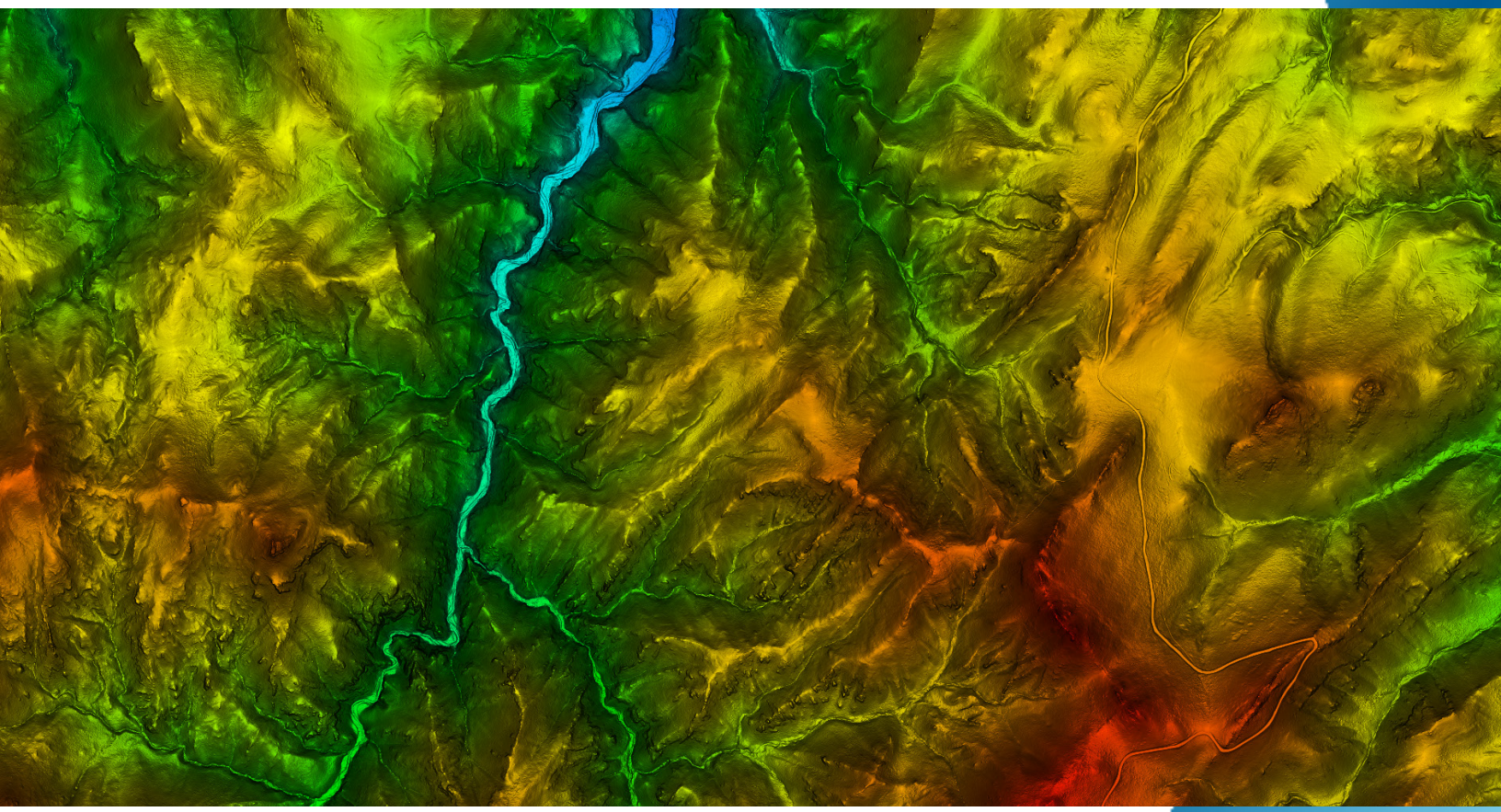
NV5 GEOSPATIAL



MT Statewide Phase 5 D23 LIDAR PROCESSING REPORT

2025

Submitted: June 3, 2026

Project ID: 300119
Work Unit: 300901

Prepared for:

USGS
science for a changing world

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1. Summary / Scope

1.1. Summary

This report contains a summary of the MT Statewide Phase 5 D23, Work Unit 300901 lidar acquisition task order, issued by USGS under their Contract 140G0221D0012 on 6/25/2023. The task order yielded a work unit area covering 2,489 square miles over Montana at Quality Level 1. The intent of this document is only to provide specific validation information for the data acquisition/collection, processing, and production of deliverables completed as specified in the task order.

1.2. Scope

Aerial topographic lidar was acquired using state of the art technology along with the necessary surveyed ground control points (GCPs) and airborne GPS and inertial navigation systems. The aerial data collection was designed with the following specifications listed in Table 1 below.

Table 1. Originally Planned Lidar Specifications

Average Point Density	Flight Altitude (AGL)	Field of View	Minimum Side Overlap	RMSEz
8 pts / m2	2700 m	58.5°	20%	≤ 10 cm

1.3. Coverage

The work unit boundary covers 2,489 square miles over Montana. Work unit extents are shown in Figure 1.

1.4. Duration

Lidar data was acquired from 7/06/2023 to 7/30/2023 in 14 total lifts. See “Section: 2.4. Time Period” for more details.

1.5. Issues

Tiles 740208, 751212, and 758216 are empty due to being entirely over water. In addition, a low confidence polygon has been provided due to seasonal agricultural changes.

MT Statewide Phase 5 D23 Work Unit 300901 Projected Coordinate System: Montana State Plane Horizontal Datum: NAD83 (2011) Vertical Datum: NAVD88 (GEOID 18) Units: Meters	
Lidar Point Cloud	Classified Point Cloud in .LAZ 1.4 format
Rasters	• 1-meter Hydro-flattened Bare Earth Digital Elevation Model (DEM) in GeoTIFF format • 1-meter Intensity images in GeoTIFF format • 2-meter Maximum Surface Height Raster • 2-meter Swath Seperation Images
Vectors	Shapefiles (*.shp) • Project Boundary • Lidar Tile Index • Low Confidence Polygon Geodatabase (*.gdb) • Flightlines Swath • Contours Geopackage (*.gpkg) • Calibration and QC Checkpoints (NVA/VVA) • Continuous Hydro-flattened Breaklines
Reports	Reports in PDF format • Focus on Delivery • Focus on Accuracy • Survey Report • Processing Report
Metadata	XML Files (*.xml) • Breaklines • Classified Point Cloud • DEM • Intensity Imagery • Contour

MT Statewide Phase 5 D23
Work Unit 300901 Boundary

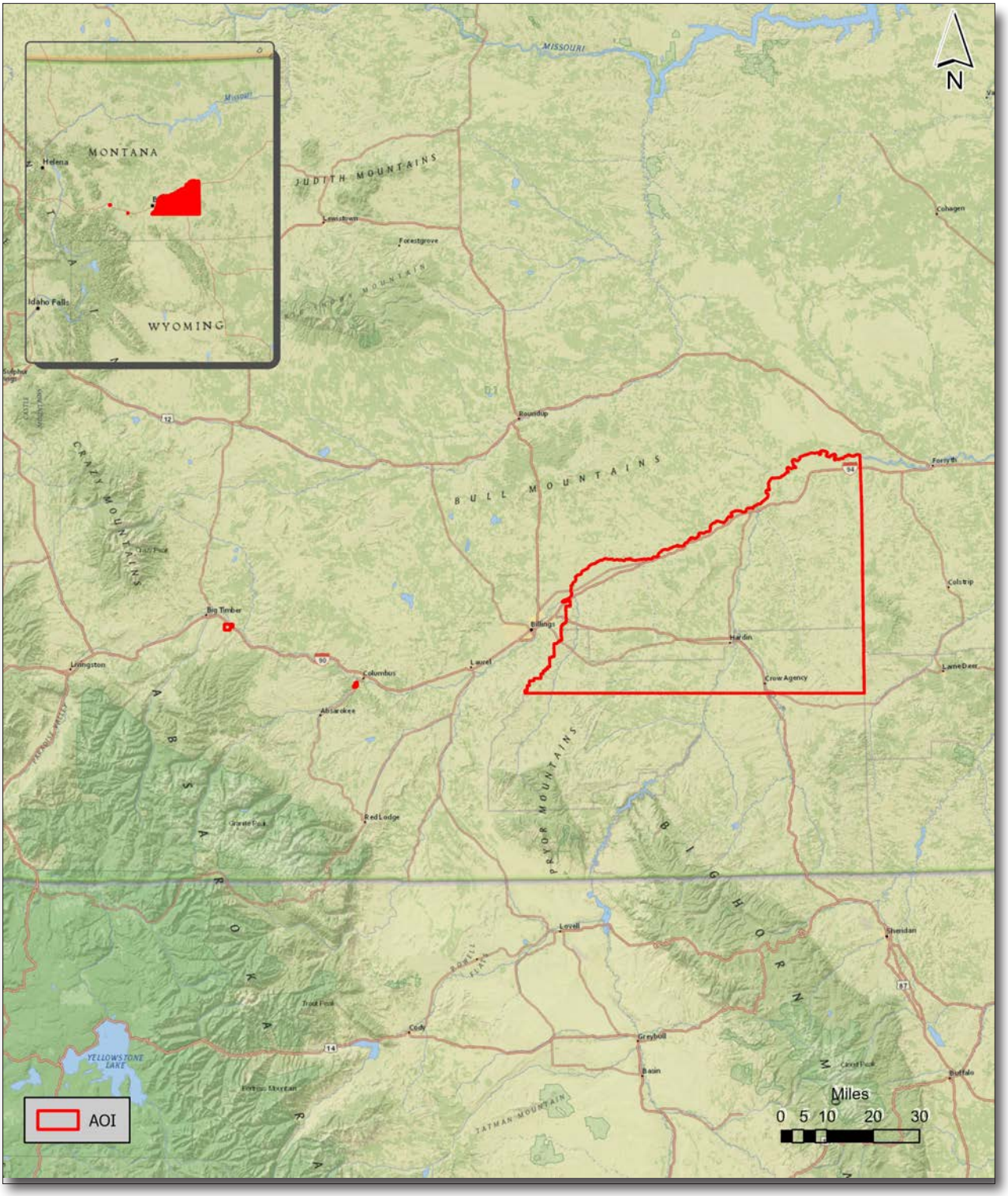


Figure 1. Work Unit Boundary

2. Planning / Equipment

2.1. Flight Planning

Flight planning was based on the unique project requirements and characteristics of the project site. The basis of planning included: required accuracies, type of development, amount / type of vegetation within project area, required data posting, and potential altitude restrictions for flights in project vicinity.

Detailed project flight planning calculations were performed for the project using RiPARAMETER planning software.

2.2. Lidar Sensor

NV5 Geospatial utilized Riegl VQ1560iiS lidar sensors (Figure 2), serial number(s) SN3062, 4051, 3543, and 3541, for data acquisition.

The Riegl 1560iiS system (System ID: R15S) is a dual channel waveform processing airborne scanning system with a pulse repetition rate of 4MHz, or up to 3900m AGL at a pulse repetition rate of 540kHz. This improved range increases the system's productivity. The system also utilizes a Multi-Pulse in the Air option (MPIA) and an integrated IMU/GNSS unit.

A brief summary of the aerial acquisition parameters for the project are shown in the lidar System Specifications in Table 2.

Table 2. Lidar System Specifications

		RieglVQ1560iiS
Terrain and Aircraft Scanner	Flying Height	2700 m
	Recommended Ground Speed	140 kts
Scanner	Field of View	58.5°
	Scan Rate Setting Used	2 x 71.1 Hz
Laser	Laser Pulse Rate Used	800 kHz
	Multi Pulse in Air Mode	Yes
Coverage	Full Swath Width	3025 m
	Line Spacing	0.983 m
Point Spacing and Density	Average Nominal Point Spacing	0.35 m
	Average Point Density	8 pts / m^2

Figure 2. Riegl VQ1560iiS Lidar Sensor



2.3. Aircraft

All flights for the project were accomplished through the use of customized aircraft. Plane type and tail numbers are listed below.

Lidar Collection Planes

- Cessna TU206F, Tail Number: N917WC
- Piper PA-31-325, Tail Number: N22GE
- Cessna 208B, Tail Number: N108RF
- Cessna 208, Tail Number: N124RF

These aircraft provided an ideal, stable aerial base for lidar acquisition. These aerial platforms have relatively fast cruise speeds, which are beneficial for project mobilization / demobilization while maintaining relatively slow stall speeds, proving ideal for collection of high-density, consistent data posting using a state-of-the-art lidar system. NV5 Geospatial's operating aircraft can be seen in Figure 3 below.

Figure 3. NV5 Geospatial's Aircraft



2.4. Time Period

Project specific flights were conducted between 7/06/2023 and 7/30/2023. Fourteen aircraft lifts were completed. Accomplished lifts are listed below.

Lift
07062023A (SN3062,N917WC) 7/06/2023 UTC
07072023A (SN3062,N917WC) 7/07/2023 UTC
07092023A (SN3062,N917WC) 7/09/2023 UTC
07102023A (SN3062,N917WC) 7/10/2023 UTC
07202023A (SN4051,N22GE) 7/20/2023 UTC
07202023B (SN4051,N22GE) 7/20/2023 UTC
07212023A (SN4051,N22GE) 7/21/2023 UTC
07222023B (SN4051,N22GE) 7/22/2023 UTC
07232023A (SN4051,N22GE) 7/23/2023 UTC
07242023A (SN4051,N22GE) 7/24/2023 UTC
07262023A (SN4051,N22GE) 7/26/2023 UTC
07272023A (SN4051,N22GE) 7/27/2023 UTC
07282023B (SN4051,N22GE) 7/28/2023 UTC
07302023A (SN4051,N22GE) 7/30/2023 UTC

3. Processing Summary

3.1. Flight Logs

Flight logs were completed by Lidar sensor technicians for each mission during acquisition. These logs depict a variety of information, including:

- Job / Project #
- Flight Date / Lift Number
- FOV (Field of View)
- Scan Rate (HZ)
- Pulse Rate Frequency (Hz)
- Ground Speed
- Altitude
- Base Station
- PDOP avoidance times
- Flight Line #
- Flight Line Start and Stop Times
- Flight Line Altitude (AMSL)
- Heading
- Speed
- Returns
- Crab

Notes: (Visibility, winds, ride, weather, temperature, dew point, pressure, etc). Project specific flight logs for each sortie are available in Appendix A.

3.2. Lidar Processing

Applanix + POSPac software was used for post-processing of airborne GPS and inertial data (IMU), which is critical to the positioning and orientation of the lidar sensor during all flights. Applanix POSPac combines aircraft raw trajectory data with Trimble's RTX technology yielding a "Smoothed Best Estimate Trajectory" (SBET) necessary for additional post processing software to develop the resulting geo-referenced point cloud from the lidar missions. Using data from a dedicated global network of tracking stations, POSPac PP-RTX uses this data to post-process the GNSS-Inertial Trajectory. The default processing reference frame for PP-RTX is WGS84. We then utilize proprietary software to convert the SBET to NAD83(2011) before we process the raw data to LAS.

During the sensor trajectory processing (combining GPS & IMU datasets) certain statistical graphs and tables are generated within the Applanix POSPac processing environment which are commonly used as indicators of processing stability and accuracy. This data for analysis include: max horizontal / vertical GPS variance, separation plot, altitude plot, PDOP plot, base station baseline length, processing mode, number of satellite vehicles, and mission trajectory.

Each sensor is initially factory calibrated. Further adjustment is performed on each sensor by periodically flying boresight locations and using this data to update boresight values used in data processing. Various proprietary tools and methodologies are used during this process. Once all data has been processed with updated boresight values, FL to FL match is performed by using strip align and other proprietary tools/processes.

Point clouds in flightline swath format were created using the RiPROCESS software. The generated point cloud is the mathematical three dimensional composite of all returns from all laser pulses as determined from the aerial mission. Each flightline swath point cloud was calibrated using Strip Align software that corrects systematic geometric errors and improves the relative and absolute accuracy of the flightline swath point cloud. The calibrated point cloud swaths were imported into GeoCue distributive processing software and the imported data was then tiled so further processing could take place in TerraScan software. Using TerraScan, the vertical accuracy of the surveyed ground control was tested and any vertical bias was removed from the data. TerraScan and TerraModeler software packages were then used for automated data classification and manual cleanup. The data were manually reviewed and any remaining artifacts removed using functionality provided by TerraScan and TerraModeler.

DEMs and Intensity Images are then generated using proprietary software. In the bare earth surface model, above-ground features are excluded from the data set. Global Mapper is used as a final check of the bare earth dataset.

Finally, proprietary software is used to perform statistical analysis of the LAS files.

Software	Version
Applanix + POSPac	8.9
RiPROCESS	1.9.3.6
Microstation Connect	10.16.02.34
GeoCue	2020.1.22.3
Global Mapper	19.1;20.1
TerraModeler	23.013
TerraScan	23.025
TerraMatch	23.013
StripAlign	2.21

3.3. LAS Classification Scheme

The classification classes are determined by Lidar Base Specifications 2024 Rev. A and are an industry standard for the classification of lidar point clouds. All data starts the process as Class 1 (Unclassified), and then through automated classification routines, the classifications are determined using TerraScan macro processing.

The classes used in the dataset are as follows and have the following descriptions:

Table 3. LAS Classifications

	Classification Name	Description
1	Processed, but Unclassified	Laser returns that are not included in the bare earth class, or any other project classification.
2	Bare earth	Laser returns that are determined to be bare earth using automated and manual cleaning algorithms.
7	Low Noise	Laser returns that are often associated with scattering from reflective surfaces, or artificial points below the bare earth surface.
9	Water	Laser returns that are found inside of hydro features.
17	Bridge Deck	Laser returns falling on bridge decks.
18	High Noise	Laser returns that are often associated with birds or artificial points above the bare earth surface.
20	Ignored Ground	Bare earth points that fall within the given threshold of a collected hydro feature.

3.4. Classified LAS Processing

The bare earth surface is then manually reviewed to ensure correct classification on the Class 2 (Ground) points. After the bare- earth surface is finalized; it is then used to generate all hydro-breaklines through heads-up digitization.

All ground (ASPRS Class 2) lidar data inside of the Lake Pond and Double Line Drain hydro flattening breaklines were then classified to water (ASPRS Class 9) using proprietary tools. A buffer of 1.5 feet/0.5 meter was also used around each hydro flattened feature to classify these ground (ASPRS Class 2) points to Ignored ground (ASPRS Class 20). All Lake Pond Island and Double Line Drain Island features were checked to ensure that the ground (ASPRS Class 2) points were reclassified to the correct classification after the automated classification was completed.

Any noise that was identified either through manual review or automated routines was classified to the appropriate class (ASPRS Class 7 and/or ASPRS Class 18) followed by flagging with the withheld bit.

All data was manually reviewed and any remaining artifacts removed using functionality provided by TerraScan and TerraModeler. Global Mapper is used as a final check of the bare earth dataset. GeoCue was then used to create the deliverable industry-standard LAS files for all point cloud data. NV5 Geospatial's proprietary software was used to perform final statistical analysis of the classes in the LAS files, on a per tile level to verify final classification metrics and full LAS header information.

3.5. Hydro-Flattened Breakline Processing

Using heads-up digitization, all Lake-Ponds, Double Line Drains, and Islands are manually collected that are within the project size specification. This includes Lake-Ponds greater than 2 acres in size, Double Line Drains with greater than a 100 foot nominal width, and Islands greater than 1 acre in size within a collected hydro feature. Lidar intensity imagery and bare-earth surface models are used to ensure appropriate and complete collection of these features.

Elevation values are assigned to all collected hydro features via NV5 Geospatial's proprietary software. This software sets Lake-Ponds to an appropriate, single elevation to allow for the generation of hydro-flattened digital elevation models (DEM). Double Line Drain elevations are assigned based on lidar elevations and surrounding terrain feature to ensure all breaklines match the lidar within acceptable tolerances. Some deviation is expected between breakline and lidar elevations due to monotonicity, connectivity, and flattening rules that are enforced on the breaklines. Once complete, horizontal placement, and vertical variances are reviewed, all breaklines are evaluated for topological consistency and data integrity using a combination of proprietary tools and manual review of hydro-flattened DEMs.

Breaklines are combined into one seamless shapefile, clipped to the project boundary, and imported into an Esri file geopackage for delivery.

3.6. Hydro-Flattened Raster DEM Processing

Hydro-Flattened DEMs (topographic) represent a lidar-derived product illustrating the grounded terrain and associated breaklines (as described above) in raster form. NV5 Geospatial's proprietary software was used to take all input sources (bare earth lidar points, bridge and hydro breaklines, etc.) and create a Triangulated Irregular Network (TIN) on a tile-by-tile basis. Data extending past the tile edge is incorporated in this process so that proper triangulation can occur. From the TIN, linear interpolation is used to calculate the cell values for the raster product. The raster product is then clipped back to the tile edge so that no overlapping cells remain across the project area. A 32-bit floating point GeoTIFF DEM was generated for each tile with a pixel size of 0.5-meter. NV5 Geospatial's proprietary software was used to write appropriate horizontal and vertical projection information as well as applicable header values into the file during product generation. Each DEM is reviewed in Global Mapper to check for any surface anomalies and to ensure a seamless dataset. NV5 Geospatial ensures there are no void or no-data values (-999999) in each derived DEM. This is achieved by using propriety software checking all cell values that fall within the project boundary. NV5 Geospatial uses a proprietary tool called FOCUS on Delivery to check all formatting requirements of the DEMs against what is required before final delivery.

3.7. Intensity Image Processing

Intensity images represent reflectivity values collected by the lidar sensor during acquisition. Proprietary software generates intensity images using first returns and excluding those flagged with a withheld bit. Intensity images are linearly scaled to a value range specific to the project area to standardize the images and reduce differences between individual tiles. Appropriate horizontal projection information as well as applicable header values are written during product generation.

3.8. Maximum Surface Height Raster Processing

Maximum Surface Height rasters (topographic) represent a lidar-derived product illustrating natural and built-up features. NV5 Geospatial's proprietary software was used to take all classified lidar points, excluding those flagged with a withheld bit, and create a raster on a tile-by-tile basis. Data extending past the tile edge is incorporated in this process so that proper gridding can occur. The raster is created by laying a 1-meter DEM cell size over the area and assigning the values to cells by using the maximum lidar point that intersects that grid cell. The raster product is then clipped back to the tile edge so that no overlapping cells remain across the project area. A 32-bit floating point GeoTIFF was then generated for each tile with a pixel size of 1-meter. There is no interpolation type being used in creating the raster product. NV5 Geospatial's proprietary software was used to write appropriate horizontal and vertical projection information as well as applicable header values into the file during product generation. Each maximum surface height raster is reviewed in Global Mapper to check for any anomalies and to ensure a seamless dataset. NV5 Geospatial uses a proprietary tool called FOCUS on Delivery to check all formatting requirements of the DEMs against what is required before final delivery.

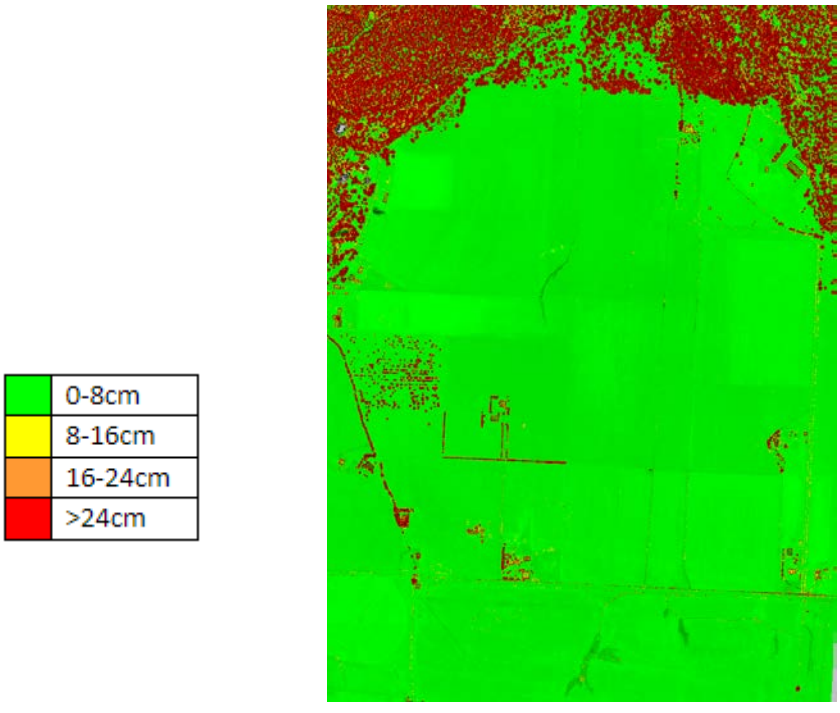
3.9. Contour Processing

Automated routines within TerraScan and TerraModeler generate an educated, thinned subset of bare earth points (ASPRS Class 8, Model Key). Model Key points and hydro-flattened breaklines were used to generate a terrain surface from which 1-foot contours could be generated. Using proprietary software, all tiled contour shapefiles were combined into one, continuous dataset within an Esri File Geodatabase. All lines have their elevations as their attributes and there are no spot elevations or depressions on separate layers.

3.10. Swath Separation Raster Processing

Swath Separation Images are rasters that represent the interswath alignment between flight lines and provide a qualitative evaluation of the positional quality of the point cloud. NV5 Geospatial proprietary software generated 1-meter raster images in GeoTIFF format using last returns, excluding points flagged with the withheld bit, and using a point-in-cell algorithm. Images are generated with a 75% intensity opacity and (4) absolute 8-cm intervals, see below for interval coloring. Intensity images are linearly scaled to a value range specific to the project area to standardize the images and reduce differences between individual tiles. Appropriate horizontal projection information as well as applicable header values are written to the file during product generation. NV5 Geospatial uses a proprietary tool called FOCUS on Delivery to check all formatting requirements of the images against what is required before final delivery.

Figure 4. Example of Swath Separation Raster



3.11. Point Density

The acquisition parameters were designed to acquire an average first-return density of 8 points/m2. First return density describes the density of pulses emitted from the laser that return at least one echo to the system. Multiple returns greater than 1 from a single pulse were not considered in first return density analysis. Some types of surfaces (e.g., breaks in terrain, water, and steep slopes) may have returned fewer pulses than originally emitted by the laser. First returns typically reflect off the highest feature on the landscape within the footprint of the pulse. In forested or urban areas, the highest feature could be a tree, building or power line, while in areas of unobstructed ground, the first return will be the only echo and represents the bare earth surface.

The density of ground-classified lidar returns was also analyzed for this project. Terrain character, land cover, and ground surface reflectivity all influenced the density of ground surface returns. In vegetated areas, fewer pulses may penetrate the canopy, resulting in lower ground density.

The average first-return density of lidar data for the project was 19.32 points/m2 while the average ground classified density was 11.2 points/m2. The statistical and spatial distributions of first return densities and classified ground return densities per 100 m x 100 m cell are portrayed in Figures 5 and 6.

MT Statewide Phase 5 D23
Work Unit 300901 First Return Point Density

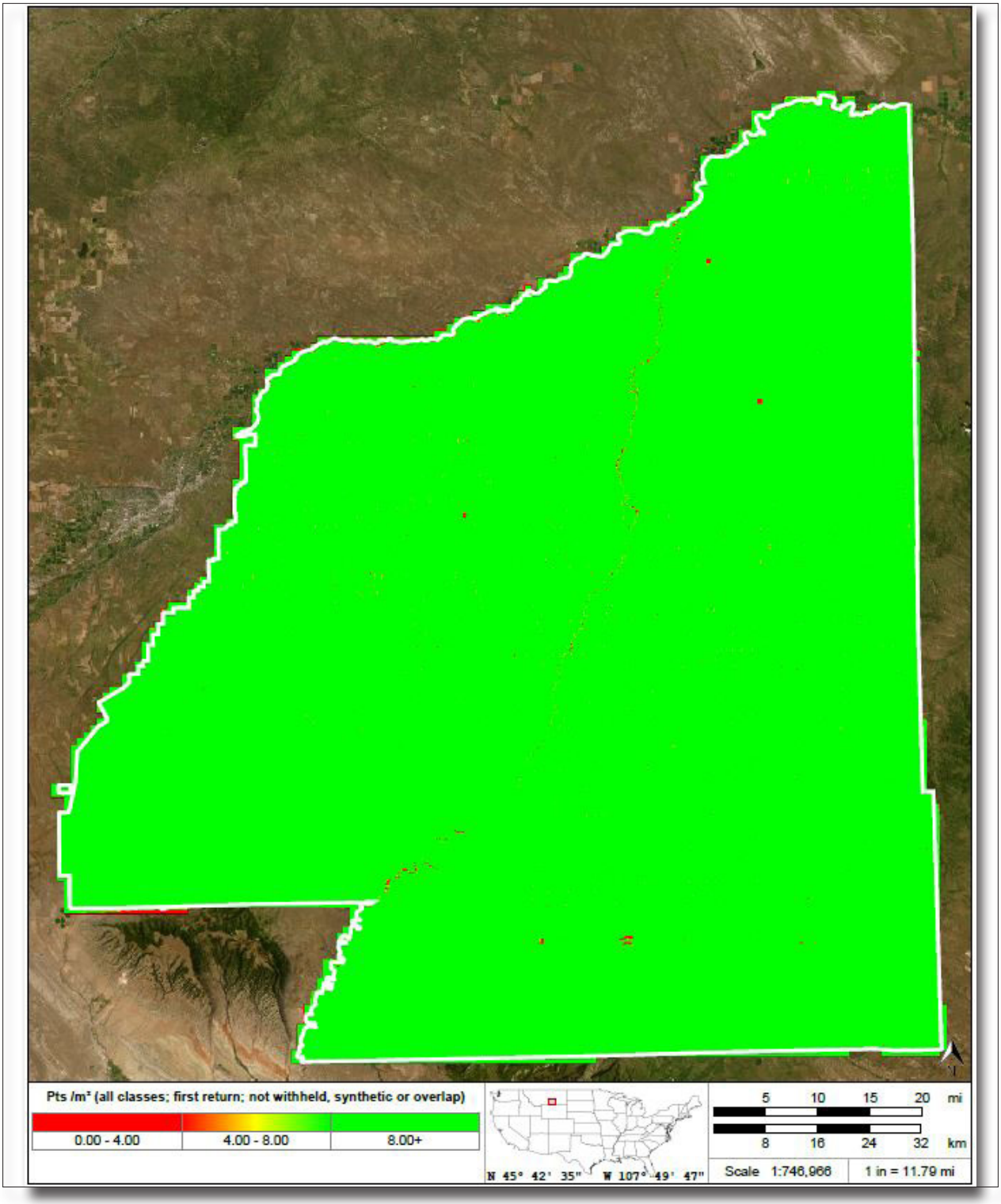


Figure 5. First Return Point Density

MT Statewide Phase 5 D23
Work Unit 300901 Ground Point Density

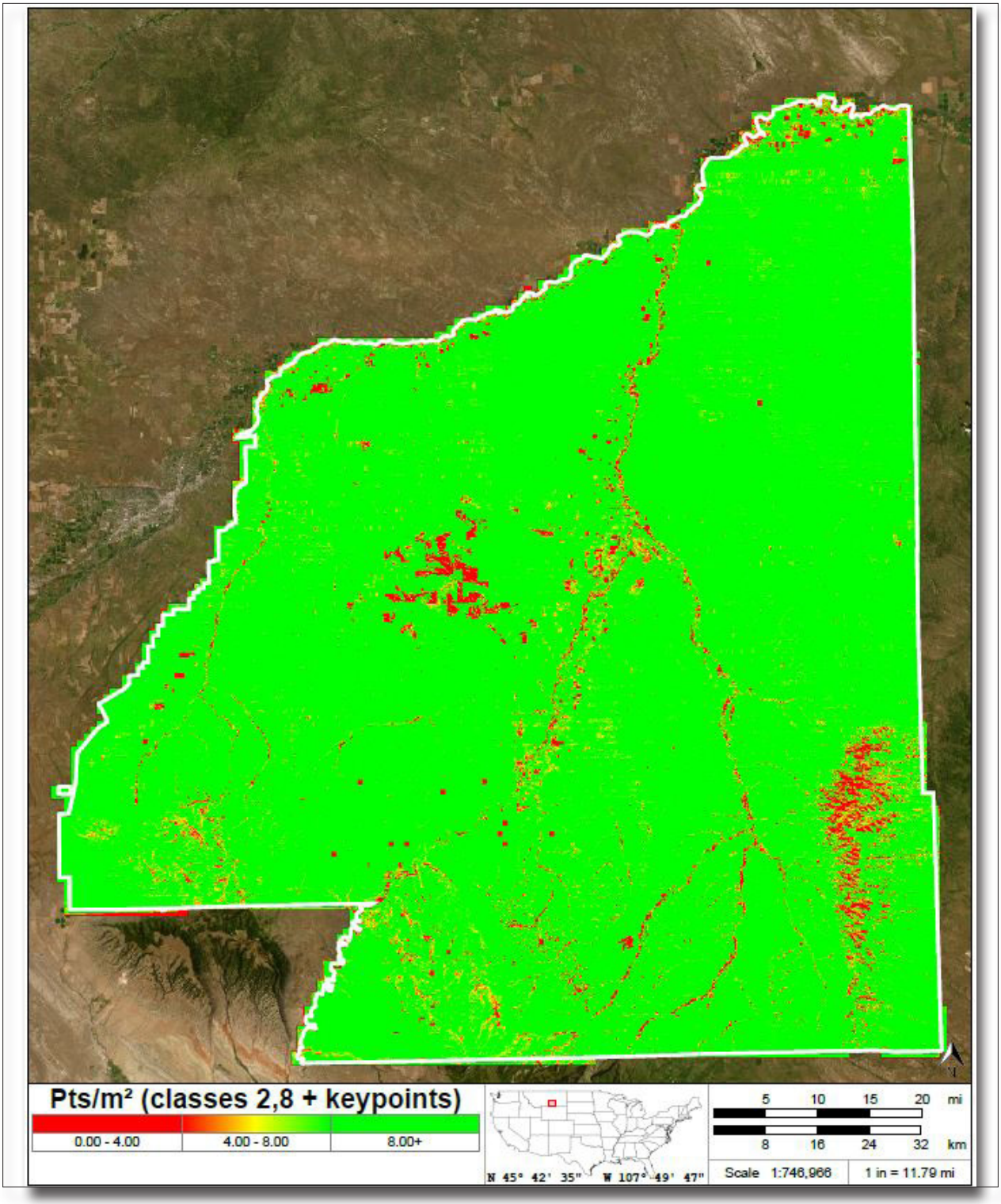


Figure 6. Ground First Return Point Density

MT Statewide Phase 5 D23
Work Unit 300901 Tile Layout

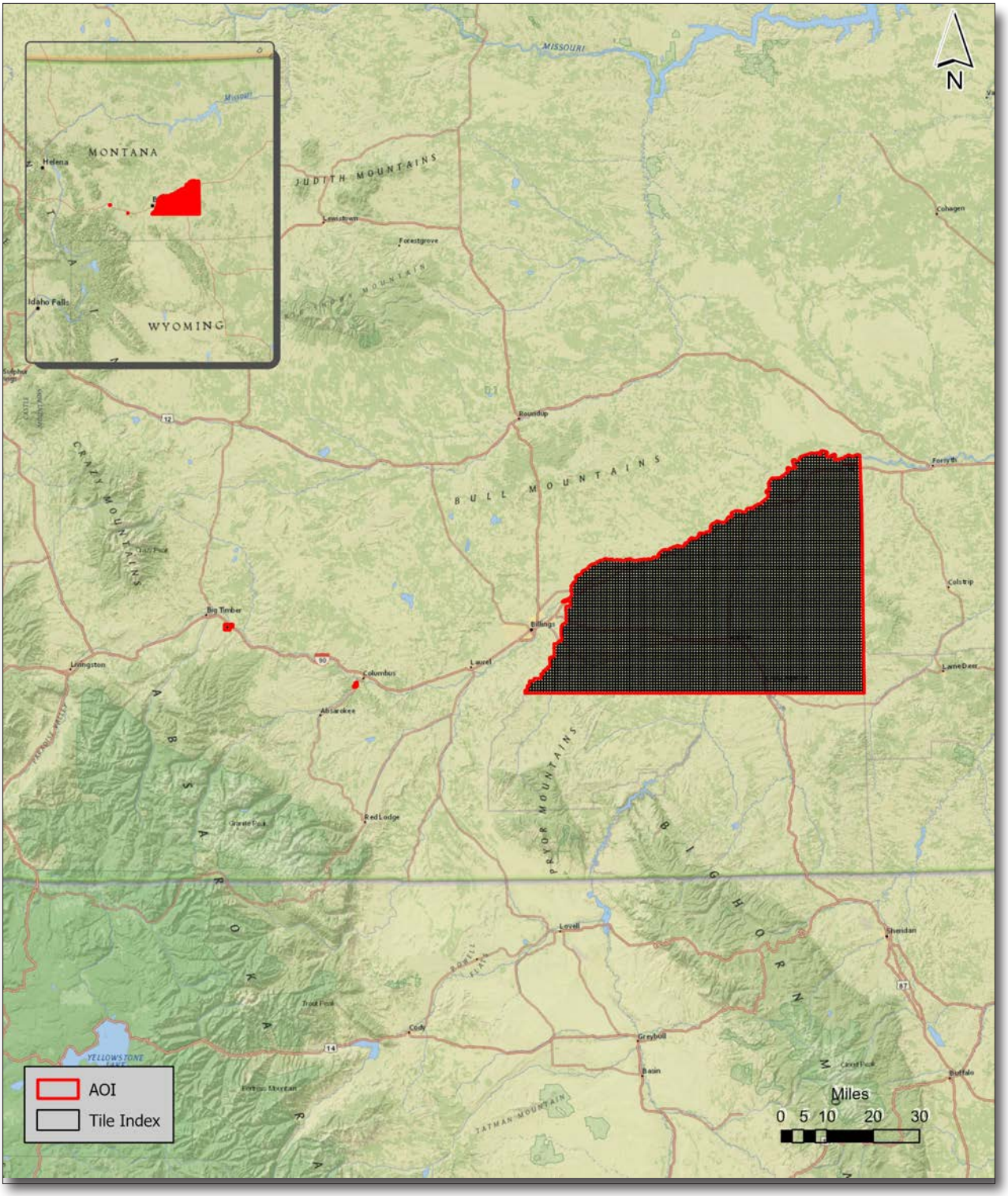


Figure 7. Lidar Tile Layout

4. Project Coverage Verification

A proprietary tool (FOCUS on Flight) produces grid-based polygons of each flightline, depicting exactly where lidar points exist. These swath polygons are reviewed against the project boundary to verify adequate project coverage. Please refer to Figure 8.

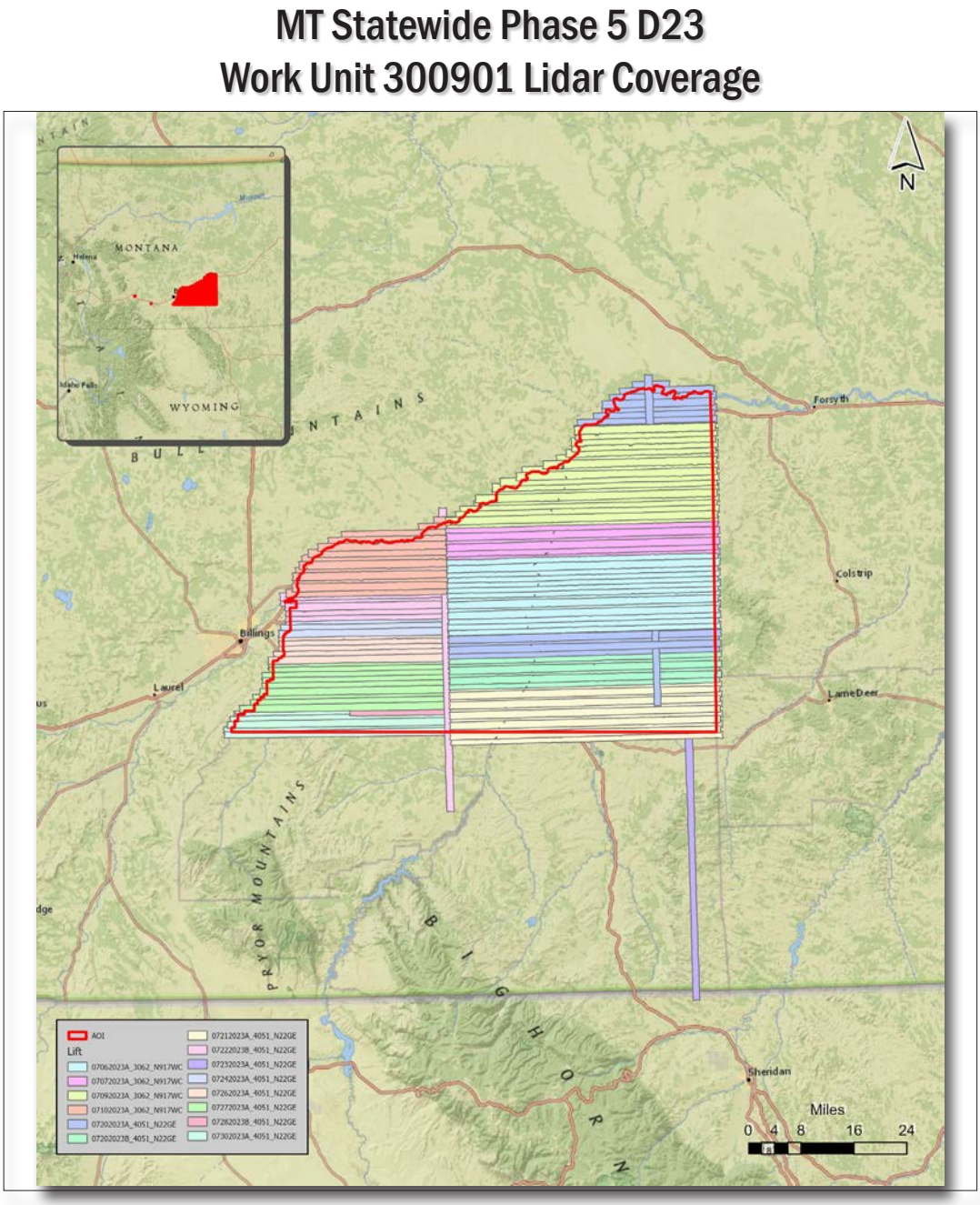


Figure 8. Lidar Coverage

5. Geometric Accuracy

5.1. Horizontal Accuracy

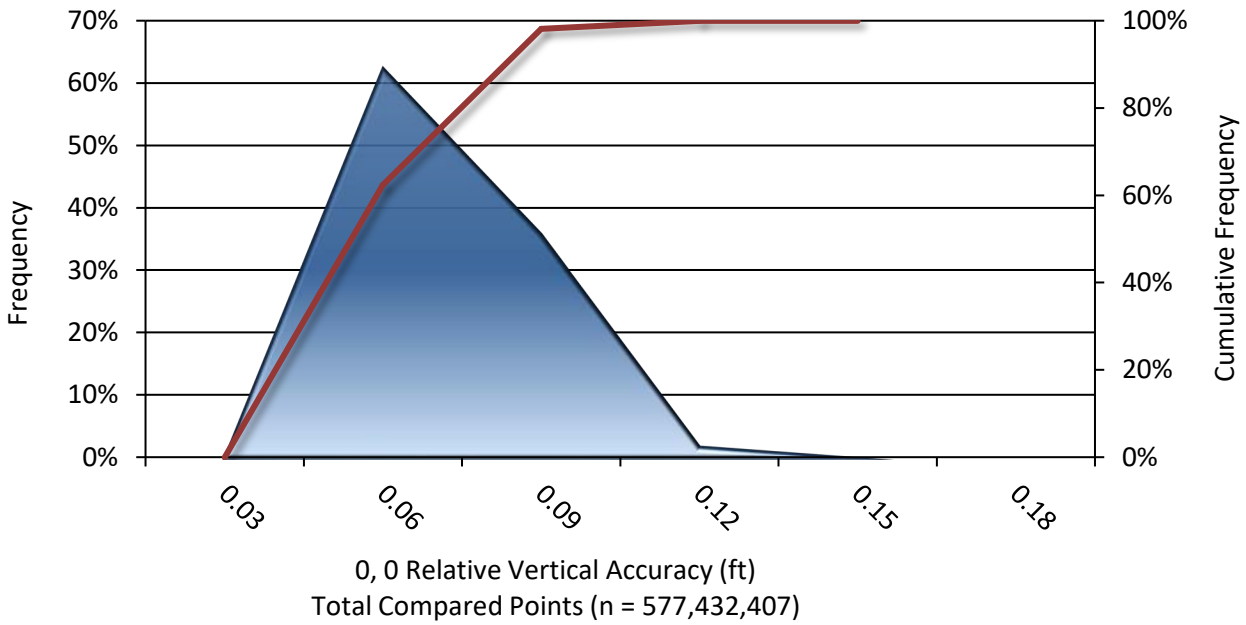
Lidar horizontal accuracy is a function of Global Navigation Satellite System (GNSS) derived positional error, flying altitude, and INS derived attitude error. The obtained $RMSE_r$ value is multiplied by a conversion factor of 1.7308 to yield the horizontal component of the National Standards for Spatial Data Accuracy (NSSDA) reporting standard where a theoretical point will fall within the obtained radius 95% of the time. Based on a flying altitude of 2,700 meters, an IMU error of 0.003 decimal degrees, and a GNSS positional error of 0.292 meters, this project was compiled to meet 0.67 meter horizontal accuracy at the 95% confidence level. A summary is shown below.

Horizontal Accuracy	
$RMSE_r$	1.27 ft
	0.38 m
ACC_r	2.19 ft
	0.67 m

5.2. Relative Vertical Accuracy (Interswath Accuracy)

Relative vertical accuracy refers to the internal consistency of the data set as a whole: the ability to place an object in the same location given multiple flight lines, GPS conditions, and aircraft attitudes. When the lidar system is well calibrated, the swath-to-swath vertical divergence is low (<0.10 meters). The relative vertical accuracy was computed by comparing the ground surface model of each individual flight line with its neighbors in overlapping regions. The average (mean) line to line relative vertical accuracy for the MT Statewide Phase 5 D23 project was 0.049 feet (0.015 meters). A summary is shown below.

Relative Vertical Accuracy	
Sample	162 flight line surfaces
Average	0.049 ft
	0.015 m
Median	0.055 ft
	0.017 m
RMSE	0.059 ft
	0.018 m
Standard Deviation (1σ)	0.015 ft
	0.005 m
1.96σ	0.029 ft
	0.009 m



5.3. Intraswath Precision (Smooth Surface Precision)

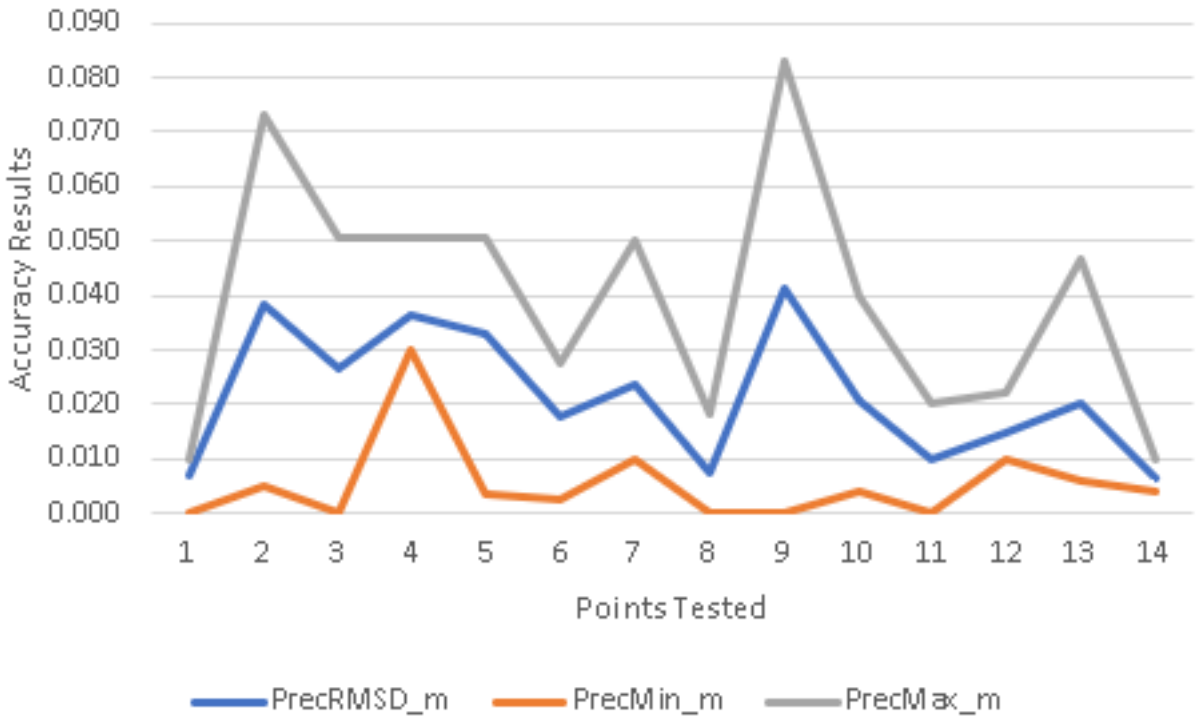
Intraswath Precision (smooth surface precision) is the measure of reliability of the lidar point cloud elevations along a planar surface. This measurement is performed on hard surfaces against a single flightline. NV5 digitized several large parking lots as polygons across the project area. These polygons were then used to calculate precision on a single FL basis using the below formula:

Precision = Range – (Slope x Cellsize x 1.414)

Range – Is the difference between the highest and lowest lidar points in each cell
Slope – is the maximum slope of the cell to its 8 neighbors
Cellsize – is set to the ANPS, rounded up to the next integer, and then doubled

NV5 calculated the RMSDz to be 2.17 cm, minimum slope-corrected range to be 0.5 cm, and the maximum slope-corrected range to be 3.9 cm.

Table 4. Intraswath Accuracy Results



Project Report Appendices

The following section contains the appendices as listed in the MT Statewide Phase 5 D23 Lidar Project Report.

Appendix A

Flight Logs

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_Ces206_20230704	

Mission Name	S2223062_20230706_F1	**Mission Notes**
Mission Date	7/6/2023	First Collection.
Aircraft	N917WC	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	KBIL	
Departure (Local Time)	1:15:00 PM	
Arrival (Local Time)	7:03:00 PM	

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
05045	E	13:48:59	14:06:09	124.7	
05044	SW	14:09:28	14:26:53	122.7	
05043	E	14:30:10	14:47:48	121.6	
05042	SW	14:50:59	15:09:15	116.8	
05041	E	15:12:32	15:30:01	122.6	
05040	SW	15:33:05	15:51:26	116.3	
05039	E	15:54:47	16:12:03	124.2	
05038	SW	16:15:20	16:33:48	115.7	
05037	E	16:36:55	16:54:05	125.1	
05036	SW	16:56:54	17:15:02	117.9	
05035	E	17:18:26	17:36:11	120.9	
05034	SW	17:38:40	17:56:42	118.2	
05033	E	18:00:09	18:17:51	121.3	
05032	SW	18:20:44	18:38:08	122.9	

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_Ces206_20230704	

Mission Name	S2223062_20230707_F1	**Mission Notes**
Mission Date	7/7/2023	Flight
Aircraft	N917WC	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
05026	E	12:00:00	12:30:00		
05027	E	12:00:00	12:30:00		
05028	E	12:00:00	12:30:00		
05029	E	12:00:00	12:30:00		
05030	E	12:00:00	12:30:00		
05031	E	12:00:00	12:30:00		

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_Ces206_20230704	

Mission Name	S2223062_20230709_F1	**Mission Notes**
Mission Date	7/9/2023	Flight
Aircraft	N917WC	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
05008	E	12:00:00	12:30:00		
05009	E	12:00:00	12:30:00		
05010	E	12:00:00	12:30:00		
05011	E	12:00:00	12:30:00		
05012	E	12:00:00	12:30:00		
05013	E	12:00:00	12:30:00		
05014	E	12:00:00	12:30:00		
05015	E	12:00:00	12:30:00		
05016	E	12:00:00	12:30:00		
05017	E	12:00:00	12:30:00		
05018	E	12:00:00	12:30:00		
05019	E	12:00:00	12:30:00		
05020	E	12:00:00	12:30:00		
05021	E	12:00:00	12:30:00		
05022	E	12:00:00	12:30:00		
05023	E	12:00:00	12:30:00		
05024	E	12:00:00	12:30:00		
05025	E	12:00:00	12:30:00		

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_Ces206_20230704	

Mission Name	S2223062_20230710_F1	**Mission Notes**
Mission Date	7/10/2023	Flight
Aircraft	N917WC	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
03001	E	12:00:00	12:30:00		
03002	E	12:00:00	12:30:00		
03003	E	12:00:00	12:30:00		
03004	E	12:00:00	12:30:00		
03005	E	12:00:00	12:30:00		
03006	E	12:00:00	12:30:00		
03007	E	12:00:00	12:30:00		
03008	E	12:00:00	12:30:00		
03009	E	12:00:00	12:30:00		
03010	E	12:00:00	12:30:00		
03011	E	12:00:00	12:30:00		
03012	E	12:00:00	12:30:00		
03013	E	12:00:00	12:30:00		

Project	4719223-R041003.00 MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB

Mission Name	S2224051_20230720_F1	**Mission Notes**
Mission Date	7/20/2023	Flight
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	BIL	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
09501	N	12:00:00	12:30:00		
15001	E	12:00:00	12:30:00		
15002	E	12:00:00	12:30:00		
15003	E	12:00:00	12:30:00		
15004	E	12:00:00	12:30:00		
15005	E	12:00:00	12:30:00		
15006	E	12:00:00	12:30:00		
15007	E	12:00:00	12:30:00		
15008	E	12:00:00	12:30:00		
15047	E	12:00:00	12:30:00		
15048	E	12:00:00	12:30:00		
15049	E	12:00:00	12:30:00		
15050	E	12:00:00	12:30:00		
15051	E	12:00:00	12:30:00		

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB	

Mission Name	S2224051_20230720_F2	**Mission Notes**
Mission Date	7/20/2023	Flight
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
15052	E	12:00:00	12:30:00		
15053	E	12:00:00	12:30:00		
15054	E	12:00:00	12:30:00		
15055	E	12:00:00	12:30:00		
15056	E	12:00:00	12:30:00		
15057	E	12:00:00	12:30:00		

Project	4719223-R041003.00 MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB

Mission Name	S2224051_20230721_F1	**Mission Notes**
Mission Date	7/21/2023	Flight
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
15058	E	12:00:00	12:30:00		
15059	E	12:00:00	12:30:00		
15060	E	12:00:00	12:30:00		
15061	E	12:00:00	12:30:00		
15062	E	12:00:00	12:30:00		
15063	E	12:00:00	12:30:00		
15064	E	12:00:00	12:30:00		
15065	E	12:00:00	12:30:00		
15066	E	12:00:00	12:30:00		
15067	E	12:00:00	12:30:00		
15068	E	12:00:00	12:30:00		
15069	E	12:00:00	12:30:00		

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB	

Mission Name	S2224051_20230722_F2	**Mission Notes**
Mission Date	7/22/2023	Flight
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
09302	N	12:00:00	12:30:00		
13014	E	12:00:00	12:30:00		
13015	E	12:00:00	12:30:00		
13016	E	12:00:00	12:30:00		
13017	E	12:00:00	12:30:00		
13018	E	12:00:00	12:30:00		

Project	4719223-R041003.00 MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB

Mission Name	S2224051_20230723_F1	**Mission Notes**
Mission Date	7/23/2023	Flight
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
09502	N	12:00:00	12:30:00		
15080	E	12:00:00	12:30:00		
15081	E	12:00:00	12:30:00		
15082	E	12:00:00	12:30:00		
15083	E	12:00:00	12:30:00		
15084	E	12:00:00	12:30:00		
15085	E	12:00:00	12:30:00		
15086	E	12:00:00	12:30:00		
15087	E	12:00:00	12:30:00		

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB	

Mission Name	S2224051_20230724_F1	**Mission Notes**
Mission Date	7/24/2023	Flight
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
13019	E	12:00:00	12:30:00		
13020	E	12:00:00	12:30:00		
13021	E	12:00:00	12:30:00		
15088	E	12:00:00	12:30:00		
15089	E	12:00:00	12:30:00		
15090	E	12:00:00	12:30:00		
15091	E	12:00:00	12:30:00		
15092	E	12:00:00	12:30:00		
15093	E	12:00:00	12:30:00		
15094	E	12:00:00	12:30:00		
15095	E	12:00:00	12:30:00		

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB	

Mission Name	S2224051_20230726_F1	**Mission Notes**
Mission Date	7/26/2023	Flight
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
13022	E	12:00:00	12:30:00		
13023	E	12:00:00	12:30:00		
13024	E	12:00:00	12:30:00		
13025	E	12:00:00	12:30:00		
13026	E	12:00:00	12:30:00		
15096	E	12:00:00	12:30:00		
15097	E	12:00:00	12:30:00		
15098	E	12:00:00	12:30:00		
15099	E	12:00:00	12:30:00		
15100	E	12:00:00	12:30:00		
15101	E	12:00:00	12:30:00		
15102	E	12:00:00	12:30:00		
15103	E	12:00:00	12:30:00		

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB	

Mission Name	S2224051_20230727_F1	**Mission Notes**
Mission Date	7/27/2023	Flight
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
13027	E	12:00:00	12:30:00		
13028	E	12:00:00	12:30:00		
13029	E	12:00:00	12:30:00		
13030	E	12:00:00	12:30:00		
13031	E	12:00:00	12:30:00		
13032	E	12:00:00	12:30:00		
13033	E	12:00:00	12:30:00		
13034	E	12:00:00	12:30:00		
13035	E	12:00:00	12:30:00		
15104	E	12:00:00	12:30:00		
15105	E	12:00:00	12:30:00		
15106	E	12:00:00	12:30:00		
15107	E	12:00:00	12:30:00		

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB	

Mission Name	S2224051_20230728_F2	**Mission Notes**
Mission Date	7/28/2023	Flt
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
15036	E	12:00:00	12:30:00		
15119	E	12:00:00	12:30:00		

Project	4719223-R041003.00 MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB

Mission Name	S2224051_20230730_F1	**Mission Notes**
Mission Date	7/30/2023	Flt
Aircraft	N22GE	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
13036	E	12:00:00	12:30:00		
13037	E	12:00:00	12:30:00		
13038	E	12:00:00	12:30:00		
13039	E	12:00:00	12:30:00		
13040	E	12:00:00	12:30:00		
13041	E	12:00:00	12:30:00		
13042	E	12:00:00	12:30:00		
13043	E	12:00:00	12:30:00		
13044	E	12:00:00	12:30:00		
13045	E	12:00:00	12:30:00		

Project	4719223-R041003.00	MT_Statewide_Phase5_D23
Flightplan	3301_MT_QL1_NAVAJO_20230712_BARR-OptB	

Mission Name	SN43_20230813_F1	**Mission Notes**
Mission Date	8/13/2023	Flight
Aircraft	N108RF	
Pilot	(Subcontractor)	
Co-Pilot		
Operator	(Subcontractor)	
Co-Operator		
Vendor	BARR Geospatial	
Base Airport	NV5 Geospatial	
Departure (Local Time)		
Arrival (Local Time)		

Line	Heading	Start Time (UTC)	Stop Time (UTC)	Speed (kt)	Notes
09101	S	12:00:00	12:30:00		
09201	S	12:00:00	12:30:00		
09301	S	12:00:00	12:30:00		
11001	E	12:00:00	12:30:00		
12001	E	12:00:00	12:30:00		
12002	E	12:00:00	12:30:00		

Appendix B

SBET and POSPac Reports

General Information

Mission Information

Project name	07062023A_3062
Processing date	2023-07-11 18:50:12
Mission date	2023-07-06 13:19:43
Mission duration	05:42:54.886
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N8708
IMU type	57
Receiver type	BD982
Antenna type	AV39

Project File List

Rover Data Files

File name	File type
230706_131924_INS-GPS_1.raw	POS Data

Input Files

File Name	File Type
Ephm1870.23g	GLONASS Broadcast Ephemeris
Ephm1870.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07062023A_3062.out	SBET Trajectory File

Rover Data Summary

First raw data file	230706_131924_INS-GPS_1.raw		
Last raw data file	230706_131924_INS-GPS_1.raw		
Start GPS week	2269		
Start time	393564.975 (7/6/2023 1:19:24 PM)		
End time	414139.861 (7/6/2023 7:02:19 PM)		
Start of fine alignment	393724.621 (7/6/2023 1:22:04 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	Event 1 Input, Event 2 Input, Event 4 Input, Event 5 Input, Event 6 Input		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
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)	0.157	-0.227	-1.289
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

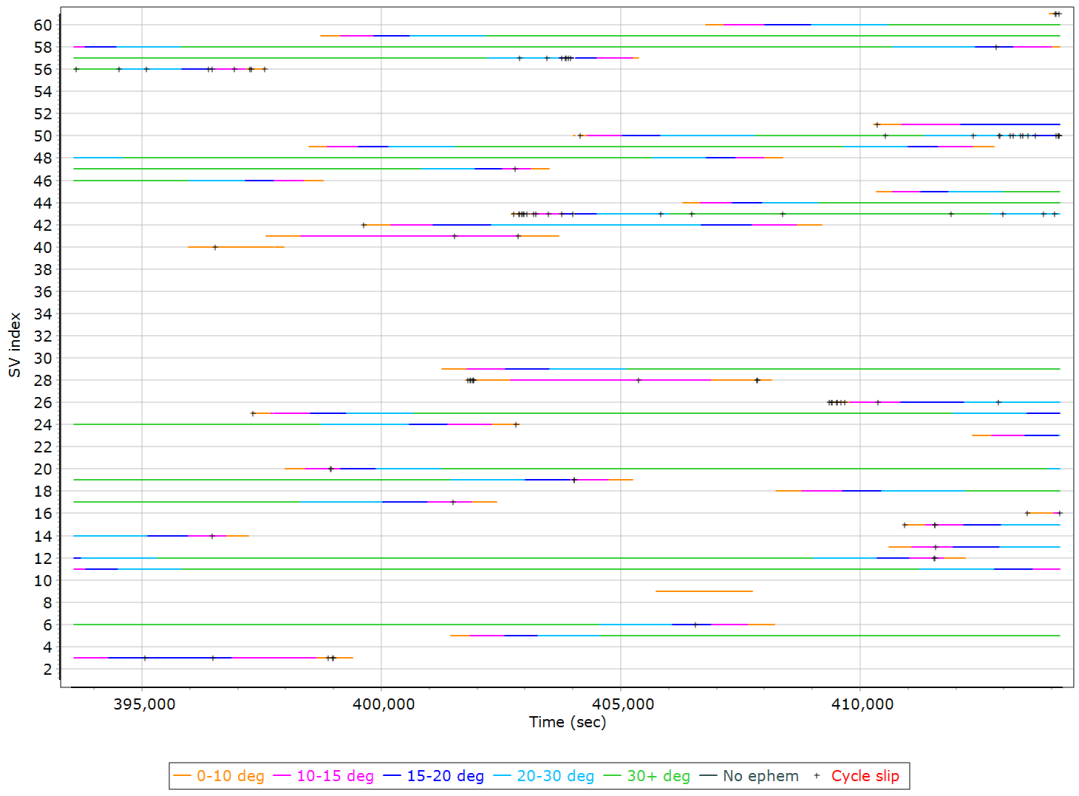
Rover Data QC

Raw IMU Import QC Summary

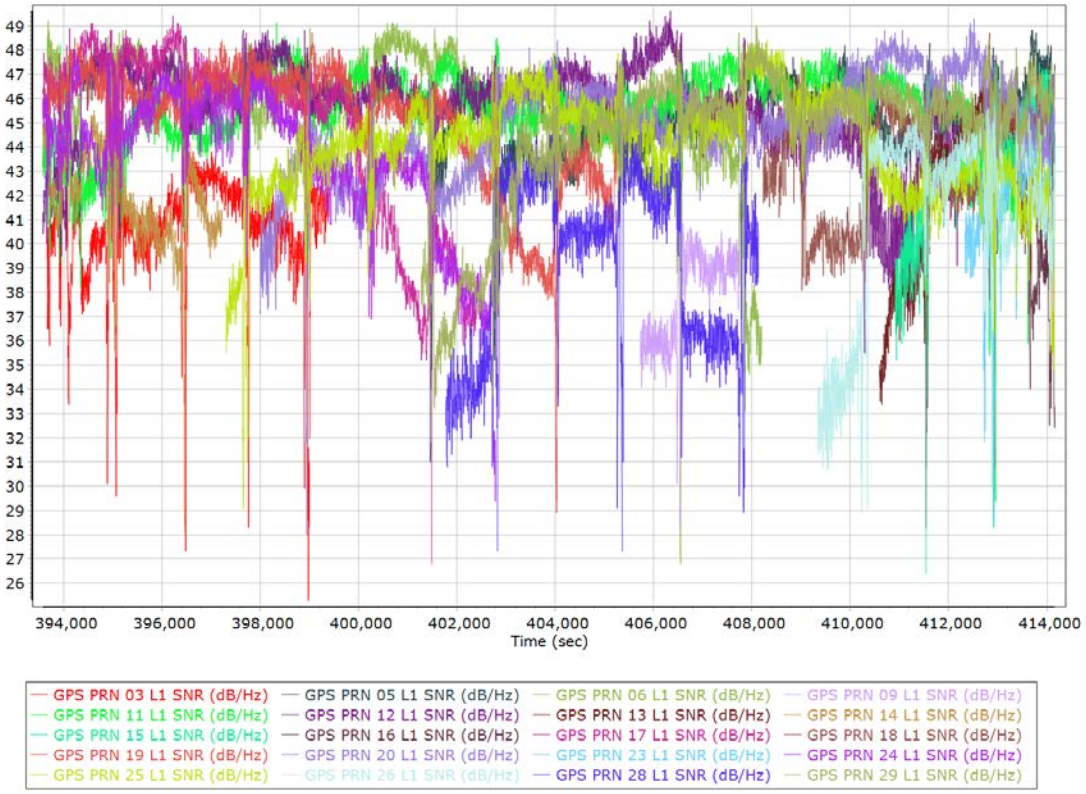
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07062023A_3062.log
IMU Records Processed	4114341
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

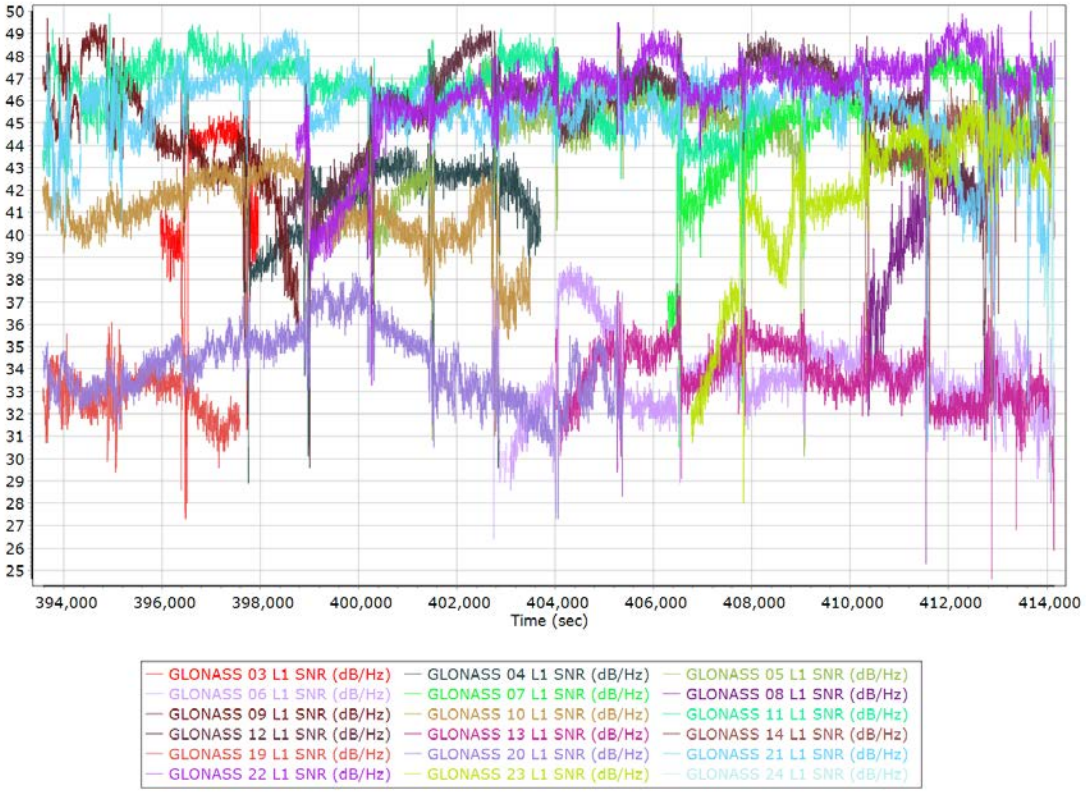
GPS/GLONASS L1 Satellite Lock/Elevation



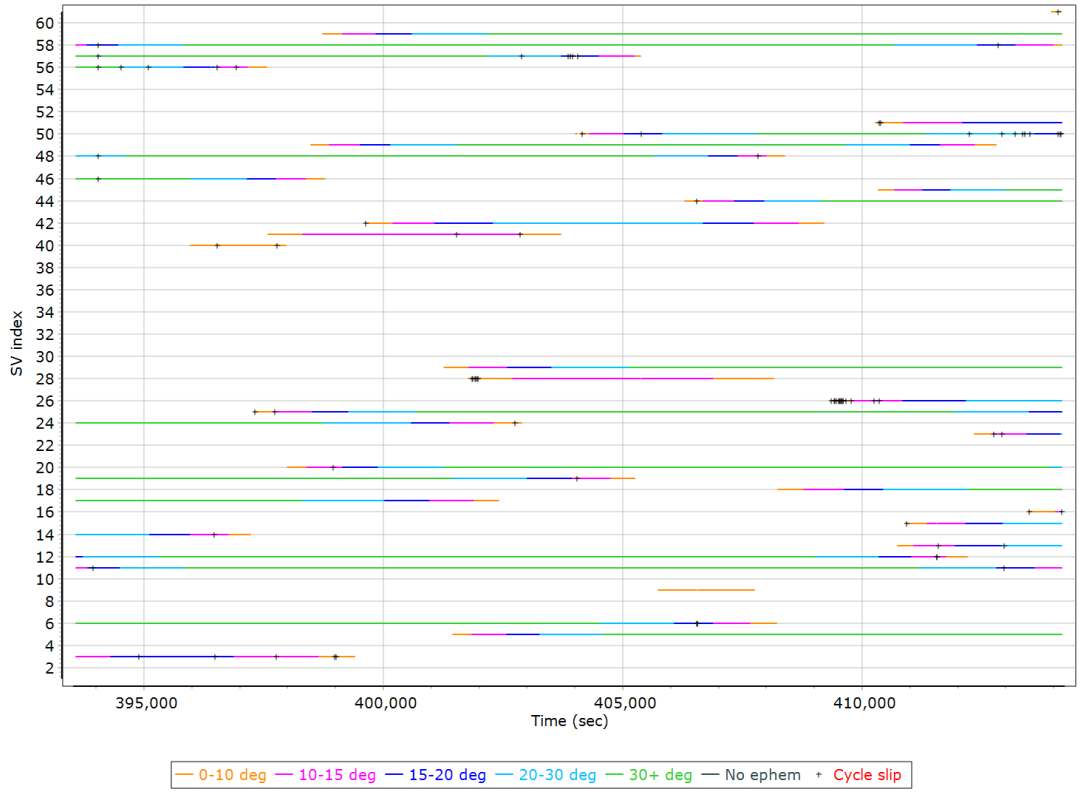
GPS L1 SNR



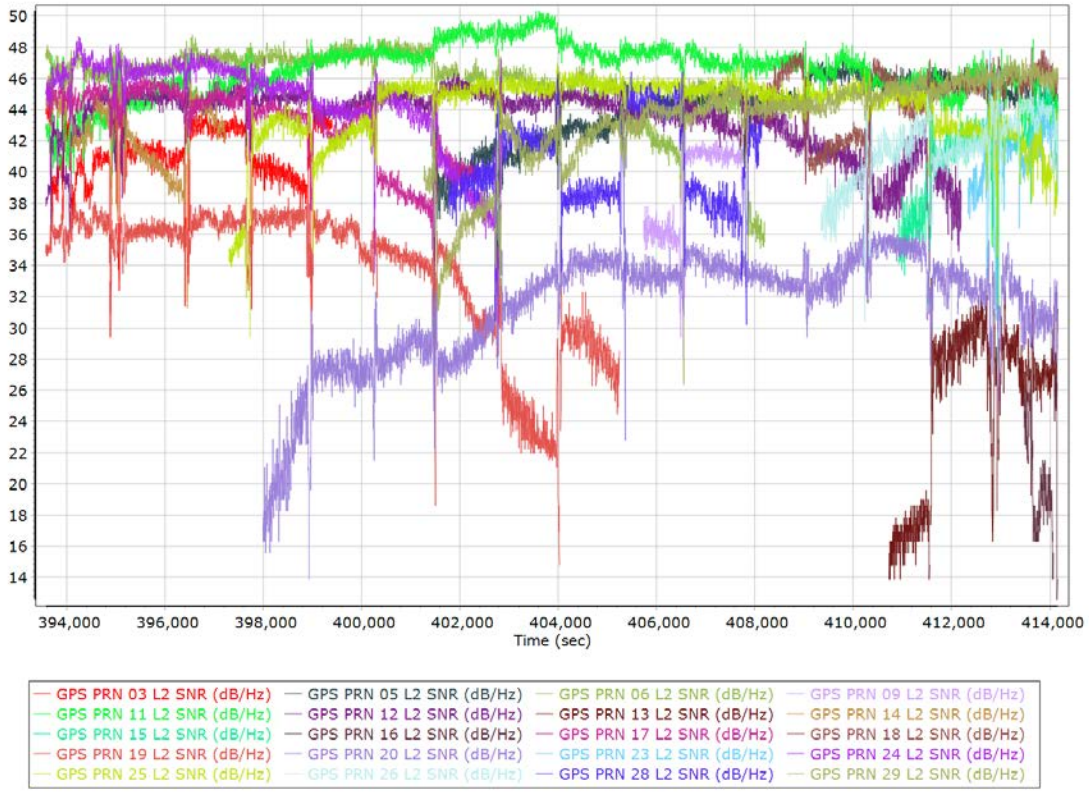
GLONASS L1 SNR



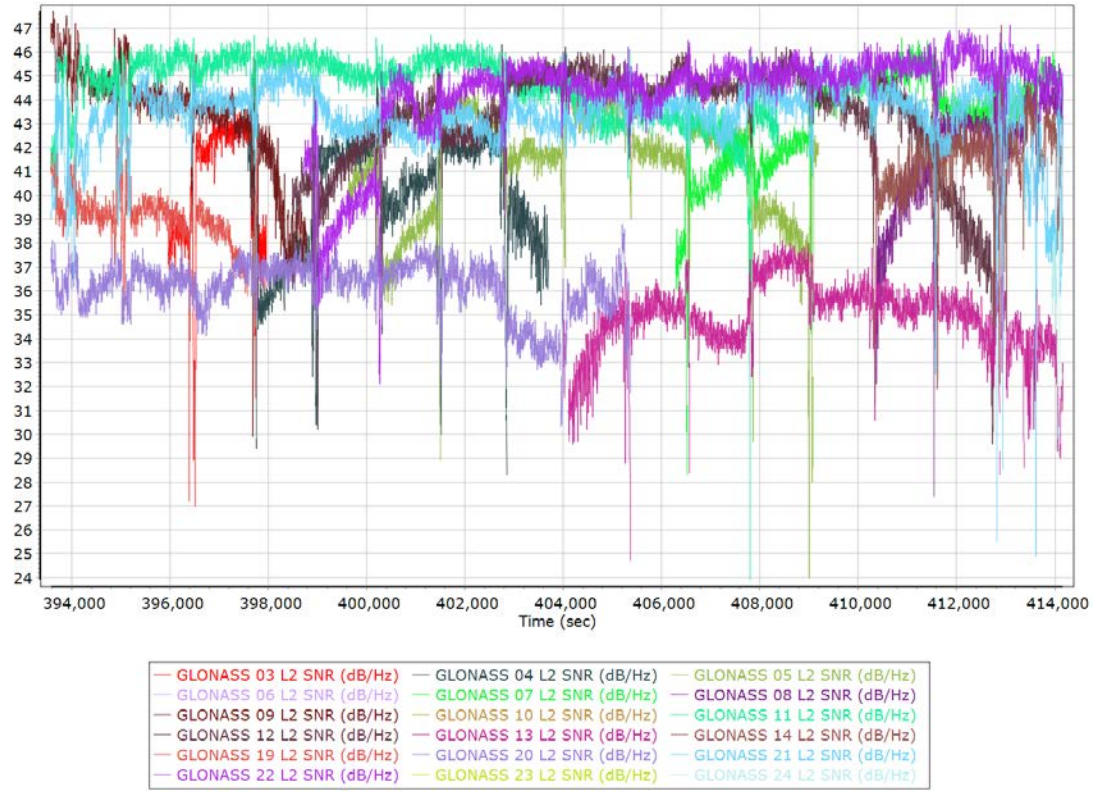
GPS/GLONASS L2 Satellite Lock/Elevation



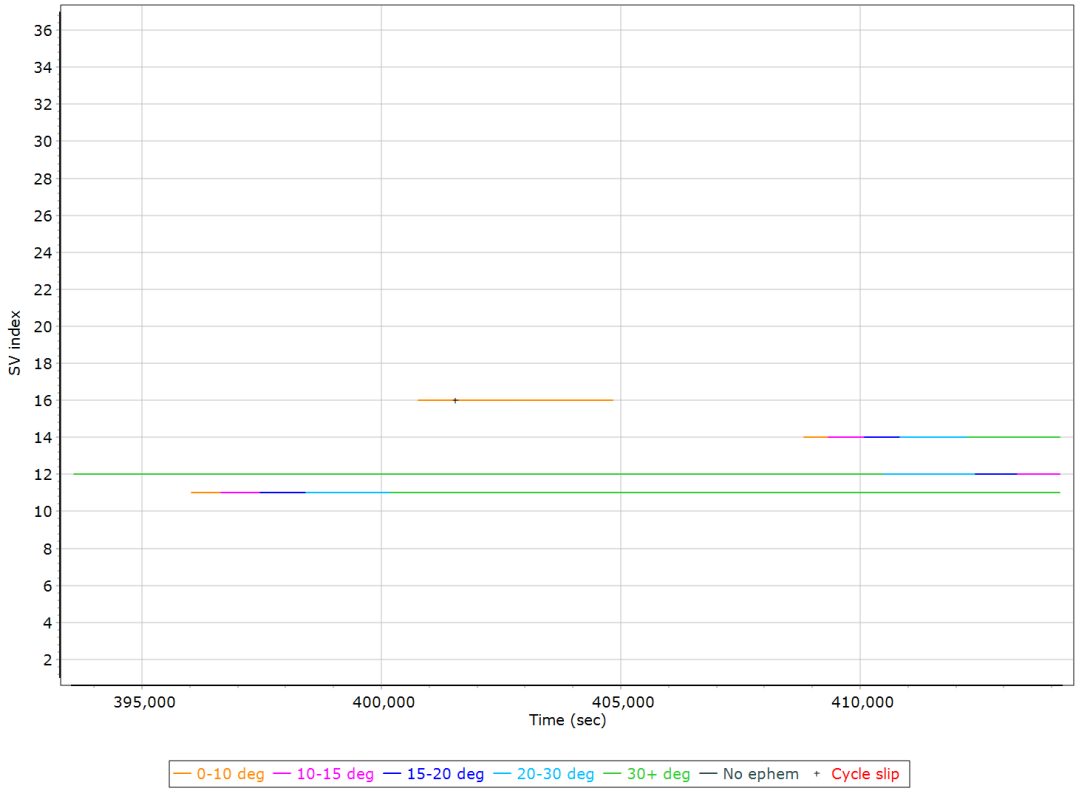
GPS L2 SNR



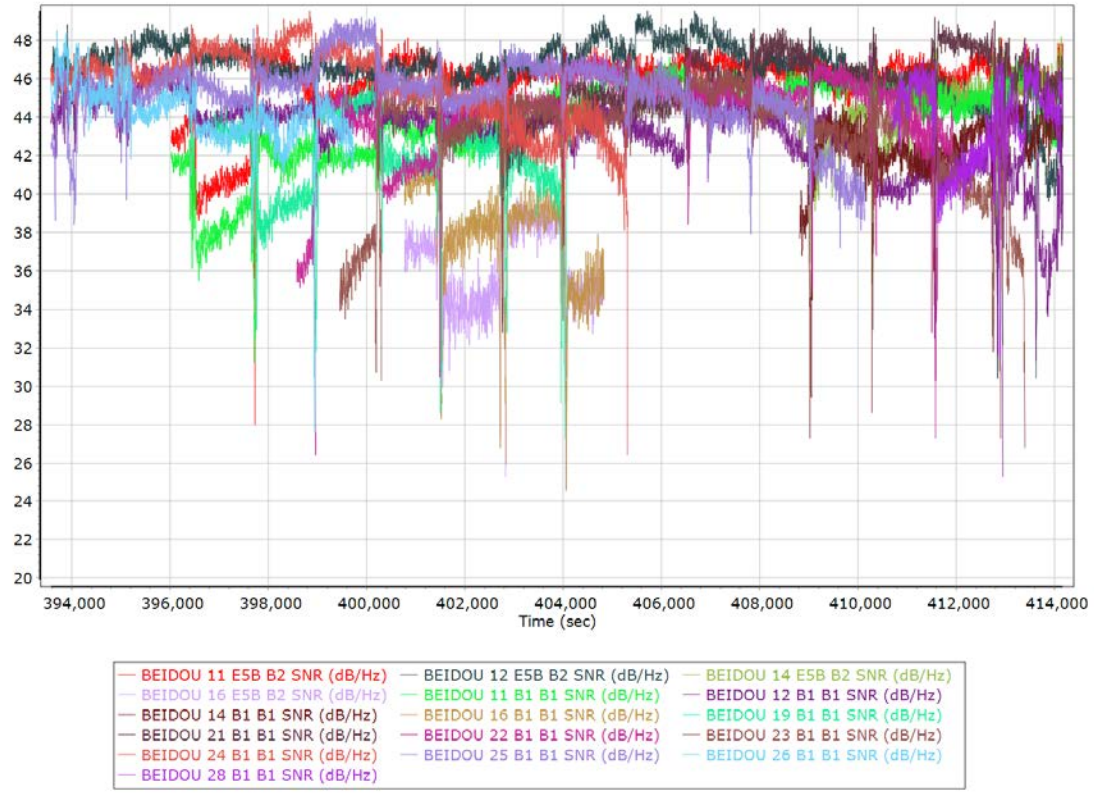
GLONASS L2 SNR



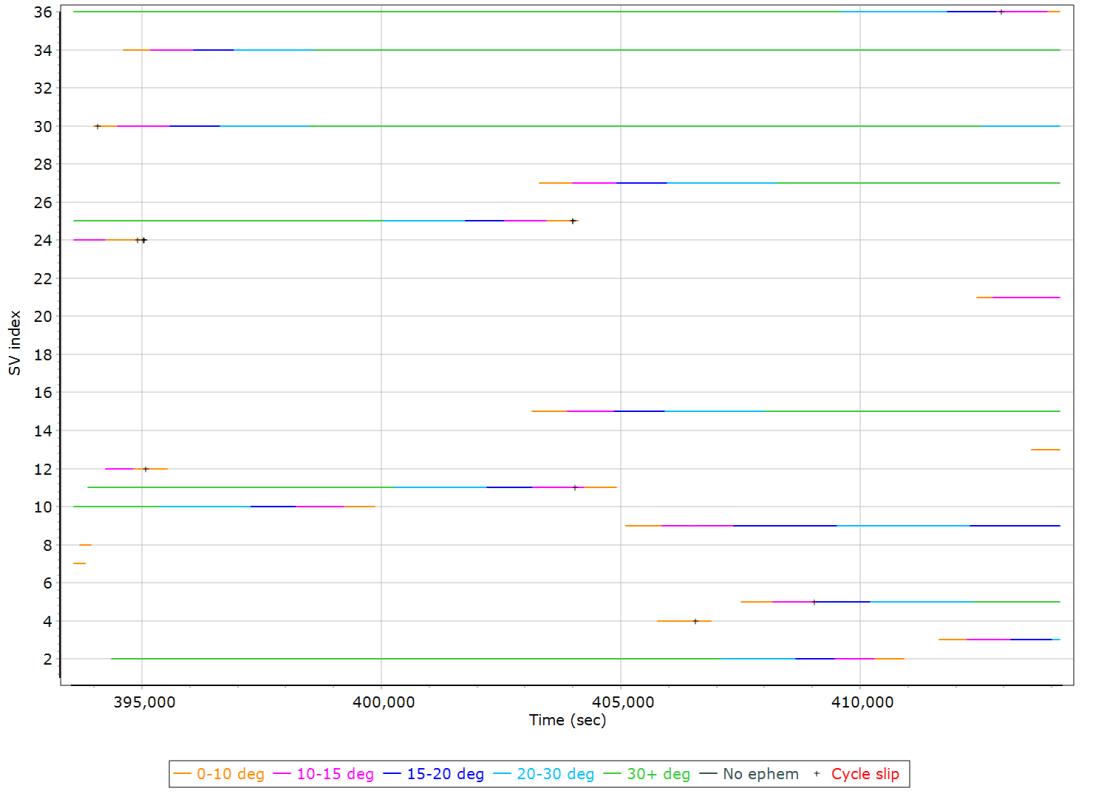
BEIDOU Satellite Lock/Elevation



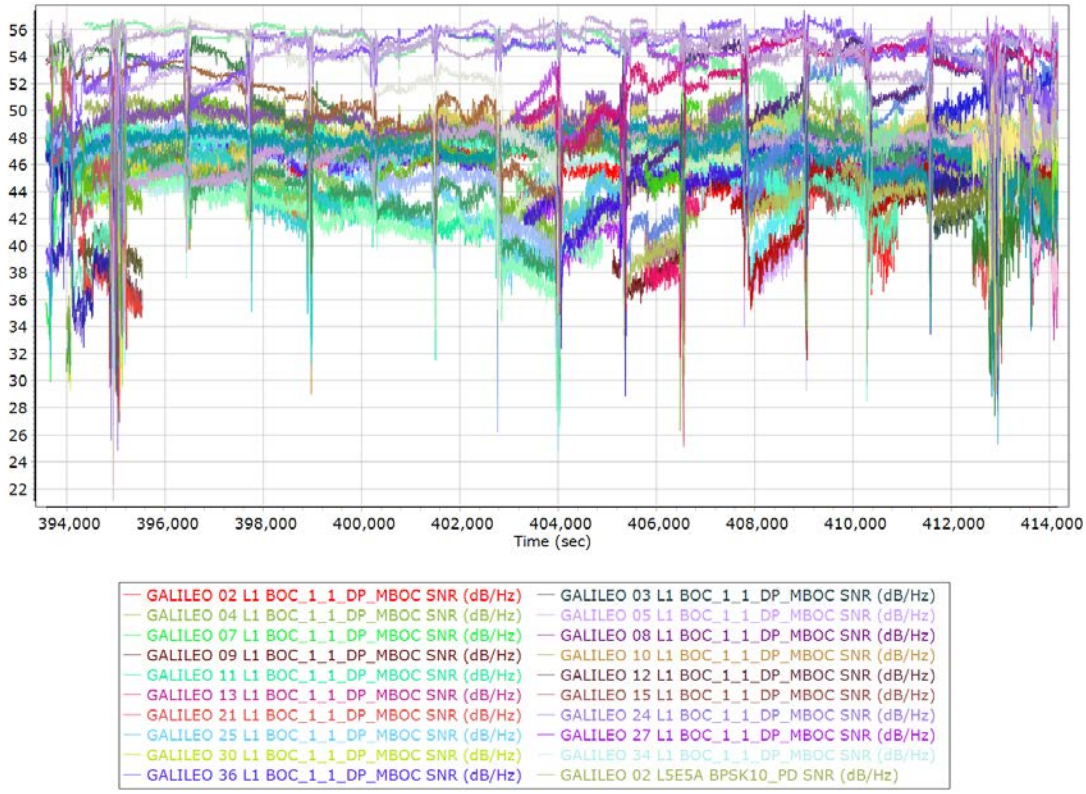
BEIDOU SNR



GALILEO Satellite Lock/Elevation

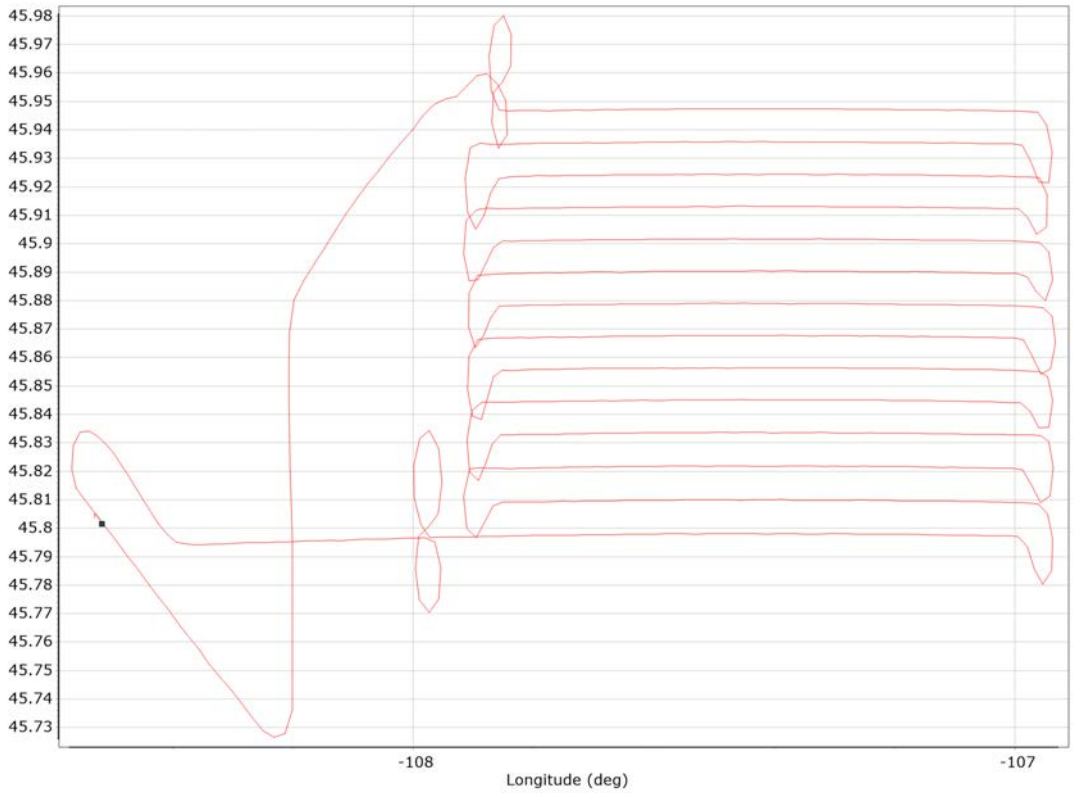


GALILEO SNR

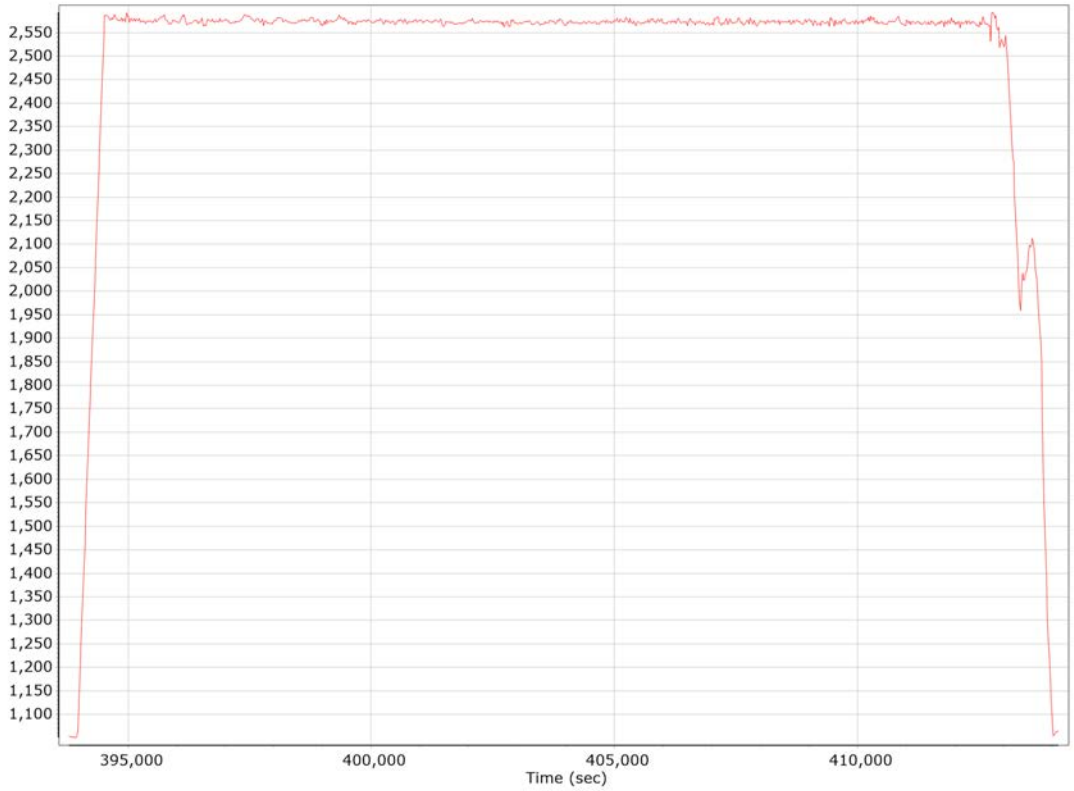

56
54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
394,000
396,000
398,000
400,000
402,000
404,000
406,000
408,000
410,000
412,000
414,000
Time (sec)
GALILEO 02 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 03 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 05 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 07 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)
GALILEO 13 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 15 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)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 27 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 30 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 34 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

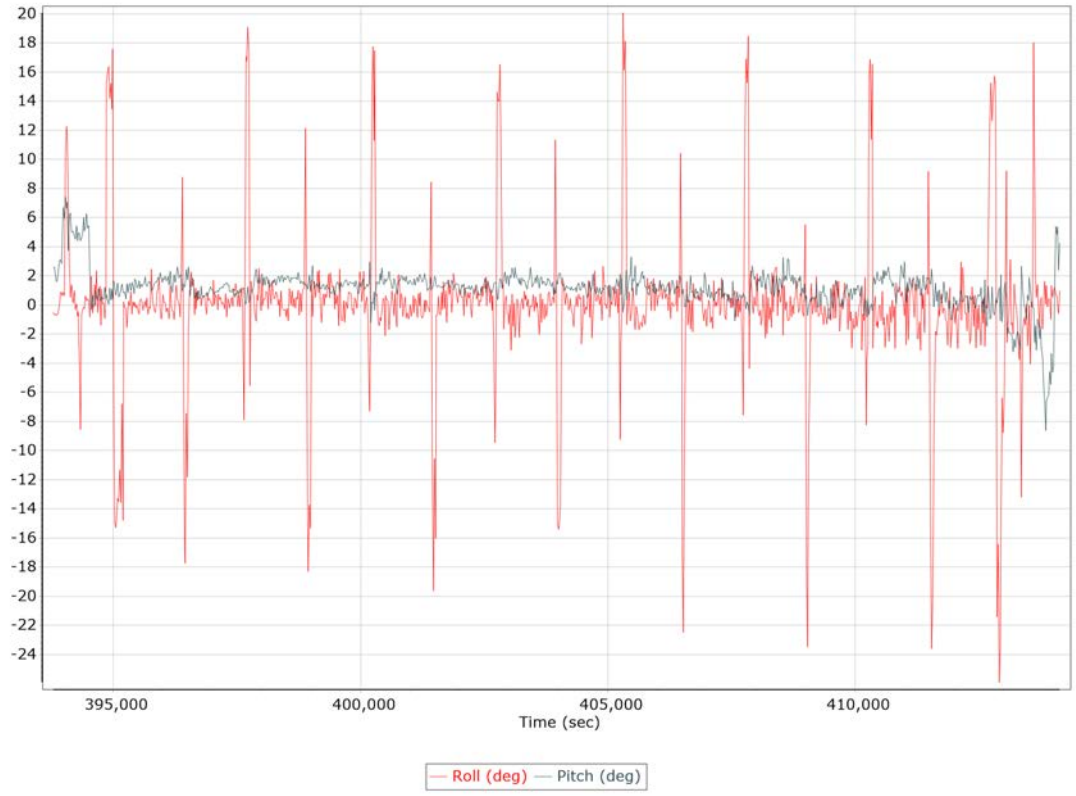
Top View



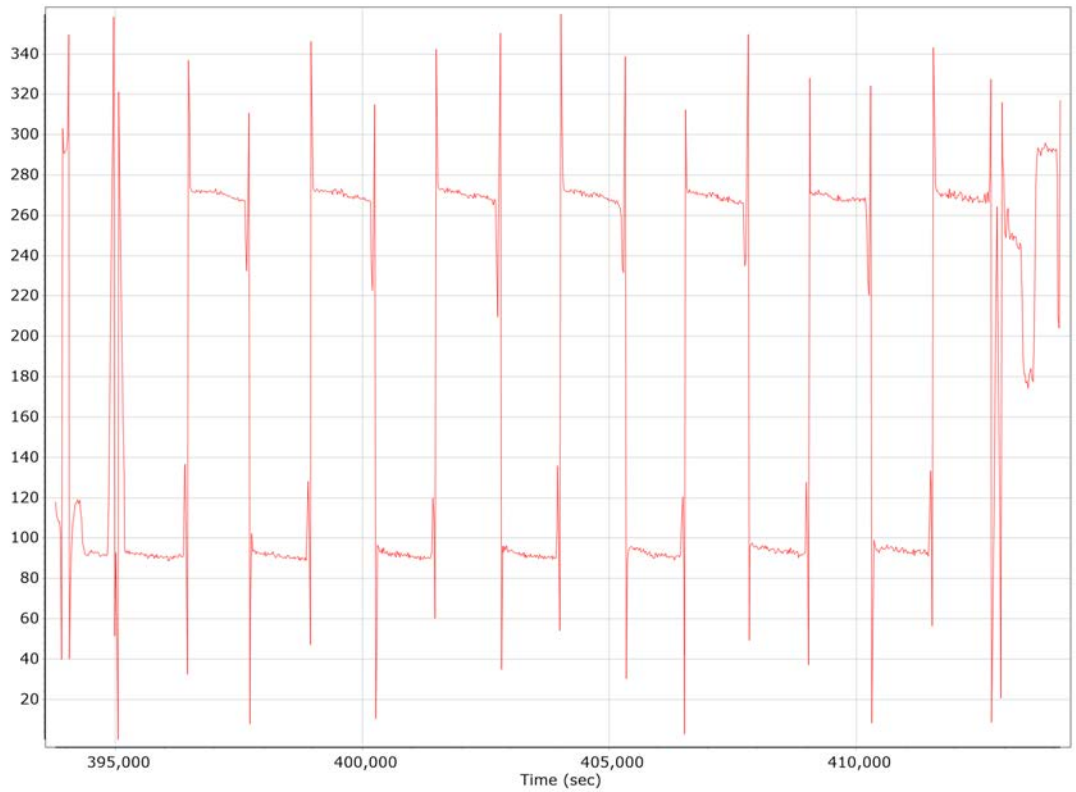
Altitude



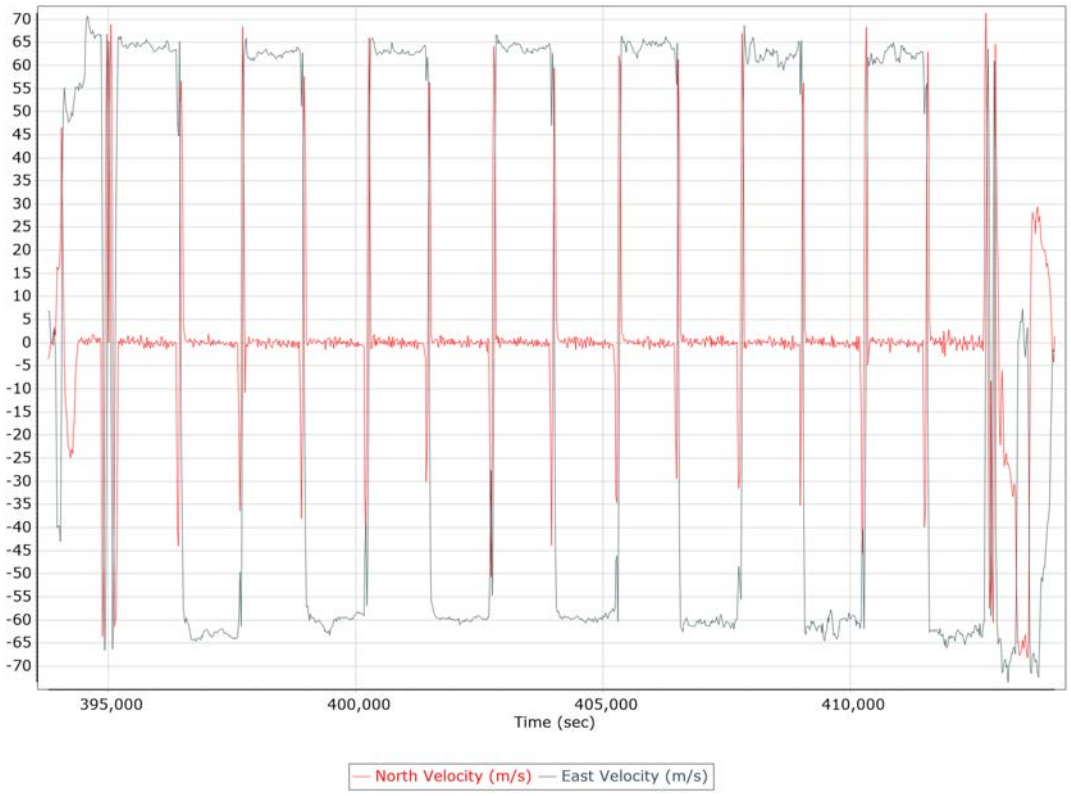
Roll/Pitch



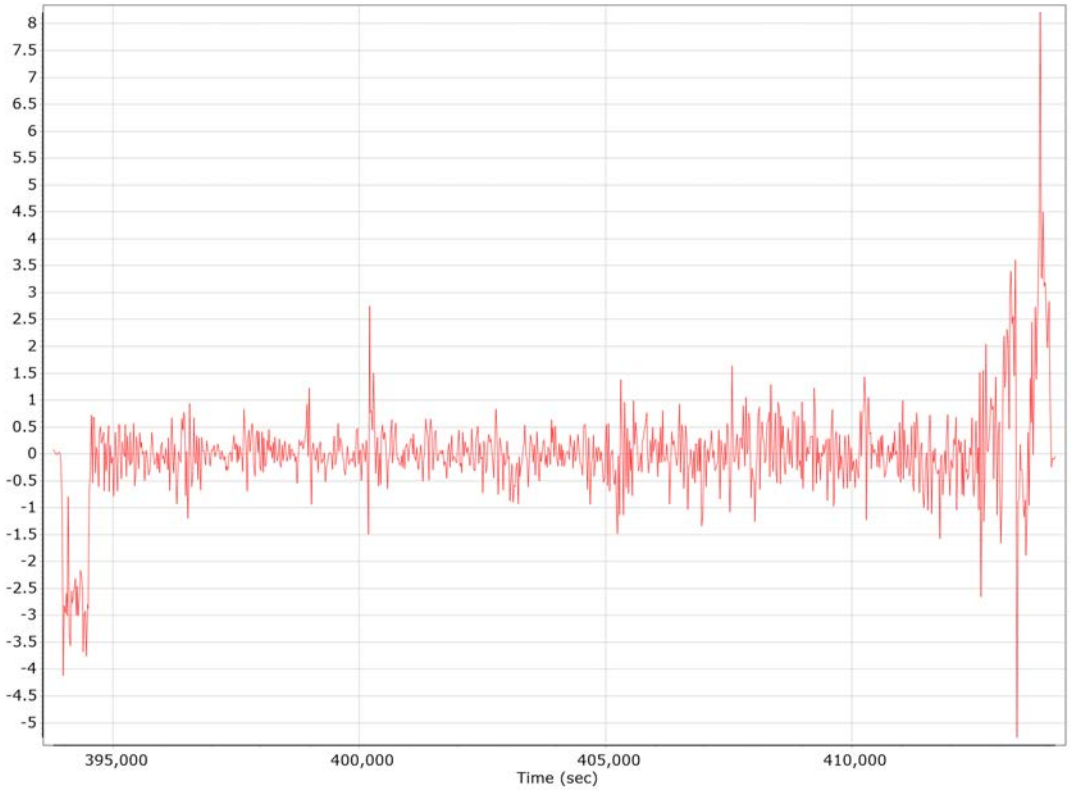
Heading



North/East Velocity



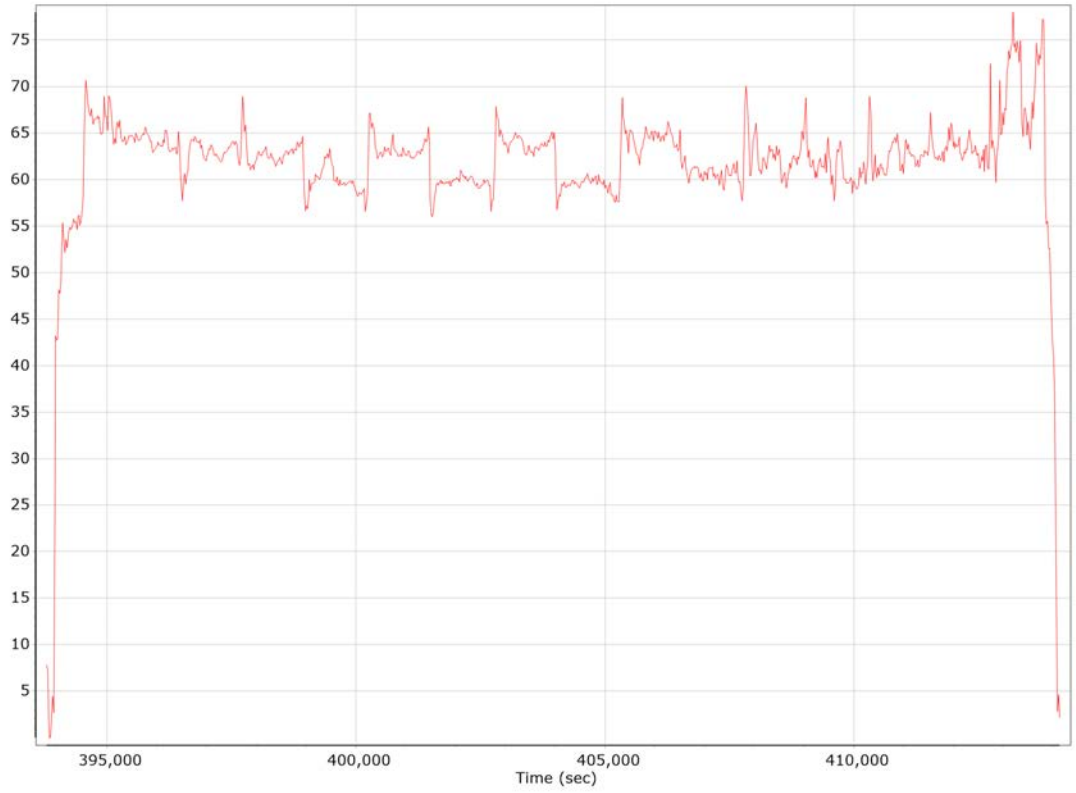
Down Velocity



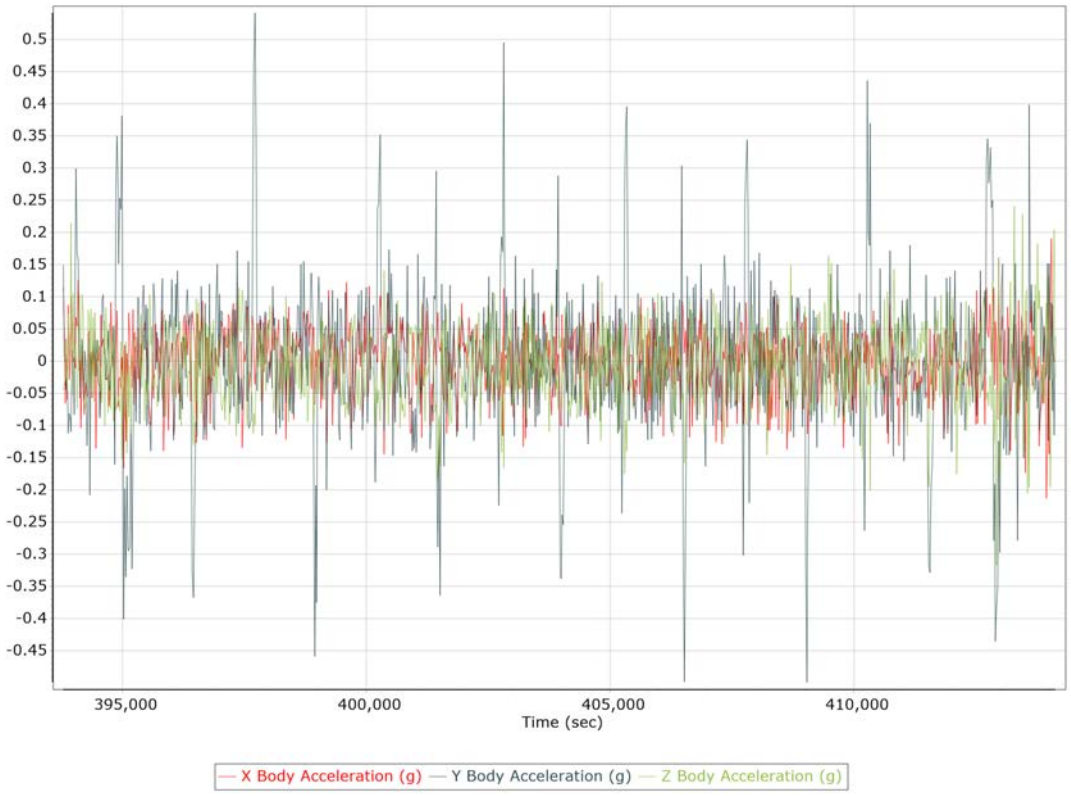
Total Speed



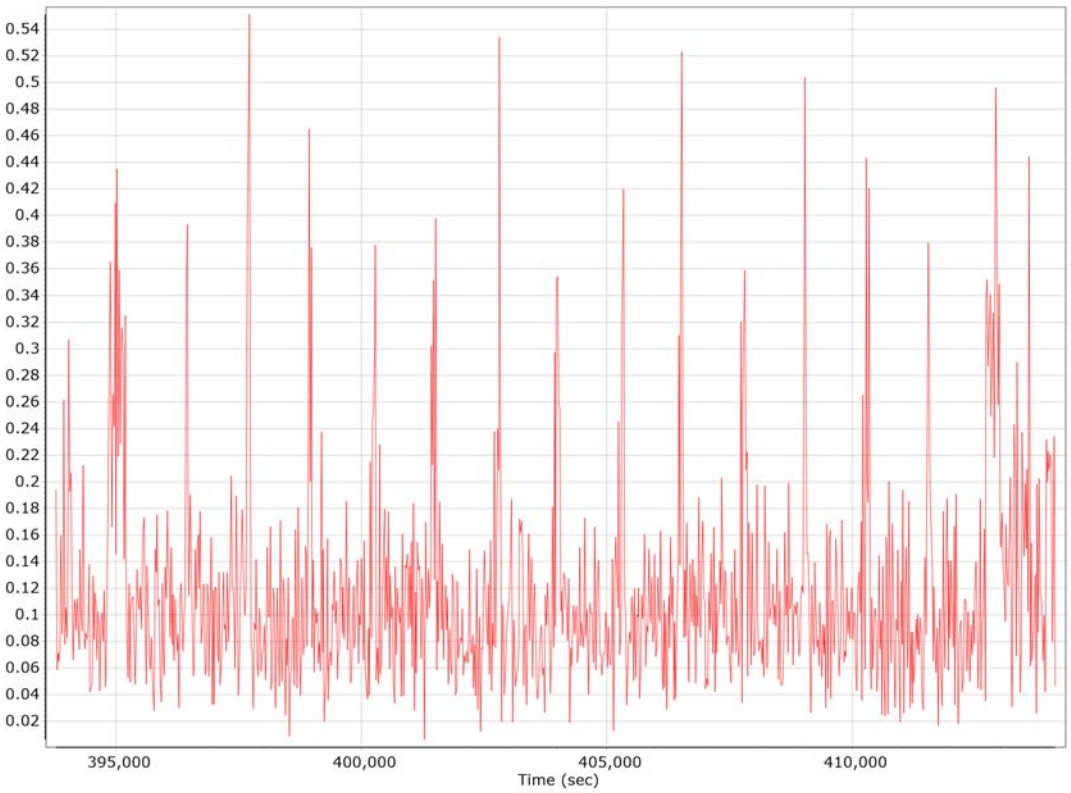
Ground Speed



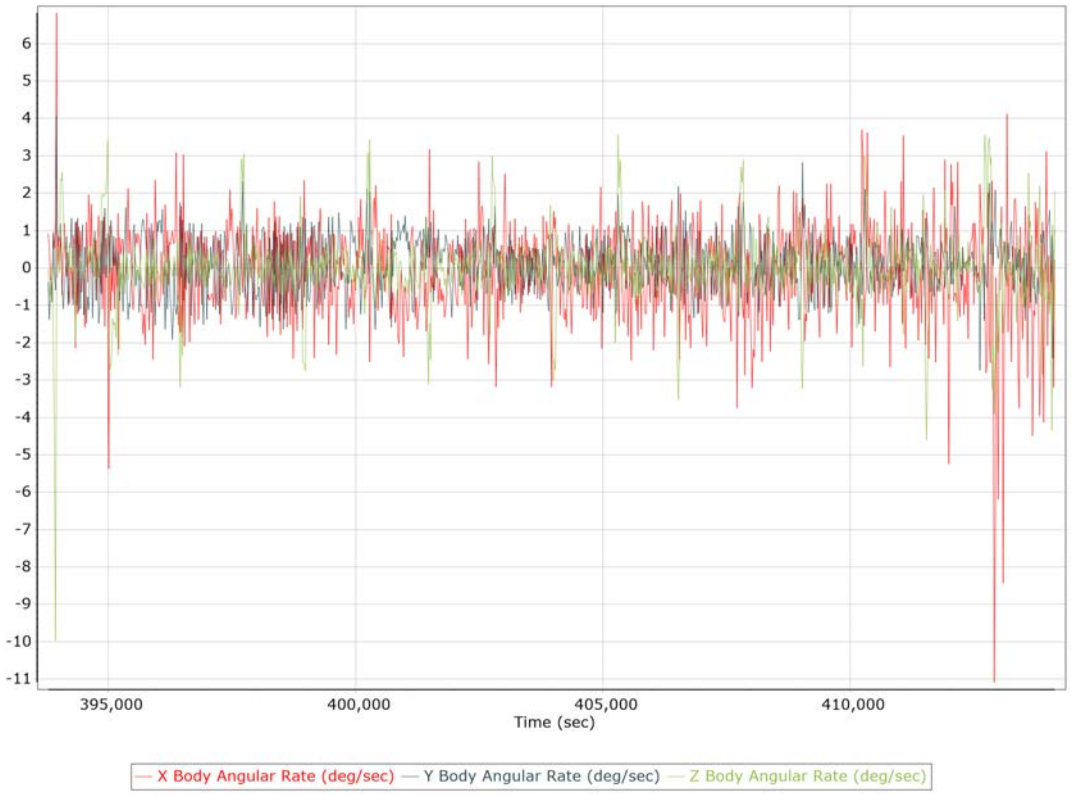
Body Acceleration



Total Body Acceleration

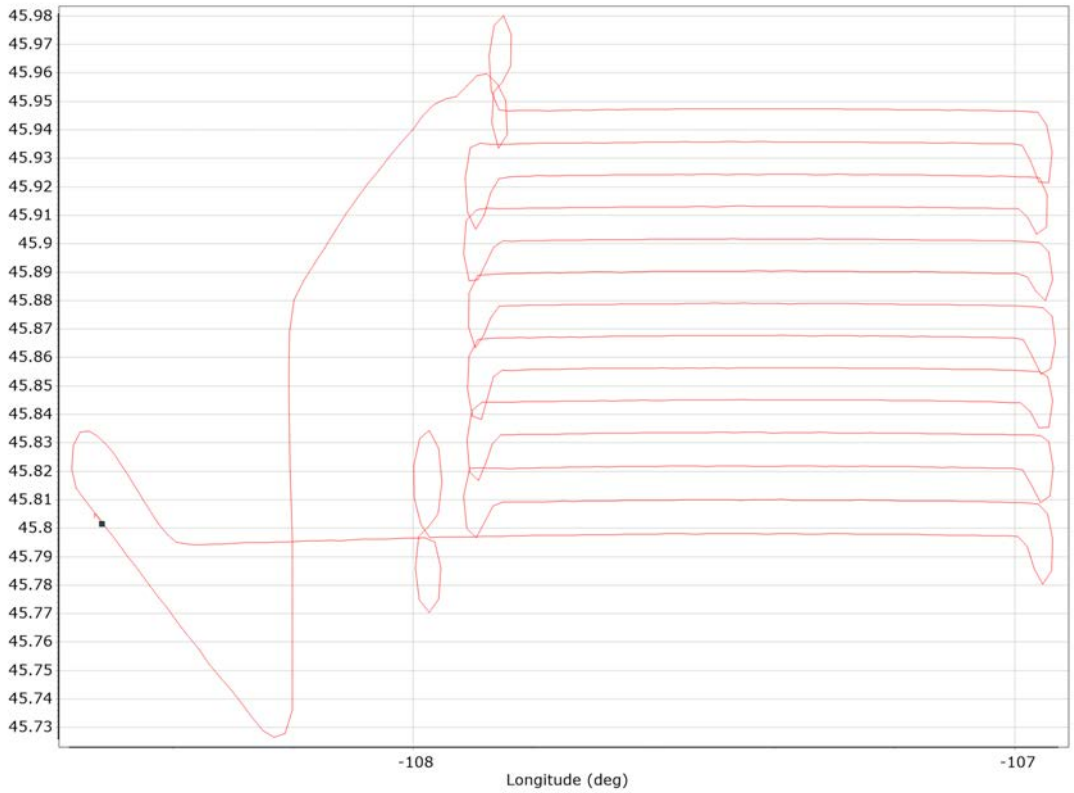


Body Angular Rate

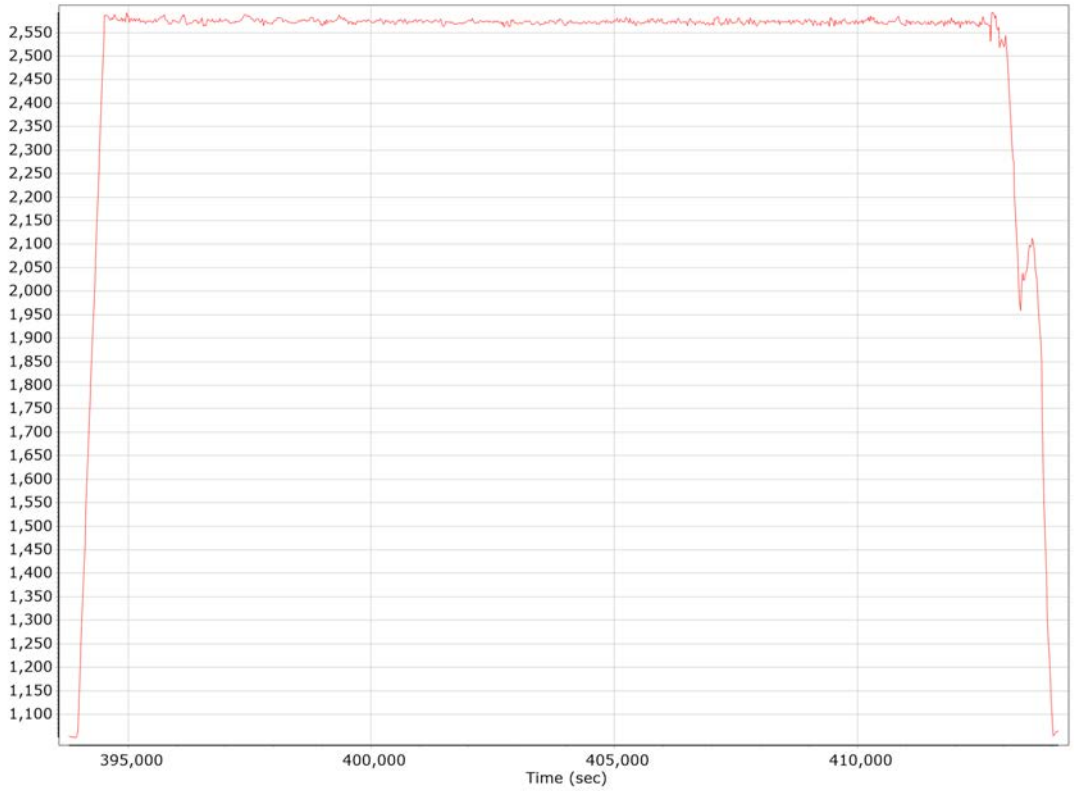


Forward Processed Trajectory Information

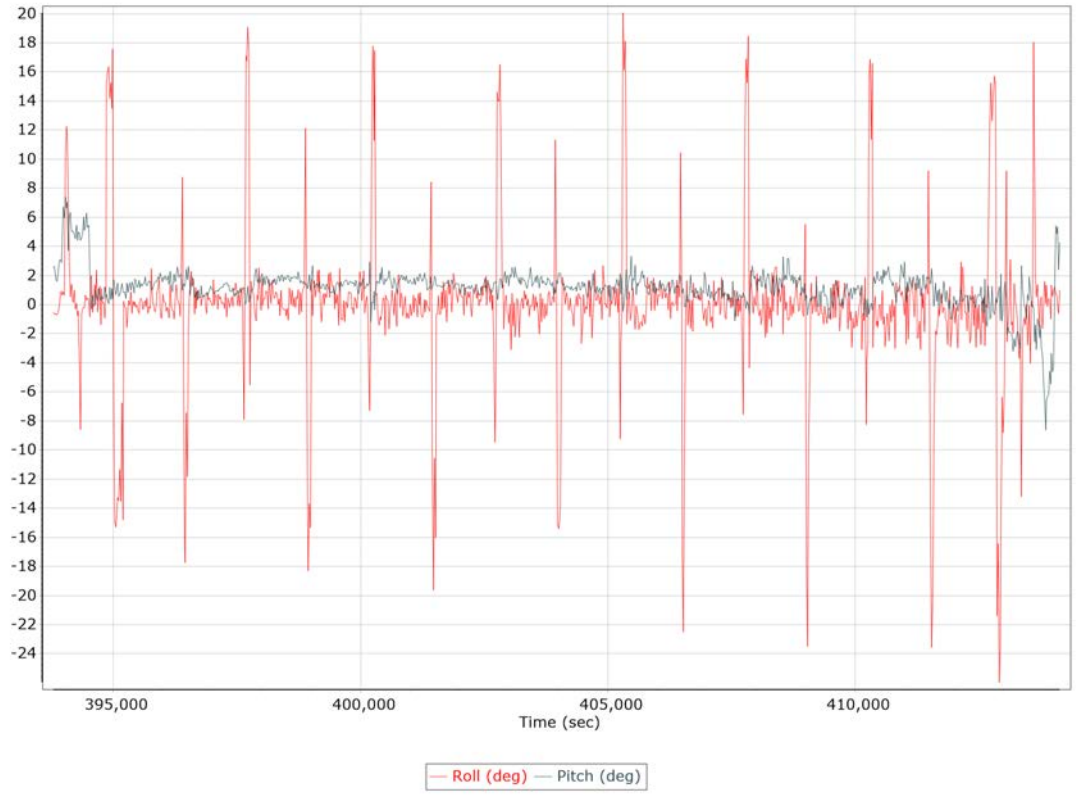
Top View



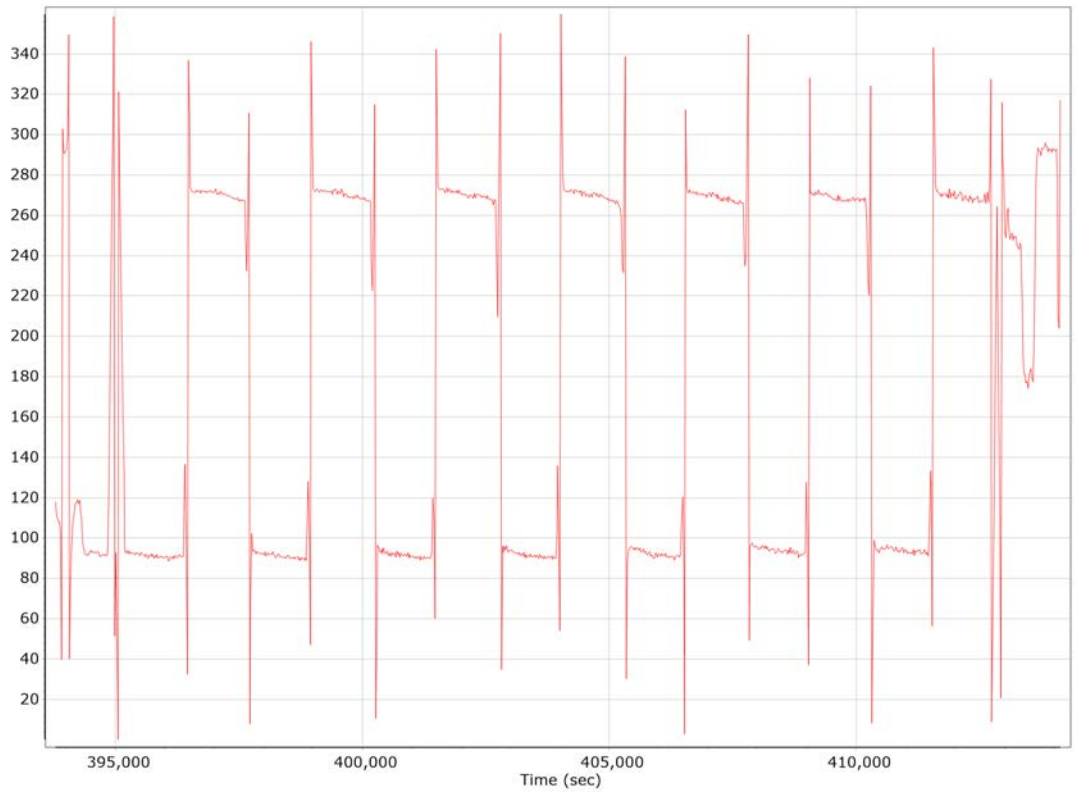
Altitude



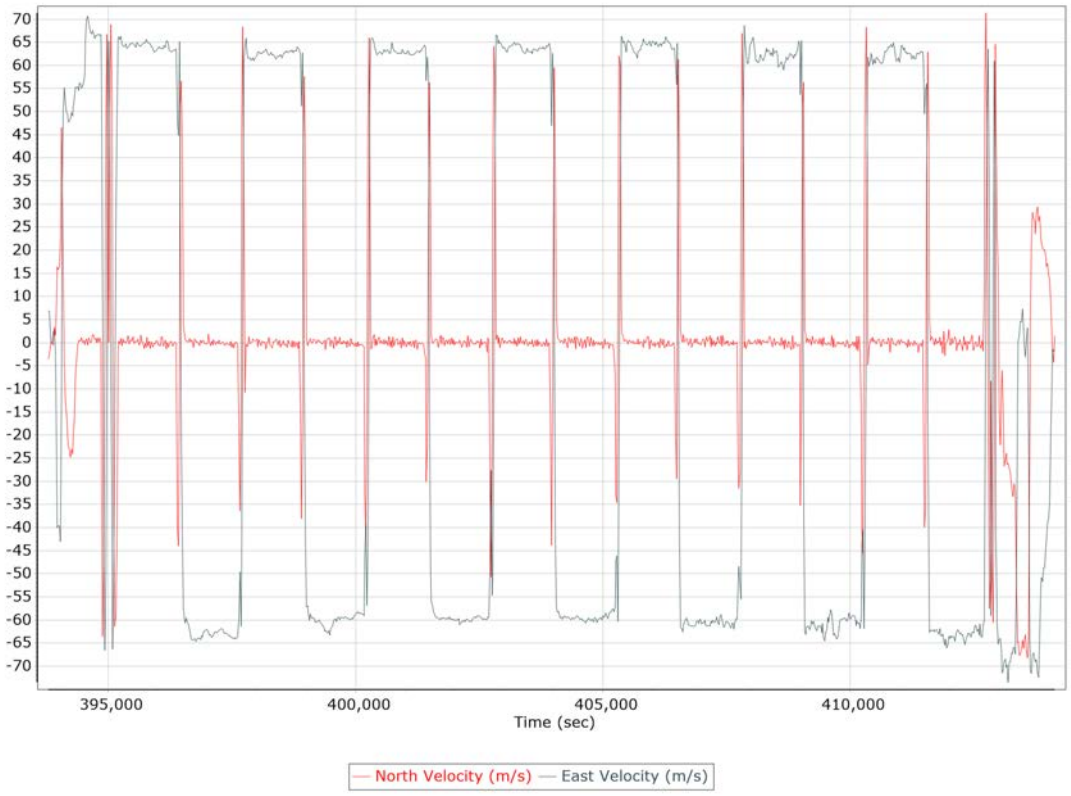
Roll/Pitch



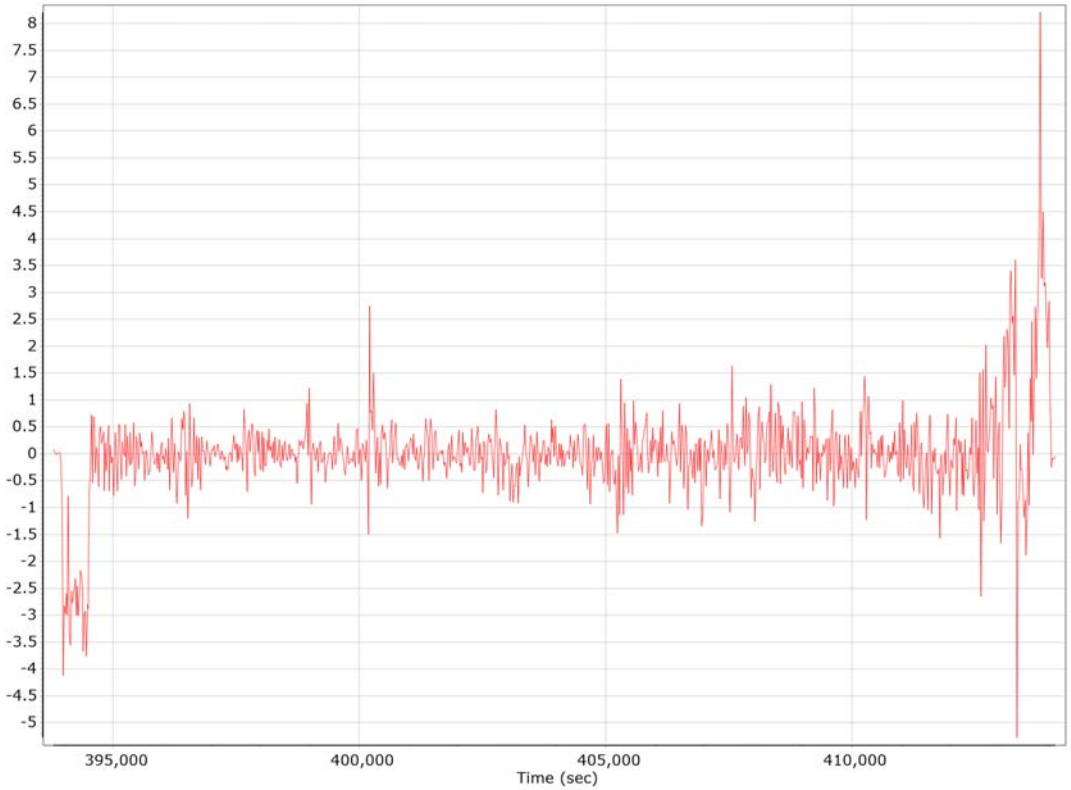
Heading



North/East Velocity



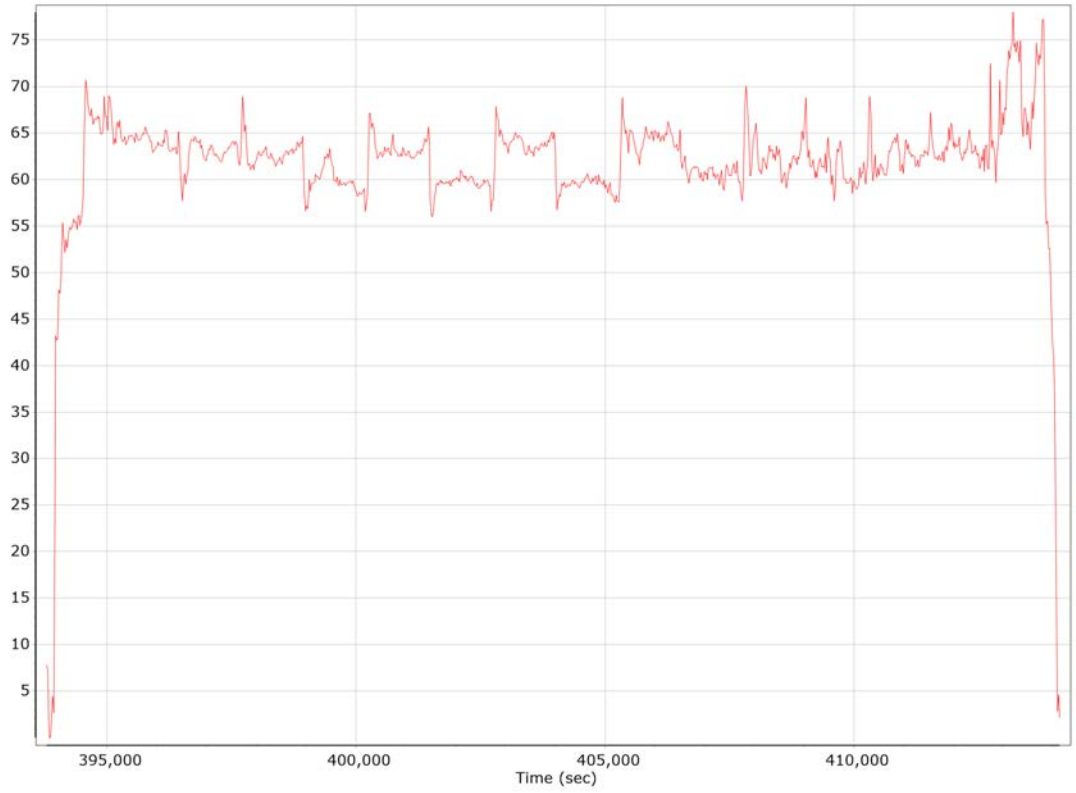
Down Velocity



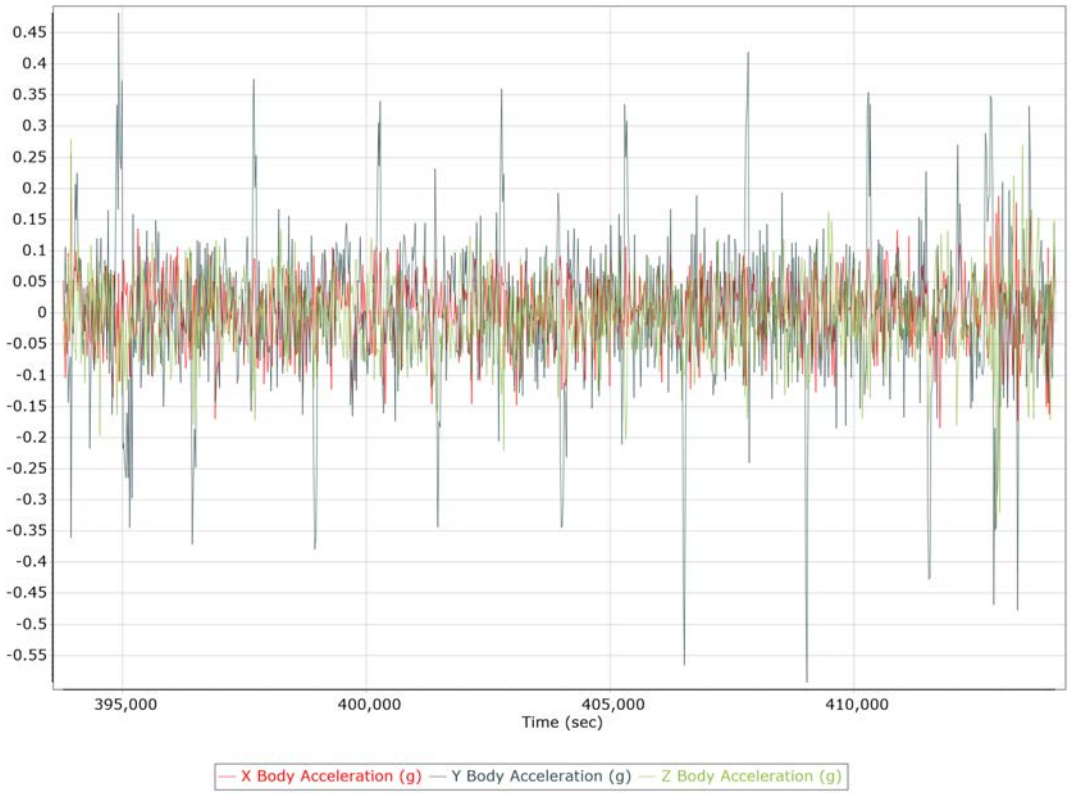
Total Speed



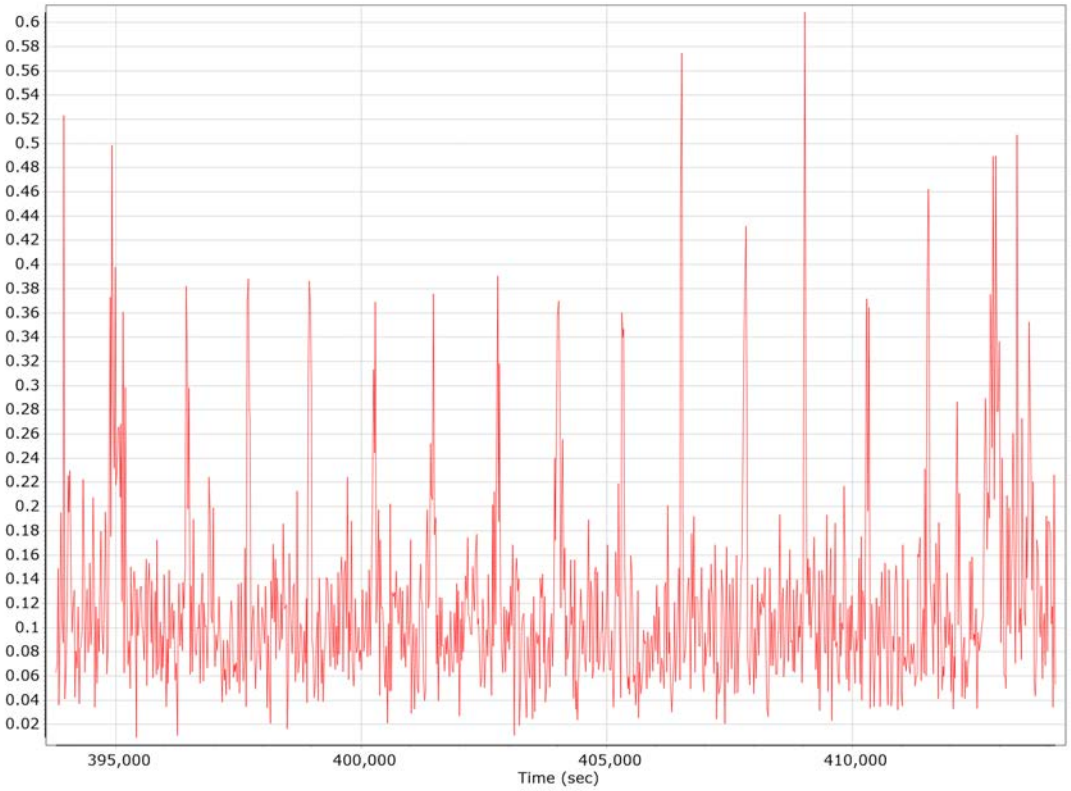
Ground Speed



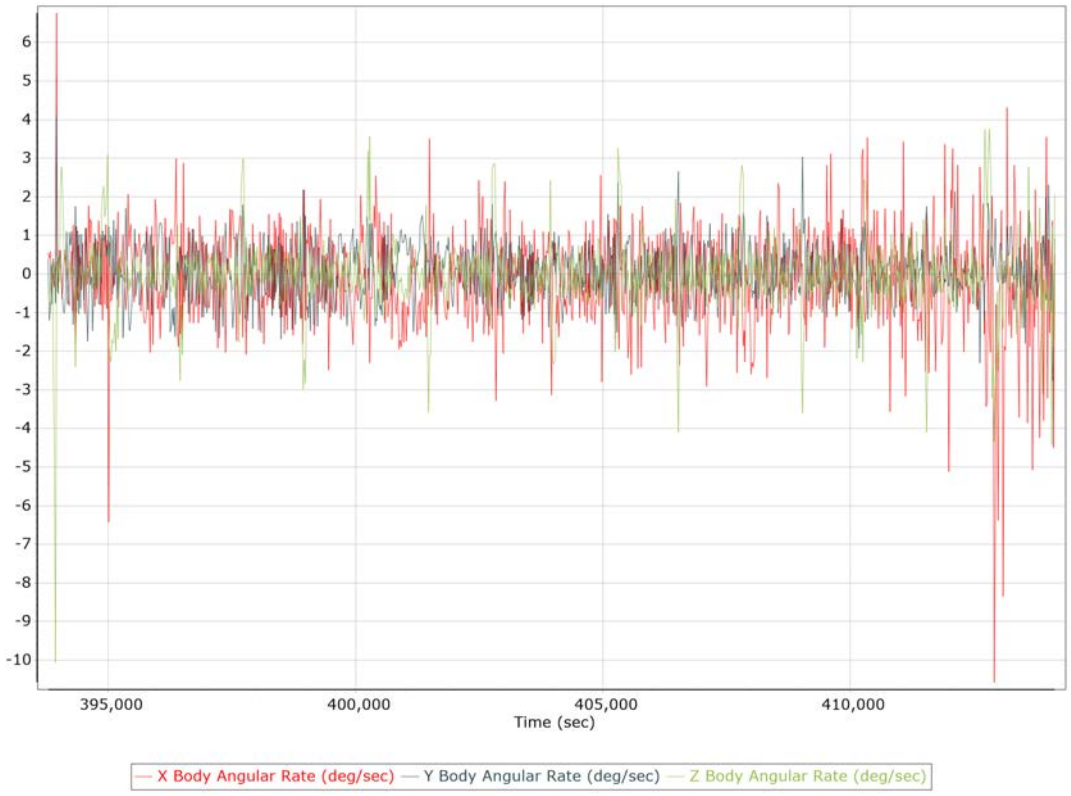
Body Acceleration



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	11	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	4	9	7
Total number of SV	13	25	21
PDOP	0.98	1.60	1.13
QC Solution Gaps	1.00	1.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	20531.00	0.00	1.00
Percentage	100.00	0.00	0.00

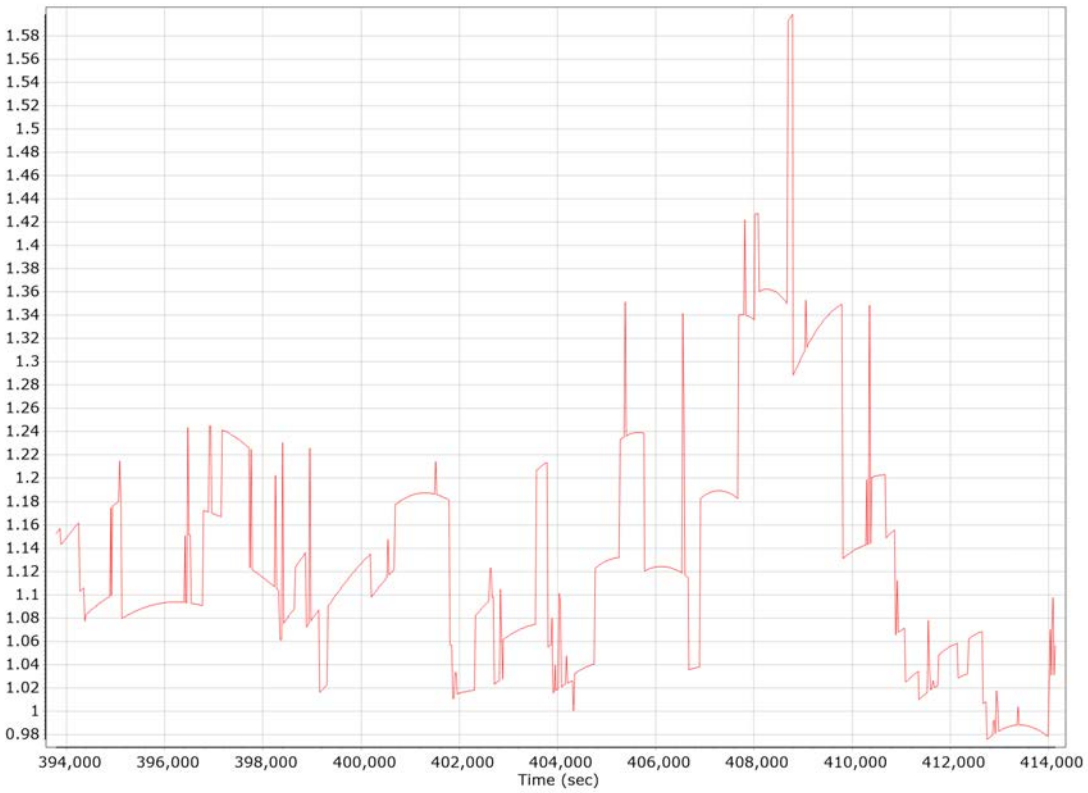
Num SVs in solution



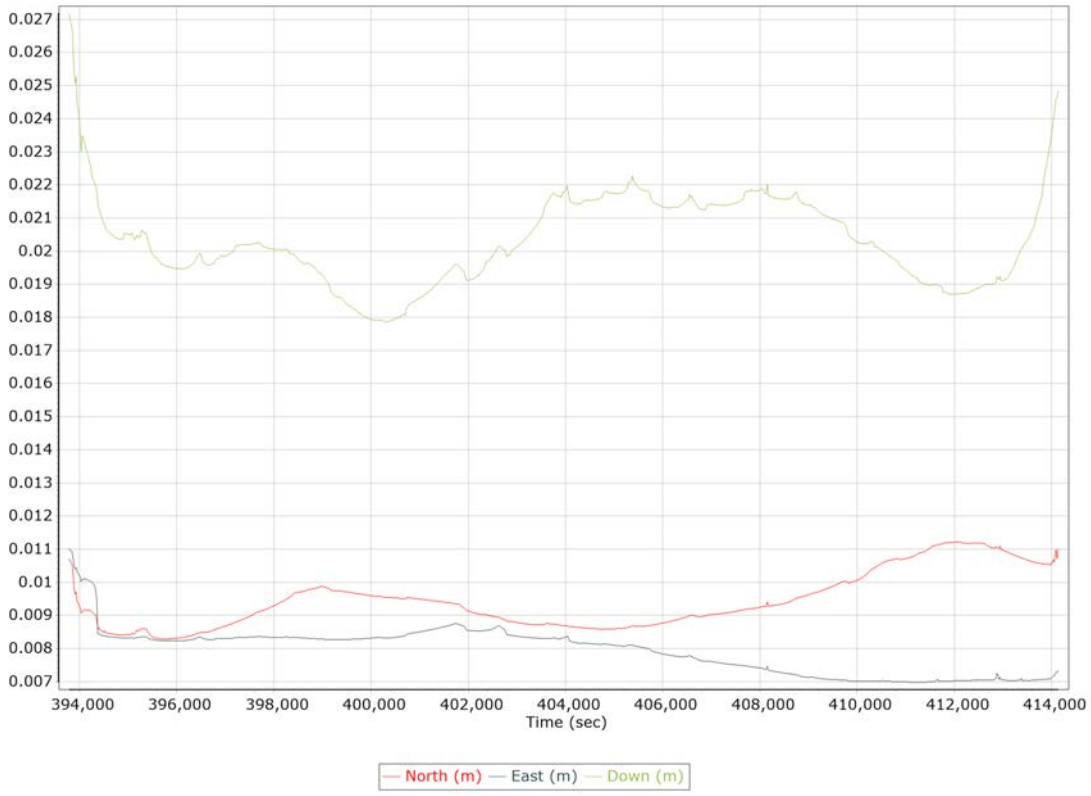
Forward/Reverse Separation



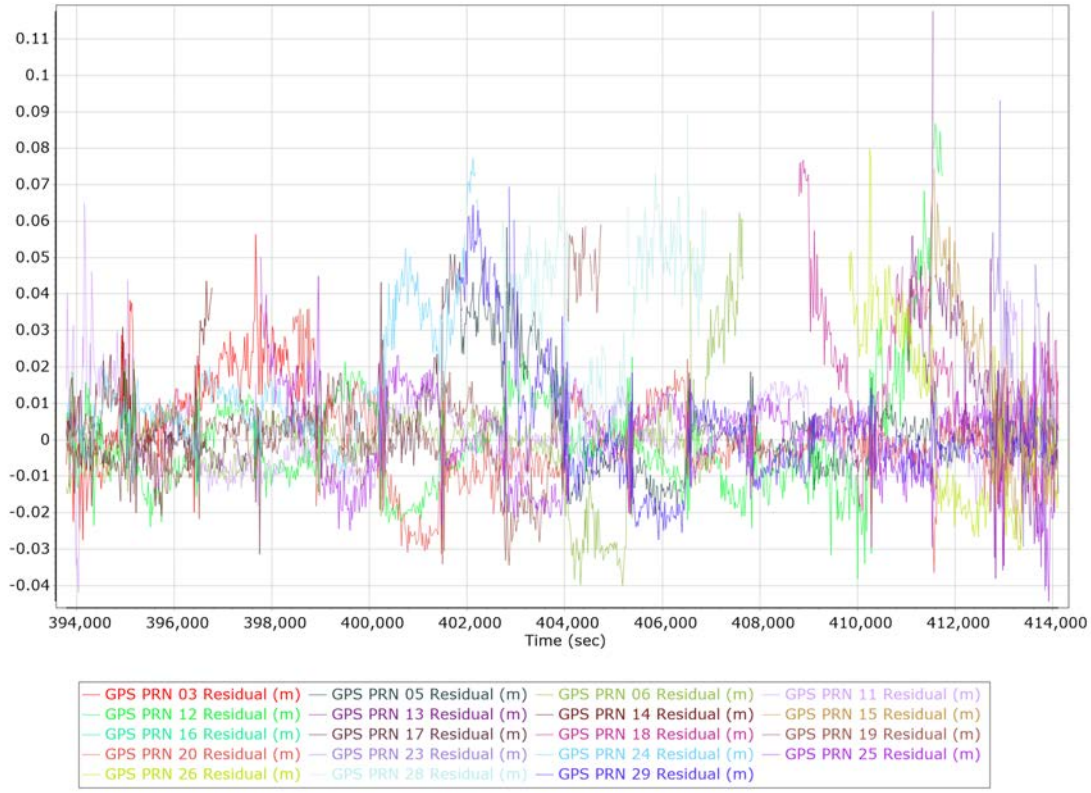
PDOP



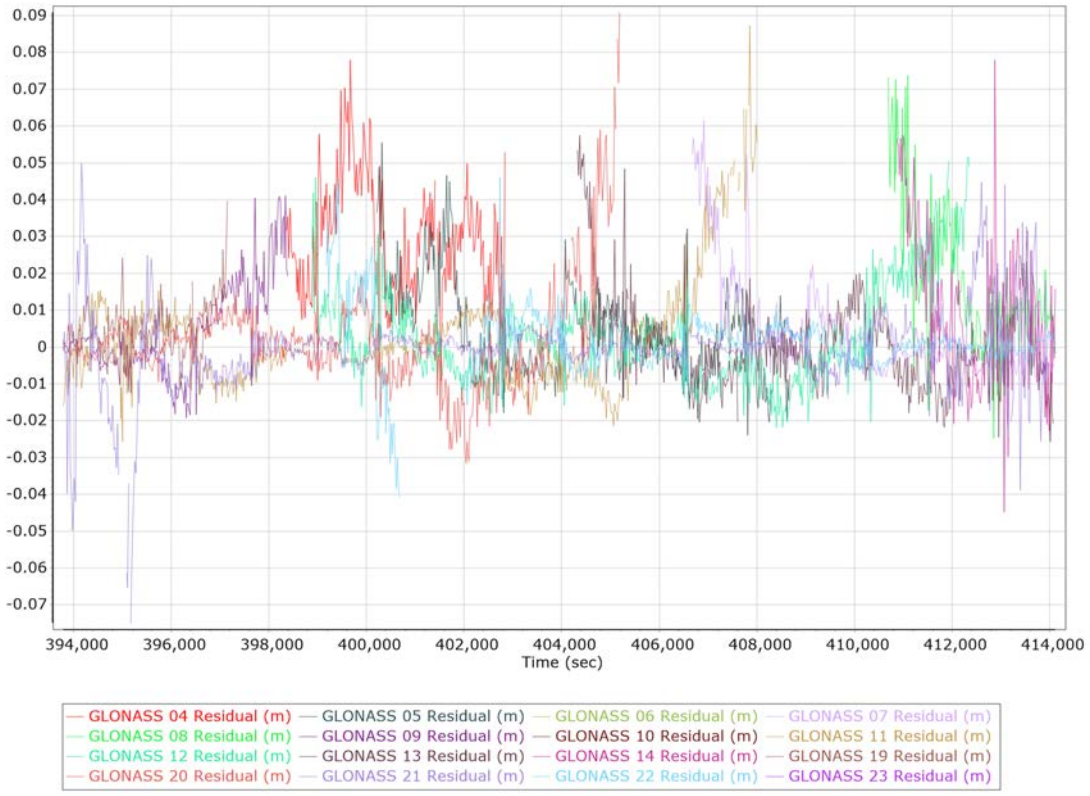
Estimated Position Accuracy



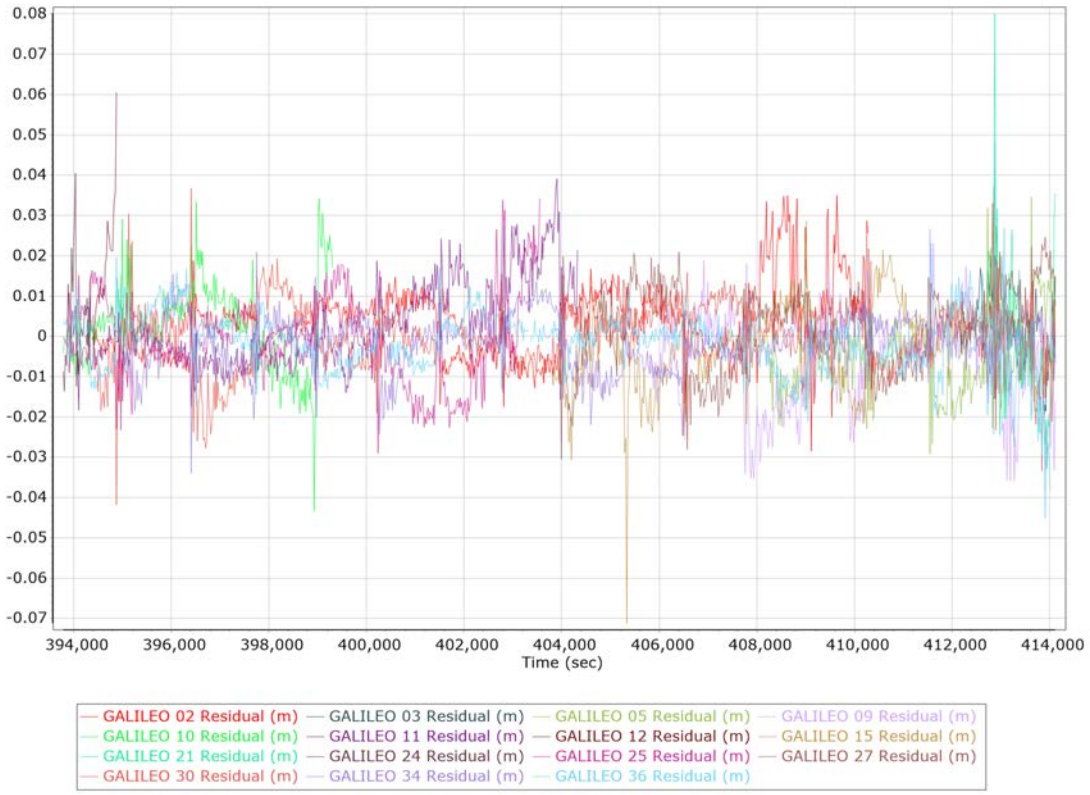
GPS Residuals



GLONASS Residuals



GALILEO Residuals



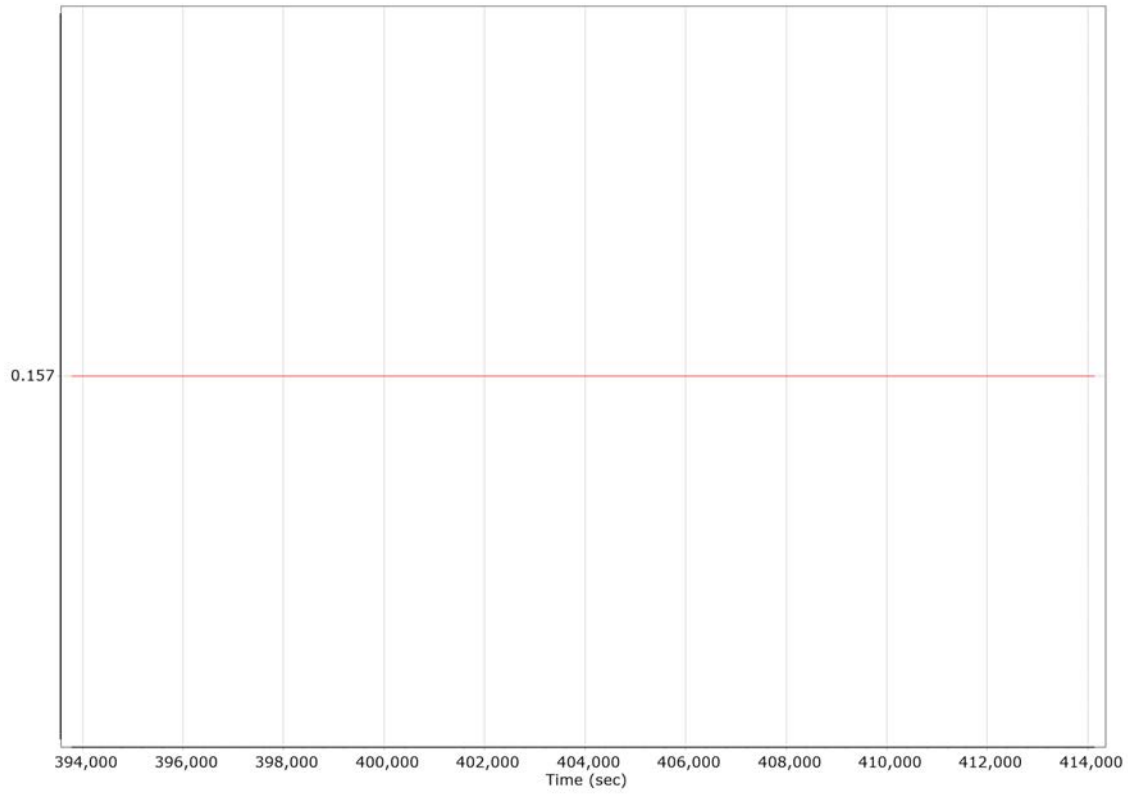
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	393565.000 (7/6/2023 1:19:25 PM)		
Processing end time	414141.000 (7/6/2023 7:02:21 PM)		
Initial attitude source	Primary GNSS Track		
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)	0.157	-0.181	-0.732
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

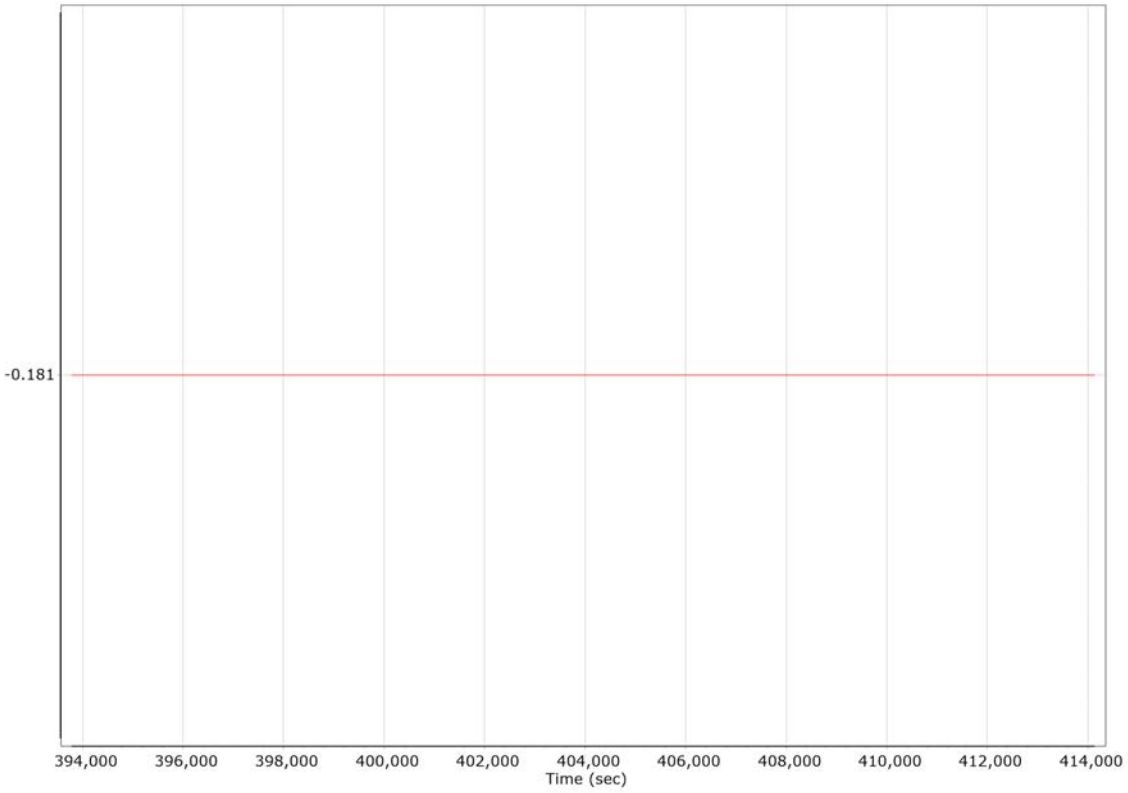
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

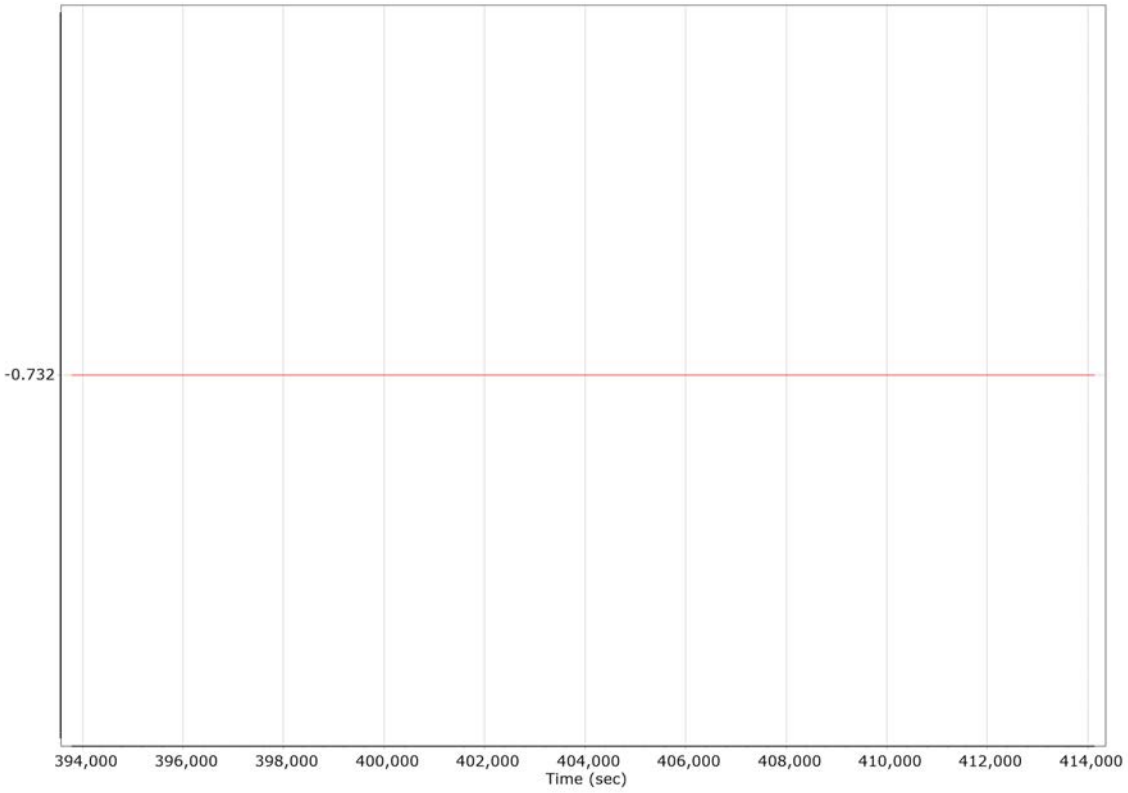
X Reference-Primary GNSS Lever Arm (m)



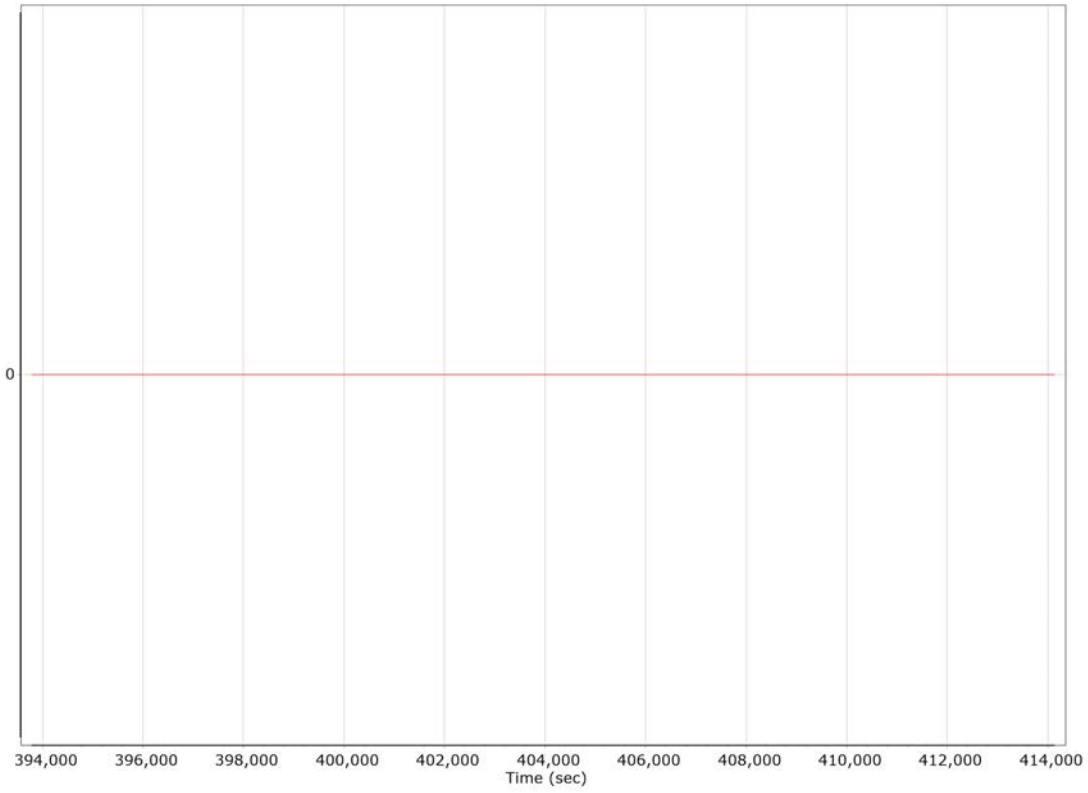
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



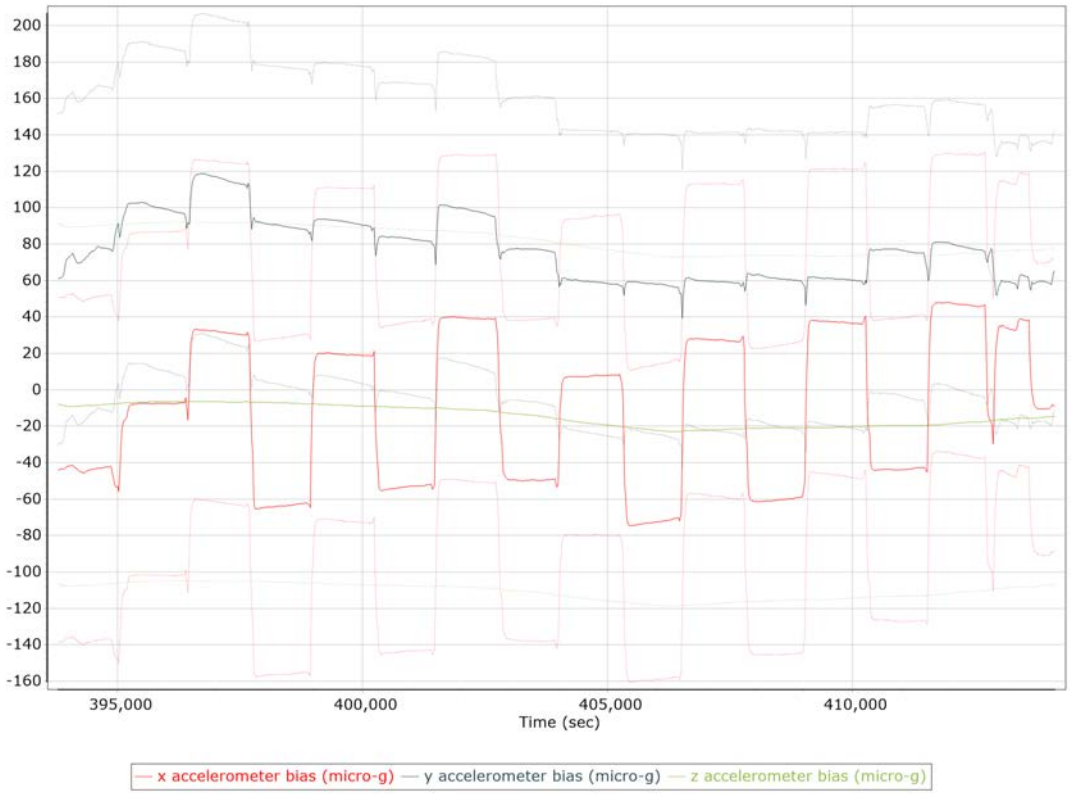
Reference-Primary GNSS Lever Arm Figure of Merit



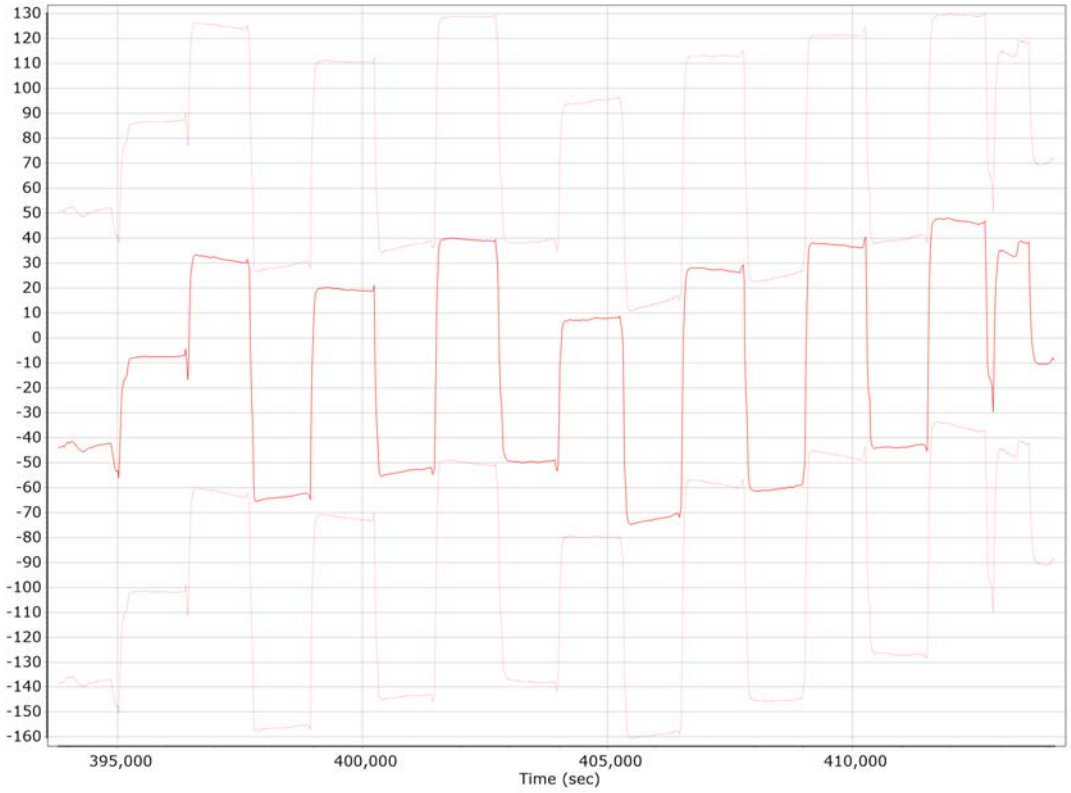
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

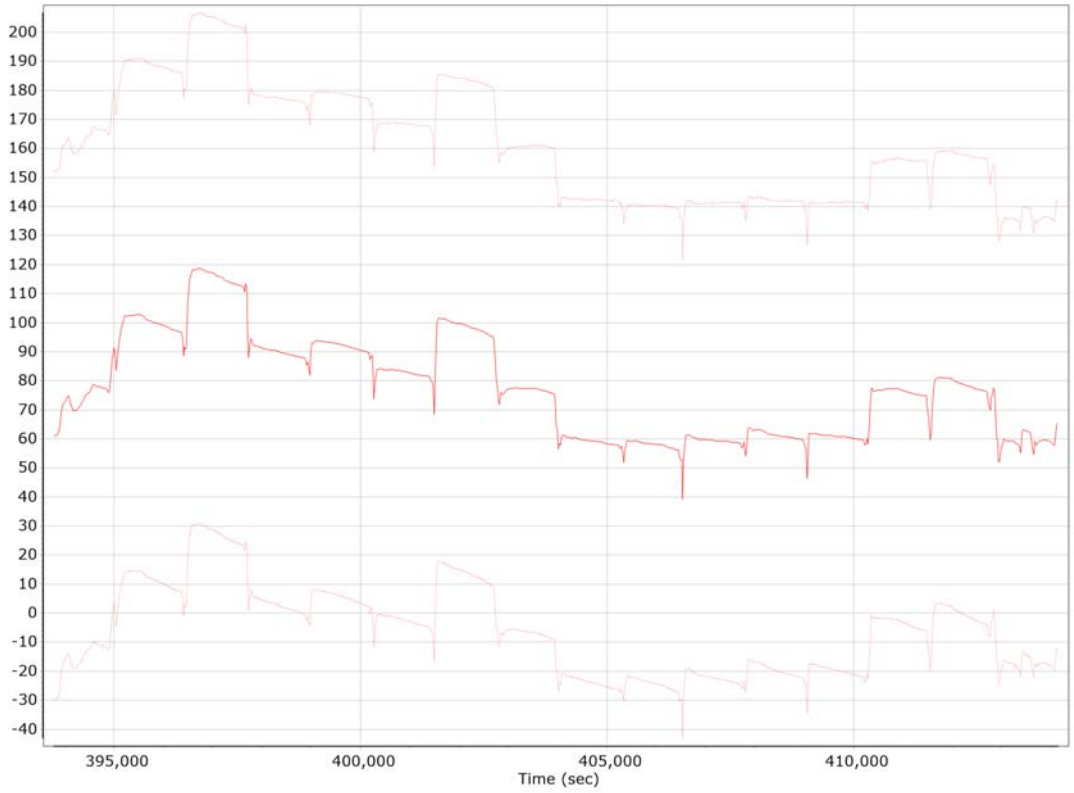
Accelerometer Bias (micro-g)



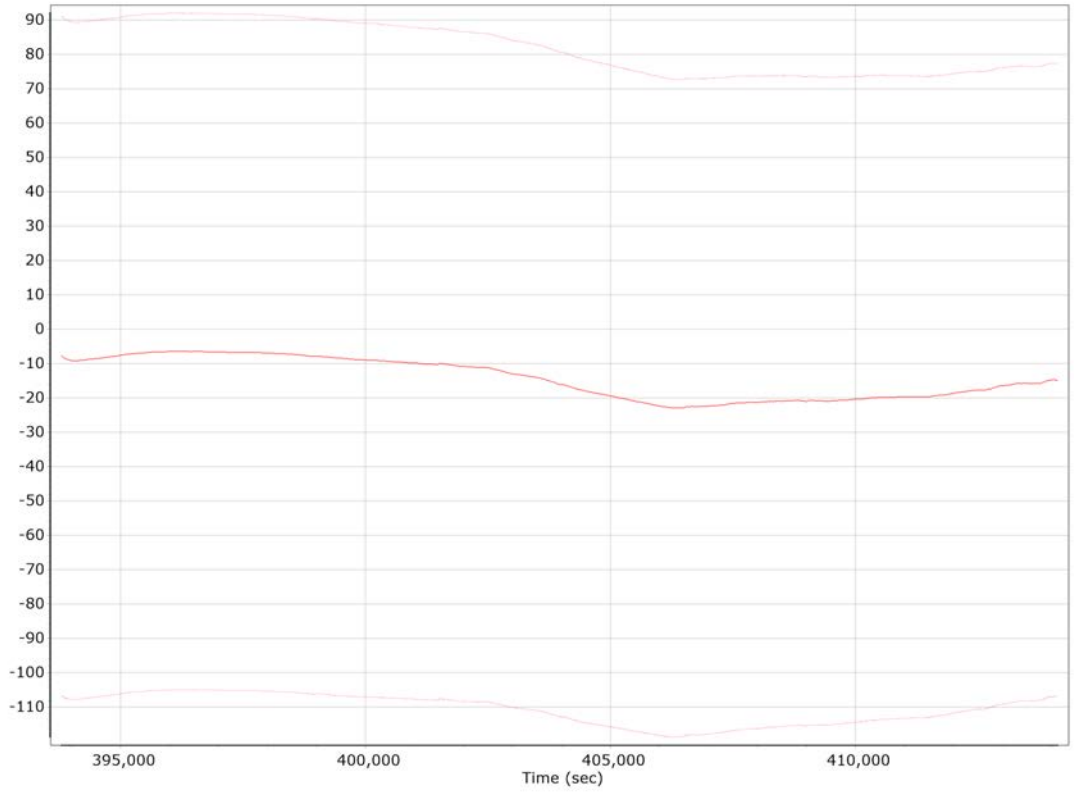
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



Z Accelerometer Bias (micro-g)



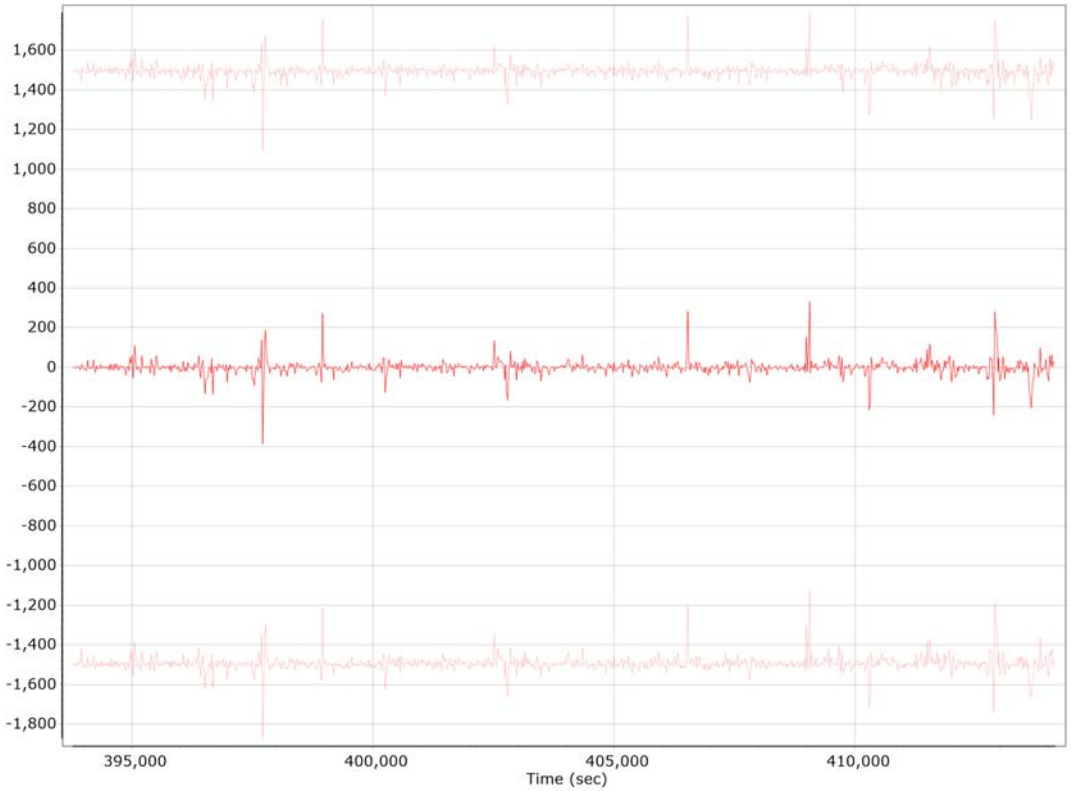
Accelerometer Scale Error (ppm)



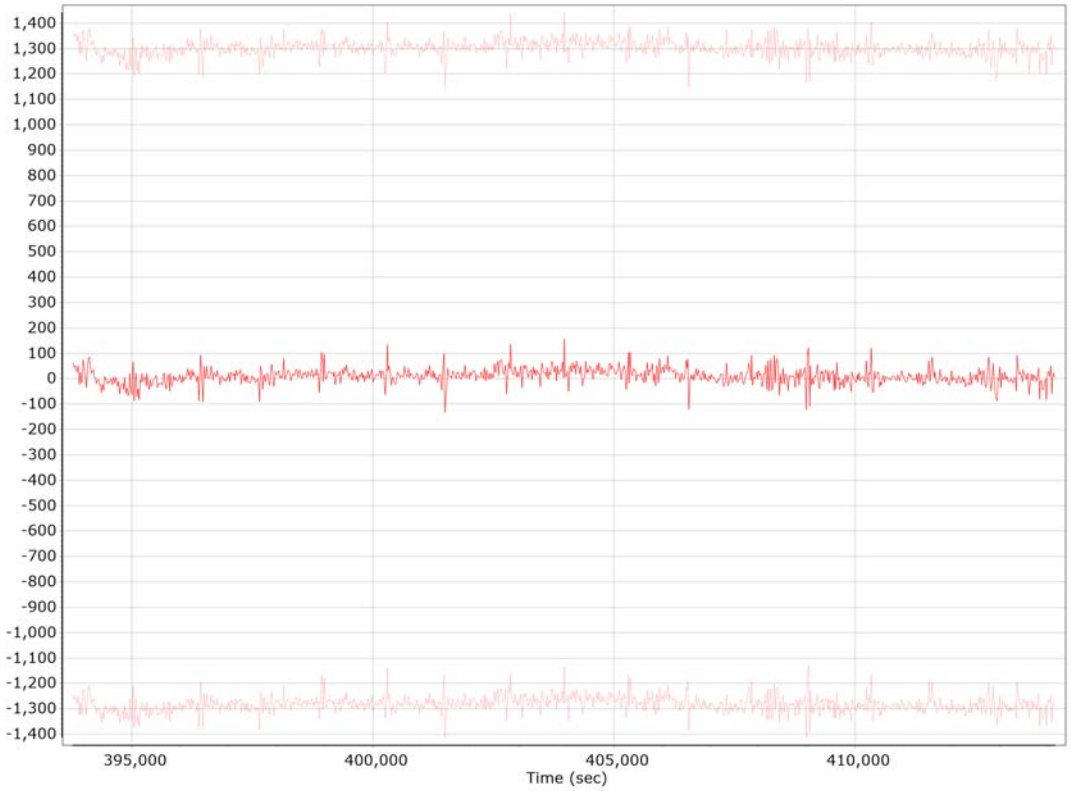
X Accelerometer Scale Error (ppm)



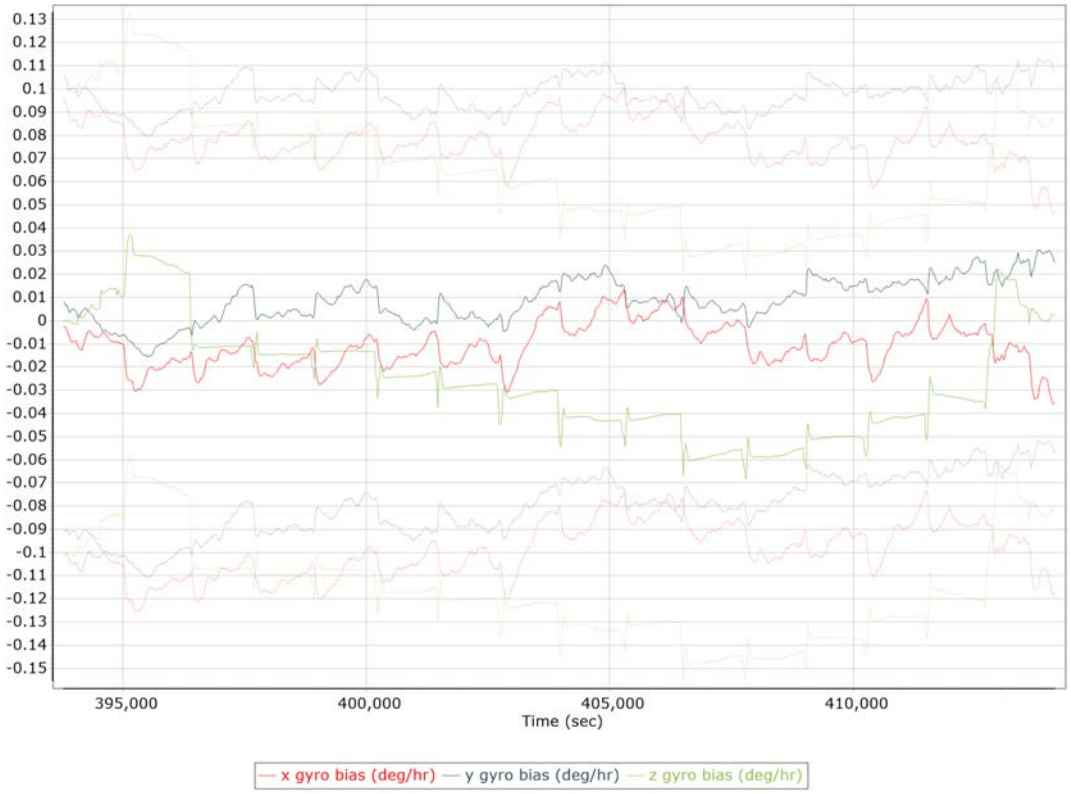
Y Accelerometer Scale Error (ppm)



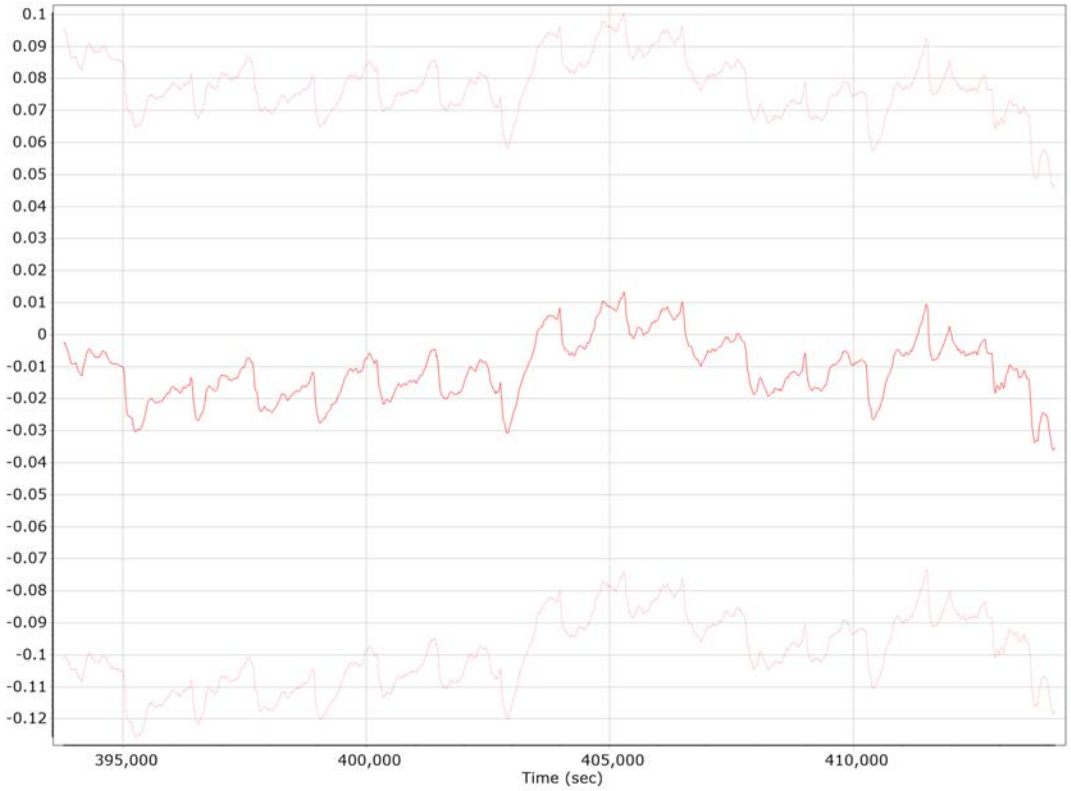
Z Accelerometer Scale Error (ppm)



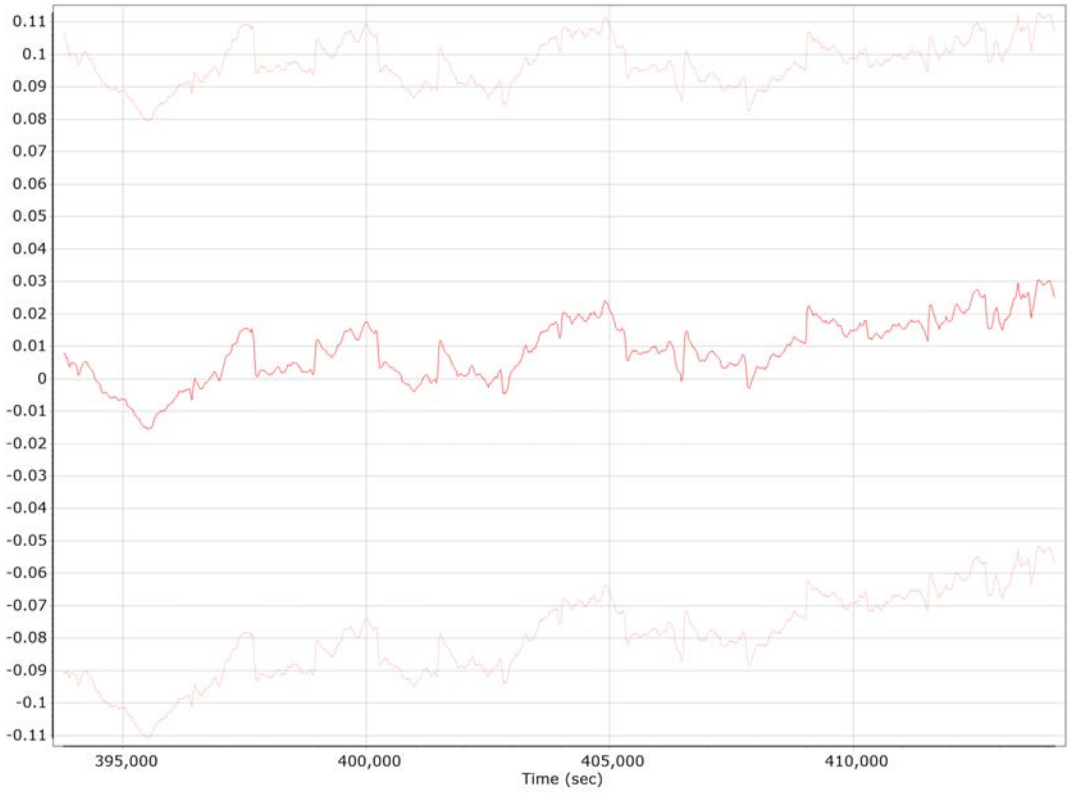
Gyro Bias (deg/h)



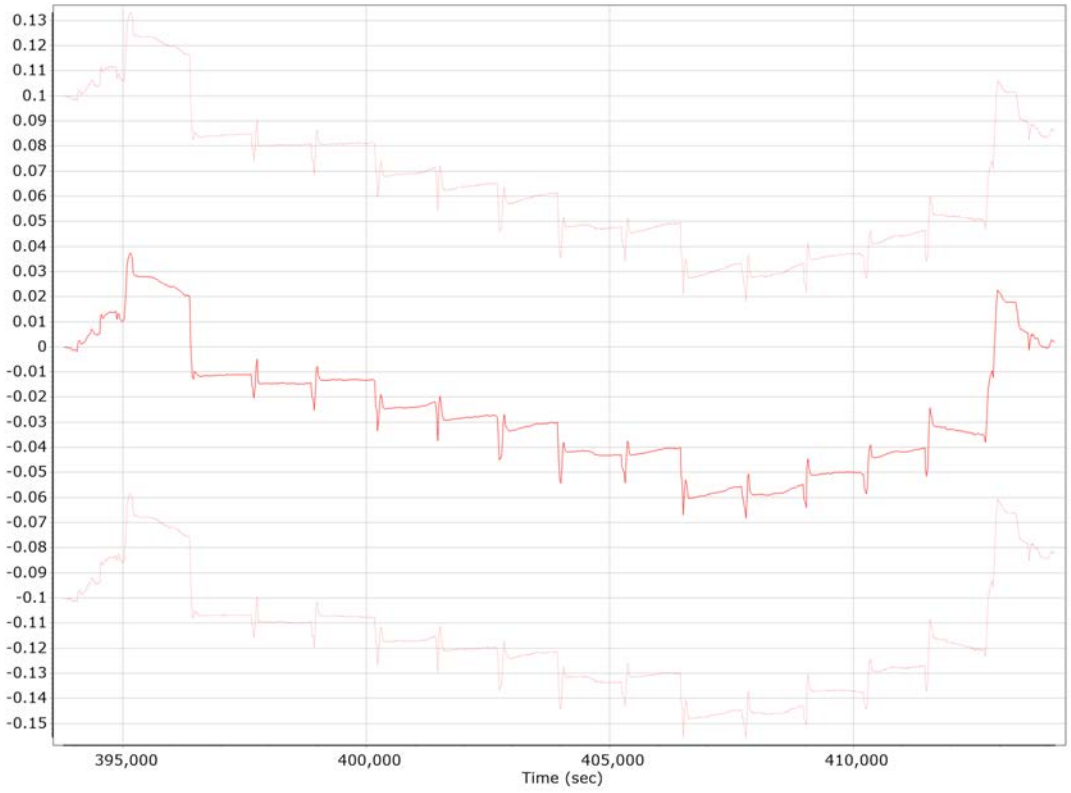
X Gyro Bias (deg/h)



