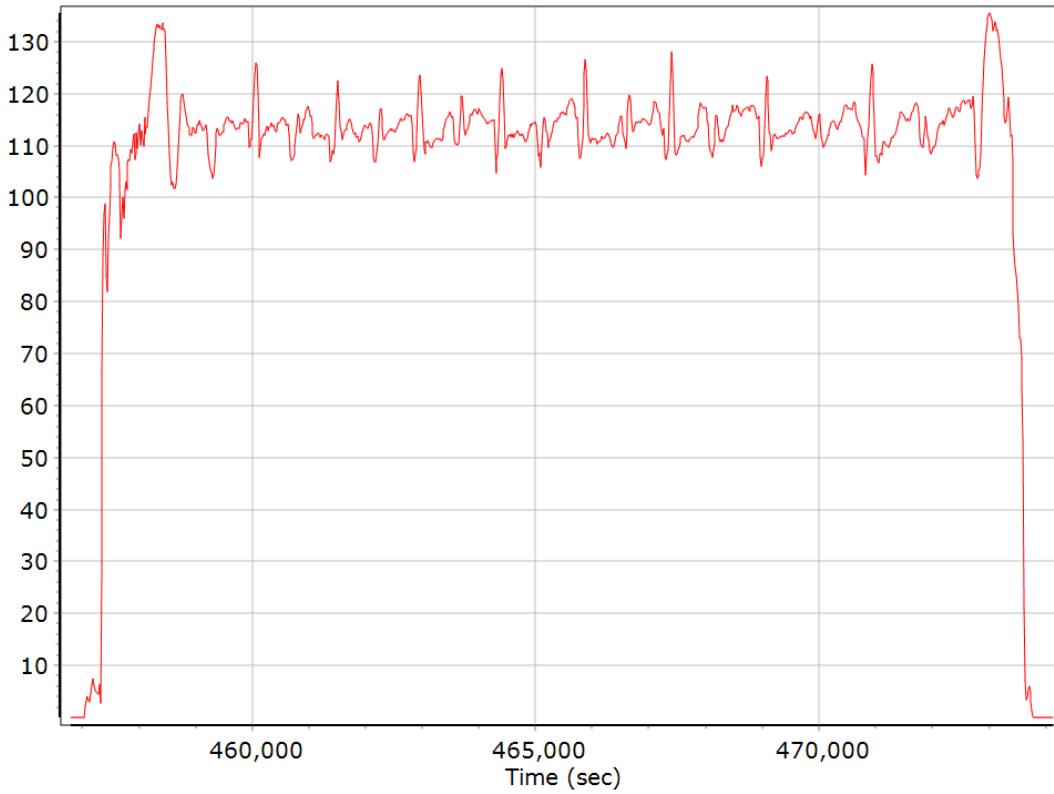


### Down Velocity

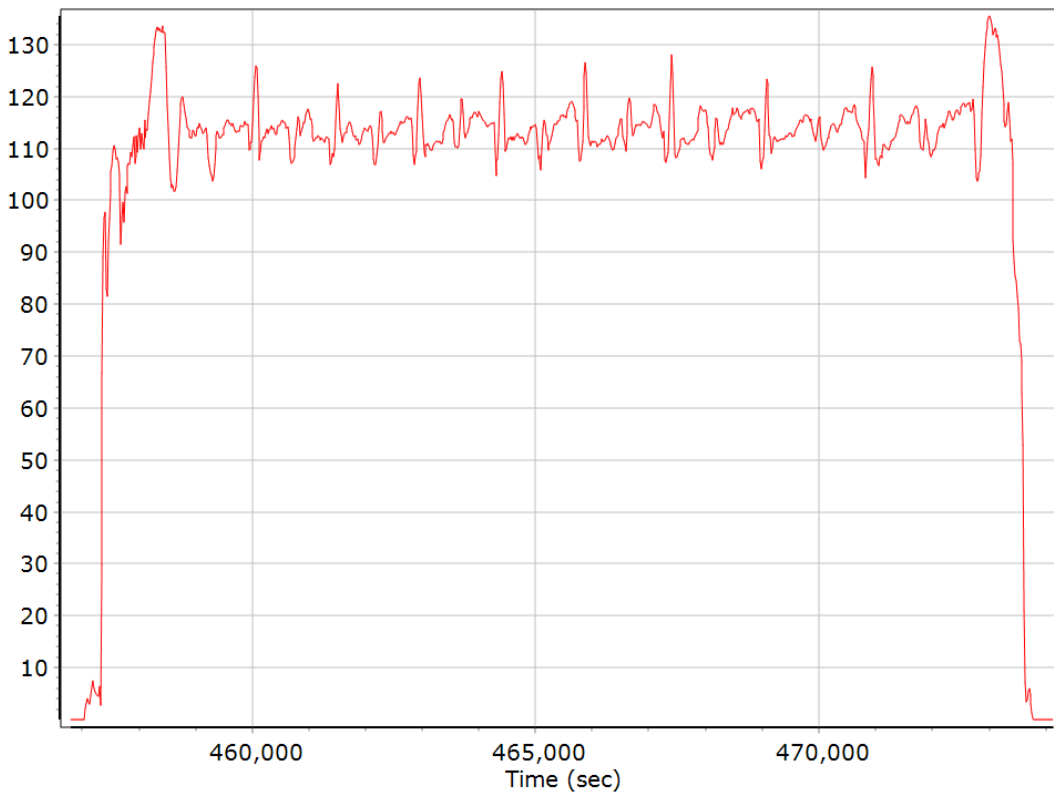




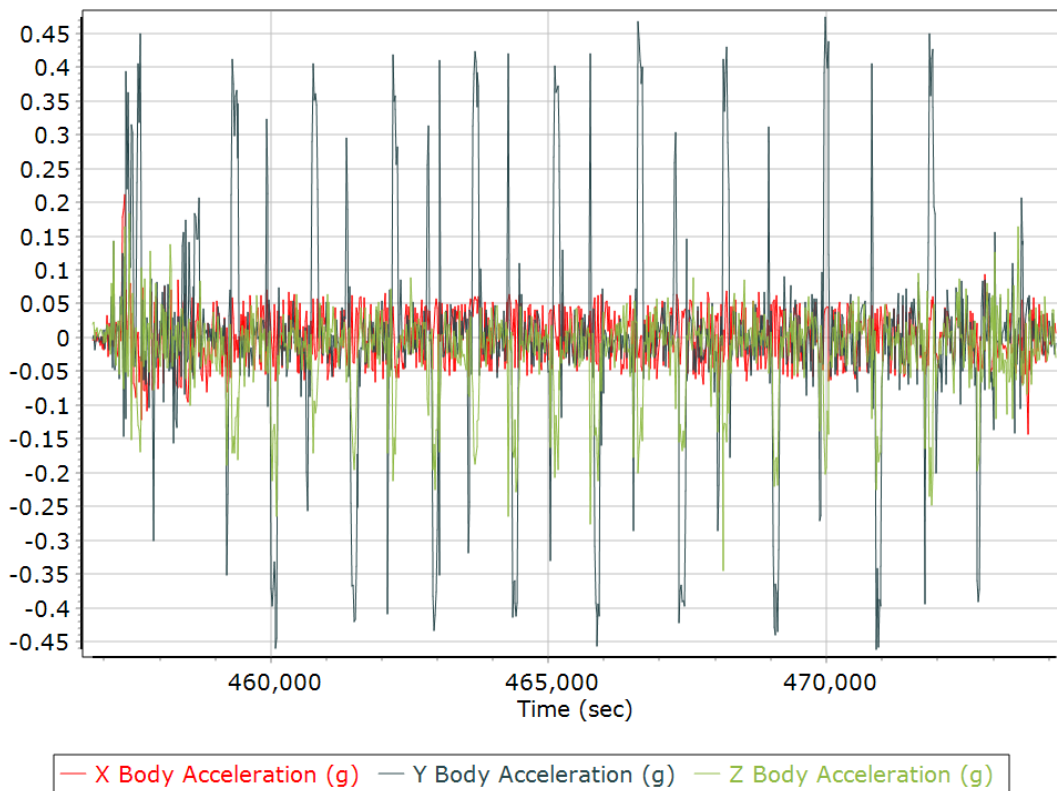
## Total Speed



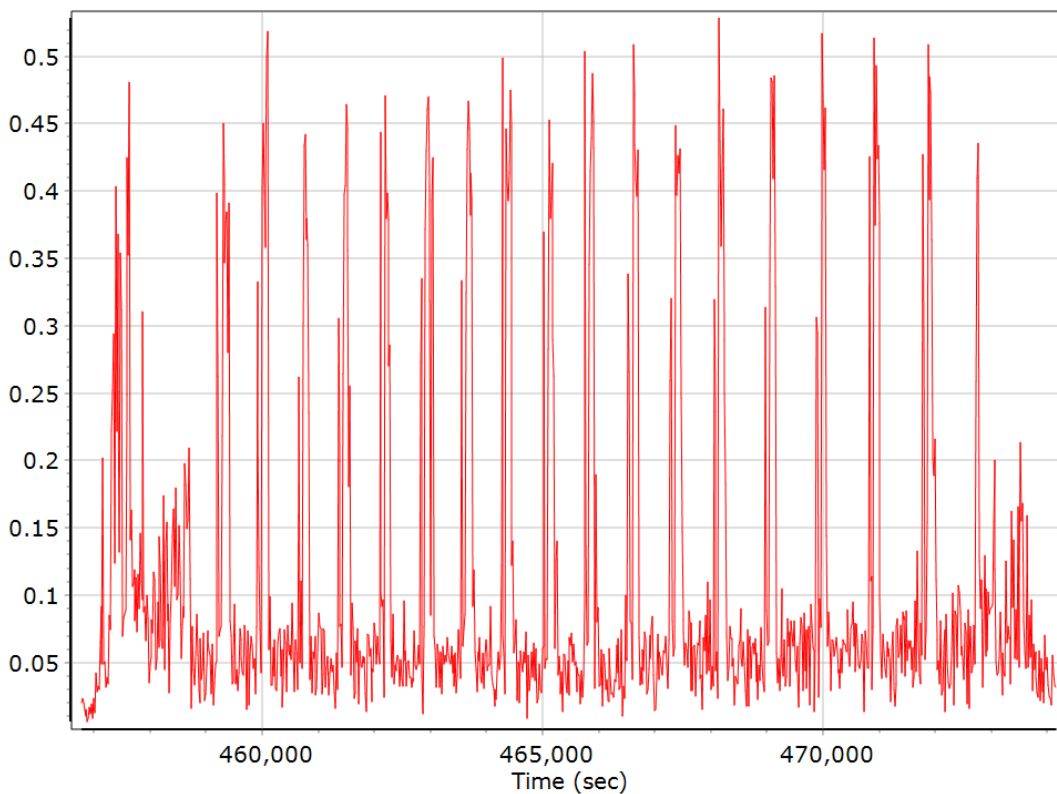
## Ground Speed



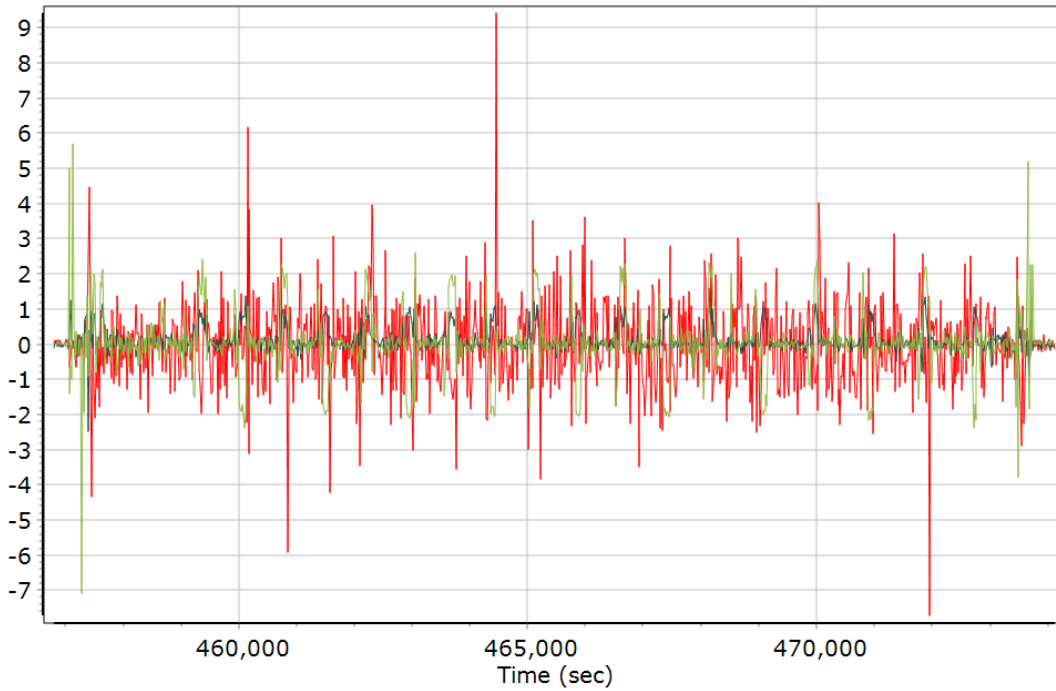
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



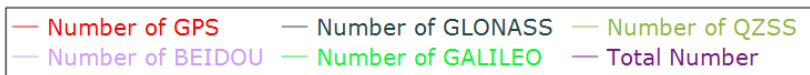
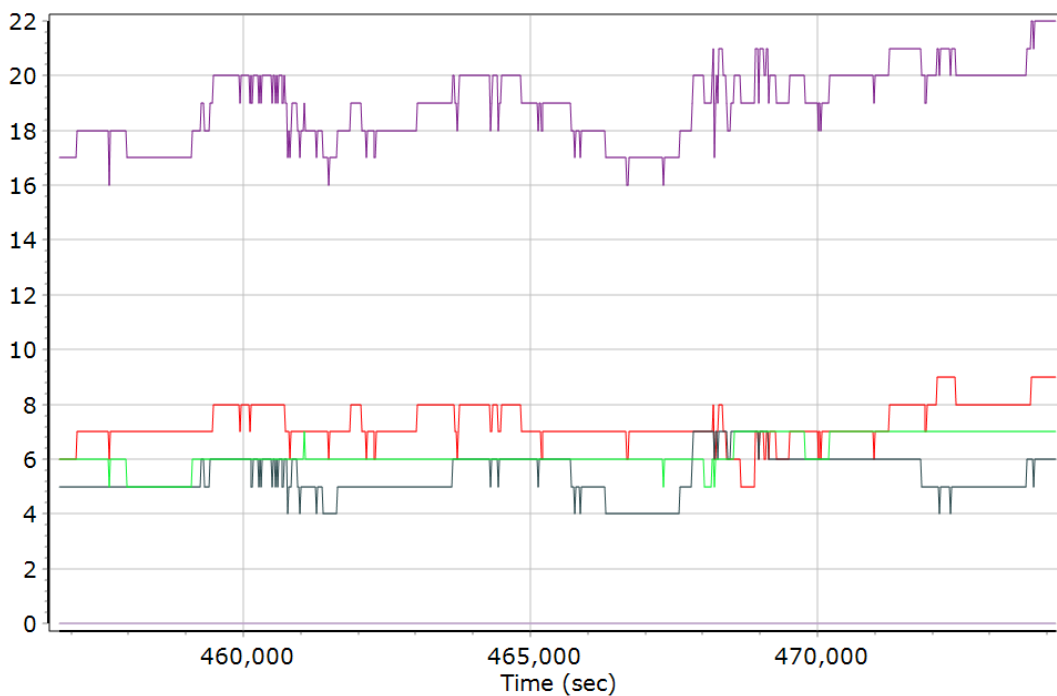
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

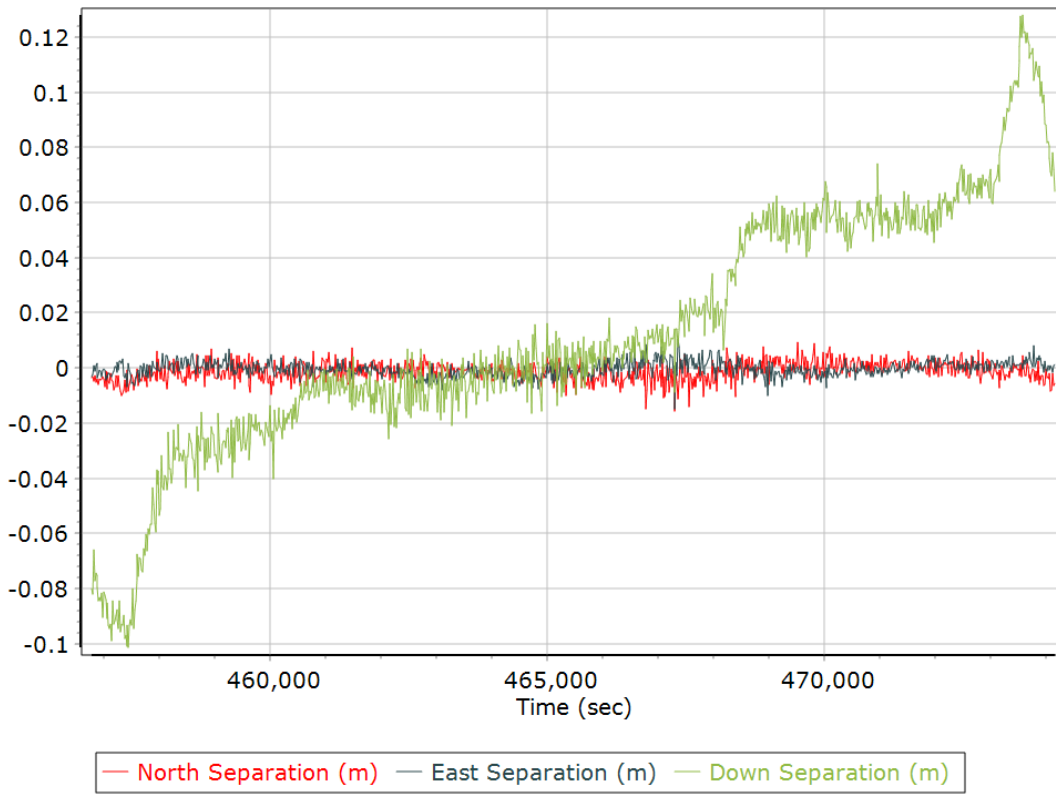
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	5	9	7
Number of GLONASS SV	0	7	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	4	7	6
Total number of SV	13	22	19
PDOP	0.98	1.88	1.24
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	17801.00	0.00	0.00
Percentage	100.00	0.00	0.00

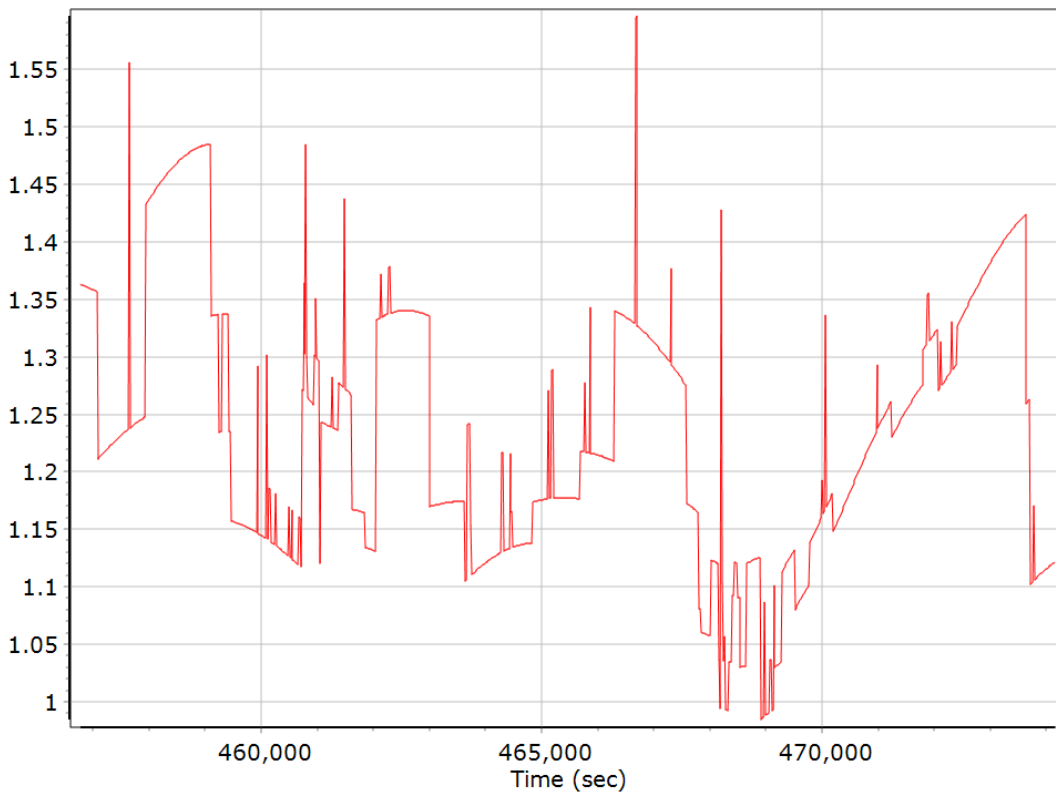
### Num SVs in solution



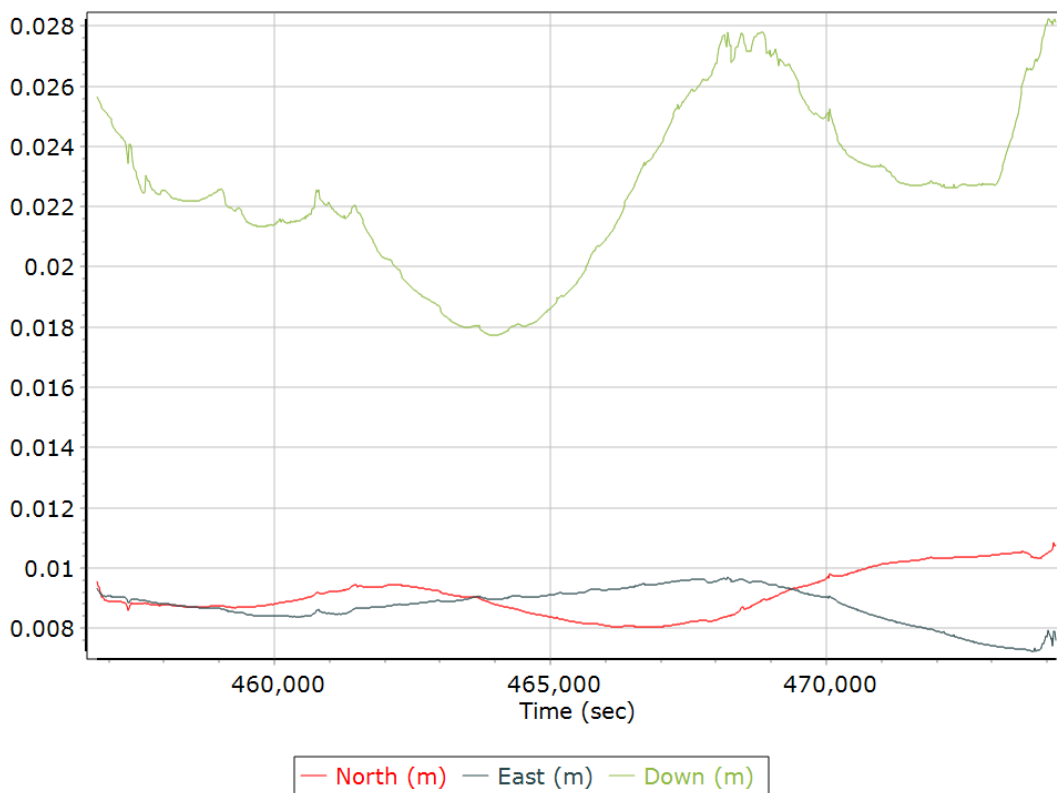
### Forward/Reverse Separation



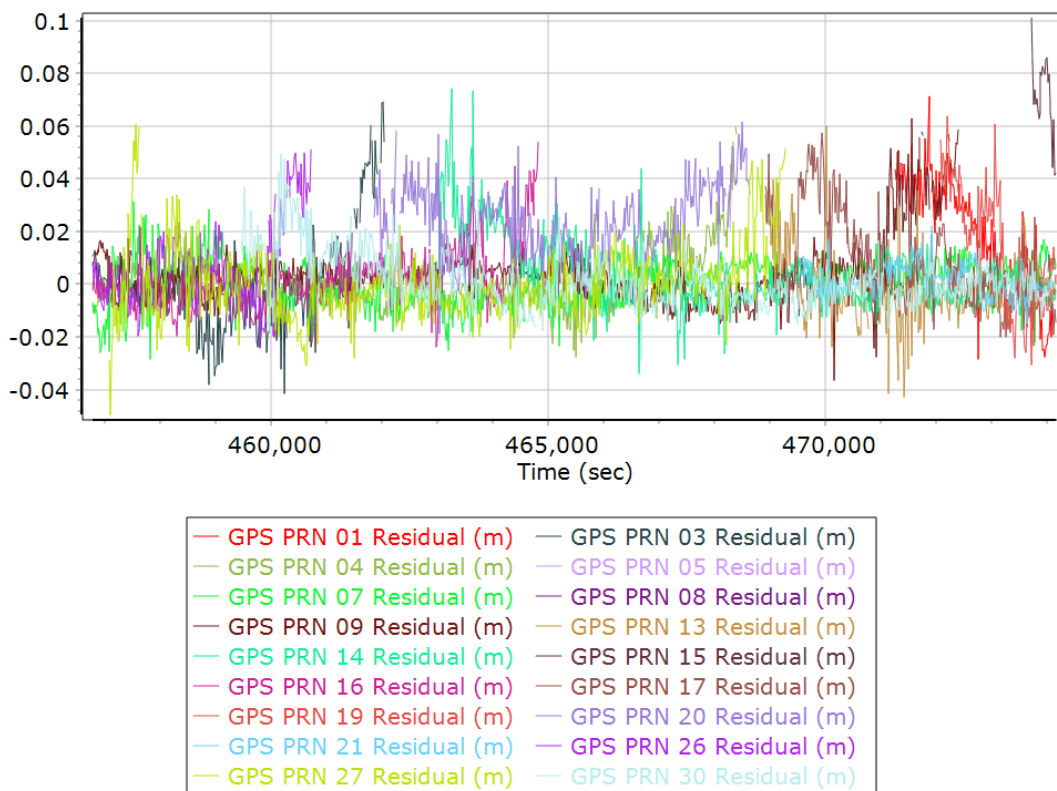
### PDOP



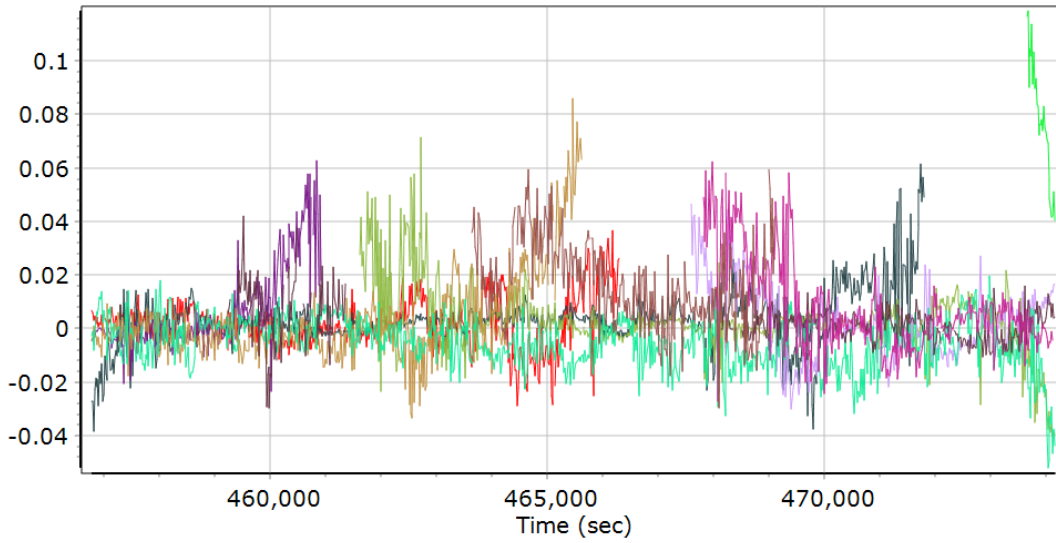
### Estimated Position Accuracy



### GPS Residuals

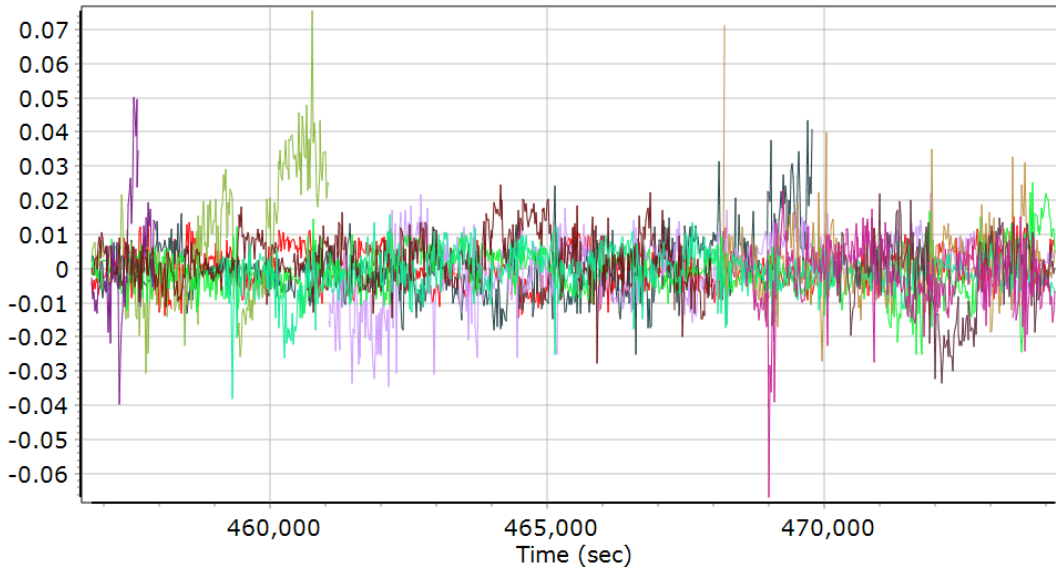


### GLONASS Residuals



- |                           |                           |
|---------------------------|---------------------------|
| — GLONASS 01 Residual (m) | — GLONASS 02 Residual (m) |
| — GLONASS 03 Residual (m) | — GLONASS 04 Residual (m) |
| — GLONASS 05 Residual (m) | — GLONASS 08 Residual (m) |
| — GLONASS 10 Residual (m) | — GLONASS 11 Residual (m) |
| — GLONASS 12 Residual (m) | — GLONASS 13 Residual (m) |
| — GLONASS 14 Residual (m) | — GLONASS 21 Residual (m) |
| — GLONASS 23 Residual (m) | — GLONASS 24 Residual (m) |

### GALILEO Residuals



- |                           |                           |
|---------------------------|---------------------------|
| — GALILEO 02 Residual (m) | — GALILEO 03 Residual (m) |
| — GALILEO 05 Residual (m) | — GALILEO 07 Residual (m) |
| — GALILEO 08 Residual (m) | — GALILEO 24 Residual (m) |
| — GALILEO 25 Residual (m) | — GALILEO 27 Residual (m) |
| — GALILEO 30 Residual (m) | — GALILEO 34 Residual (m) |
| — GALILEO 36 Residual (m) |                           |

## GNSS-Inertial Processor Configuration

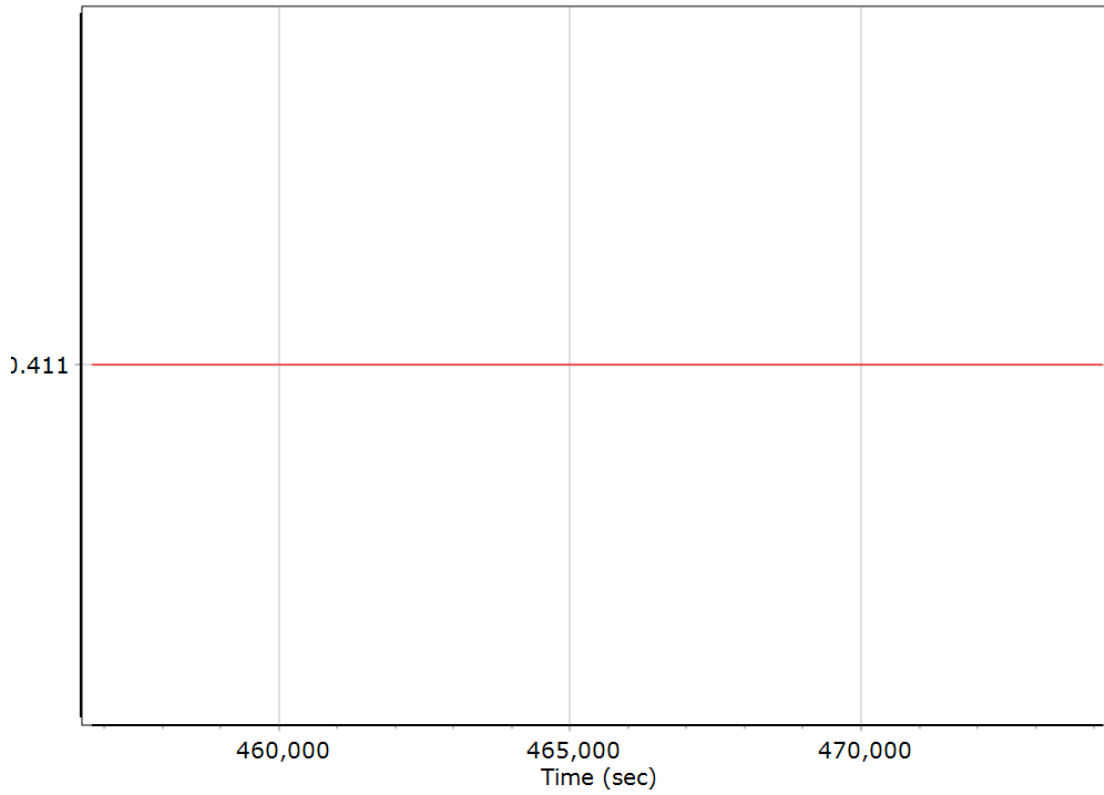
Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	456335.000 (7/1/2022 6:45:35 AM)		
Processing end time	474145.000 (7/1/2022 11:42:25 AM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.411	-0.283	-1.280
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



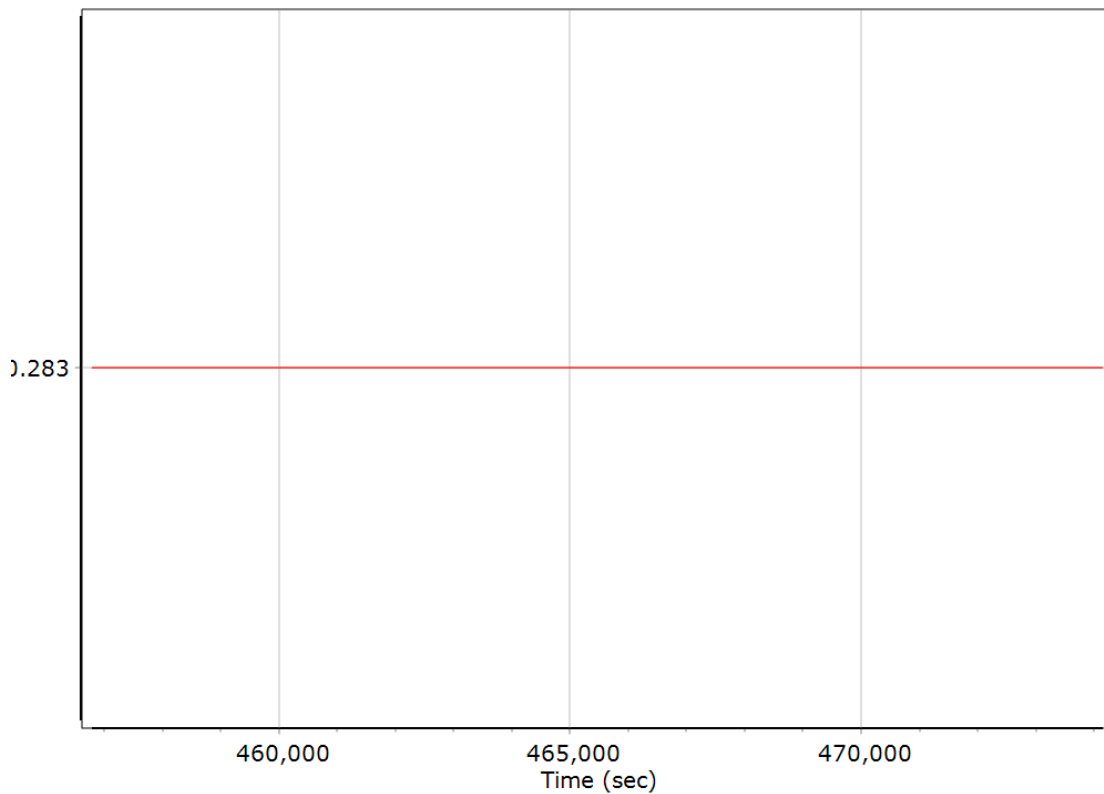
## Calibrated Installation Parameters

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

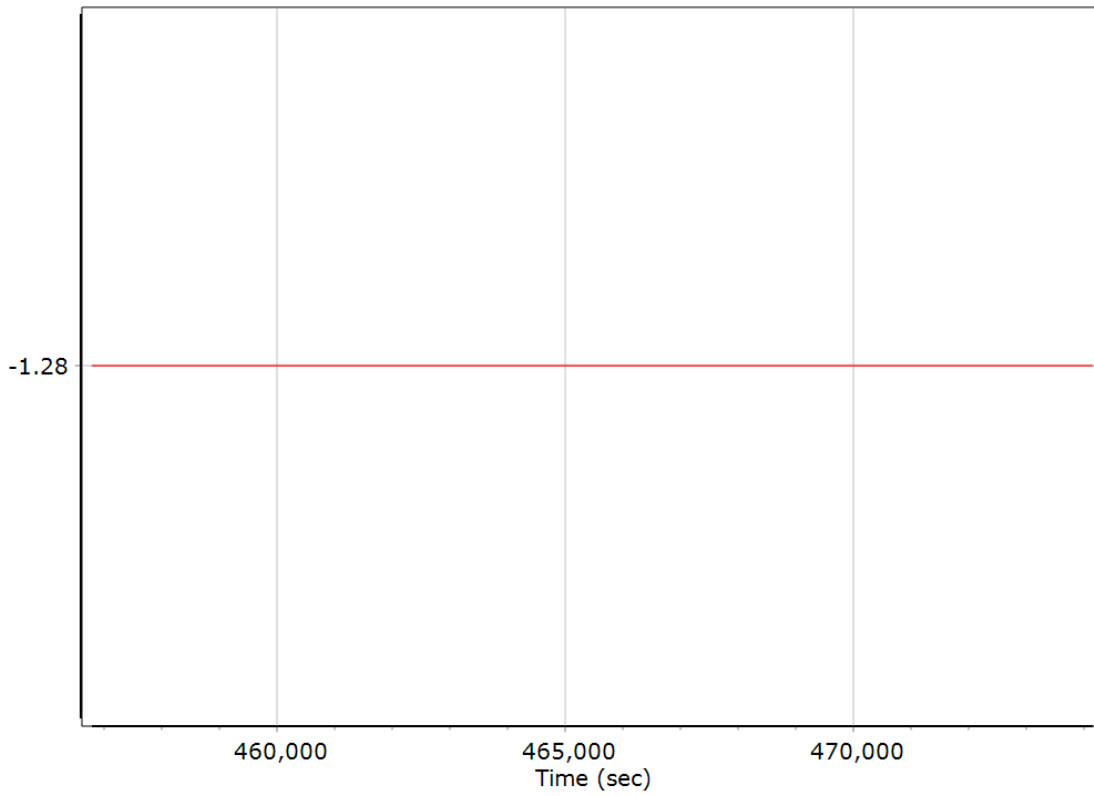
#### X Reference-Primary GNSS Lever Arm (m)



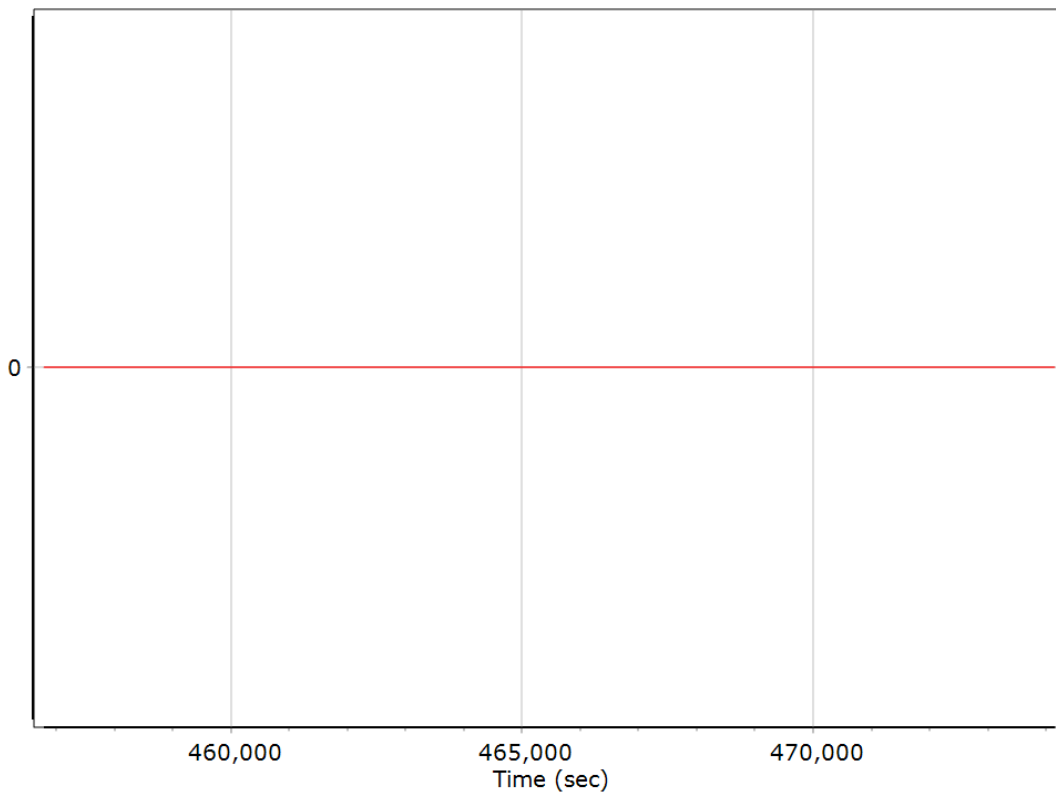
#### Y Reference-Primary GNSS Lever Arm (m)



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



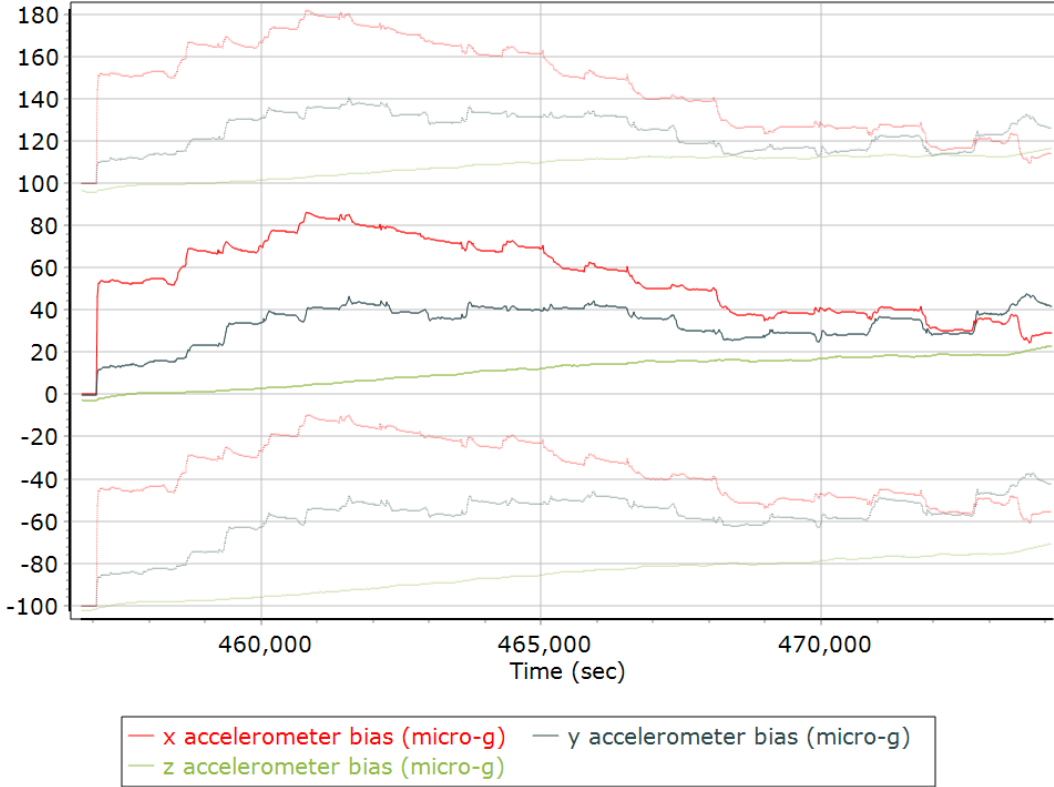
### Reference-Primary GNSS Lever Arm Figure of Merit



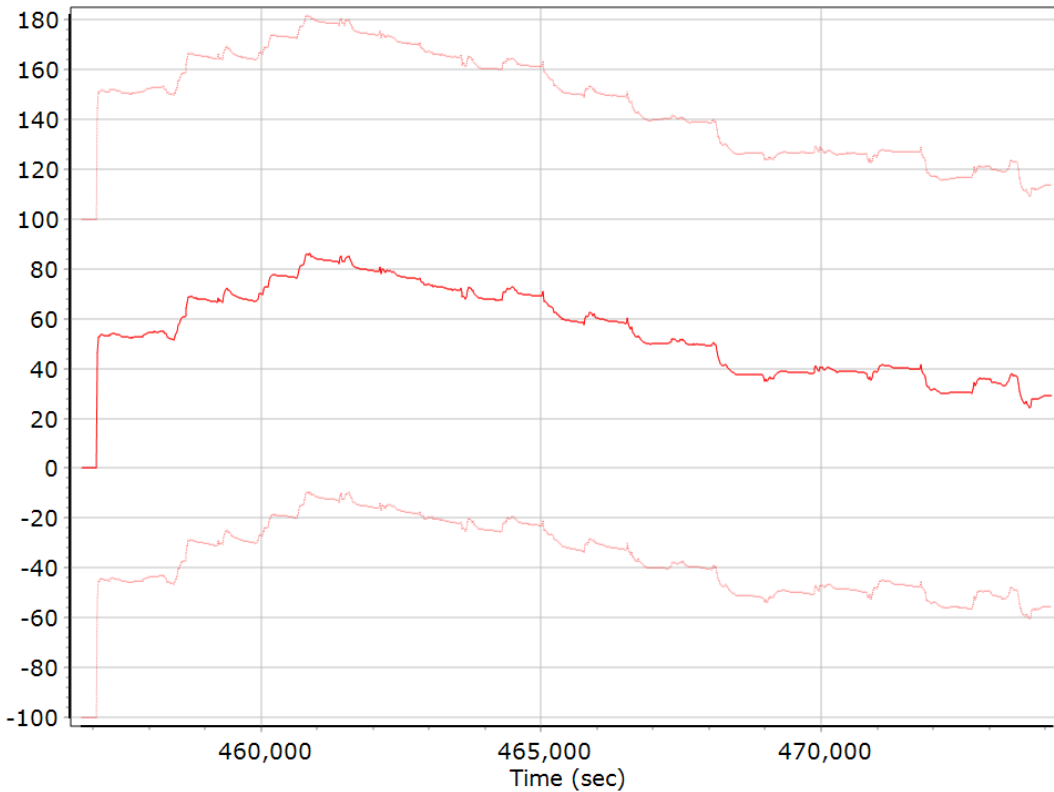
# IN-Fusion QC

## Forward Processed Estimated Errors, Reference Frame

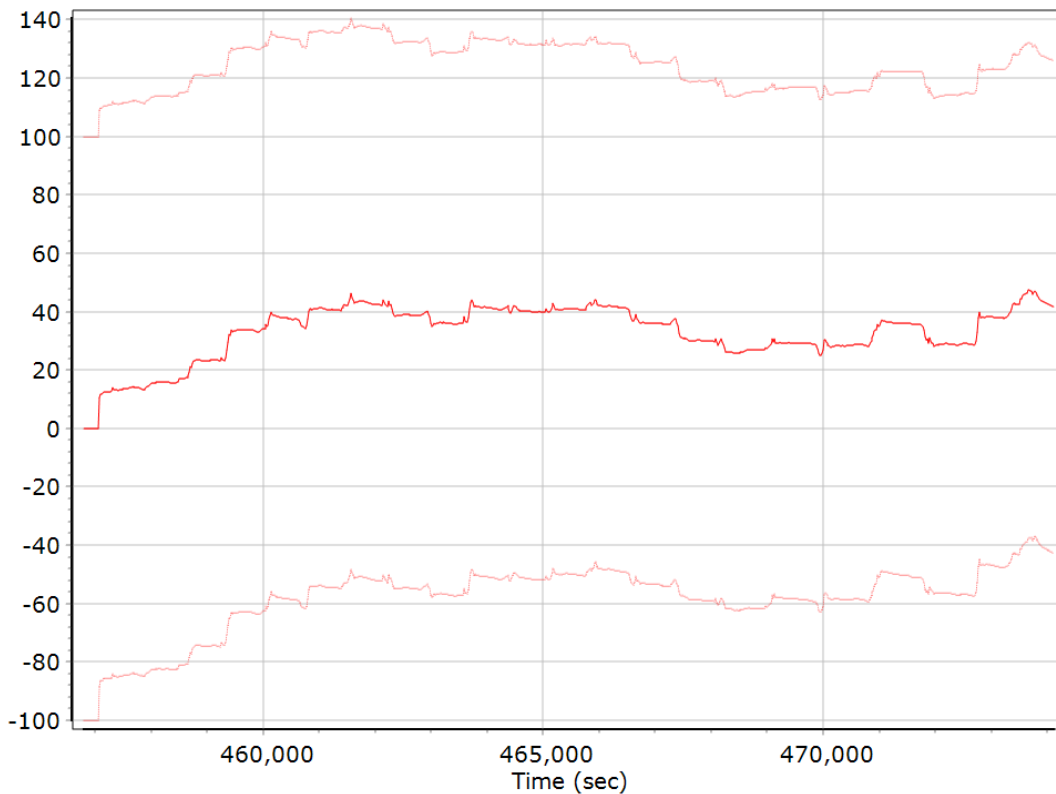
### Accelerometer Bias (micro-g)



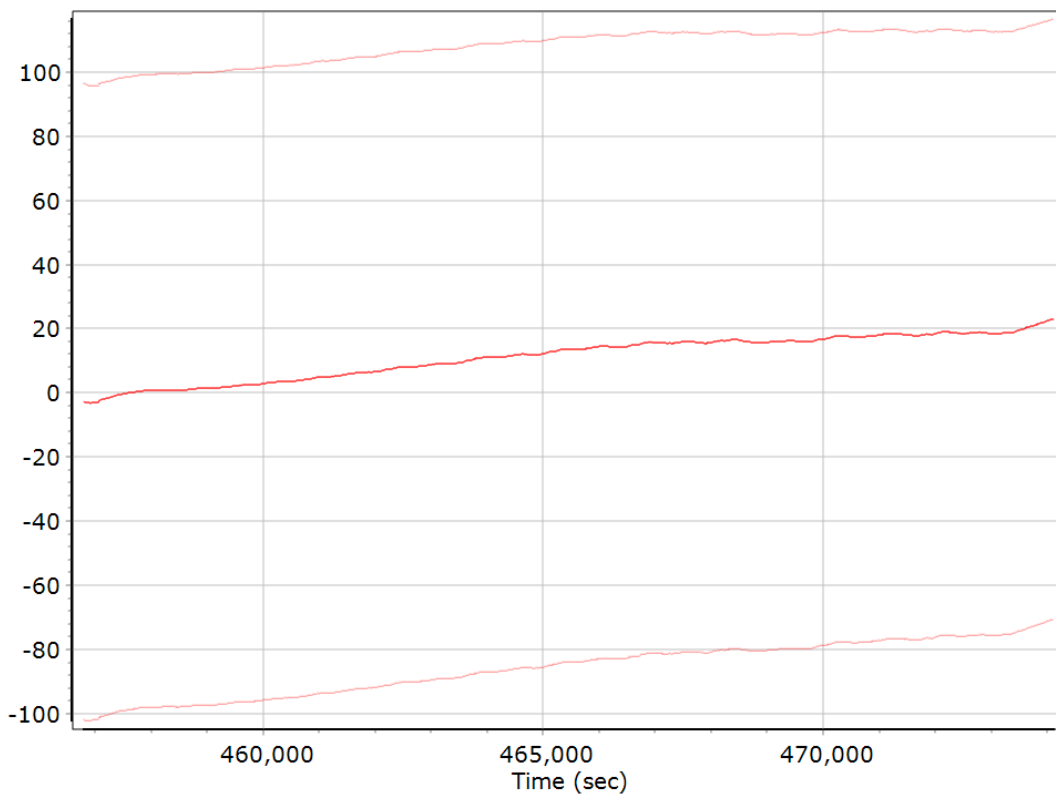
### X Accelerometer Bias (micro-g)



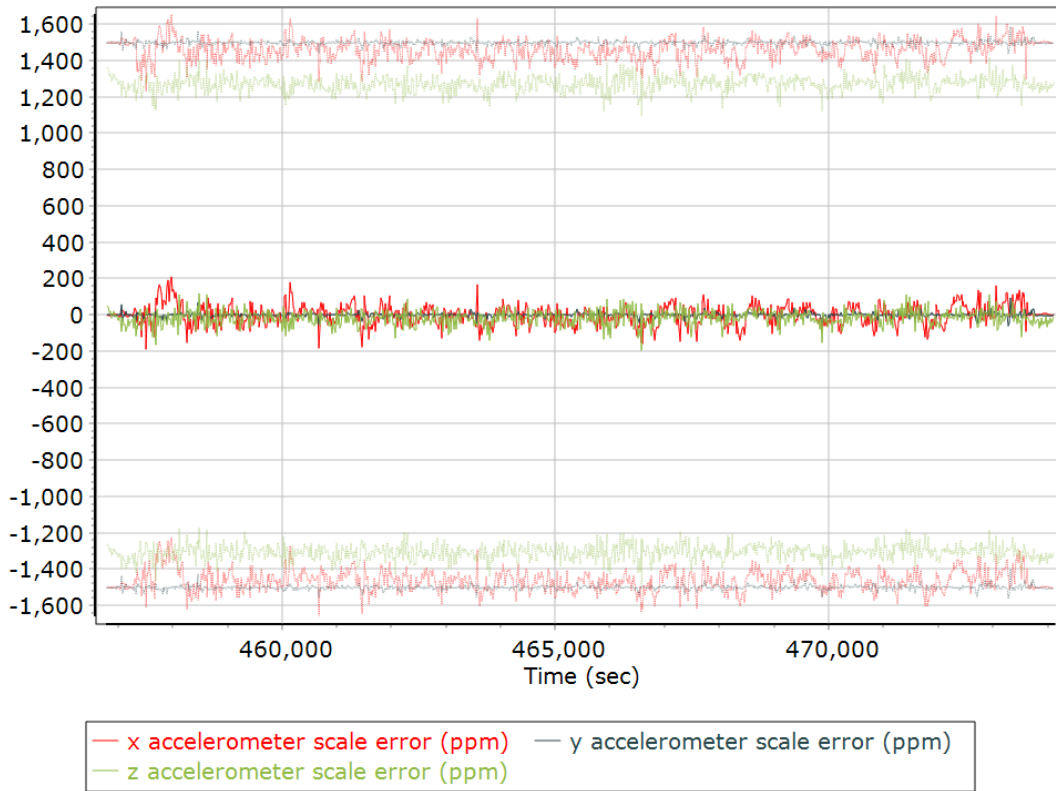
### Y Accelerometer Bias (micro-g)



### Z Accelerometer Bias (micro-g)



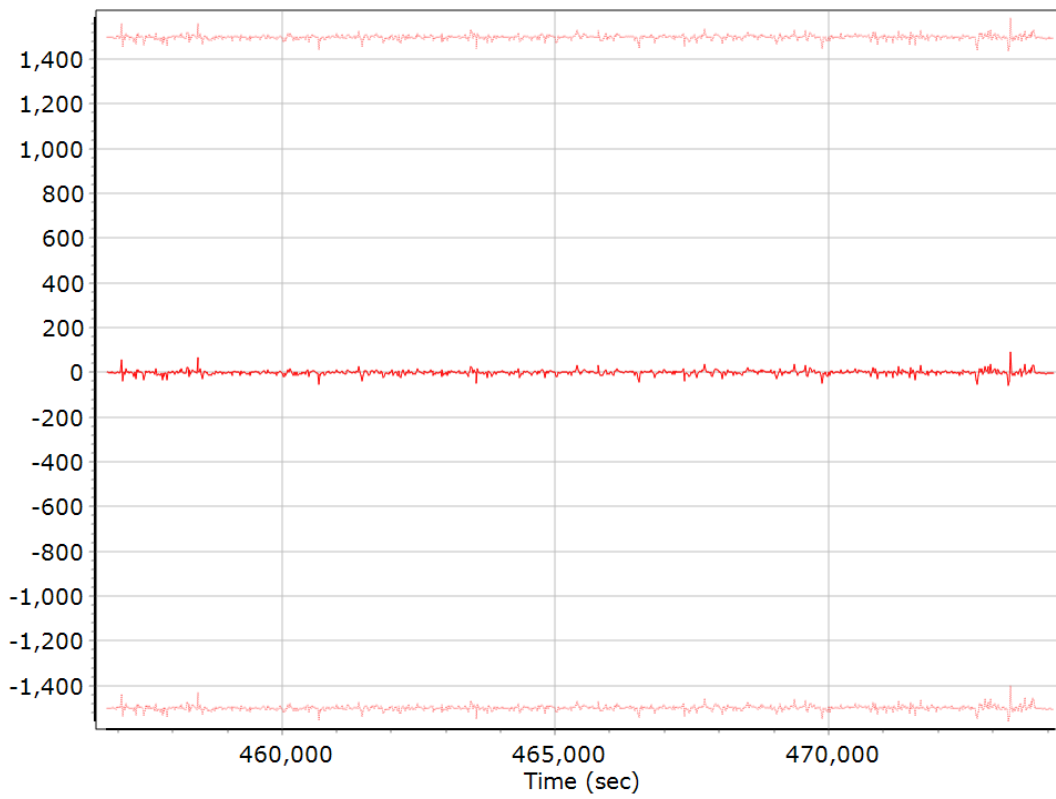
### Accelerometer Scale Error (ppm)



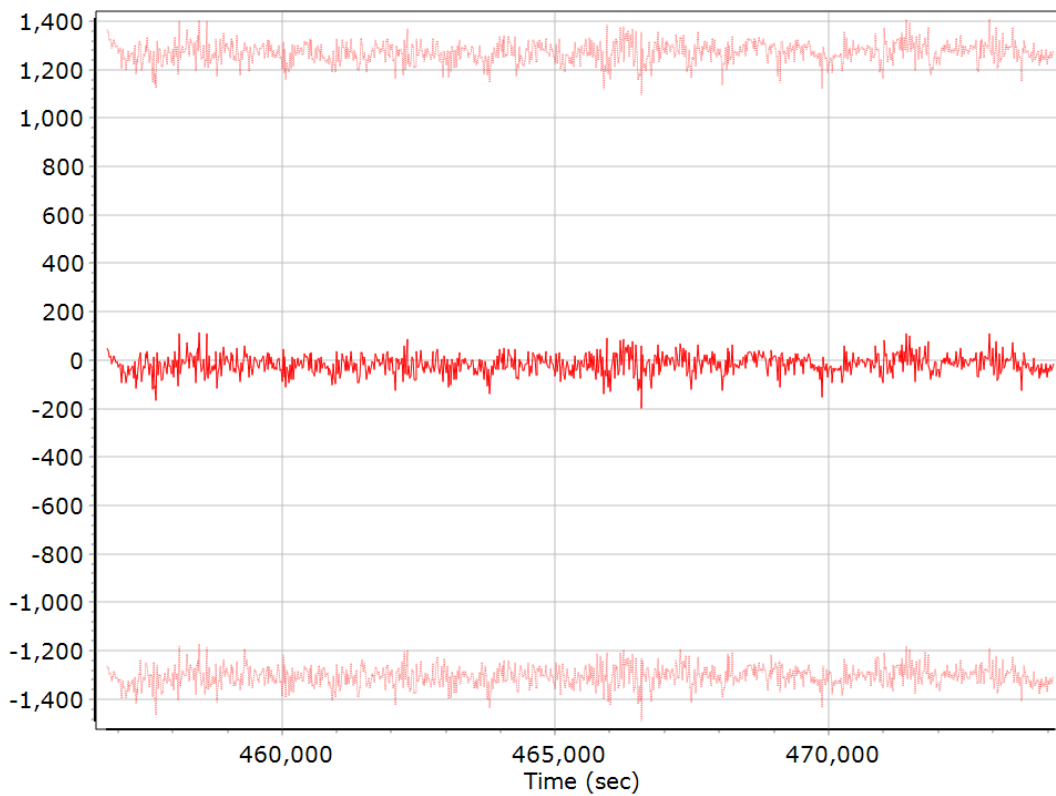
### X Accelerometer Scale Error (ppm)



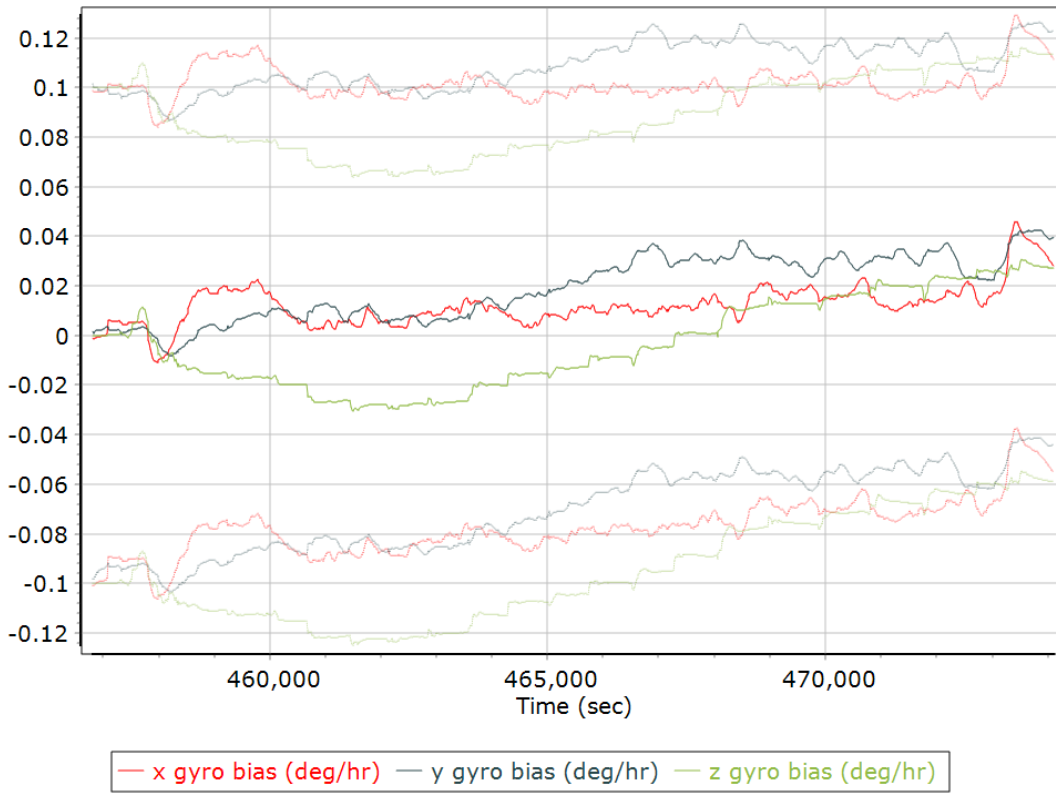
### Y Accelerometer Scale Error (ppm)



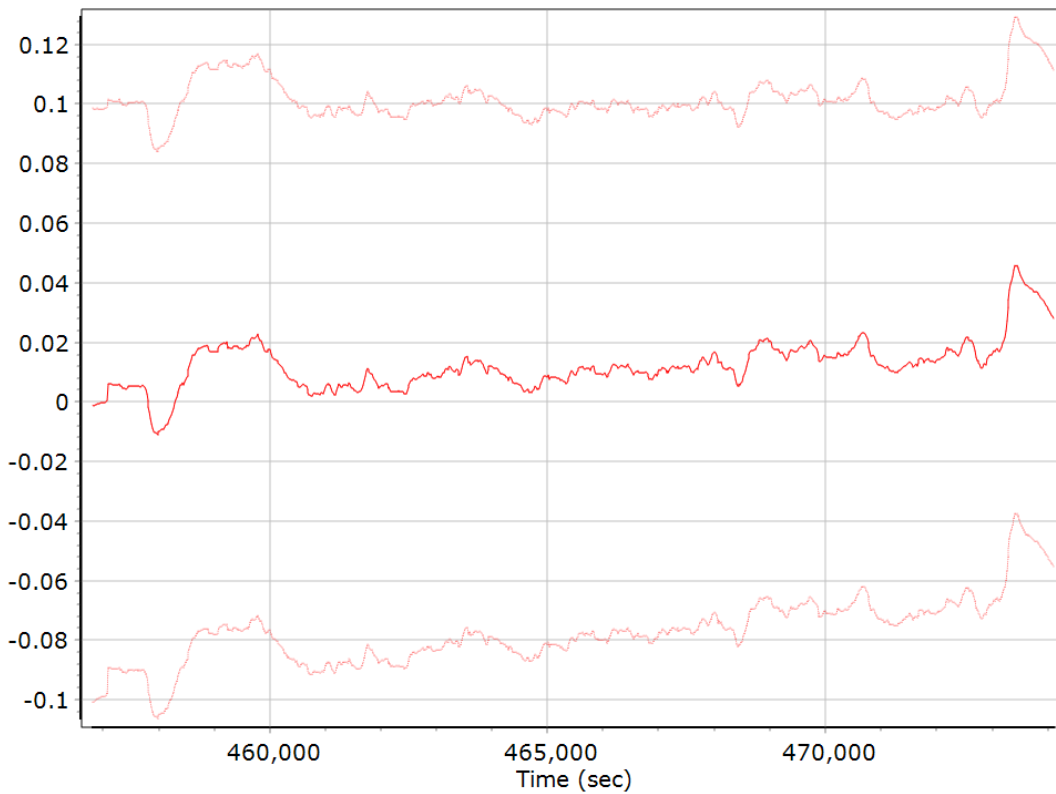
### Z Accelerometer Scale Error (ppm)



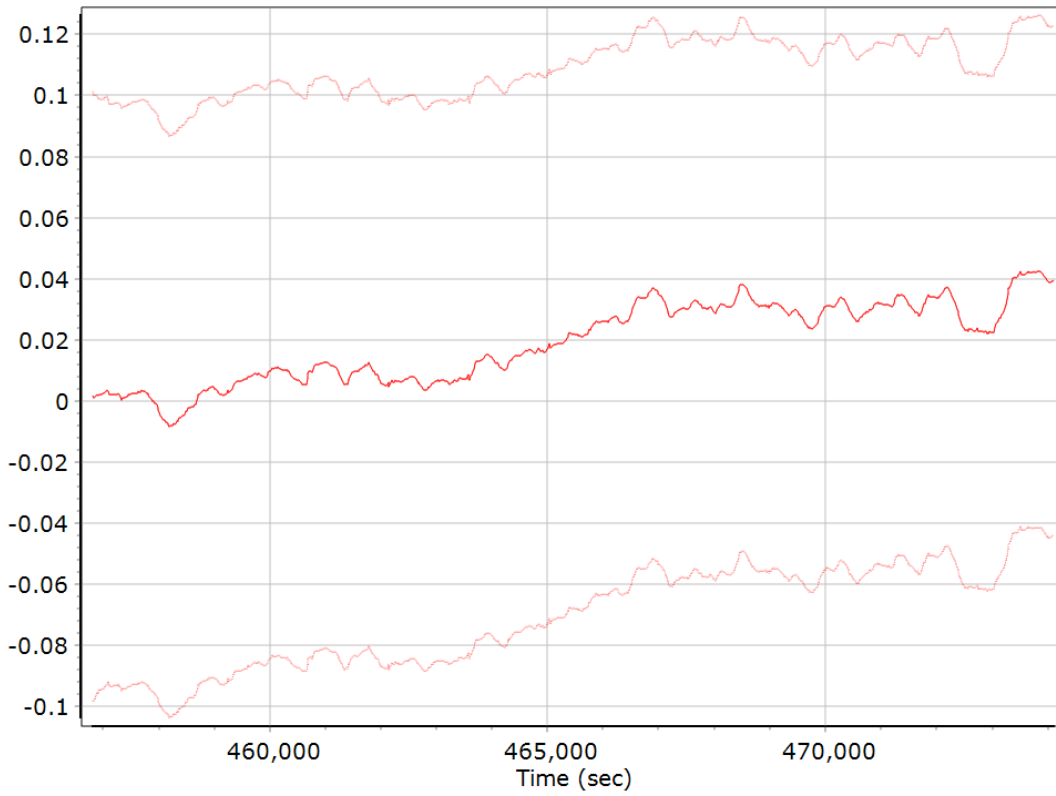
### Gyro Bias (deg/h)



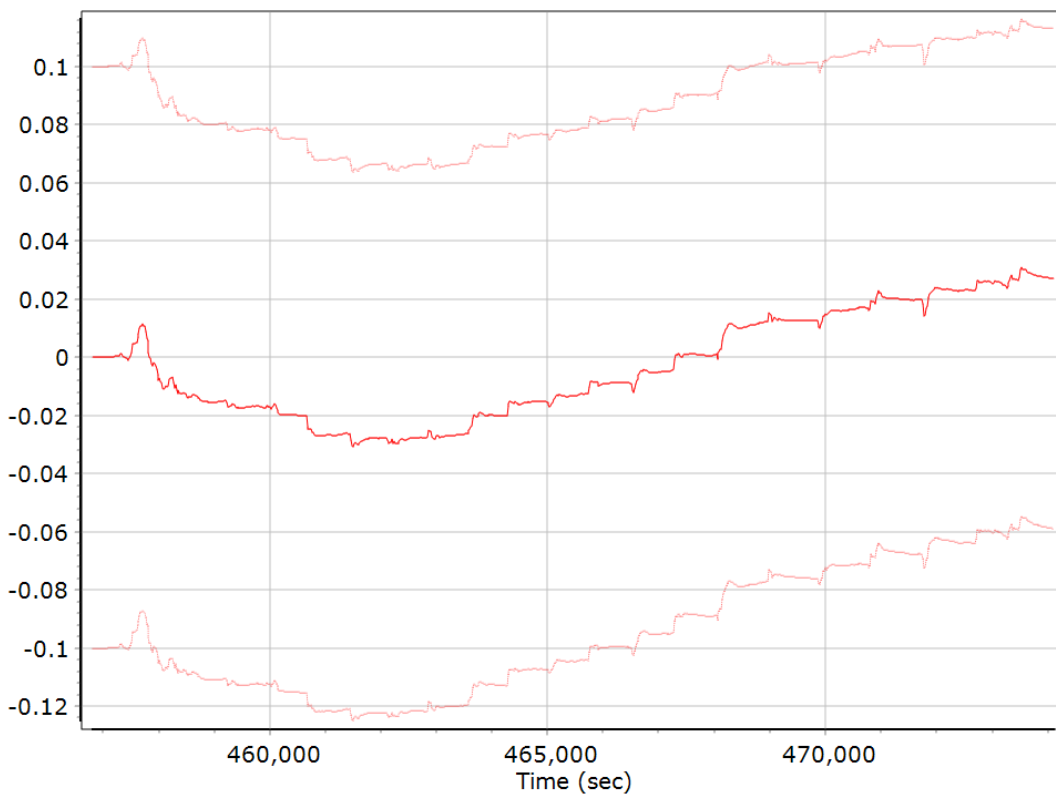
### X Gyro Bias (deg/h)



### Y Gyro Bias (deg/h)

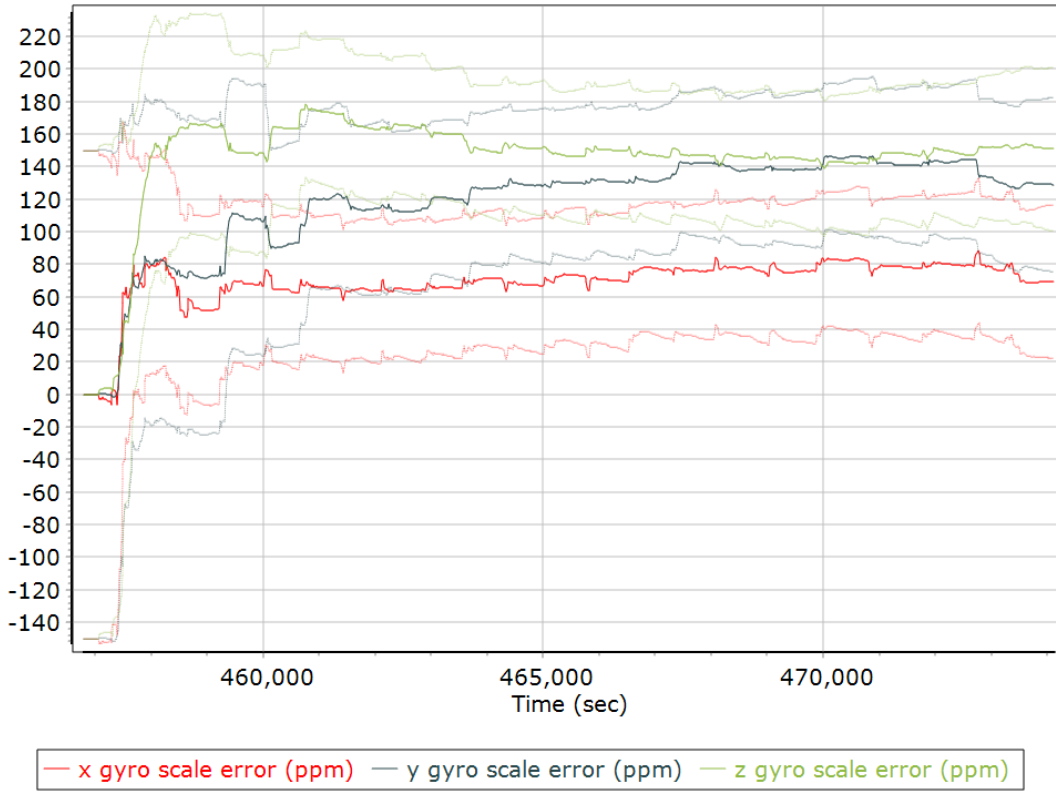


### Z Gyro Bias (deg/h)

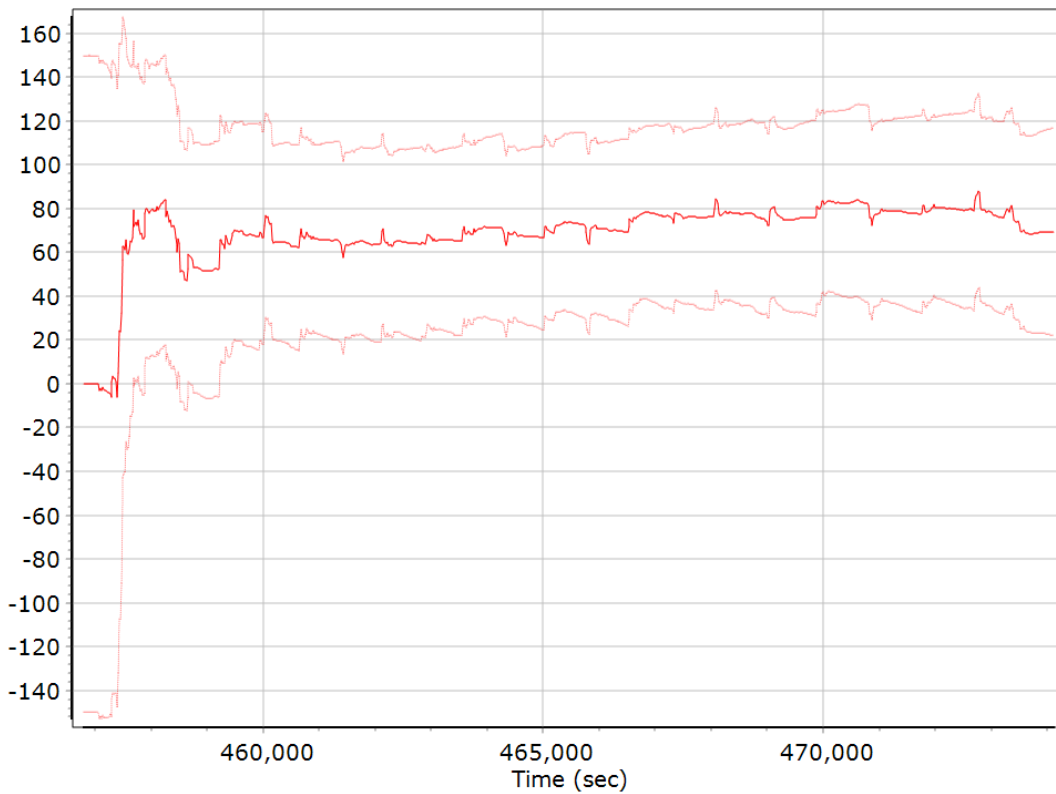




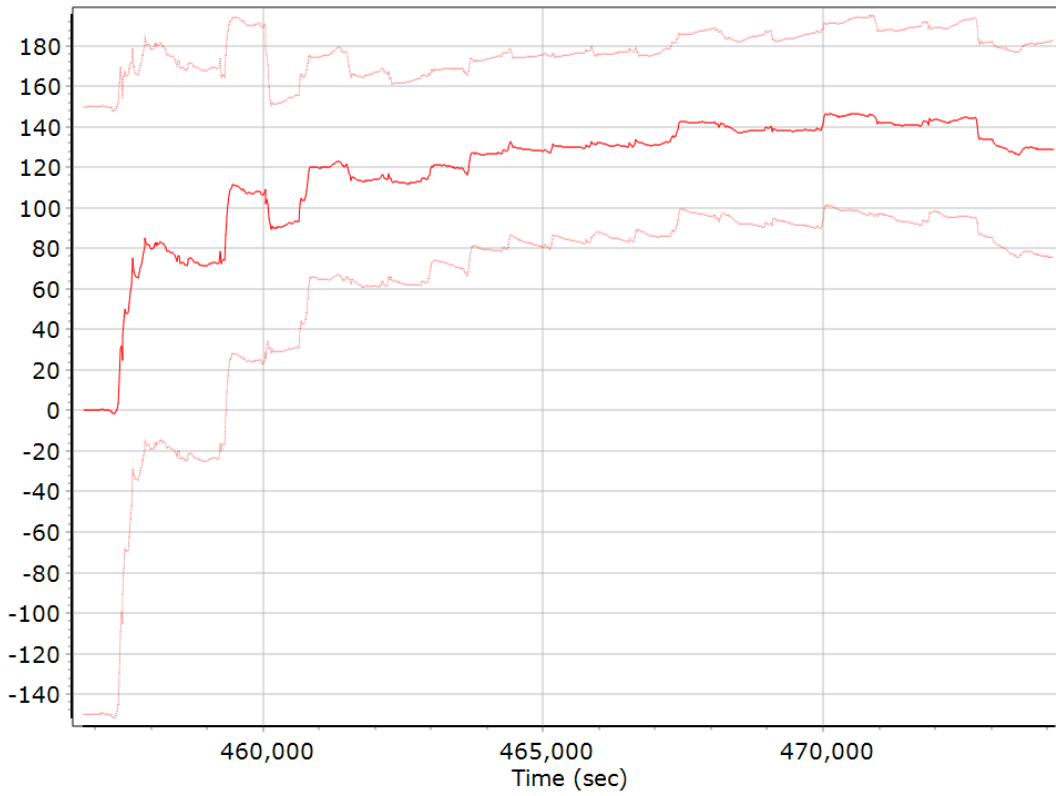
### Gyro Scale Error (ppm)



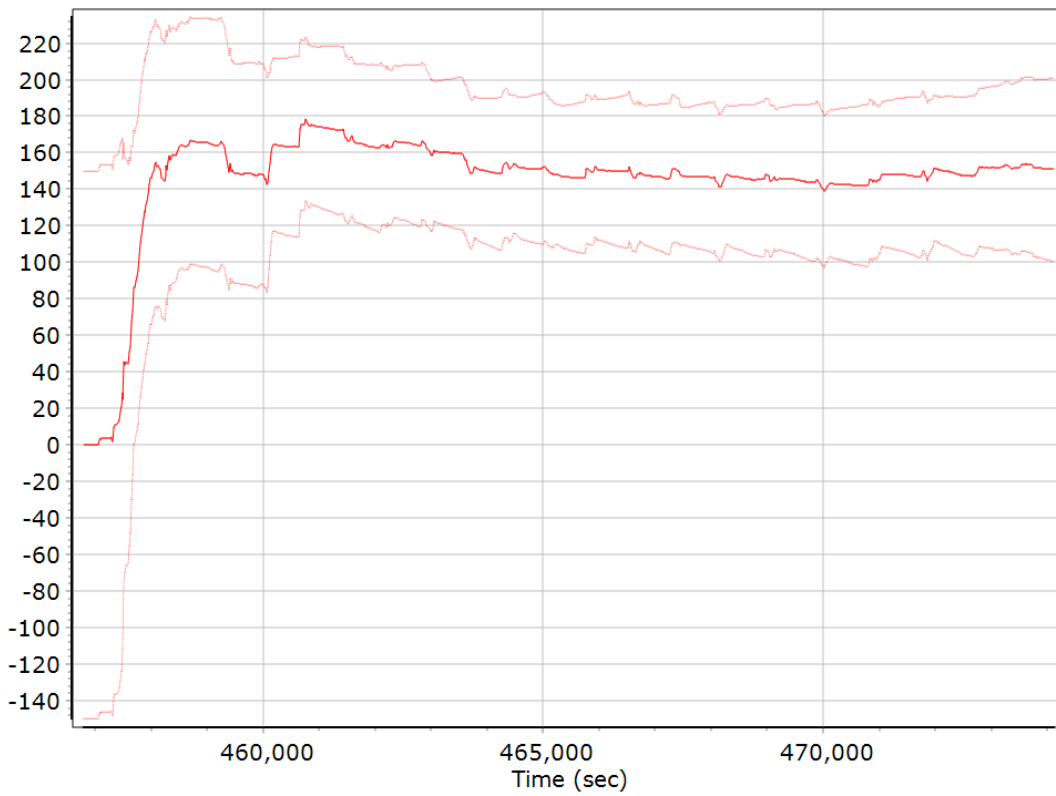
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)

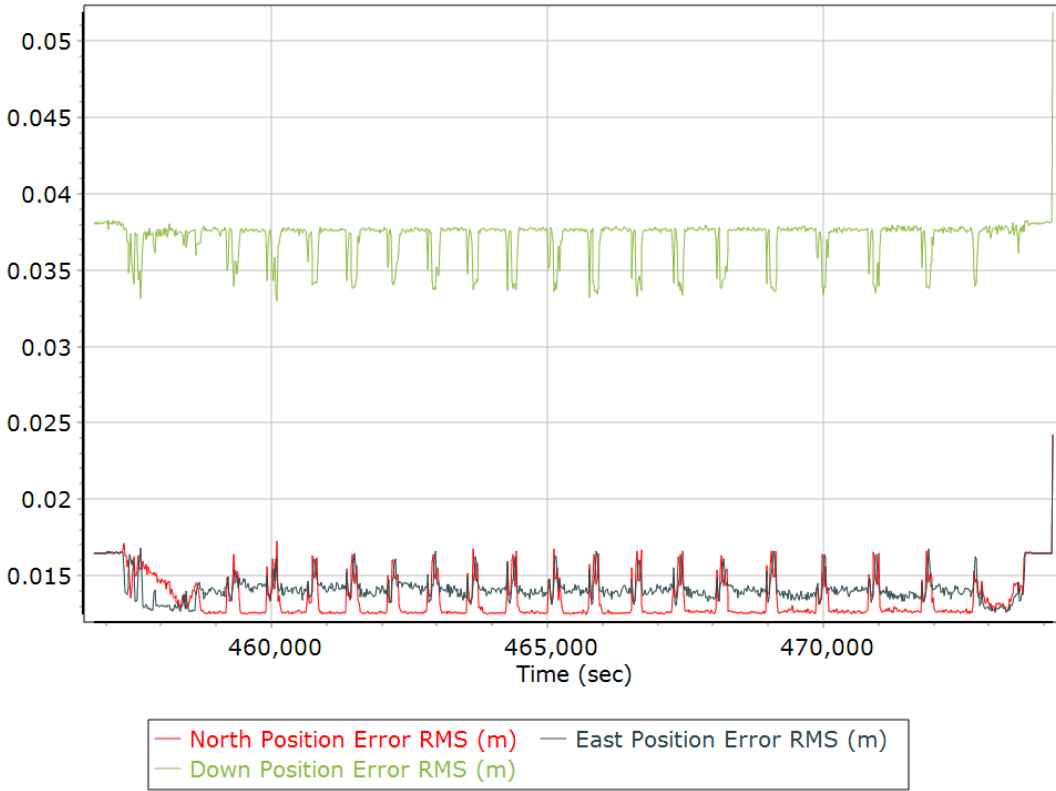


### Z Gyro Scale Error (ppm)

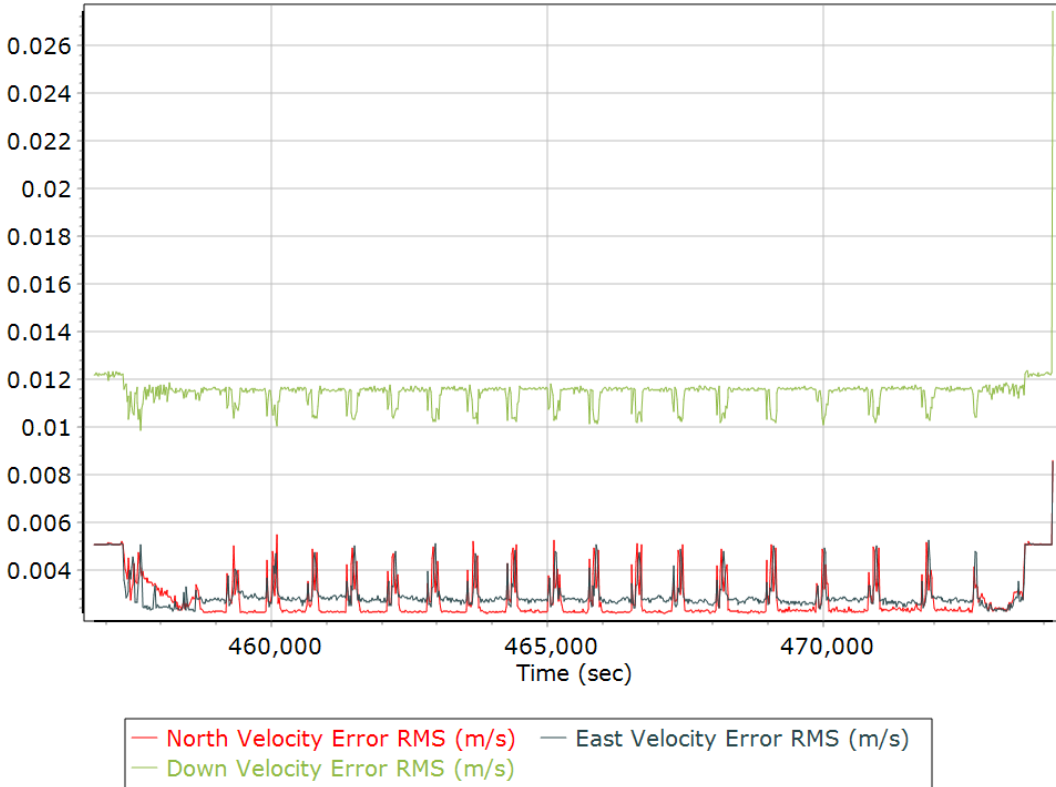


### Smoothed Performance Metrics

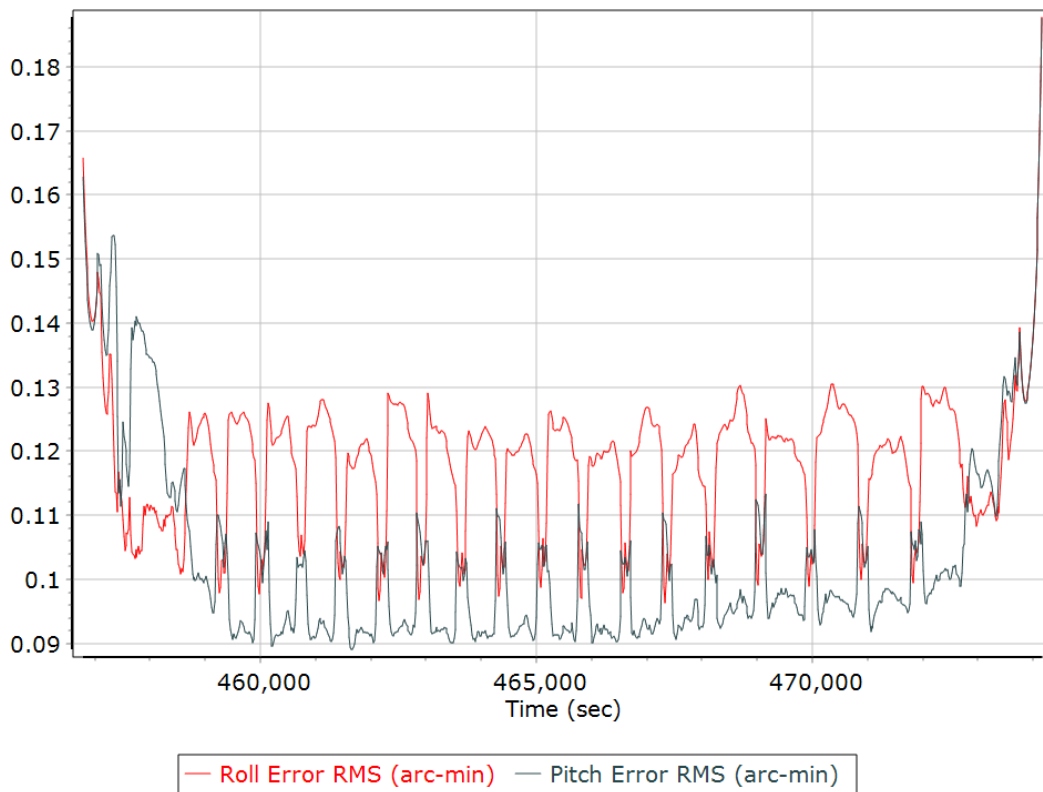
#### Position Error RMS (m)



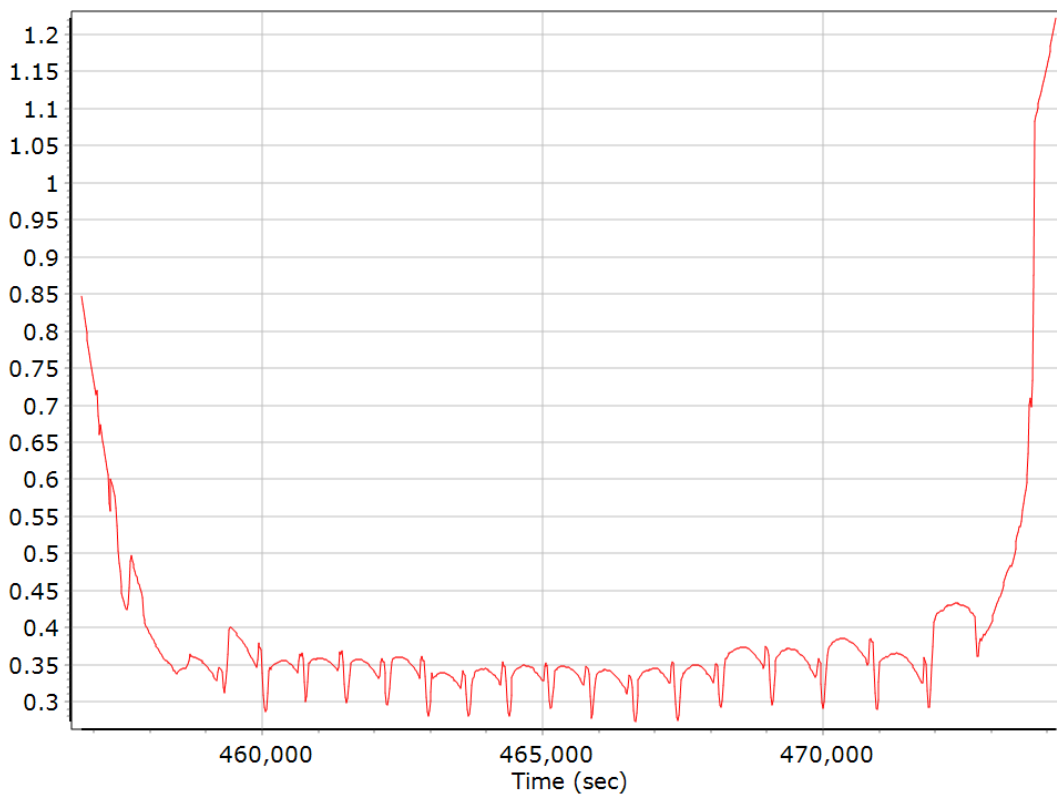
#### Velocity Error RMS (m/s)



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

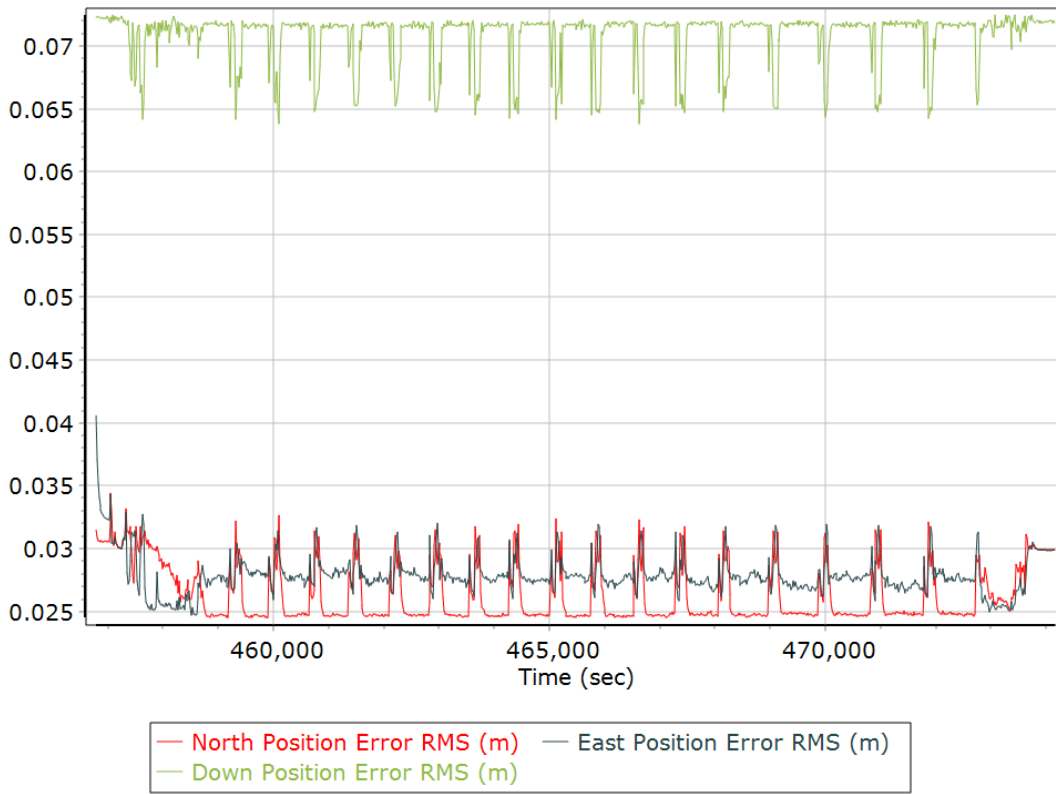


### Heading Error RMS (arc-min)

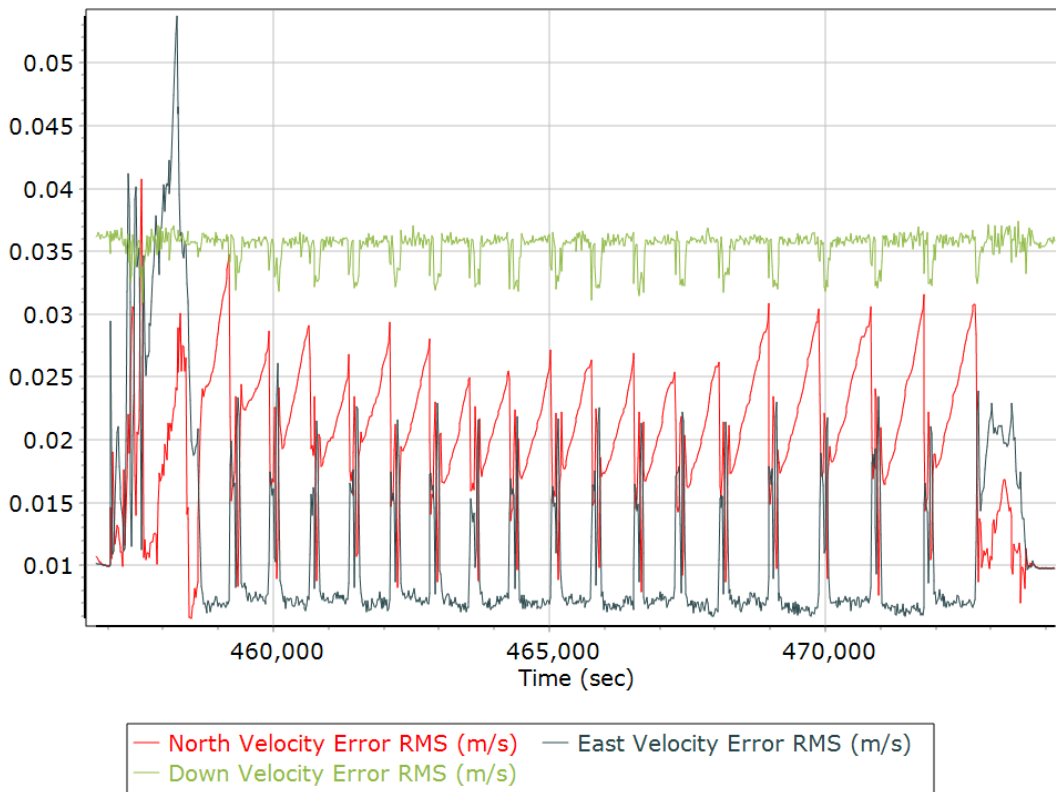


## Forward Processed Performance Metrics

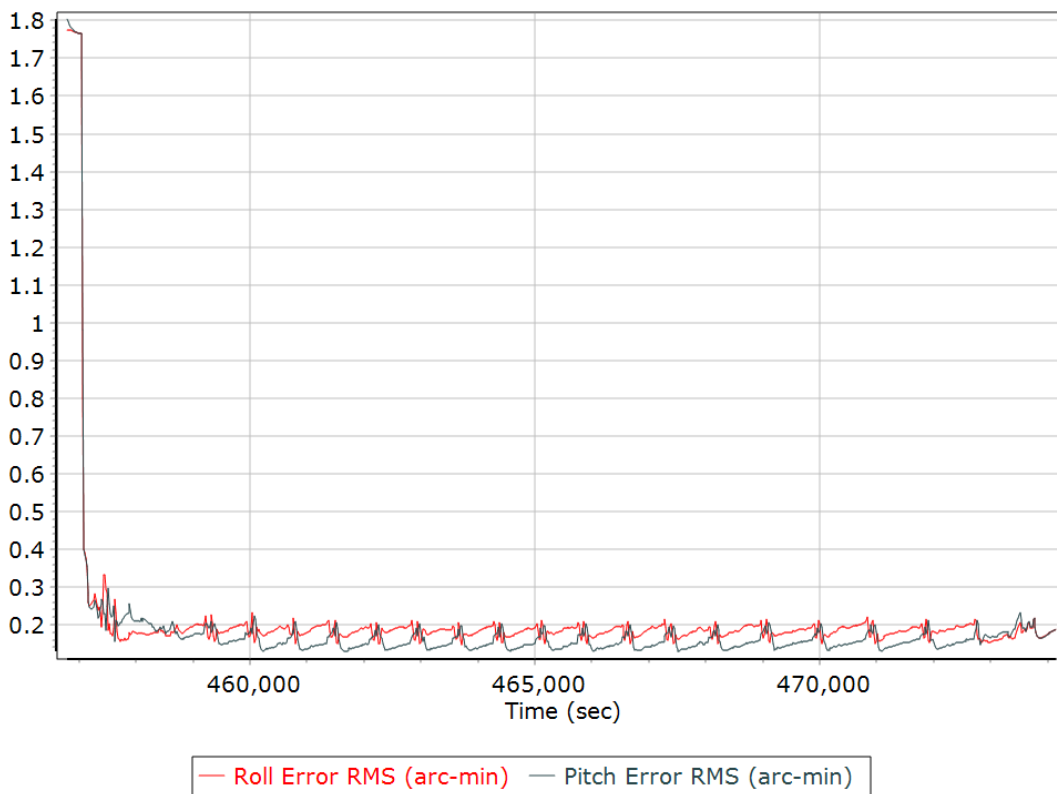
### Position Error RMS (m)



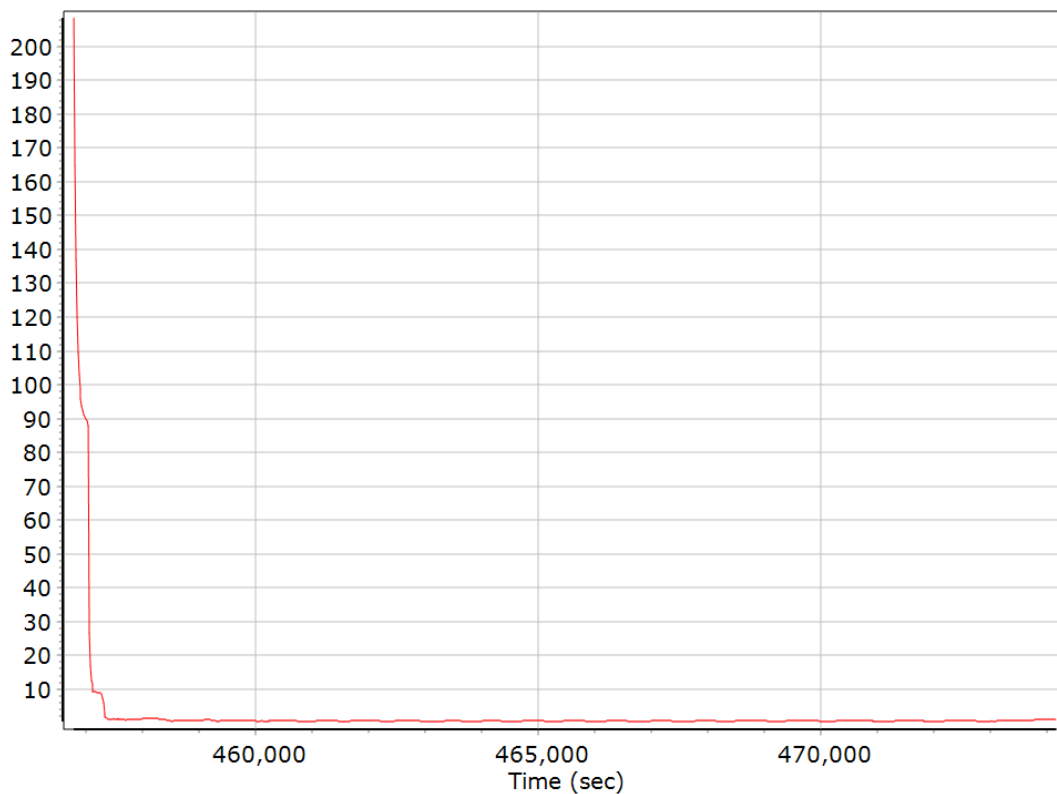
### Velocity Error RMS (m/s)



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

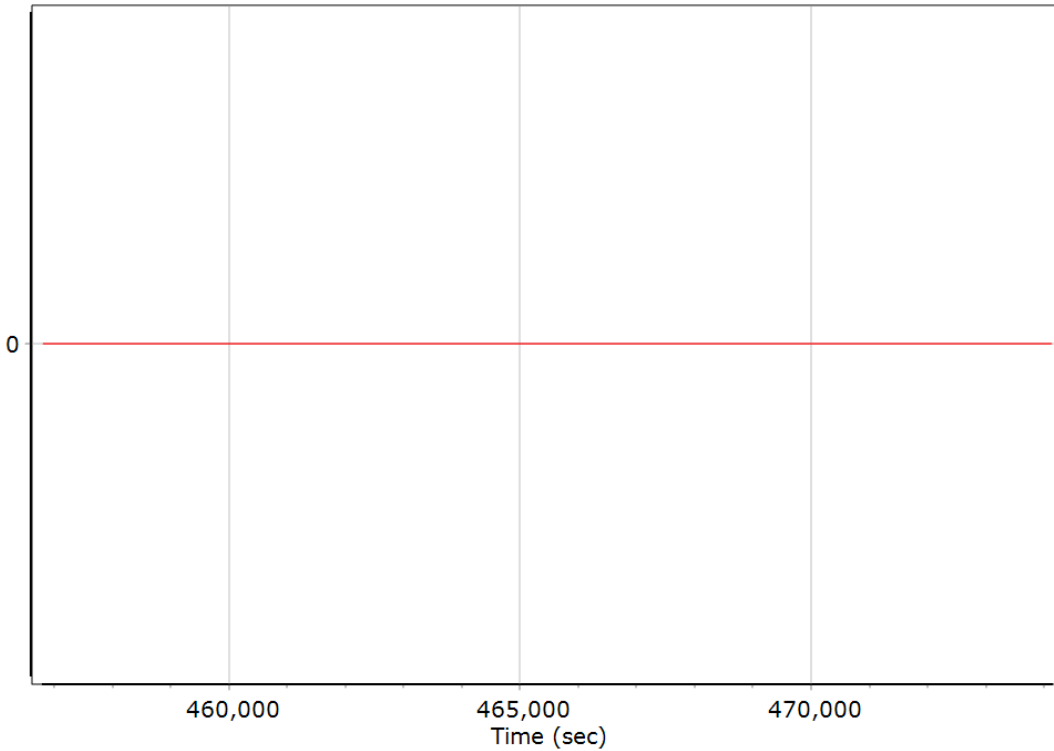


### Heading Error RMS (arc-min)



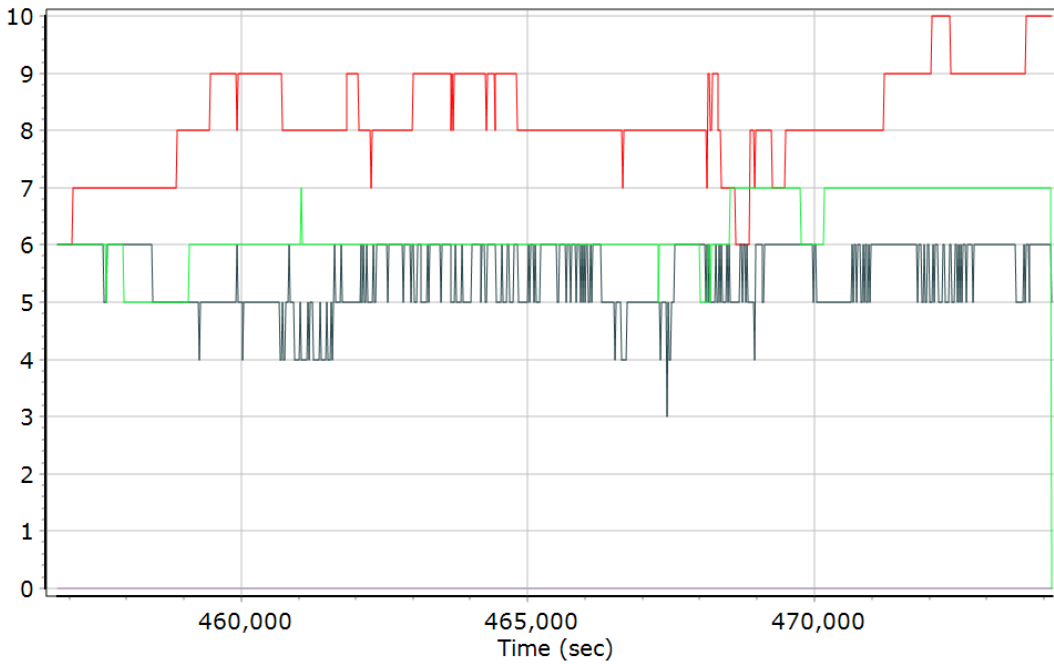
## Forward Processed Solution Status

### Processing Mode



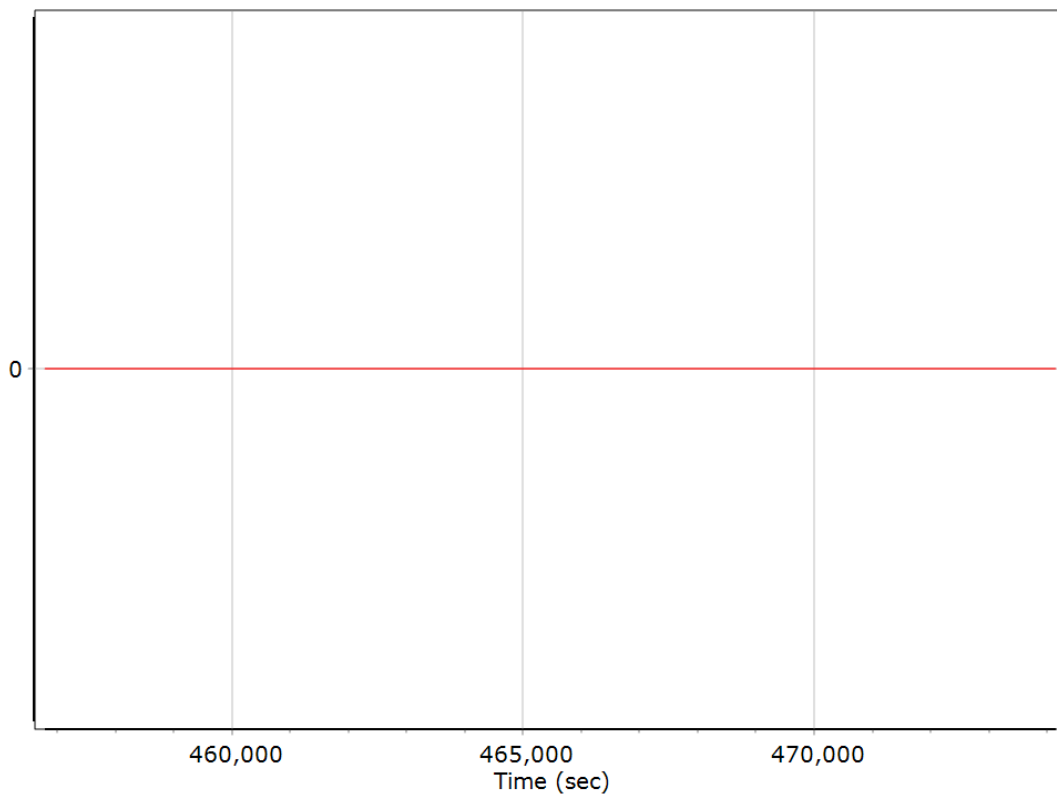
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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





## General Information

### Mission Information

Project name	a07-s03-0506
Processing date	2022-07-05 16:50:22
Mission date	2022-07-02 06:07:46
Mission duration	05:55:29.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0702_060747.000	POS Data
default0702_060747.001	POS Data
default0702_060747.002	POS Data
default0702_060747.003	POS Data
default0702_060747.004	POS Data
default0702_060747.005	POS Data
default0702_060747.006	POS Data
default0702_060747.007	POS Data
default0702_060747.008	POS Data
default0702_060747.009	POS Data
default0702_060747.010	POS Data
default0702_060747.011	POS Data
default0702_060747.012	POS Data
default0702_060747.013	POS Data
default0702_060747.014	POS Data
default0702_060747.015	POS Data
default0702_060747.016	POS Data
default0702_060747.017	POS Data
default0702_060747.018	POS Data
default0702_060747.019	POS Data
default0702_060747.020	POS Data
default0702_060747.021	POS Data
default0702_060747.022	POS Data
default0702_060747.023	POS Data
default0702_060747.024	POS Data
default0702_060747.025	POS Data
default0702_060747.026	POS Data
default0702_060747.027	POS Data
default0702_060747.028	POS Data
default0702_060747.029	POS Data

### Input Files

File Name	File Type
Ephm1830.22g	GLONASS Broadcast Ephemeris
Ephm1830.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0506.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0702_060747.000		
Last raw data file	default0702_060747.029		
Start GPS week	2216		
Start time	540448.885 (7/2/2022 6:07:28 AM)		
End time	561772.962 (7/2/2022 12:02:52 PM)		
Start of fine alignment	540934.878 (7/2/2022 6:15:34 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

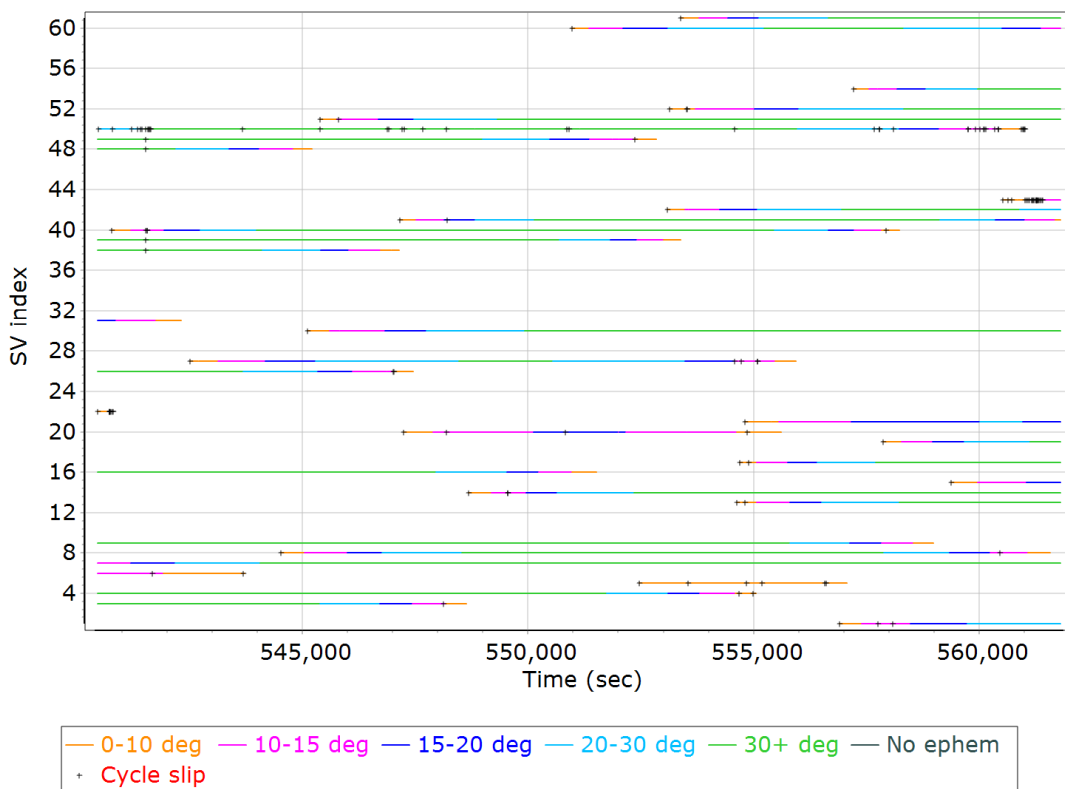
## Rover Data QC

### Raw IMU Import QC Summary

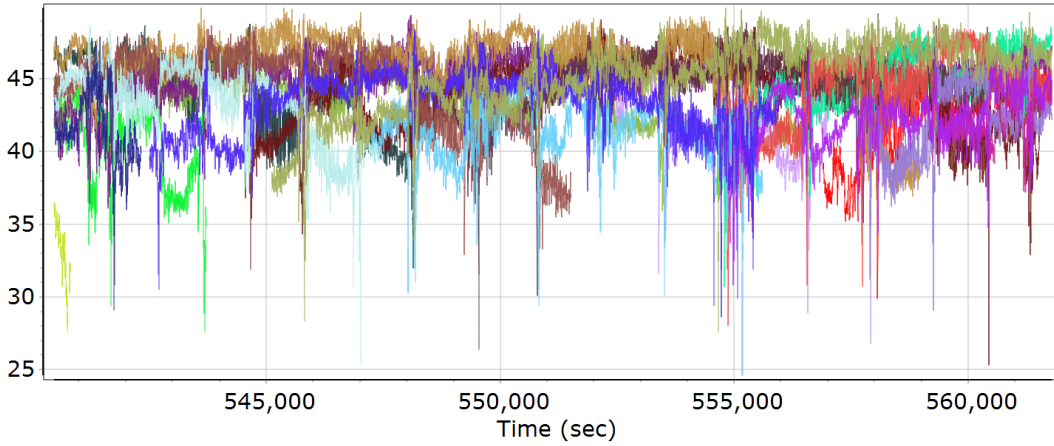
IMU data input file	imu_a07-s03-0506.dat
IMU data check log file	imudt_a07-s03-0506.log
IMU Records Processed	4265418
Termination Status	Warnings
IMU Anomalies	1
<b>IMU Failure Messages</b>	
540448.145 : WARNING : Gap of 540430.7828 seconds in CHECKDT input data	

## Primary Observables & Satellite Data

### GPS/GLONASS L1 Satellite Lock/Elevation

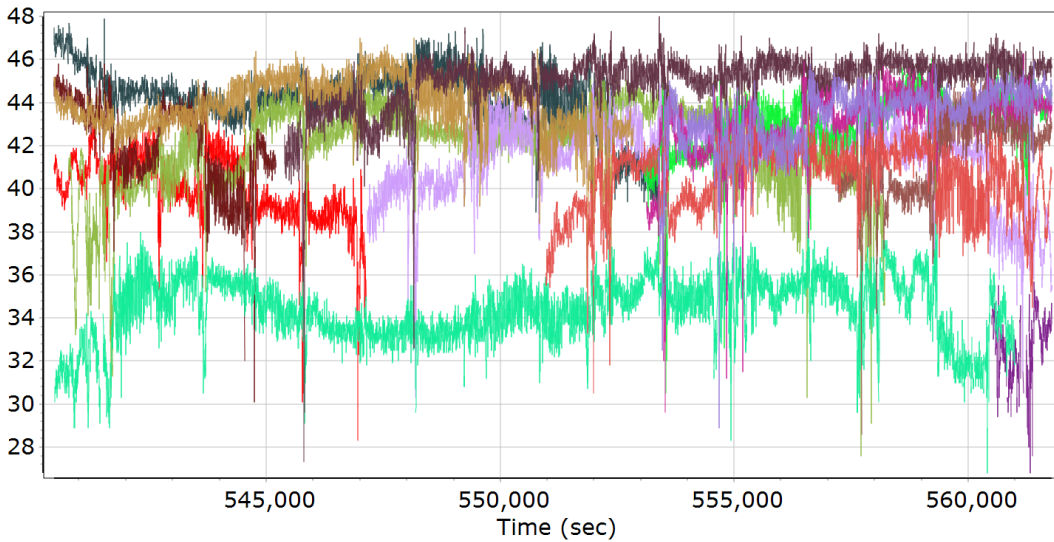


**GPS L1 SNR**



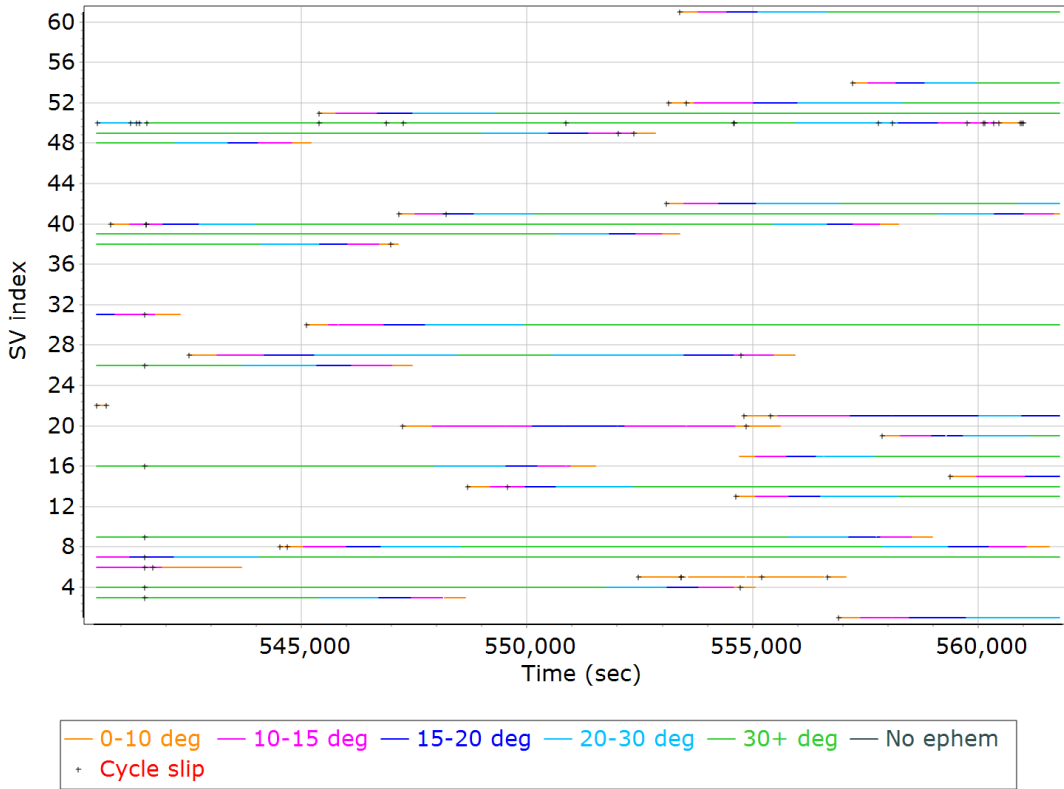
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 03 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 05 L1 SNR (dB/Hz) |
| — GPS PRN 06 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 15 L1 SNR (dB/Hz) | — GPS PRN 16 L1 SNR (dB/Hz) |
| — GPS PRN 17 L1 SNR (dB/Hz) | — GPS PRN 19 L1 SNR (dB/Hz) |
| — GPS PRN 20 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 22 L1 SNR (dB/Hz) | — GPS PRN 26 L1 SNR (dB/Hz) |
| — GPS PRN 27 L1 SNR (dB/Hz) | — GPS PRN 30 L1 SNR (dB/Hz) |

**GLONASS L1 SNR**

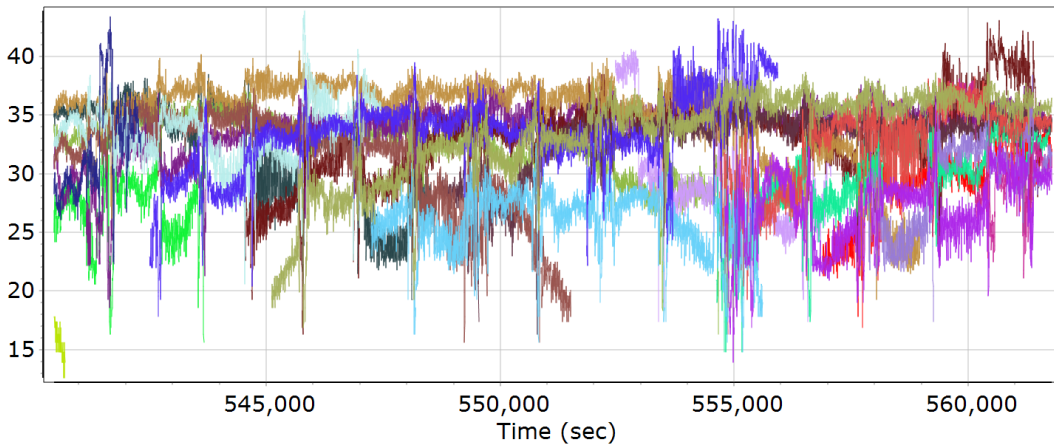


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 01 L1 SNR (dB/Hz) | — GLONASS 02 L1 SNR (dB/Hz) |
| — GLONASS 03 L1 SNR (dB/Hz) | — GLONASS 04 L1 SNR (dB/Hz) |
| — GLONASS 05 L1 SNR (dB/Hz) | — GLONASS 06 L1 SNR (dB/Hz) |
| — GLONASS 11 L1 SNR (dB/Hz) | — GLONASS 12 L1 SNR (dB/Hz) |
| — GLONASS 13 L1 SNR (dB/Hz) | — GLONASS 14 L1 SNR (dB/Hz) |
| — GLONASS 15 L1 SNR (dB/Hz) | — GLONASS 17 L1 SNR (dB/Hz) |
| — GLONASS 23 L1 SNR (dB/Hz) | — GLONASS 24 L1 SNR (dB/Hz) |

### GPS/GLONASS L2 Satellite Lock/Elevation

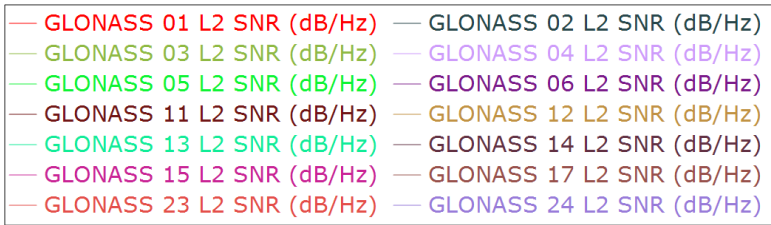
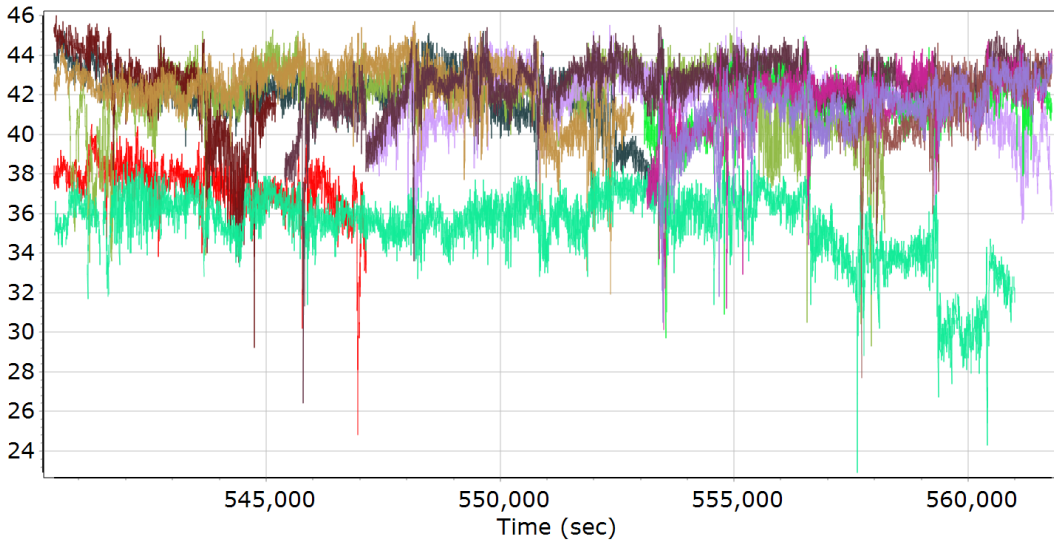


### GPS L2 SNR

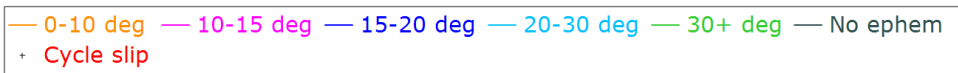
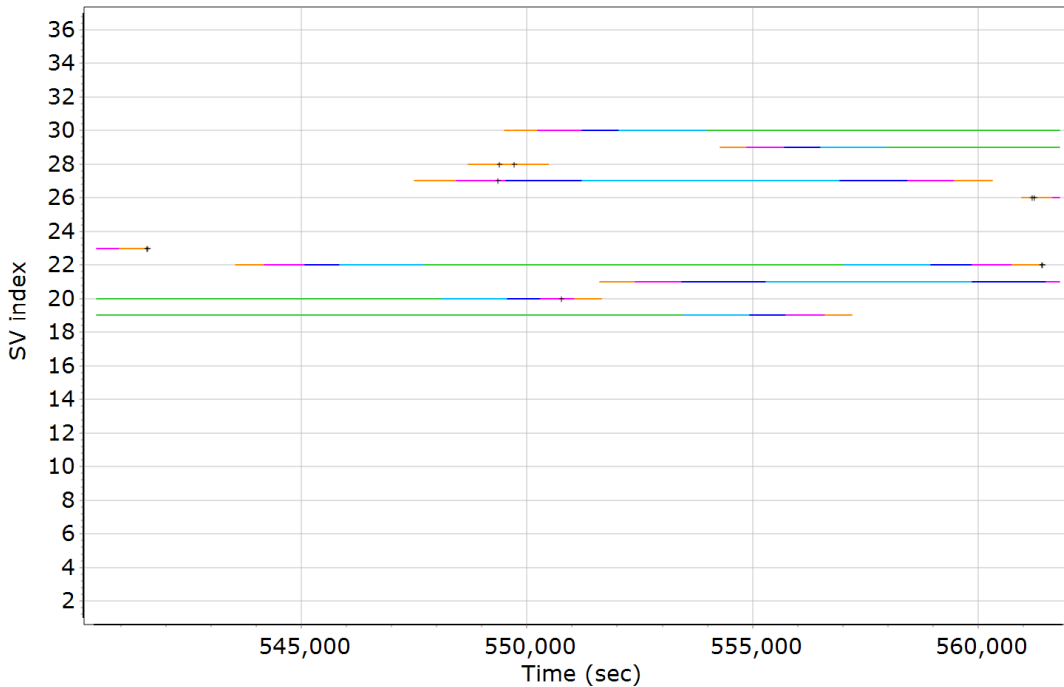


- GPS PRN 01 L2 SNR (dB/Hz)
- GPS PRN 02 L2 SNR (dB/Hz)
- GPS PRN 03 L2 SNR (dB/Hz)
- GPS PRN 04 L2 SNR (dB/Hz)
- GPS PRN 05 L2 SNR (dB/Hz)
- GPS PRN 06 L2 SNR (dB/Hz)
- GPS PRN 07 L2 SNR (dB/Hz)
- GPS PRN 08 L2 SNR (dB/Hz)
- GPS PRN 09 L2 SNR (dB/Hz)
- GPS PRN 10 L2 SNR (dB/Hz)
- GPS PRN 11 L2 SNR (dB/Hz)
- GPS PRN 12 L2 SNR (dB/Hz)
- GPS PRN 13 L2 SNR (dB/Hz)
- GPS PRN 14 L2 SNR (dB/Hz)
- GPS PRN 15 L2 SNR (dB/Hz)
- GPS PRN 16 L2 SNR (dB/Hz)
- GPS PRN 17 L2 SNR (dB/Hz)
- GPS PRN 18 L2 SNR (dB/Hz)
- GPS PRN 19 L2 SNR (dB/Hz)
- GPS PRN 20 L2 SNR (dB/Hz)
- GPS PRN 21 L2 SNR (dB/Hz)
- GPS PRN 22 L2 SNR (dB/Hz)
- GPS PRN 23 L2 SNR (dB/Hz)
- GPS PRN 24 L2 SNR (dB/Hz)
- GPS PRN 25 L2 SNR (dB/Hz)
- GPS PRN 26 L2 SNR (dB/Hz)
- GPS PRN 27 L2 SNR (dB/Hz)
- GPS PRN 28 L2 SNR (dB/Hz)
- GPS PRN 29 L2 SNR (dB/Hz)
- GPS PRN 30 L2 SNR (dB/Hz)

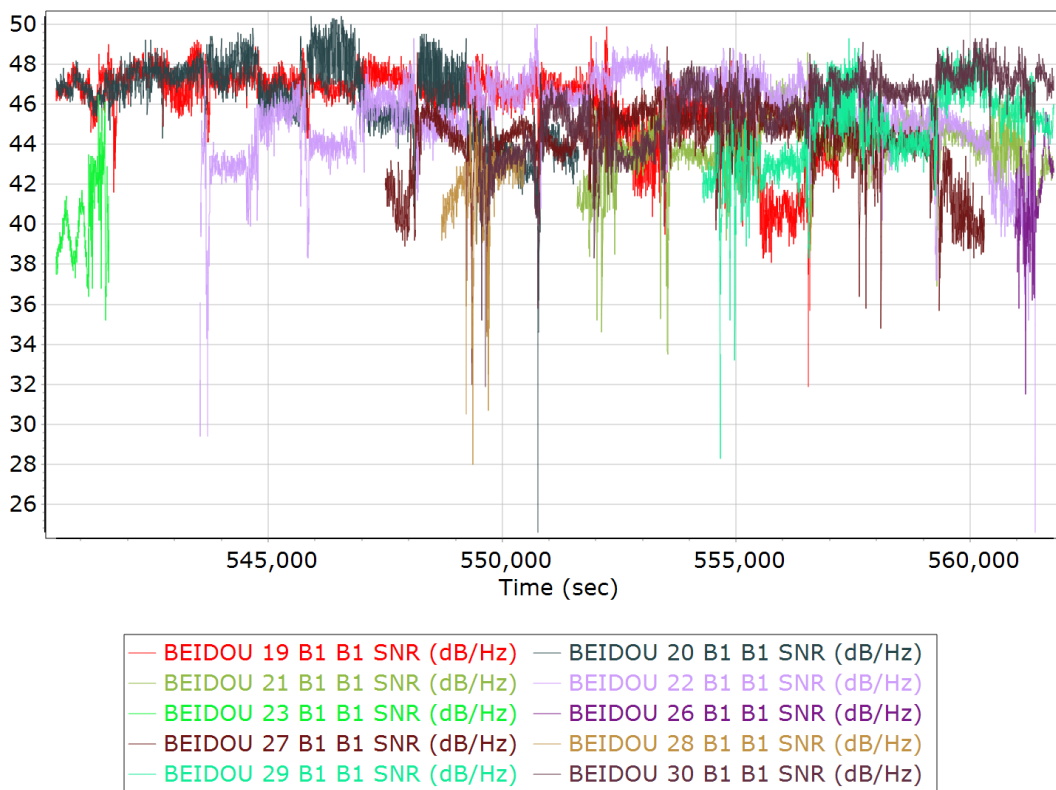
**GLONASS L2 SNR**



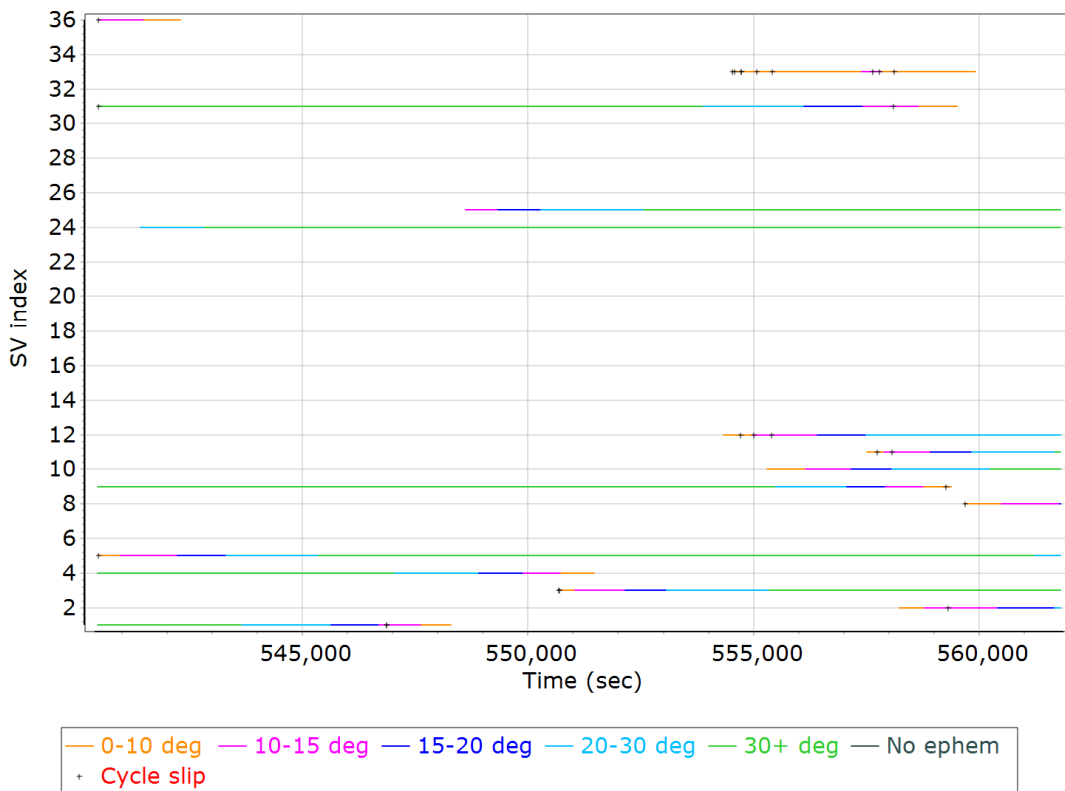
**BEIDOU Satellite Lock/Elevation**



### BEIDOU SNR

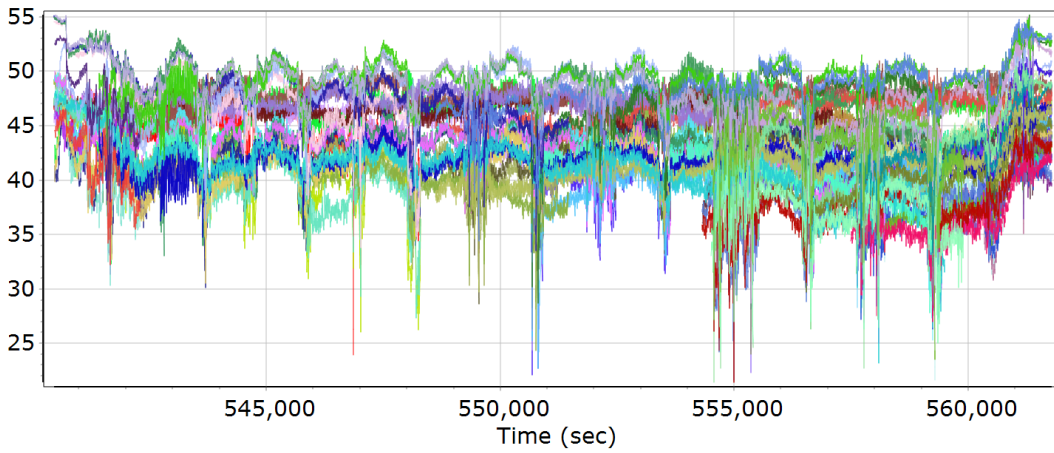


### GALILEO Satellite Lock/Elevation





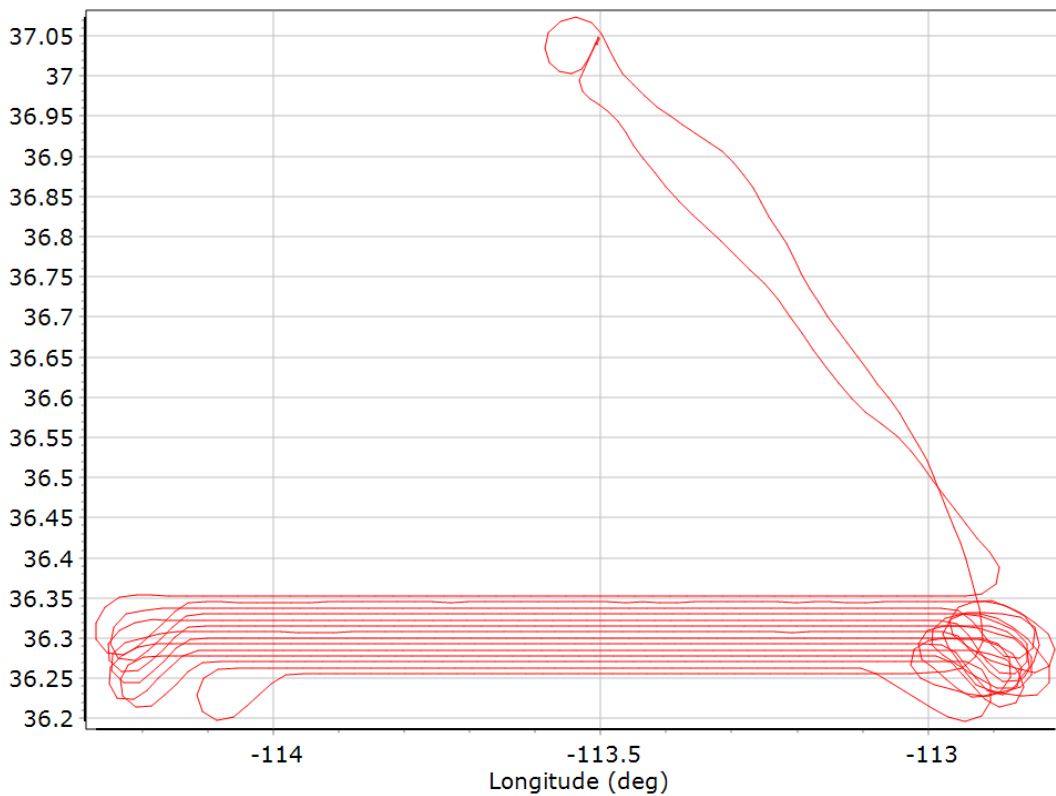
## GALILEO SNR



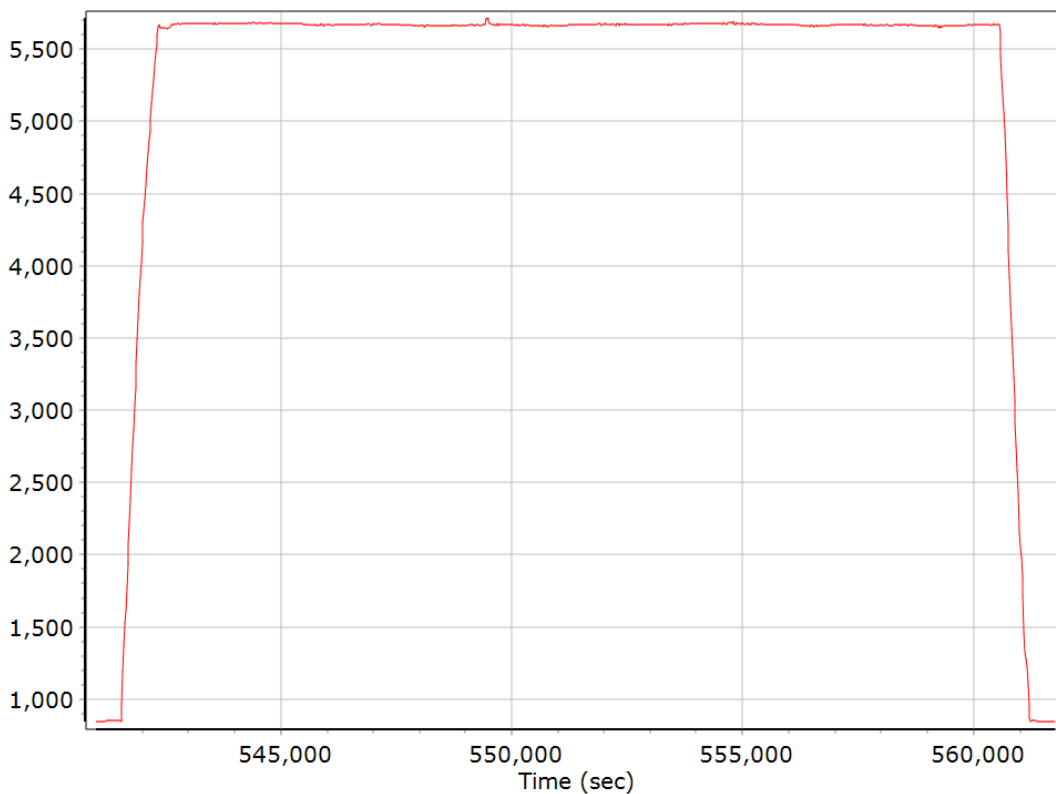
- GALILEO 01 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 02 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 03 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 04 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 05 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 08 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 09 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)

## Smoothed Trajectory Information

### Top View



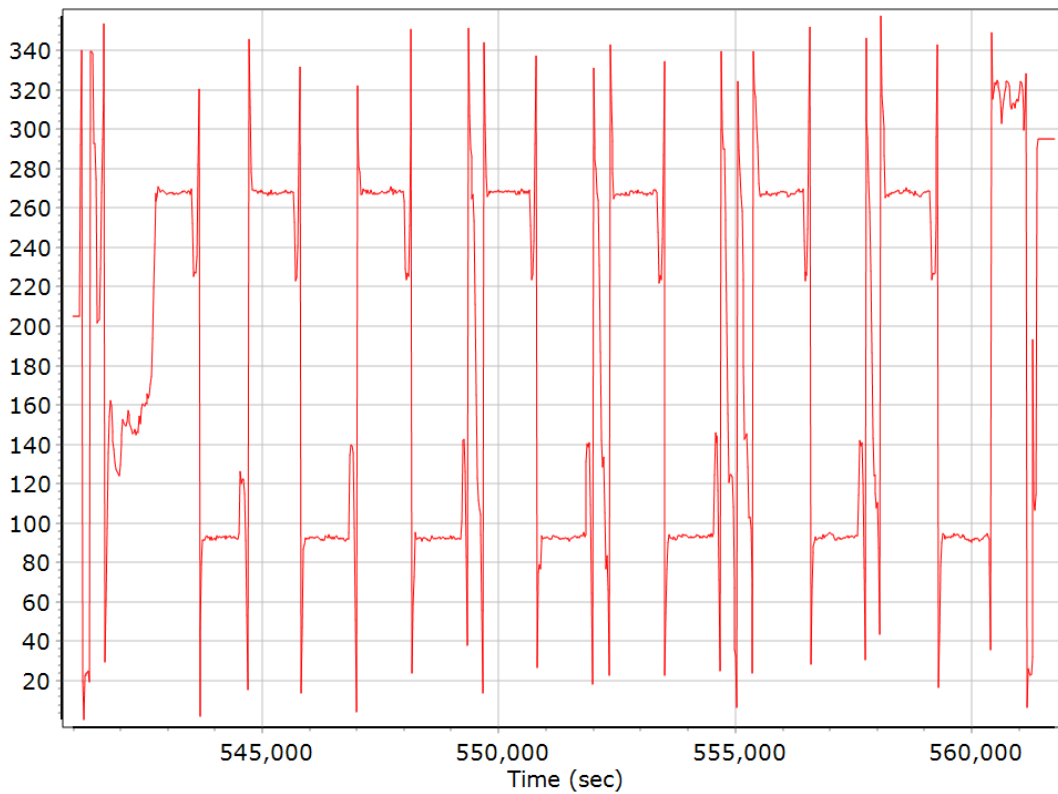
### Altitude



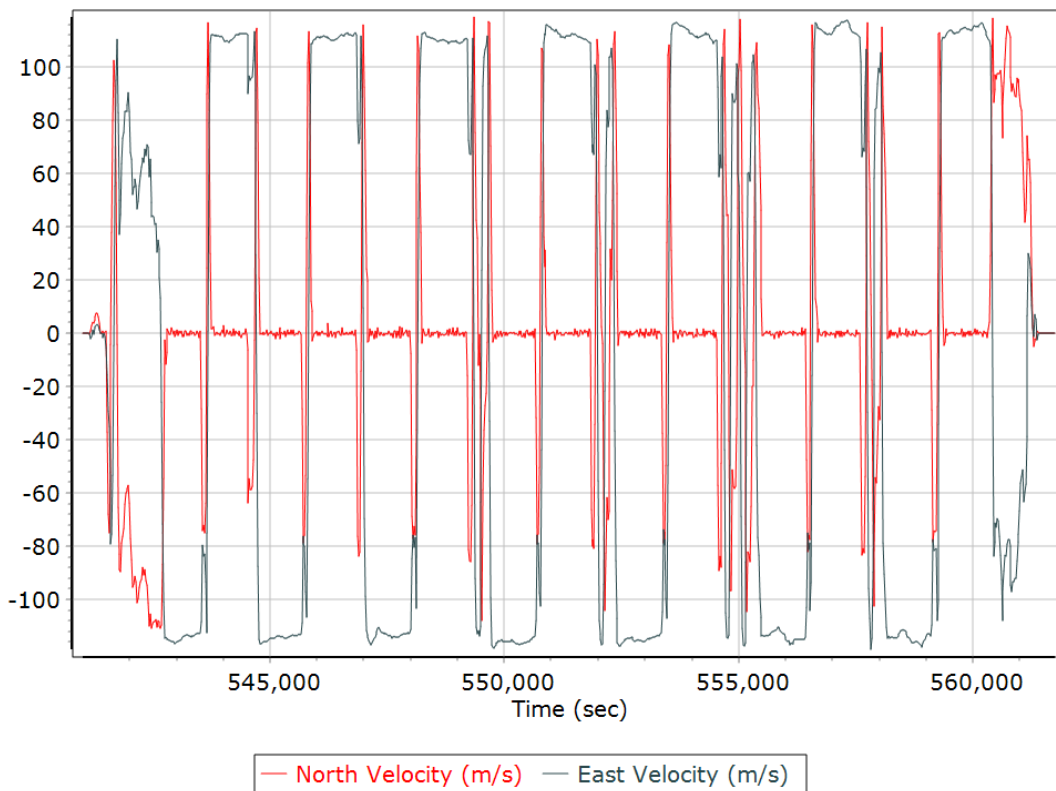
## Roll/Pitch



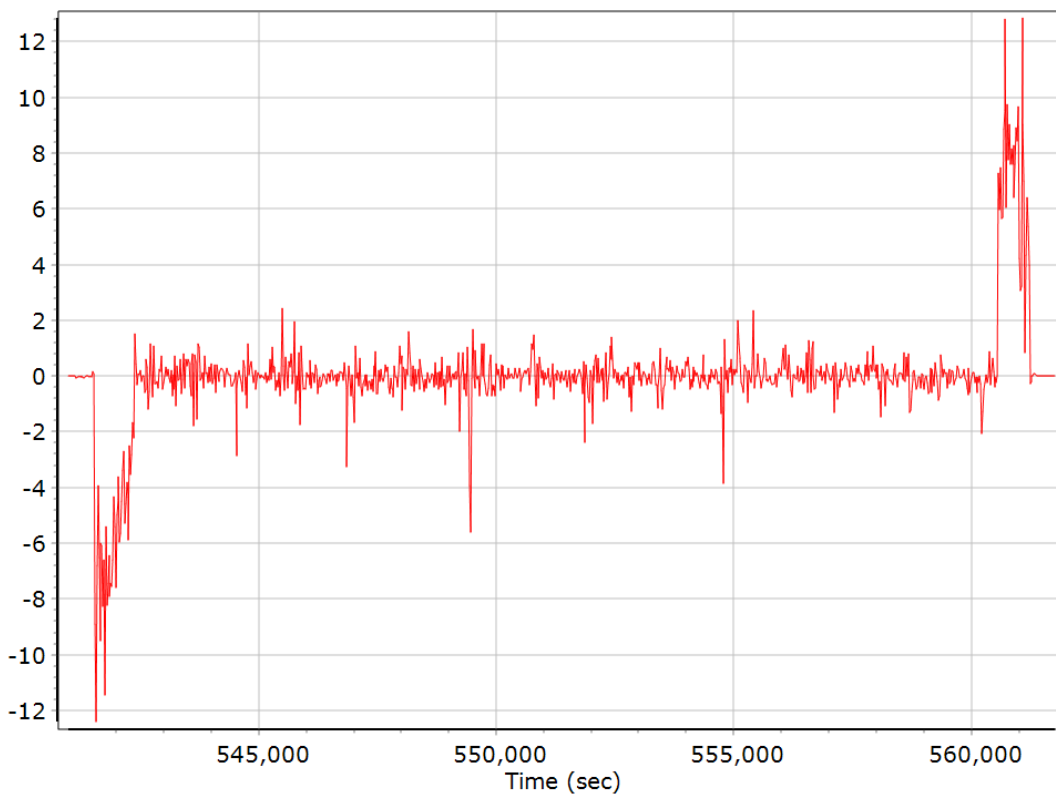
## Heading



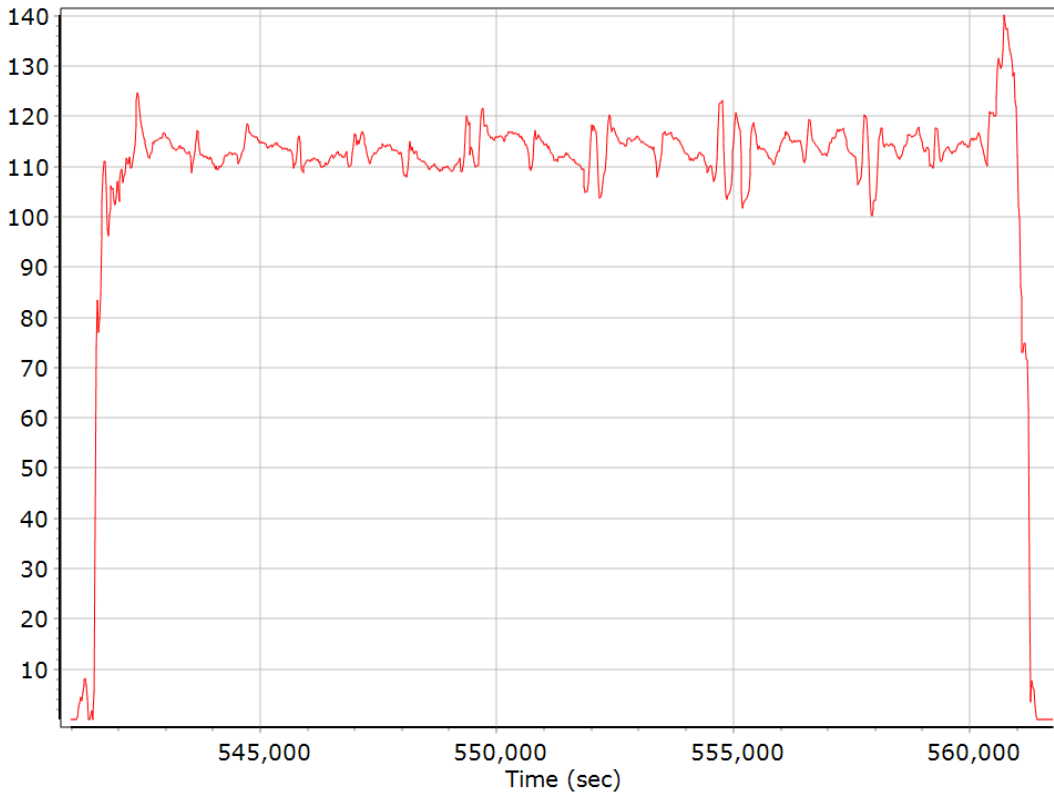
### North/East Velocity



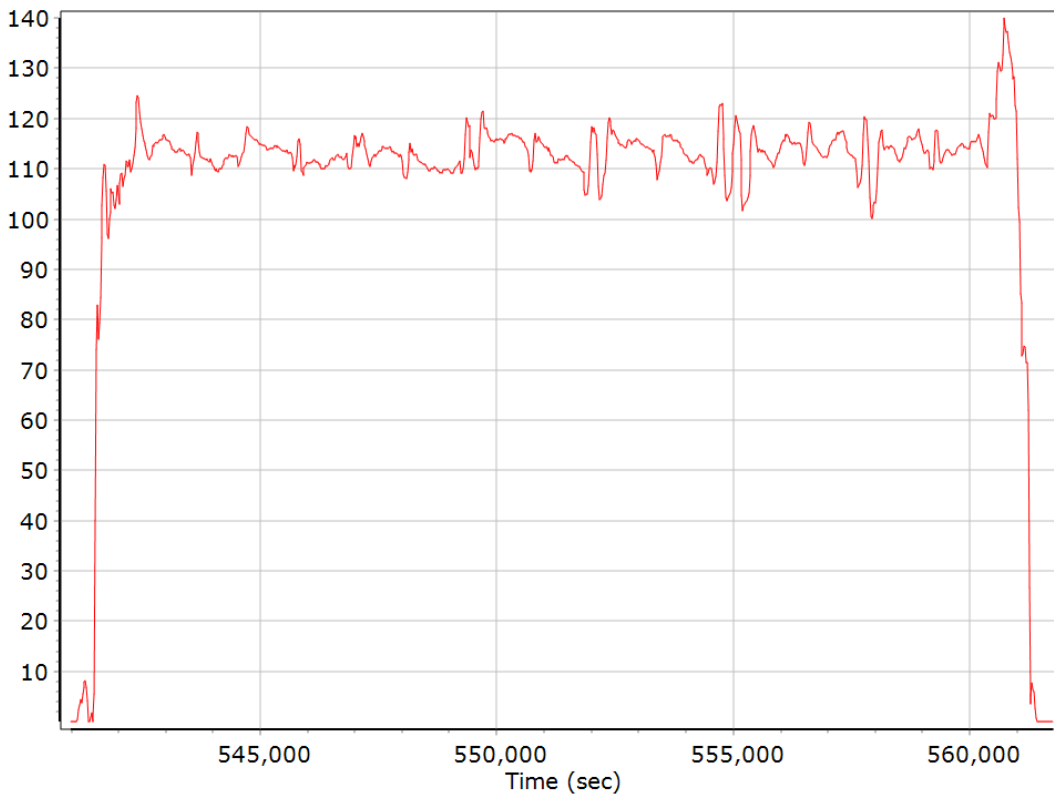
### Down Velocity



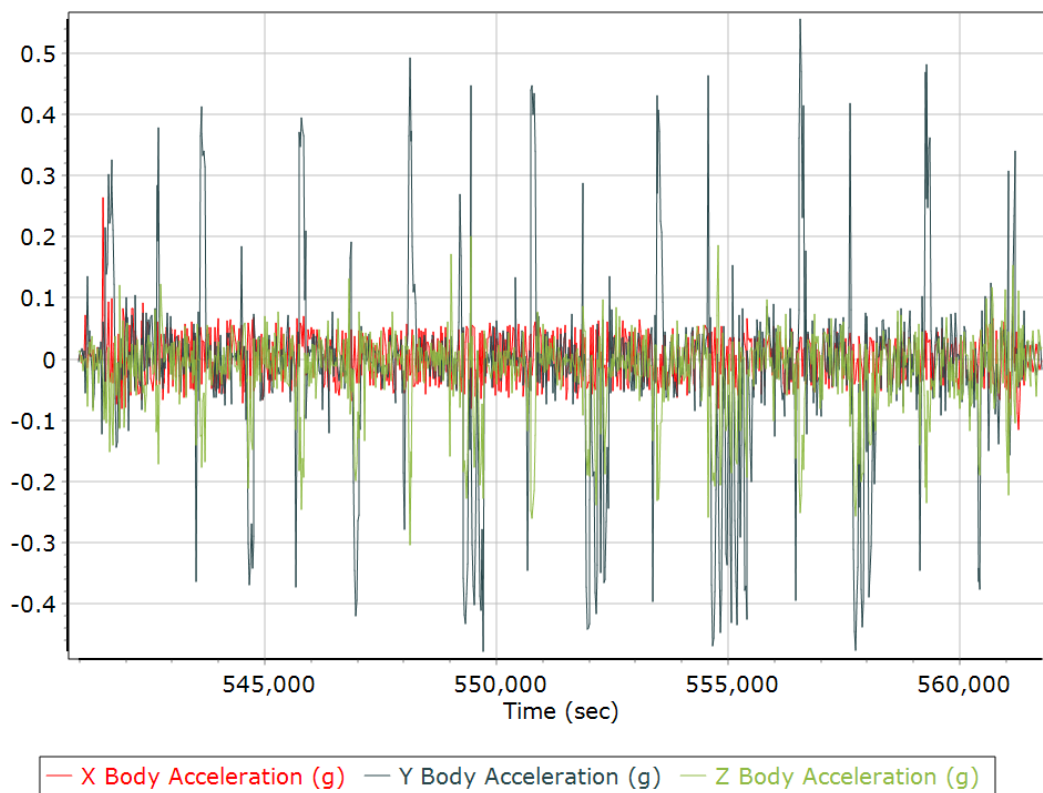
## Total Speed



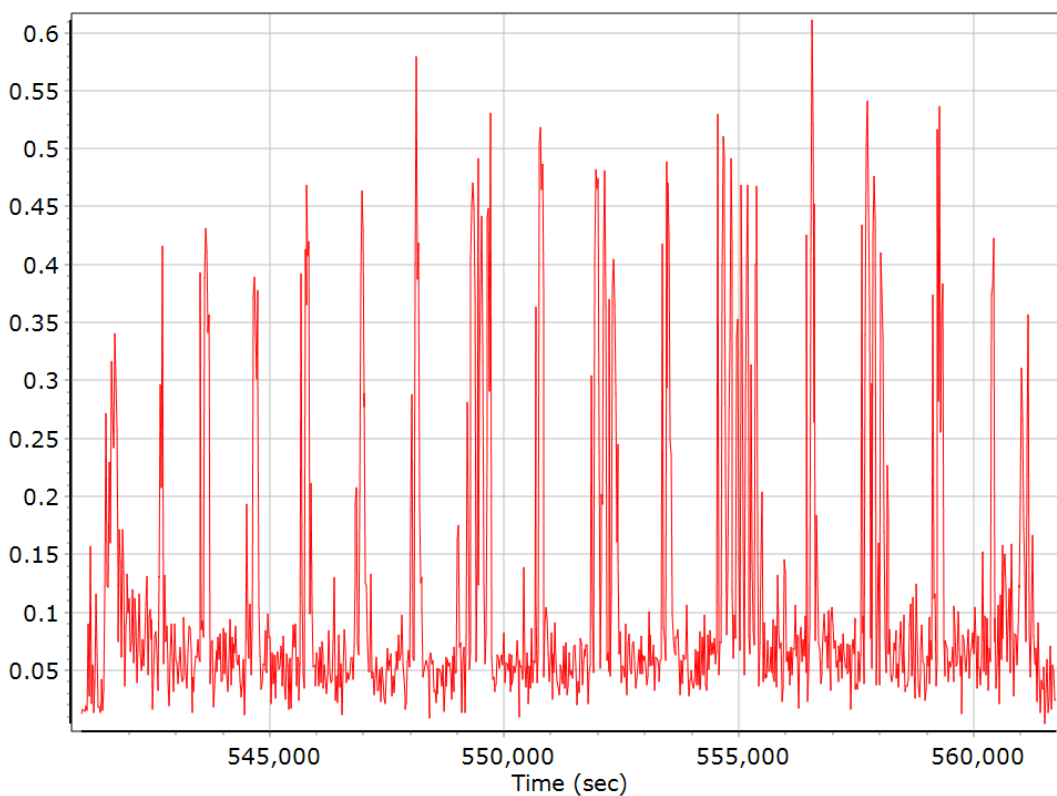
## Ground Speed



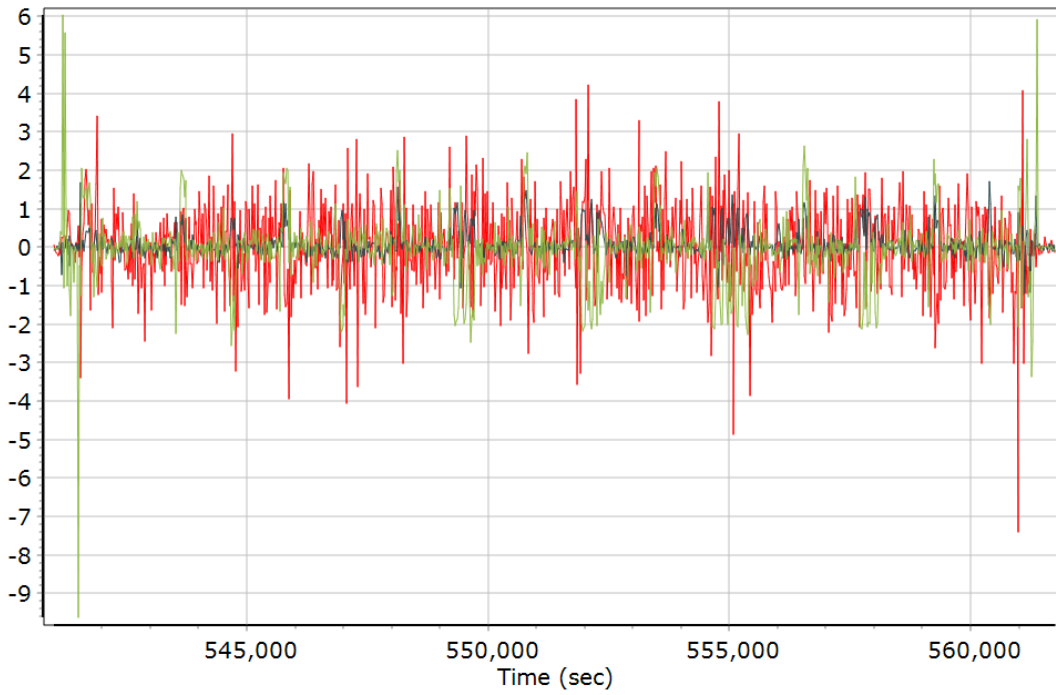
### Body Acceleration



### Total Body Acceleration



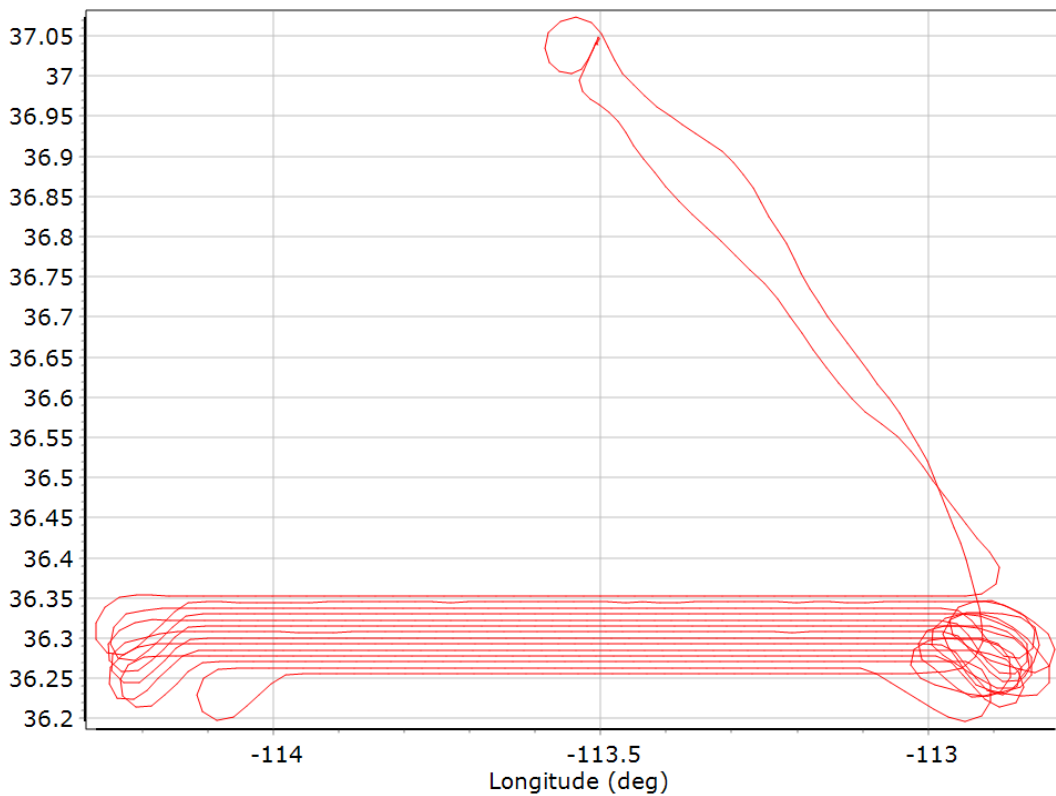
## Body Angular Rate



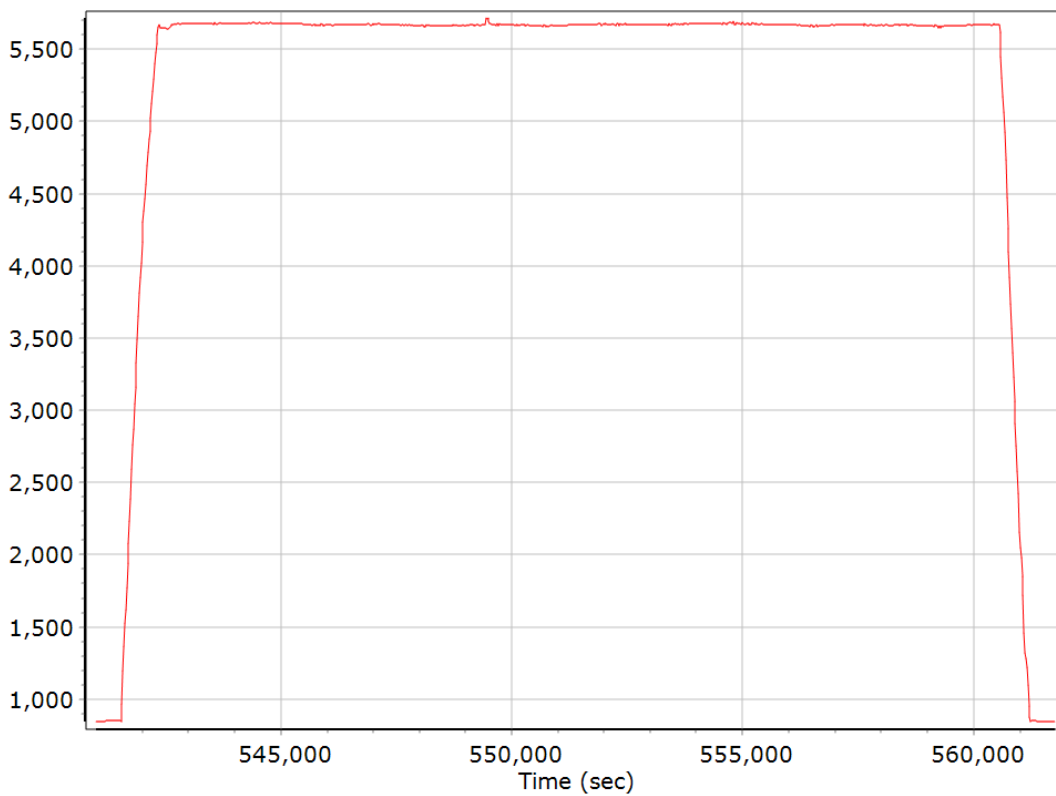
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## Forward Processed Trajectory Information

### Top View

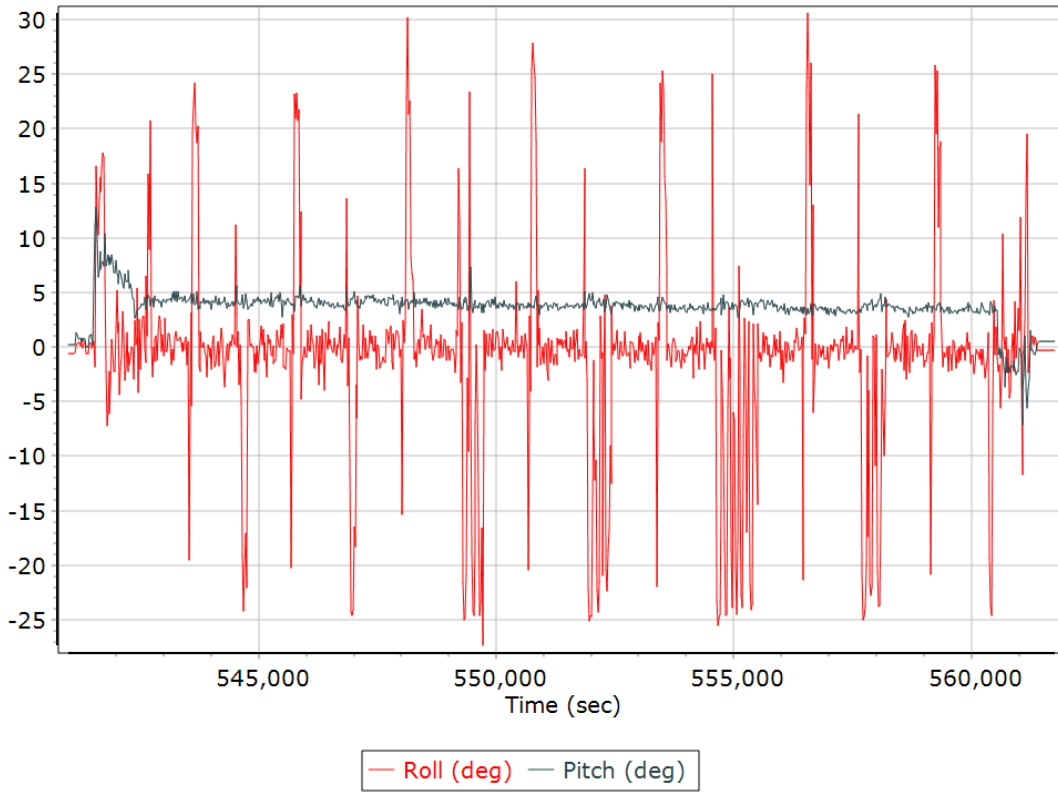


### Altitude

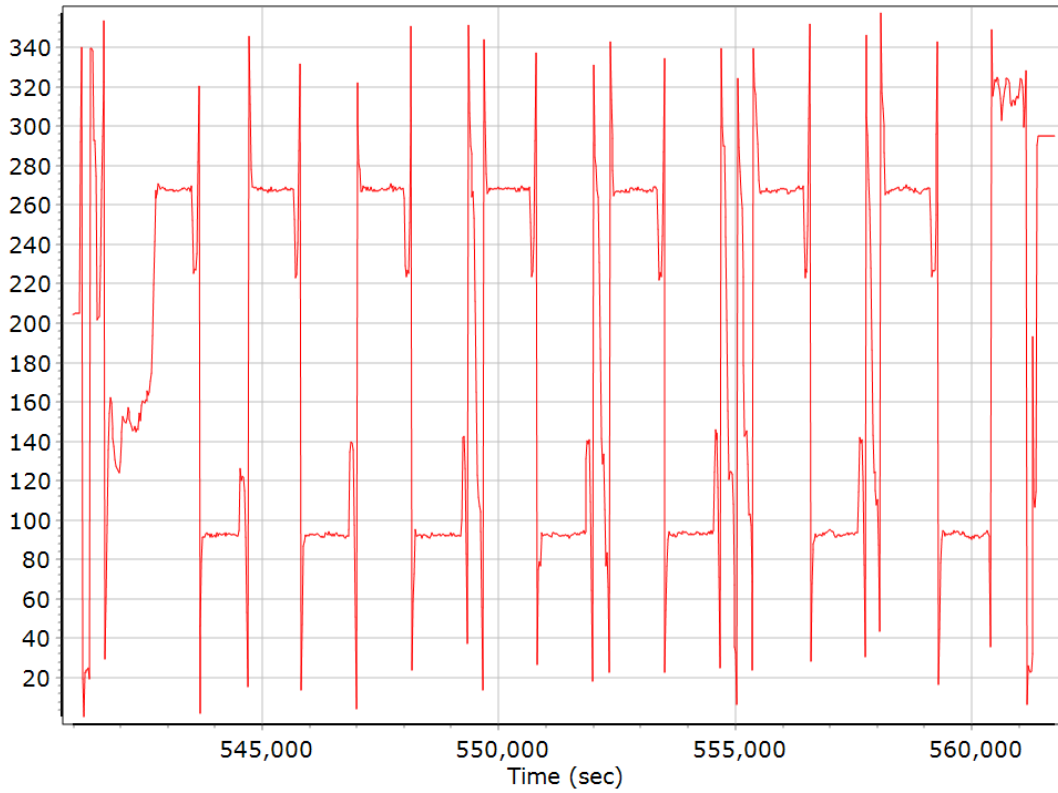




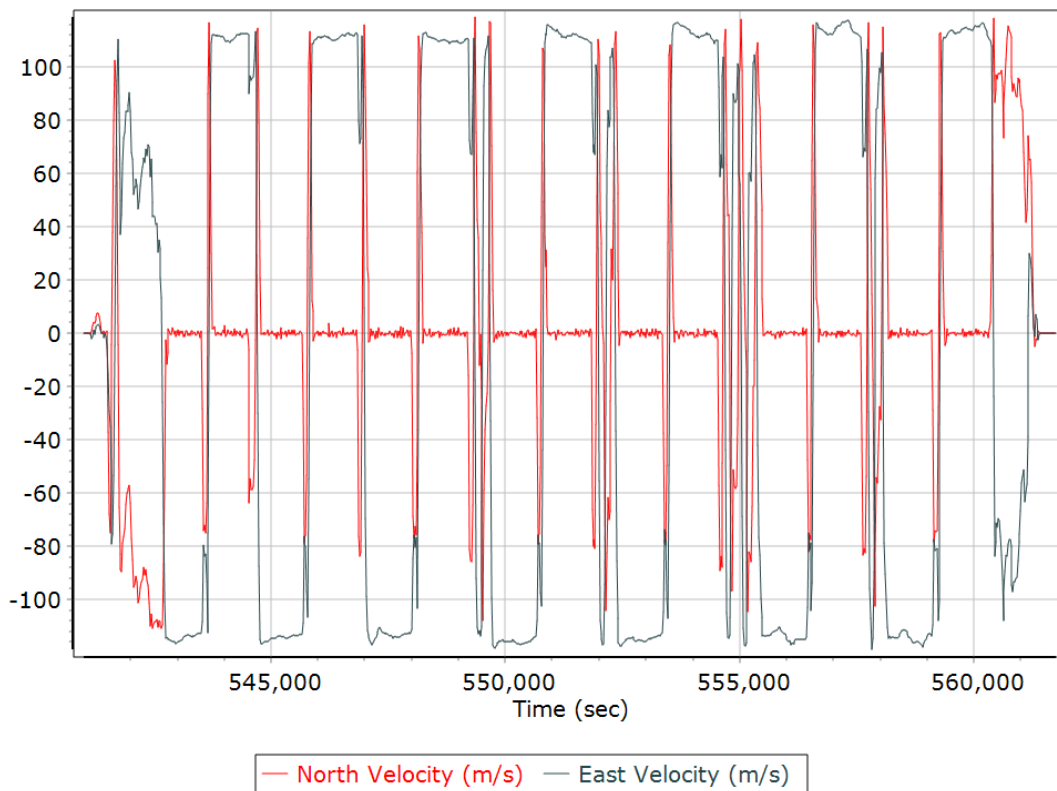
## Roll/Pitch



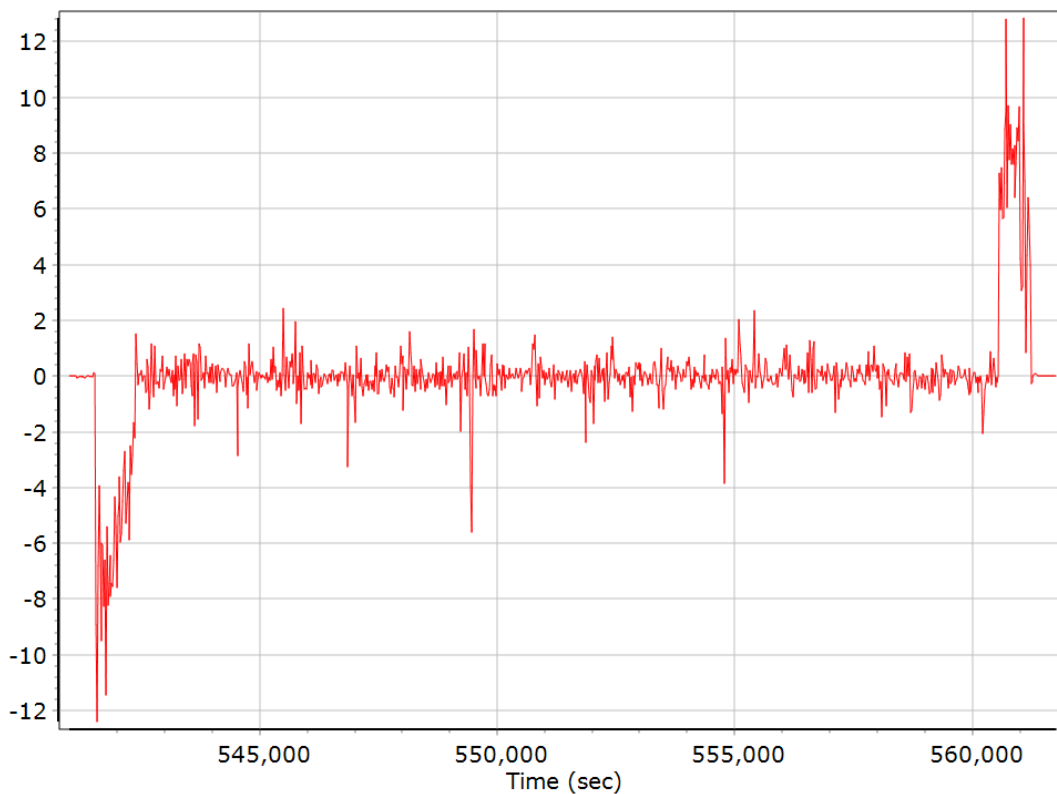
## Heading



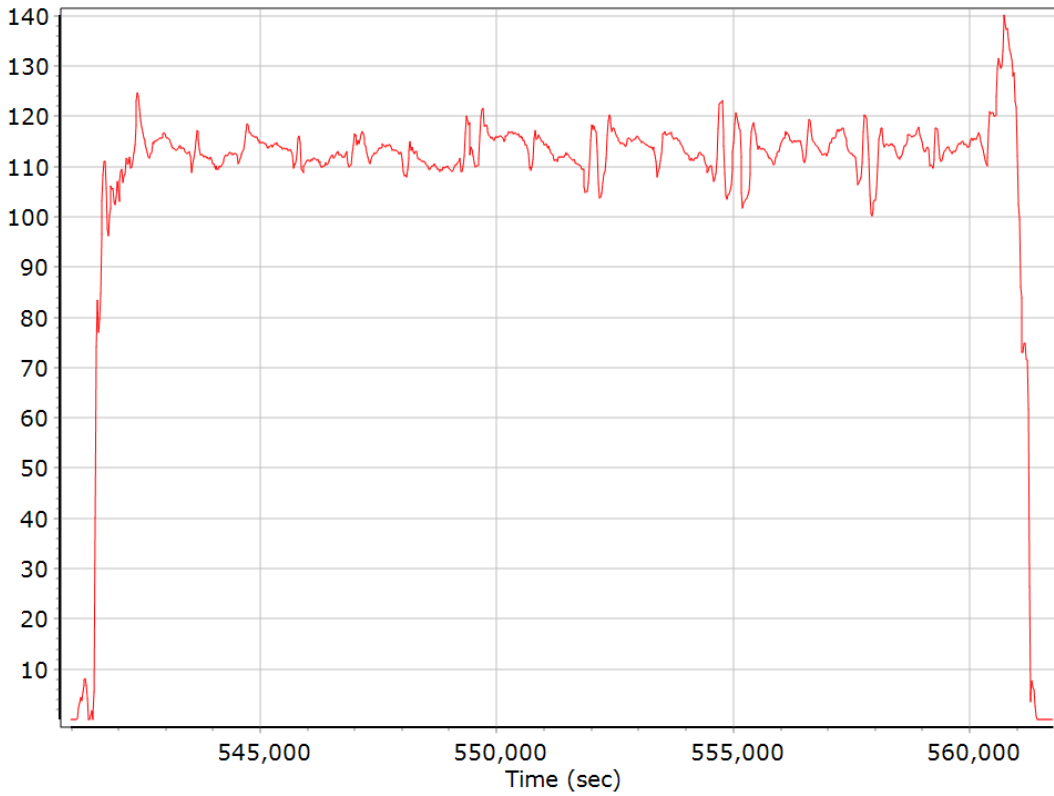
### North/East Velocity



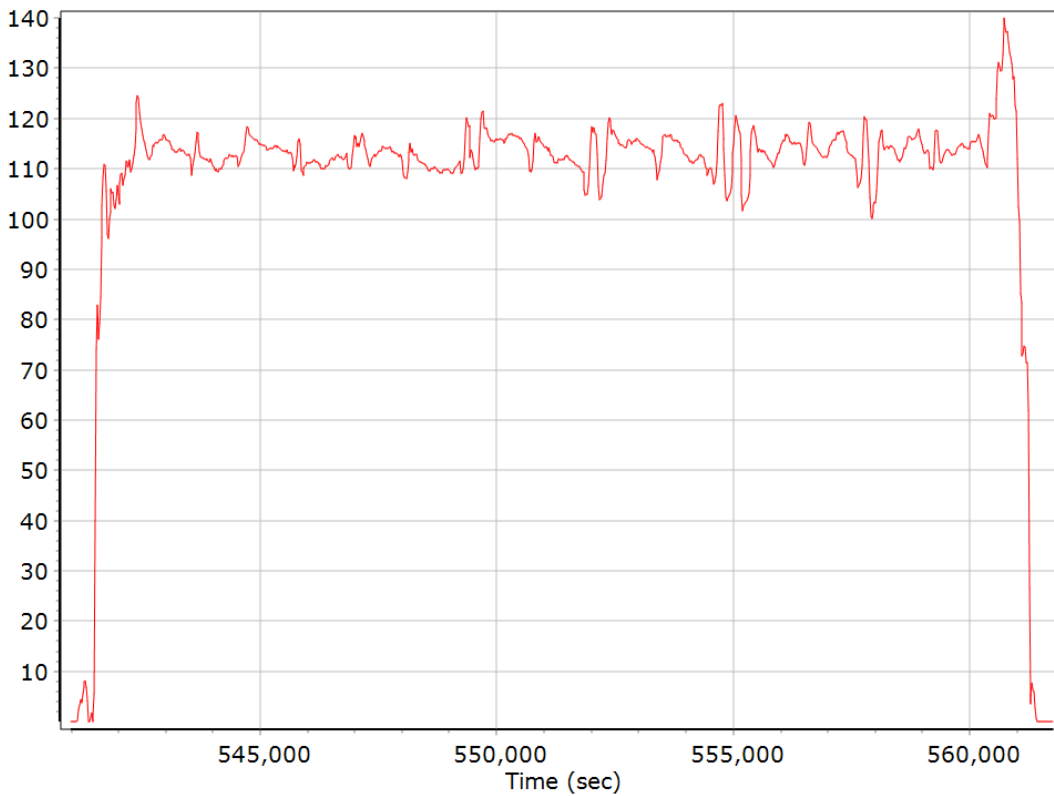
### Down Velocity



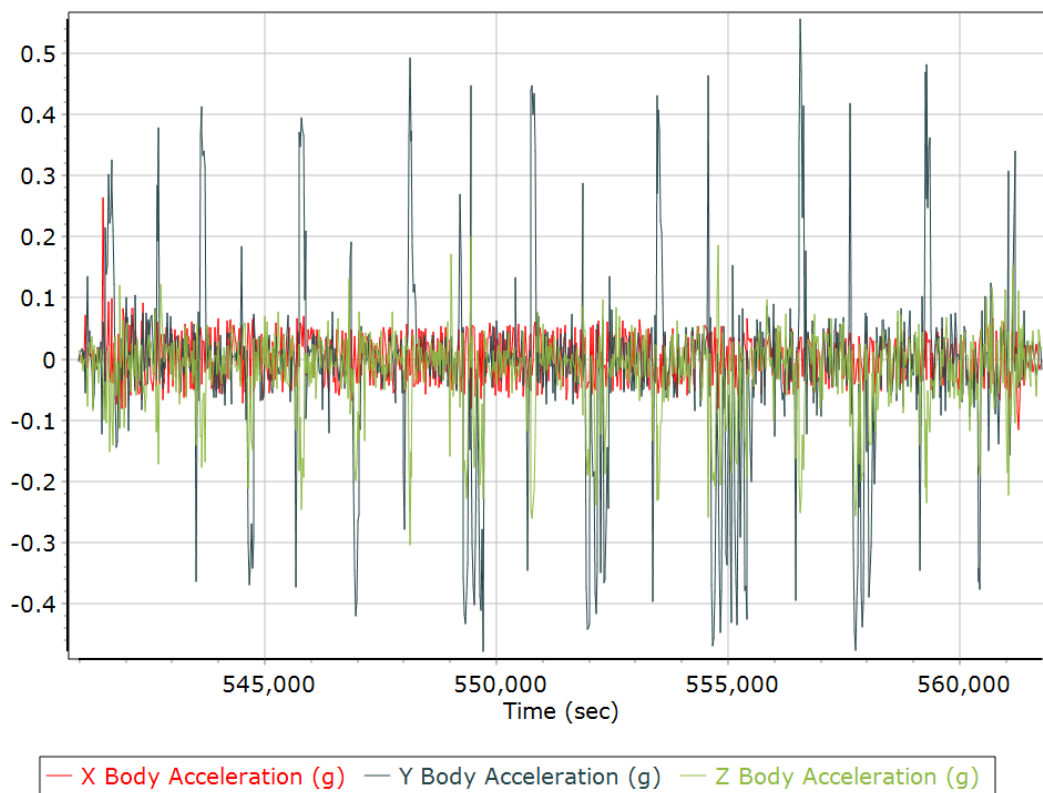
## Total Speed



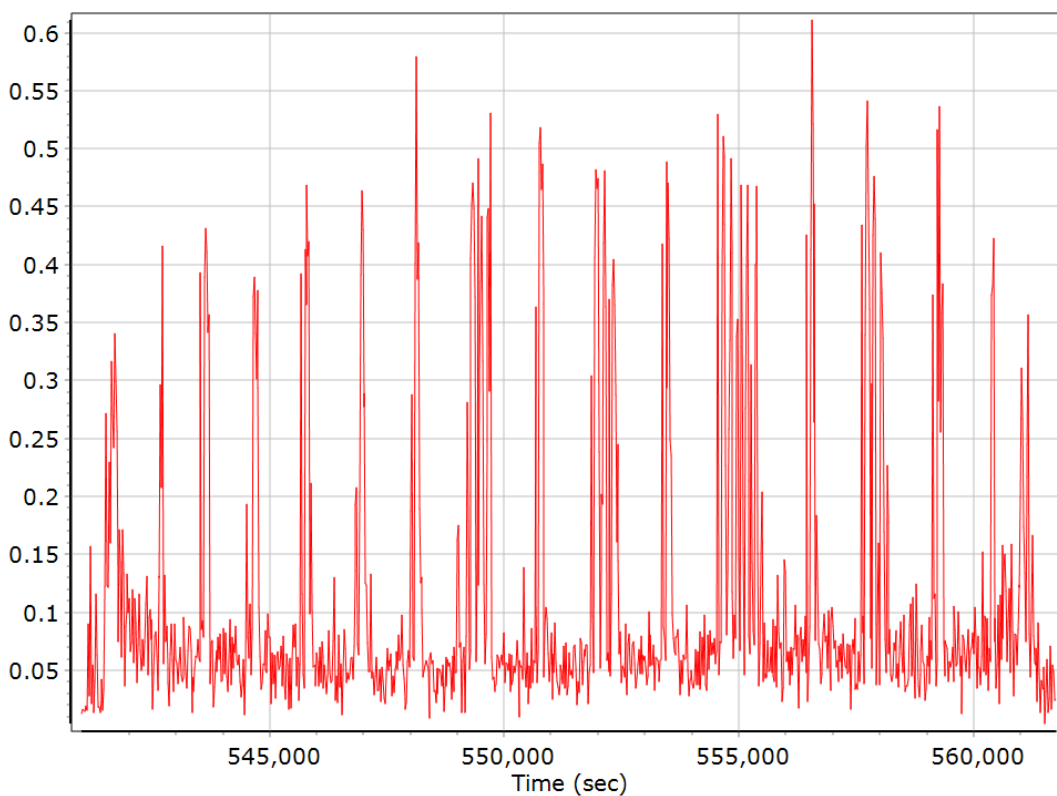
## Ground Speed



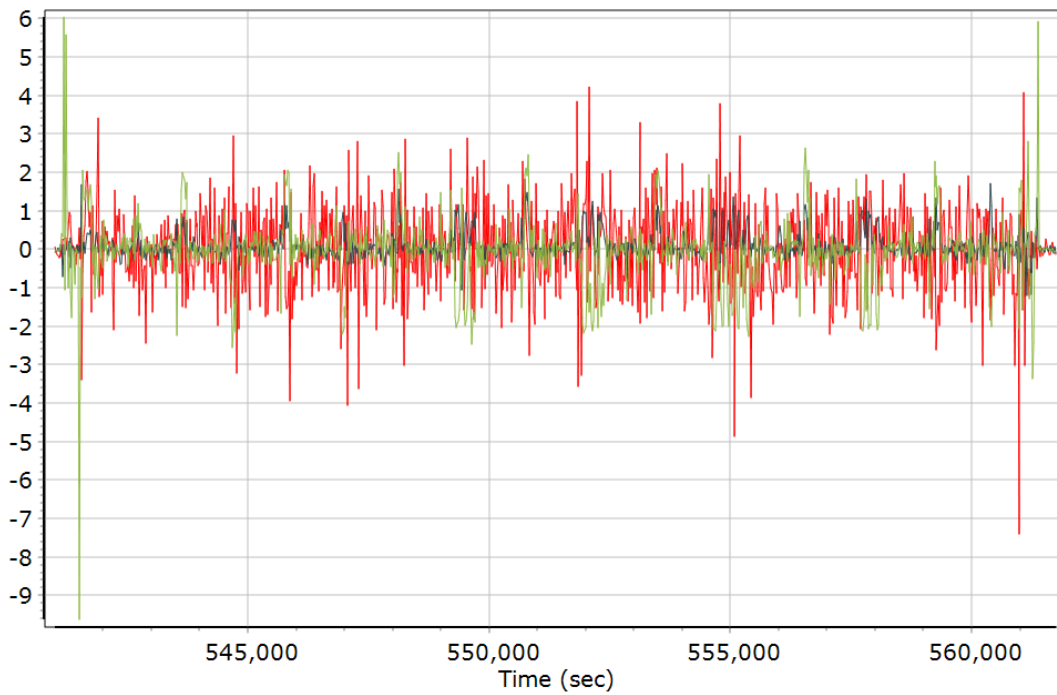
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



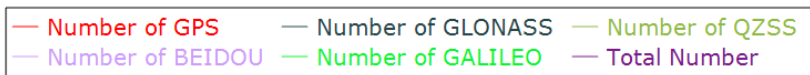
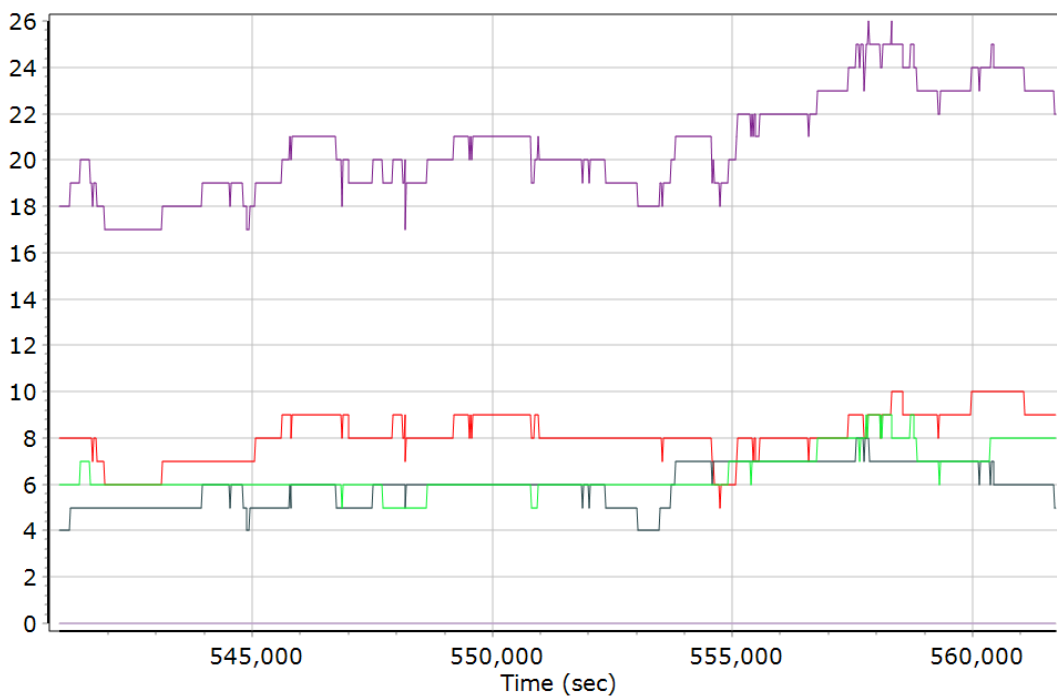
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

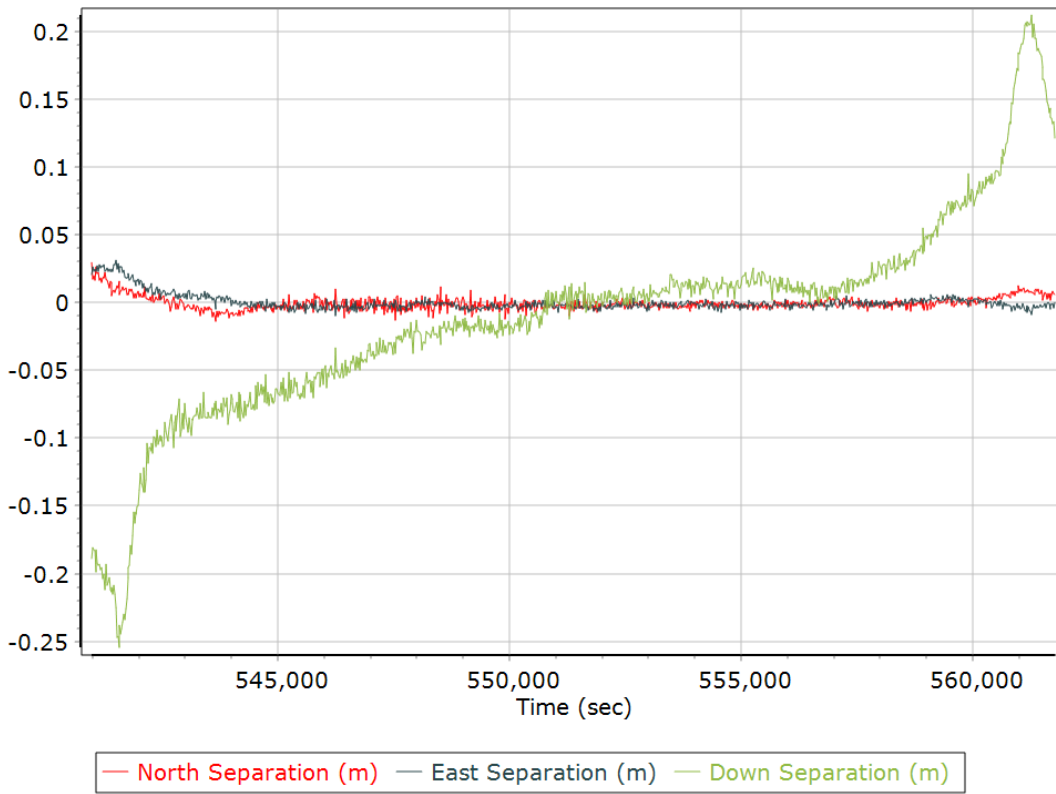
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	5	10	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	3	9	6
Total number of SV	15	26	21
PDOP	1.00	1.58	1.17
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	21271.00	0.00	0.00
Percentage	100.00	0.00	0.00

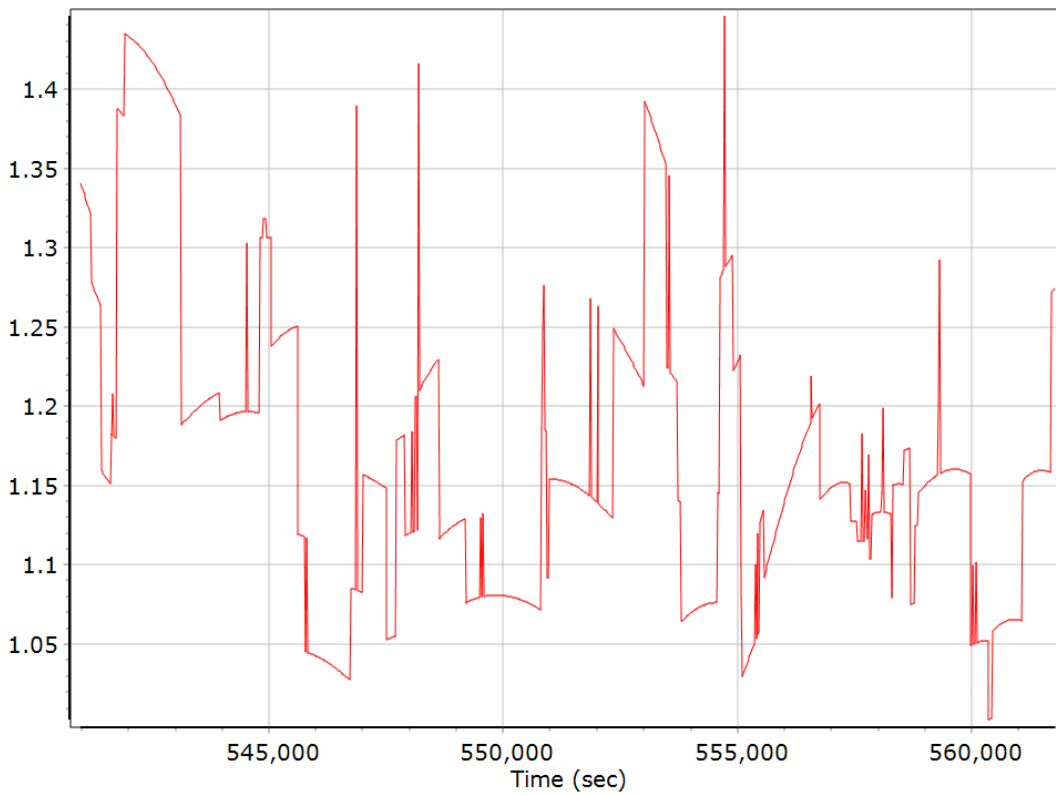
### Num SVs in solution



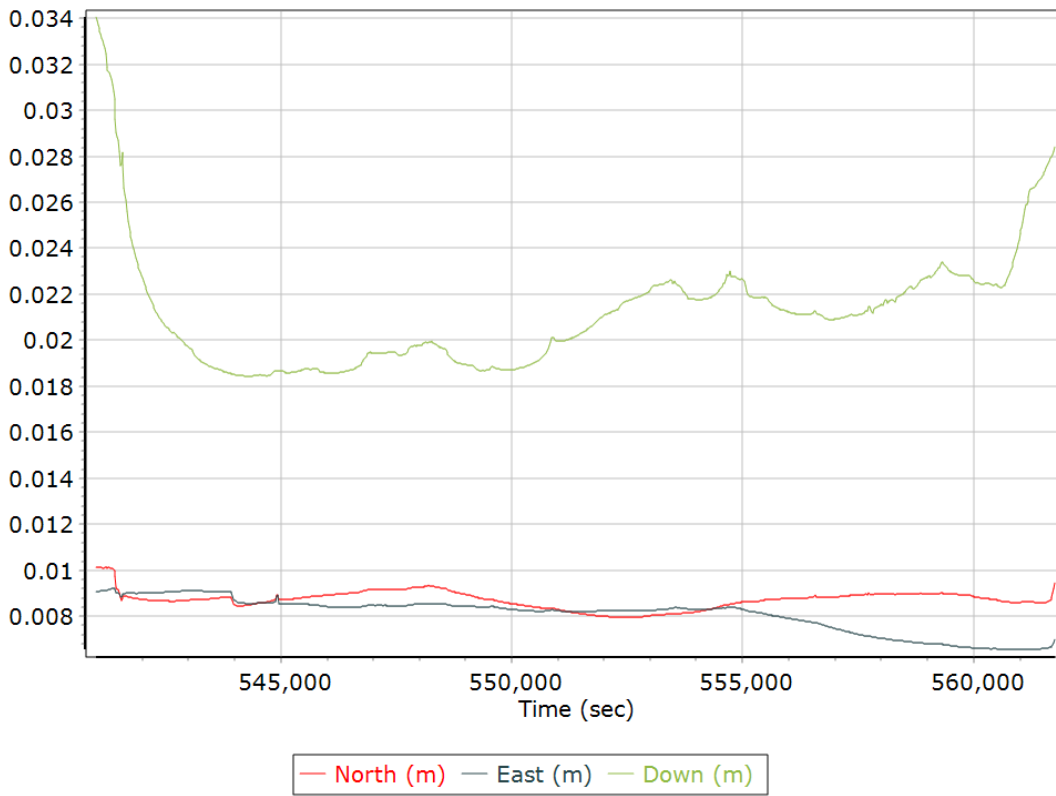
### Forward/Reverse Separation



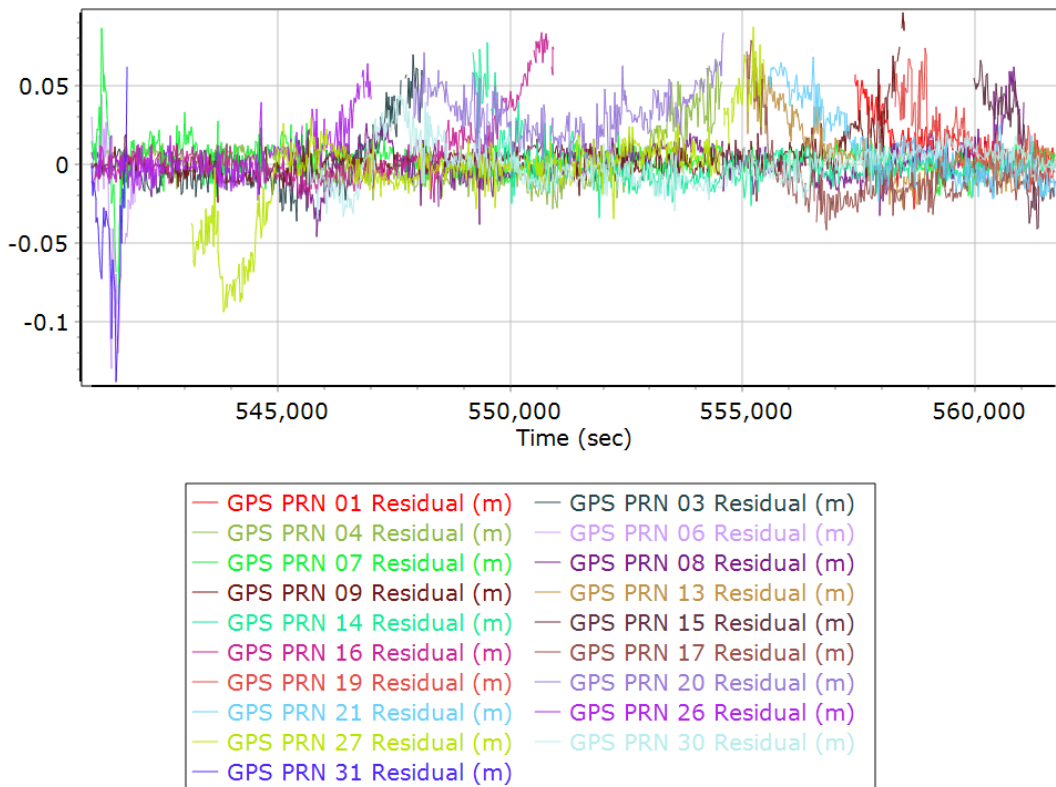
### PDOP



### Estimated Position Accuracy

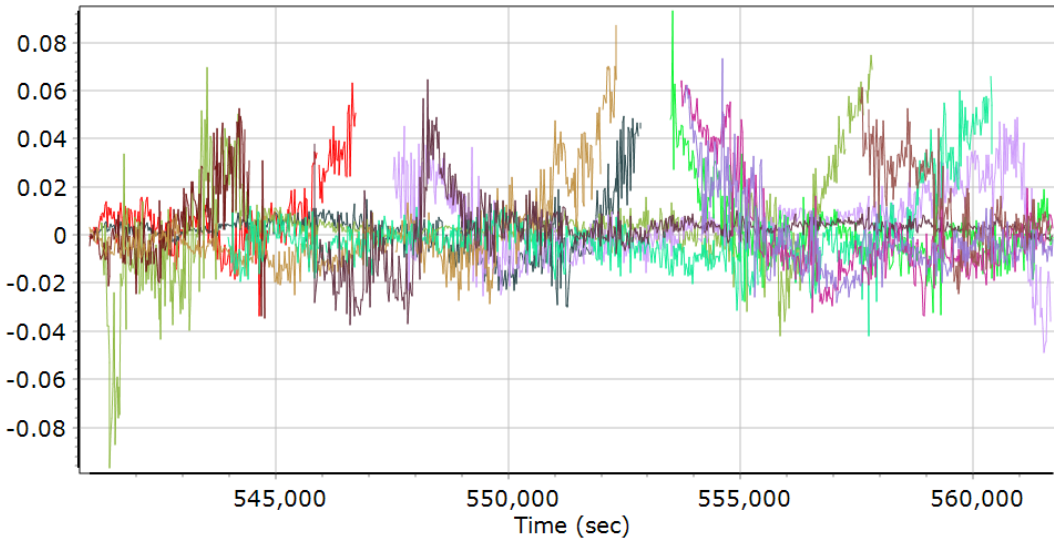


### GPS Residuals



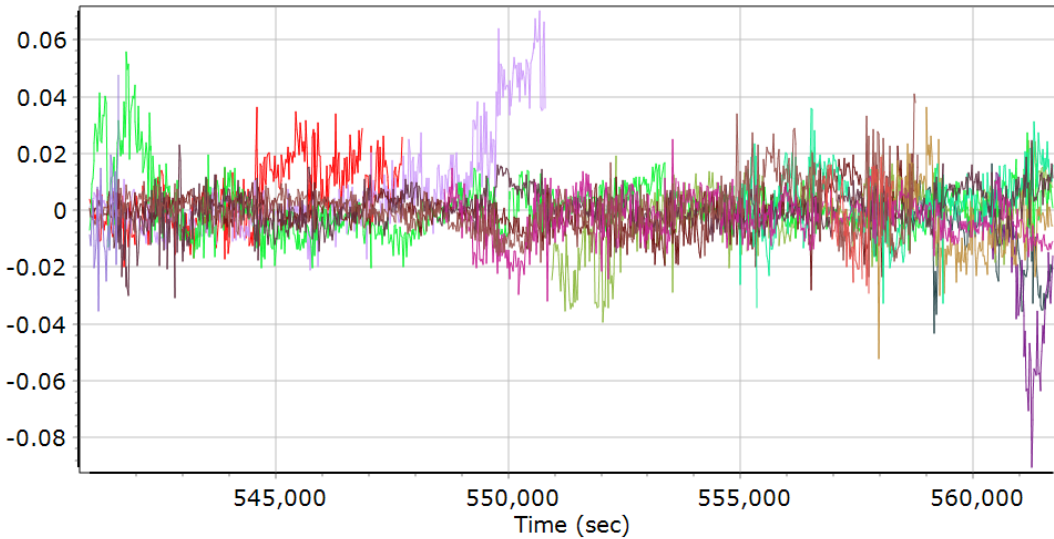


### GLONASS Residuals



- |                         |                         |
|-------------------------|-------------------------|
| GLONASS 01 Residual (m) | GLONASS 02 Residual (m) |
| GLONASS 03 Residual (m) | GLONASS 04 Residual (m) |
| GLONASS 05 Residual (m) | GLONASS 06 Residual (m) |
| GLONASS 11 Residual (m) | GLONASS 12 Residual (m) |
| GLONASS 13 Residual (m) | GLONASS 14 Residual (m) |
| GLONASS 15 Residual (m) | GLONASS 17 Residual (m) |
| GLONASS 23 Residual (m) | GLONASS 24 Residual (m) |

### GALILEO Residuals



- |                         |                         |
|-------------------------|-------------------------|
| GALILEO 01 Residual (m) | GALILEO 02 Residual (m) |
| GALILEO 03 Residual (m) | GALILEO 04 Residual (m) |
| GALILEO 05 Residual (m) | GALILEO 08 Residual (m) |
| GALILEO 09 Residual (m) | GALILEO 11 Residual (m) |
| GALILEO 12 Residual (m) | GALILEO 24 Residual (m) |
| GALILEO 25 Residual (m) | GALILEO 31 Residual (m) |
| GALILEO 33 Residual (m) | GALILEO 36 Residual (m) |

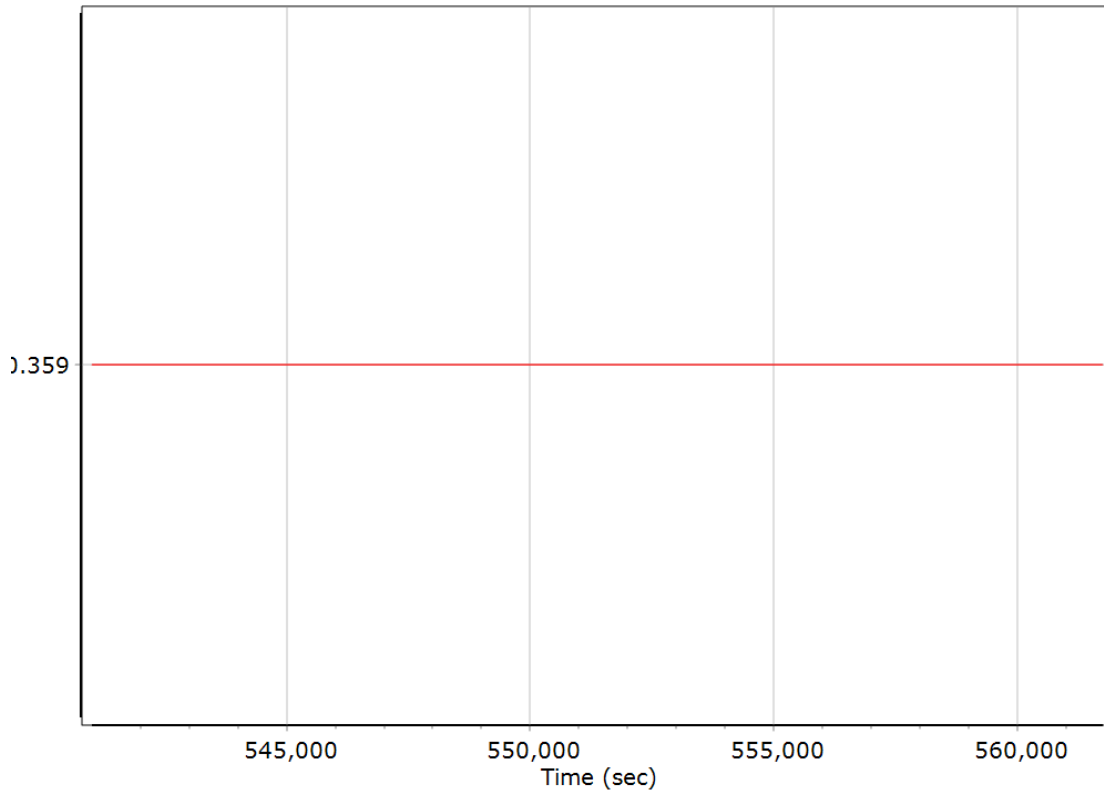
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	540448.000 (7/2/2022 6:07:28 AM)		
Processing end time	561777.000 (7/2/2022 12:02:57 PM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.359	-0.300	-1.280
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

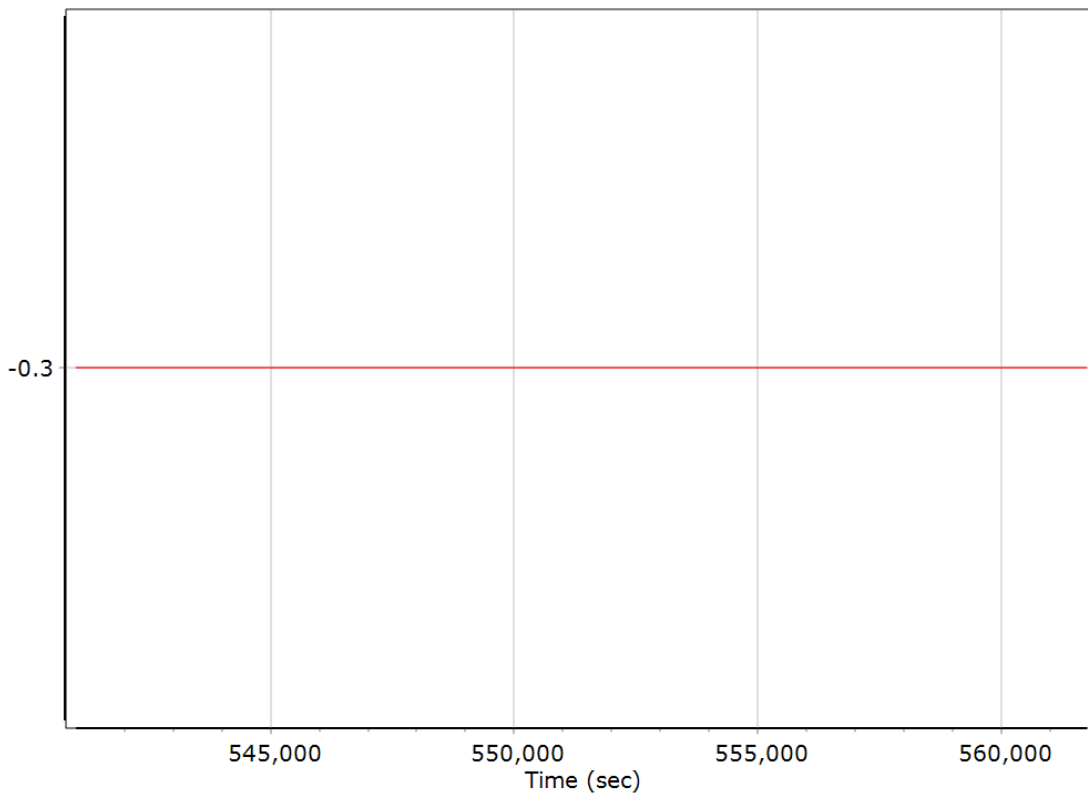
## Calibrated Installation Parameters

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

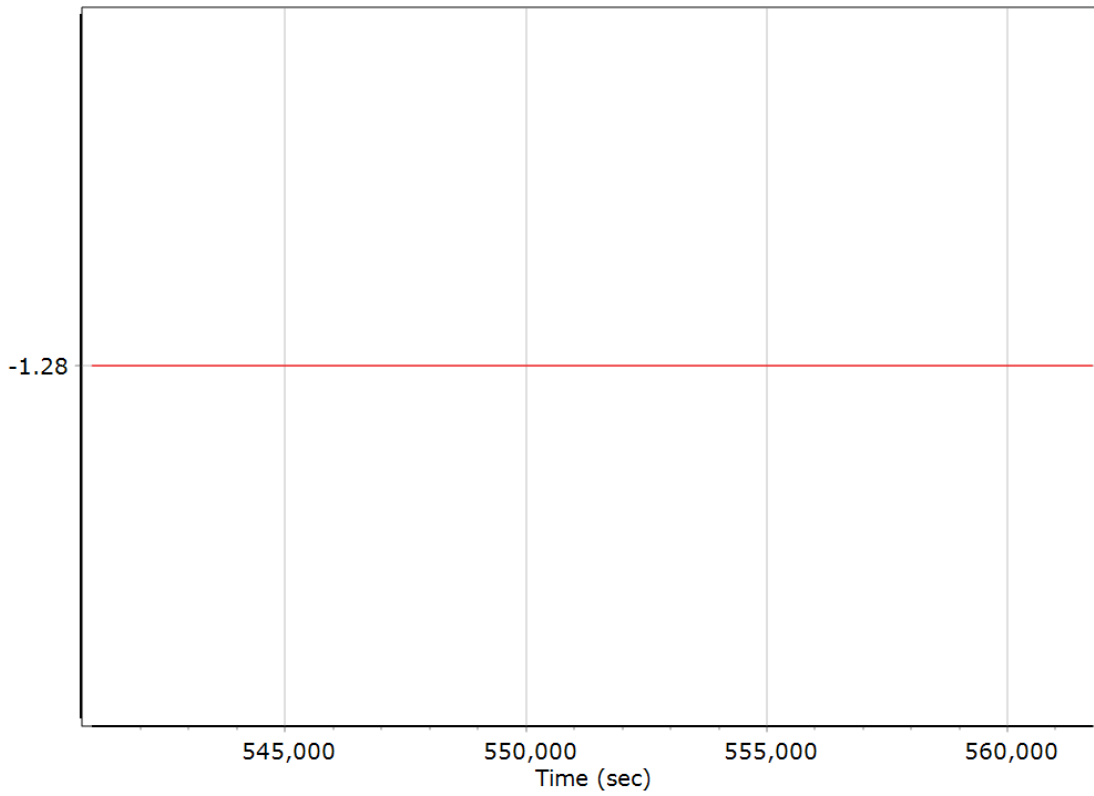
#### X Reference-Primary GNSS Lever Arm (m)



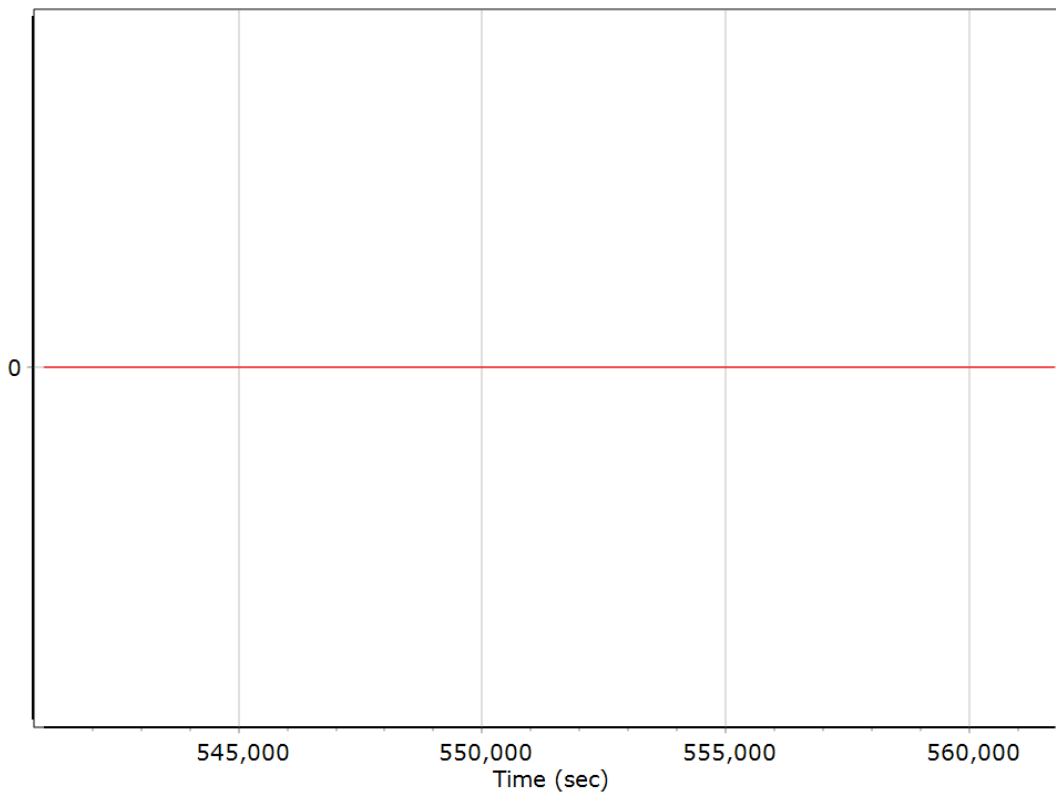
#### Y Reference-Primary GNSS Lever Arm (m)



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



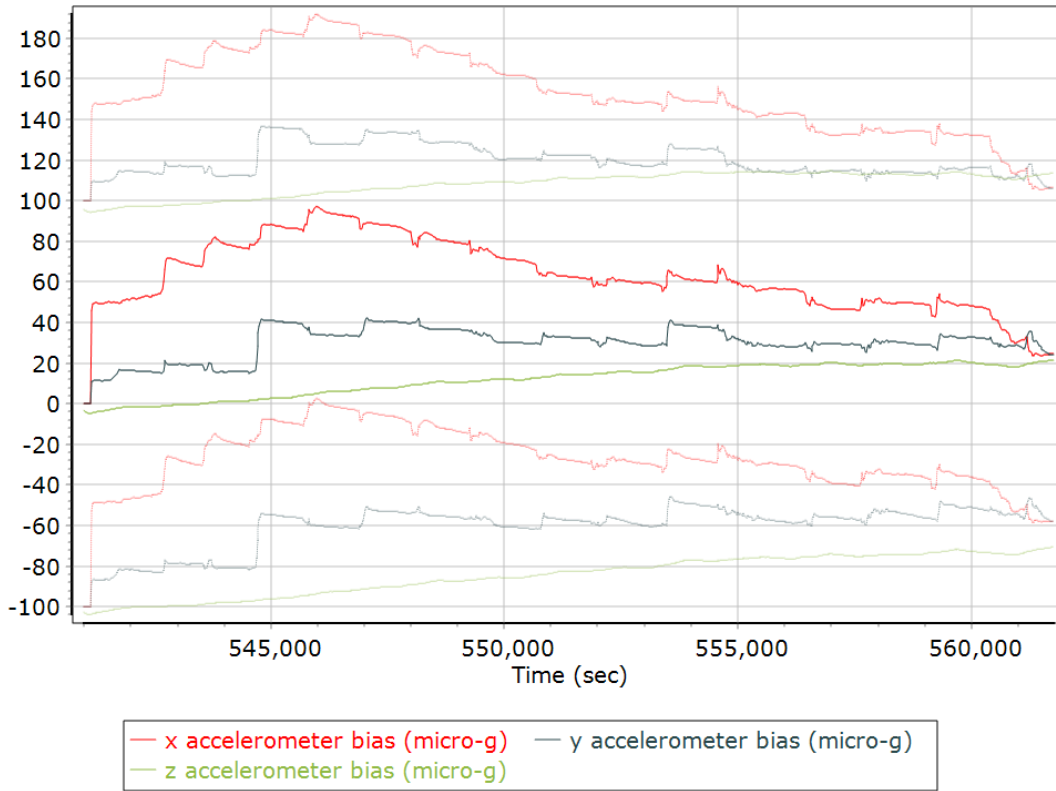
### Reference-Primary GNSS Lever Arm Figure of Merit



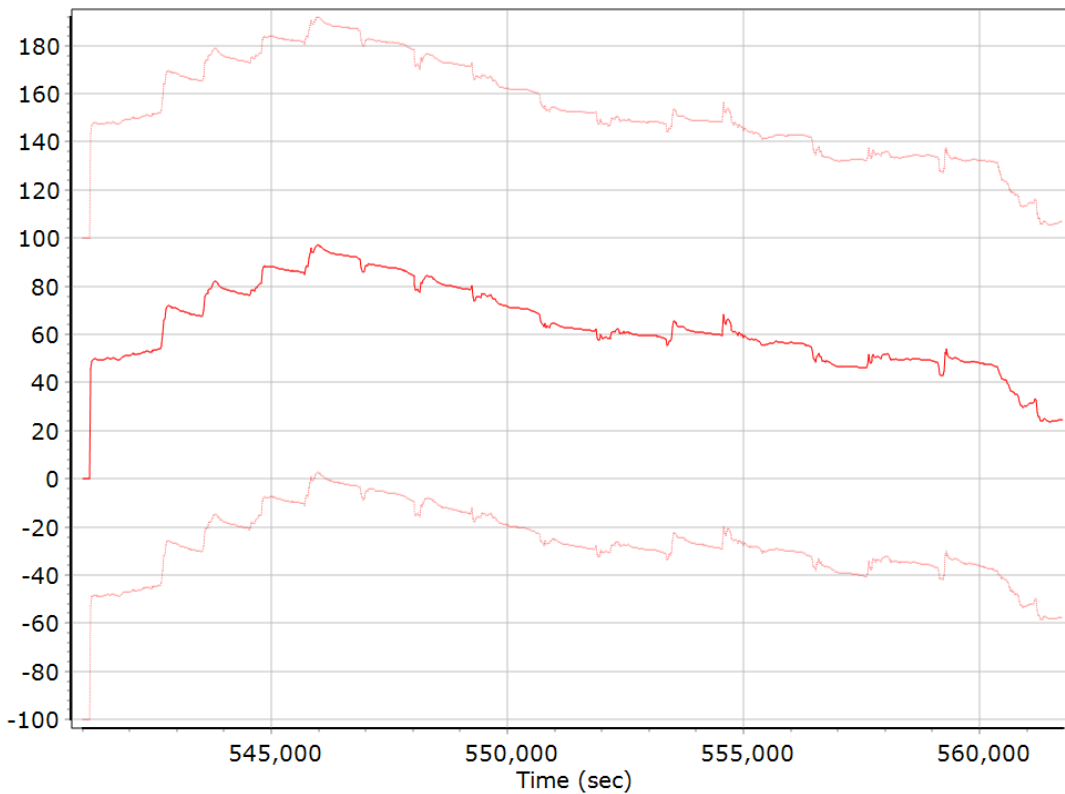
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

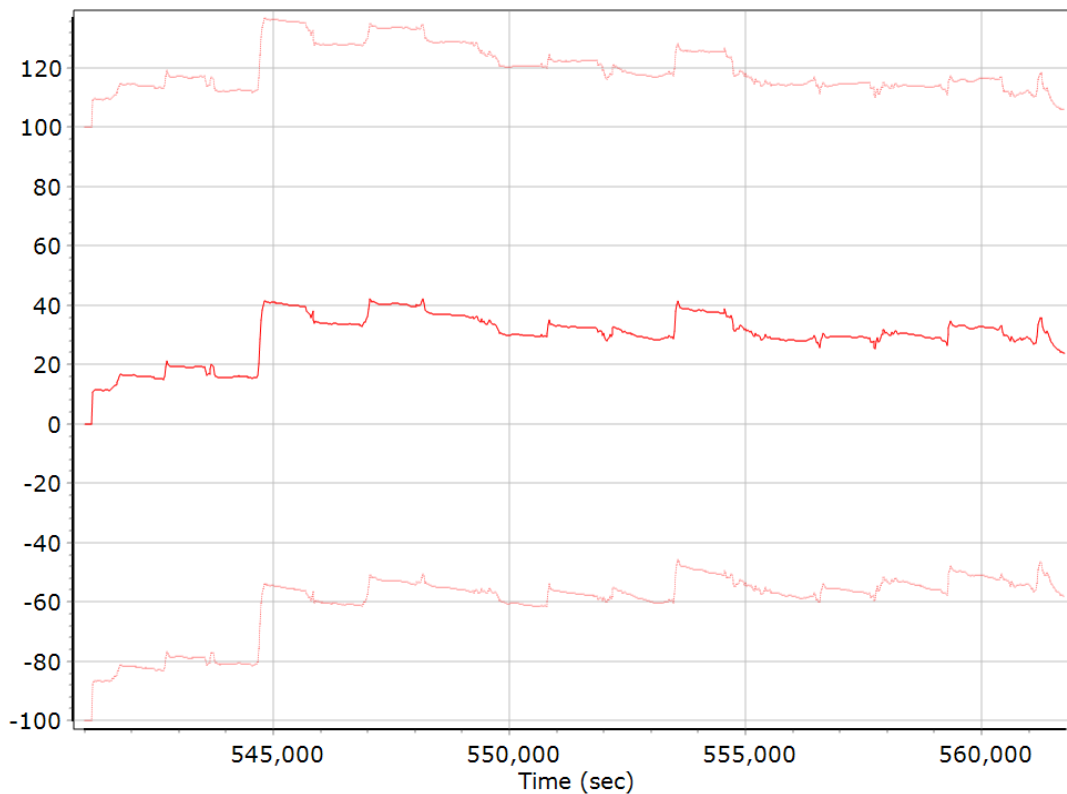
#### Accelerometer Bias (micro-g)



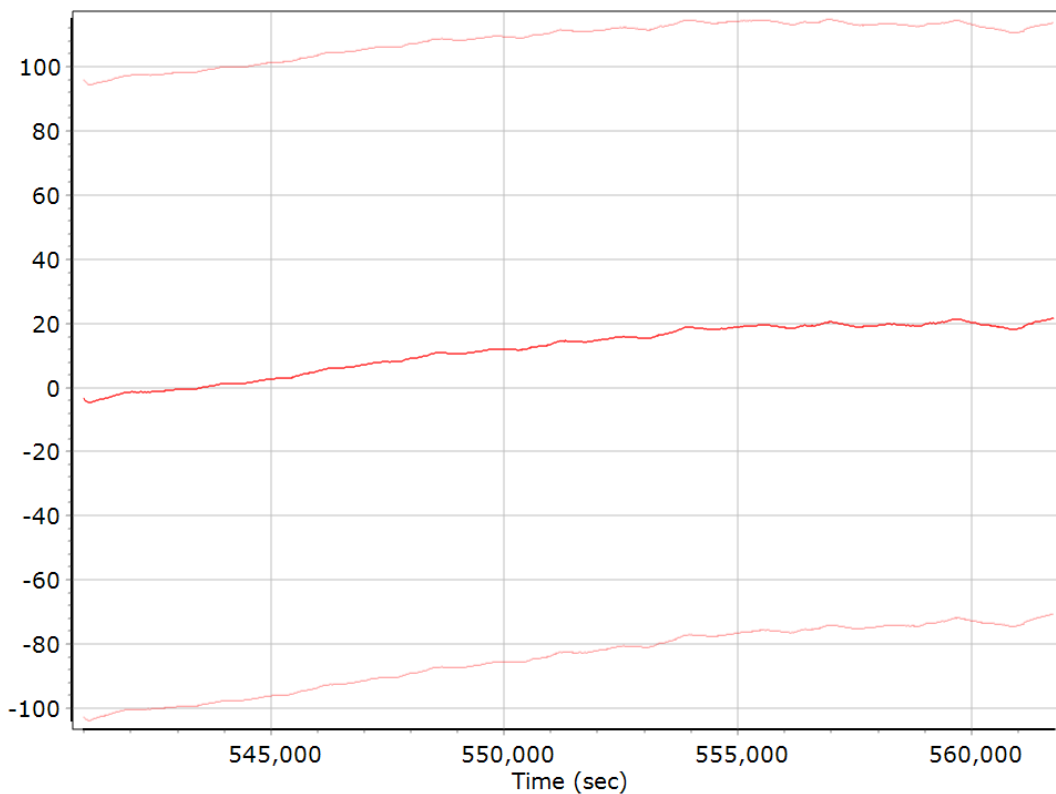
#### X Accelerometer Bias (micro-g)



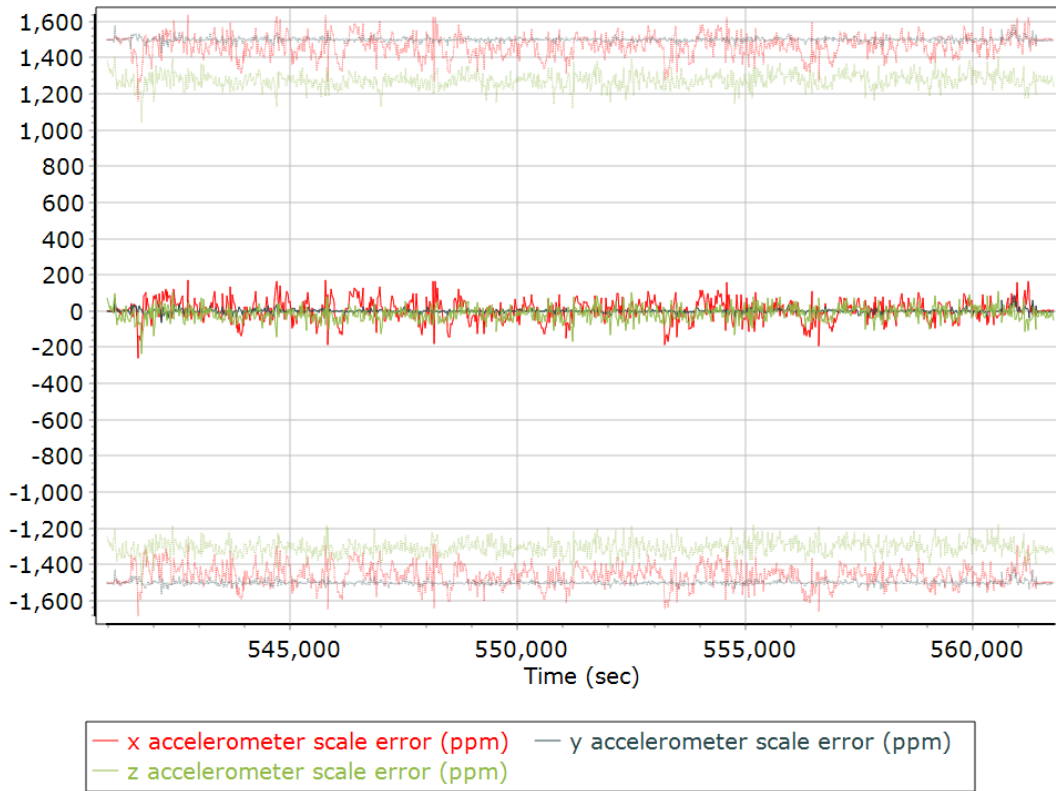
### Y Accelerometer Bias (micro-g)



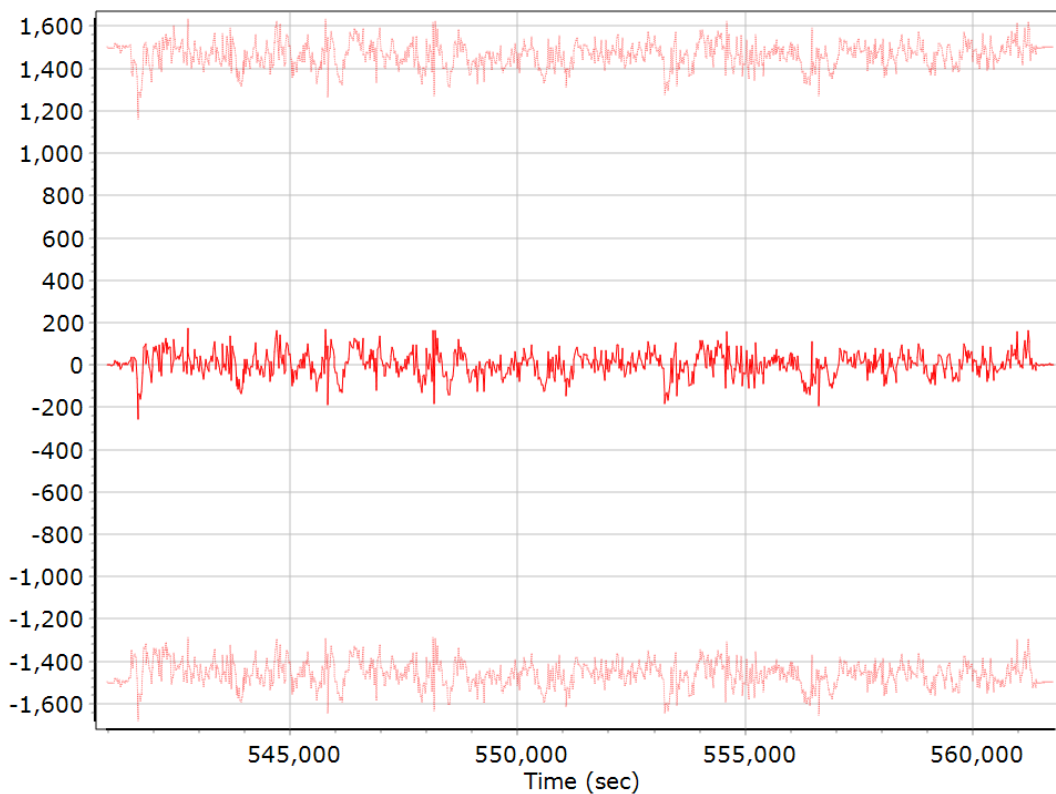
### Z Accelerometer Bias (micro-g)



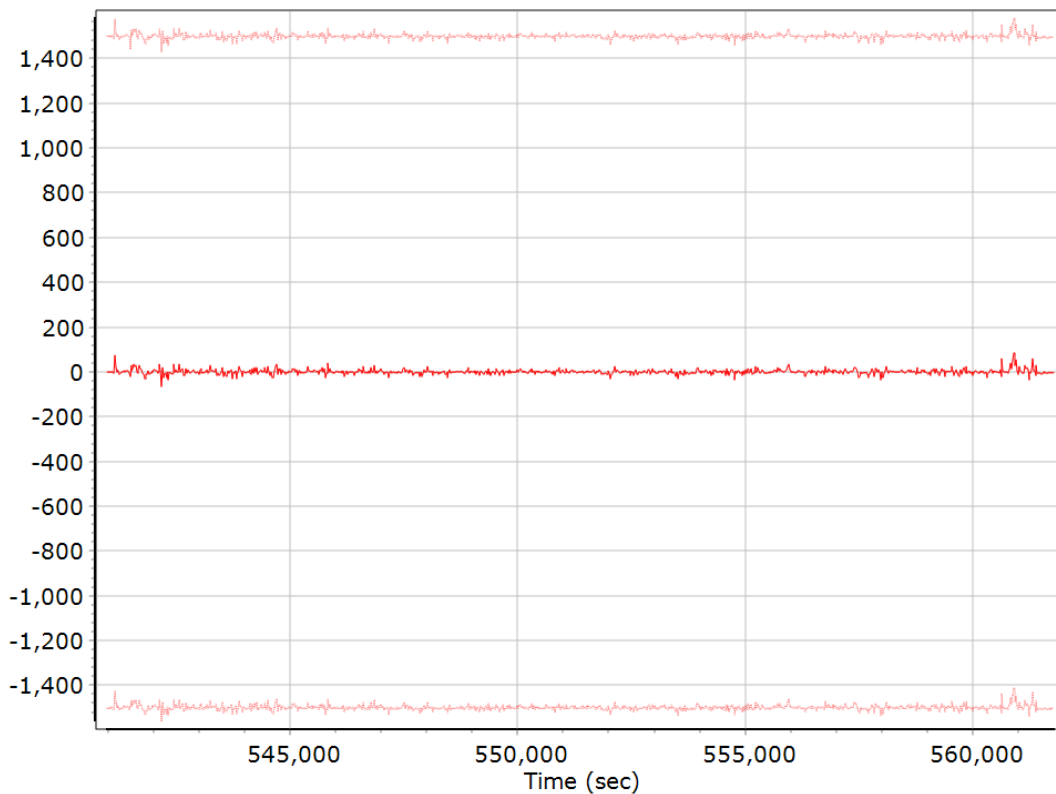
### Accelerometer Scale Error (ppm)



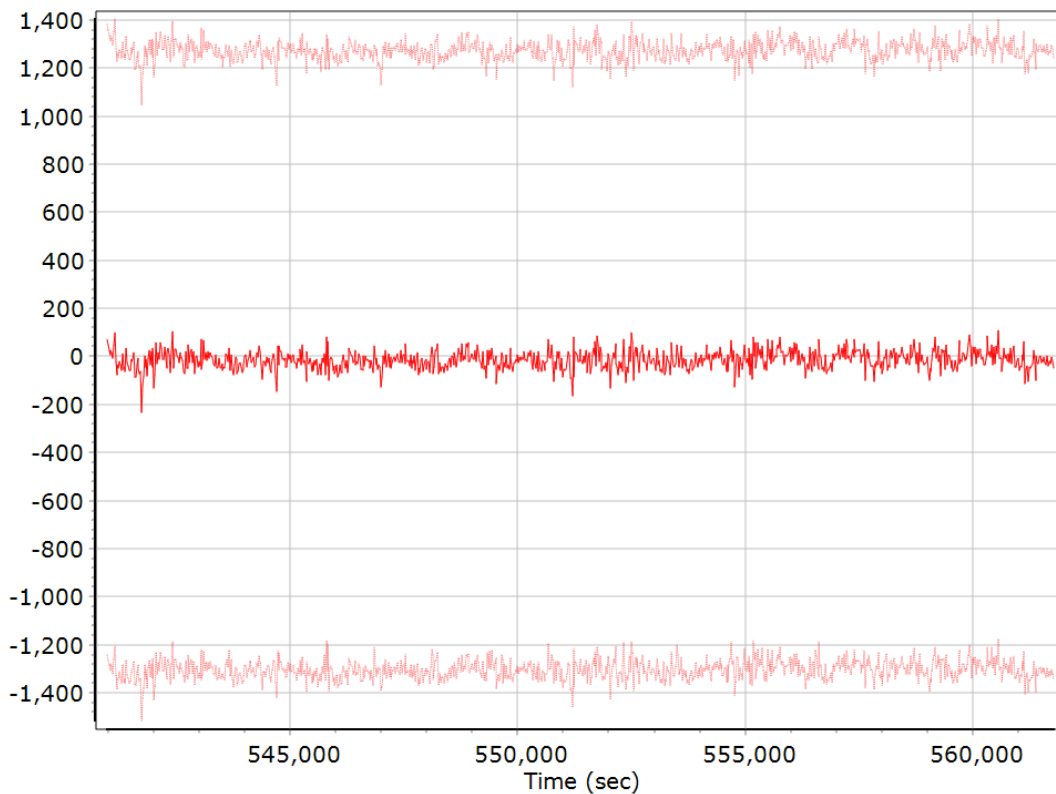
### X Accelerometer Scale Error (ppm)