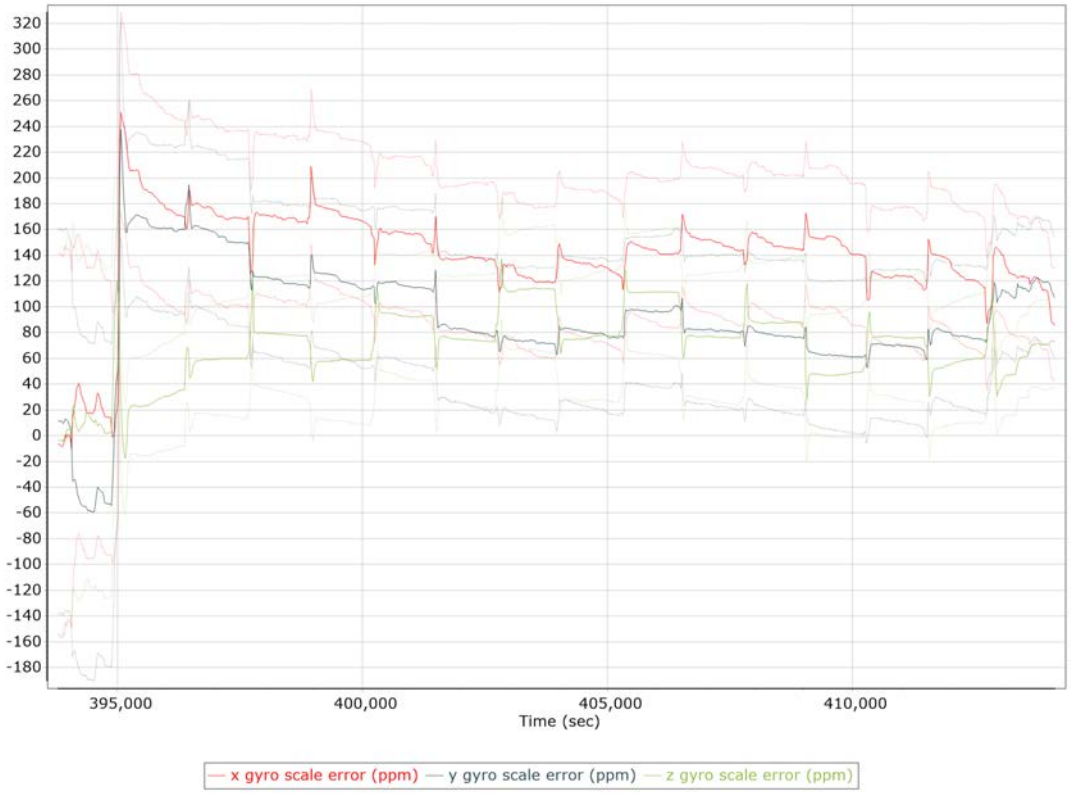
Y Gyro Bias (deg/h)



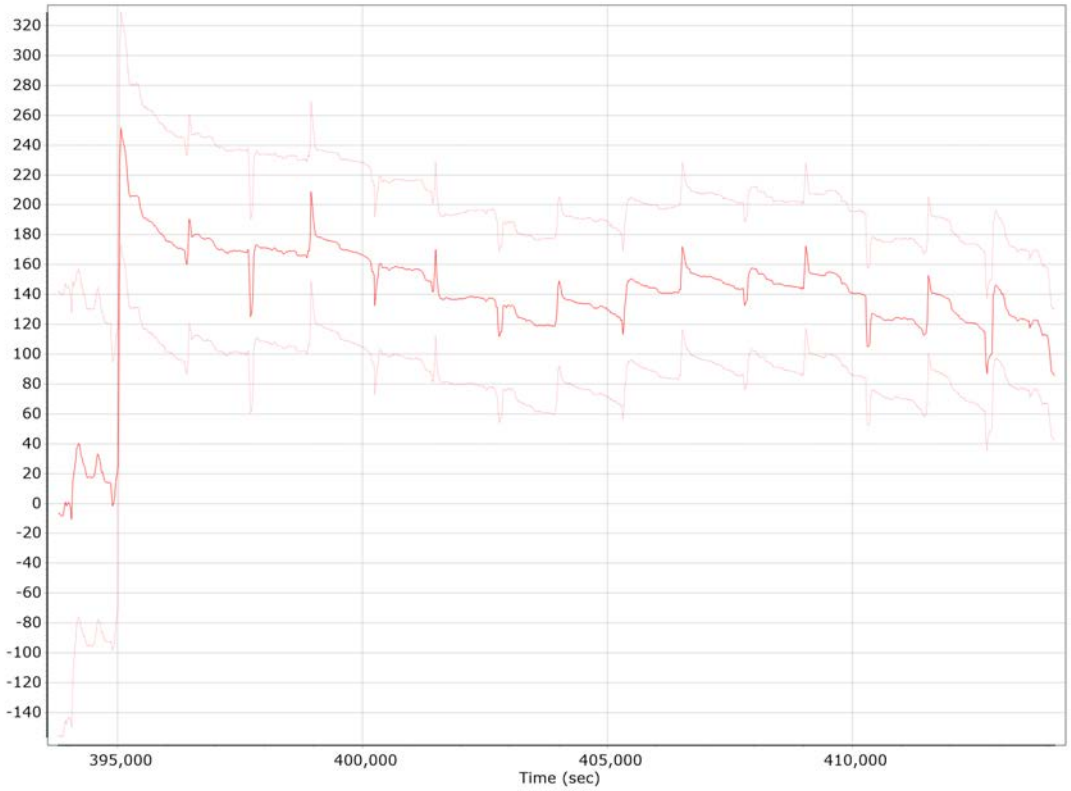
Z Gyro Bias (deg/h)



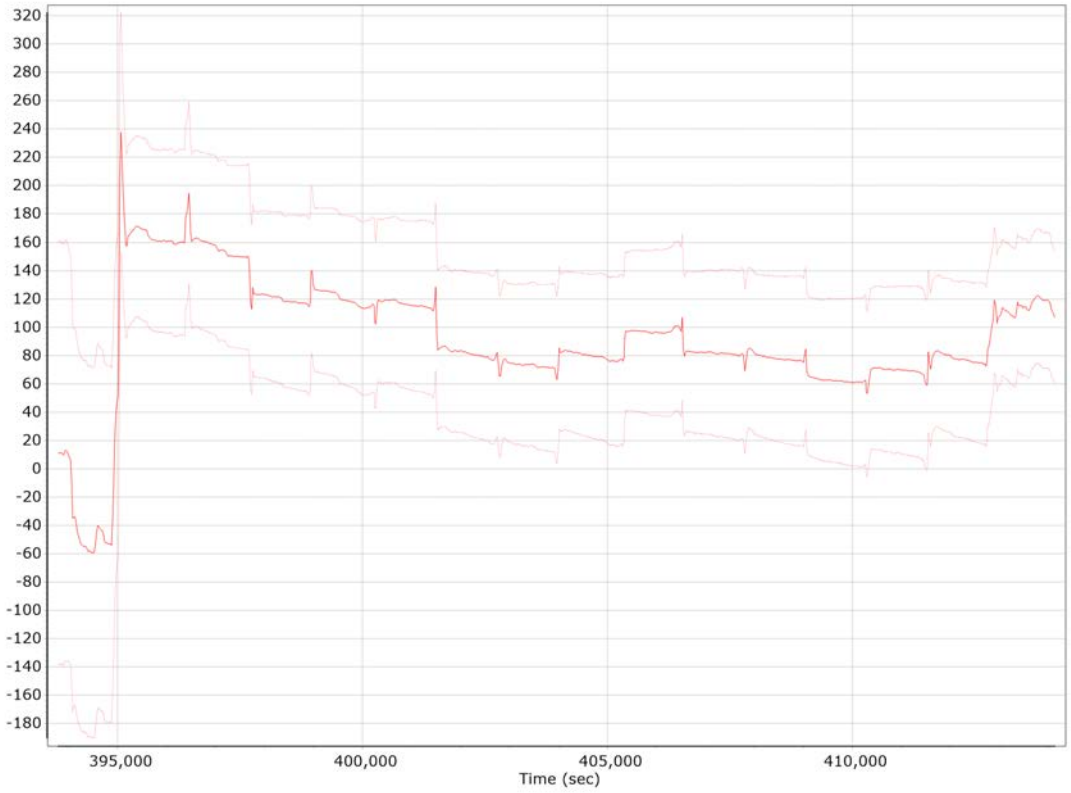
Gyro Scale Error (ppm)



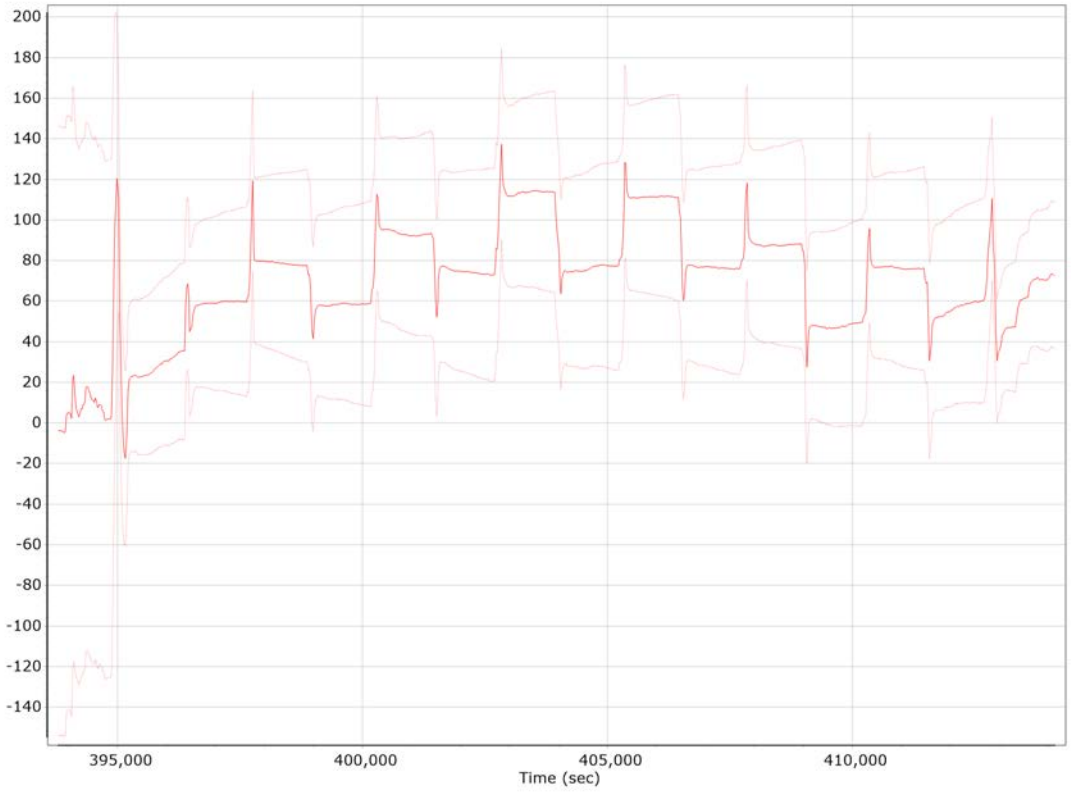
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

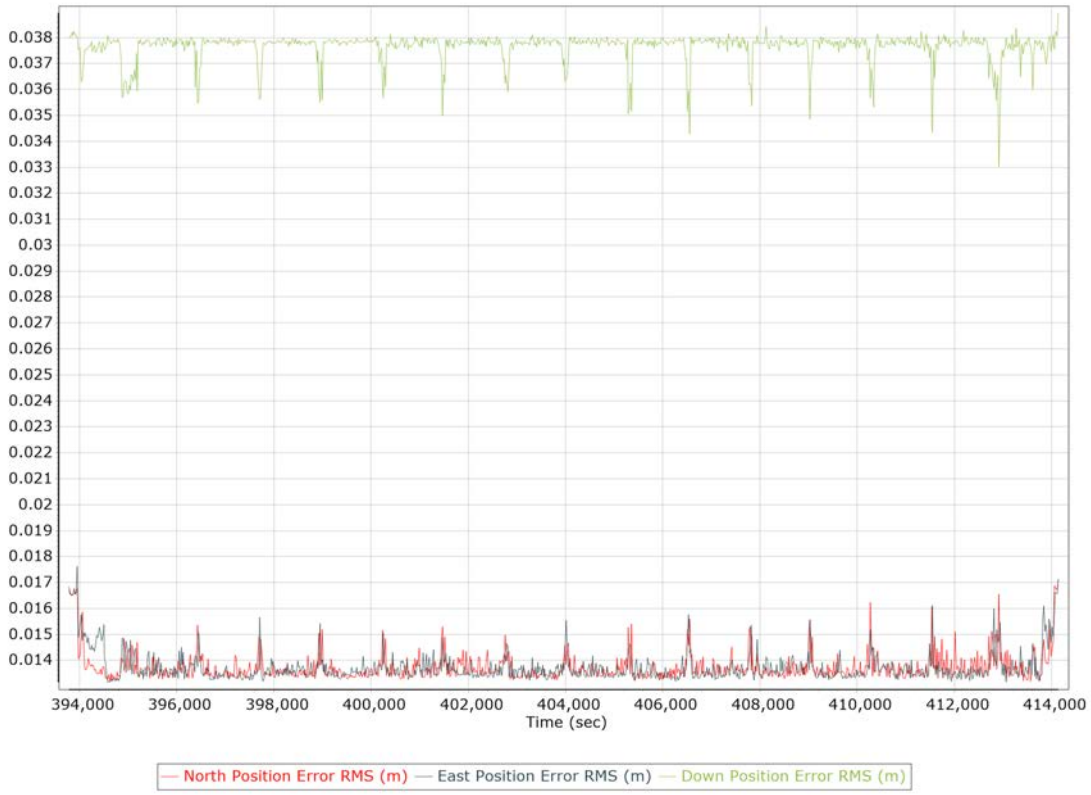


Z Gyro Scale Error (ppm)



Smoothed Performance Metrics

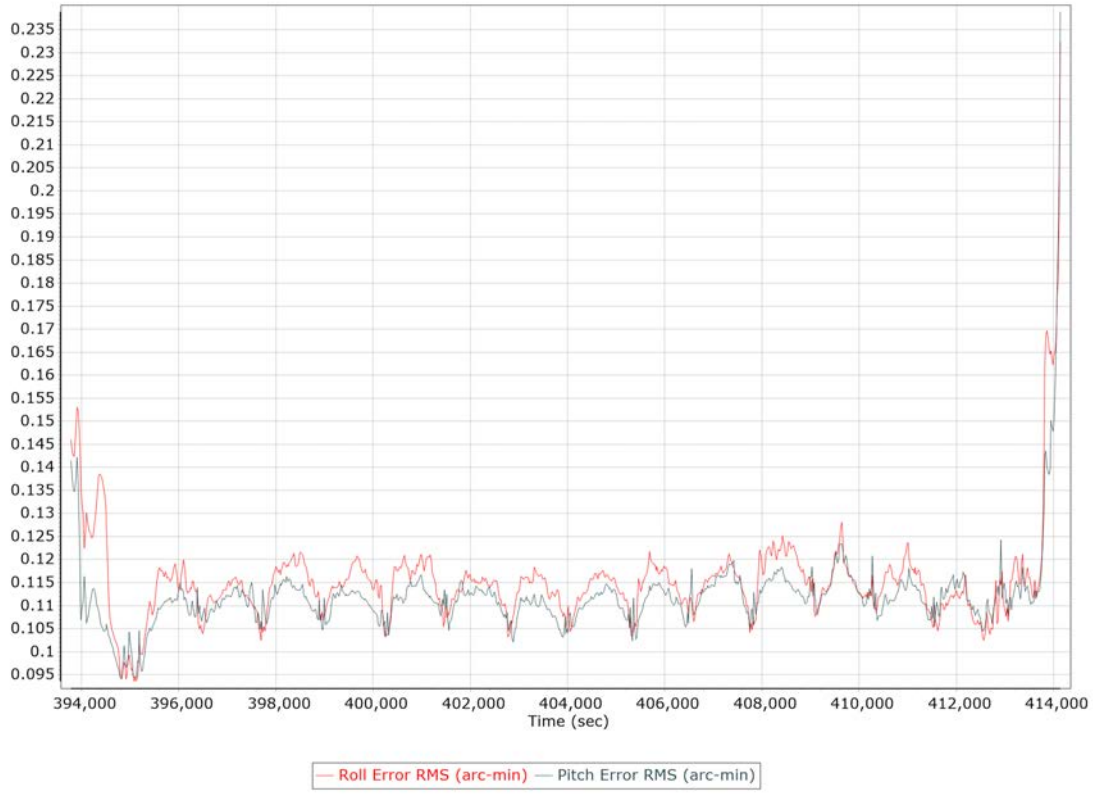
Position Error RMS (m)



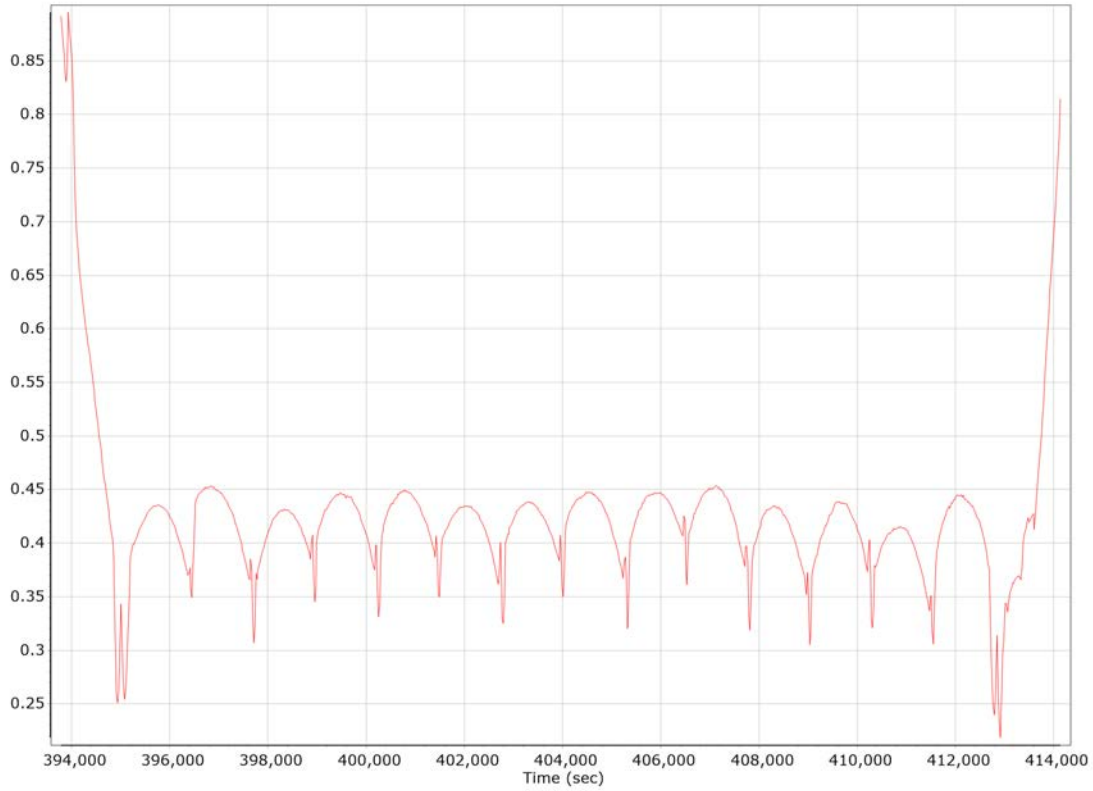
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

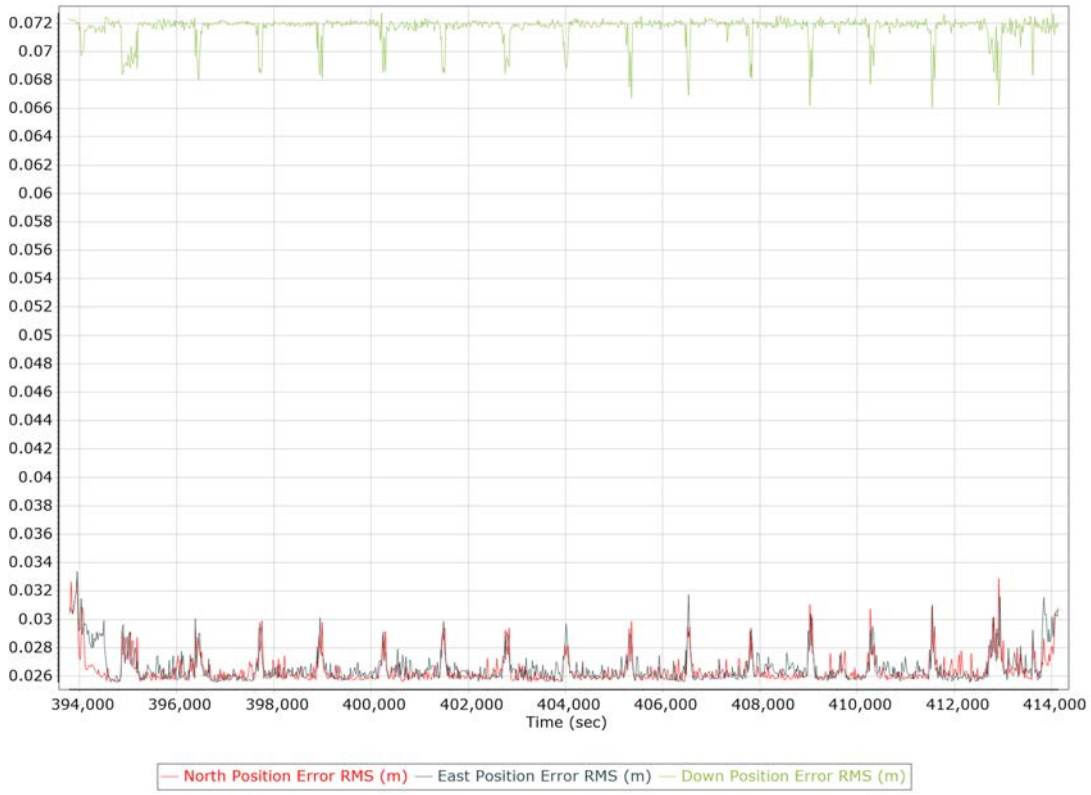


Heading Error RMS (arc-min)

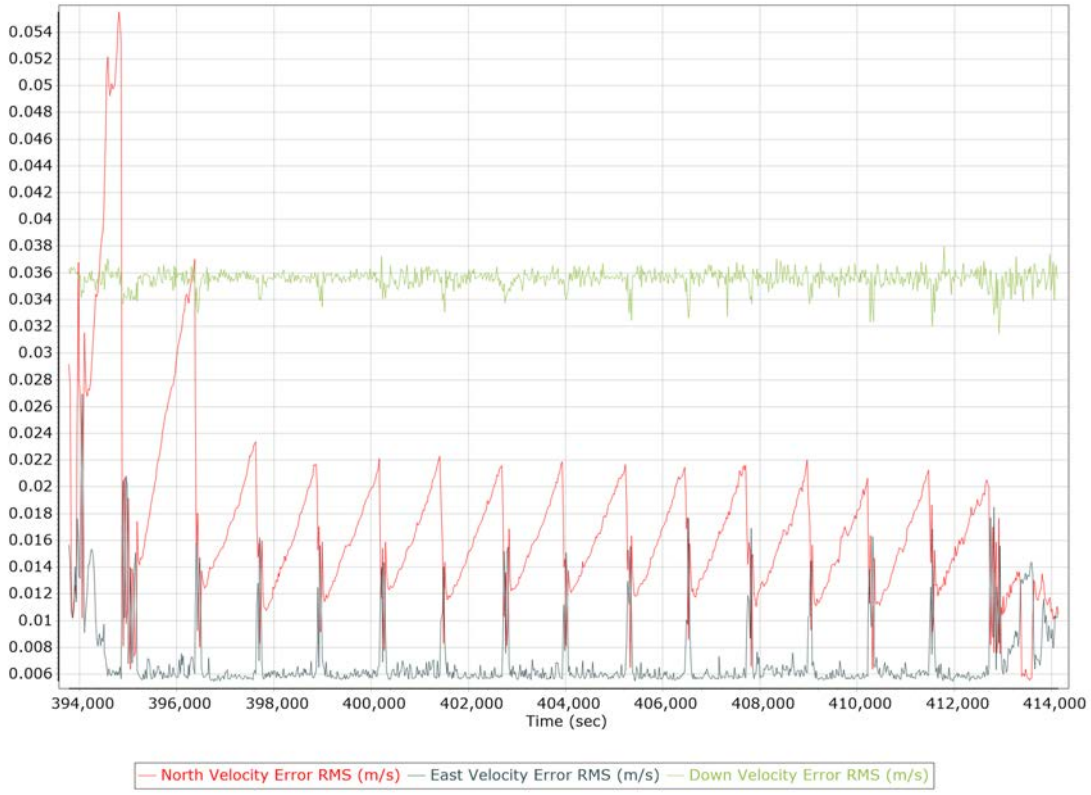


Forward Processed Performance Metrics

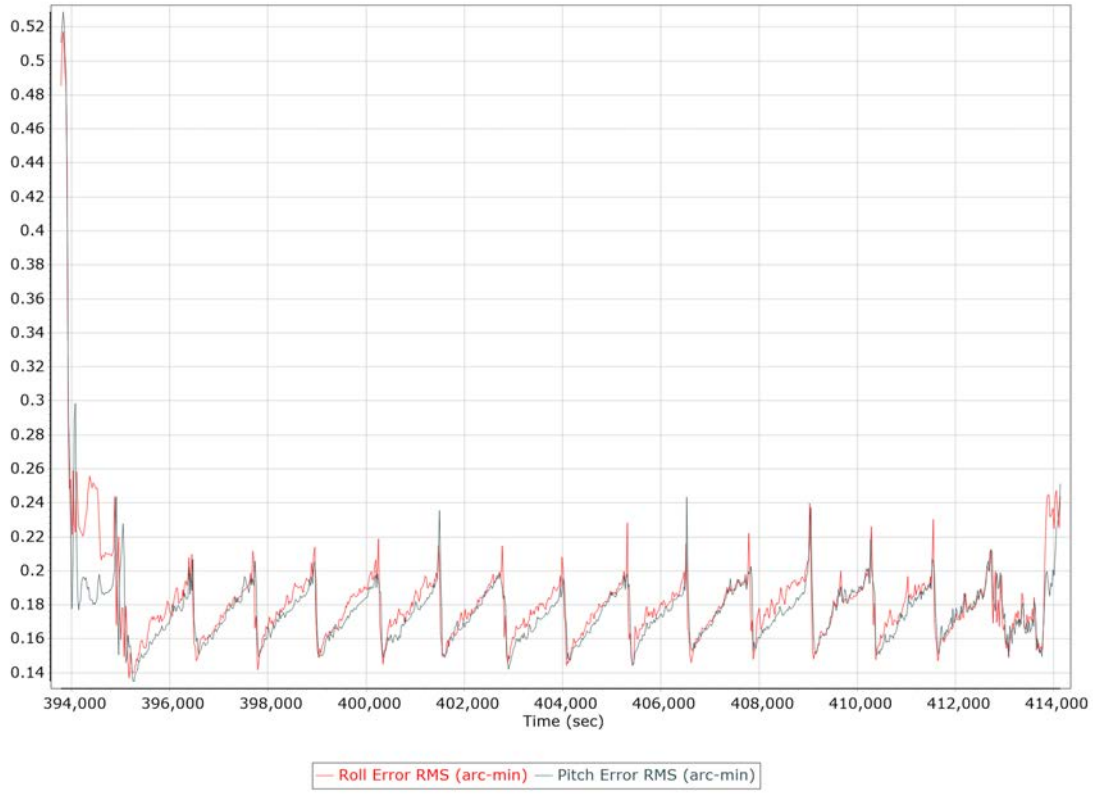
Position Error RMS (m)



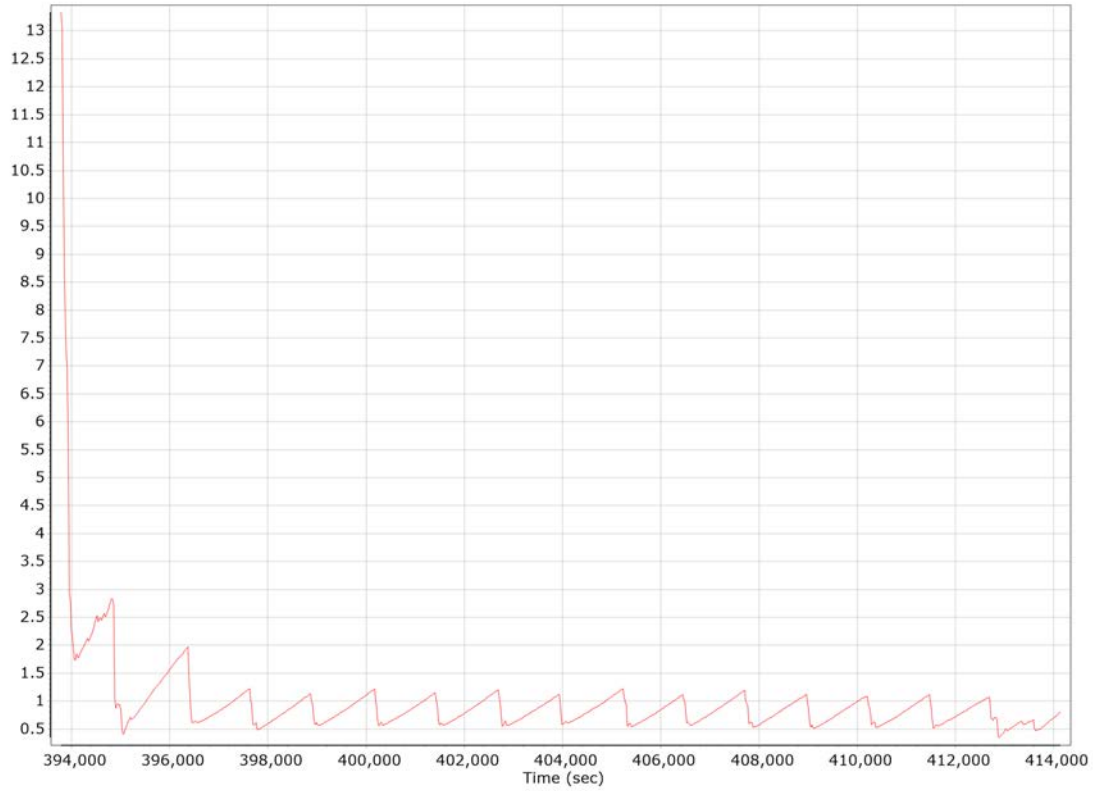
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

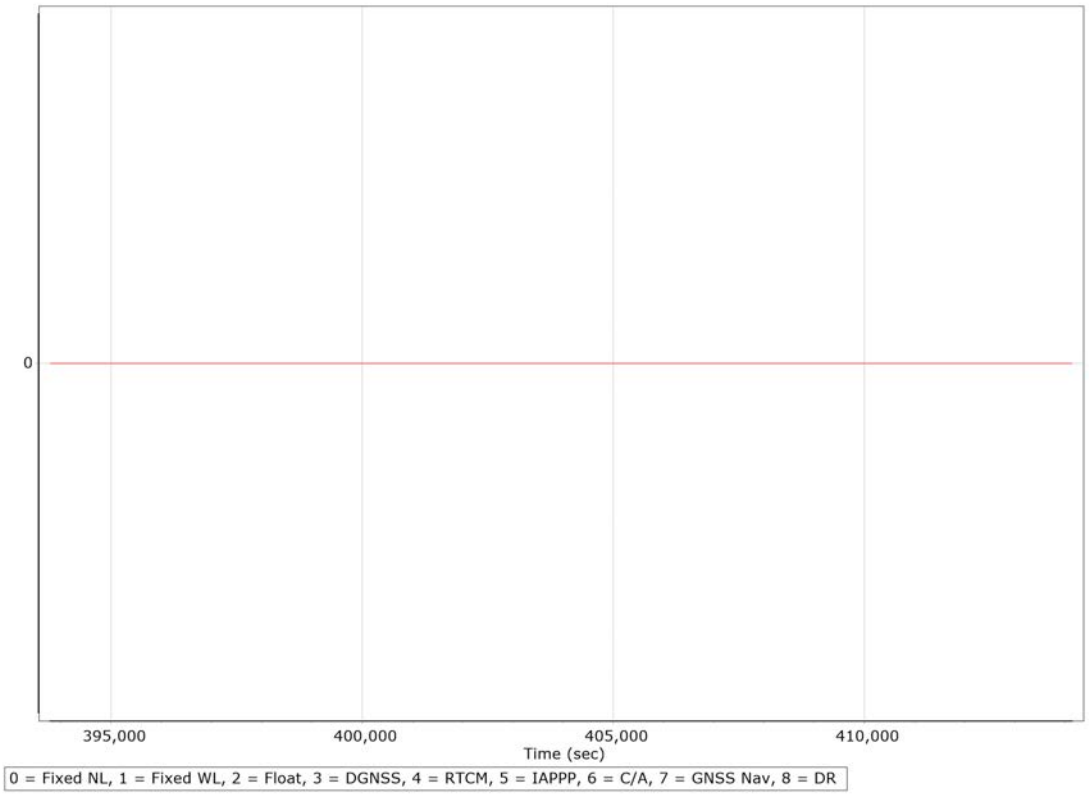


Heading Error RMS (arc-min)

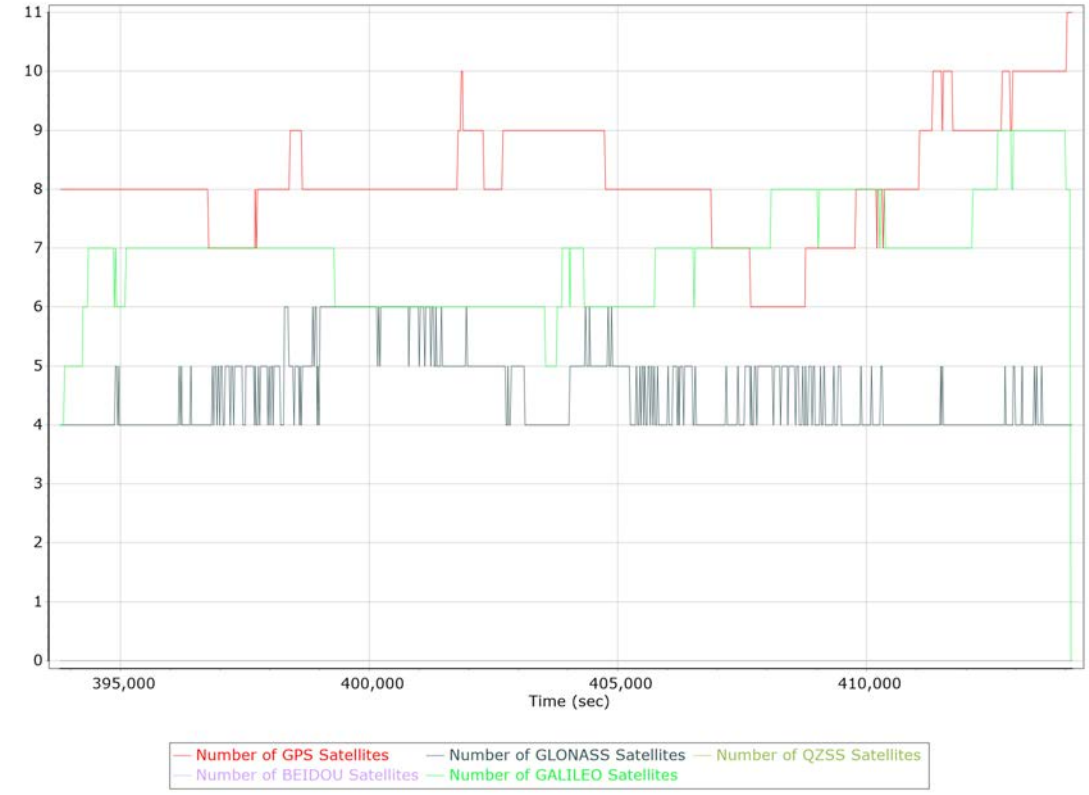


Forward Processed Solution Status

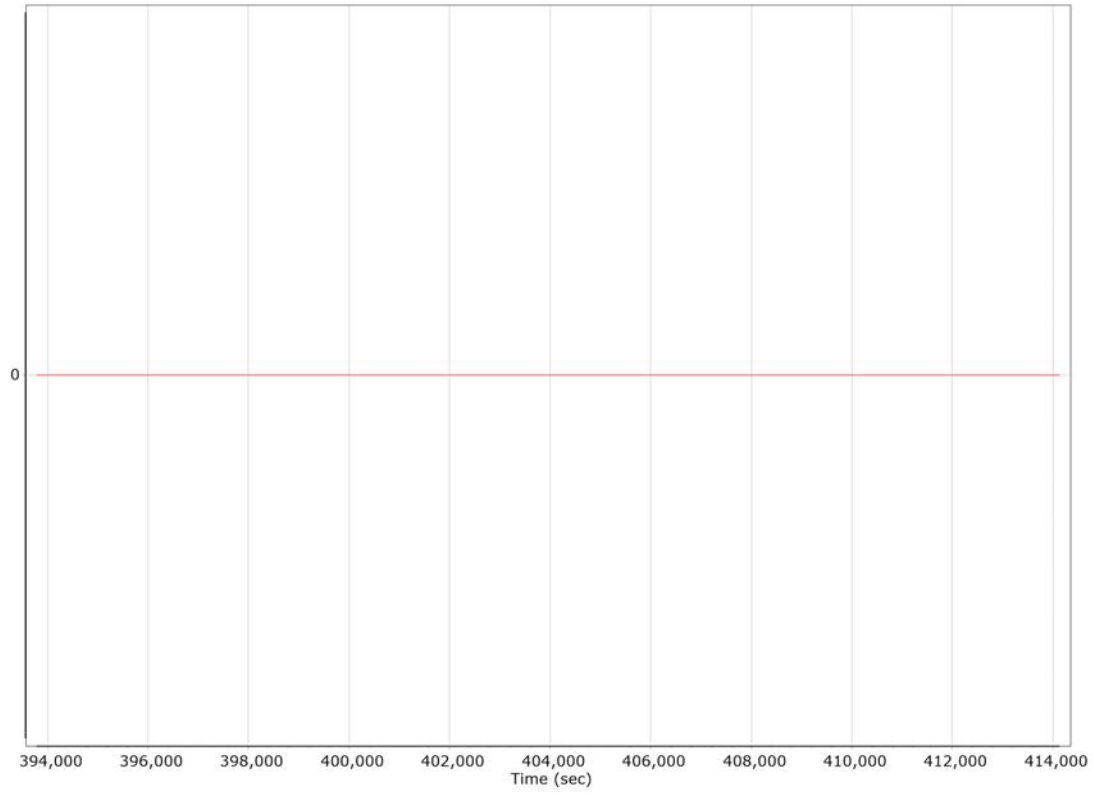
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07072023A_3062
Processing date	2023-07-11 19:20:13
Mission date	2023-07-07 13:40:45
Mission duration	04:19:28.691
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N8708
IMU type	57
Receiver type	BD982
Antenna type	AV39

Project File List

Rover Data Files

File name	File type
230707_134025_INS-GPS_1.raw	POS Data

Input Files

File Name	File Type
Ephm1880.23g	GLONASS Broadcast Ephemeris
Ephm1880.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07072023A_3062.out	SBET Trajectory File

Rover Data Summary

First raw data file	230707_134025_INS-GPS_1.raw		
Last raw data file	230707_134025_INS-GPS_1.raw		
Start GPS week	2269		
Start time	481226.480 (7/7/2023 1:40:26 PM)		
End time	496795.171 (7/7/2023 5:59:55 PM)		
Start of fine alignment	481327.714 (7/7/2023 1:42:07 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
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)	0.157	-0.227	-1.289
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

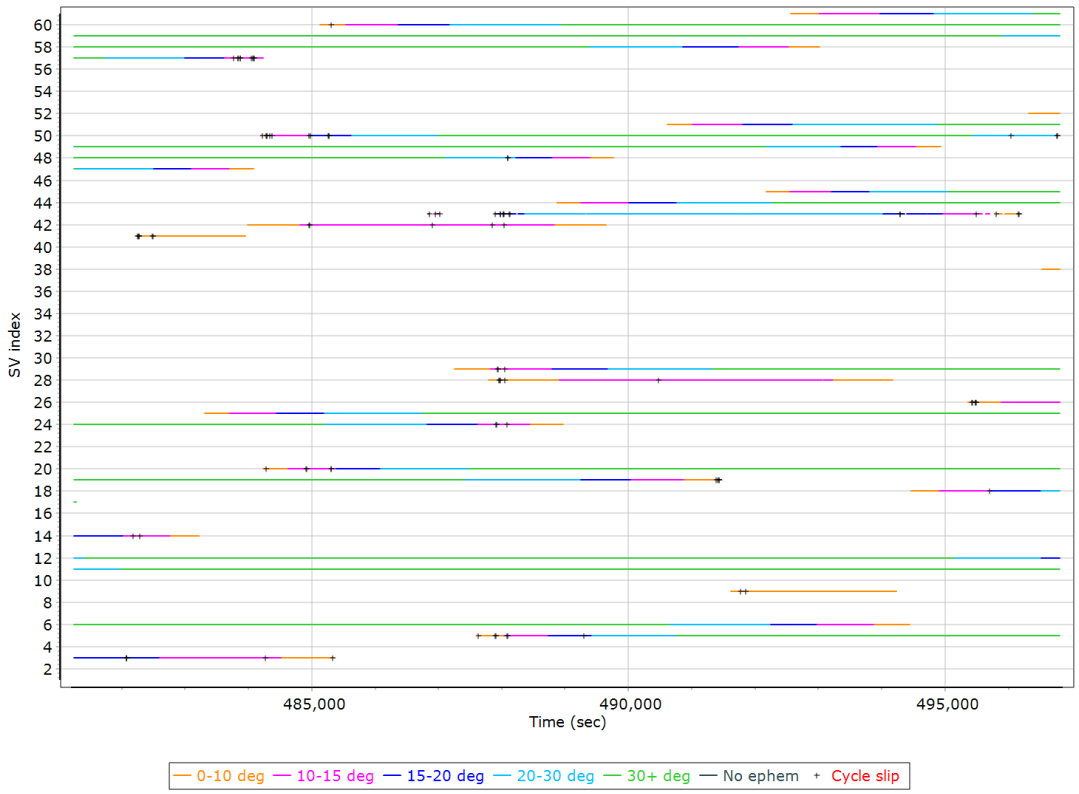
Rover Data QC

Raw IMU Import QC Summary

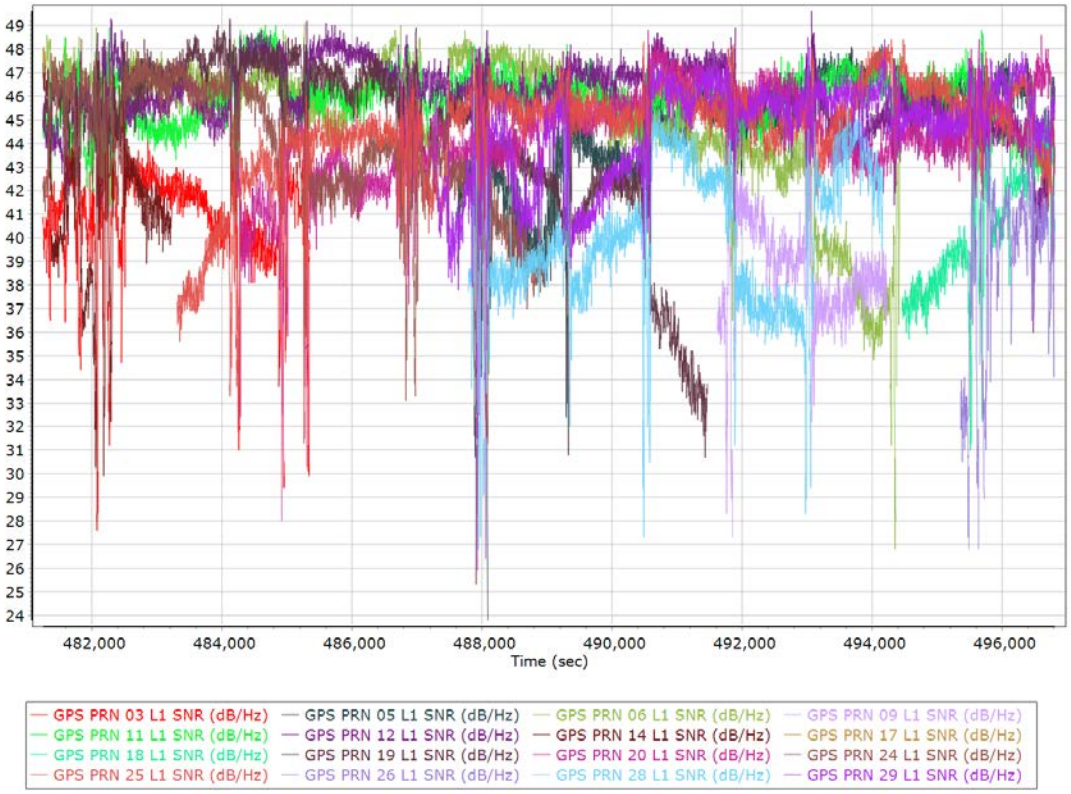
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07072023A_3062.log
IMU Records Processed	3113099
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

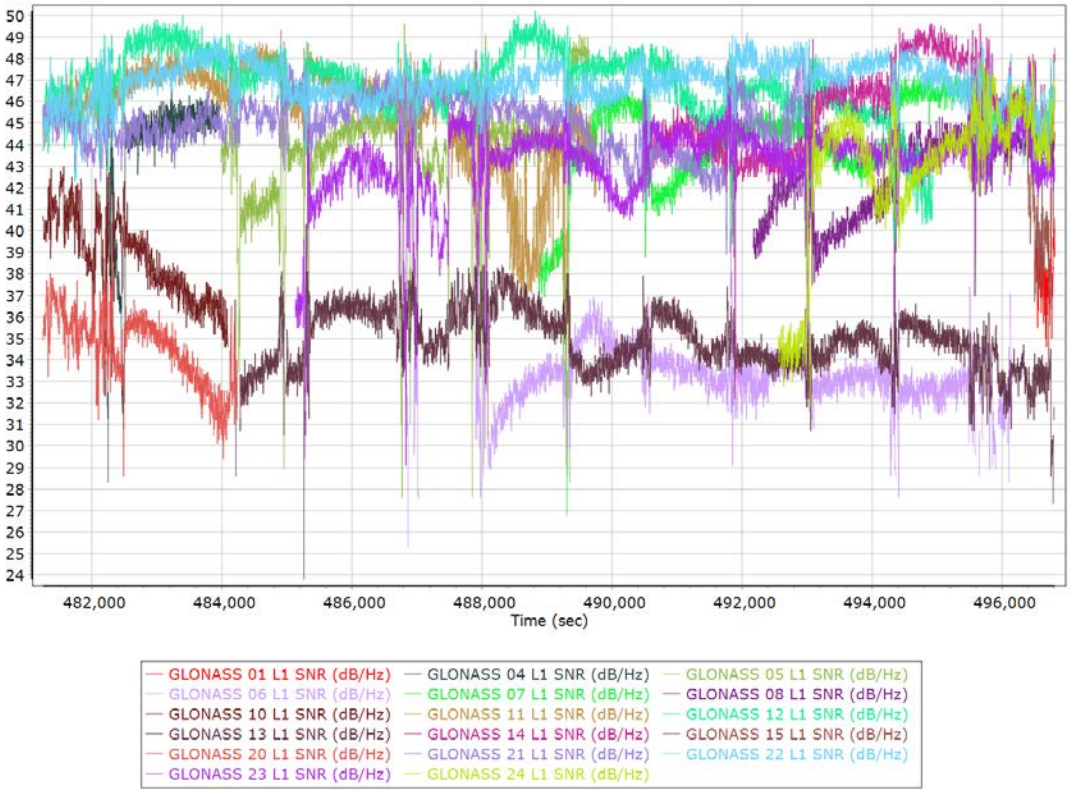
GPS/GLONASS L1 Satellite Lock/Elevation



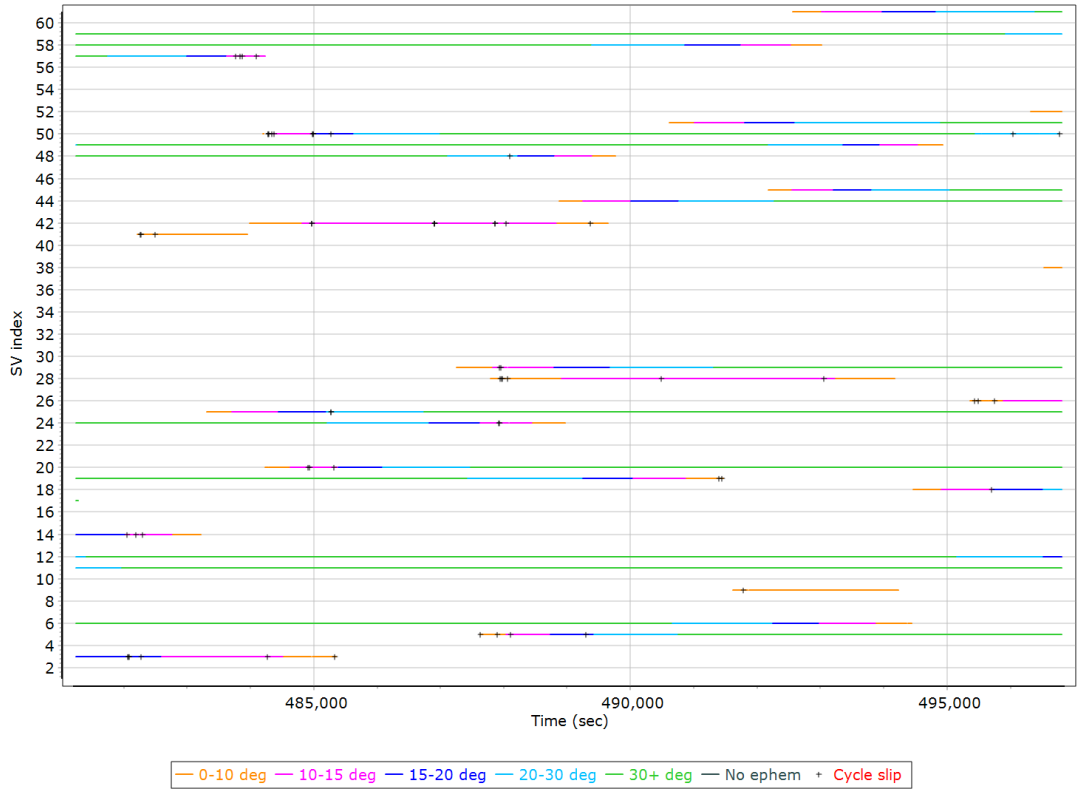
GPS L1 SNR



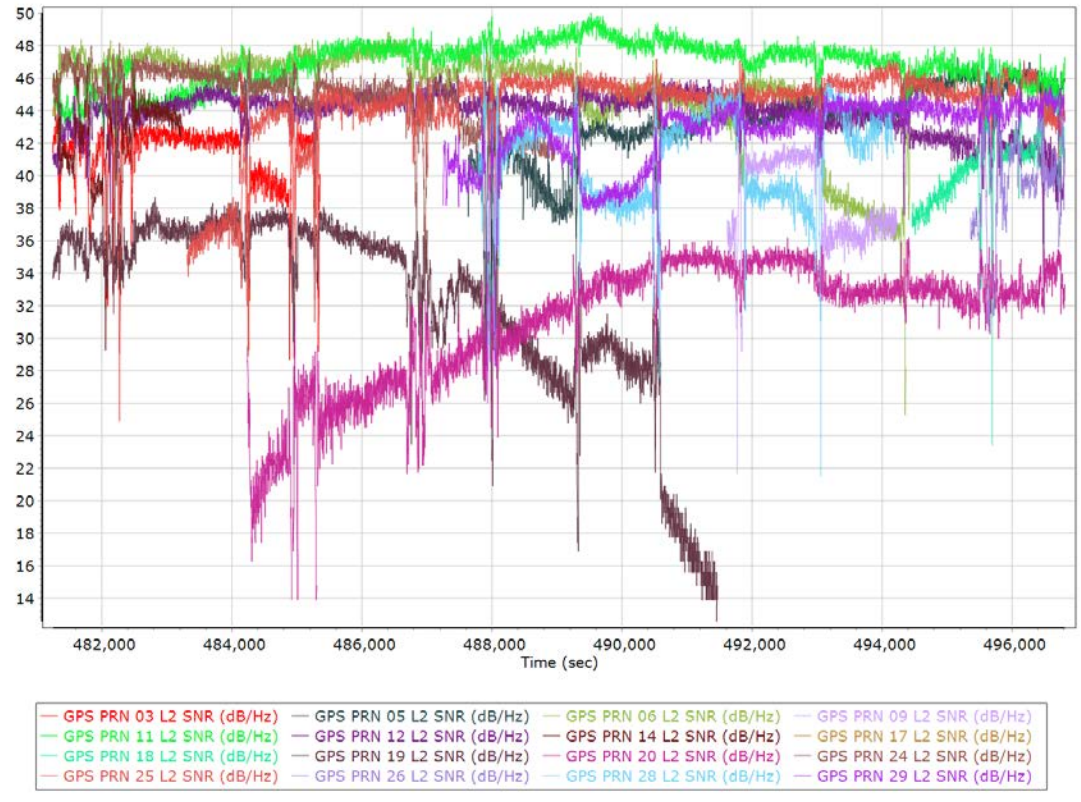
GLONASS L1 SNR



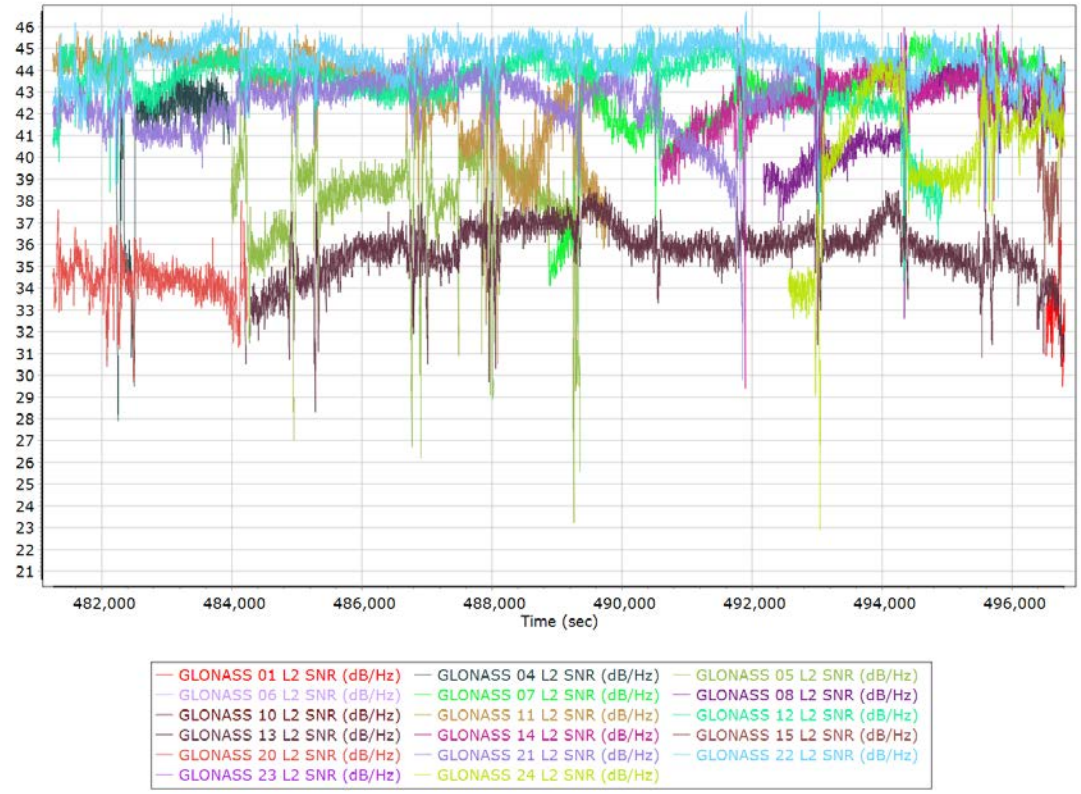
GPS/GLONASS L2 Satellite Lock/Elevation



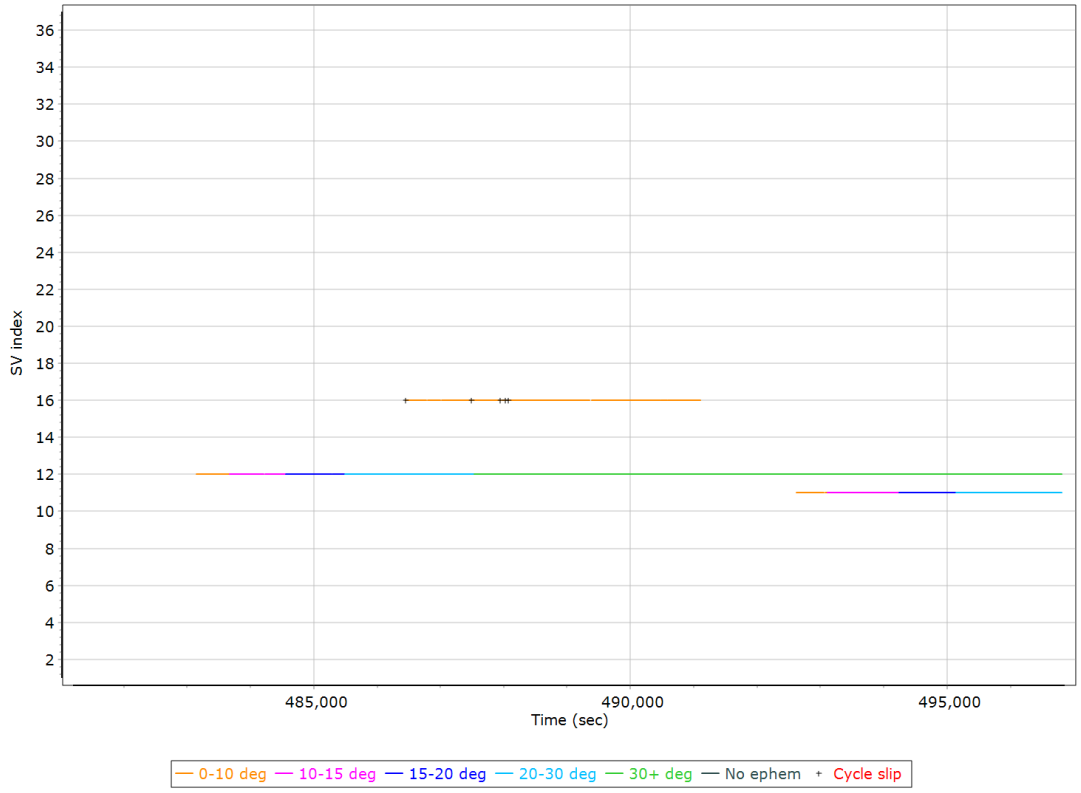
GPS L2 SNR



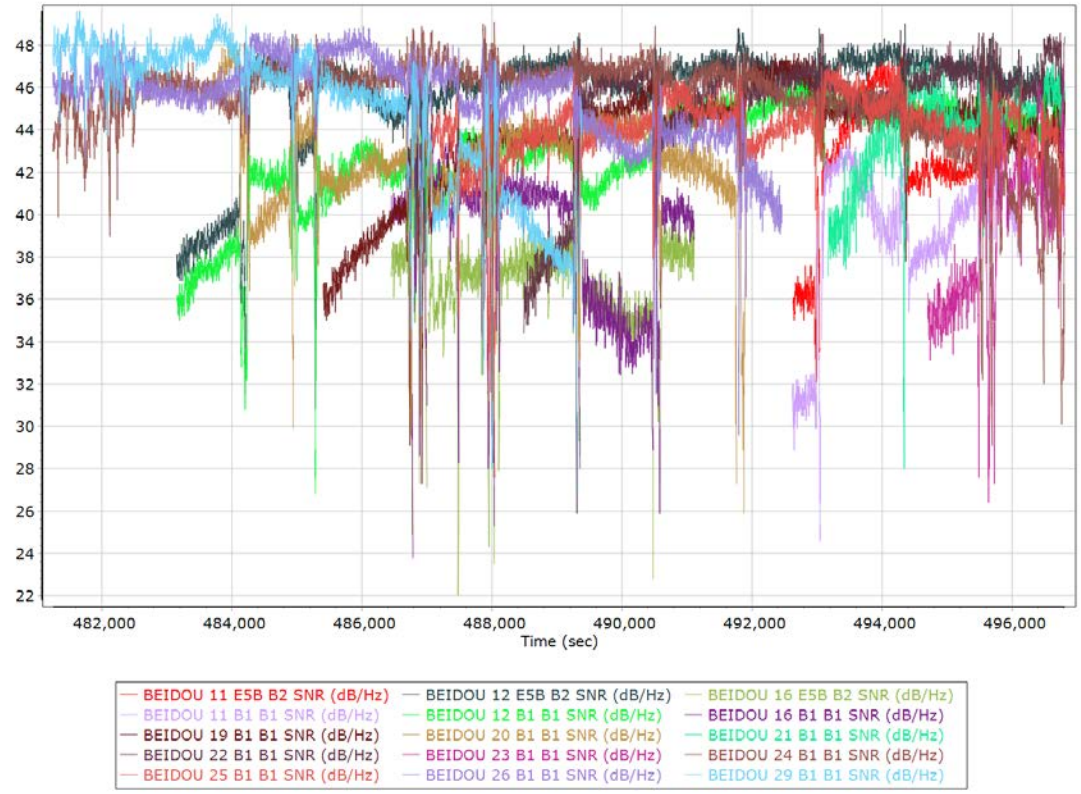
GLONASS L2 SNR



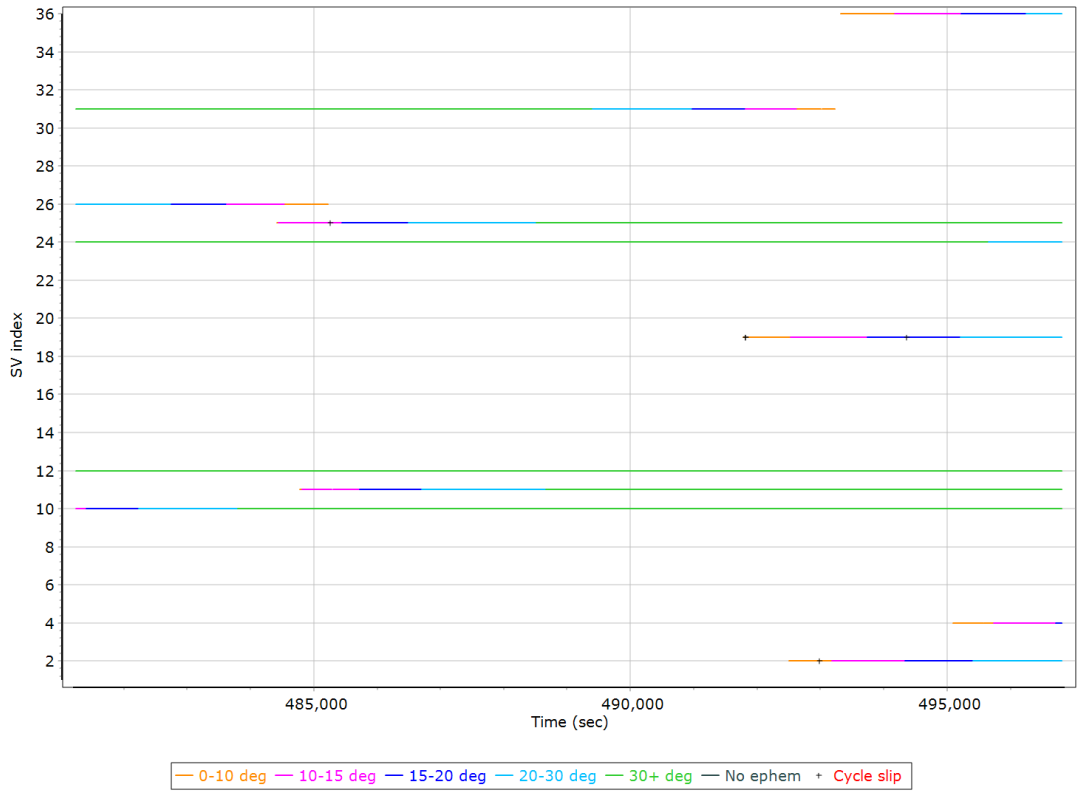
BEIDOU Satellite Lock/Elevation



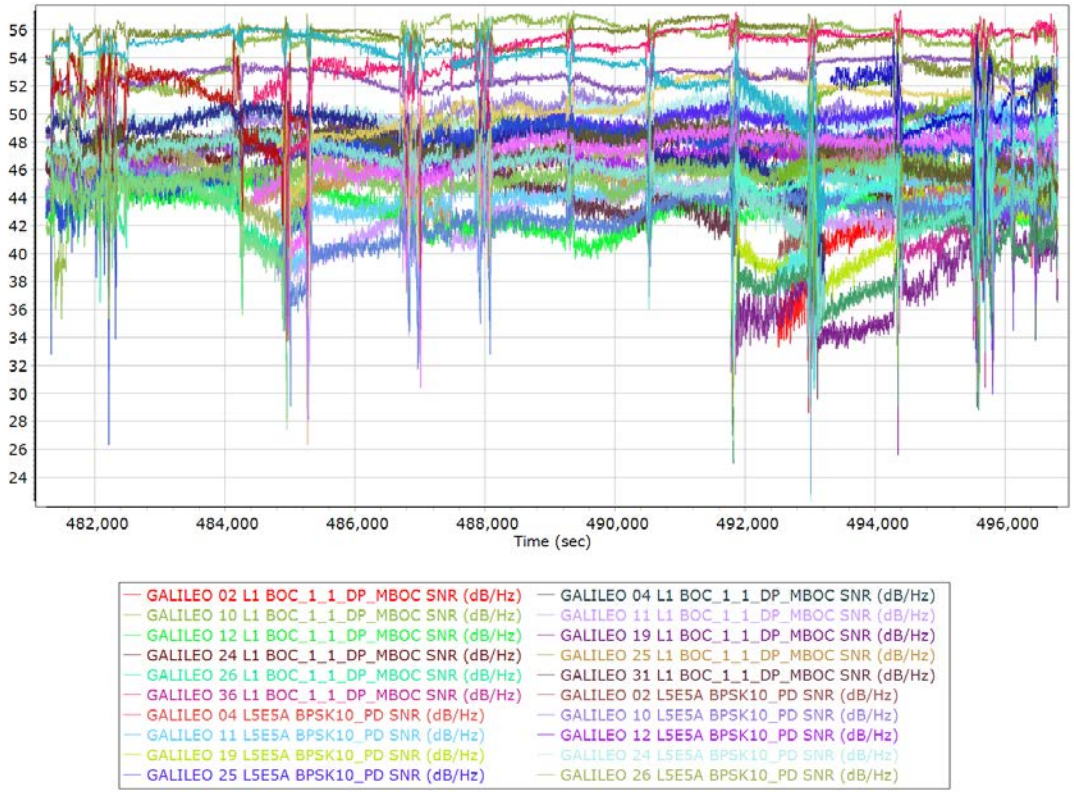
BEIDOU SNR



GALILEO Satellite Lock/Elevation

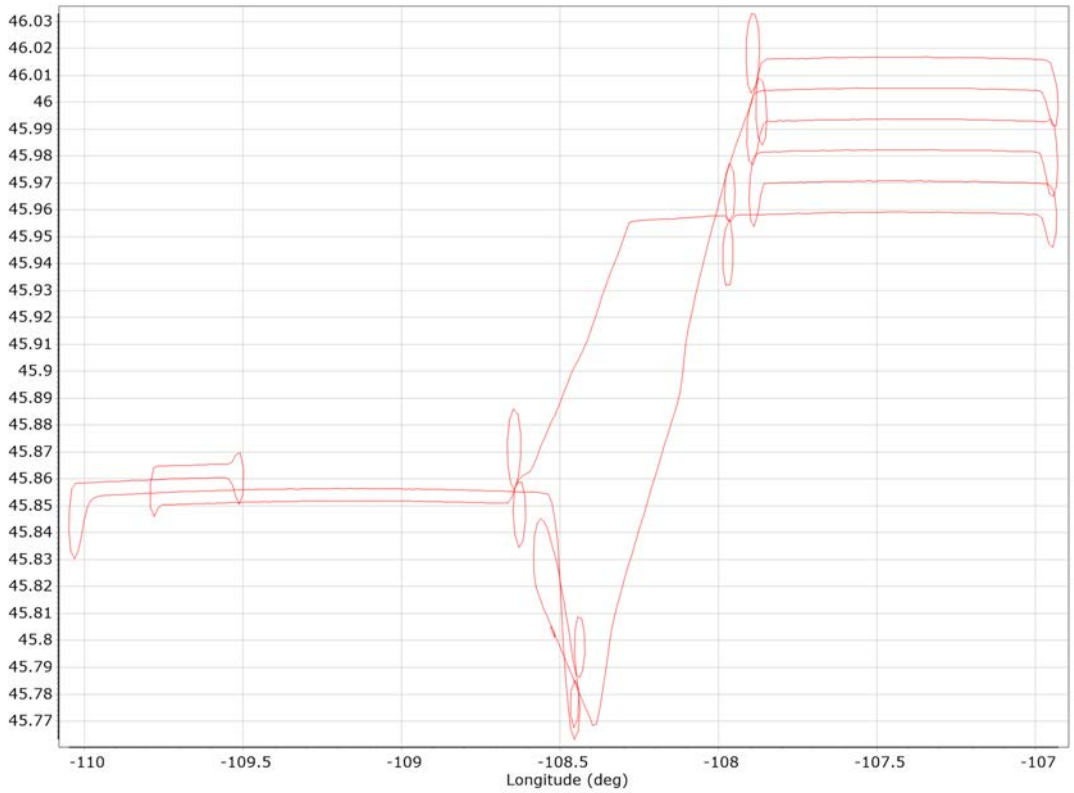


GALILEO SNR

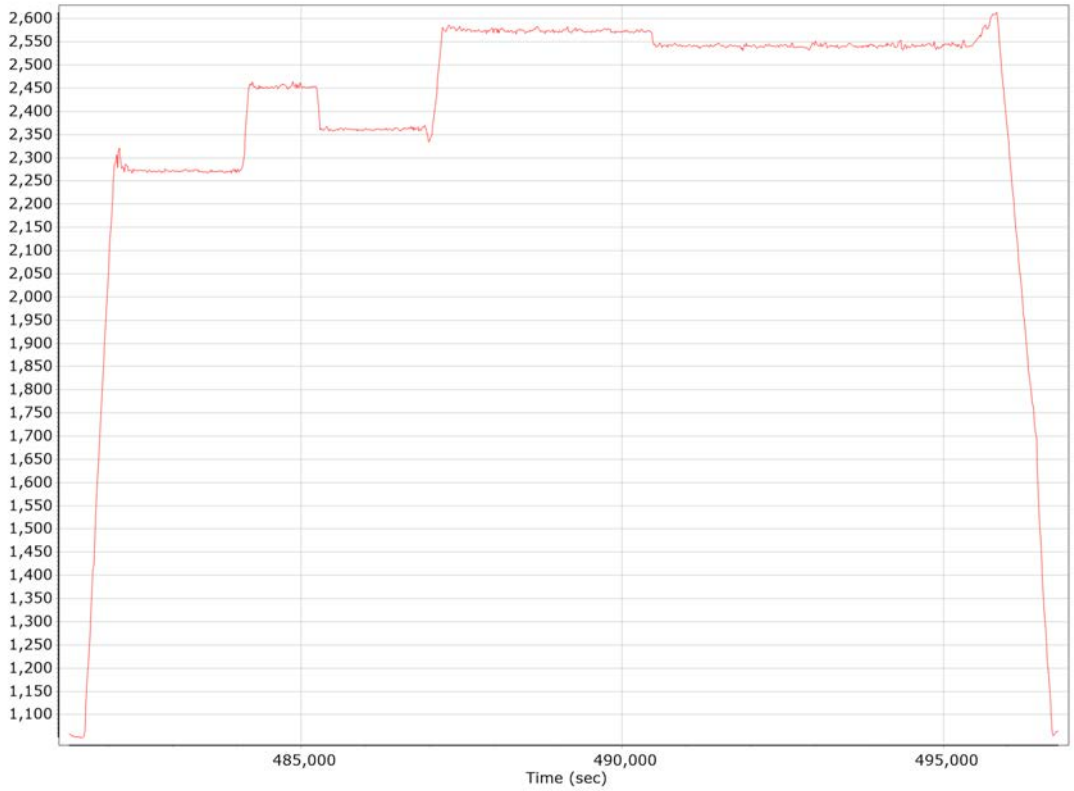

56
54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
482,000
484,000
486,000
488,000
490,000
492,000
494,000
496,000
Time (sec)
GALILEO 02 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 10 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 26 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 19 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 24 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 25 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 26 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

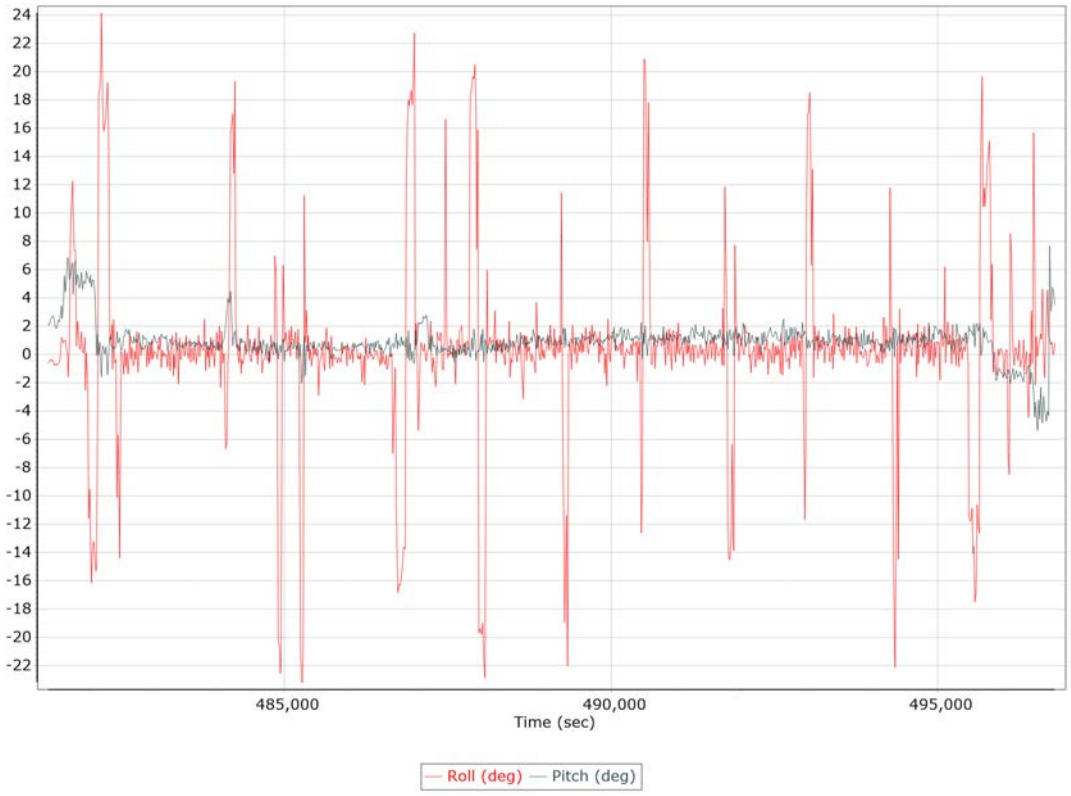
Top View



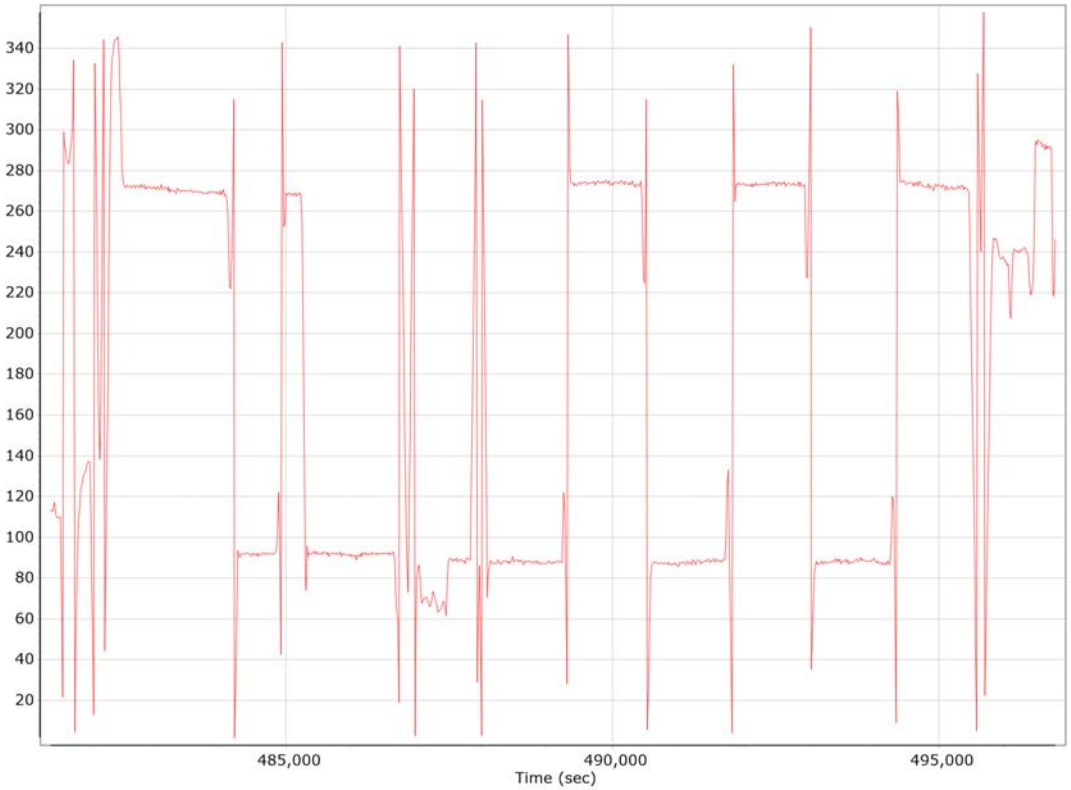
Altitude



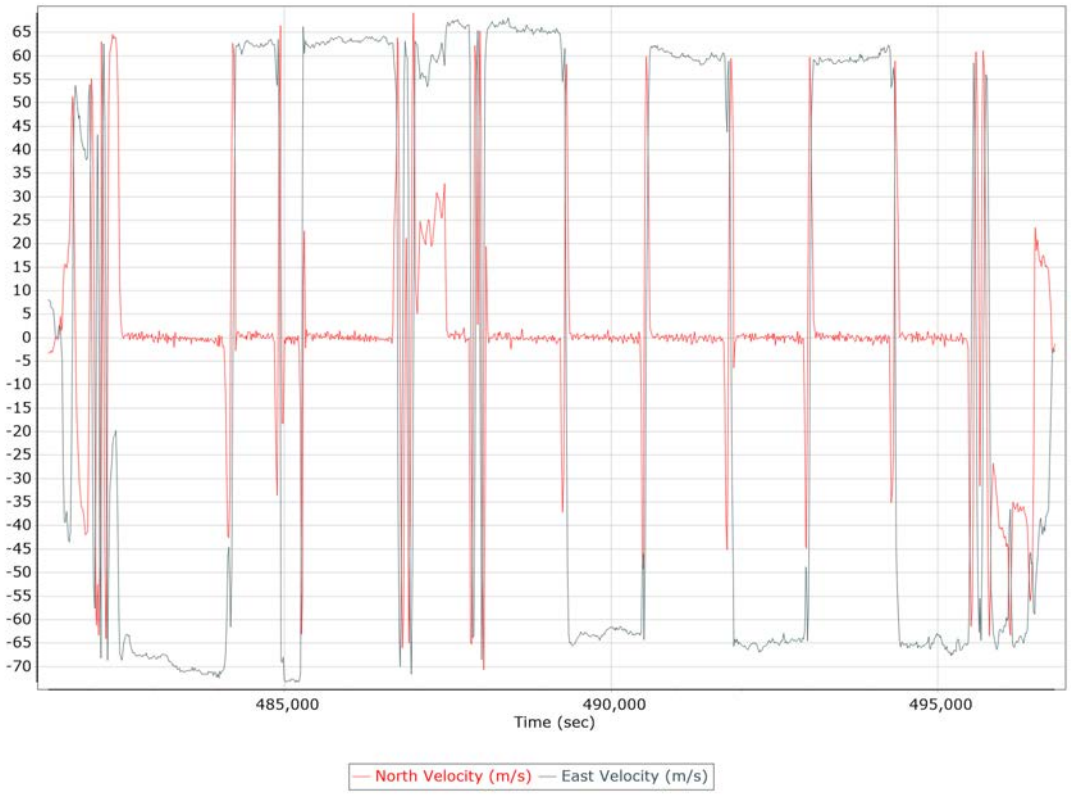
Roll/Pitch



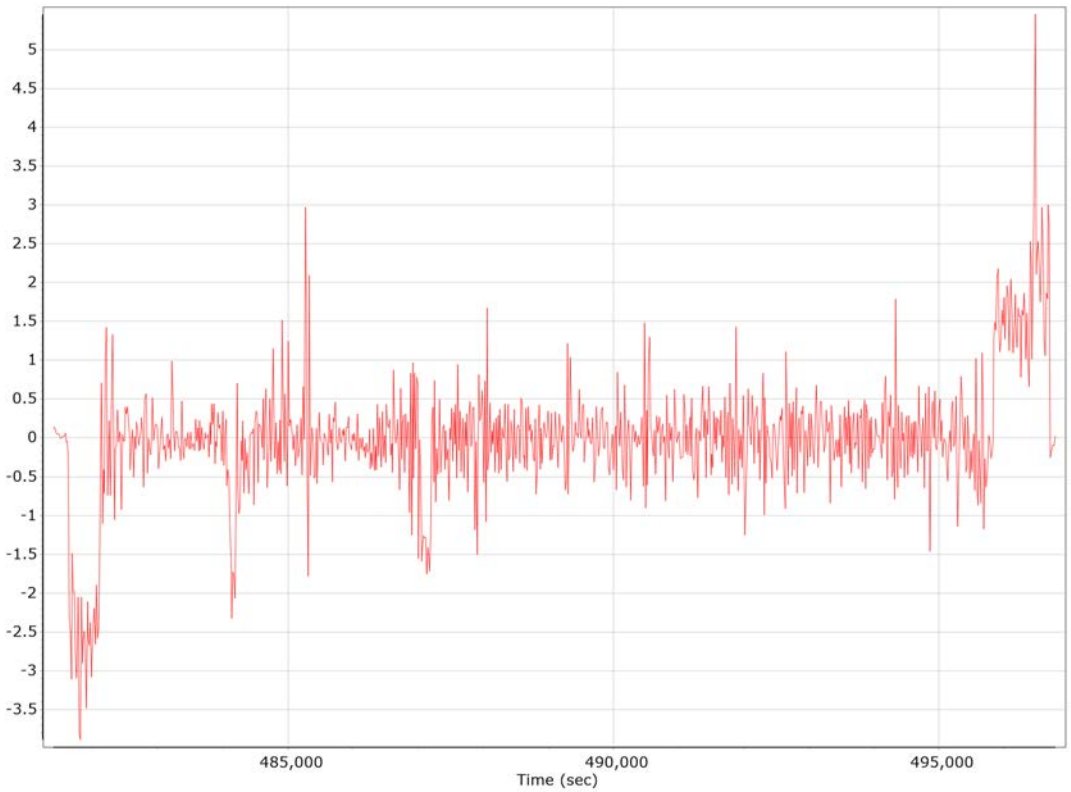
Heading



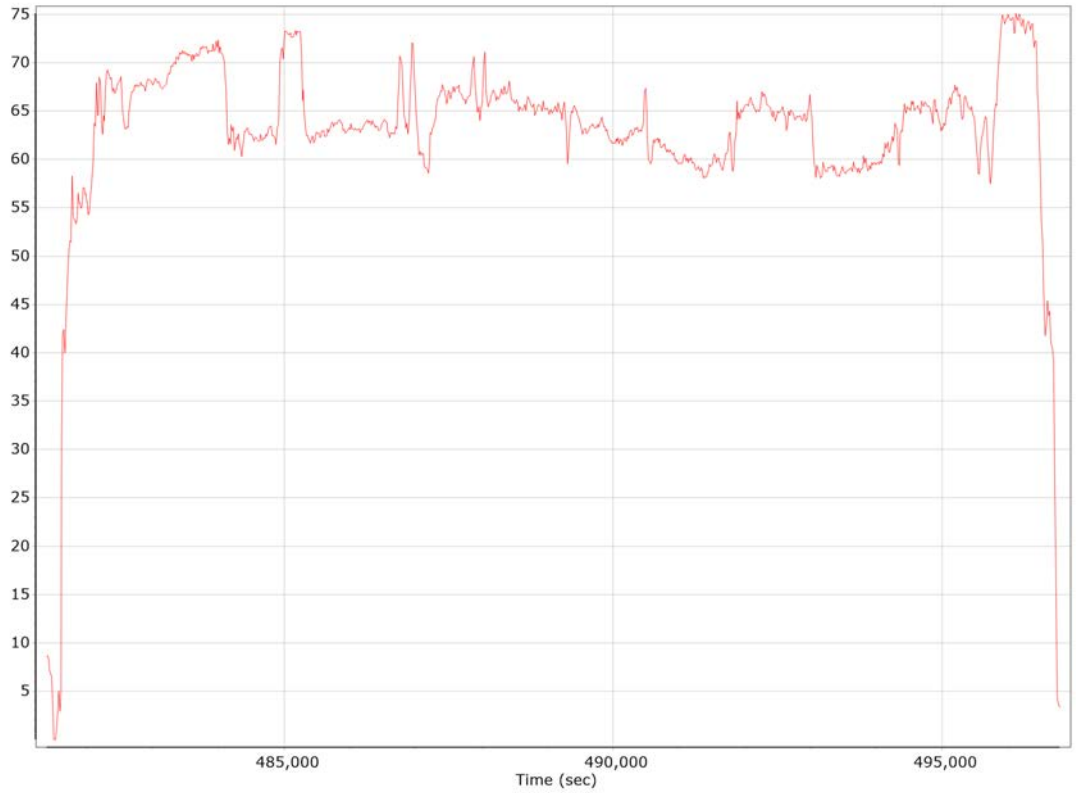
North/East Velocity



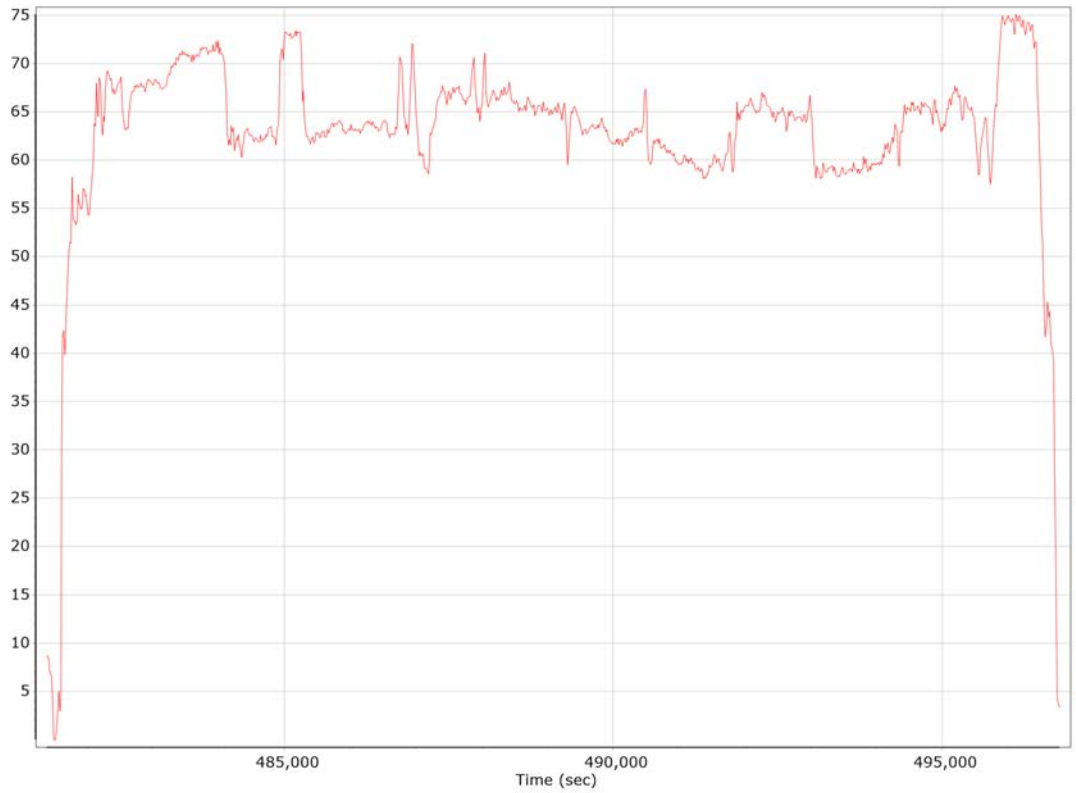
Down Velocity



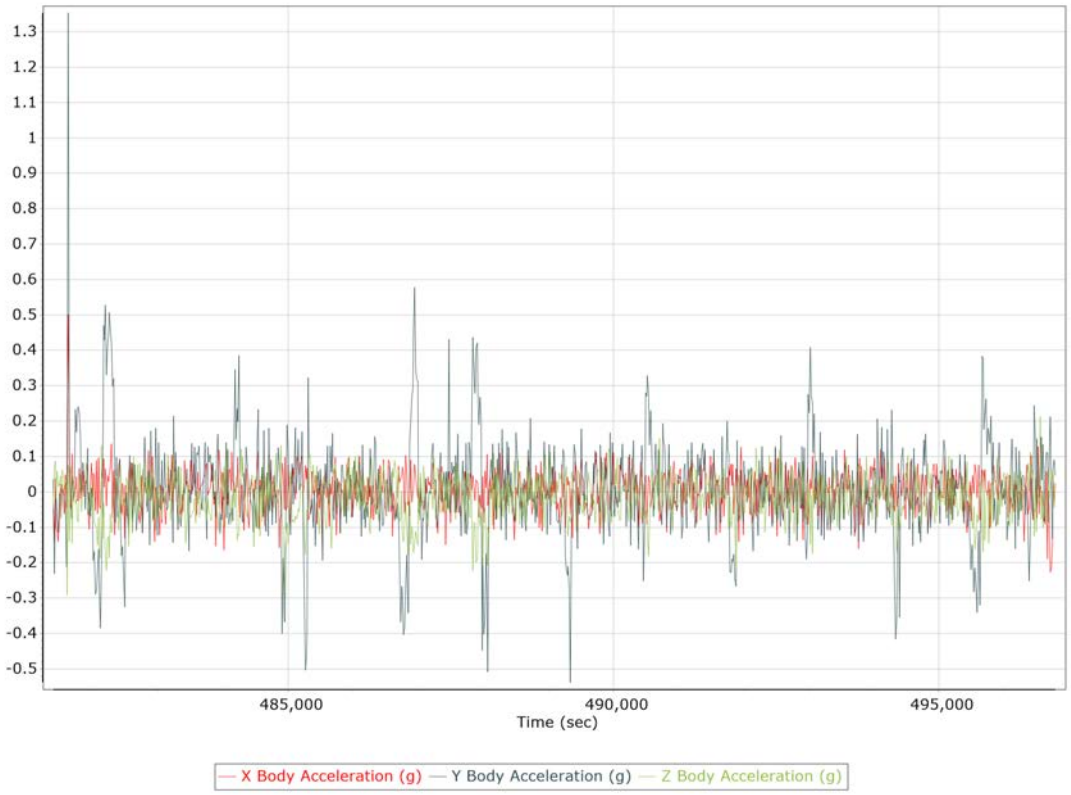
Total Speed



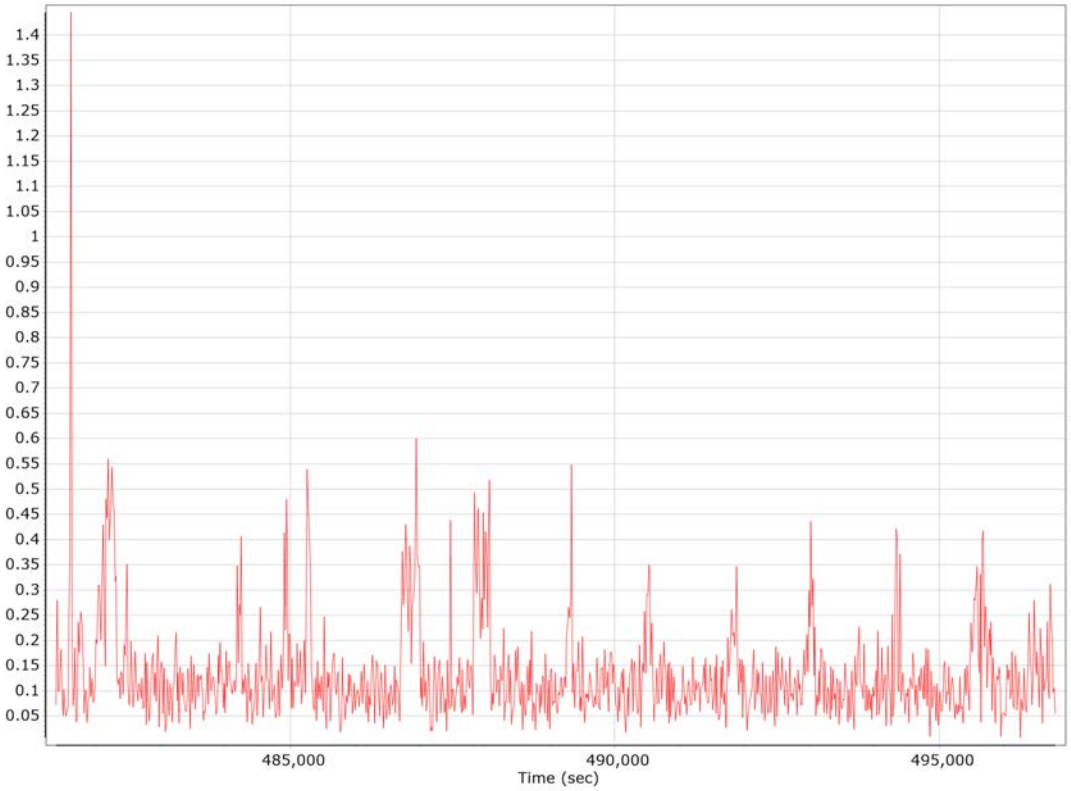
Ground Speed



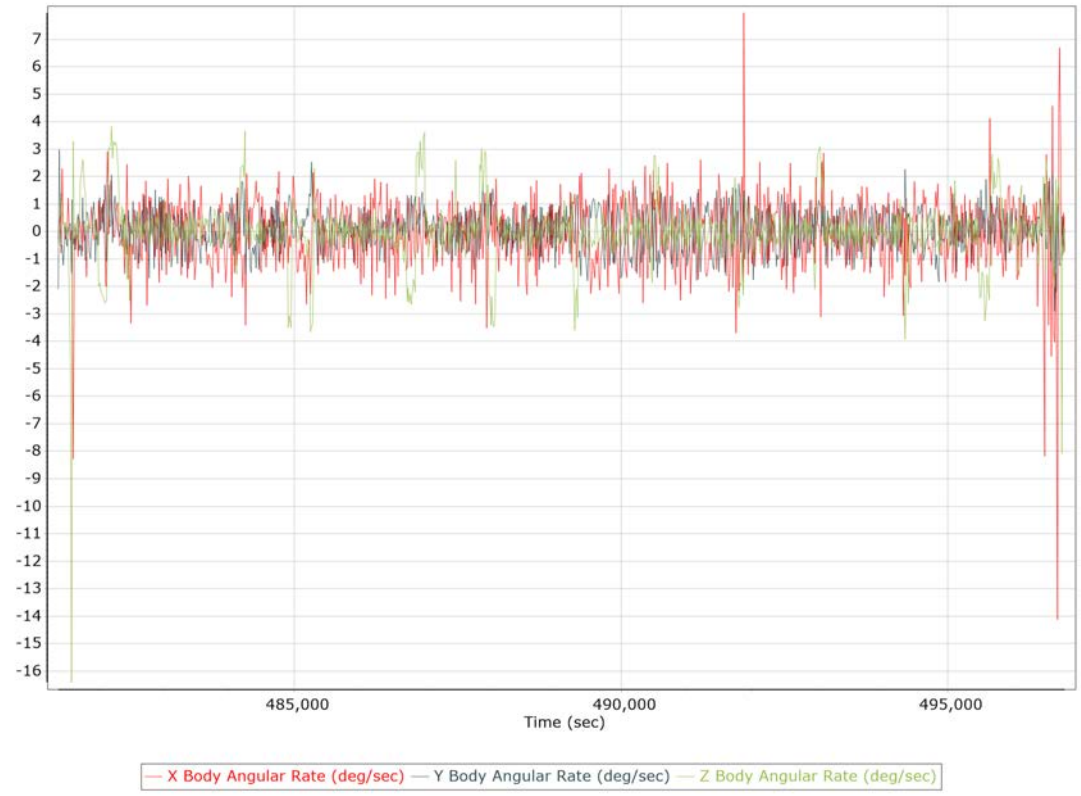
Body Acceleration



Total Body Acceleration

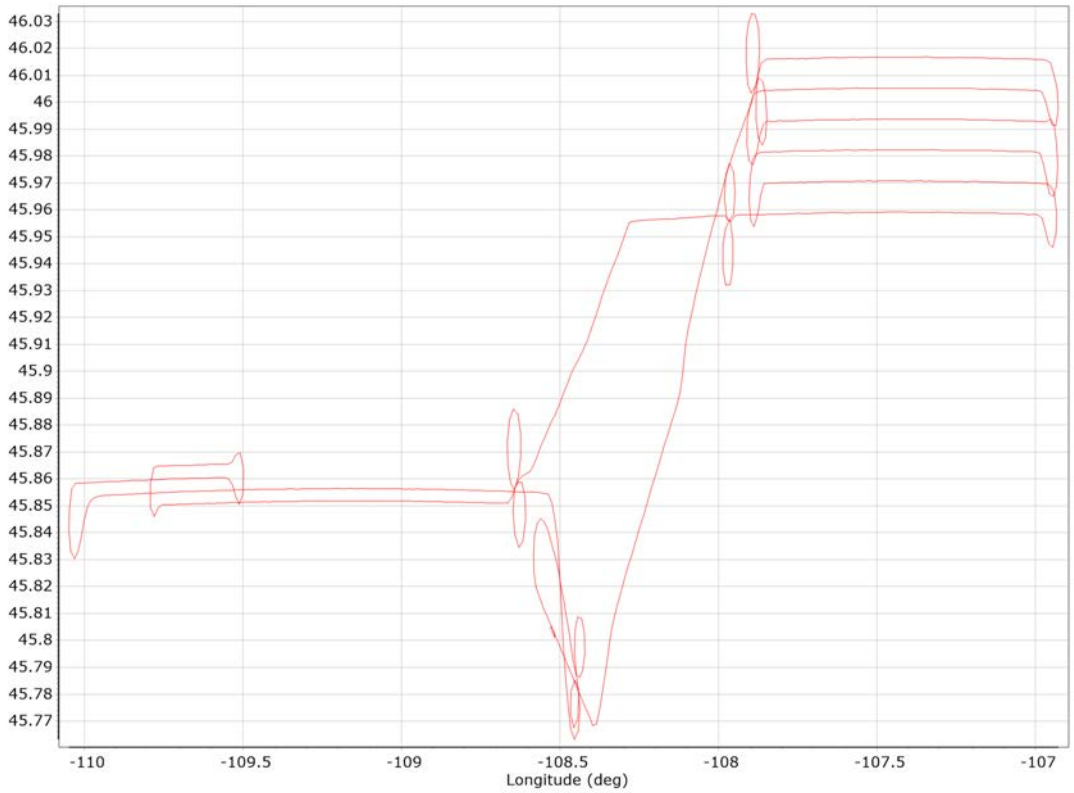


Body Angular Rate

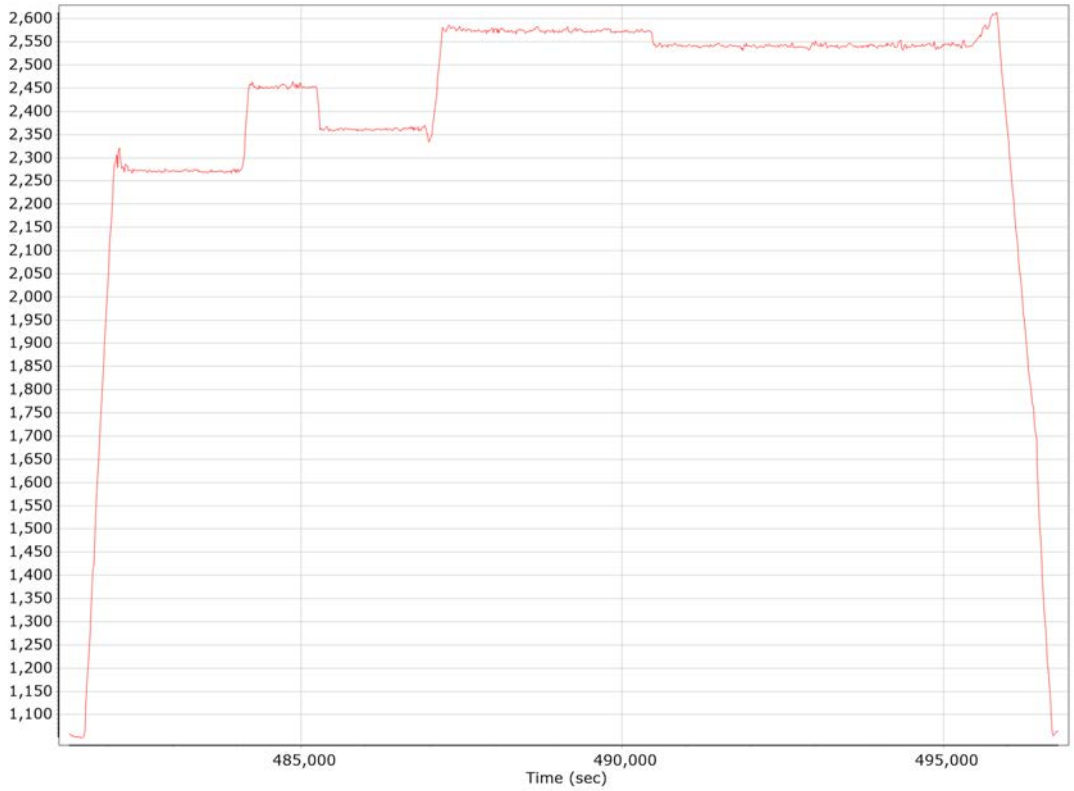


Forward Processed Trajectory Information

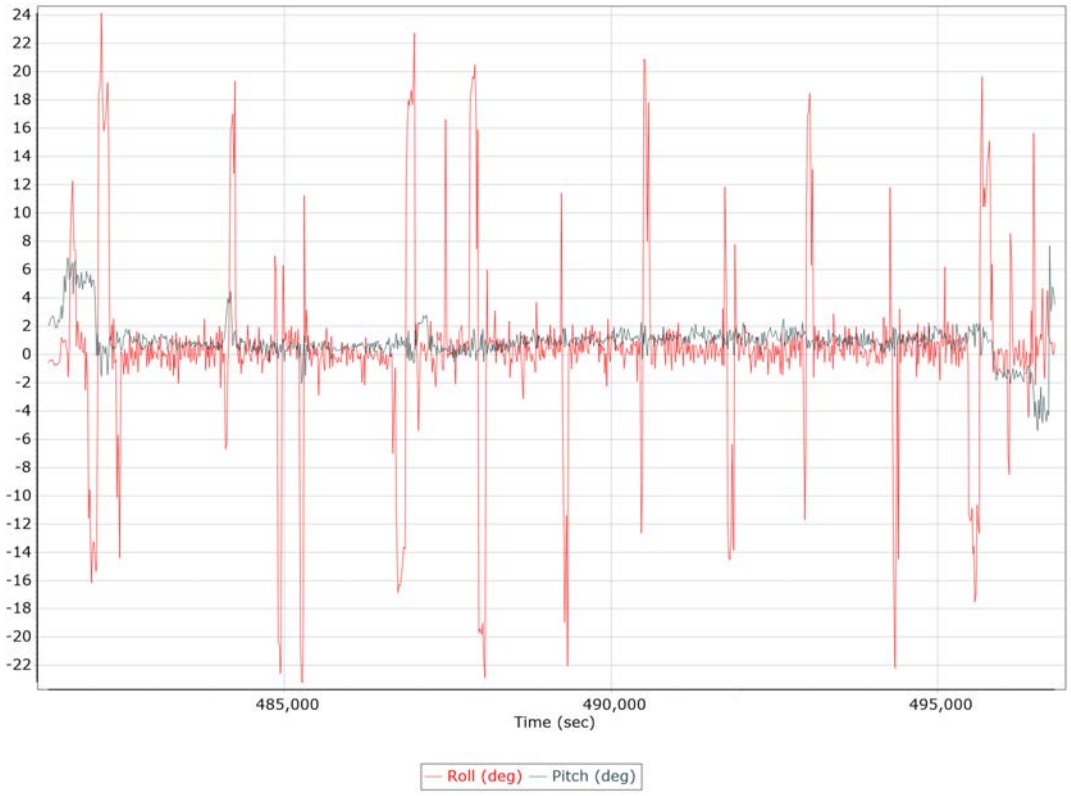
Top View



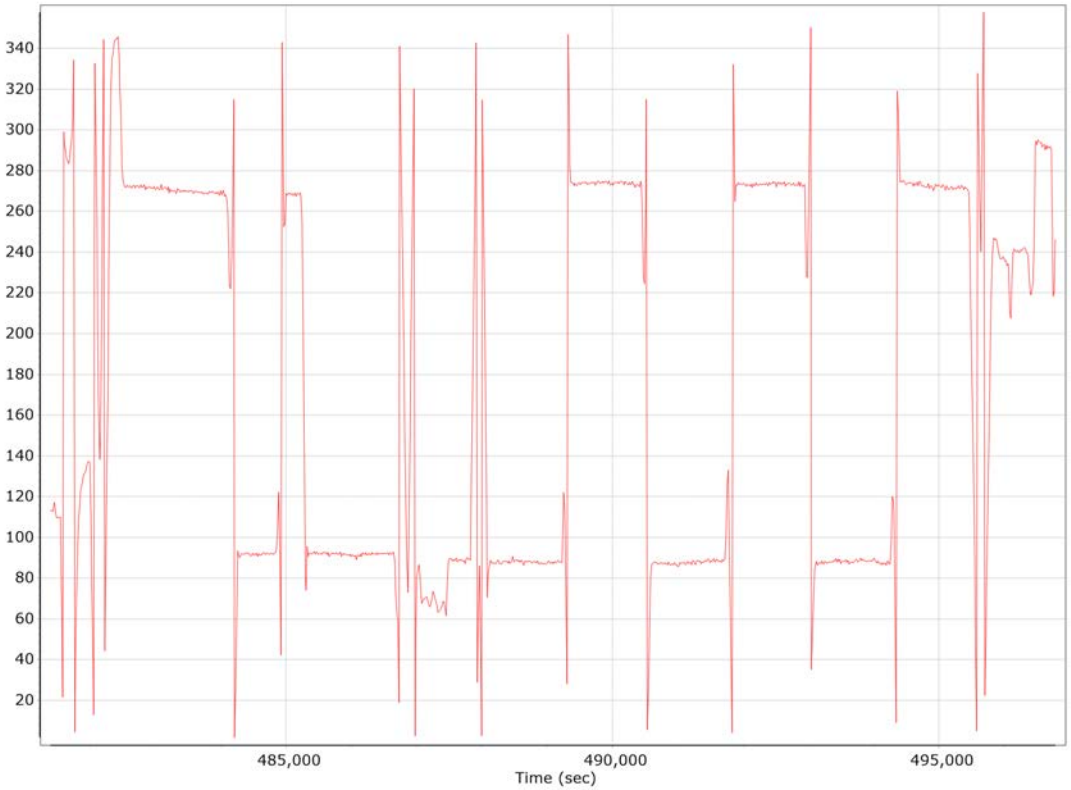
Altitude



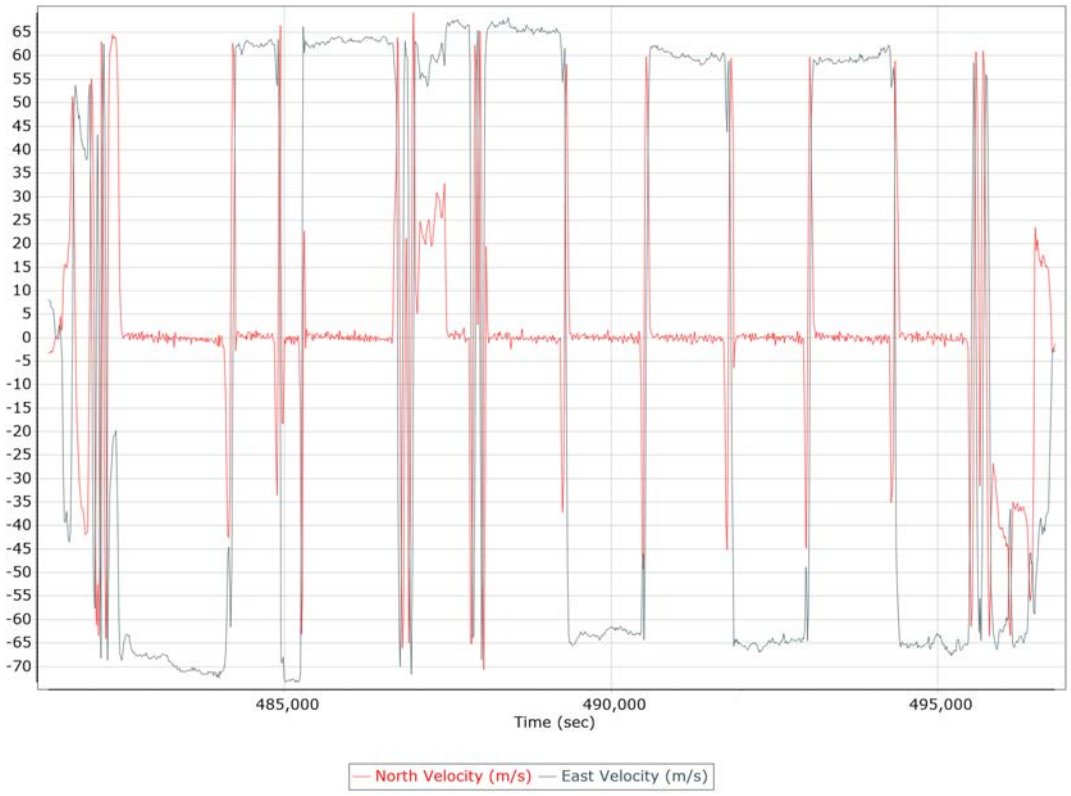
Roll/Pitch



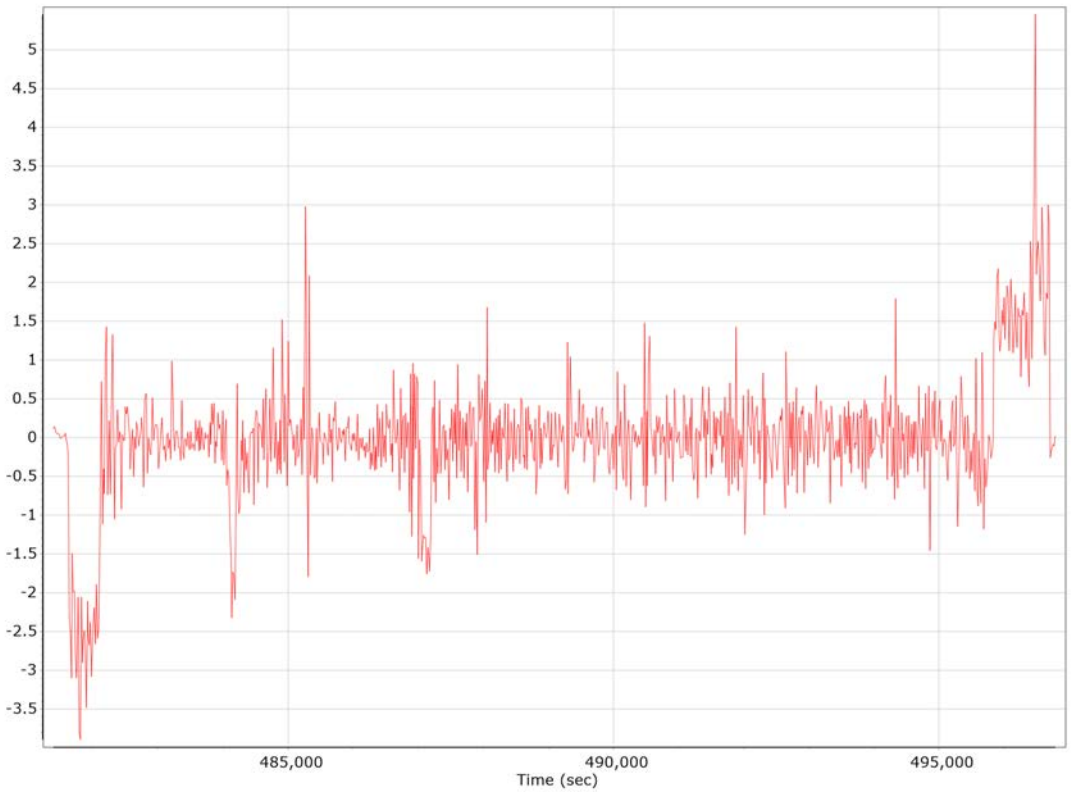
Heading



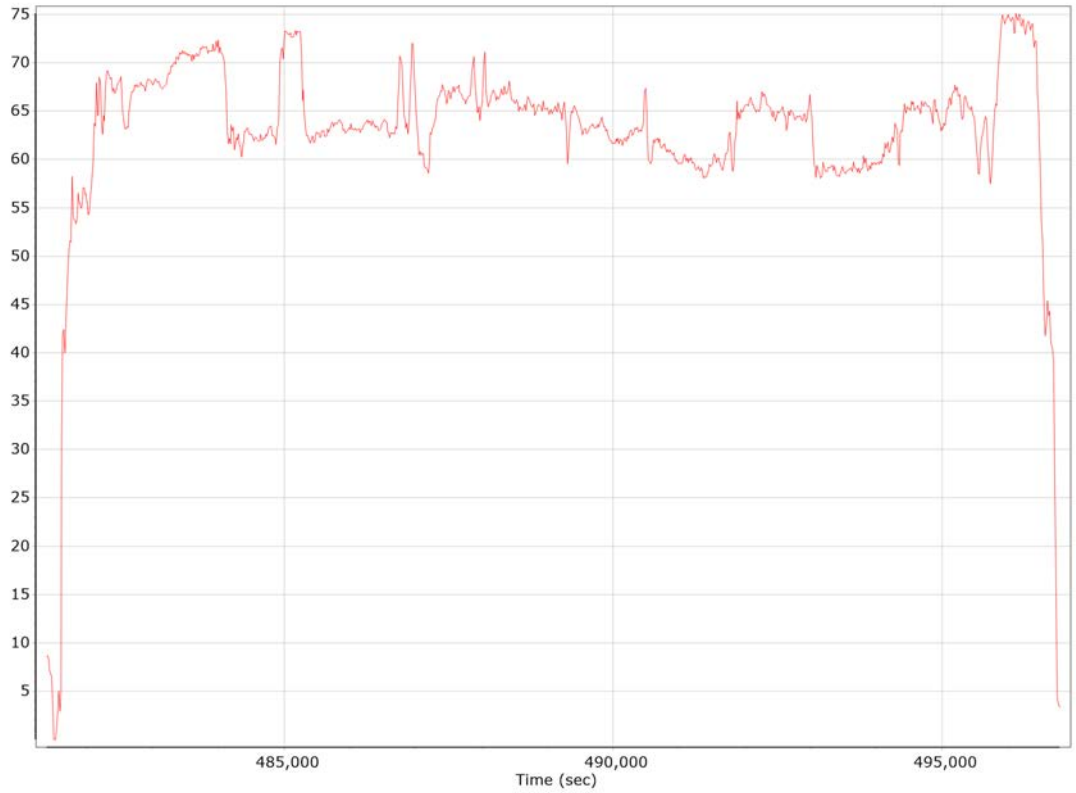
North/East Velocity



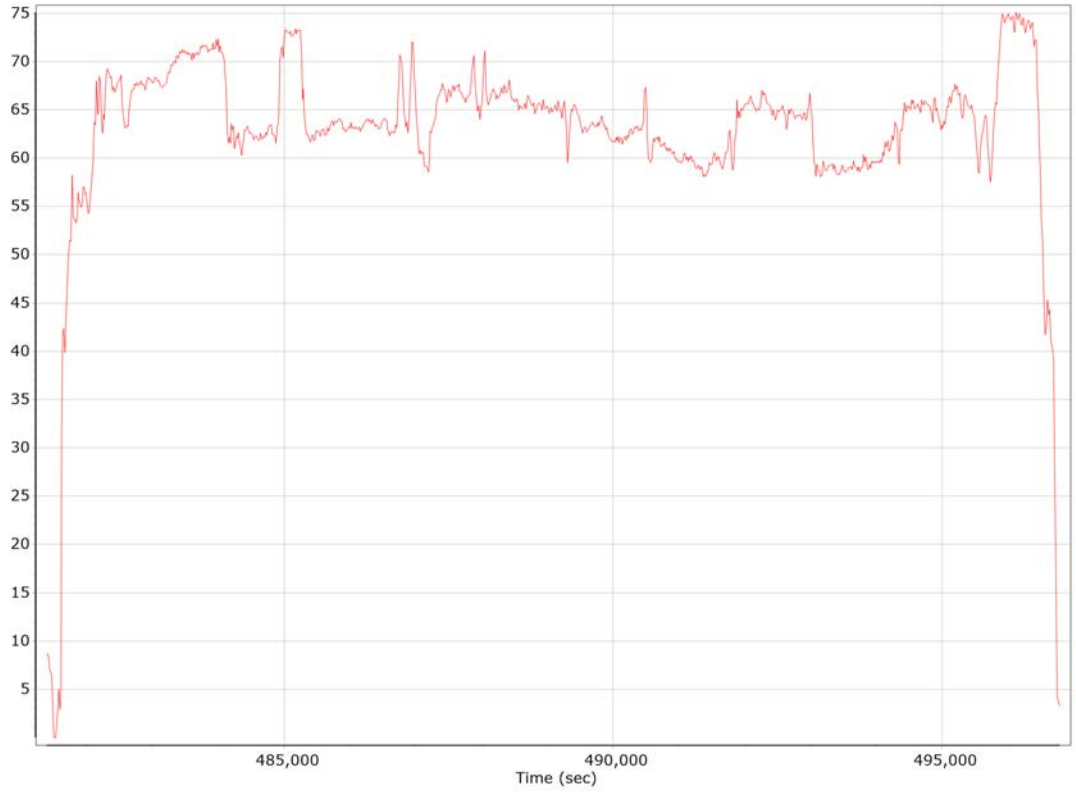
Down Velocity



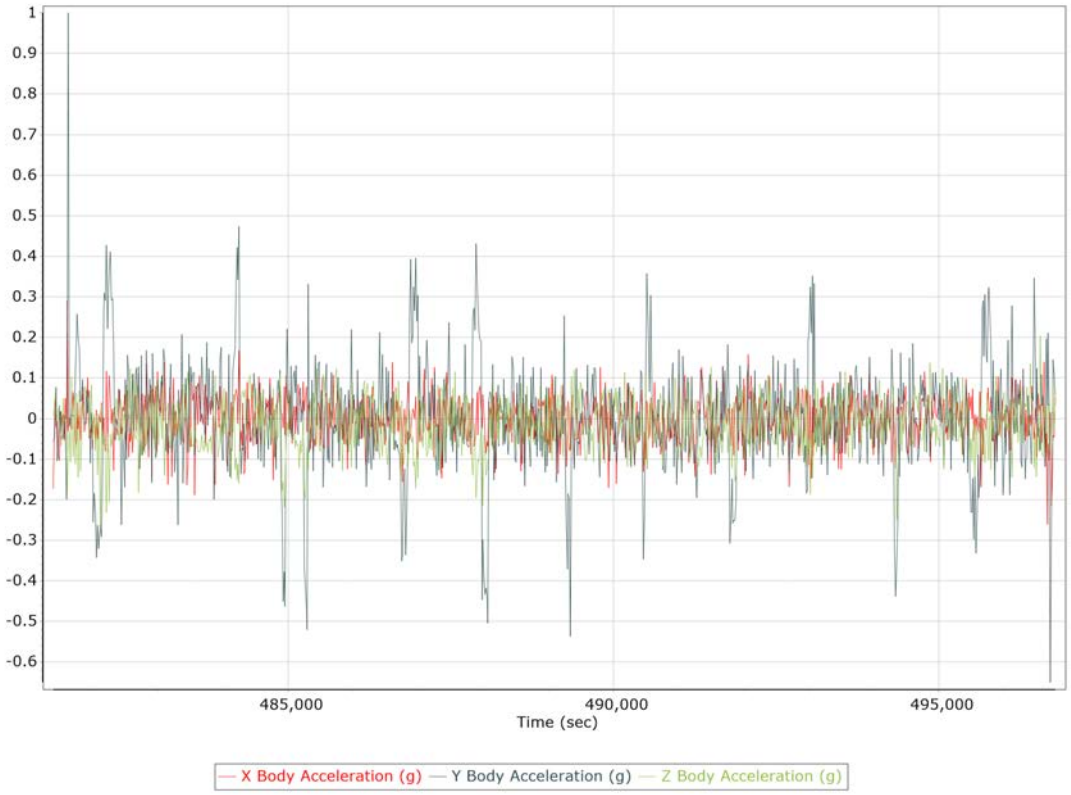
Total Speed



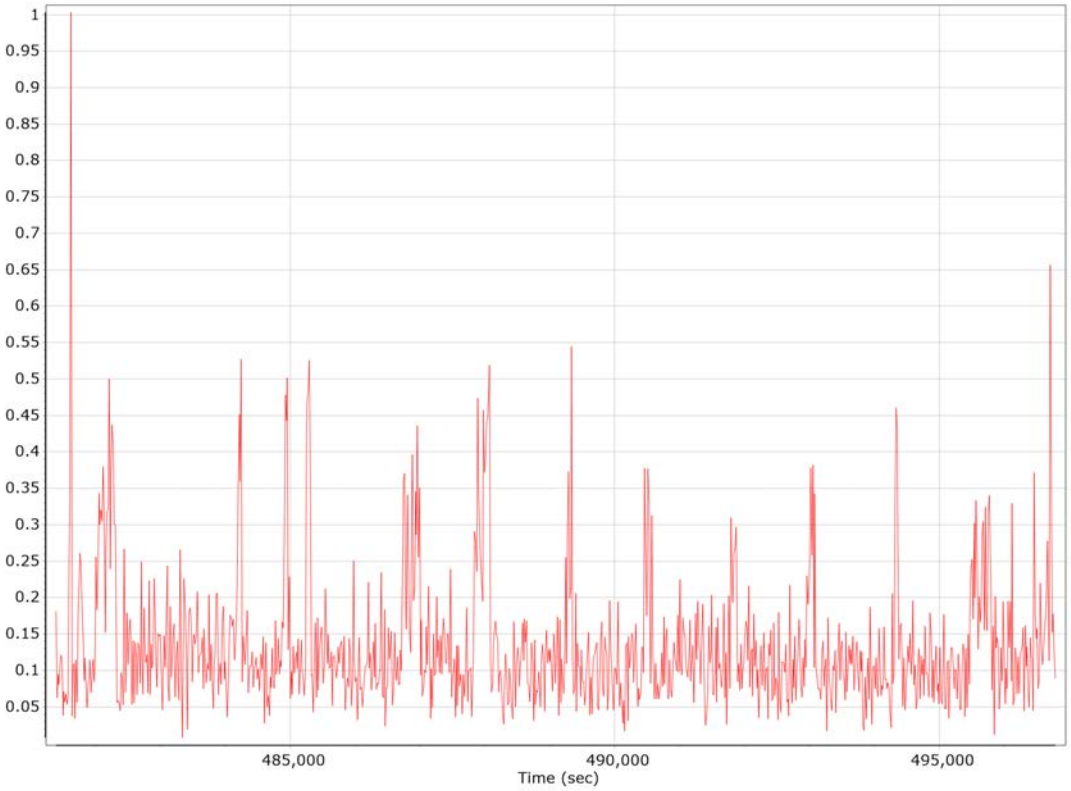
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate



GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	9	7
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	4	9	6
Total number of SV	12	23	19
PDOP	1.03	1.62	1.21
QC Solution Gaps	1.00	1.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	15525.00	0.00	2.00
Percentage	99.99	0.00	0.01

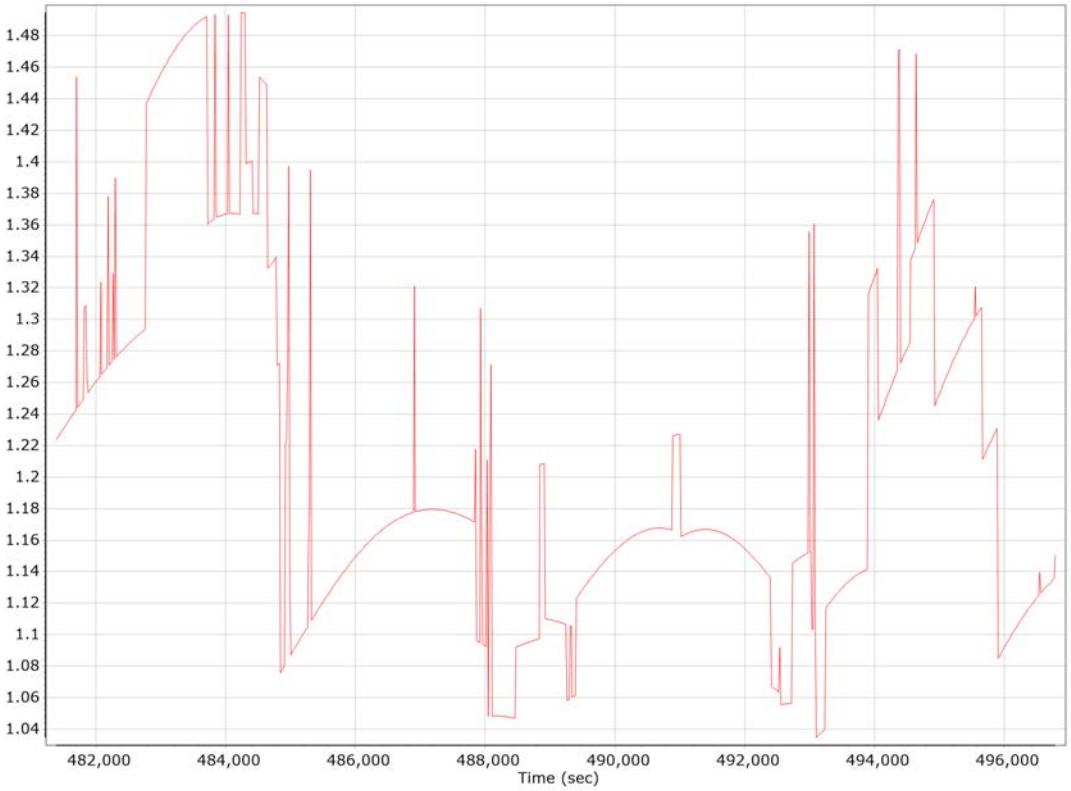
Num SVs in solution



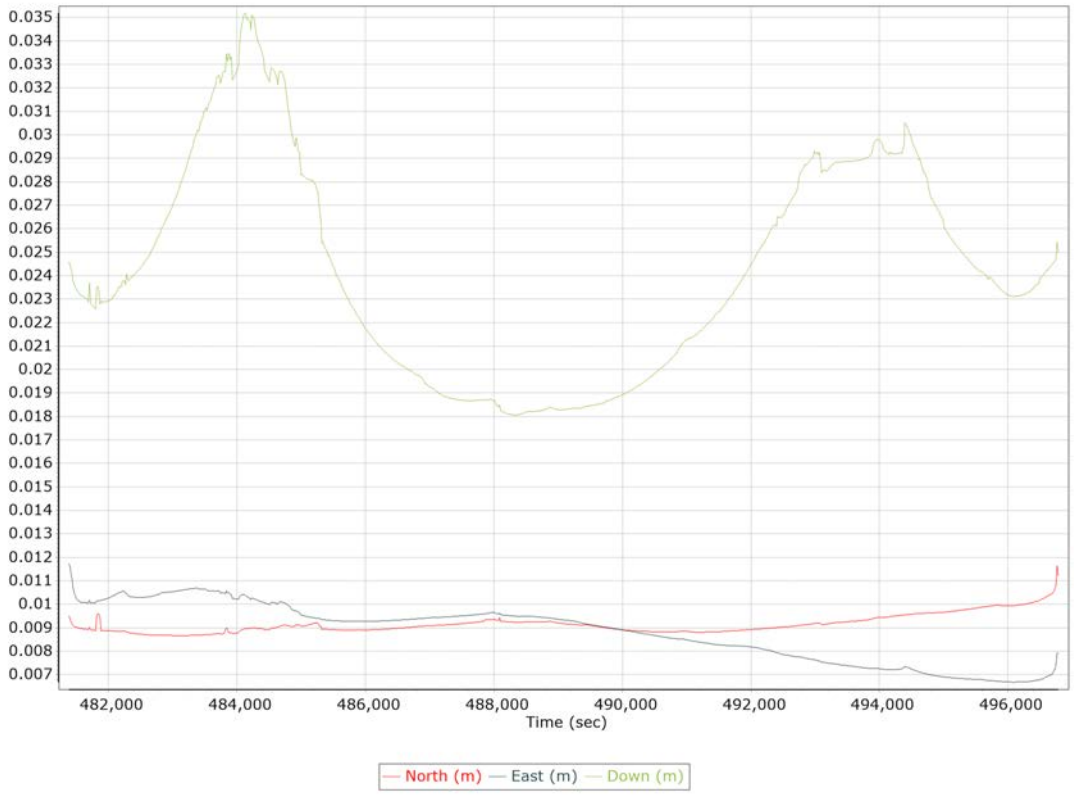
Forward/Reverse Separation



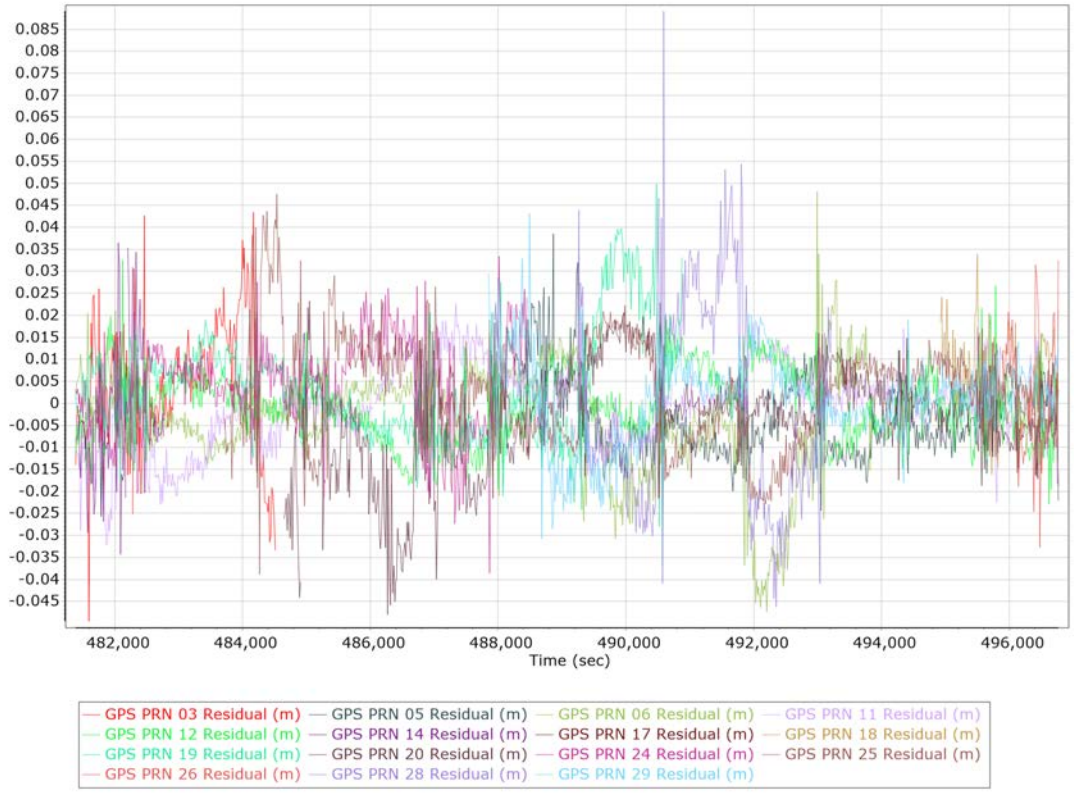
PDOP



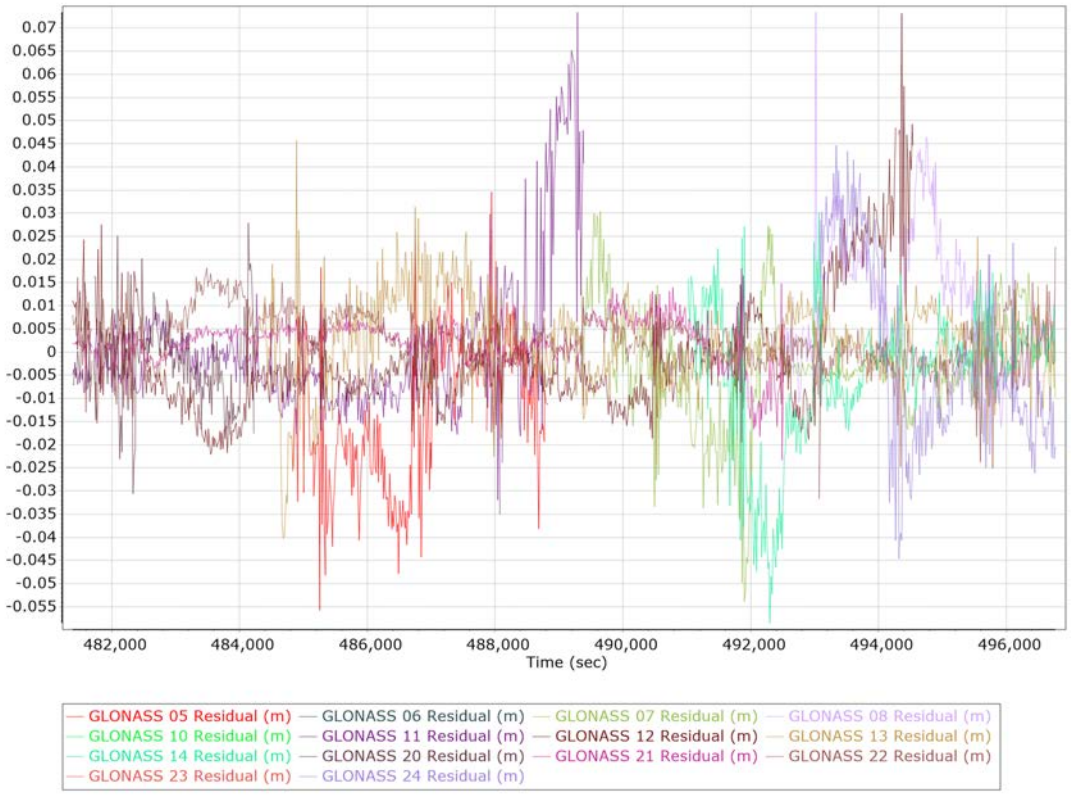
Estimated Position Accuracy



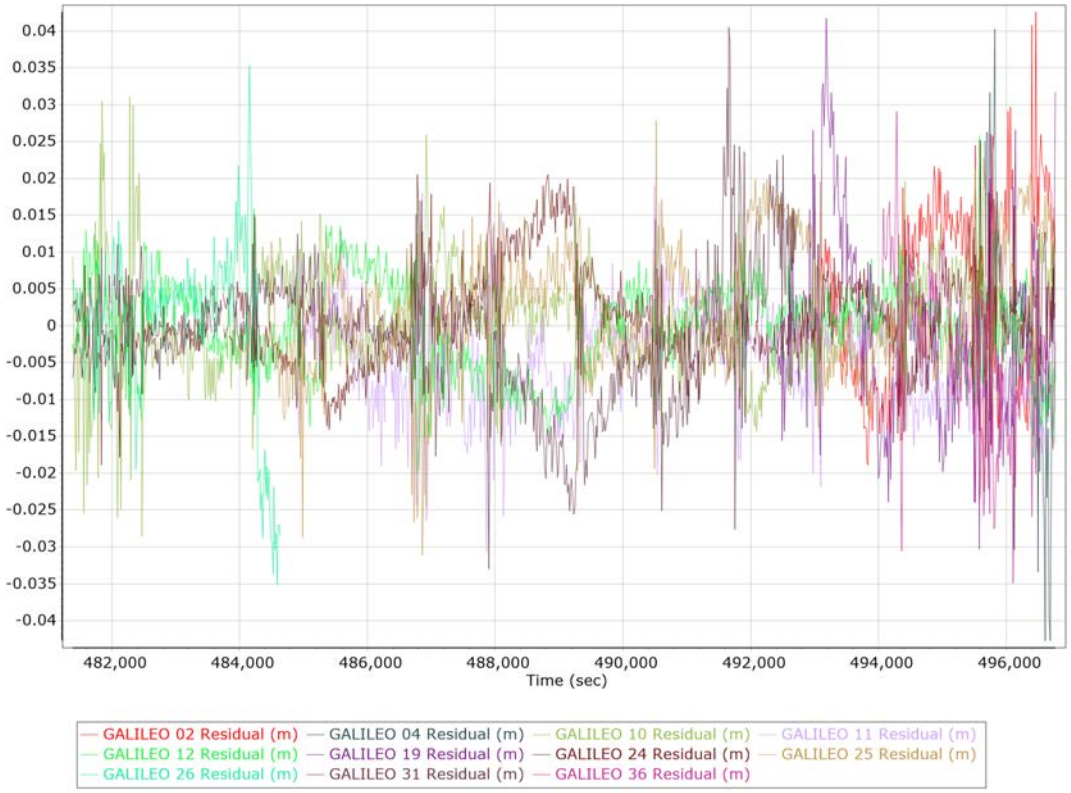
GPS Residuals



GLONASS Residuals



GALILEO Residuals



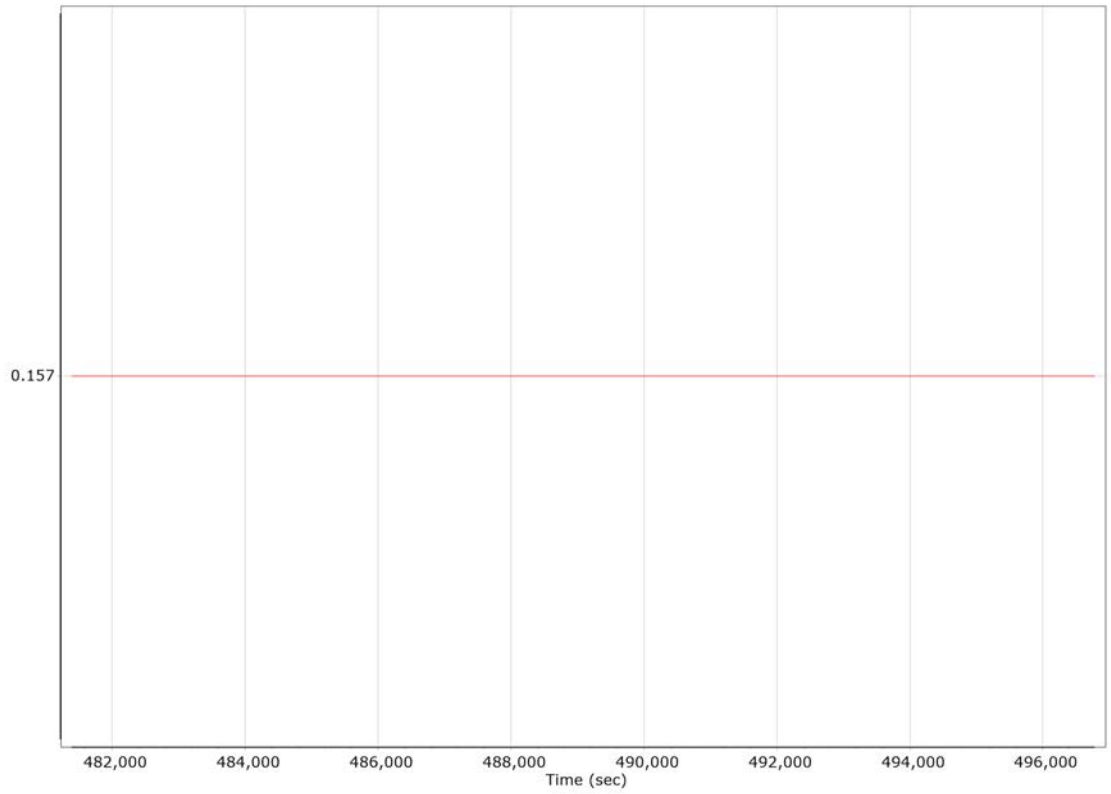
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	481227.000 (7/7/2023 1:40:27 PM)		
Processing end time	496795.000 (7/7/2023 5:59:55 PM)		
Initial attitude source	Primary GNSS Track		
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)	0.157	-0.181	-0.732
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

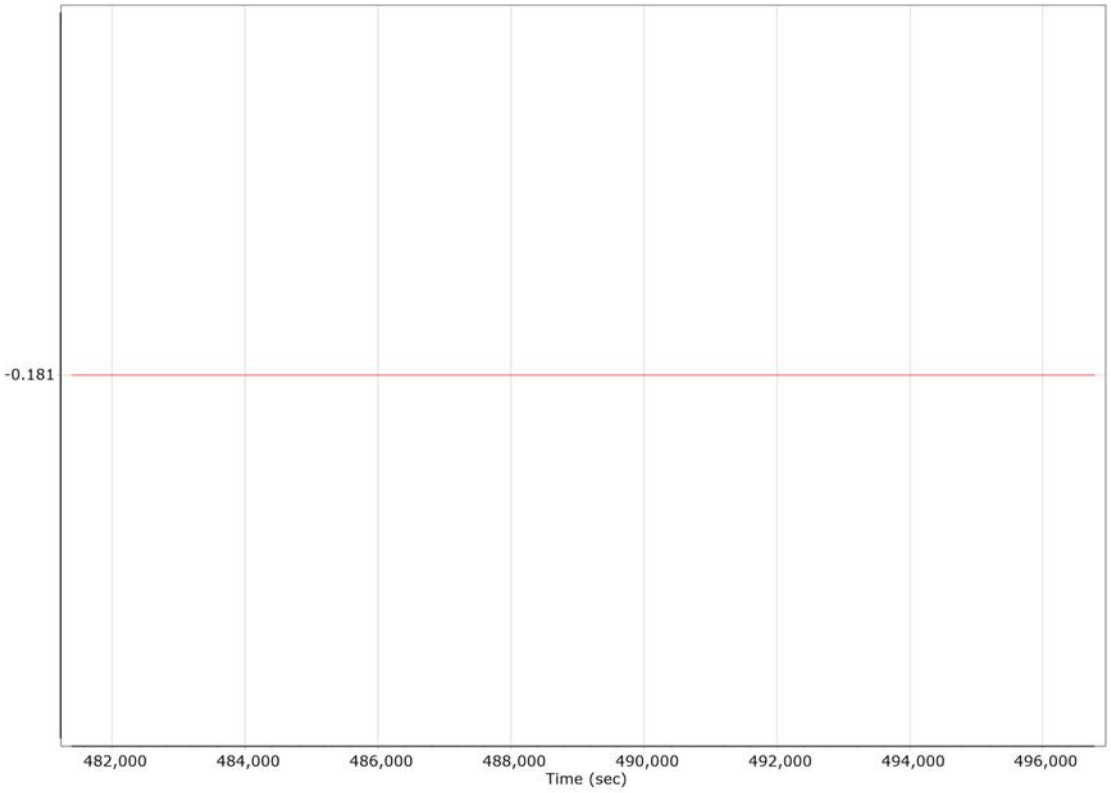
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

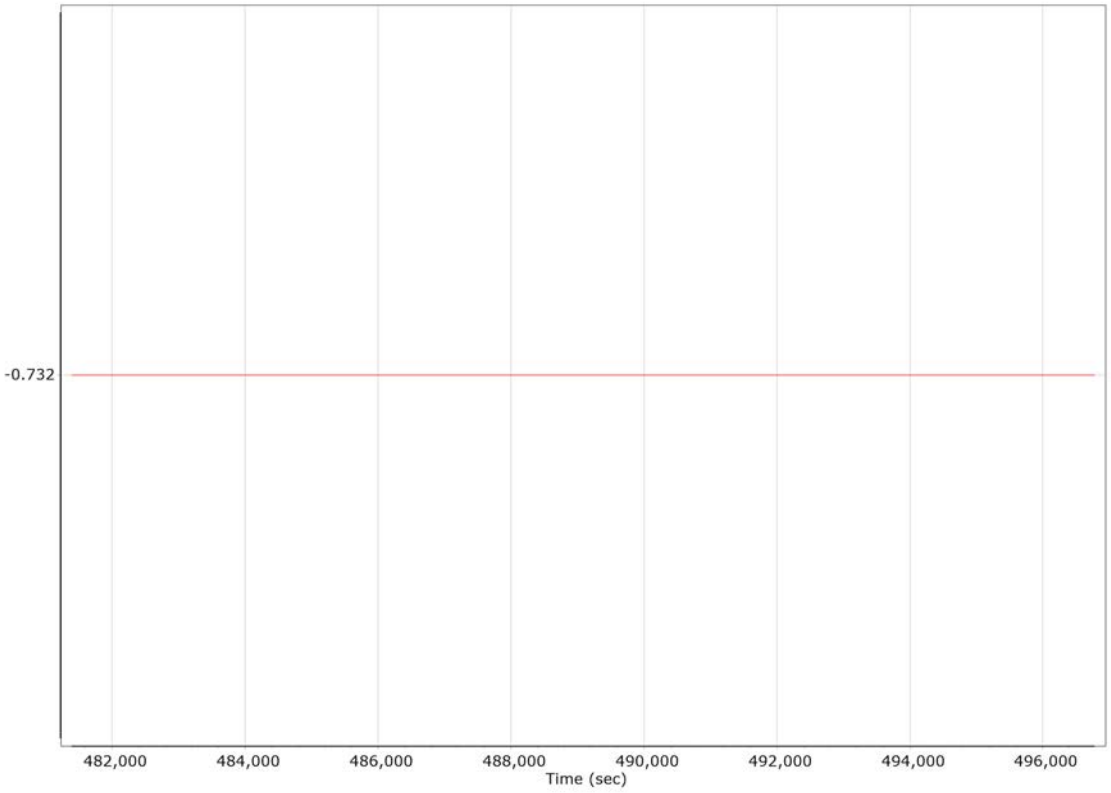
X Reference-Primary GNSS Lever Arm (m)



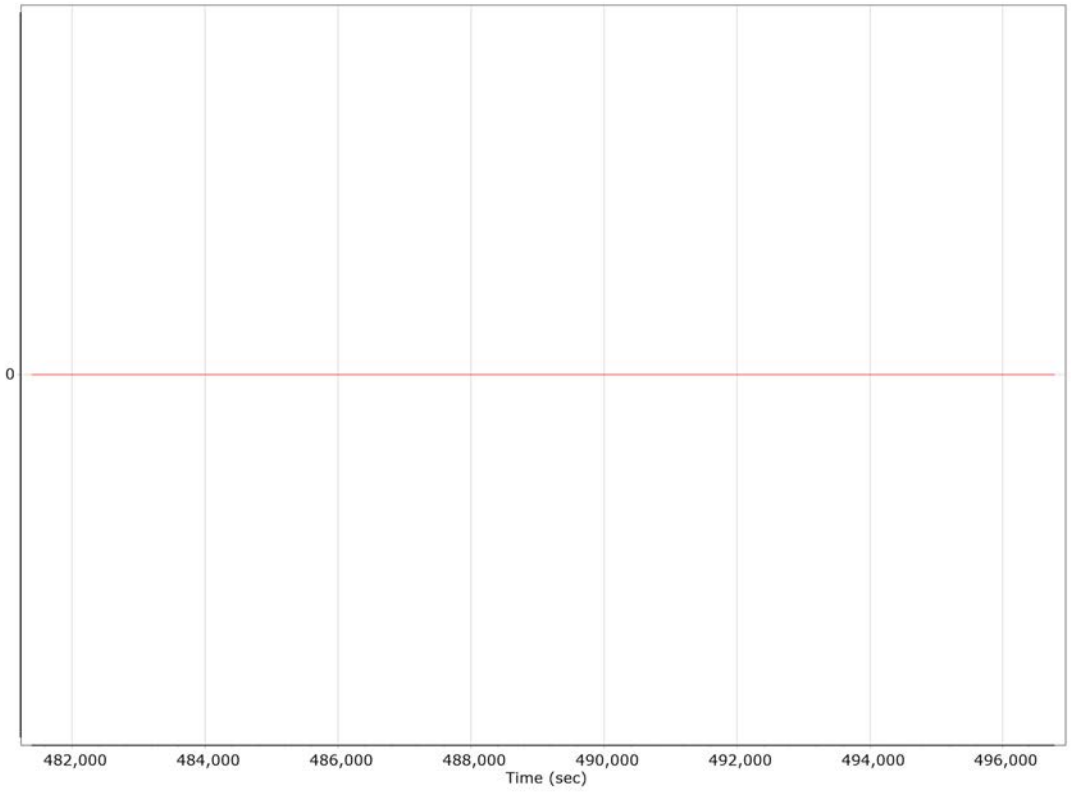
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



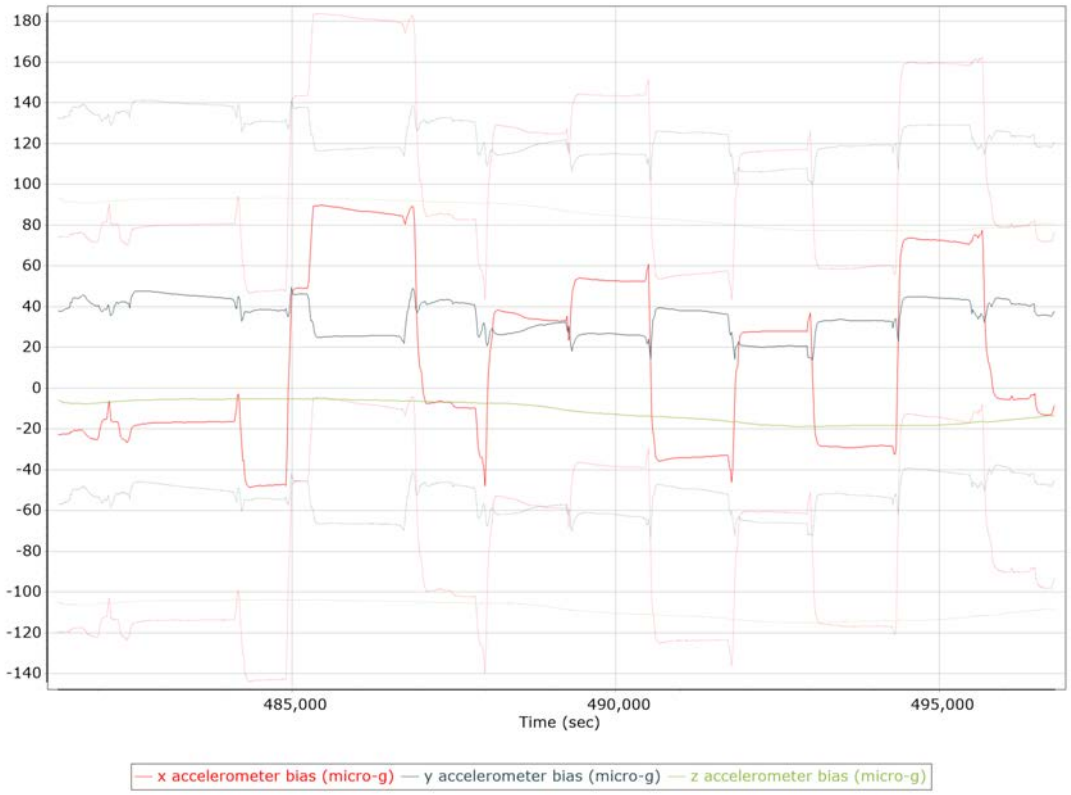
Reference-Primary GNSS Lever Arm Figure of Merit



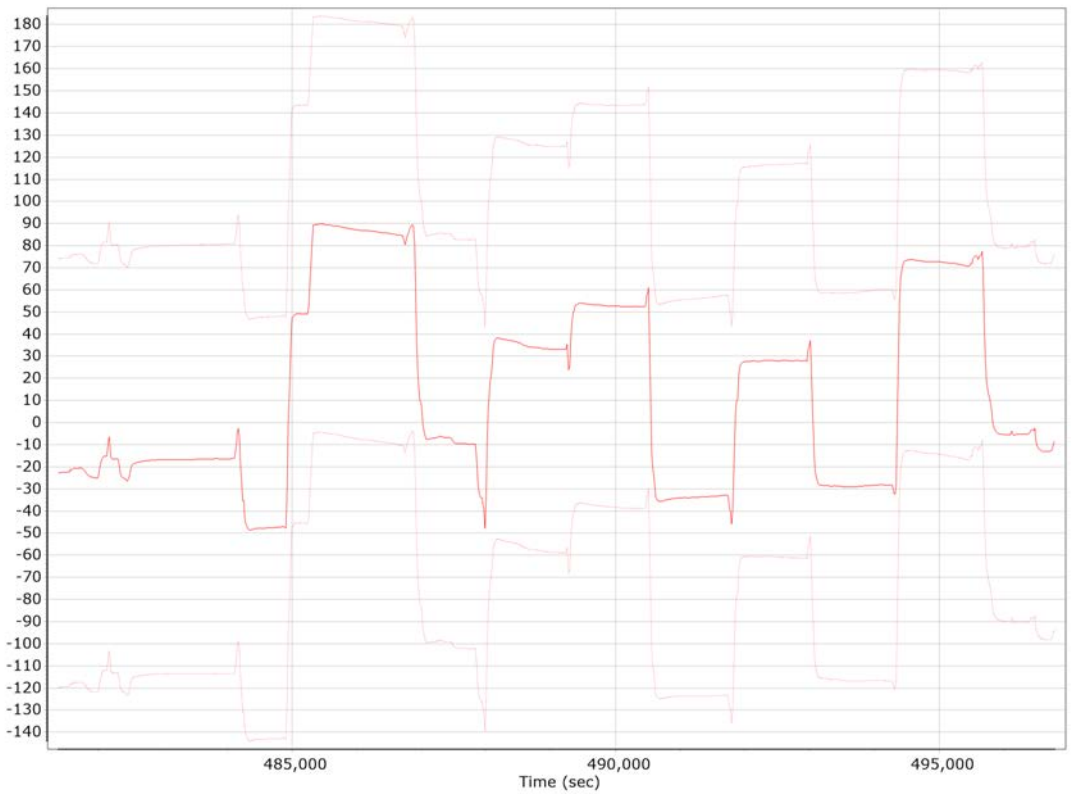
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

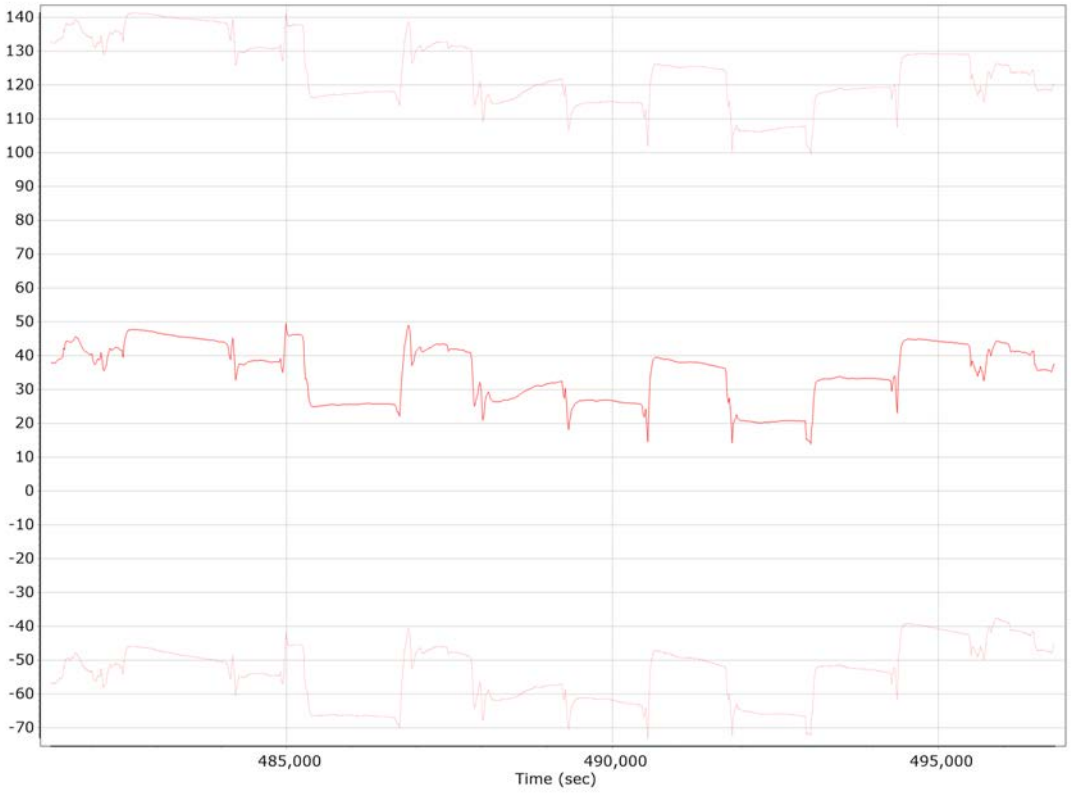
Accelerometer Bias (micro-g)



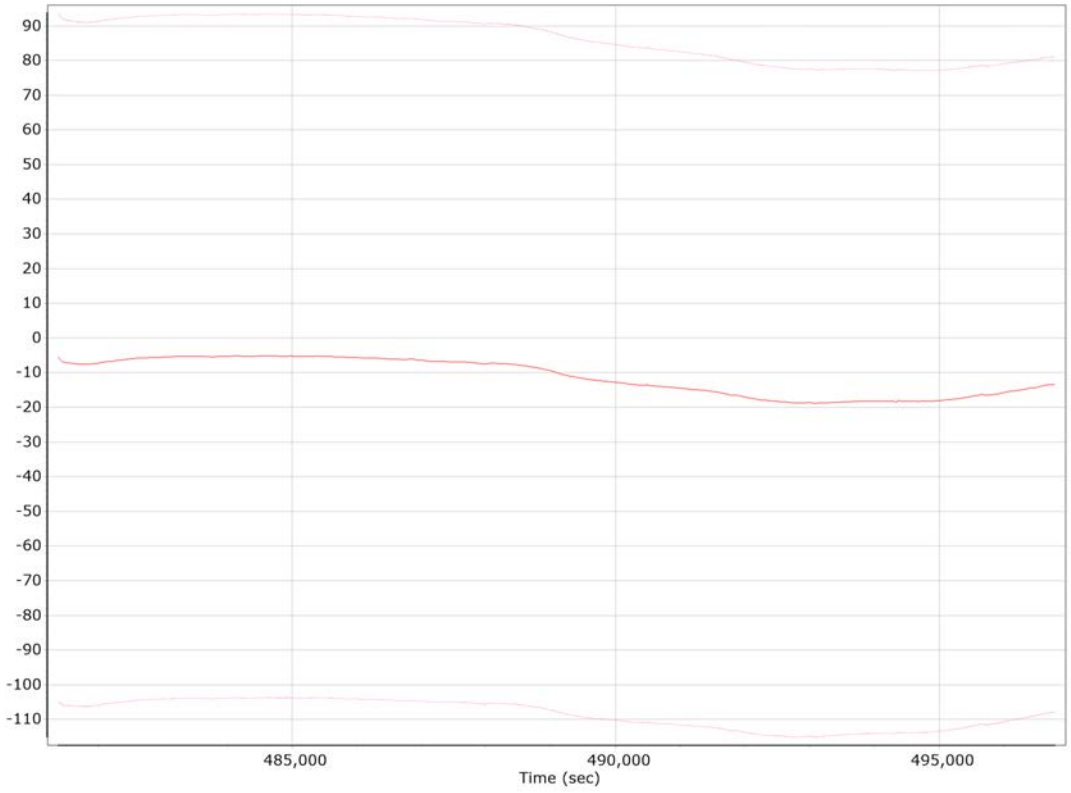
X Accelerometer Bias (micro-g)



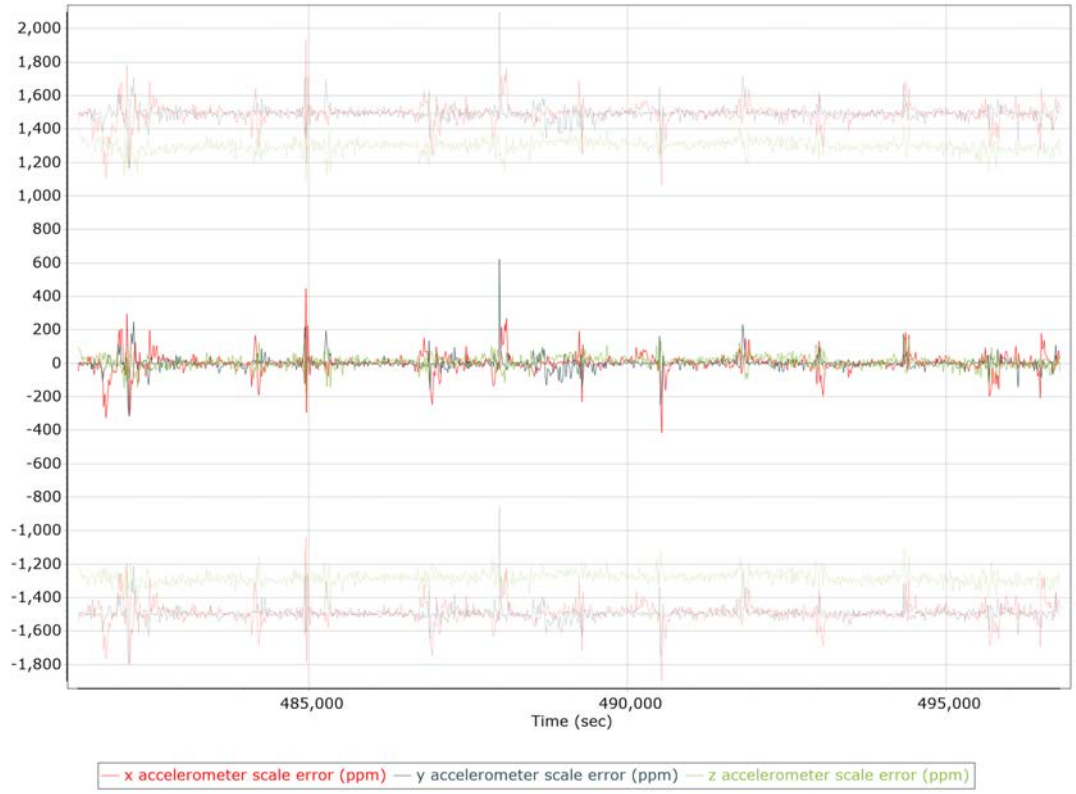
Y Accelerometer Bias (micro-g)



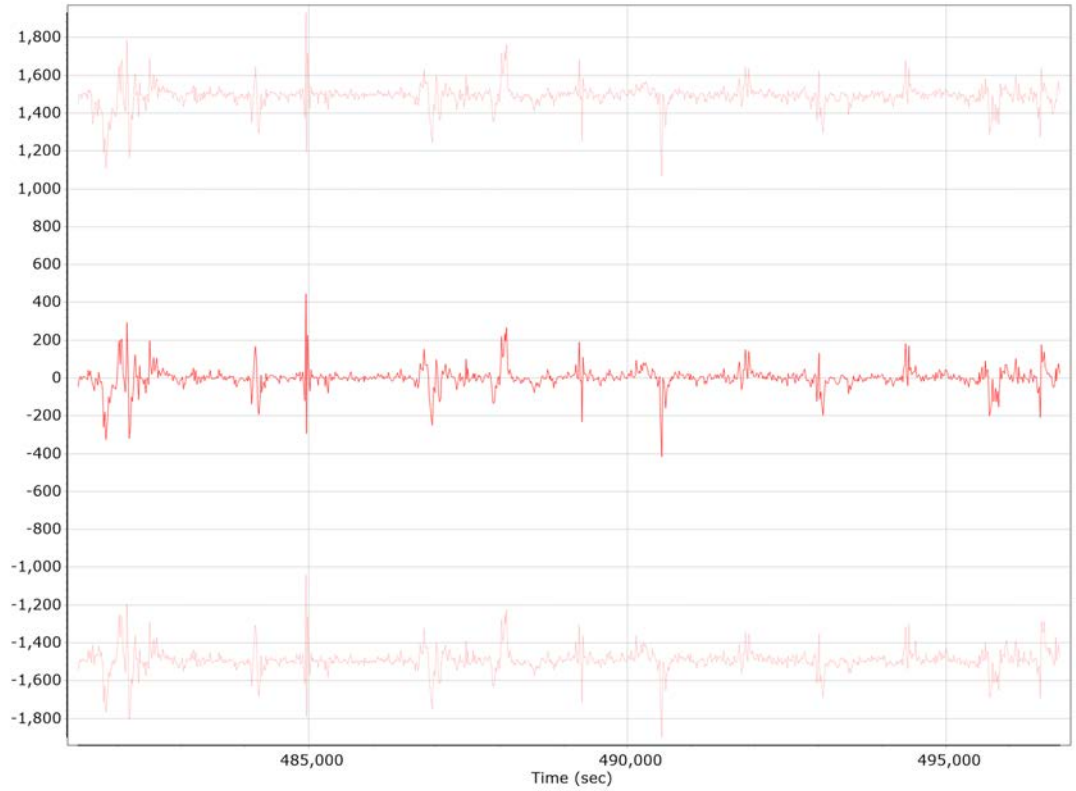
Z Accelerometer Bias (micro-g)



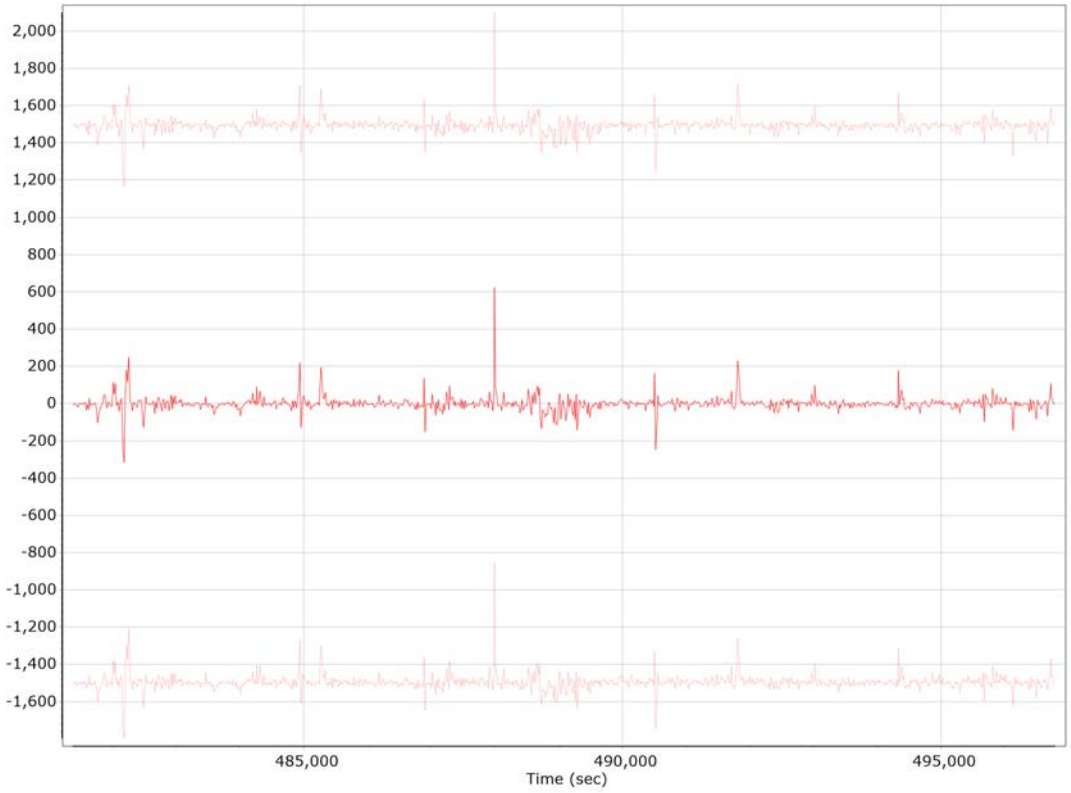
Accelerometer Scale Error (ppm)



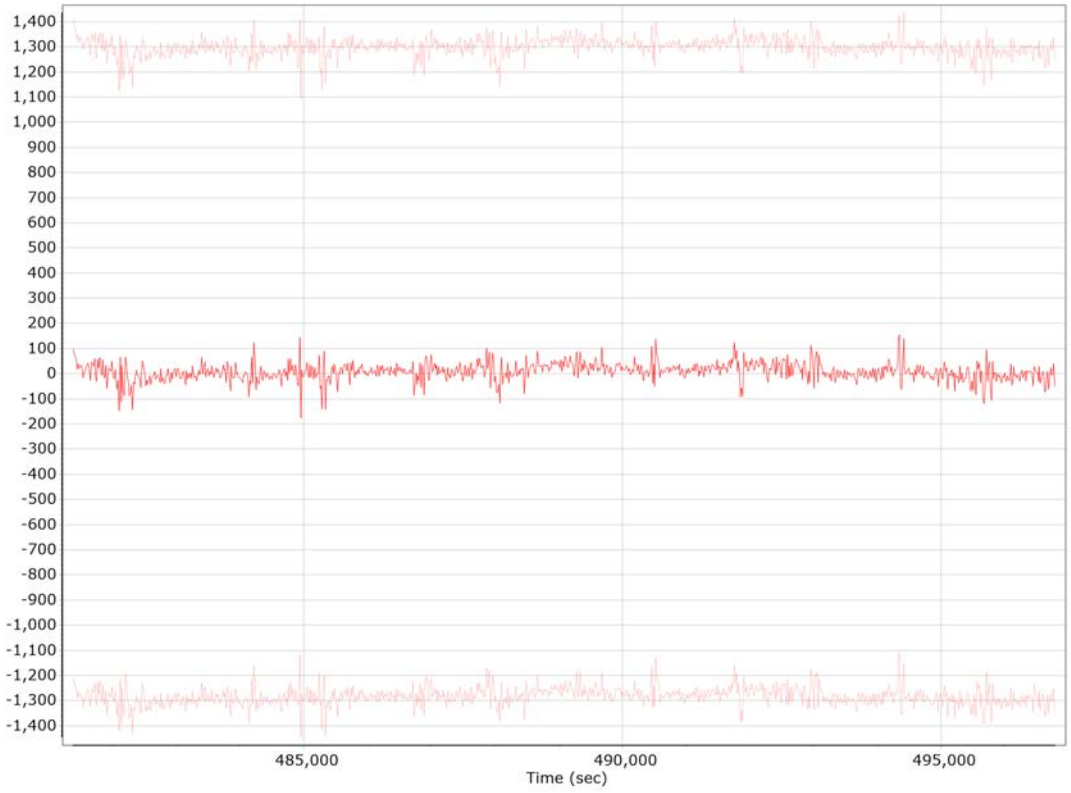
X Accelerometer Scale Error (ppm)



Y Accelerometer Scale Error (ppm)



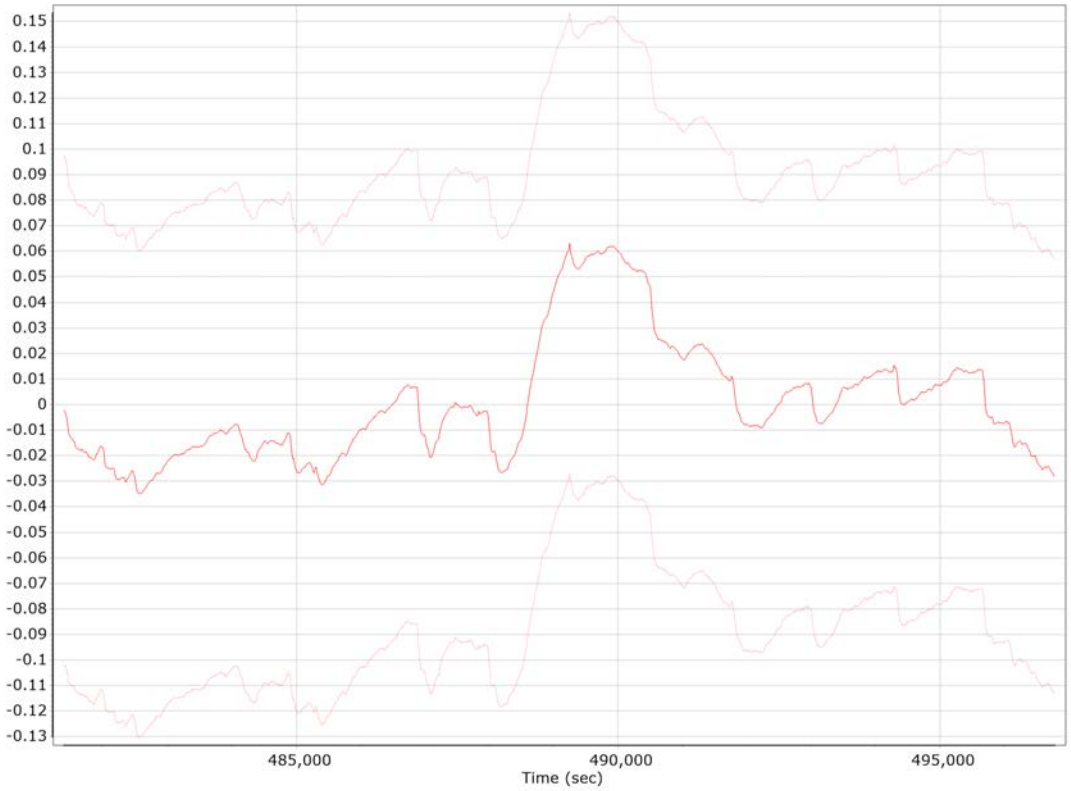
Z Accelerometer Scale Error (ppm)



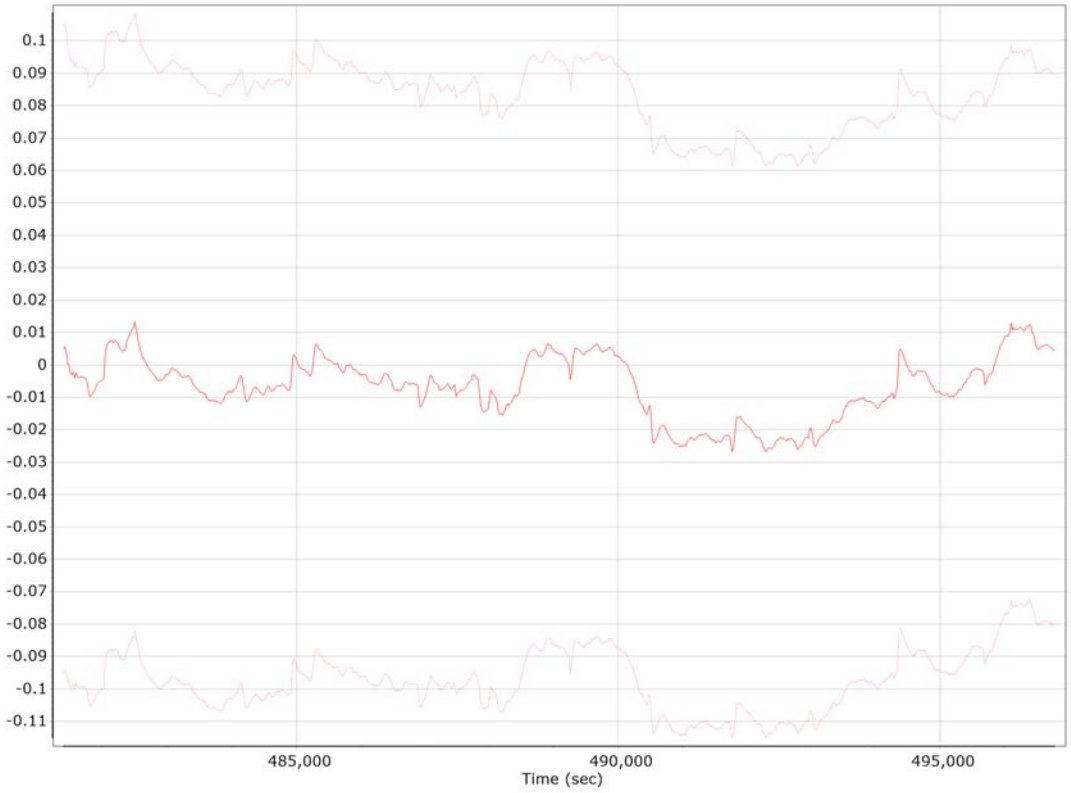
Gyro Bias (deg/h)



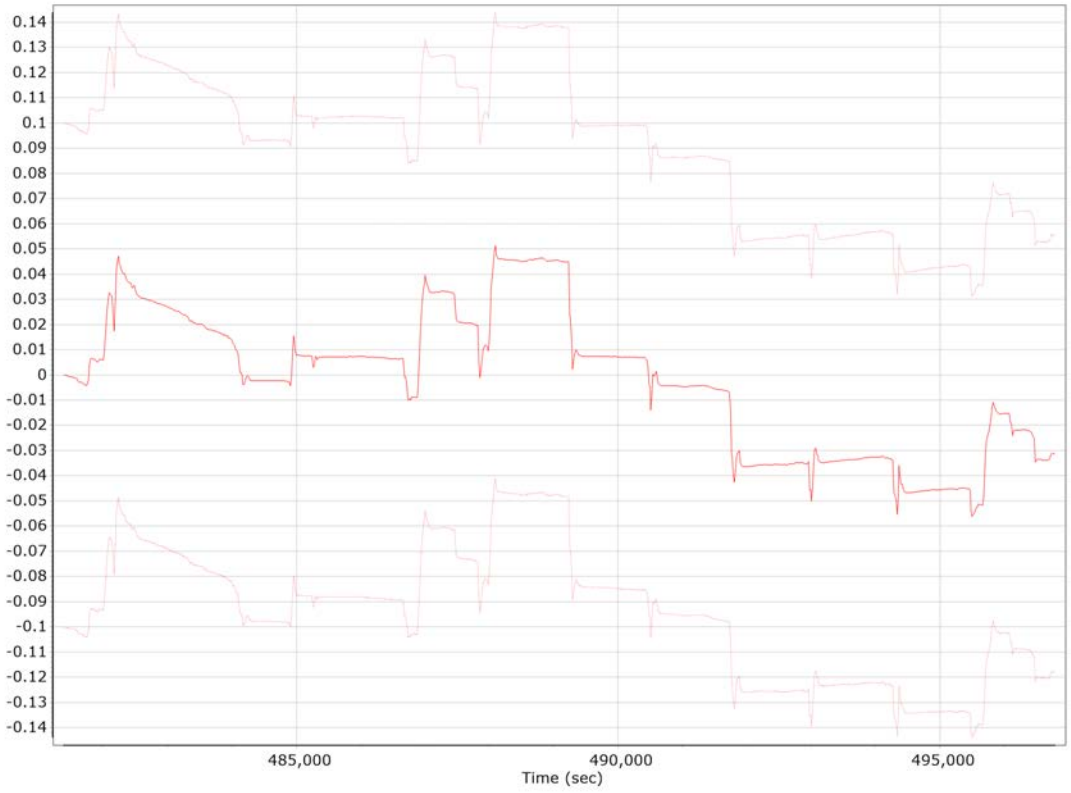
X Gyro Bias (deg/h)



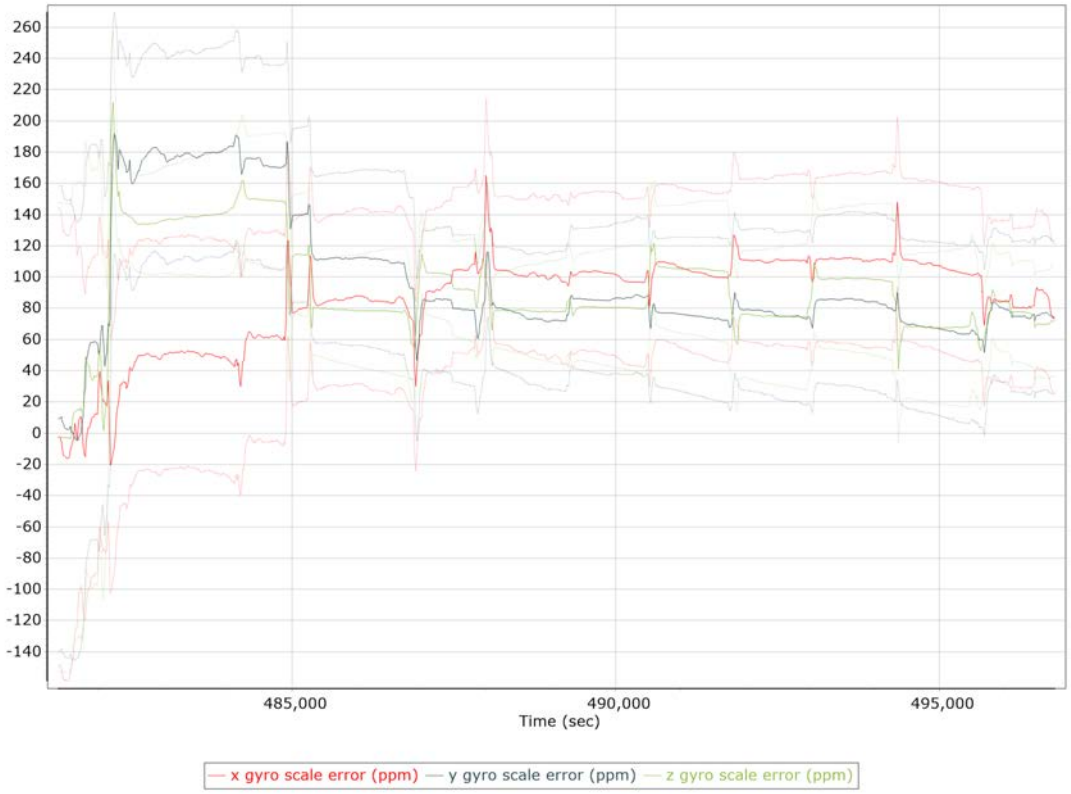
Y Gyro Bias (deg/h)



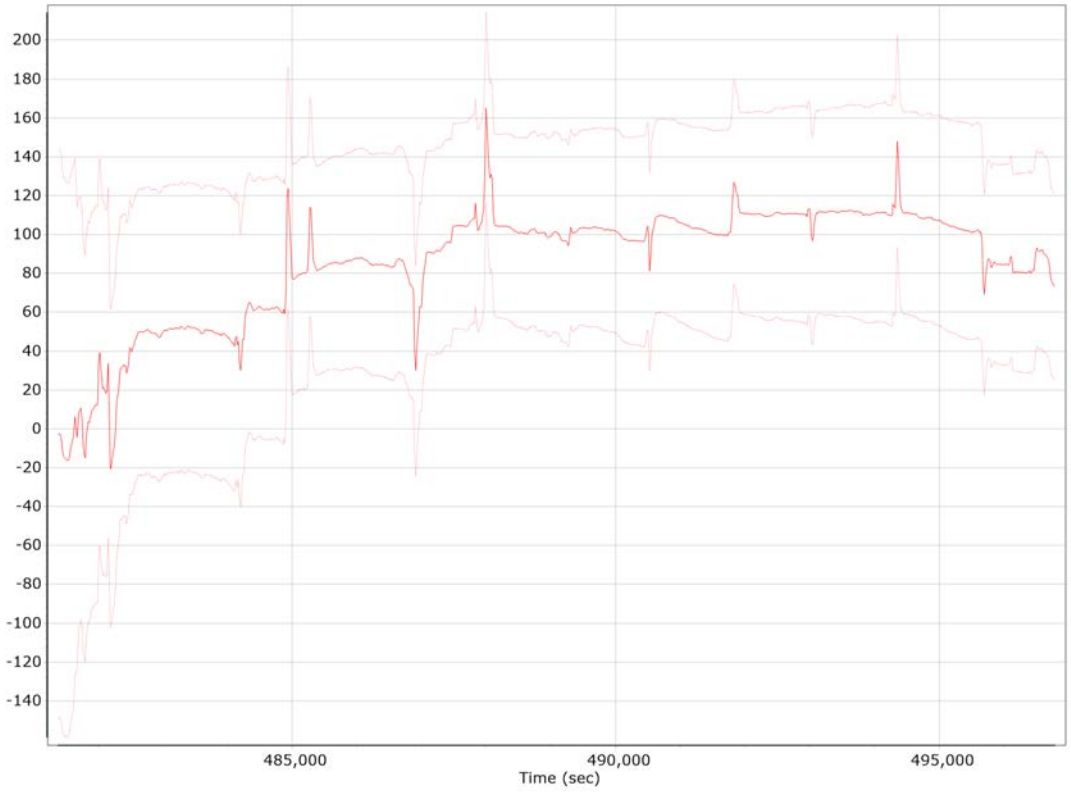
Z Gyro Bias (deg/h)



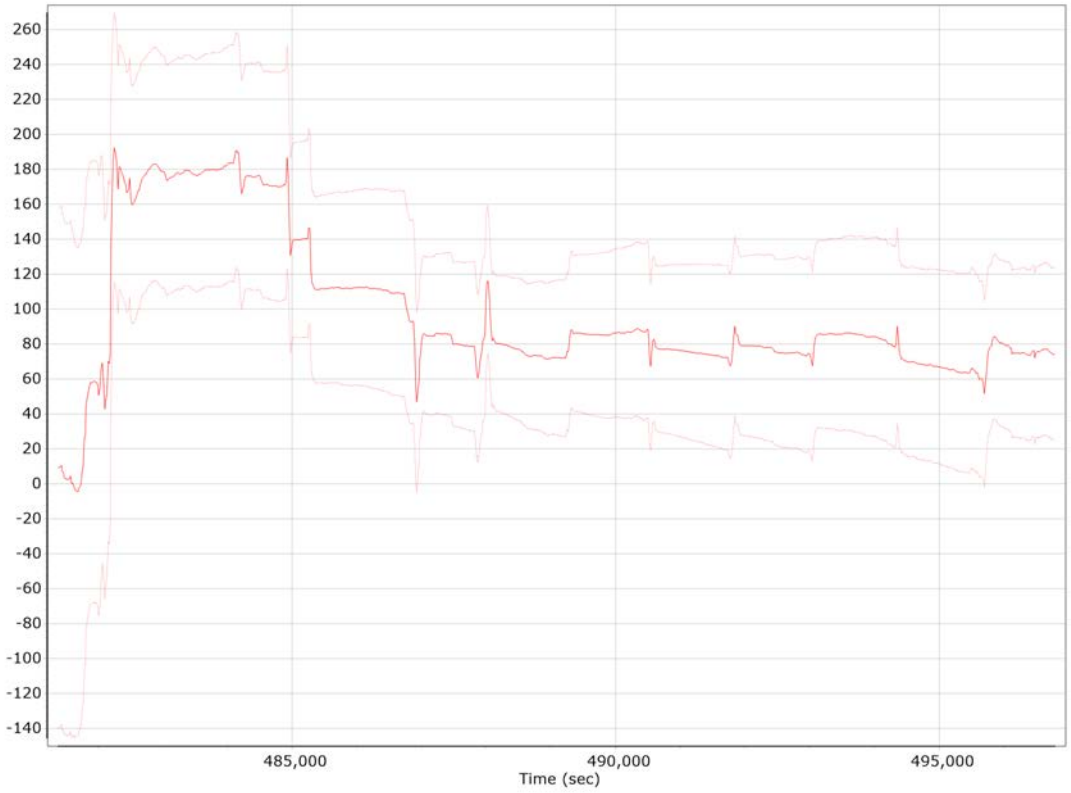
Gyro Scale Error (ppm)



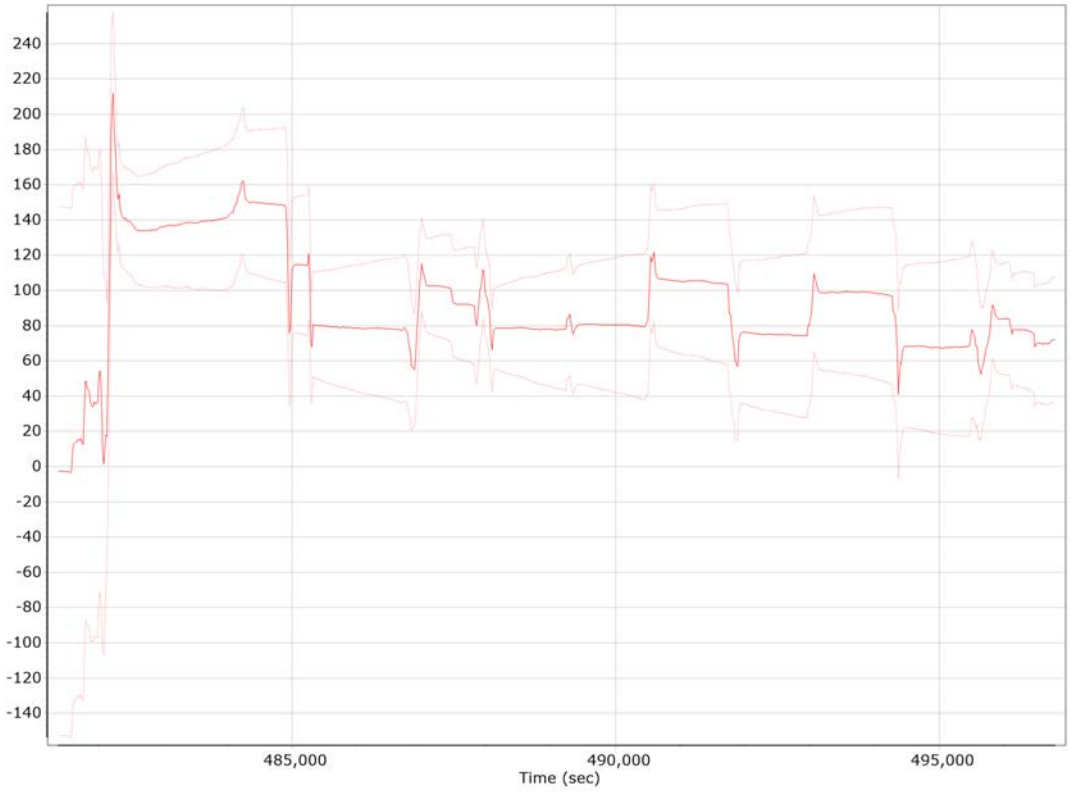
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)



Z Gyro Scale Error (ppm)



Smoothed Performance Metrics

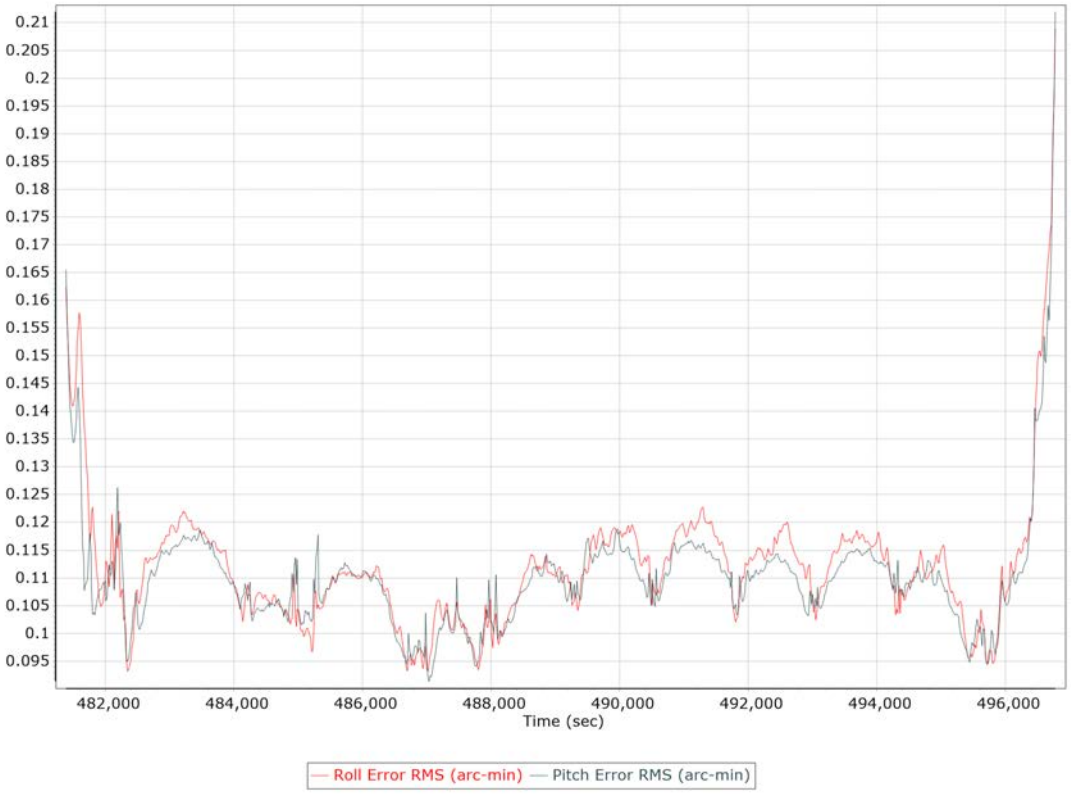
Position Error RMS (m)



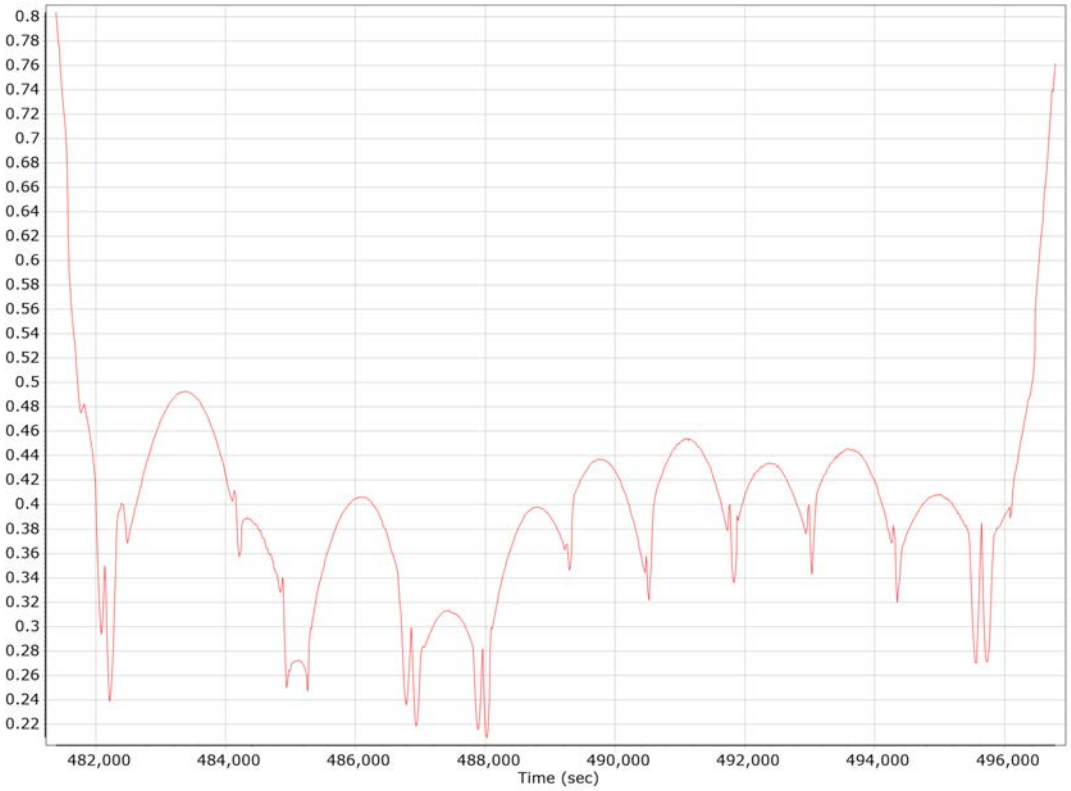
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)



Heading Error RMS (arc-min)