### Y Accelerometer Scale Error (ppm)

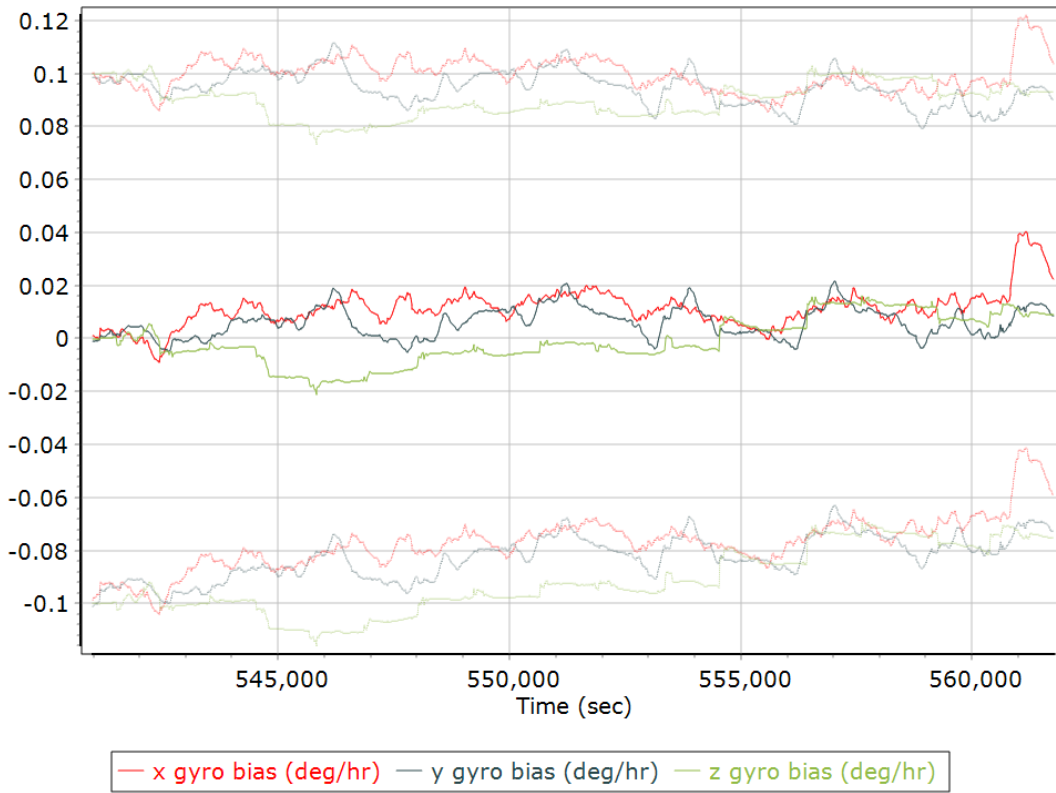


### Z Accelerometer Scale Error (ppm)

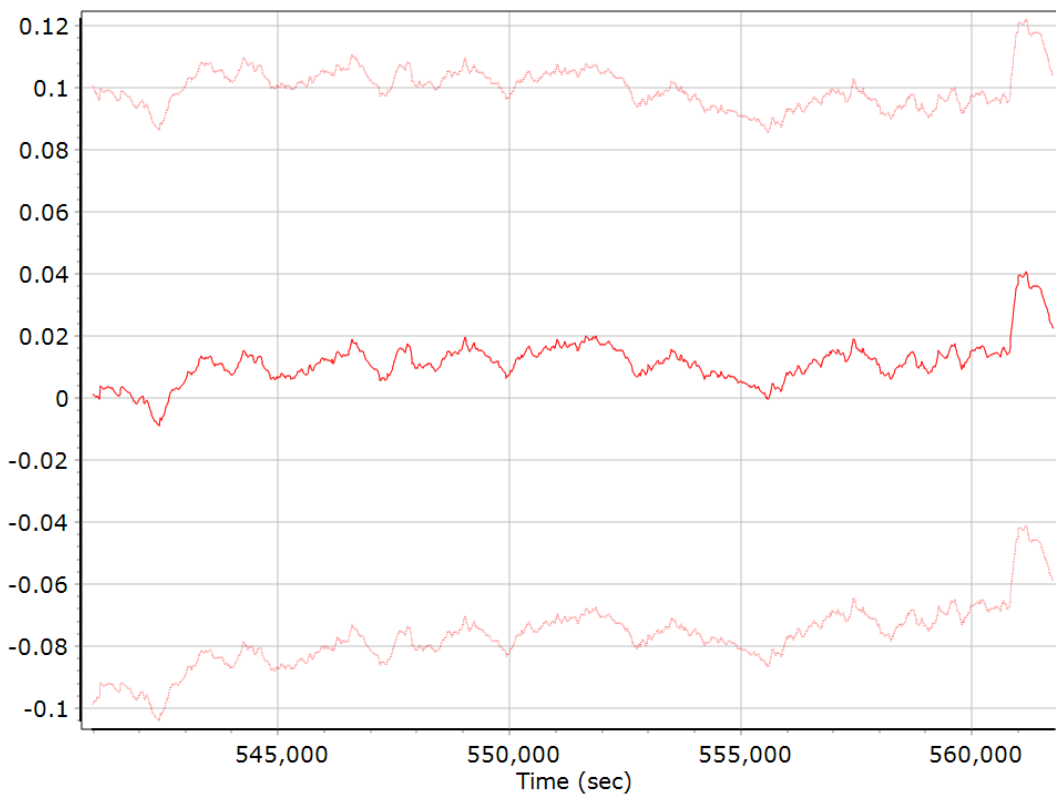




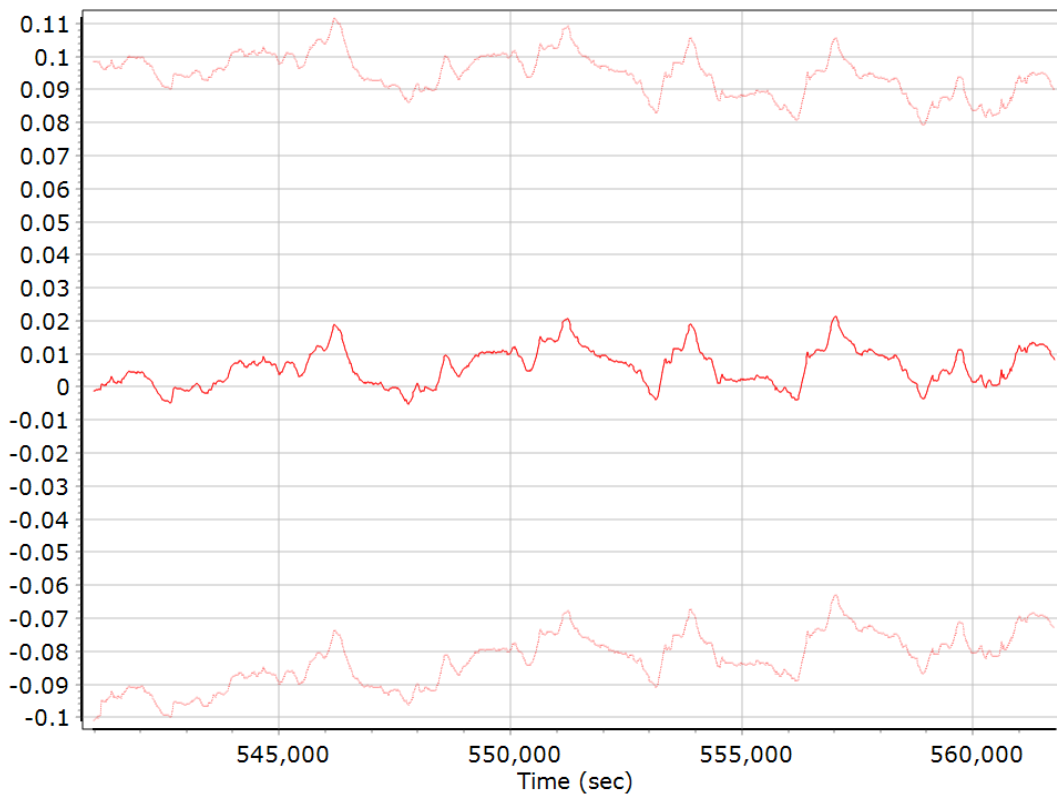
### Gyro Bias (deg/h)



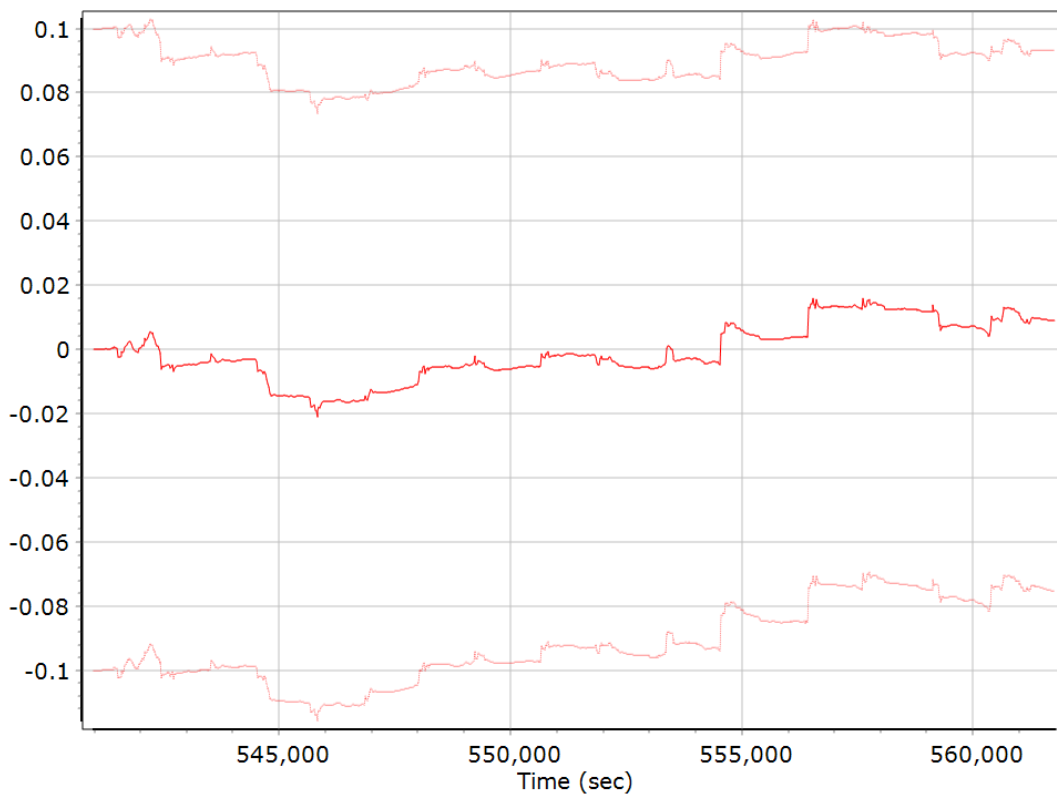
### X Gyro Bias (deg/h)



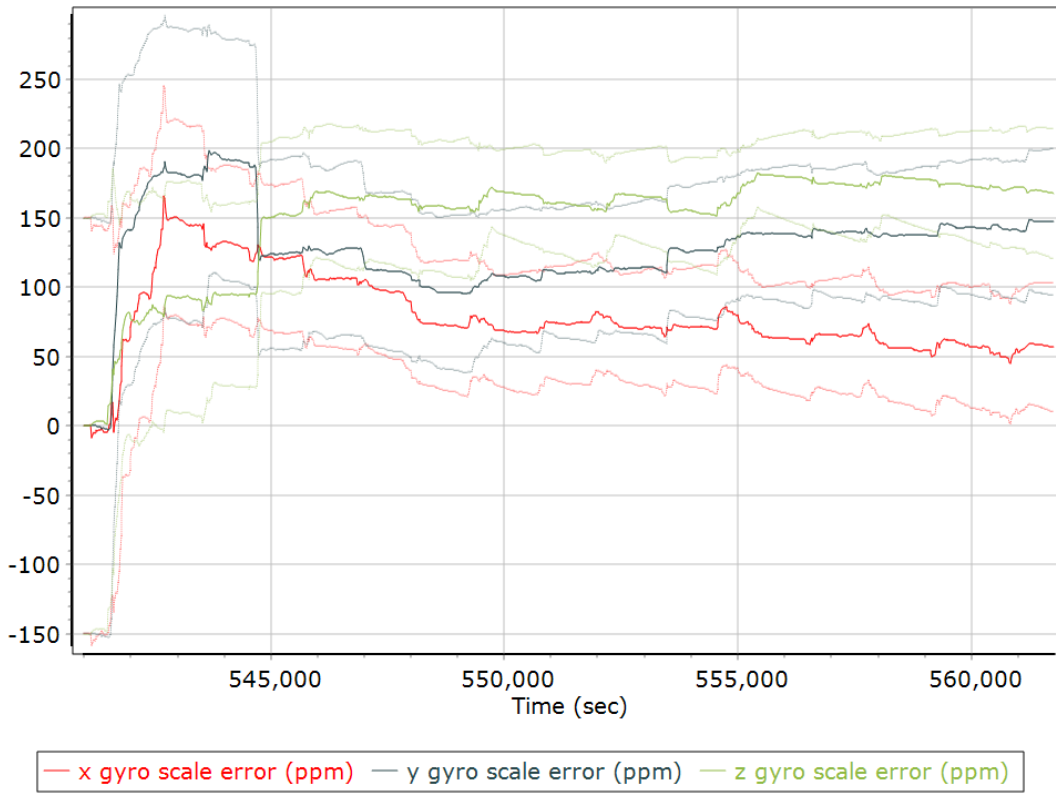
### Y Gyro Bias (deg/h)



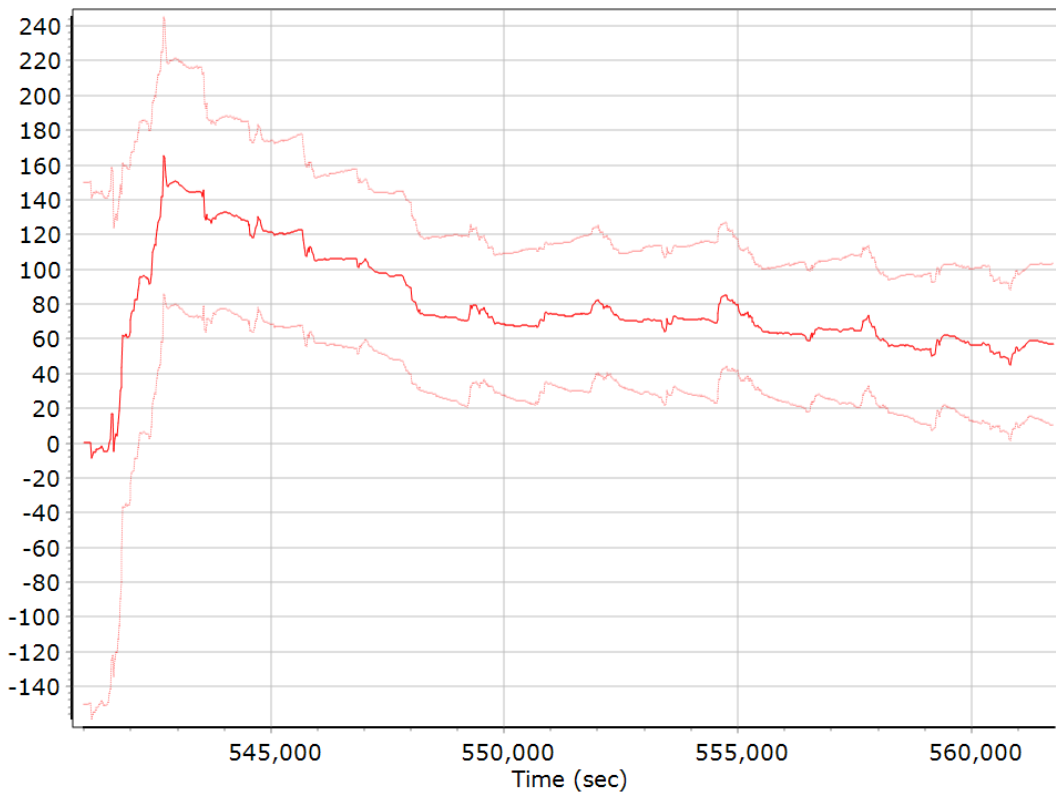
### Z Gyro Bias (deg/h)



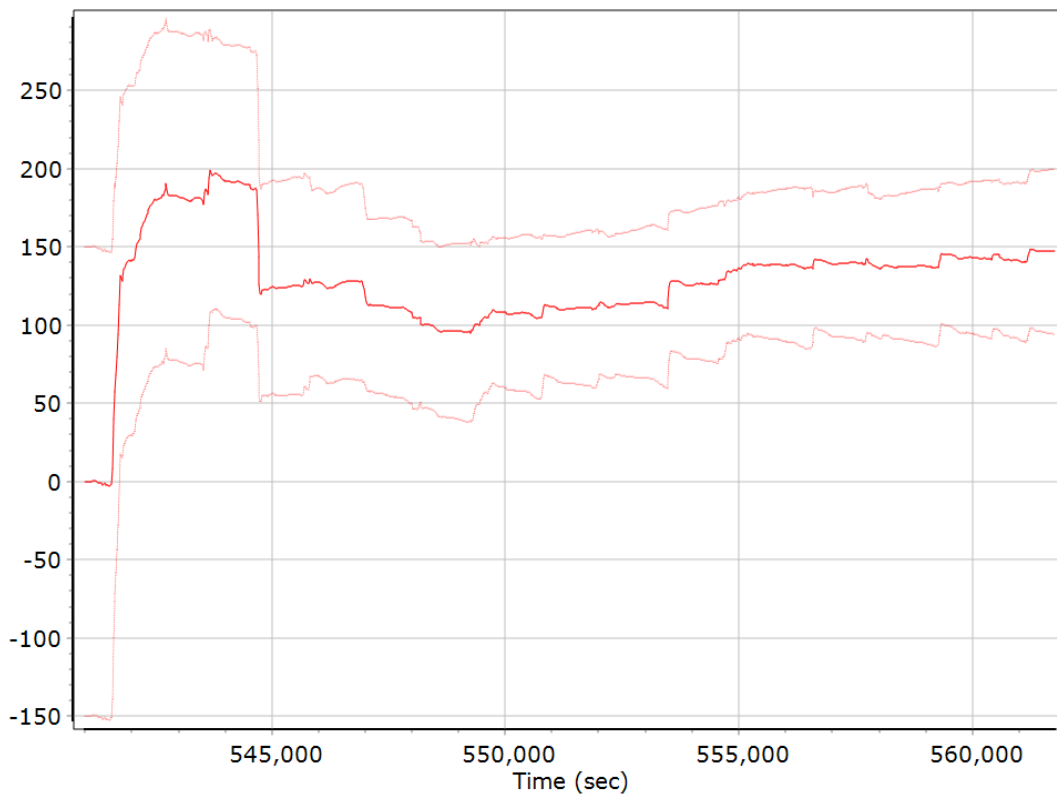
### Gyro Scale Error (ppm)



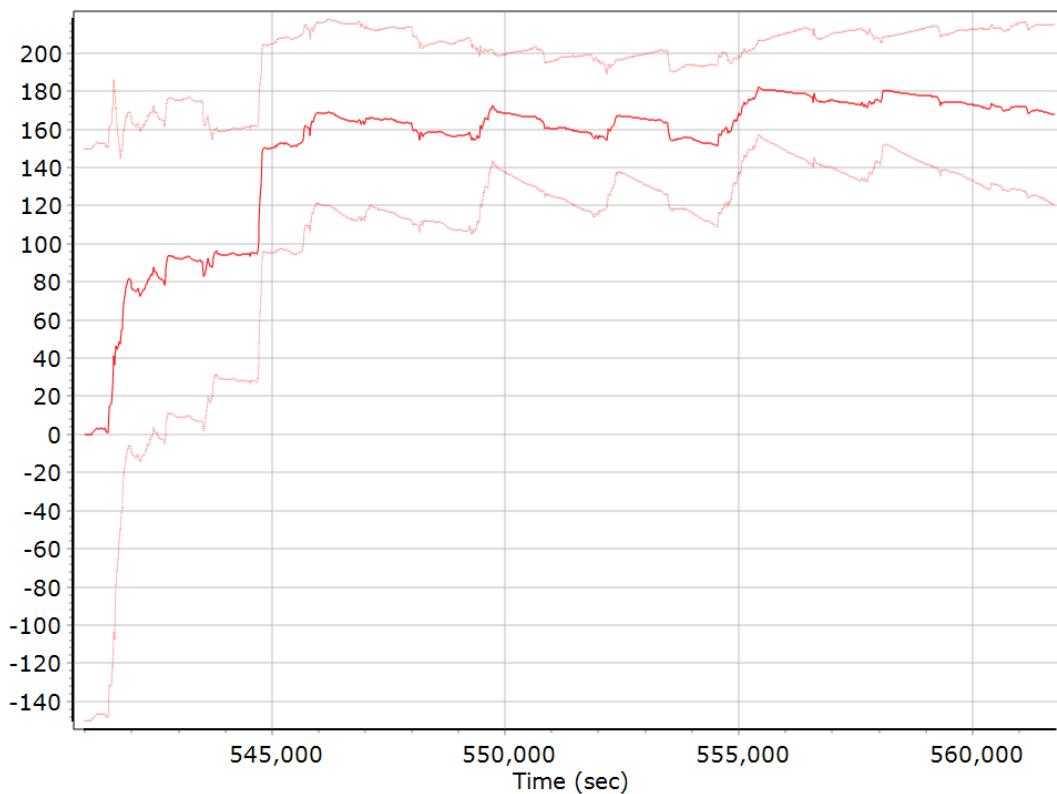
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)

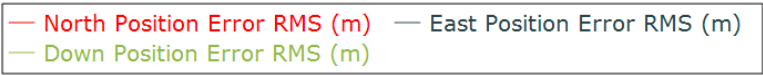
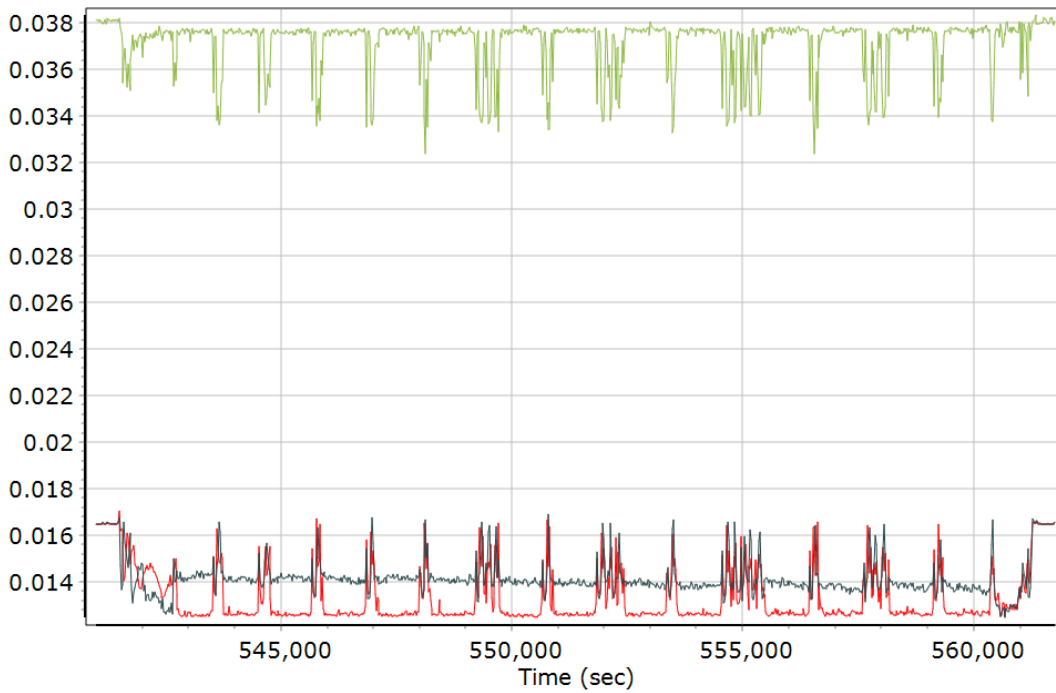


### Z Gyro Scale Error (ppm)

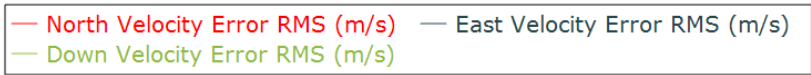
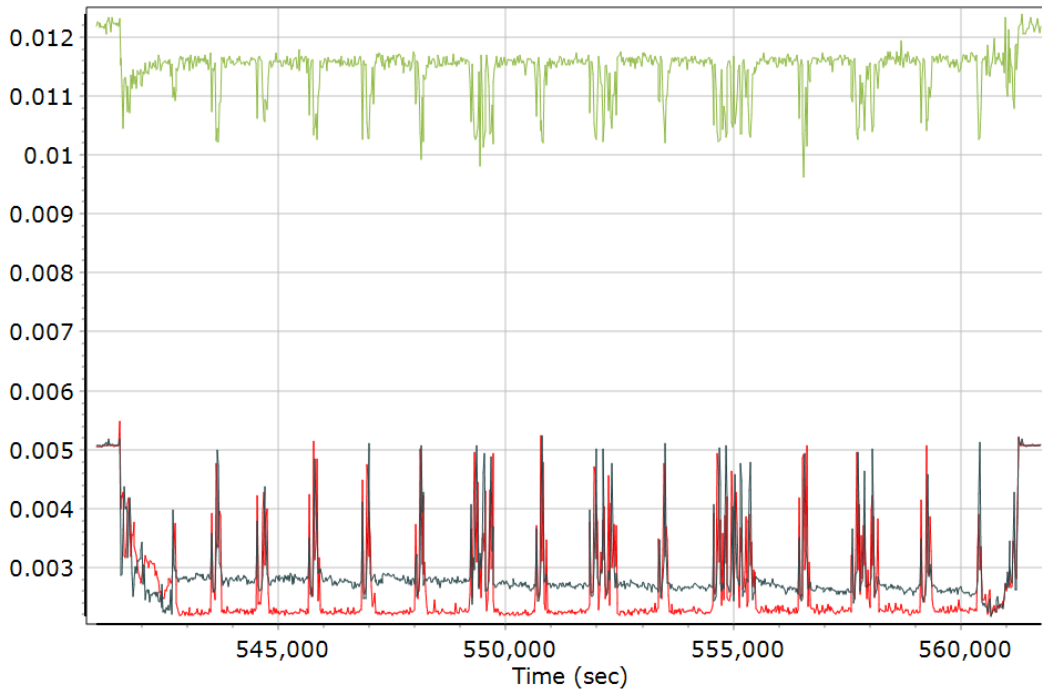


## Smoothed Performance Metrics

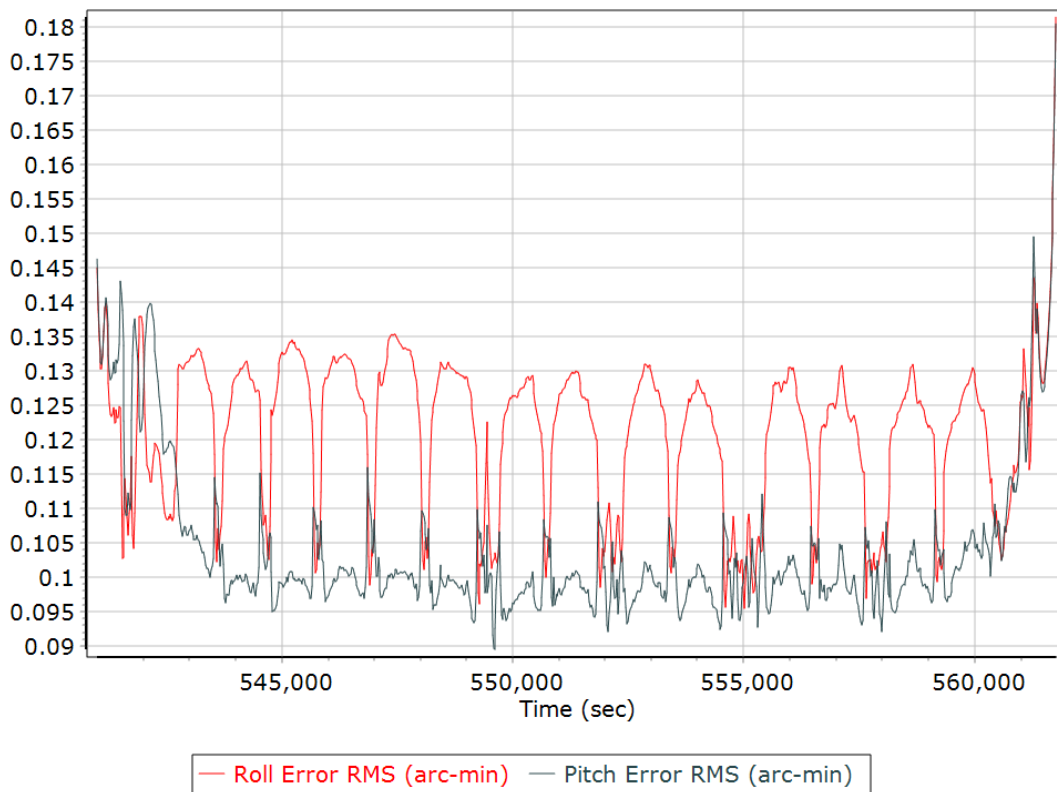
### Position Error RMS (m)



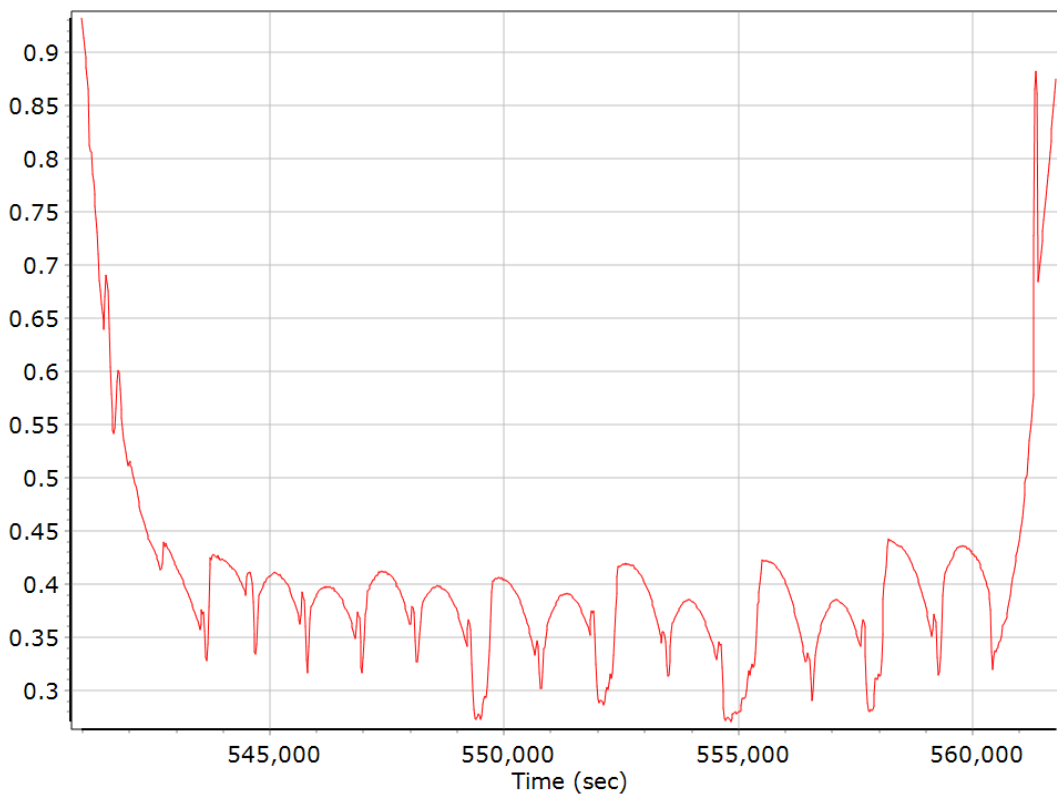
### Velocity Error RMS (m/s)



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

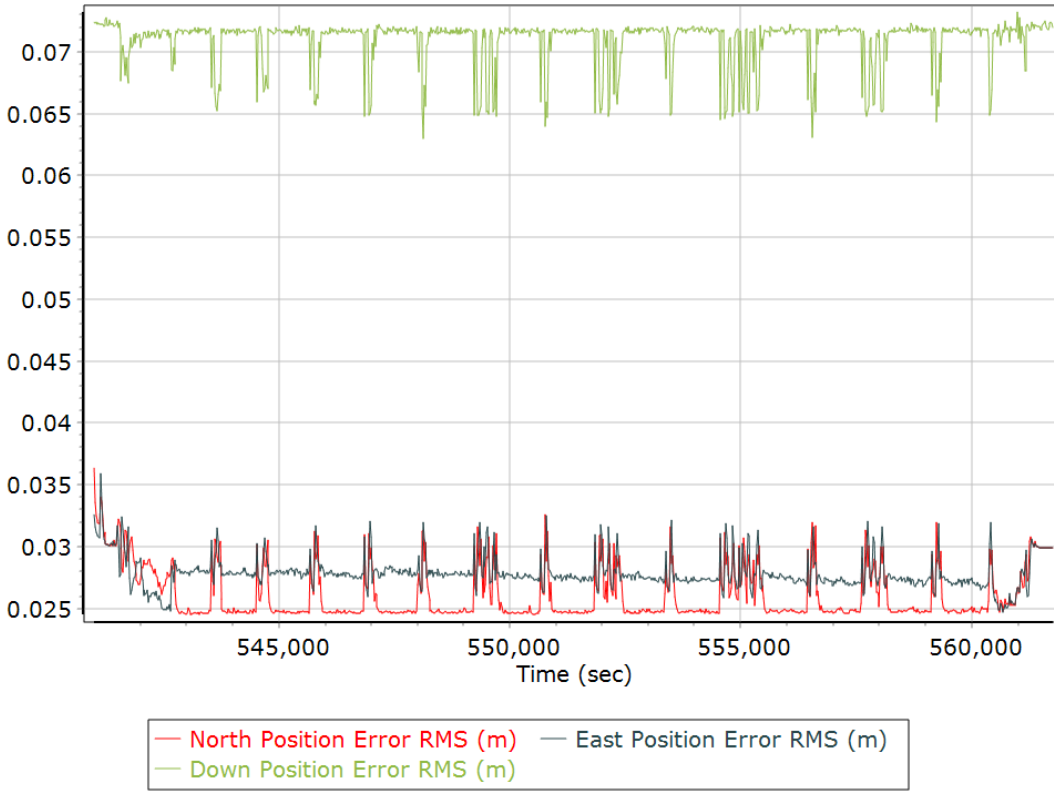


### Heading Error RMS (arc-min)

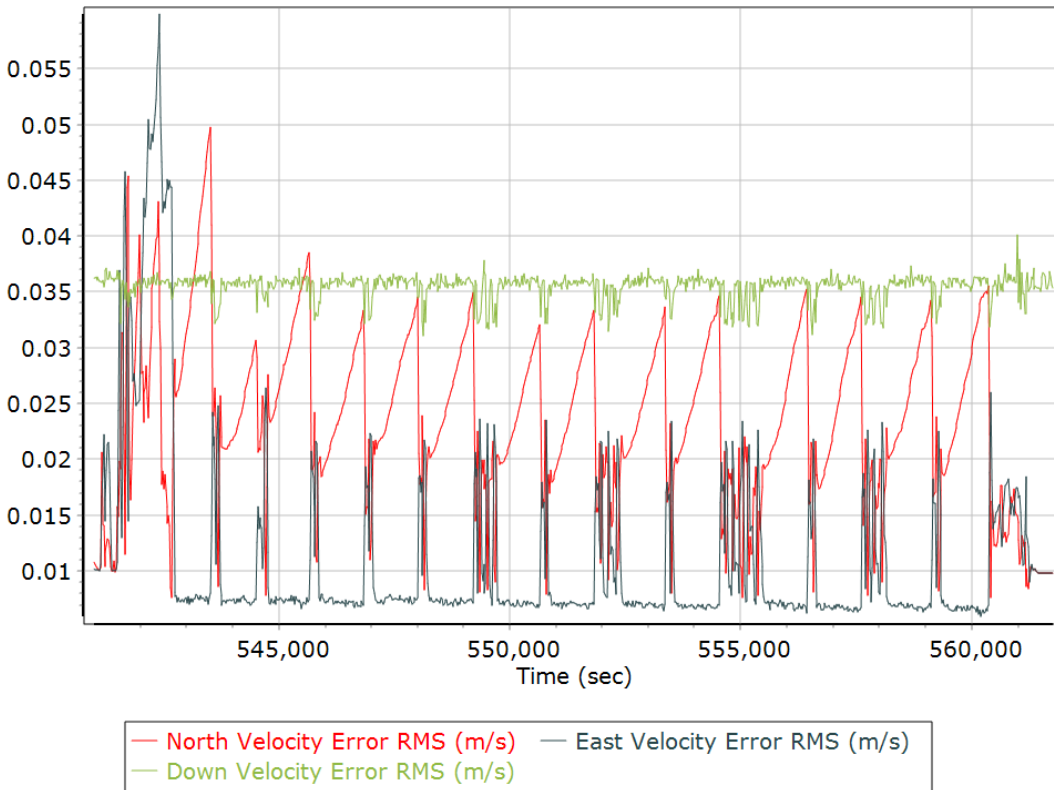


## Forward Processed Performance Metrics

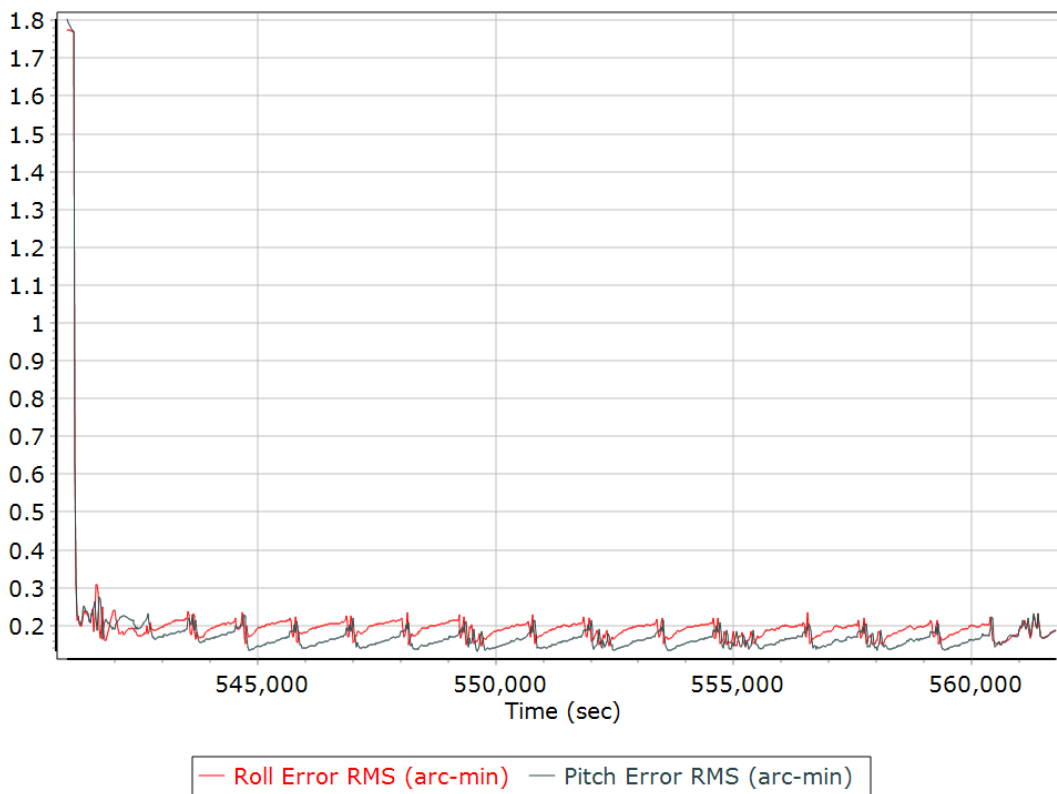
### Position Error RMS (m)



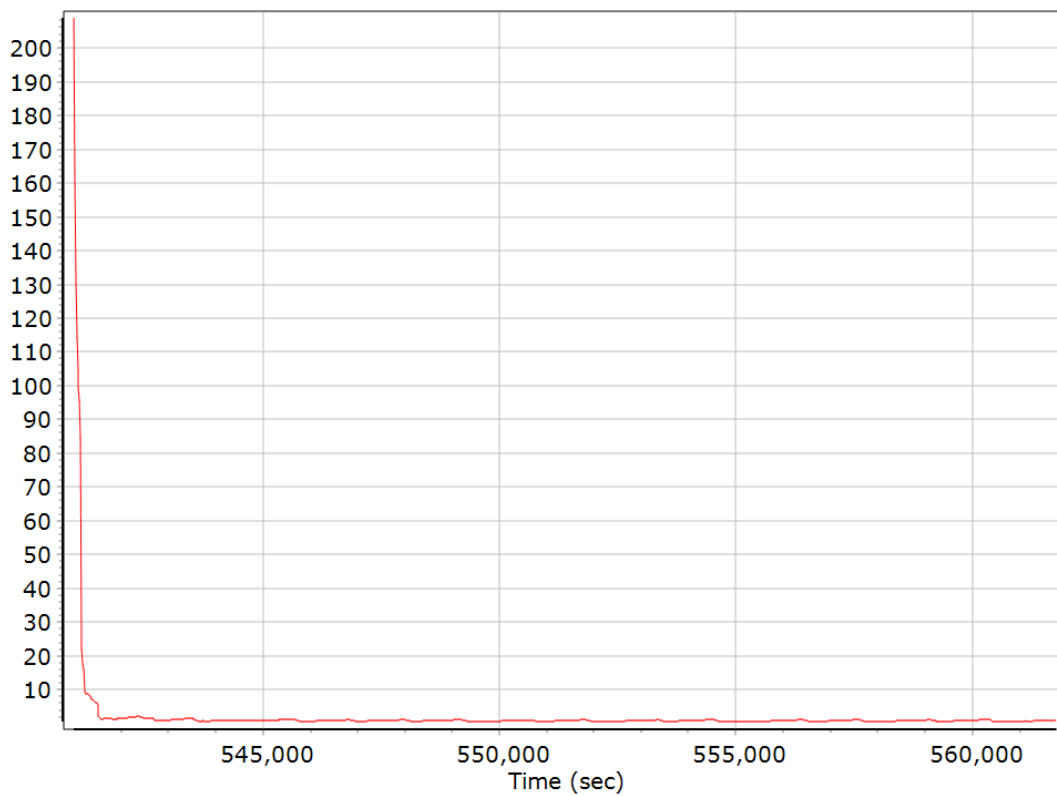
### Velocity Error RMS (m/s)



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



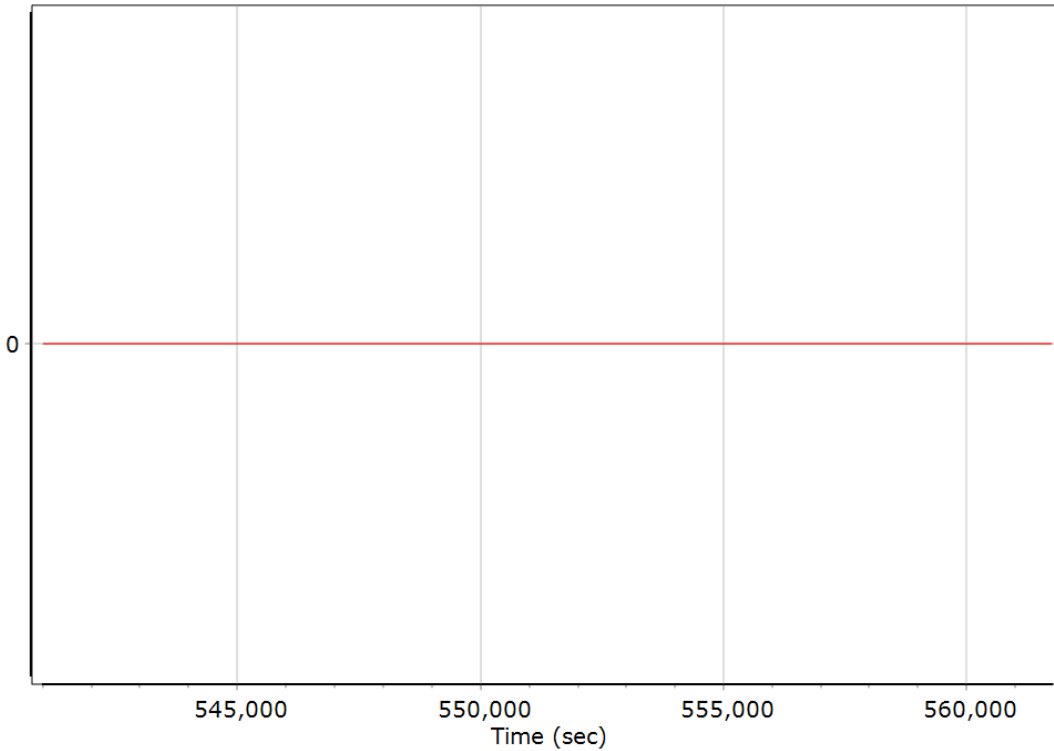
### Heading Error RMS (arc-min)





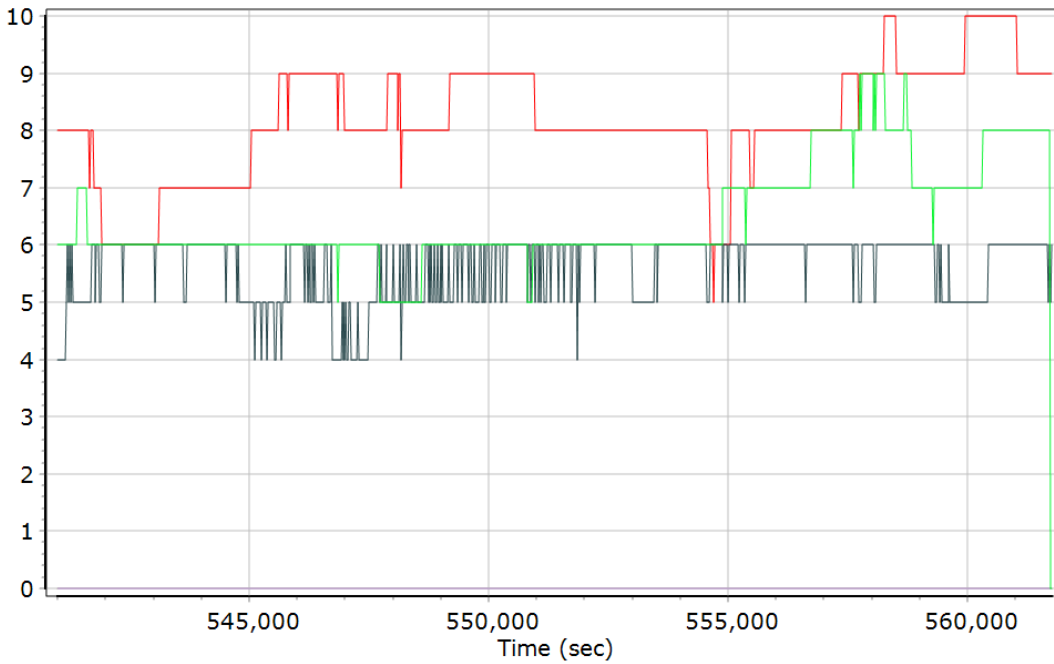
## Forward Processed Solution Status

### Processing Mode



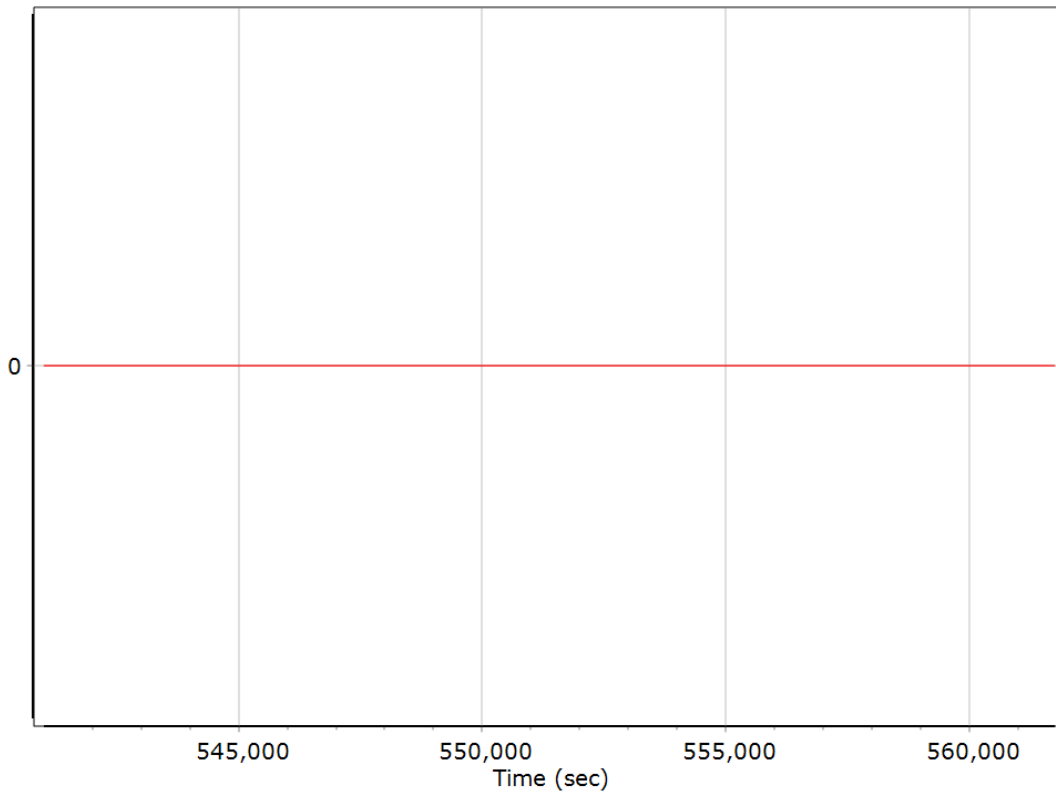
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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



## General Information

### Mission Information

Project name	a07-s03-0507
Processing date	2022-07-05 17:02:44
Mission date	2022-07-03 06:23:45
Mission duration	05:41:25.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0703_062346.000	POS Data
default0703_062346.001	POS Data
default0703_062346.002	POS Data
default0703_062346.003	POS Data
default0703_062346.004	POS Data
default0703_062346.005	POS Data
default0703_062346.006	POS Data
default0703_062346.007	POS Data
default0703_062346.008	POS Data
default0703_062346.009	POS Data
default0703_062346.010	POS Data
default0703_062346.011	POS Data
default0703_062346.012	POS Data
default0703_062346.013	POS Data
default0703_062346.014	POS Data
default0703_062346.015	POS Data
default0703_062346.016	POS Data
default0703_062346.017	POS Data
default0703_062346.018	POS Data
default0703_062346.019	POS Data
default0703_062346.020	POS Data
default0703_062346.021	POS Data
default0703_062346.022	POS Data
default0703_062346.023	POS Data
default0703_062346.024	POS Data
default0703_062346.025	POS Data
default0703_062346.026	POS Data
default0703_062346.027	POS Data

### Input Files

File Name	File Type
Ephm1840.22g	GLONASS Broadcast Ephemeris
Ephm1840.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0507.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0703_062346.000		
Last raw data file	default0703_062346.027		
Start GPS week	2217		
Start time	17.107 (7/3/2022 12:00:17 AM)		
End time	43491.765 (7/3/2022 12:04:51 PM)		
Start of fine alignment	23406.211 (7/3/2022 6:30:06 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

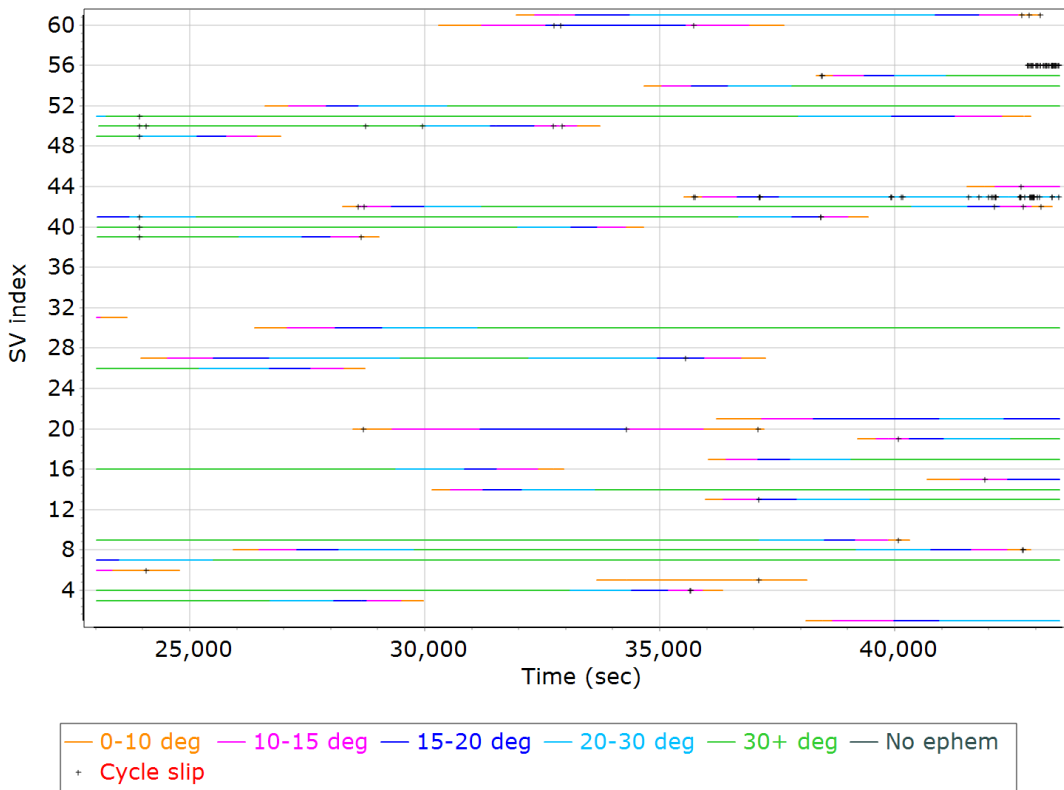
# Rover Data QC

## Raw IMU Import QC Summary

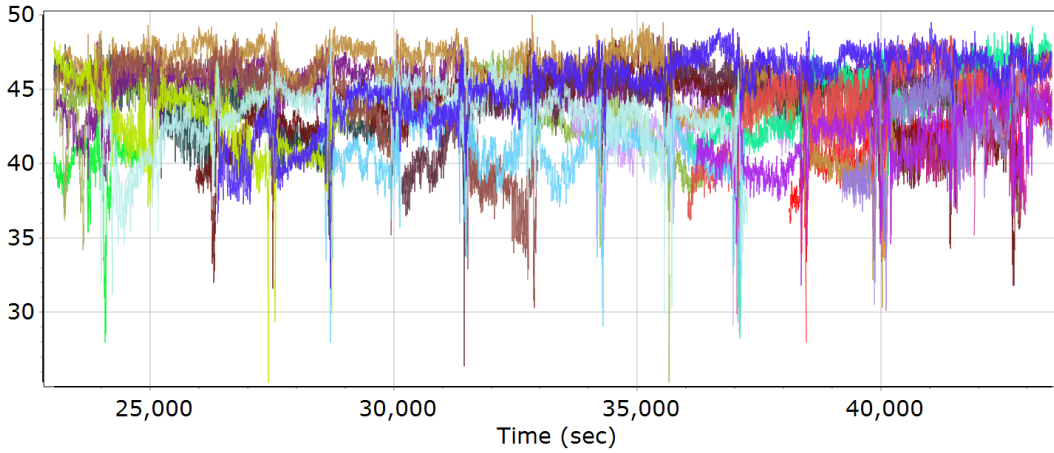
IMU data input file	imu_a07-s03-0507.dat
IMU data check log file	imudt_a07-s03-0507.log
IMU Records Processed	4096726
Termination Status	Warnings
IMU Anomalies	3
<b>IMU Failure Messages</b>	
23006.655 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
23006.550 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
23006.495 : WARNING : Gap of 22989.1326 seconds in CHECKDT input data	

## Primary Observables & Satellite Data

### GPS/GLONASS L1 Satellite Lock/Elevation

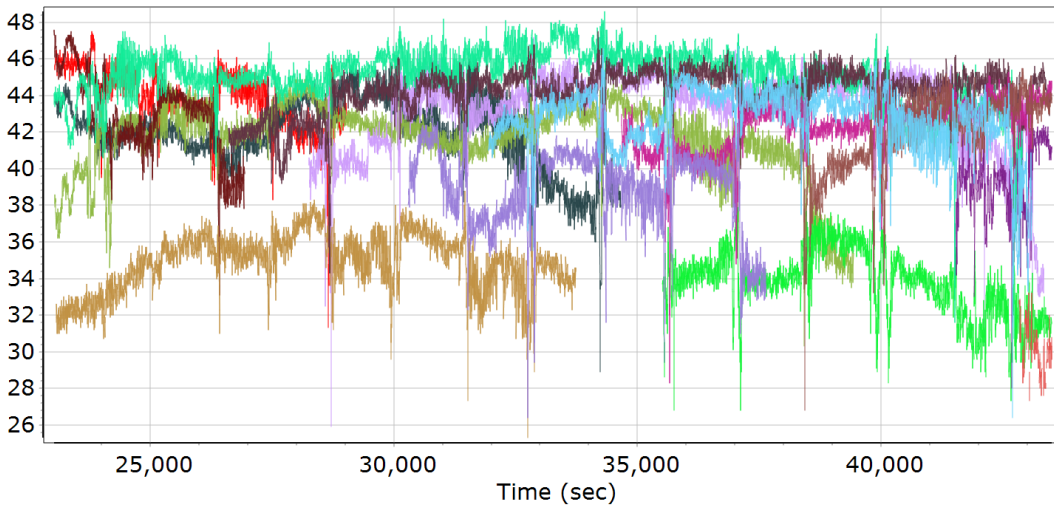


**GPS L1 SNR**



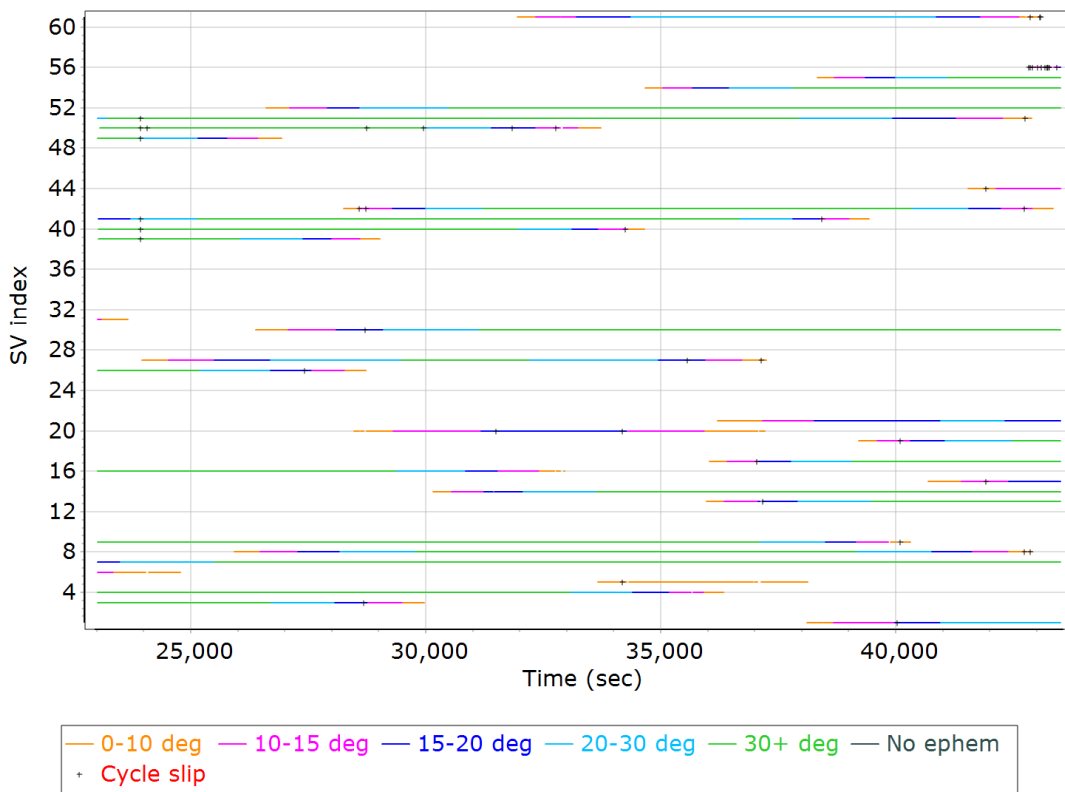
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 03 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 05 L1 SNR (dB/Hz) |
| — GPS PRN 06 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 15 L1 SNR (dB/Hz) | — GPS PRN 16 L1 SNR (dB/Hz) |
| — GPS PRN 17 L1 SNR (dB/Hz) | — GPS PRN 19 L1 SNR (dB/Hz) |
| — GPS PRN 20 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 26 L1 SNR (dB/Hz) | — GPS PRN 27 L1 SNR (dB/Hz) |
| — GPS PRN 30 L1 SNR (dB/Hz) | — GPS PRN 31 L1 SNR (dB/Hz) |

**GLONASS L1 SNR**

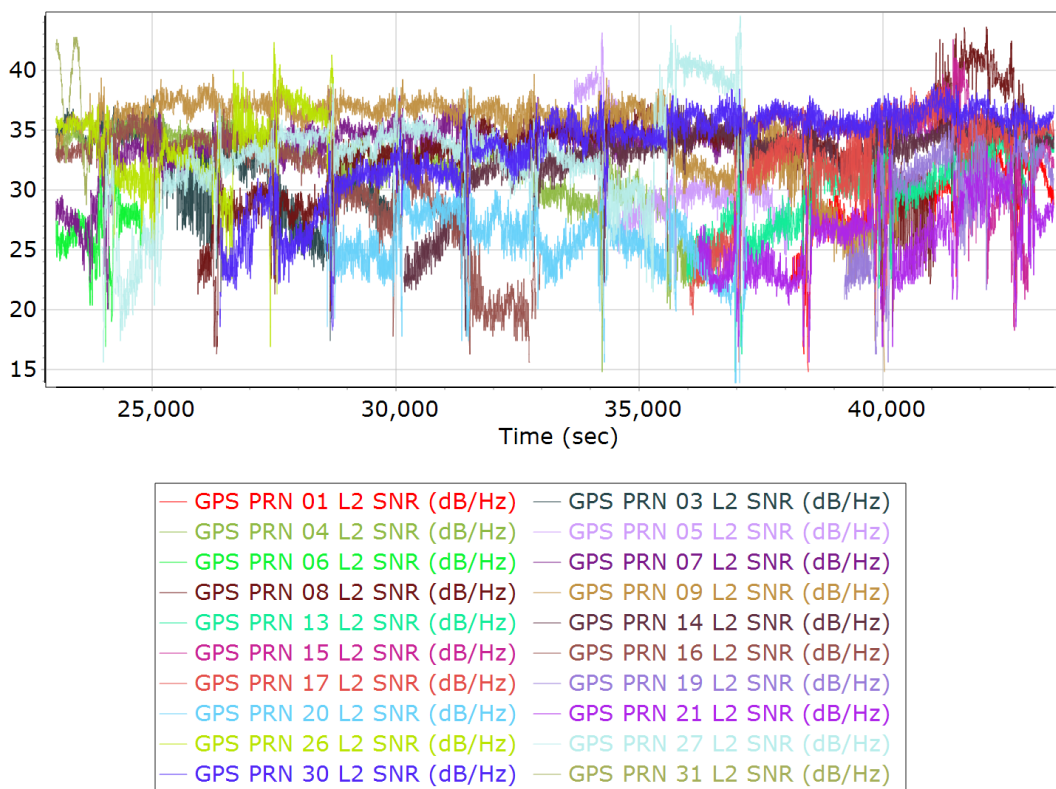


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 02 L1 SNR (dB/Hz) | — GLONASS 03 L1 SNR (dB/Hz) |
| — GLONASS 04 L1 SNR (dB/Hz) | — GLONASS 05 L1 SNR (dB/Hz) |
| — GLONASS 06 L1 SNR (dB/Hz) | — GLONASS 07 L1 SNR (dB/Hz) |
| — GLONASS 12 L1 SNR (dB/Hz) | — GLONASS 13 L1 SNR (dB/Hz) |
| — GLONASS 14 L1 SNR (dB/Hz) | — GLONASS 15 L1 SNR (dB/Hz) |
| — GLONASS 17 L1 SNR (dB/Hz) | — GLONASS 18 L1 SNR (dB/Hz) |
| — GLONASS 19 L1 SNR (dB/Hz) | — GLONASS 23 L1 SNR (dB/Hz) |
| — GLONASS 24 L1 SNR (dB/Hz) |                             |

### GPS/GLONASS L2 Satellite Lock/Elevation

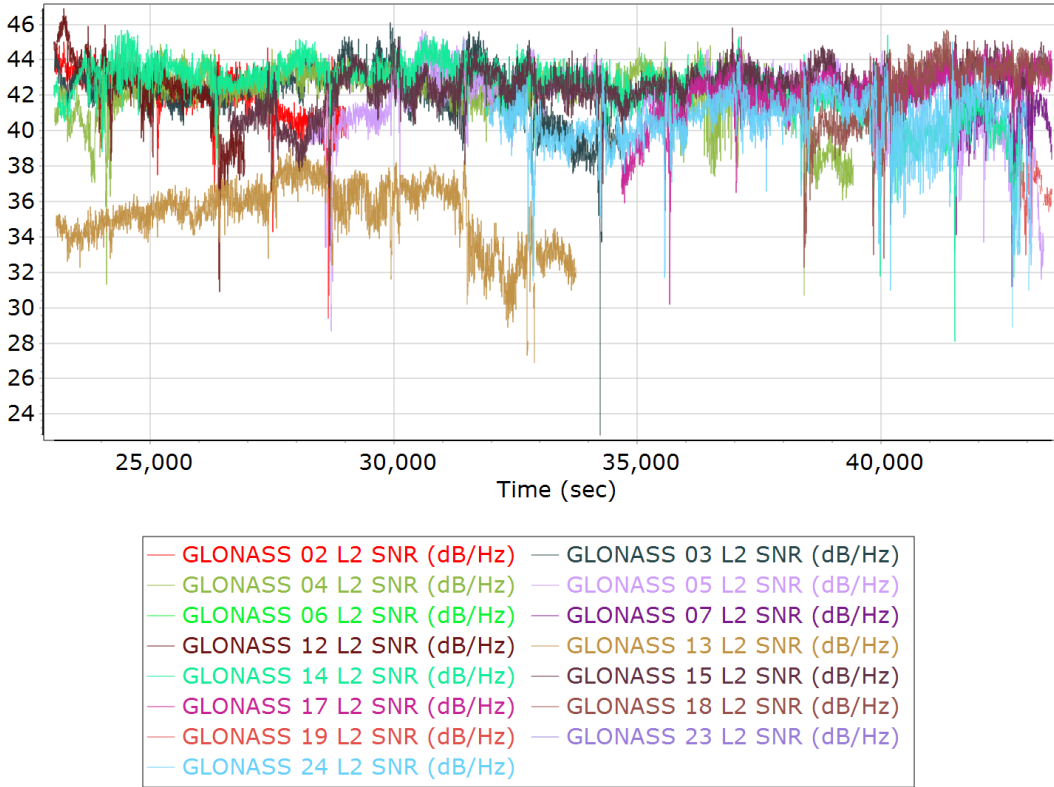


### GPS L2 SNR

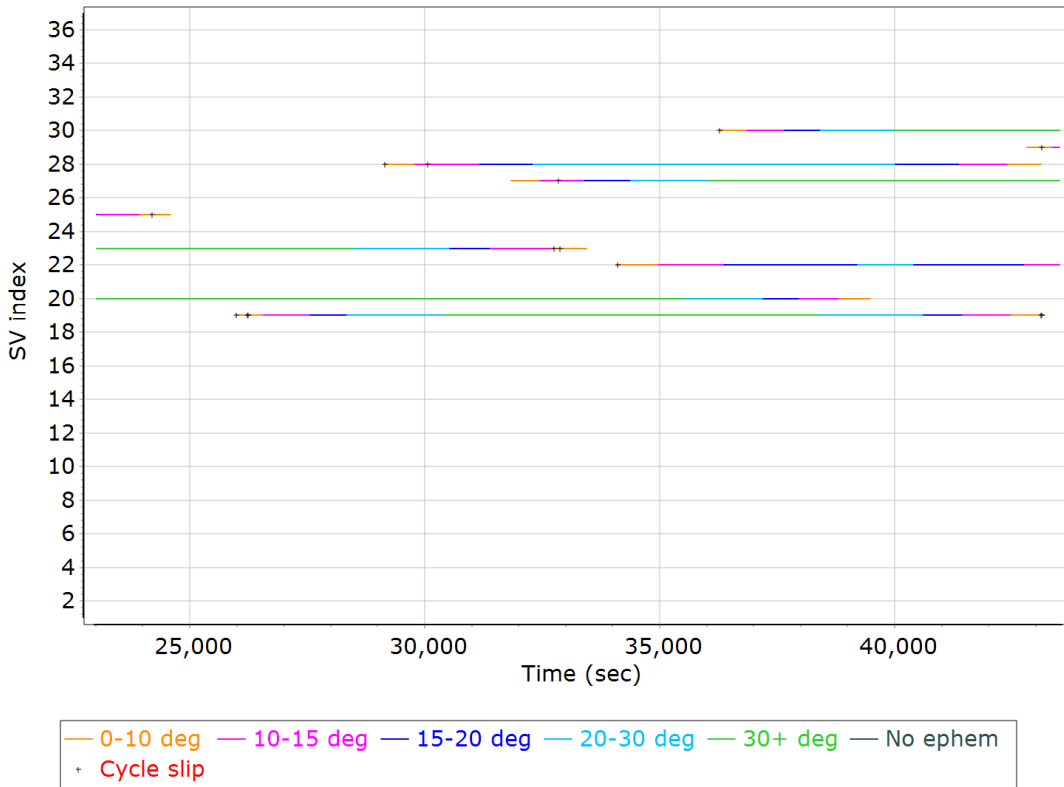




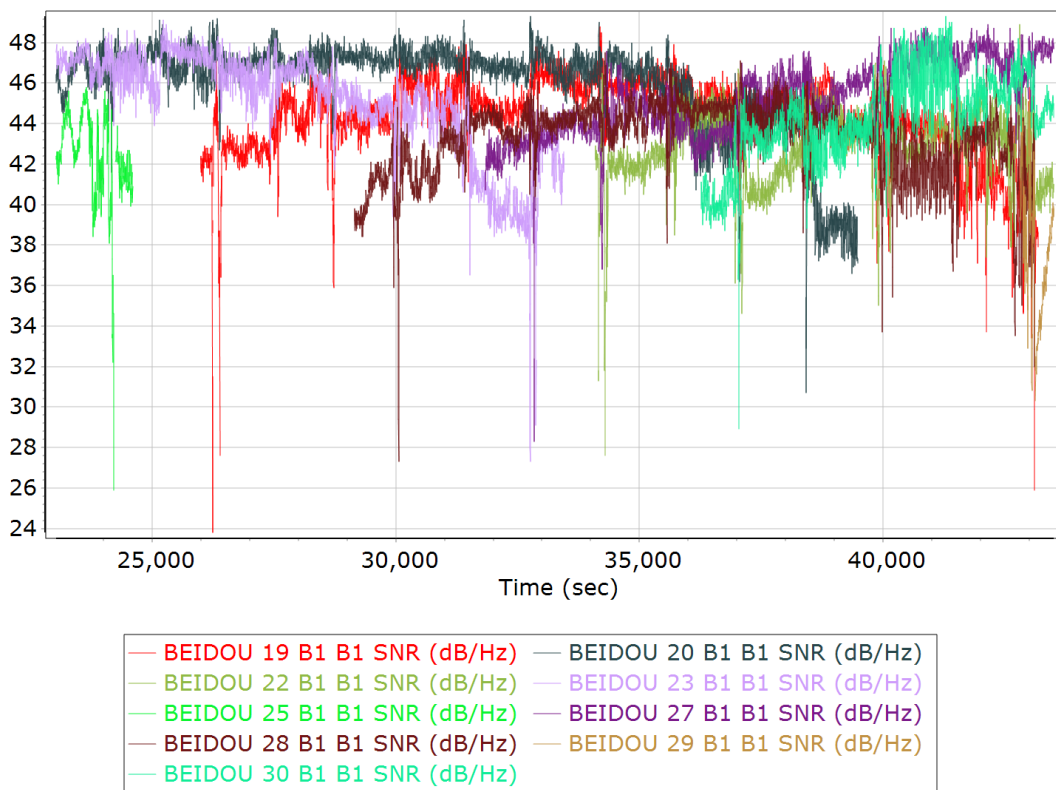
**GLONASS L2 SNR**



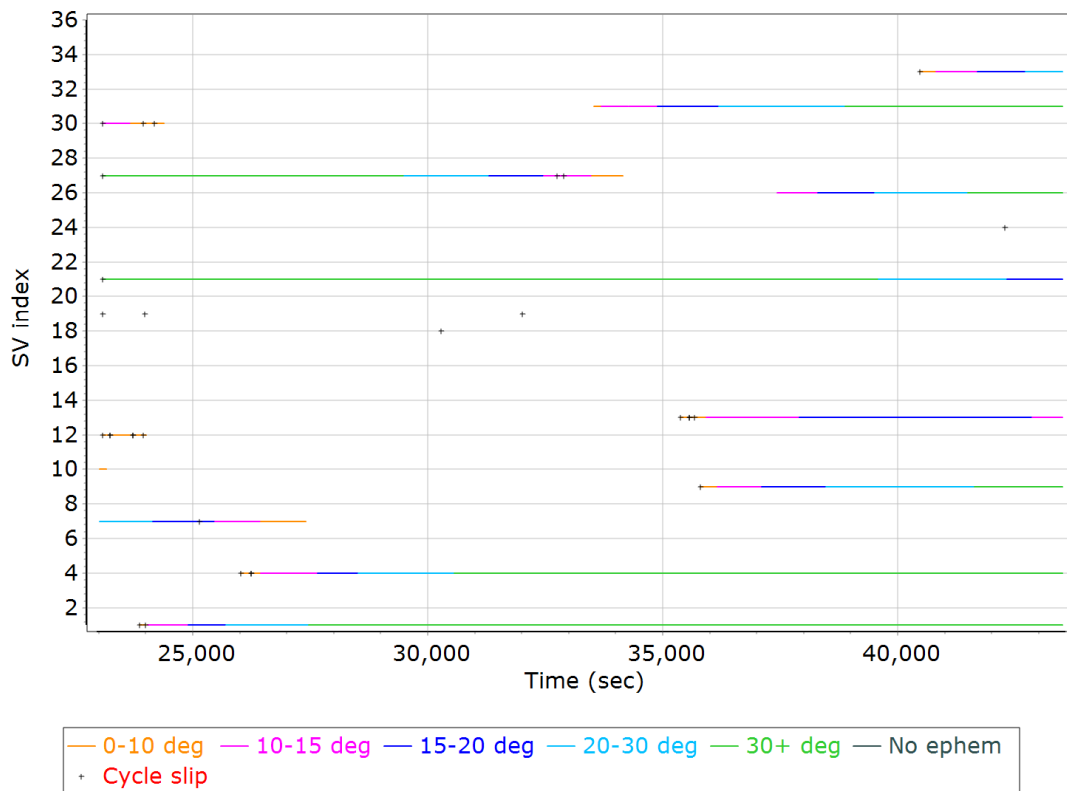
**BEIDOU Satellite Lock/Elevation**



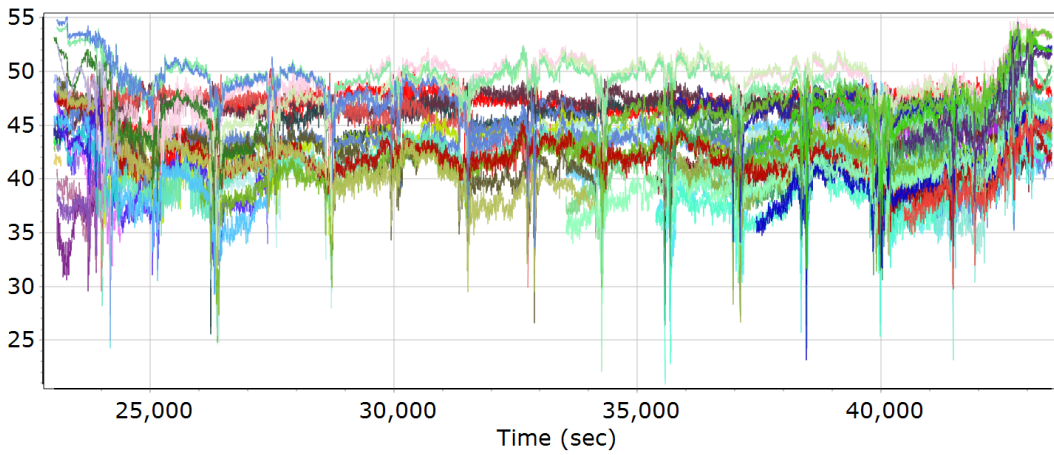
### BEIDOU SNR



### GALILEO Satellite Lock/Elevation



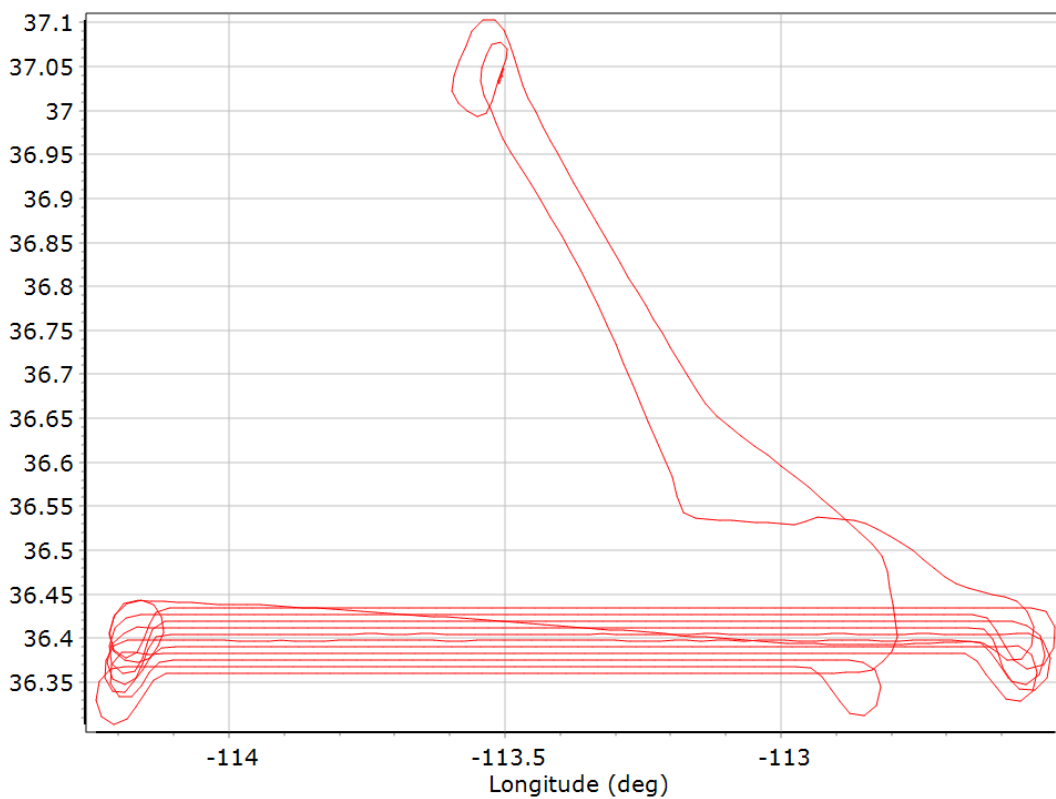
## GALILEO SNR



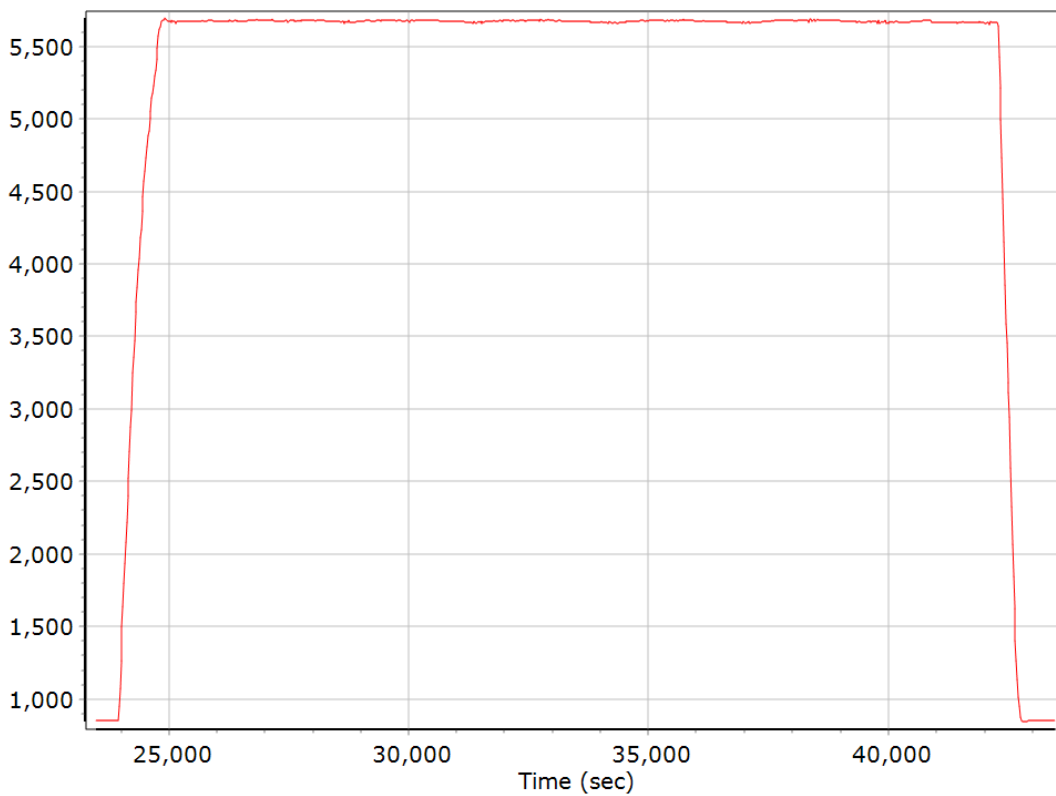
- GALILEO 01 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 04 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 07 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 09 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 10 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 12 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 13 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 18 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 19 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 21 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

## Smoothed Trajectory Information

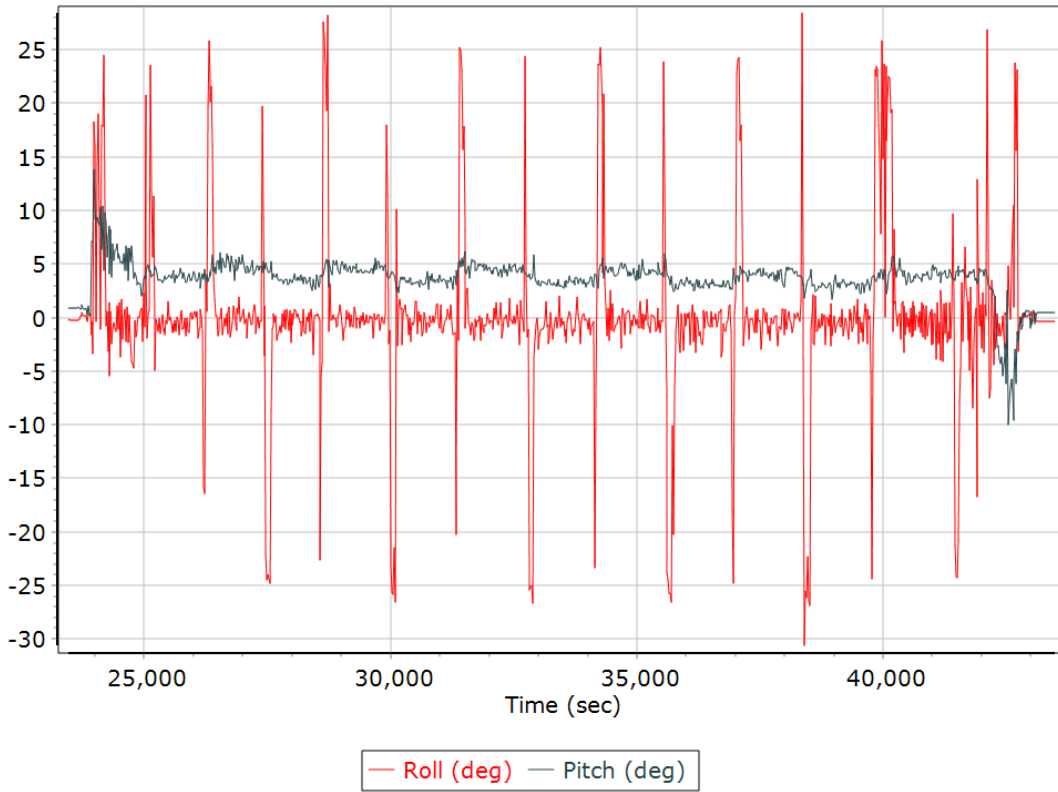
### Top View



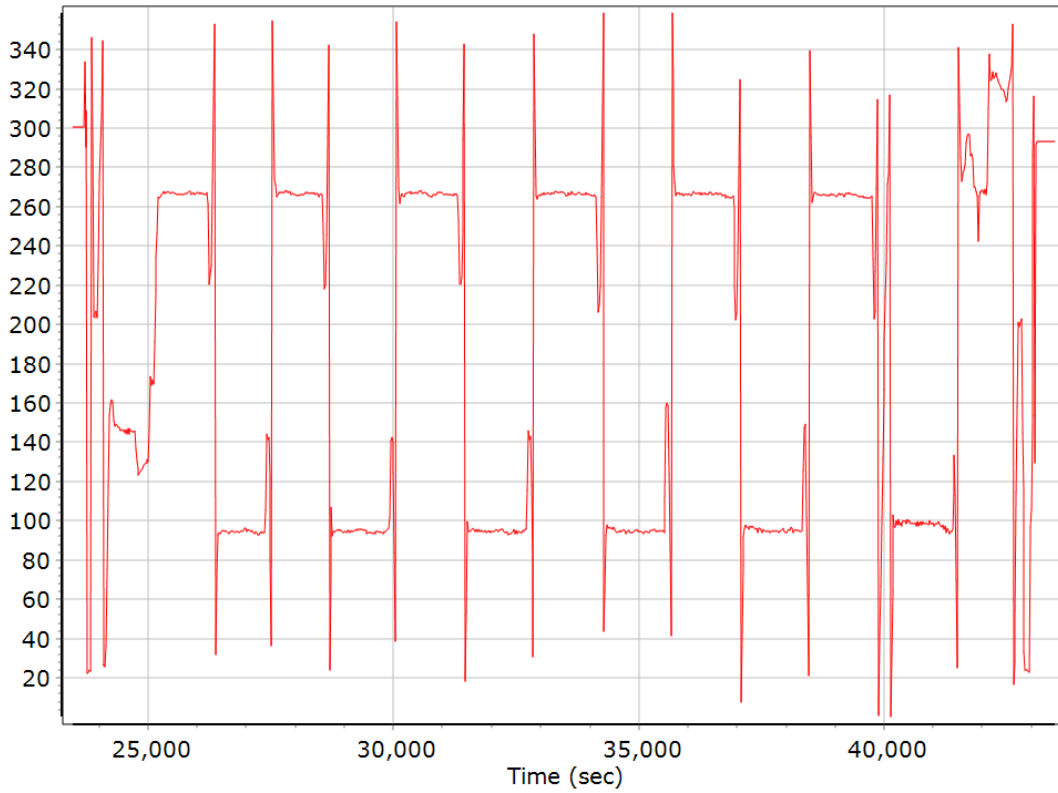
### Altitude



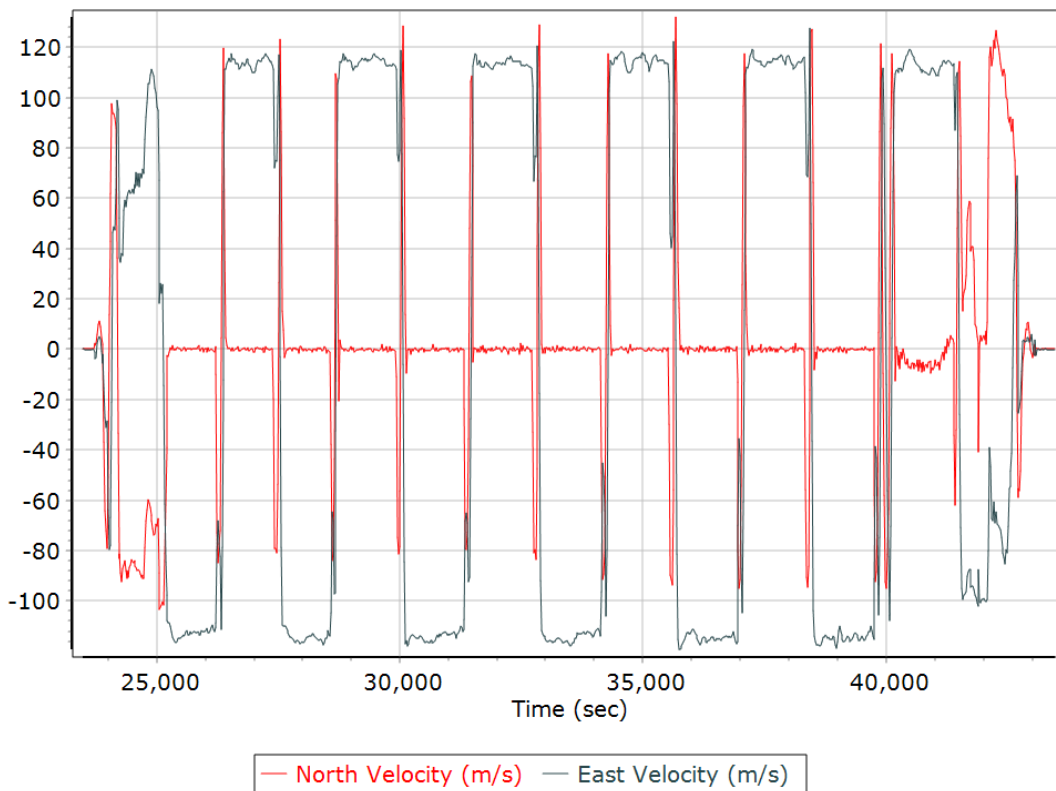
## Roll/Pitch



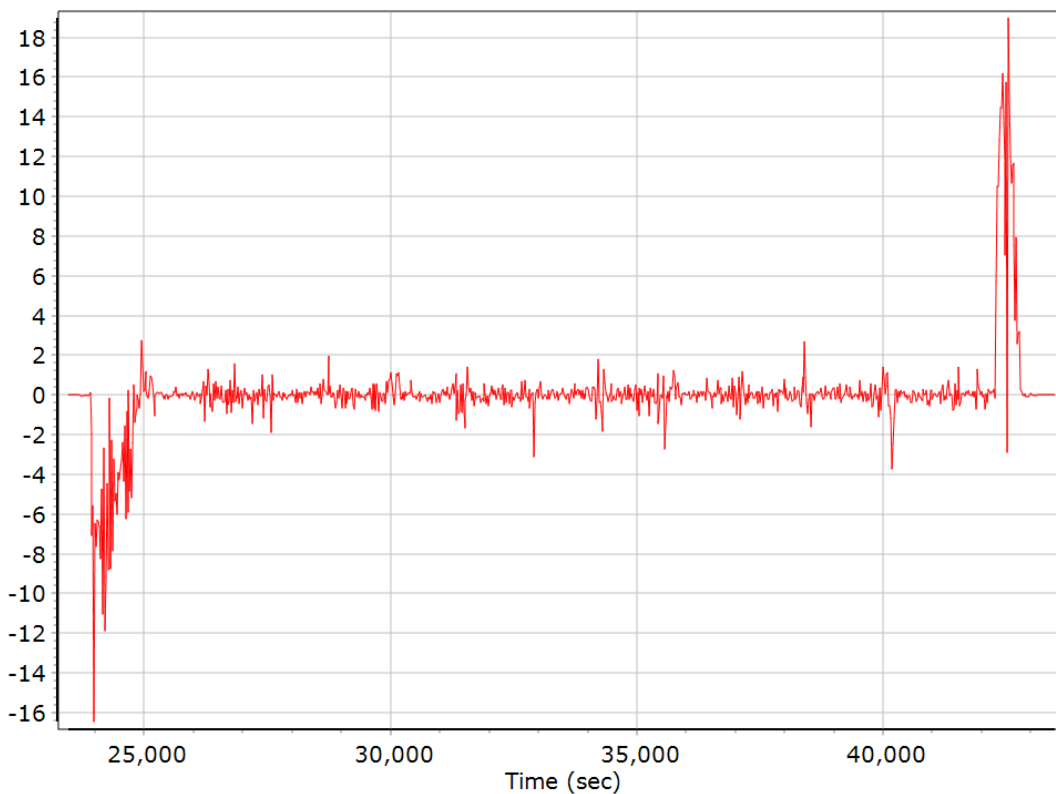
## Heading



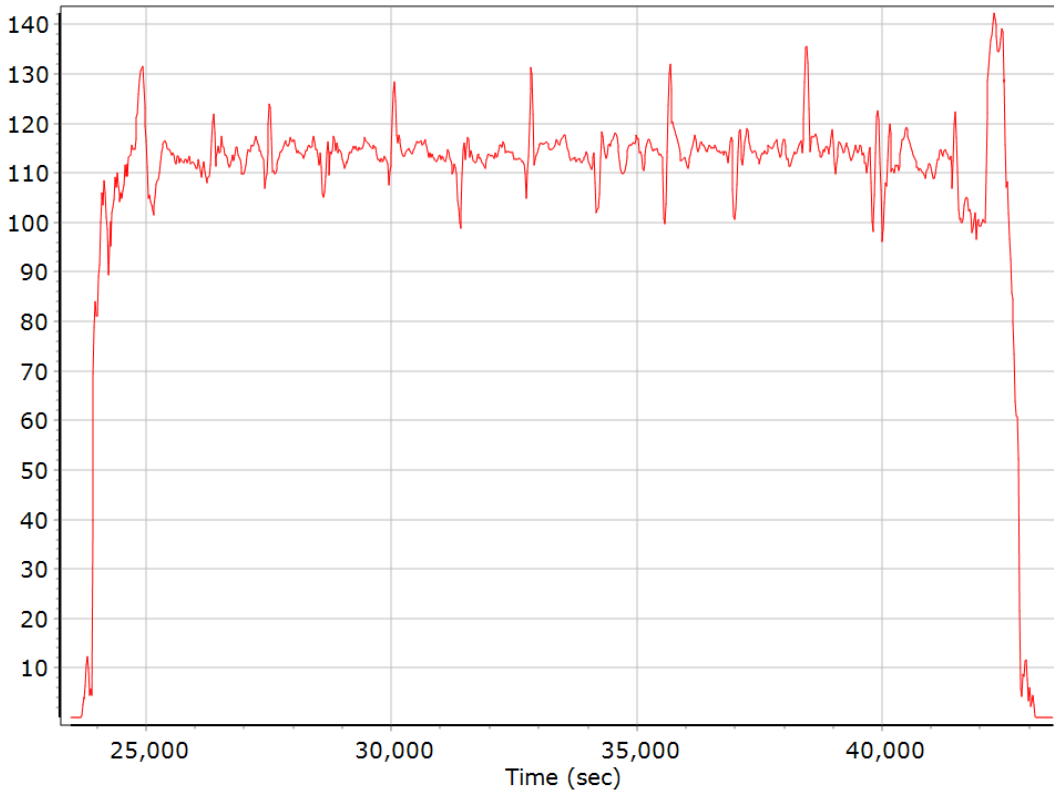
### North/East Velocity



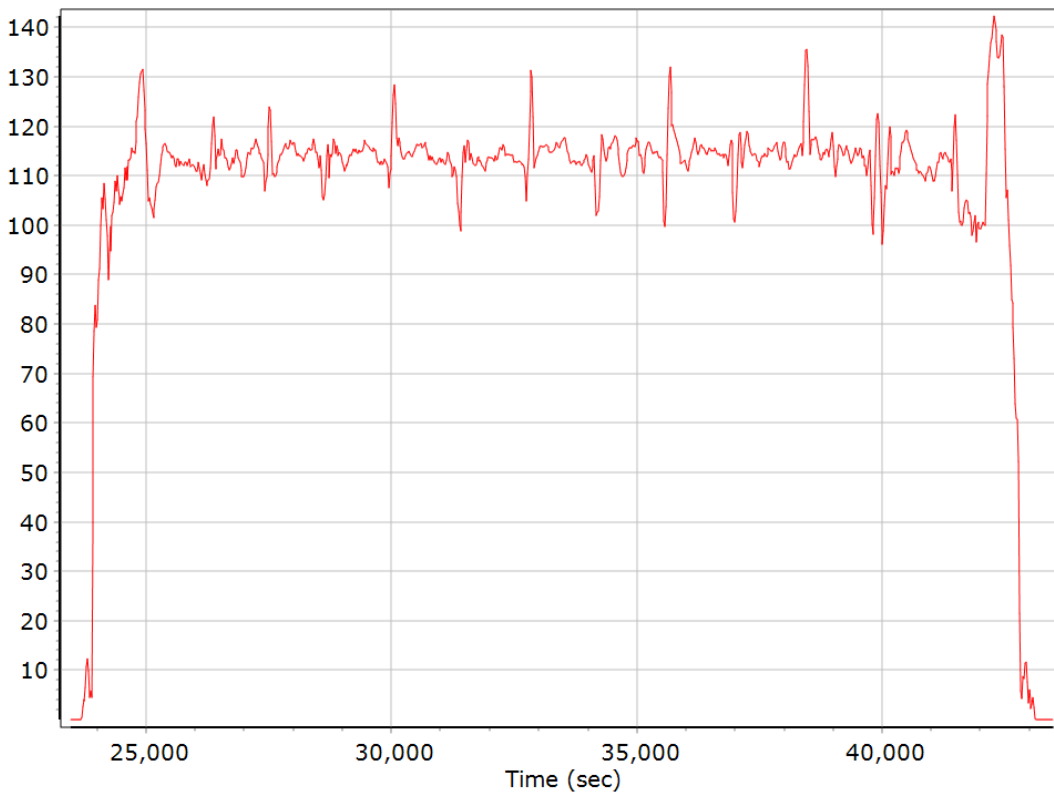
### Down Velocity



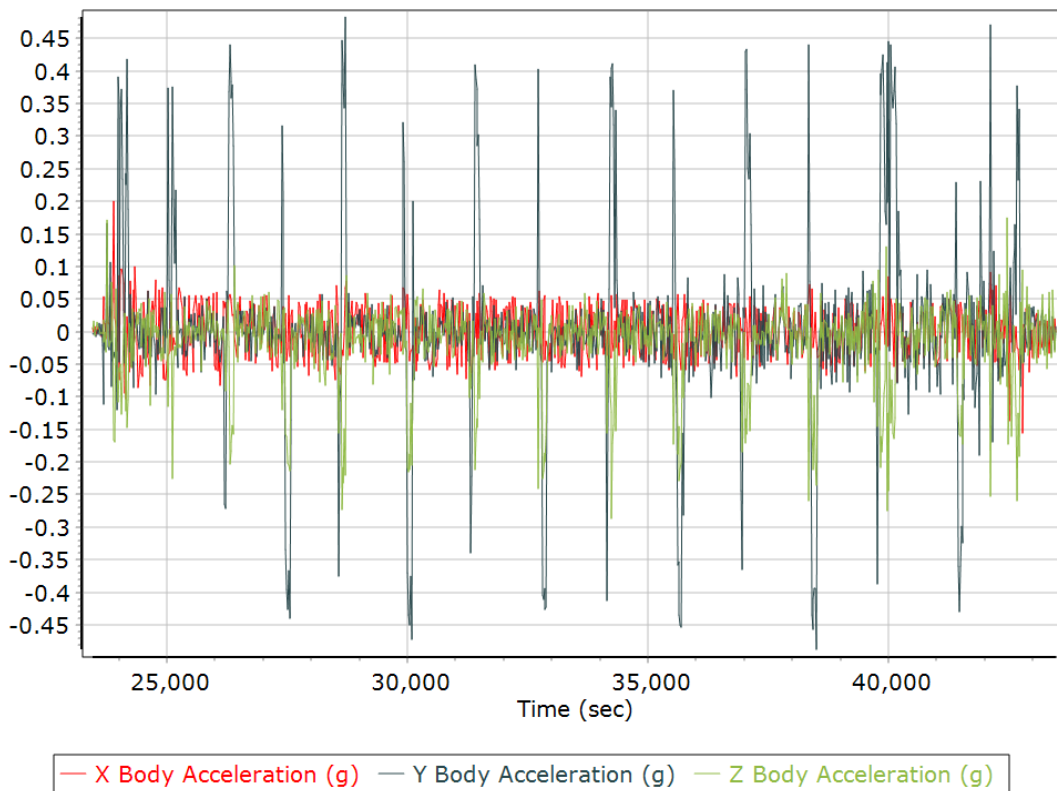
## Total Speed



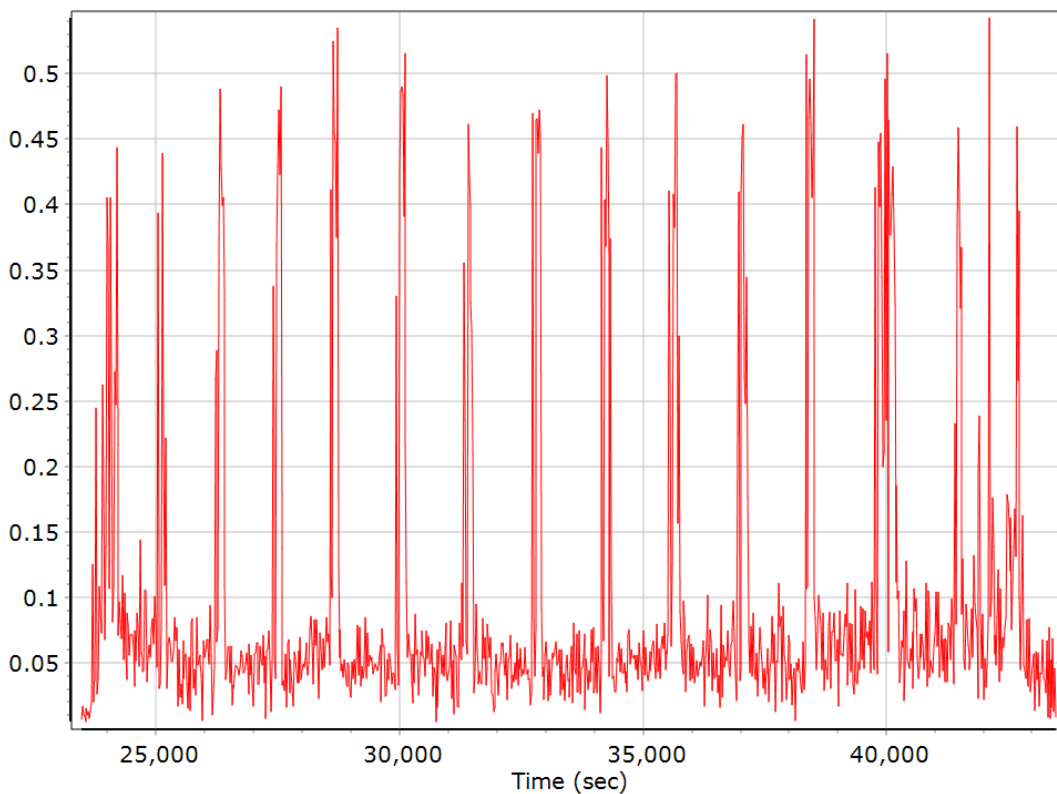
## Ground Speed



### Body Acceleration

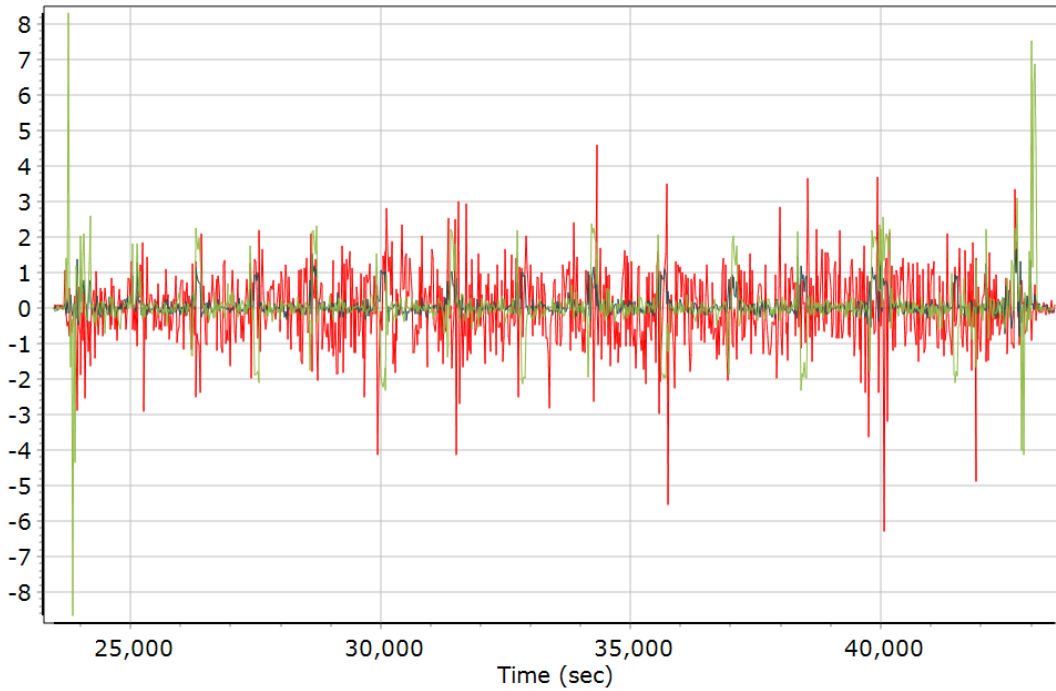


### Total Body Acceleration





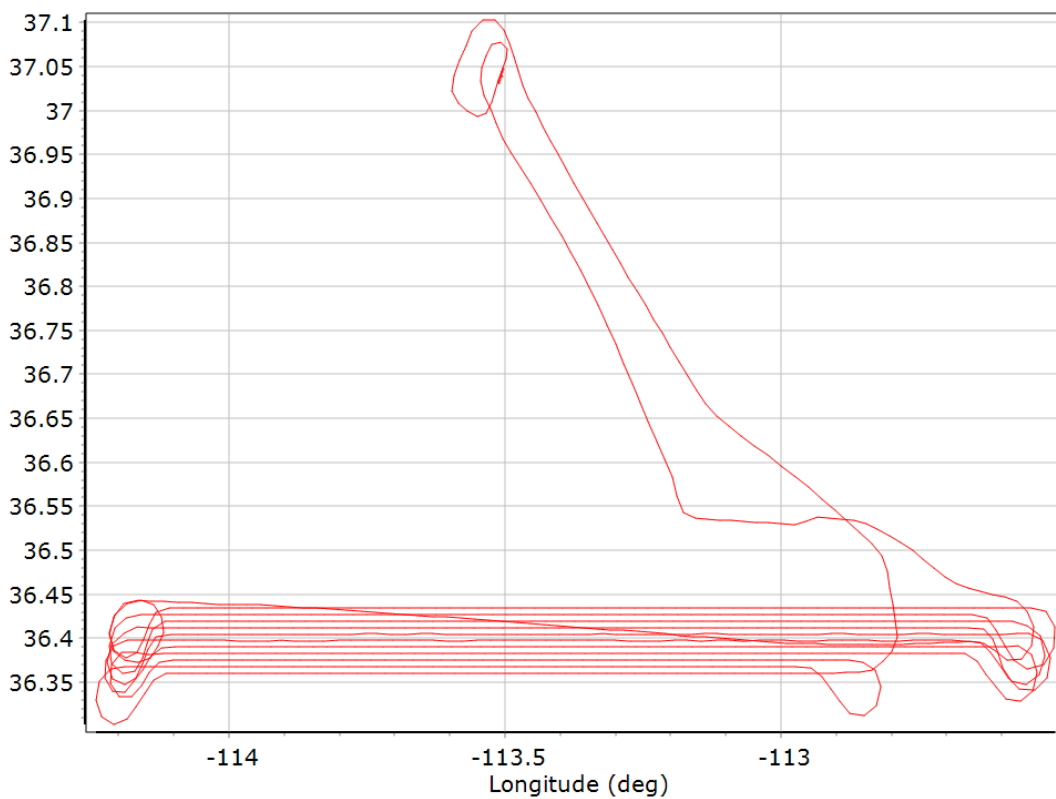
## Body Angular Rate



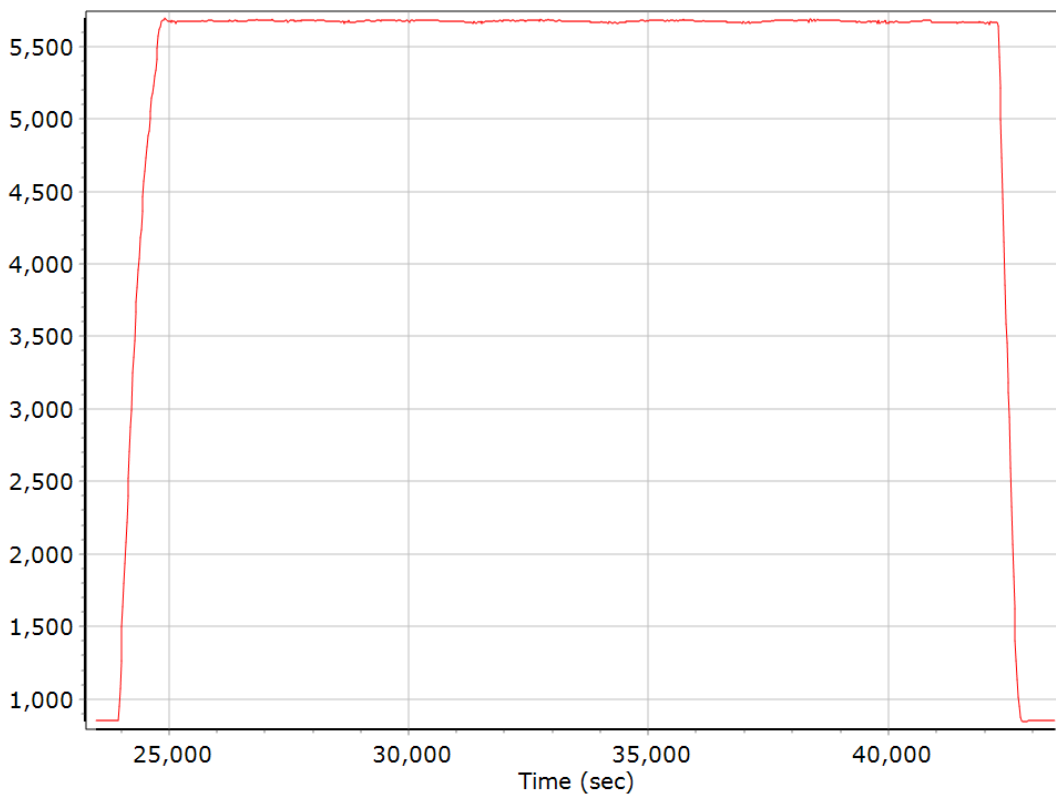
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## Forward Processed Trajectory Information

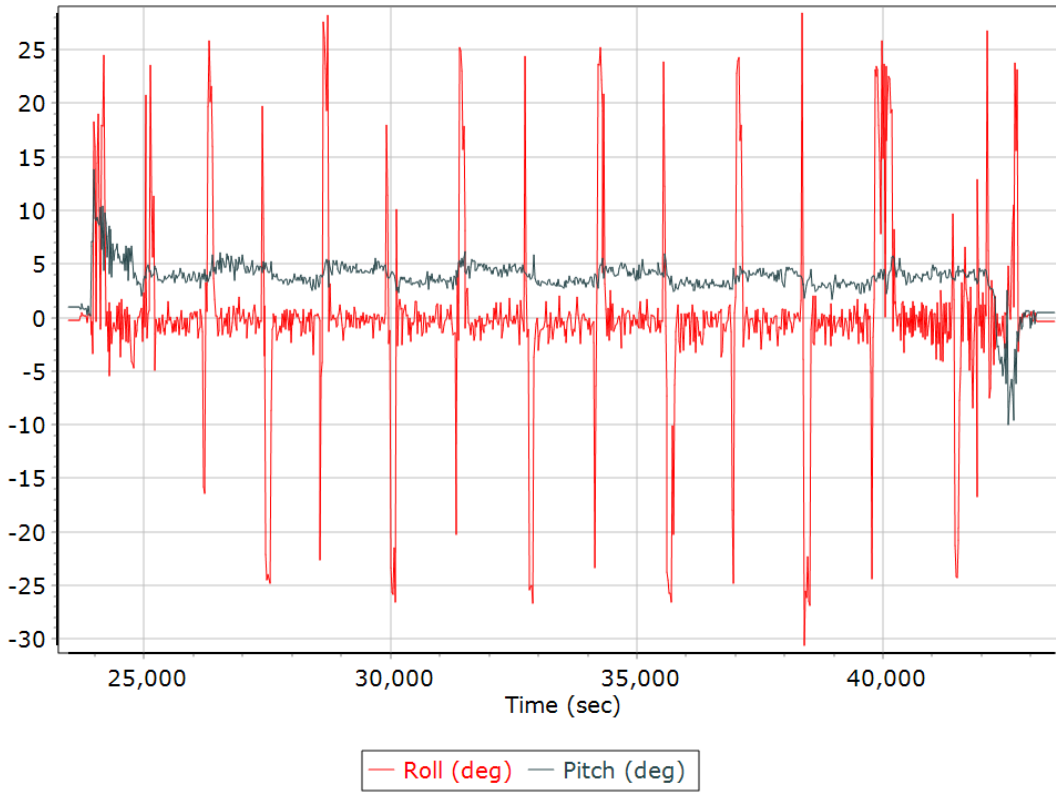
### Top View



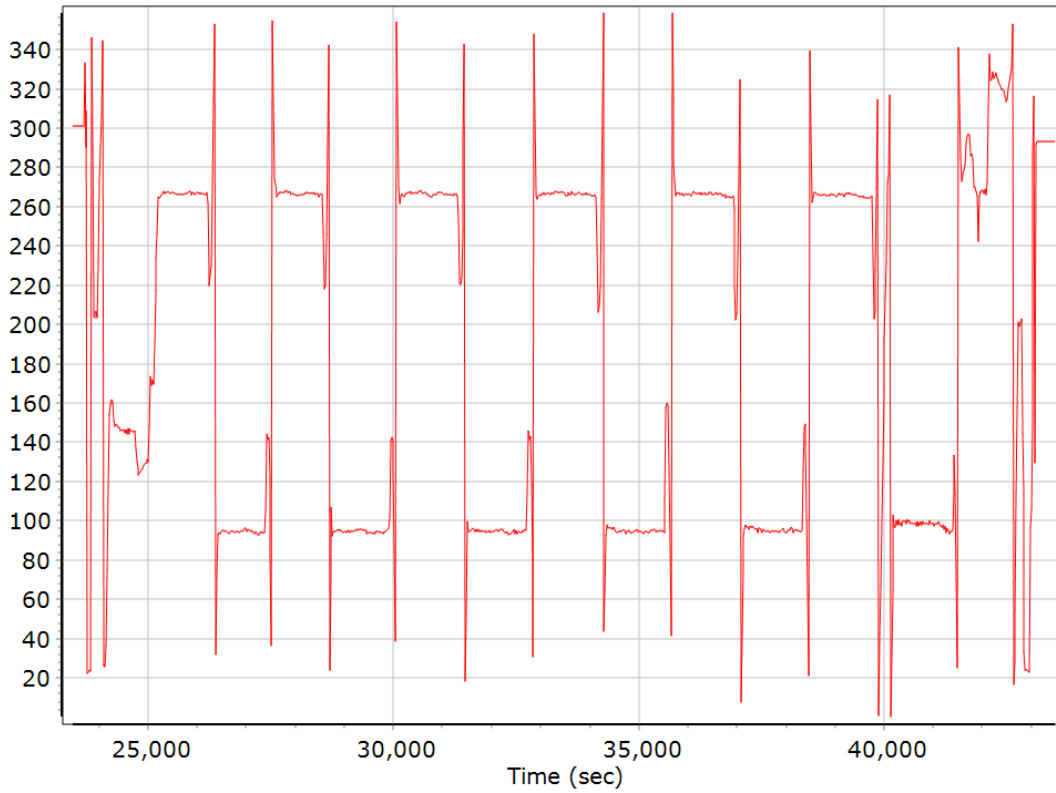
### Altitude



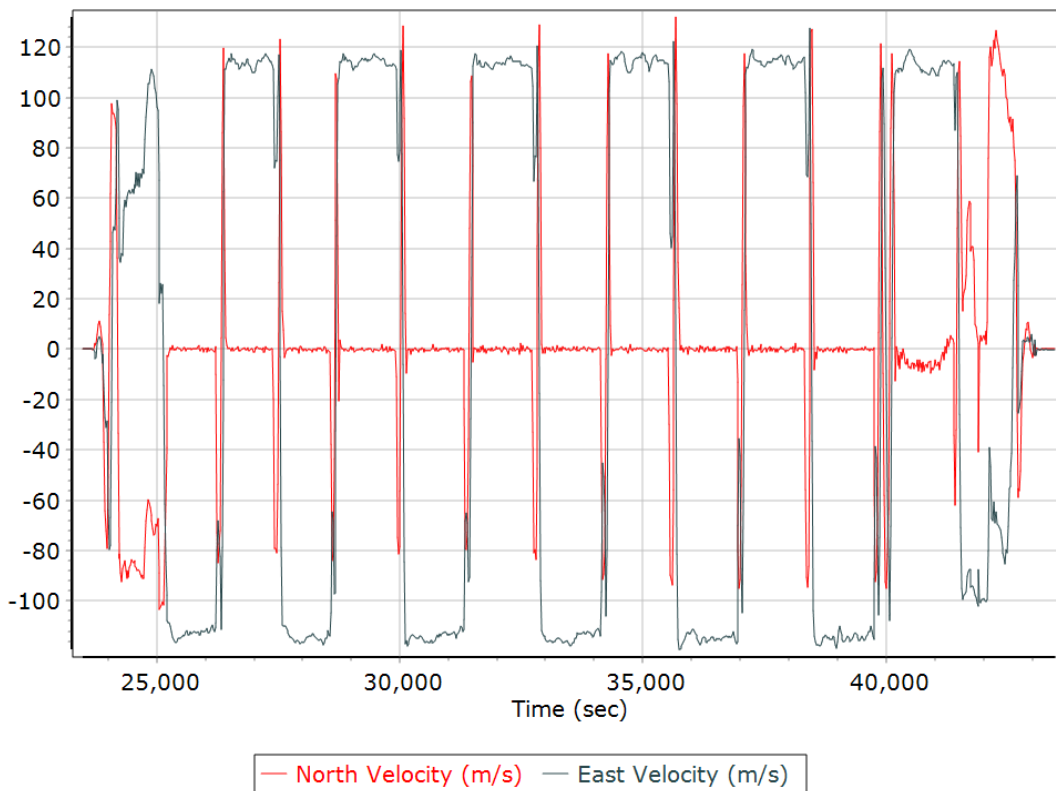
## Roll/Pitch



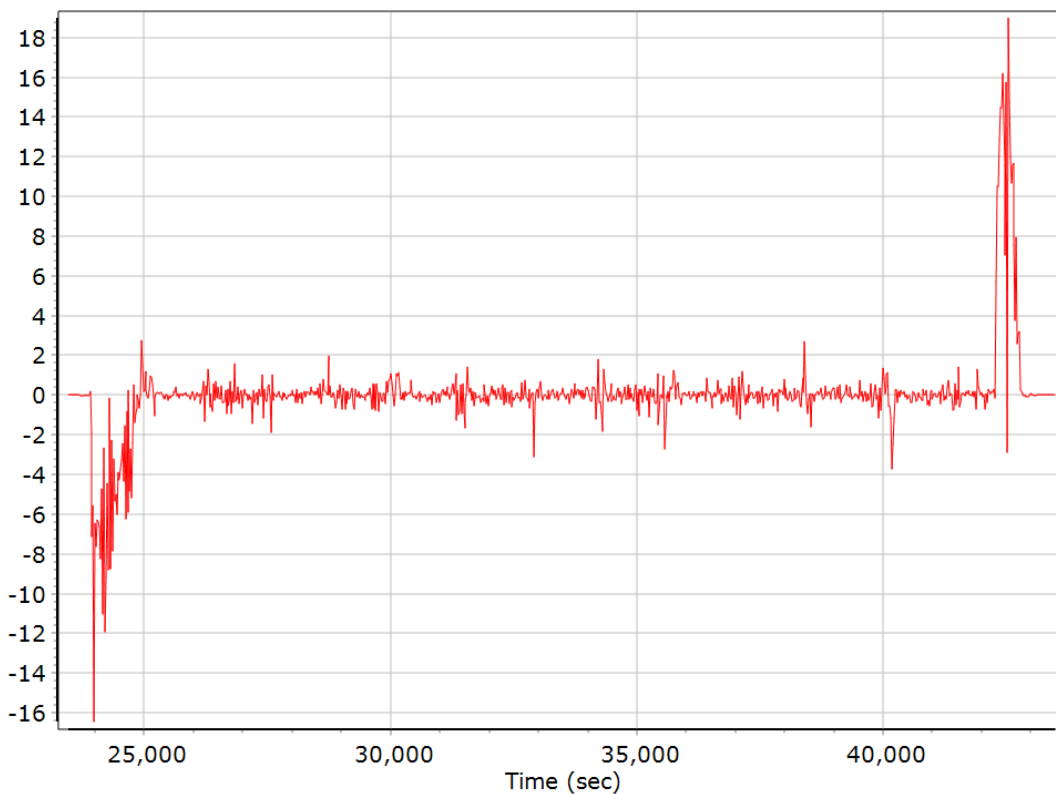
## Heading



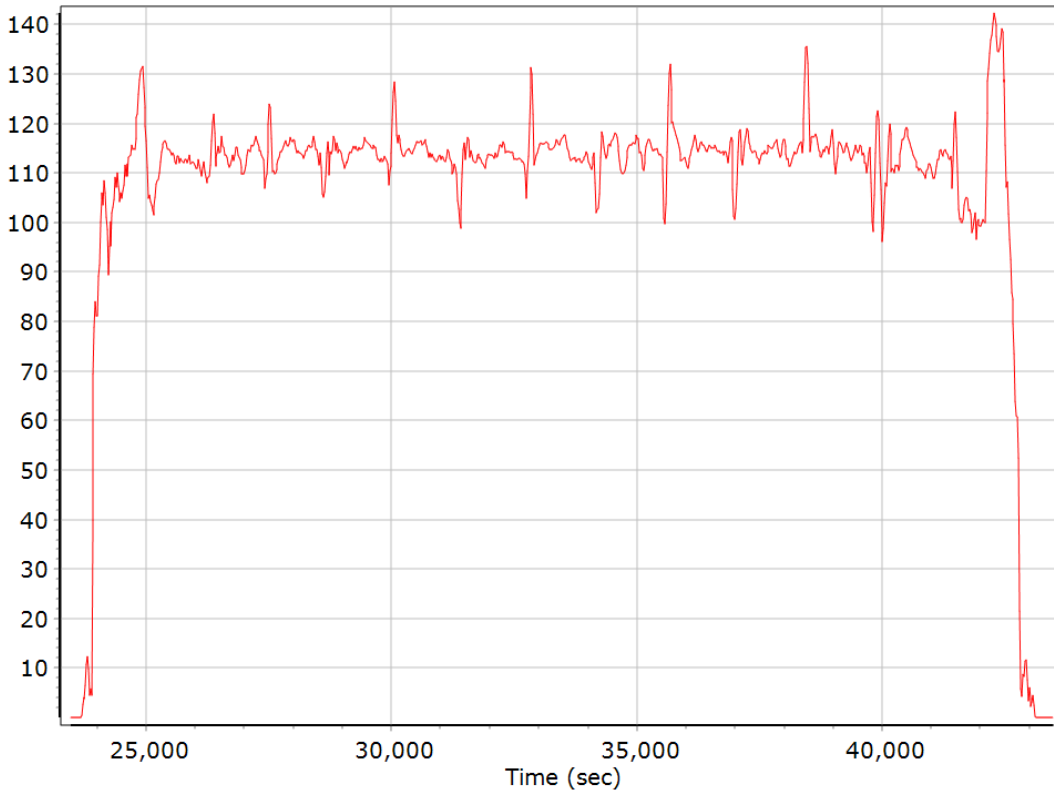
### North/East Velocity



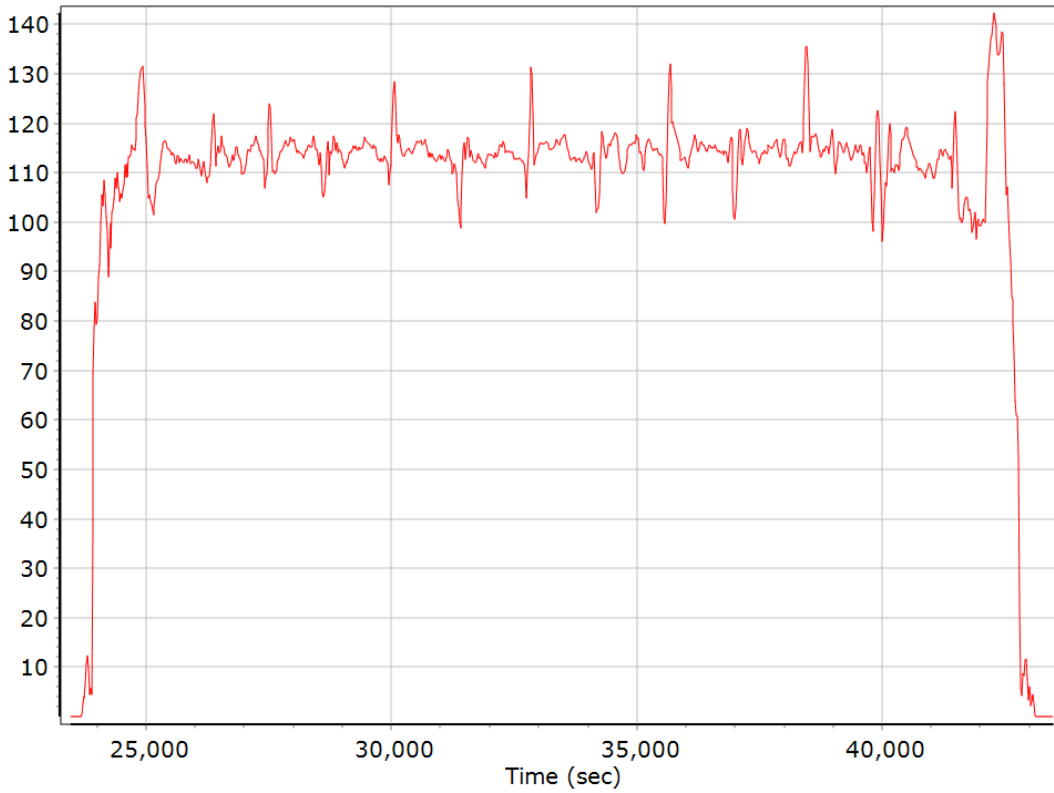
### Down Velocity



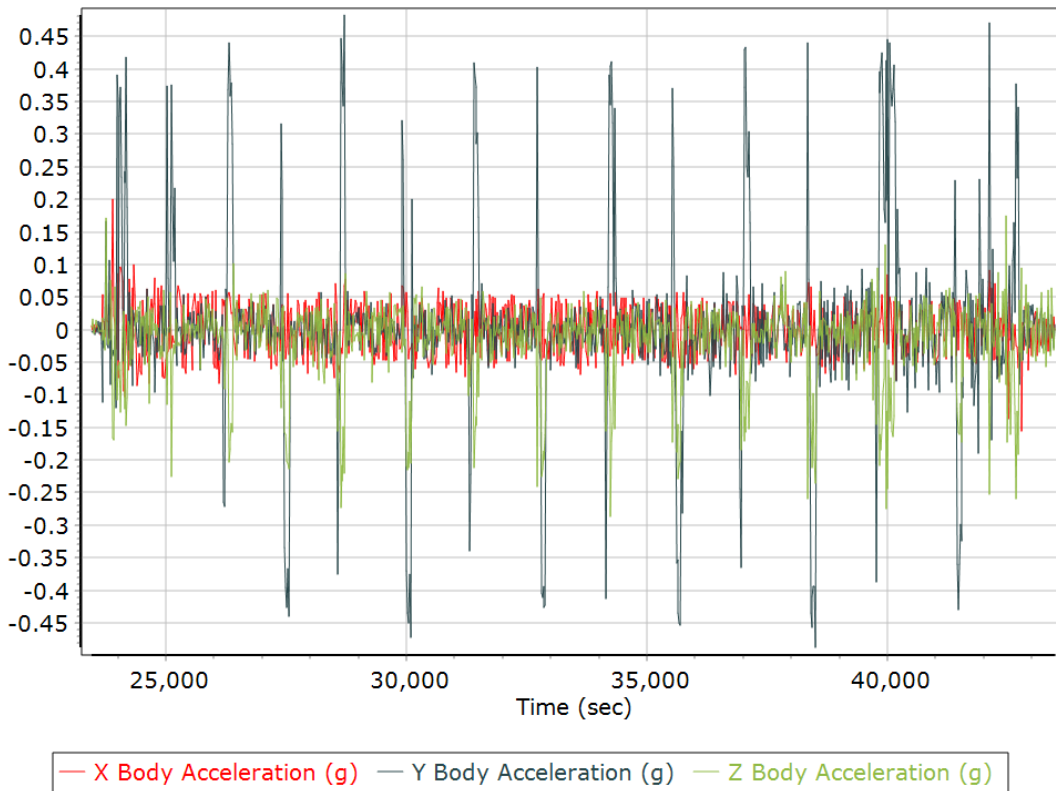
## Total Speed



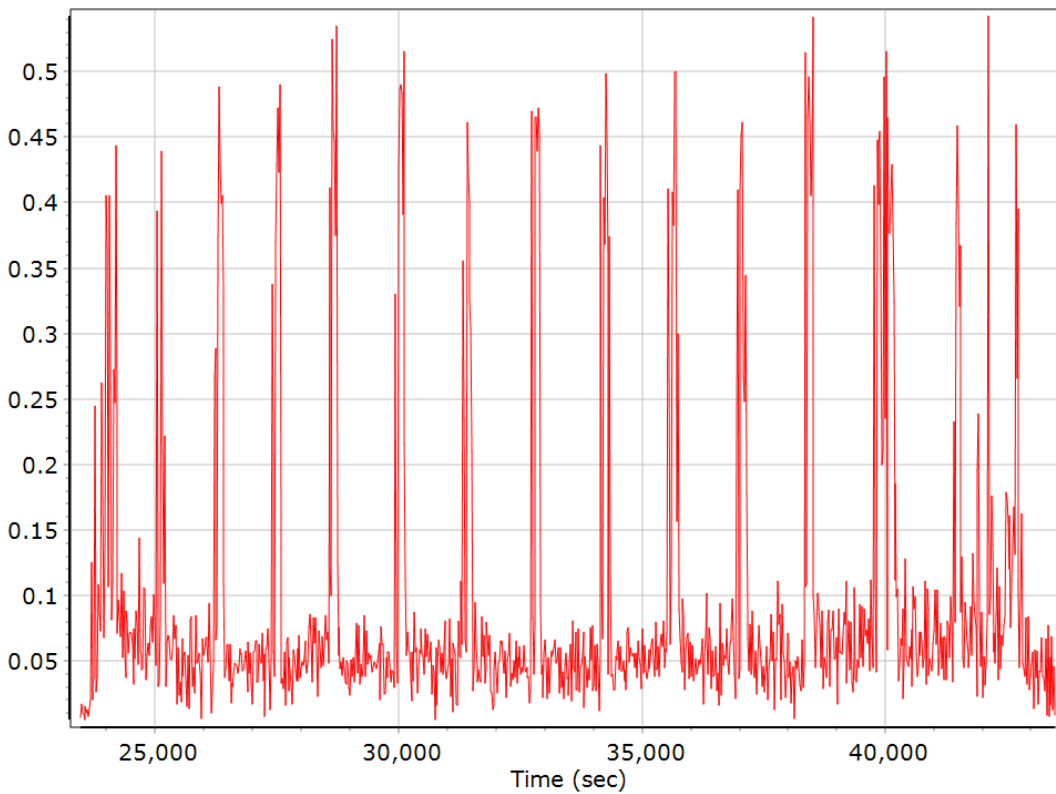
## Ground Speed



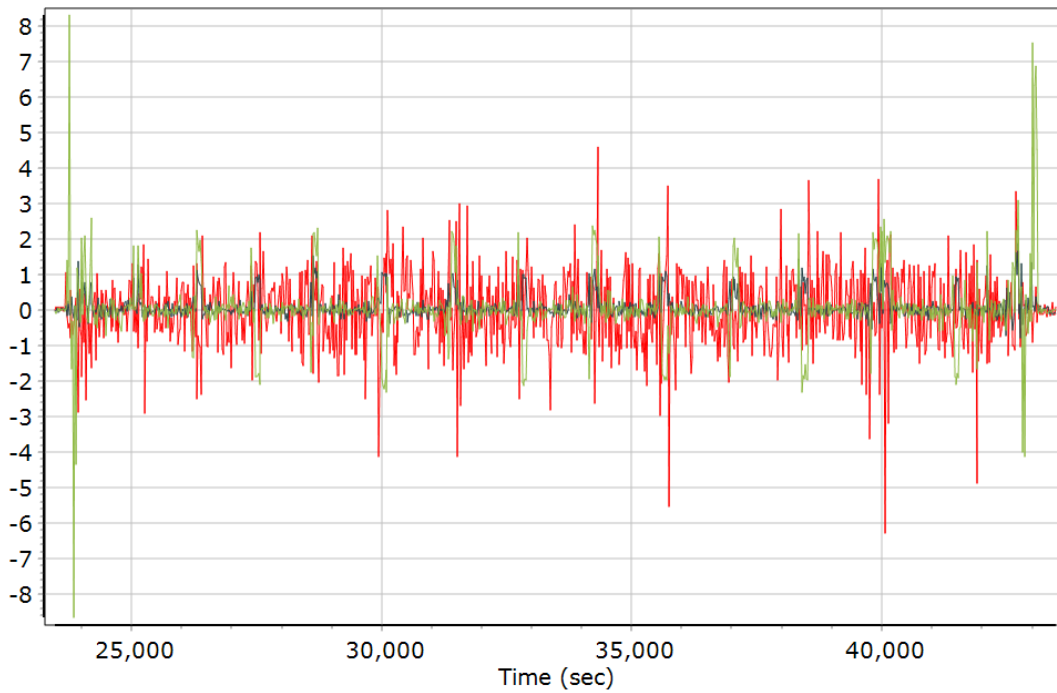
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



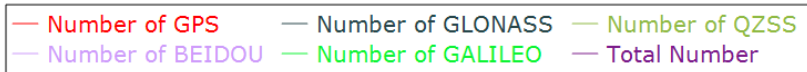
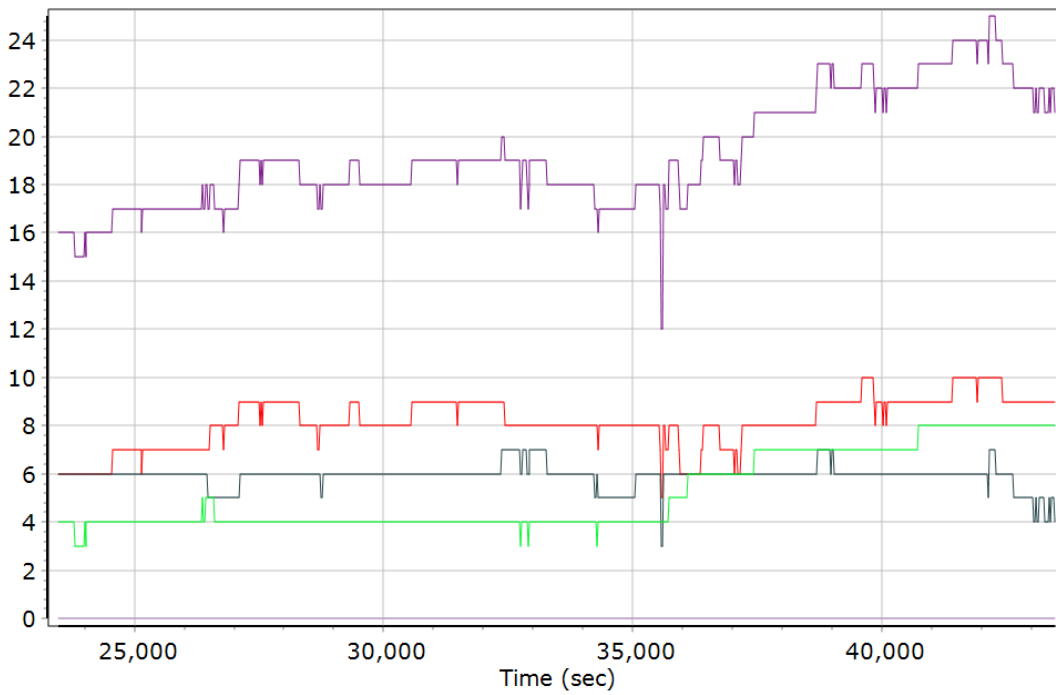
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

### GNSS QC Statistics

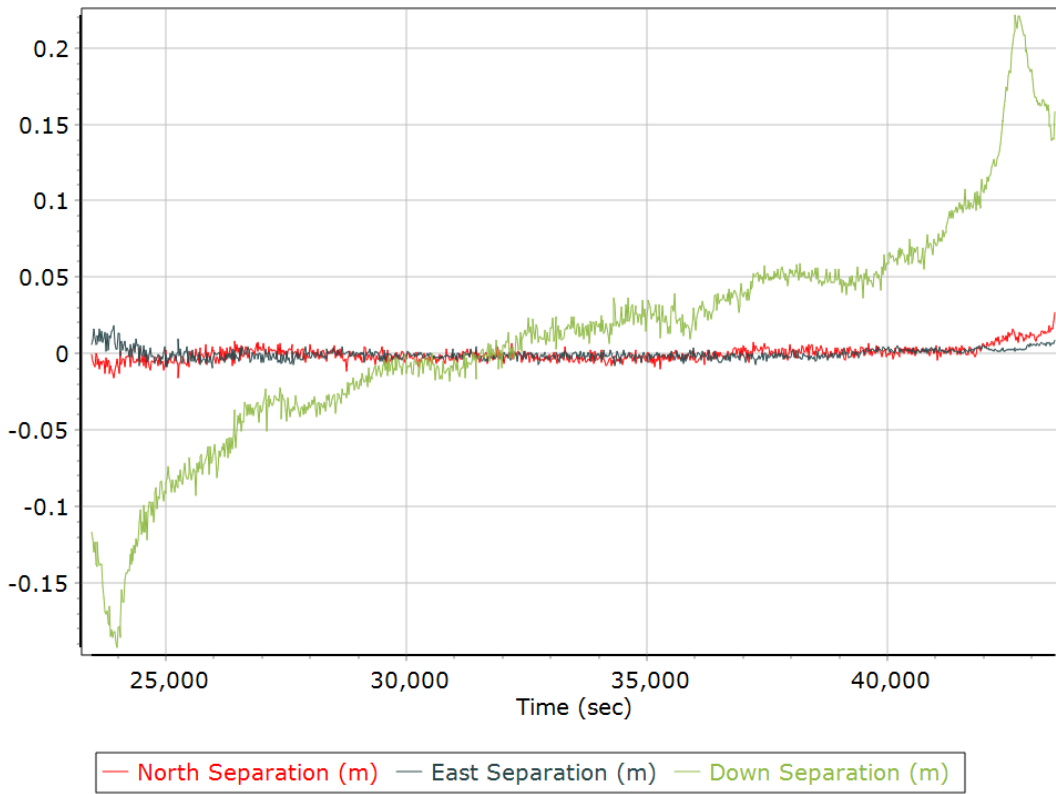
Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	4	10	8
Number of GLONASS SV	0	7	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	8	5
Total number of SV	8	25	19
PDOP	1.00	2.16	1.22
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	20475.00	0.00	0.00
Percentage	100.00	0.00	0.00

### Num SVs in solution

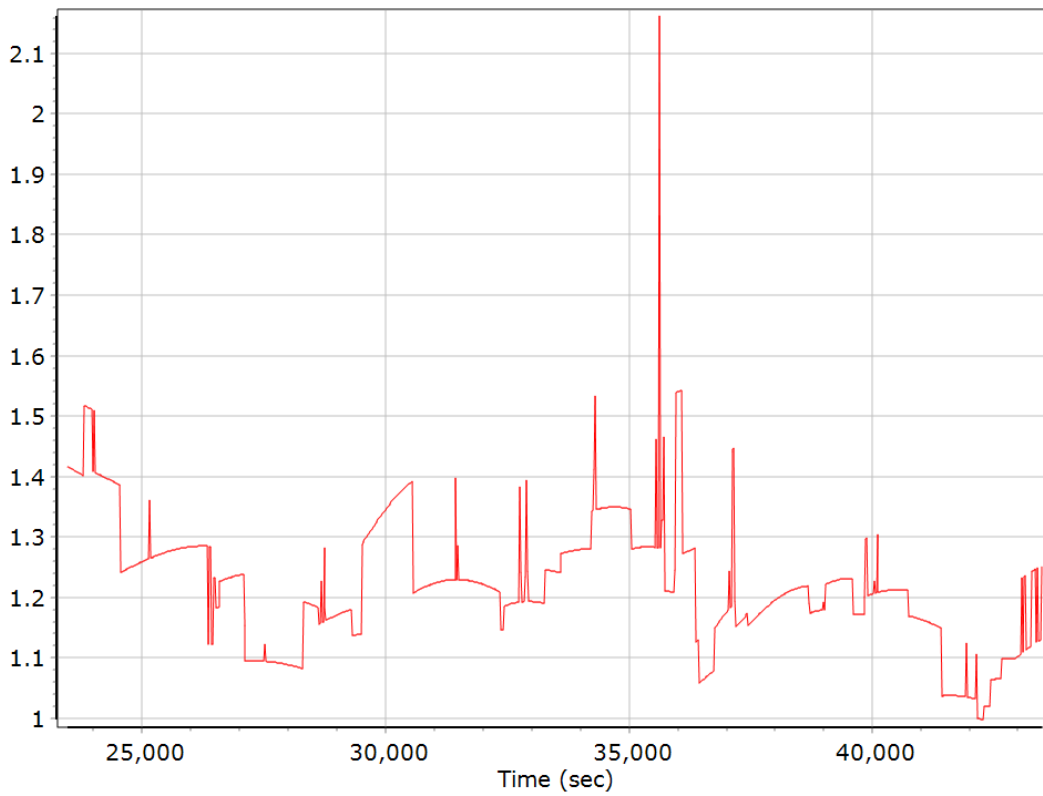




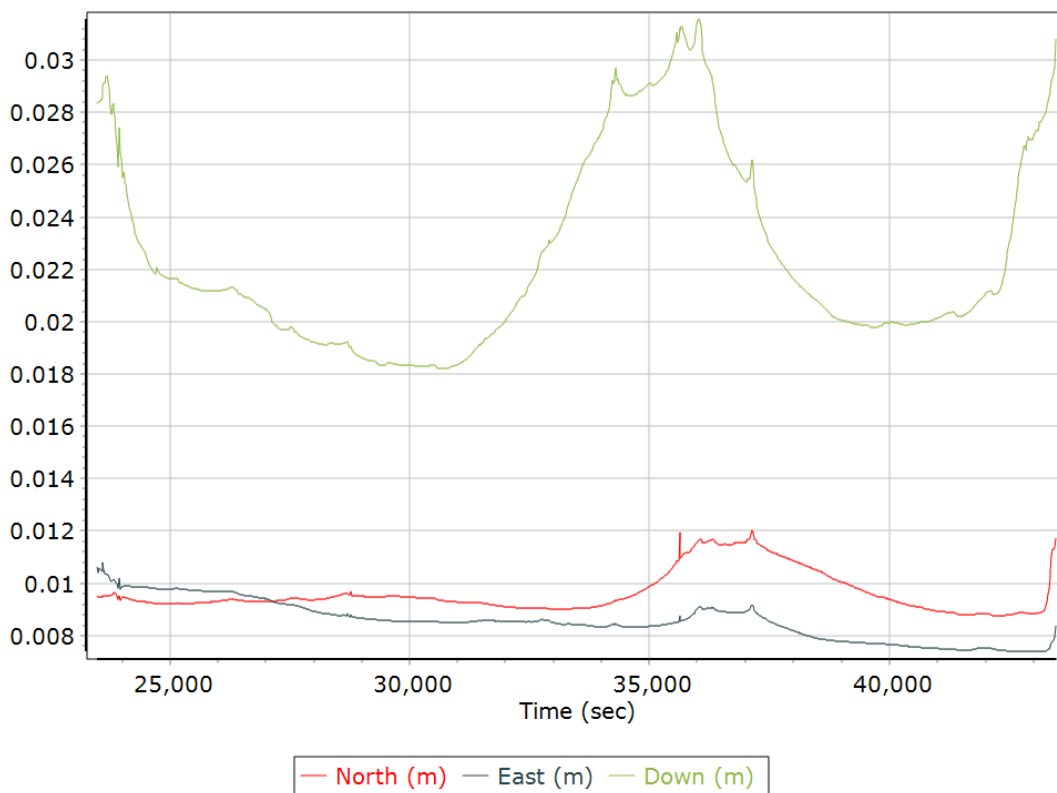
### Forward/Reverse Separation



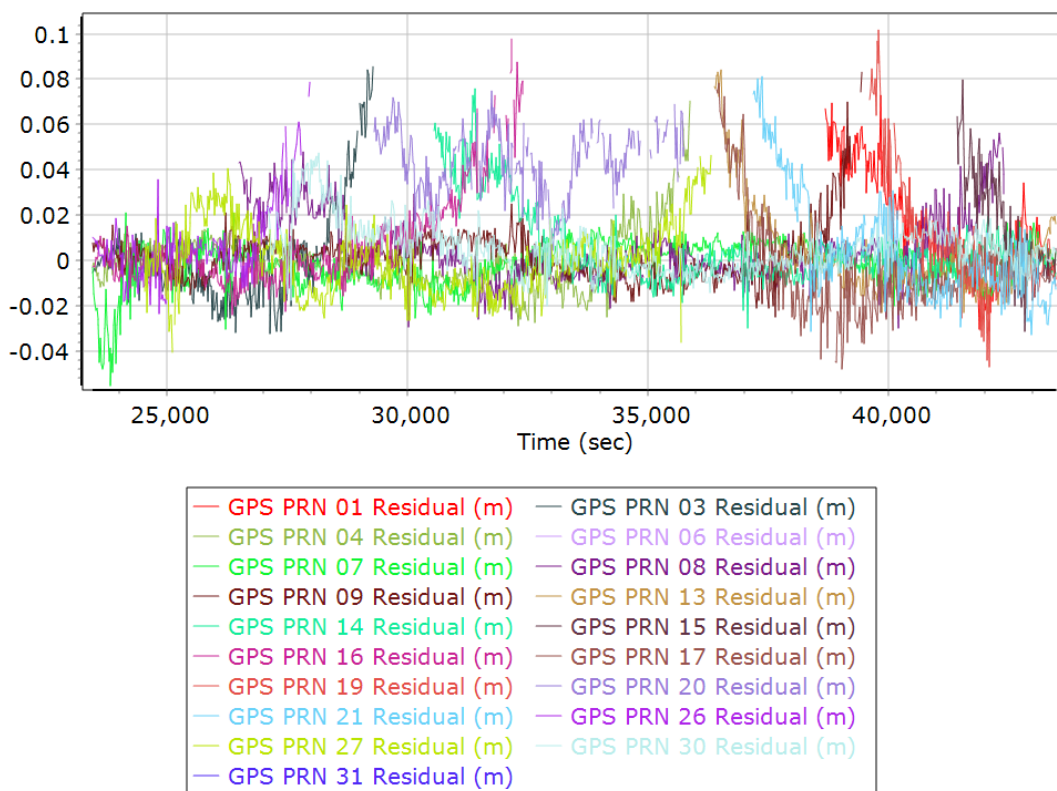
### PDOP



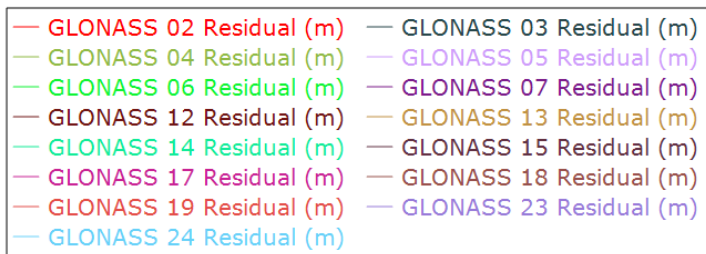
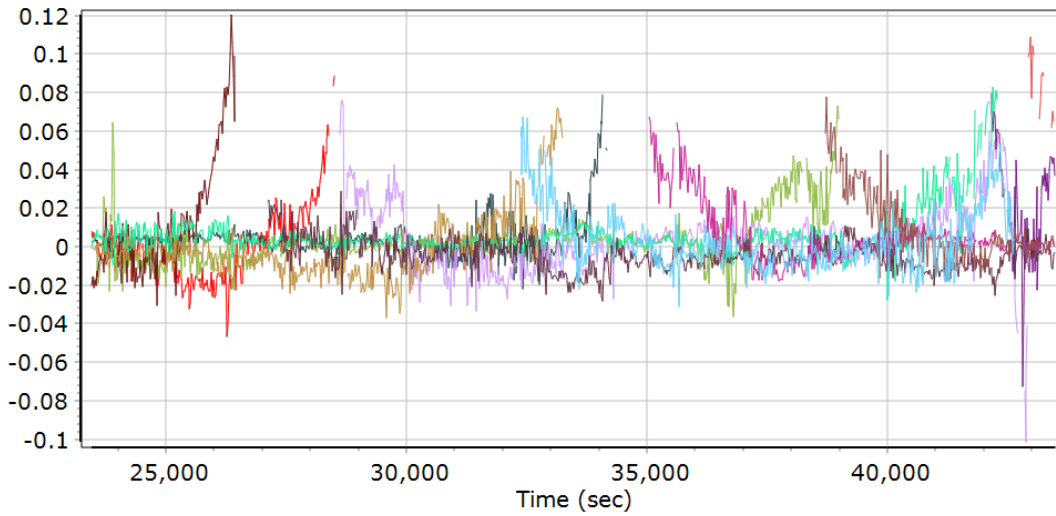
### Estimated Position Accuracy



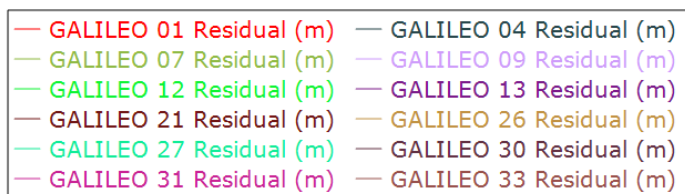
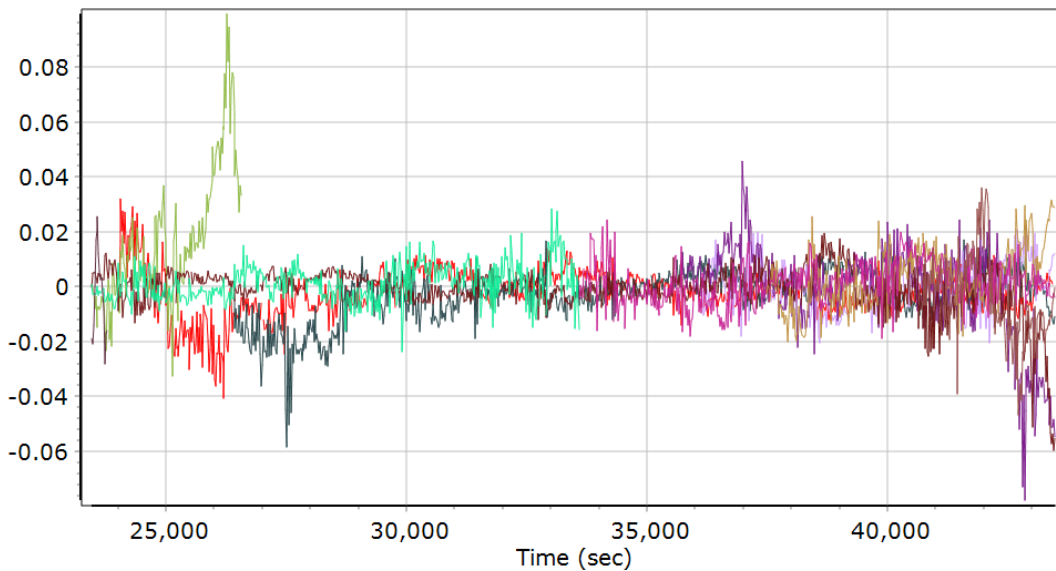
### GPS Residuals



## GLONASS Residuals



## GALILEO Residuals



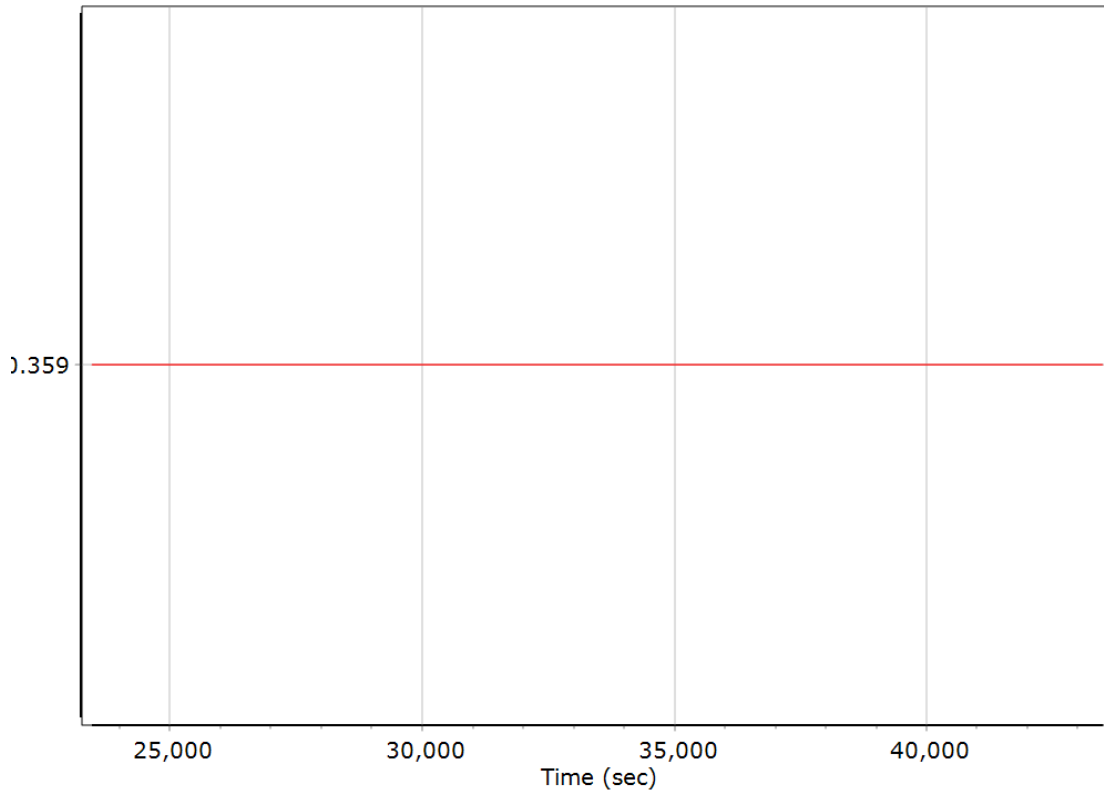
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	23007.000 (7/3/2022 6:23:27 AM)		
Processing end time	43492.000 (7/3/2022 12:04:52 PM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.359	-0.320	-1.280
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

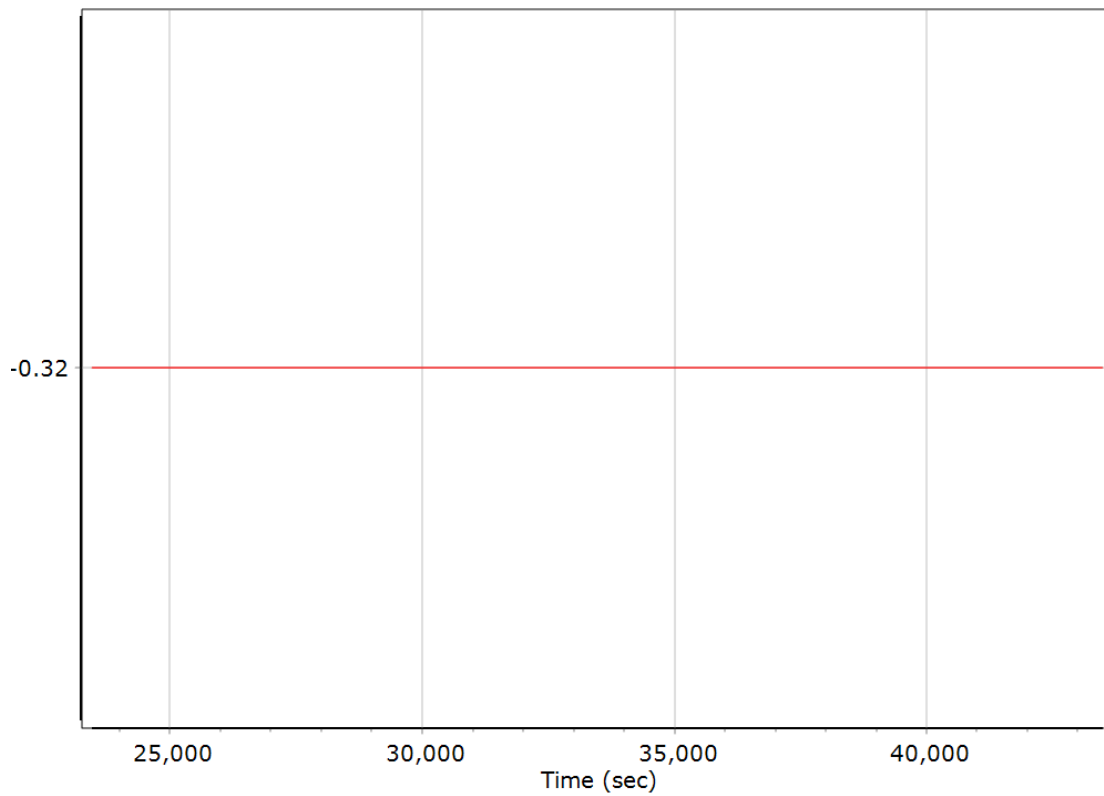
## Calibrated Installation Parameters

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

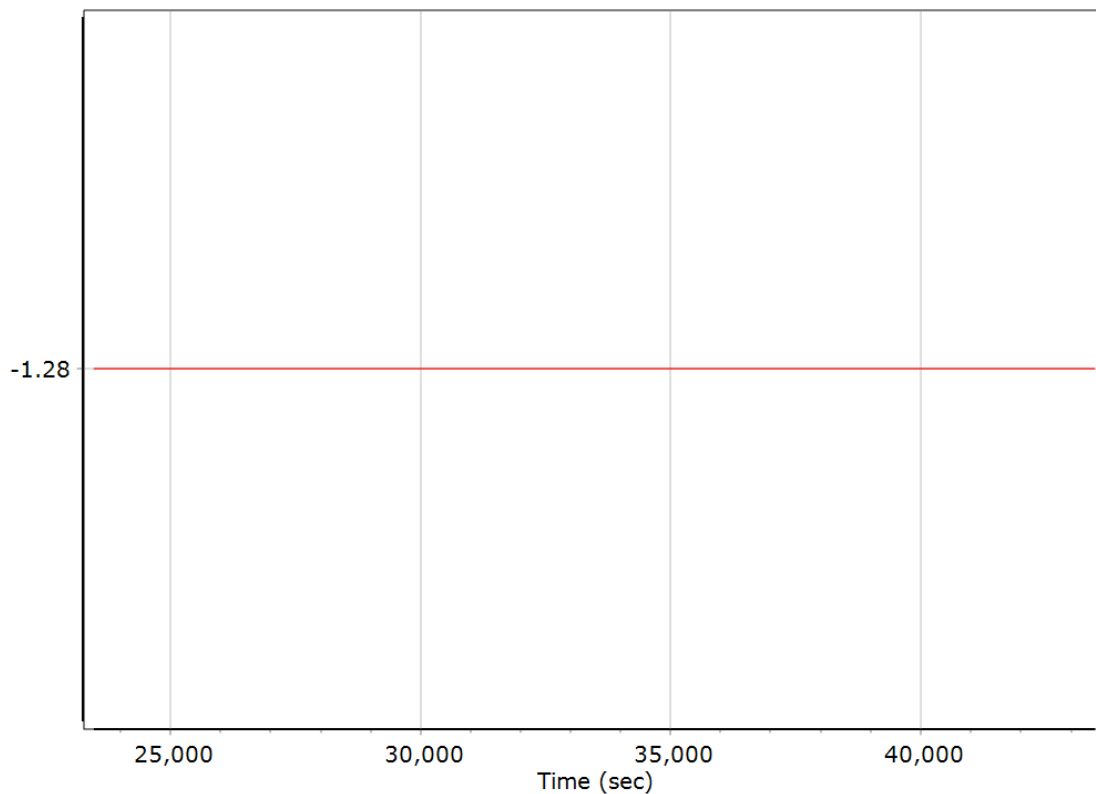
#### X Reference-Primary GNSS Lever Arm (m)



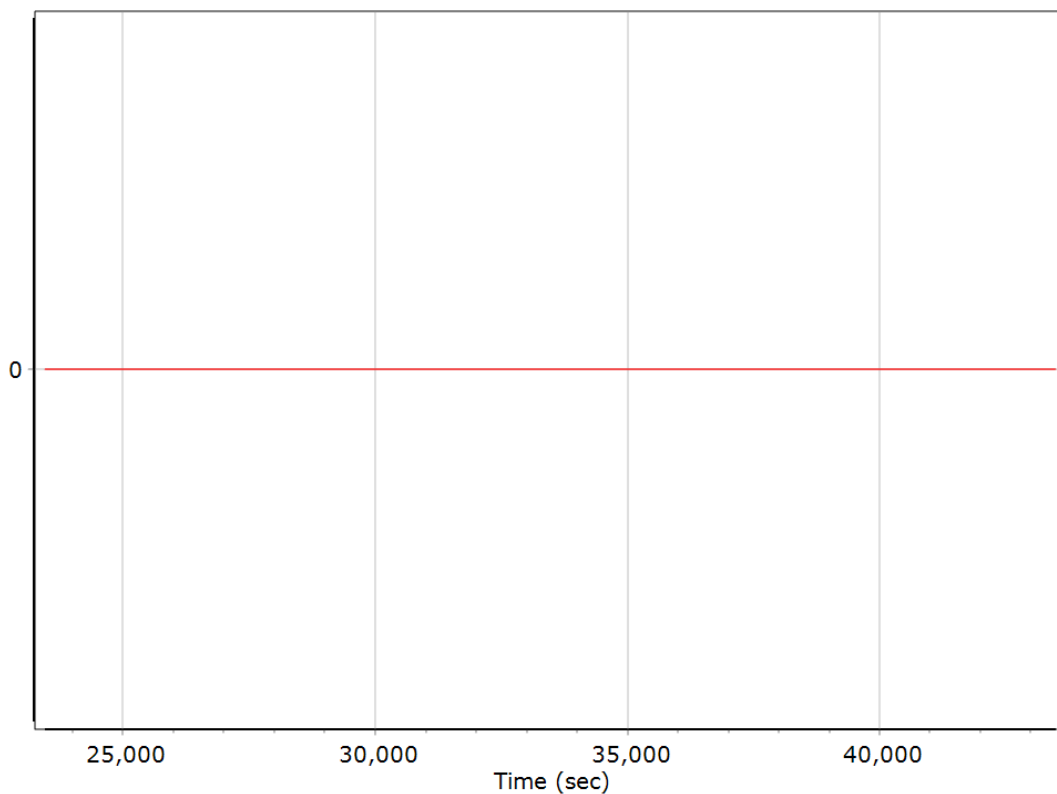
#### Y Reference-Primary GNSS Lever Arm (m)



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



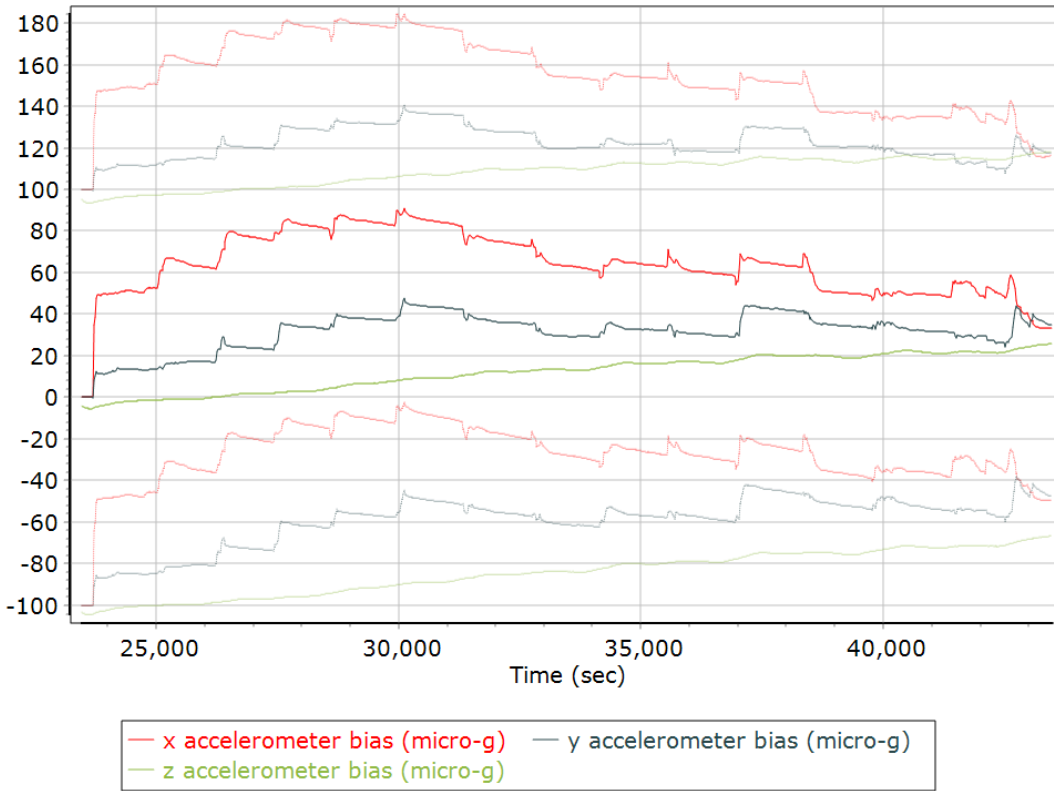
### Reference-Primary GNSS Lever Arm Figure of Merit



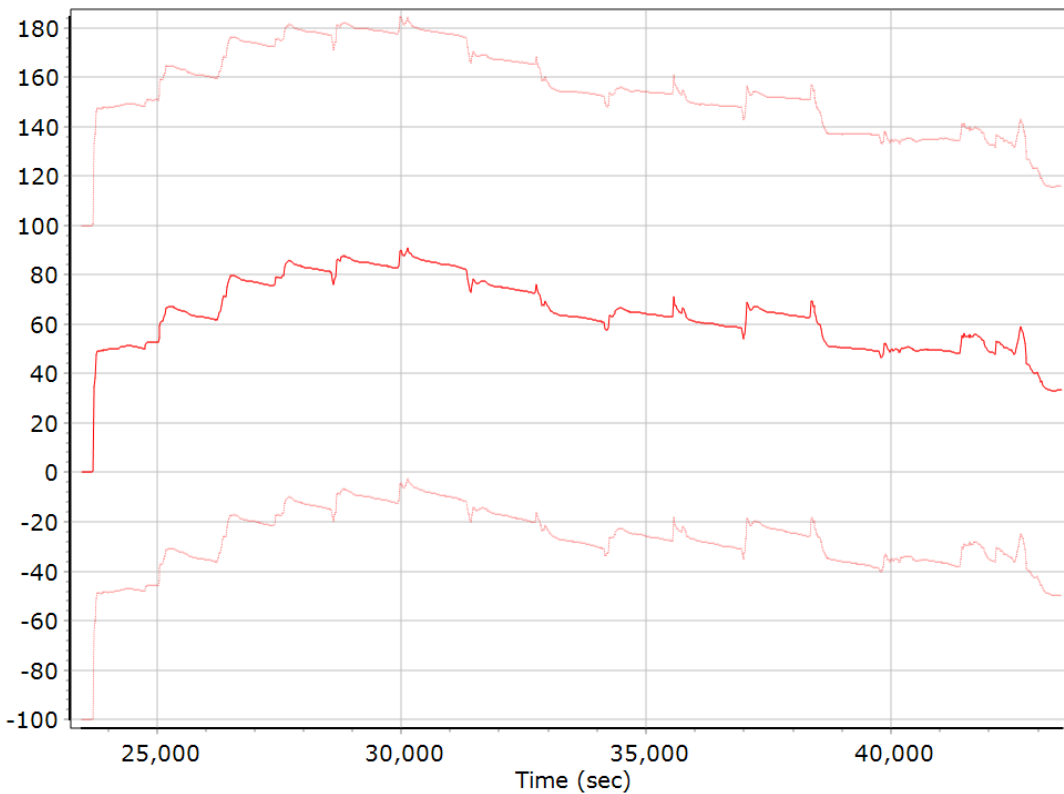
# IN-Fusion QC

## Forward Processed Estimated Errors, Reference Frame

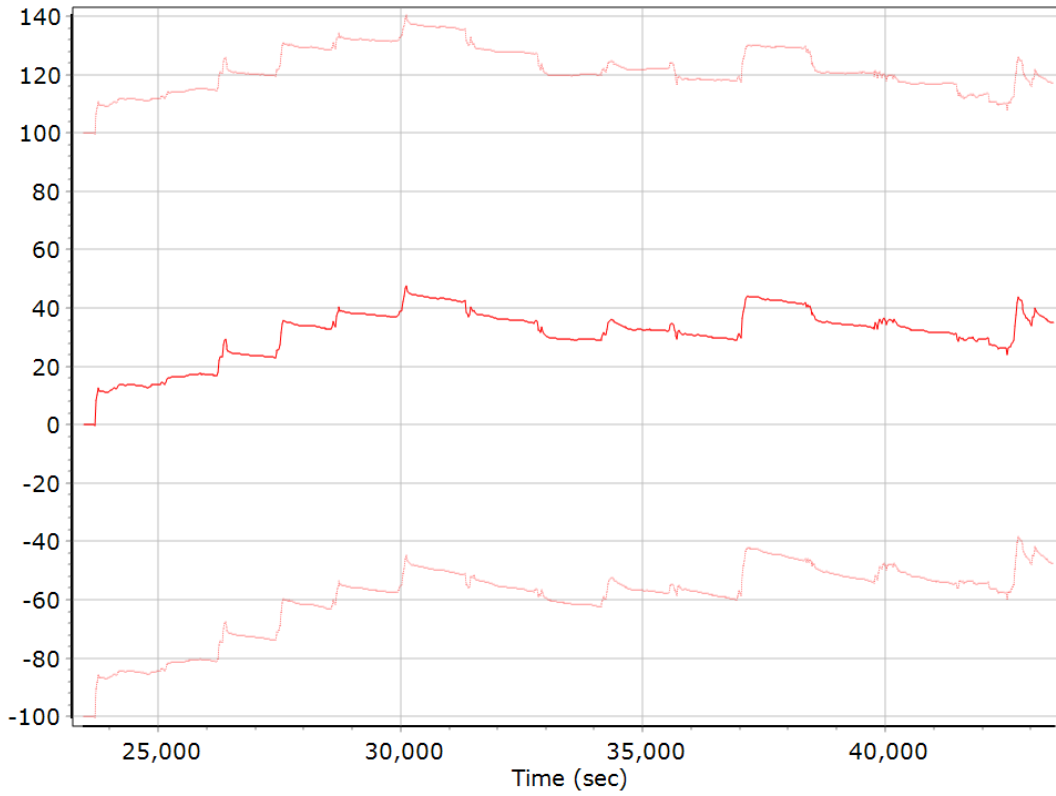
### Accelerometer Bias (micro-g)



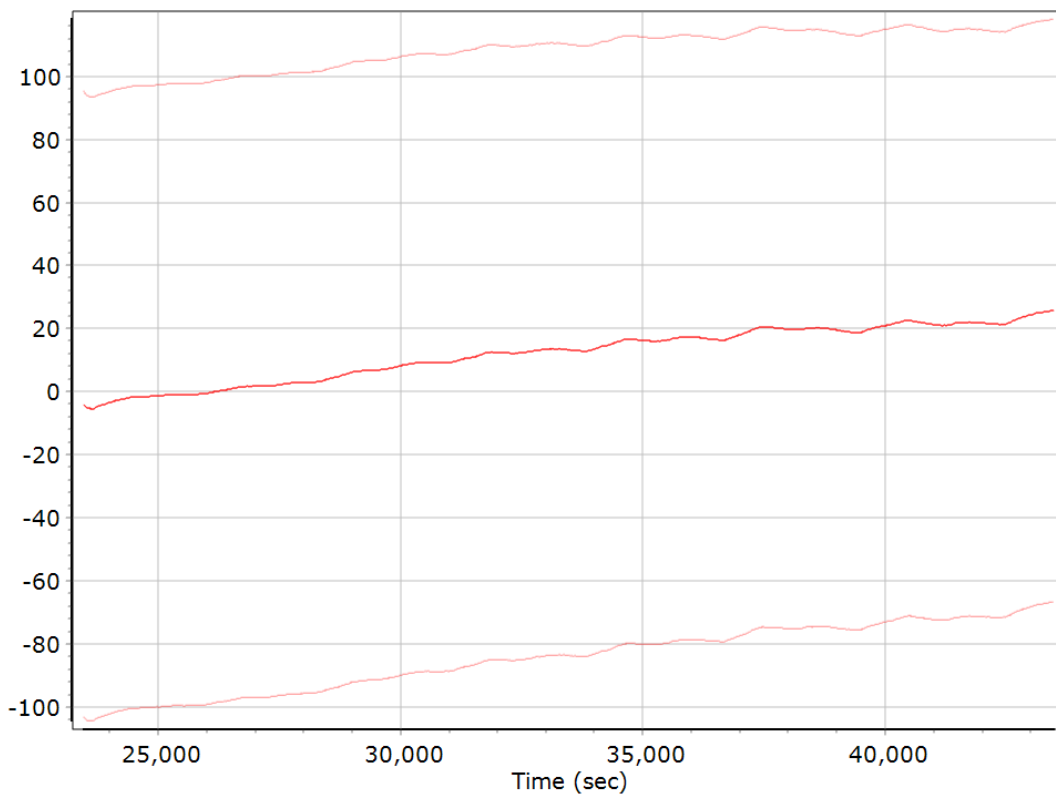
### X Accelerometer Bias (micro-g)



### Y Accelerometer Bias (micro-g)

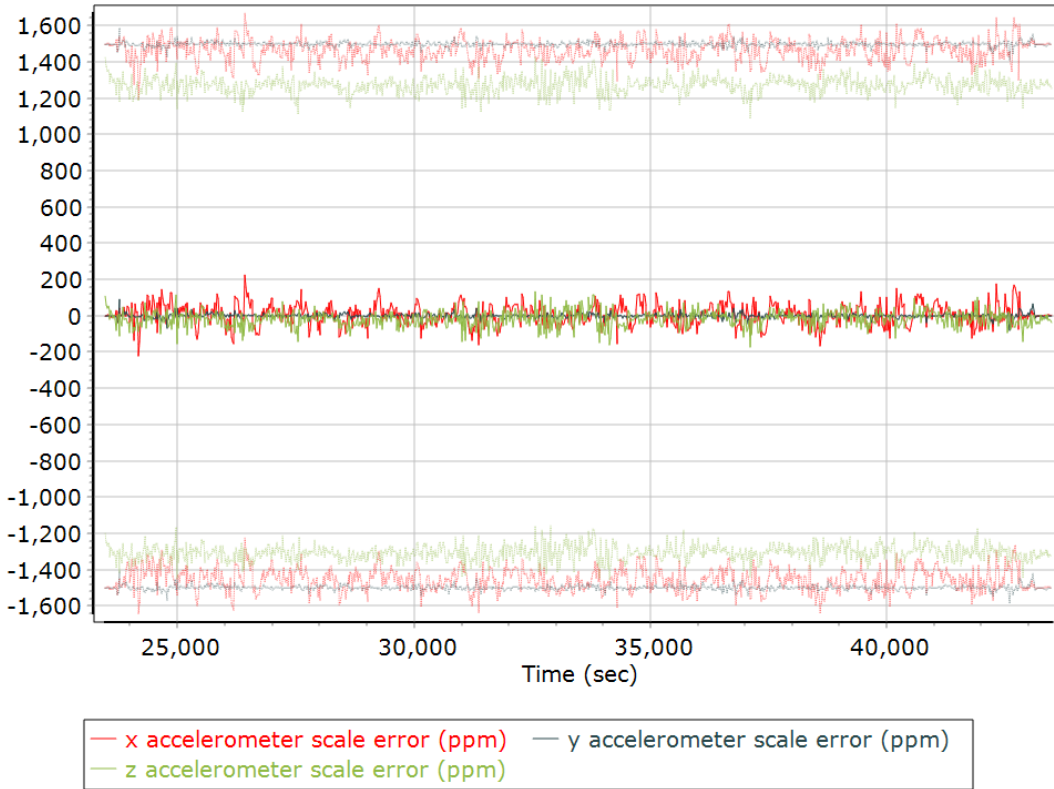


### Z Accelerometer Bias (micro-g)

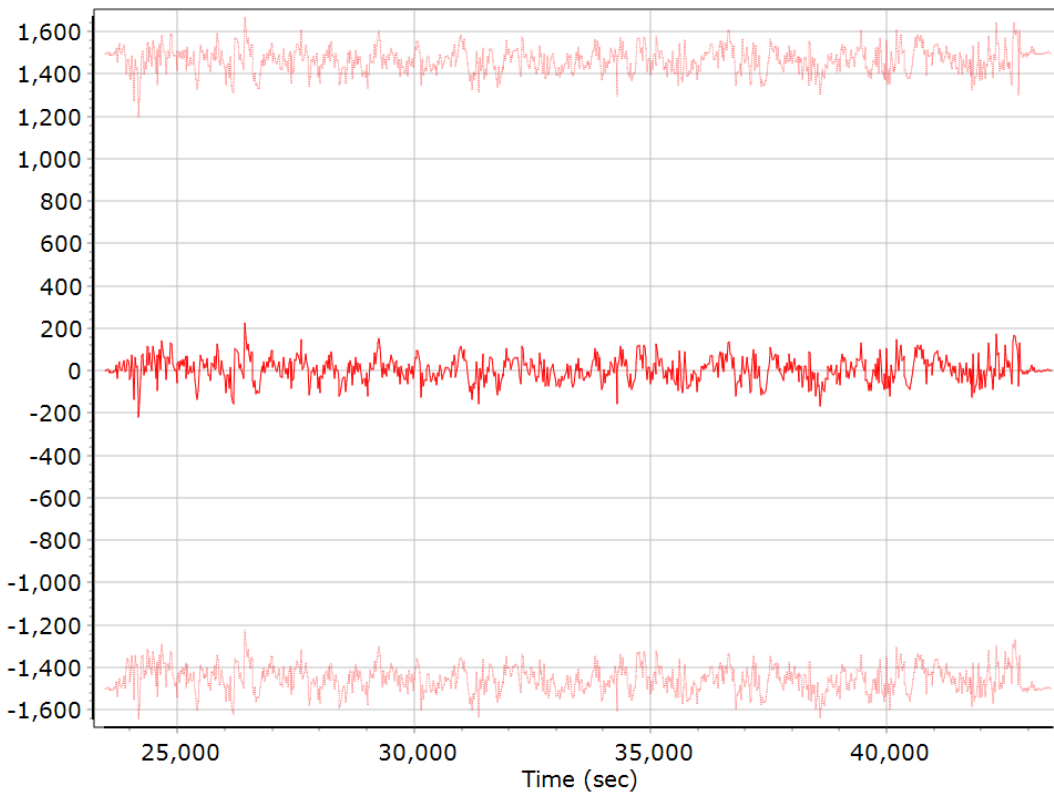




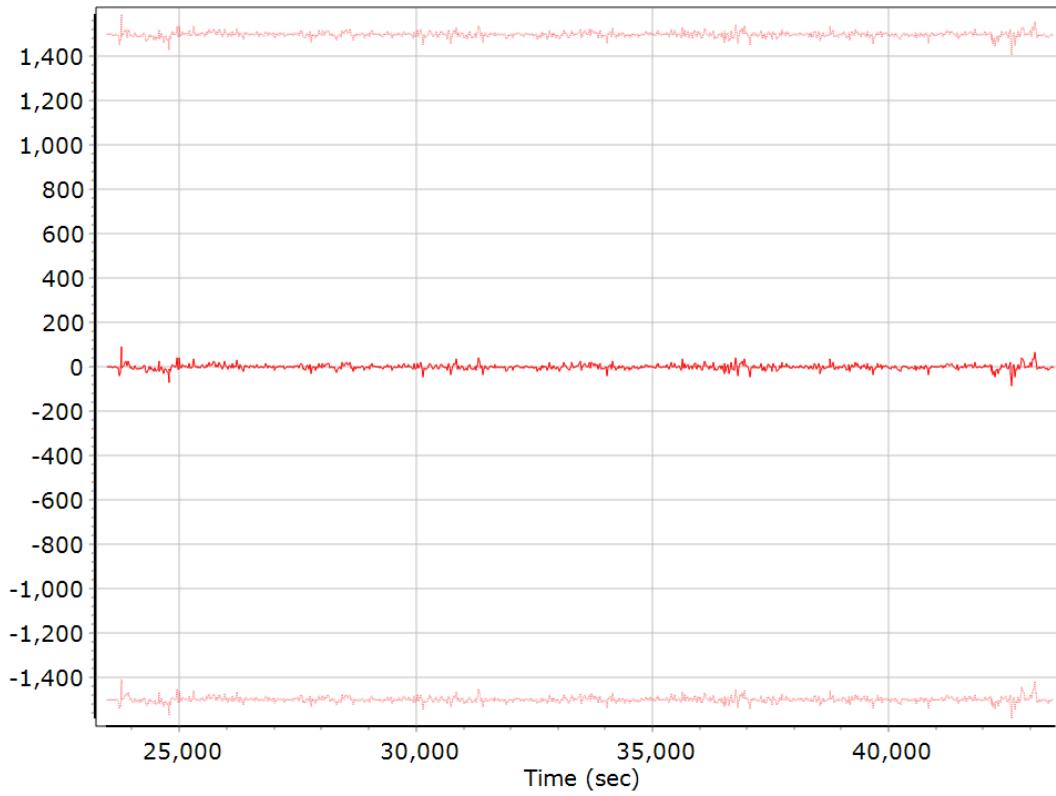
### Accelerometer Scale Error (ppm)



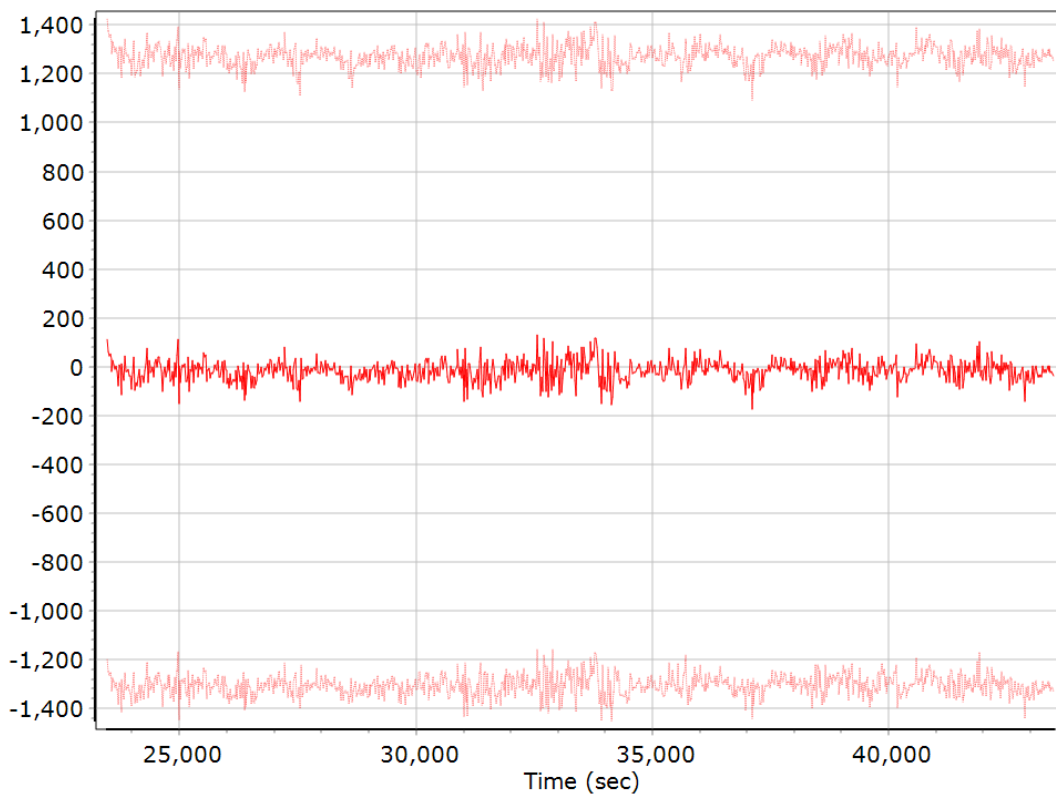
### X Accelerometer Scale Error (ppm)



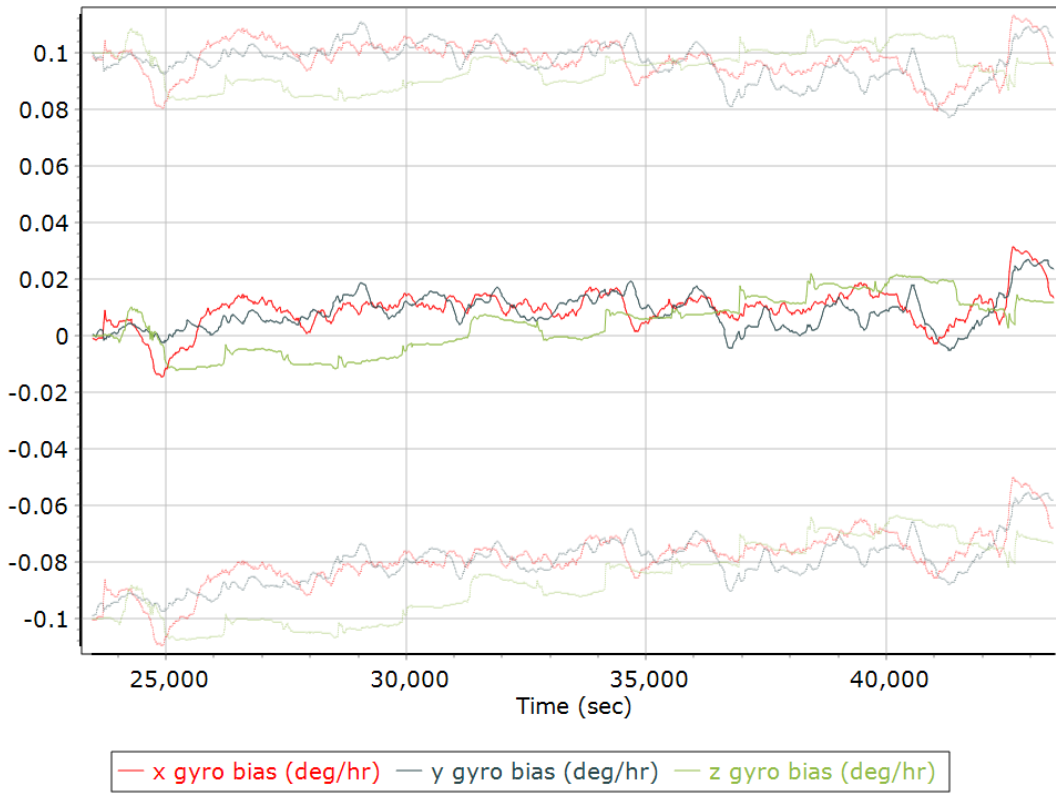
### Y Accelerometer Scale Error (ppm)



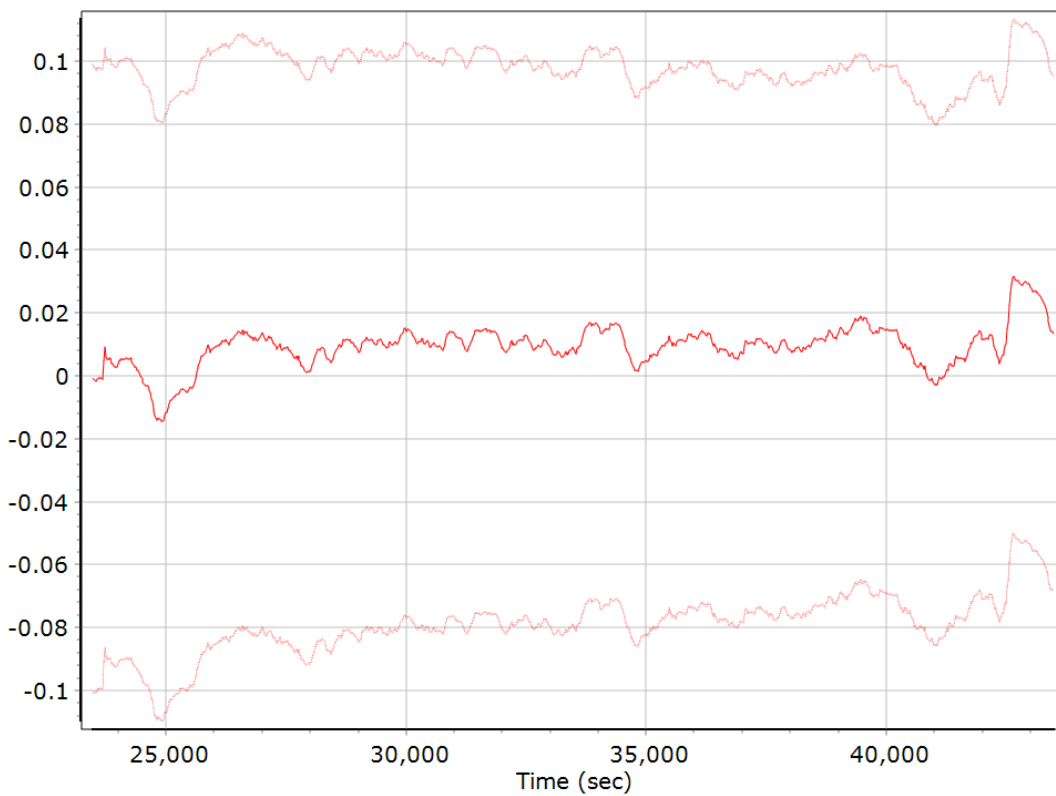
### Z Accelerometer Scale Error (ppm)



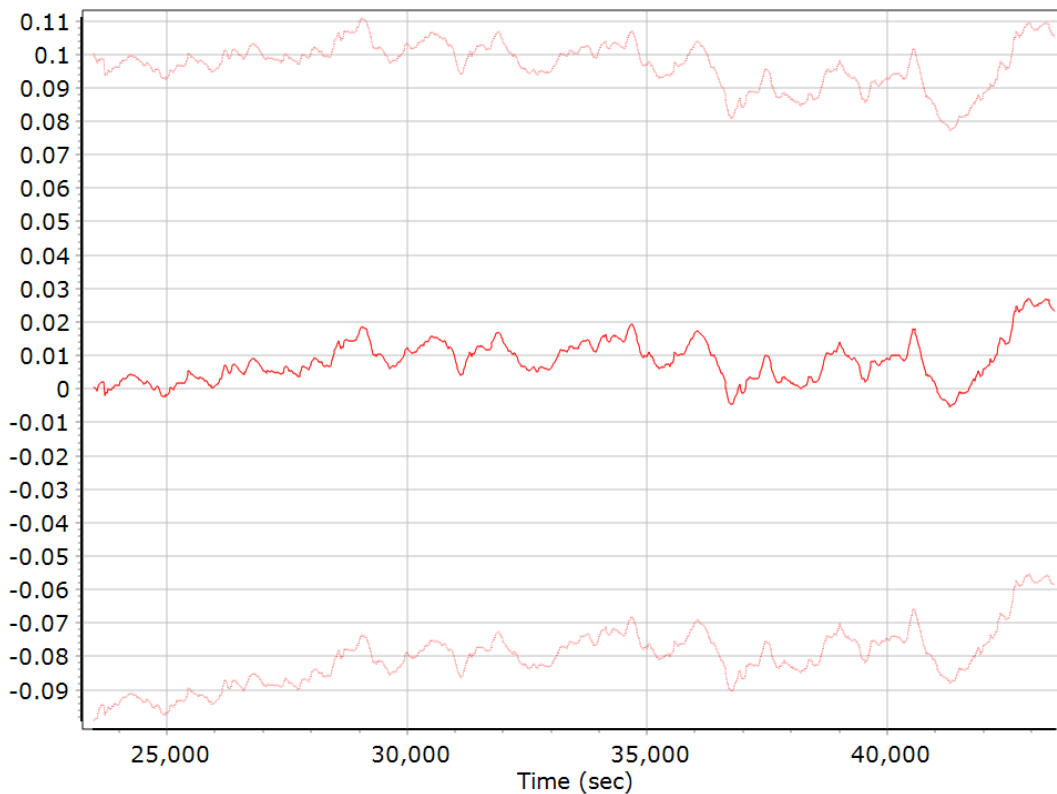
### Gyro Bias (deg/h)



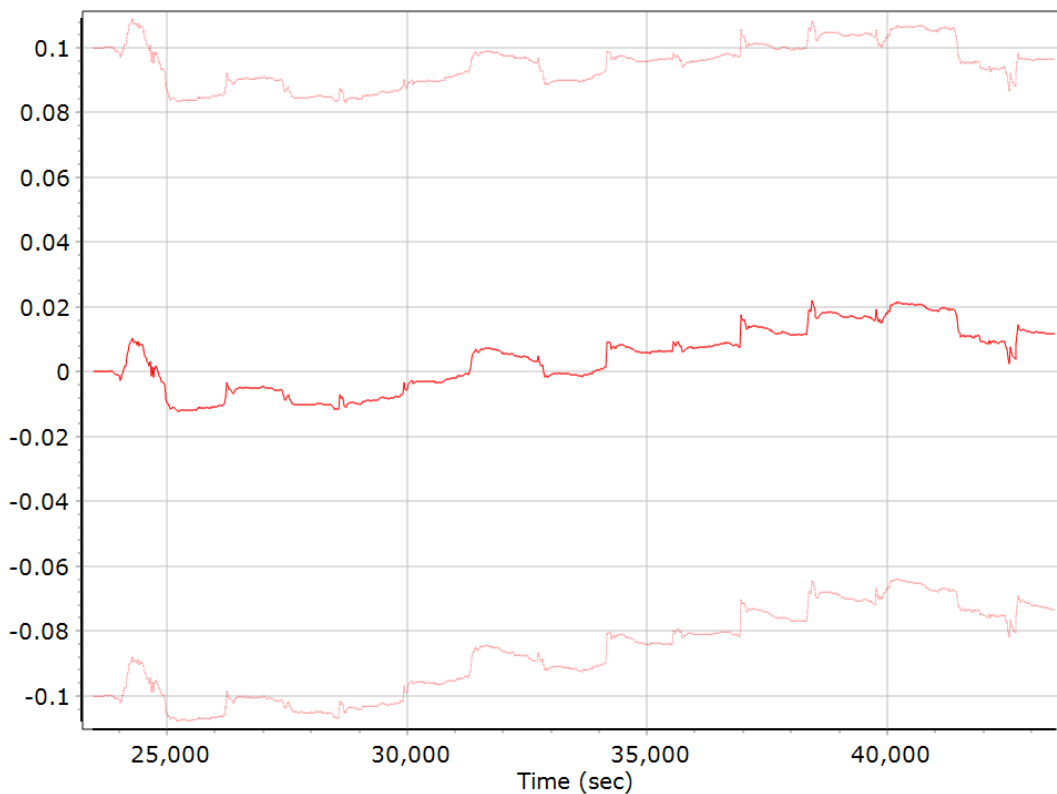
### X Gyro Bias (deg/h)



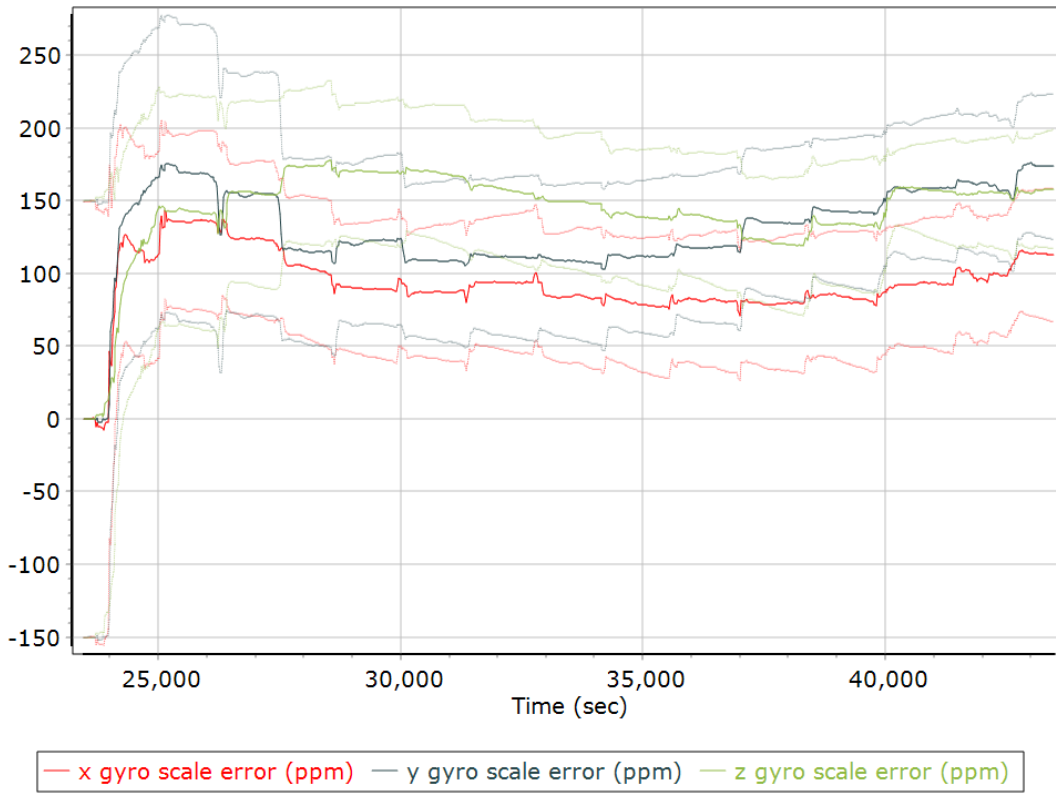
### Y Gyro Bias (deg/h)



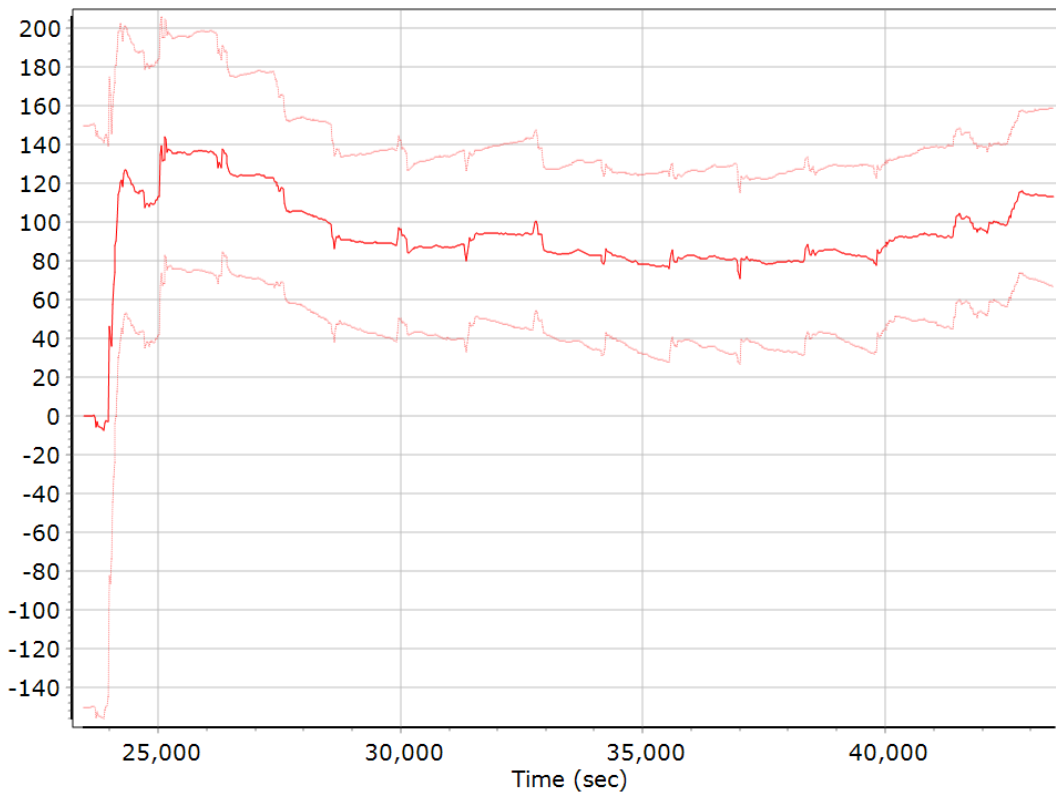
### Z Gyro Bias (deg/h)



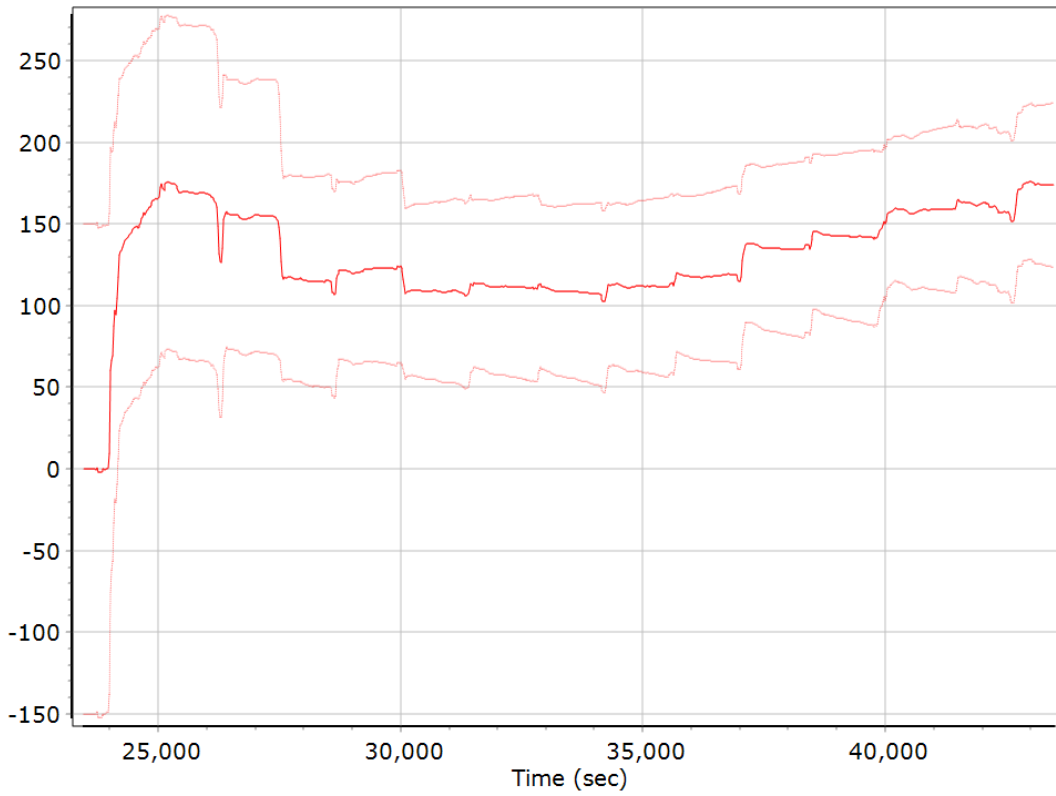
### Gyro Scale Error (ppm)



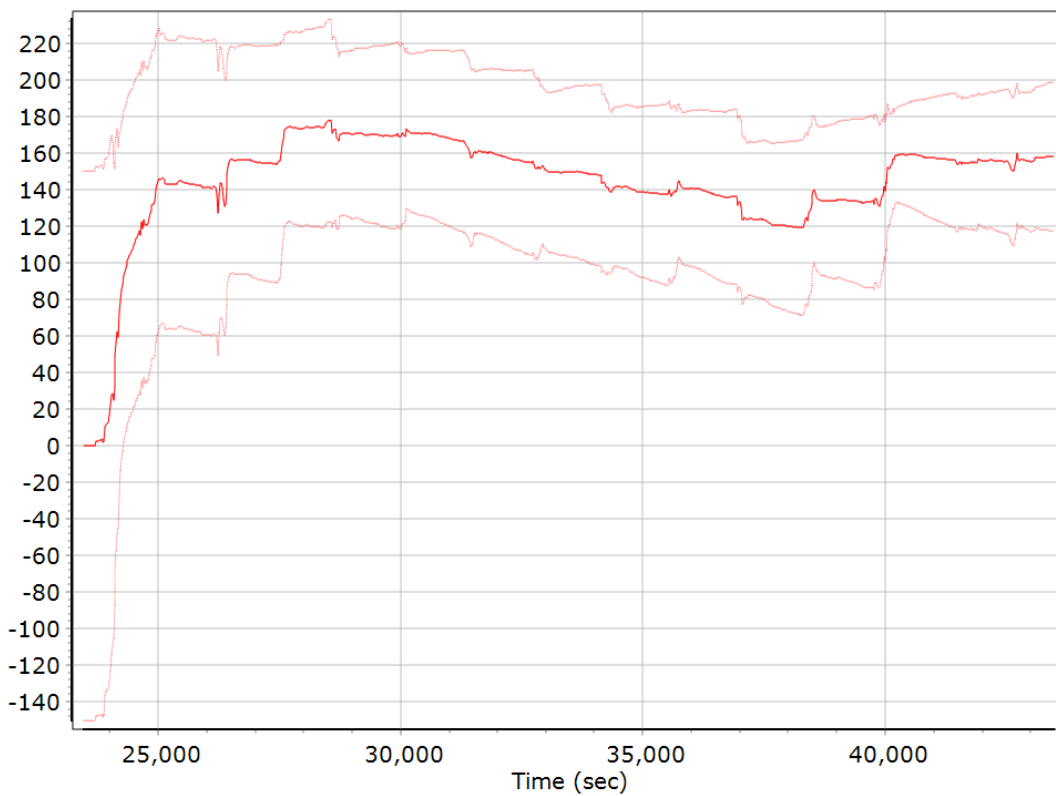
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)

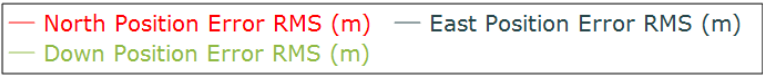
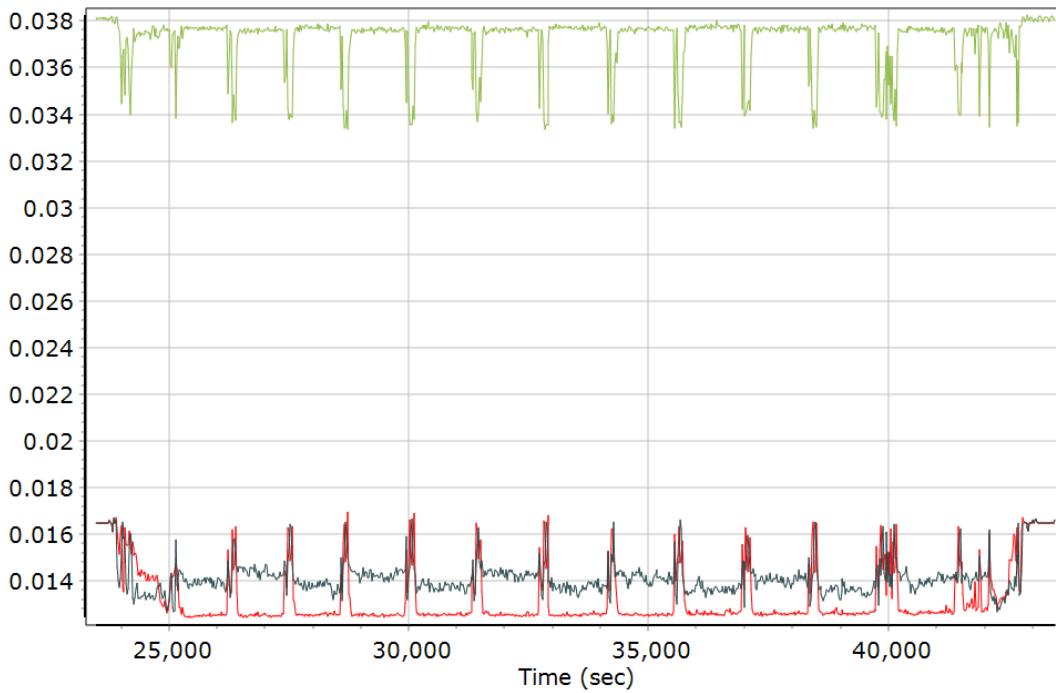


### Z Gyro Scale Error (ppm)

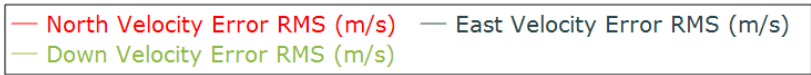
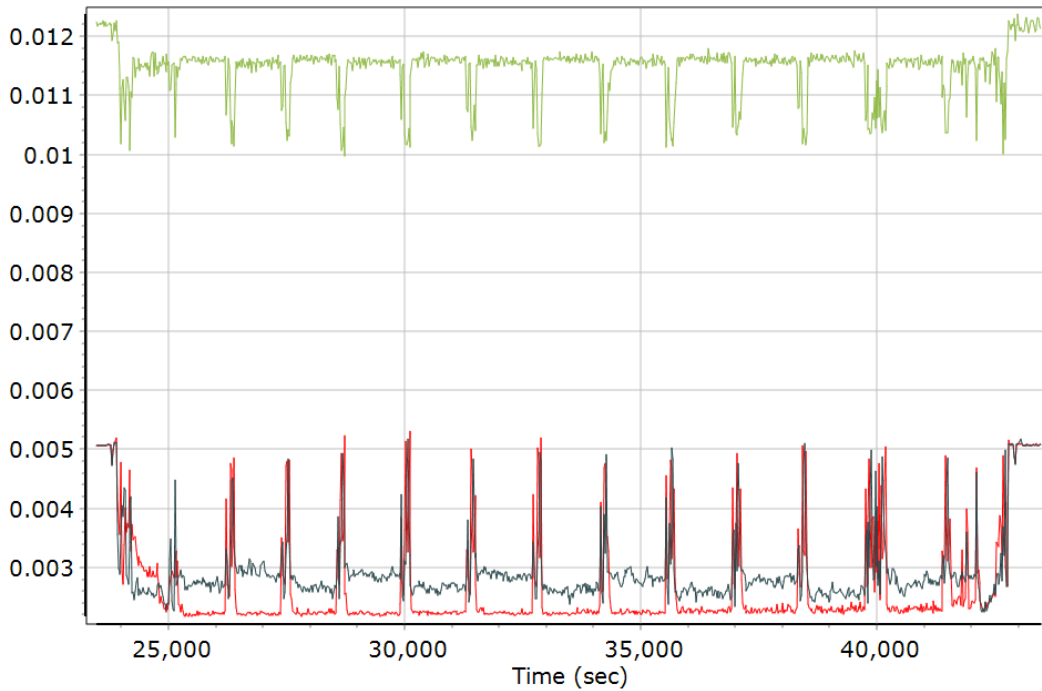


## Smoothed Performance Metrics

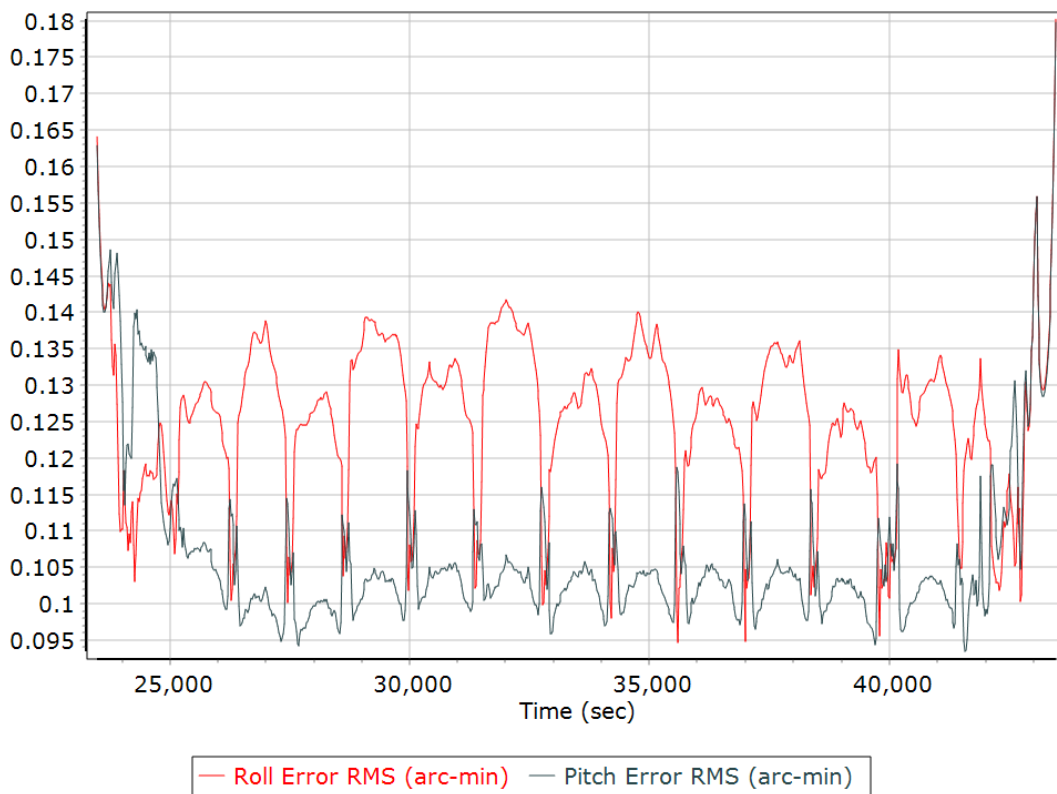
### Position Error RMS (m)



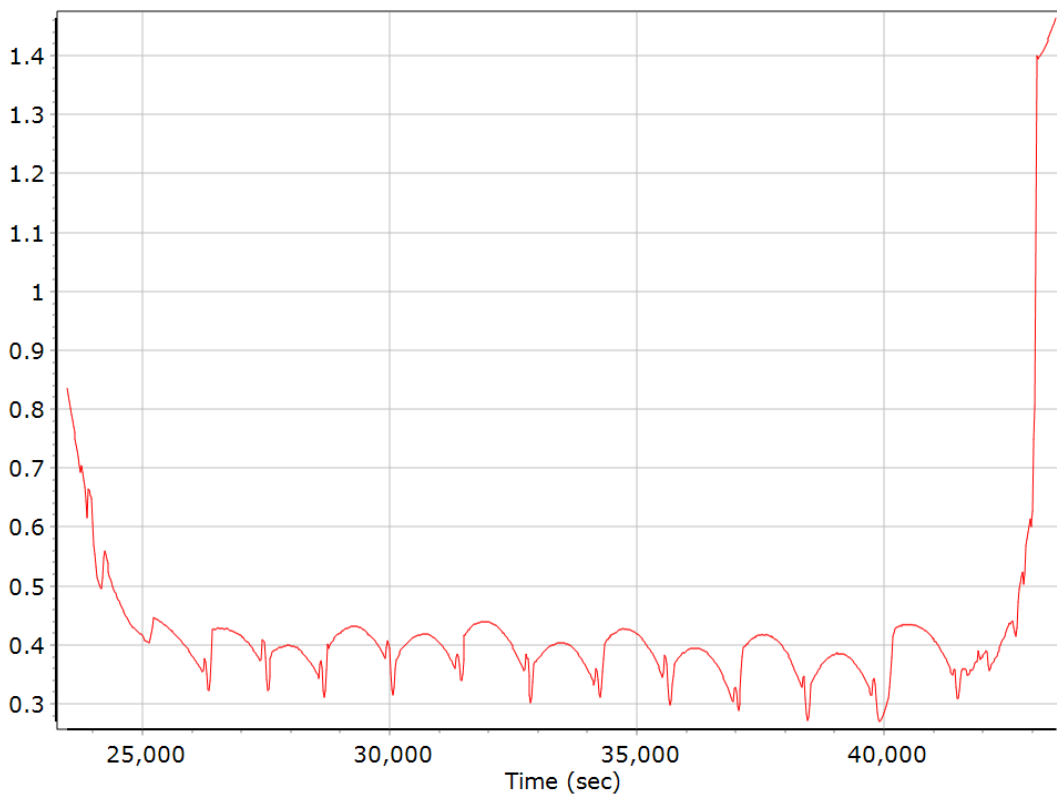
### Velocity Error RMS (m/s)



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



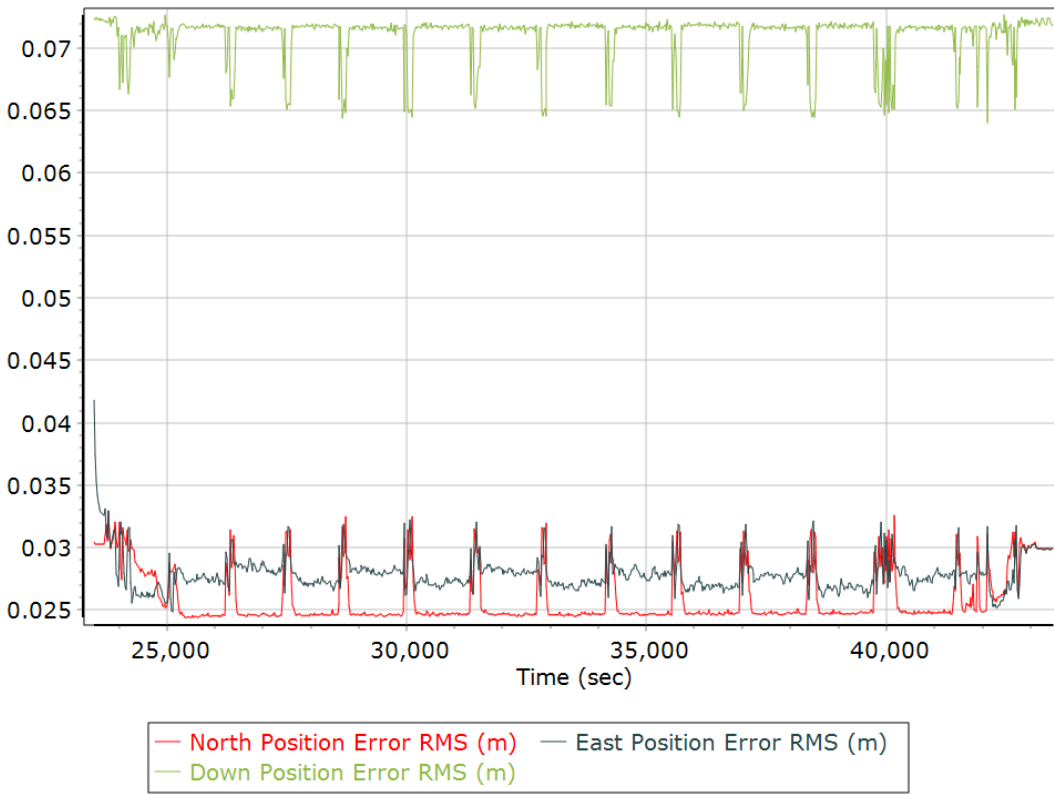
### Heading Error RMS (arc-min)



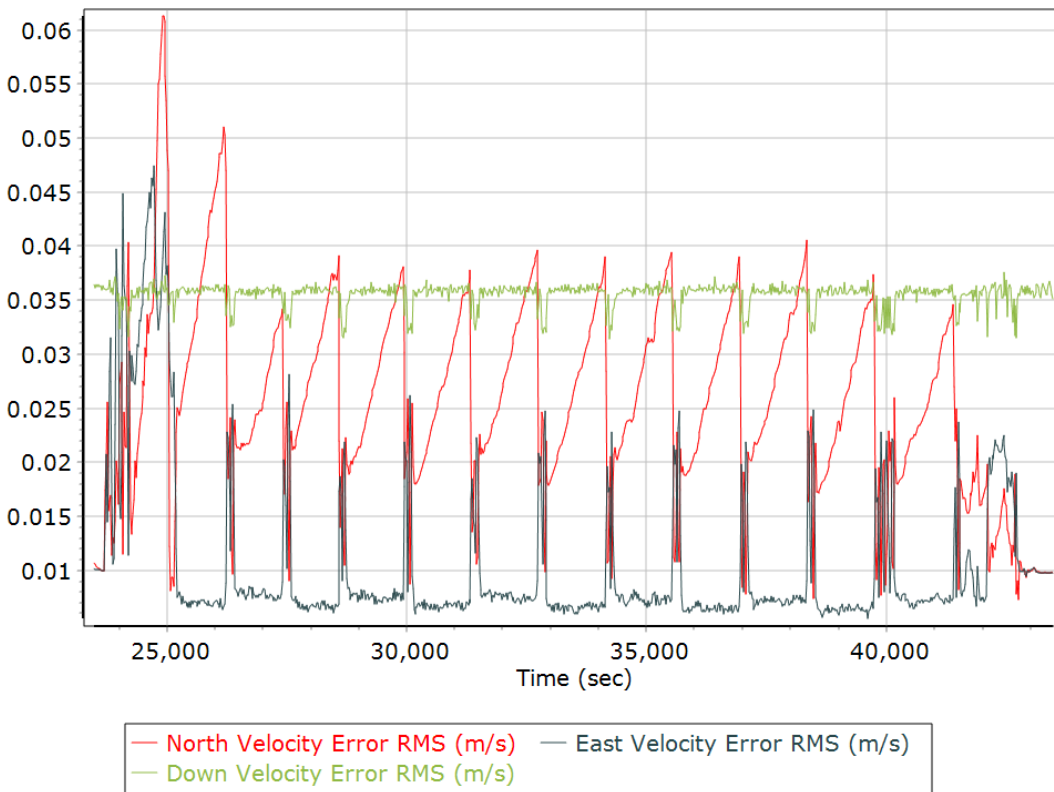


## Forward Processed Performance Metrics

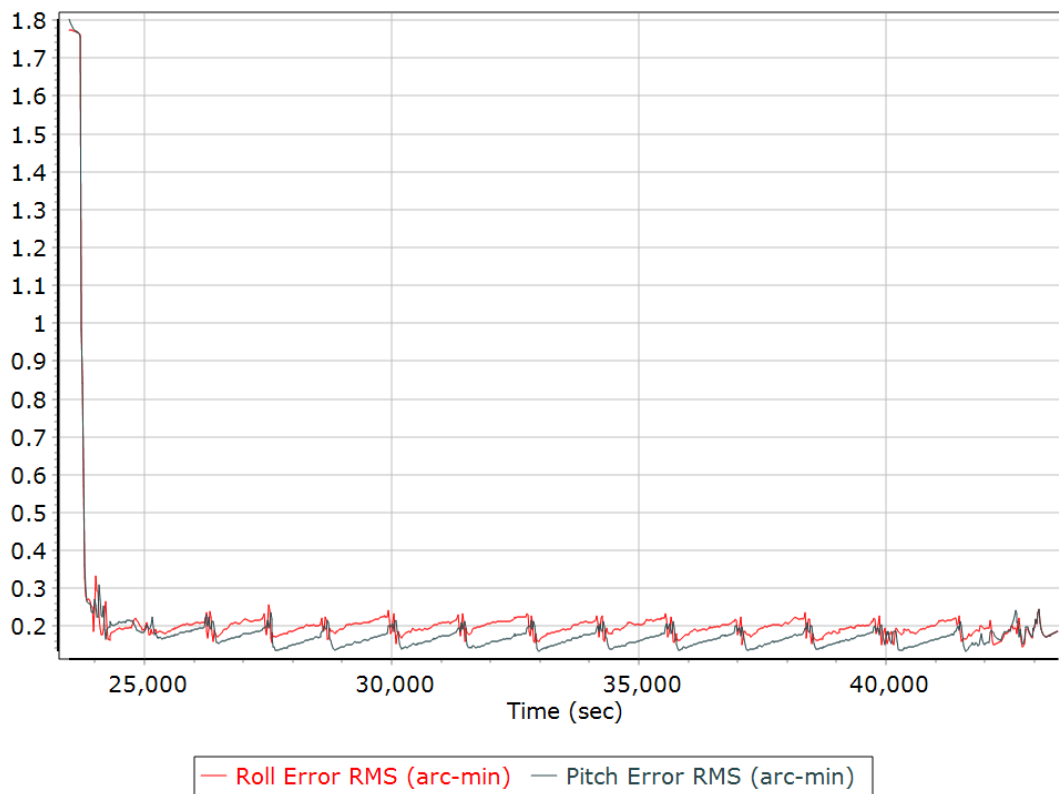
### Position Error RMS (m)



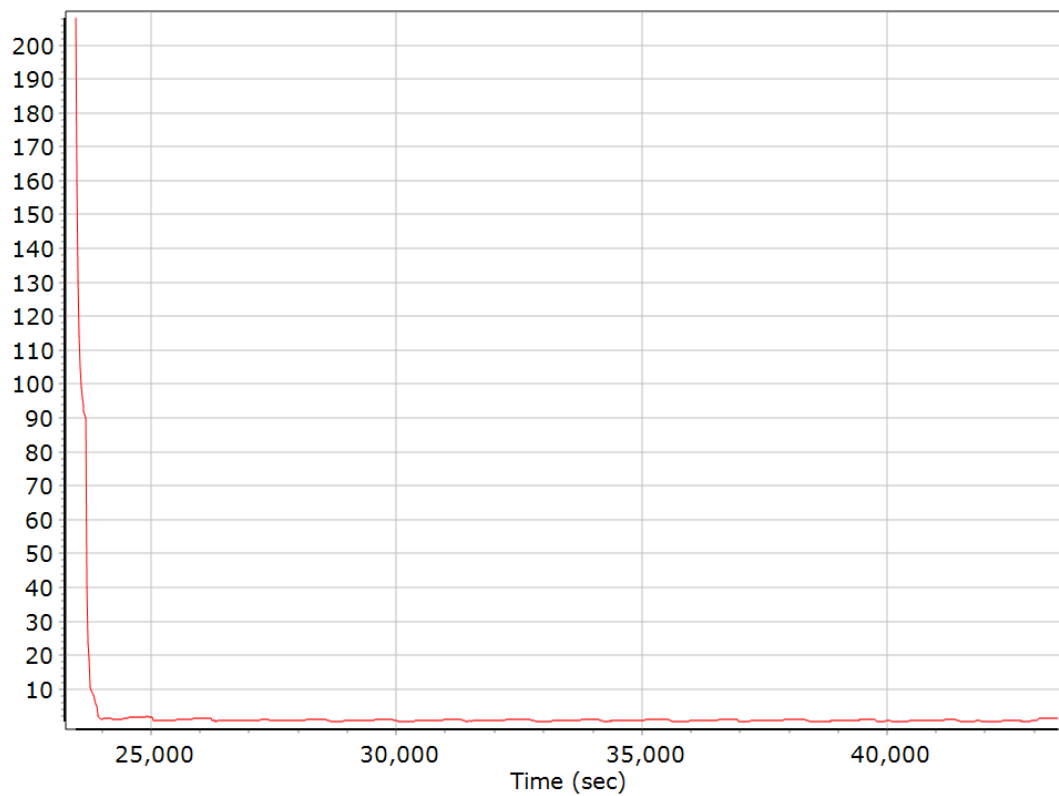
### Velocity Error RMS (m/s)



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

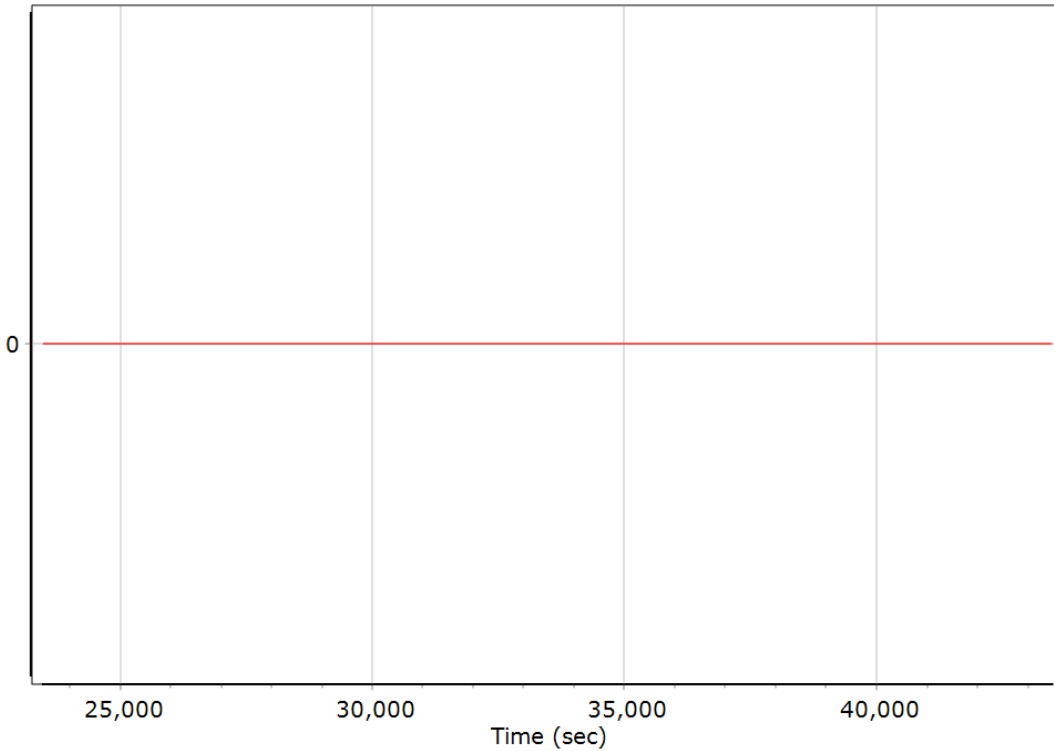


### Heading Error RMS (arc-min)



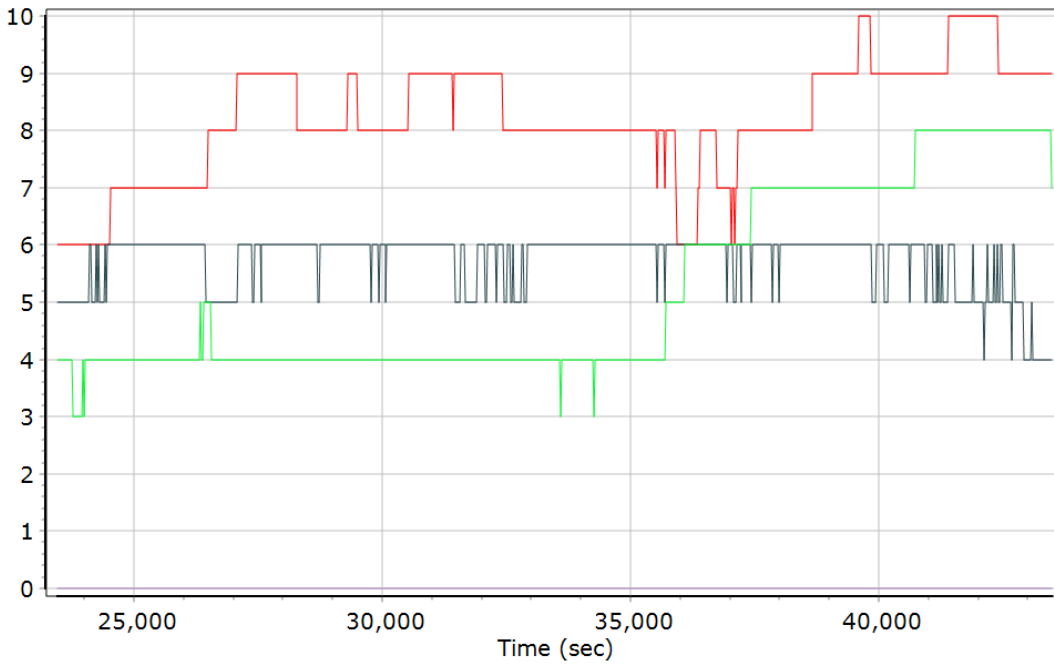
## Forward Processed Solution Status

### Processing Mode



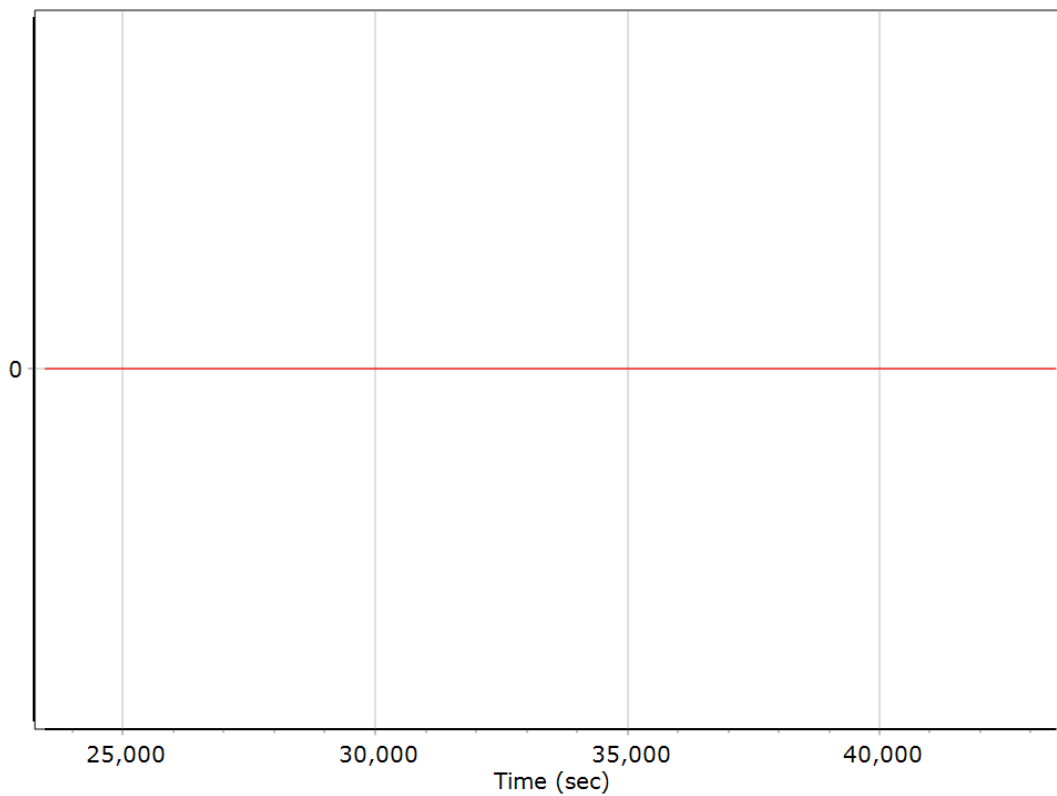
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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



## General Information

### Mission Information

Project name	a07-s03-0508
Processing date	2022-07-07 14:41:34
Mission date	2022-07-07 05:01:07
Mission duration	04:59:16.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0707_050108.000	POS Data
default0707_050108.001	POS Data
default0707_050108.002	POS Data
default0707_050108.003	POS Data
default0707_050108.004	POS Data
default0707_050108.005	POS Data
default0707_050108.006	POS Data
default0707_050108.007	POS Data
default0707_050108.008	POS Data
default0707_050108.009	POS Data
default0707_050108.010	POS Data
default0707_050108.011	POS Data
default0707_050108.012	POS Data
default0707_050108.013	POS Data
default0707_050108.014	POS Data
default0707_050108.015	POS Data
default0707_050108.016	POS Data
default0707_050108.017	POS Data
default0707_050108.018	POS Data
default0707_050108.019	POS Data
default0707_050108.020	POS Data
default0707_050108.021	POS Data
default0707_050108.022	POS Data
default0707_050108.023	POS Data
default0707_050108.024	POS Data

### Input Files

File Name	File Type
Ephm1880.22g	GLONASS Broadcast Ephemeris
Ephm1880.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0508.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0707_050108.000		
Last raw data file	default0707_050108.024		
Start GPS week	2217		
Start time	363650.017 (7/7/2022 5:00:50 AM)		
End time	381606.460 (7/7/2022 10:00:06 AM)		
Start of fine alignment	364054.994 (7/7/2022 5:07:34 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

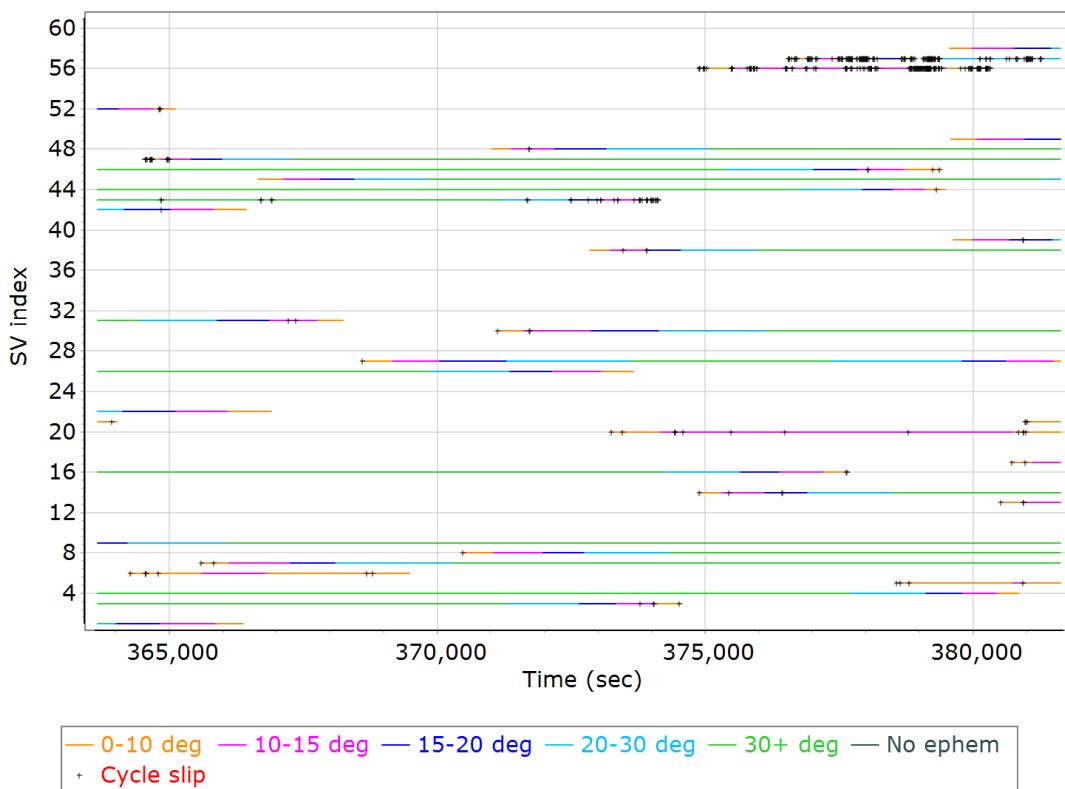
## Rover Data QC

### Raw IMU Import QC Summary

IMU data input file	imu_a07-s03-0508.dat
IMU data check log file	imudt_a07-s03-0508.log
IMU Records Processed	3590922
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
363649.267 : WARNING : Gap of 363631.9151 seconds in CHECKDT input data	

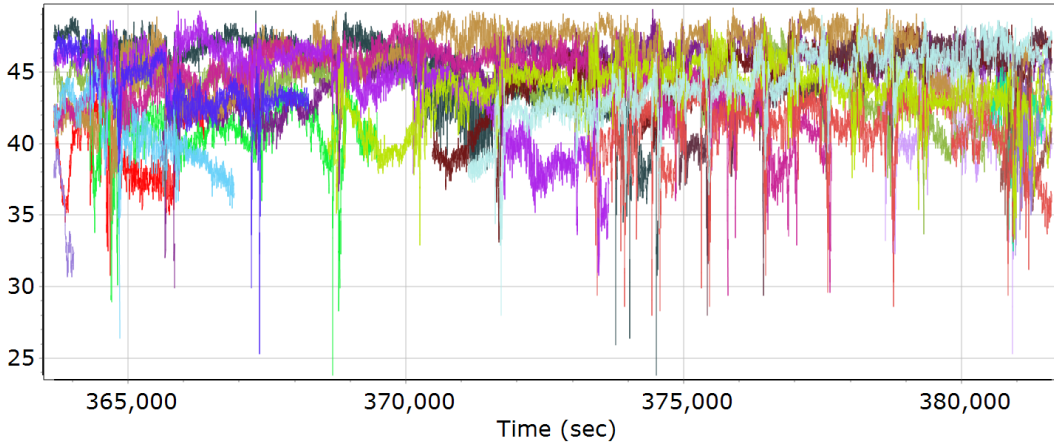
## Primary Observables & Satellite Data

### GPS/GLONASS L1 Satellite Lock/Elevation



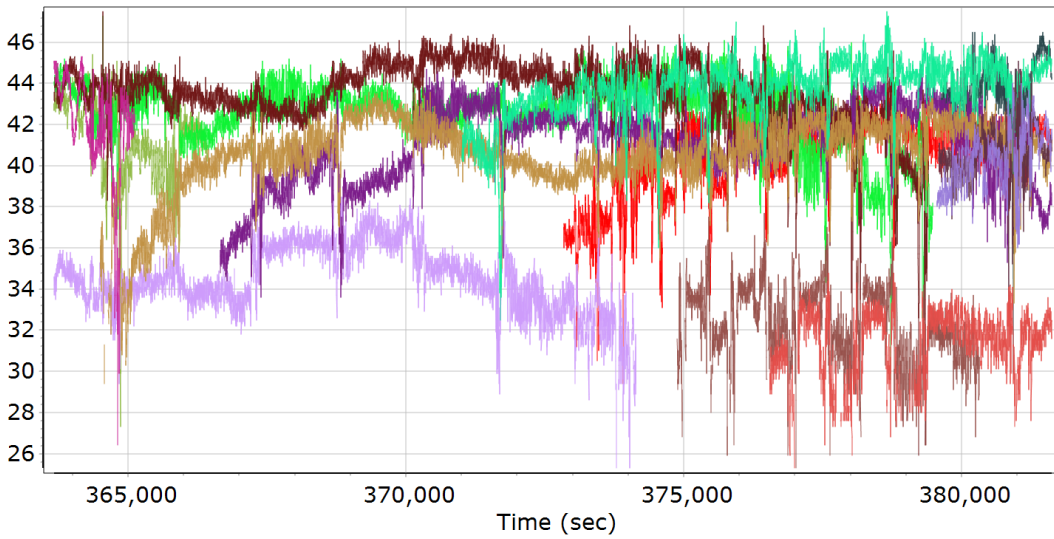


**GPS L1 SNR**



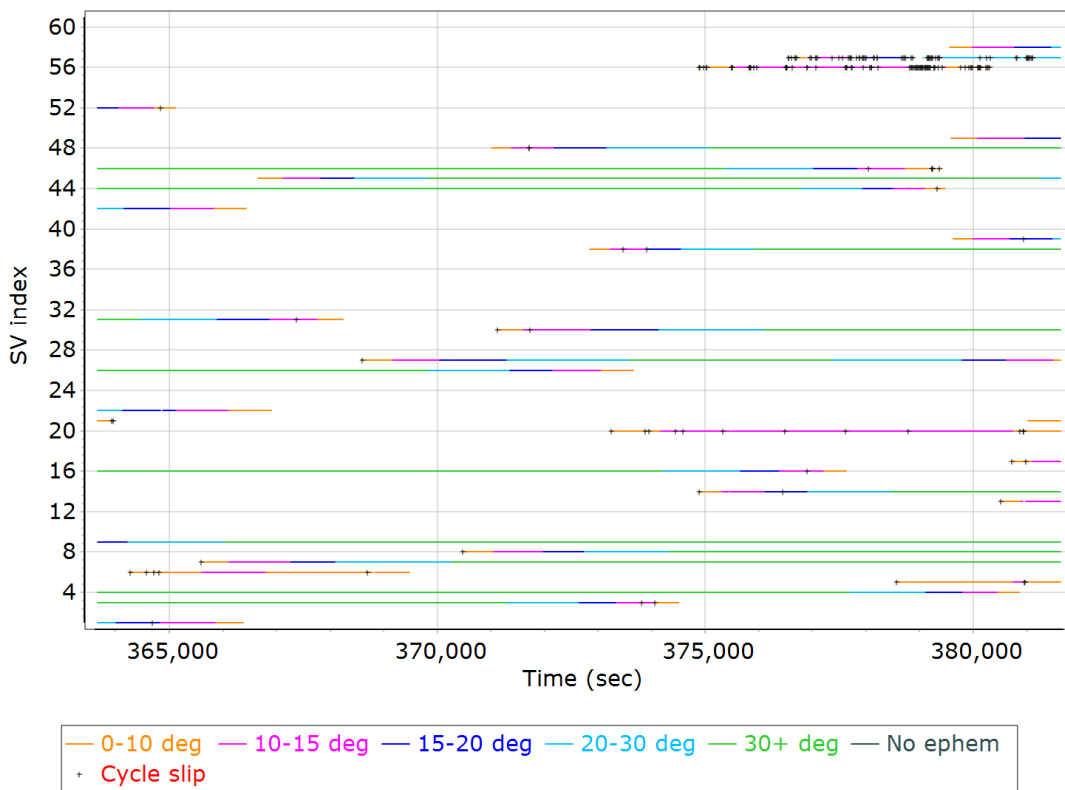
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 03 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 05 L1 SNR (dB/Hz) |
| — GPS PRN 06 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 16 L1 SNR (dB/Hz) | — GPS PRN 17 L1 SNR (dB/Hz) |
| — GPS PRN 20 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 22 L1 SNR (dB/Hz) | — GPS PRN 26 L1 SNR (dB/Hz) |
| — GPS PRN 27 L1 SNR (dB/Hz) | — GPS PRN 30 L1 SNR (dB/Hz) |
| — GPS PRN 31 L1 SNR (dB/Hz) |                             |

**GLONASS L1 SNR**

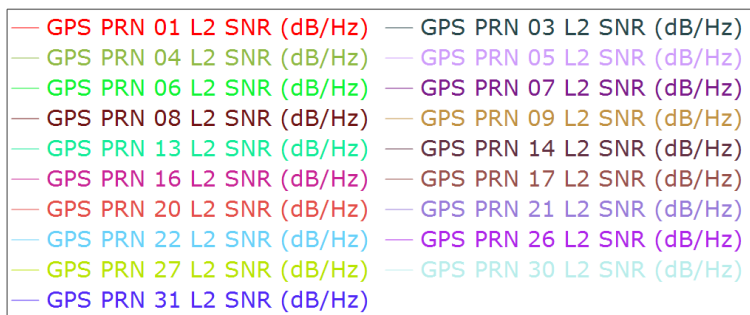
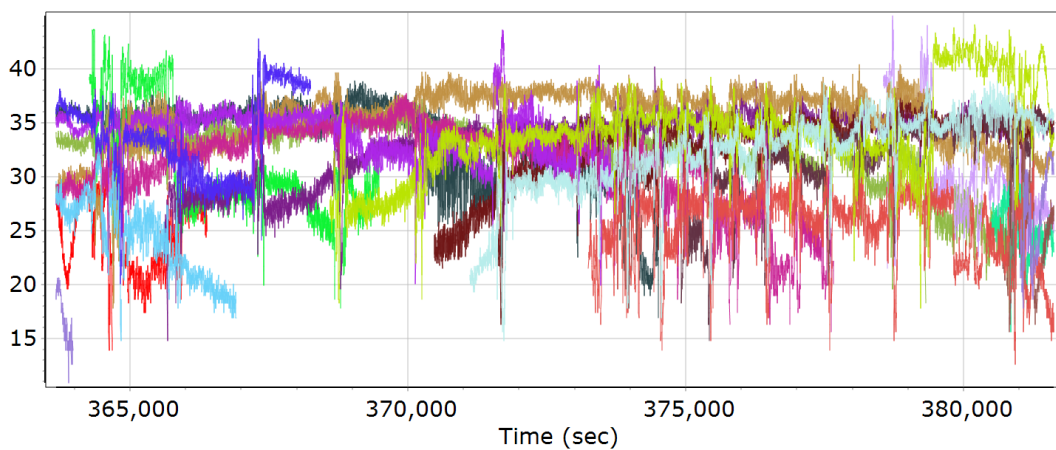


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 01 L1 SNR (dB/Hz) | — GLONASS 02 L1 SNR (dB/Hz) |
| — GLONASS 05 L1 SNR (dB/Hz) | — GLONASS 06 L1 SNR (dB/Hz) |
| — GLONASS 07 L1 SNR (dB/Hz) | — GLONASS 08 L1 SNR (dB/Hz) |
| — GLONASS 09 L1 SNR (dB/Hz) | — GLONASS 10 L1 SNR (dB/Hz) |
| — GLONASS 11 L1 SNR (dB/Hz) | — GLONASS 12 L1 SNR (dB/Hz) |
| — GLONASS 15 L1 SNR (dB/Hz) | — GLONASS 19 L1 SNR (dB/Hz) |
| — GLONASS 20 L1 SNR (dB/Hz) | — GLONASS 21 L1 SNR (dB/Hz) |

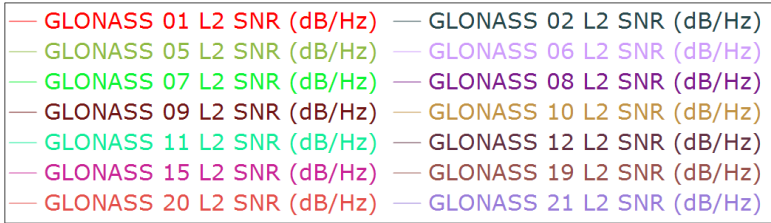
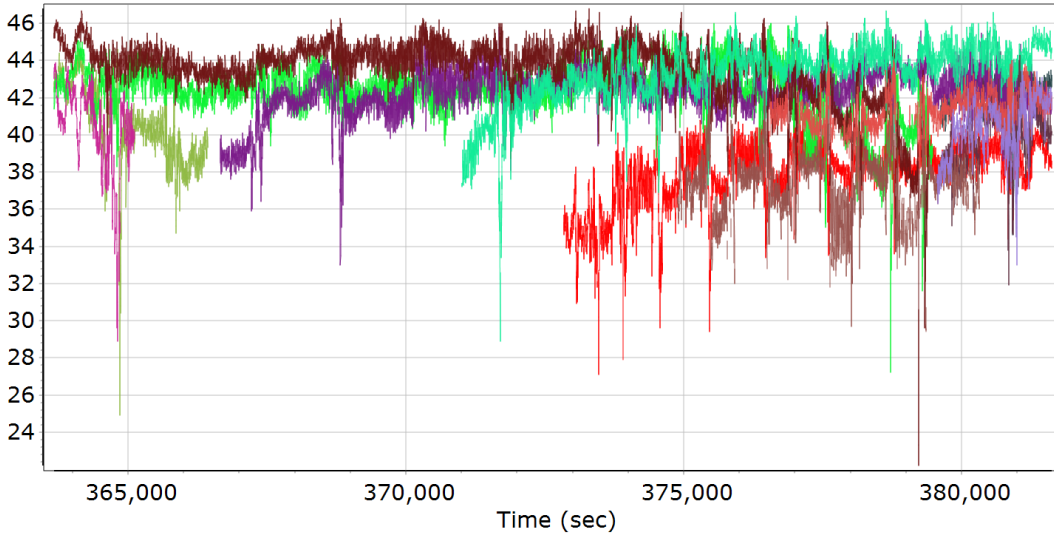
### GPS/GLONASS L2 Satellite Lock/Elevation



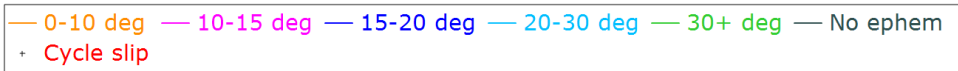
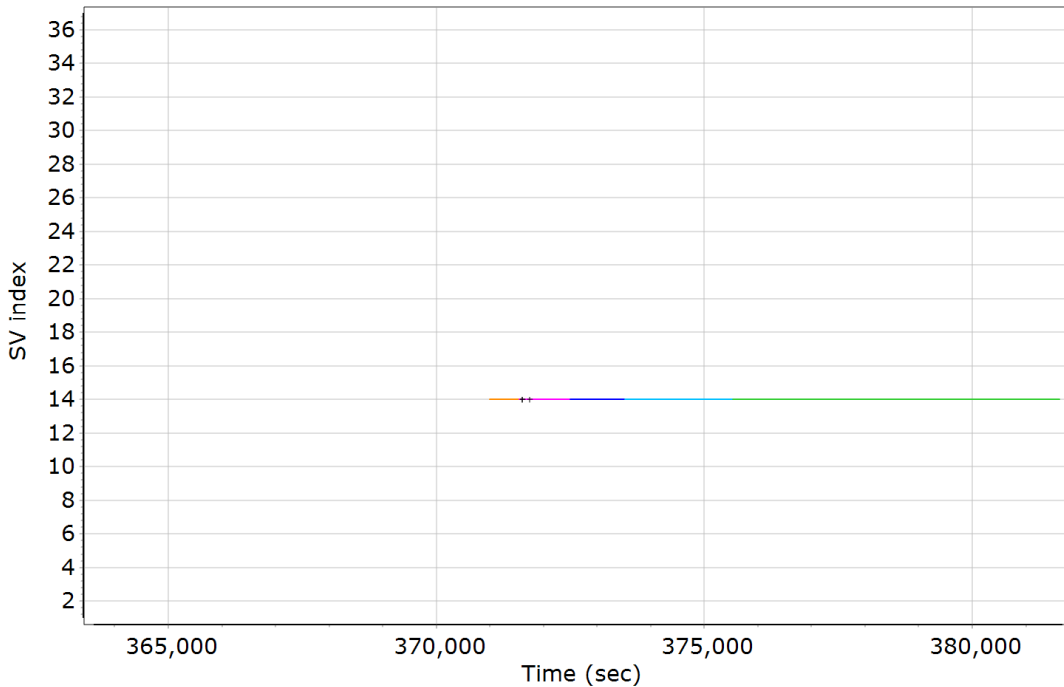
### GPS L2 SNR



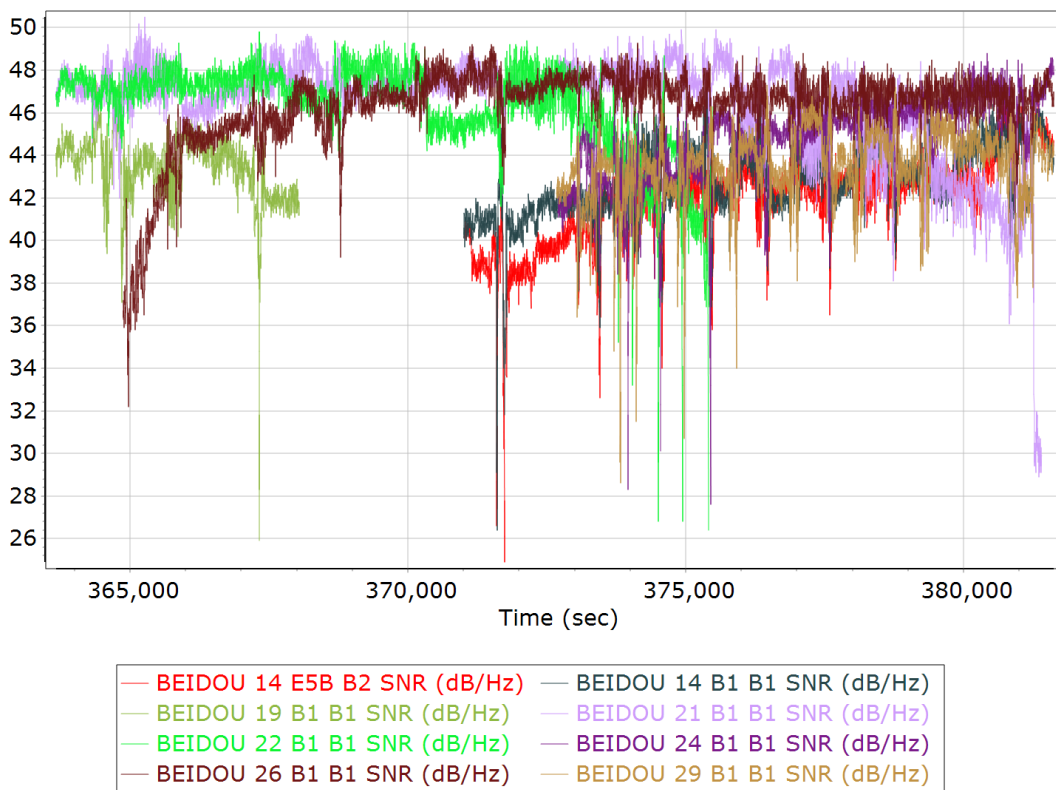
**GLONASS L2 SNR**



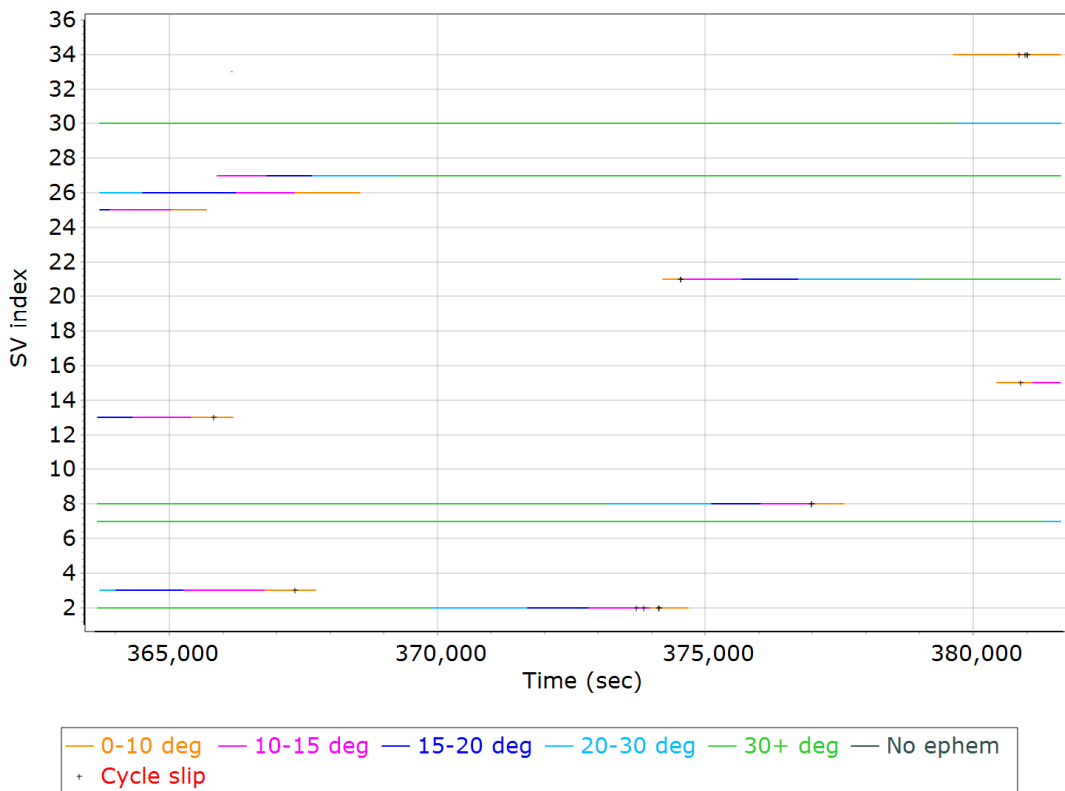
**BEIDOU Satellite Lock/Elevation**



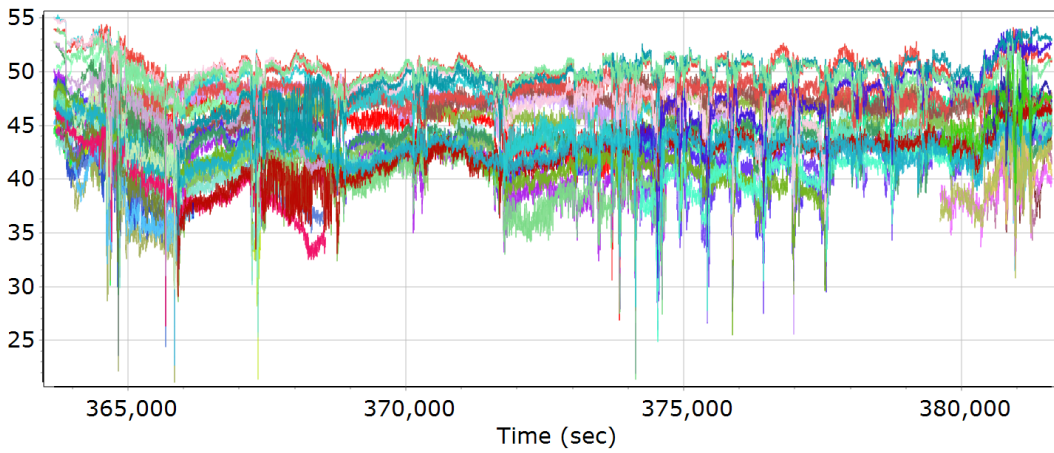
### BEIDOU SNR



### GALILEO Satellite Lock/Elevation



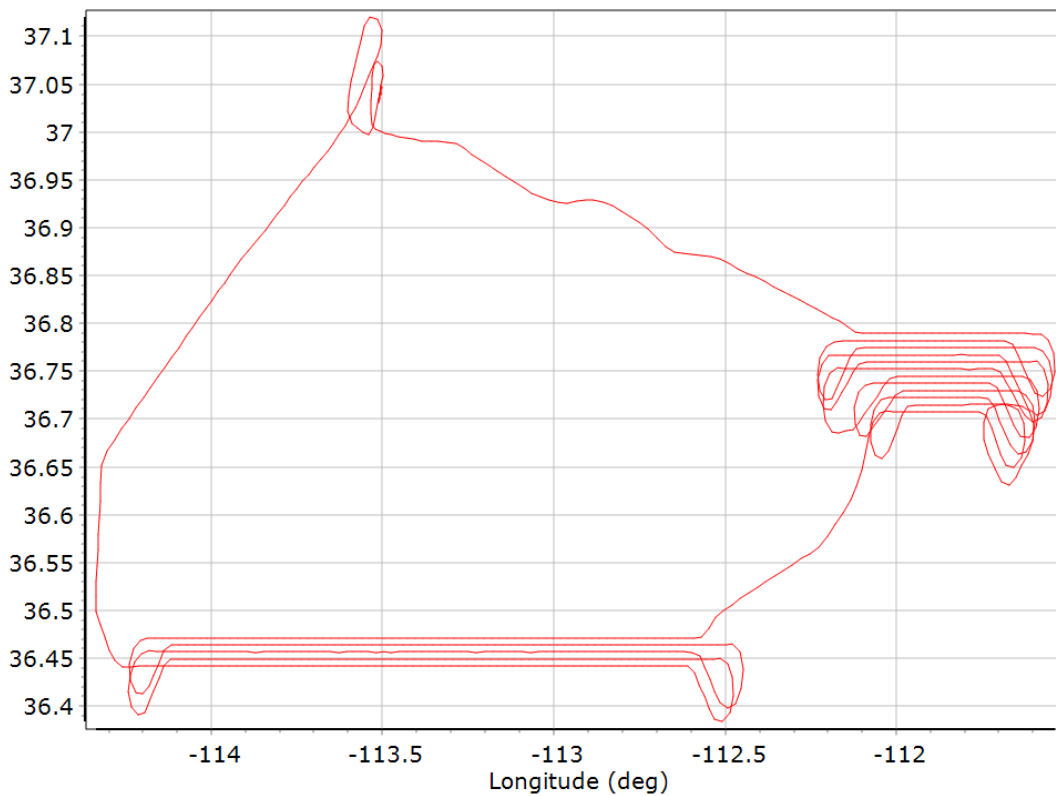
## GALILEO SNR



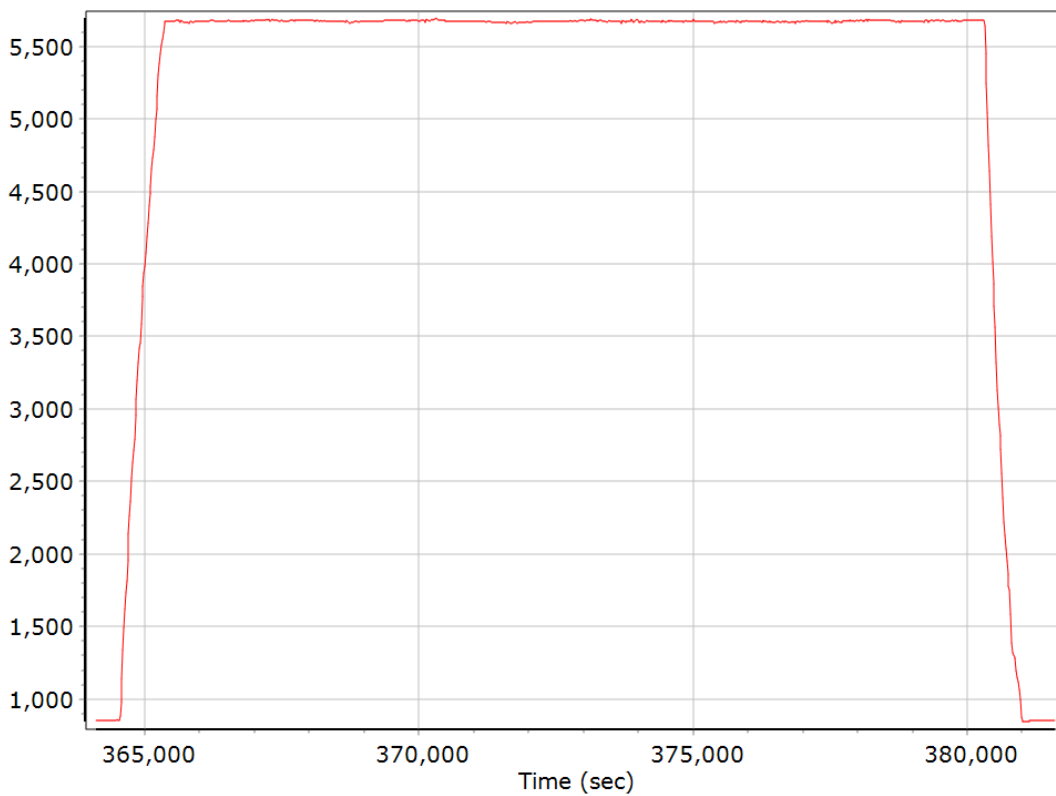
- GALILEO 02 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 03 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 07 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 08 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 13 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 14 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 15 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 19 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 21 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 25 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

## Smoothed Trajectory Information

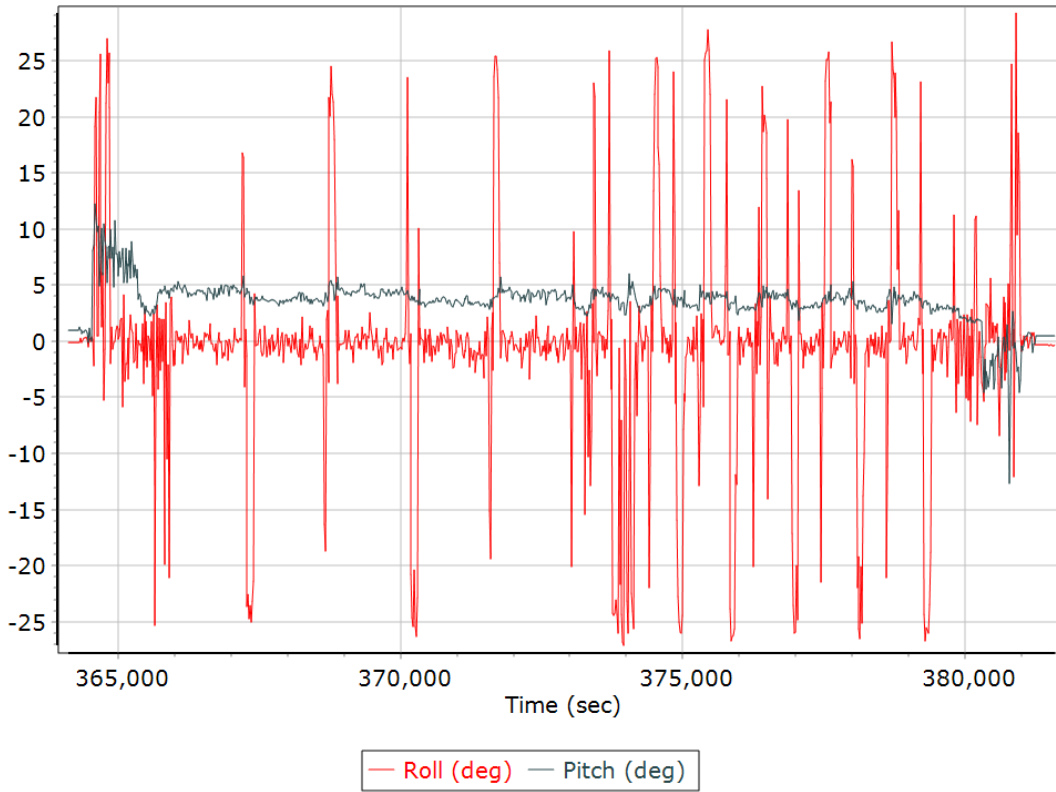
### Top View



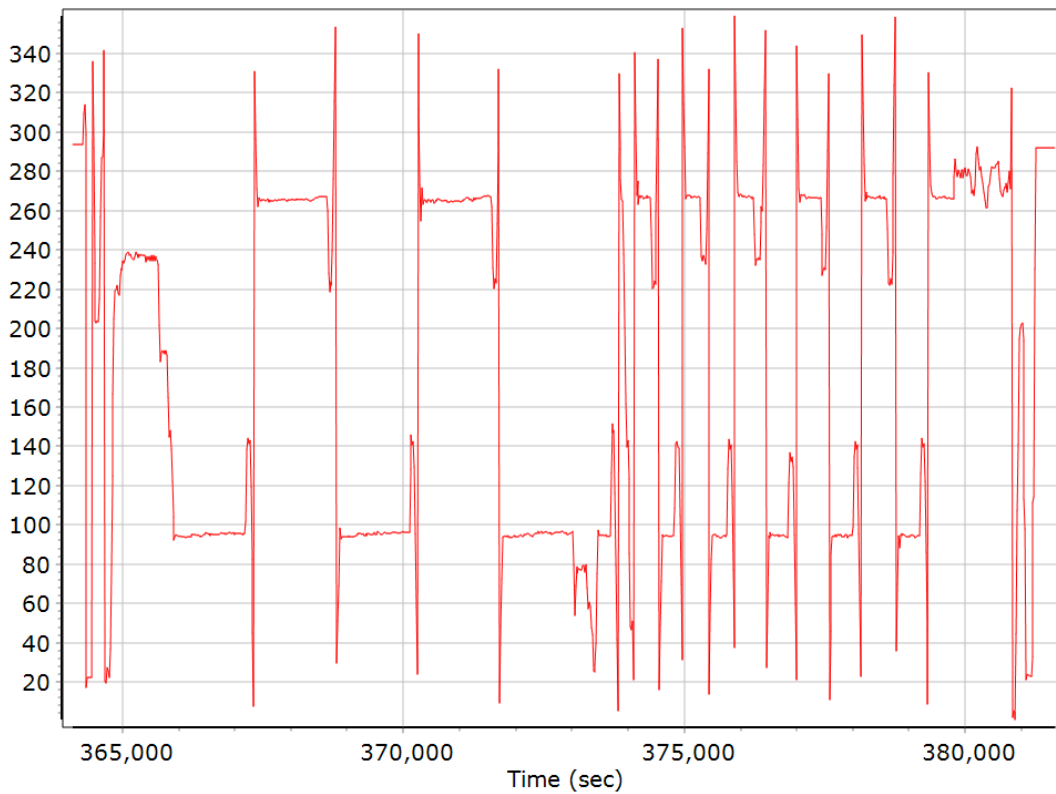
### Altitude



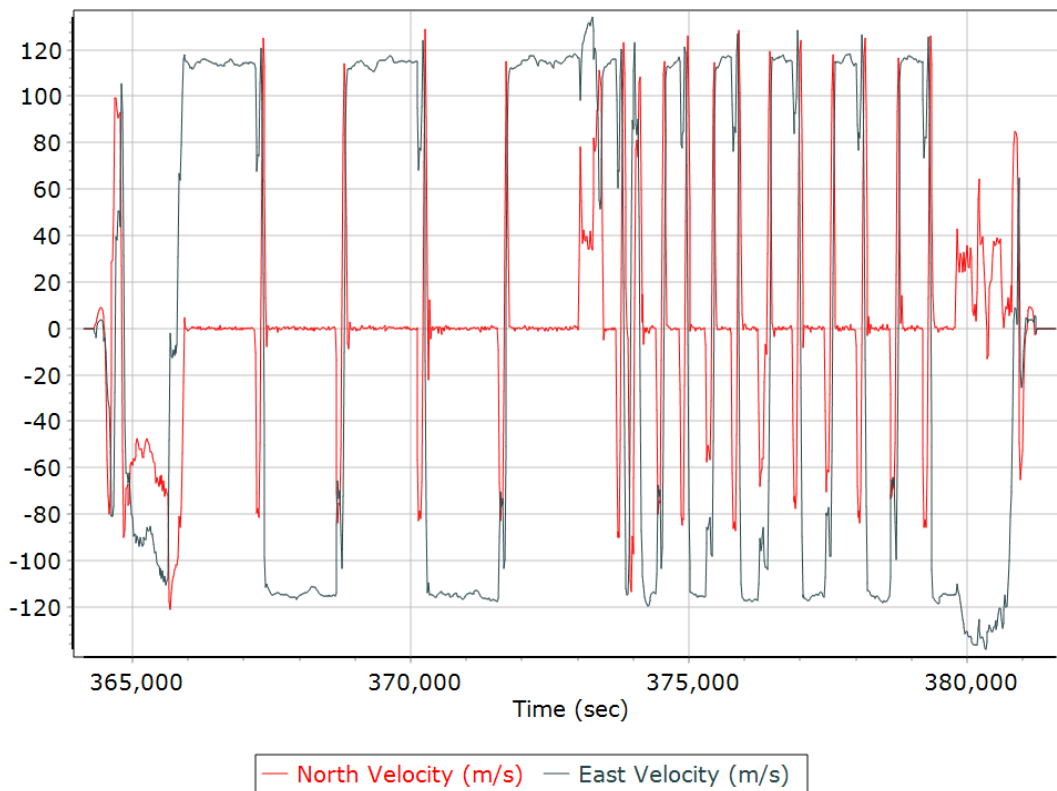
### Roll/Pitch



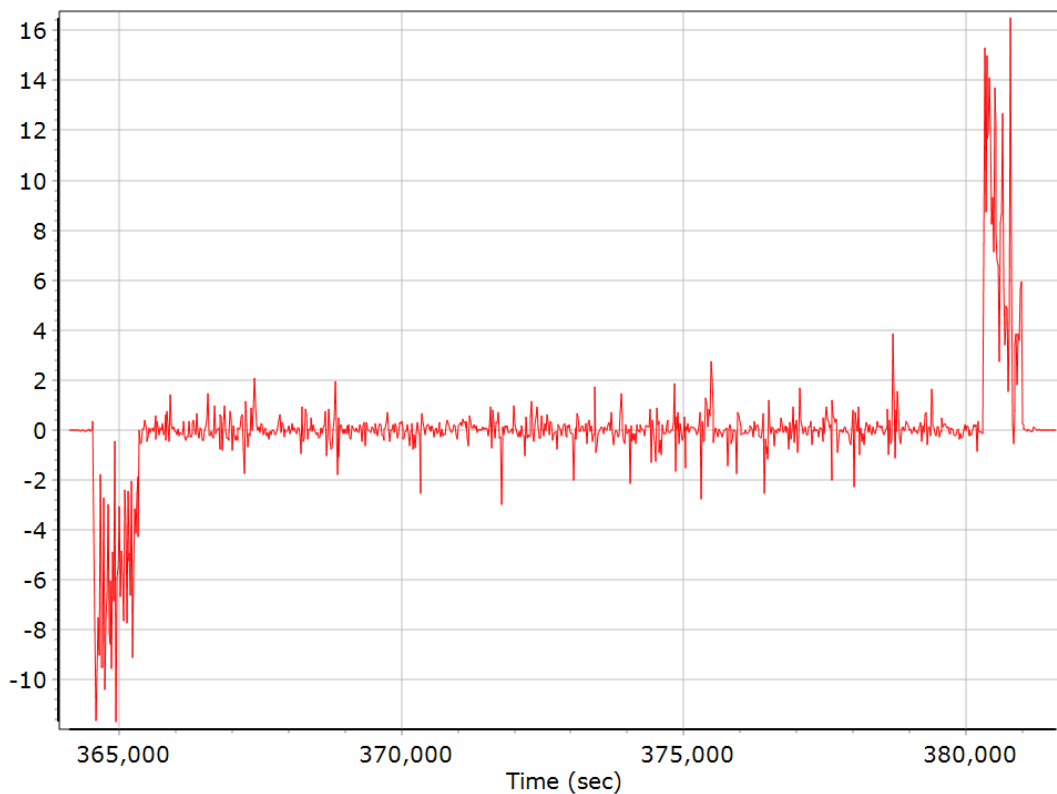
### Heading



### North/East Velocity

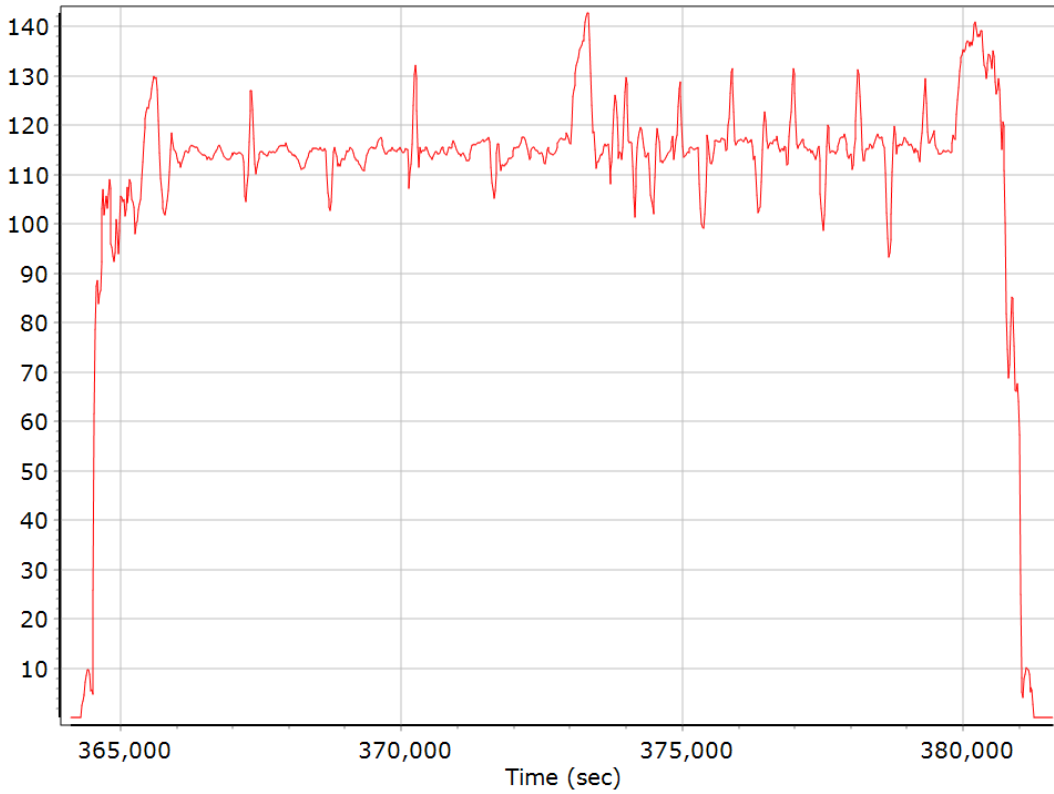


### Down Velocity

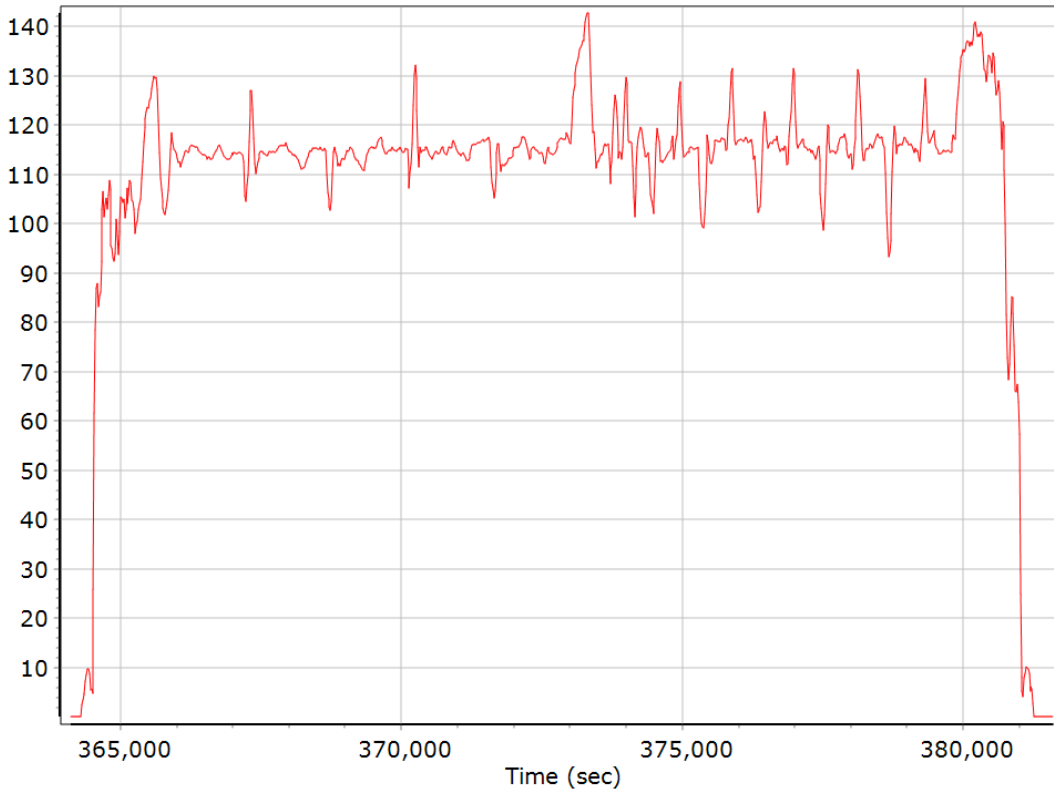




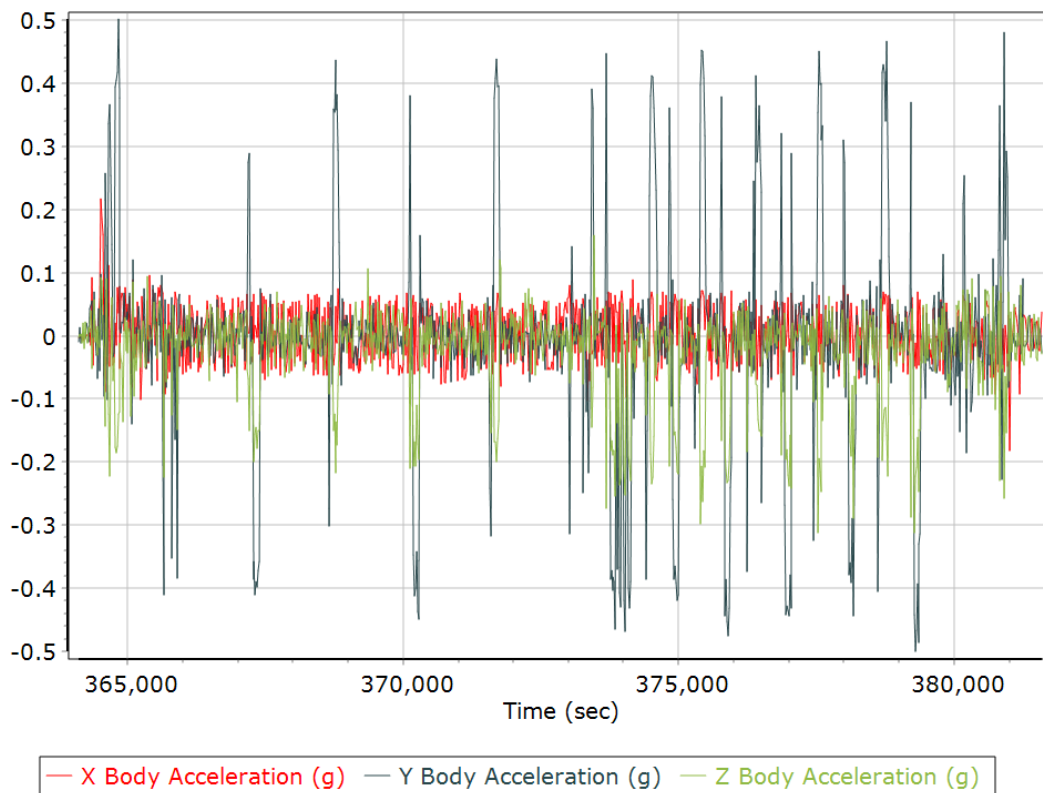
## Total Speed



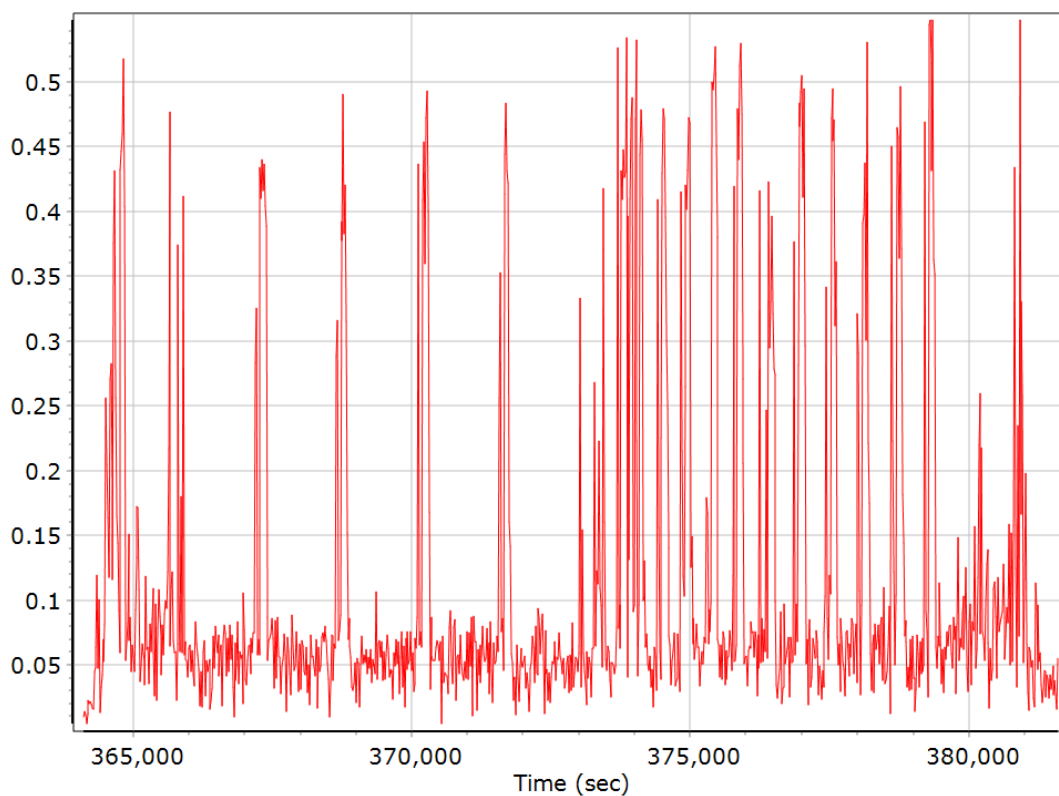
## Ground Speed



### Body Acceleration



### Total Body Acceleration



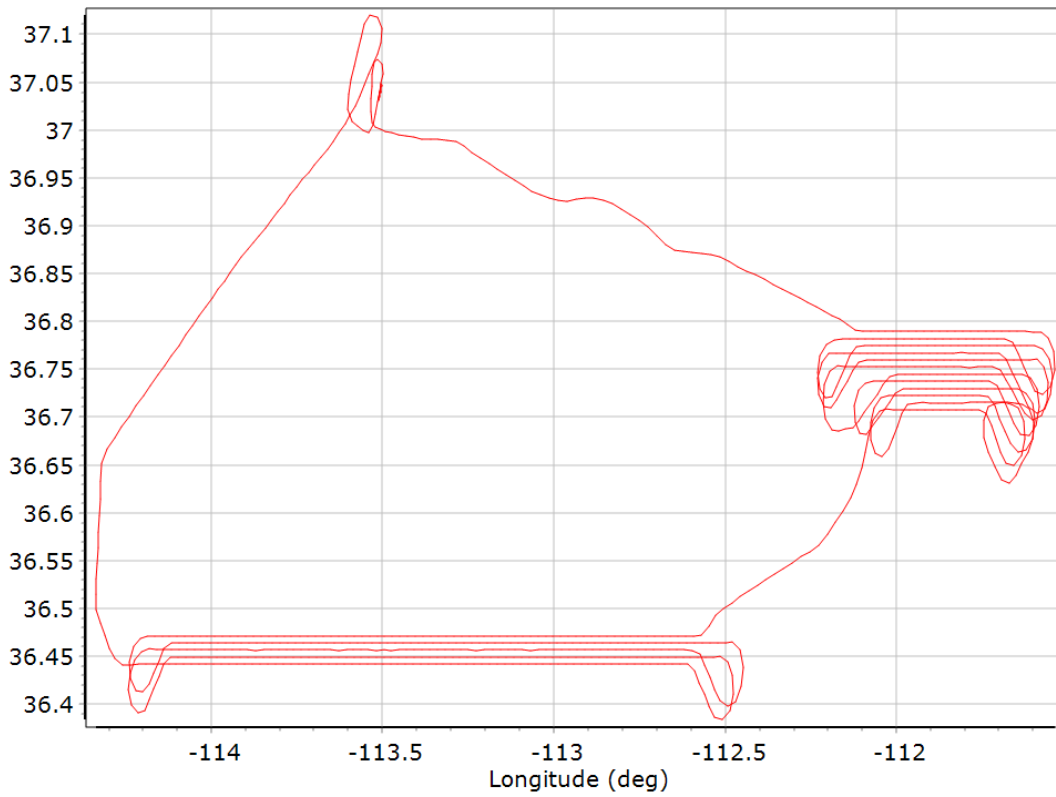
## Body Angular Rate



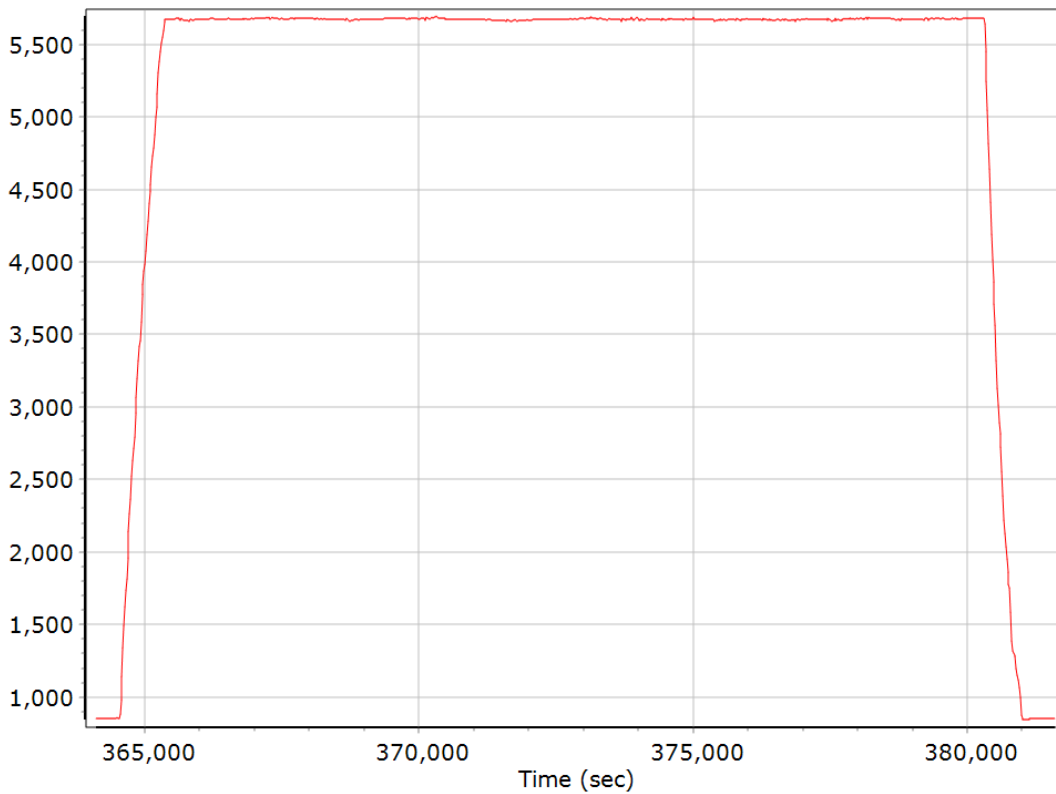
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## Forward Processed Trajectory Information

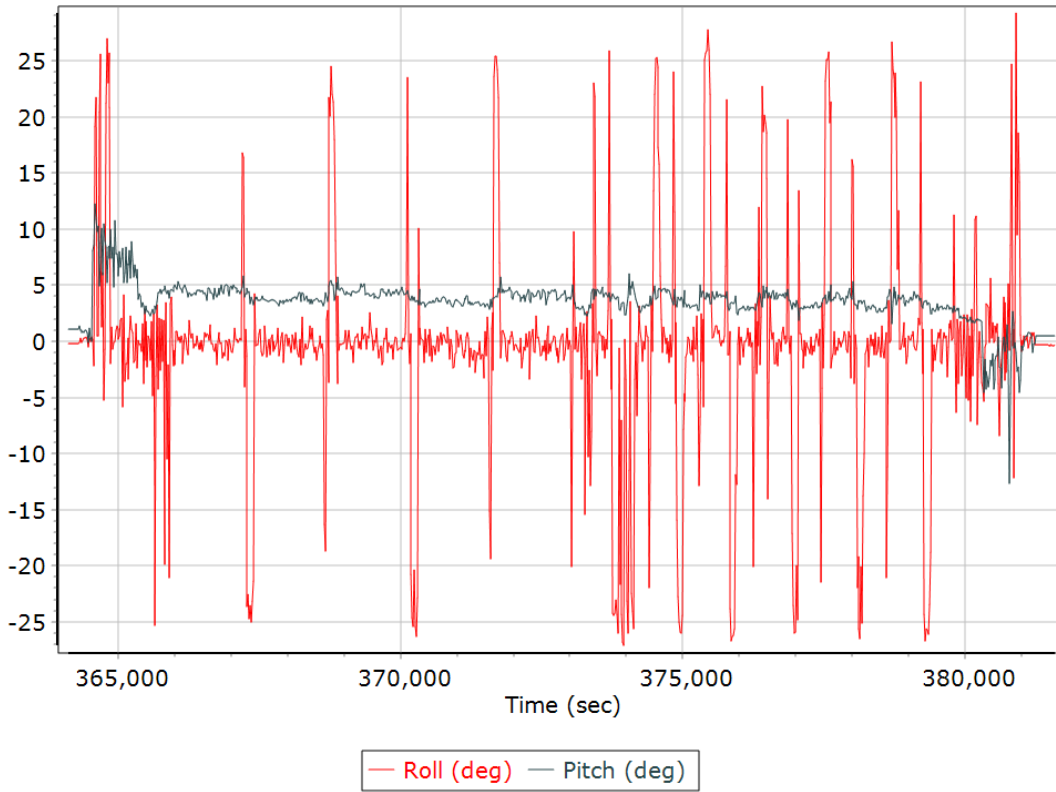
### Top View



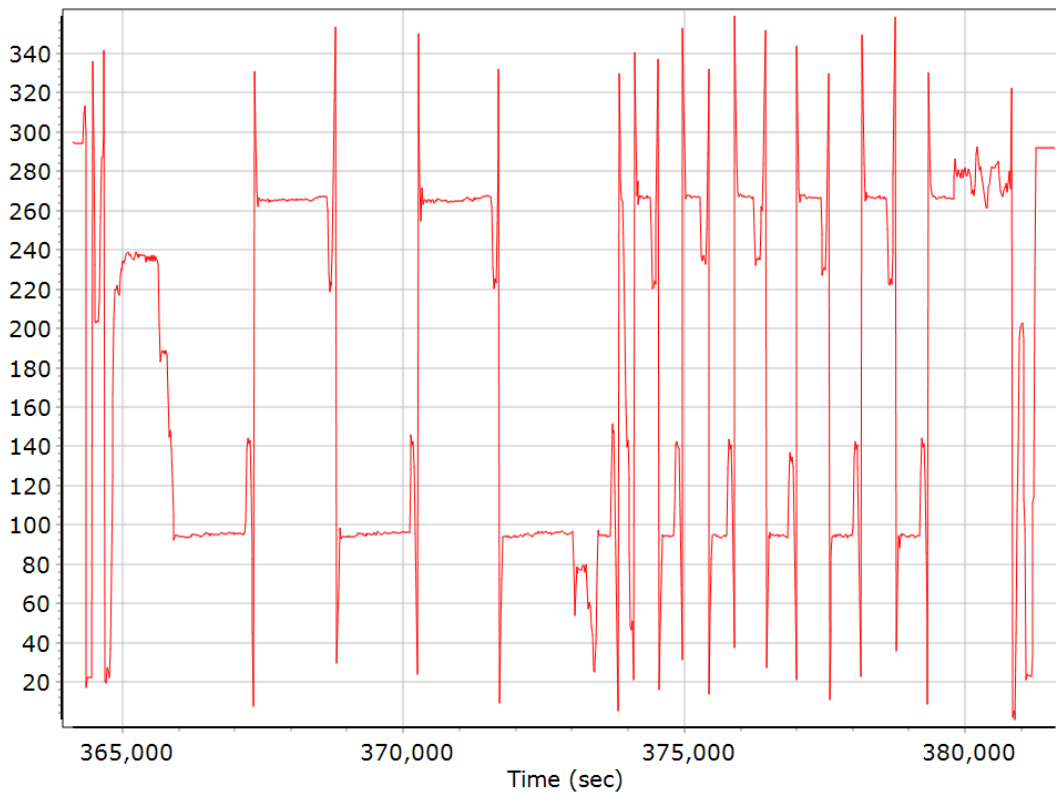
### Altitude



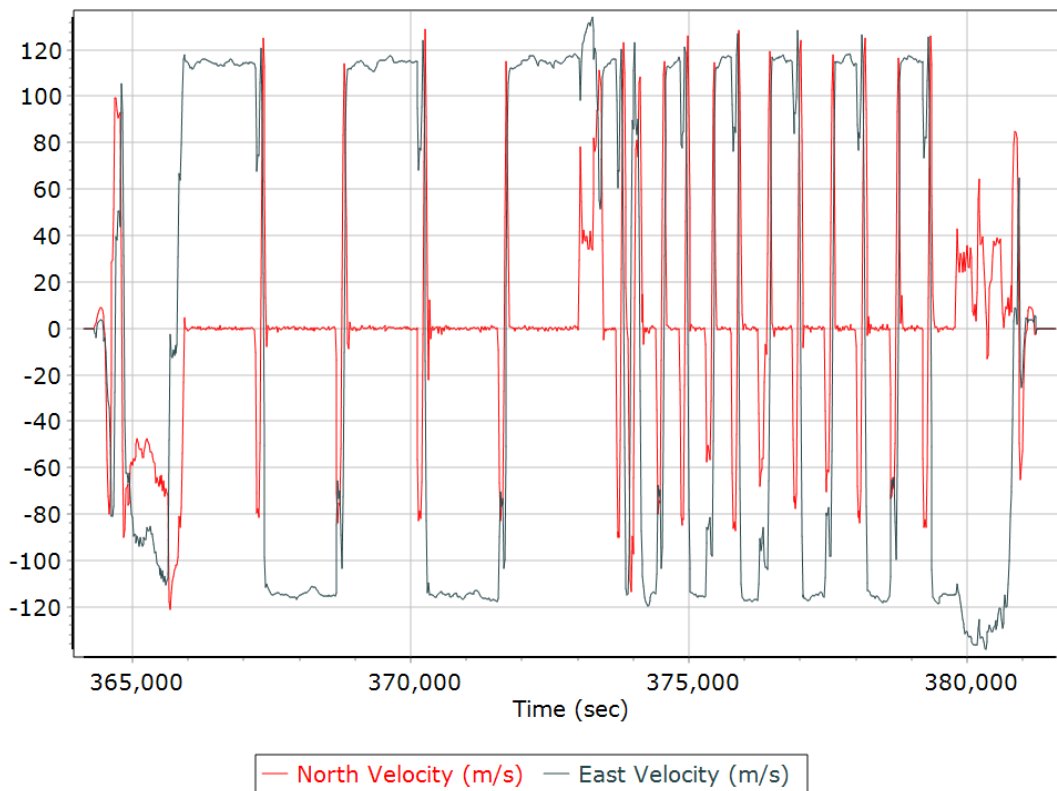
## Roll/Pitch



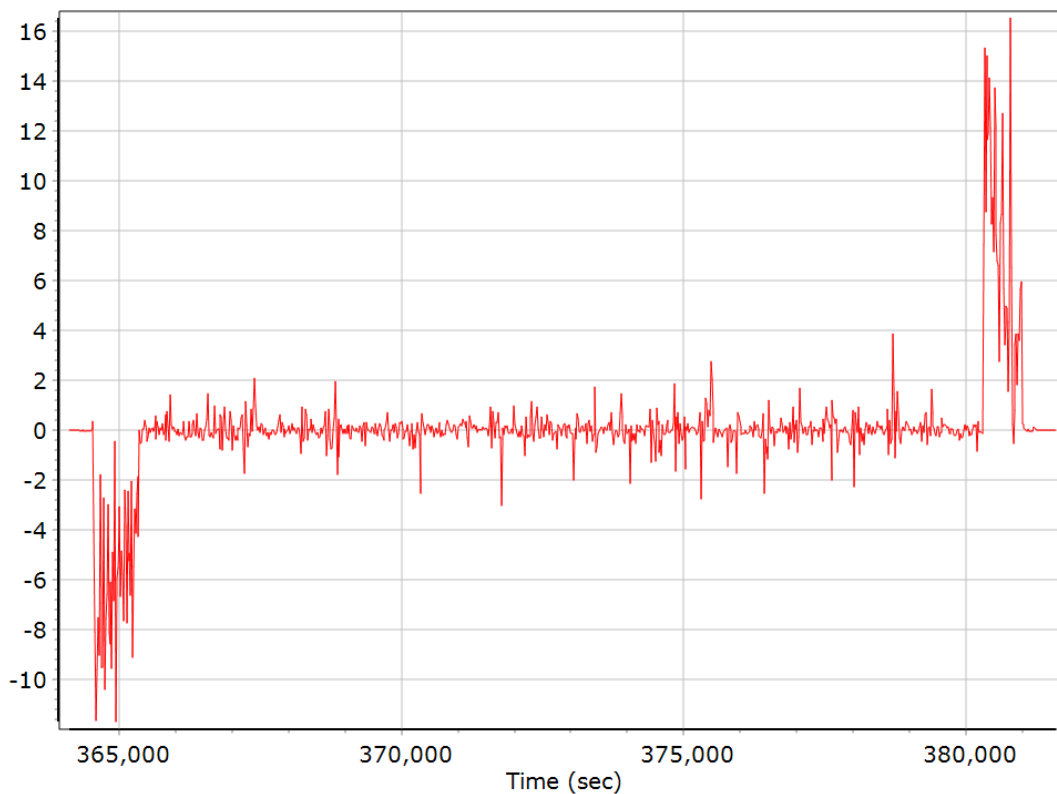
## Heading



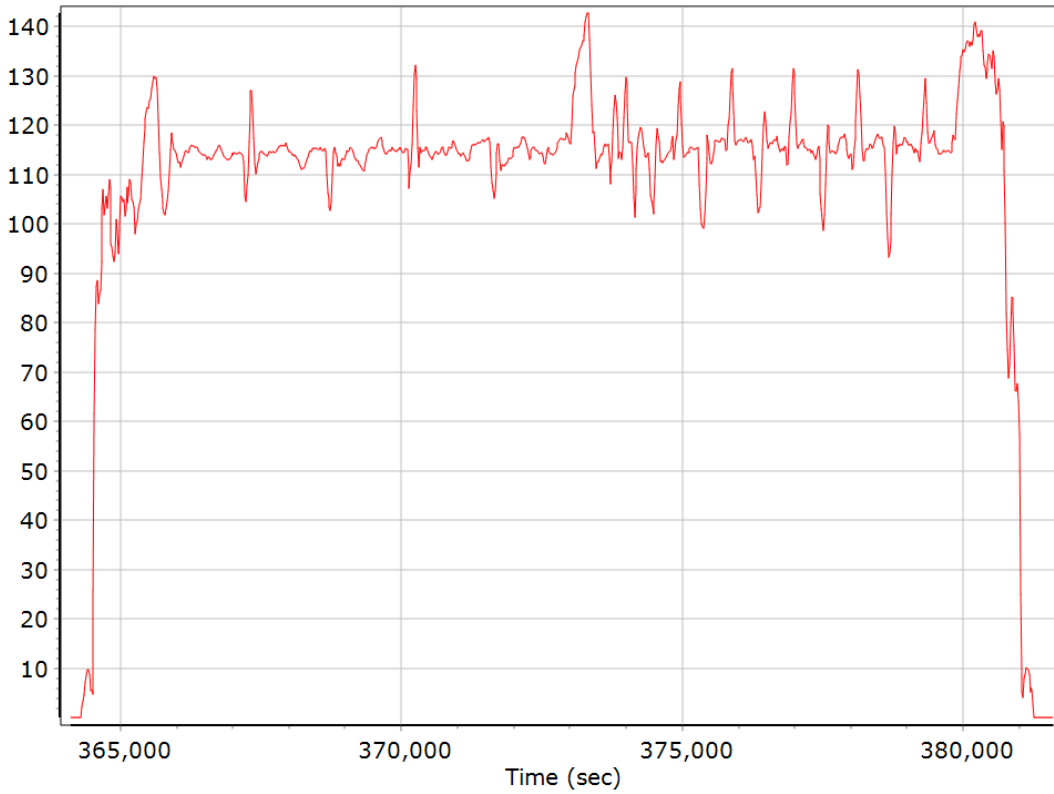
### North/East Velocity



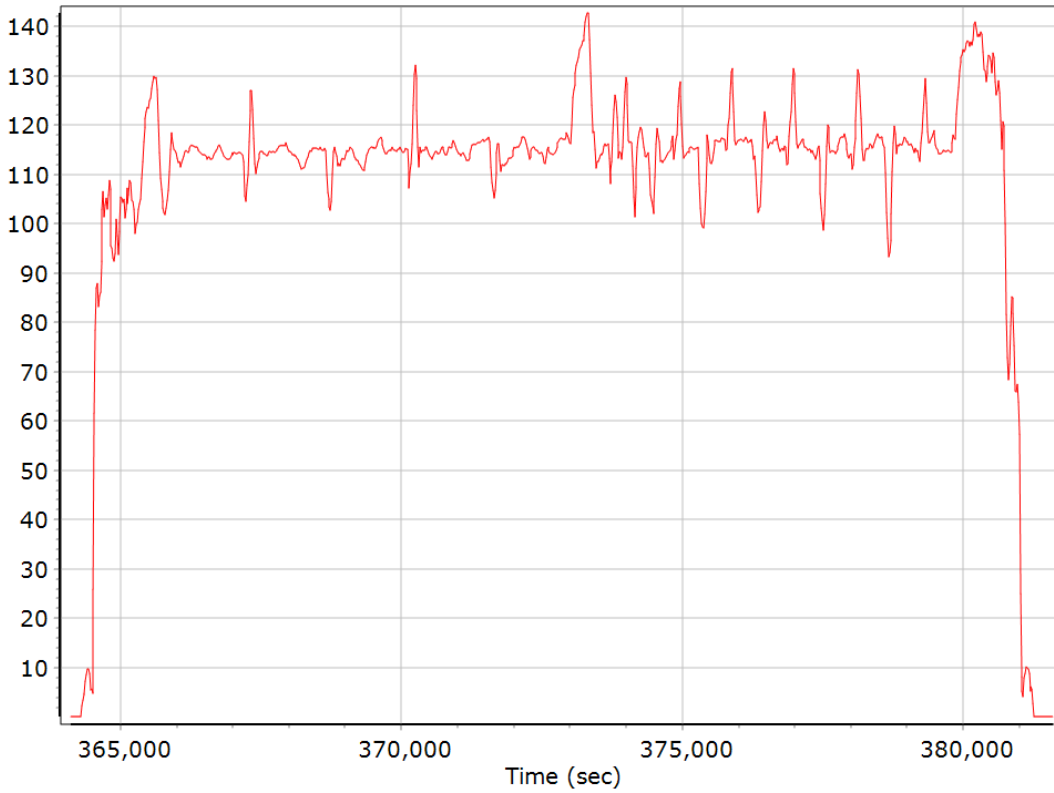
### Down Velocity



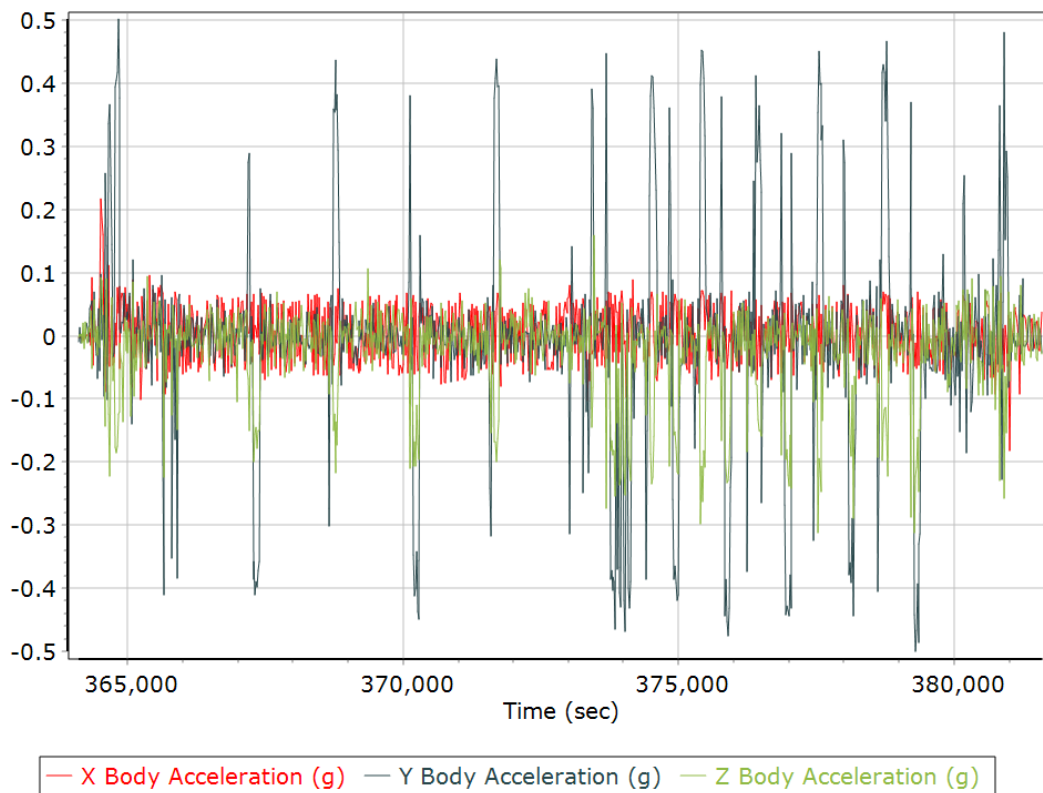
### Total Speed



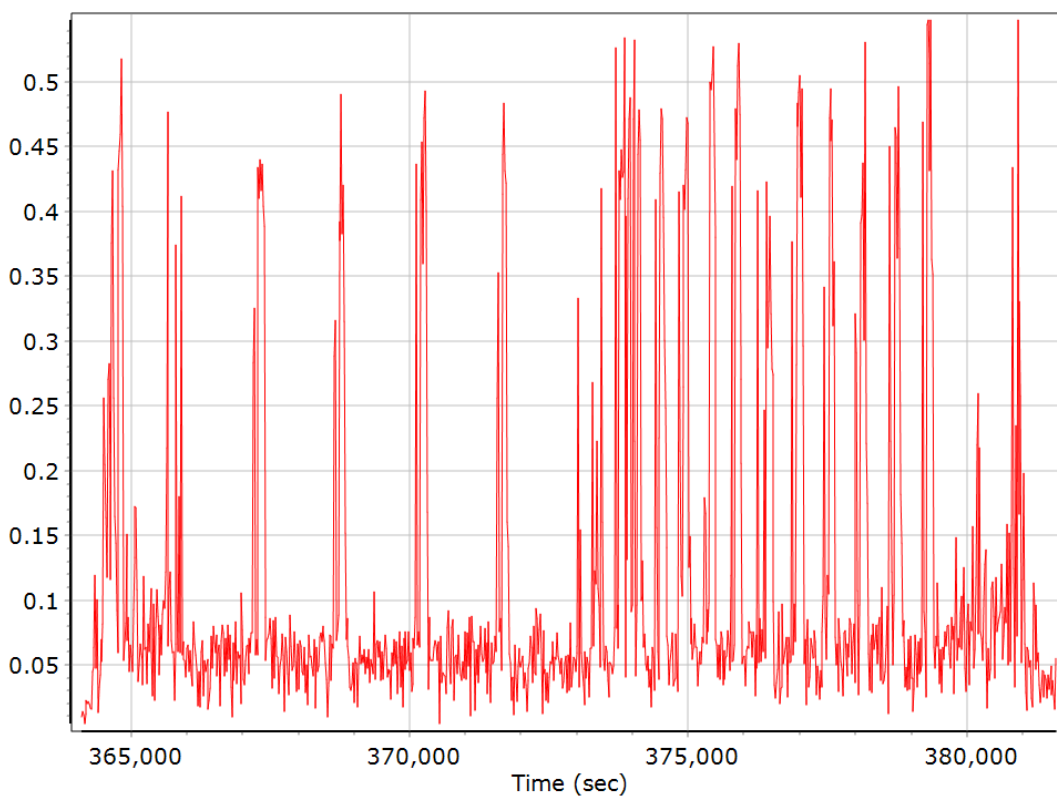
### Ground Speed



### Body Acceleration

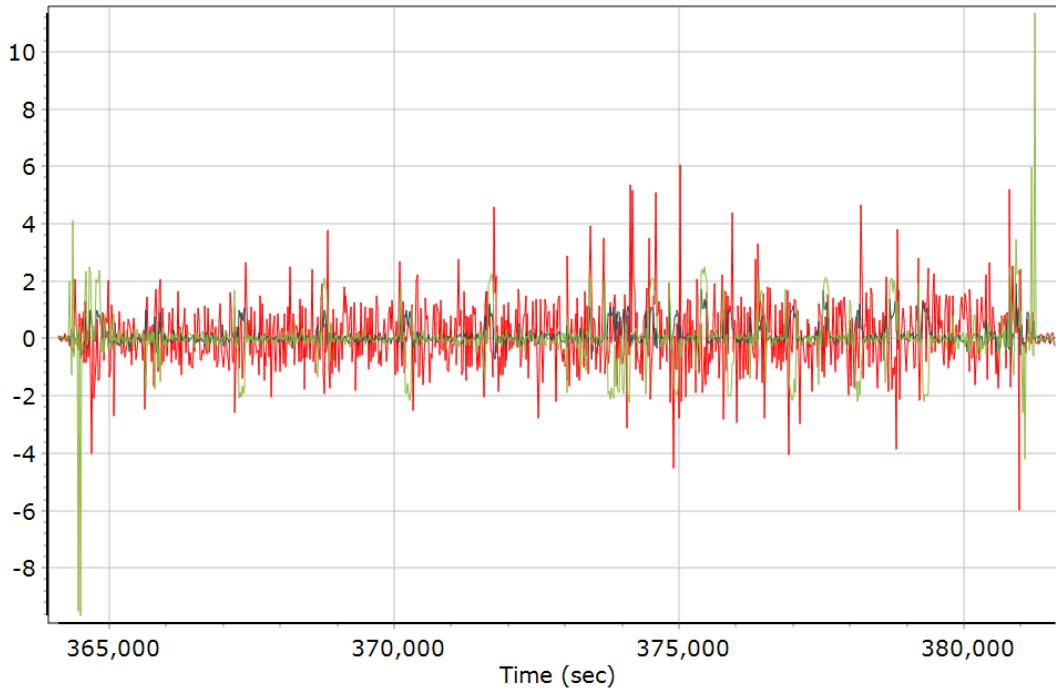


### Total Body Acceleration





## Body Angular Rate



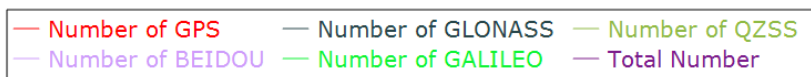
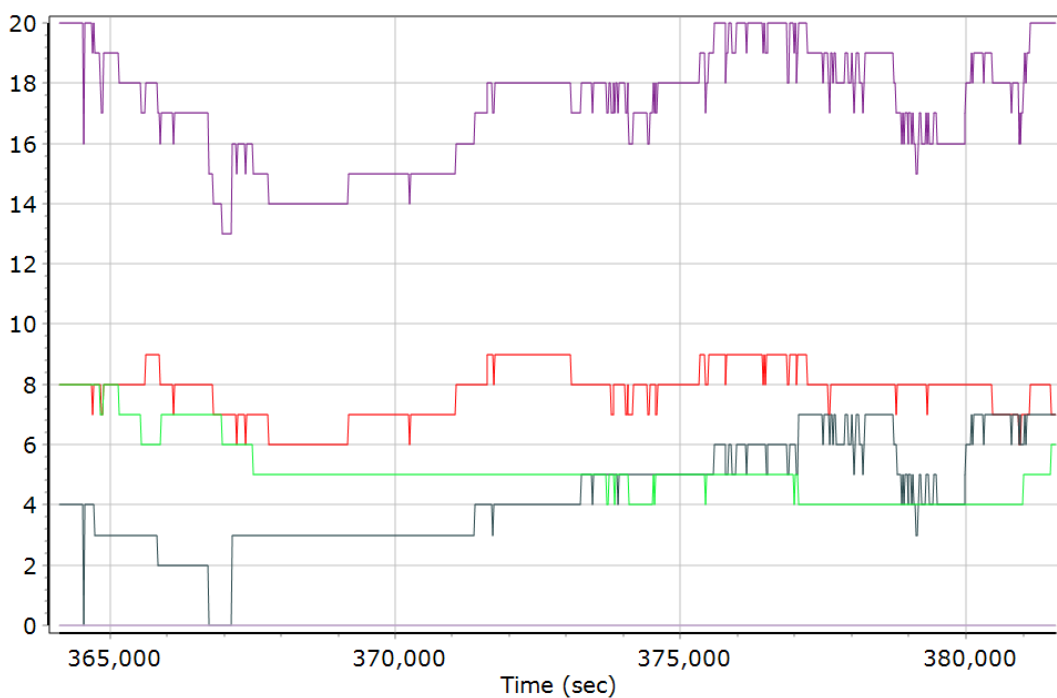
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

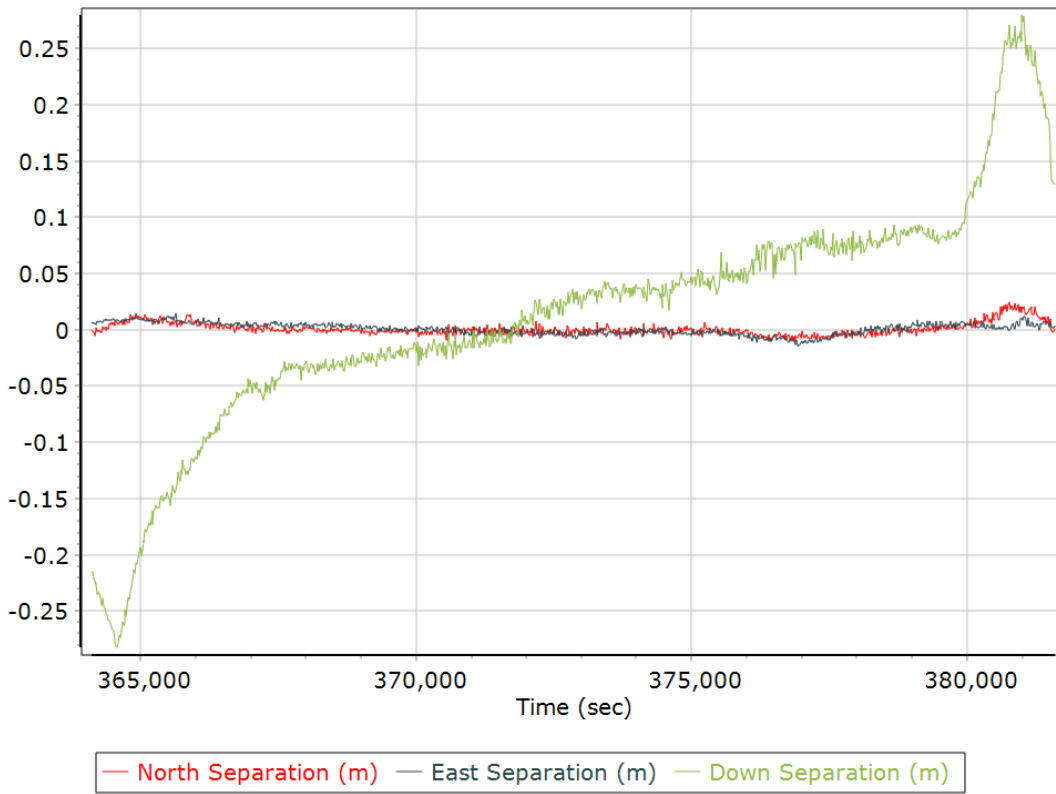
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	9	8
Number of GLONASS SV	0	7	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	4	8	5
Total number of SV	13	21	17
PDOP	1.05	1.74	1.27
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	17915.00	0.00	0.00
Percentage	100.00	0.00	0.00

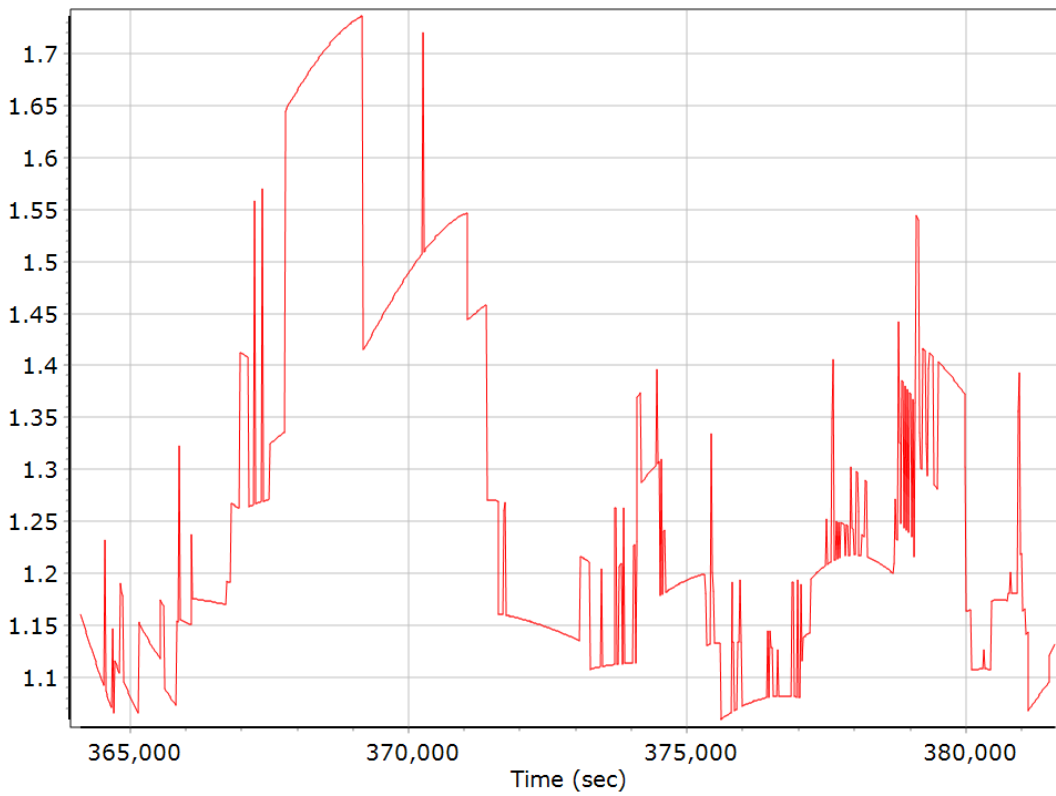
### Num SVs in solution



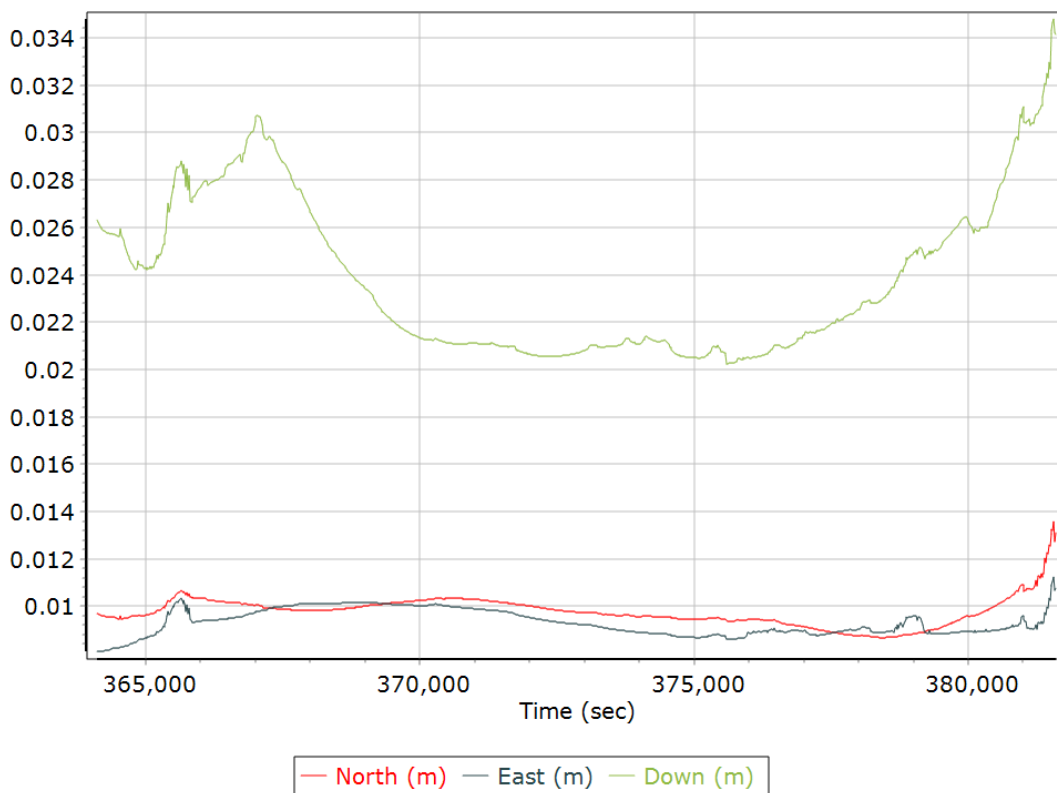
### Forward/Reverse Separation



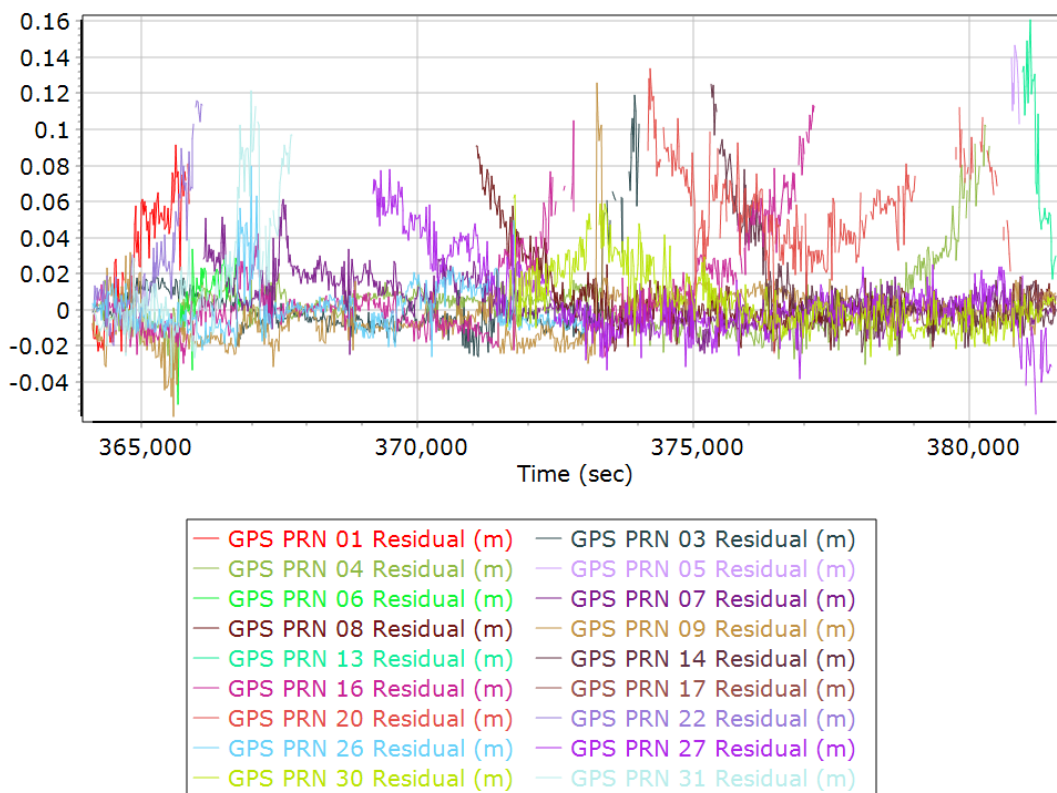
### PDOP



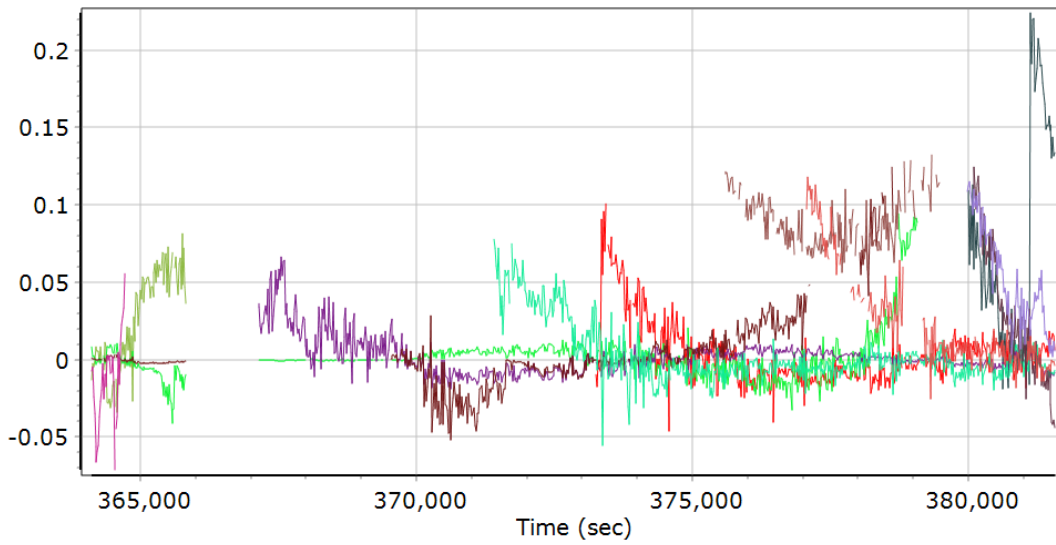
### Estimated Position Accuracy



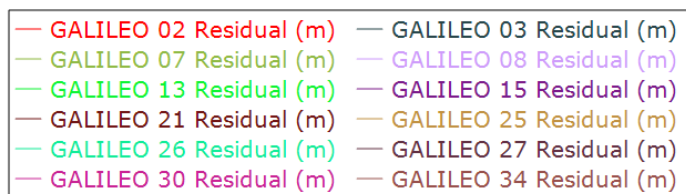
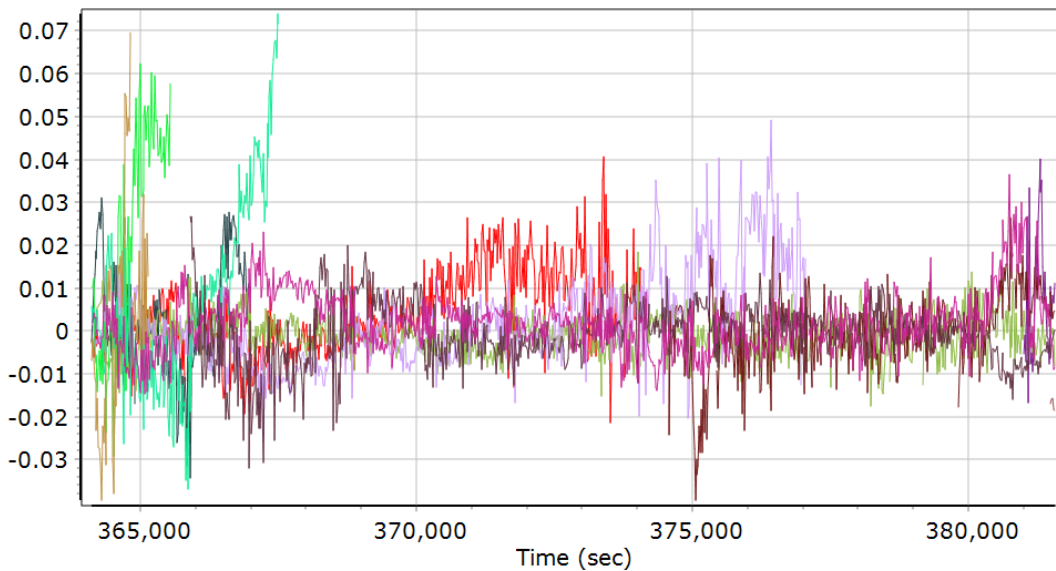
### GPS Residuals



## GLONASS Residuals



## GALILEO Residuals



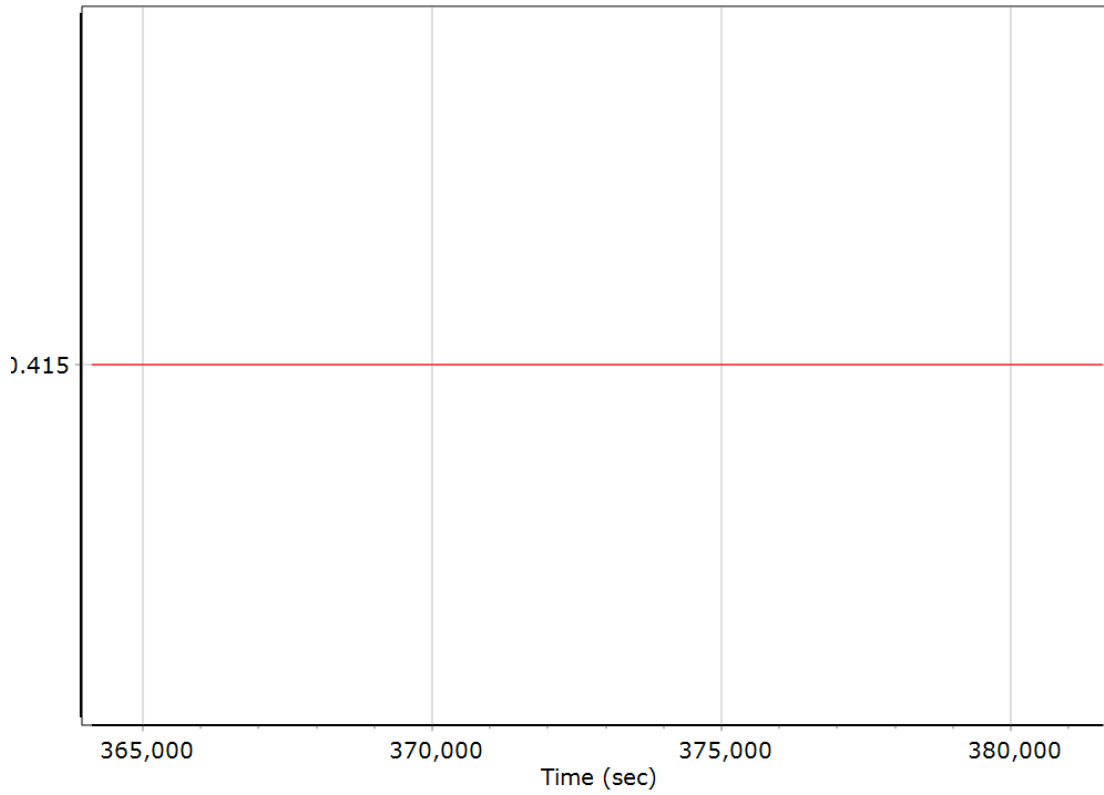
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	363649.000 (7/7/2022 5:00:49 AM)		
Processing end time	381605.000 (7/7/2022 10:00:05 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.415	-0.285	-1.274
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

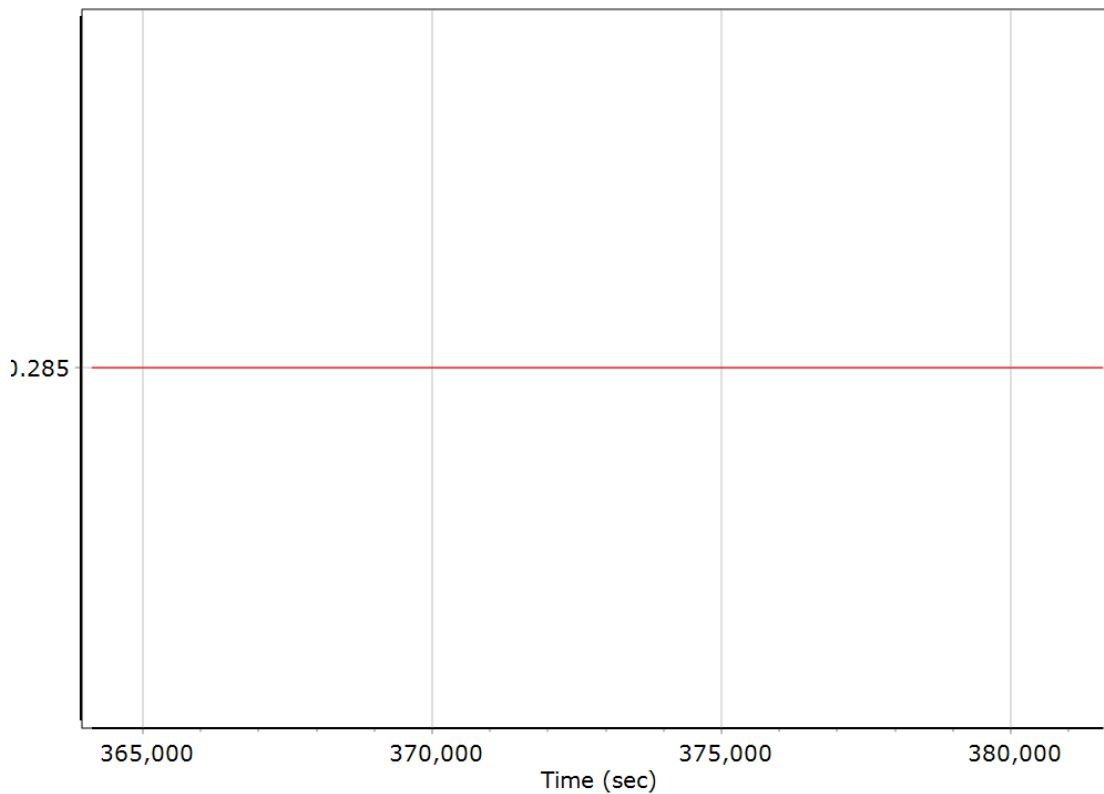
## Calibrated Installation Parameters

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

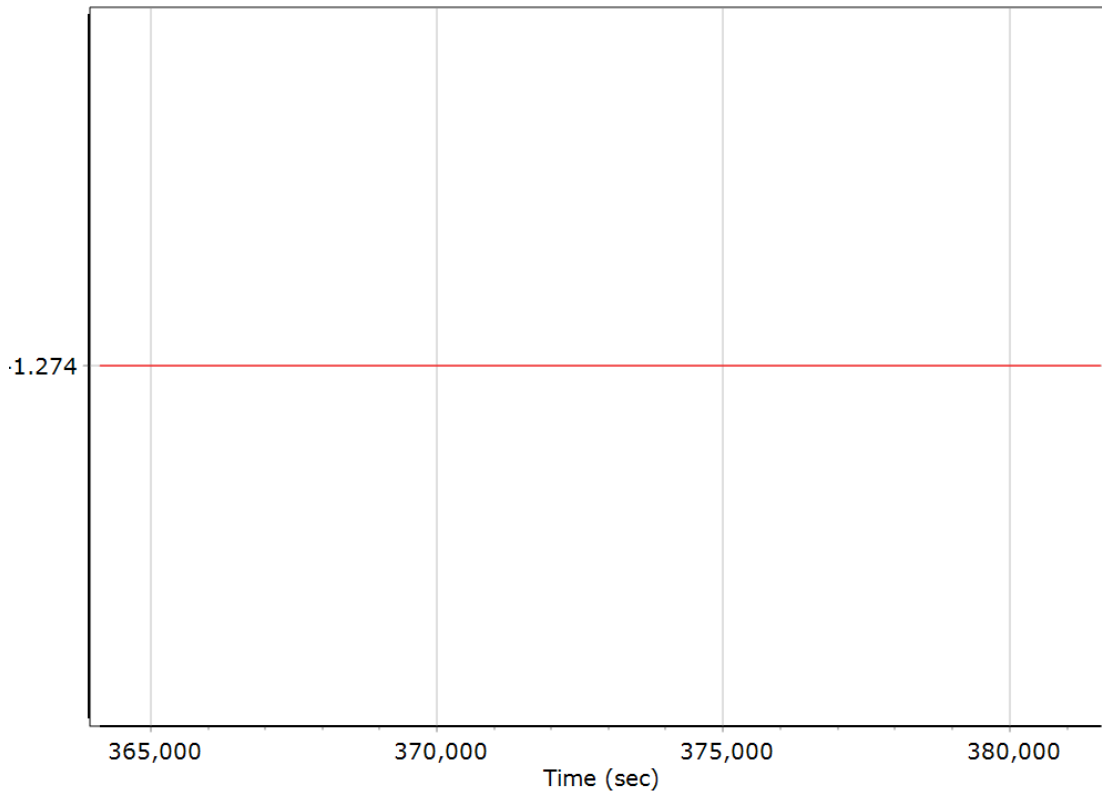
#### X Reference-Primary GNSS Lever Arm (m)



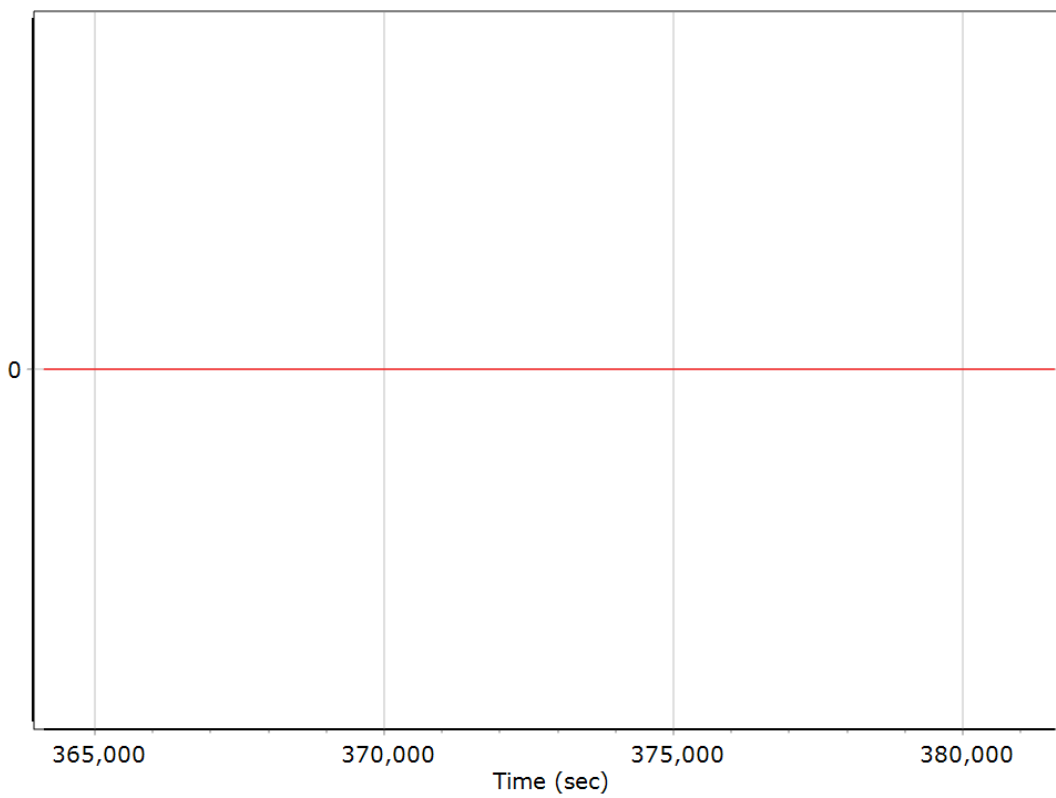
#### Y Reference-Primary GNSS Lever Arm (m)



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



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

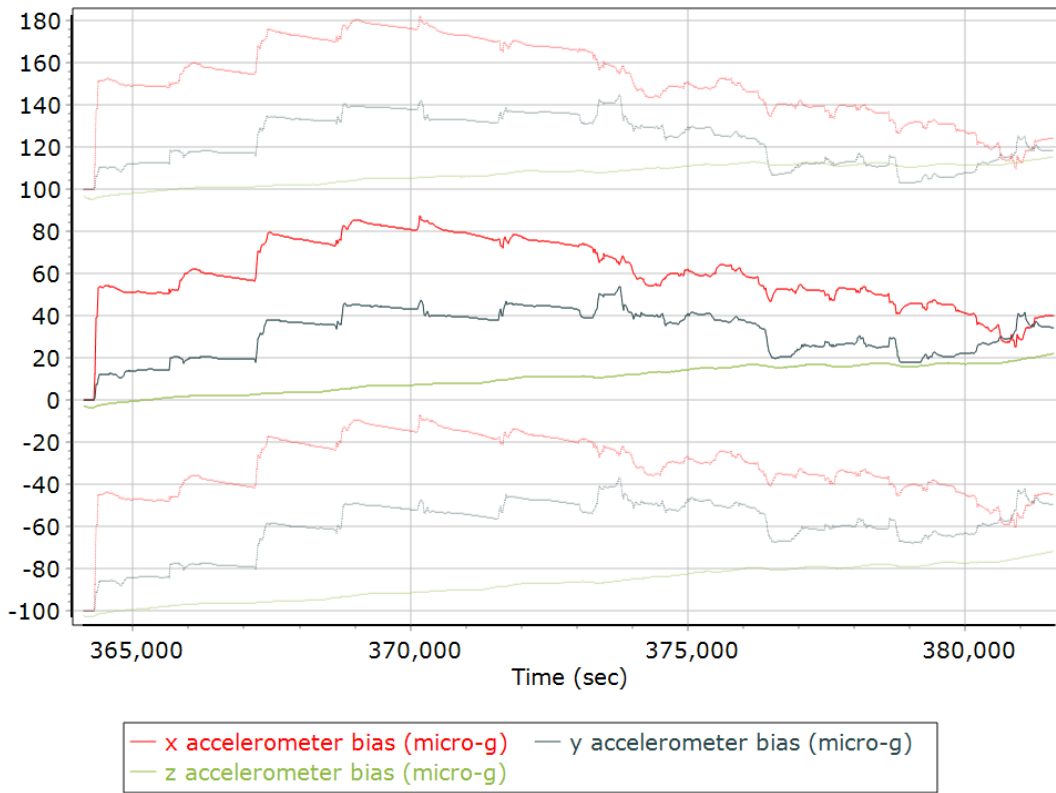




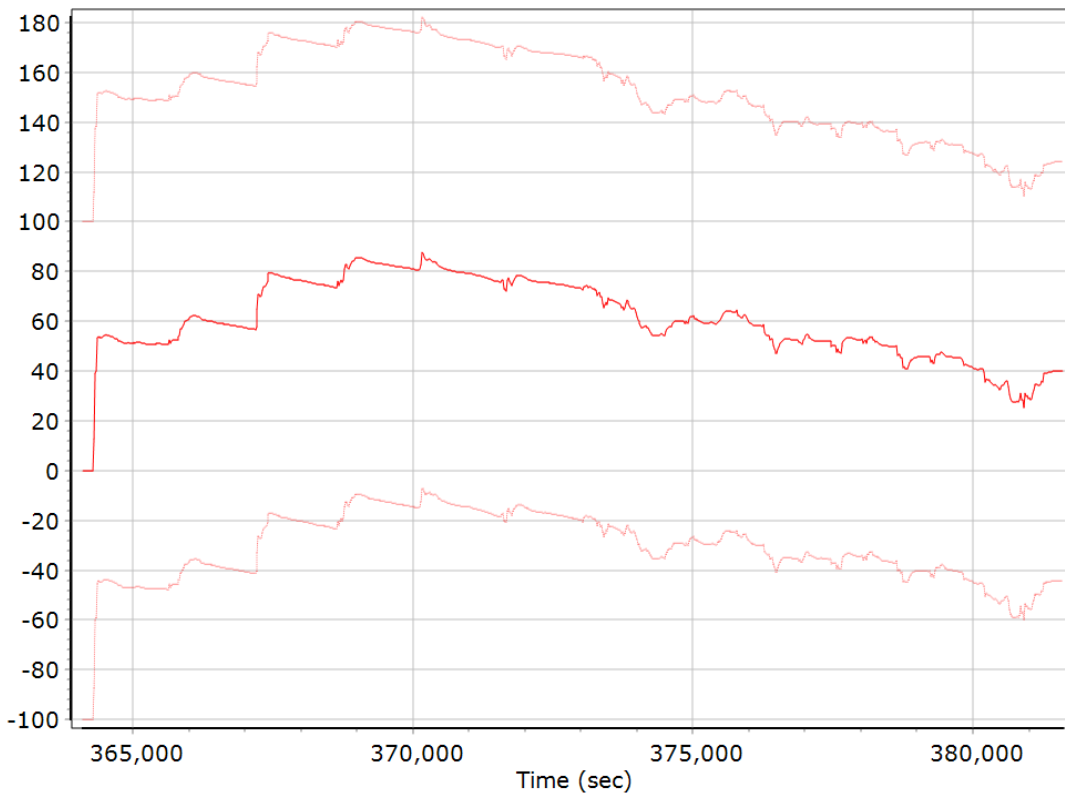
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

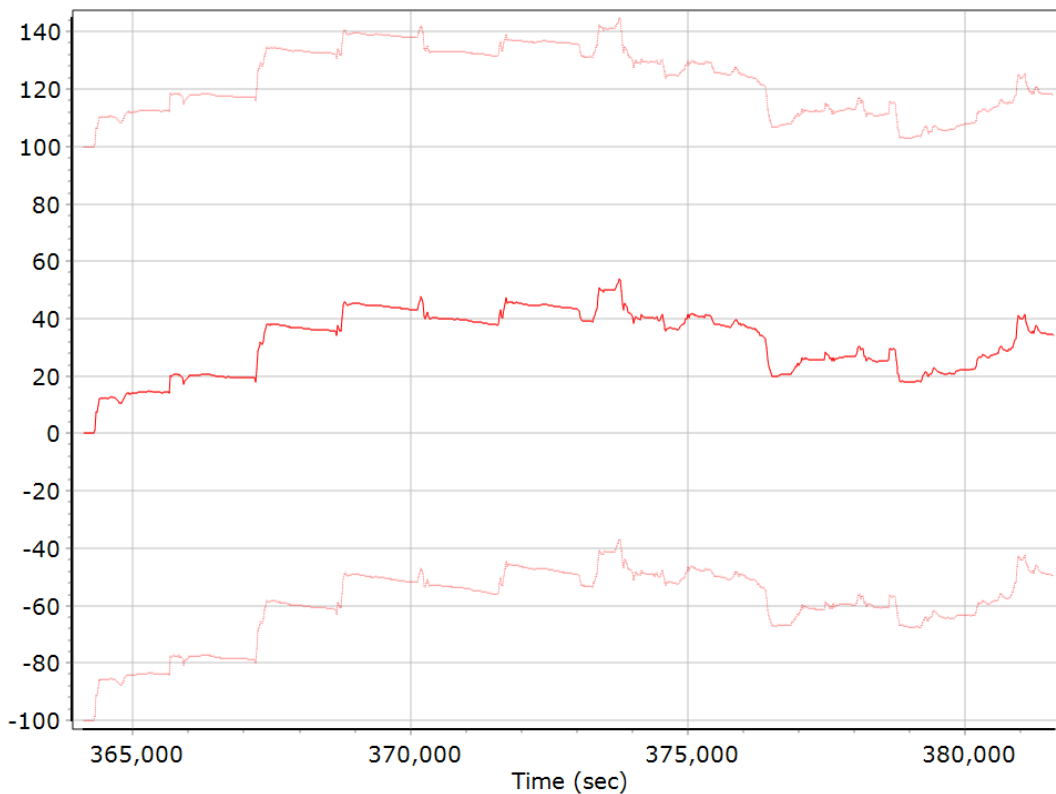
#### Accelerometer Bias (micro-g)



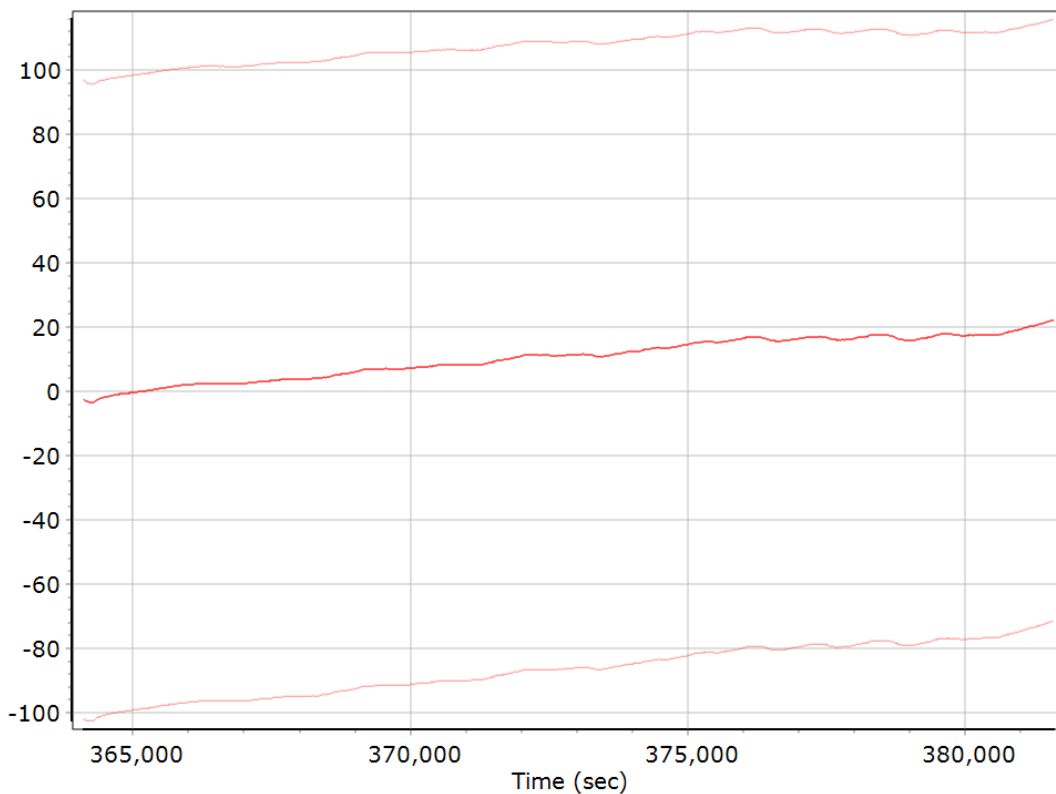
#### X Accelerometer Bias (micro-g)



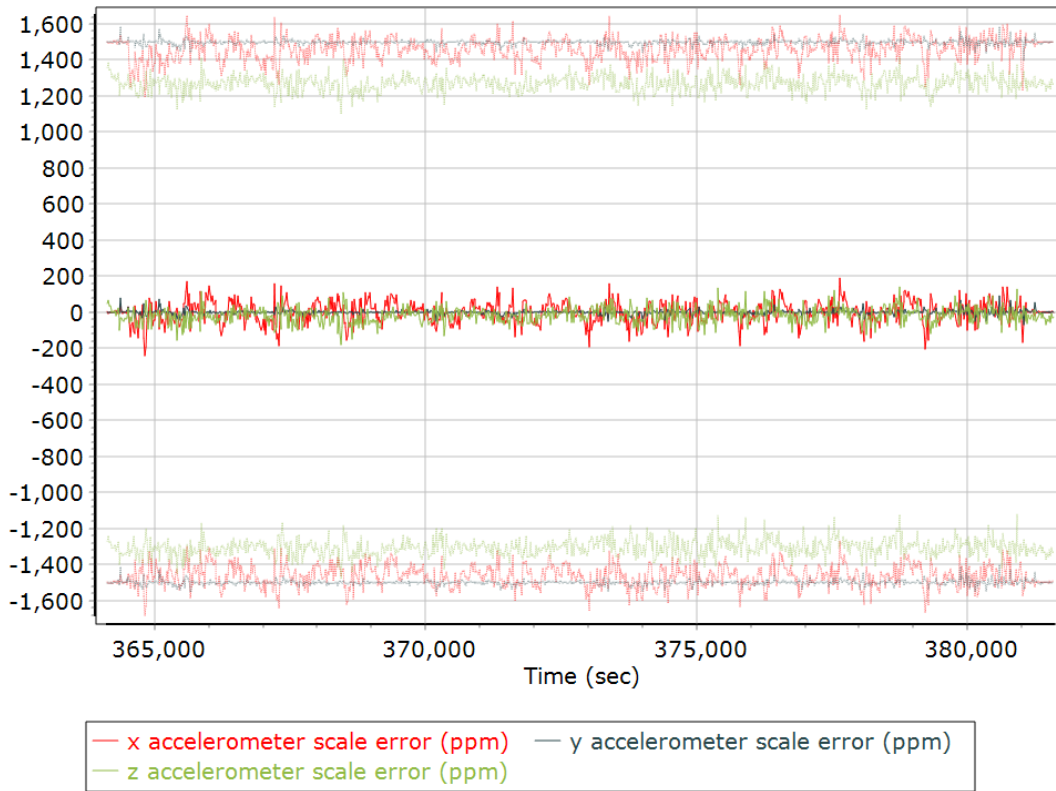
### Y Accelerometer Bias (micro-g)



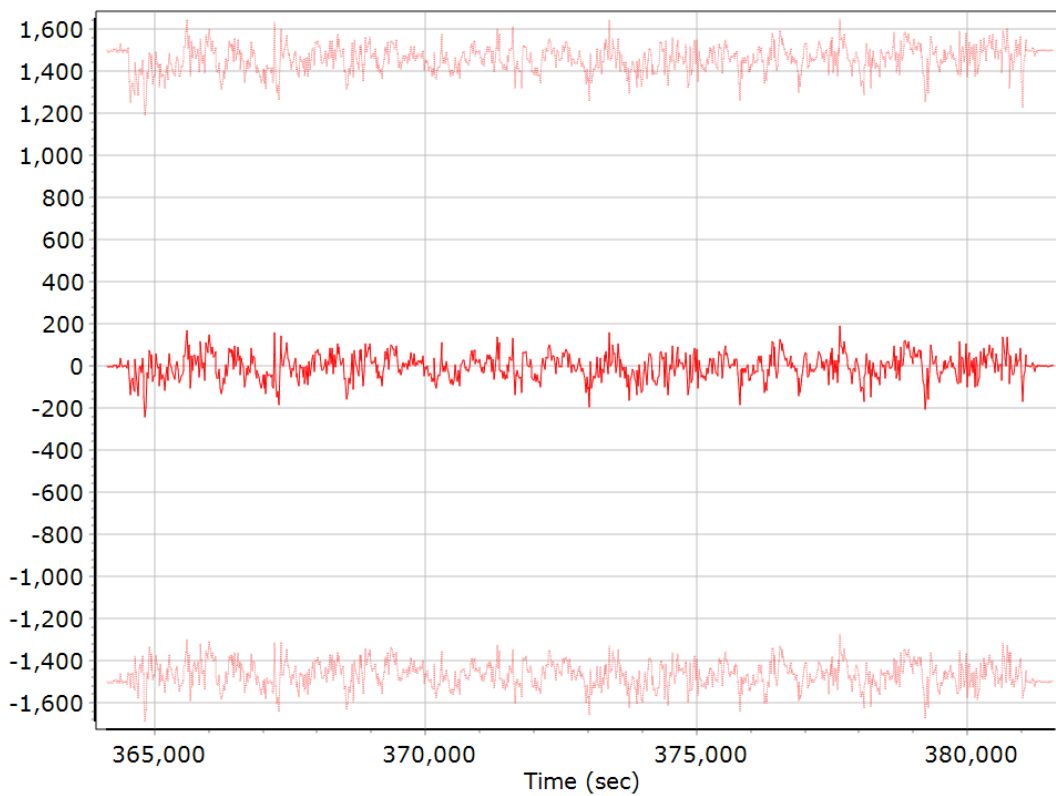
### Z Accelerometer Bias (micro-g)



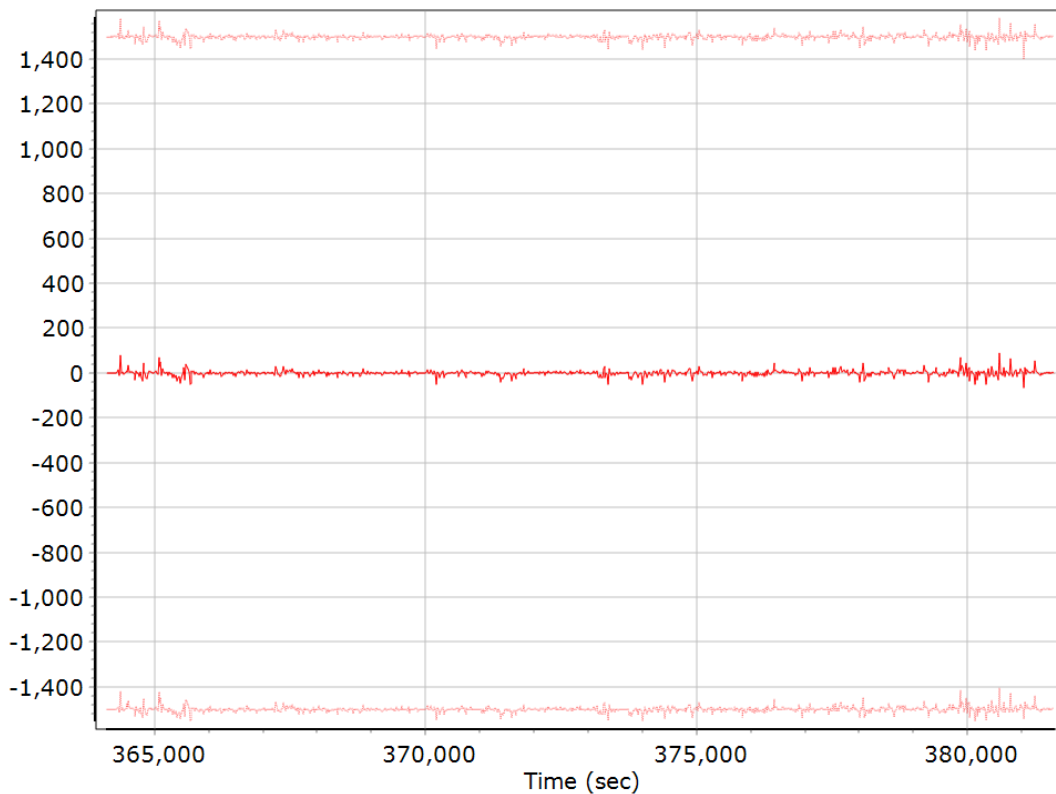
### Accelerometer Scale Error (ppm)



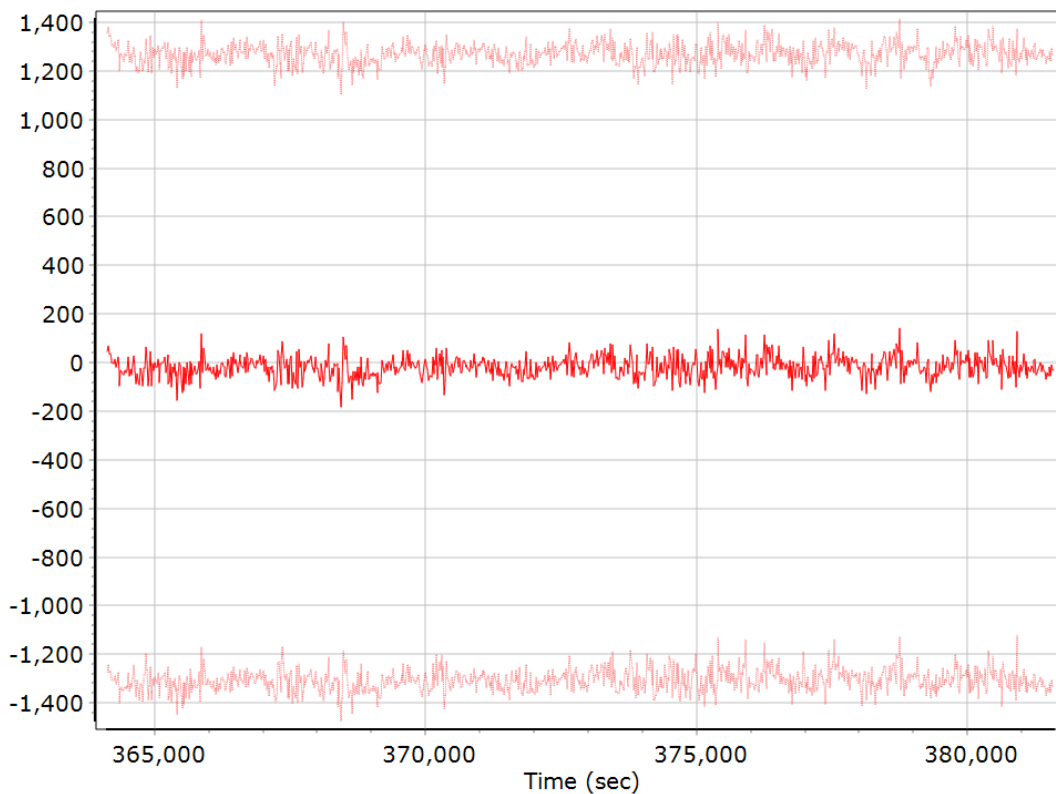
### X Accelerometer Scale Error (ppm)



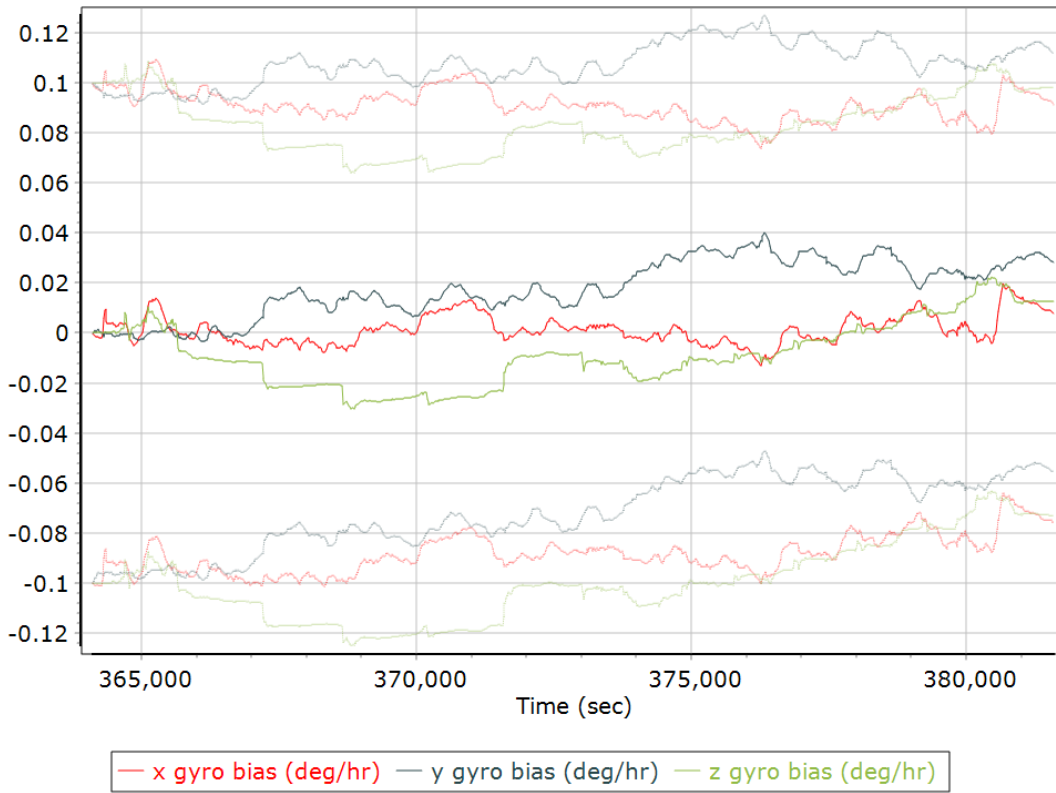
### Y Accelerometer Scale Error (ppm)



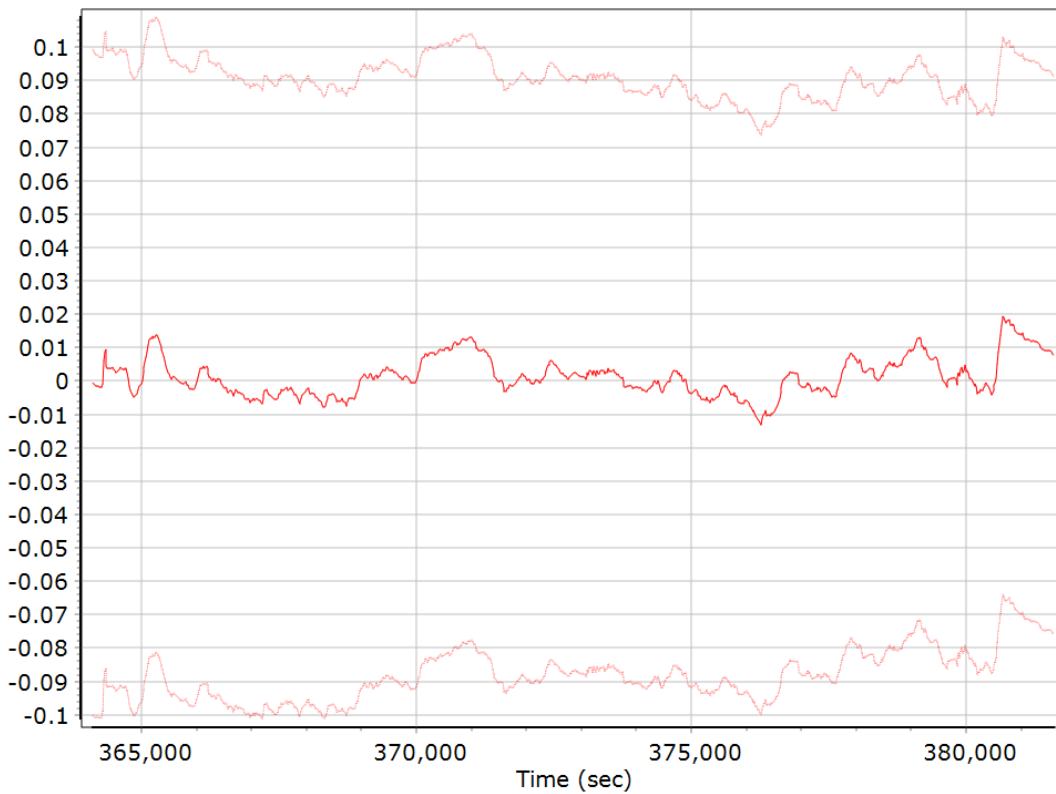
### Z Accelerometer Scale Error (ppm)



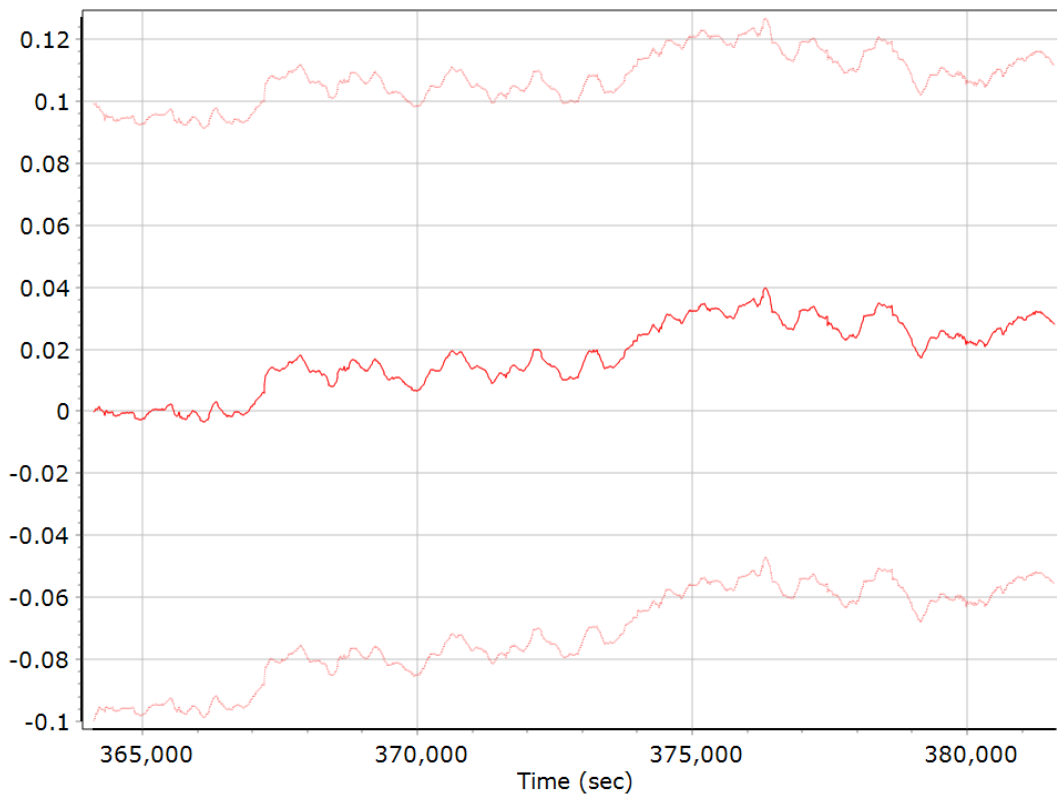
### Gyro Bias (deg/h)



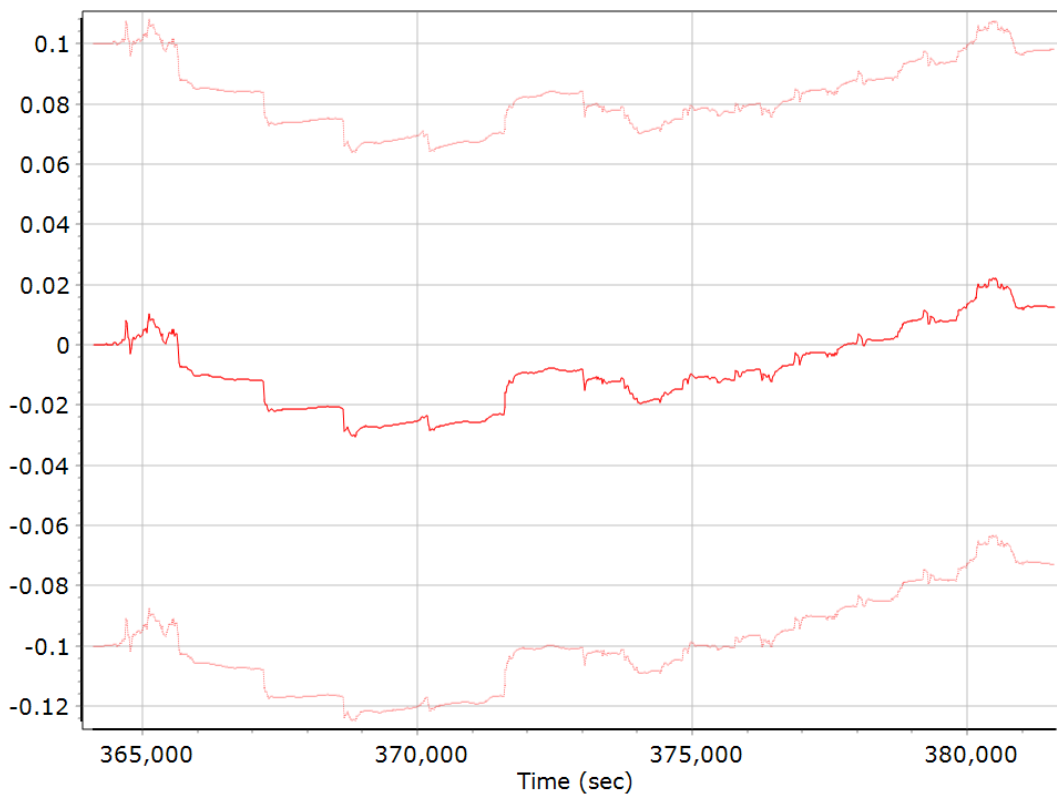
### X Gyro Bias (deg/h)



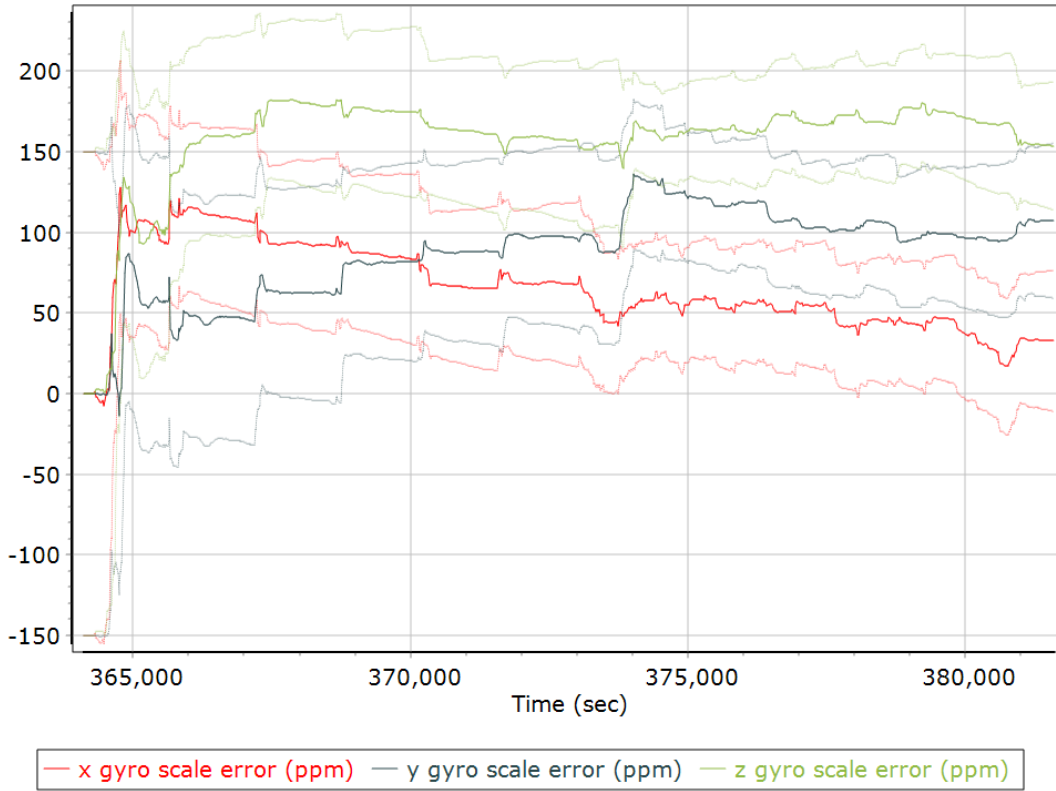
### Y Gyro Bias (deg/h)



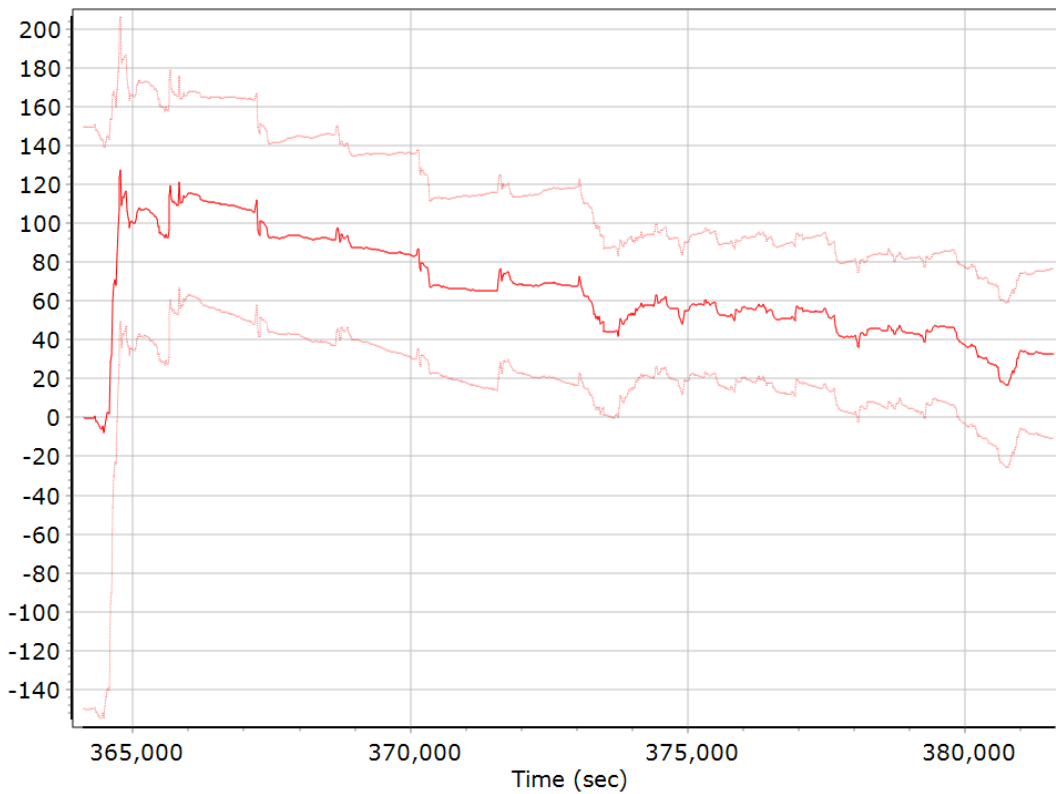
### Z Gyro Bias (deg/h)



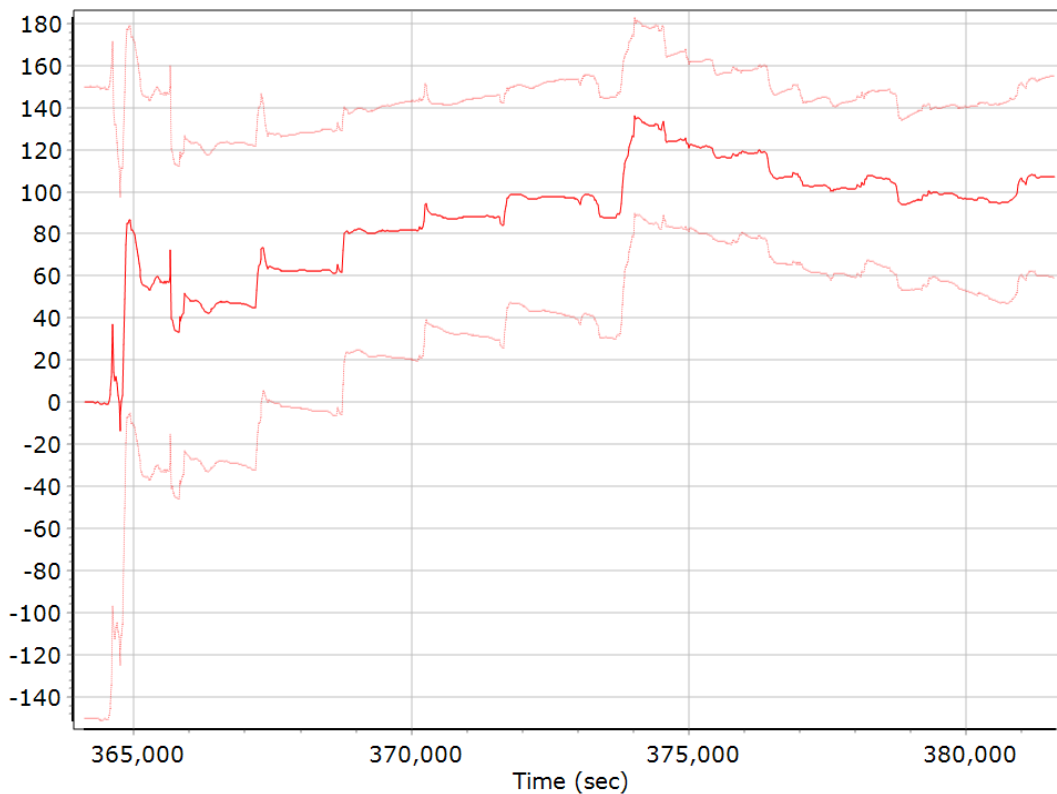
### Gyro Scale Error (ppm)



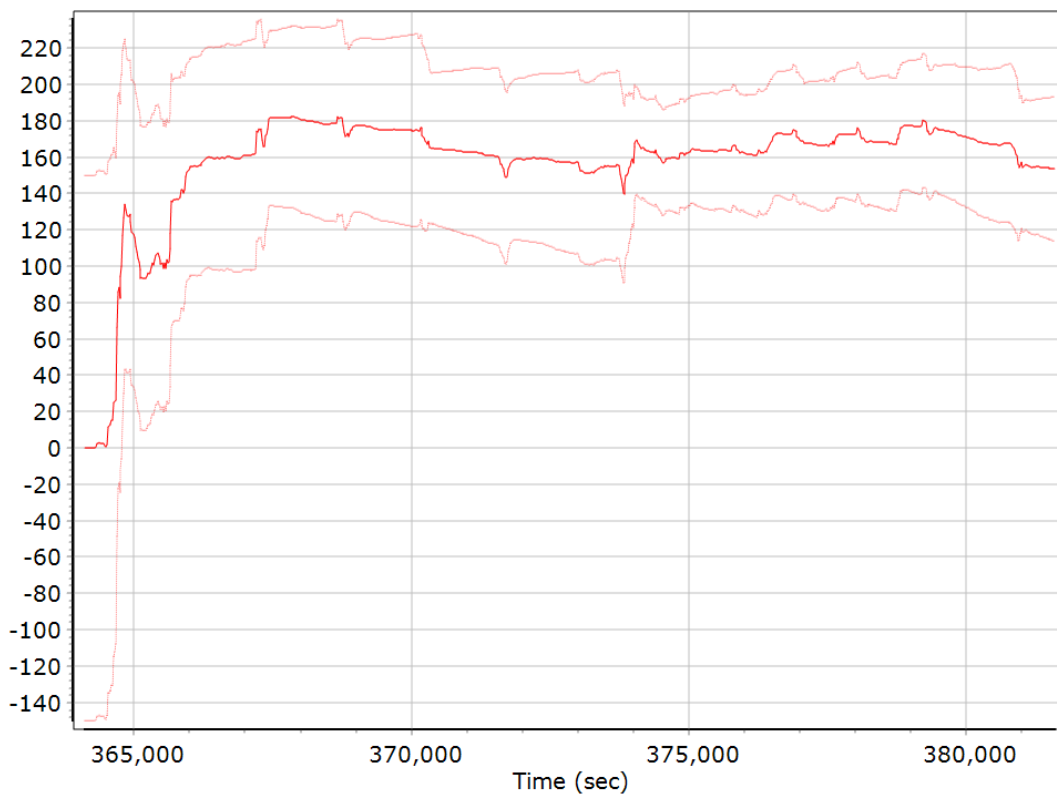
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)



### Z Gyro Scale Error (ppm)





## Smoothed Performance Metrics

### Position Error RMS (m)



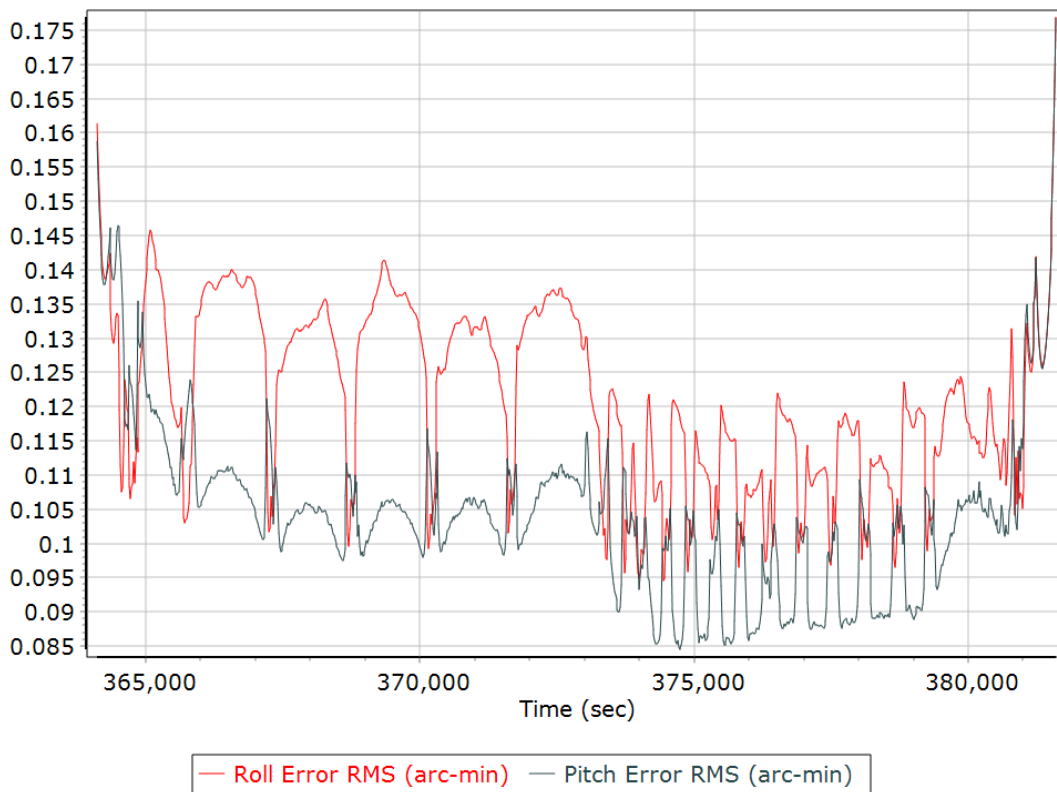
— North Position Error RMS (m) — East Position Error RMS (m)  
— Down Position Error RMS (m)

### Velocity Error RMS (m/s)

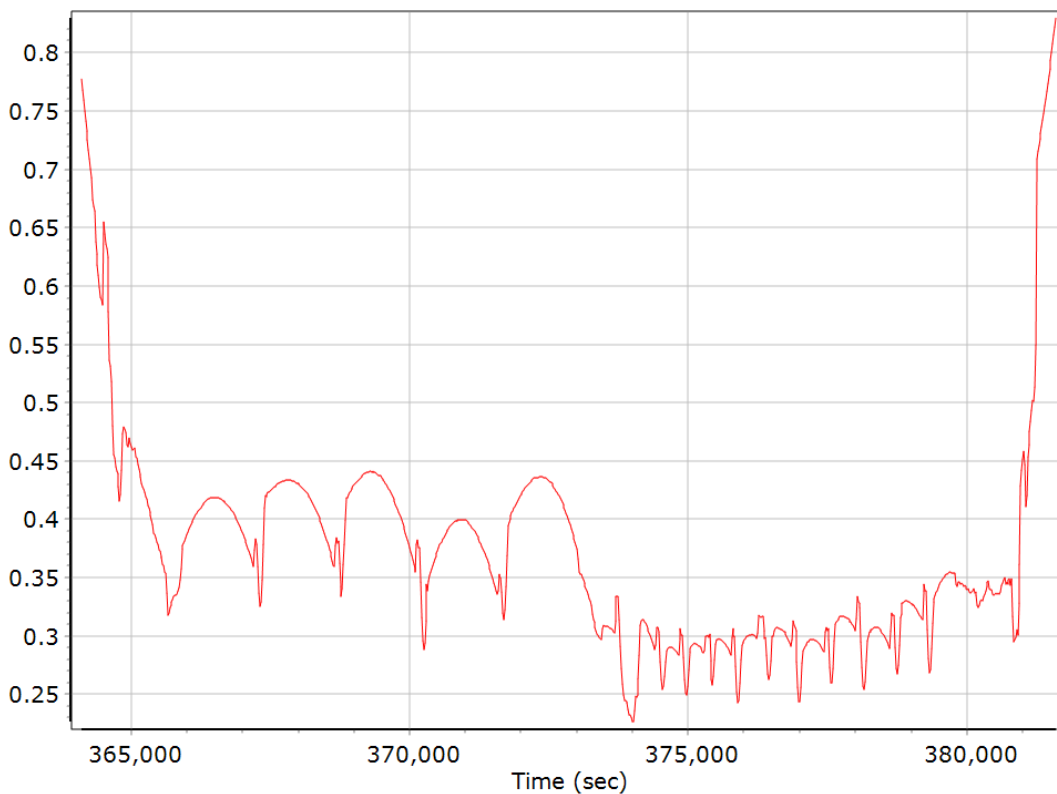


— North Velocity Error RMS (m/s) — East Velocity Error RMS (m/s)  
— Down Velocity Error RMS (m/s)

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

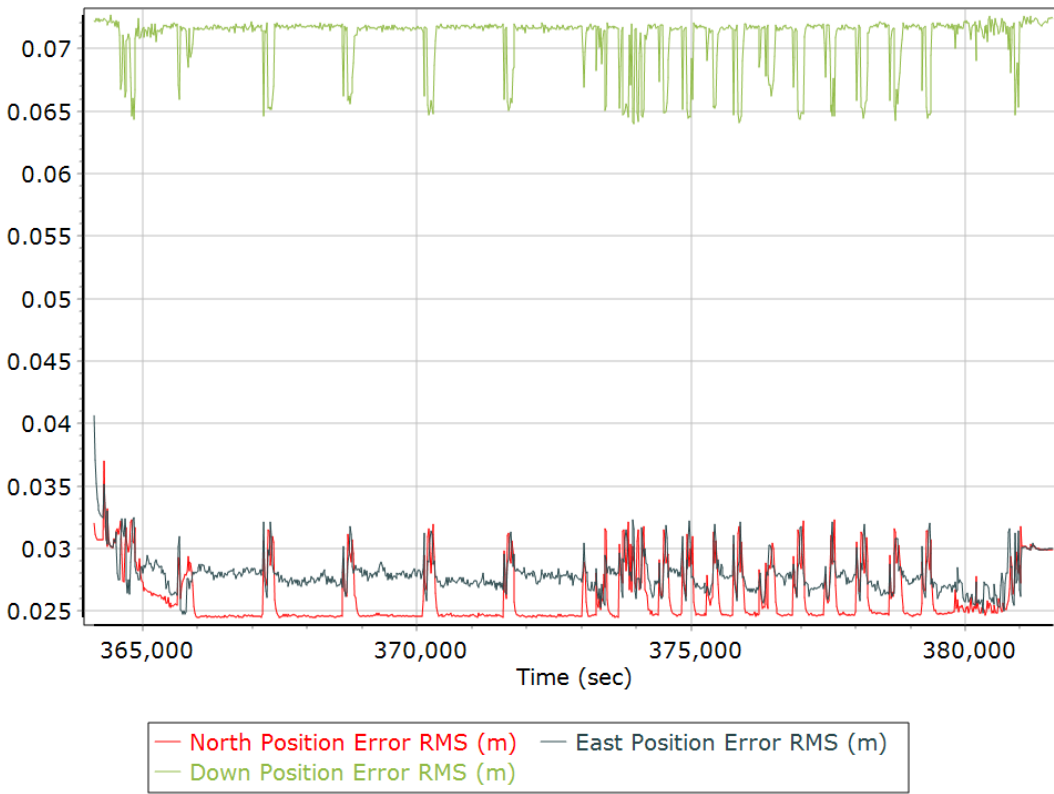


### Heading Error RMS (arc-min)

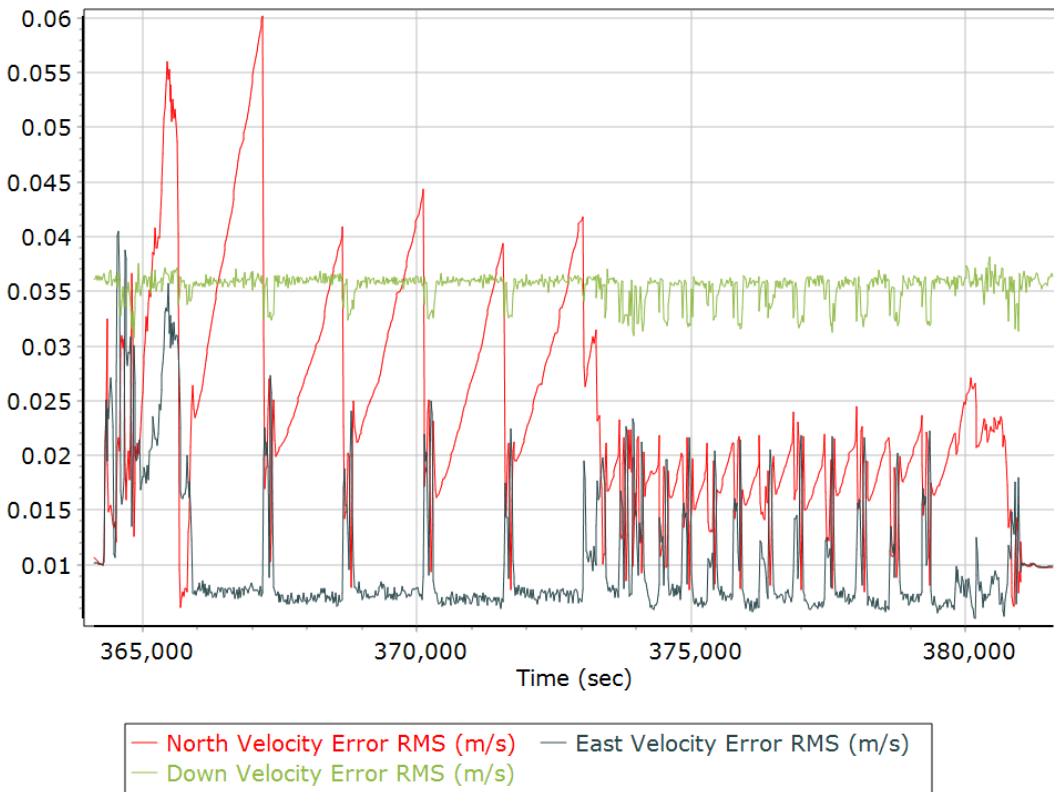


## Forward Processed Performance Metrics

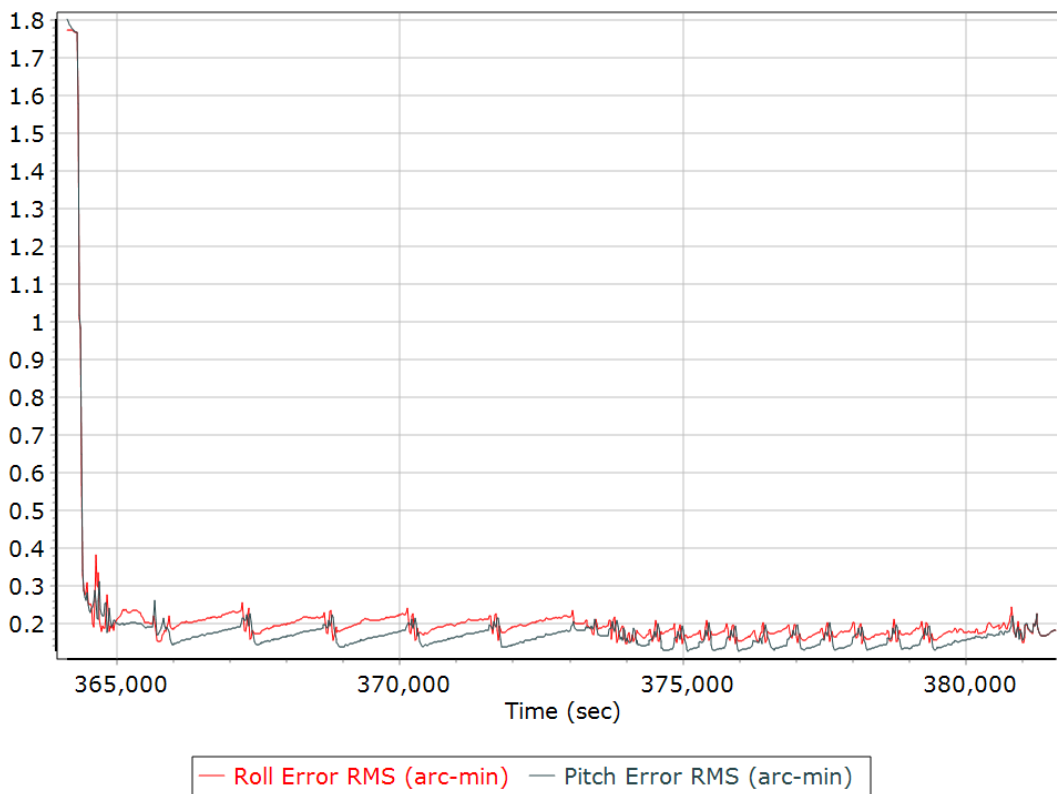
### Position Error RMS (m)



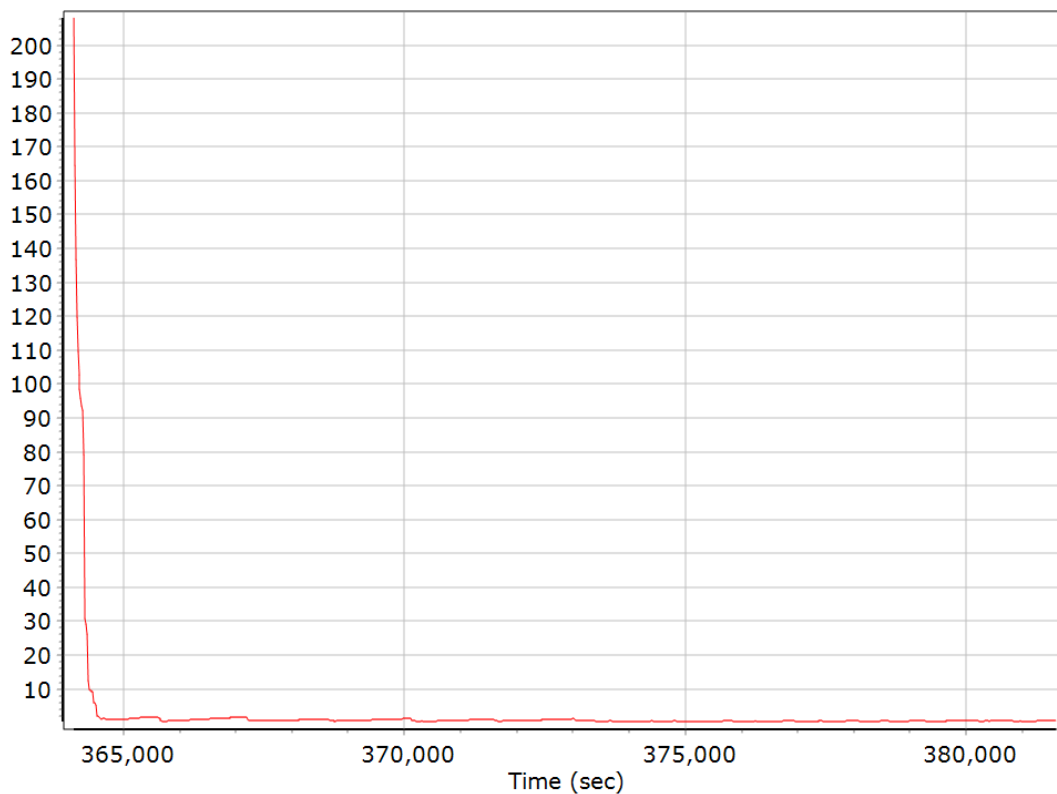
### Velocity Error RMS (m/s)



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

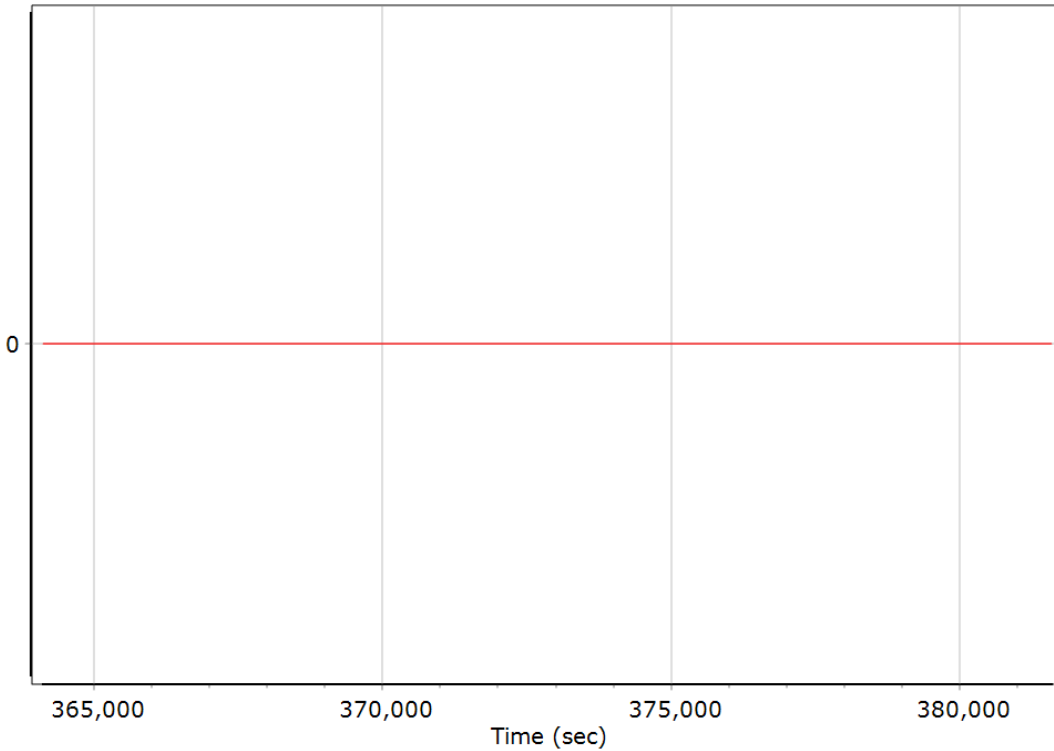


### Heading Error RMS (arc-min)



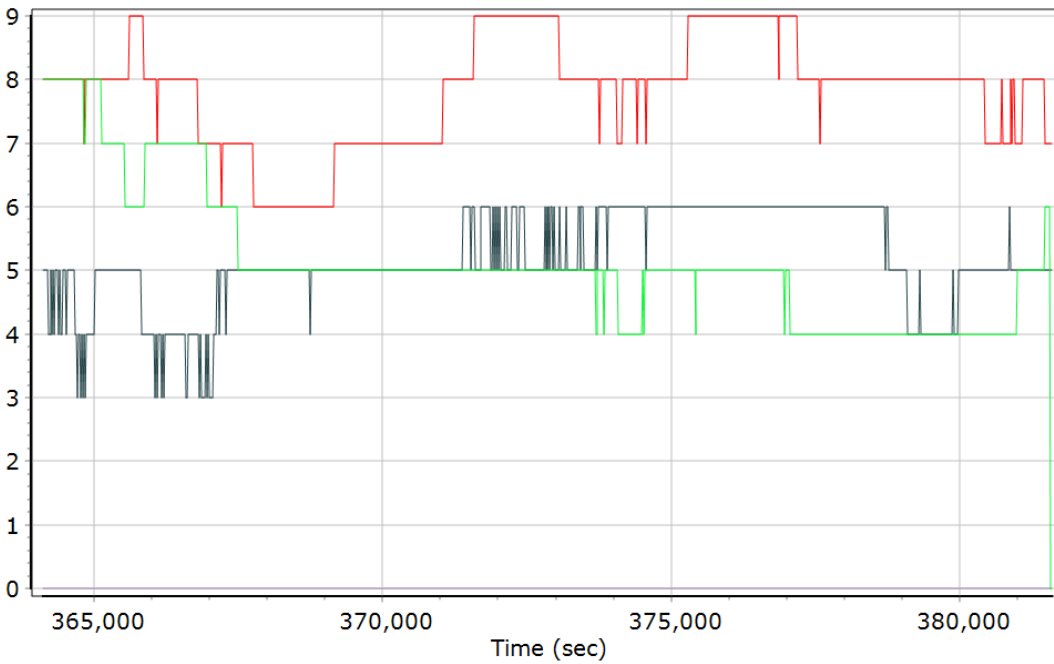
## Forward Processed Solution Status

### Processing Mode



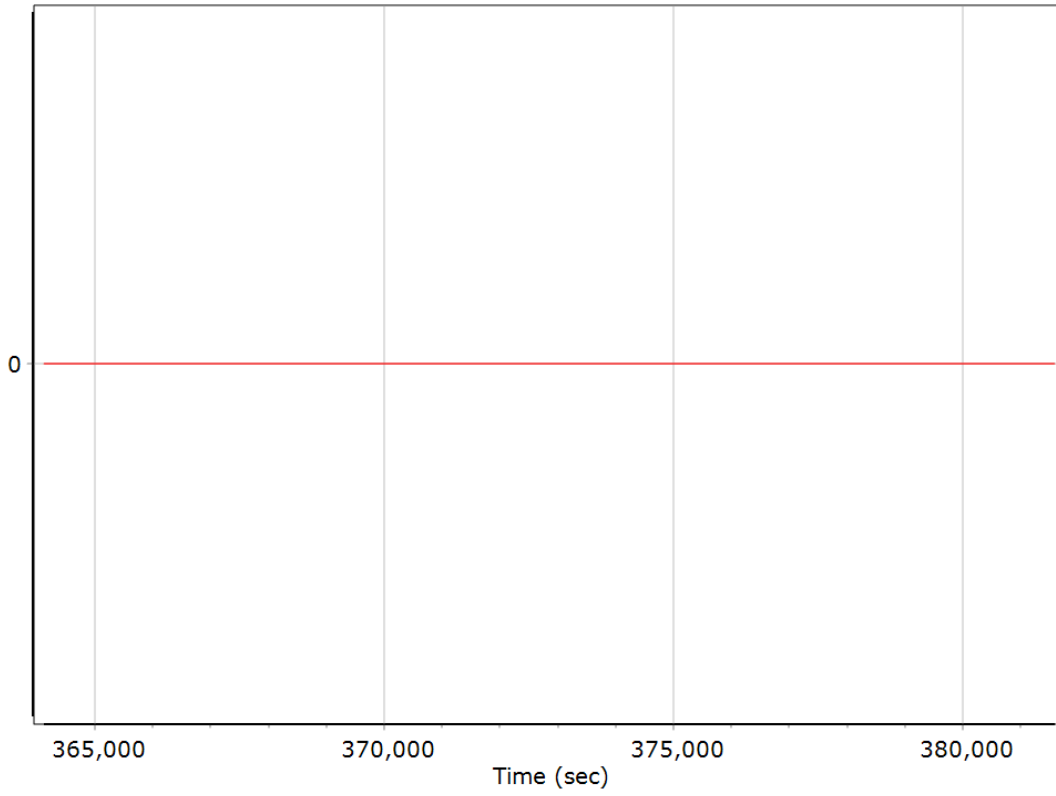
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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



## General Information

### Mission Information

Project name	a07-s03-0513
Processing date	2022-07-19 16:23:03
Mission date	2022-07-19 09:14:39
Mission duration	02:49:10.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0719_091441.000	POS Data
default0719_091441.001	POS Data
default0719_091441.002	POS Data
default0719_091441.003	POS Data
default0719_091441.004	POS Data
default0719_091441.005	POS Data
default0719_091441.006	POS Data
default0719_091441.007	POS Data
default0719_091441.008	POS Data
default0719_091441.009	POS Data
default0719_091441.010	POS Data
default0719_091441.011	POS Data
default0719_091441.012	POS Data
default0719_091441.013	POS Data
default0719_091441.014	POS Data

### Input Files

File Name	File Type
Ephm2000.22g	GLONASS Broadcast Ephemeris
Ephm2000.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0513.out	SBET Trajectory File



## Rover Data Summary

First raw data file	default0719_091441.000		
Last raw data file	default0719_091441.014		
Start GPS week	2219		
Start time	206062.840 (7/19/2022 9:14:22 AM)		
End time	216211.804 (7/19/2022 12:03:31 PM)		
Start of fine alignment	206460.817 (7/19/2022 9:21:00 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

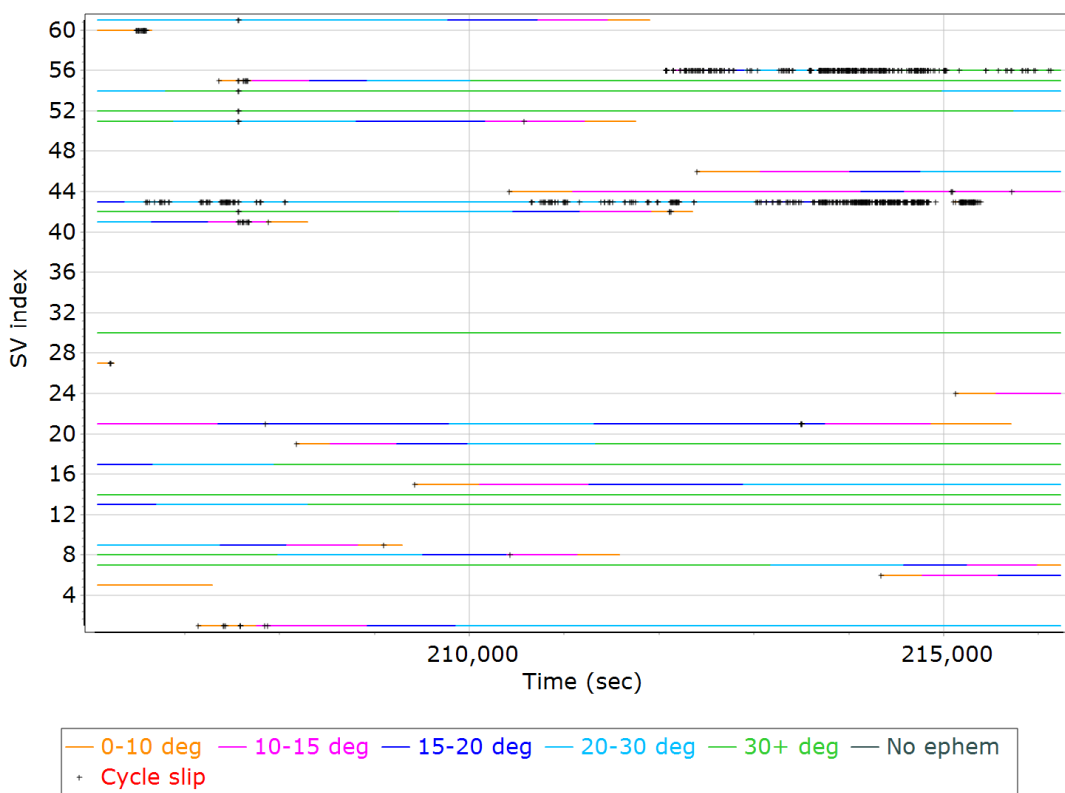
## Rover Data QC

### Raw IMU Import QC Summary

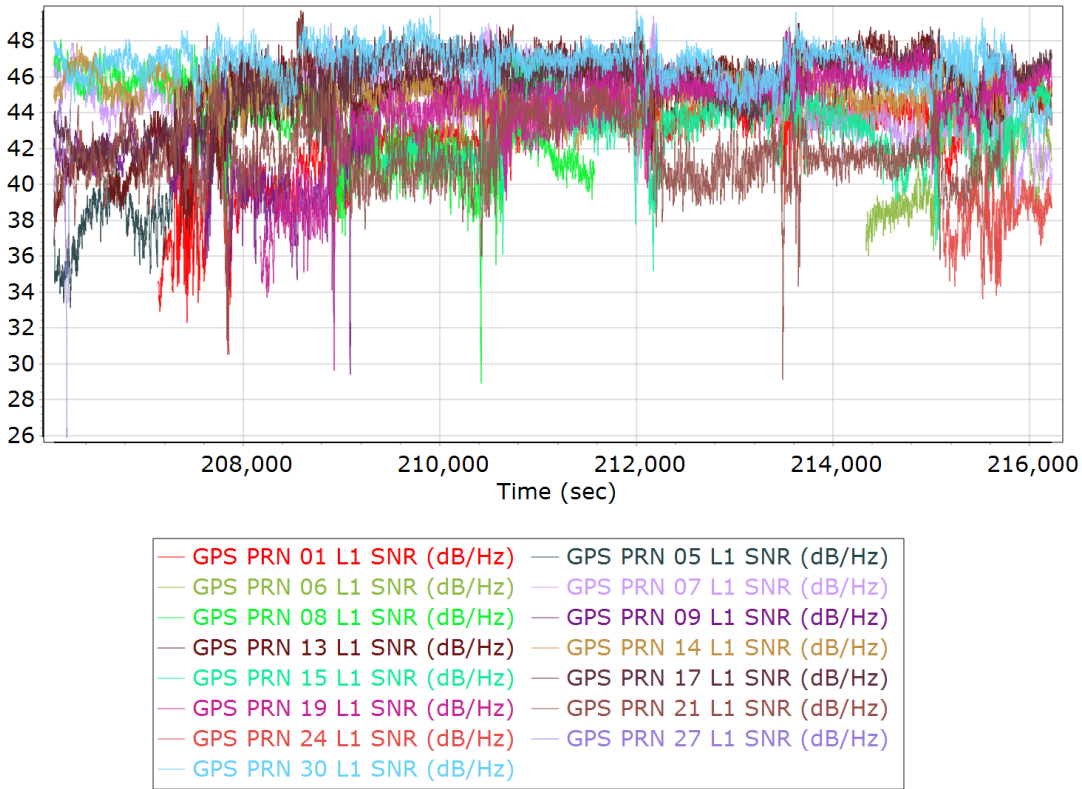
IMU data input file	imu_a07-s03-0513.dat
IMU data check log file	imudt_a07-s03-0513.log
IMU Records Processed	2029895
Termination Status	Warnings
IMU Anomalies	3
<b>IMU Failure Messages</b>	
206062.195 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
206062.120 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
206062.070 : WARNING : Gap of 206044.7376 seconds in CHECKDT input data	

## Primary Observables & Satellite Data

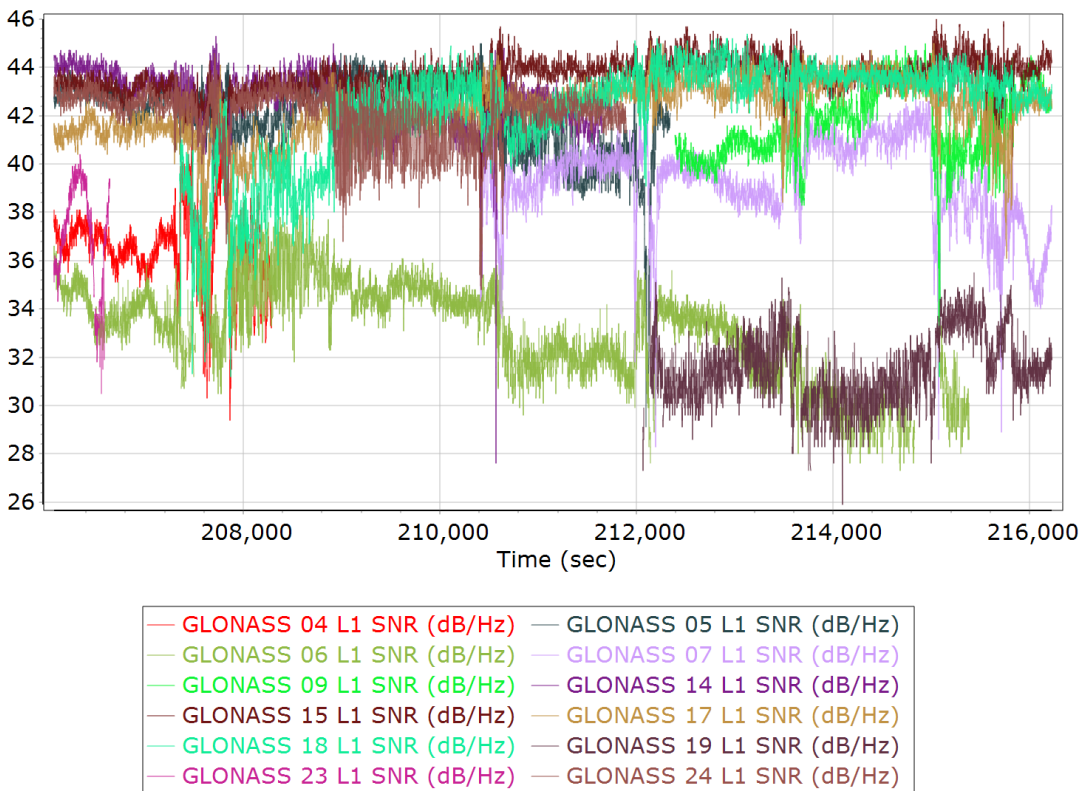
### GPS/GLONASS L1 Satellite Lock/Elevation



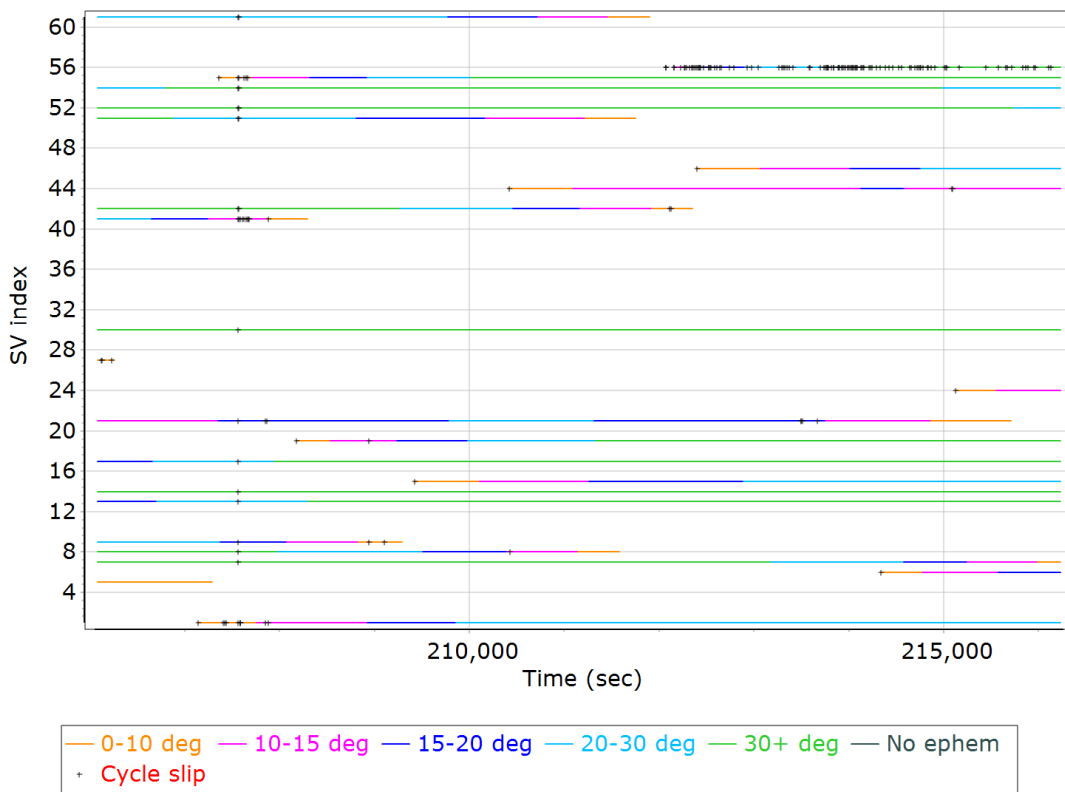
**GPS L1 SNR**



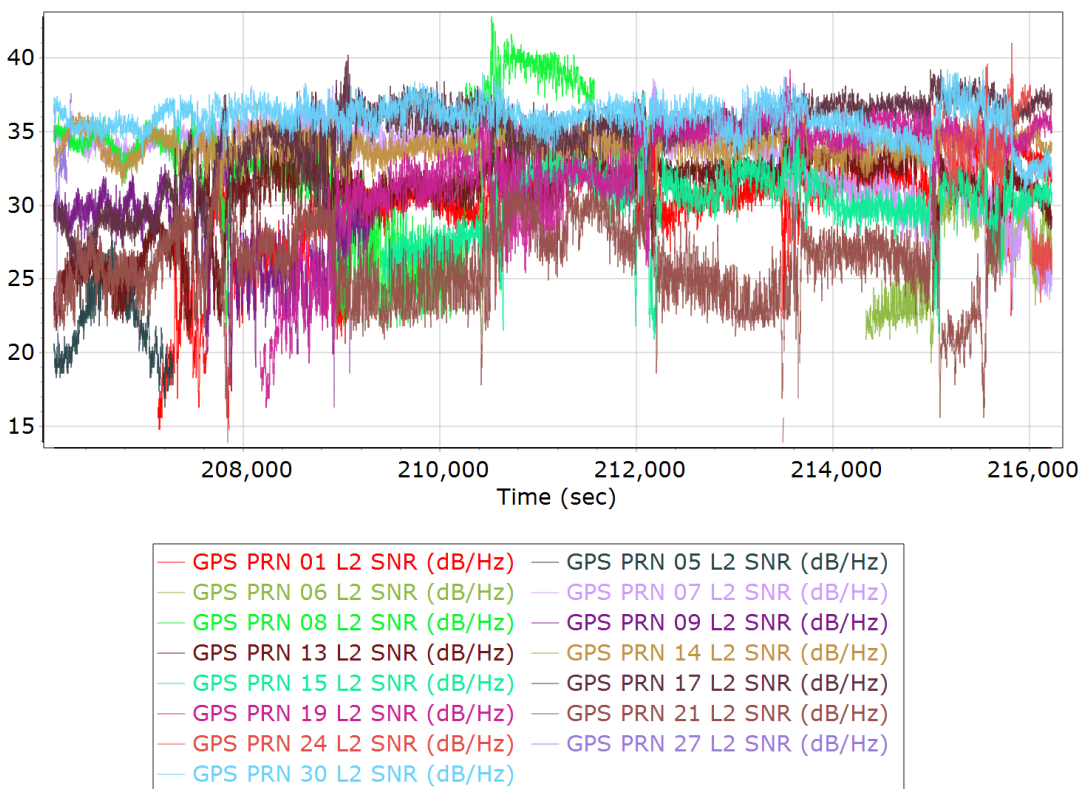
**GLONASS L1 SNR**



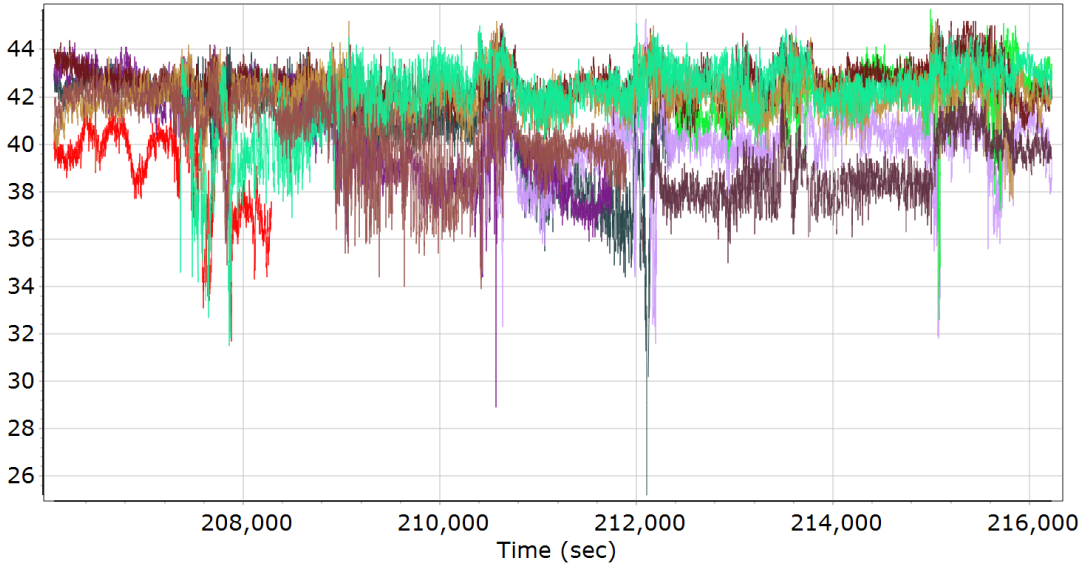
### GPS/GLONASS L2 Satellite Lock/Elevation



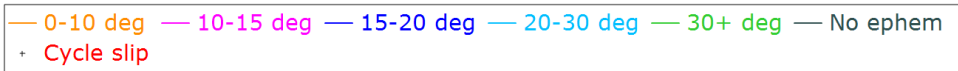
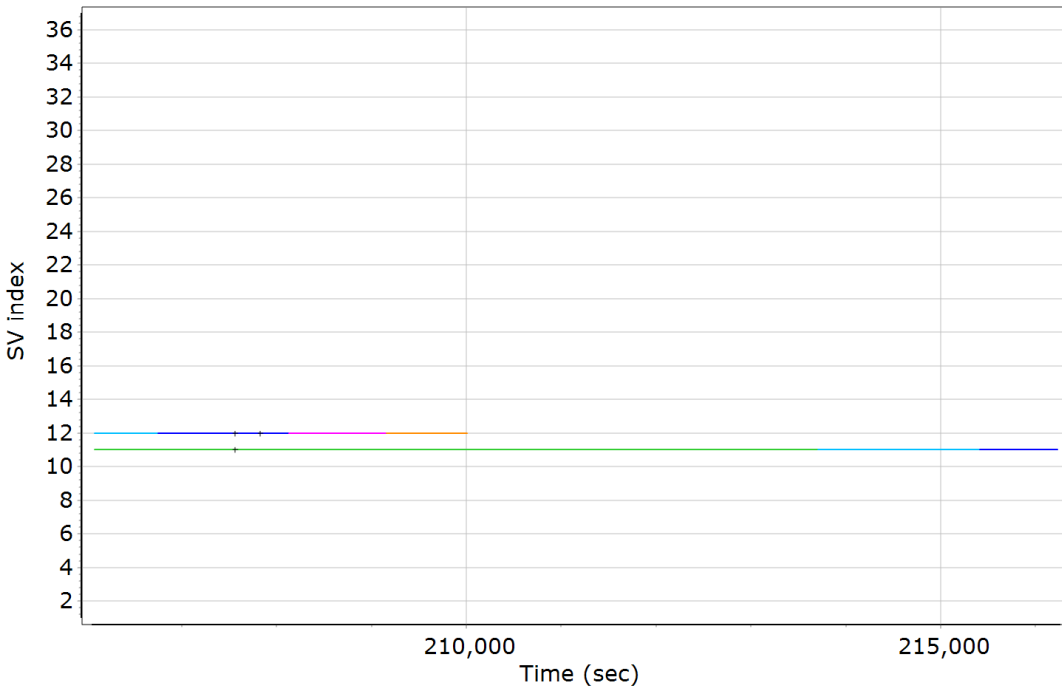
### GPS L2 SNR



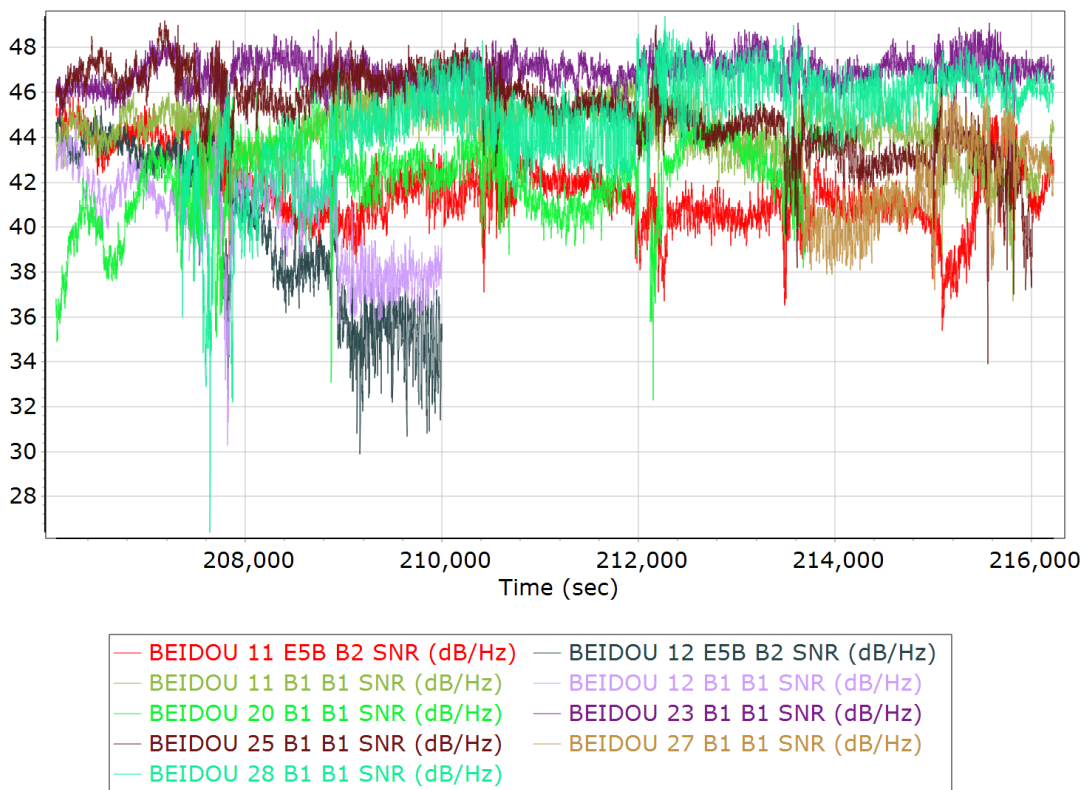
**GLONASS L2 SNR**



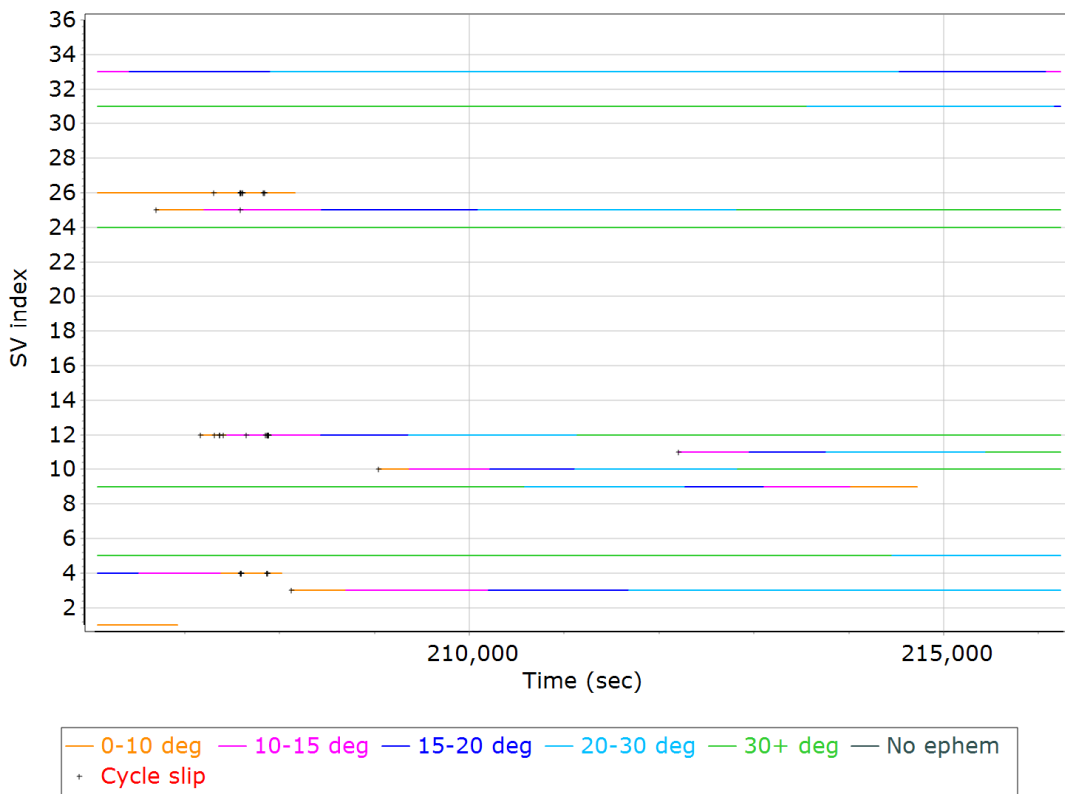
**BEIDOU Satellite Lock/Elevation**



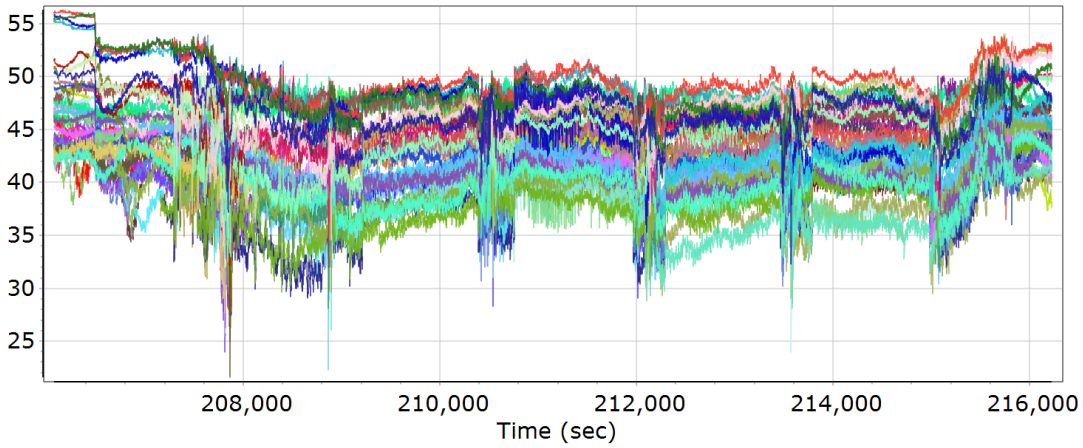
### BEIDOU SNR



### GALILEO Satellite Lock/Elevation



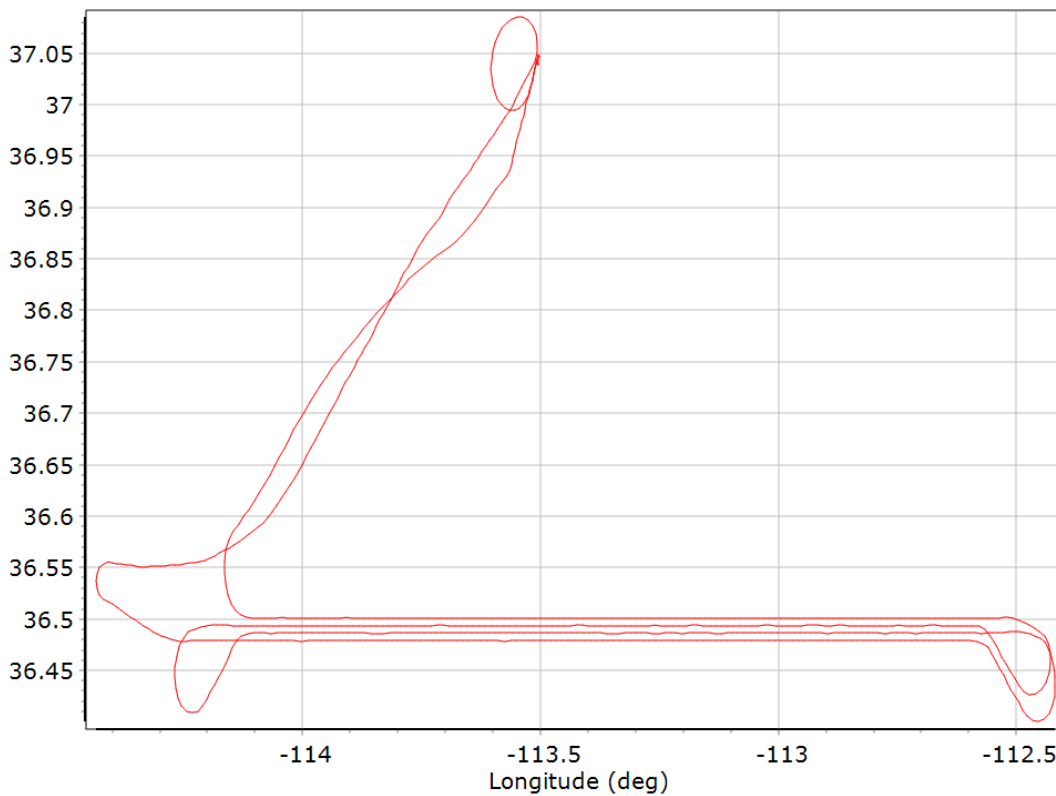
## GALILEO SNR



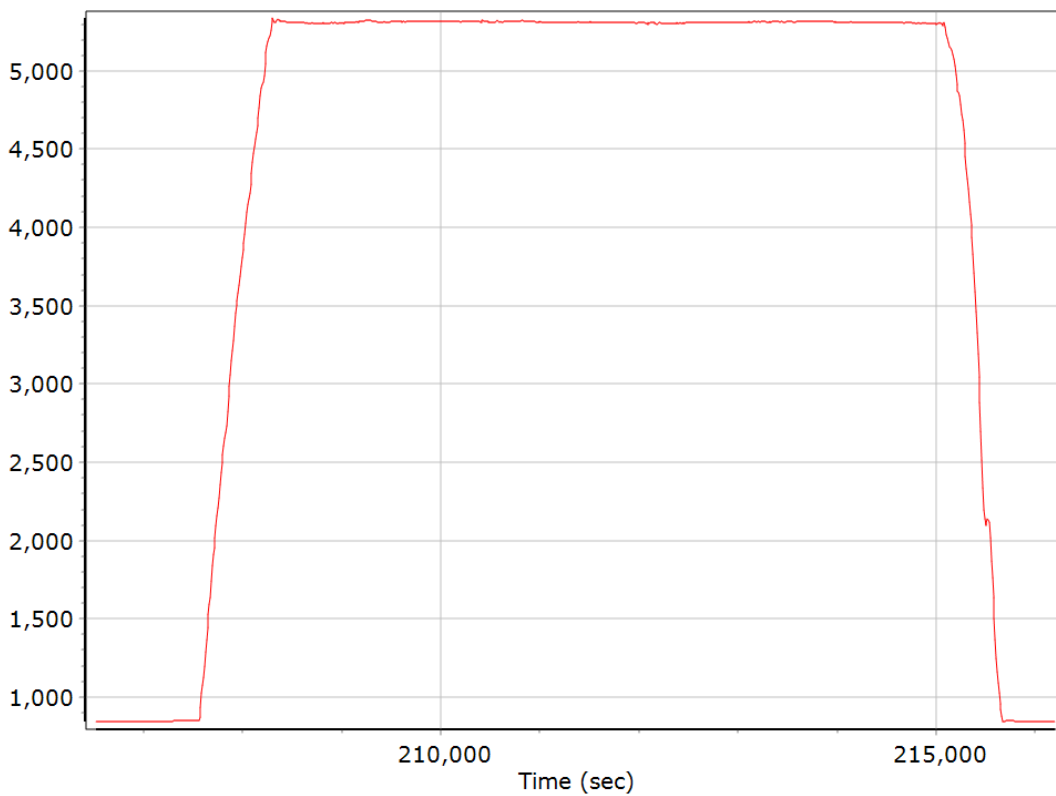
- GALILEO 01 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 03 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 04 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 05 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 09 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 10 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 11 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 12 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 24 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 25 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

## Smoothed Trajectory Information

### Top View

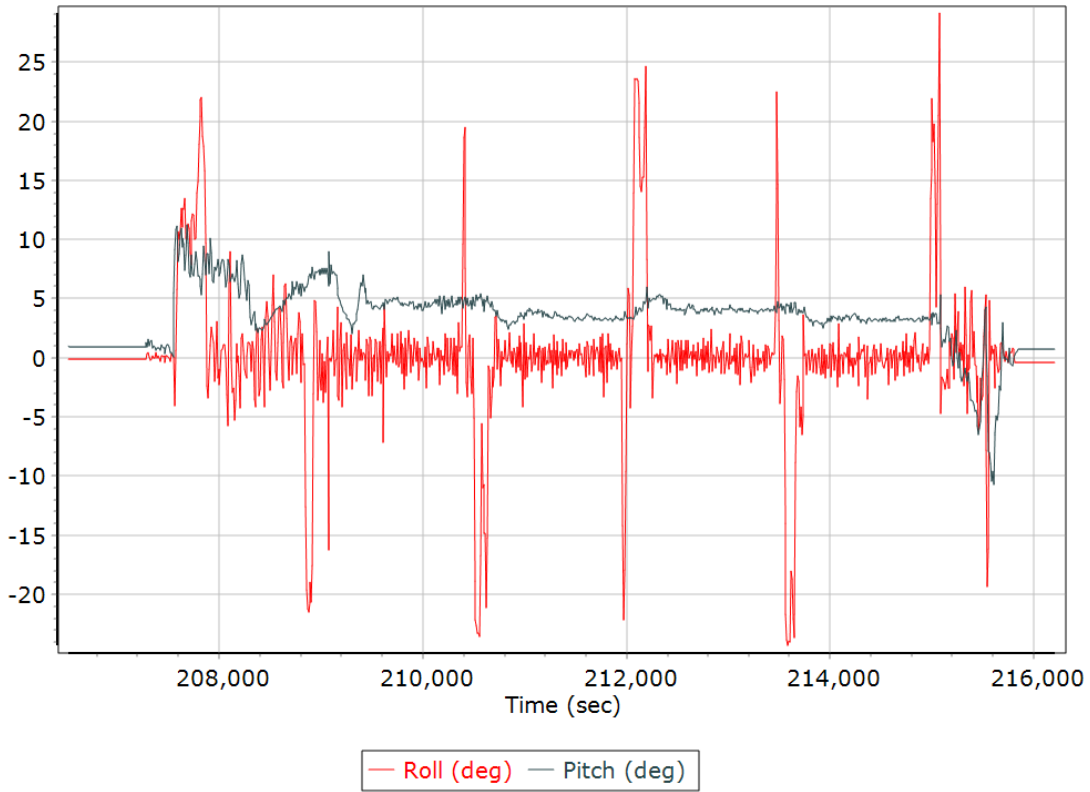


### Altitude

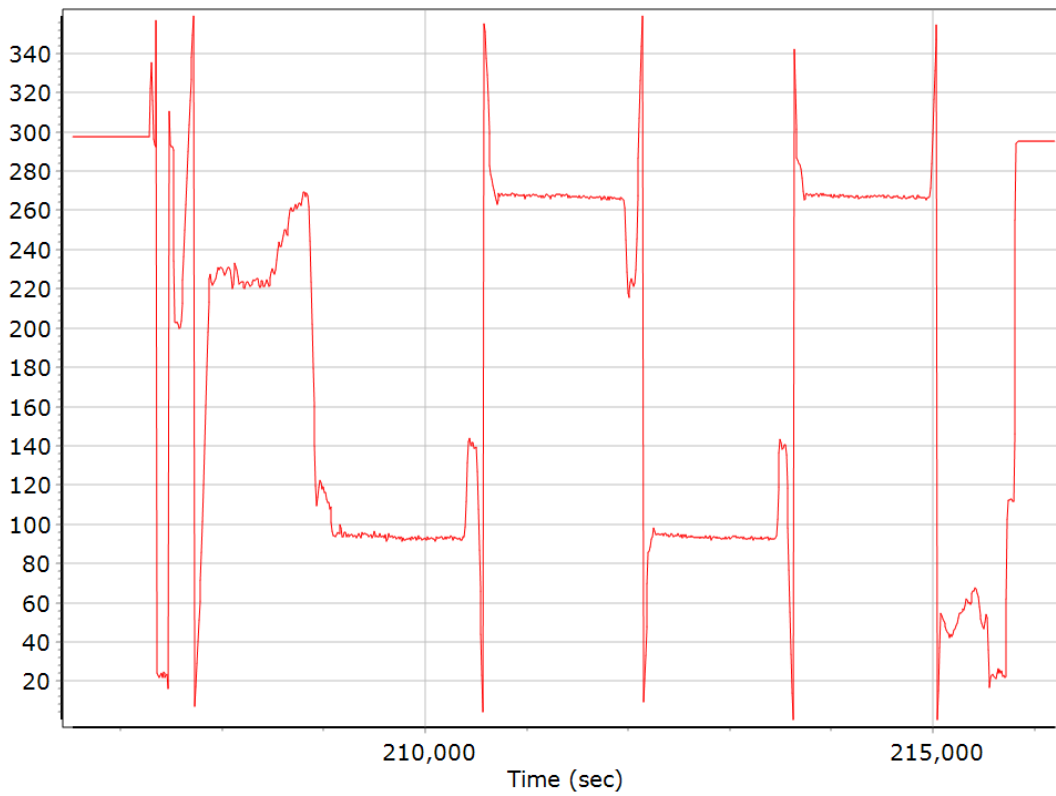




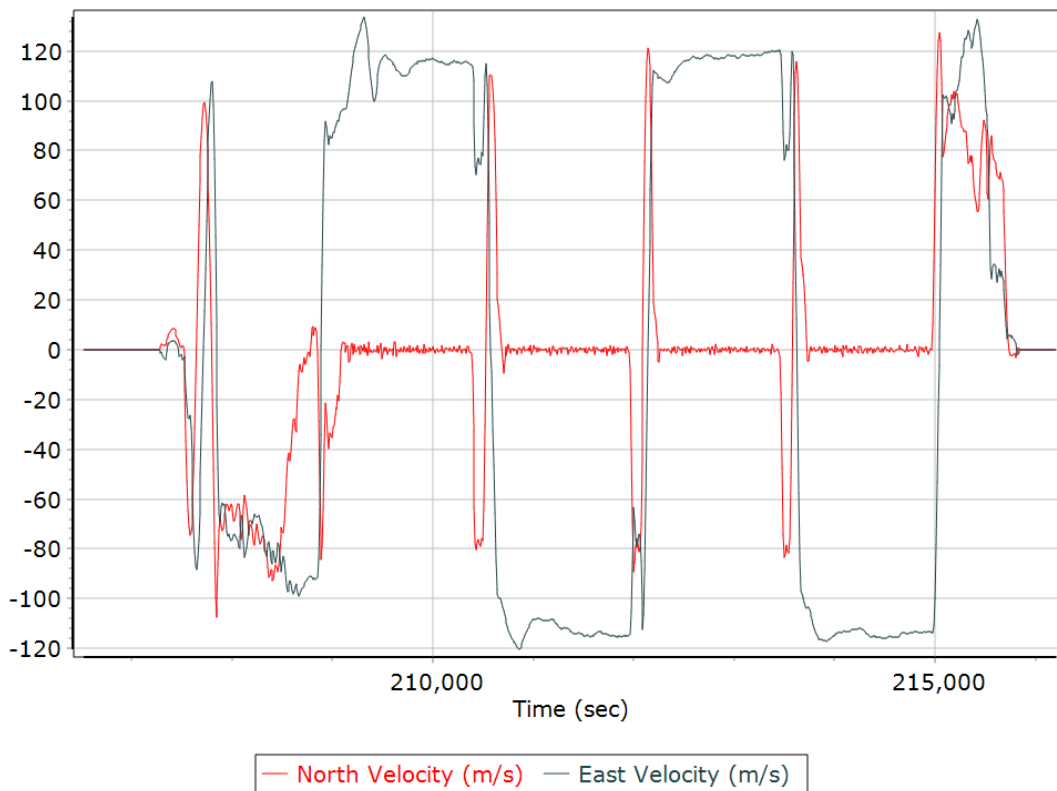
## Roll/Pitch



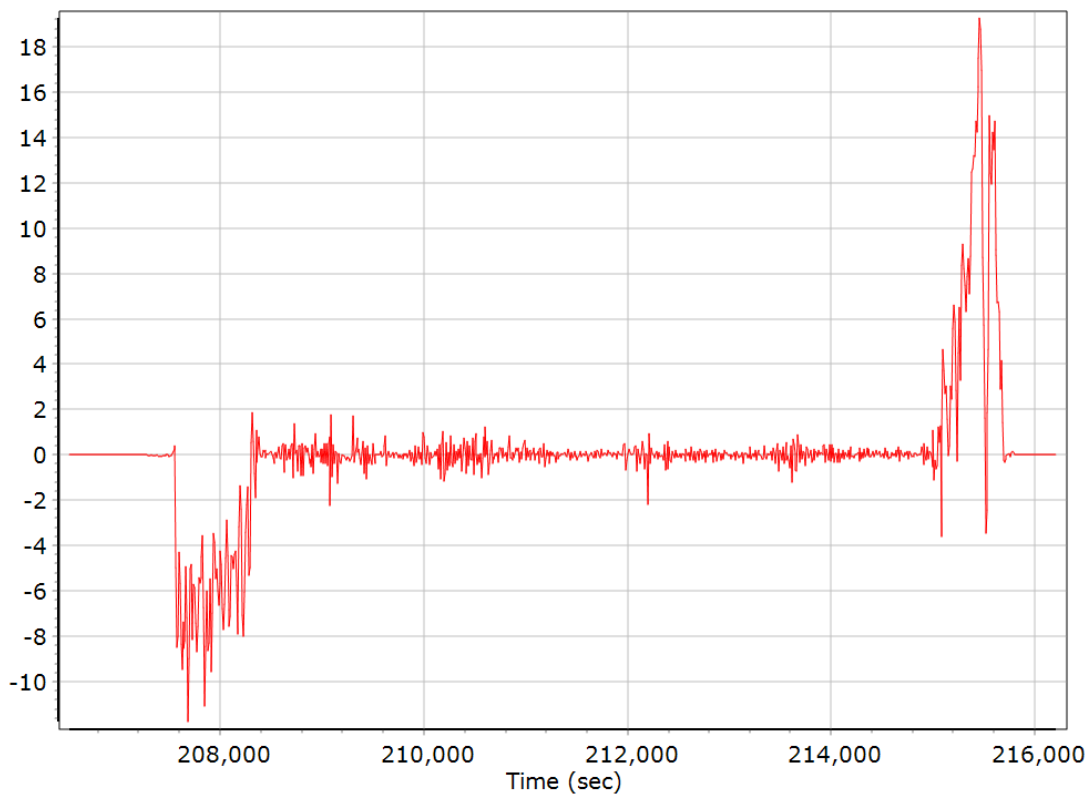
## Heading



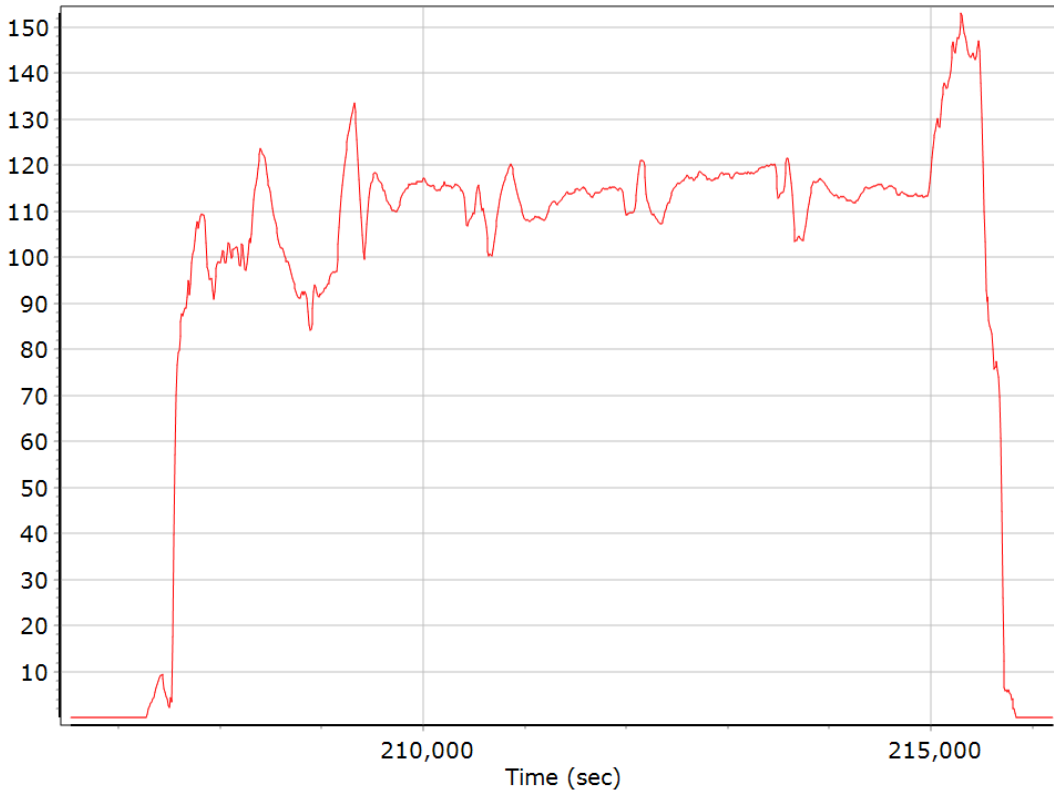
### North/East Velocity



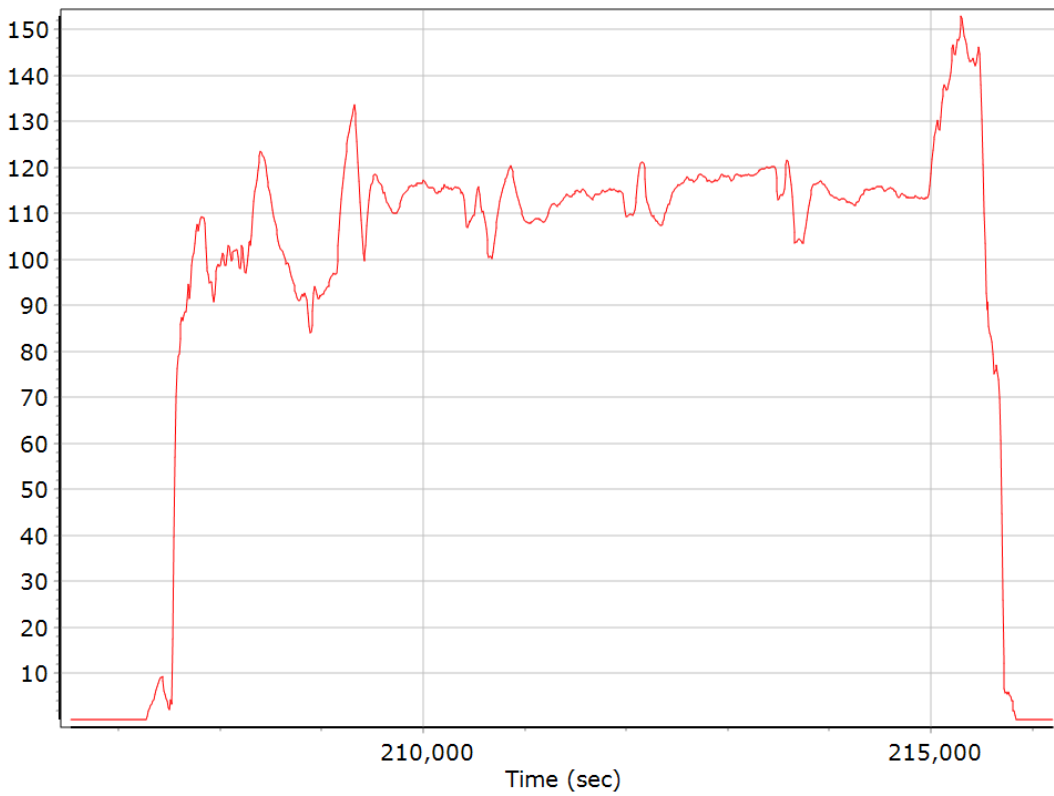
### Down Velocity



## Total Speed



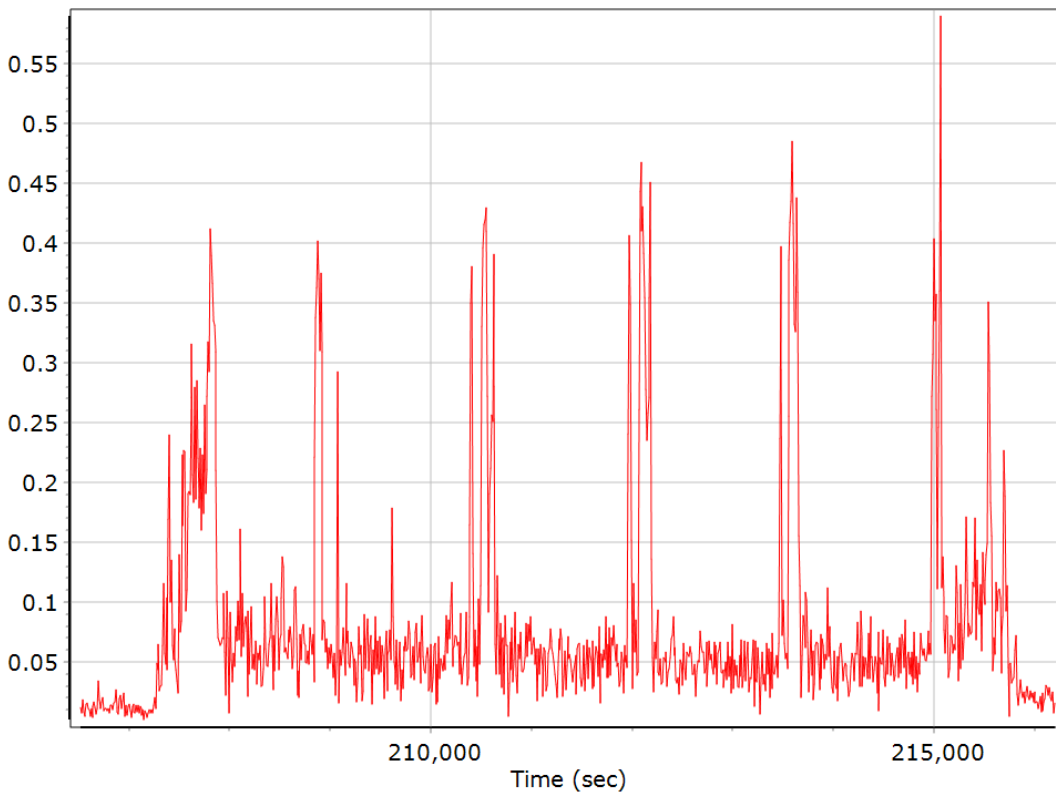
## Ground Speed



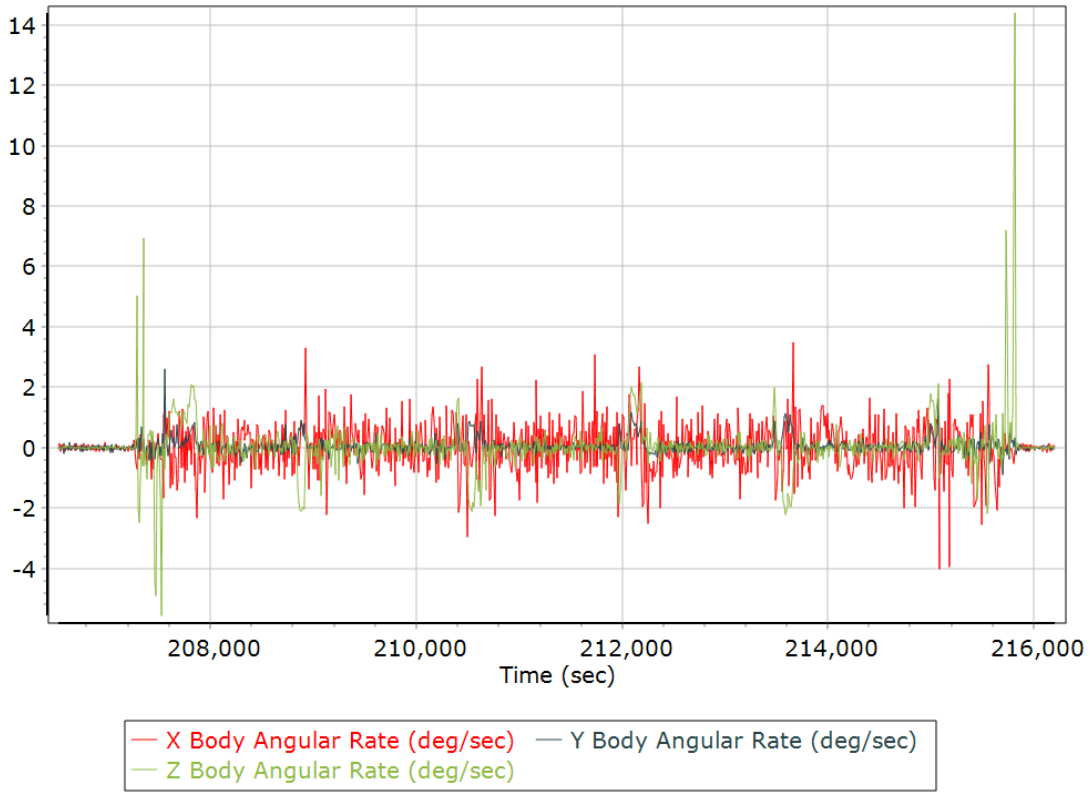
### Body Acceleration



### Total Body Acceleration

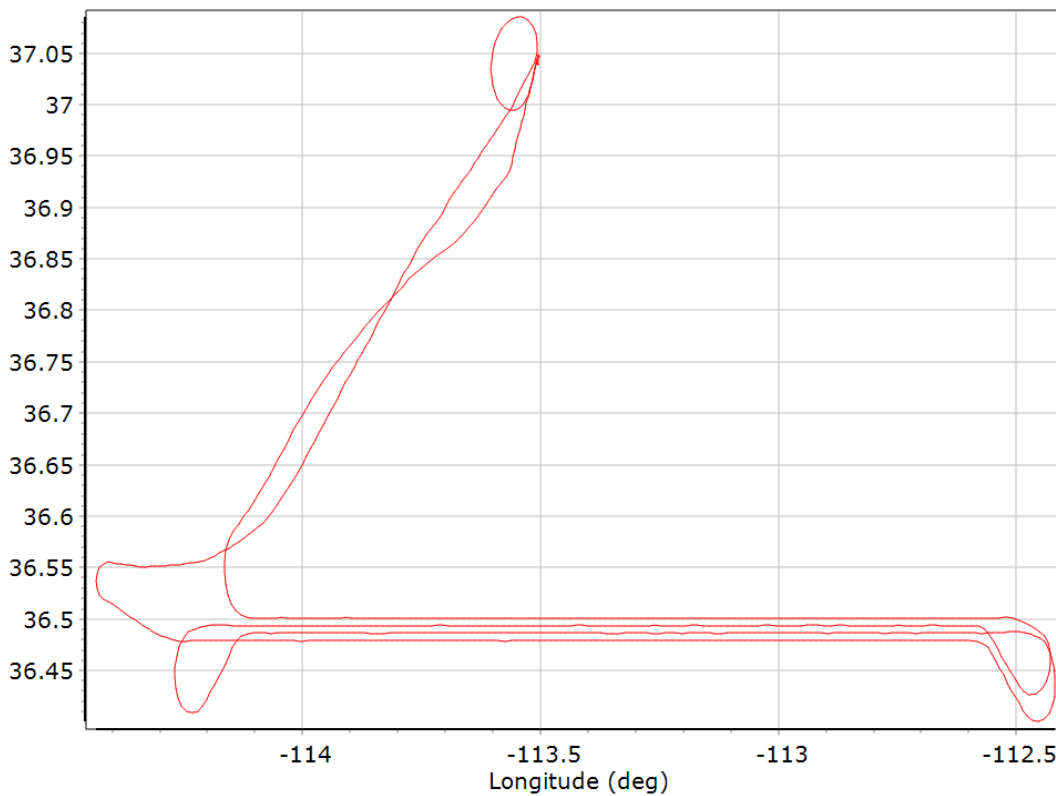


## Body Angular Rate

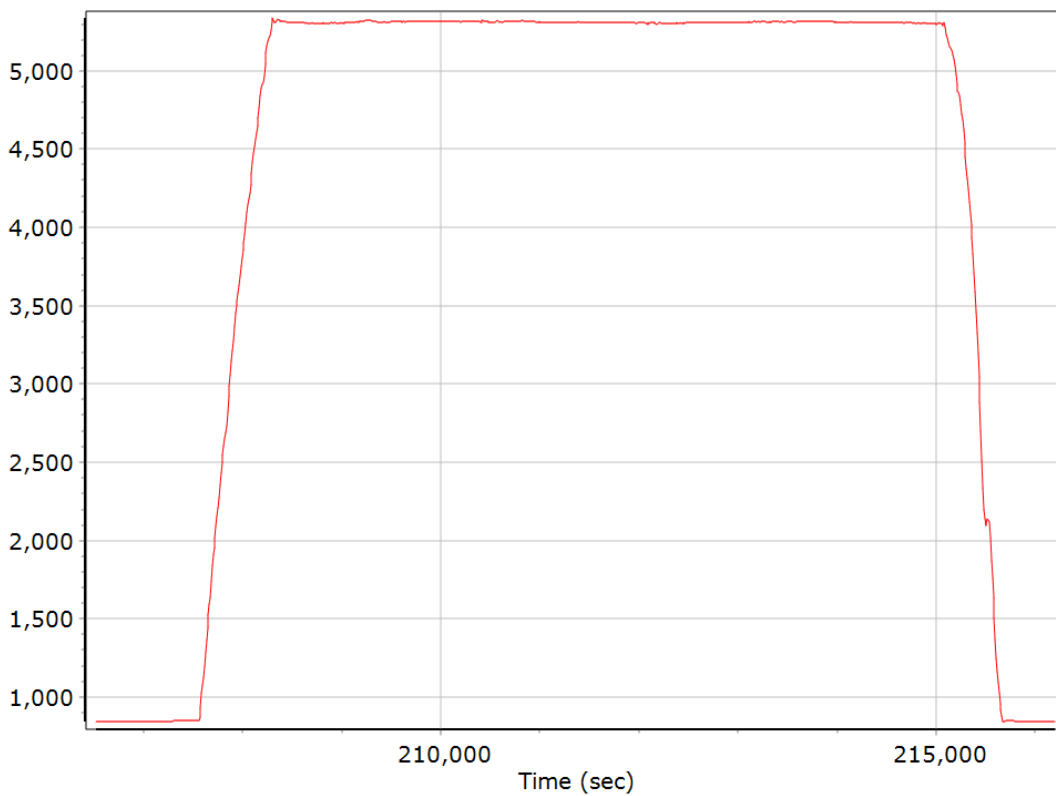


## Forward Processed Trajectory Information

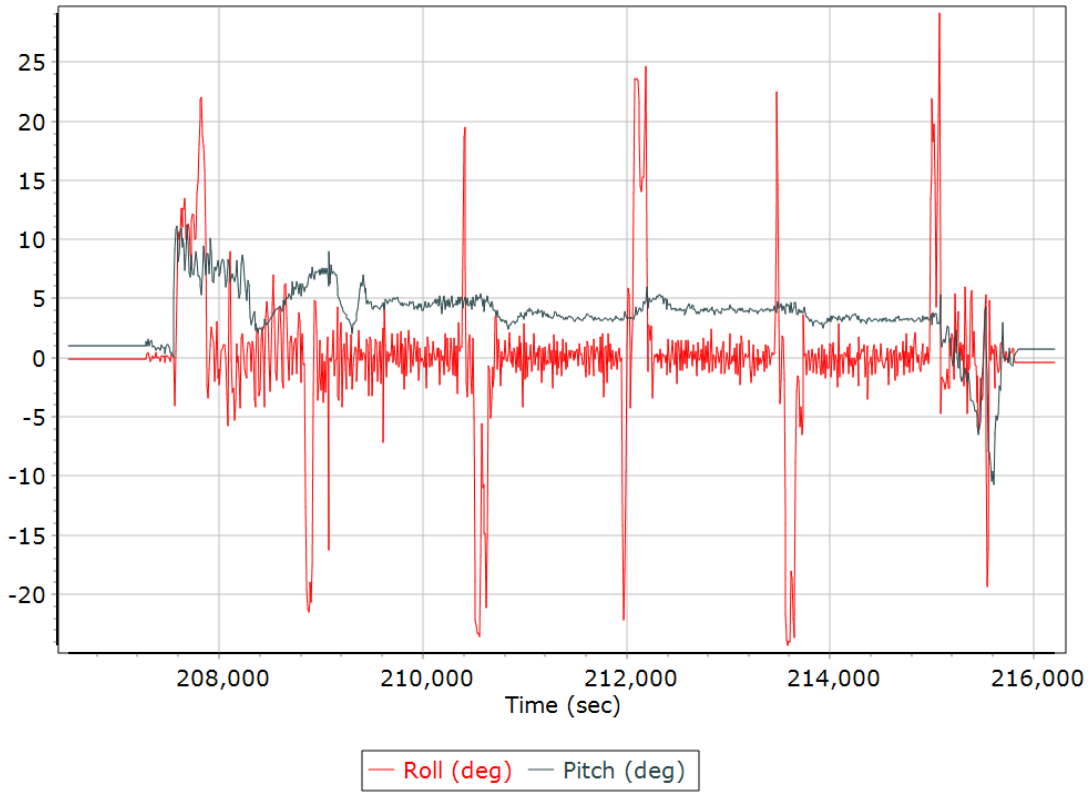
### Top View



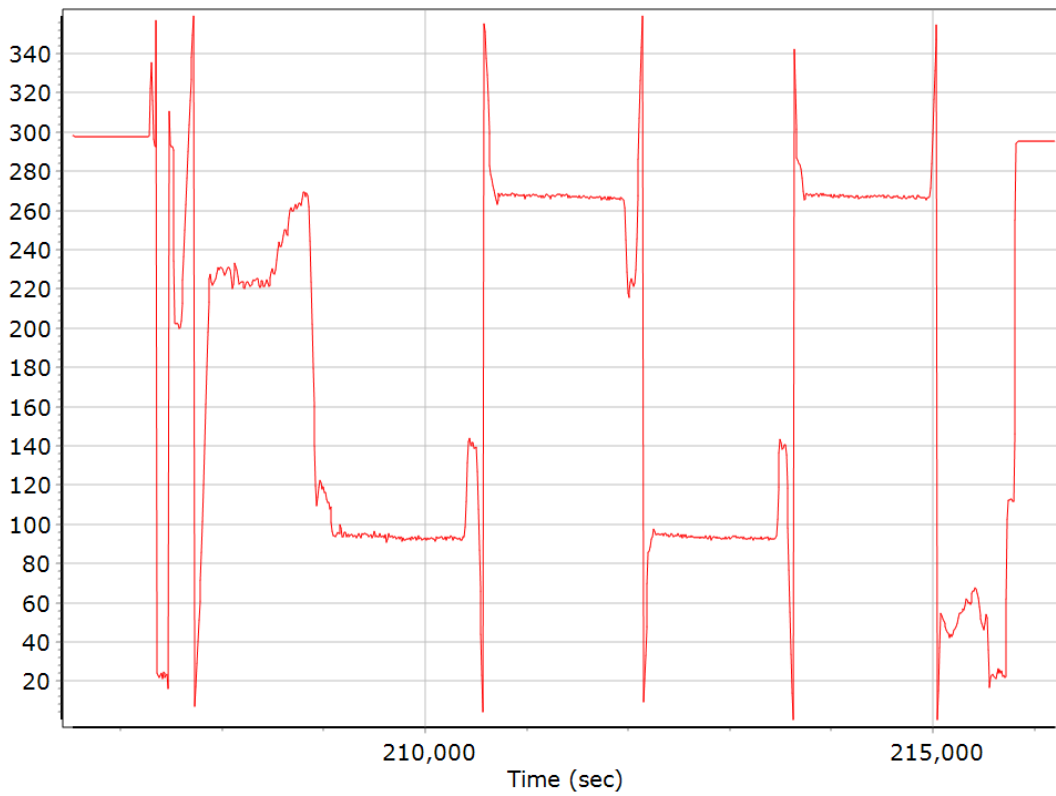
### Altitude



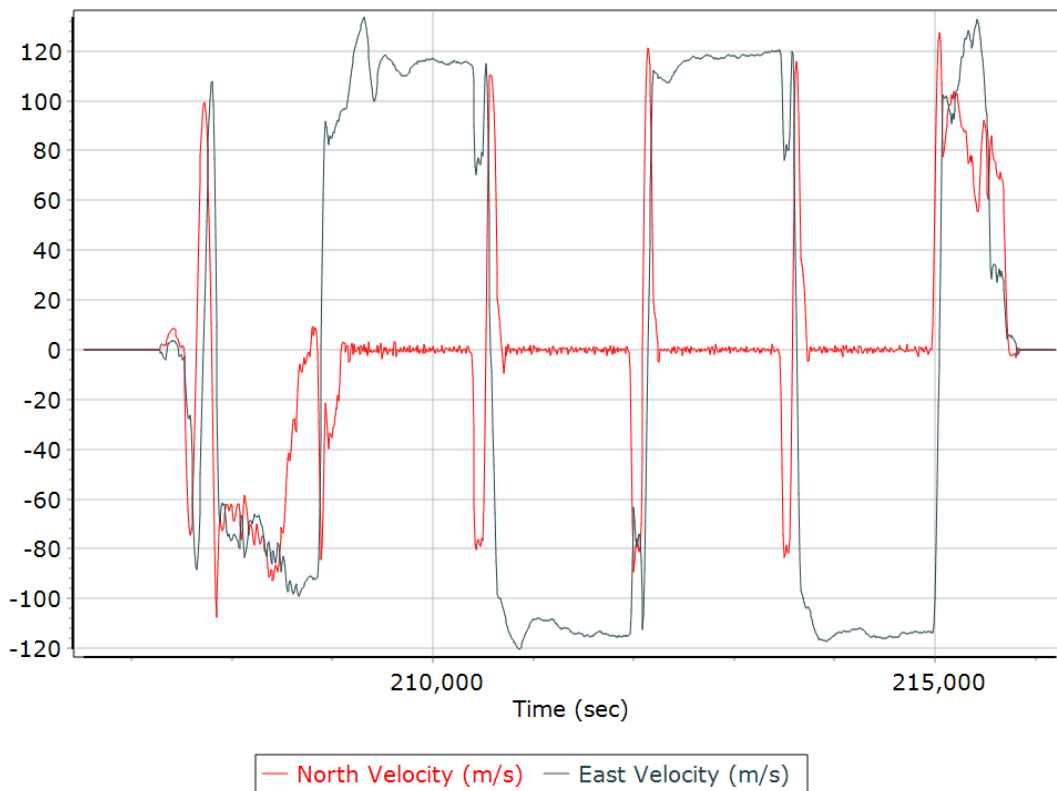
## Roll/Pitch



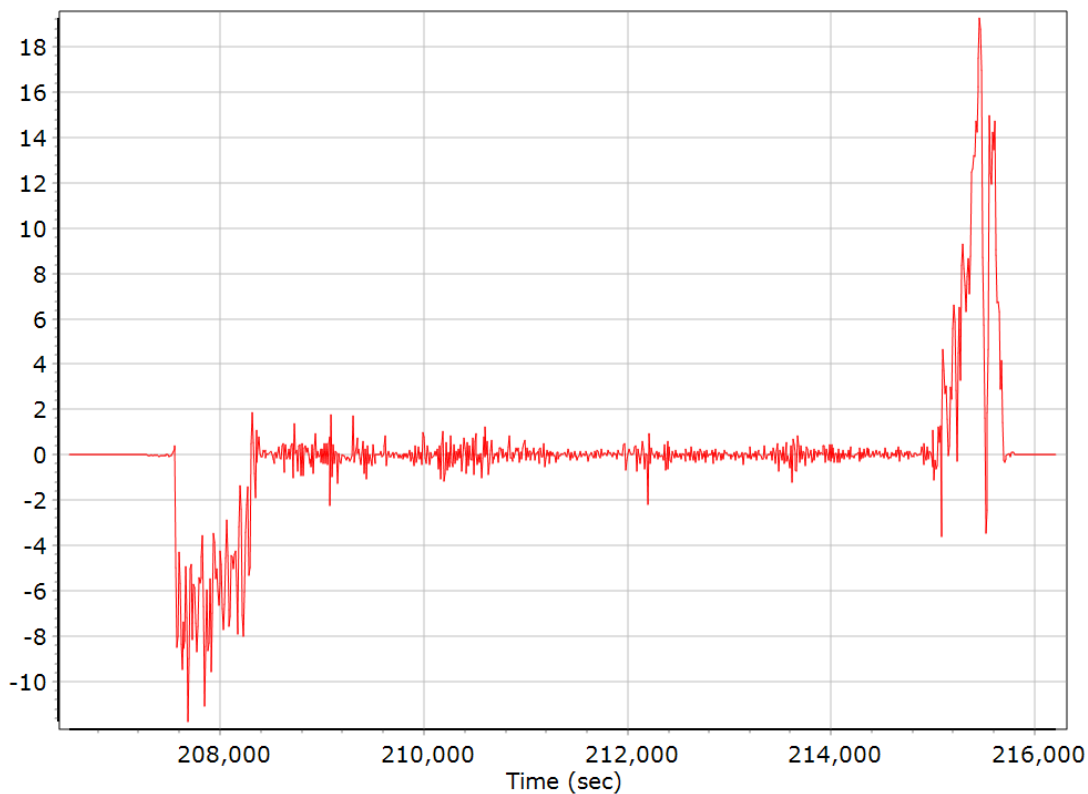
## Heading



### North/East Velocity

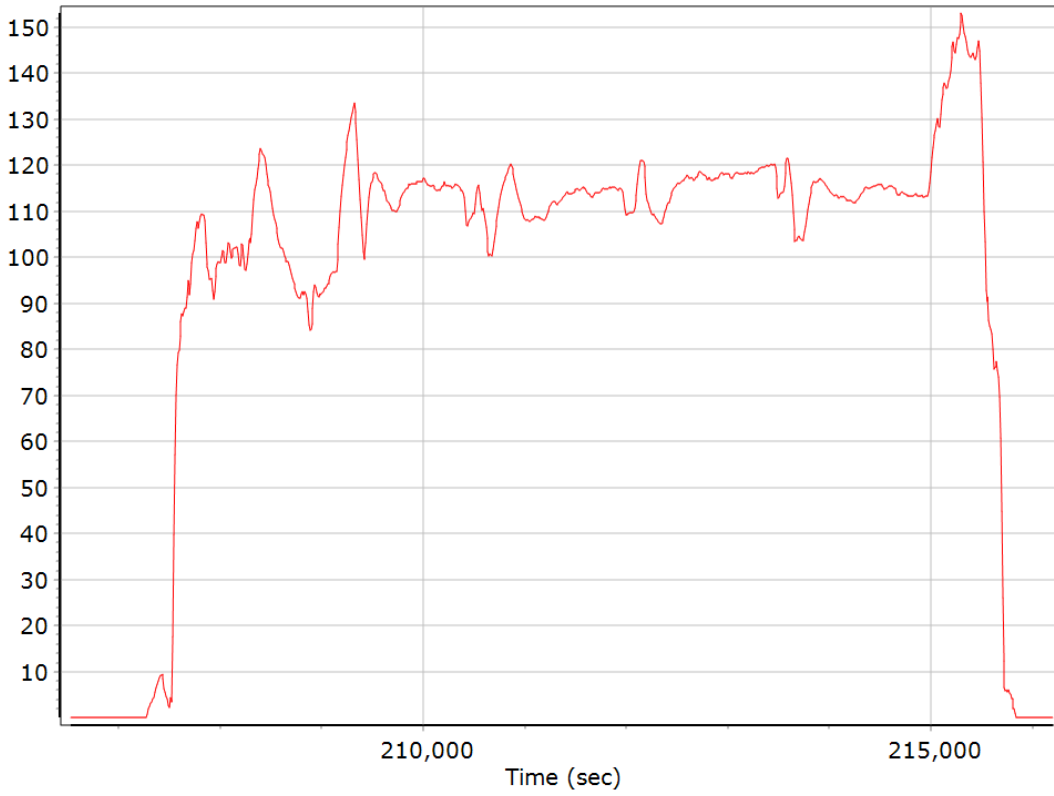


### Down Velocity

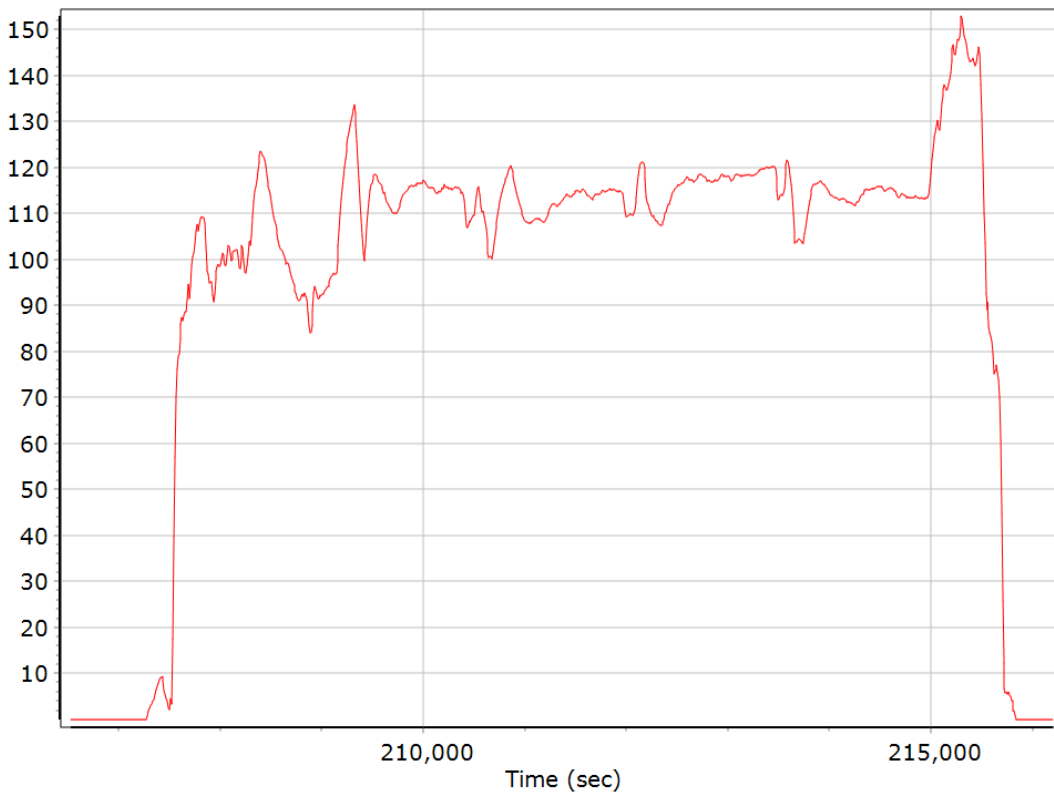




## Total Speed



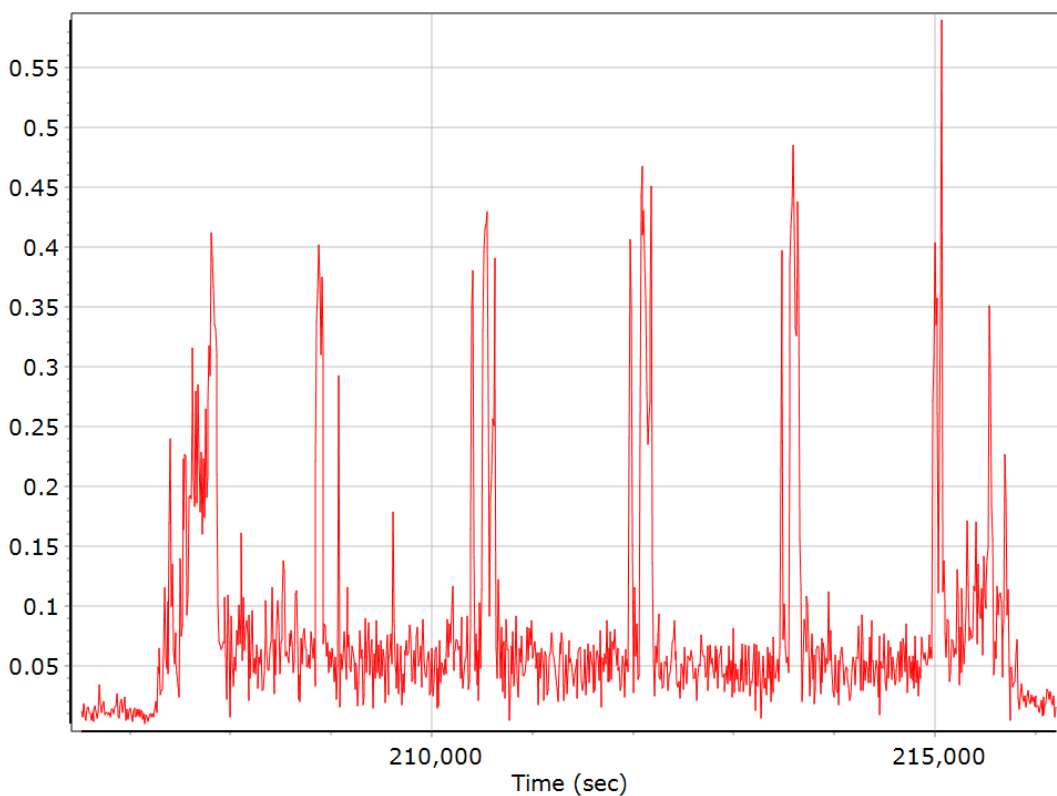
## Ground Speed



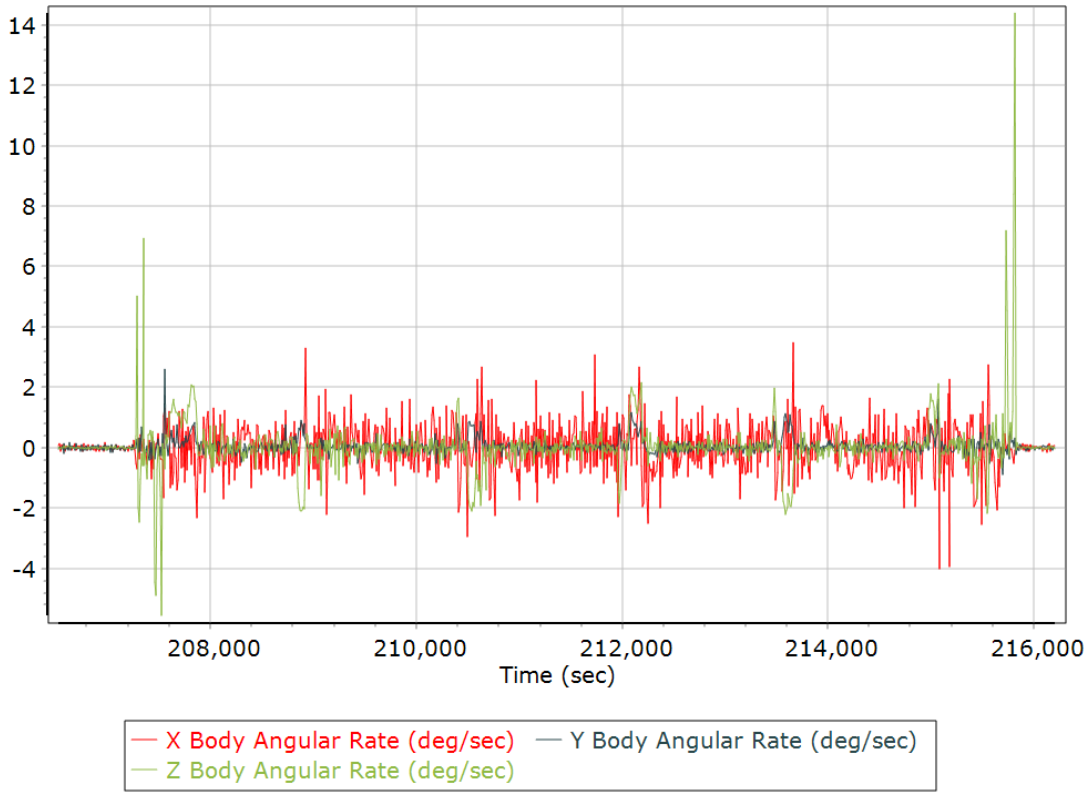
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate