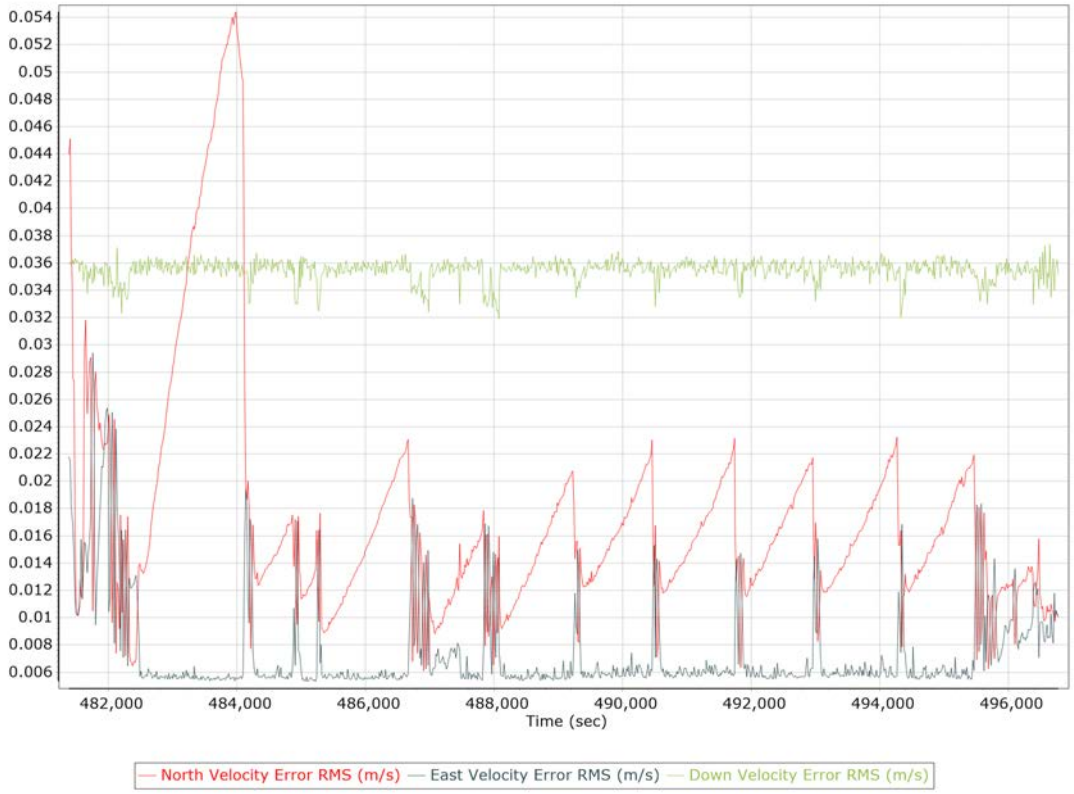


Forward Processed Performance Metrics

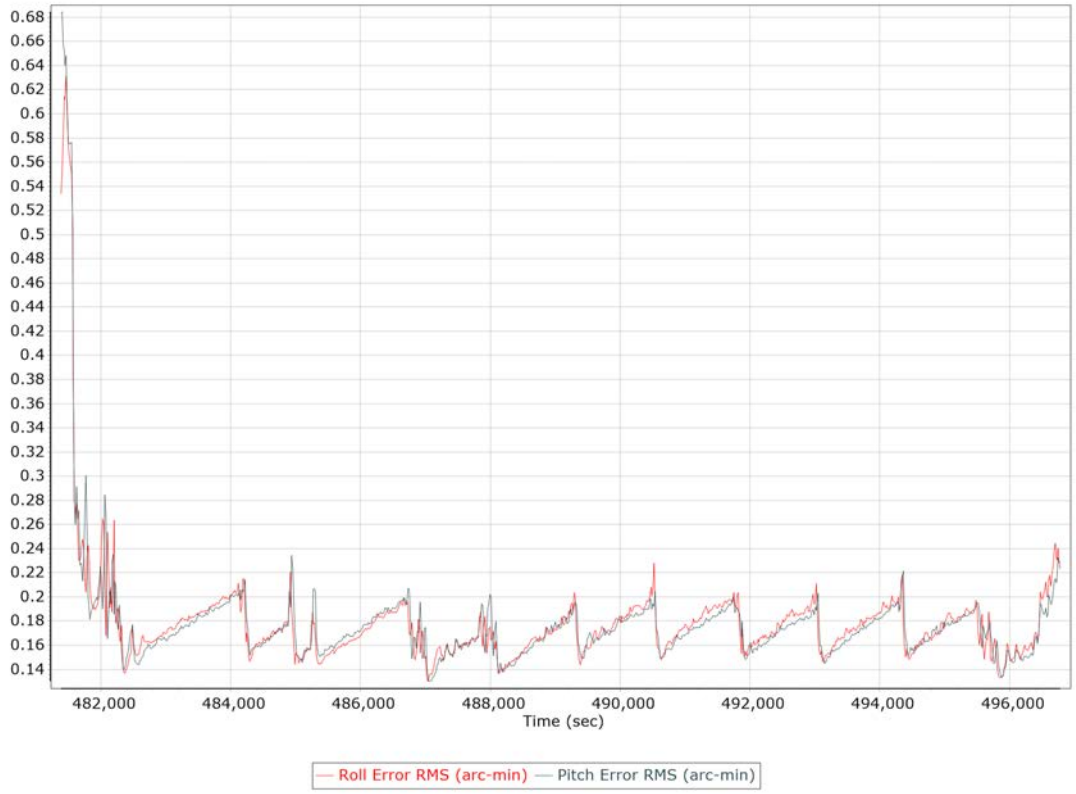
Position Error RMS (m)



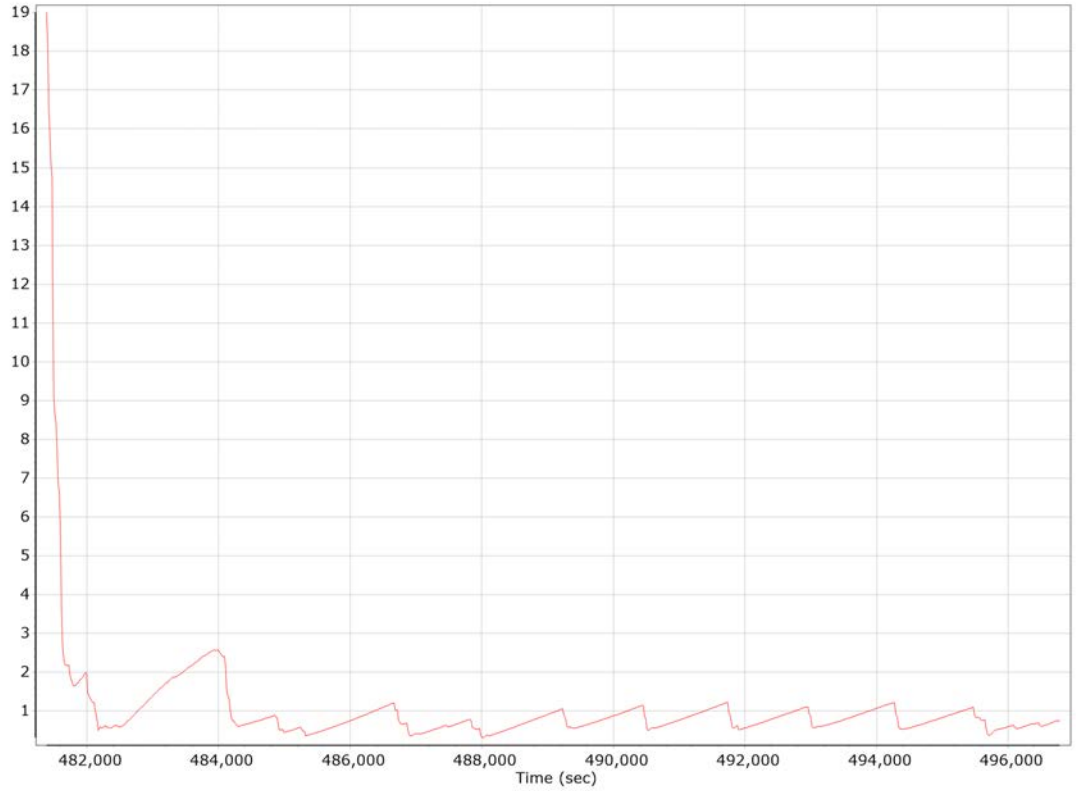
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

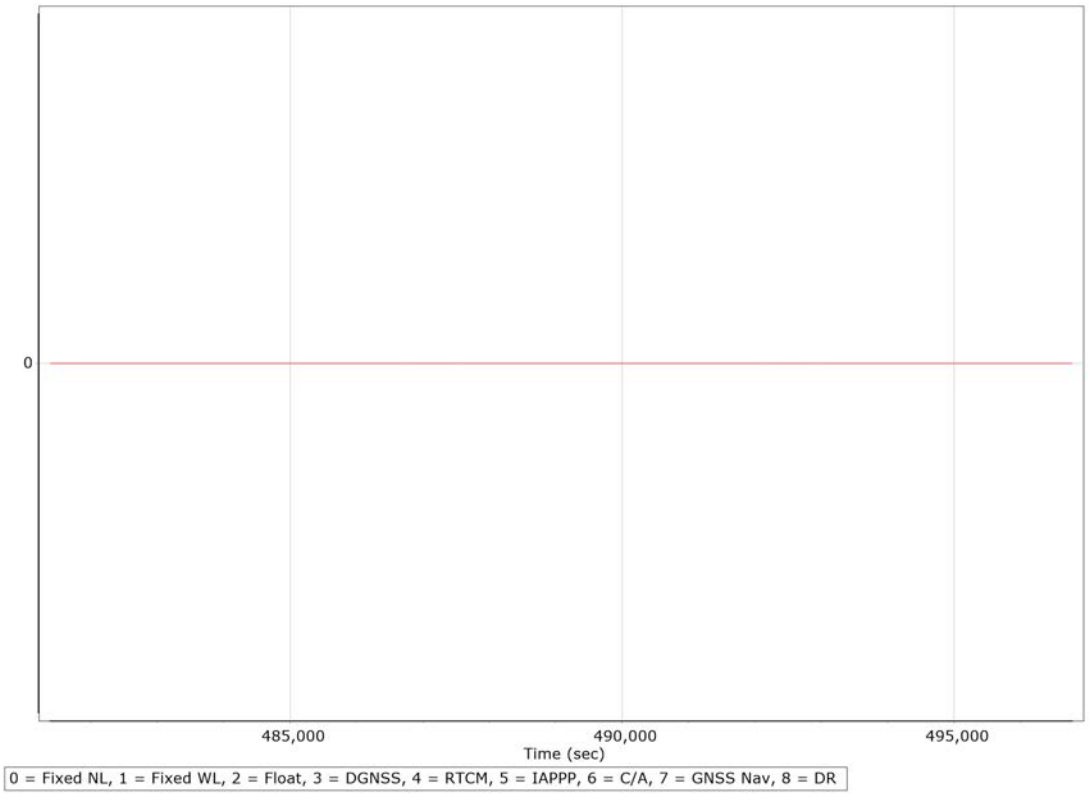


Heading Error RMS (arc-min)

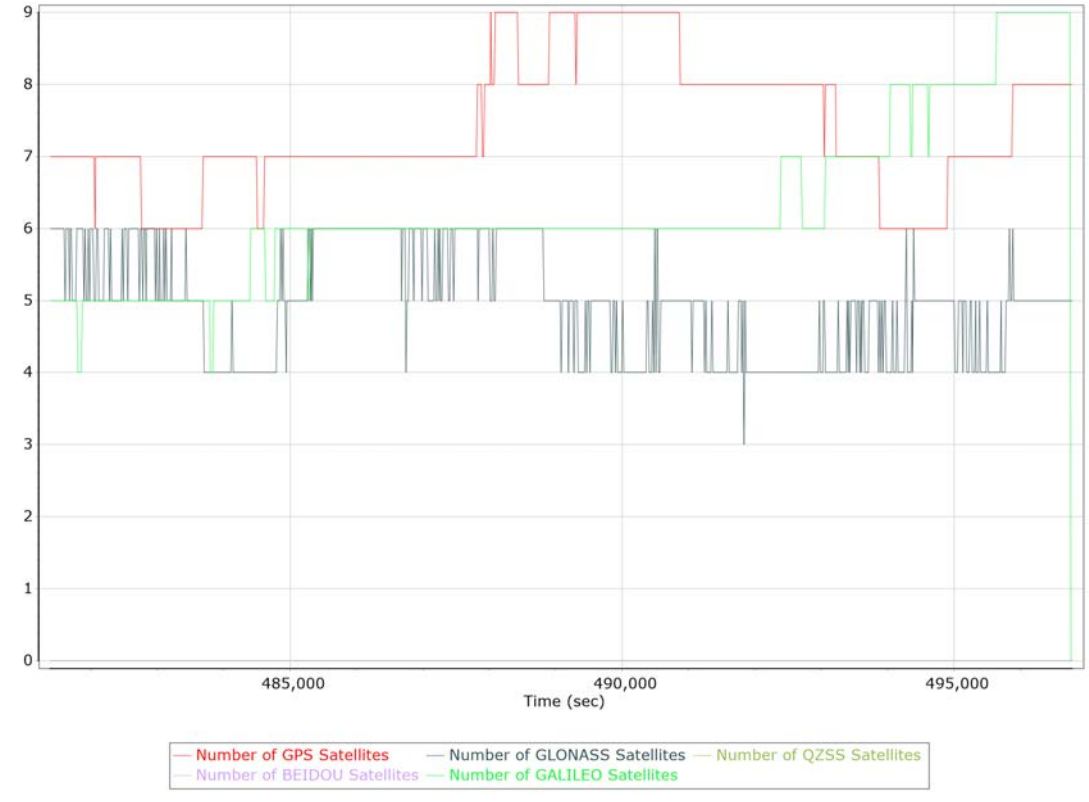


Forward Processed Solution Status

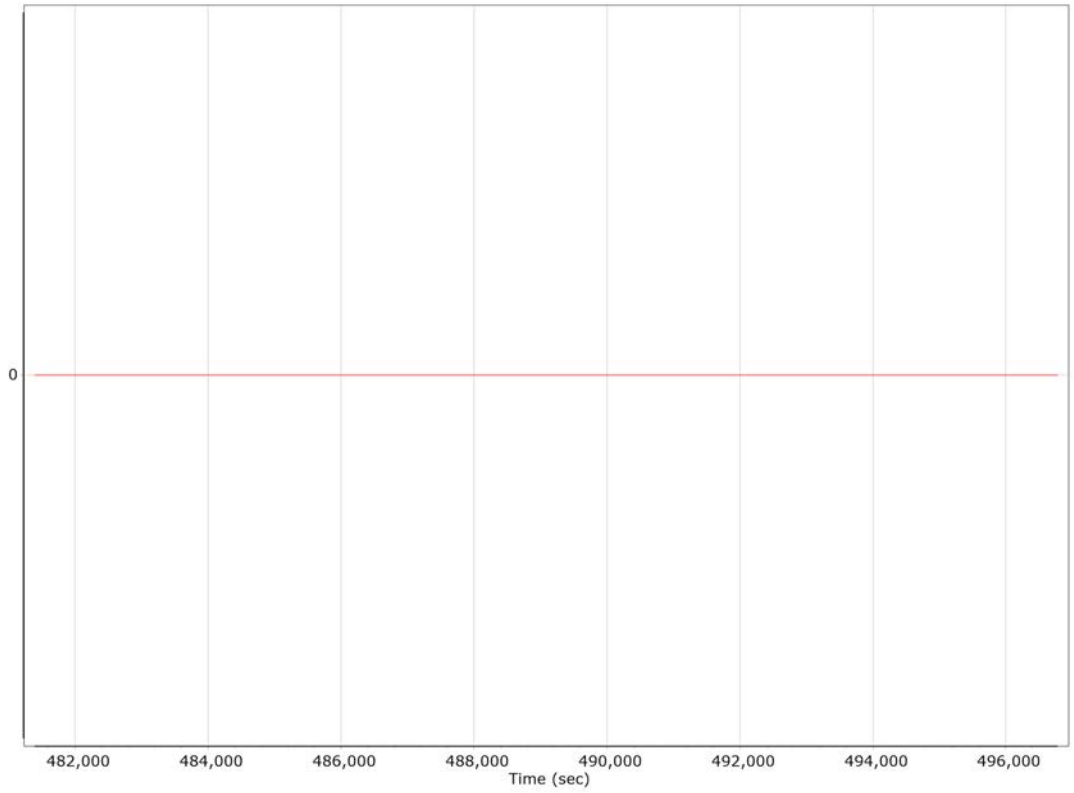
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07092023A_3062
Processing date	2023-07-11 19:51:15
Mission date	2023-07-09 13:24:26
Mission duration	05:59:35.150
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N8708
IMU type	57
Receiver type	BD982
Antenna type	AV39

Project File List

Rover Data Files

File name	File type
230709_132406_INS-GPS_1.raw	POS Data

Input Files

File Name	File Type
Ephm1900.23g	GLONASS Broadcast Ephemeris
Ephm1900.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07092023A_3062.out	SBET Trajectory File

Rover Data Summary

First raw data file	230709_132406_INS-GPS_1.raw		
Last raw data file	230709_132406_INS-GPS_1.raw		
Start GPS week	2270		
Start time	48247.816 (7/9/2023 1:24:07 PM)		
End time	69822.966 (7/9/2023 7:23:42 PM)		
Start of fine alignment	48385.858 (7/9/2023 1:26:25 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	Event 1 Input, Event 2 Input, Event 4 Input, Event 5 Input, Event 6 Input		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
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)	0.157	-0.227	-1.289
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

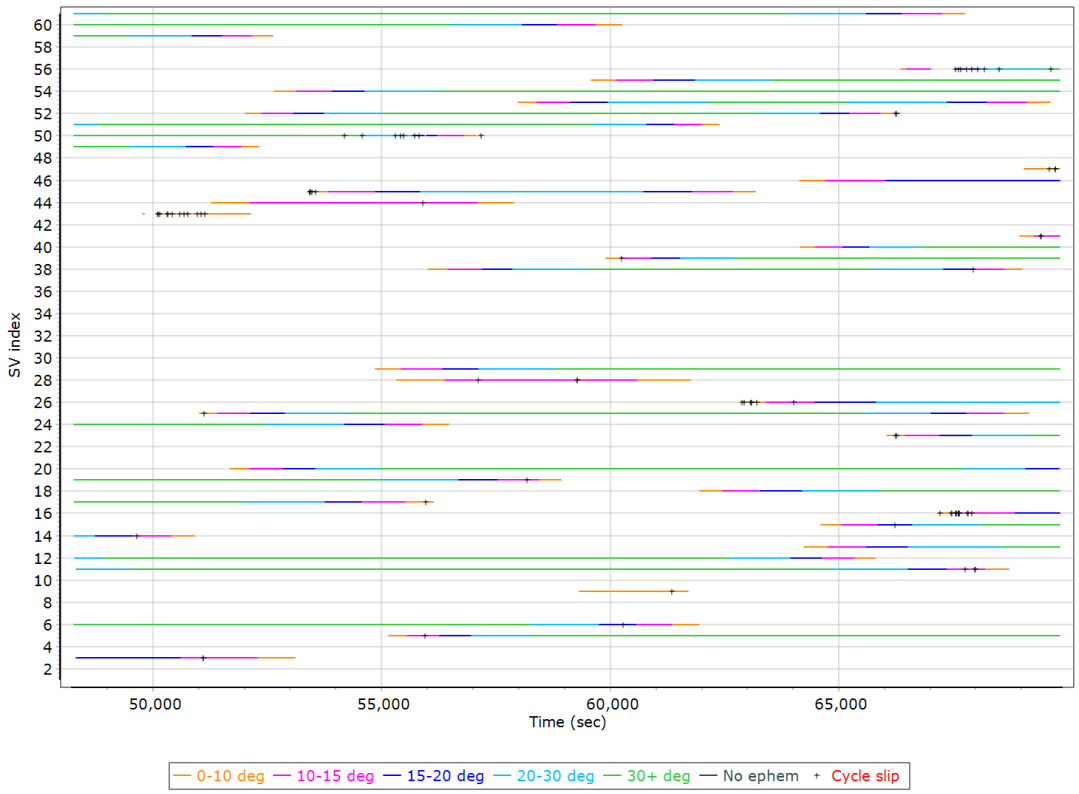
Rover Data QC

Raw IMU Import QC Summary

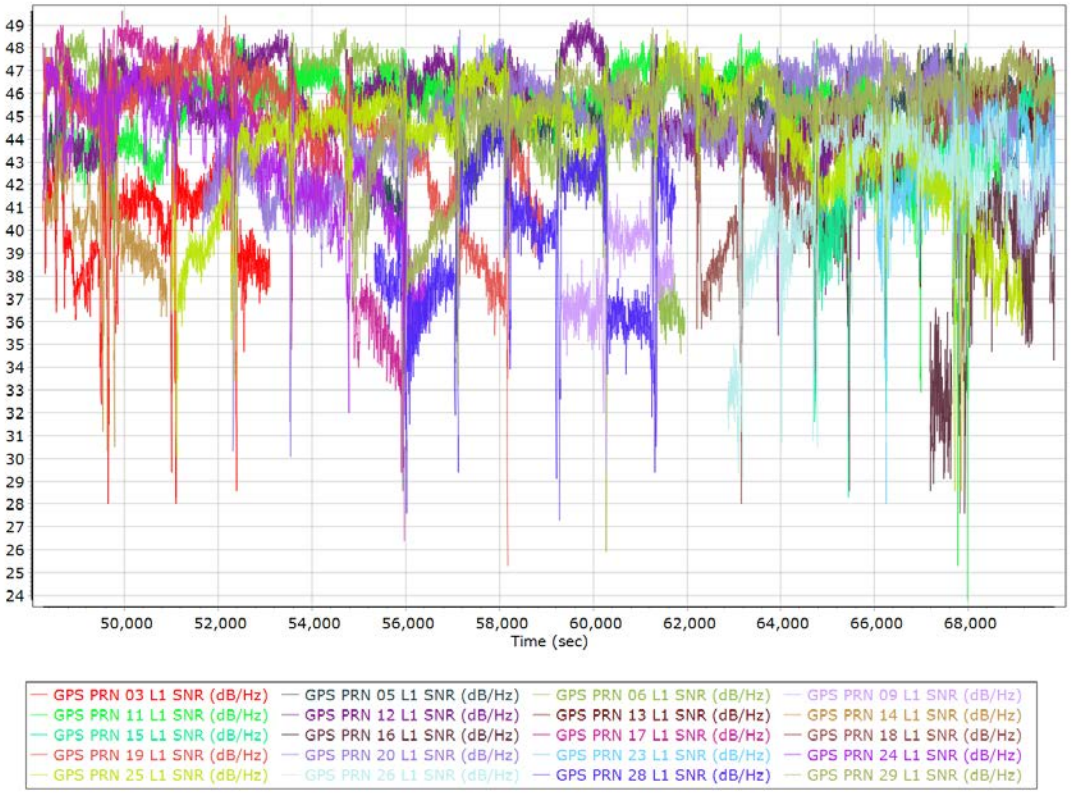
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07092023A_3062.log
IMU Records Processed	4314023
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

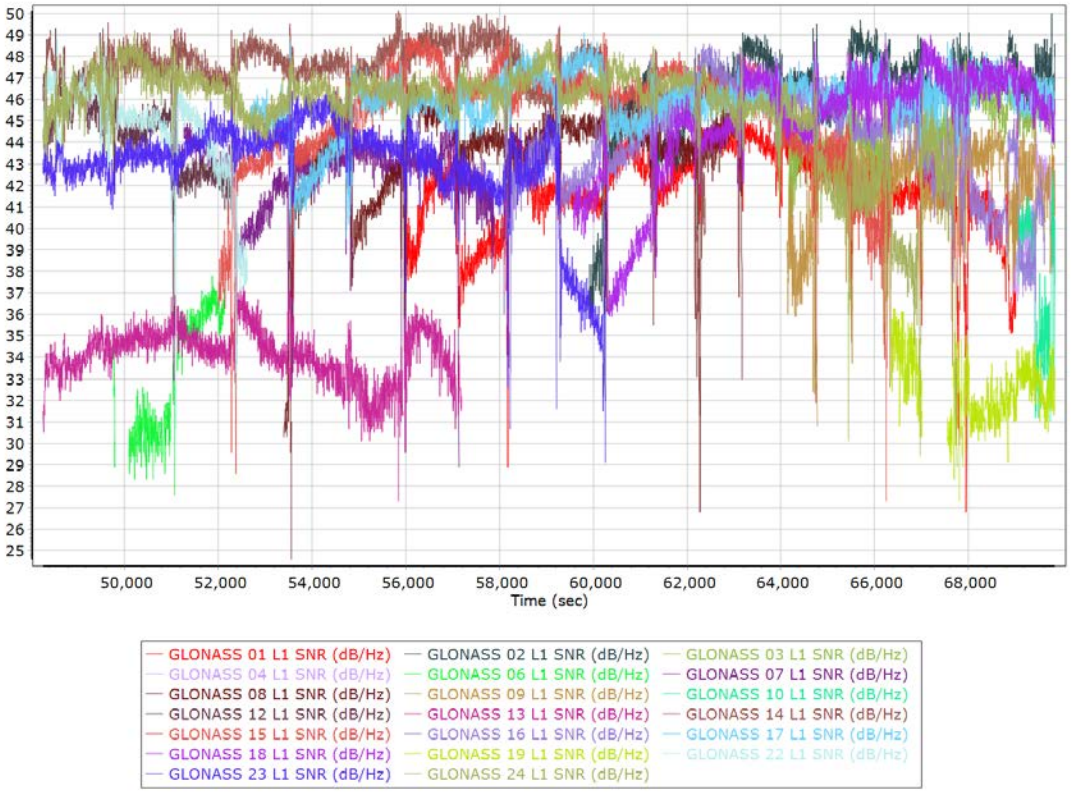
GPS/GLONASS L1 Satellite Lock/Elevation



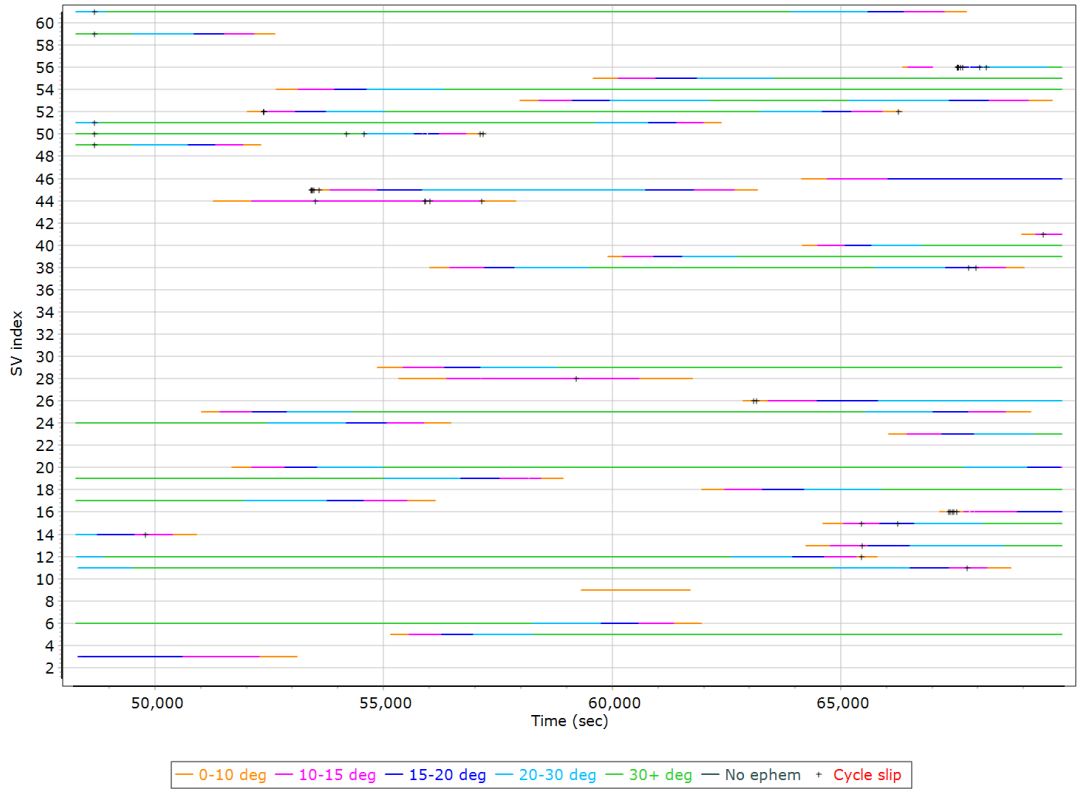
GPS L1 SNR



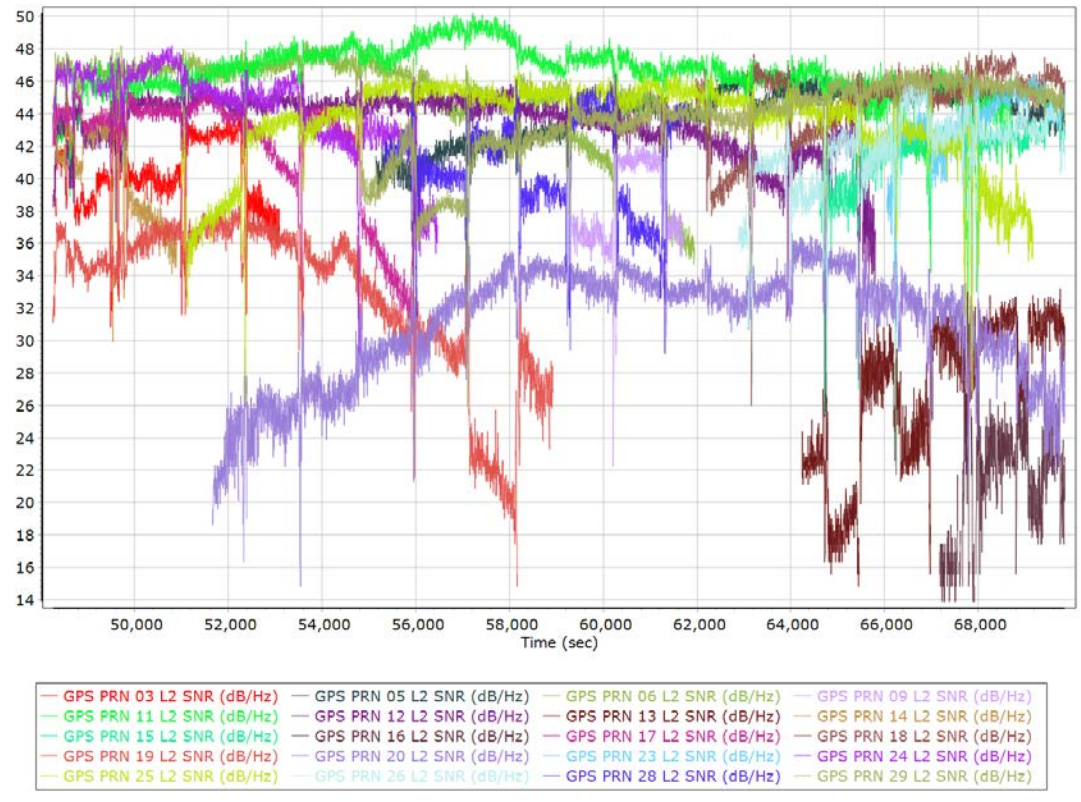
GLONASS L1 SNR



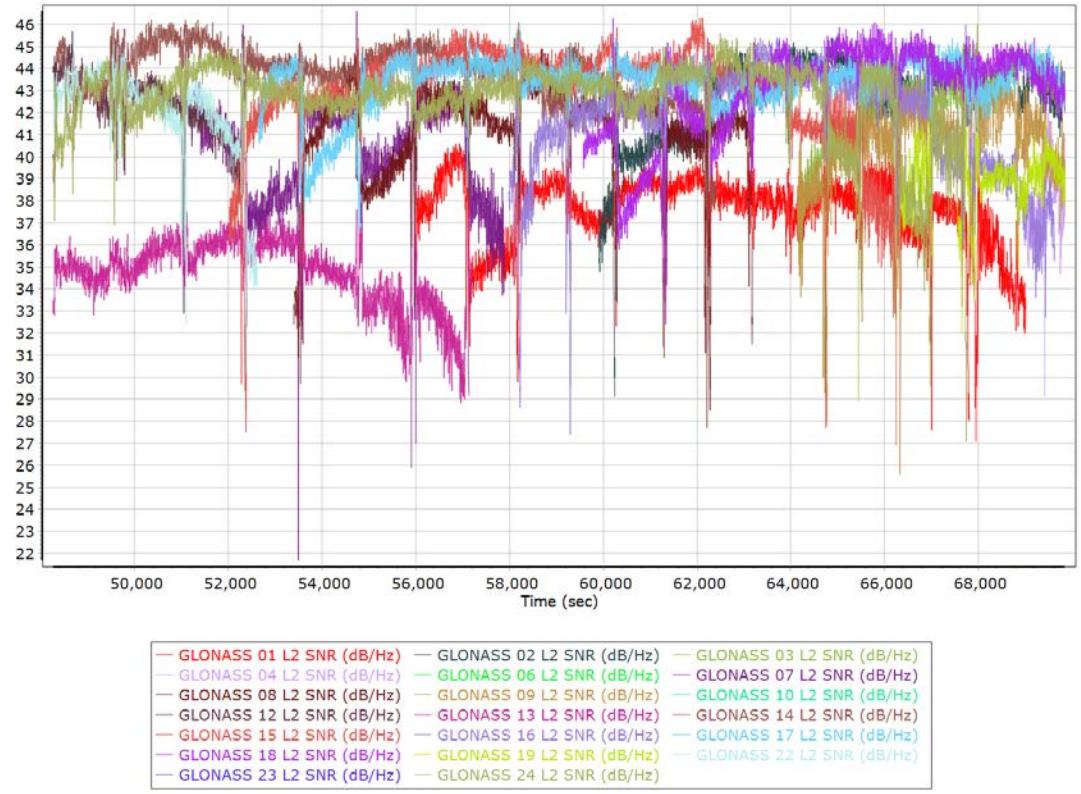
GPS/GLONASS L2 Satellite Lock/Elevation



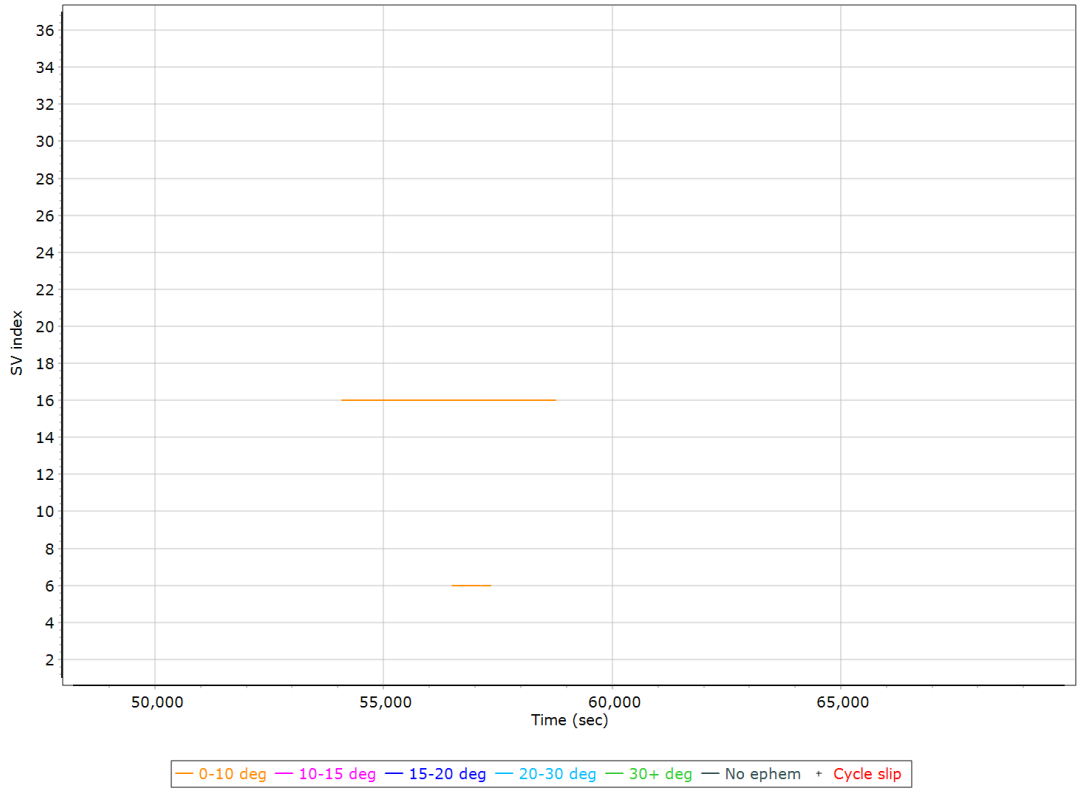
GPS L2 SNR



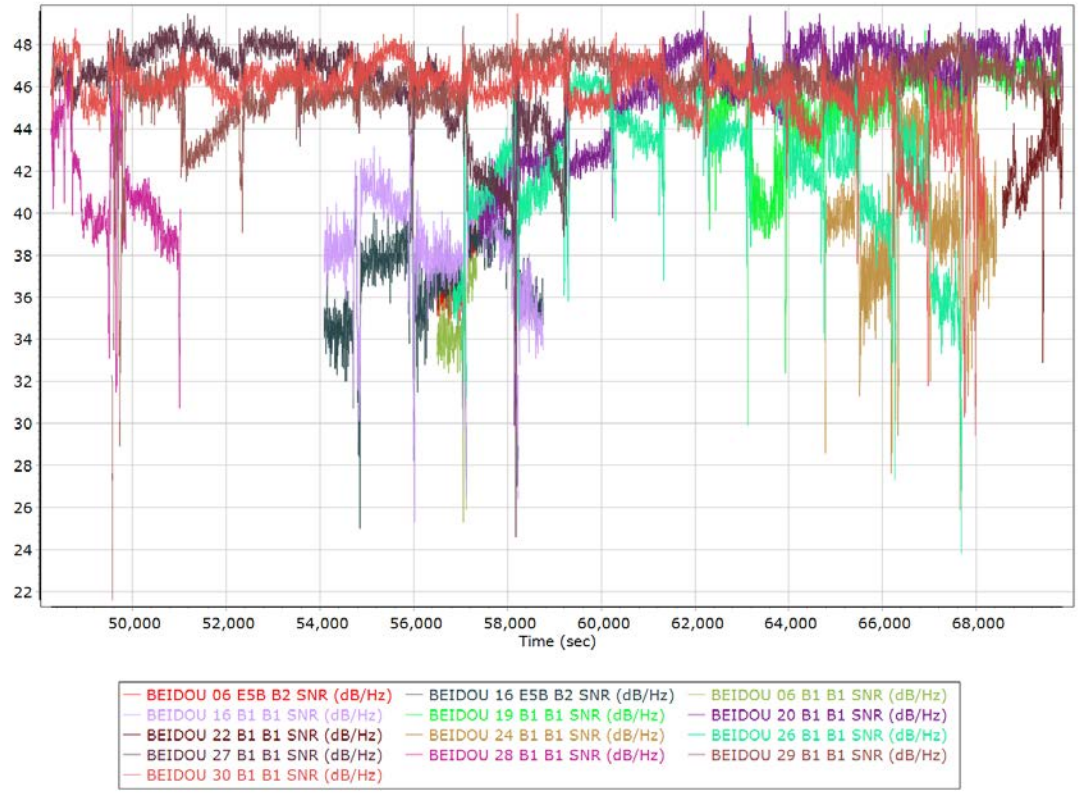
GLONASS L2 SNR



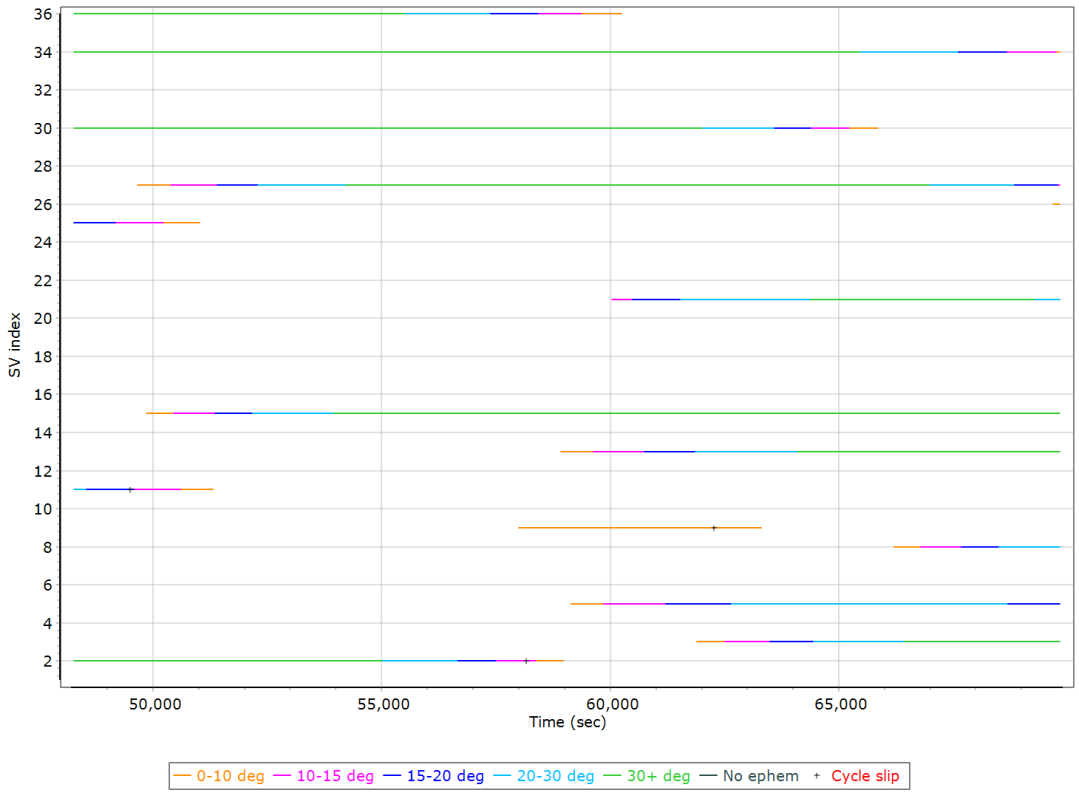
BEIDOU Satellite Lock/Elevation



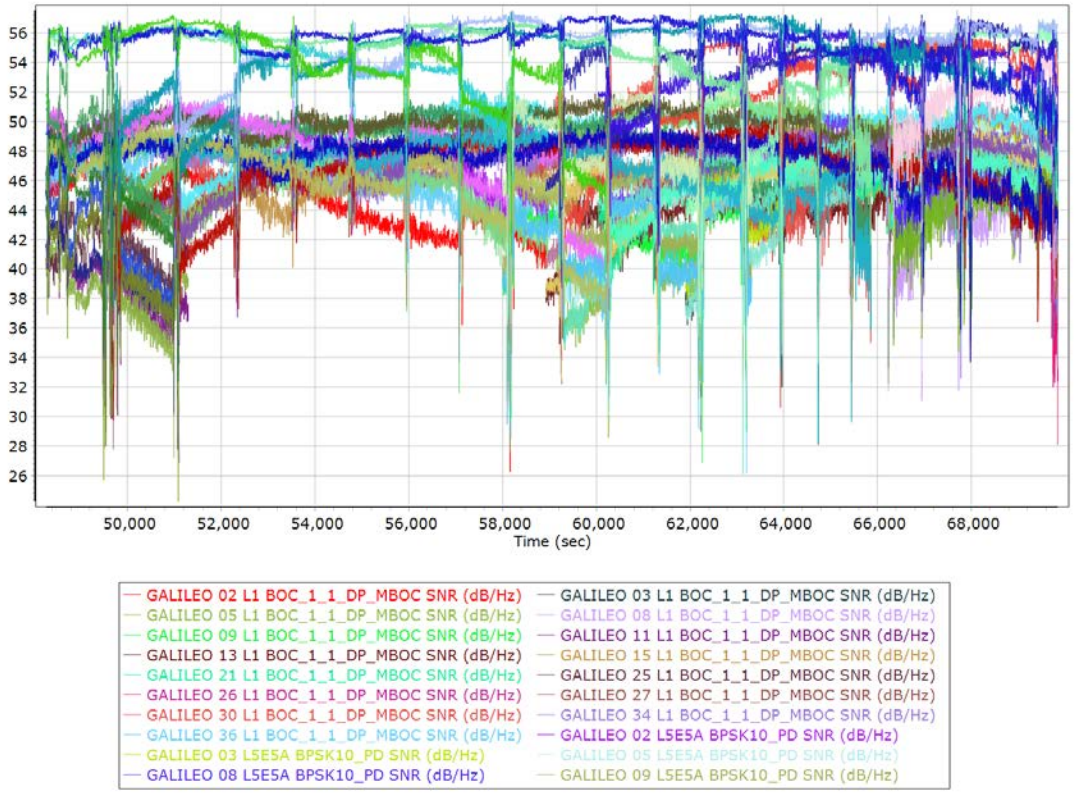
BEIDOU SNR



GALILEO Satellite Lock/Elevation

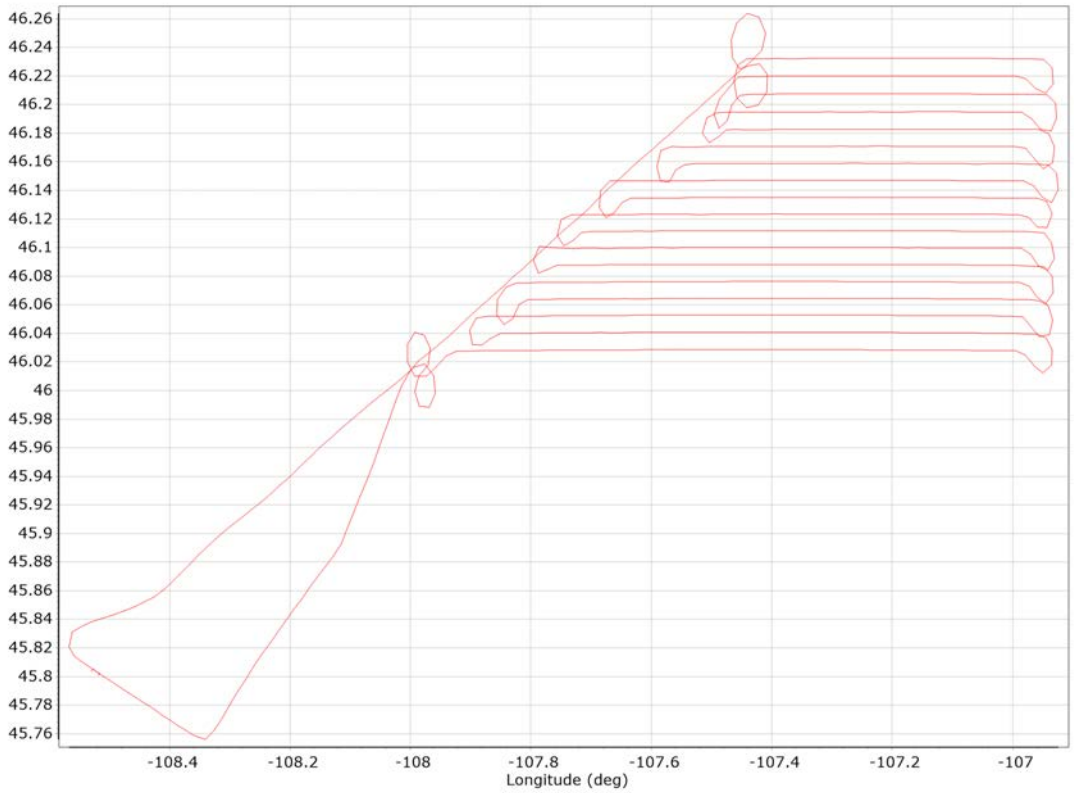


GALILEO SNR


56
54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
50,000
52,000
54,000
56,000
58,000
60,000
62,000
64,000
66,000
68,000
Time (sec)
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 08 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 09 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 11 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 21 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 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)
GALILEO 30 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 34 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 03 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 05 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 08 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

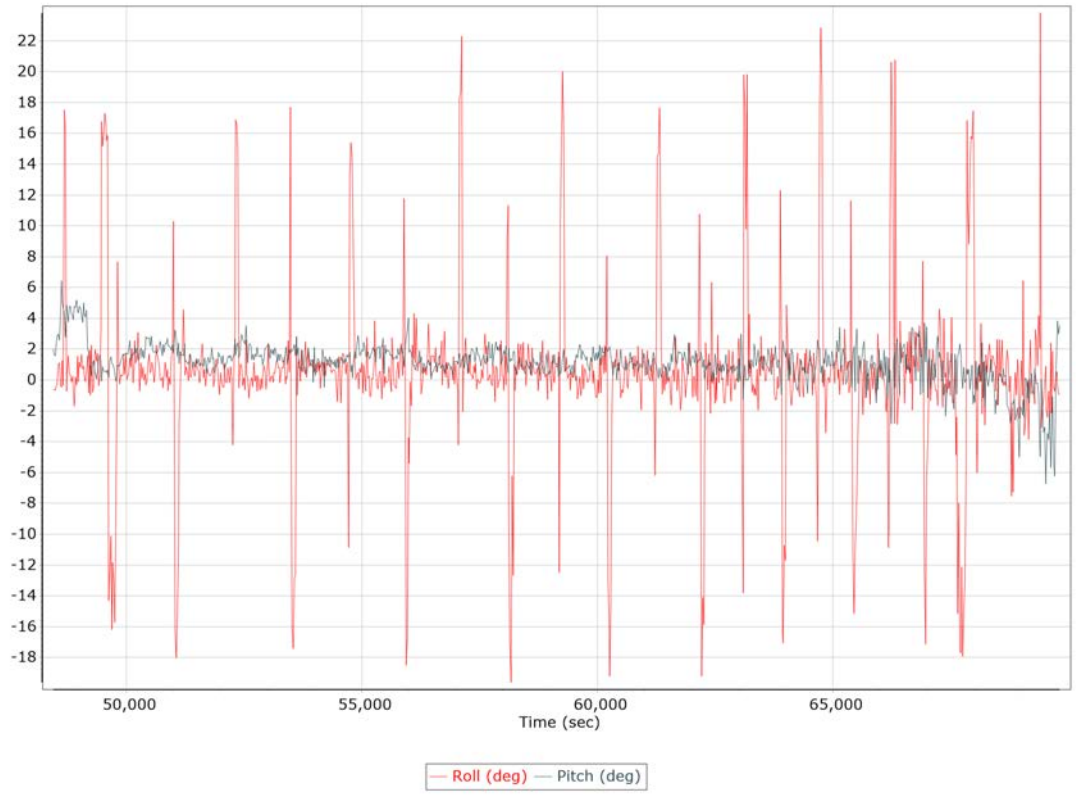
Top View



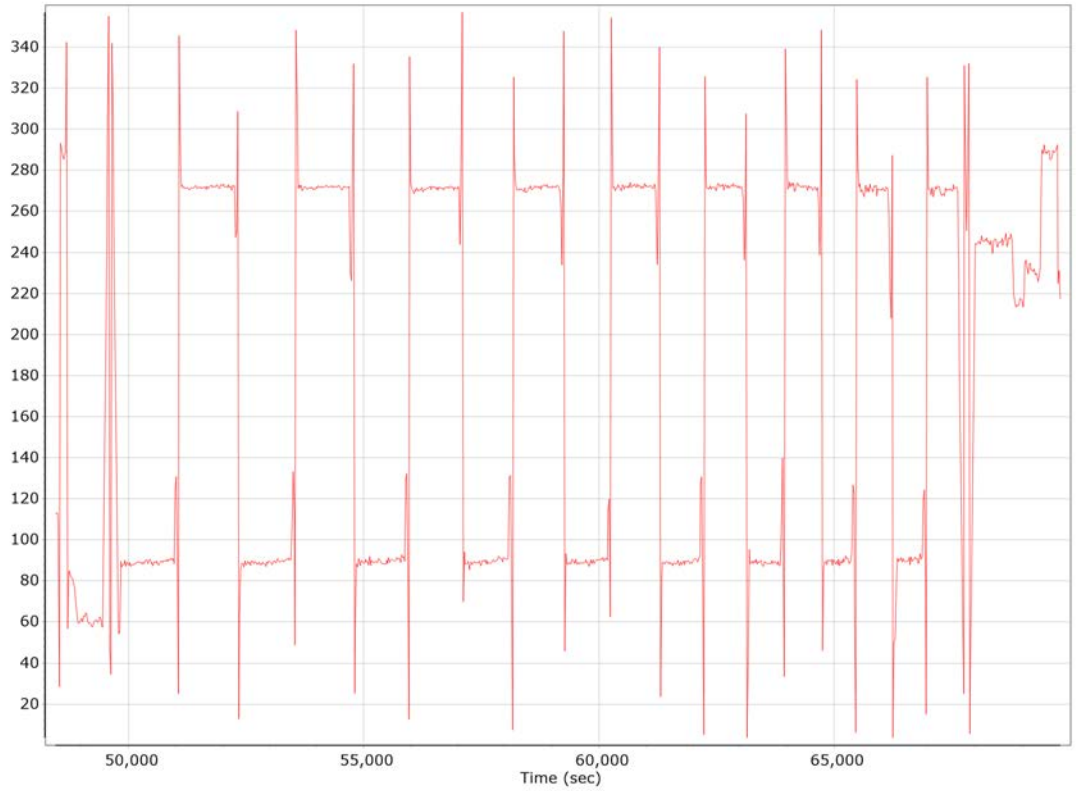
Altitude



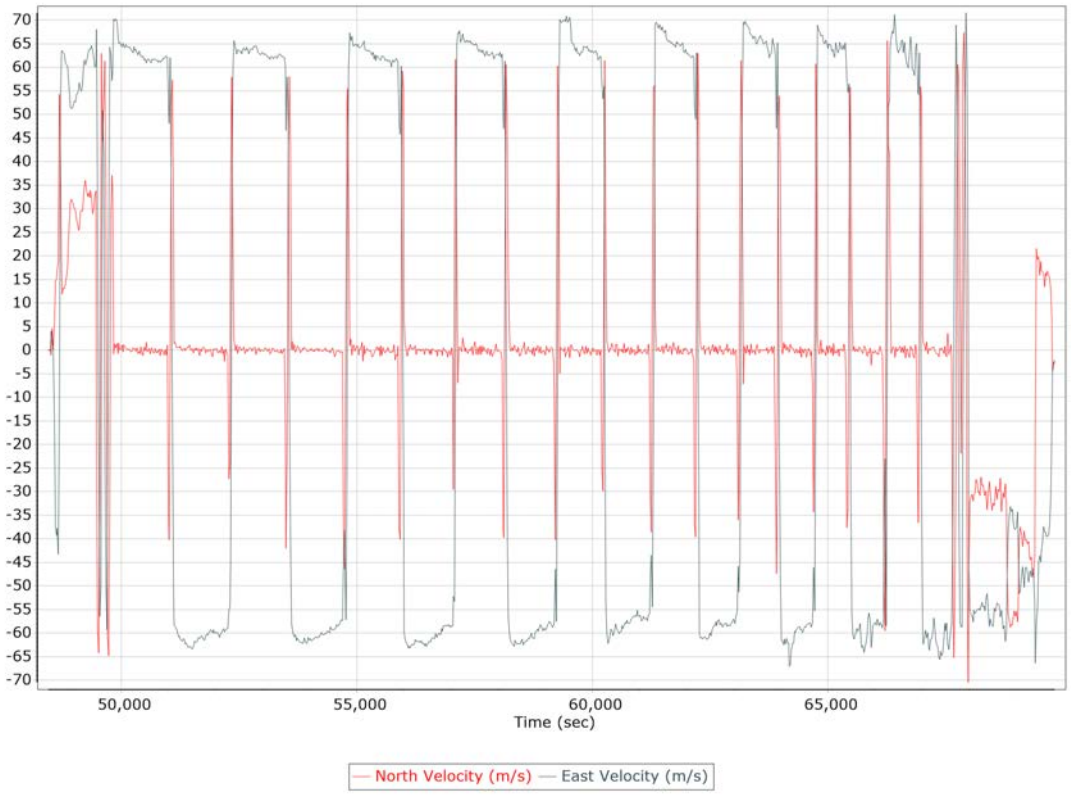
Roll/Pitch



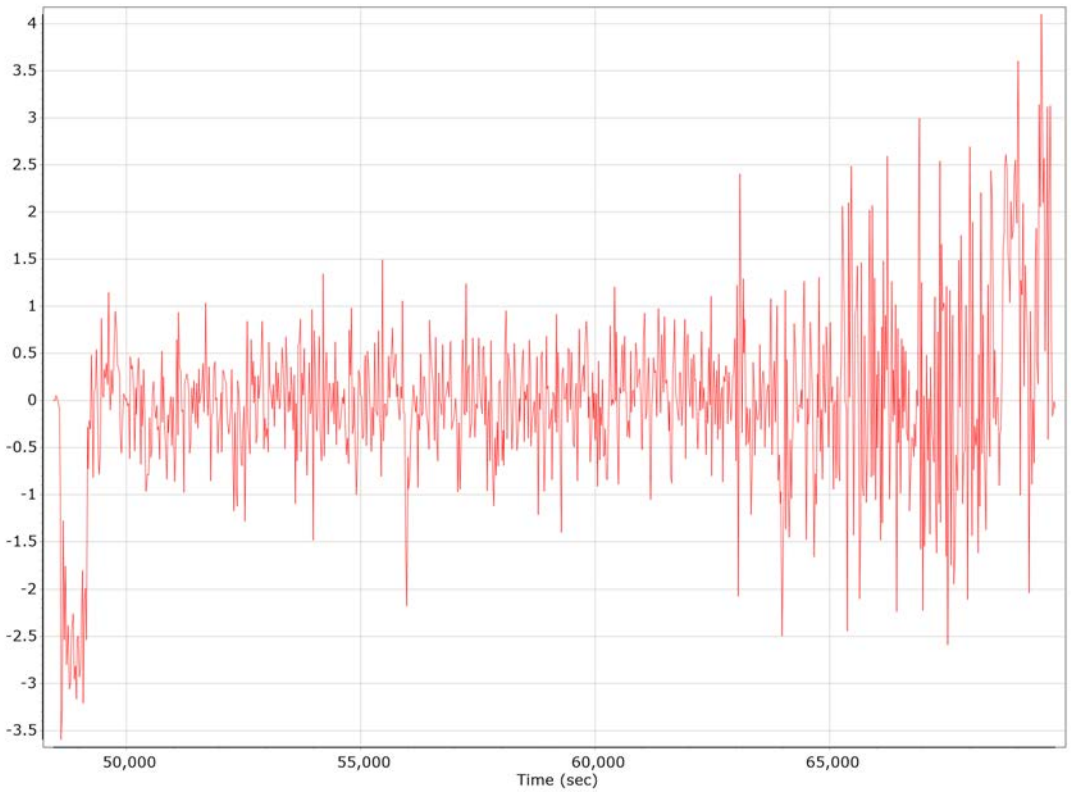
Heading



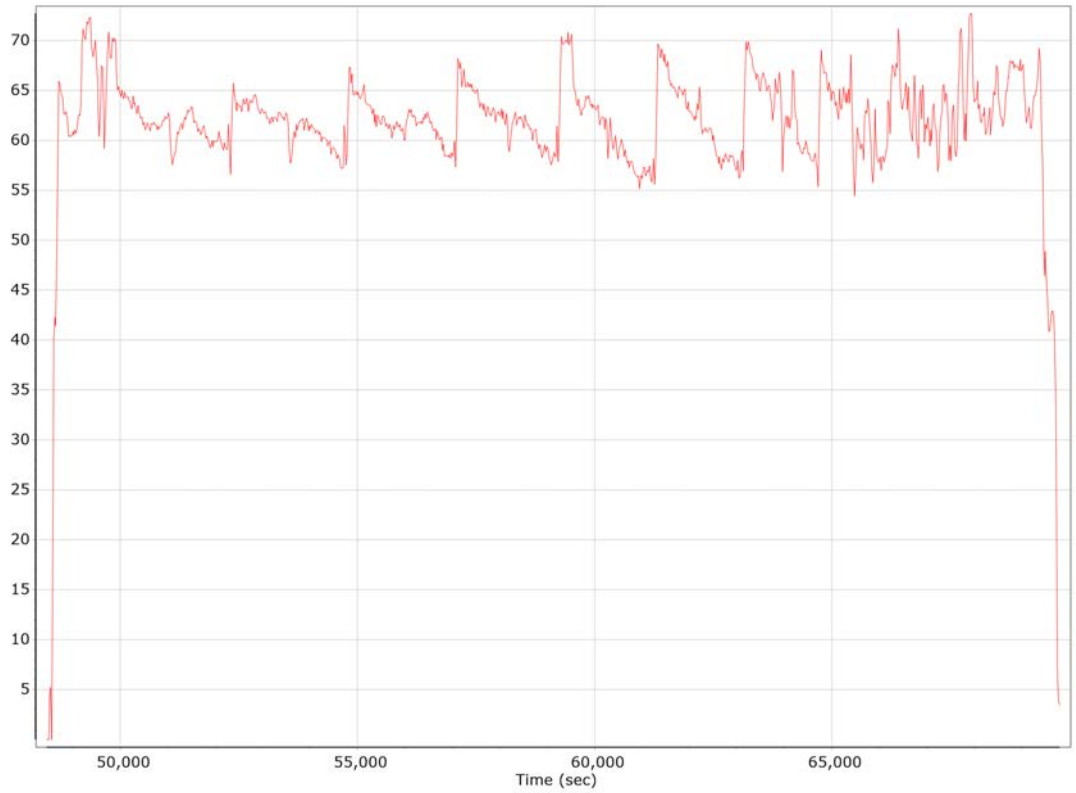
North/East Velocity



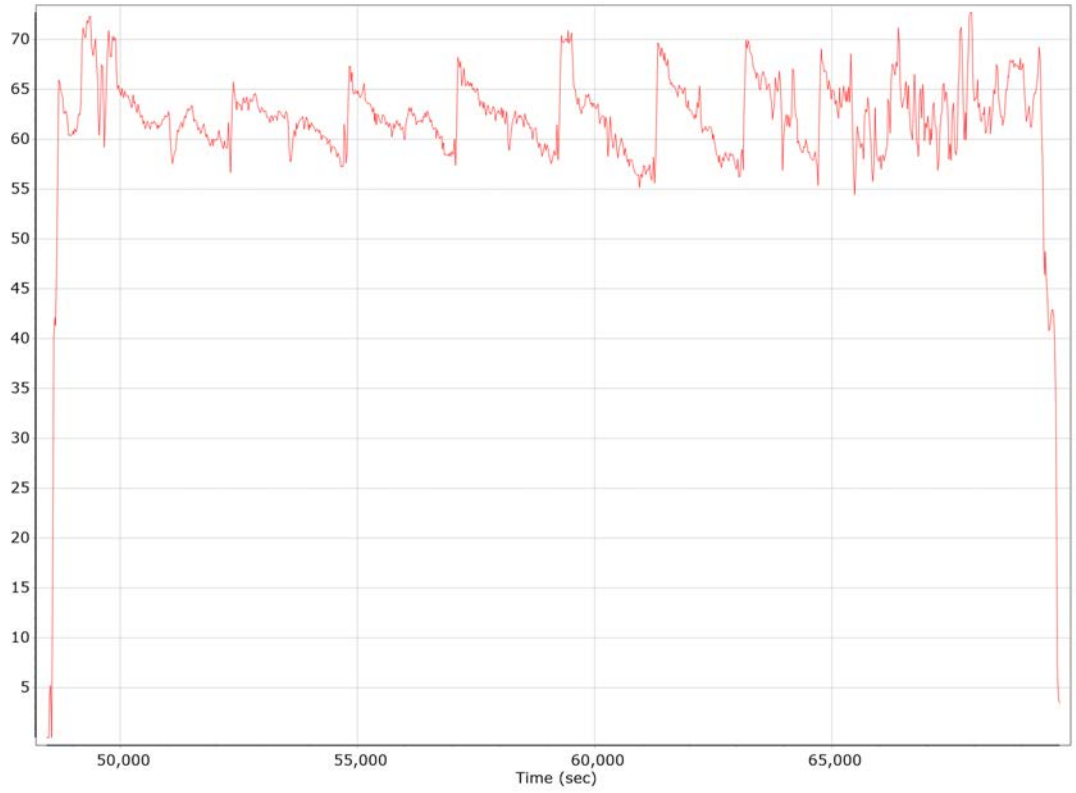
Down Velocity



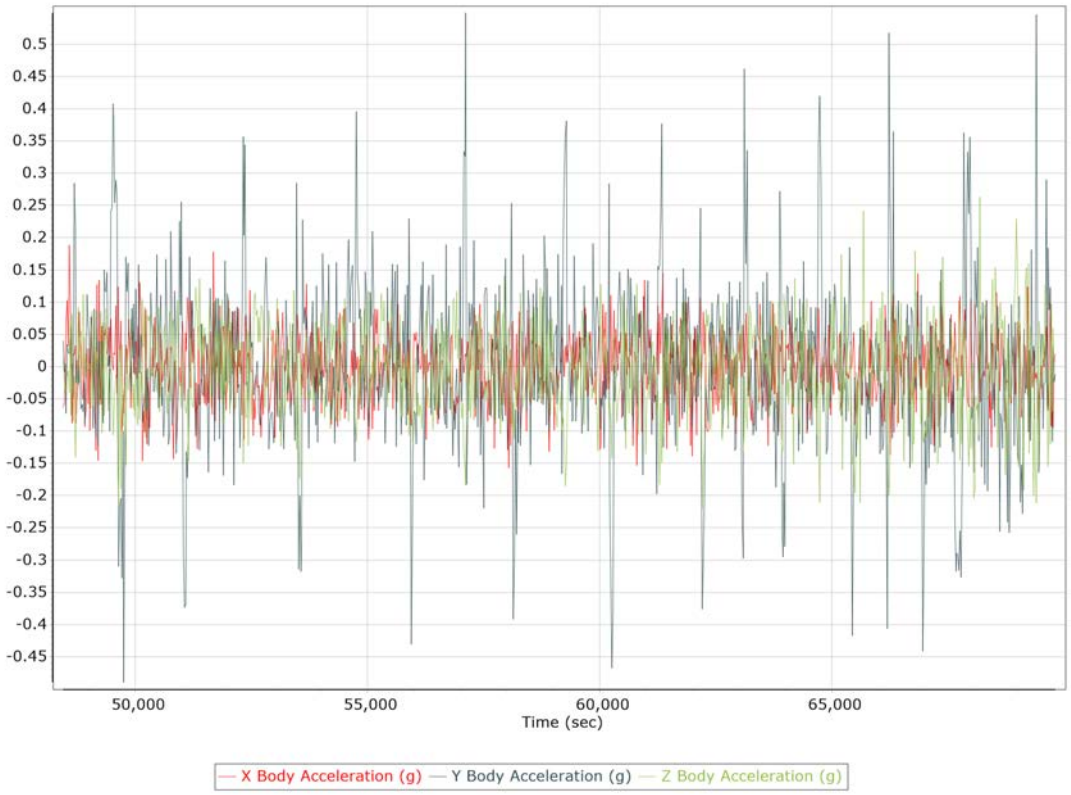
Total Speed



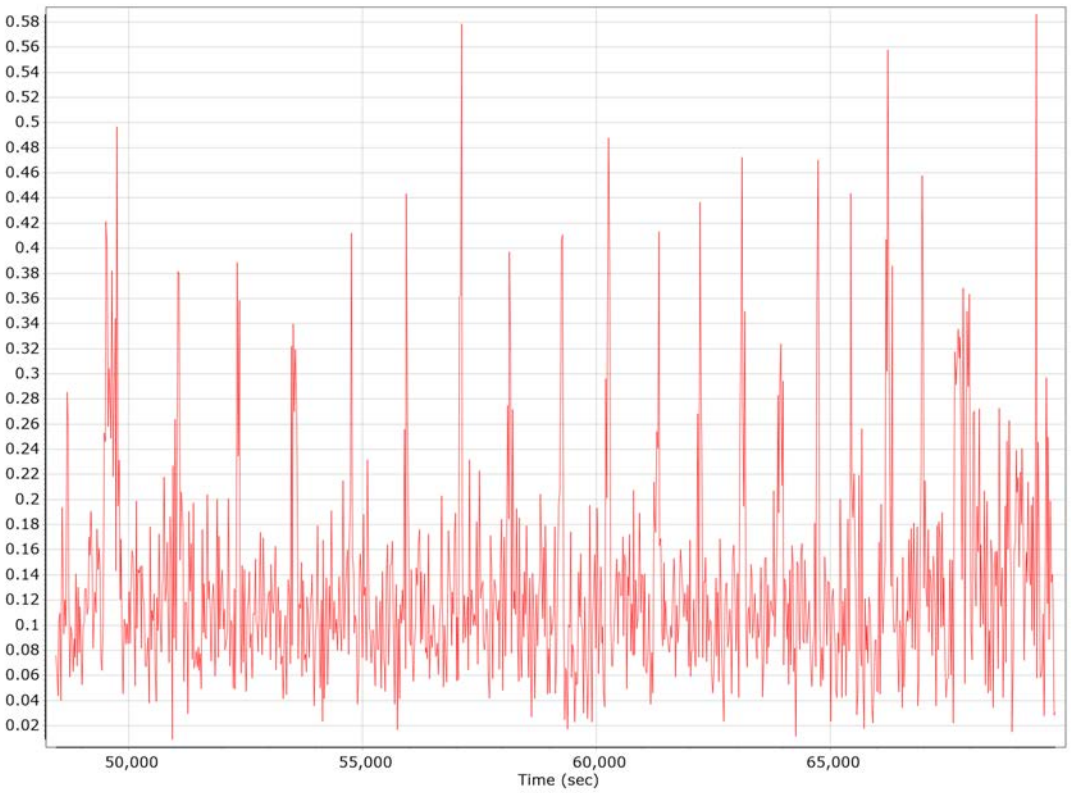
Ground Speed



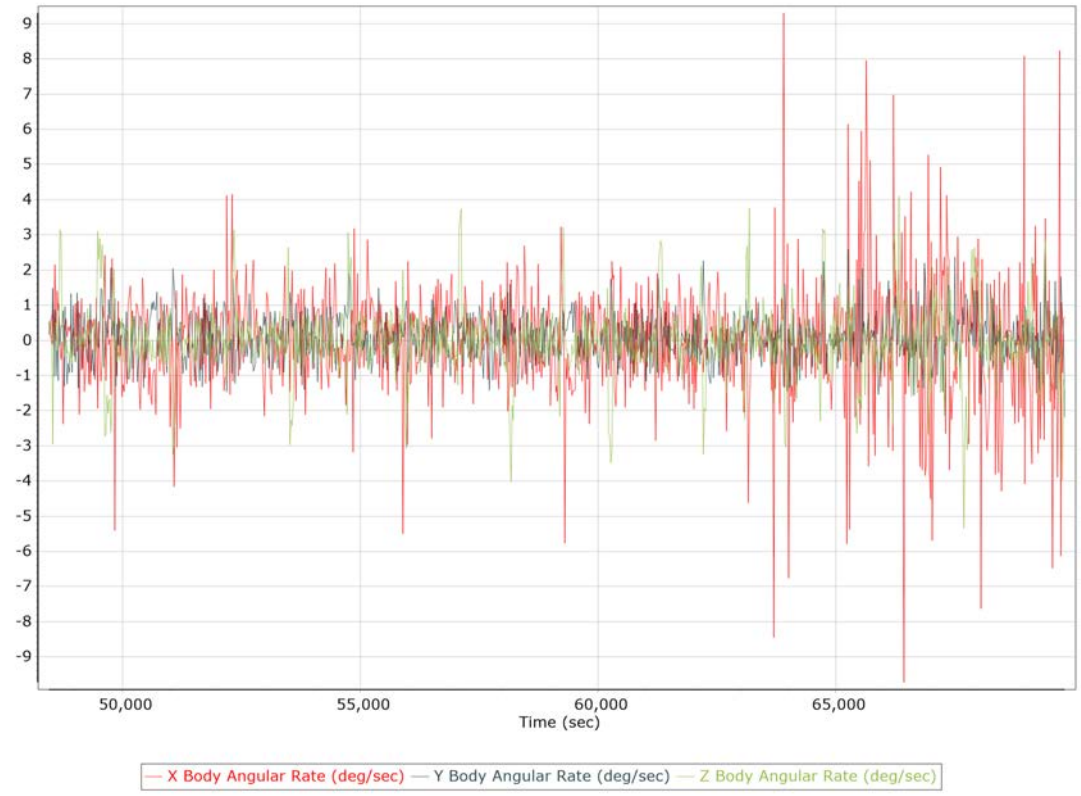
Body Acceleration



Total Body Acceleration

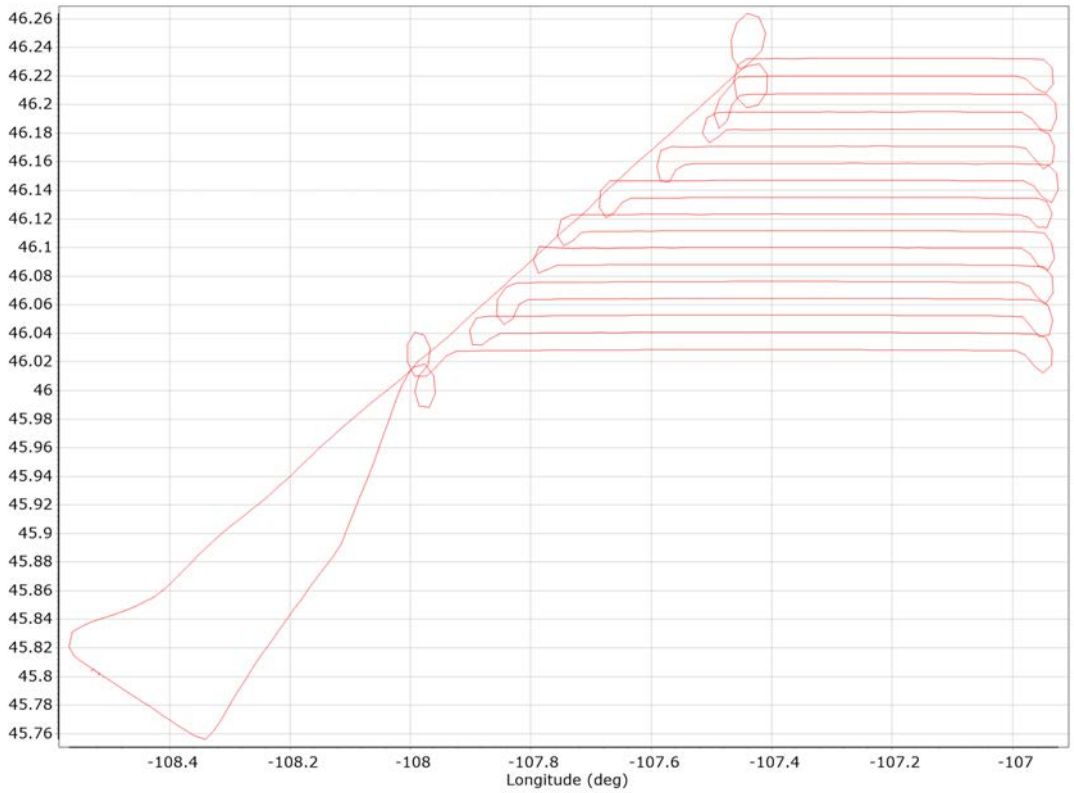


Body Angular Rate



Forward Processed Trajectory Information

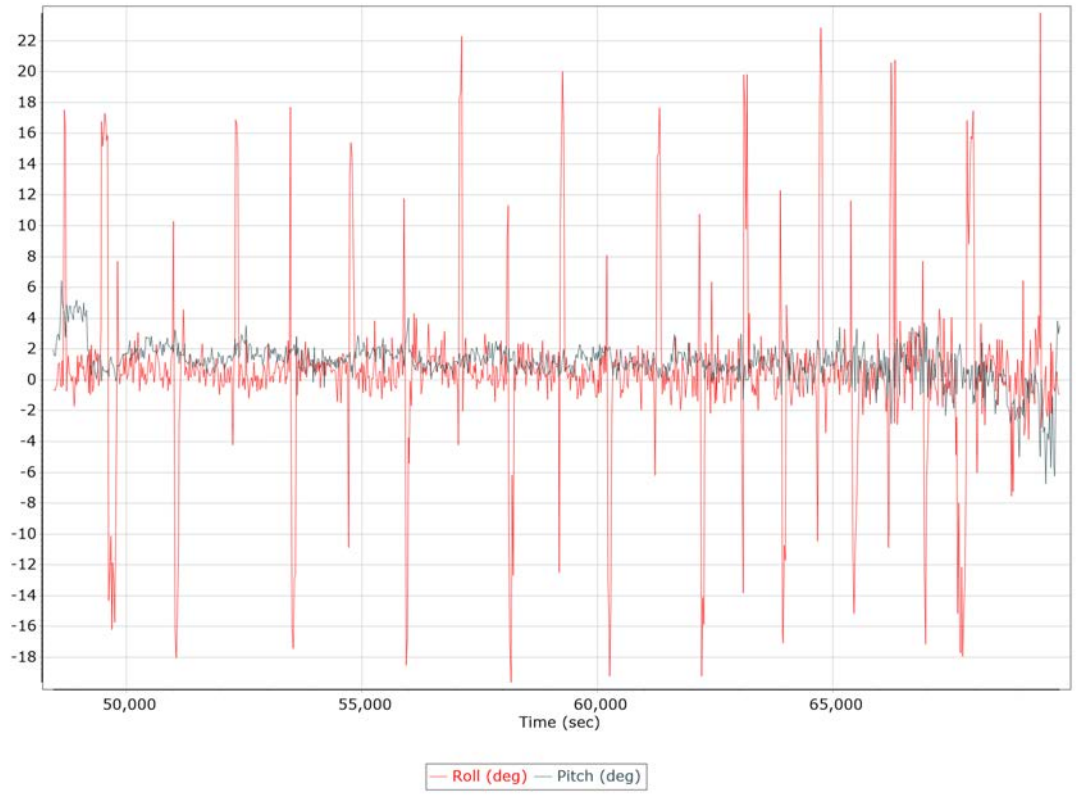
Top View



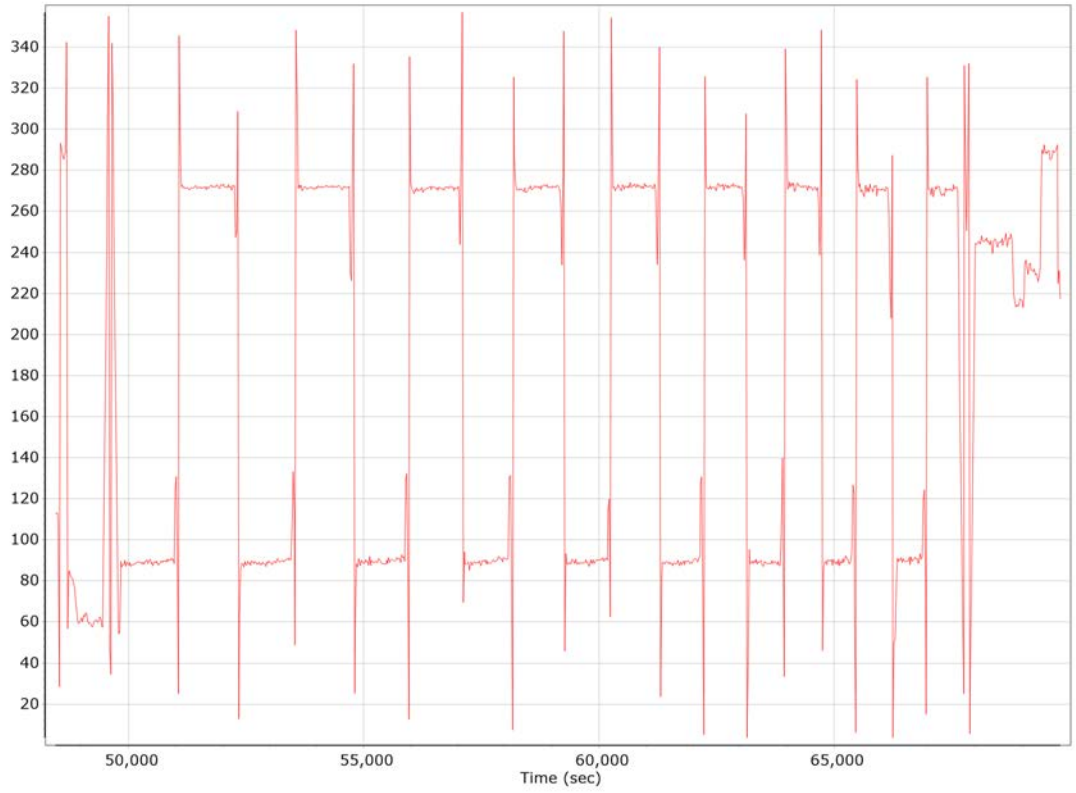
Altitude



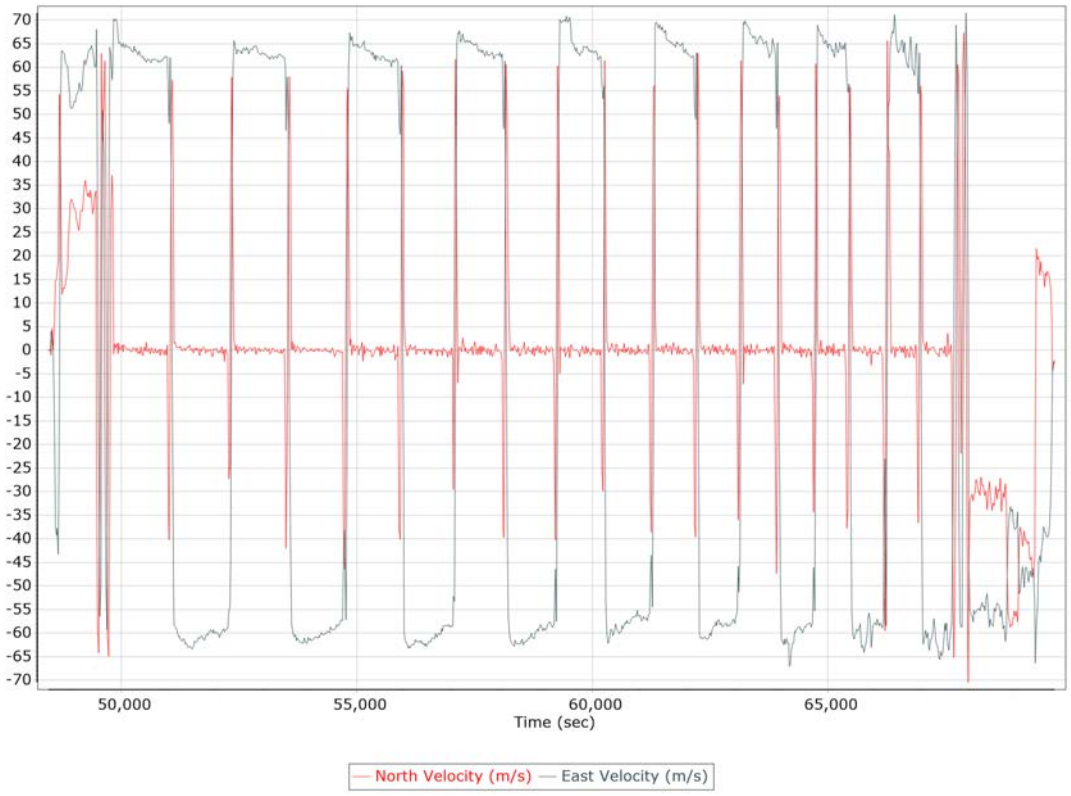
Roll/Pitch



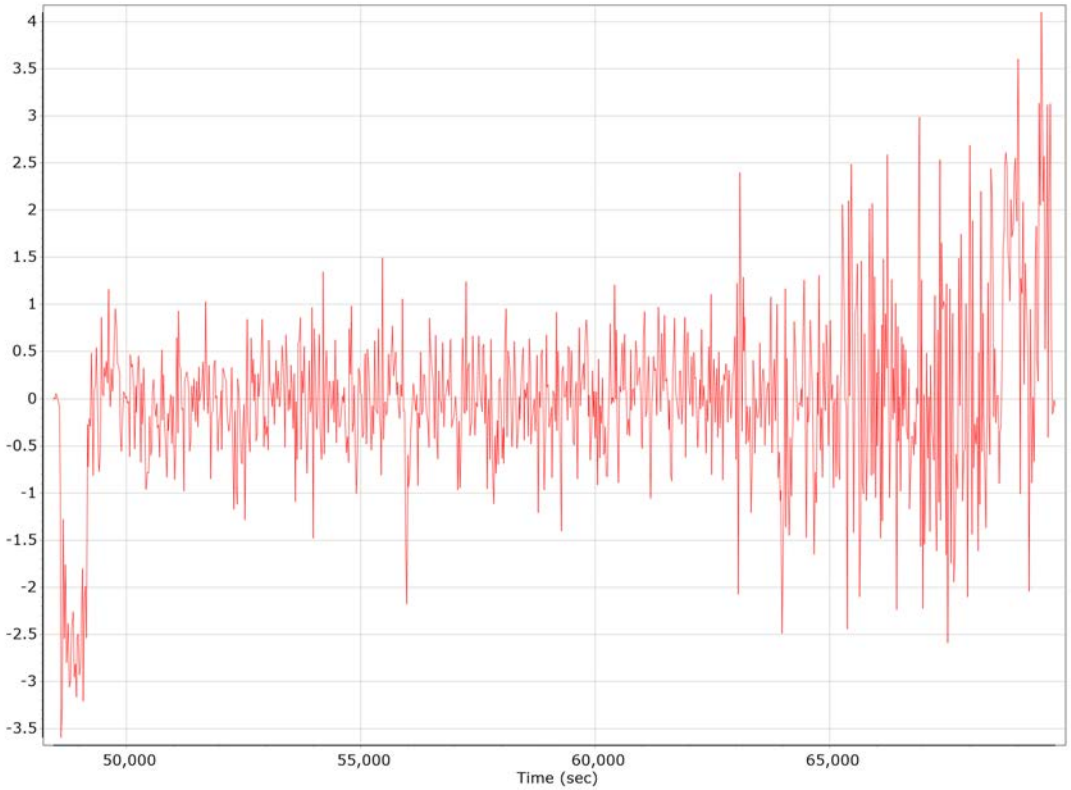
Heading



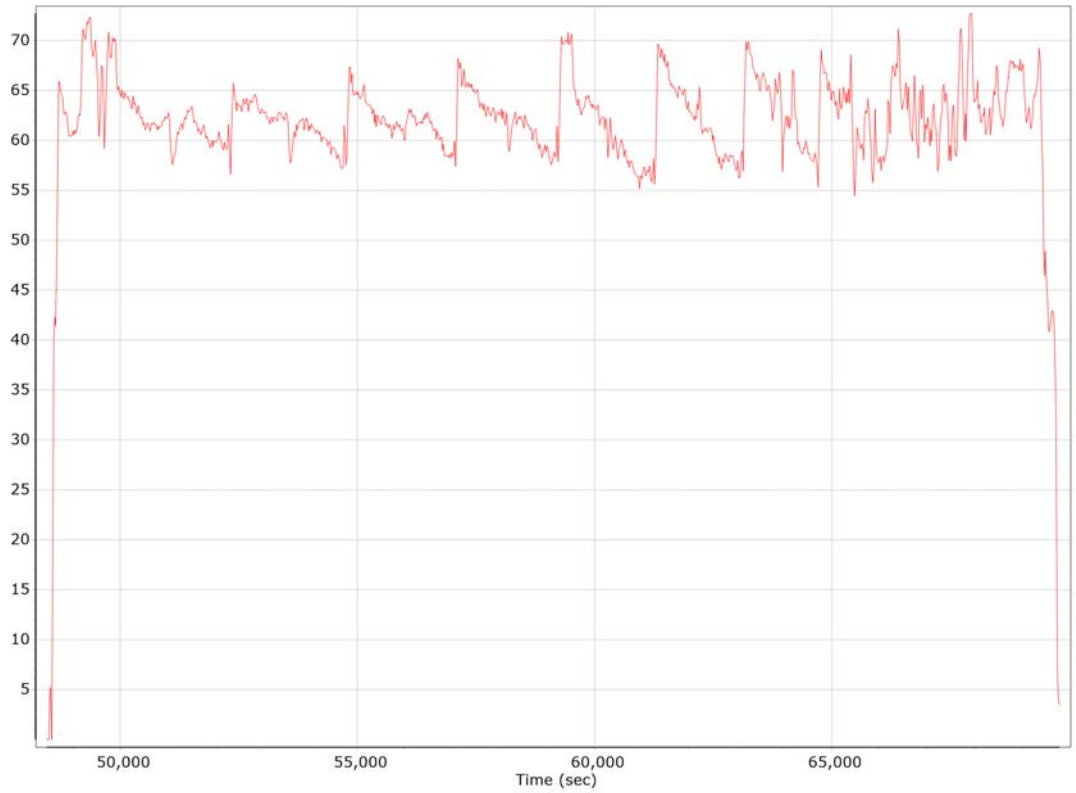
North/East Velocity



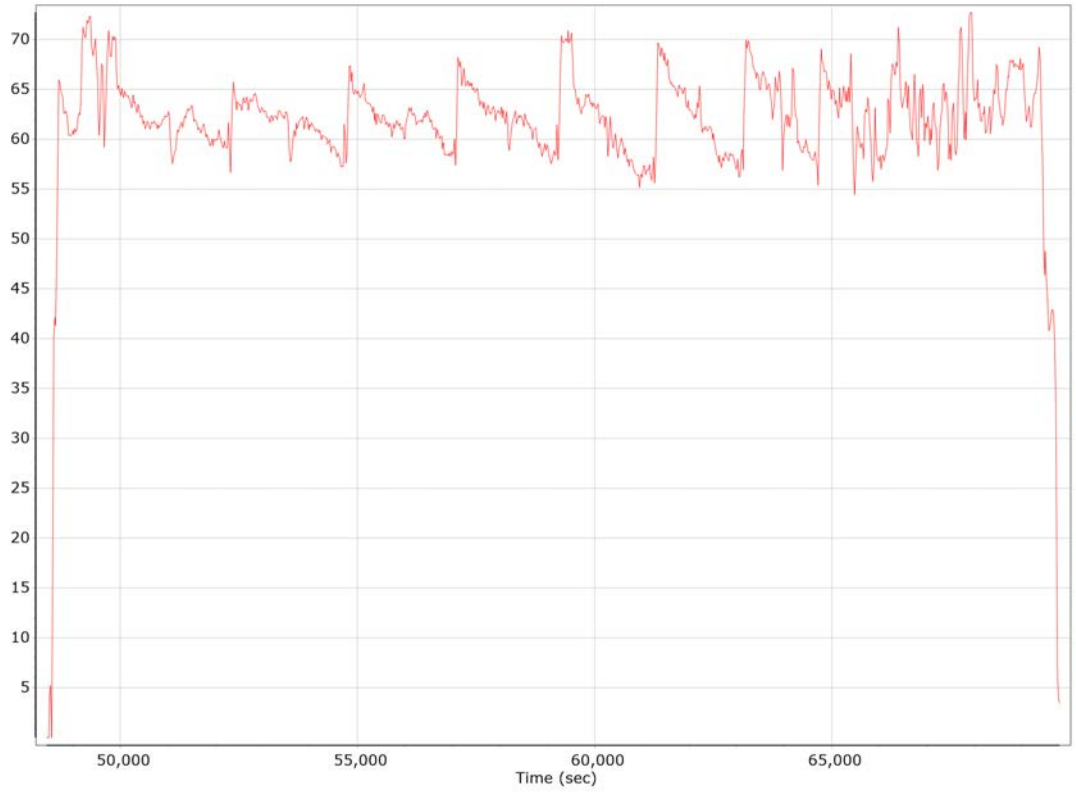
Down Velocity



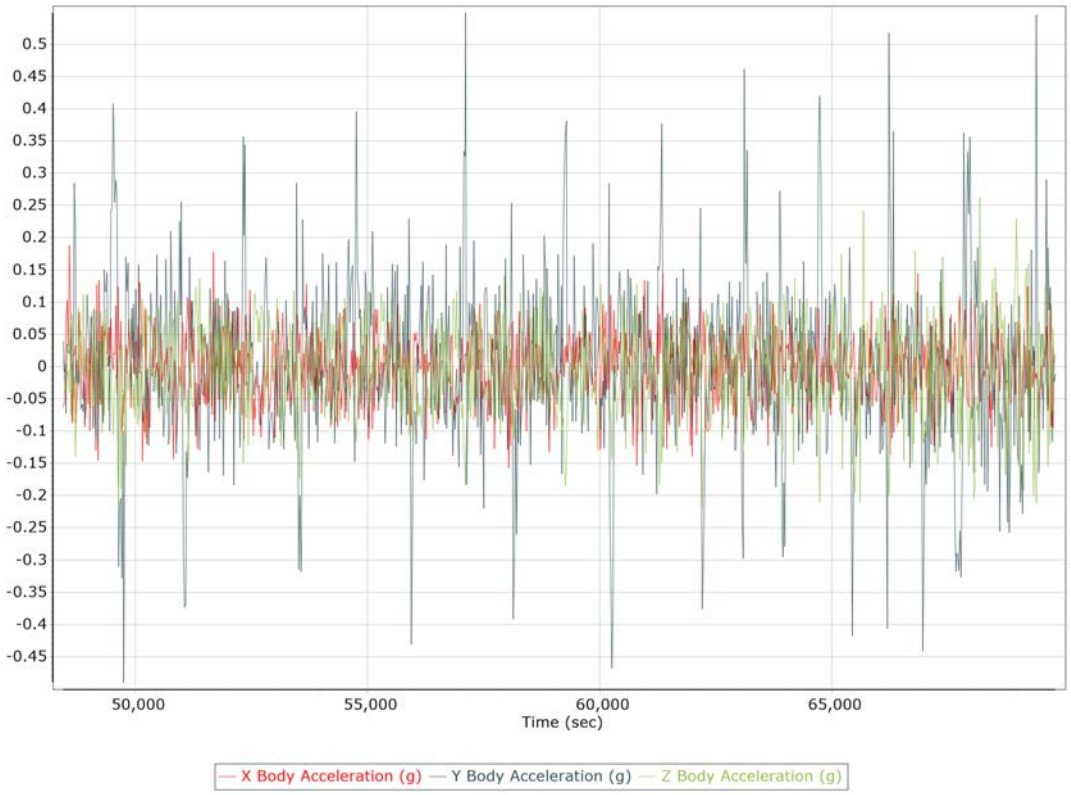
Total Speed



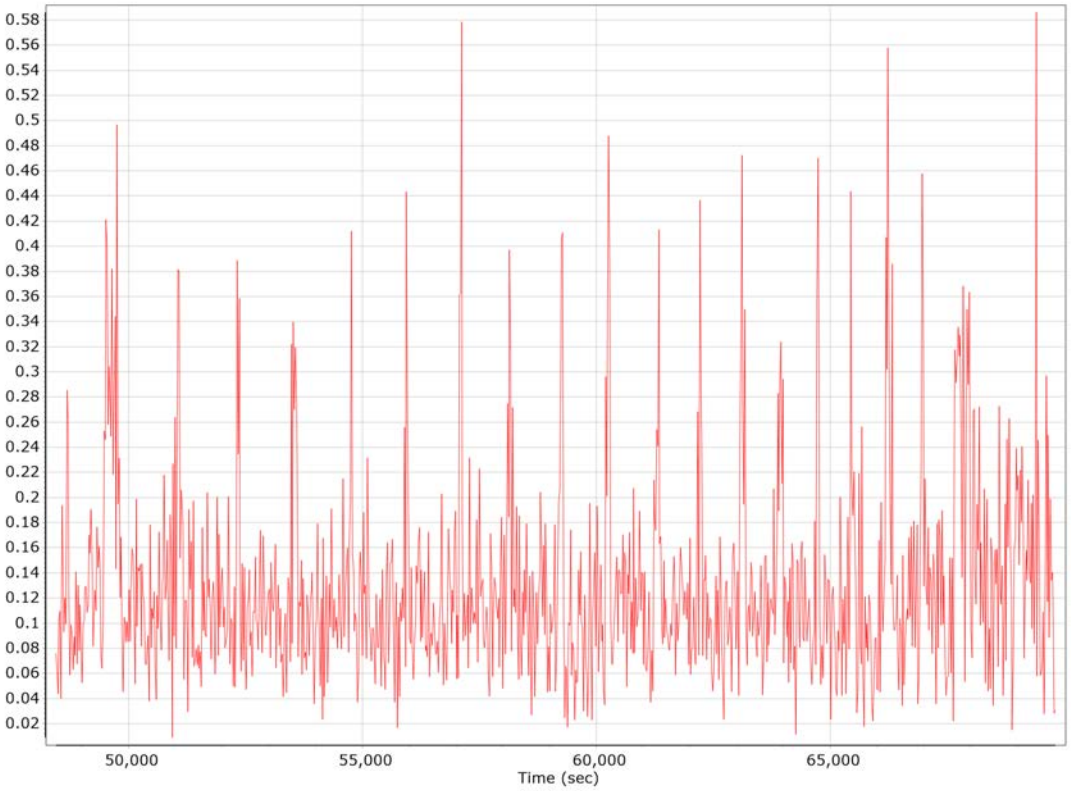
Ground Speed



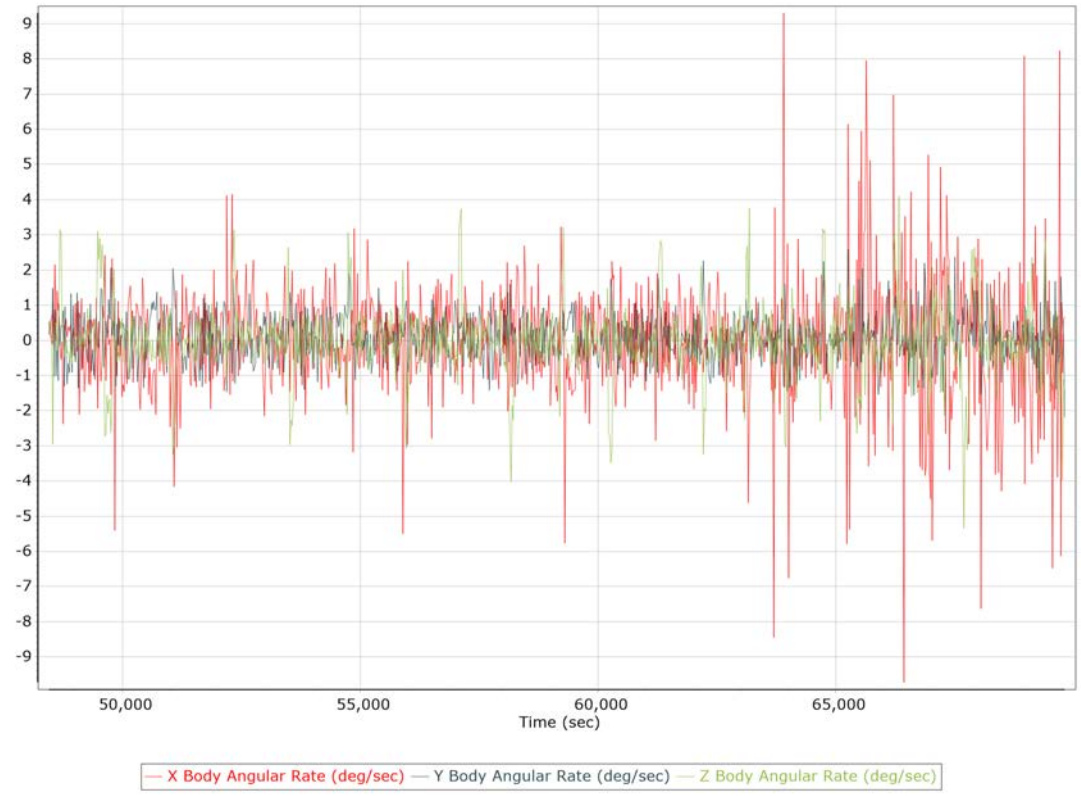
Body Acceleration



Total Body Acceleration



Body Angular Rate



GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	5	11	8
Number of GLONASS SV	0	9	7
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	4	8	7
Total number of SV	14	27	22
PDOP	0.93	1.45	1.12
QC Solution Gaps	1.00	1.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	21555.00	0.00	4.00
Percentage	99.98	0.00	0.02

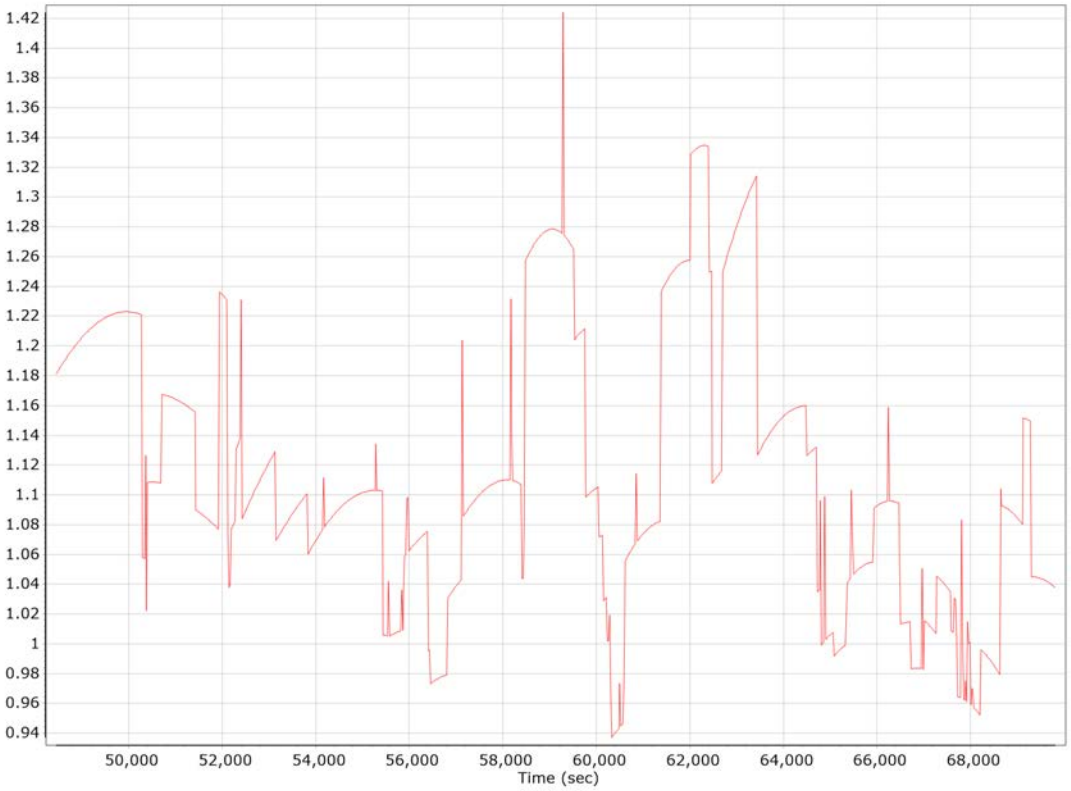
Num SVs in solution



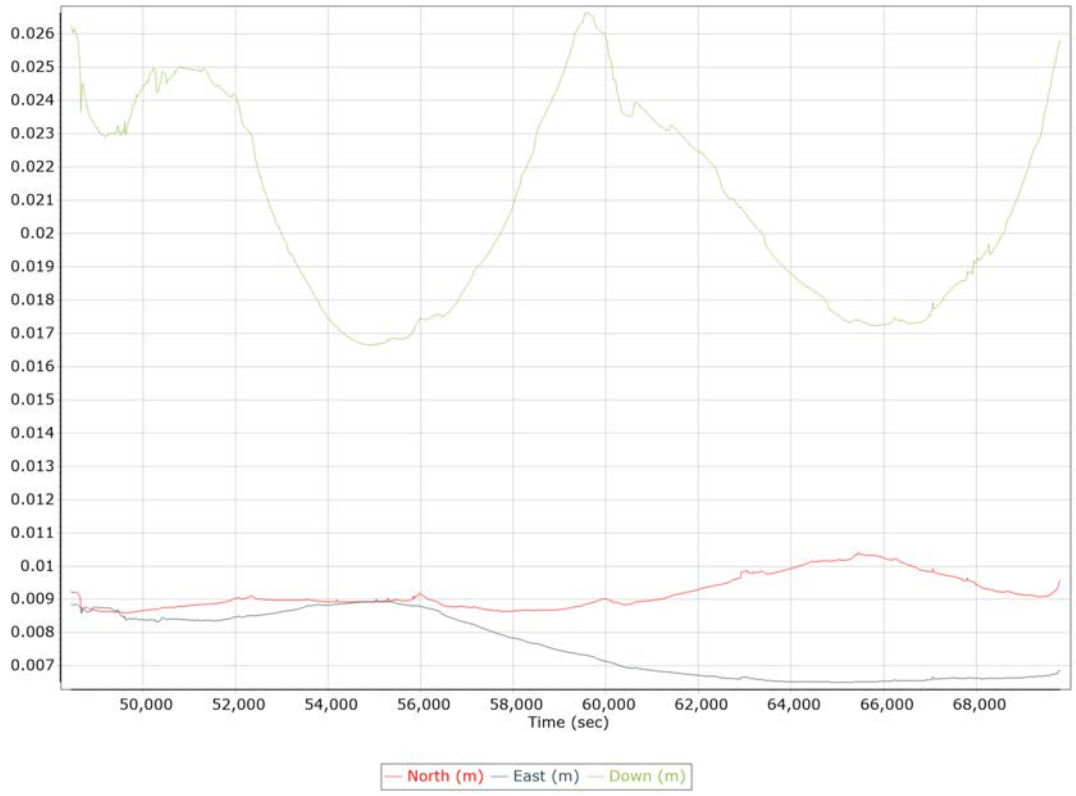
Forward/Reverse Separation



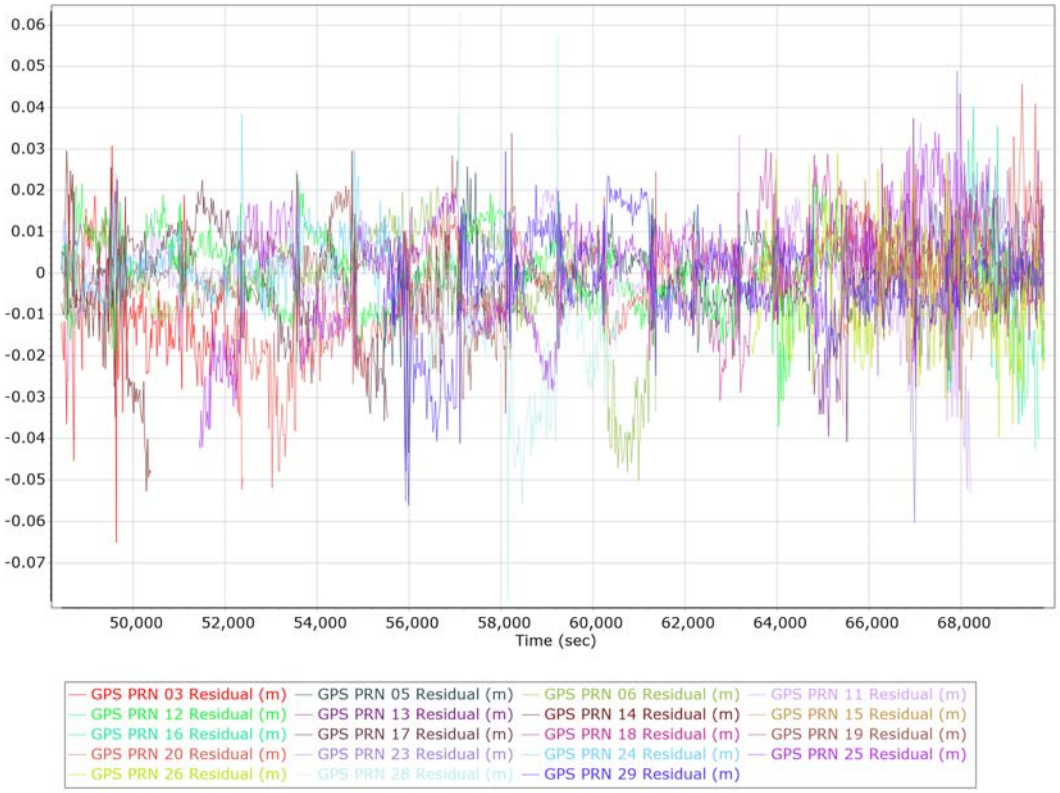
PDOP



Estimated Position Accuracy



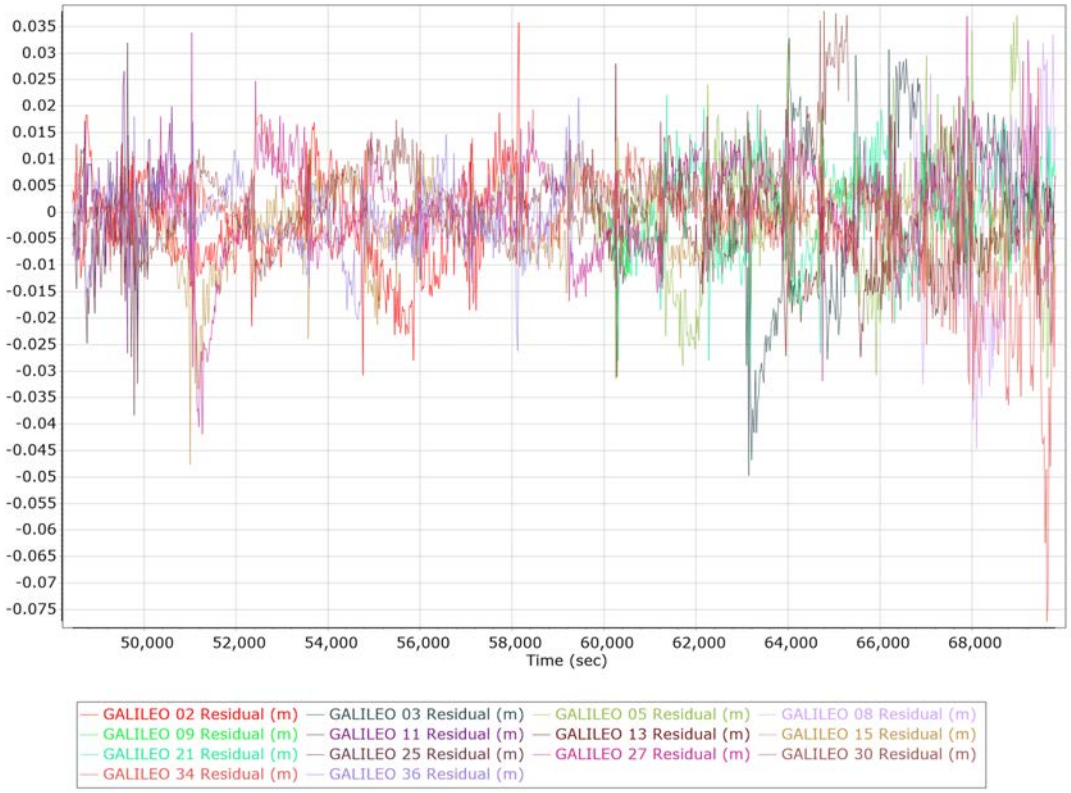
GPS Residuals



GLONASS Residuals



GALILEO Residuals



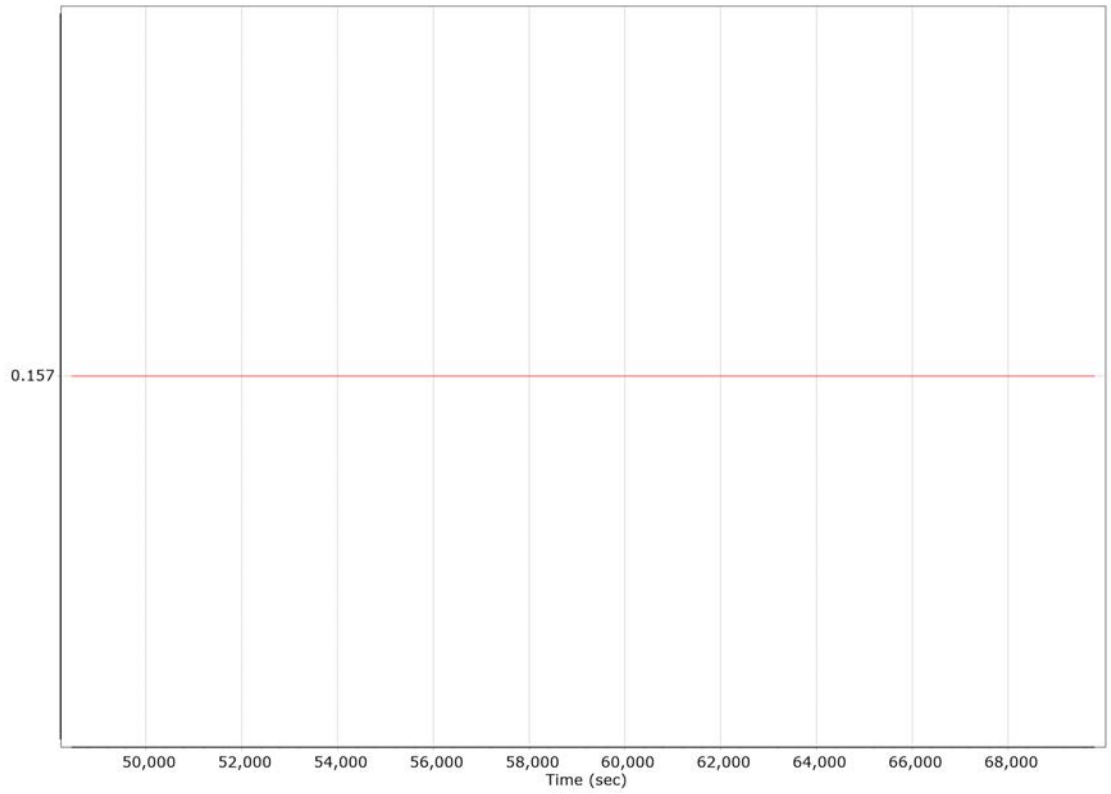
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	48248.000 (7/9/2023 1:24:08 PM)		
Processing end time	69822.000 (7/9/2023 7:23:42 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)	0.157	-0.181	-0.732
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

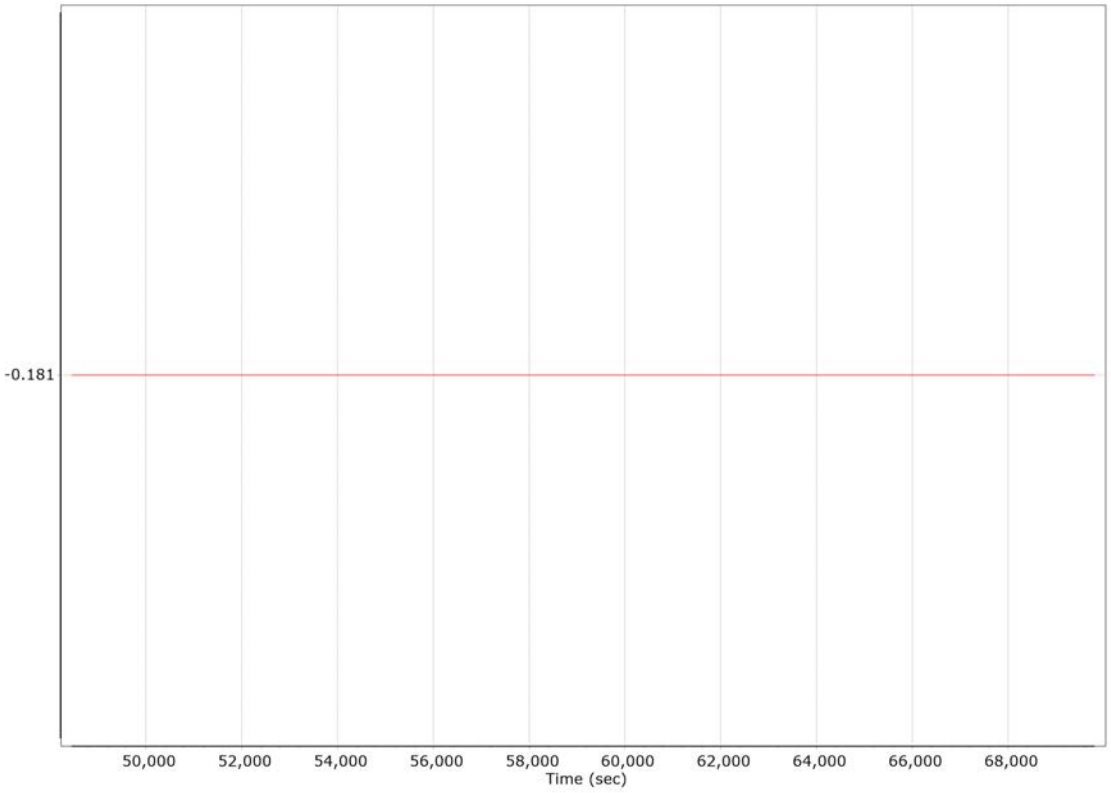
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

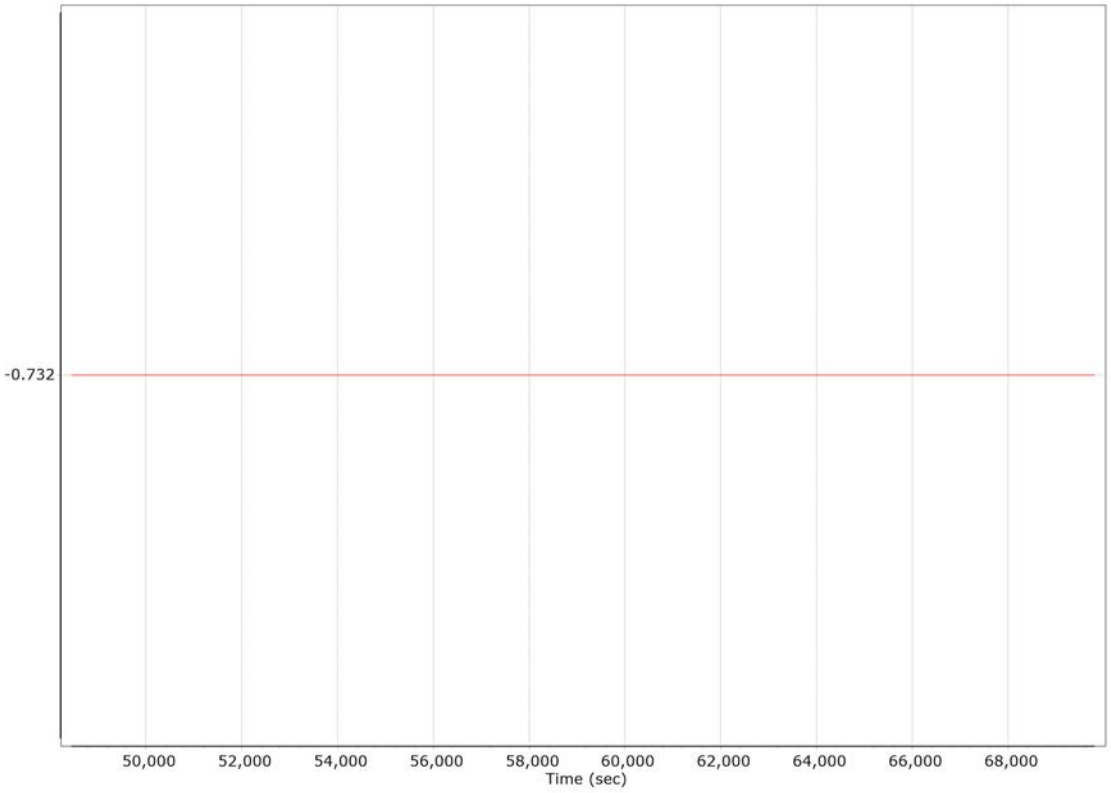
X Reference-Primary GNSS Lever Arm (m)



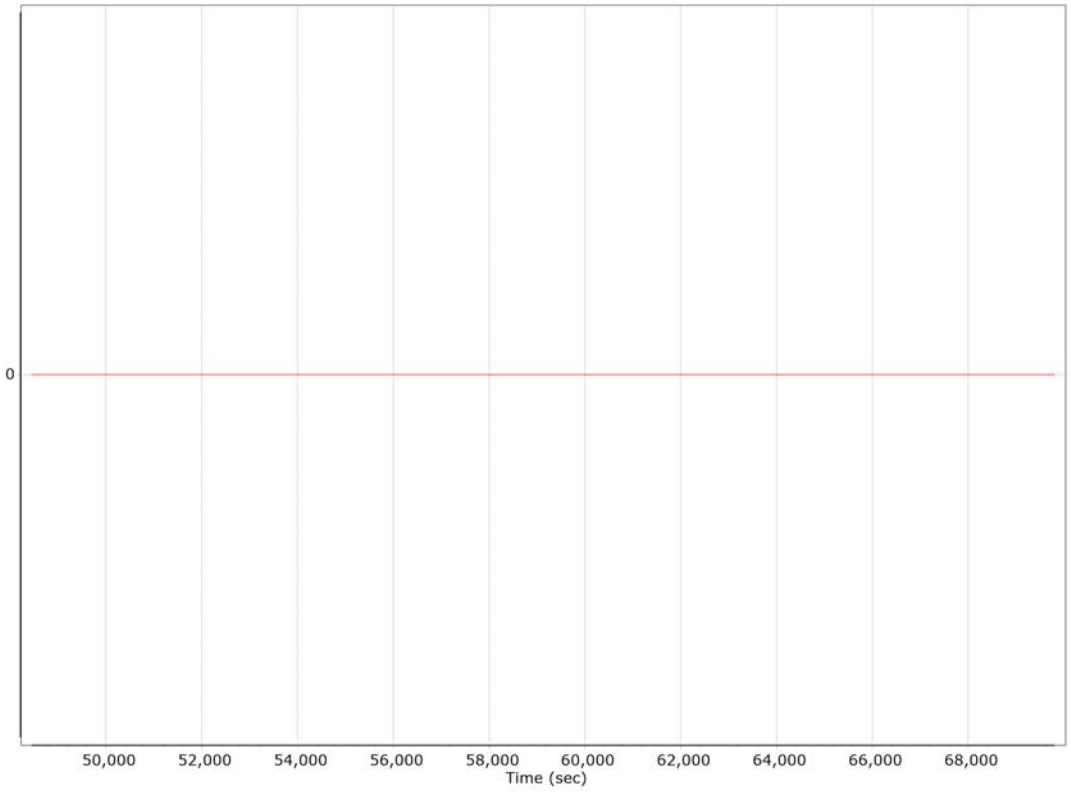
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



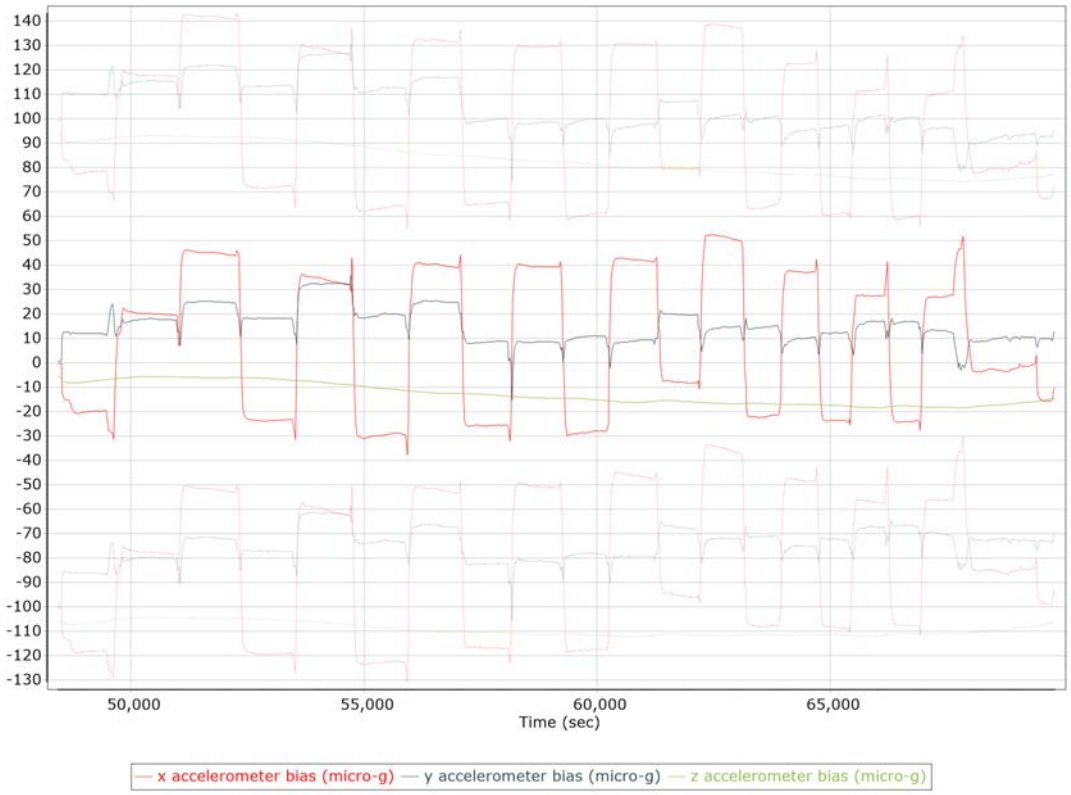
Reference-Primary GNSS Lever Arm Figure of Merit



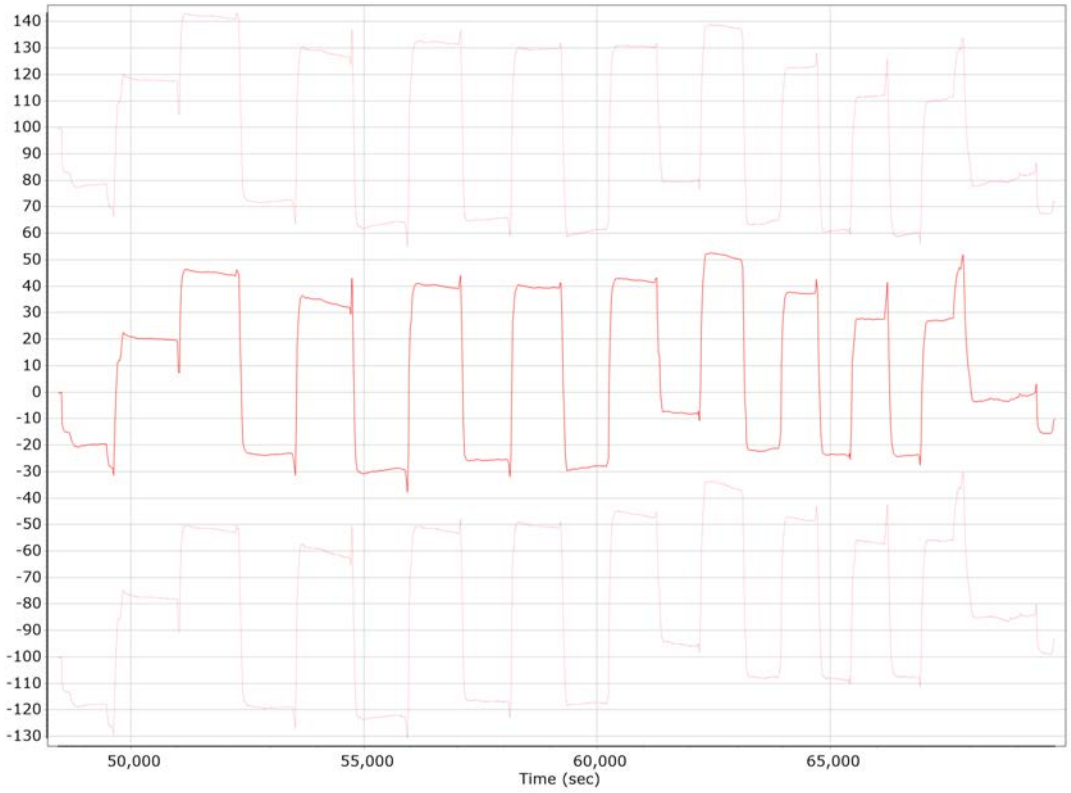
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

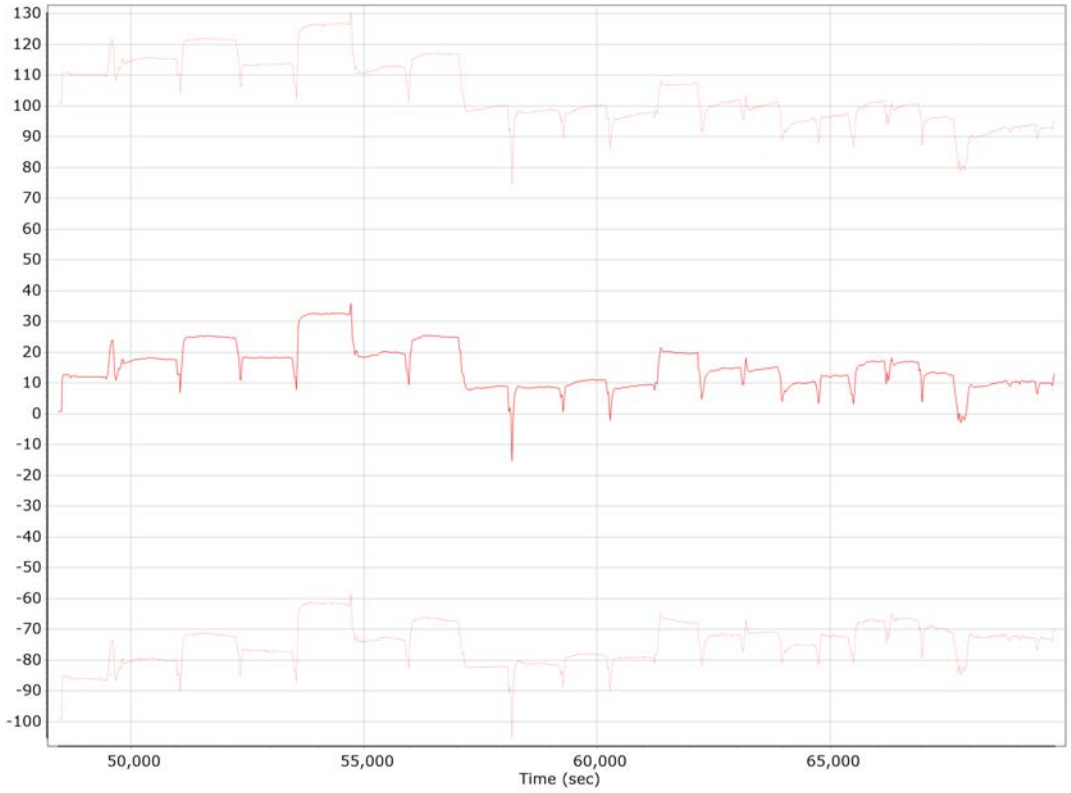
Accelerometer Bias (micro-g)



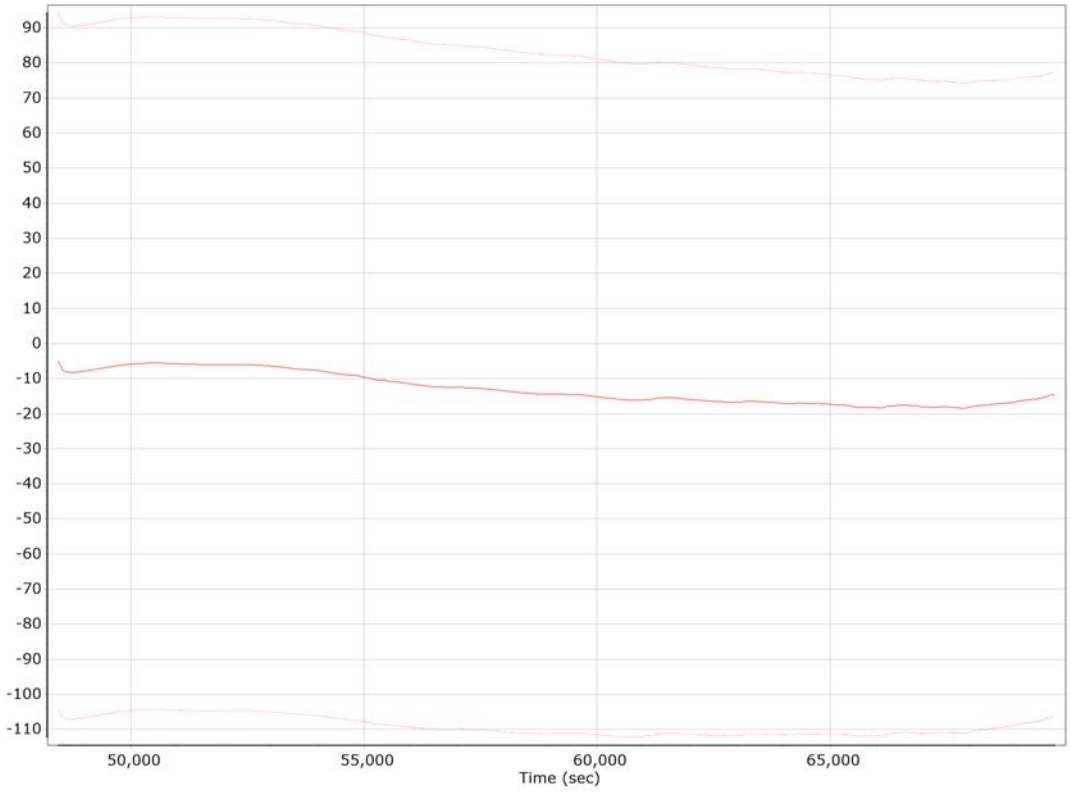
X Accelerometer Bias (micro-g)



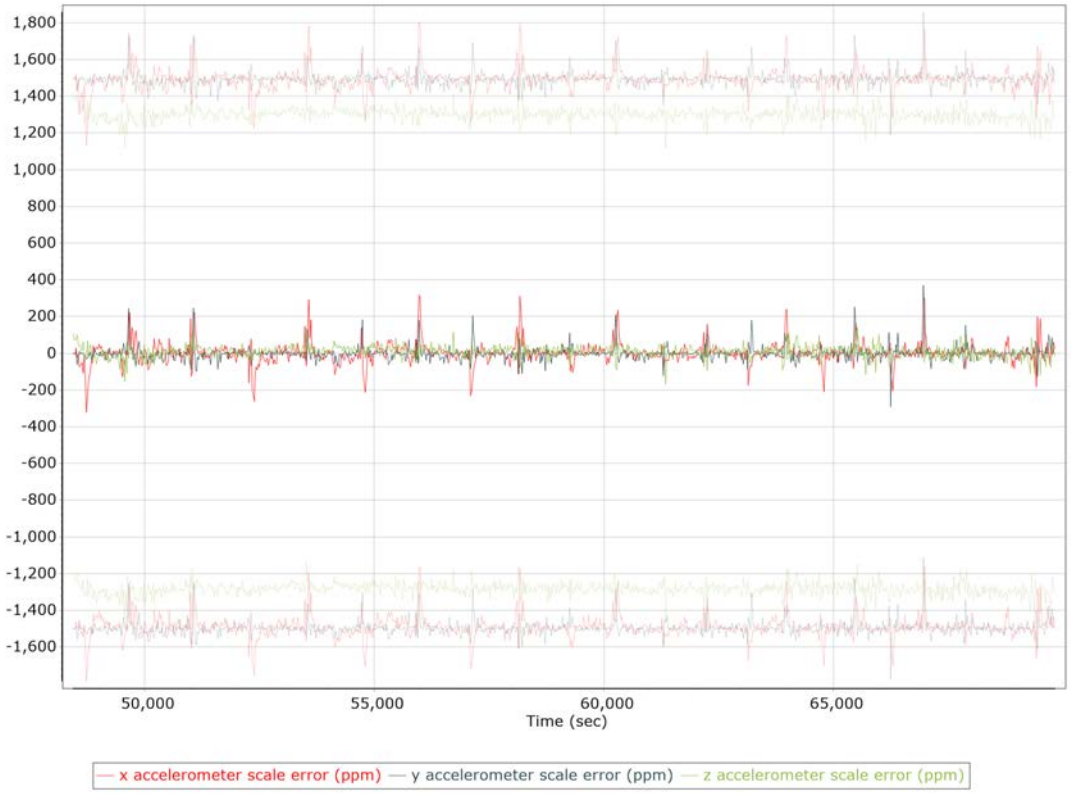
Y Accelerometer Bias (micro-g)



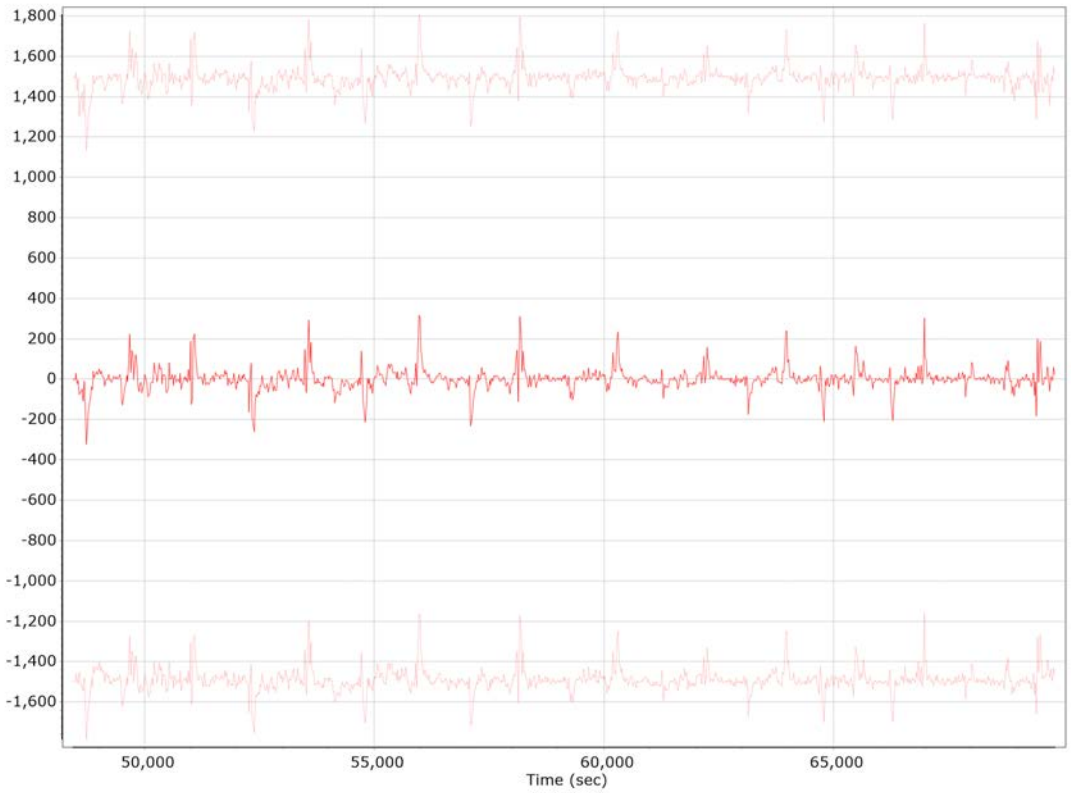
Z Accelerometer Bias (micro-g)



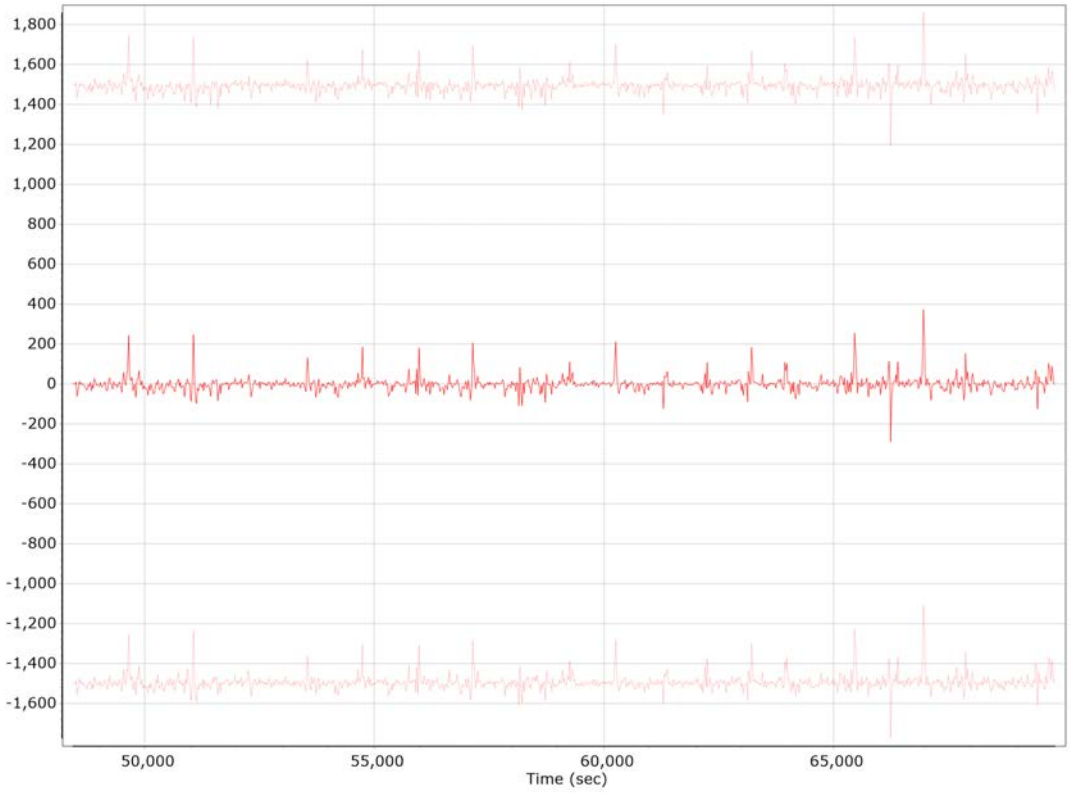
Accelerometer Scale Error (ppm)



X Accelerometer Scale Error (ppm)



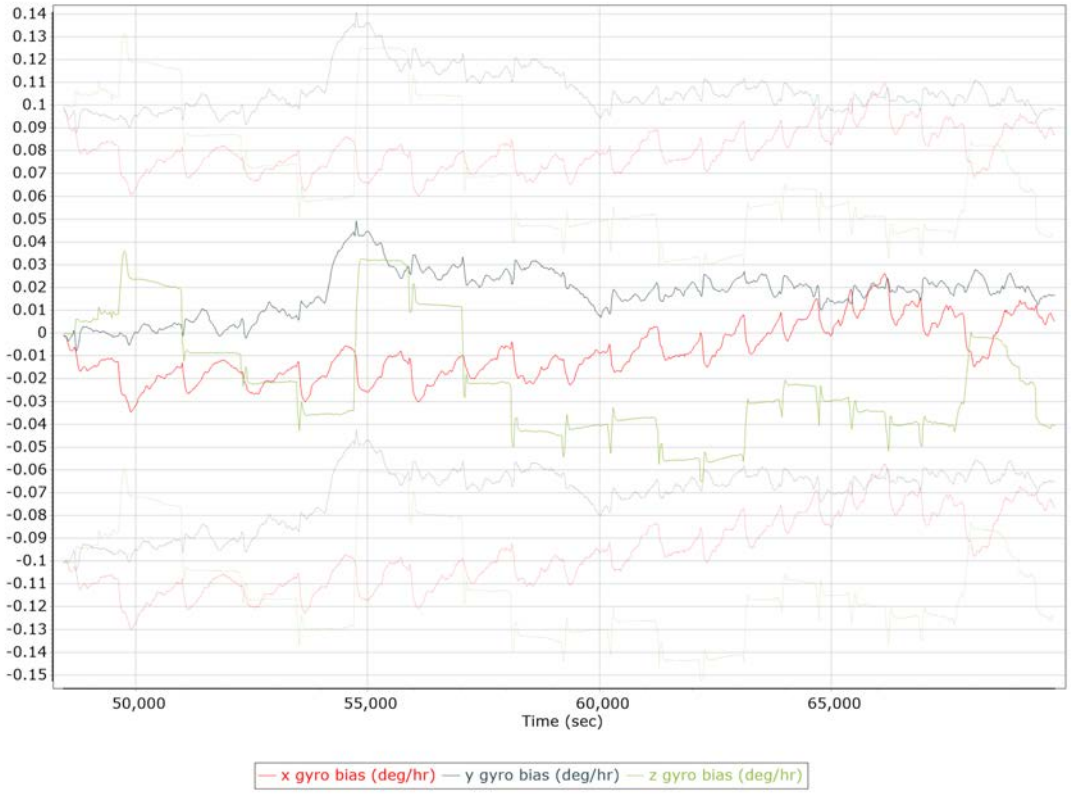
Y Accelerometer Scale Error (ppm)



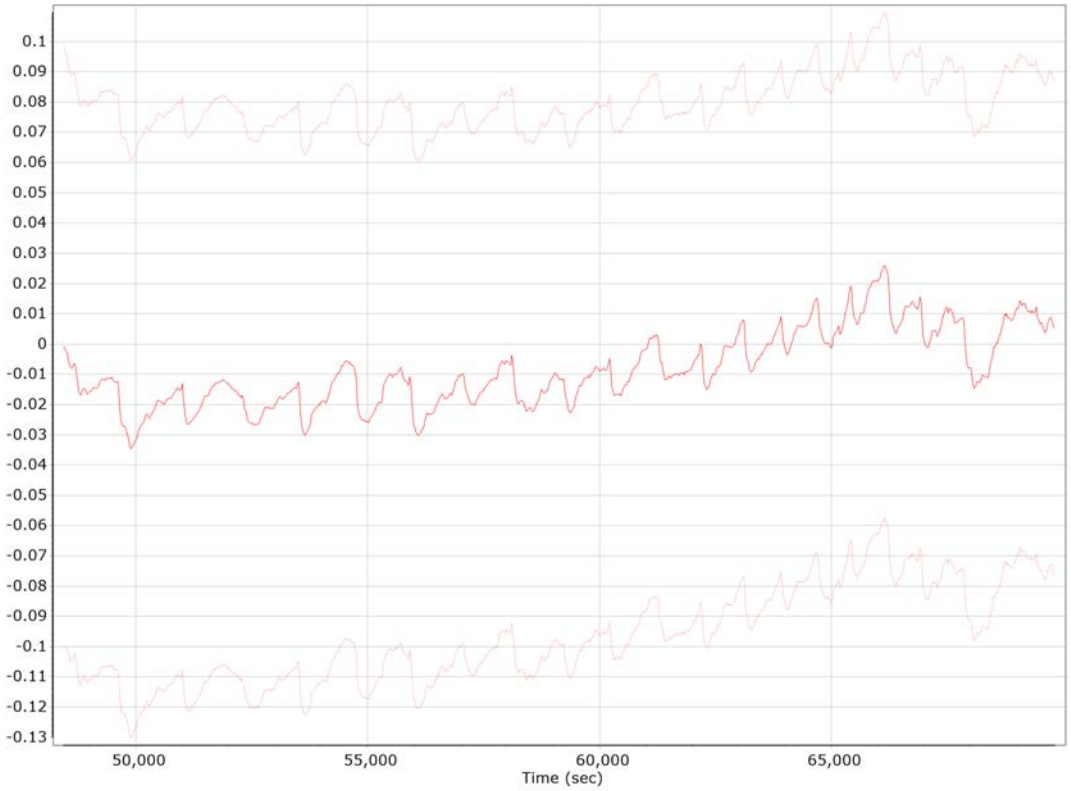
Z Accelerometer Scale Error (ppm)



Gyro Bias (deg/h)



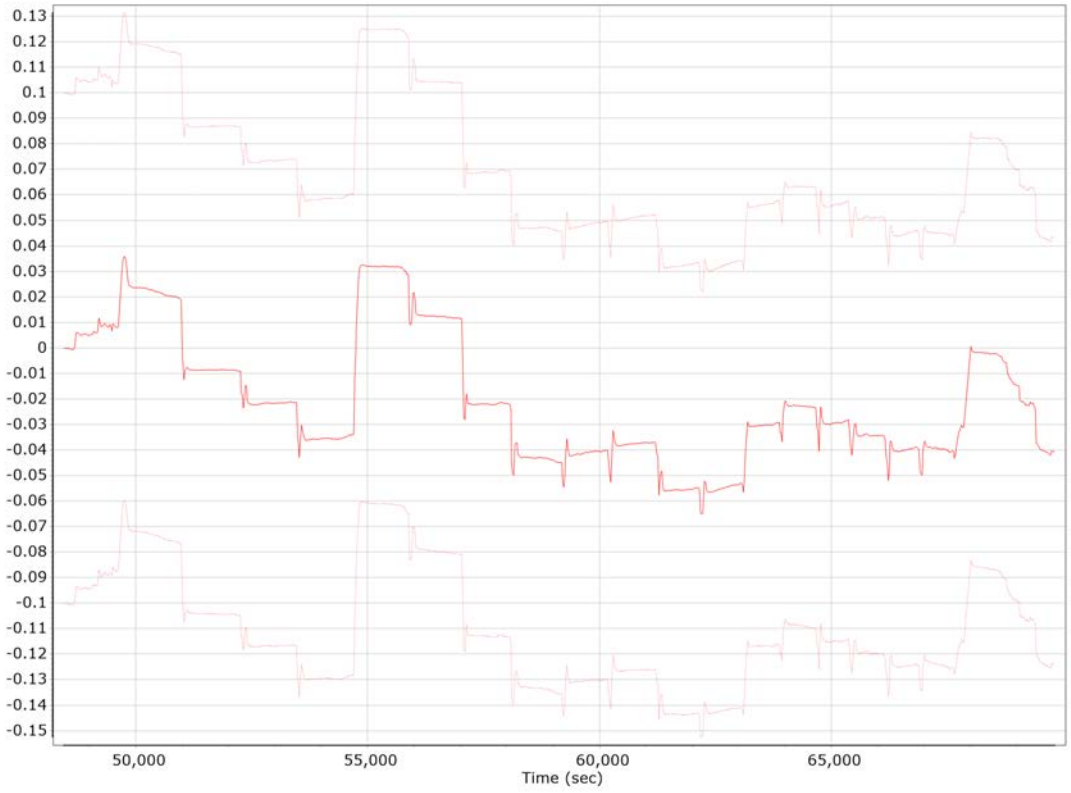
X Gyro Bias (deg/h)



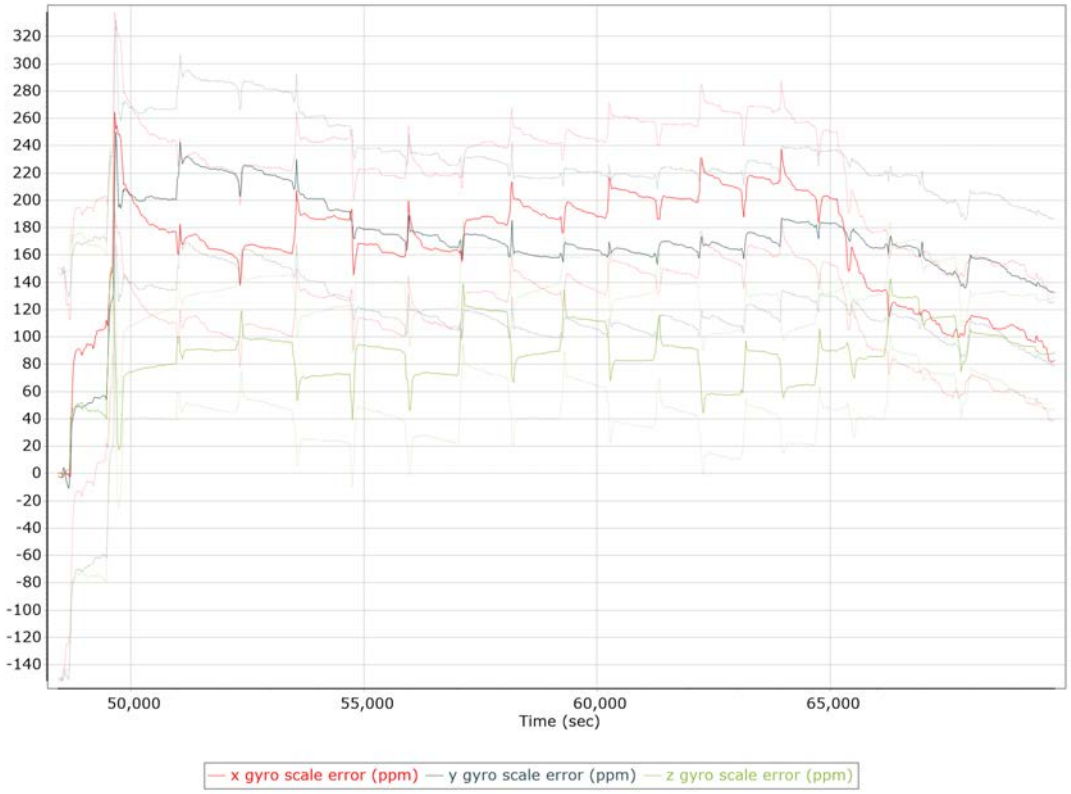
Y Gyro Bias (deg/h)



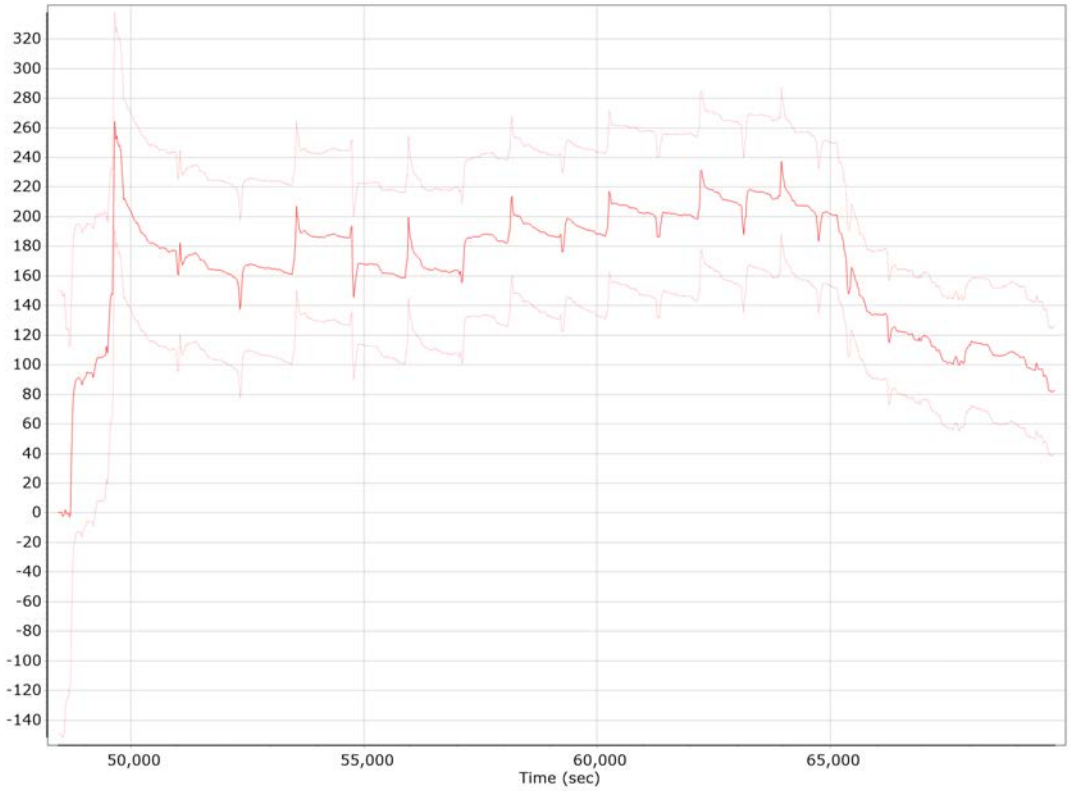
Z Gyro Bias (deg/h)



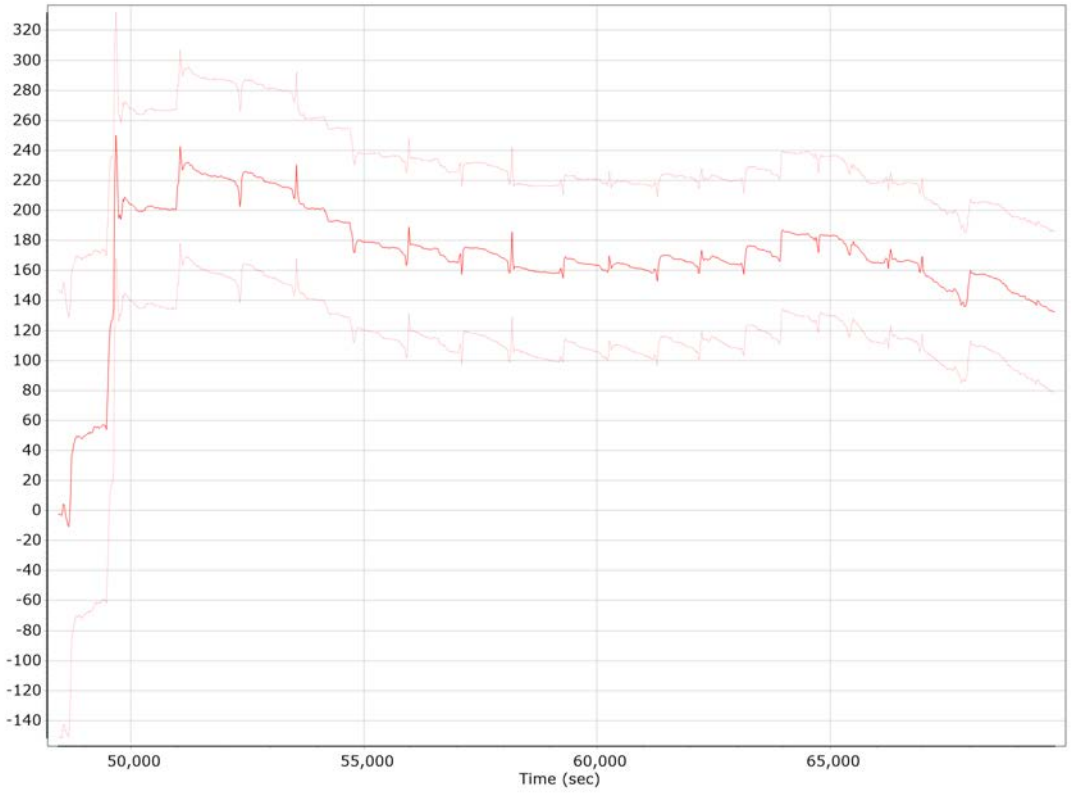
Gyro Scale Error (ppm)



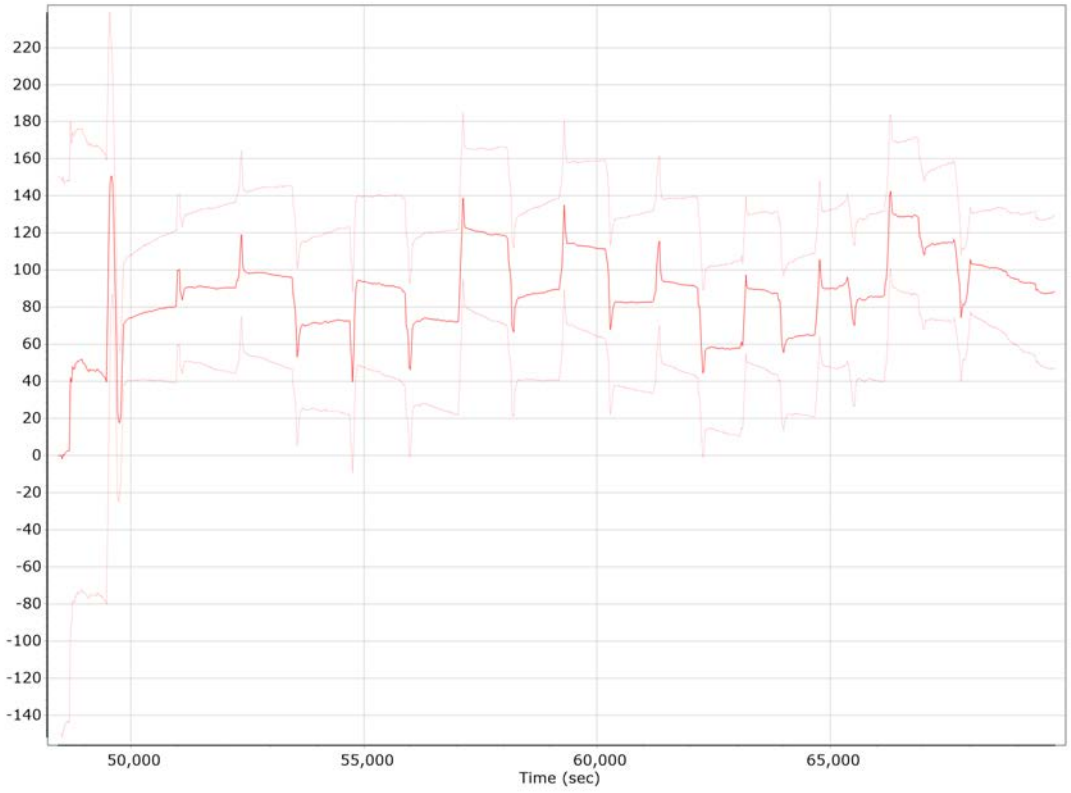
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

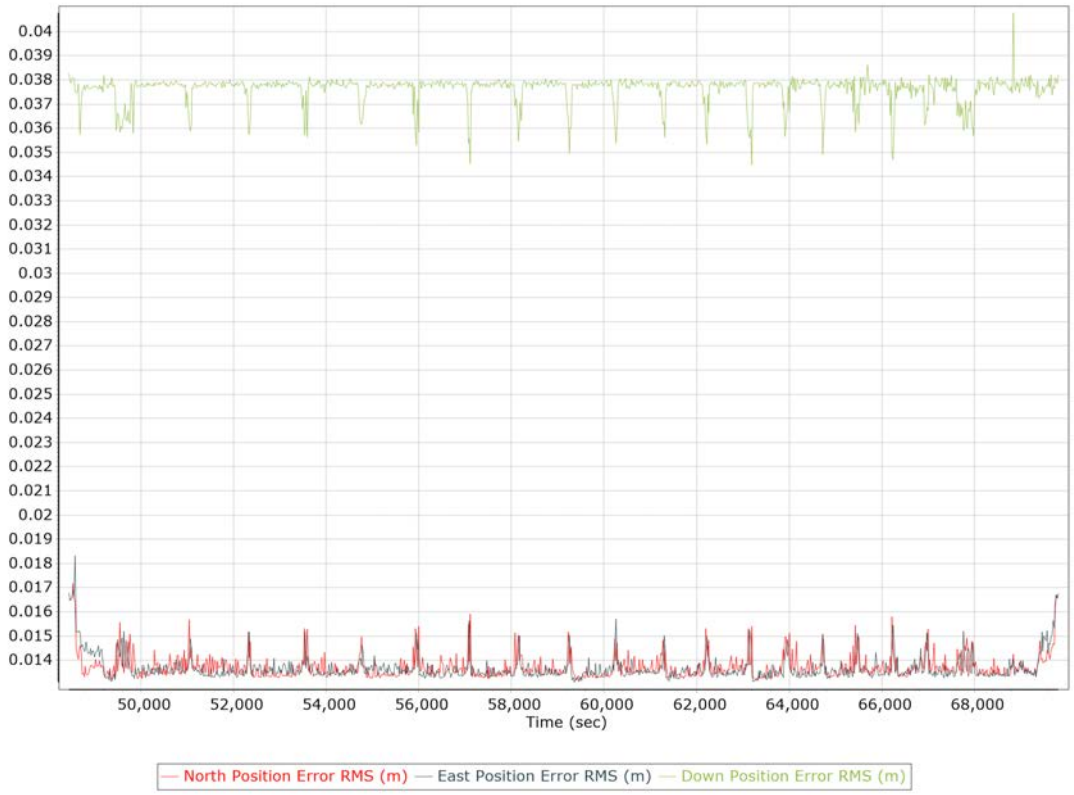


Z Gyro Scale Error (ppm)



Smoothed Performance Metrics

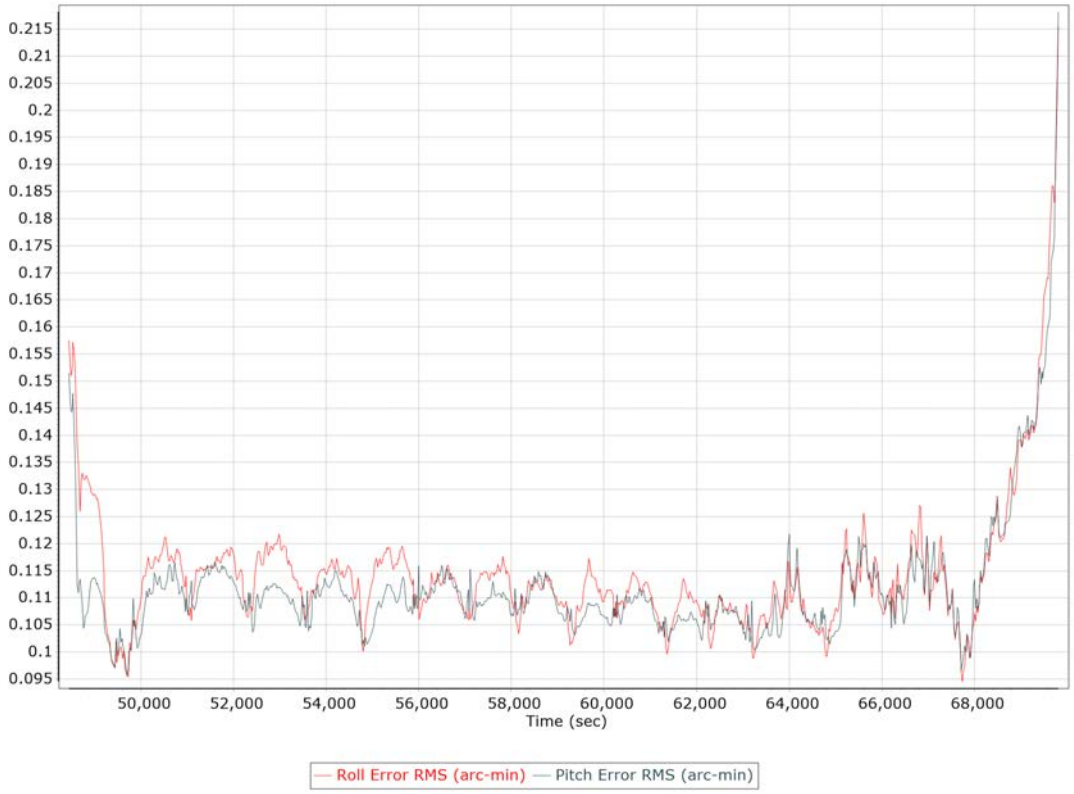
Position Error RMS (m)



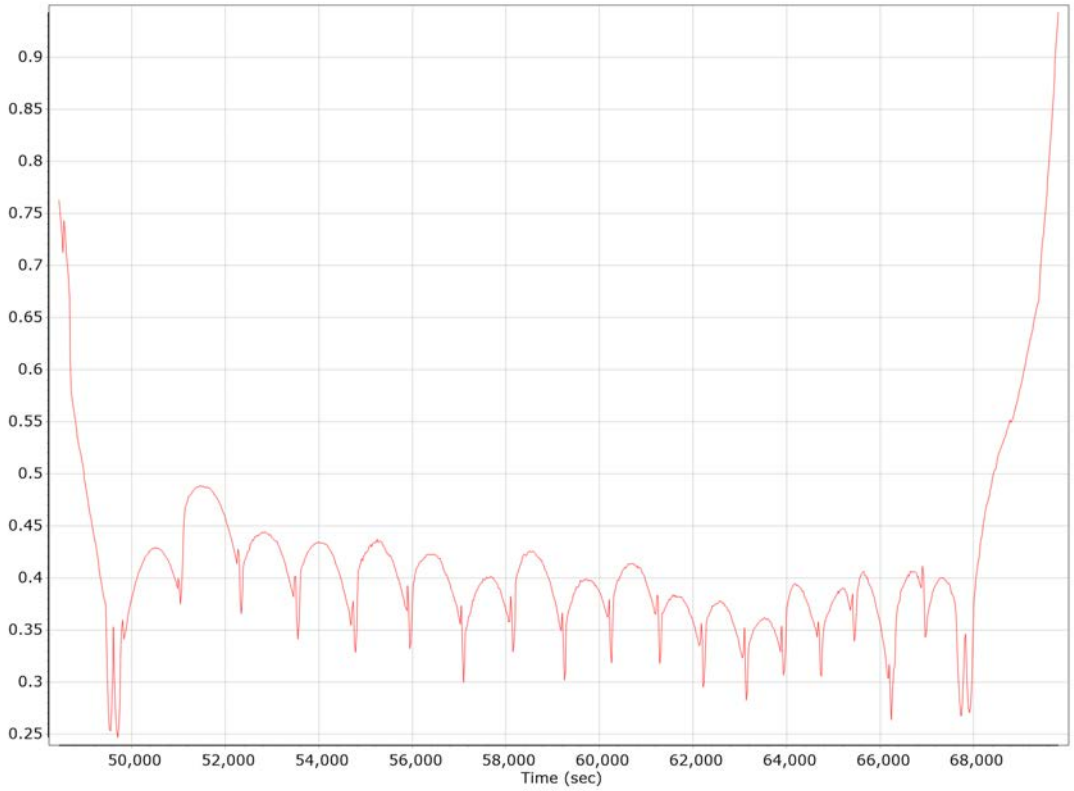
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

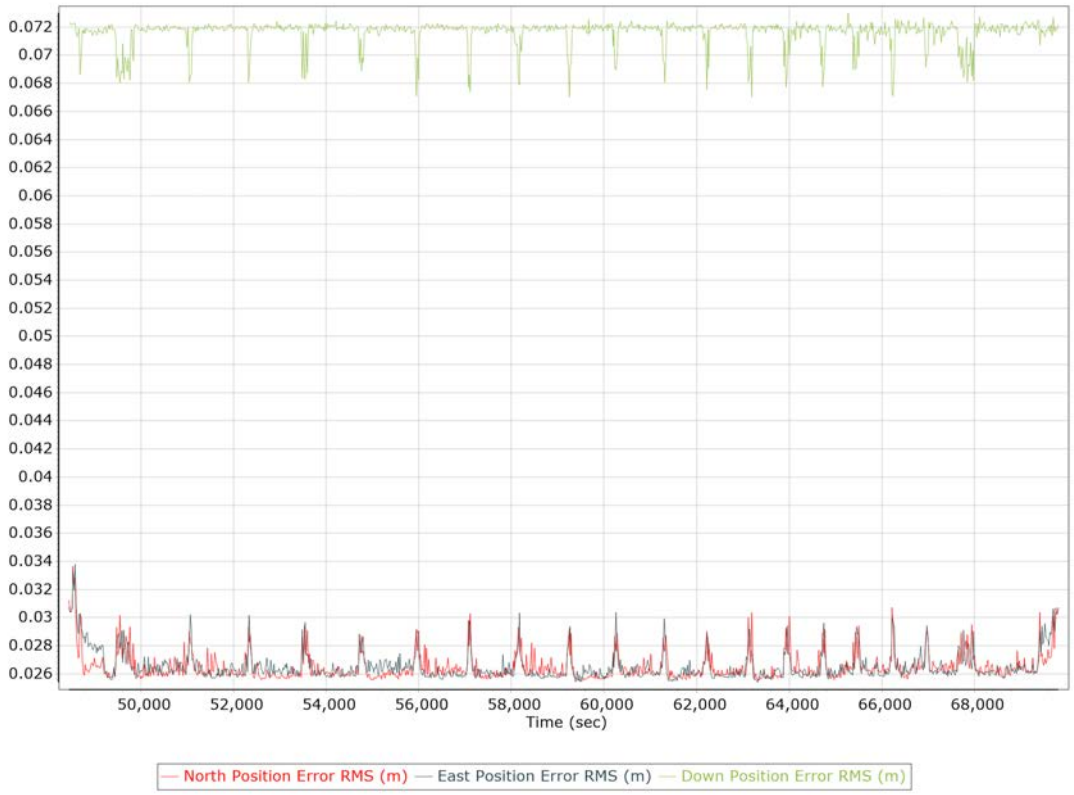


Heading Error RMS (arc-min)

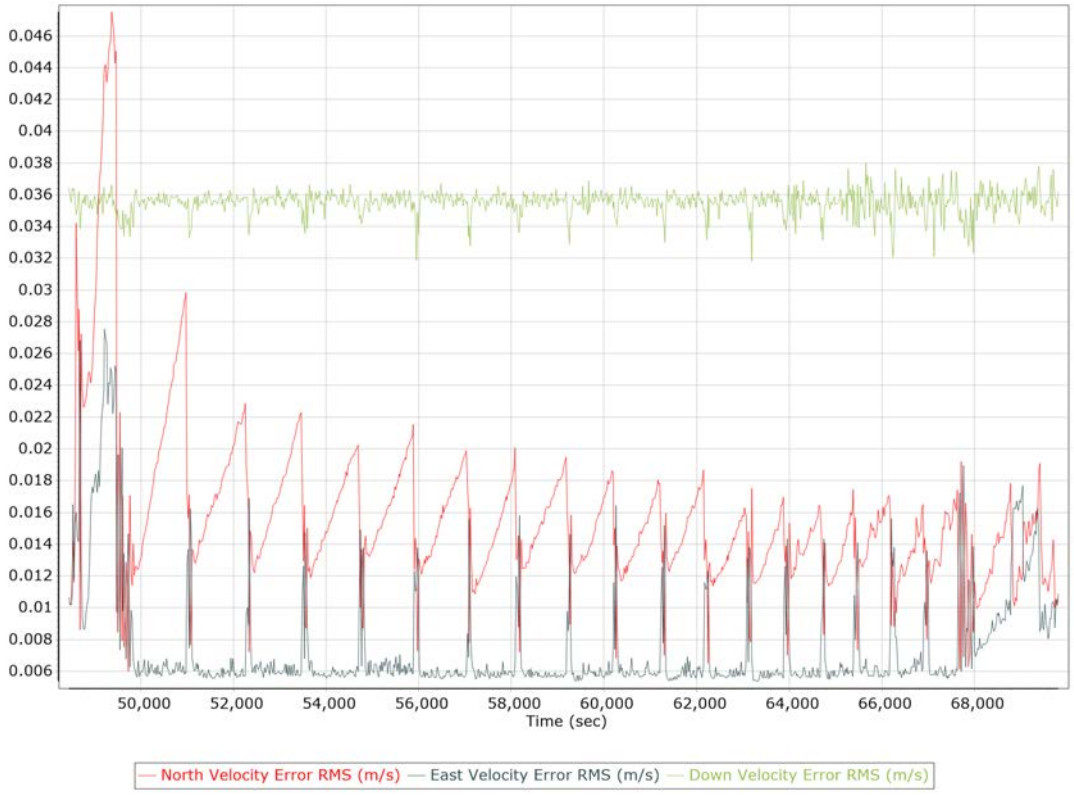


Forward Processed Performance Metrics

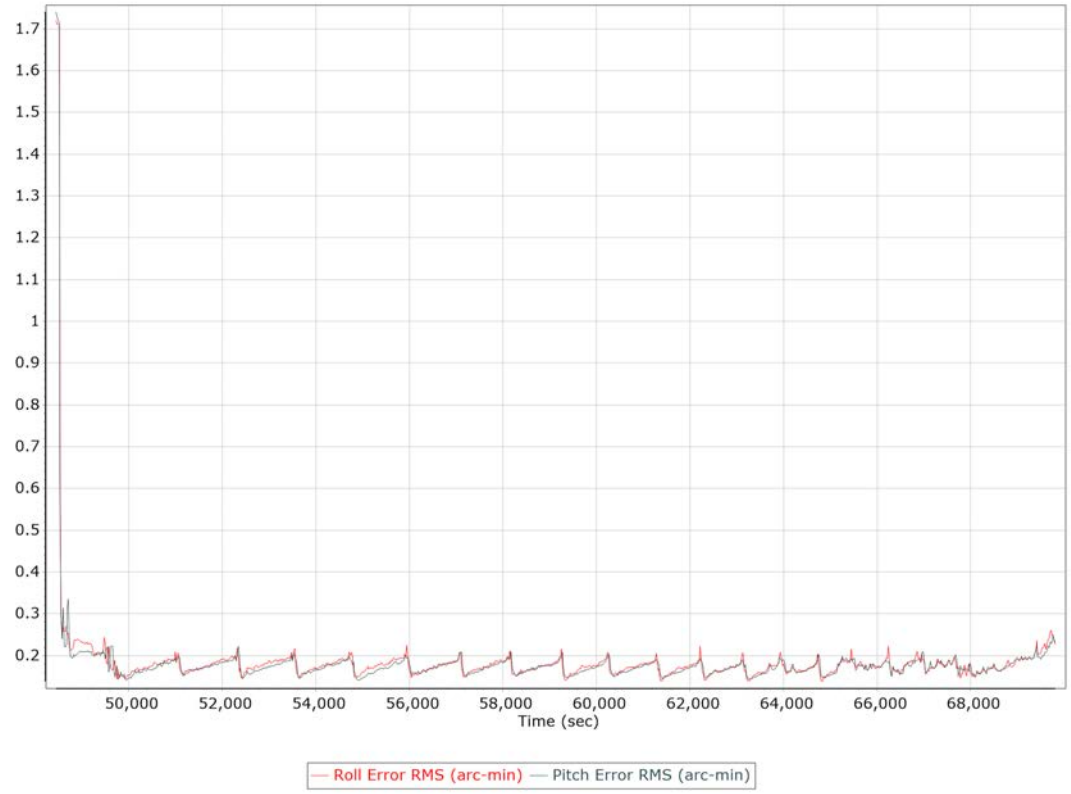
Position Error RMS (m)



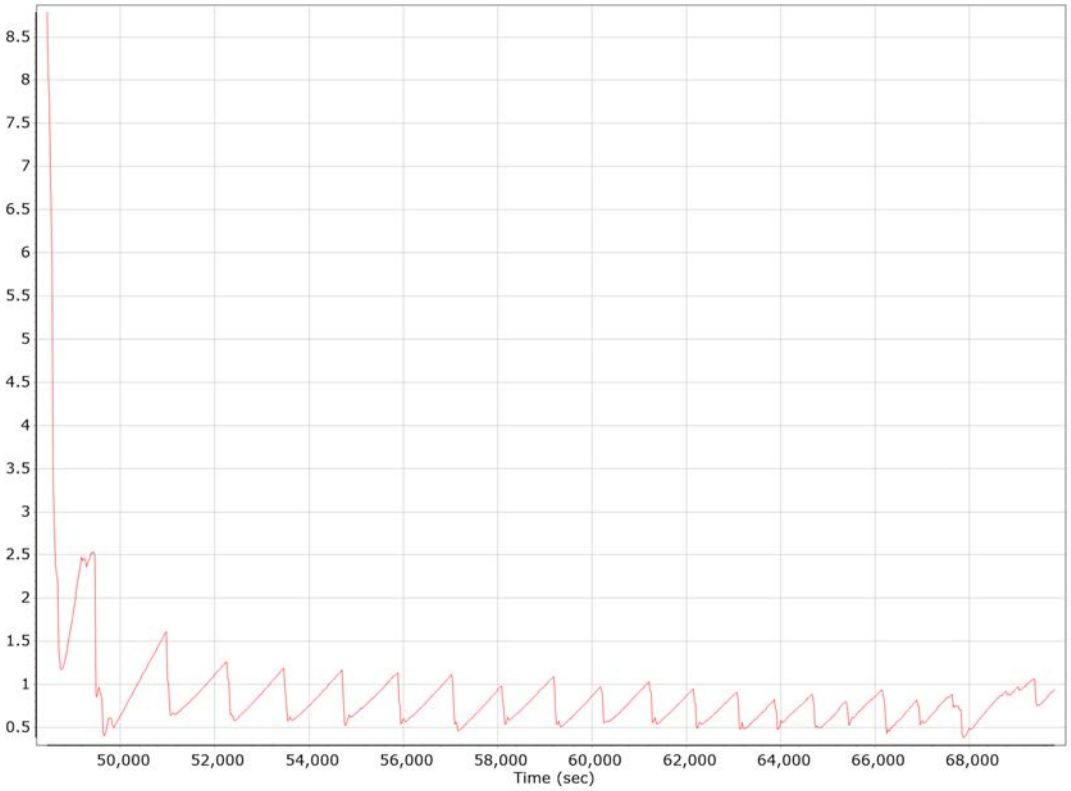
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

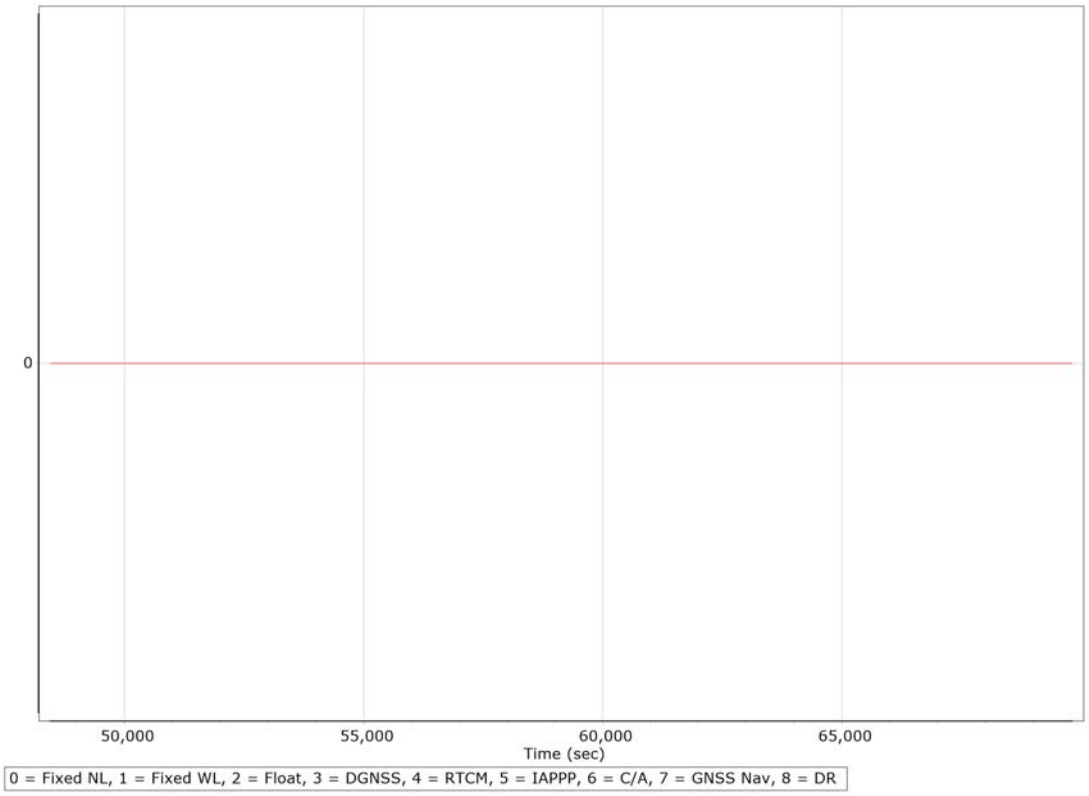


Heading Error RMS (arc-min)



Forward Processed Solution Status

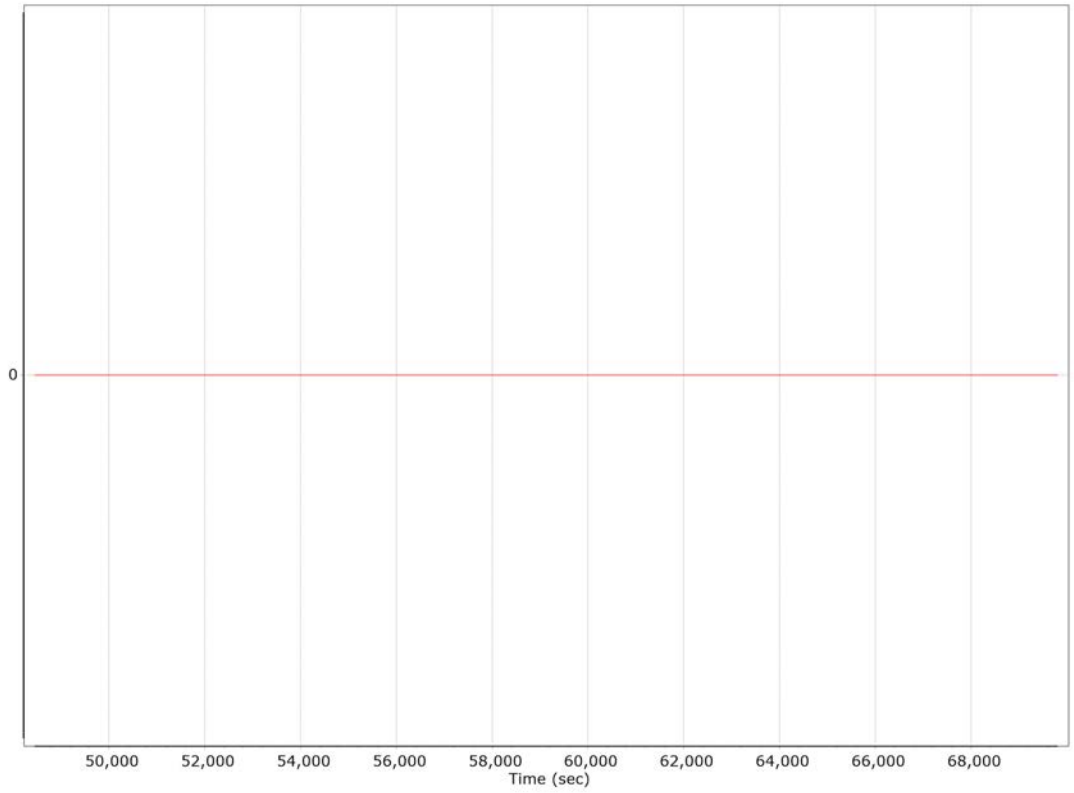
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07102023A_3062
Processing date	2023-07-11 20:17:38
Mission date	2023-07-10 13:40:02
Mission duration	03:13:51.770
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N8708
IMU type	57
Receiver type	BD982
Antenna type	AV39

Project File List

Rover Data Files

File name	File type
230710_133942_INS-GPS_1.raw	POS Data

Input Files

File Name	File Type
Ephm1910.23g	GLONASS Broadcast Ephemeris
Ephm1910.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07102023A_3062.out	SBET Trajectory File

Rover Data Summary

First raw data file	230710_133942_INS-GPS_1.raw		
Last raw data file	230710_133942_INS-GPS_1.raw		
Start GPS week	2270		
Start time	135583.090 (7/10/2023 1:39:43 PM)		
End time	147214.860 (7/10/2023 4:53:34 PM)		
Start of fine alignment	135695.626 (7/10/2023 1:41:35 PM)		
Available subsystems	Primary GNSS, IMU		
POS Event Input	Event 1 Input, Event 2 Input, Event 4 Input, Event 5 Input, Event 6 Input		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
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)	0.157	-0.227	-1.289
Reference to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

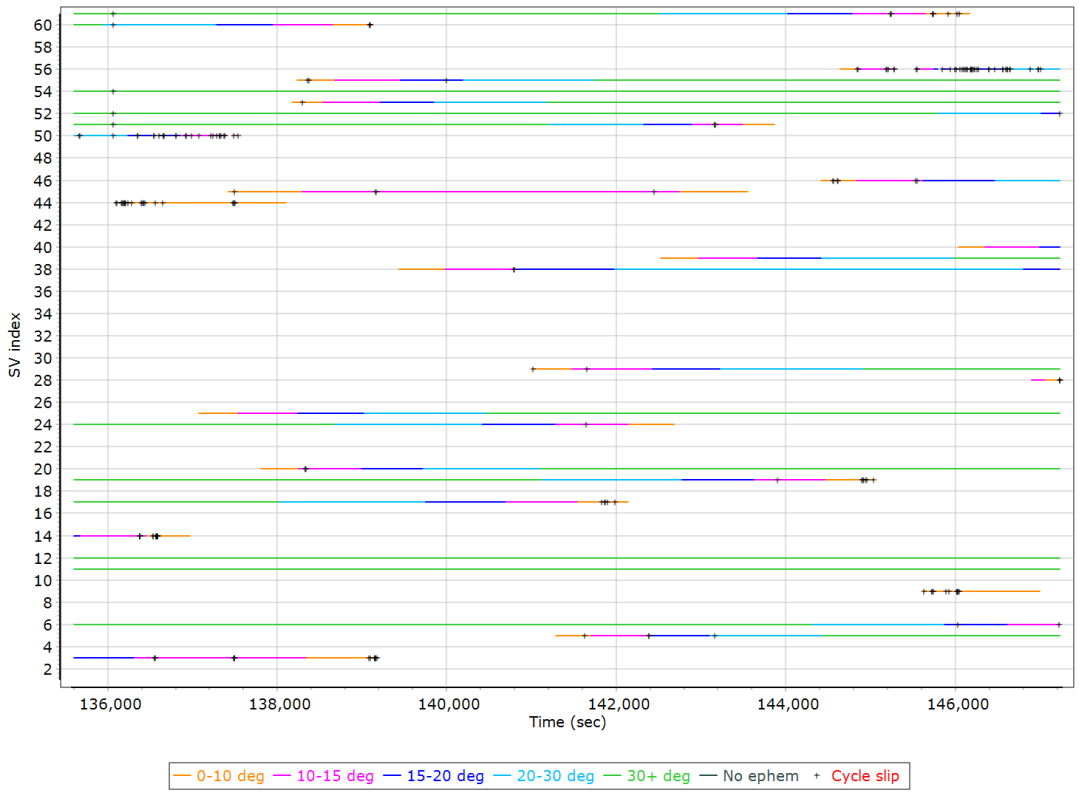
Rover Data QC

Raw IMU Import QC Summary

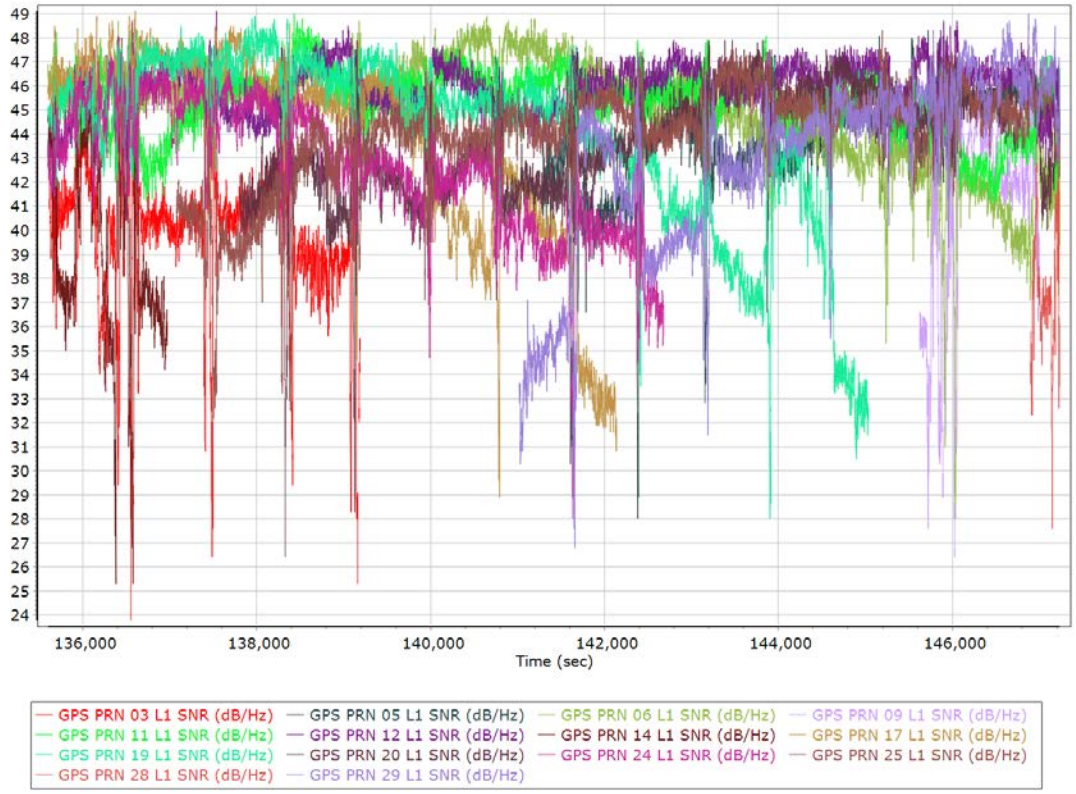
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07102023A_3062.log
IMU Records Processed	2325950
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