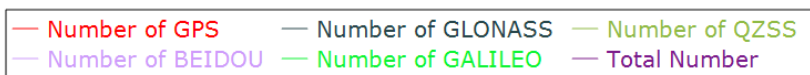
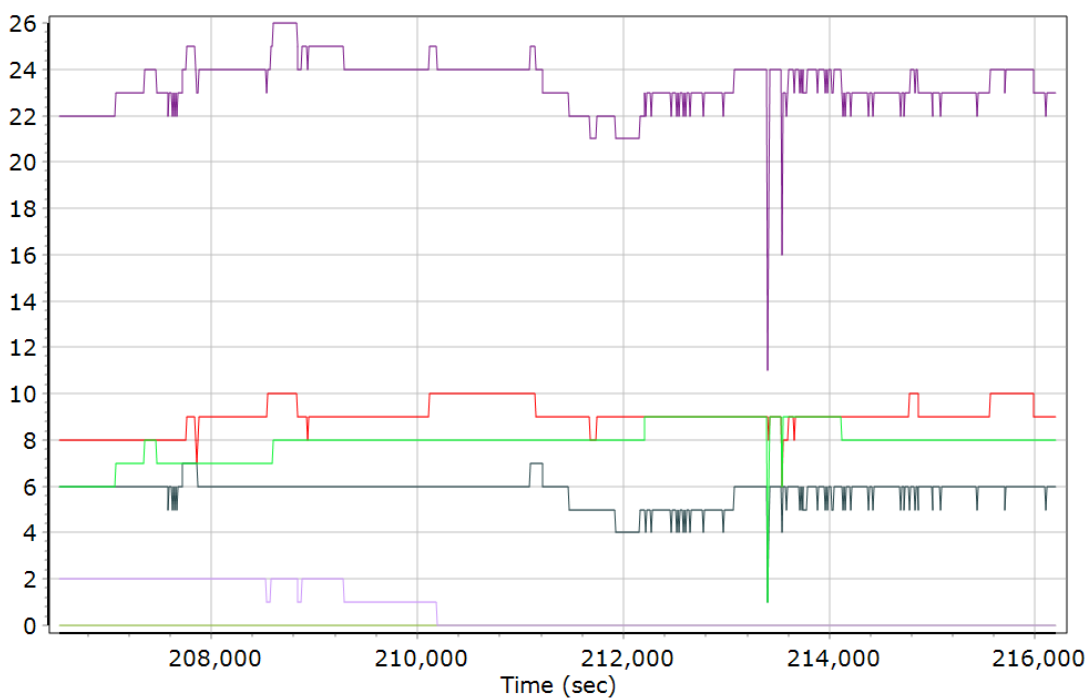


## GNSS QC

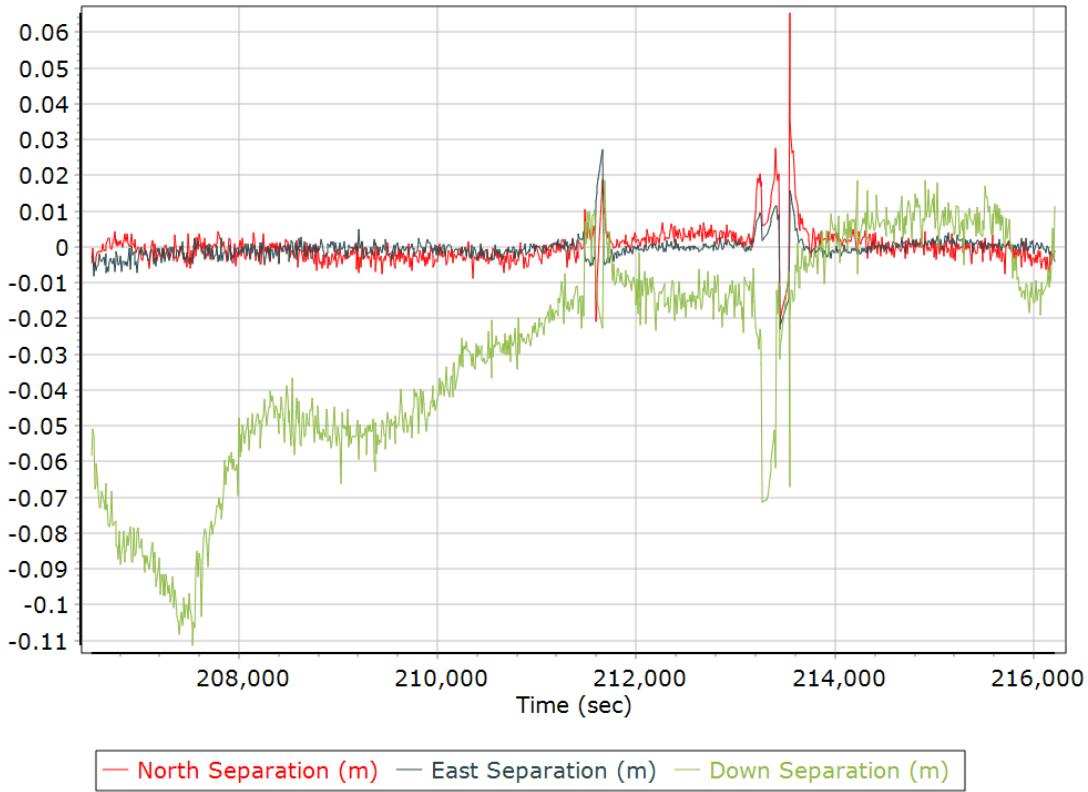
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	10	9
Number of GLONASS SV	0	7	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	2	1
Number of GALILEO SV	1	9	8
Total number of SV	11	26	23
PDOP	0.98	1.88	1.11
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	10121.00	0.00	0.00
Percentage	100.00	0.00	0.00

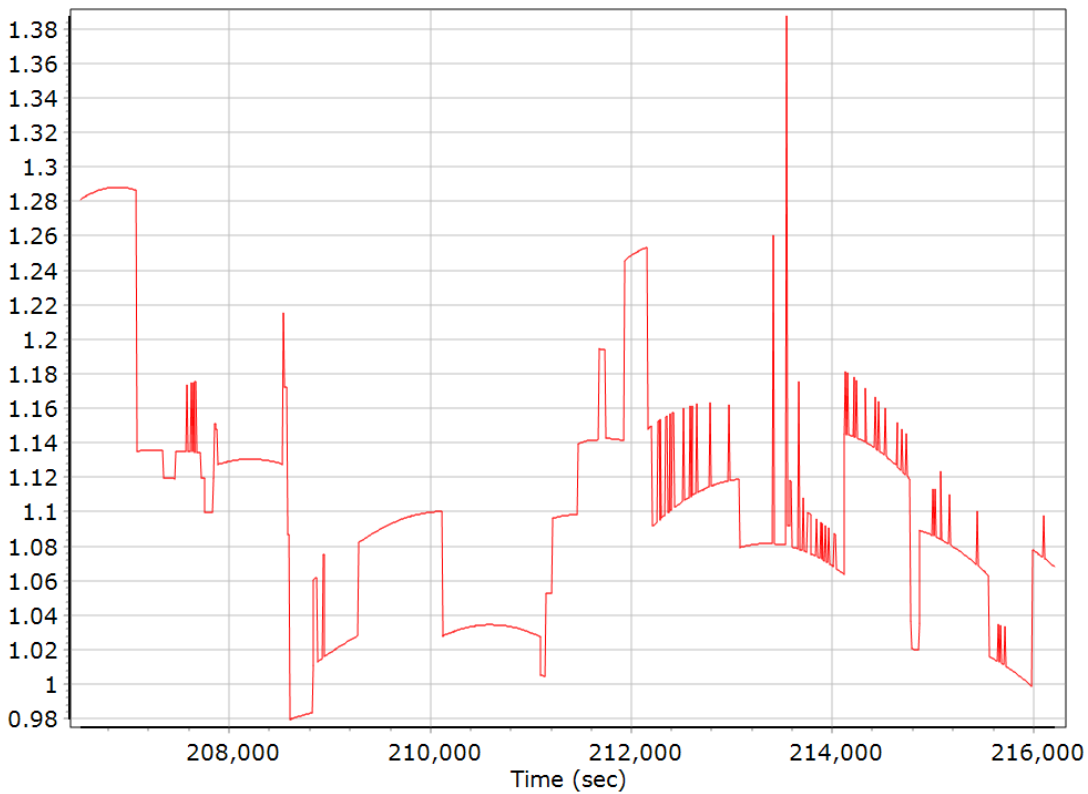
### Num SVs in solution



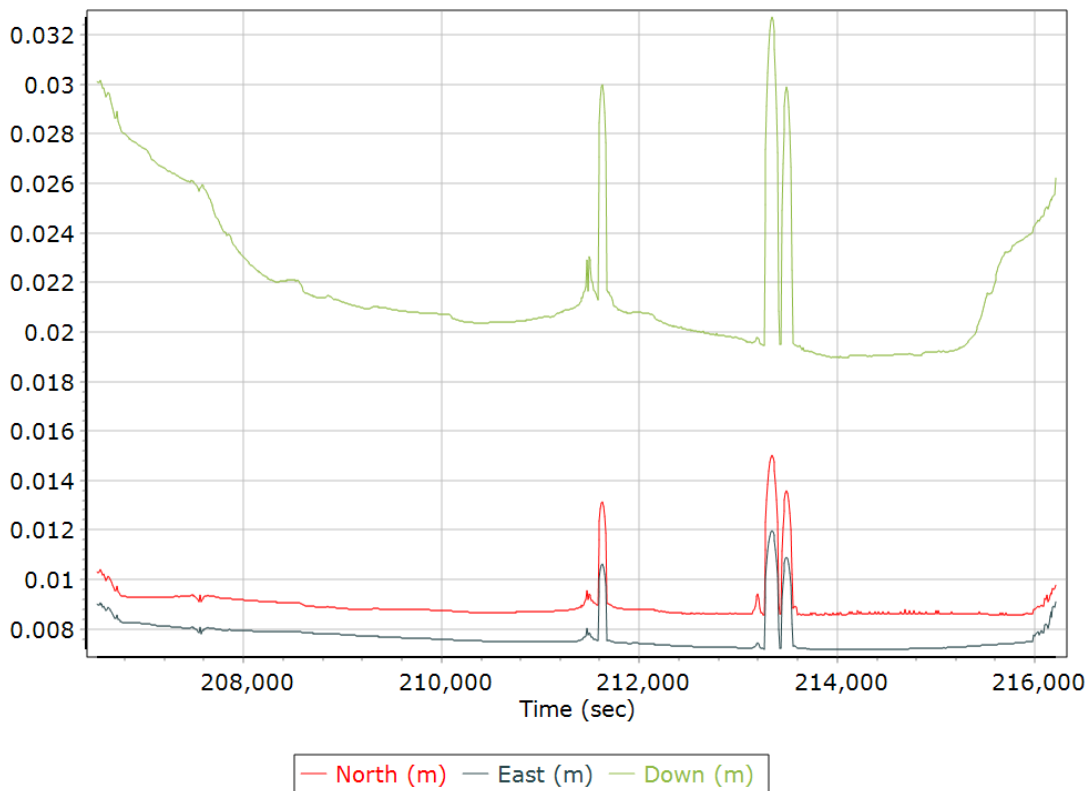
### Forward/Reverse Separation



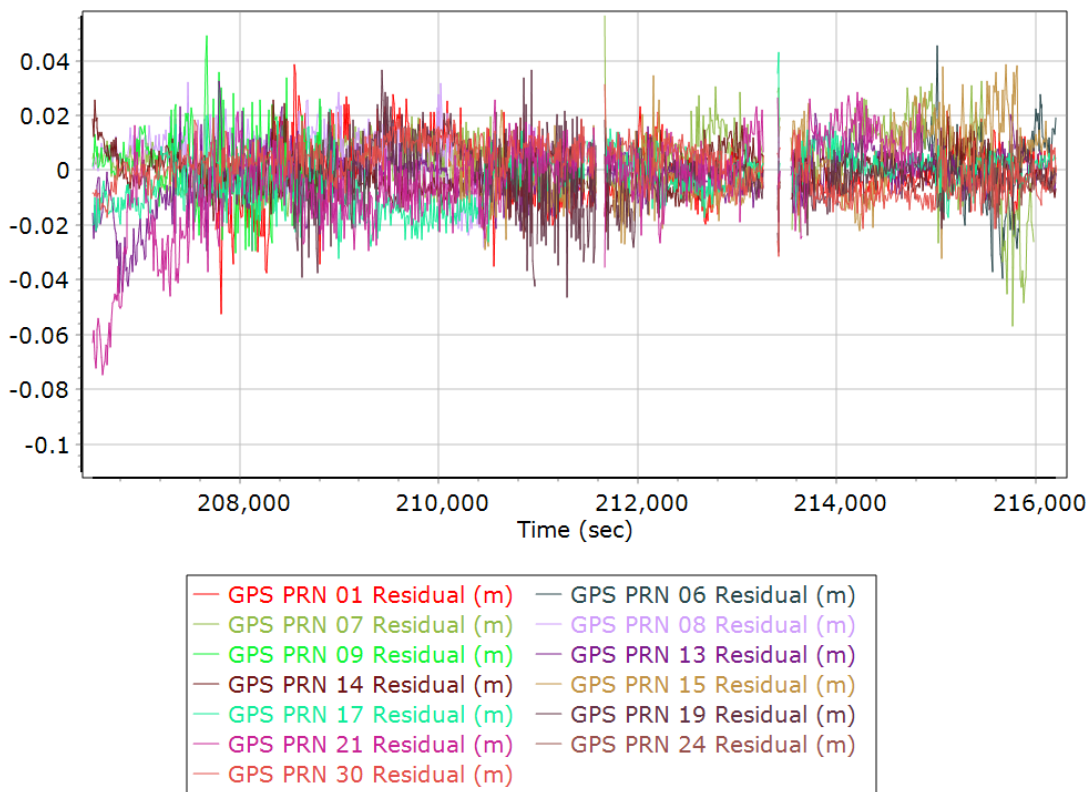
### PDOP



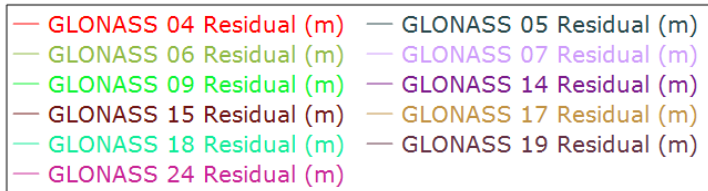
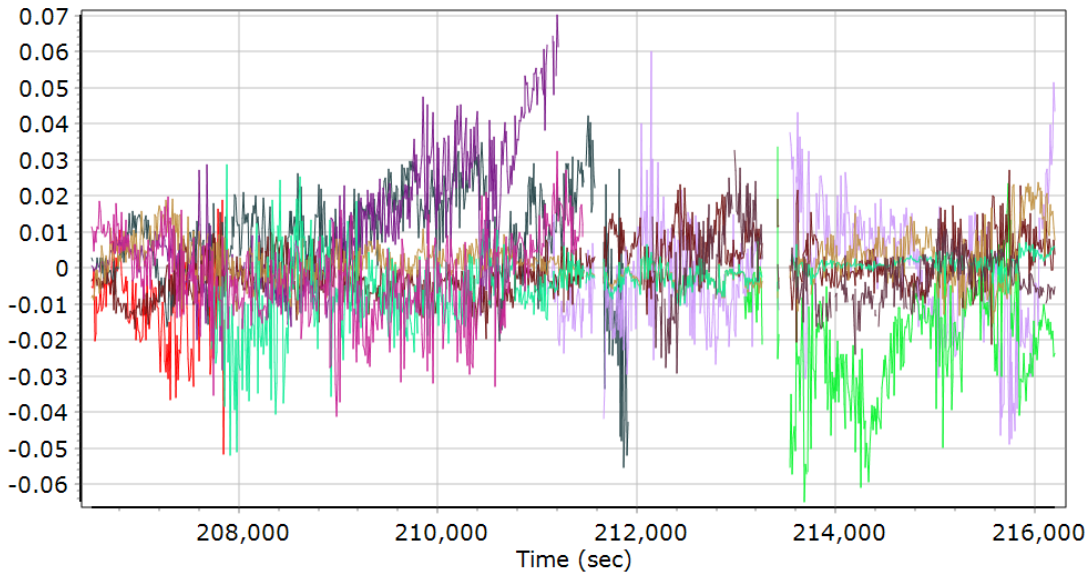
### Estimated Position Accuracy



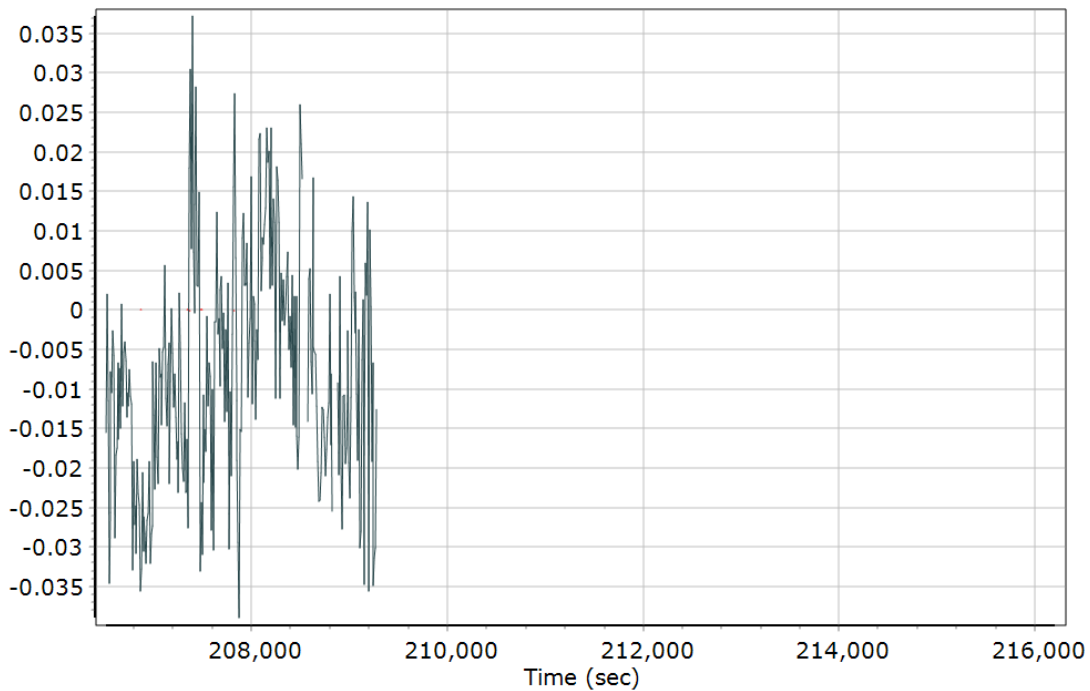
### GPS Residuals



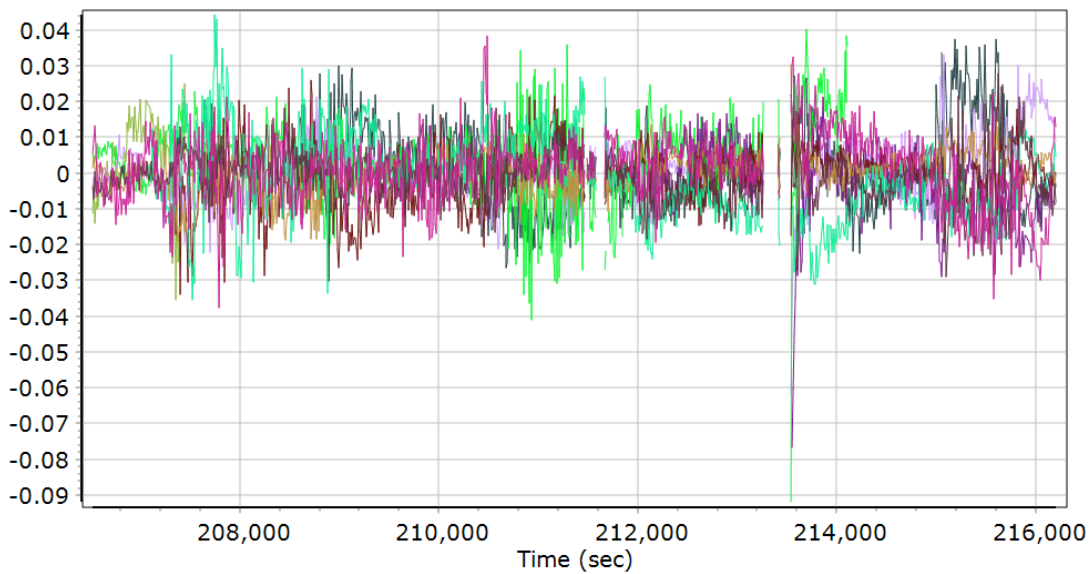
## GLONASS Residuals



## BEIDOU Residuals



## GALILEO Residuals



- |                           |                           |
|---------------------------|---------------------------|
| — GALILEO 01 Residual (m) | — GALILEO 03 Residual (m) |
| — GALILEO 04 Residual (m) | — GALILEO 05 Residual (m) |
| — GALILEO 09 Residual (m) | — GALILEO 11 Residual (m) |
| — GALILEO 12 Residual (m) | — GALILEO 24 Residual (m) |
| — GALILEO 25 Residual (m) | — GALILEO 31 Residual (m) |
| — GALILEO 33 Residual (m) |                           |



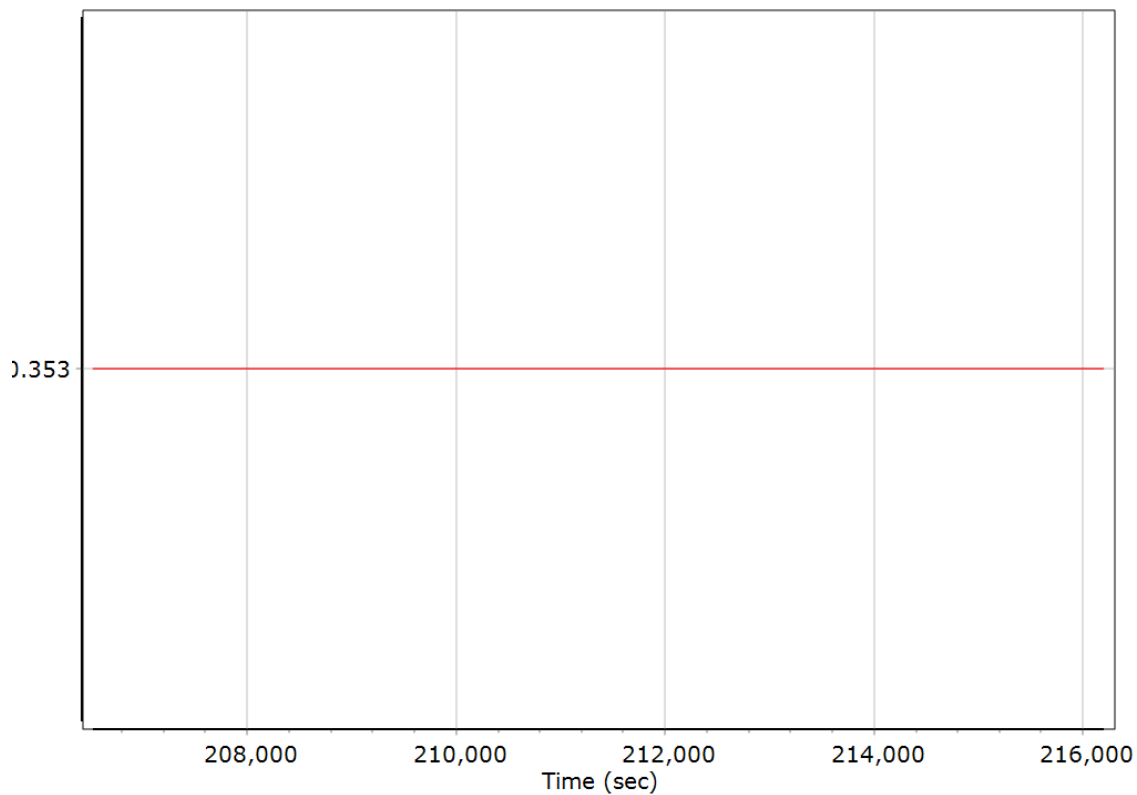
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	206061.000 (7/19/2022 9:14:21 AM)		
Processing end time	216211.000 (7/19/2022 12:03:31 PM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.300	-1.280
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

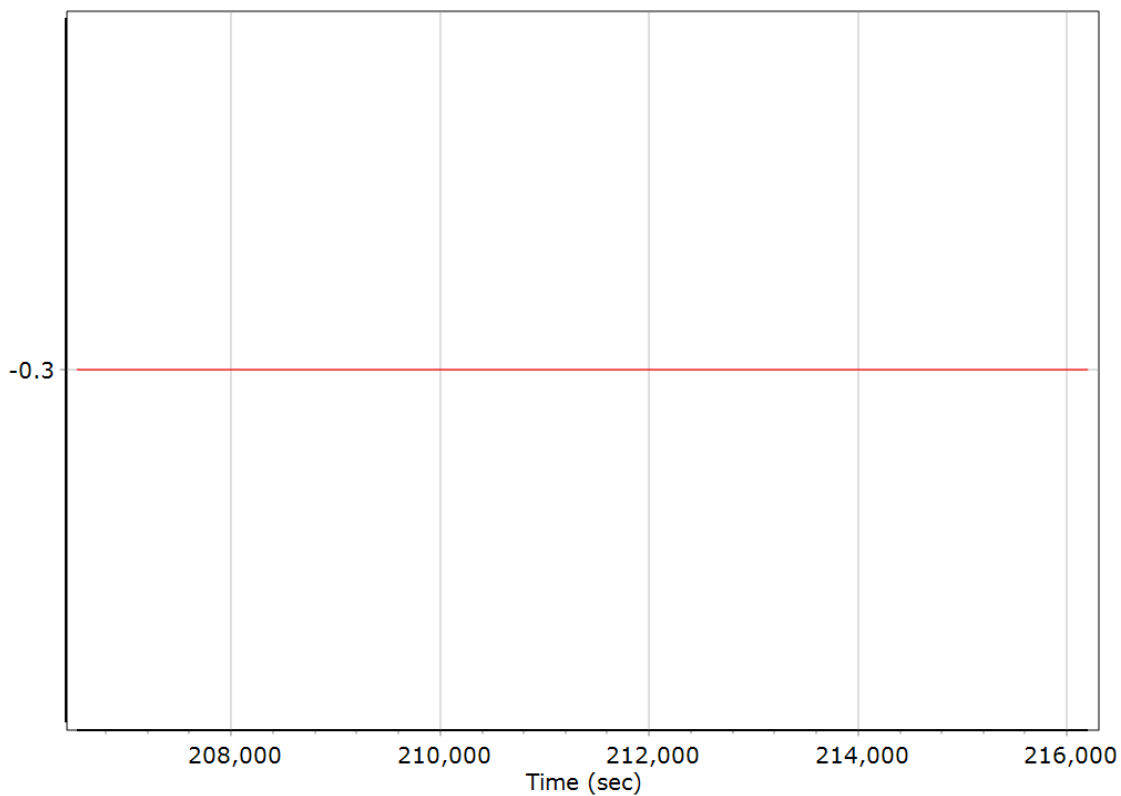
## Calibrated Installation Parameters

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

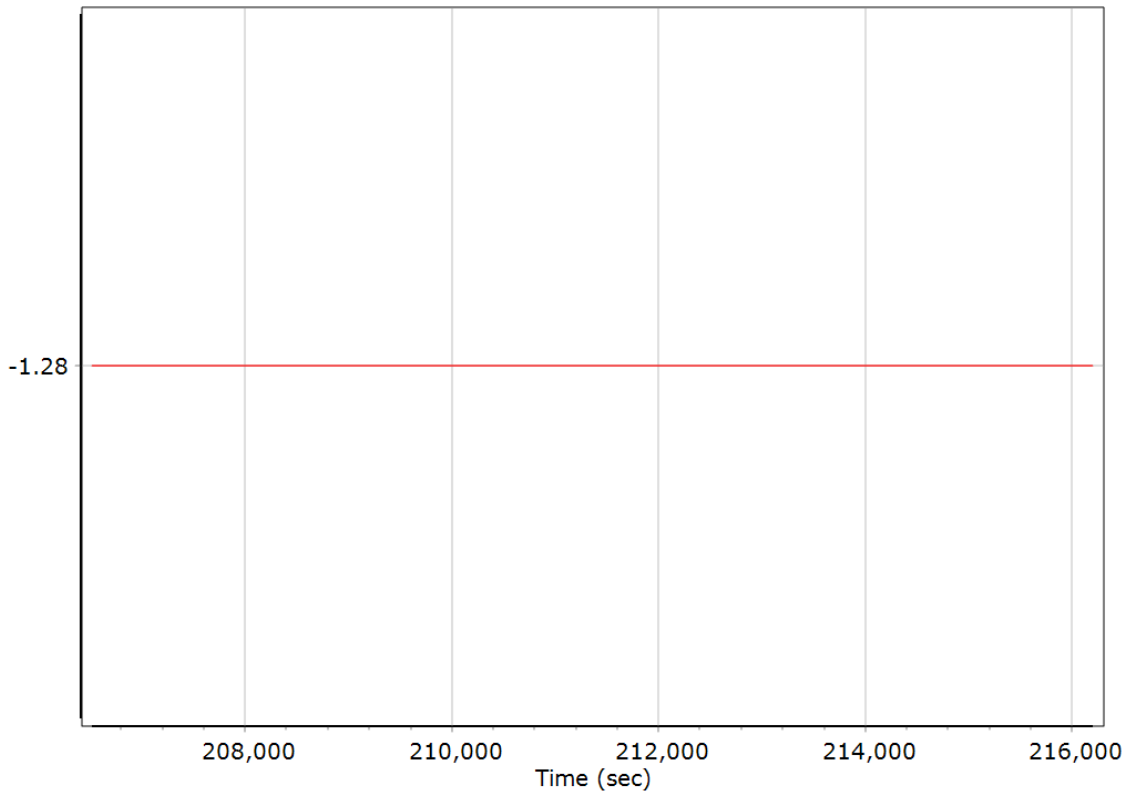
#### X Reference-Primary GNSS Lever Arm (m)



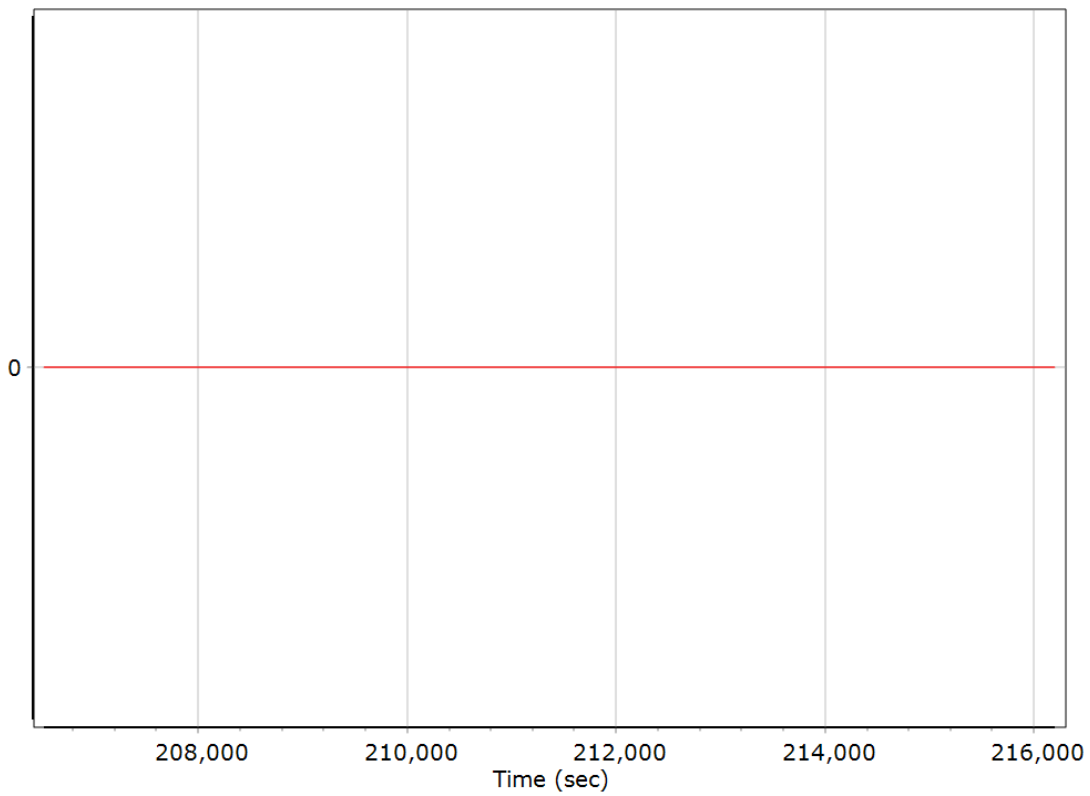
#### Y Reference-Primary GNSS Lever Arm (m)



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



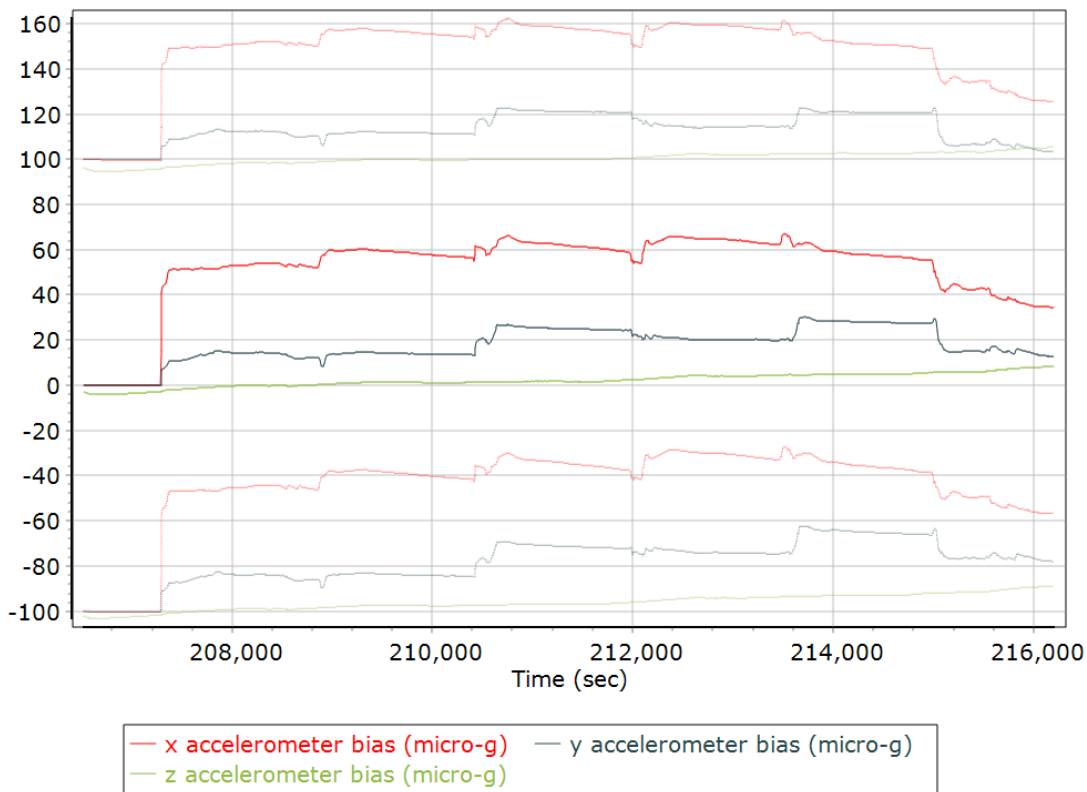
**Reference-Primary GNSS Lever Arm Figure of Merit**



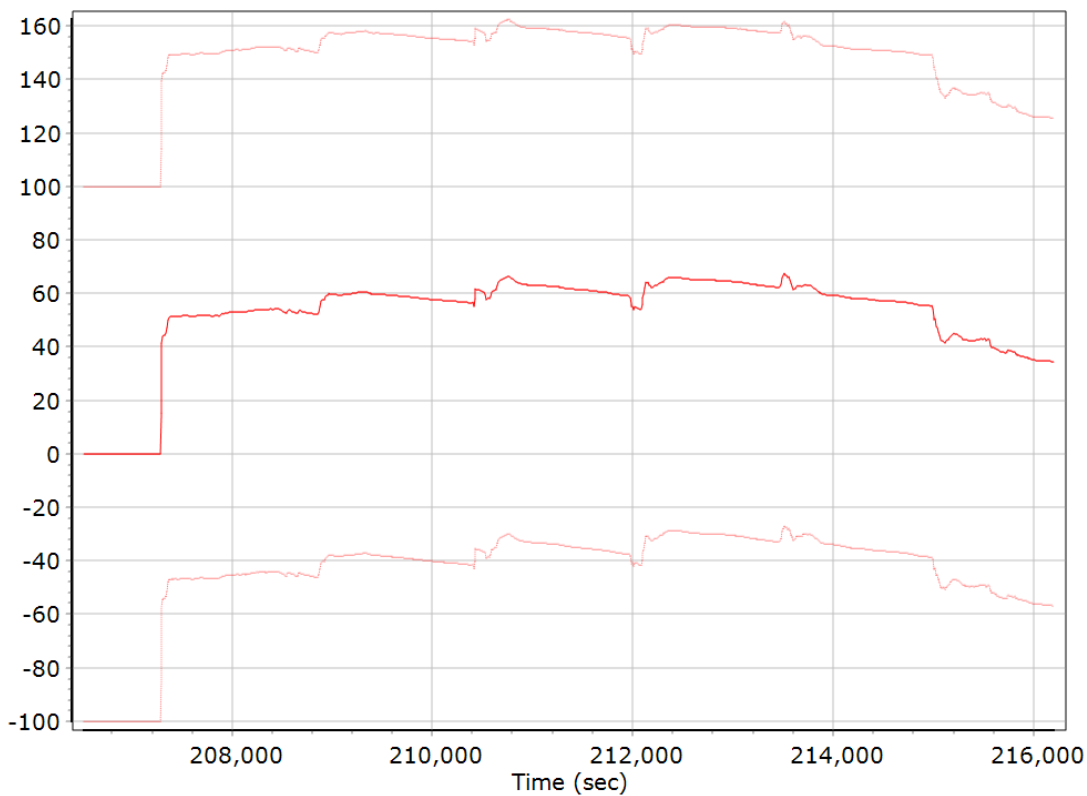
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

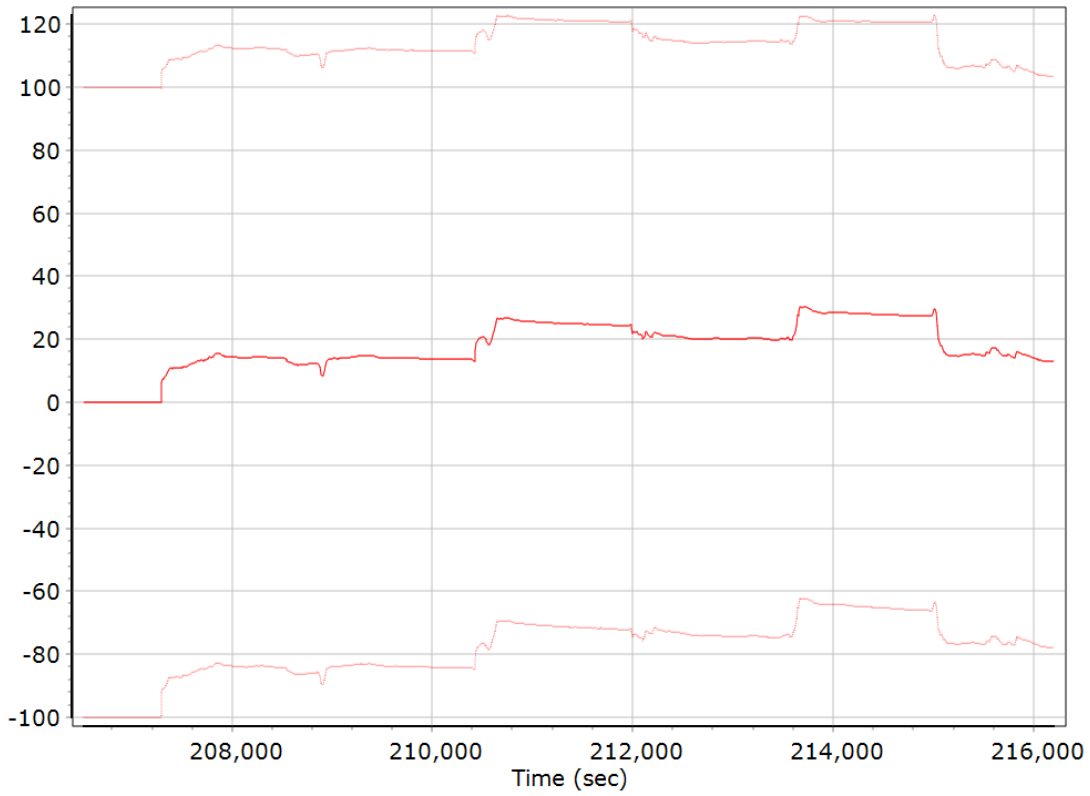
#### Accelerometer Bias (micro-g)



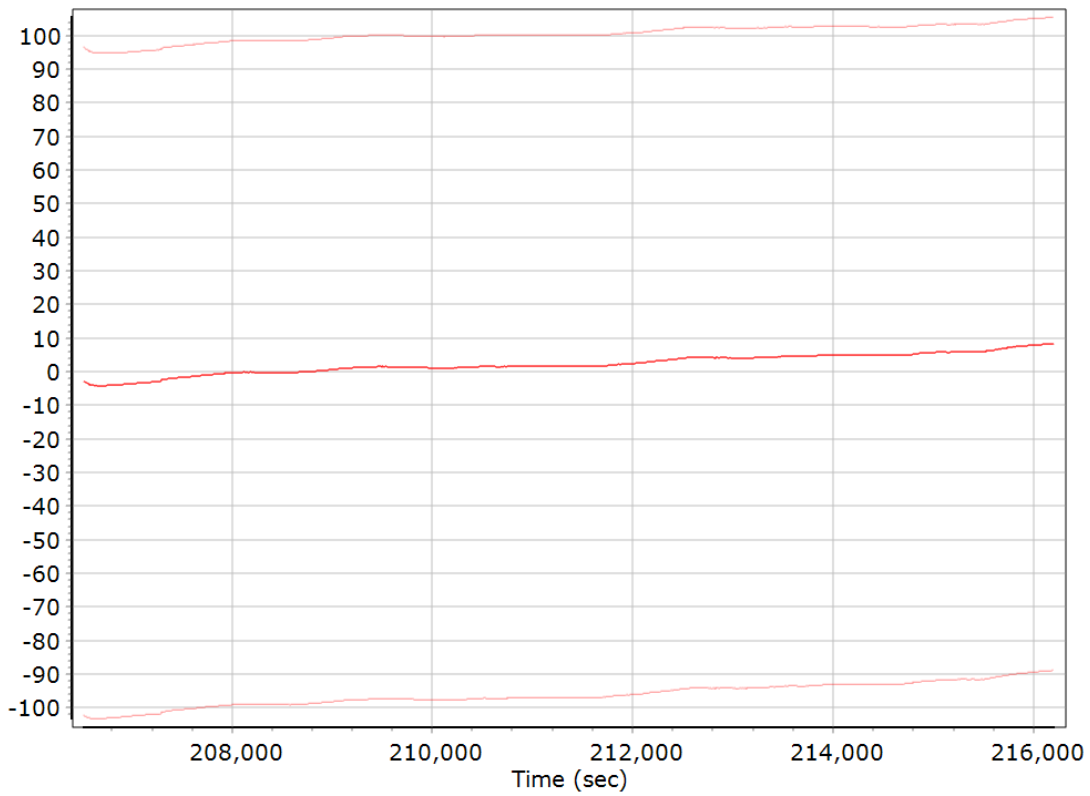
#### X Accelerometer Bias (micro-g)



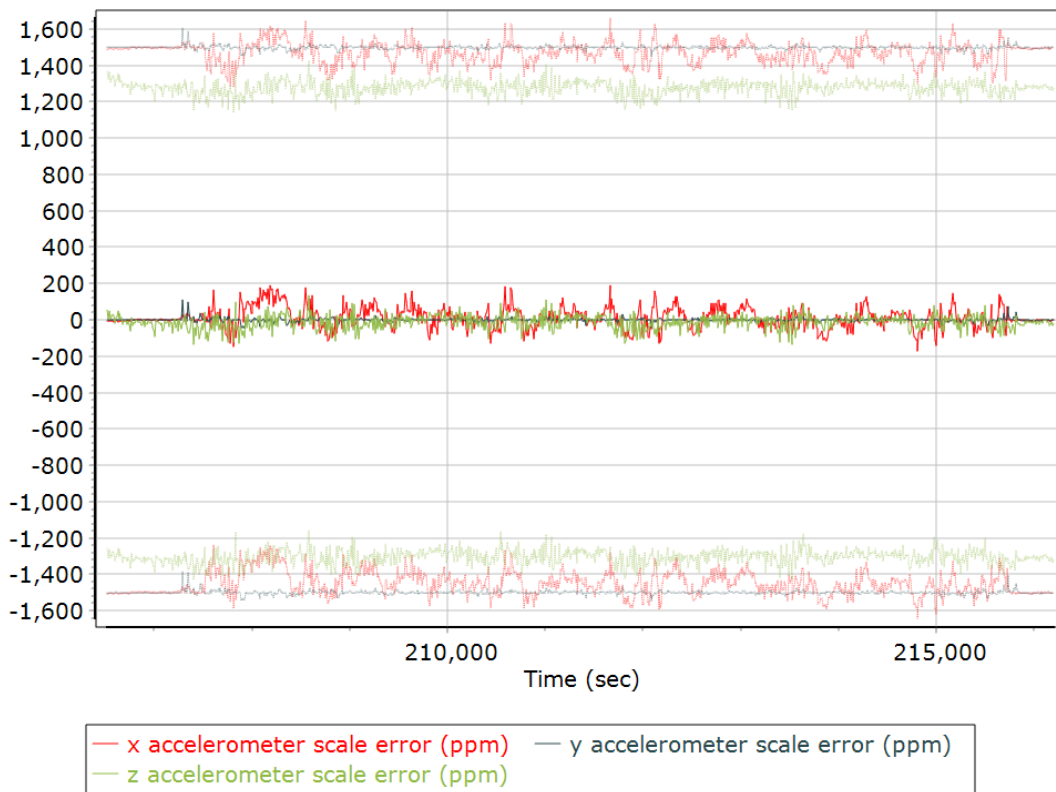
### Y Accelerometer Bias (micro-g)



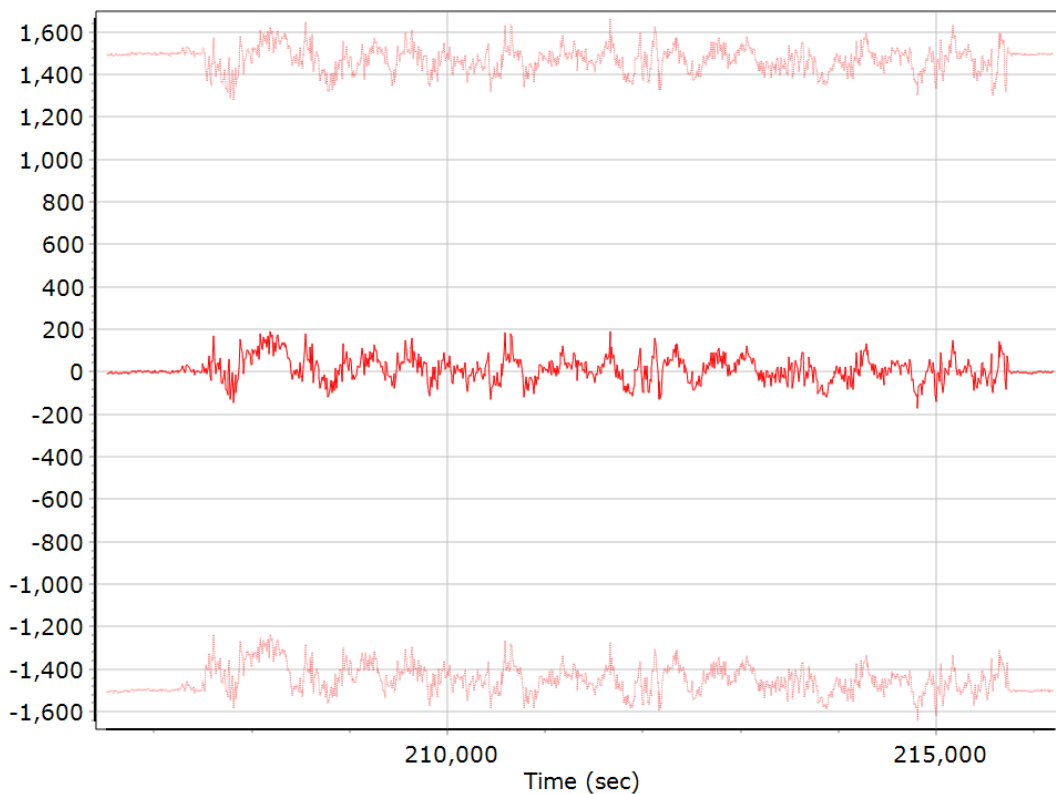
### Z Accelerometer Bias (micro-g)



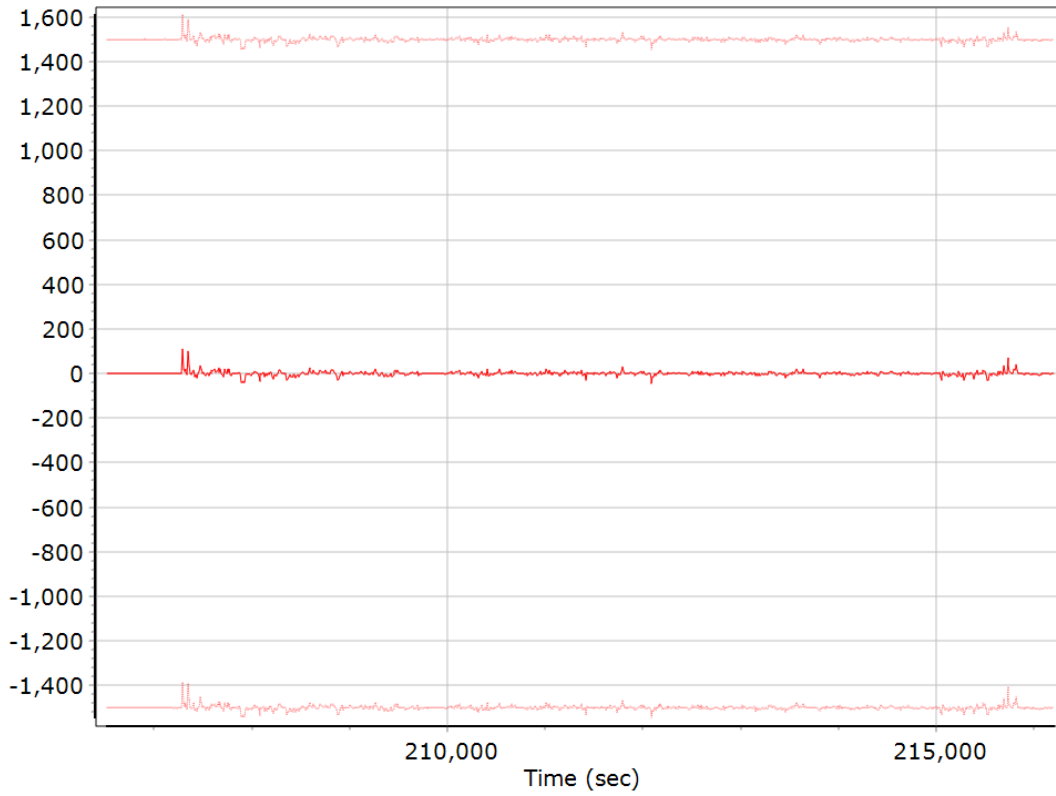
### Accelerometer Scale Error (ppm)



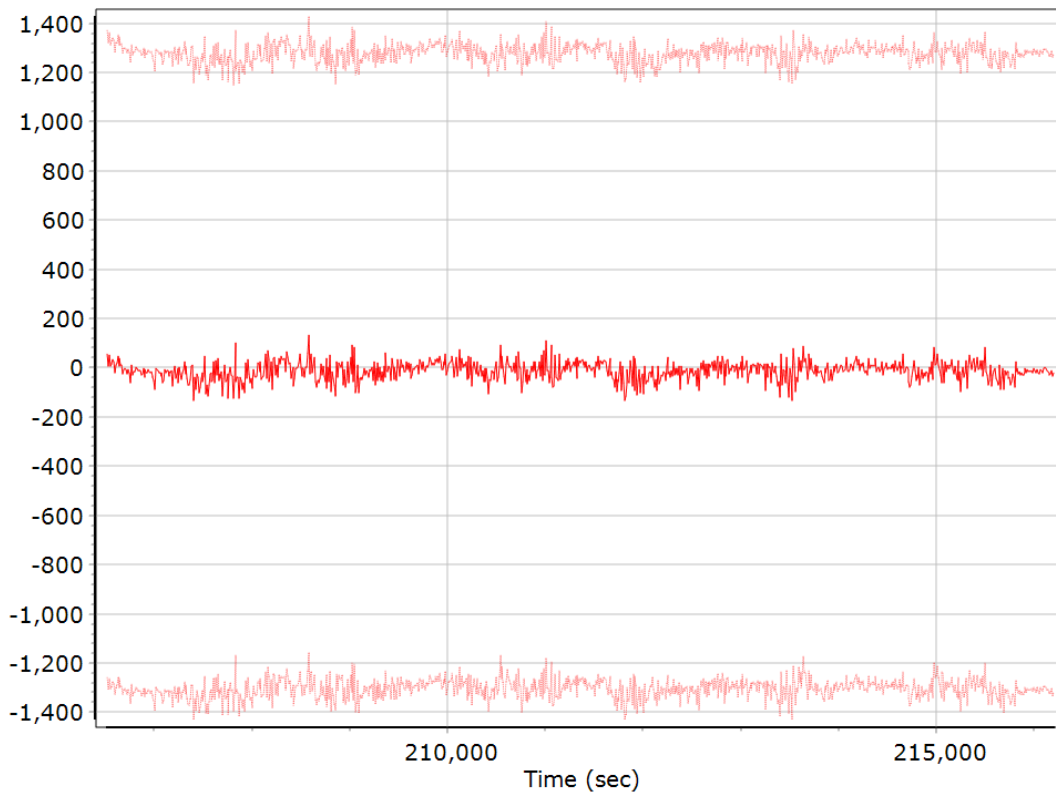
### X Accelerometer Scale Error (ppm)



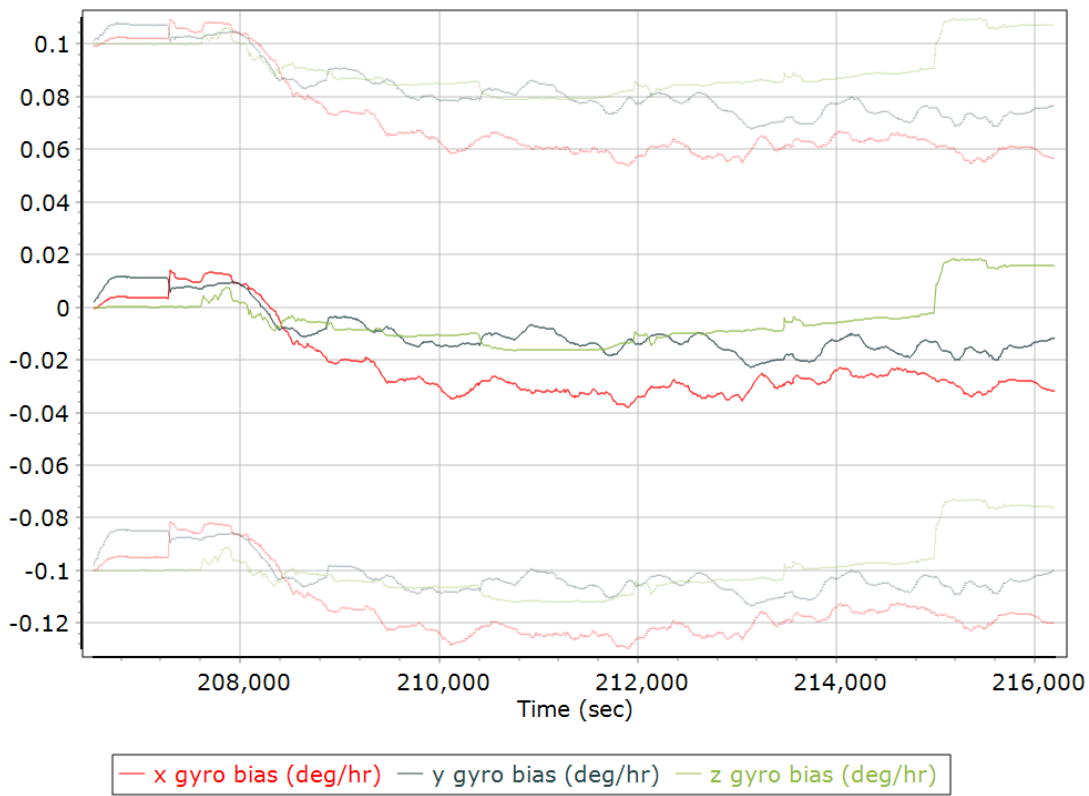
### Y Accelerometer Scale Error (ppm)



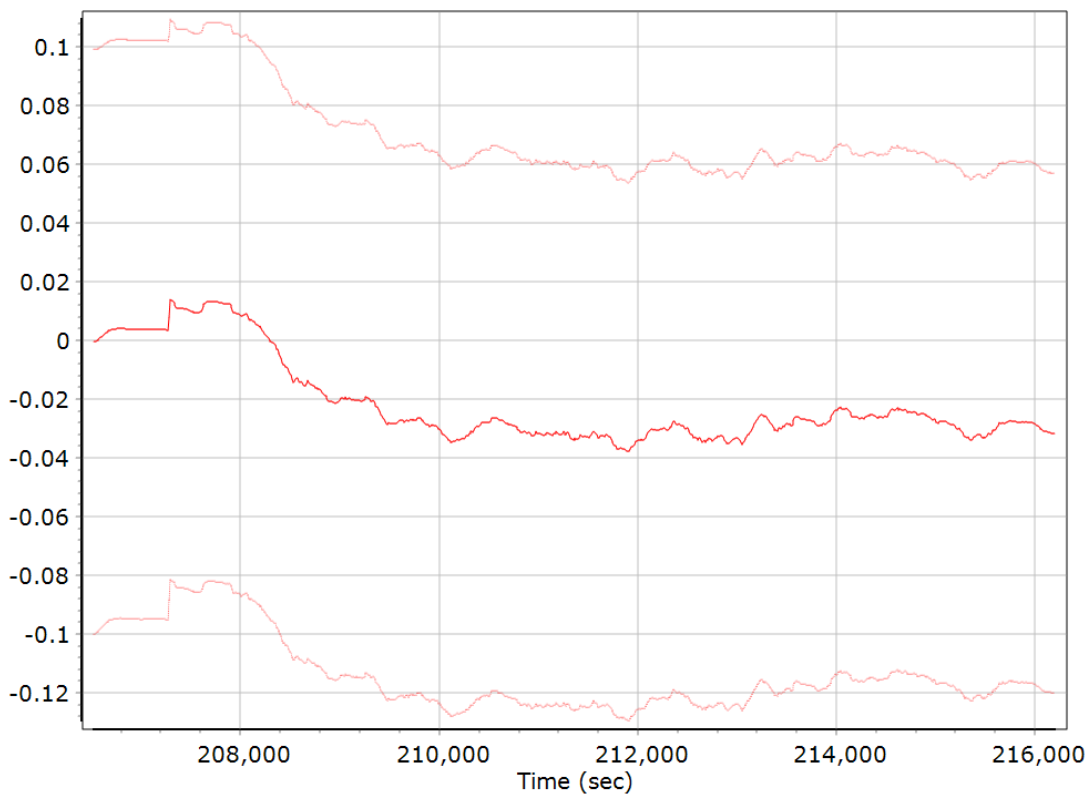
### Z Accelerometer Scale Error (ppm)



### Gyro Bias (deg/h)

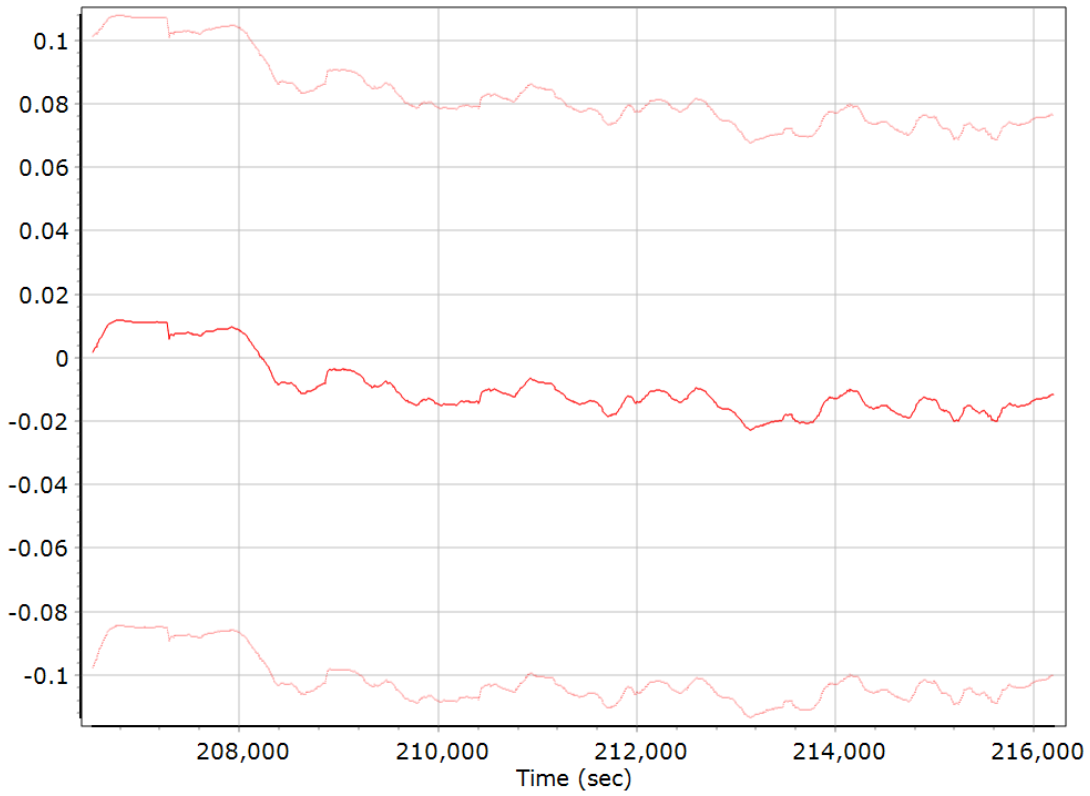


### X Gyro Bias (deg/h)

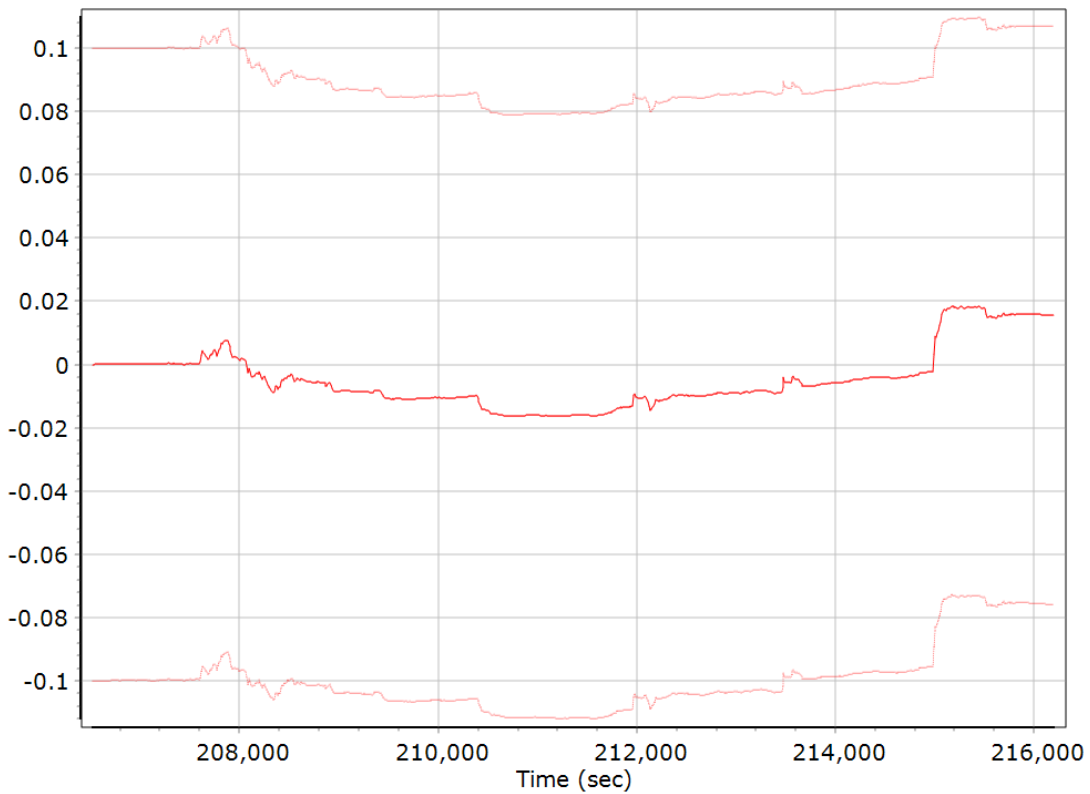




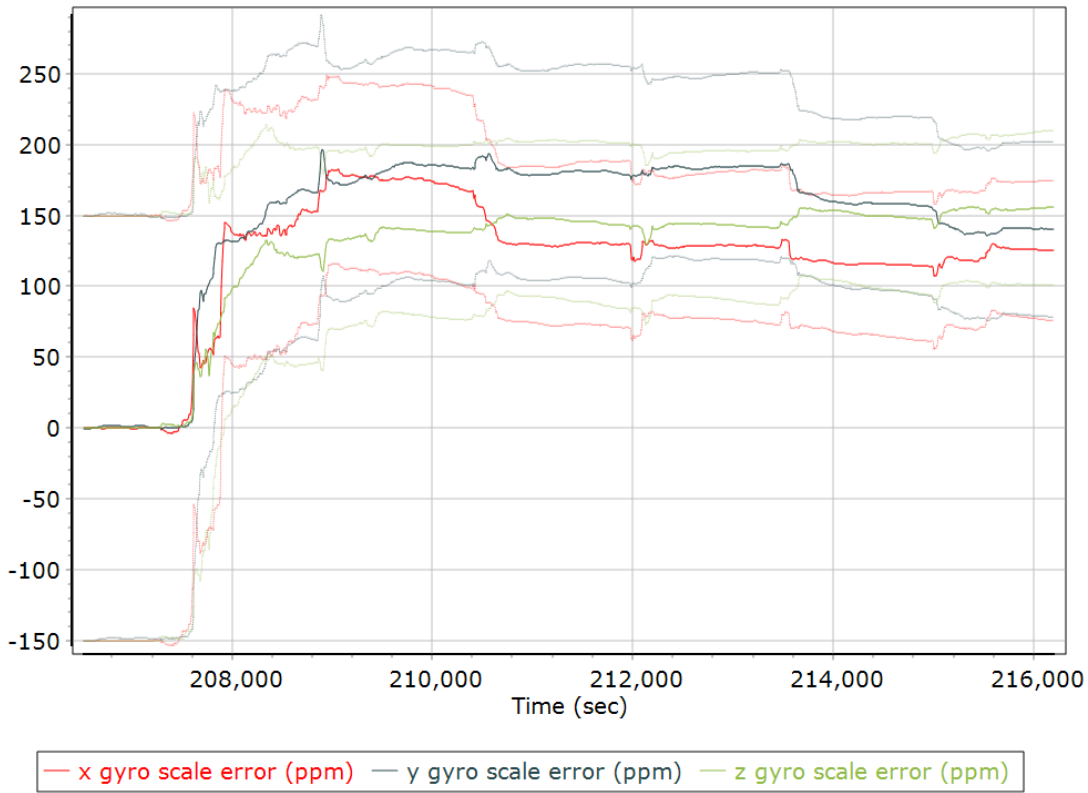
### Y Gyro Bias (deg/h)



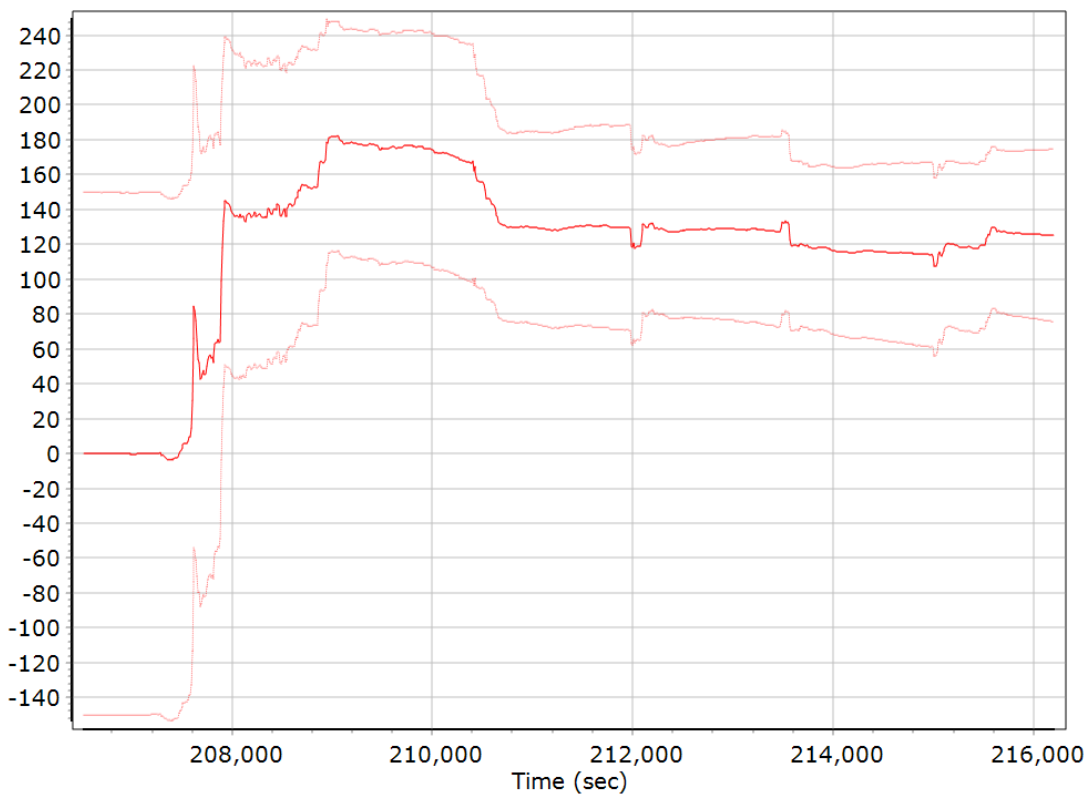
### Z Gyro Bias (deg/h)



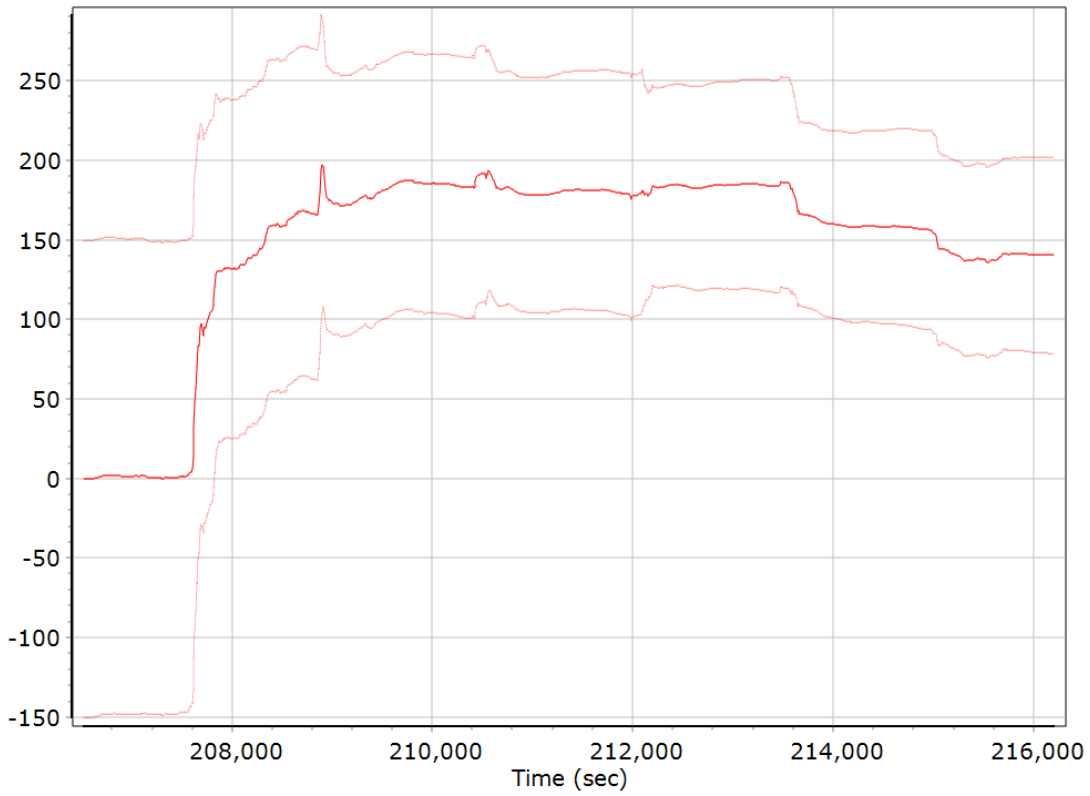
### Gyro Scale Error (ppm)



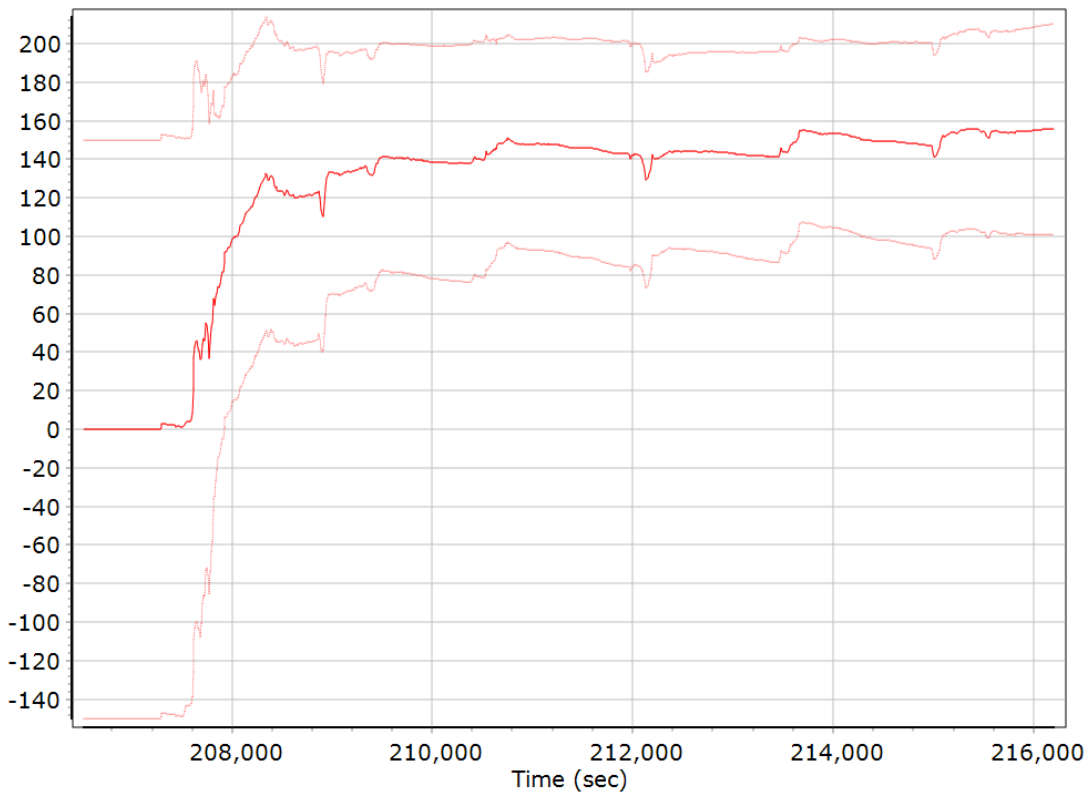
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)

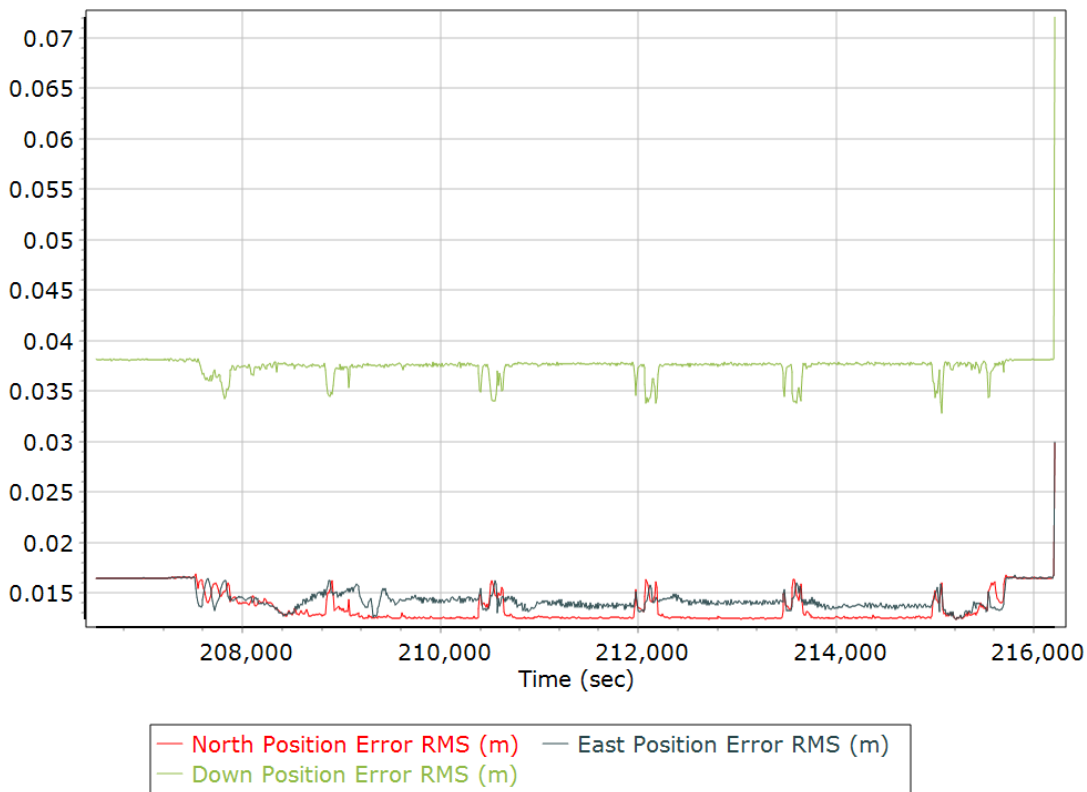


### Z Gyro Scale Error (ppm)

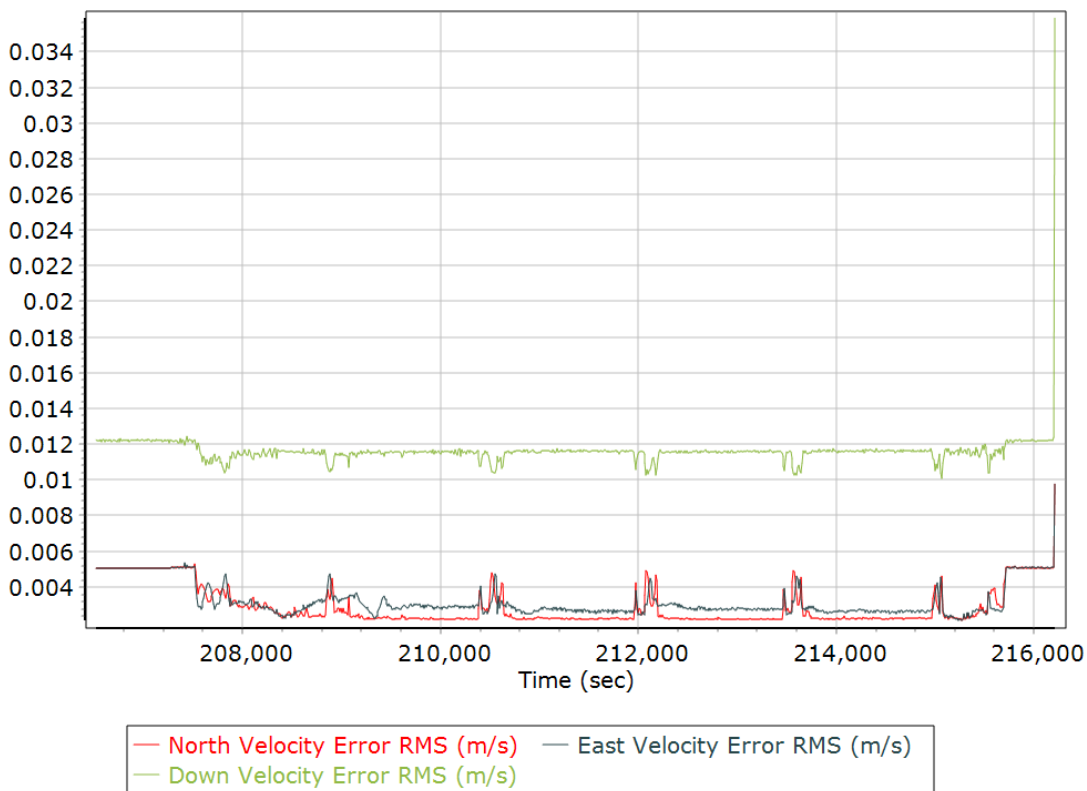


## Smoothed Performance Metrics

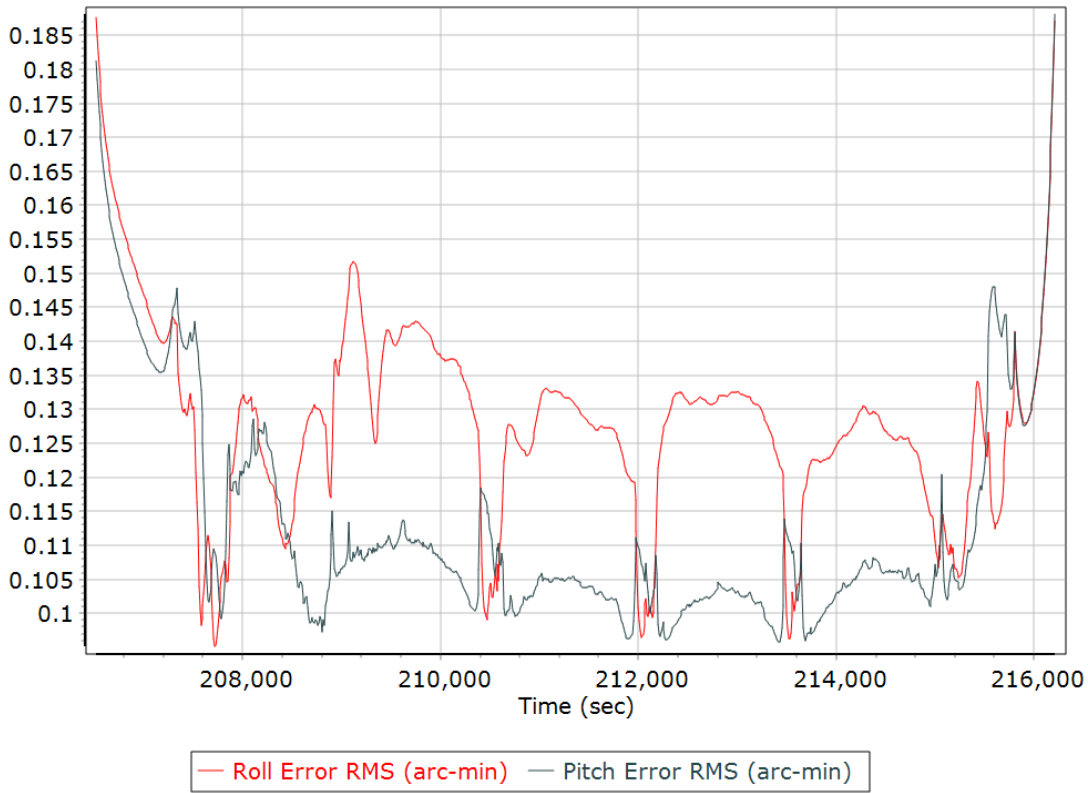
### Position Error RMS (m)



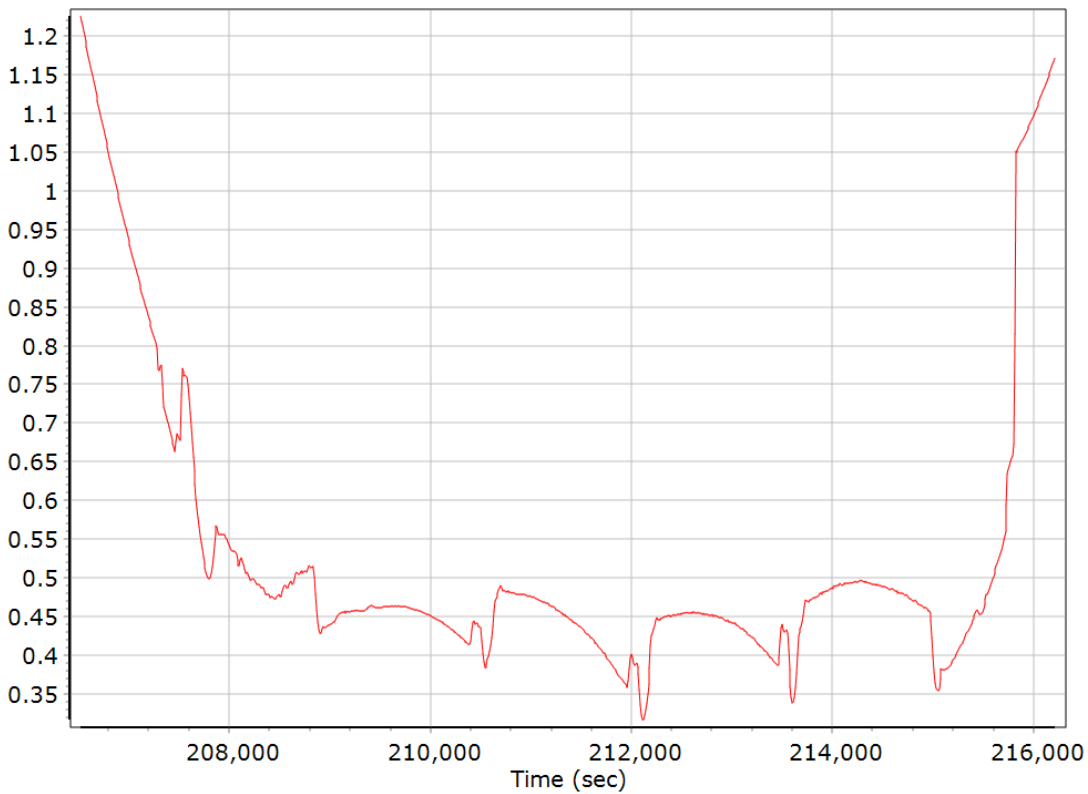
### Velocity Error RMS (m/s)



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

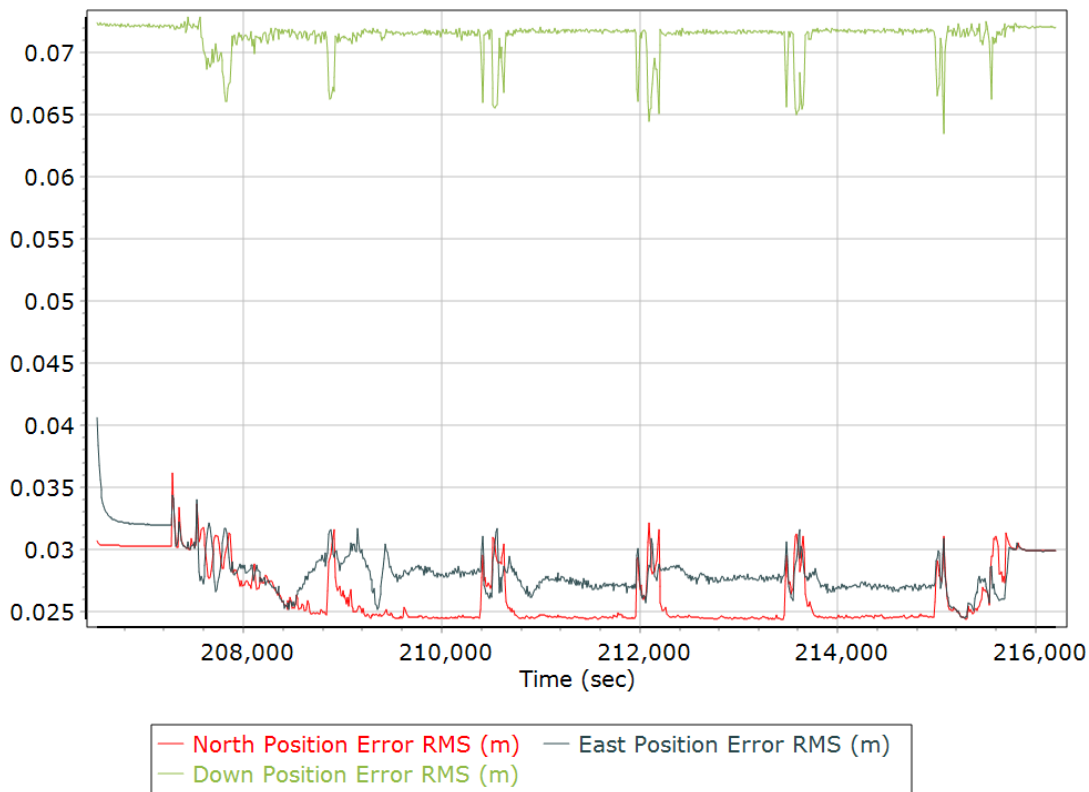


### Heading Error RMS (arc-min)

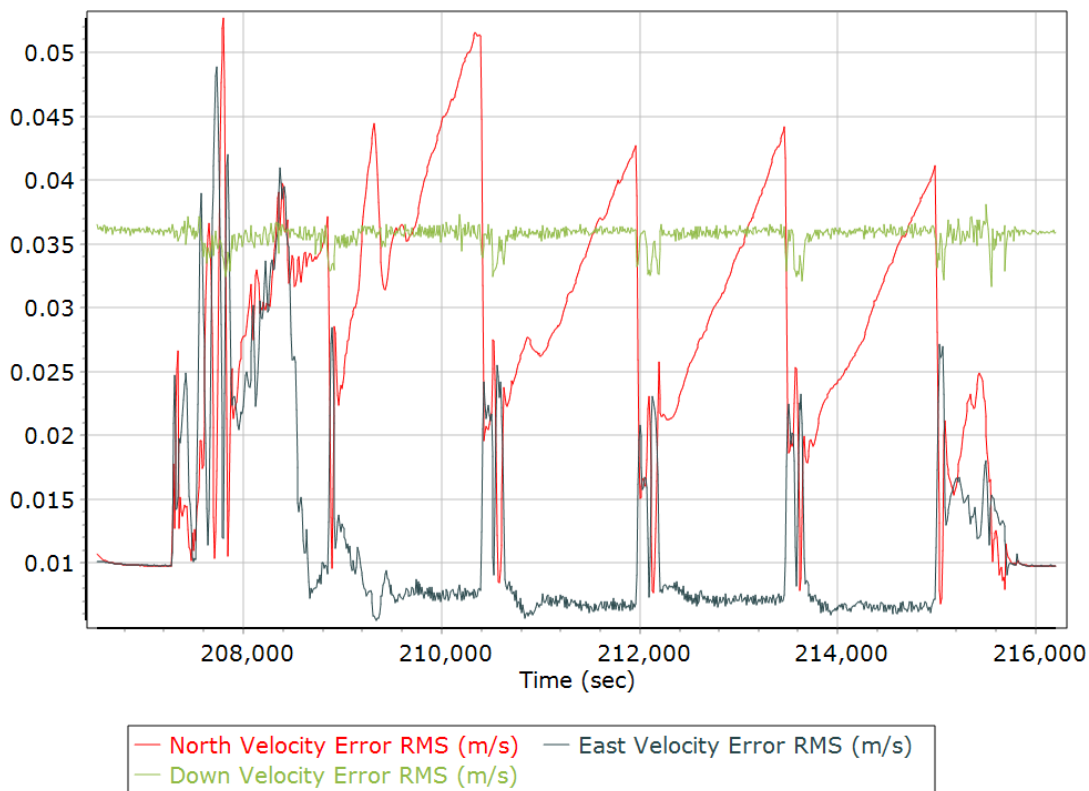


## Forward Processed Performance Metrics

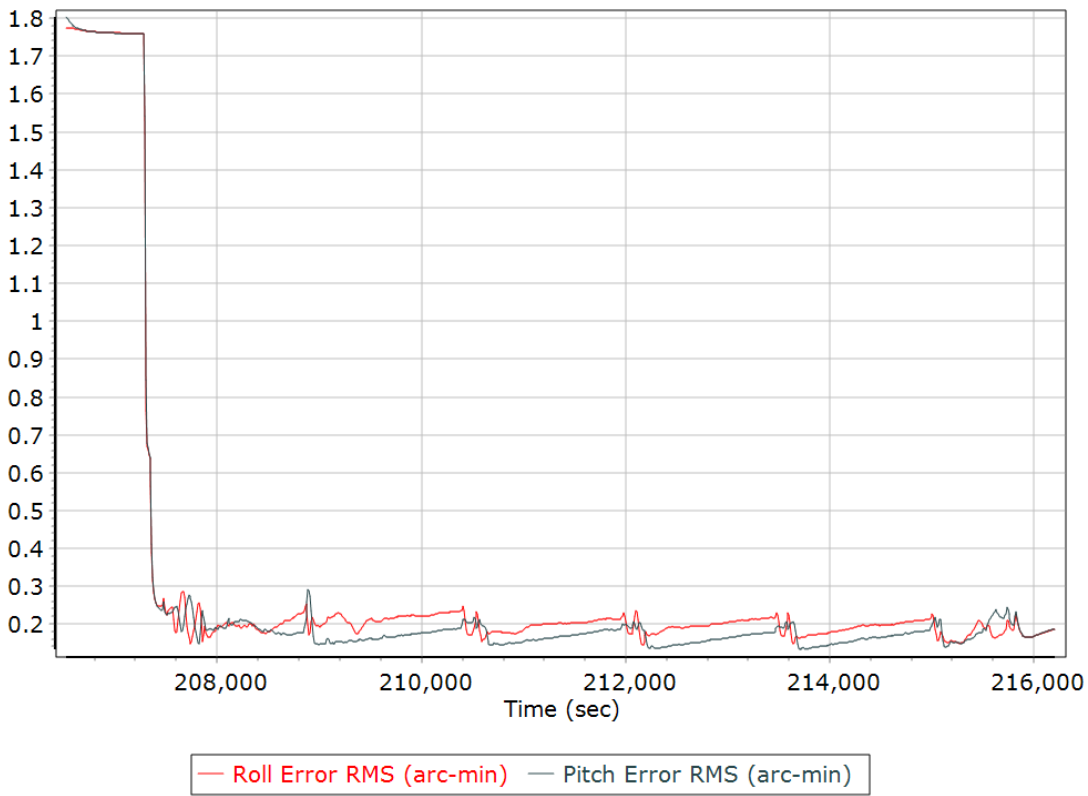
### Position Error RMS (m)



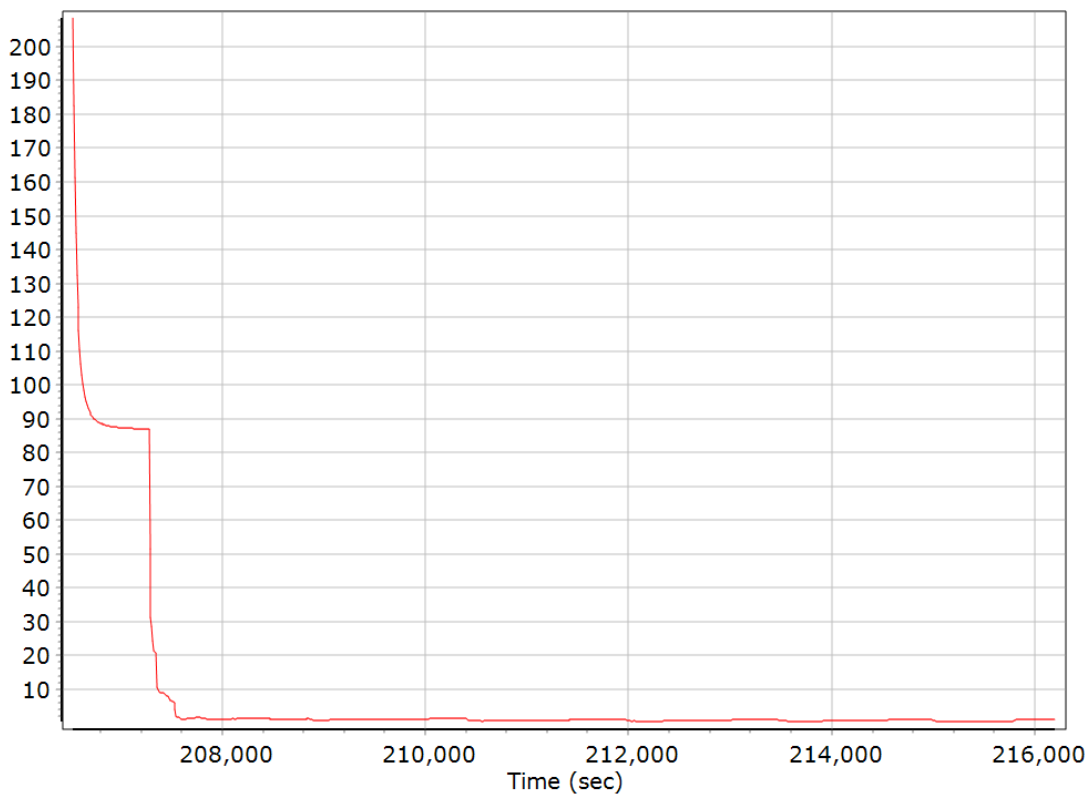
### Velocity Error RMS (m/s)



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

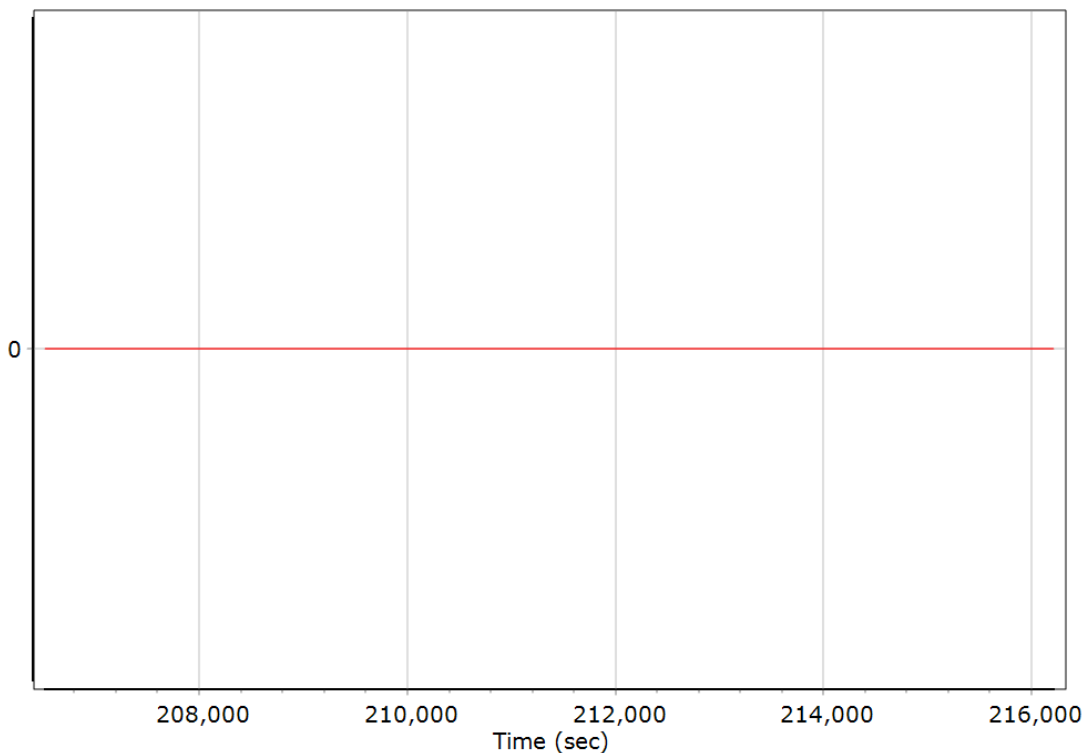


### Heading Error RMS (arc-min)



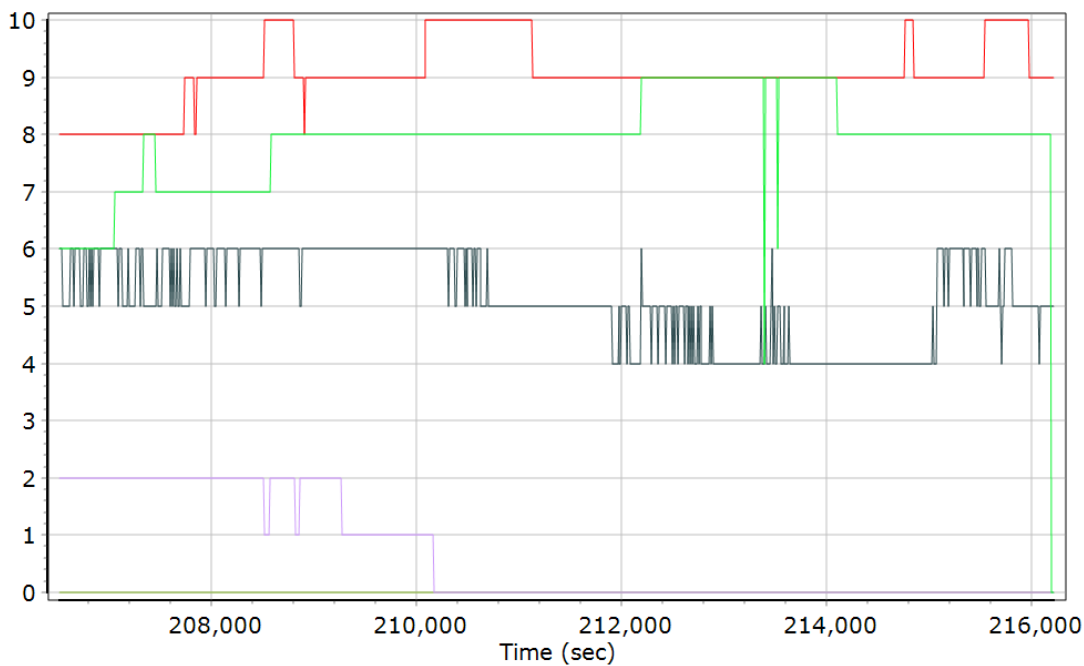
## Forward Processed Solution Status

### Processing Mode



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

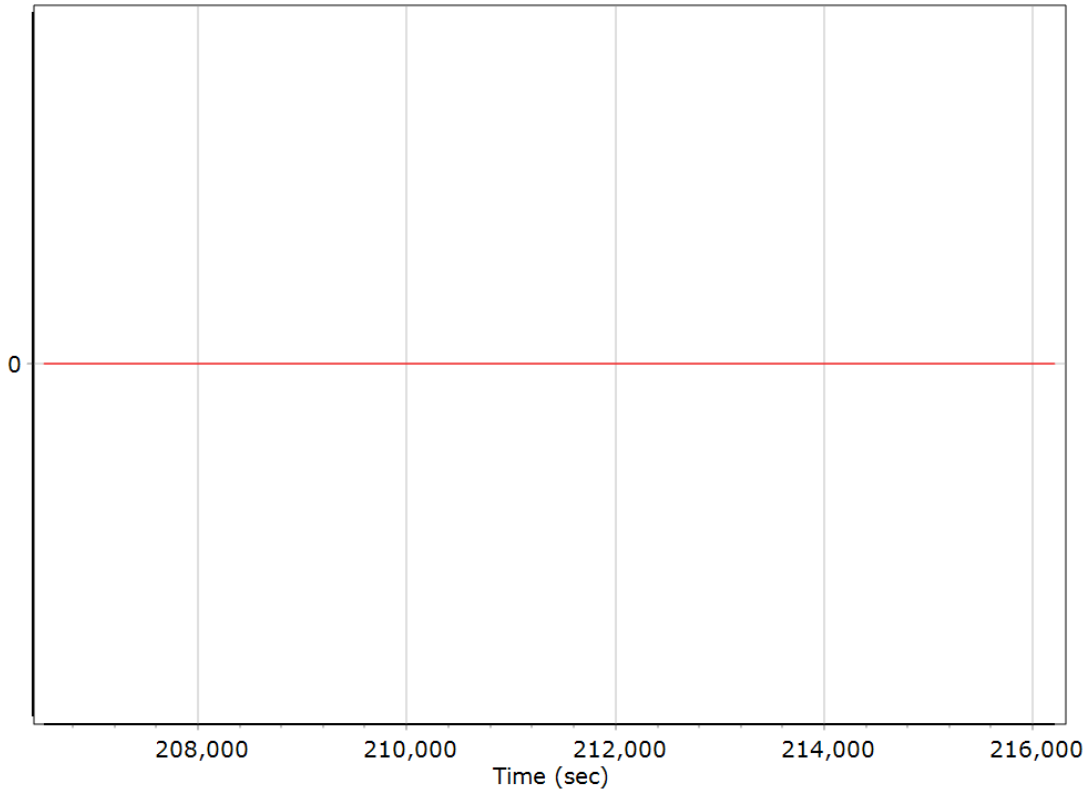
### Number of Satellites



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



### Baseline Length



## General Information

### Mission Information

Project name	a07-s03-0514
Processing date	2022-07-20 15:15:40
Mission date	2022-07-20 06:57:19
Mission duration	04:53:51.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0720_065720.000	POS Data
default0720_065720.001	POS Data
default0720_065720.002	POS Data
default0720_065720.003	POS Data
default0720_065720.004	POS Data
default0720_065720.005	POS Data
default0720_065720.006	POS Data
default0720_065720.007	POS Data
default0720_065720.008	POS Data
default0720_065720.009	POS Data
default0720_065720.010	POS Data
default0720_065720.011	POS Data
default0720_065720.012	POS Data
default0720_065720.013	POS Data
default0720_065720.014	POS Data
default0720_065720.015	POS Data
default0720_065720.016	POS Data
default0720_065720.017	POS Data
default0720_065720.018	POS Data
default0720_065720.019	POS Data
default0720_065720.020	POS Data
default0720_065720.021	POS Data
default0720_065720.022	POS Data
default0720_065720.023	POS Data
default0720_065720.024	POS Data

### Input Files

File Name	File Type
Ephm2010.22g	GLONASS Broadcast Ephemeris
Ephm2010.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0514.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0720_065720.000		
Last raw data file	default0720_065720.024		
Start GPS week	2219		
Start time	17.107 (7/17/2022 12:00:17 AM)		
End time	301852.607 (7/20/2022 11:50:52 AM)		
Start of fine alignment	284622.582 (7/20/2022 7:03:42 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

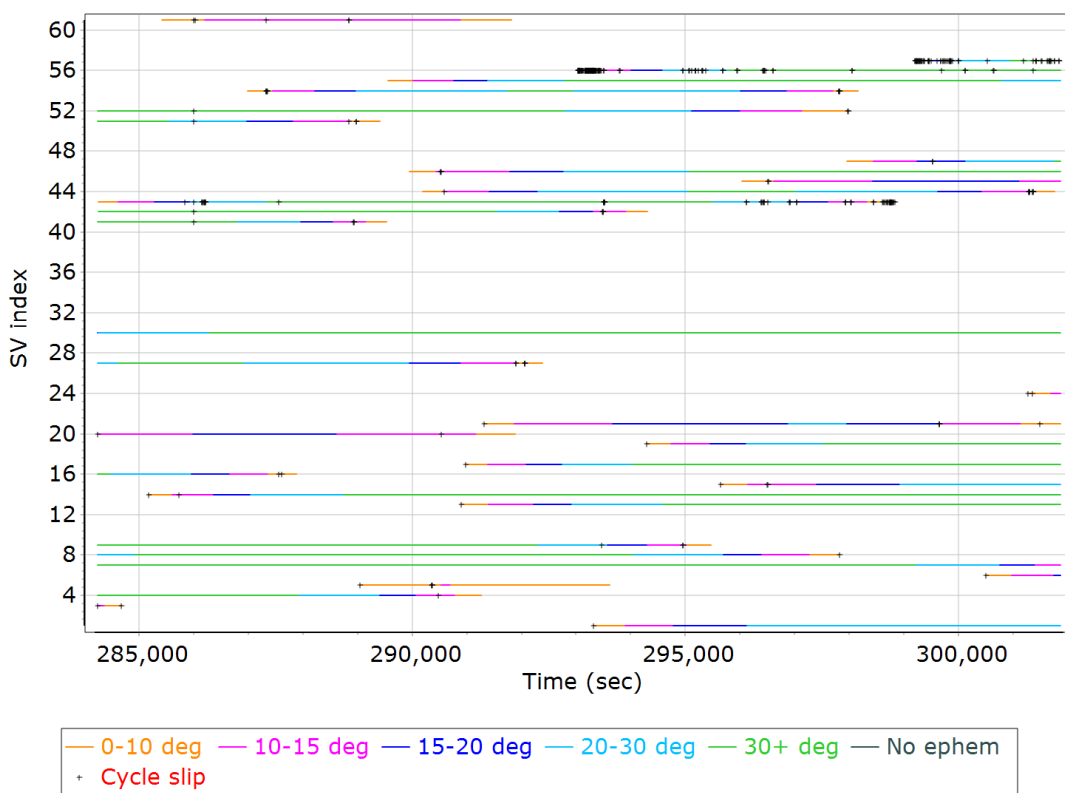
## Rover Data QC

### Raw IMU Import QC Summary

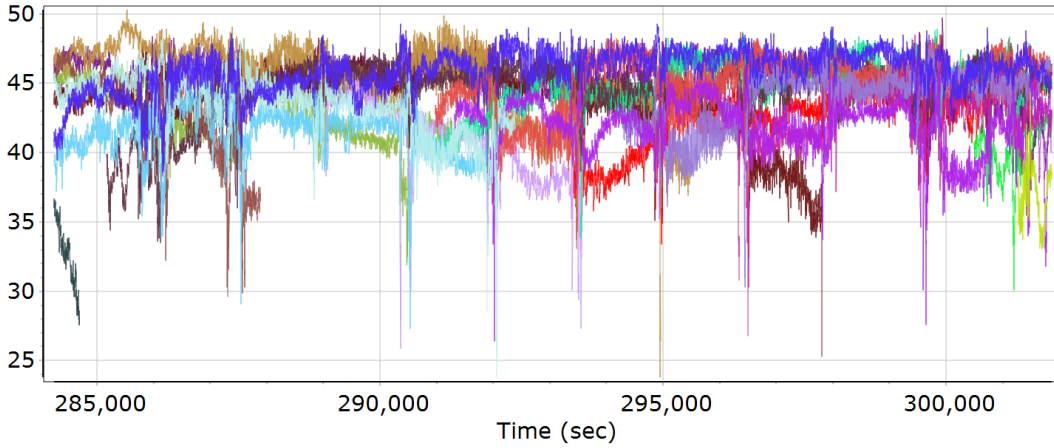
IMU data input file	imu_a07-s03-0514.dat
IMU data check log file	imudt_a07-s03-0514.log
IMU Records Processed	3525885
Termination Status	Warnings
IMU Anomalies	3
<b>IMU Failure Messages</b>	
284221.019 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
284220.909 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
284220.849 : WARNING : Gap of 284203.5023 seconds in CHECKDT input data	

### Primary Observables & Satellite Data

#### GPS/GLONASS L1 Satellite Lock/Elevation

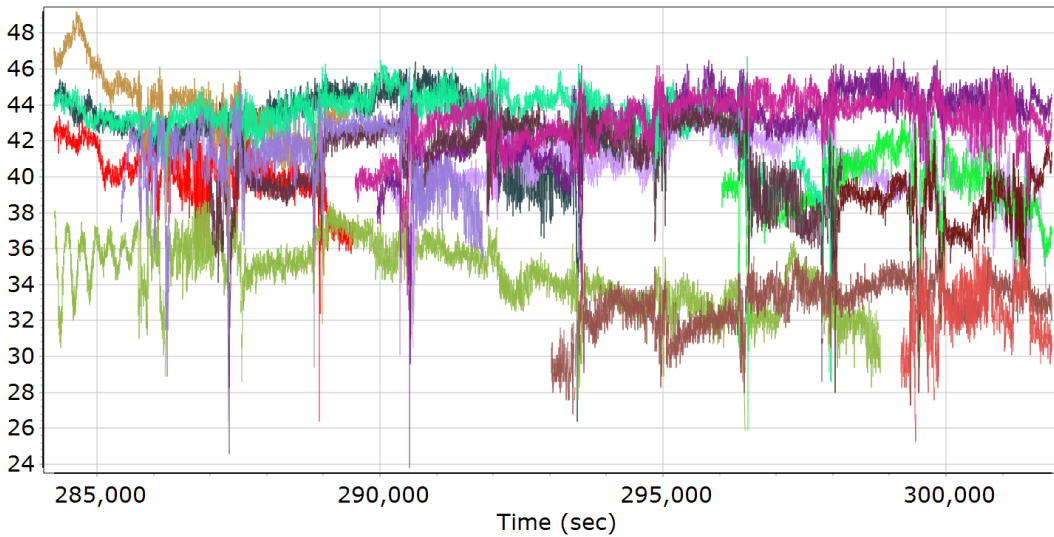


**GPS L1 SNR**



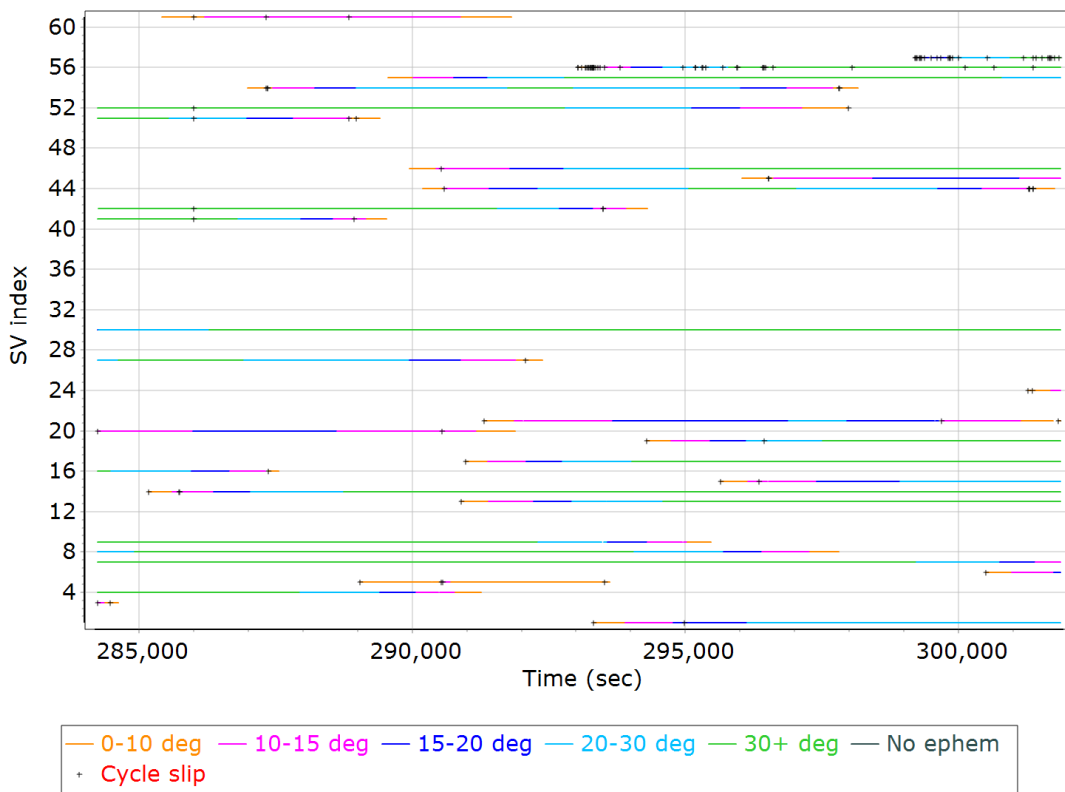
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 03 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 05 L1 SNR (dB/Hz) |
| — GPS PRN 06 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 15 L1 SNR (dB/Hz) | — GPS PRN 16 L1 SNR (dB/Hz) |
| — GPS PRN 17 L1 SNR (dB/Hz) | — GPS PRN 19 L1 SNR (dB/Hz) |
| — GPS PRN 20 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 24 L1 SNR (dB/Hz) | — GPS PRN 27 L1 SNR (dB/Hz) |
| — GPS PRN 30 L1 SNR (dB/Hz) |                             |

**GLONASS L1 SNR**

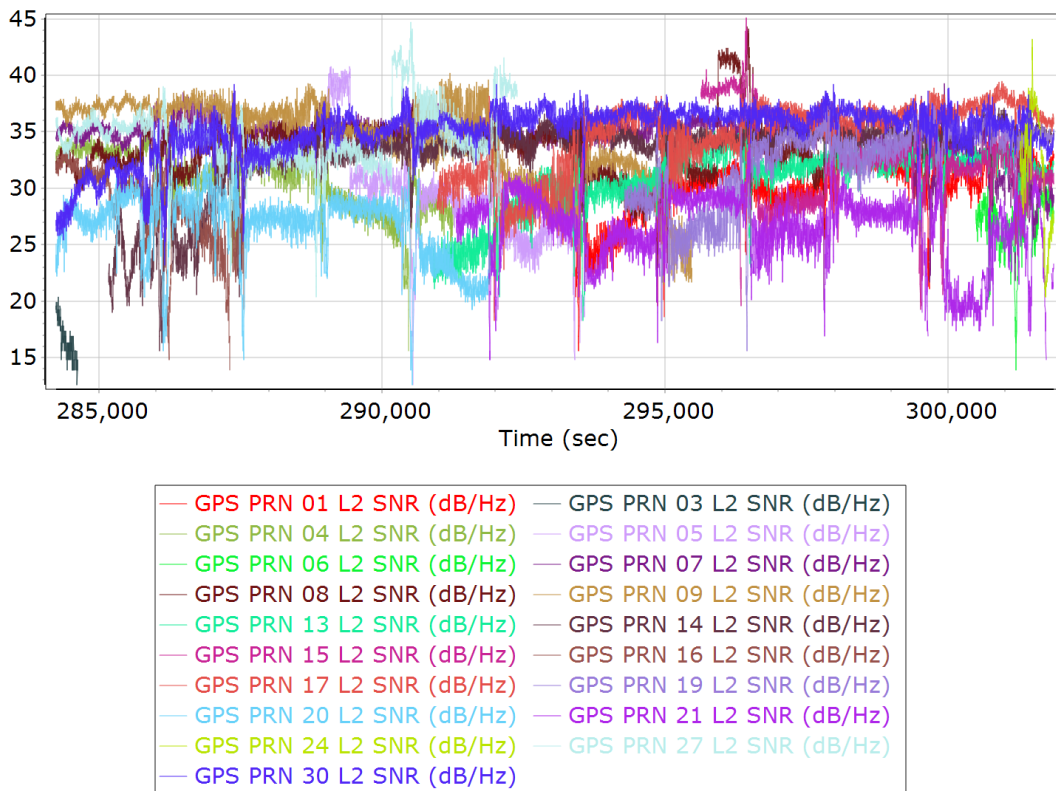


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 04 L1 SNR (dB/Hz) | — GLONASS 05 L1 SNR (dB/Hz) |
| — GLONASS 06 L1 SNR (dB/Hz) | — GLONASS 07 L1 SNR (dB/Hz) |
| — GLONASS 08 L1 SNR (dB/Hz) | — GLONASS 09 L1 SNR (dB/Hz) |
| — GLONASS 10 L1 SNR (dB/Hz) | — GLONASS 14 L1 SNR (dB/Hz) |
| — GLONASS 15 L1 SNR (dB/Hz) | — GLONASS 17 L1 SNR (dB/Hz) |
| — GLONASS 18 L1 SNR (dB/Hz) | — GLONASS 19 L1 SNR (dB/Hz) |
| — GLONASS 20 L1 SNR (dB/Hz) | — GLONASS 24 L1 SNR (dB/Hz) |

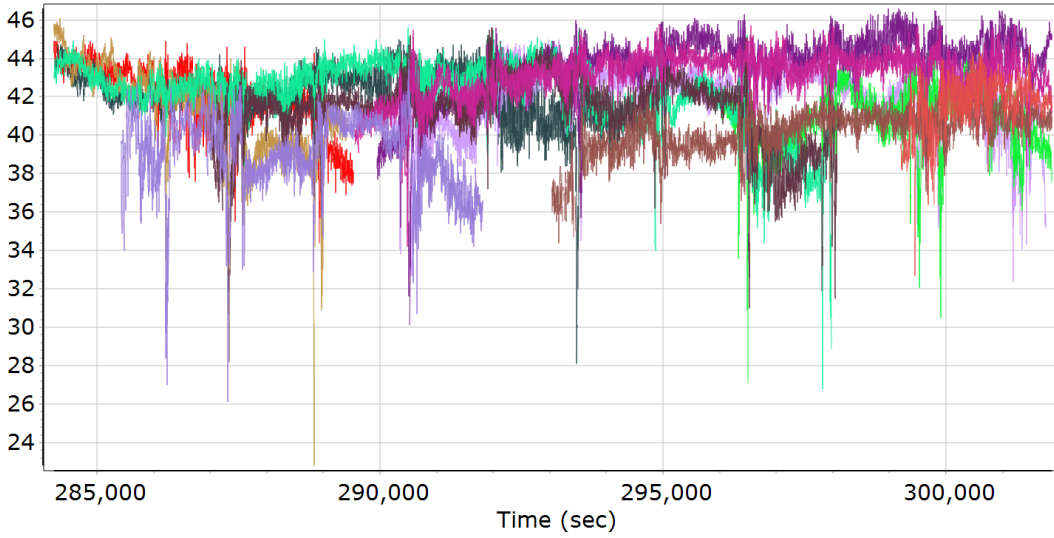
### GPS/GLONASS L2 Satellite Lock/Elevation



### GPS L2 SNR

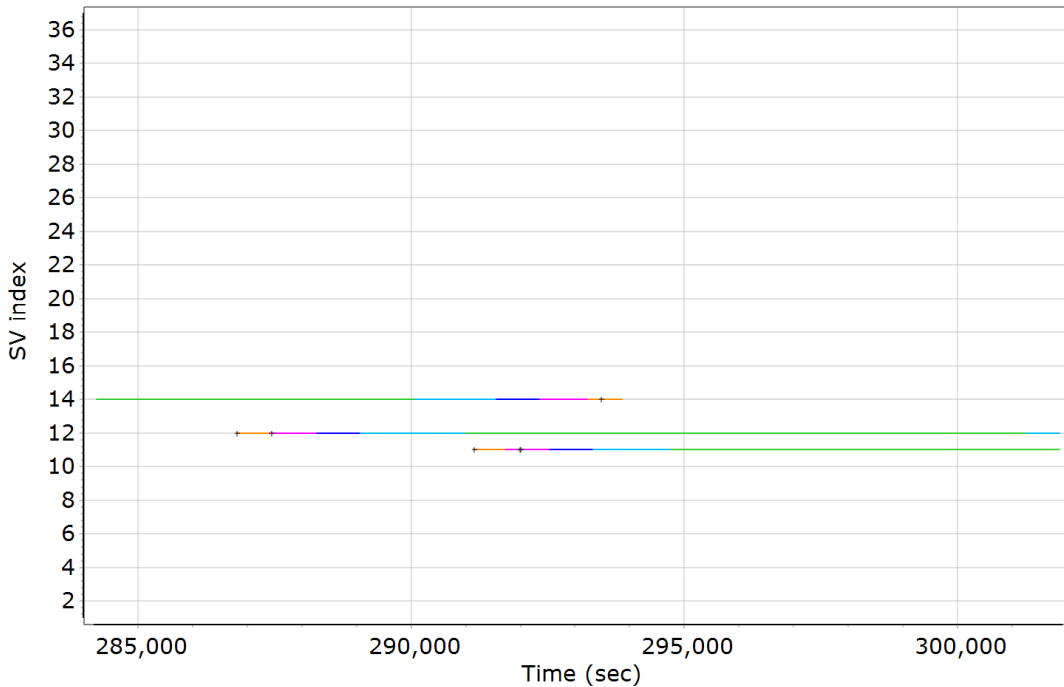


**GLONASS L2 SNR**



- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 04 L2 SNR (dB/Hz) | — GLONASS 05 L2 SNR (dB/Hz) |
| — GLONASS 06 L2 SNR (dB/Hz) | — GLONASS 07 L2 SNR (dB/Hz) |
| — GLONASS 08 L2 SNR (dB/Hz) | — GLONASS 09 L2 SNR (dB/Hz) |
| — GLONASS 10 L2 SNR (dB/Hz) | — GLONASS 14 L2 SNR (dB/Hz) |
| — GLONASS 15 L2 SNR (dB/Hz) | — GLONASS 17 L2 SNR (dB/Hz) |
| — GLONASS 18 L2 SNR (dB/Hz) | — GLONASS 19 L2 SNR (dB/Hz) |
| — GLONASS 20 L2 SNR (dB/Hz) | — GLONASS 24 L2 SNR (dB/Hz) |

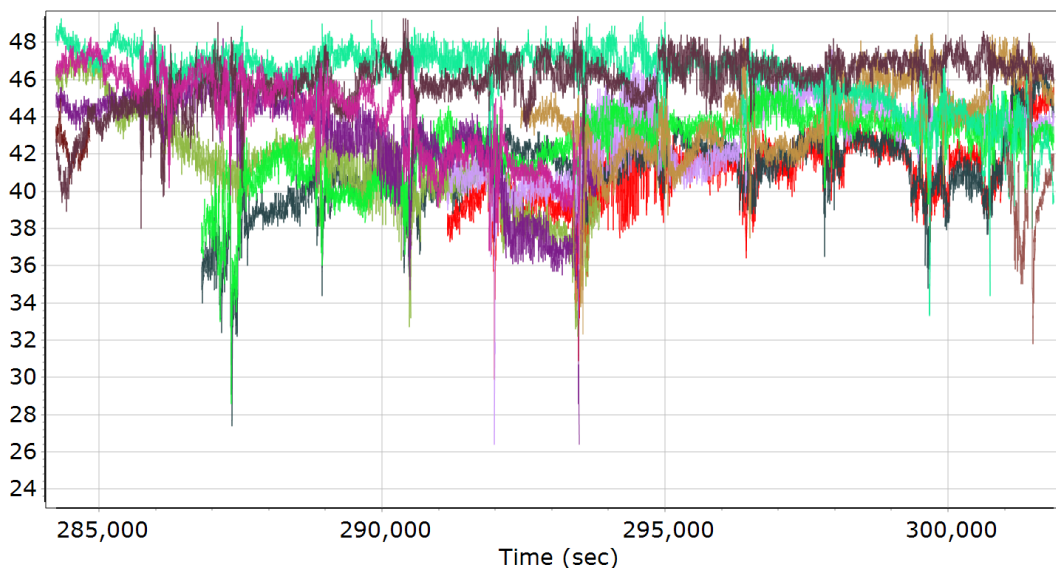
**BEIDOU Satellite Lock/Elevation**



- |              |             |             |             |           |            |
|--------------|-------------|-------------|-------------|-----------|------------|
| — 0-10 deg   | — 10-15 deg | — 15-20 deg | — 20-30 deg | — 30+ deg | — No ephem |
| + Cycle slip |             |             |             |           |            |

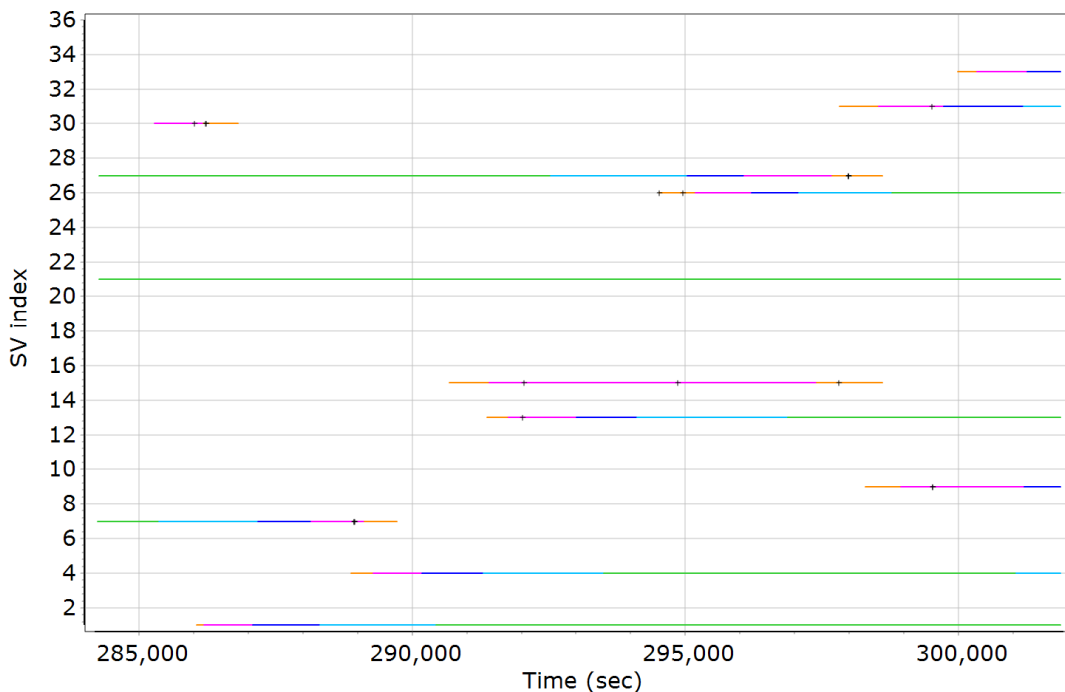


### BEIDOU SNR



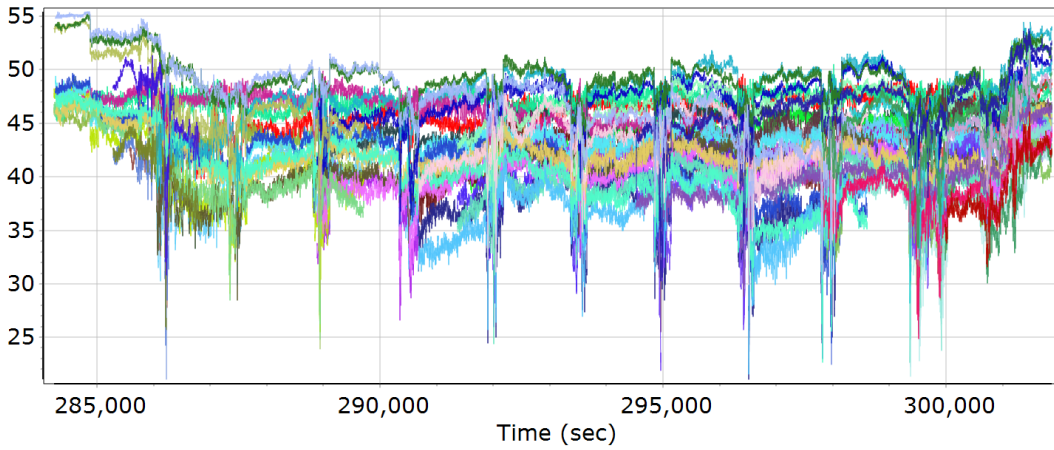
- |                                |                                |
|--------------------------------|--------------------------------|
| — BEIDOU 11 E5B B2 SNR (dB/Hz) | — BEIDOU 12 E5B B2 SNR (dB/Hz) |
| — BEIDOU 14 E5B B2 SNR (dB/Hz) | — BEIDOU 11 B1 B1 SNR (dB/Hz)  |
| — BEIDOU 12 B1 B1 SNR (dB/Hz)  | — BEIDOU 14 B1 B1 SNR (dB/Hz)  |
| — BEIDOU 21 B1 B1 SNR (dB/Hz)  | — BEIDOU 23 B1 B1 SNR (dB/Hz)  |
| — BEIDOU 24 B1 B1 SNR (dB/Hz)  | — BEIDOU 25 B1 B1 SNR (dB/Hz)  |
| — BEIDOU 26 B1 B1 SNR (dB/Hz)  | — BEIDOU 28 B1 B1 SNR (dB/Hz)  |

### GALILEO Satellite Lock/Elevation



- |              |             |             |             |           |            |
|--------------|-------------|-------------|-------------|-----------|------------|
| — 0-10 deg   | — 10-15 deg | — 15-20 deg | — 20-30 deg | — 30+ deg | — No ephem |
| + Cycle slip |             |             |             |           |            |

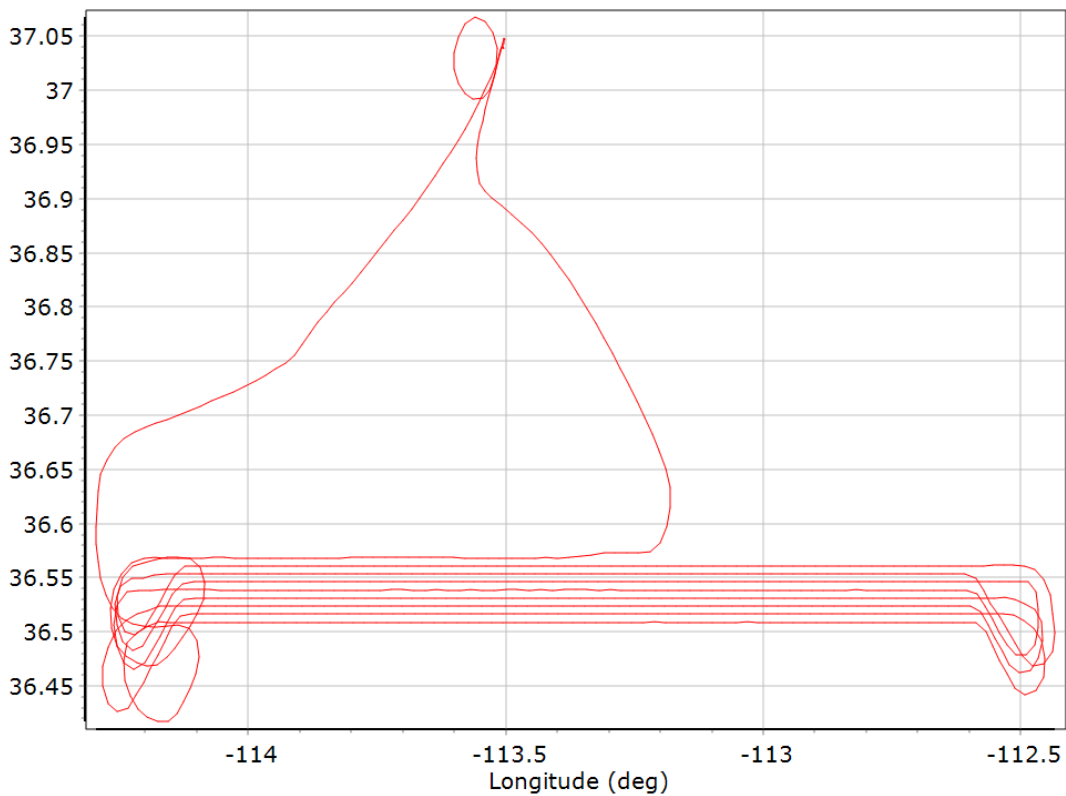
## GALILEO SNR



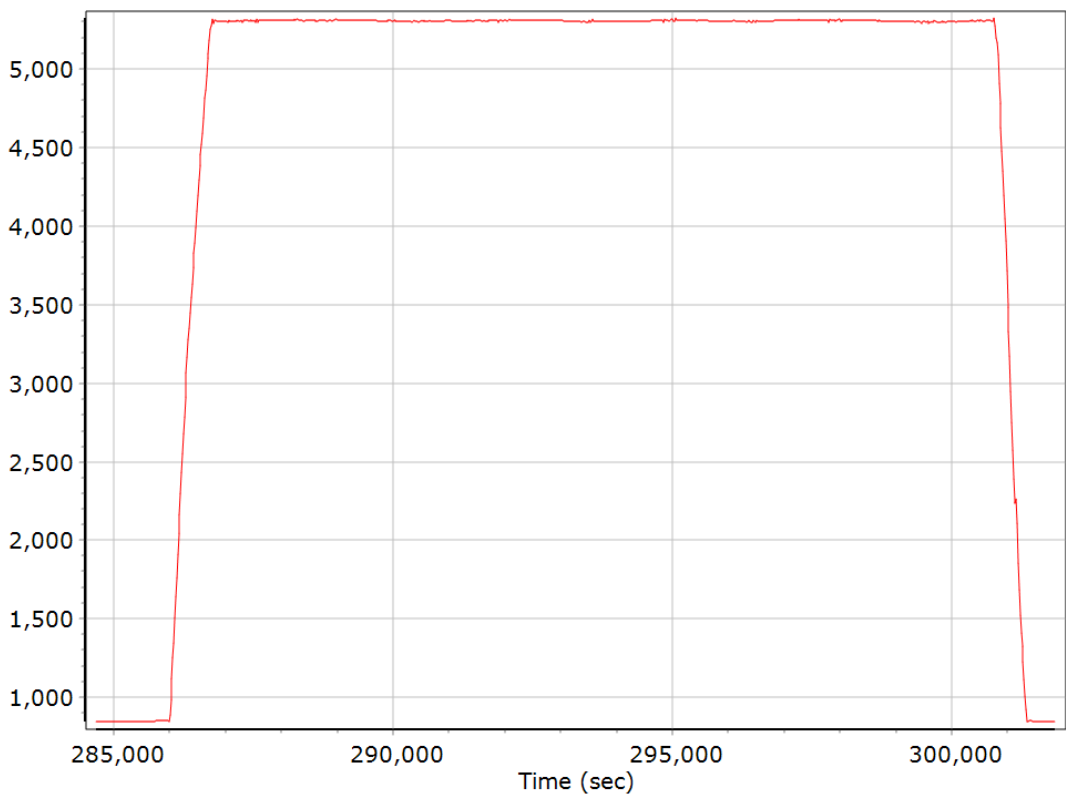
- GALILEO 01 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 04 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 07 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 09 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 13 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 14 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 15 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 19 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 21 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 26 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

## Smoothed Trajectory Information

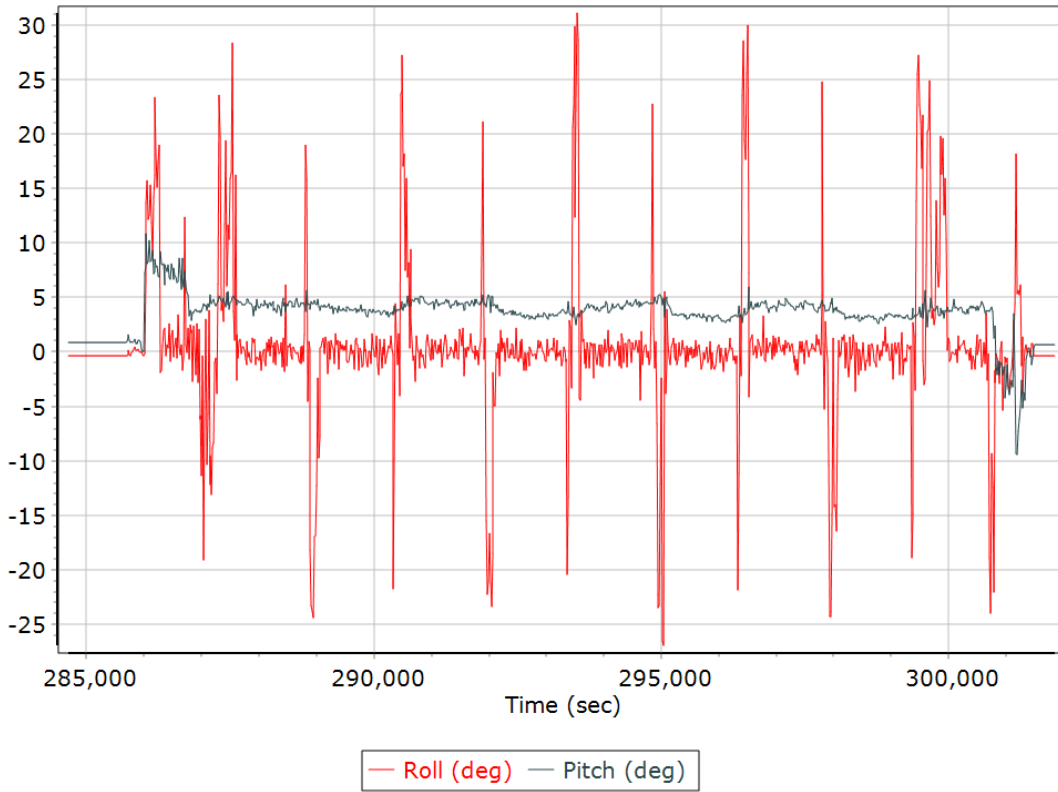
### Top View



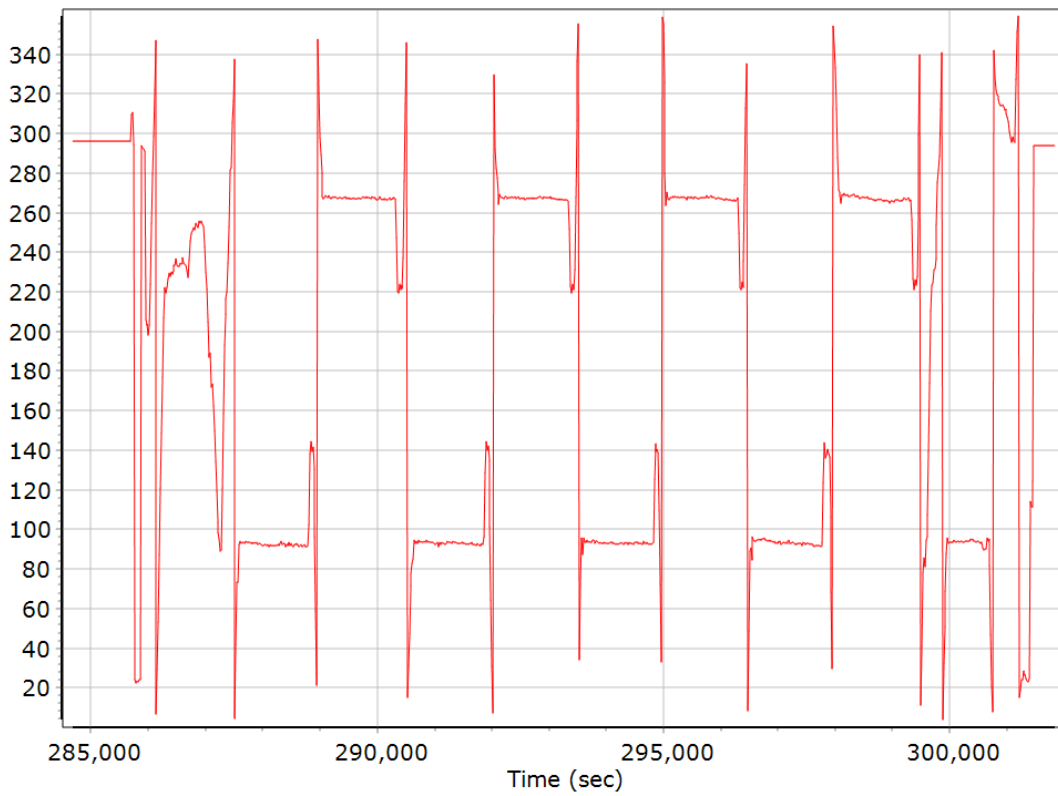
### Altitude



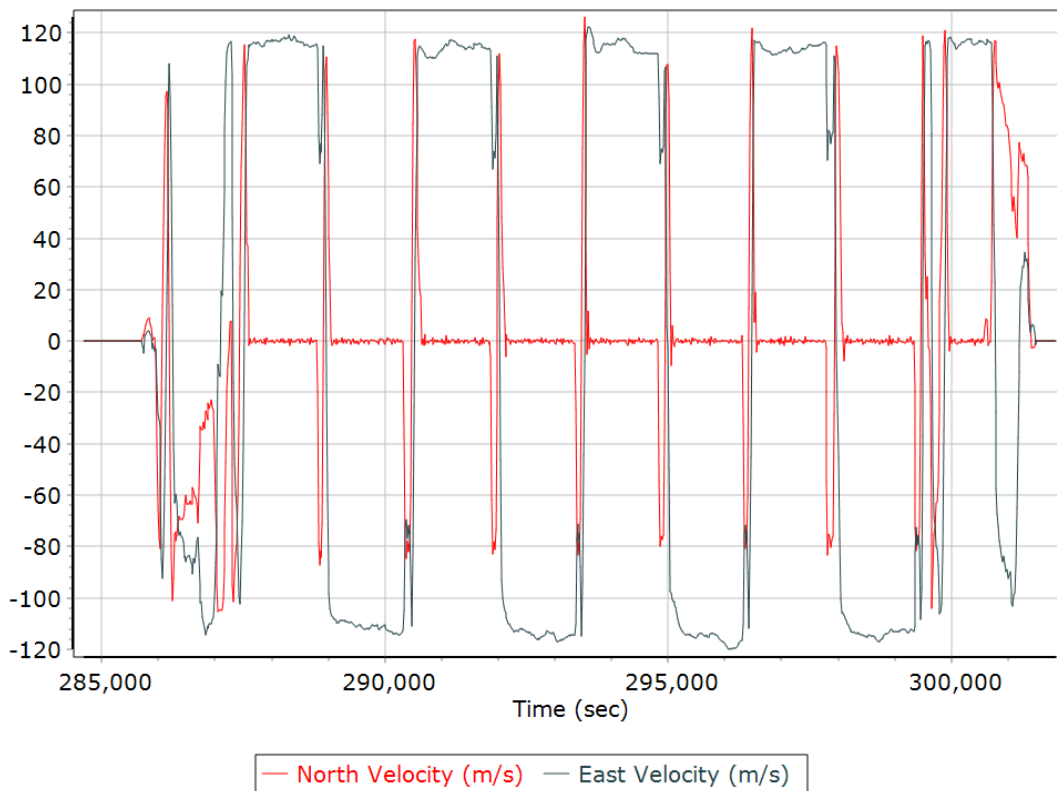
## Roll/Pitch



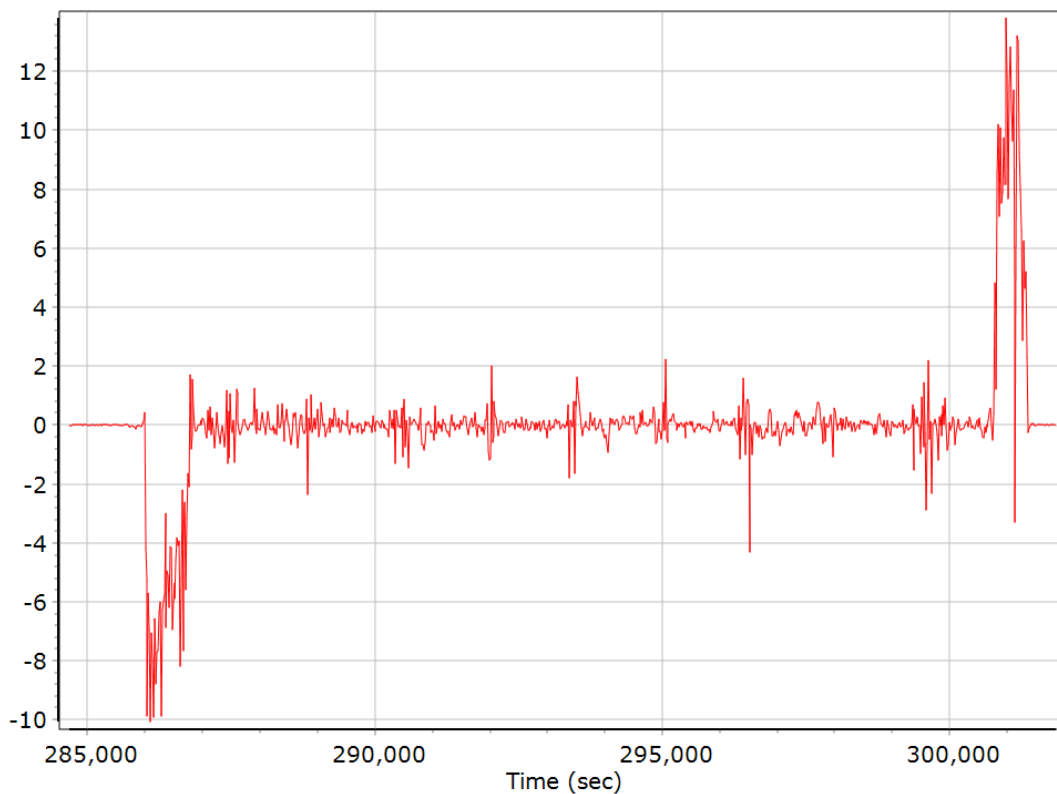
## Heading



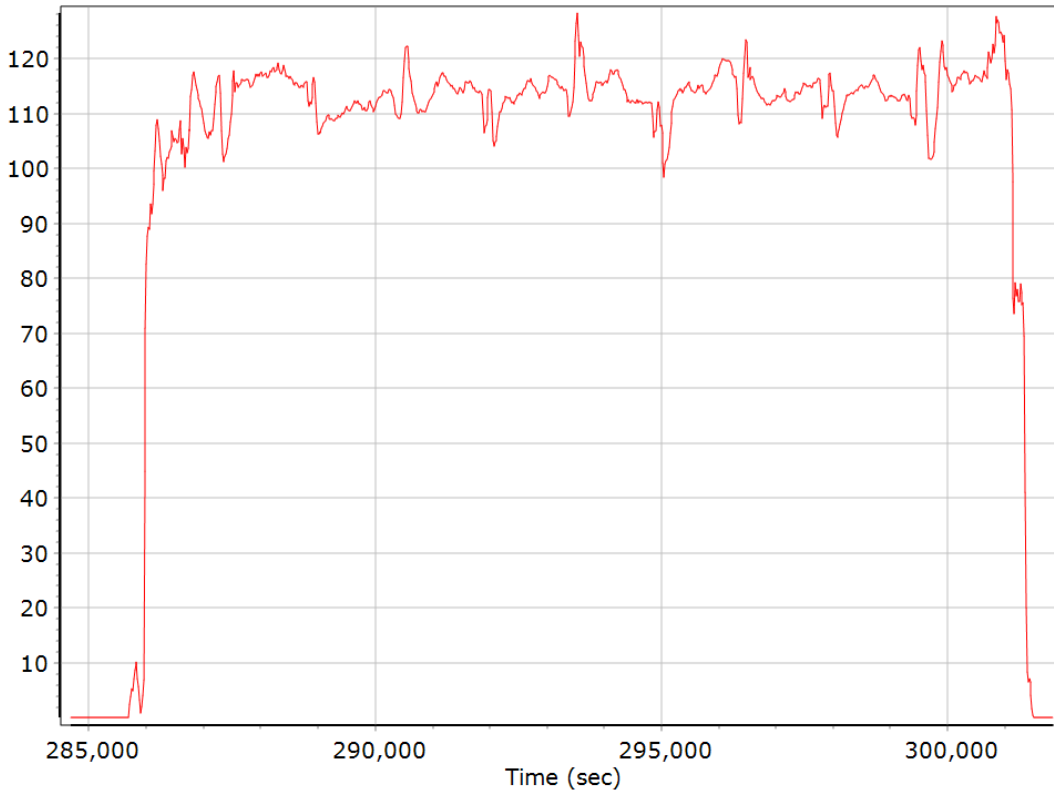
### North/East Velocity



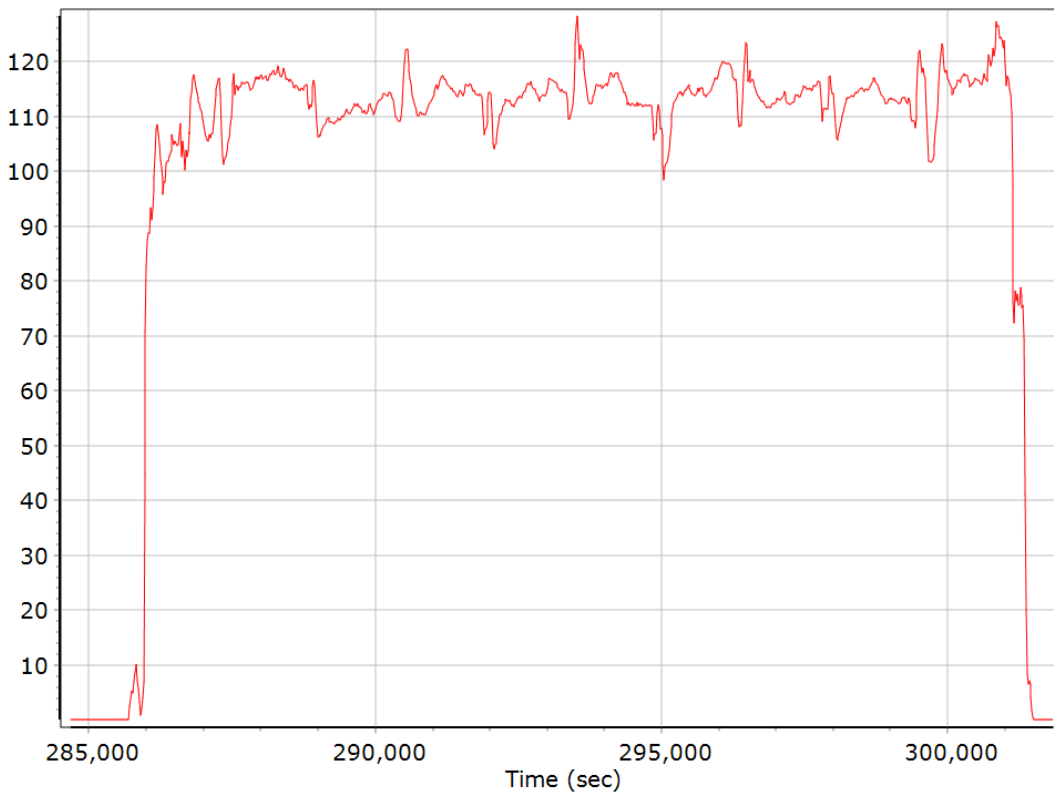
### Down Velocity



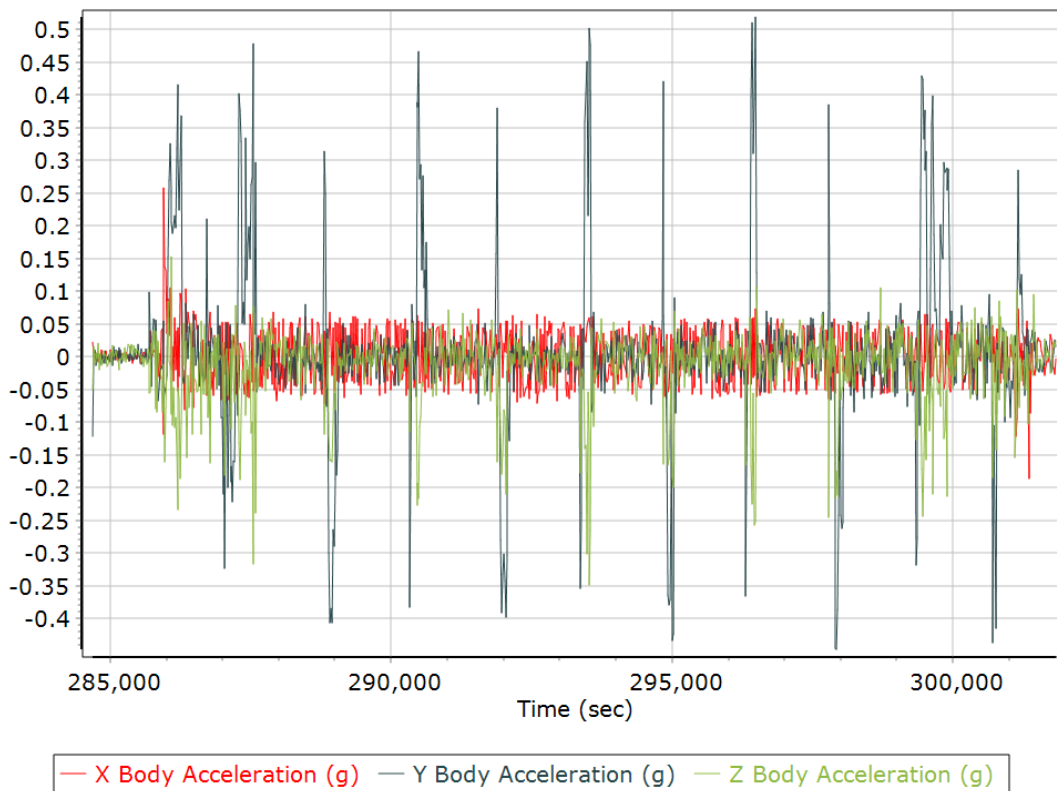
## Total Speed



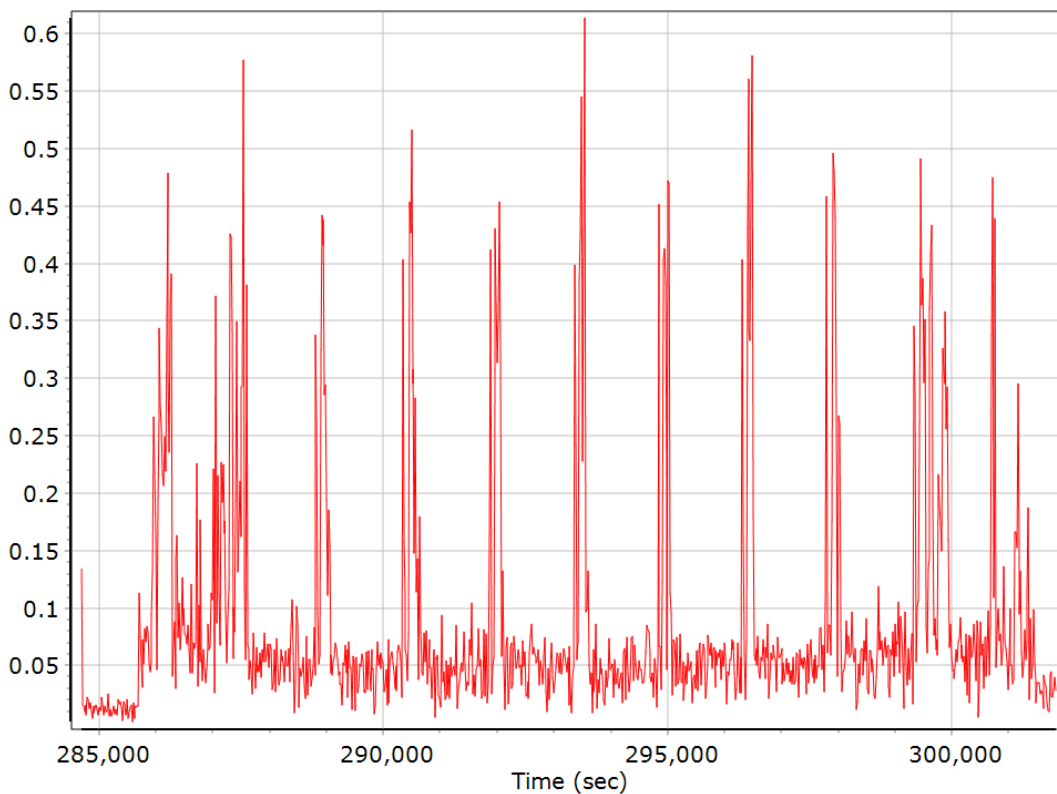
## Ground Speed



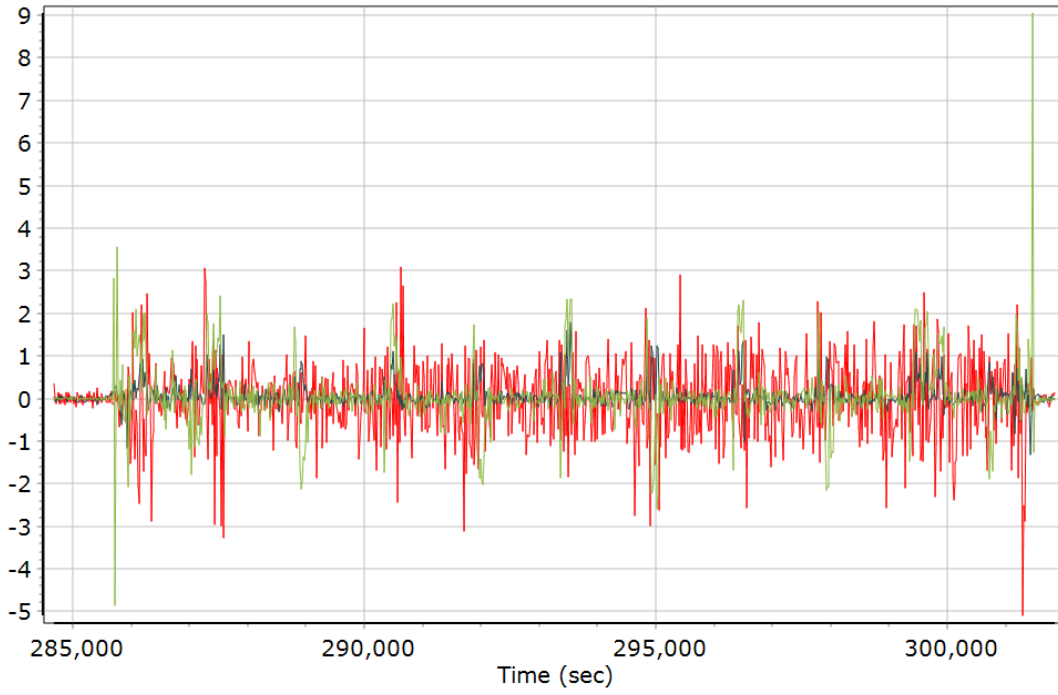
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate

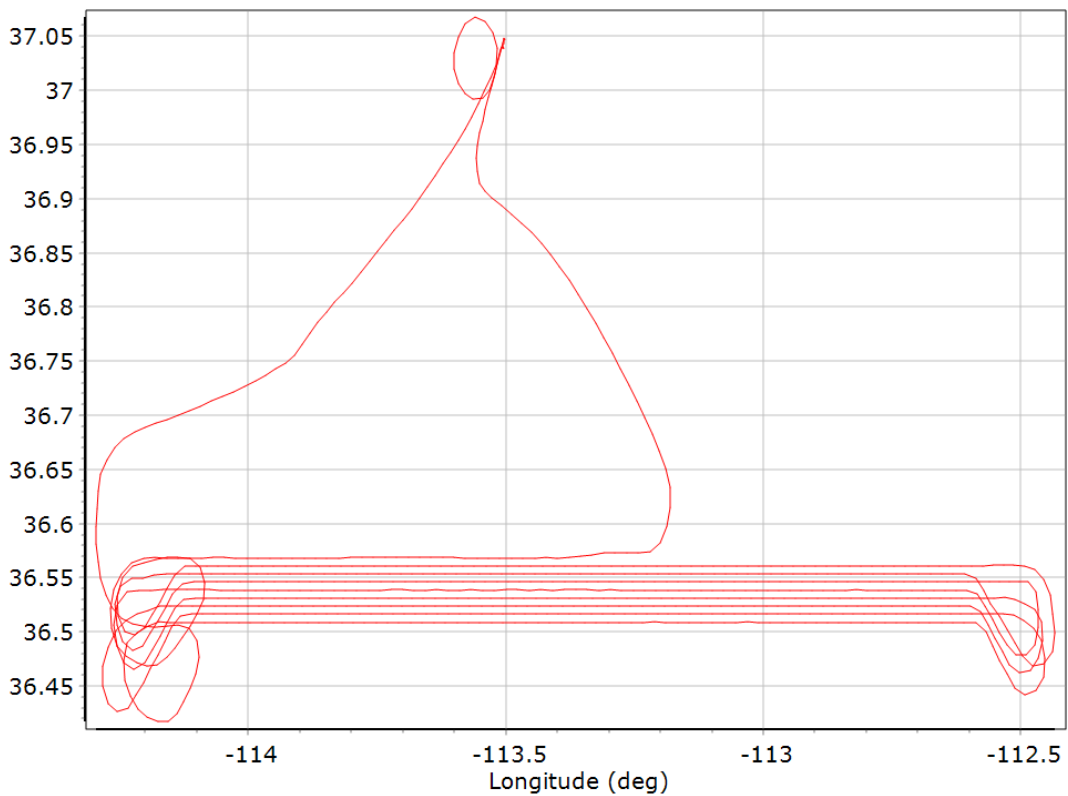


— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

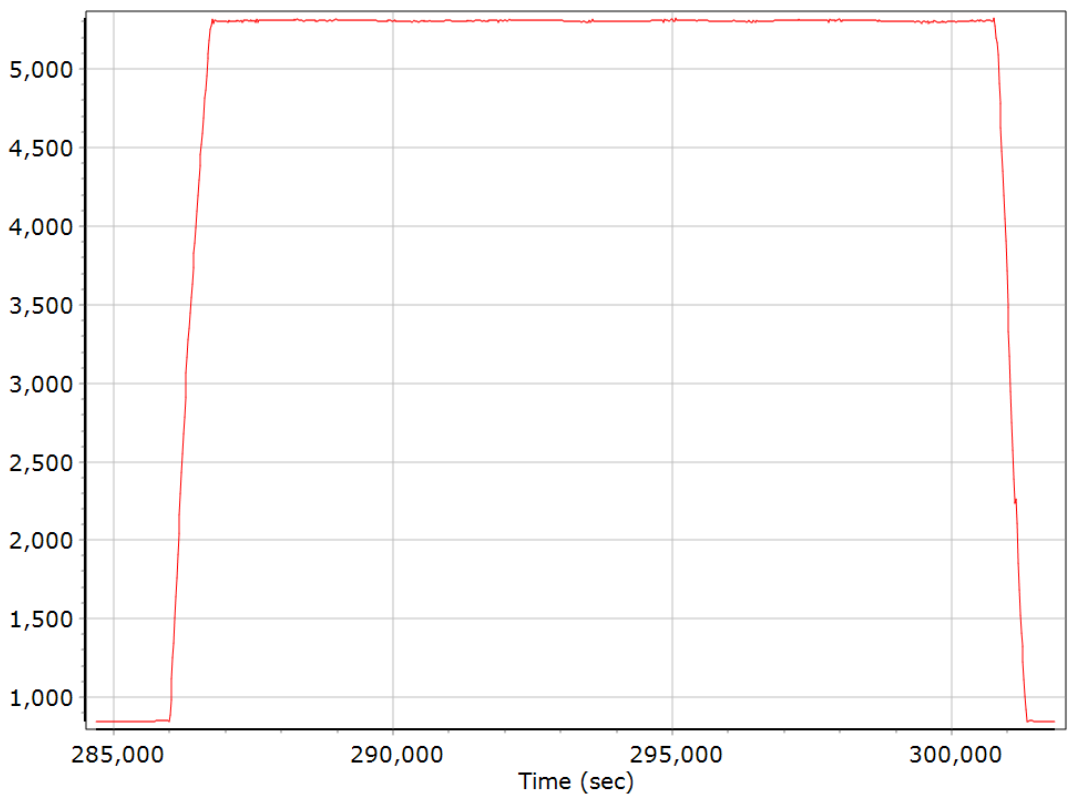


## Forward Processed Trajectory Information

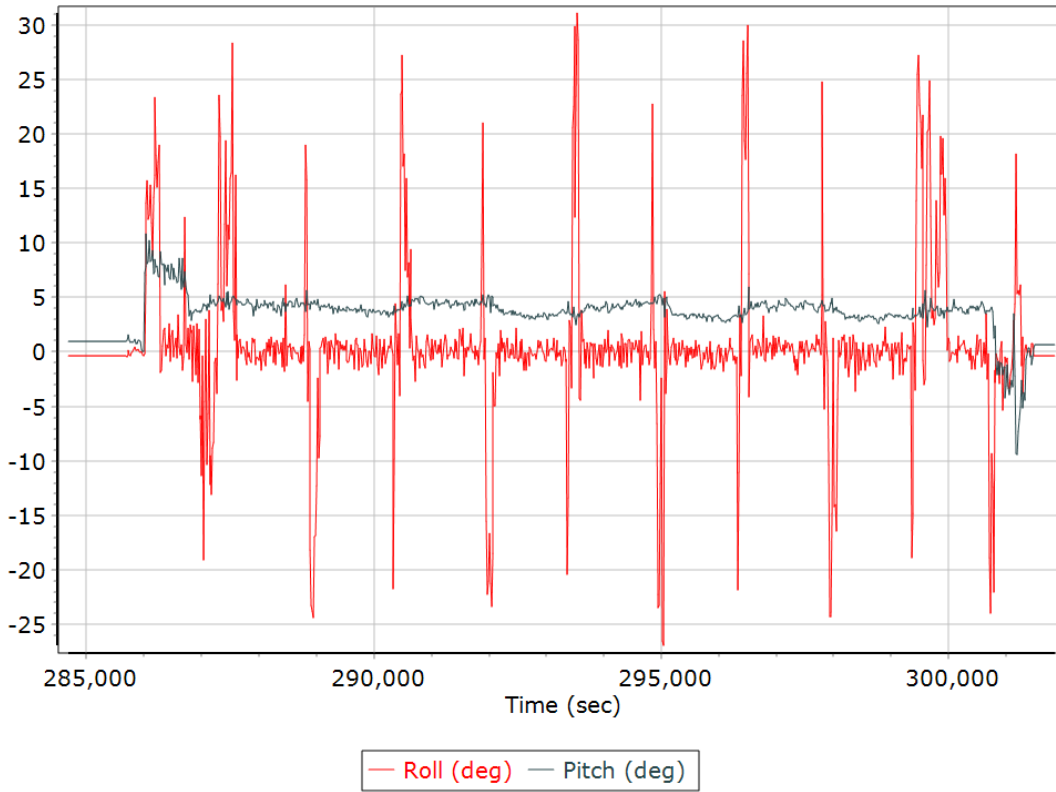
### Top View



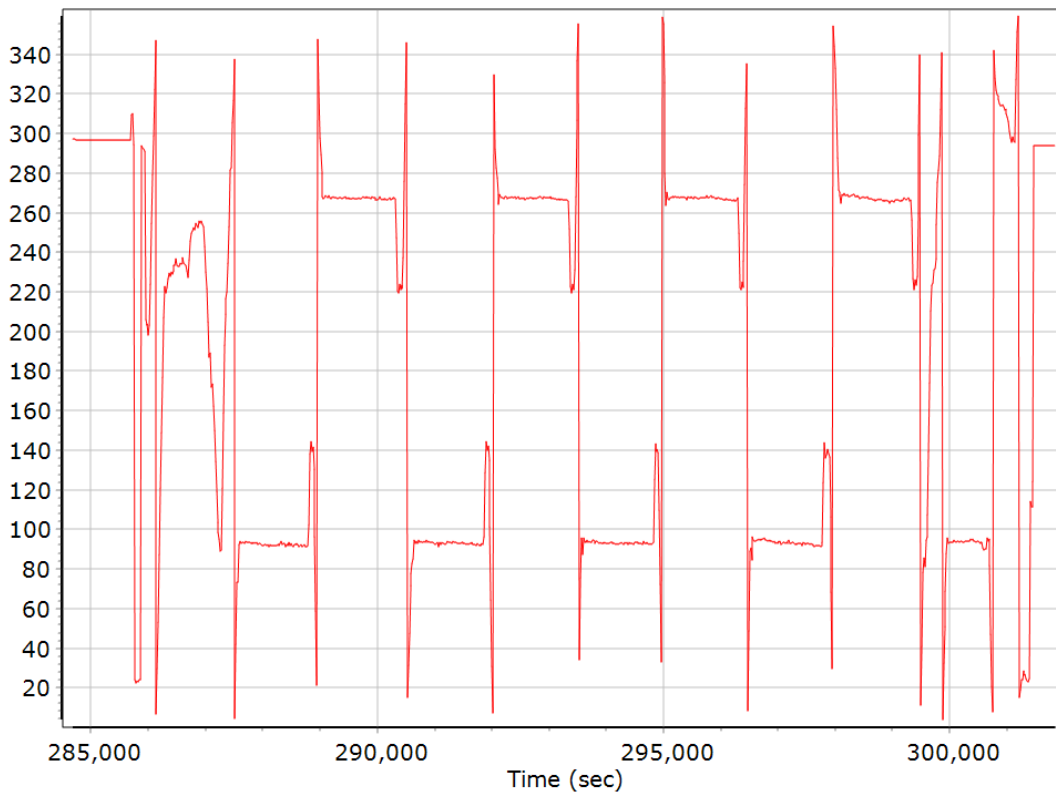
### Altitude



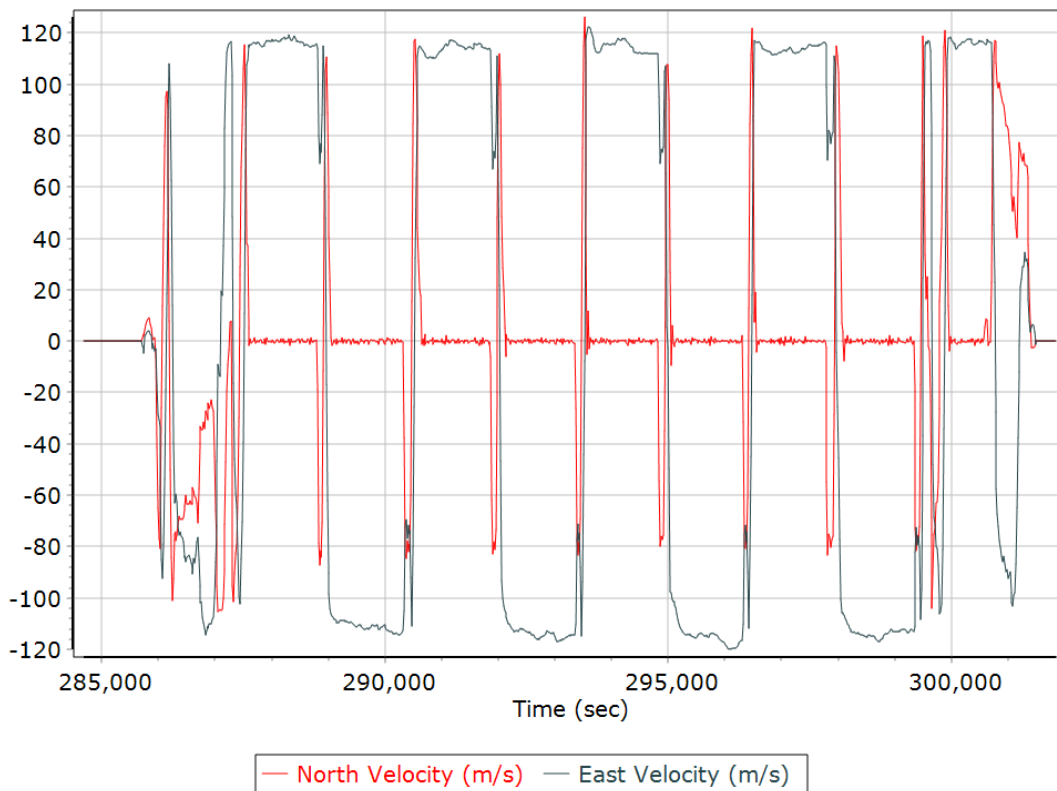
## Roll/Pitch



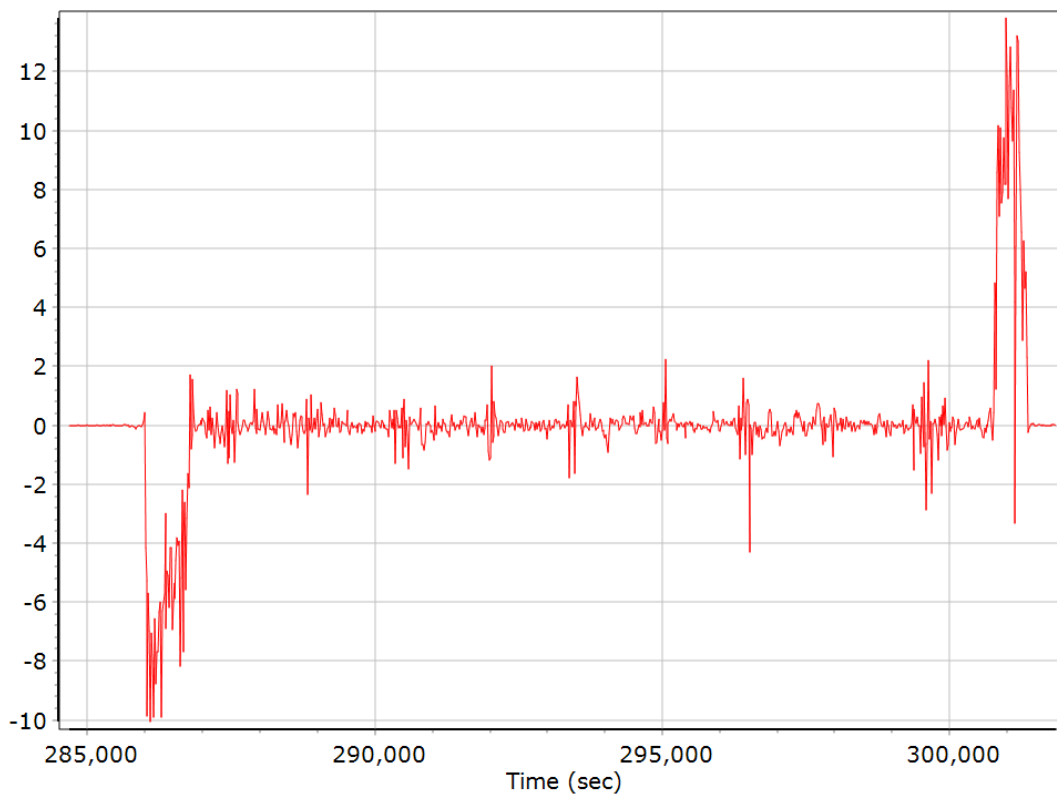
## Heading



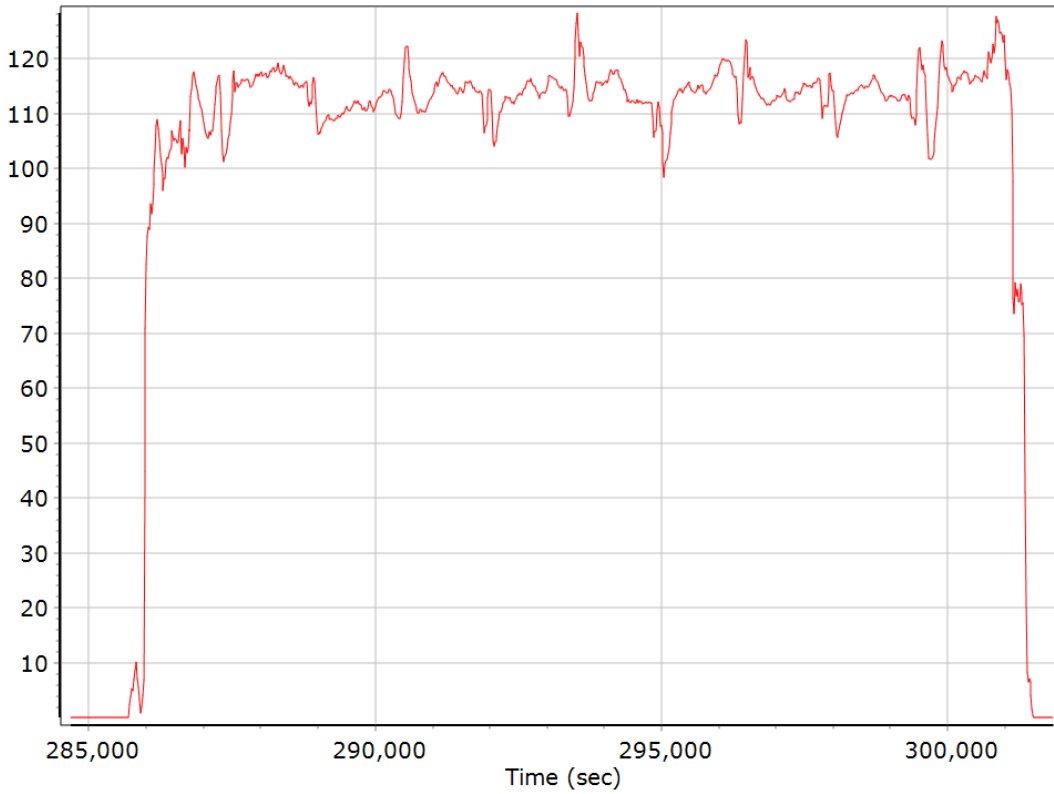
### North/East Velocity



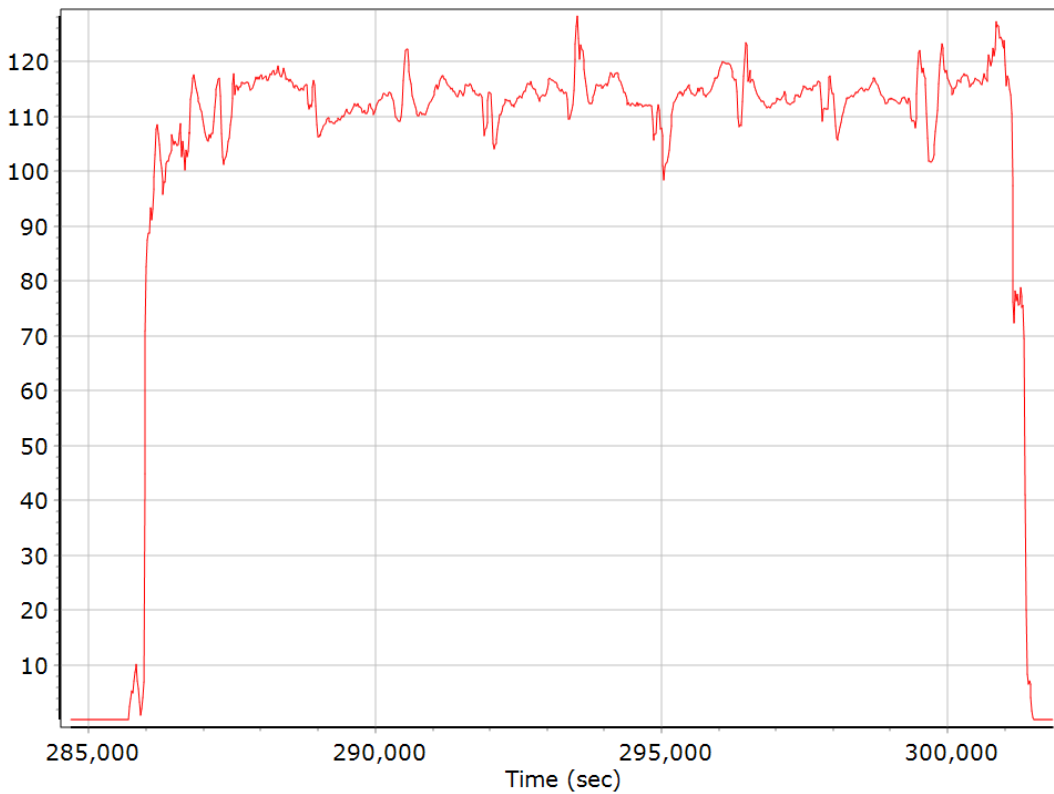
### Down Velocity



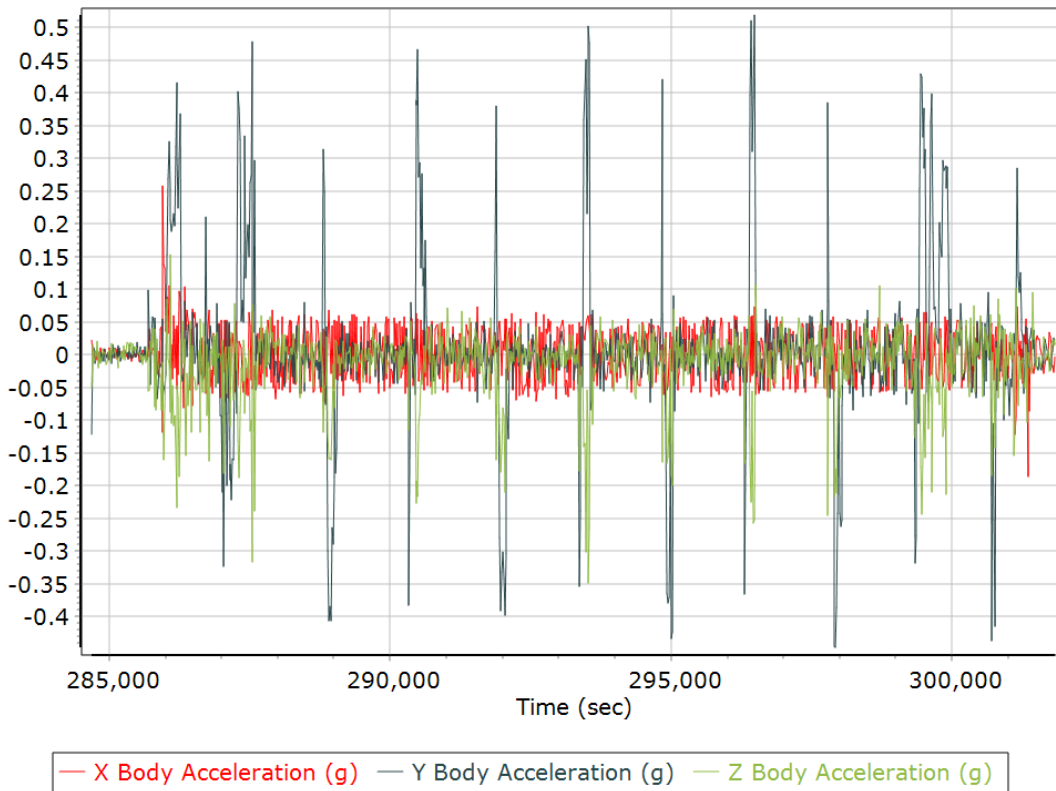
## Total Speed



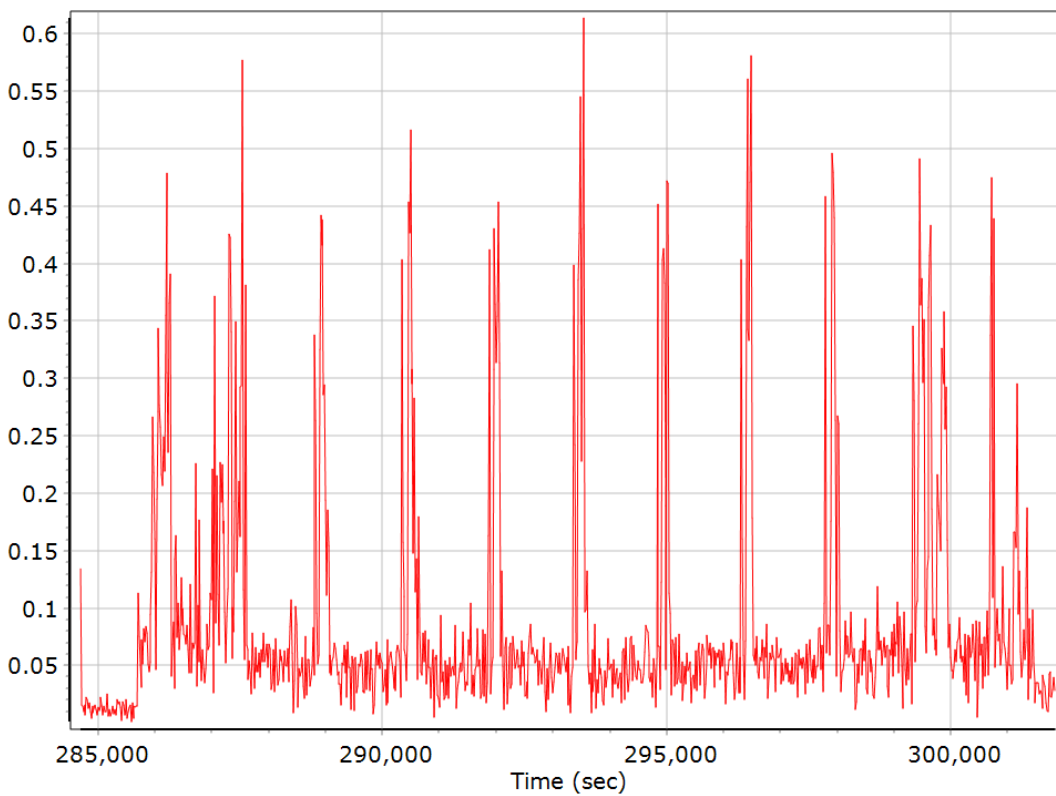
## Ground Speed



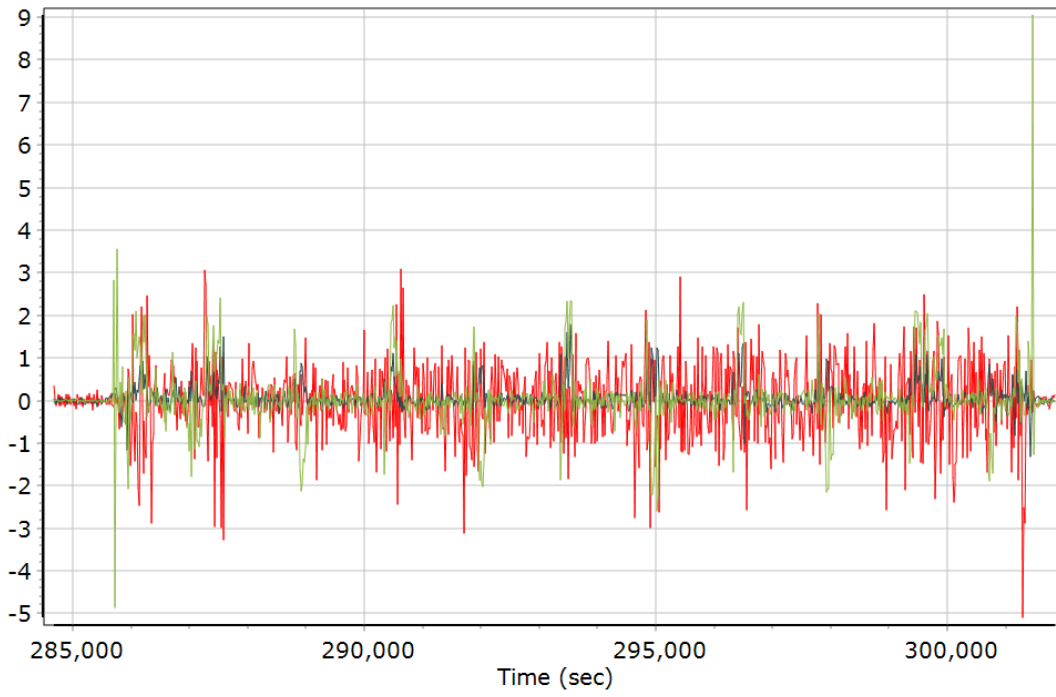
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



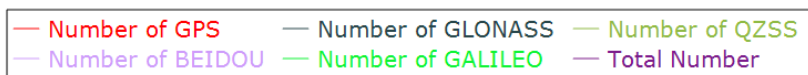
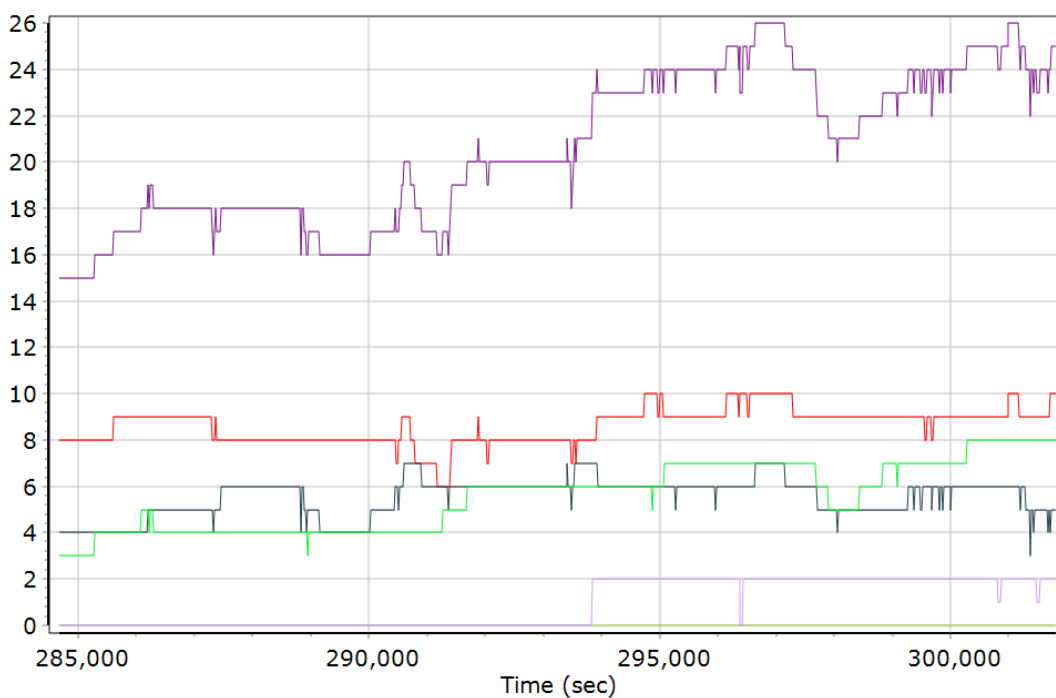
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

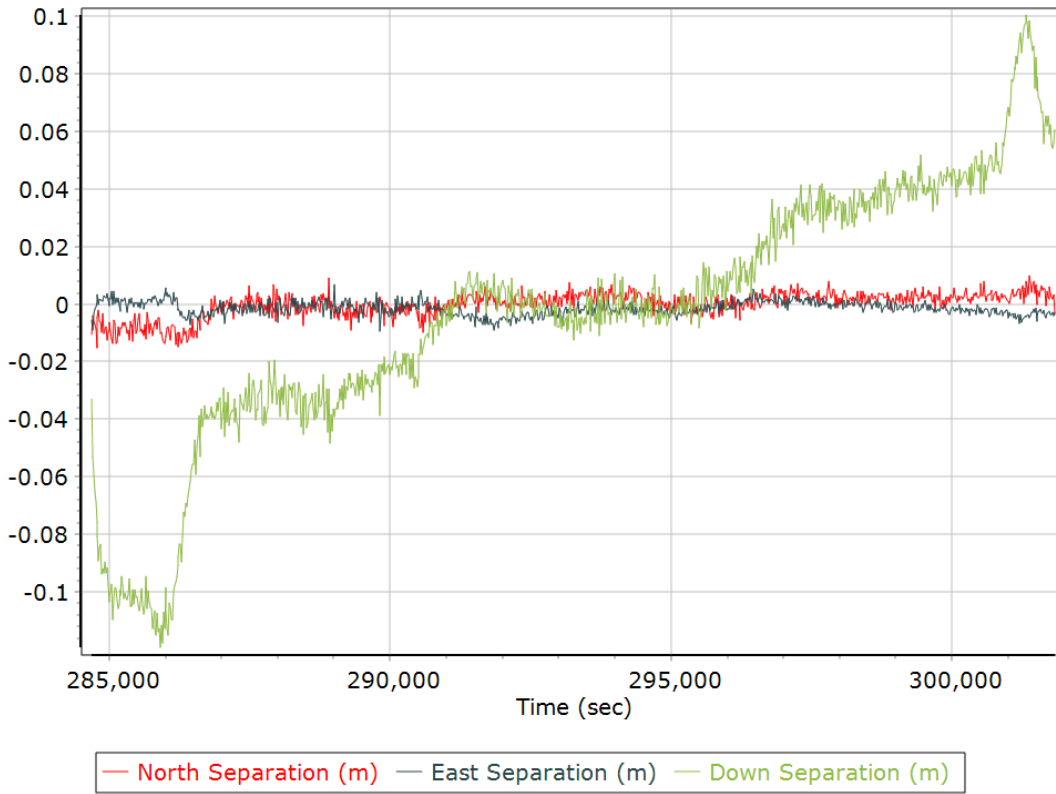
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	10	9
Number of GLONASS SV	0	7	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	2	1
Number of GALILEO SV	0	8	5
Total number of SV	12	26	20
PDOP	0.94	1.52	1.19
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	17573.00	0.00	0.00
Percentage	100.00	0.00	0.00

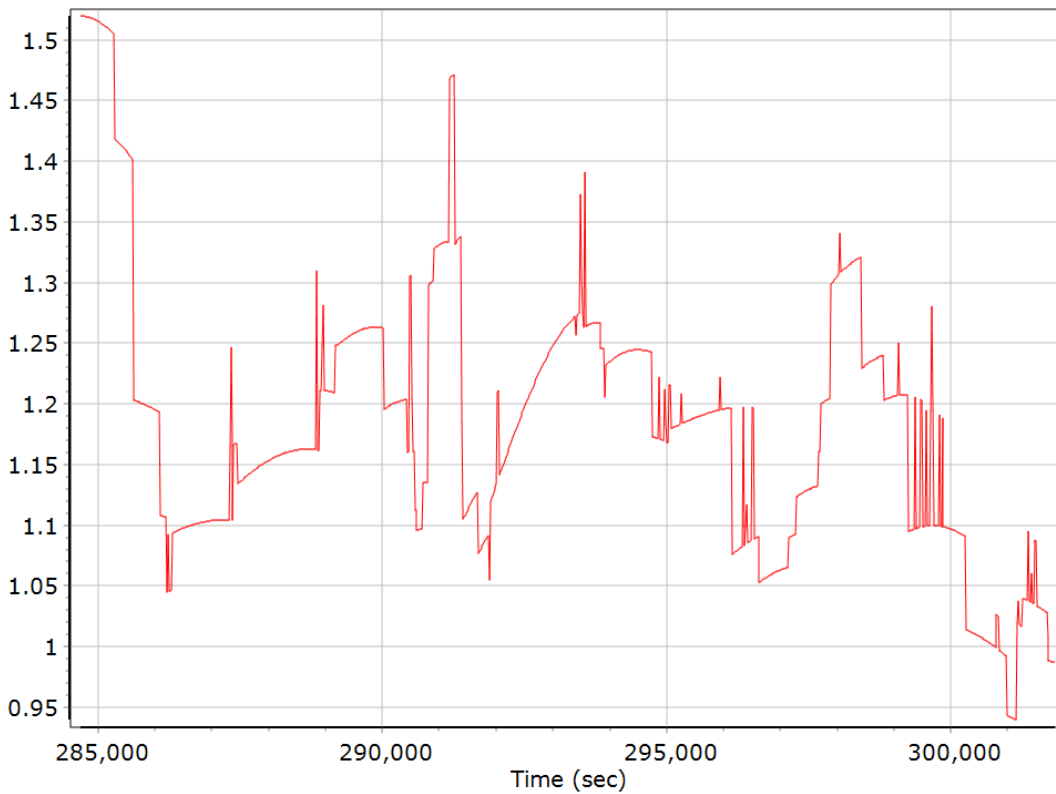
### Num SVs in solution



### Forward/Reverse Separation

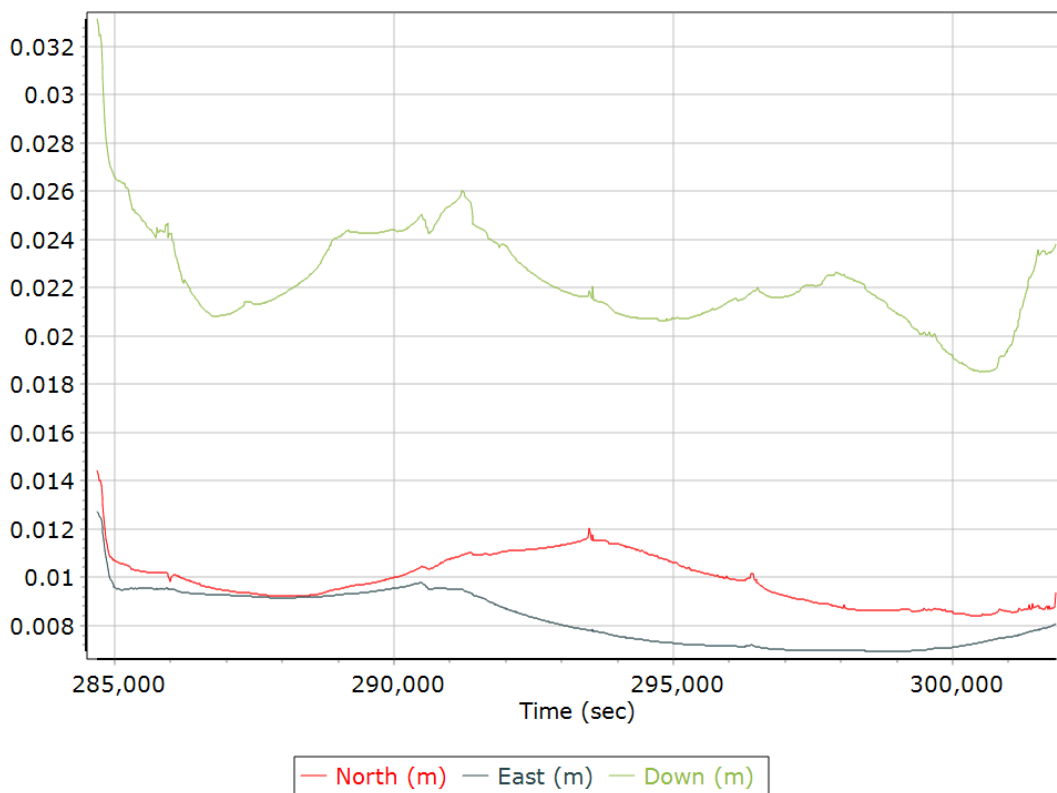


### PDOP

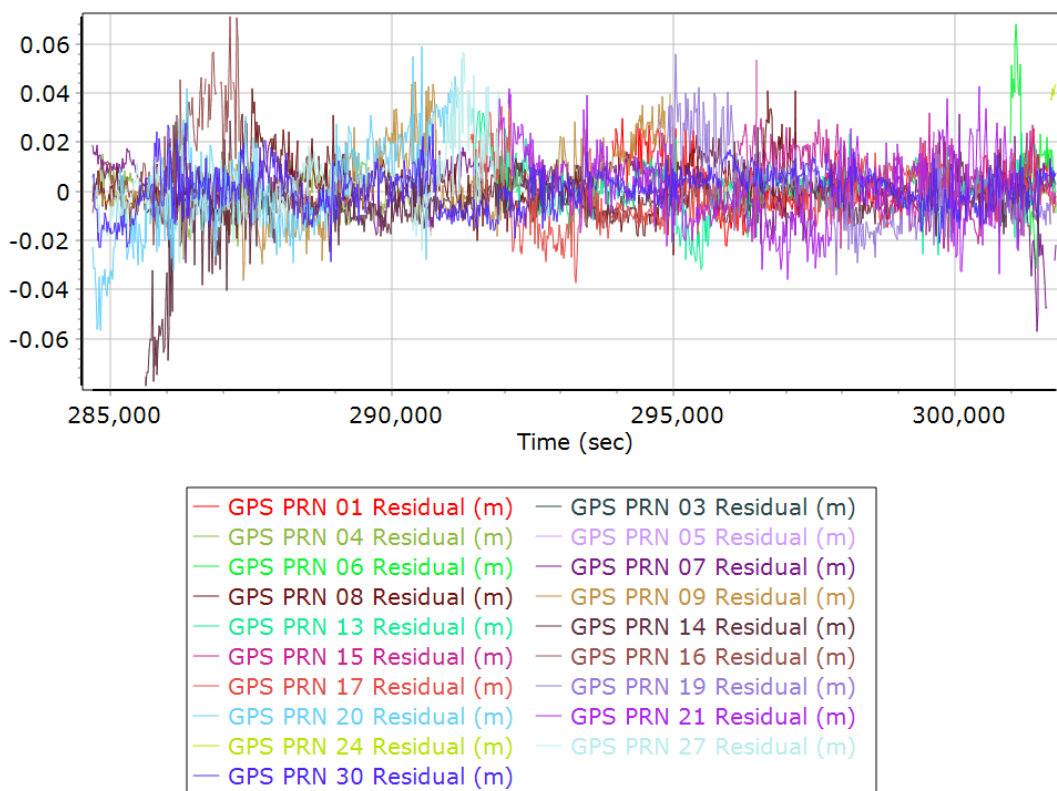




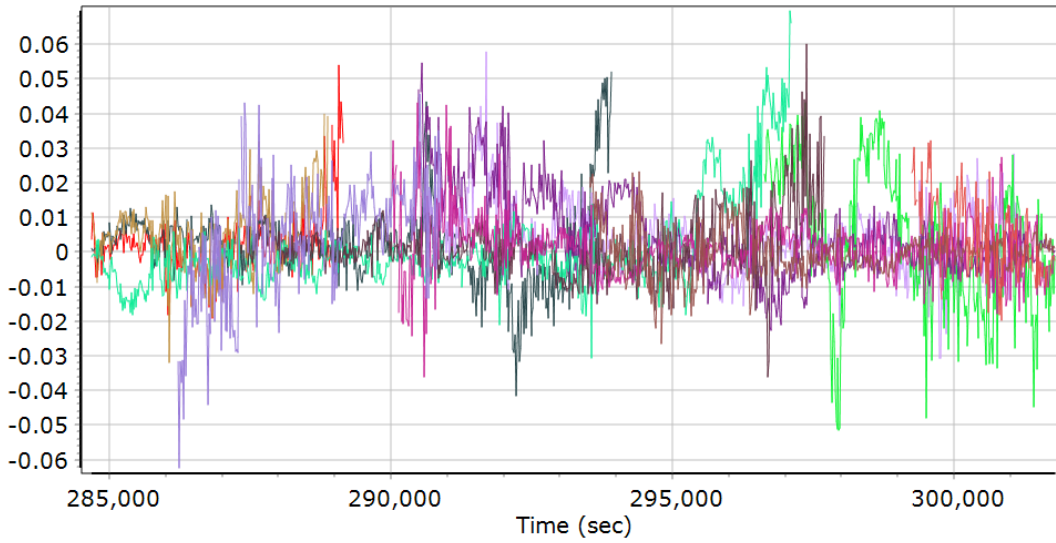
### Estimated Position Accuracy



### GPS Residuals

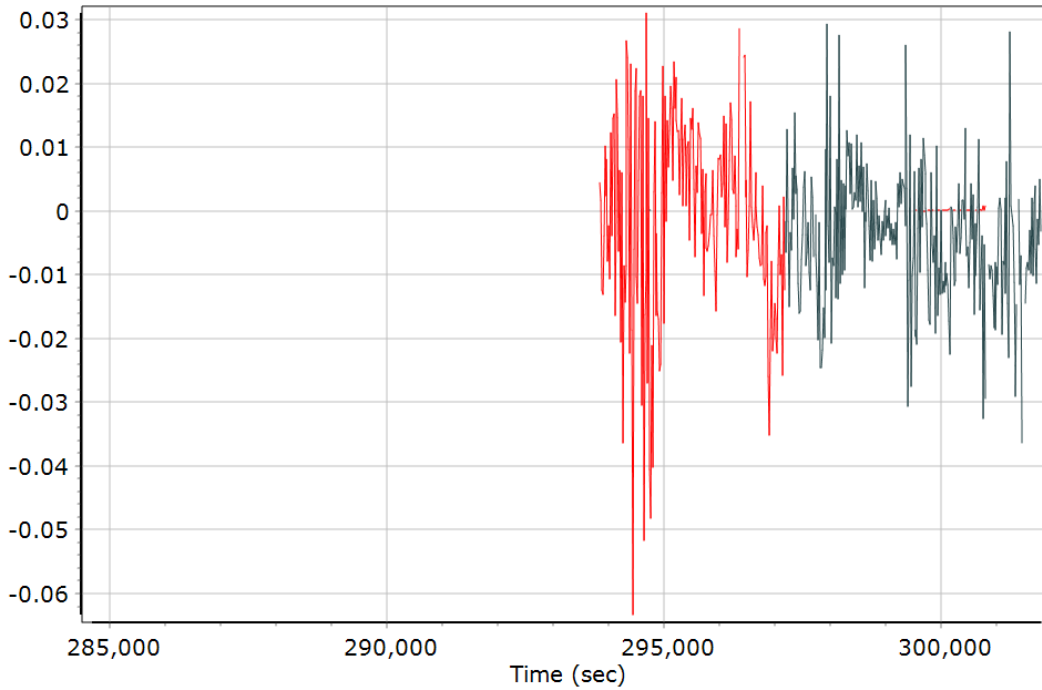


### GLONASS Residuals



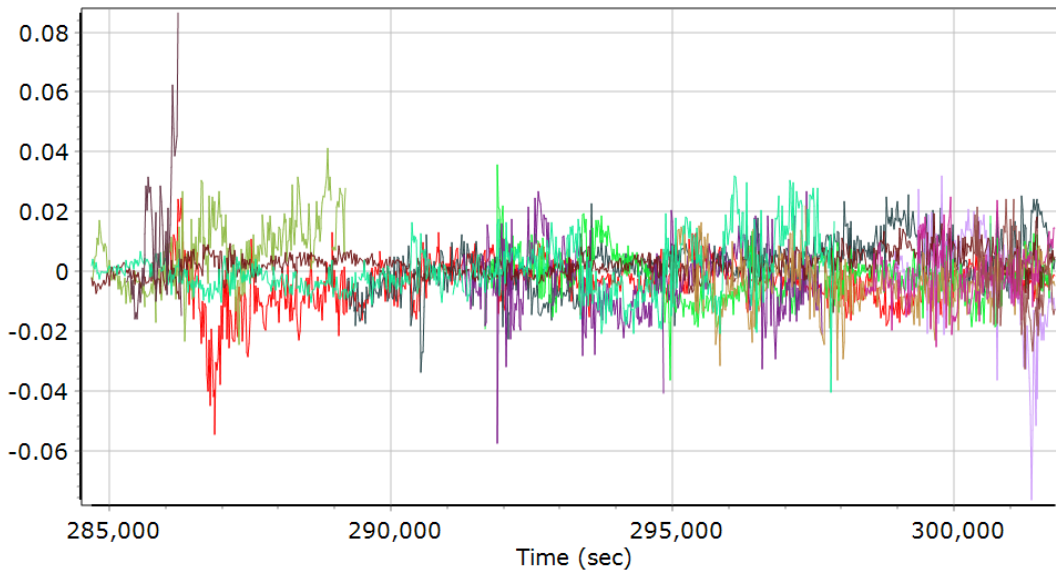
- |                           |                           |
|---------------------------|---------------------------|
| — GLONASS 04 Residual (m) | — GLONASS 05 Residual (m) |
| — GLONASS 06 Residual (m) | — GLONASS 07 Residual (m) |
| — GLONASS 08 Residual (m) | — GLONASS 09 Residual (m) |
| — GLONASS 10 Residual (m) | — GLONASS 14 Residual (m) |
| — GLONASS 15 Residual (m) | — GLONASS 17 Residual (m) |
| — GLONASS 18 Residual (m) | — GLONASS 19 Residual (m) |
| — GLONASS 20 Residual (m) | — GLONASS 24 Residual (m) |

### BEIDOU Residuals



- |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|
| — BEIDOU 11 Residual (m) | — BEIDOU 12 Residual (m) | — BEIDOU 23 Residual (m) |
| — BEIDOU 24 Residual (m) | — BEIDOU 25 Residual (m) | — BEIDOU 28 Residual (m) |

## GALILEO Residuals



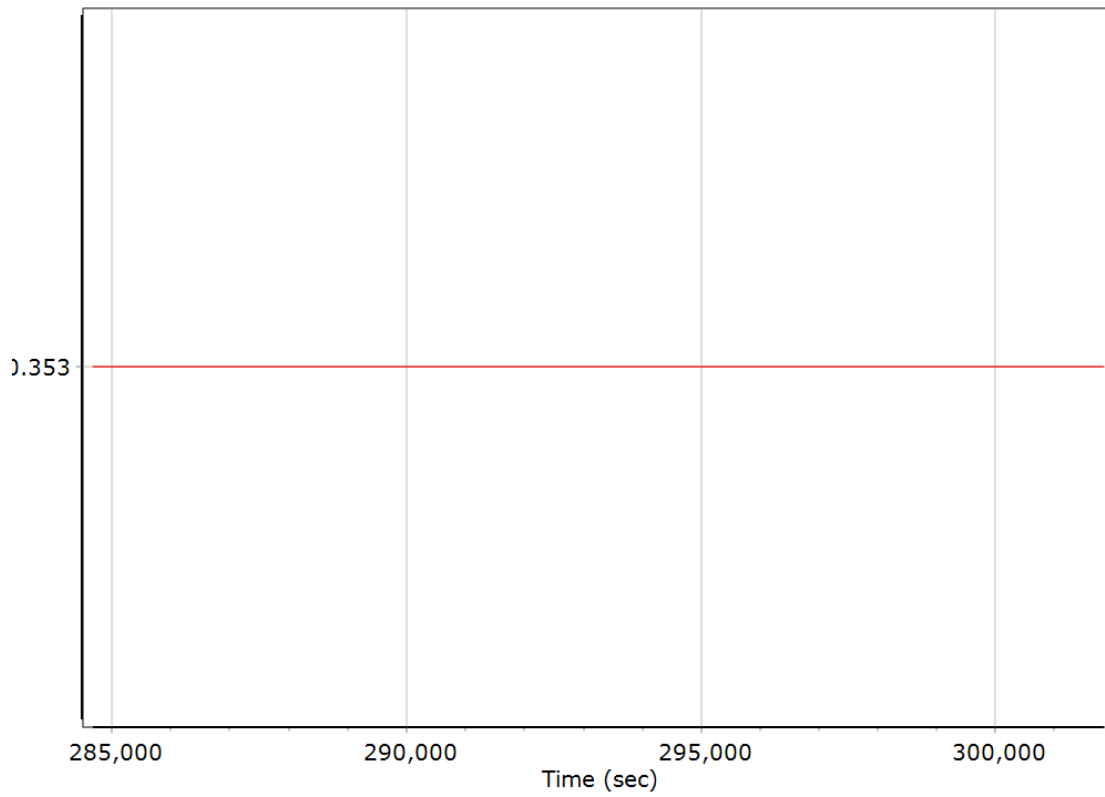
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	284221.000 (7/20/2022 6:57:01 AM)		
Processing end time	301852.000 (7/20/2022 11:50:52 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.300	-1.280
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

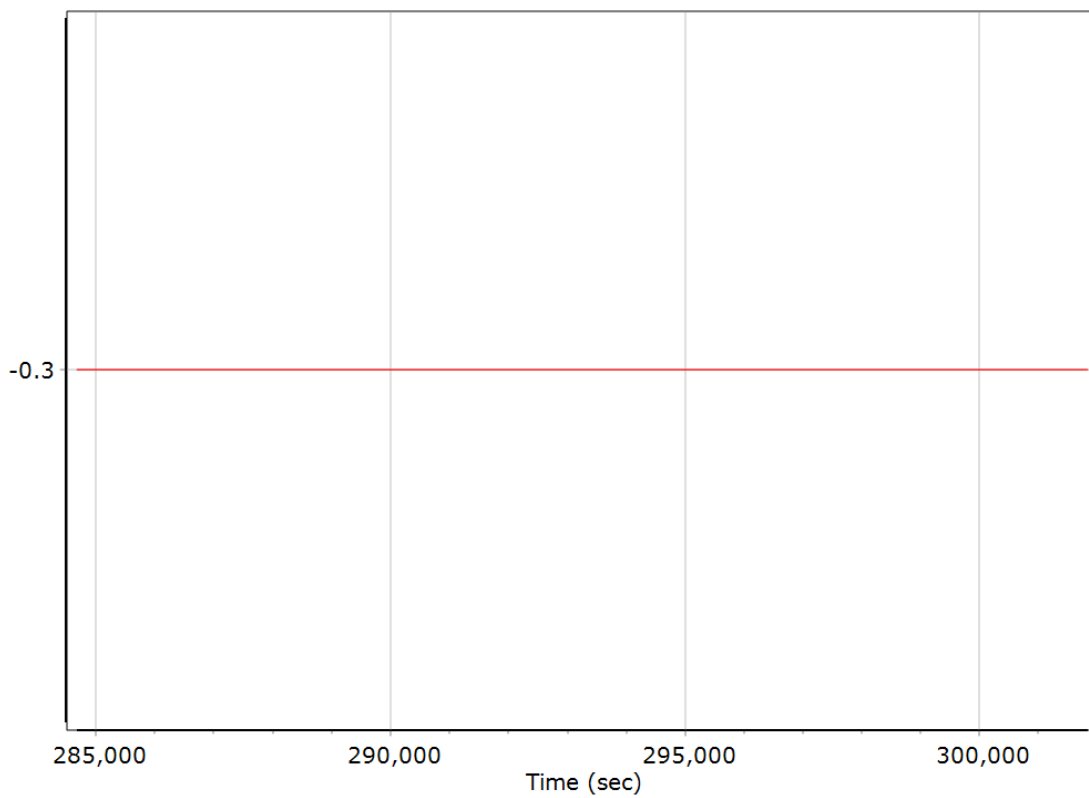
## Calibrated Installation Parameters

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

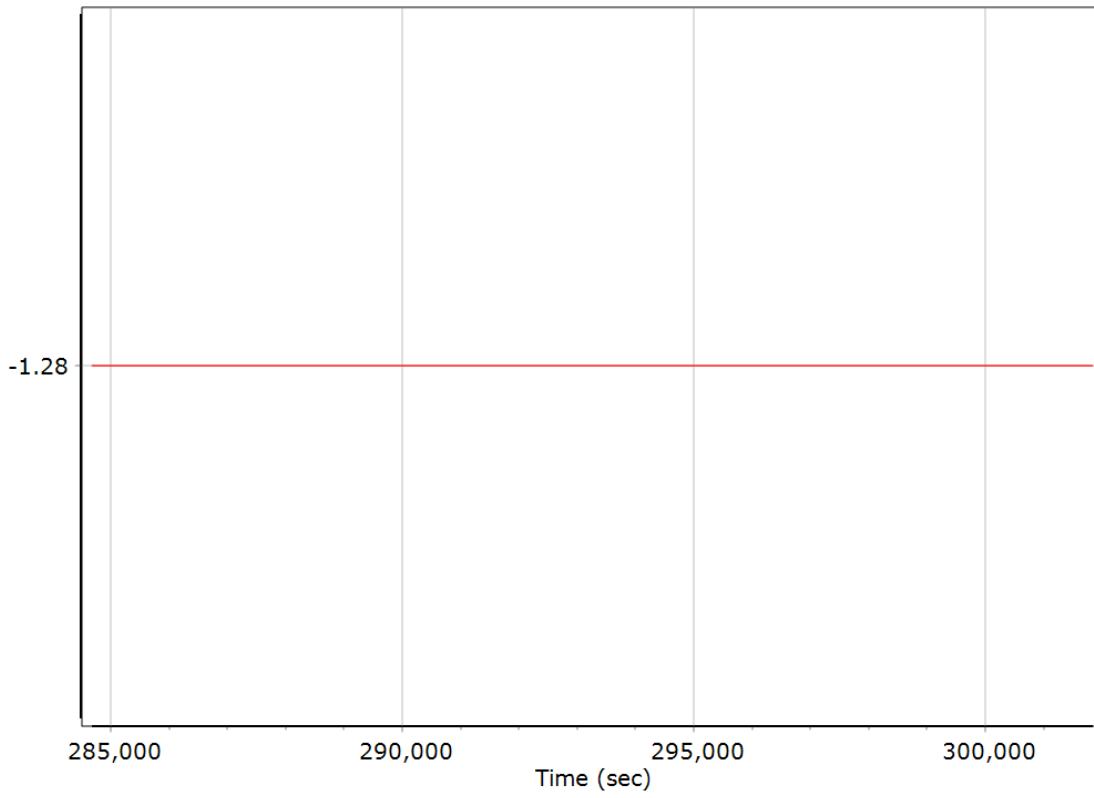
#### X Reference-Primary GNSS Lever Arm (m)



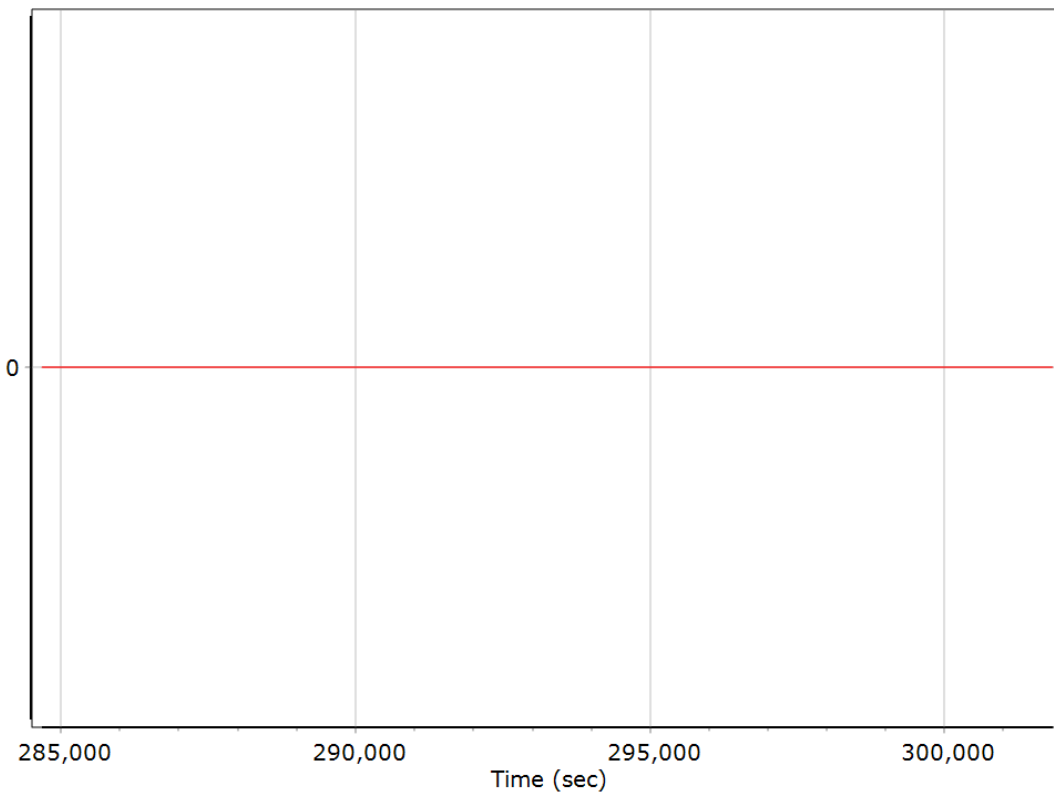
#### Y Reference-Primary GNSS Lever Arm (m)



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



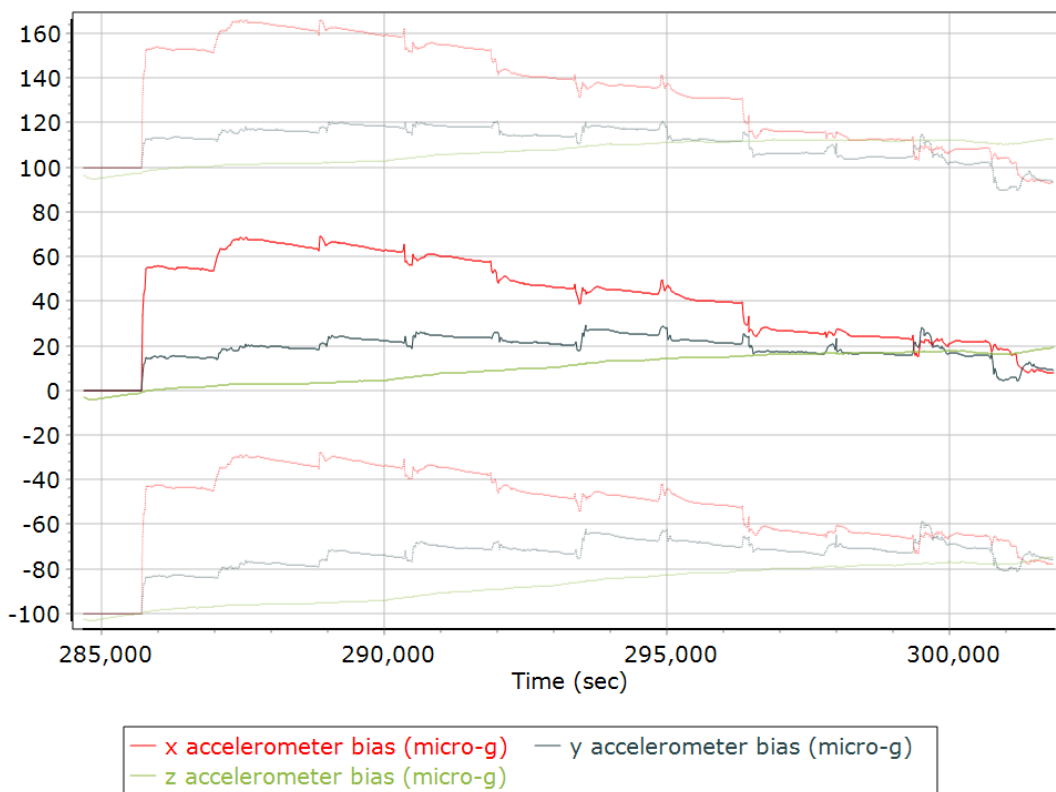
### Reference-Primary GNSS Lever Arm Figure of Merit



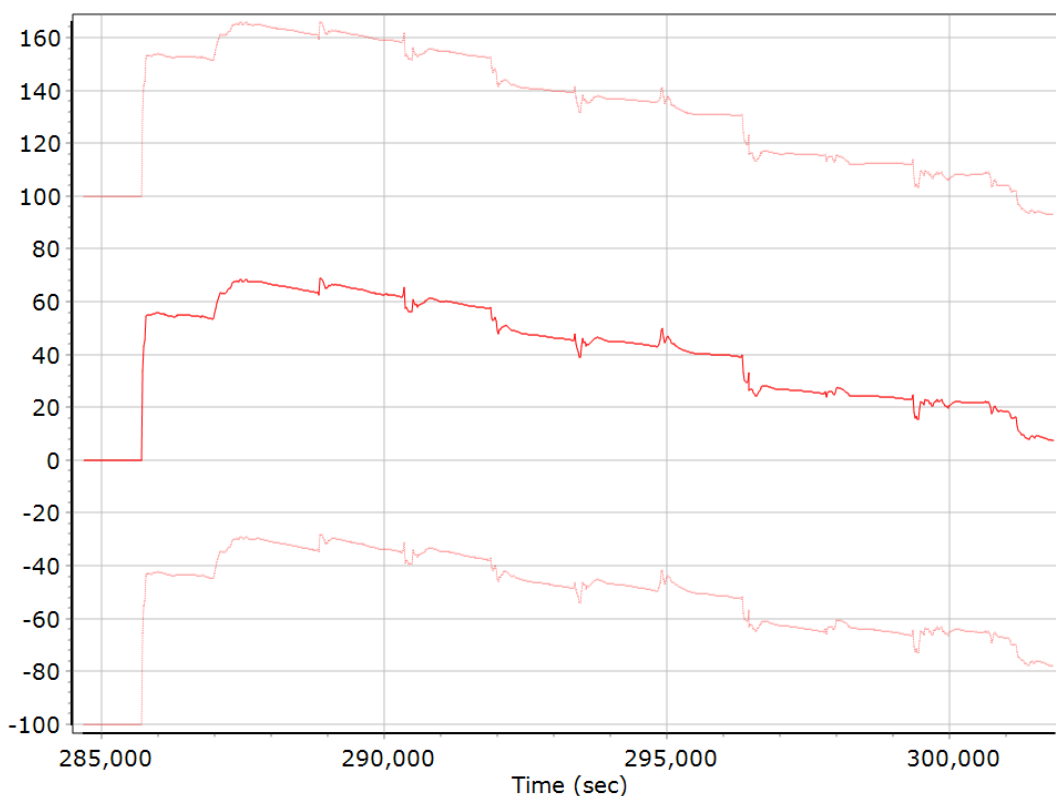
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

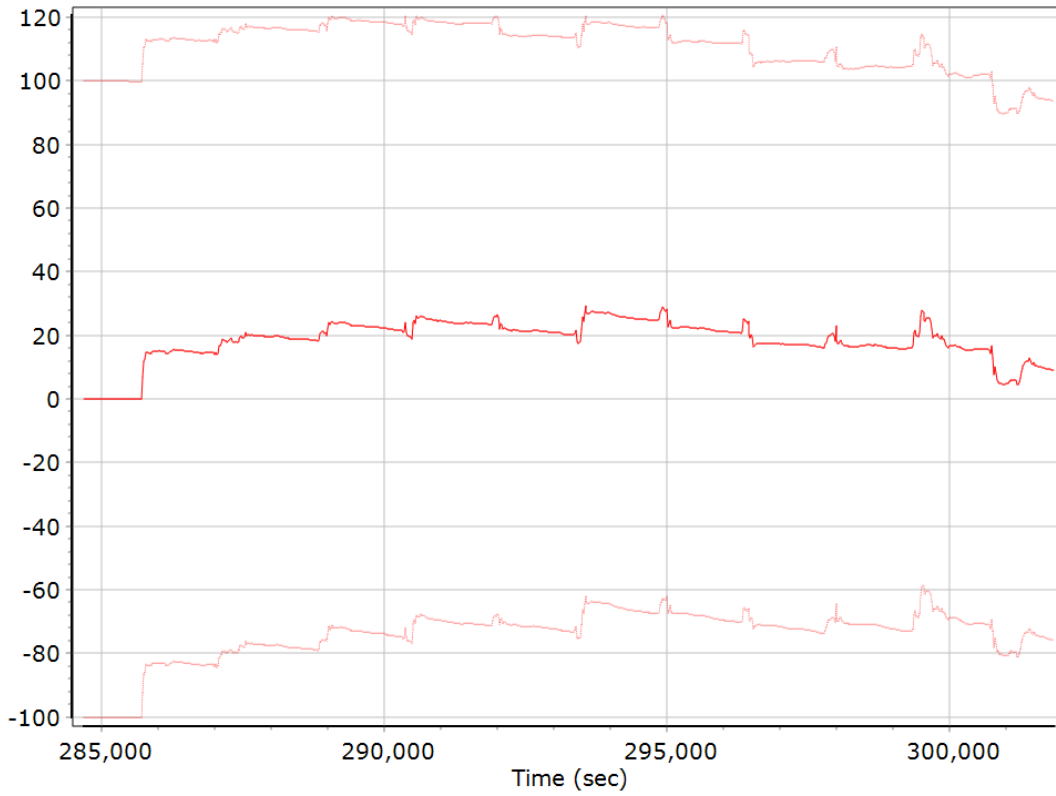
#### Accelerometer Bias (micro-g)



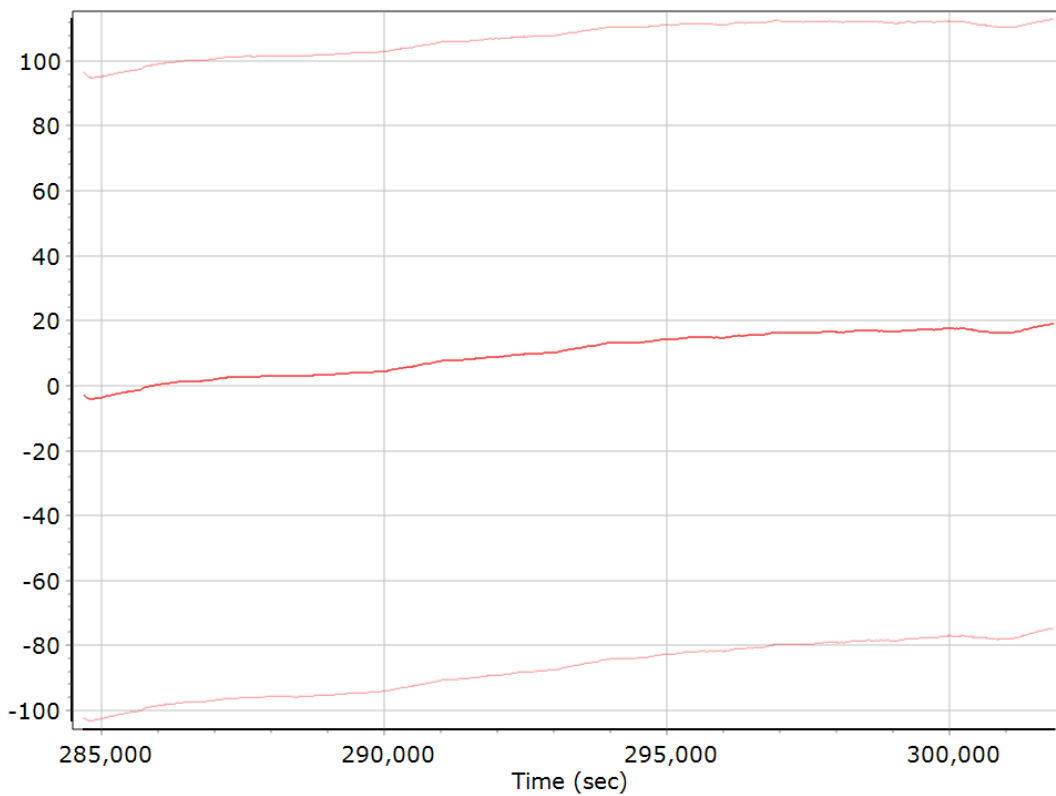
#### X Accelerometer Bias (micro-g)



### Y Accelerometer Bias (micro-g)

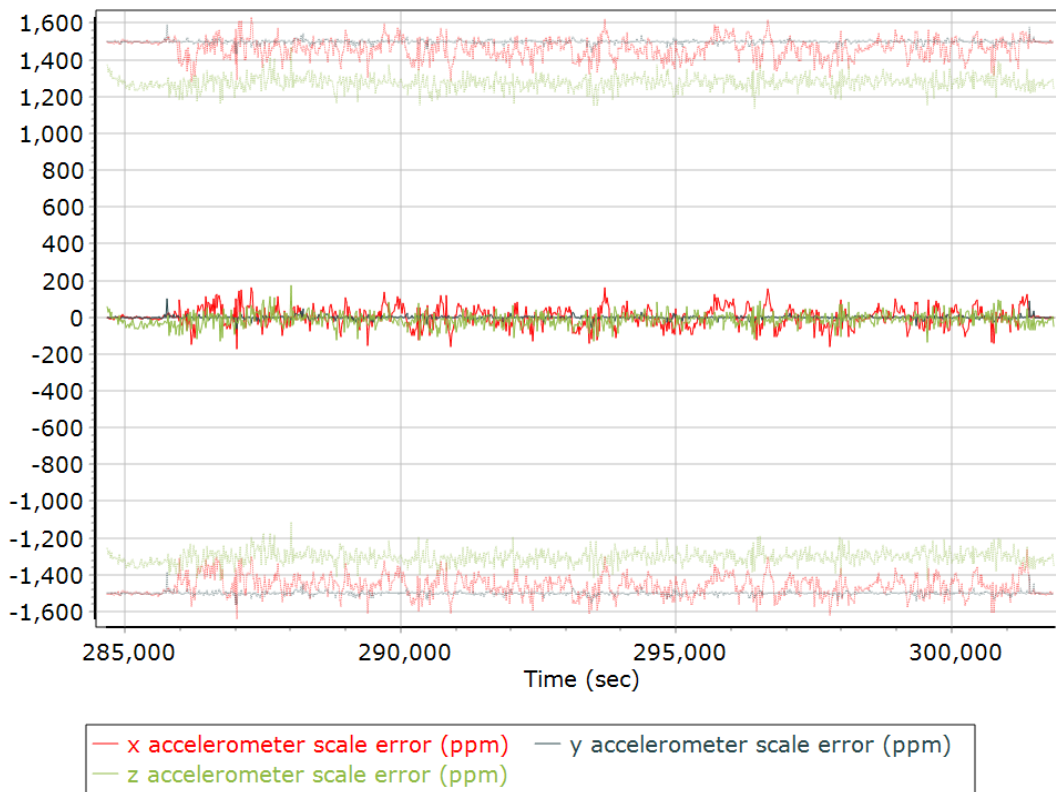


### Z Accelerometer Bias (micro-g)

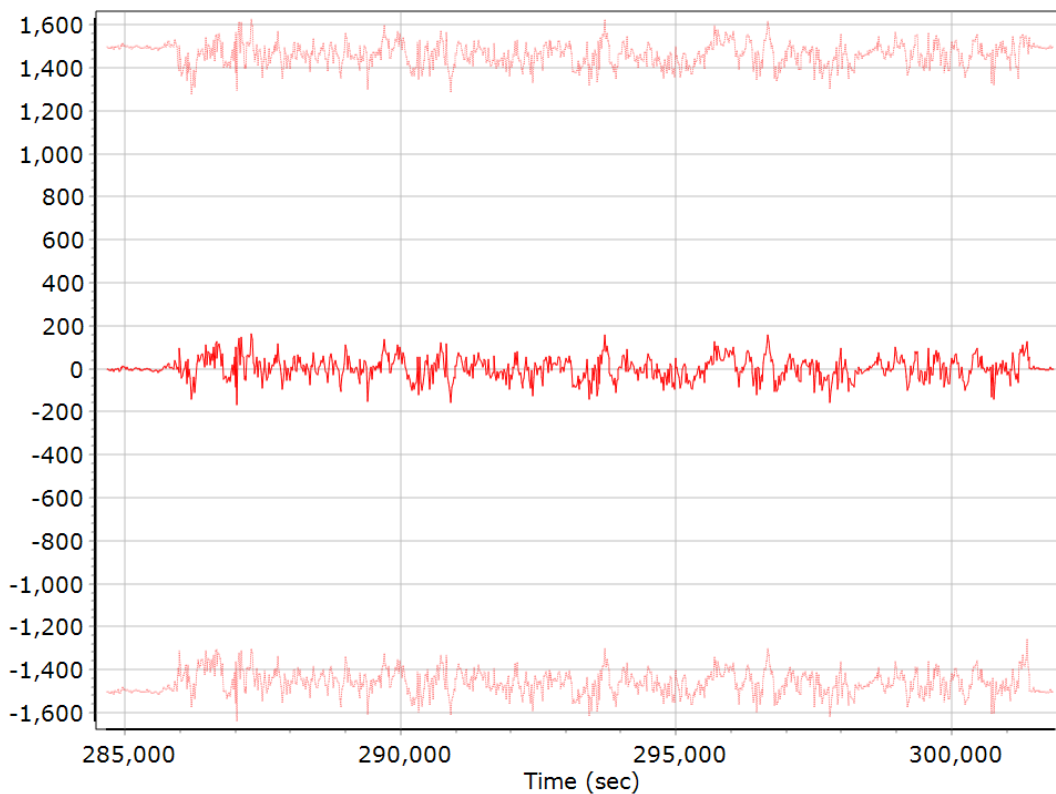




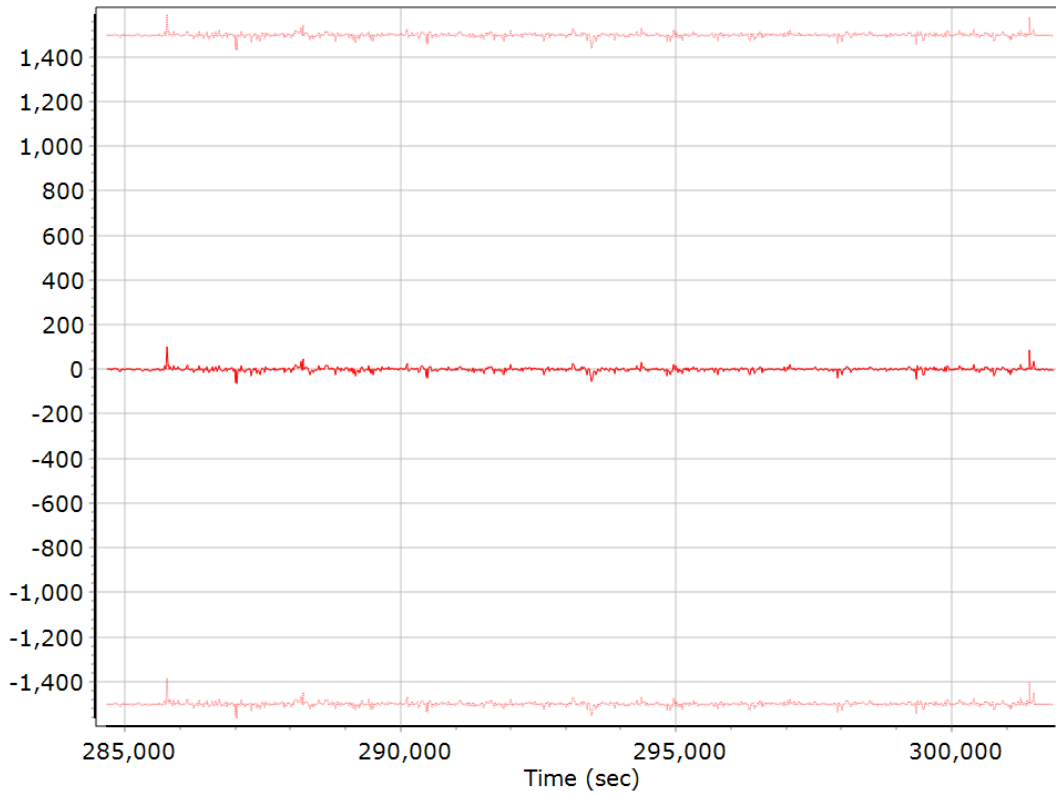
### Accelerometer Scale Error (ppm)



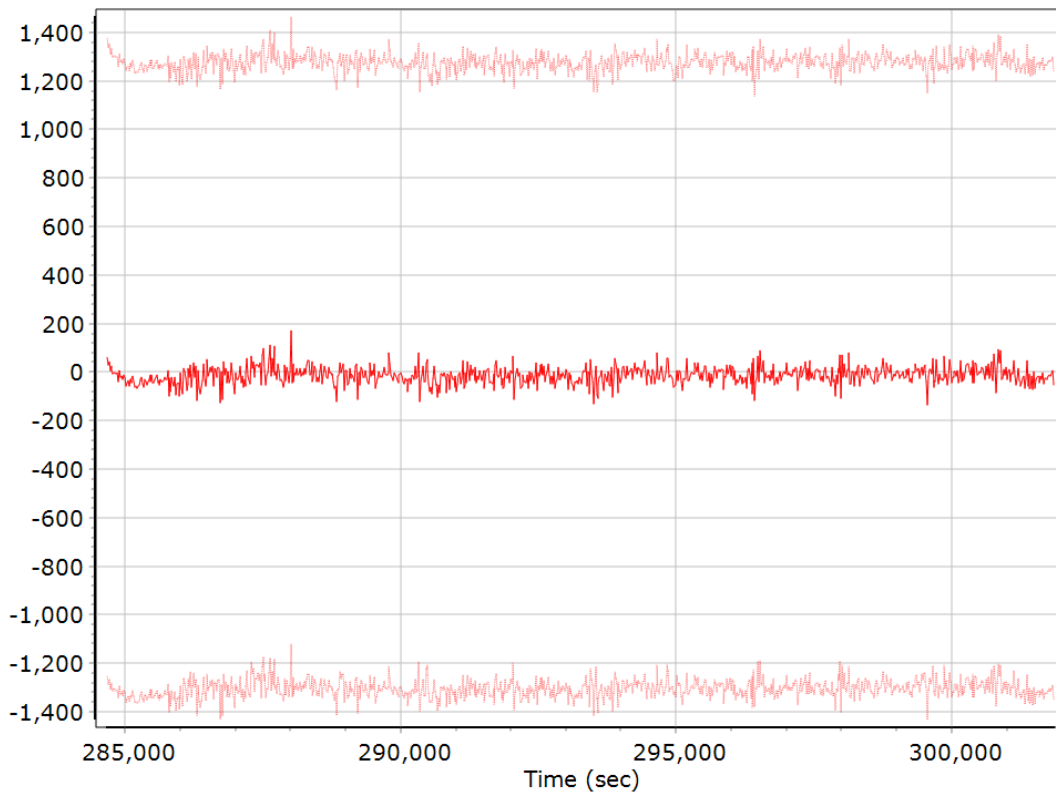
### X Accelerometer Scale Error (ppm)



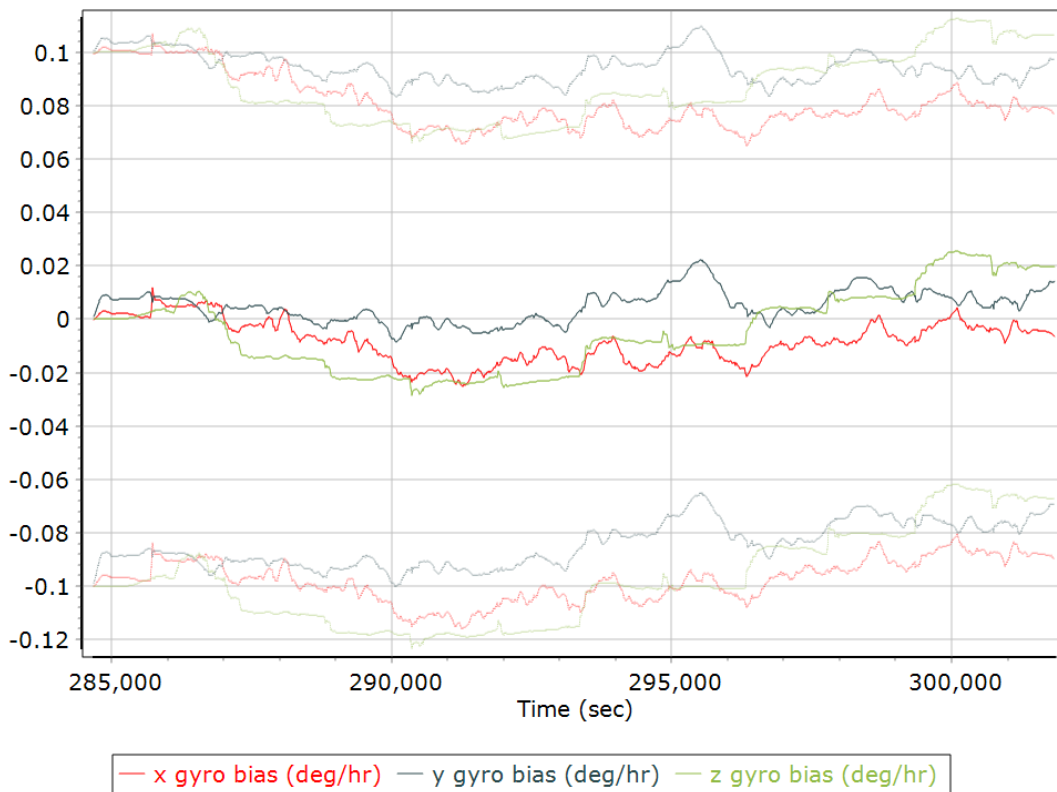
### Y Accelerometer Scale Error (ppm)



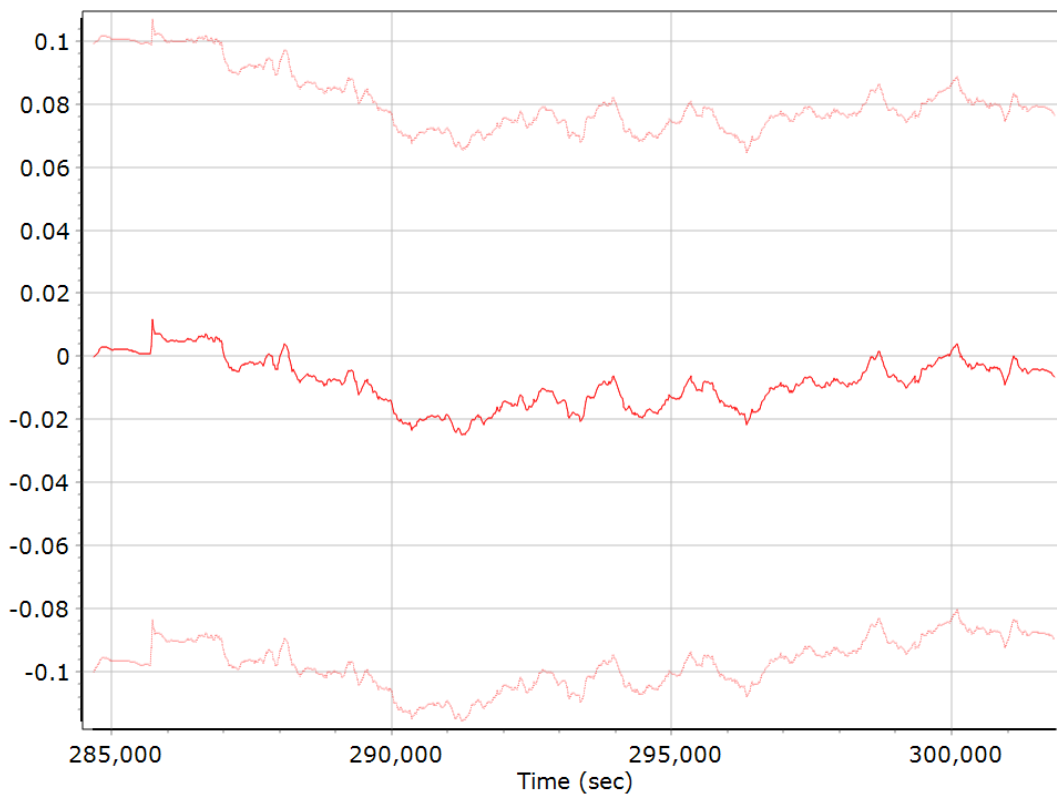
### Z Accelerometer Scale Error (ppm)



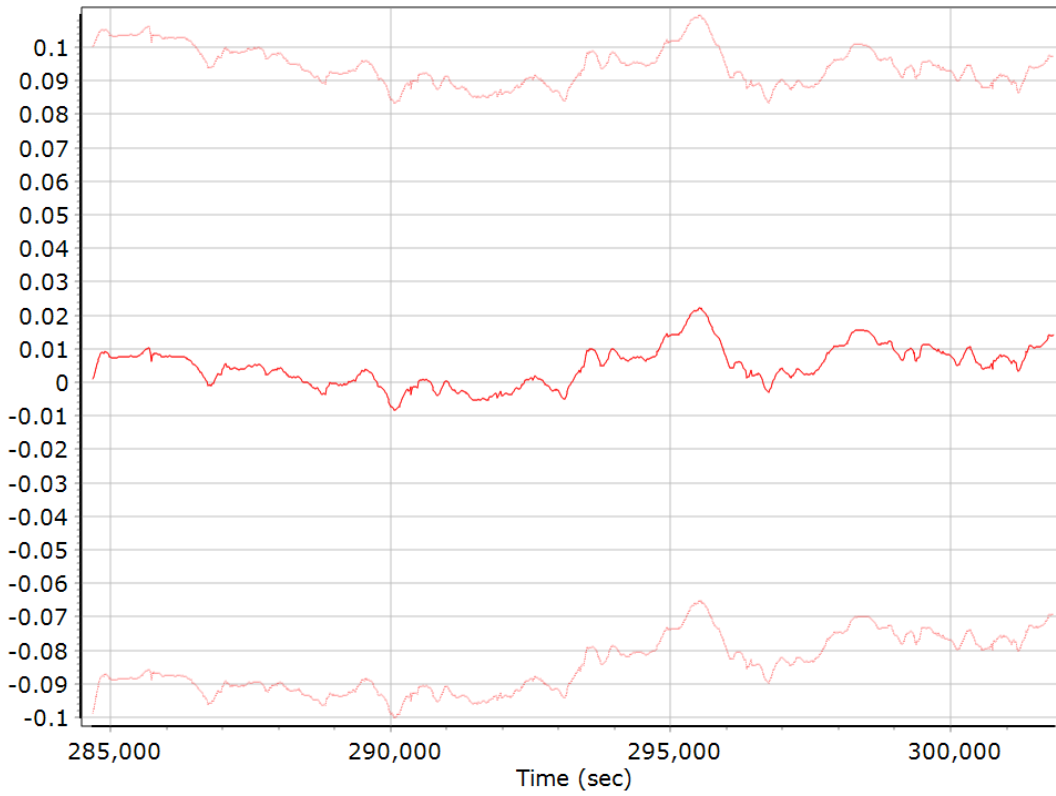
### Gyro Bias (deg/h)



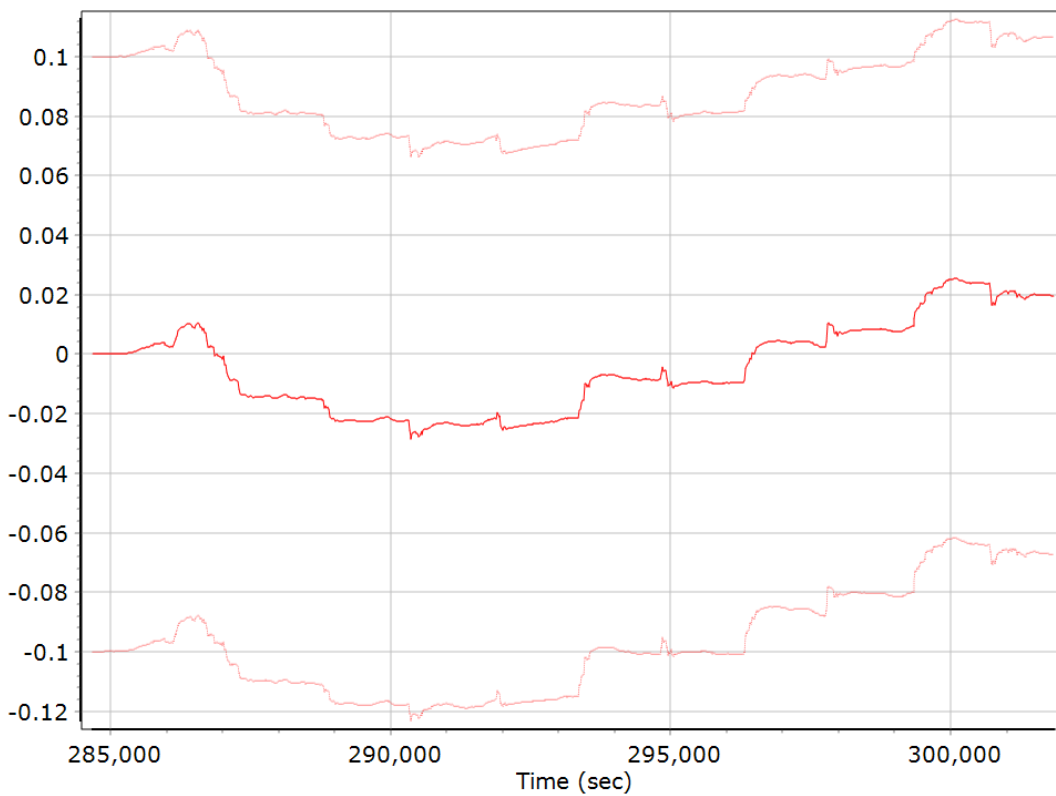
### X Gyro Bias (deg/h)



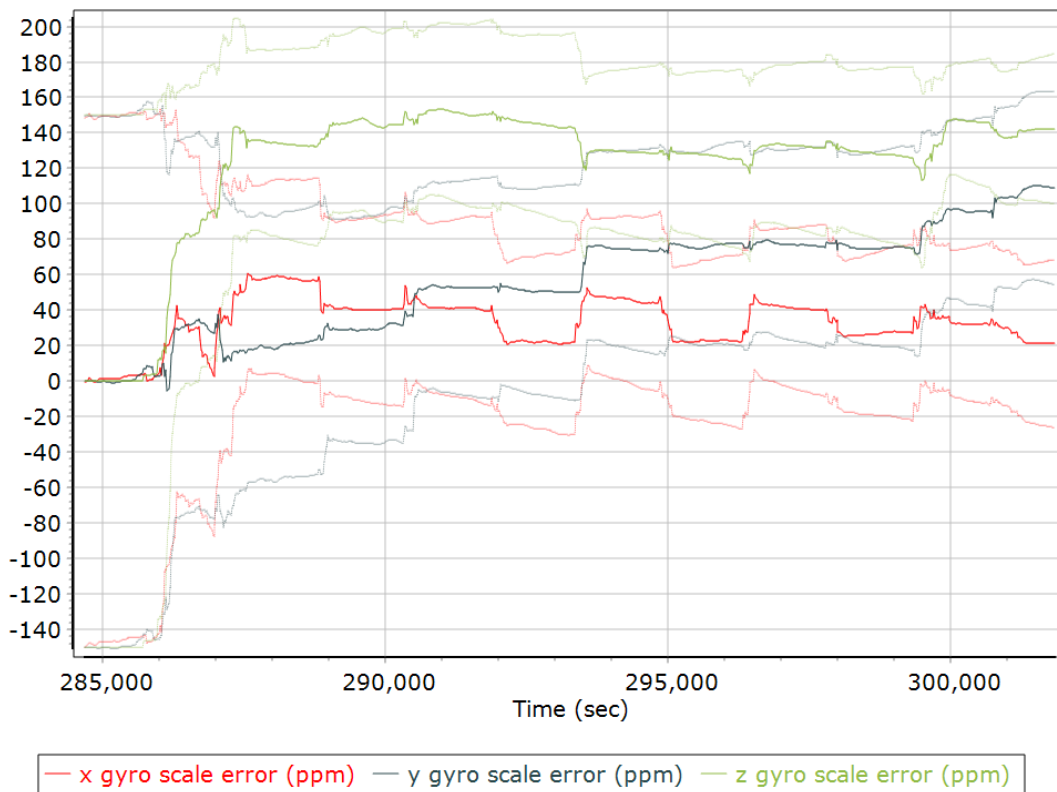
### Y Gyro Bias (deg/h)



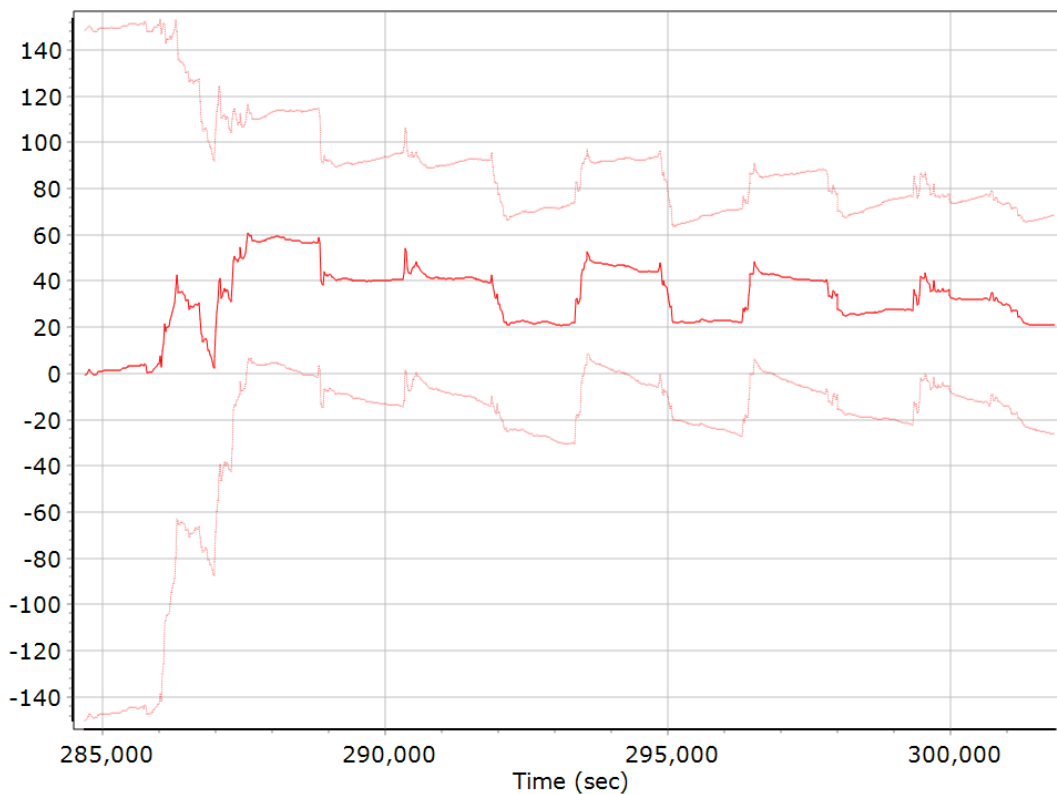
### Z Gyro Bias (deg/h)



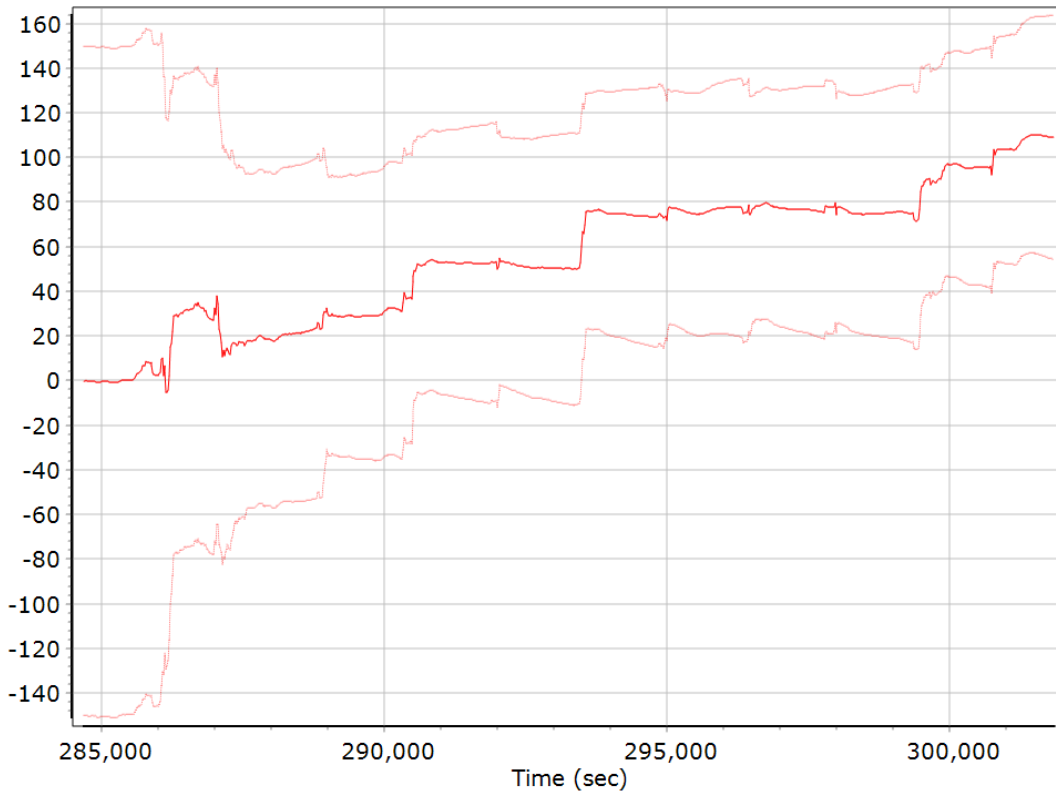
### Gyro Scale Error (ppm)



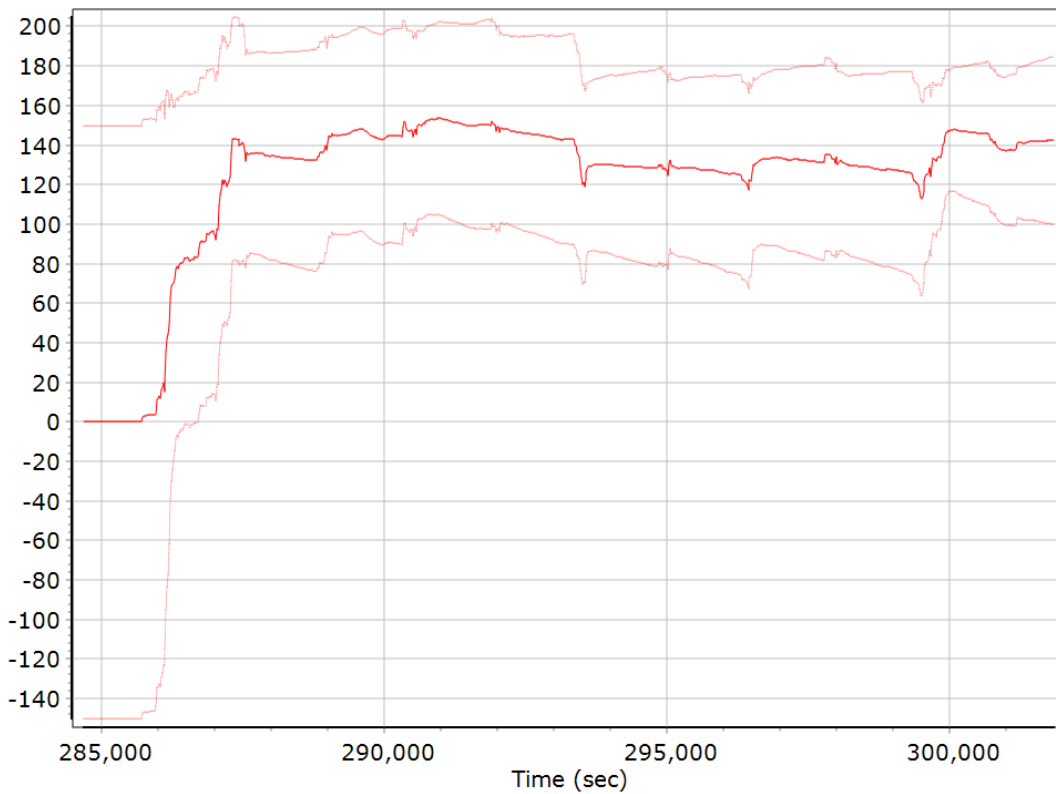
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)

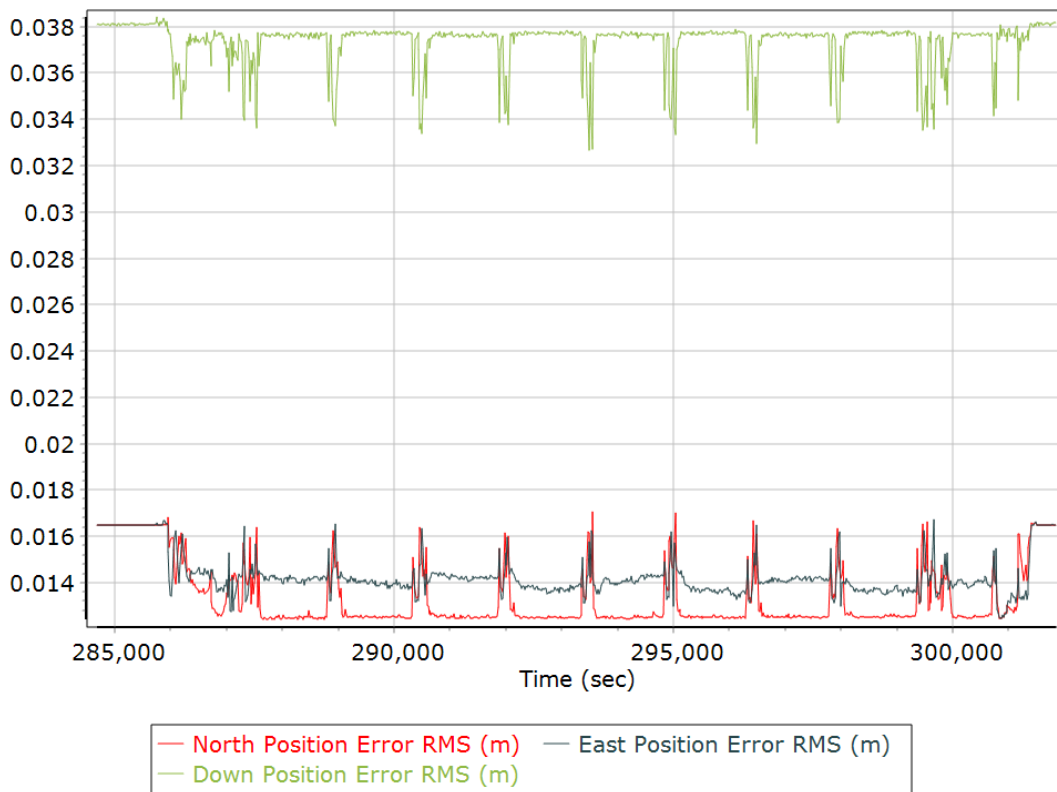


### Z Gyro Scale Error (ppm)

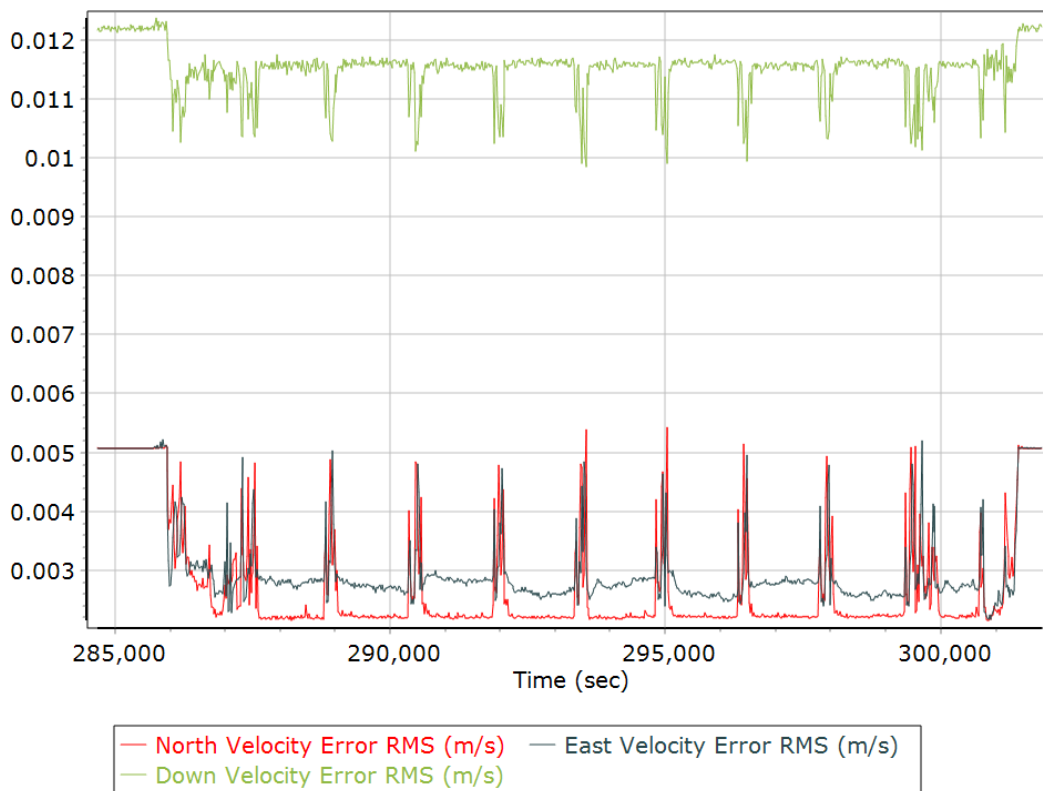


## Smoothed Performance Metrics

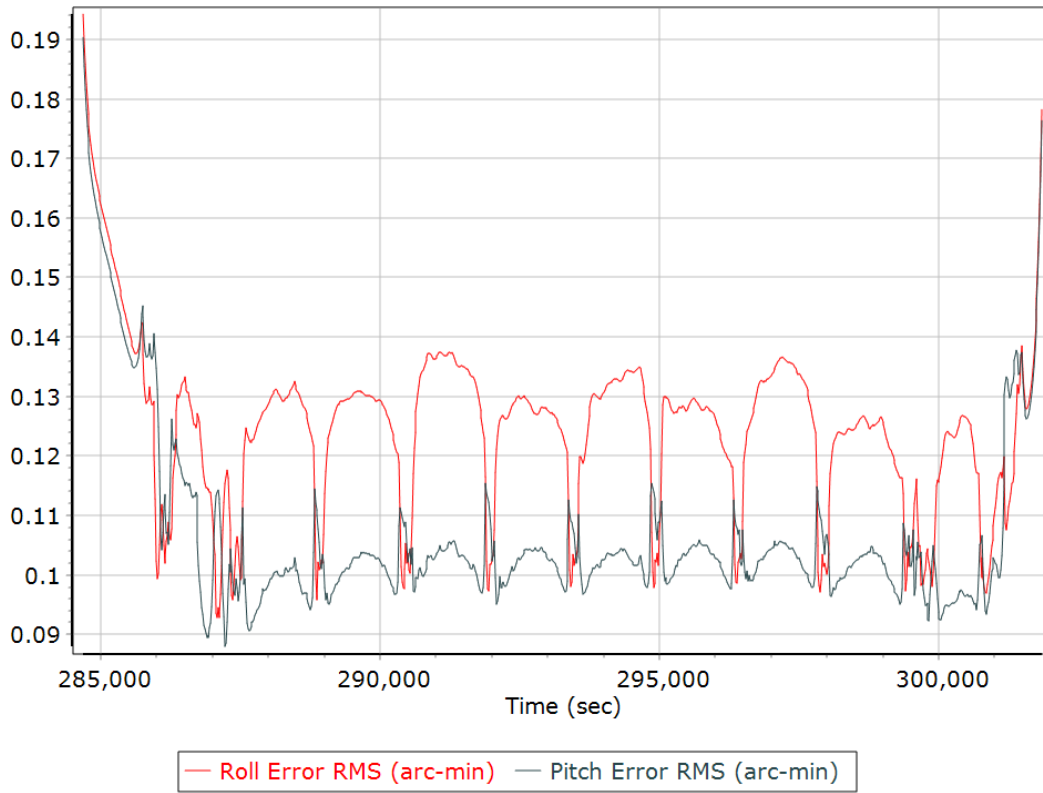
### Position Error RMS (m)



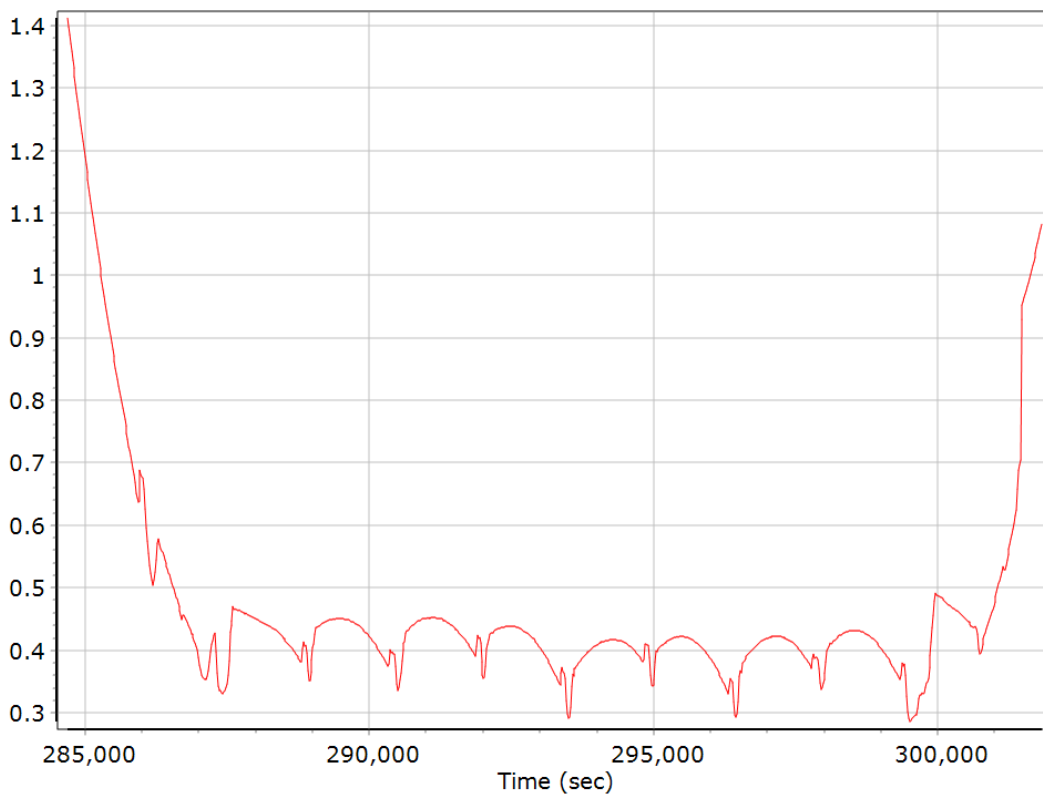
### Velocity Error RMS (m/s)



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



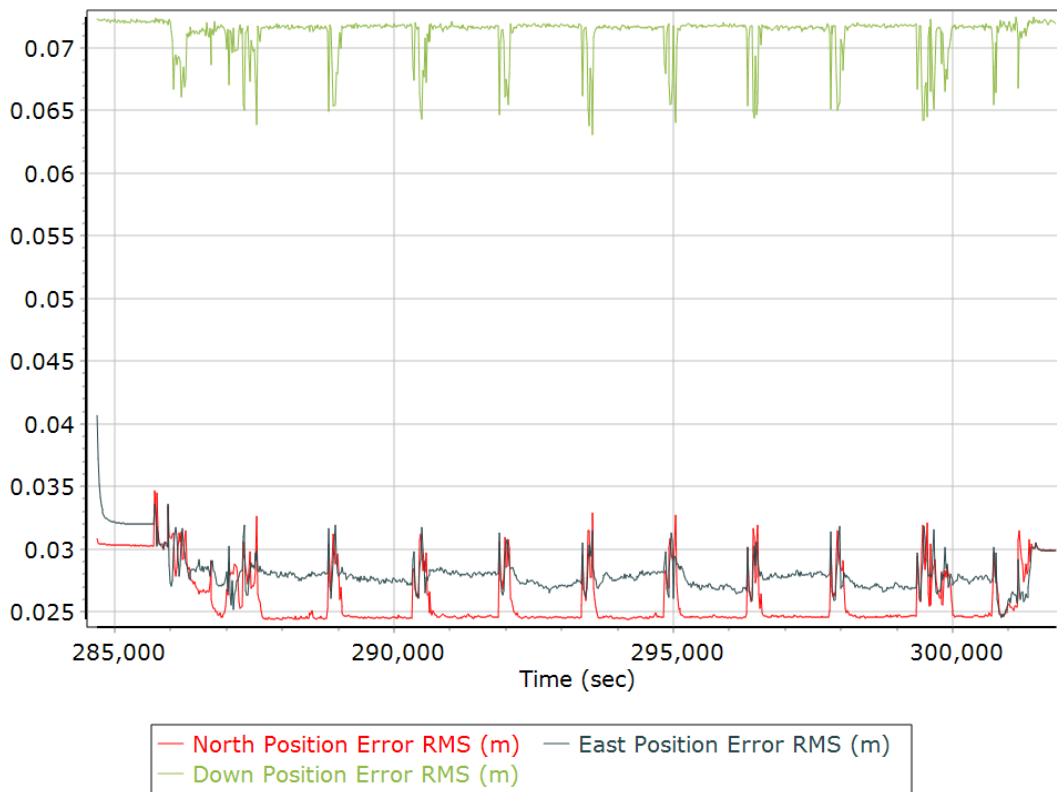
### Heading Error RMS (arc-min)



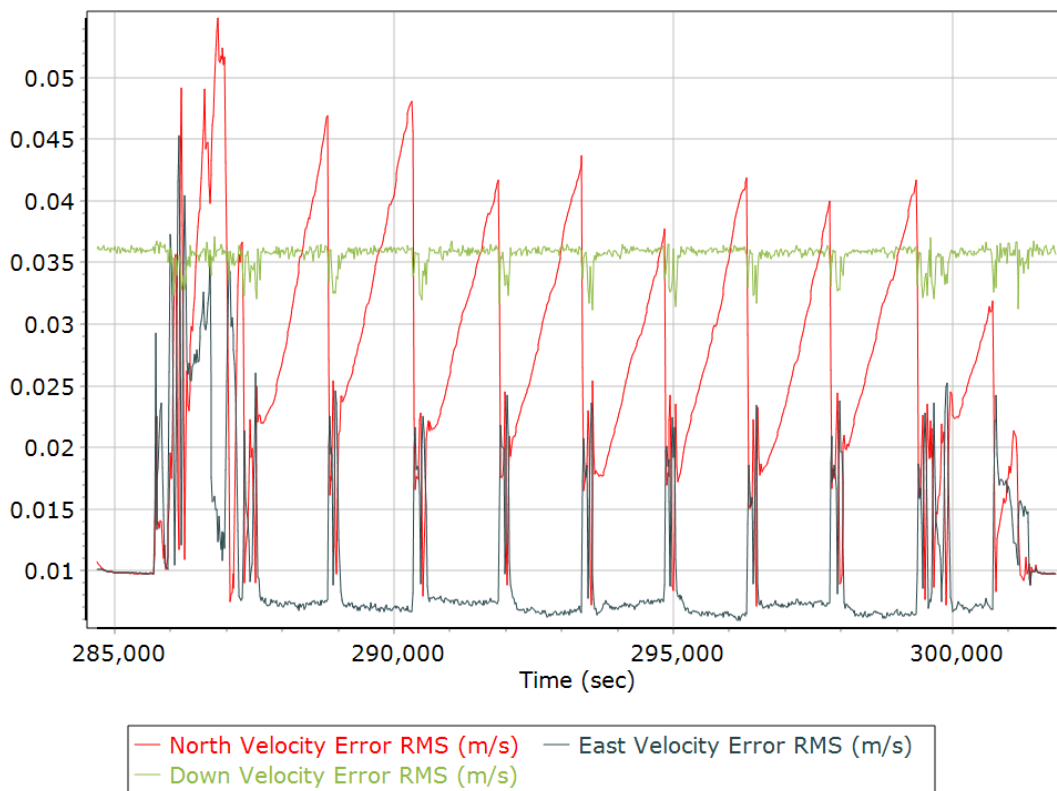


## Forward Processed Performance Metrics

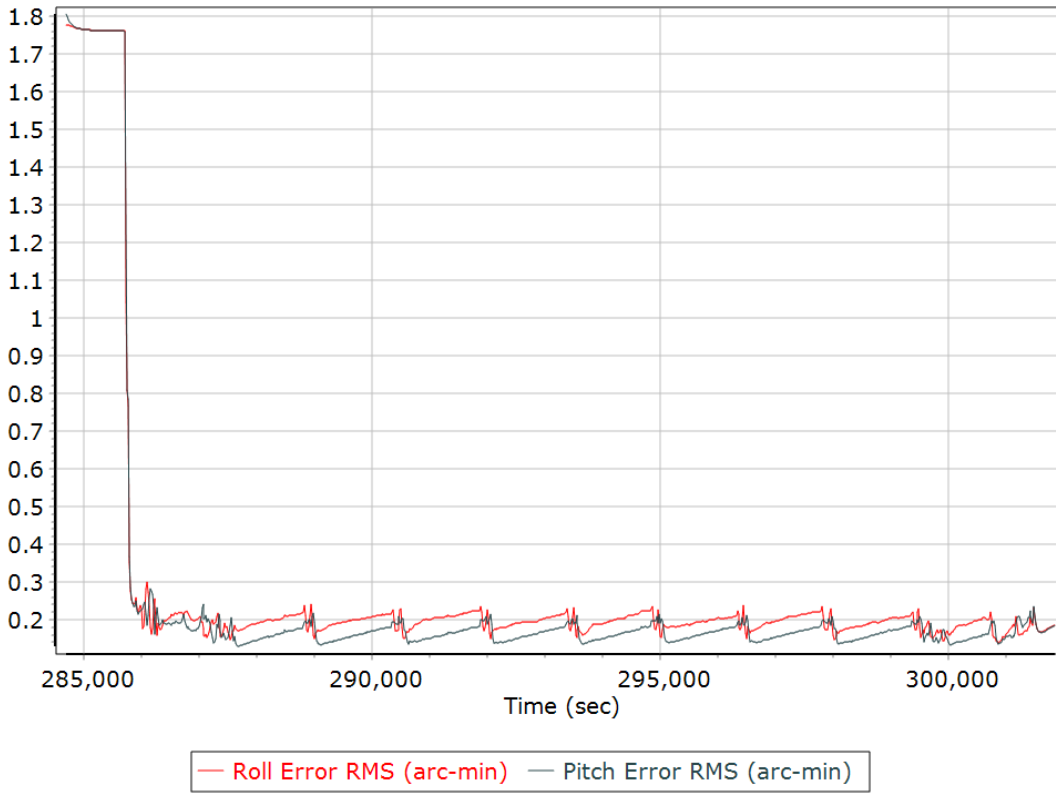
### Position Error RMS (m)



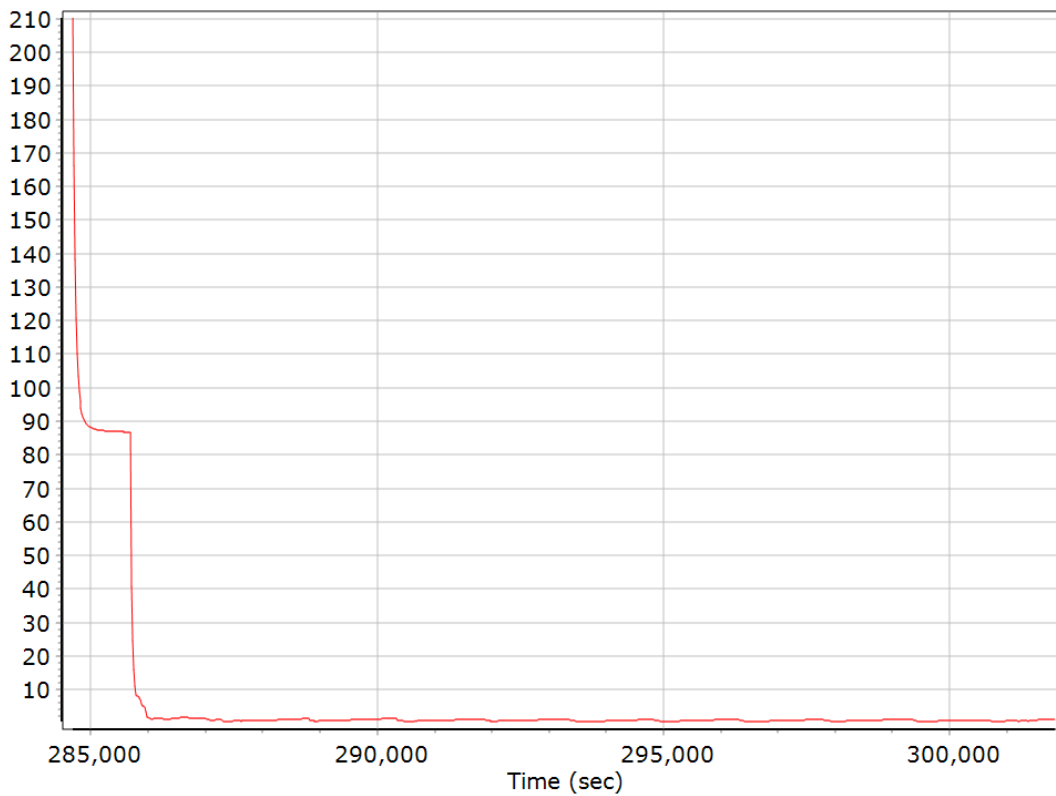
### Velocity Error RMS (m/s)



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

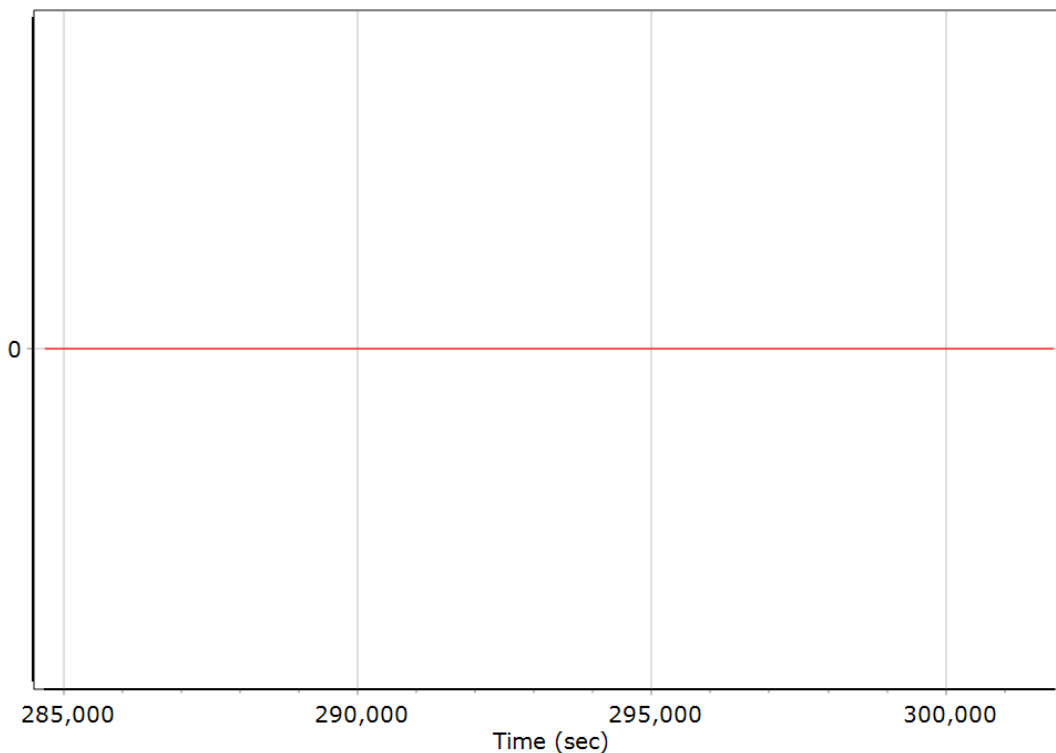


### Heading Error RMS (arc-min)



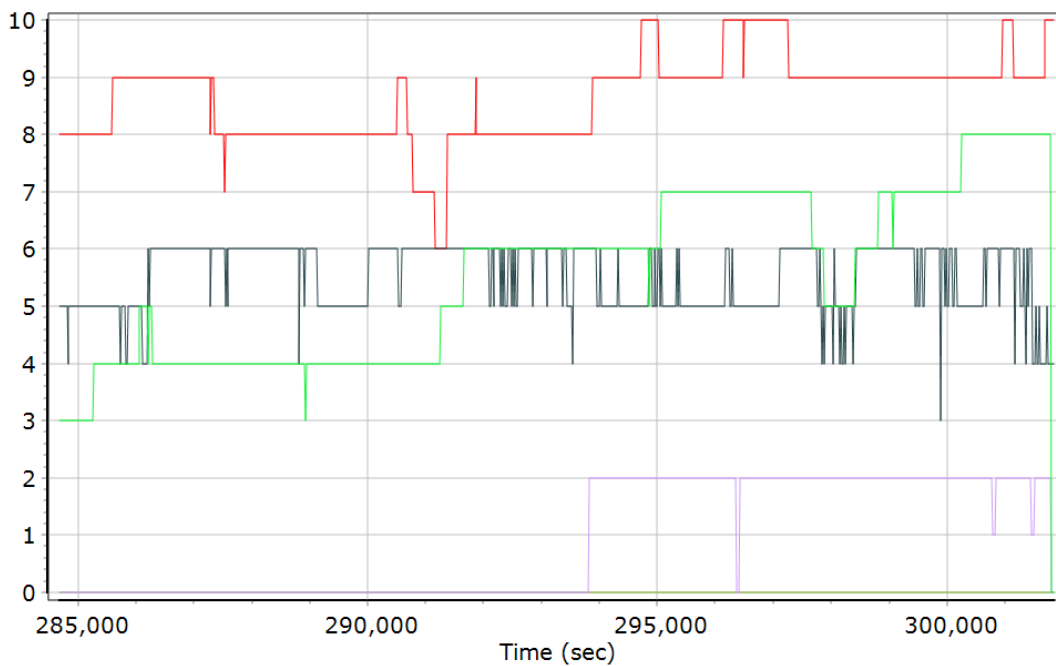
## Forward Processed Solution Status

### Processing Mode



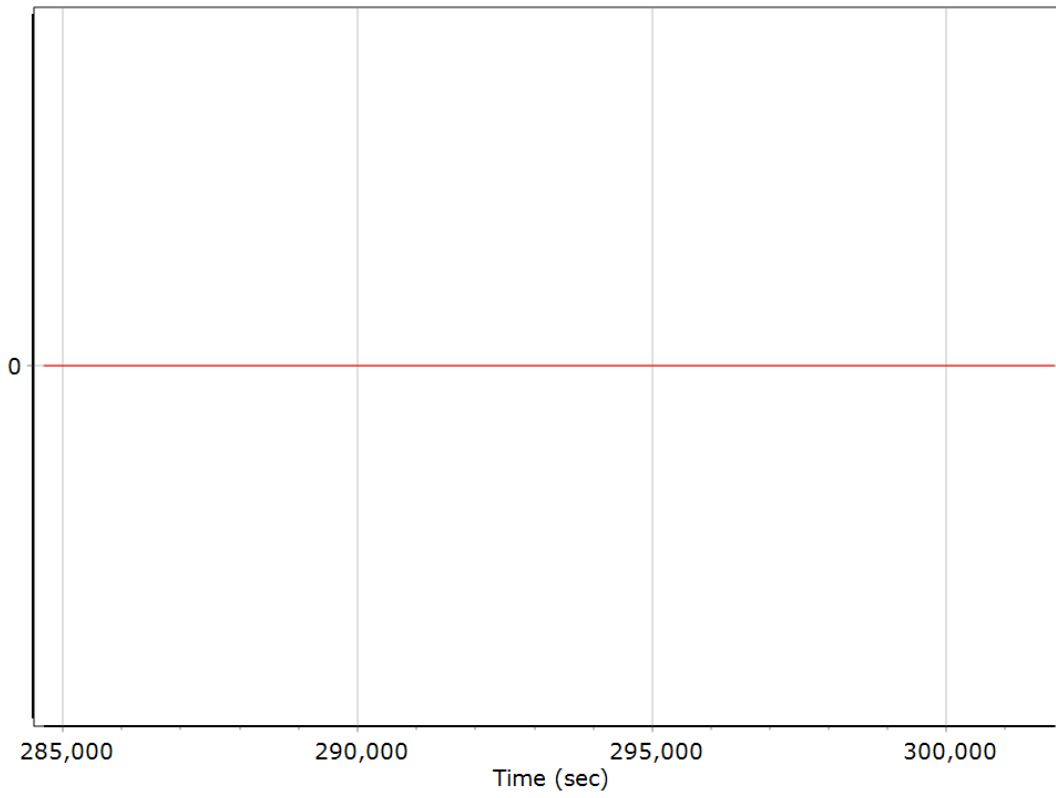
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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



## General Information

### Mission Information

Project name	a07-s03-0515
Processing date	2022-07-22 14:34:30
Mission date	2022-07-21 06:22:37
Mission duration	05:31:35.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0721_062238.000	POS Data
default0721_062238.001	POS Data
default0721_062238.002	POS Data
default0721_062238.003	POS Data
default0721_062238.004	POS Data
default0721_062238.005	POS Data
default0721_062238.006	POS Data
default0721_062238.007	POS Data
default0721_062238.008	POS Data
default0721_062238.009	POS Data
default0721_062238.010	POS Data
default0721_062238.011	POS Data
default0721_062238.012	POS Data
default0721_062238.013	POS Data
default0721_062238.014	POS Data
default0721_062238.015	POS Data
default0721_062238.016	POS Data
default0721_062238.017	POS Data
default0721_062238.018	POS Data
default0721_062238.019	POS Data
default0721_062238.020	POS Data
default0721_062238.021	POS Data
default0721_062238.022	POS Data
default0721_062238.023	POS Data
default0721_062238.024	POS Data
default0721_062238.025	POS Data
default0721_062238.026	POS Data
default0721_062238.027	POS Data

### Input Files

File Name	File Type
Ephm2020.22g	GLONASS Broadcast Ephemeris
Ephm2020.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0515.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0721_062238.000		
Last raw data file	default0721_062238.027		
Start GPS week	2219		
Start time	368540.120 (7/21/2022 6:22:20 AM)		
End time	388433.956 (7/21/2022 11:53:53 AM)		
Start of fine alignment	369024.113 (7/21/2022 6:30:24 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

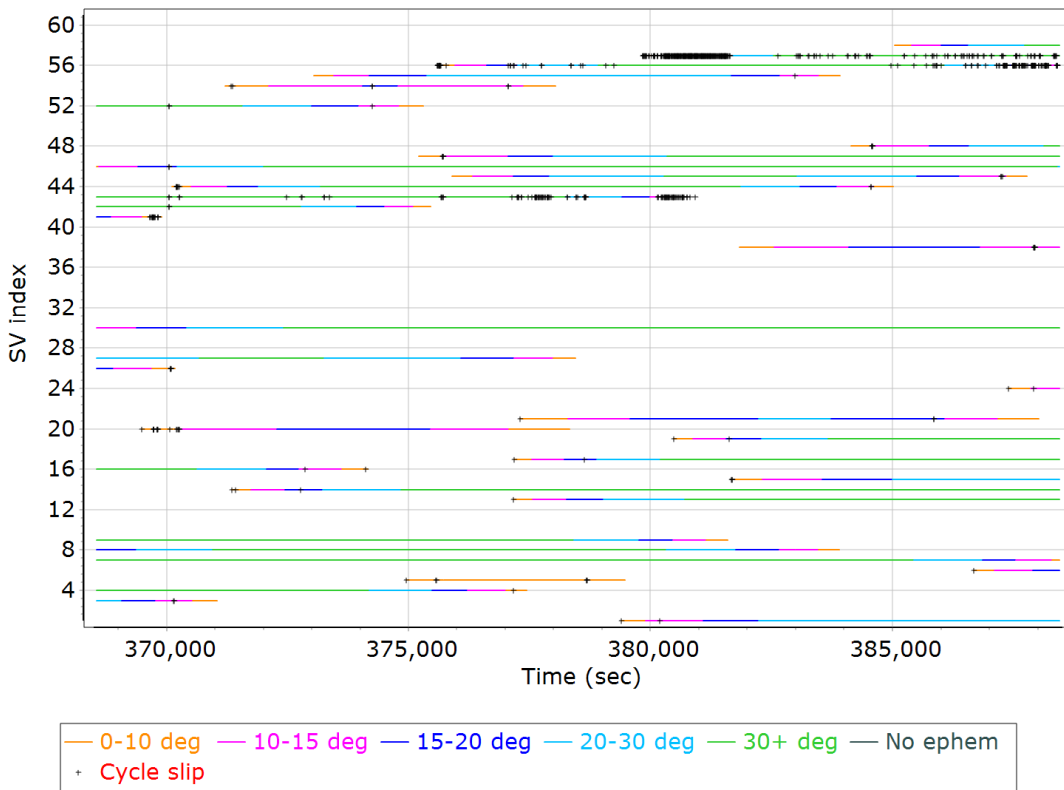
## Rover Data QC

### Raw IMU Import QC Summary

IMU data input file	imu_a07-s03-0515.dat
IMU data check log file	imudt_a07-s03-0515.log
IMU Records Processed	3978587
Termination Status	Warnings
IMU Anomalies	3
<b>IMU Failure Messages</b>	
368539.500 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
368539.415 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
368539.365 : WARNING : Gap of 368522.0176 seconds in CHECKDT input data	

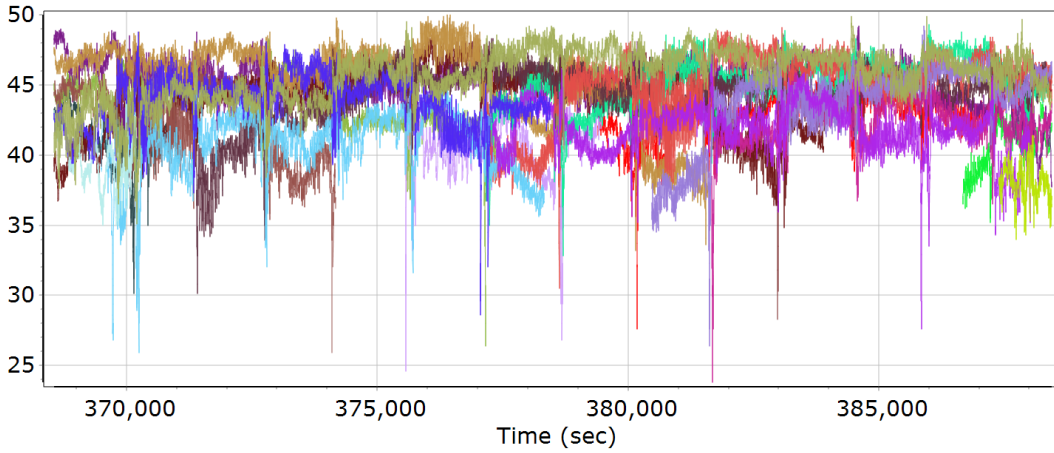
### Primary Observables & Satellite Data

#### GPS/GLONASS L1 Satellite Lock/Elevation



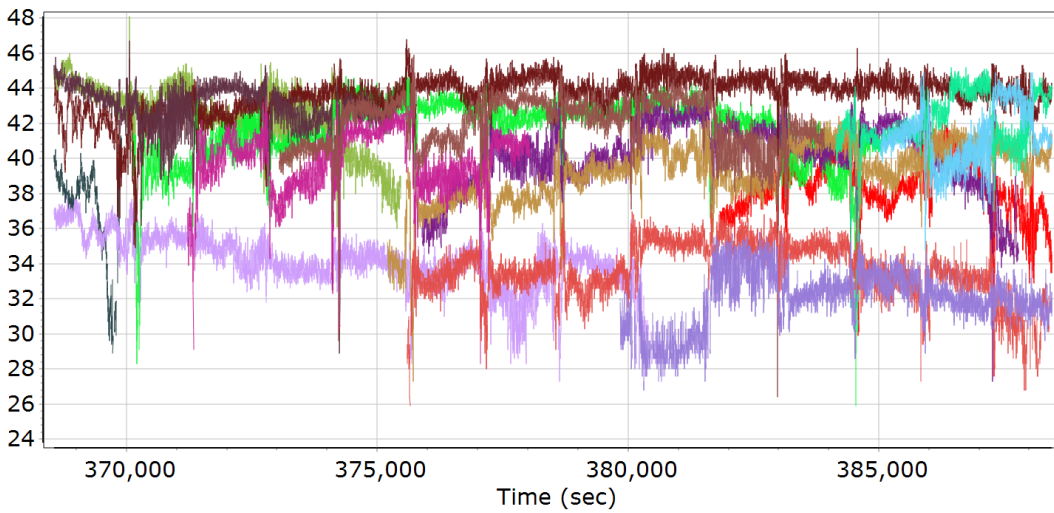


**GPS L1 SNR**



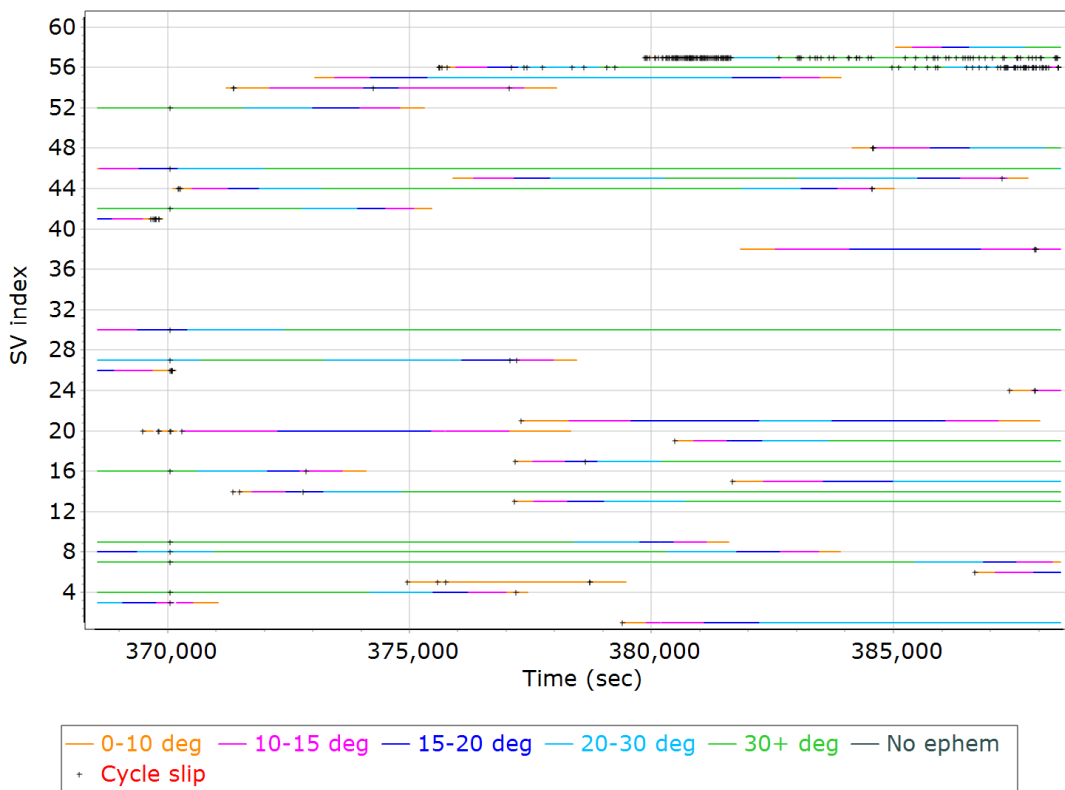
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 03 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 05 L1 SNR (dB/Hz) |
| — GPS PRN 06 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 15 L1 SNR (dB/Hz) | — GPS PRN 16 L1 SNR (dB/Hz) |
| — GPS PRN 17 L1 SNR (dB/Hz) | — GPS PRN 19 L1 SNR (dB/Hz) |
| — GPS PRN 20 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 24 L1 SNR (dB/Hz) | — GPS PRN 26 L1 SNR (dB/Hz) |
| — GPS PRN 27 L1 SNR (dB/Hz) | — GPS PRN 30 L1 SNR (dB/Hz) |

**GLONASS L1 SNR**

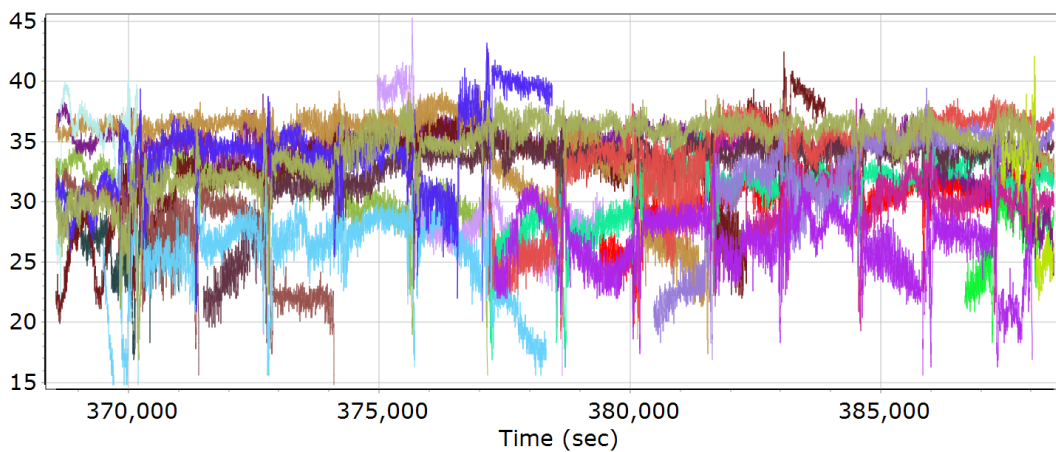


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 01 L1 SNR (dB/Hz) | — GLONASS 04 L1 SNR (dB/Hz) |
| — GLONASS 05 L1 SNR (dB/Hz) | — GLONASS 06 L1 SNR (dB/Hz) |
| — GLONASS 07 L1 SNR (dB/Hz) | — GLONASS 08 L1 SNR (dB/Hz) |
| — GLONASS 09 L1 SNR (dB/Hz) | — GLONASS 10 L1 SNR (dB/Hz) |
| — GLONASS 11 L1 SNR (dB/Hz) | — GLONASS 15 L1 SNR (dB/Hz) |
| — GLONASS 17 L1 SNR (dB/Hz) | — GLONASS 18 L1 SNR (dB/Hz) |
| — GLONASS 19 L1 SNR (dB/Hz) | — GLONASS 20 L1 SNR (dB/Hz) |
| — GLONASS 21 L1 SNR (dB/Hz) |                             |

### GPS/GLONASS L2 Satellite Lock/Elevation

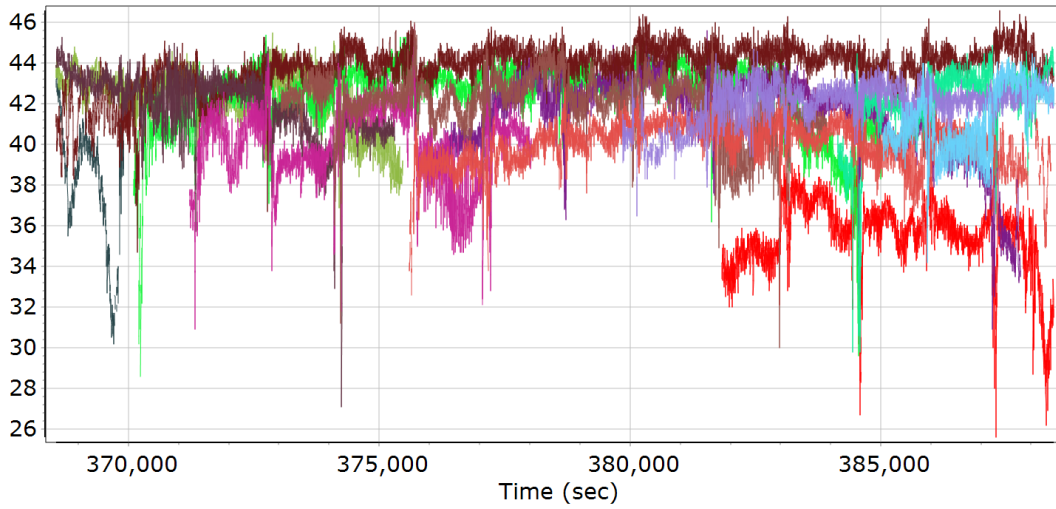


### GPS L2 SNR

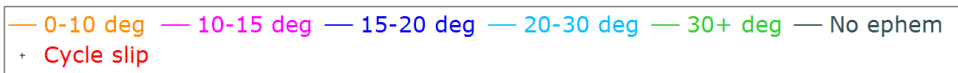
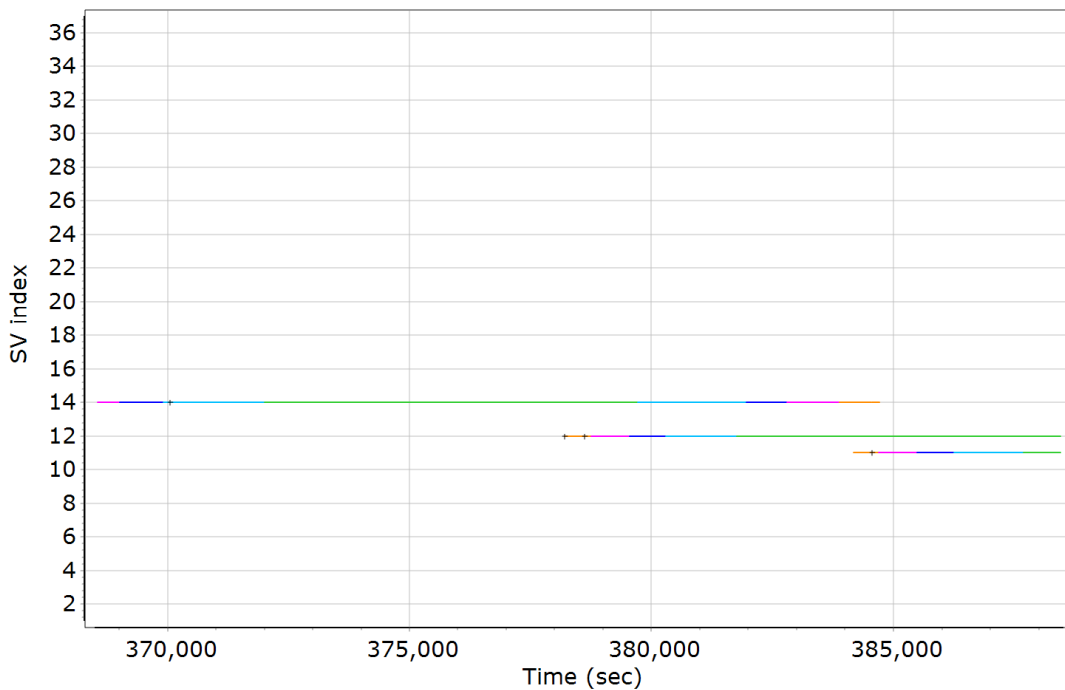


- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L2 SNR (dB/Hz) | — GPS PRN 03 L2 SNR (dB/Hz) |
| — GPS PRN 04 L2 SNR (dB/Hz) | — GPS PRN 05 L2 SNR (dB/Hz) |
| — GPS PRN 06 L2 SNR (dB/Hz) | — GPS PRN 07 L2 SNR (dB/Hz) |
| — GPS PRN 08 L2 SNR (dB/Hz) | — GPS PRN 09 L2 SNR (dB/Hz) |
| — GPS PRN 13 L2 SNR (dB/Hz) | — GPS PRN 14 L2 SNR (dB/Hz) |
| — GPS PRN 15 L2 SNR (dB/Hz) | — GPS PRN 16 L2 SNR (dB/Hz) |
| — GPS PRN 17 L2 SNR (dB/Hz) | — GPS PRN 19 L2 SNR (dB/Hz) |
| — GPS PRN 20 L2 SNR (dB/Hz) | — GPS PRN 21 L2 SNR (dB/Hz) |
| — GPS PRN 24 L2 SNR (dB/Hz) | — GPS PRN 26 L2 SNR (dB/Hz) |
| — GPS PRN 27 L2 SNR (dB/Hz) | — GPS PRN 30 L2 SNR (dB/Hz) |

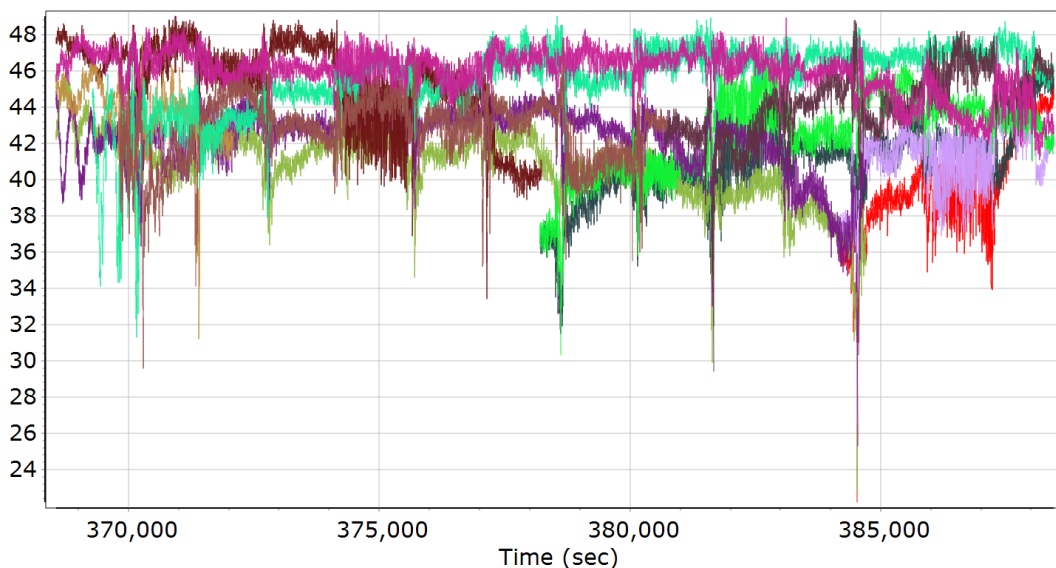
### GLONASS L2 SNR



### BEIDOU Satellite Lock/Elevation

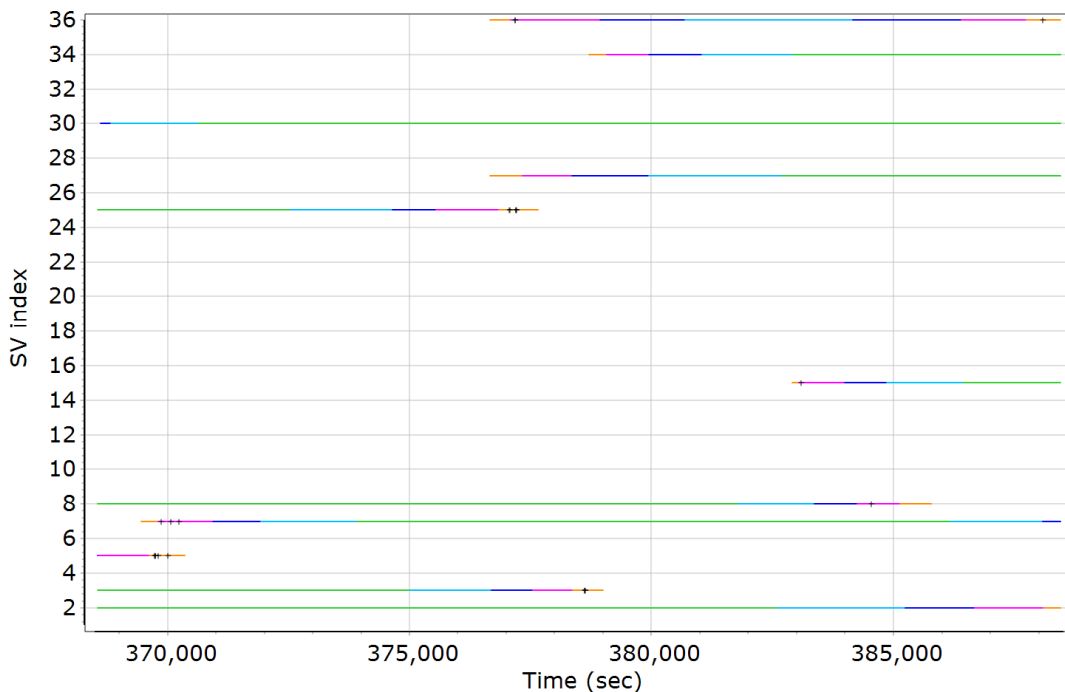


### BEIDOU SNR



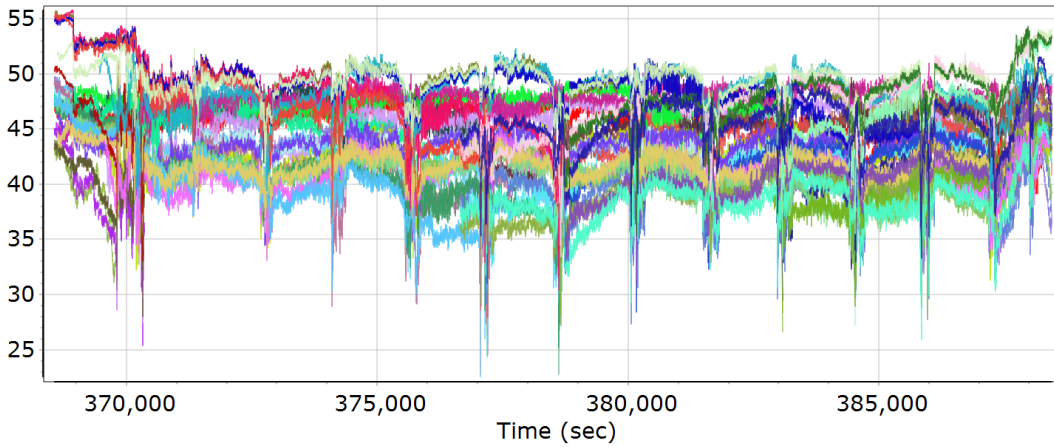
- BEIDOU 11 E5B B2 SNR (dB/Hz)
- BEIDOU 12 E5B B2 SNR (dB/Hz)
- BEIDOU 14 E5B B2 SNR (dB/Hz)
- BEIDOU 11 B1 B1 SNR (dB/Hz)
- BEIDOU 12 B1 B1 SNR (dB/Hz)
- BEIDOU 14 B1 B1 SNR (dB/Hz)
- BEIDOU 21 B1 B1 SNR (dB/Hz)
- BEIDOU 22 B1 B1 SNR (dB/Hz)
- BEIDOU 24 B1 B1 SNR (dB/Hz)
- BEIDOU 25 B1 B1 SNR (dB/Hz)
- BEIDOU 26 B1 B1 SNR (dB/Hz)
- BEIDOU 29 B1 B1 SNR (dB/Hz)

### GALILEO Satellite Lock/Elevation



- 0-10 deg
- 10-15 deg
- 15-20 deg
- 20-30 deg
- 30+ deg
- No ephem
- + Cycle slip

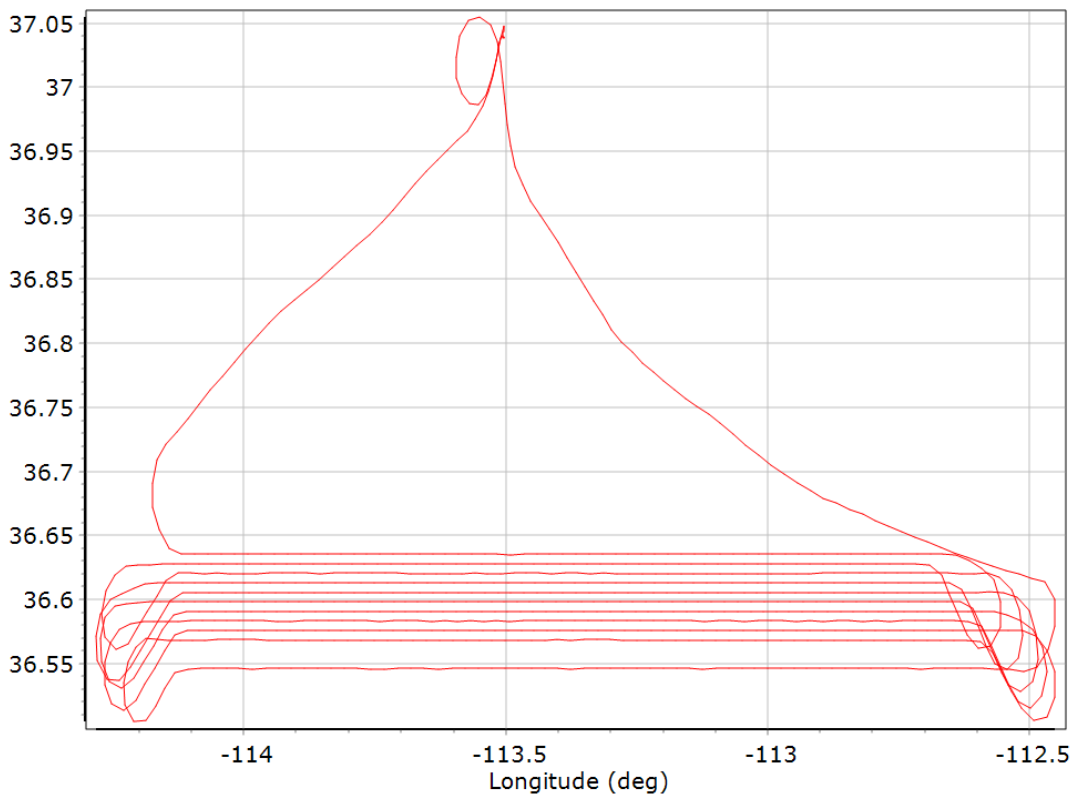
## GALILEO SNR



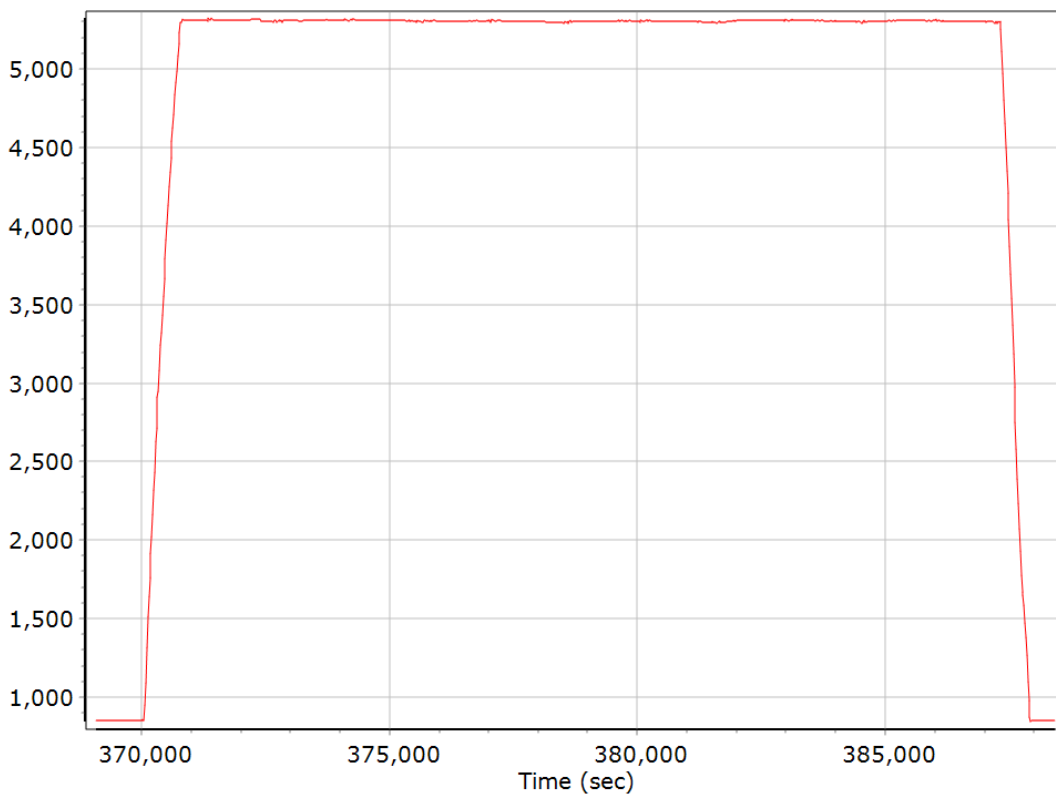
- GALILEO 02 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 03 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 05 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 07 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 08 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 10 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 14 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 15 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 25 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 27 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

## Smoothed Trajectory Information

### Top View

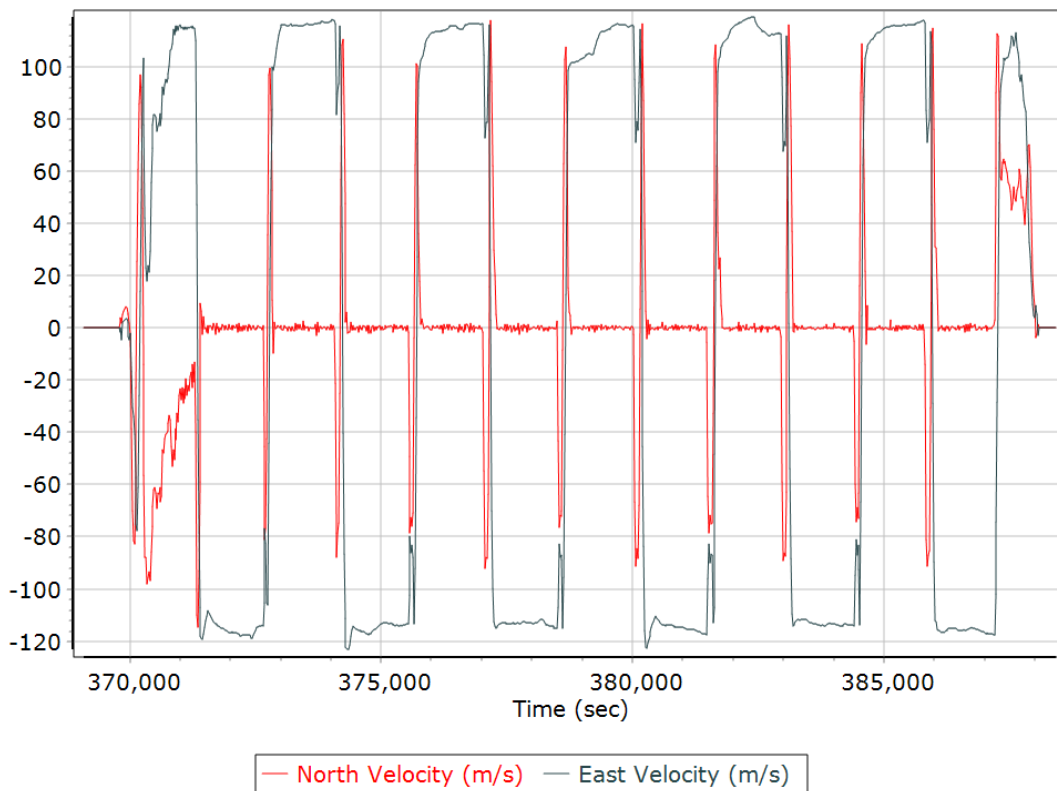


### Altitude

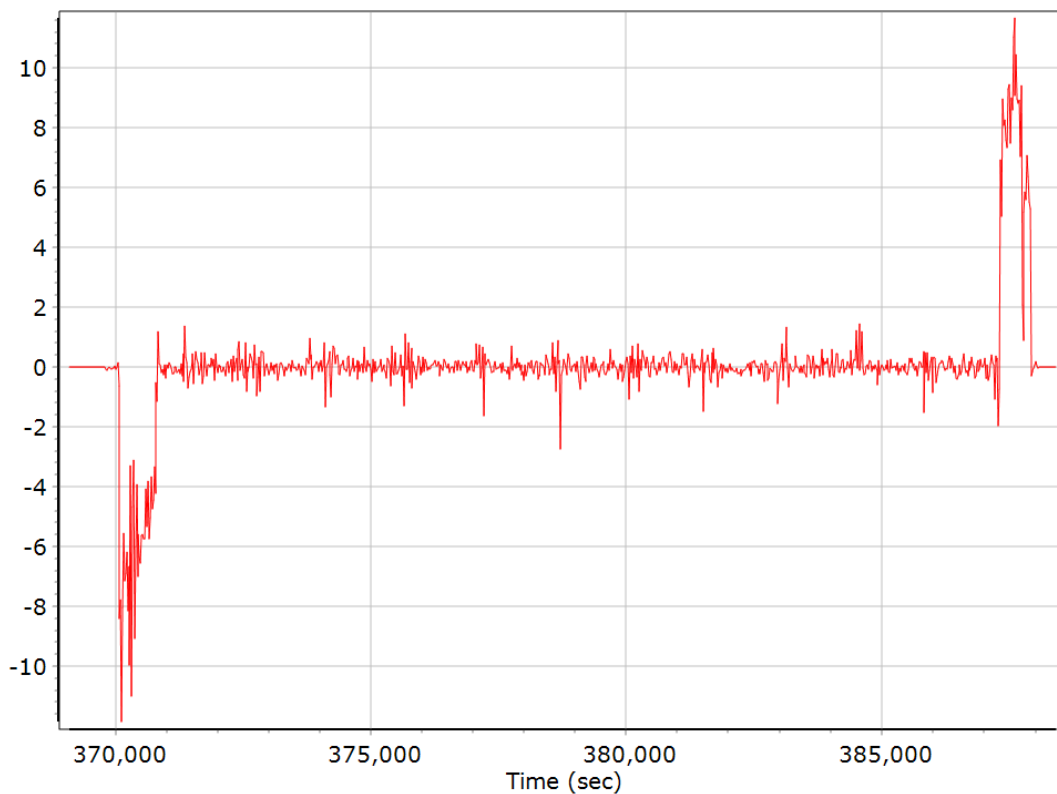




### North/East Velocity

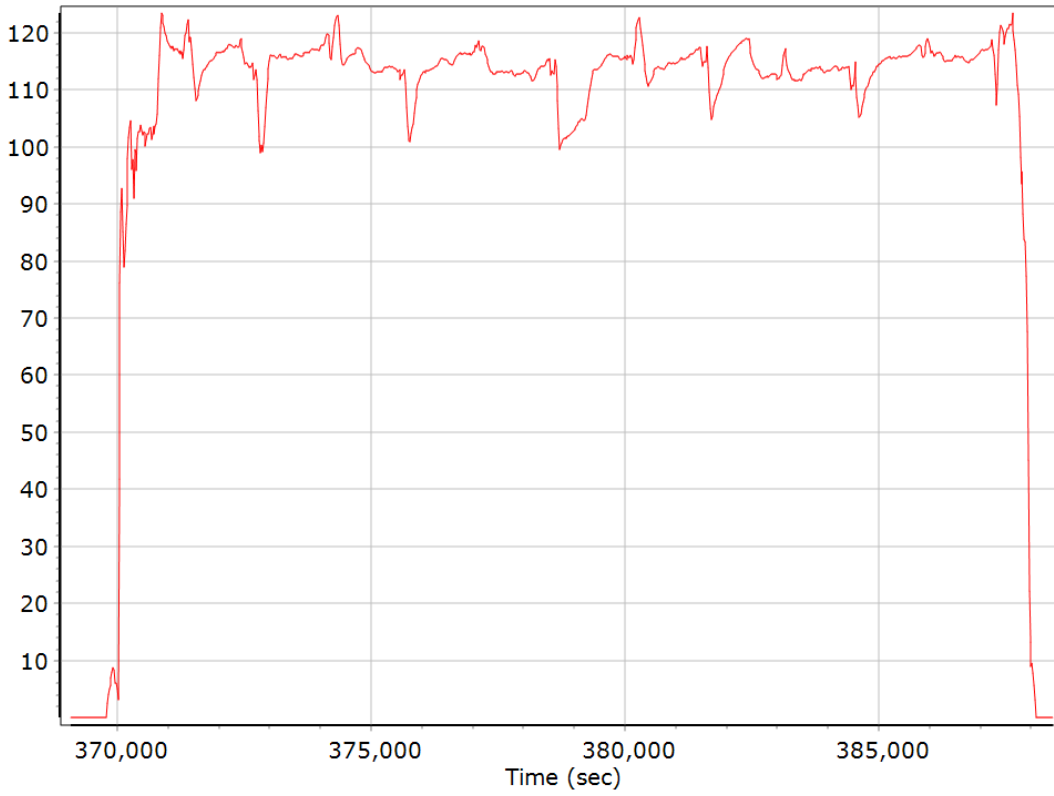


### Down Velocity

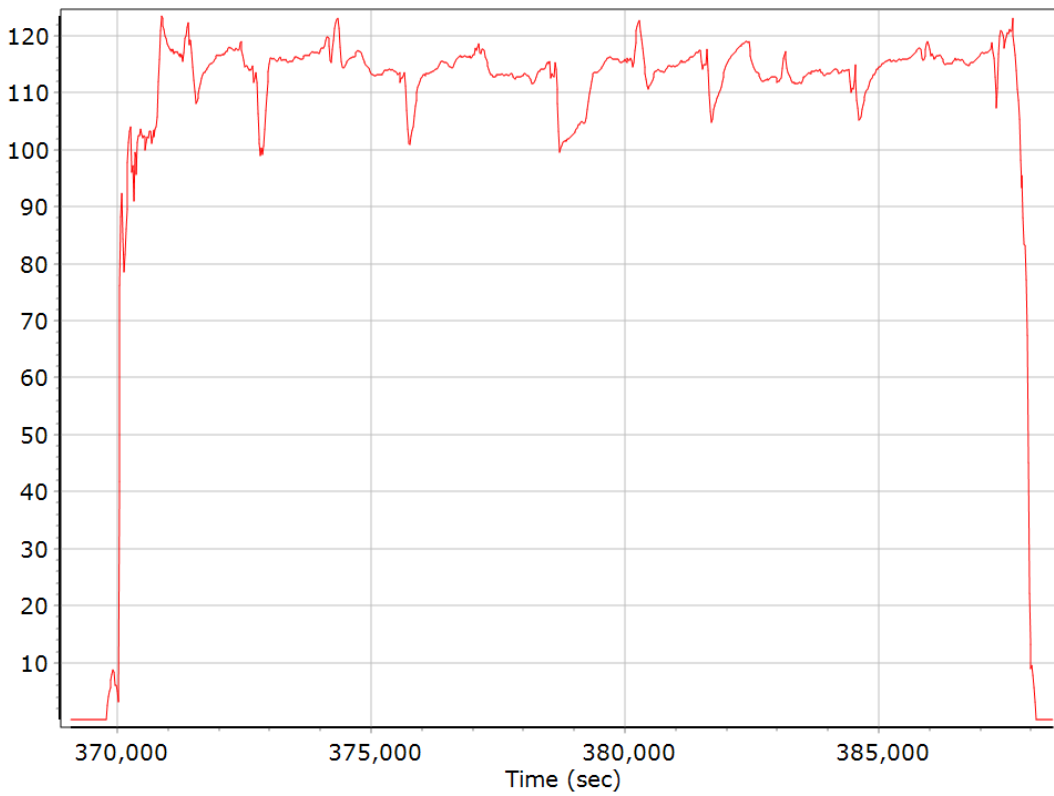




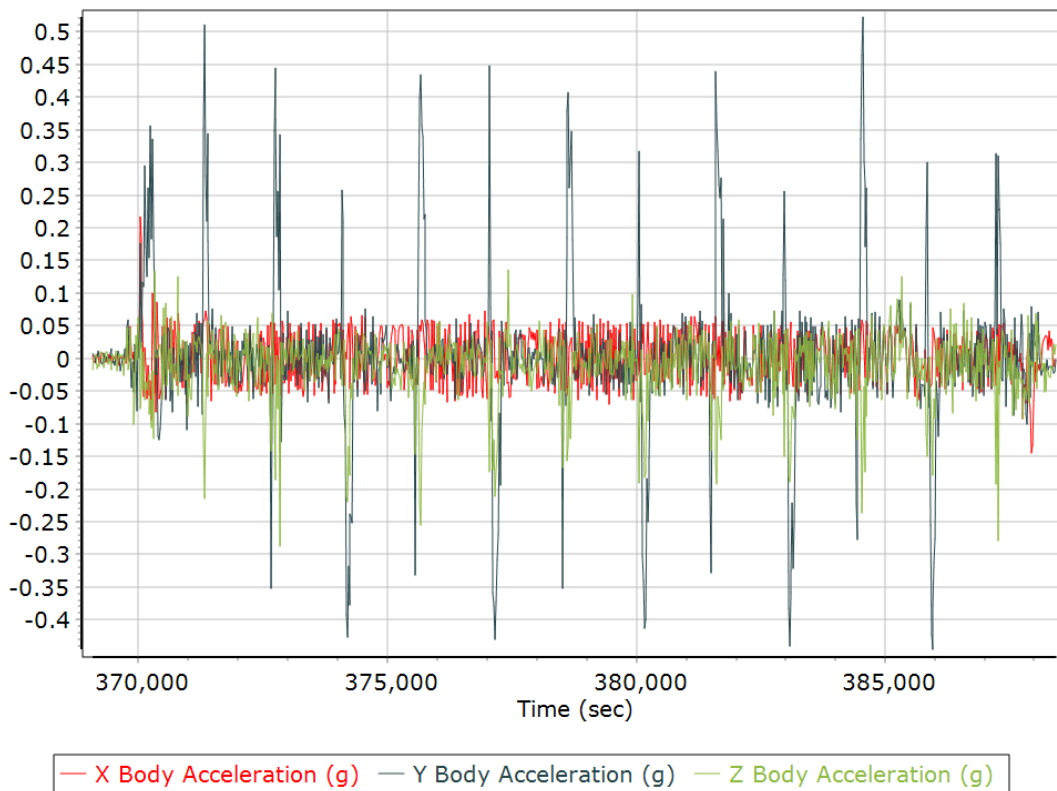
## Total Speed



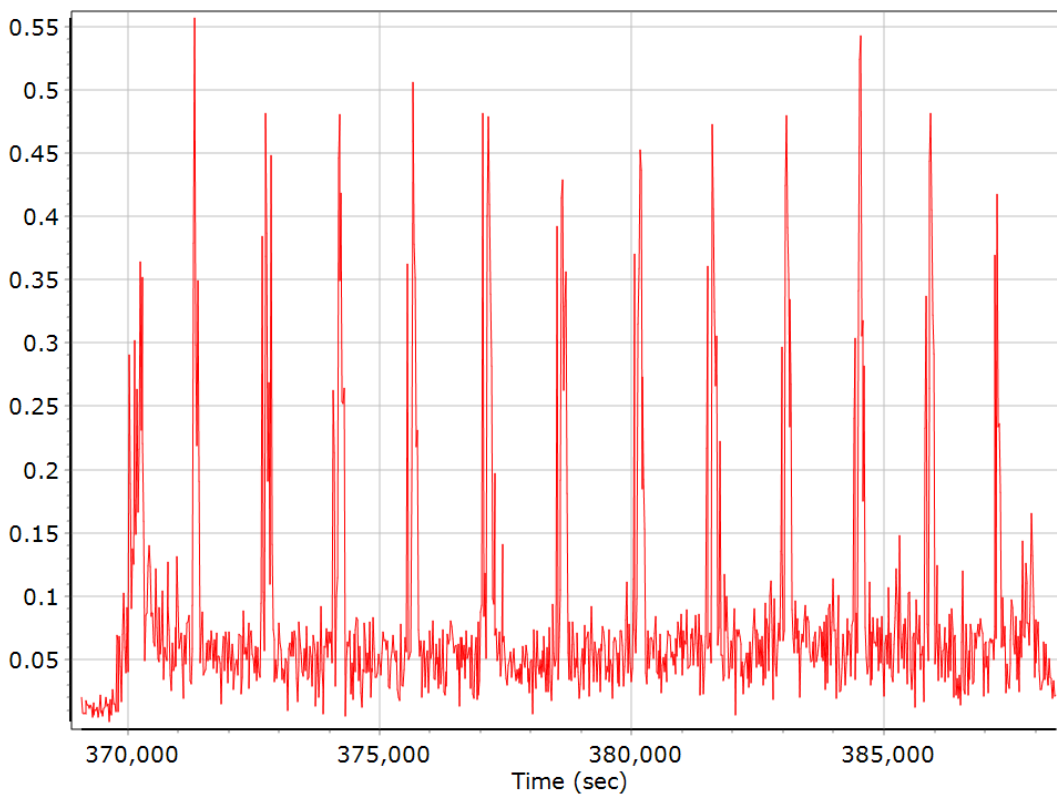
## Ground Speed



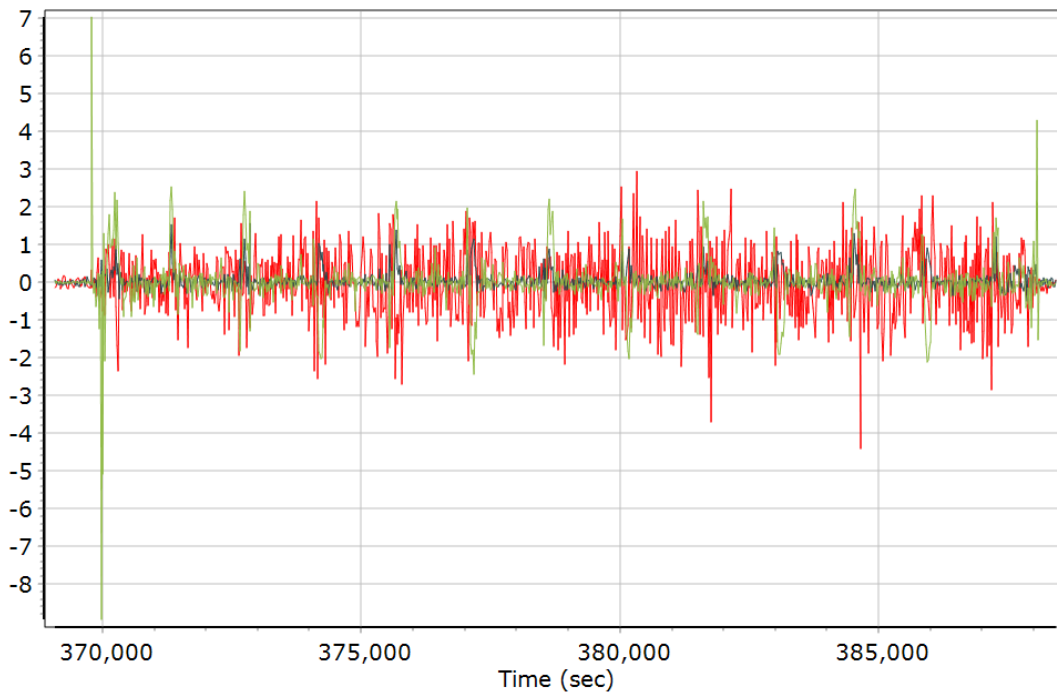
### Body Acceleration



### Total Body Acceleration



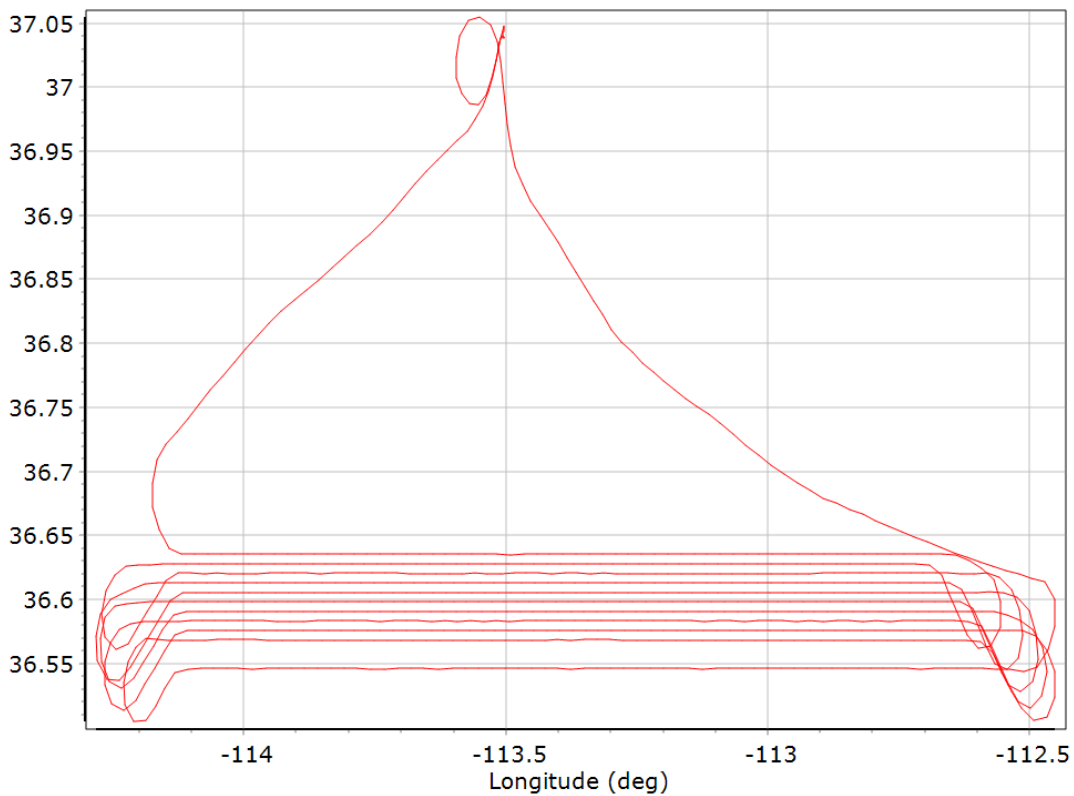
## Body Angular Rate



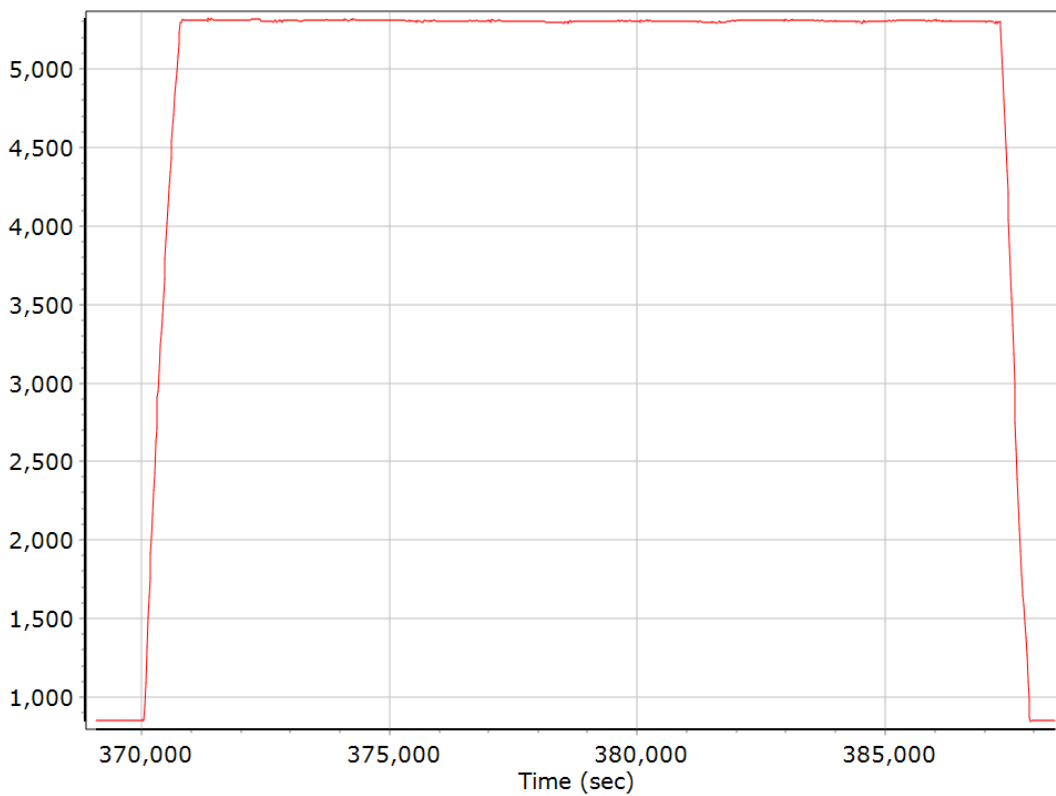
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## Forward Processed Trajectory Information

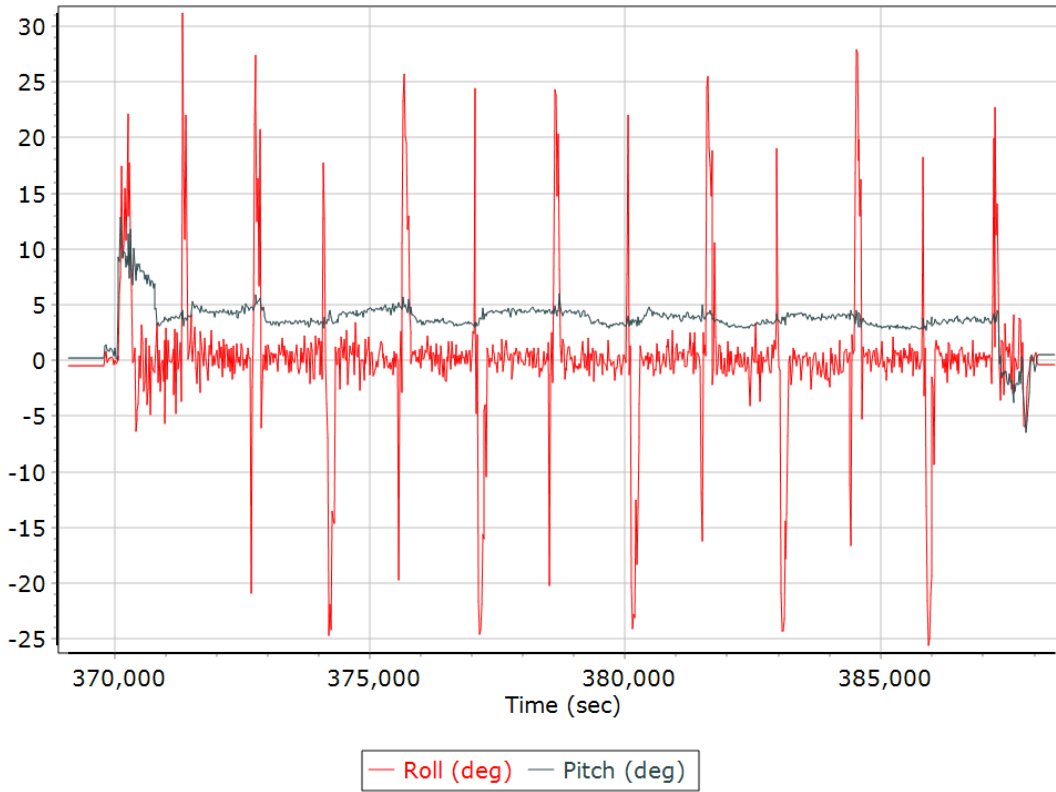
### Top View



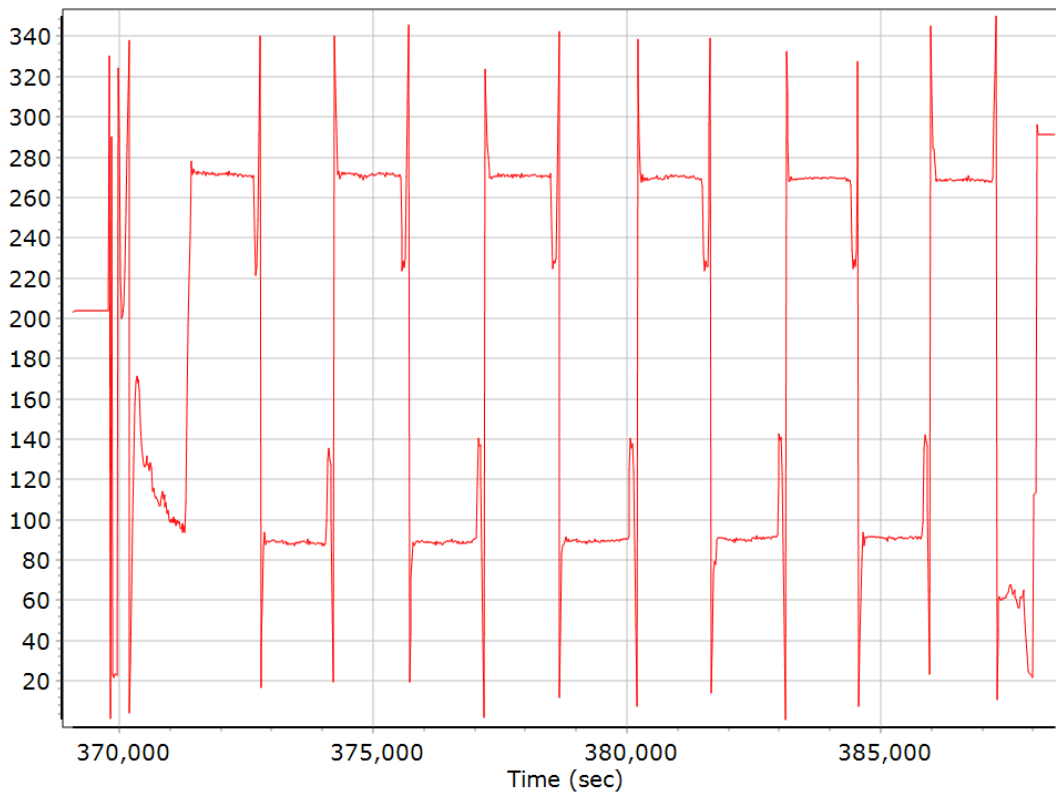
### Altitude



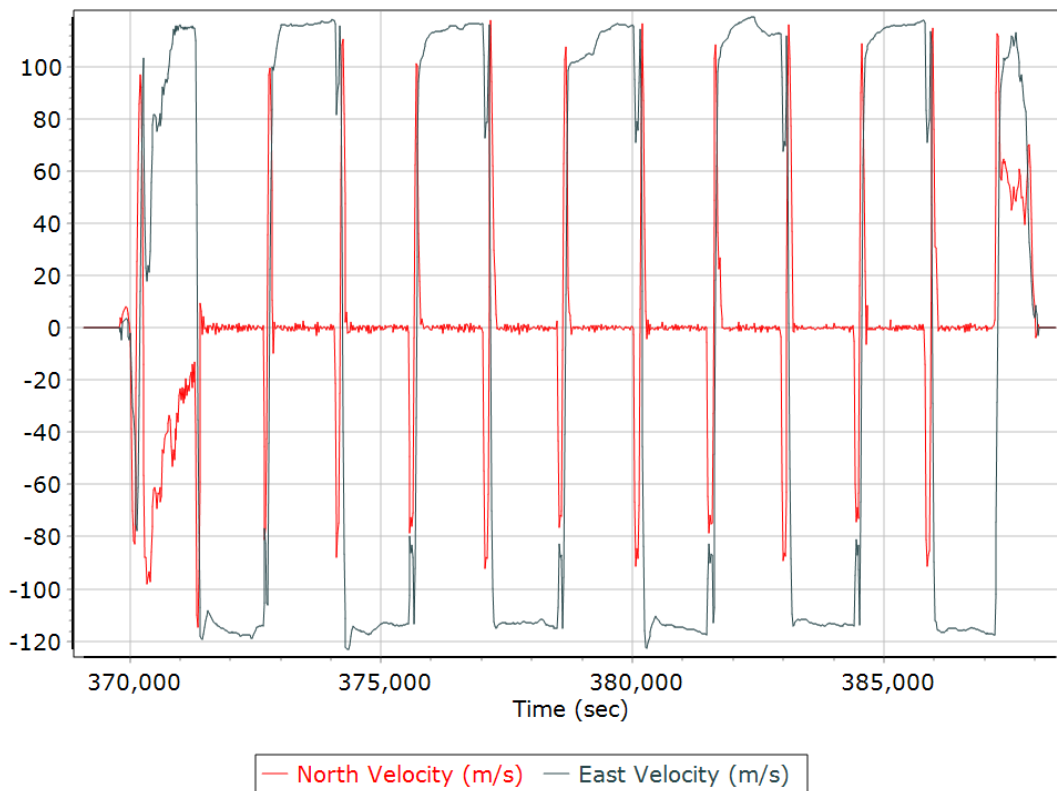
## Roll/Pitch



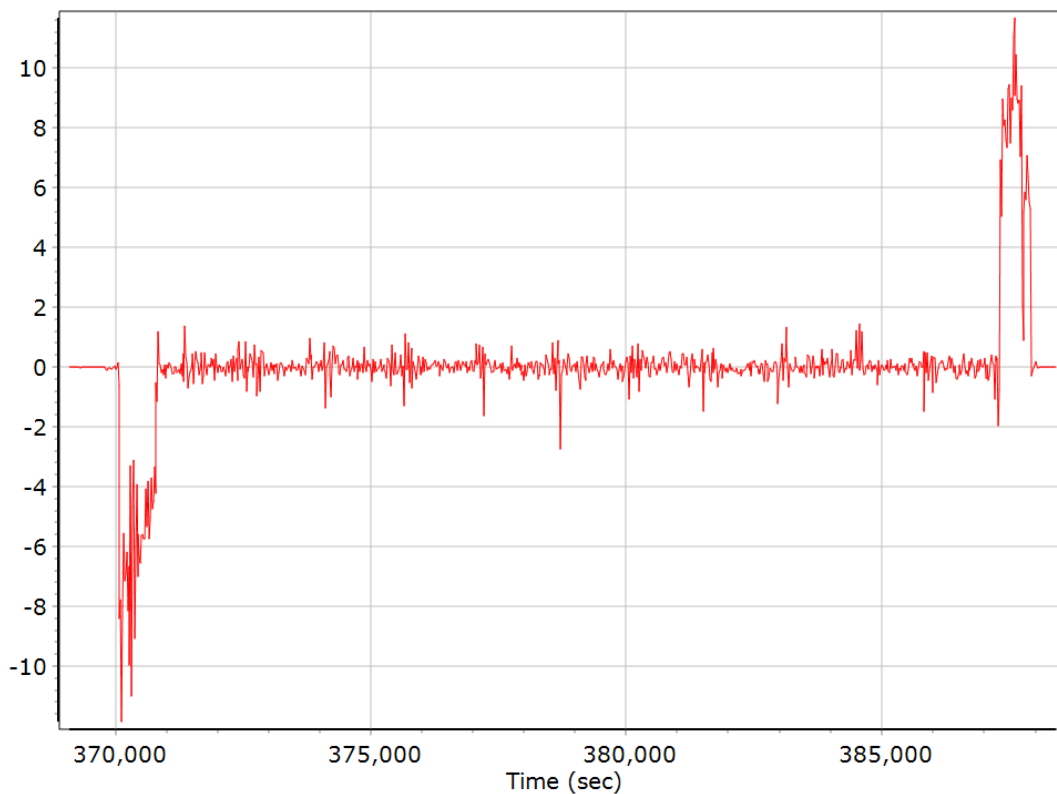
## Heading



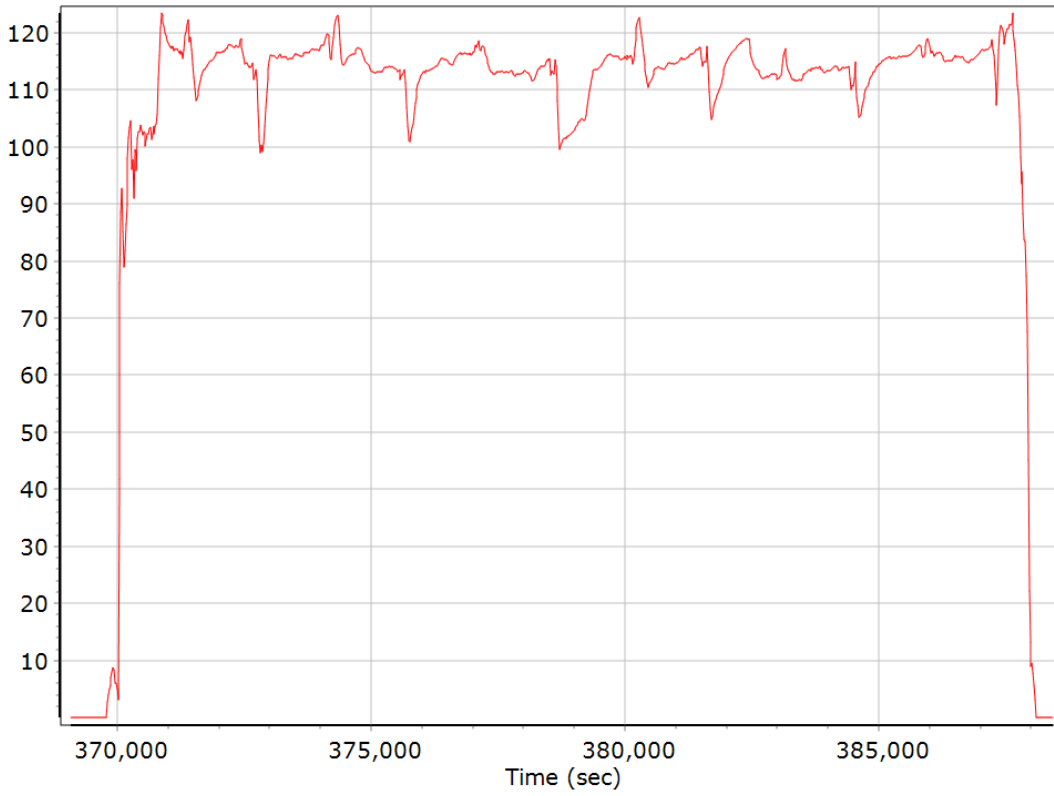
### North/East Velocity



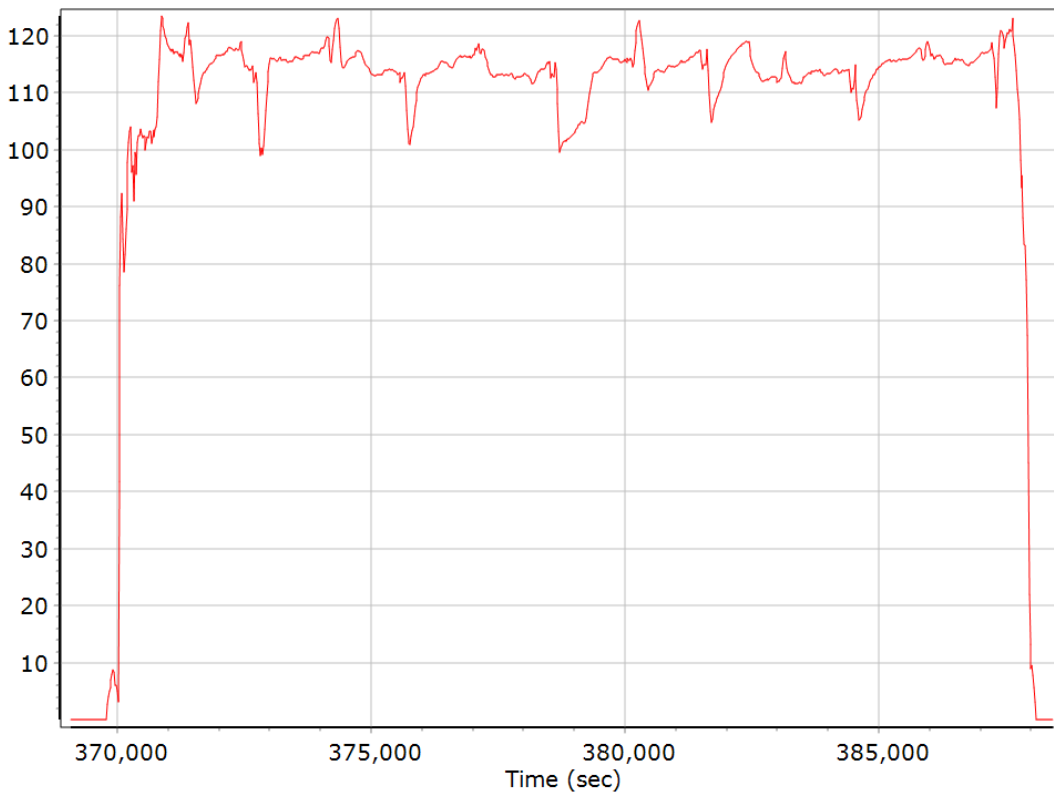
### Down Velocity



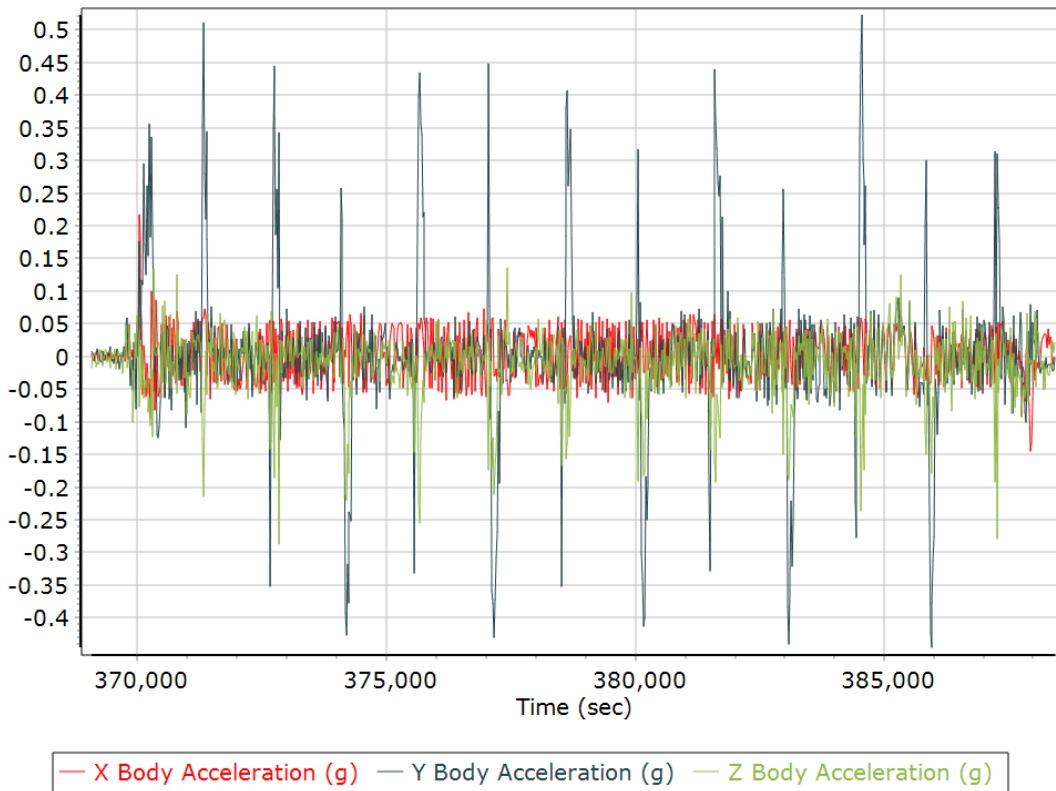
## Total Speed



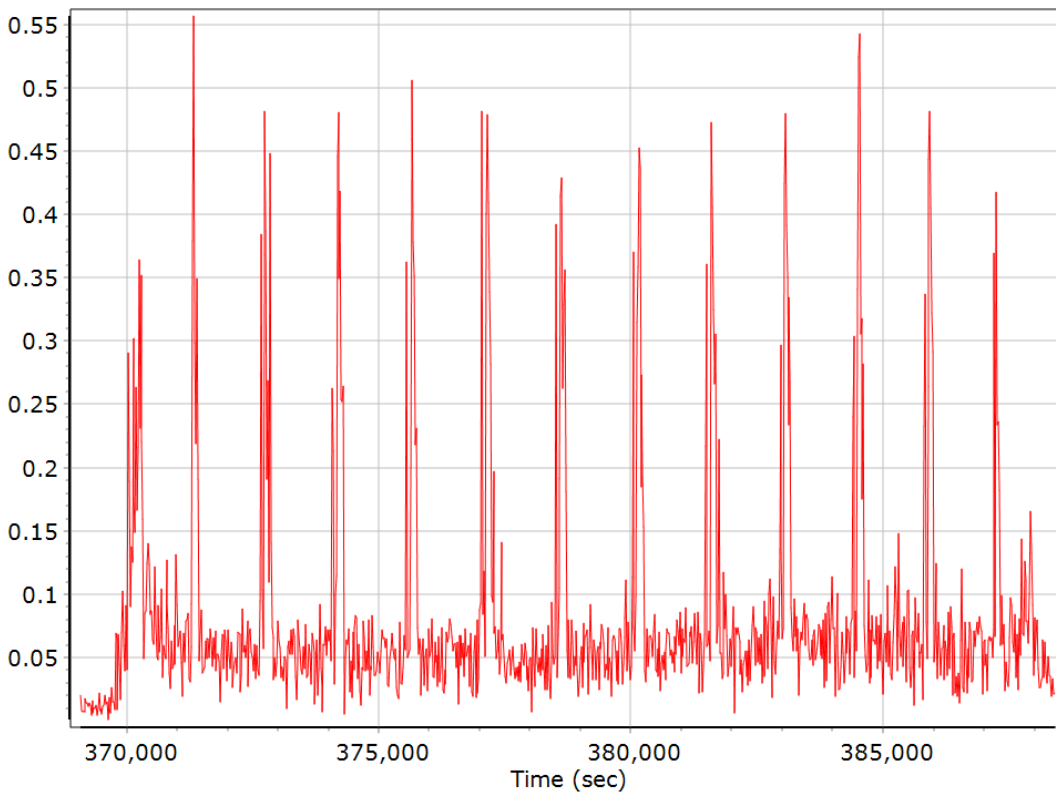
## Ground Speed



### Body Acceleration

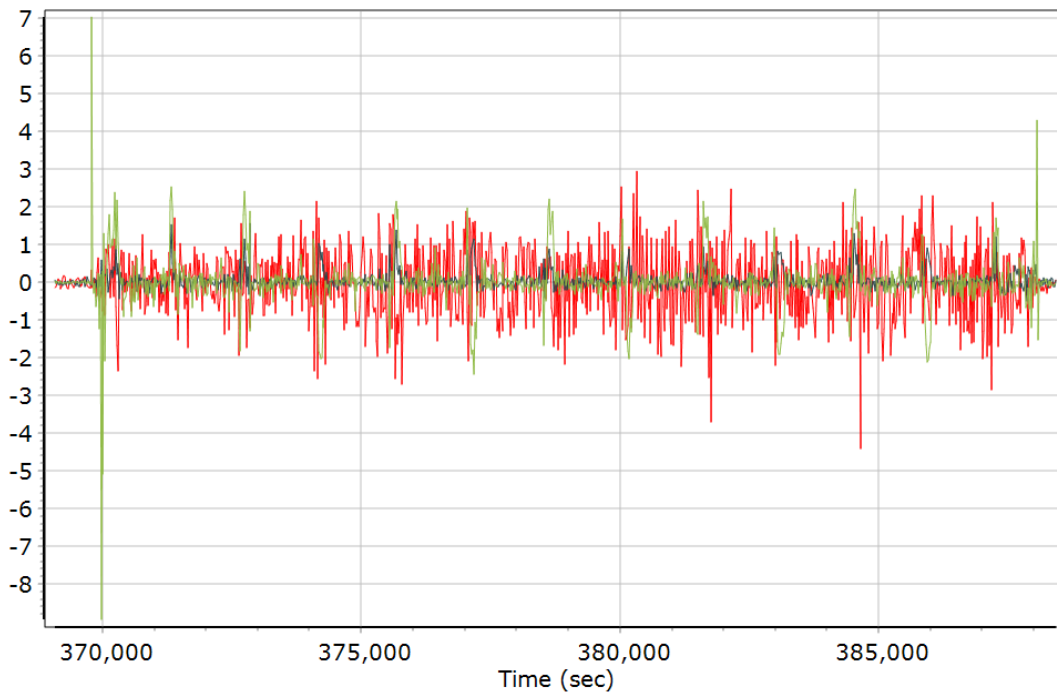


### Total Body Acceleration





## Body Angular Rate



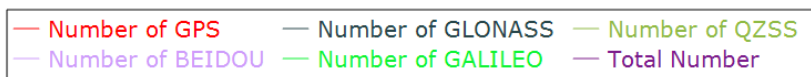
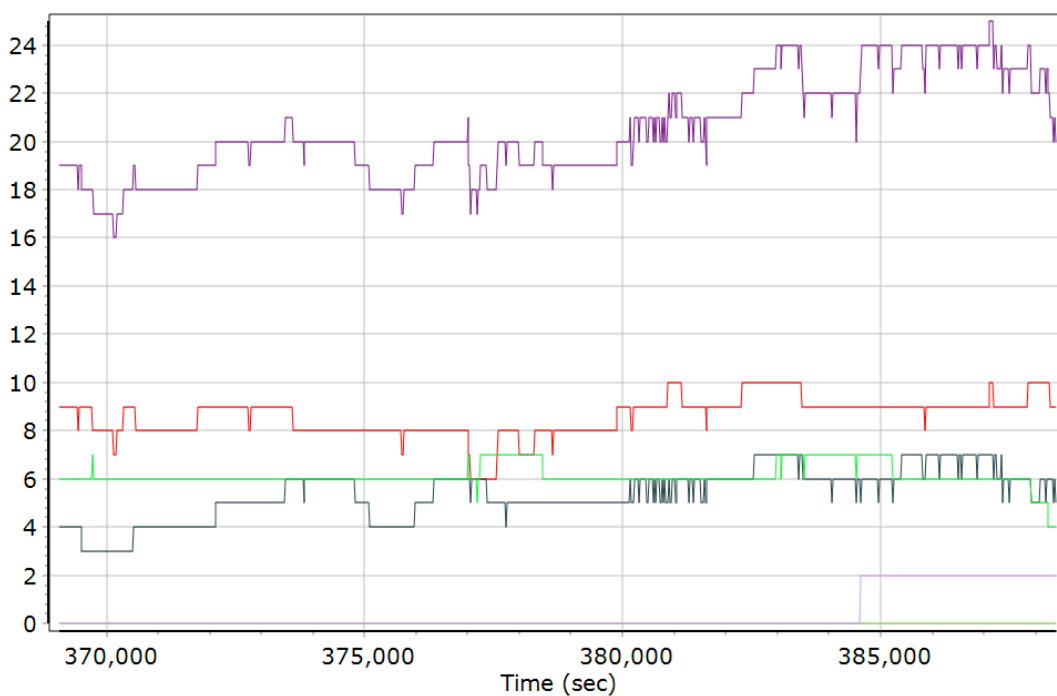
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

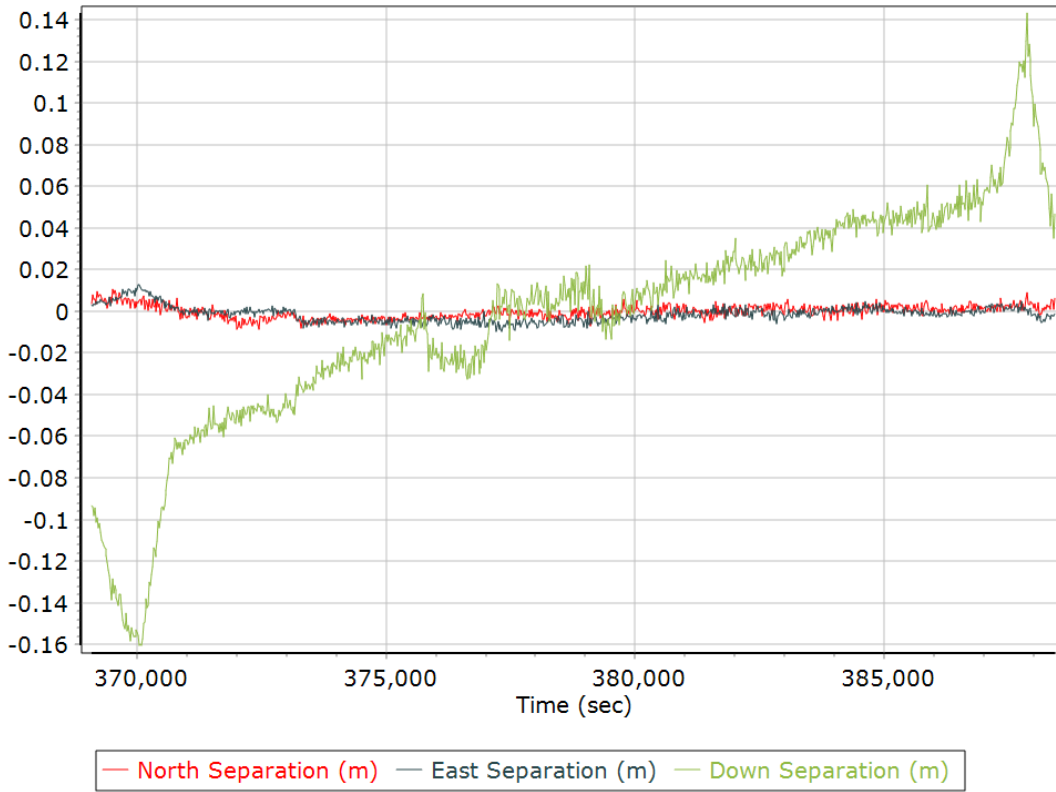
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	5	10	9
Number of GLONASS SV	0	7	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	2	0
Number of GALILEO SV	0	7	6
Total number of SV	12	25	20
PDOP	0.94	1.56	1.19
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	19849.00	0.00	0.00
Percentage	100.00	0.00	0.00

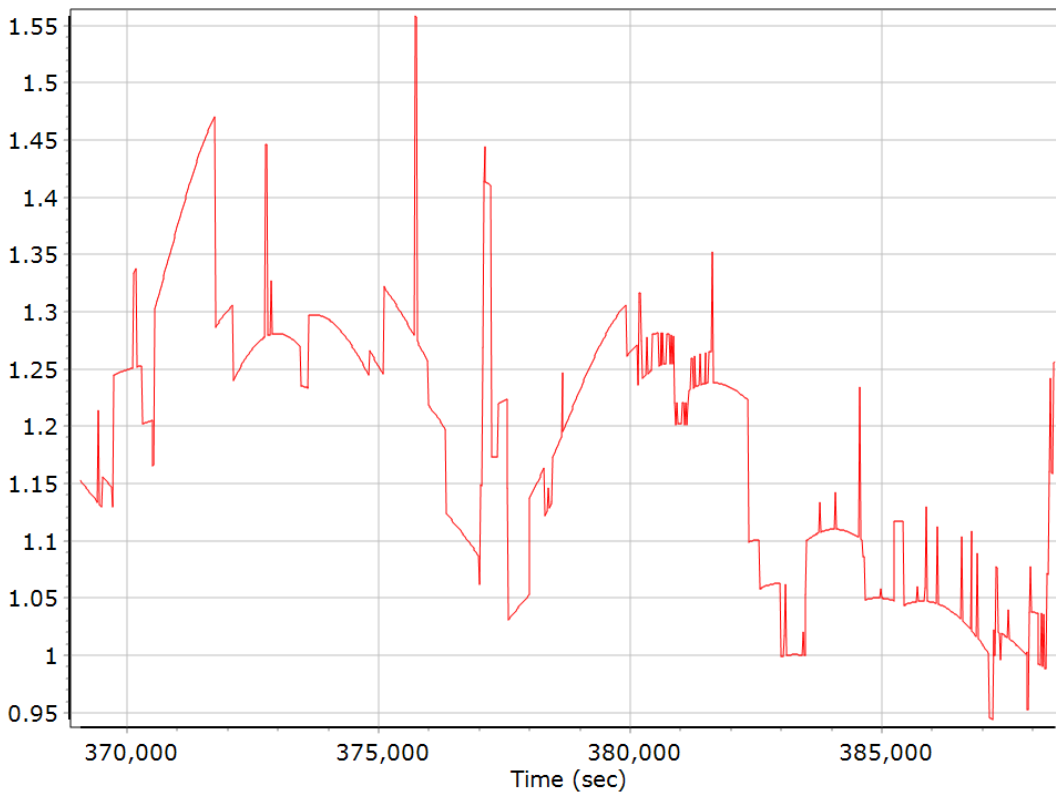
### Num SVs in solution



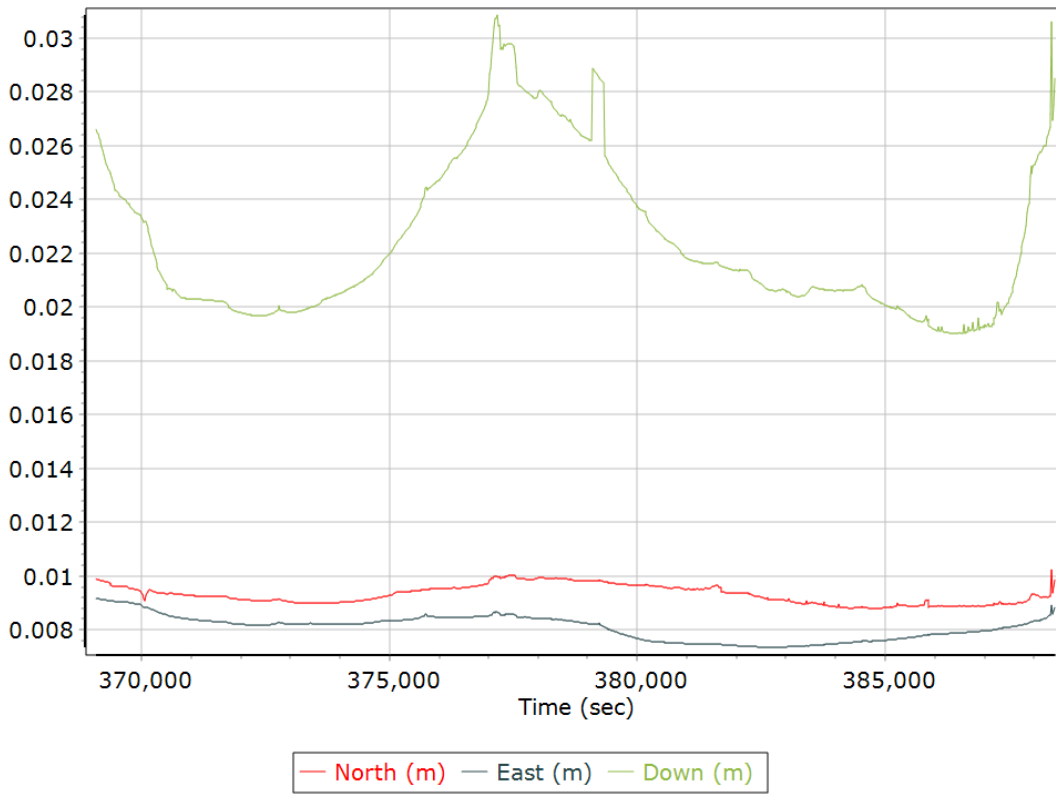
## Forward/Reverse Separation



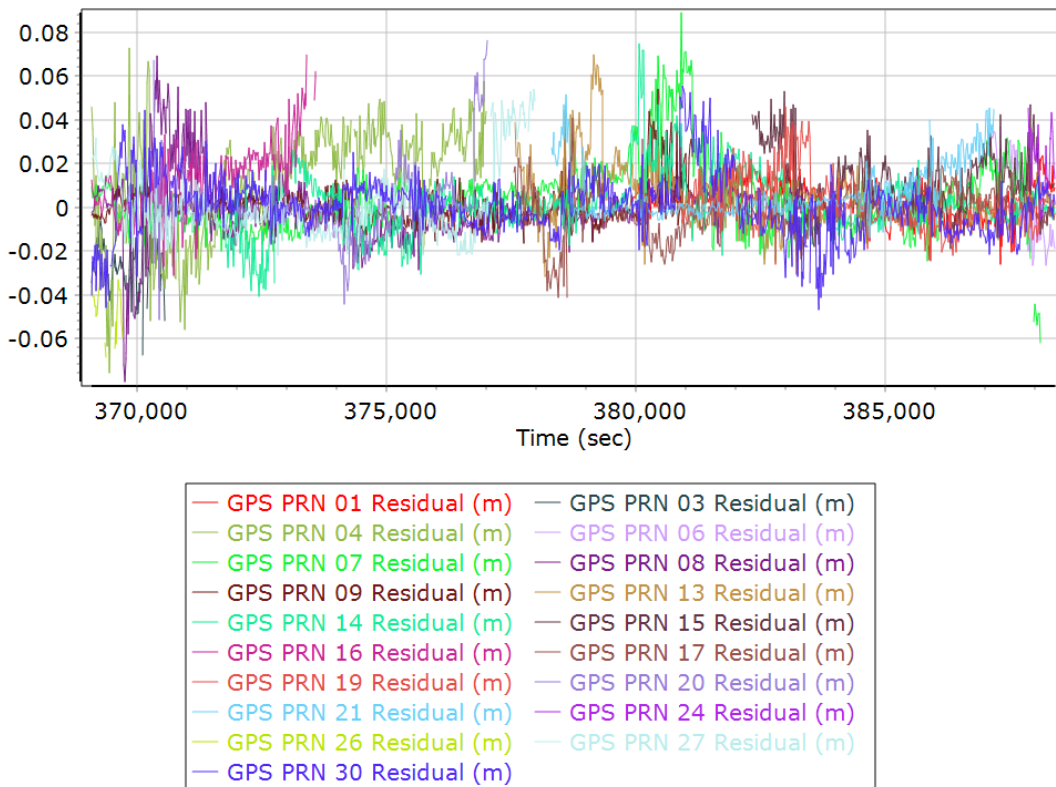
## PDOP



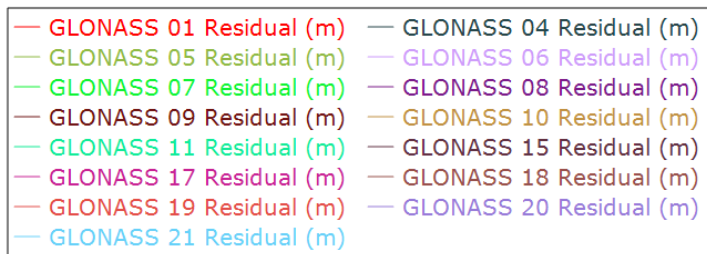
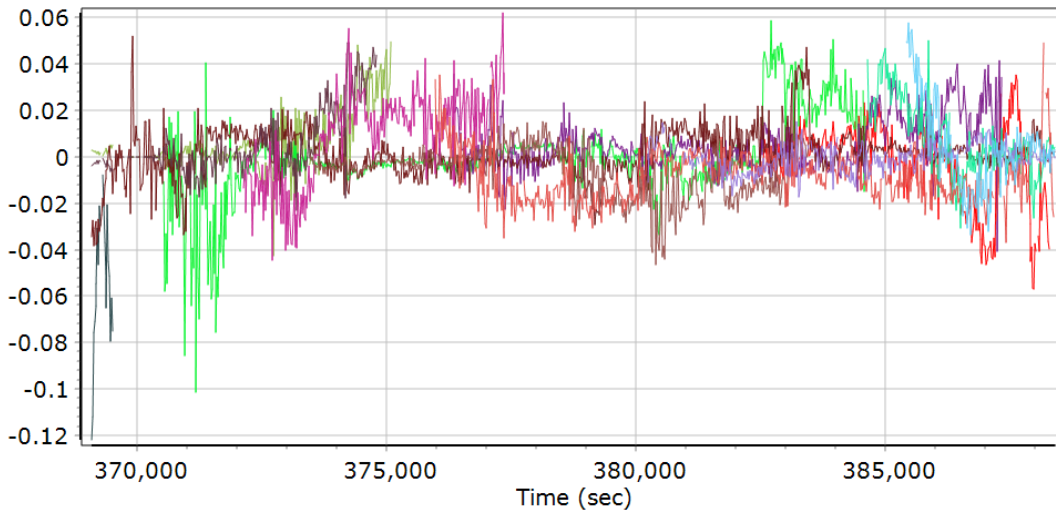
### Estimated Position Accuracy



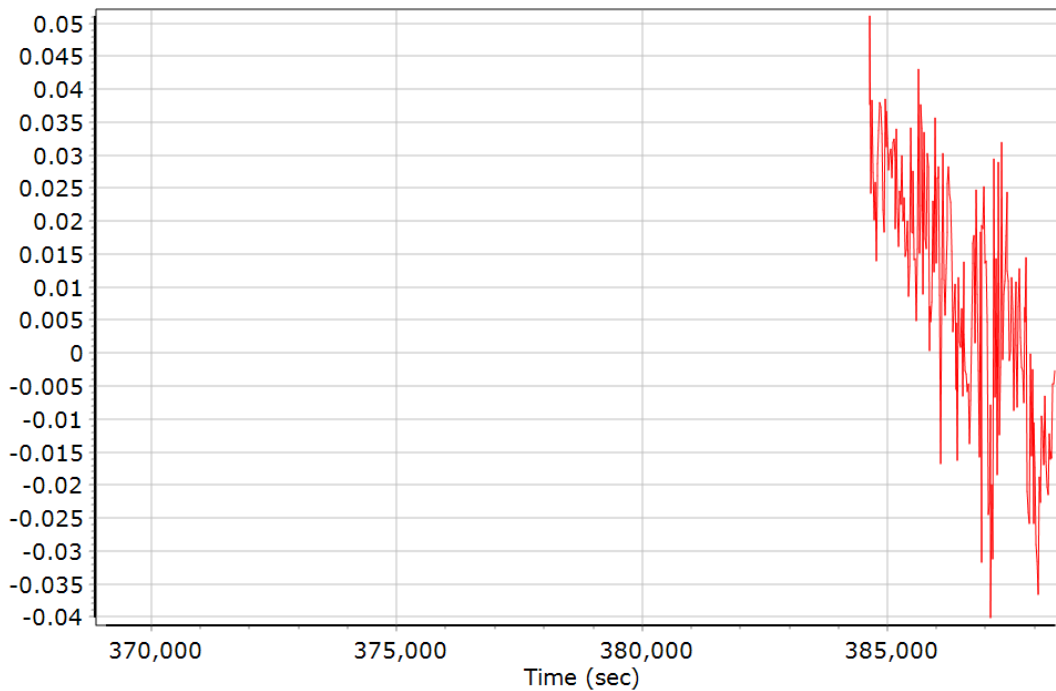
### GPS Residuals



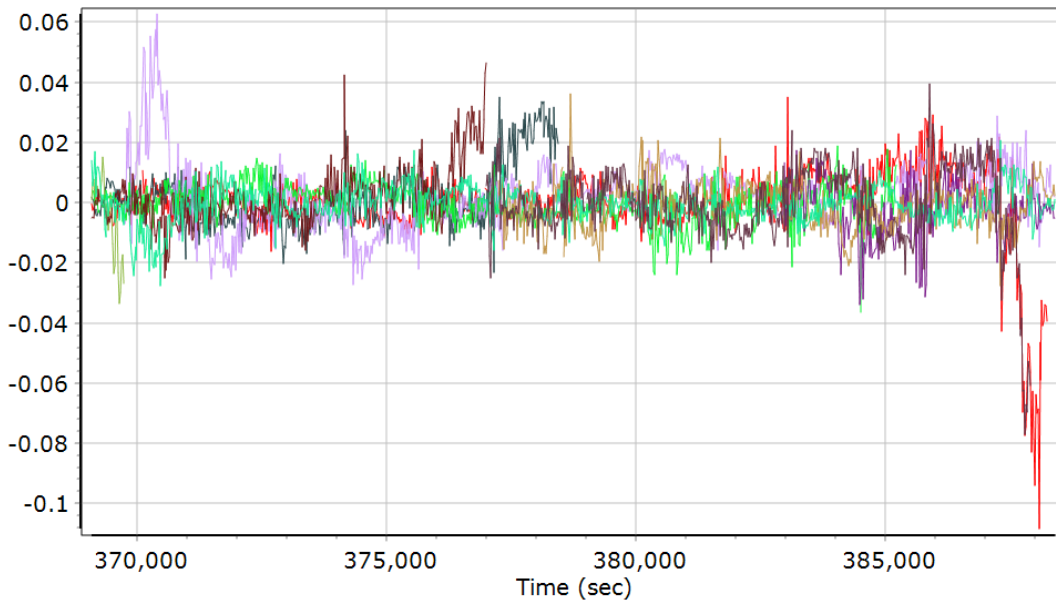
## GLONASS Residuals



## BEIDOU Residuals



## GALILEO Residuals



- |                           |                           |
|---------------------------|---------------------------|
| — GALILEO 02 Residual (m) | — GALILEO 03 Residual (m) |
| — GALILEO 05 Residual (m) | — GALILEO 07 Residual (m) |
| — GALILEO 08 Residual (m) | — GALILEO 15 Residual (m) |
| — GALILEO 25 Residual (m) | — GALILEO 27 Residual (m) |
| — GALILEO 30 Residual (m) | — GALILEO 36 Residual (m) |

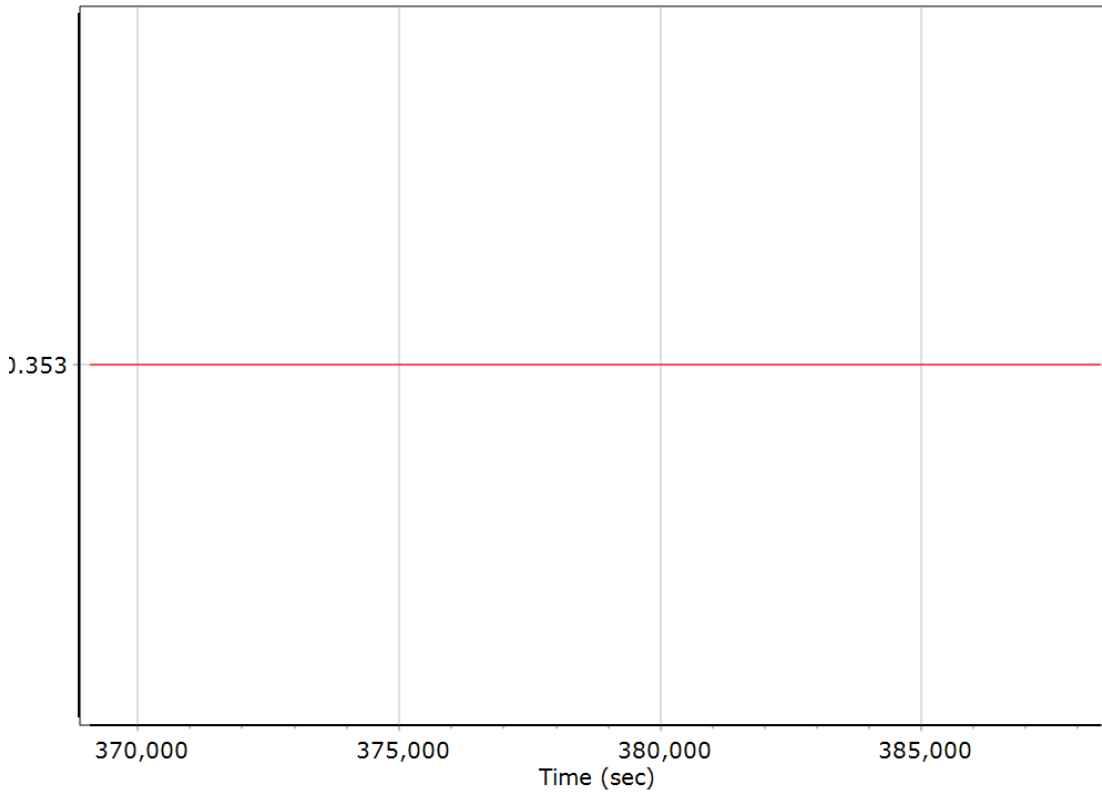
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	368539.000 (7/21/2022 6:22:19 AM)		
Processing end time	388434.000 (7/21/2022 11:53:54 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.300	-1.280
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

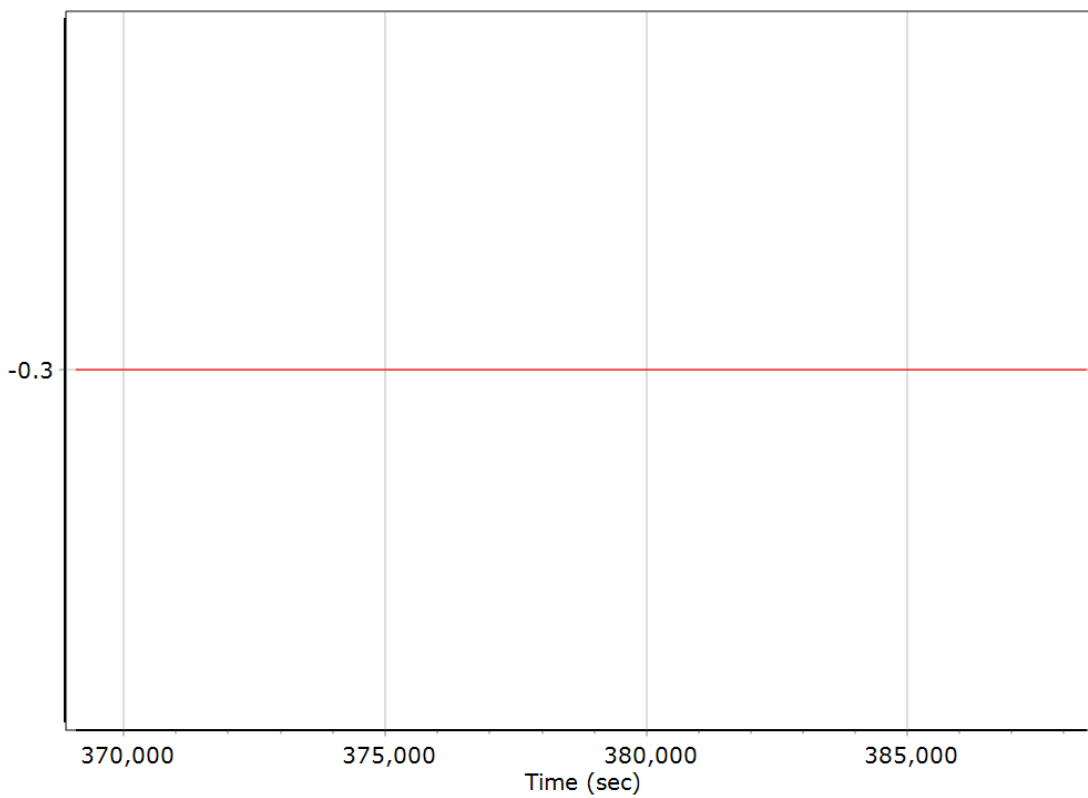
## Calibrated Installation Parameters

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

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

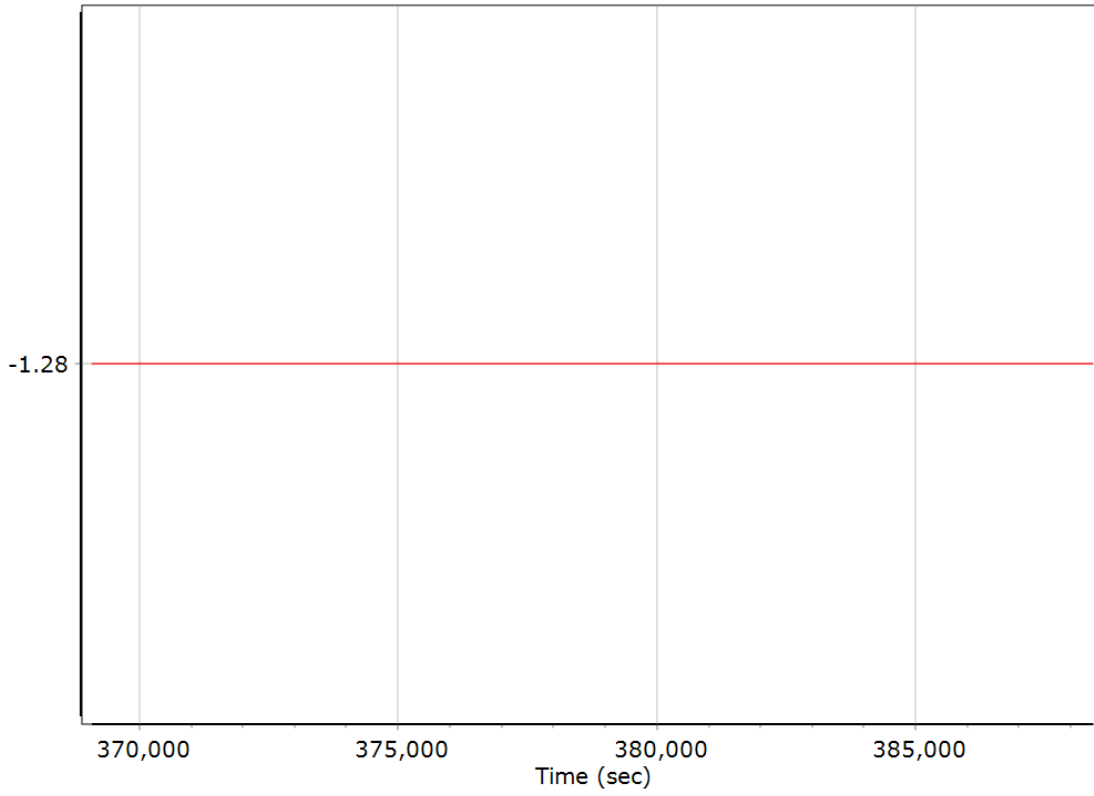


#### Y Reference-Primary GNSS Lever Arm (m)

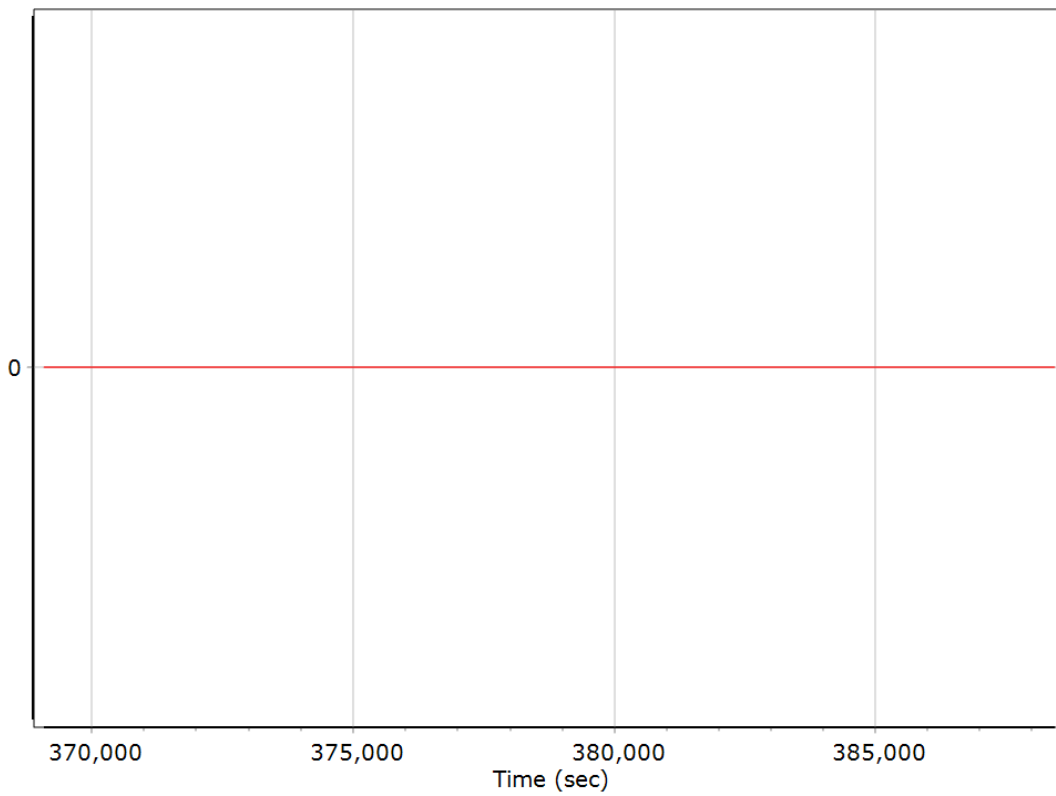




**Z Reference-Primary GNSS Lever Arm (m)**



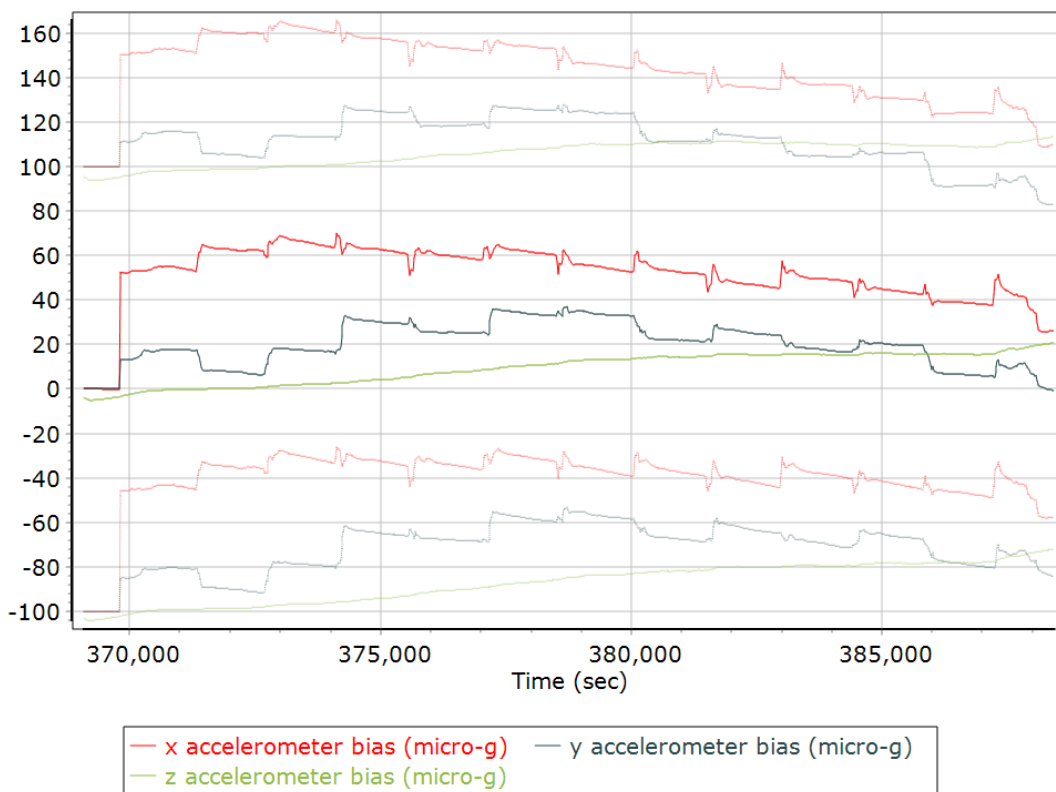
**Reference-Primary GNSS Lever Arm Figure of Merit**



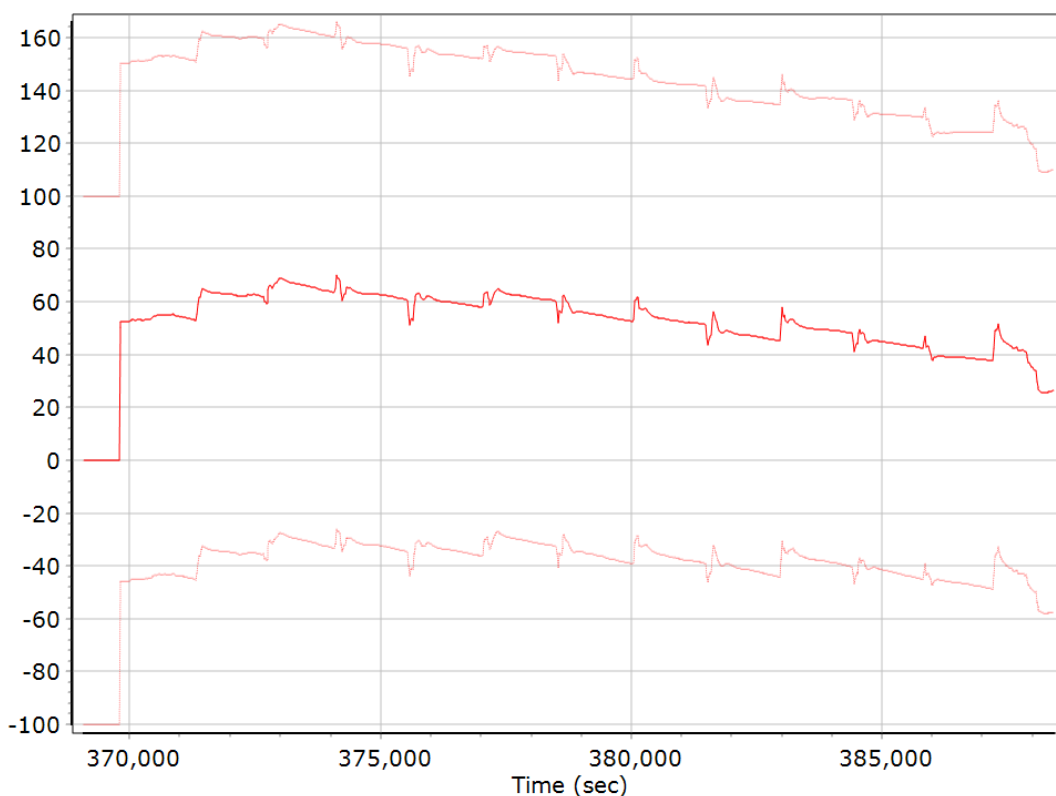
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

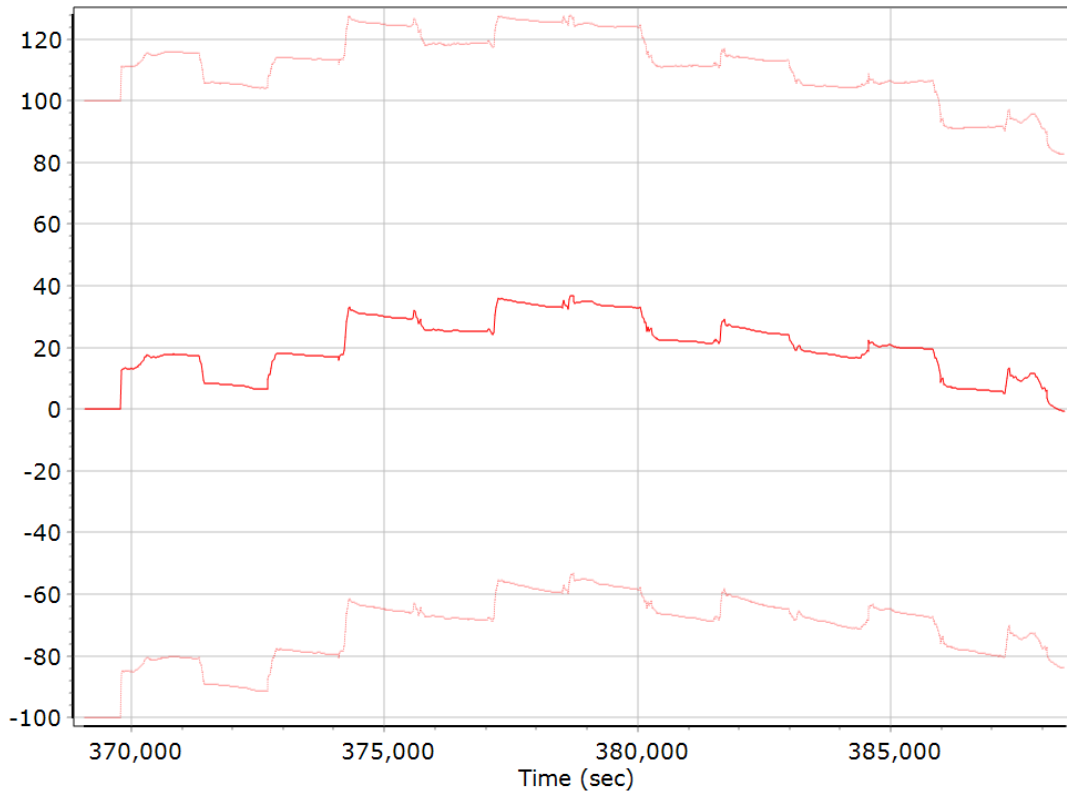
#### Accelerometer Bias (micro-g)



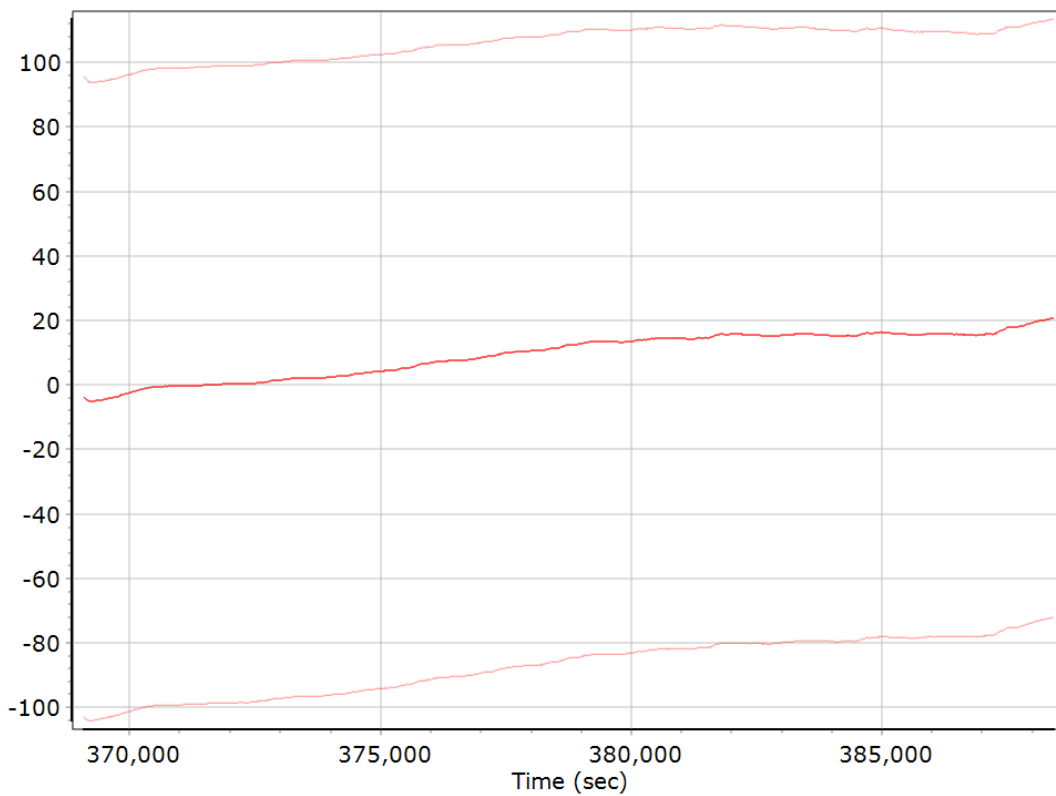
#### X Accelerometer Bias (micro-g)



### Y Accelerometer Bias (micro-g)



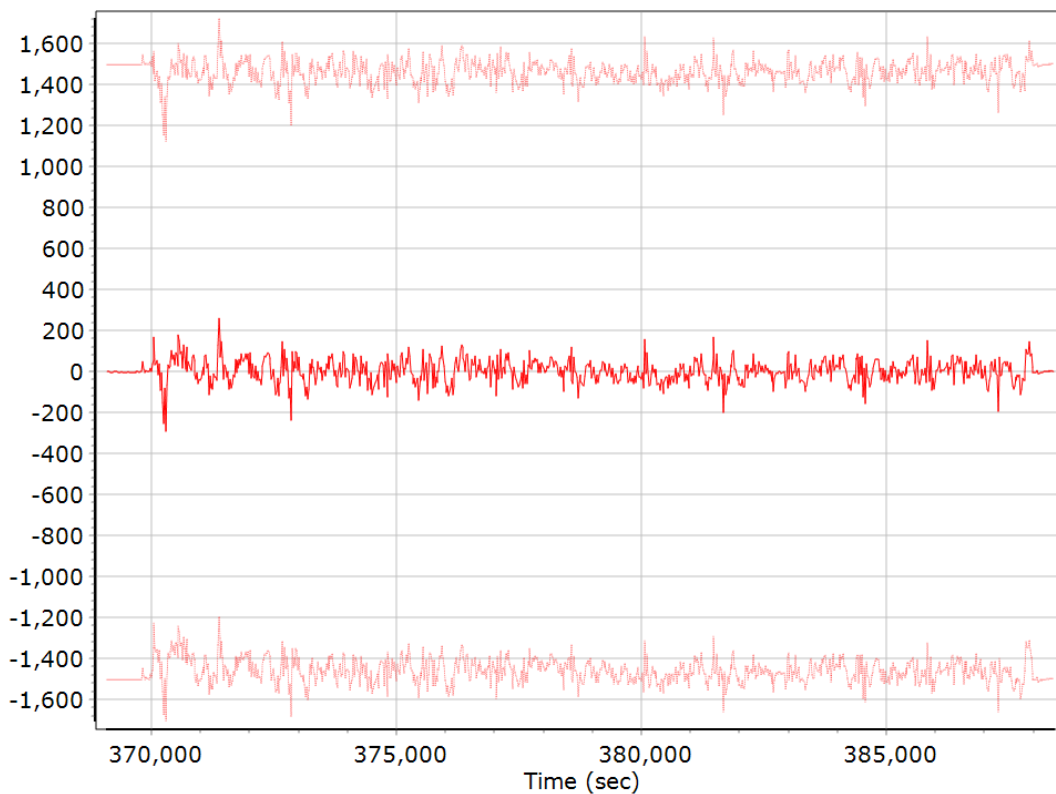
### Z Accelerometer Bias (micro-g)



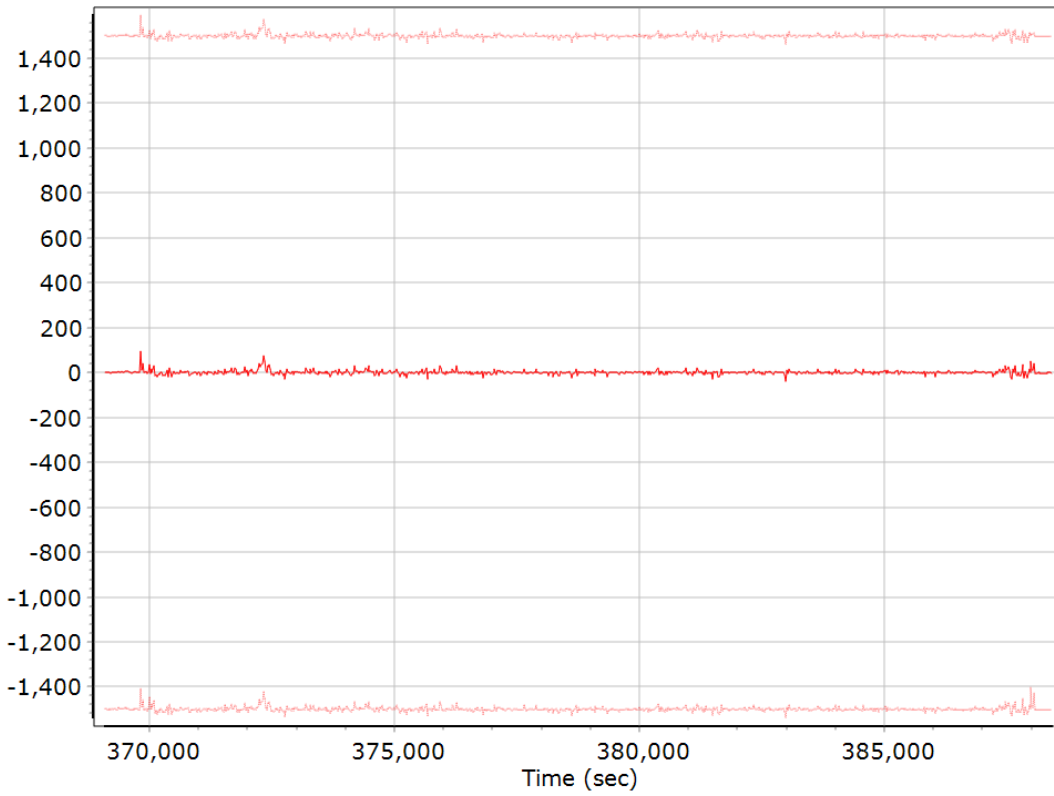
### Accelerometer Scale Error (ppm)



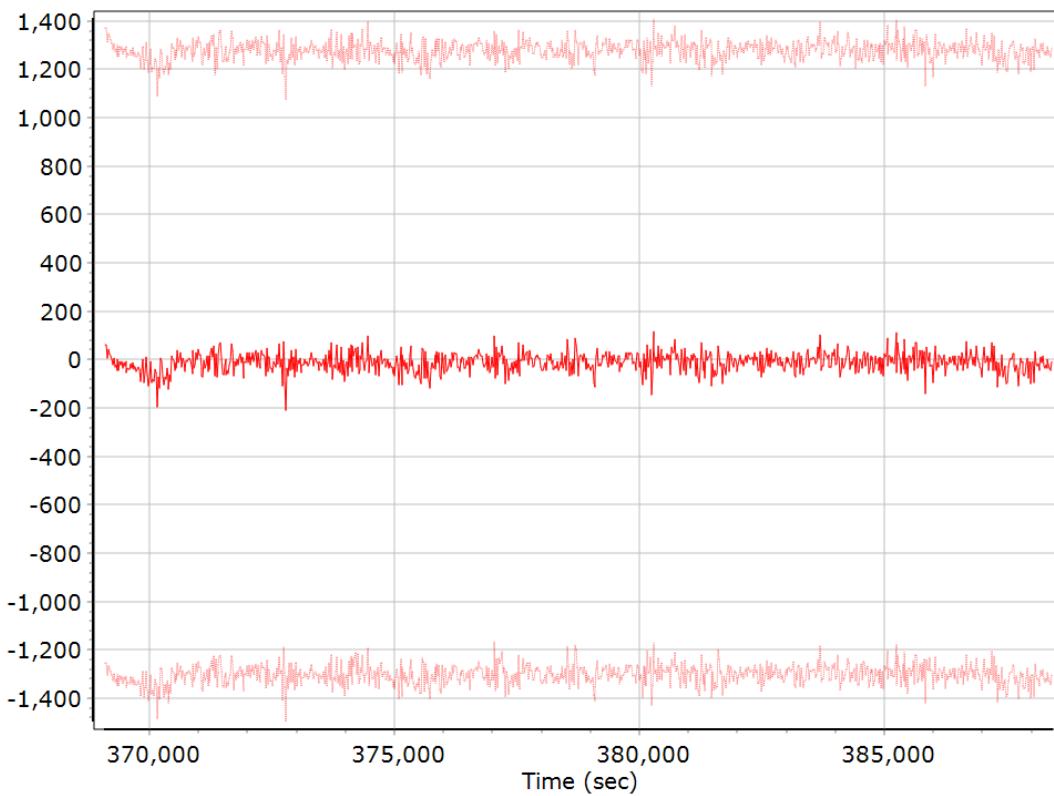
### X Accelerometer Scale Error (ppm)



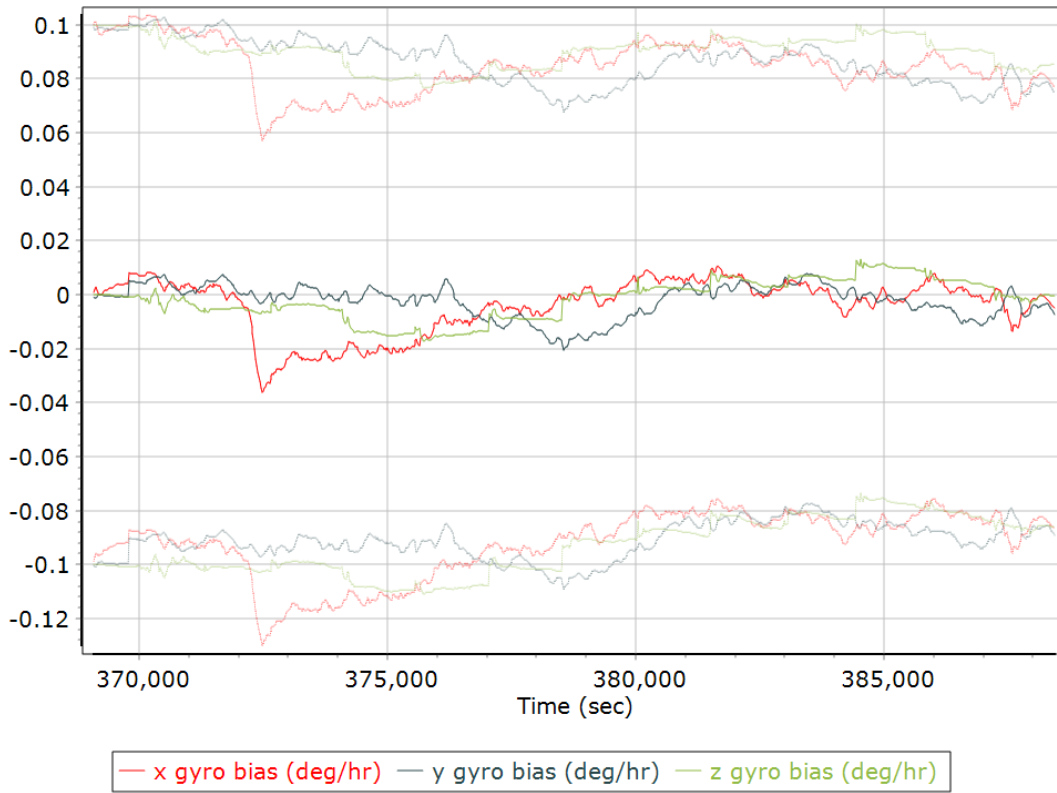
### Y Accelerometer Scale Error (ppm)



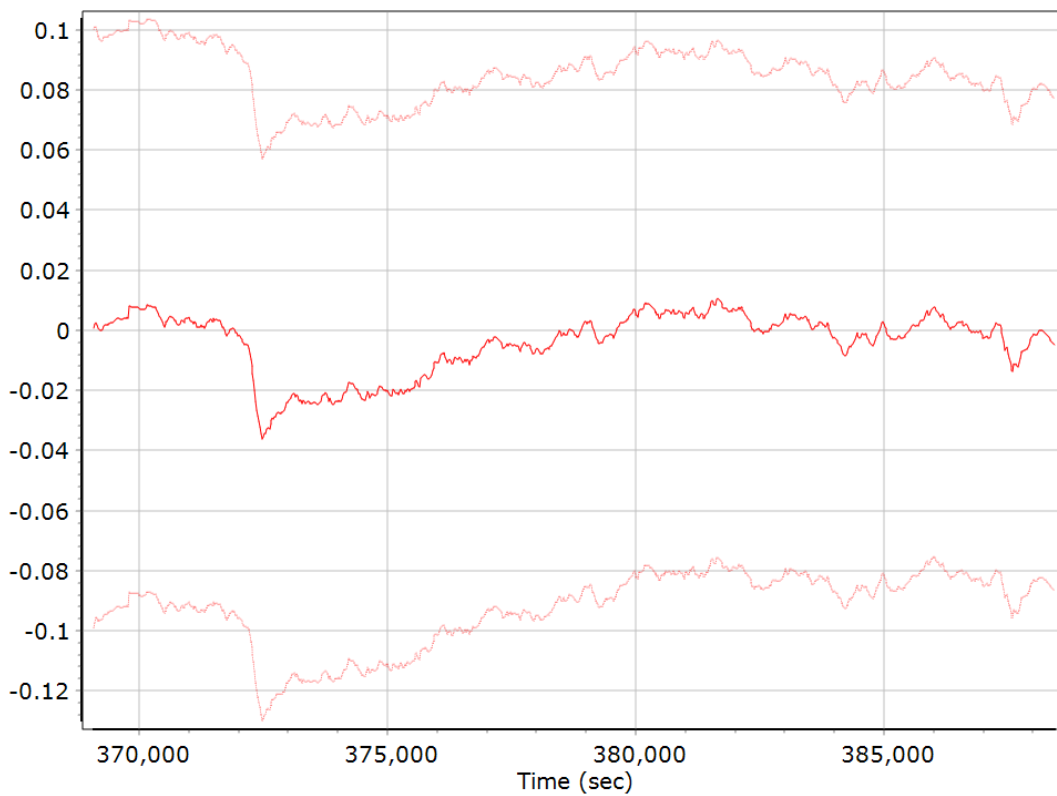
### Z Accelerometer Scale Error (ppm)



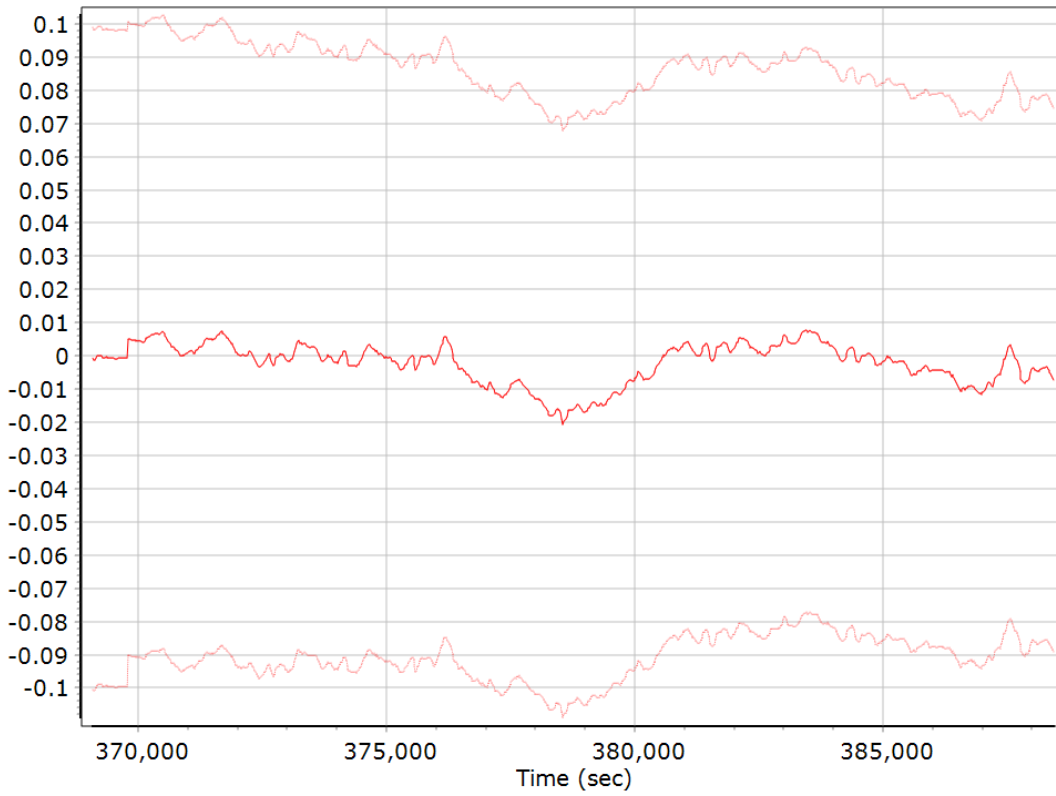
### Gyro Bias (deg/h)



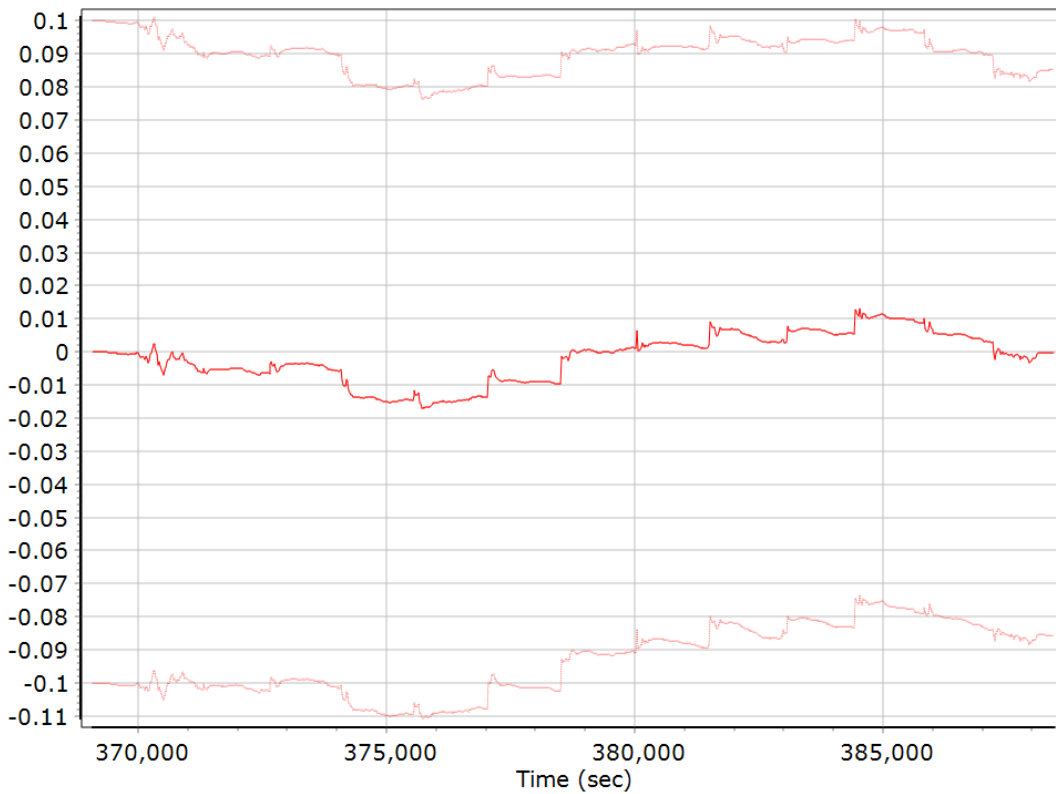
### X Gyro Bias (deg/h)



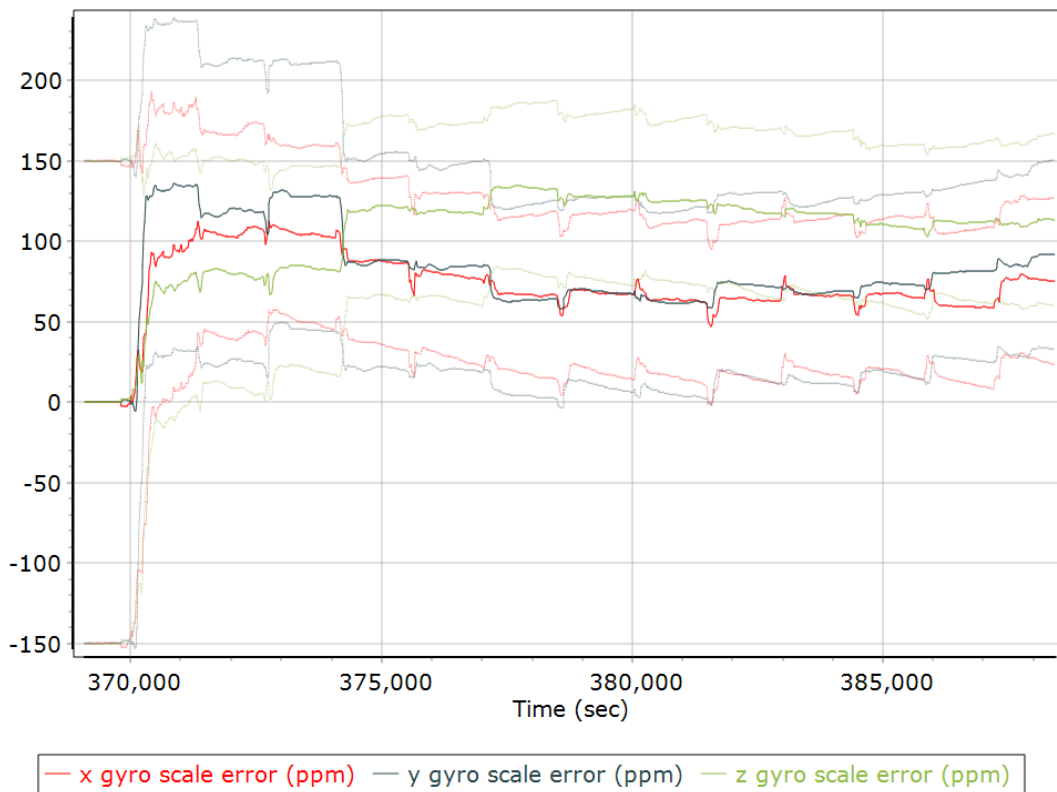
### Y Gyro Bias (deg/h)



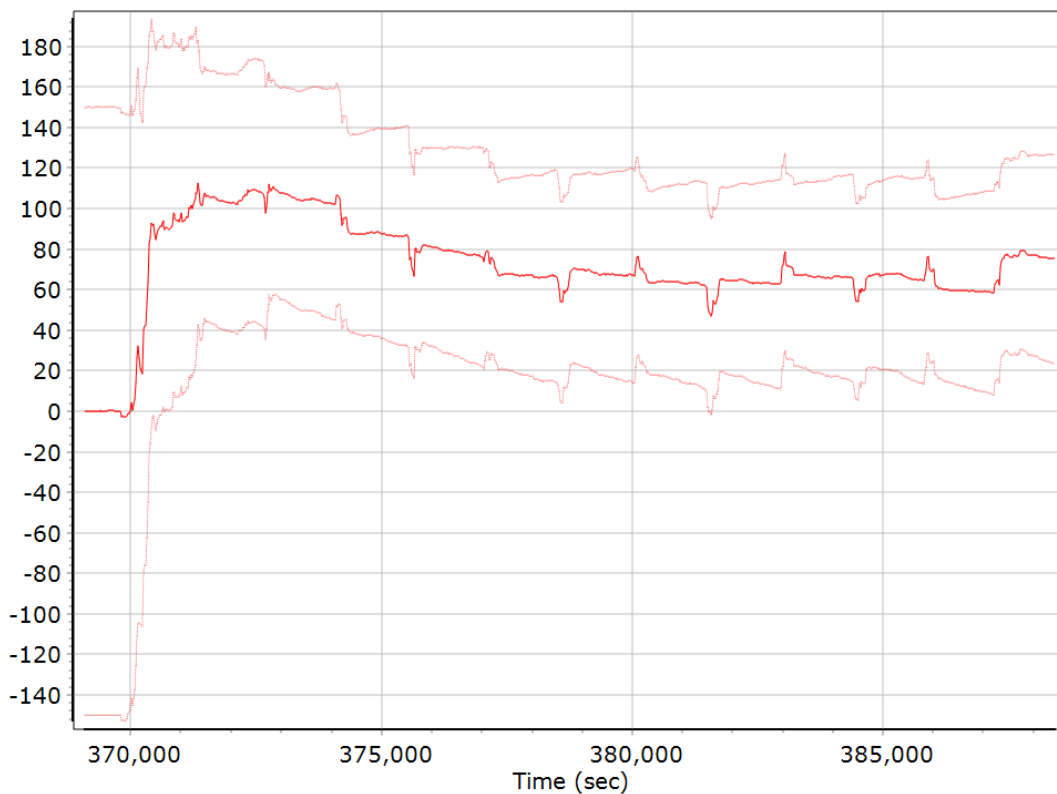
### Z Gyro Bias (deg/h)



### Gyro Scale Error (ppm)

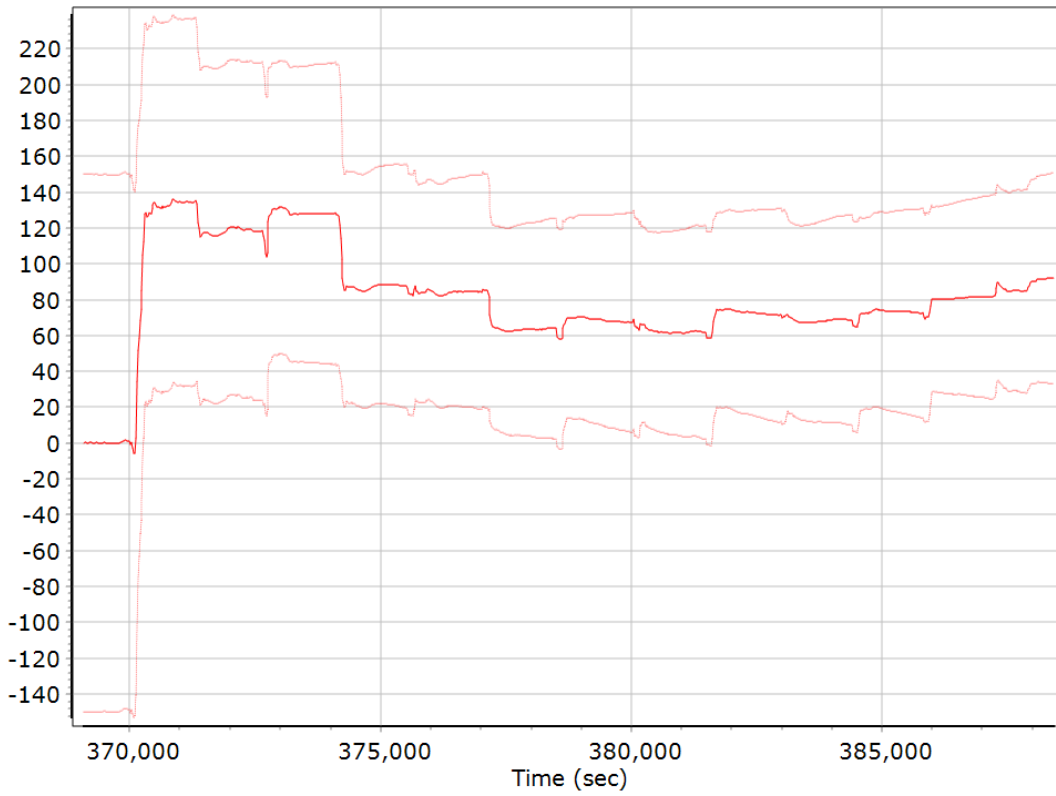


### X Gyro Scale Error (ppm)

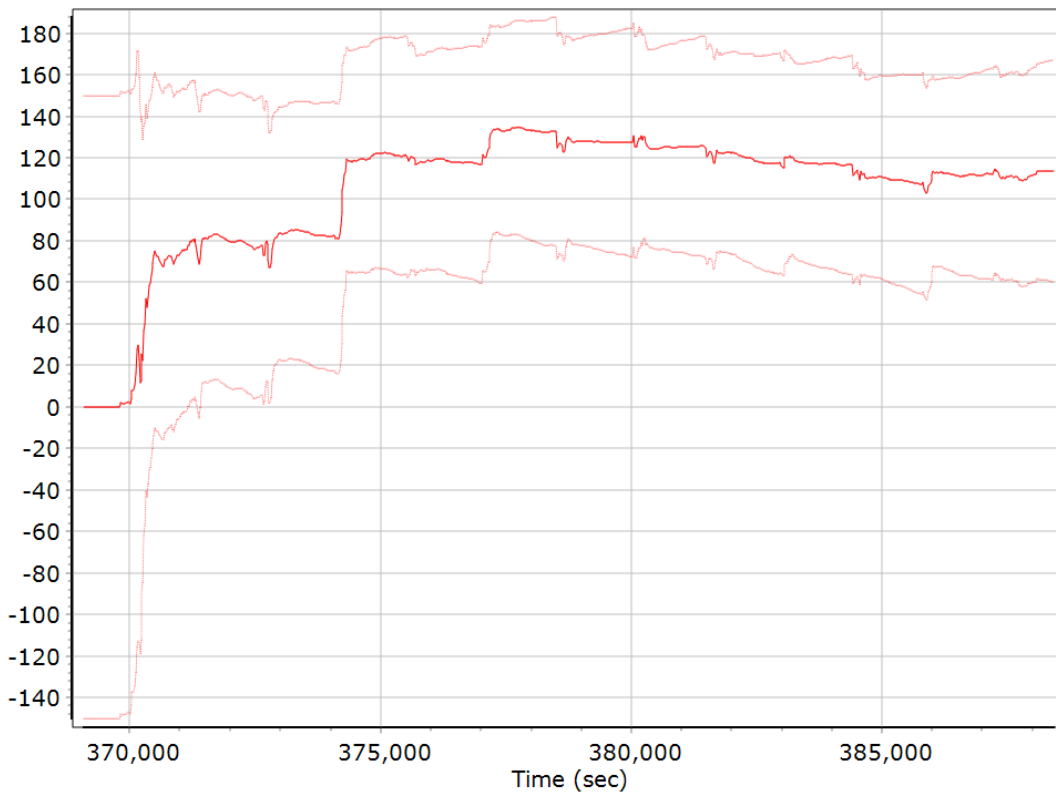




### Y Gyro Scale Error (ppm)

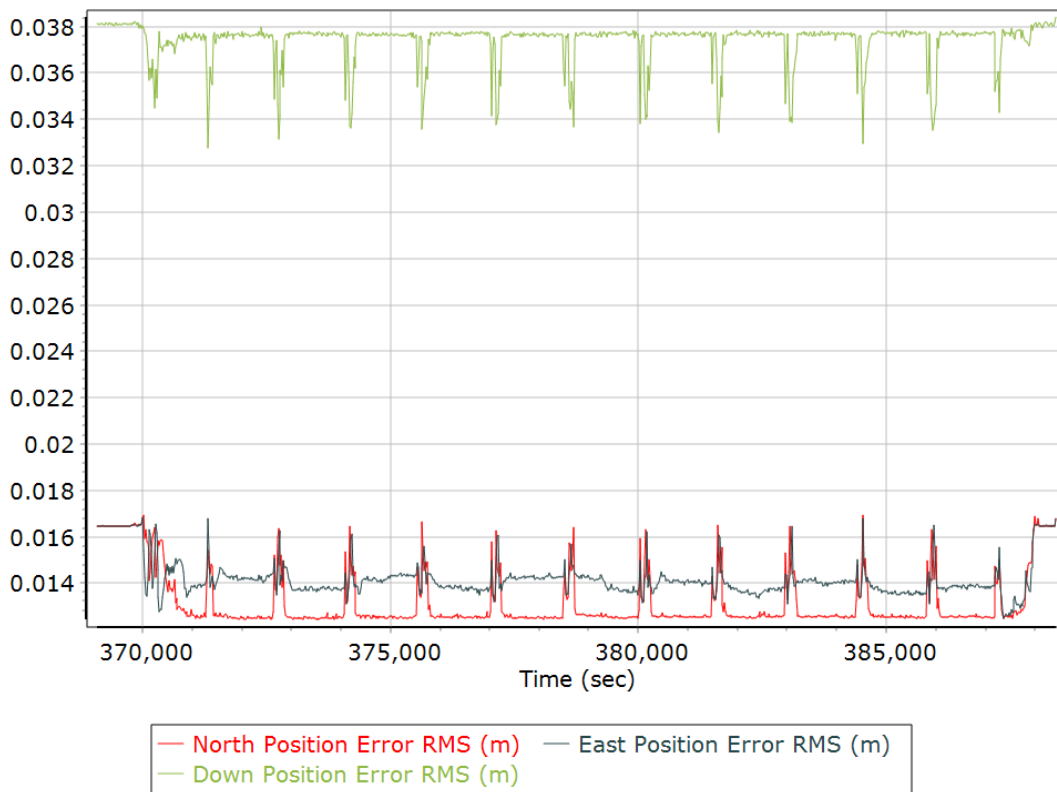


### Z Gyro Scale Error (ppm)

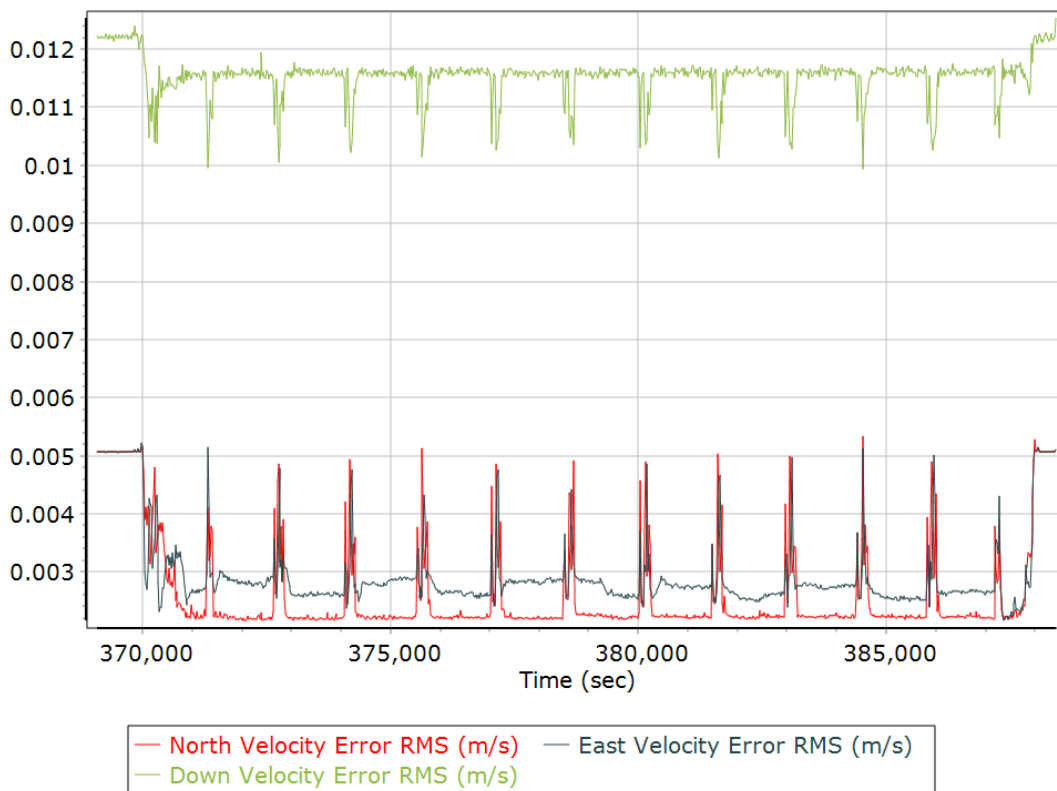


## Smoothed Performance Metrics

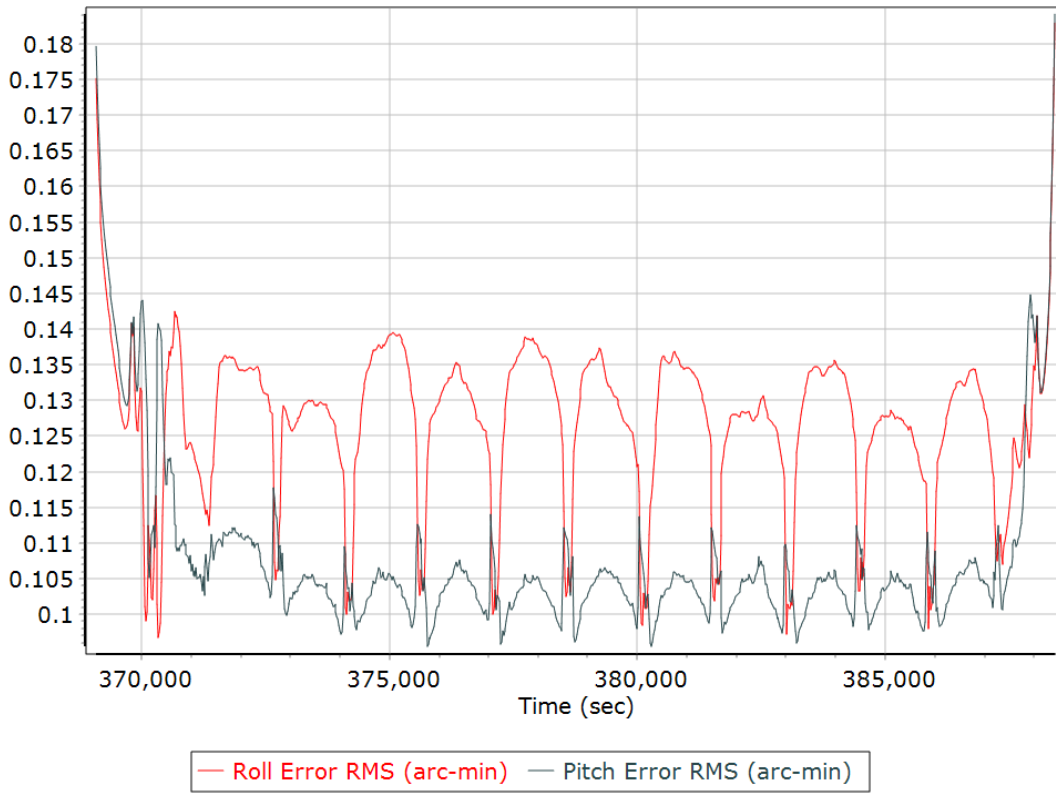
### Position Error RMS (m)



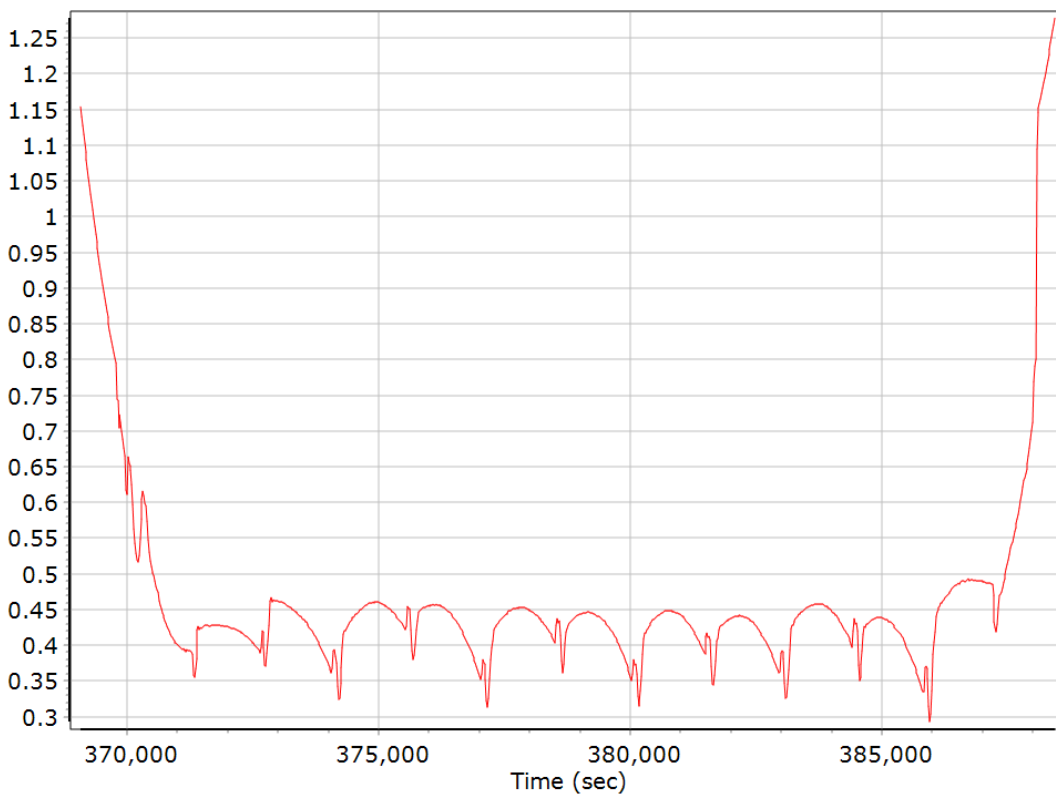
### Velocity Error RMS (m/s)



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

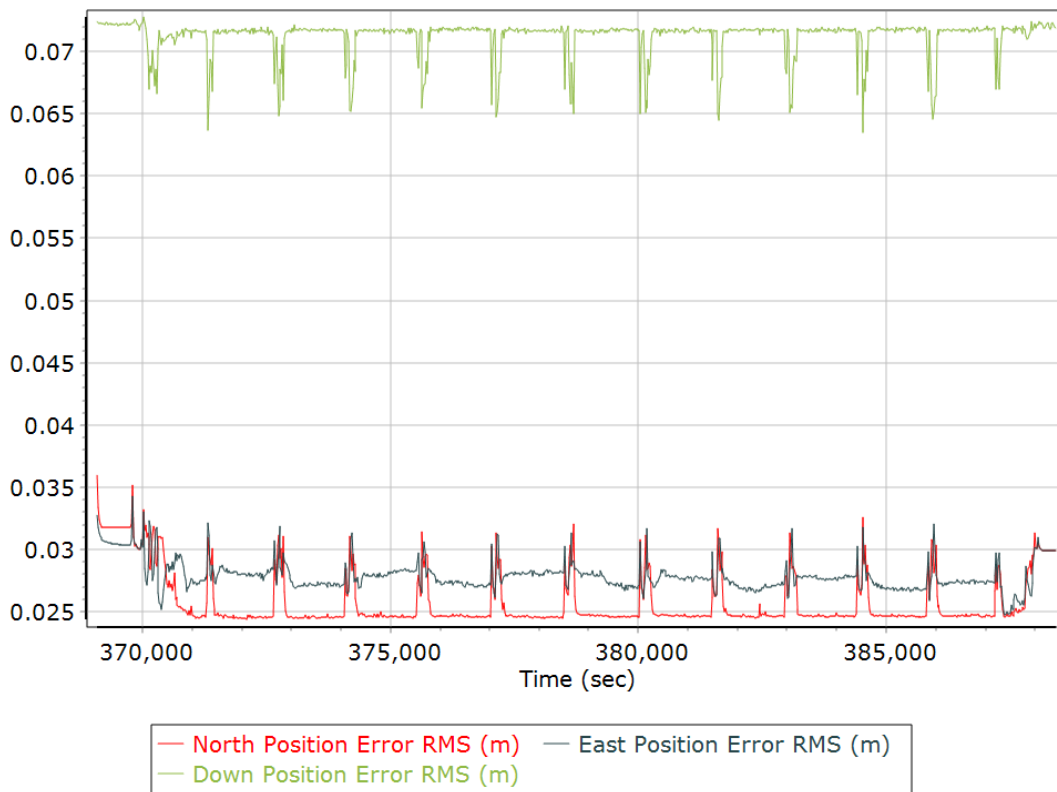


### Heading Error RMS (arc-min)

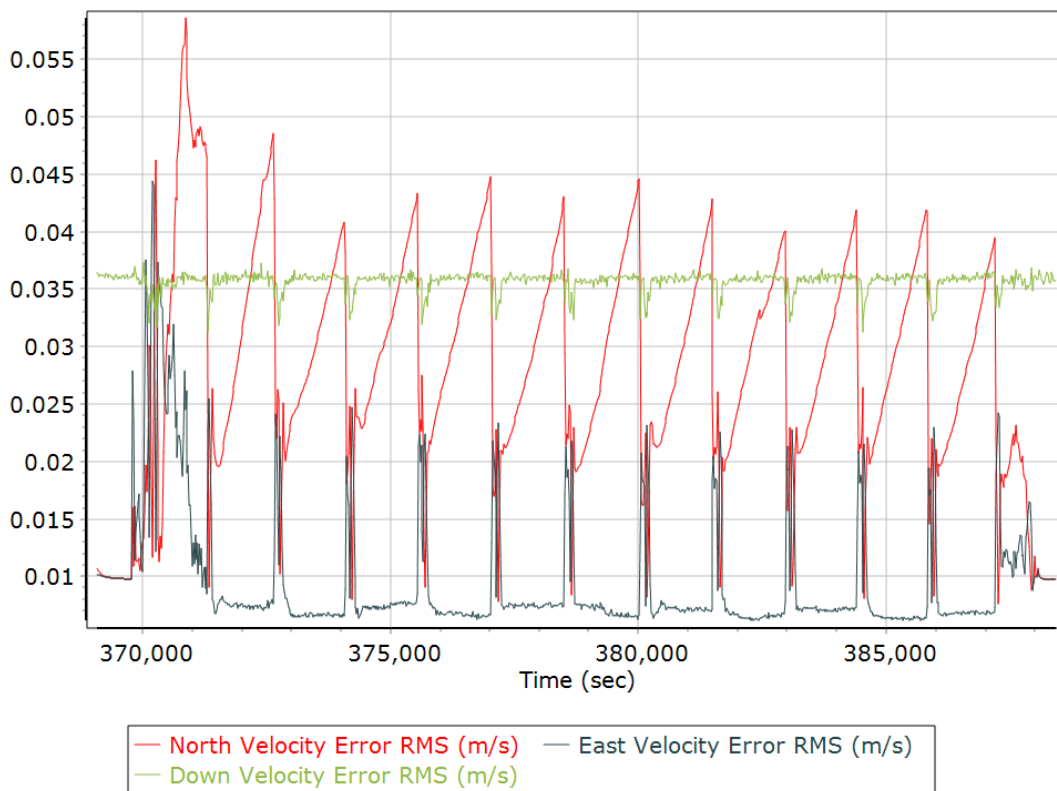


## Forward Processed Performance Metrics

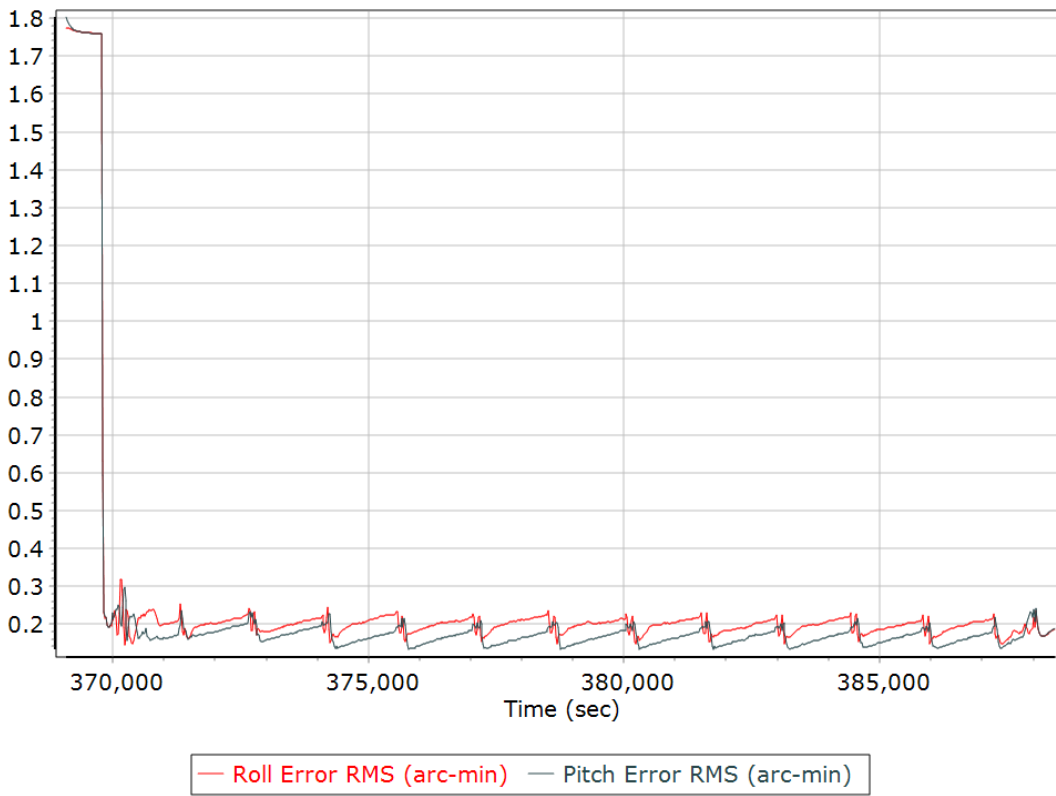
### Position Error RMS (m)



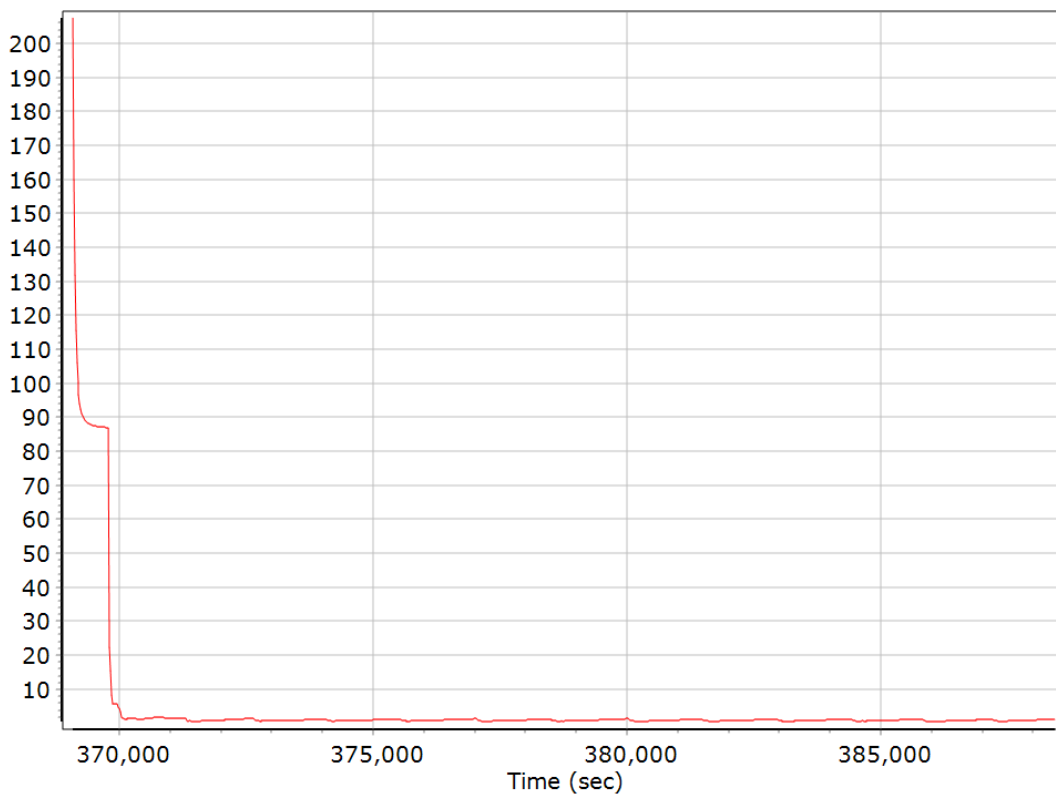
### Velocity Error RMS (m/s)



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

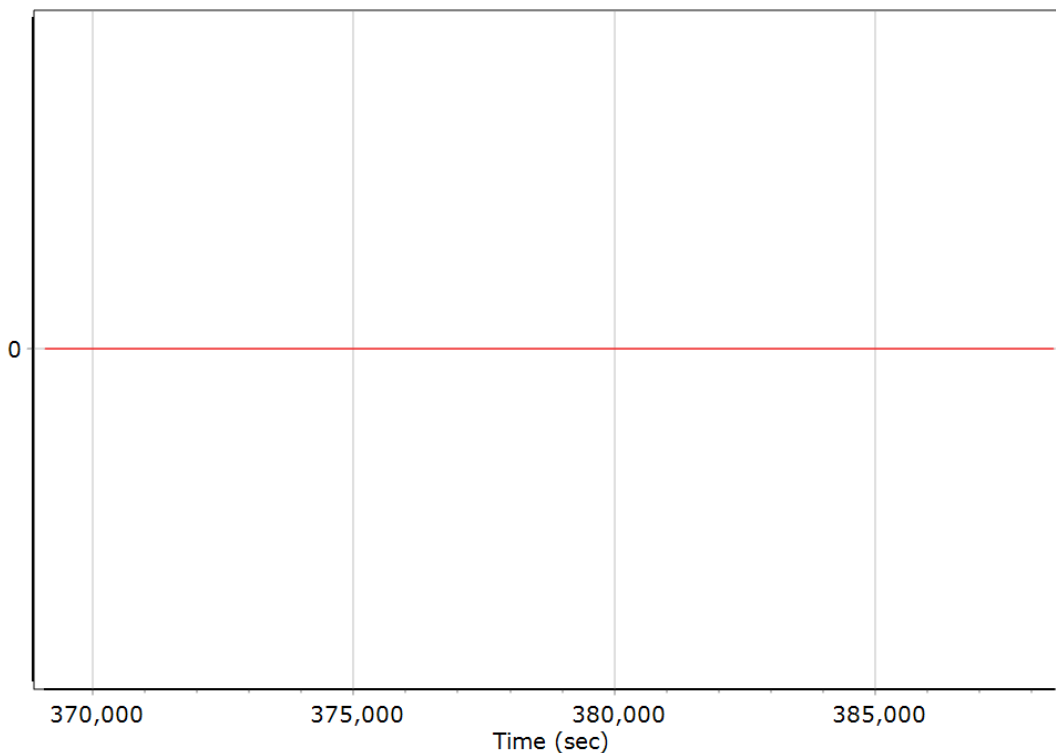


### Heading Error RMS (arc-min)



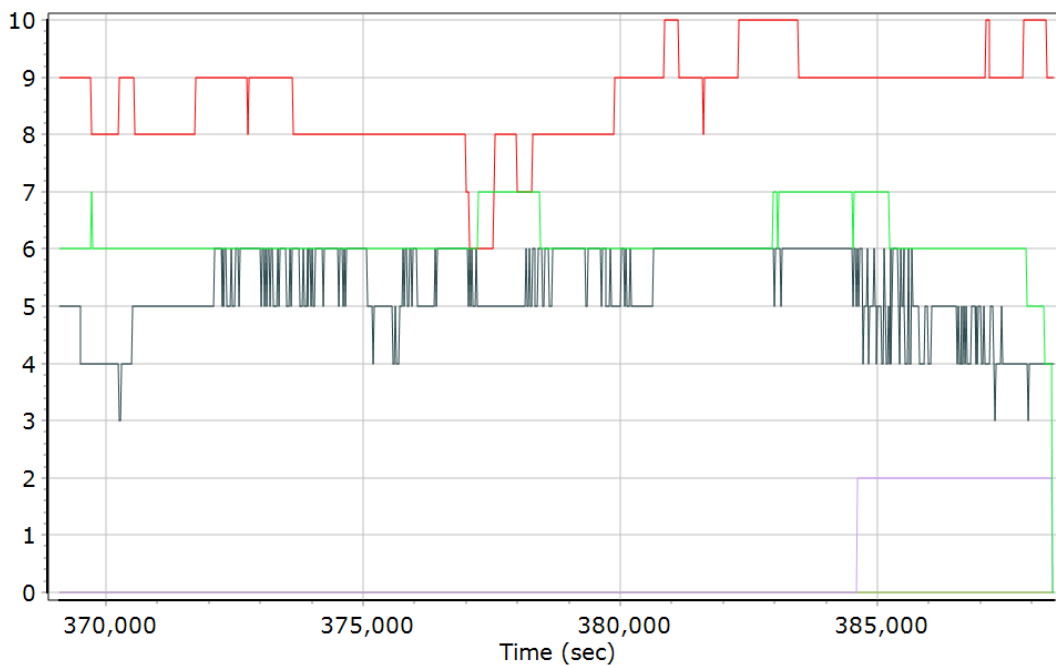
## Forward Processed Solution Status

### Processing Mode



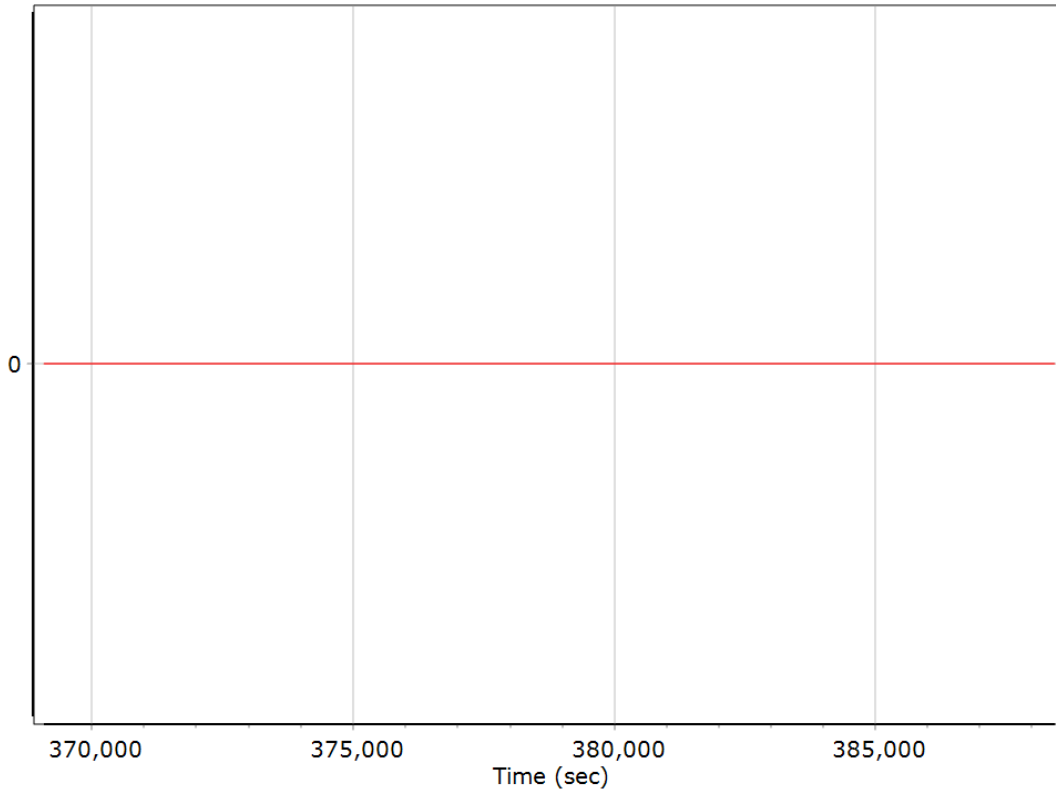
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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



## General Information

### Mission Information

Project name	a07-s03-0516
Processing date	2022-07-25 15:49:24
Mission date	2022-07-23 06:23:50
Mission duration	05:35:44.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39



## Project File List

### Rover Data Files

File name	File type
default0723_062351.000	POS Data
default0723_062351.001	POS Data
default0723_062351.002	POS Data
default0723_062351.003	POS Data
default0723_062351.004	POS Data
default0723_062351.005	POS Data
default0723_062351.006	POS Data
default0723_062351.007	POS Data
default0723_062351.008	POS Data
default0723_062351.009	POS Data
default0723_062351.010	POS Data
default0723_062351.011	POS Data
default0723_062351.012	POS Data
default0723_062351.013	POS Data
default0723_062351.014	POS Data
default0723_062351.015	POS Data
default0723_062351.016	POS Data
default0723_062351.017	POS Data
default0723_062351.018	POS Data
default0723_062351.019	POS Data
default0723_062351.020	POS Data
default0723_062351.021	POS Data
default0723_062351.022	POS Data
default0723_062351.023	POS Data
default0723_062351.024	POS Data
default0723_062351.025	POS Data
default0723_062351.026	POS Data
default0723_062351.027	POS Data

### Input Files

File Name	File Type
Ephm2040.22g	GLONASS Broadcast Ephemeris
Ephm2040.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0516.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0723_062351.000		
Last raw data file	default0723_062351.027		
Start GPS week	2219		
Start time	17.107 (7/17/2022 12:00:17 AM)		
End time	561557.815 (7/23/2022 11:59:17 AM)		
Start of fine alignment	541813.504 (7/23/2022 6:30:13 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

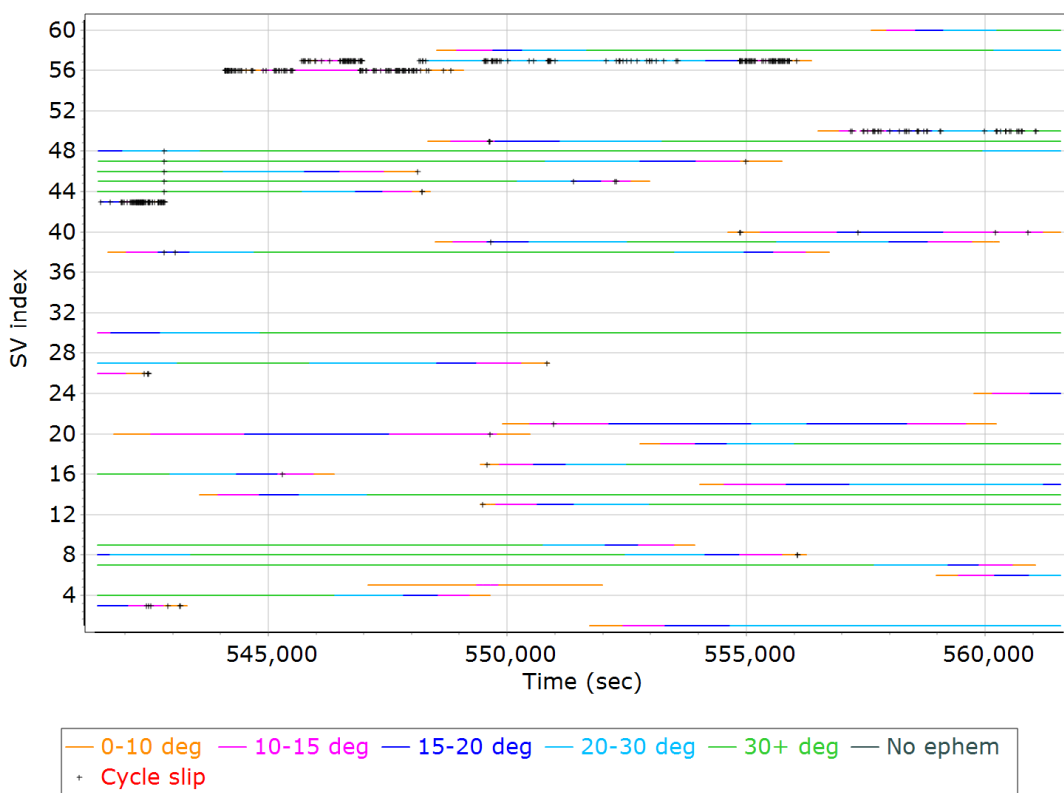
## Rover Data QC

### Raw IMU Import QC Summary

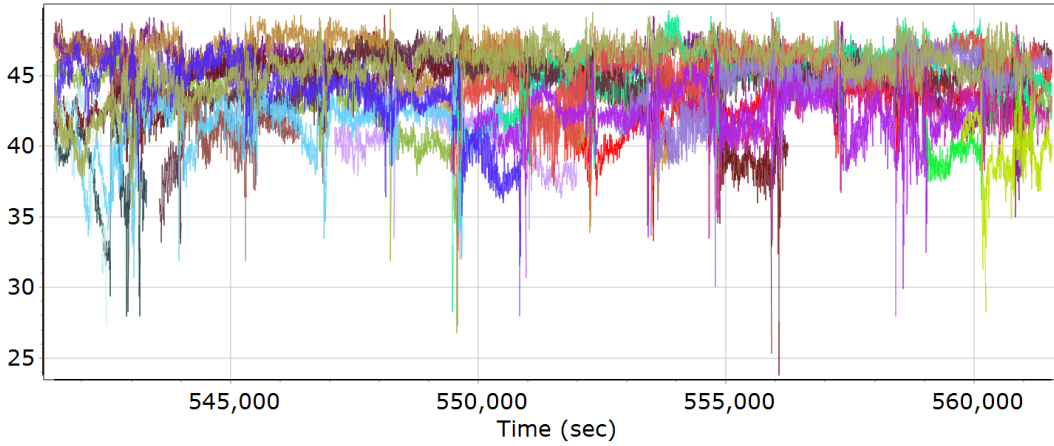
IMU data input file	imu_a07-s03-0516.dat
IMU data check log file	imudt_a07-s03-0516.log
IMU Records Processed	4028539
Termination Status	Warnings
IMU Anomalies	3
<b>IMU Failure Messages</b>	
541411.927 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
541411.827 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
541411.767 : WARNING : Gap of 541394.4247 seconds in CHECKDT input data	

### Primary Observables & Satellite Data

#### GPS/GLONASS L1 Satellite Lock/Elevation

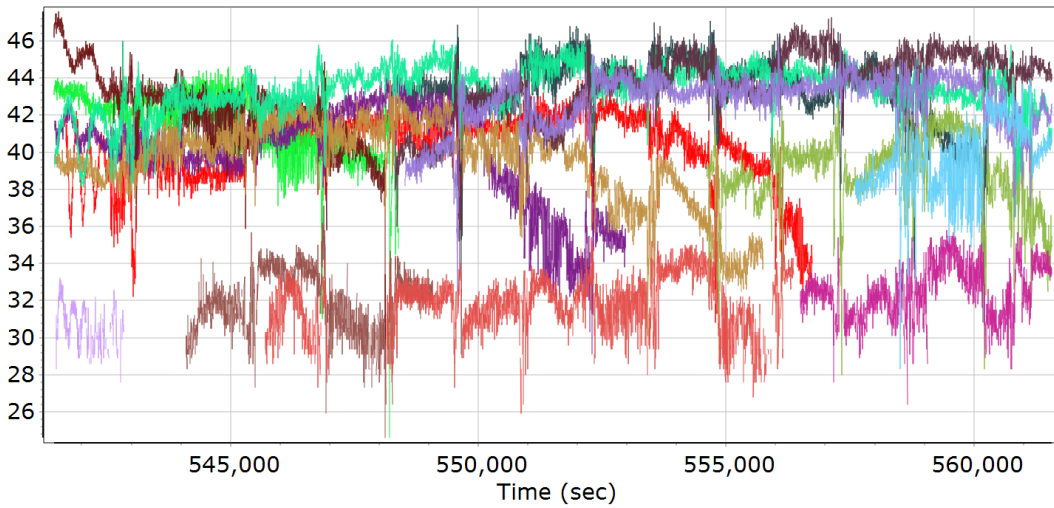


**GPS L1 SNR**



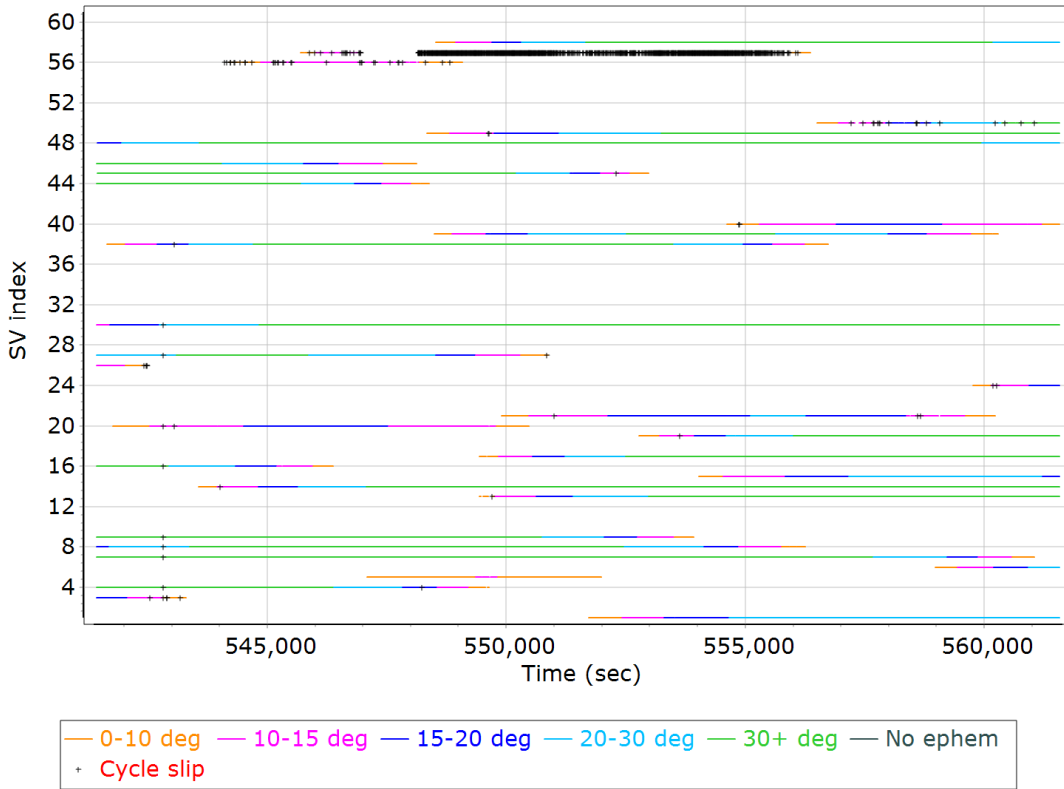
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 03 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 05 L1 SNR (dB/Hz) |
| — GPS PRN 06 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 15 L1 SNR (dB/Hz) | — GPS PRN 16 L1 SNR (dB/Hz) |
| — GPS PRN 17 L1 SNR (dB/Hz) | — GPS PRN 19 L1 SNR (dB/Hz) |
| — GPS PRN 20 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 24 L1 SNR (dB/Hz) | — GPS PRN 26 L1 SNR (dB/Hz) |
| — GPS PRN 27 L1 SNR (dB/Hz) | — GPS PRN 30 L1 SNR (dB/Hz) |