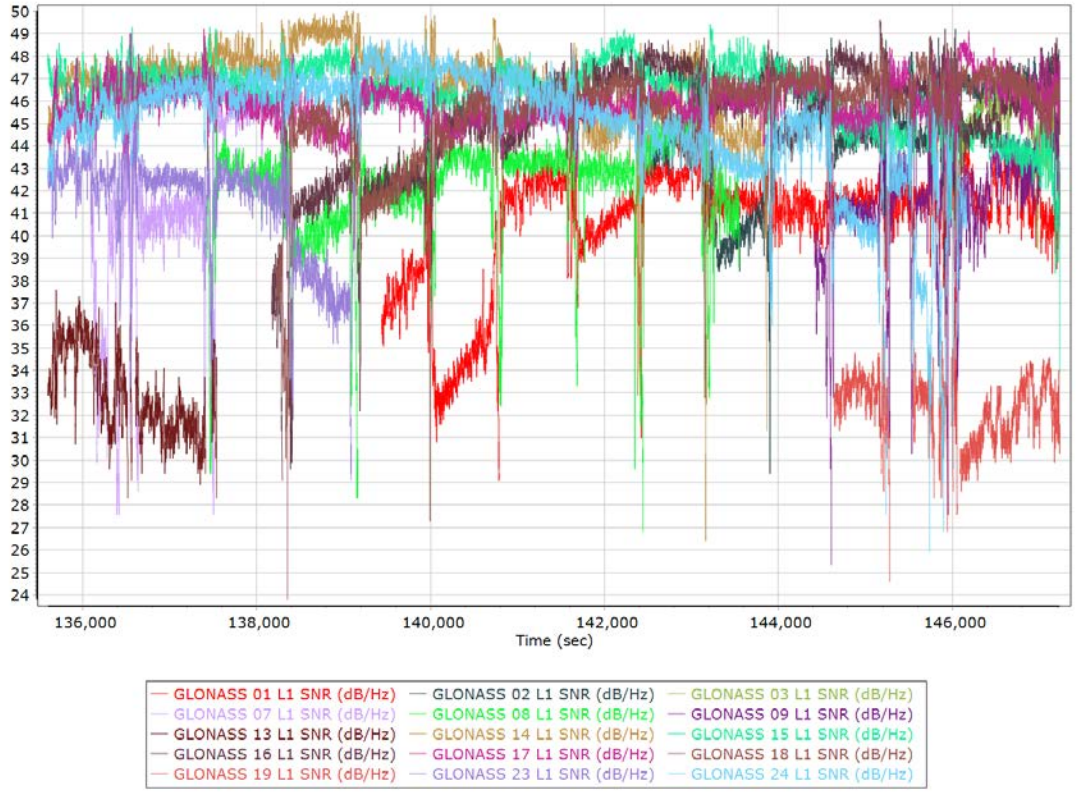
GPS/GLONASS L1 Satellite Lock/Elevation



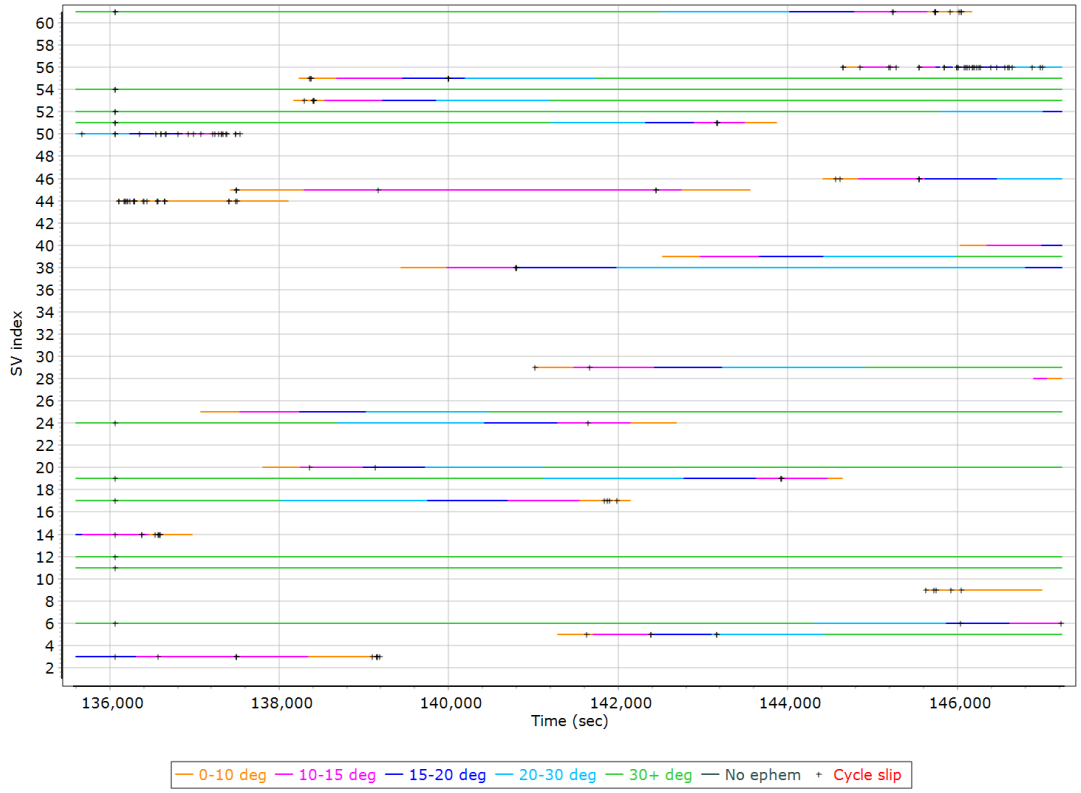
GPS L1 SNR



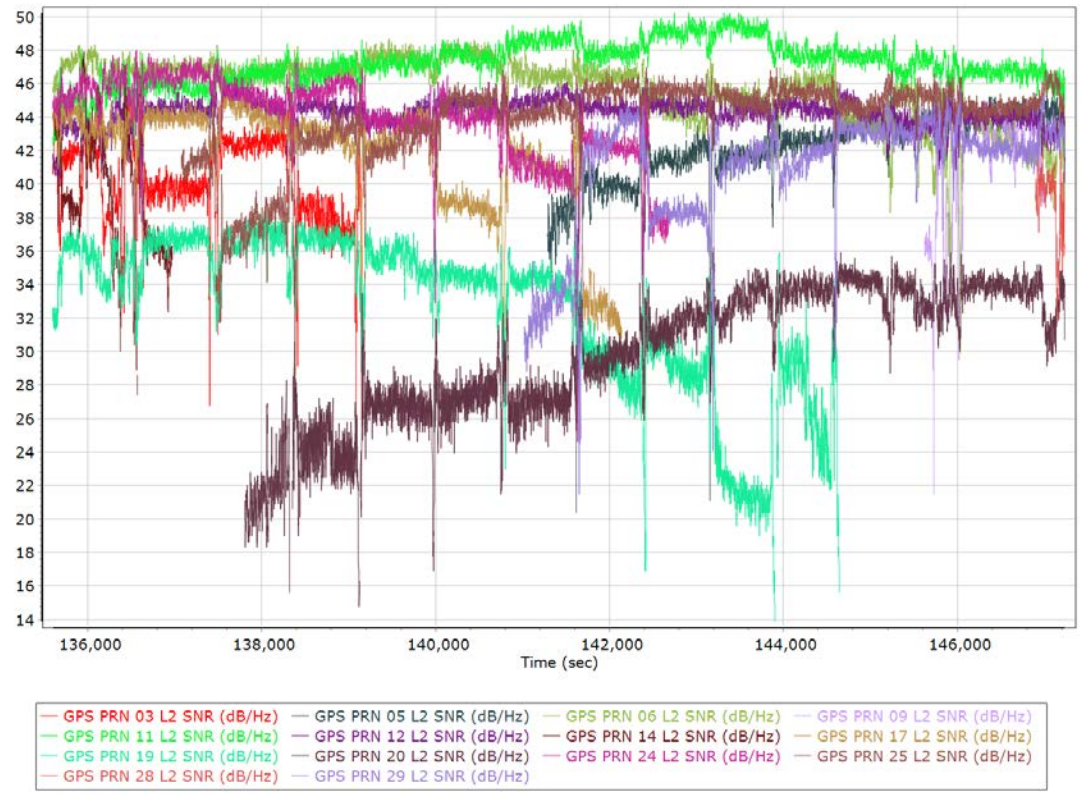
GLONASS L1 SNR



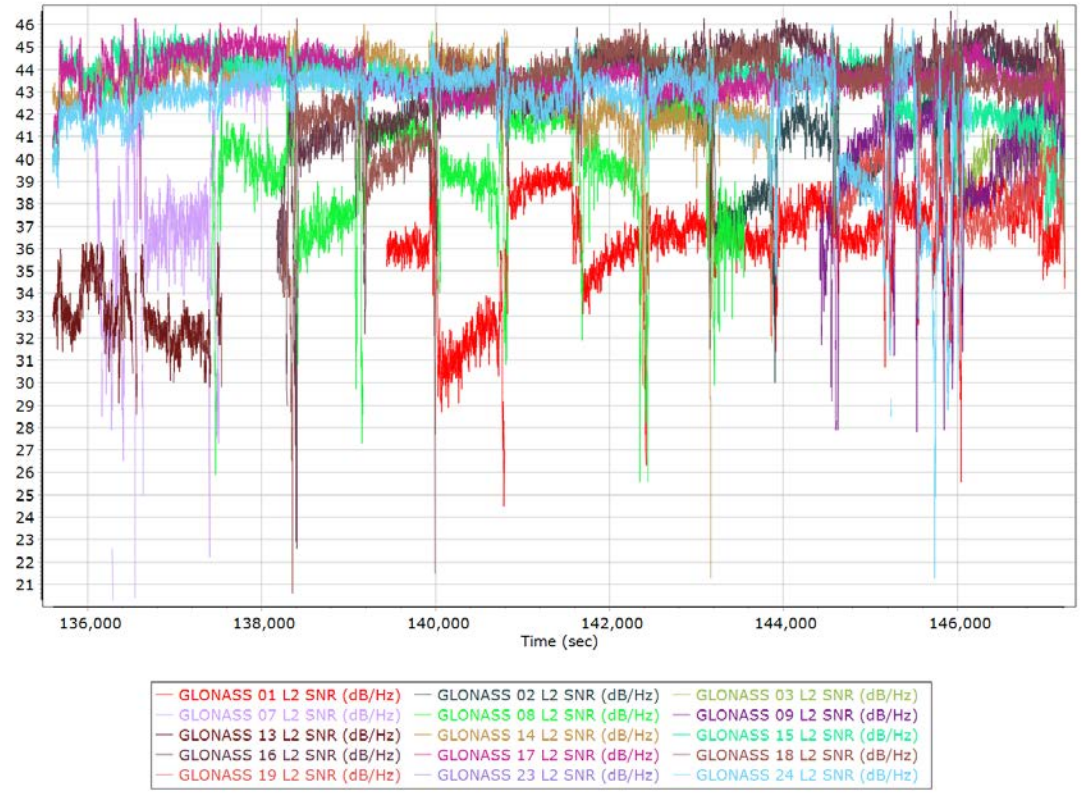
GPS/GLONASS L2 Satellite Lock/Elevation



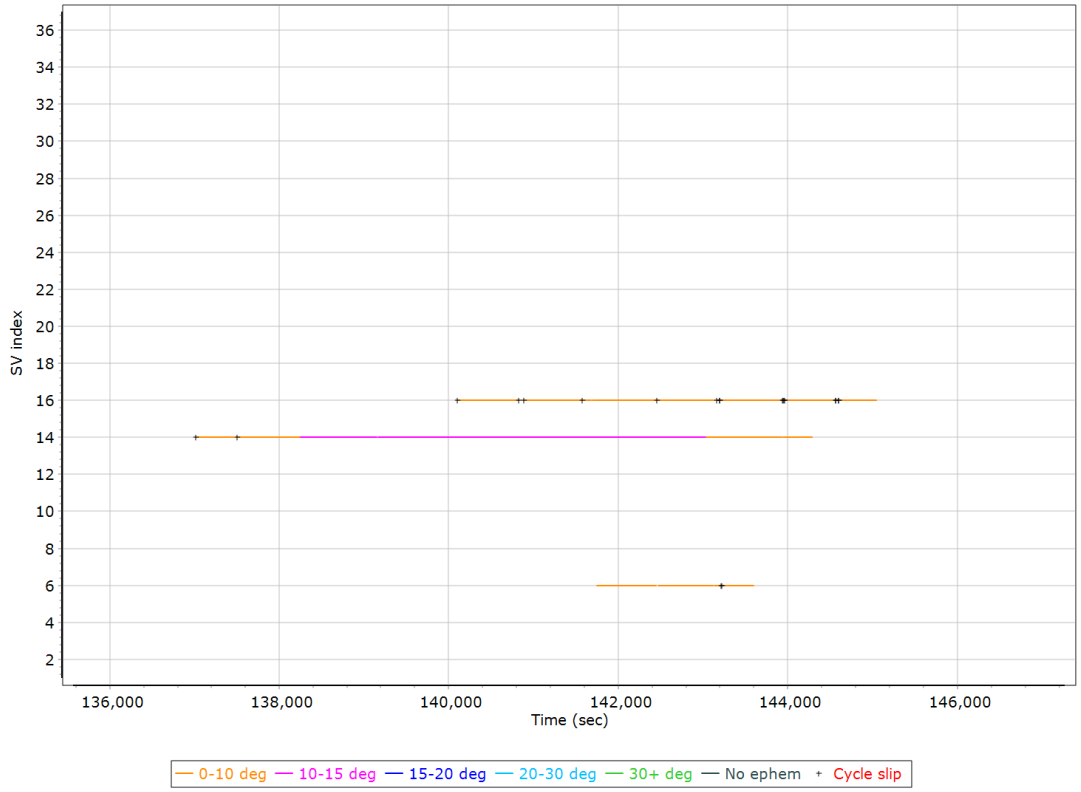
GPS L2 SNR



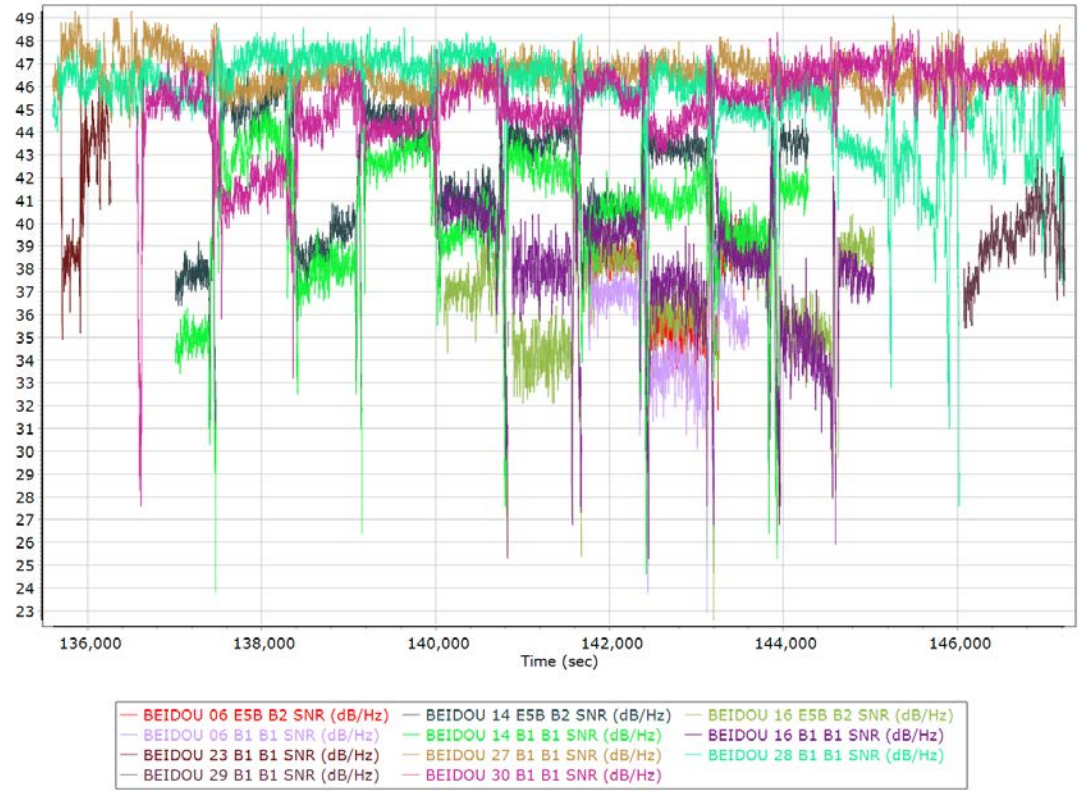
GLONASS L2 SNR



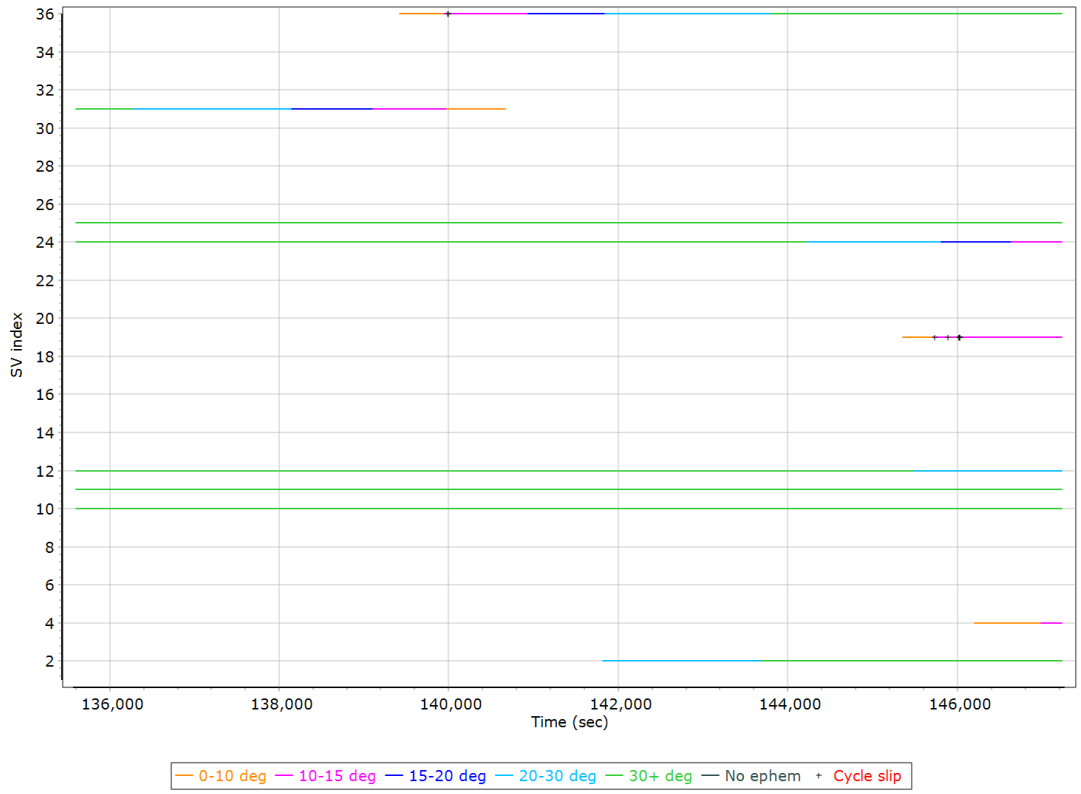
BEIDOU Satellite Lock/Elevation



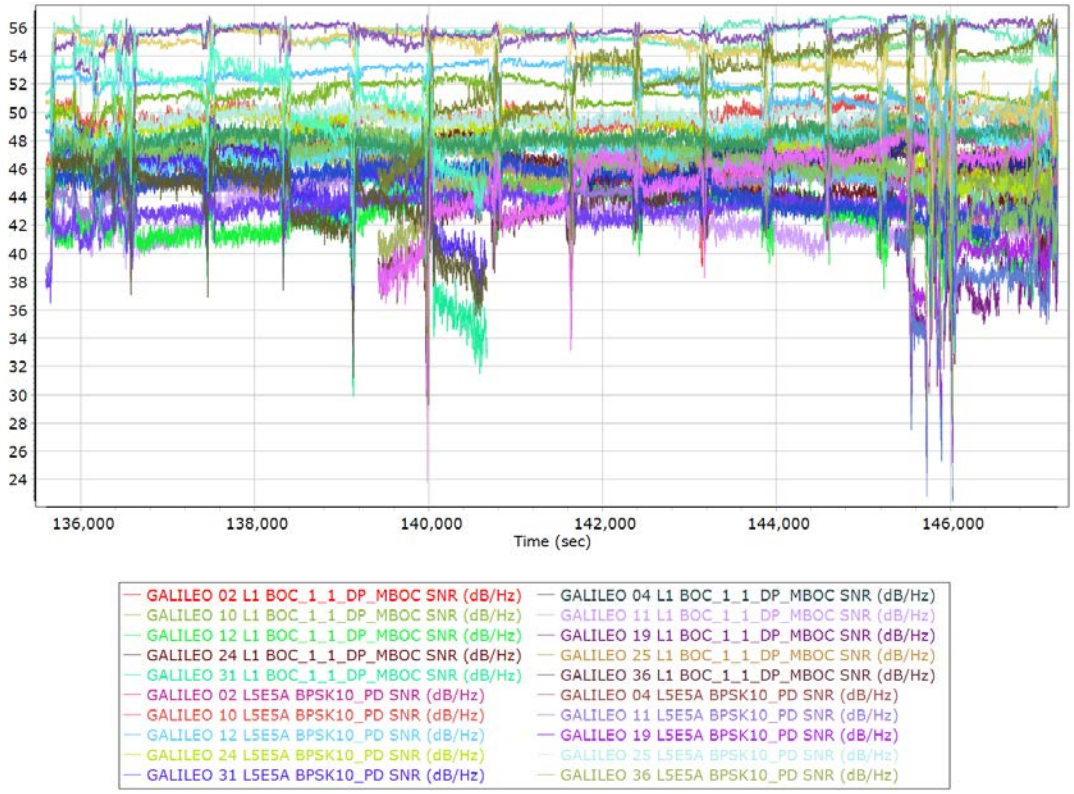
BEIDOU SNR



GALILEO Satellite Lock/Elevation

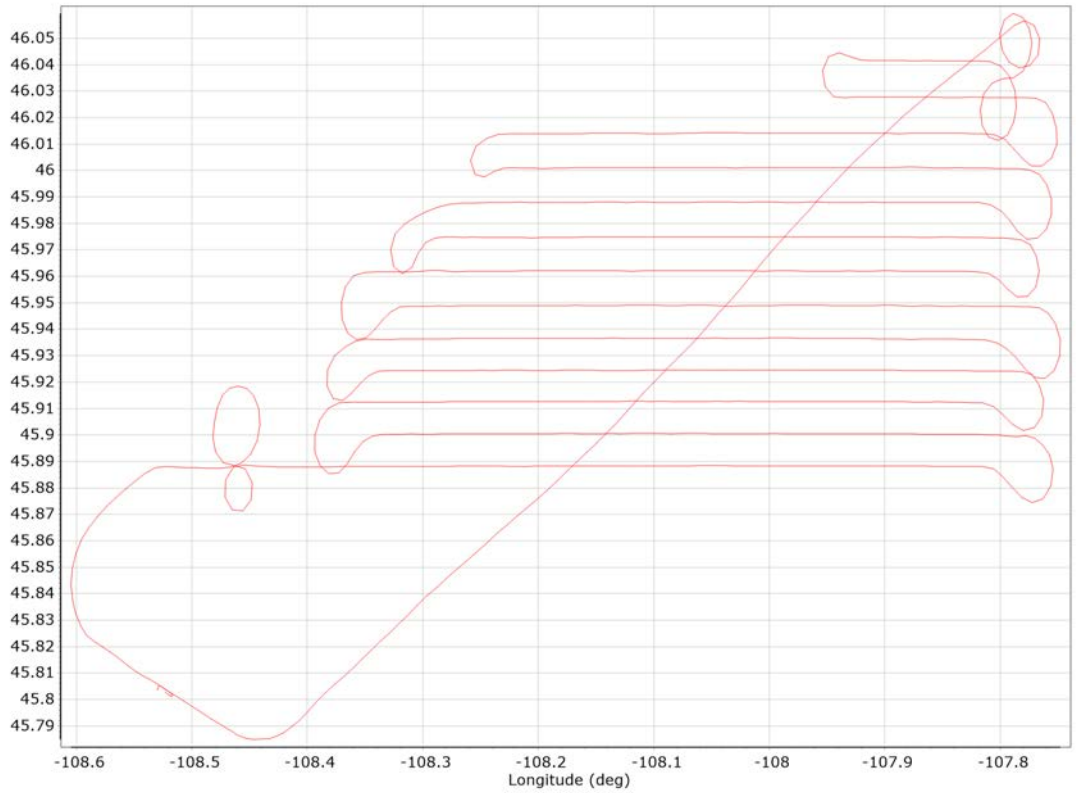


GALILEO SNR

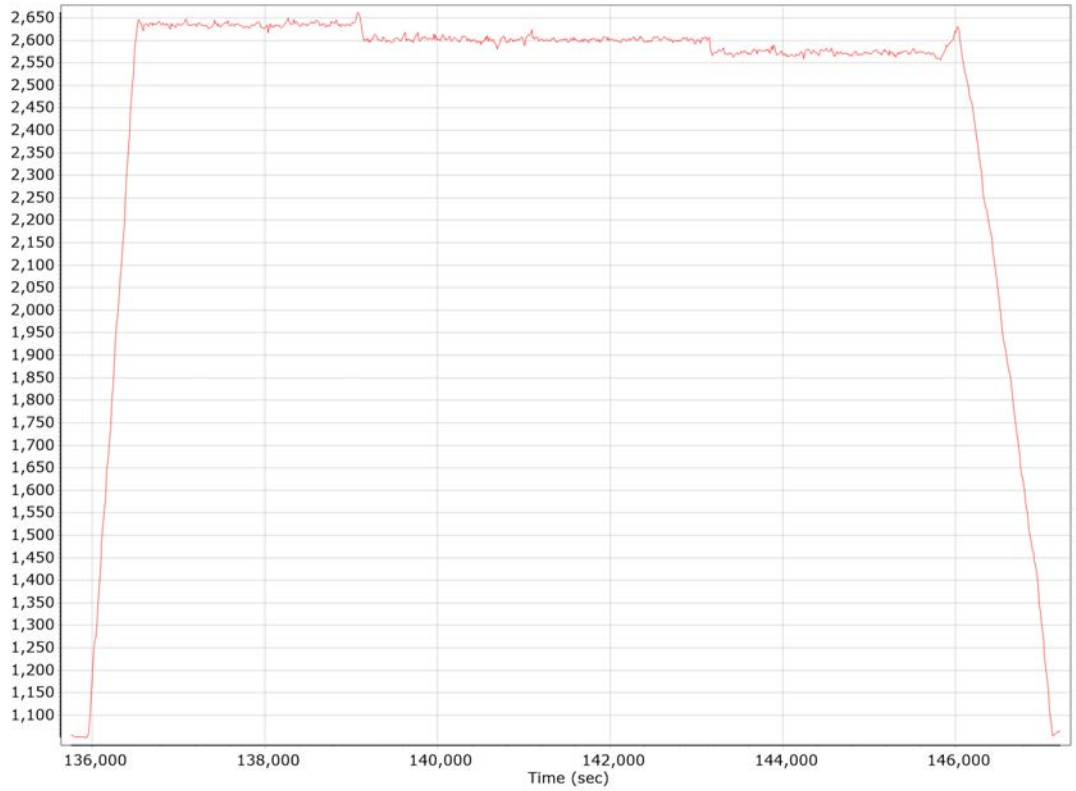

56
54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
136,000
138,000
140,000
142,000
144,000
146,000
Time (sec)
GALILEO 02 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 10 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 19 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 24 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 25 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 31 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 36 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

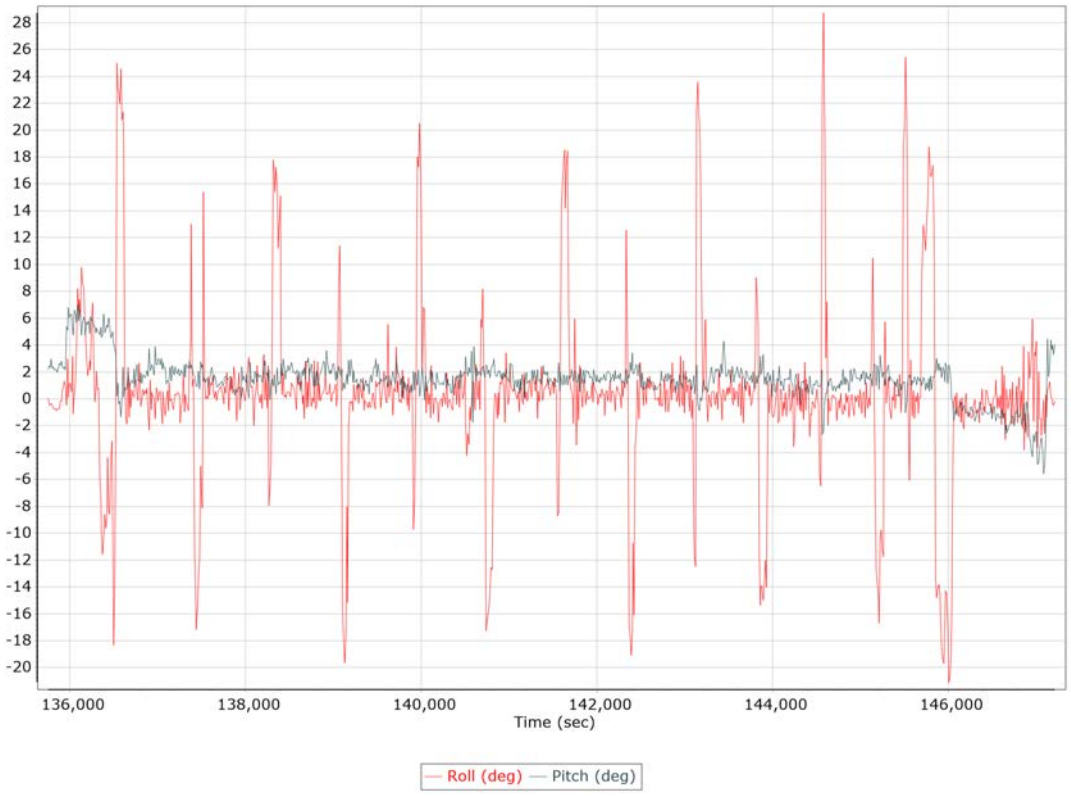
Top View



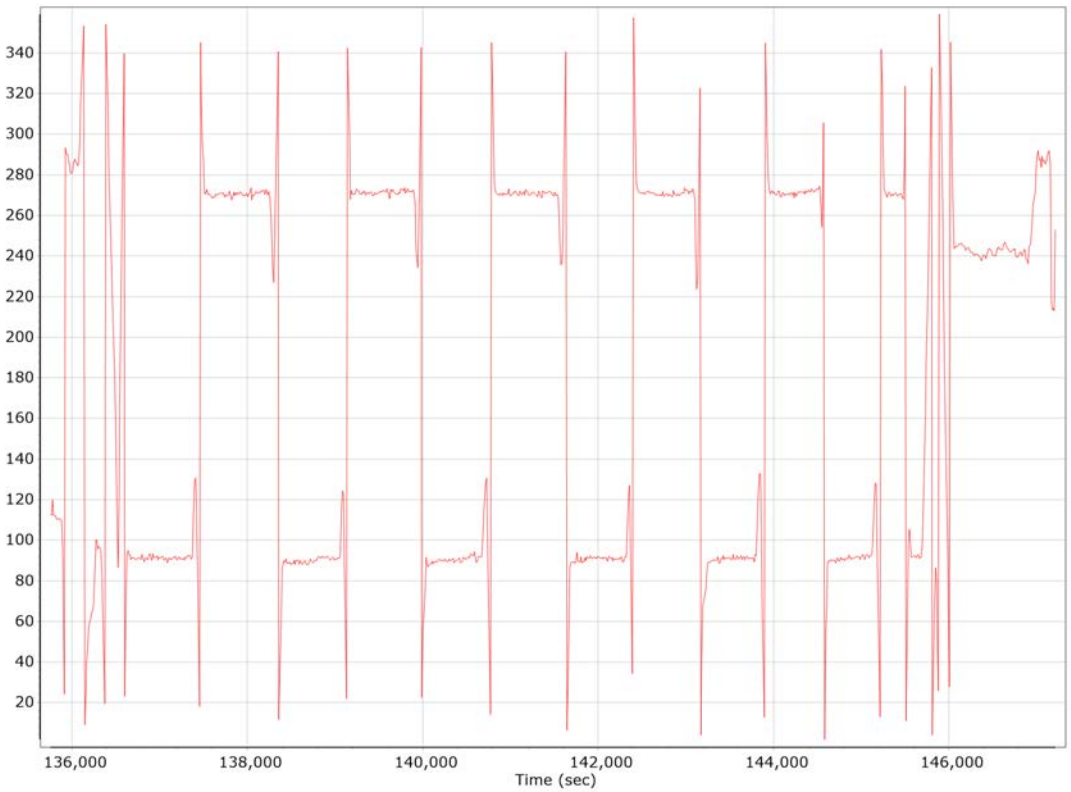
Altitude



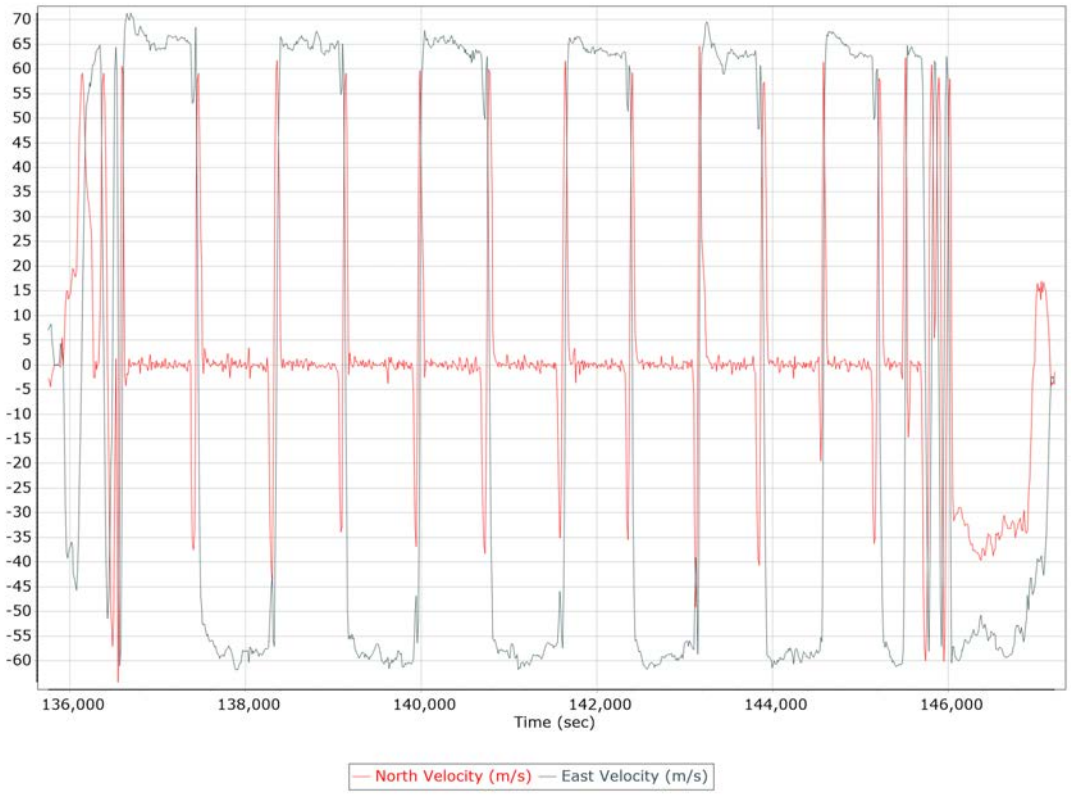
Roll/Pitch



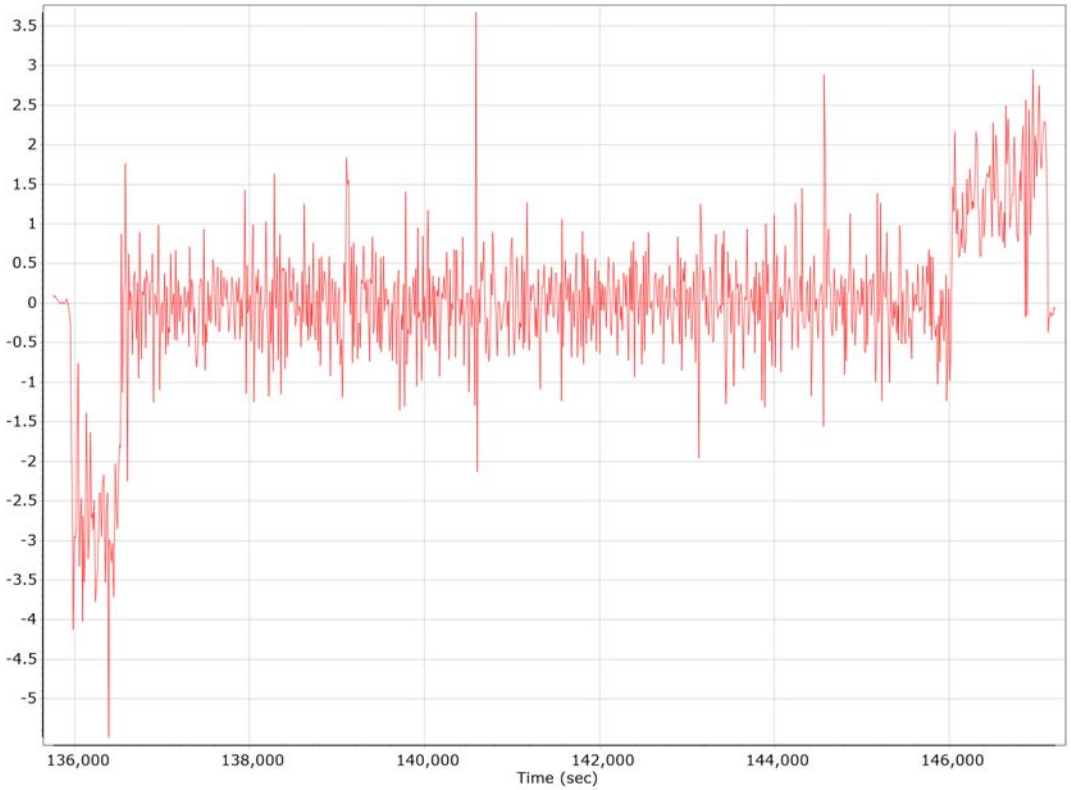
Heading



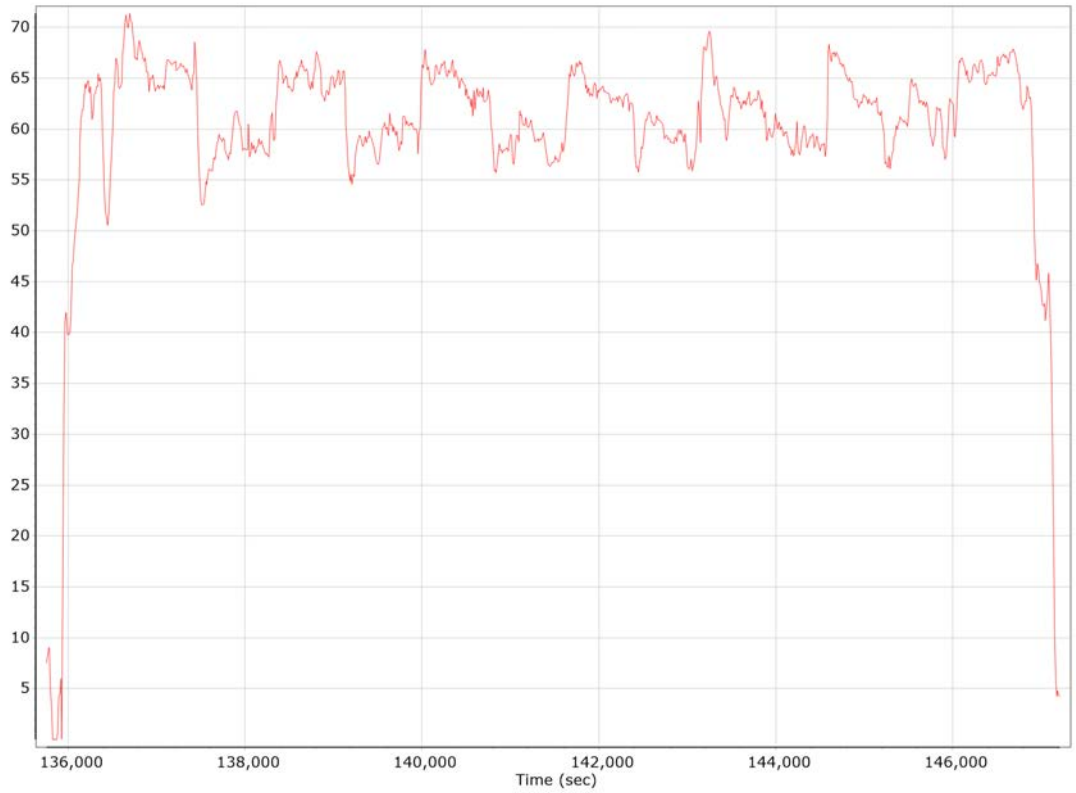
North/East Velocity



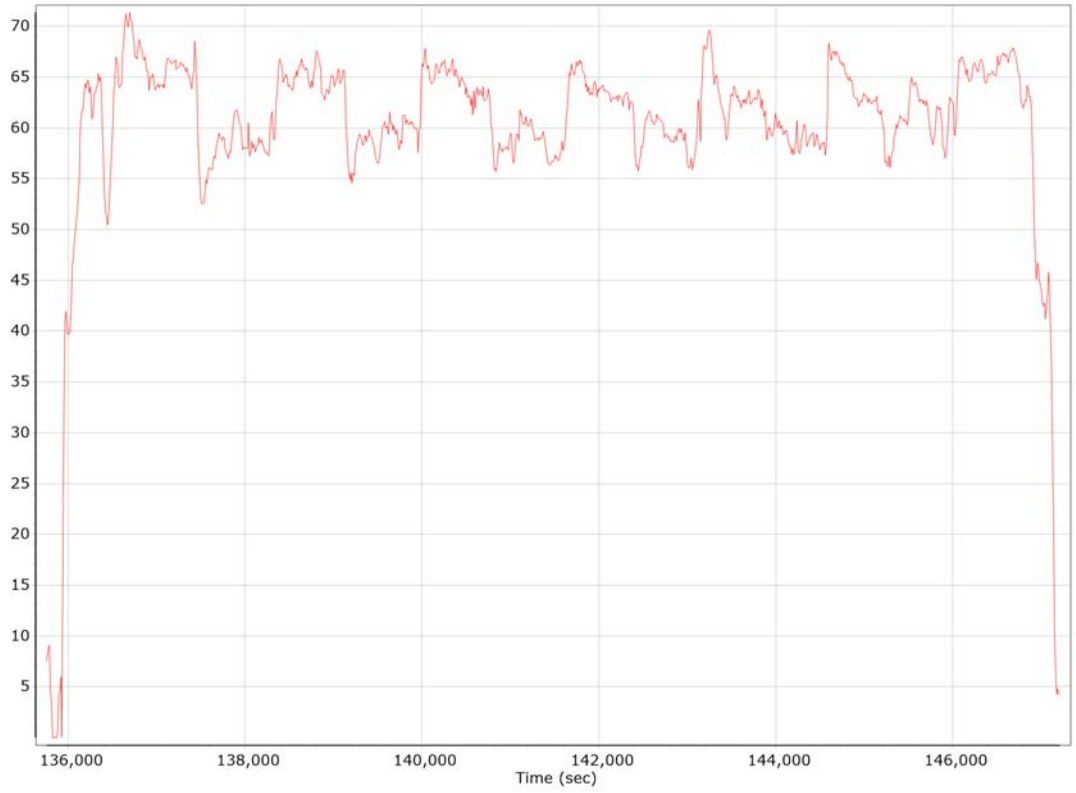
Down Velocity



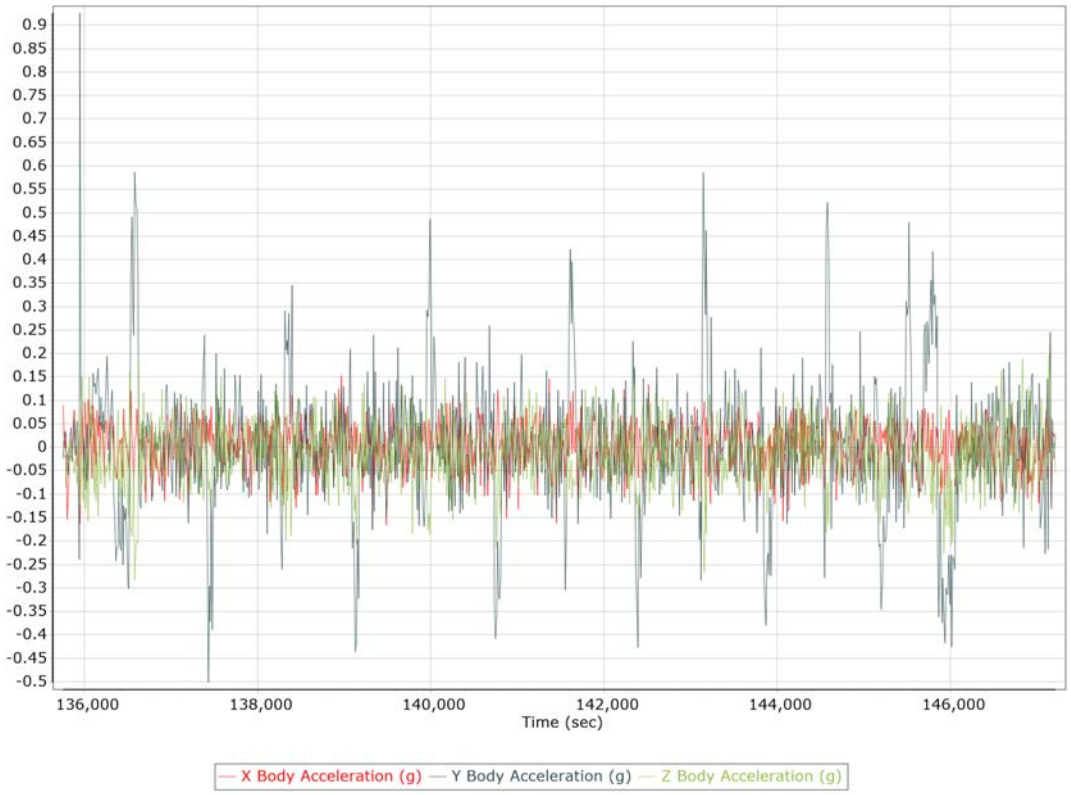
Total Speed



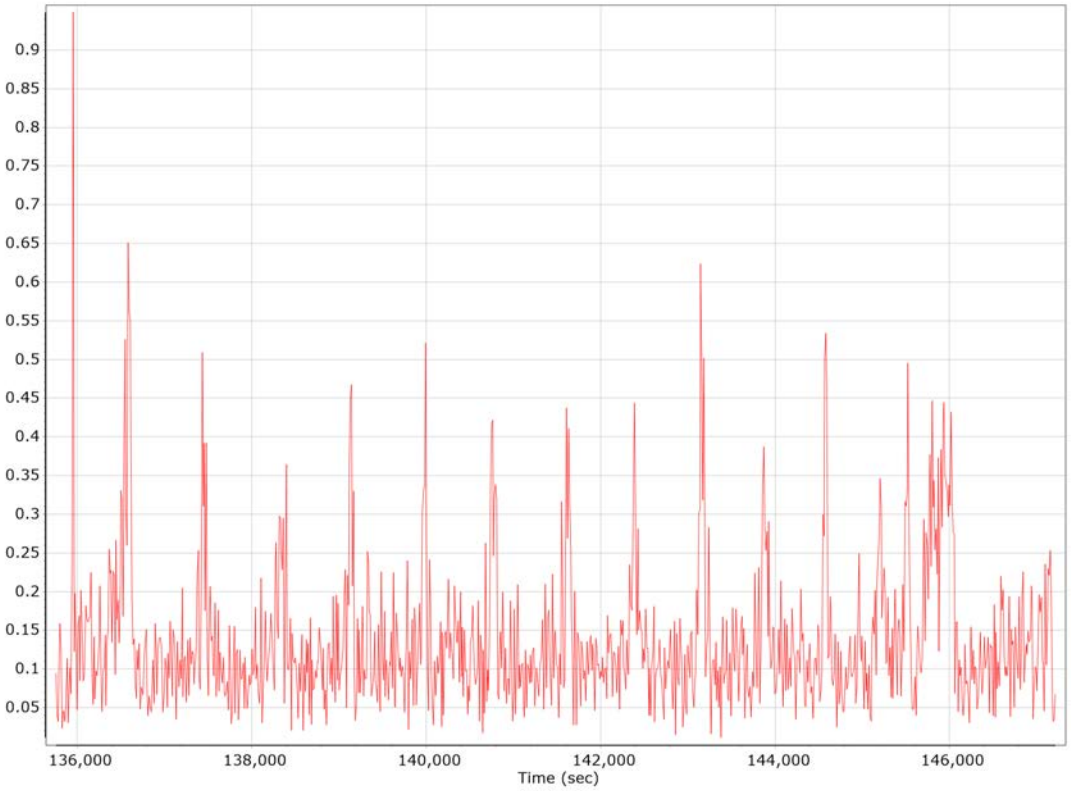
Ground Speed



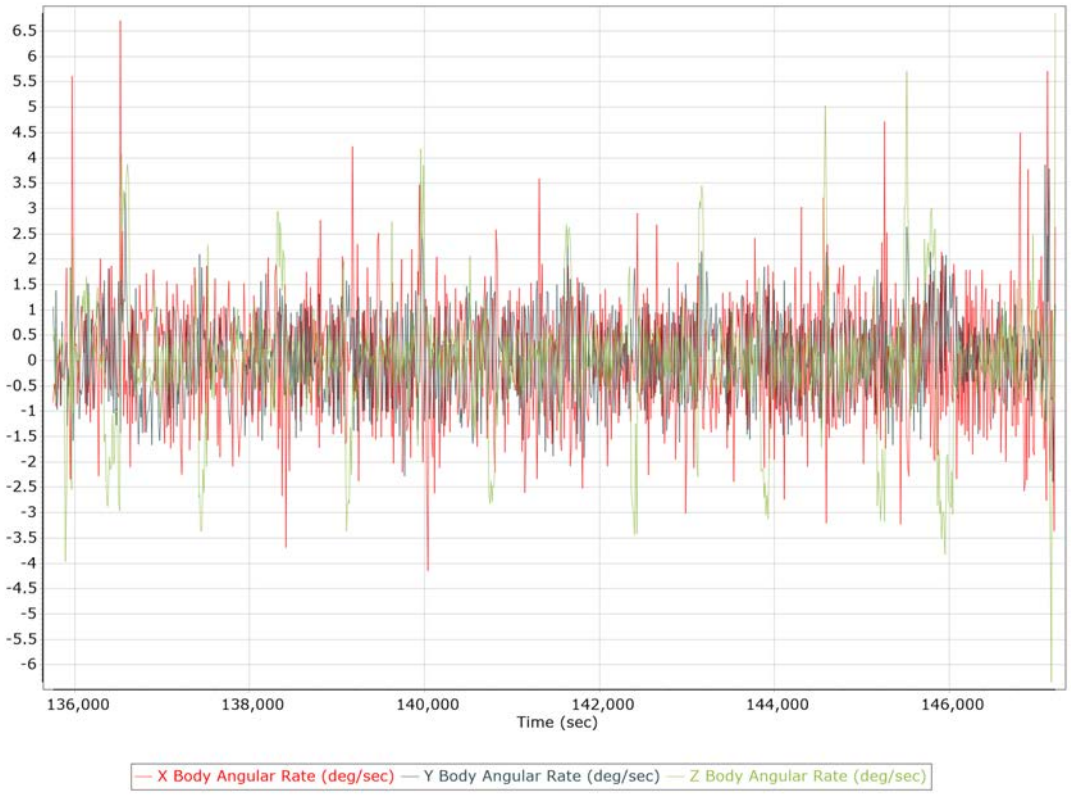
Body Acceleration



Total Body Acceleration

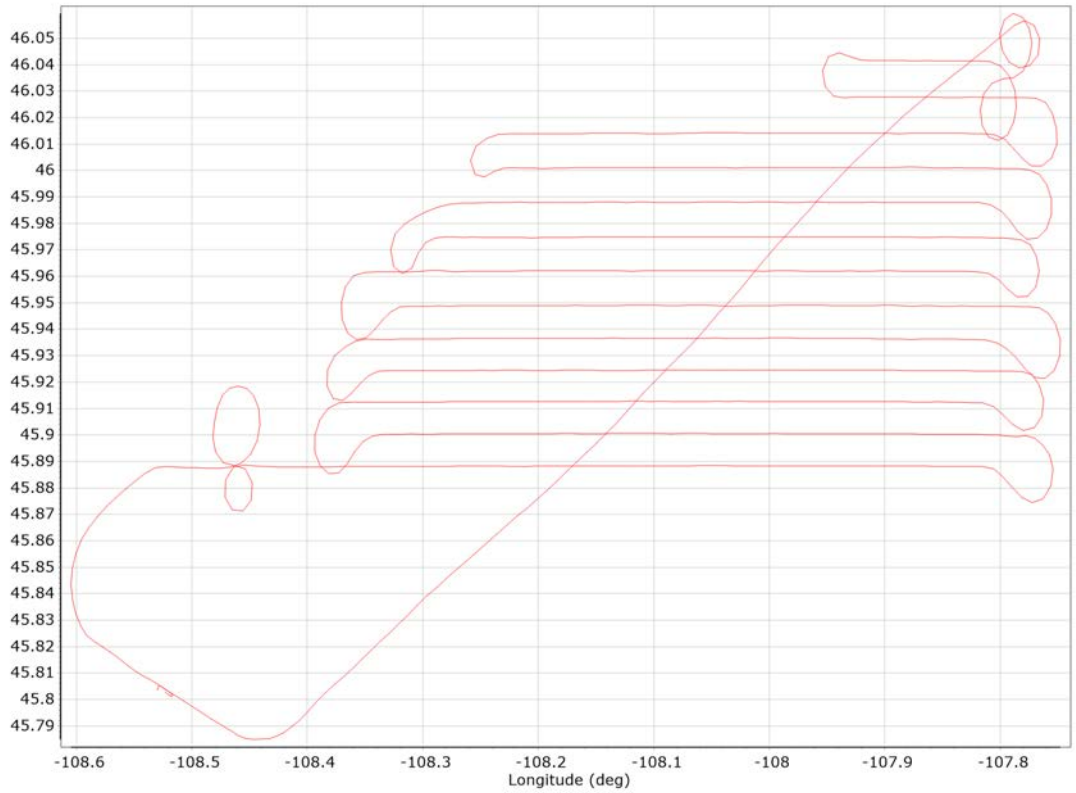


Body Angular Rate

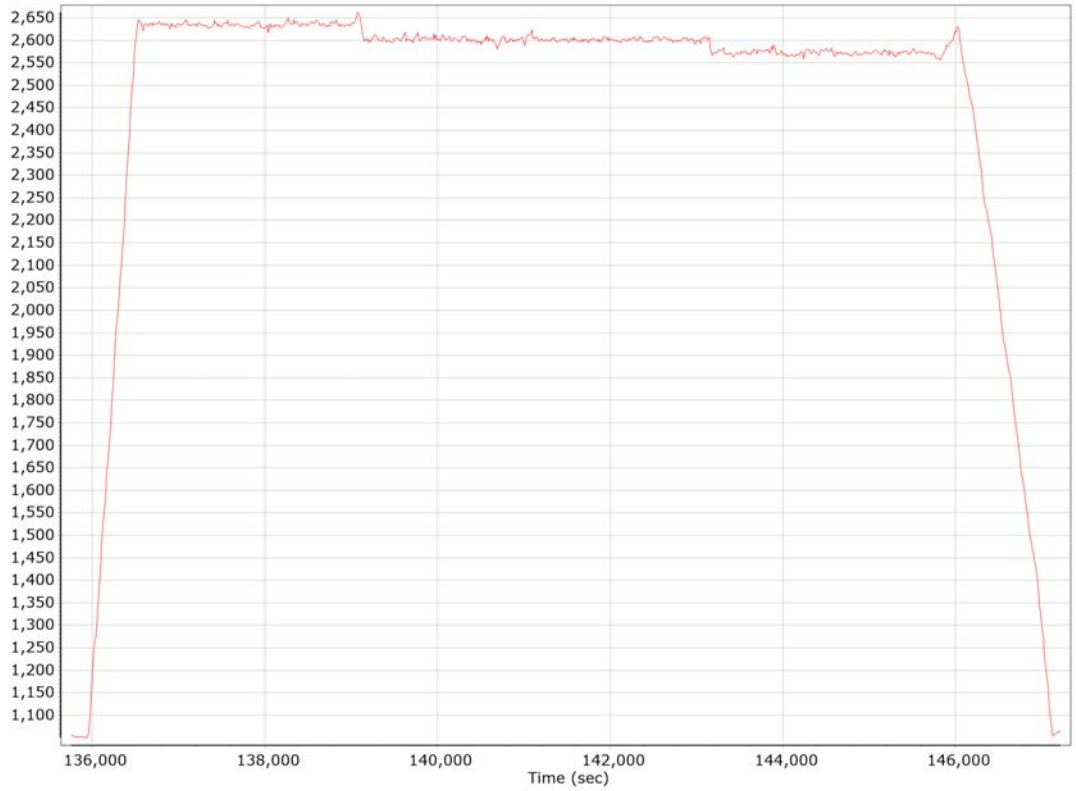


Forward Processed Trajectory Information

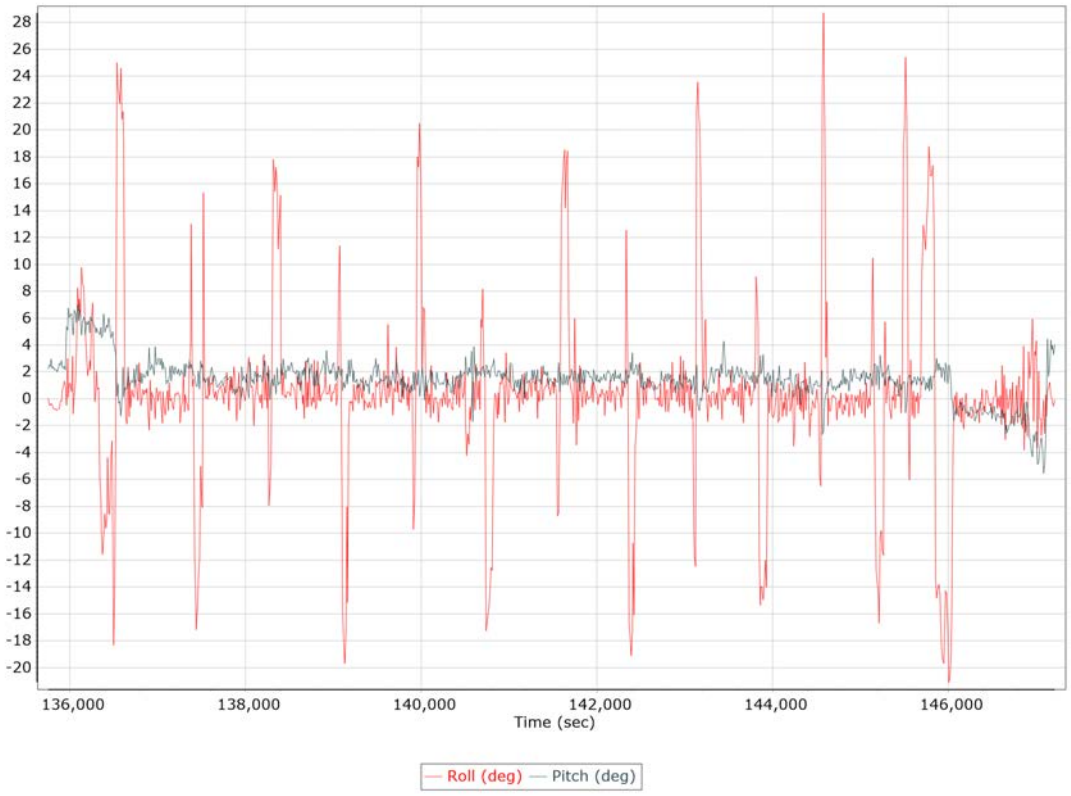
Top View



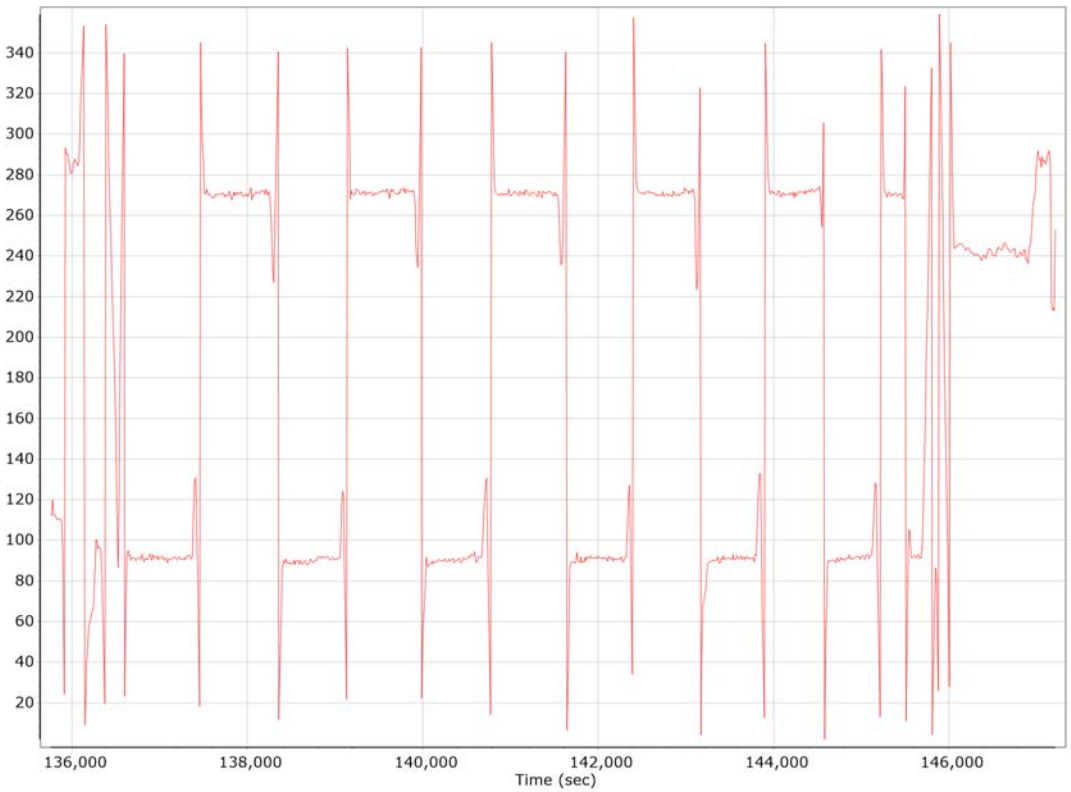
Altitude



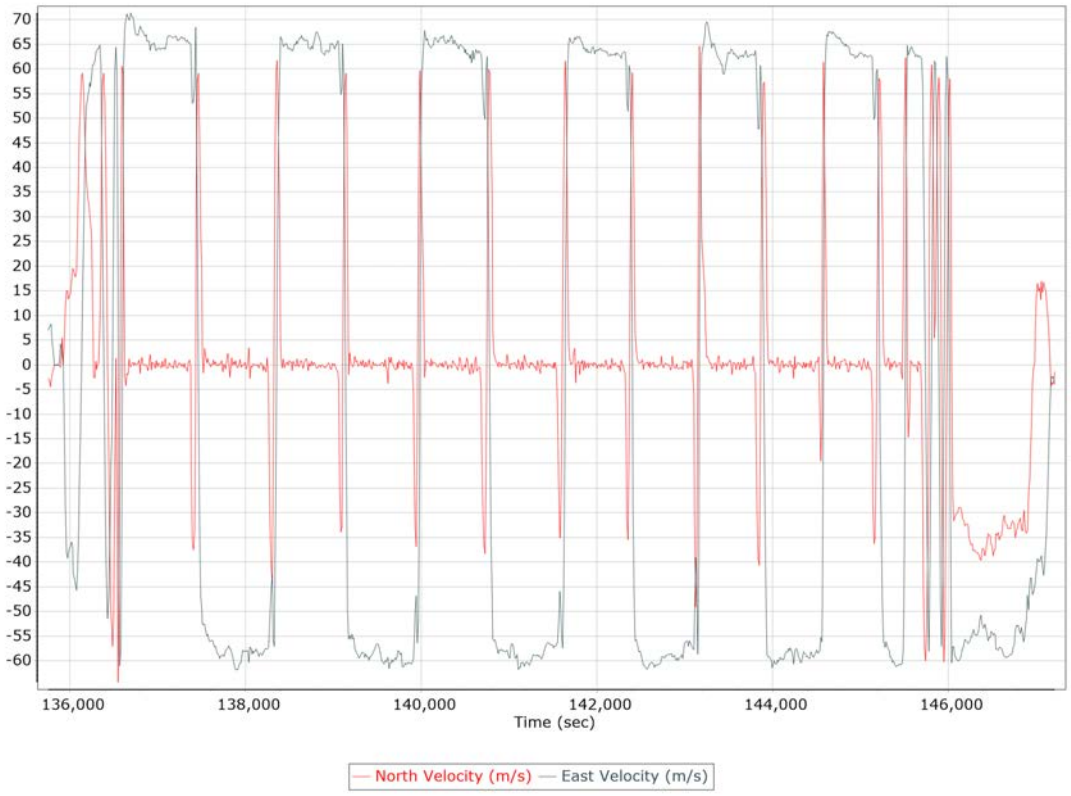
Roll/Pitch



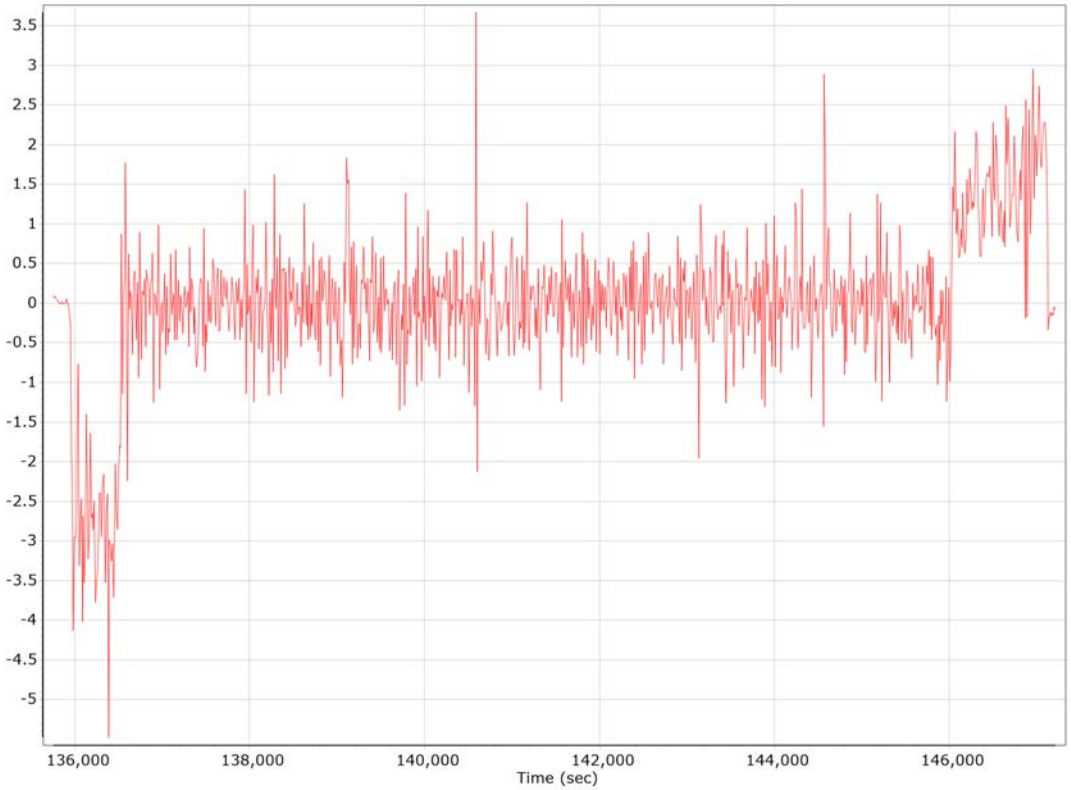
Heading



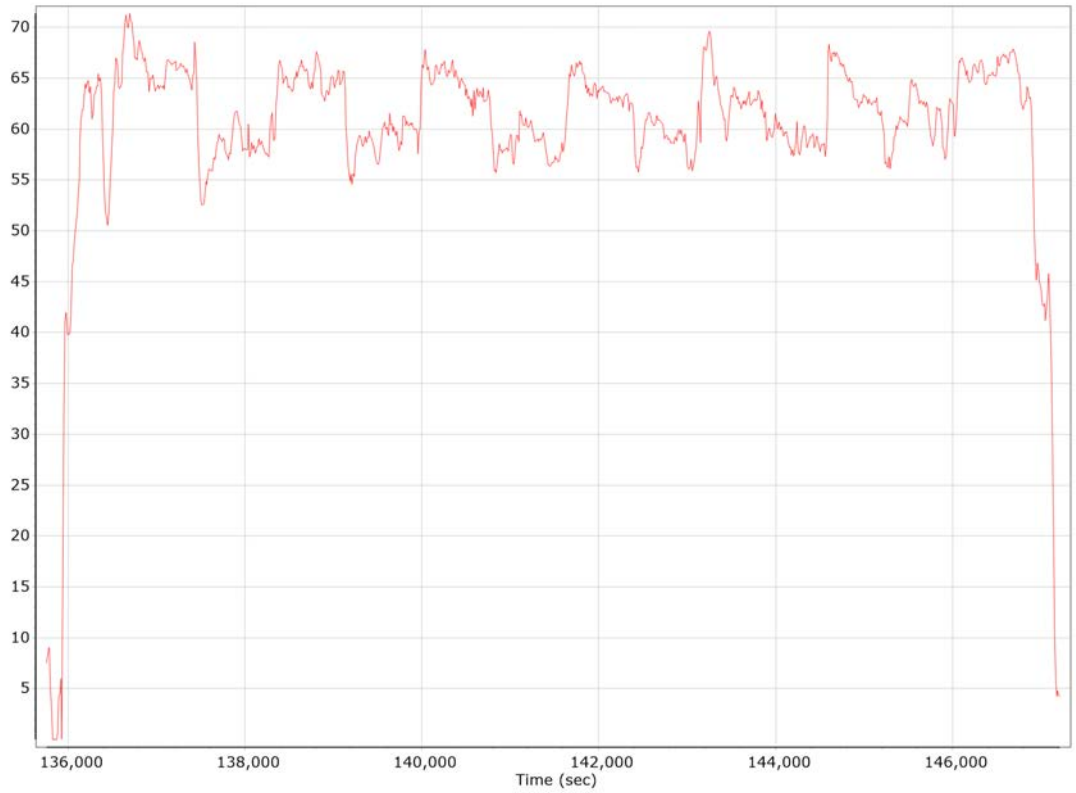
North/East Velocity



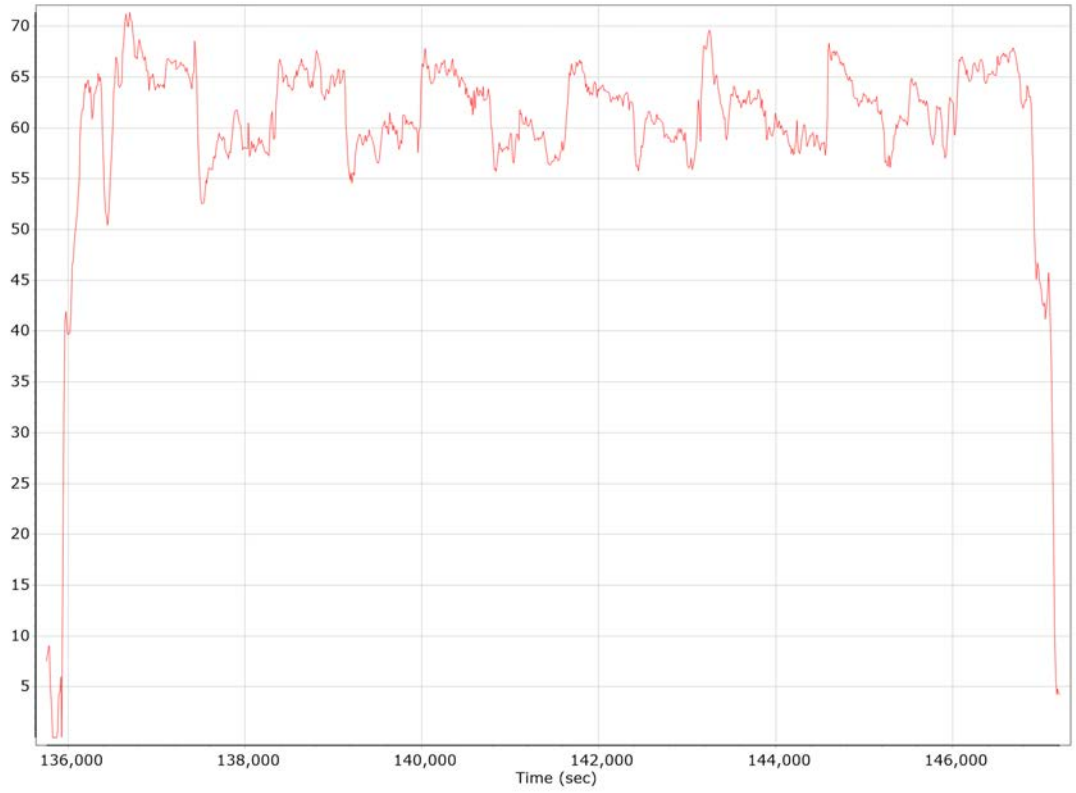
Down Velocity



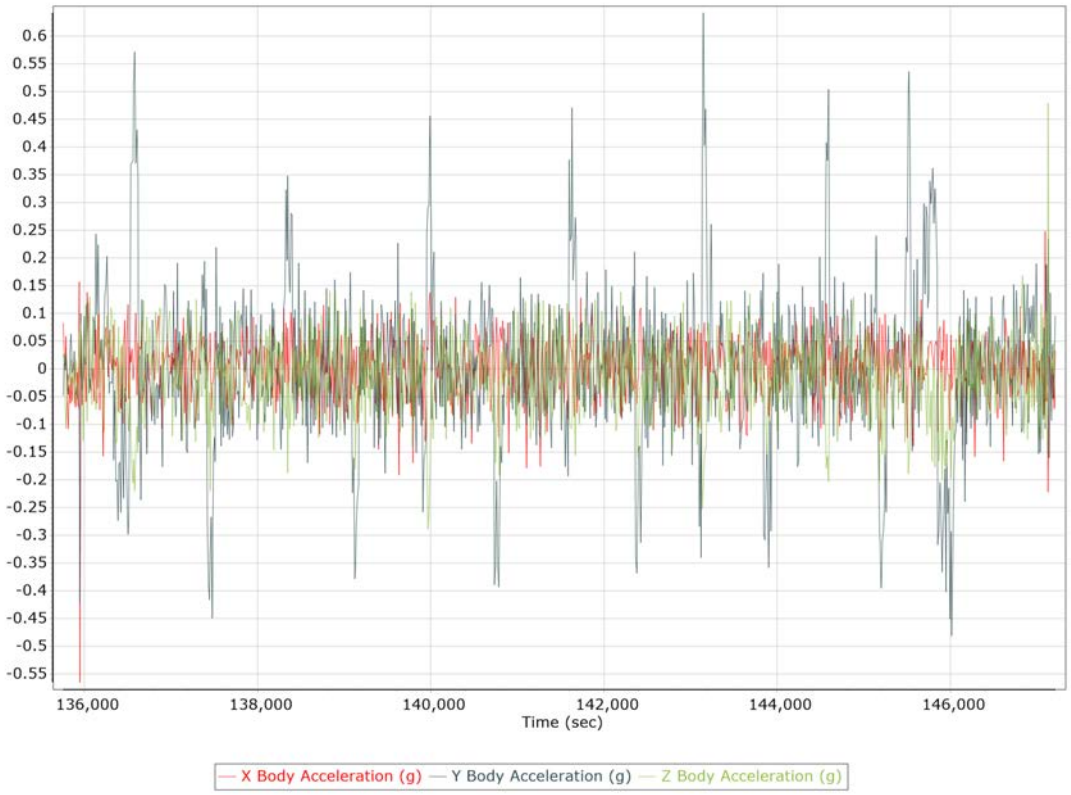
Total Speed



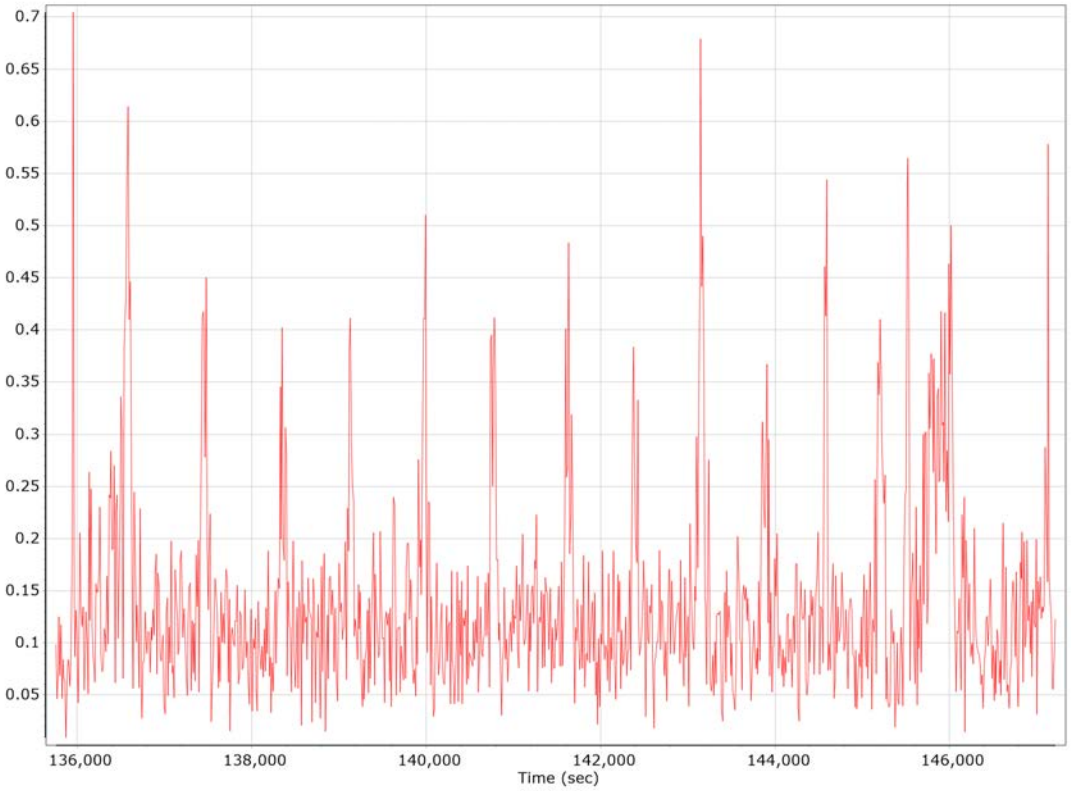
Ground Speed



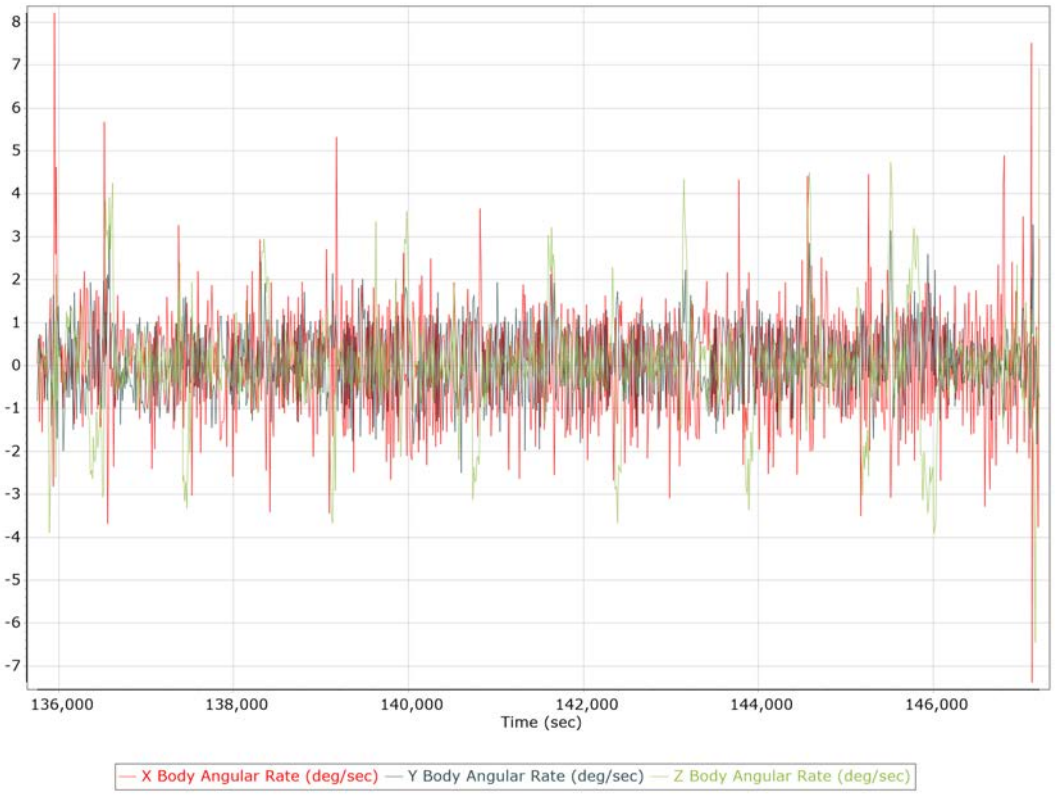
Body Acceleration



Total Body Acceleration



Body Angular Rate



GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	9	8
Number of GLONASS SV	0	9	7
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	6	9	7
Total number of SV	14	25	21
PDOP	0.96	1.89	1.17
QC Solution Gaps	1.00	1.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	11600.00	0.00	1.00
Percentage	99.99	0.00	0.01

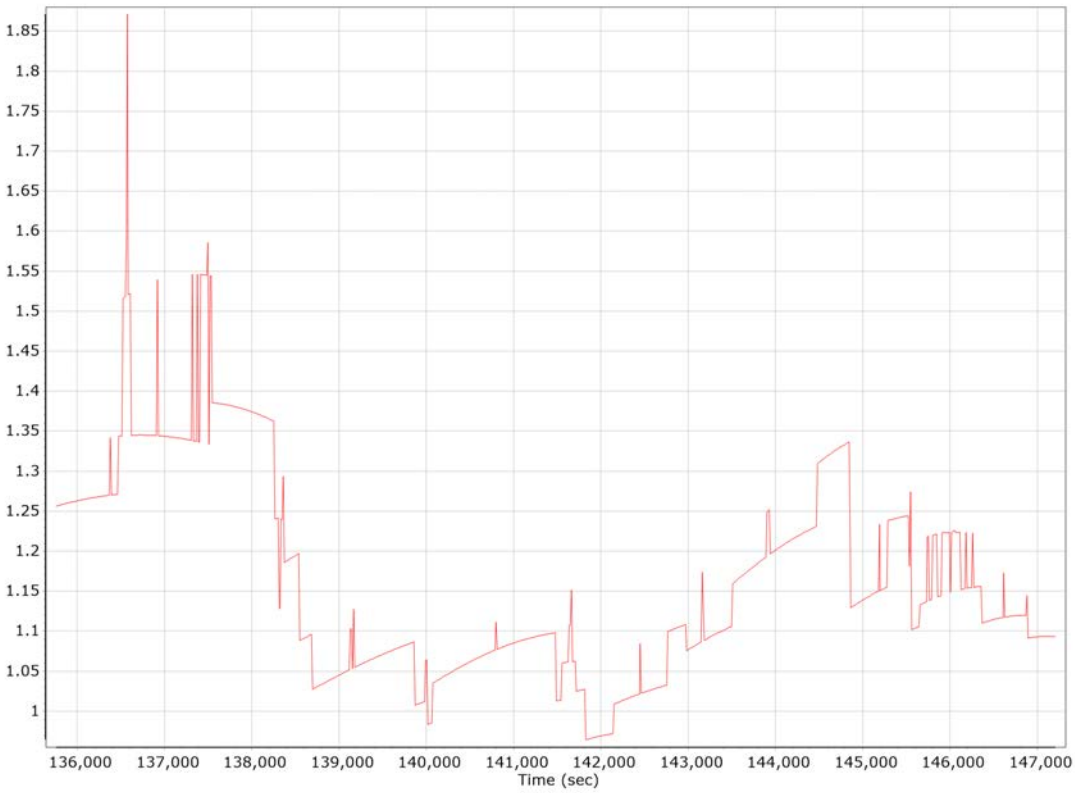
Num SVs in solution



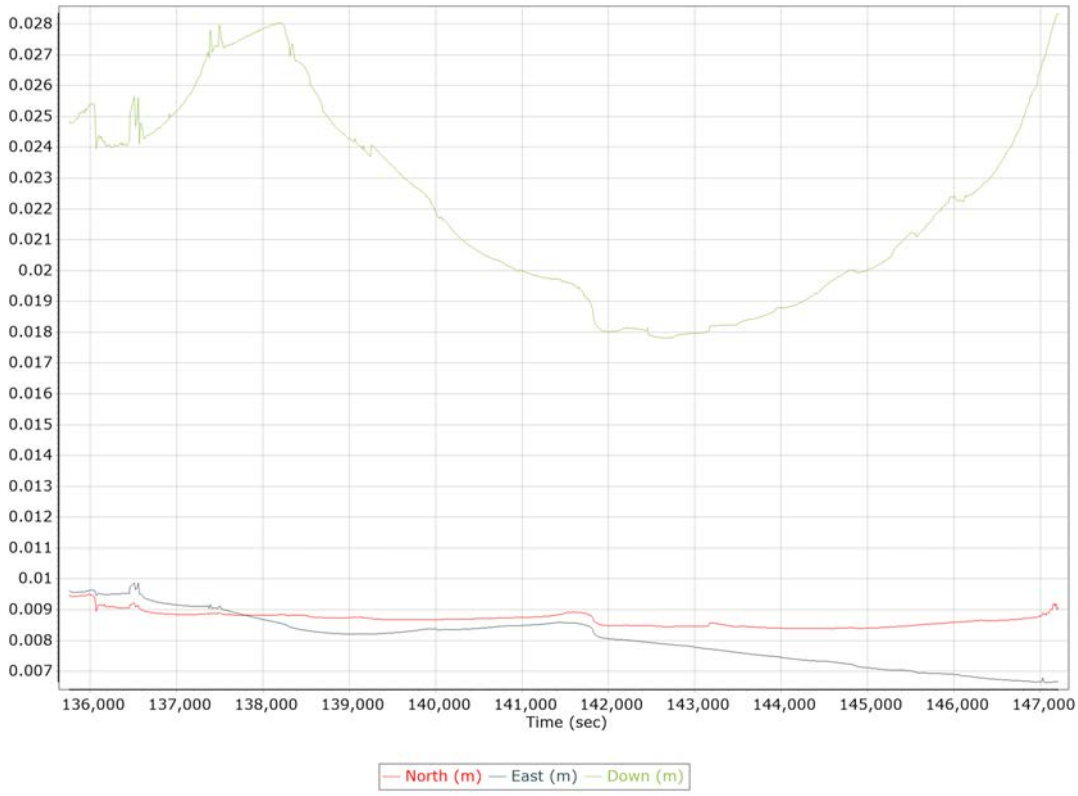
Forward/Reverse Separation



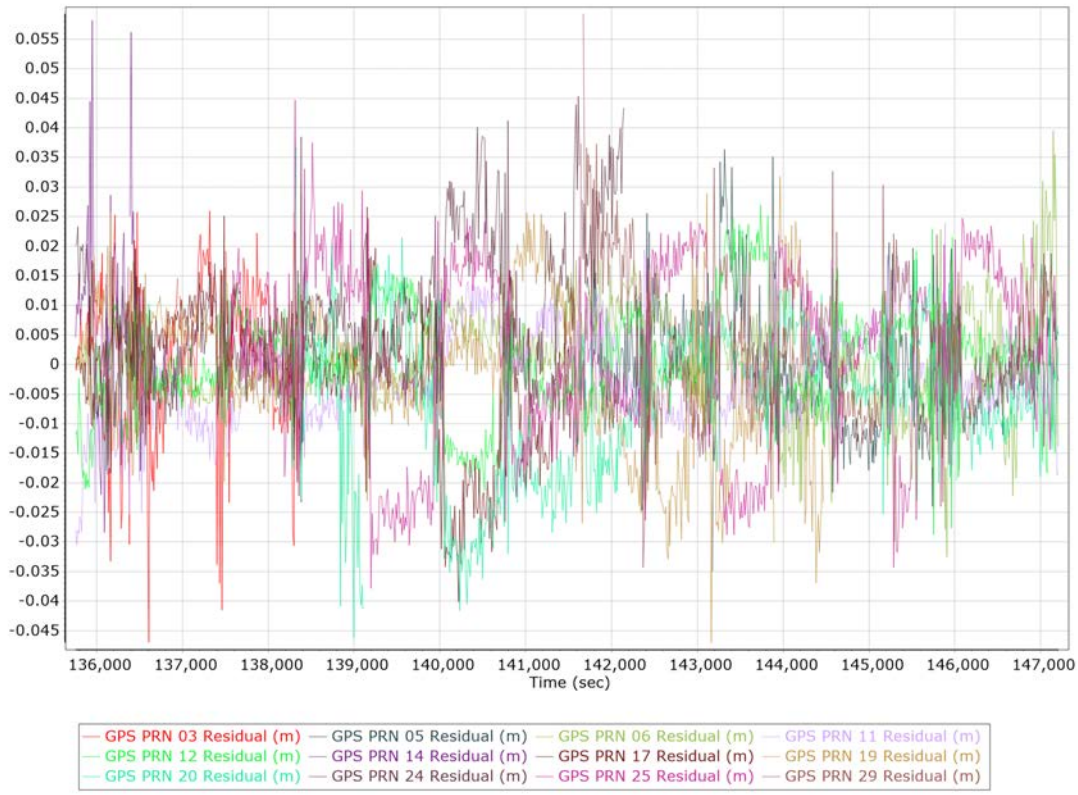
PDOP



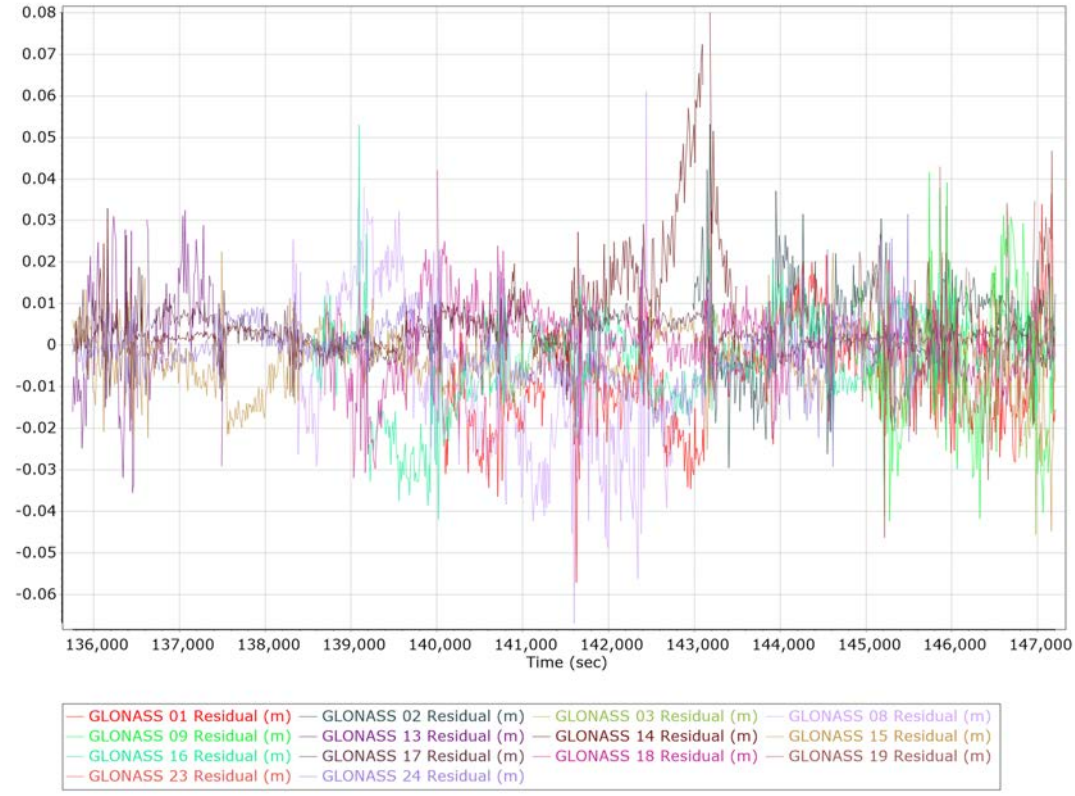
Estimated Position Accuracy



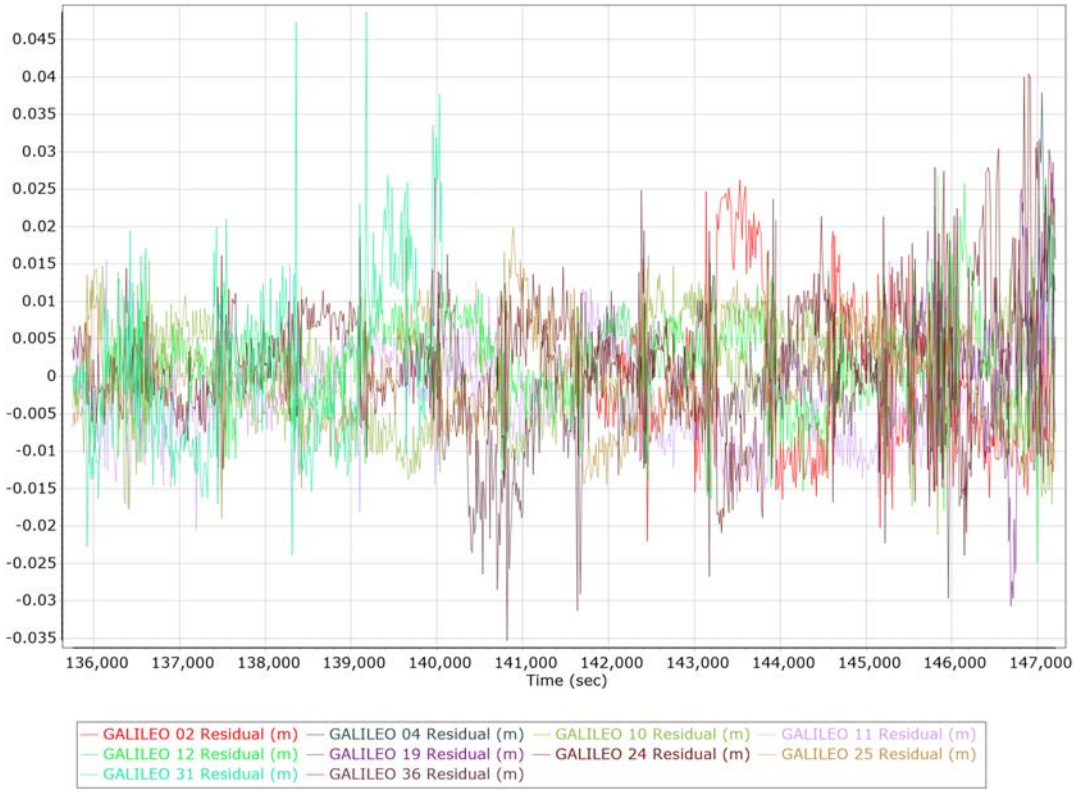
GPS Residuals



GLONASS Residuals



GALILEO Residuals



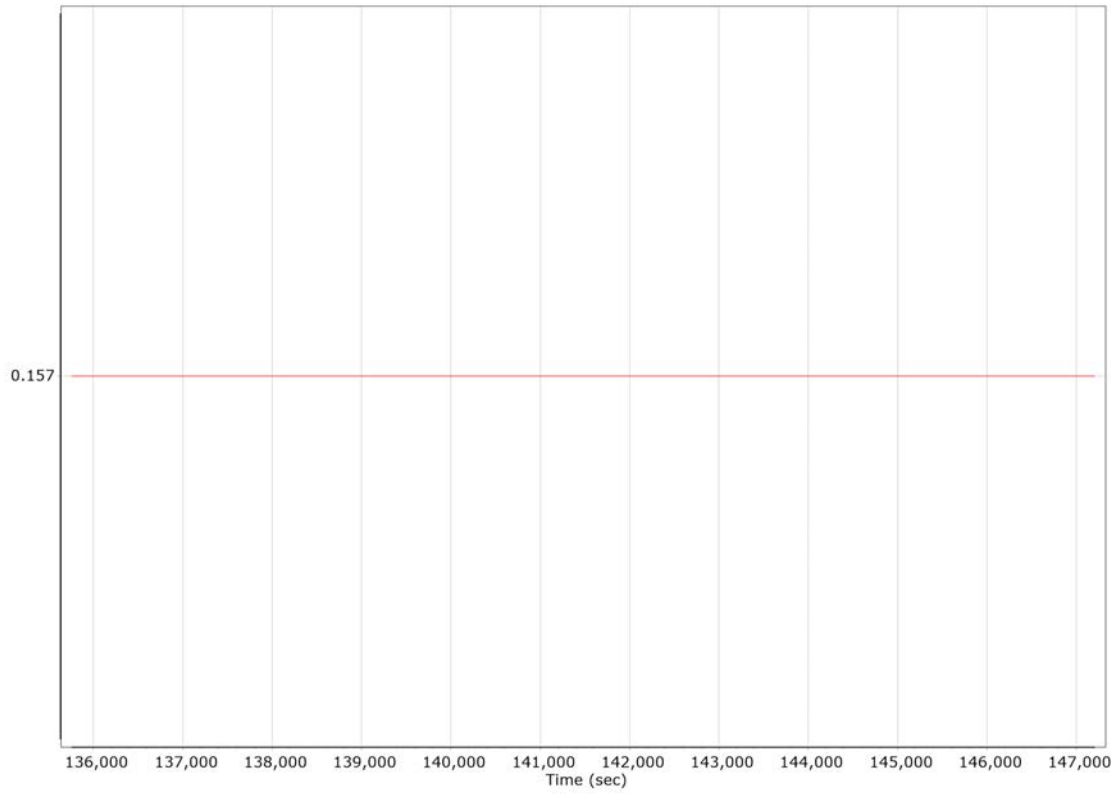
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	False		
Processing start time	135584.000 (7/10/2023 1:39:44 PM)		
Processing end time	147215.000 (7/10/2023 4:53:35 PM)		
Initial attitude source	Primary GNSS Track		
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)	0.157	-0.181	-0.732
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

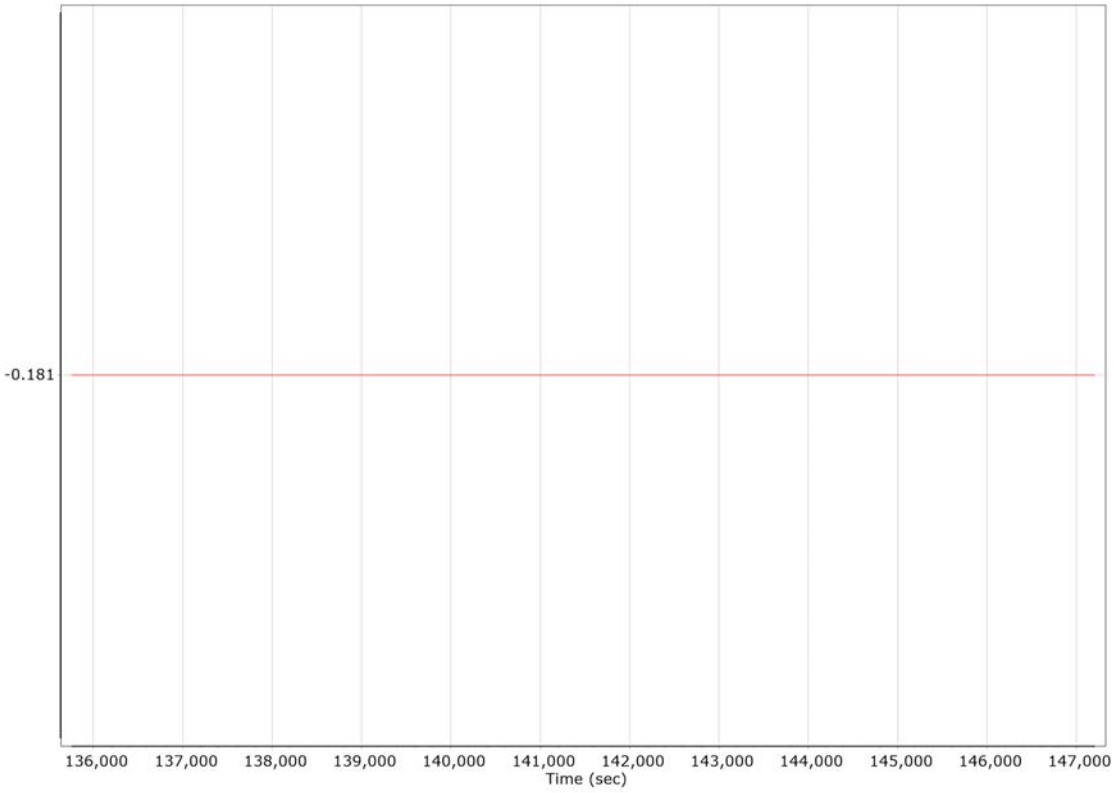
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

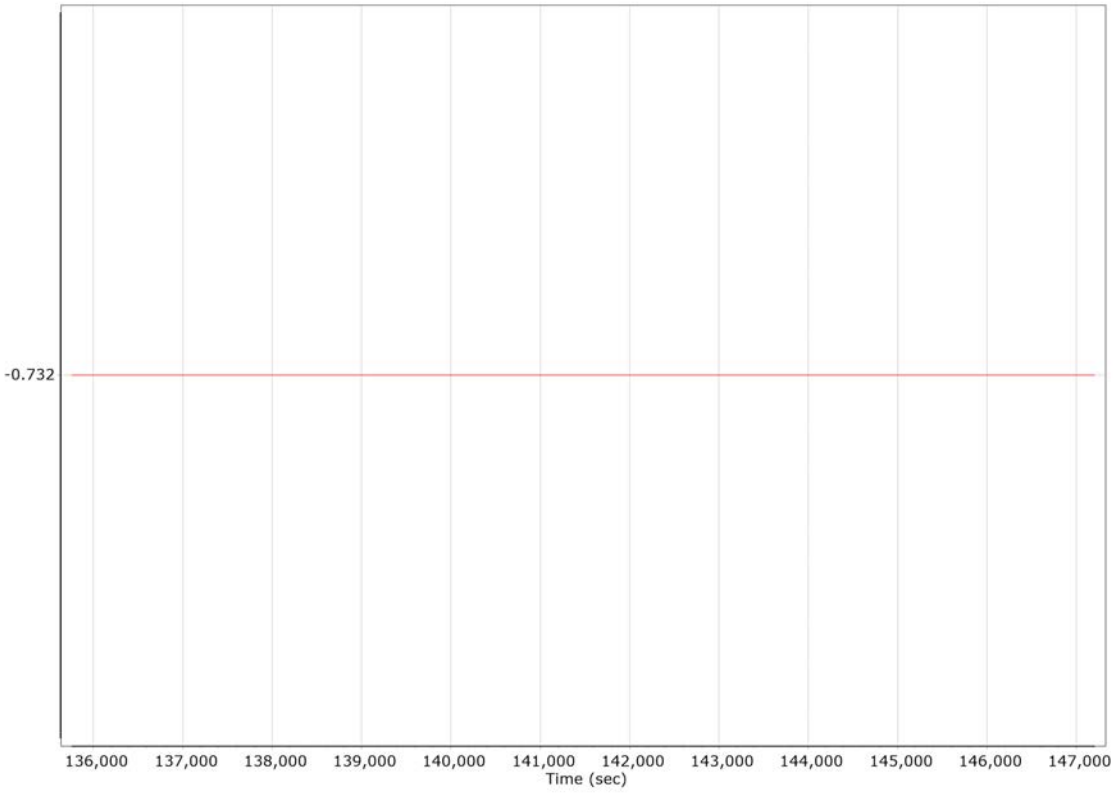
X Reference-Primary GNSS Lever Arm (m)



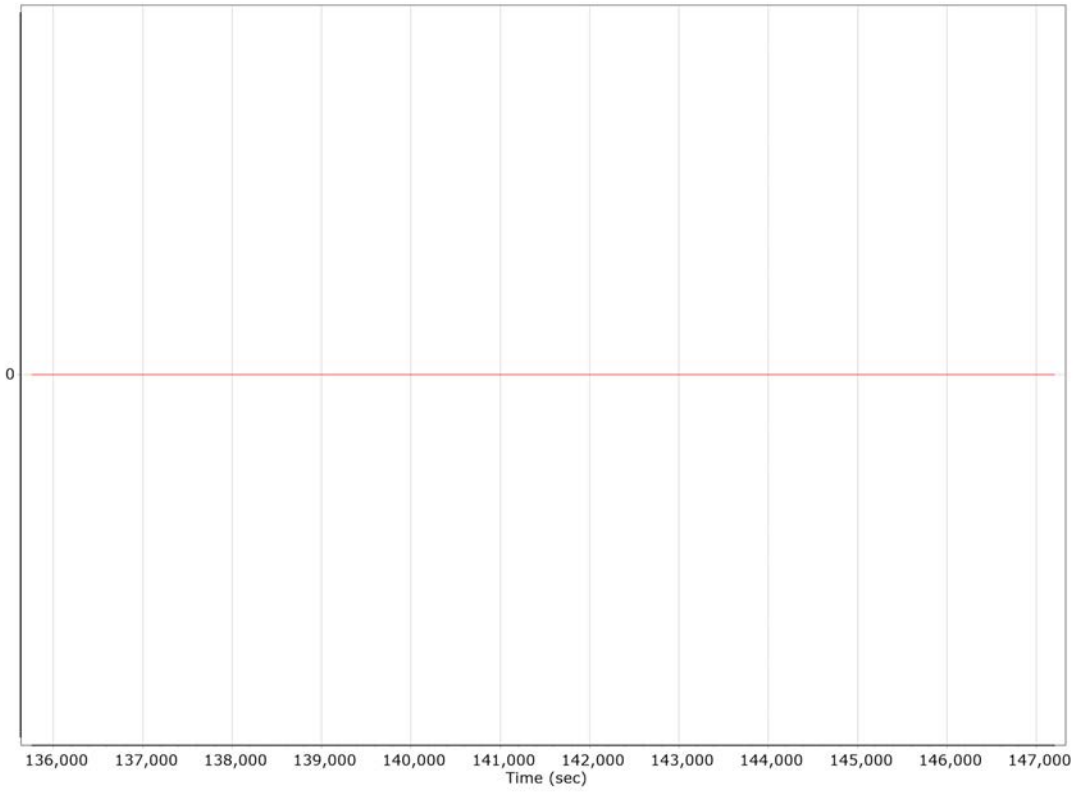
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



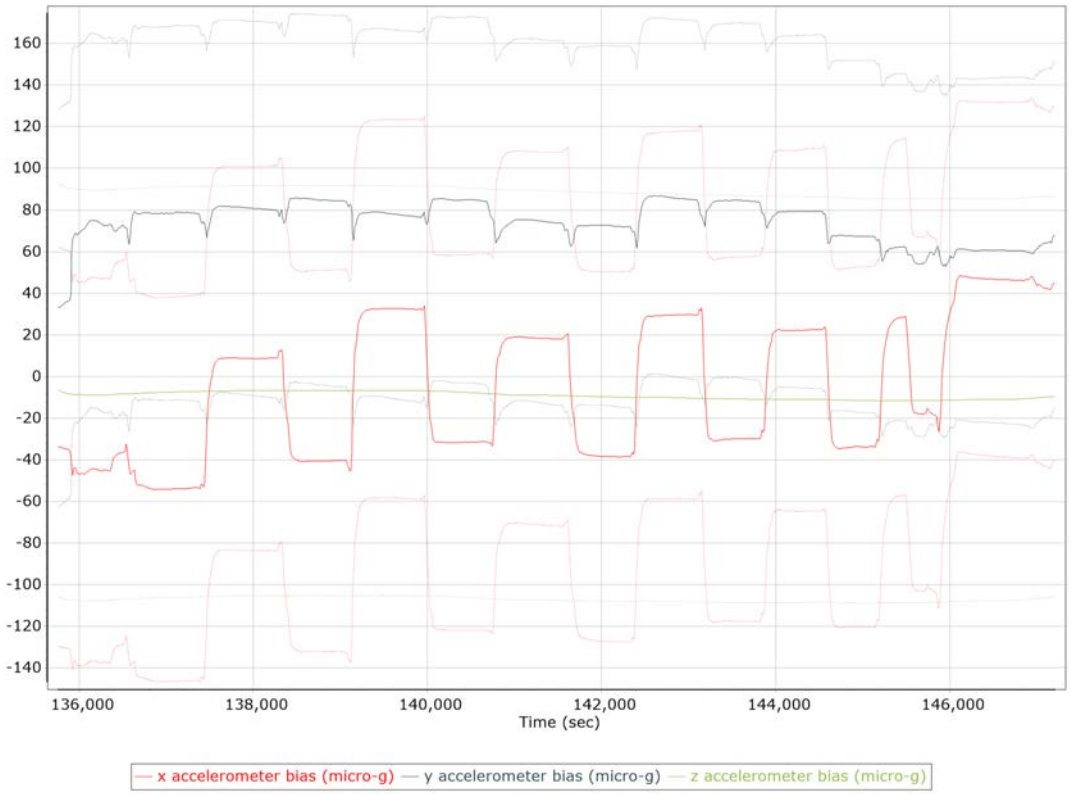
Reference-Primary GNSS Lever Arm Figure of Merit



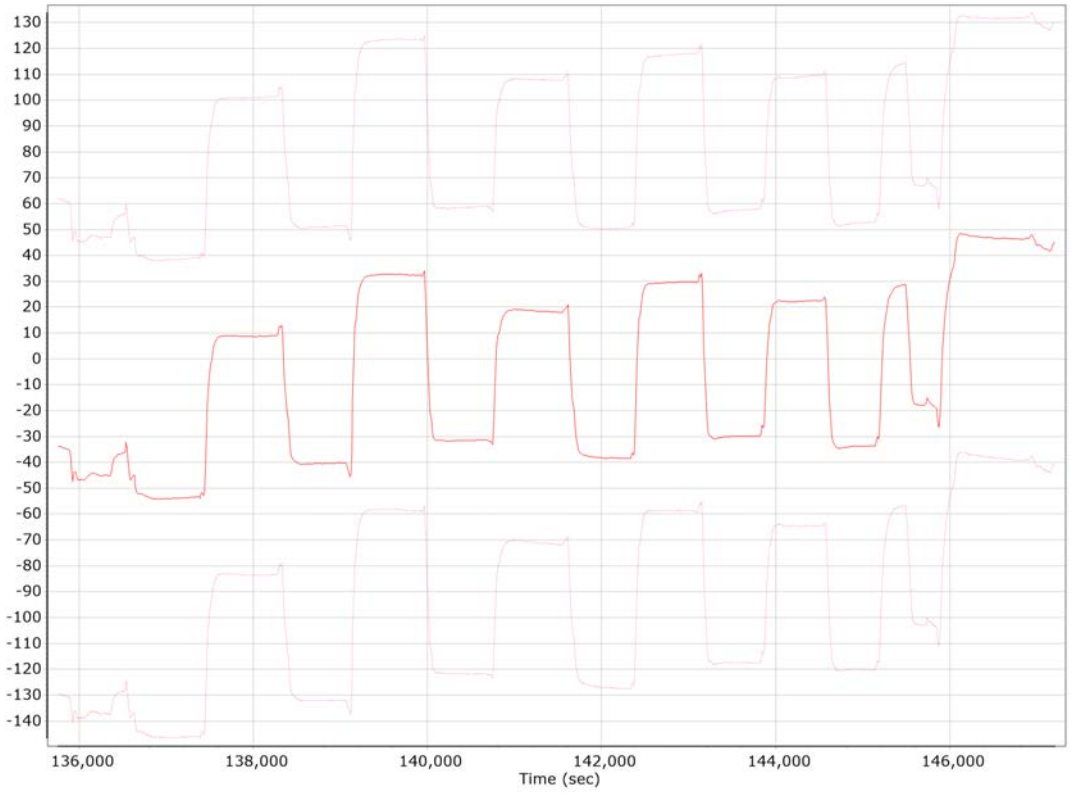
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

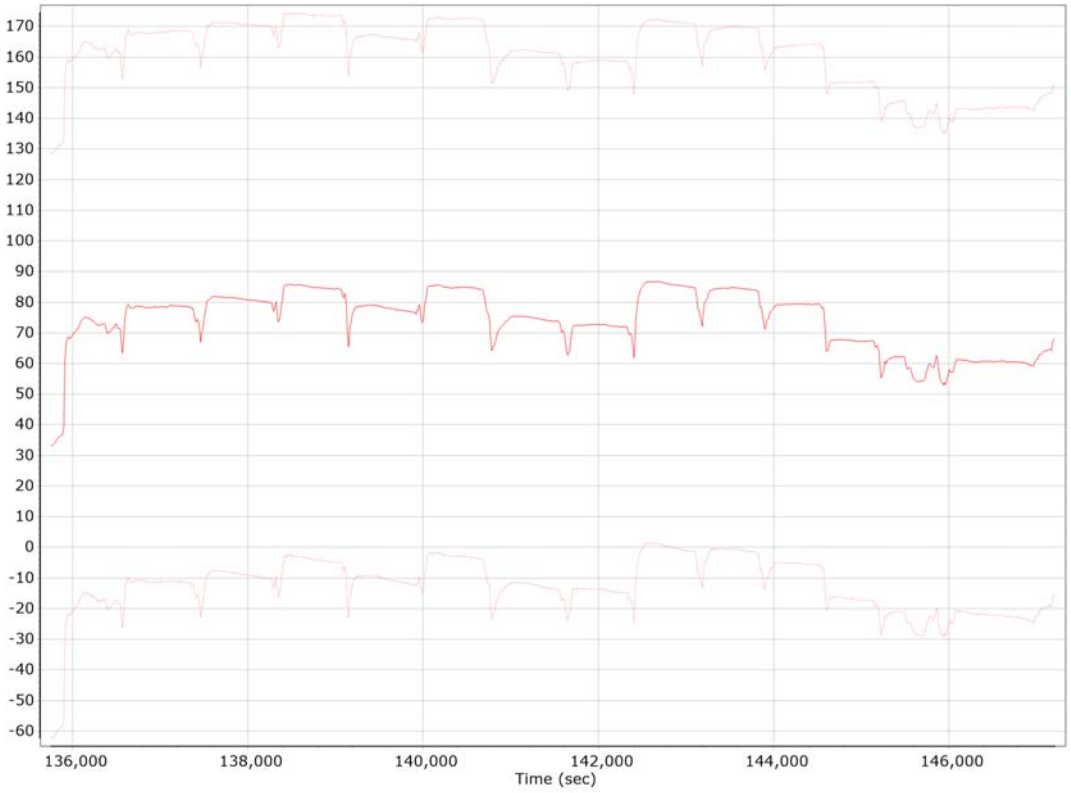
Accelerometer Bias (micro-g)



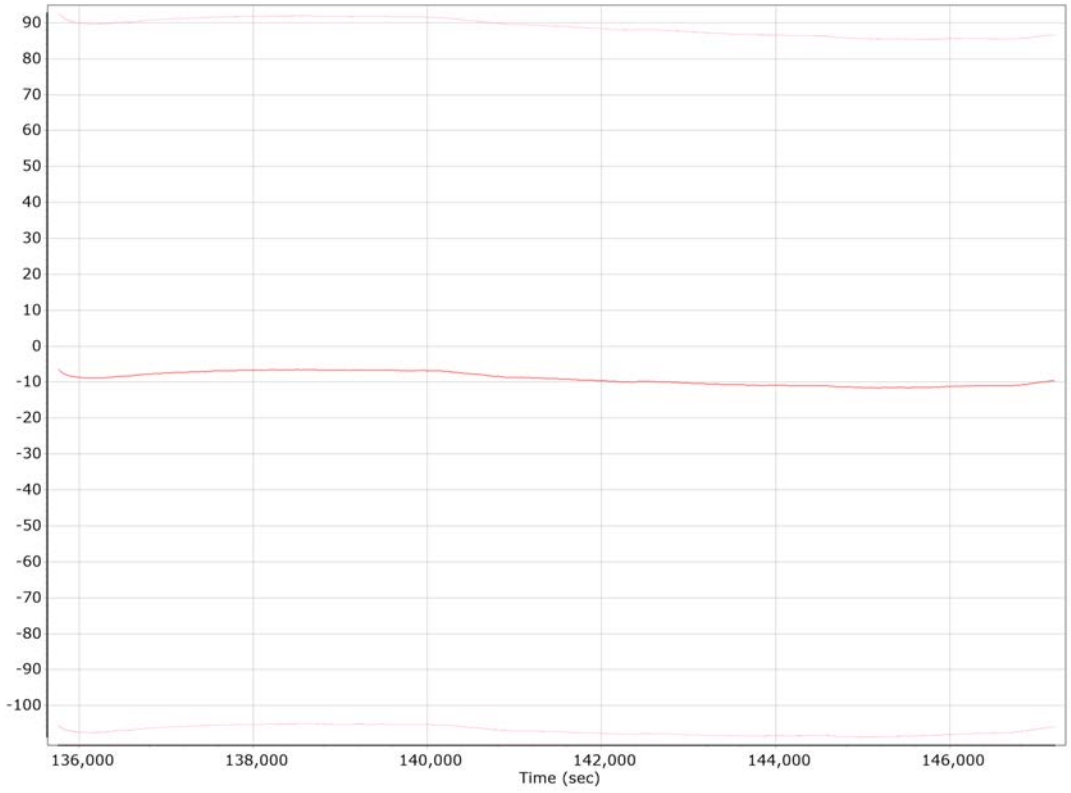
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



Z Accelerometer Bias (micro-g)



Accelerometer Scale Error (ppm)



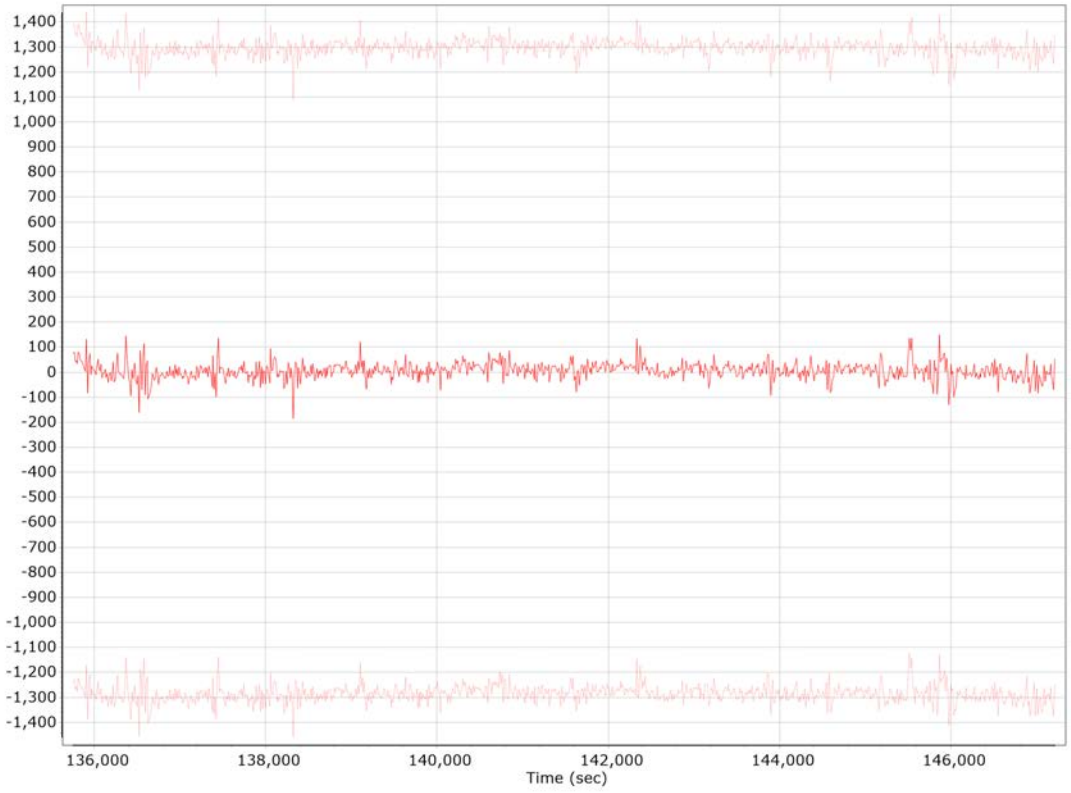
X Accelerometer Scale Error (ppm)



Y Accelerometer Scale Error (ppm)



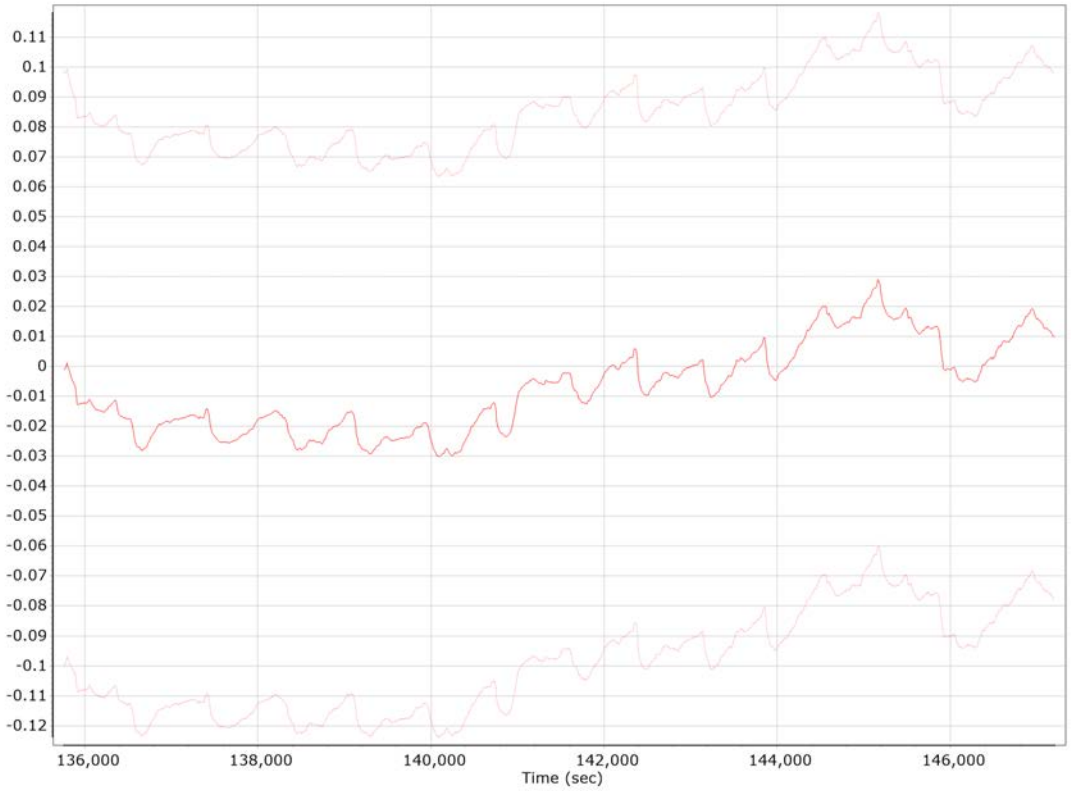
Z Accelerometer Scale Error (ppm)



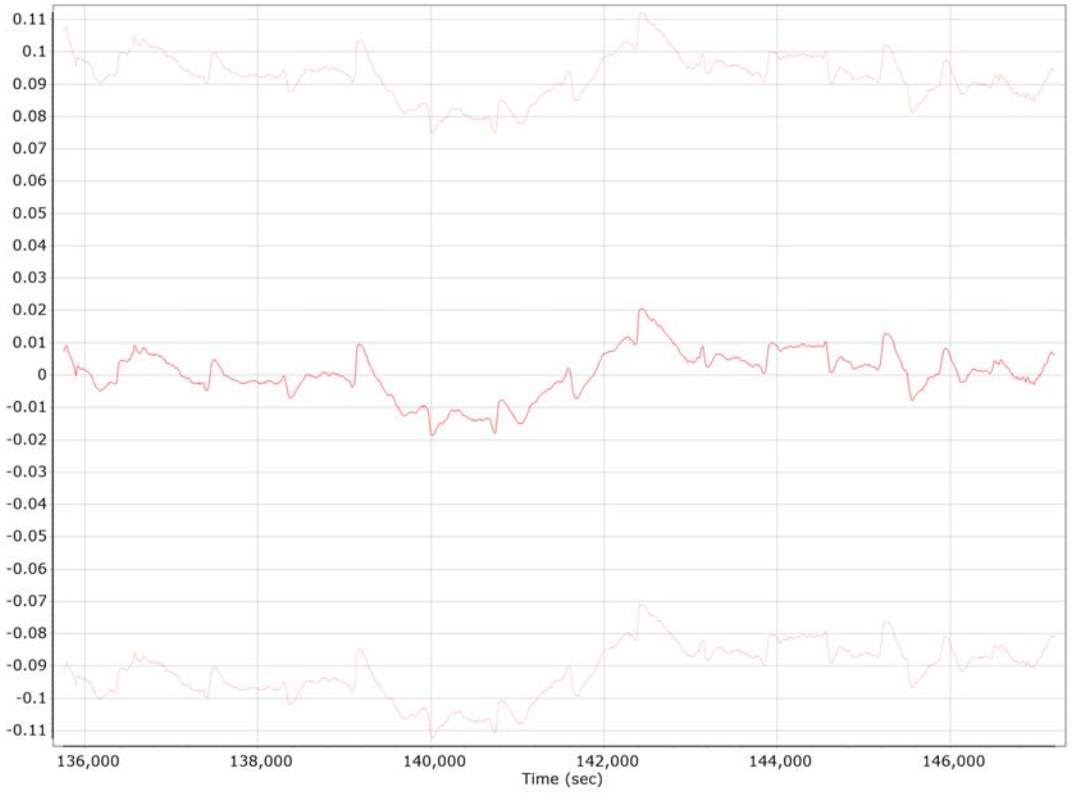
Gyro Bias (deg/h)



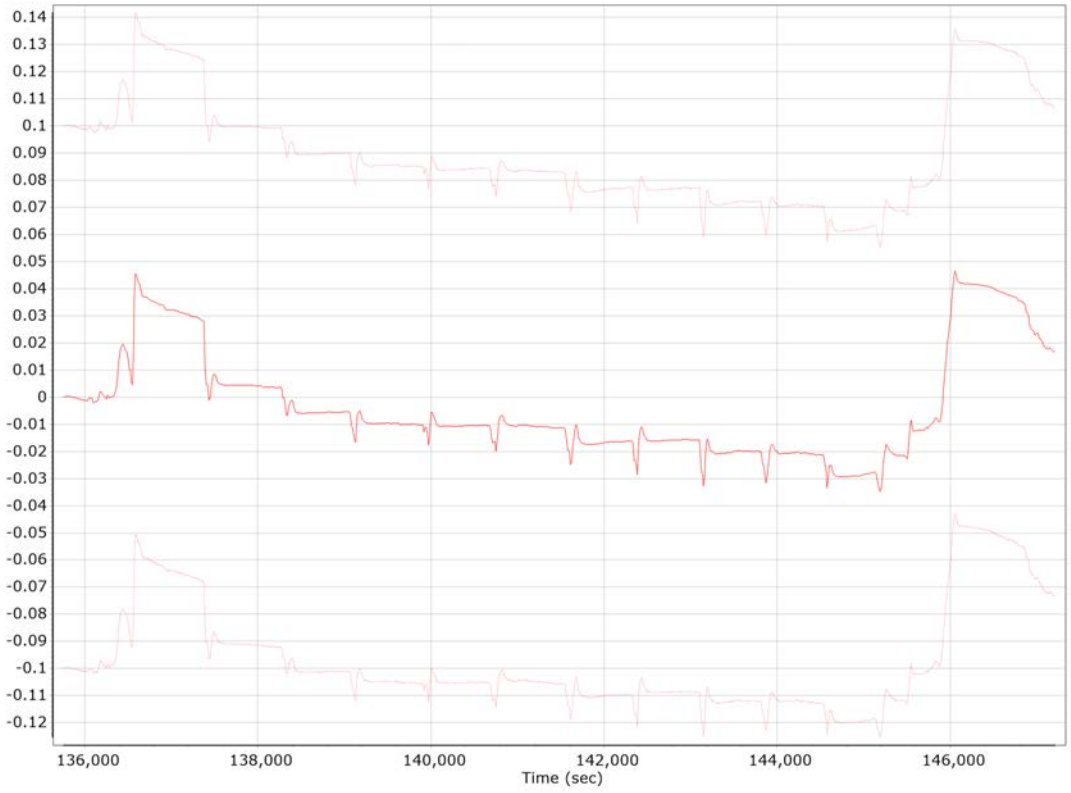
X Gyro Bias (deg/h)



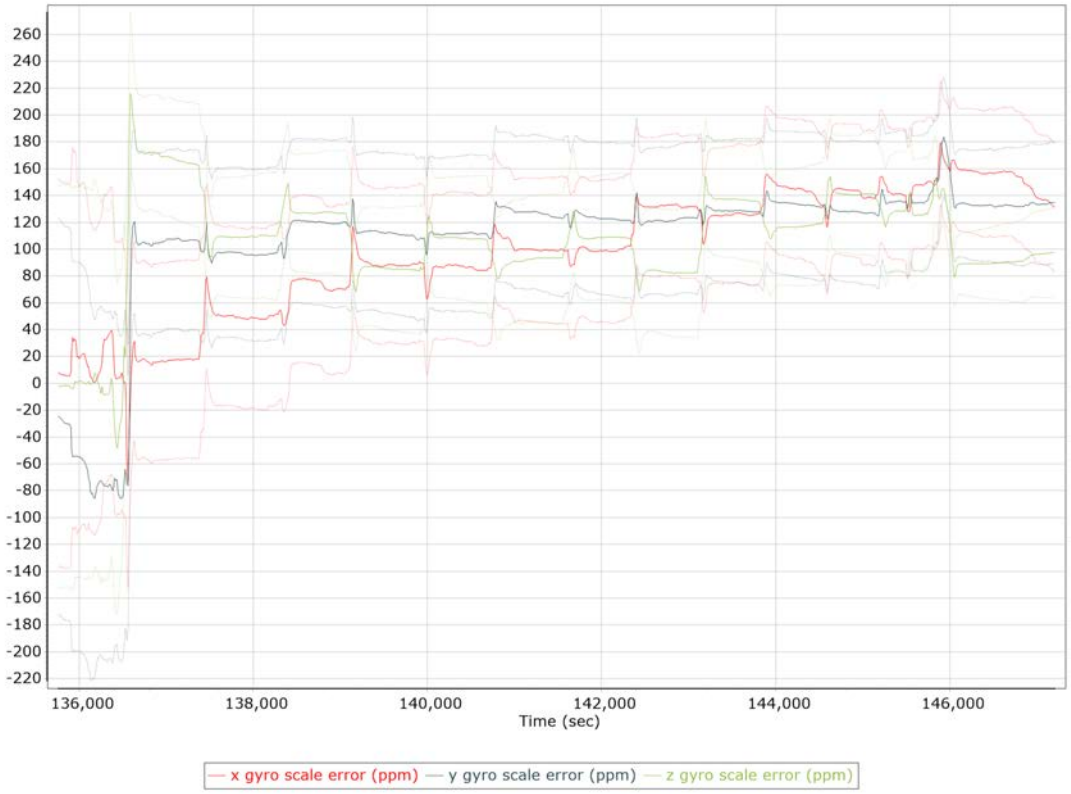
Y Gyro Bias (deg/h)



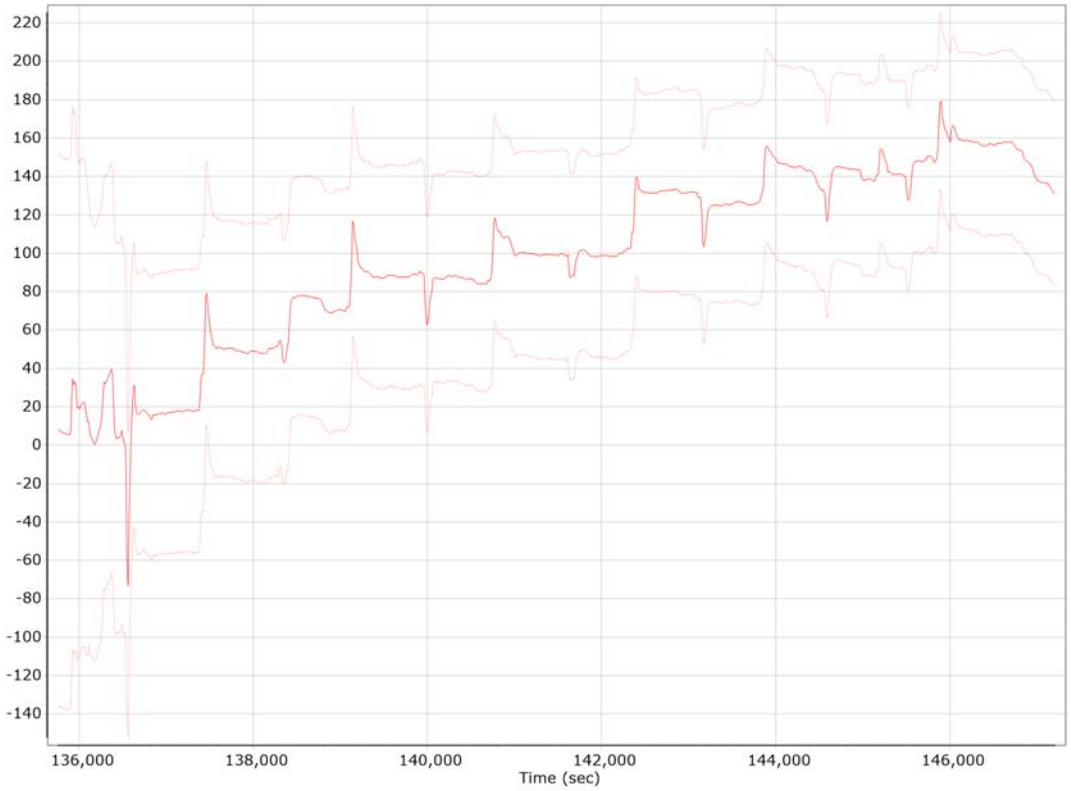
Z Gyro Bias (deg/h)



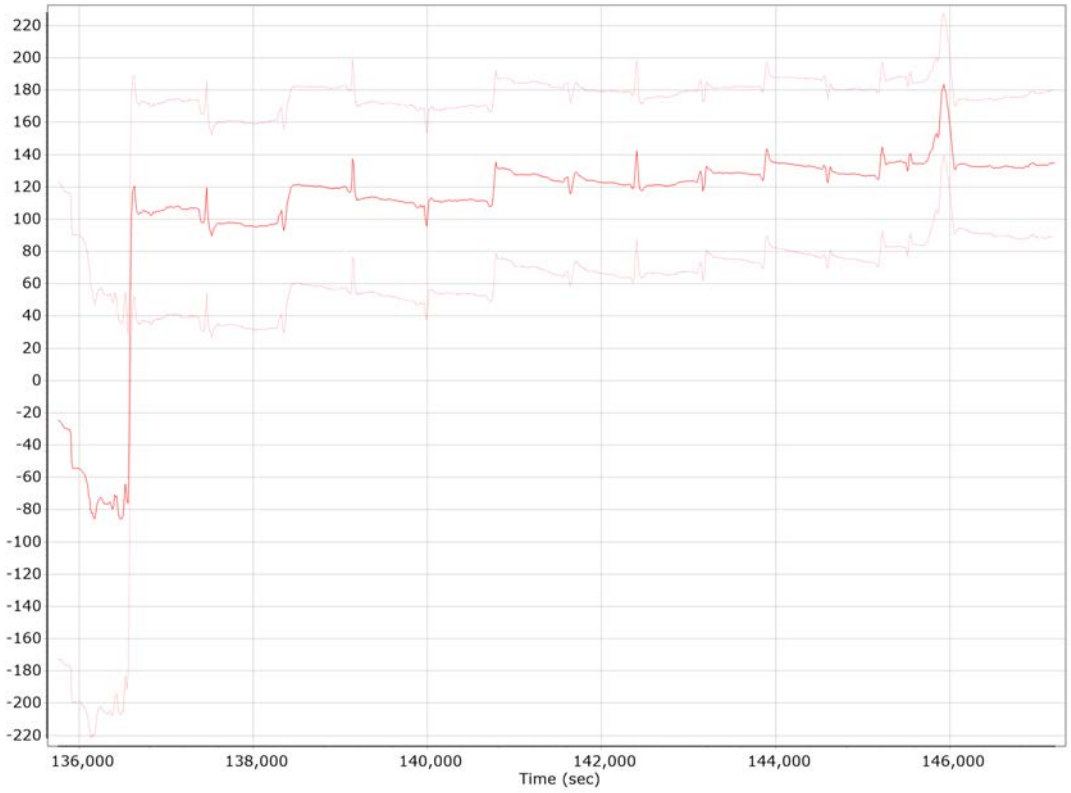
Gyro Scale Error (ppm)



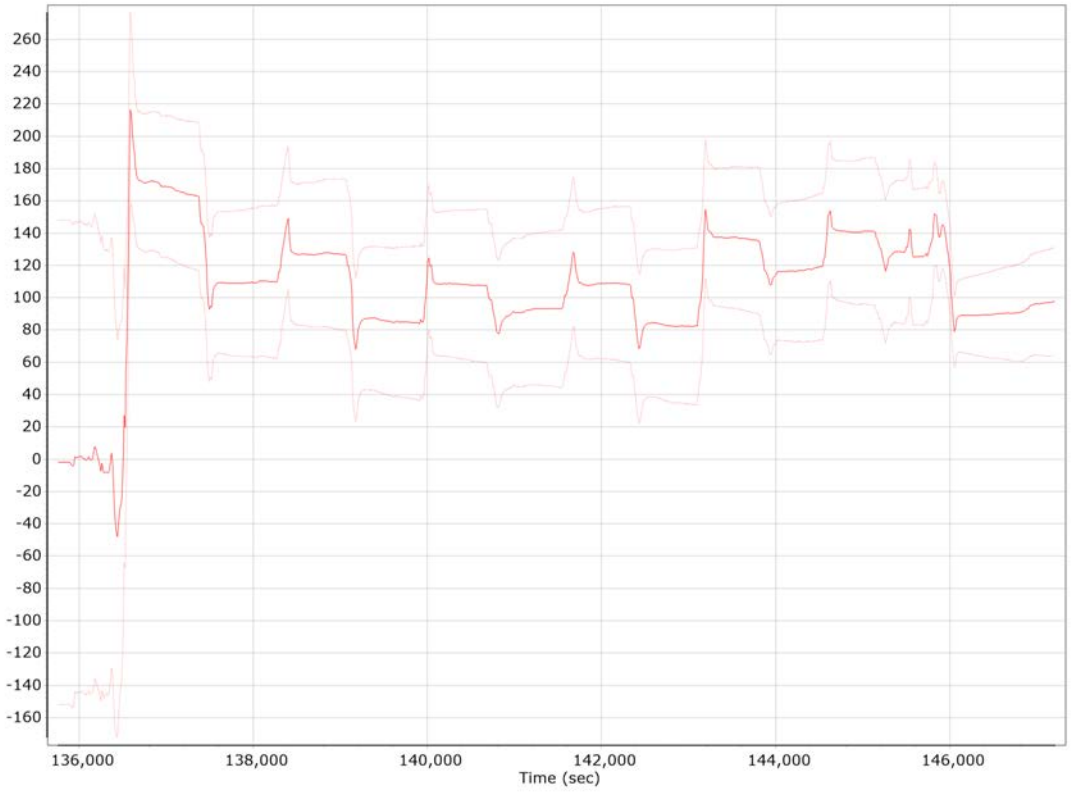
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

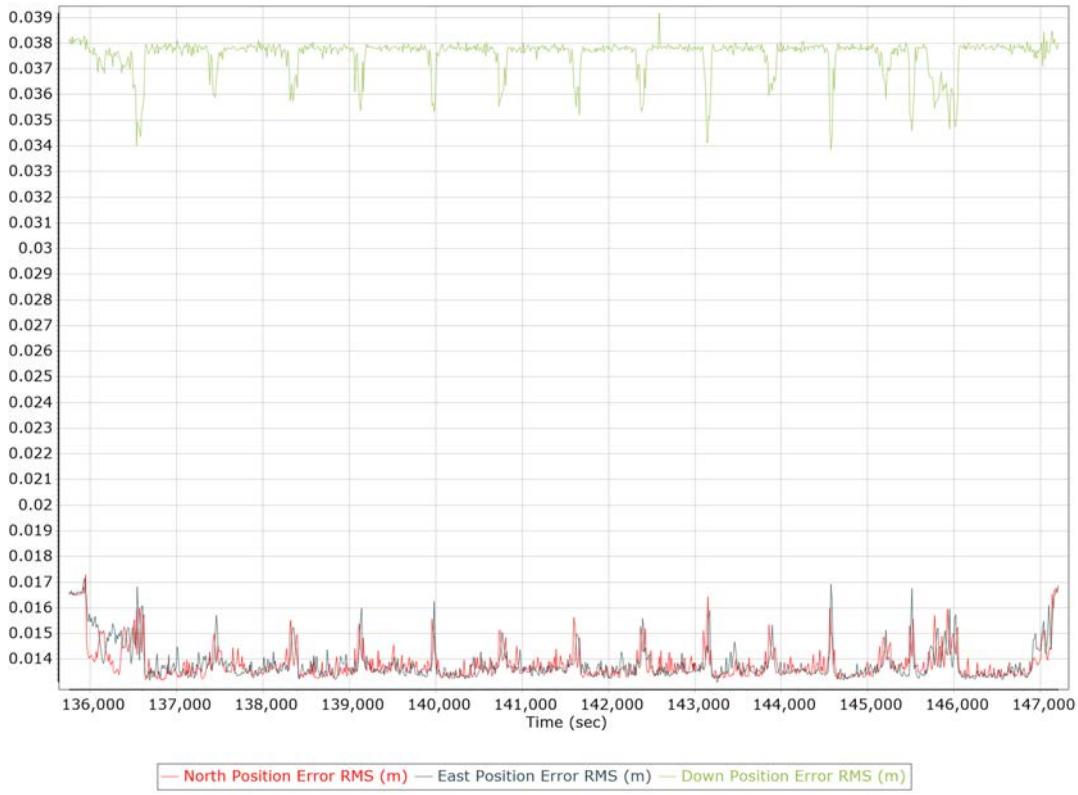


Z Gyro Scale Error (ppm)

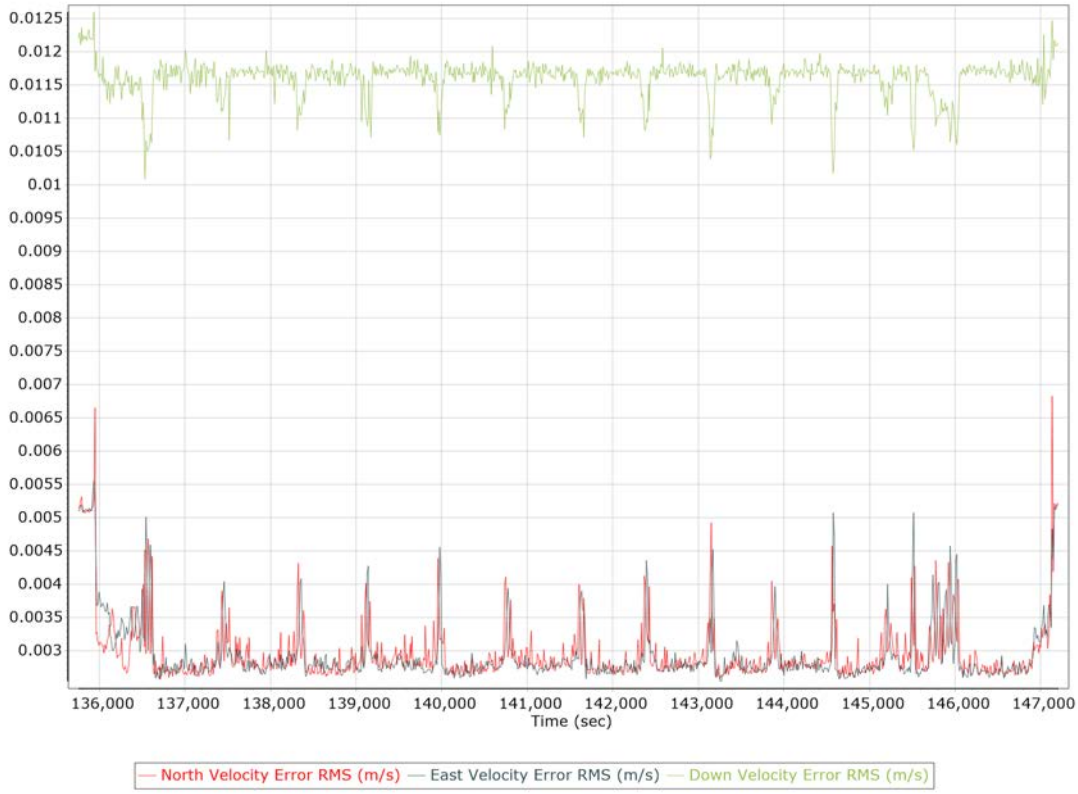


Smoothed Performance Metrics

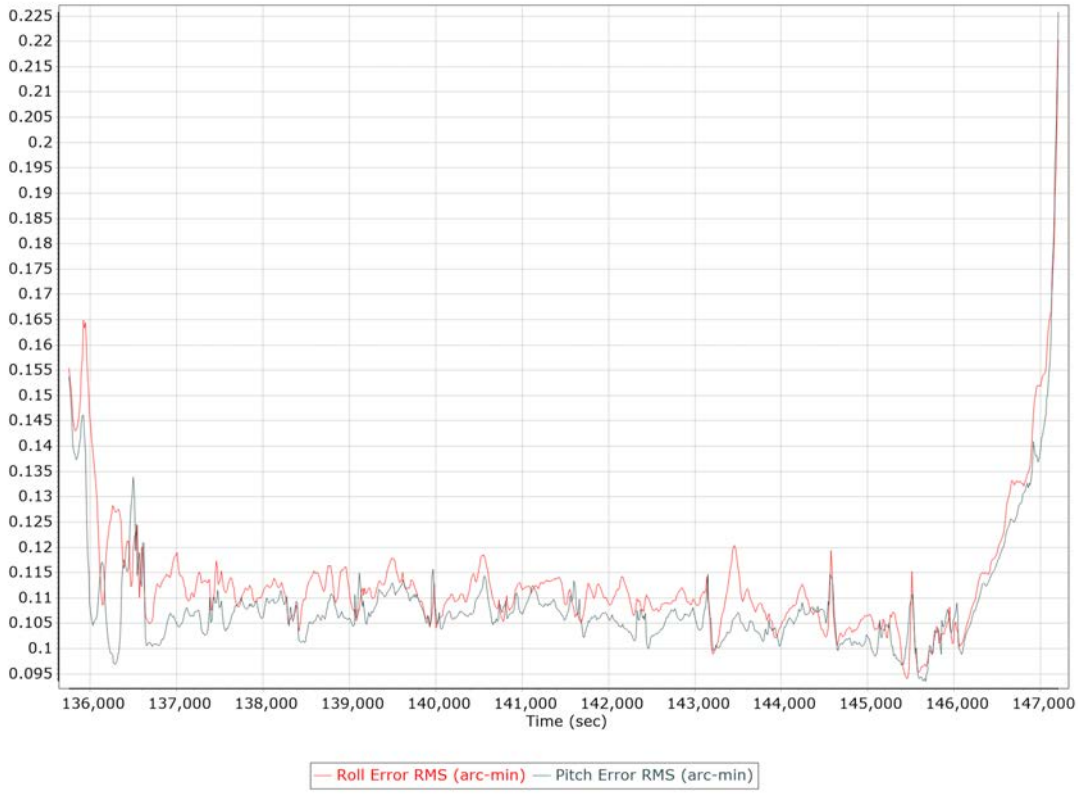
Position Error RMS (m)



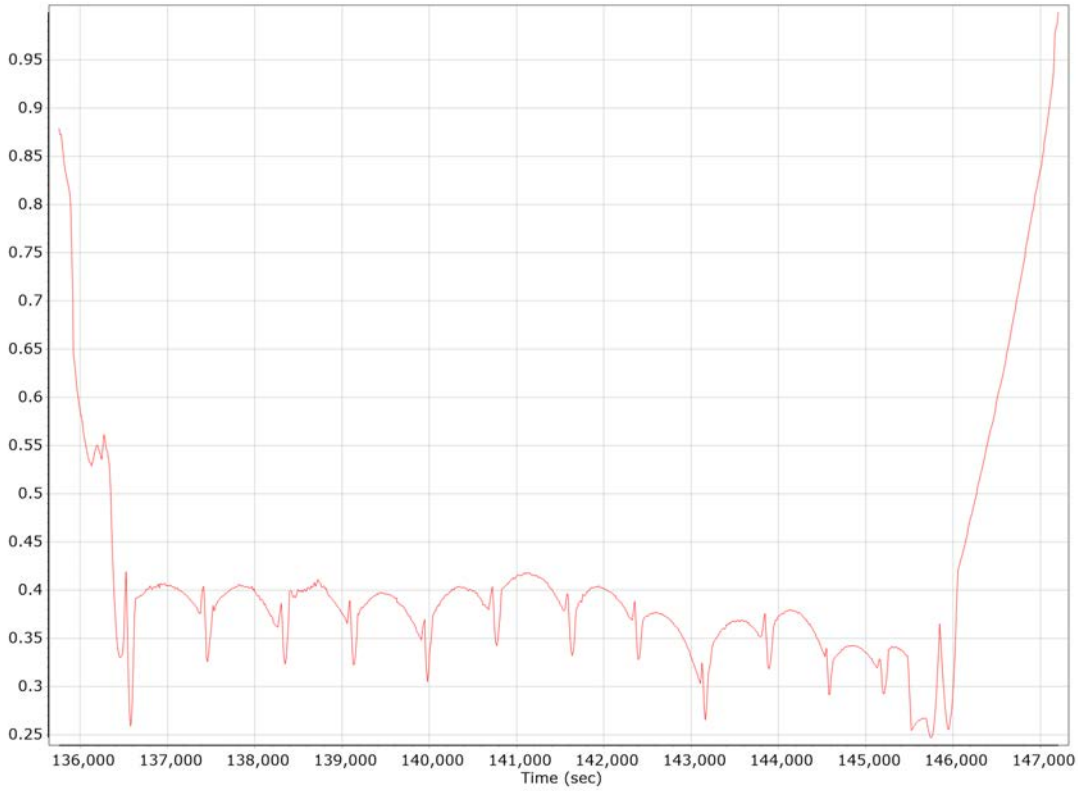
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

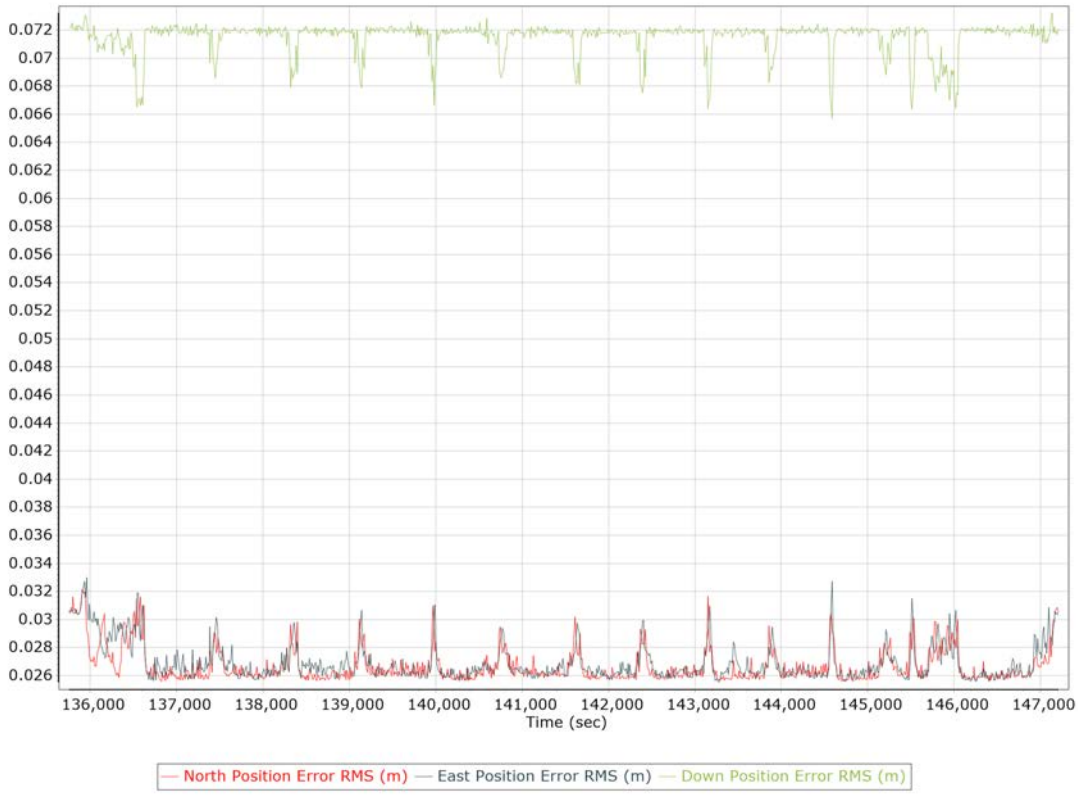


Heading Error RMS (arc-min)

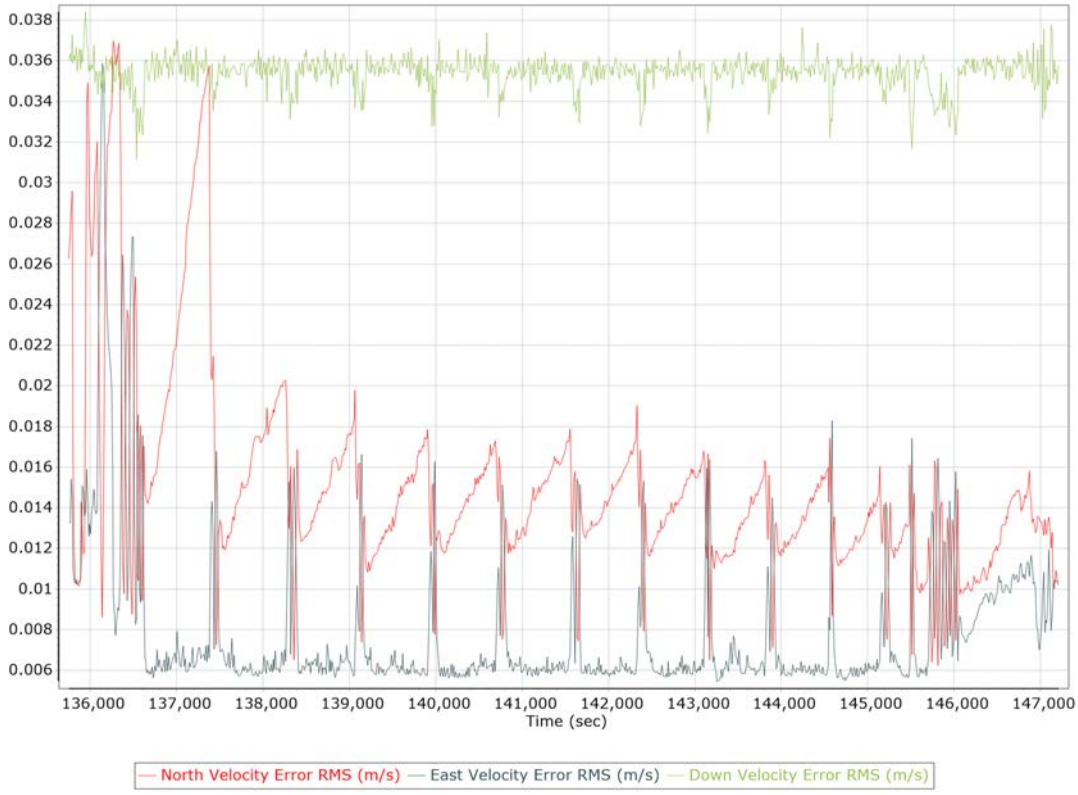


Forward Processed Performance Metrics

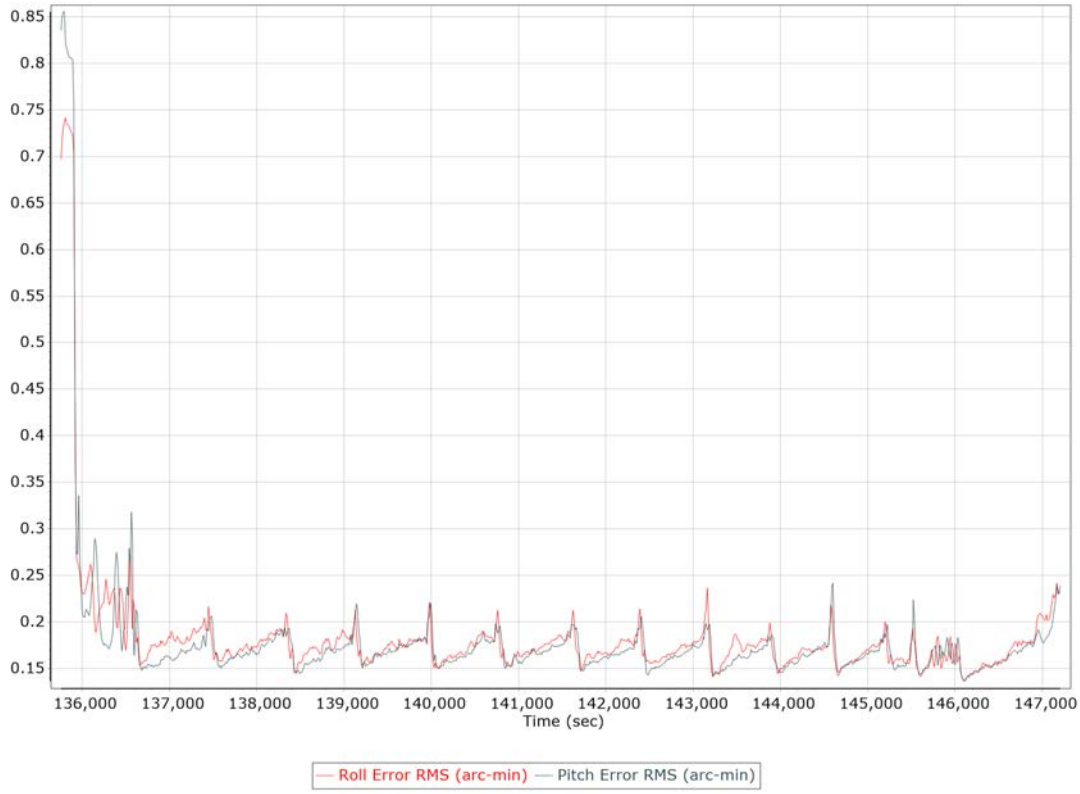
Position Error RMS (m)



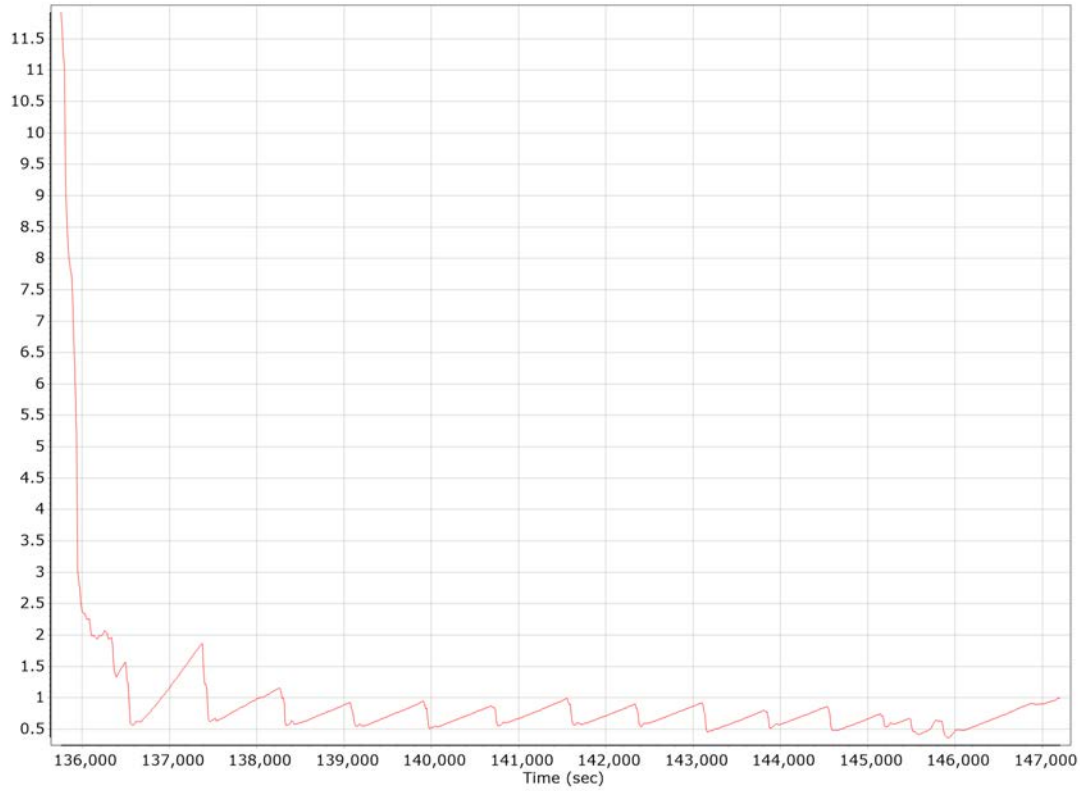
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

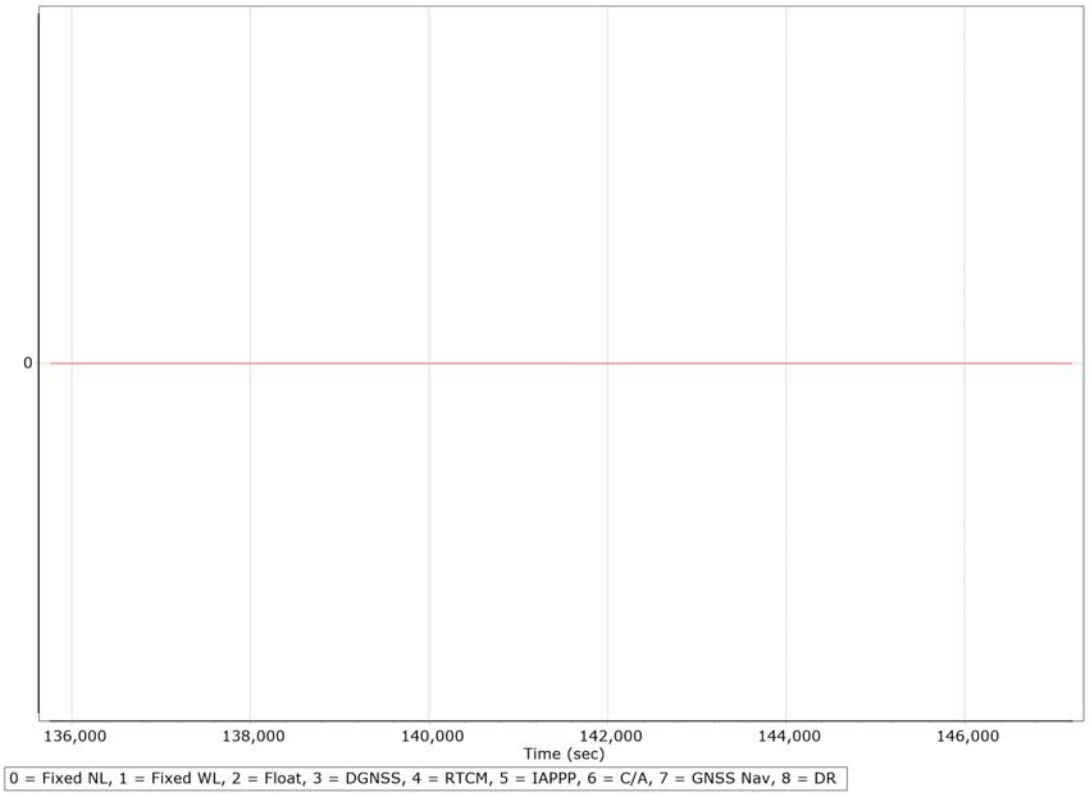


Heading Error RMS (arc-min)

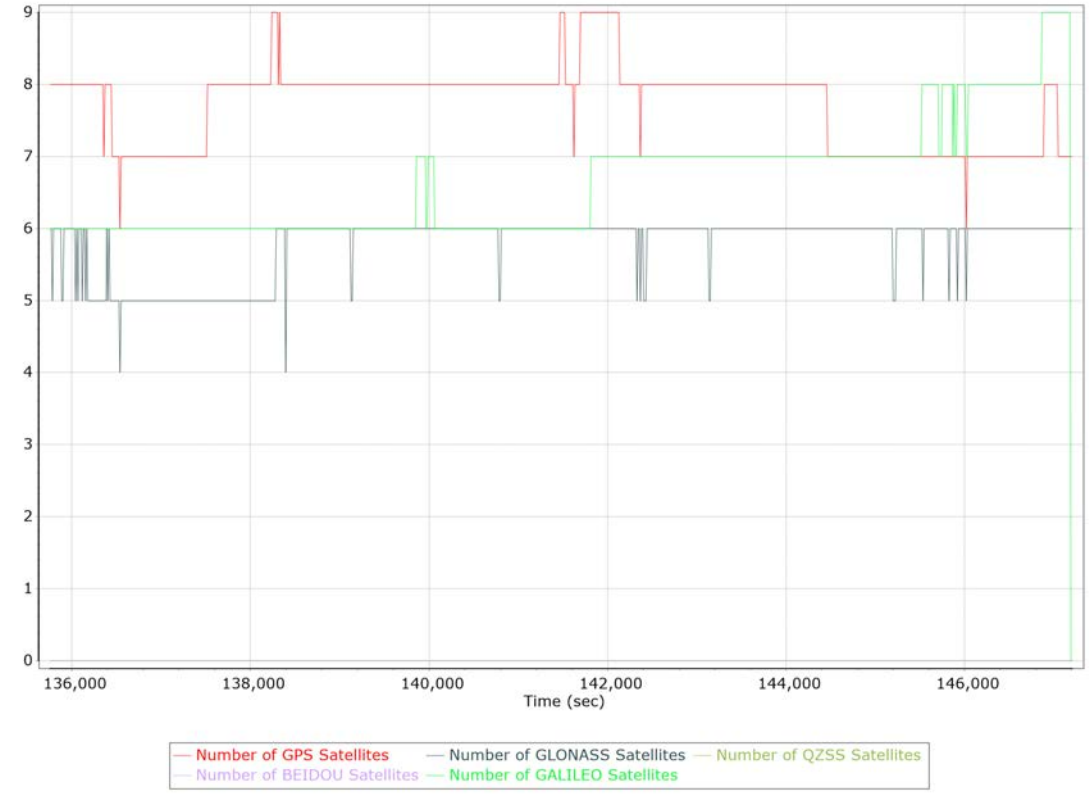


Forward Processed Solution Status

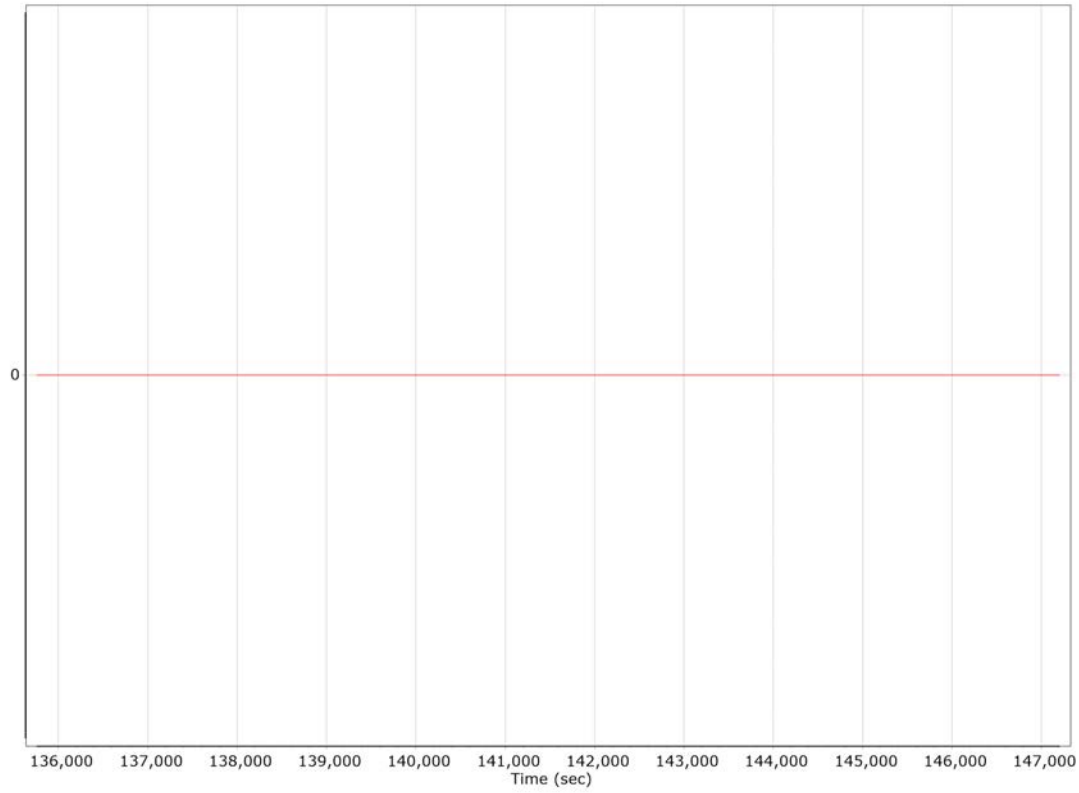
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07202023A_4051
Processing date	2023-07-25 19:28:54
Mission date	2023-07-20 15:12:30
Mission duration	04:26:27.825
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.006	POS Data
CP780.007	POS Data
CP780.008	POS Data
CP780.009	POS Data
CP780.010	POS Data
CP780.011	POS Data
CP780.012	POS Data
CP780.013	POS Data
CP780.014	POS Data
CP780.015	POS Data
CP780.016	POS Data
CP780.017	POS Data
CP780.018	POS Data
CP780.019	POS Data
CP780.020	POS Data
CP780.021	POS Data
CP780.022	POS Data
CP780.023	POS Data
CP780.024	POS Data
CP780.025	POS Data
CP780.026	POS Data
CP780.027	POS Data
CP780.028	POS Data
CP780.029	POS Data
CP780.030	POS Data
CP780.031	POS Data
CP780.032	POS Data
CP780.033	POS Data
CP780.034	POS Data
CP780.035	POS Data
CP780.036	POS Data
CP780.037	POS Data
CP780.038	POS Data
CP780.039	POS Data
CP780.040	POS Data
CP780.041	POS Data
CP780.042	POS Data
CP780.043	POS Data

Input Files

File Name	File Type
Ephm2010.23g	GLONASS Broadcast Ephemeris
Ephm2010.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07202023A_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.006		
Last raw data file	CP780.043		
Start GPS week	2271		
Start time	400331.167 (7/20/2023 3:12:11 PM)		
End time	416318.992 (7/20/2023 7:38:38 PM)		
Start of fine alignment	400389.387 (7/20/2023 3:13:09 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

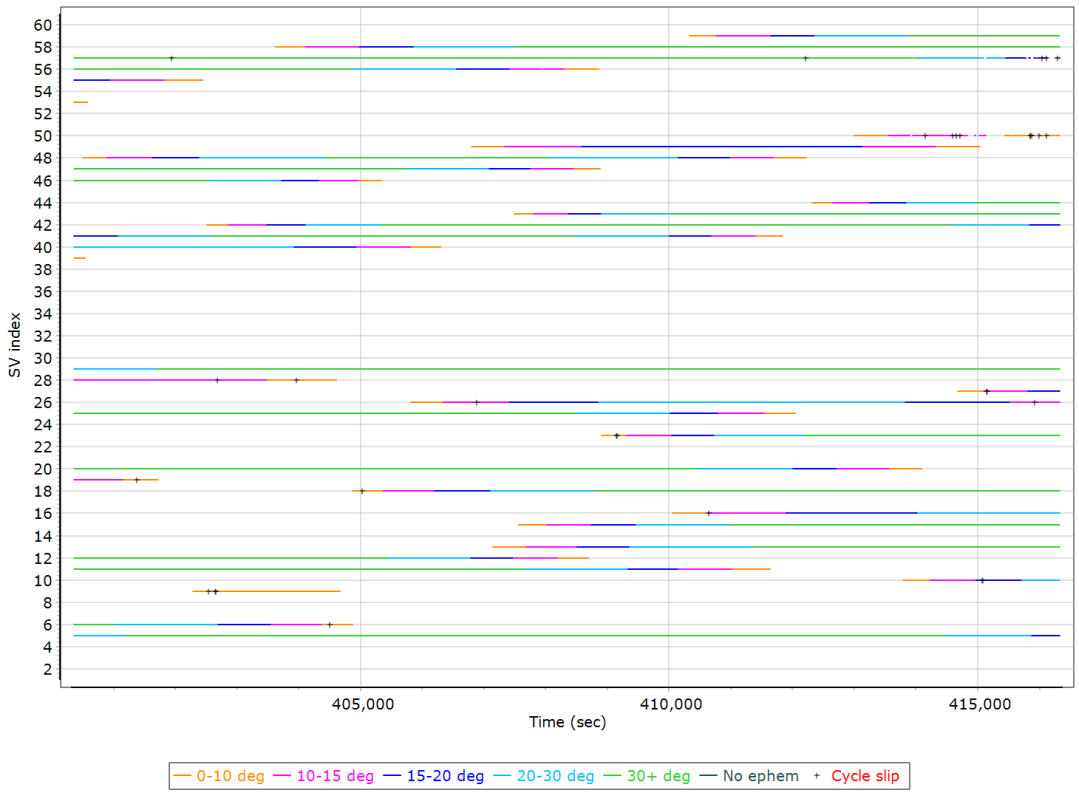
Rover Data QC

Raw IMU Import QC Summary

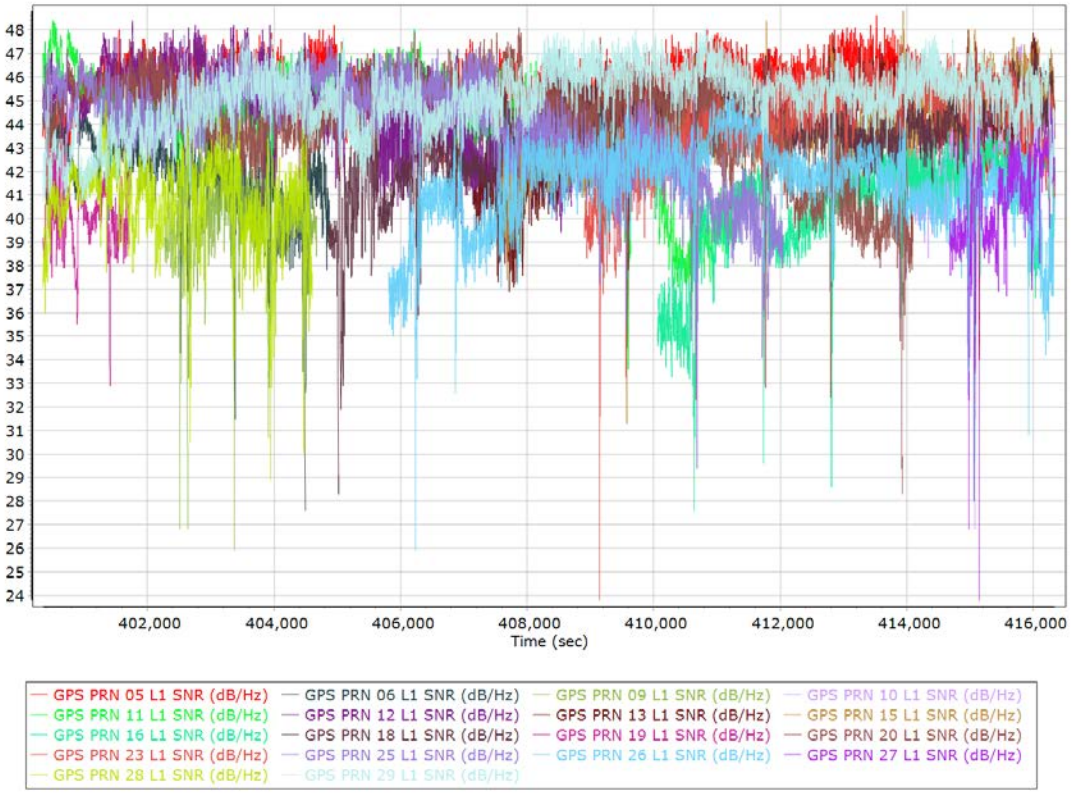
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07202023A_4051.log
IMU Records Processed	3197066
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

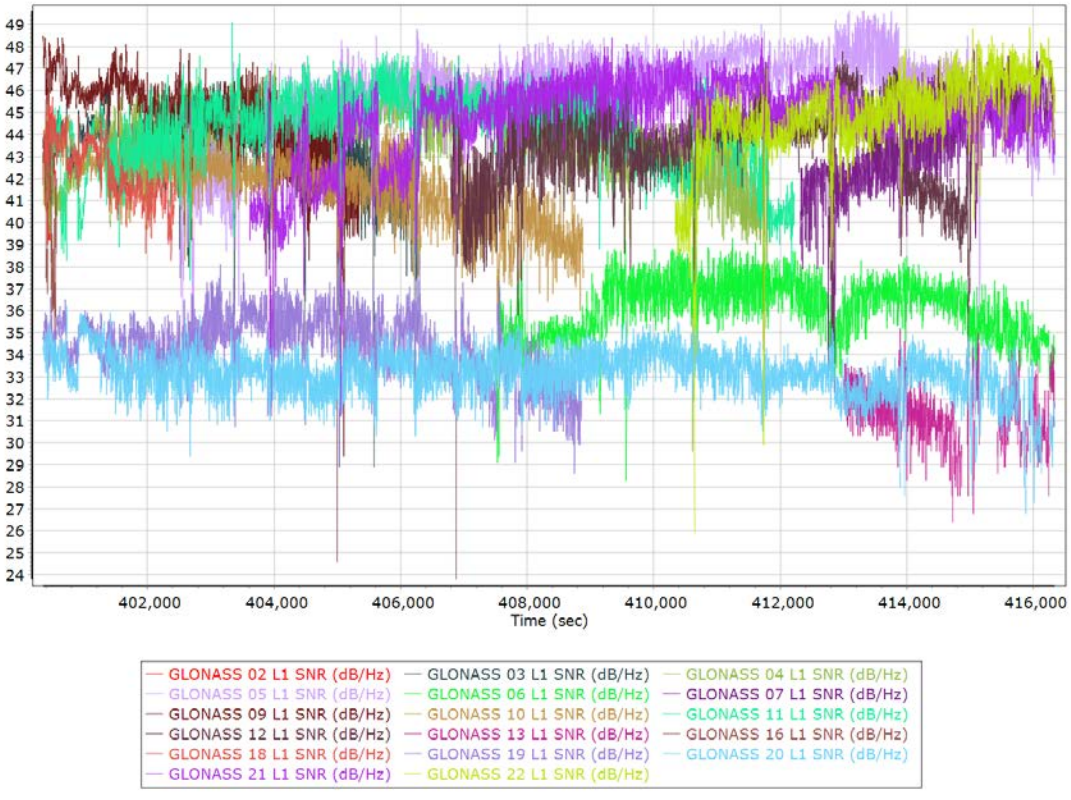
GPS/GLONASS L1 Satellite Lock/Elevation



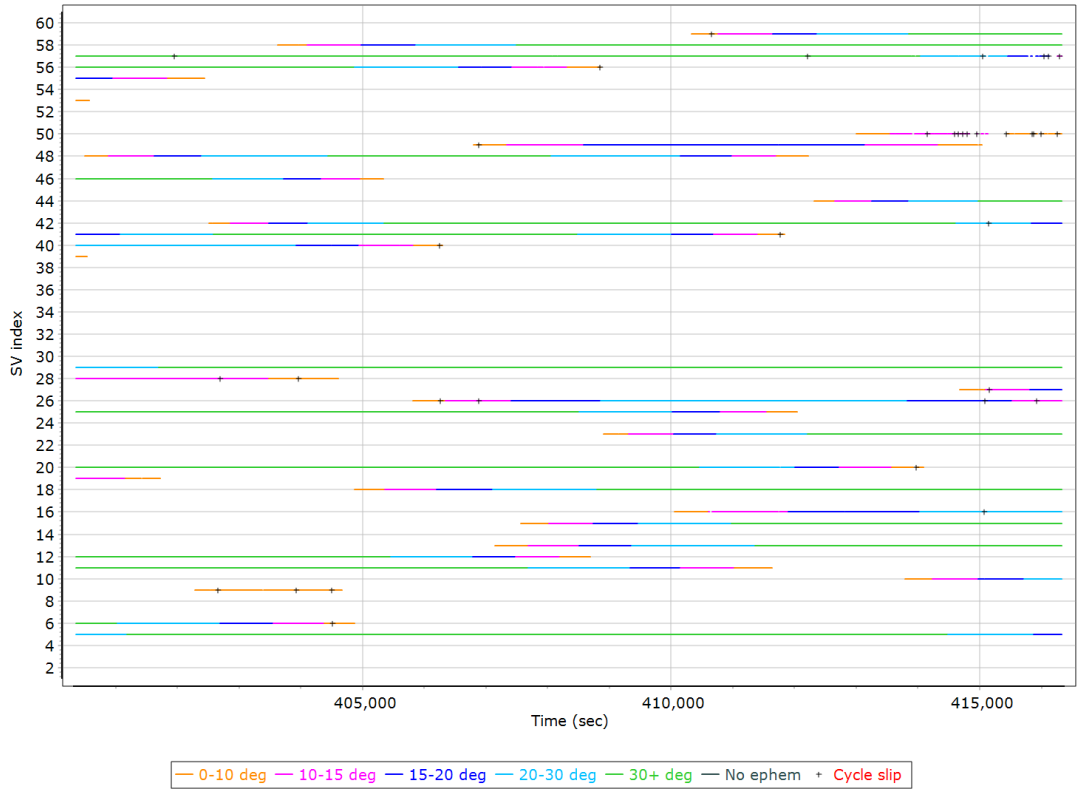
GPS L1 SNR



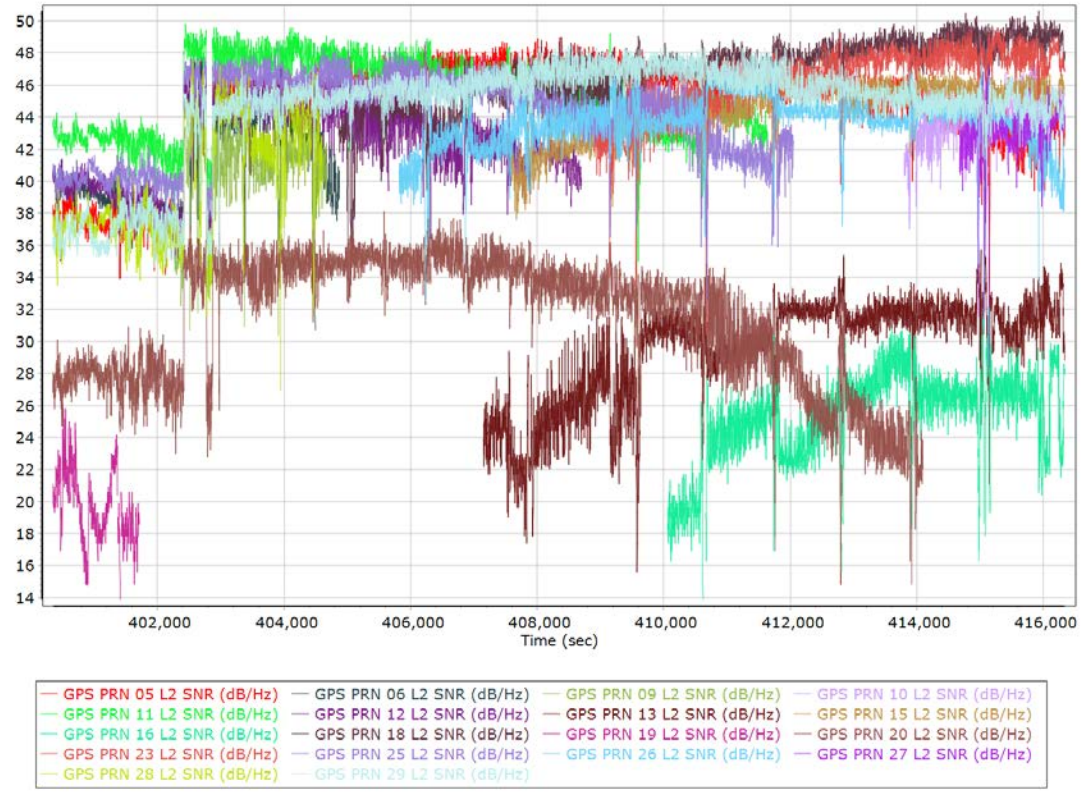
GLONASS L1 SNR



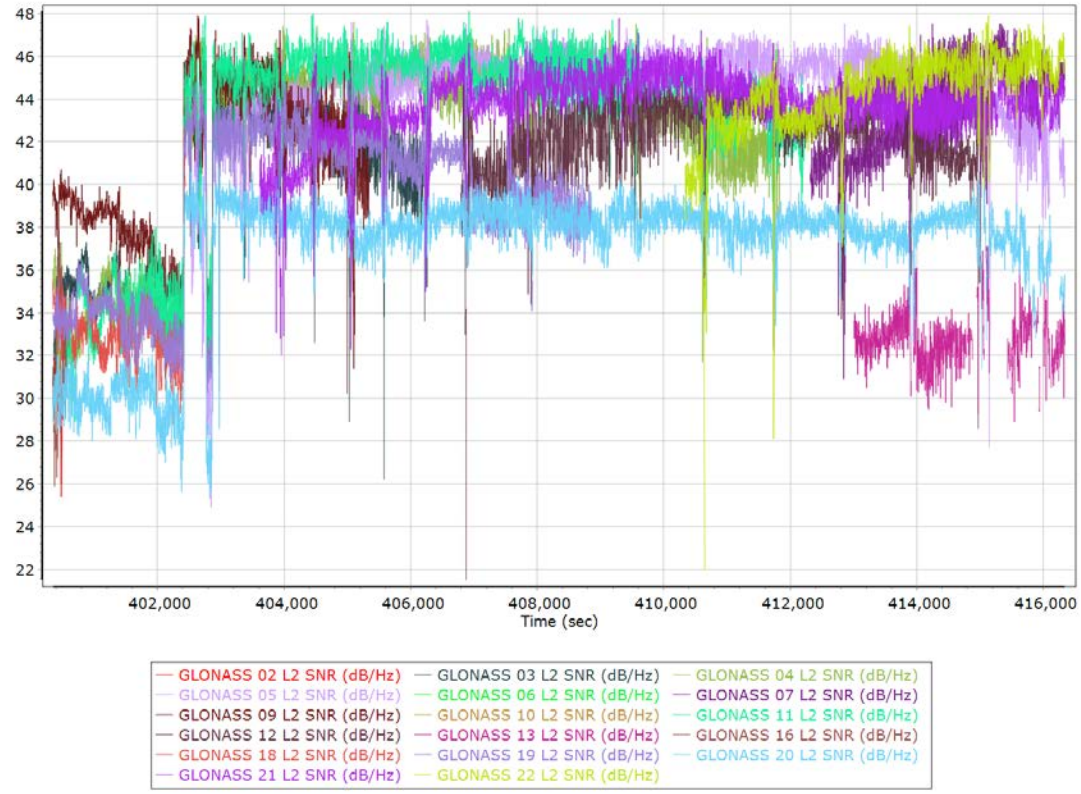
GPS/GLONASS L2 Satellite Lock/Elevation



GPS L2 SNR



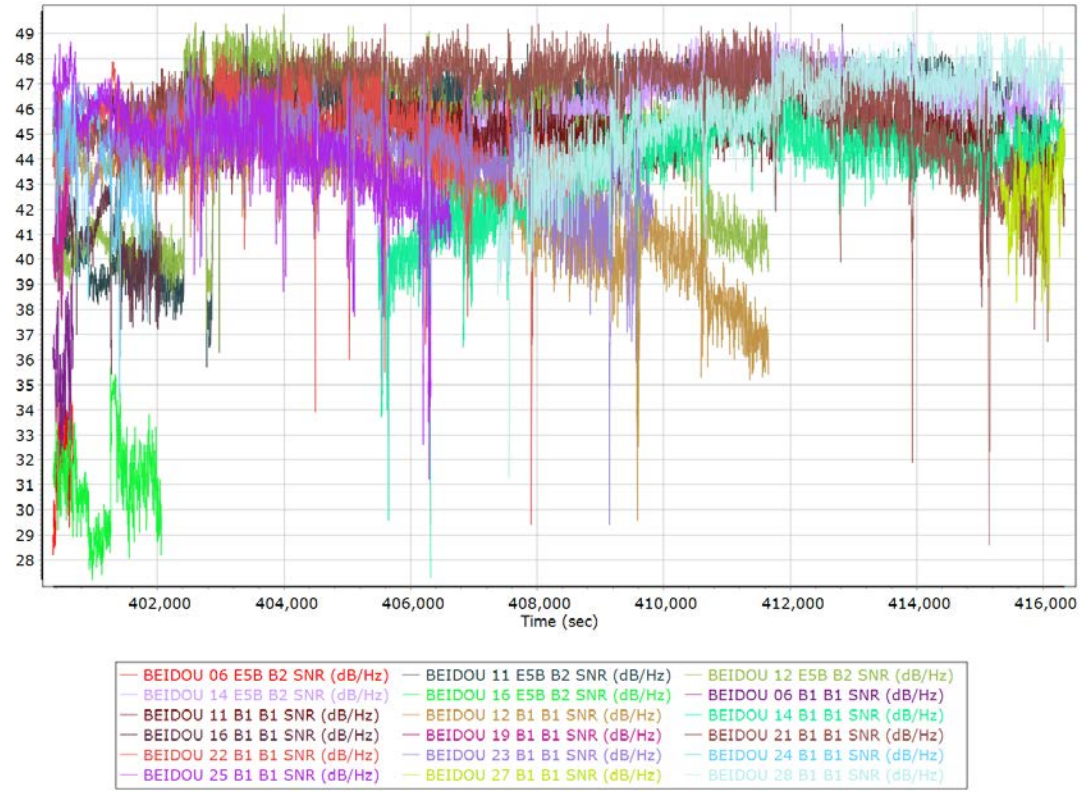
GLONASS L2 SNR



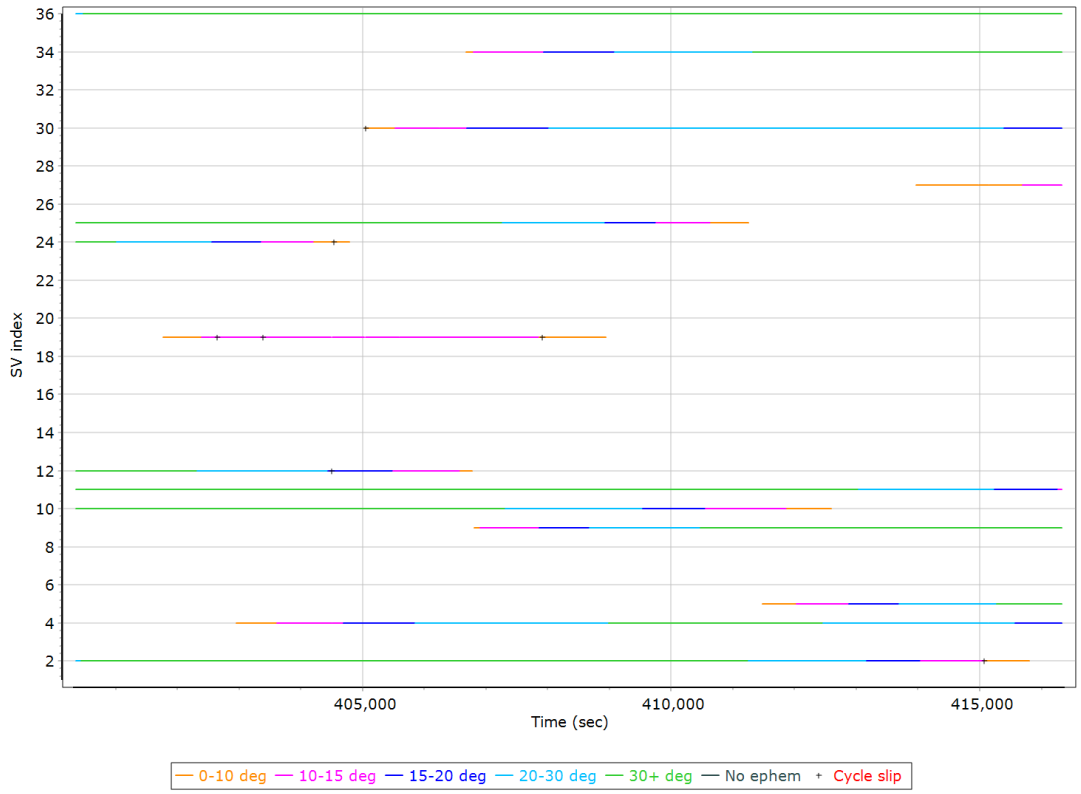
BEIDOU Satellite Lock/Elevation



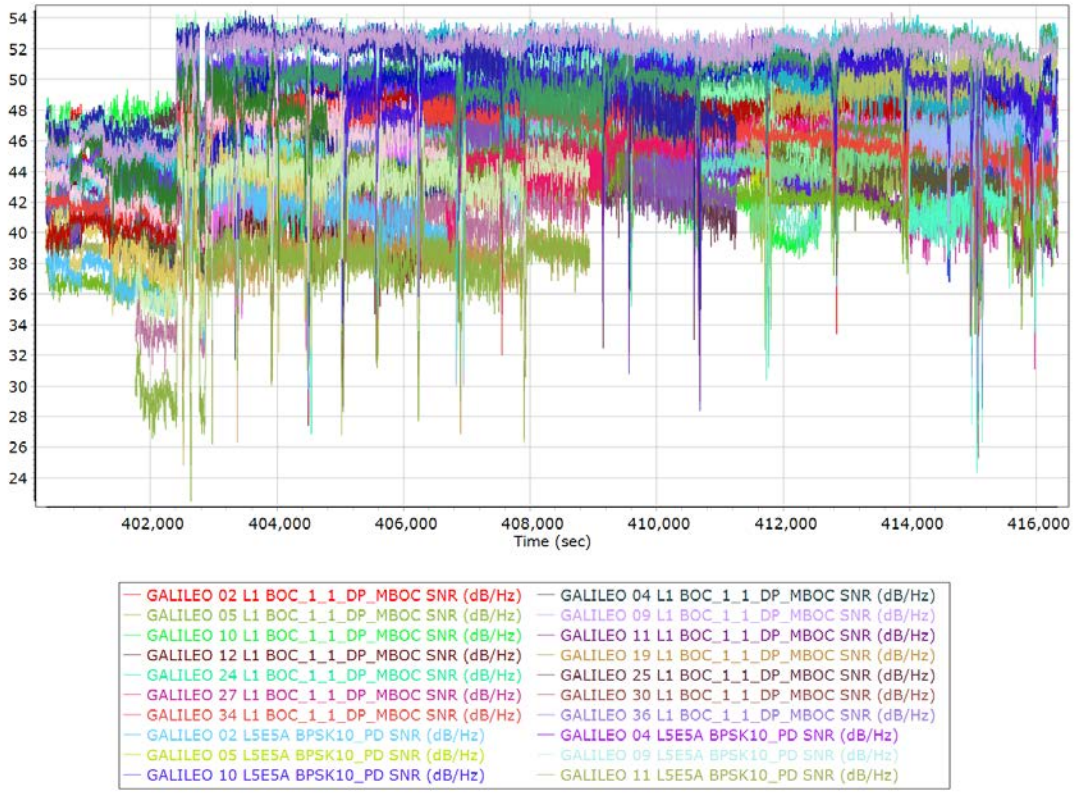
BEIDOU SNR



GALILEO Satellite Lock/Elevation

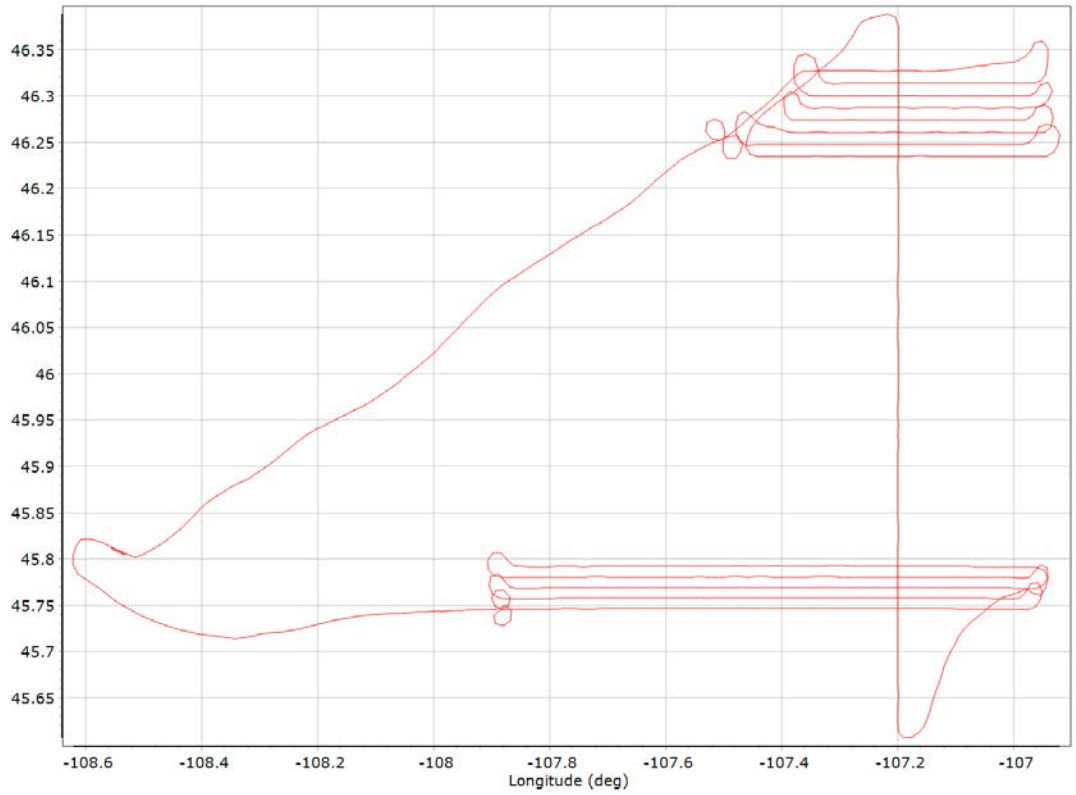


GALILEO SNR

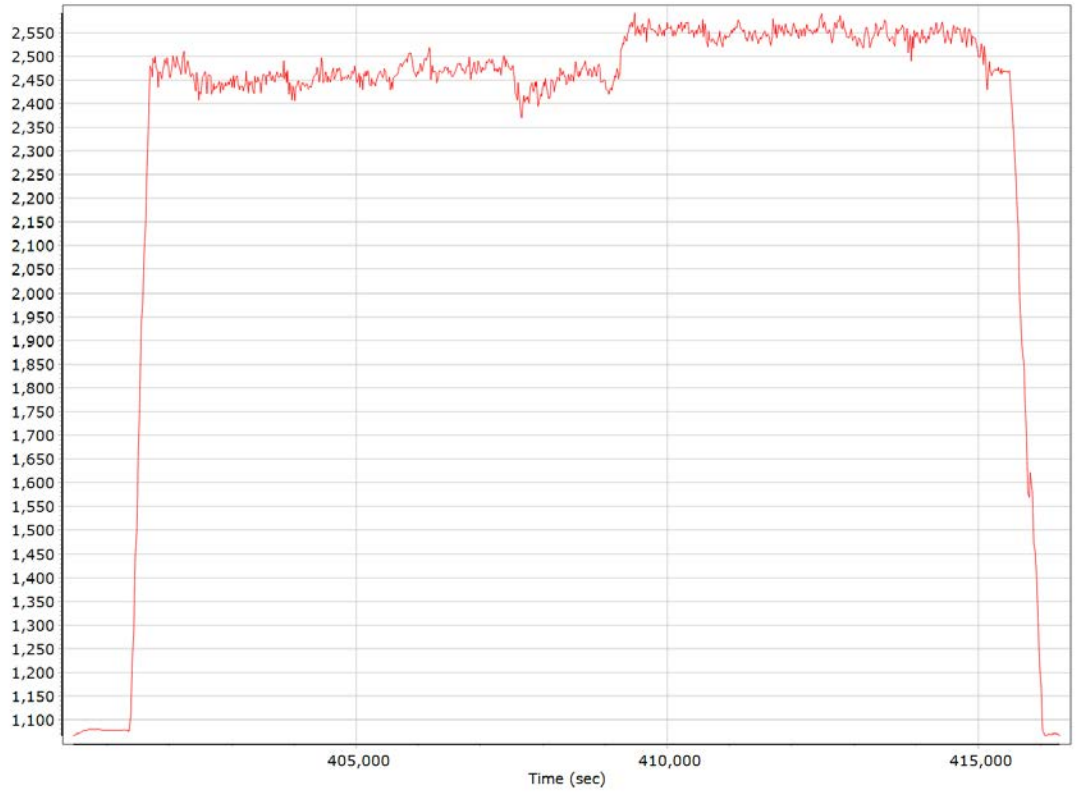

54
52
50
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44
42
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38
36
34
32
30
28
26
24
402,000
404,000
406,000
408,000
410,000
412,000
414,000
416,000
Time (sec)
GALILEO 02 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
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 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 27 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 30 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 34 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 05 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