**GLONASS L1 SNR**

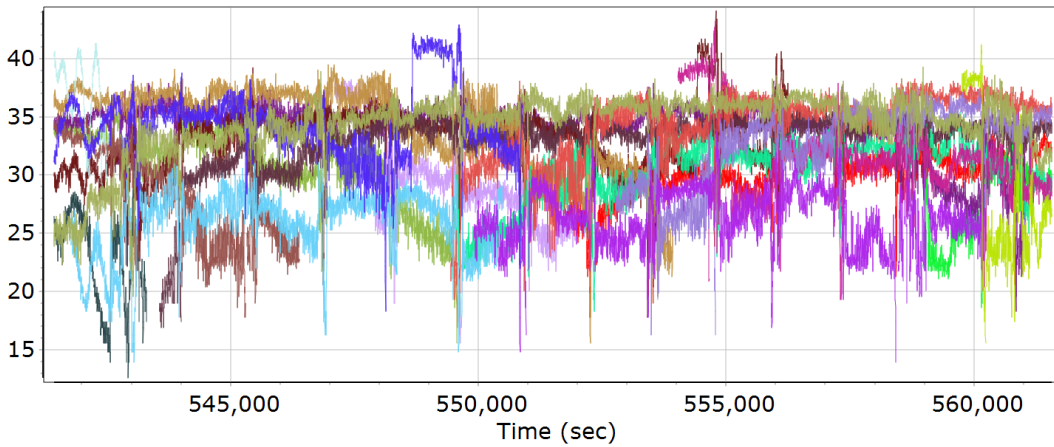


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 01 L1 SNR (dB/Hz) | — GLONASS 02 L1 SNR (dB/Hz) |
| — GLONASS 03 L1 SNR (dB/Hz) | — GLONASS 06 L1 SNR (dB/Hz) |
| — GLONASS 07 L1 SNR (dB/Hz) | — GLONASS 08 L1 SNR (dB/Hz) |
| — GLONASS 09 L1 SNR (dB/Hz) | — GLONASS 10 L1 SNR (dB/Hz) |
| — GLONASS 11 L1 SNR (dB/Hz) | — GLONASS 12 L1 SNR (dB/Hz) |
| — GLONASS 13 L1 SNR (dB/Hz) | — GLONASS 19 L1 SNR (dB/Hz) |
| — GLONASS 20 L1 SNR (dB/Hz) | — GLONASS 21 L1 SNR (dB/Hz) |
| — GLONASS 23 L1 SNR (dB/Hz) |                             |

### GPS/GLONASS L2 Satellite Lock/Elevation

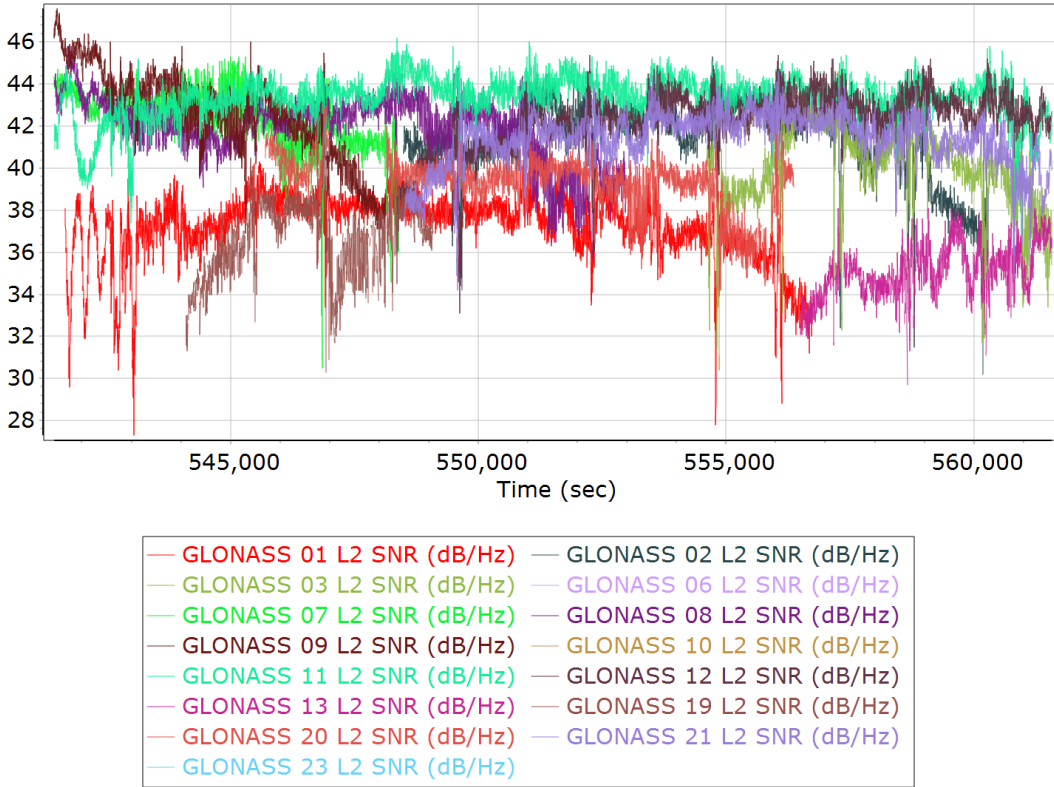


### GPS L2 SNR

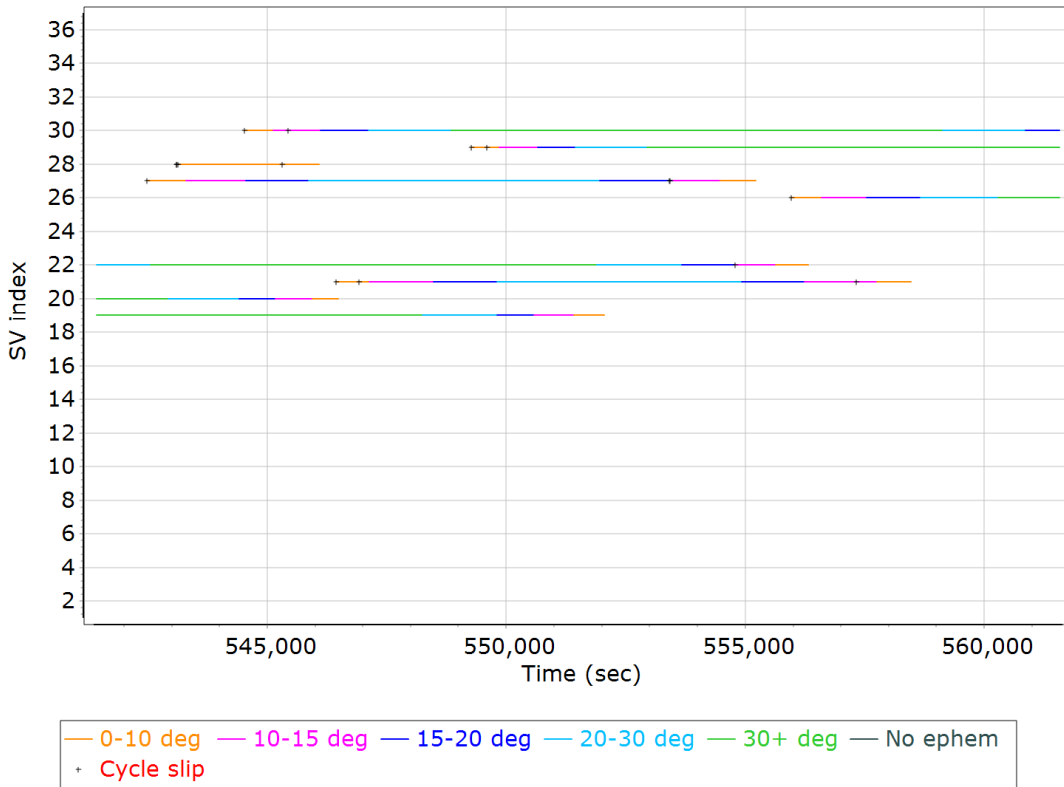


- GPS PRN 01 L2 SNR (dB/Hz)
- GPS PRN 02 L2 SNR (dB/Hz)
- GPS PRN 03 L2 SNR (dB/Hz)
- GPS PRN 04 L2 SNR (dB/Hz)
- GPS PRN 05 L2 SNR (dB/Hz)
- GPS PRN 06 L2 SNR (dB/Hz)
- GPS PRN 07 L2 SNR (dB/Hz)
- GPS PRN 08 L2 SNR (dB/Hz)
- GPS PRN 09 L2 SNR (dB/Hz)
- GPS PRN 10 L2 SNR (dB/Hz)
- GPS PRN 11 L2 SNR (dB/Hz)
- GPS PRN 12 L2 SNR (dB/Hz)
- GPS PRN 13 L2 SNR (dB/Hz)
- GPS PRN 14 L2 SNR (dB/Hz)
- GPS PRN 15 L2 SNR (dB/Hz)
- GPS PRN 16 L2 SNR (dB/Hz)
- GPS PRN 17 L2 SNR (dB/Hz)
- GPS PRN 18 L2 SNR (dB/Hz)
- GPS PRN 19 L2 SNR (dB/Hz)
- GPS PRN 20 L2 SNR (dB/Hz)
- GPS PRN 21 L2 SNR (dB/Hz)
- GPS PRN 22 L2 SNR (dB/Hz)
- GPS PRN 23 L2 SNR (dB/Hz)
- GPS PRN 24 L2 SNR (dB/Hz)
- GPS PRN 25 L2 SNR (dB/Hz)
- GPS PRN 26 L2 SNR (dB/Hz)
- GPS PRN 27 L2 SNR (dB/Hz)
- GPS PRN 28 L2 SNR (dB/Hz)
- GPS PRN 29 L2 SNR (dB/Hz)
- GPS PRN 30 L2 SNR (dB/Hz)

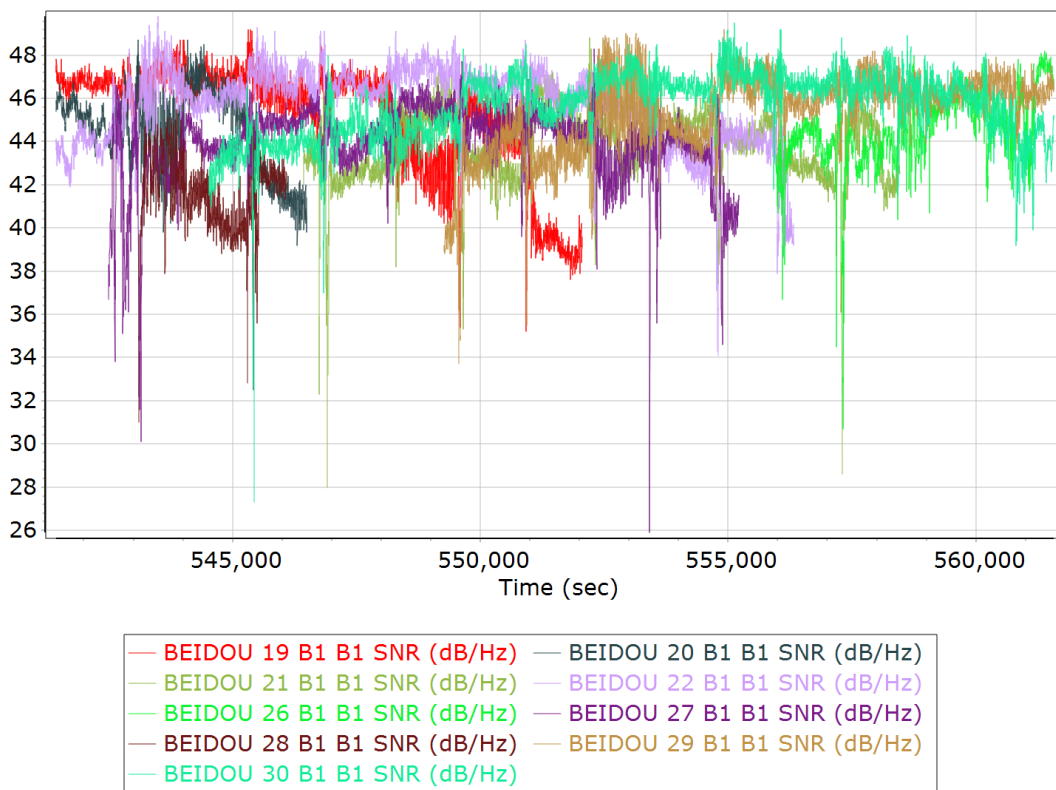
**GLONASS L2 SNR**



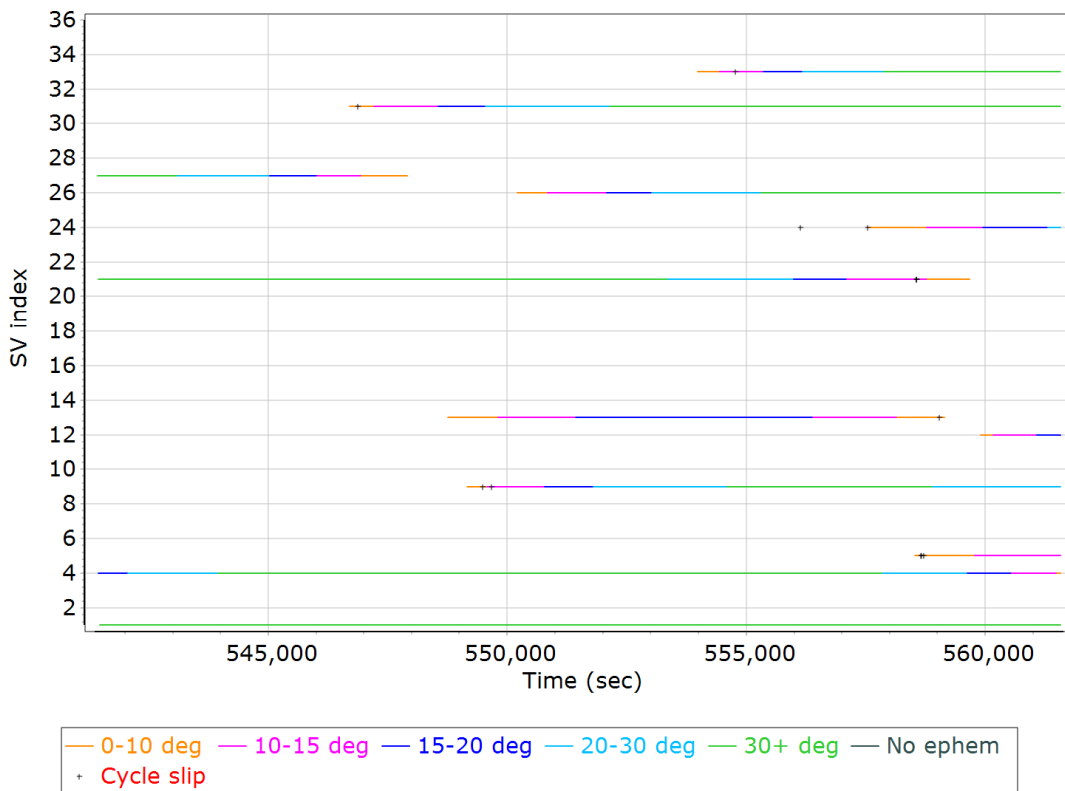
**BEIDOU Satellite Lock/Elevation**



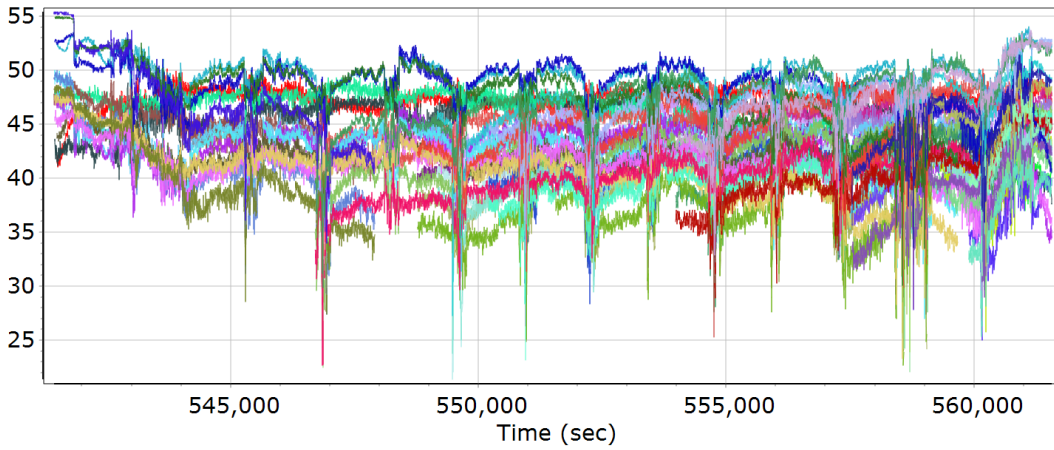
### BEIDOU SNR



### GALILEO Satellite Lock/Elevation



## GALILEO SNR

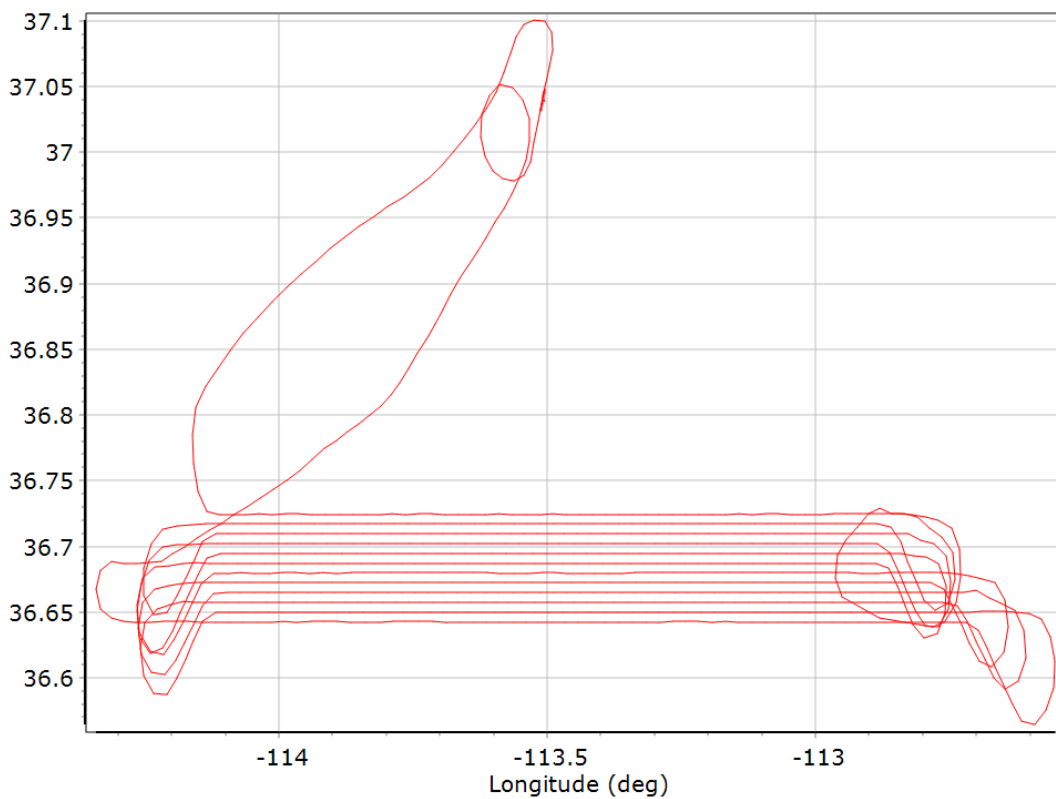


- GALILEO 01 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 04 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 05 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 09 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 12 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 13 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 18 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 19 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 21 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 24 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

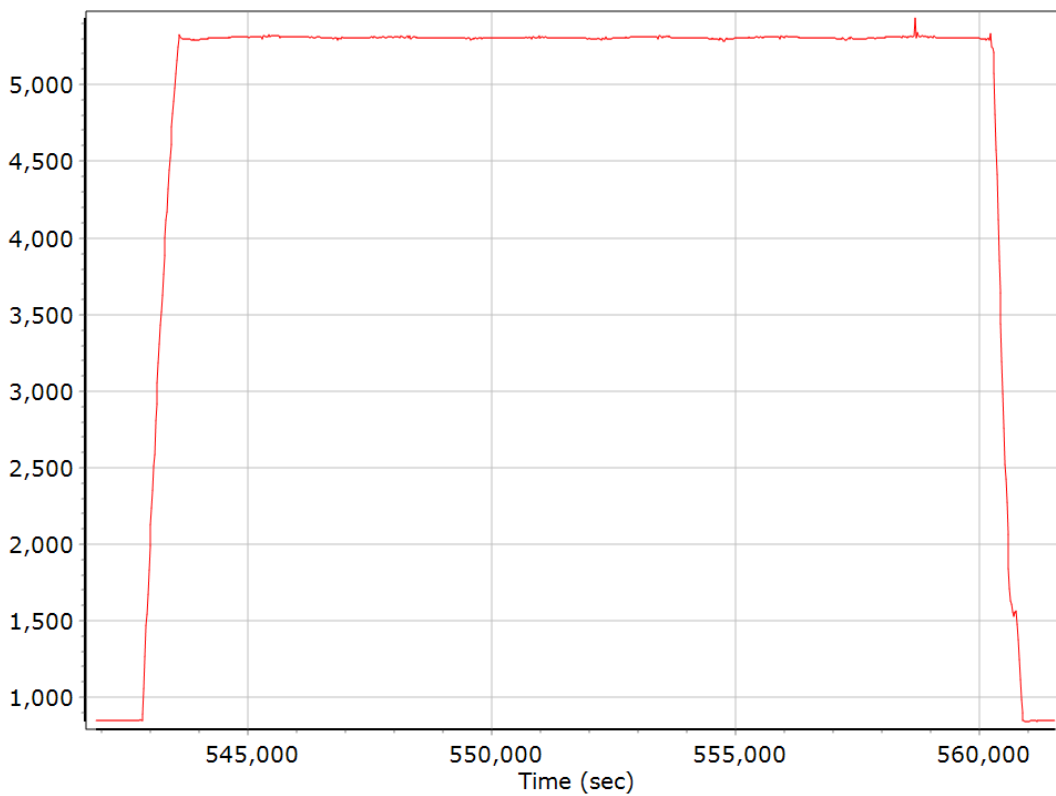


## Smoothed Trajectory Information

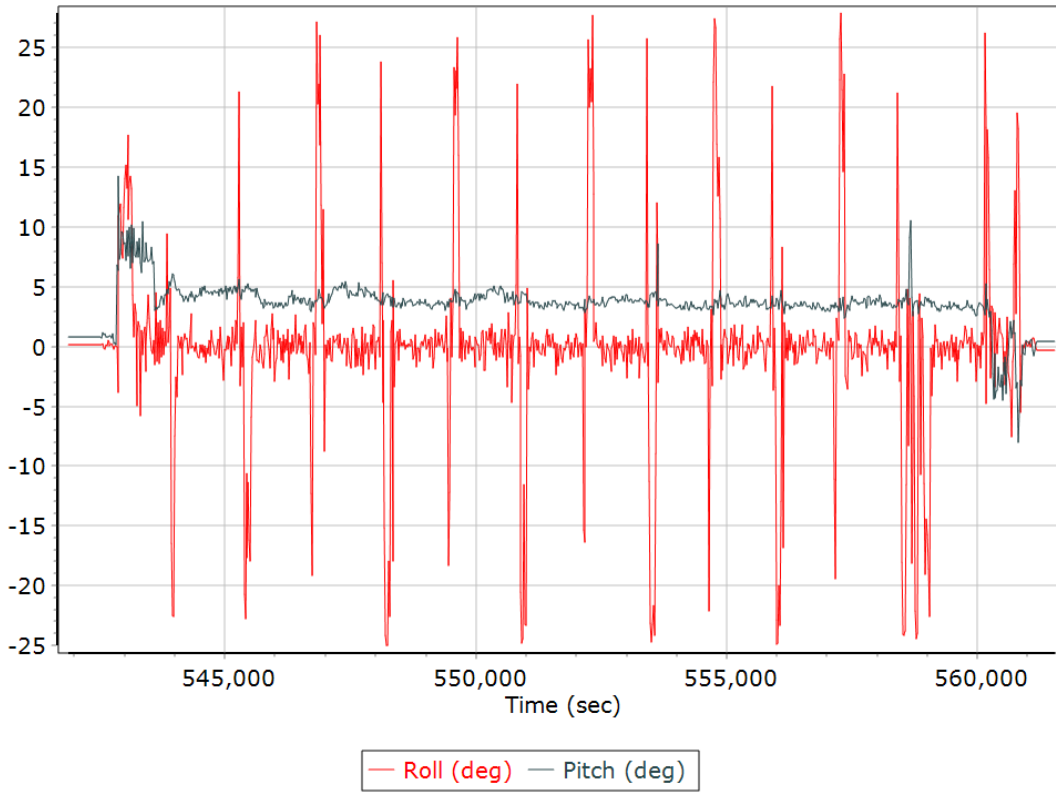
### Top View



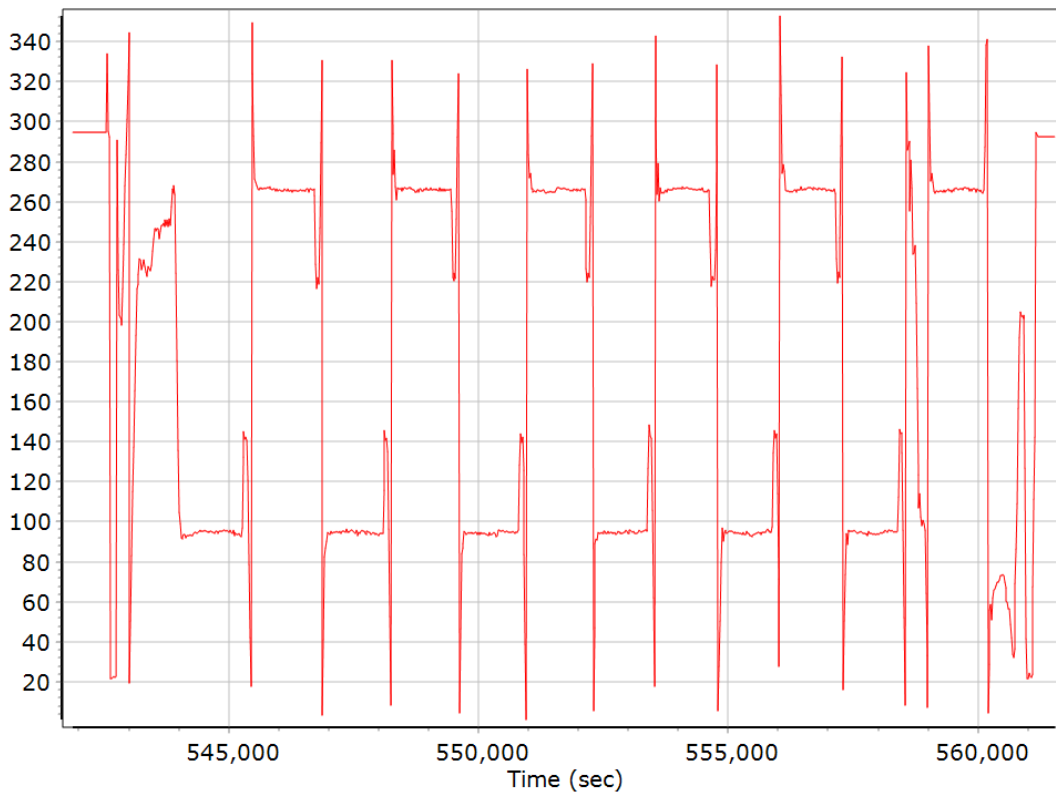
### Altitude



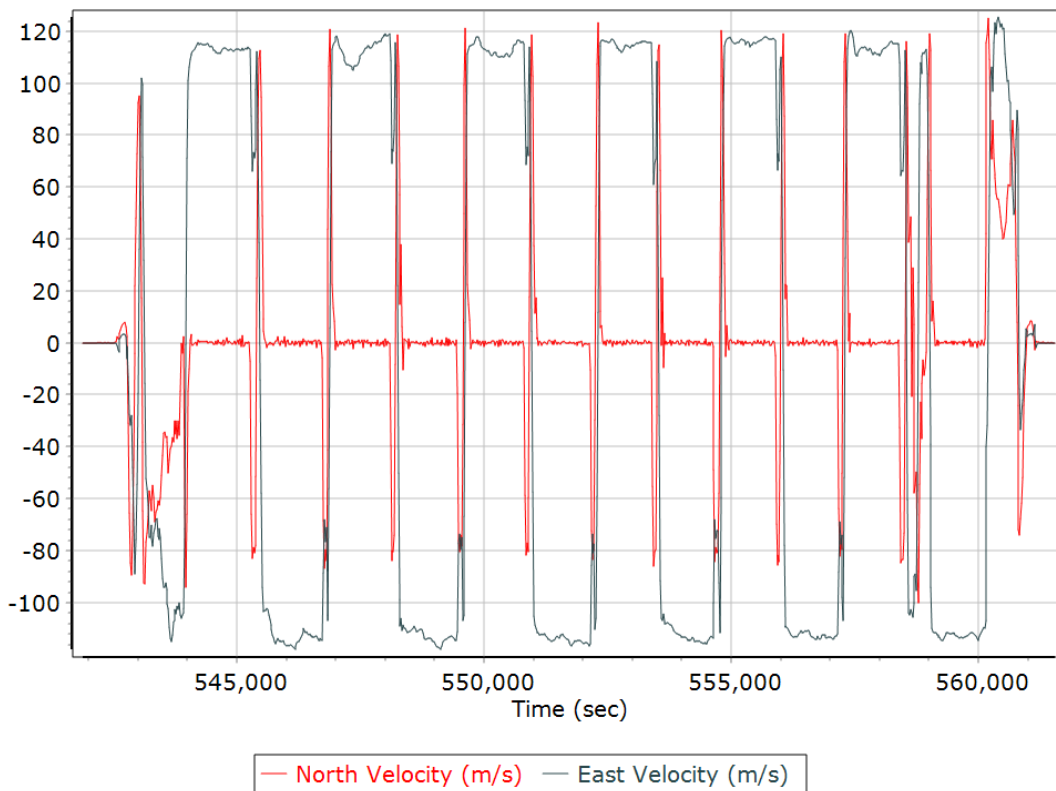
## Roll/Pitch



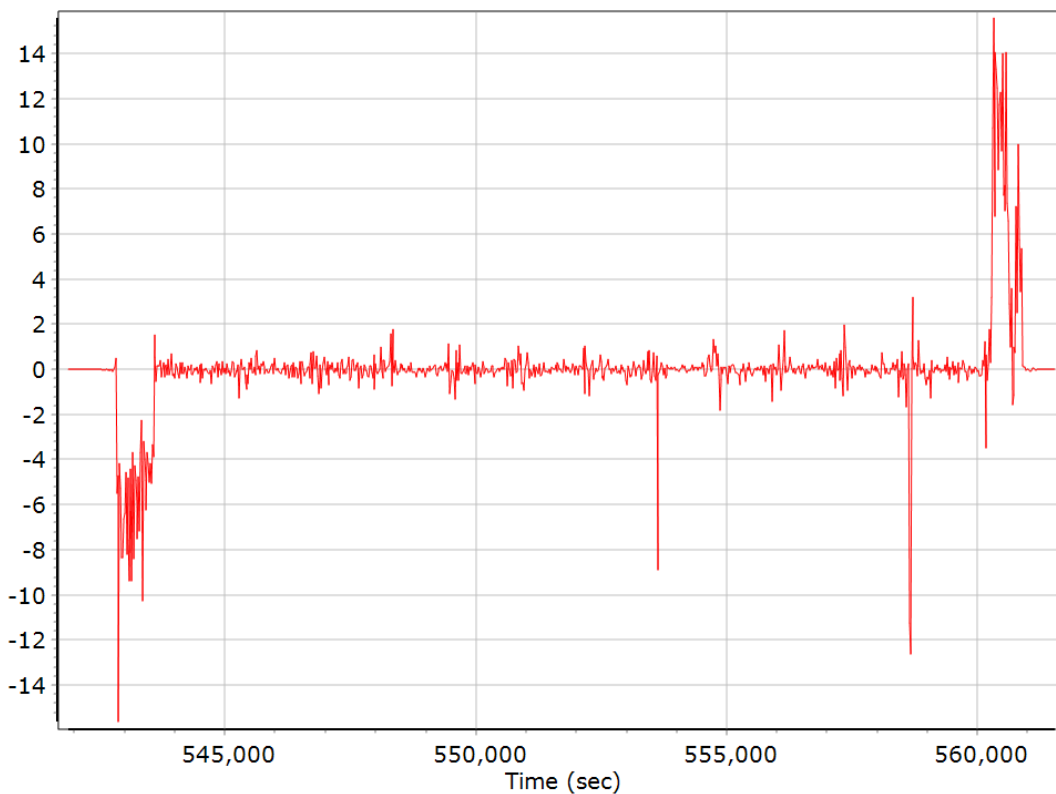
## Heading



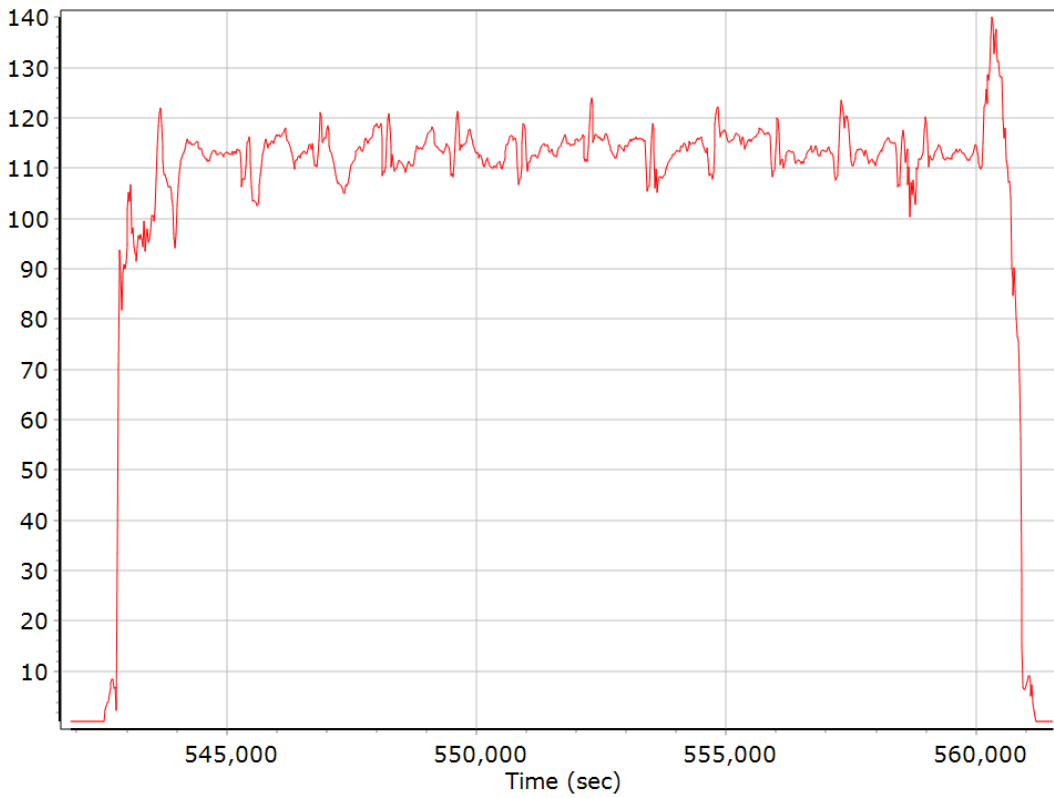
### North/East Velocity



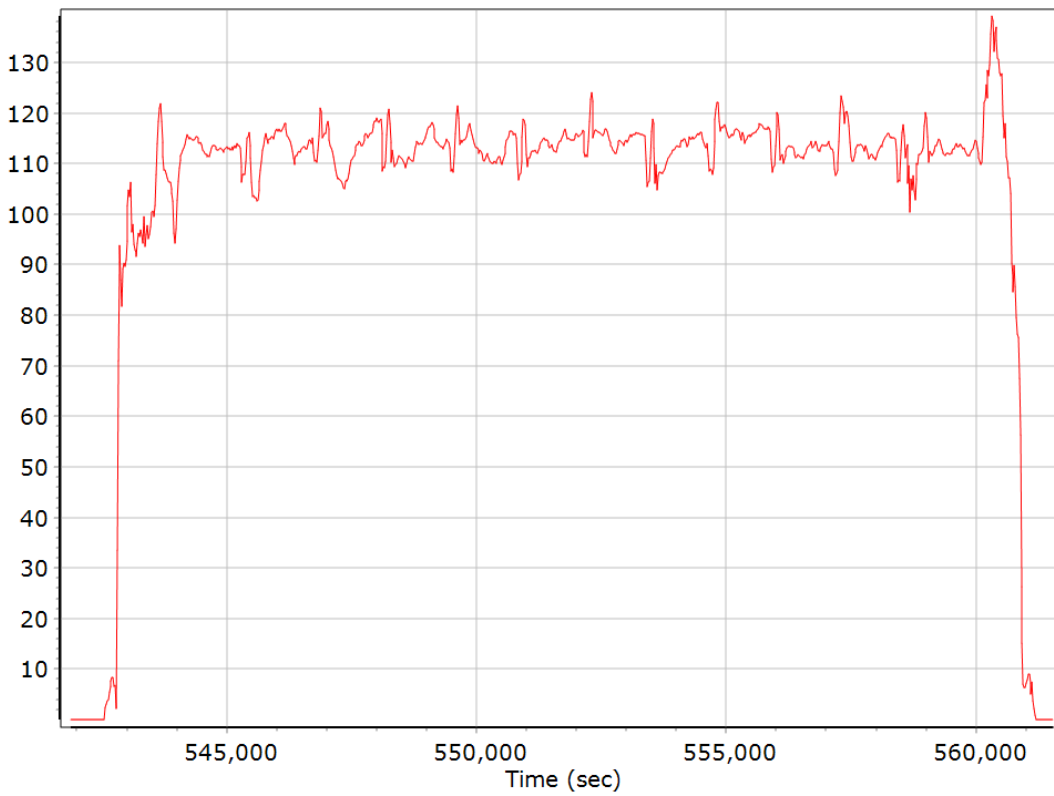
### Down Velocity



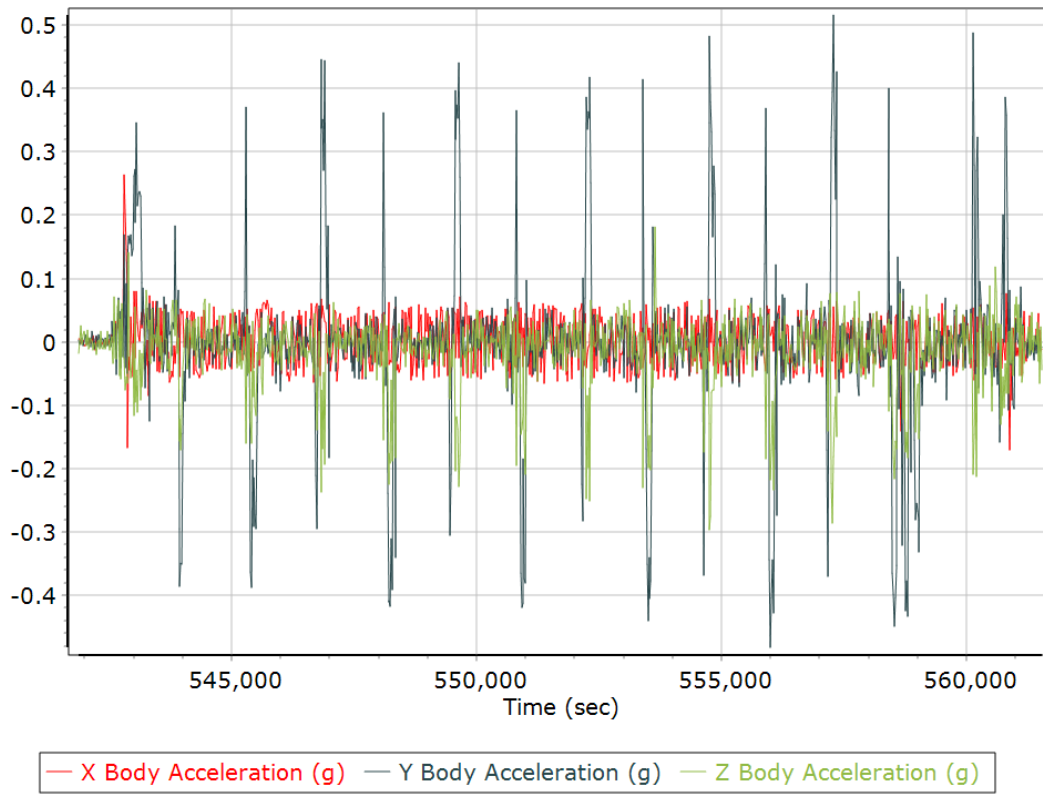
## Total Speed



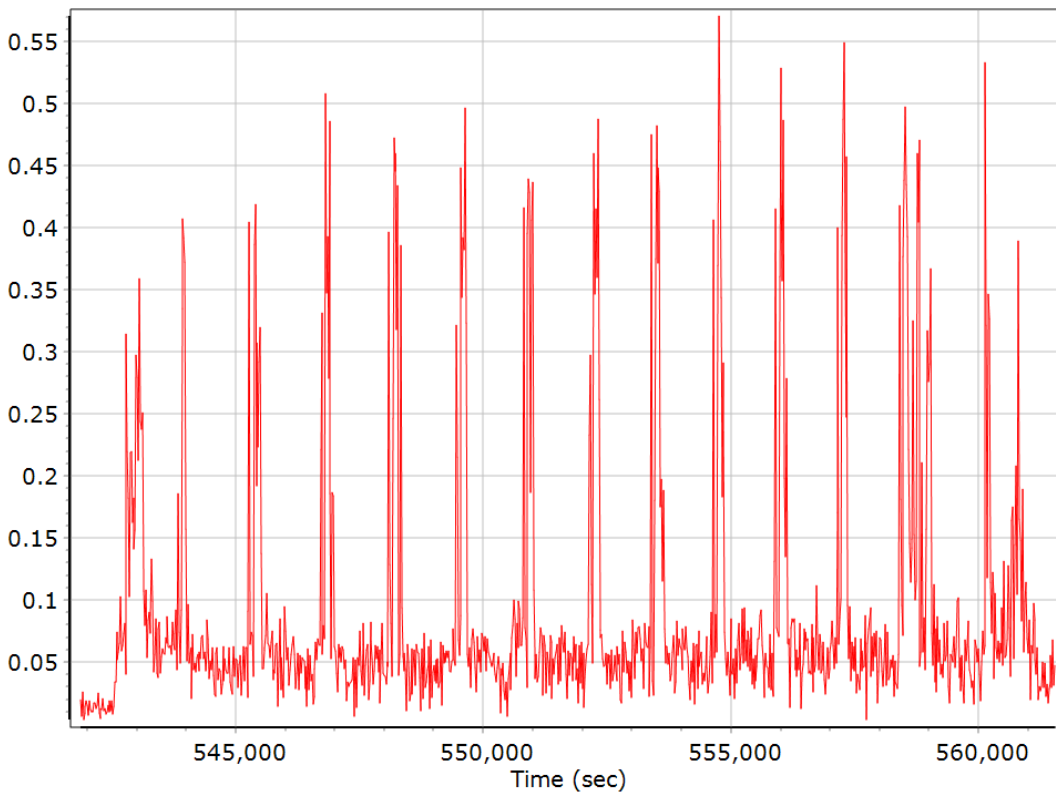
## Ground Speed



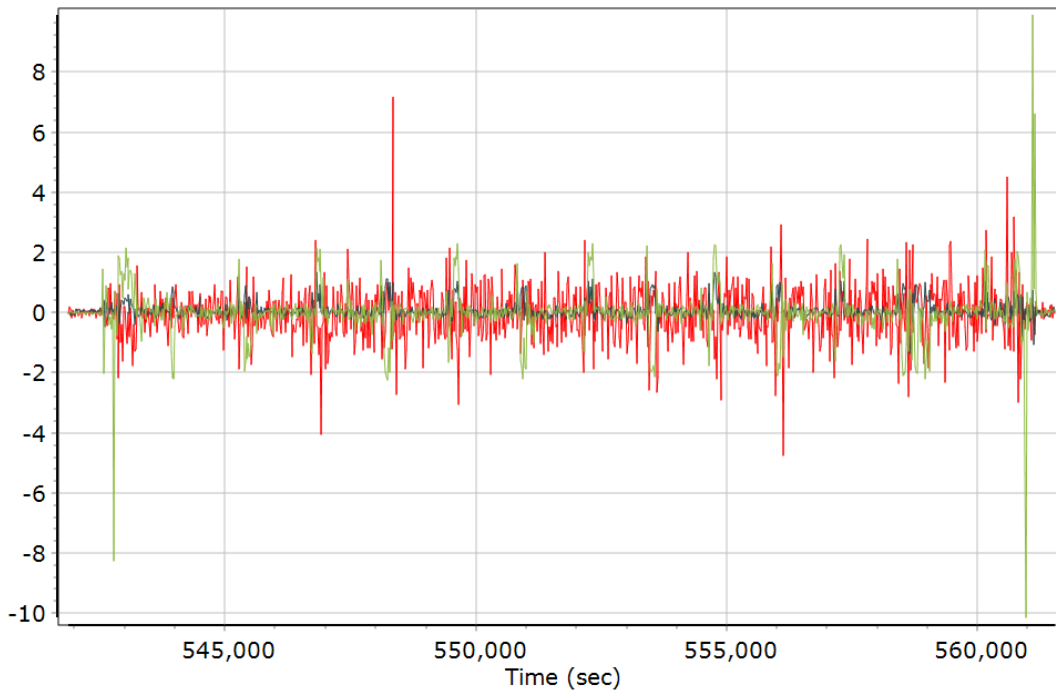
### Body Acceleration



### Total Body Acceleration



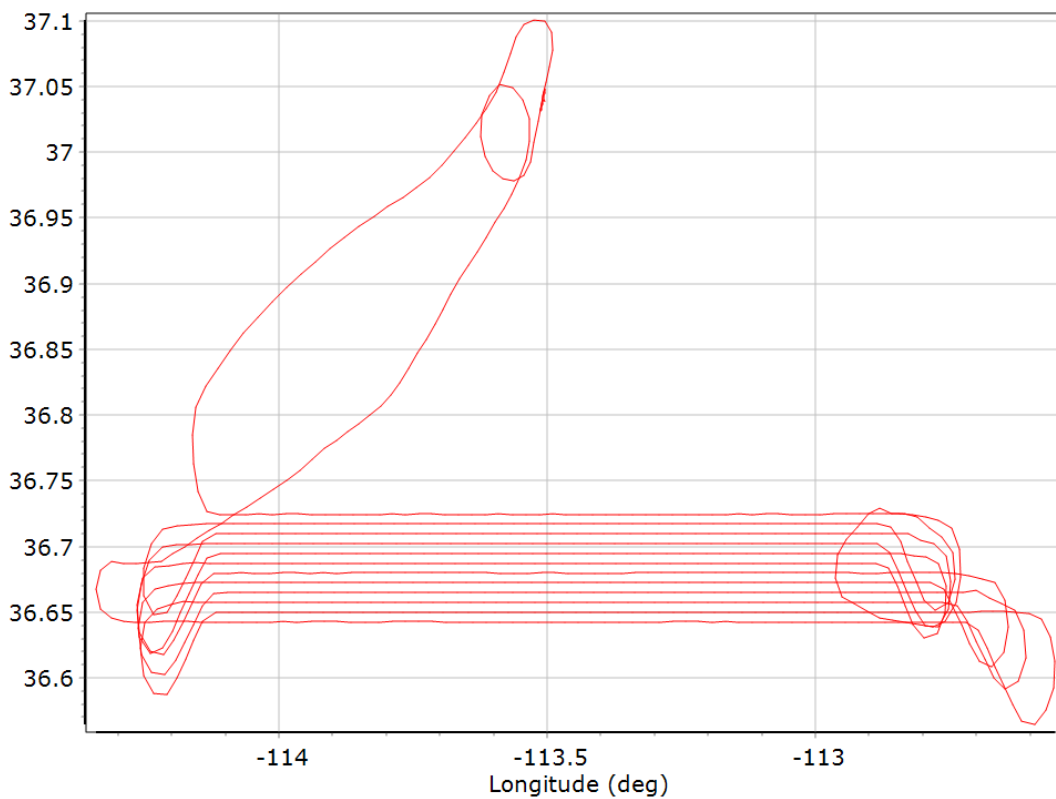
## Body Angular Rate



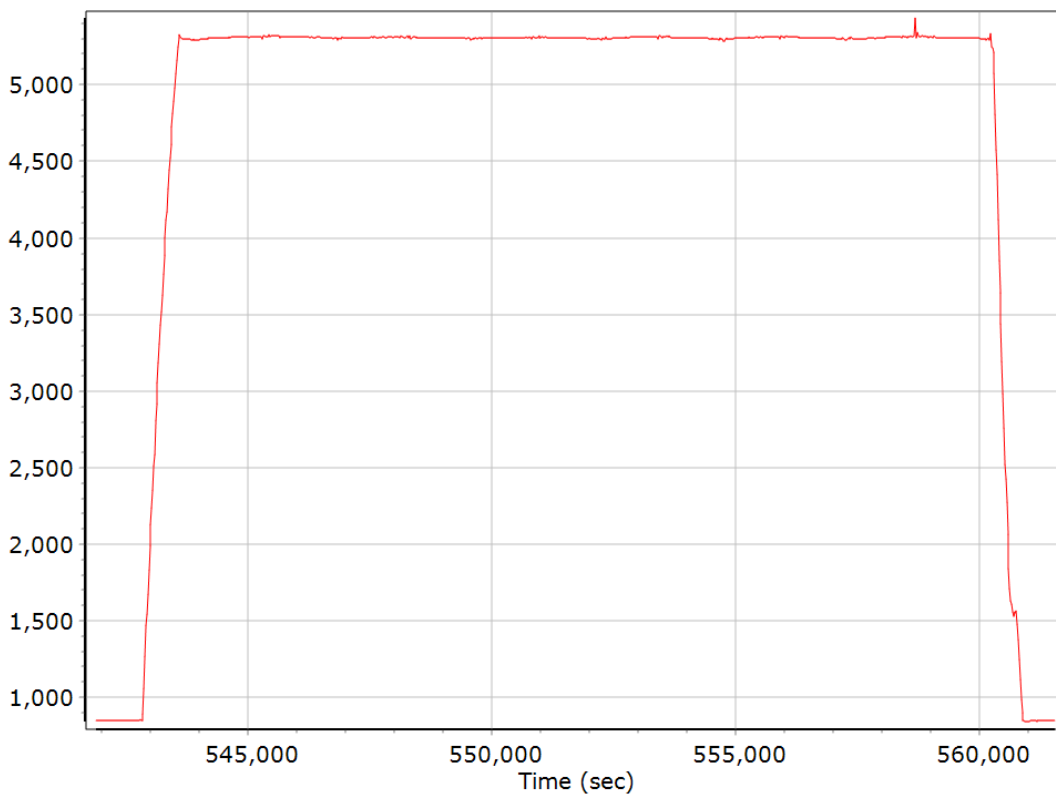
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## Forward Processed Trajectory Information

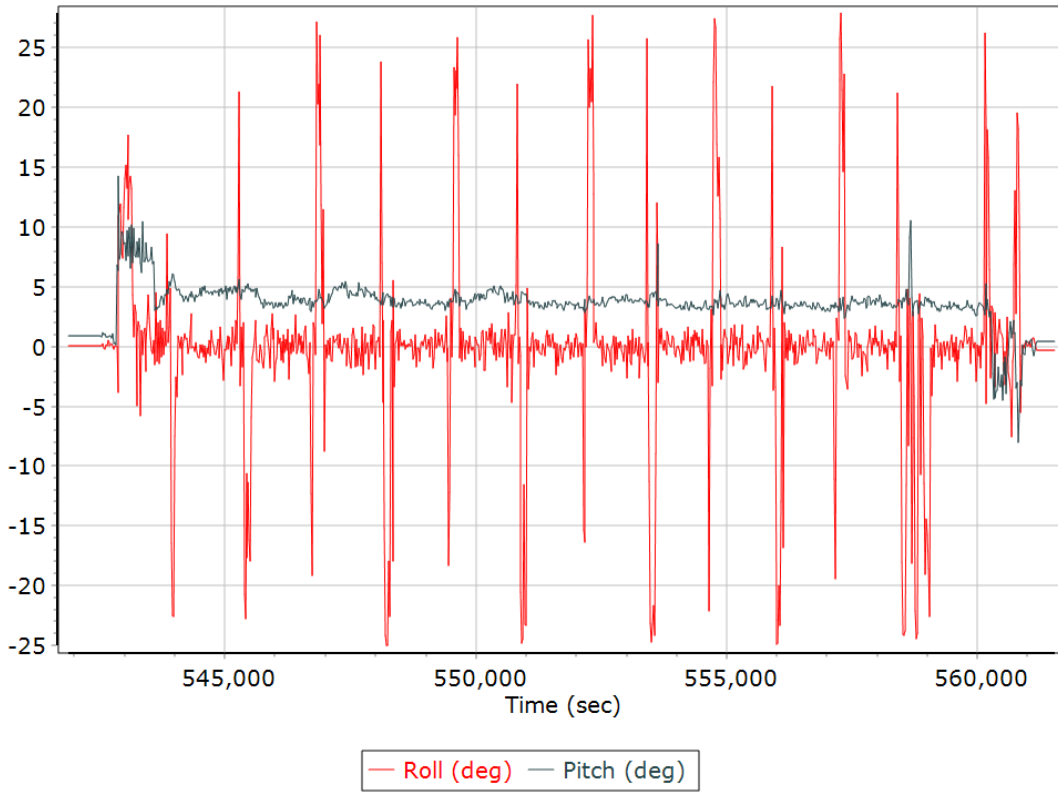
### Top View



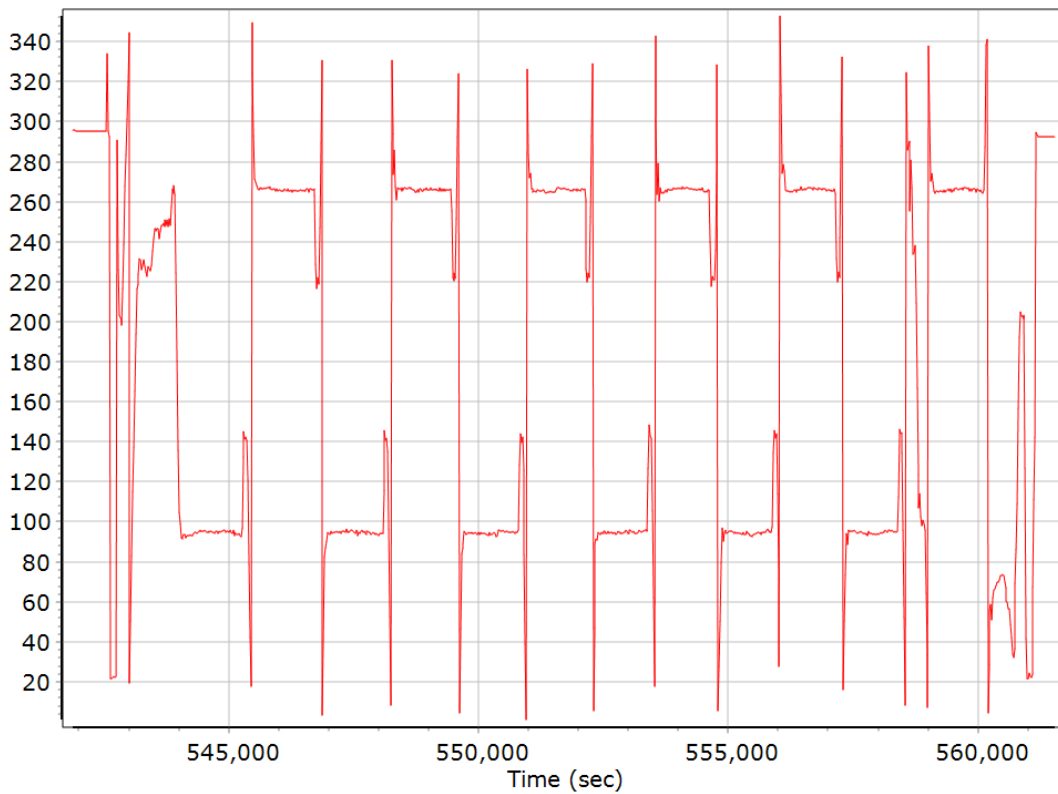
### Altitude



## Roll/Pitch

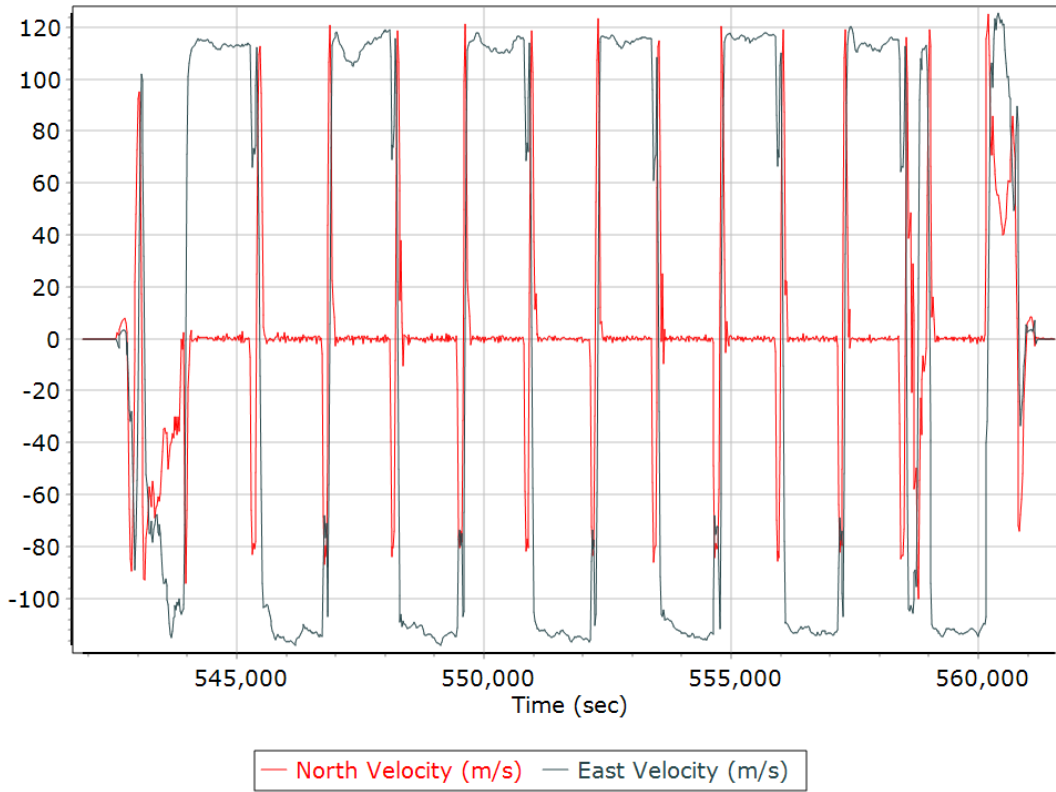


## Heading

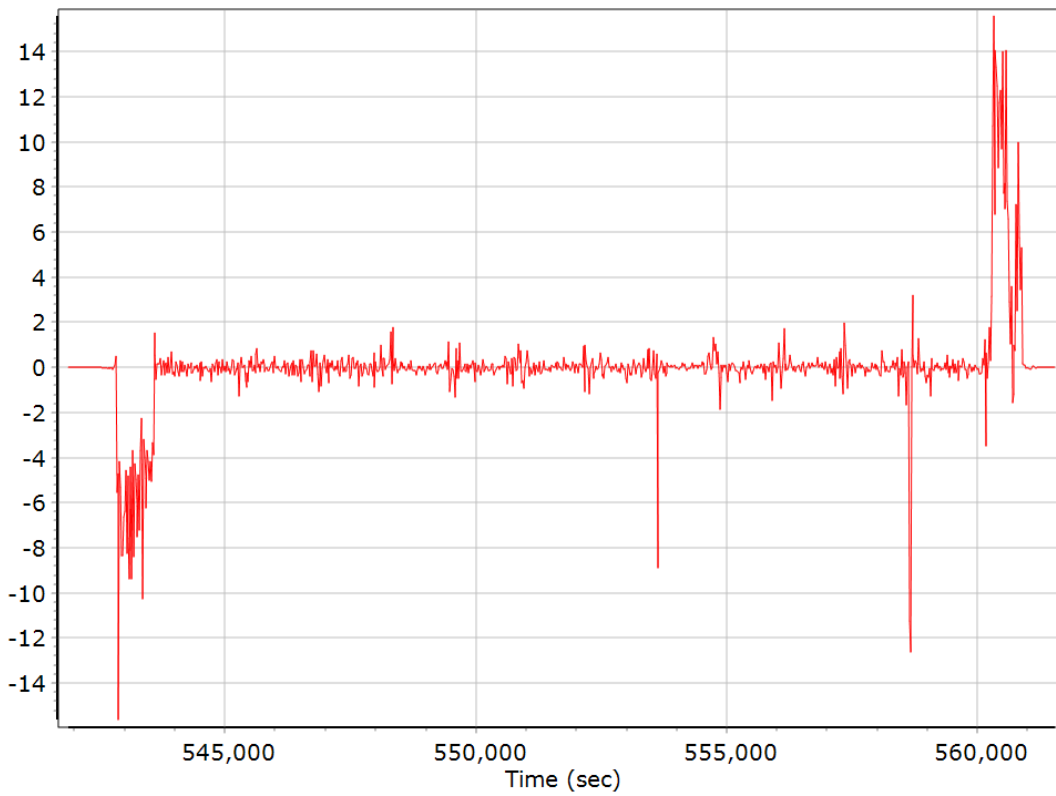




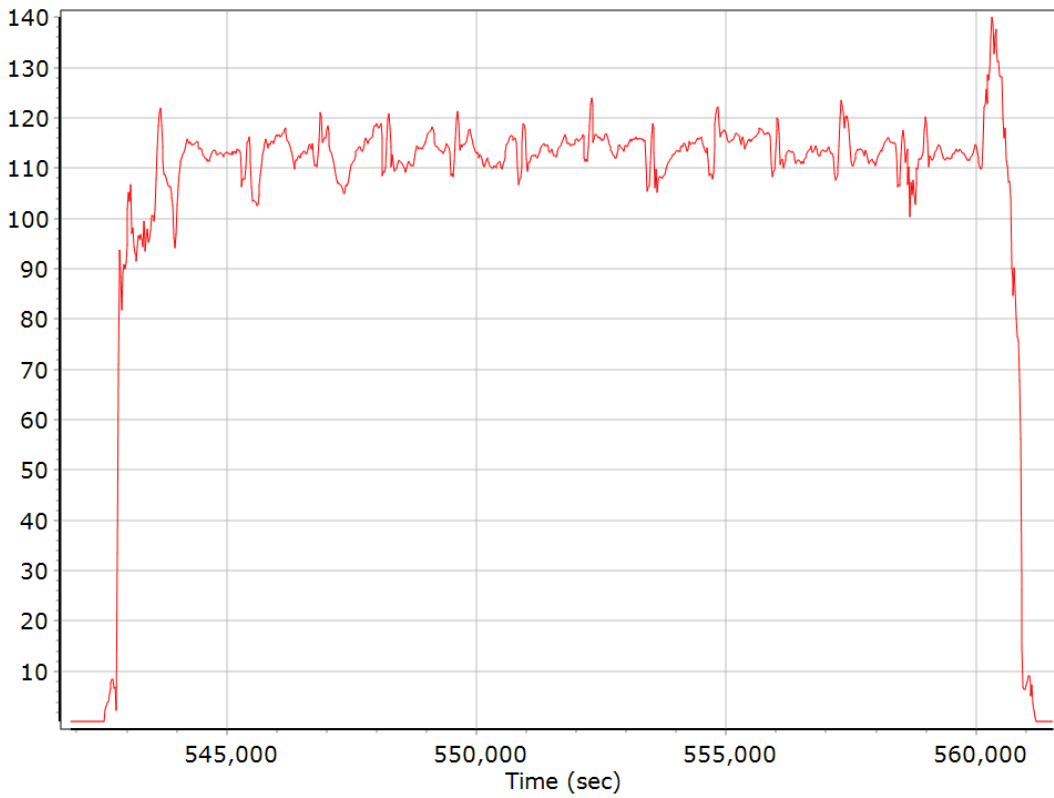
### North/East Velocity



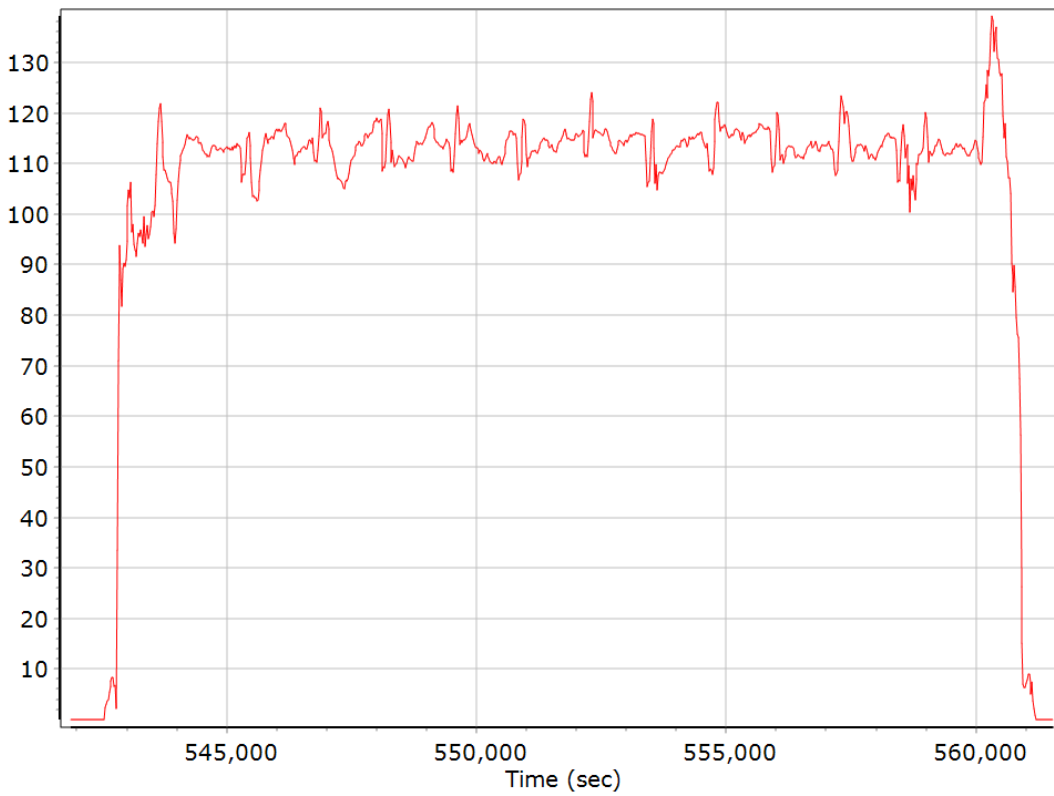
### Down Velocity



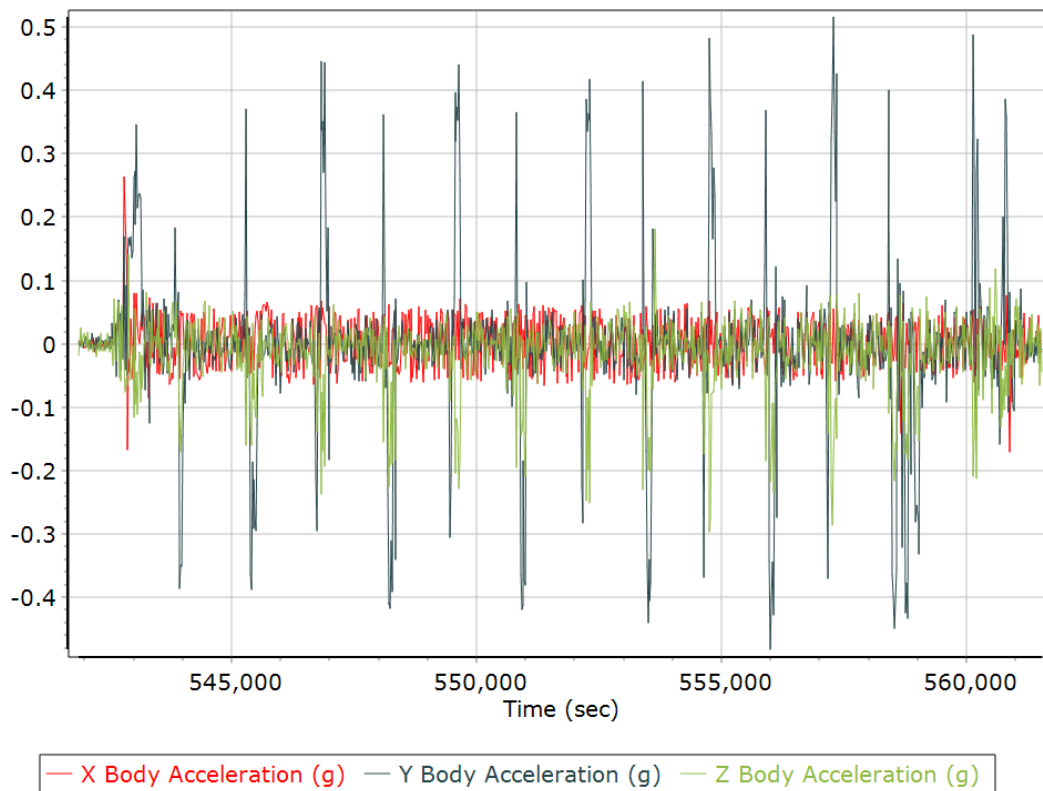
## Total Speed



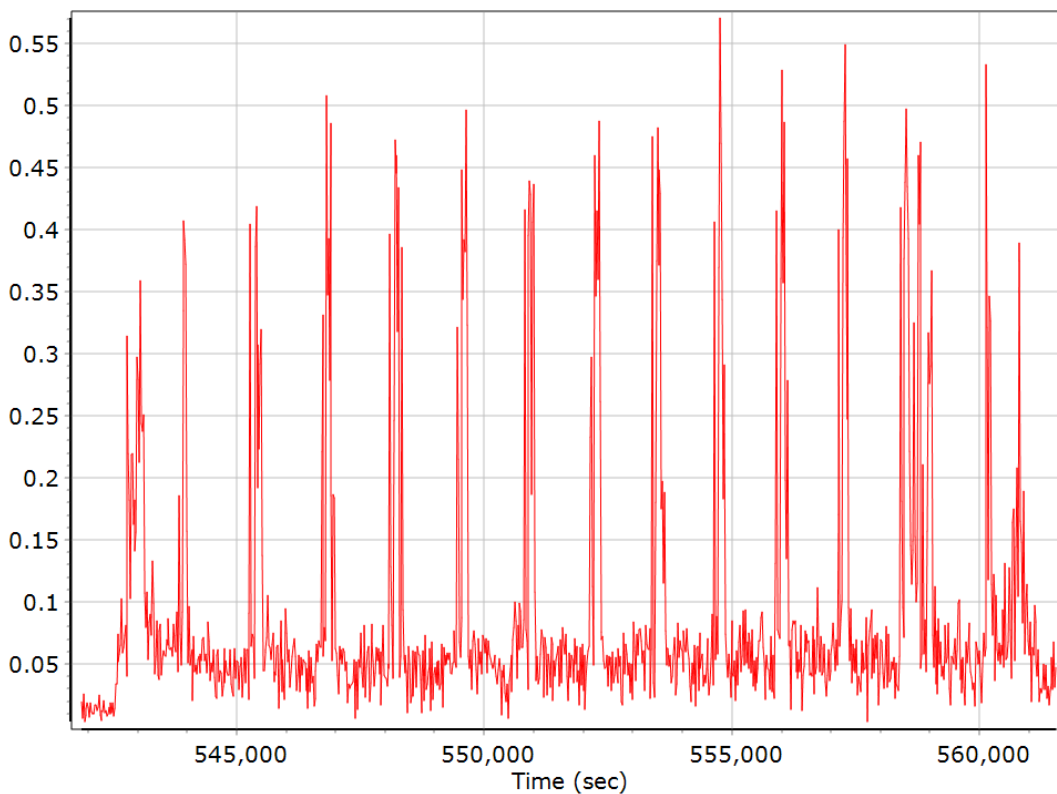
## Ground Speed



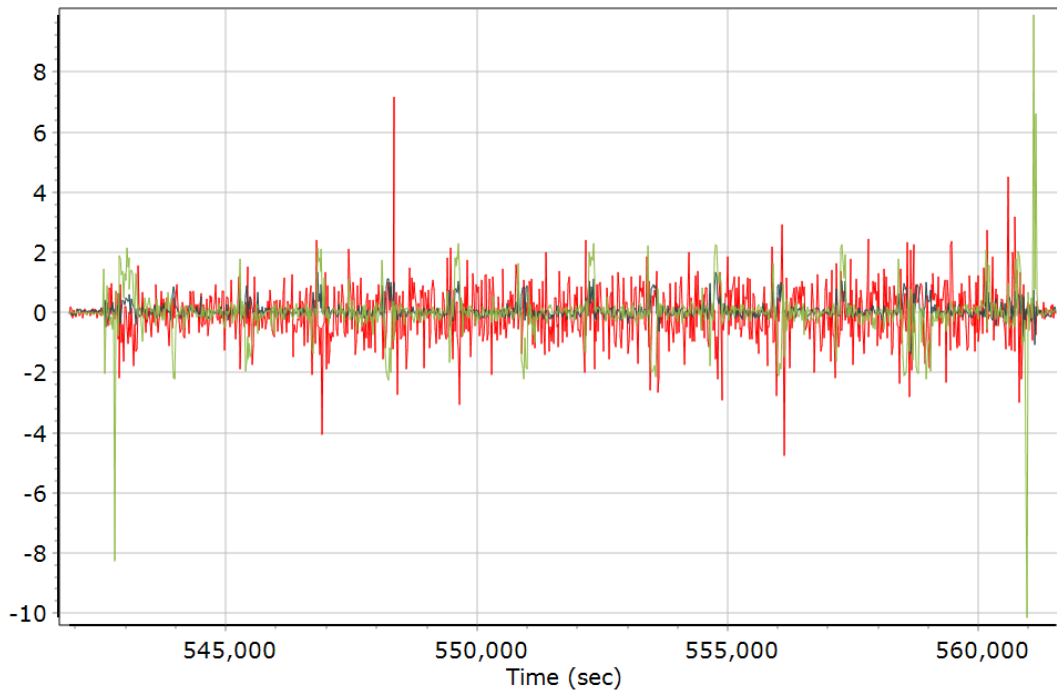
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



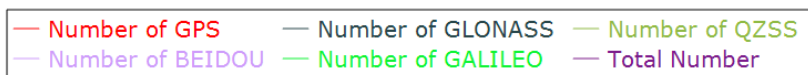
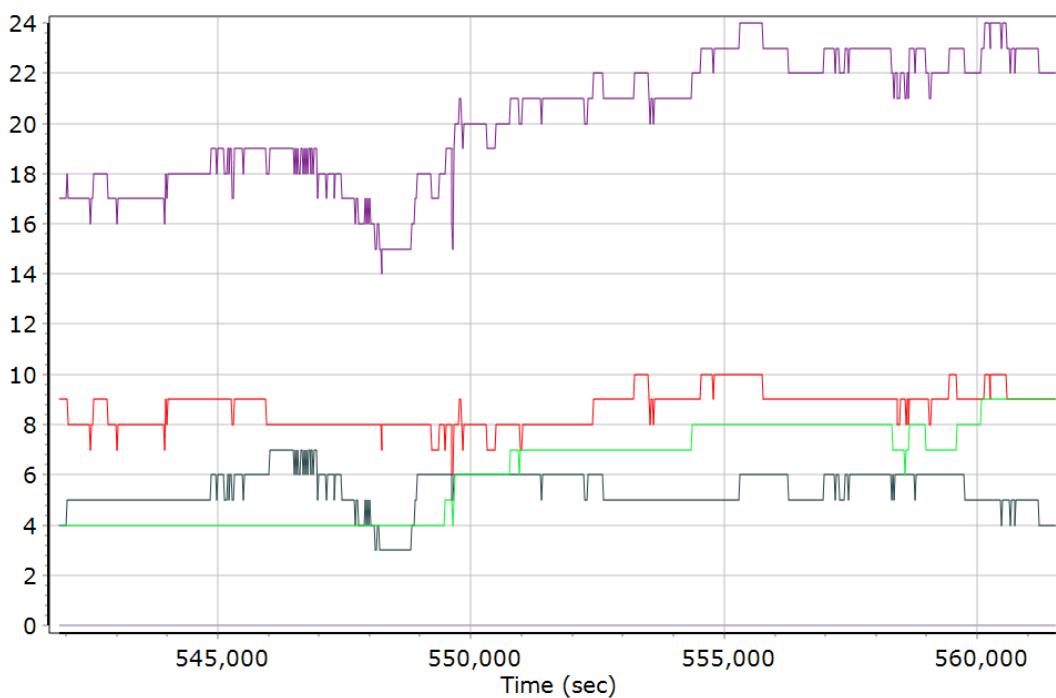
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

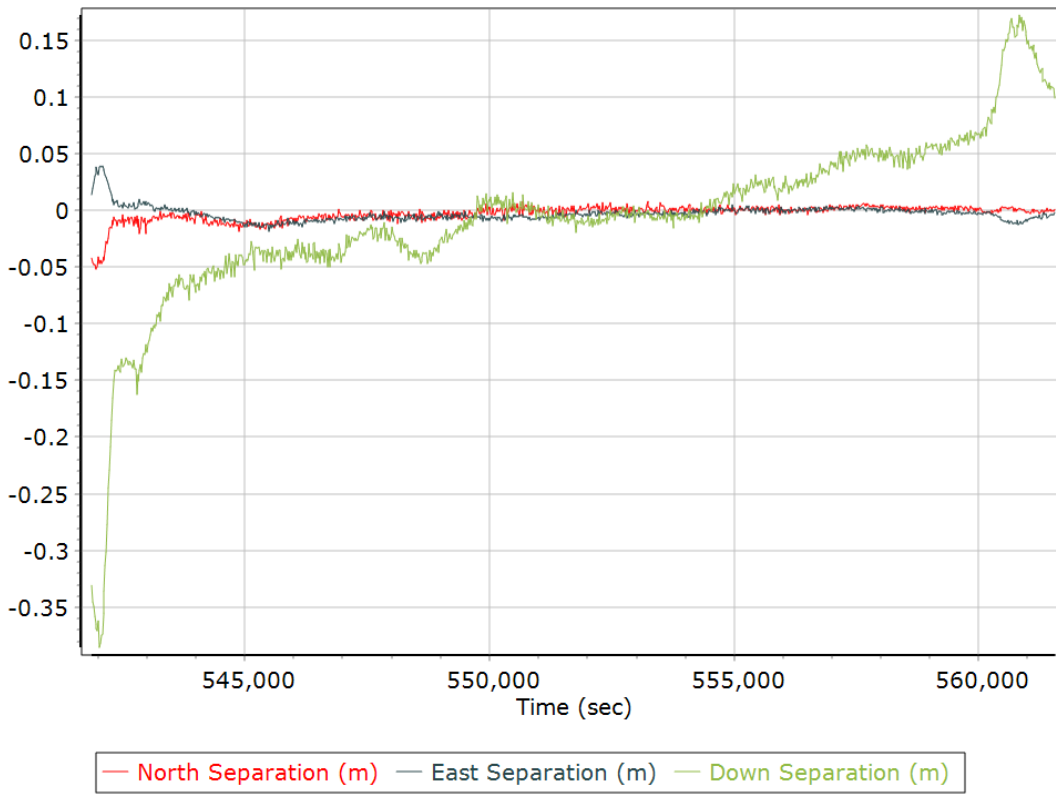
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	10	9
Number of GLONASS SV	0	7	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	9	6
Total number of SV	9	24	20
PDOP	0.99	1.64	1.19
QC Solution Gaps	1.00	1.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	20133.00	0.00	1.00
Percentage	100.00	0.00	0.00

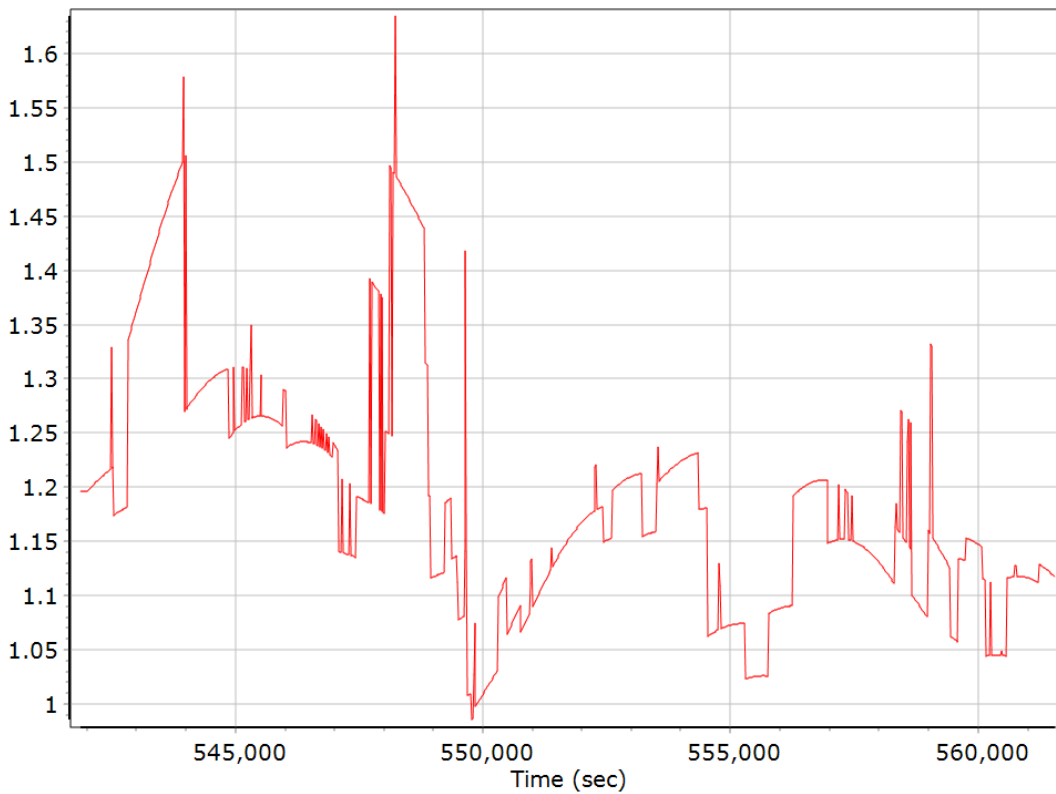
### Num SVs in solution



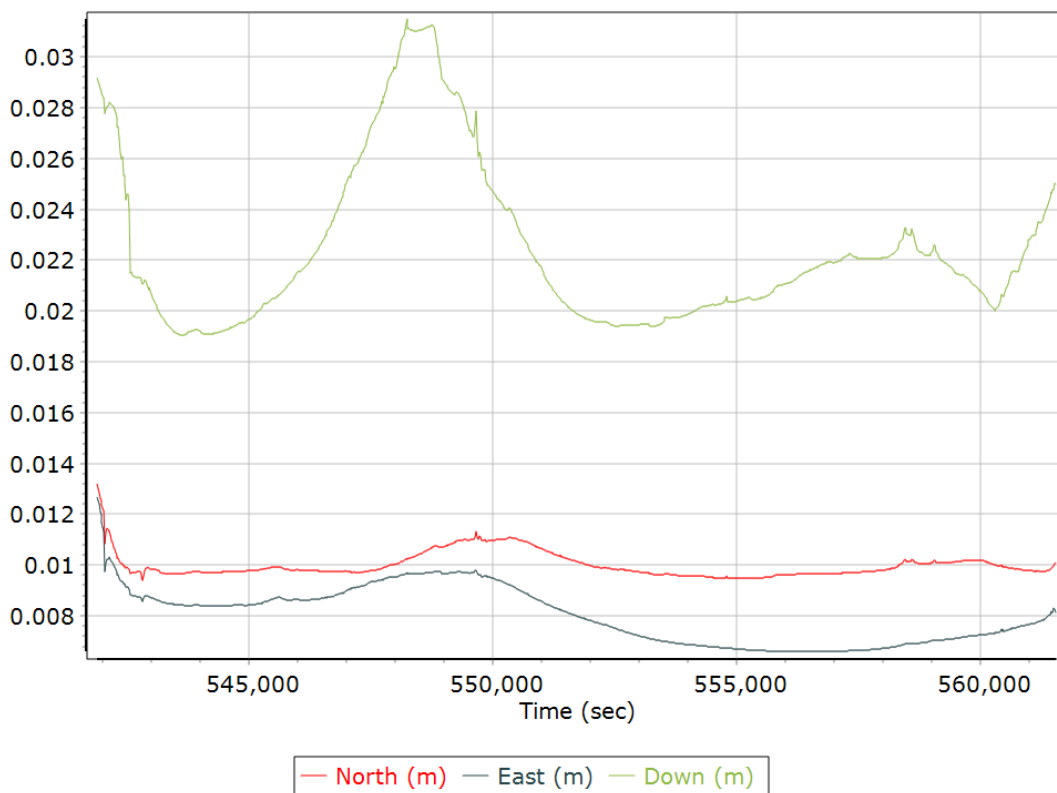
### Forward/Reverse Separation



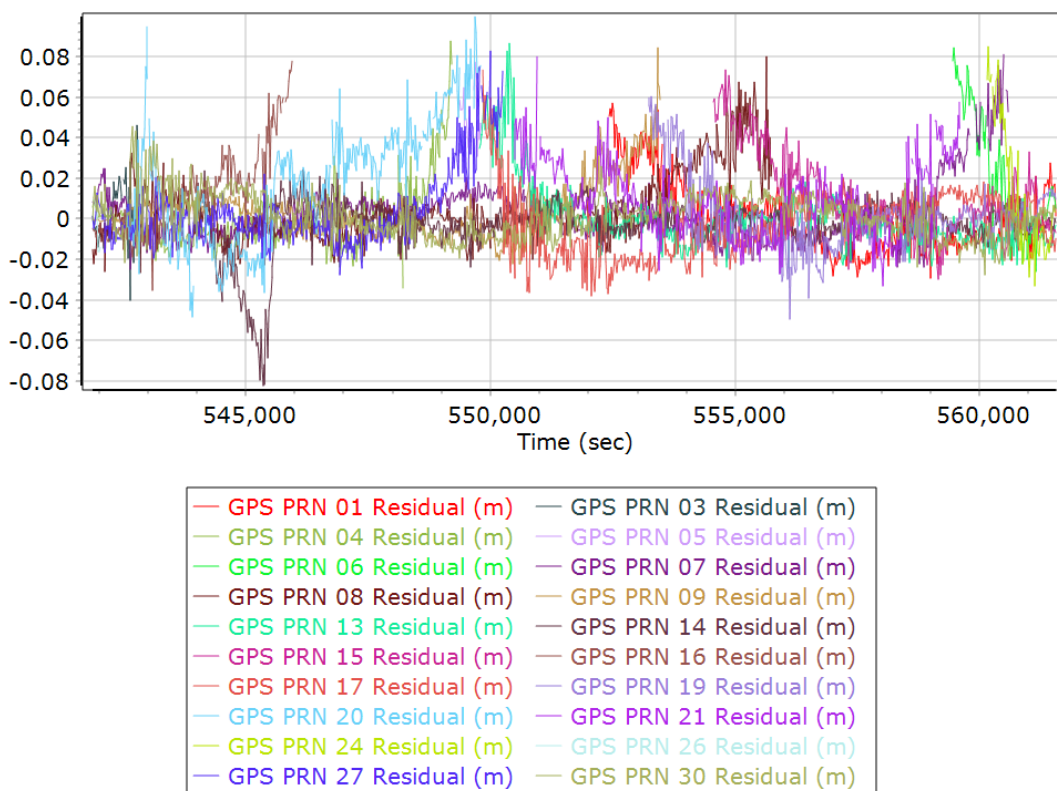
### PDOP



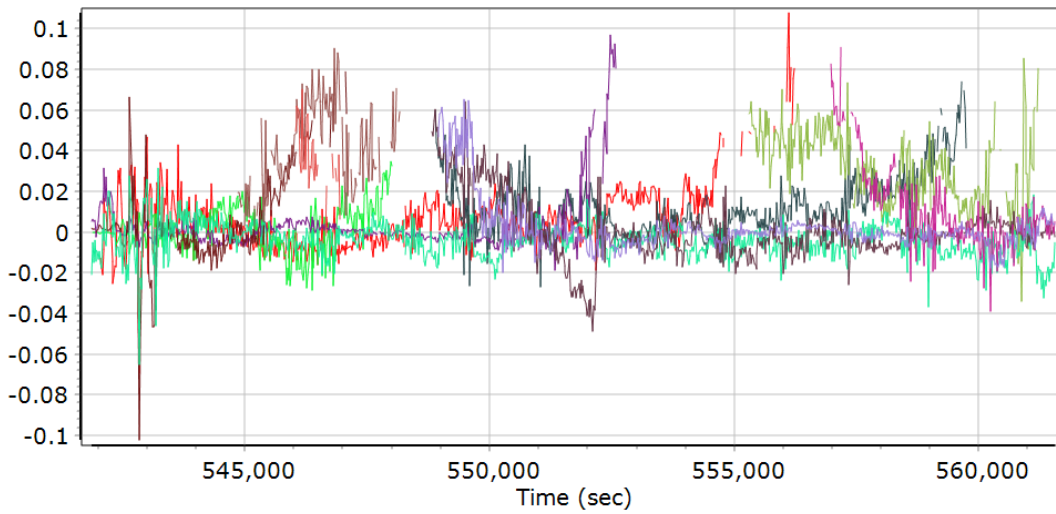
### Estimated Position Accuracy



### GPS Residuals

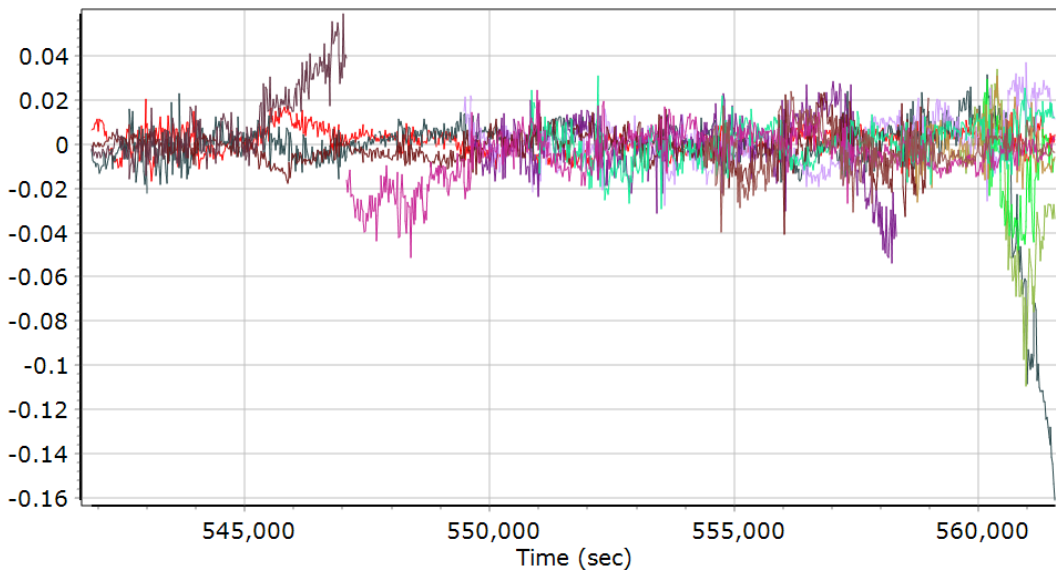


## GLONASS Residuals



- |                           |                           |
|---------------------------|---------------------------|
| — GLONASS 01 Residual (m) | — GLONASS 02 Residual (m) |
| — GLONASS 03 Residual (m) | — GLONASS 06 Residual (m) |
| — GLONASS 07 Residual (m) | — GLONASS 08 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 23 Residual (m) |                           |

## GALILEO Residuals



- |                           |                           |
|---------------------------|---------------------------|
| — GALILEO 01 Residual (m) | — GALILEO 04 Residual (m) |
| — GALILEO 05 Residual (m) | — GALILEO 09 Residual (m) |
| — GALILEO 12 Residual (m) | — GALILEO 13 Residual (m) |
| — GALILEO 21 Residual (m) | — GALILEO 24 Residual (m) |
| — GALILEO 26 Residual (m) | — GALILEO 27 Residual (m) |
| — GALILEO 31 Residual (m) | — GALILEO 33 Residual (m) |



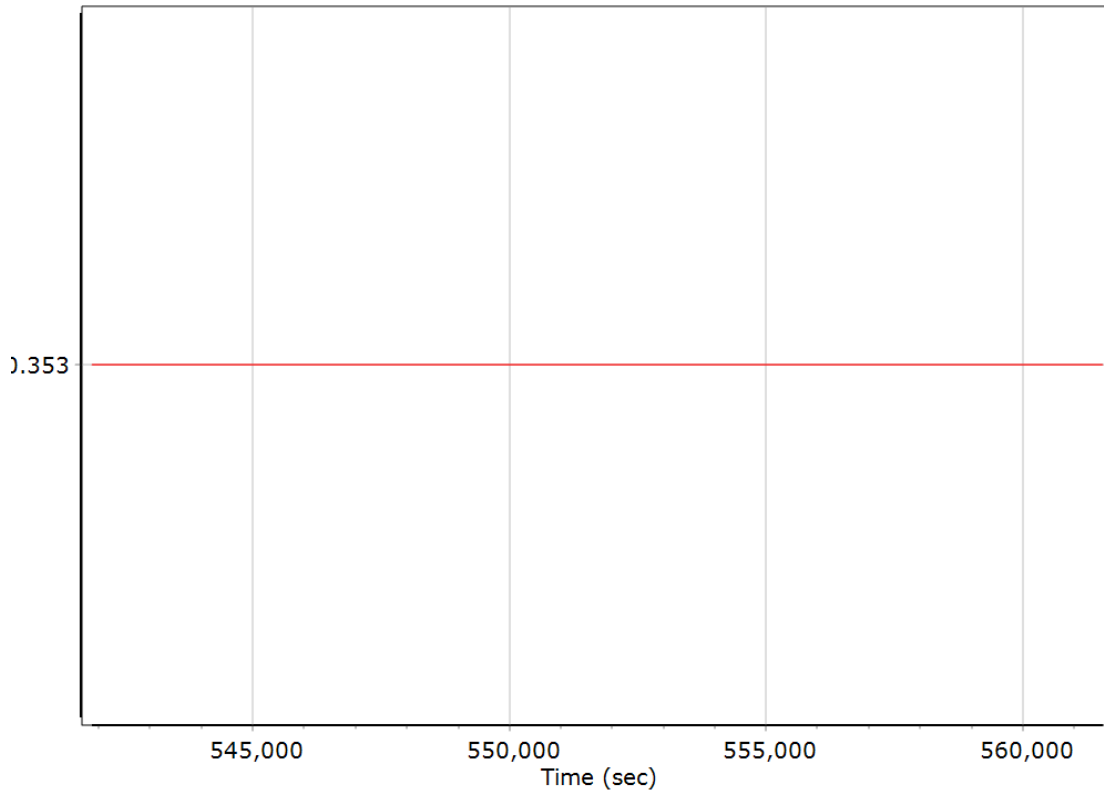
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	541412.000 (7/23/2022 6:23:32 AM)		
Processing end time	561556.000 (7/23/2022 11:59:16 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.300	-1.280
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

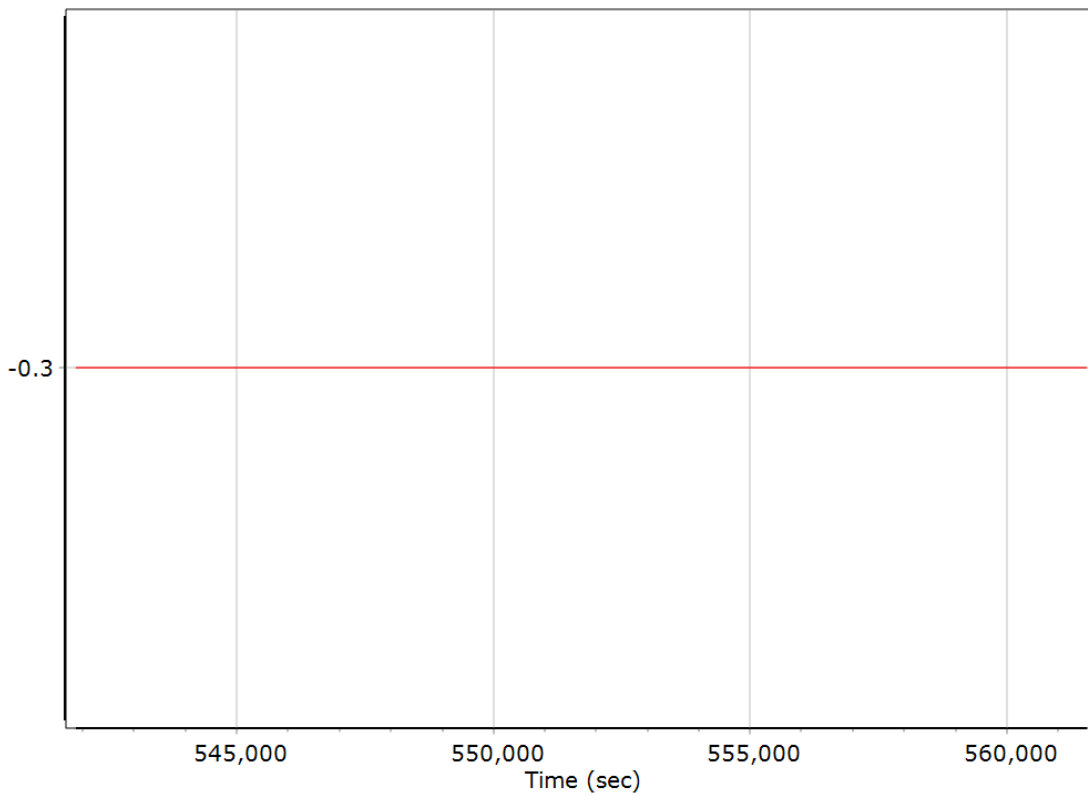
## Calibrated Installation Parameters

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

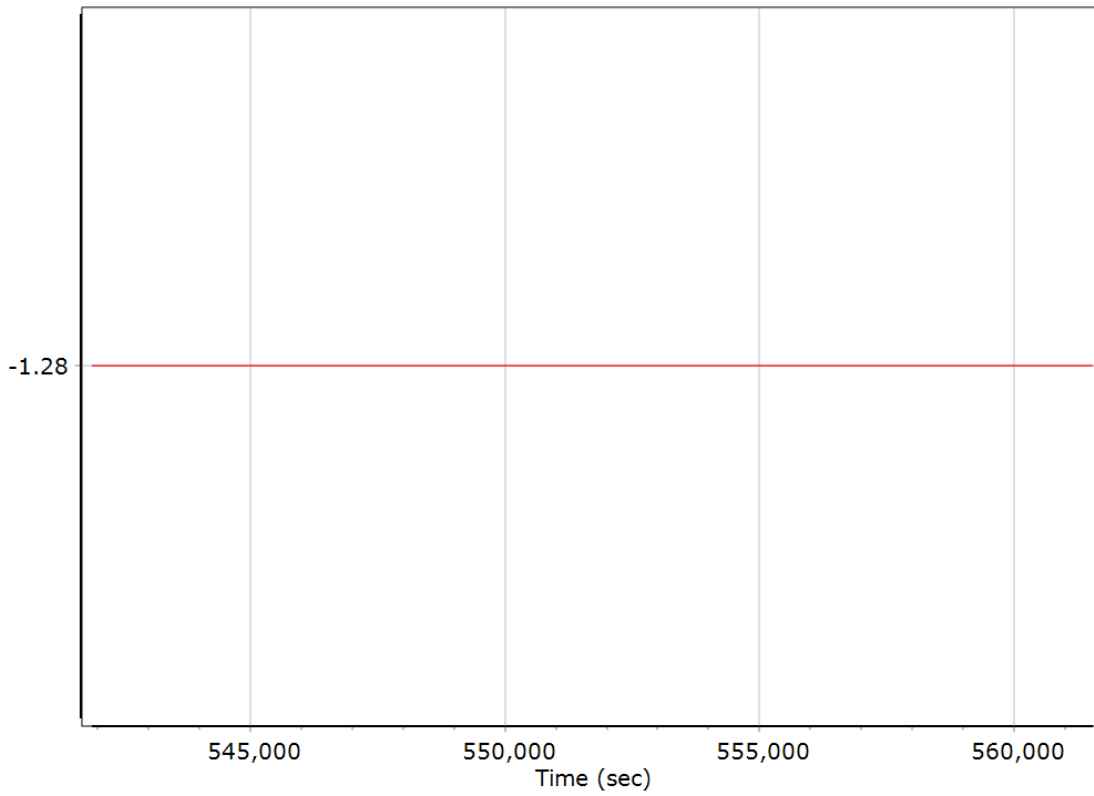
#### X Reference-Primary GNSS Lever Arm (m)



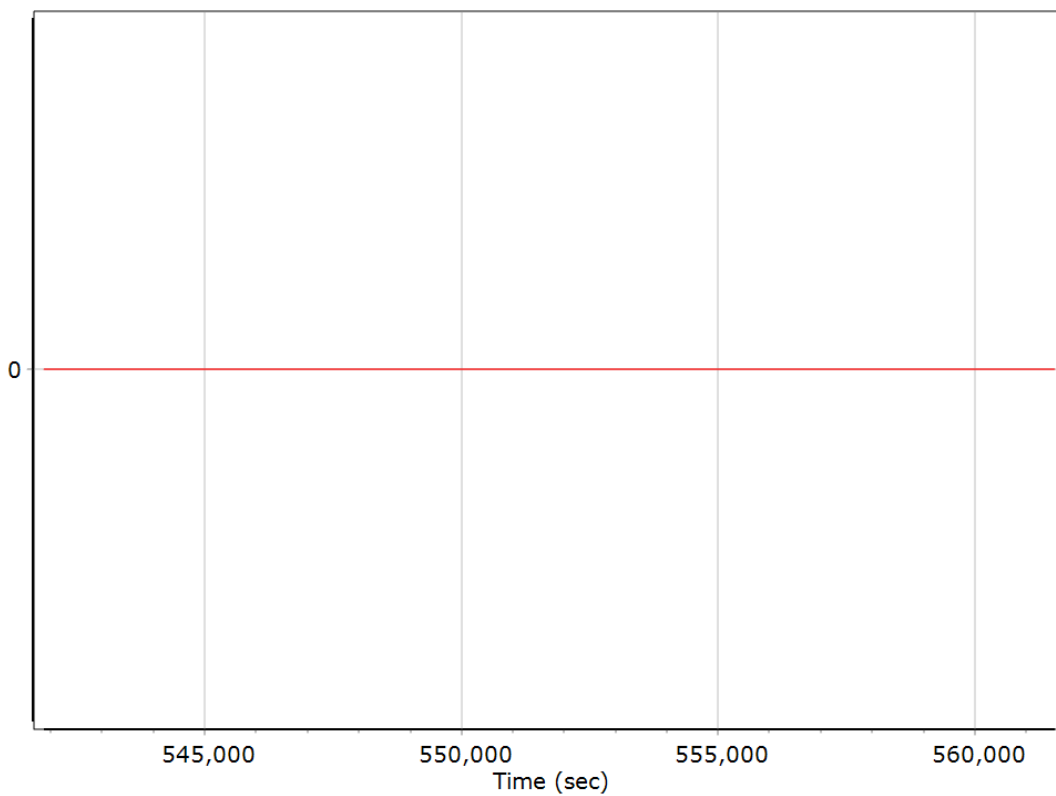
#### Y Reference-Primary GNSS Lever Arm (m)



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



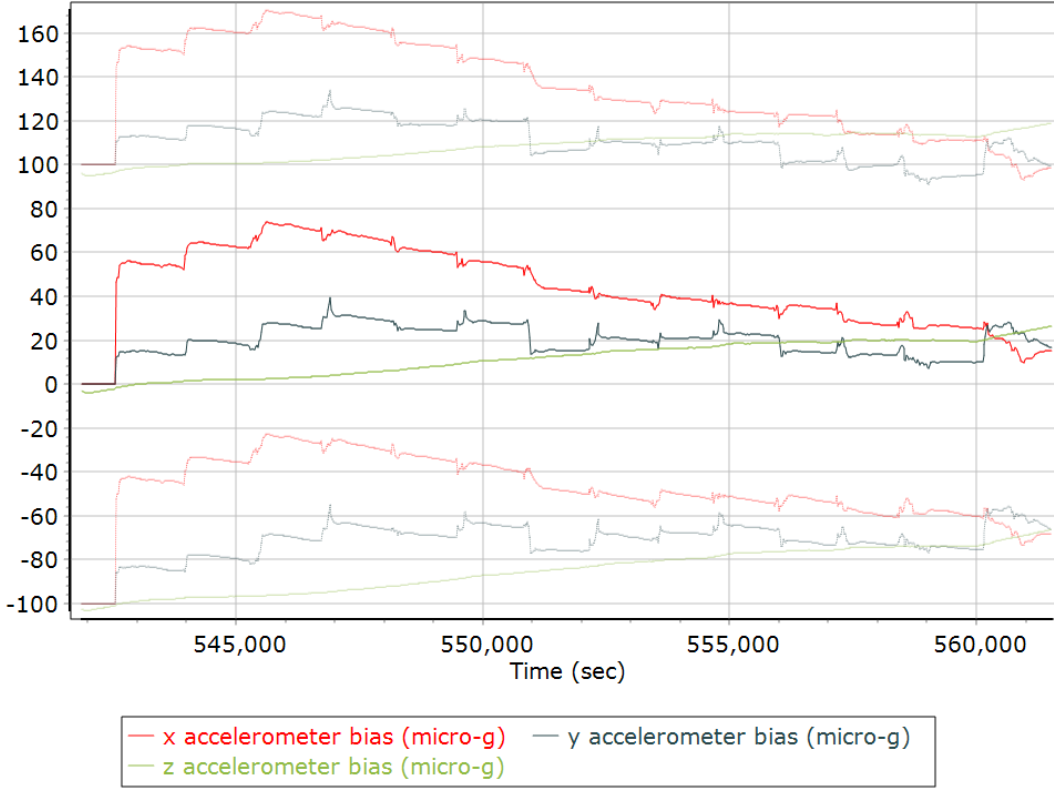
### Reference-Primary GNSS Lever Arm Figure of Merit



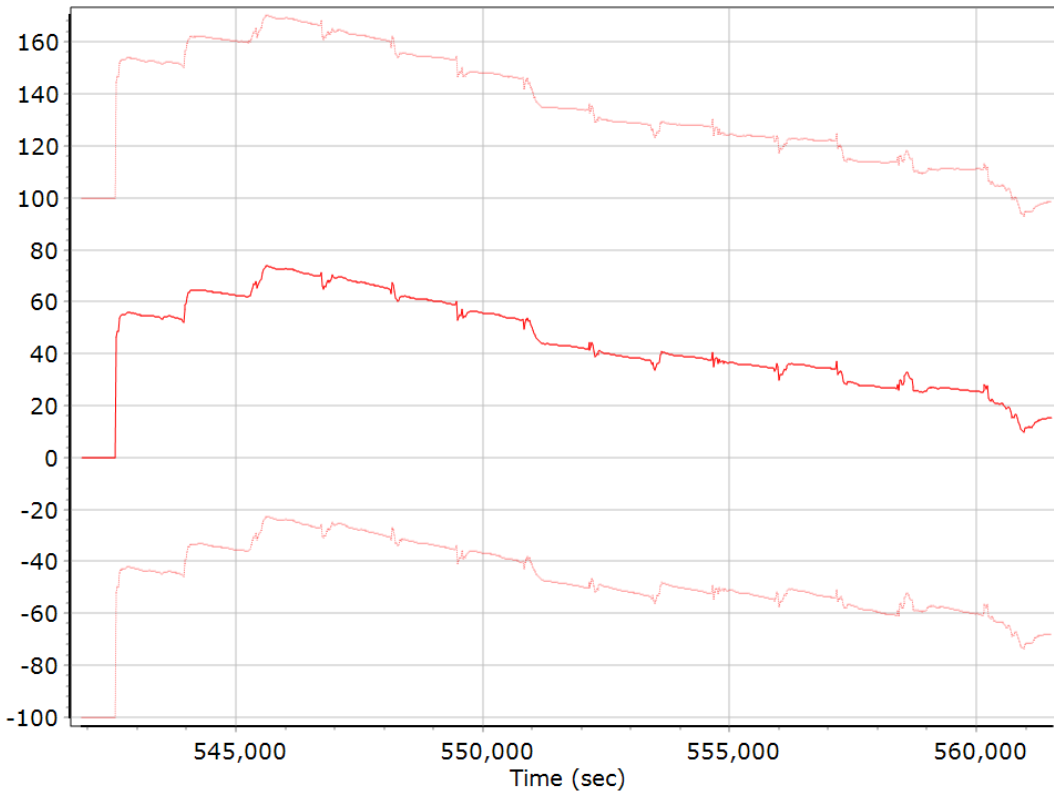
# IN-Fusion QC

## Forward Processed Estimated Errors, Reference Frame

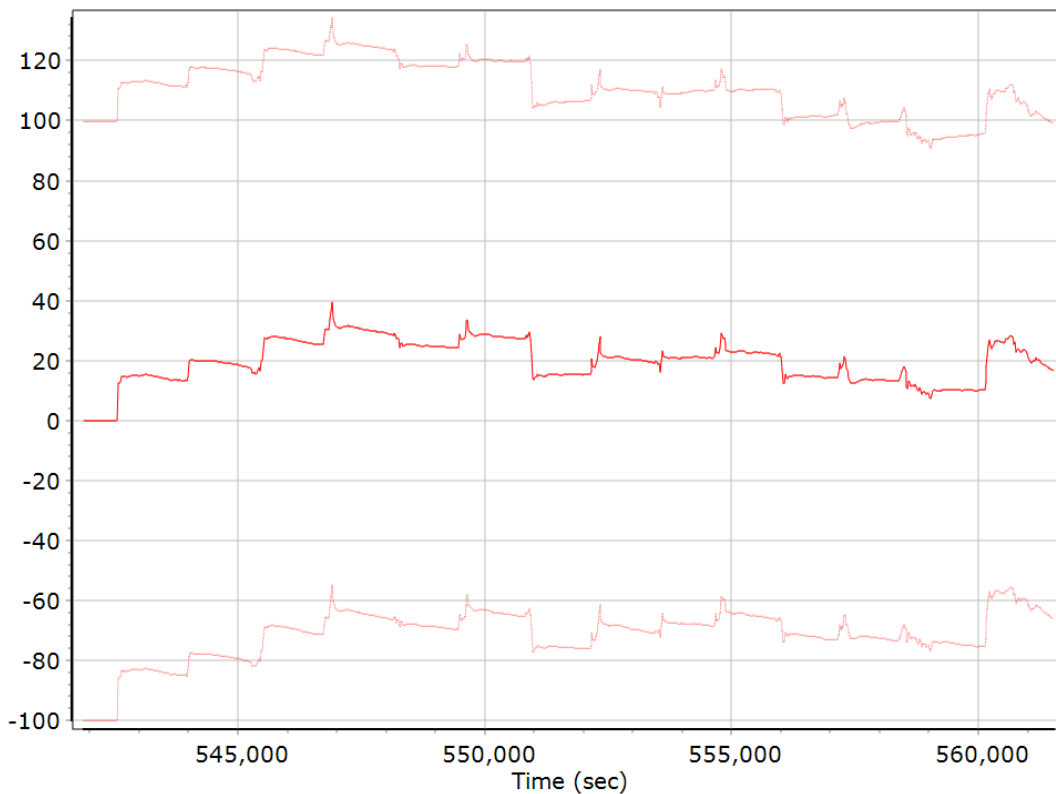
### Accelerometer Bias (micro-g)



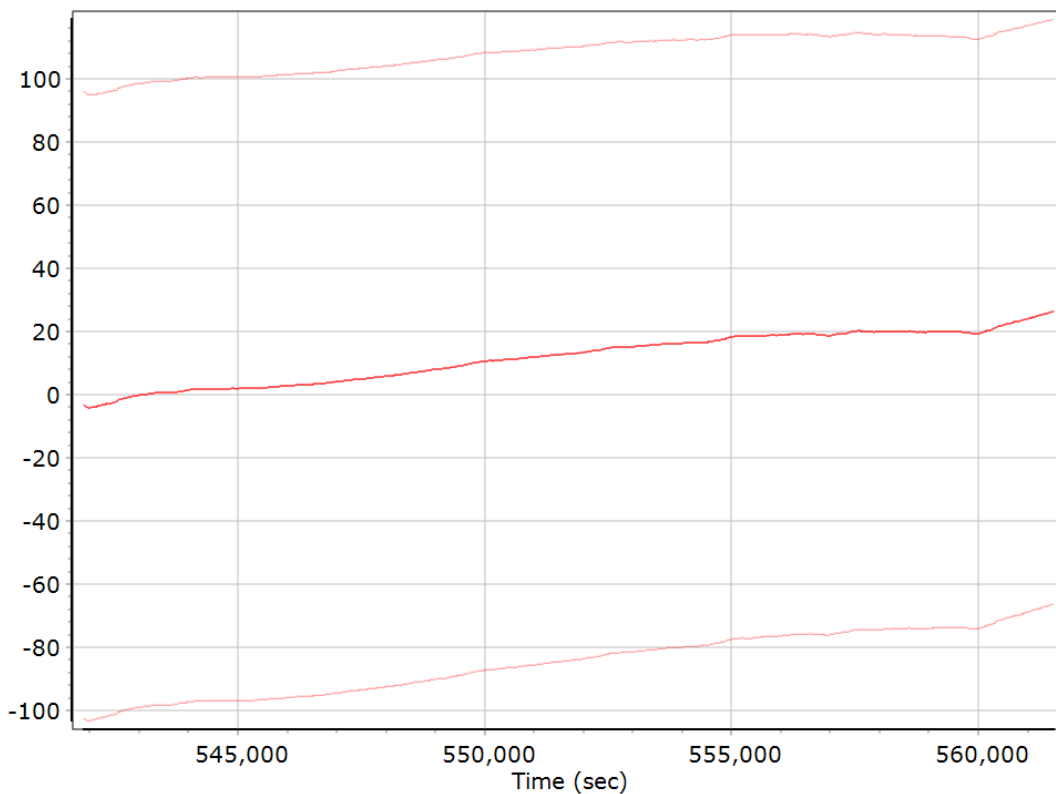
### X Accelerometer Bias (micro-g)



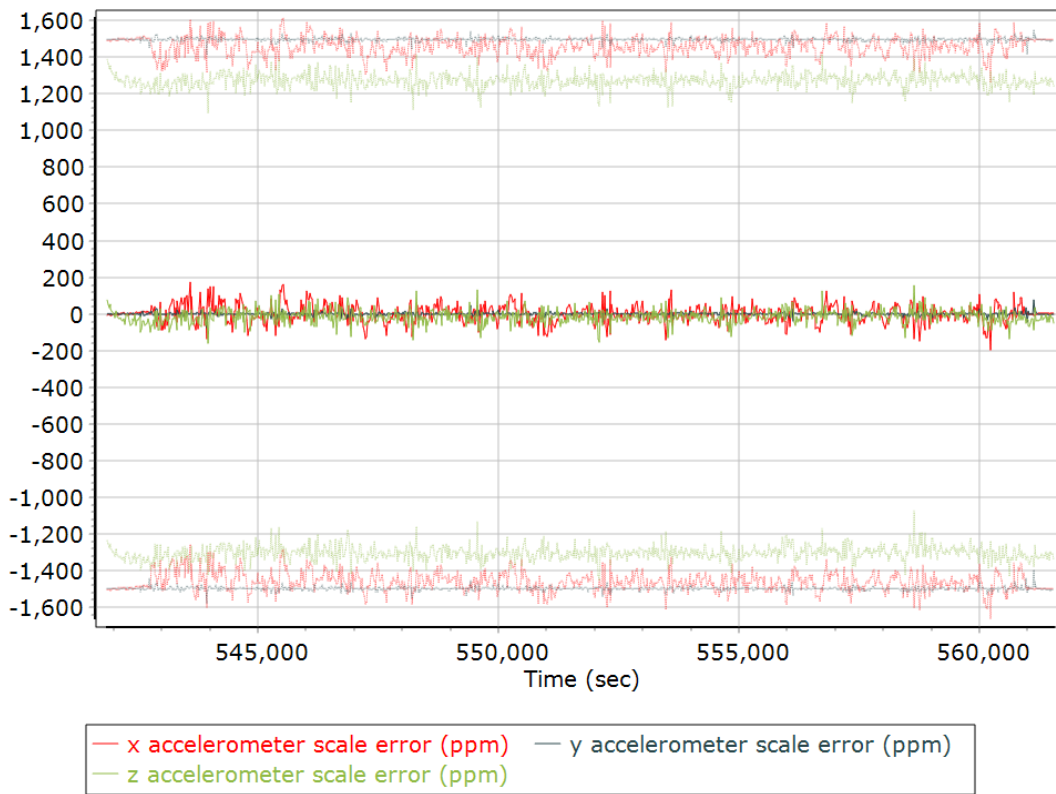
### Y Accelerometer Bias (micro-g)



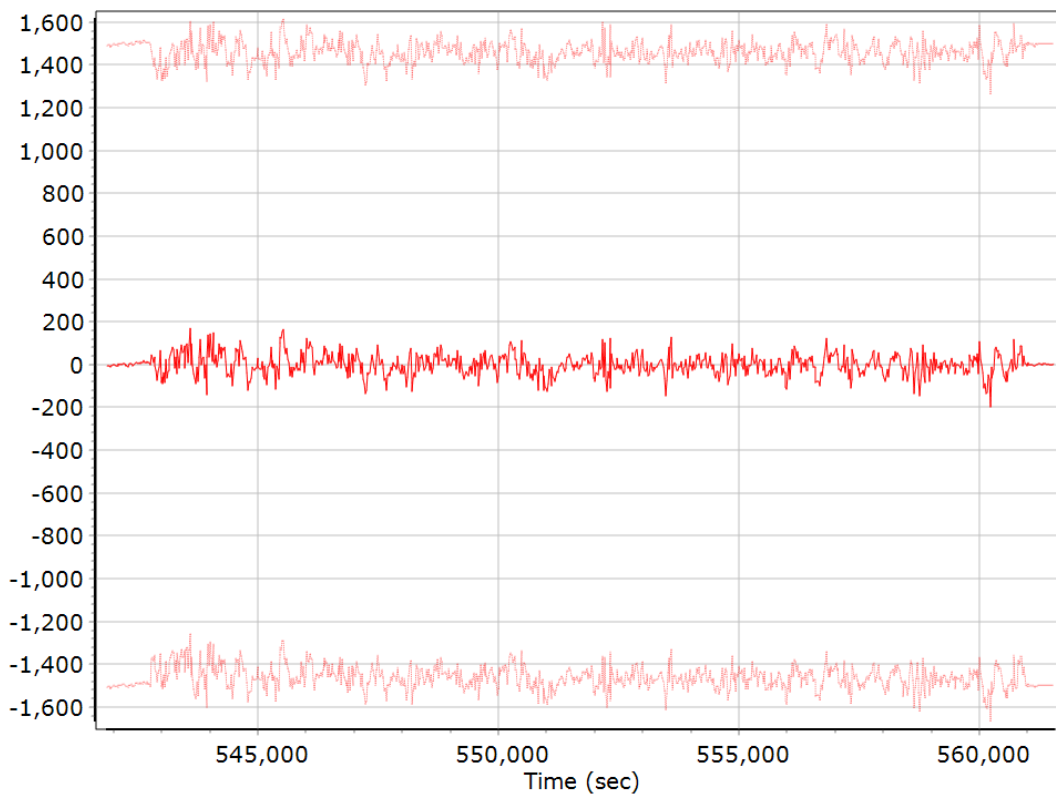
### Z Accelerometer Bias (micro-g)



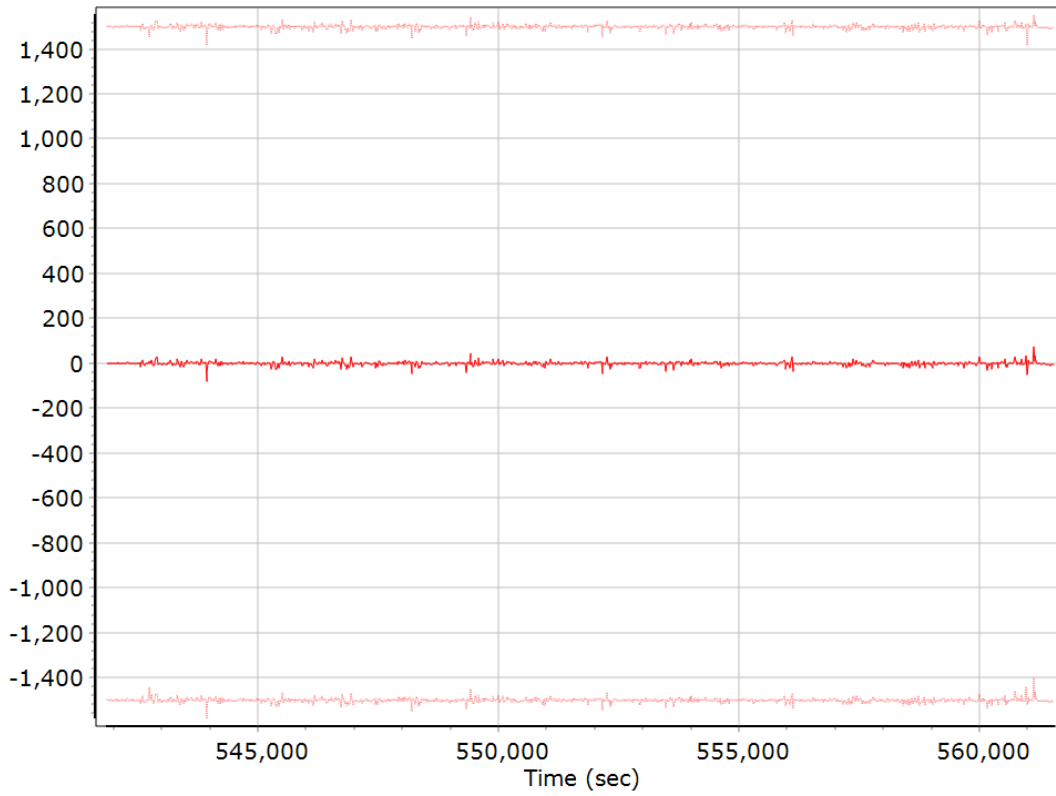
### Accelerometer Scale Error (ppm)



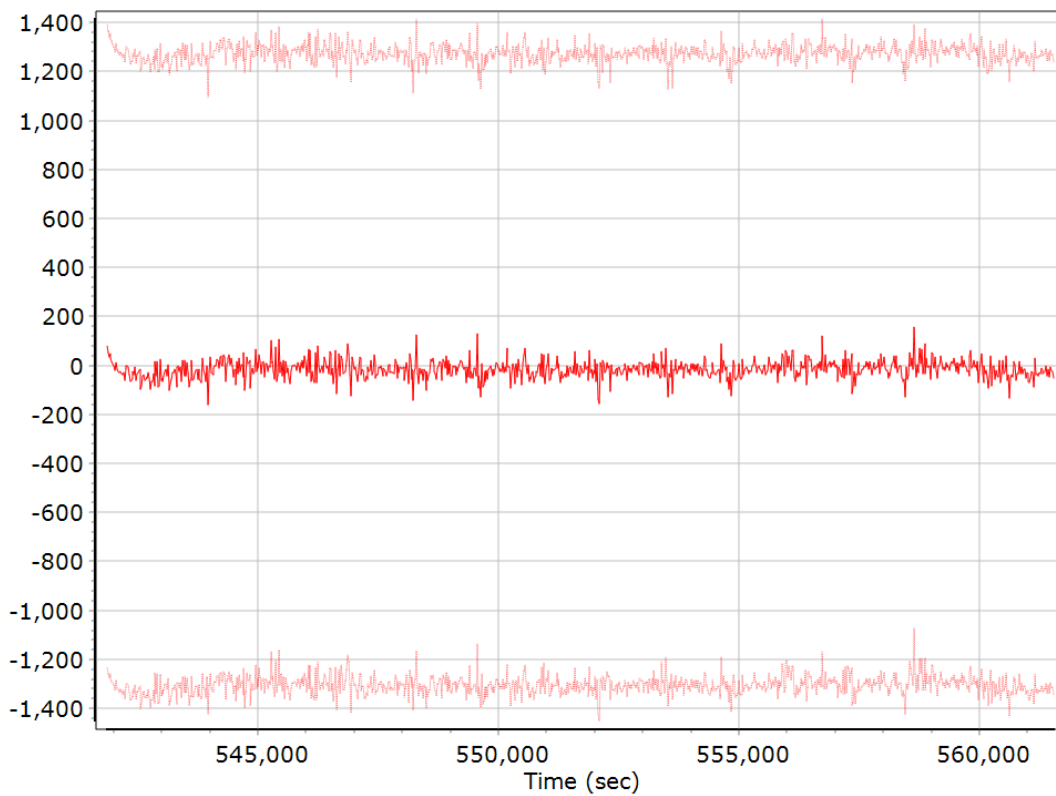
### X Accelerometer Scale Error (ppm)



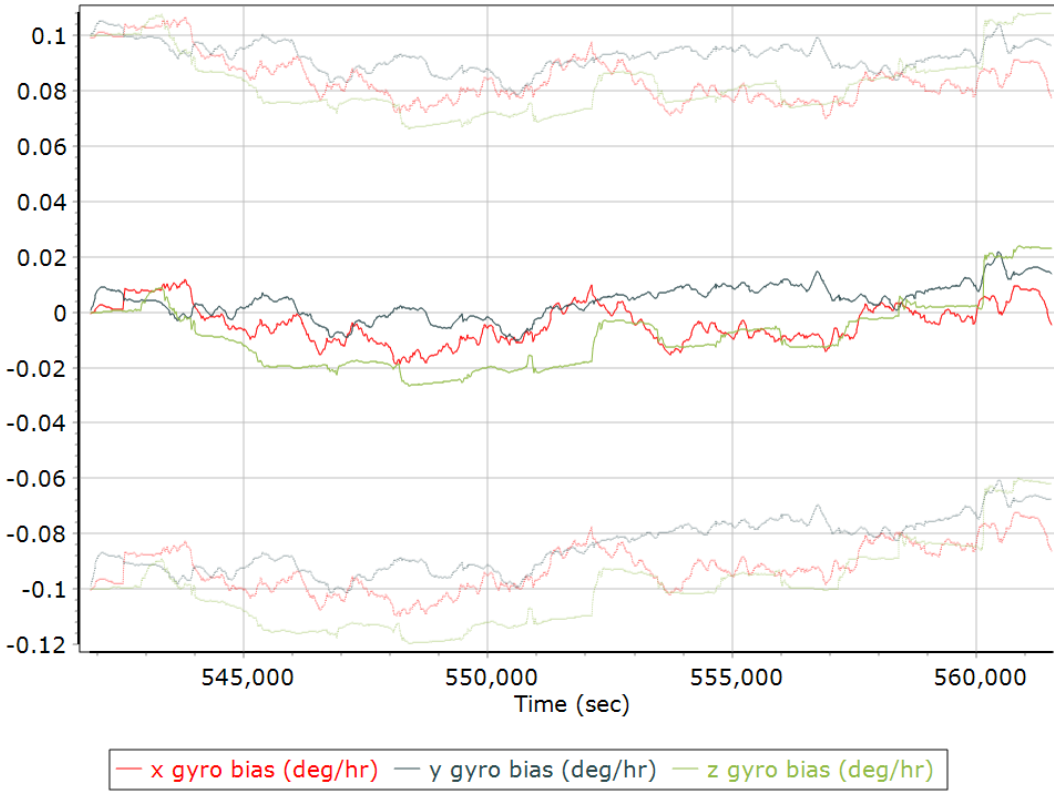
### Y Accelerometer Scale Error (ppm)



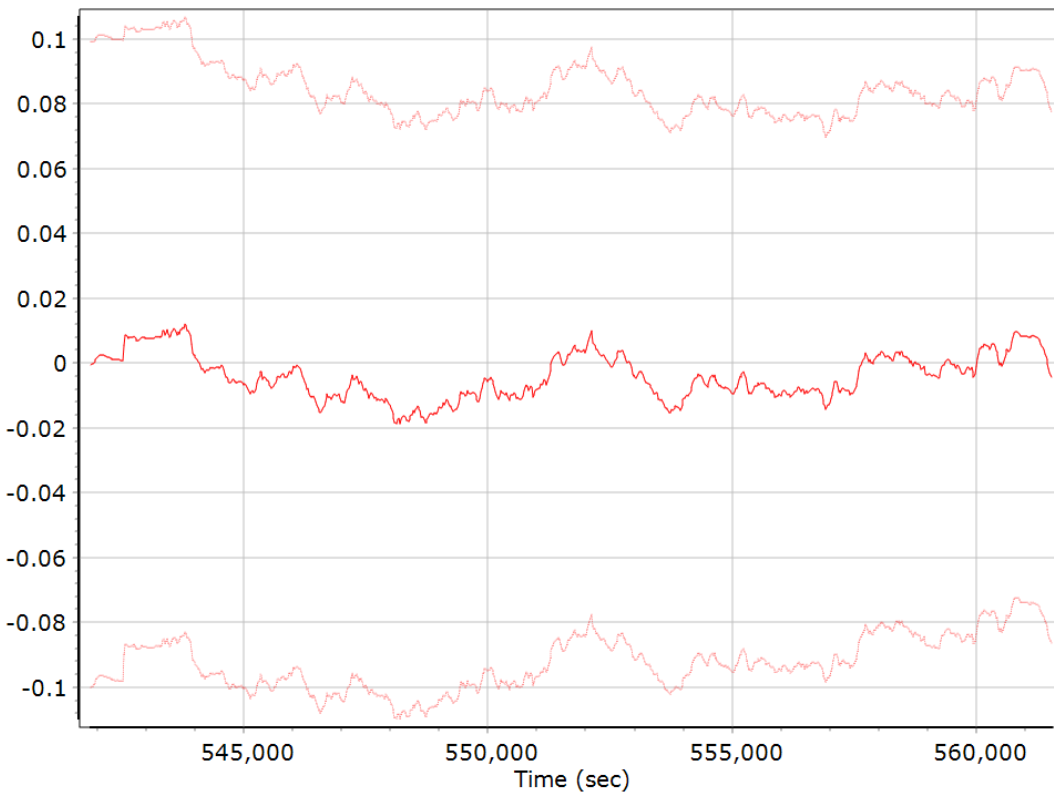
### Z Accelerometer Scale Error (ppm)



### Gyro Bias (deg/h)

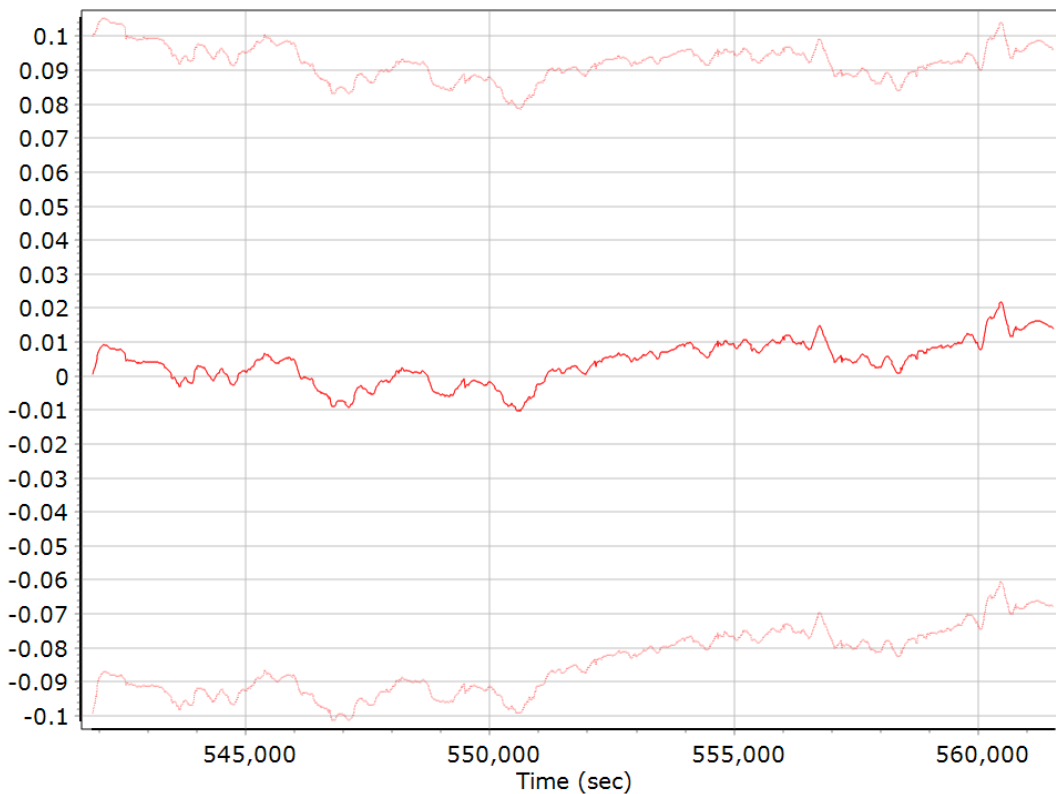


### X Gyro Bias (deg/h)

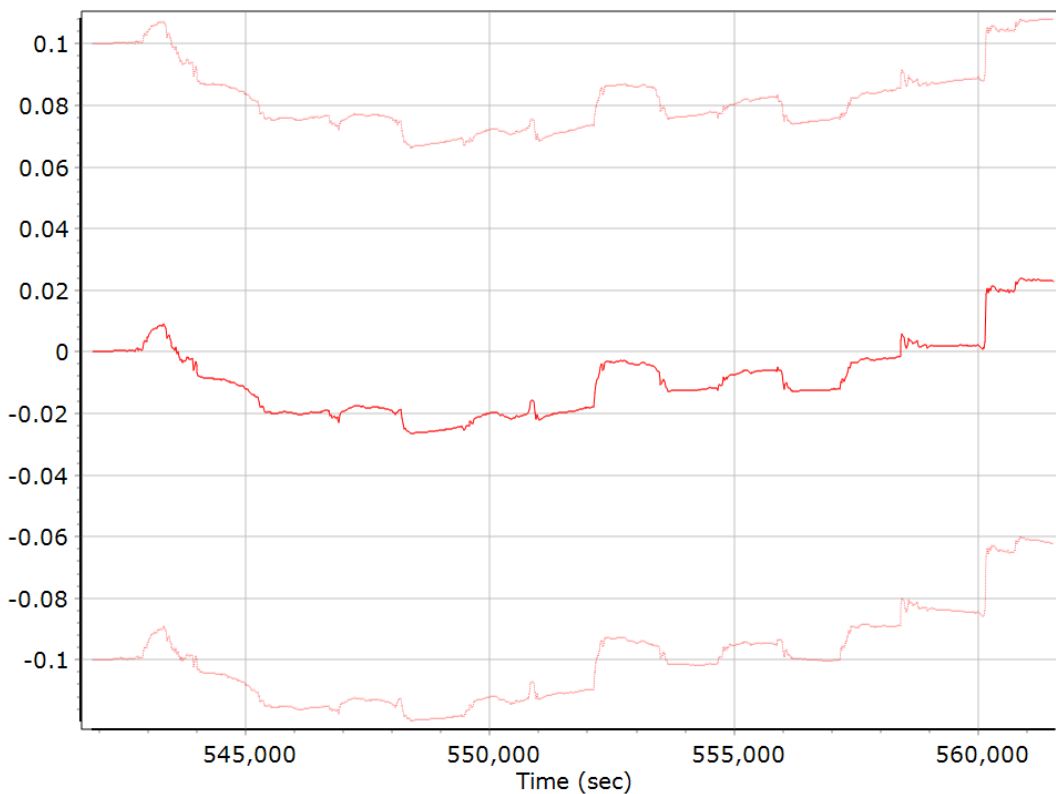




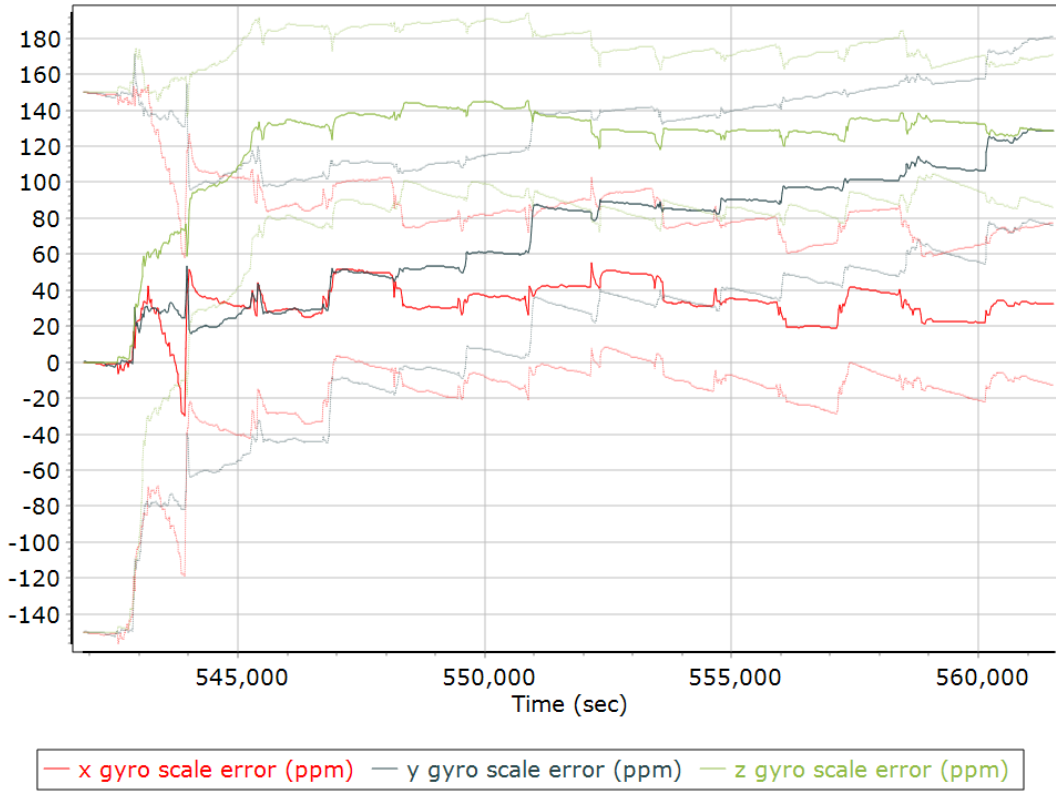
### Y Gyro Bias (deg/h)



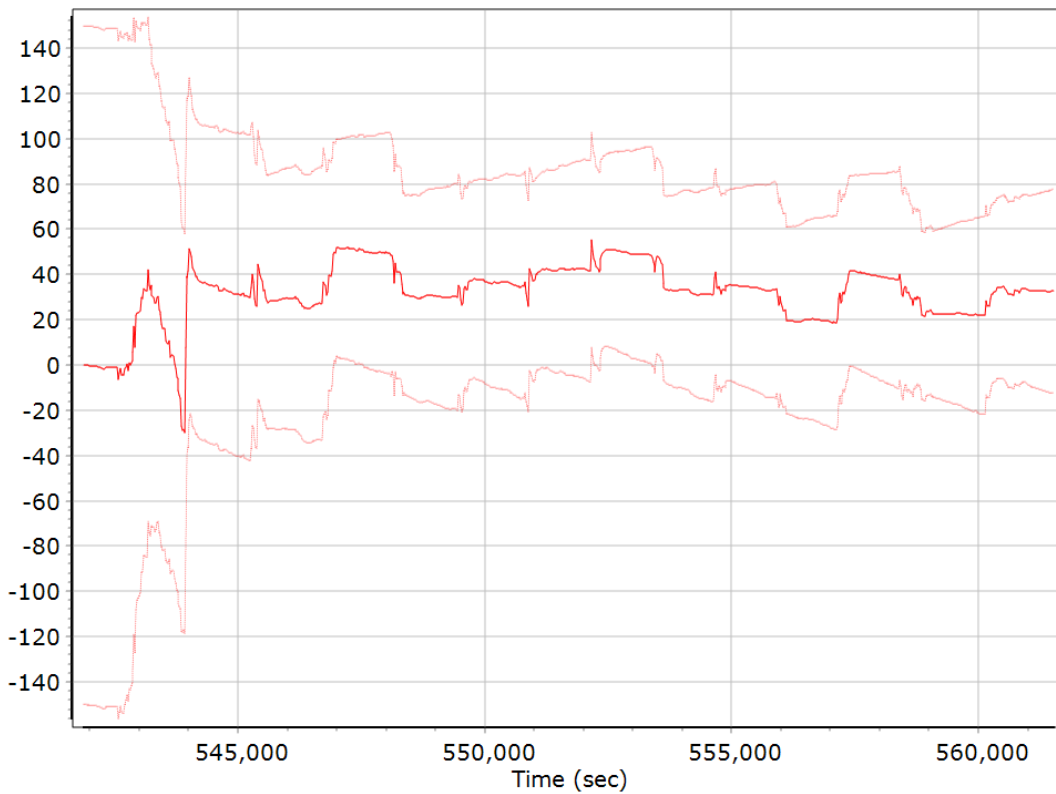
### Z Gyro Bias (deg/h)



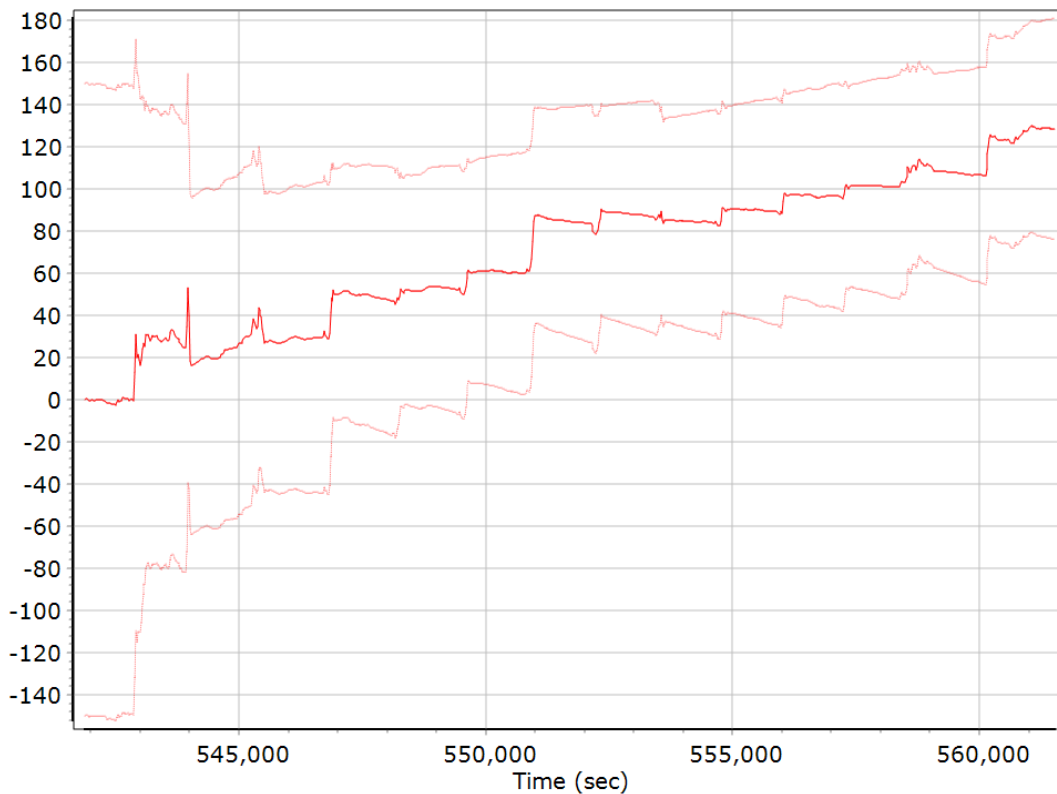
### Gyro Scale Error (ppm)



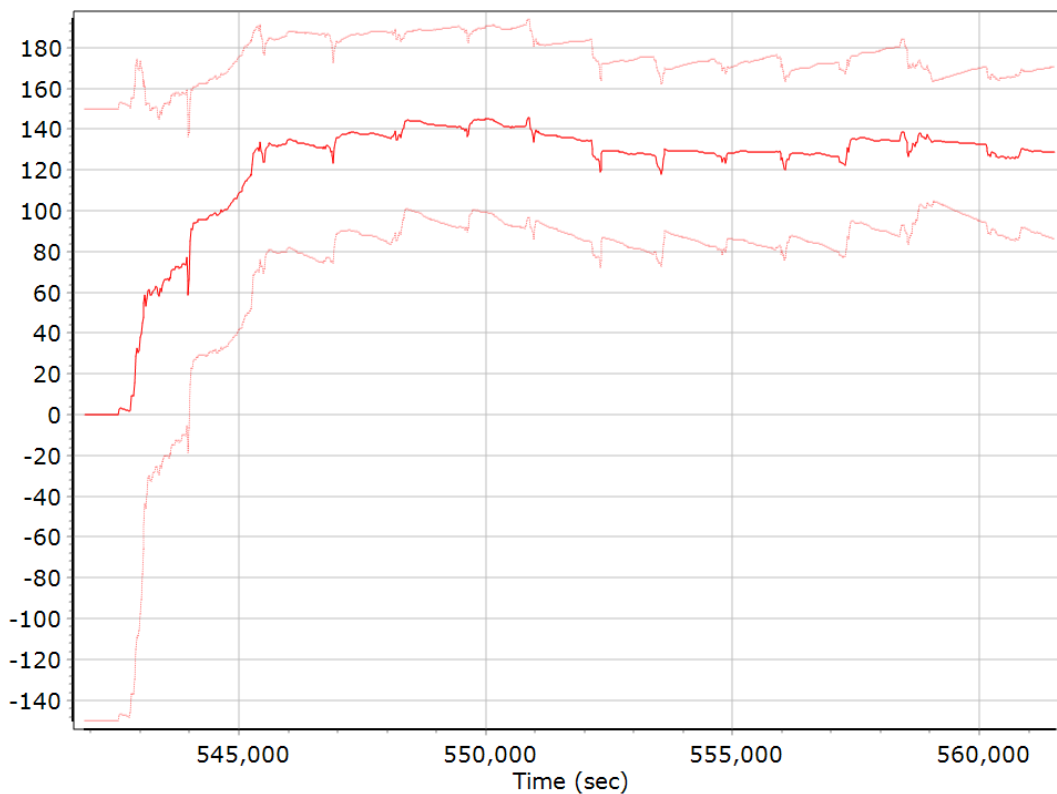
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)

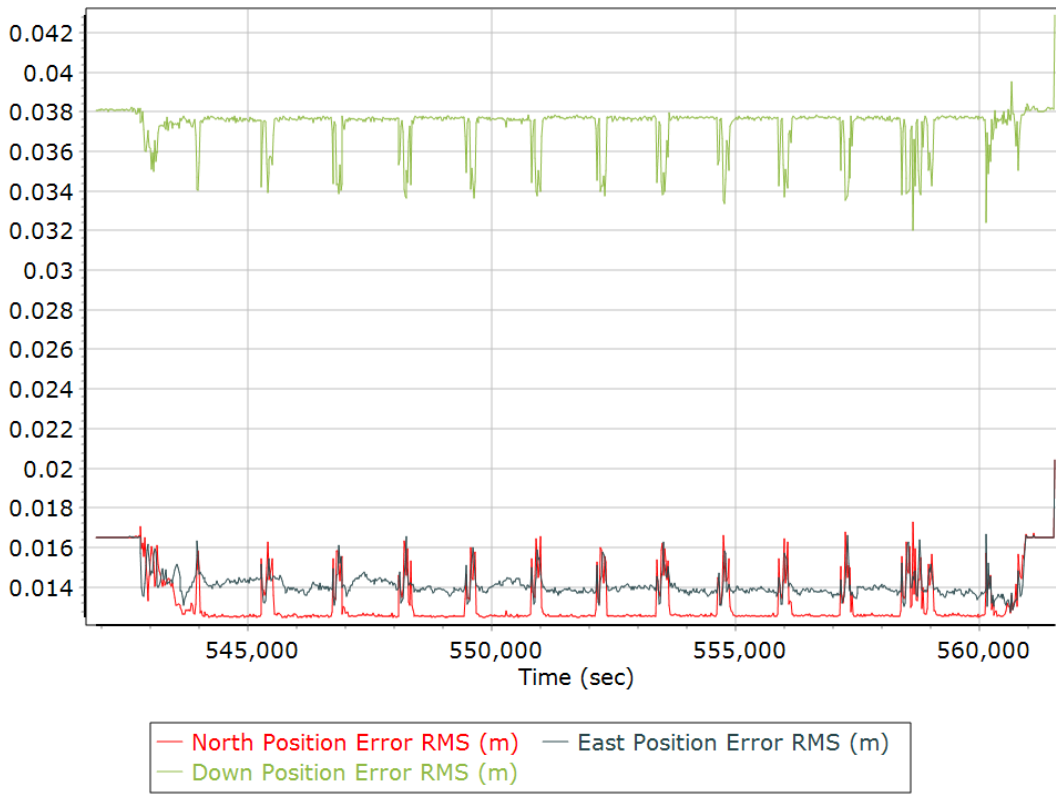


### Z Gyro Scale Error (ppm)

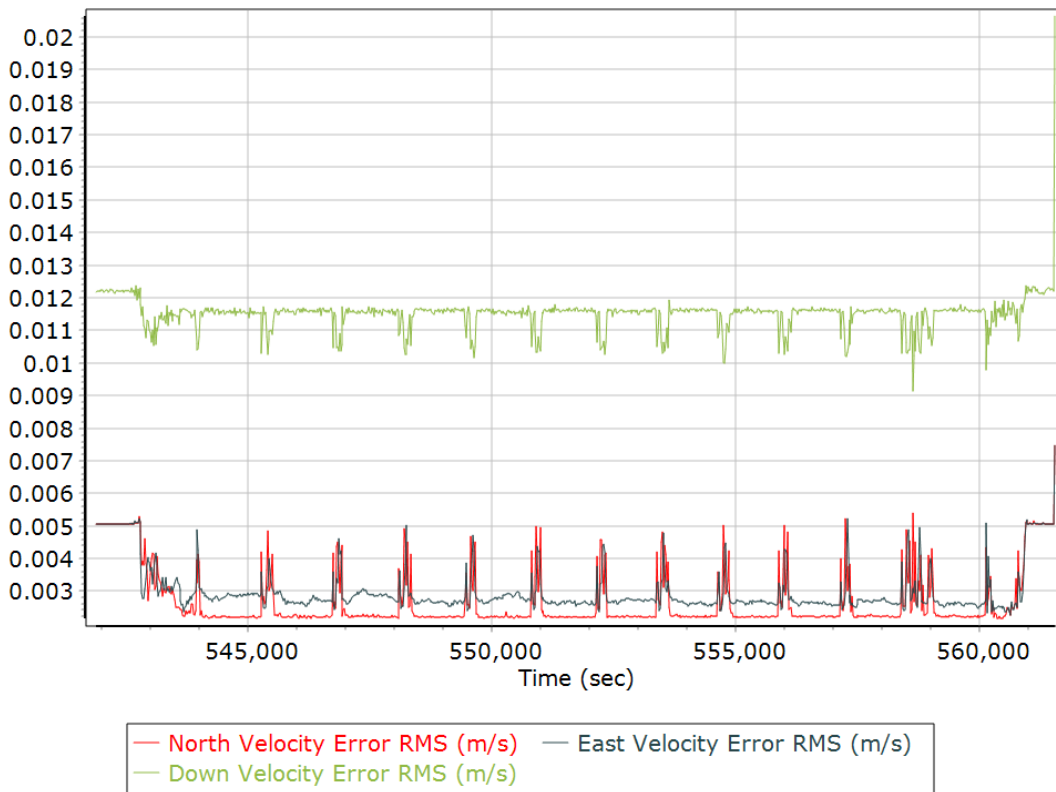


## Smoothed Performance Metrics

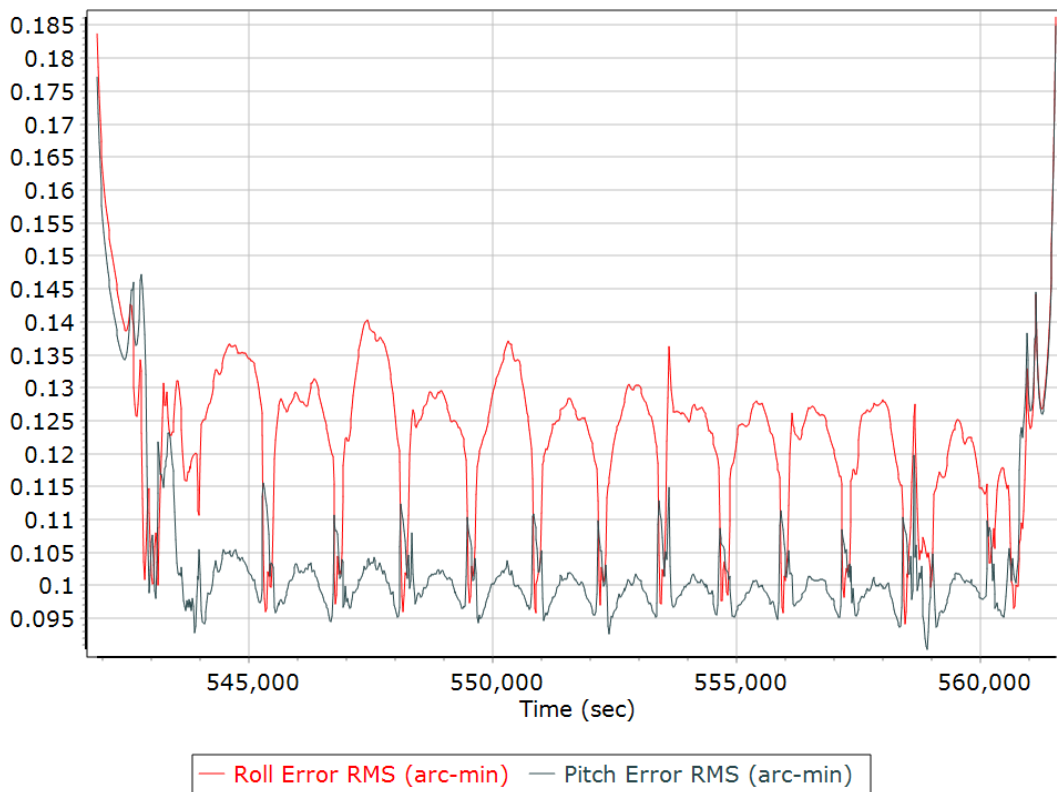
### Position Error RMS (m)



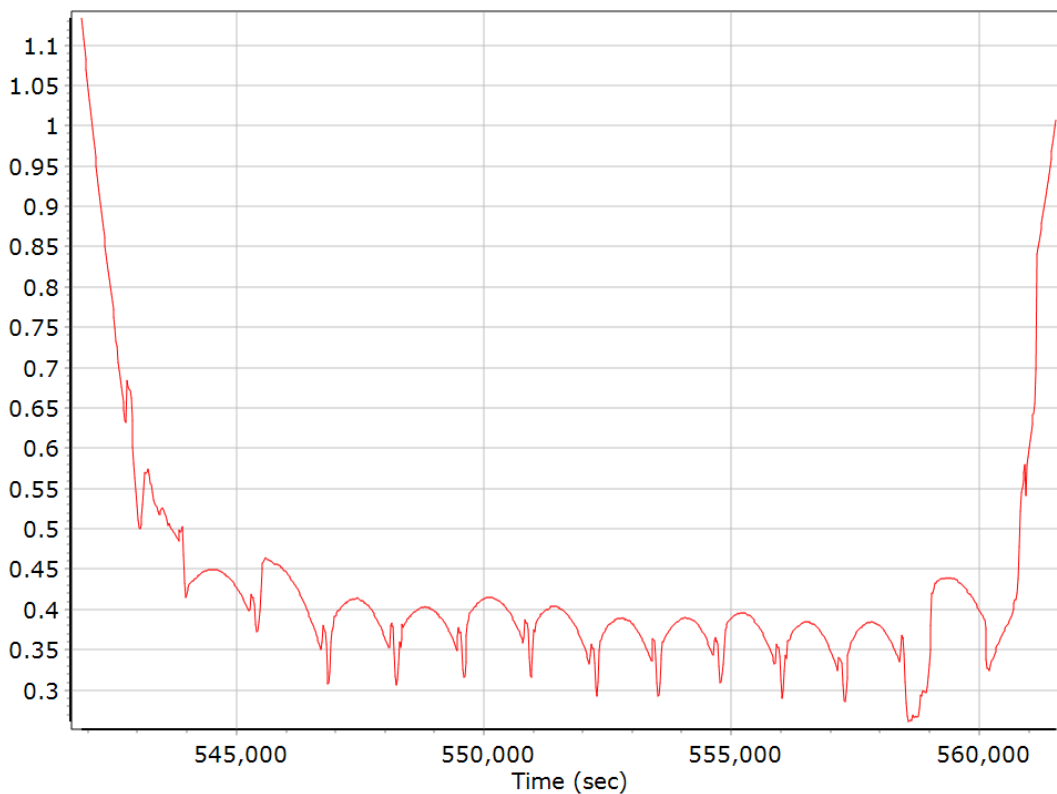
### Velocity Error RMS (m/s)



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

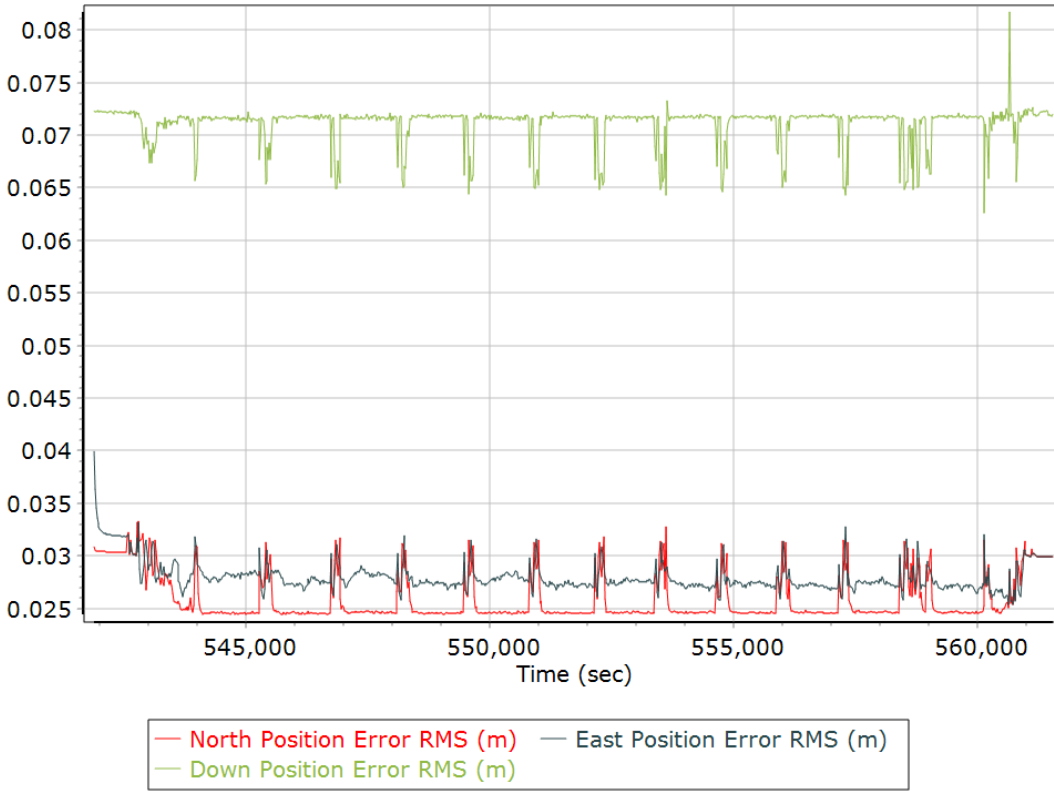


### Heading Error RMS (arc-min)

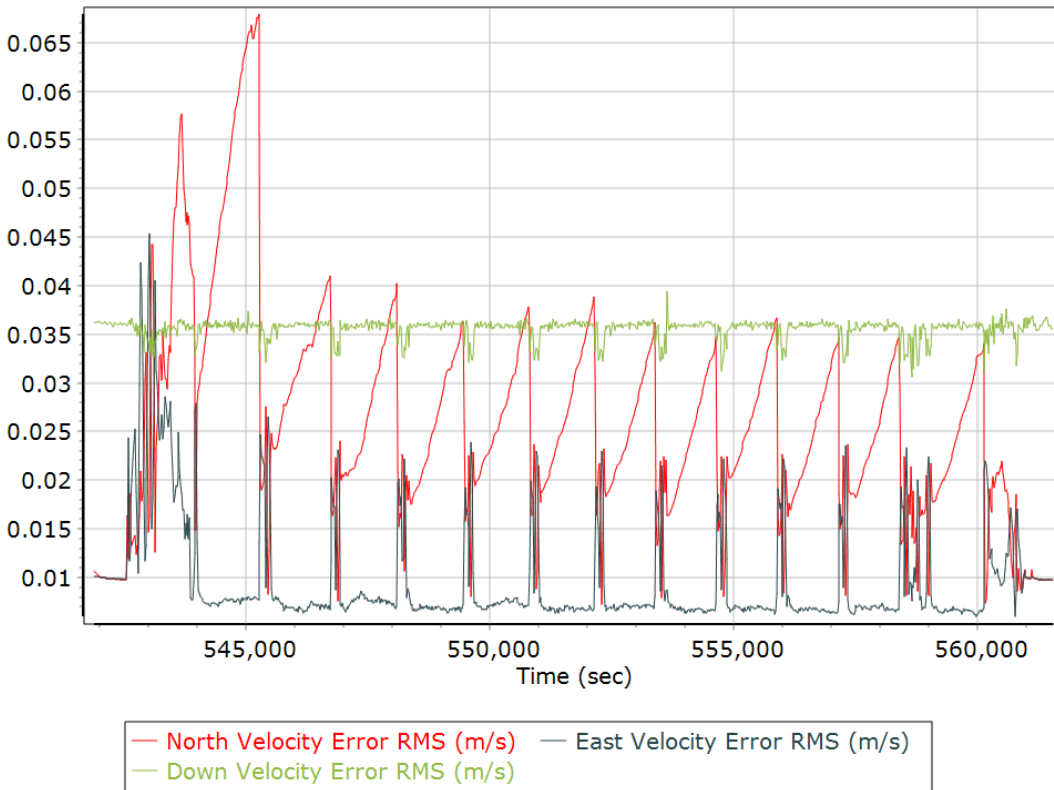


## Forward Processed Performance Metrics

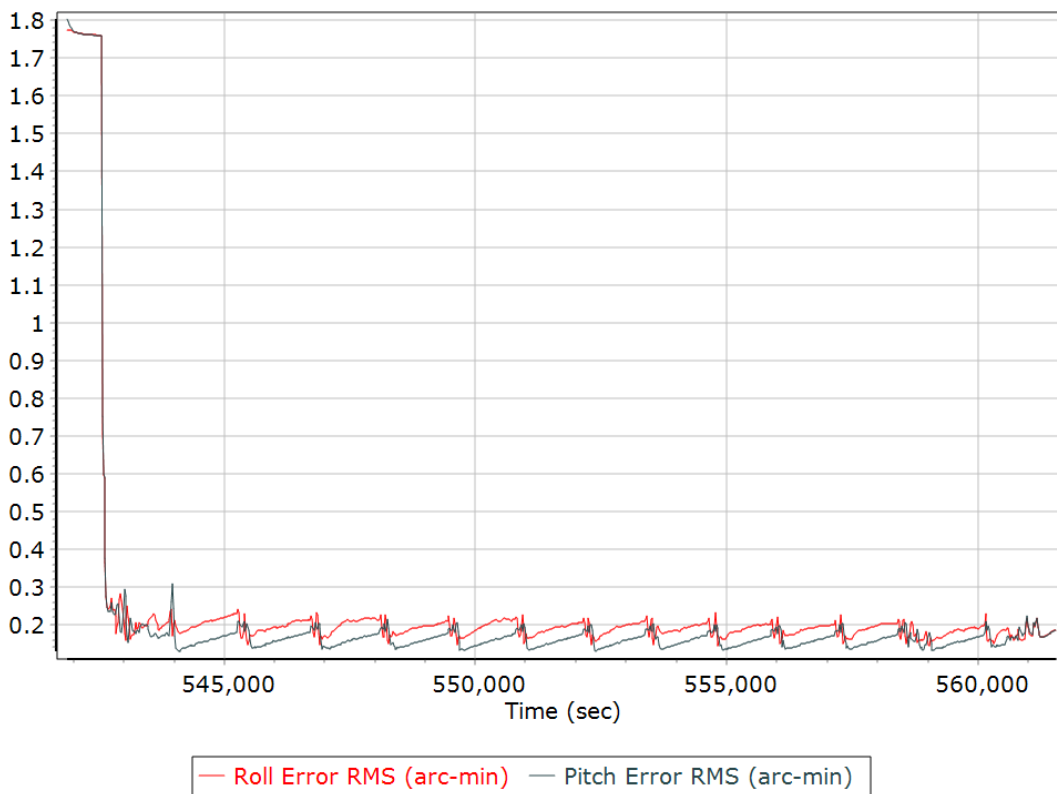
### Position Error RMS (m)



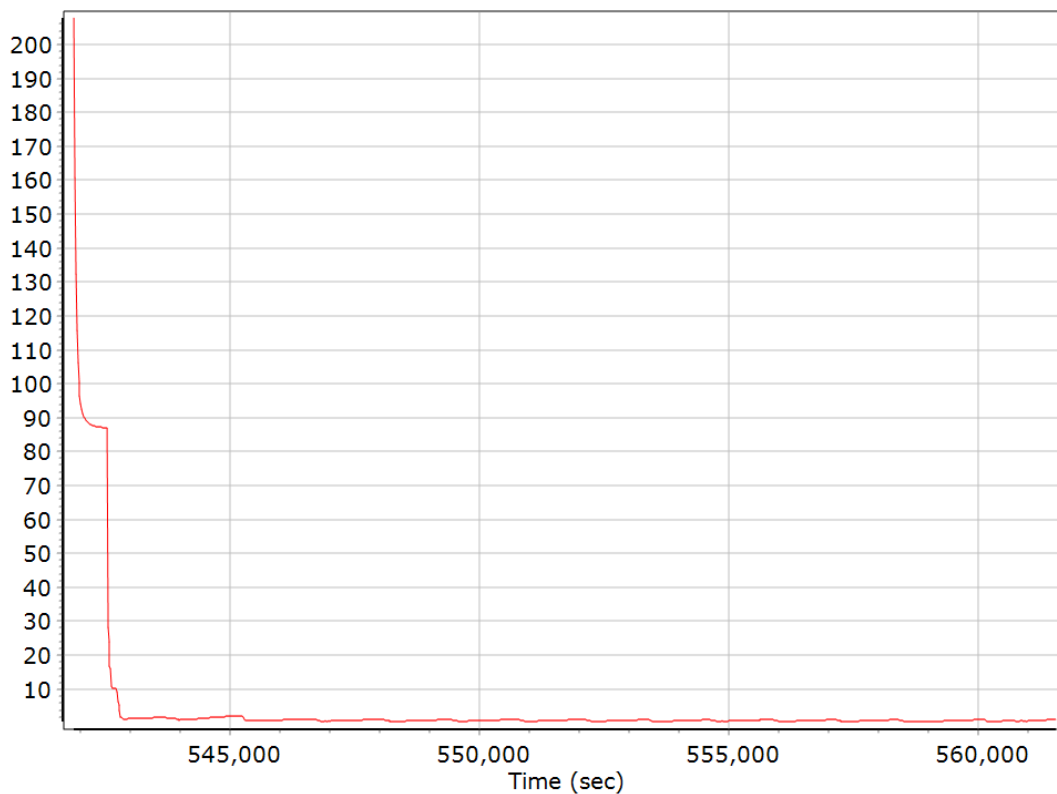
### Velocity Error RMS (m/s)



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

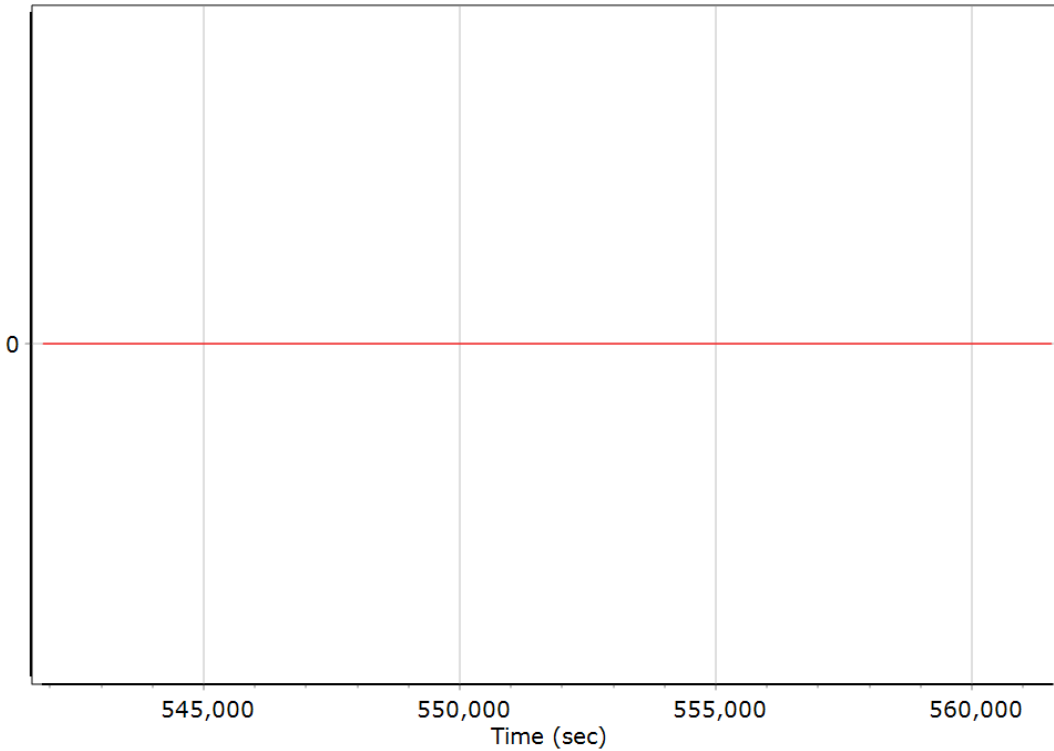


### Heading Error RMS (arc-min)



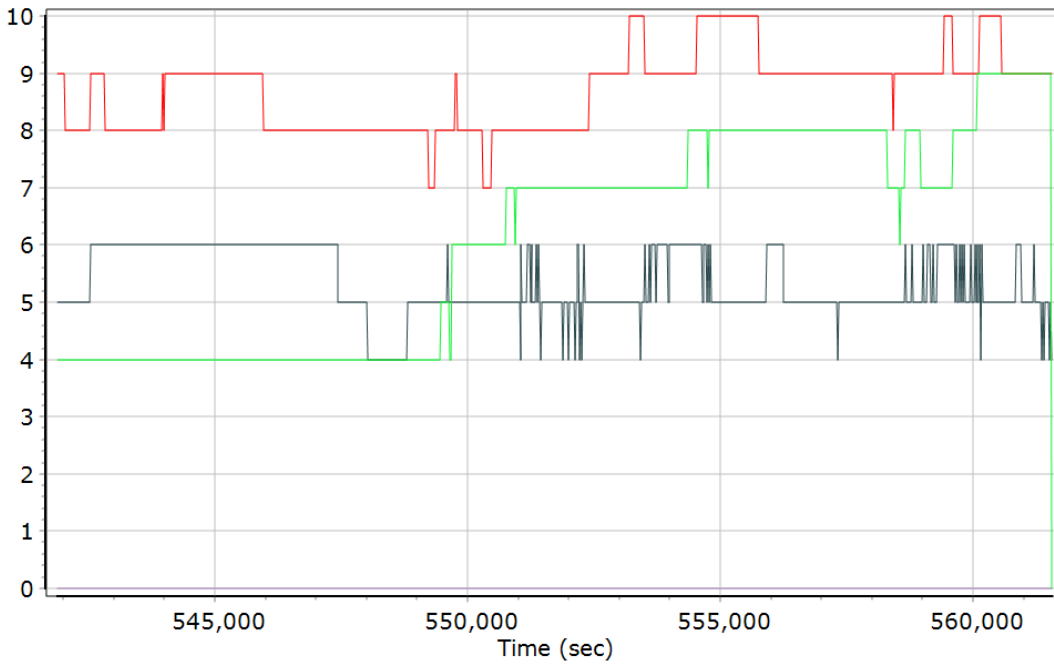
## Forward Processed Solution Status

### Processing Mode



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

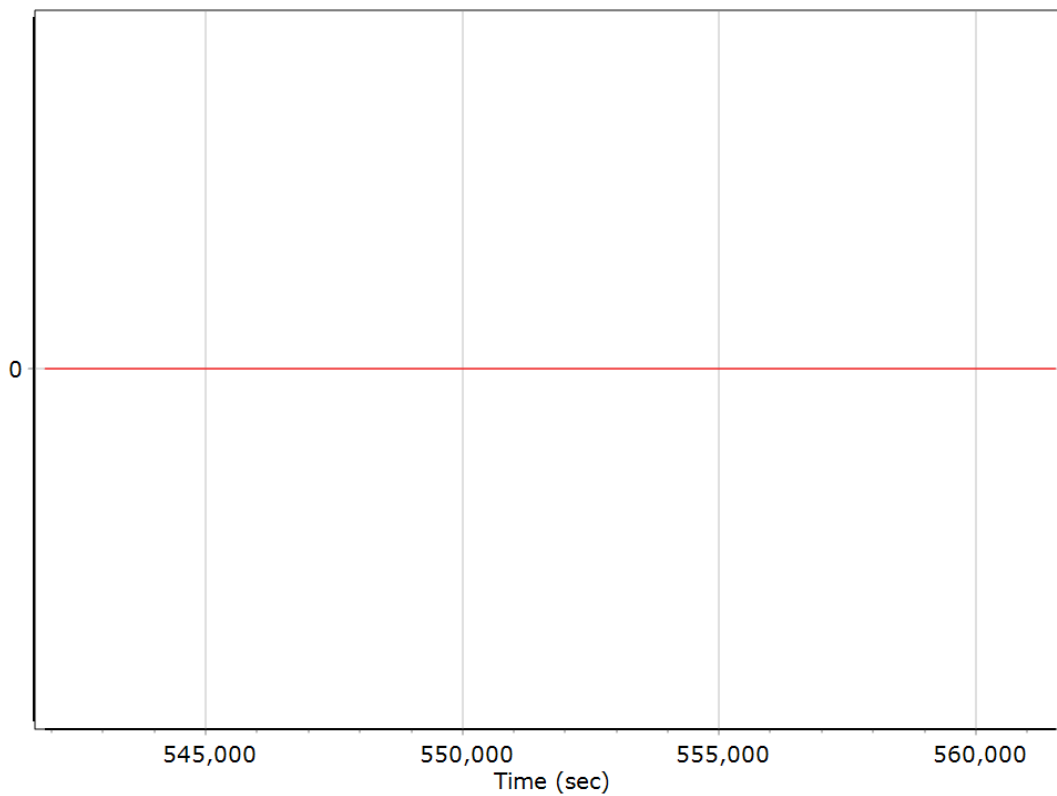
### Number of Satellites



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



### Baseline Length



## General Information

### Mission Information

Project name	a07-s03-0522
Processing date	2022-08-22 14:55:16
Mission date	2022-08-20 06:22:52
Mission duration	06:19:05.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0820_062253.000	POS Data
default0820_062253.001	POS Data
default0820_062253.002	POS Data
default0820_062253.003	POS Data
default0820_062253.004	POS Data
default0820_062253.005	POS Data
default0820_062253.006	POS Data
default0820_062253.007	POS Data
default0820_062253.008	POS Data
default0820_062253.009	POS Data
default0820_062253.010	POS Data
default0820_062253.011	POS Data
default0820_062253.012	POS Data
default0820_062253.013	POS Data
default0820_062253.014	POS Data
default0820_062253.015	POS Data
default0820_062253.016	POS Data
default0820_062253.017	POS Data
default0820_062253.018	POS Data
default0820_062253.019	POS Data
default0820_062253.020	POS Data
default0820_062253.021	POS Data
default0820_062253.022	POS Data
default0820_062253.023	POS Data
default0820_062253.024	POS Data
default0820_062253.025	POS Data
default0820_062253.026	POS Data
default0820_062253.027	POS Data
default0820_062253.028	POS Data
default0820_062253.029	POS Data
default0820_062253.030	POS Data
default0820_062253.031	POS Data

### Input Files

File Name	File Type
Ephm2320.22g	GLONASS Broadcast Ephemeris
Ephm2320.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0522.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0820_062253.000		
Last raw data file	default0820_062253.031		
Start GPS week	2223		
Start time	17.107 (8/14/2022 12:00:17 AM)		
End time	564099.919 (8/20/2022 12:41:39 PM)		
Start of fine alignment	541837.549 (8/20/2022 6:30:37 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

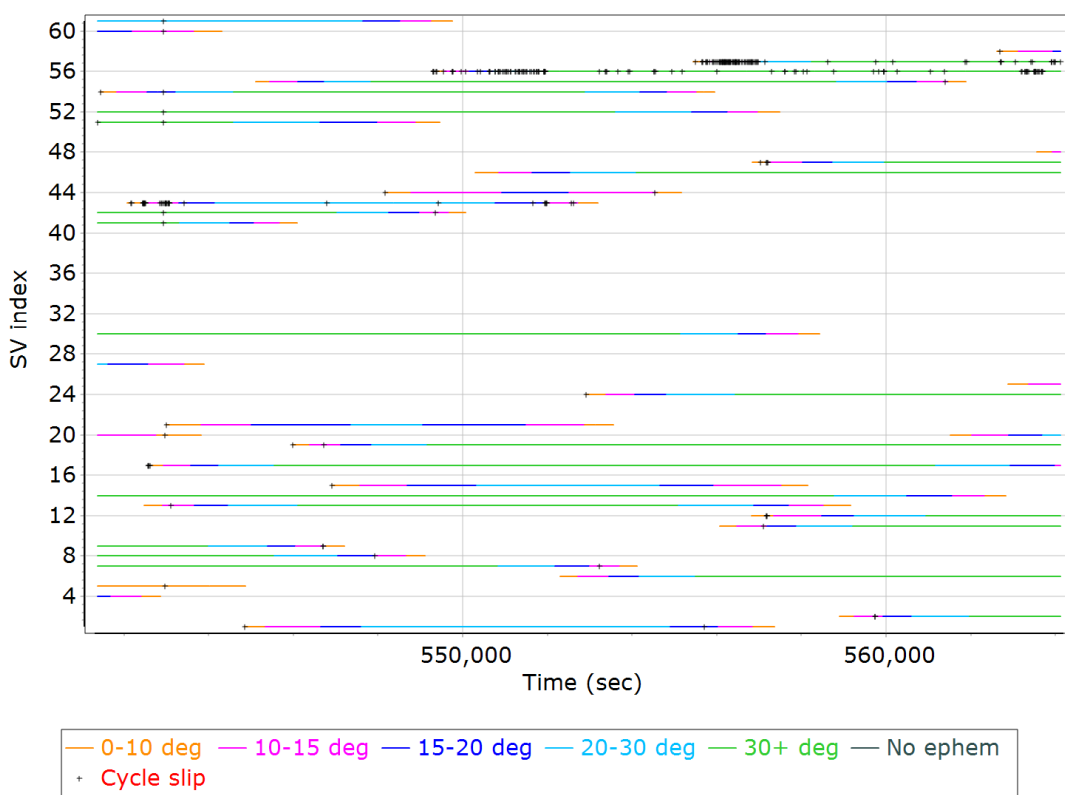
## Rover Data QC

### Raw IMU Import QC Summary

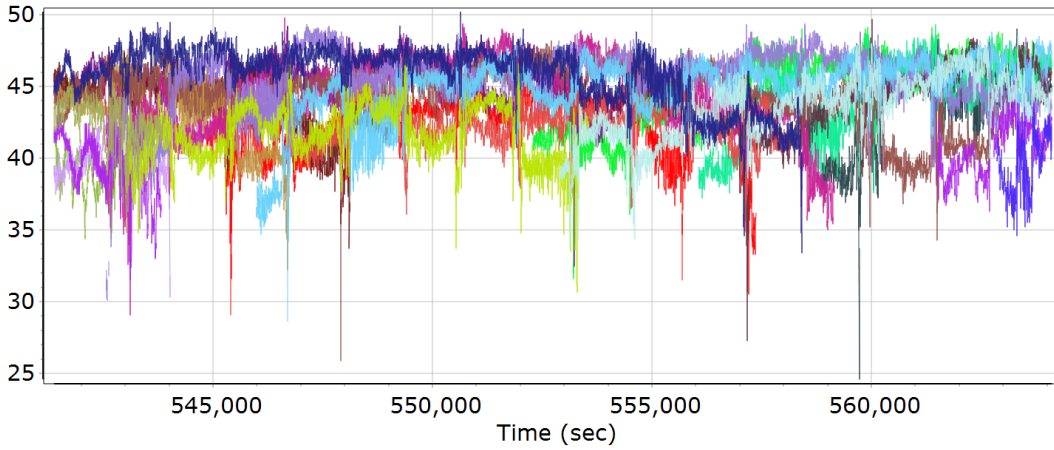
IMU data input file	imu_a07-s03-0522.dat
IMU data check log file	imudt_a07-s03-0522.log
IMU Records Processed	4548572
Termination Status	Warnings
IMU Anomalies	4
<b>IMU Failure Messages</b>	
541354.007 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
541353.972 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
541353.872 : WARNING : Gap of 0.0100 seconds in CHECKDT input data	
541353.812 : WARNING : Gap of 541336.4546 seconds in CHECKDT input data	

### Primary Observables & Satellite Data

#### GPS/GLONASS L1 Satellite Lock/Elevation

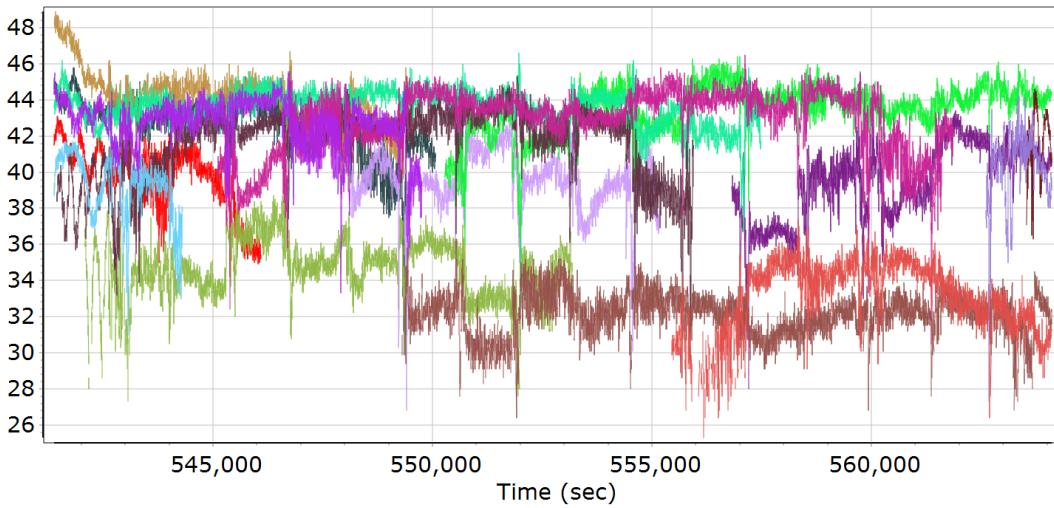


**GPS L1 SNR**



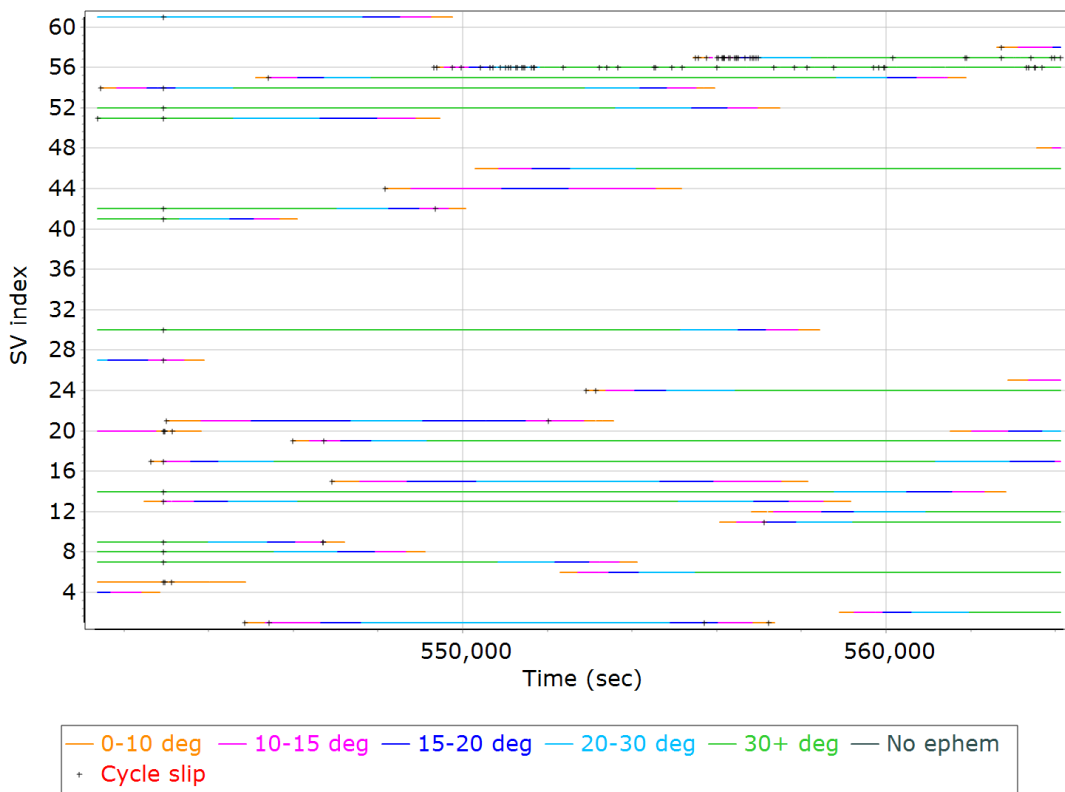
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 02 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 05 L1 SNR (dB/Hz) |
| — GPS PRN 06 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 11 L1 SNR (dB/Hz) | — GPS PRN 12 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 15 L1 SNR (dB/Hz) | — GPS PRN 17 L1 SNR (dB/Hz) |
| — GPS PRN 19 L1 SNR (dB/Hz) | — GPS PRN 20 L1 SNR (dB/Hz) |
| — GPS PRN 21 L1 SNR (dB/Hz) | — GPS PRN 24 L1 SNR (dB/Hz) |
| — GPS PRN 25 L1 SNR (dB/Hz) | — GPS PRN 27 L1 SNR (dB/Hz) |

**GLONASS L1 SNR**

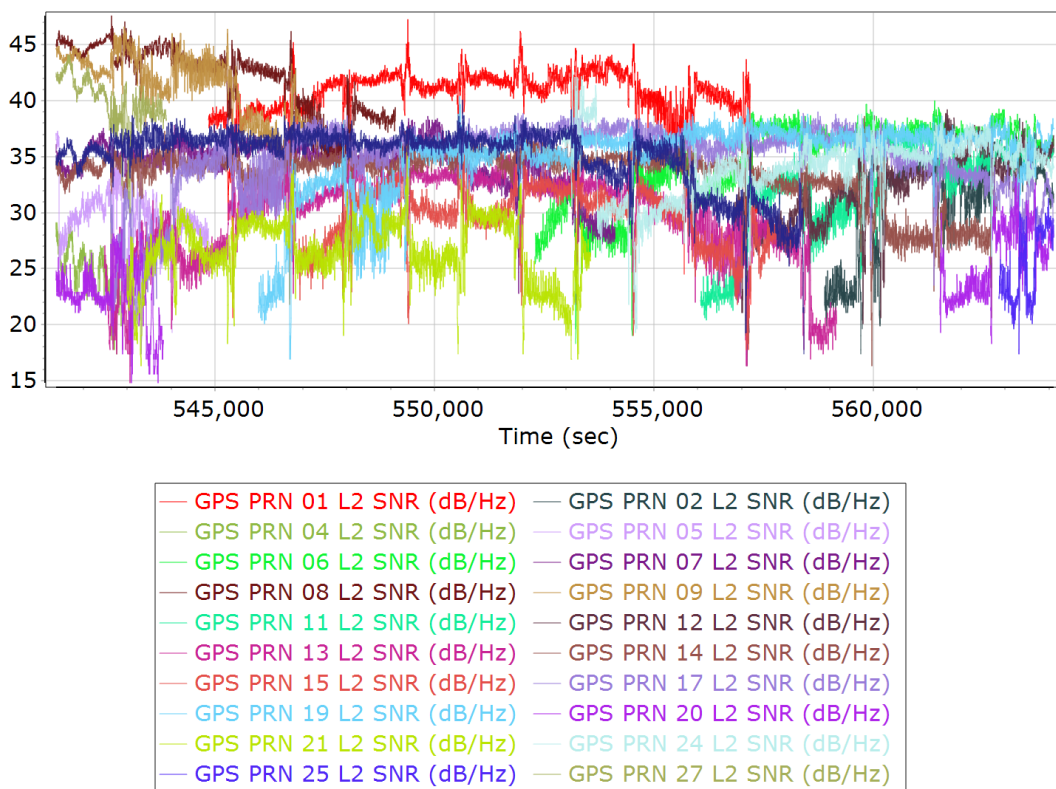


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 04 L1 SNR (dB/Hz) | — GLONASS 05 L1 SNR (dB/Hz) |
| — GLONASS 06 L1 SNR (dB/Hz) | — GLONASS 07 L1 SNR (dB/Hz) |
| — GLONASS 09 L1 SNR (dB/Hz) | — GLONASS 10 L1 SNR (dB/Hz) |
| — GLONASS 11 L1 SNR (dB/Hz) | — GLONASS 14 L1 SNR (dB/Hz) |
| — GLONASS 15 L1 SNR (dB/Hz) | — GLONASS 17 L1 SNR (dB/Hz) |
| — GLONASS 18 L1 SNR (dB/Hz) | — GLONASS 19 L1 SNR (dB/Hz) |
| — GLONASS 20 L1 SNR (dB/Hz) | — GLONASS 21 L1 SNR (dB/Hz) |
| — GLONASS 23 L1 SNR (dB/Hz) | — GLONASS 24 L1 SNR (dB/Hz) |

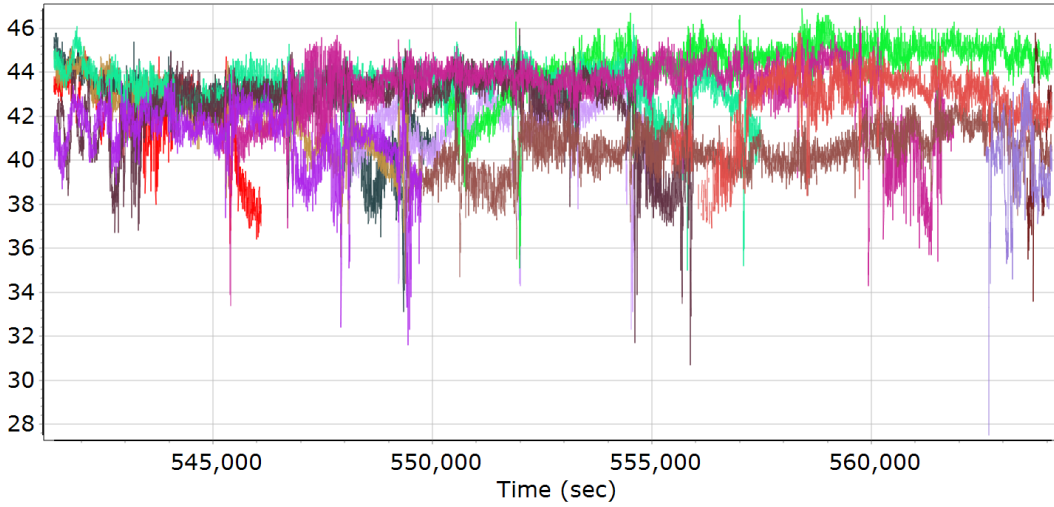
### GPS/GLONASS L2 Satellite Lock/Elevation



### GPS L2 SNR

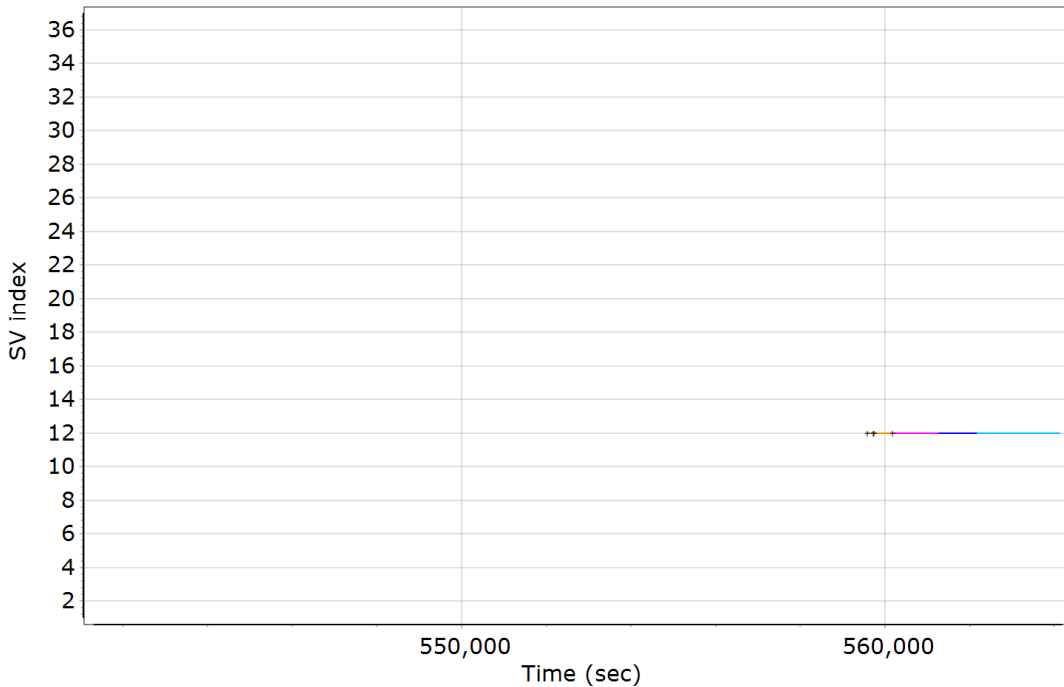


**GLONASS L2 SNR**



- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 04 L2 SNR (dB/Hz) | — GLONASS 05 L2 SNR (dB/Hz) |
| — GLONASS 06 L2 SNR (dB/Hz) | — GLONASS 07 L2 SNR (dB/Hz) |
| — GLONASS 09 L2 SNR (dB/Hz) | — GLONASS 10 L2 SNR (dB/Hz) |
| — GLONASS 11 L2 SNR (dB/Hz) | — GLONASS 14 L2 SNR (dB/Hz) |
| — GLONASS 15 L2 SNR (dB/Hz) | — GLONASS 17 L2 SNR (dB/Hz) |
| — GLONASS 18 L2 SNR (dB/Hz) | — GLONASS 19 L2 SNR (dB/Hz) |
| — GLONASS 20 L2 SNR (dB/Hz) | — GLONASS 21 L2 SNR (dB/Hz) |
| — GLONASS 23 L2 SNR (dB/Hz) | — GLONASS 24 L2 SNR (dB/Hz) |

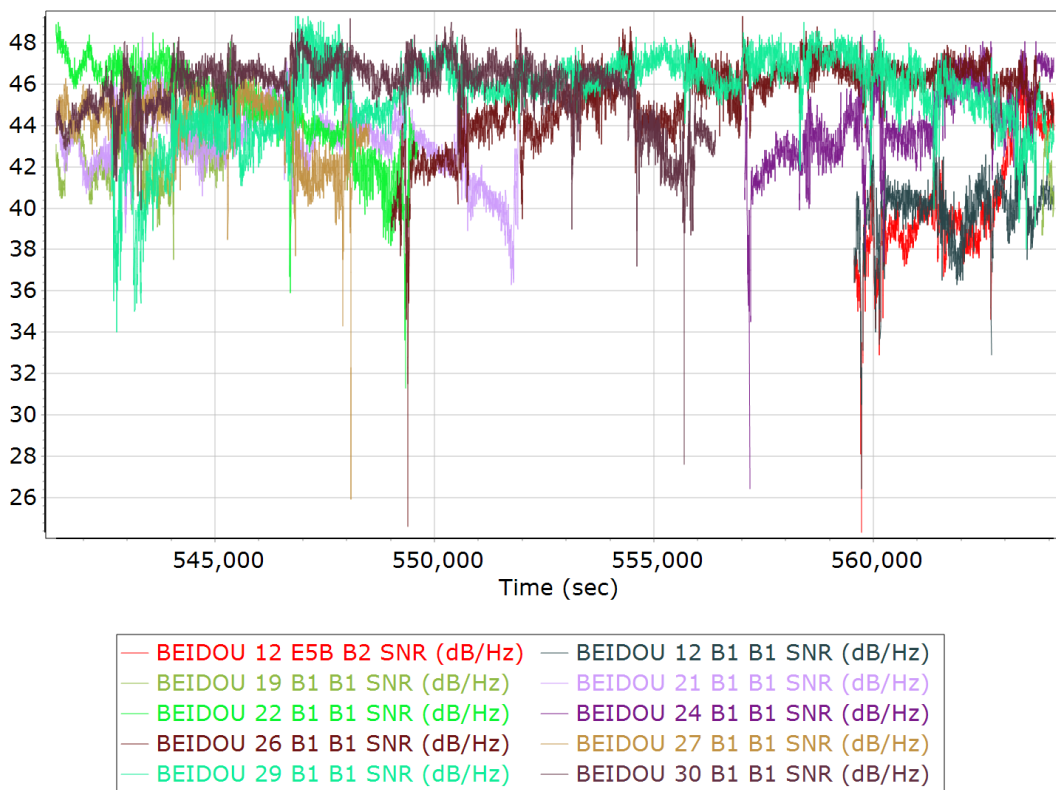
**BEIDOU Satellite Lock/Elevation**



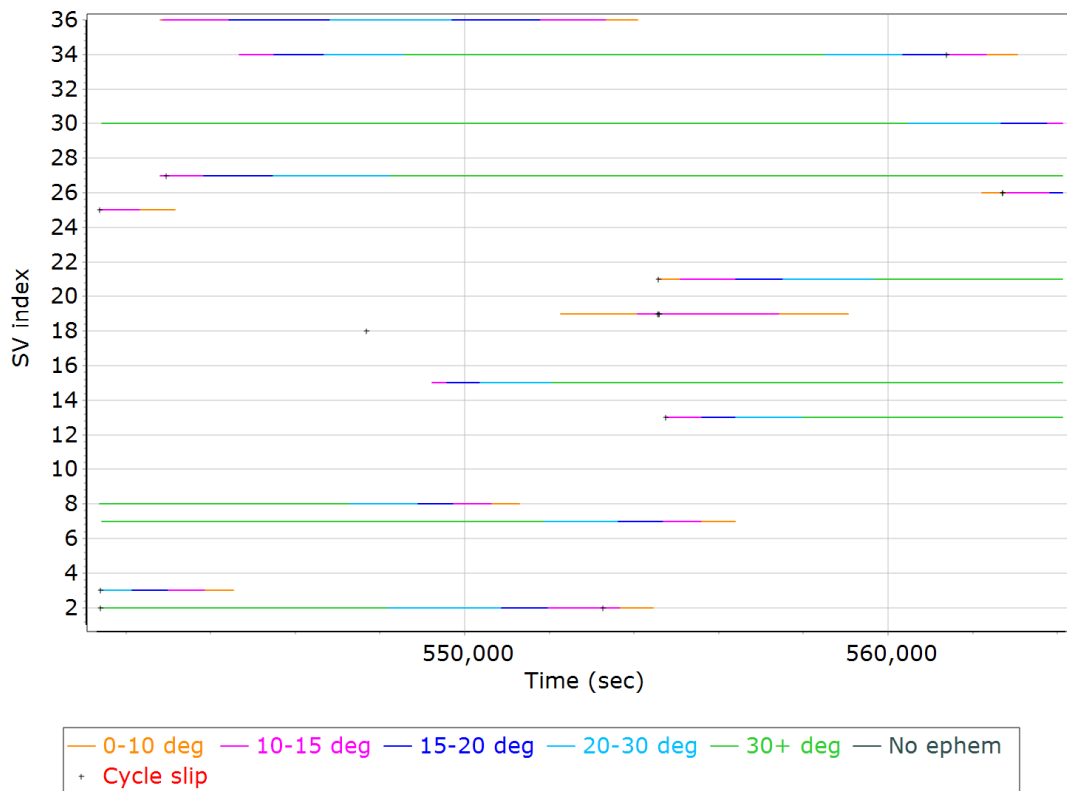
- |              |             |             |             |           |            |
|--------------|-------------|-------------|-------------|-----------|------------|
| — 0-10 deg   | — 10-15 deg | — 15-20 deg | — 20-30 deg | — 30+ deg | — No ephem |
| + Cycle slip |             |             |             |           |            |



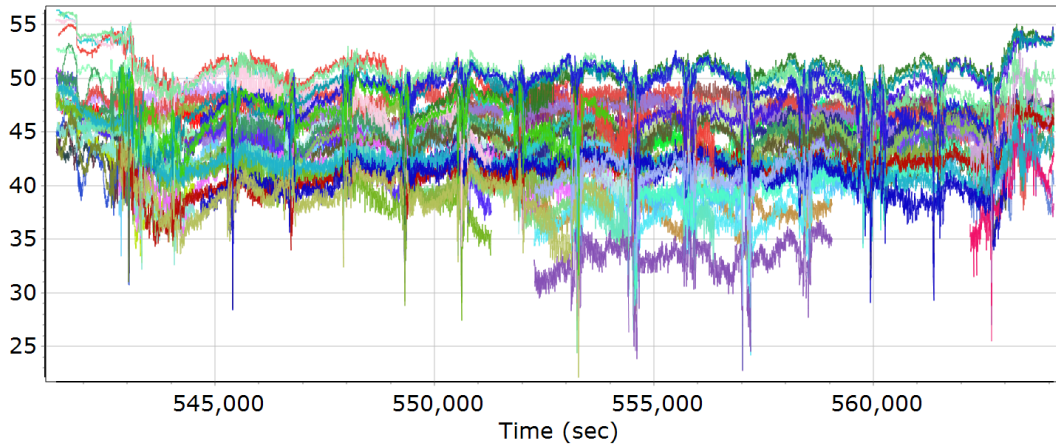
### BEIDOU SNR



### GALILEO Satellite Lock/Elevation



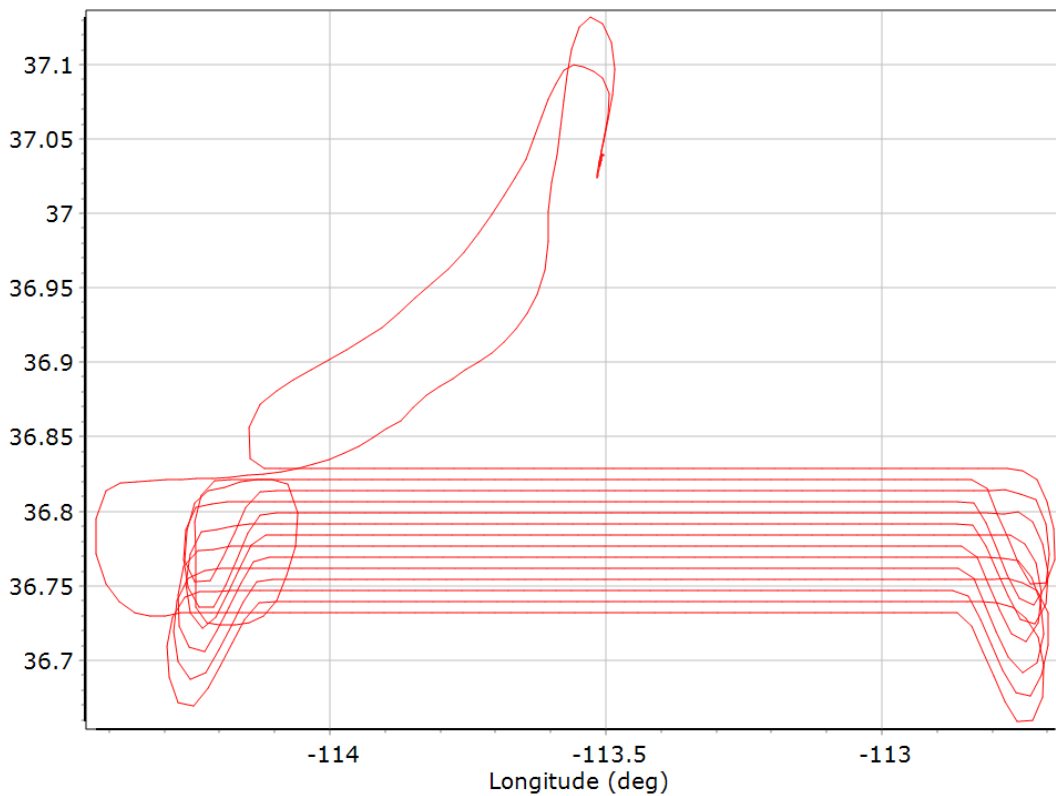
## GALILEO SNR



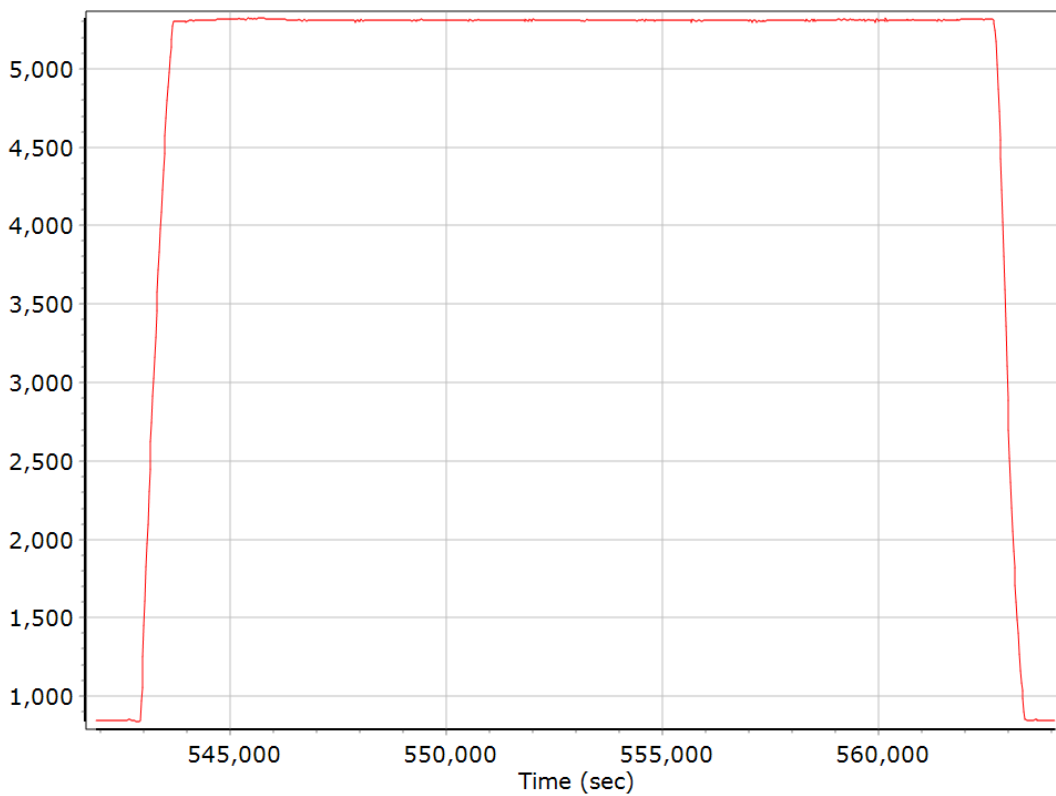
- GALILEO 02 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 03 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 07 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 08 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 13 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 15 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 18 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 19 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 21 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 25 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

## Smoothed Trajectory Information

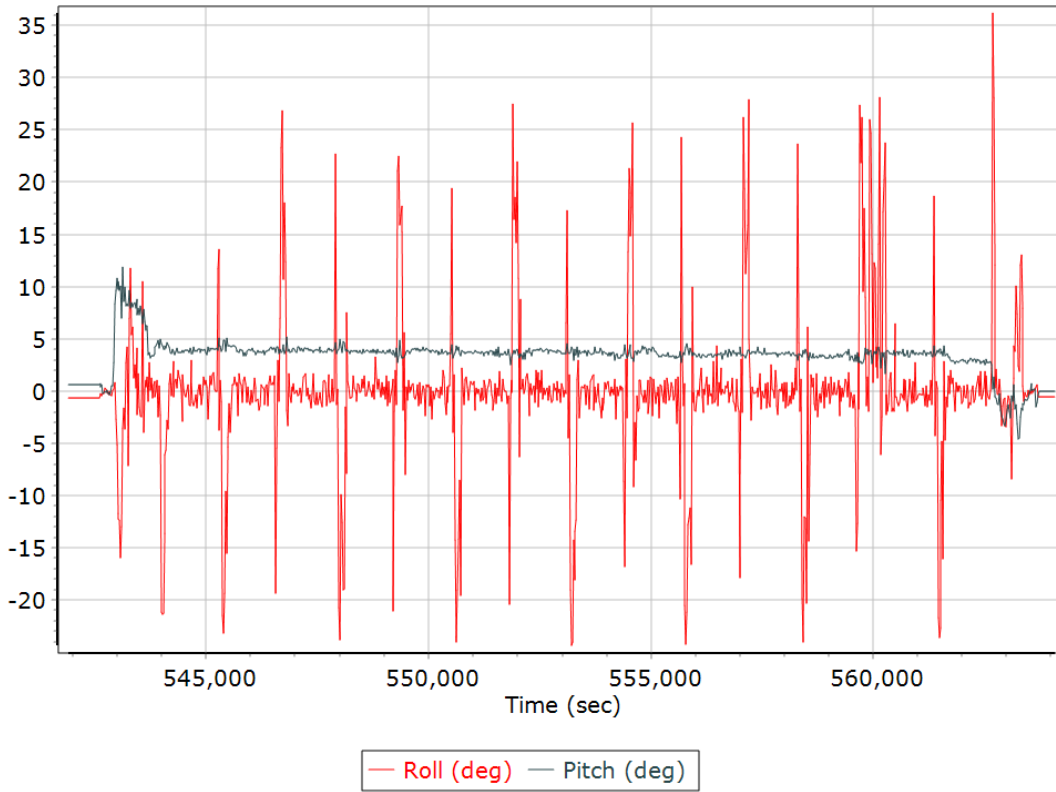
### Top View



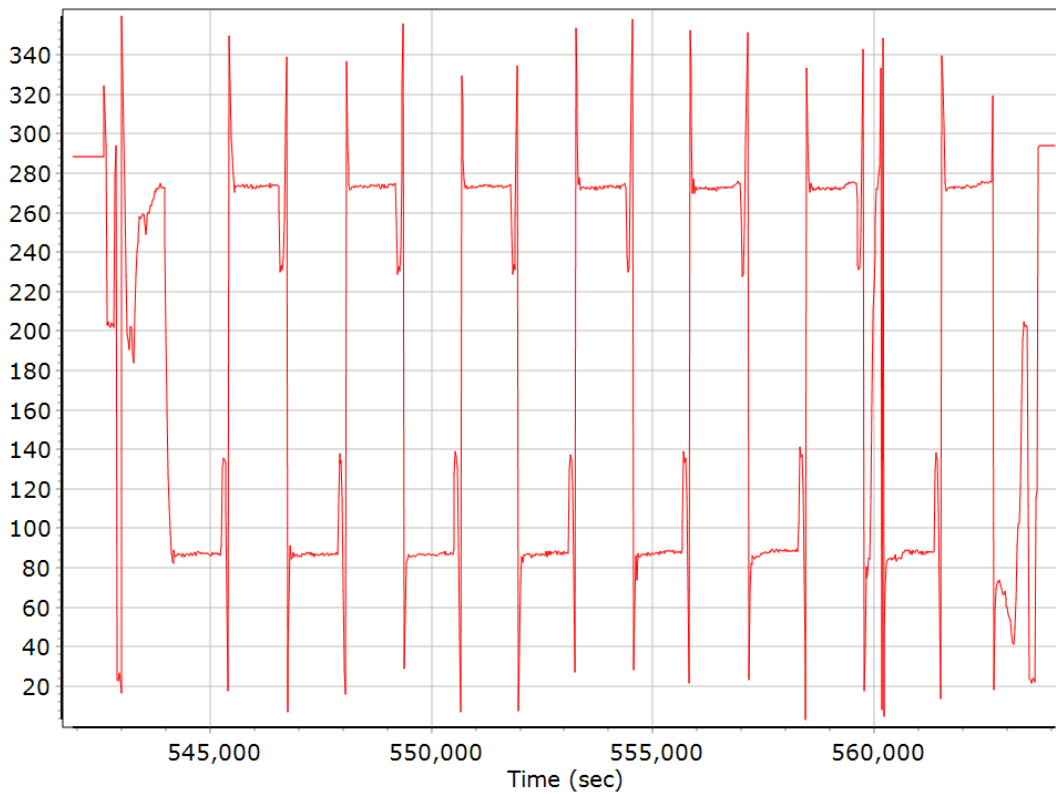
### Altitude



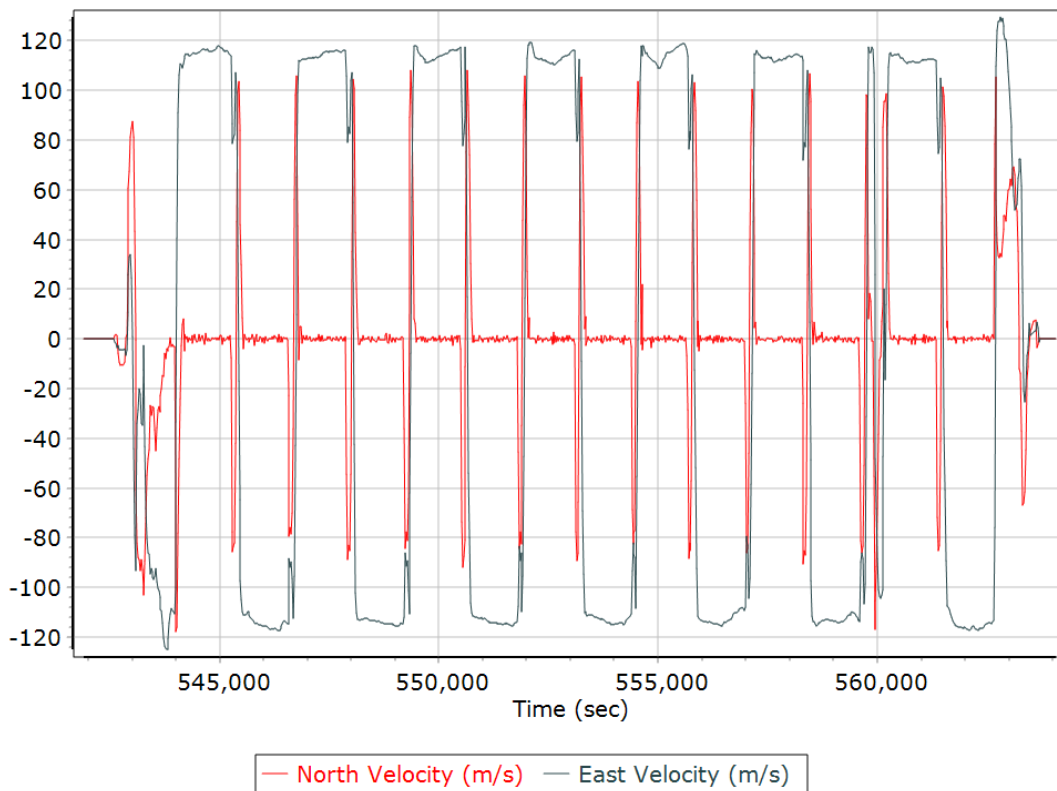
## Roll/Pitch



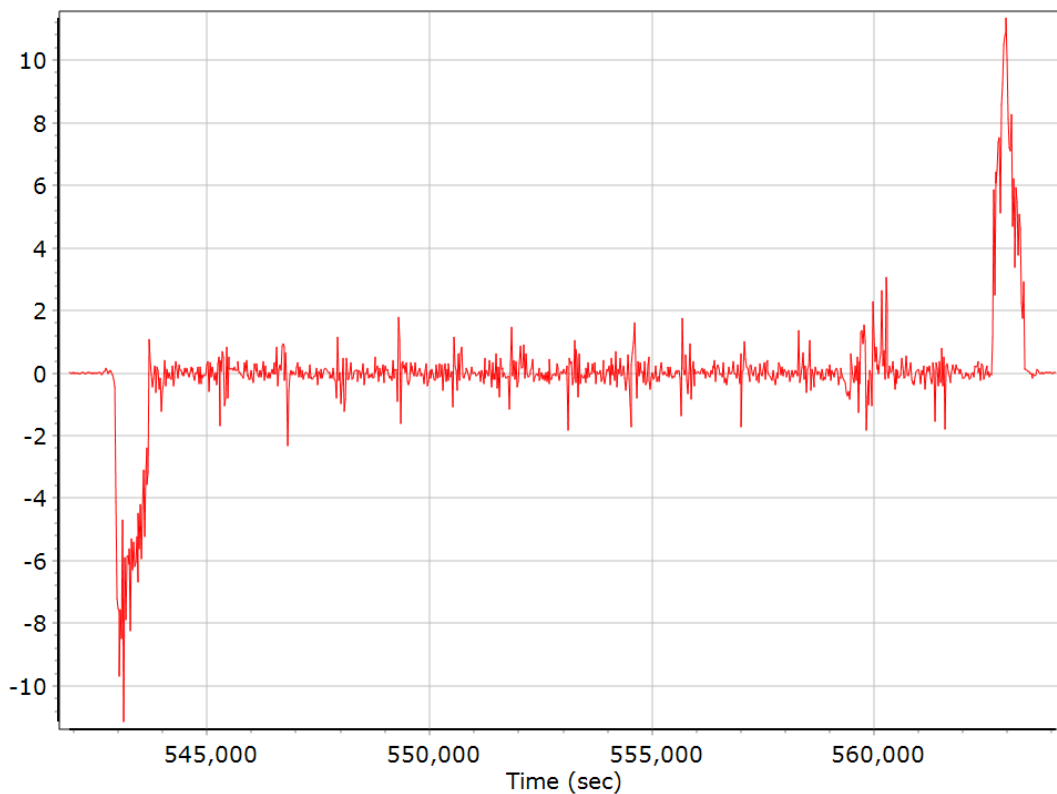
## Heading



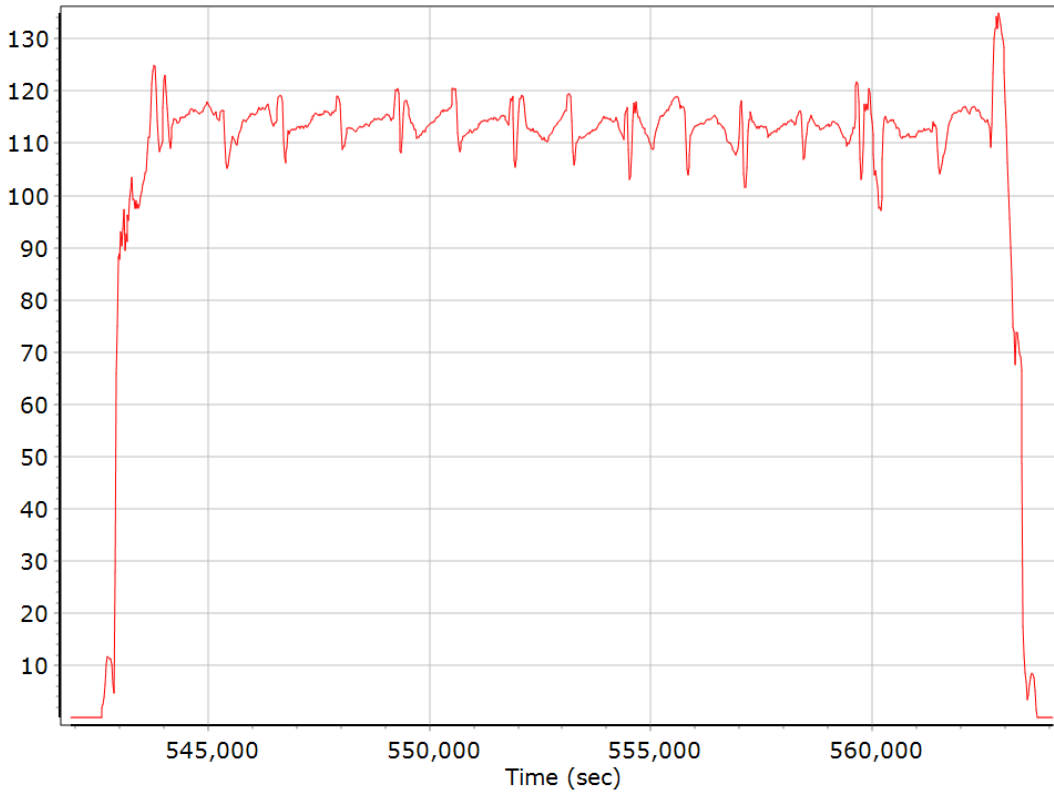
### North/East Velocity



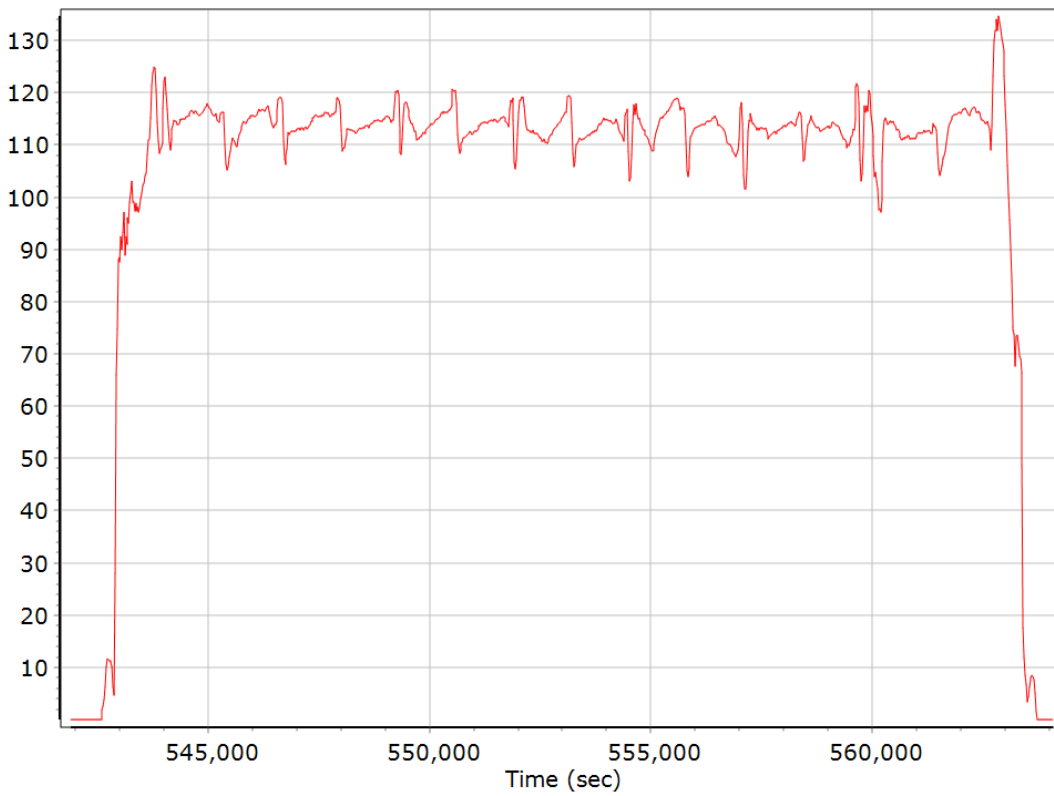
### Down Velocity



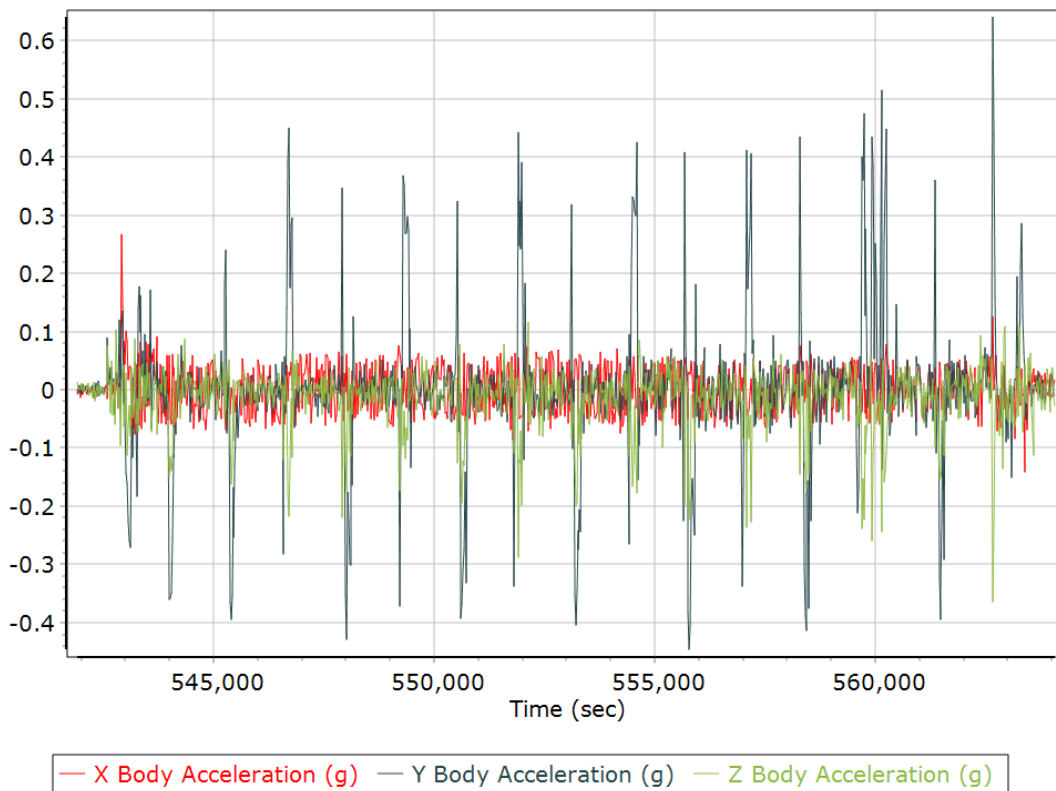
## Total Speed



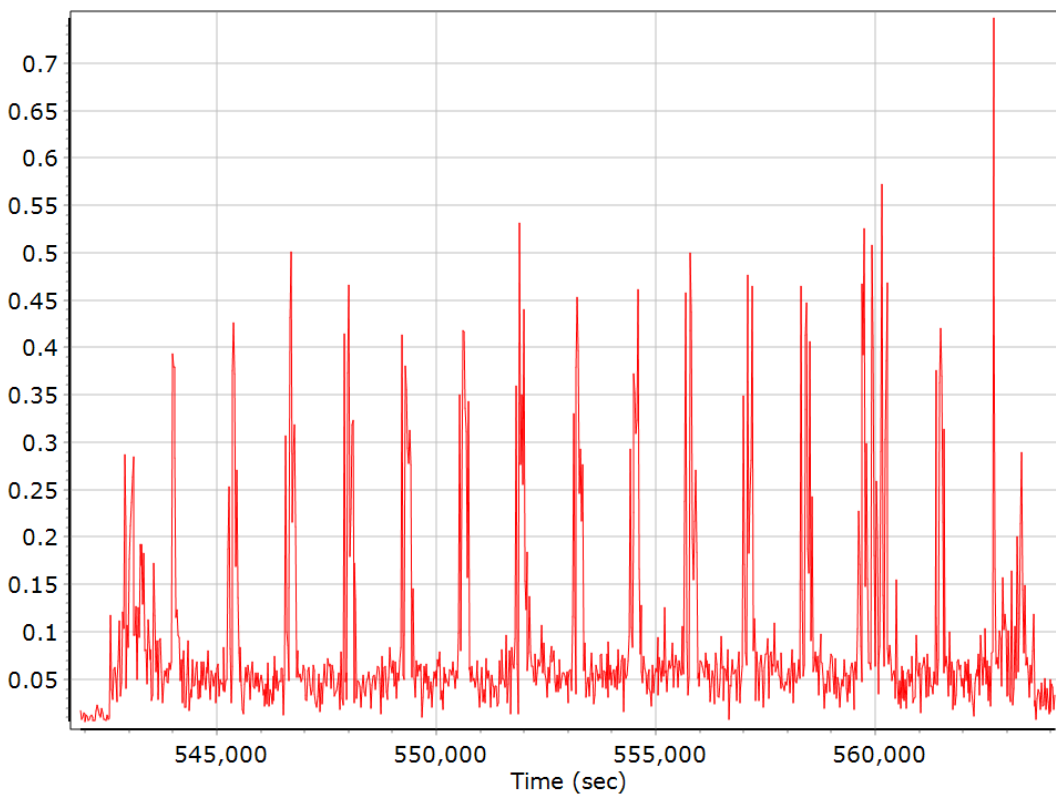
## Ground Speed



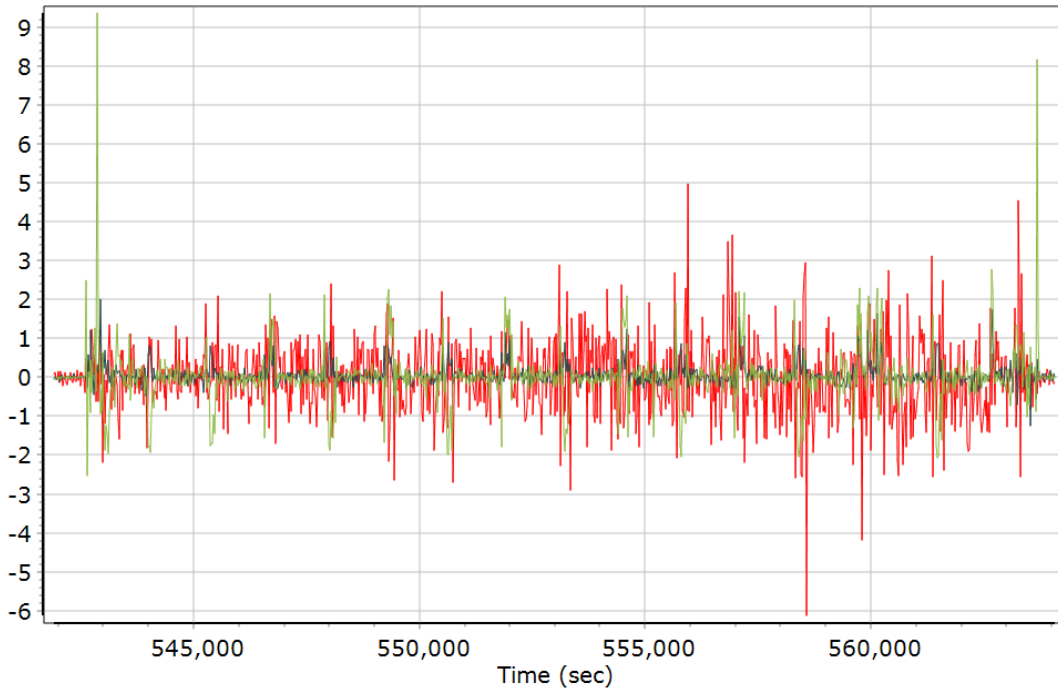
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate