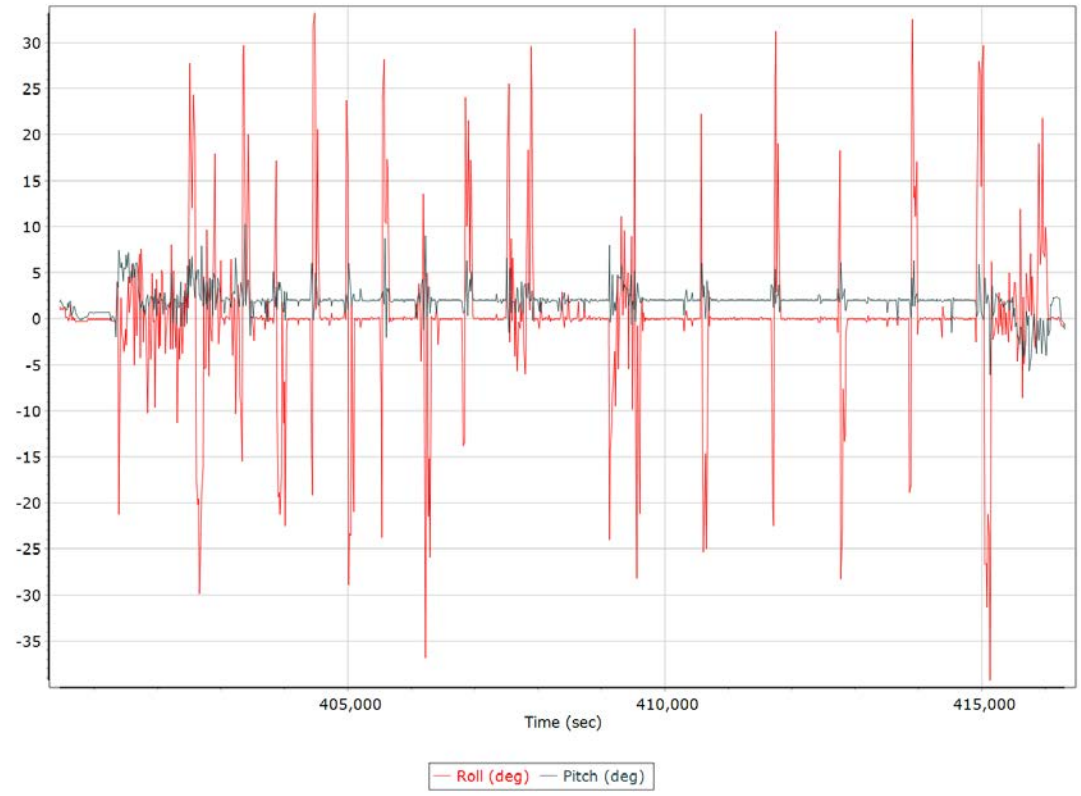
Top View



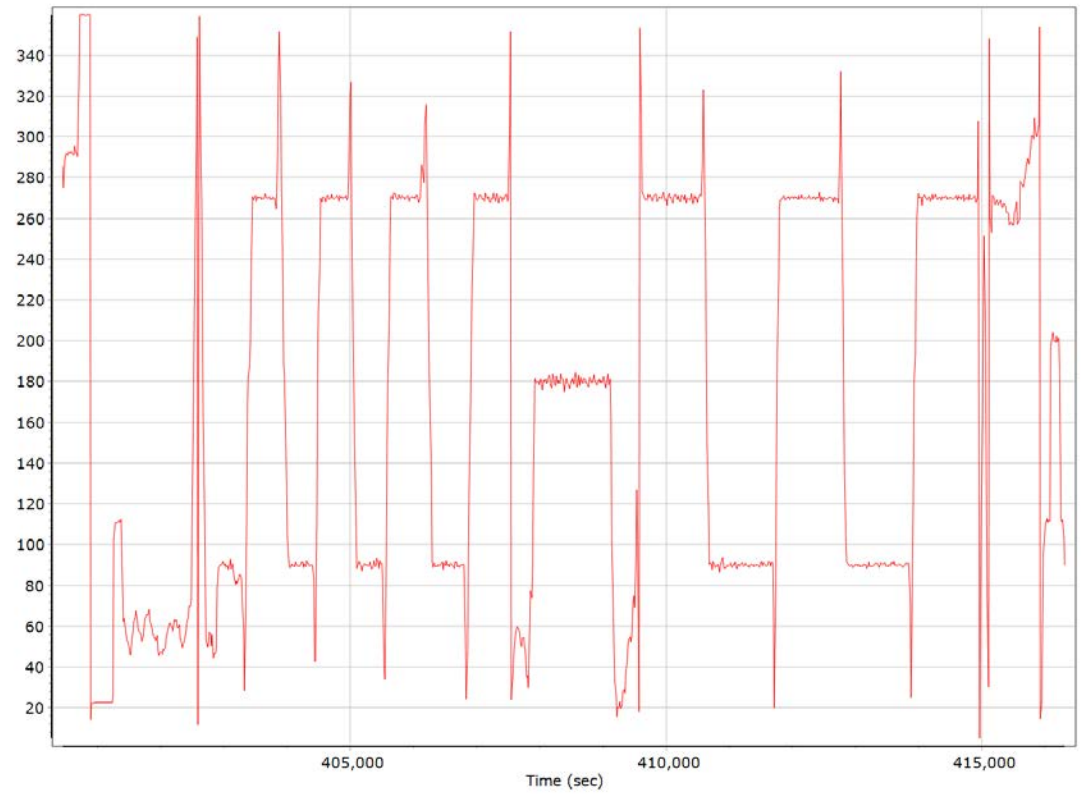
Altitude



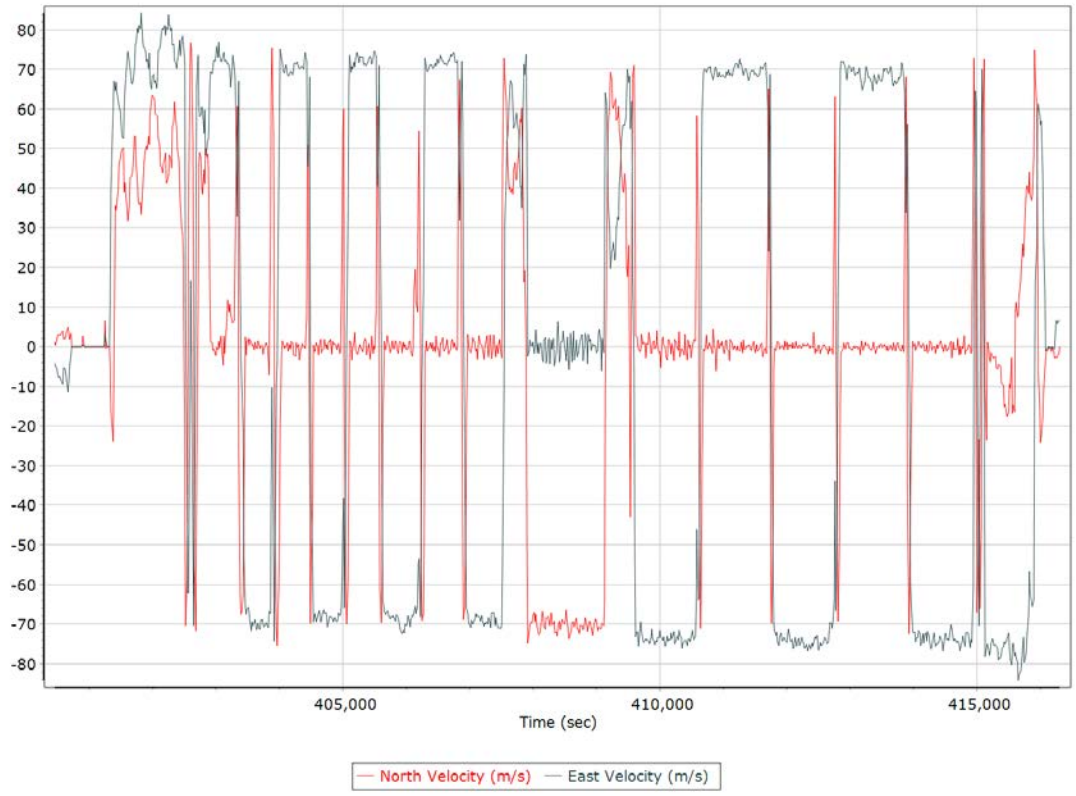
Roll/Pitch



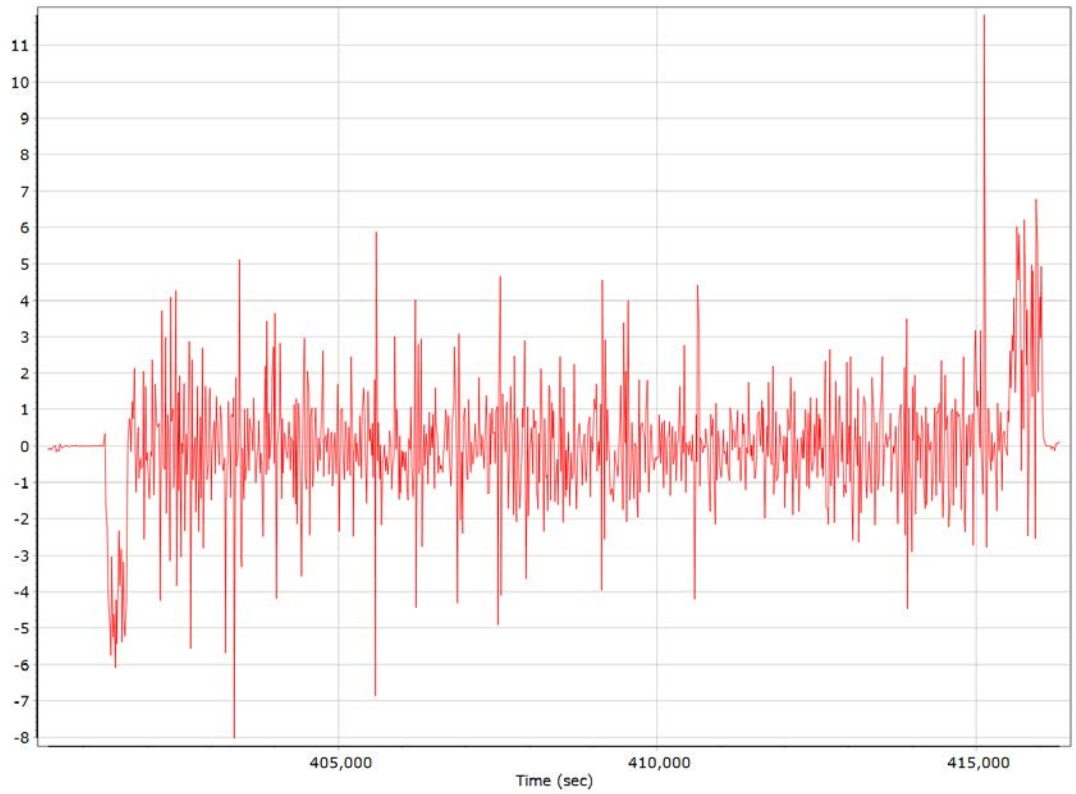
Heading



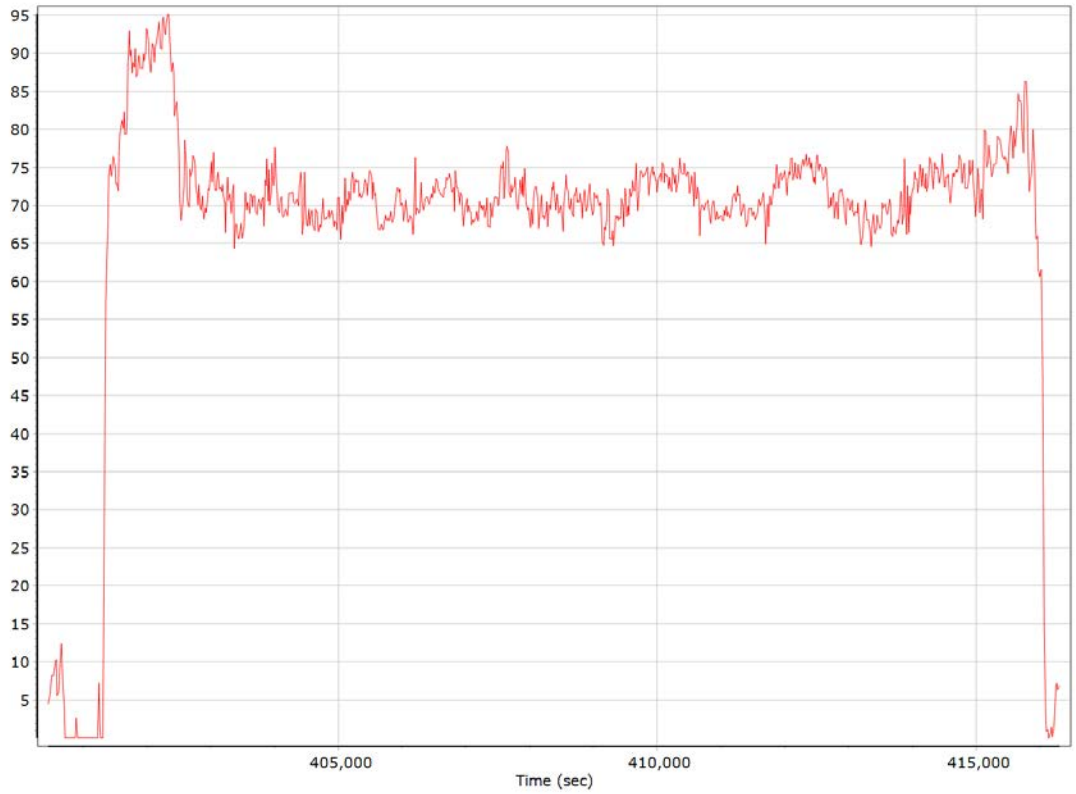
North/East Velocity



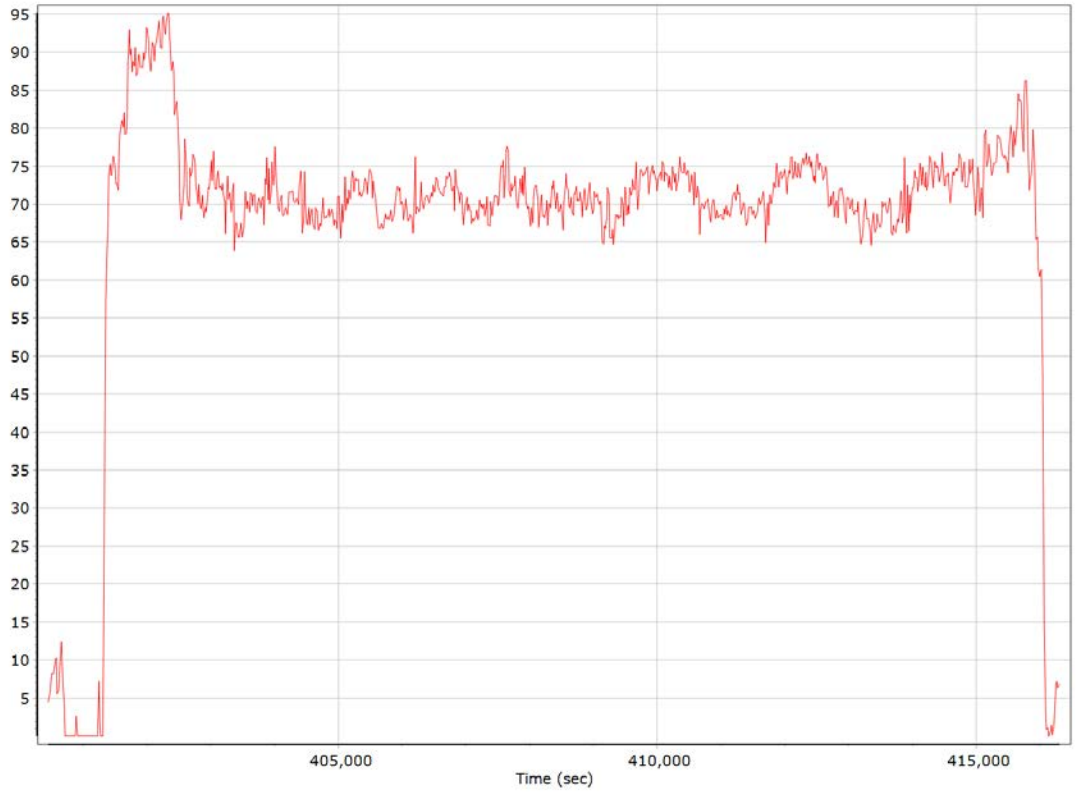
Down Velocity



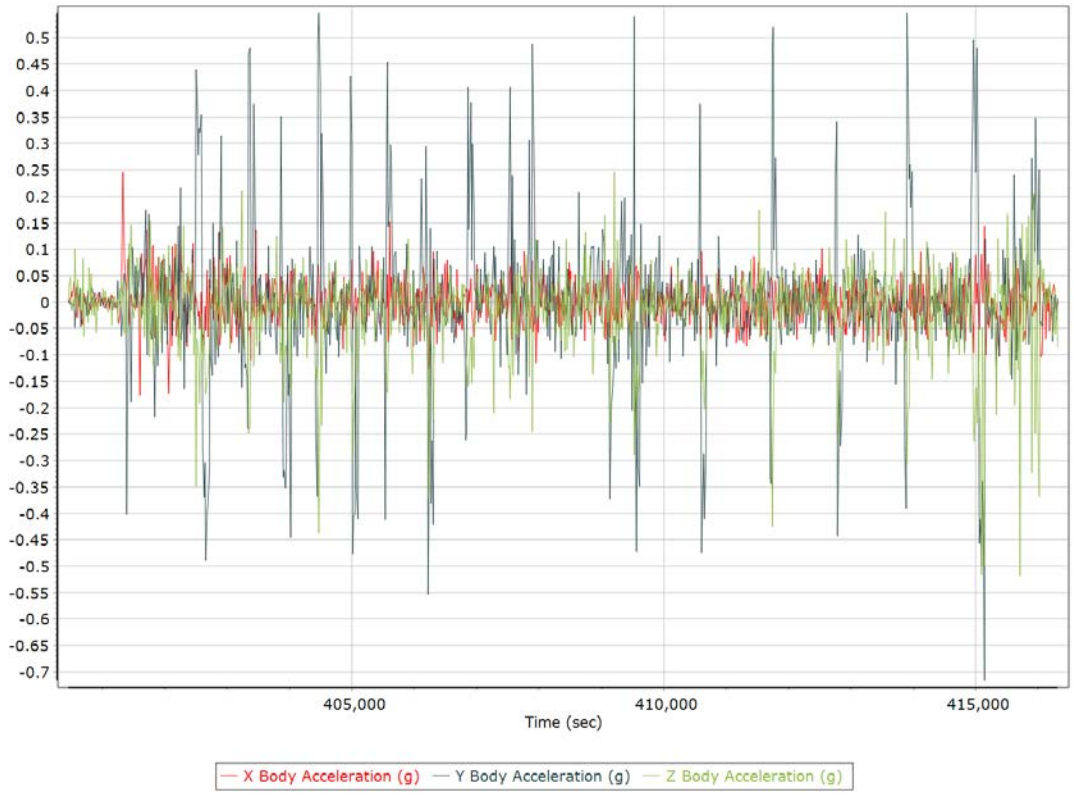
Total Speed



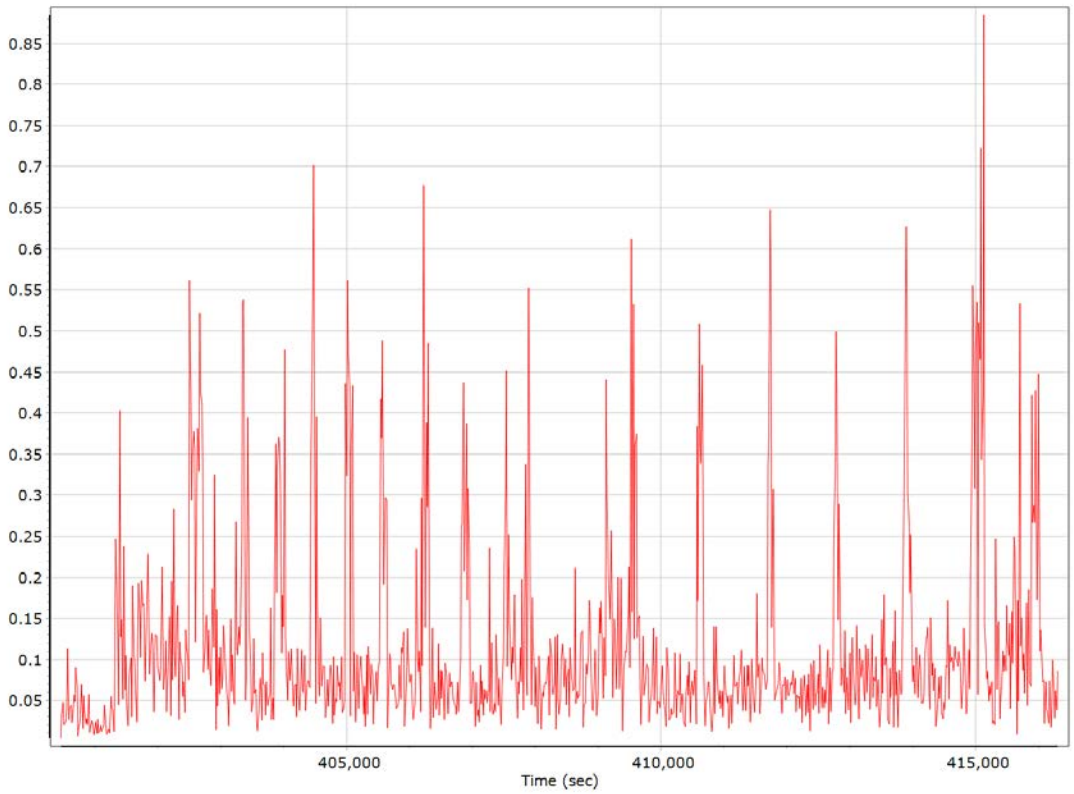
Ground Speed



Body Acceleration



Total Body Acceleration

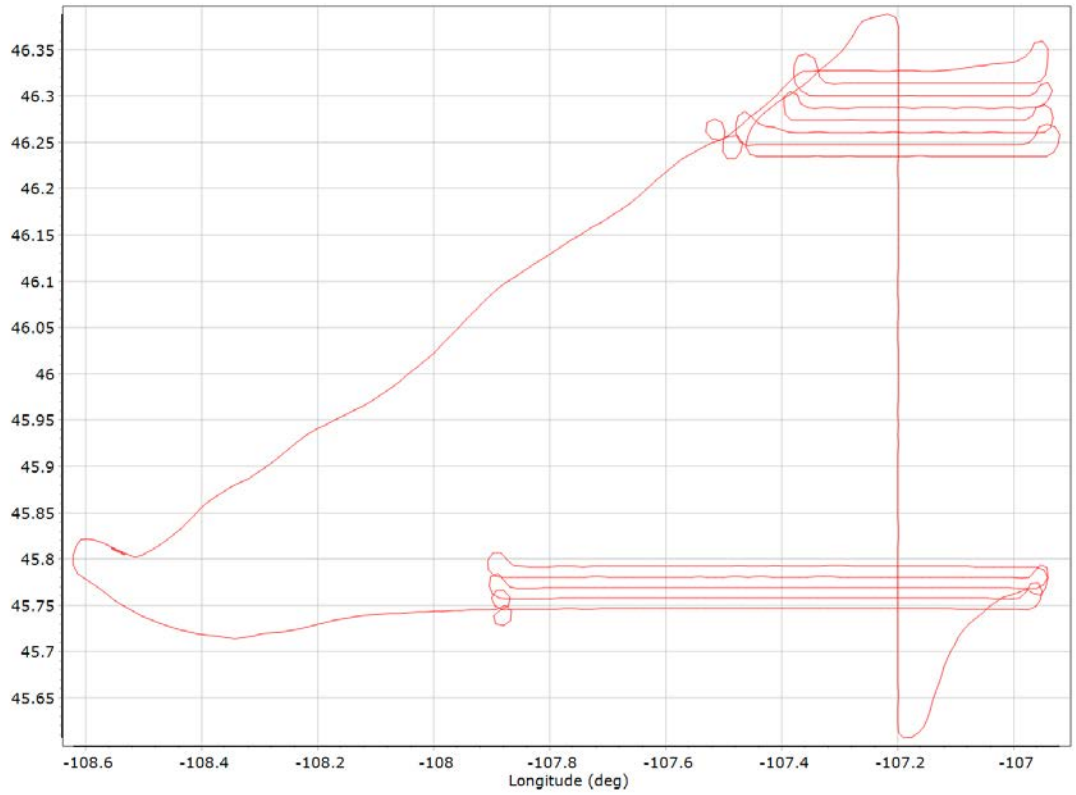


Body Angular Rate

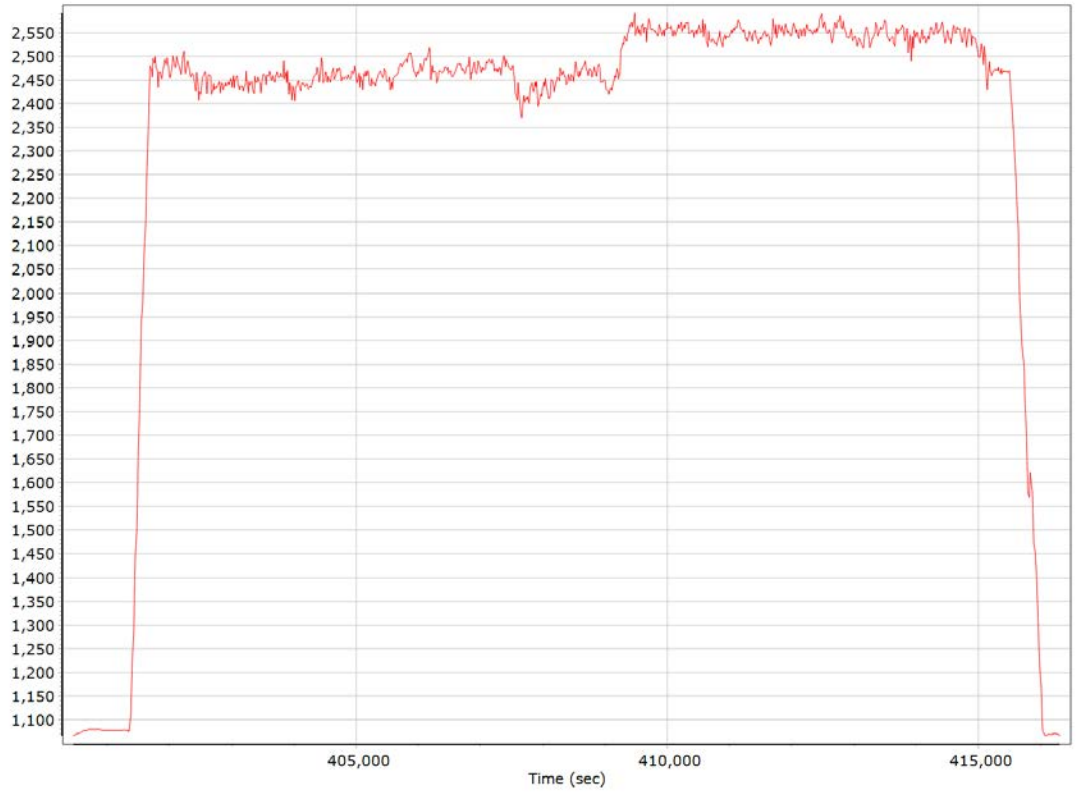


Forward Processed Trajectory Information

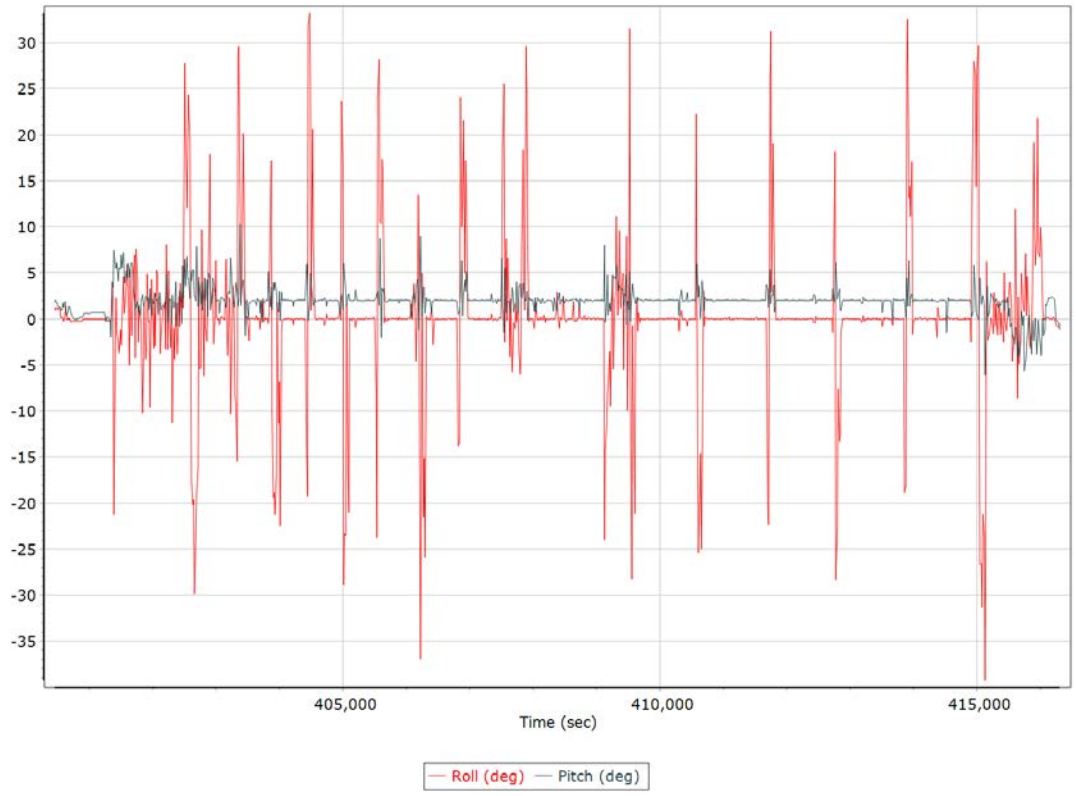
Top View



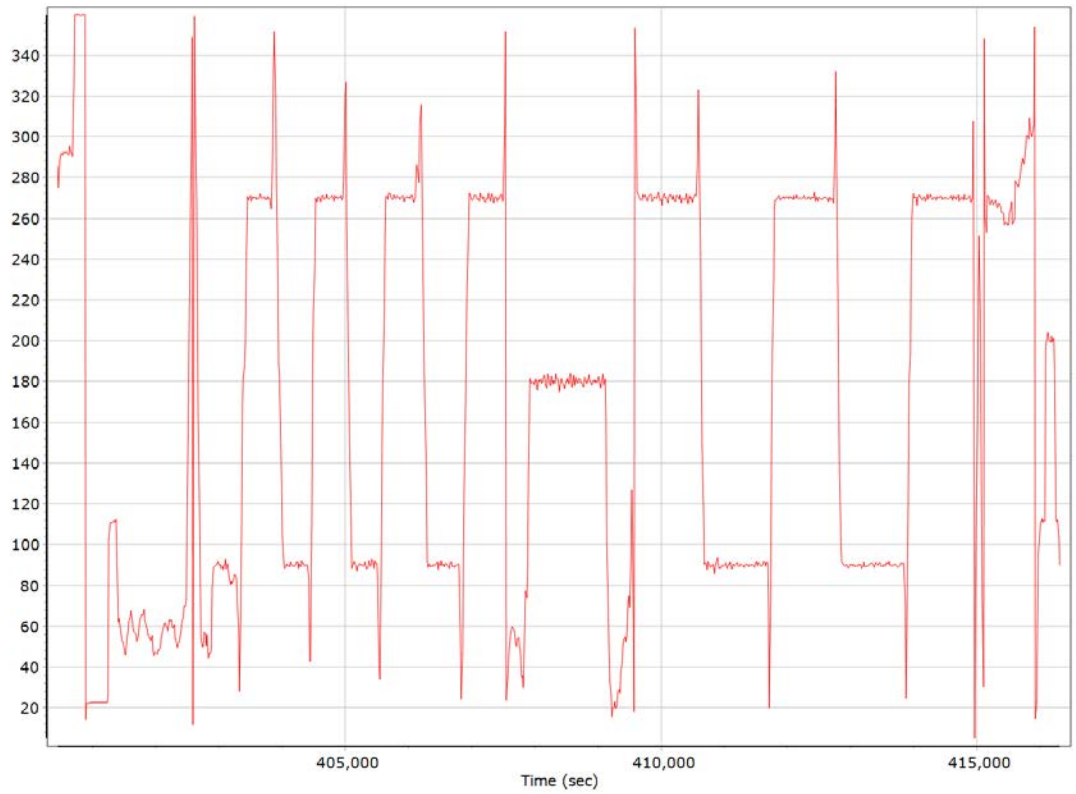
Altitude



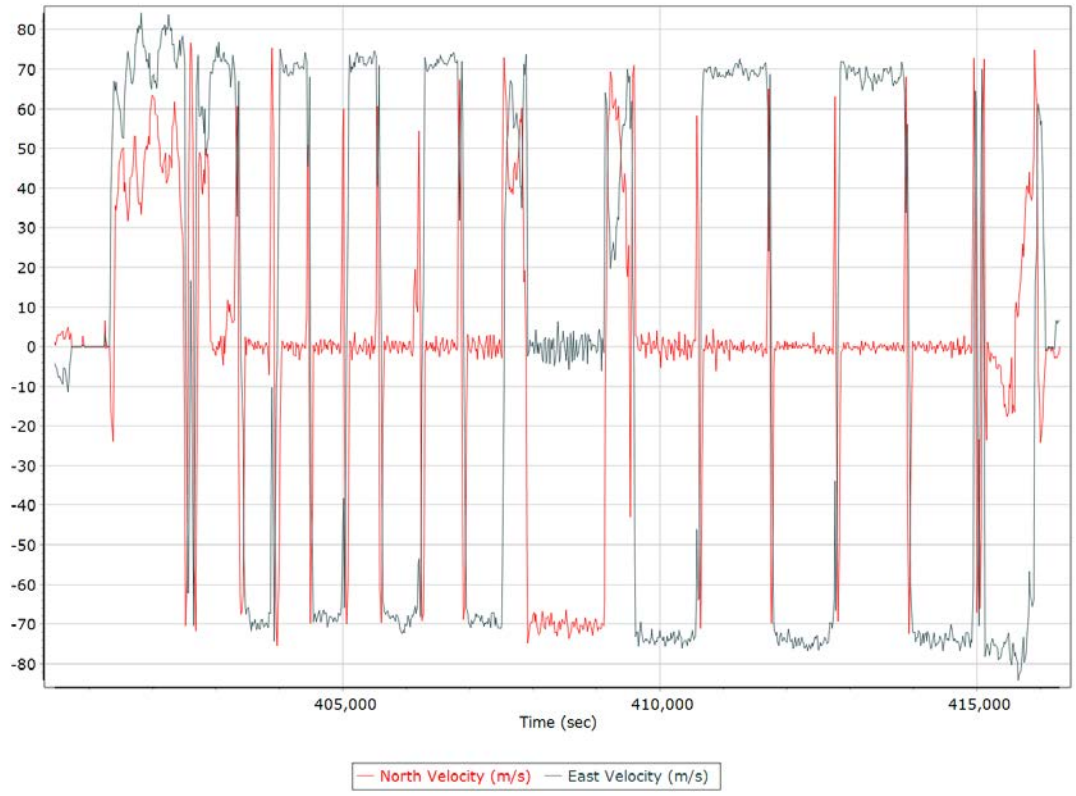
Roll/Pitch



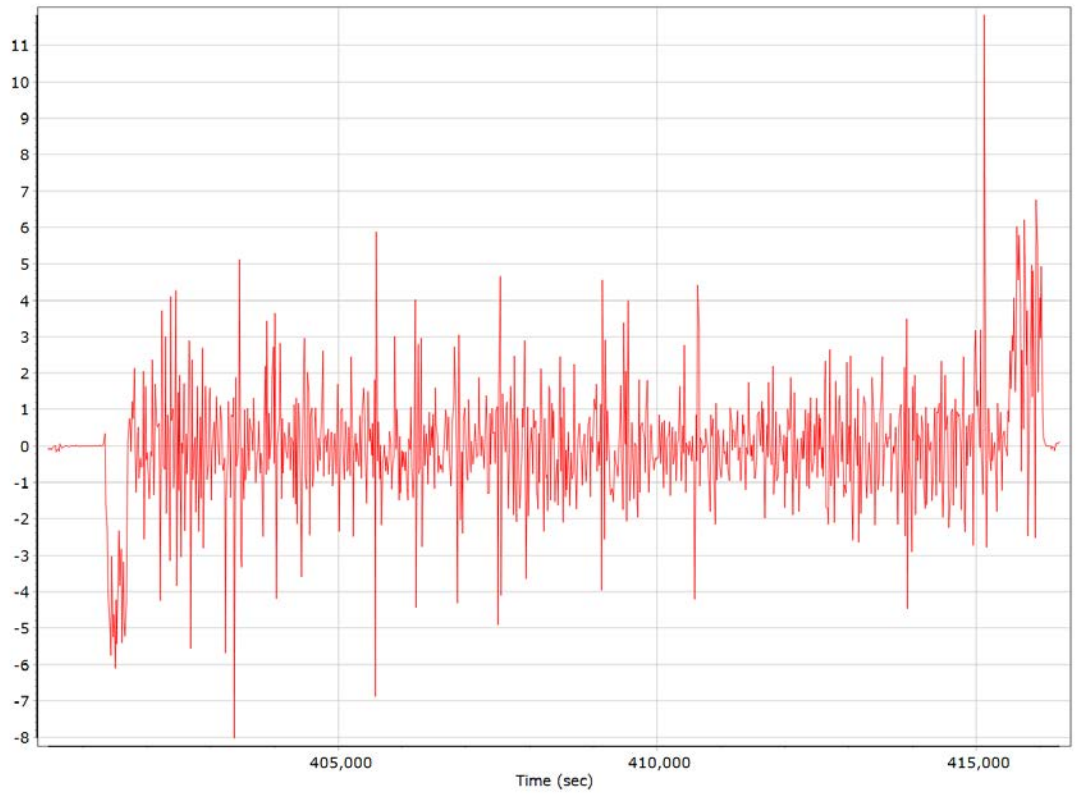
Heading



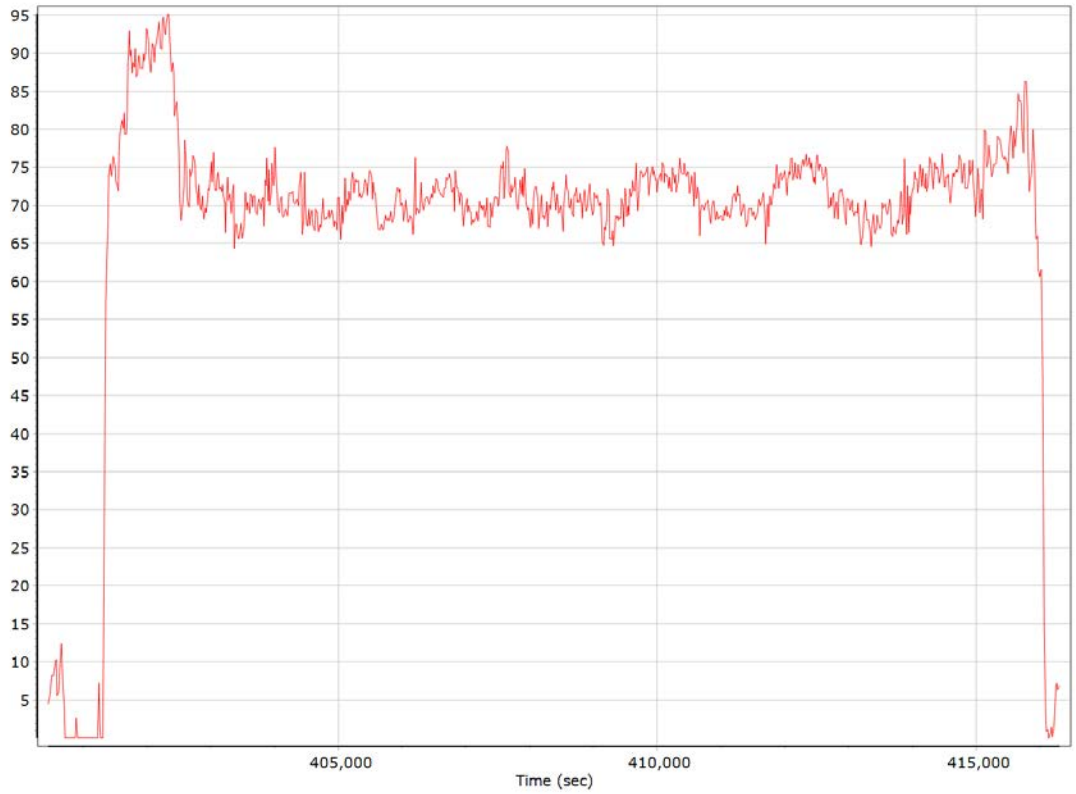
North/East Velocity



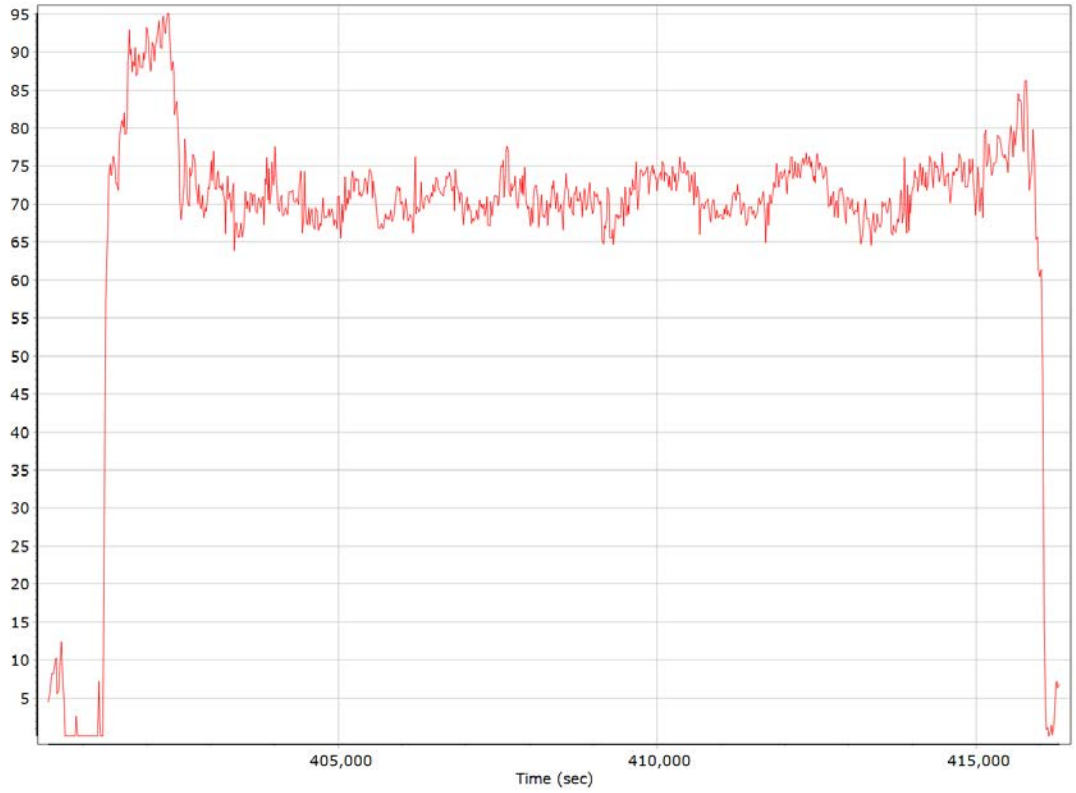
Down Velocity



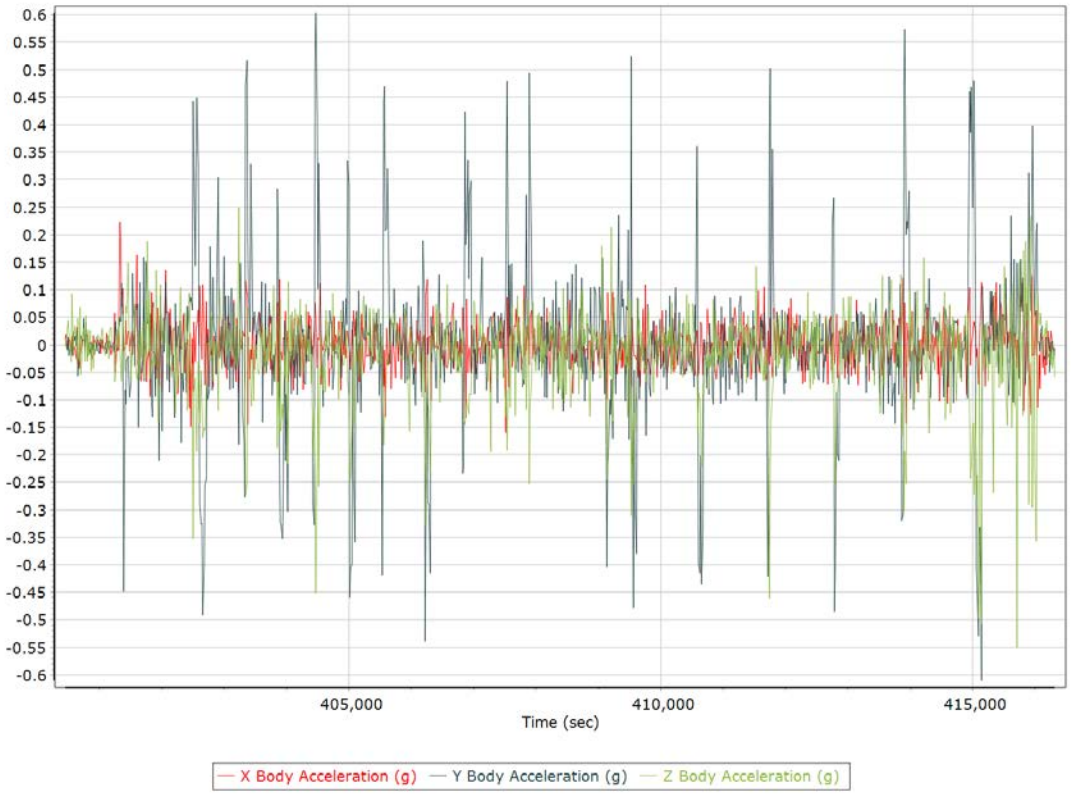
Total Speed



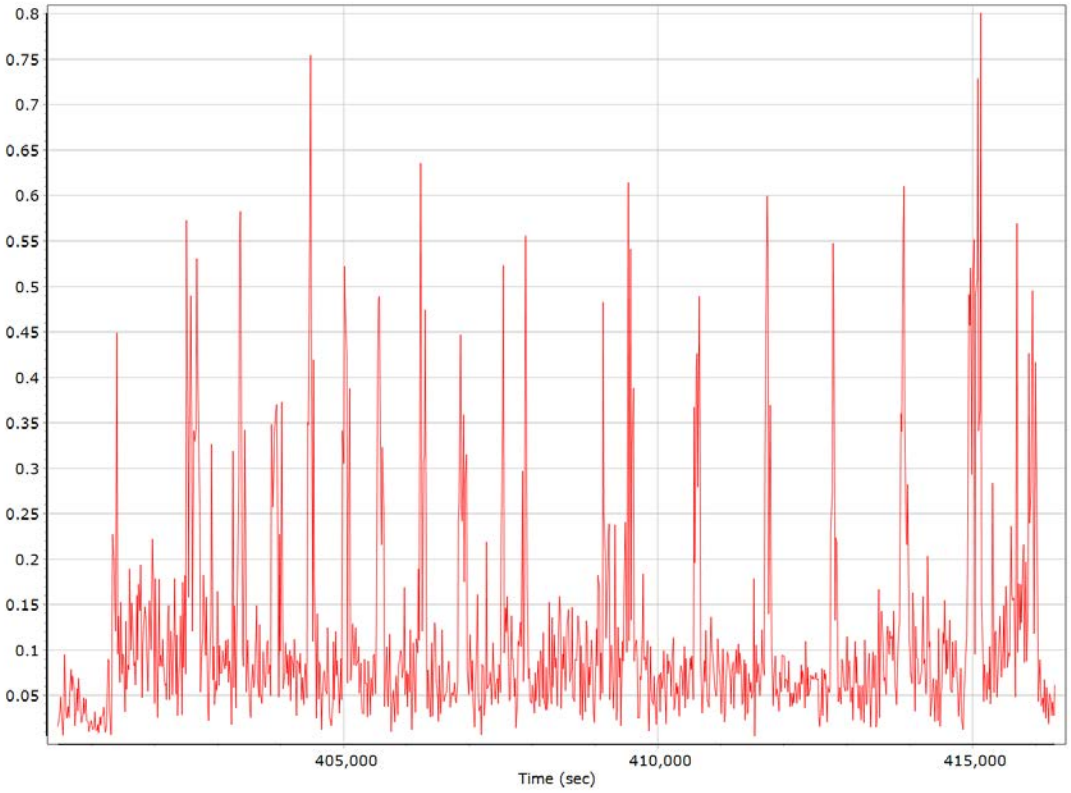
Ground Speed



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	11	9
Number of GLONASS SV	3	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	6	10	8
Total number of SV	17	27	23
PDOP	0.92	1.61	1.12
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	15980.00	0.00	0.00
Percentage	100.00	0.00	0.00

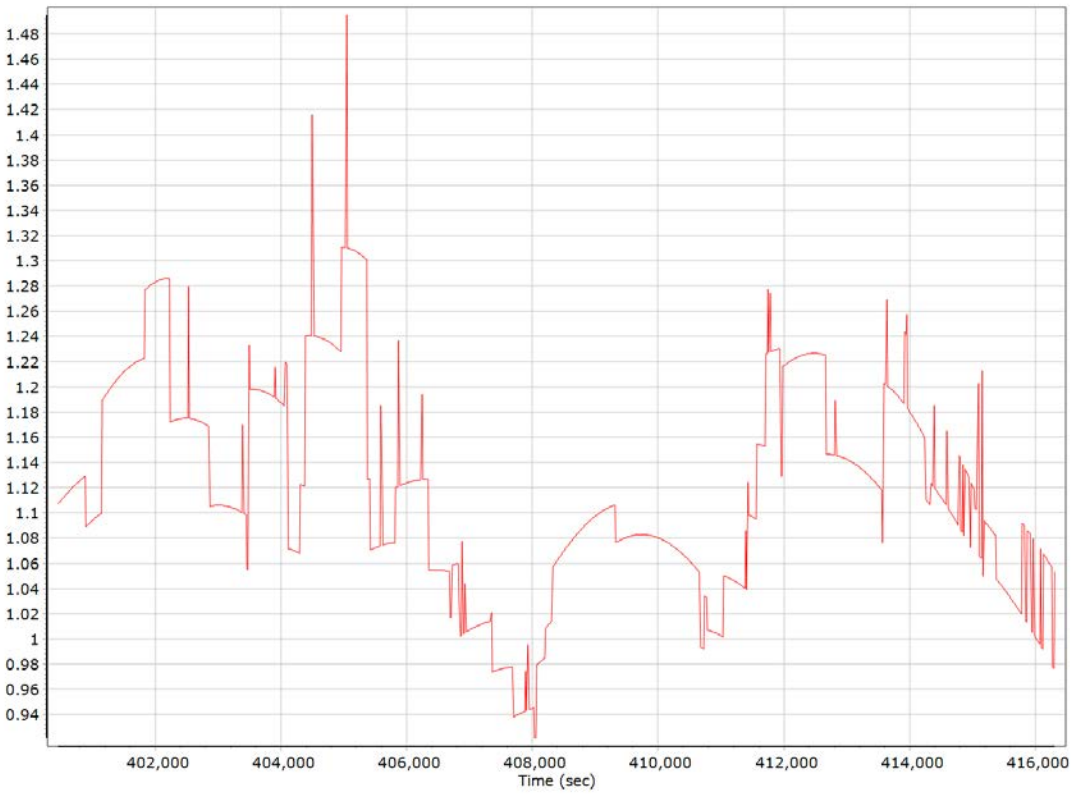
Num SVs in solution



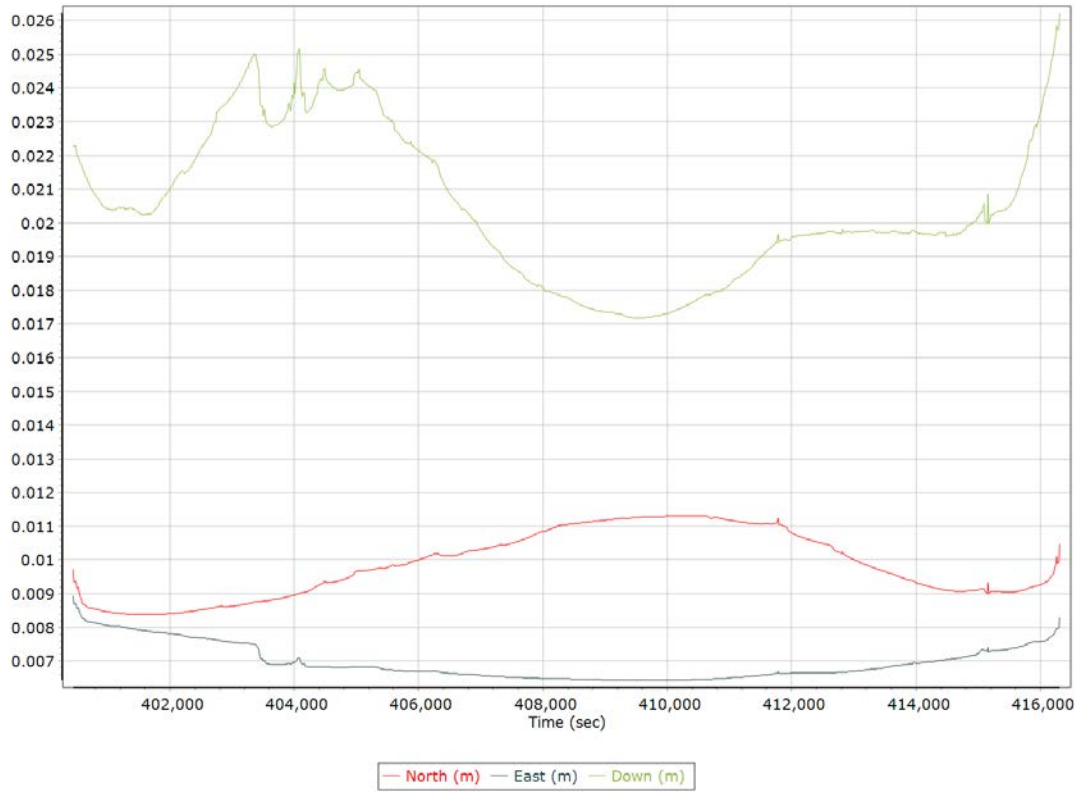
Forward/Reverse Separation



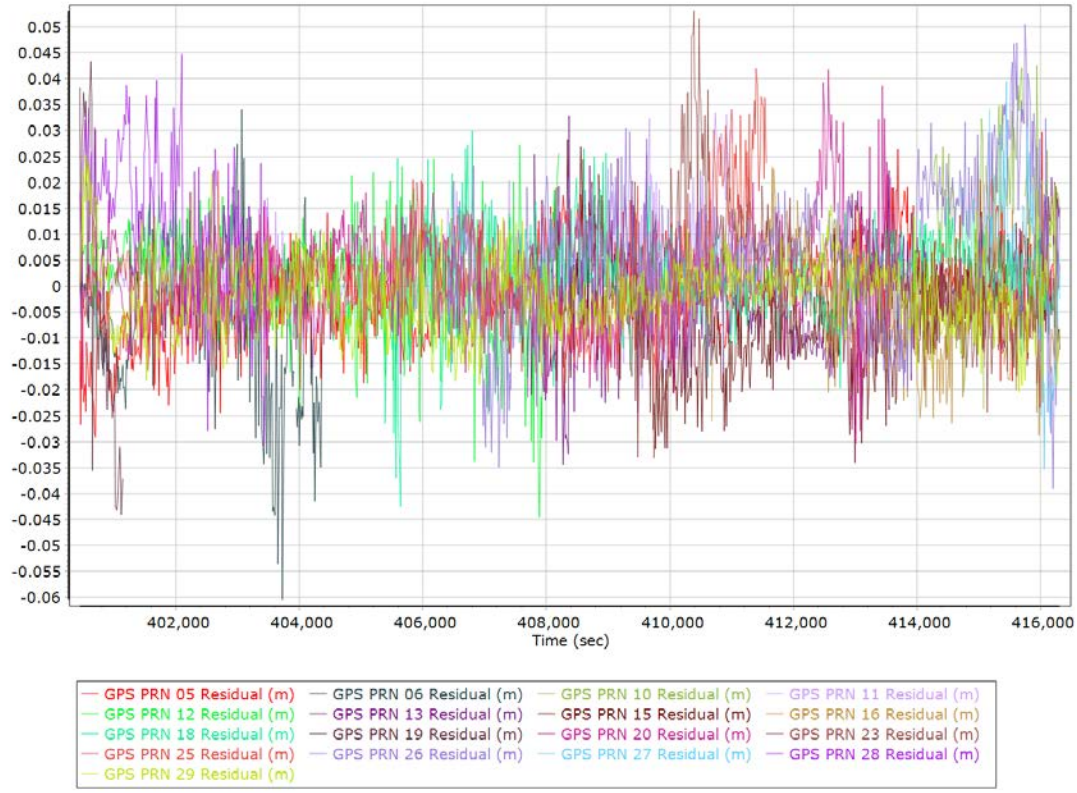
PDOP



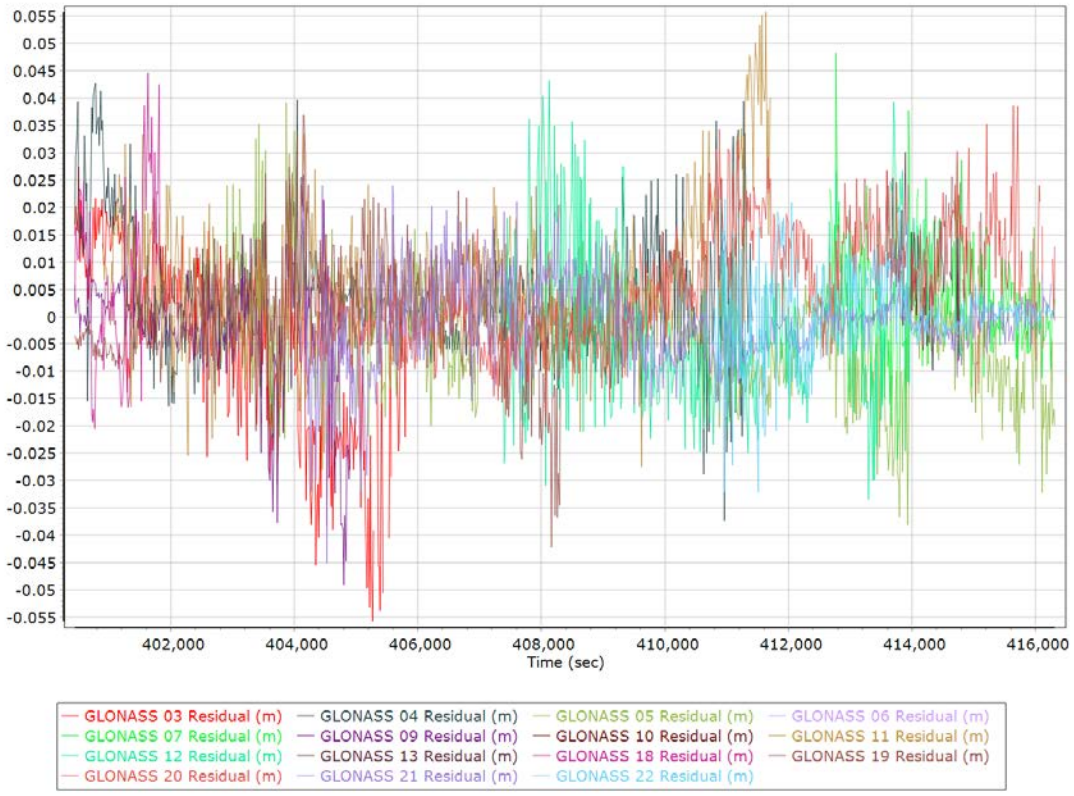
Estimated Position Accuracy



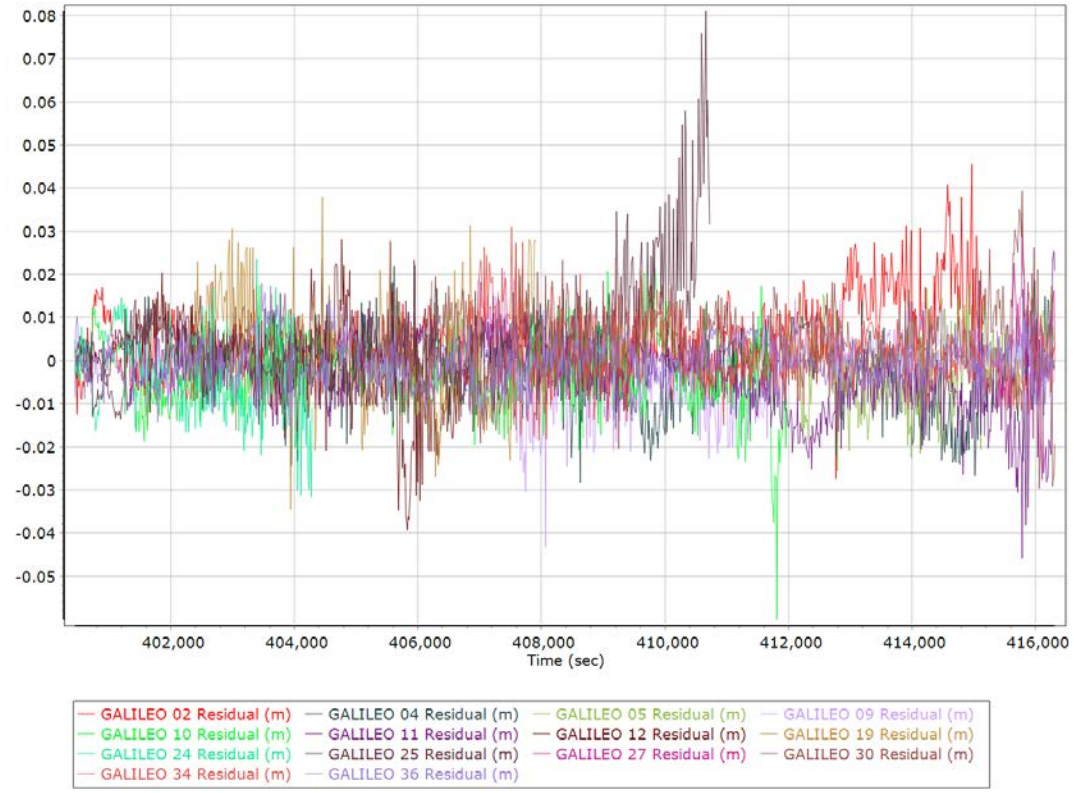
GPS Residuals



GLONASS Residuals



GALILEO Residuals



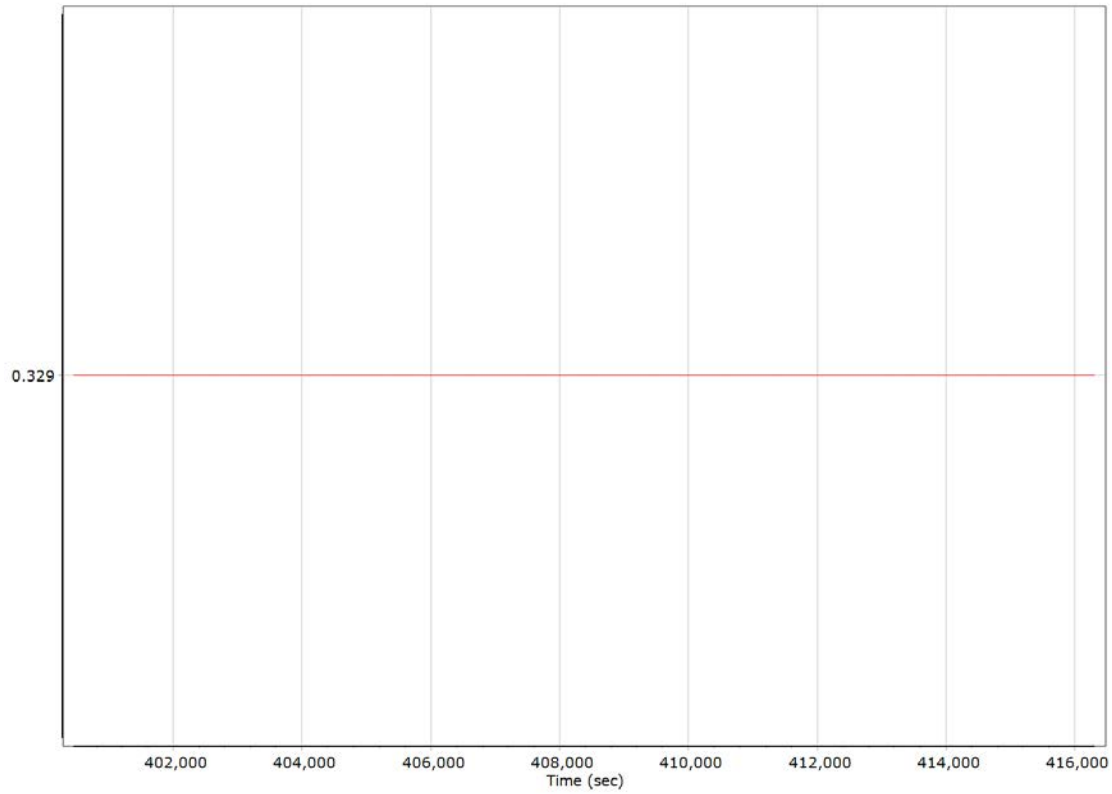
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	400332.000 (7/20/2023 3:12:12 PM)		
Processing end time	416319.000 (7/20/2023 7:38:39 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

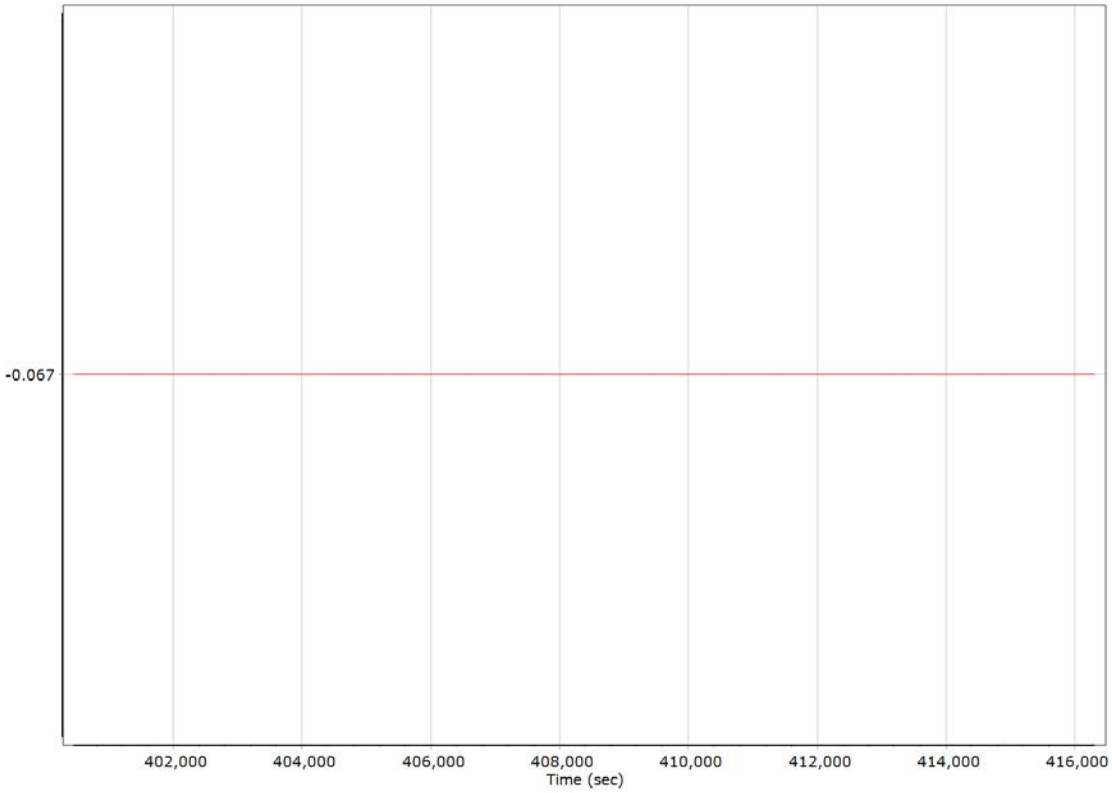
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

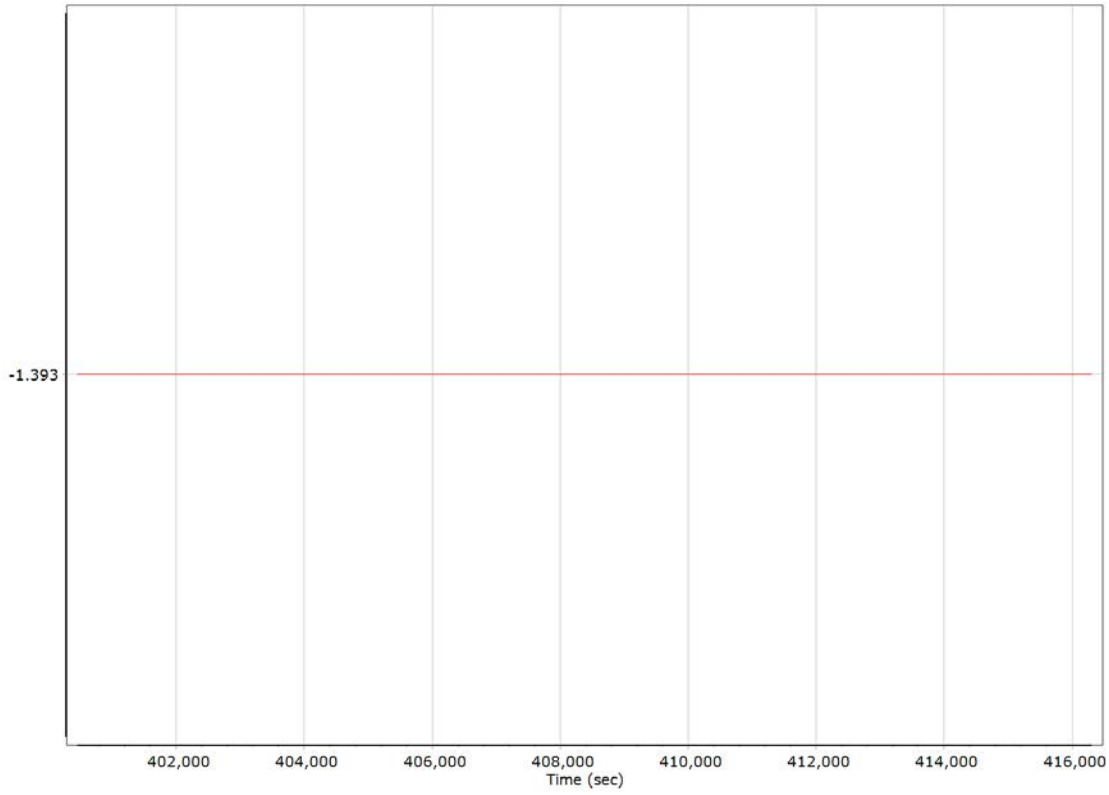
X Reference-Primary GNSS Lever Arm (m)



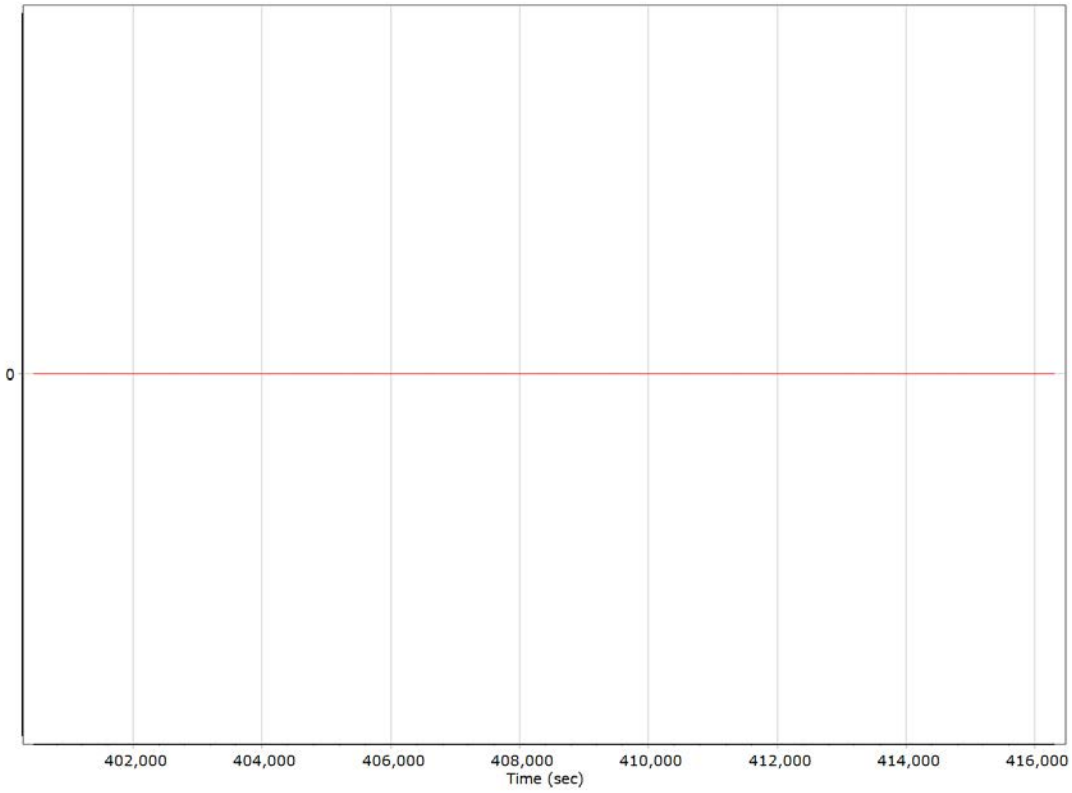
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



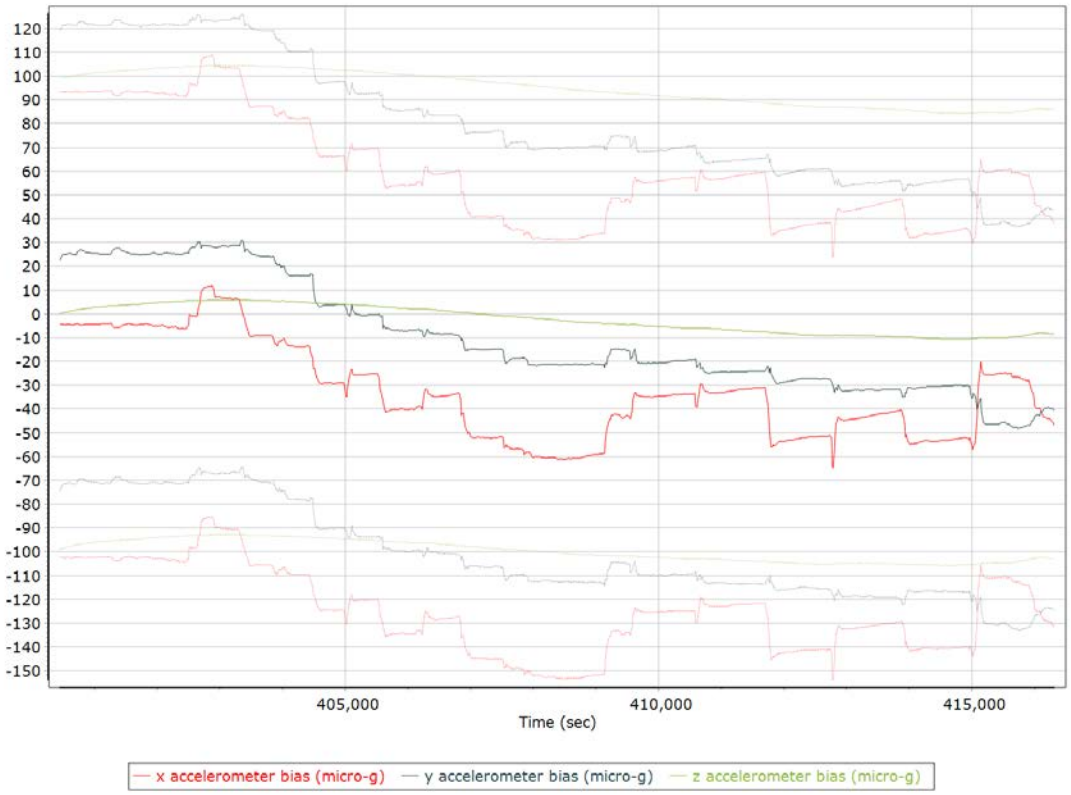
Reference-Primary GNSS Lever Arm Figure of Merit



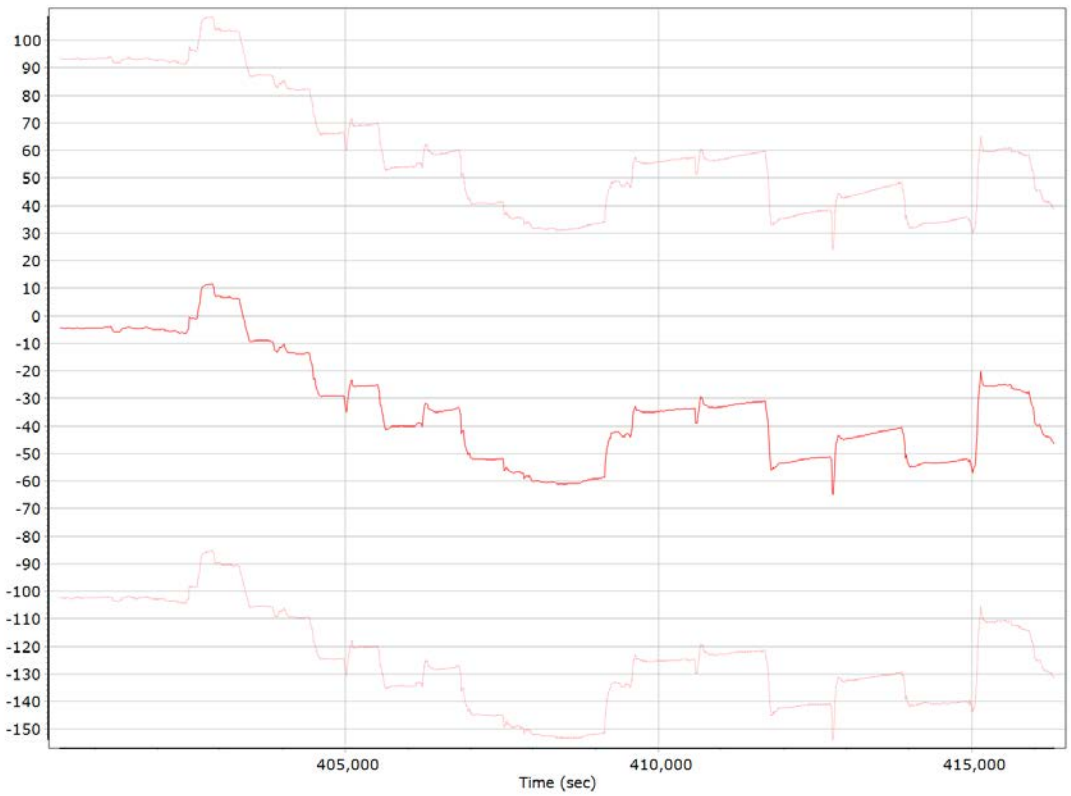
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

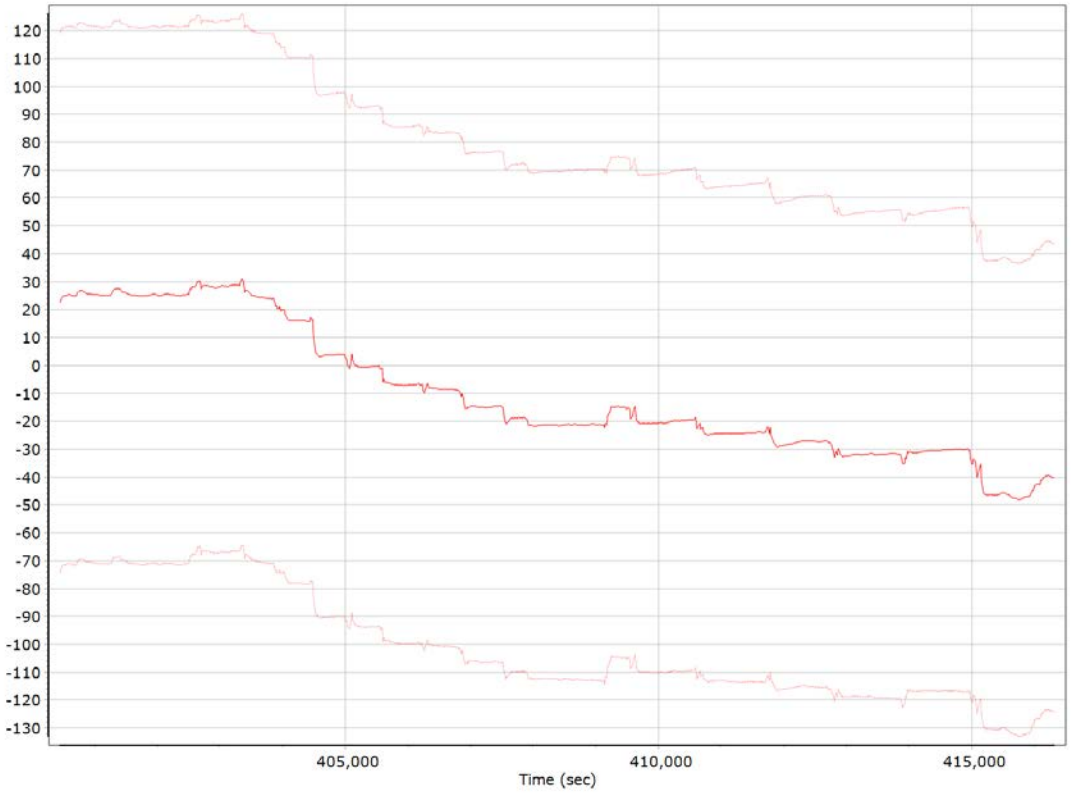
Accelerometer Bias (micro-g)



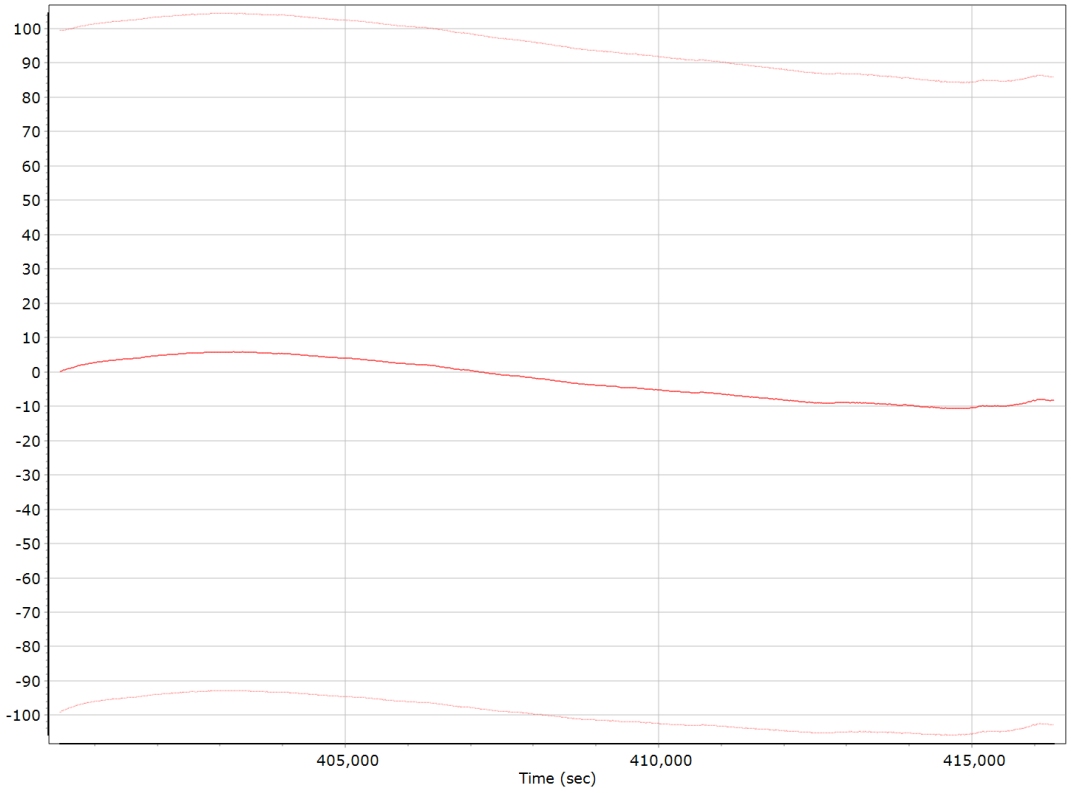
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



Z Accelerometer Bias (micro-g)



Accelerometer Scale Error (ppm)



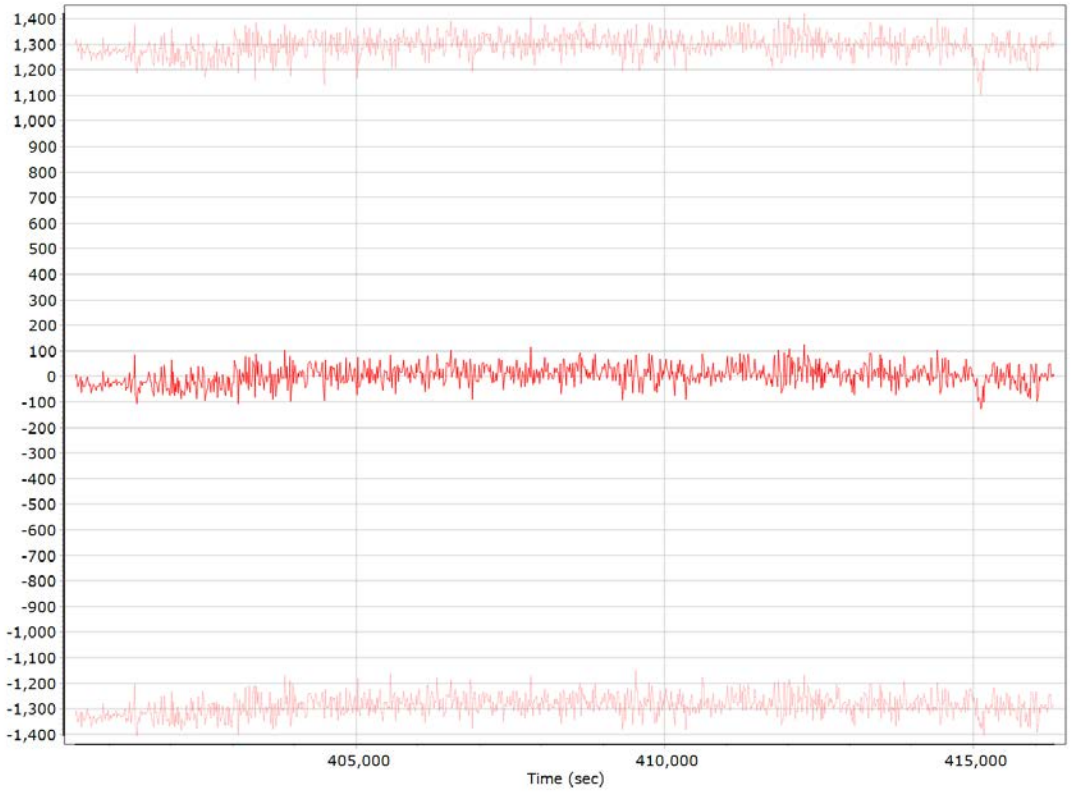
X Accelerometer Scale Error (ppm)



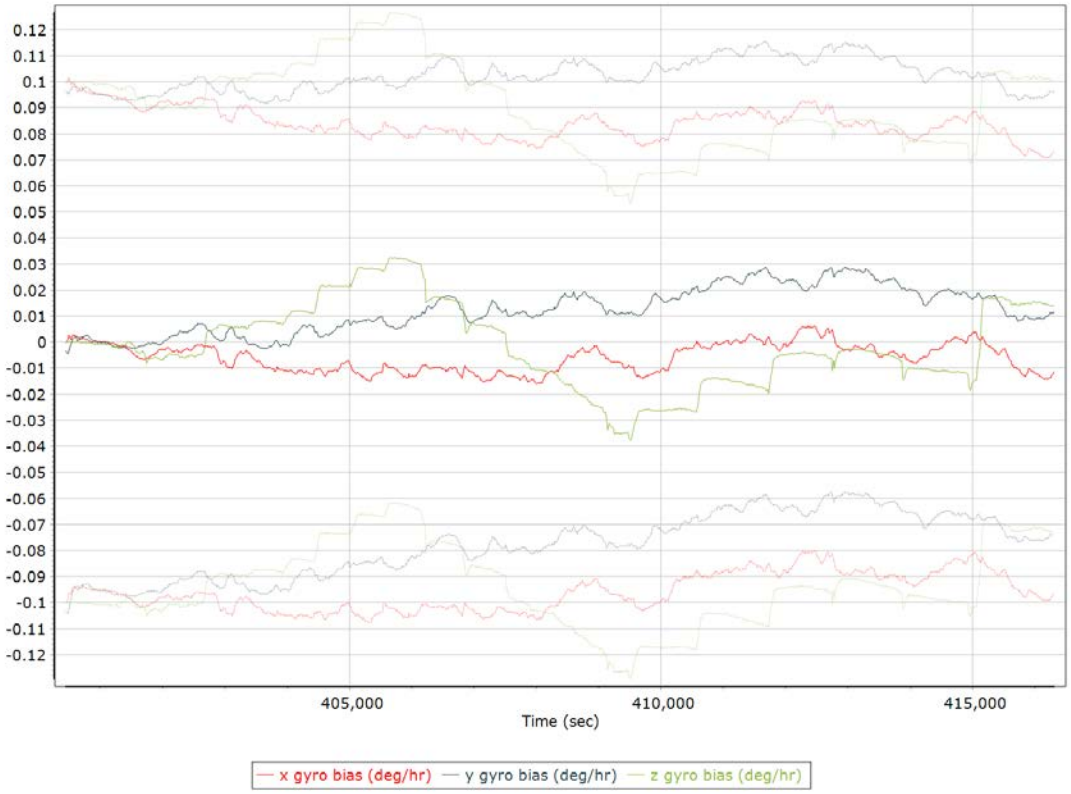
Y Accelerometer Scale Error (ppm)



Z Accelerometer Scale Error (ppm)



Gyro Bias (deg/h)



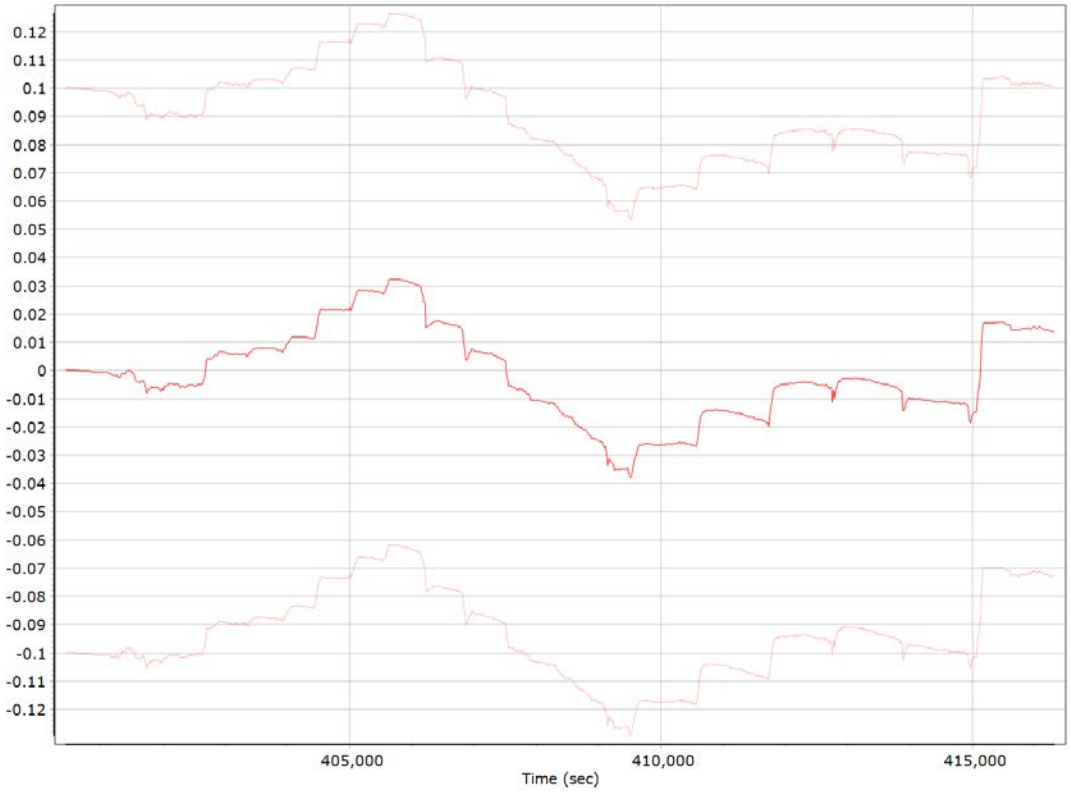
X Gyro Bias (deg/h)



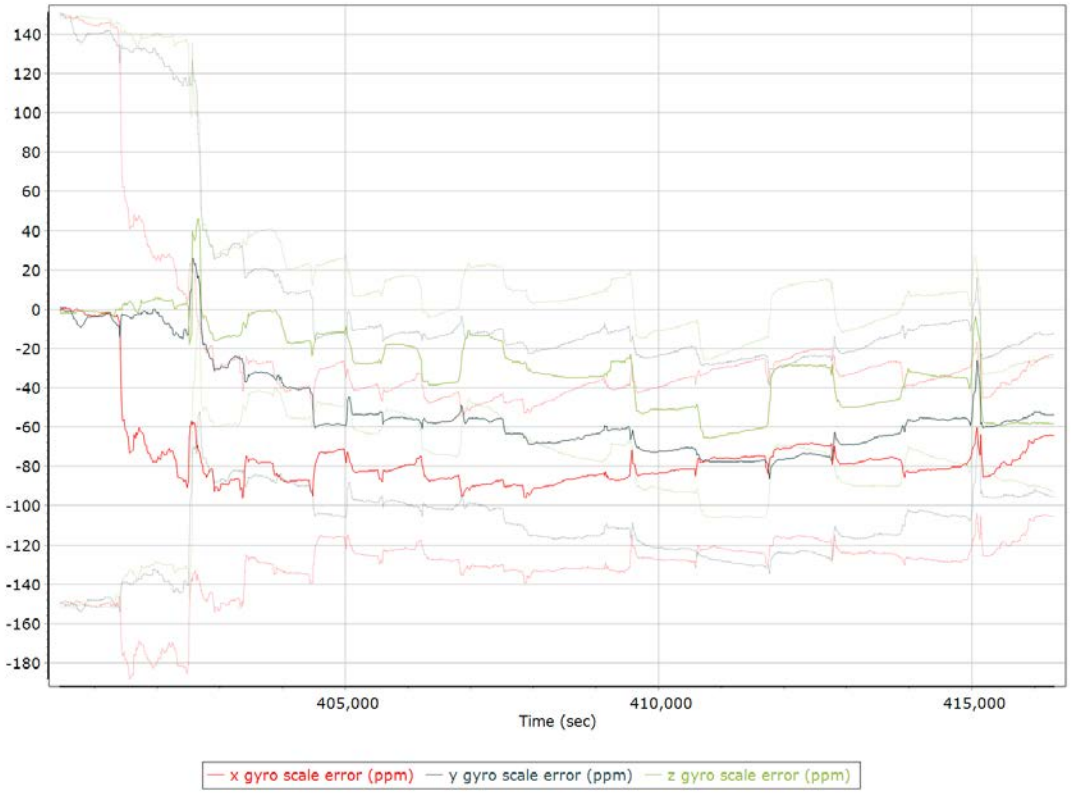
Y Gyro Bias (deg/h)



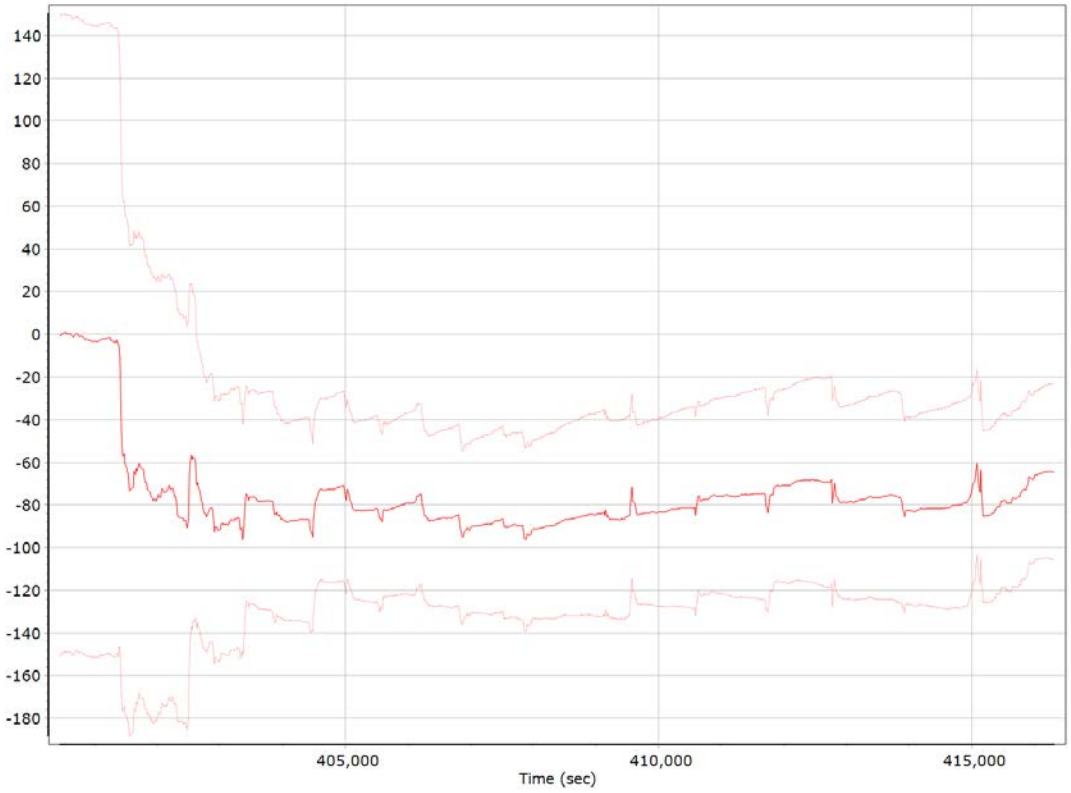
Z Gyro Bias (deg/h)



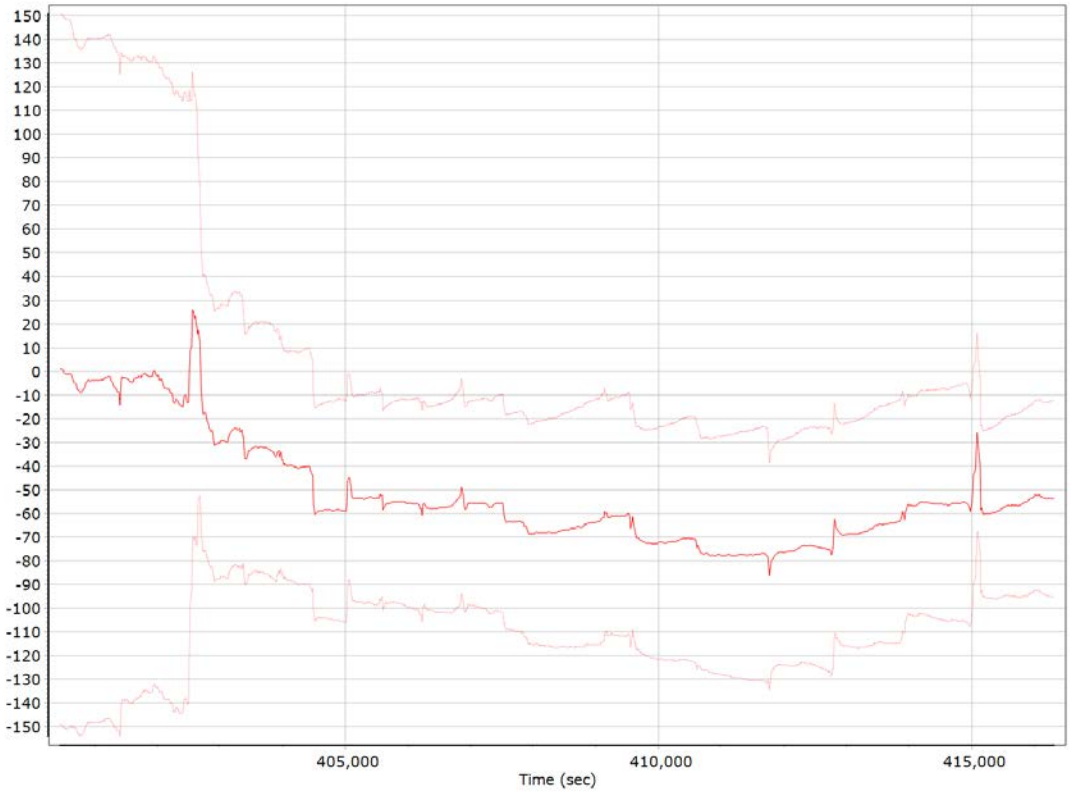
Gyro Scale Error (ppm)



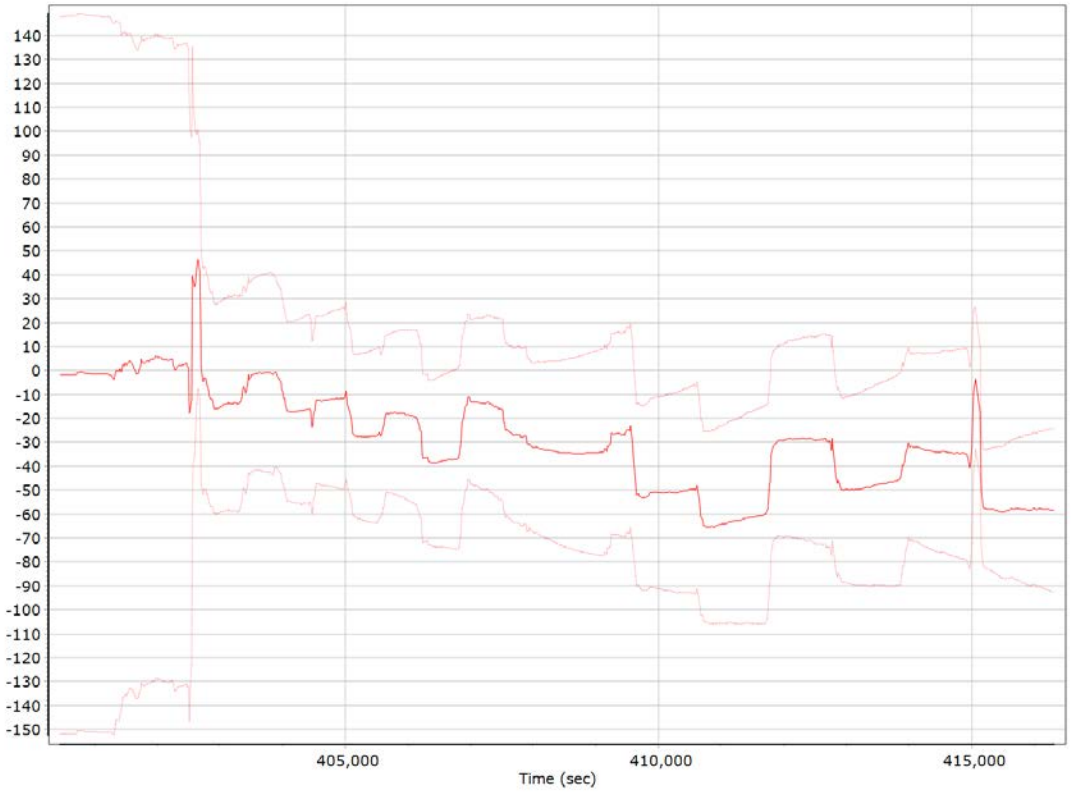
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

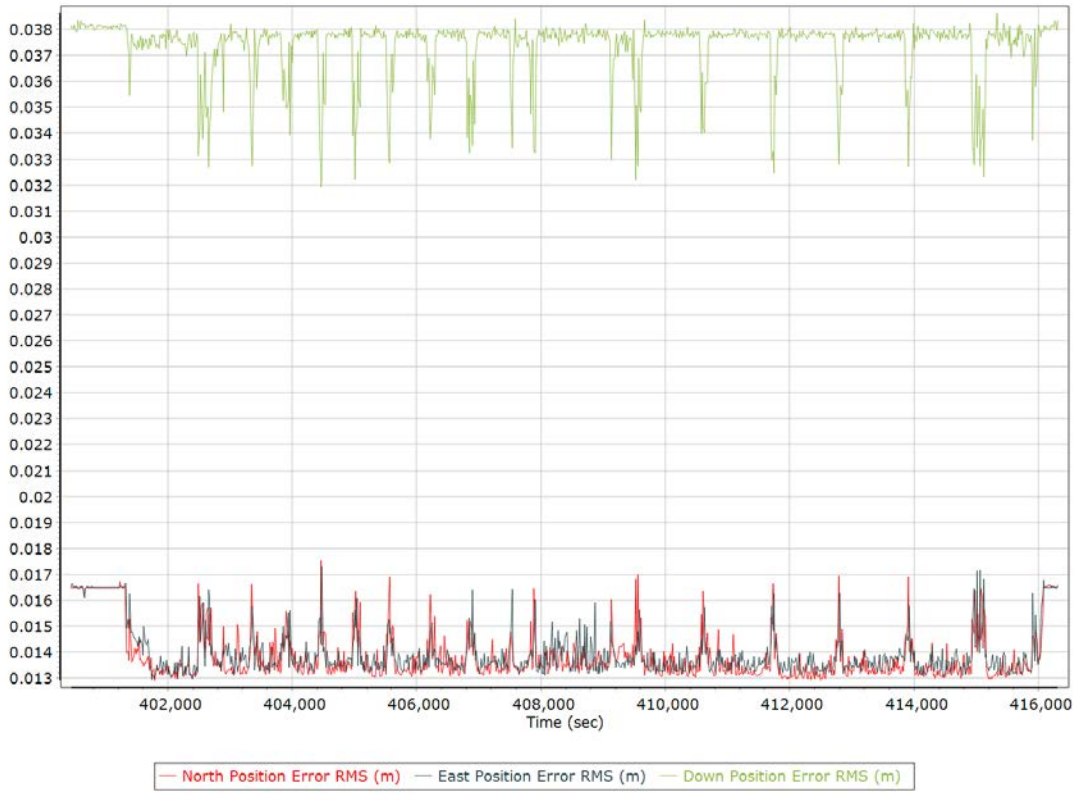


Z Gyro Scale Error (ppm)



Smoothed Performance Metrics

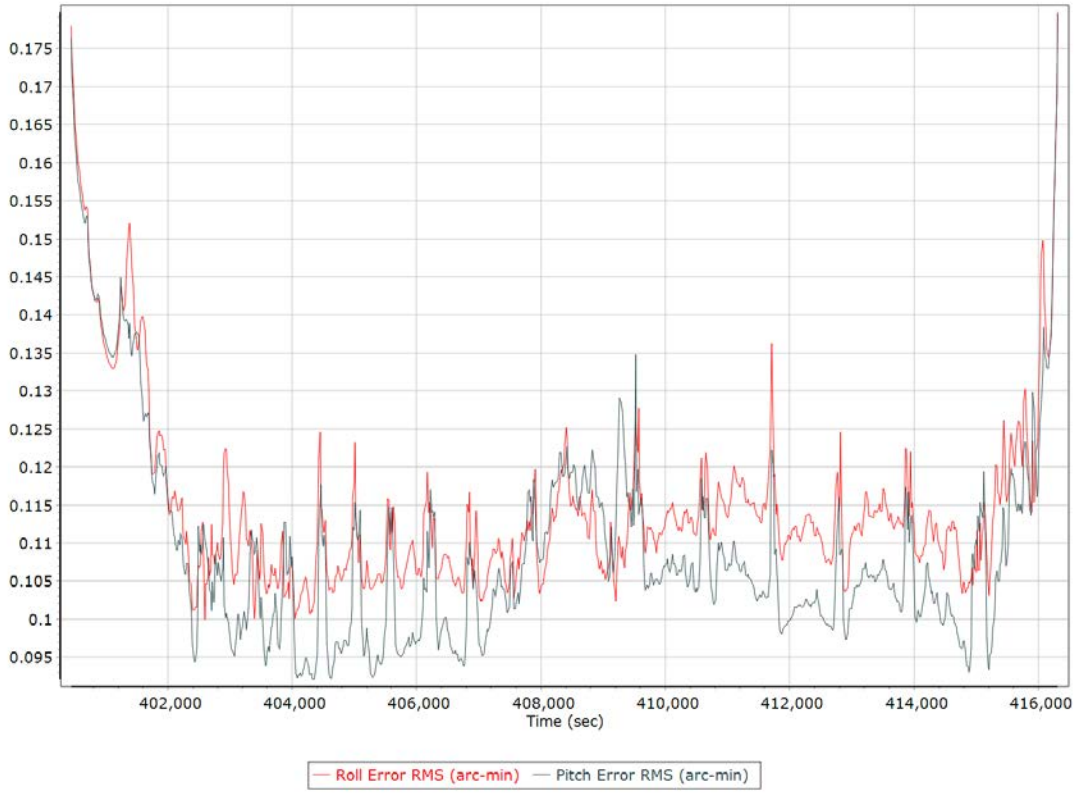
Position Error RMS (m)



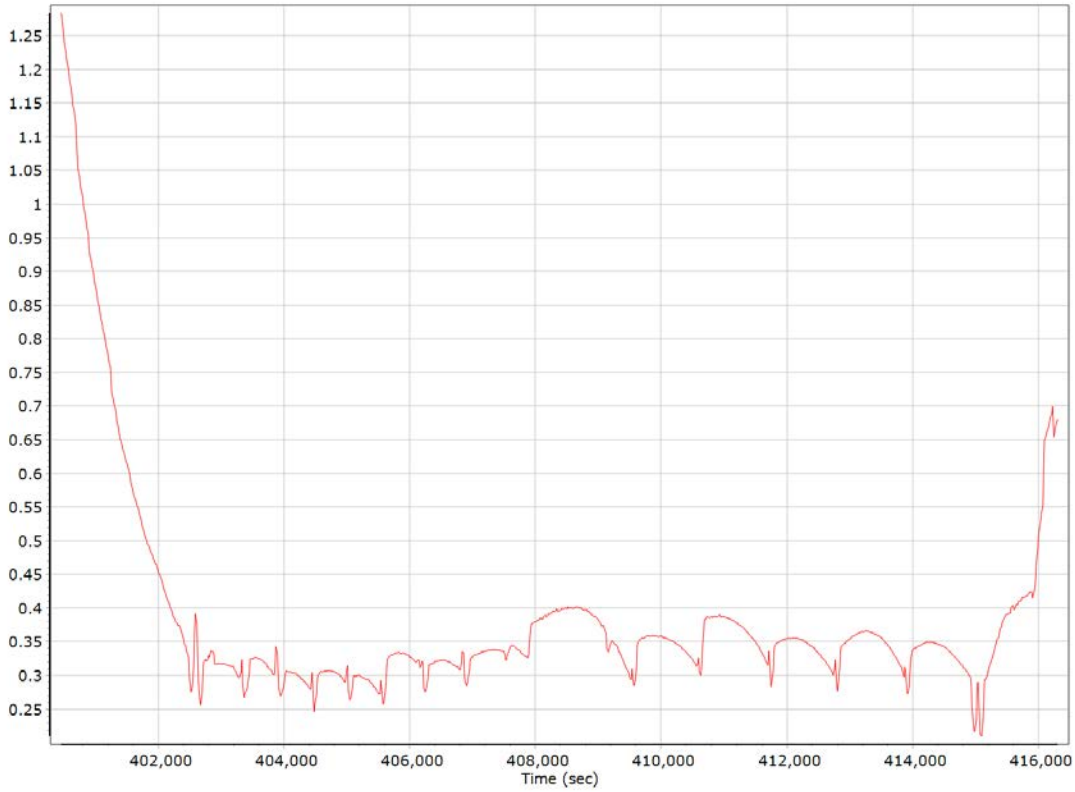
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)



Heading Error RMS (arc-min)

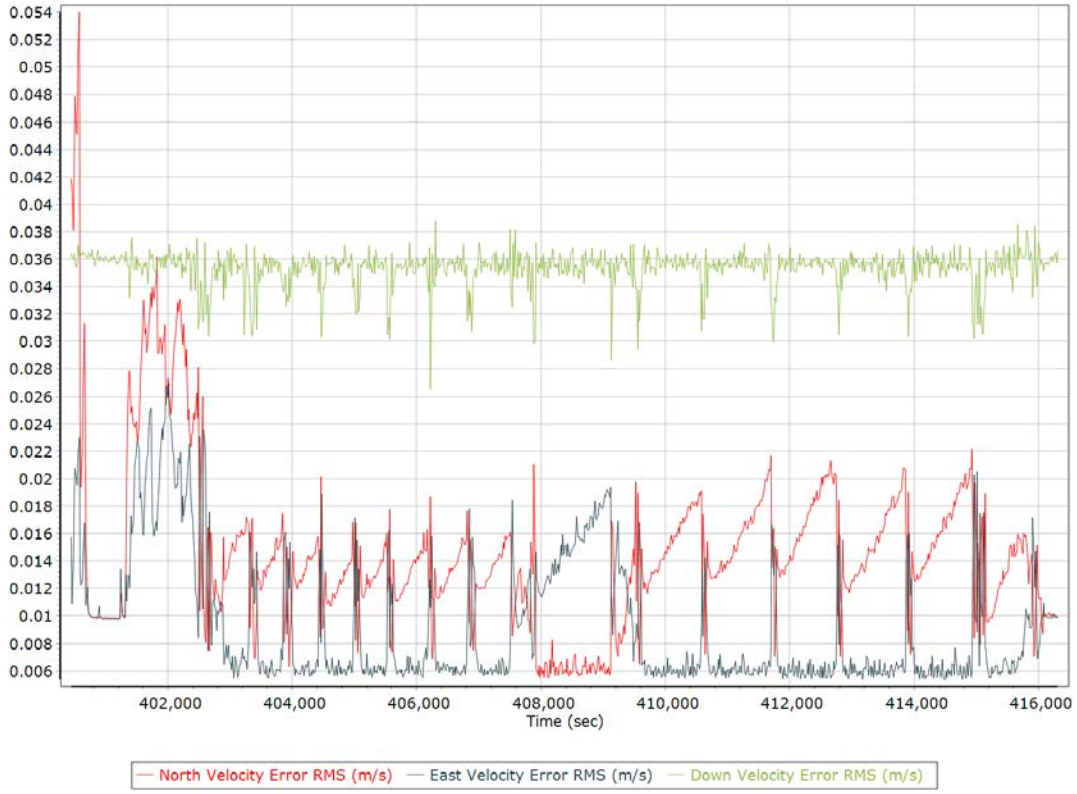


Forward Processed Performance Metrics

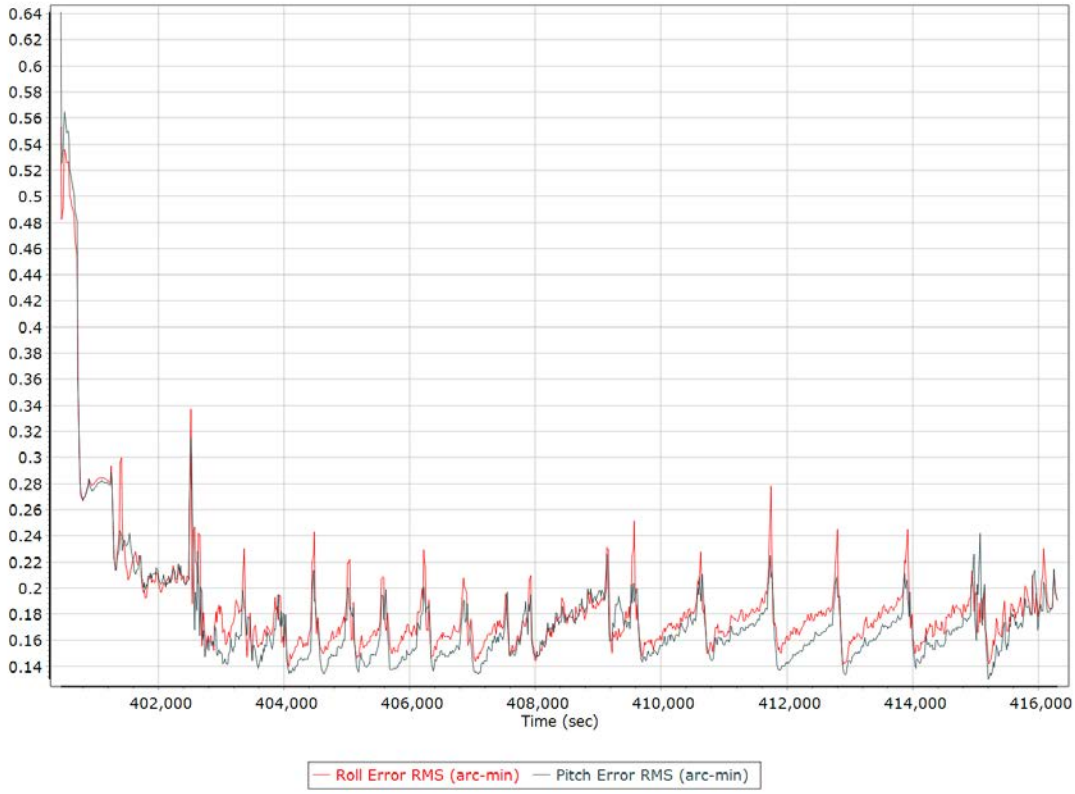
Position Error RMS (m)



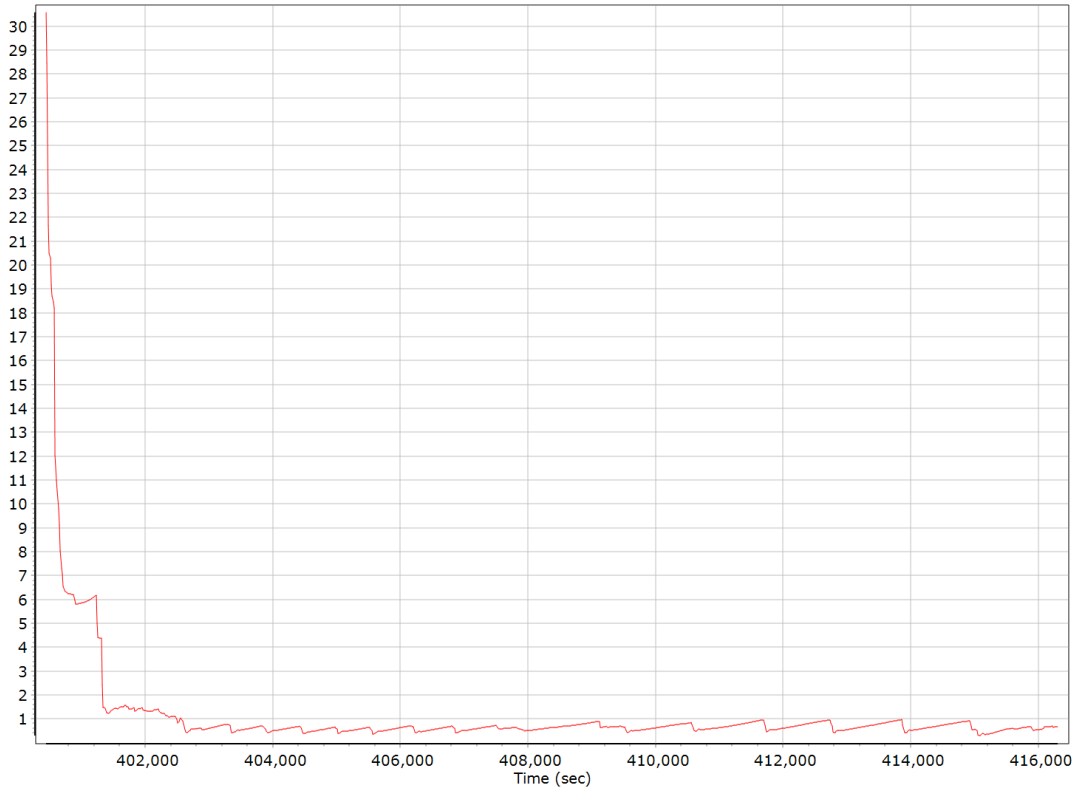
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

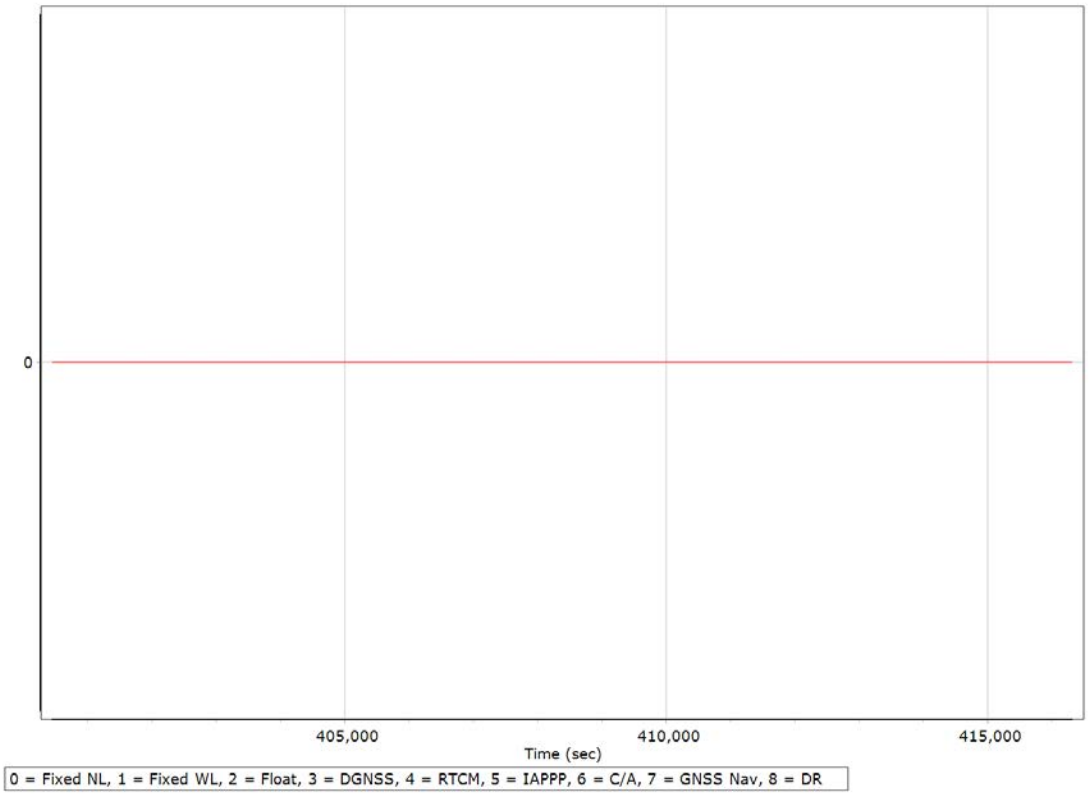


Heading Error RMS (arc-min)

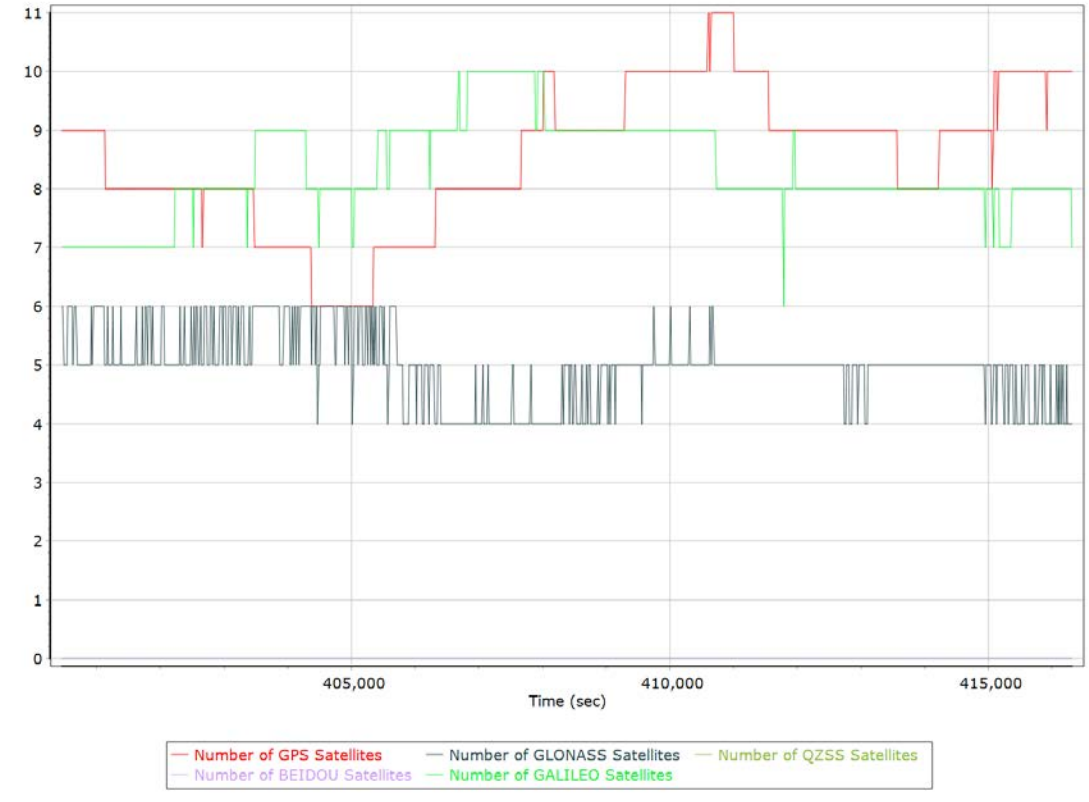


Forward Processed Solution Status

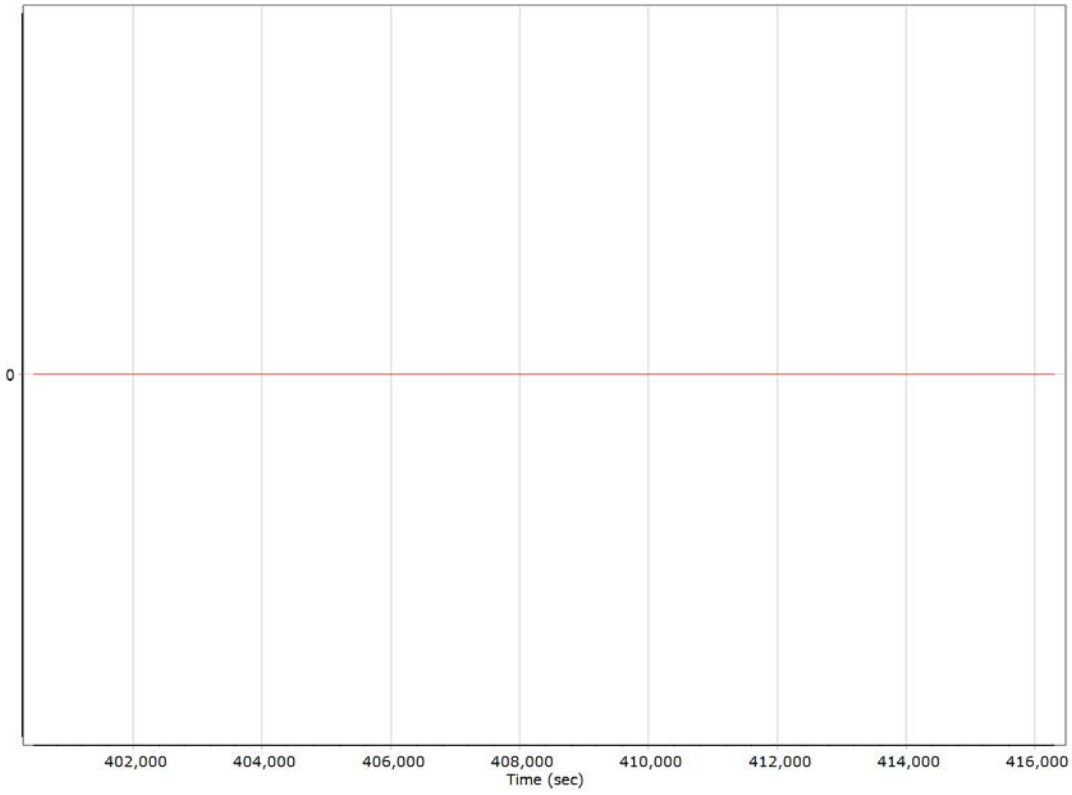
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07202023B_4051
Processing date	2023-07-25 19:44:46
Mission date	2023-07-20 20:56:15
Mission duration	02:32:46.640
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.045	POS Data
CP780.046	POS Data
CP780.047	POS Data
CP780.048	POS Data
CP780.049	POS Data
CP780.050	POS Data
CP780.051	POS Data
CP780.052	POS Data
CP780.053	POS Data
CP780.054	POS Data
CP780.055	POS Data
CP780.056	POS Data
CP780.057	POS Data
CP780.058	POS Data
CP780.059	POS Data
CP780.060	POS Data
CP780.061	POS Data
CP780.062	POS Data
CP780.063	POS Data
CP780.064	POS Data
CP780.065	POS Data

Input Files

File Name	File Type
Ephm2010.23g	GLONASS Broadcast Ephemeris
Ephm2010.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07202023B_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.045		
Last raw data file	CP780.065		
Start GPS week	2271		
Start time	420956.897 (7/20/2023 8:55:56 PM)		
End time	430123.537 (7/20/2023 11:28:43 PM)		
Start of fine alignment	421140.534 (7/20/2023 8:59:00 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

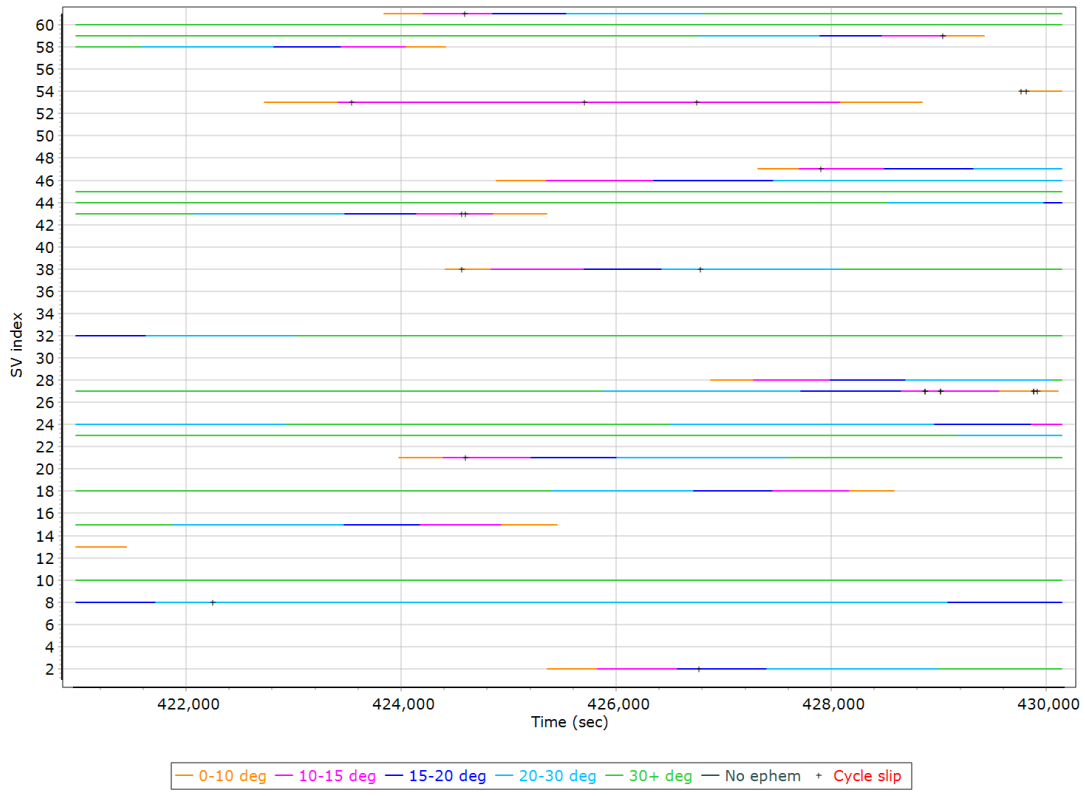
Rover Data QC

Raw IMU Import QC Summary

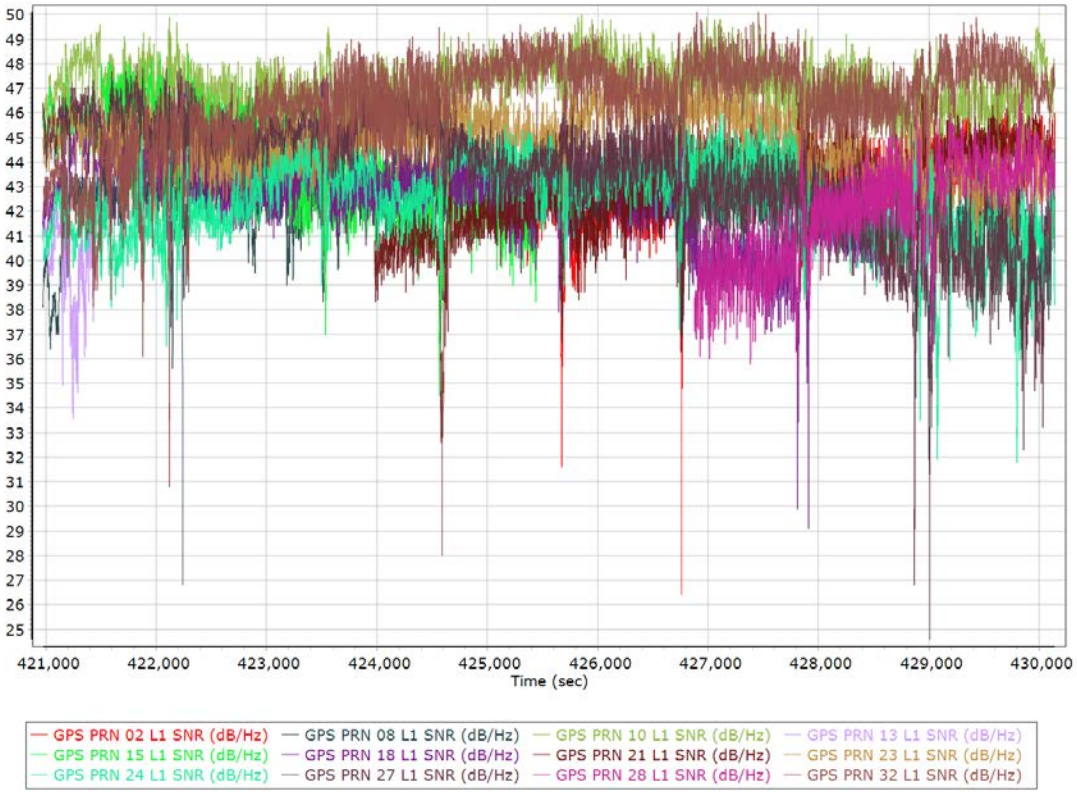
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07202023B_4051.log
IMU Records Processed	1833121
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

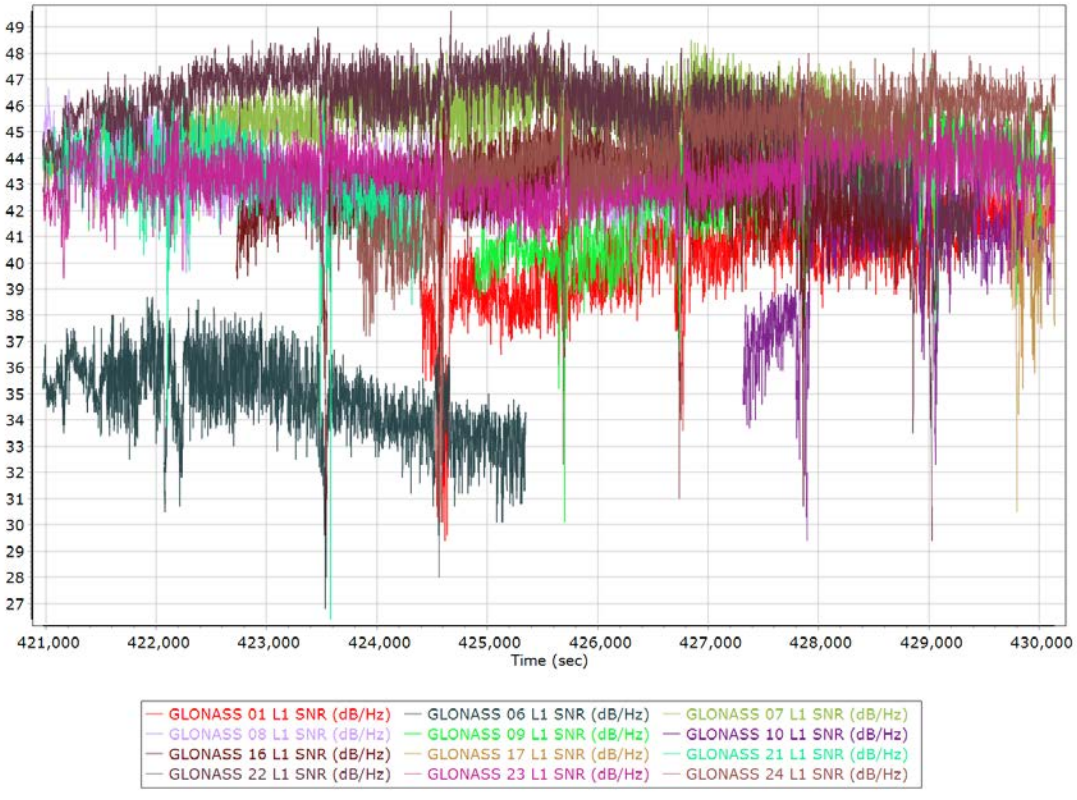
GPS/GLONASS L1 Satellite Lock/Elevation



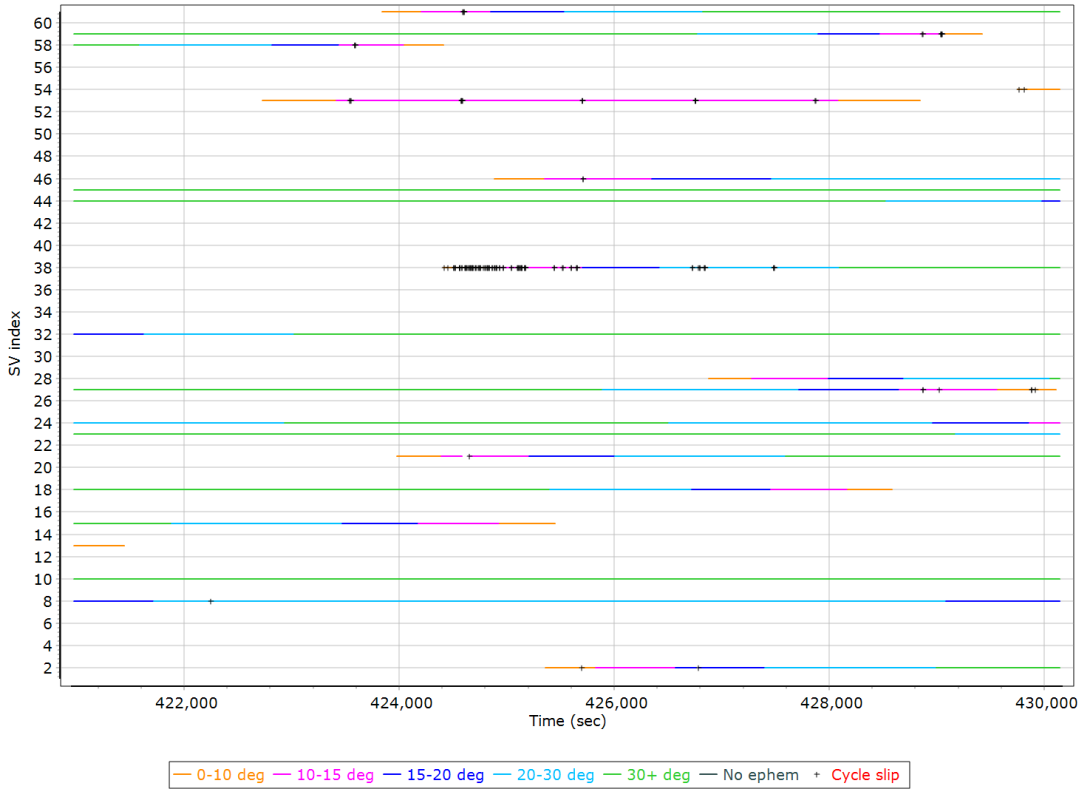
GPS L1 SNR



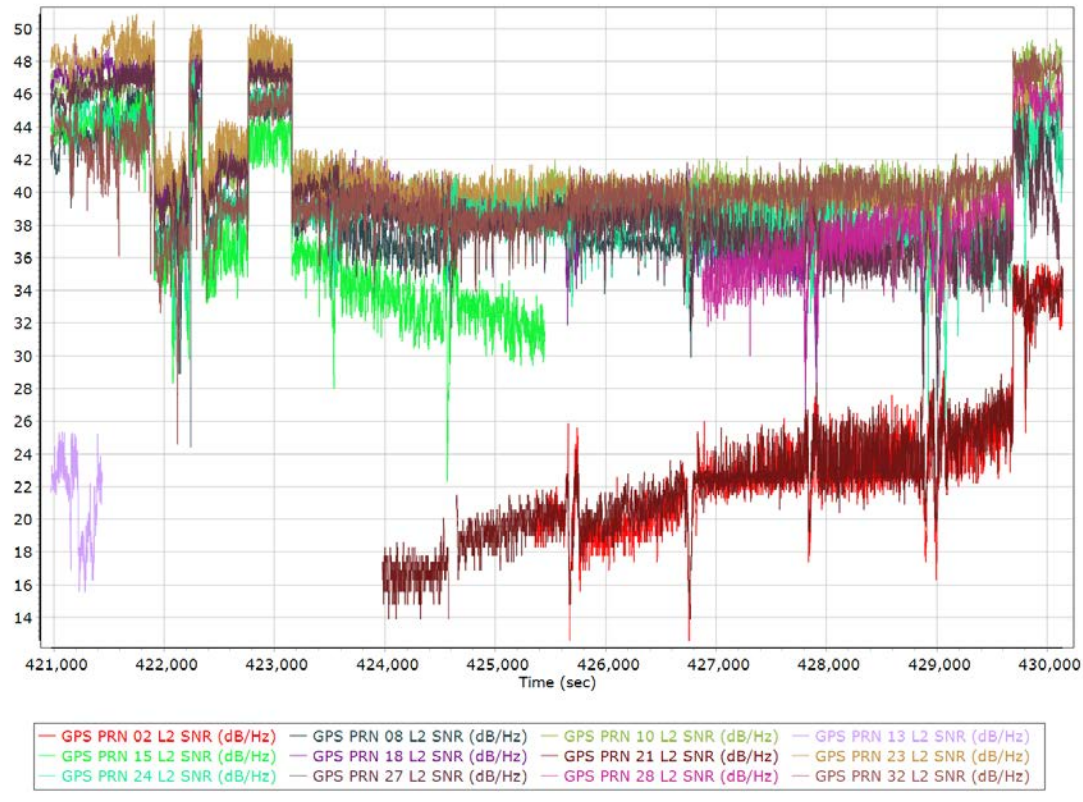
GLONASS L1 SNR



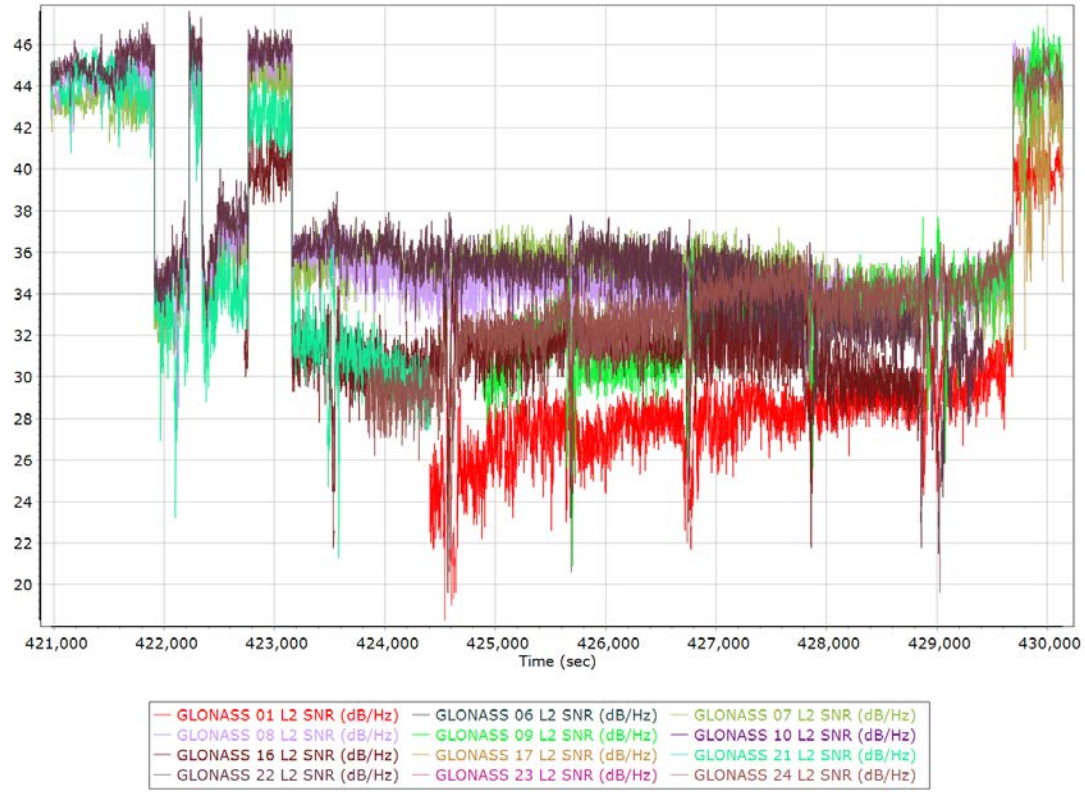
GPS/GLONASS L2 Satellite Lock/Elevation



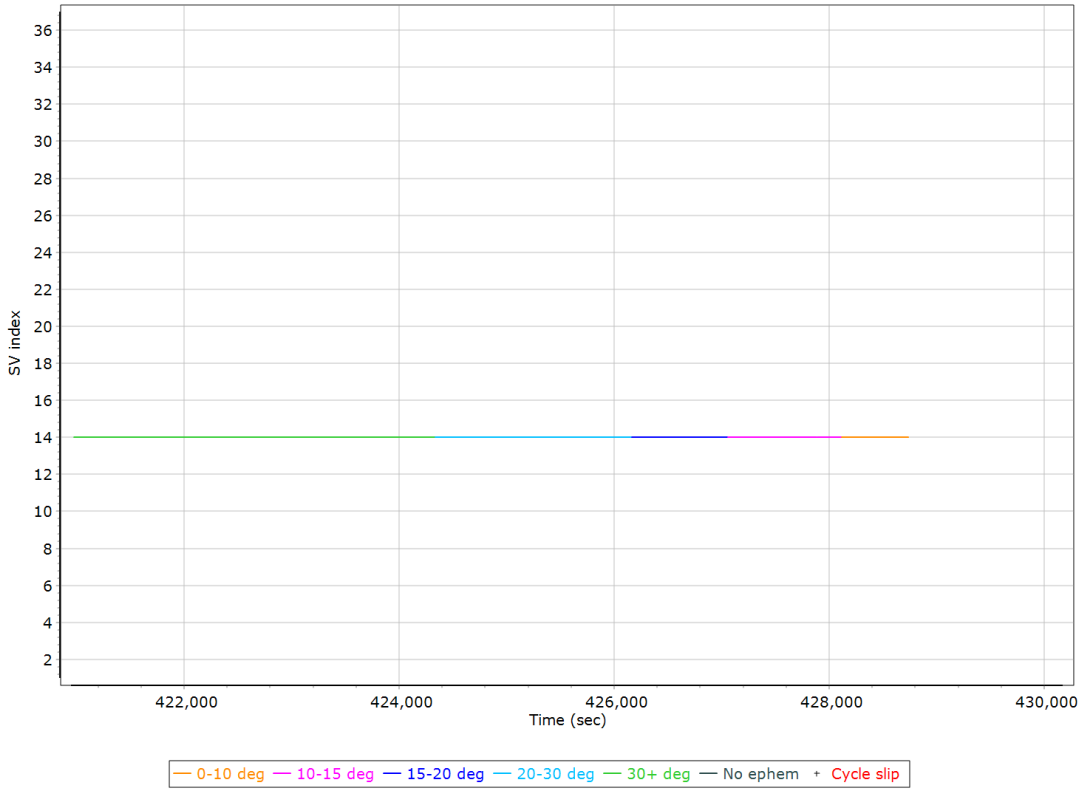
GPS L2 SNR



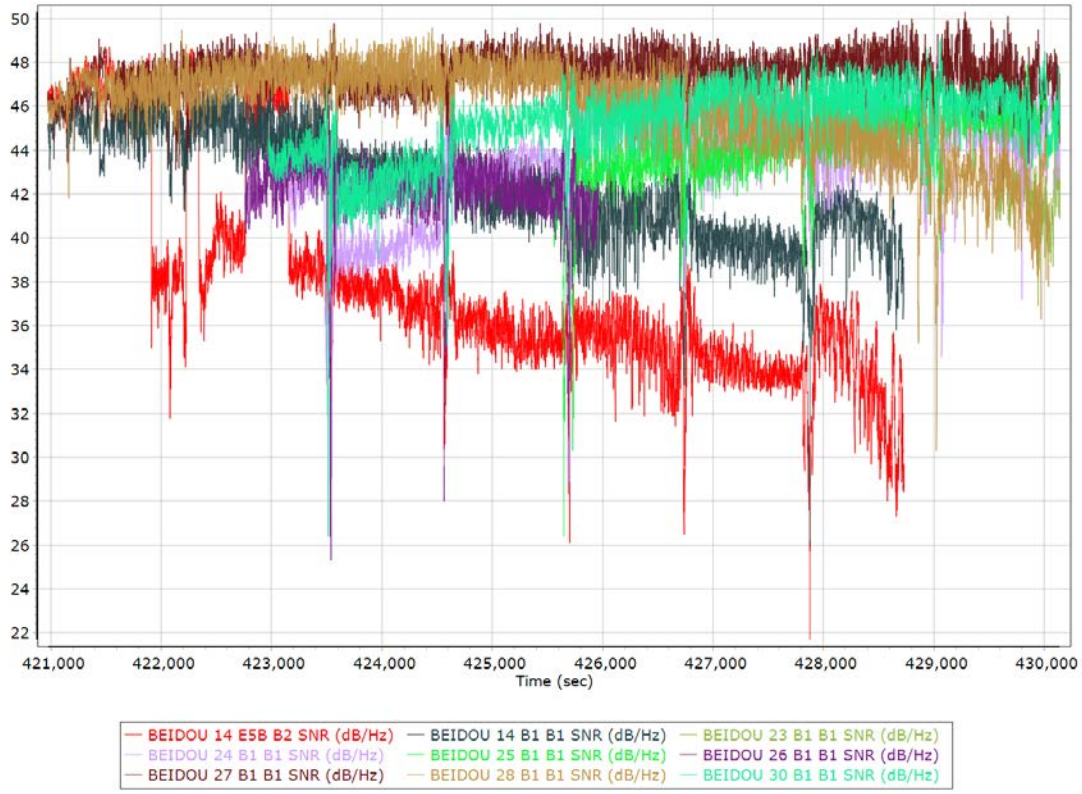
GLONASS L2 SNR



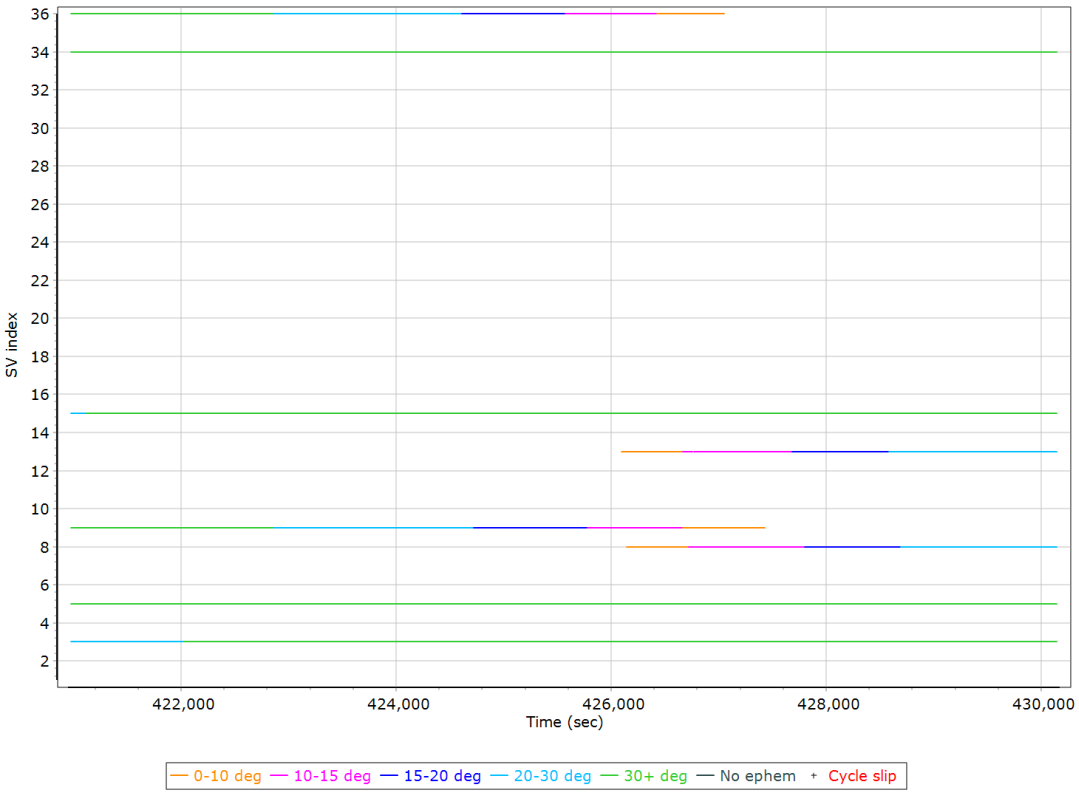
BEIDOU Satellite Lock/Elevation



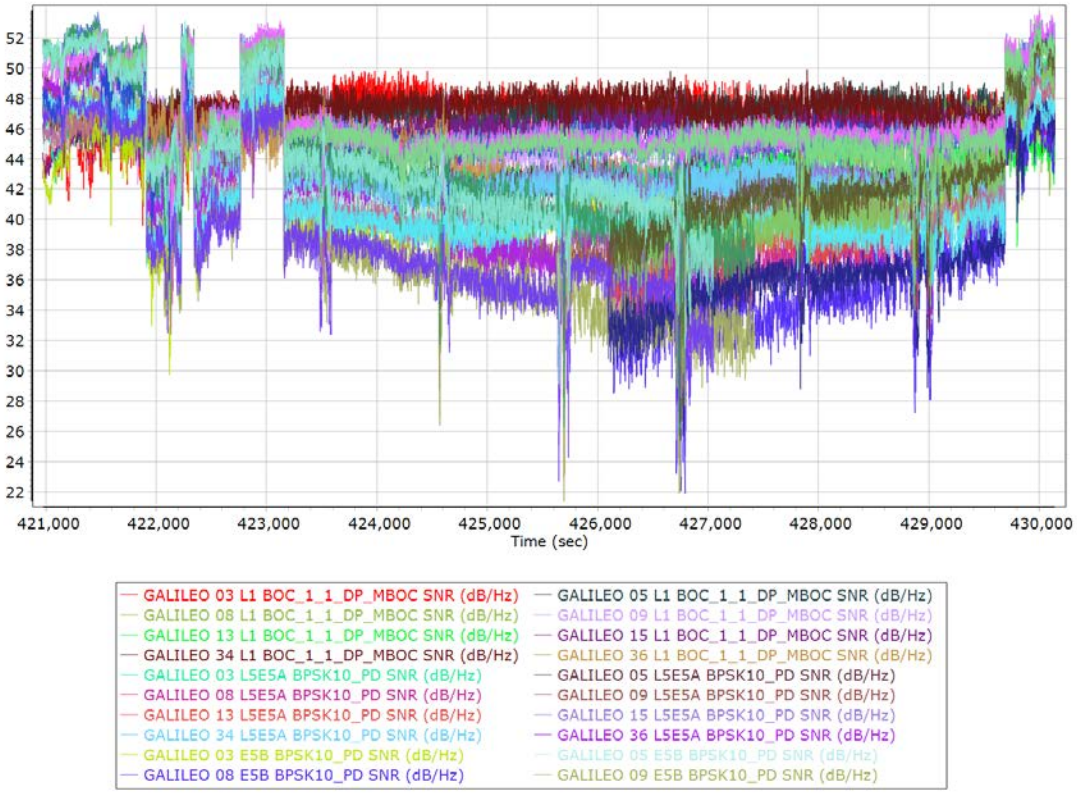
BEIDOU SNR



GALILEO Satellite Lock/Elevation

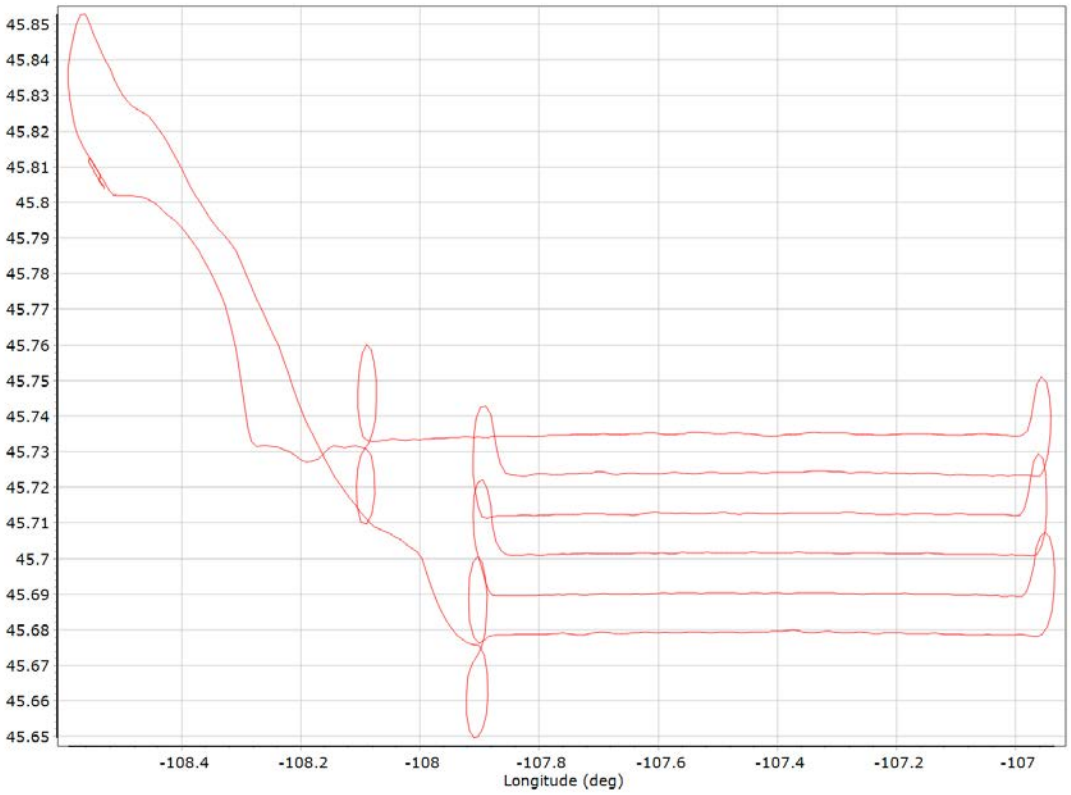


GALILEO SNR


52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
421,000
422,000
423,000
424,000
425,000
426,000
427,000
428,000
429,000
430,000
Time (sec)
GALILEO 03 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 13 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 15 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 34 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 03 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 05 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 08 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 13 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 15 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 34 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 36 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 03 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 05 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 08 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 09 E5B BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

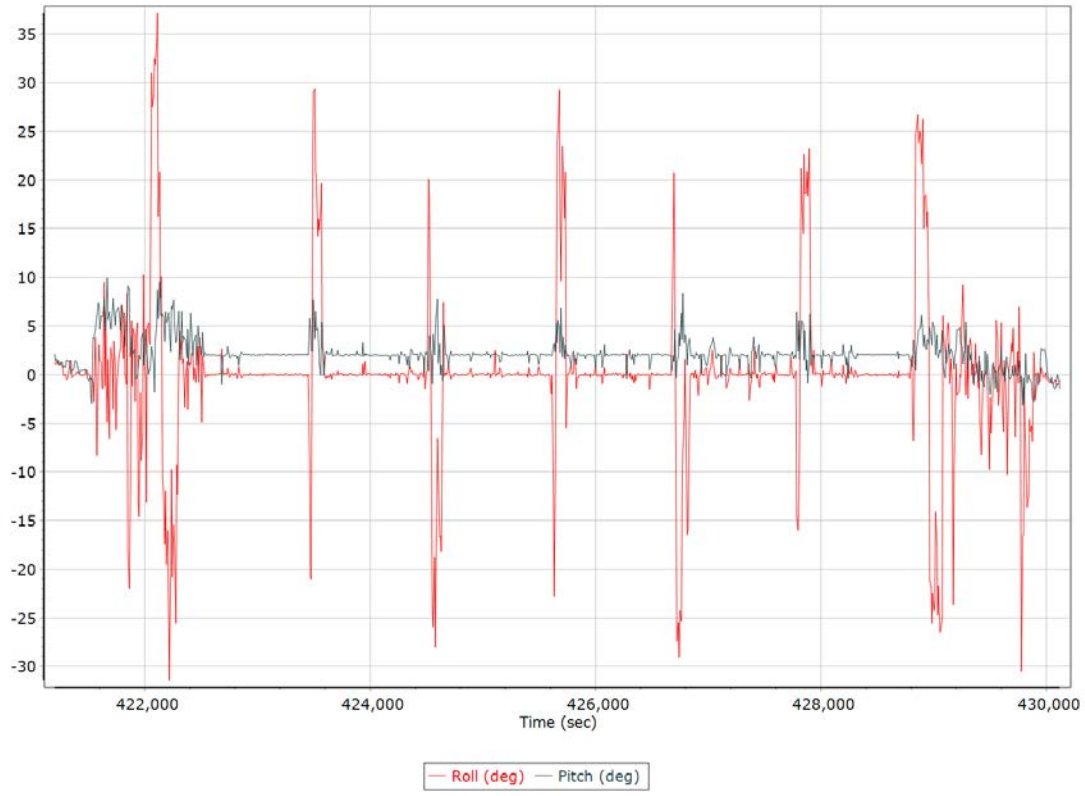
Top View



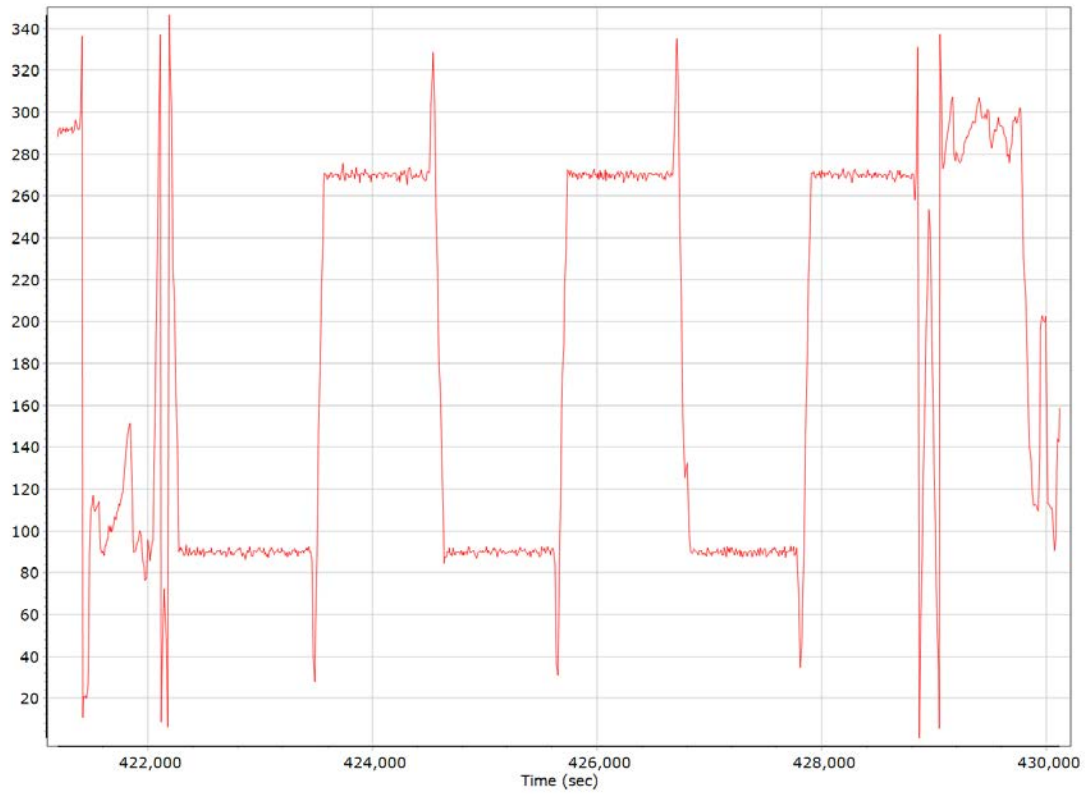
Altitude



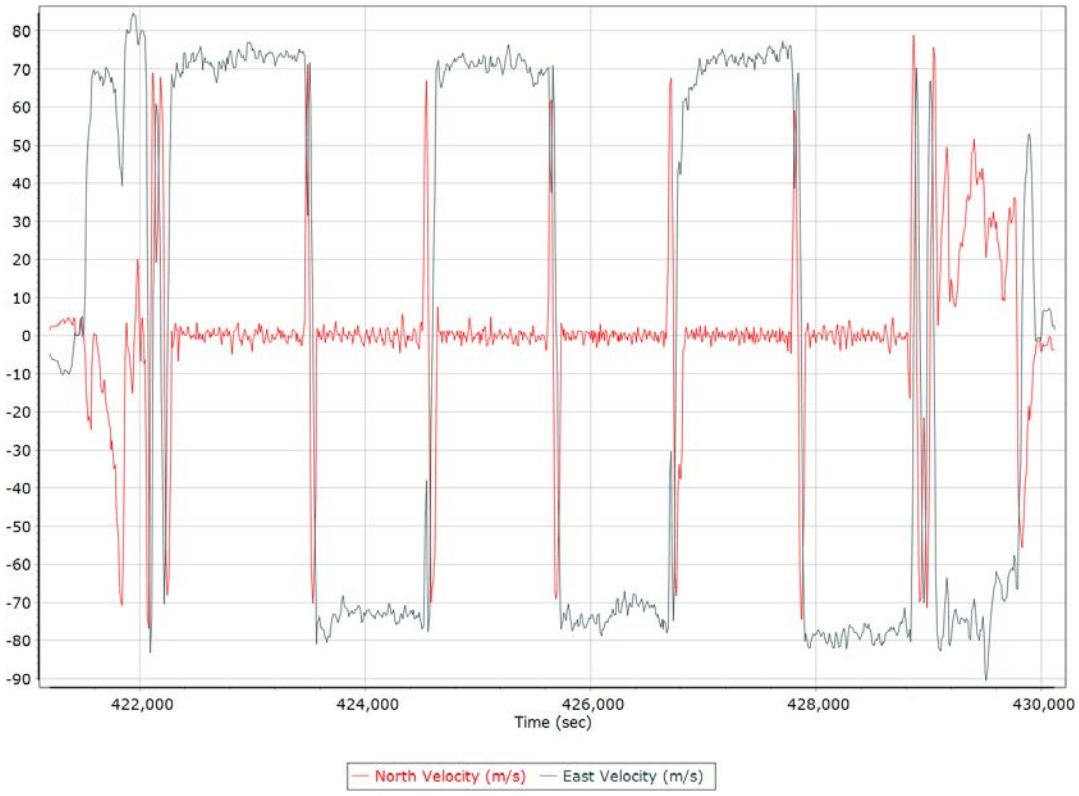
Roll/Pitch



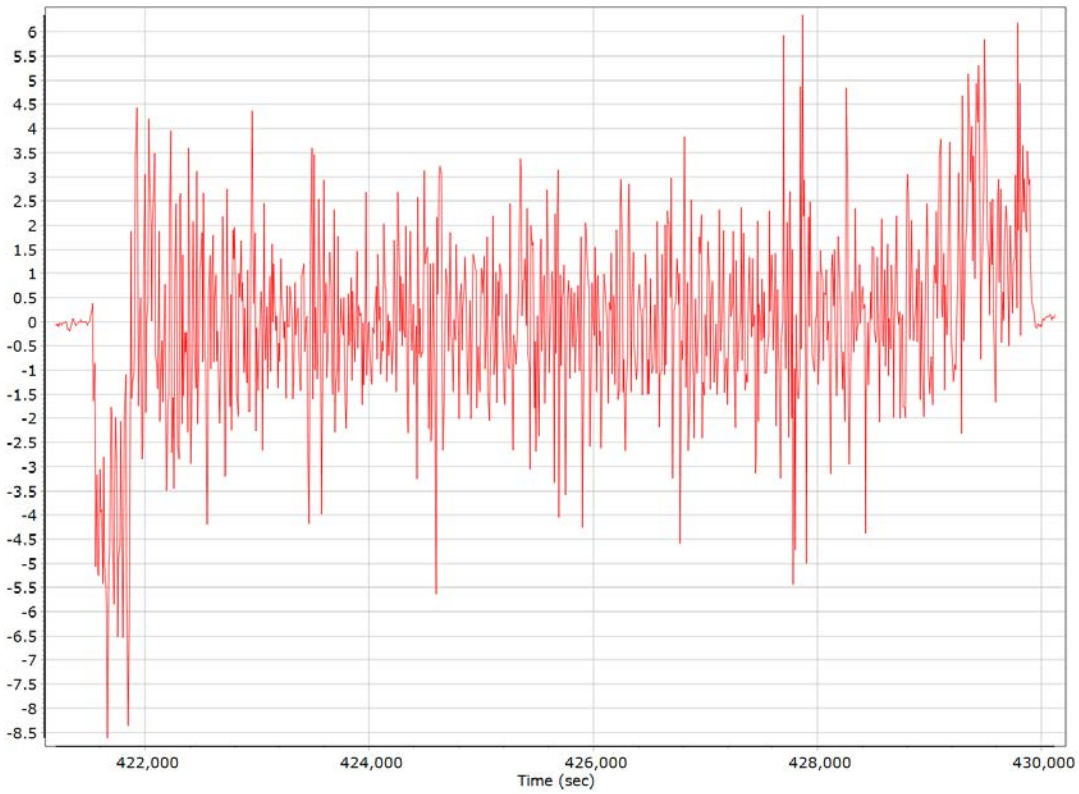
Heading



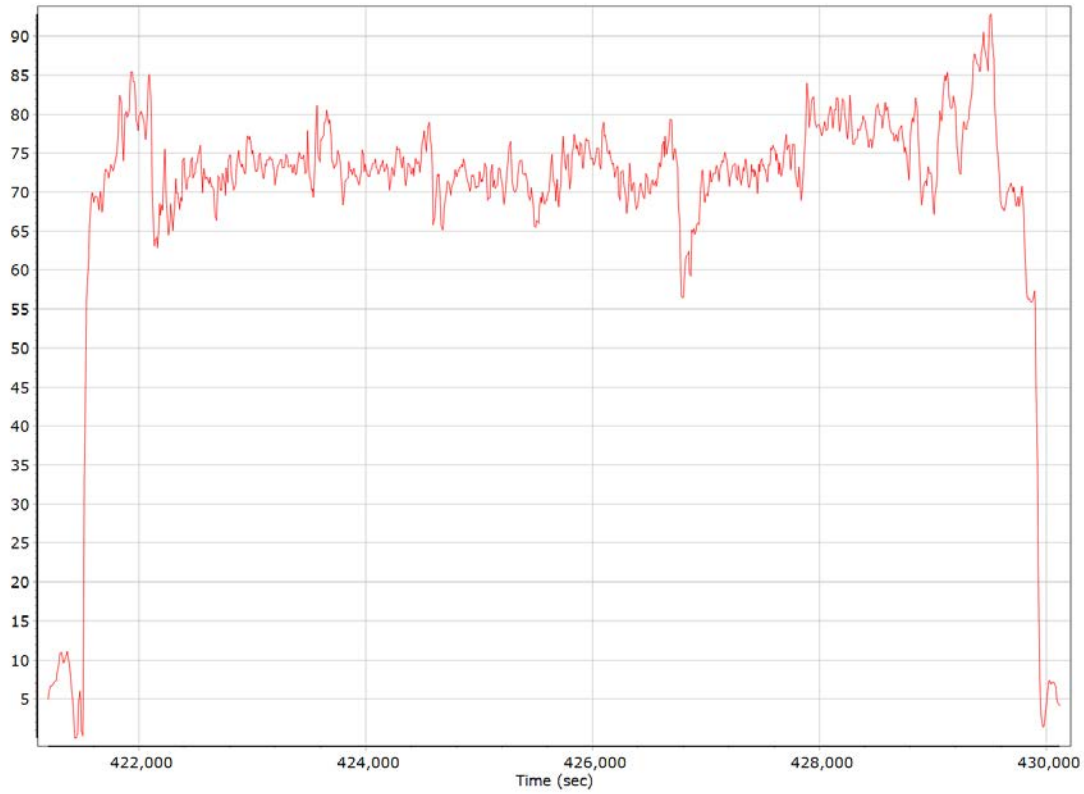
North/East Velocity



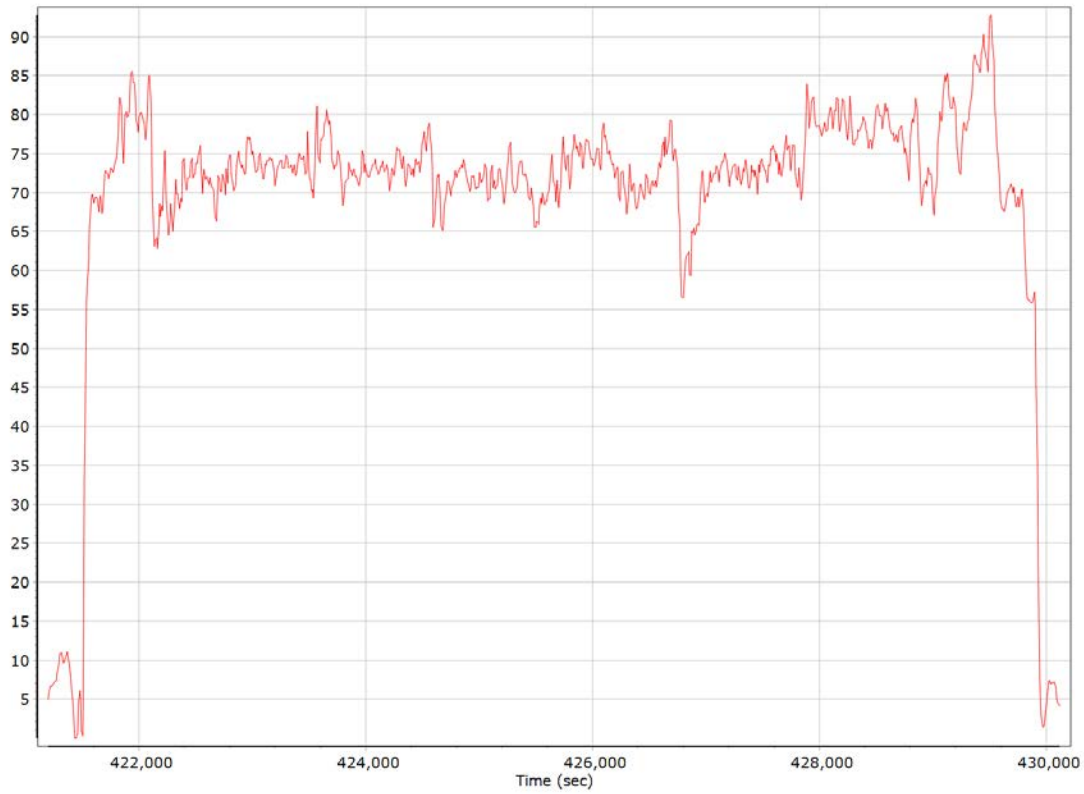
Down Velocity



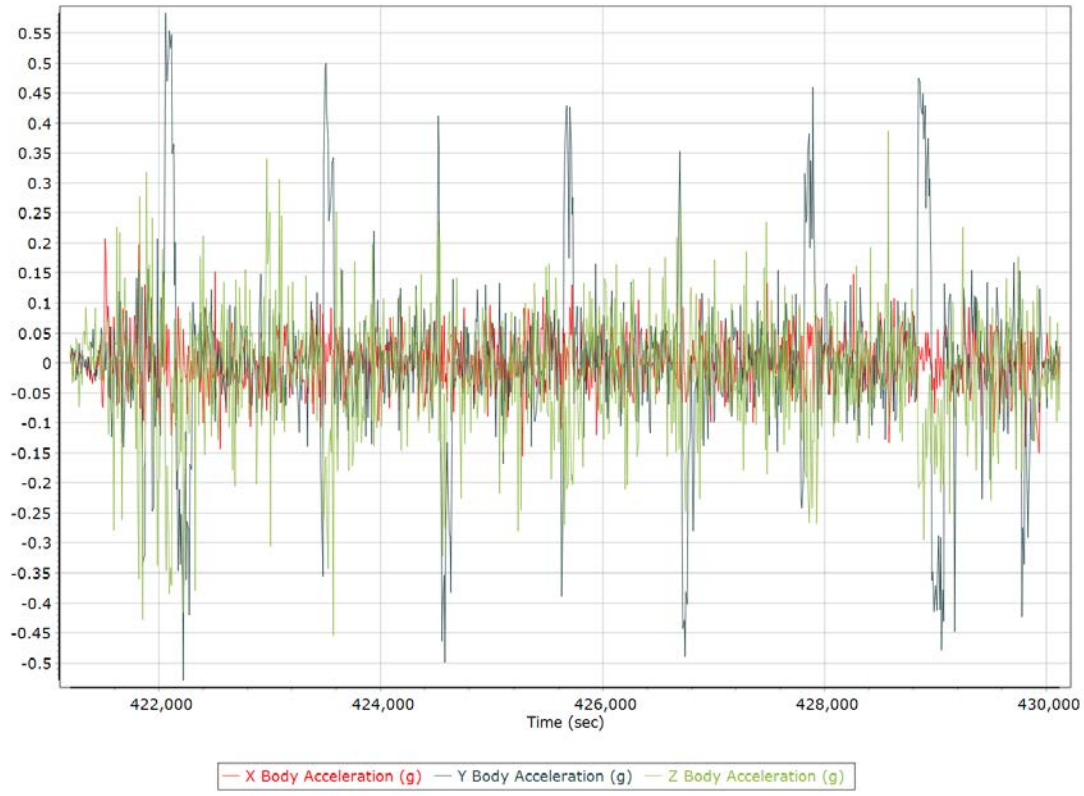
Total Speed



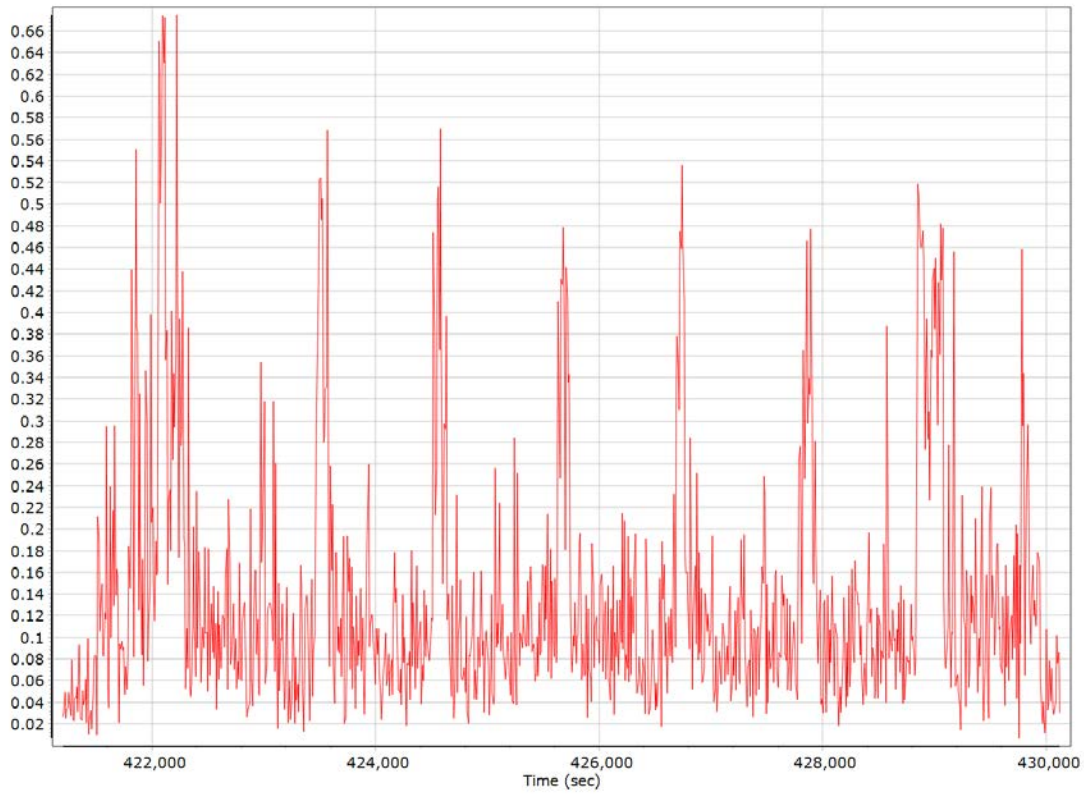
Ground Speed



Body Acceleration



Total Body Acceleration

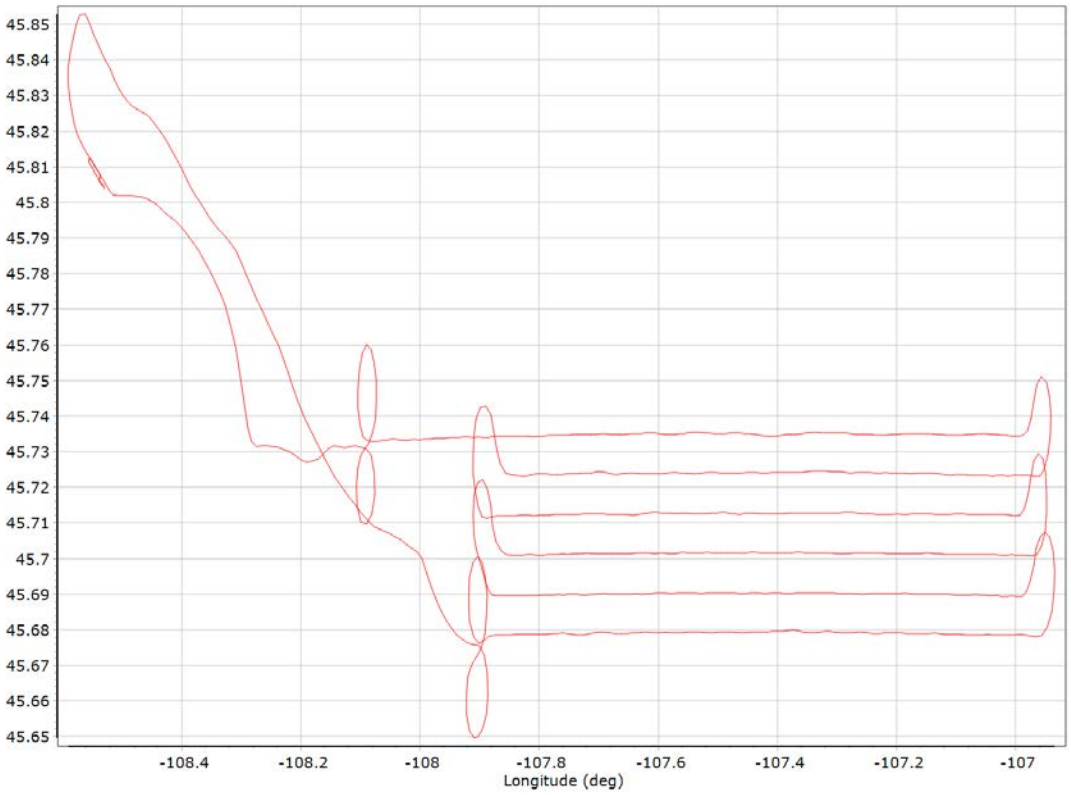


Body Angular Rate



Forward Processed Trajectory Information

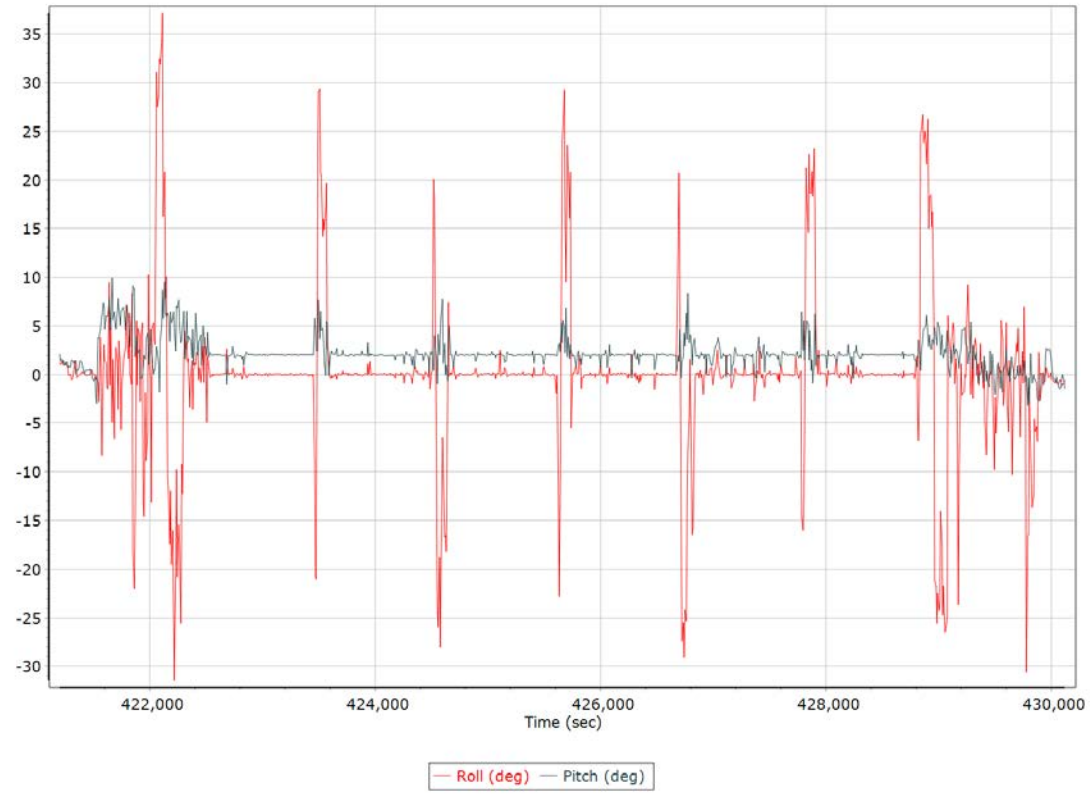
Top View



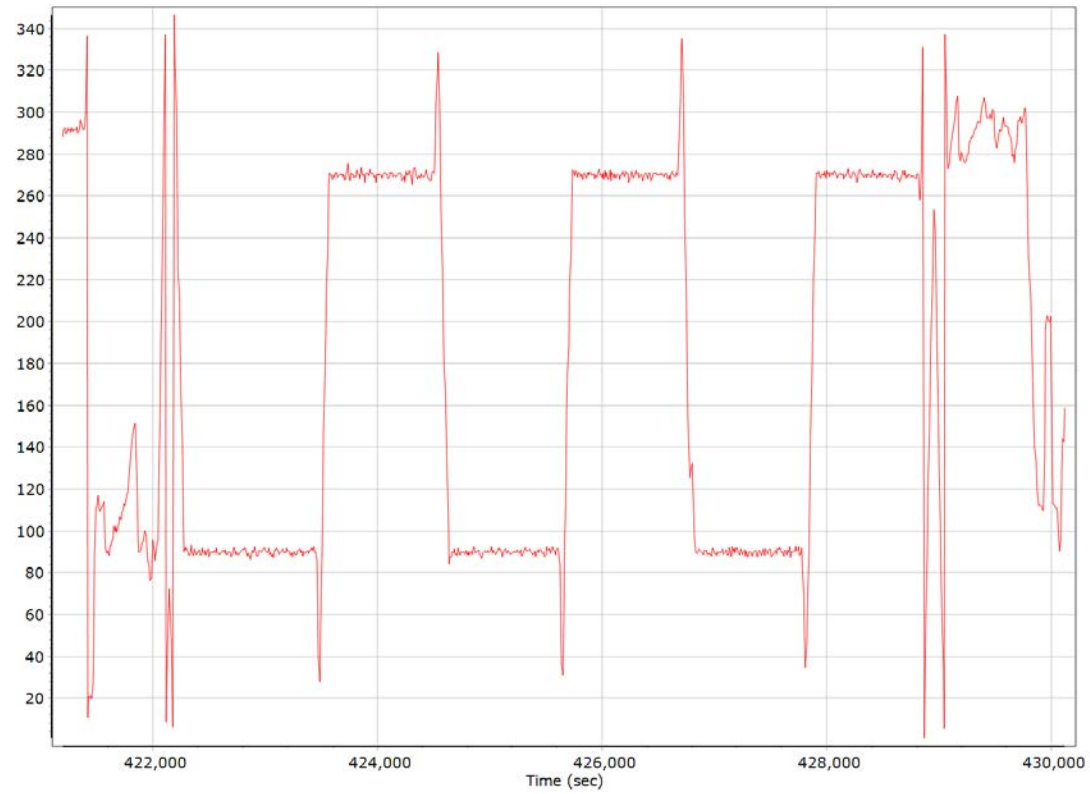
Altitude



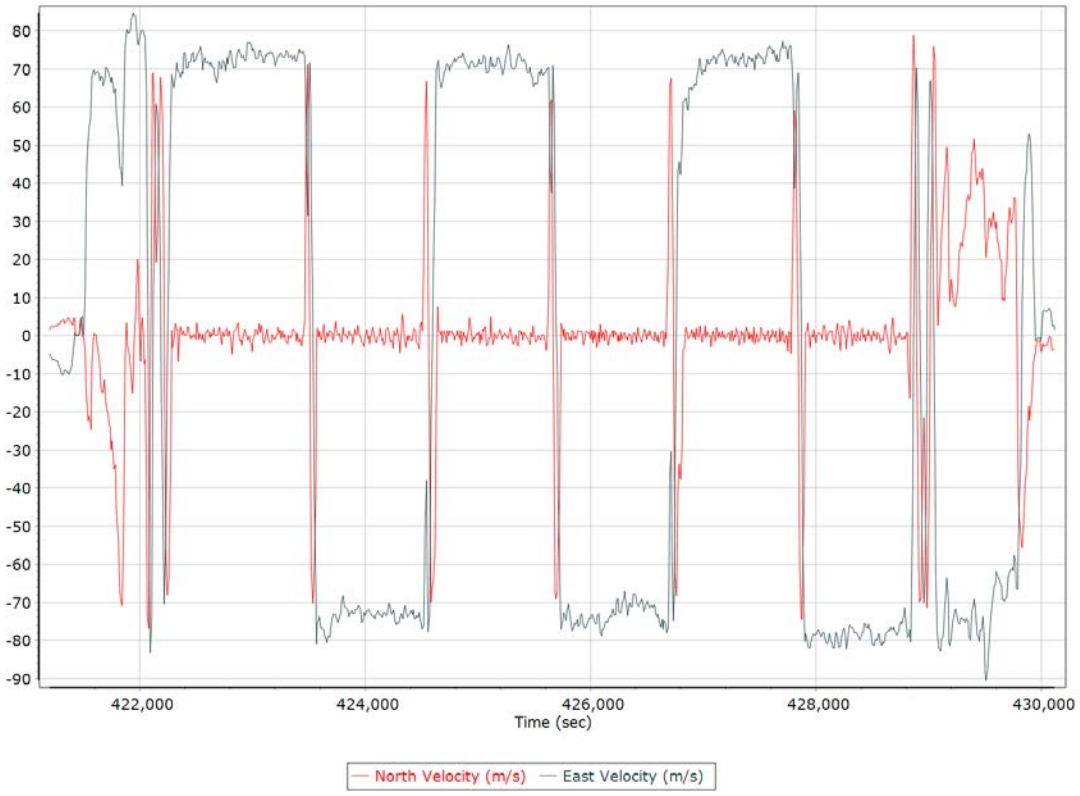
Roll/Pitch



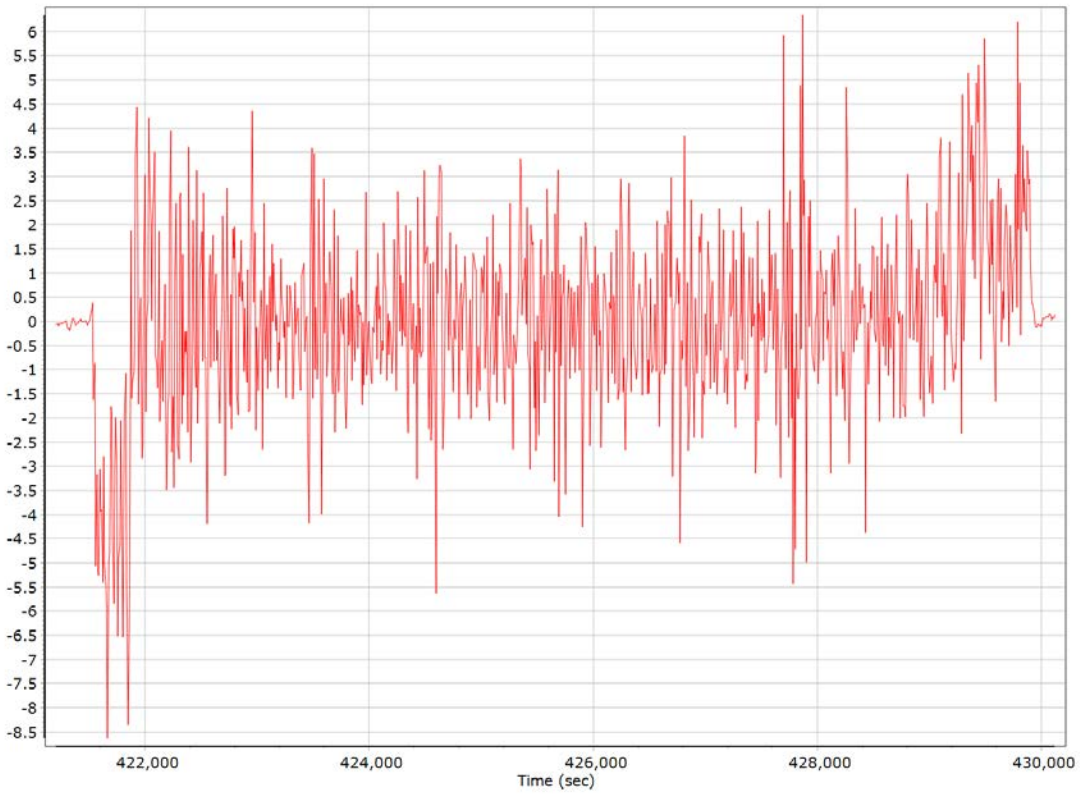
Heading



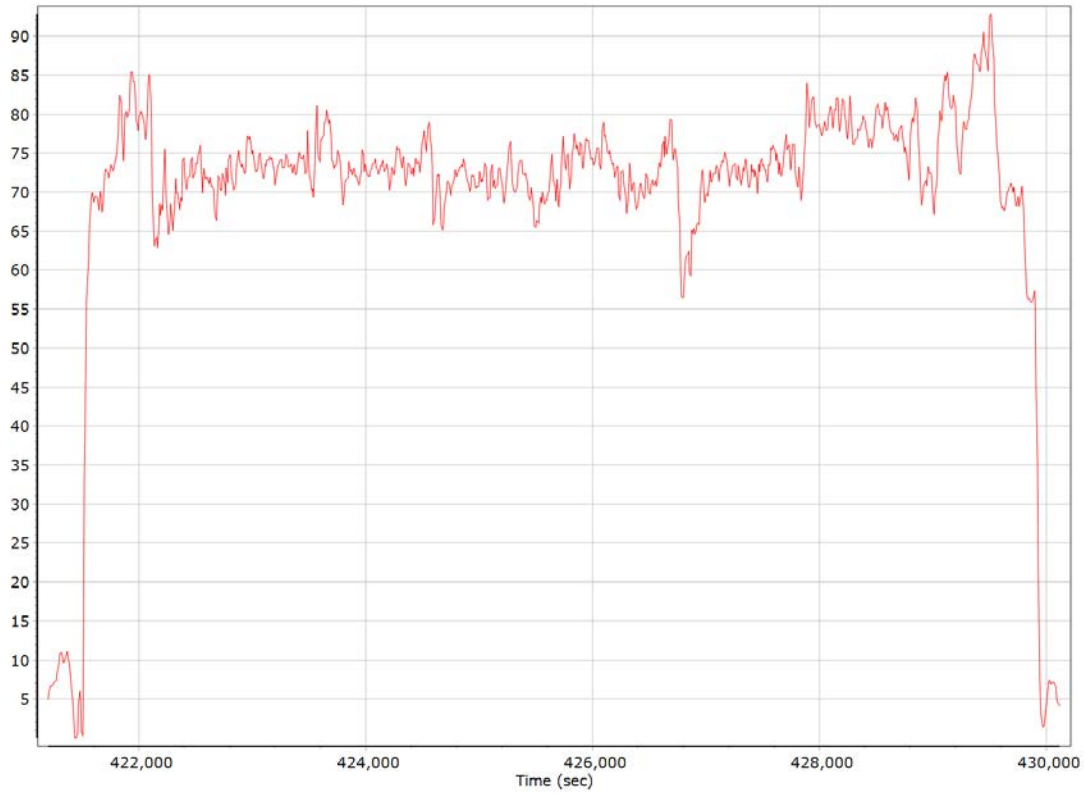
North/East Velocity



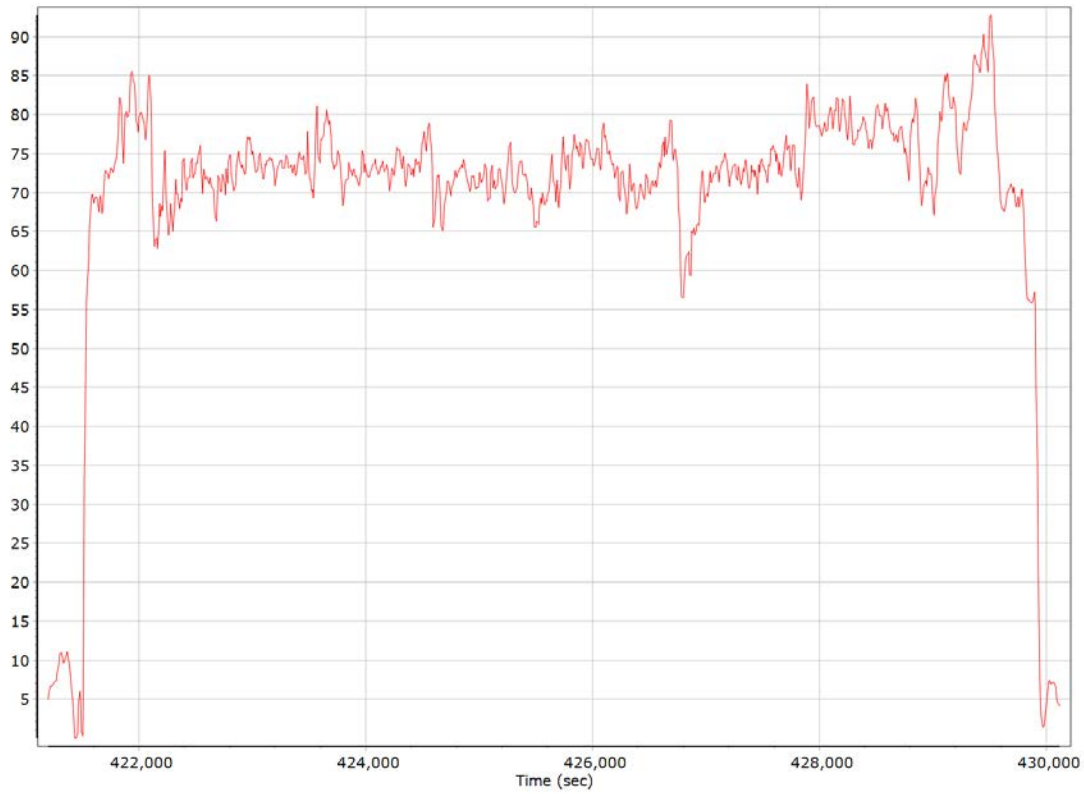
Down Velocity



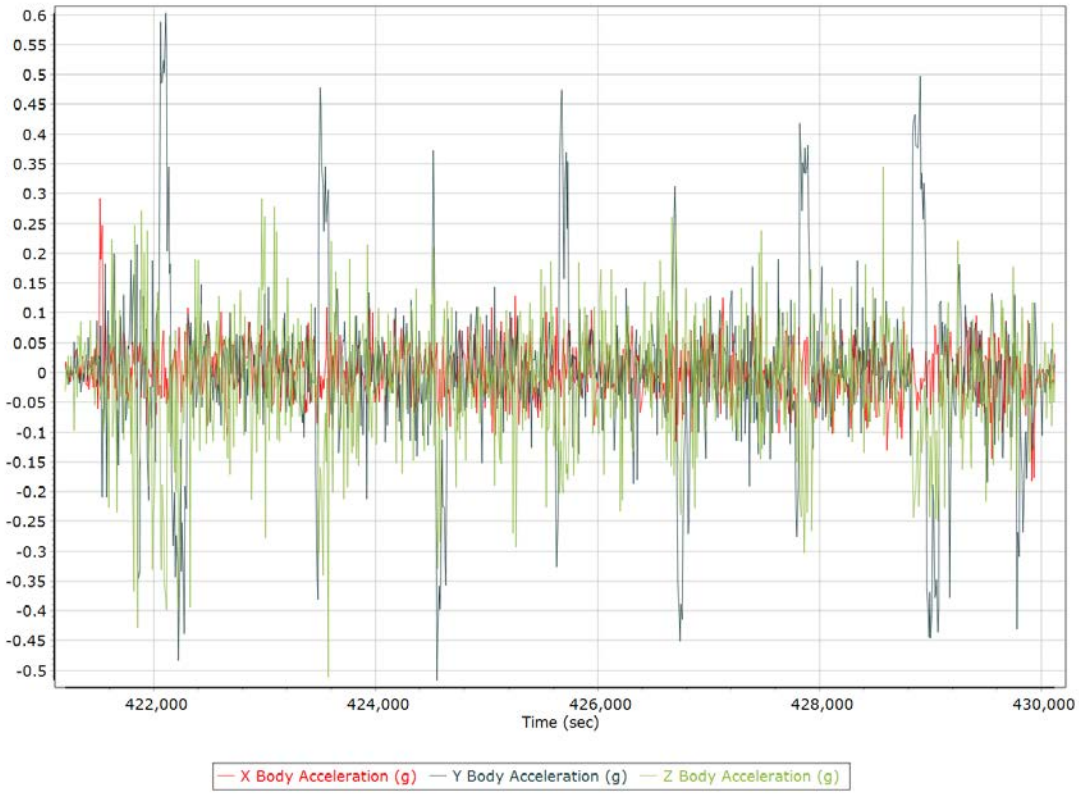
Total Speed



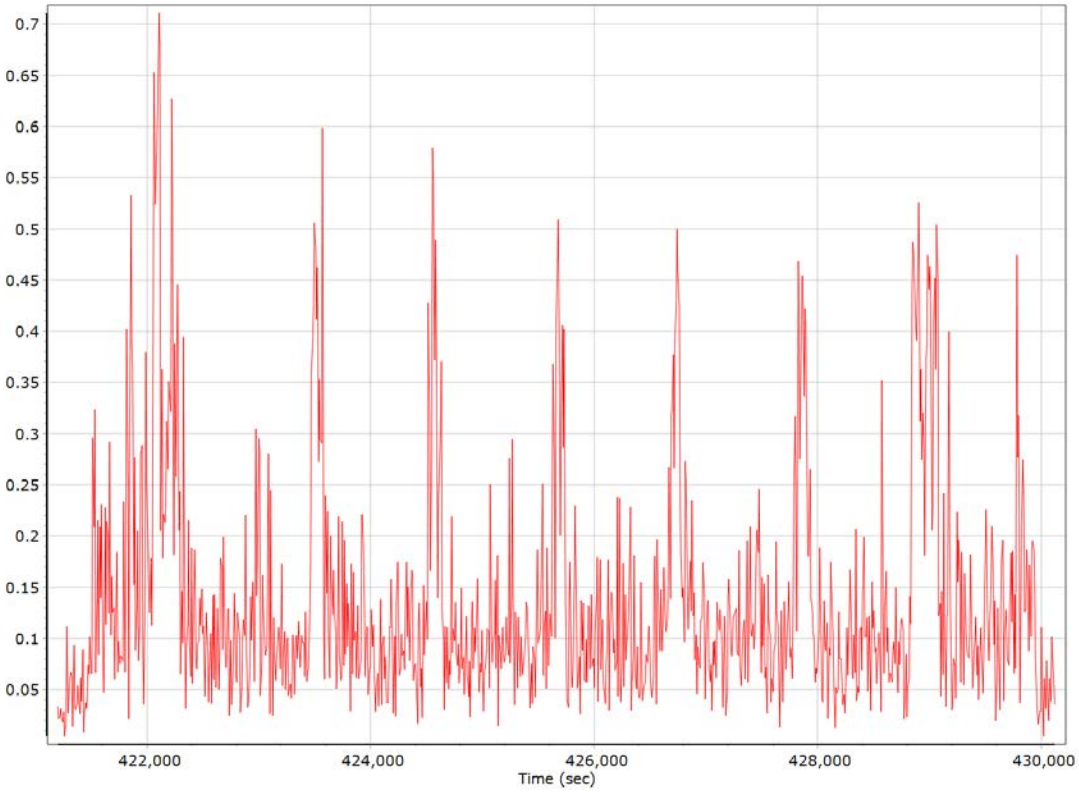
Ground Speed



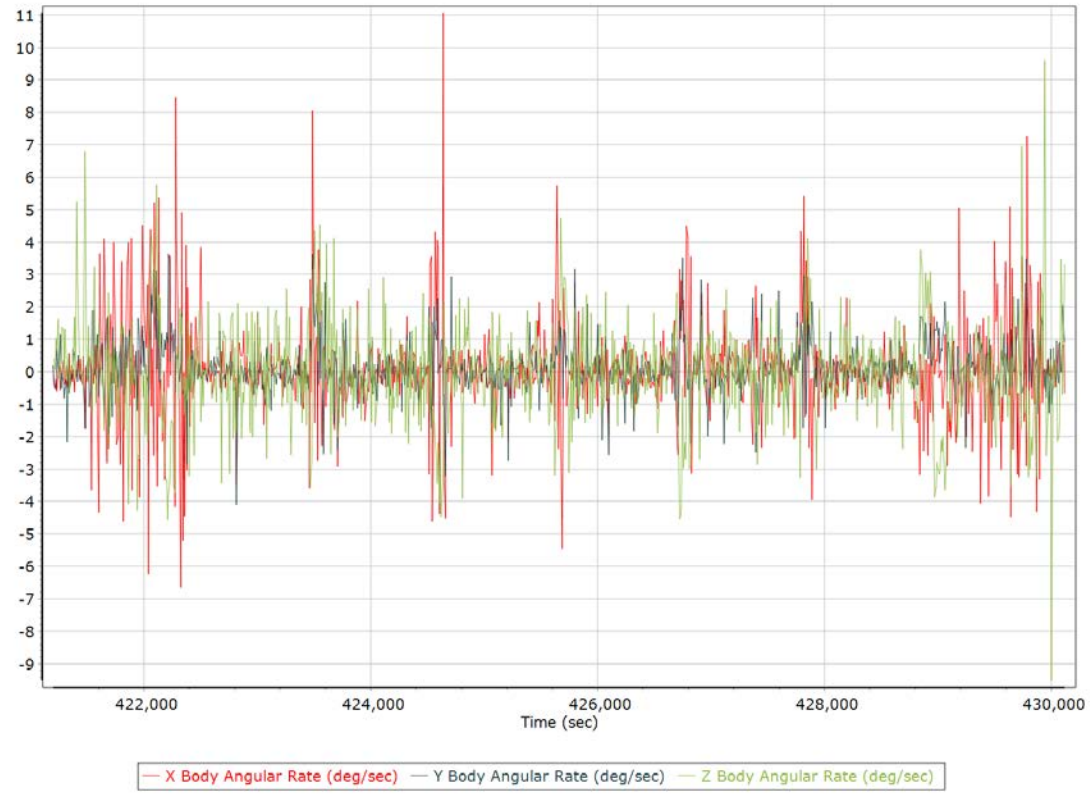
Body Acceleration



Total Body Acceleration



Body Angular Rate

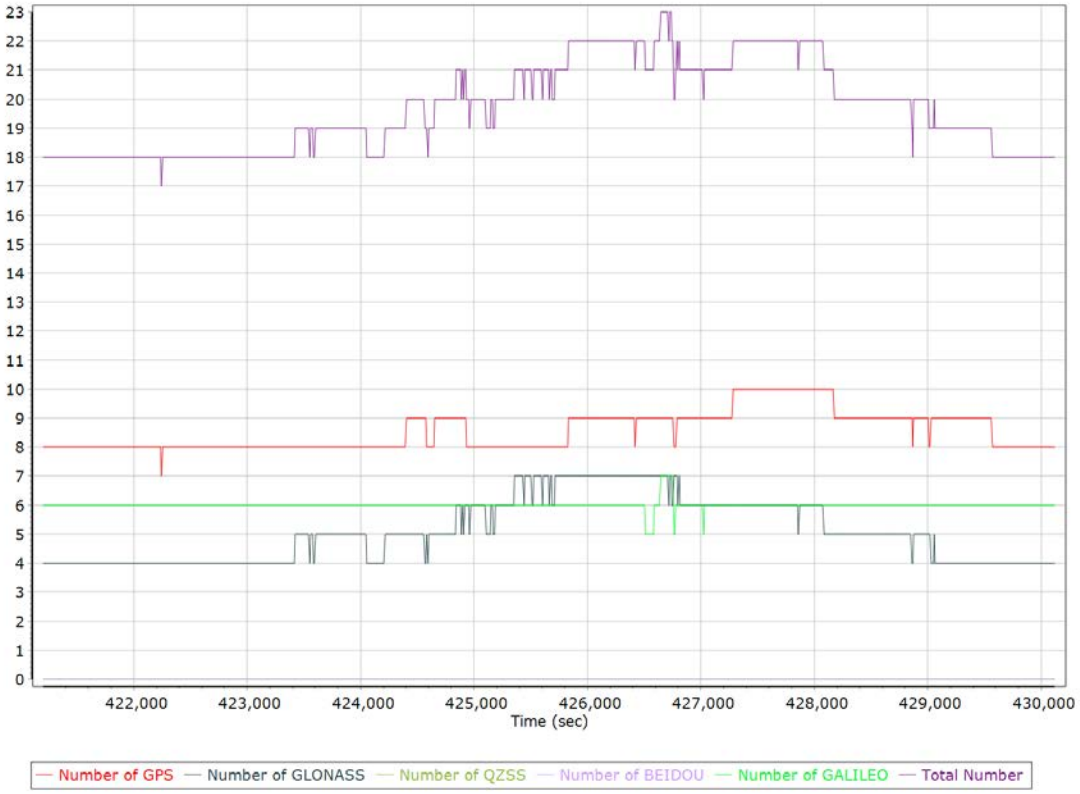


GNSS QC

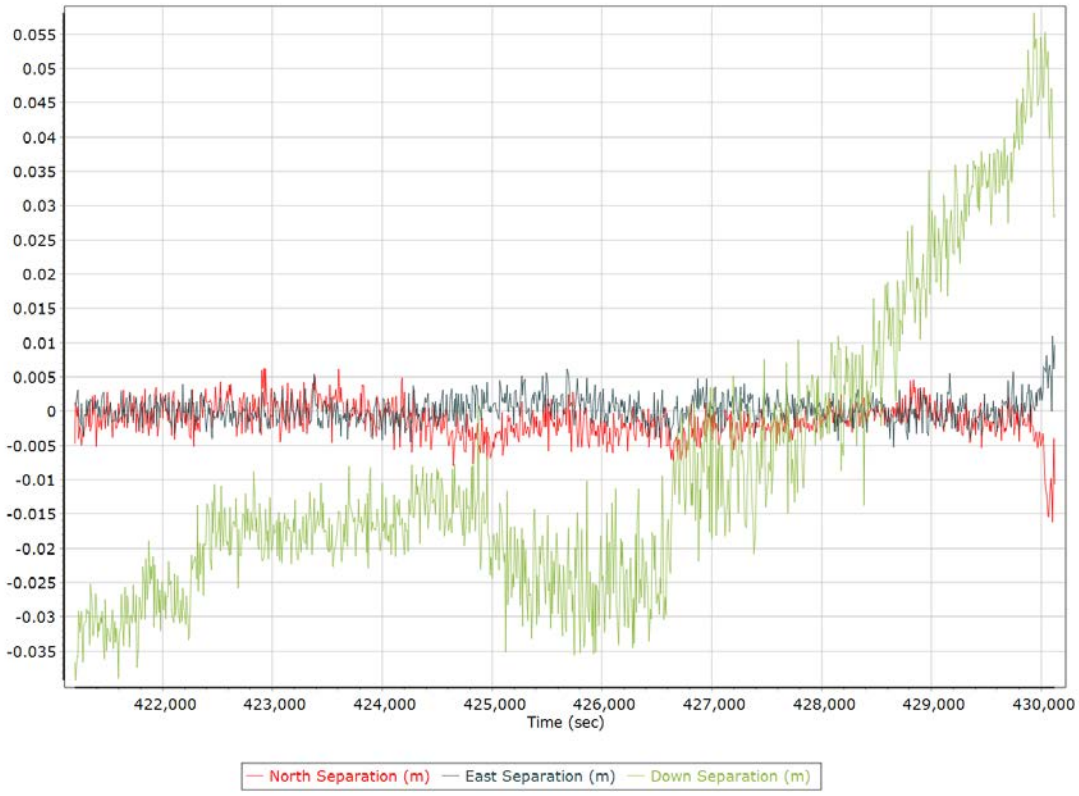
GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	7	10	9
Number of GLONASS SV	3	7	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	5	7	6
Total number of SV	17	23	20
PDOP	0.97	1.47	1.18
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	9154.00	0.00	0.00
Percentage	100.00	0.00	0.00

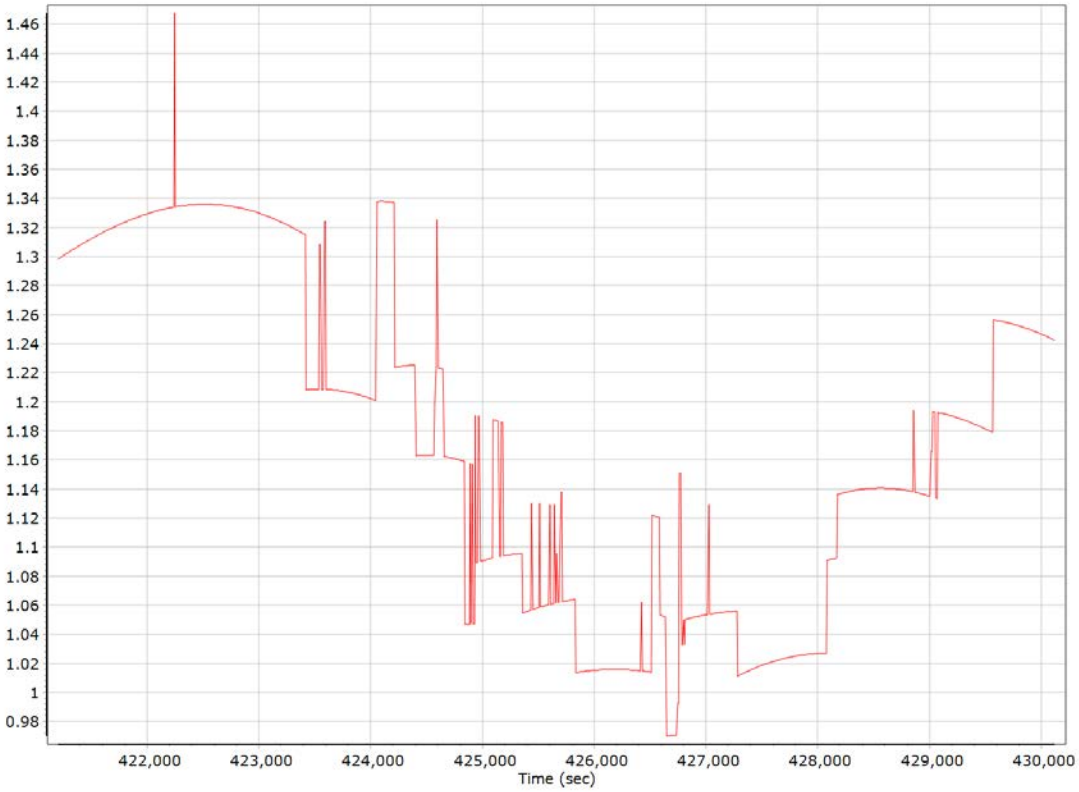
Num SVs in solution



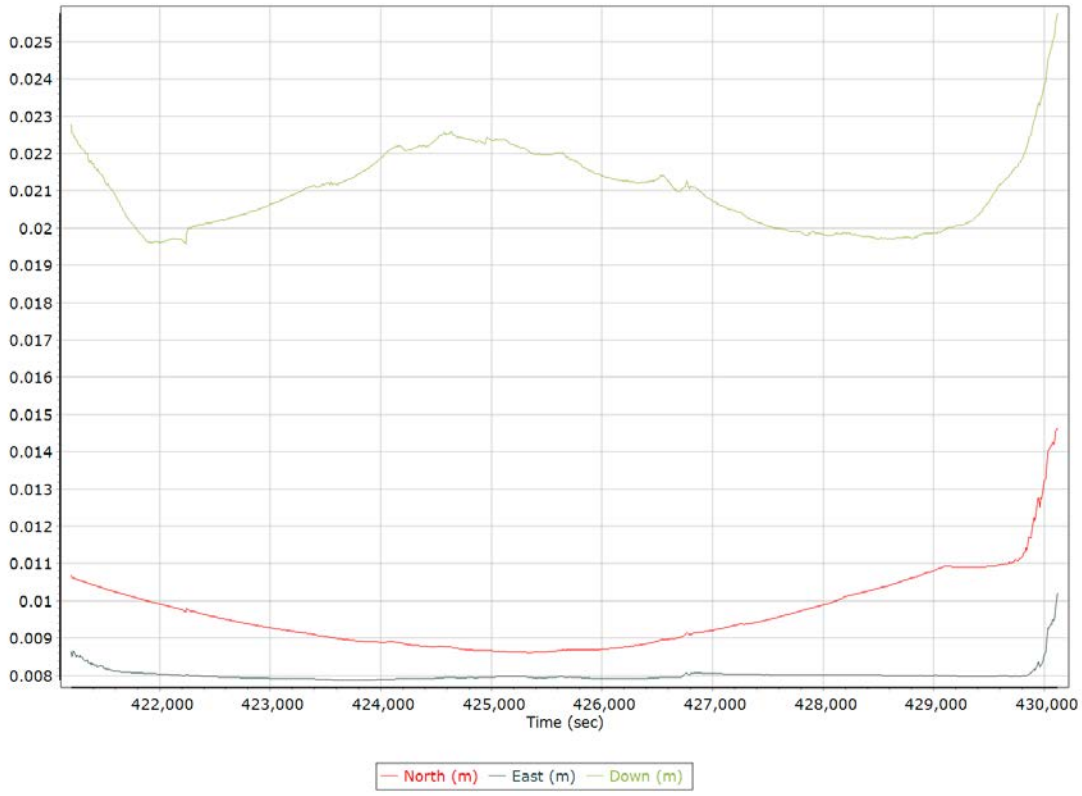
Forward/Reverse Separation



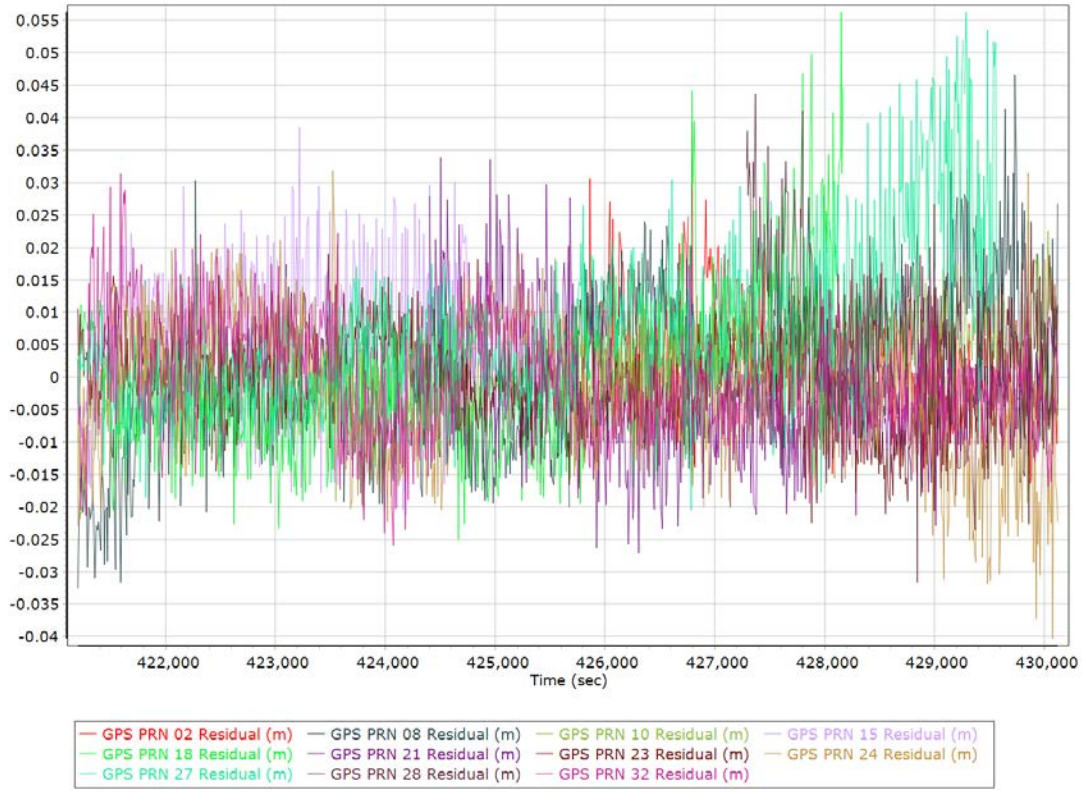
PDOP



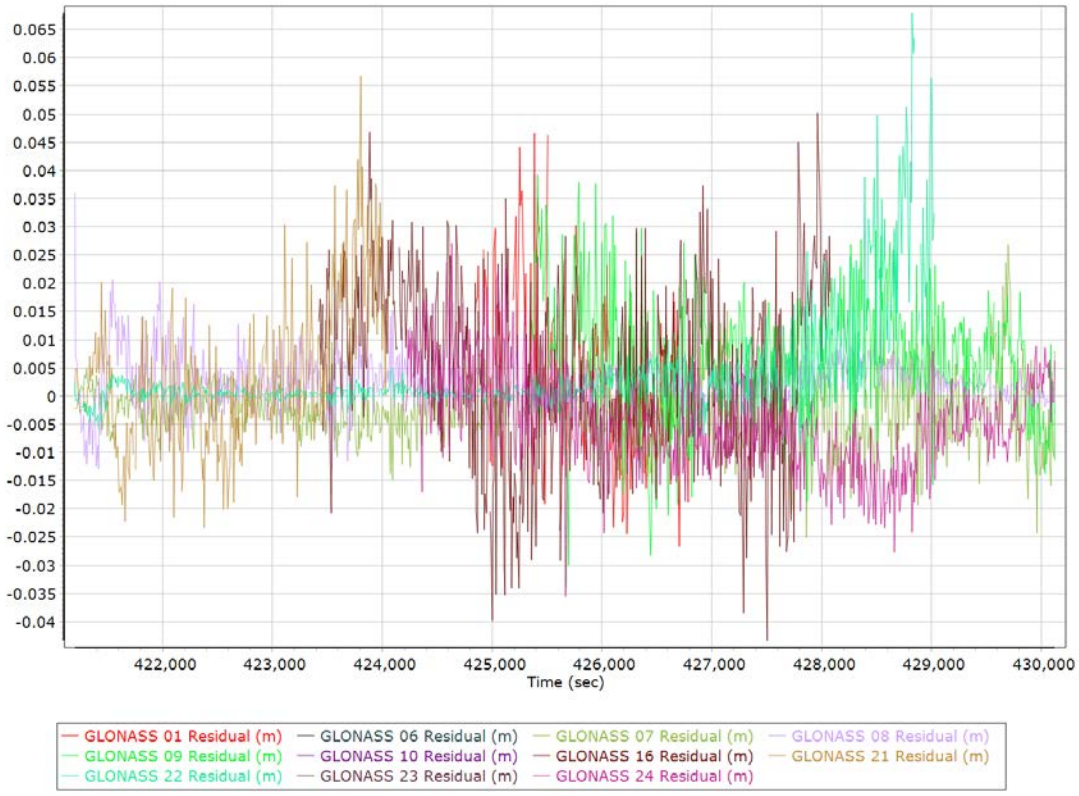
Estimated Position Accuracy



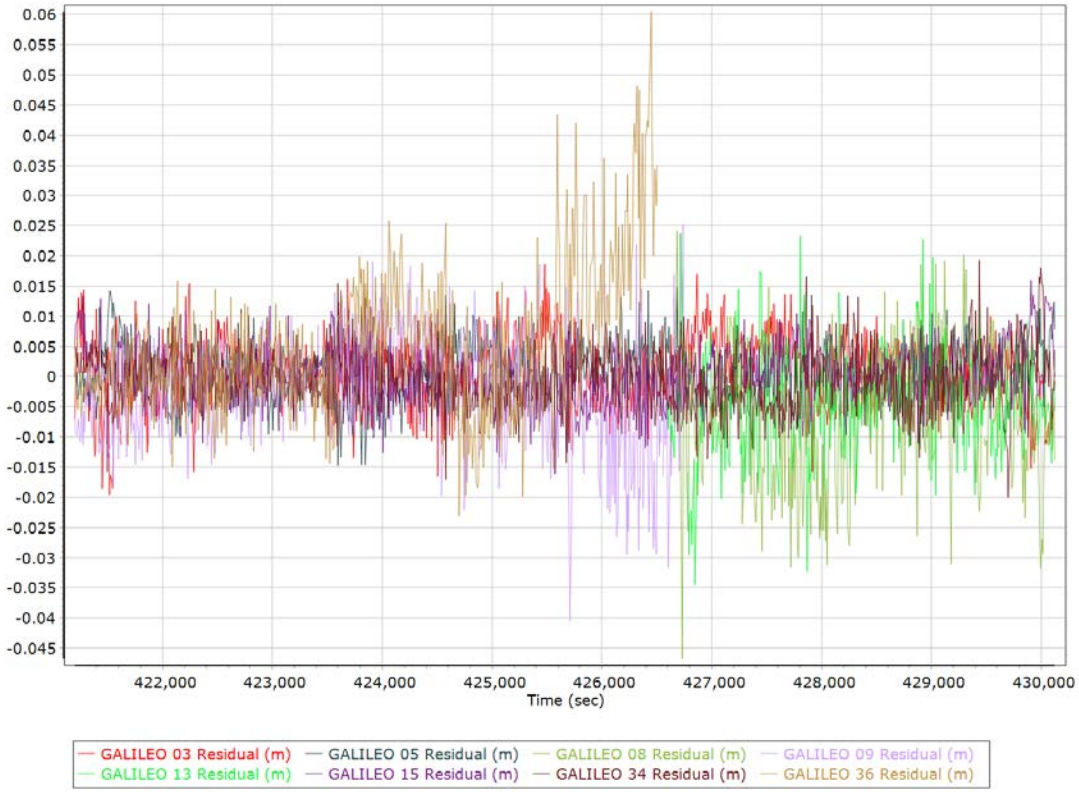
GPS Residuals



GLONASS Residuals



GALILEO Residuals



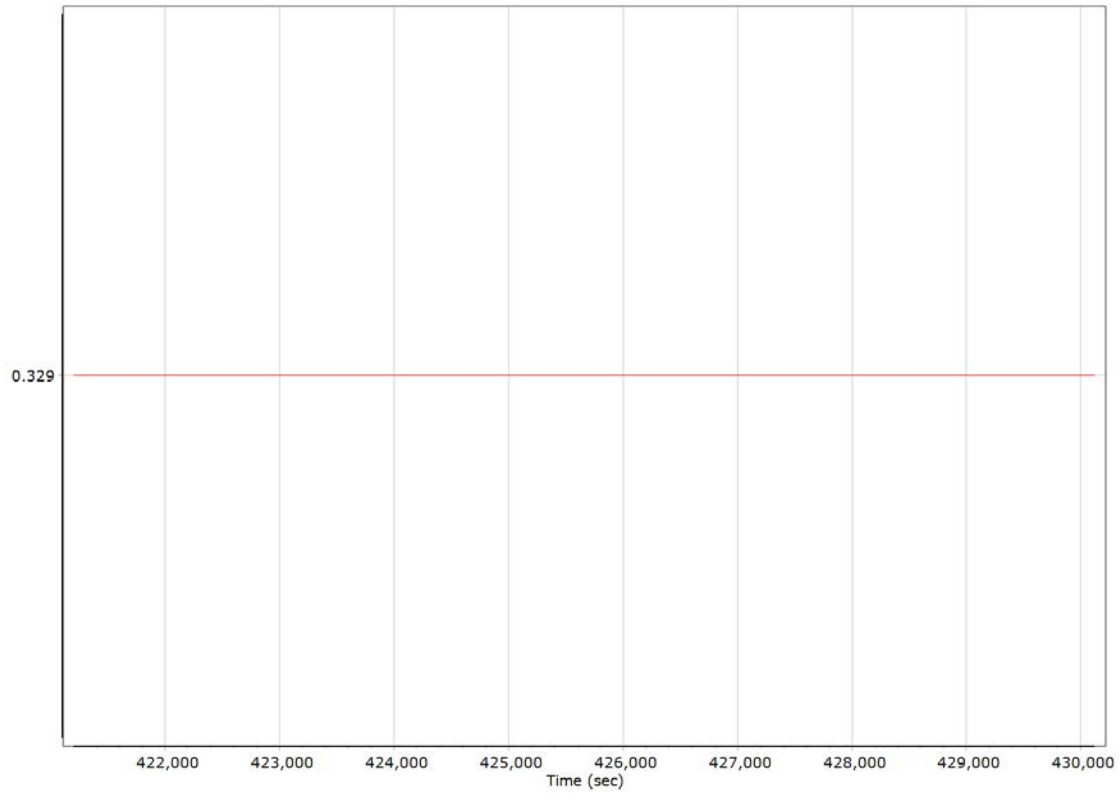
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	420957.000 (7/20/2023 8:55:57 PM)		
Processing end time	430123.000 (7/20/2023 11:28:43 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

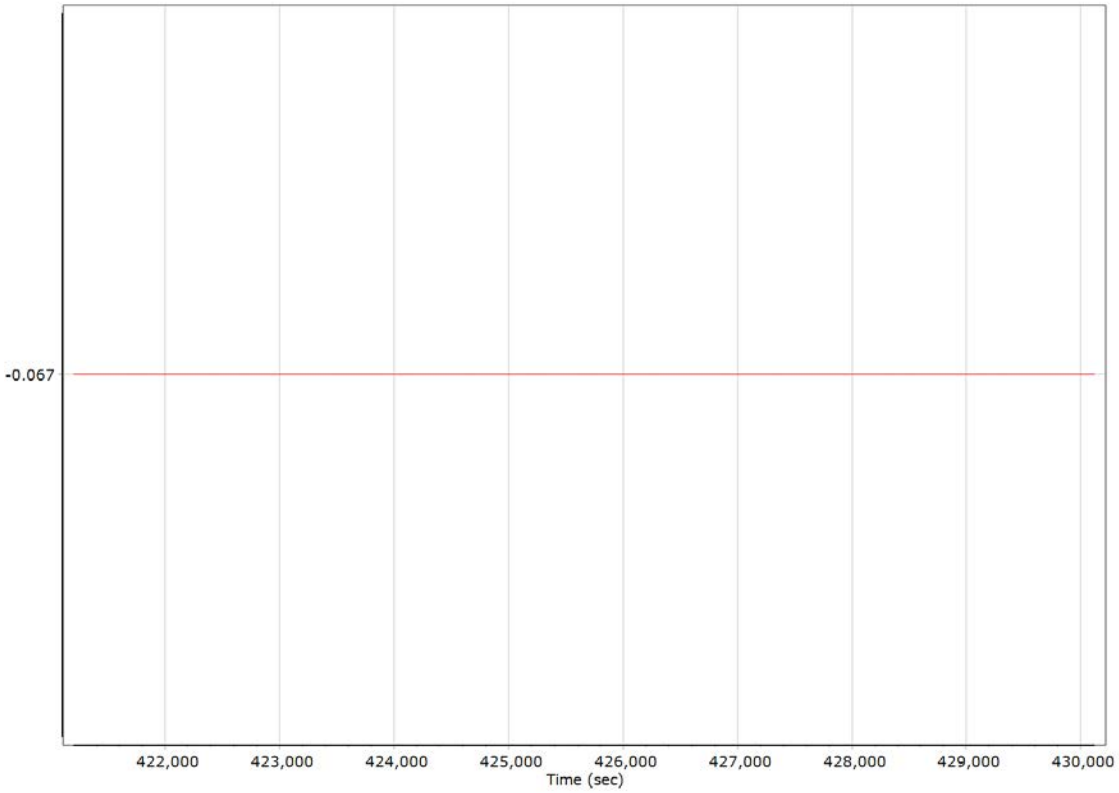
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

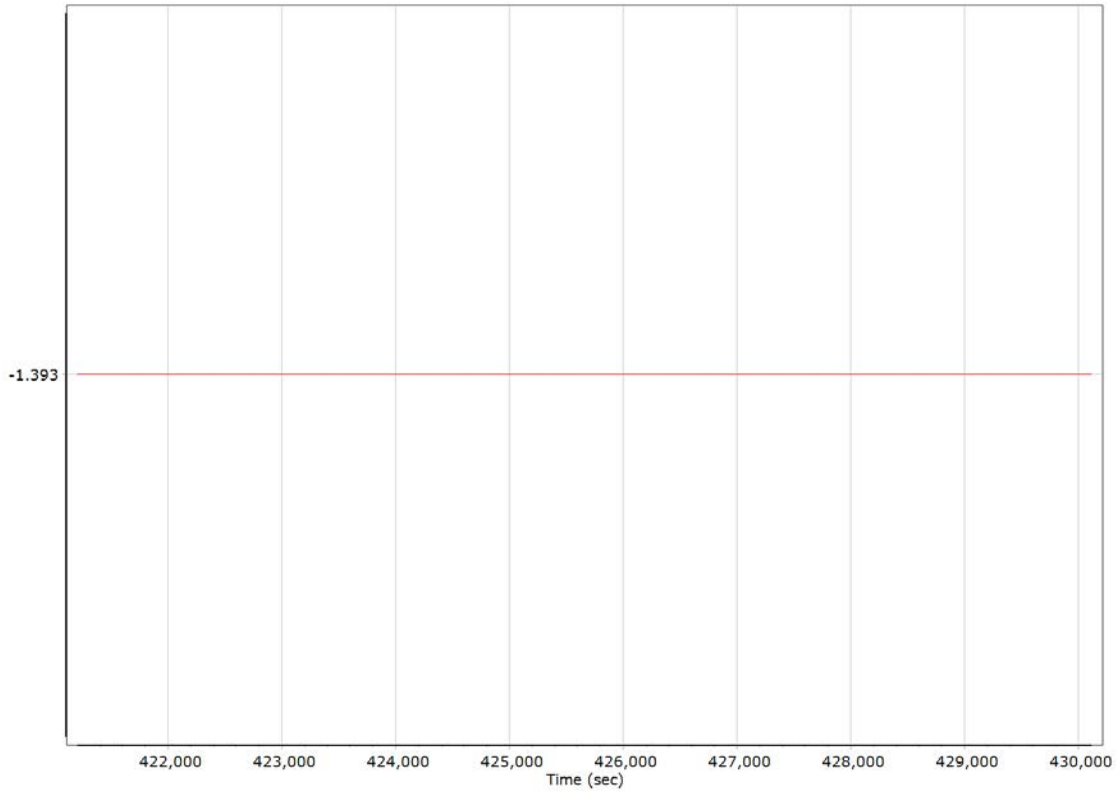
X Reference-Primary GNSS Lever Arm (m)



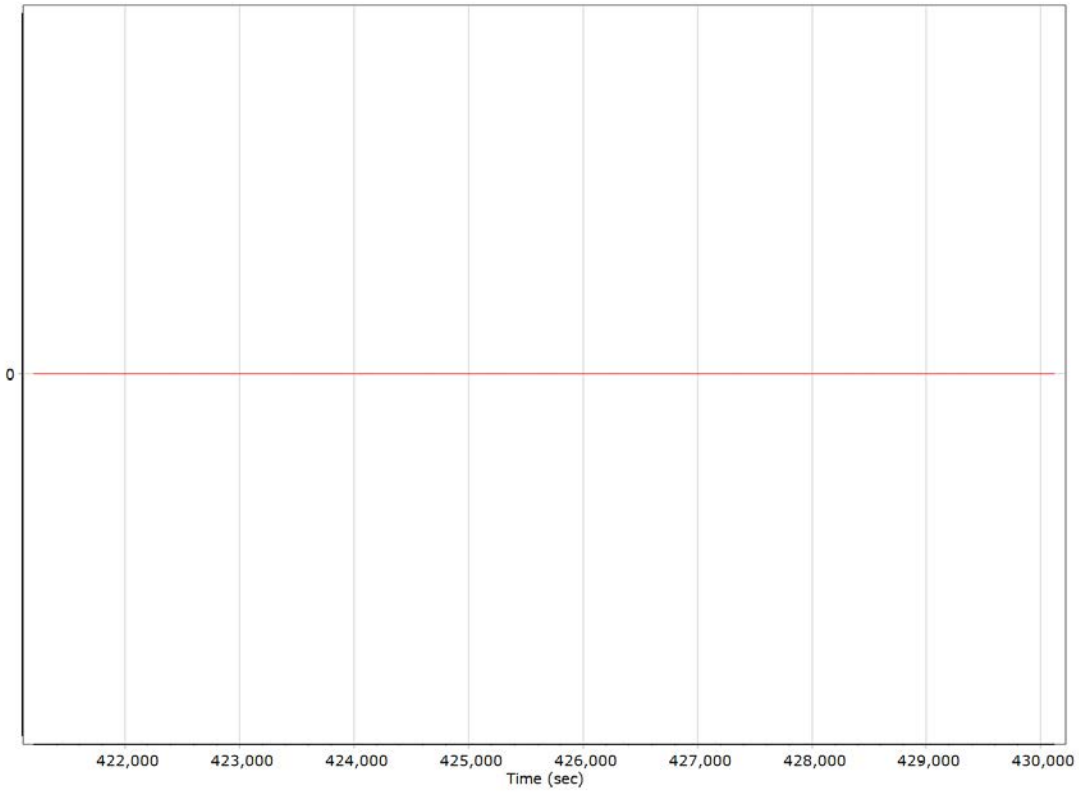
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



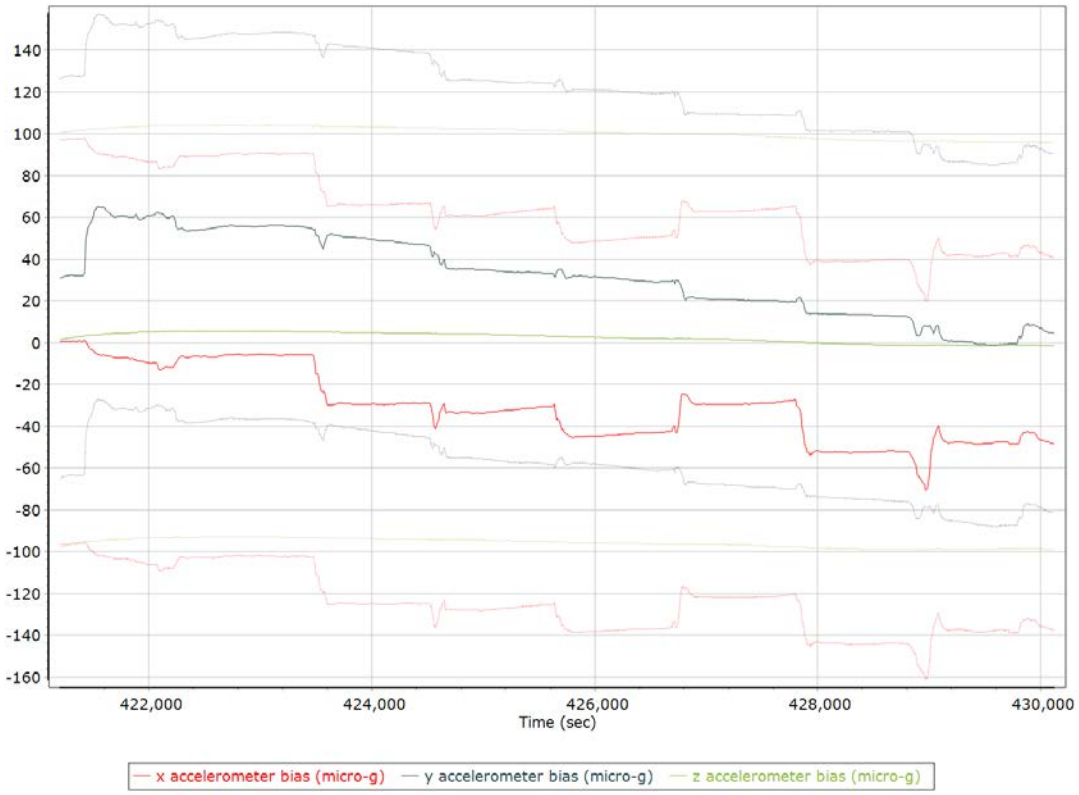
Reference-Primary GNSS Lever Arm Figure of Merit



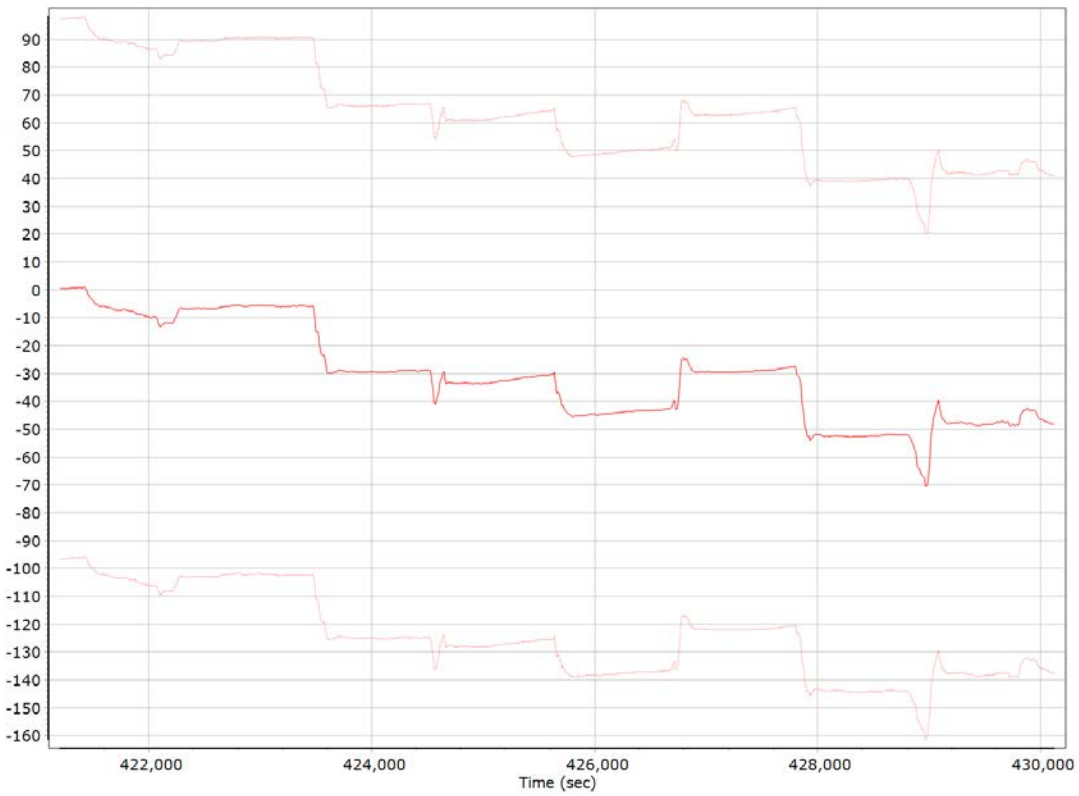
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

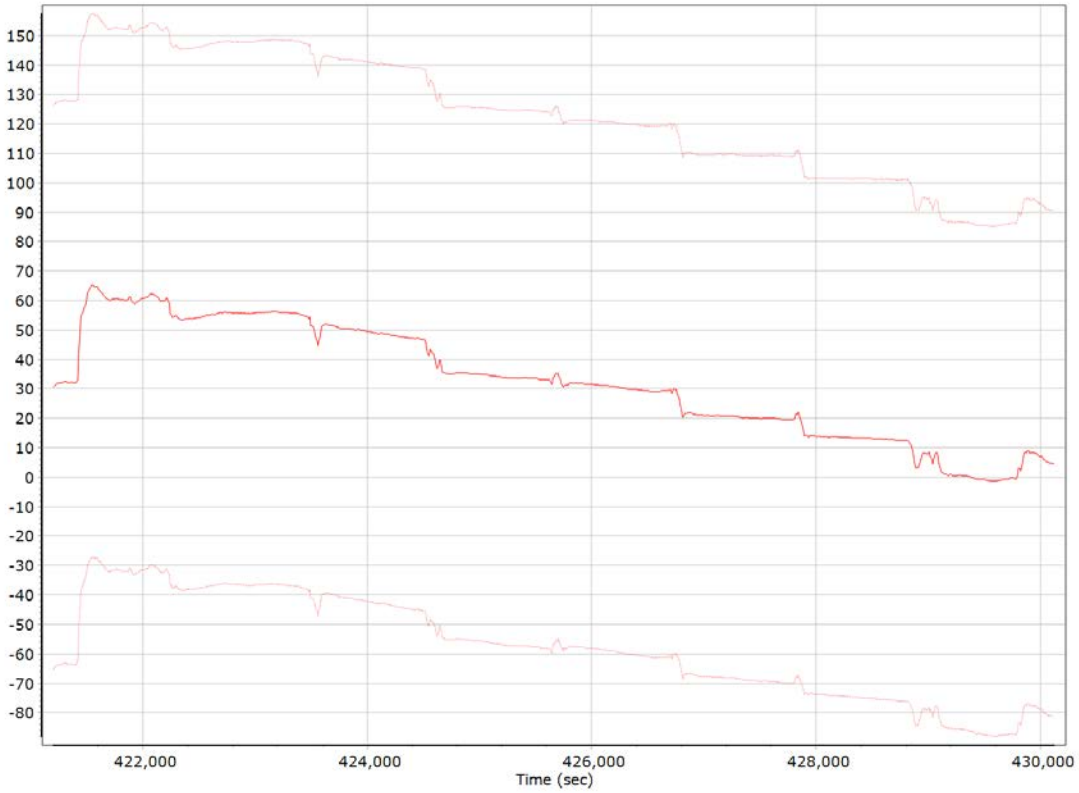
Accelerometer Bias (micro-g)



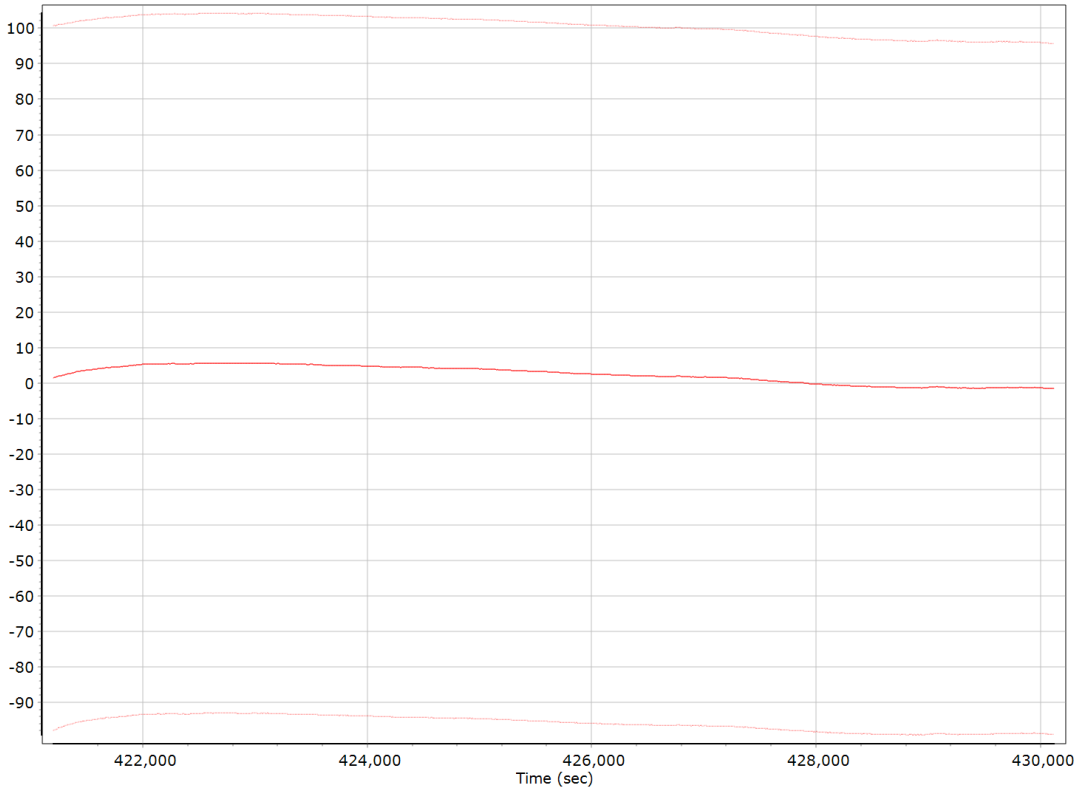
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



Z Accelerometer Bias (micro-g)



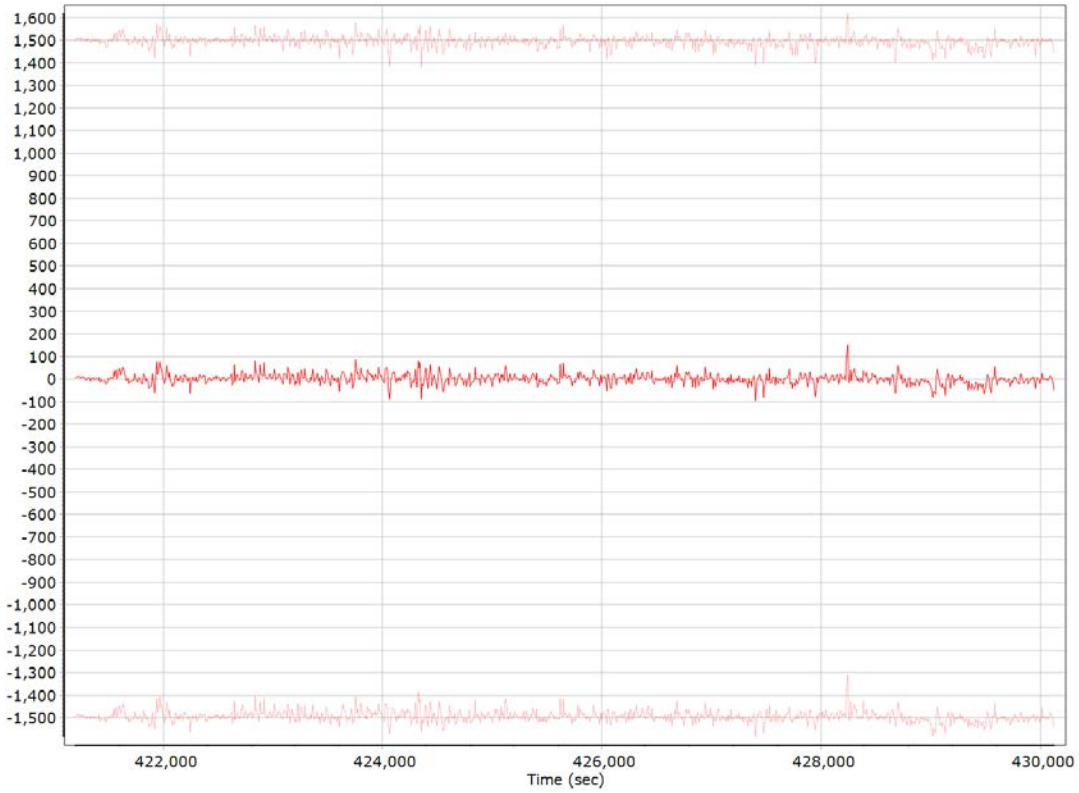
Accelerometer Scale Error (ppm)



X Accelerometer Scale Error (ppm)



Y Accelerometer Scale Error (ppm)



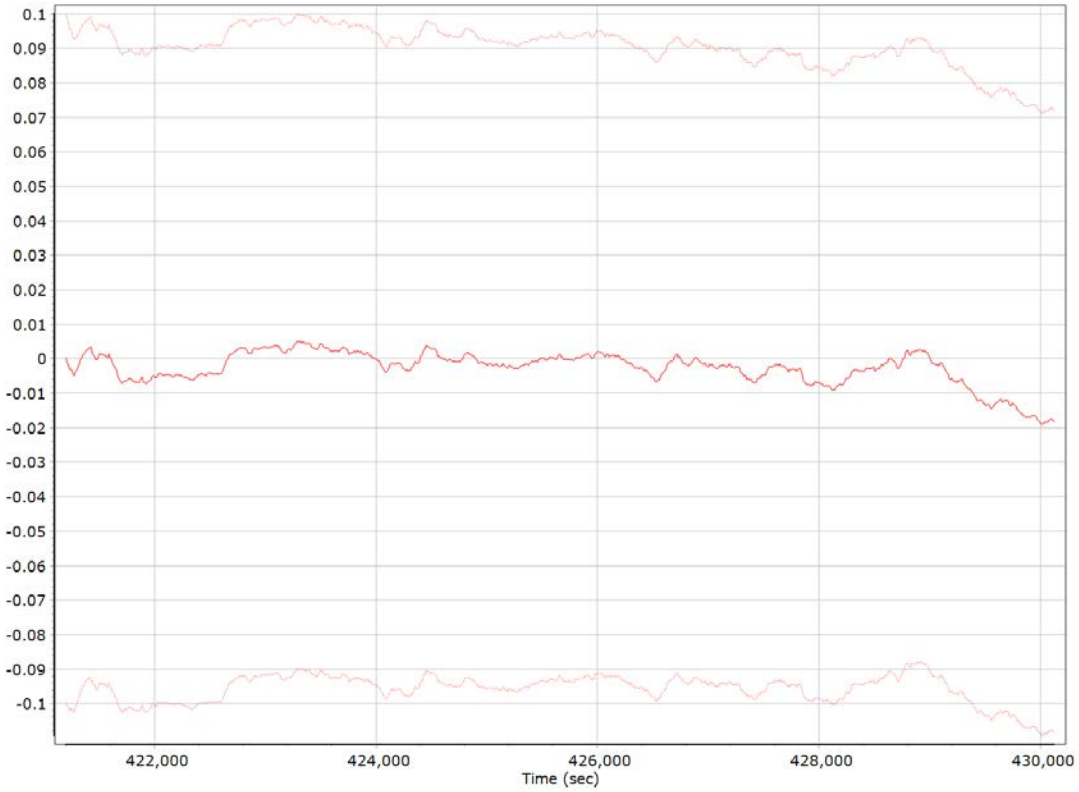
Z Accelerometer Scale Error (ppm)



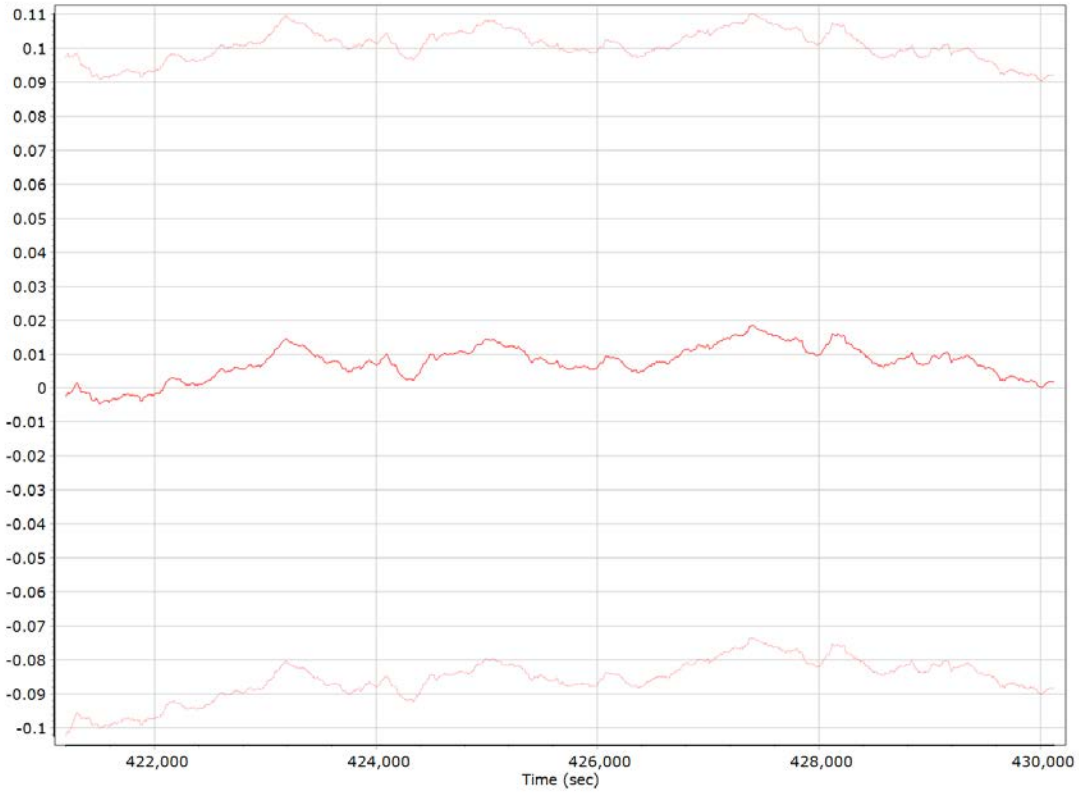
Gyro Bias (deg/h)



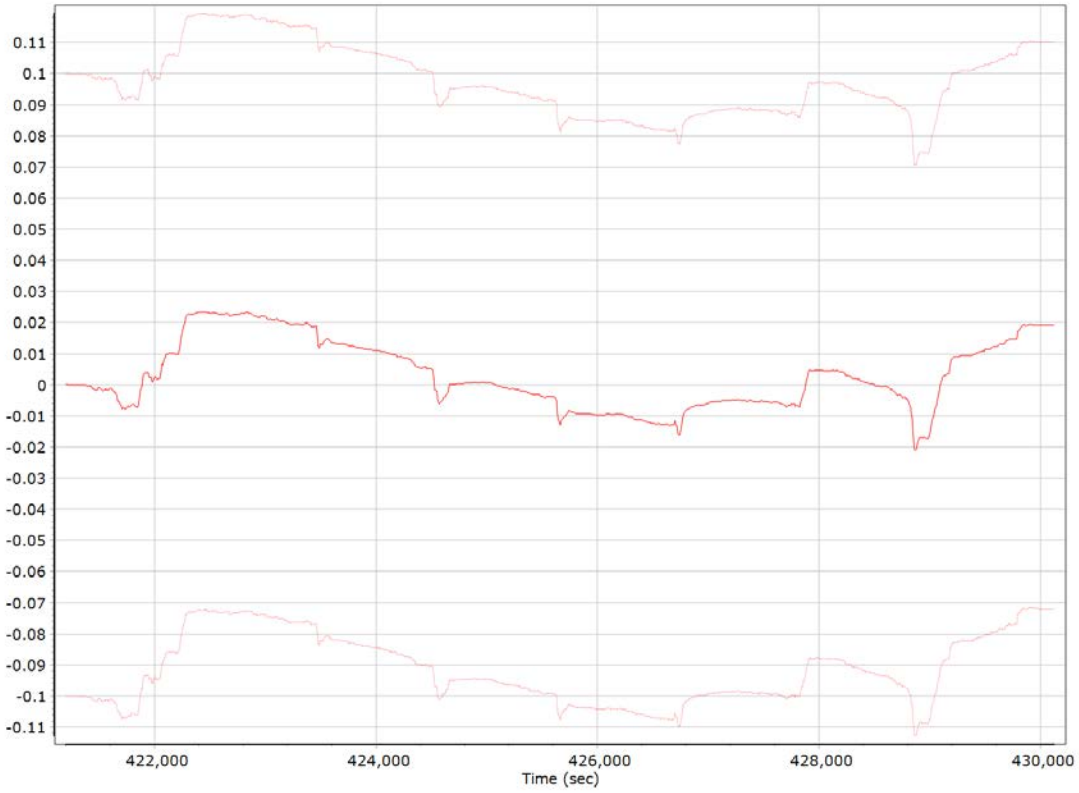
X Gyro Bias (deg/h)



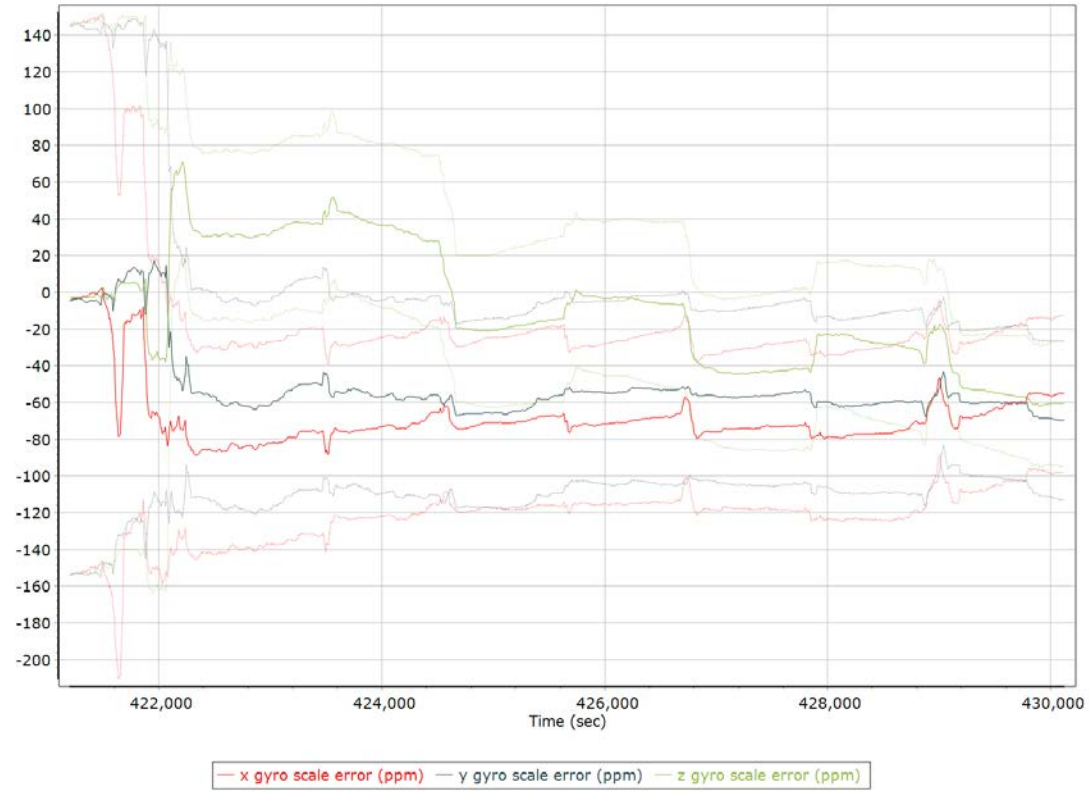
Y Gyro Bias (deg/h)



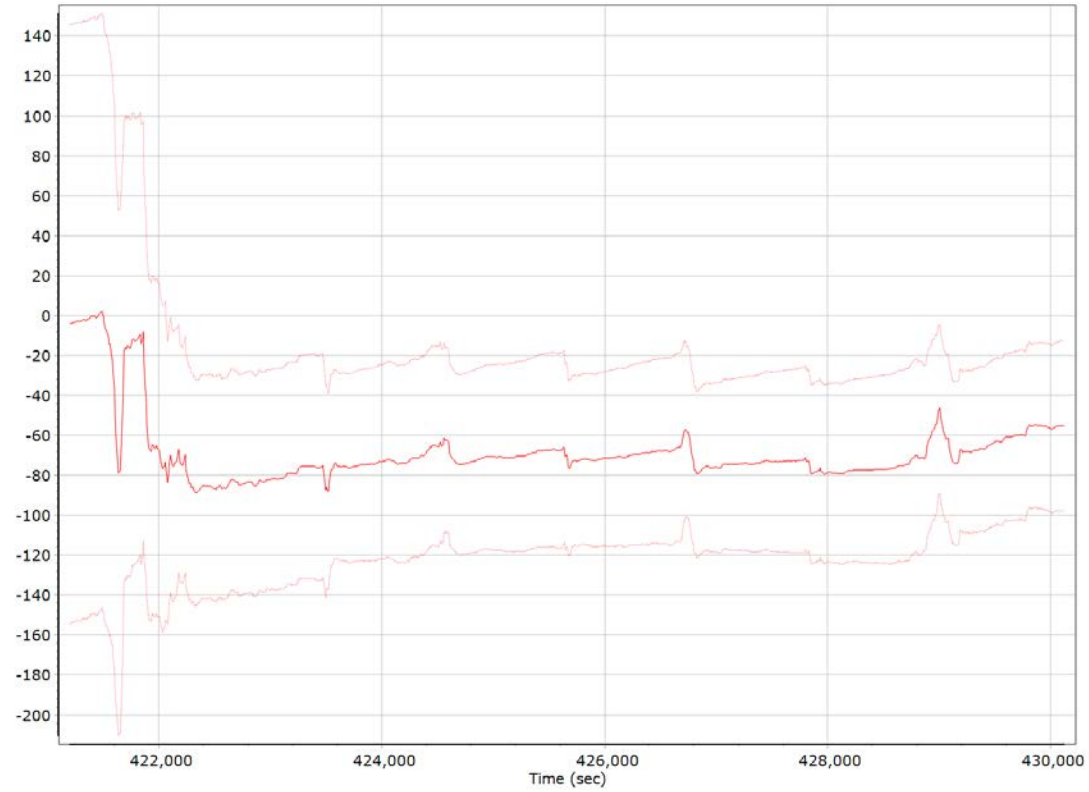
Z Gyro Bias (deg/h)



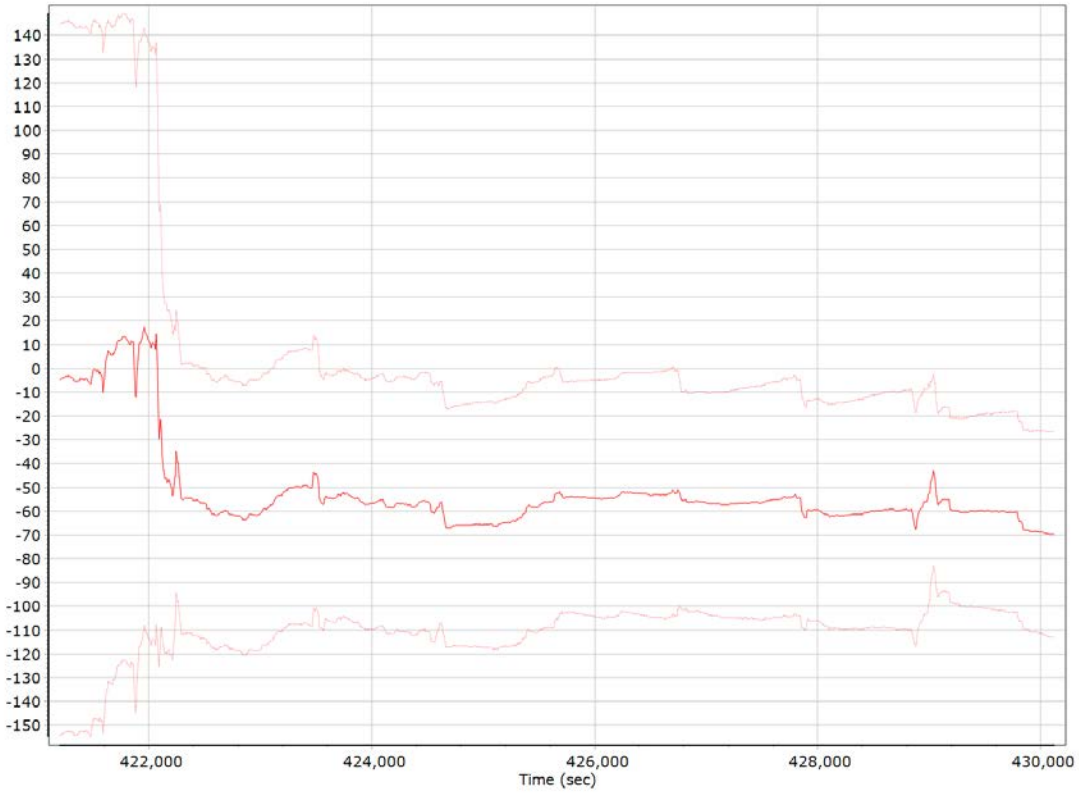
Gyro Scale Error (ppm)



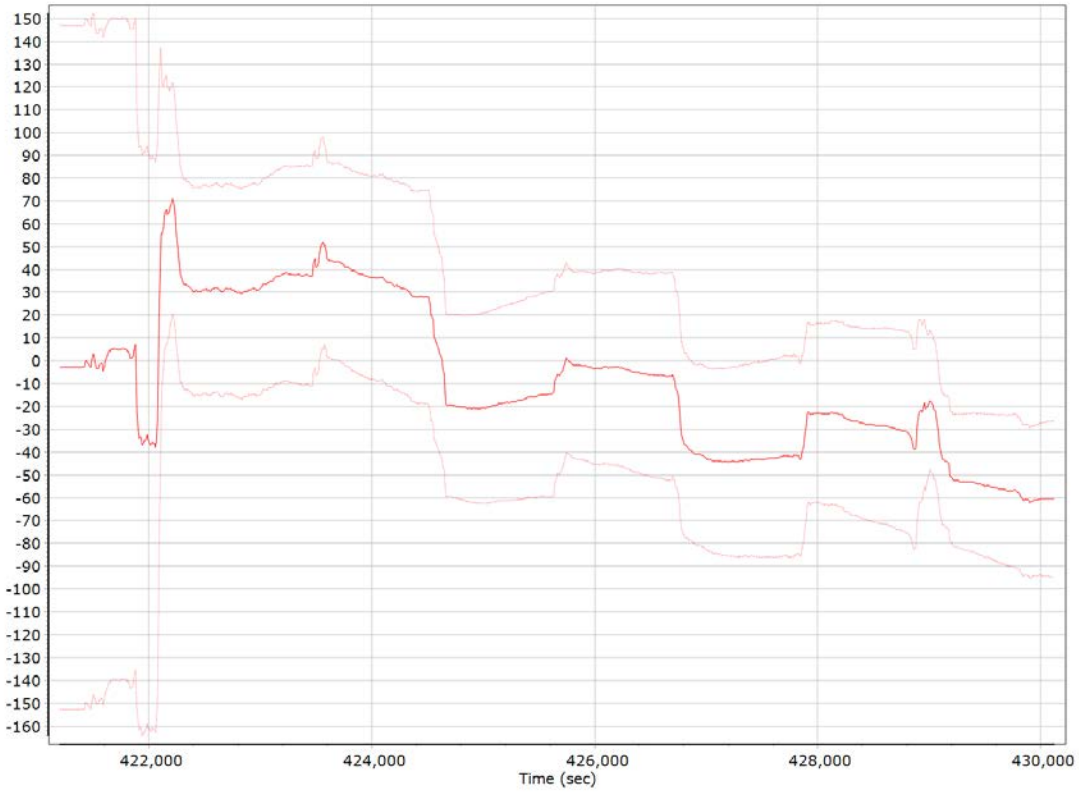
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

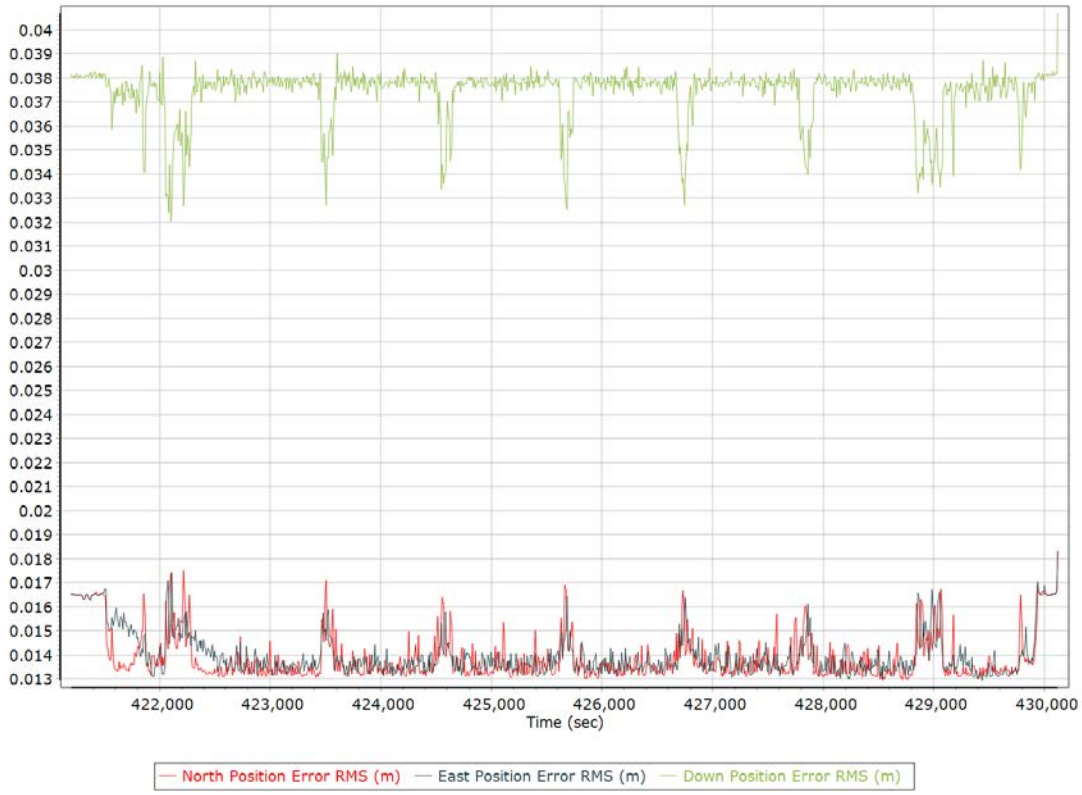


Z Gyro Scale Error (ppm)

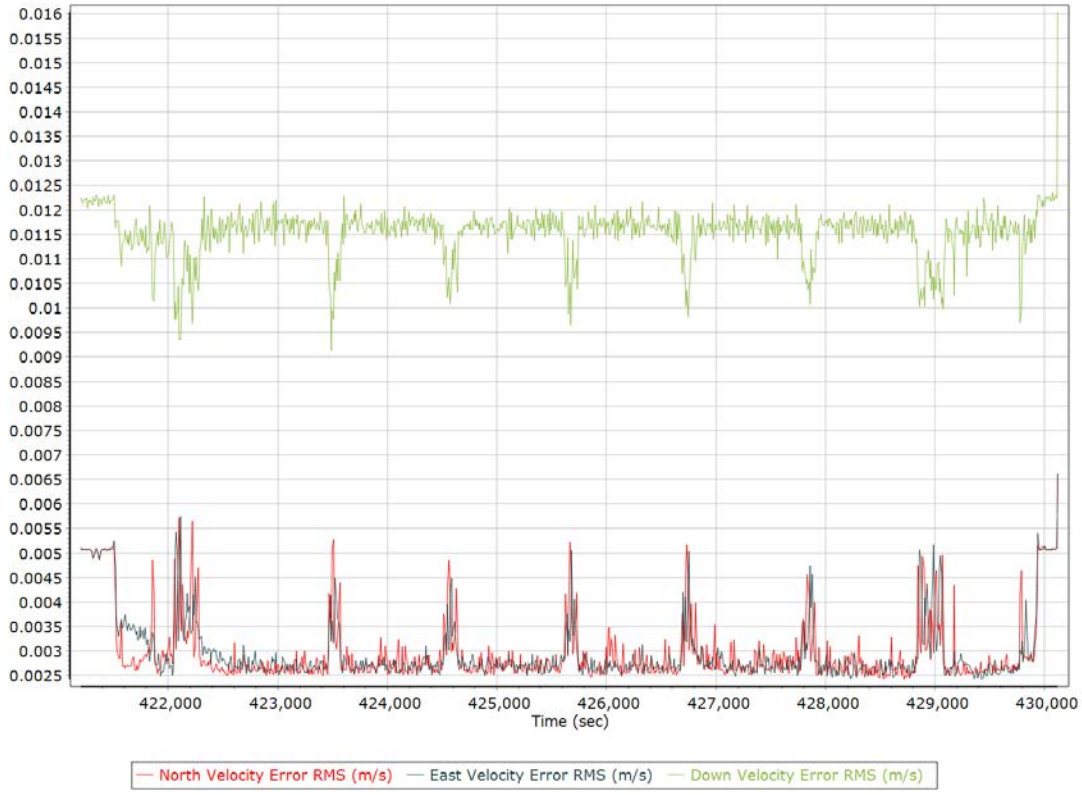


Smoothed Performance Metrics

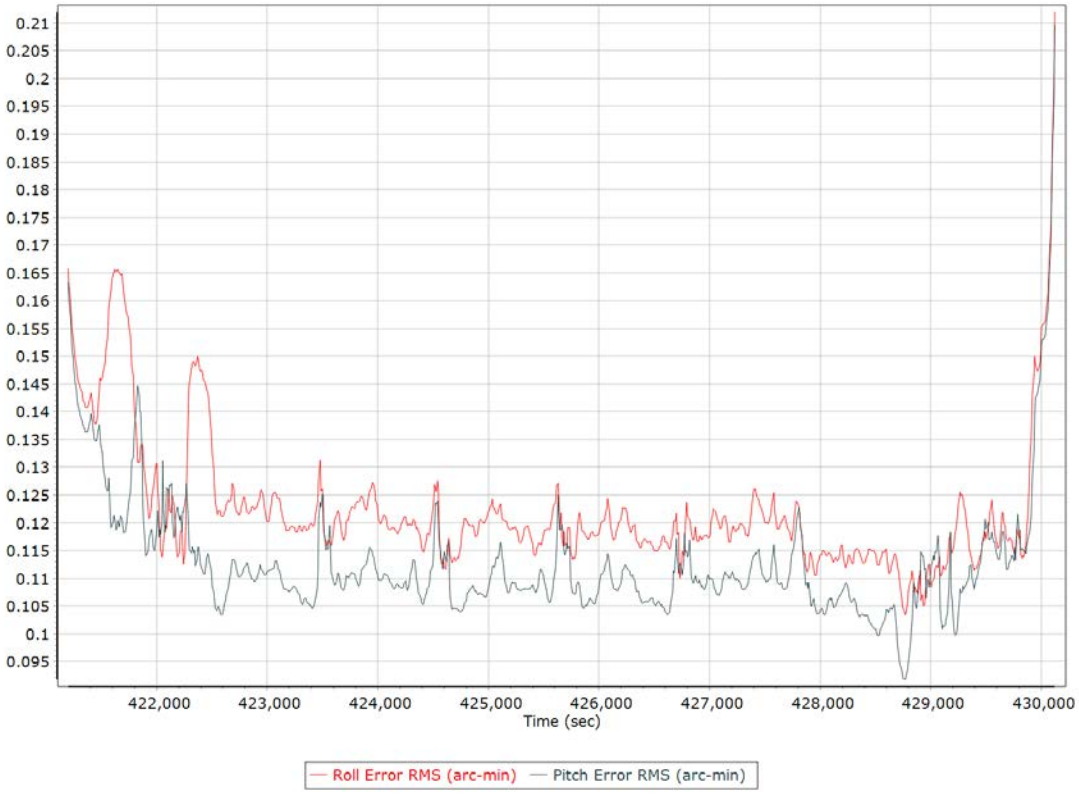
Position Error RMS (m)



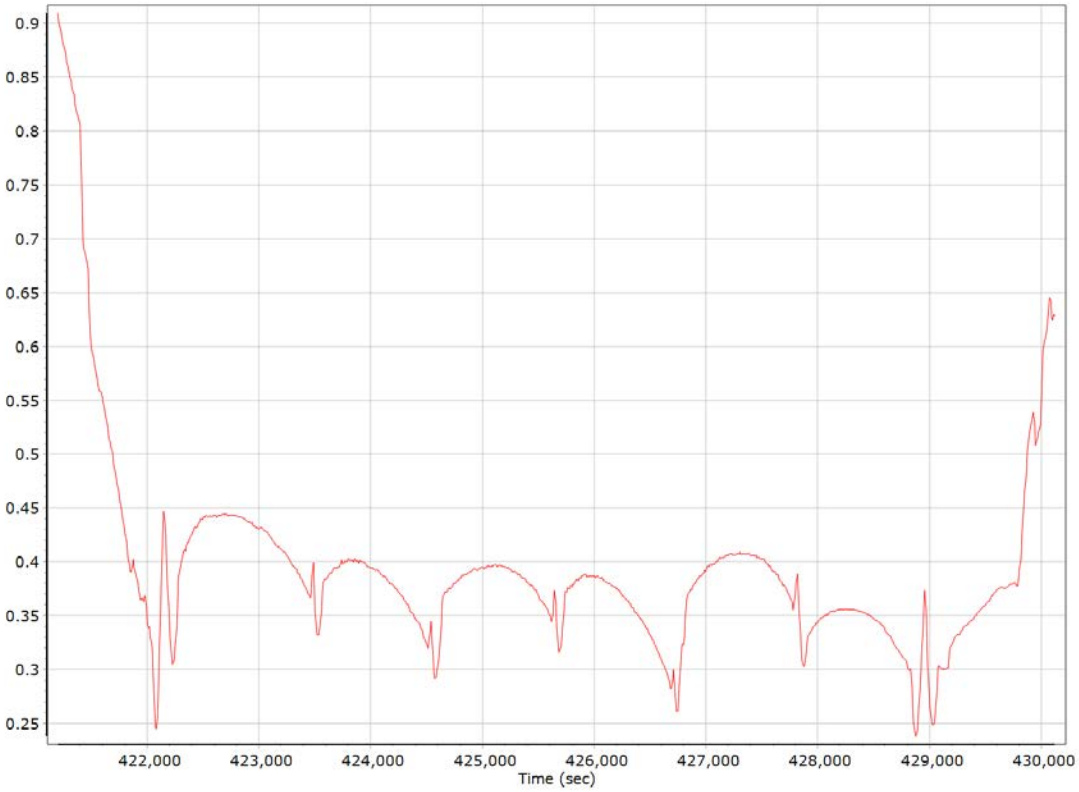
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)



Heading Error RMS (arc-min)



Forward Processed Performance Metrics

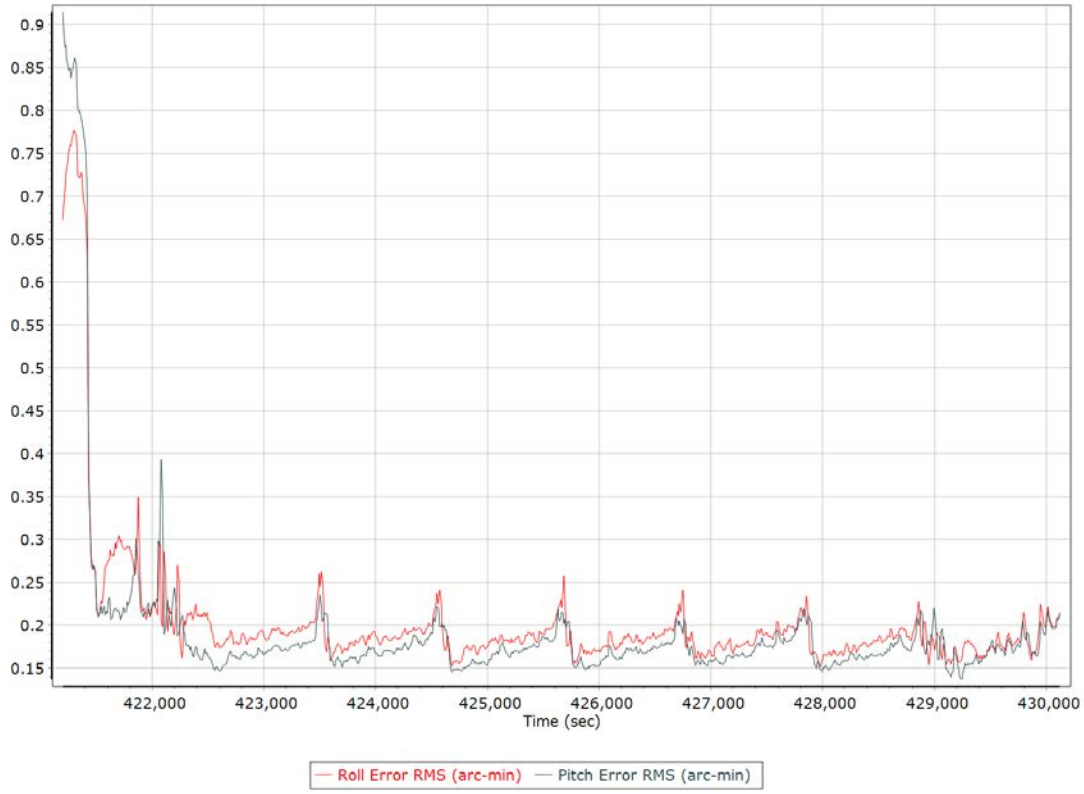
Position Error RMS (m)



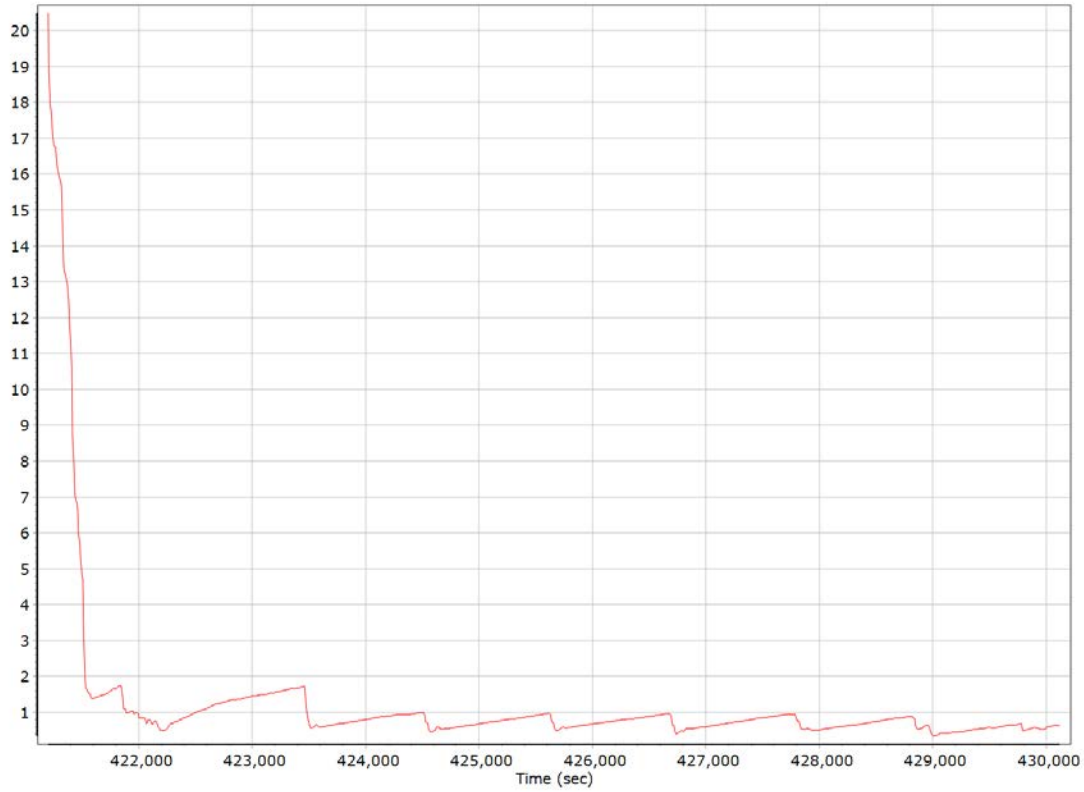
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

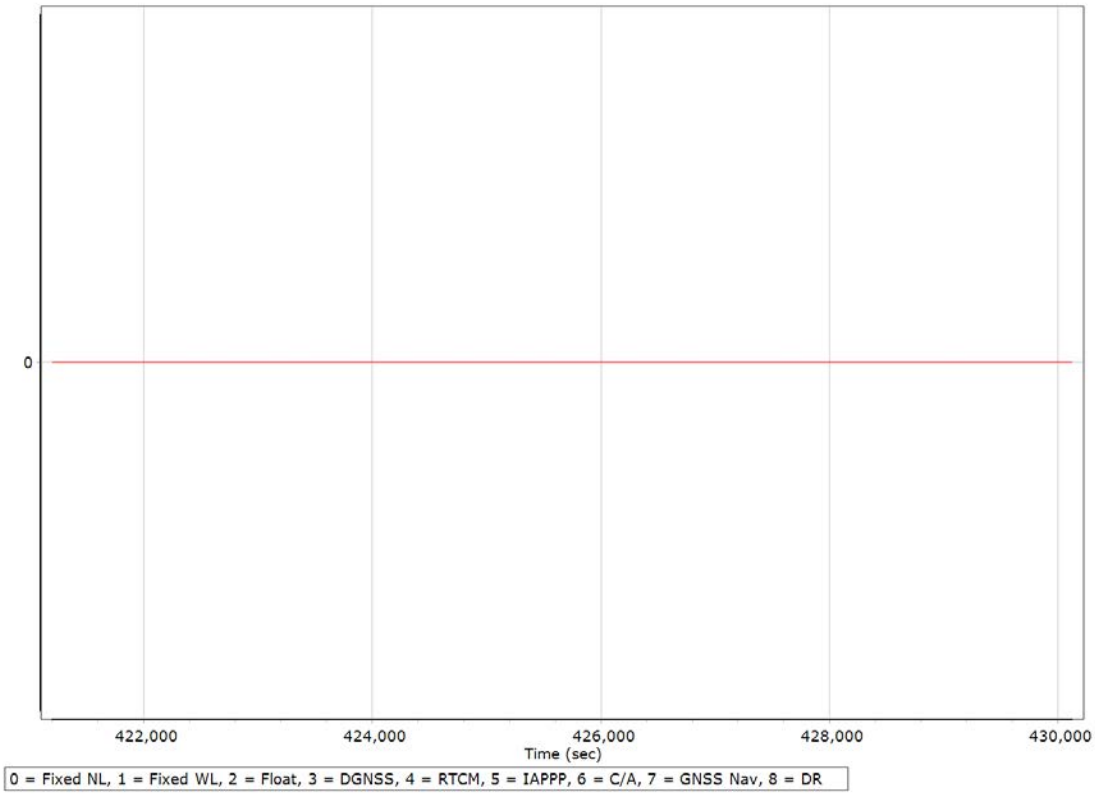


Heading Error RMS (arc-min)

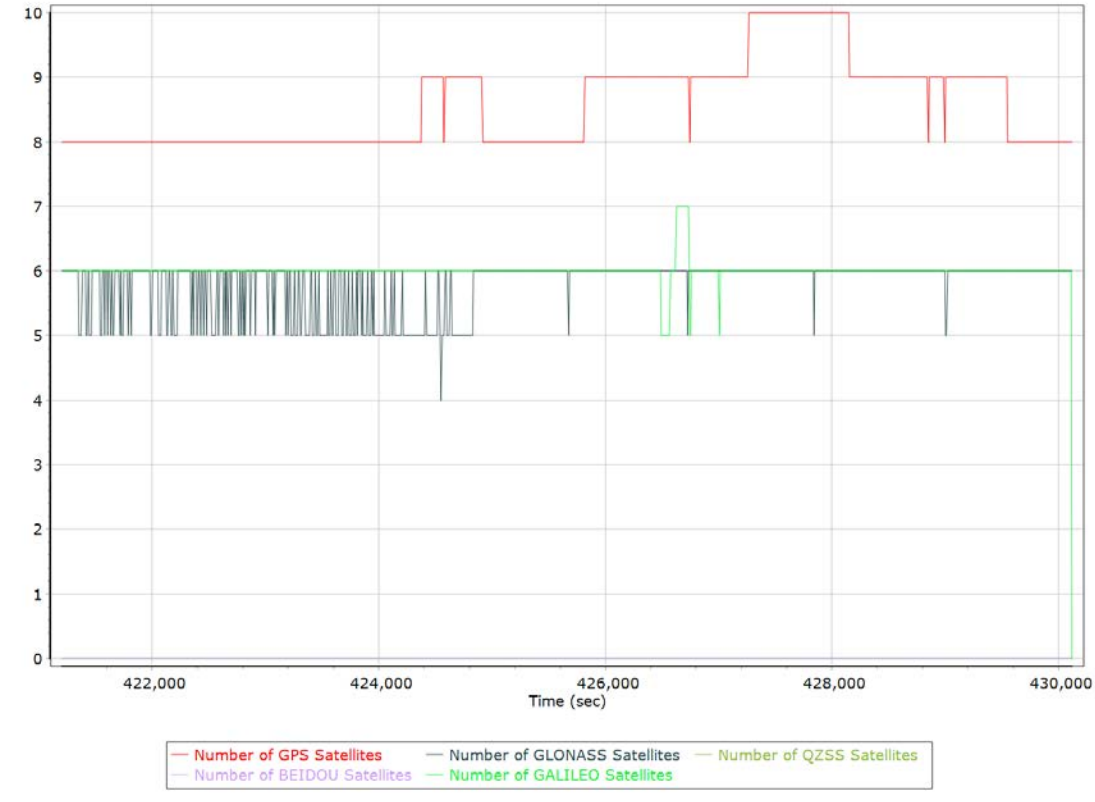


Forward Processed Solution Status

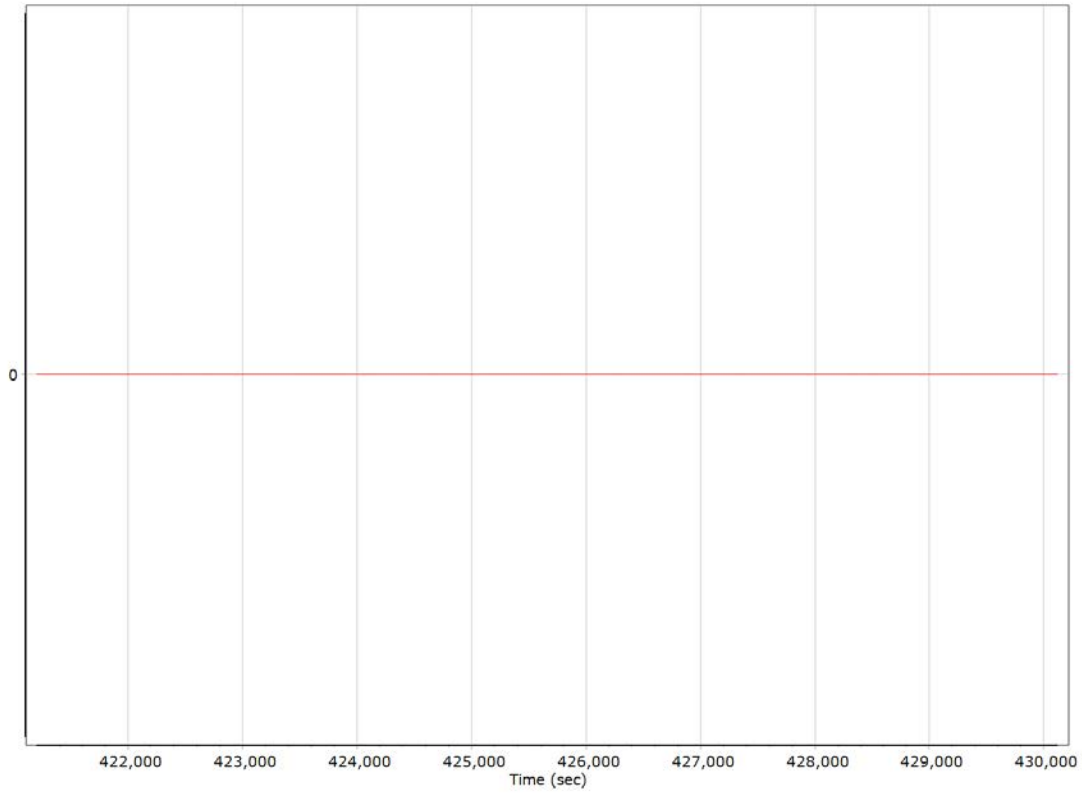
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07212023A_4051
Processing date	2023-07-25 19:29:21
Mission date	2023-07-21 15:39:44
Mission duration	04:25:38.824
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.067	POS Data
CP780.068	POS Data
CP780.069	POS Data
CP780.070	POS Data
CP780.071	POS Data
CP780.072	POS Data
CP780.073	POS Data
CP780.074	POS Data
CP780.075	POS Data
CP780.076	POS Data
CP780.077	POS Data
CP780.078	POS Data
CP780.079	POS Data
CP780.080	POS Data
CP780.081	POS Data
CP780.082	POS Data
CP780.083	POS Data
CP780.084	POS Data
CP780.085	POS Data
CP780.086	POS Data
CP780.087	POS Data
CP780.088	POS Data
CP780.089	POS Data
CP780.090	POS Data
CP780.091	POS Data
CP780.092	POS Data
CP780.093	POS Data
CP780.094	POS Data
CP780.095	POS Data
CP780.096	POS Data
CP780.097	POS Data
CP780.098	POS Data
CP780.099	POS Data
CP780.100	POS Data
CP780.101	POS Data
CP780.102	POS Data
CP780.103	POS Data

Input Files

File Name	File Type
Ephm2020.23g	GLONASS Broadcast Ephemeris
Ephm2020.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07212023A_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.067		
Last raw data file	CP780.103		
Start GPS week	2271		
Start time	488365.028 (7/21/2023 3:39:25 PM)		
End time	504303.852 (7/21/2023 8:05:03 PM)		
Start of fine alignment	488432.345 (7/21/2023 3:40:32 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

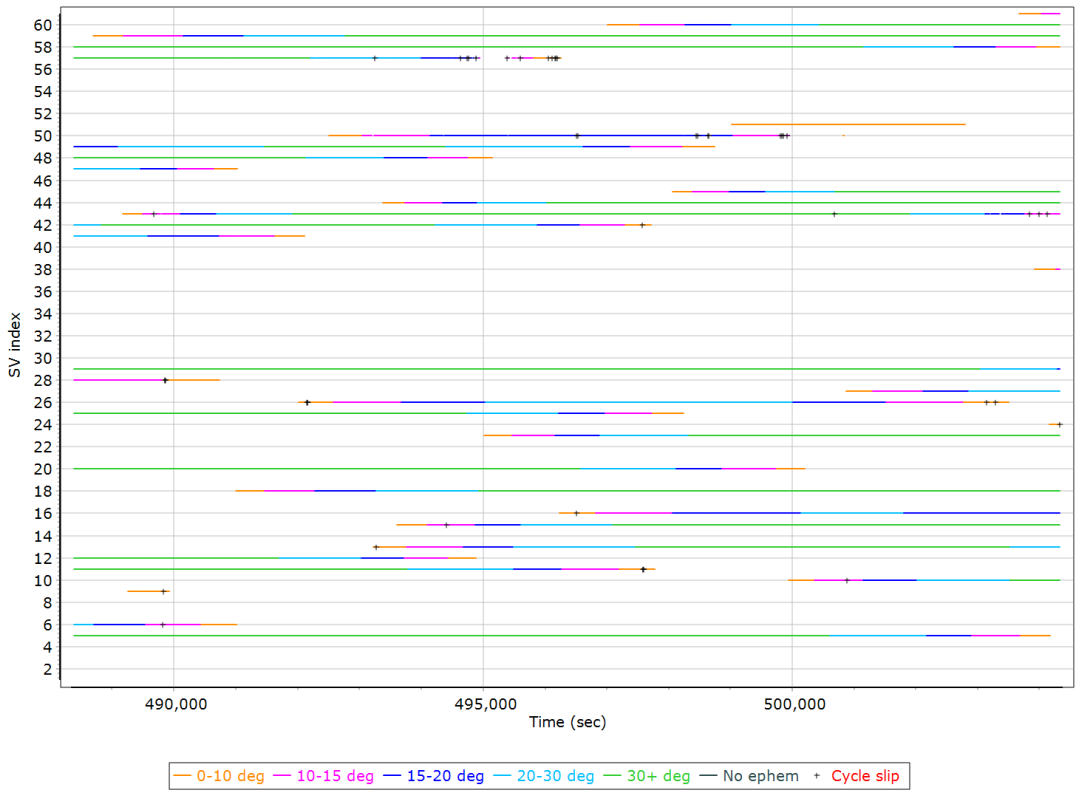
Rover Data QC

Raw IMU Import QC Summary

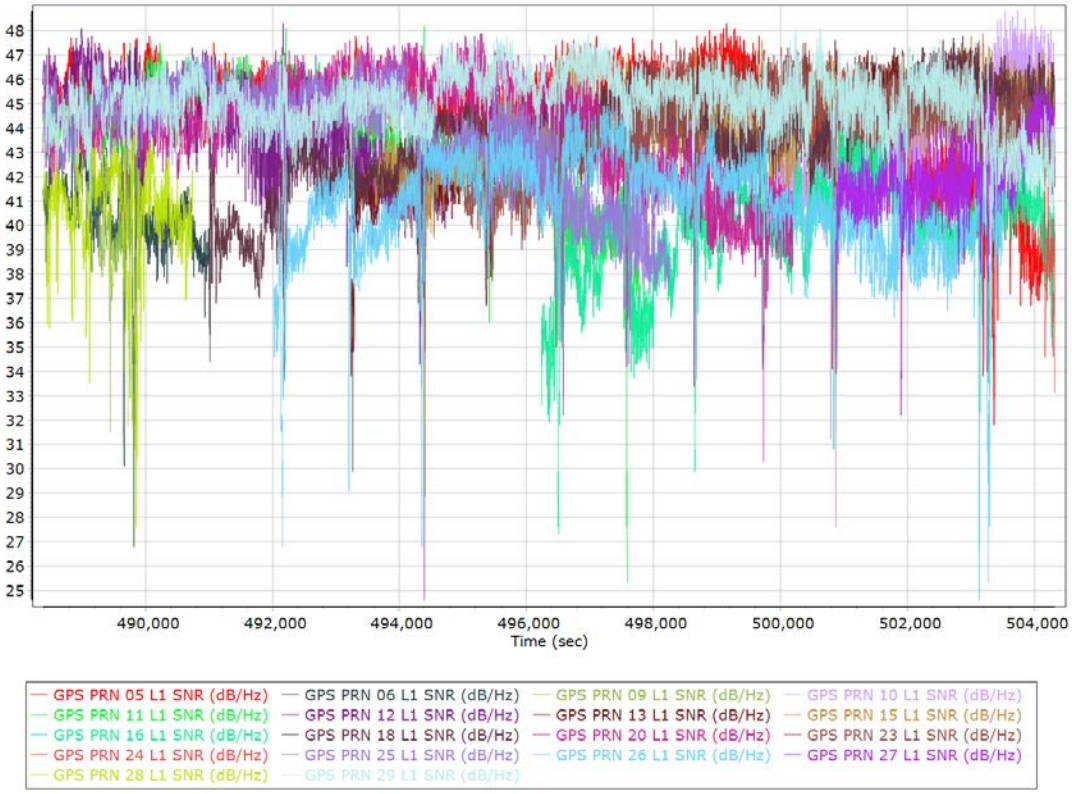
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07212023A_4051.log
IMU Records Processed	3187238
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

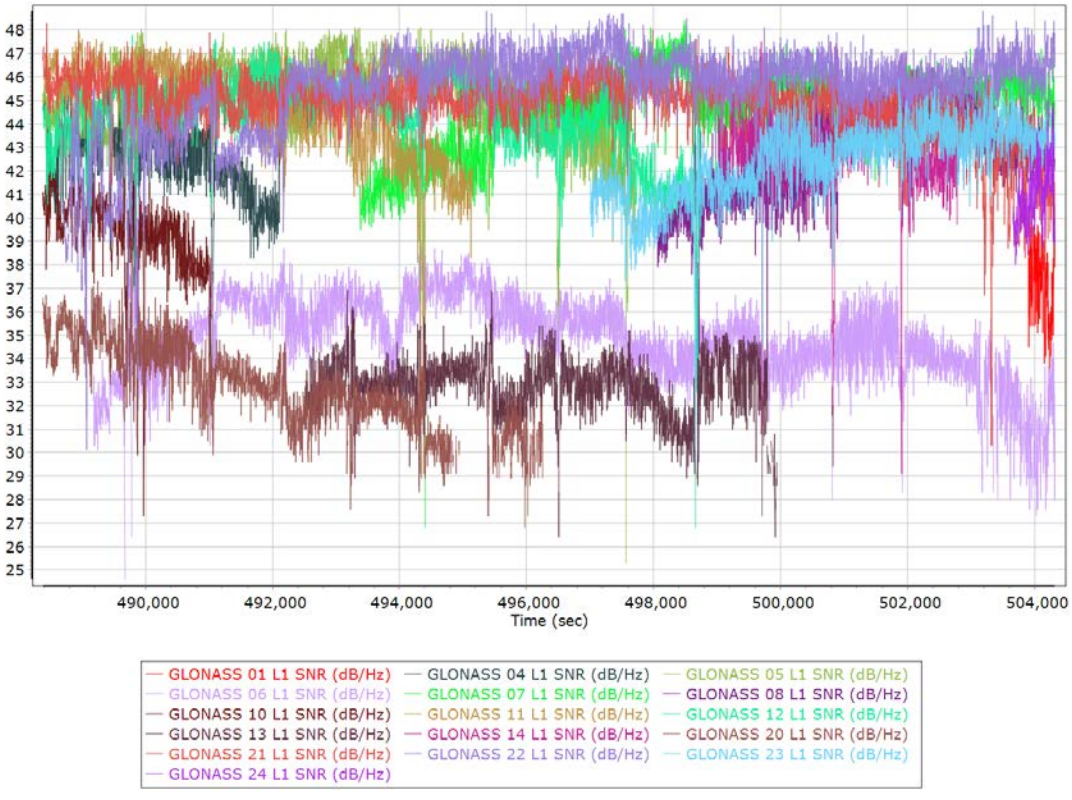
GPS/GLONASS L1 Satellite Lock/Elevation



GPS L1 SNR



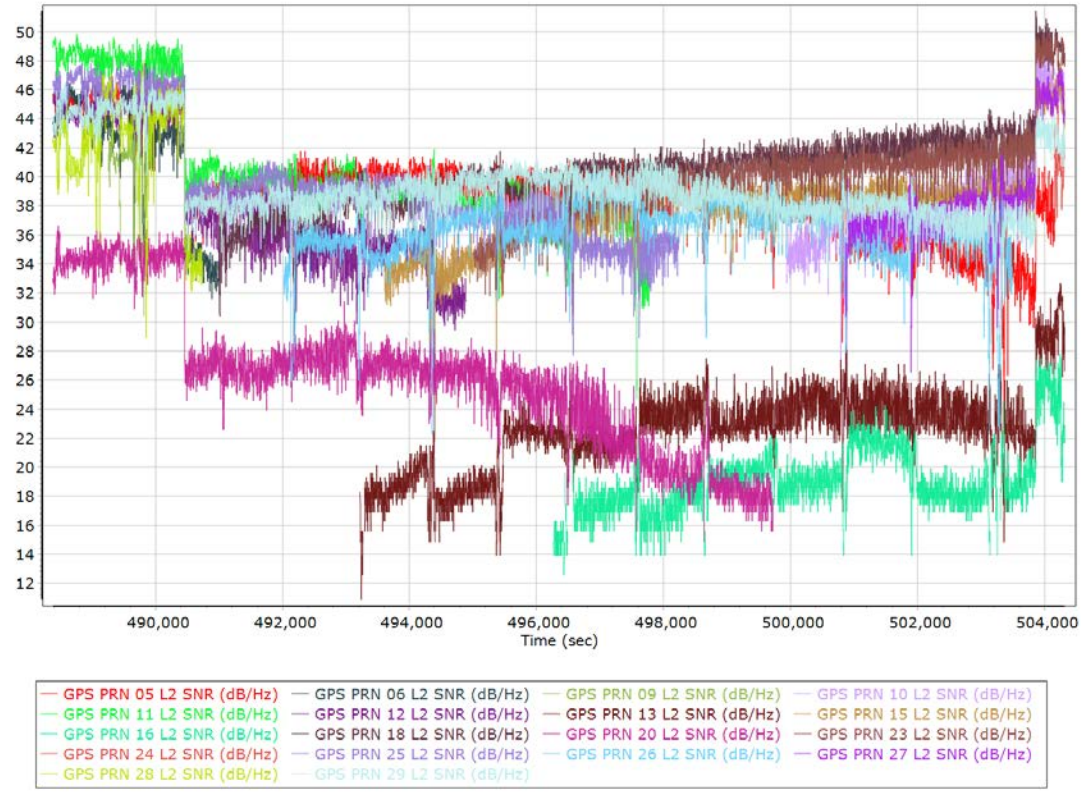
GLONASS L1 SNR



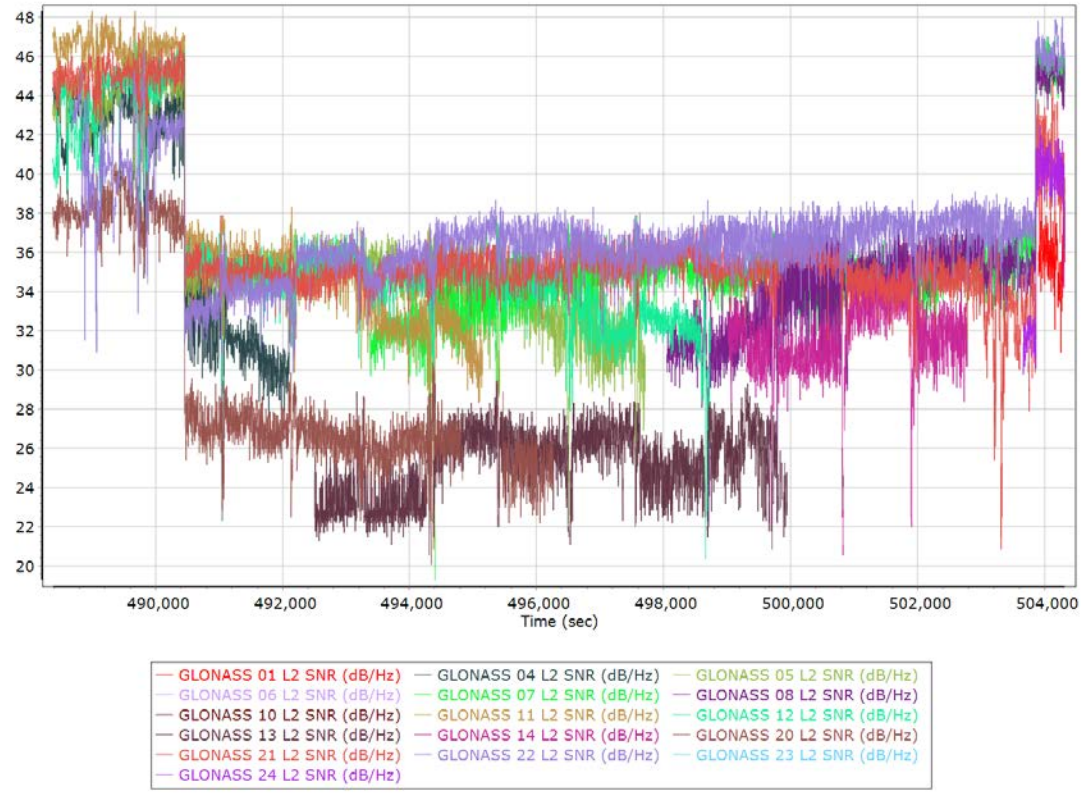
GPS/GLONASS L2 Satellite Lock/Elevation



GPS L2 SNR



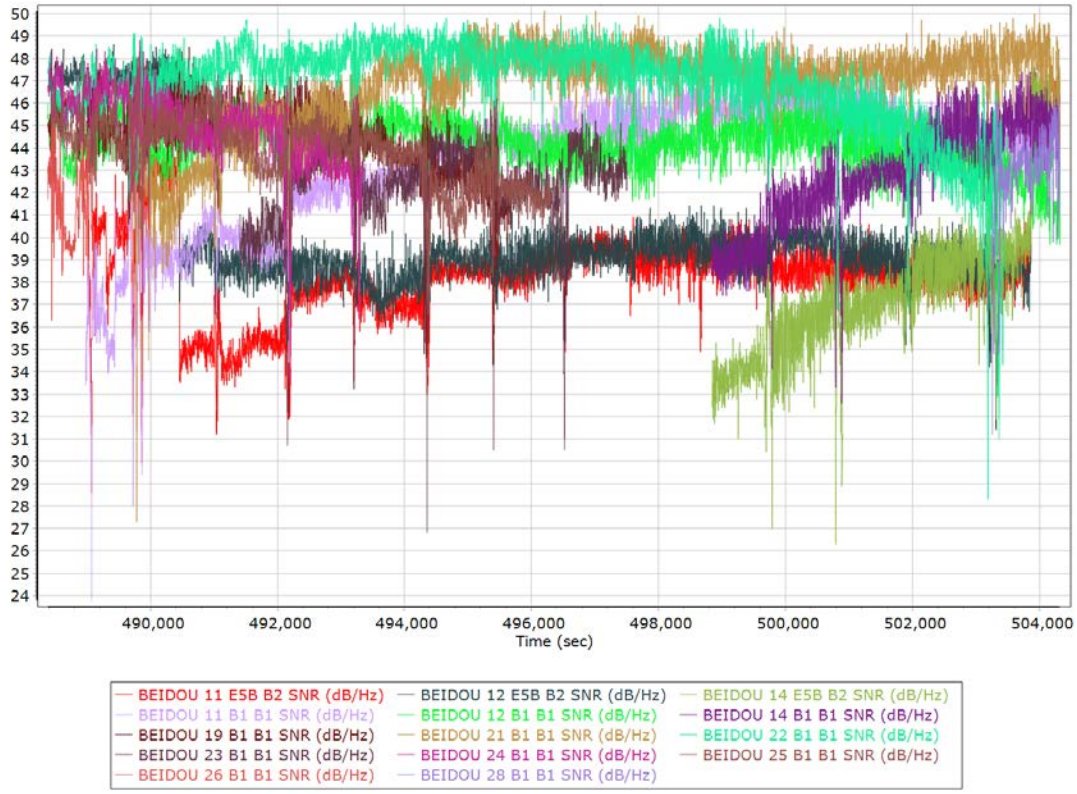
GLONASS L2 SNR



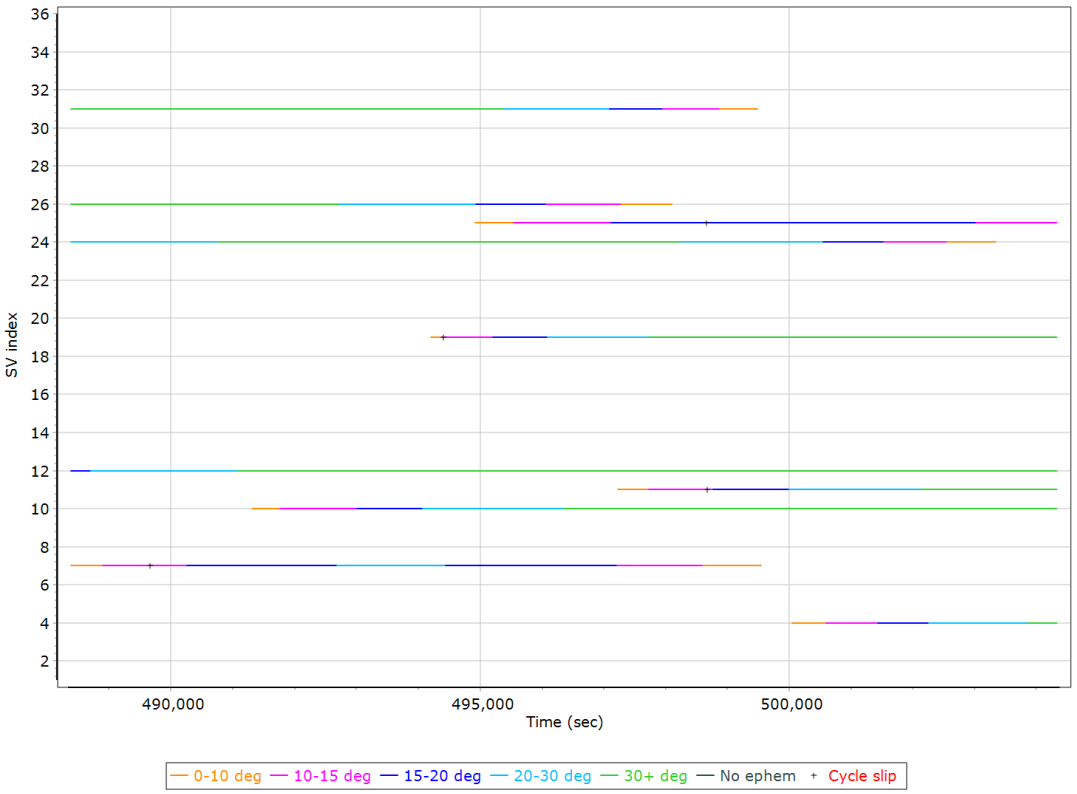
BEIDOU Satellite Lock/Elevation



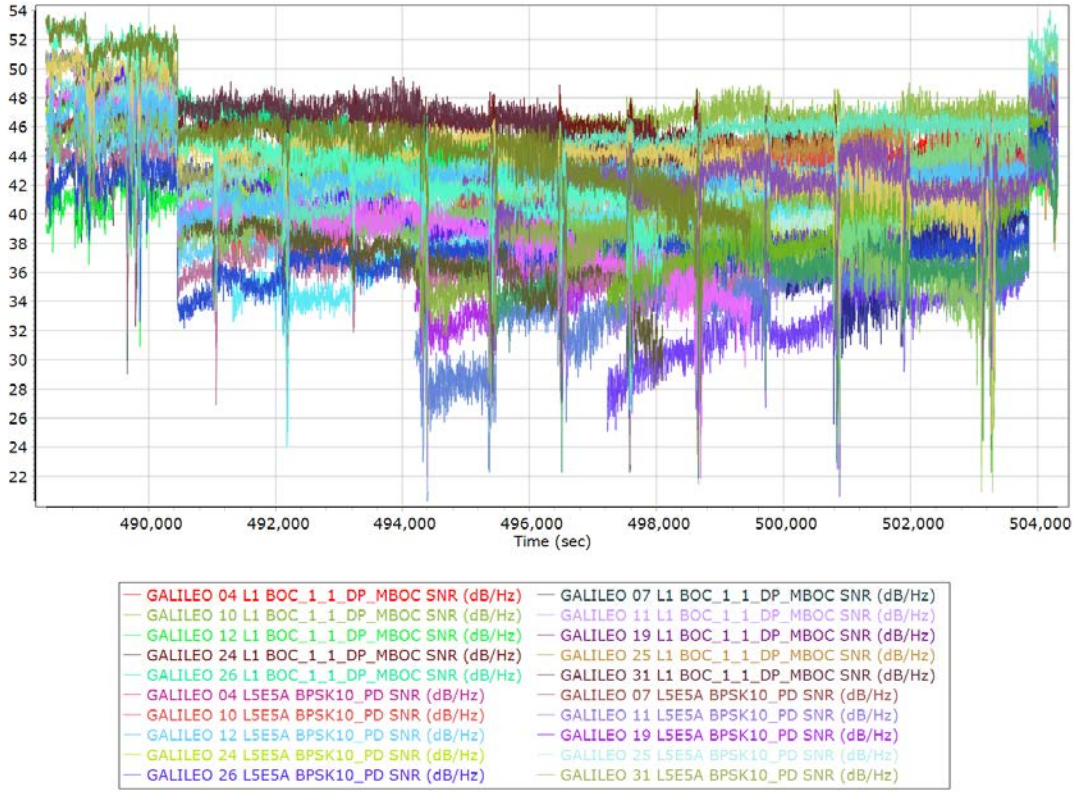
BEIDOU SNR



GALILEO Satellite Lock/Elevation

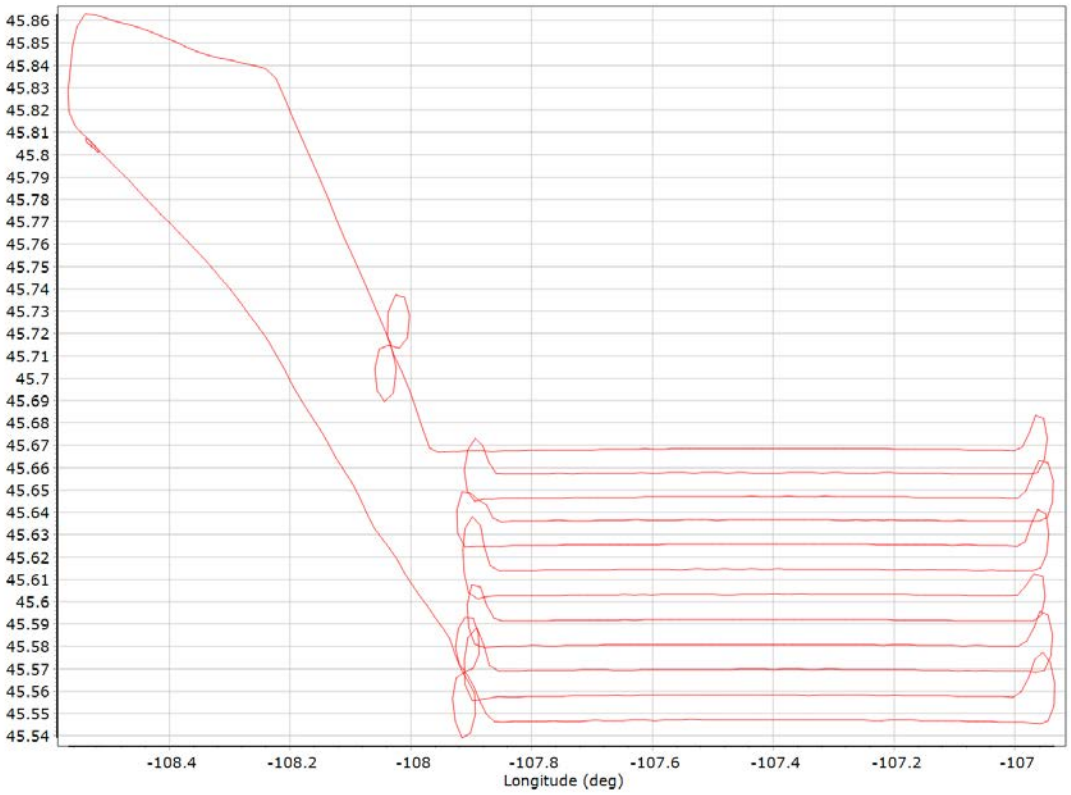


GALILEO SNR

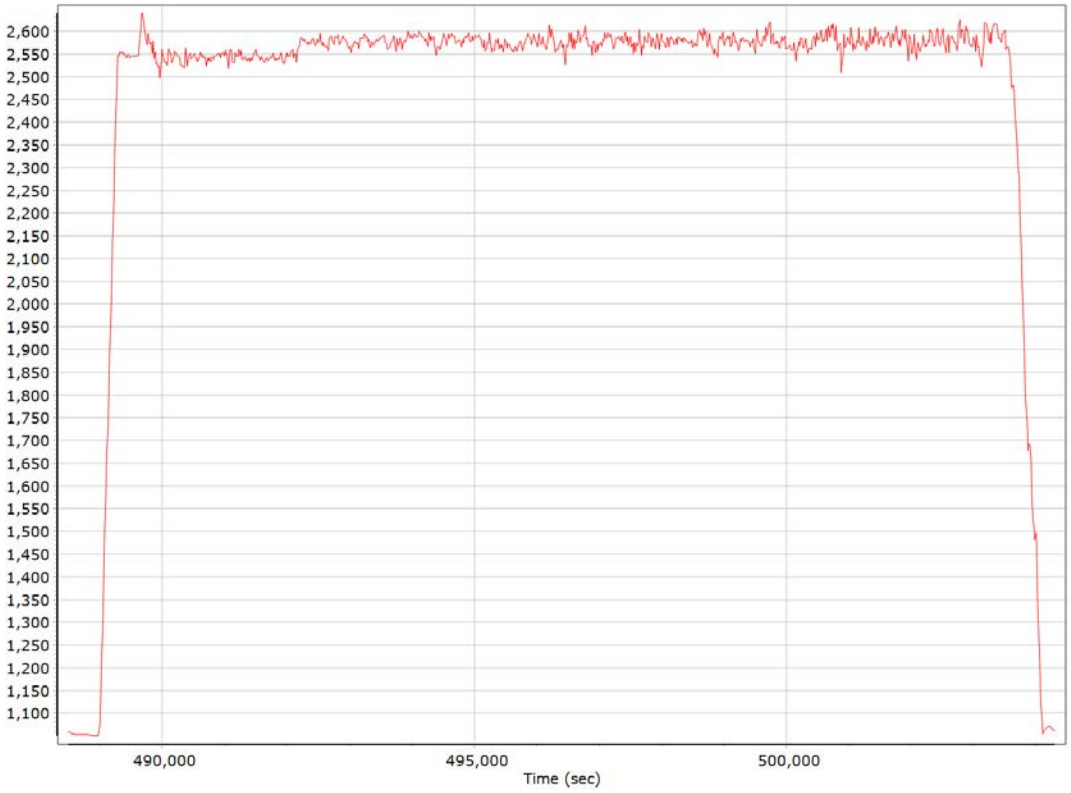

54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
490,000
492,000
494,000
496,000
498,000
500,000
502,000
504,000
Time (sec)
GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 07 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 10 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 26 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 07 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 19 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 24 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 25 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 26 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 31 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

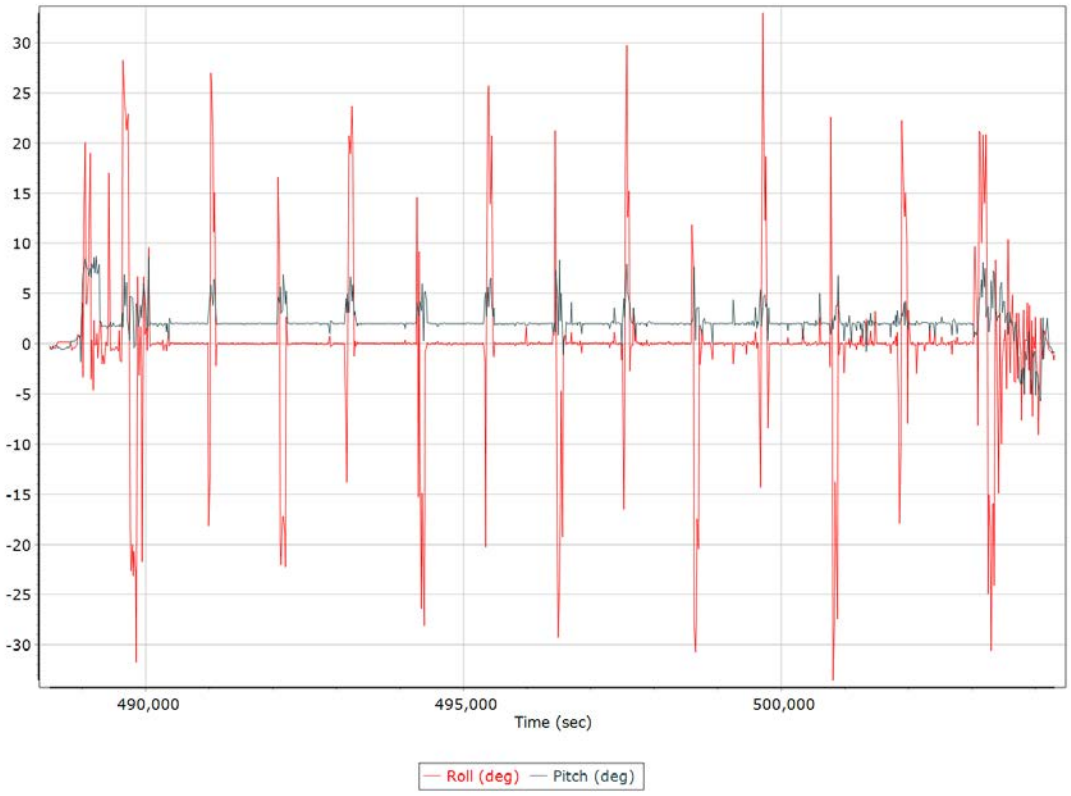
Top View



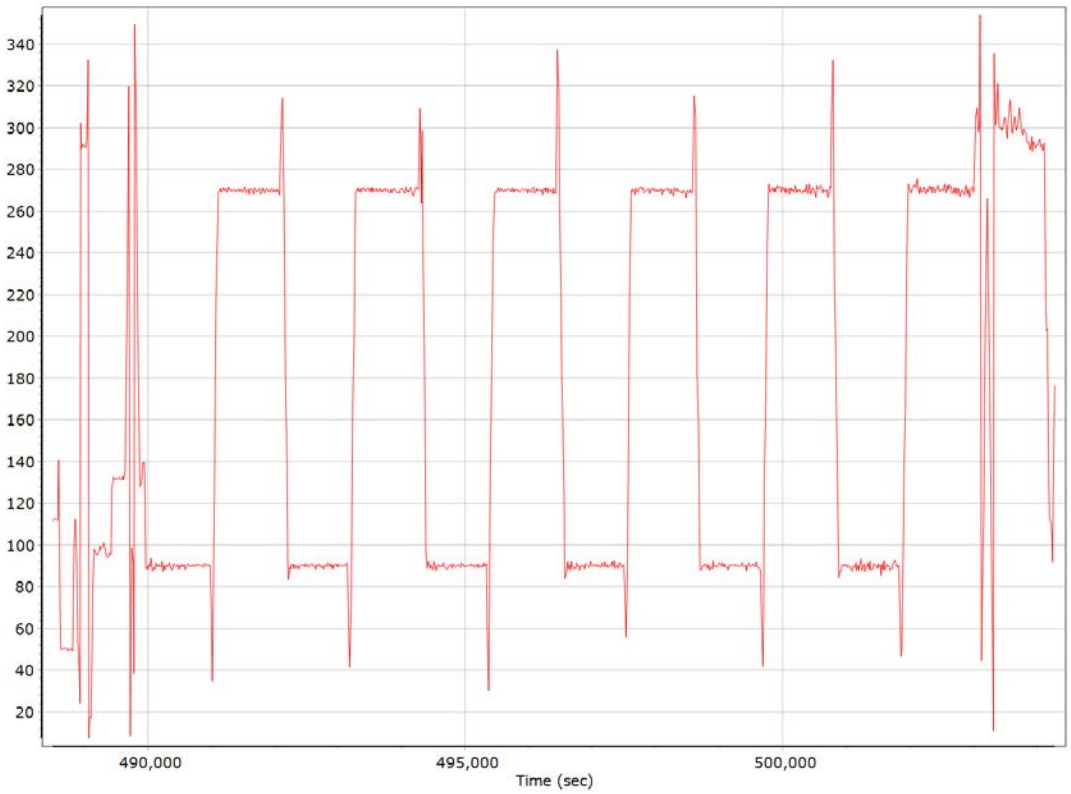
Altitude



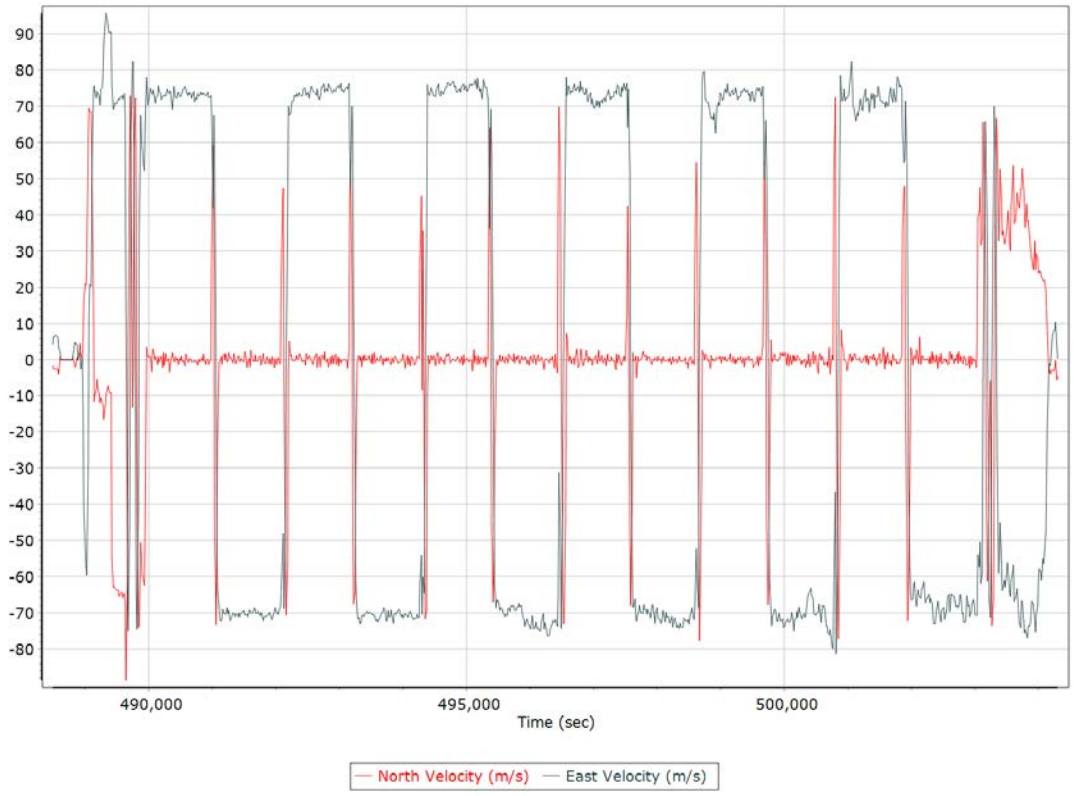
Roll/Pitch



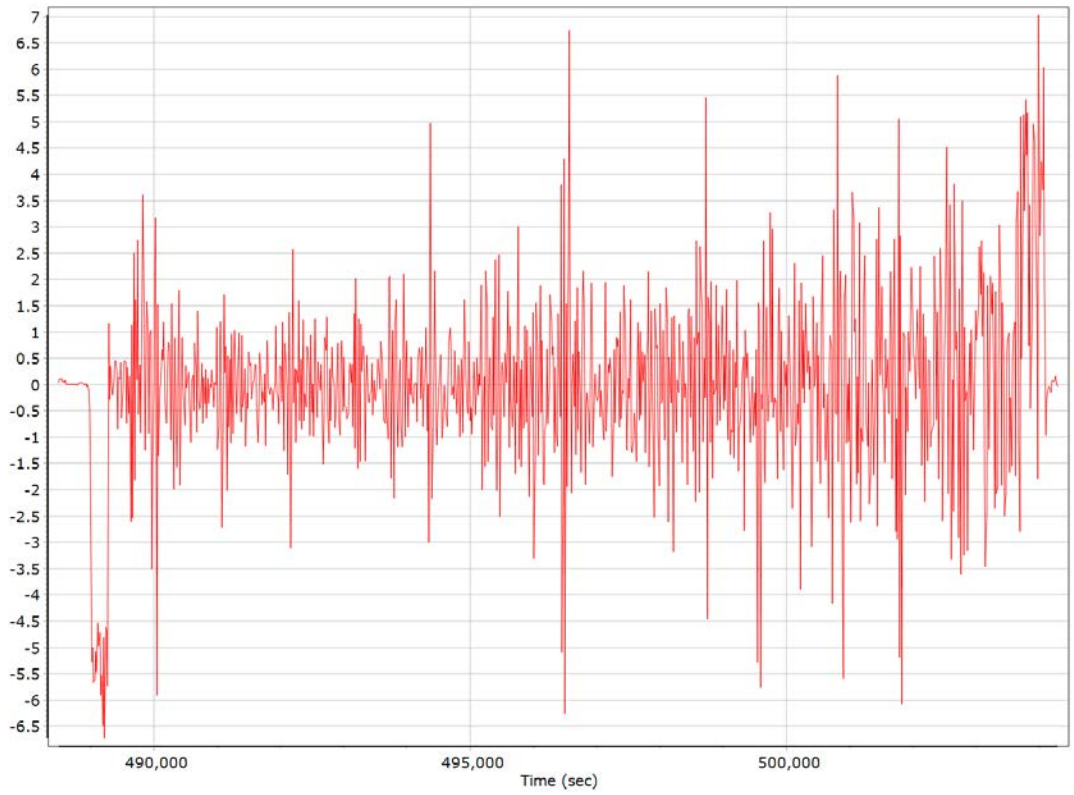
Heading



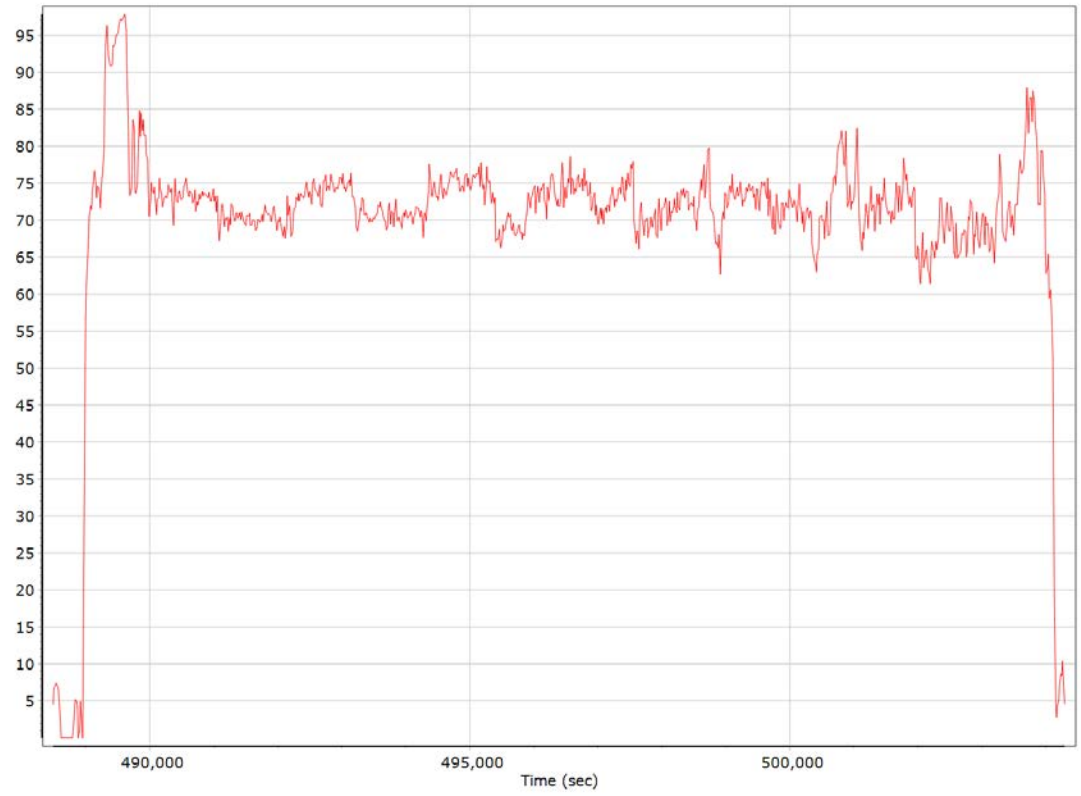
North/East Velocity



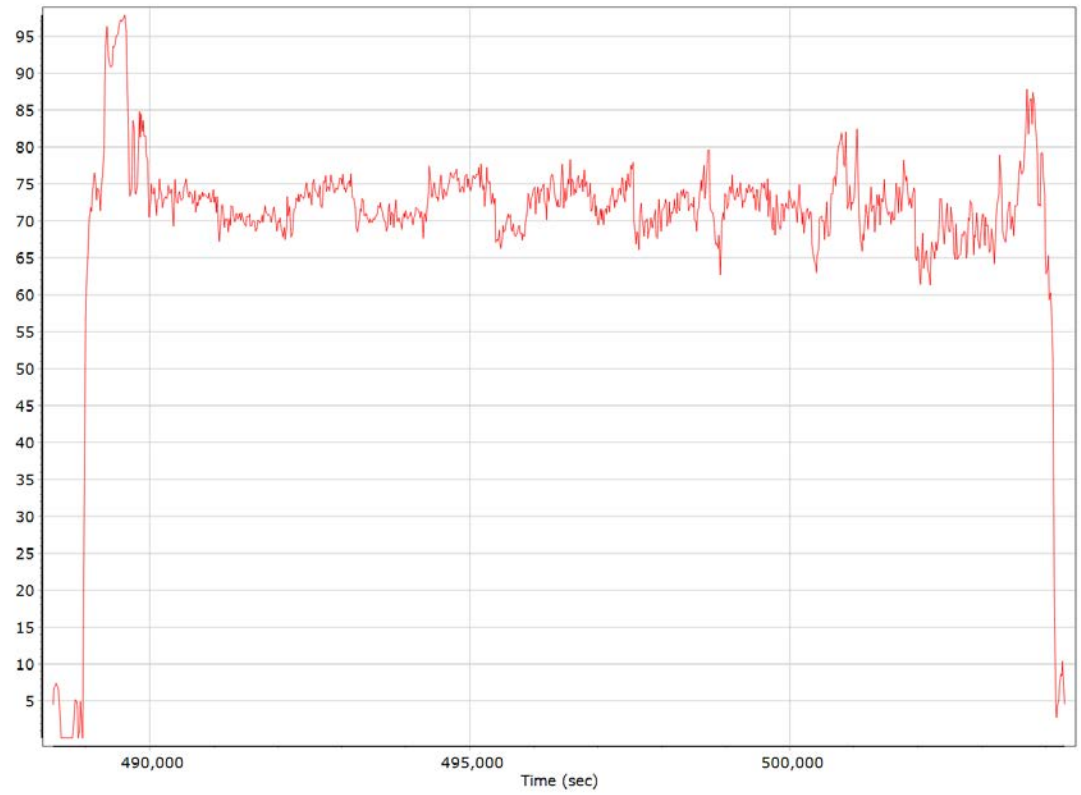
Down Velocity



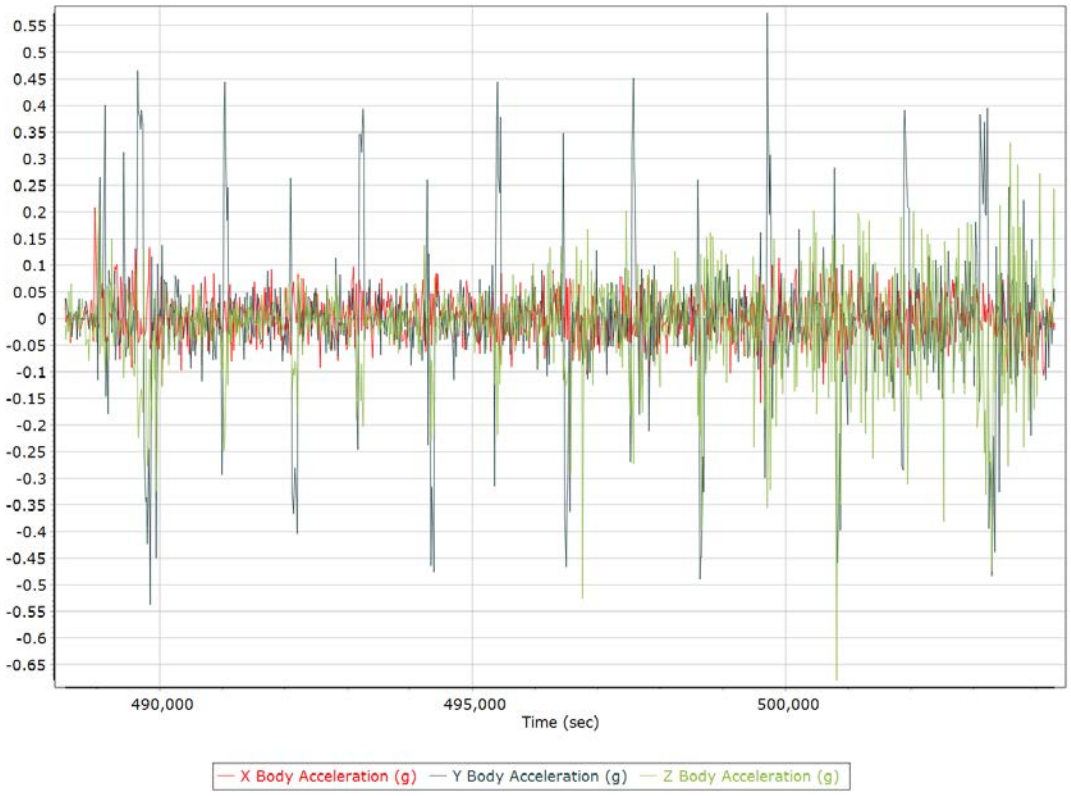
Total Speed



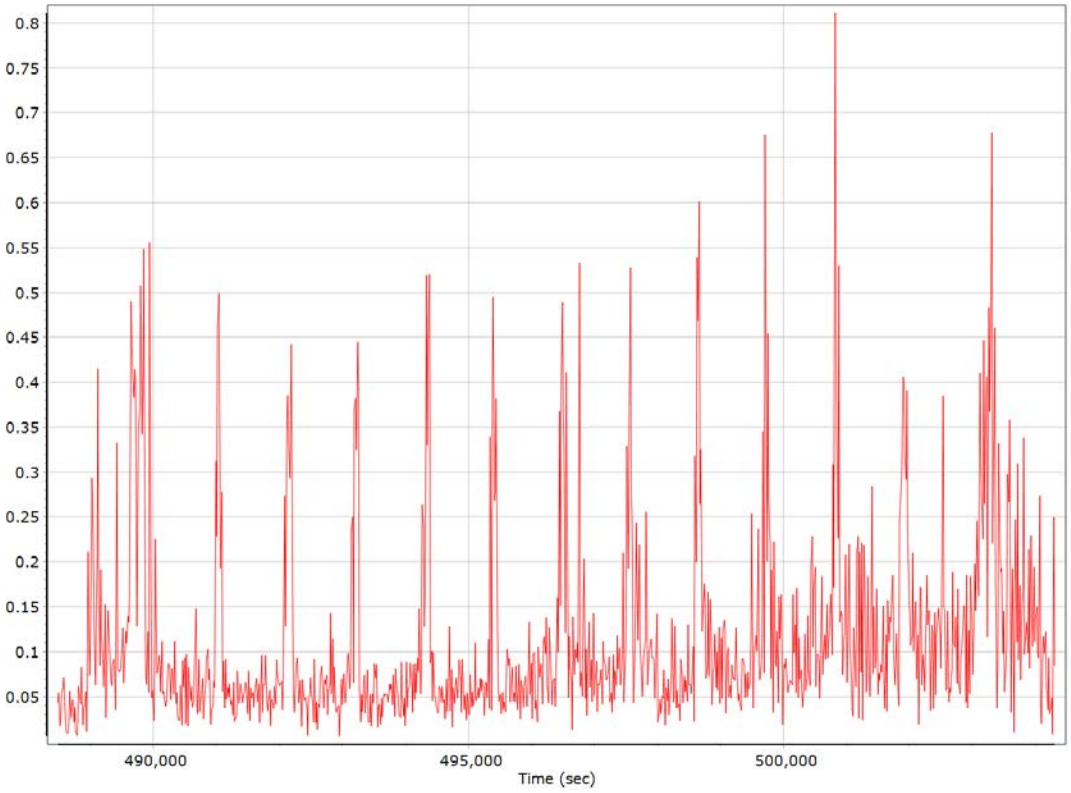
Ground Speed



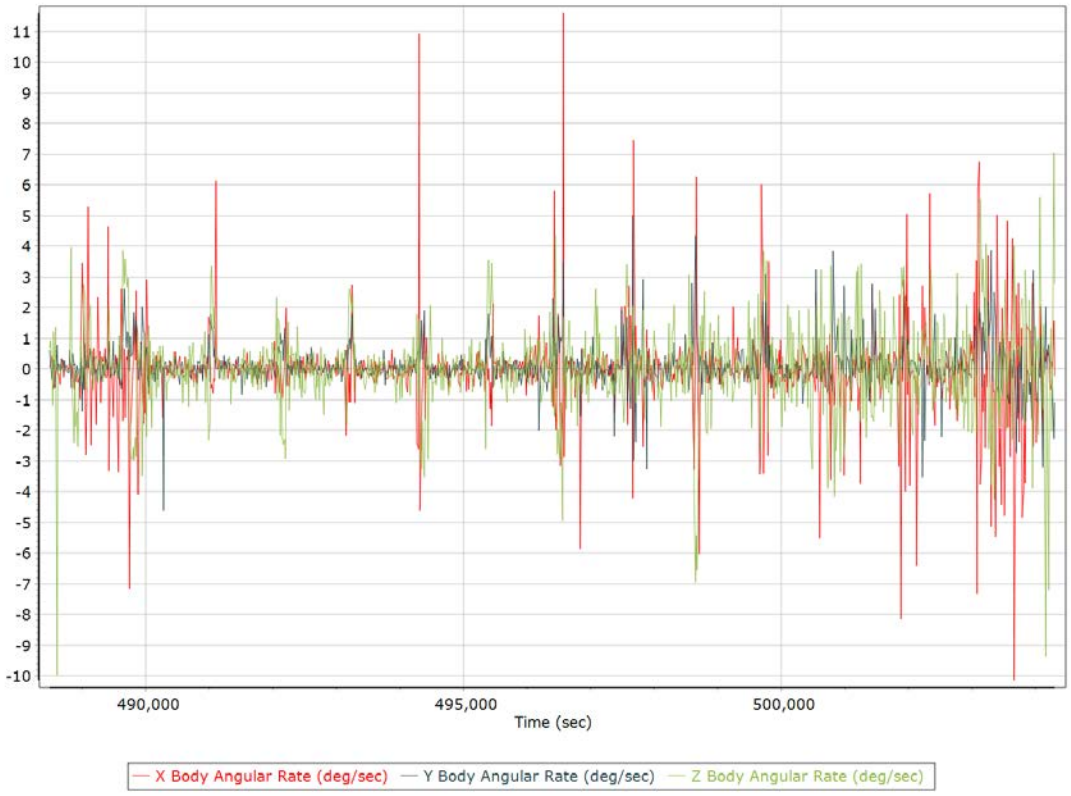
Body Acceleration



Total Body Acceleration

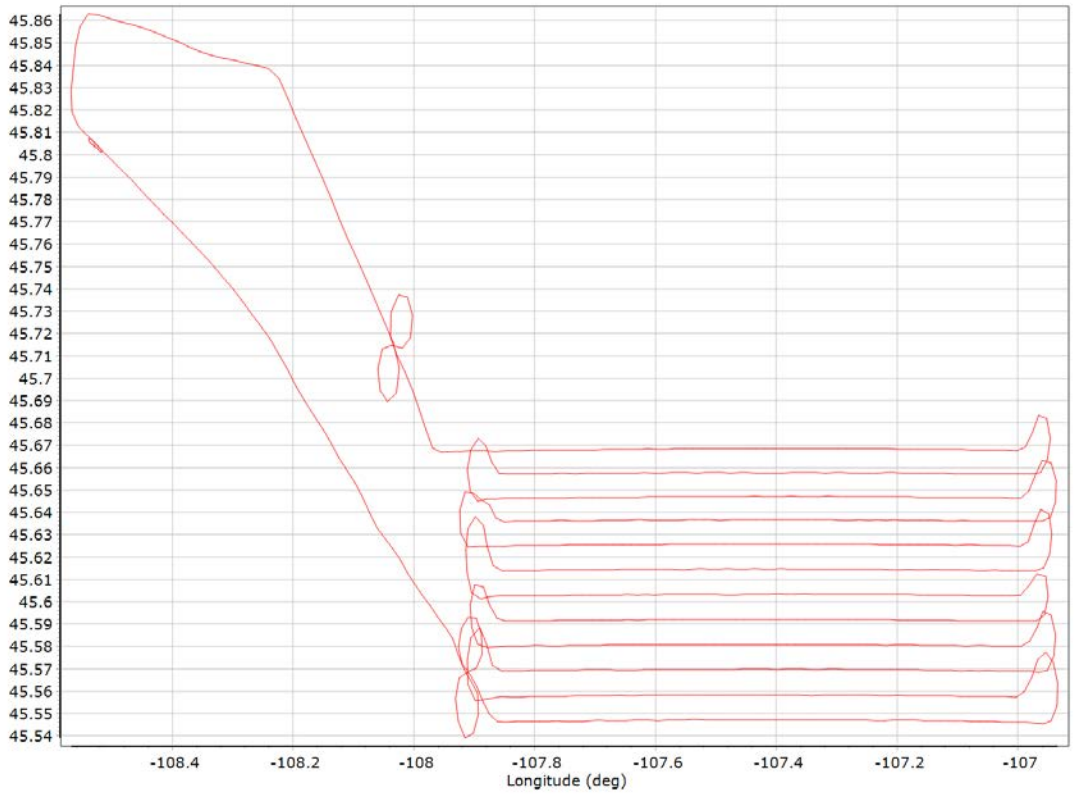


Body Angular Rate

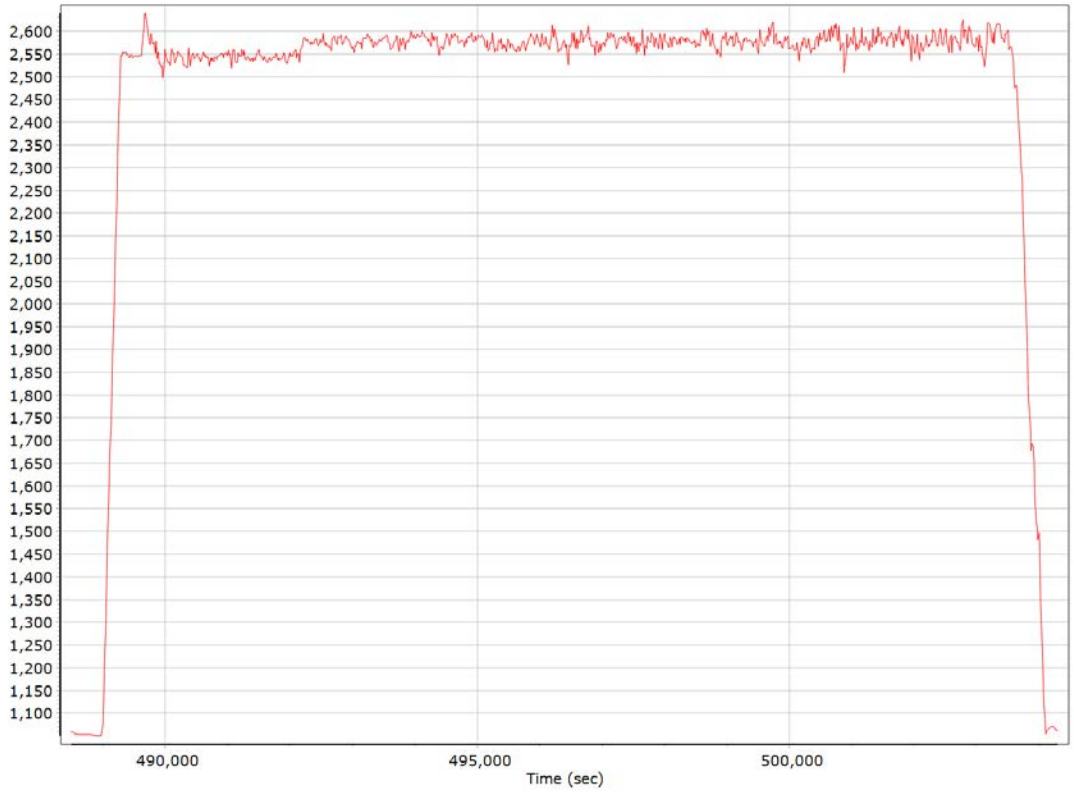


Forward Processed Trajectory Information

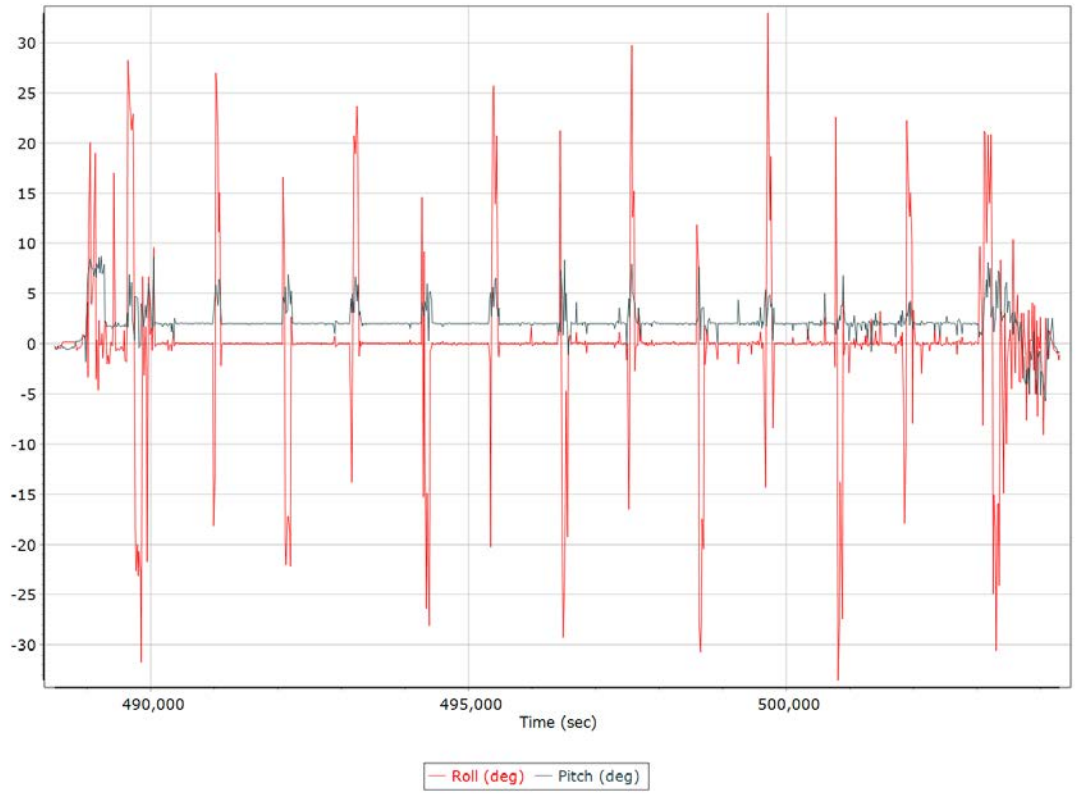
Top View



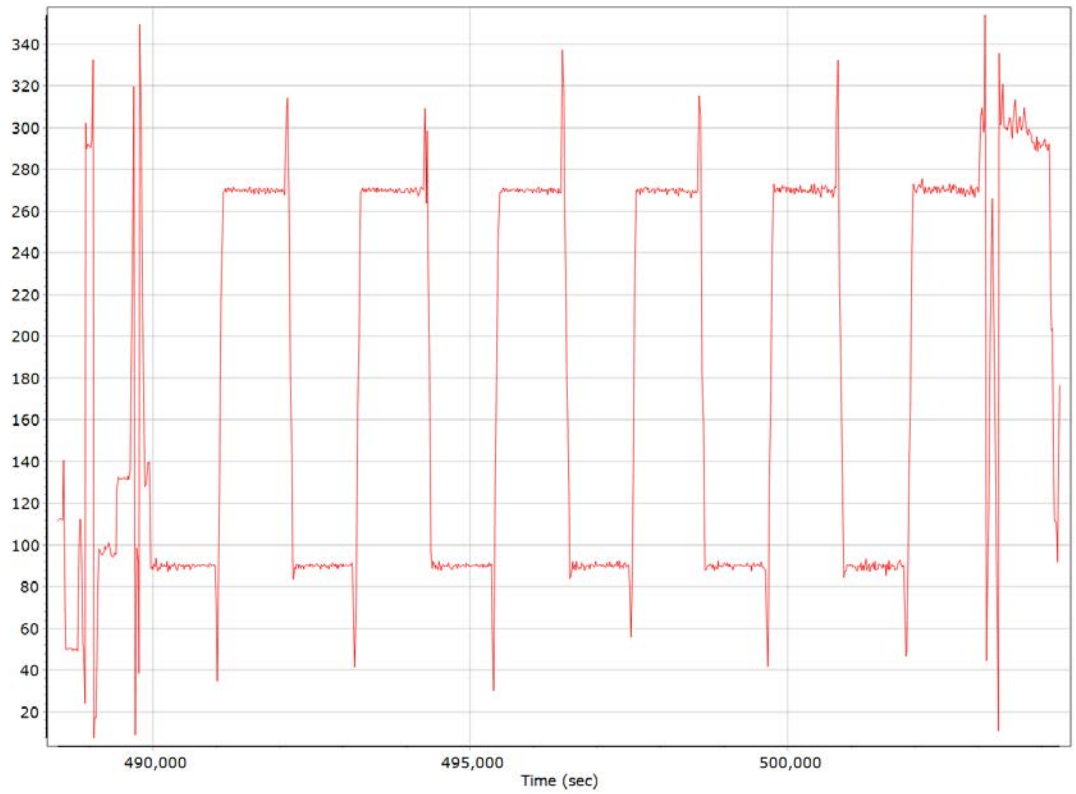
Altitude



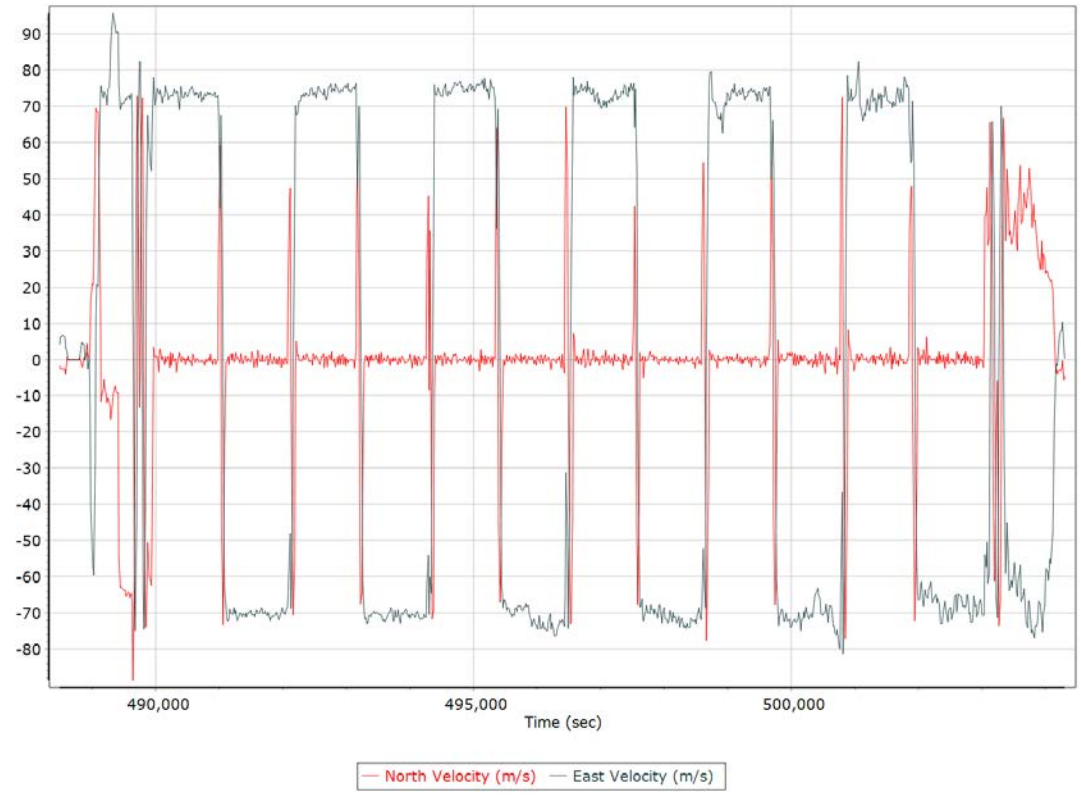
Roll/Pitch



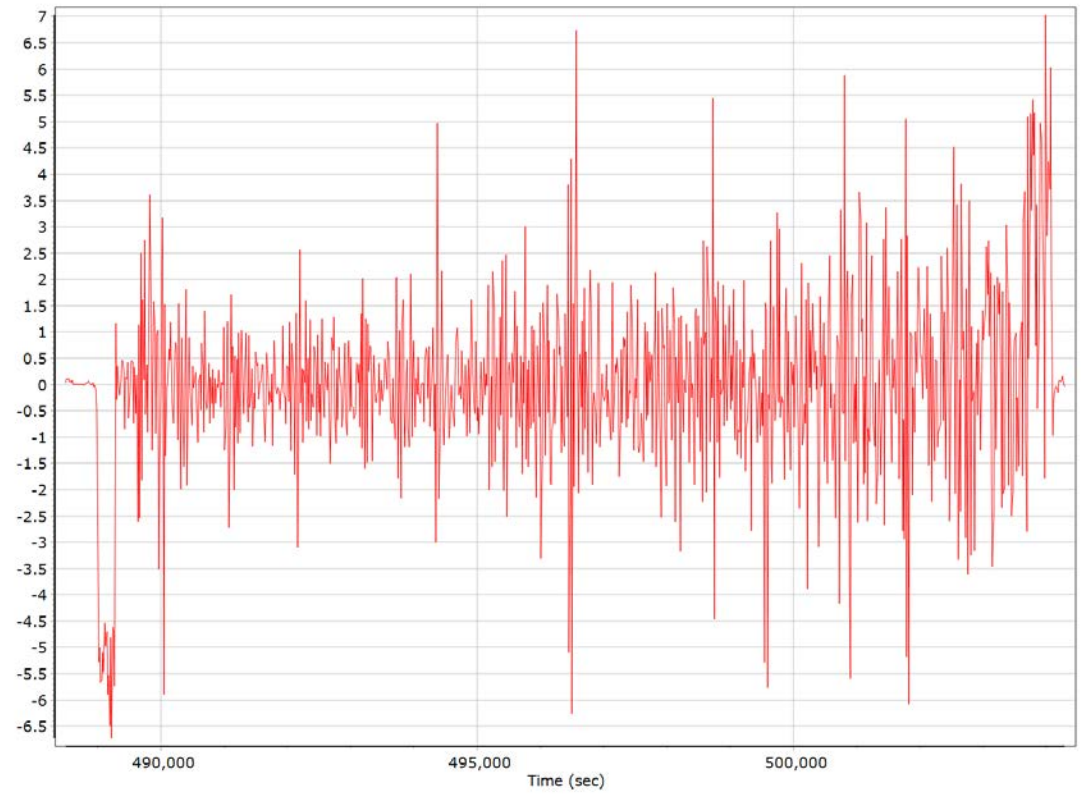
Heading



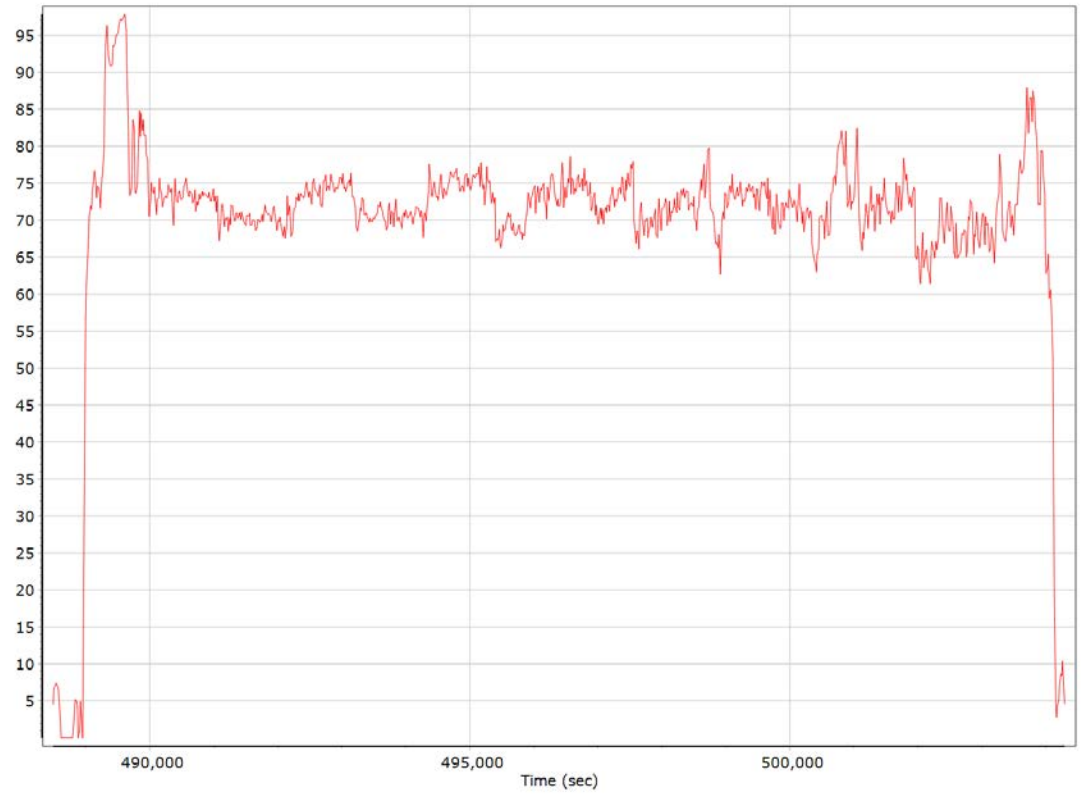
North/East Velocity



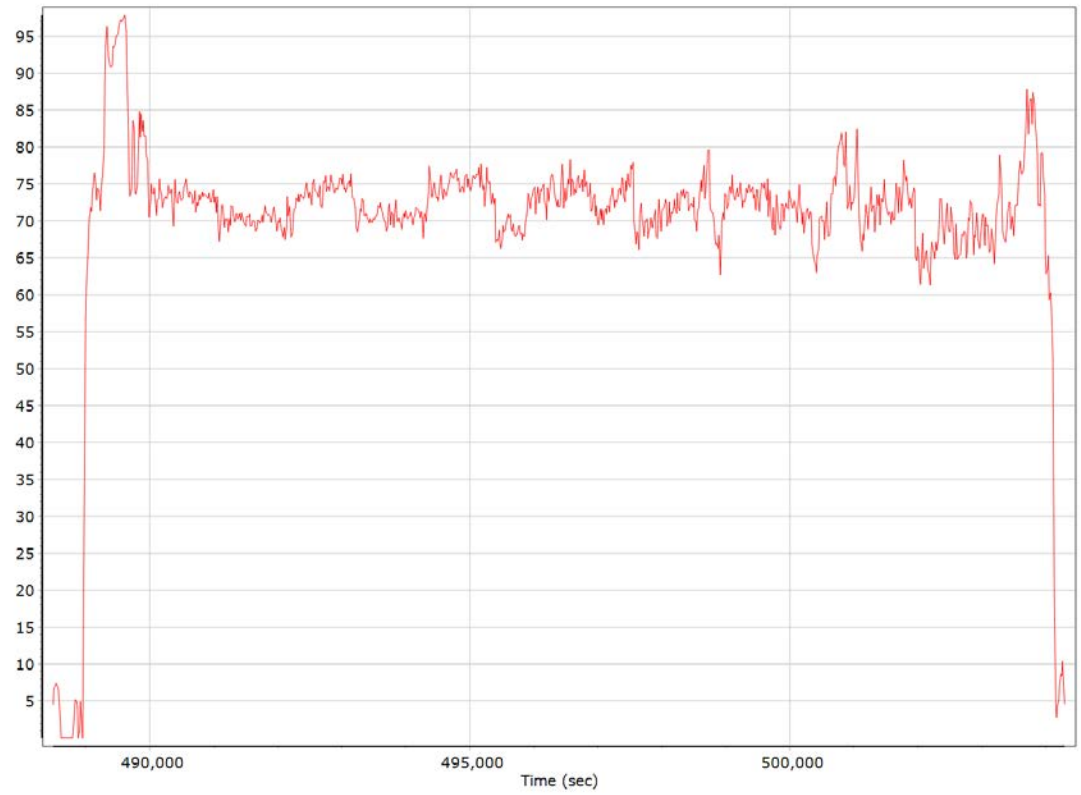
Down Velocity



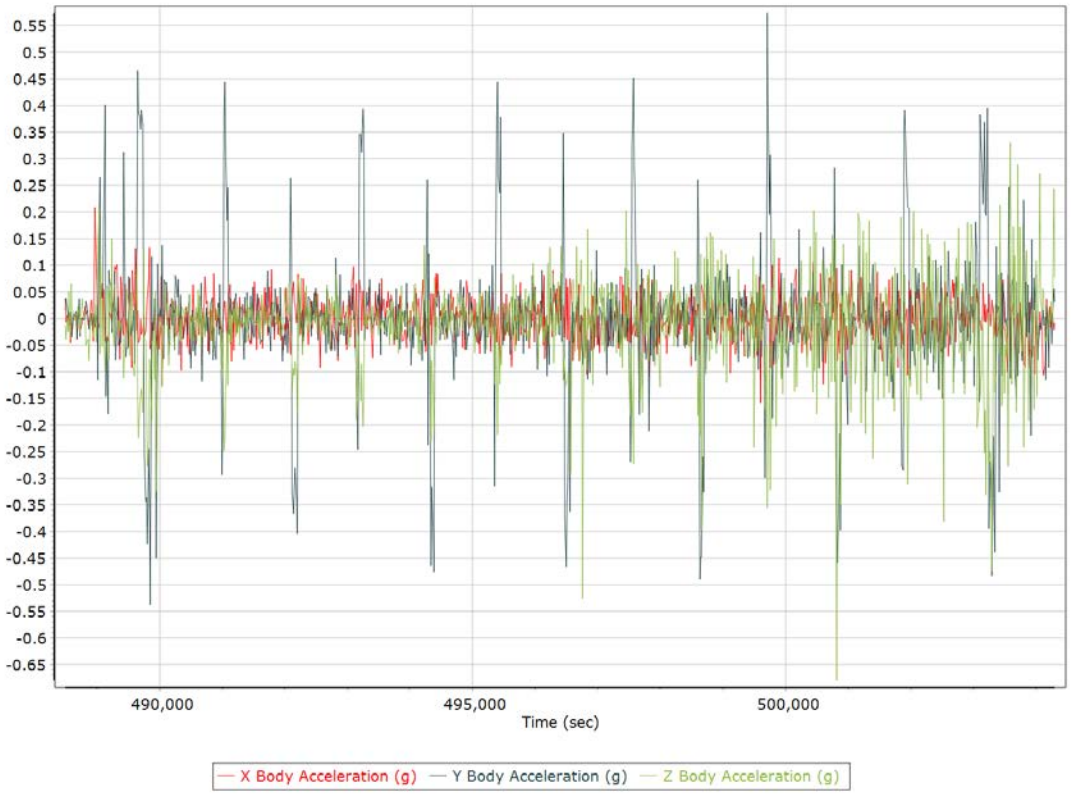
Total Speed



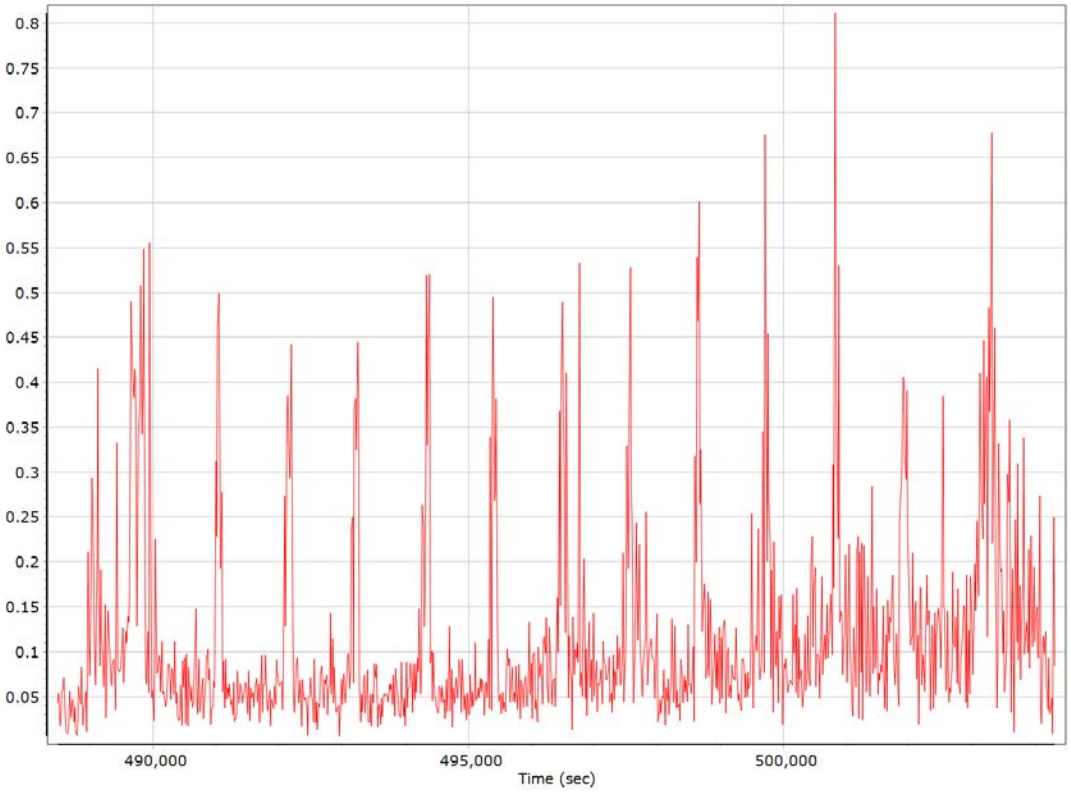
Ground Speed



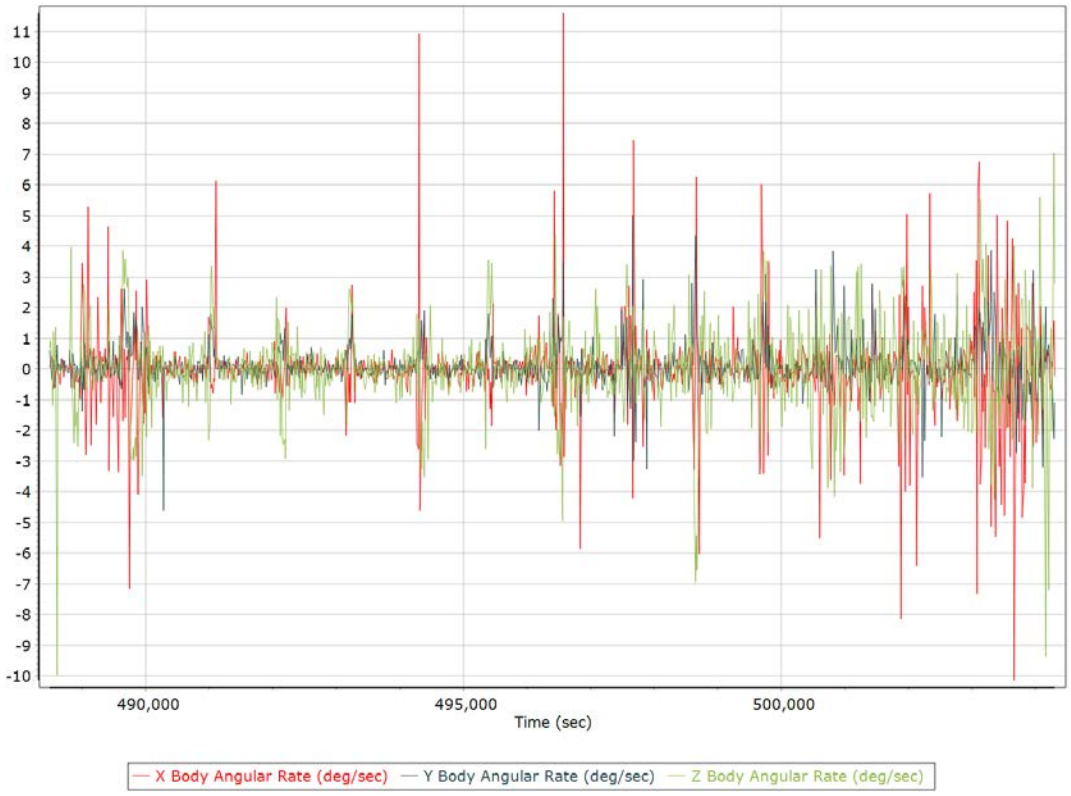
Body Acceleration



Total Body Acceleration



Body Angular Rate



GNSS QC

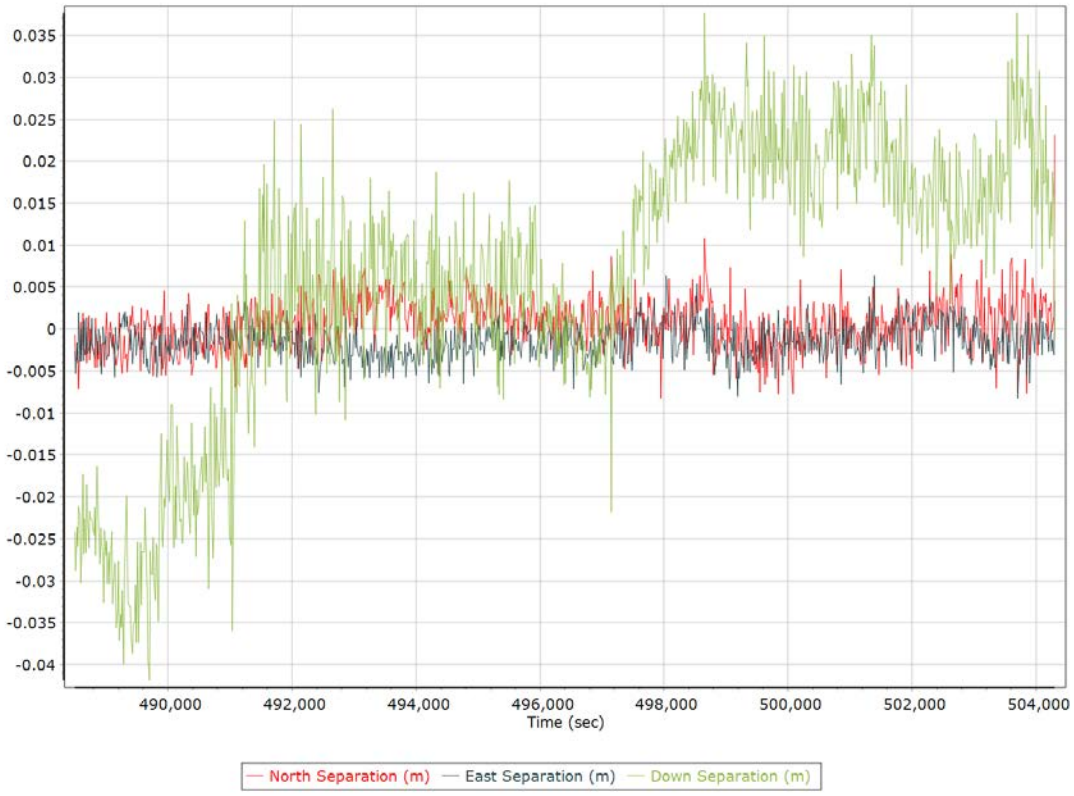
GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	11	9
Number of GLONASS SV	3	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	4	8	6
Total number of SV	16	25	21
PDOP	0.98	1.91	1.25
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	15923.00	0.00	0.00
Percentage	100.00	0.00	0.00