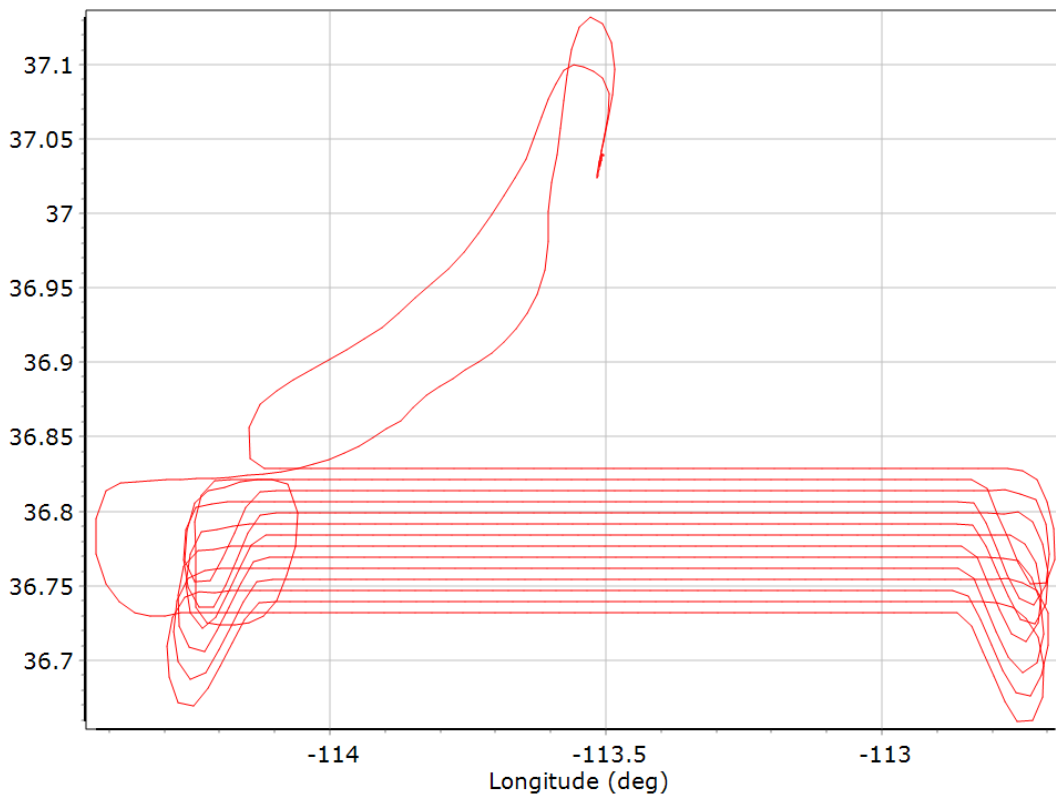


— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

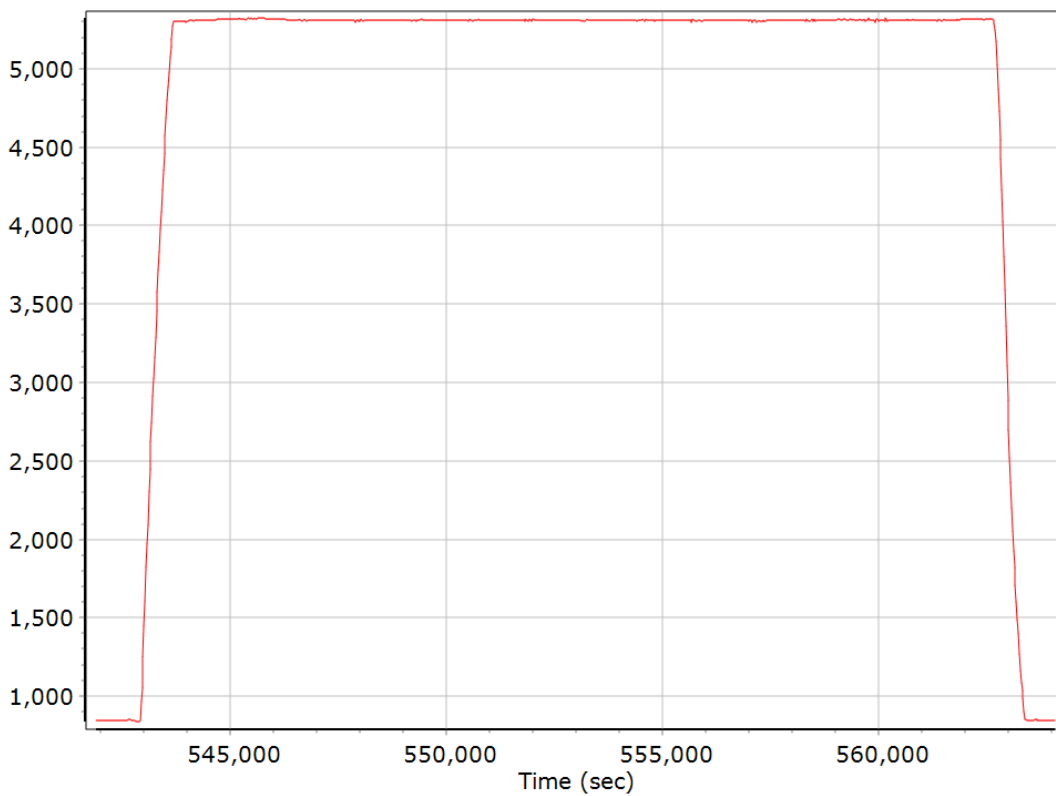


## Forward Processed Trajectory Information

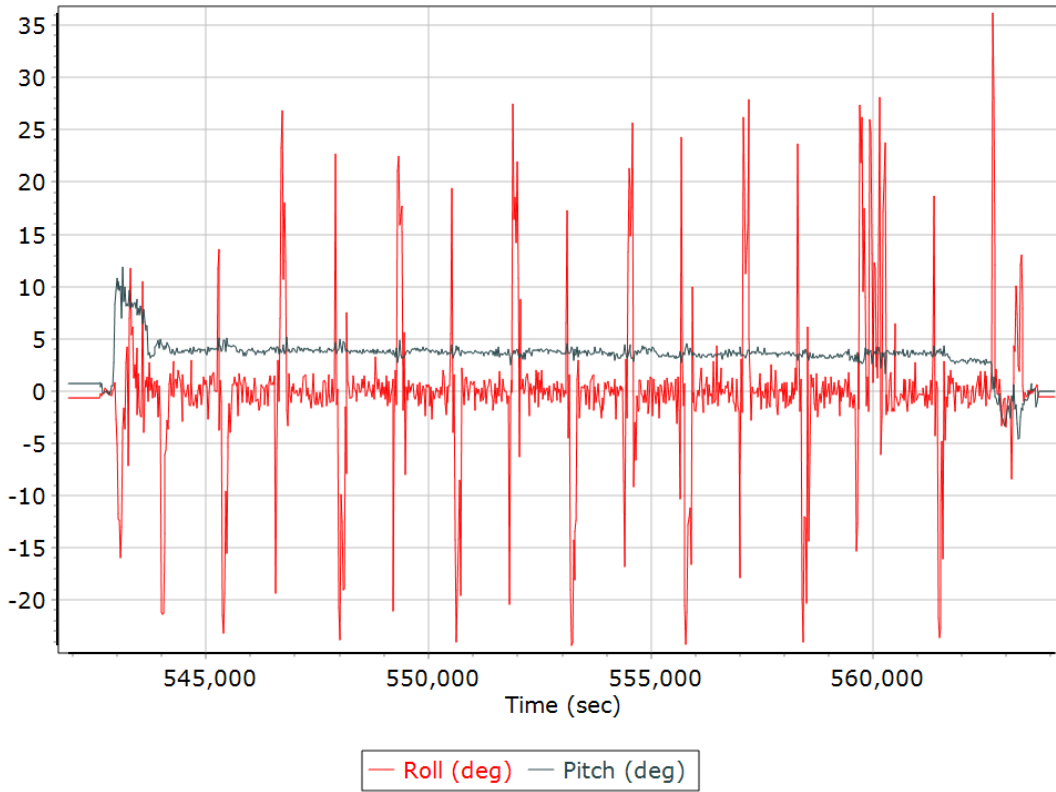
### Top View



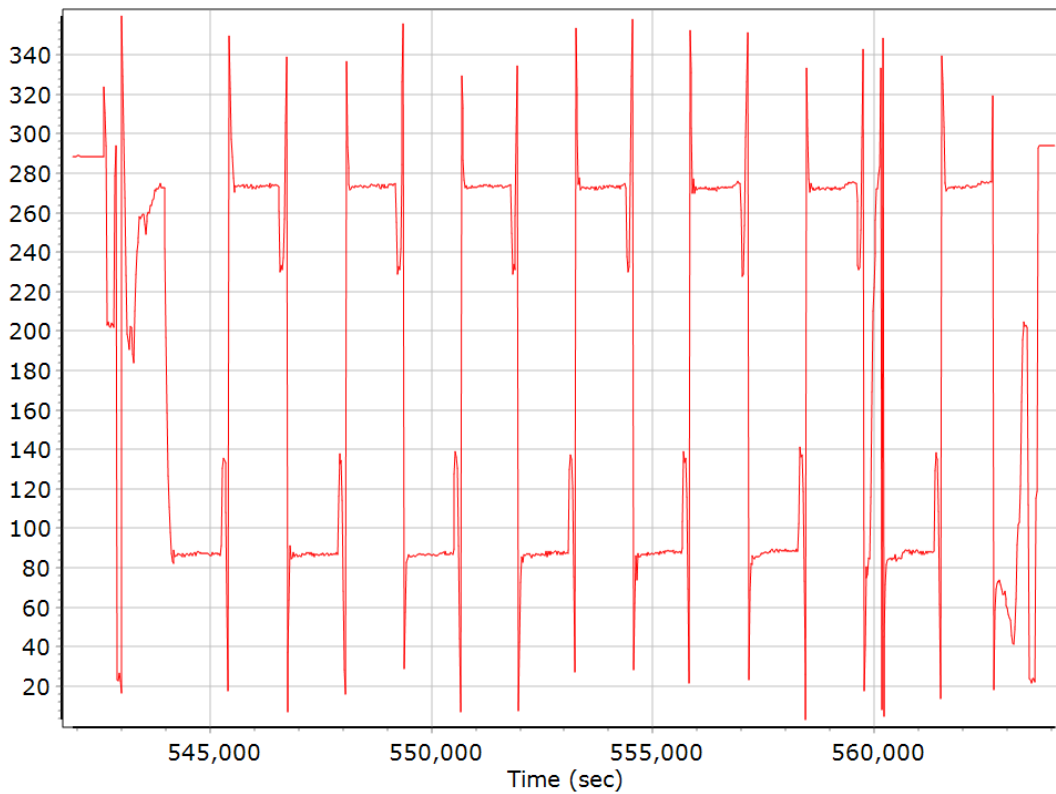
### Altitude



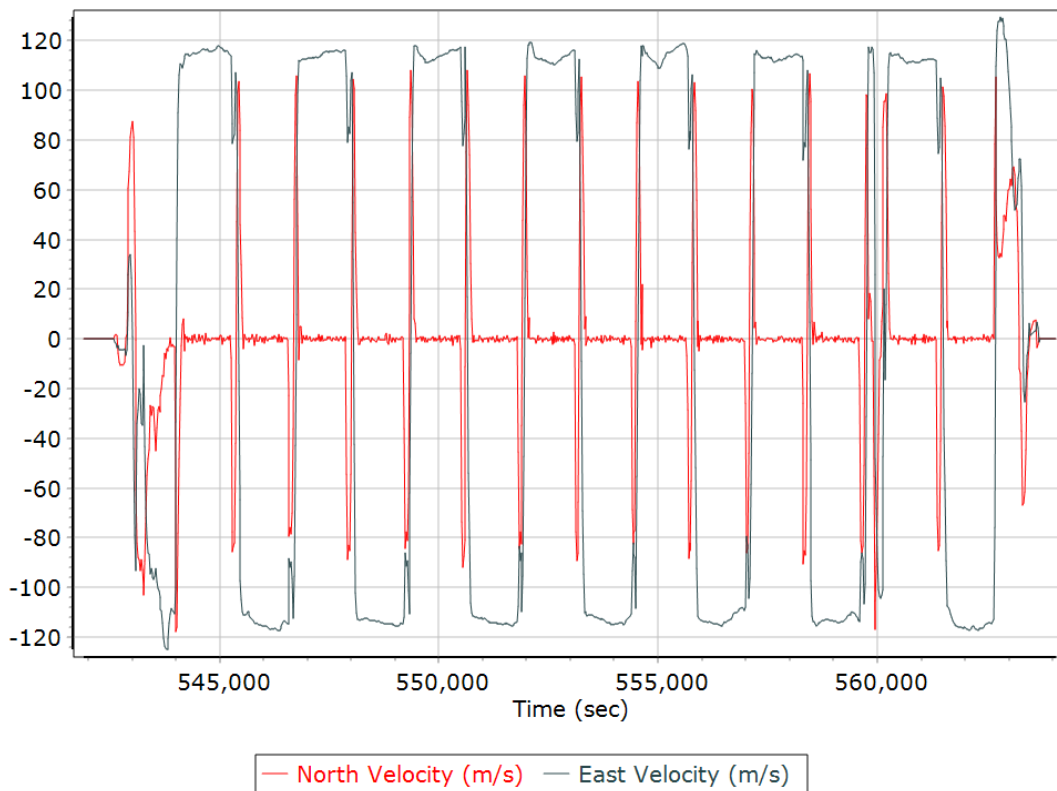
## Roll/Pitch



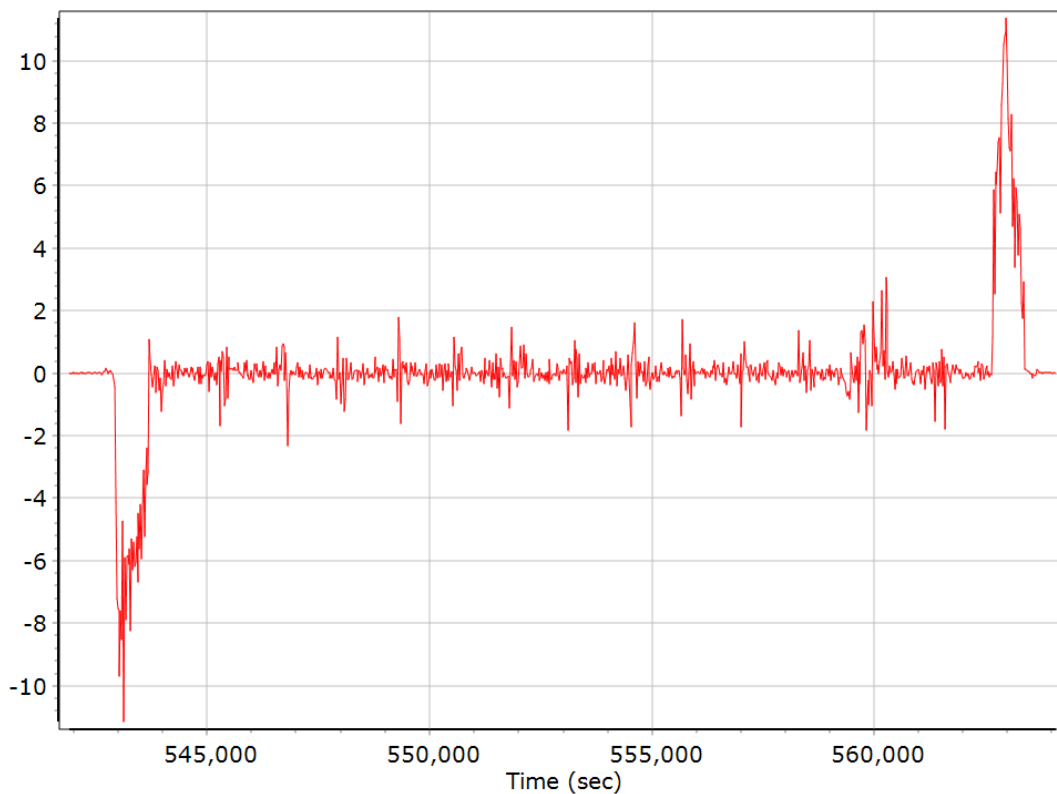
## Heading



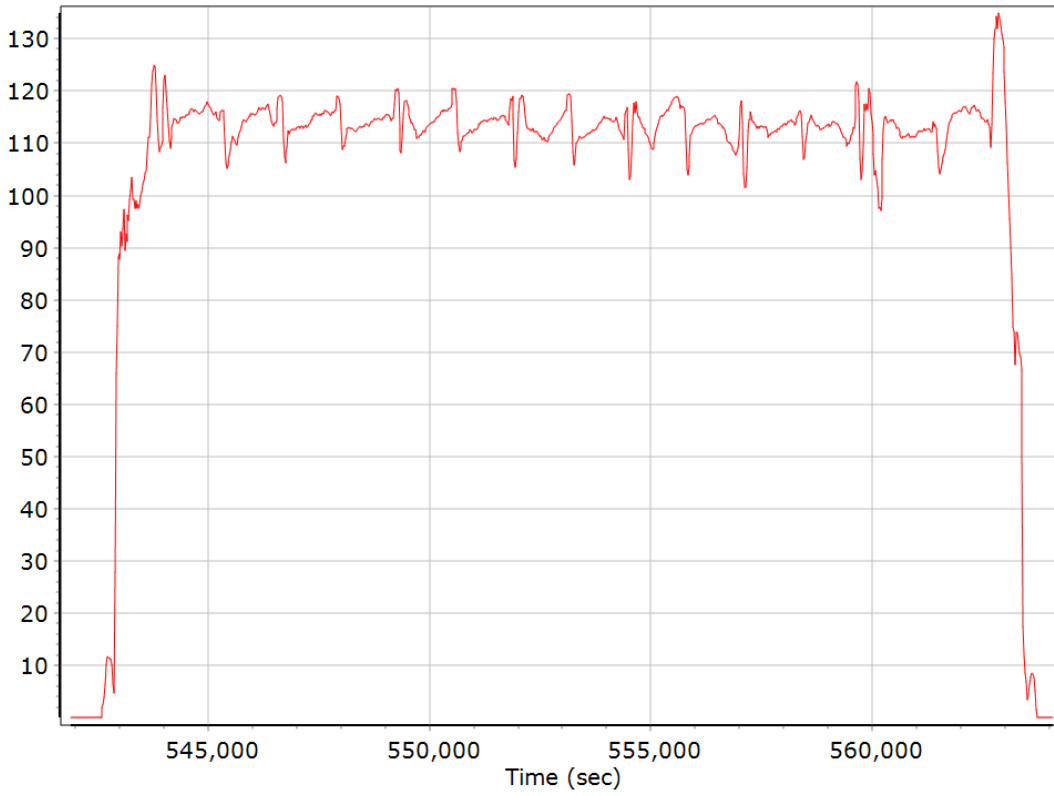
### North/East Velocity



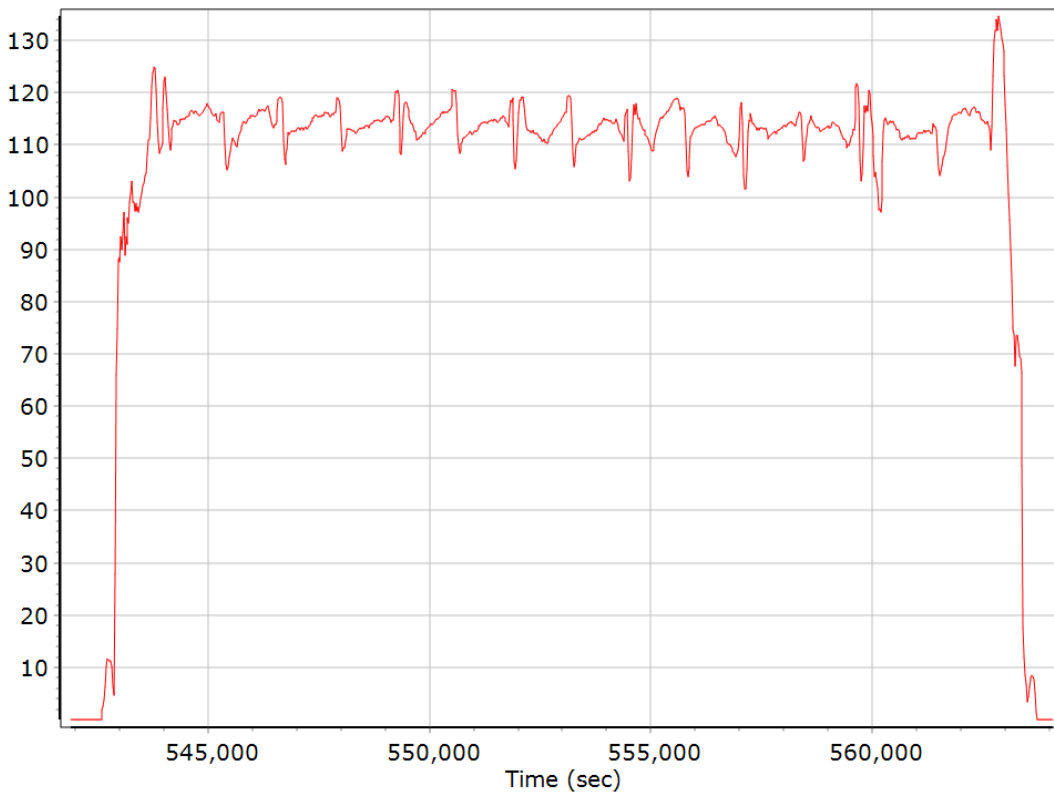
### Down Velocity



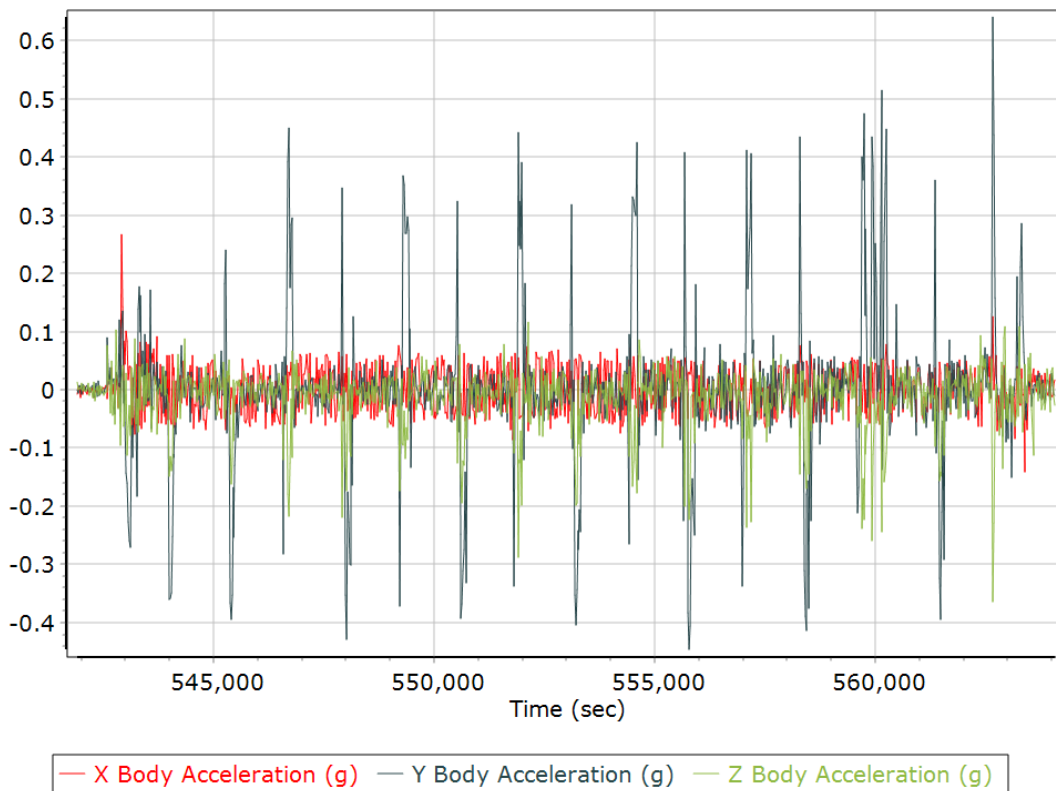
## Total Speed



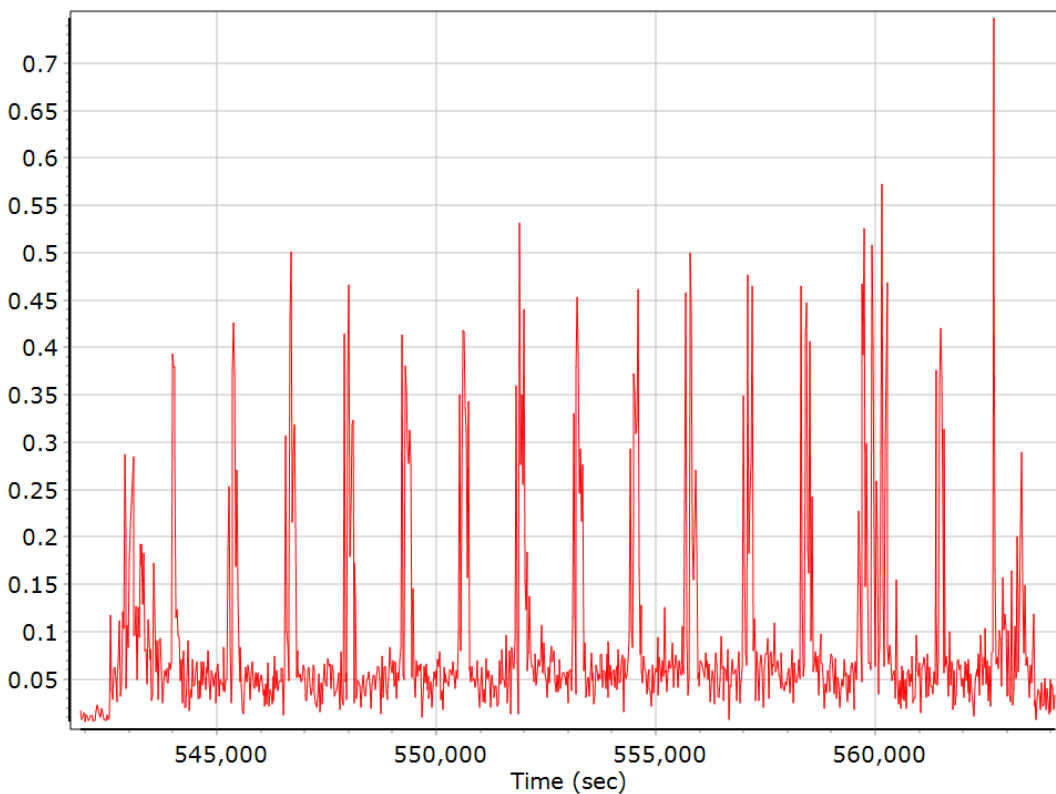
## Ground Speed



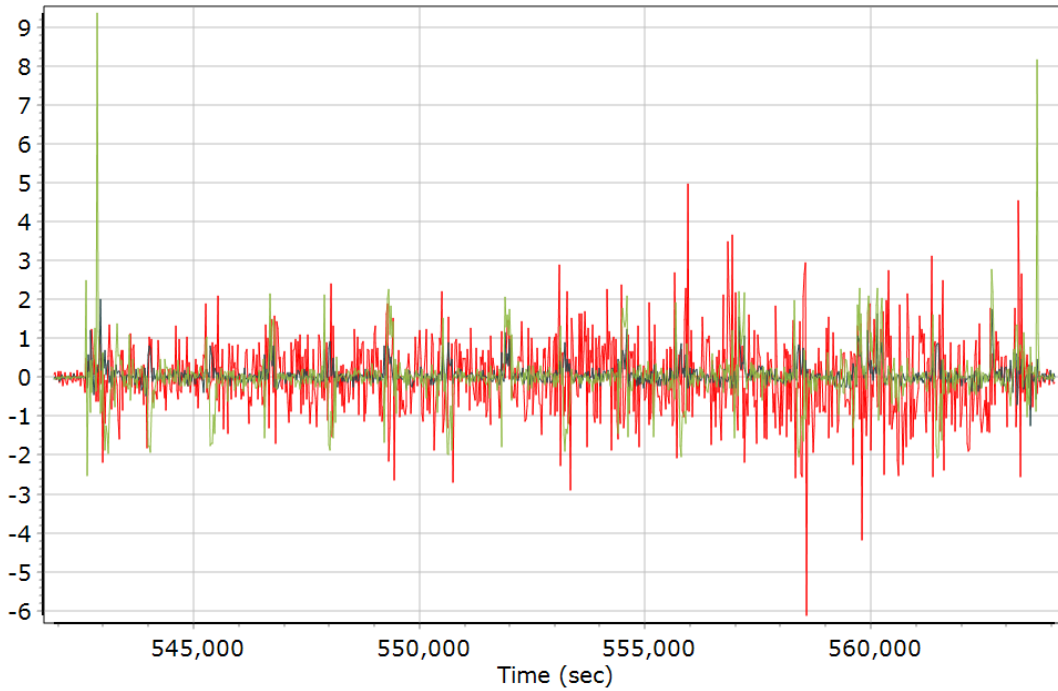
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



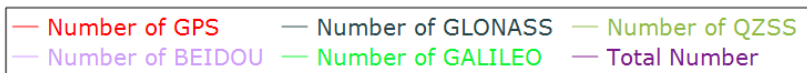
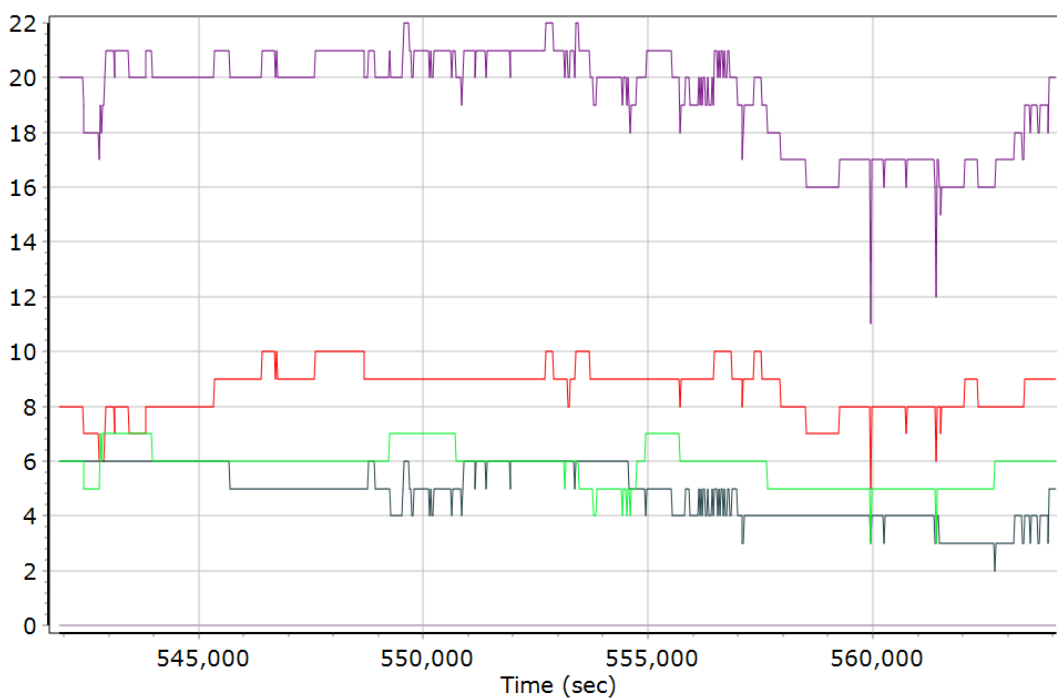
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

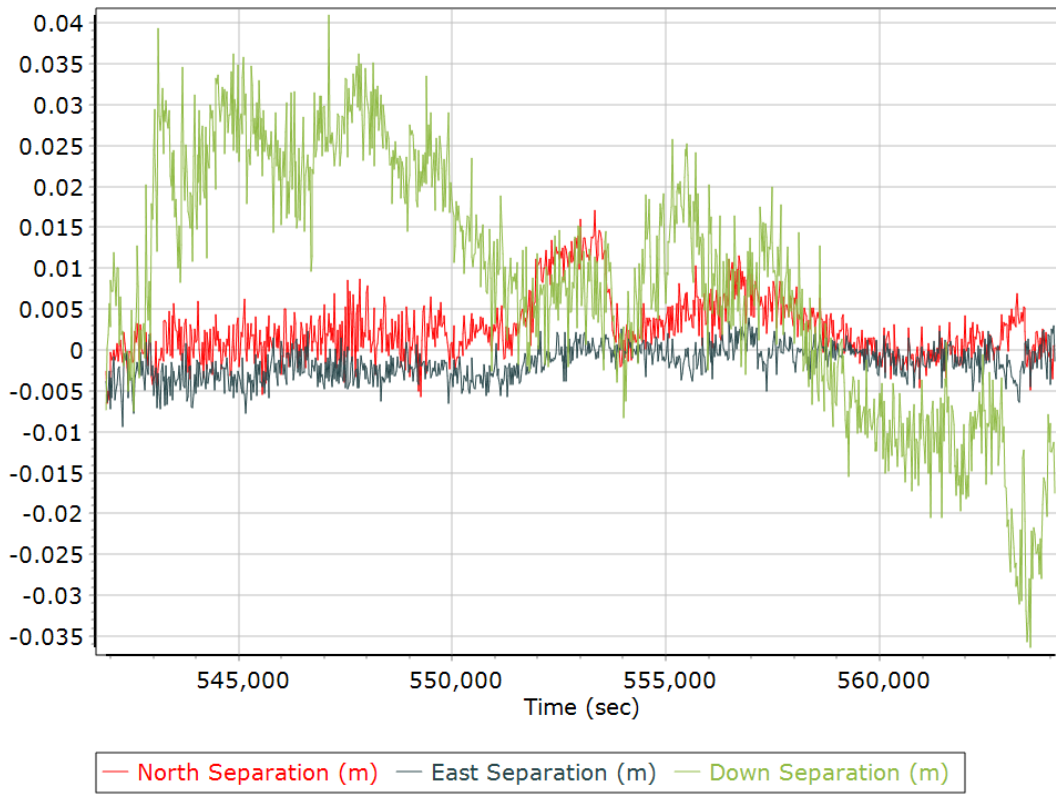
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	4	10	9
Number of GLONASS SV	0	6	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	7	6
Total number of SV	10	22	19
PDOP	0.98	3.84	1.23
QC Solution Gaps	1.00	1.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	22693.00	0.00	26.00
Percentage	99.89	0.00	0.11

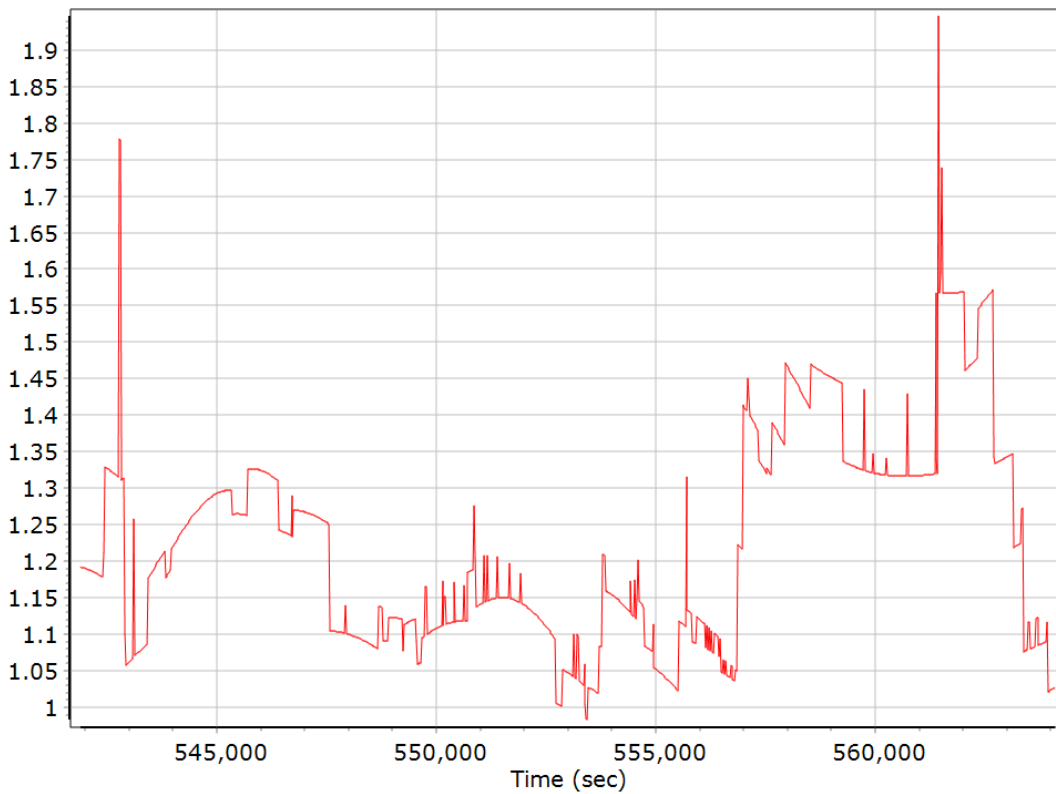
### Num SVs in solution



### Forward/Reverse Separation

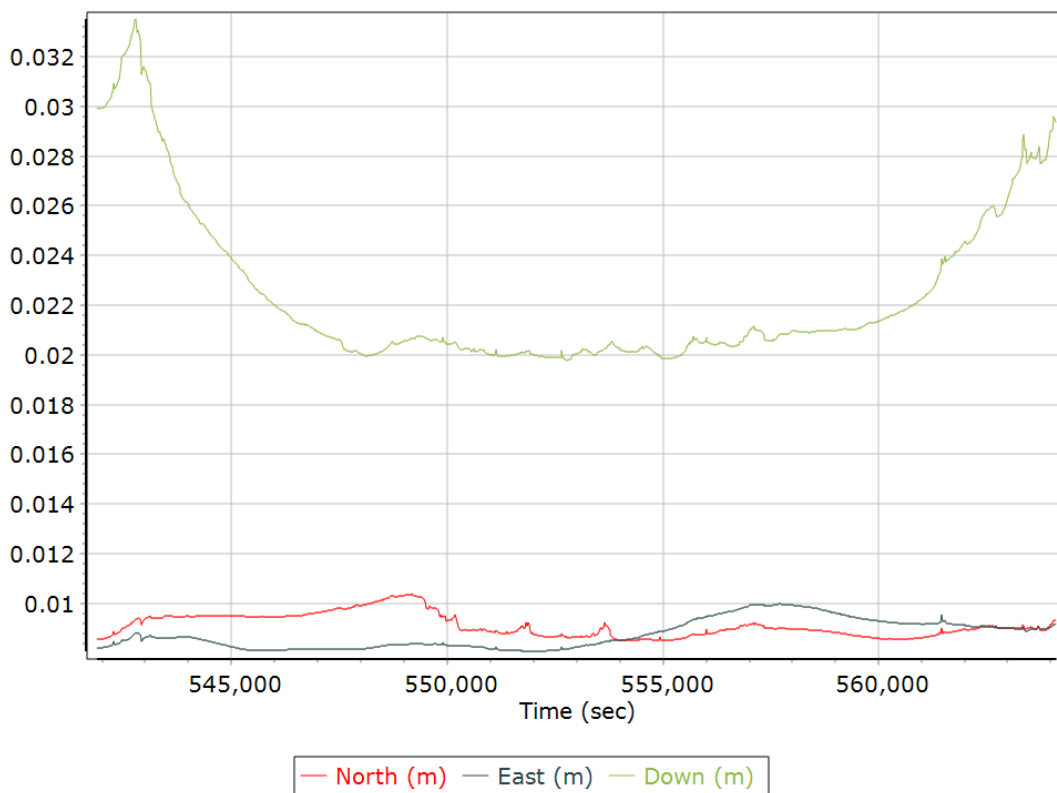


### PDOP

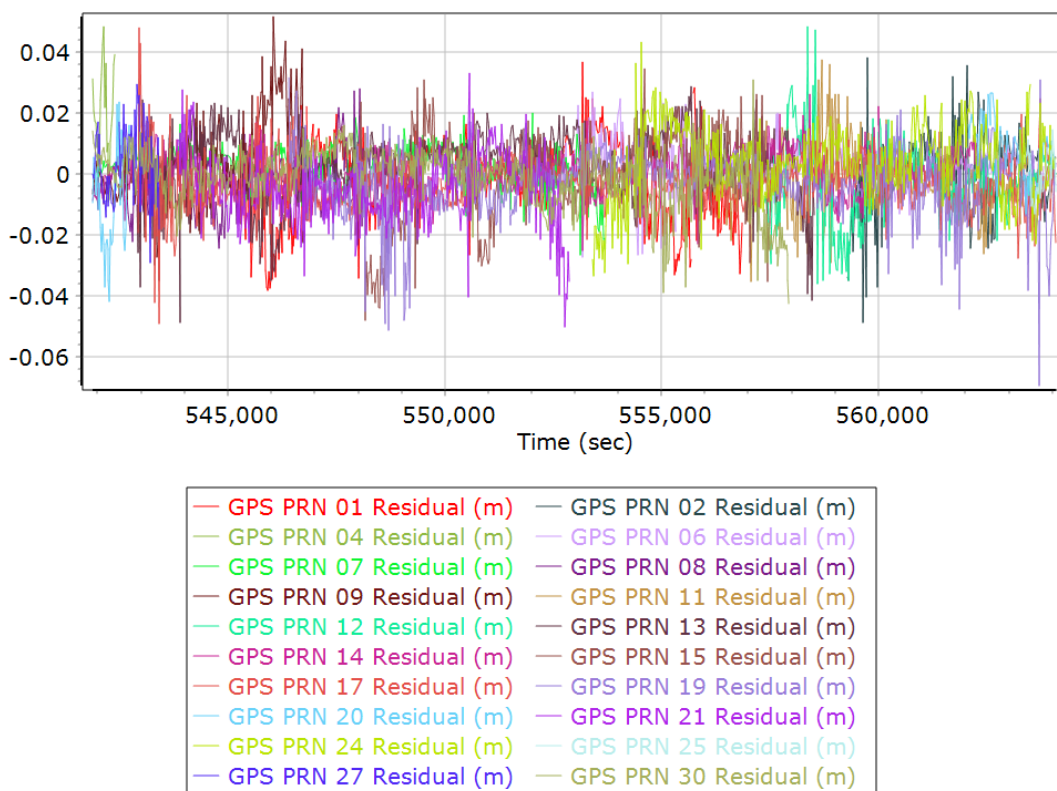




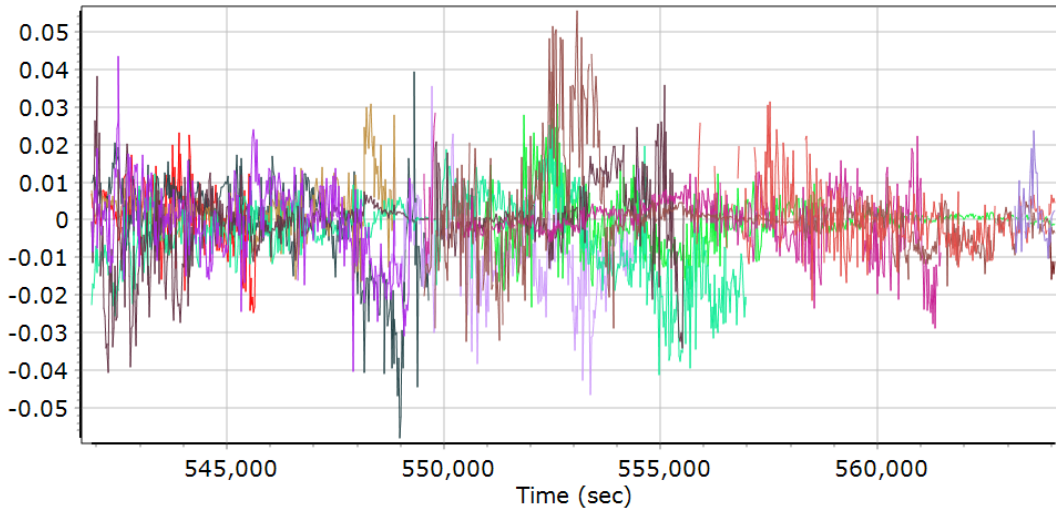
### Estimated Position Accuracy



### GPS Residuals

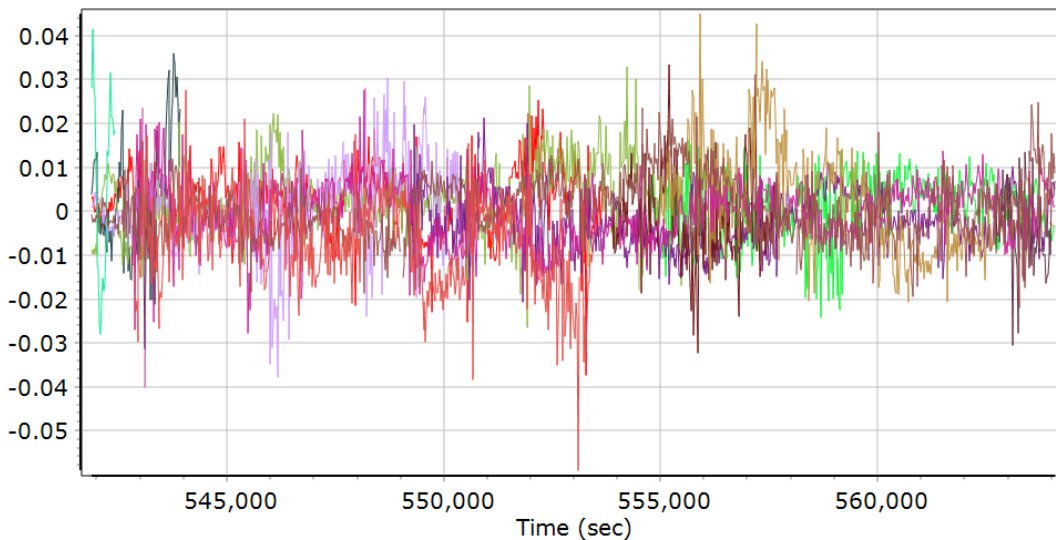


### GLONASS Residuals



- |                           |                           |
|---------------------------|---------------------------|
| — 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 14 Residual (m) |
| — GLONASS 15 Residual (m) | — GLONASS 17 Residual (m) |
| — GLONASS 18 Residual (m) | — GLONASS 19 Residual (m) |
| — GLONASS 20 Residual (m) | — GLONASS 21 Residual (m) |
| — GLONASS 23 Residual (m) | — GLONASS 24 Residual (m) |

### GALILEO Residuals



- |                           |                           |
|---------------------------|---------------------------|
| — GALILEO 02 Residual (m) | — GALILEO 03 Residual (m) |
| — GALILEO 07 Residual (m) | — GALILEO 08 Residual (m) |
| — GALILEO 13 Residual (m) | — GALILEO 15 Residual (m) |
| — GALILEO 19 Residual (m) | — GALILEO 21 Residual (m) |
| — GALILEO 25 Residual (m) | — GALILEO 26 Residual (m) |
| — GALILEO 27 Residual (m) | — GALILEO 30 Residual (m) |
| — GALILEO 36 Residual (m) |                           |

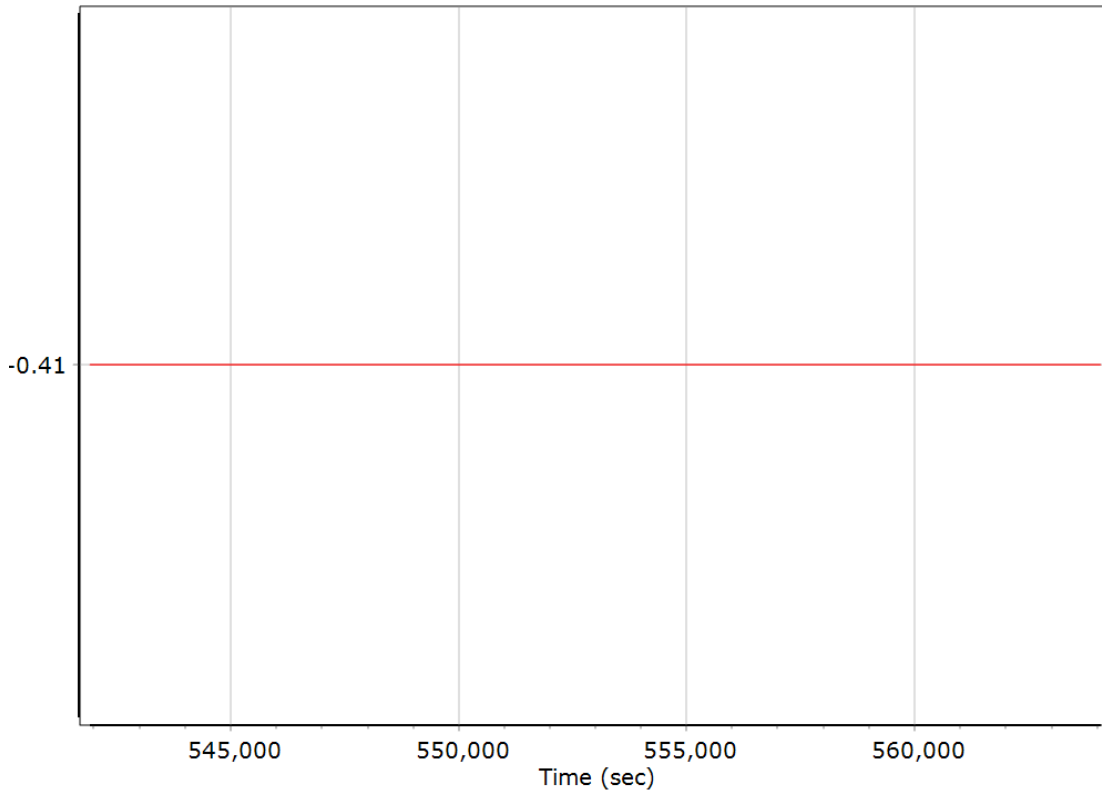
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	541354.000 (8/20/2022 6:22:34 AM)		
Processing end time	564099.000 (8/20/2022 12:41:39 PM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.410	-0.287	-1.273
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

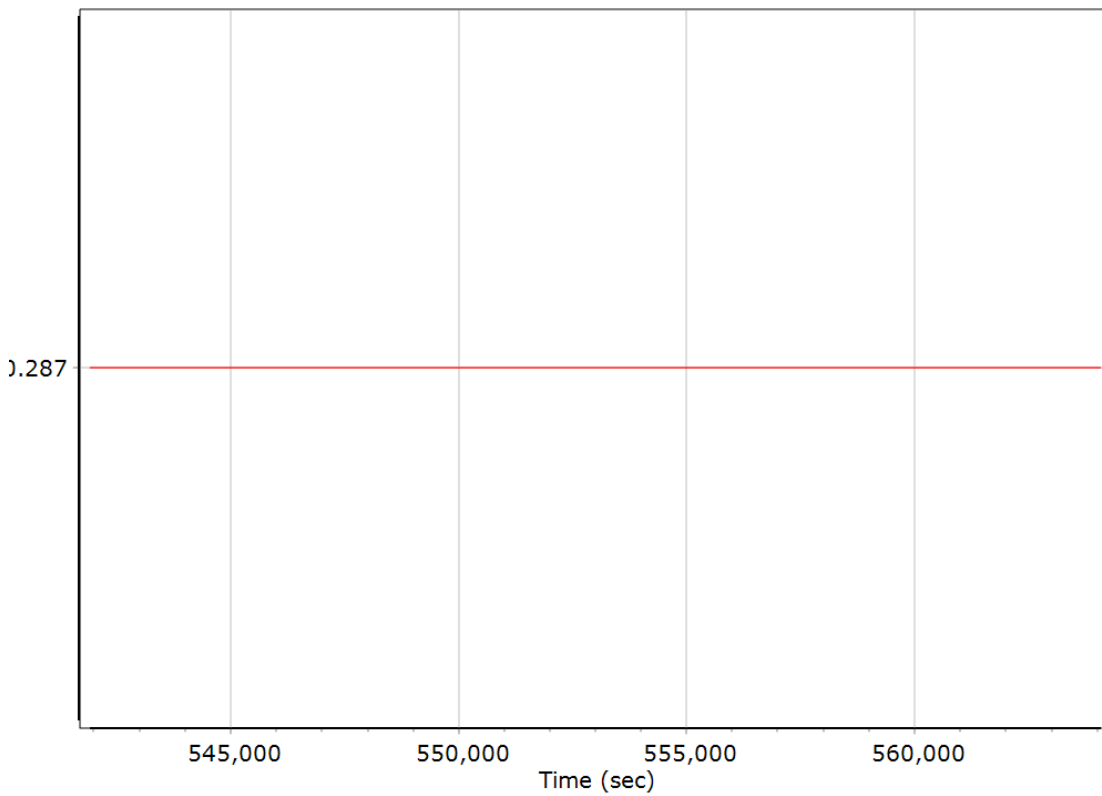
## Calibrated Installation Parameters

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

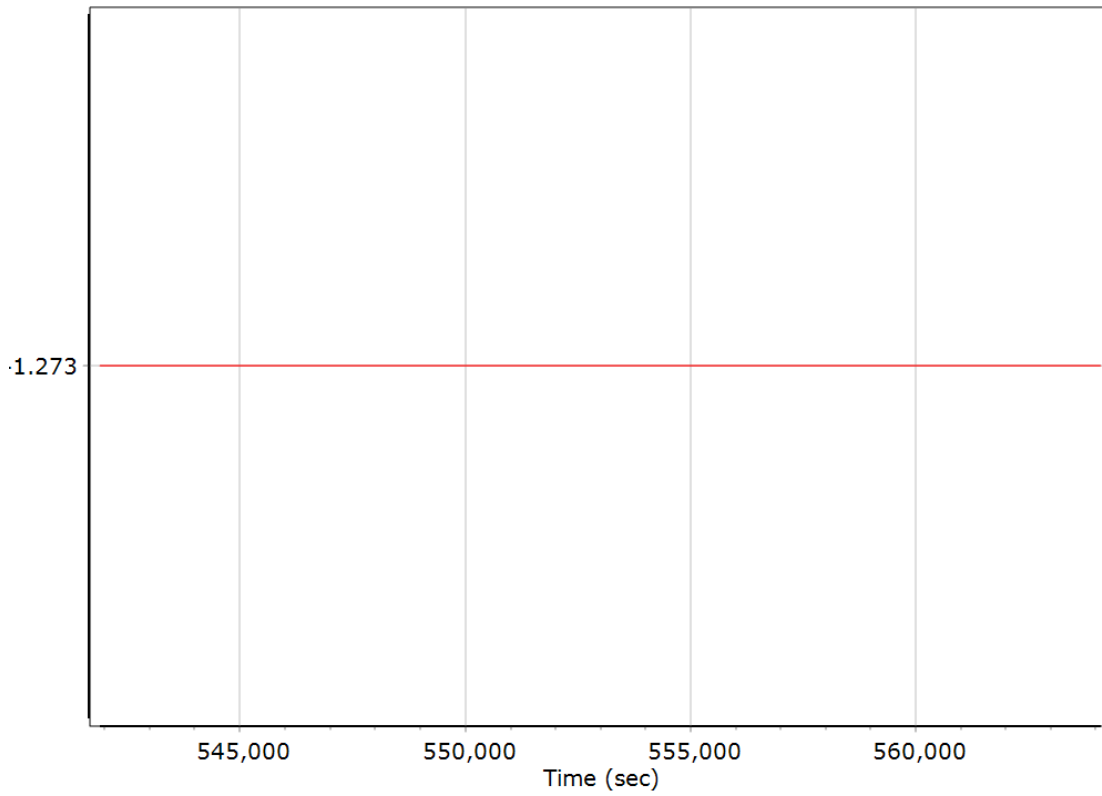
#### X Reference-Primary GNSS Lever Arm (m)



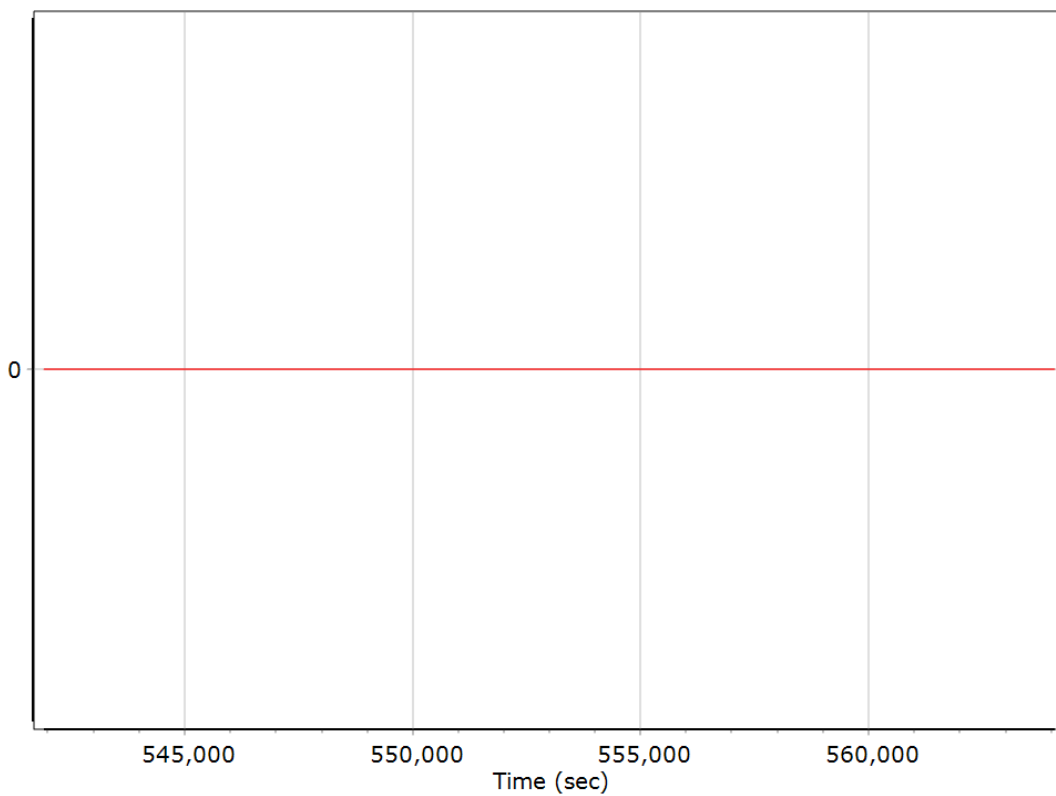
#### Y Reference-Primary GNSS Lever Arm (m)



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



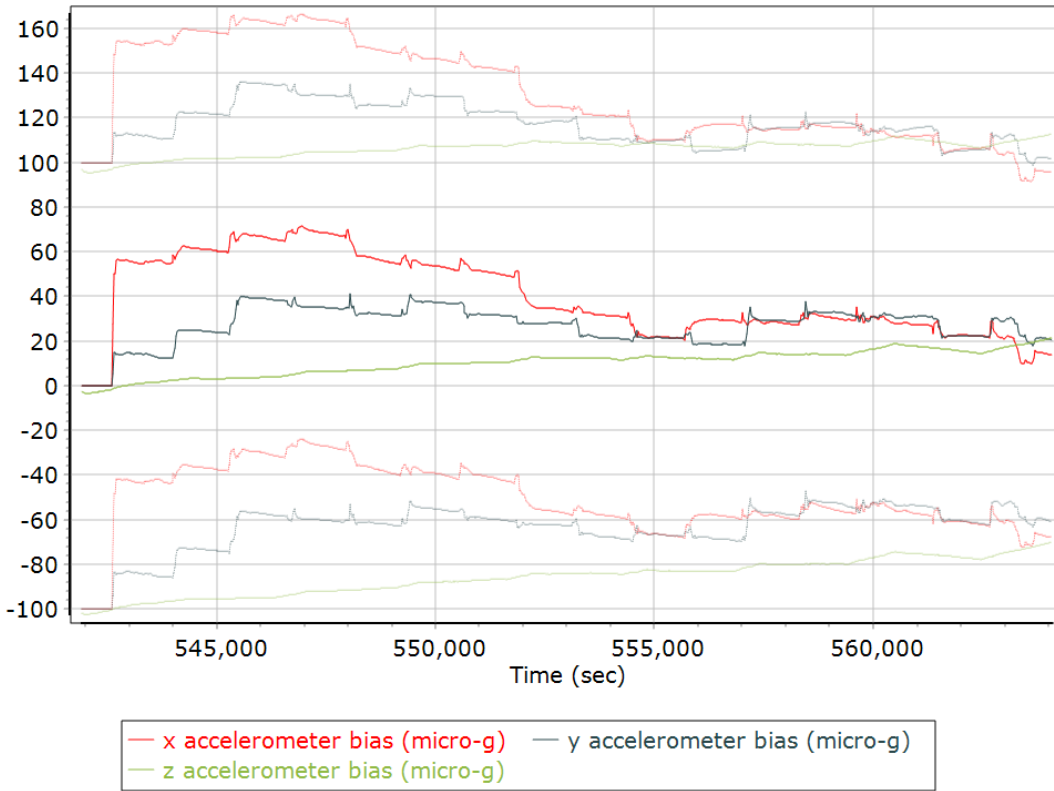
### Reference-Primary GNSS Lever Arm Figure of Merit



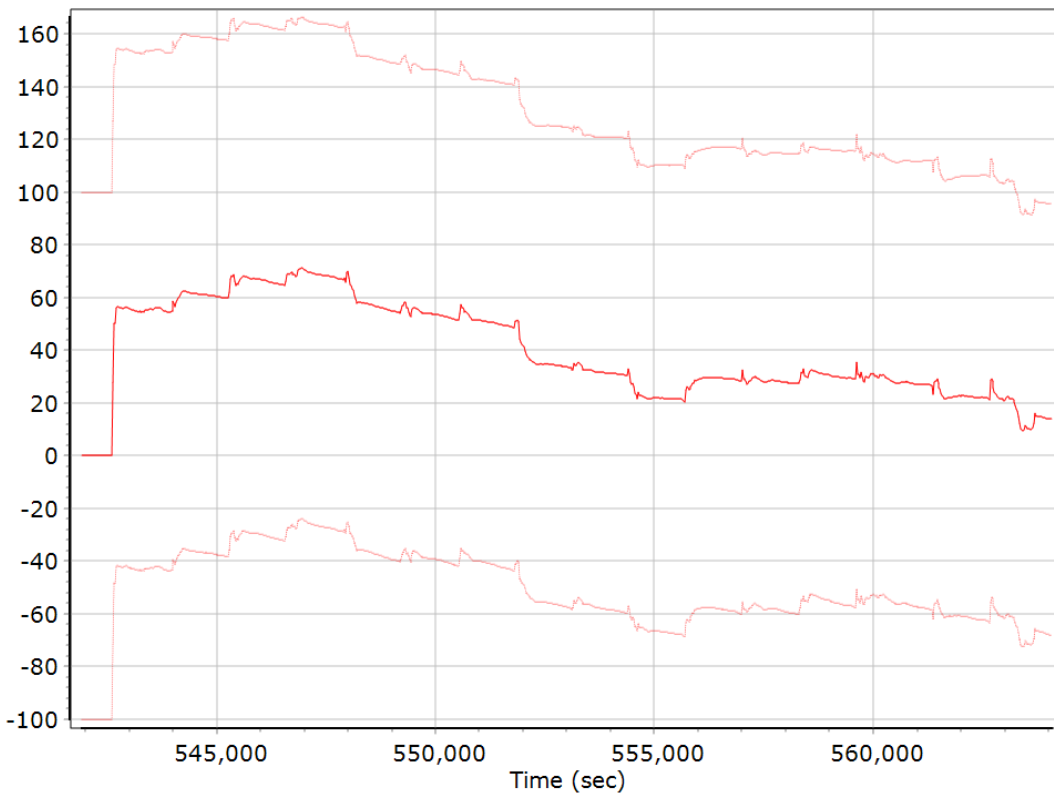
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

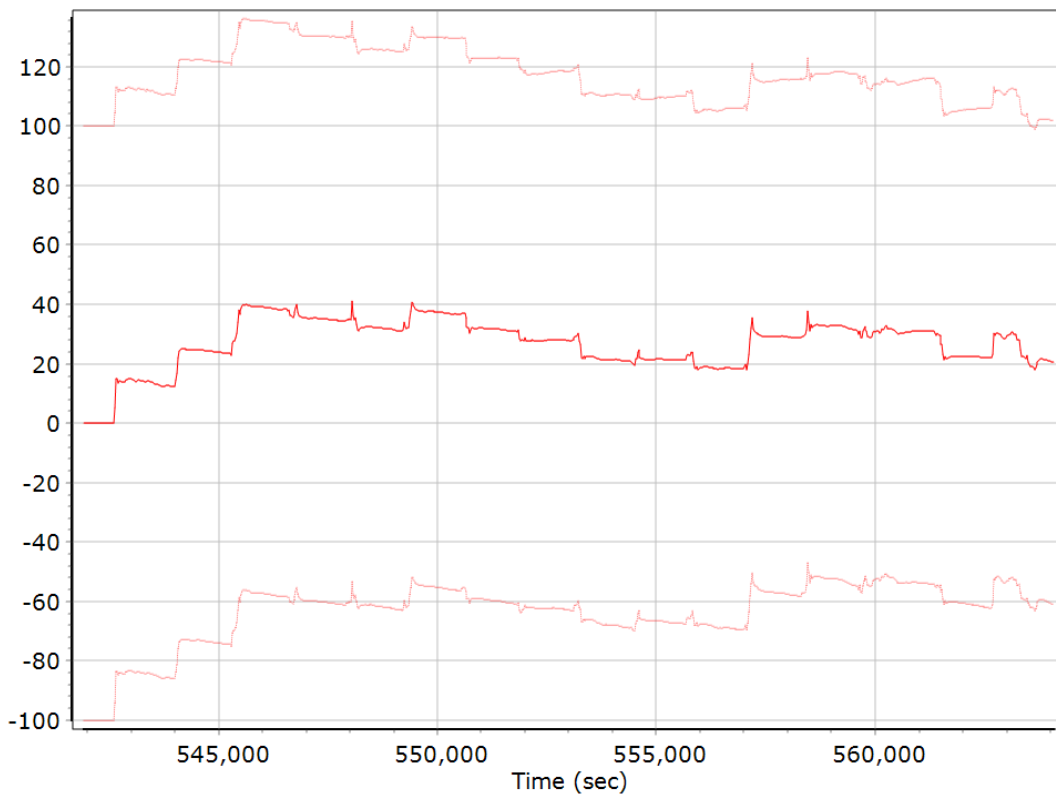
#### Accelerometer Bias (micro-g)



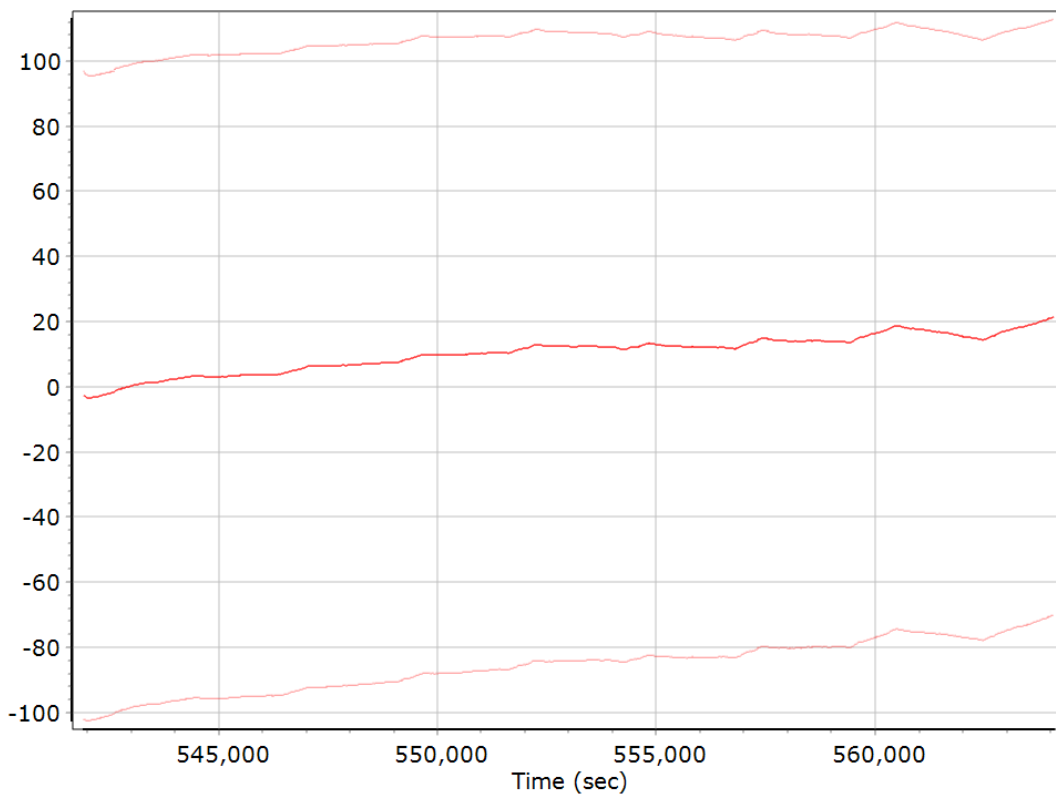
#### X Accelerometer Bias (micro-g)



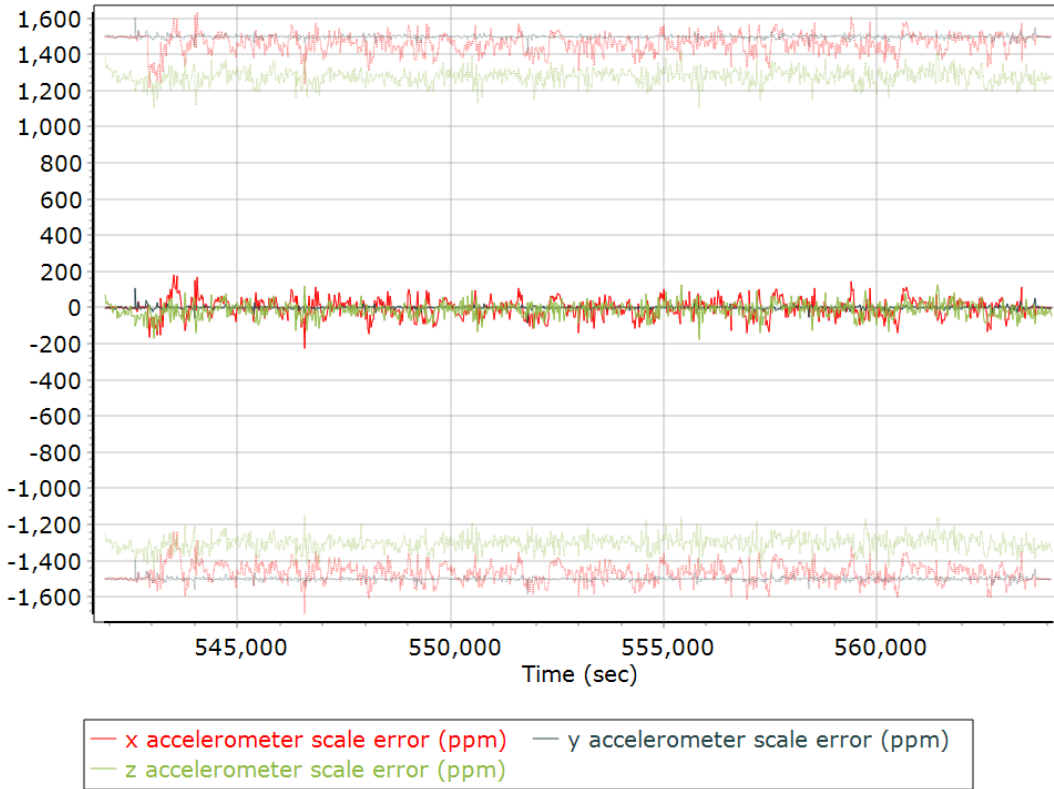
### Y Accelerometer Bias (micro-g)



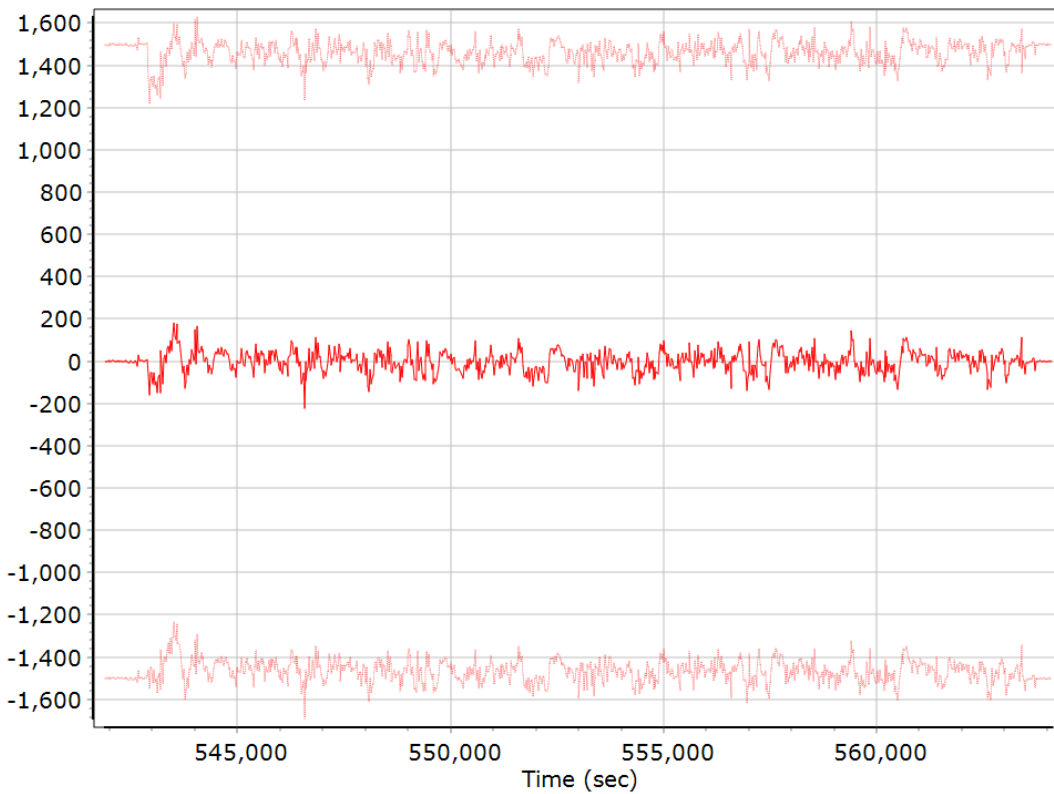
### Z Accelerometer Bias (micro-g)



### Accelerometer Scale Error (ppm)

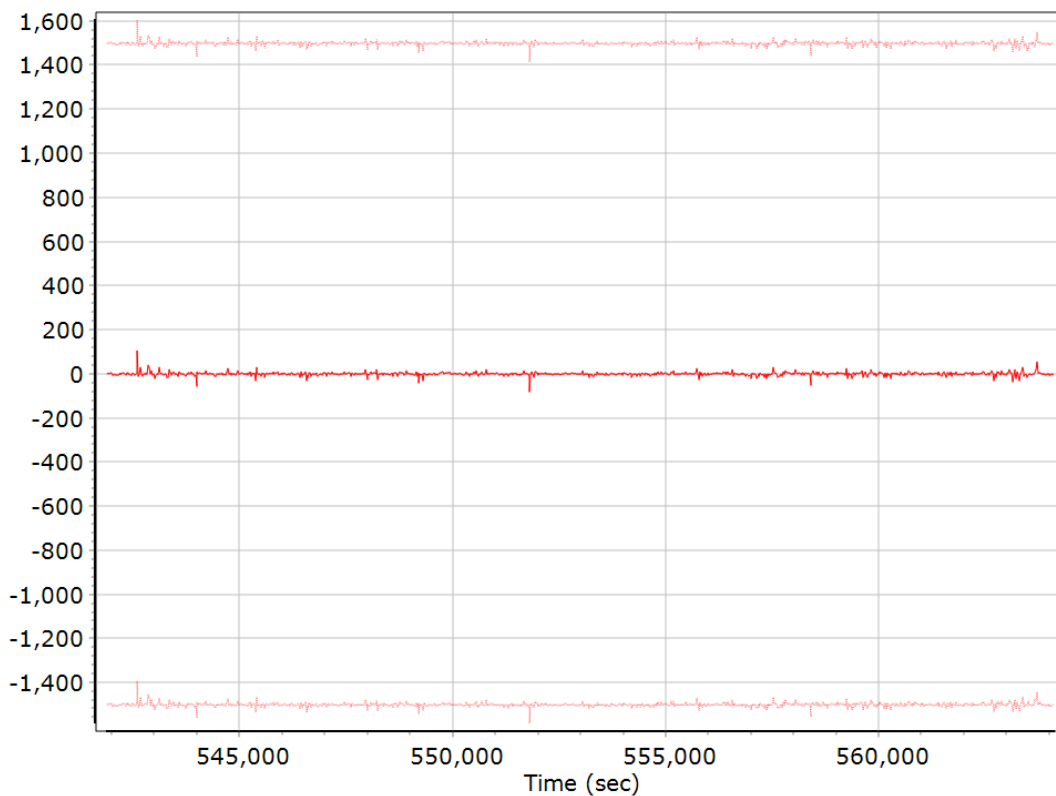


### X Accelerometer Scale Error (ppm)

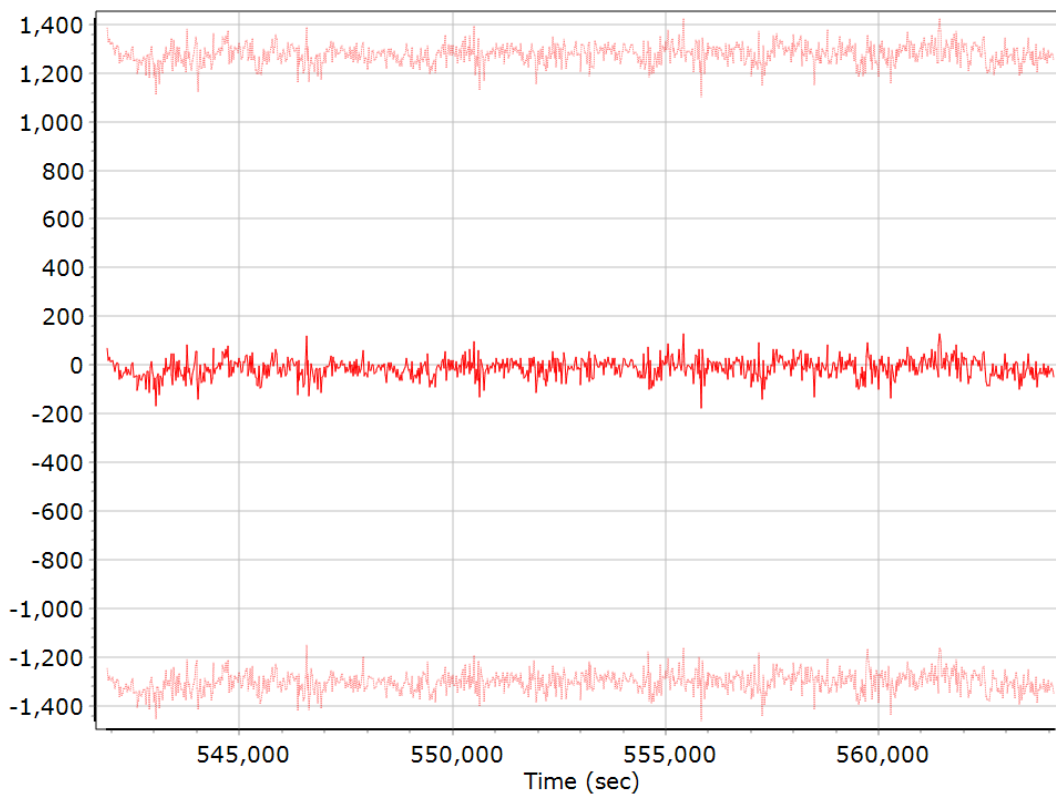




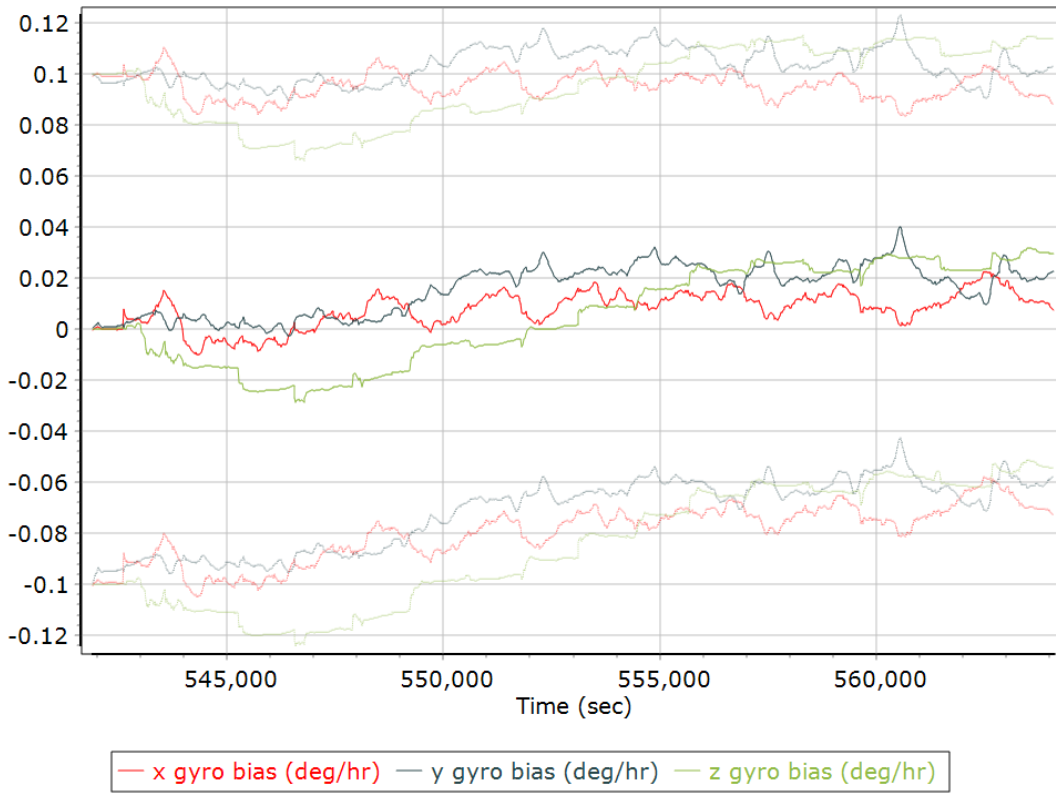
### Y Accelerometer Scale Error (ppm)



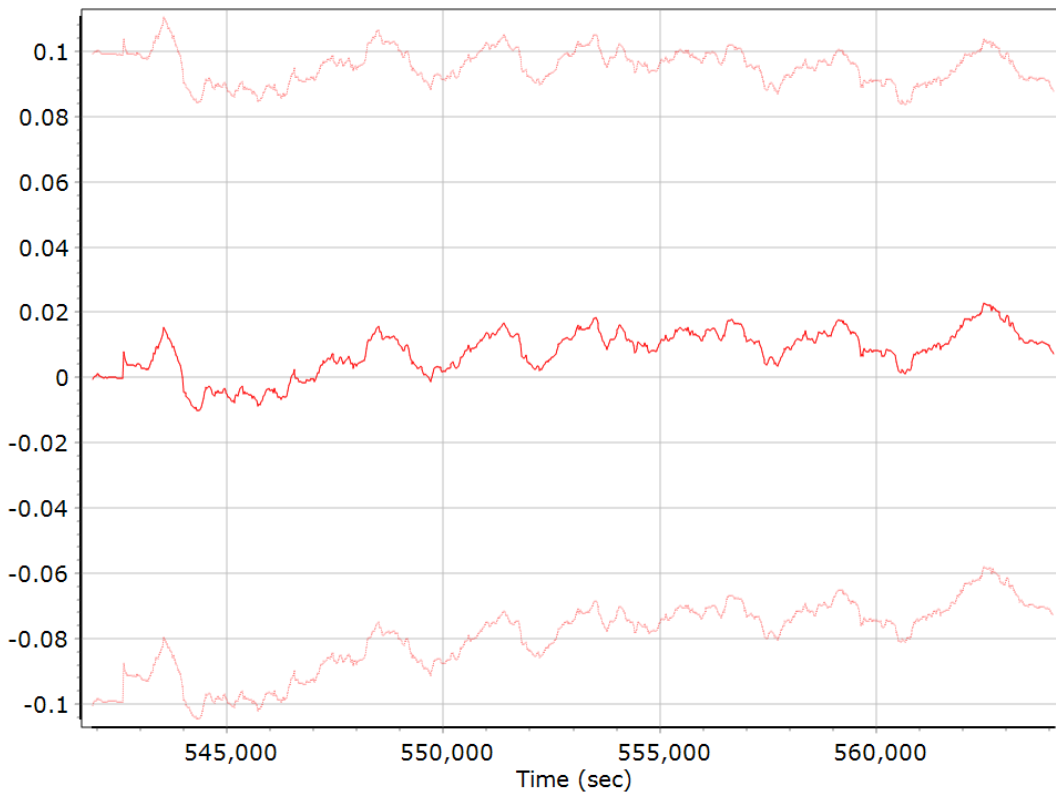
### Z Accelerometer Scale Error (ppm)



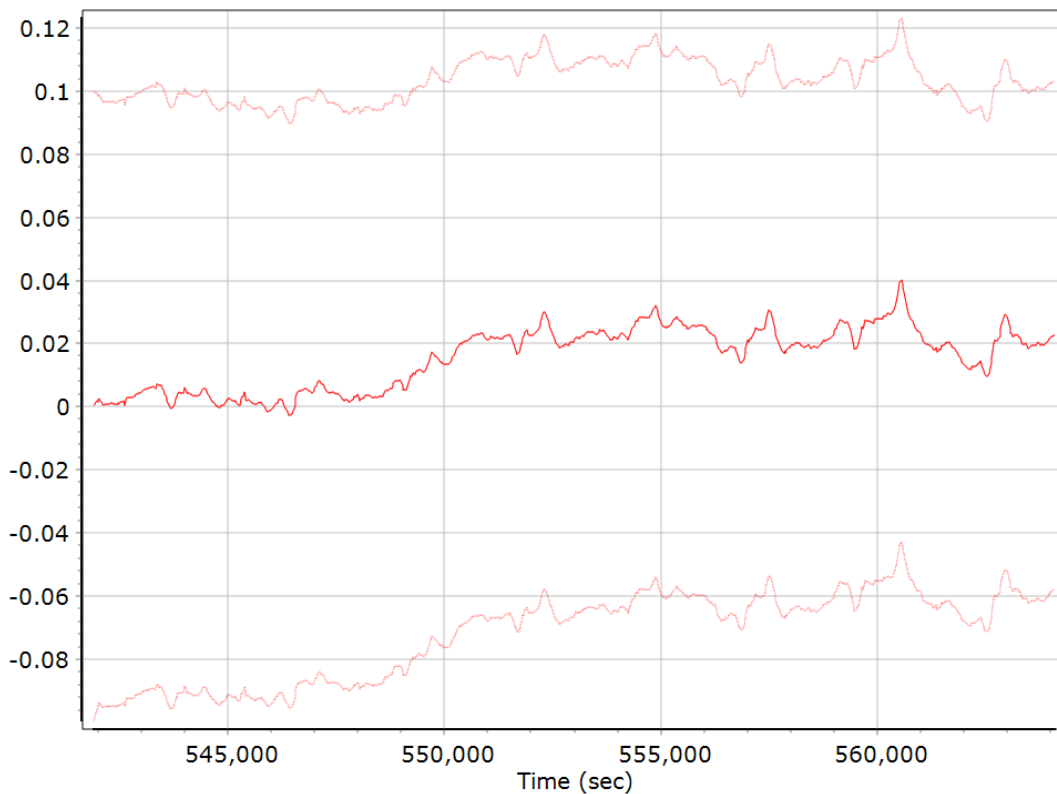
### Gyro Bias (deg/h)



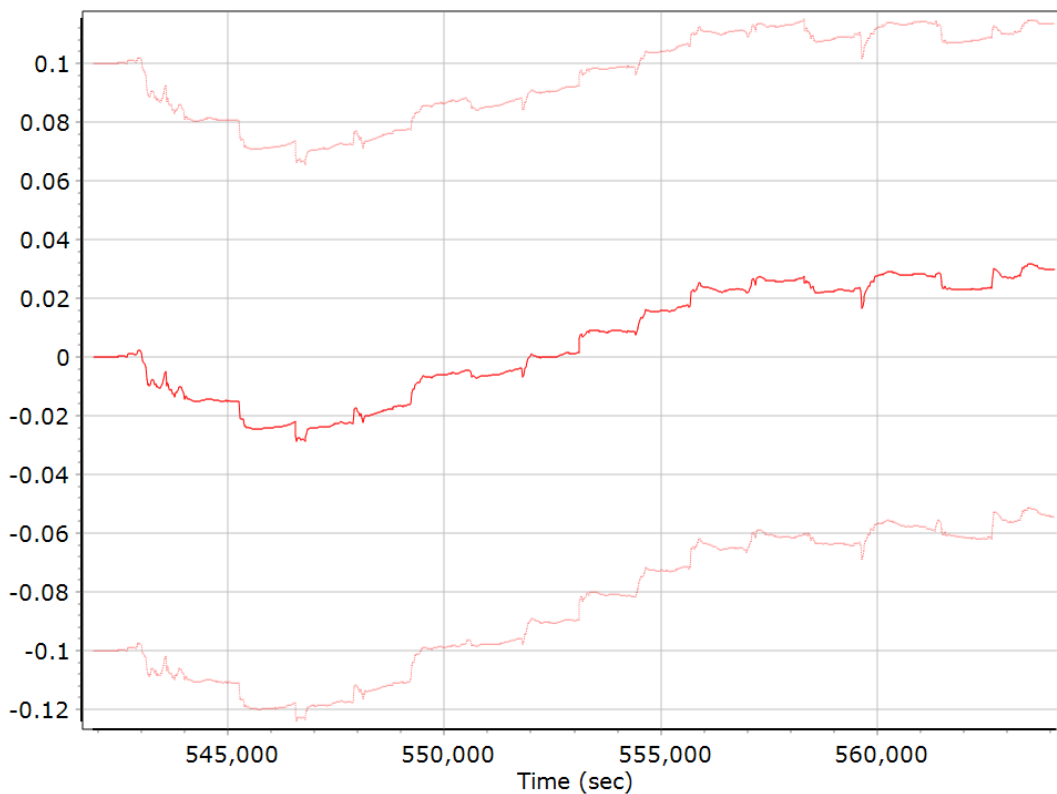
### X Gyro Bias (deg/h)



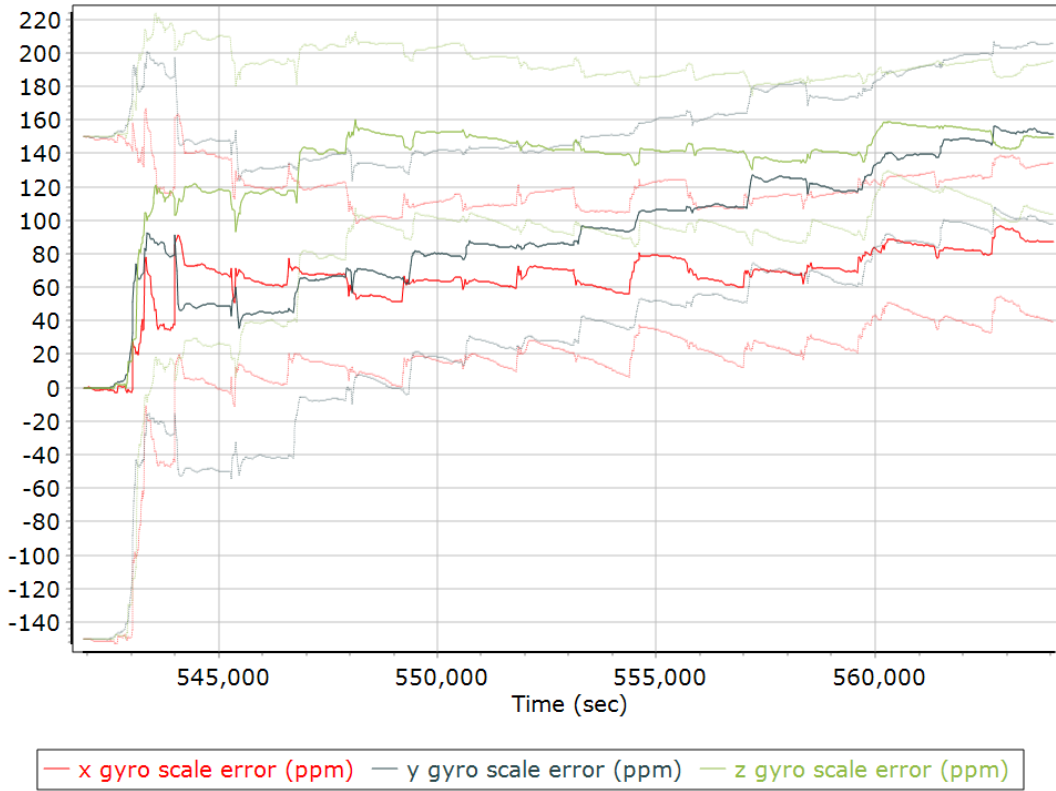
### Y Gyro Bias (deg/h)



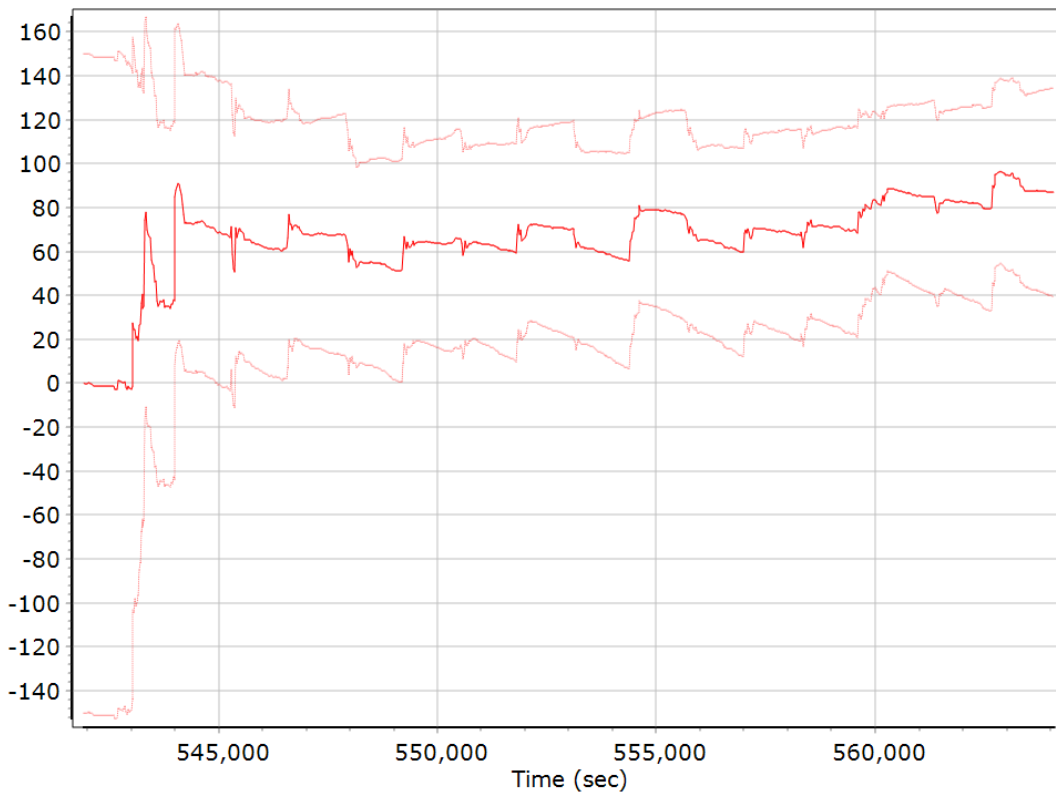
### Z Gyro Bias (deg/h)



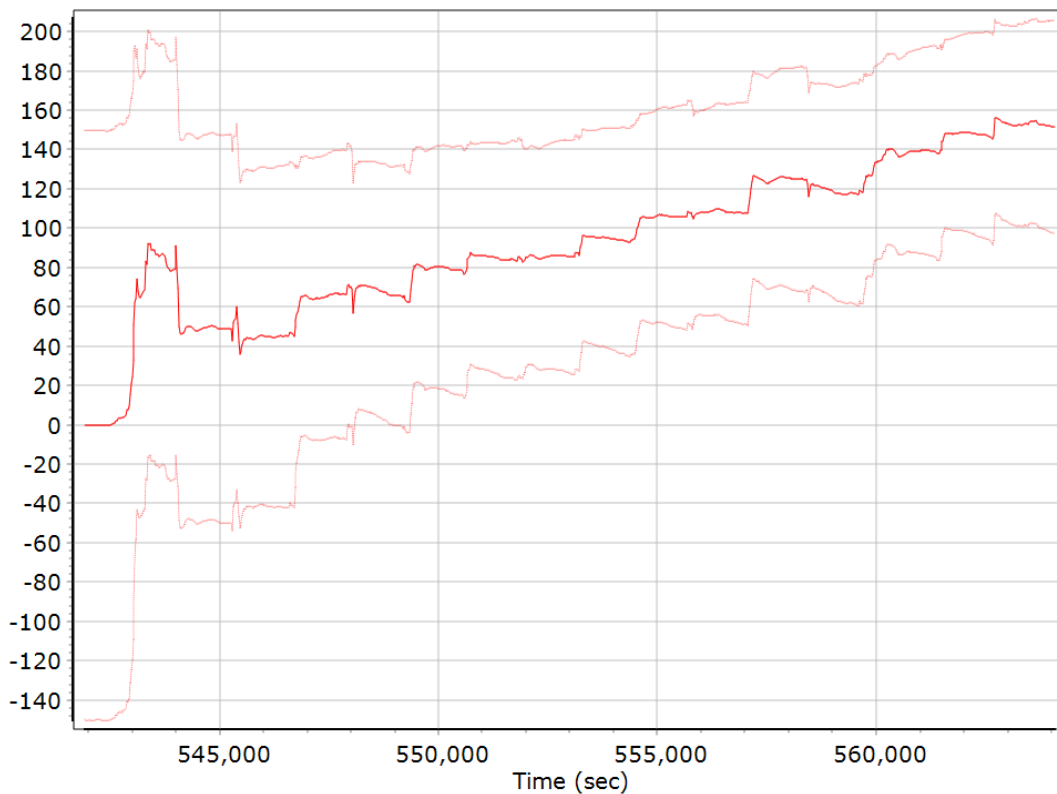
### Gyro Scale Error (ppm)



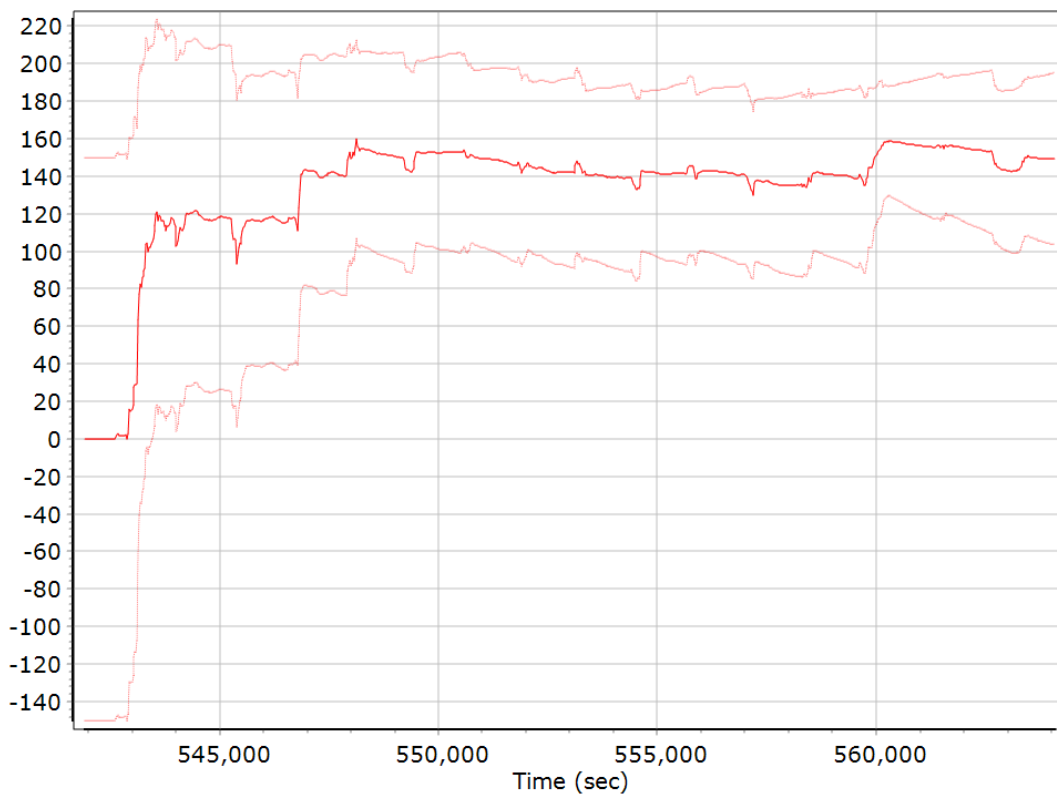
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)

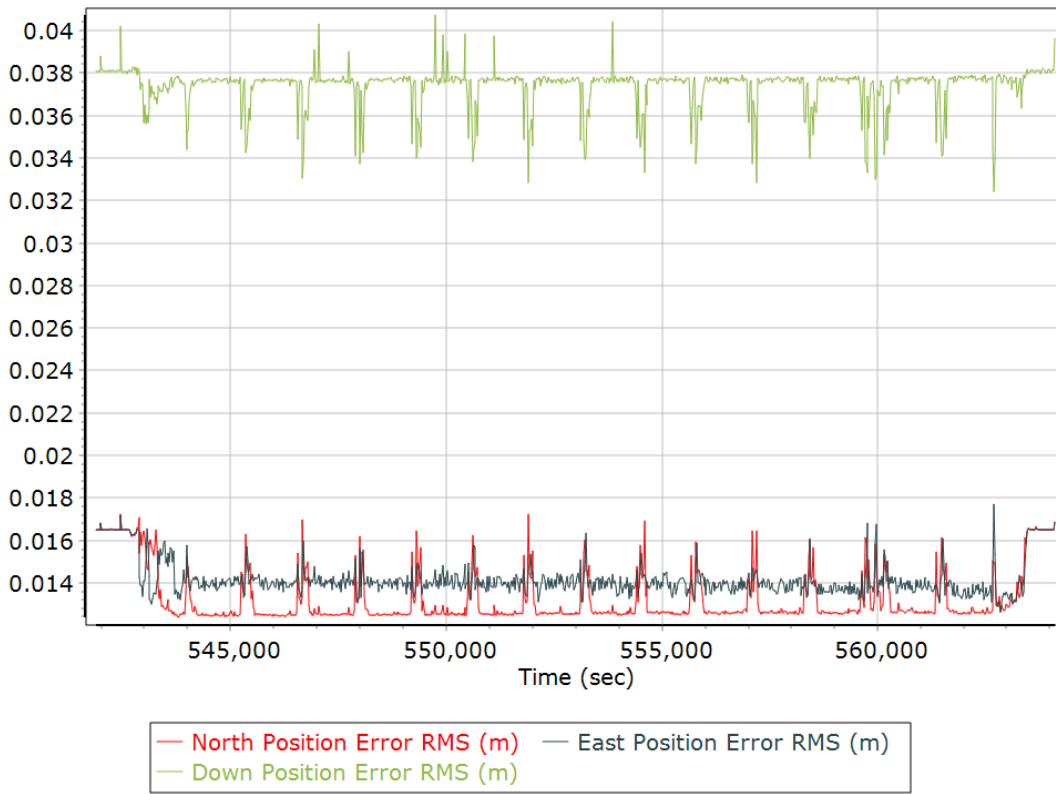


### Z Gyro Scale Error (ppm)

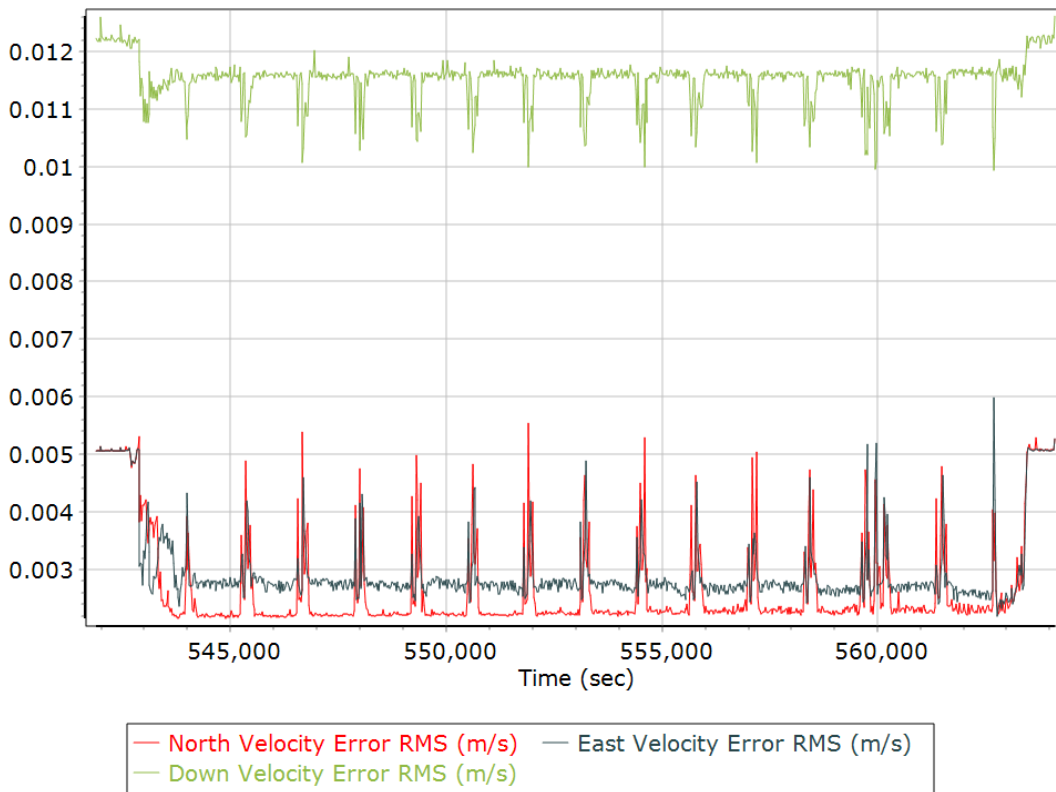


## Smoothed Performance Metrics

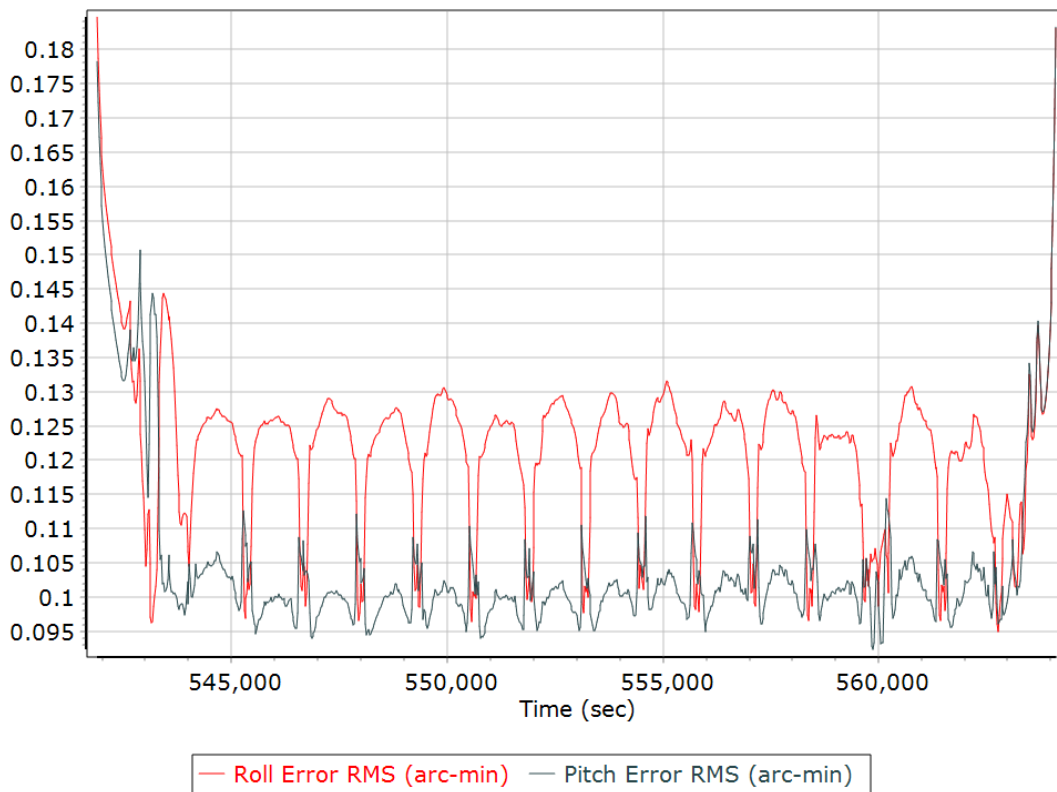
### Position Error RMS (m)



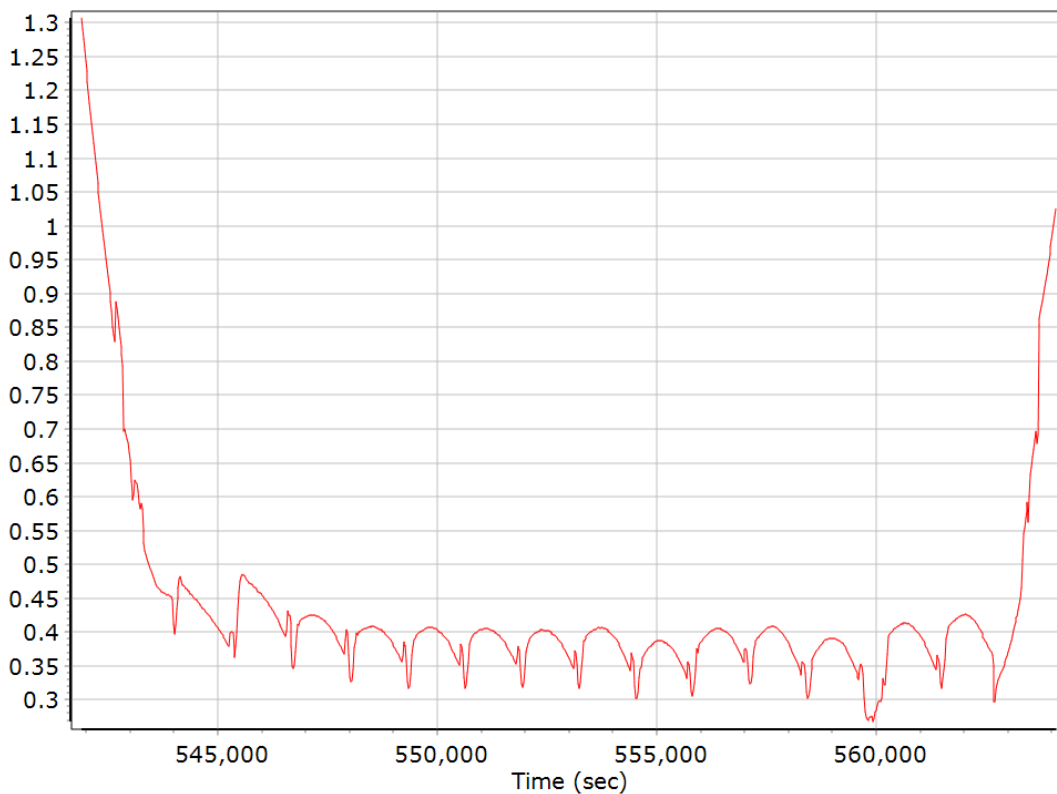
### Velocity Error RMS (m/s)



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

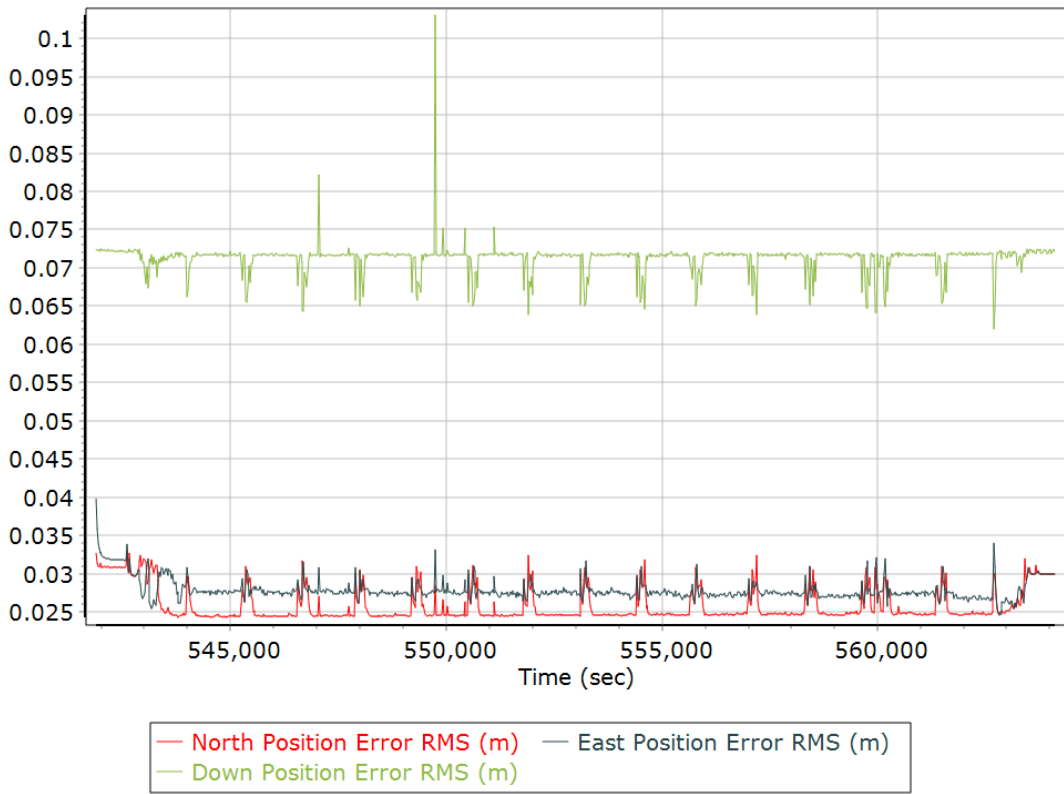


### Heading Error RMS (arc-min)

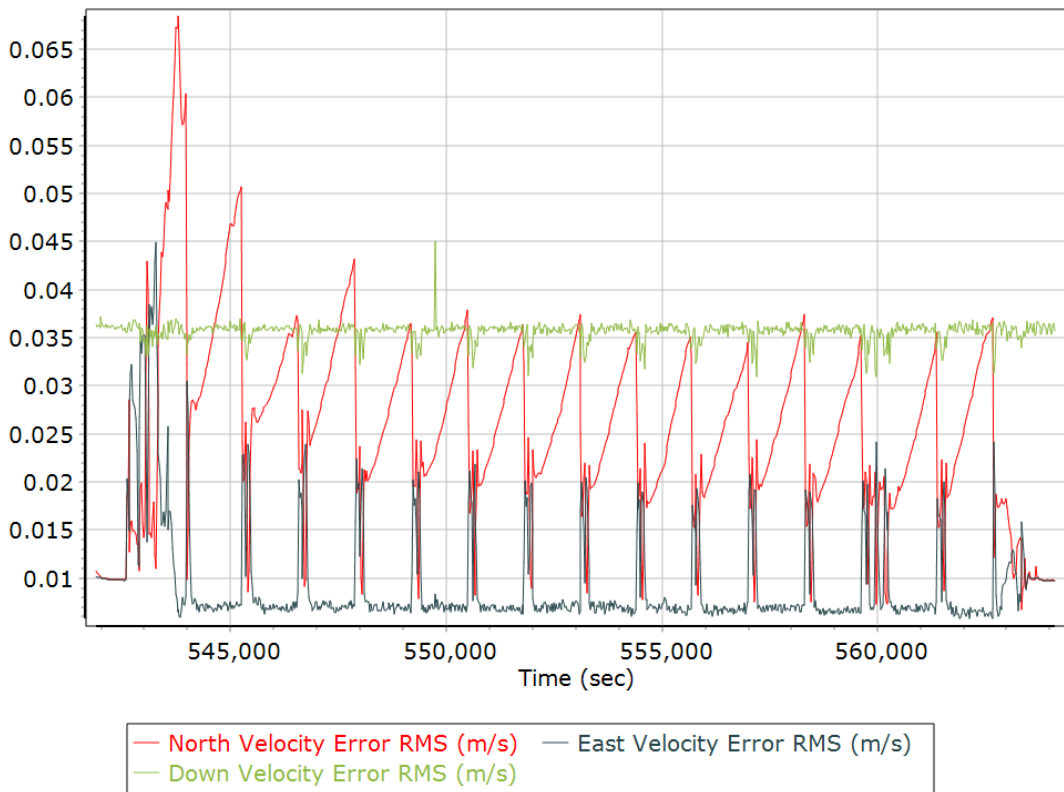


## Forward Processed Performance Metrics

### Position Error RMS (m)

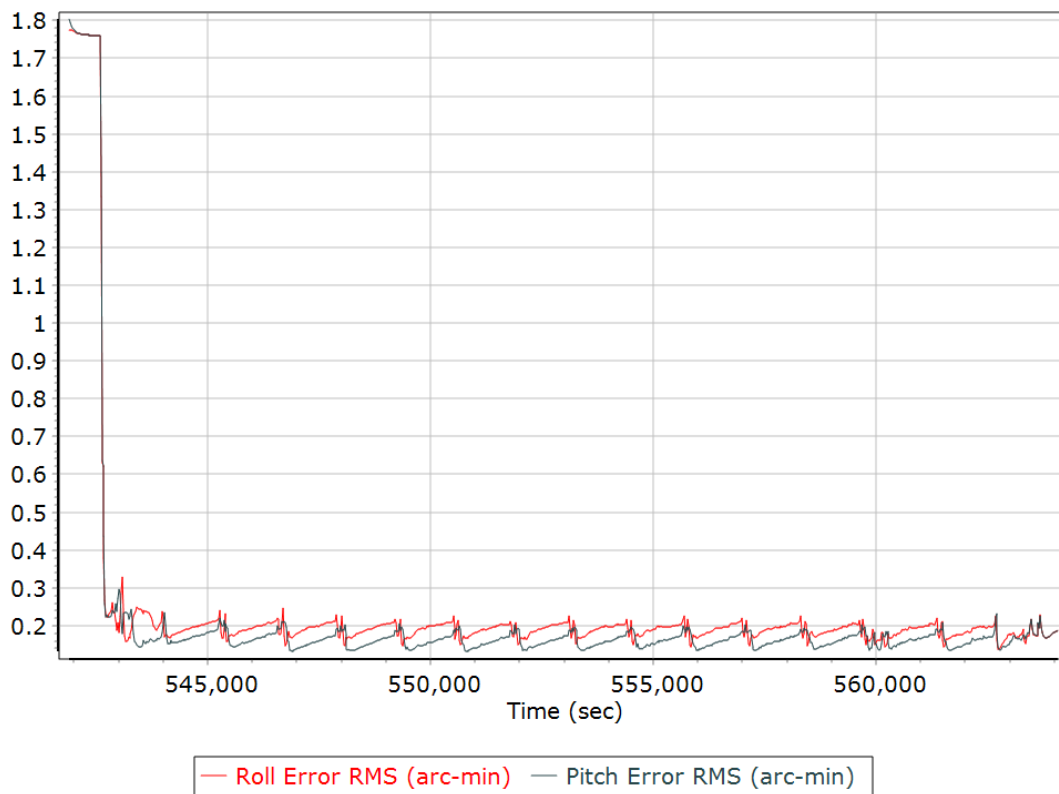


### Velocity Error RMS (m/s)

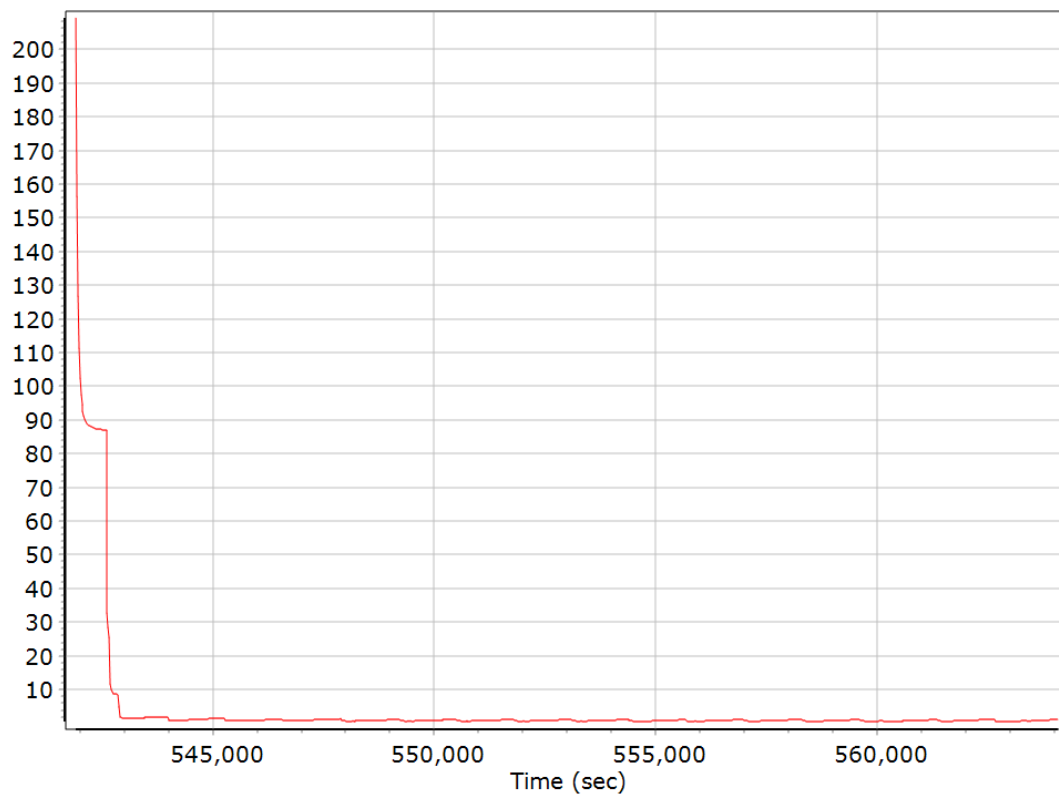




### Roll/Pitch Error RMS (arc-min)

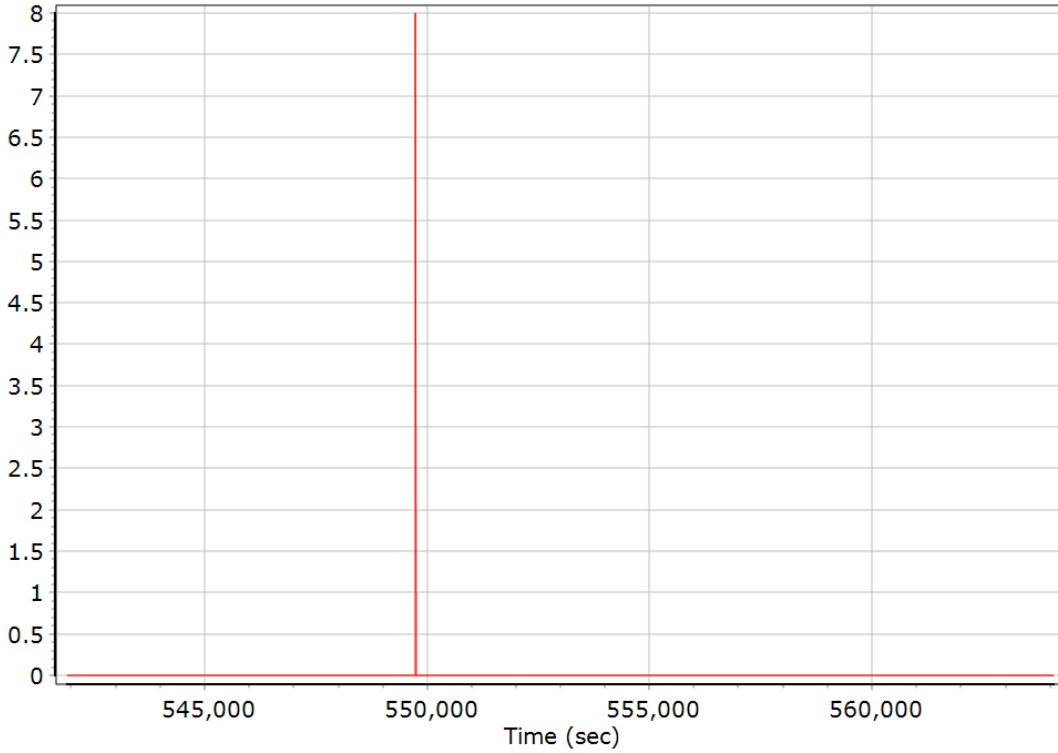


### Heading Error RMS (arc-min)



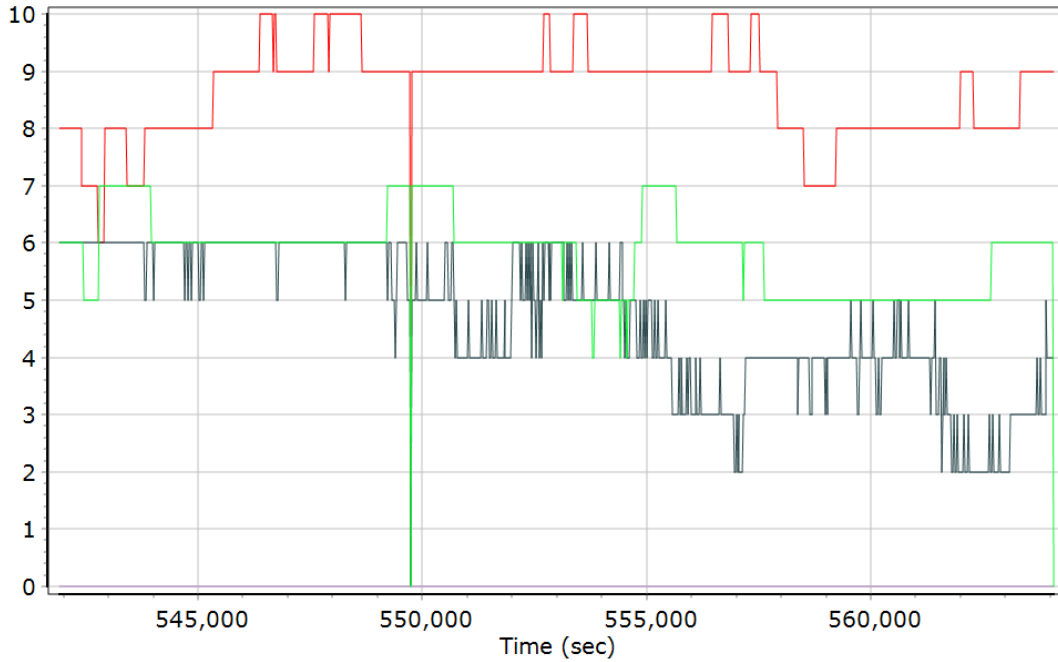
## Forward Processed Solution Status

### Processing Mode



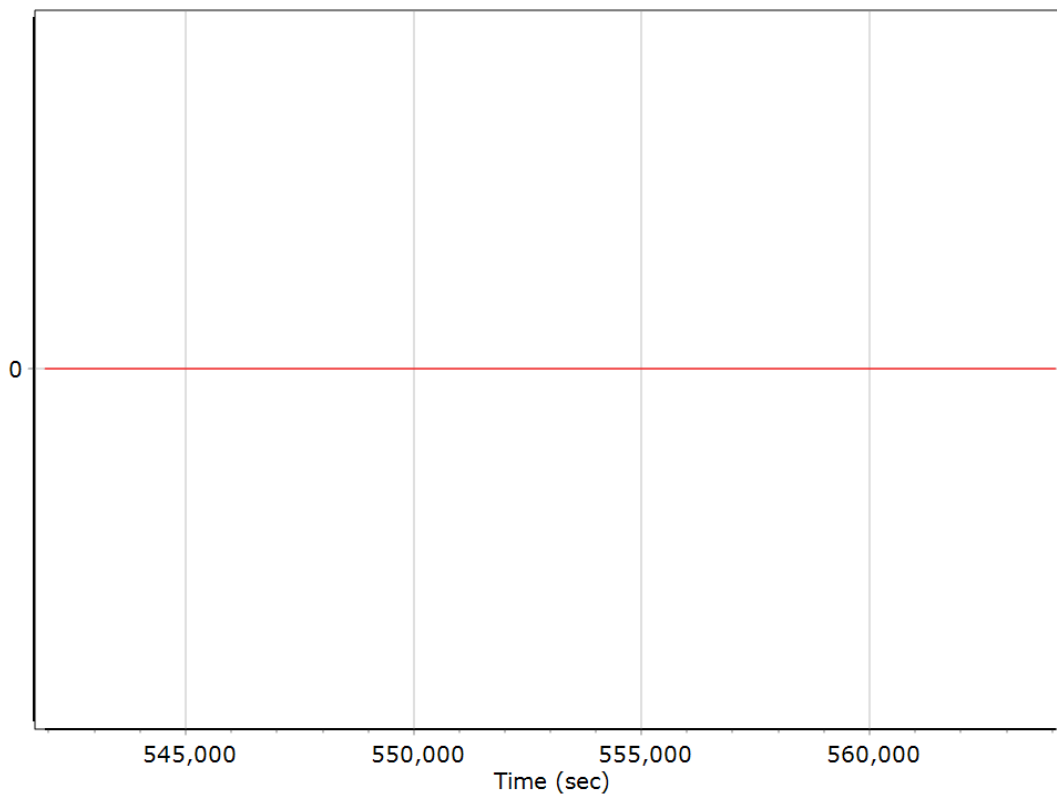
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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



## General Information

### Mission Information

Project name	a07-s03-0523
Processing date	2022-08-23 18:48:13
Mission date	2022-08-23 05:31:19
Mission duration	06:16:42.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0823_053121.000	POS Data
default0823_053121.001	POS Data
default0823_053121.002	POS Data
default0823_053121.003	POS Data
default0823_053121.004	POS Data
default0823_053121.005	POS Data
default0823_053121.006	POS Data
default0823_053121.007	POS Data
default0823_053121.008	POS Data
default0823_053121.009	POS Data
default0823_053121.010	POS Data
default0823_053121.011	POS Data
default0823_053121.012	POS Data
default0823_053121.013	POS Data
default0823_053121.014	POS Data
default0823_053121.015	POS Data
default0823_053121.016	POS Data
default0823_053121.017	POS Data
default0823_053121.018	POS Data
default0823_053121.019	POS Data
default0823_053121.020	POS Data
default0823_053121.021	POS Data
default0823_053121.022	POS Data
default0823_053121.023	POS Data
default0823_053121.024	POS Data
default0823_053121.025	POS Data
default0823_053121.026	POS Data
default0823_053121.027	POS Data
default0823_053121.028	POS Data
default0823_053121.029	POS Data
default0823_053121.030	POS Data

### Input Files

File Name	File Type
Ephm2350.22g	GLONASS Broadcast Ephemeris
Ephm2350.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0523.out	SBET Trajectory File

## Rover Data Summary

First raw data file	default0823_053121.000		
Last raw data file	default0823_053121.030		
Start GPS week	2224		
Start time	17.107 (8/21/2022 12:00:17 AM)		
End time	215264.061 (8/23/2022 11:47:44 AM)		
Start of fine alignment	193144.325 (8/23/2022 5:39:04 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

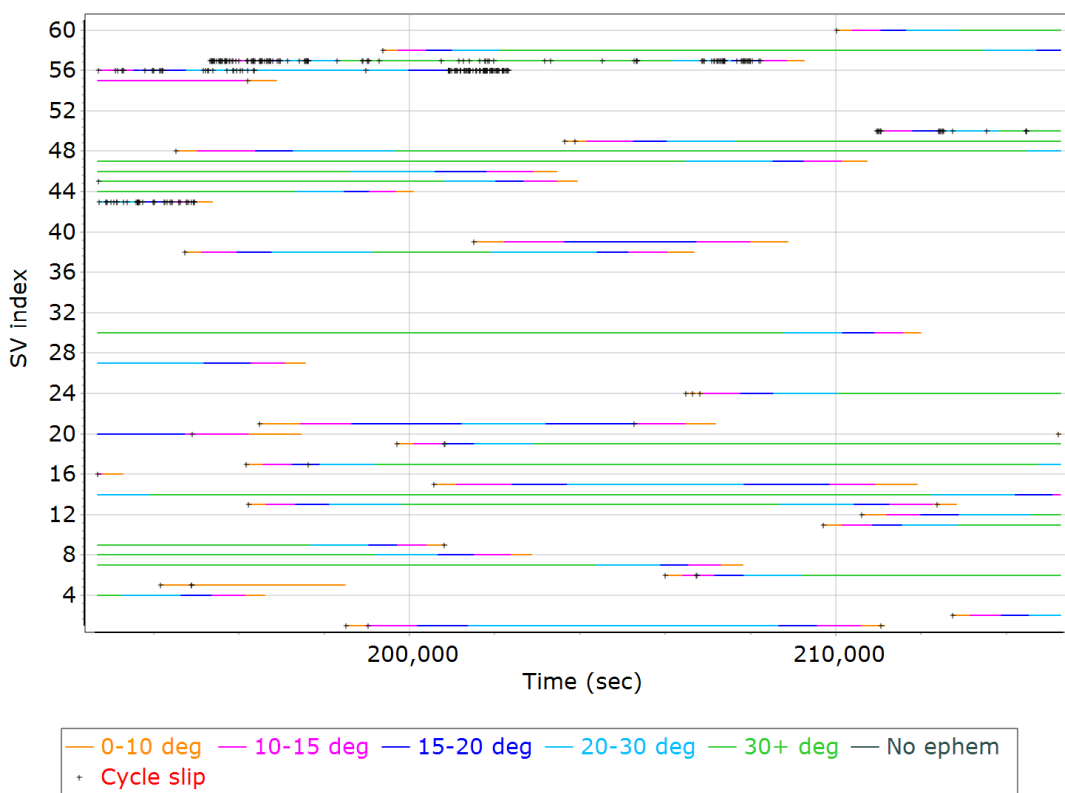
## Rover Data QC

### Raw IMU Import QC Summary

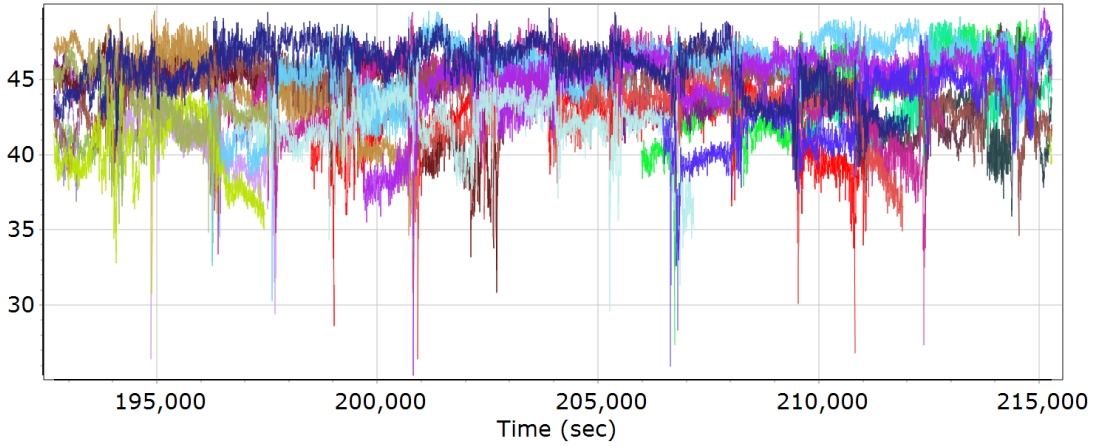
IMU data input file	imu_a07-s03-0523.dat
IMU data check log file	imudt_a07-s03-0523.log
IMU Records Processed	4519813
Termination Status	Warnings
IMU Anomalies	3
<b>IMU Failure Messages</b>	
192661.758	: WARNING : Gap of 0.0100 seconds in CHECKDT input data
192661.653	: WARNING : Gap of 0.0100 seconds in CHECKDT input data
192661.593	: WARNING : Gap of 192644.2306 seconds in CHECKDT input data

## Primary Observables & Satellite Data

### GPS/GLONASS L1 Satellite Lock/Elevation

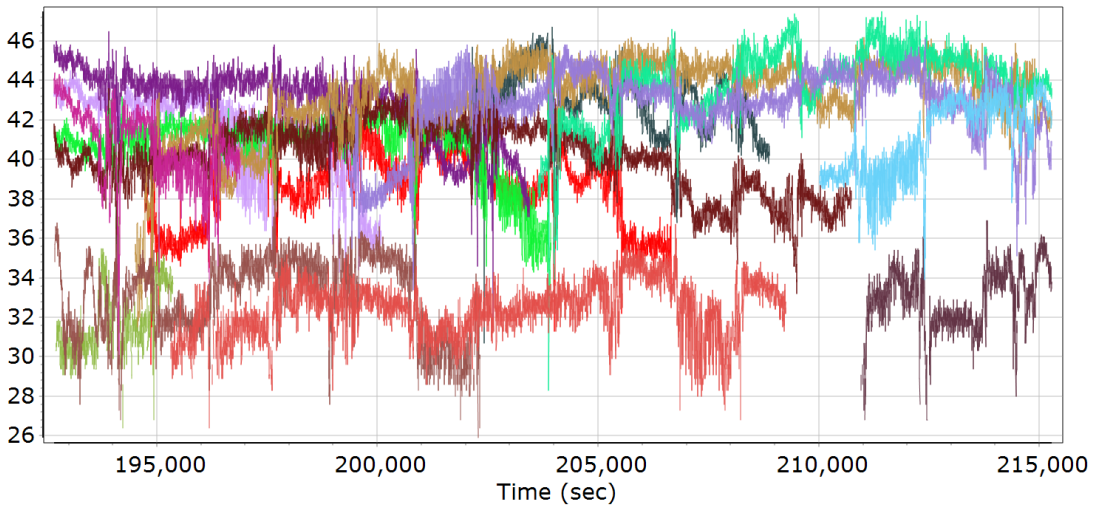


**GPS L1 SNR**



- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 02 L1 SNR (dB/Hz) |
| — GPS PRN 04 L1 SNR (dB/Hz) | — GPS PRN 05 L1 SNR (dB/Hz) |
| — GPS PRN 06 L1 SNR (dB/Hz) | — GPS PRN 07 L1 SNR (dB/Hz) |
| — GPS PRN 08 L1 SNR (dB/Hz) | — GPS PRN 09 L1 SNR (dB/Hz) |
| — GPS PRN 11 L1 SNR (dB/Hz) | — GPS PRN 12 L1 SNR (dB/Hz) |
| — GPS PRN 13 L1 SNR (dB/Hz) | — GPS PRN 14 L1 SNR (dB/Hz) |
| — GPS PRN 15 L1 SNR (dB/Hz) | — GPS PRN 16 L1 SNR (dB/Hz) |
| — GPS PRN 17 L1 SNR (dB/Hz) | — GPS PRN 19 L1 SNR (dB/Hz) |
| — GPS PRN 20 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 24 L1 SNR (dB/Hz) | — GPS PRN 27 L1 SNR (dB/Hz) |

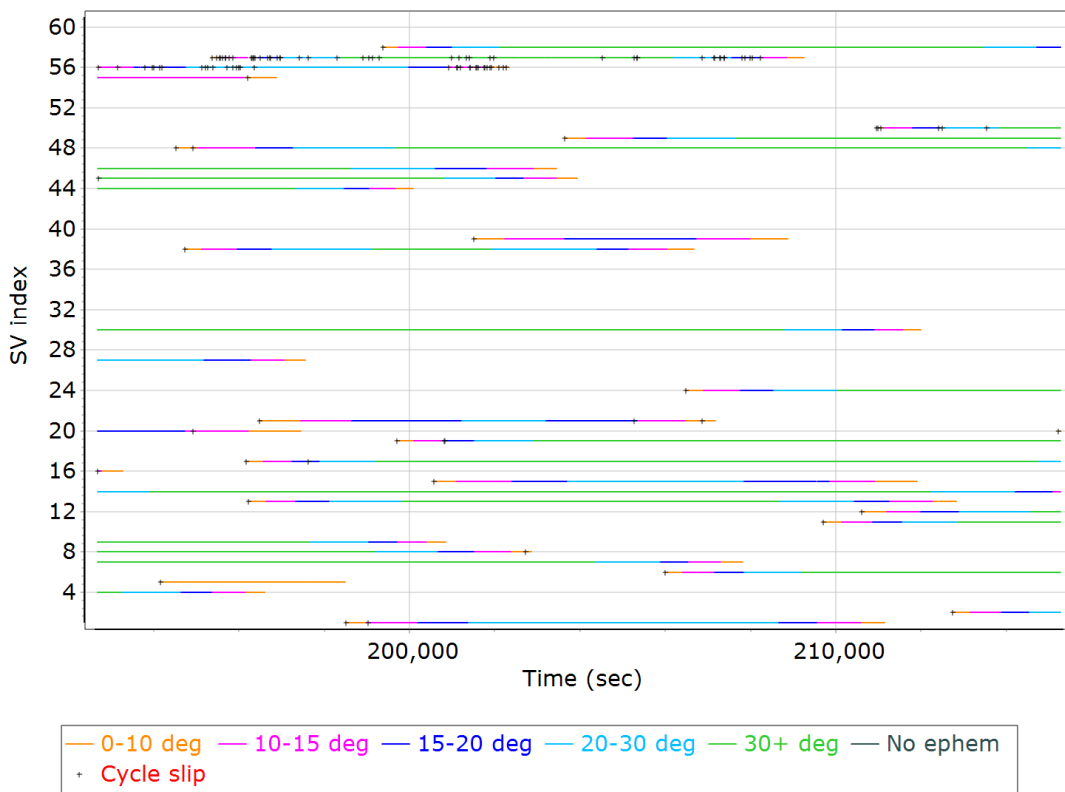
**GLONASS L1 SNR**



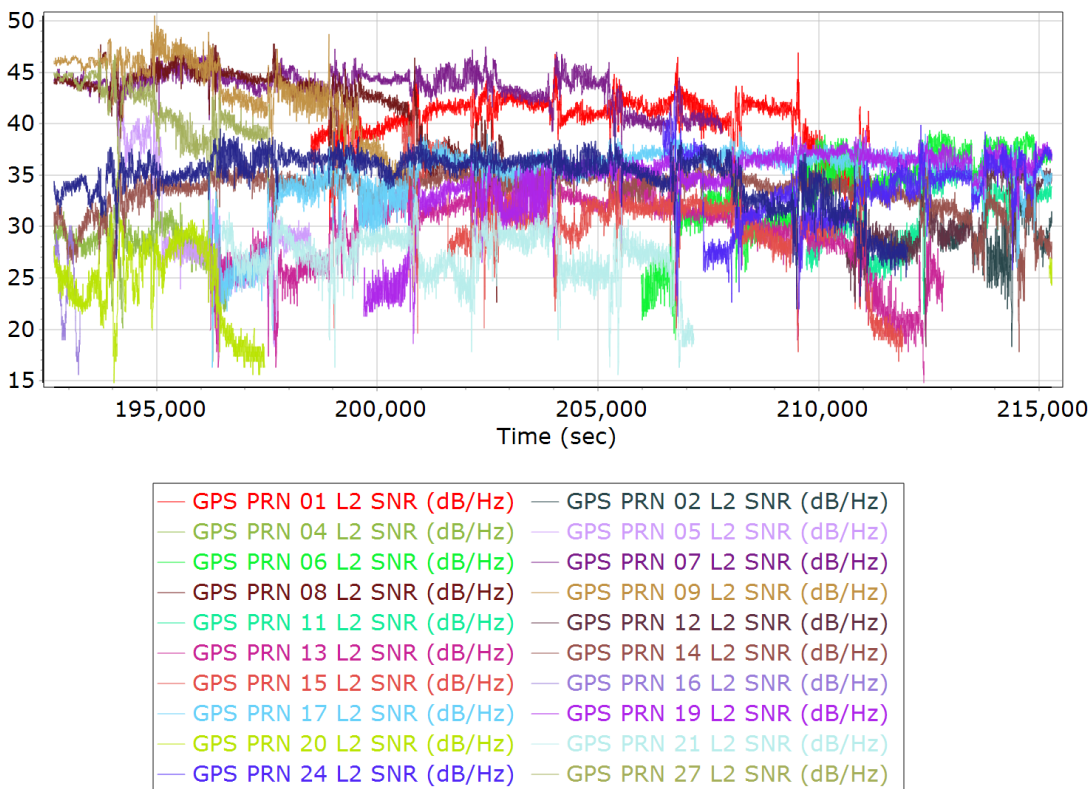
- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 01 L1 SNR (dB/Hz) | — GLONASS 02 L1 SNR (dB/Hz) |
| — GLONASS 06 L1 SNR (dB/Hz) | — GLONASS 07 L1 SNR (dB/Hz) |
| — GLONASS 08 L1 SNR (dB/Hz) | — GLONASS 09 L1 SNR (dB/Hz) |
| — GLONASS 10 L1 SNR (dB/Hz) | — GLONASS 11 L1 SNR (dB/Hz) |
| — GLONASS 12 L1 SNR (dB/Hz) | — GLONASS 13 L1 SNR (dB/Hz) |
| — GLONASS 18 L1 SNR (dB/Hz) | — GLONASS 19 L1 SNR (dB/Hz) |
| — GLONASS 20 L1 SNR (dB/Hz) | — GLONASS 21 L1 SNR (dB/Hz) |
| — GLONASS 23 L1 SNR (dB/Hz) |                             |



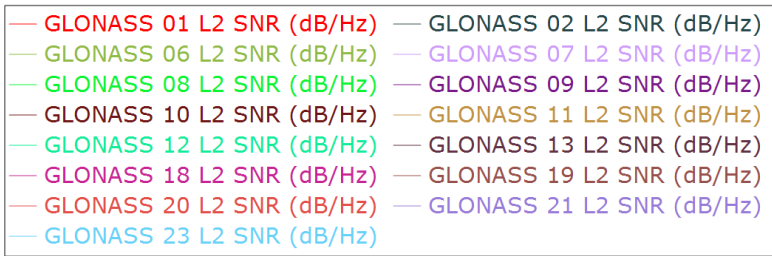
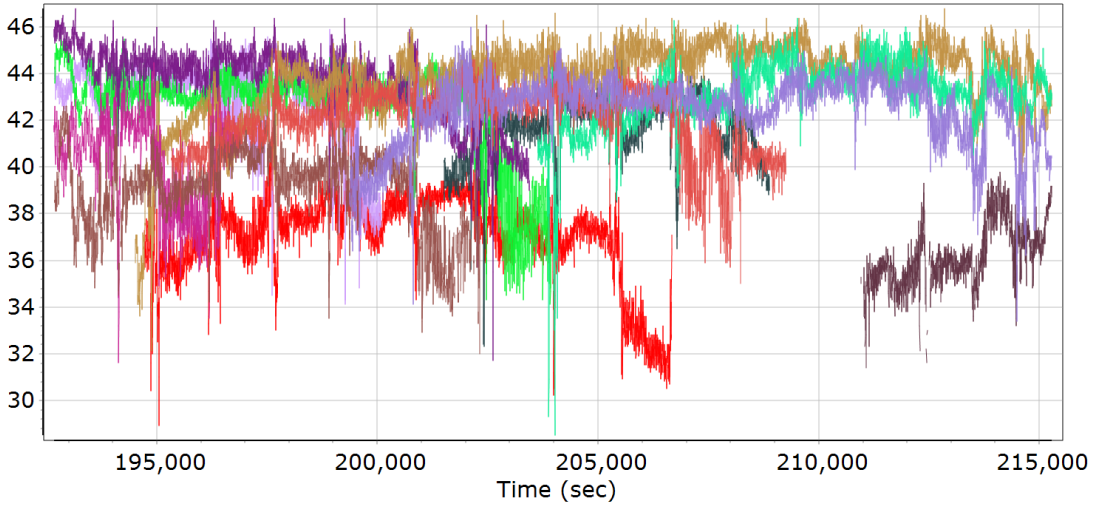
### GPS/GLONASS L2 Satellite Lock/Elevation



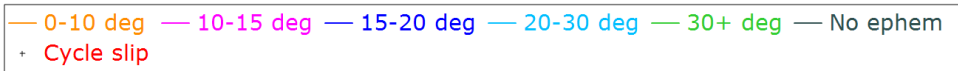
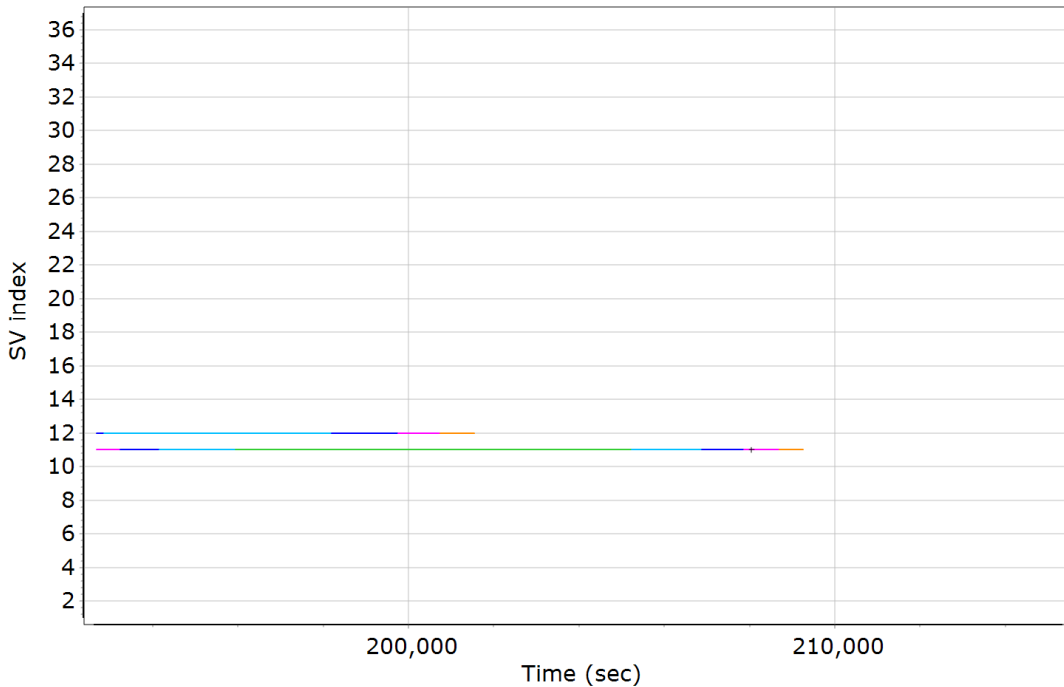
### GPS L2 SNR



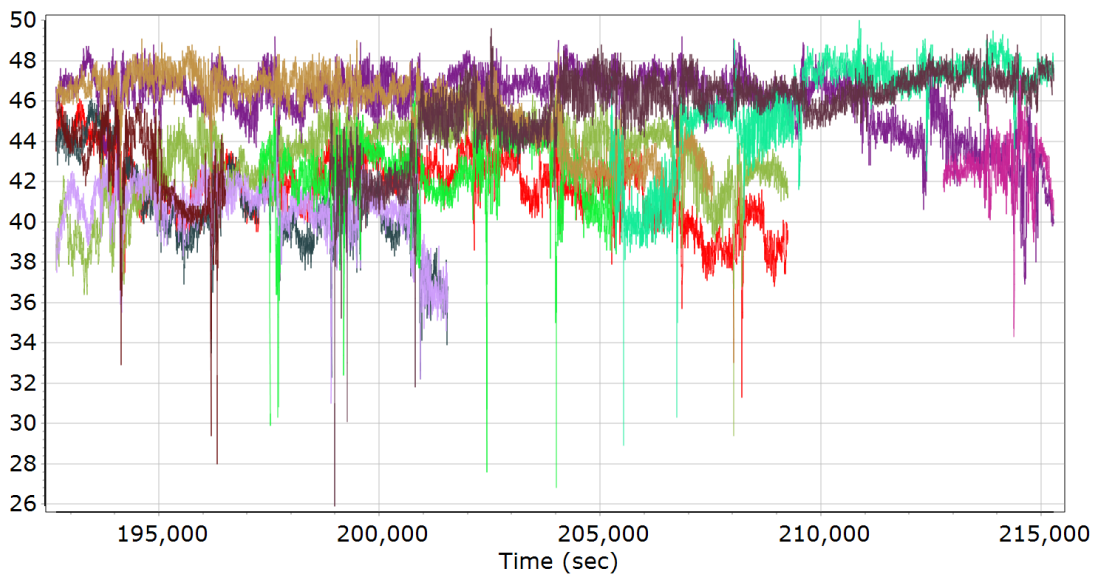
**GLONASS L2 SNR**



**BEIDOU Satellite Lock/Elevation**

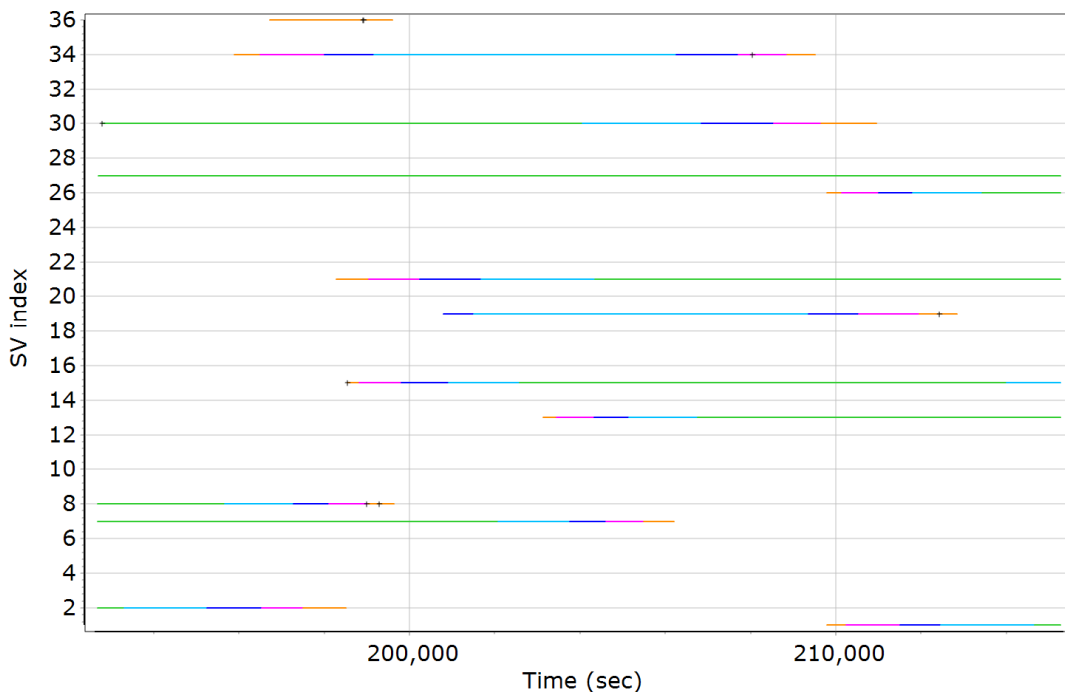


### BEIDOU SNR



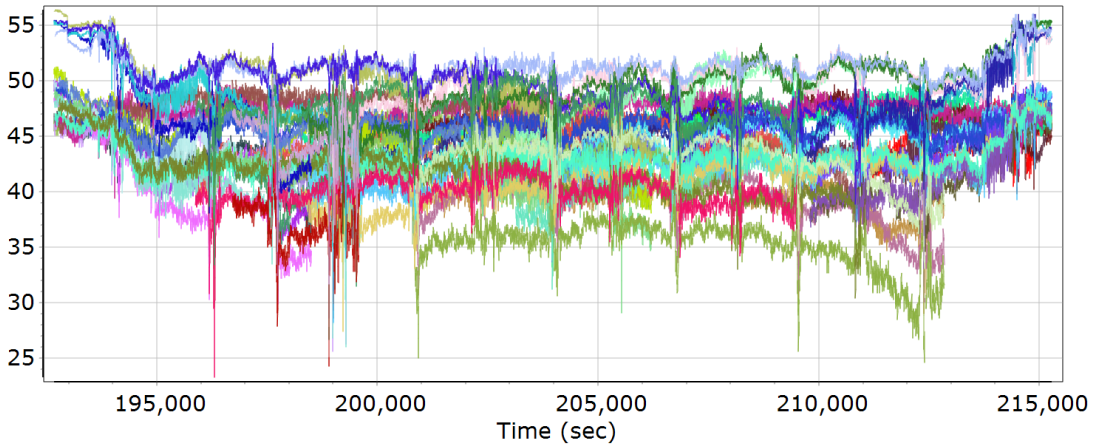
- BEIDOU 11 E5B B2 SNR (dB/Hz)
- BEIDOU 12 E5B B2 SNR (dB/Hz)
- BEIDOU 11 B1 B1 SNR (dB/Hz)
- BEIDOU 12 B1 B1 SNR (dB/Hz)
- BEIDOU 20 B1 B1 SNR (dB/Hz)
- BEIDOU 23 B1 B1 SNR (dB/Hz)
- BEIDOU 24 B1 B1 SNR (dB/Hz)
- BEIDOU 25 B1 B1 SNR (dB/Hz)
- BEIDOU 27 B1 B1 SNR (dB/Hz)
- BEIDOU 28 B1 B1 SNR (dB/Hz)
- BEIDOU 30 B1 B1 SNR (dB/Hz)

### GALILEO Satellite Lock/Elevation



- 0-10 deg
- 10-15 deg
- 15-20 deg
- 20-30 deg
- 30+ deg
- No ephem
- + Cycle slip

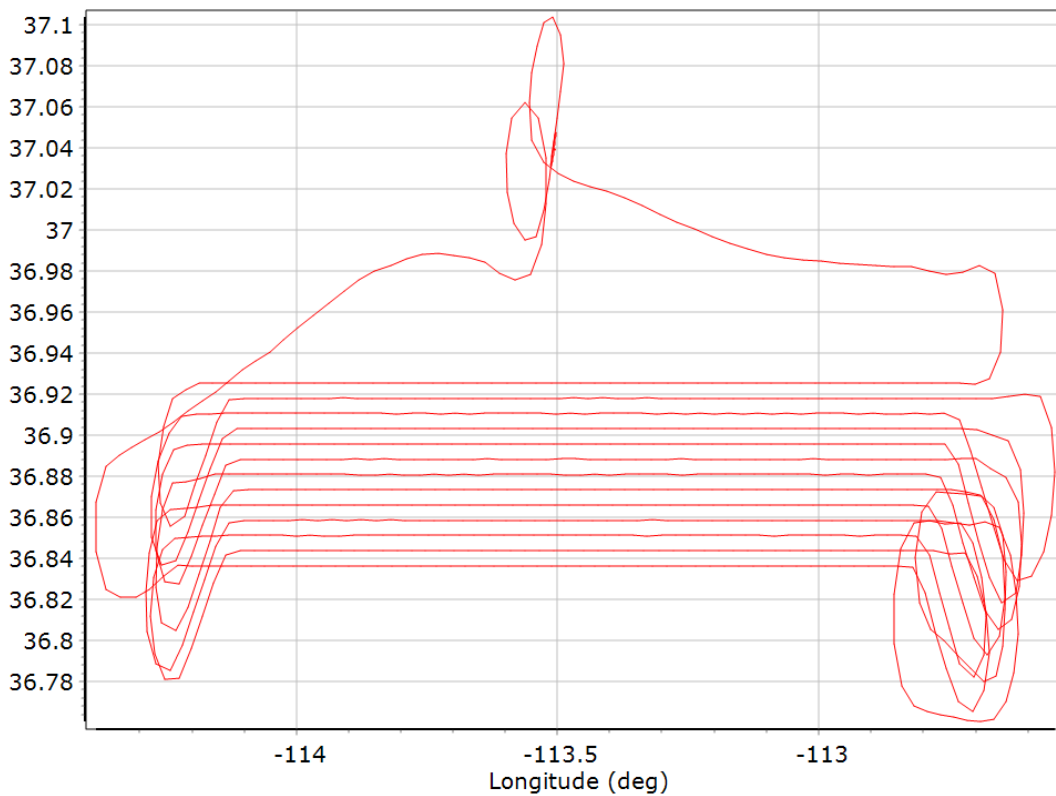
## GALILEO SNR



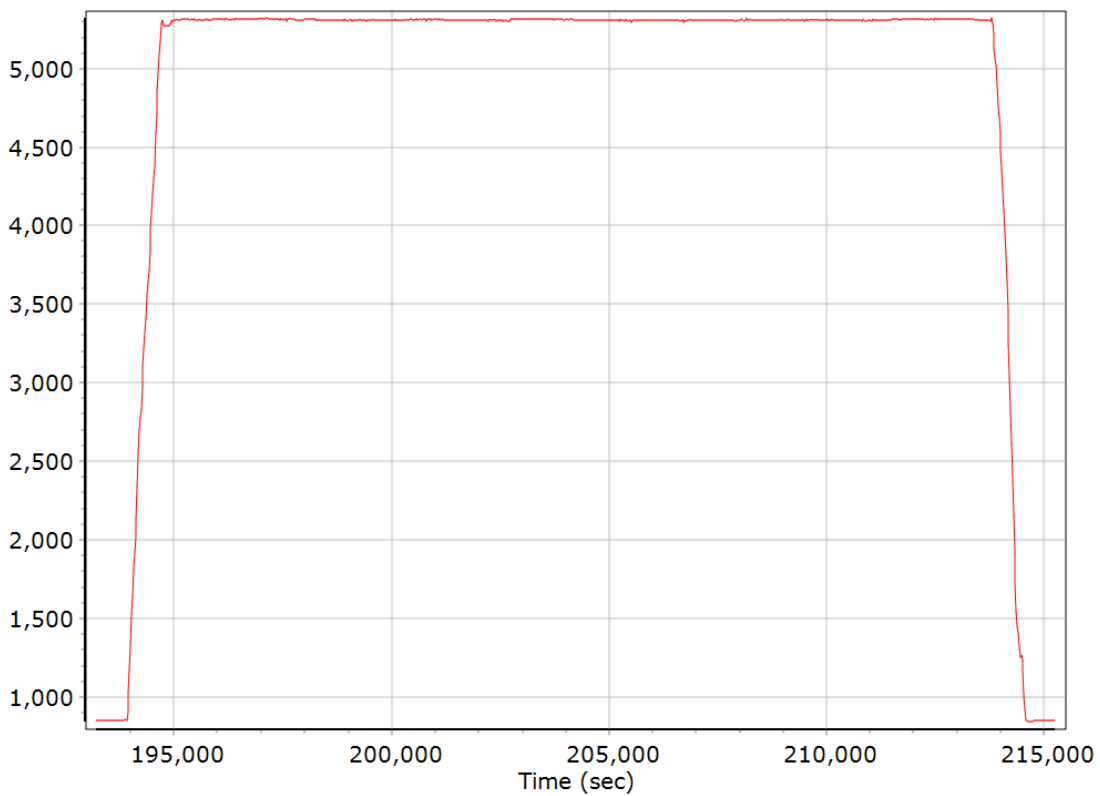
- GALILEO 01 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 02 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 07 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 08 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 13 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 14 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 15 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 19 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 21 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 26 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

## Smoothed Trajectory Information

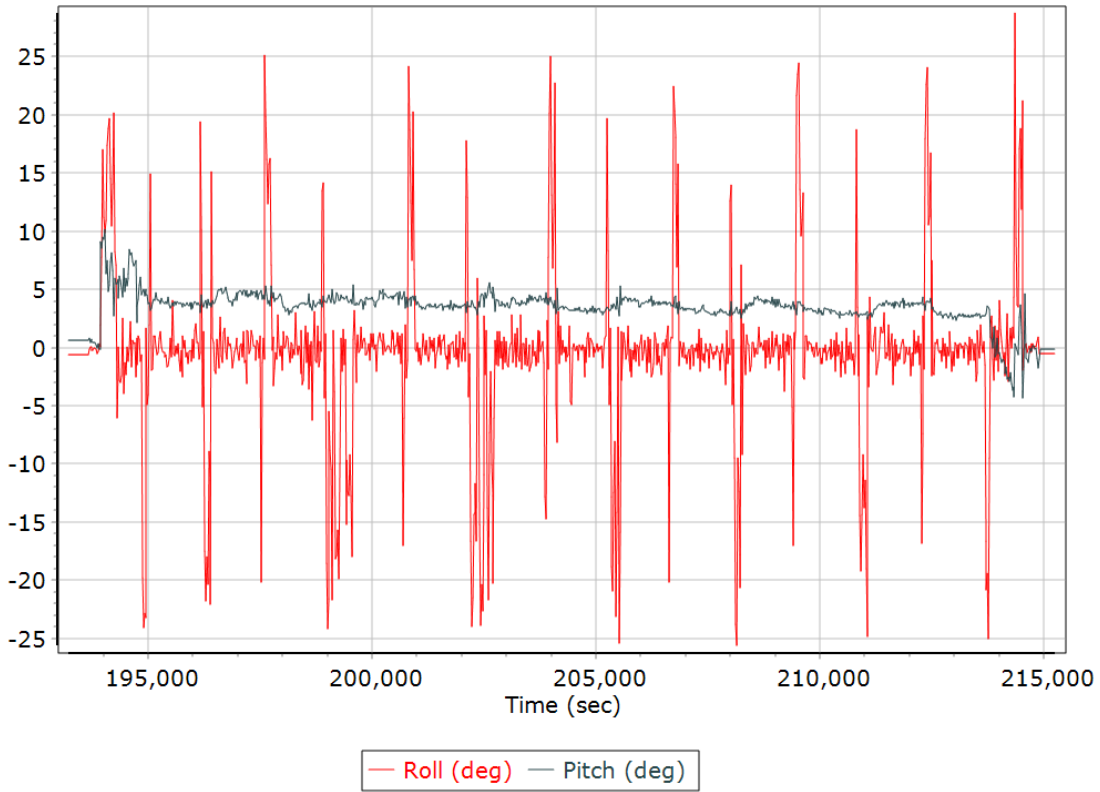
### Top View



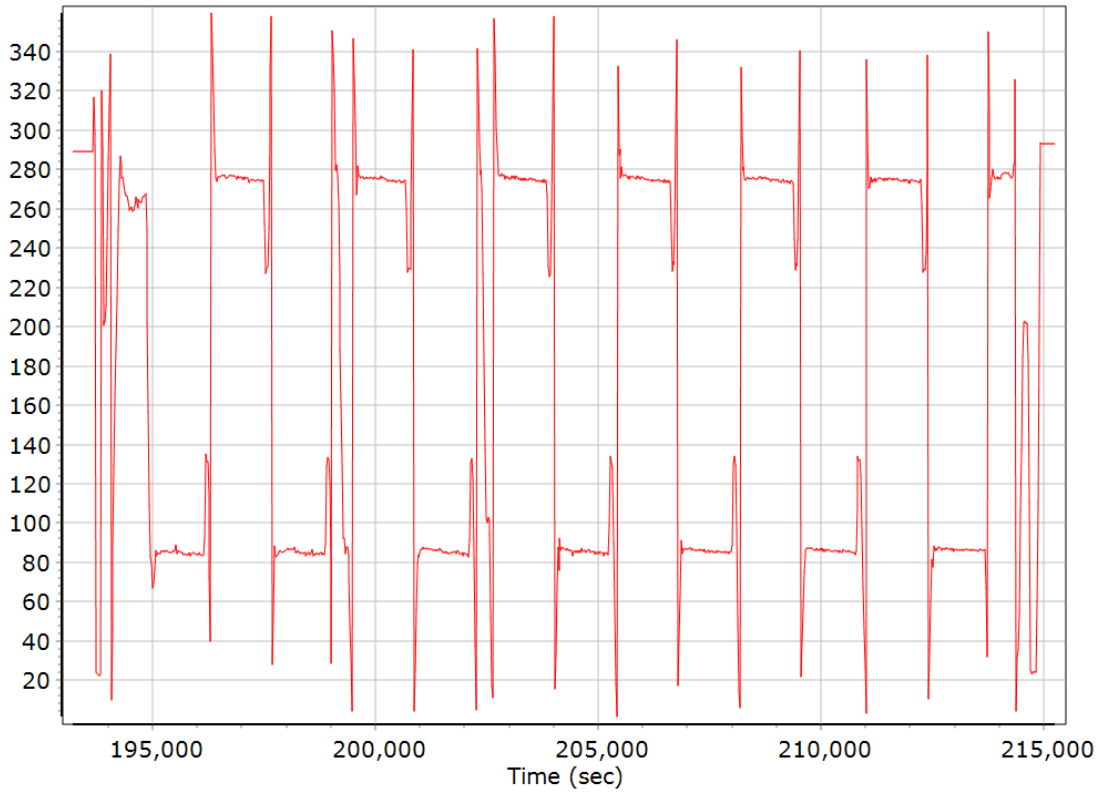
### Altitude



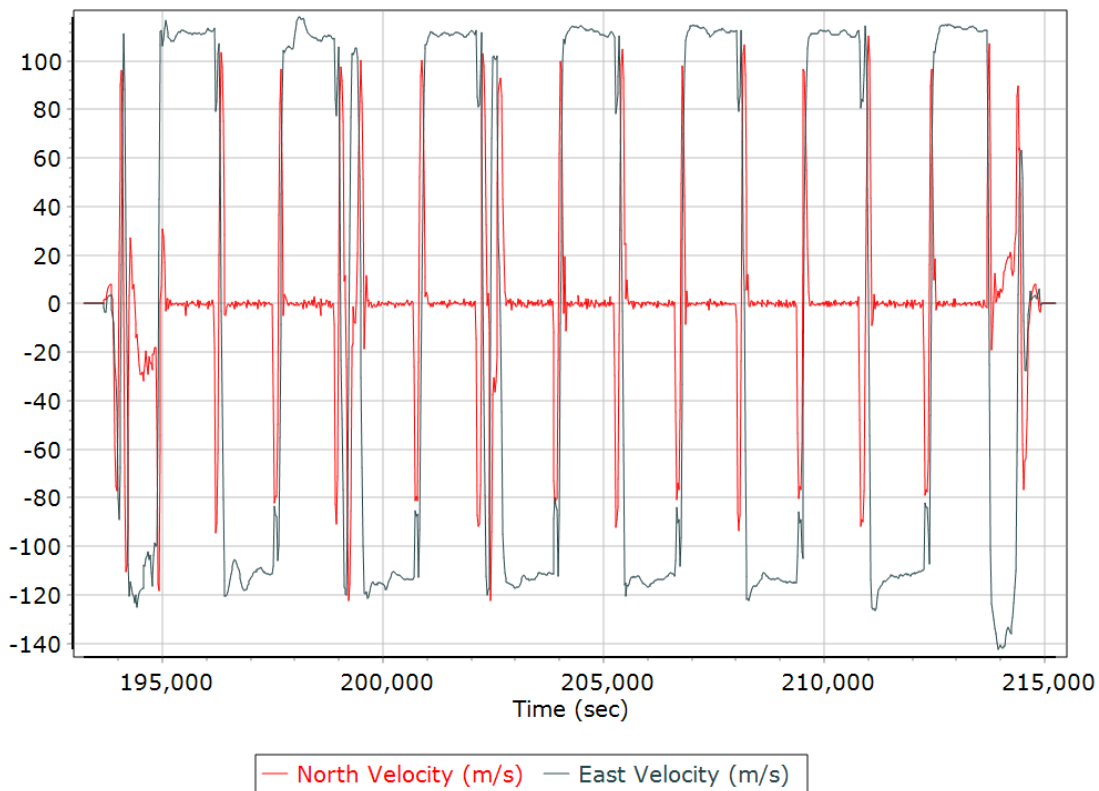
## Roll/Pitch



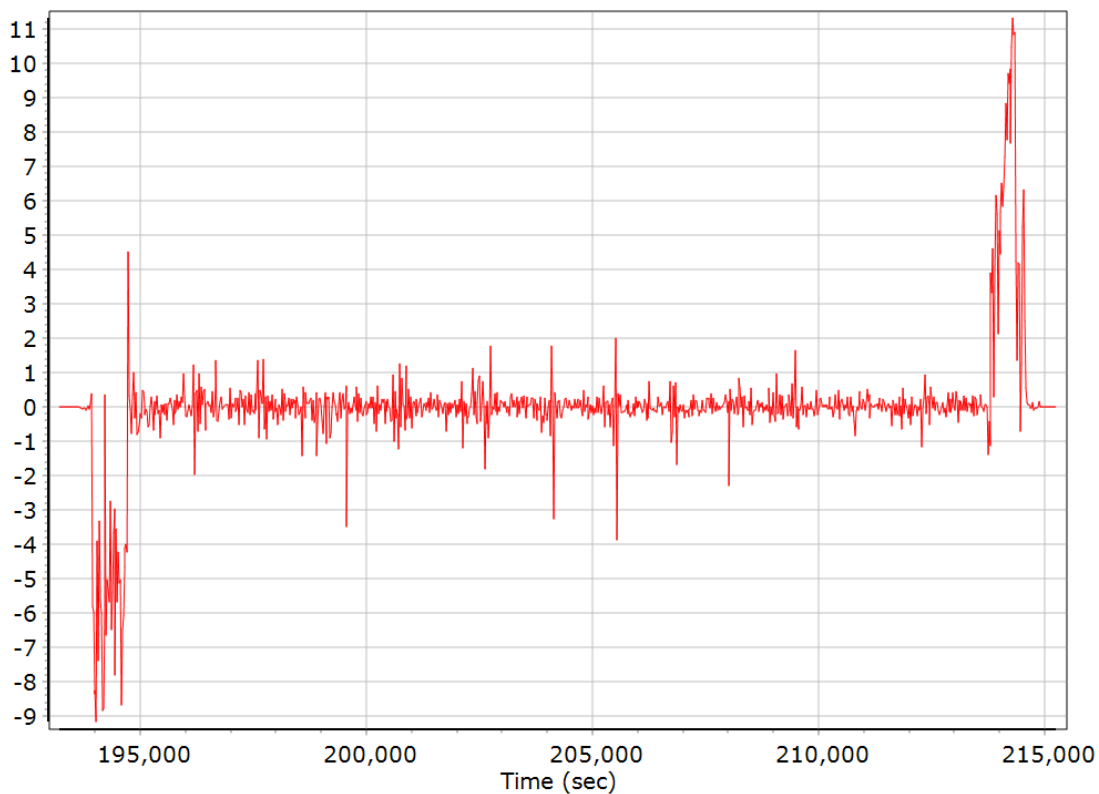
## Heading



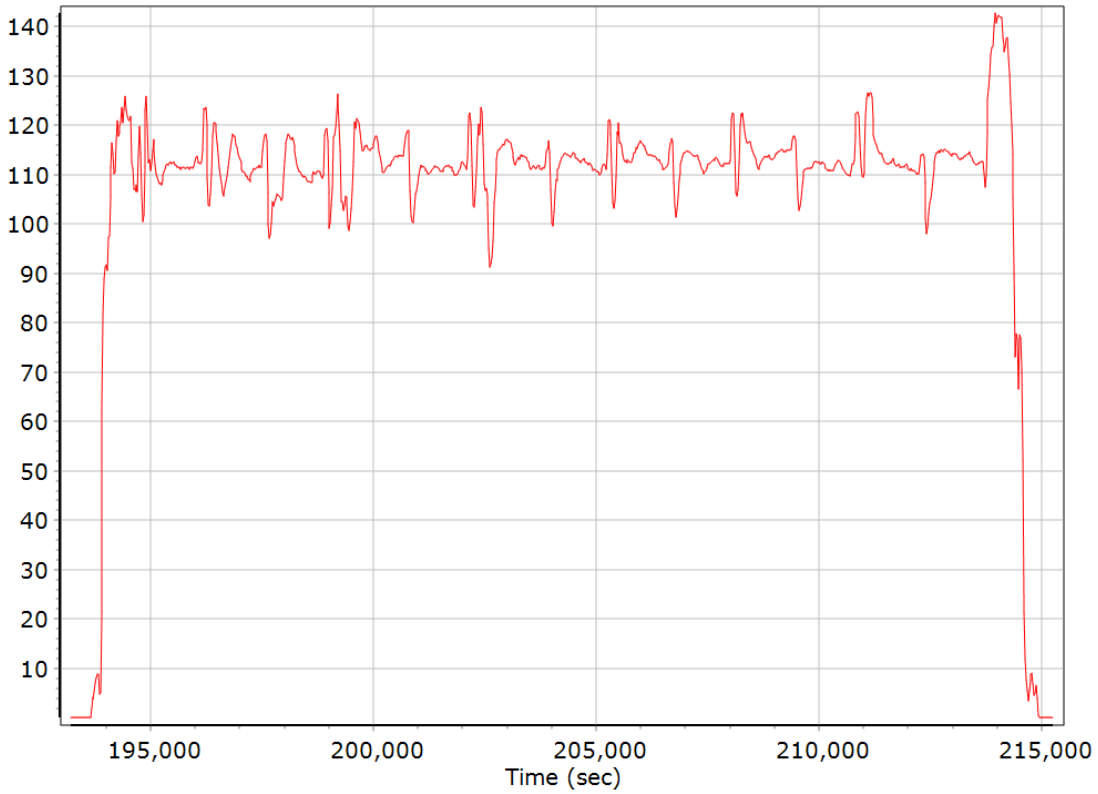
### North/East Velocity



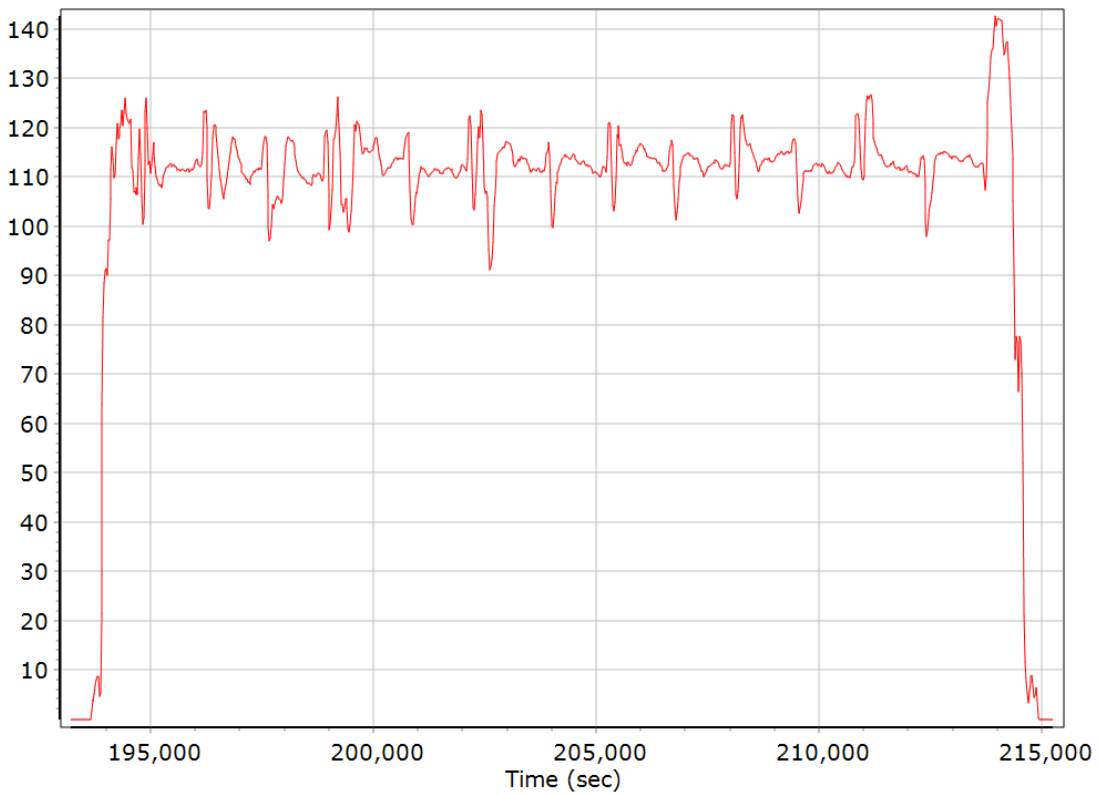
### Down Velocity



## Total Speed

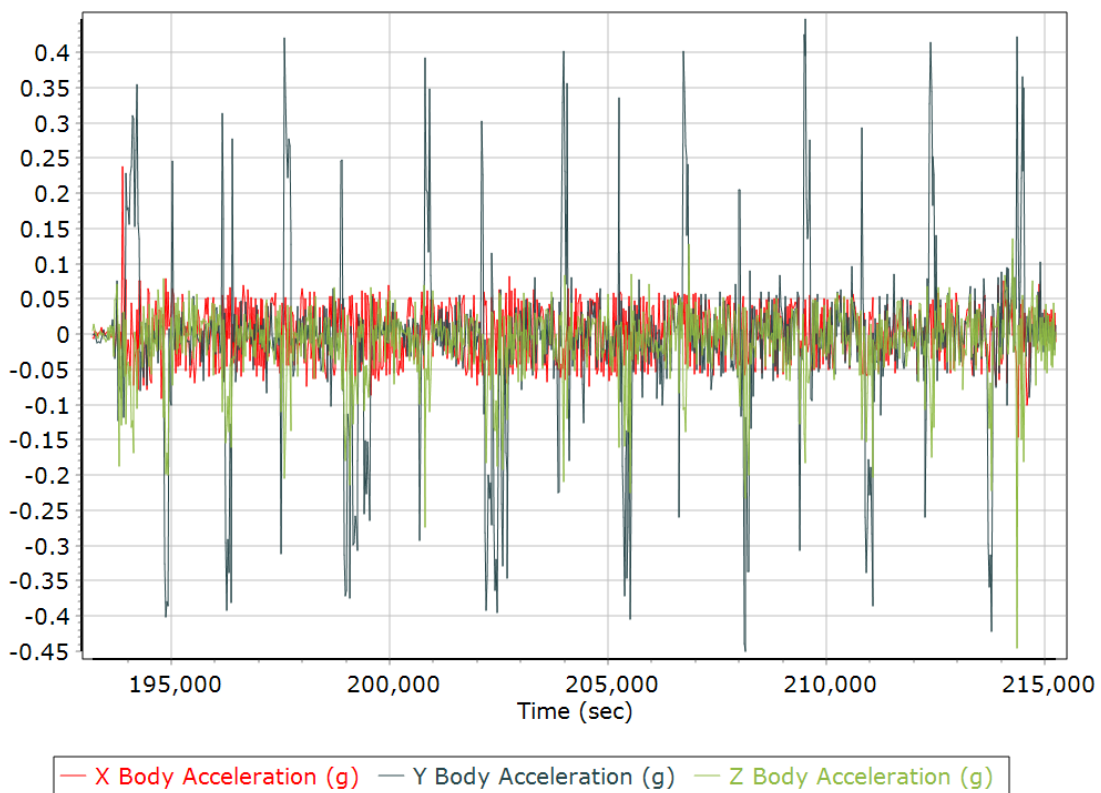


## Ground Speed

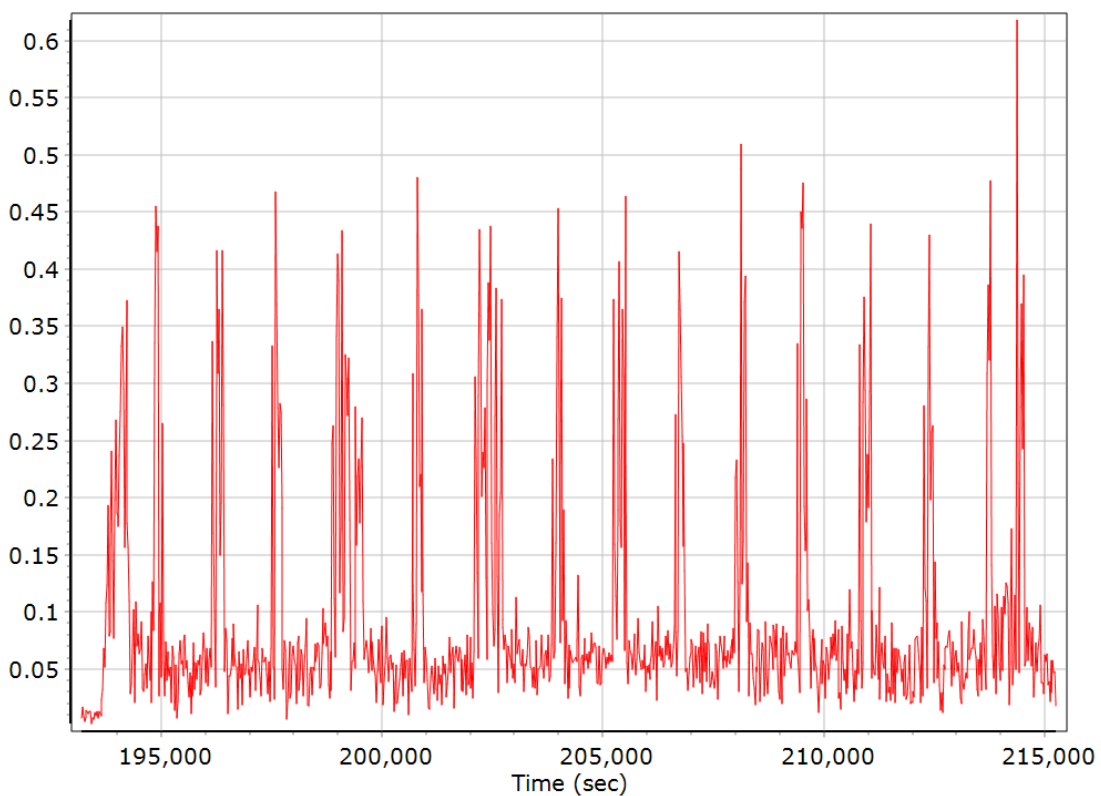




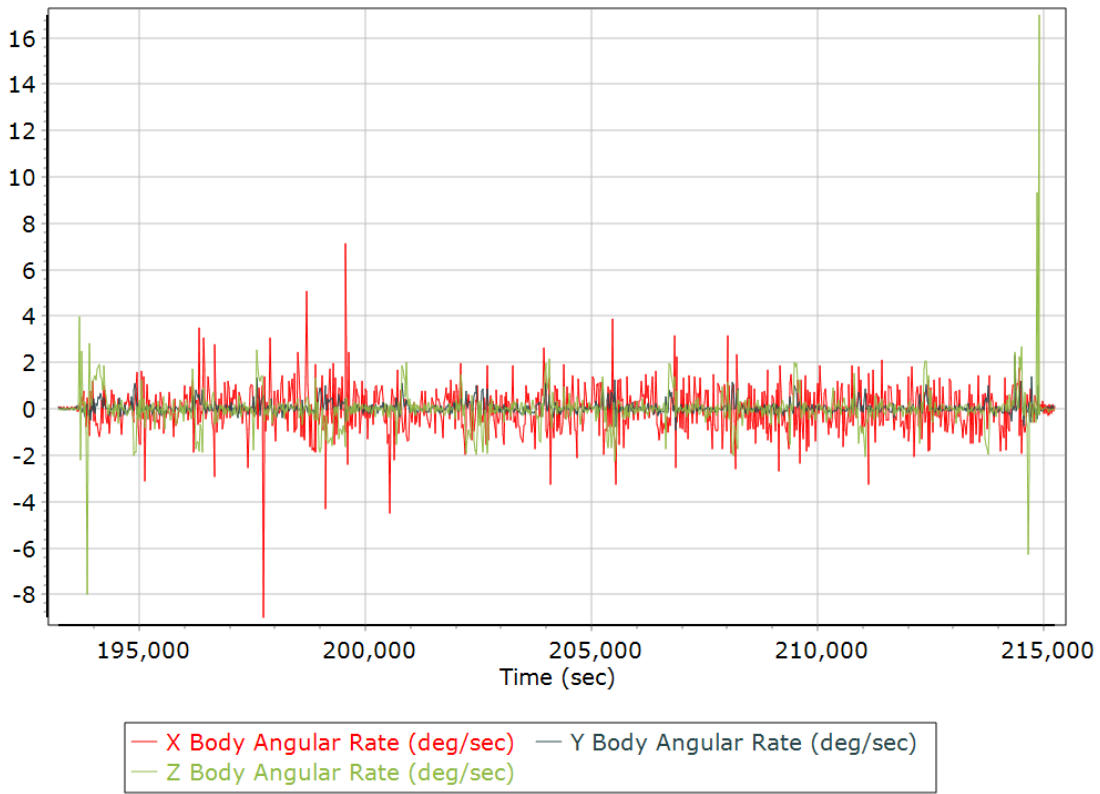
### Body Acceleration



### Total Body Acceleration

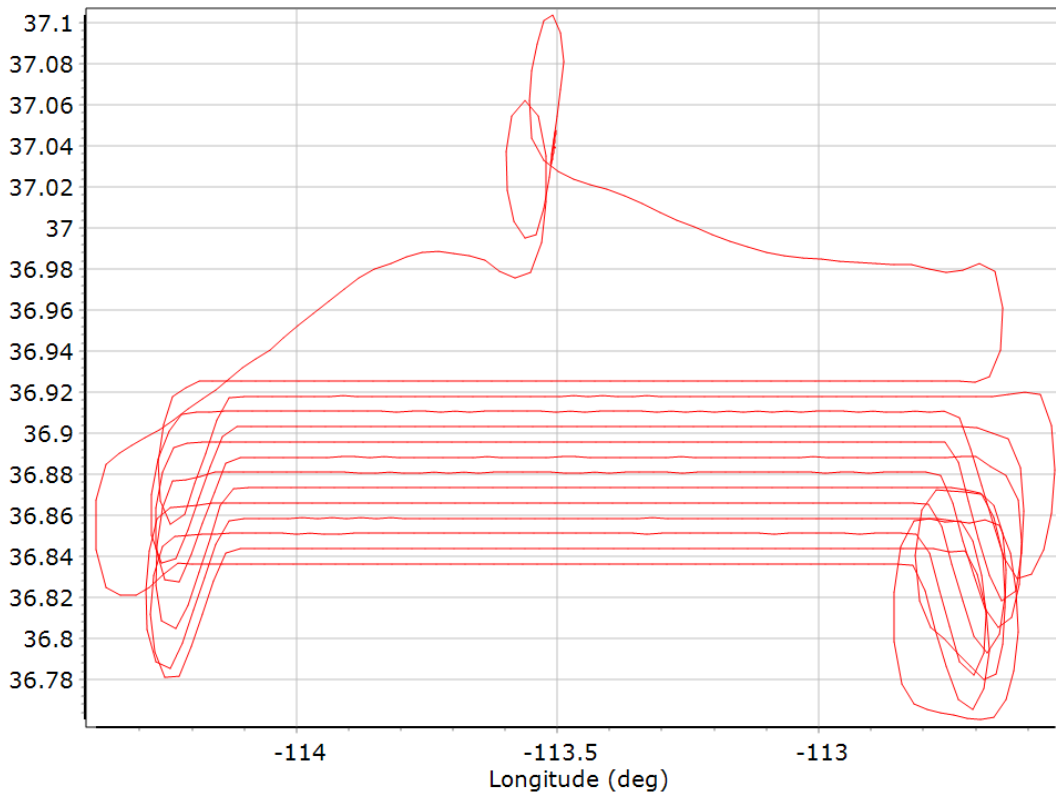


## Body Angular Rate

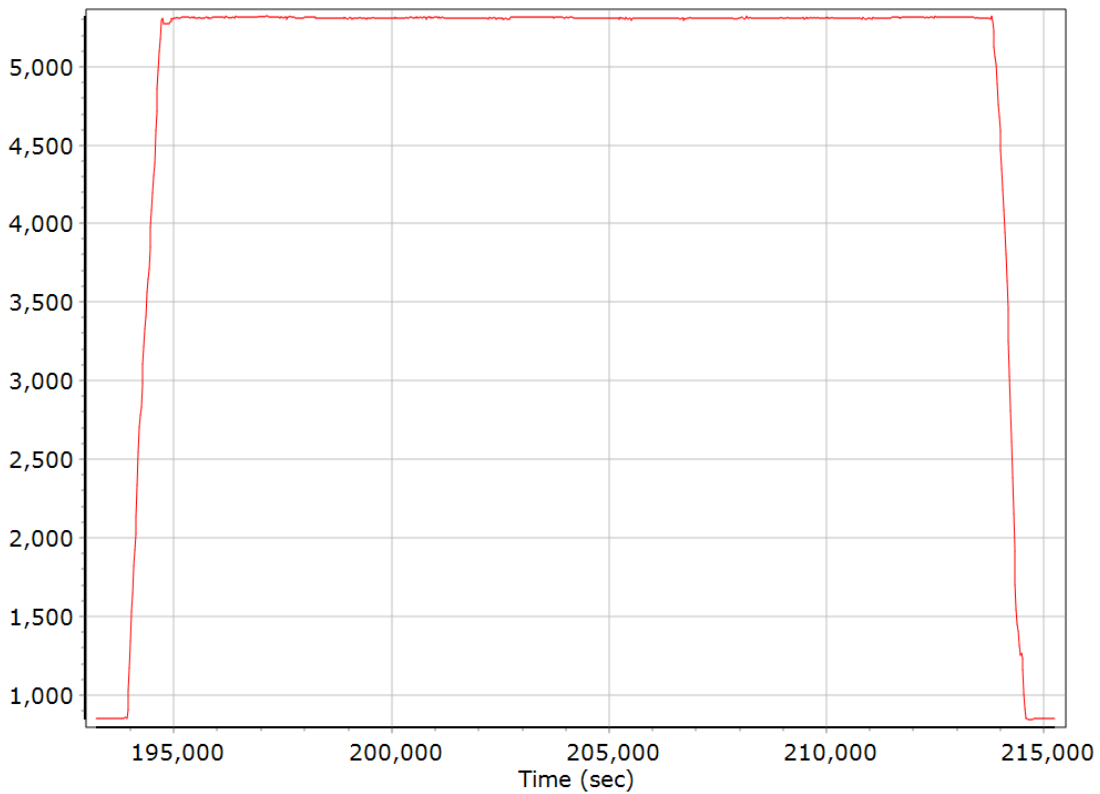


## Forward Processed Trajectory Information

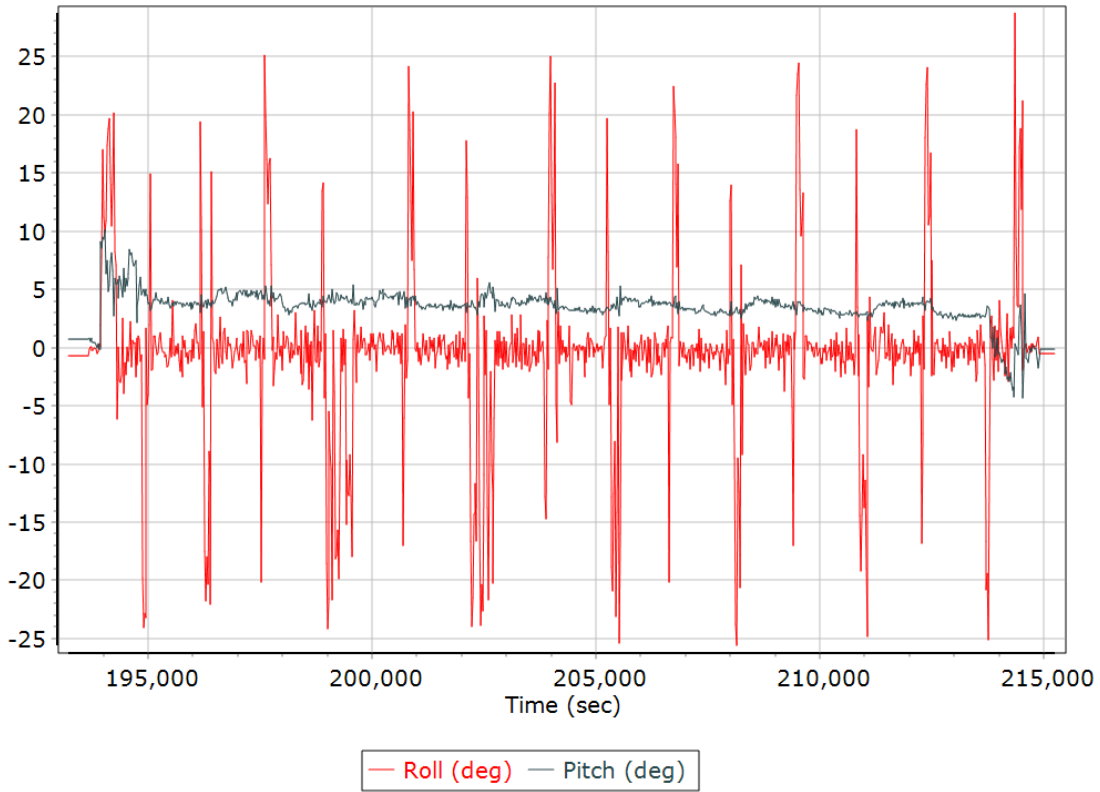
### Top View



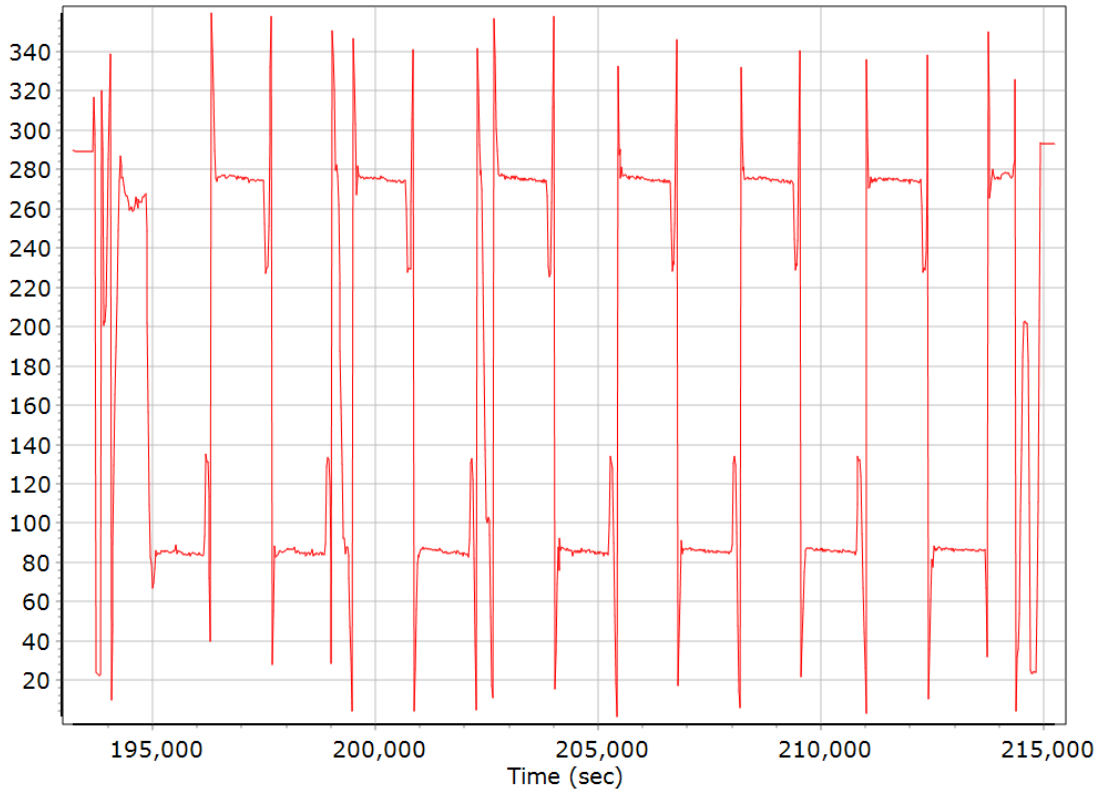
### Altitude



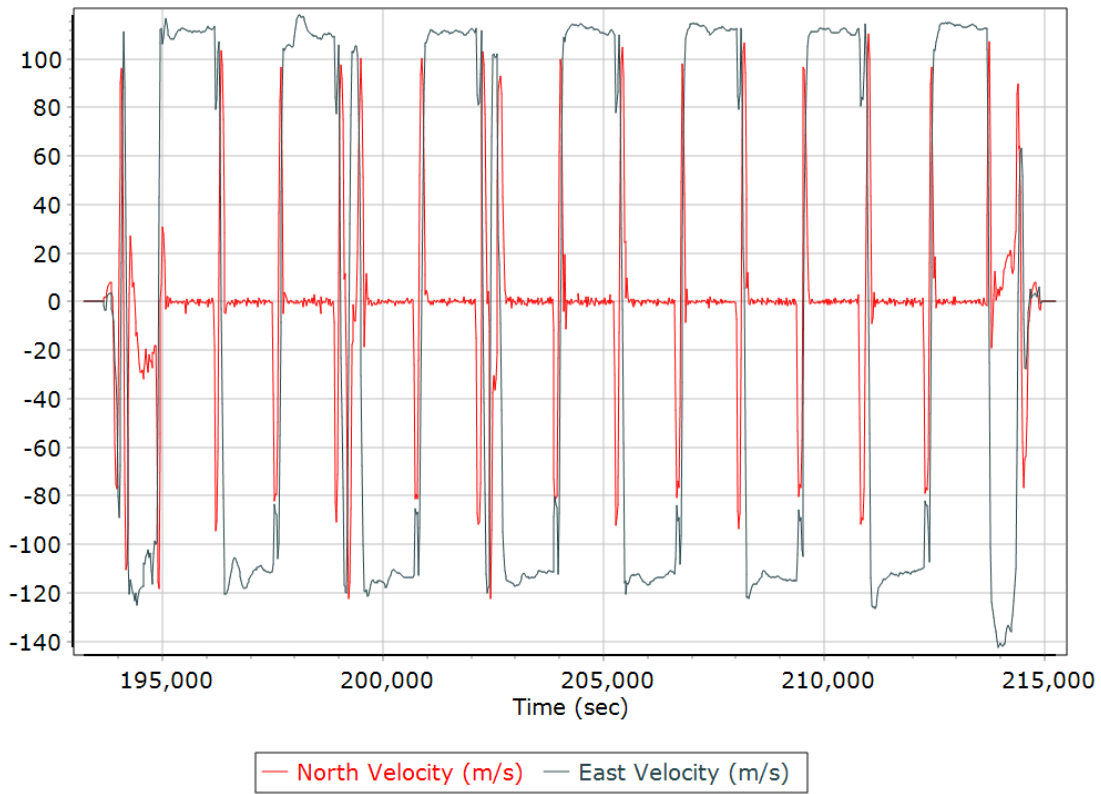
## Roll/Pitch



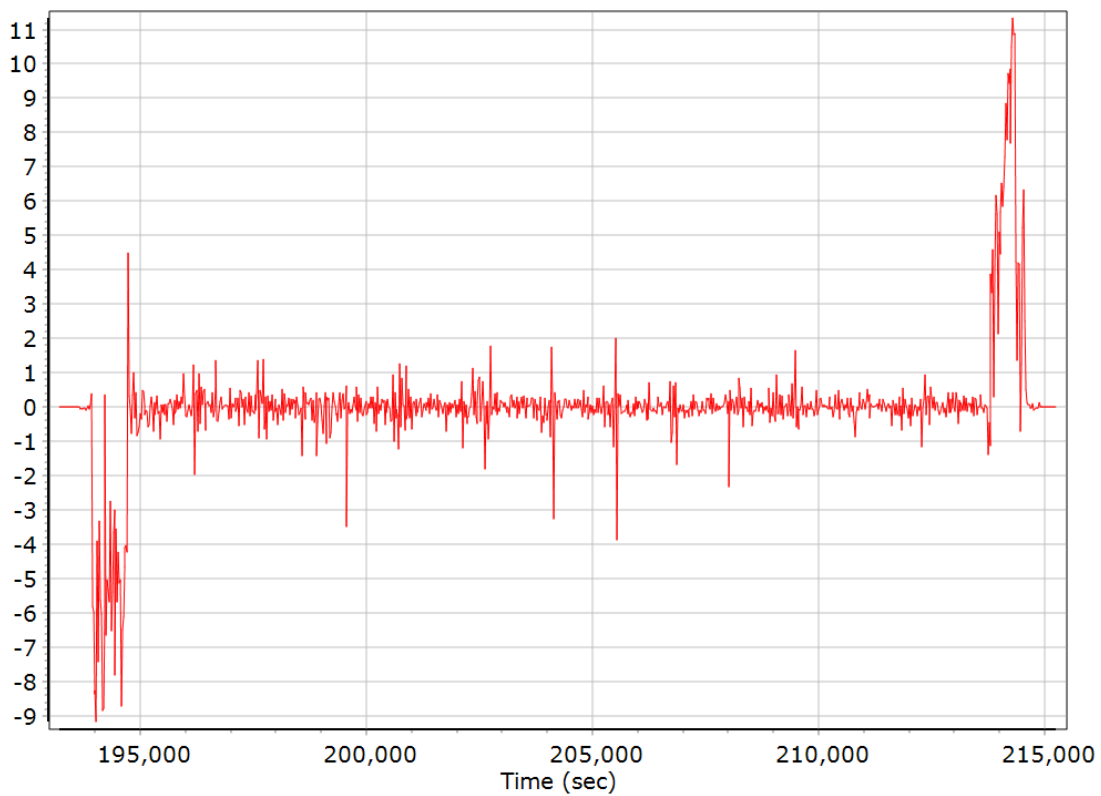
## Heading



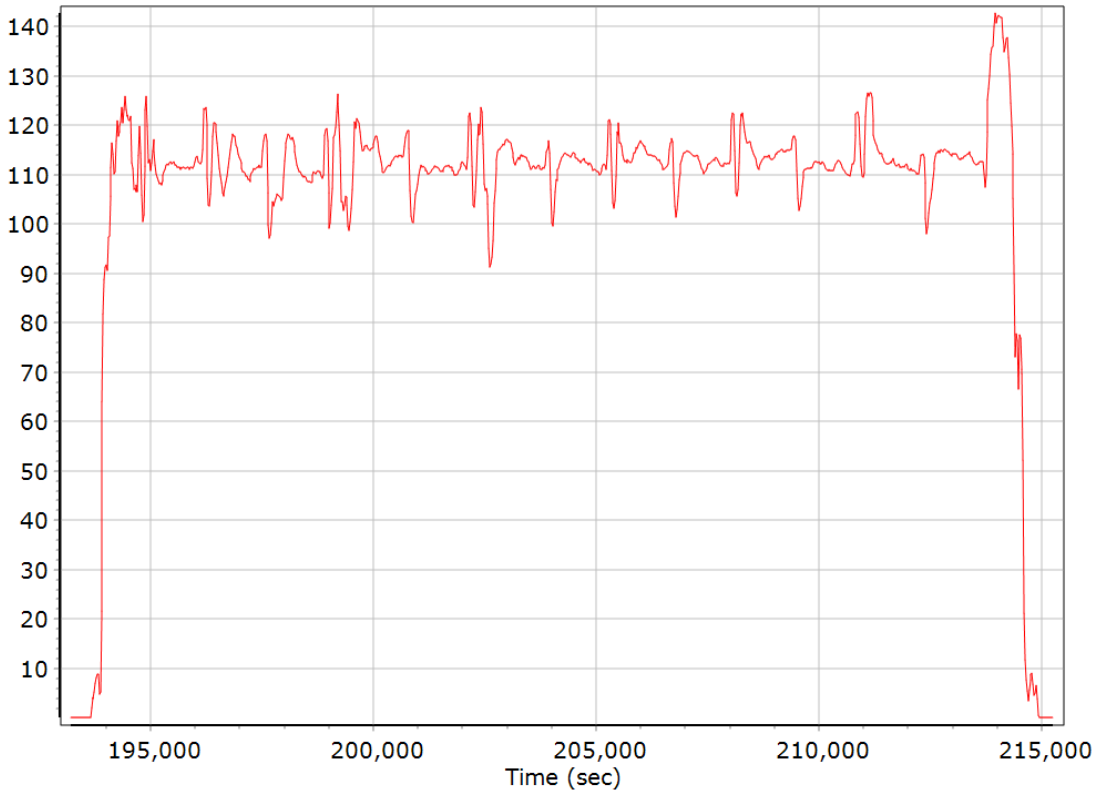
### North/East Velocity



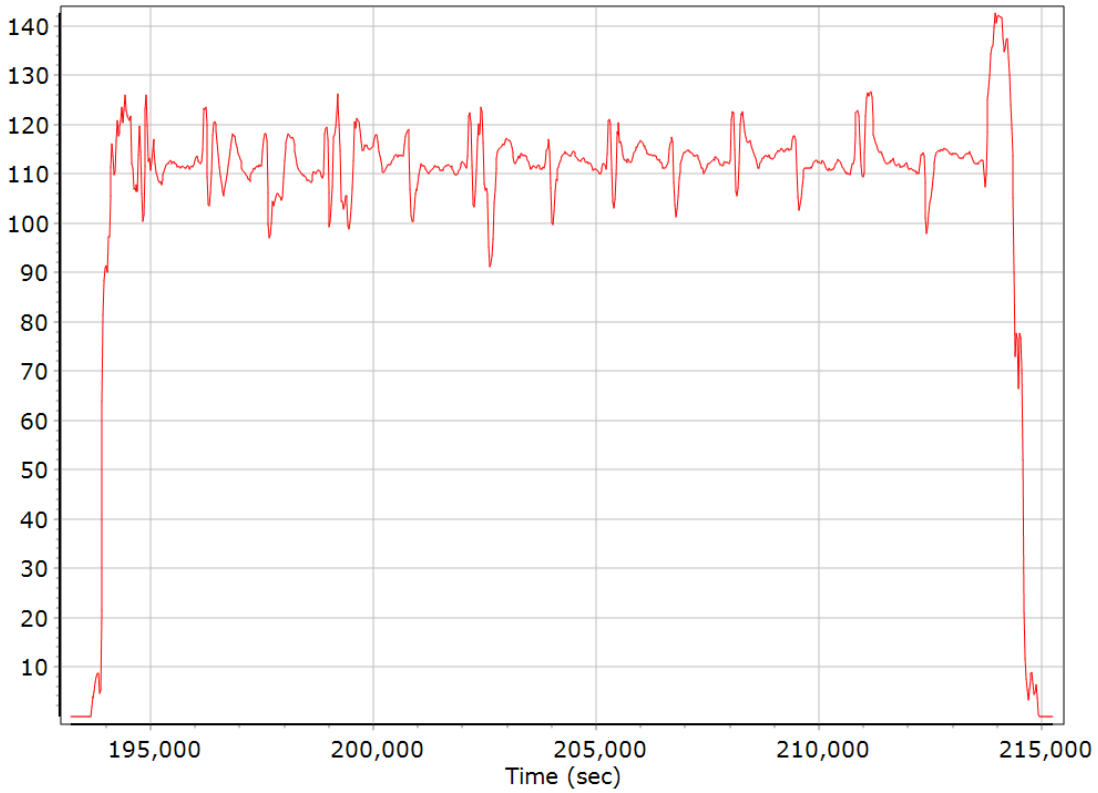
### Down Velocity



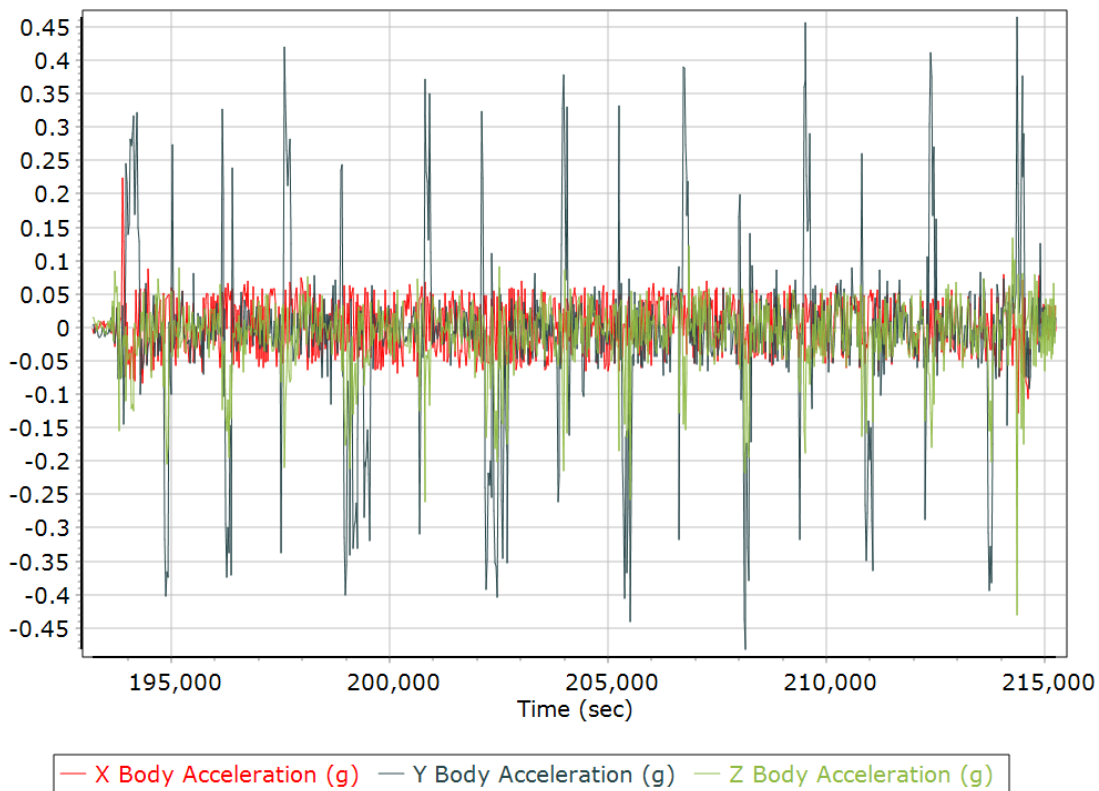
## Total Speed



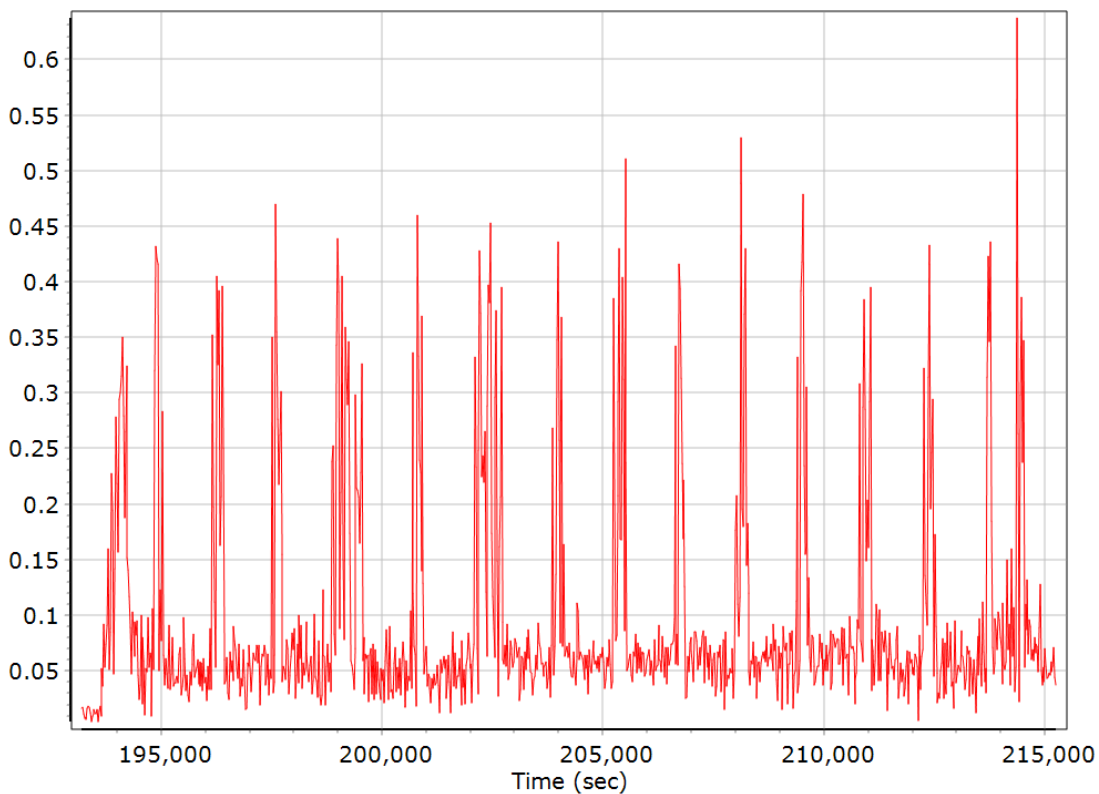
## Ground Speed



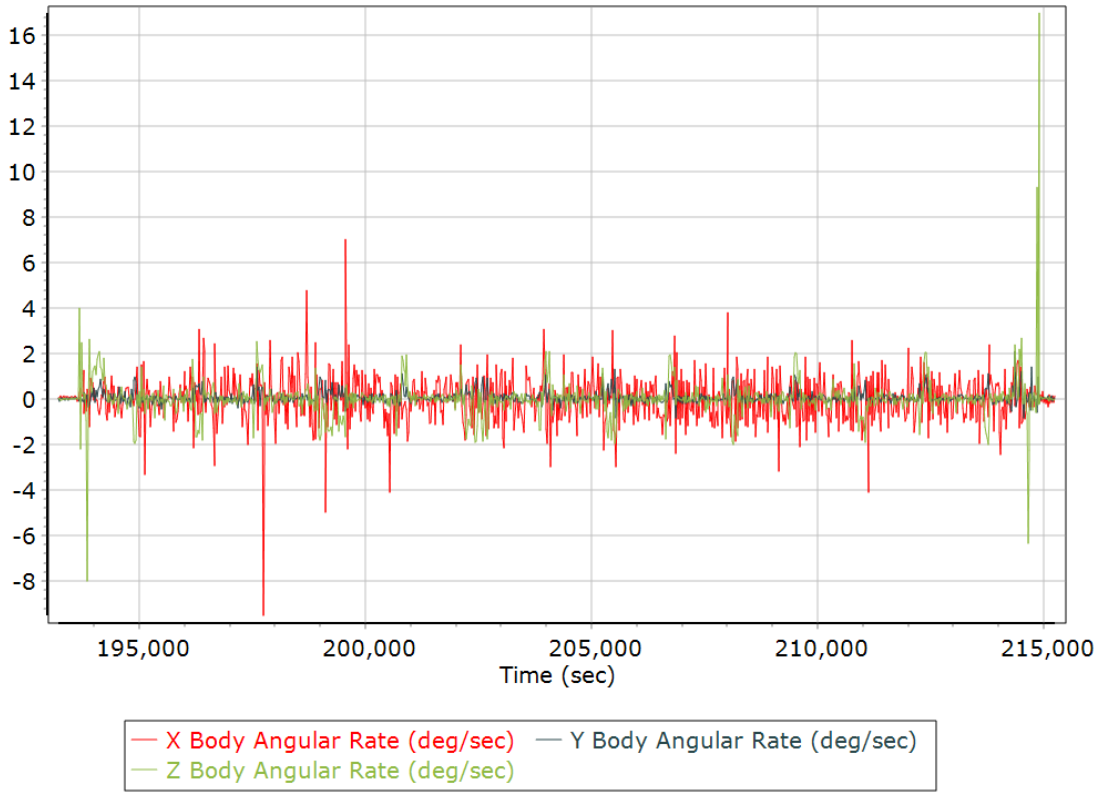
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



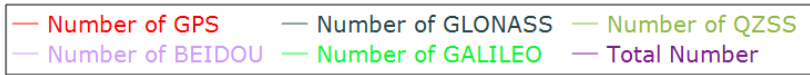
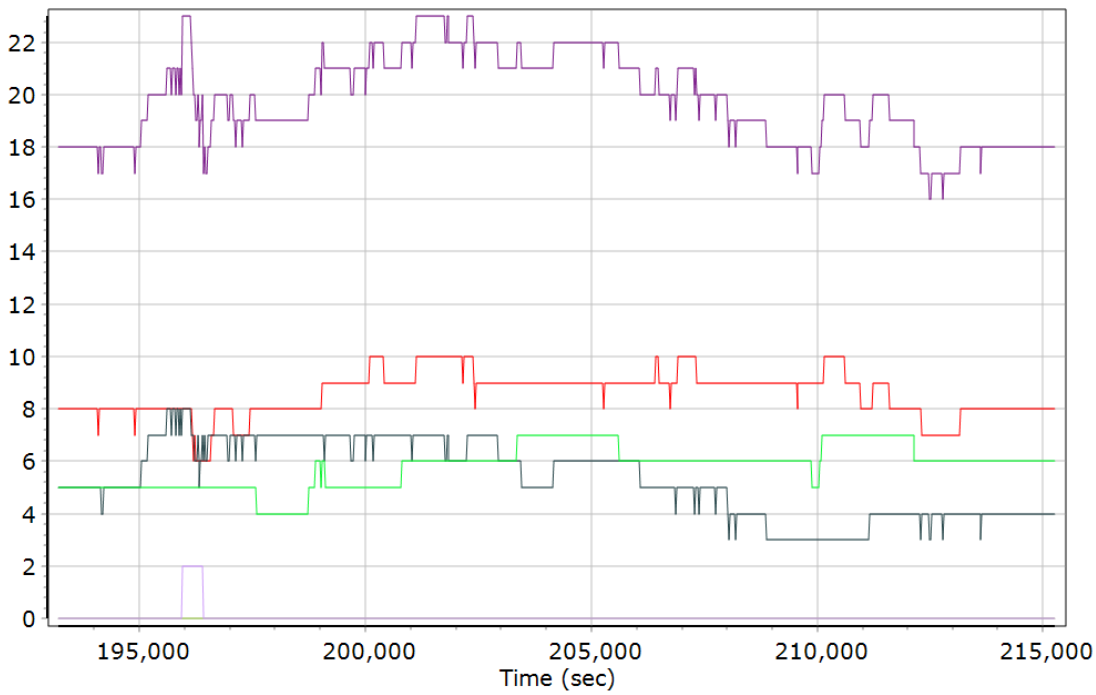


## GNSS QC

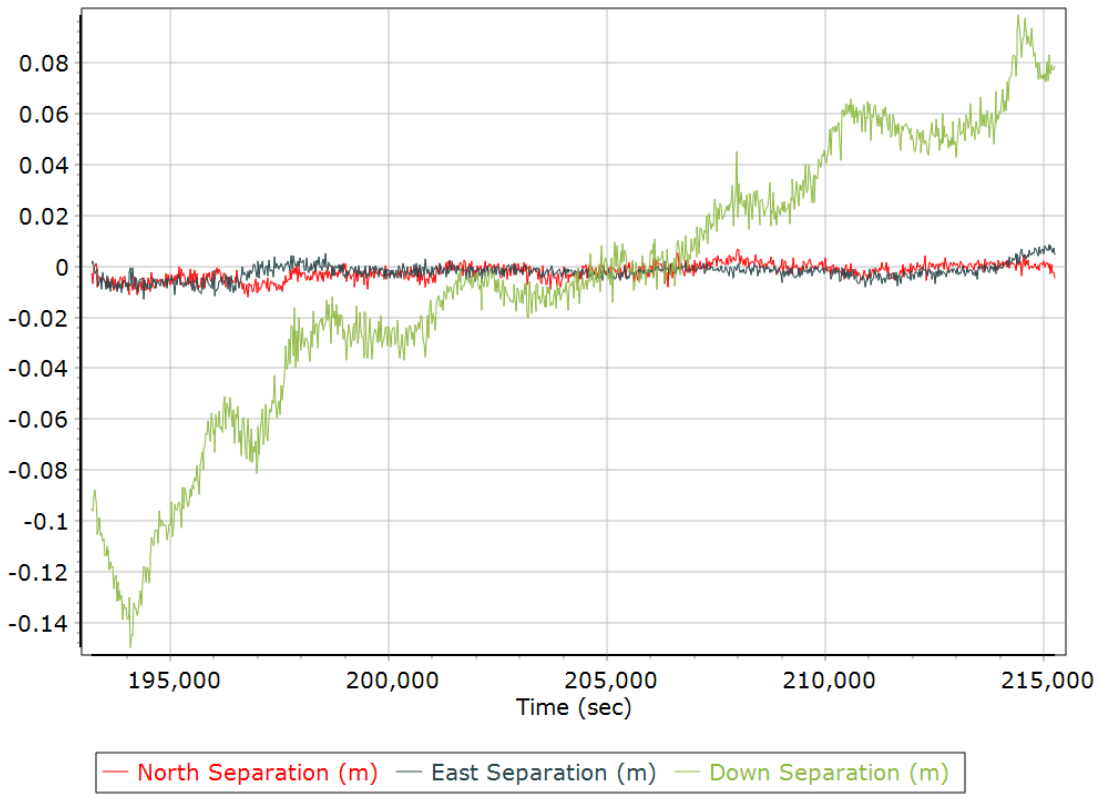
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	10	9
Number of GLONASS SV	0	8	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	2	0
Number of GALILEO SV	3	7	6
Total number of SV	13	23	20
PDOP	1.04	1.60	1.22
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	22579.00	0.00	0.00
Percentage	100.00	0.00	0.00

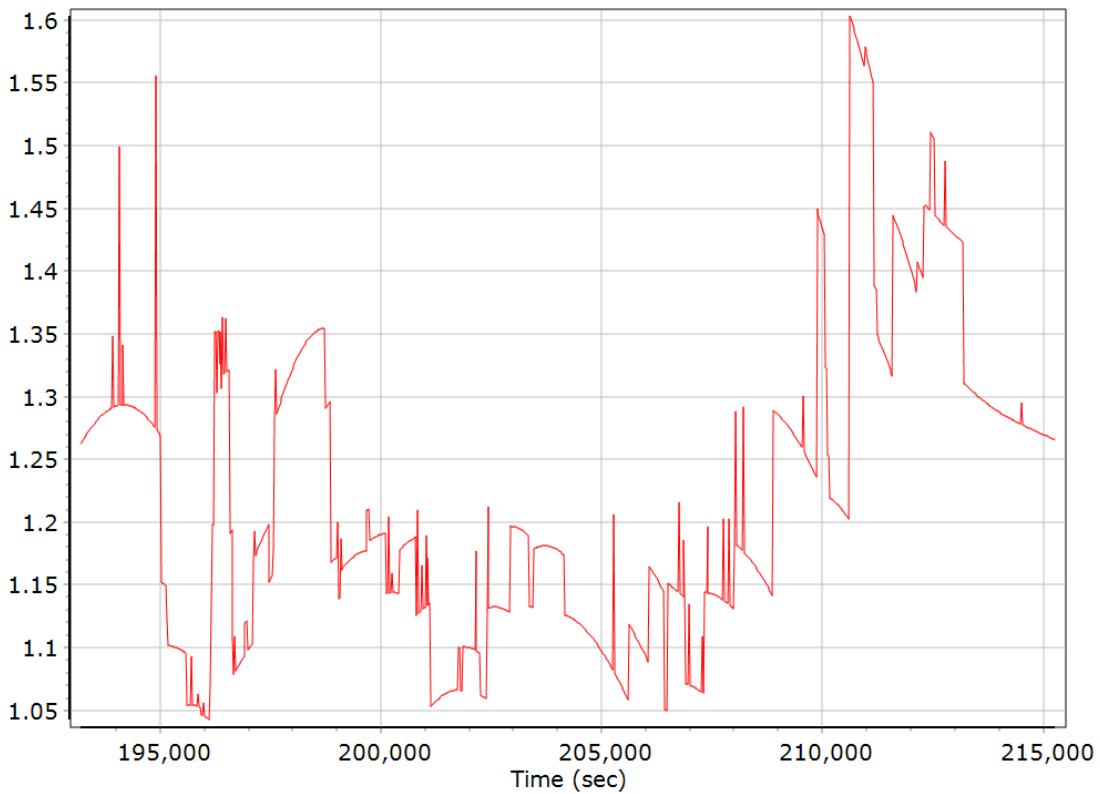
### Num SVs in solution



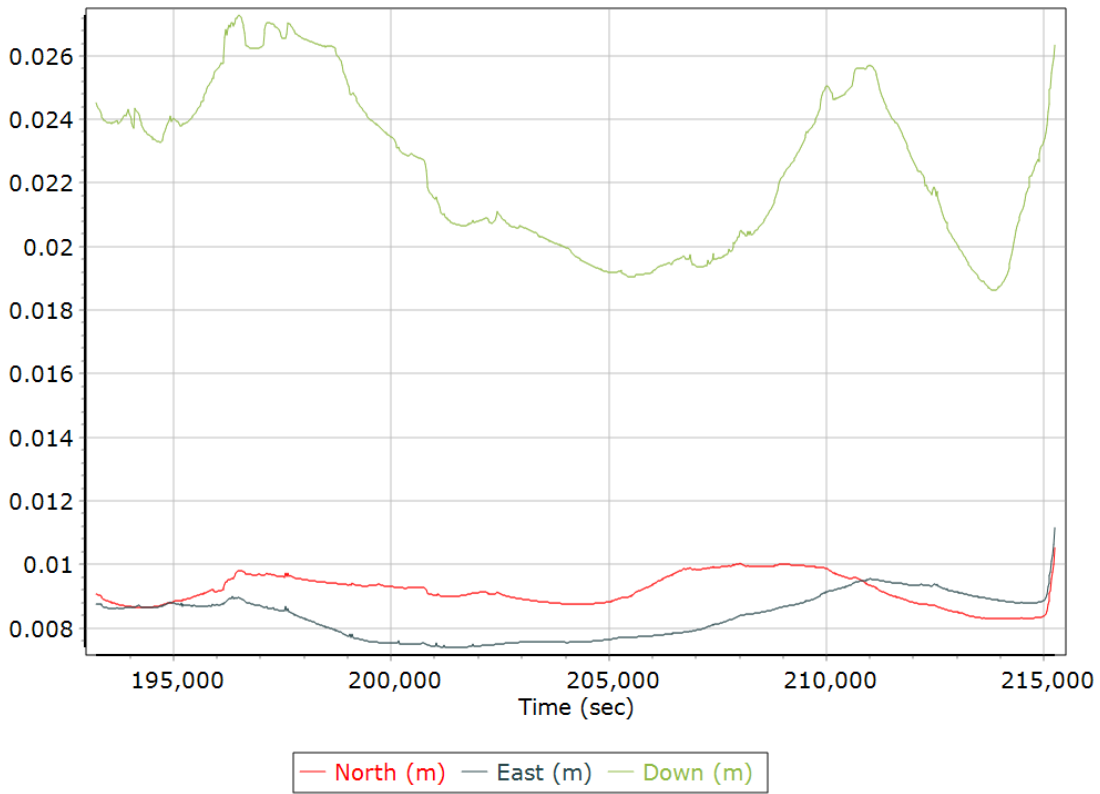
### Forward/Reverse Separation



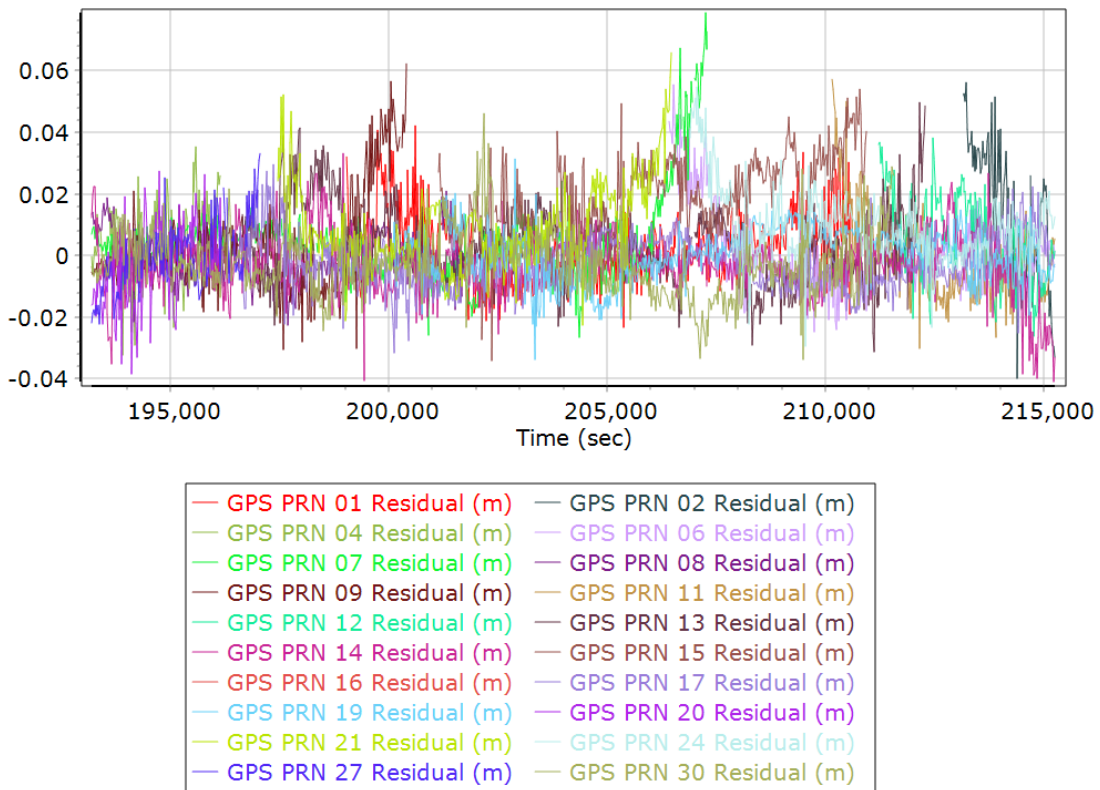
### PDOP



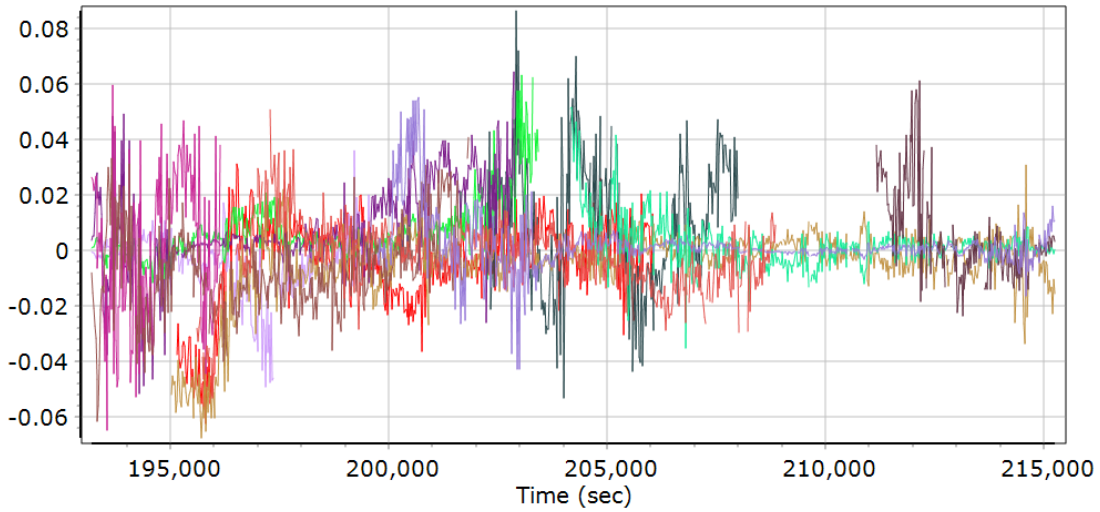
### Estimated Position Accuracy



### GPS Residuals

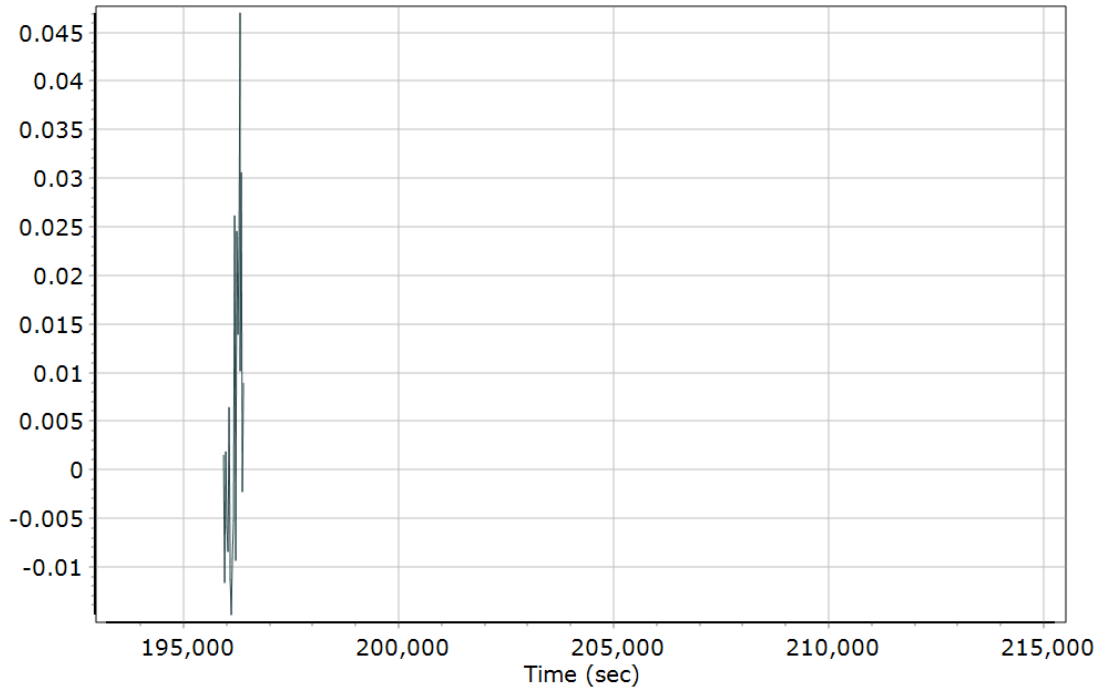


### GLONASS Residuals



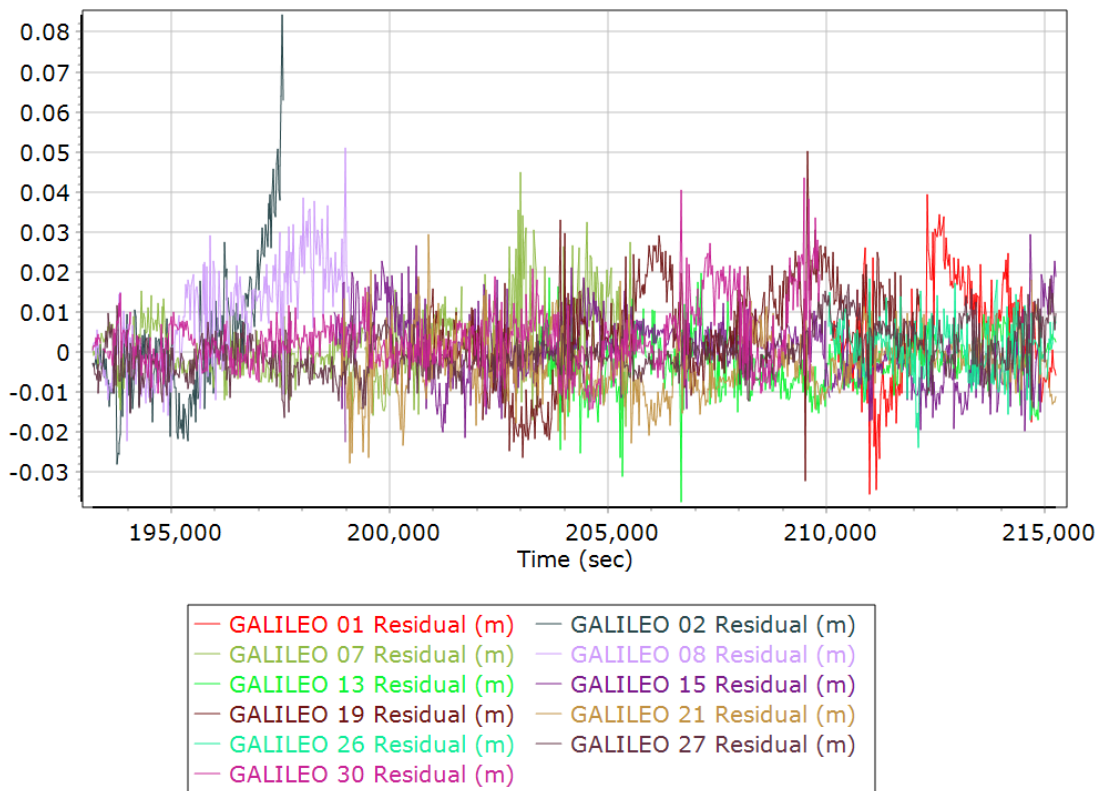
- GLONASS 01 Residual (m)
- GLONASS 02 Residual (m)
- GLONASS 06 Residual (m)
- GLONASS 07 Residual (m)
- GLONASS 08 Residual (m)
- GLONASS 09 Residual (m)
- GLONASS 10 Residual (m)
- GLONASS 11 Residual (m)
- GLONASS 12 Residual (m)
- GLONASS 13 Residual (m)
- GLONASS 18 Residual (m)
- GLONASS 19 Residual (m)
- GLONASS 20 Residual (m)
- GLONASS 21 Residual (m)
- GLONASS 23 Residual (m)

### BEIDOU Residuals



- BEIDOU 11 Residual (m)
- BEIDOU 12 Residual (m)
- BEIDOU 23 Residual (m)
- BEIDOU 25 Residual (m)

## GALILEO Residuals



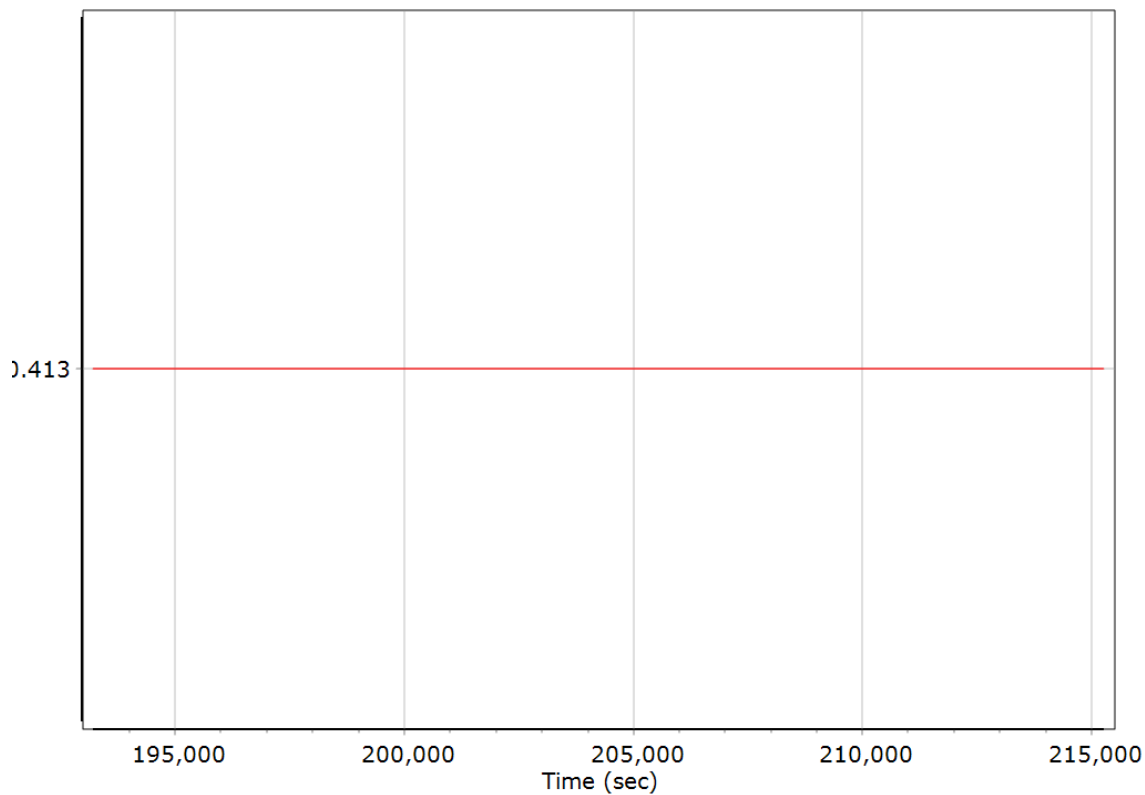
## GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	192661.000 (8/23/2022 5:31:01 AM)		
Processing end time	215263.000 (8/23/2022 11:47:43 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.413	-0.286	-1.276
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

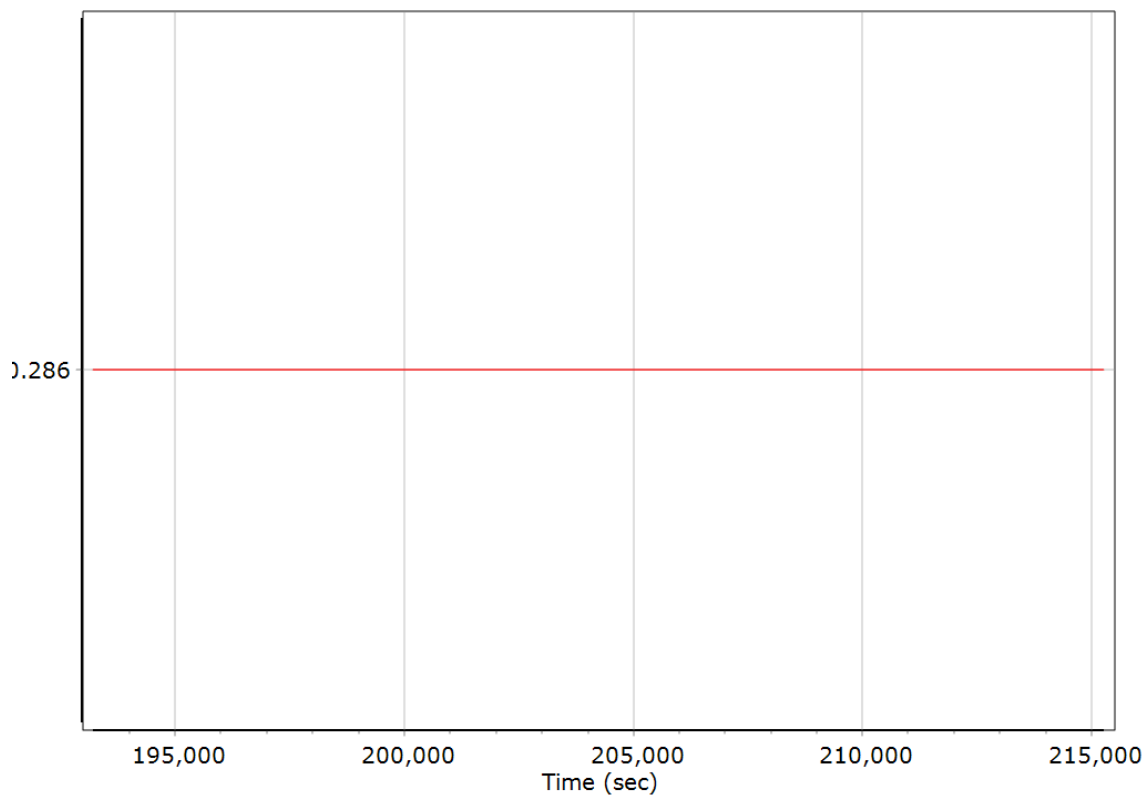
## Calibrated Installation Parameters

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

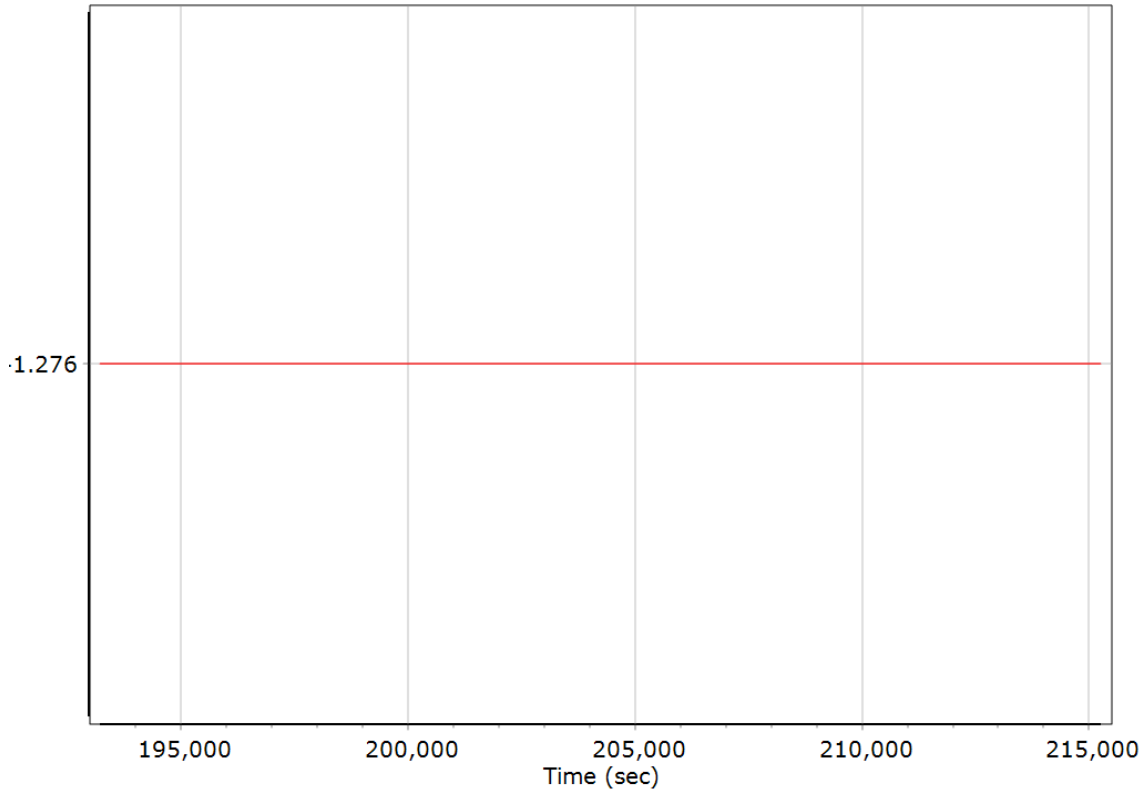
#### X Reference-Primary GNSS Lever Arm (m)



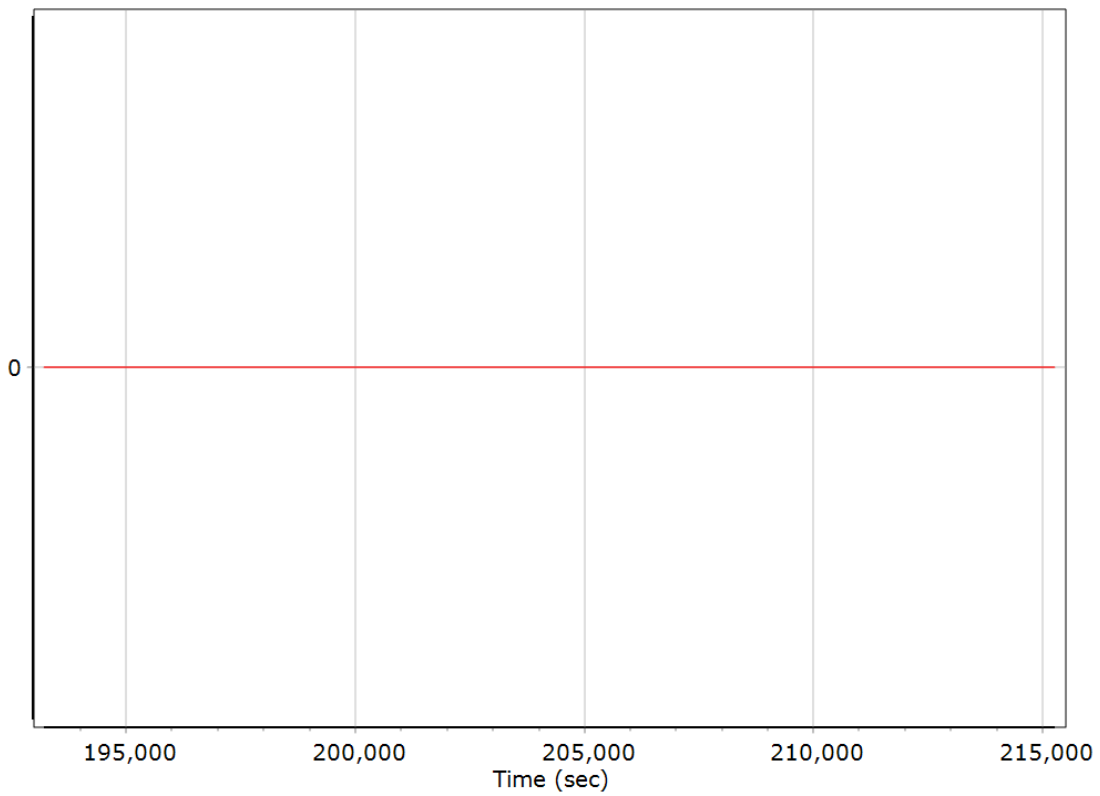
#### Y Reference-Primary GNSS Lever Arm (m)



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



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





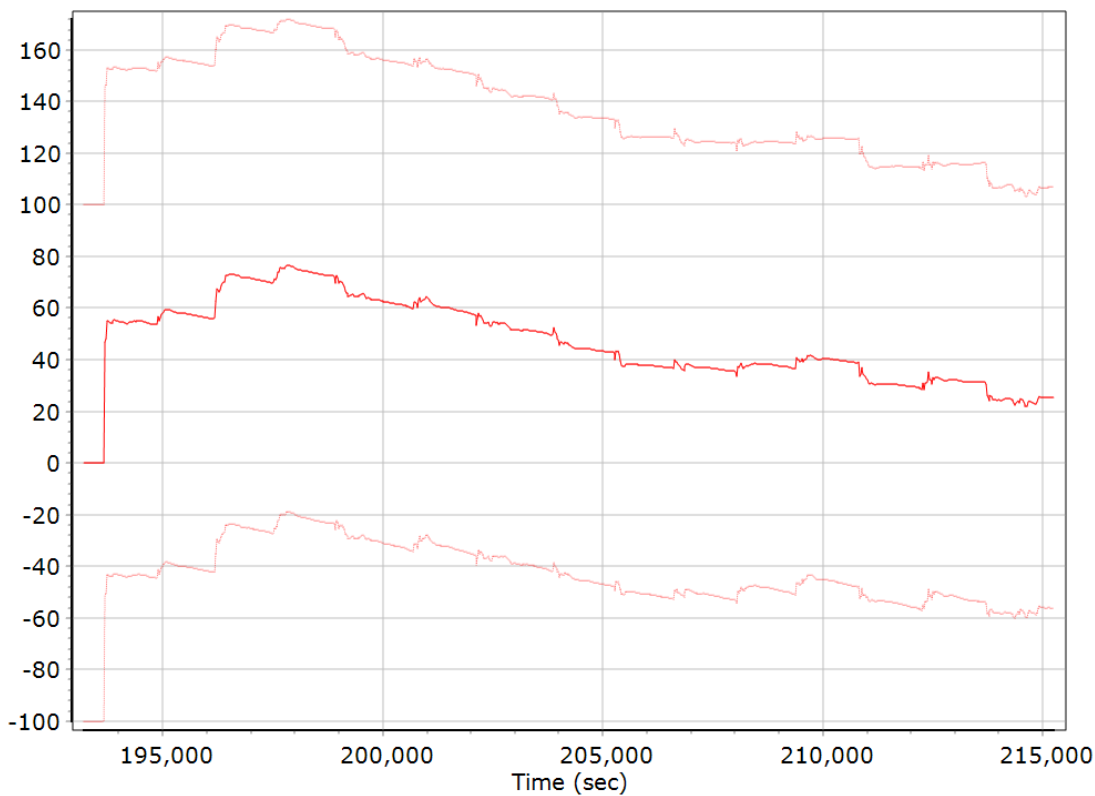
## IN-Fusion QC

### Forward Processed Estimated Errors, Reference Frame

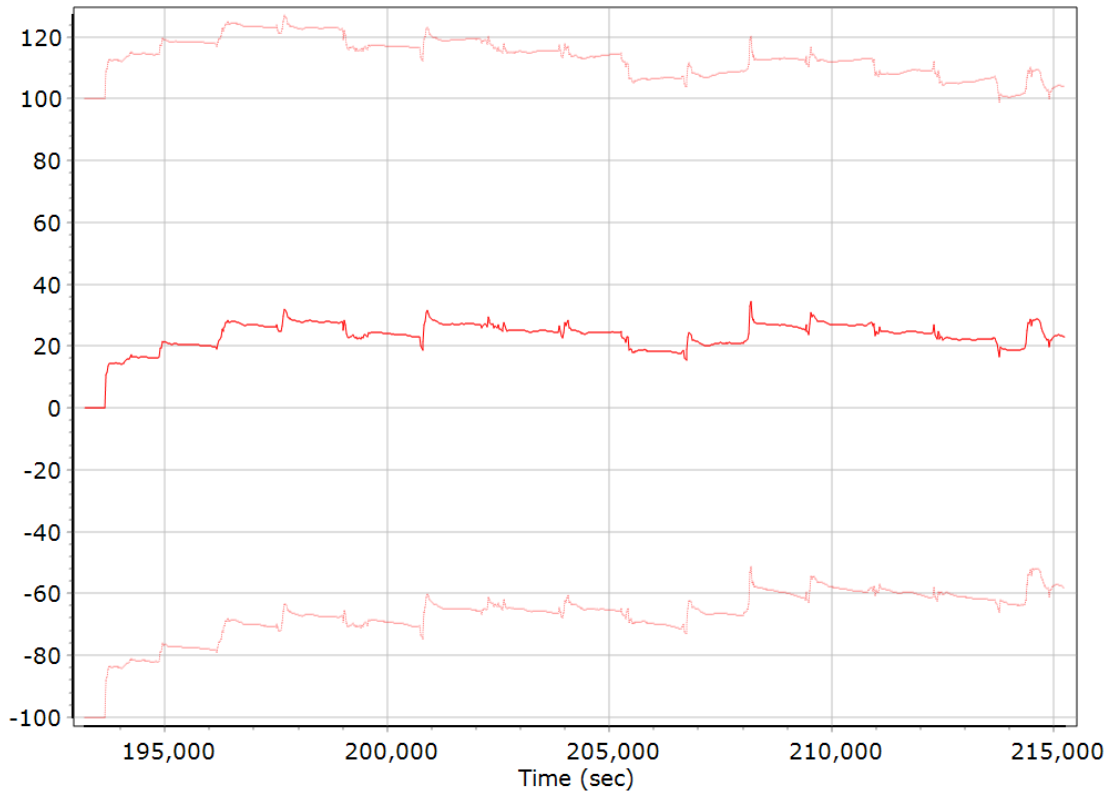
#### Accelerometer Bias (micro-g)