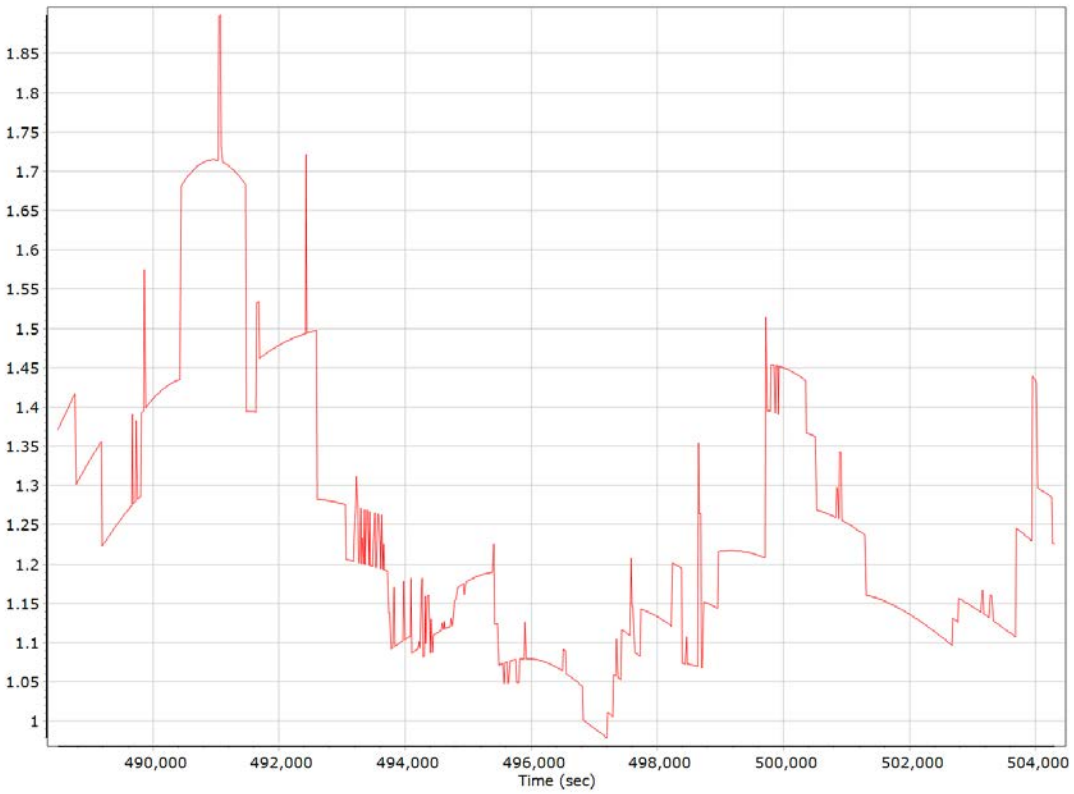
Num SVs in solution



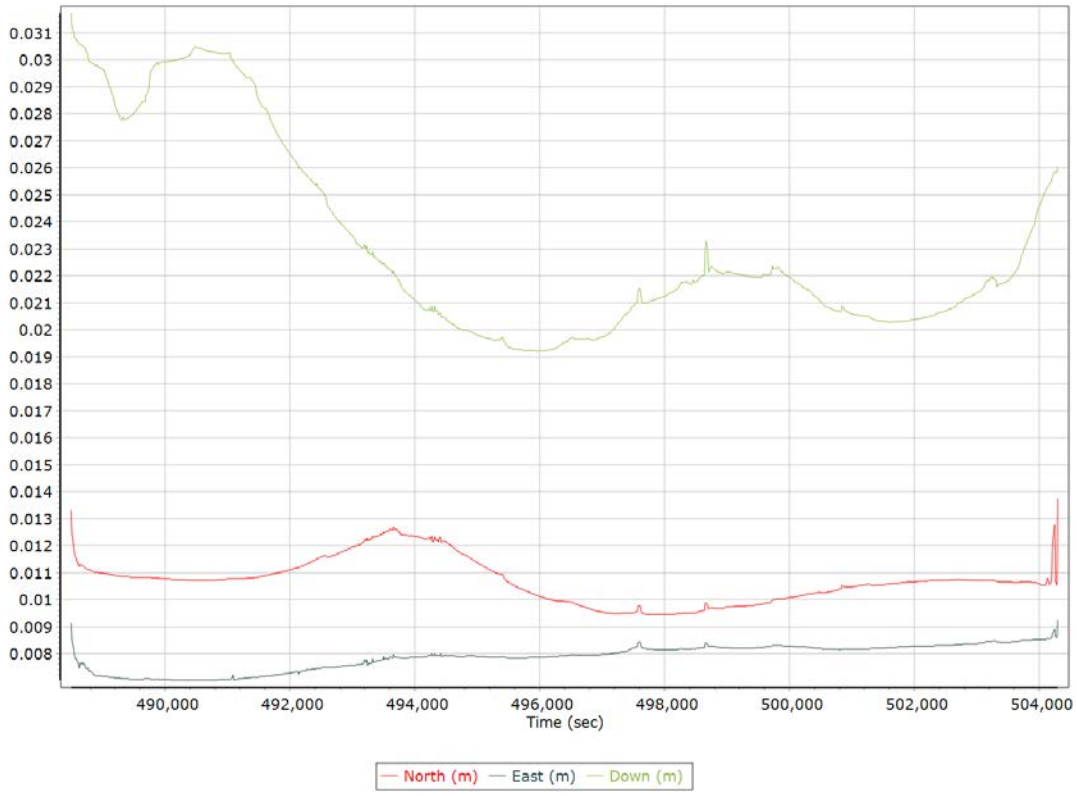
Forward/Reverse Separation



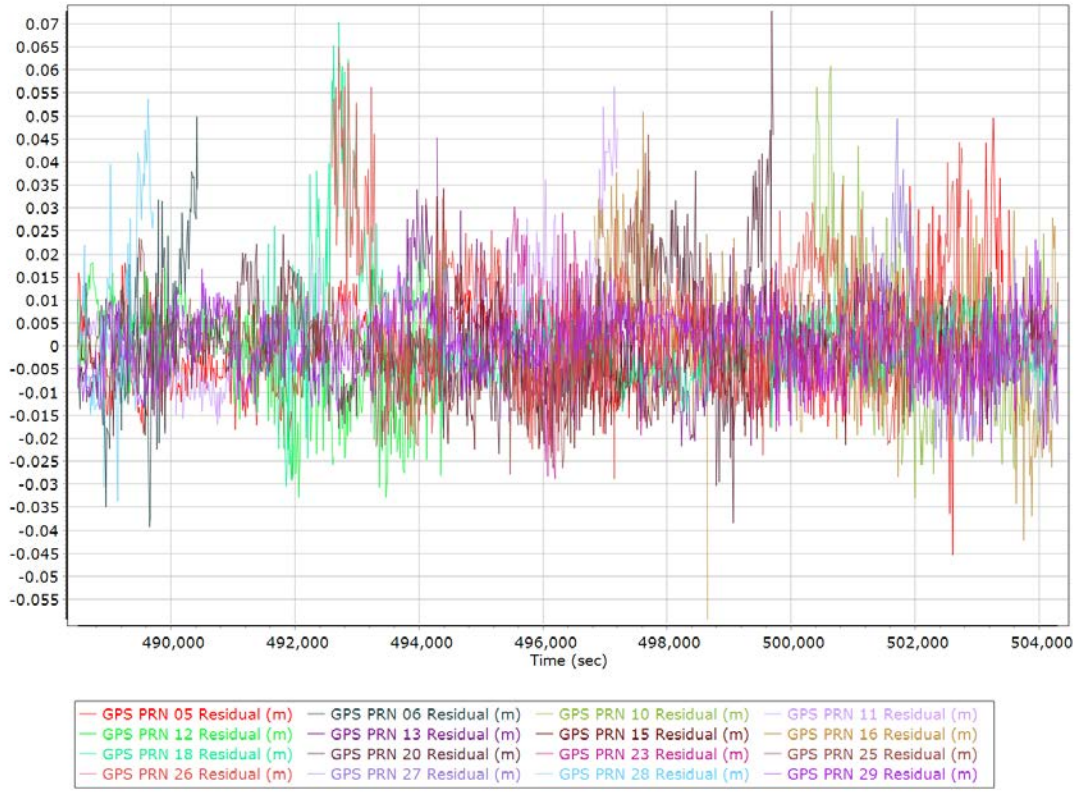
PDOP



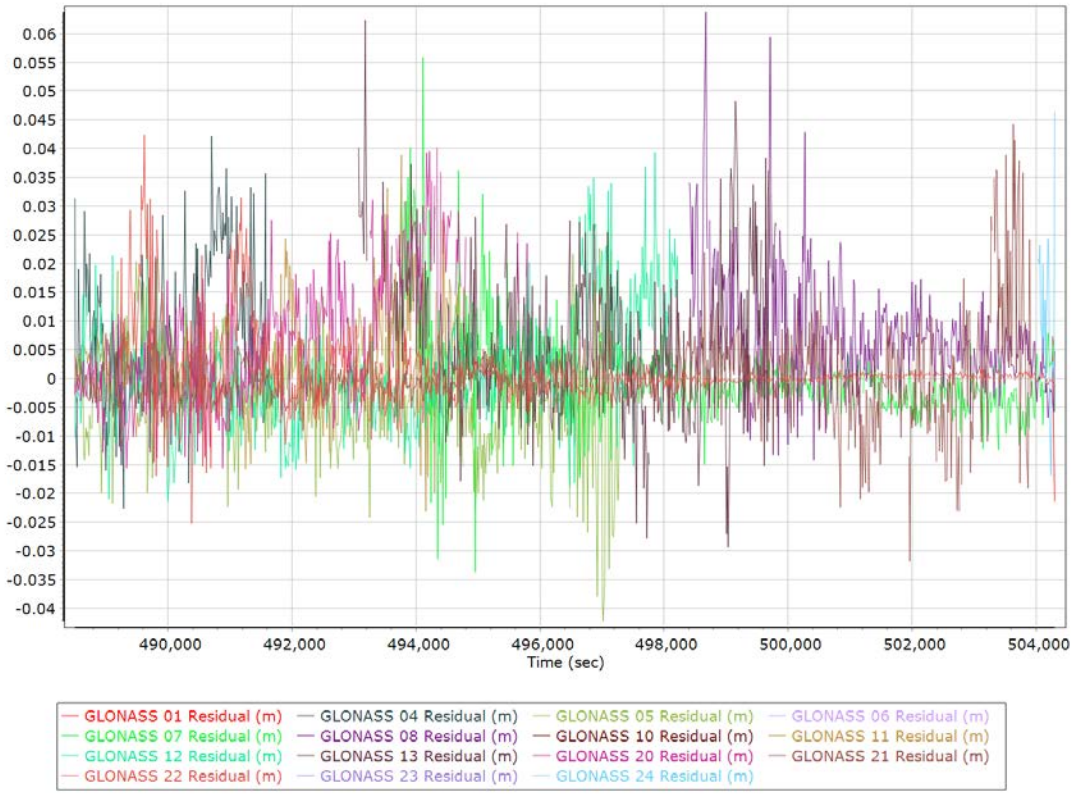
Estimated Position Accuracy



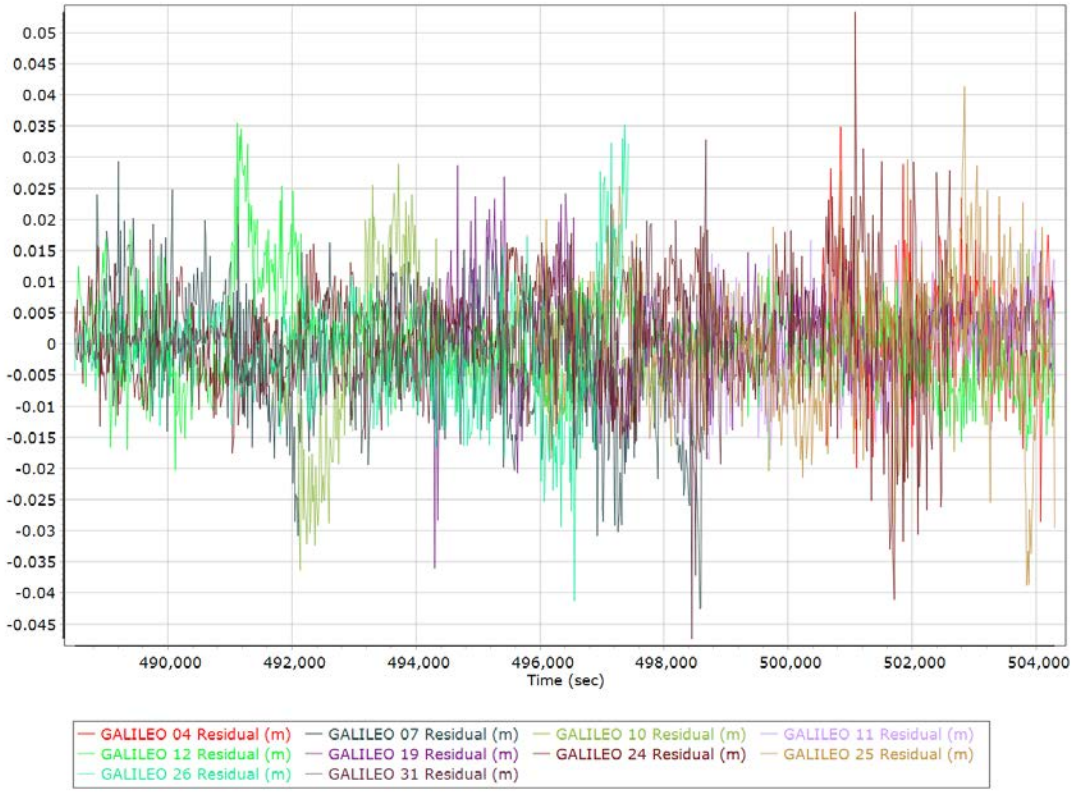
GPS Residuals



GLONASS Residuals



GALILEO Residuals



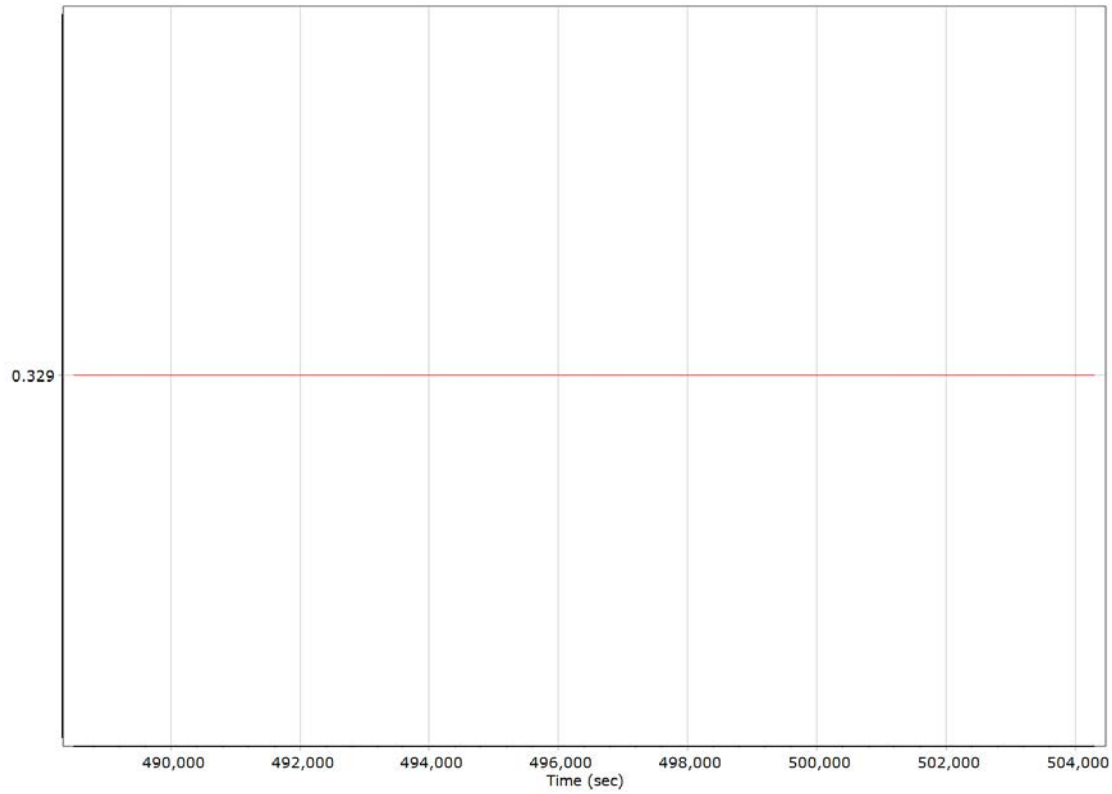
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	488366.000 (7/21/2023 3:39:26 PM)		
Processing end time	504303.000 (7/21/2023 8:05:03 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

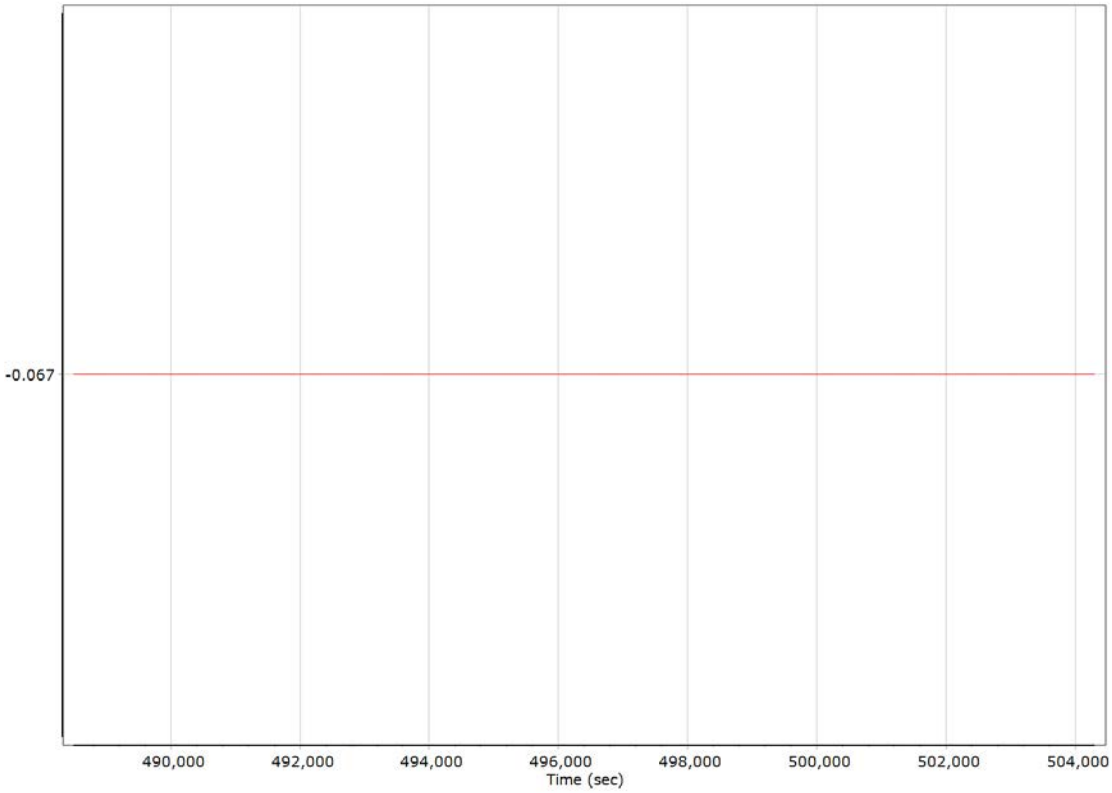
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

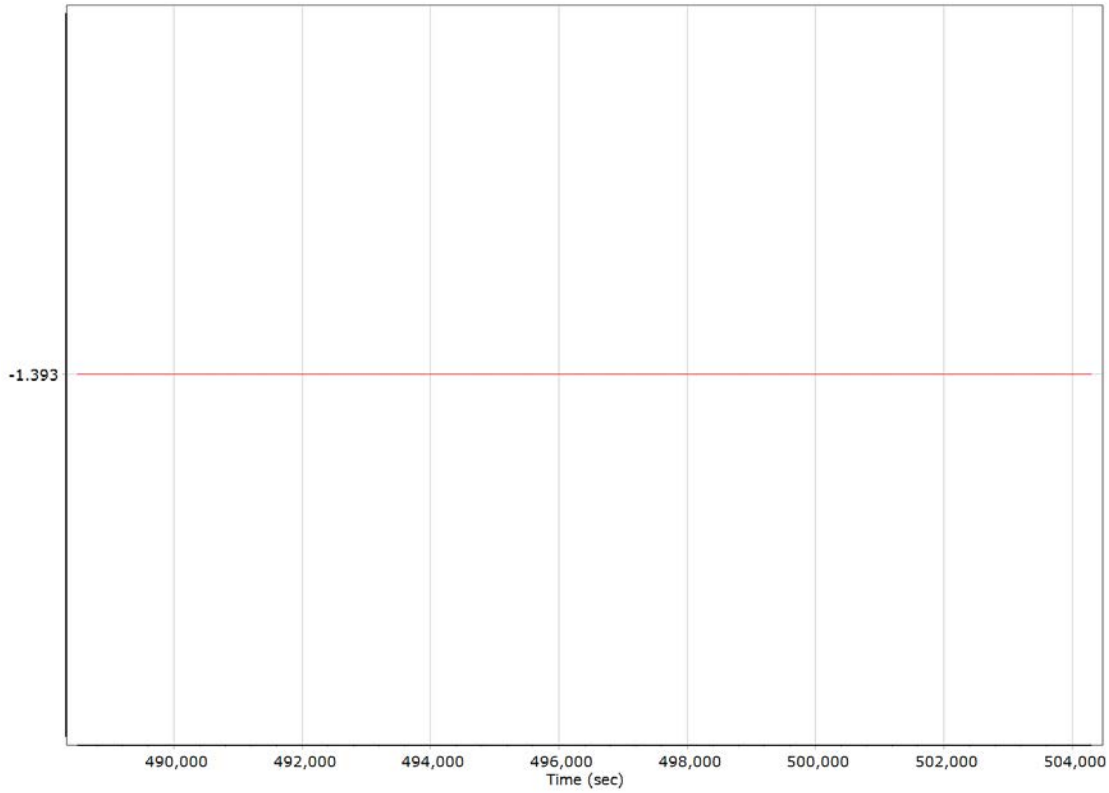
X Reference-Primary GNSS Lever Arm (m)



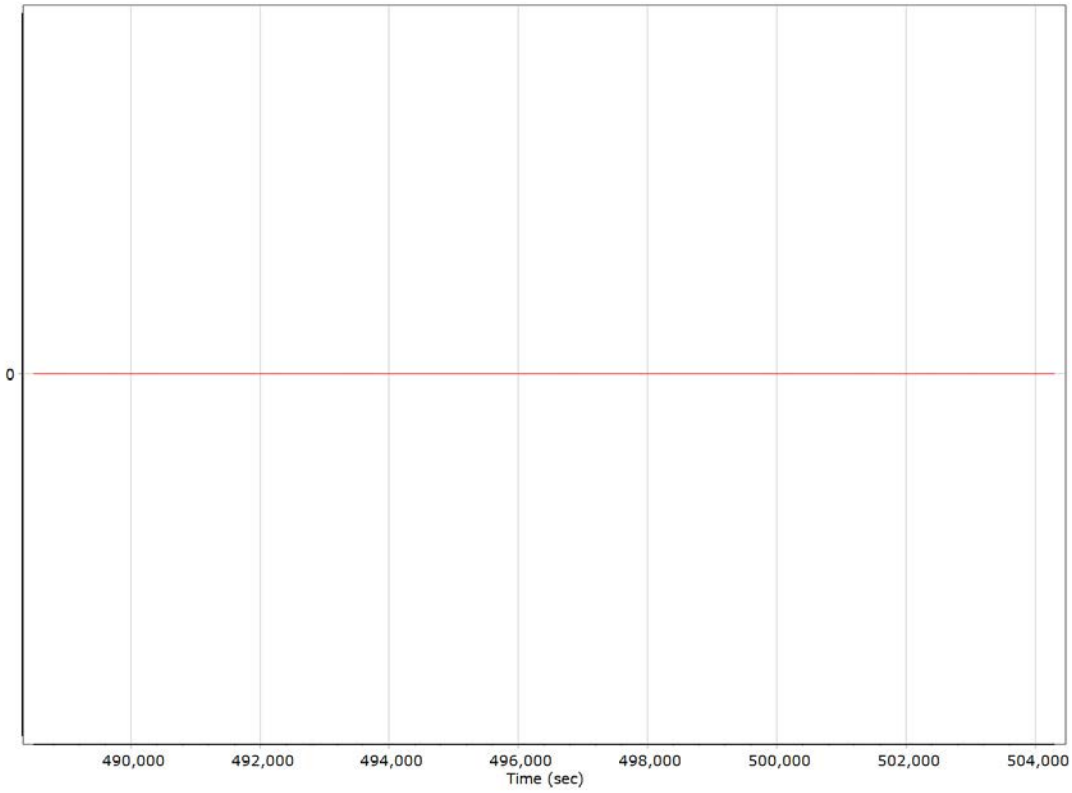
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



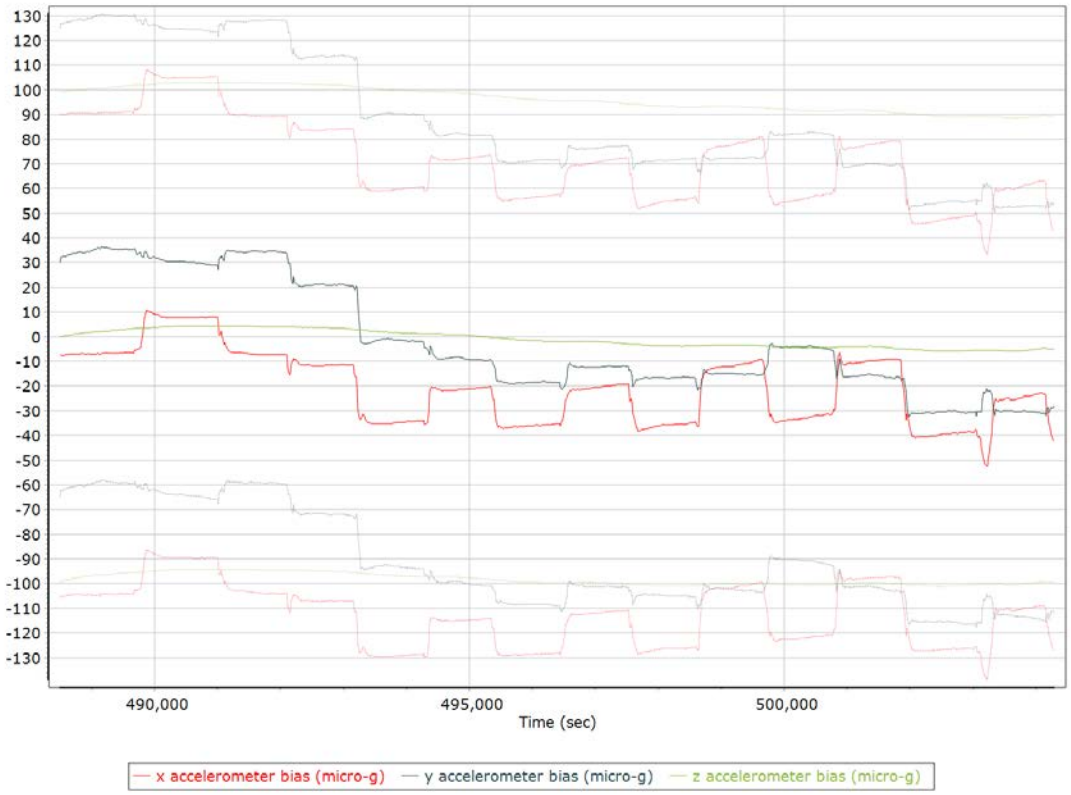
Reference-Primary GNSS Lever Arm Figure of Merit



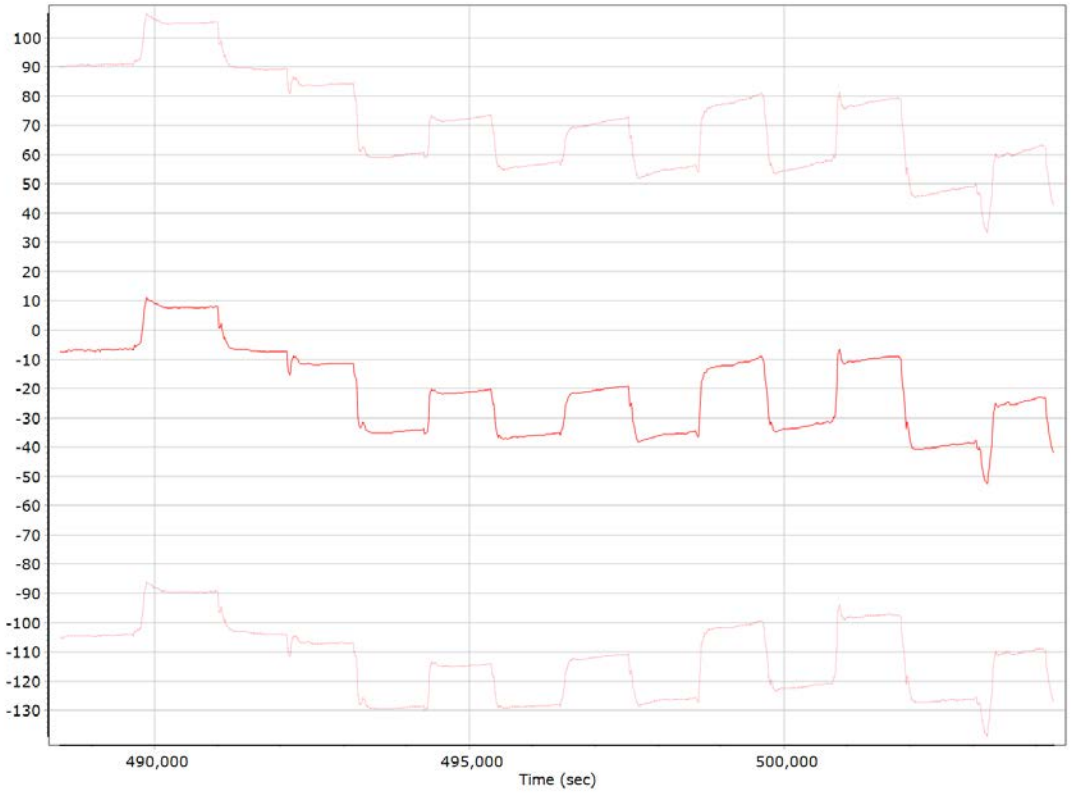
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

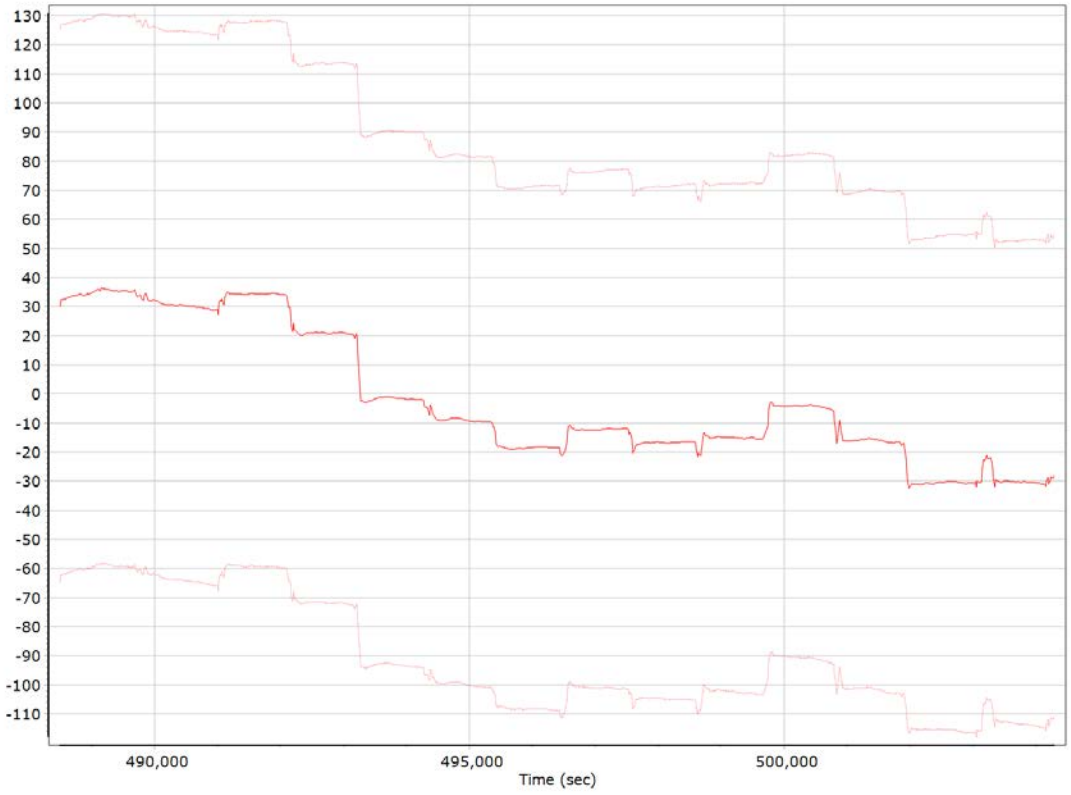
Accelerometer Bias (micro-g)



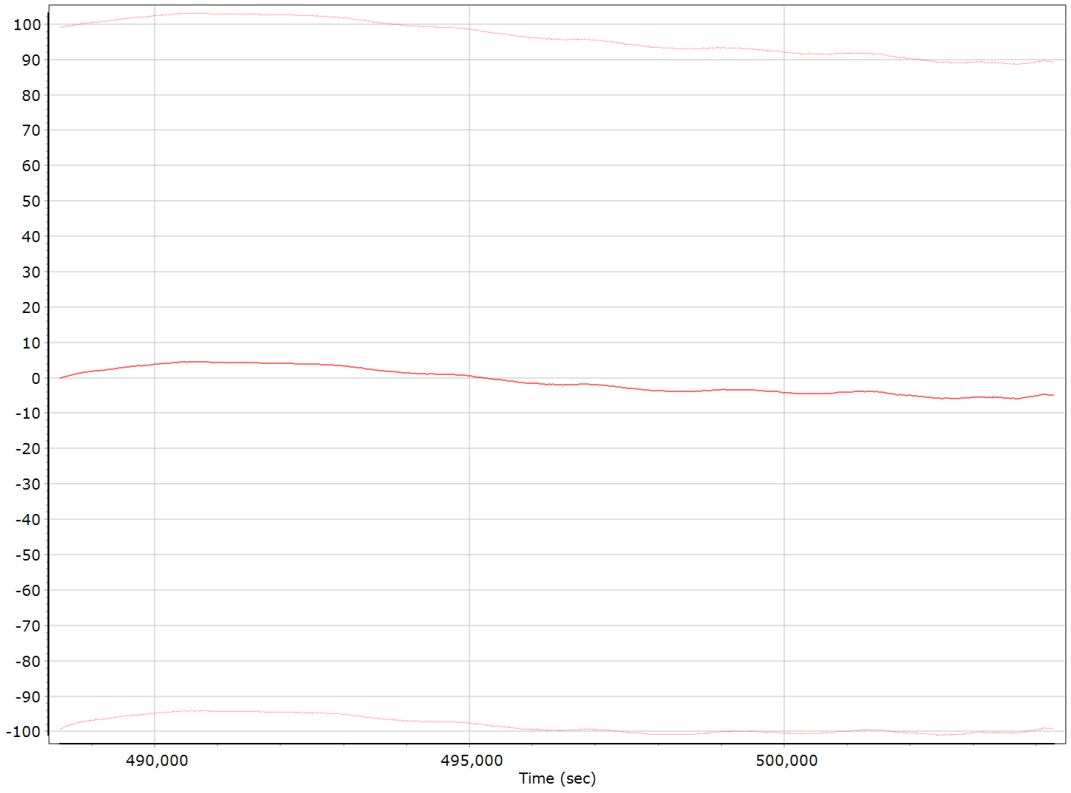
X Accelerometer Bias (micro-g)



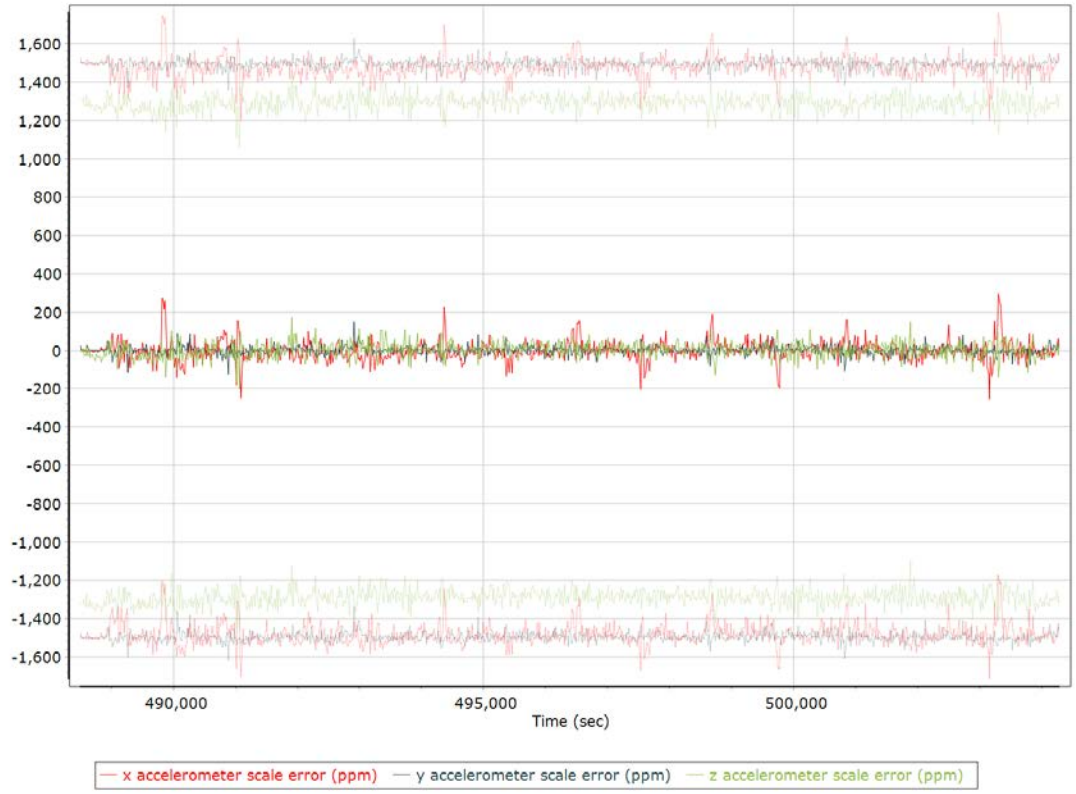
Y Accelerometer Bias (micro-g)



Z Accelerometer Bias (micro-g)



Accelerometer Scale Error (ppm)



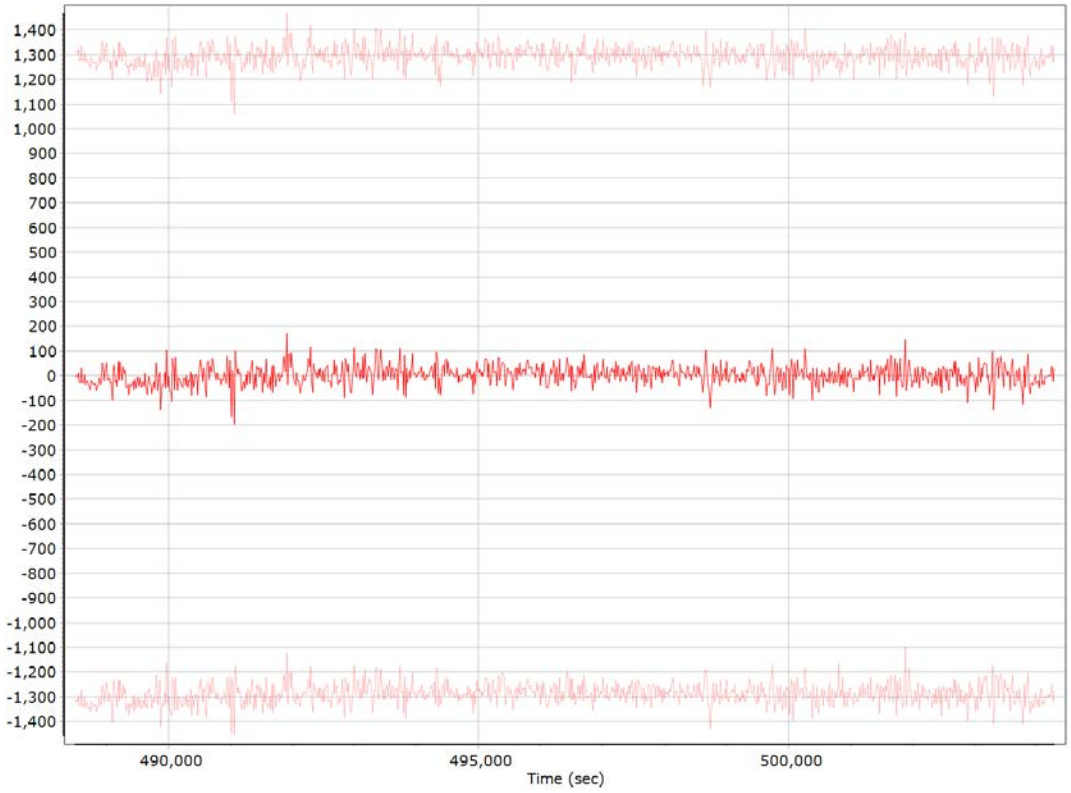
X Accelerometer Scale Error (ppm)



Y Accelerometer Scale Error (ppm)



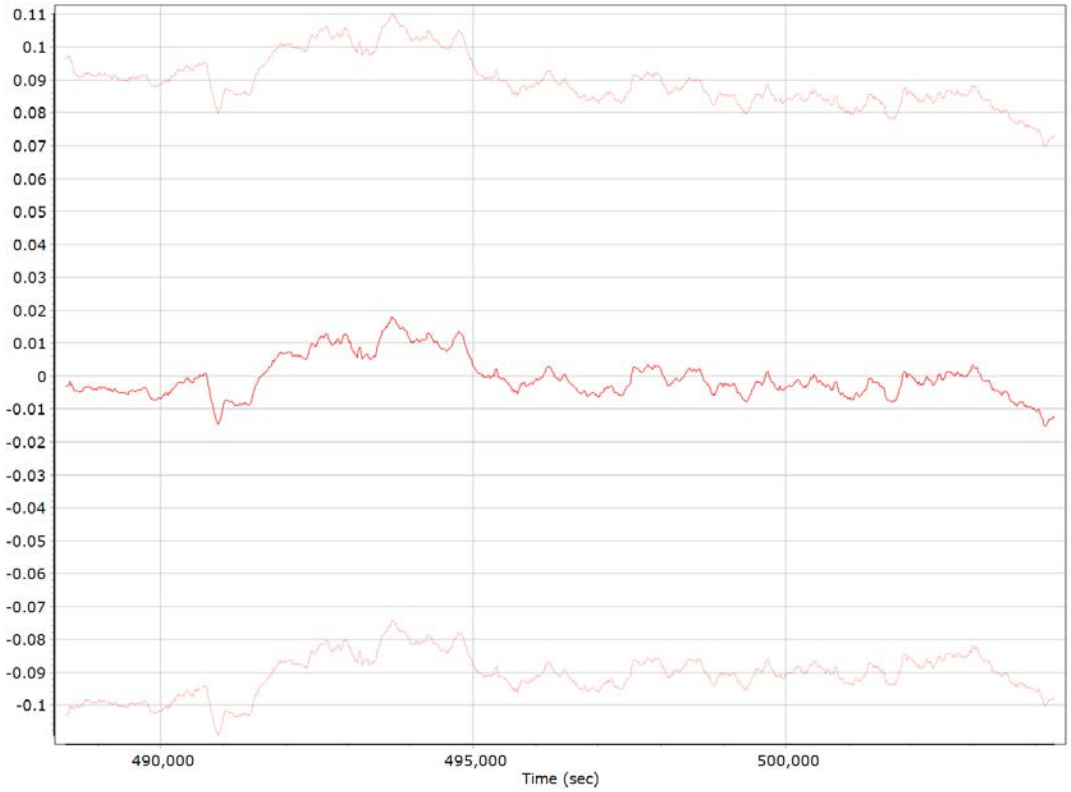
Z Accelerometer Scale Error (ppm)



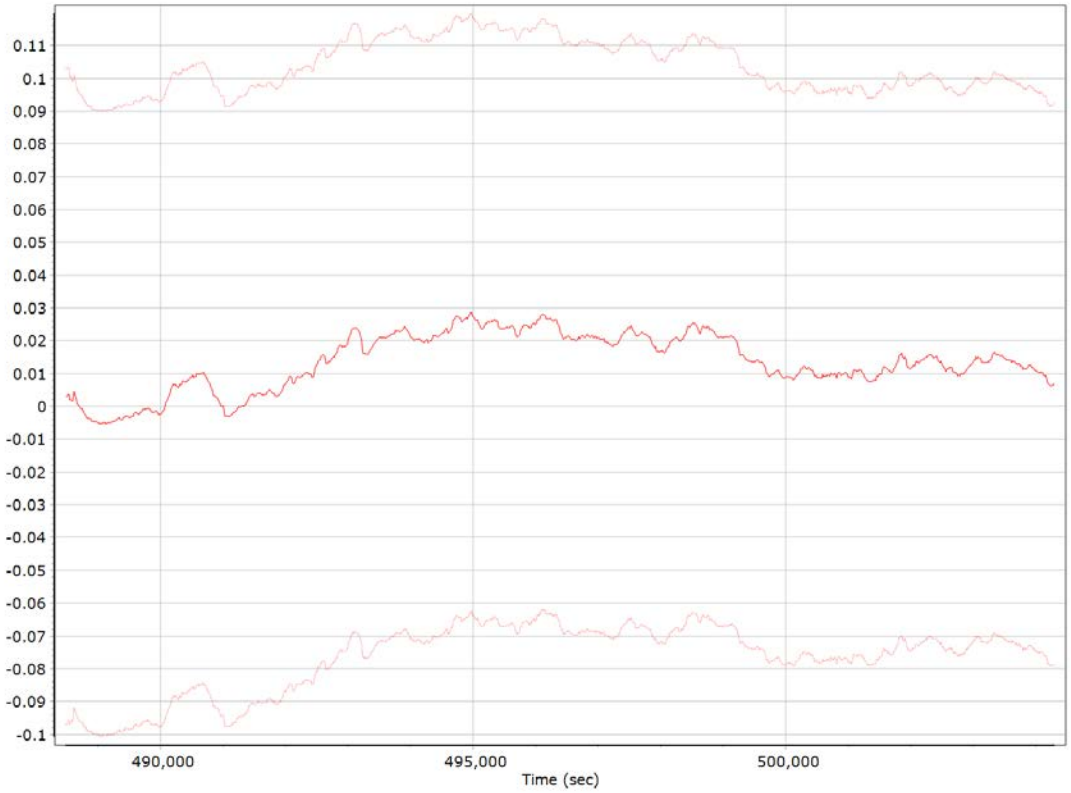
Gyro Bias (deg/h)



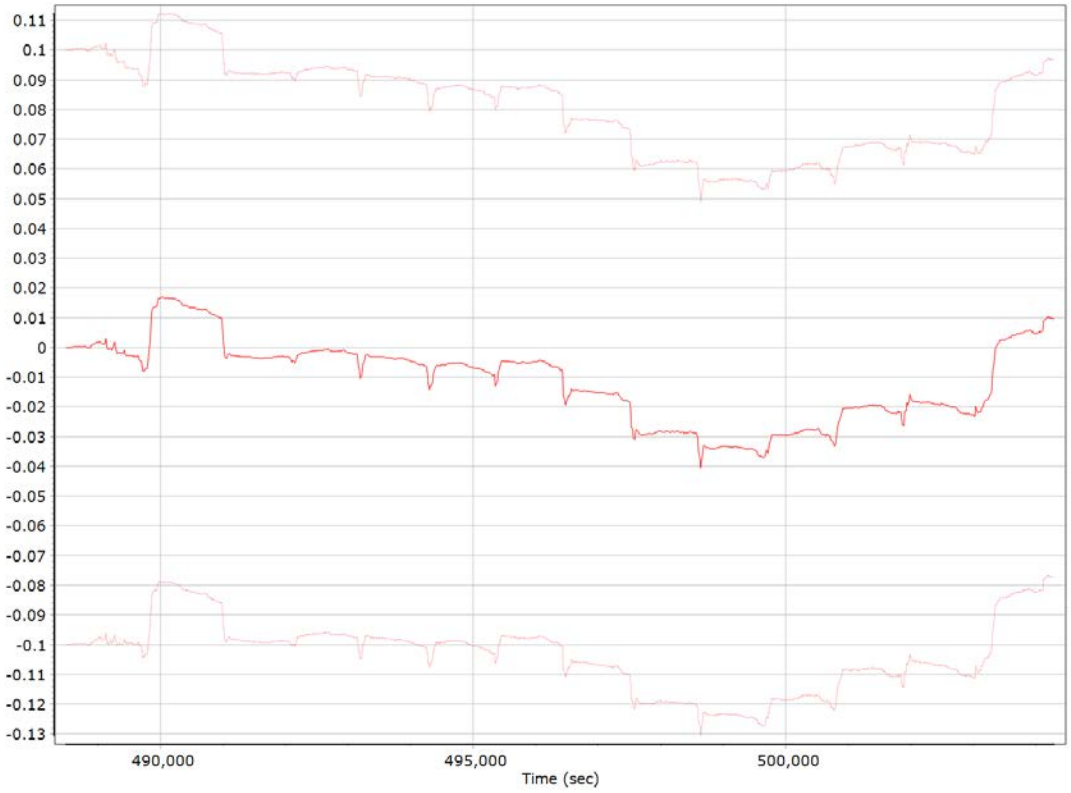
X Gyro Bias (deg/h)



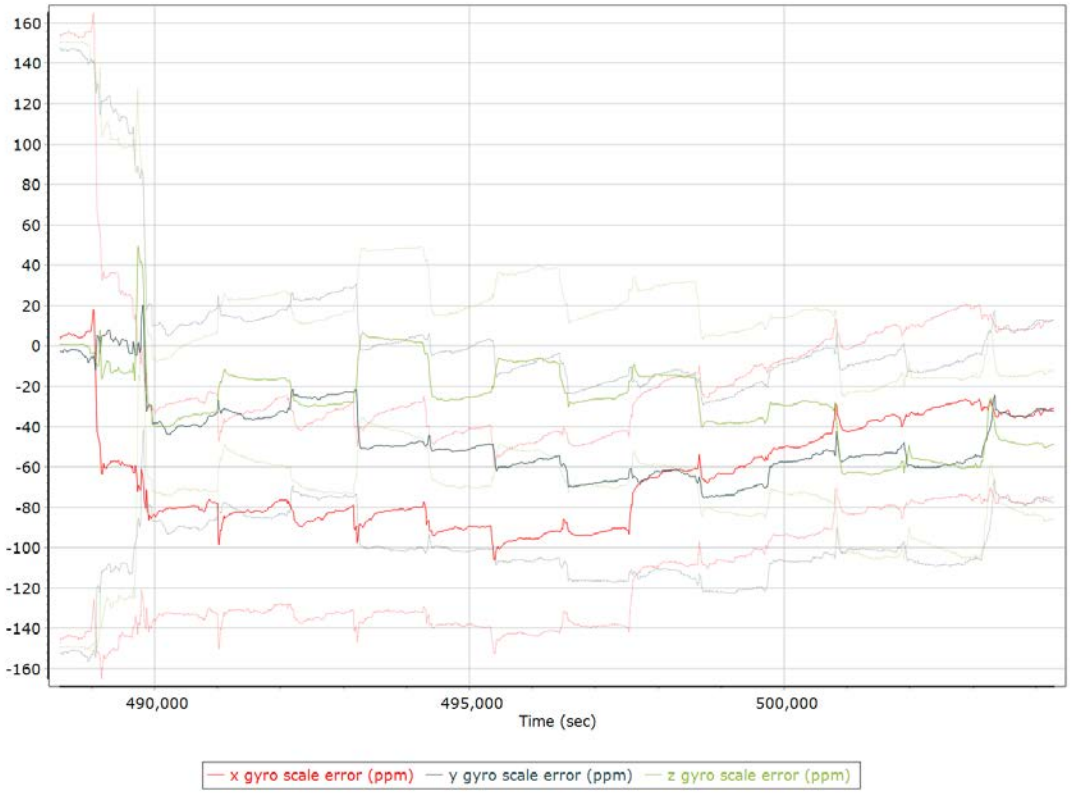
Y Gyro Bias (deg/h)



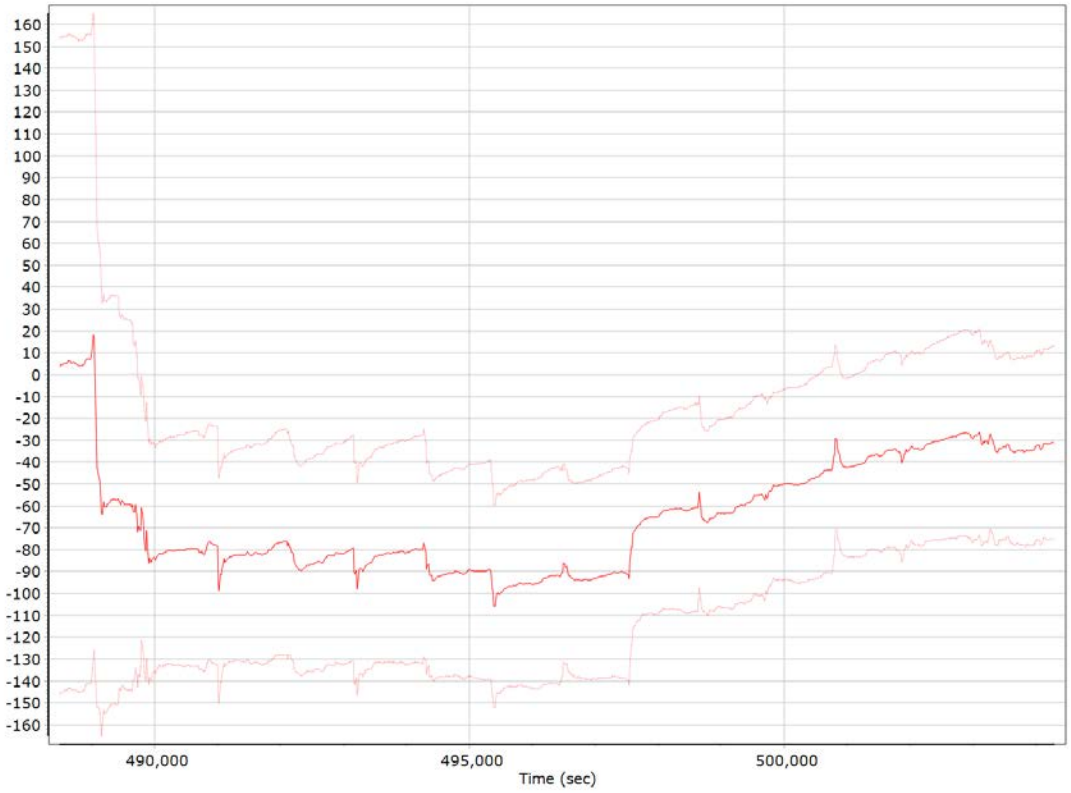
Z Gyro Bias (deg/h)



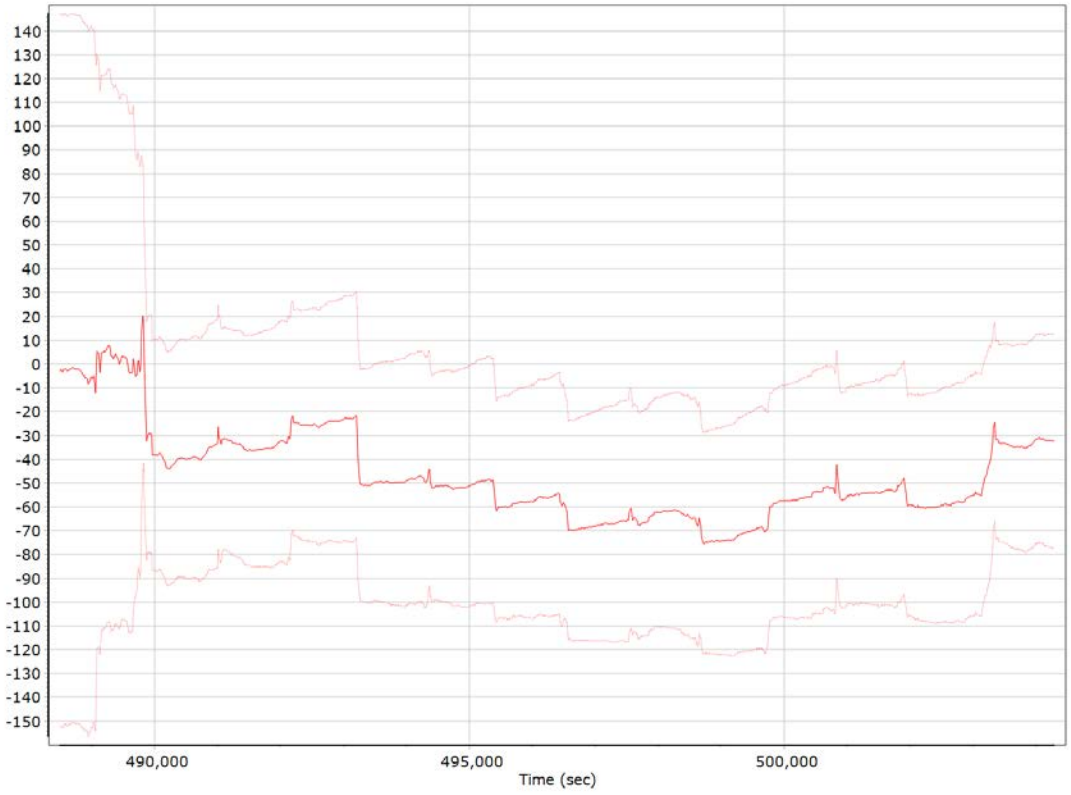
Gyro Scale Error (ppm)



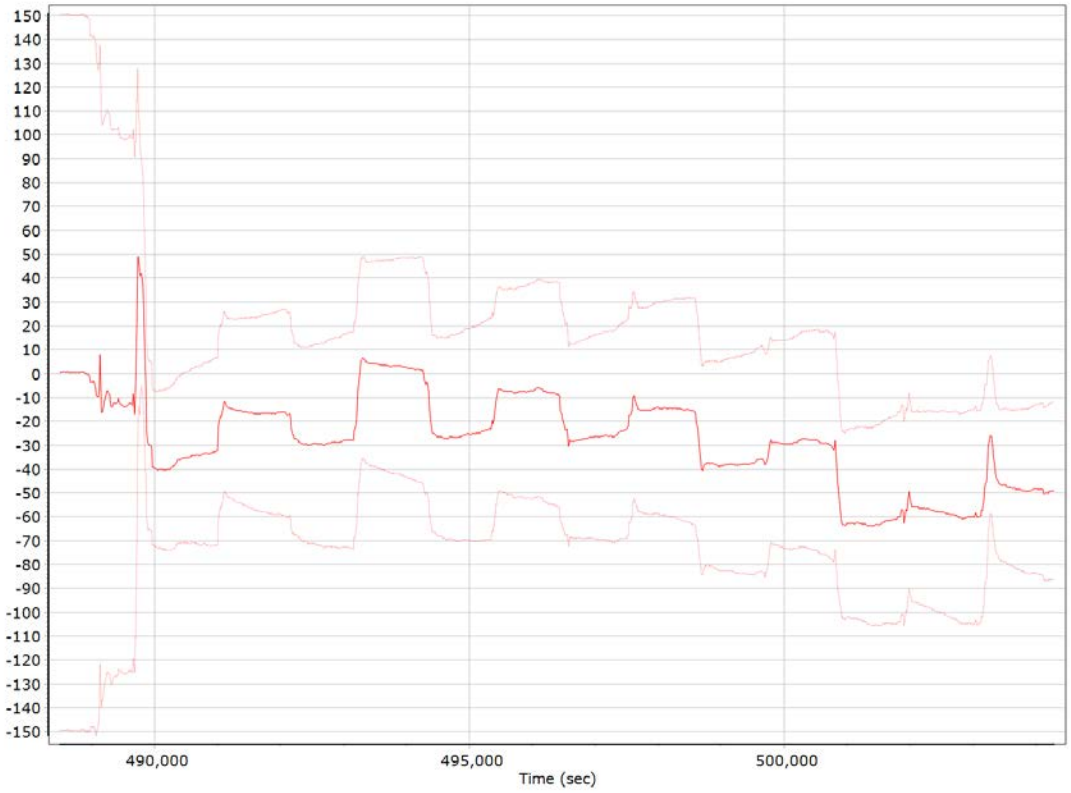
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

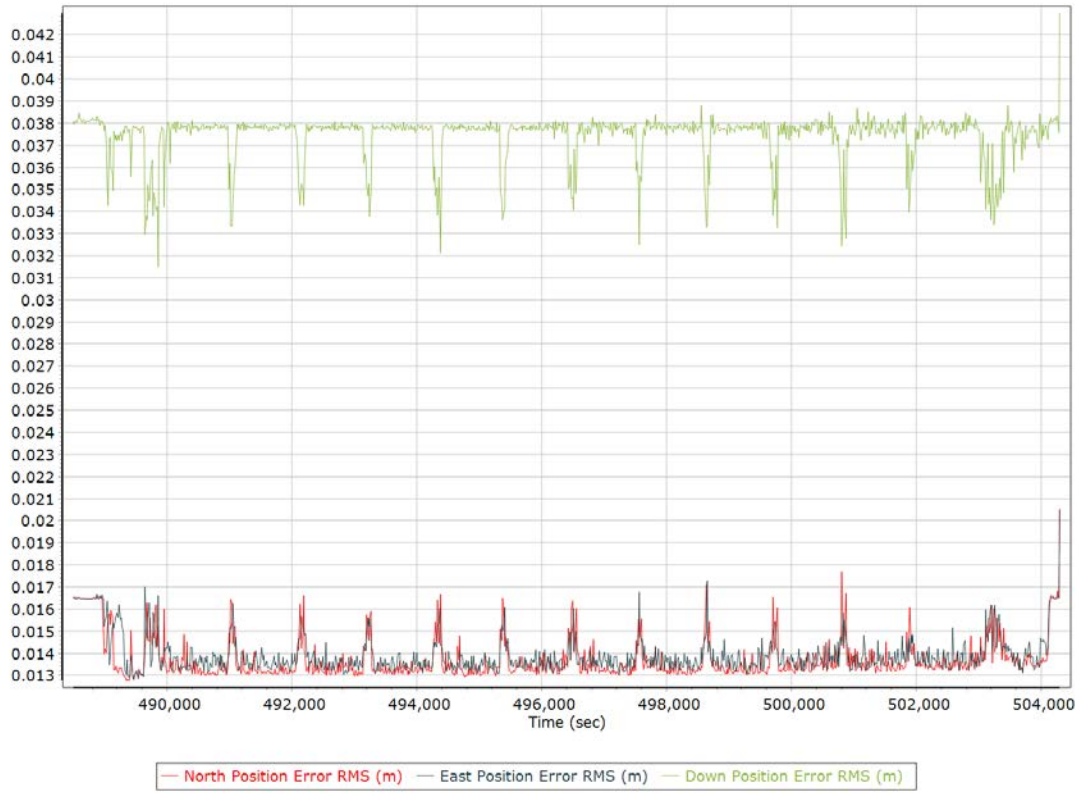


Z Gyro Scale Error (ppm)

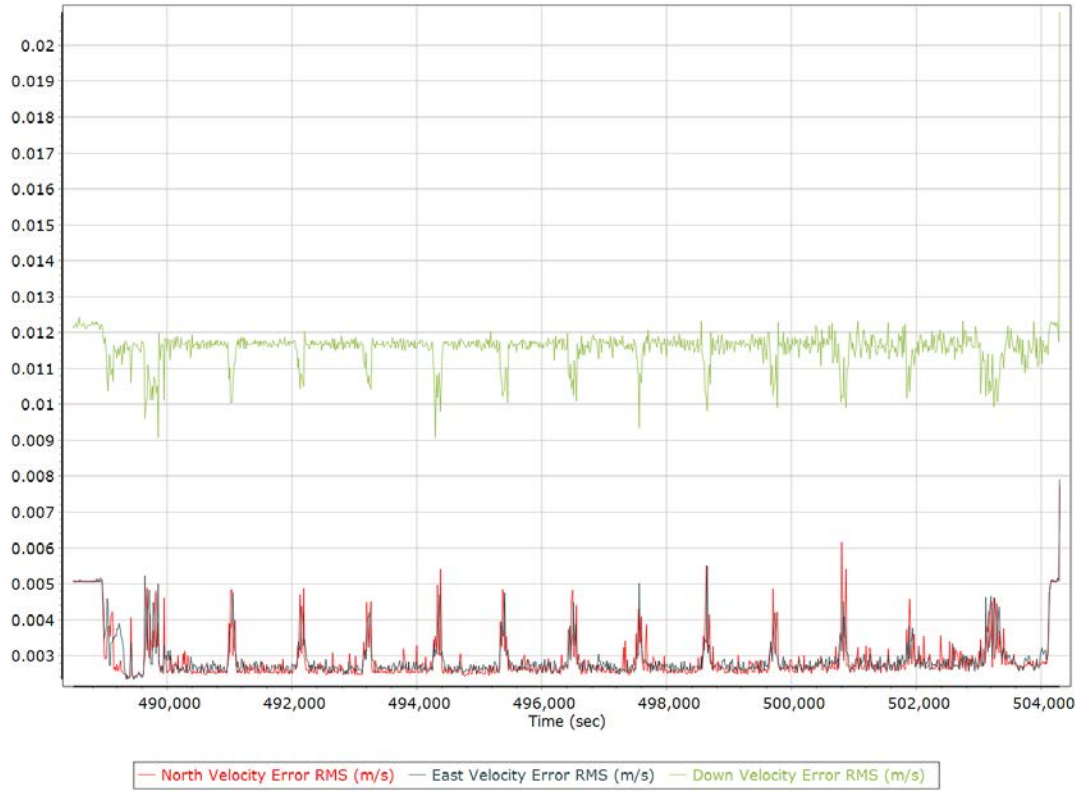


Smoothed Performance Metrics

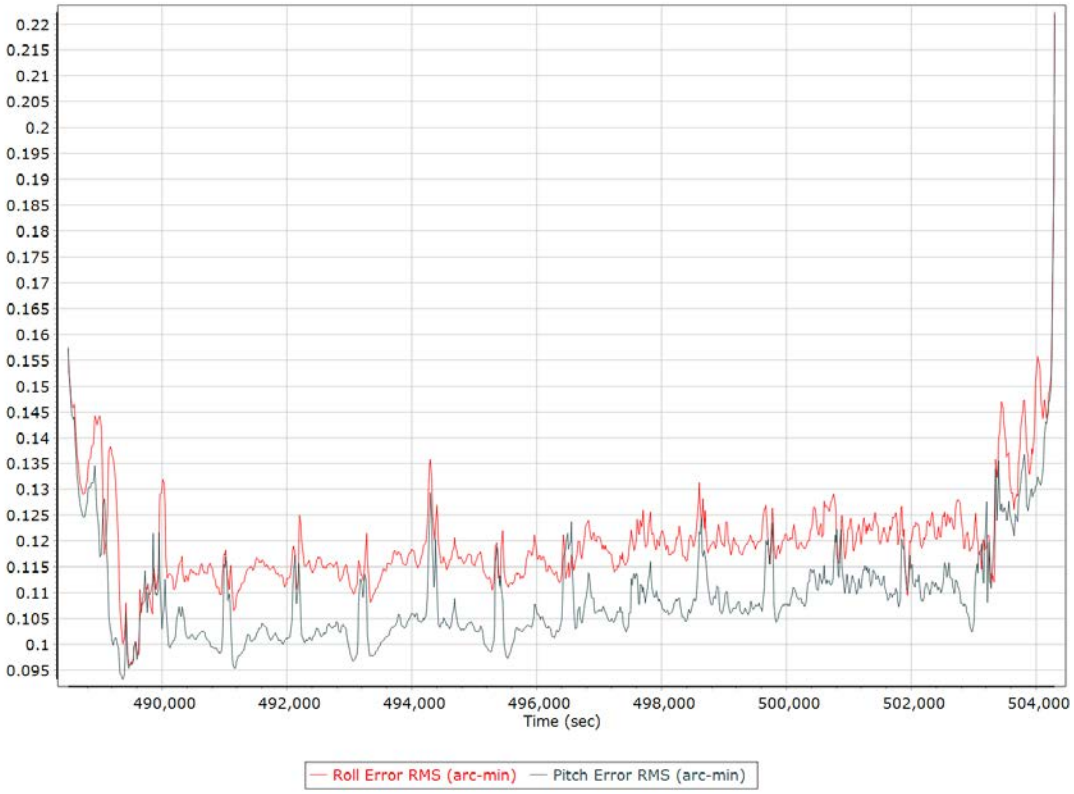
Position Error RMS (m)



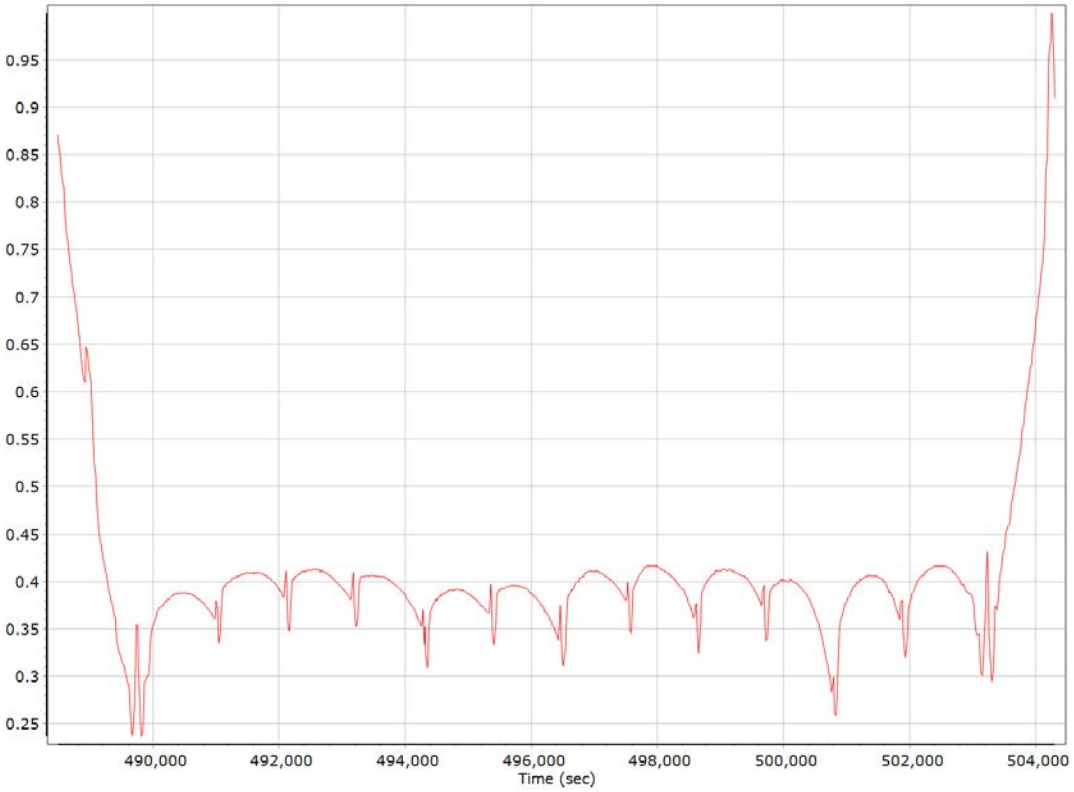
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

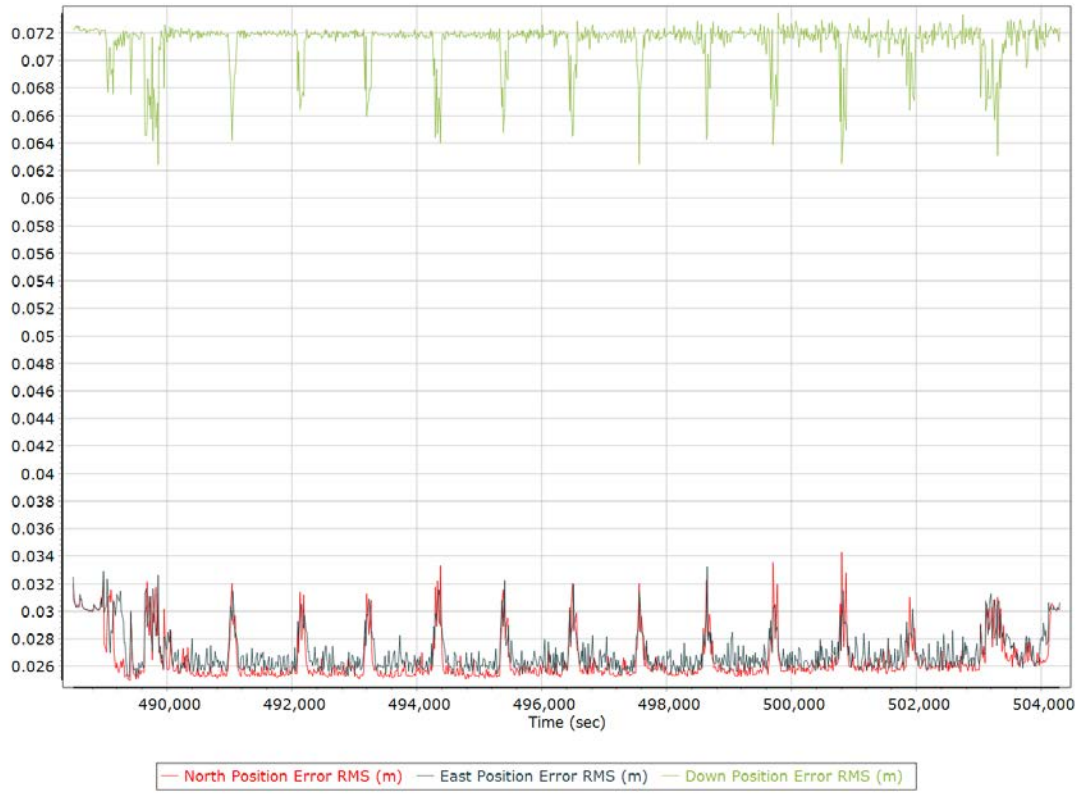


Heading Error RMS (arc-min)

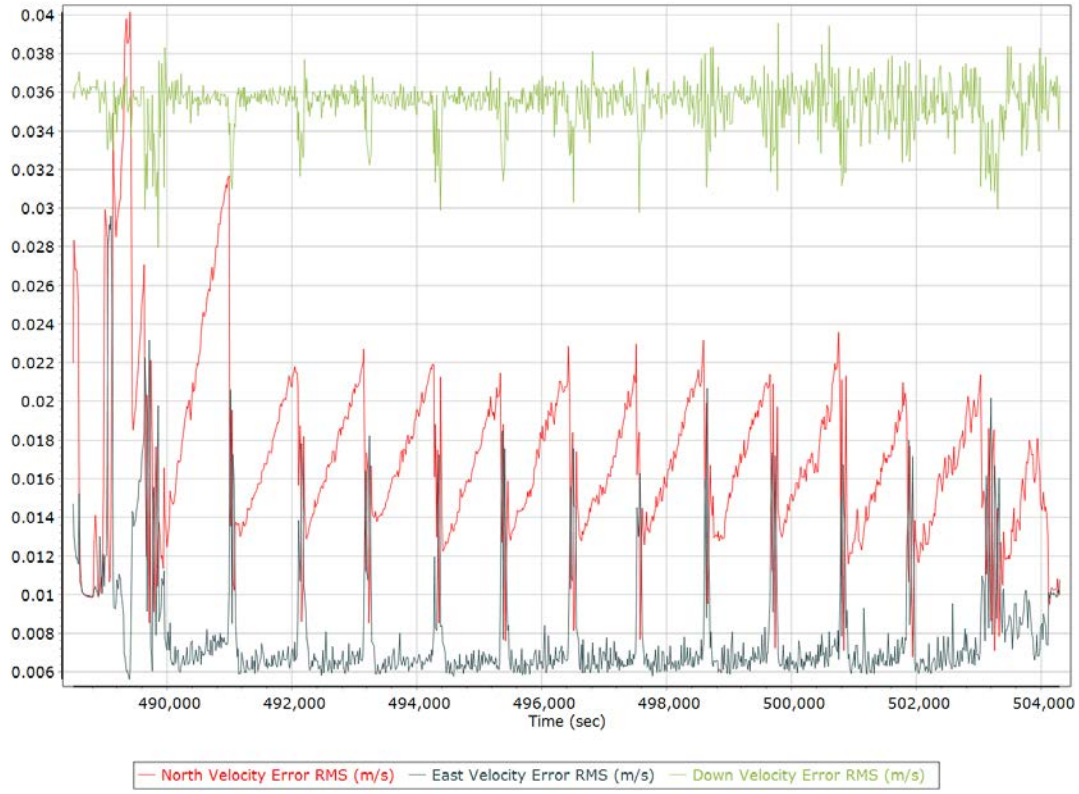


Forward Processed Performance Metrics

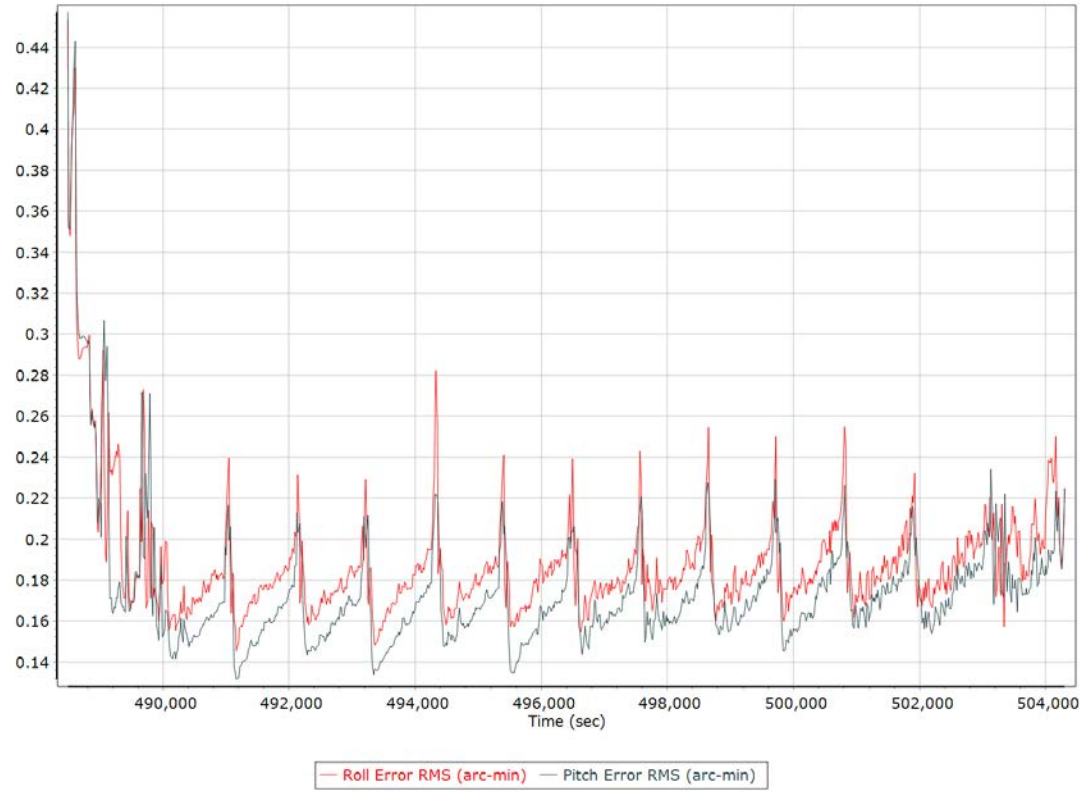
Position Error RMS (m)



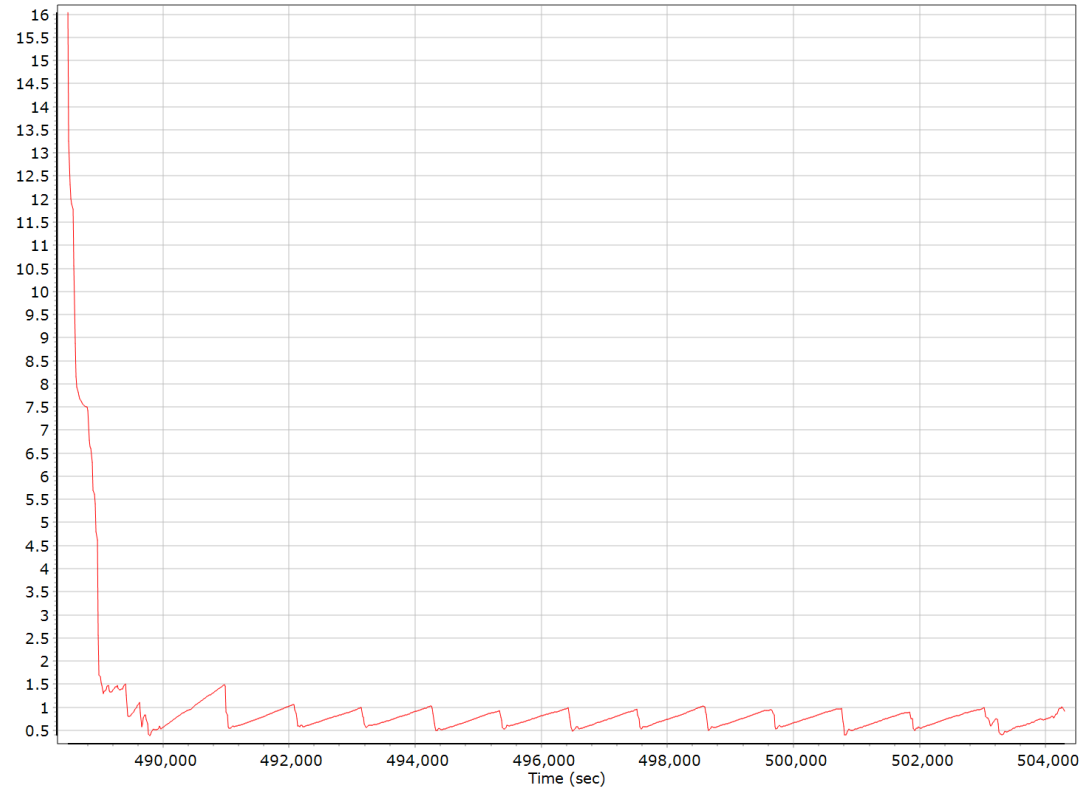
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

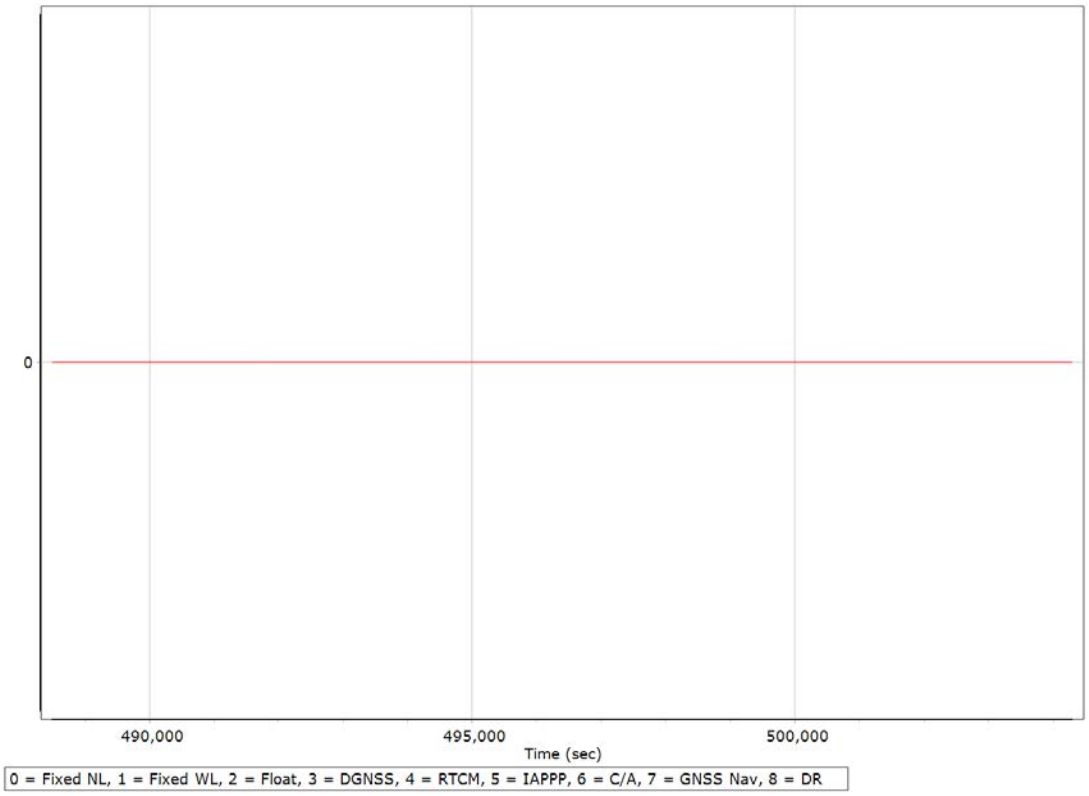


Heading Error RMS (arc-min)

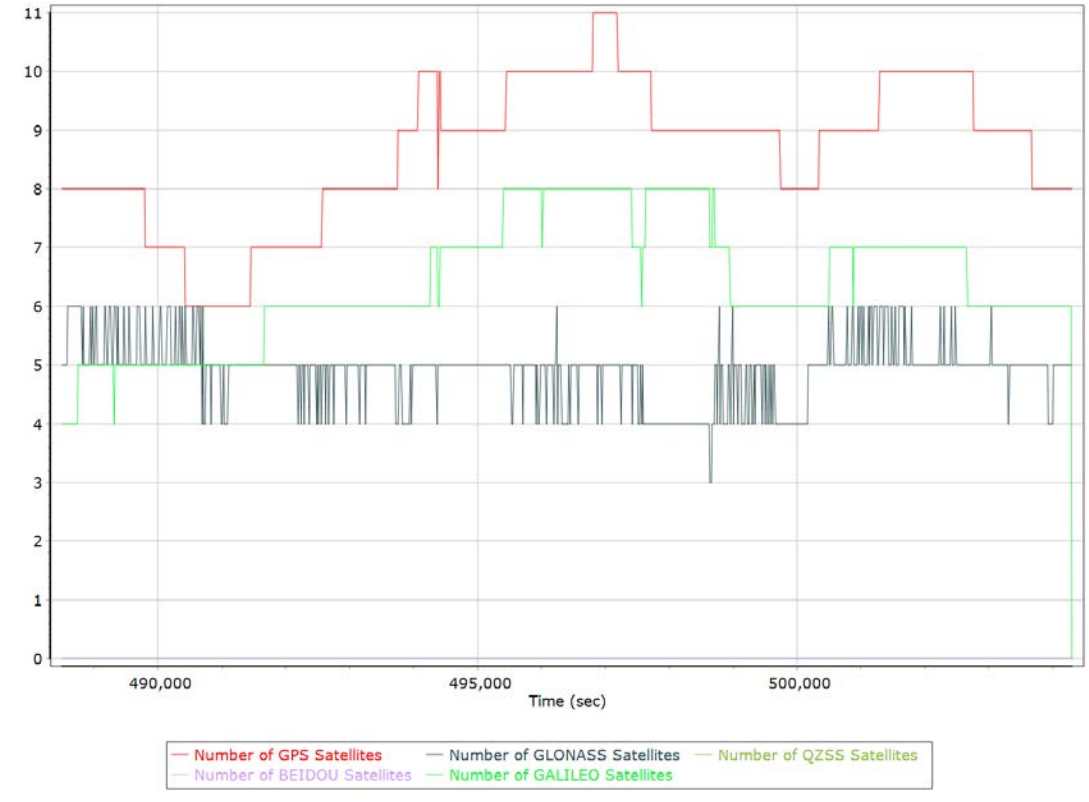


Forward Processed Solution Status

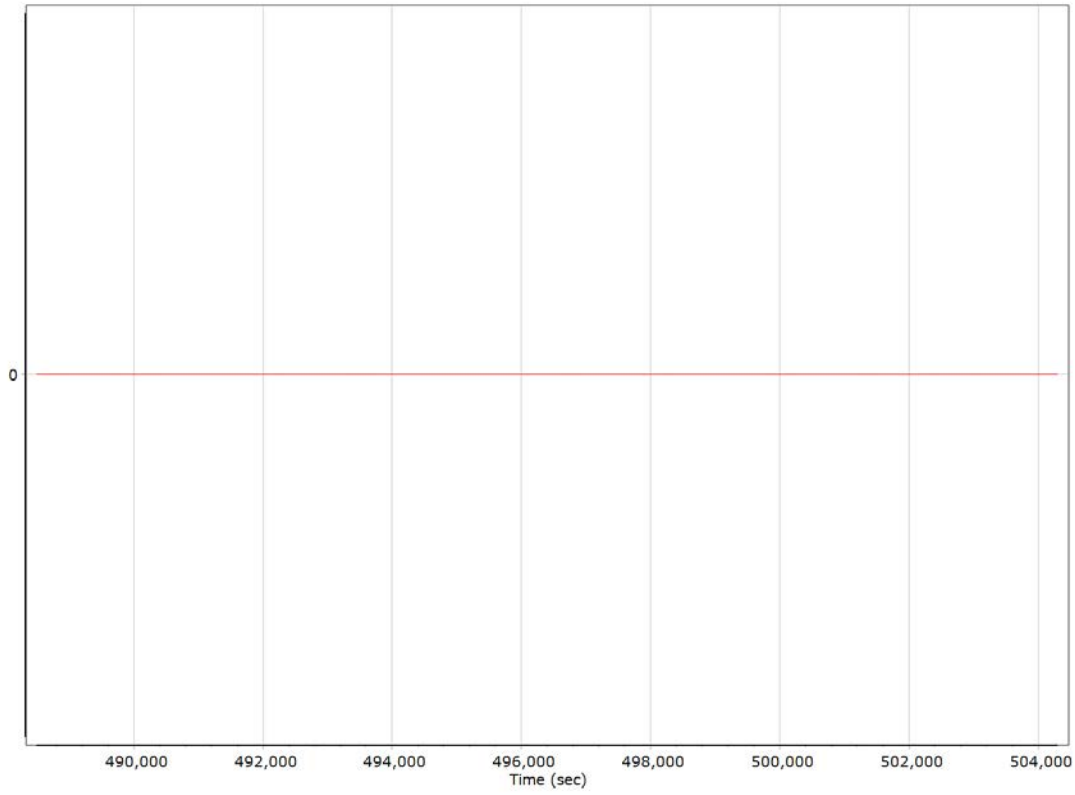
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07222023B_4051
Processing date	2023-07-25 19:55:41
Mission date	2023-07-22 20:19:05
Mission duration	02:07:27.389
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.141	POS Data
CP780.142	POS Data
CP780.143	POS Data
CP780.144	POS Data
CP780.145	POS Data
CP780.146	POS Data
CP780.147	POS Data
CP780.148	POS Data
CP780.149	POS Data
CP780.150	POS Data
CP780.151	POS Data
CP780.152	POS Data
CP780.153	POS Data
CP780.154	POS Data
CP780.155	POS Data
CP780.156	POS Data
CP780.157	POS Data

Input Files

File Name	File Type
Ephm2030.23g	GLONASS Broadcast Ephemeris
Ephm2030.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07222023B_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.141		
Last raw data file	CP780.157		
Start GPS week	2271		
Start time	591527.007 (7/22/2023 8:18:47 PM)		
End time	599174.396 (7/22/2023 10:26:14 PM)		
Start of fine alignment	591550.021 (7/22/2023 8:19:10 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

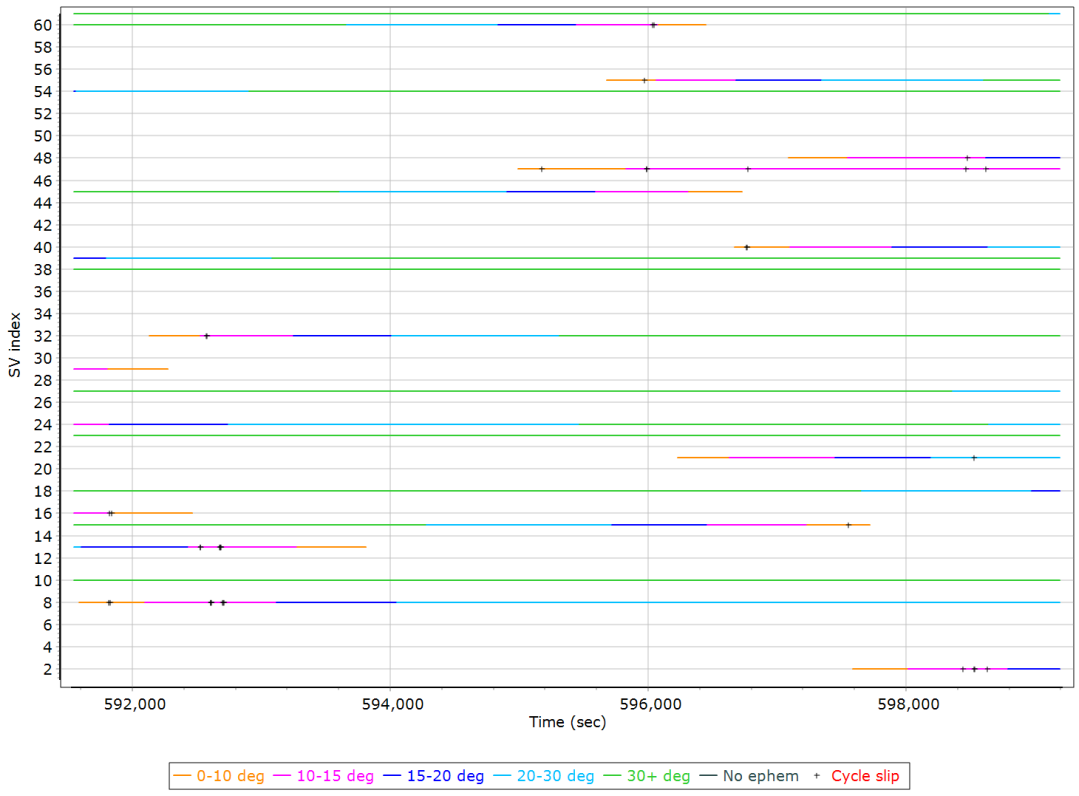
Rover Data QC

Raw IMU Import QC Summary

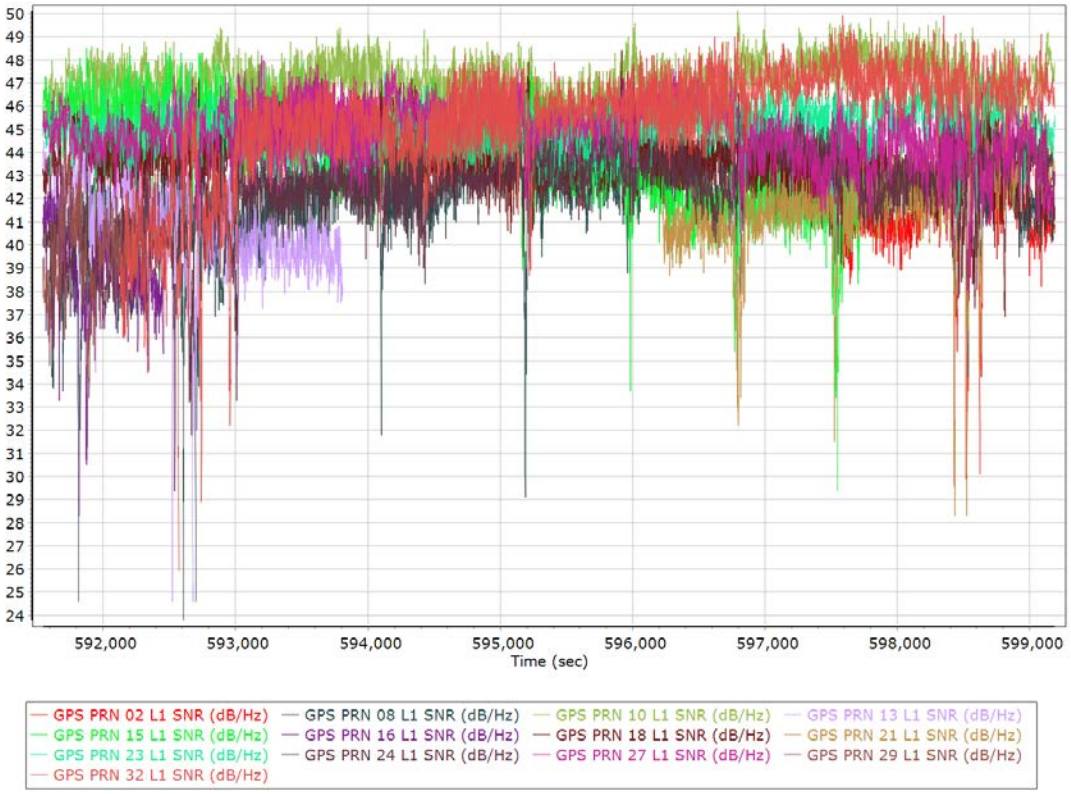
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07222023B_4051.log
IMU Records Processed	1529211
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

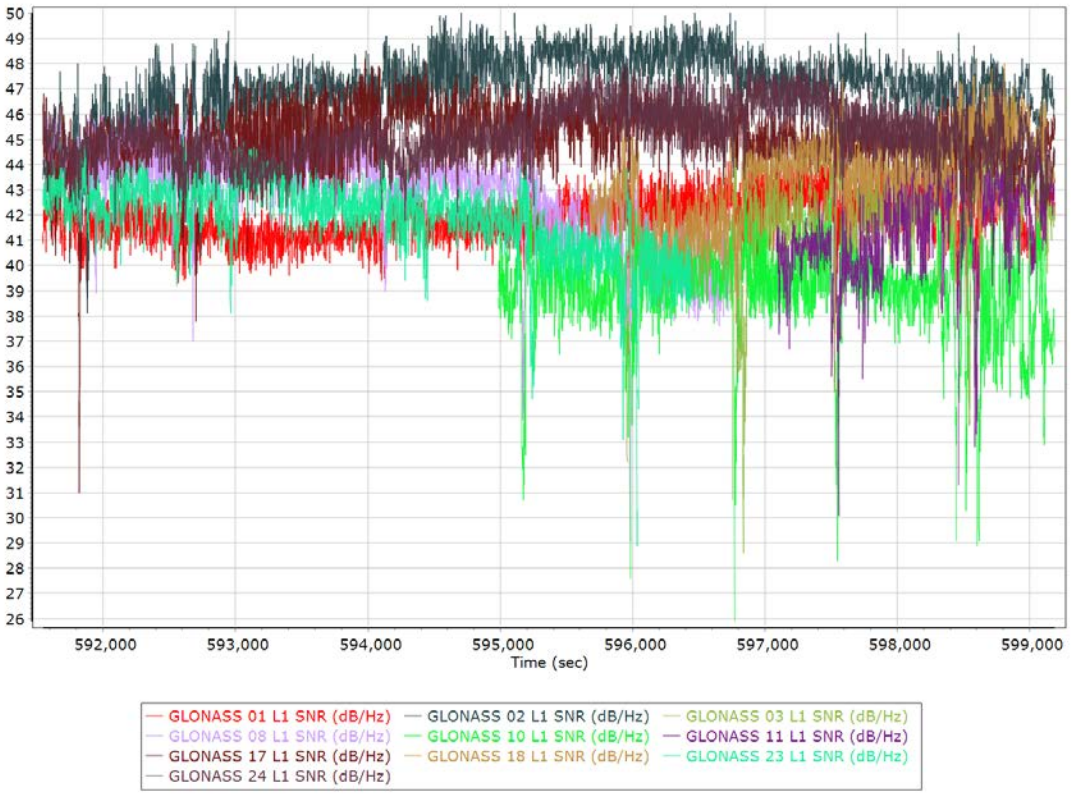
GPS/GLONASS L1 Satellite Lock/Elevation



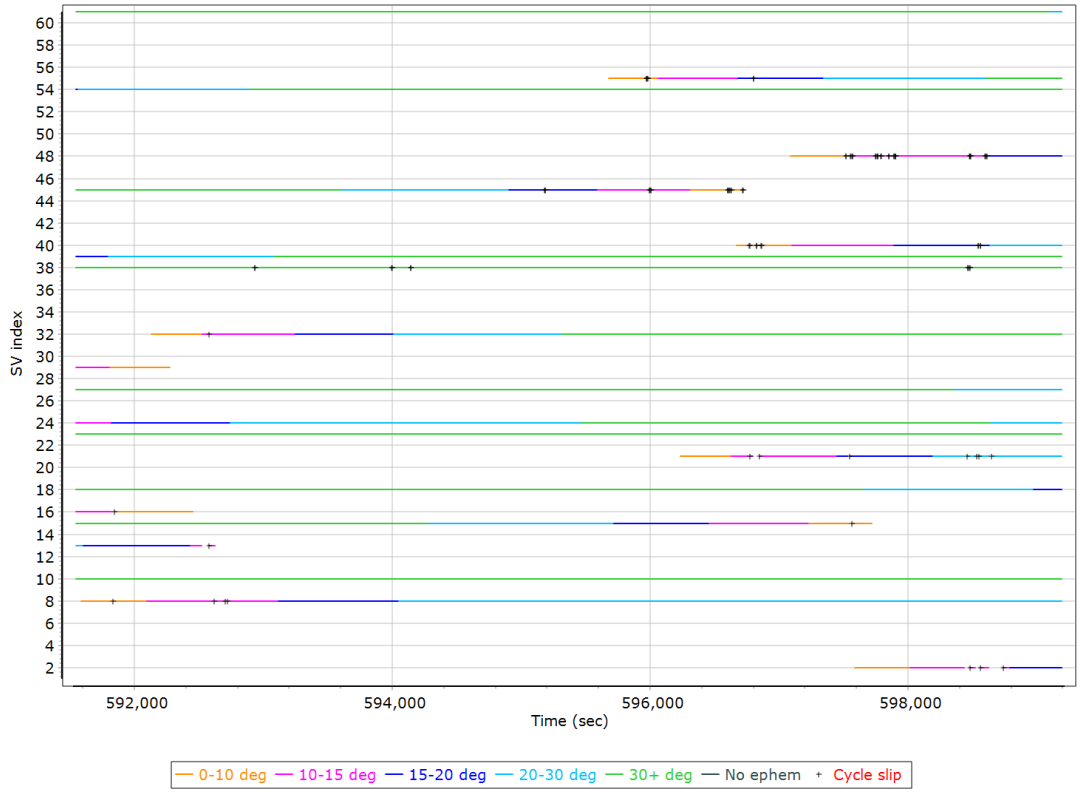
GPS L1 SNR



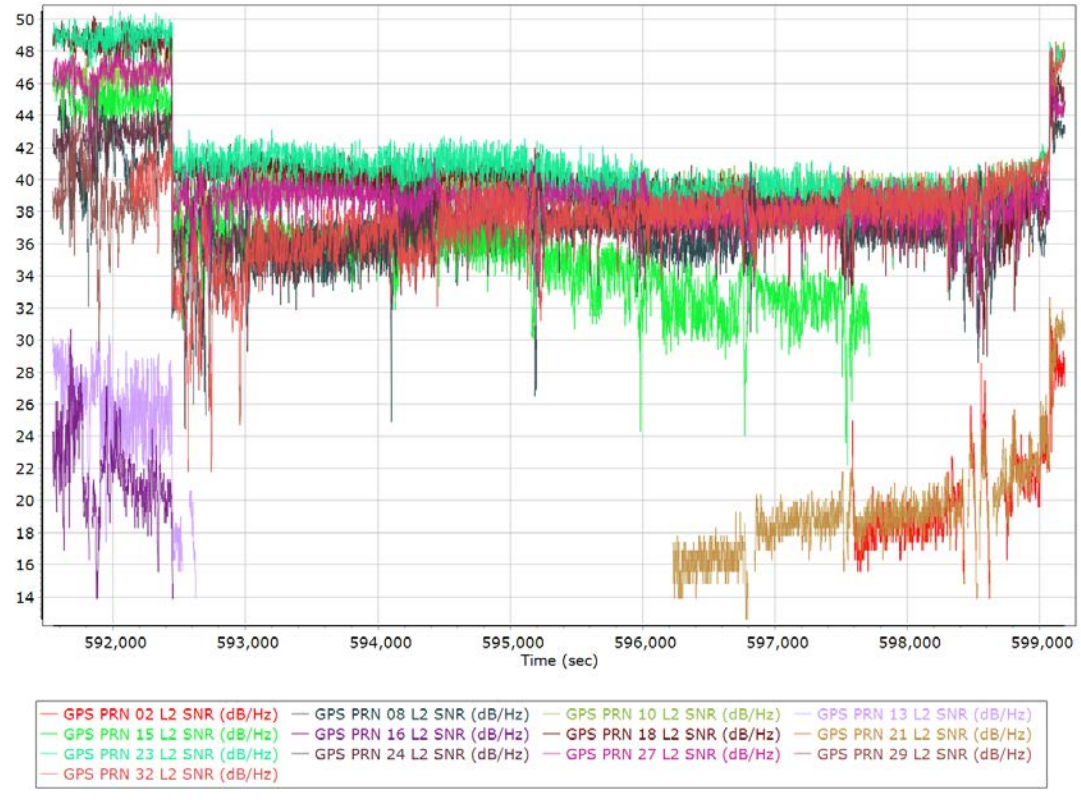
GLONASS L1 SNR



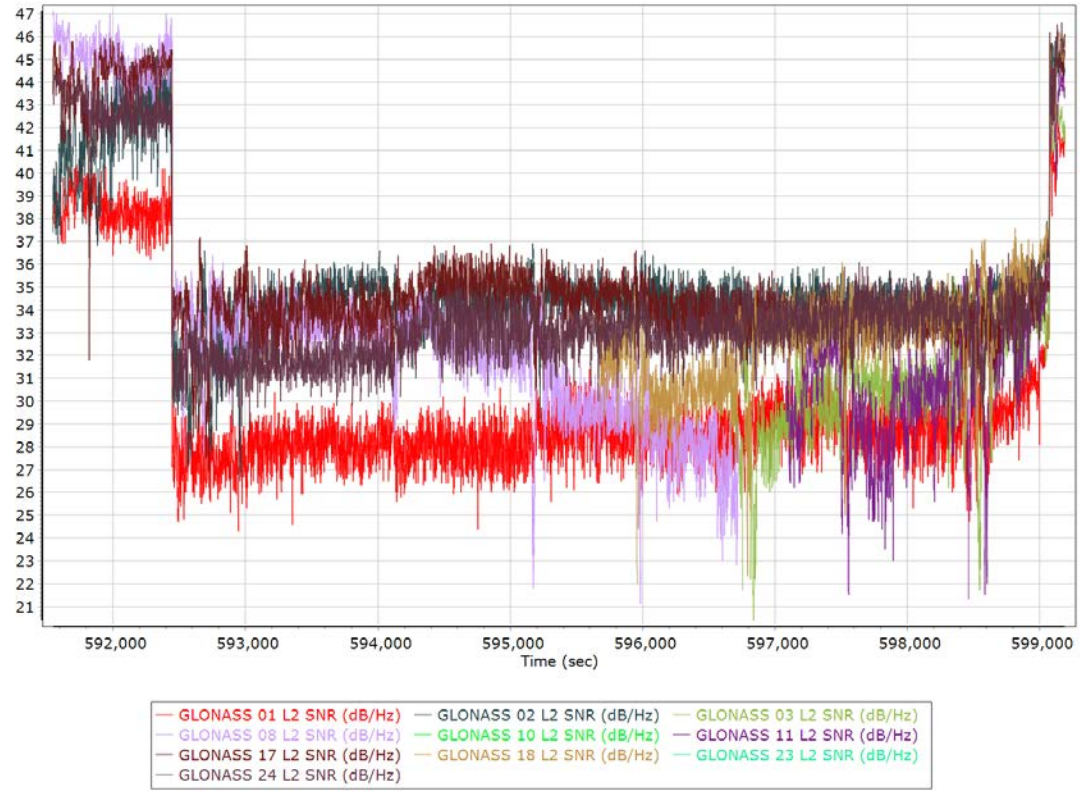
GPS/GLONASS L2 Satellite Lock/Elevation



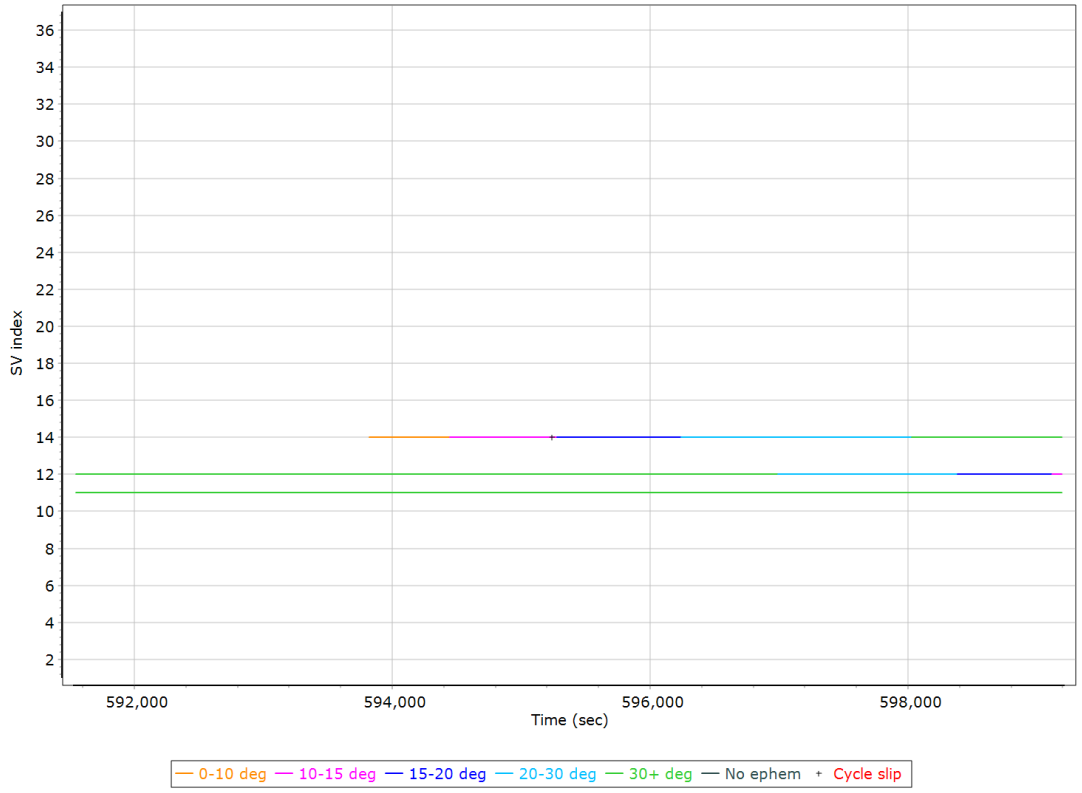
GPS L2 SNR



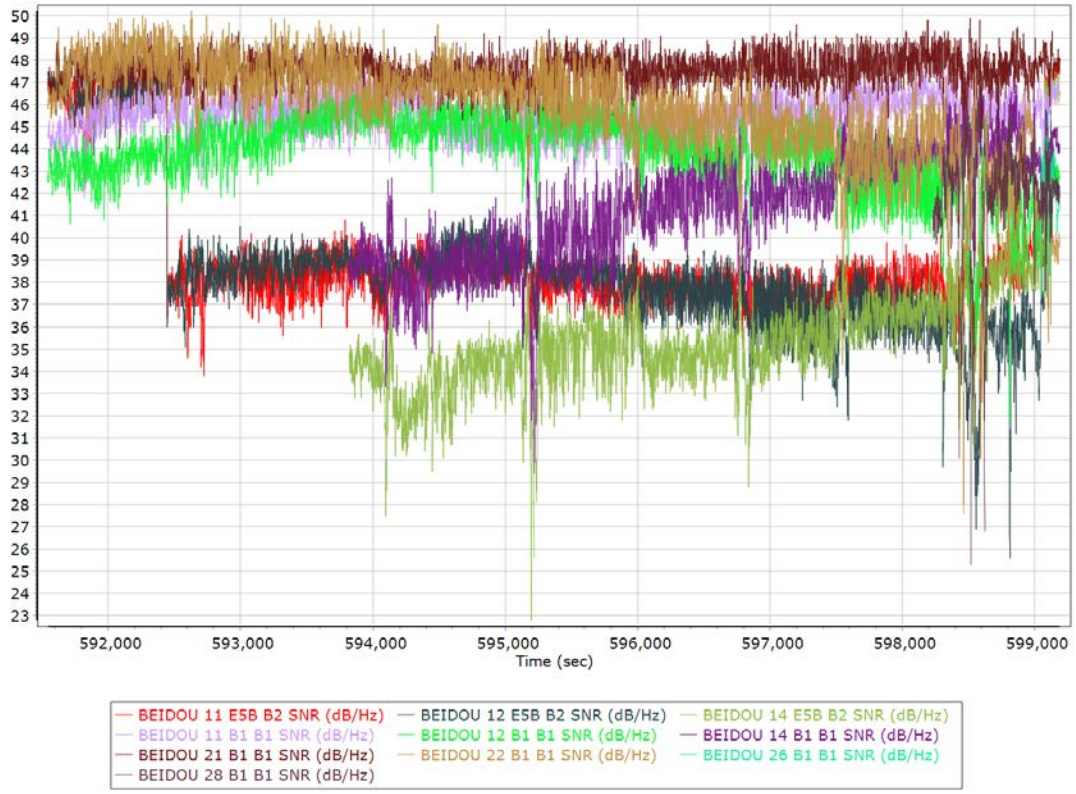
GLONASS L2 SNR



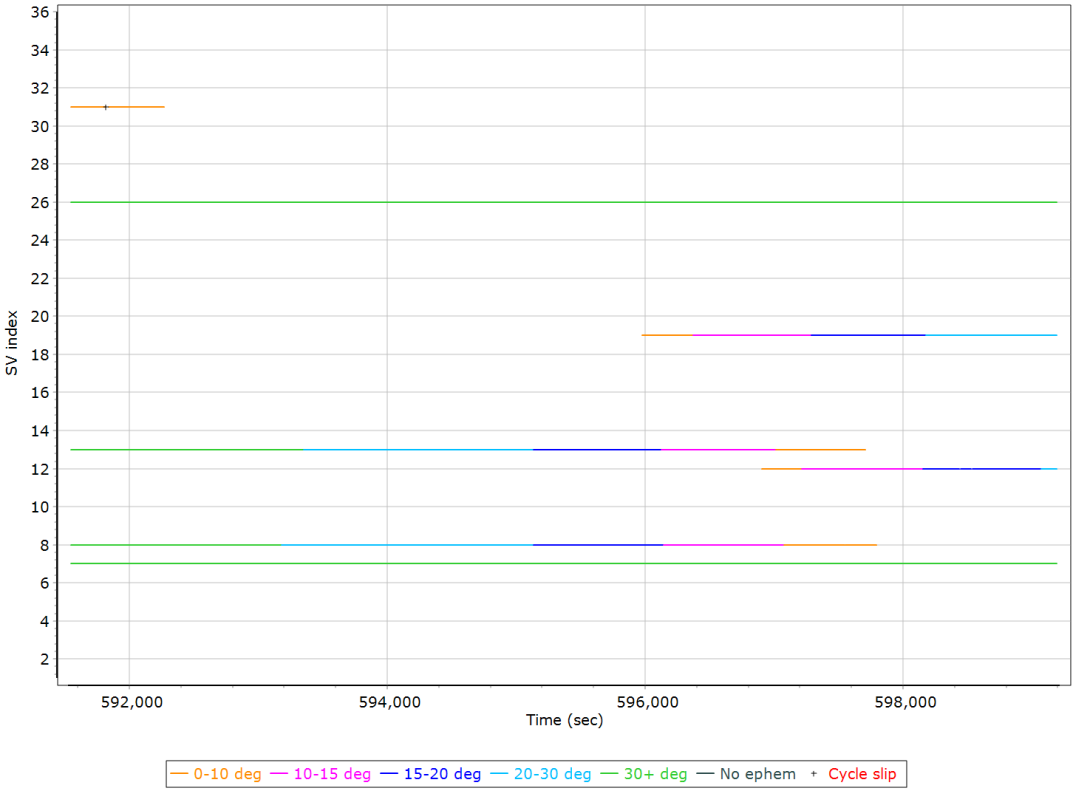
BEIDOU Satellite Lock/Elevation



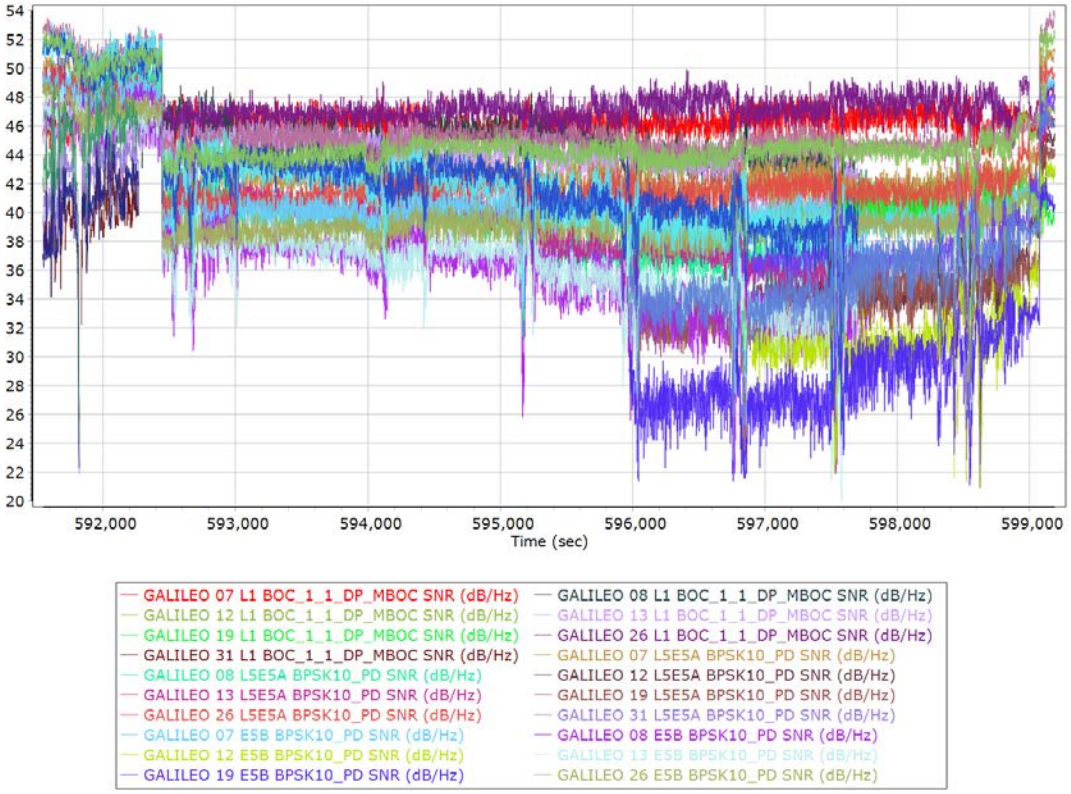
BEIDOU SNR



GALILEO Satellite Lock/Elevation

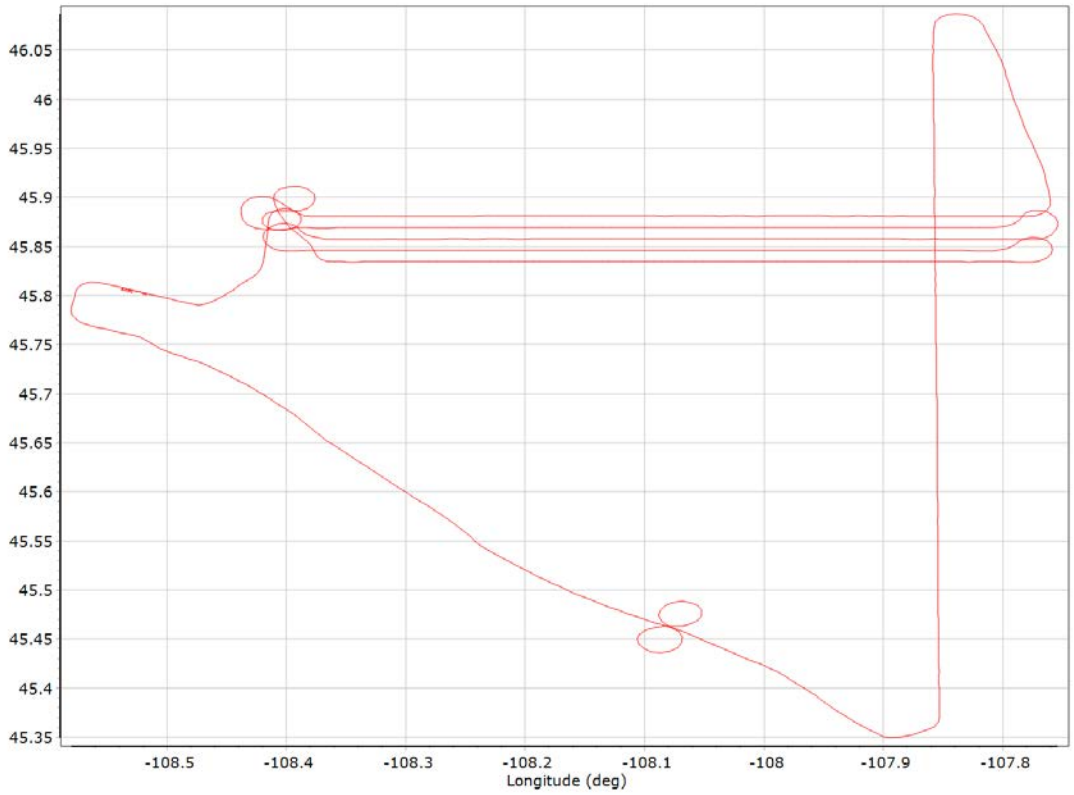


GALILEO SNR

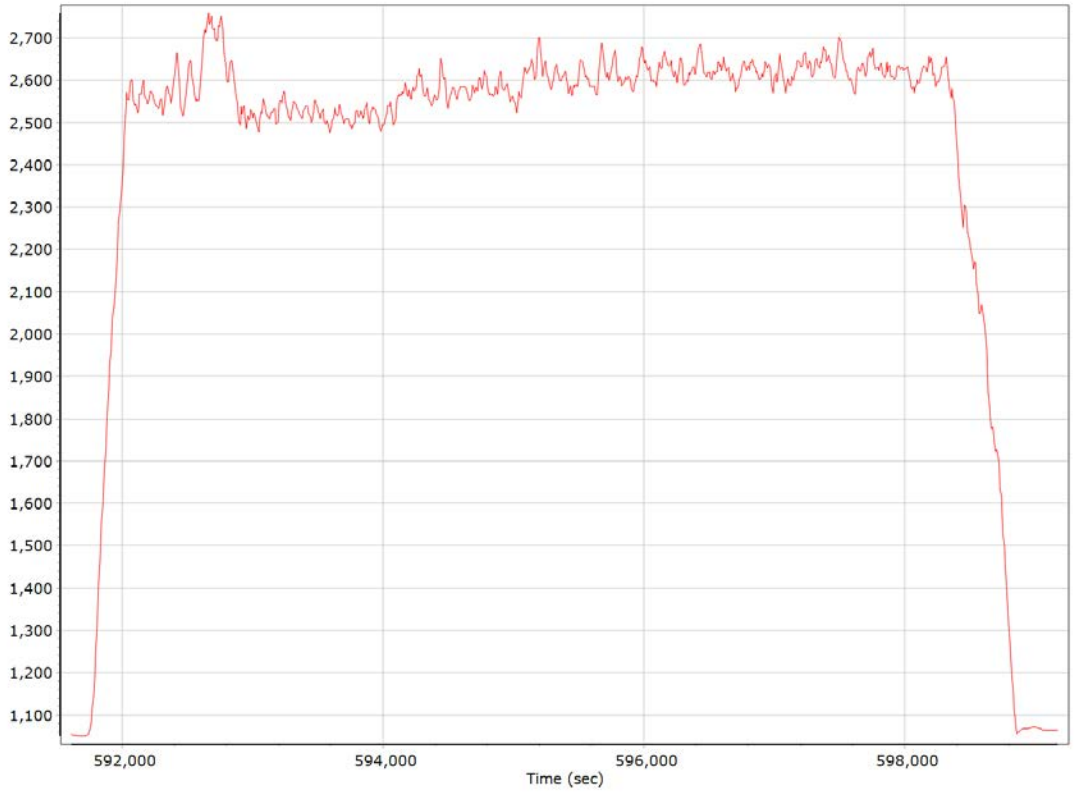

54
52
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34
32
30
28
26
24
22
20
592,000
593,000
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595,000
596,000
597,000
598,000
599,000
Time (sec)
GALILEO 07 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 08 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 13 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 26 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 07 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 08 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 13 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 19 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 26 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 31 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 07 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 08 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 12 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 13 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 19 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 26 E5B BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

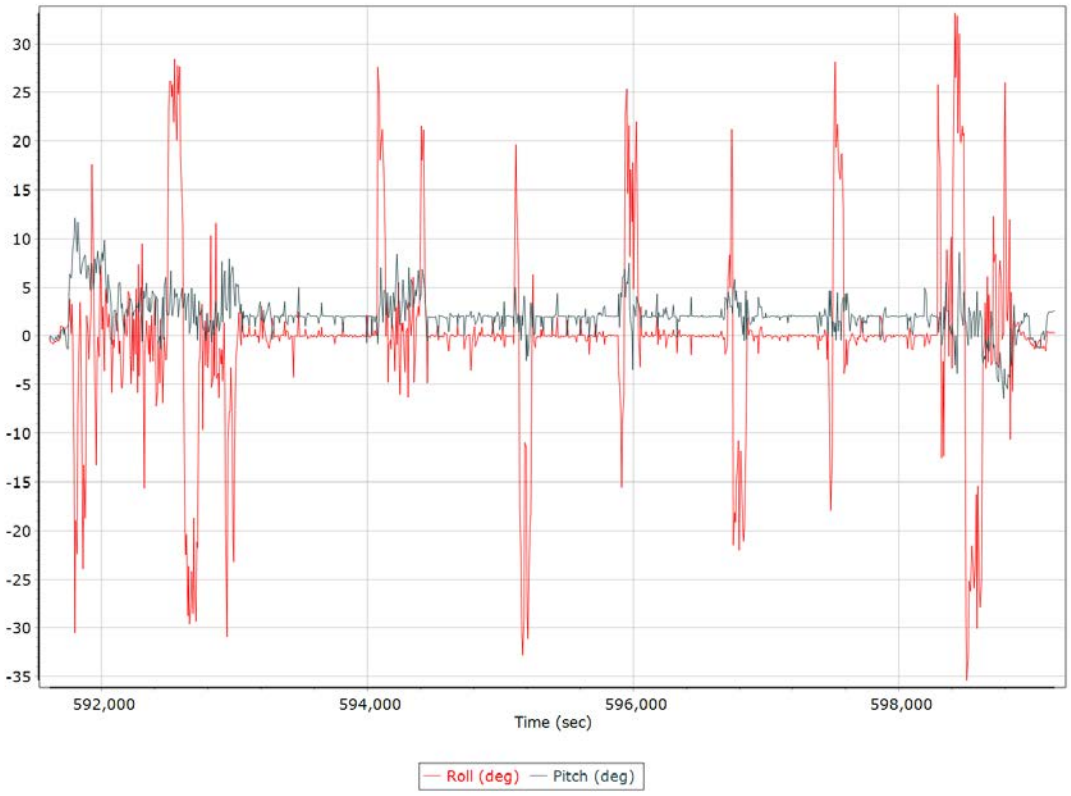
Top View



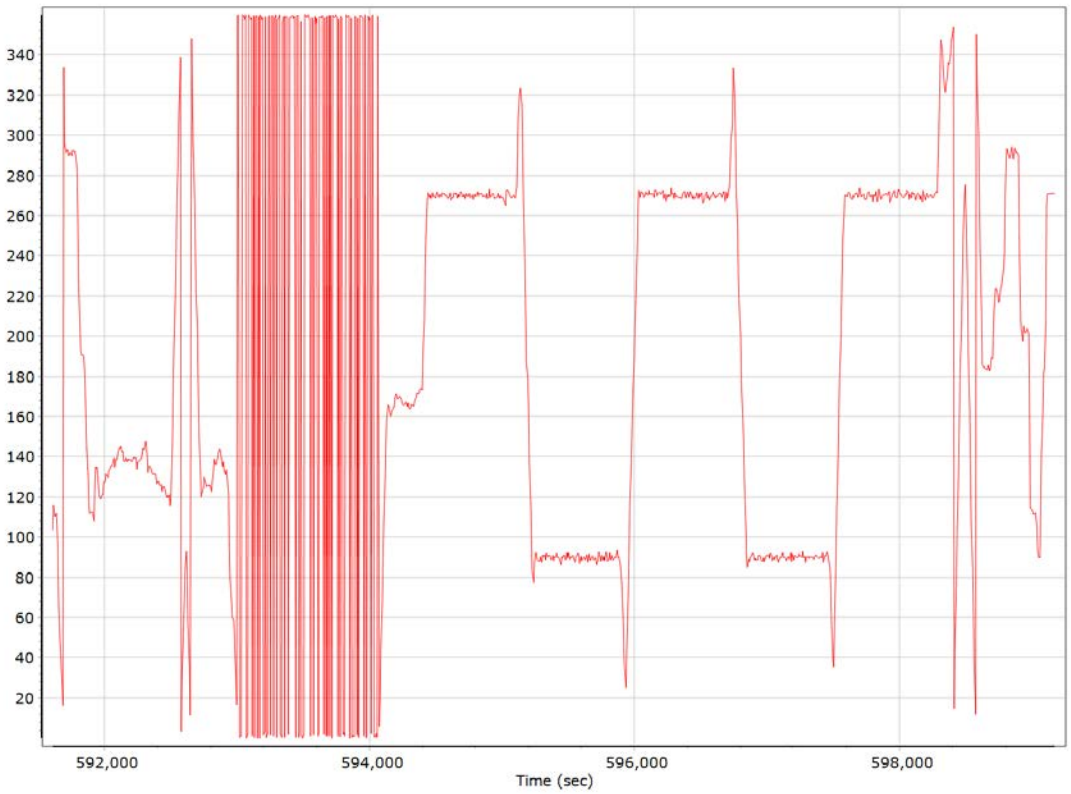
Altitude



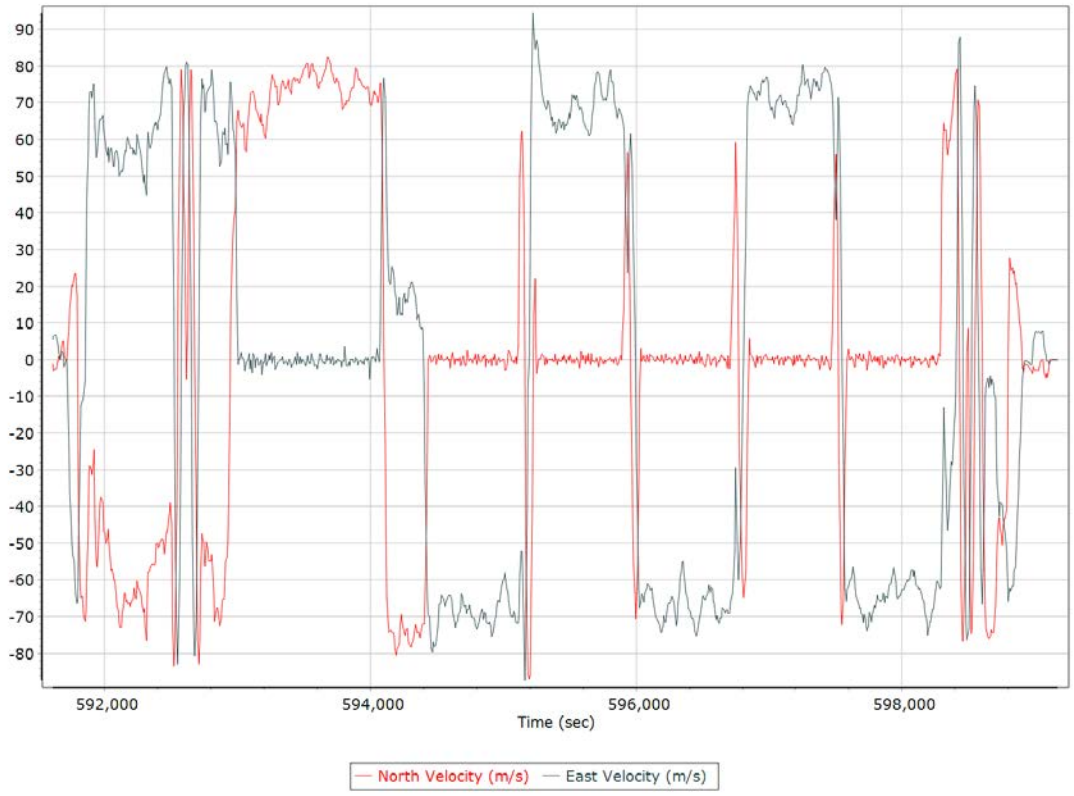
Roll/Pitch



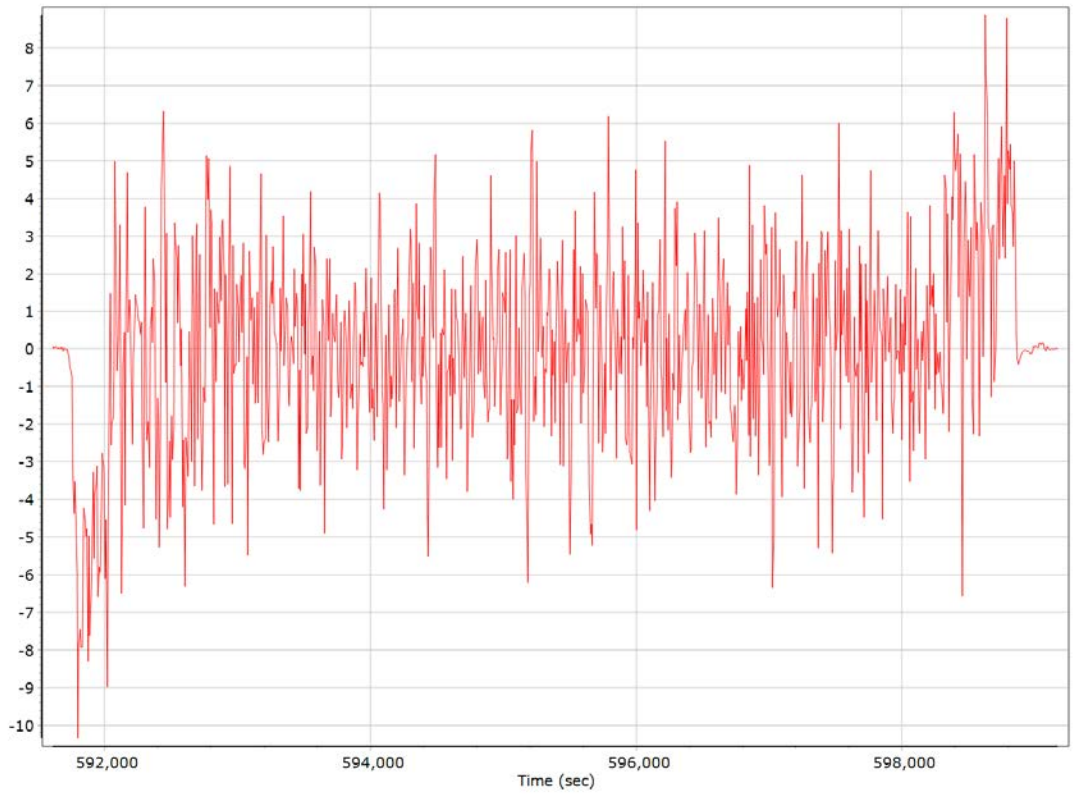
Heading



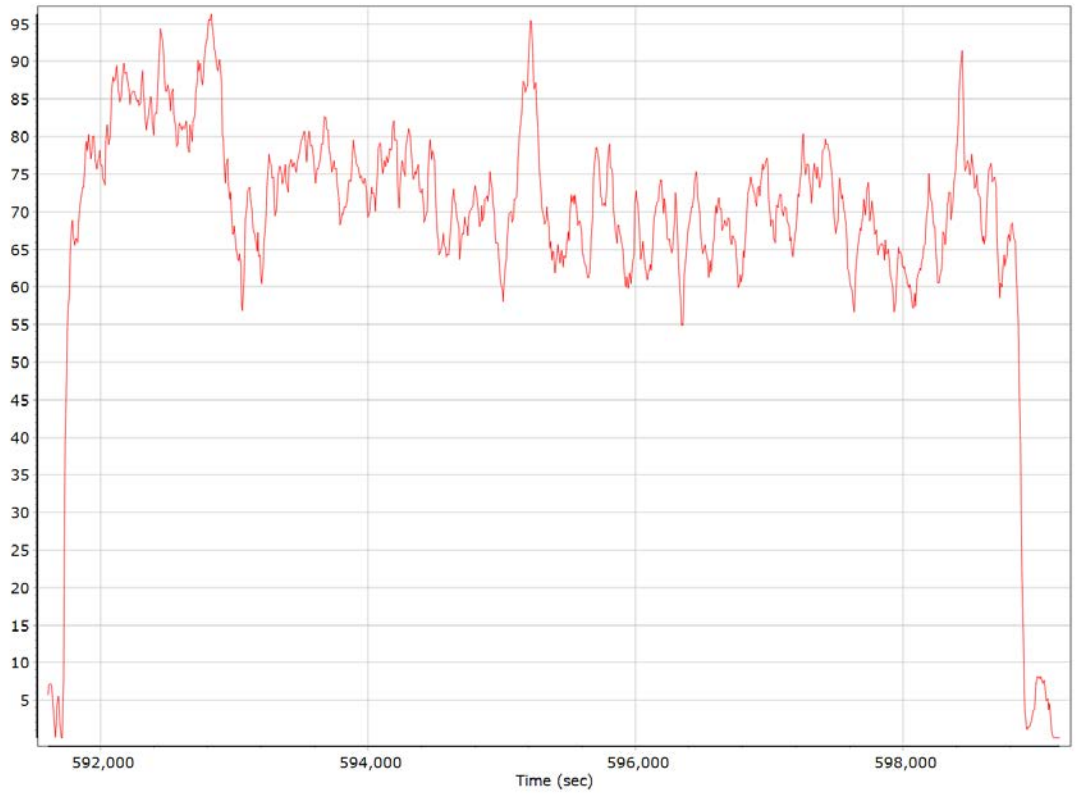
North/East Velocity



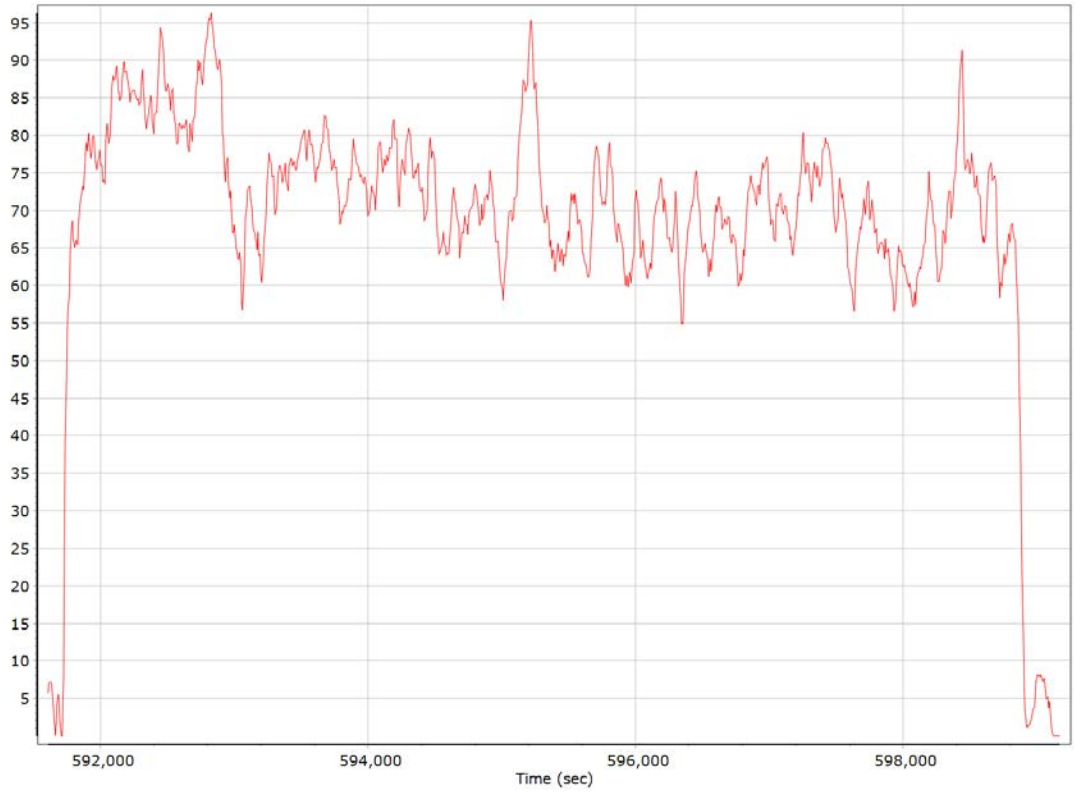
Down Velocity



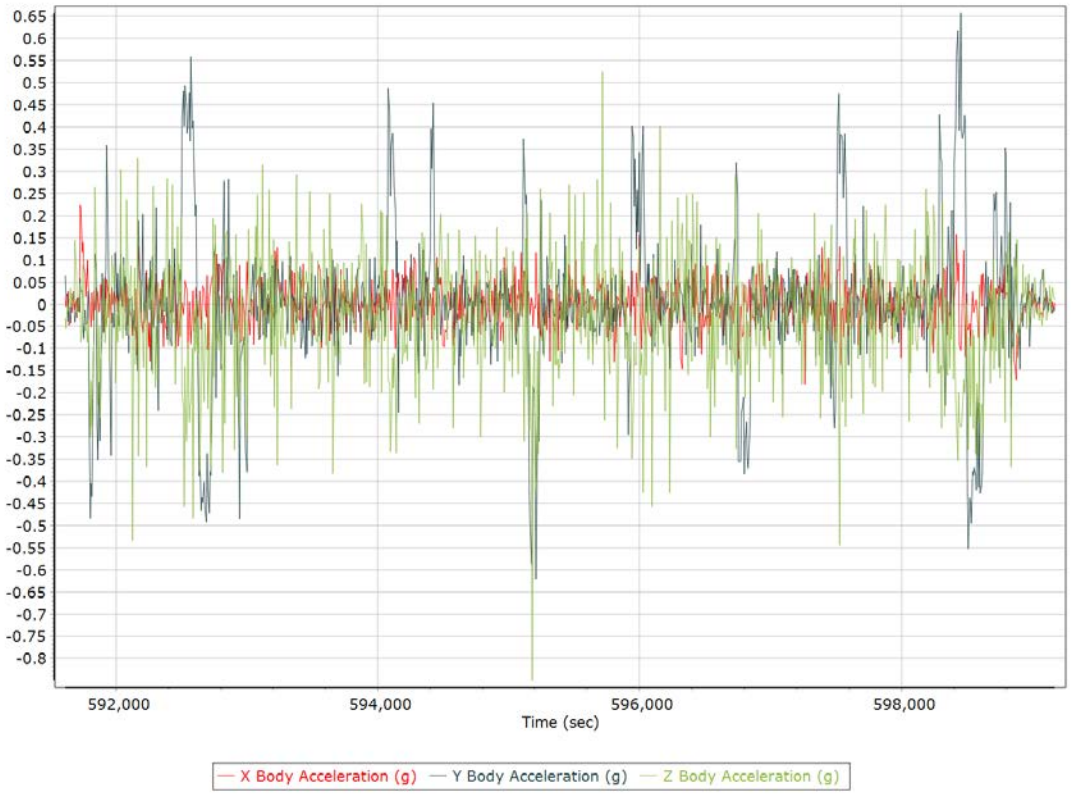
Total Speed



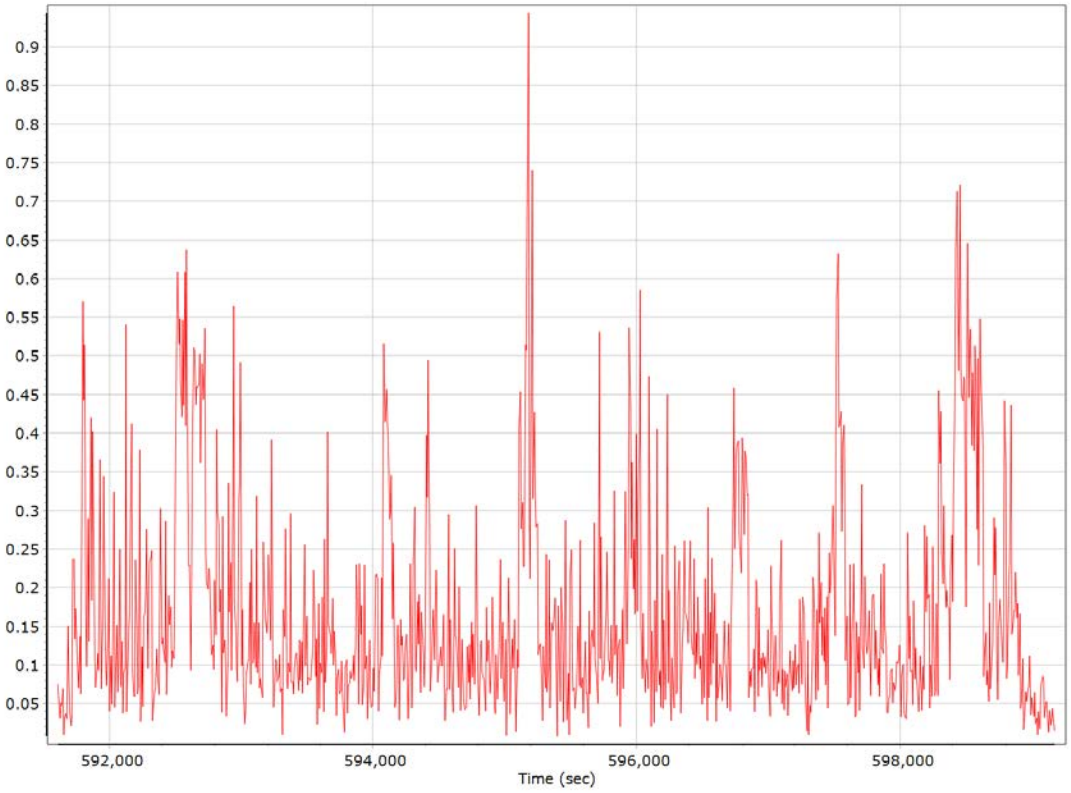
Ground Speed



Body Acceleration



Total Body Acceleration

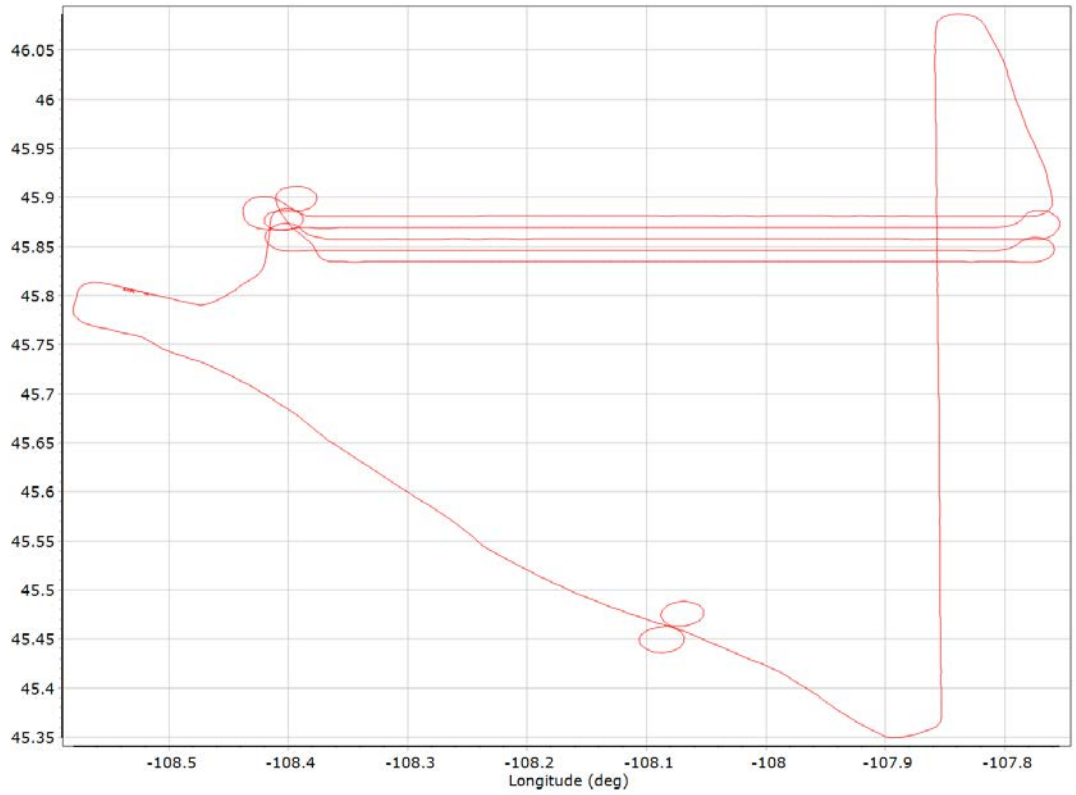


Body Angular Rate

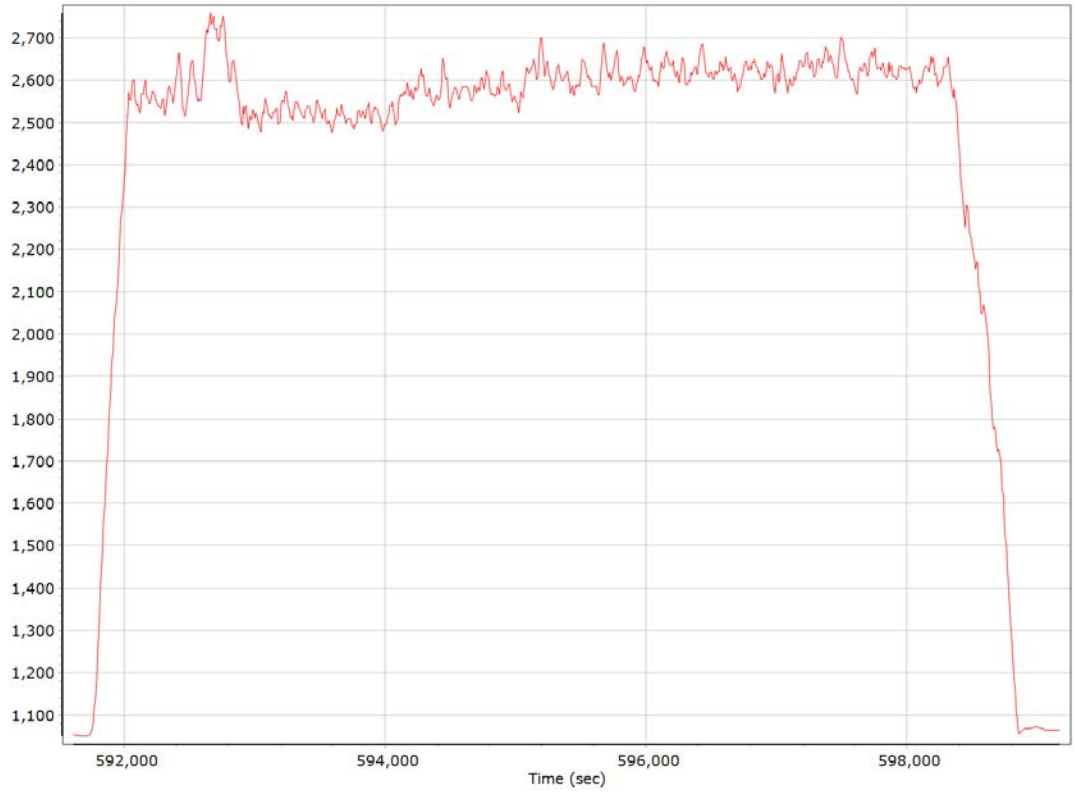


Forward Processed Trajectory Information

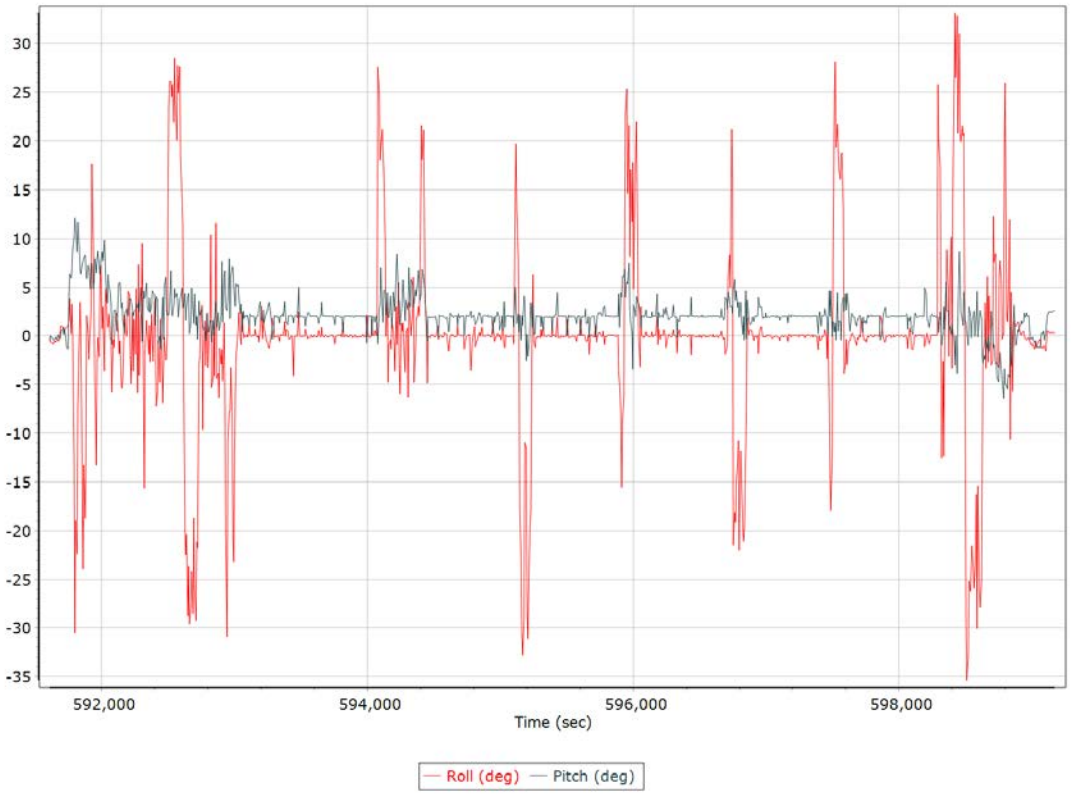
Top View



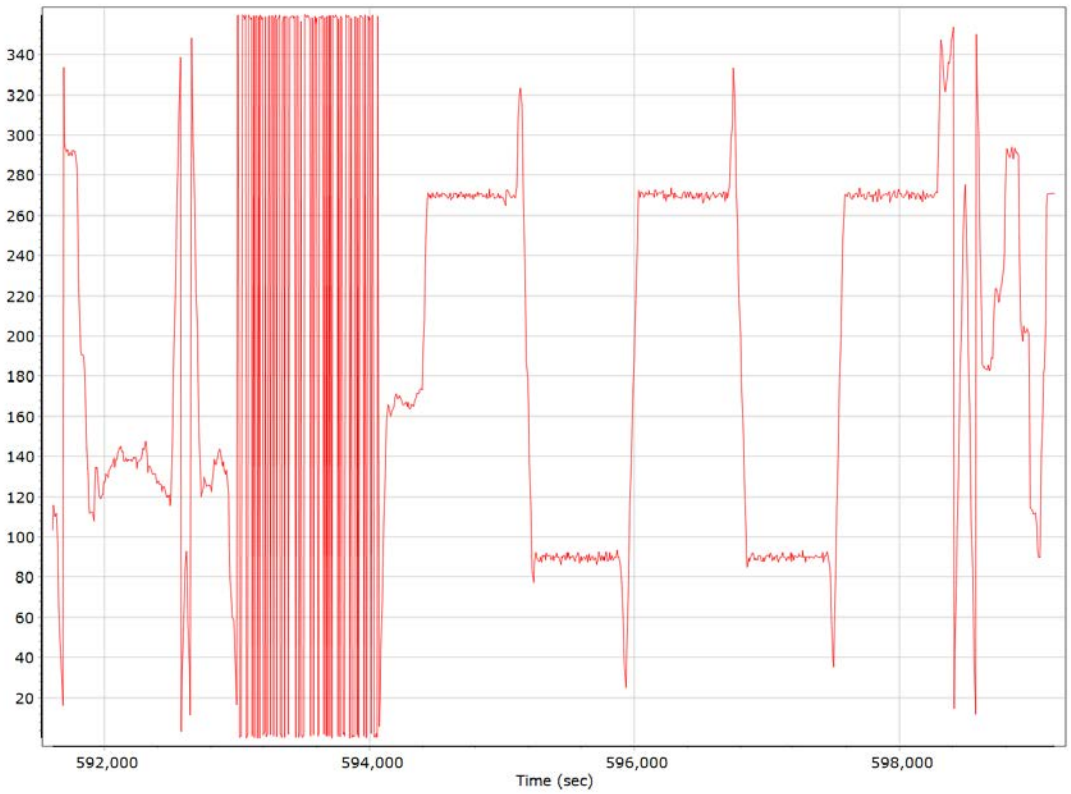
Altitude



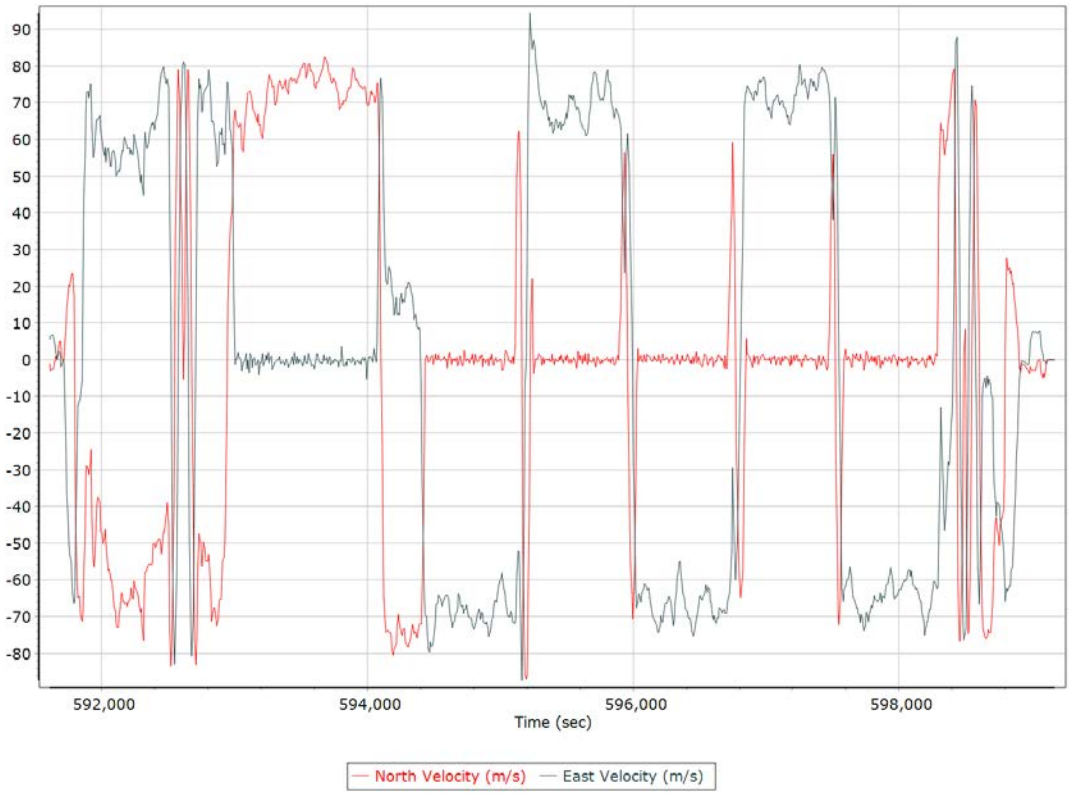
Roll/Pitch



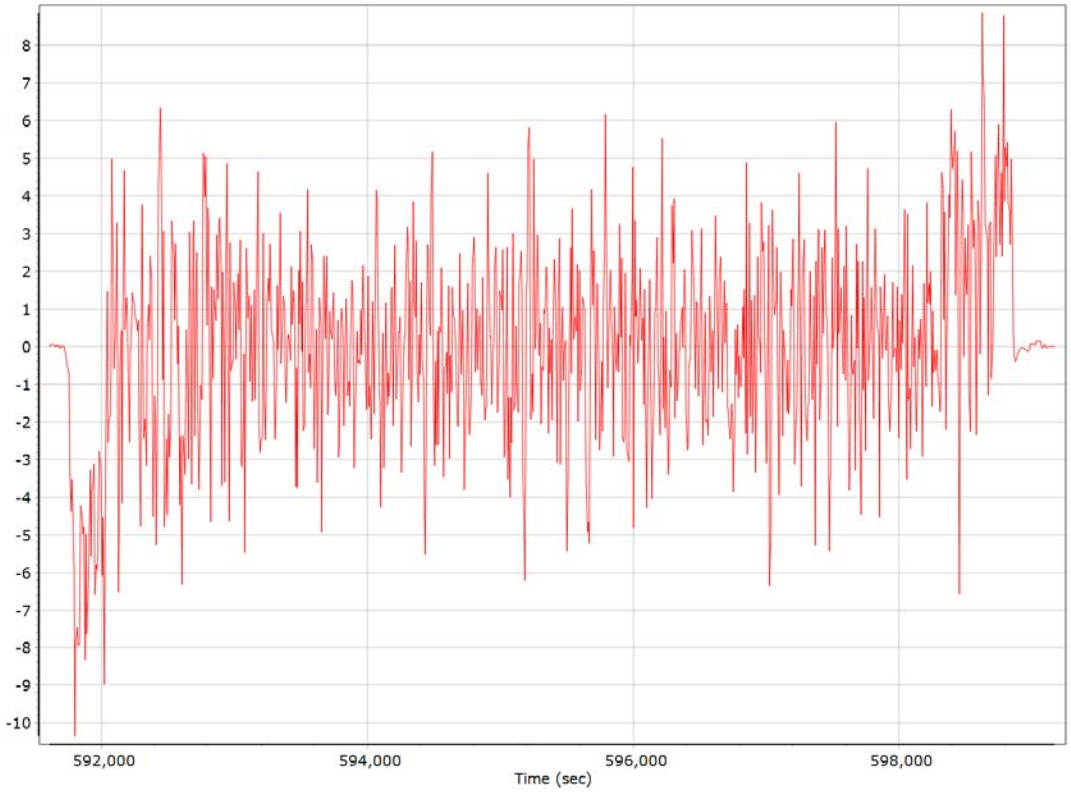
Heading



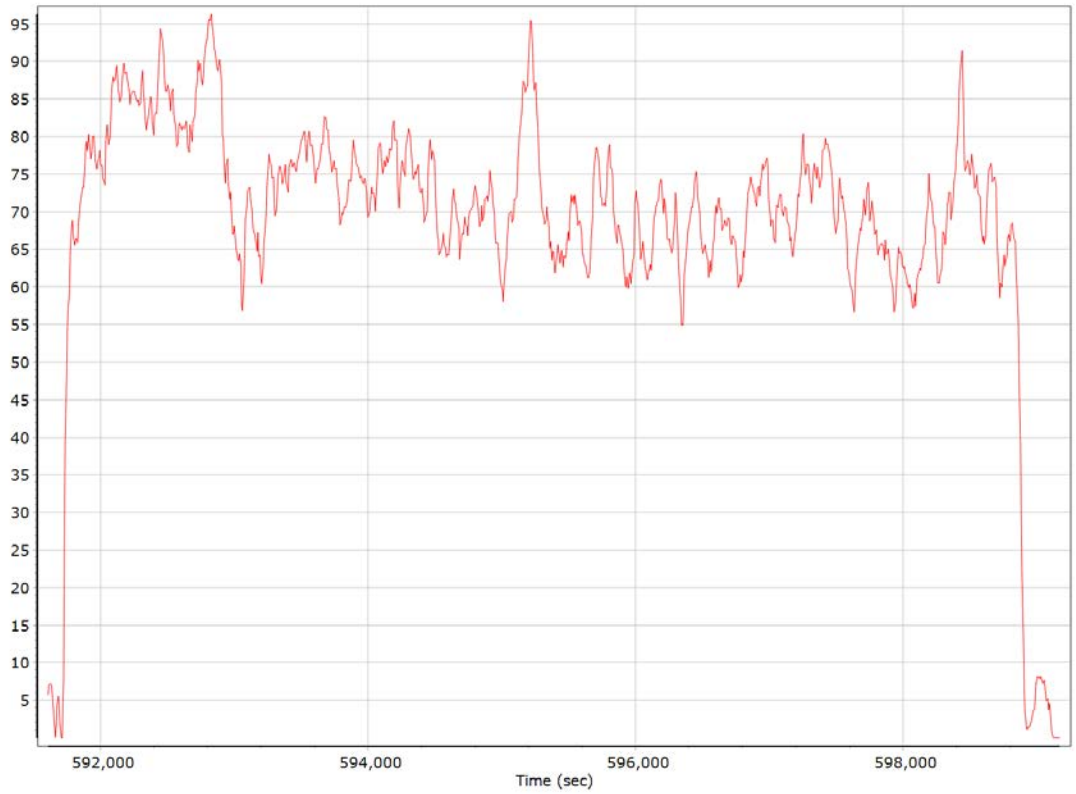
North/East Velocity



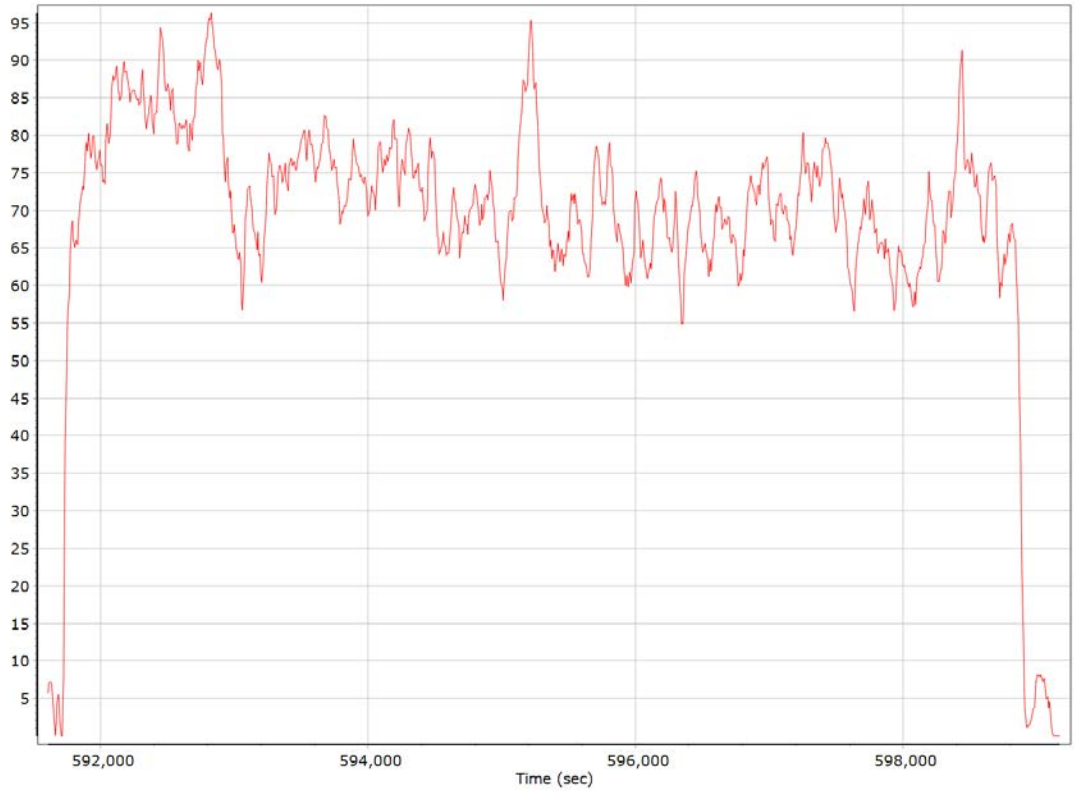
Down Velocity



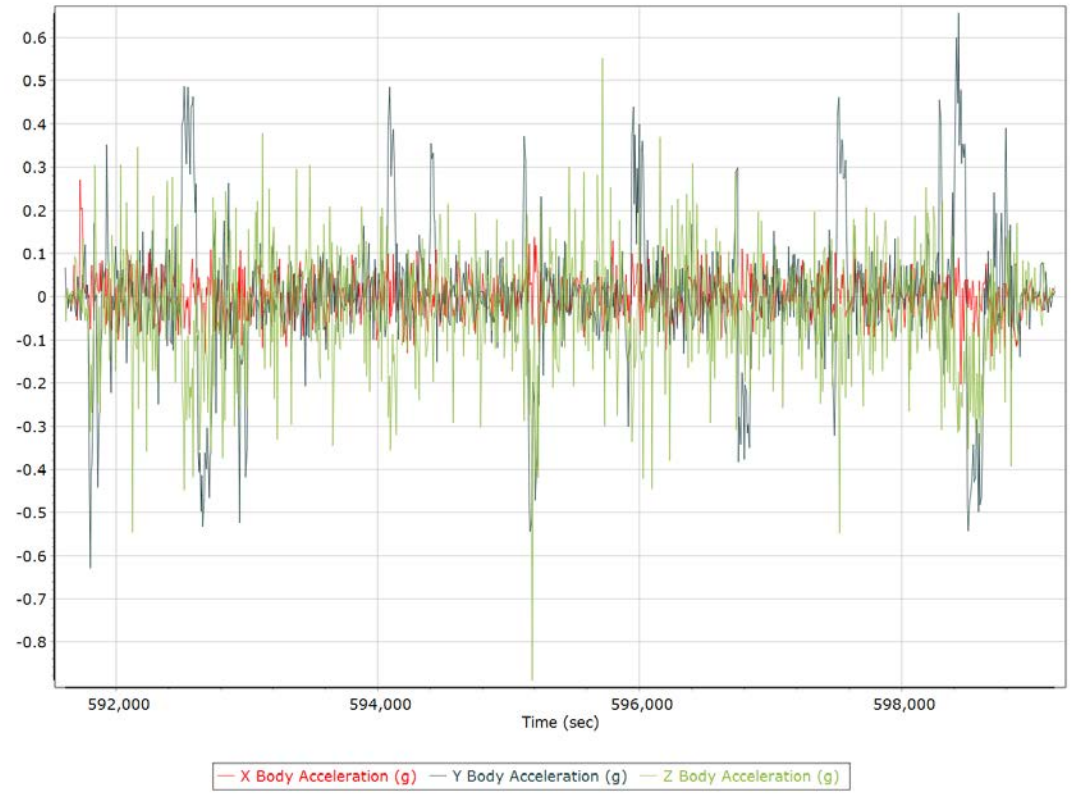
Total Speed



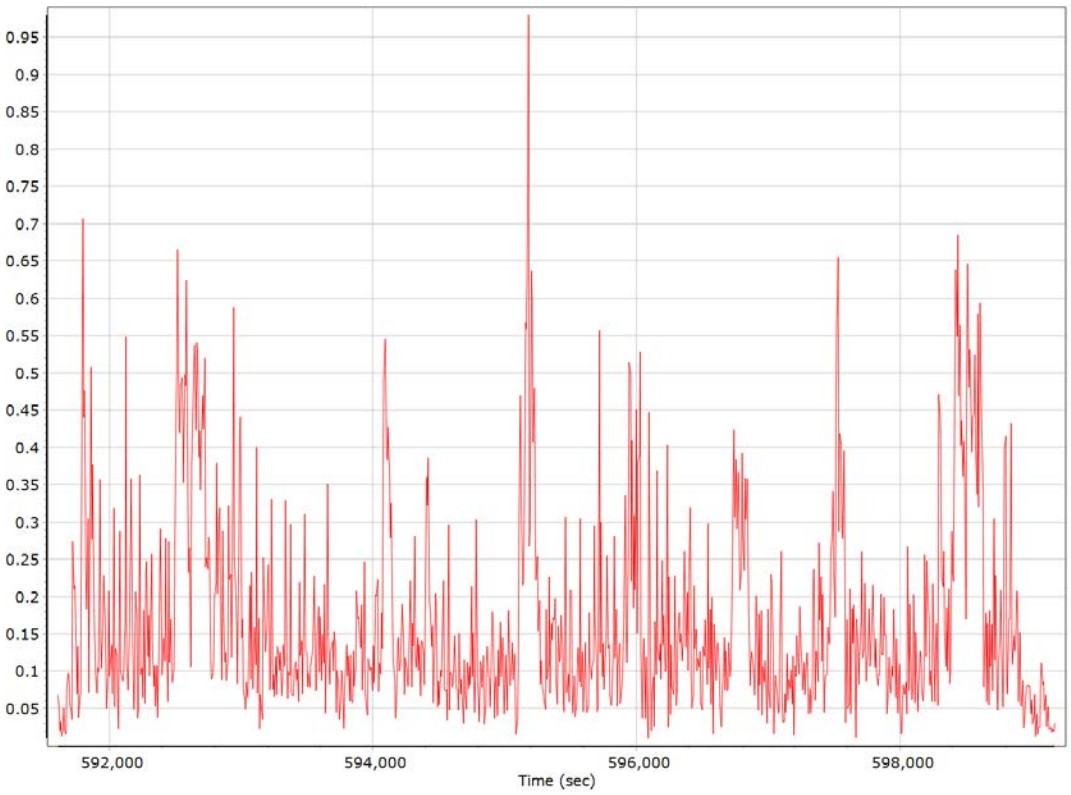
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

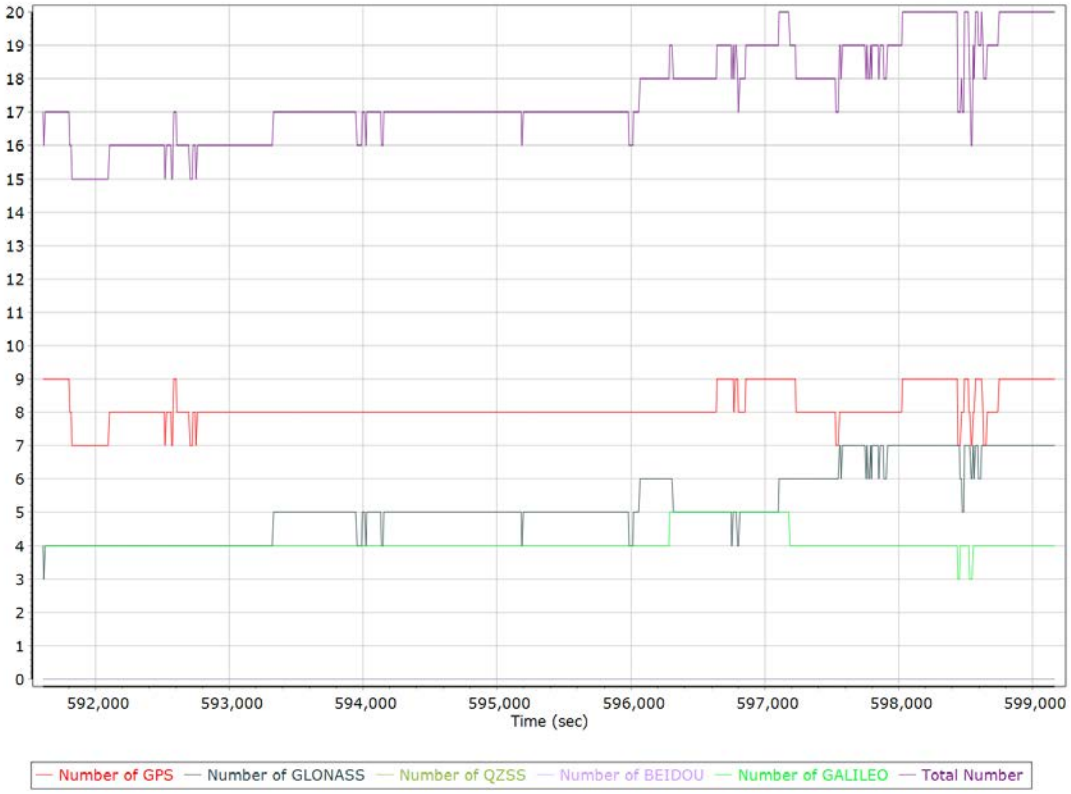


GNSS QC

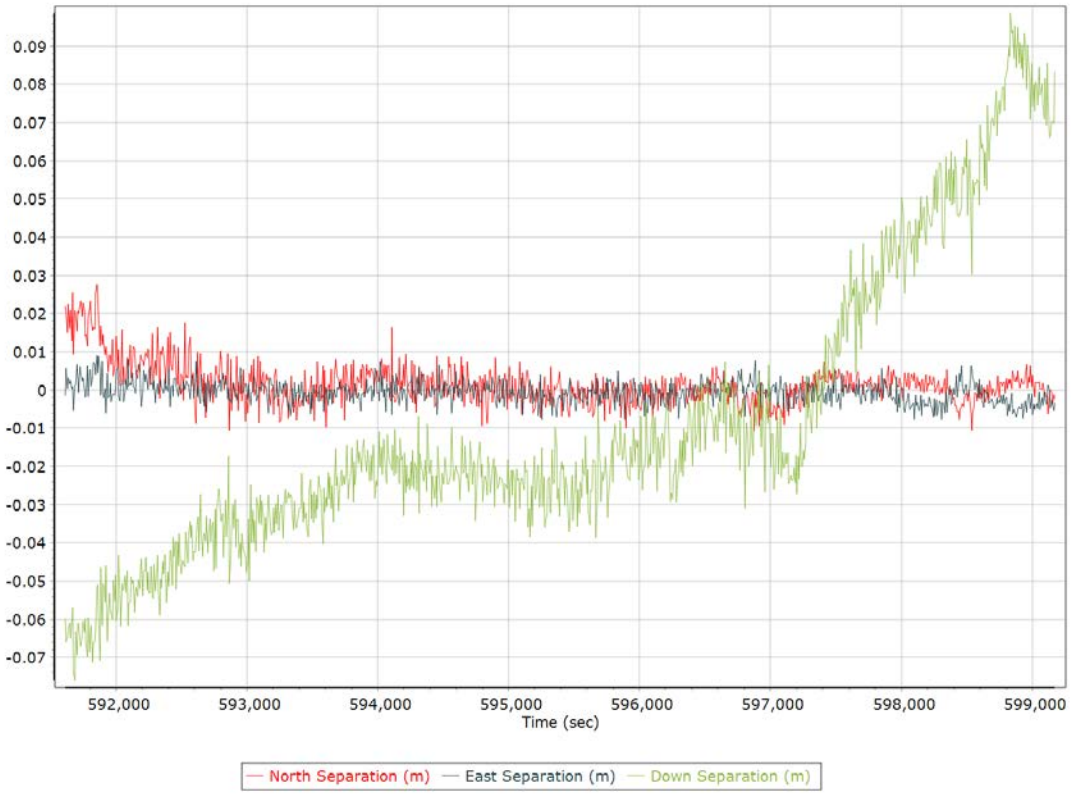
GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	7	9	8
Number of GLONASS SV	3	7	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	3	5	4
Total number of SV	15	20	18
PDOP	1.03	1.43	1.25
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	7618.00	0.00	0.00
Percentage	100.00	0.00	0.00

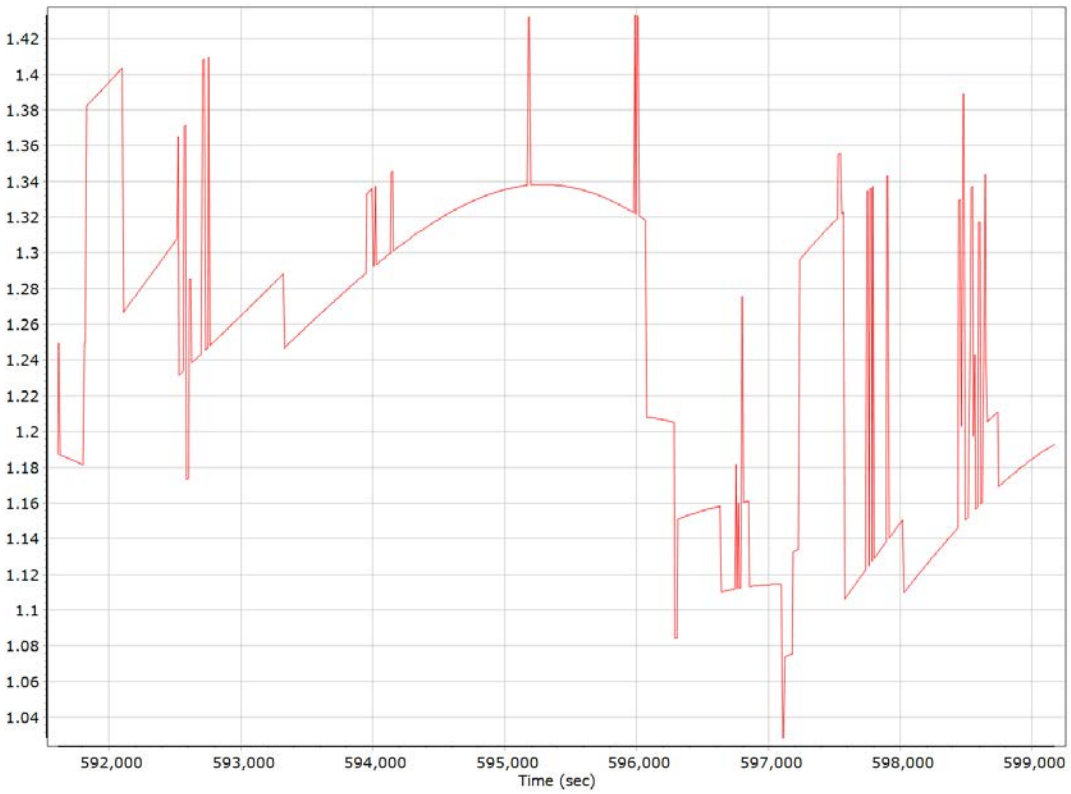
Num SVs in solution



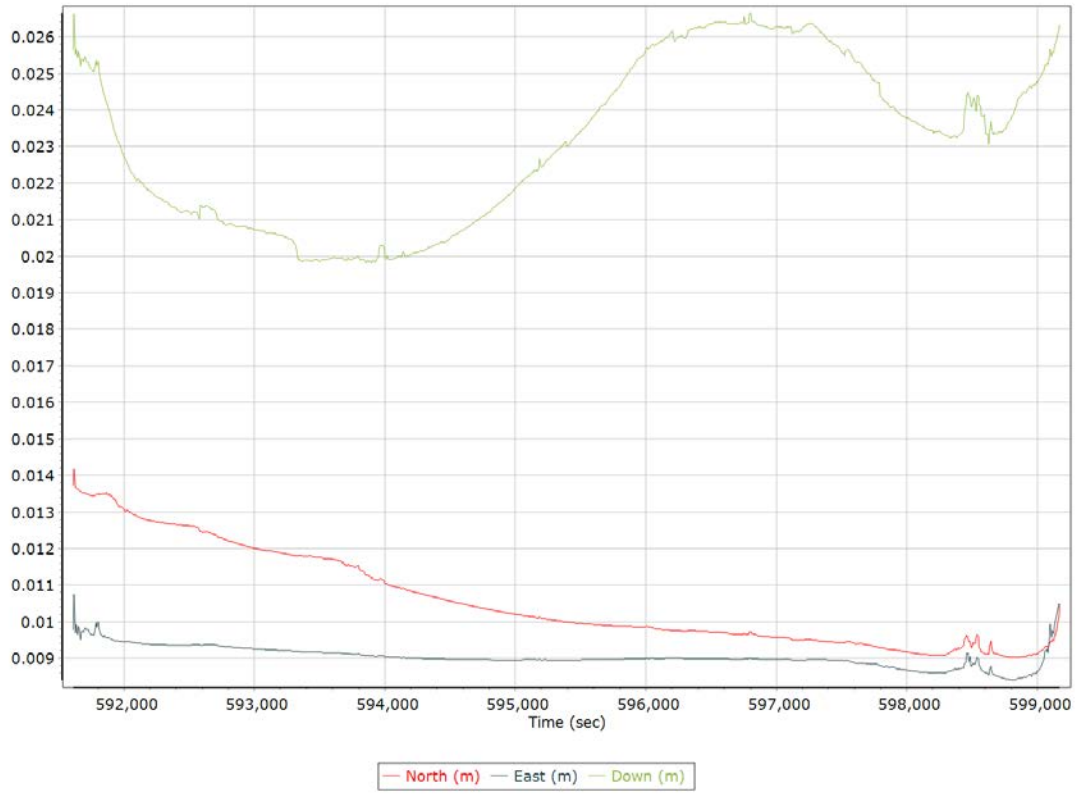
Forward/Reverse Separation



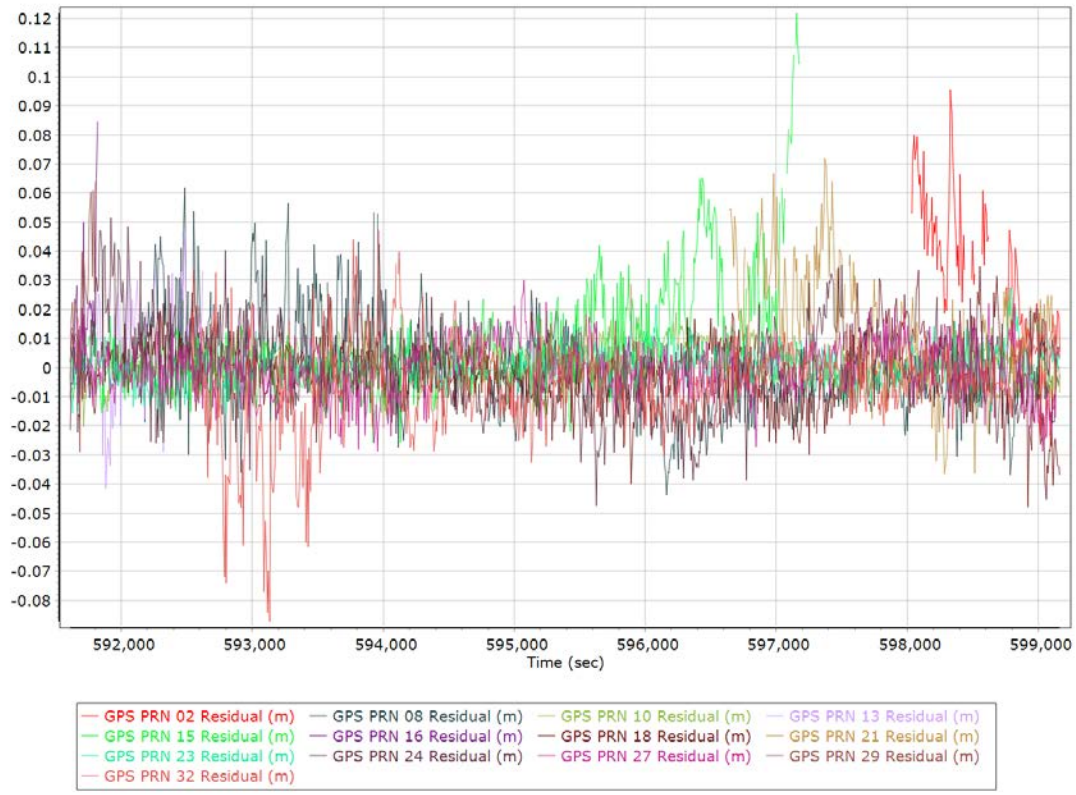
PDOP



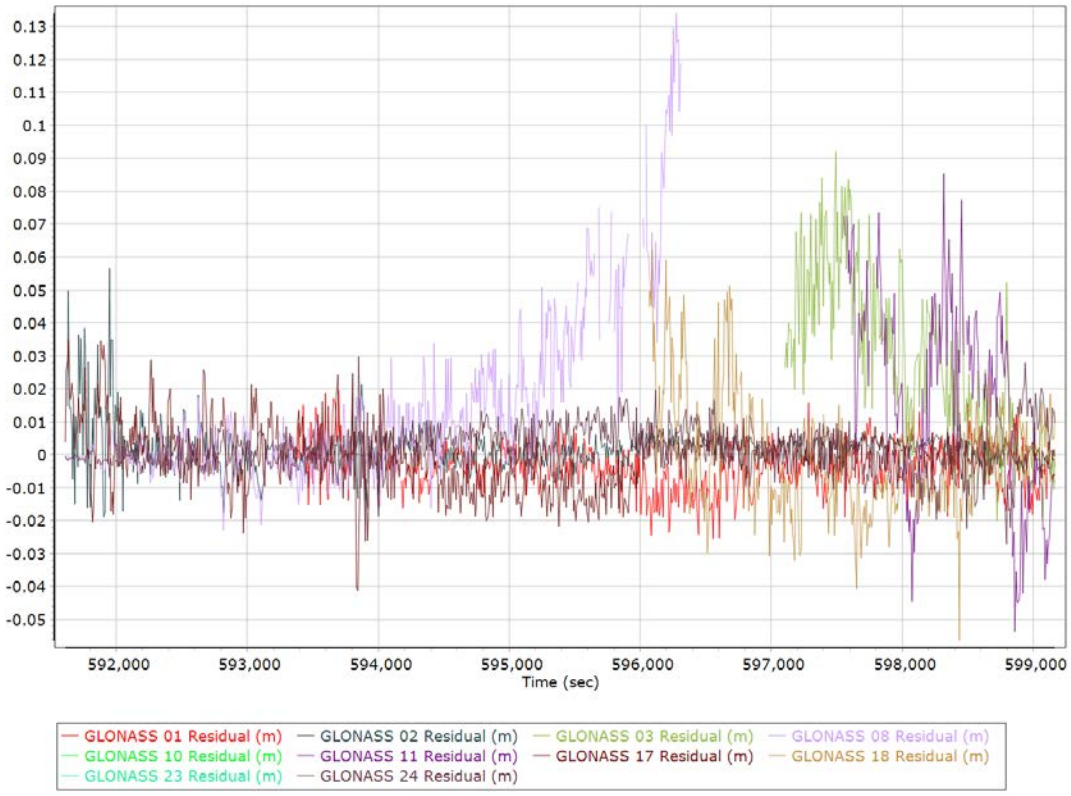
Estimated Position Accuracy



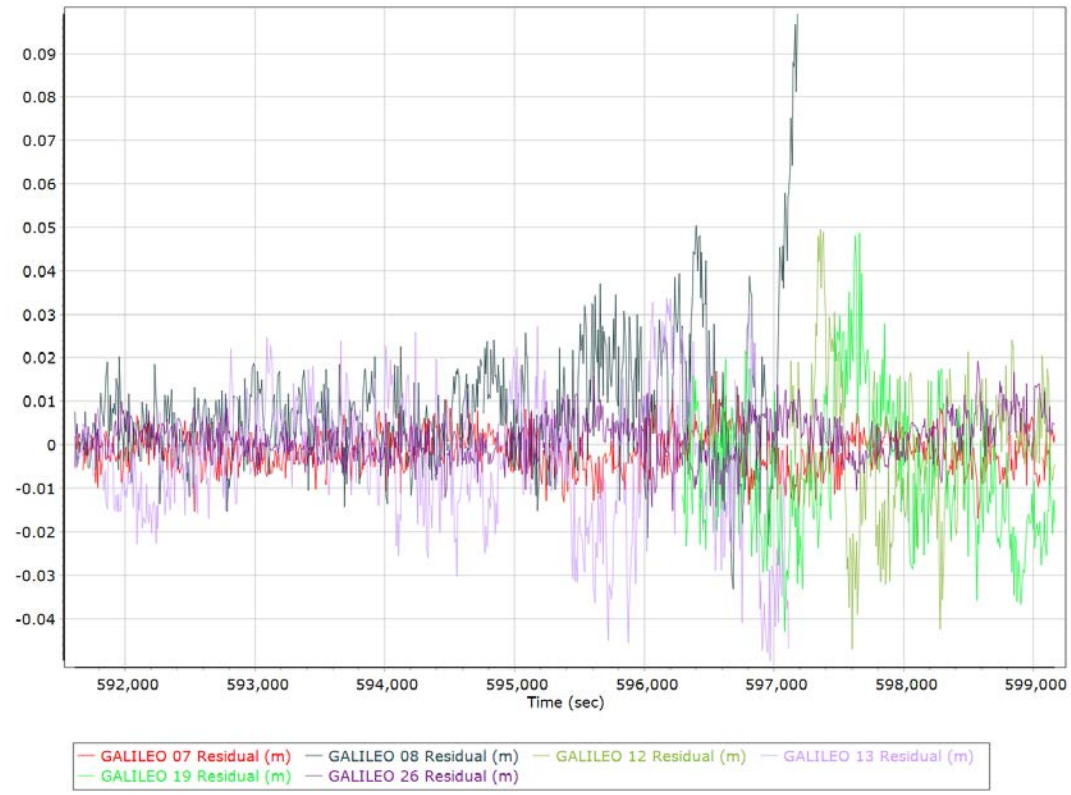
GPS Residuals



GLONASS Residuals



GALILEO Residuals



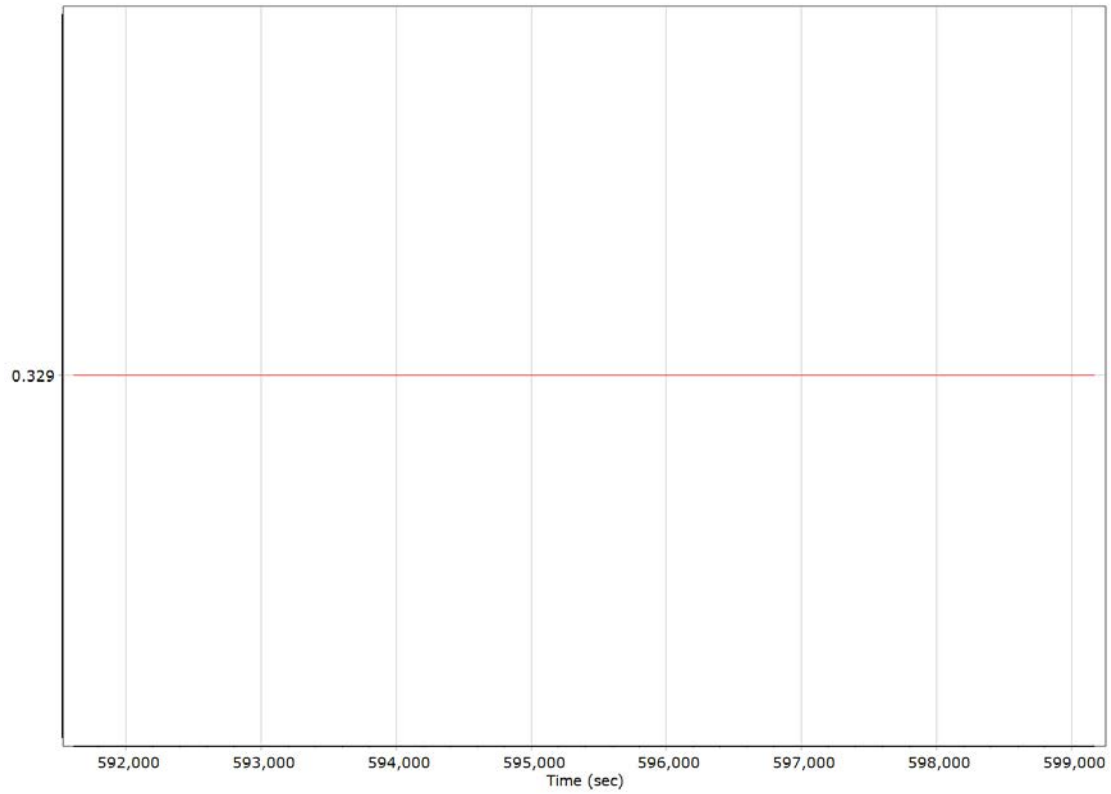
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	591527.000 (7/22/2023 8:18:47 PM)		
Processing end time	599174.000 (7/22/2023 10:26:14 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

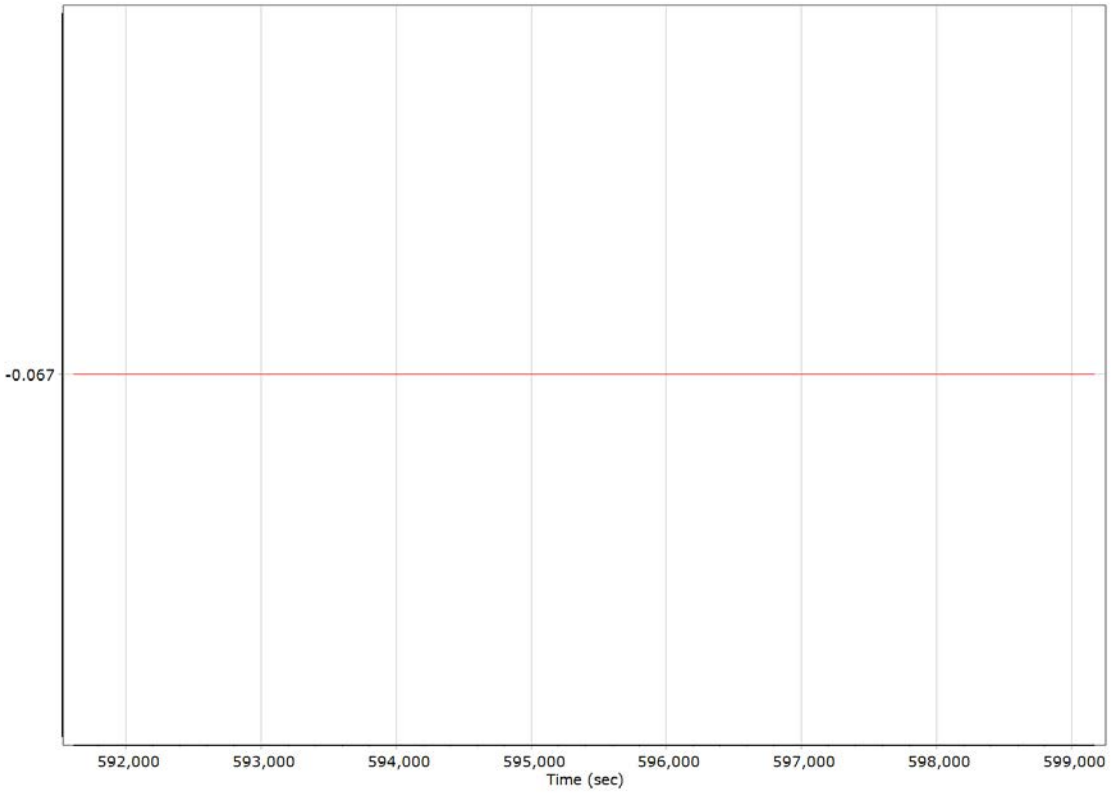
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

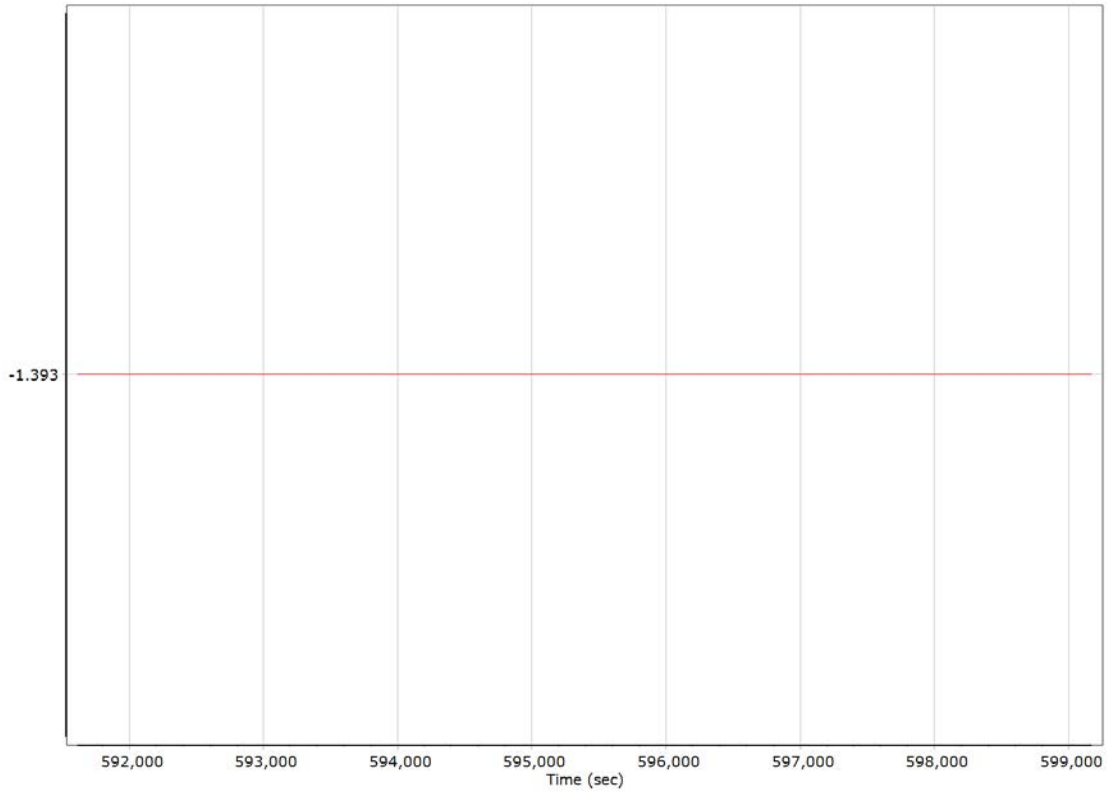
X Reference-Primary GNSS Lever Arm (m)



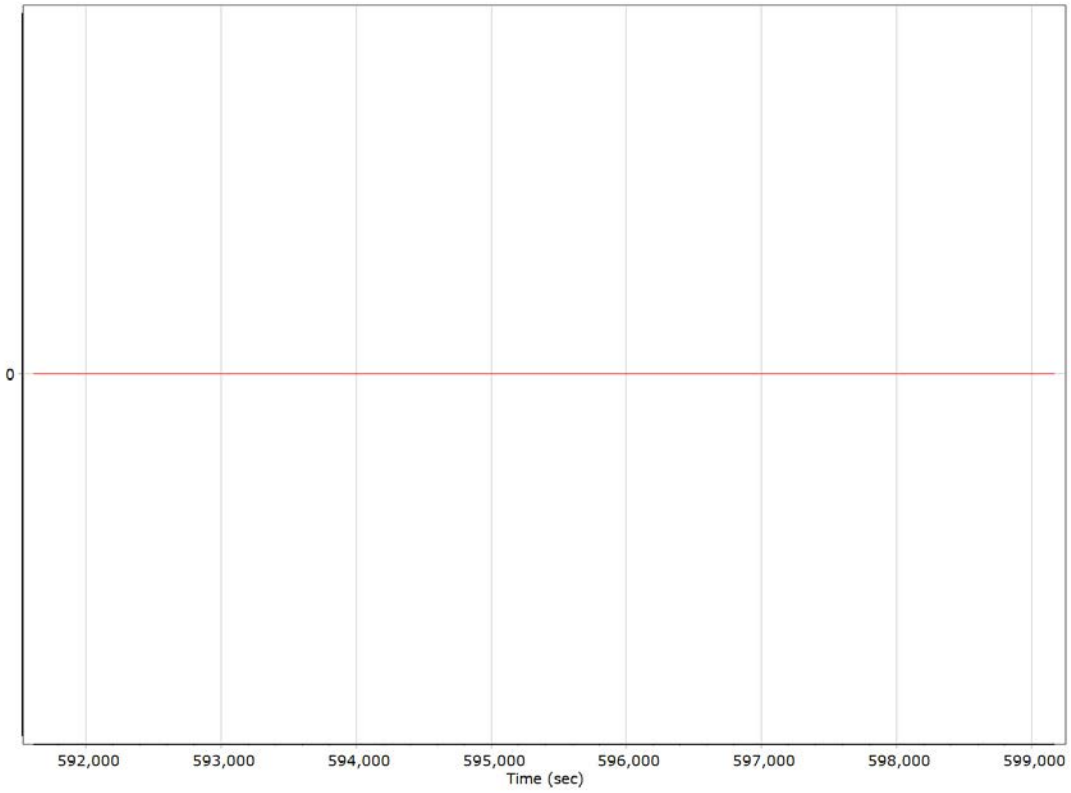
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