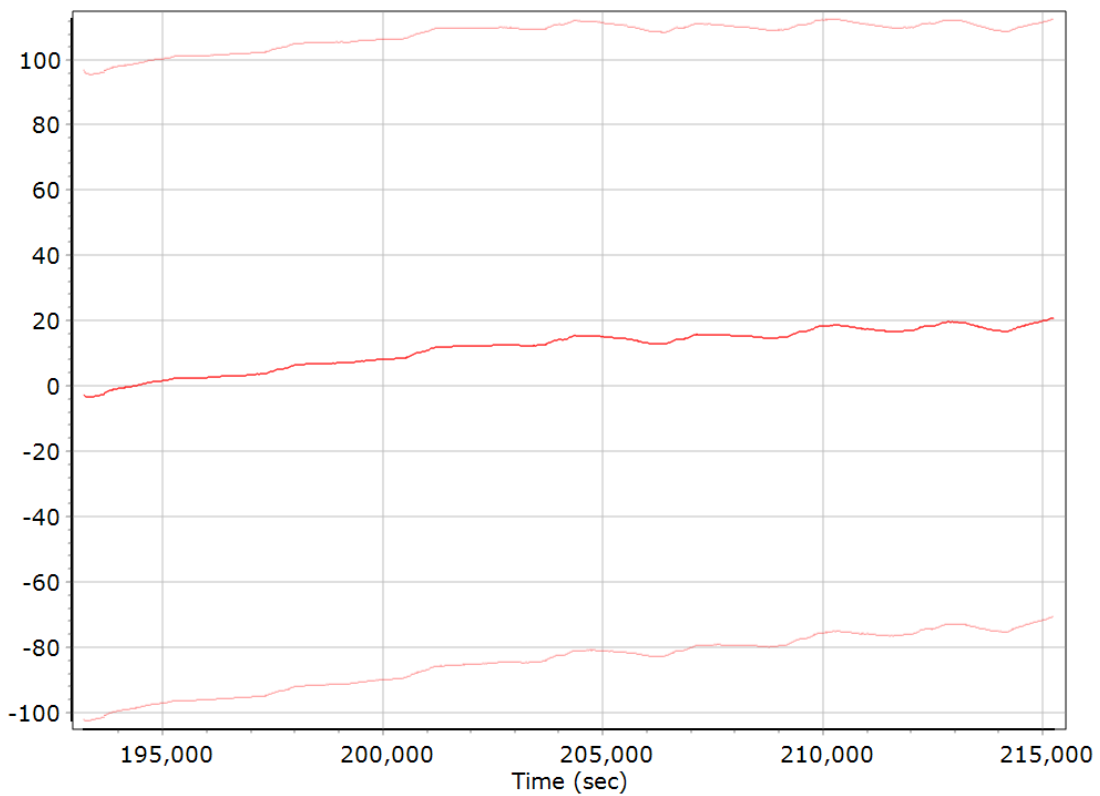
#### X Accelerometer Bias (micro-g)



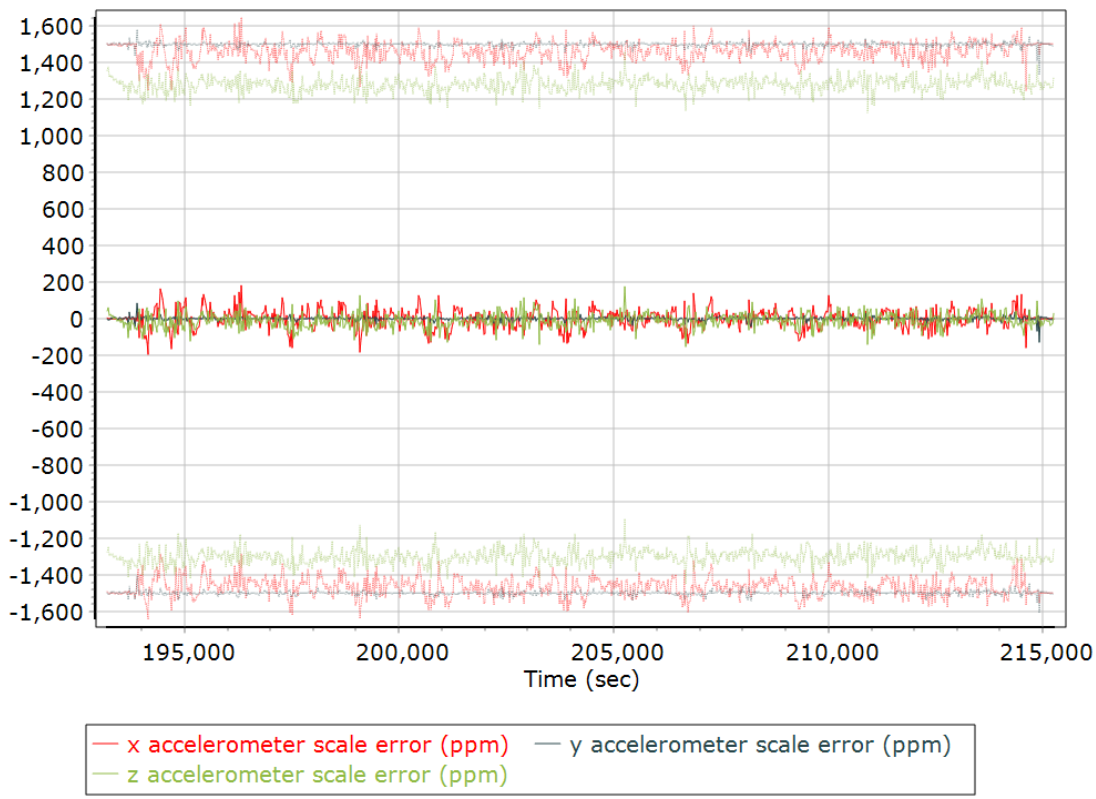
### Y Accelerometer Bias (micro-g)



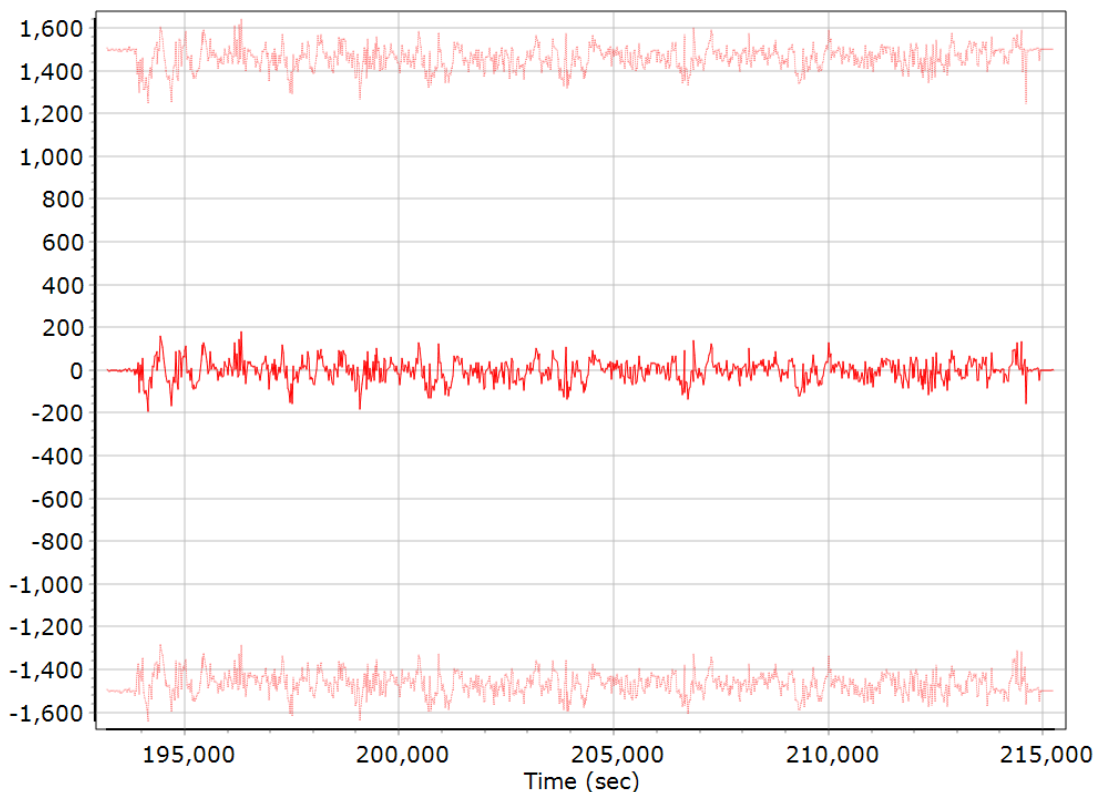
### Z Accelerometer Bias (micro-g)



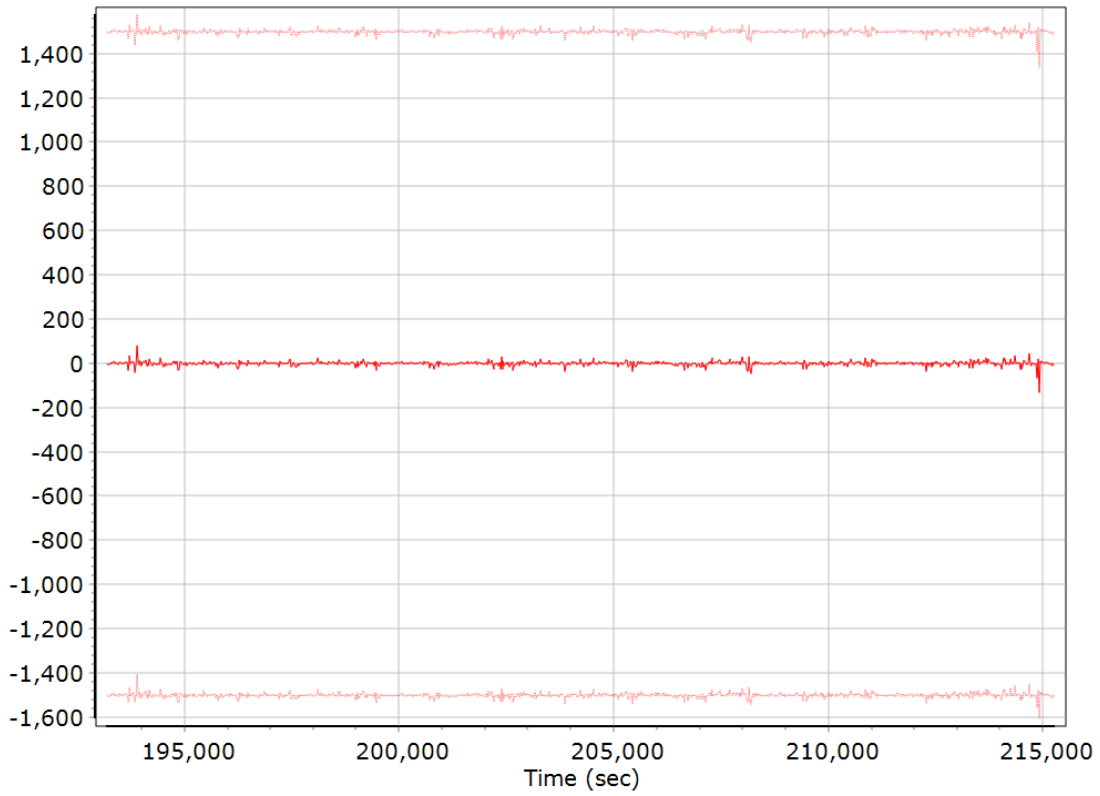
### Accelerometer Scale Error (ppm)



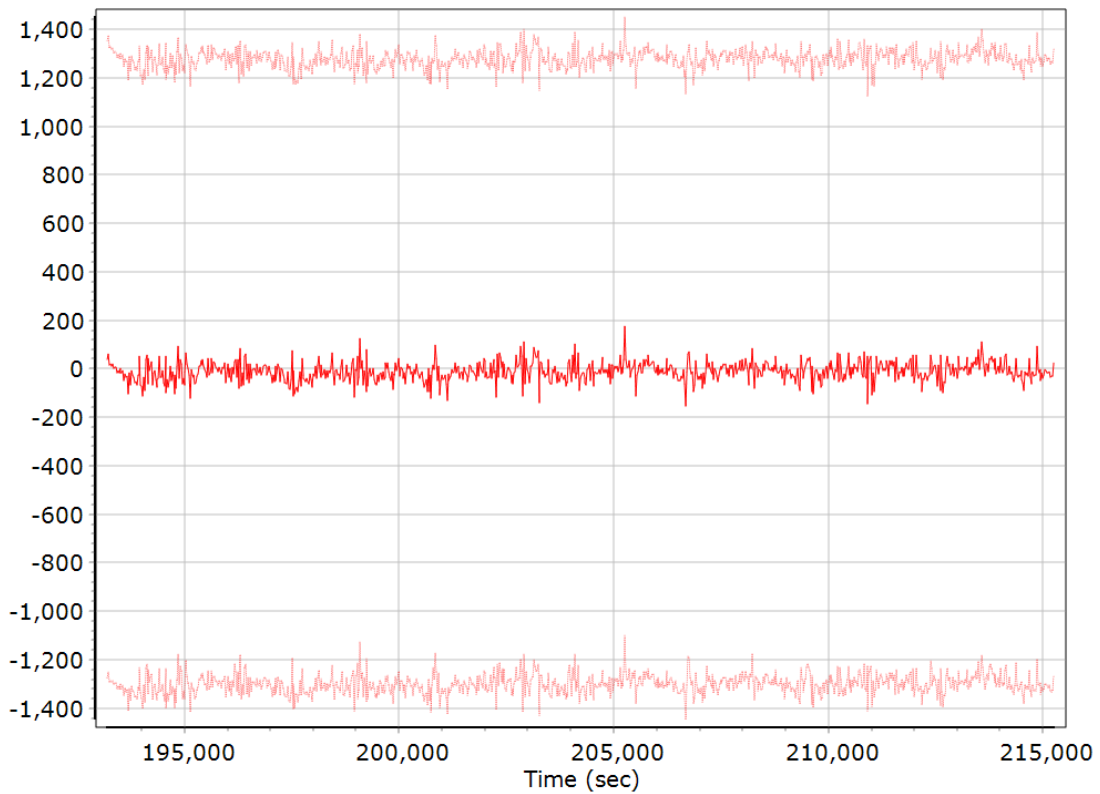
### X Accelerometer Scale Error (ppm)



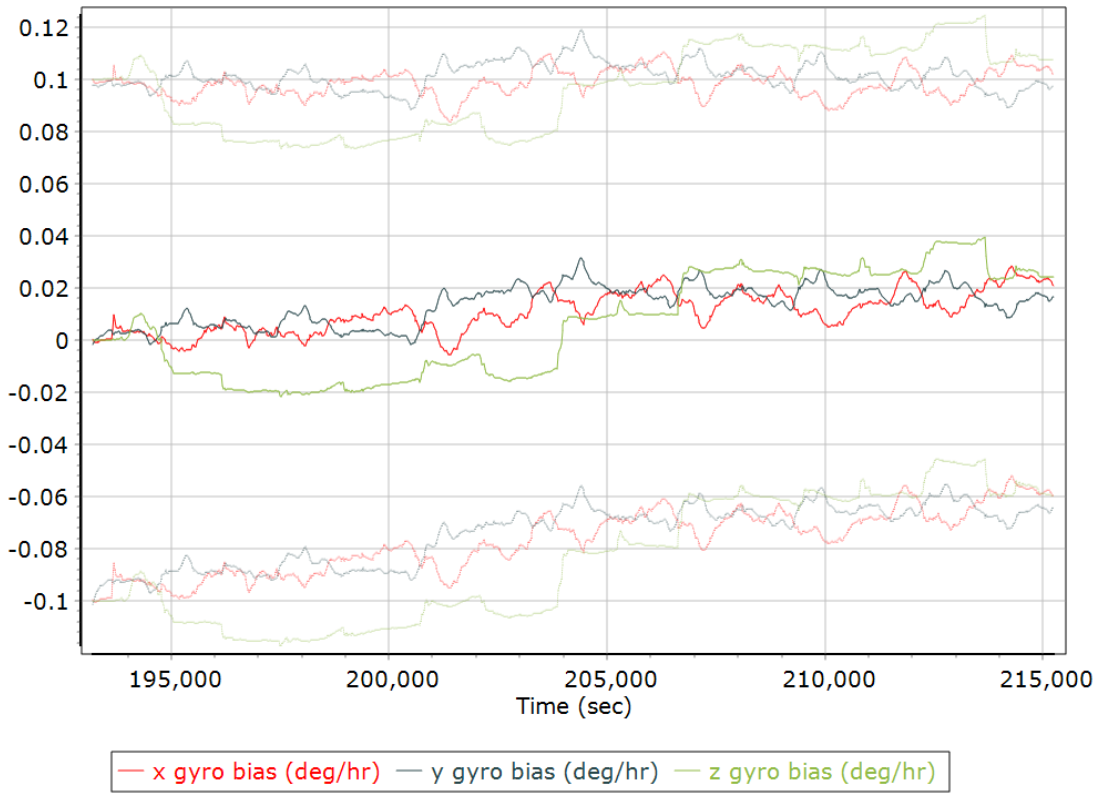
### Y Accelerometer Scale Error (ppm)



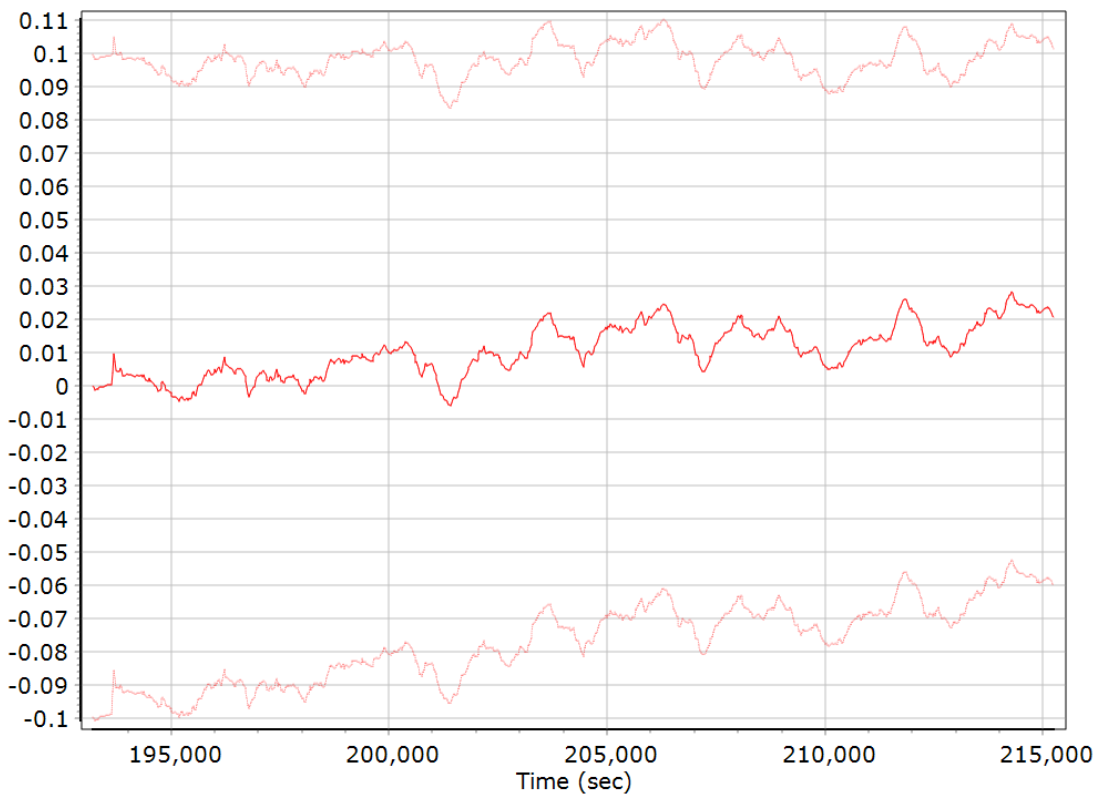
### Z Accelerometer Scale Error (ppm)



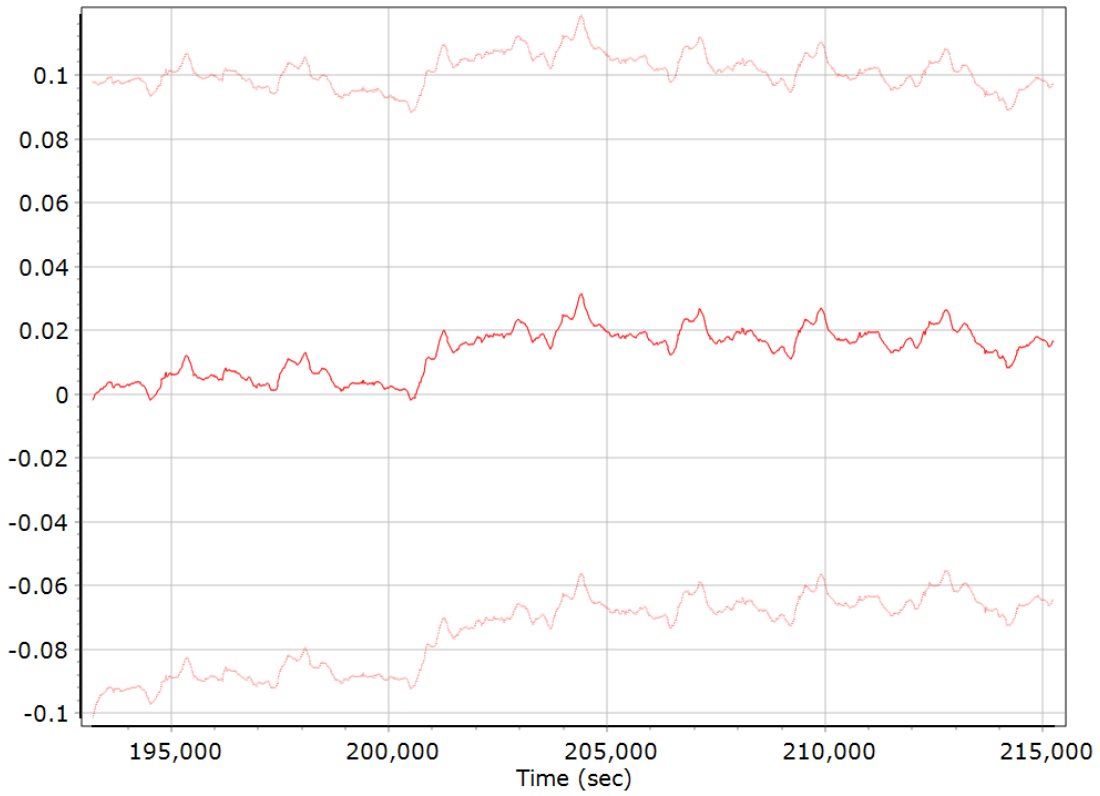
### Gyro Bias (deg/h)



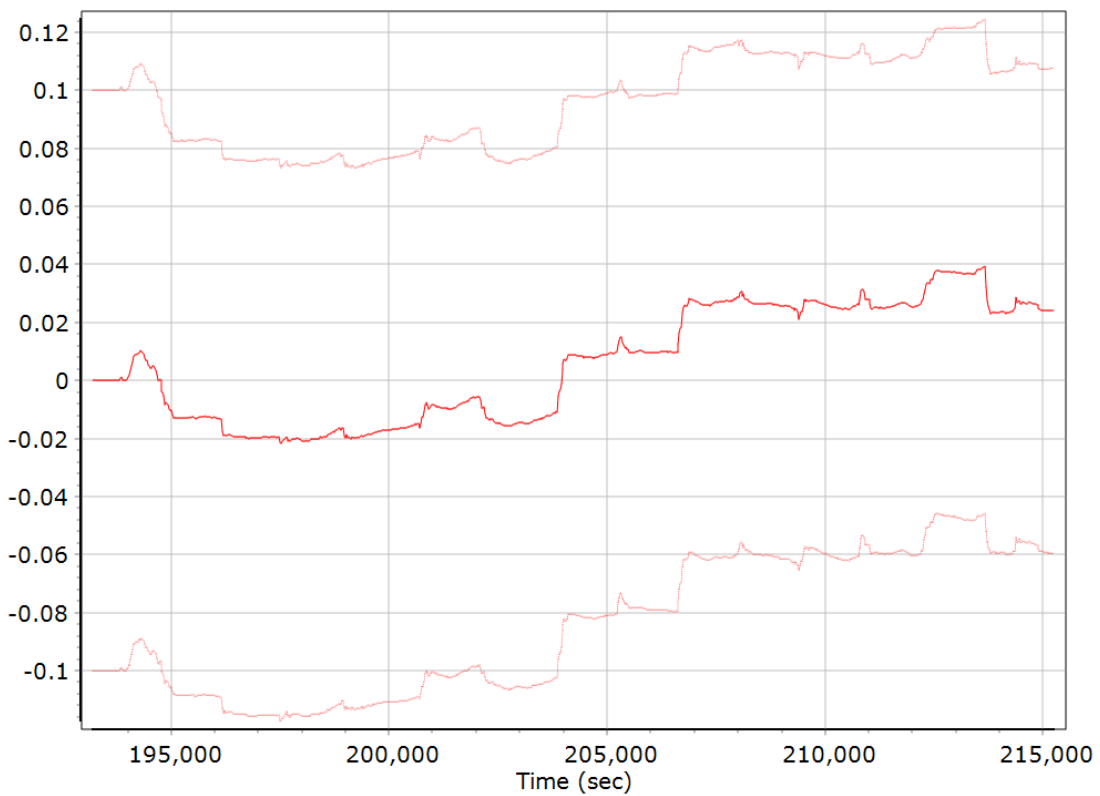
### X Gyro Bias (deg/h)



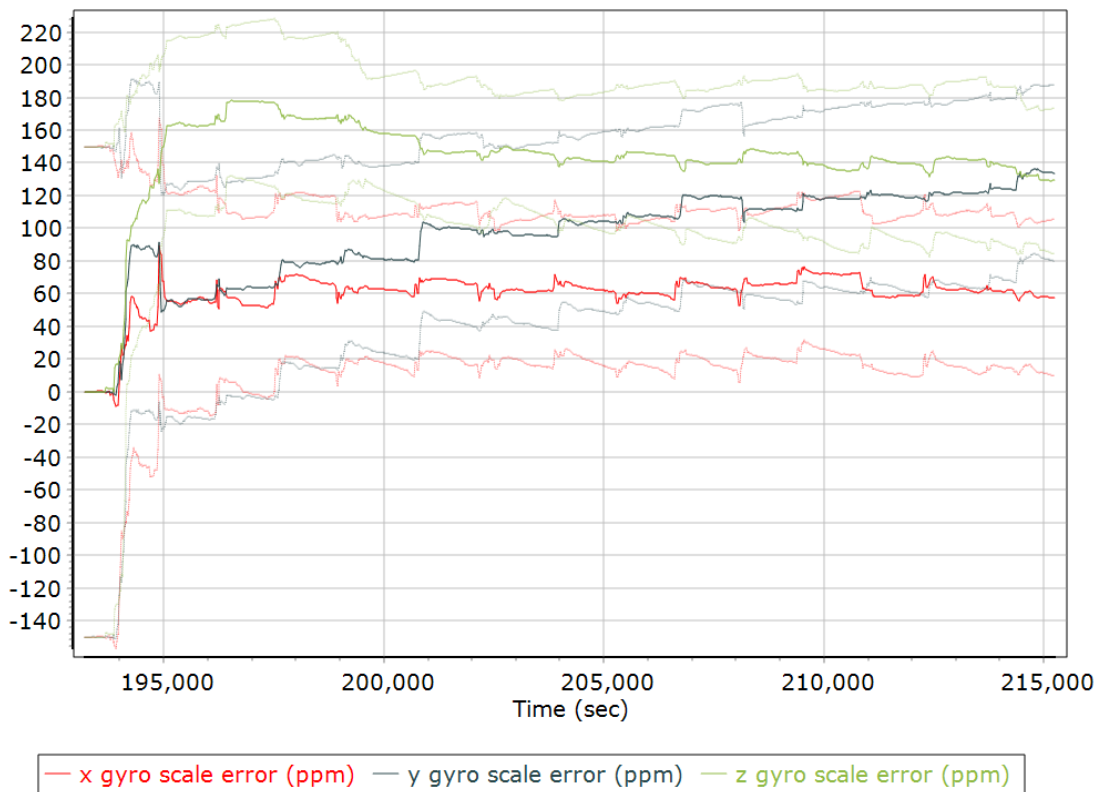
### Y Gyro Bias (deg/h)



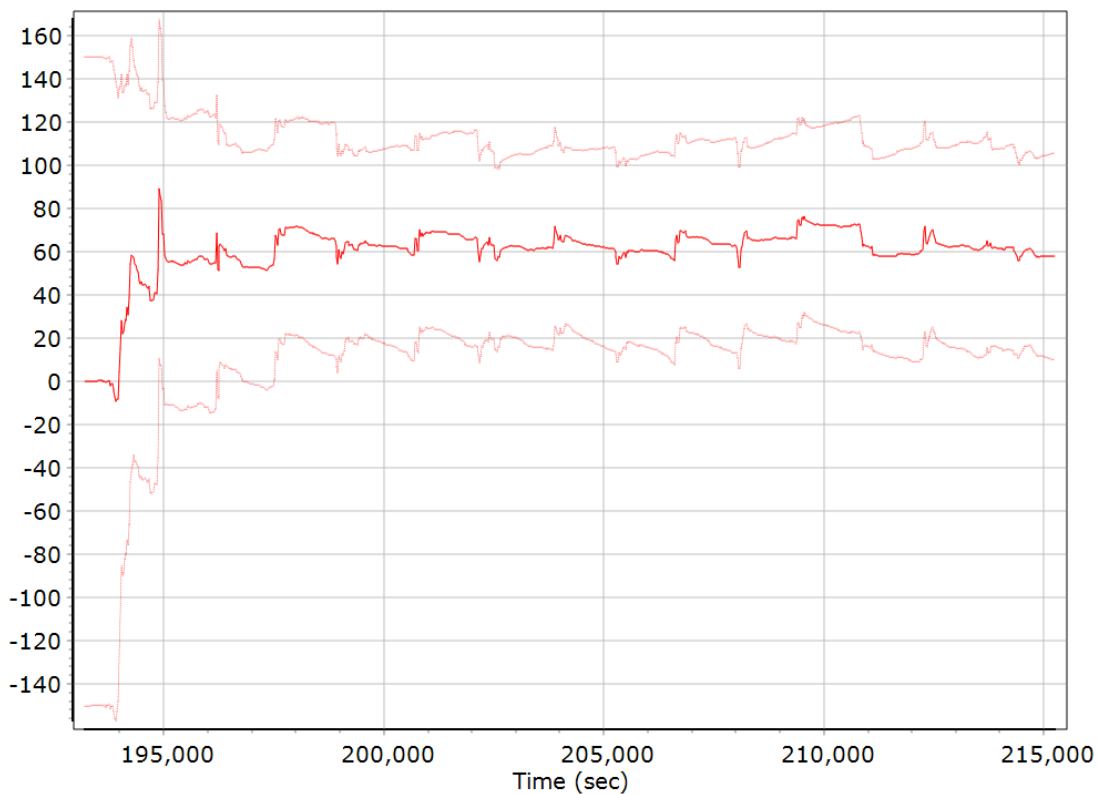
### Z Gyro Bias (deg/h)



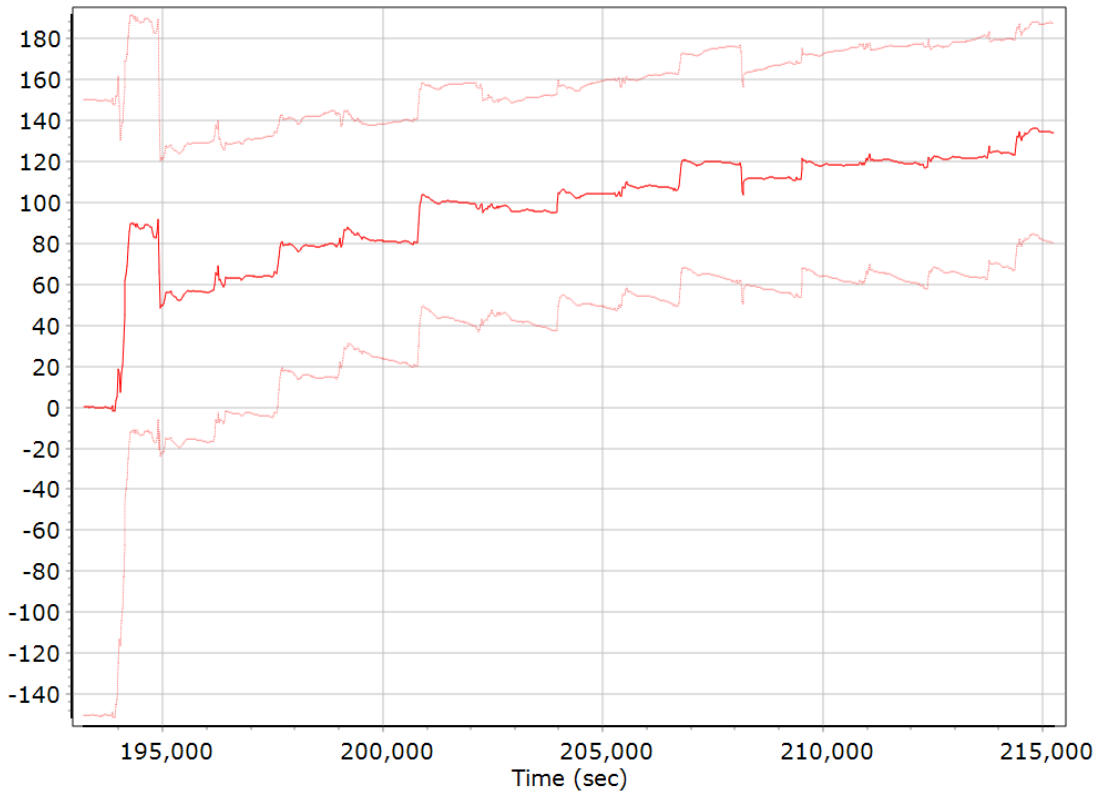
### Gyro Scale Error (ppm)



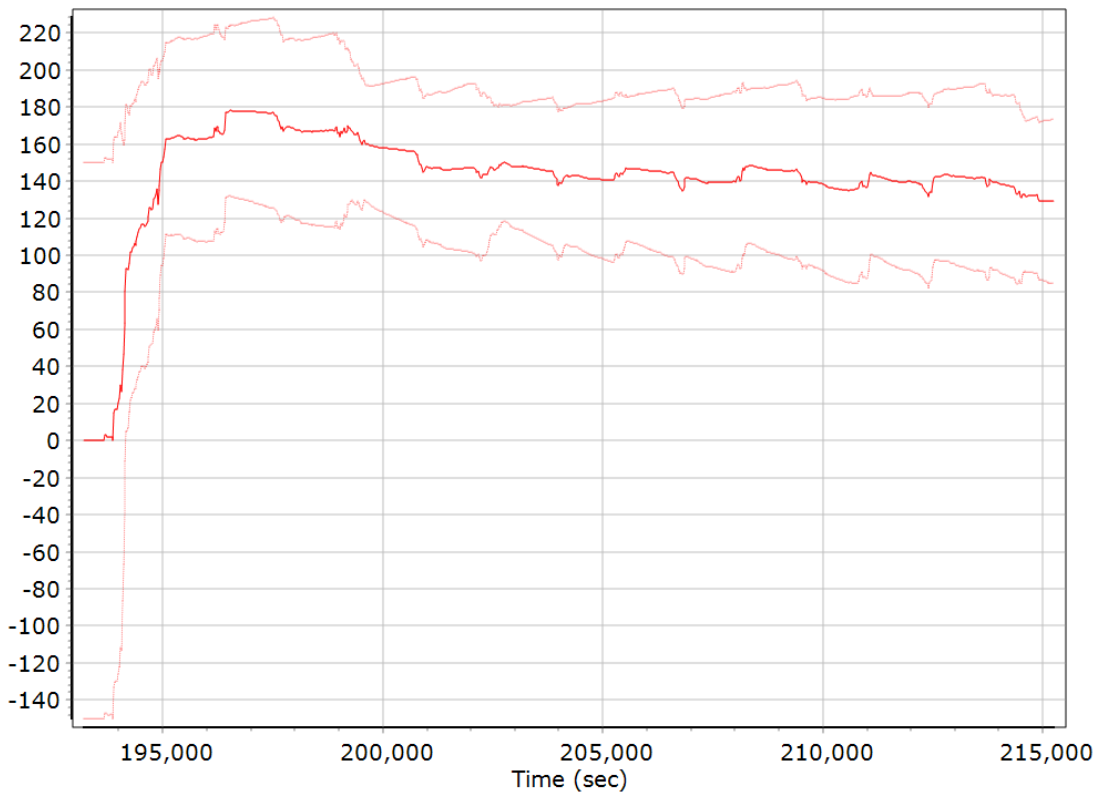
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)



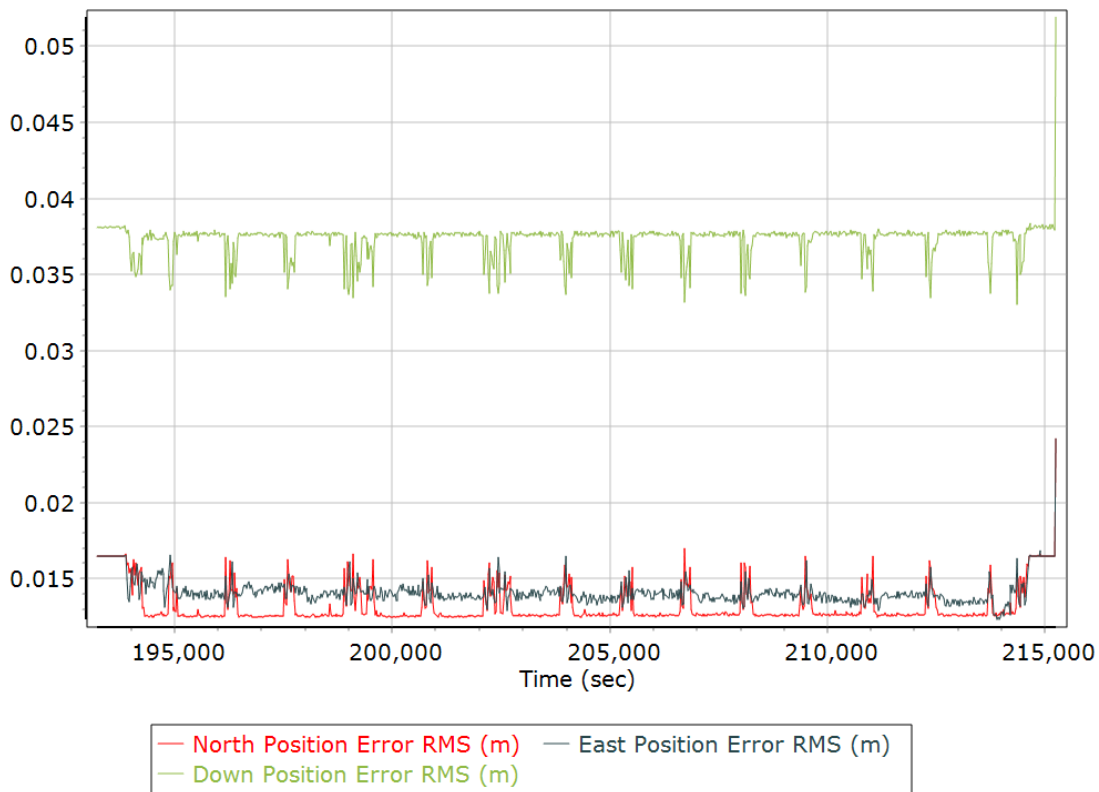
### Z Gyro Scale Error (ppm)



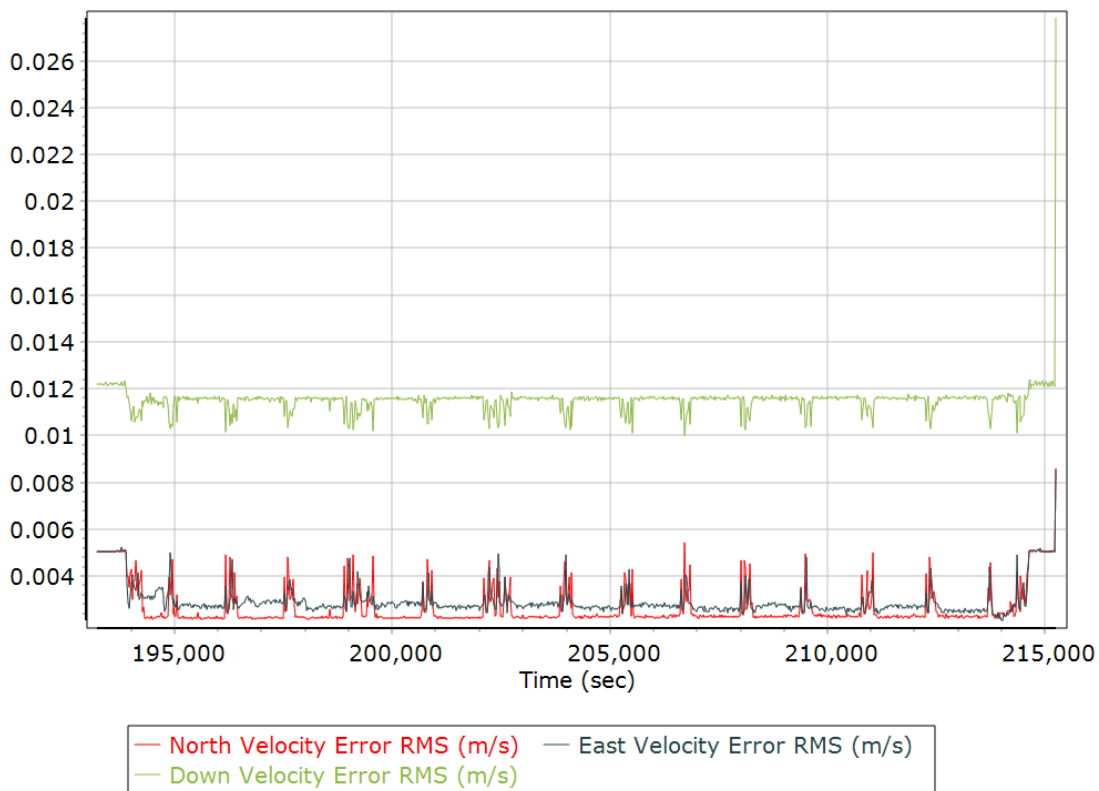


## Smoothed Performance Metrics

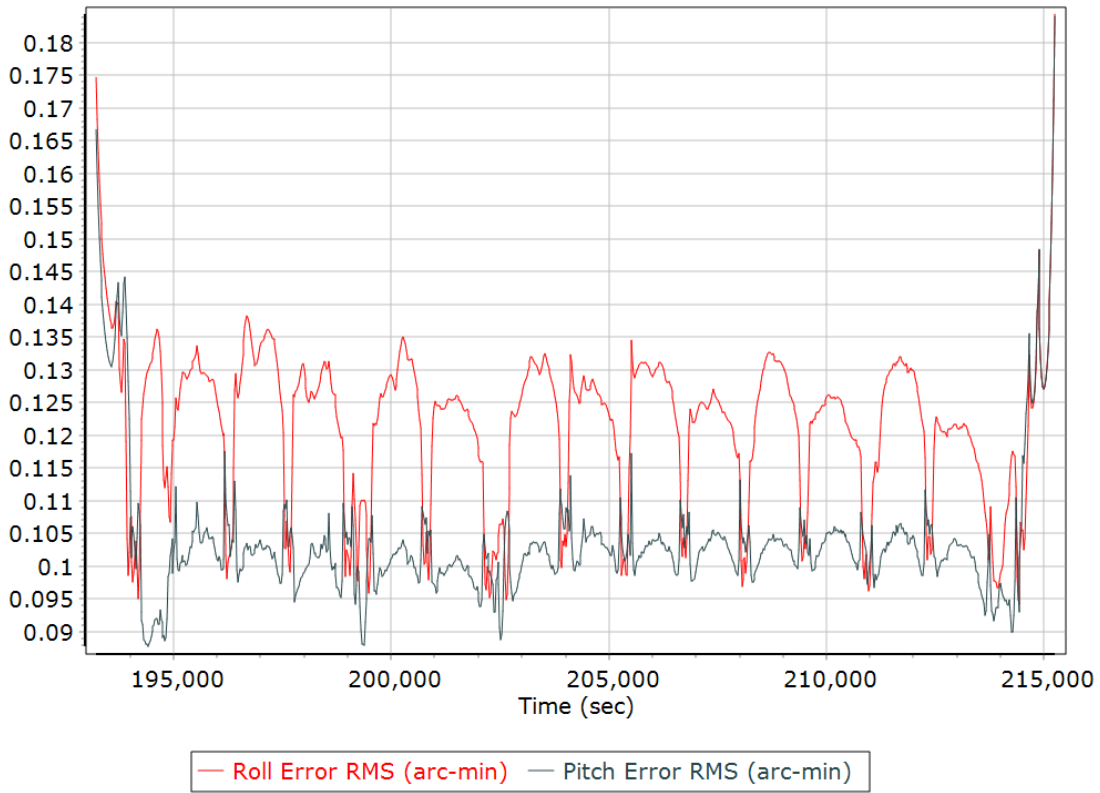
### Position Error RMS (m)



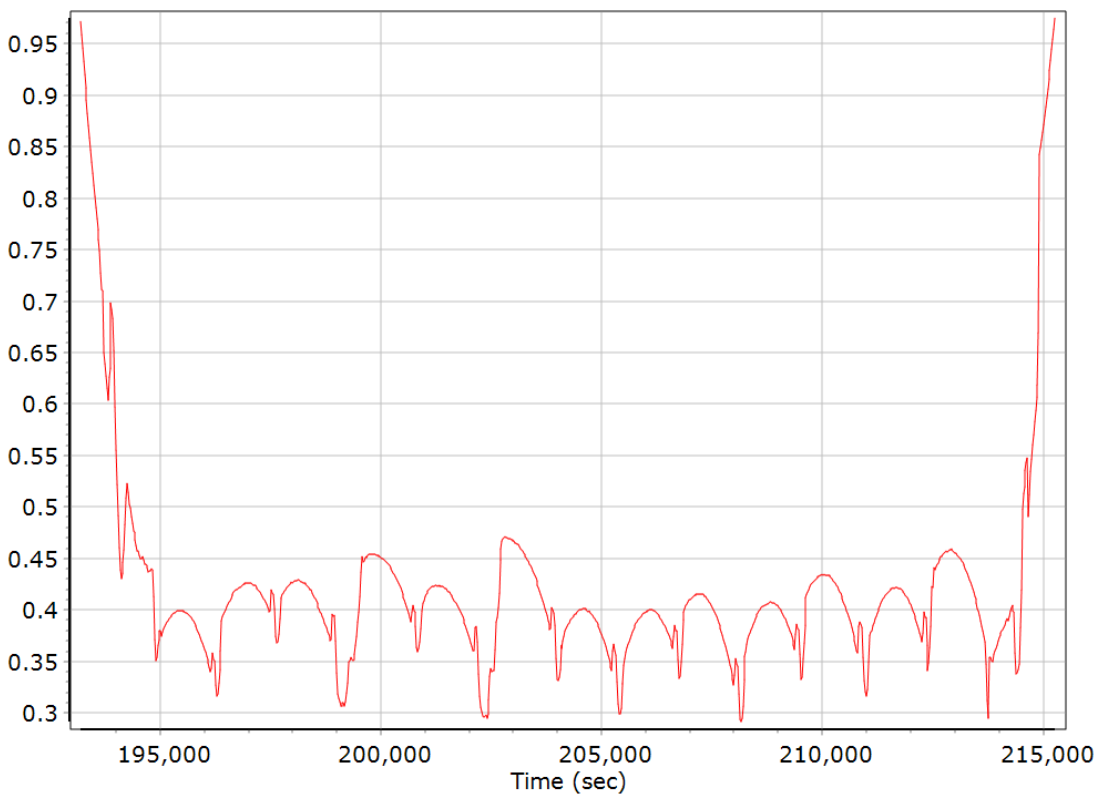
### Velocity Error RMS (m/s)



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

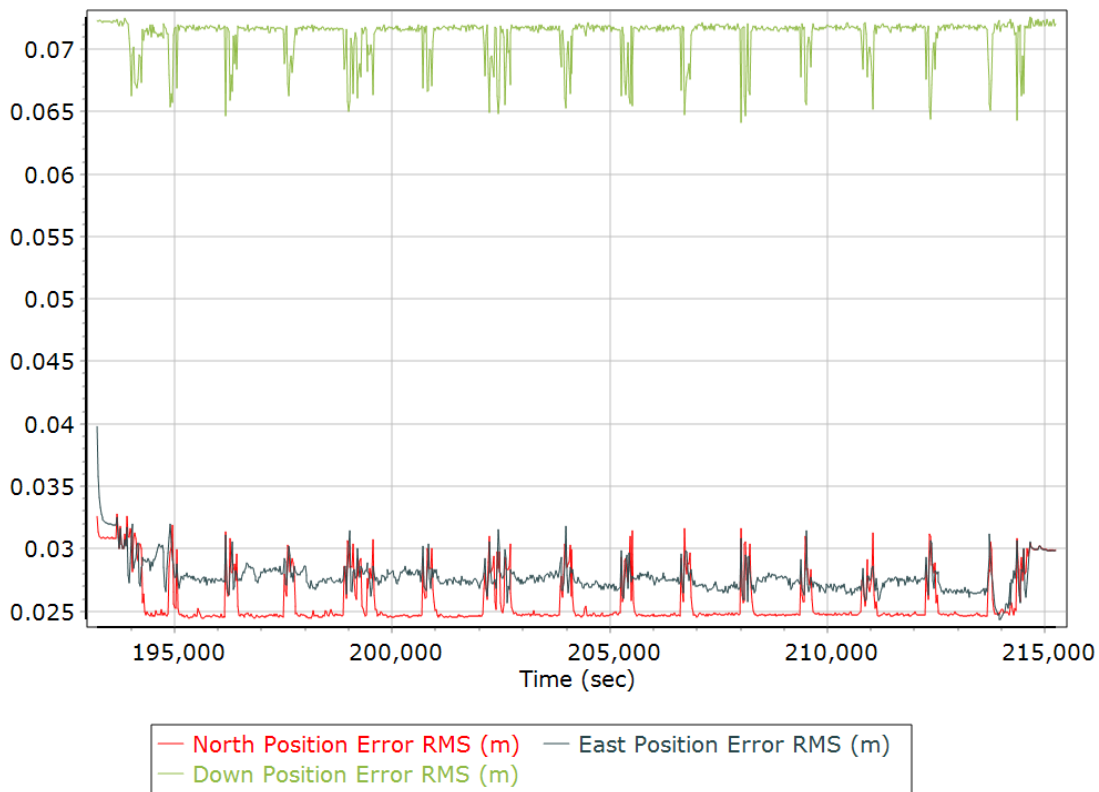


### Heading Error RMS (arc-min)

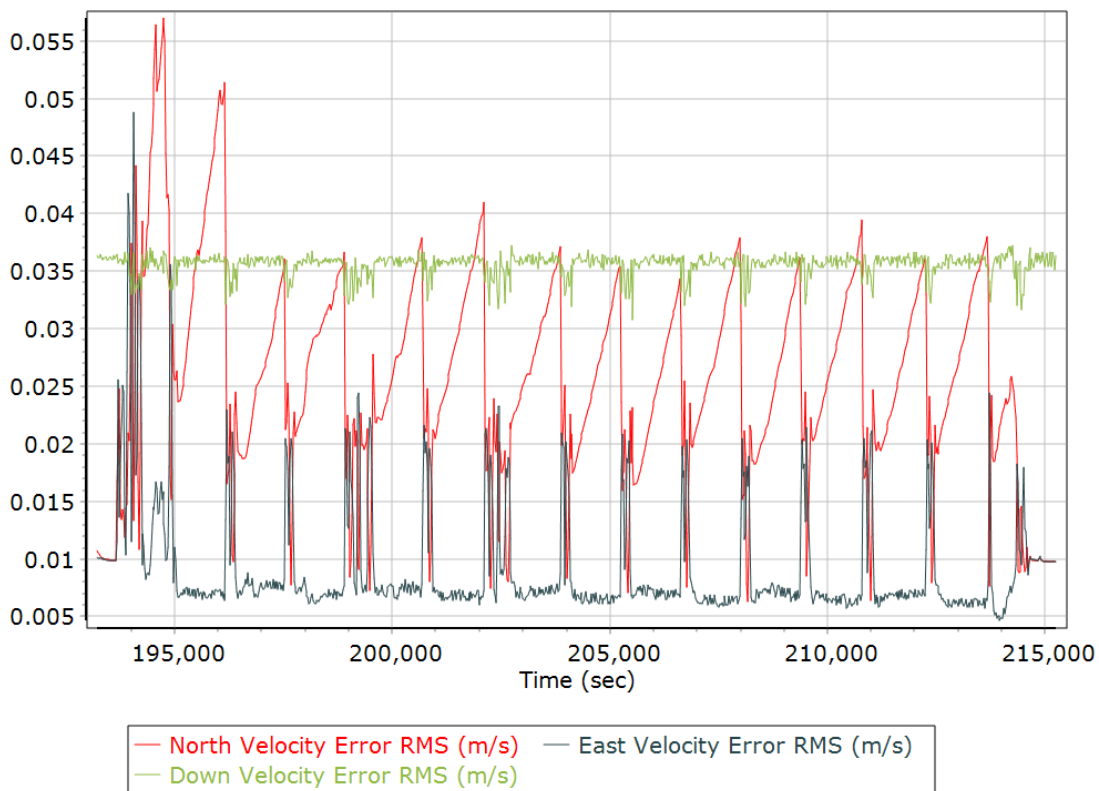


## Forward Processed Performance Metrics

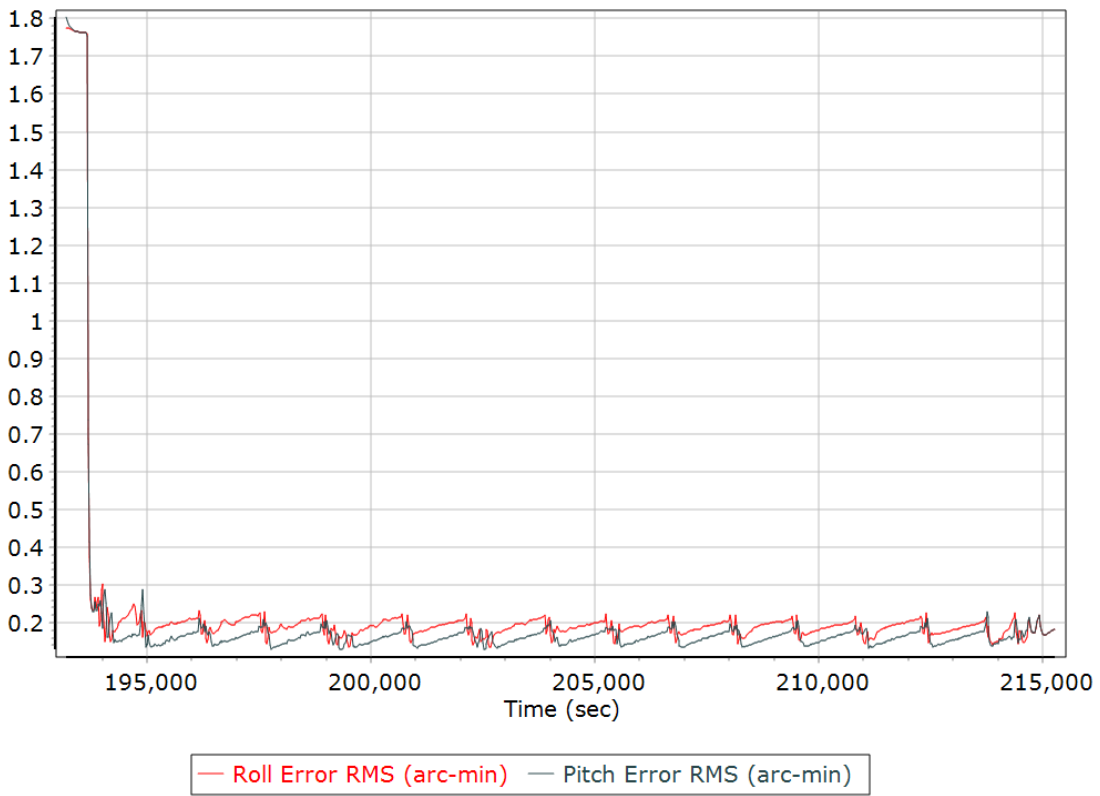
### Position Error RMS (m)



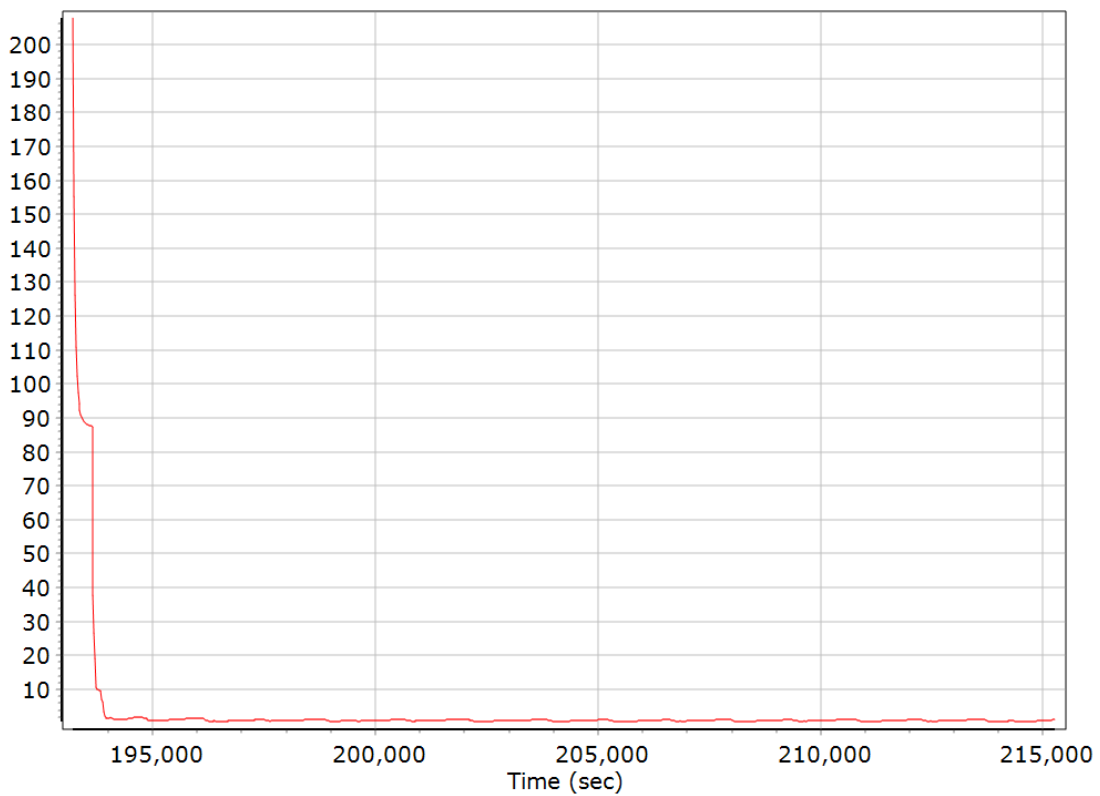
### Velocity Error RMS (m/s)



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

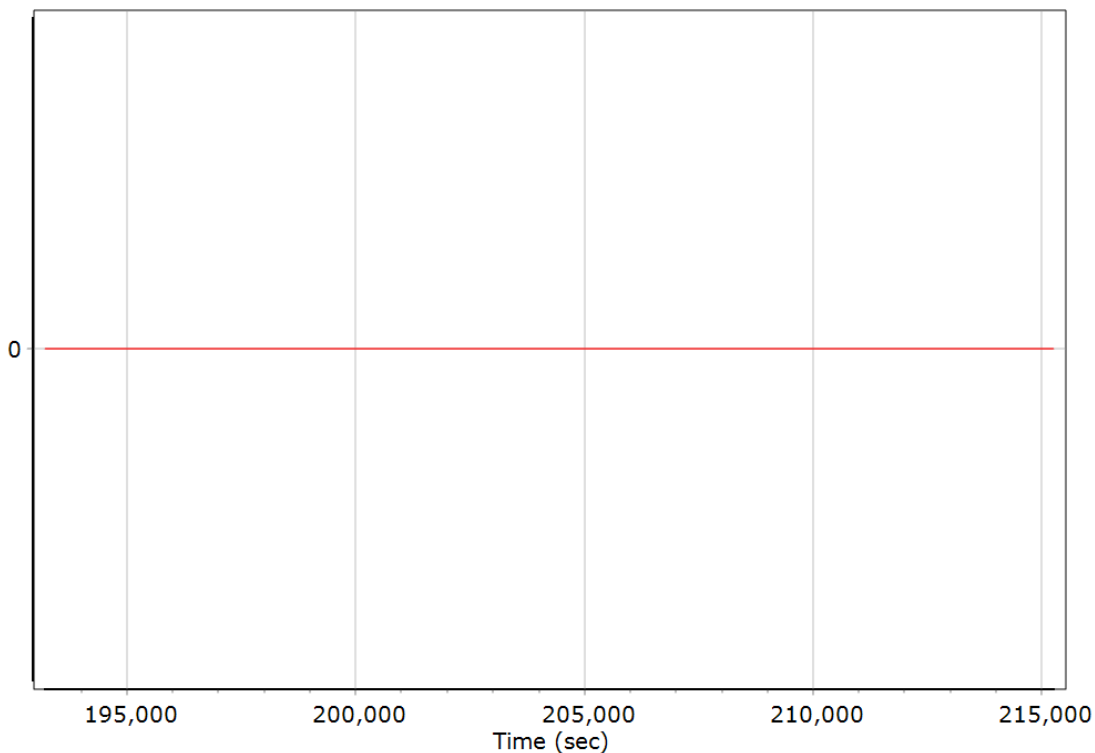


### Heading Error RMS (arc-min)



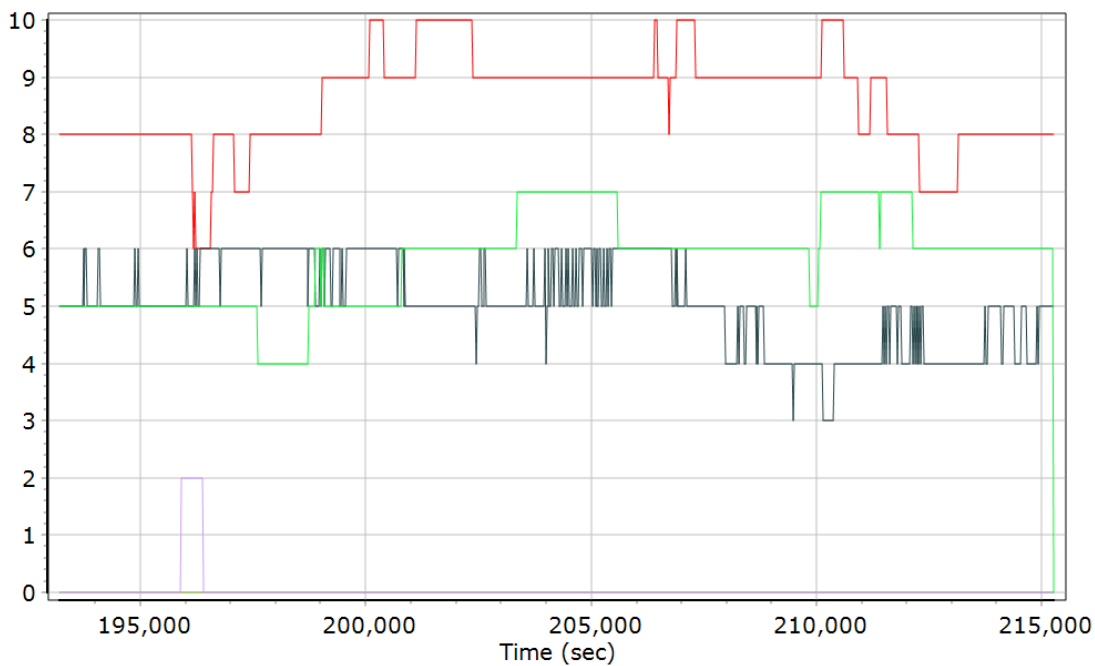
## Forward Processed Solution Status

### Processing Mode



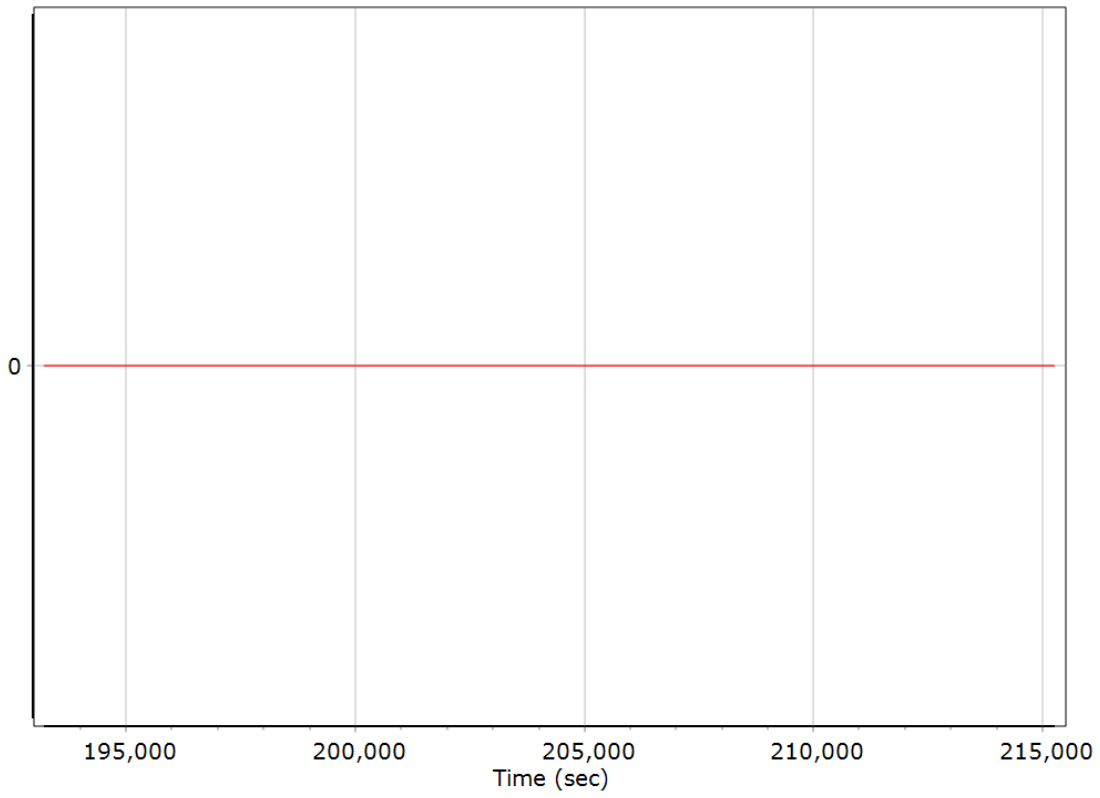
0 = Fixed NL, 1 = Fixed WL, 2 = Float, 3 = DGNSS, 4 = RTCM, 5 = IAPPP, 6 = C/A, 7 = GNSS Na

### 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



## General Information

### Mission Information

Project name	a07-s03-0524
Processing date	2022-08-31 15:05:49
Mission date	2022-08-29 06:53:37
Mission duration	05:43:17.000
Processing mode	IN-Fusion PP-RTX

### Rover Hardware Information

Product	POS AV 610 VER6 HW1.6-12
Serial number	S/N6907
IMU type	57
Receiver type	BD982
Antenna type	AV39

## Project File List

### Rover Data Files

File name	File type
default0829_065338.000	POS Data
default0829_065338.001	POS Data
default0829_065338.002	POS Data
default0829_065338.003	POS Data
default0829_065338.004	POS Data
default0829_065338.005	POS Data
default0829_065338.006	POS Data
default0829_065338.007	POS Data
default0829_065338.008	POS Data
default0829_065338.009	POS Data
default0829_065338.010	POS Data
default0829_065338.011	POS Data
default0829_065338.012	POS Data
default0829_065338.013	POS Data
default0829_065338.014	POS Data
default0829_065338.015	POS Data
default0829_065338.016	POS Data
default0829_065338.017	POS Data
default0829_065338.018	POS Data
default0829_065338.019	POS Data
default0829_065338.020	POS Data
default0829_065338.021	POS Data
default0829_065338.022	POS Data
default0829_065338.023	POS Data
default0829_065338.024	POS Data
default0829_065338.025	POS Data
default0829_065338.026	POS Data
default0829_065338.027	POS Data
default0829_065338.028	POS Data

### Input Files

File Name	File Type
Ephm2410.22g	GLONASS Broadcast Ephemeris
Ephm2410.22n	GPS Broadcast Ephemeris

### Output Files

Filename	File type
sbet_a07-s03-0524.out	SBET Trajectory File



## Rover Data Summary

First raw data file	default0829_065338.000		
Last raw data file	default0829_065338.028		
Start GPS week	2225		
Start time	111200.035 (8/29/2022 6:53:20 AM)		
End time	131793.985 (8/29/2022 12:36:33 PM)		
Start of fine alignment	111608.013 (8/29/2022 7:00:08 AM)		
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	0.000
Reference to Primary GNSS lever arm (m)	-0.353	-0.322	-1.280
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

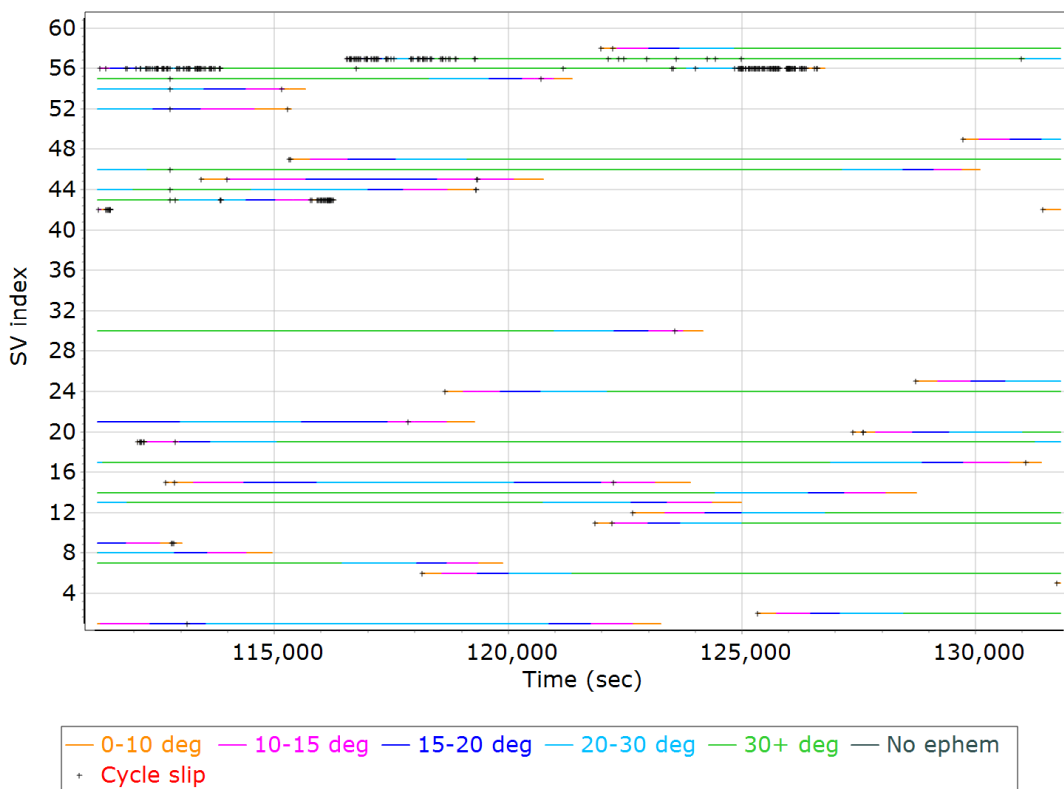
## Rover Data QC

### Raw IMU Import QC Summary

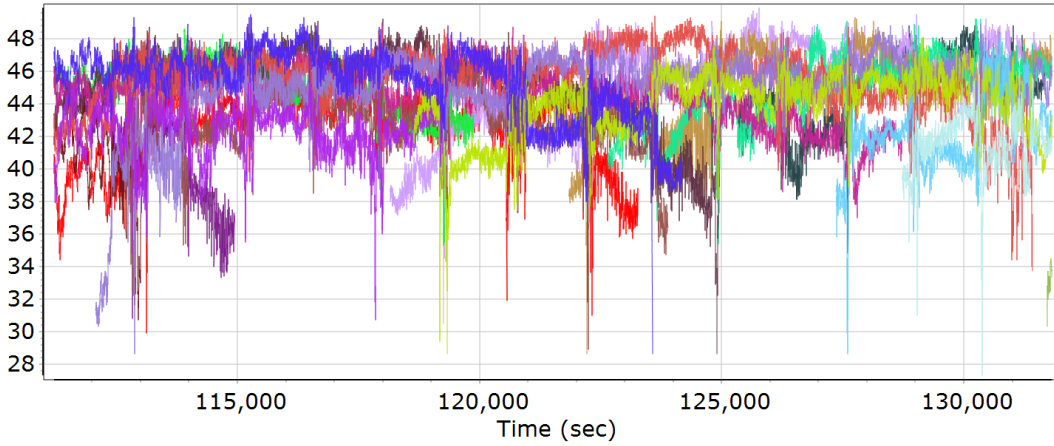
IMU data input file	imu_a07-s03-0524.dat
IMU data check log file	imudt_a07-s03-0524.log
IMU Records Processed	4118887
Termination Status	Warnings
IMU Anomalies	1
IMU Failure Messages	
111199.290 : WARNING : Gap of 111181.9327 seconds in CHECKDT input data	

## Primary Observables & Satellite Data

### GPS/GLONASS L1 Satellite Lock/Elevation

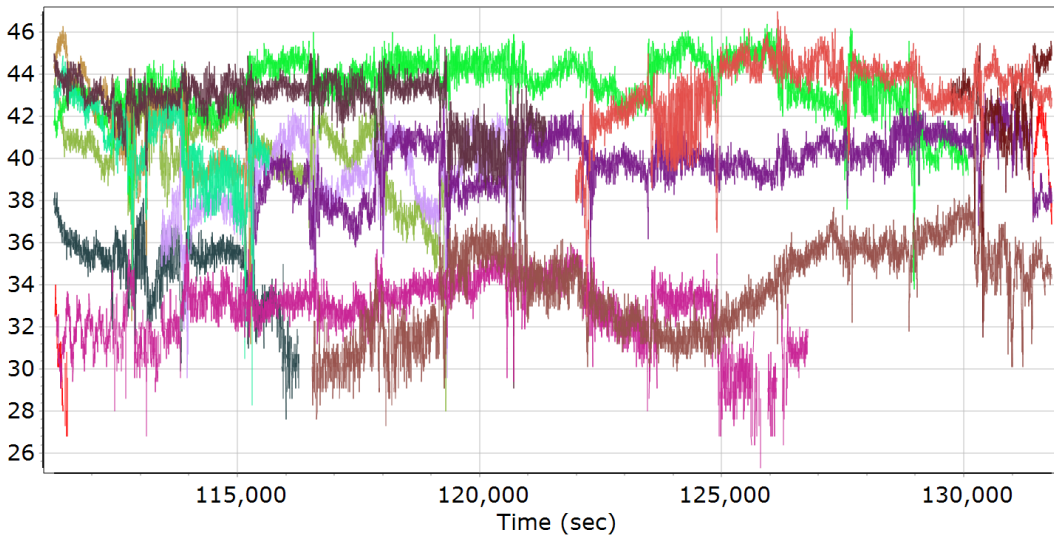


**GPS L1 SNR**



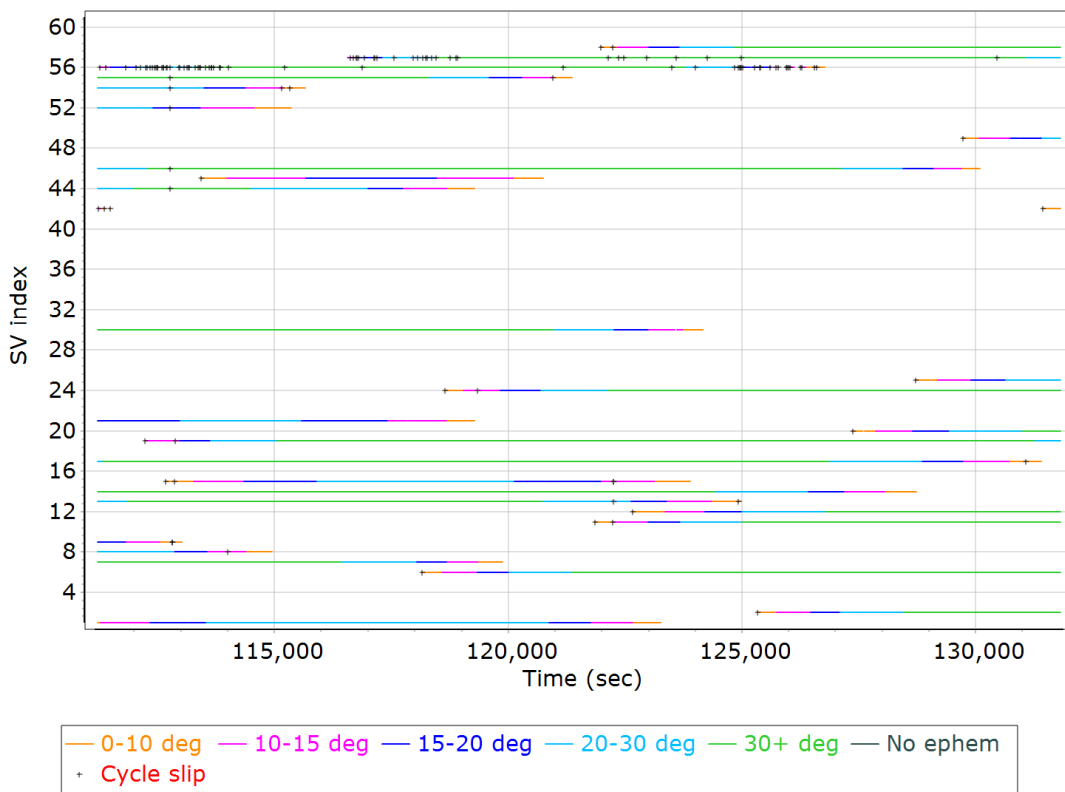
- |                             |                             |
|-----------------------------|-----------------------------|
| — GPS PRN 01 L1 SNR (dB/Hz) | — GPS PRN 02 L1 SNR (dB/Hz) |
| — GPS PRN 05 L1 SNR (dB/Hz) | — GPS PRN 06 L1 SNR (dB/Hz) |
| — GPS PRN 07 L1 SNR (dB/Hz) | — GPS PRN 08 L1 SNR (dB/Hz) |
| — GPS PRN 09 L1 SNR (dB/Hz) | — GPS PRN 11 L1 SNR (dB/Hz) |
| — GPS PRN 12 L1 SNR (dB/Hz) | — GPS PRN 13 L1 SNR (dB/Hz) |
| — GPS PRN 14 L1 SNR (dB/Hz) | — GPS PRN 15 L1 SNR (dB/Hz) |
| — GPS PRN 17 L1 SNR (dB/Hz) | — GPS PRN 19 L1 SNR (dB/Hz) |
| — GPS PRN 20 L1 SNR (dB/Hz) | — GPS PRN 21 L1 SNR (dB/Hz) |
| — GPS PRN 24 L1 SNR (dB/Hz) | — GPS PRN 25 L1 SNR (dB/Hz) |
| — GPS PRN 30 L1 SNR (dB/Hz) |                             |

**GLONASS L1 SNR**

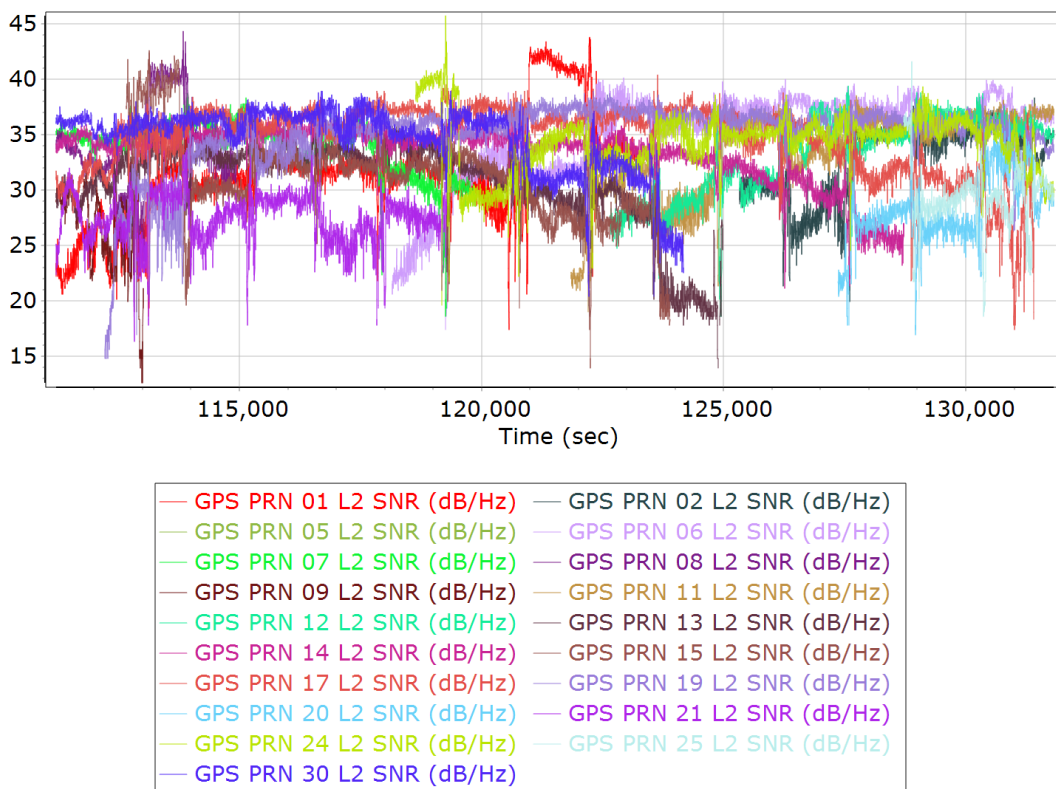


- |                             |                             |
|-----------------------------|-----------------------------|
| — GLONASS 05 L1 SNR (dB/Hz) | — GLONASS 06 L1 SNR (dB/Hz) |
| — GLONASS 07 L1 SNR (dB/Hz) | — GLONASS 08 L1 SNR (dB/Hz) |
| — GLONASS 09 L1 SNR (dB/Hz) | — GLONASS 10 L1 SNR (dB/Hz) |
| — GLONASS 12 L1 SNR (dB/Hz) | — GLONASS 15 L1 SNR (dB/Hz) |
| — GLONASS 17 L1 SNR (dB/Hz) | — GLONASS 18 L1 SNR (dB/Hz) |
| — GLONASS 19 L1 SNR (dB/Hz) | — GLONASS 20 L1 SNR (dB/Hz) |
| — GLONASS 21 L1 SNR (dB/Hz) |                             |

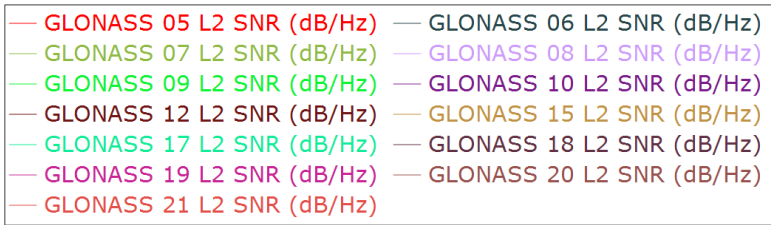
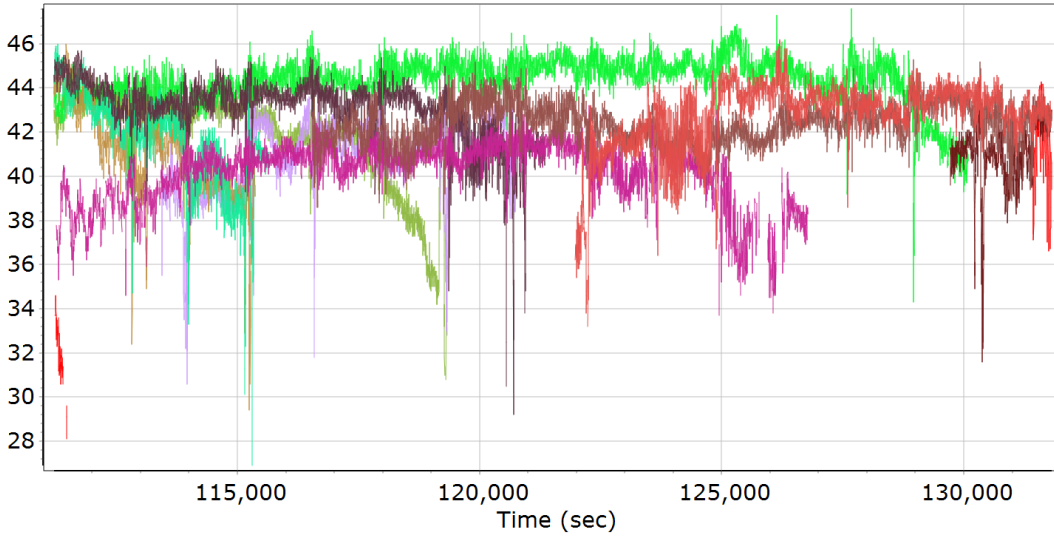
### GPS/GLONASS L2 Satellite Lock/Elevation



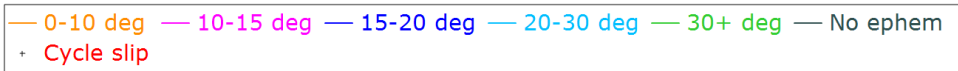
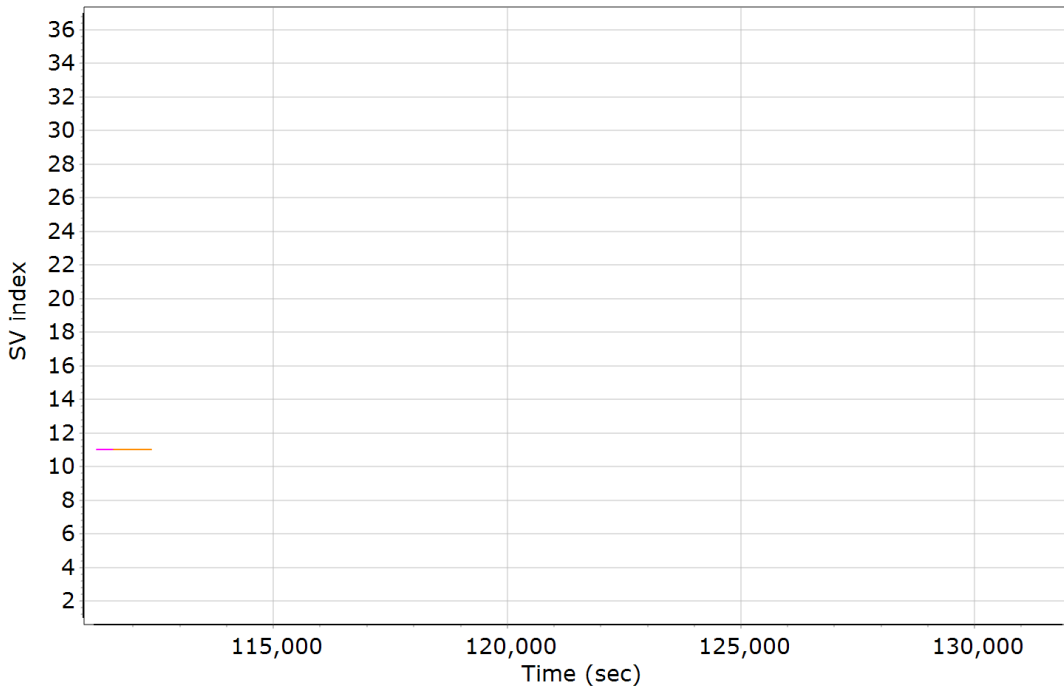
### GPS L2 SNR



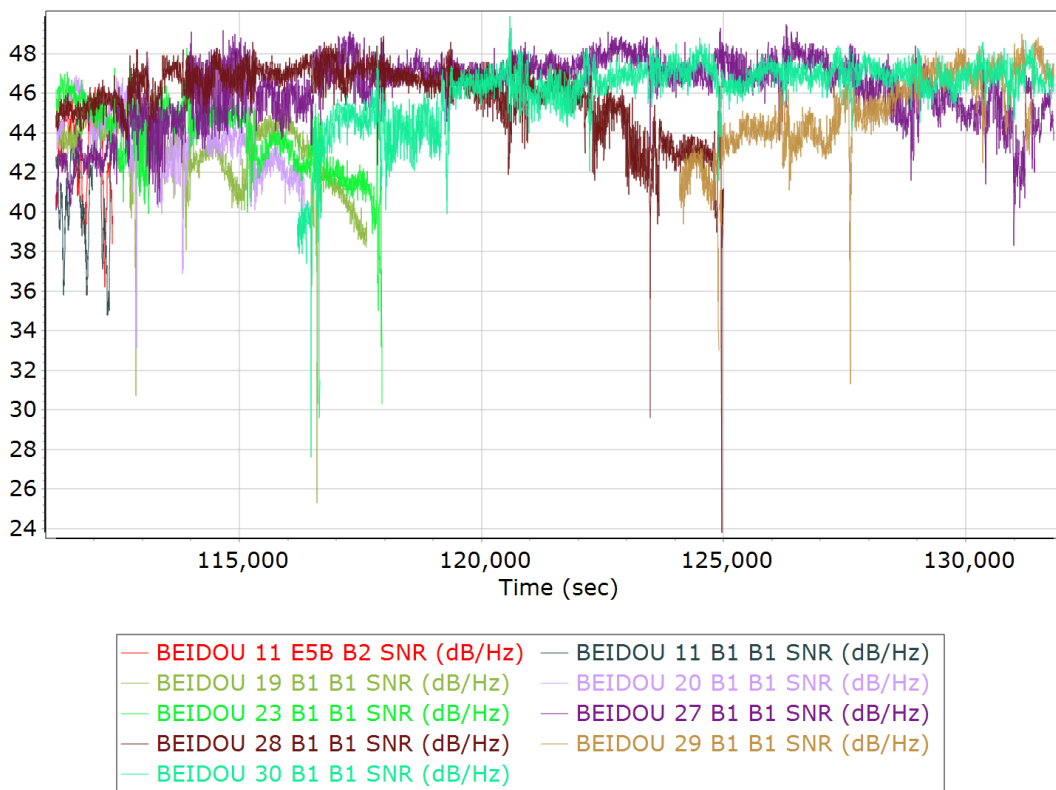
**GLONASS L2 SNR**



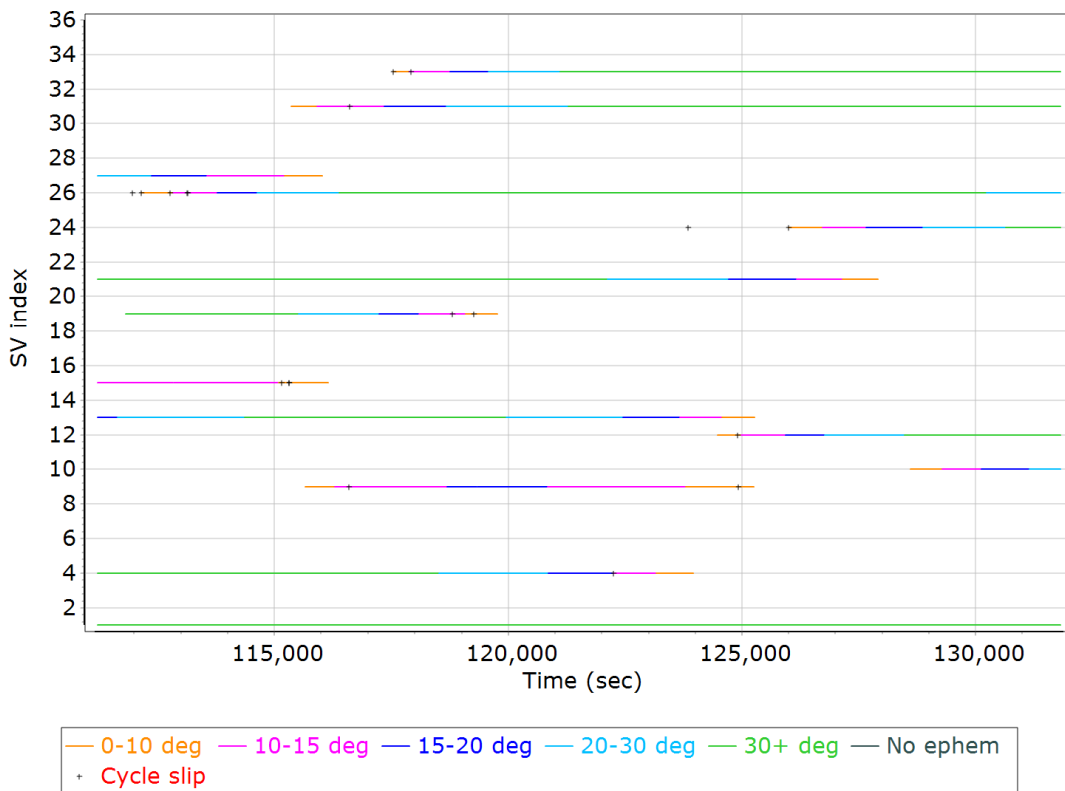
**BEIDOU Satellite Lock/Elevation**



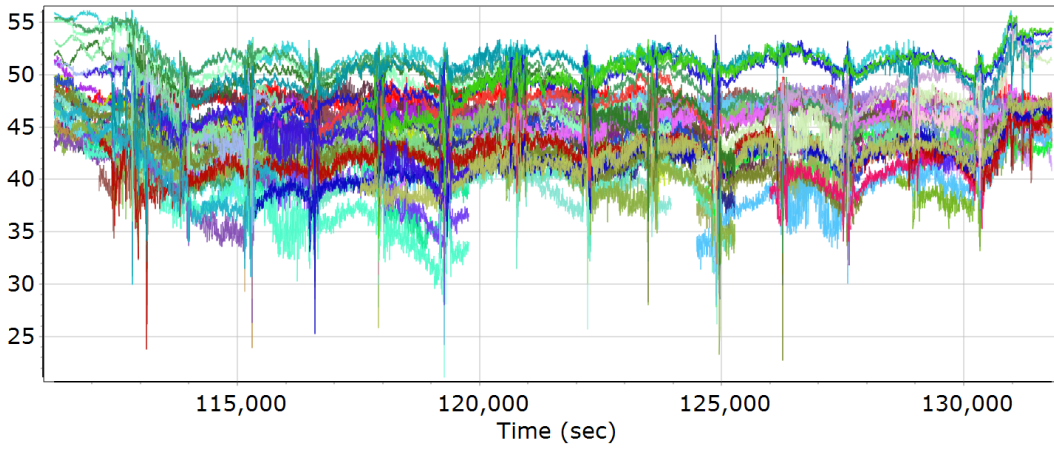
### BEIDOU SNR



### GALILEO Satellite Lock/Elevation



## GALILEO SNR

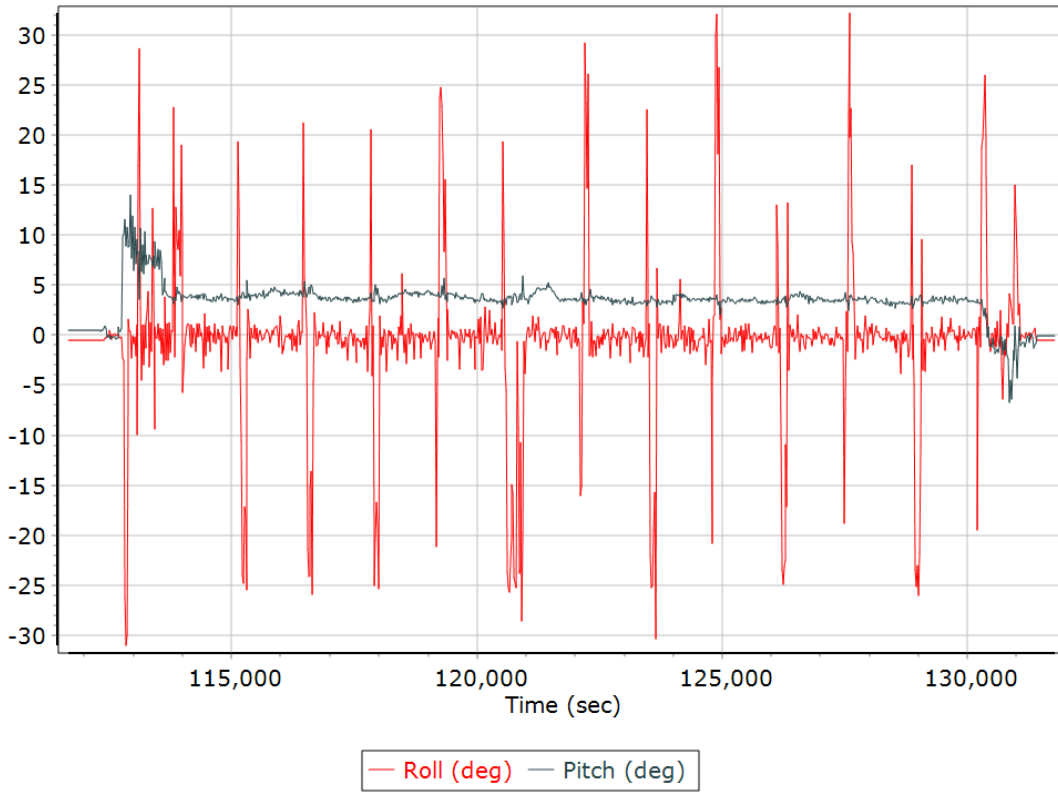


- GALILEO 01 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 04 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 09 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 10 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 12 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 13 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 14 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 15 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 19 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)
- GALILEO 21 L1 BOC\_1\_1\_DP\_MBOC SNR (dB/Hz)

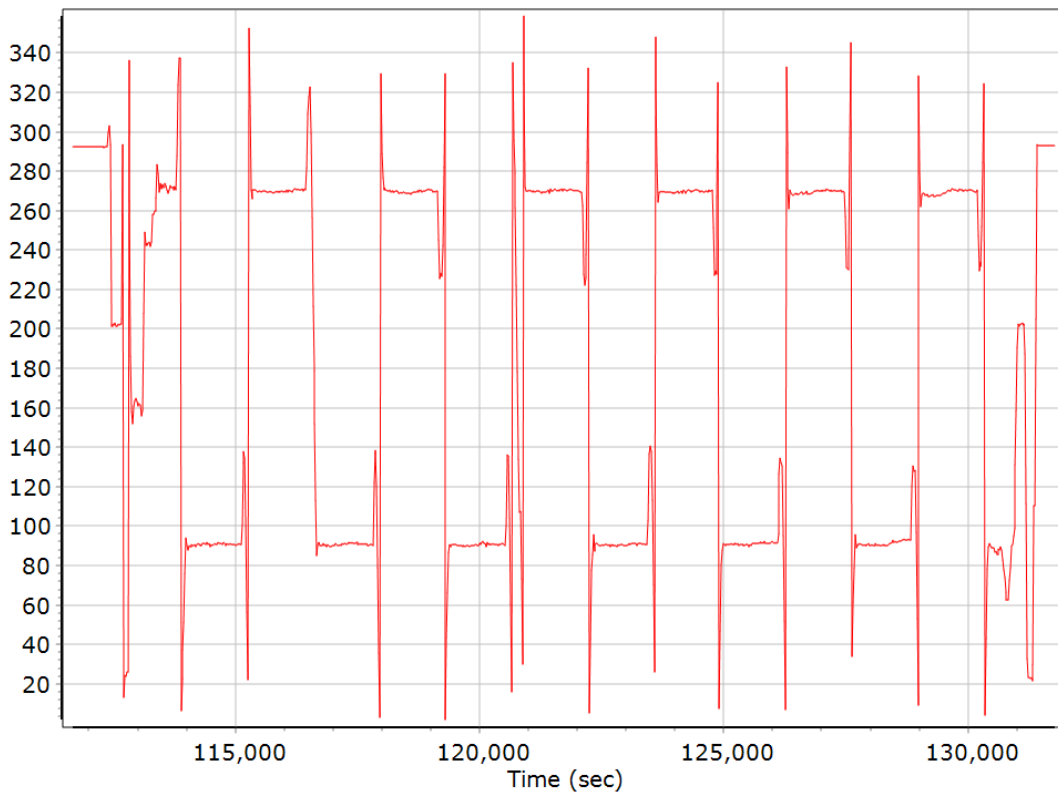




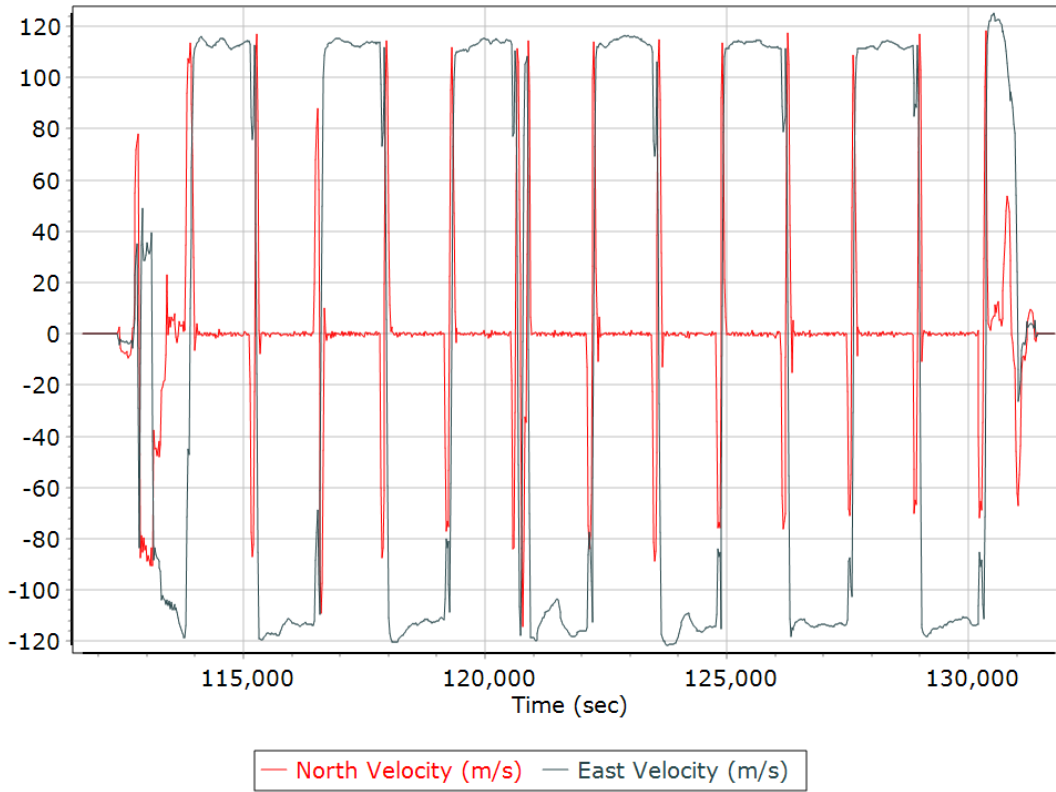
## Roll/Pitch



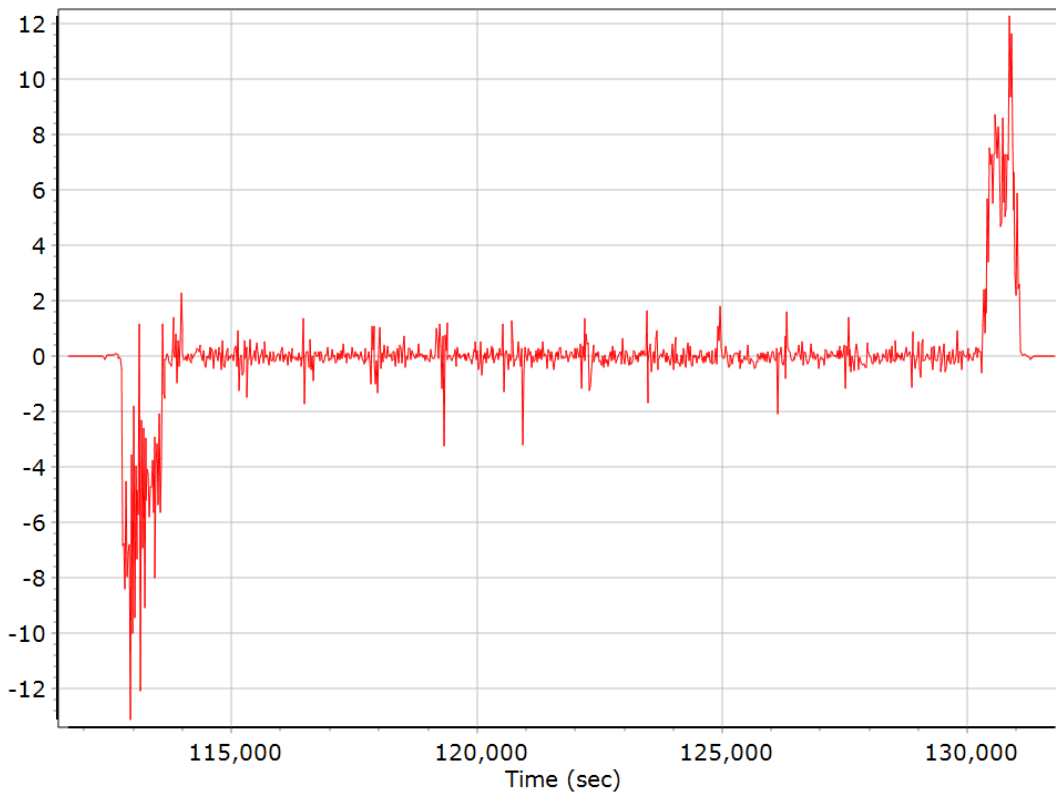
## Heading



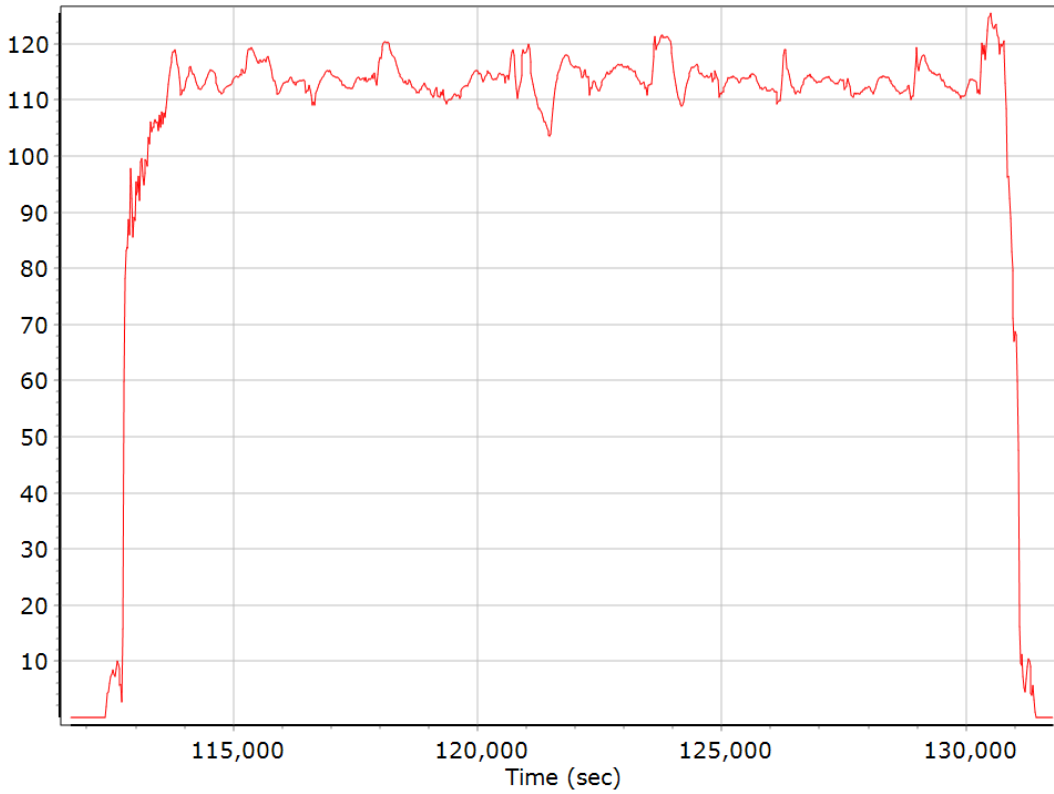
### North/East Velocity



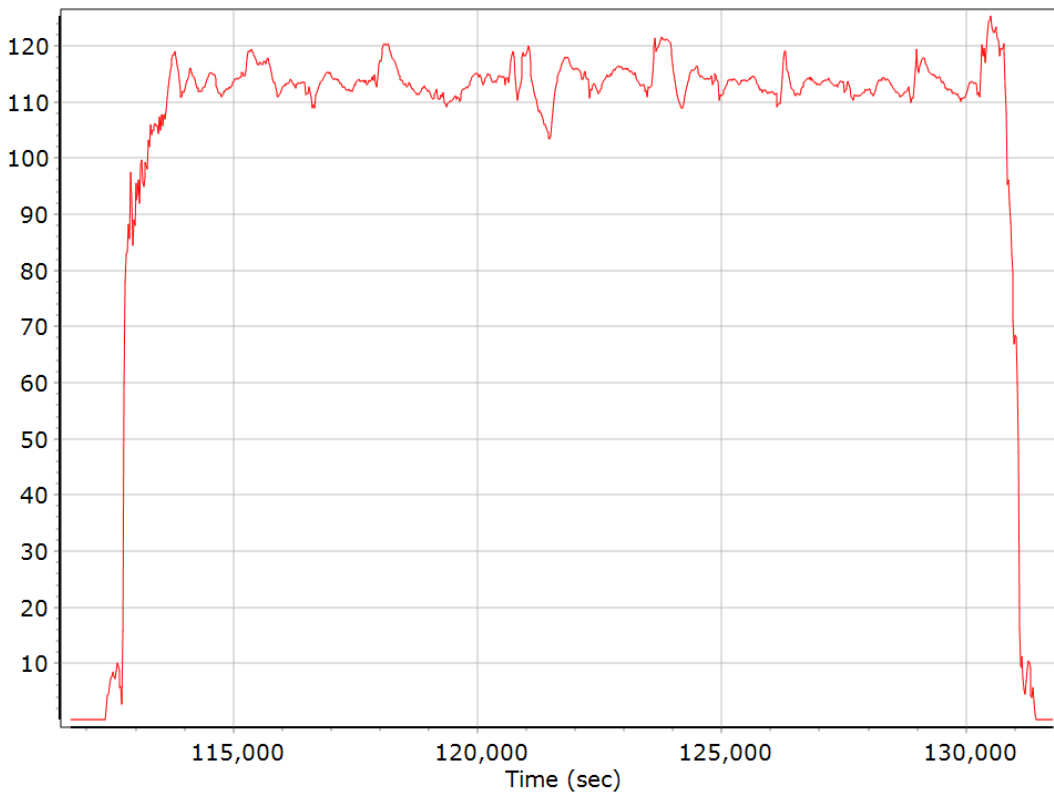
### Down Velocity



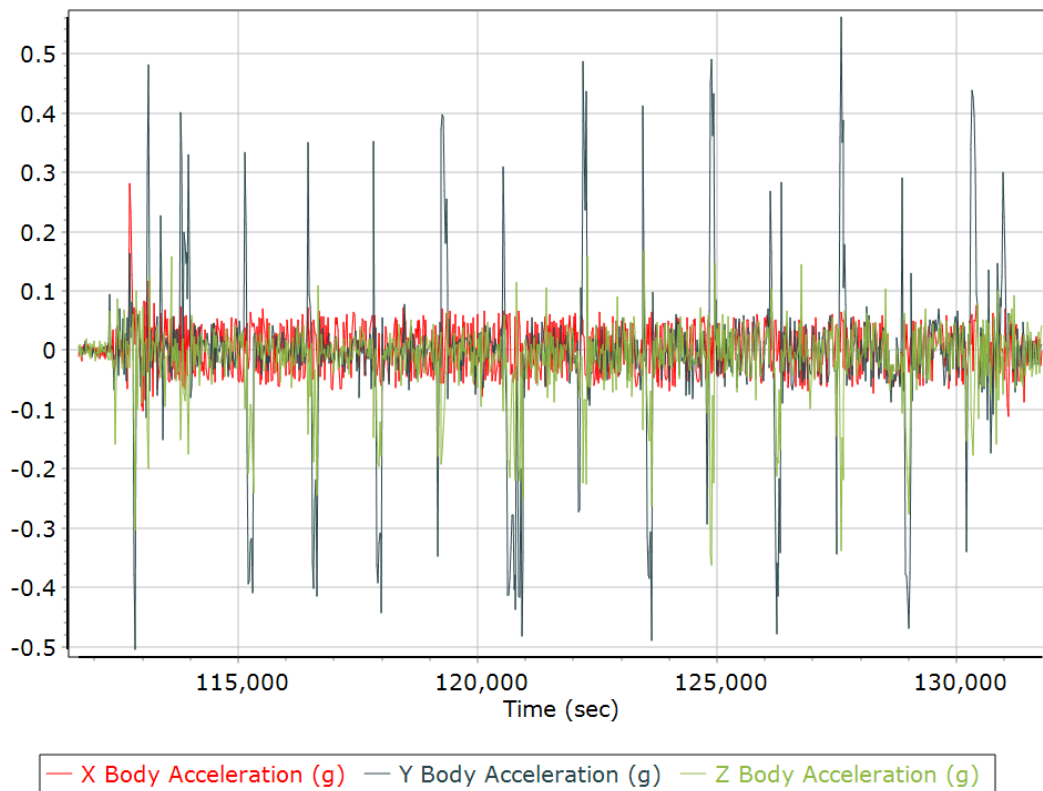
## Total Speed



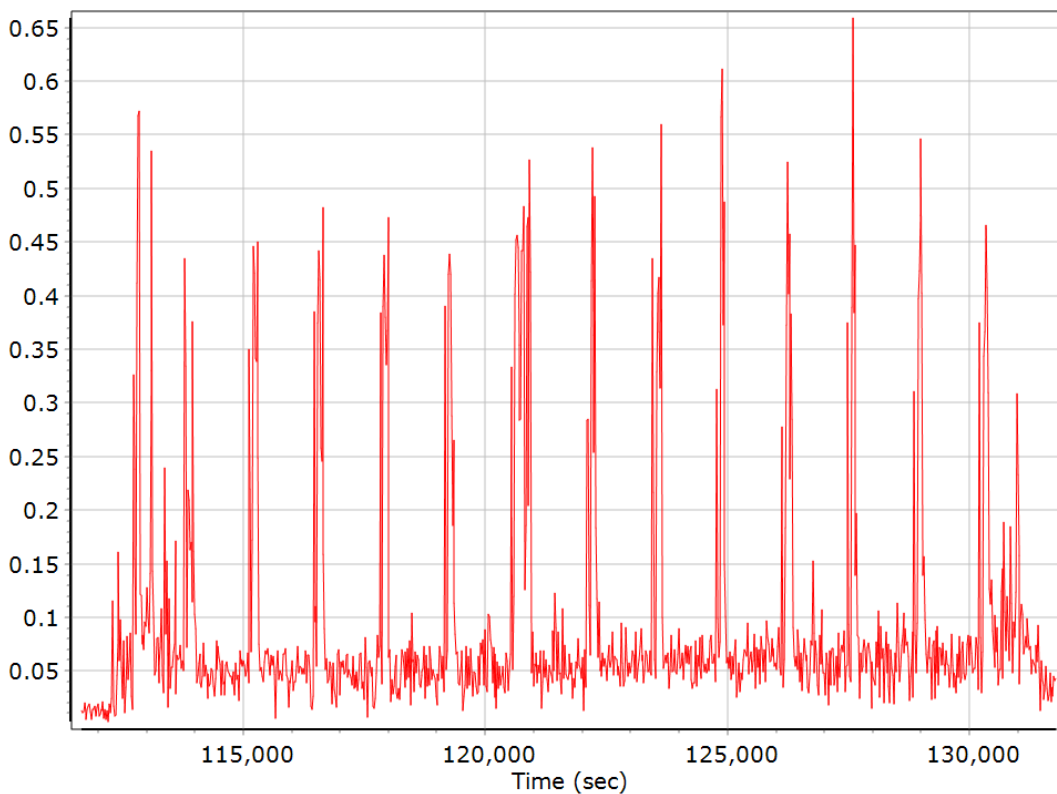
## Ground Speed



### Body Acceleration



### Total Body Acceleration



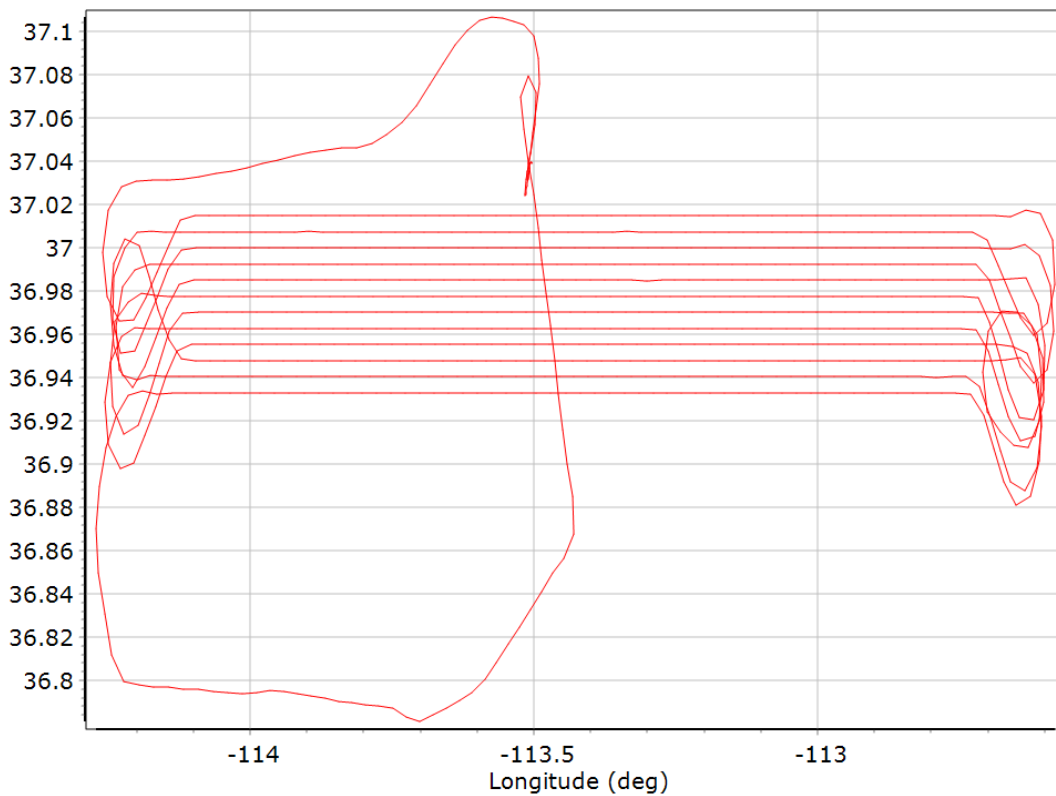
## Body Angular Rate



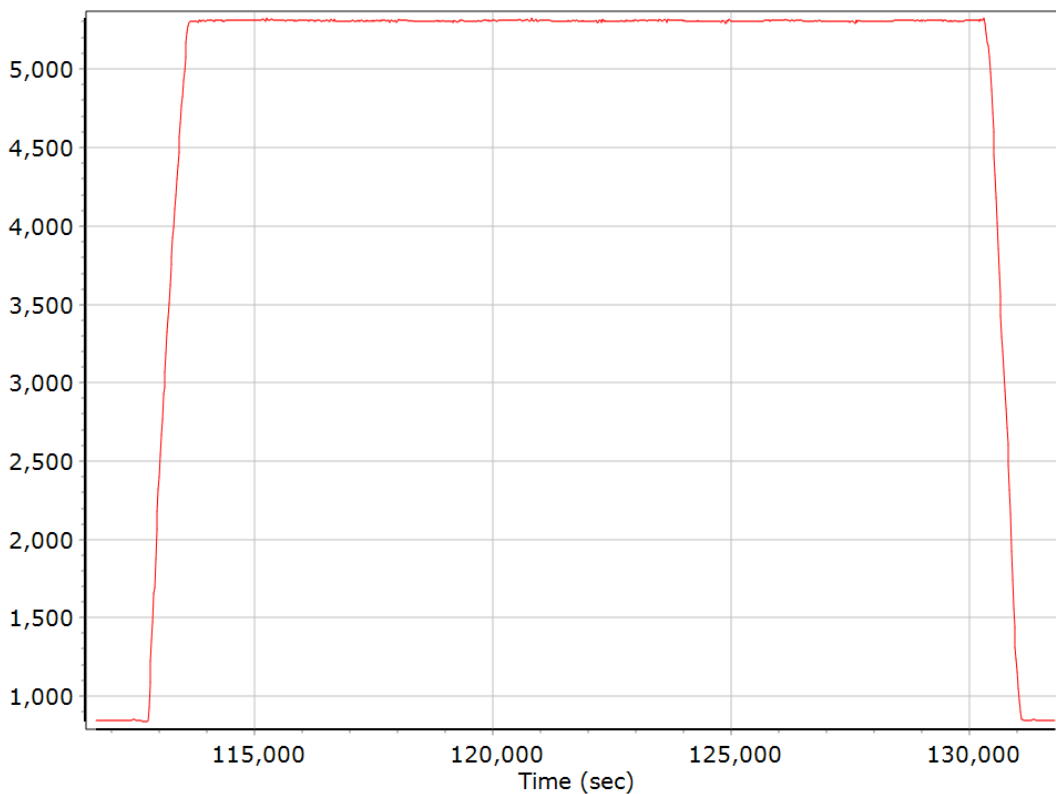
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## Forward Processed Trajectory Information

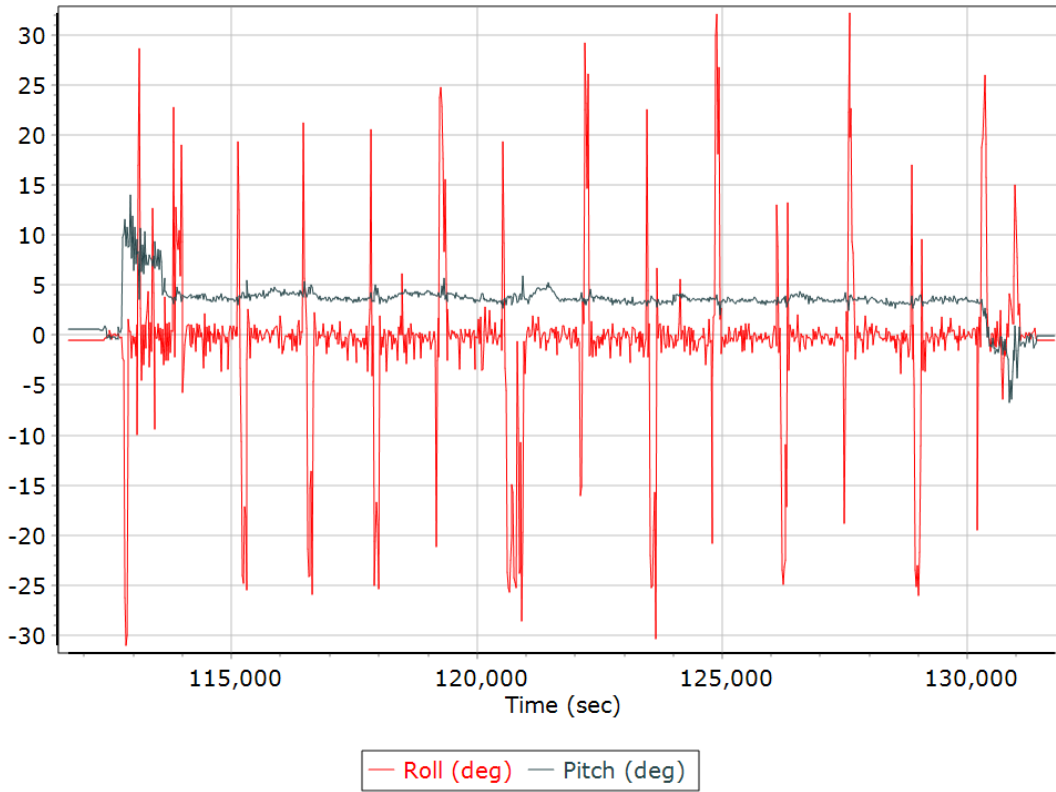
### Top View



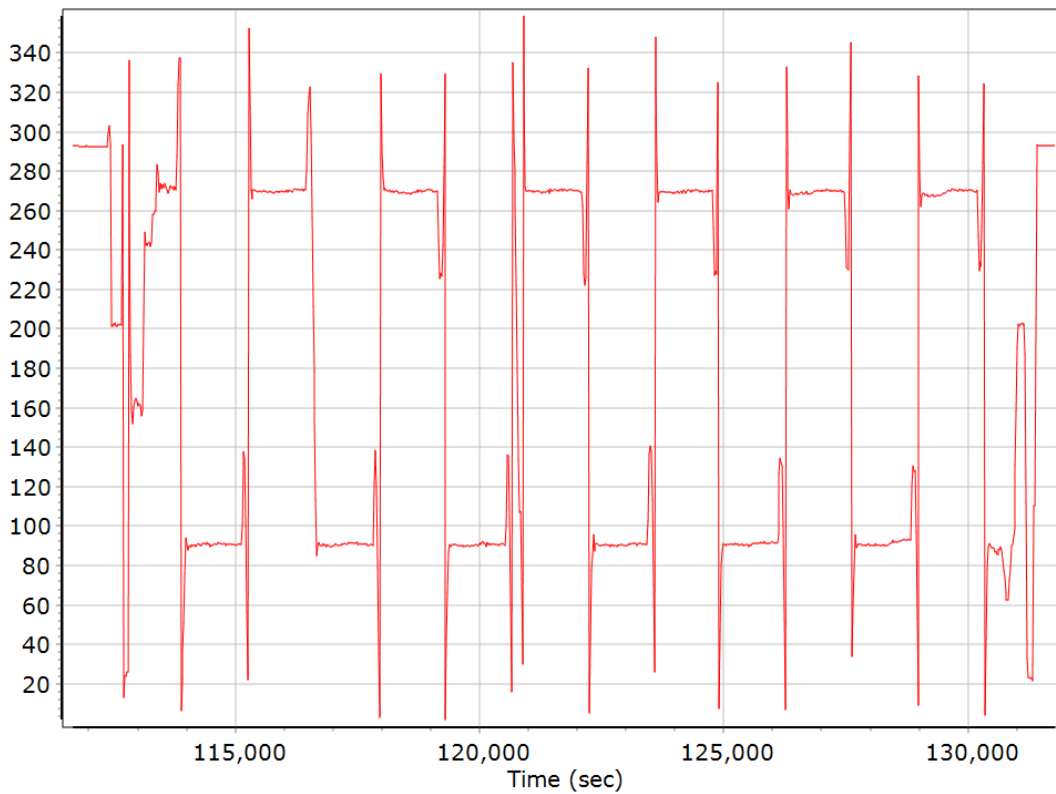
### Altitude



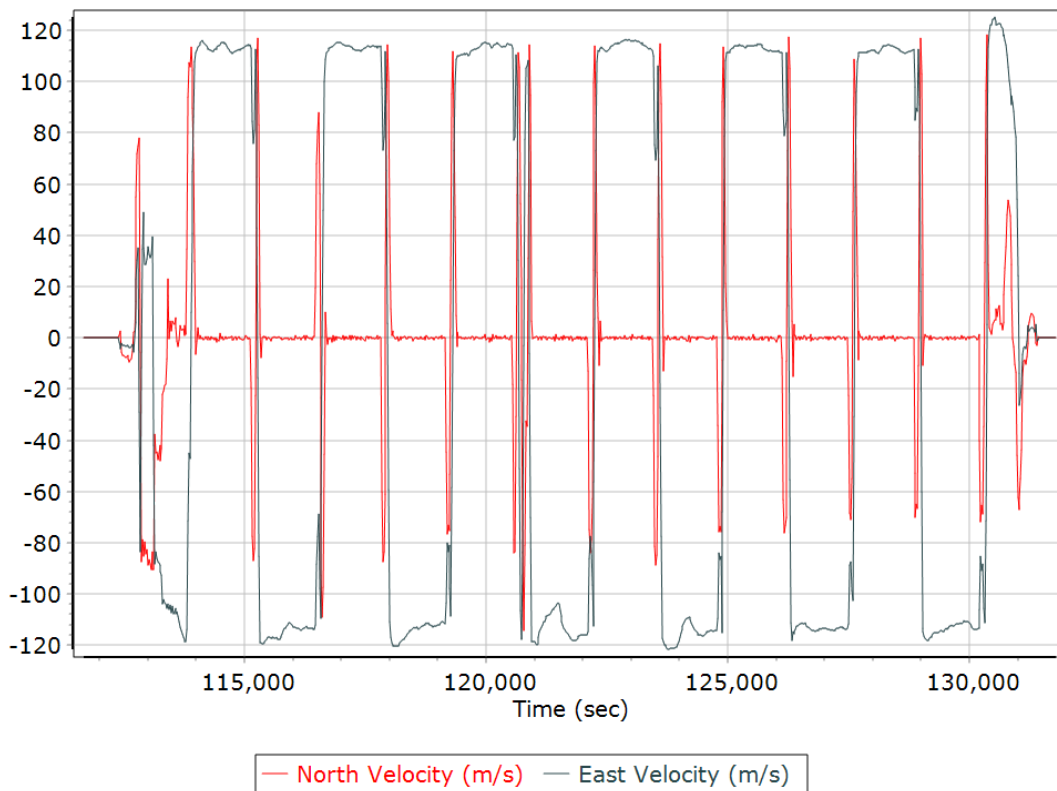
## Roll/Pitch



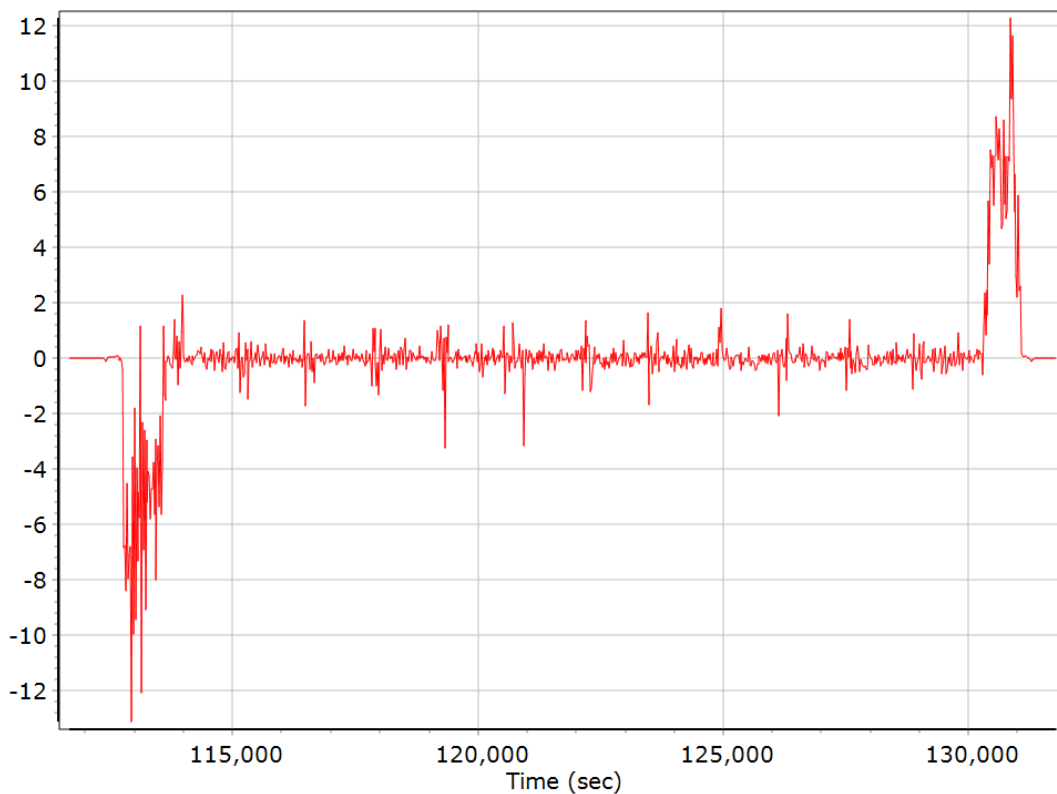
## Heading



### North/East Velocity

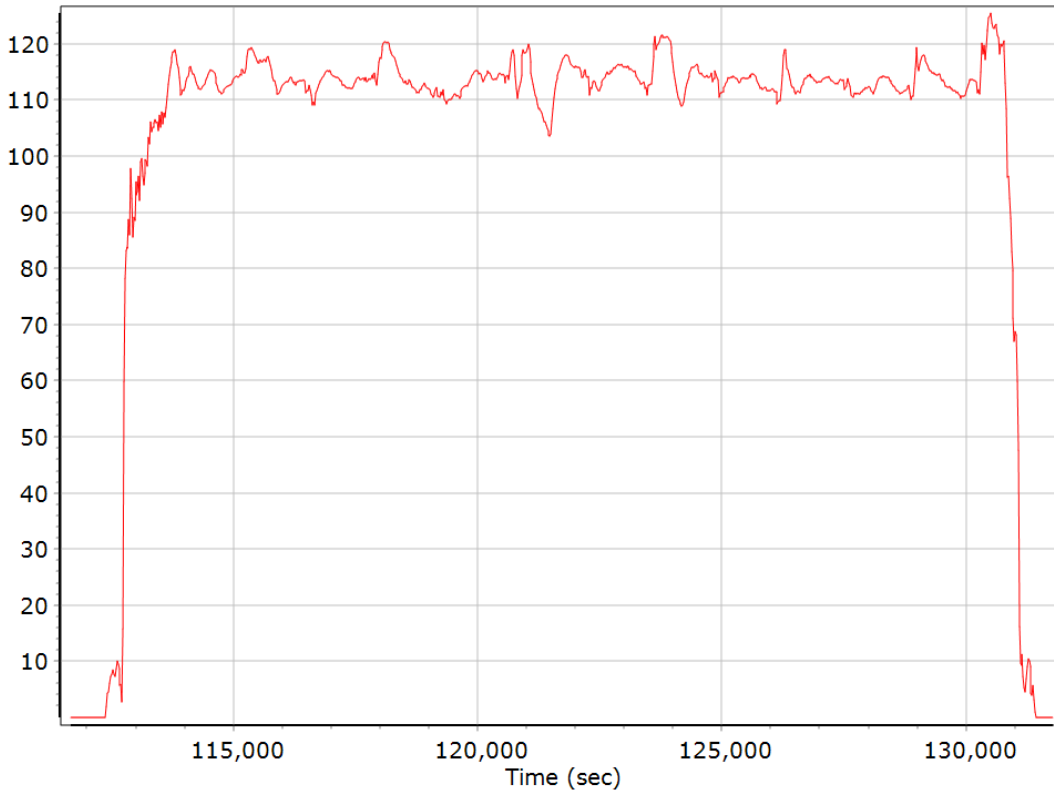


### Down Velocity

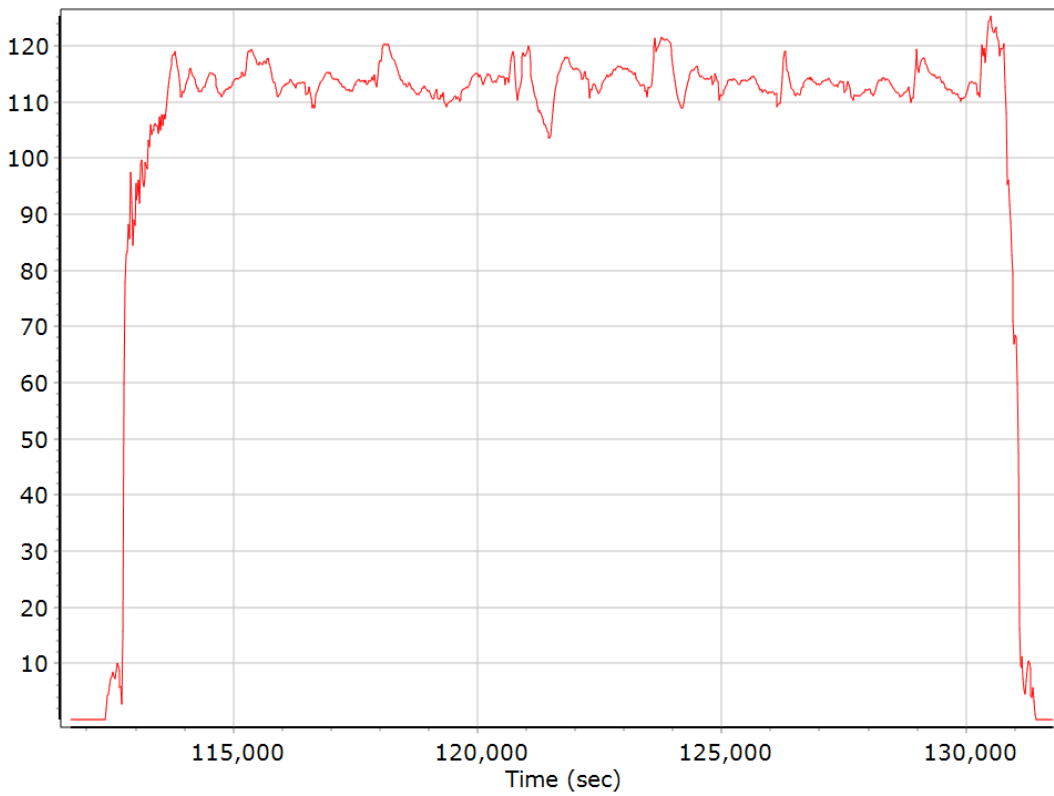




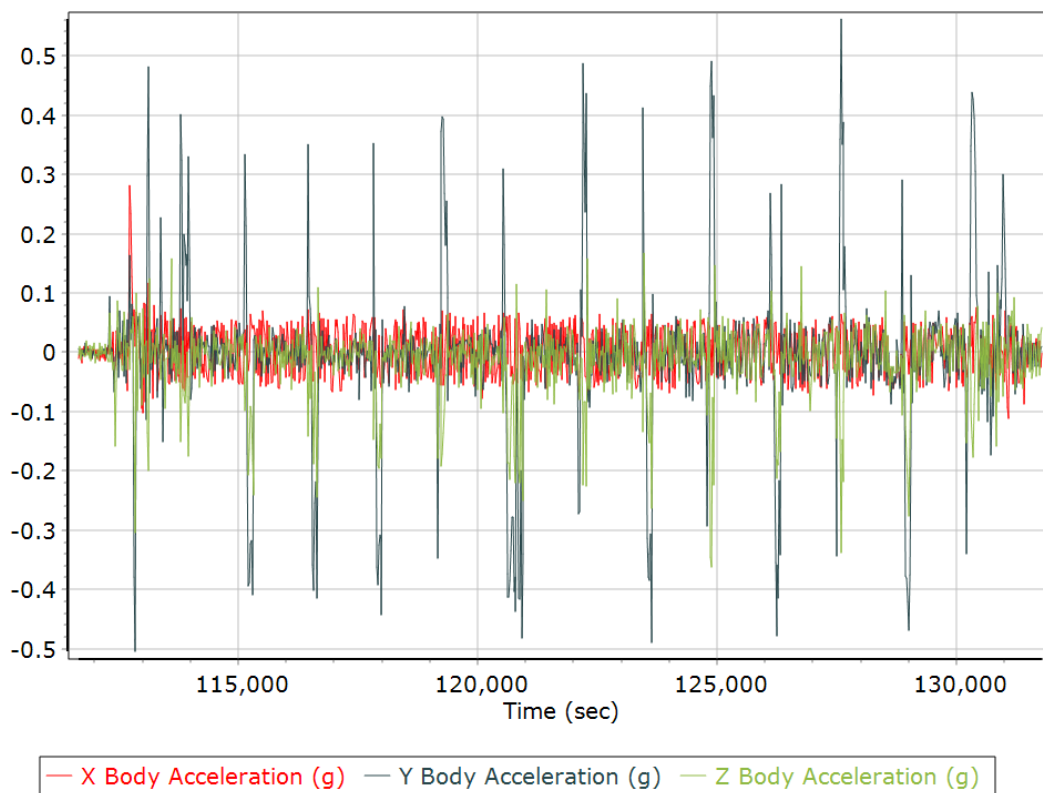
## Total Speed



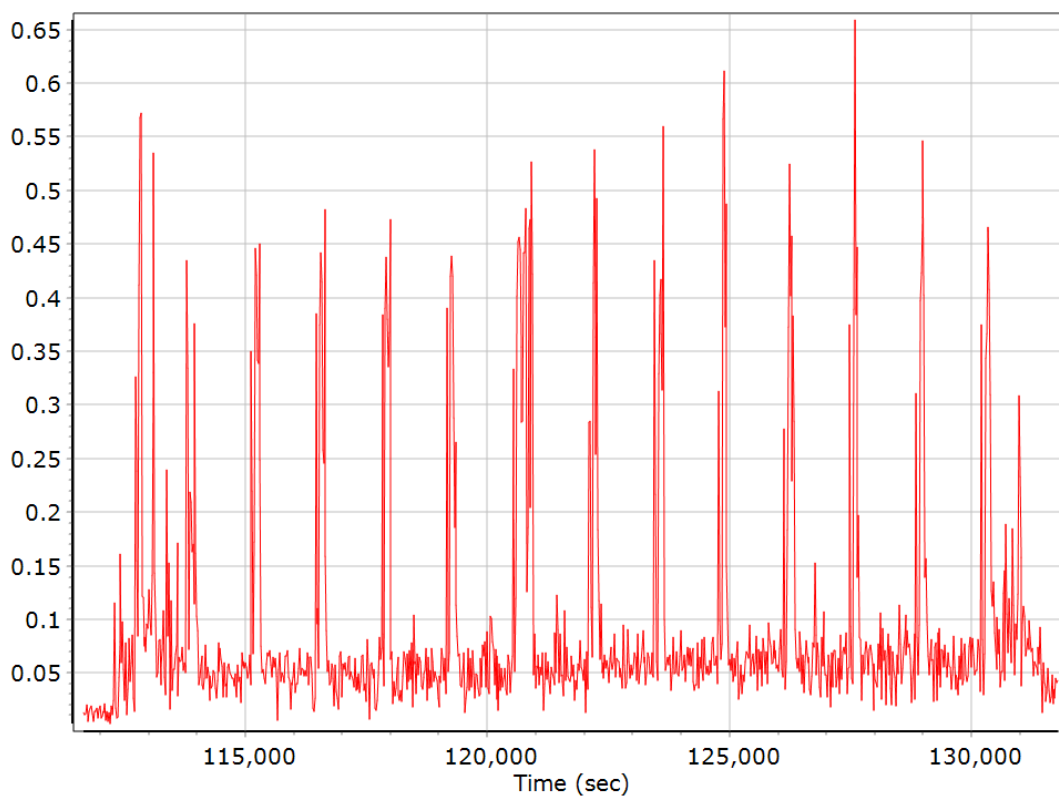
## Ground Speed



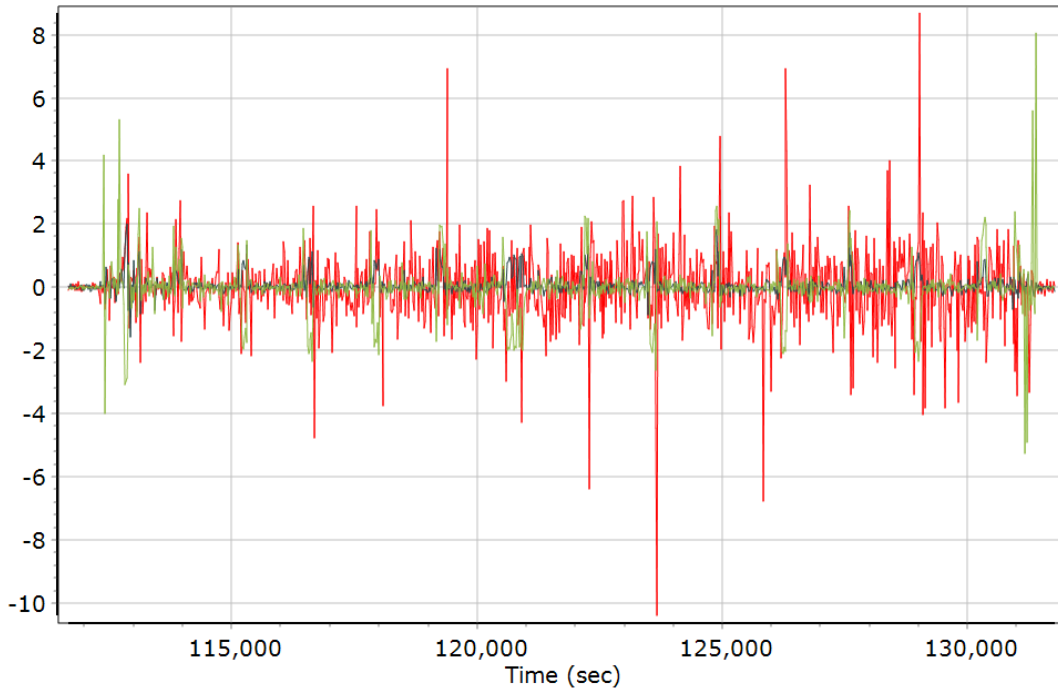
### Body Acceleration



### Total Body Acceleration



## Body Angular Rate



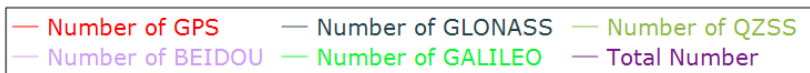
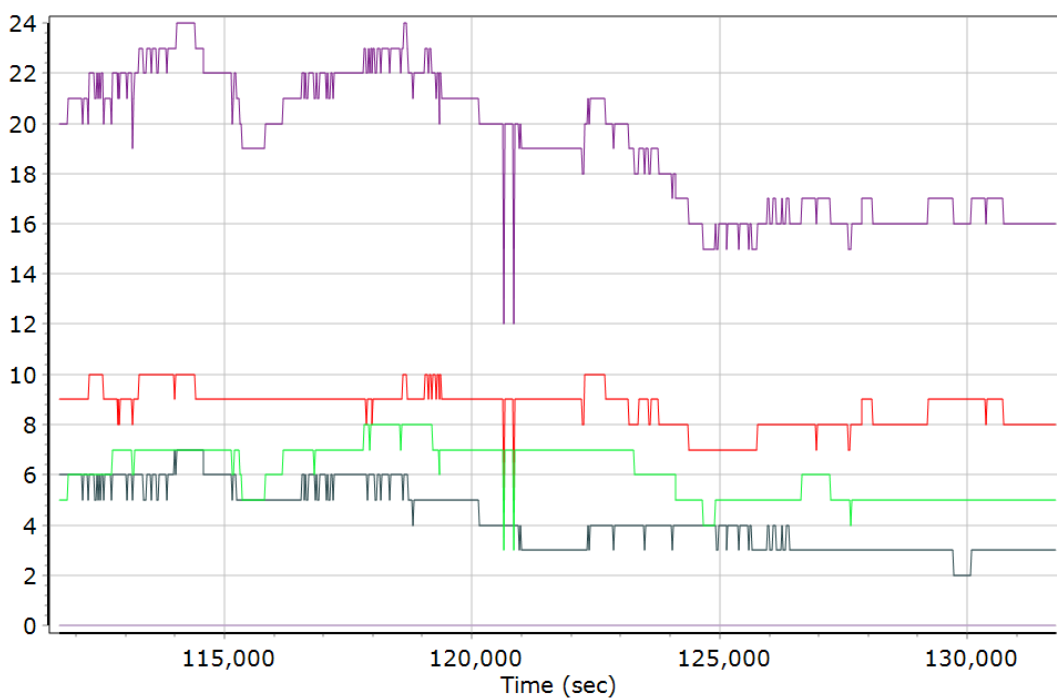
— X Body Angular Rate (deg/sec) — Y Body Angular Rate (deg/sec)  
— Z Body Angular Rate (deg/sec)

## GNSS QC

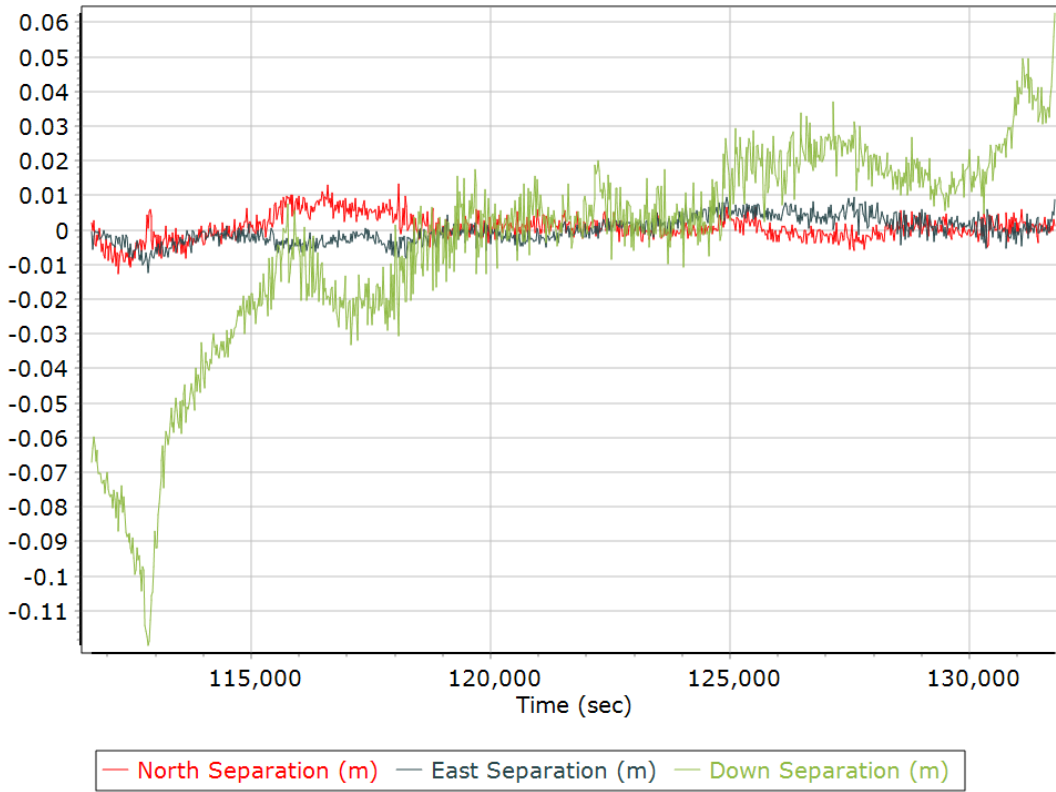
### GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	4	10	9
Number of GLONASS SV	0	7	4
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	0	8	6
Total number of SV	10	24	19
PDOP	0.99	2.74	1.25
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	20588.00	0.00	0.00
Percentage	100.00	0.00	0.00

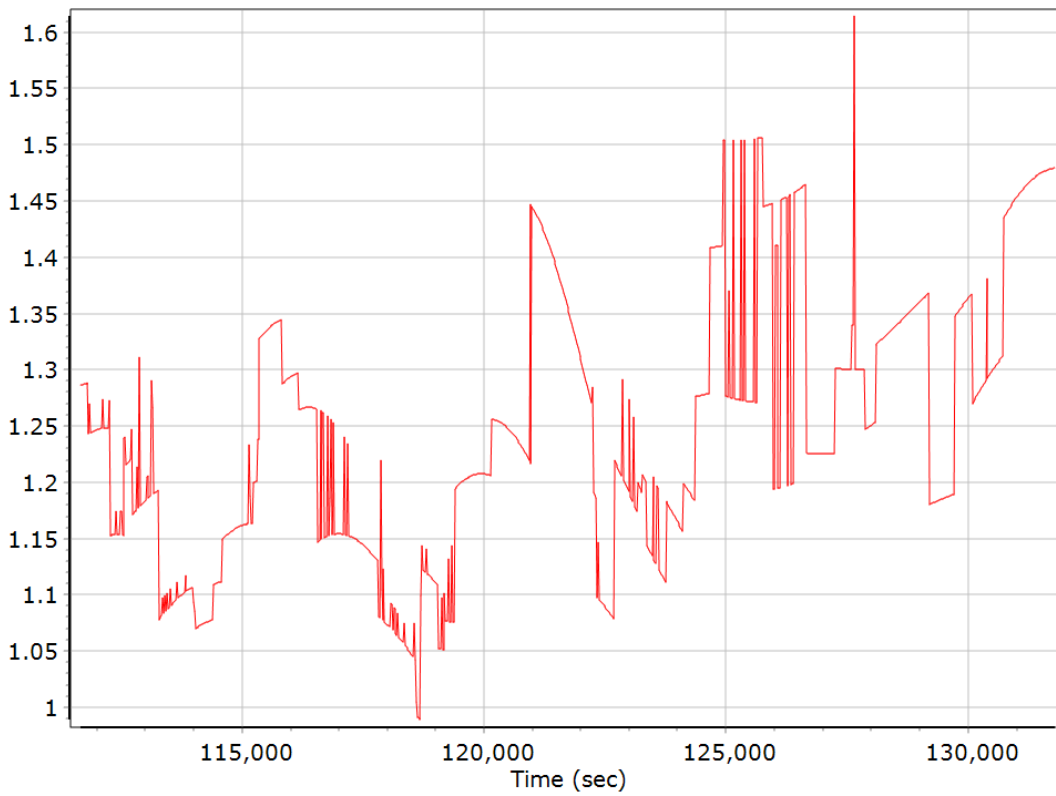
### Num SVs in solution



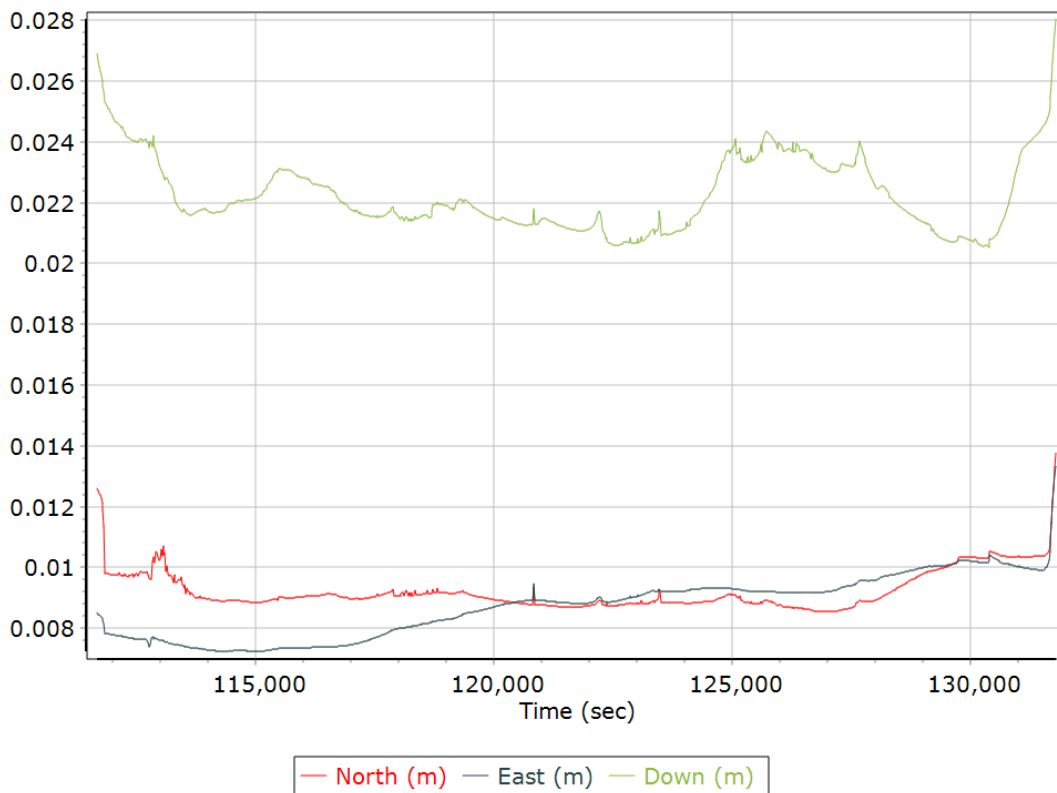
## Forward/Reverse Separation



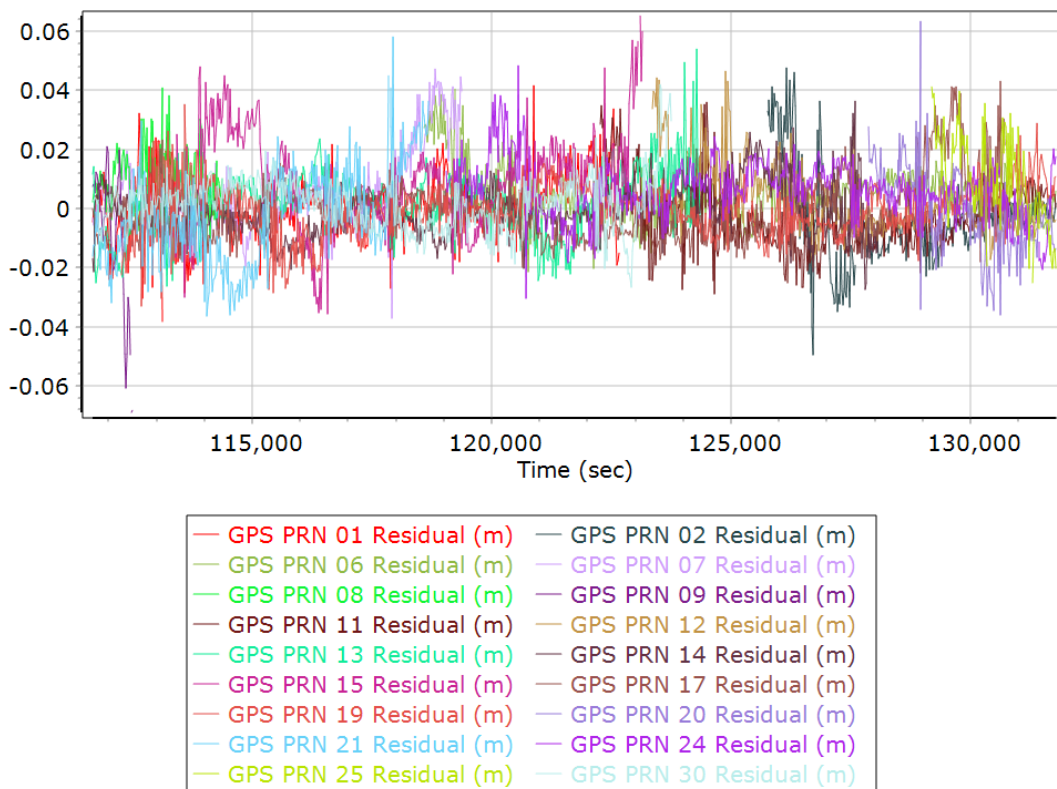
## PDOP



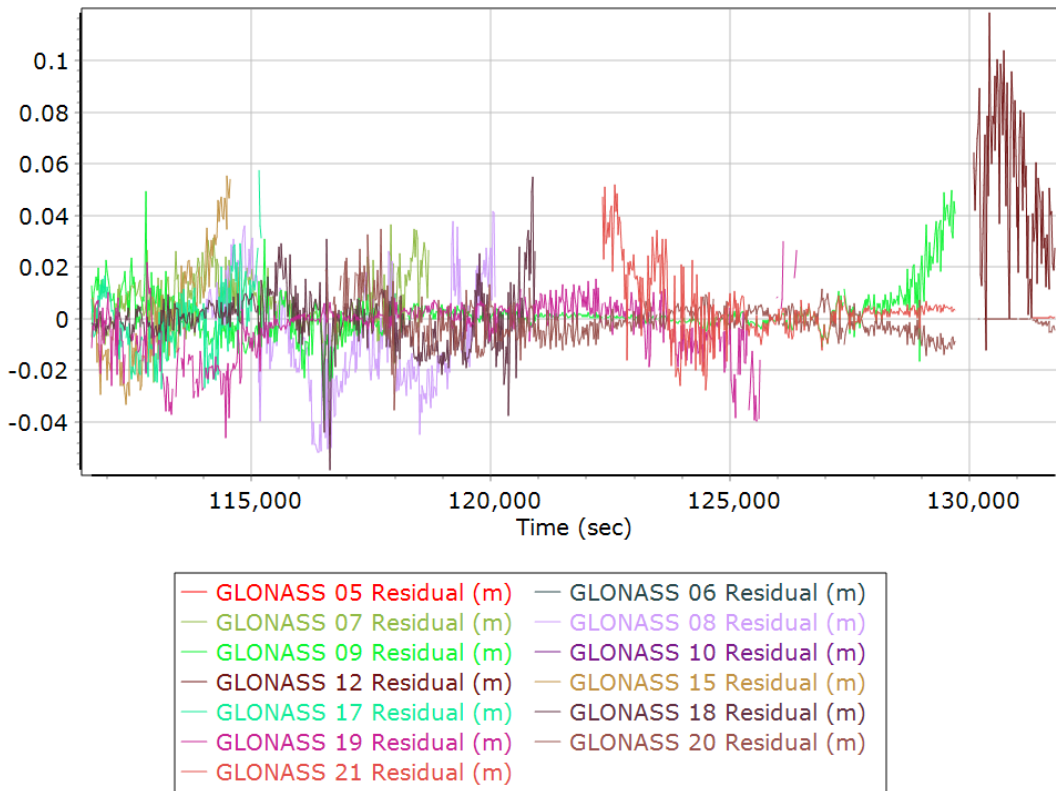
### Estimated Position Accuracy



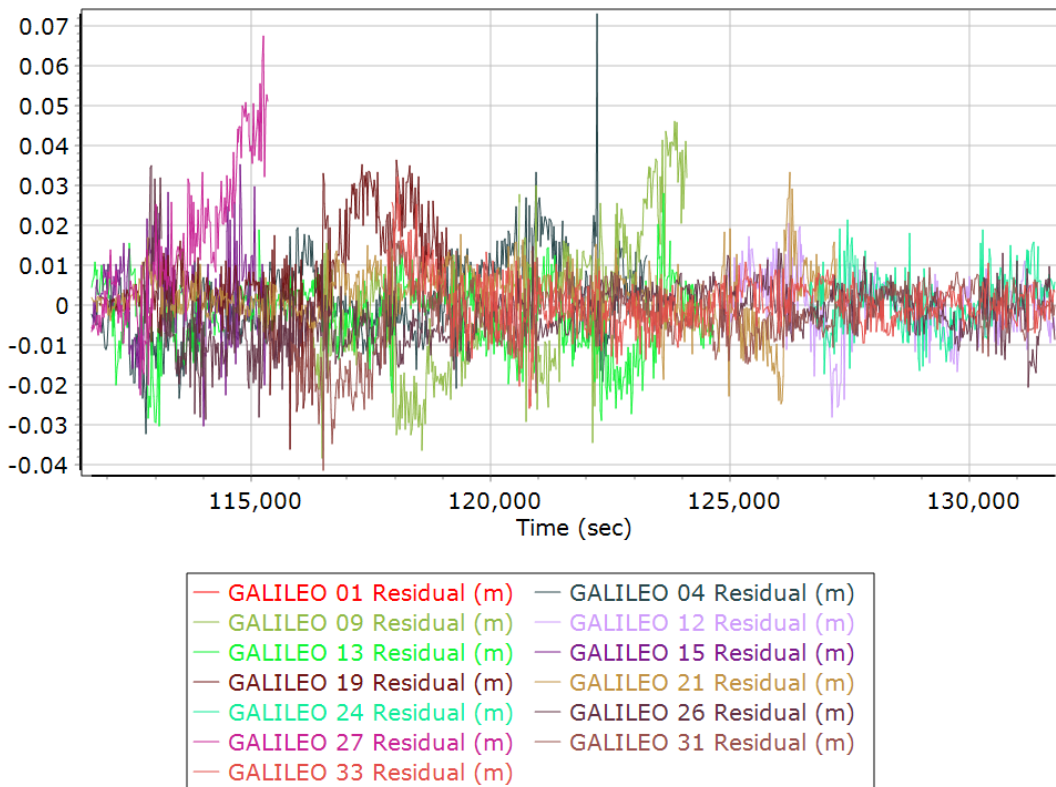
### GPS Residuals



### GLONASS Residuals



### GALILEO Residuals



## GNSS-Inertial Processor Configuration

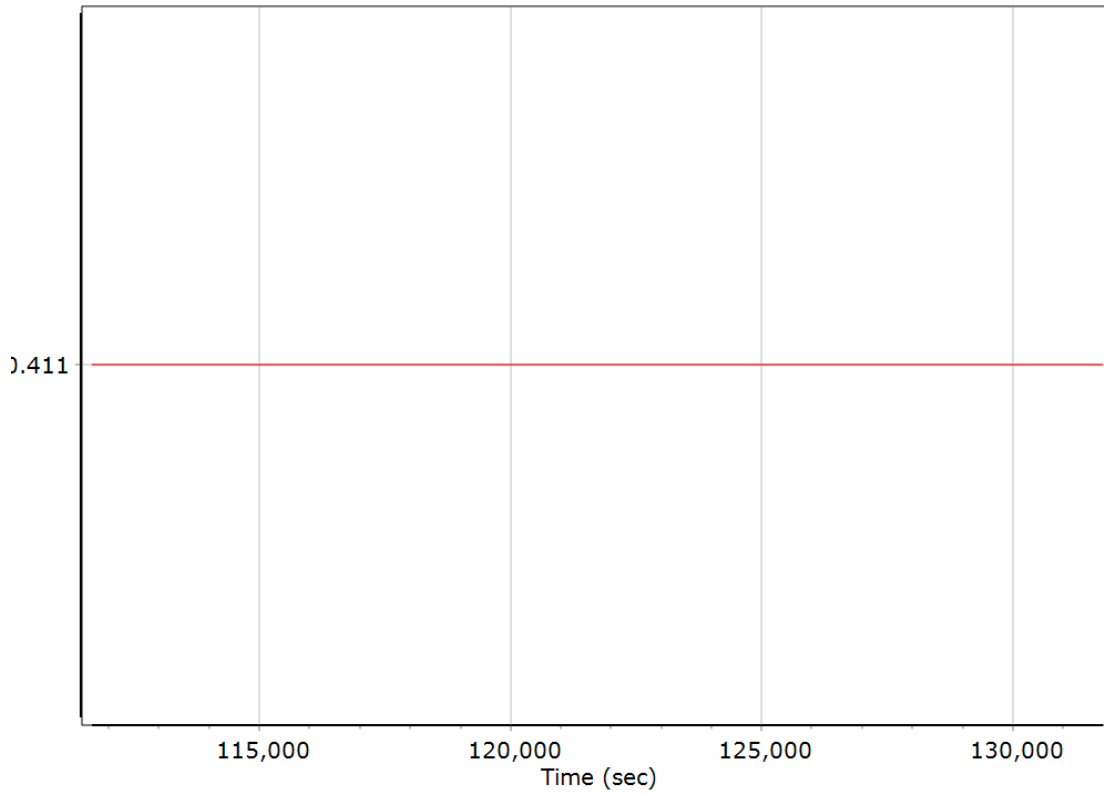
Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	111199.000 (8/29/2022 6:53:19 AM)		
Processing end time	131796.000 (8/29/2022 12:36:36 PM)		
Initial attitude source	Real-Time VNAV/RNAV Attitude		
IMU Sensor Context	Processing with Onboard IMU		
Reference to IMU lever arm (m)	0.000	0.000	0.000
Reference to IMU mounting angles (deg)	0.000	0.000	0.000
Reference to Primary GNSS lever arm (m)	-0.411	-0.283	-1.282
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



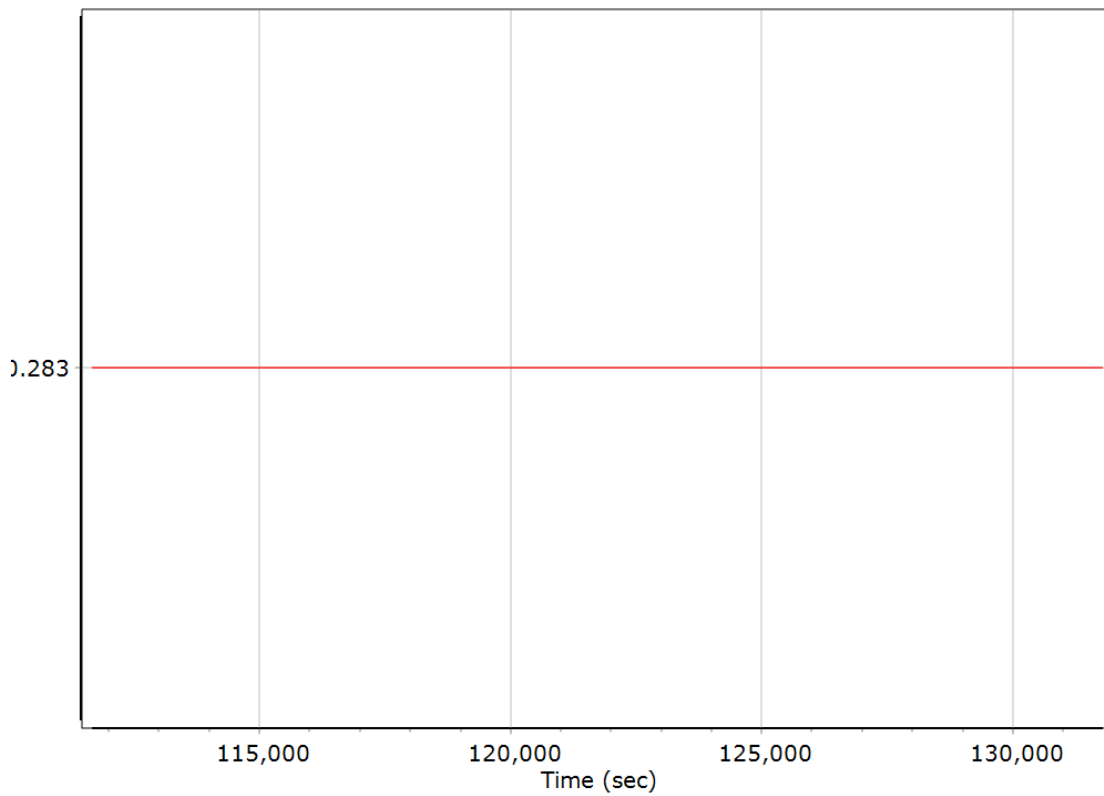
## Calibrated Installation Parameters

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

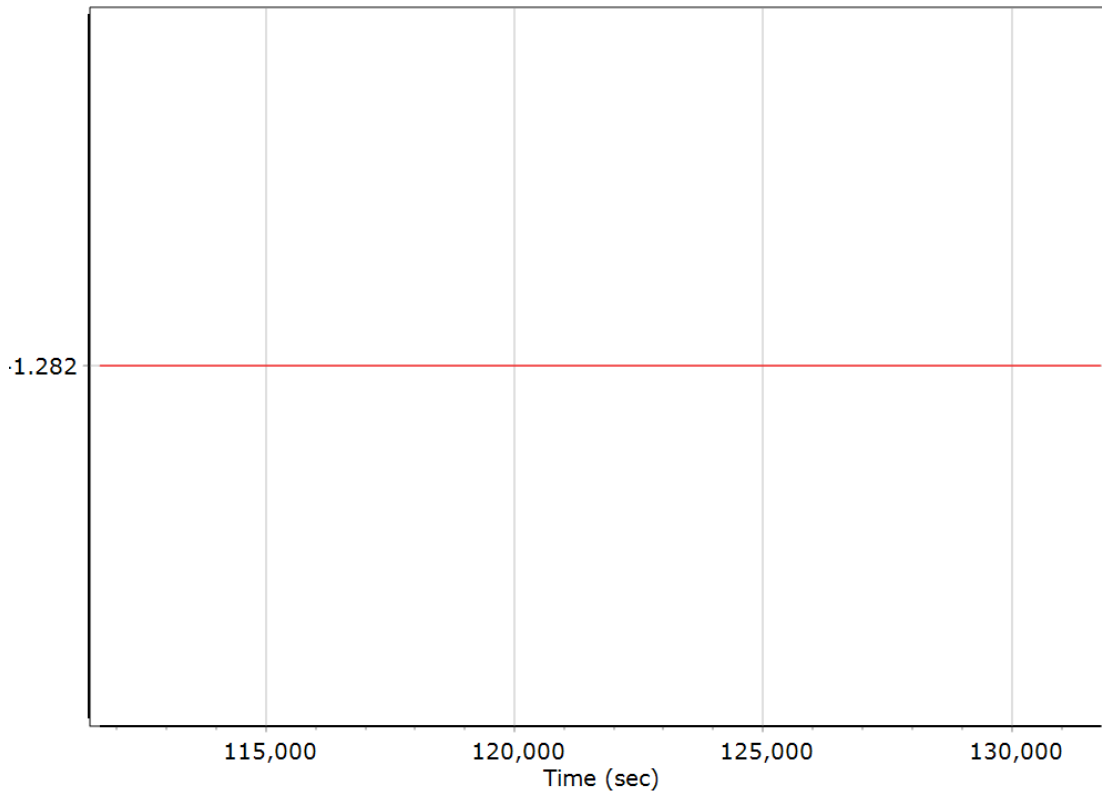
#### X Reference-Primary GNSS Lever Arm (m)



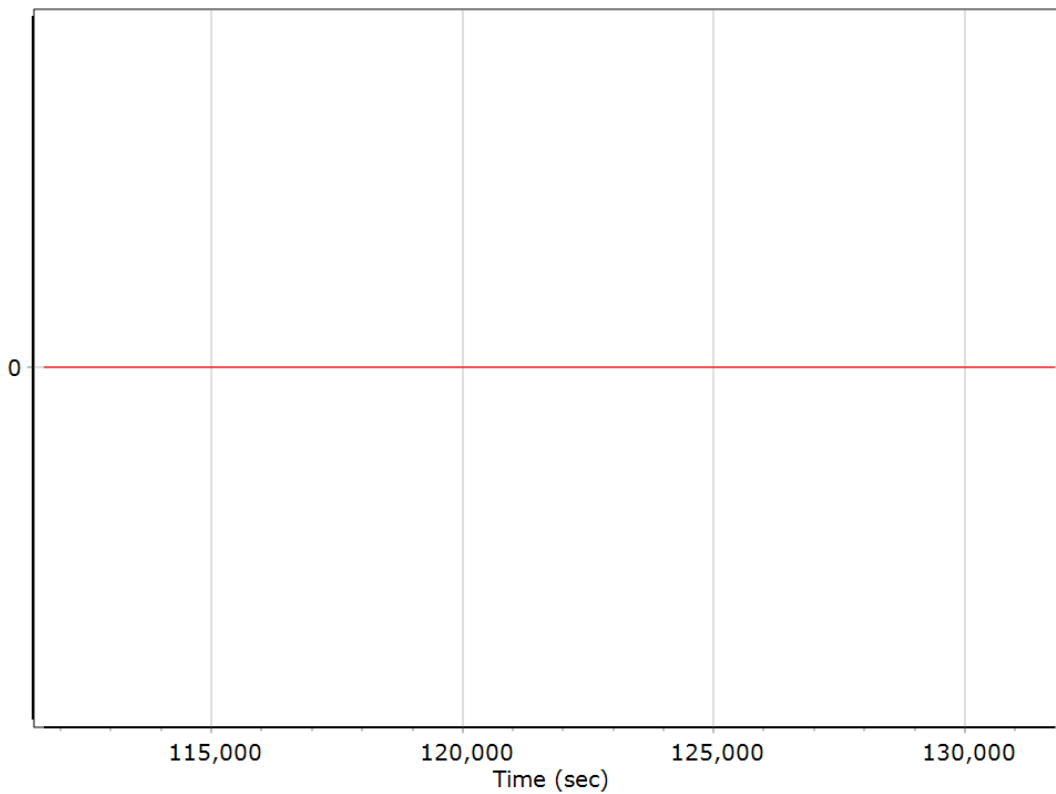
#### Y Reference-Primary GNSS Lever Arm (m)



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



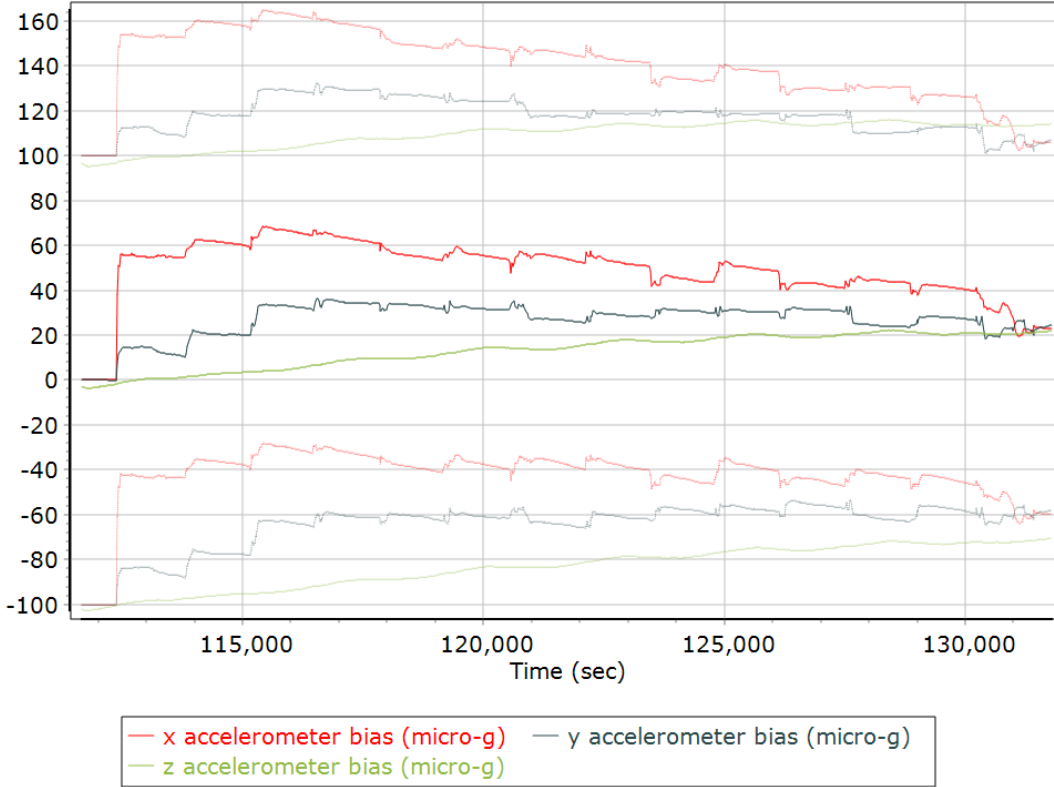
### Reference-Primary GNSS Lever Arm Figure of Merit



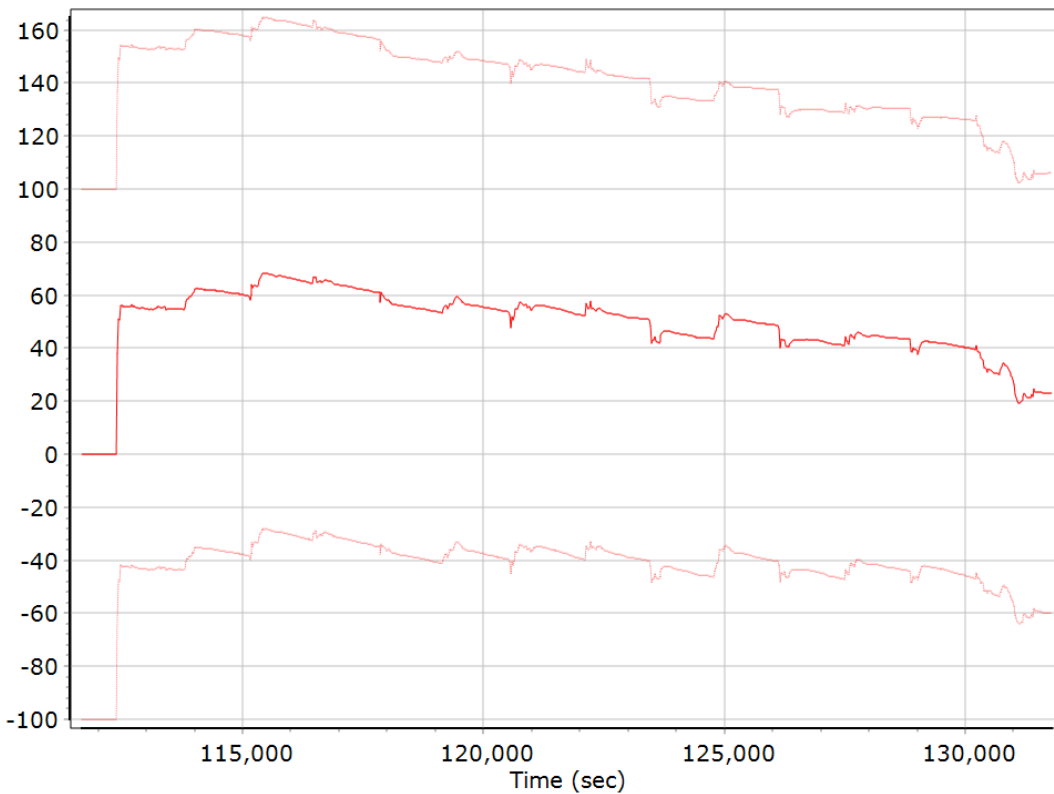
# IN-Fusion QC

## Forward Processed Estimated Errors, Reference Frame

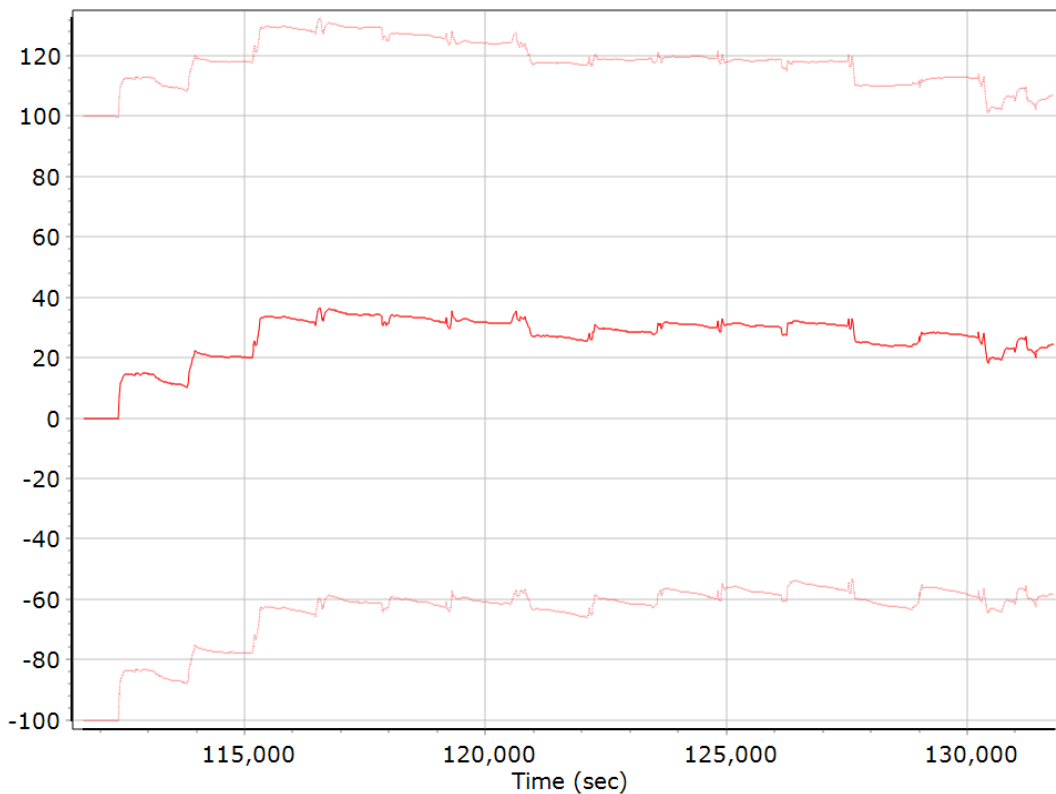
### Accelerometer Bias (micro-g)



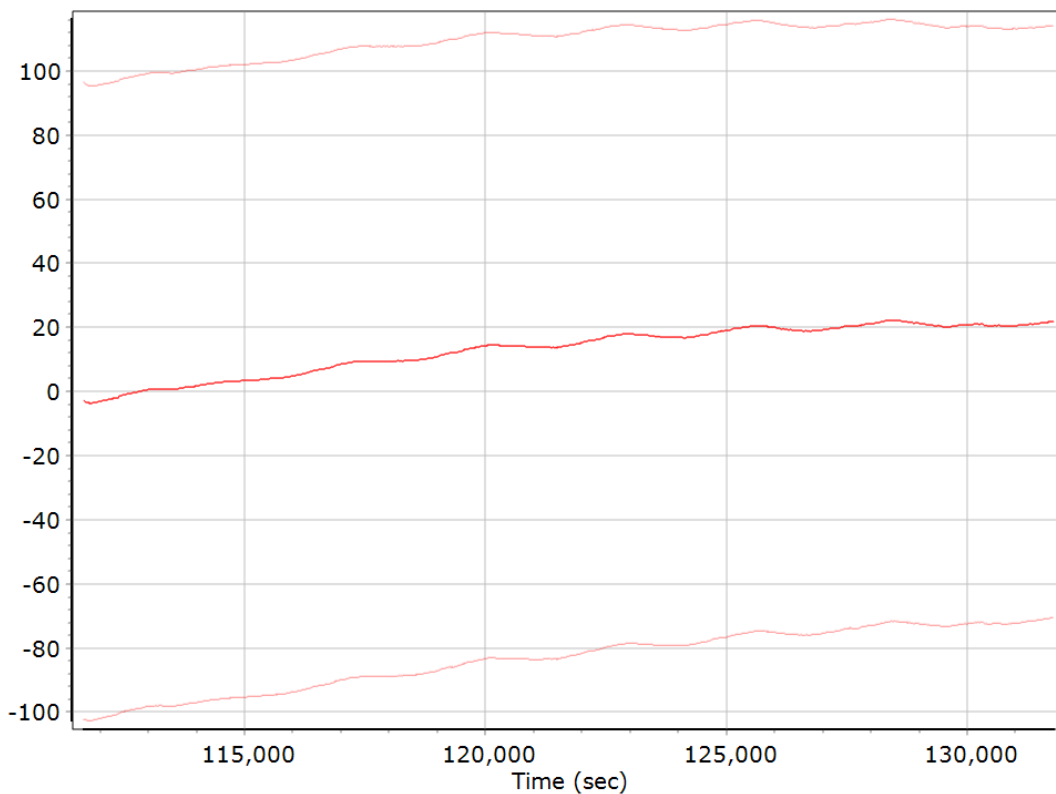
### X Accelerometer Bias (micro-g)



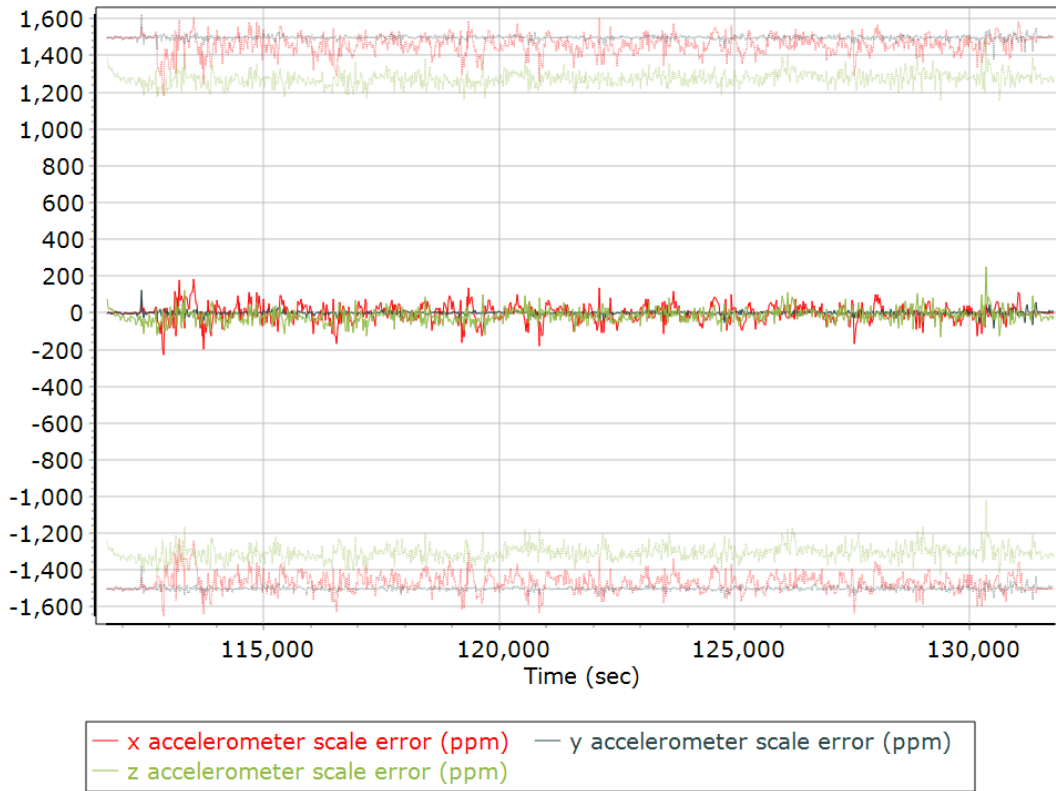
### Y Accelerometer Bias (micro-g)



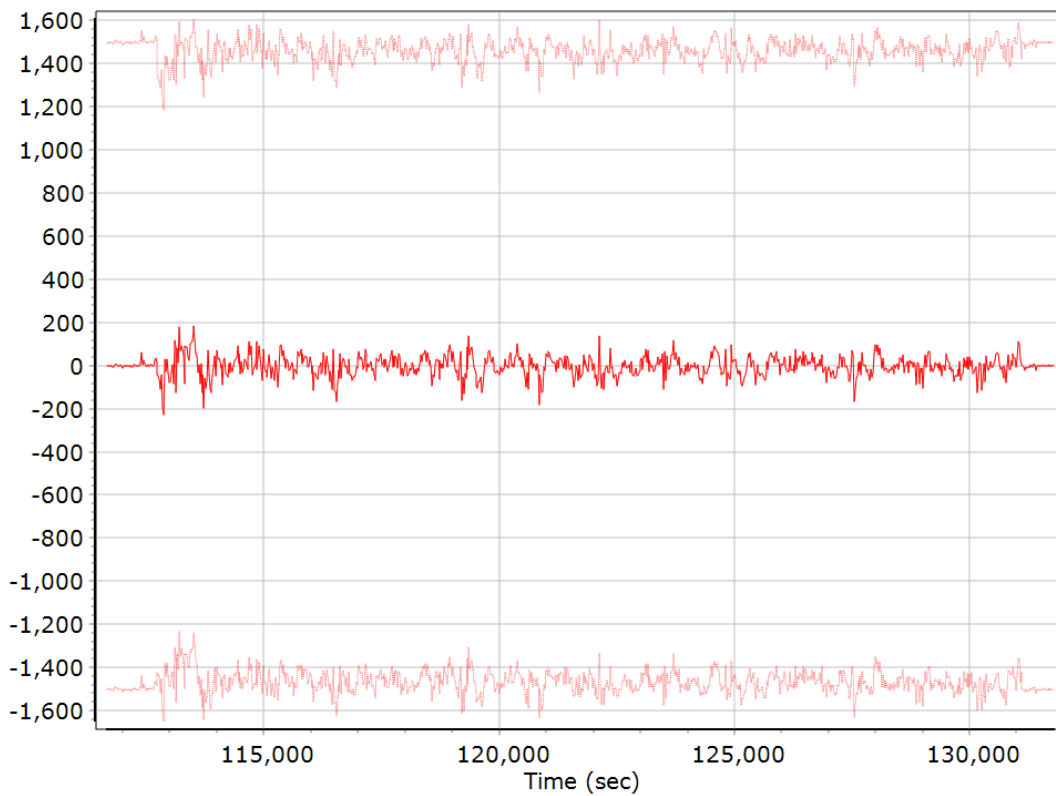
### Z Accelerometer Bias (micro-g)



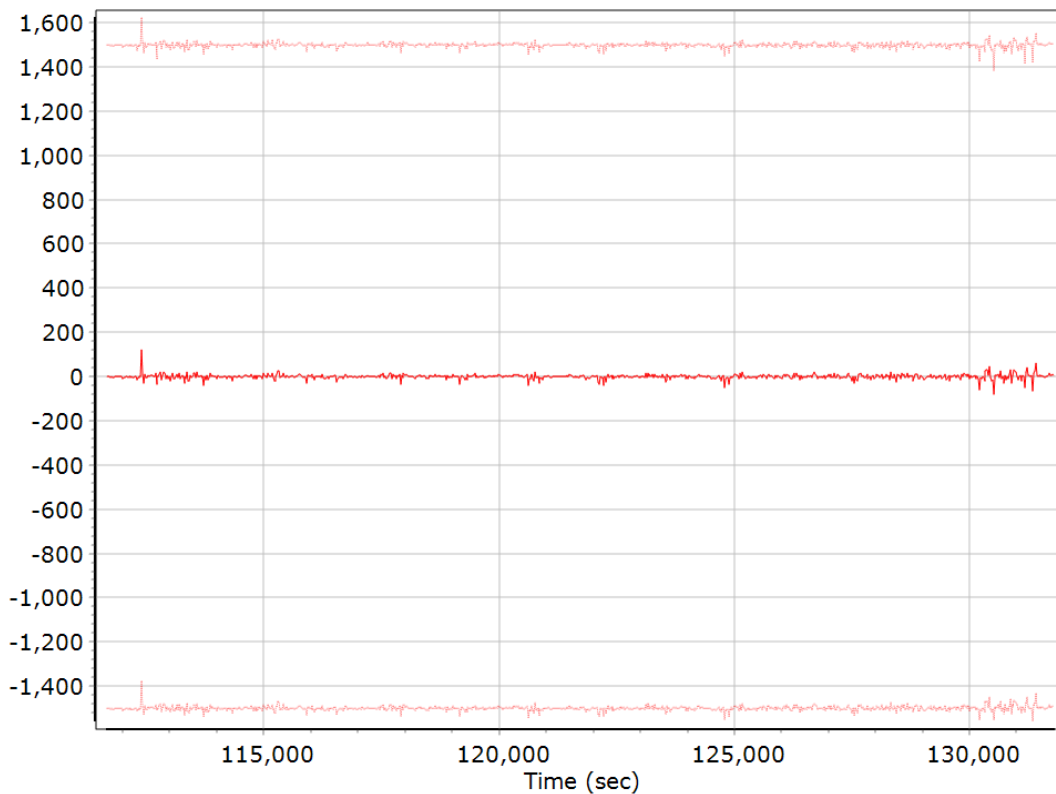
### Accelerometer Scale Error (ppm)



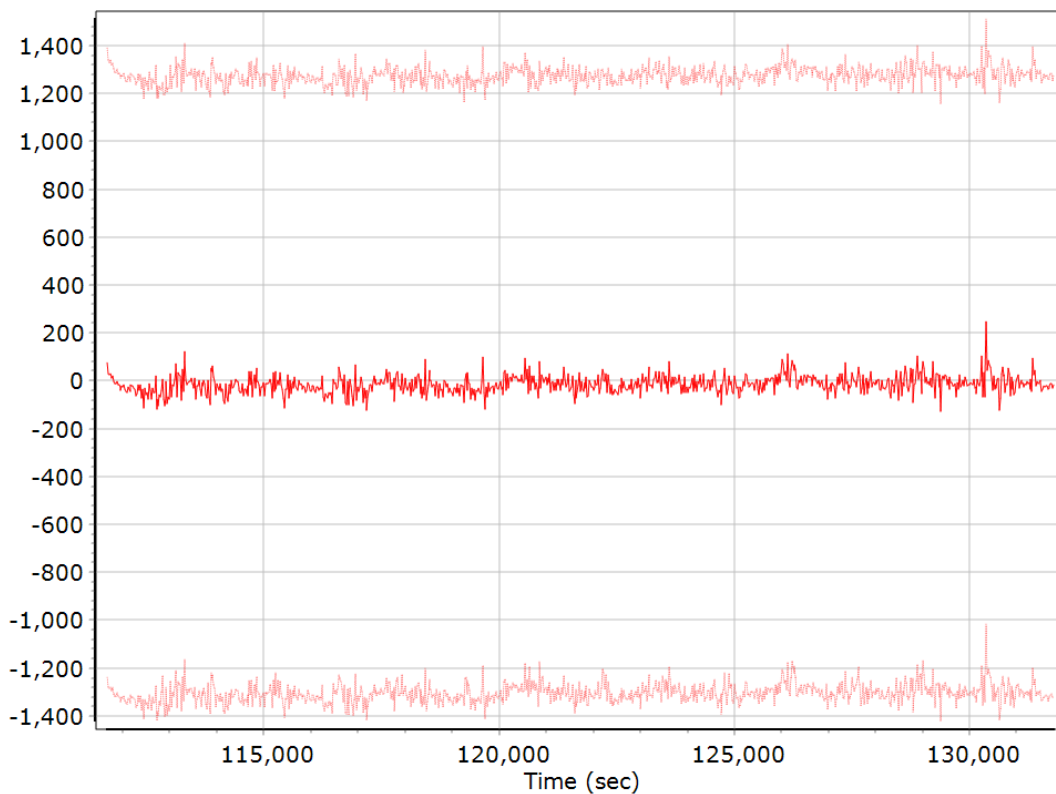
### X Accelerometer Scale Error (ppm)



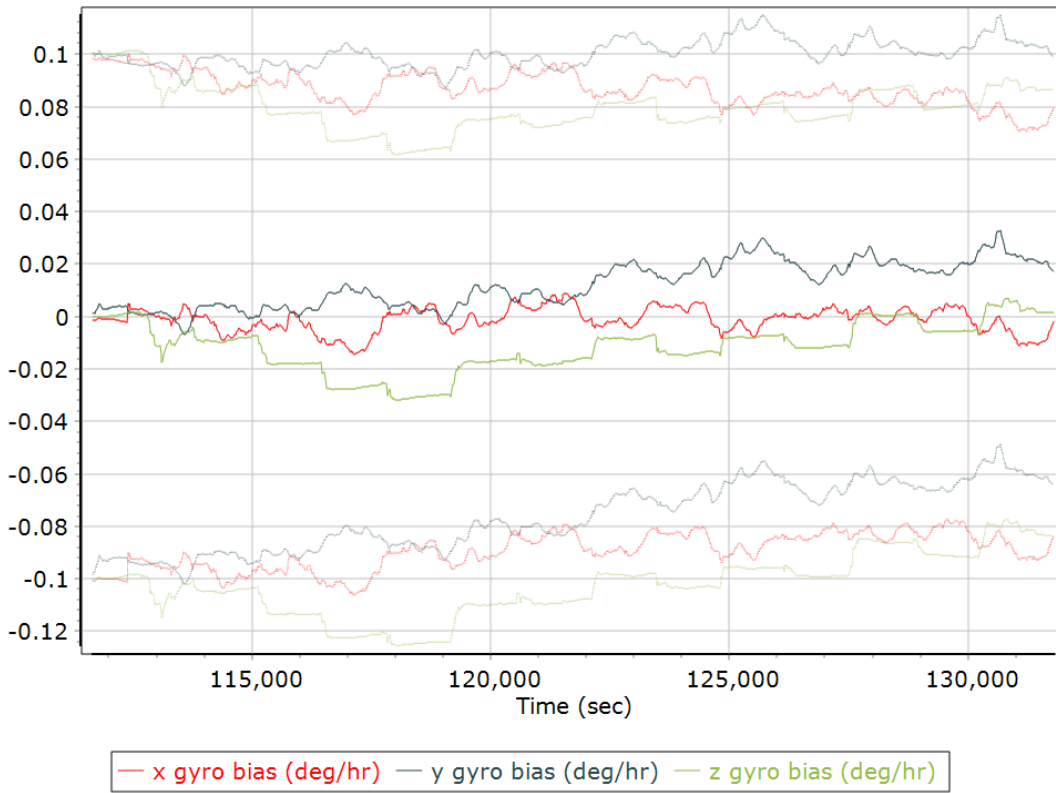
### Y Accelerometer Scale Error (ppm)



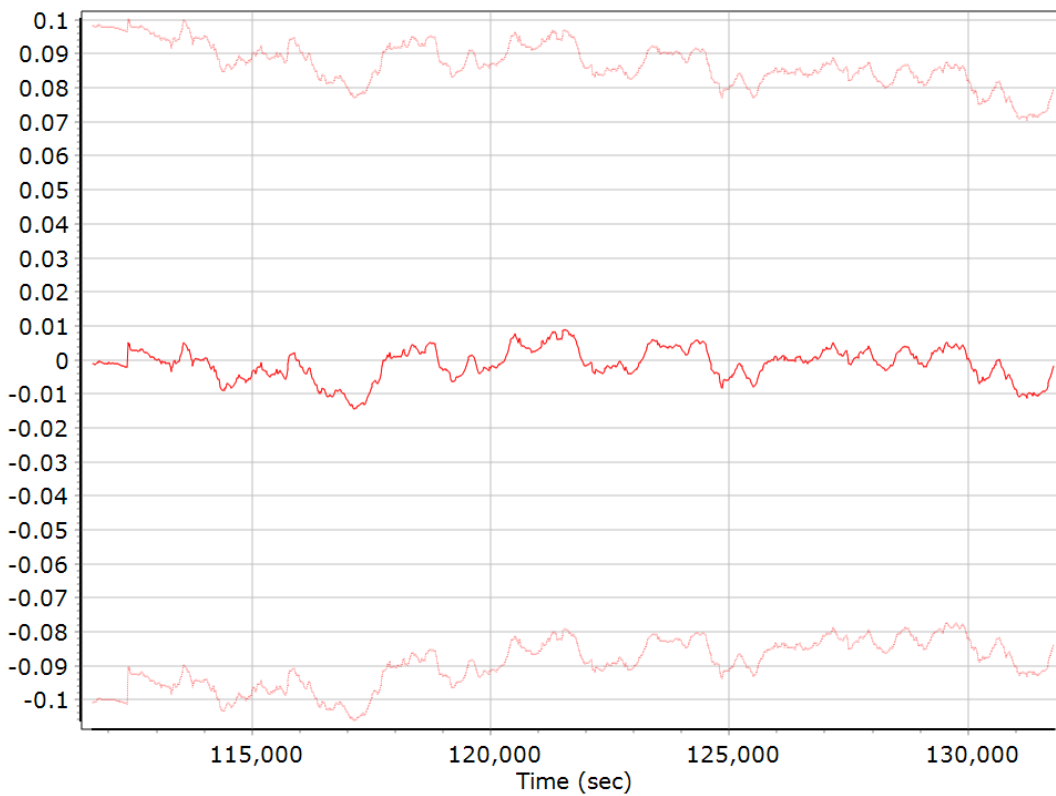
### Z Accelerometer Scale Error (ppm)



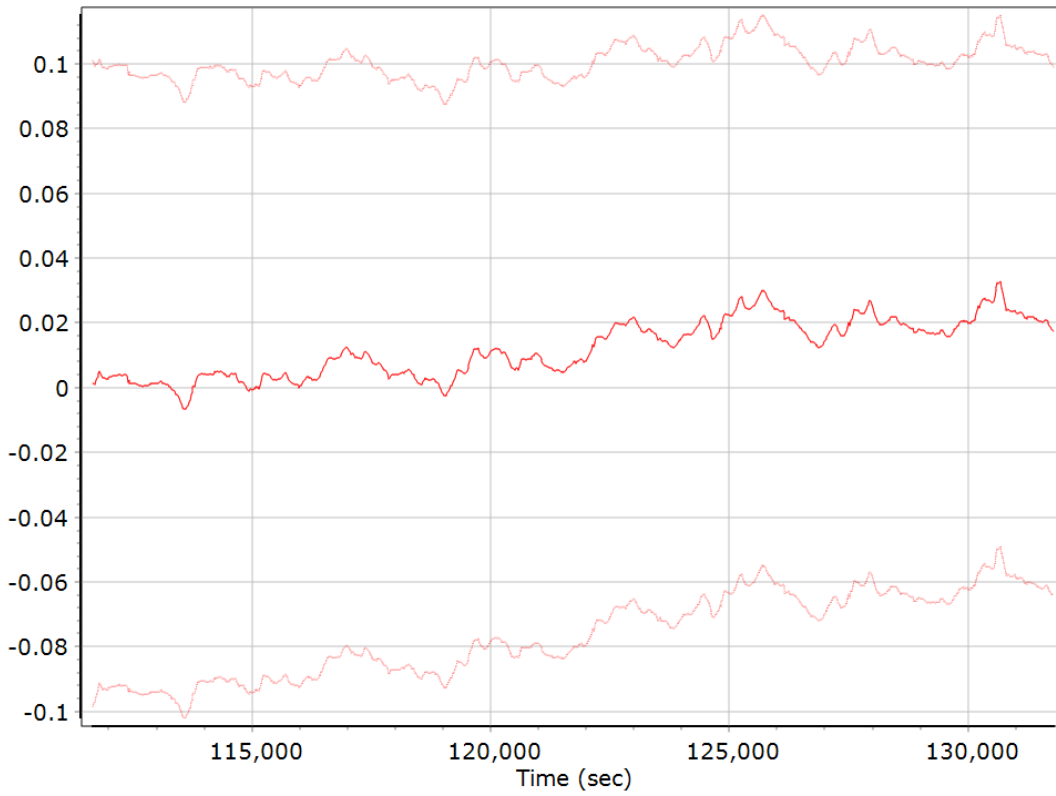
### Gyro Bias (deg/h)



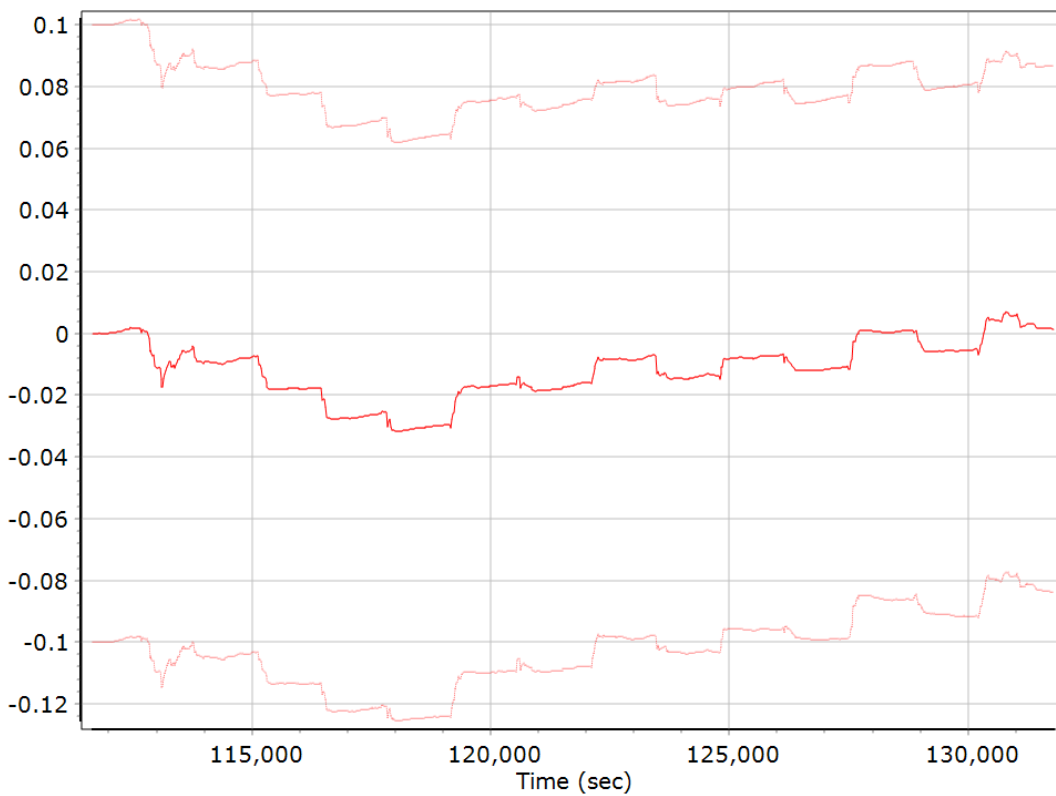
### X Gyro Bias (deg/h)



### Y Gyro Bias (deg/h)

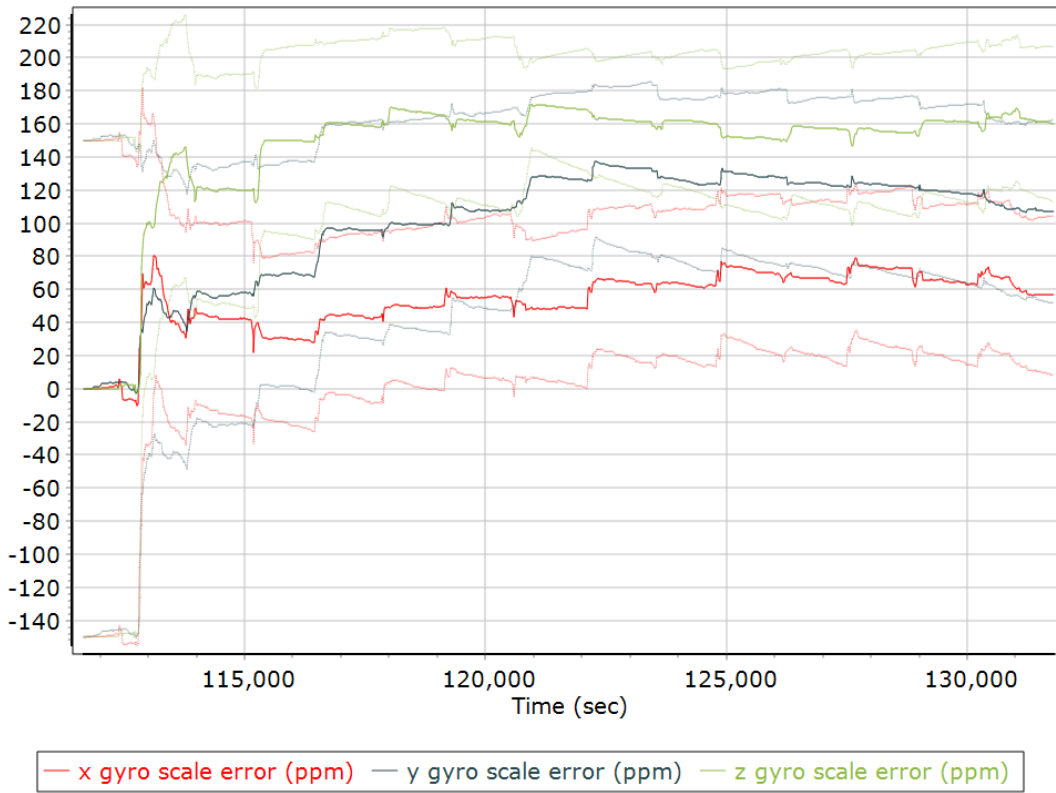


### Z Gyro Bias (deg/h)

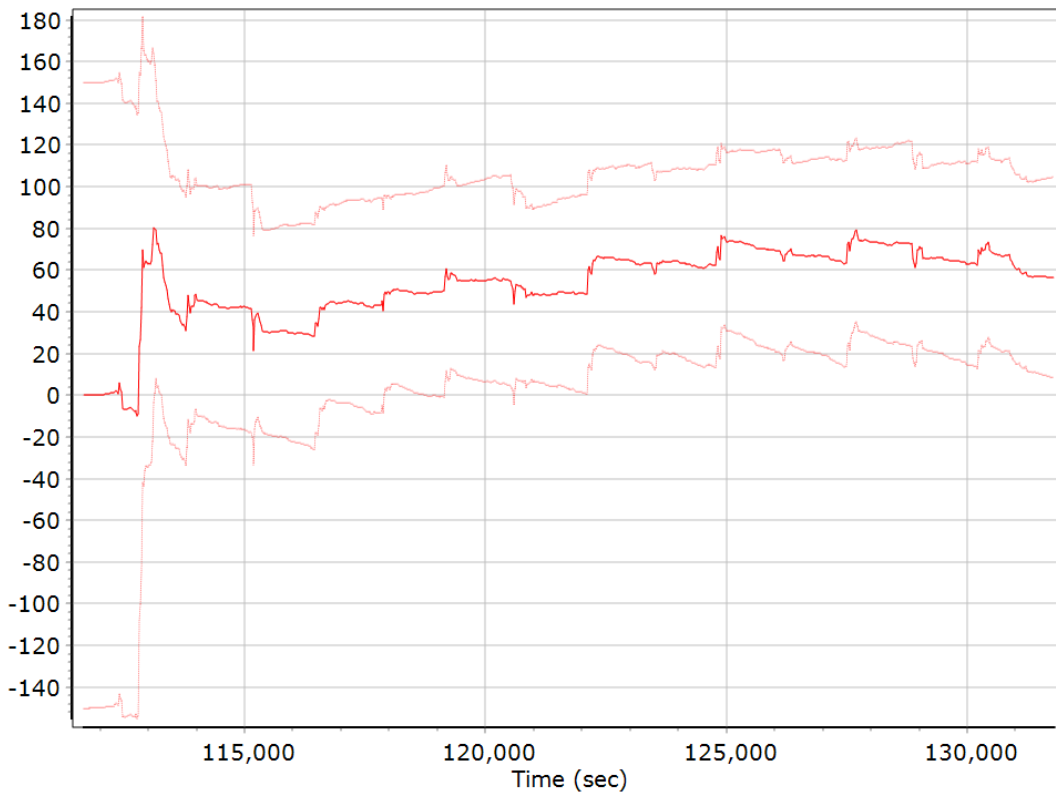




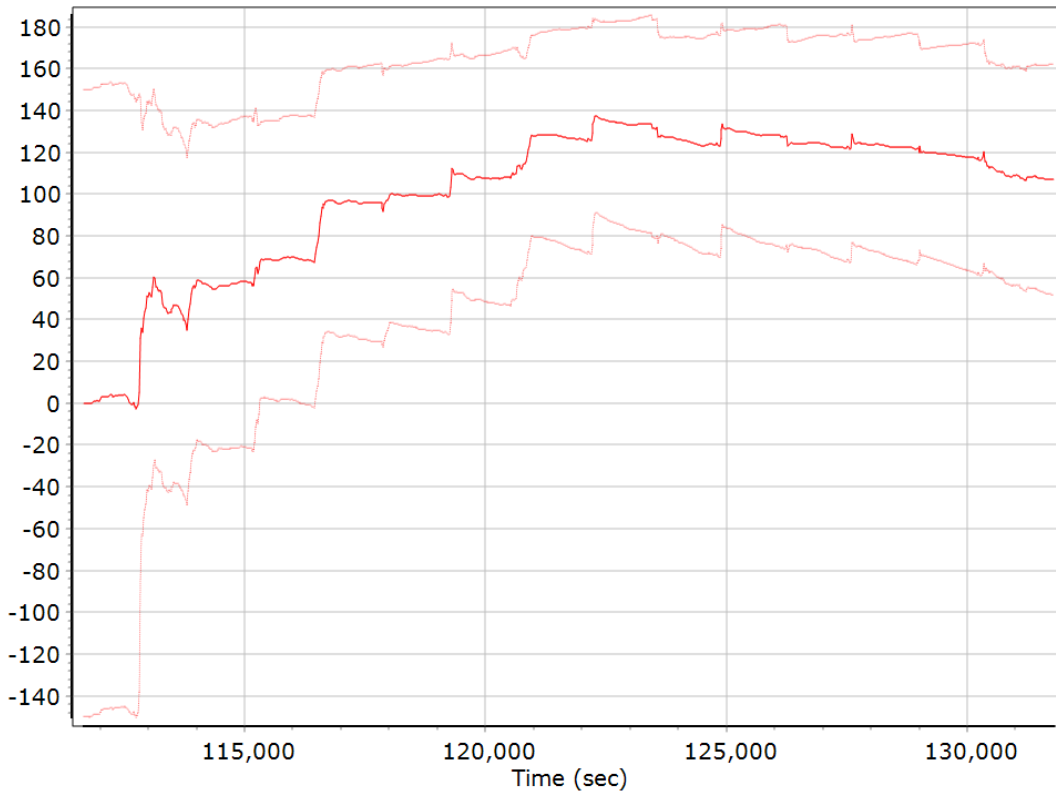
### Gyro Scale Error (ppm)



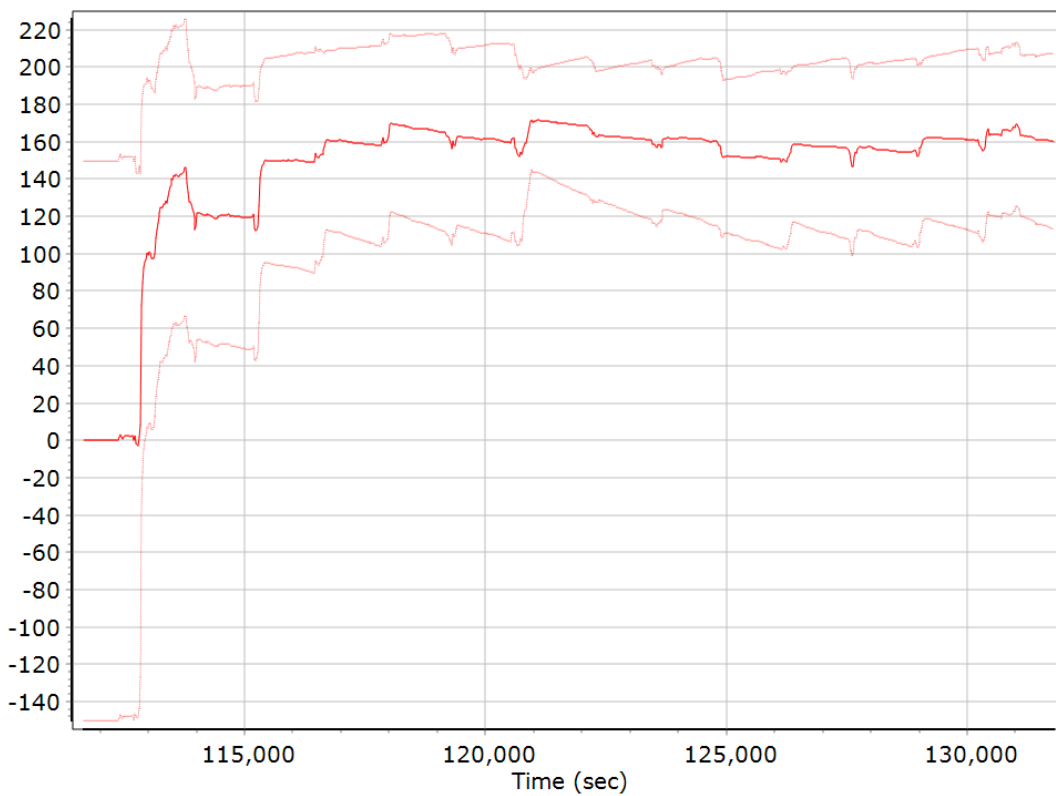
### X Gyro Scale Error (ppm)



### Y Gyro Scale Error (ppm)

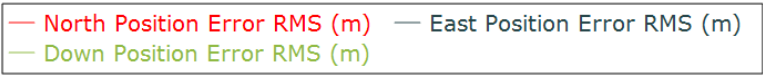
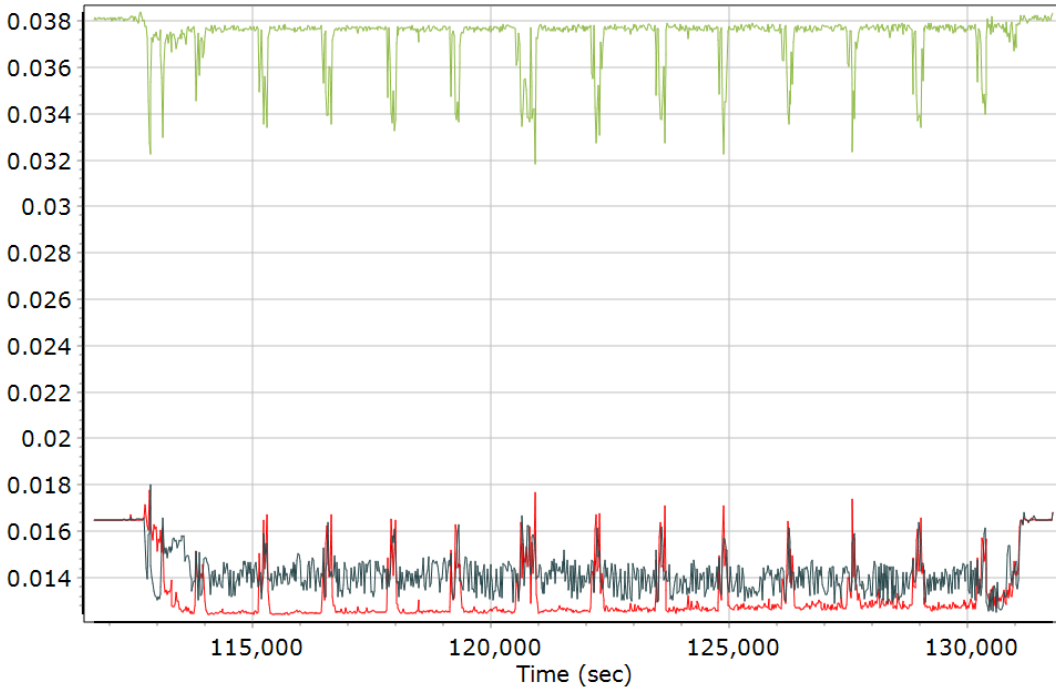


### Z Gyro Scale Error (ppm)

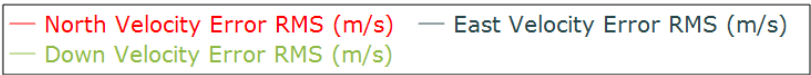
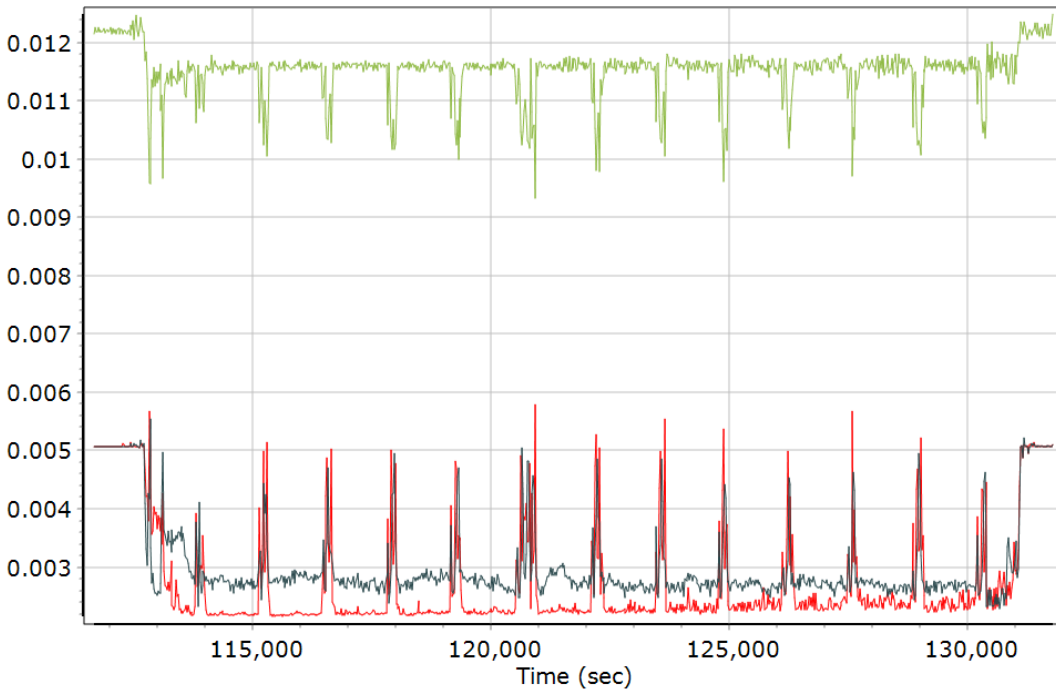


## Smoothed Performance Metrics

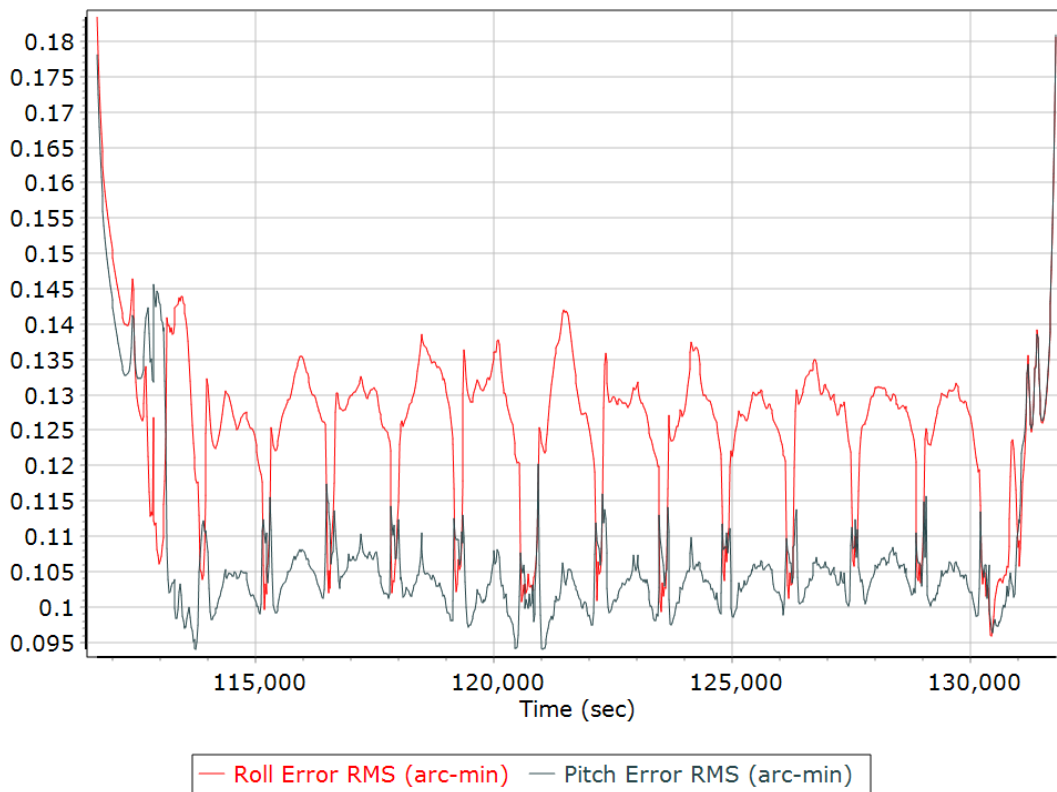
### Position Error RMS (m)



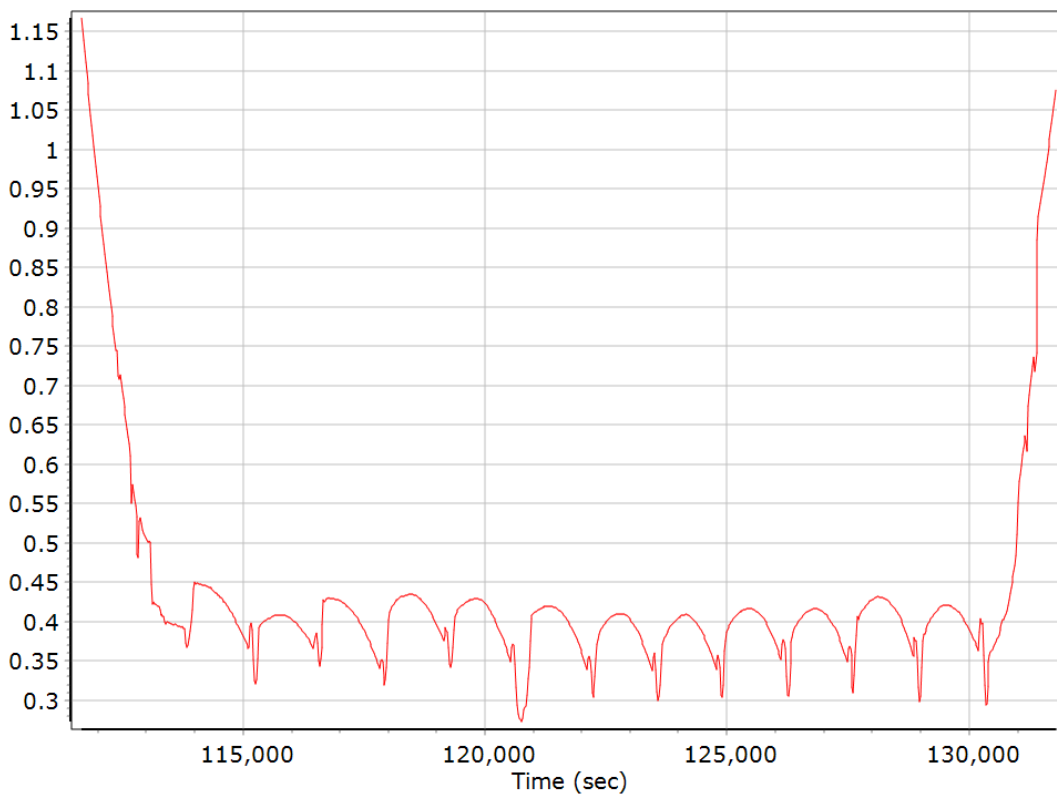
### Velocity Error RMS (m/s)



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

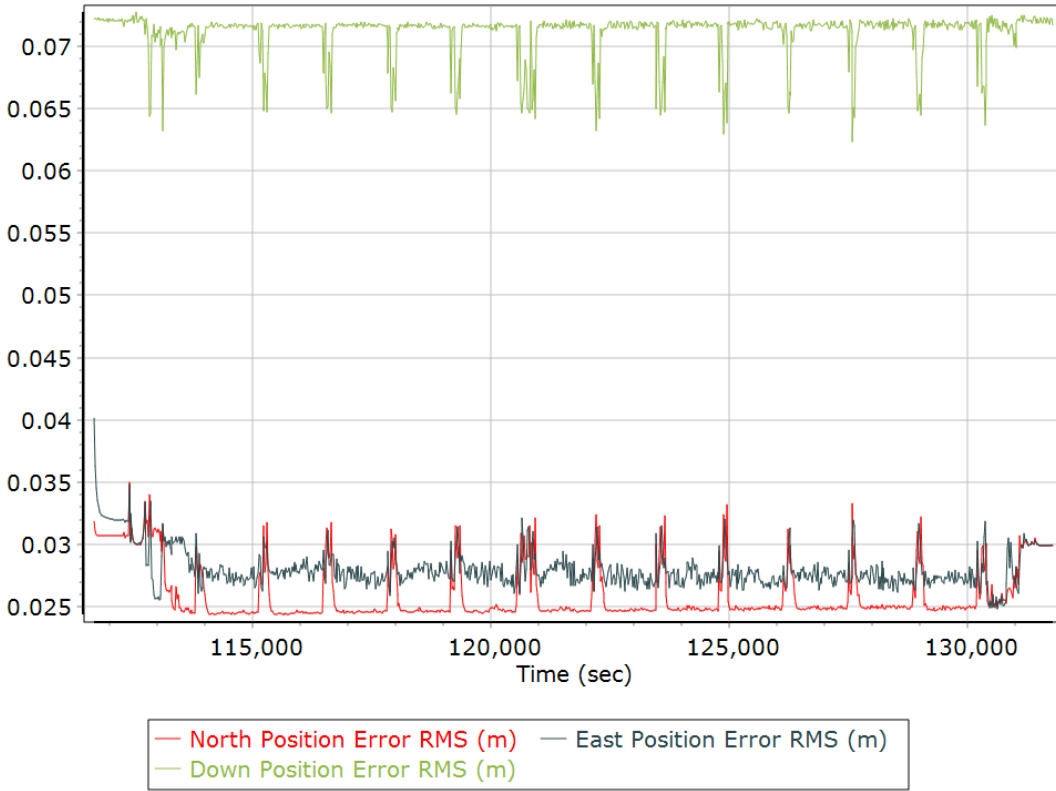


### Heading Error RMS (arc-min)

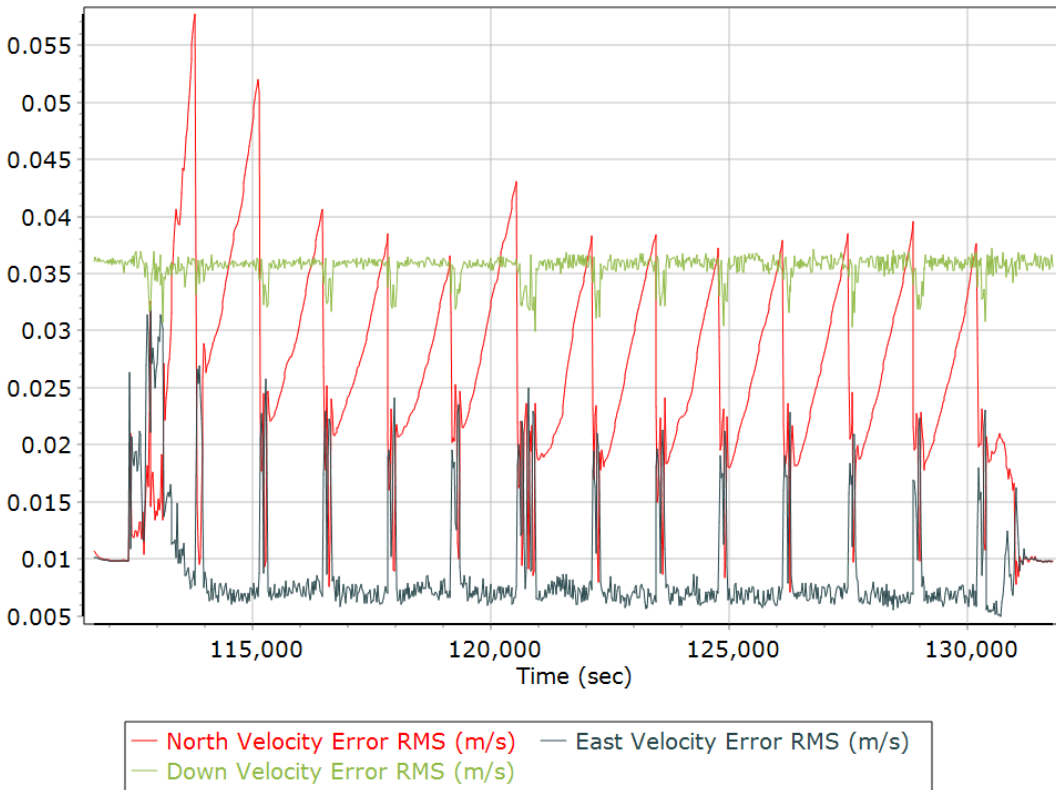


### Forward Processed Performance Metrics

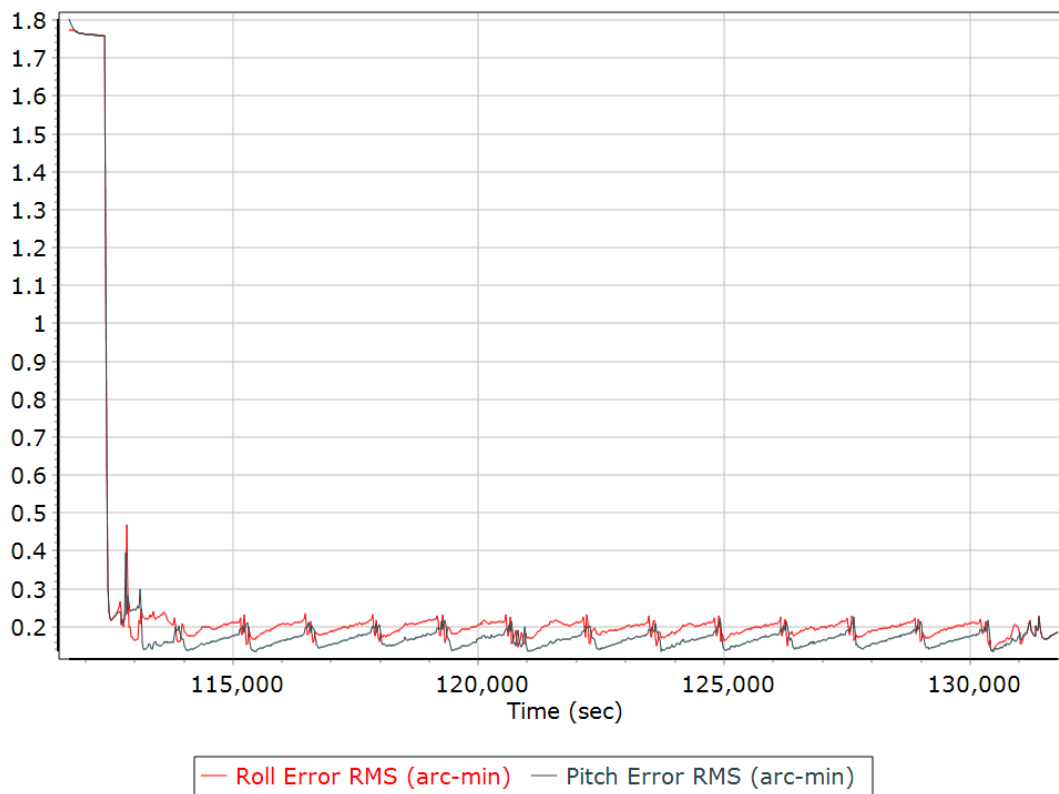
#### Position Error RMS (m)



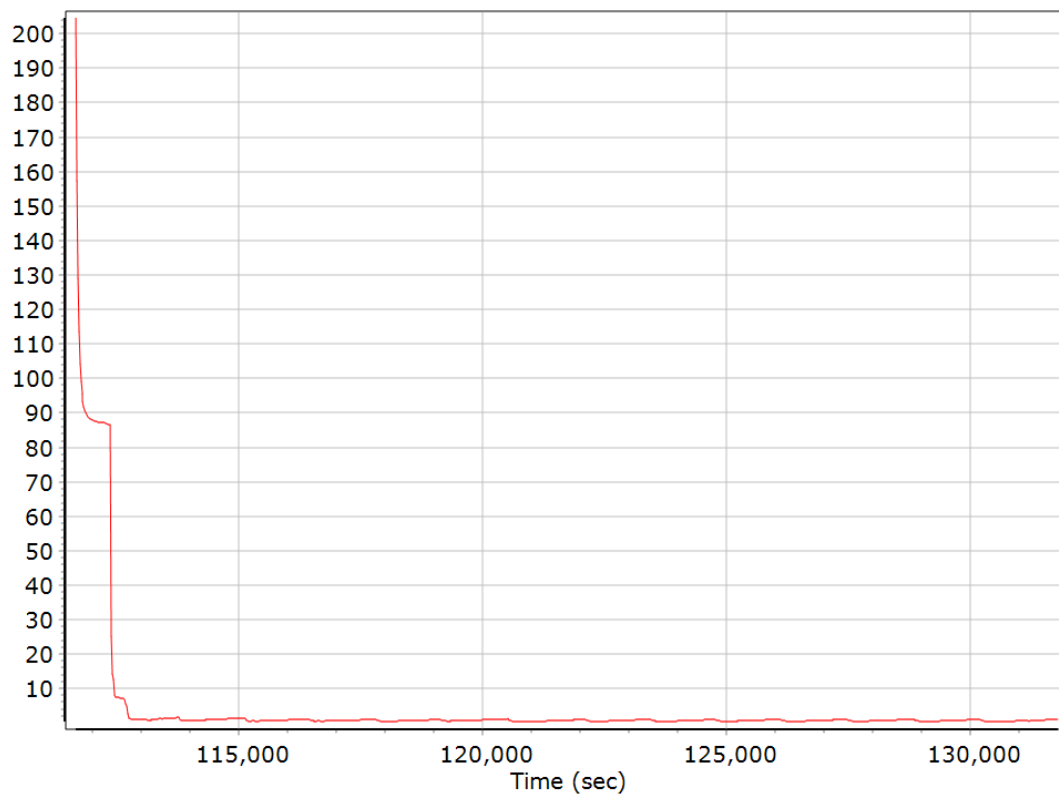
#### Velocity Error RMS (m/s)



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

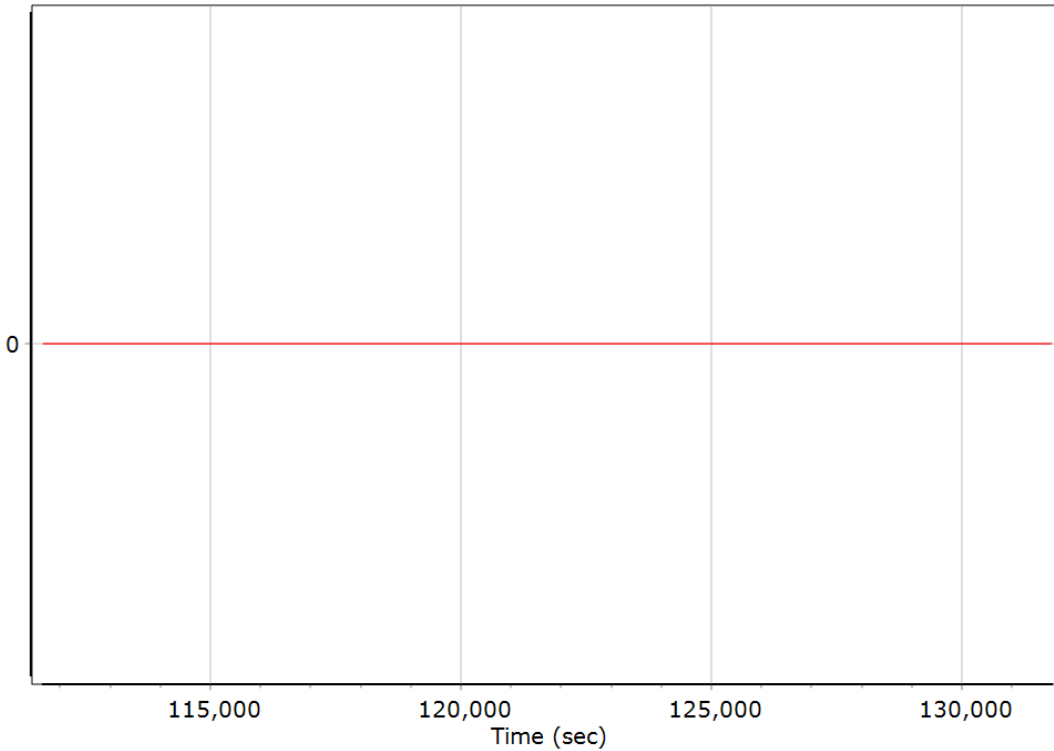


### Heading Error RMS (arc-min)



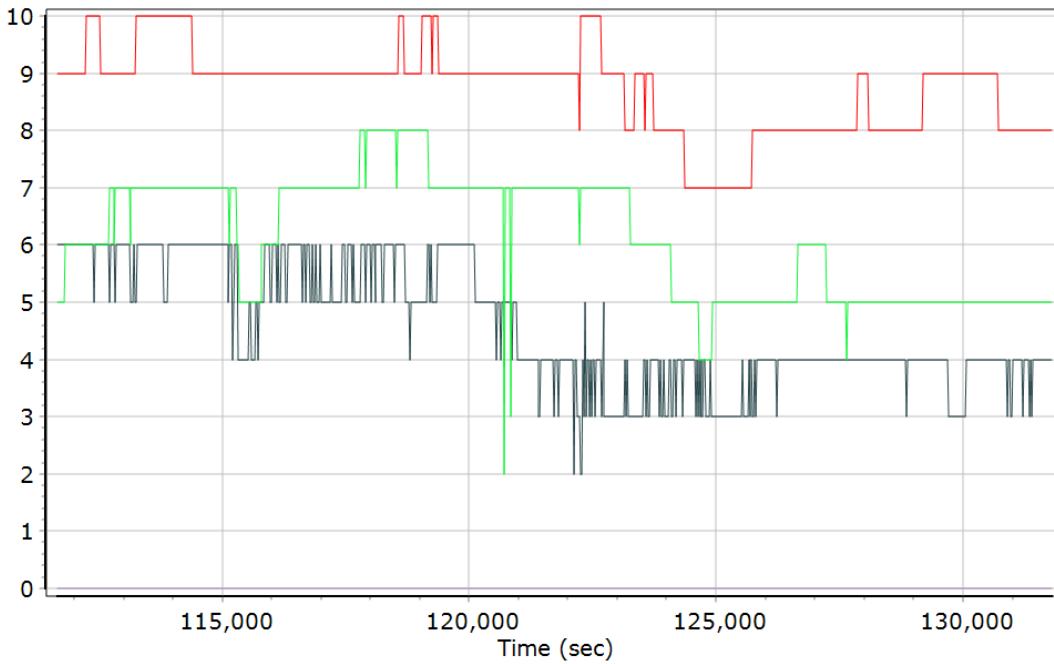
## Forward Processed Solution Status

### Processing Mode



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

### 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