Reference-Primary GNSS Lever Arm Figure of Merit



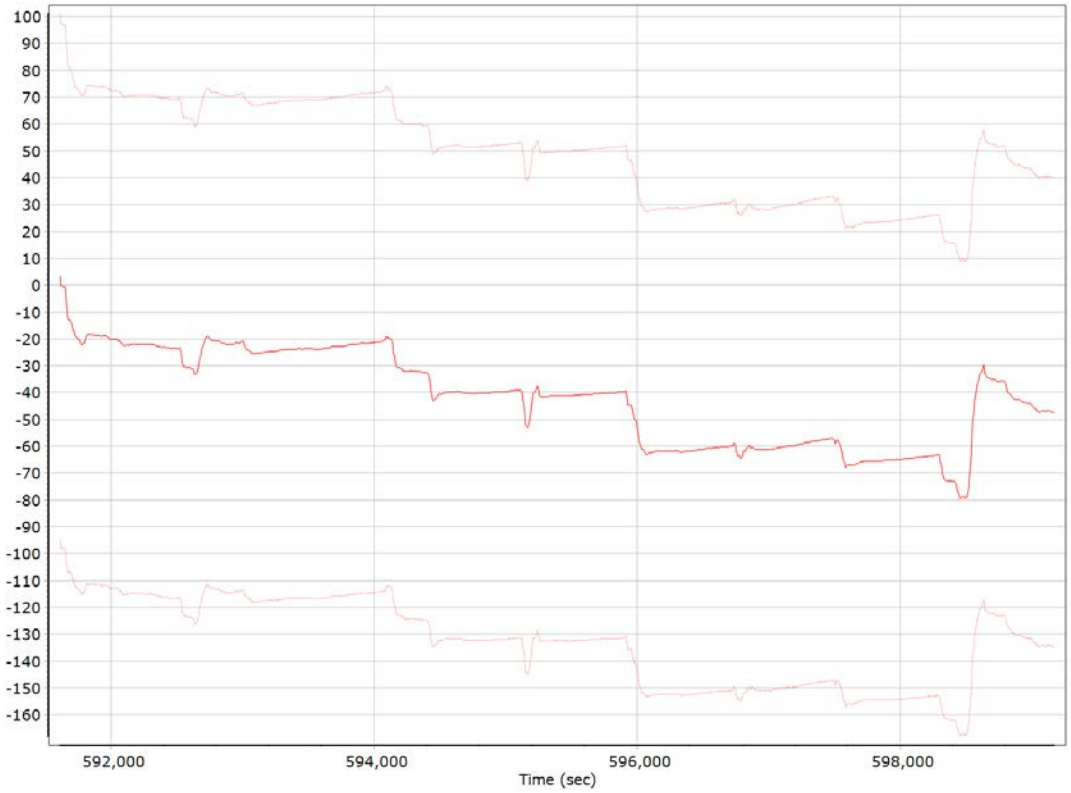
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

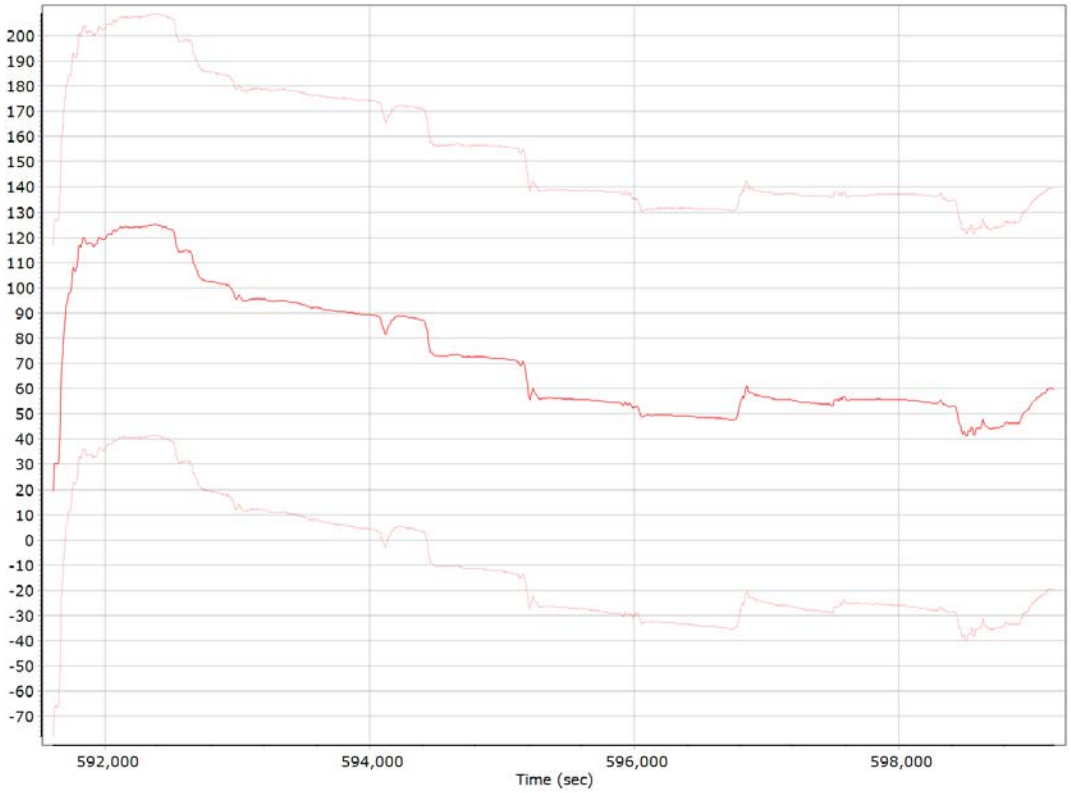
Accelerometer Bias (micro-g)



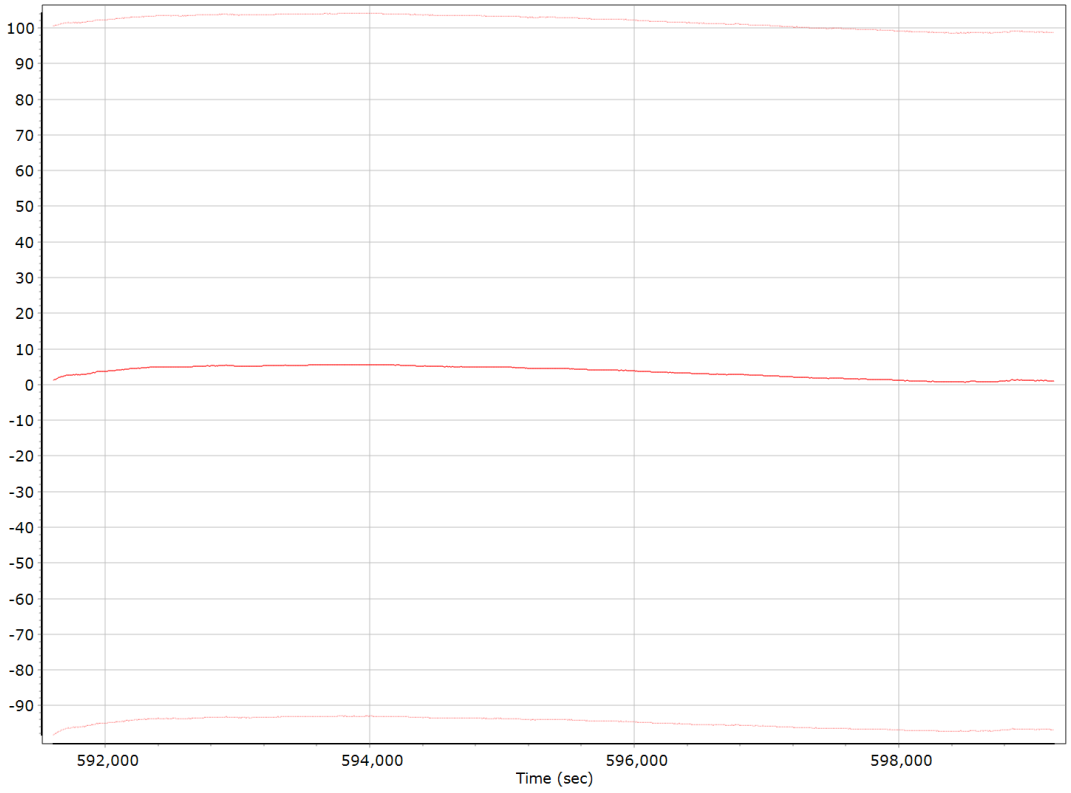
X Accelerometer Bias (micro-g)



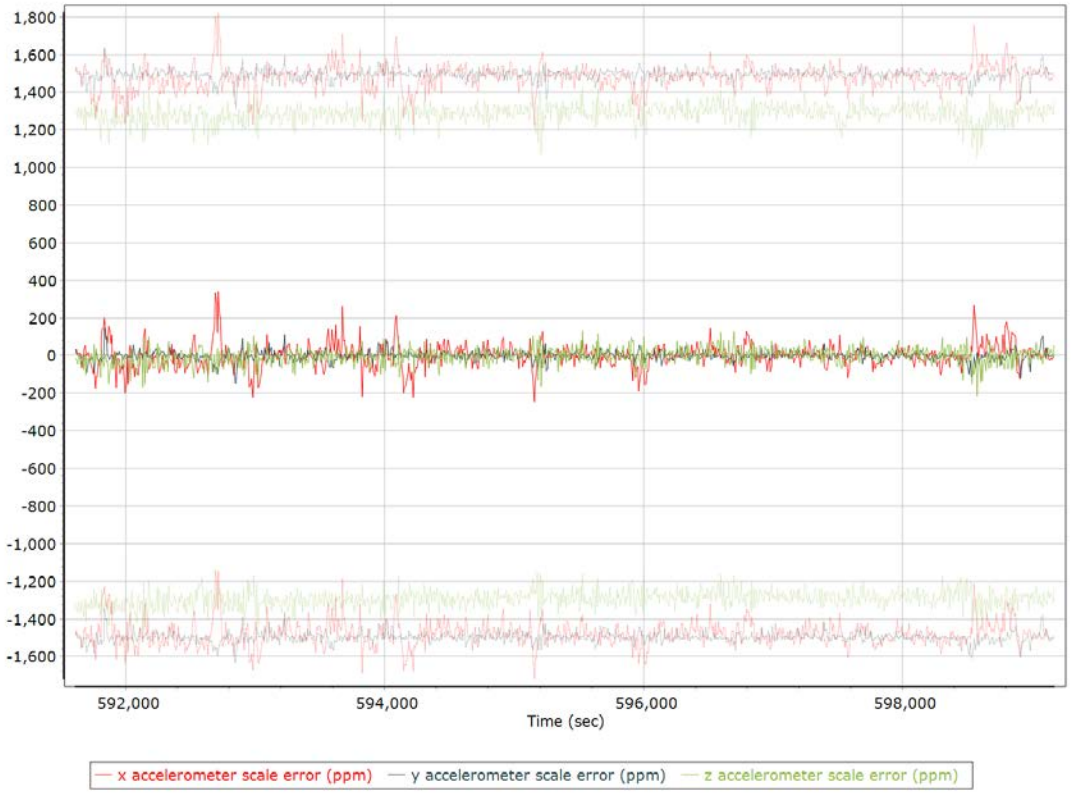
Y Accelerometer Bias (micro-g)



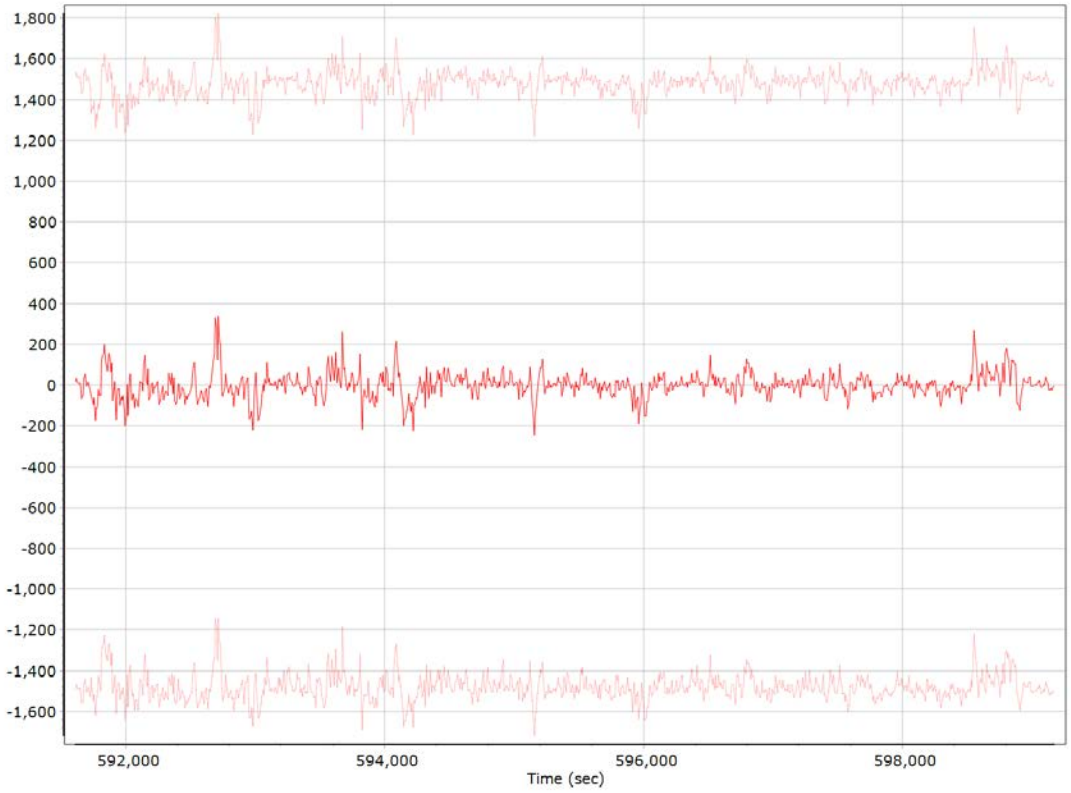
Z Accelerometer Bias (micro-g)



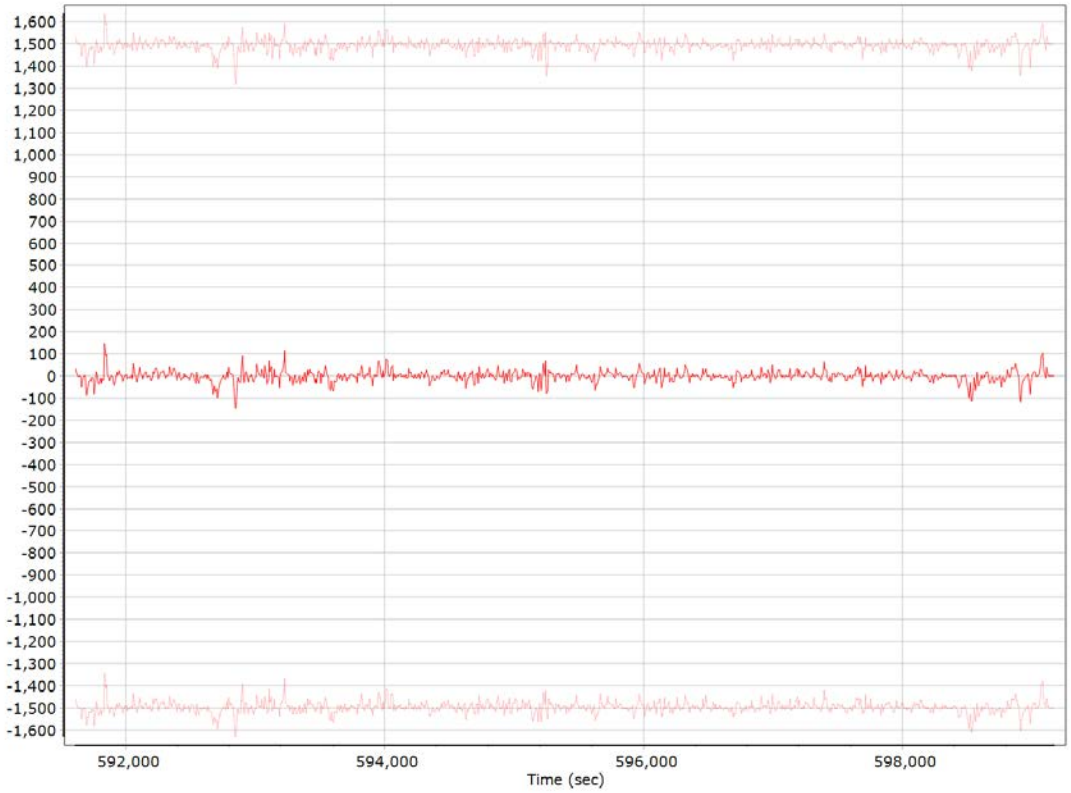
Accelerometer Scale Error (ppm)



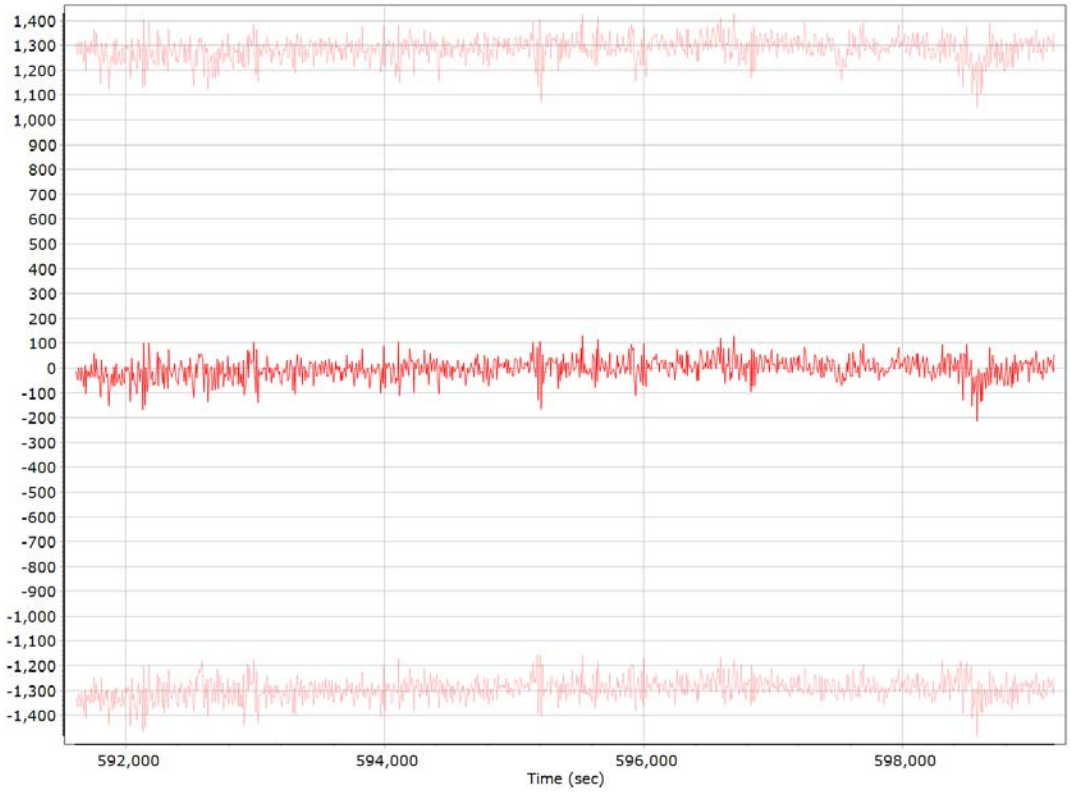
X Accelerometer Scale Error (ppm)



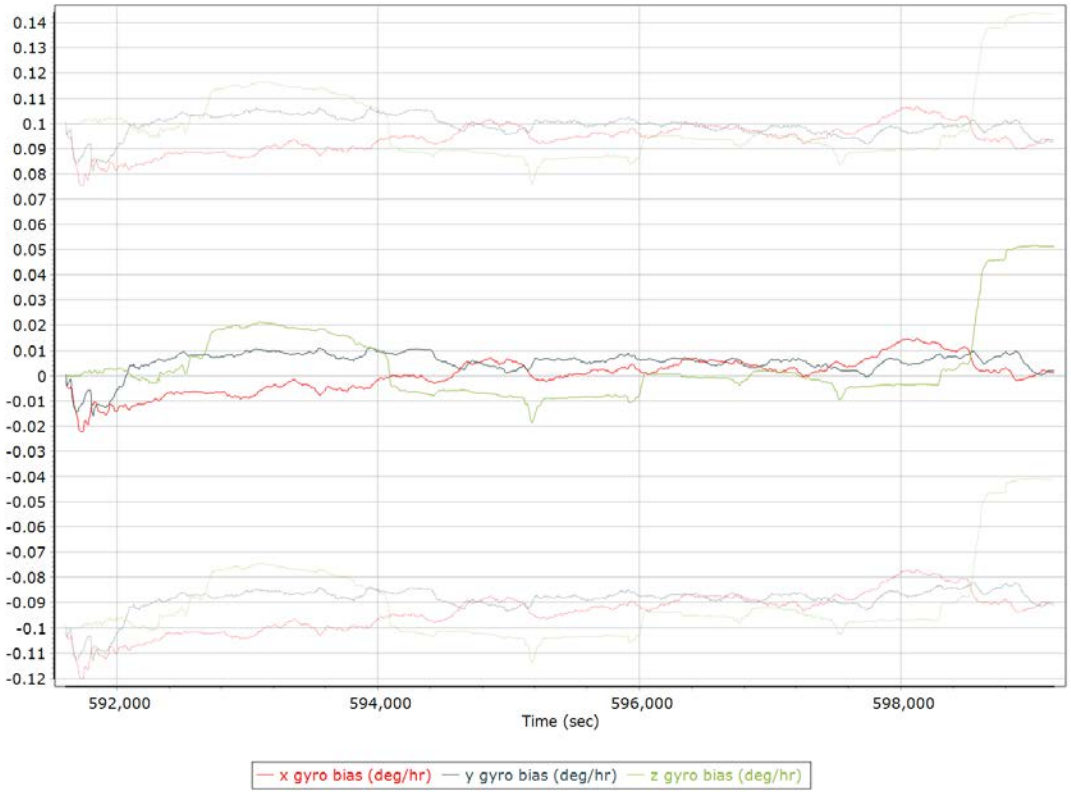
Y Accelerometer Scale Error (ppm)



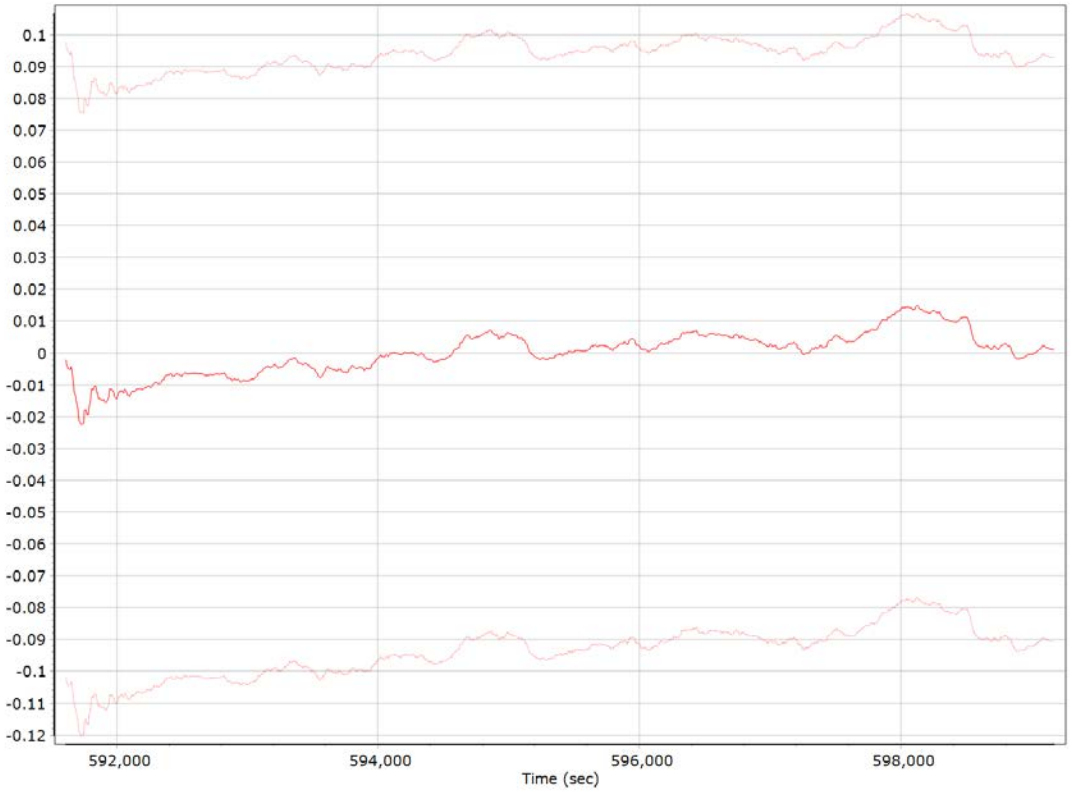
Z Accelerometer Scale Error (ppm)



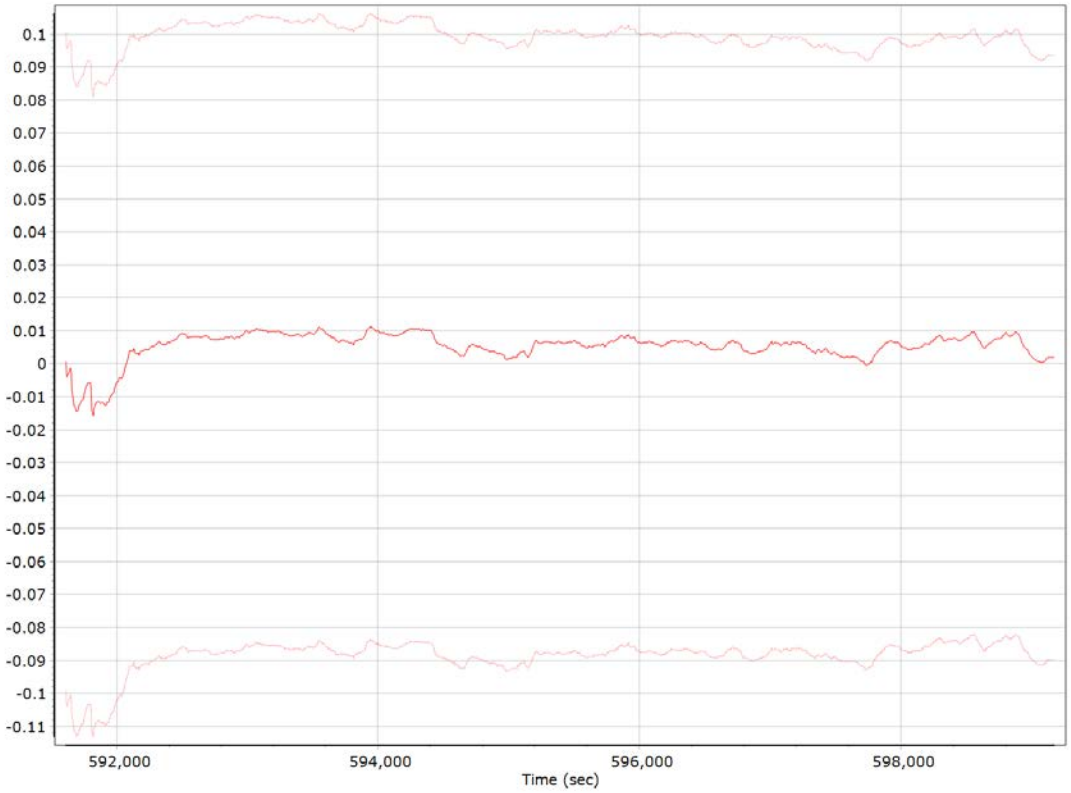
Gyro Bias (deg/h)



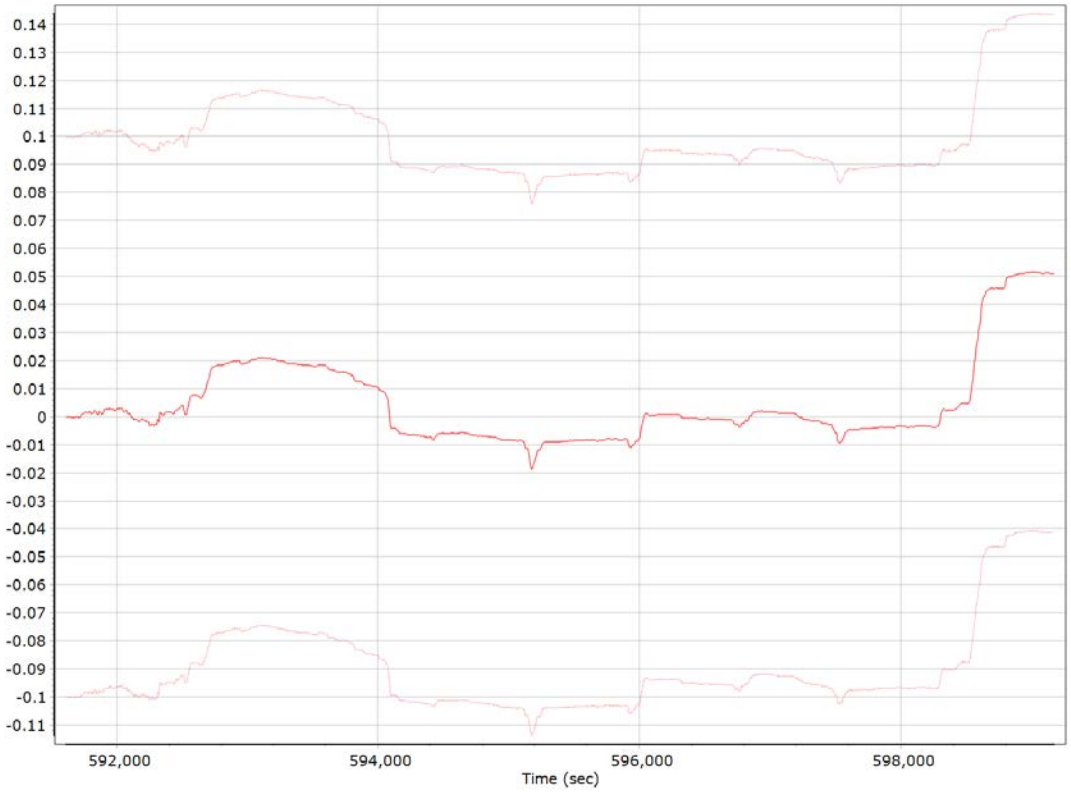
X Gyro Bias (deg/h)



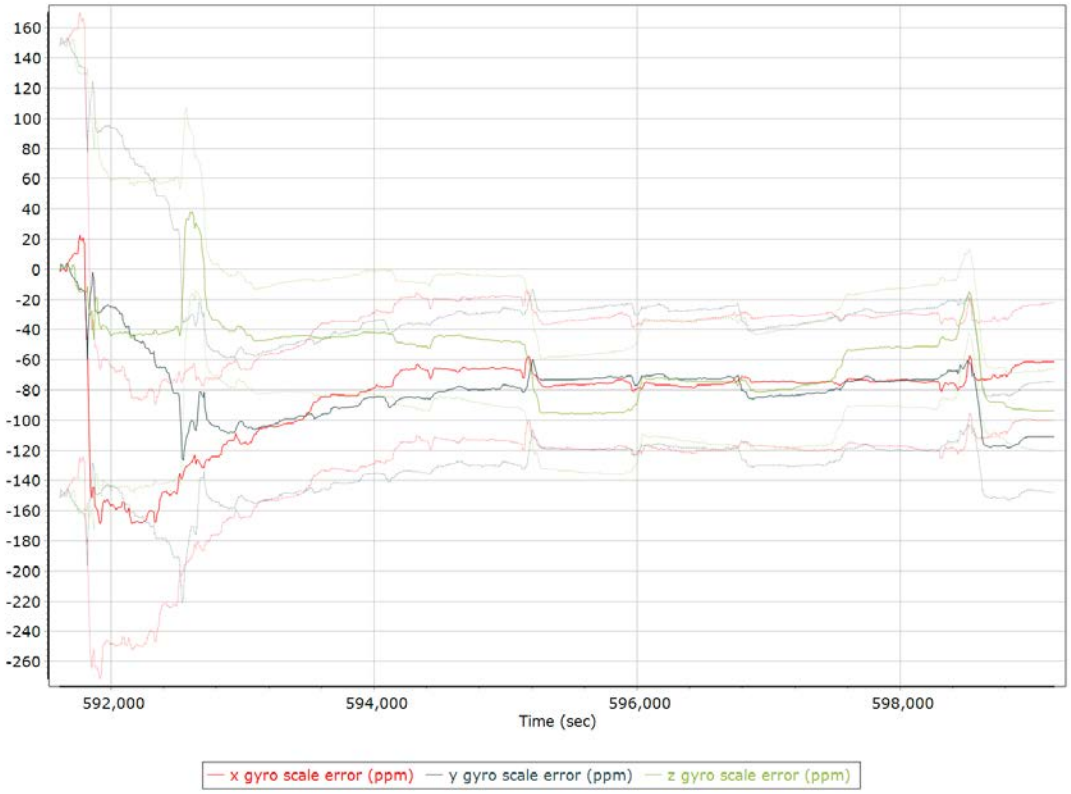
Y Gyro Bias (deg/h)



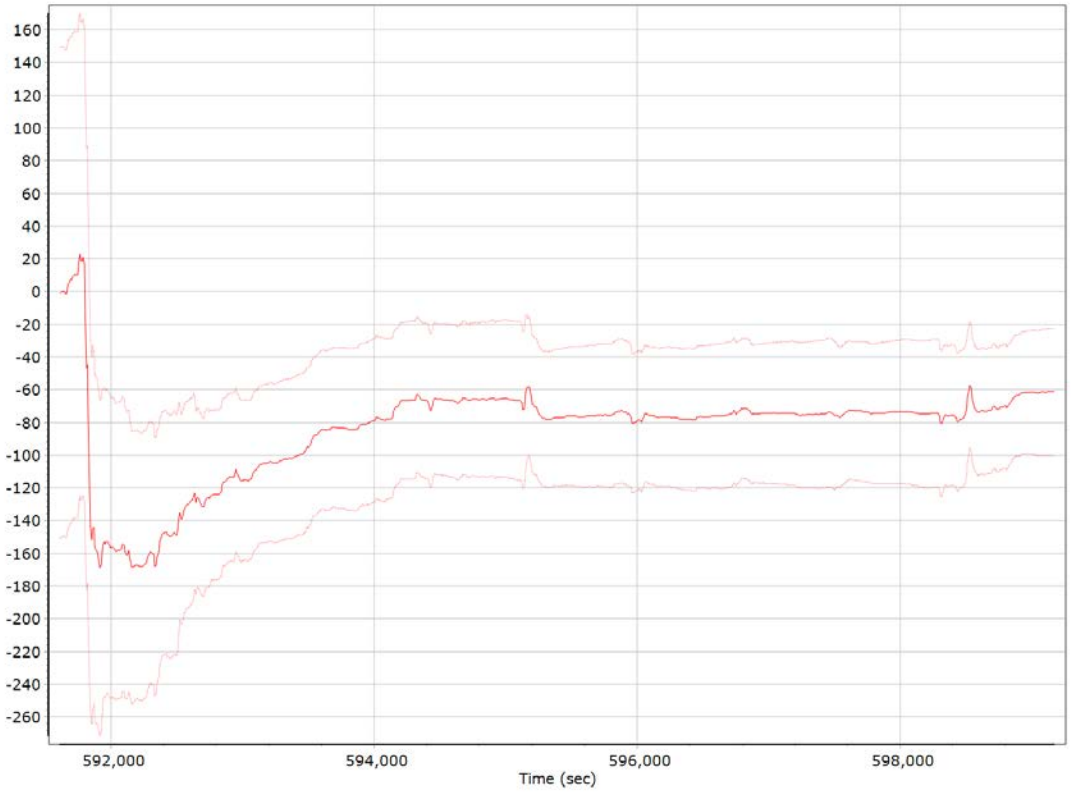
Z Gyro Bias (deg/h)



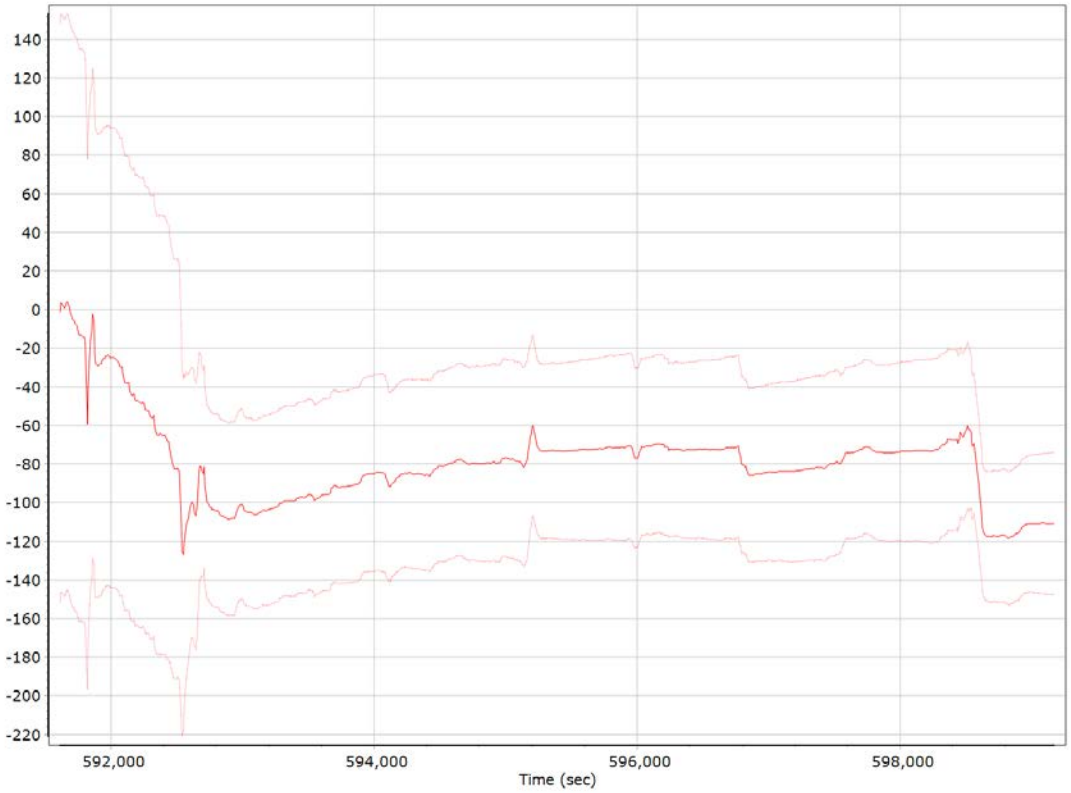
Gyro Scale Error (ppm)



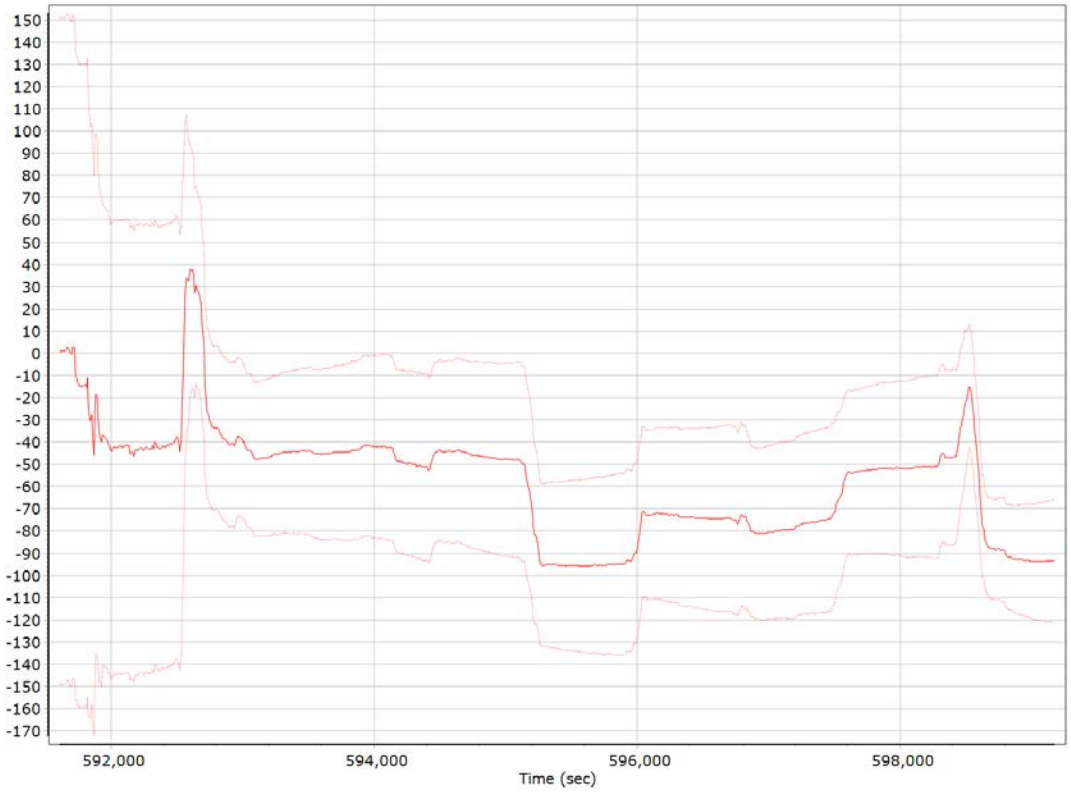
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

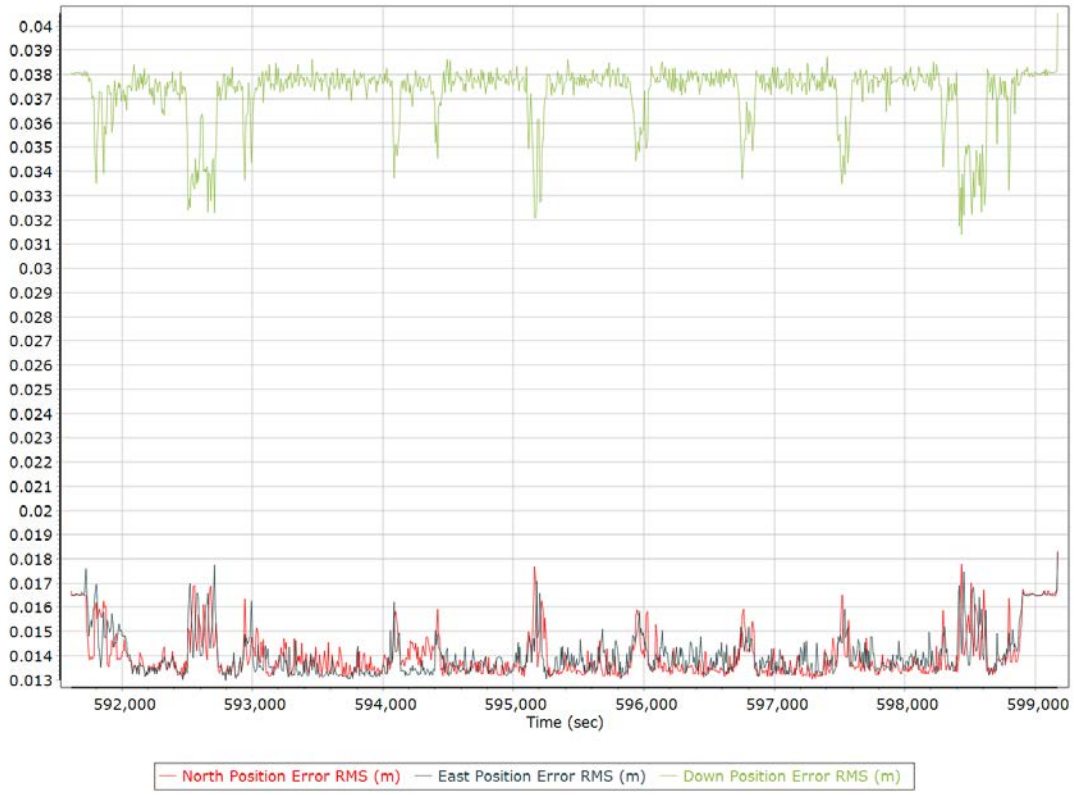


Z Gyro Scale Error (ppm)

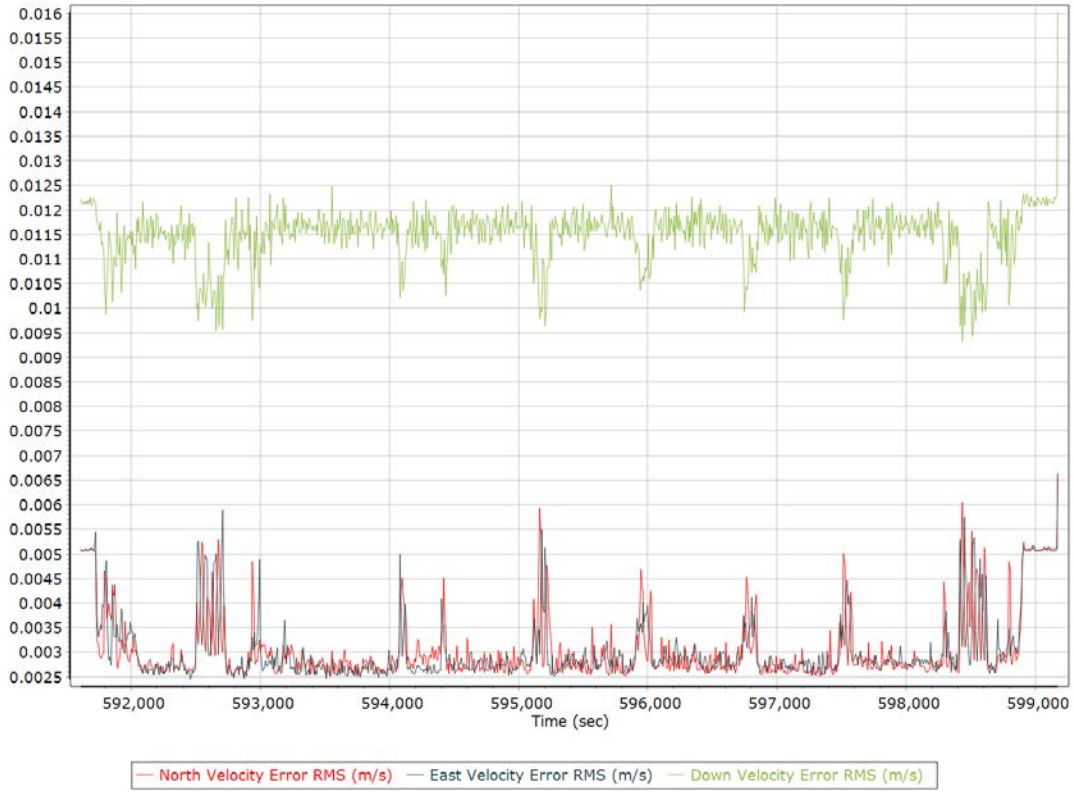


Smoothed Performance Metrics

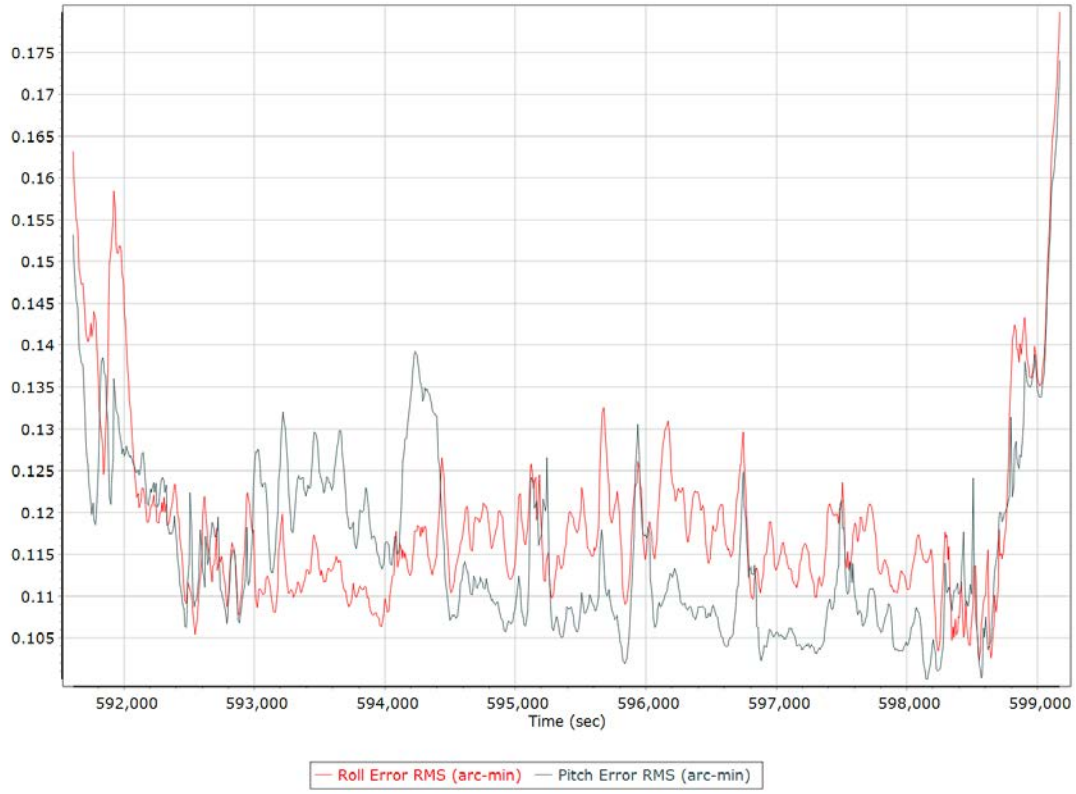
Position Error RMS (m)



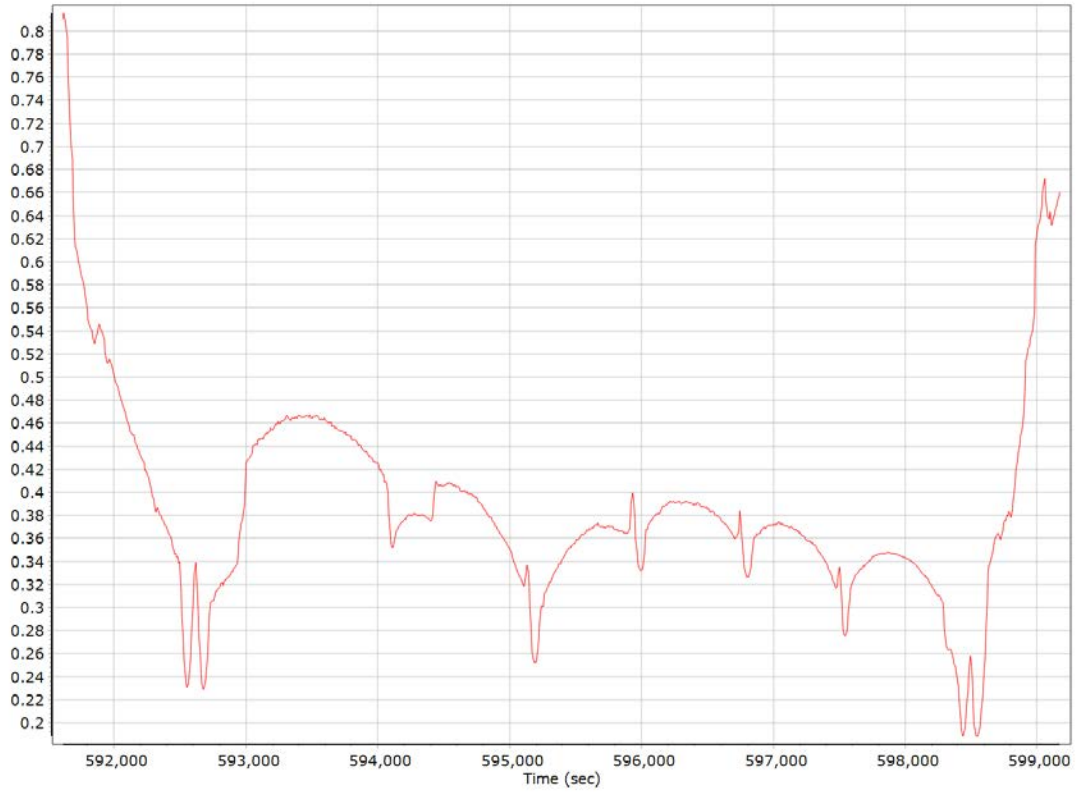
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

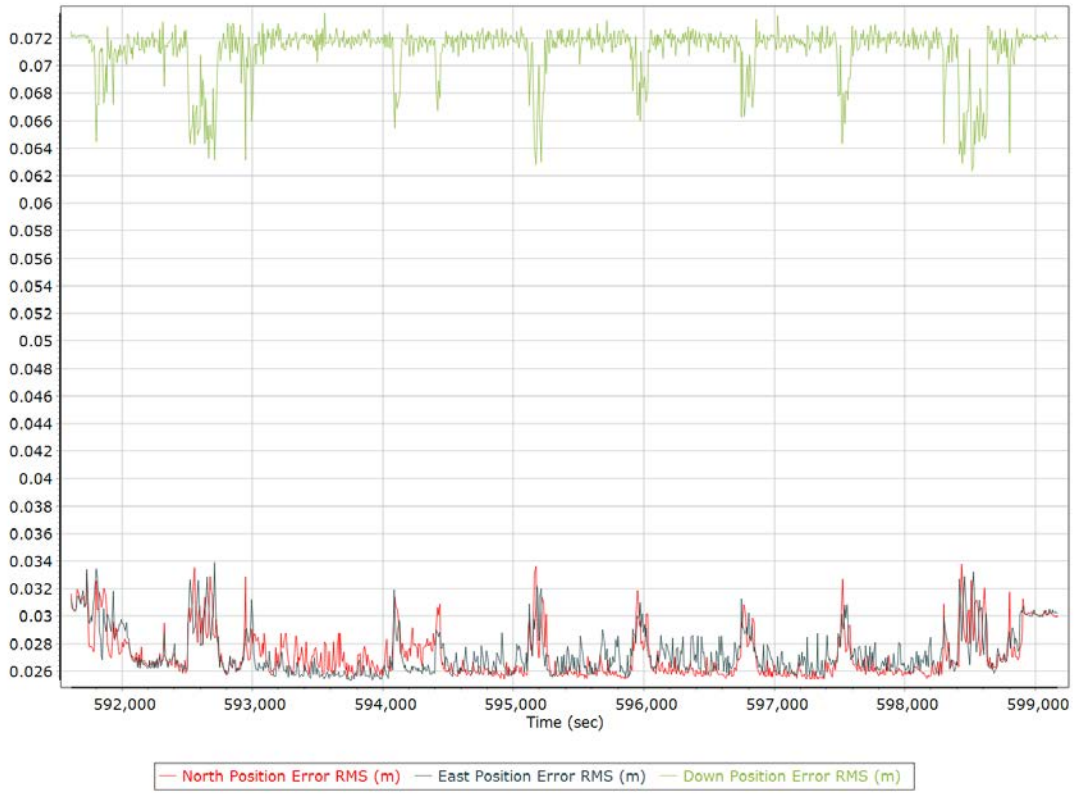


Heading Error RMS (arc-min)



Forward Processed Performance Metrics

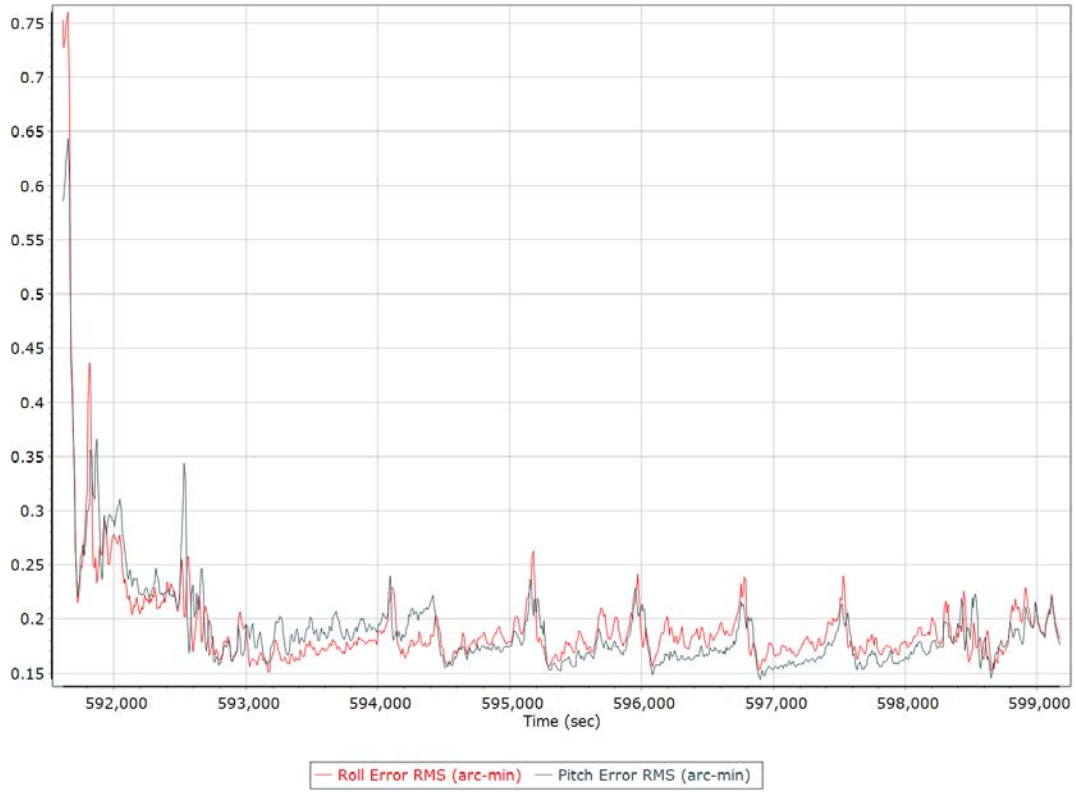
Position Error RMS (m)



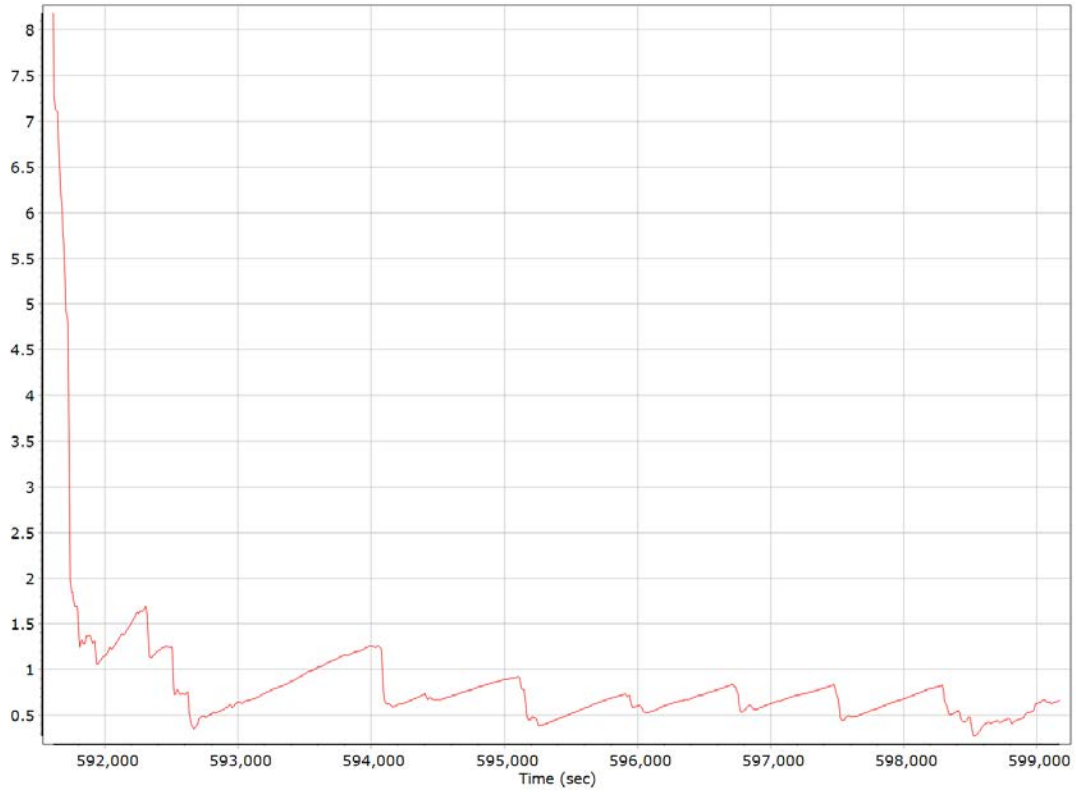
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

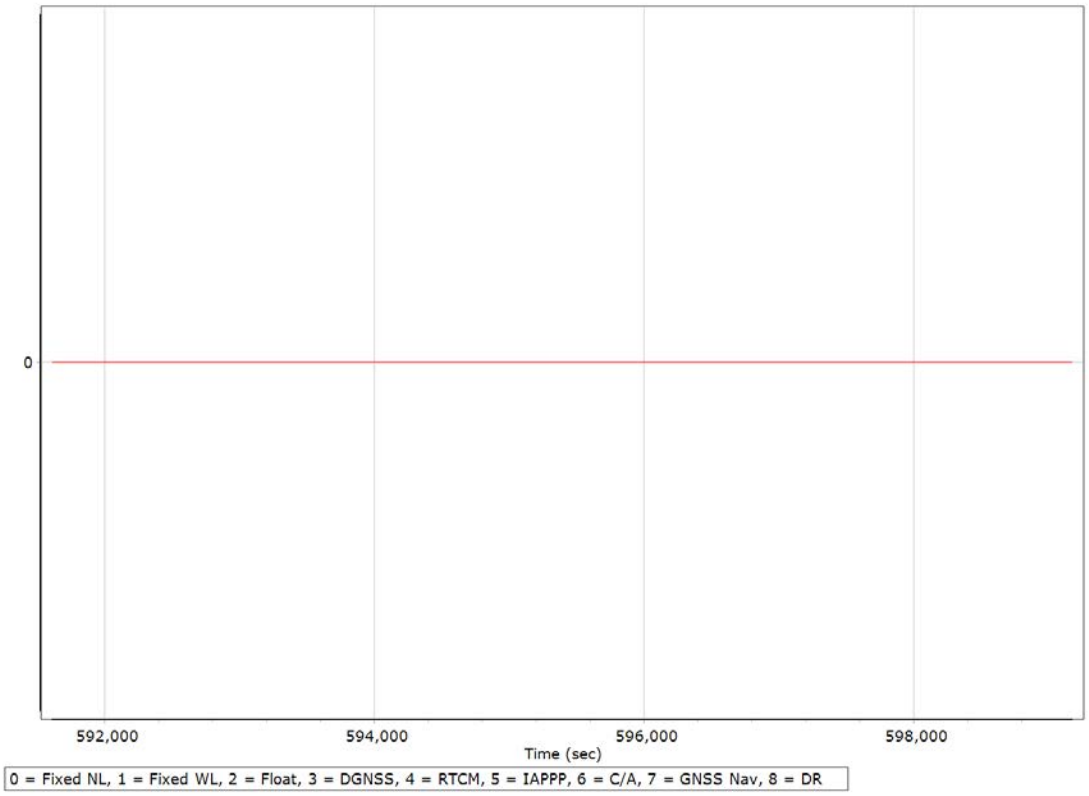


Heading Error RMS (arc-min)

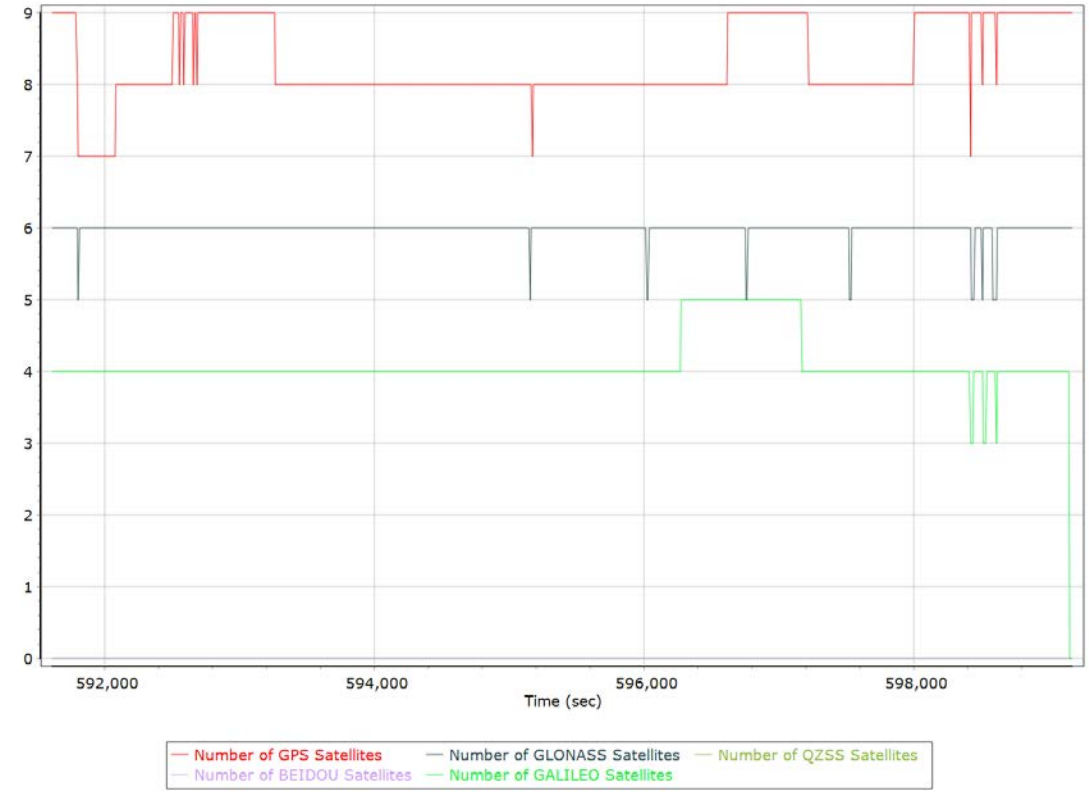


Forward Processed Solution Status

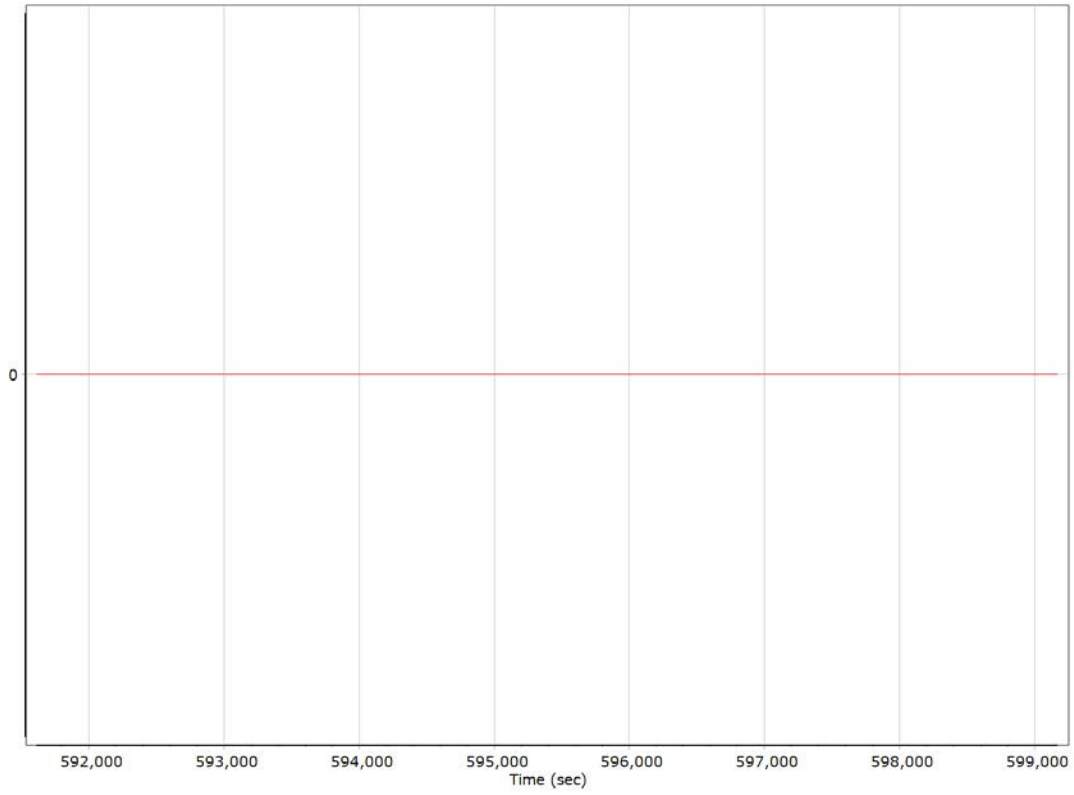
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07232023A_4051
Processing date	2023-07-25 19:57:23
Mission date	2023-07-23 15:23:51
Mission duration	04:20:43.811
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.161	POS Data
CP780.162	POS Data
CP780.163	POS Data
CP780.164	POS Data
CP780.165	POS Data
CP780.166	POS Data
CP780.167	POS Data
CP780.168	POS Data
CP780.169	POS Data
CP780.170	POS Data
CP780.171	POS Data
CP780.172	POS Data
CP780.173	POS Data
CP780.174	POS Data
CP780.175	POS Data
CP780.176	POS Data
CP780.177	POS Data
CP780.178	POS Data
CP780.179	POS Data
CP780.180	POS Data
CP780.181	POS Data
CP780.182	POS Data
CP780.183	POS Data
CP780.184	POS Data
CP780.185	POS Data
CP780.186	POS Data
CP780.187	POS Data
CP780.188	POS Data
CP780.189	POS Data
CP780.190	POS Data
CP780.191	POS Data
CP780.192	POS Data
CP780.193	POS Data
CP780.194	POS Data
CP780.195	POS Data
CP780.196	POS Data

Input Files

File Name	File Type
Ephm2040.23g	GLONASS Broadcast Ephemeris
Ephm2040.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07232023A_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.161		
Last raw data file	CP780.196		
Start GPS week	2272		
Start time	55412.243 (7/23/2023 3:23:32 PM)		
End time	71056.054 (7/23/2023 7:44:16 PM)		
Start of fine alignment	55436.957 (7/23/2023 3:23:56 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

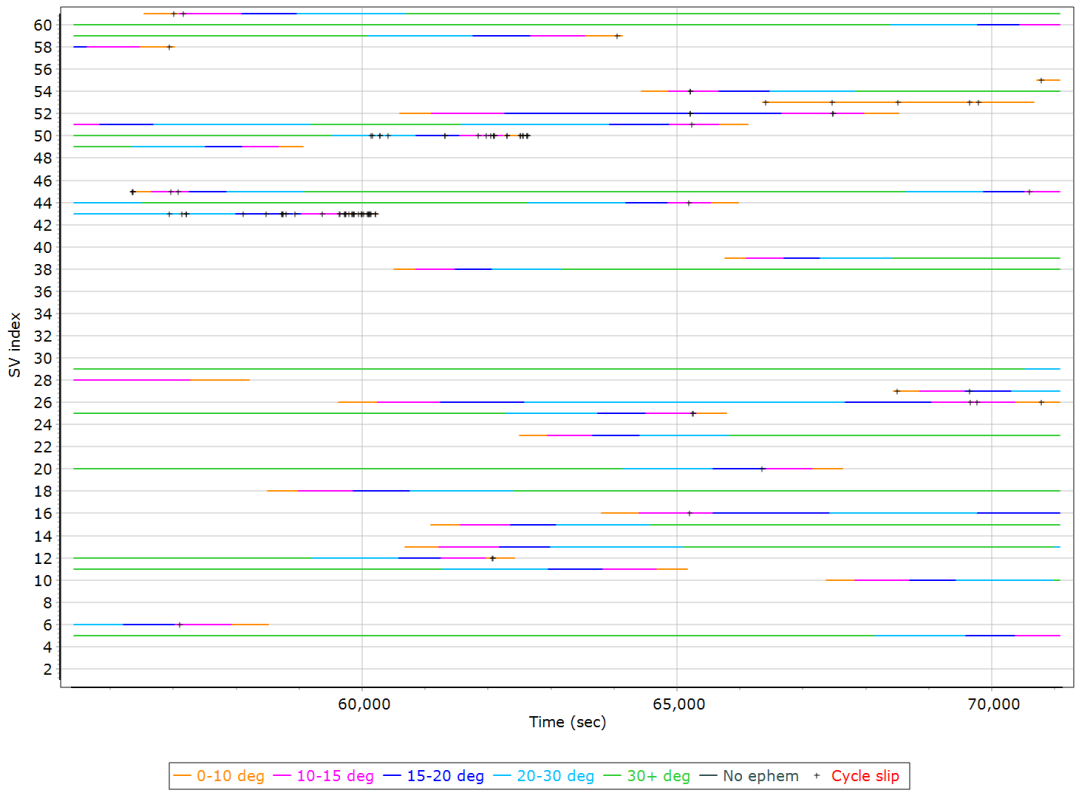
Rover Data QC

Raw IMU Import QC Summary

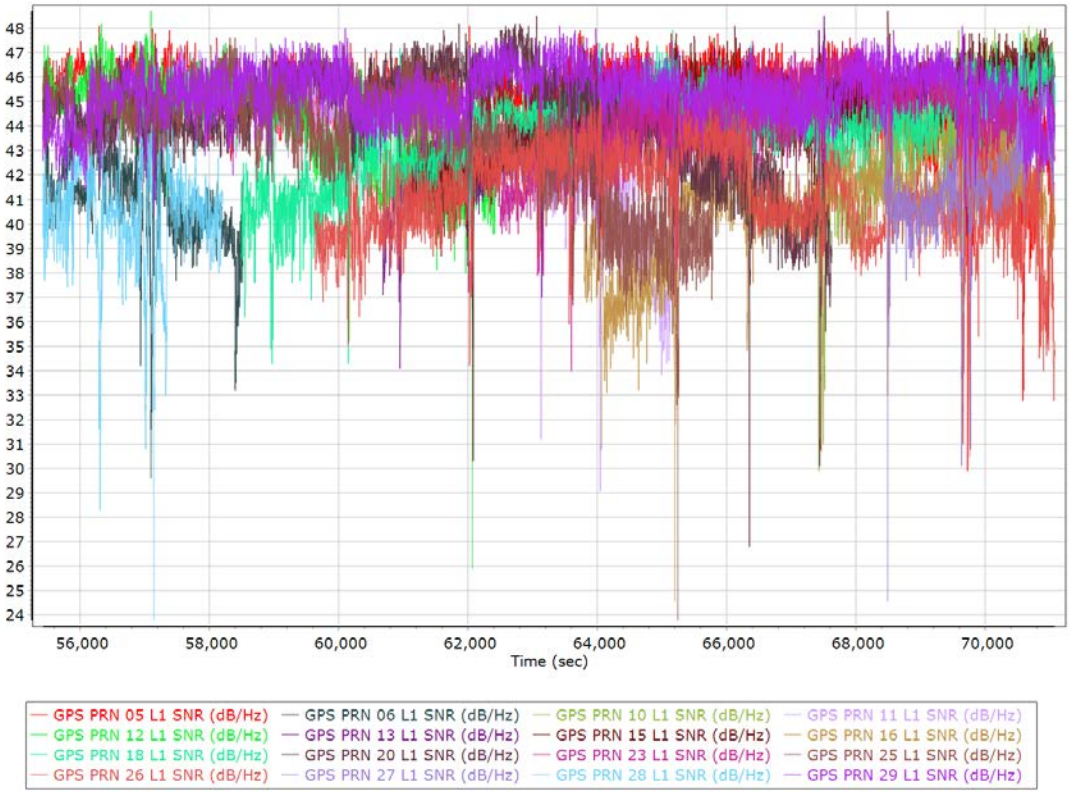
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07232023A_4051.log
IMU Records Processed	3128271
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

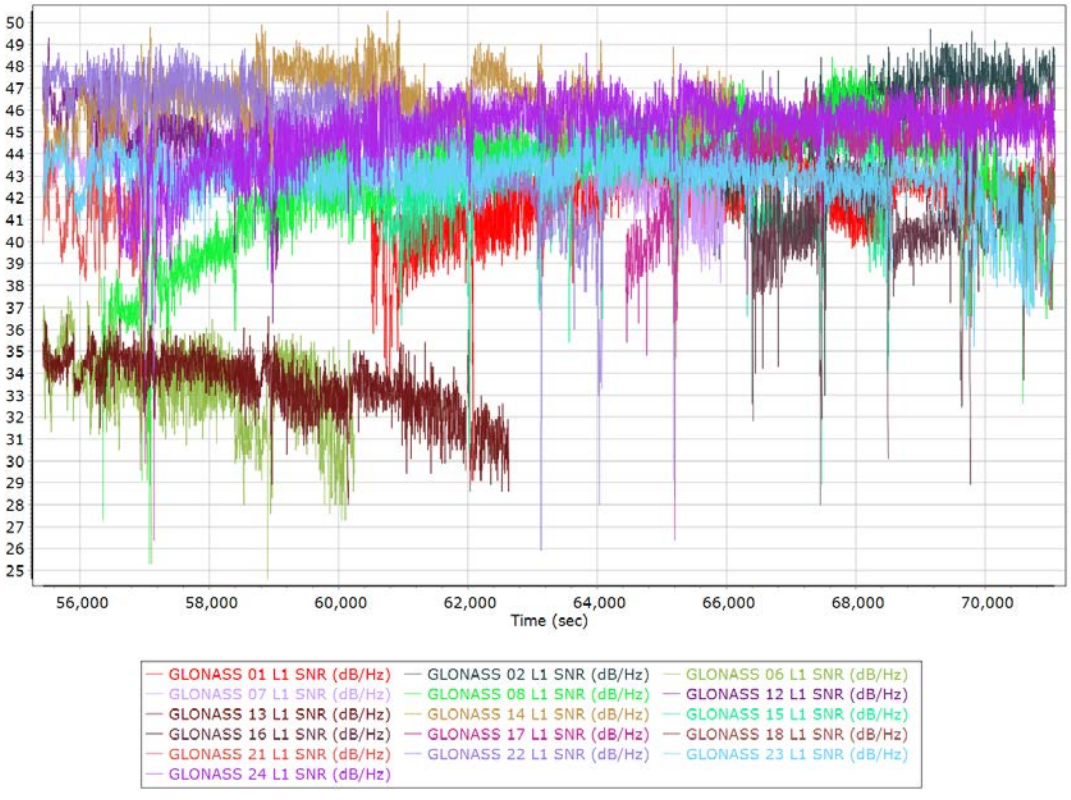
GPS/GLONASS L1 Satellite Lock/Elevation



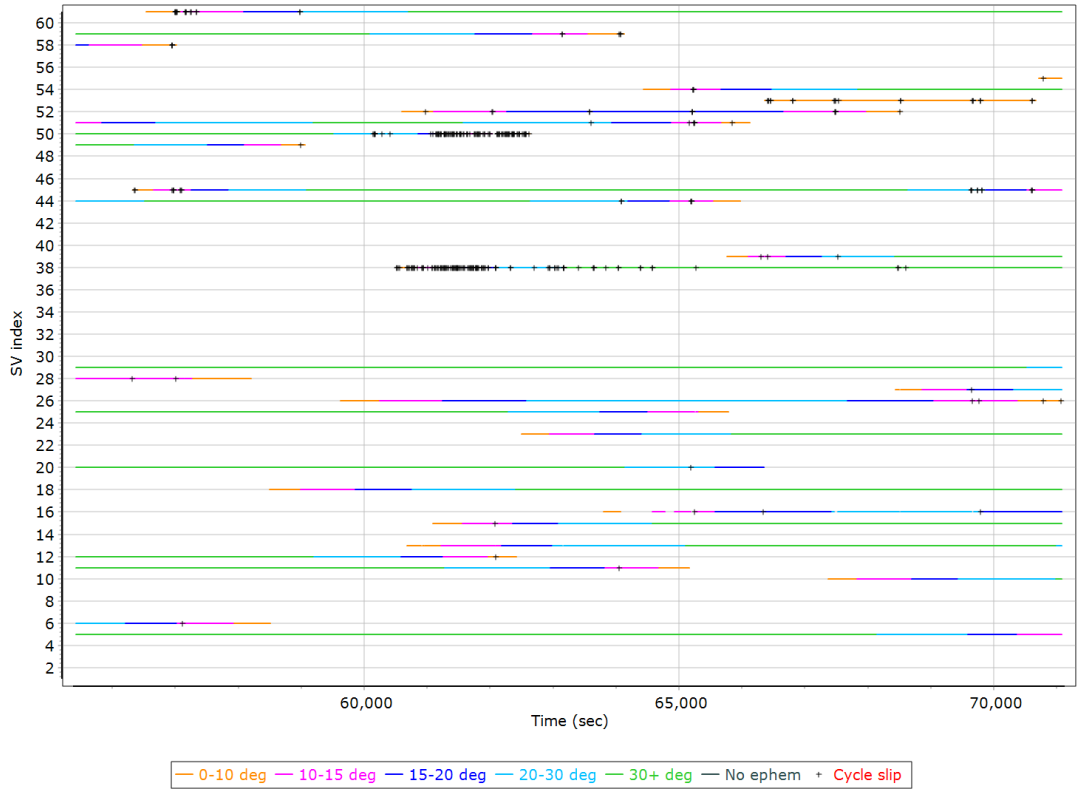
GPS L1 SNR



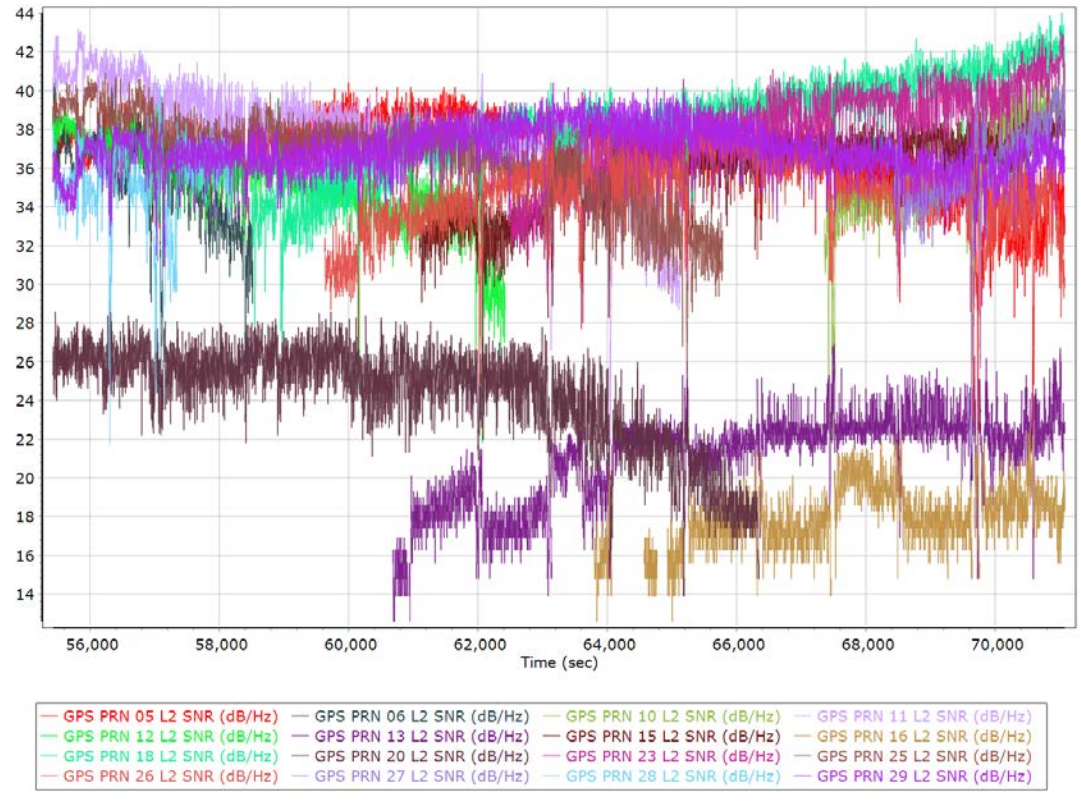
GLONASS L1 SNR



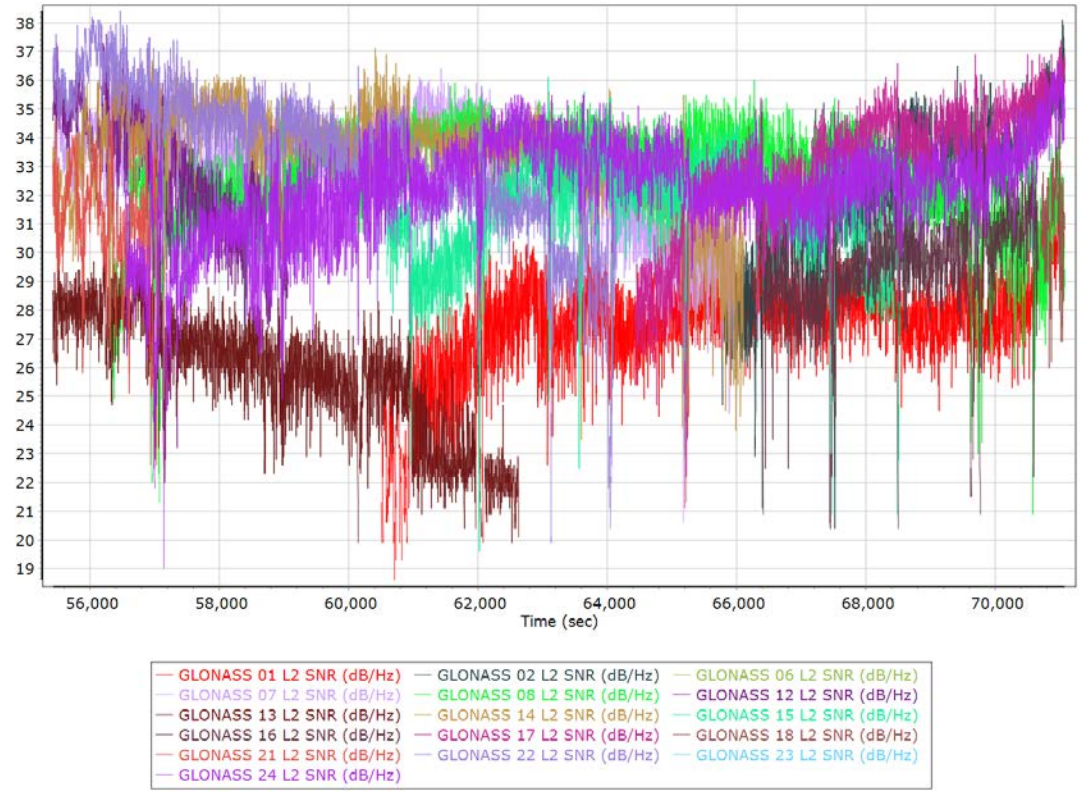
GPS/GLONASS L2 Satellite Lock/Elevation



GPS L2 SNR



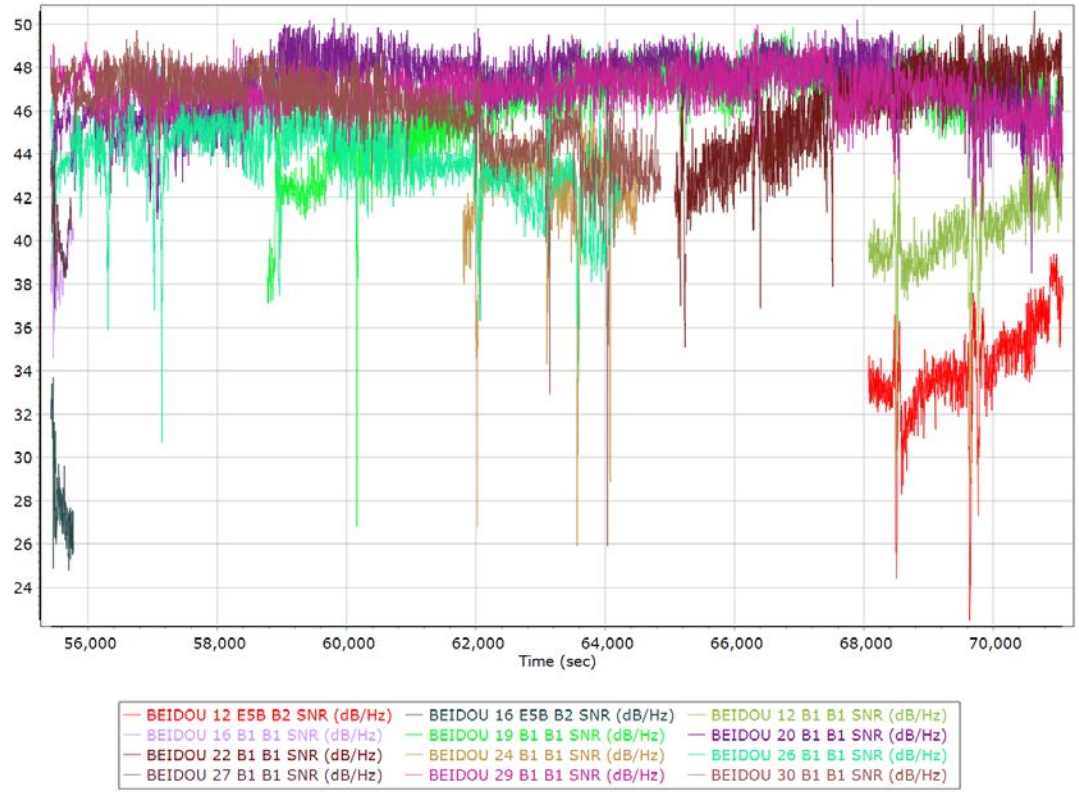
GLONASS L2 SNR



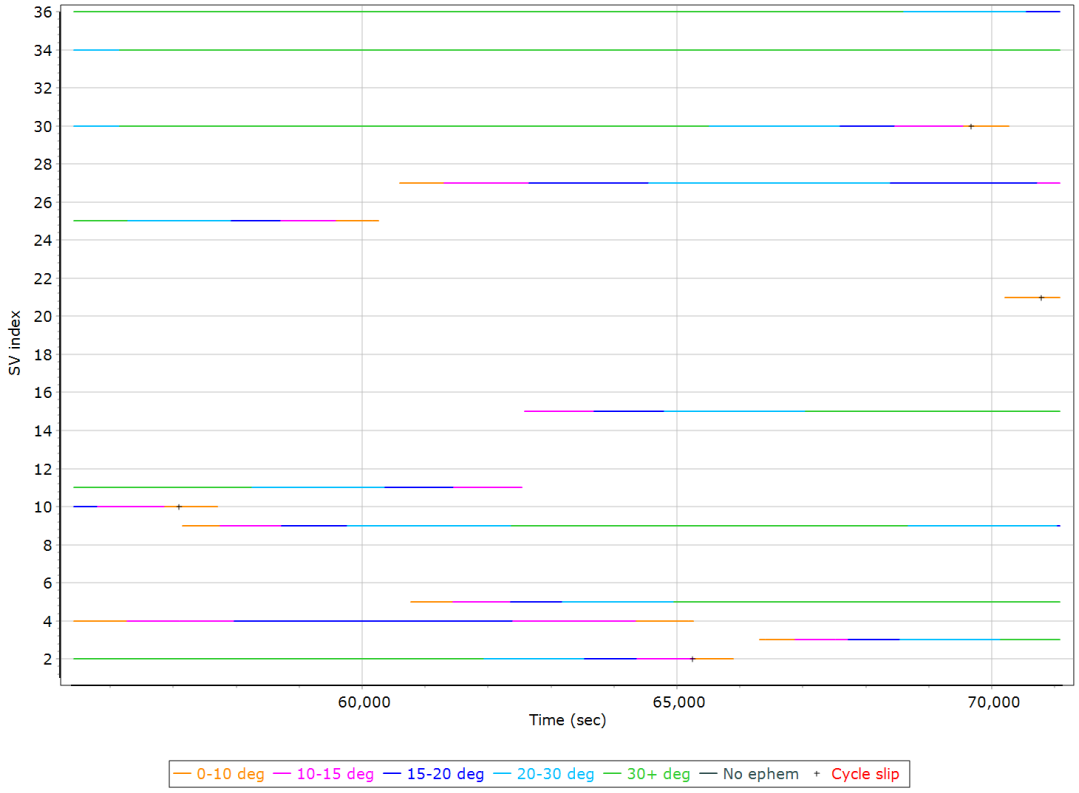
BEIDOU Satellite Lock/Elevation



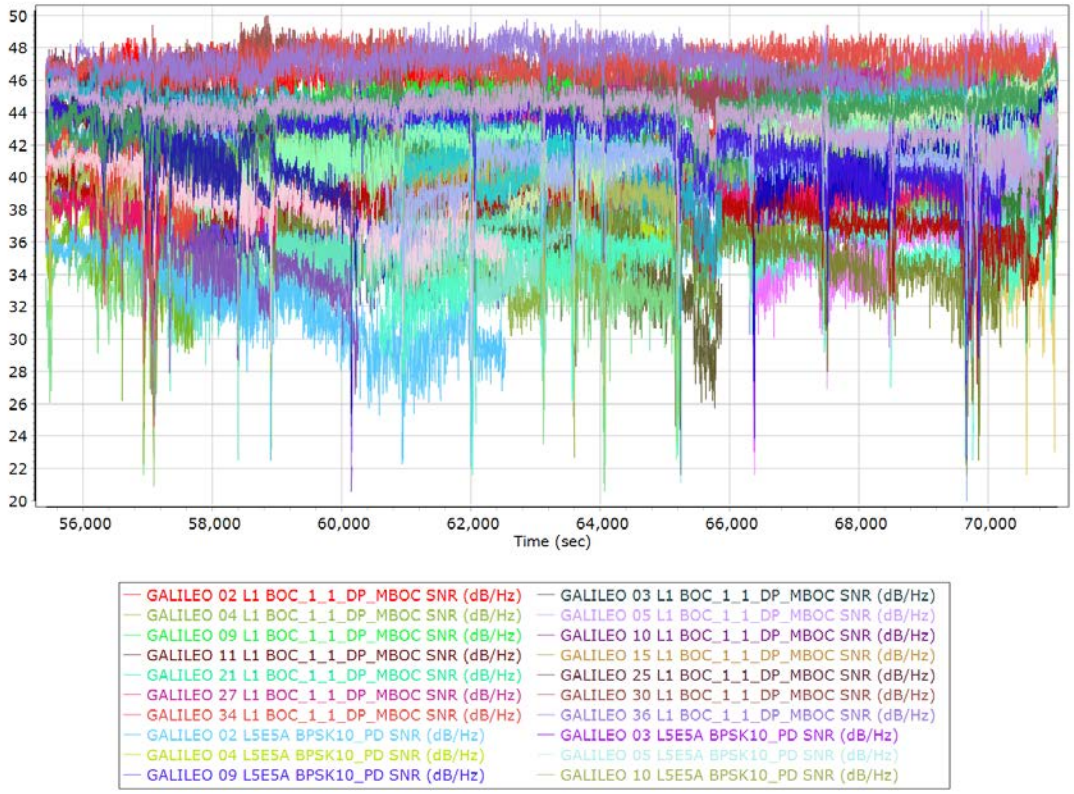
BEIDOU SNR



GALILEO Satellite Lock/Elevation

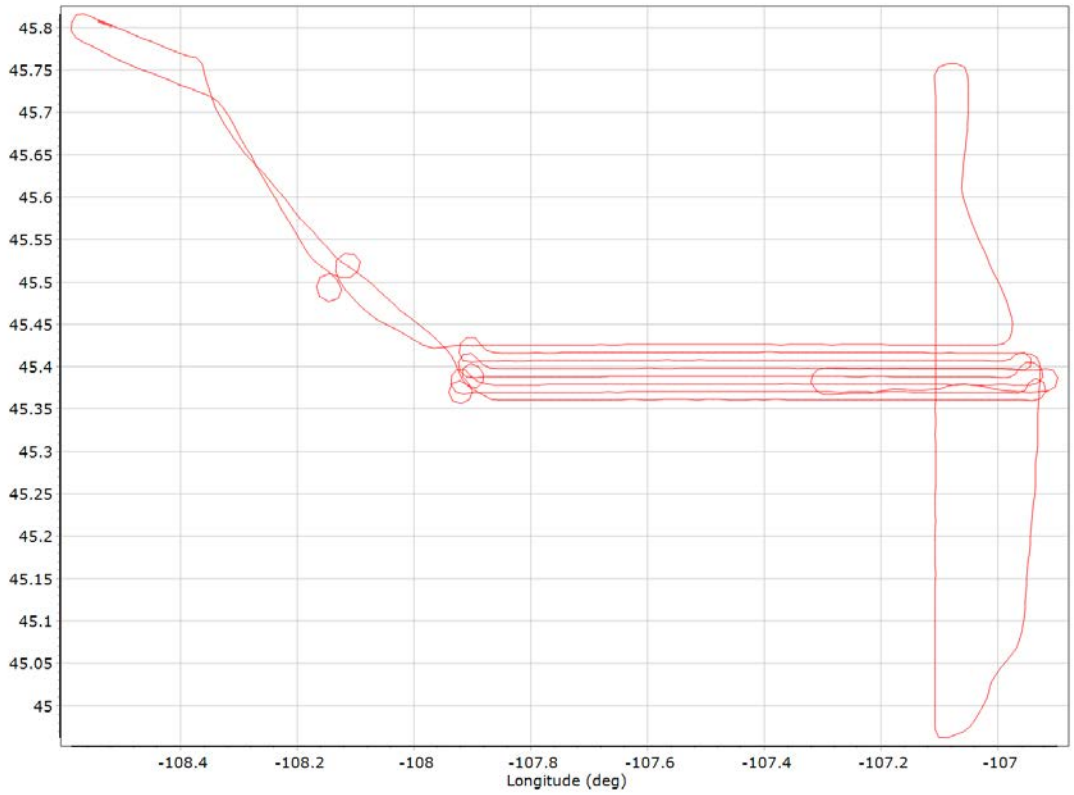


GALILEO SNR

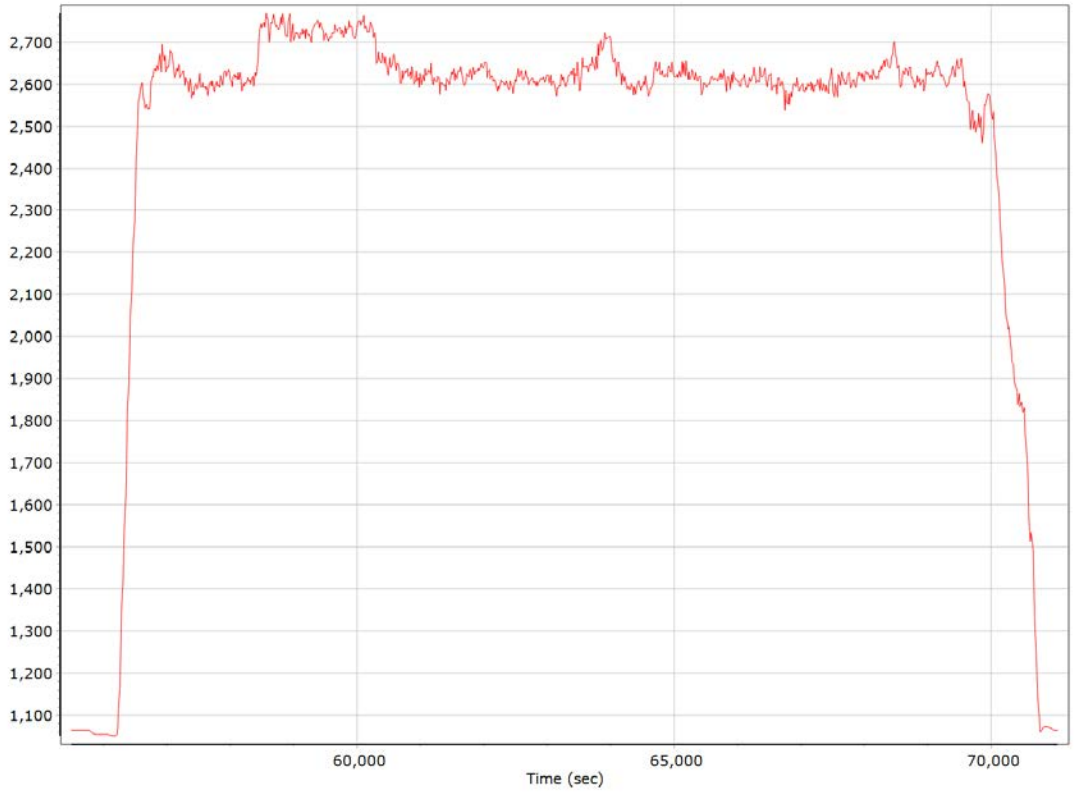

50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
56,000
58,000
60,000
62,000
64,000
66,000
68,000
70,000
Time (sec)
GALILEO 02 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 03 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 05 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 09 L1 BOC_1_1_DP_MBOC 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 15 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)
GALILEO 27 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 30 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 34 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 03 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 05 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

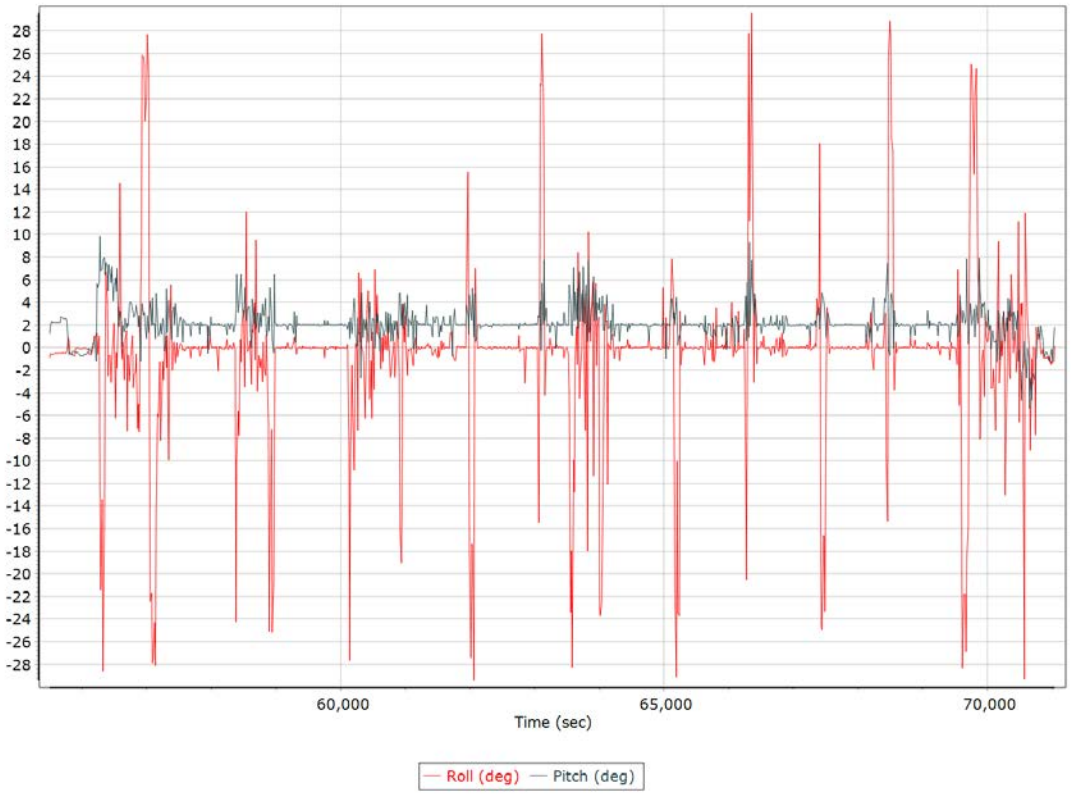
Top View



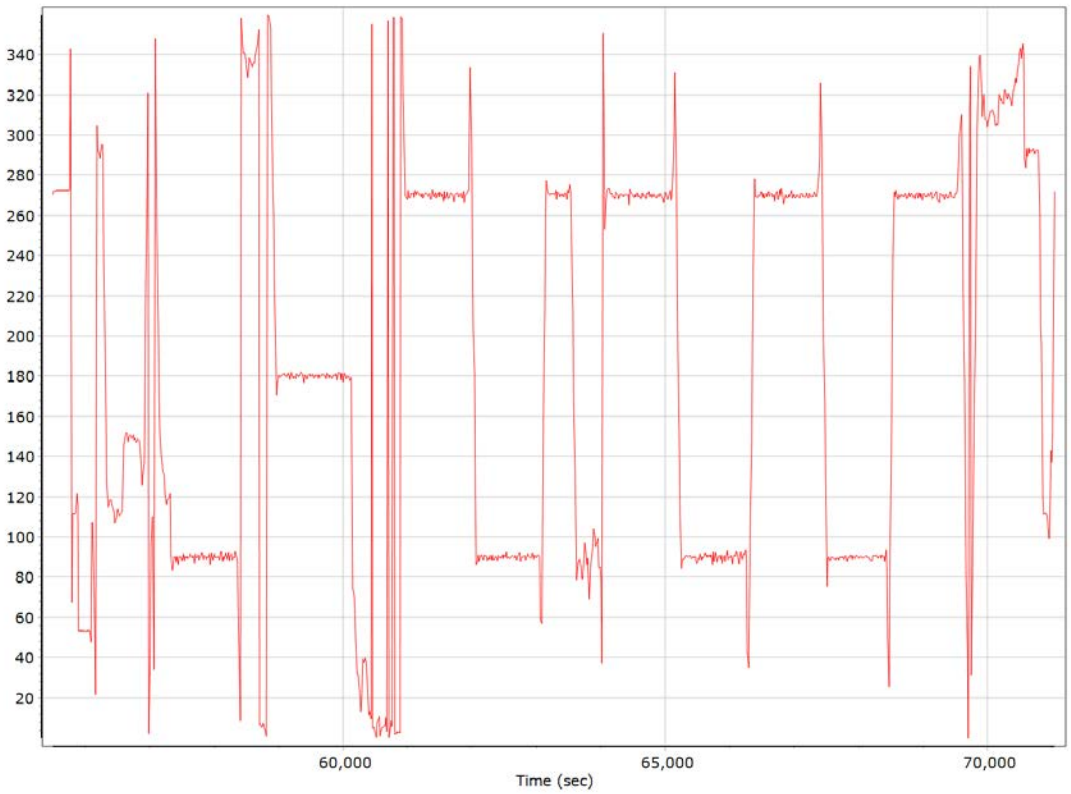
Altitude



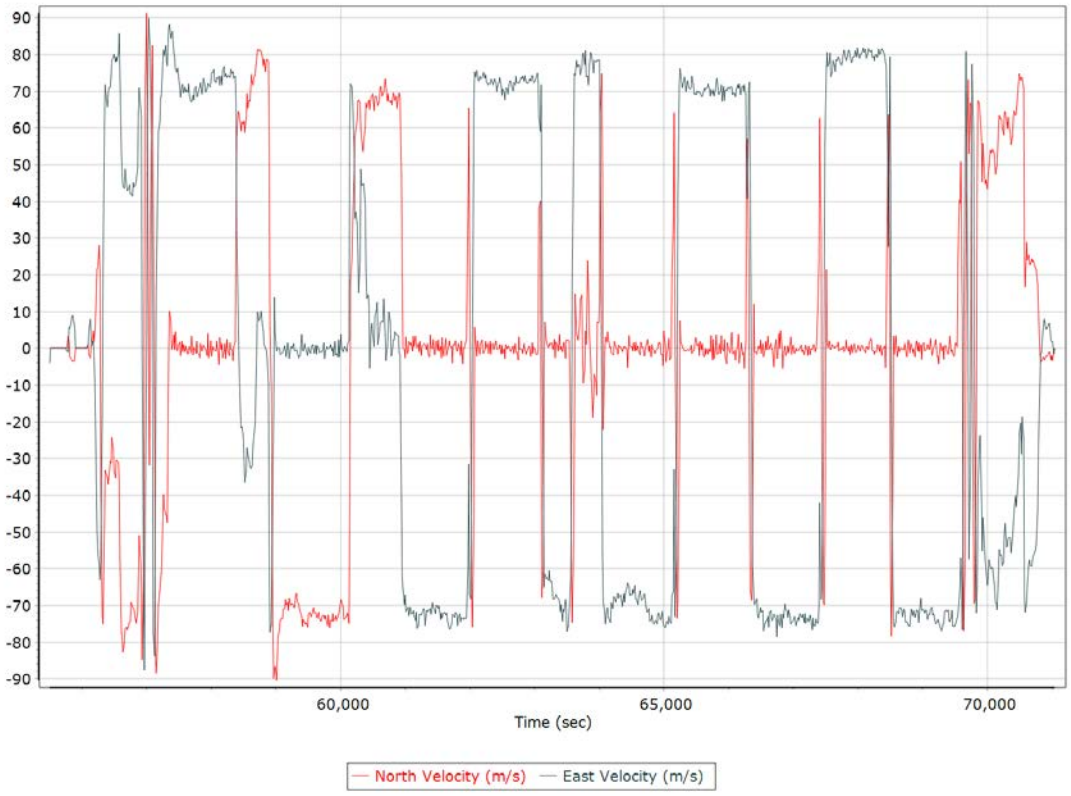
Roll/Pitch



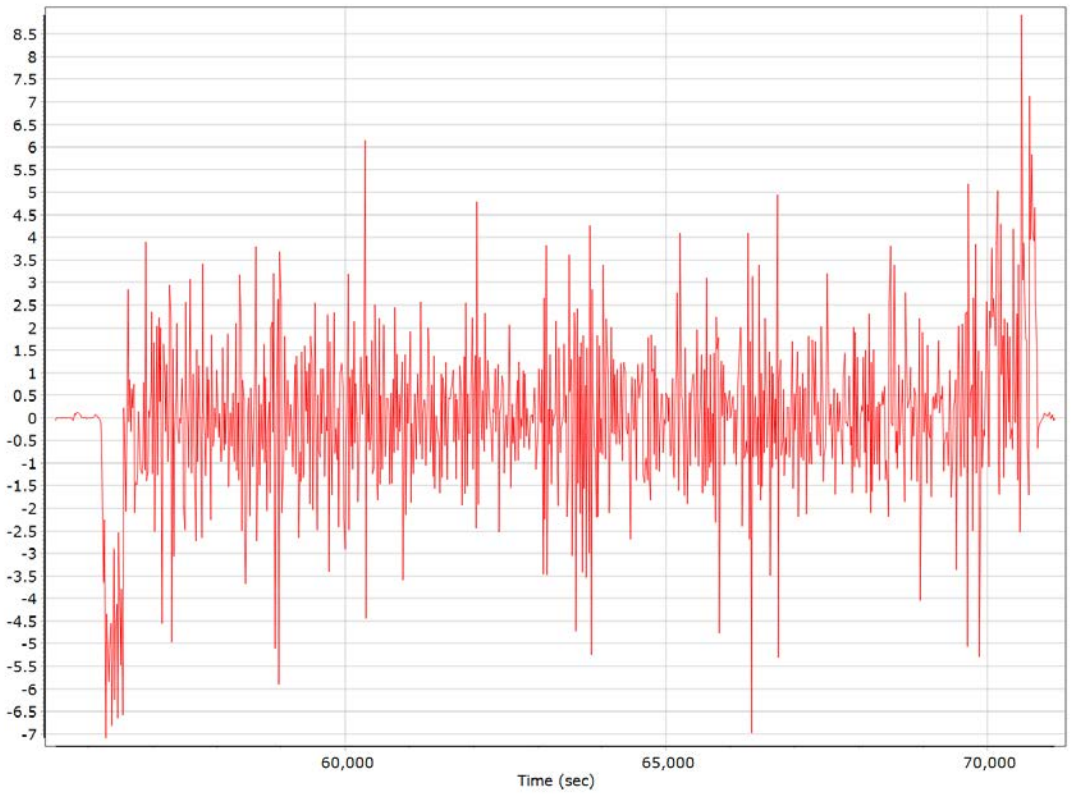
Heading



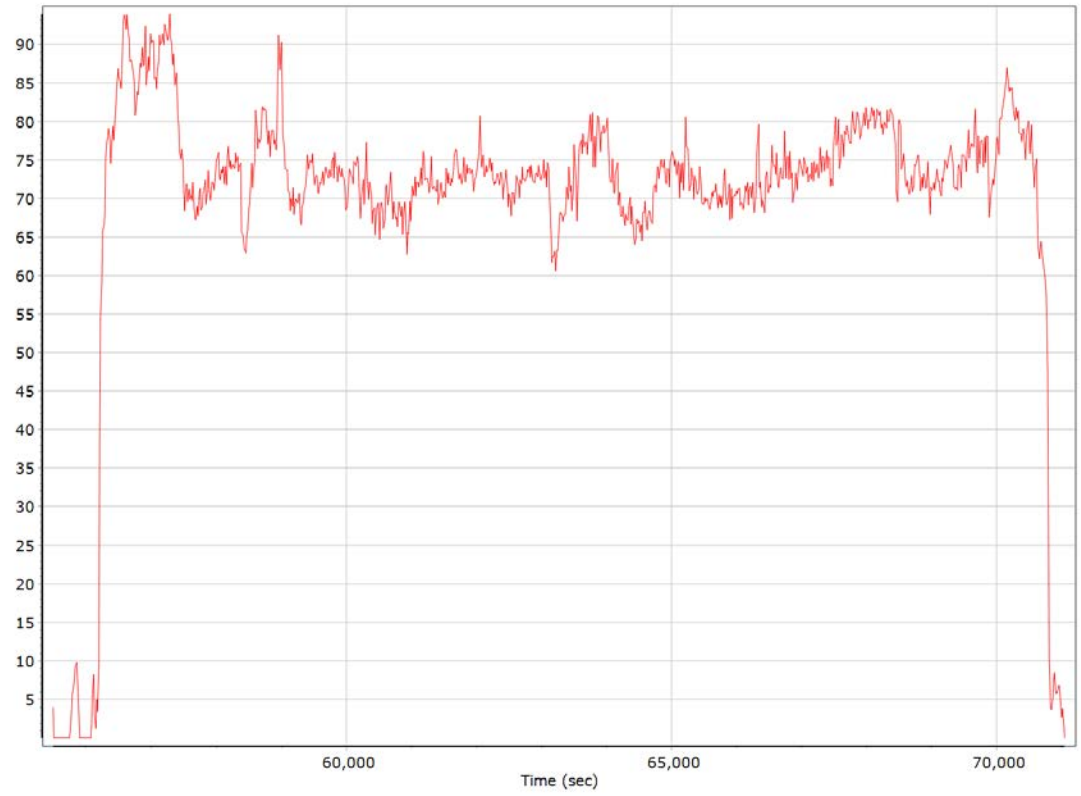
North/East Velocity



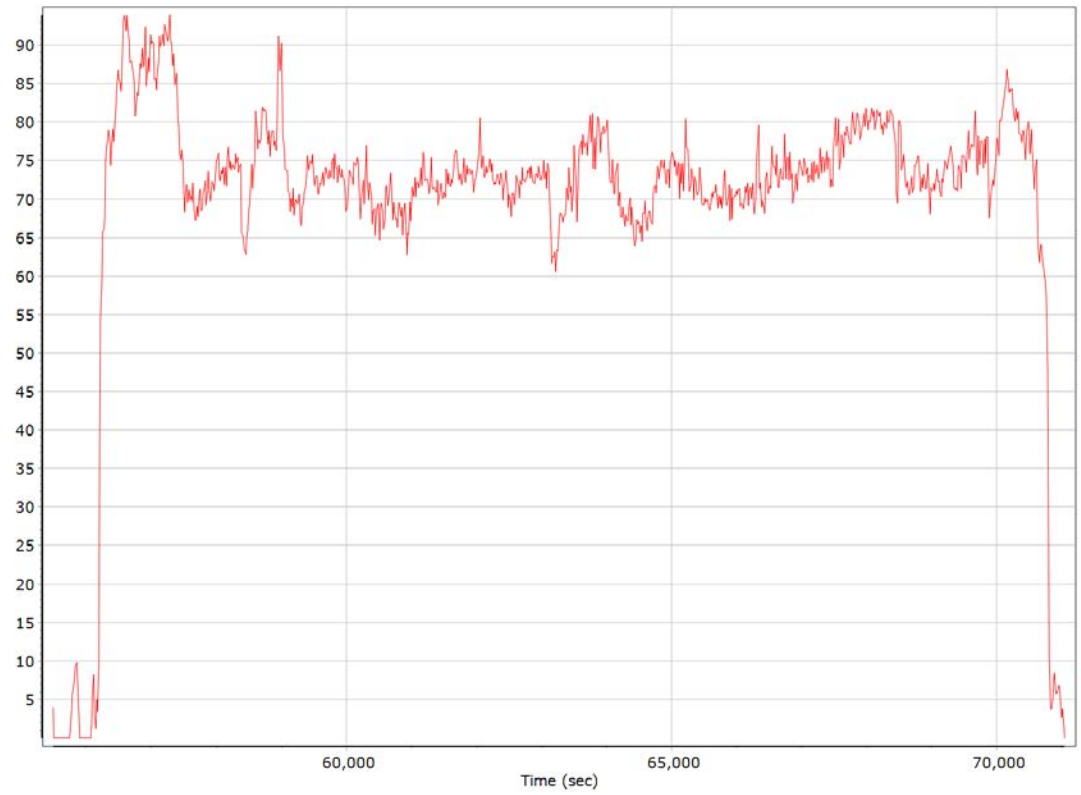
Down Velocity



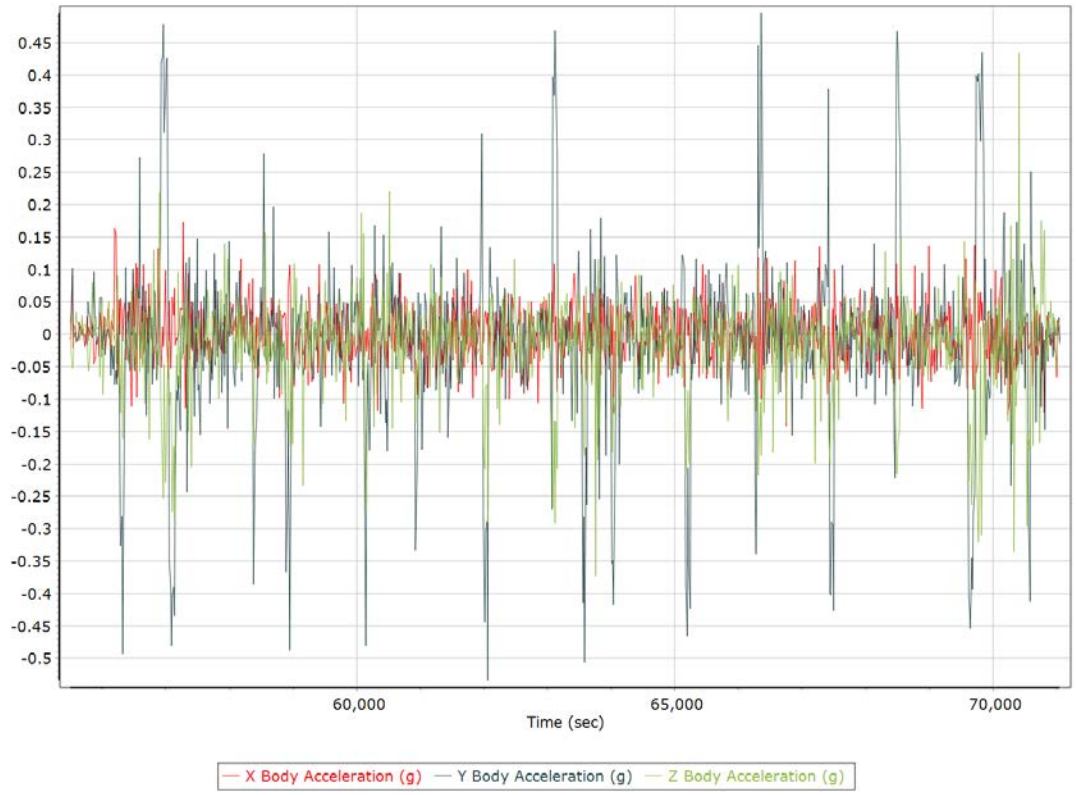
Total Speed



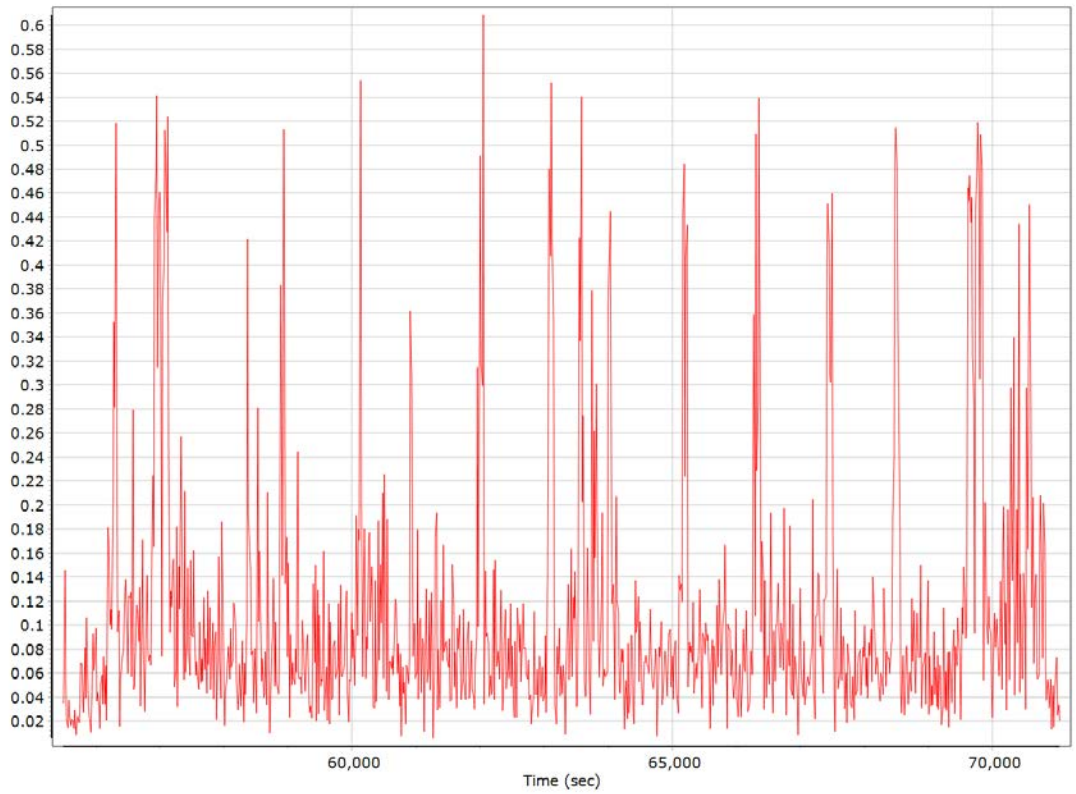
Ground Speed



Body Acceleration



Total Body Acceleration

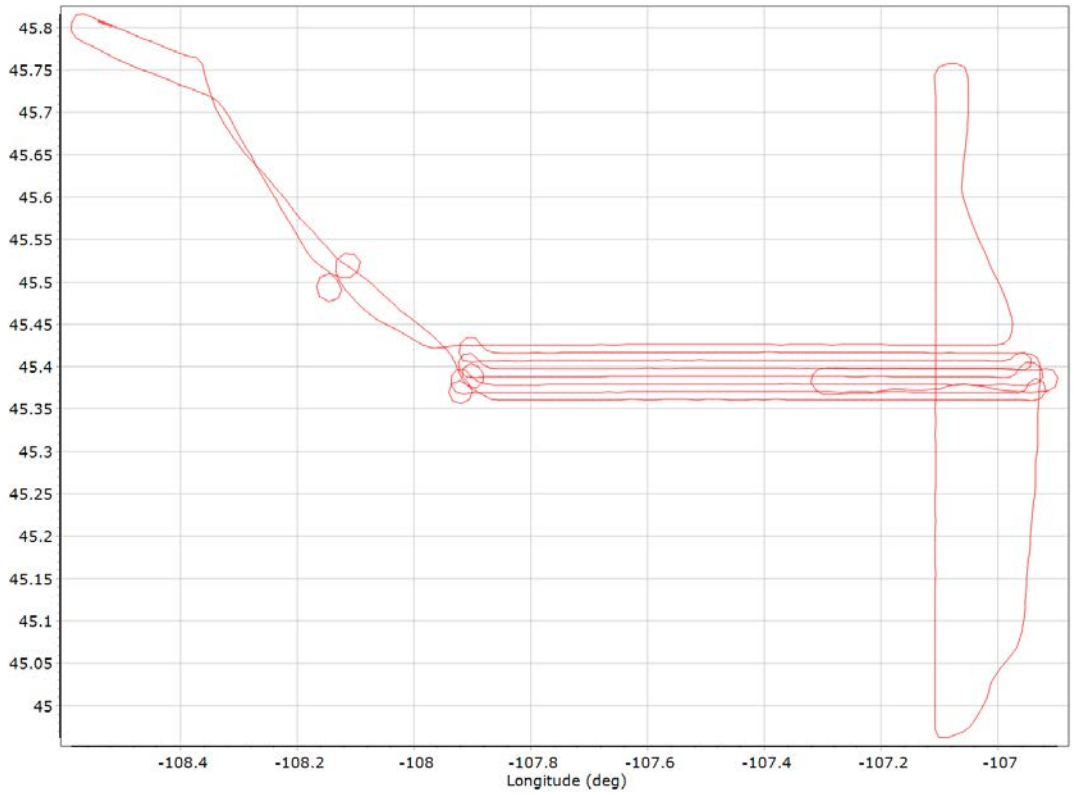


Body Angular Rate



Forward Processed Trajectory Information

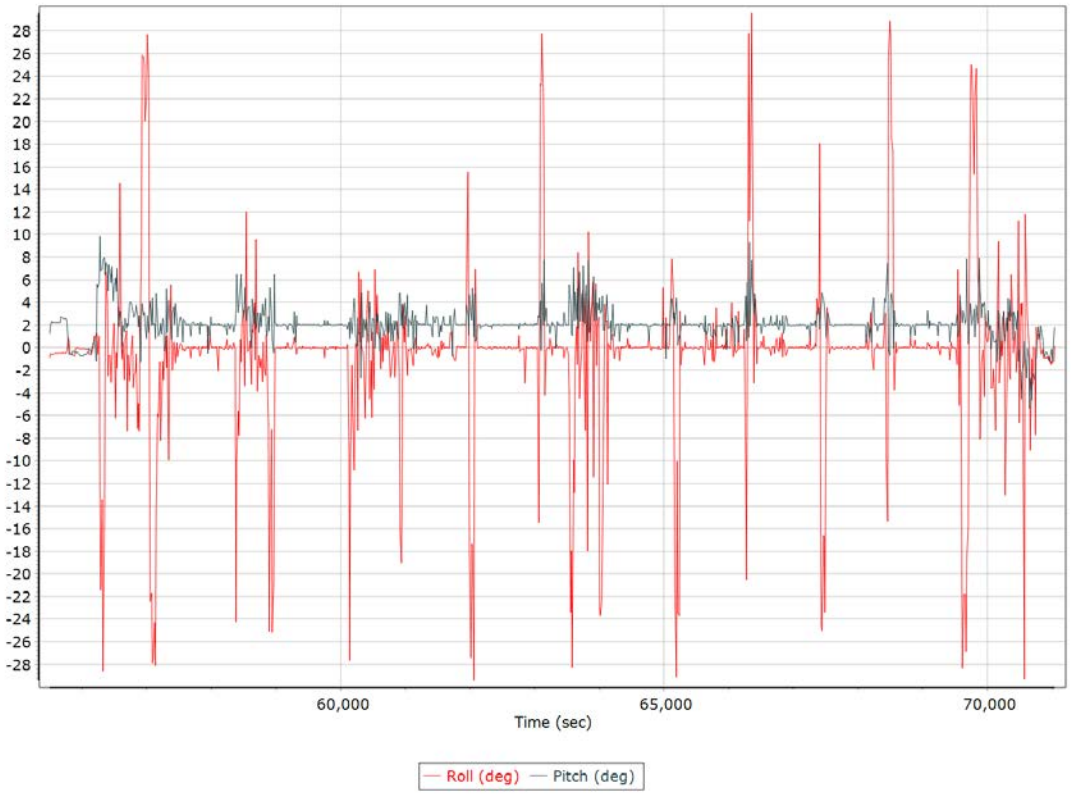
Top View



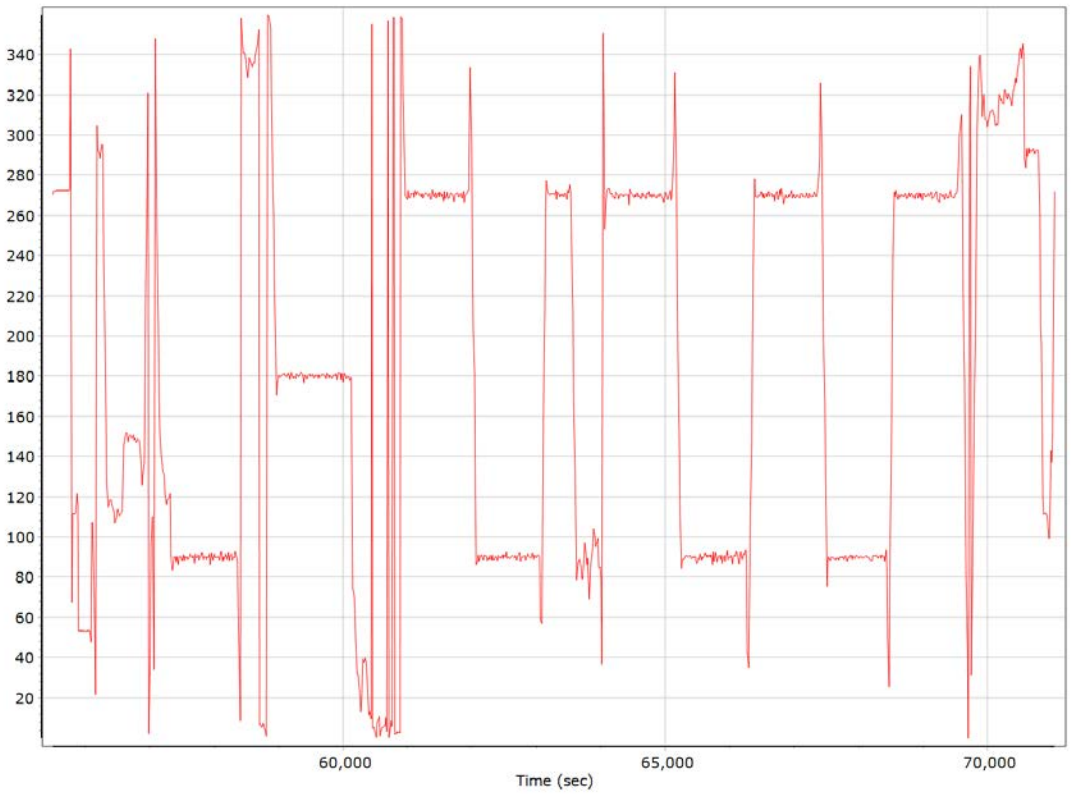
Altitude



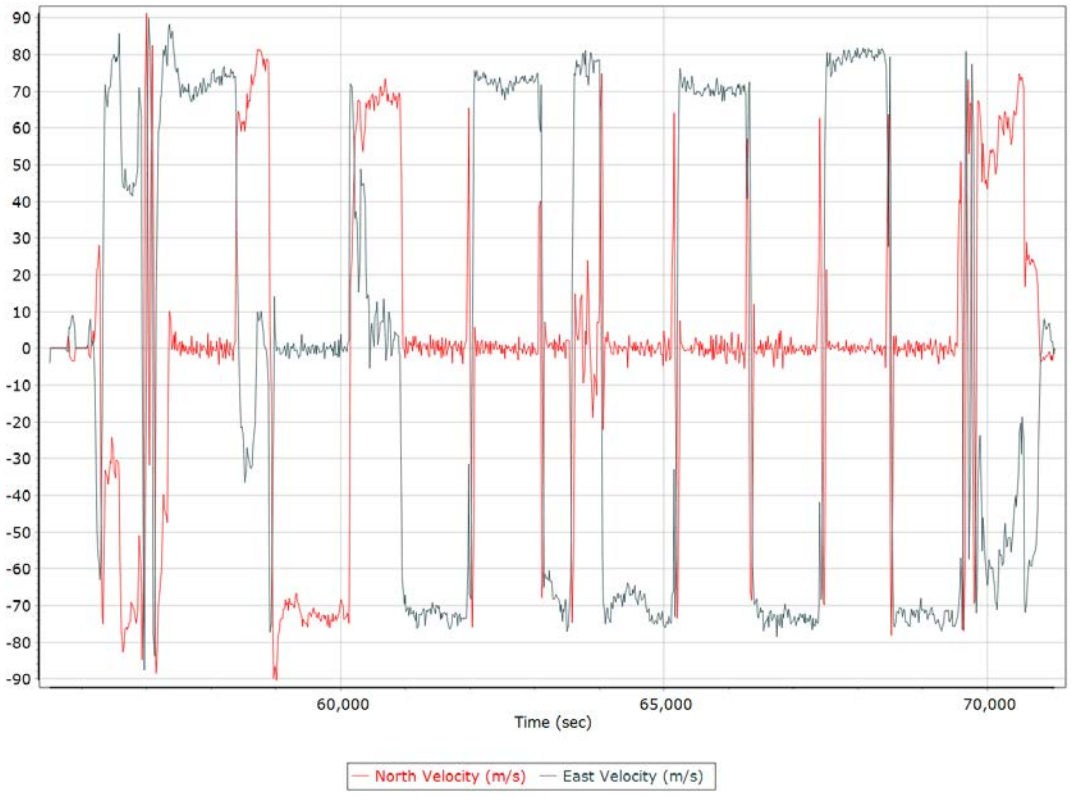
Roll/Pitch



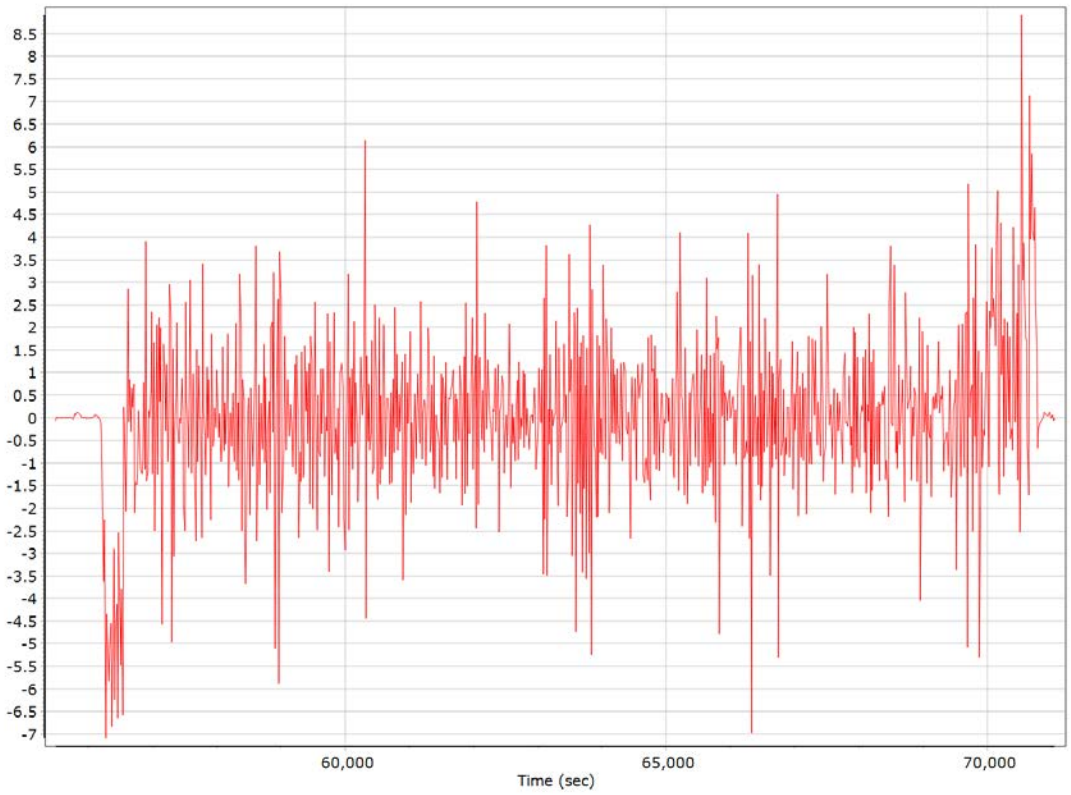
Heading



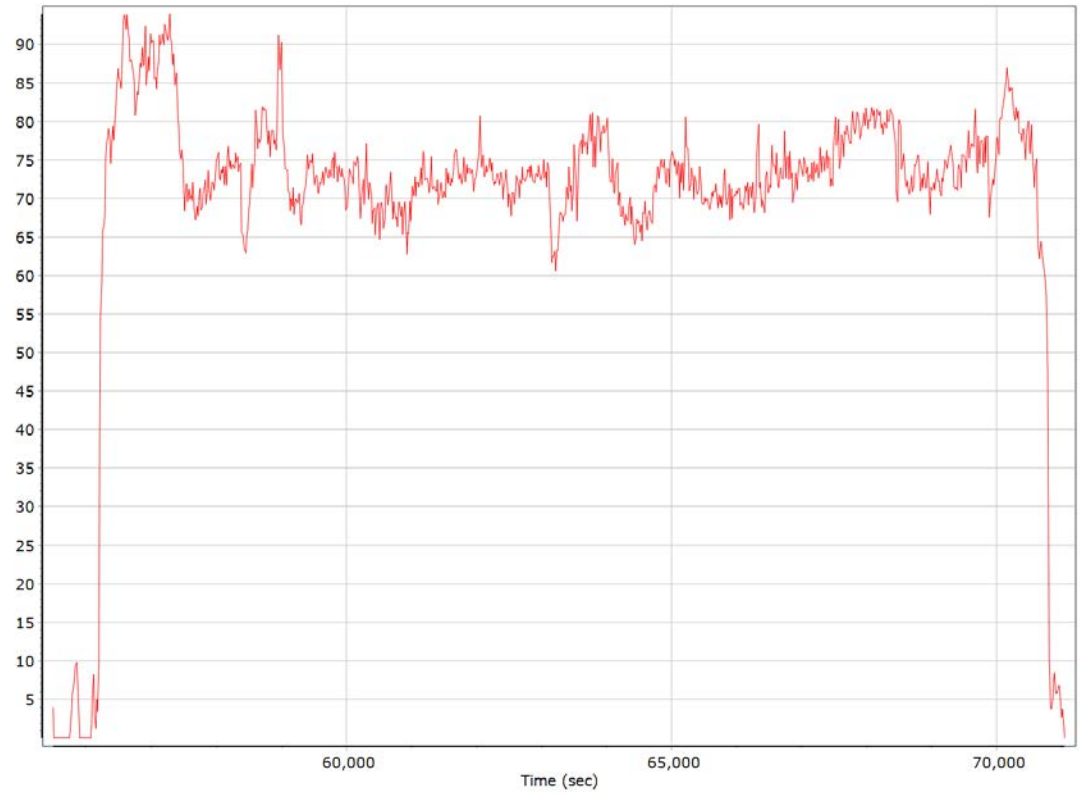
North/East Velocity



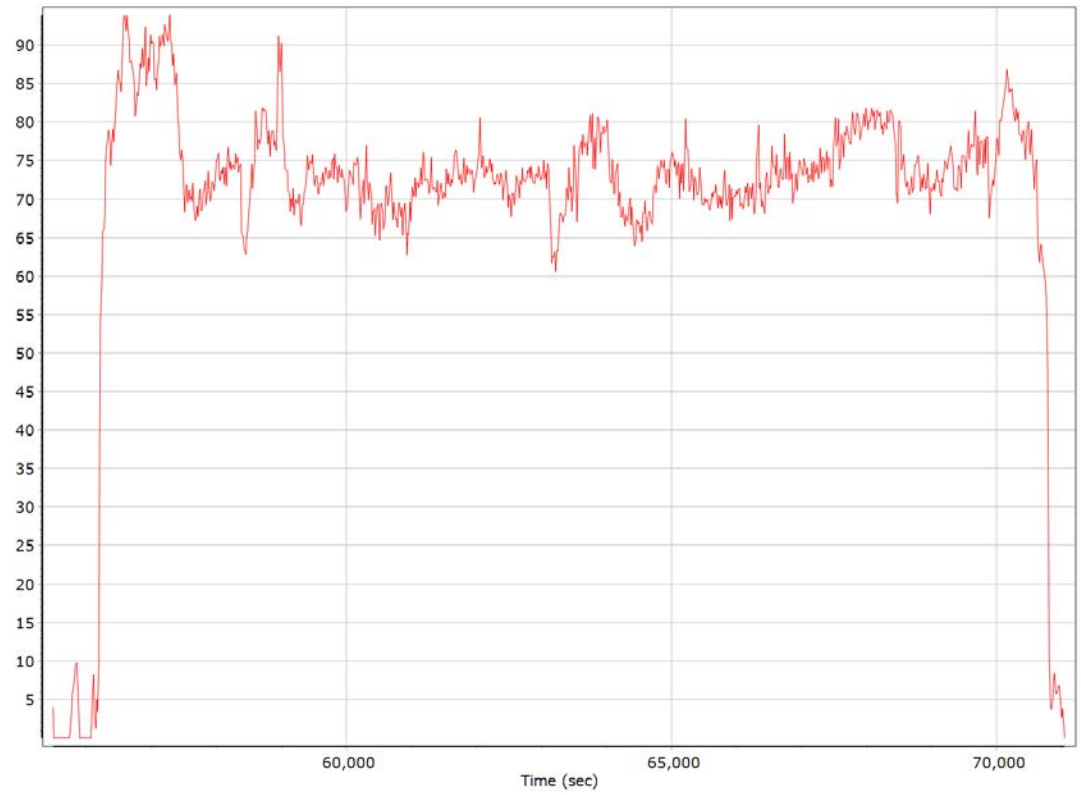
Down Velocity



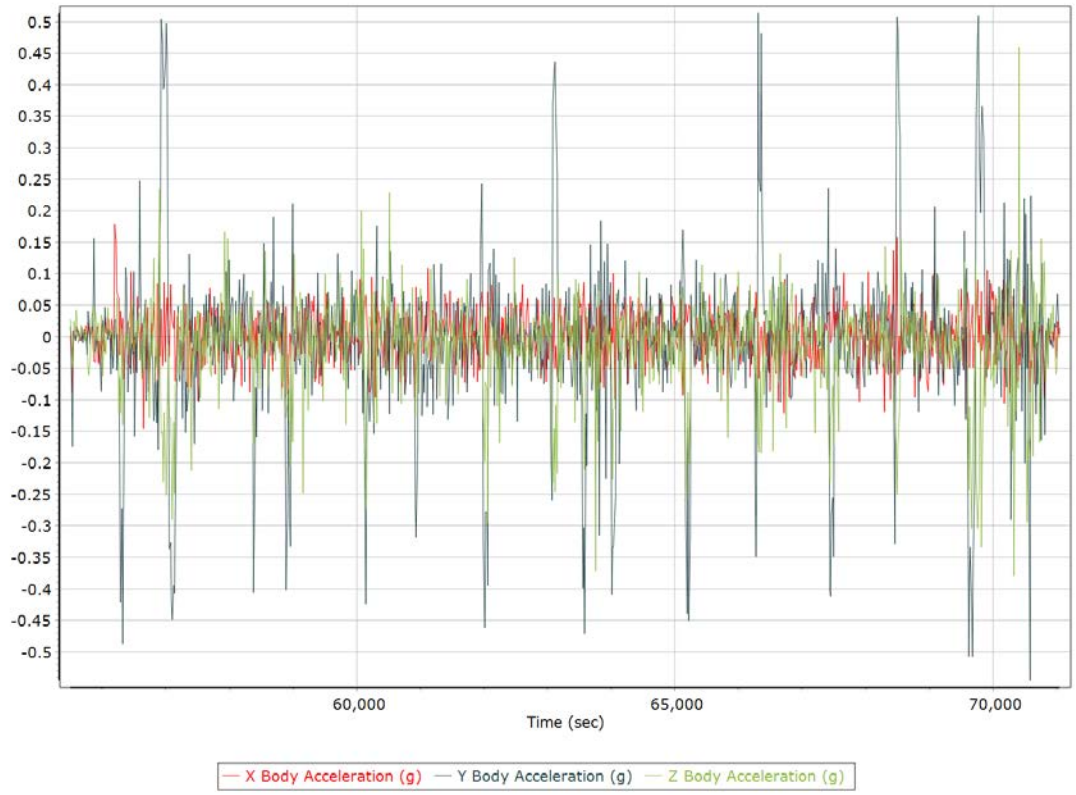
Total Speed



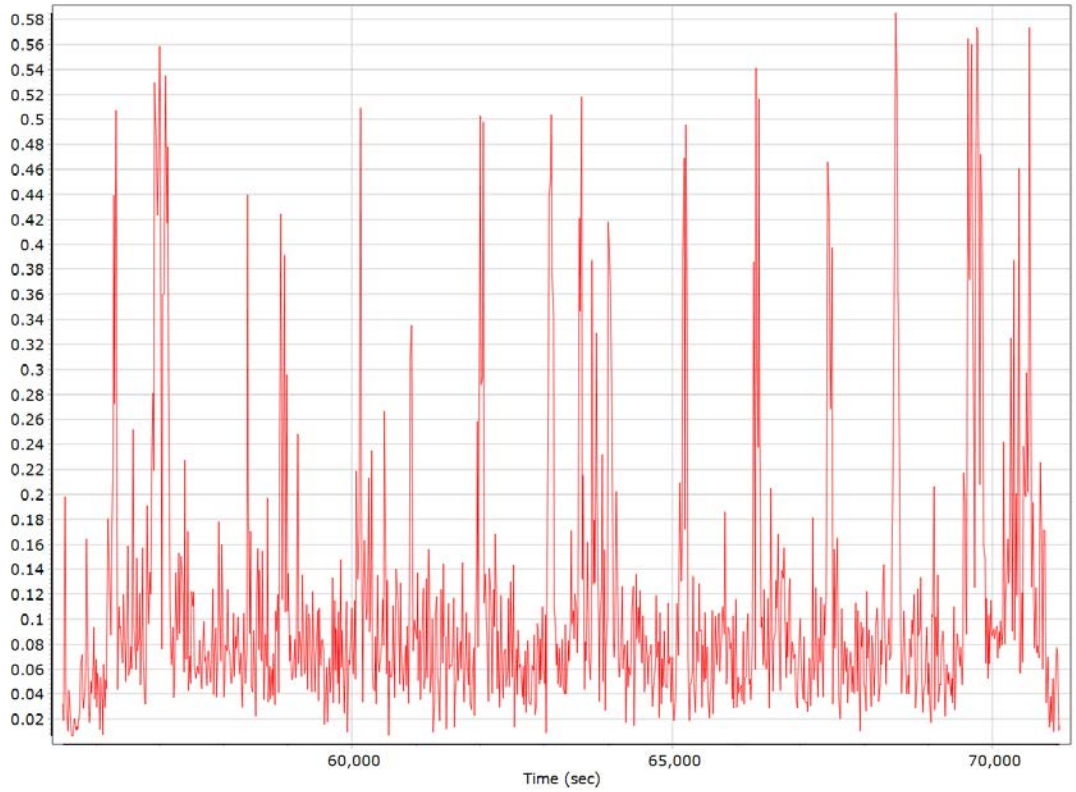
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate



GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	11	9
Number of GLONASS SV	4	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	6	9	8
Total number of SV	19	27	22
PDOP	0.93	1.61	1.16
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	15582.00	0.00	0.00
Percentage	100.00	0.00	0.00

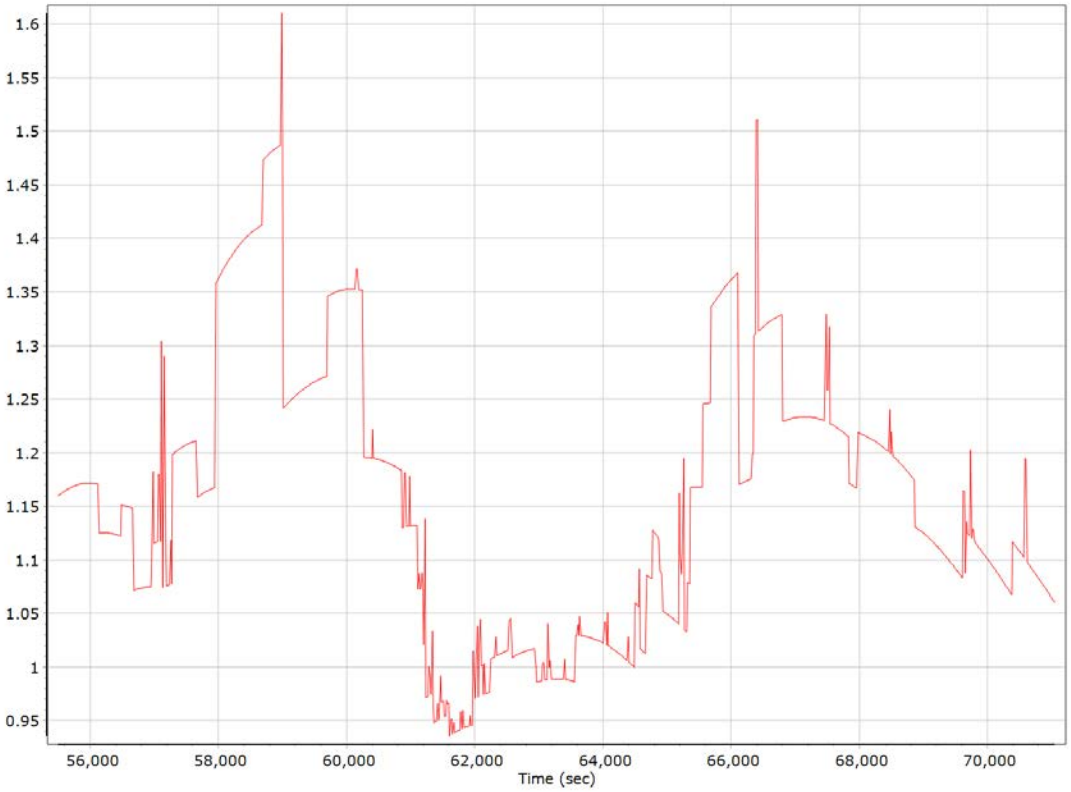
Num SVs in solution



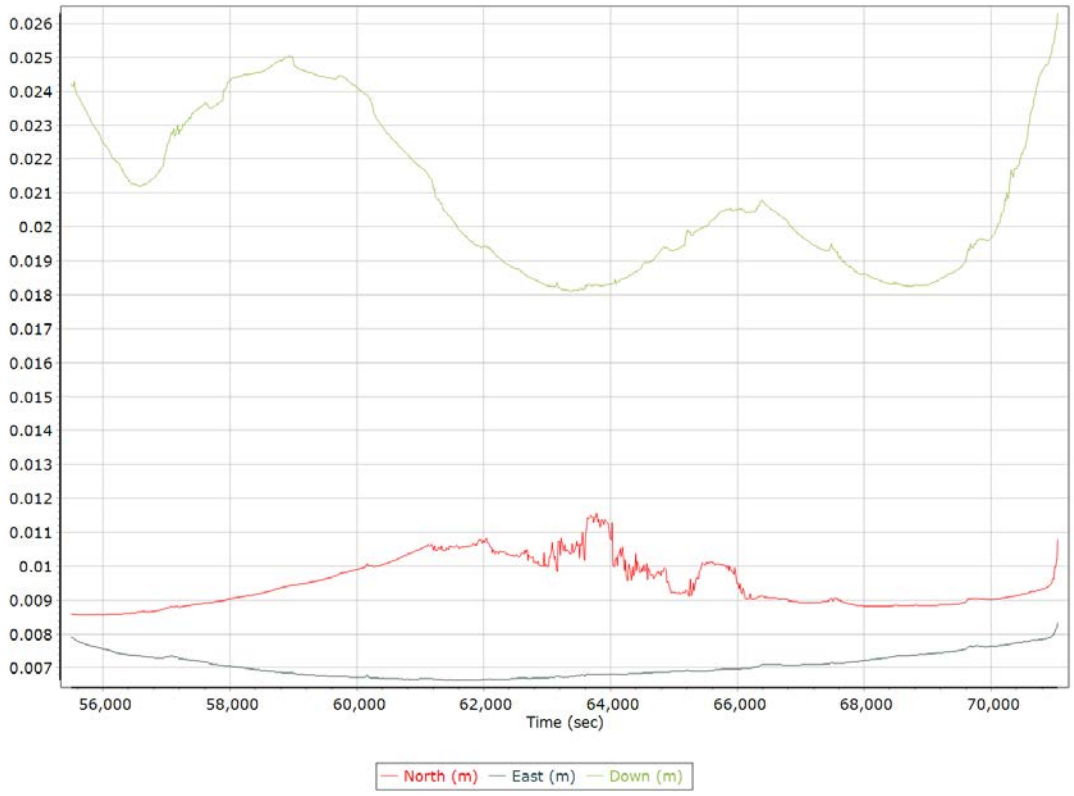
Forward/Reverse Separation



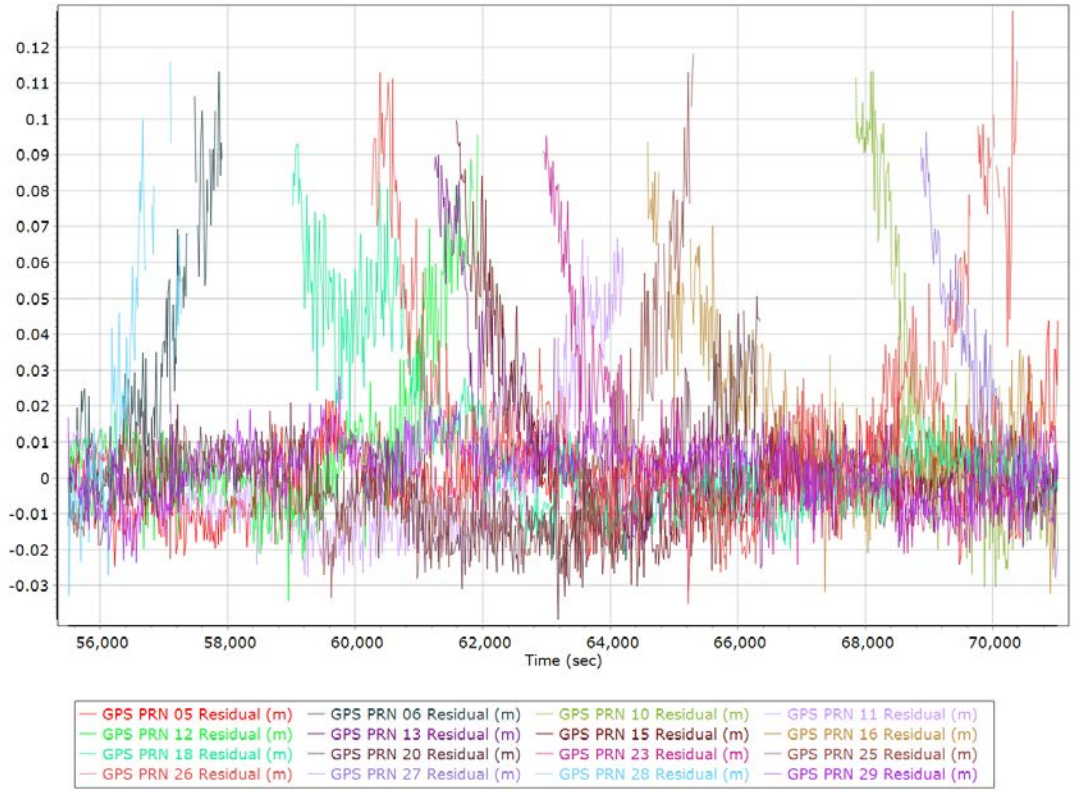
PDOP



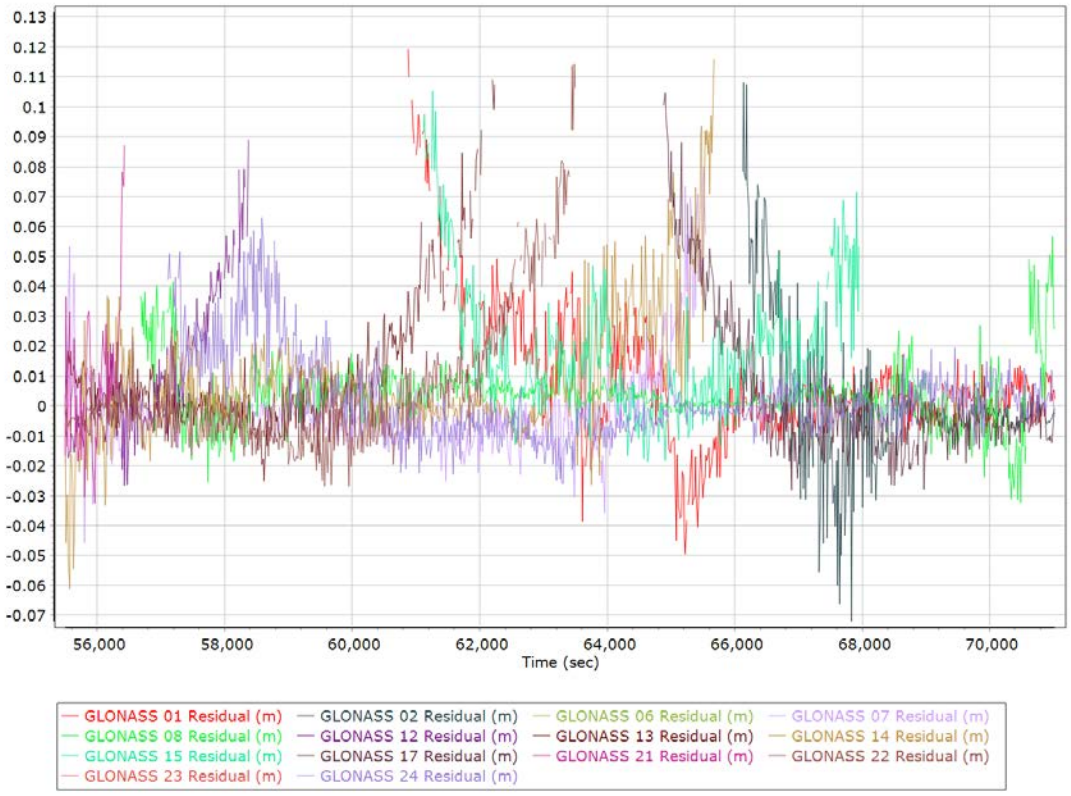
Estimated Position Accuracy



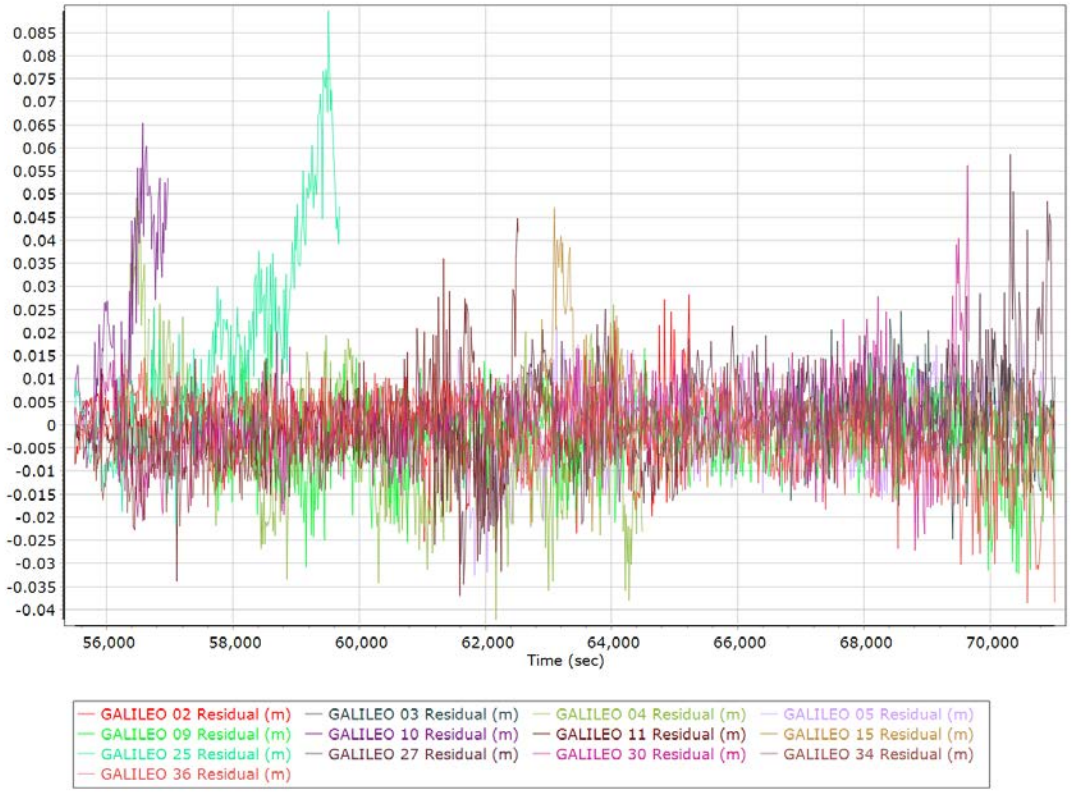
GPS Residuals



GLONASS Residuals



GALILEO Residuals



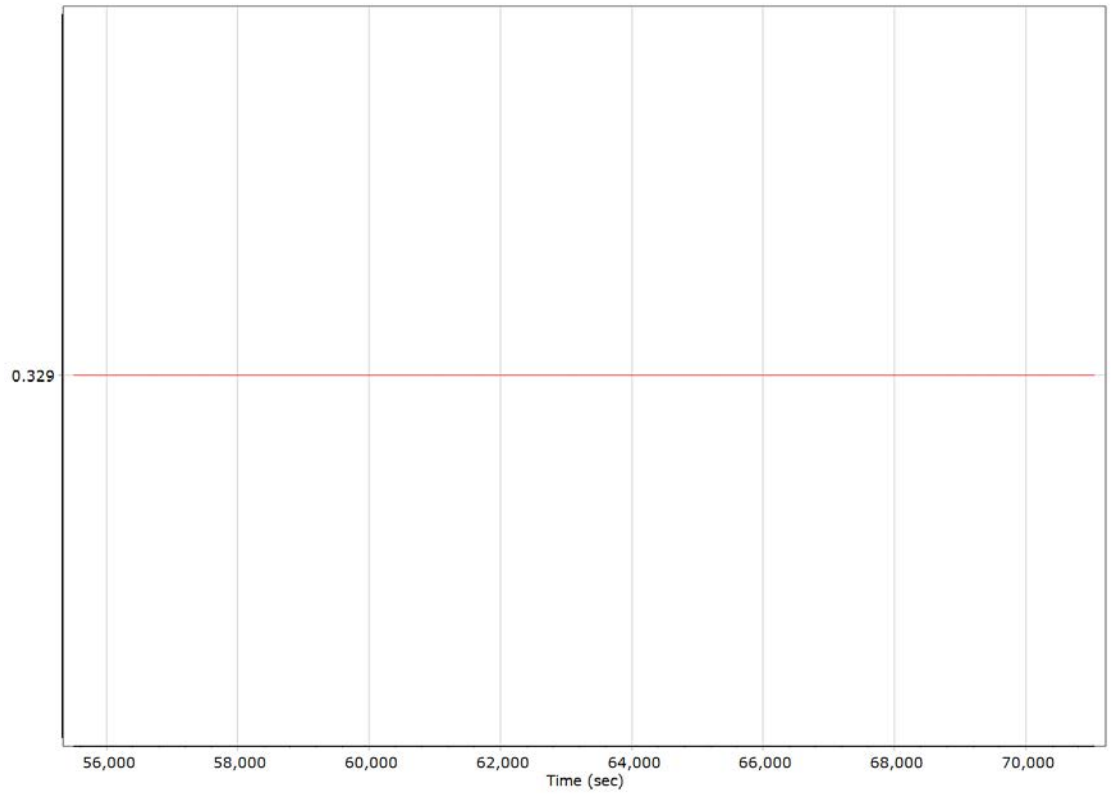
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	55413.000 (7/23/2023 3:23:33 PM)		
Processing end time	71056.000 (7/23/2023 7:44:16 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

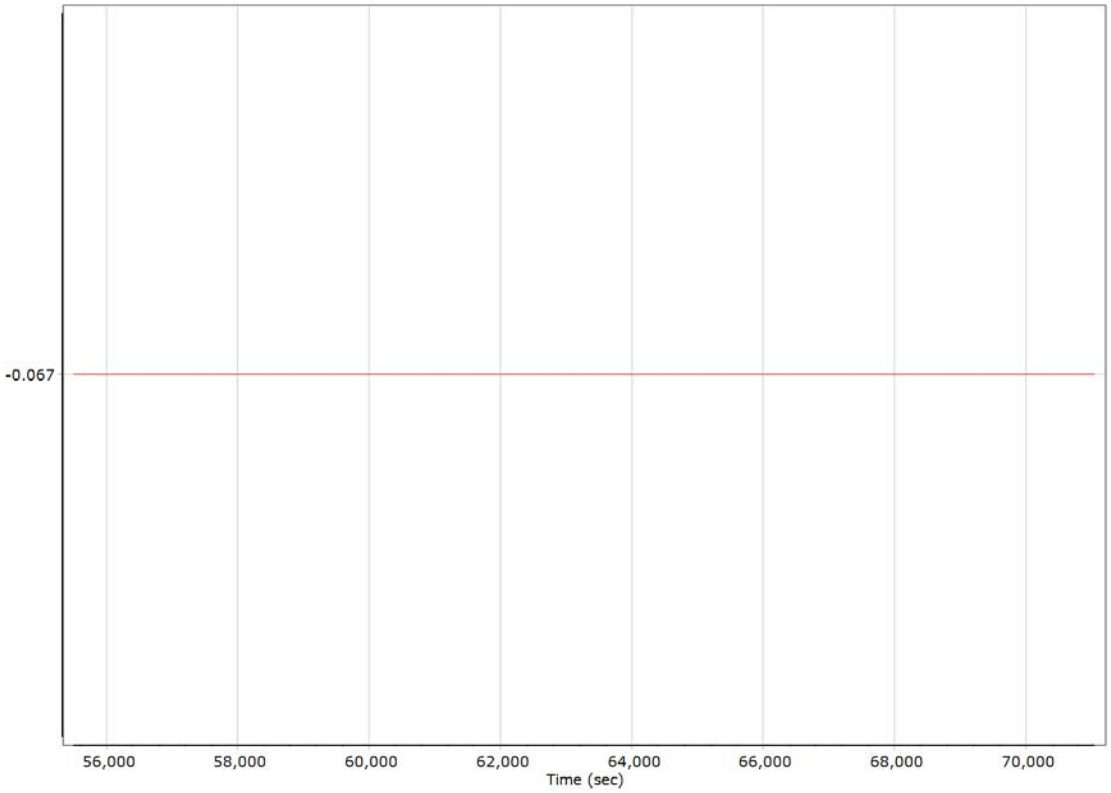
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

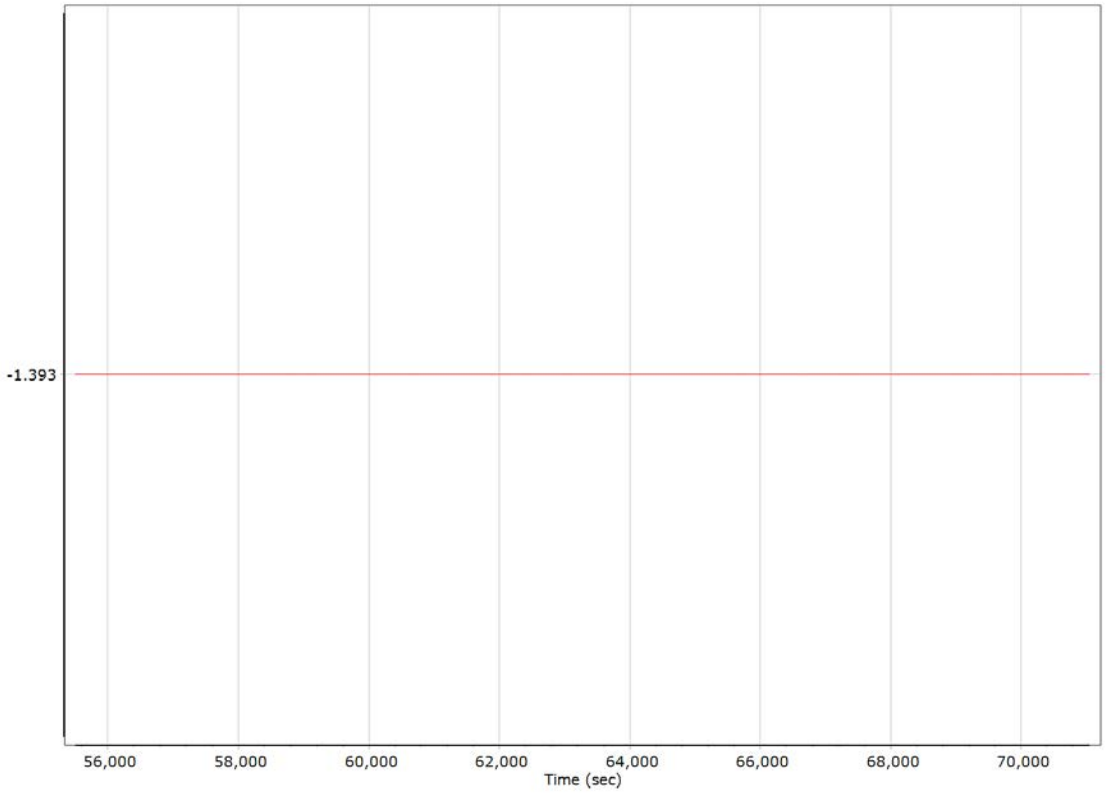
X Reference-Primary GNSS Lever Arm (m)



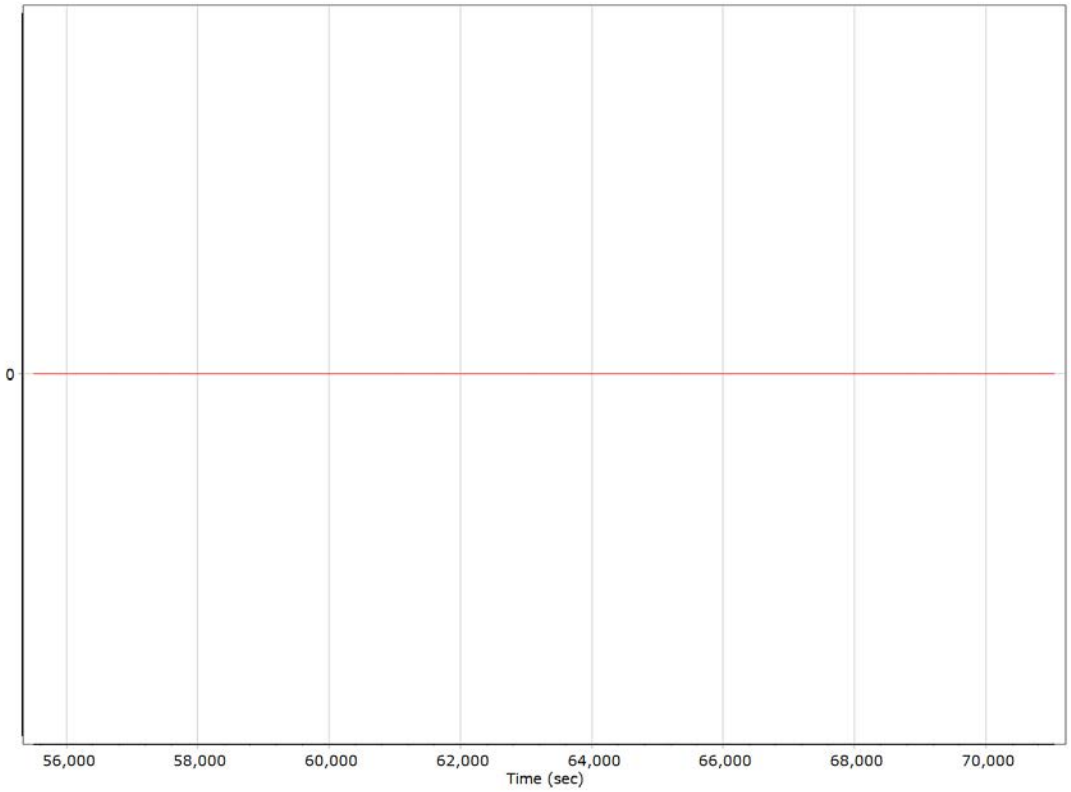
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



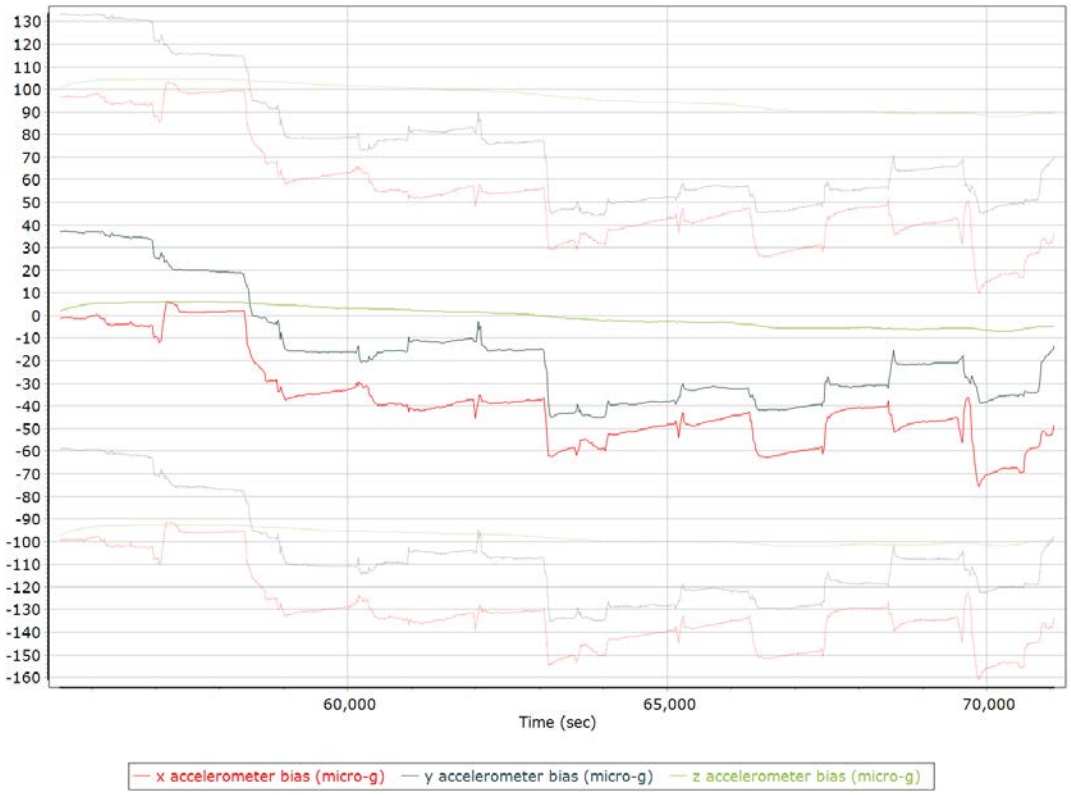
Reference-Primary GNSS Lever Arm Figure of Merit



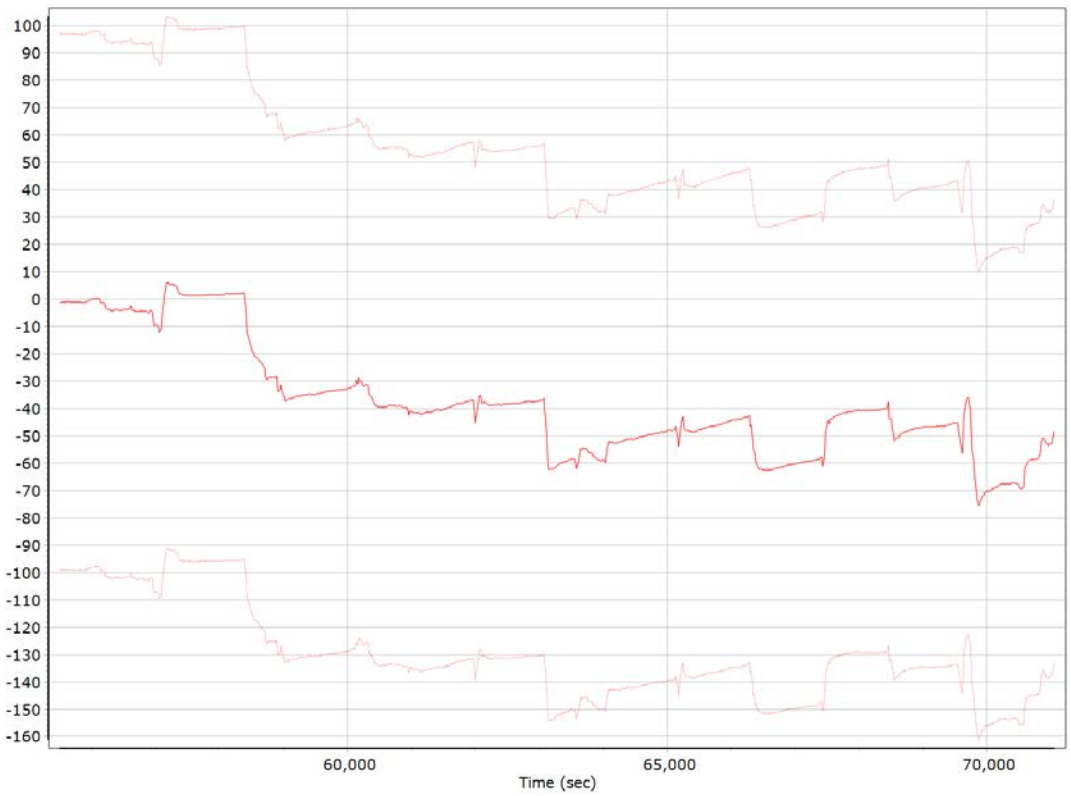
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

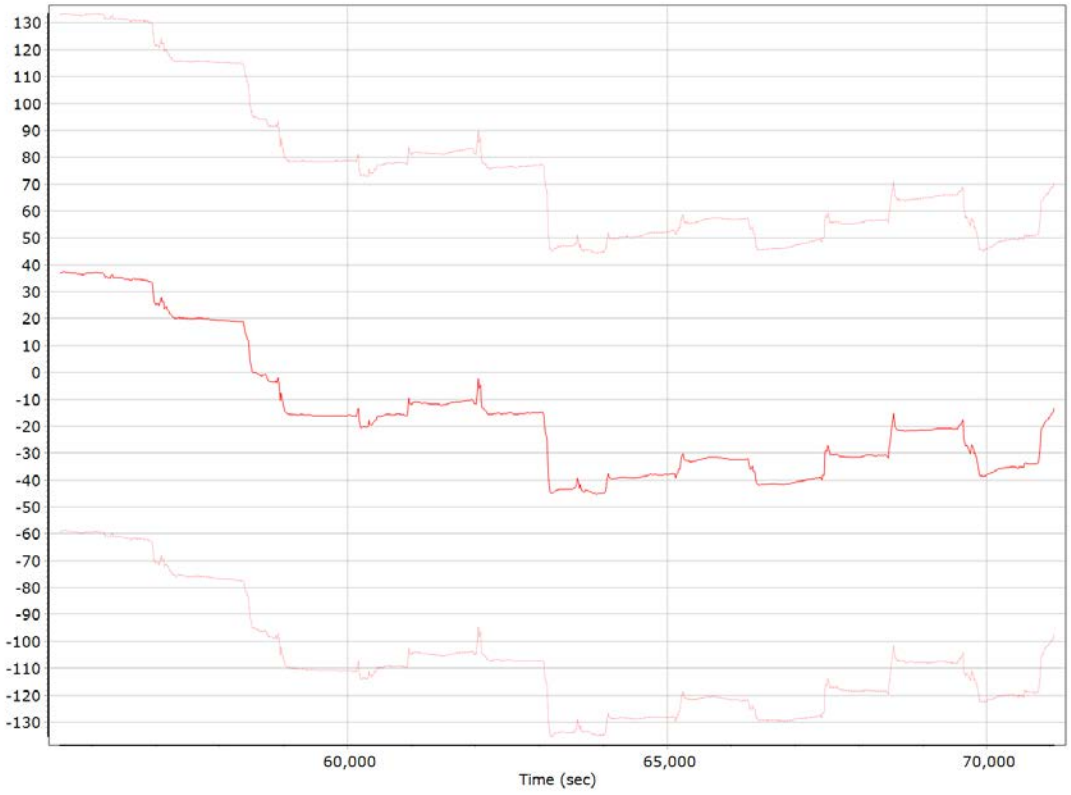
Accelerometer Bias (micro-g)



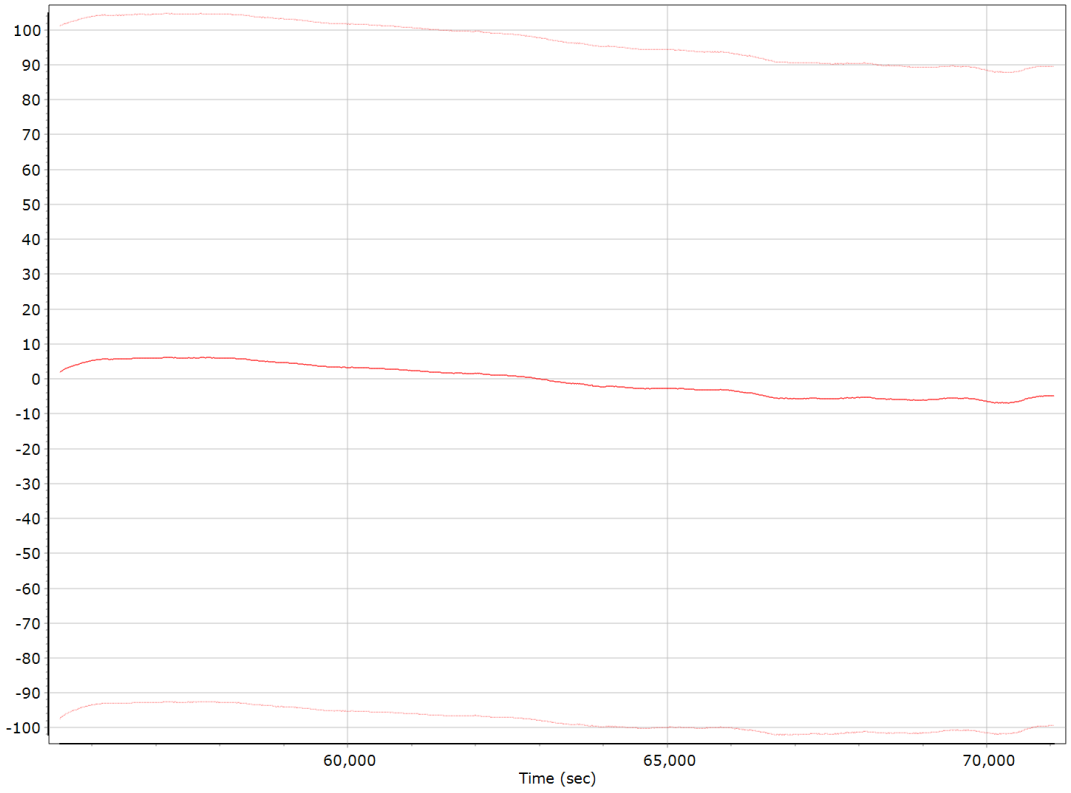
X Accelerometer Bias (micro-g)



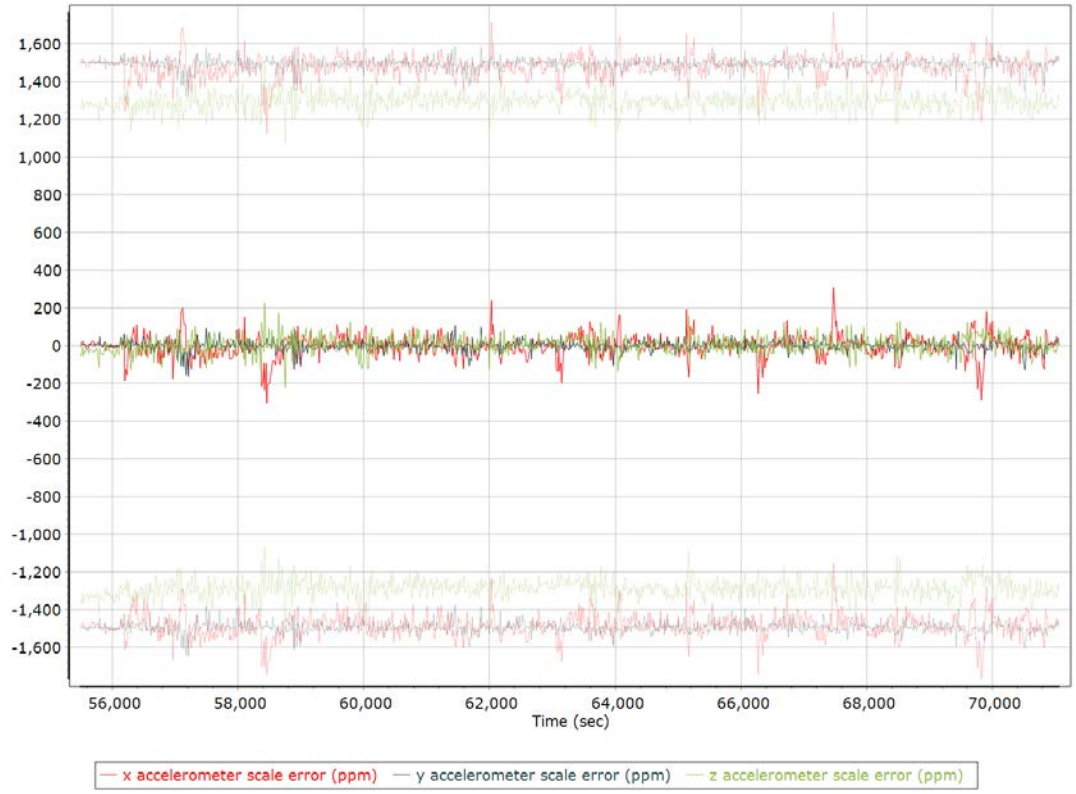
Y Accelerometer Bias (micro-g)



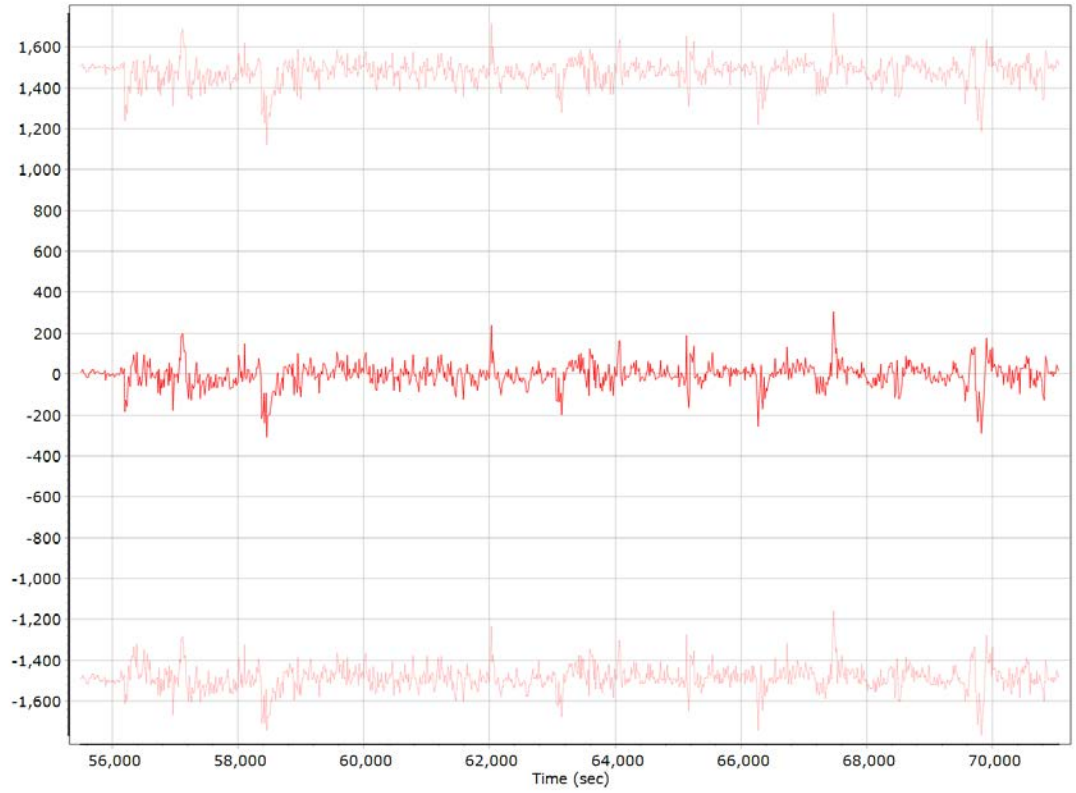
Z Accelerometer Bias (micro-g)



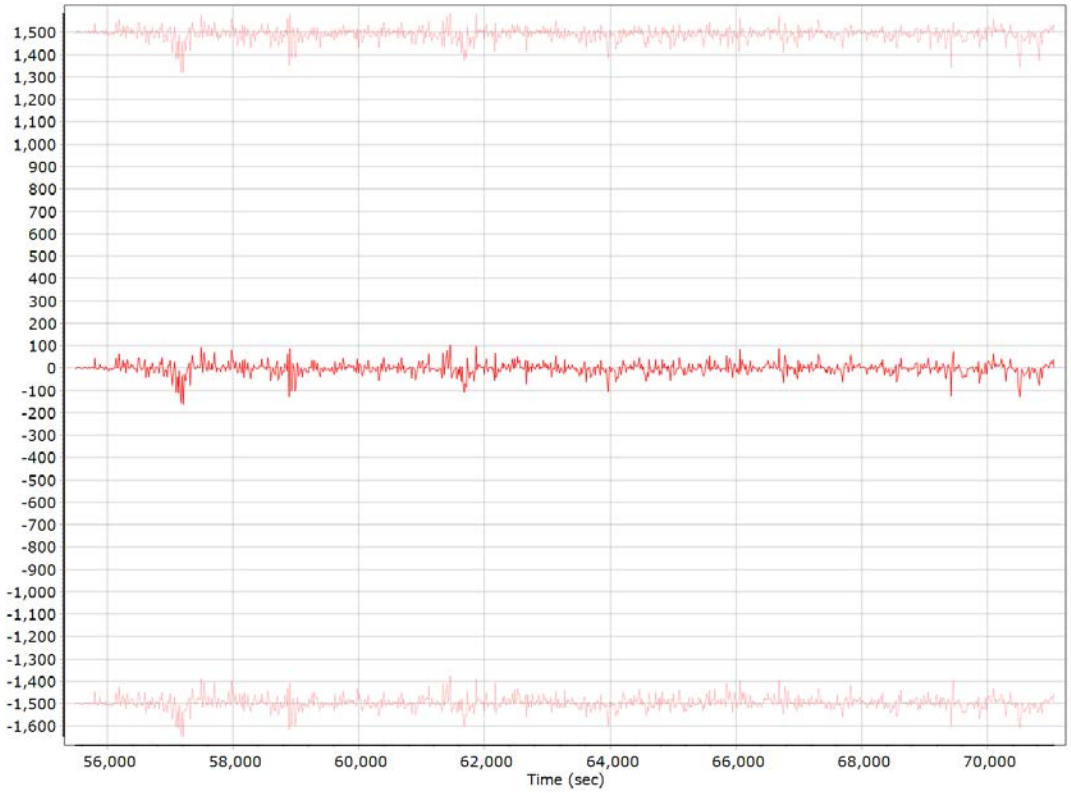
Accelerometer Scale Error (ppm)



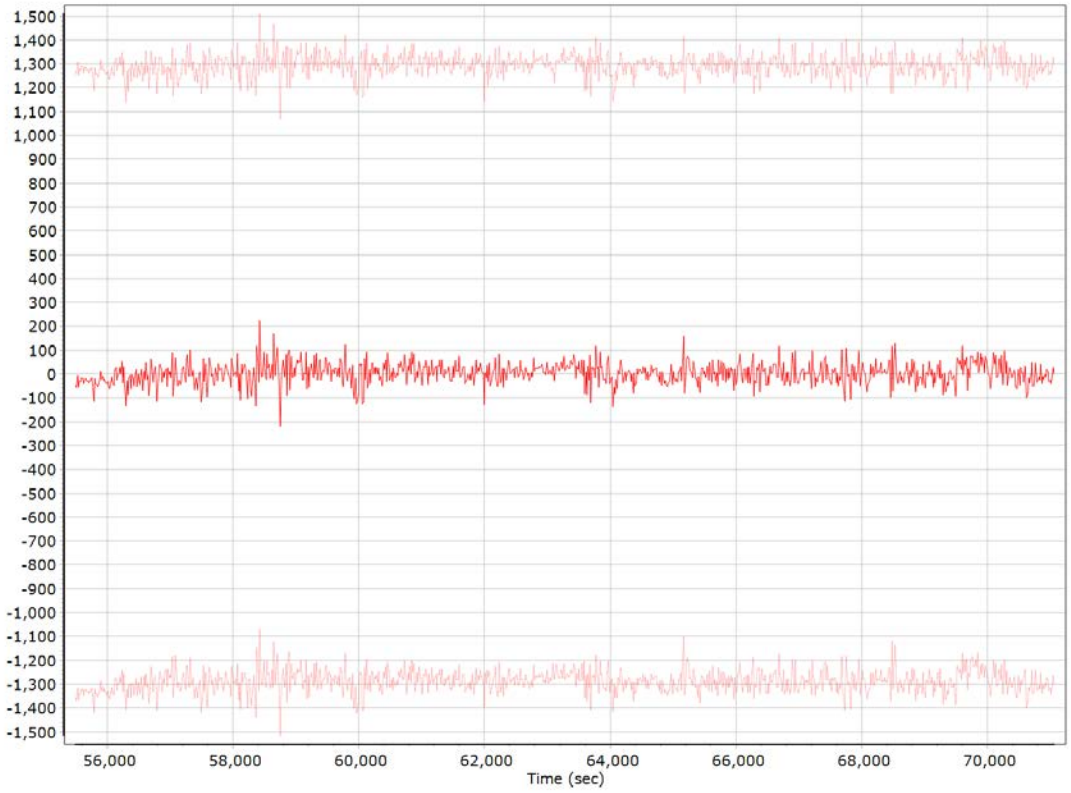
X Accelerometer Scale Error (ppm)



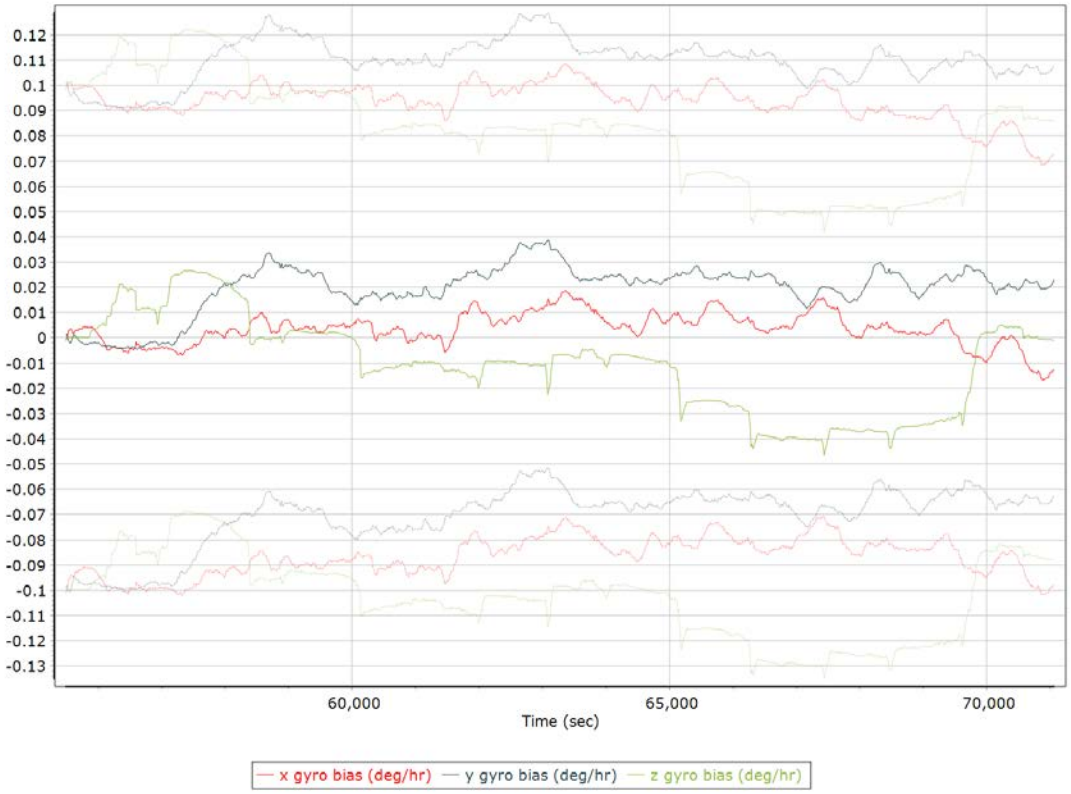
Y Accelerometer Scale Error (ppm)



Z Accelerometer Scale Error (ppm)



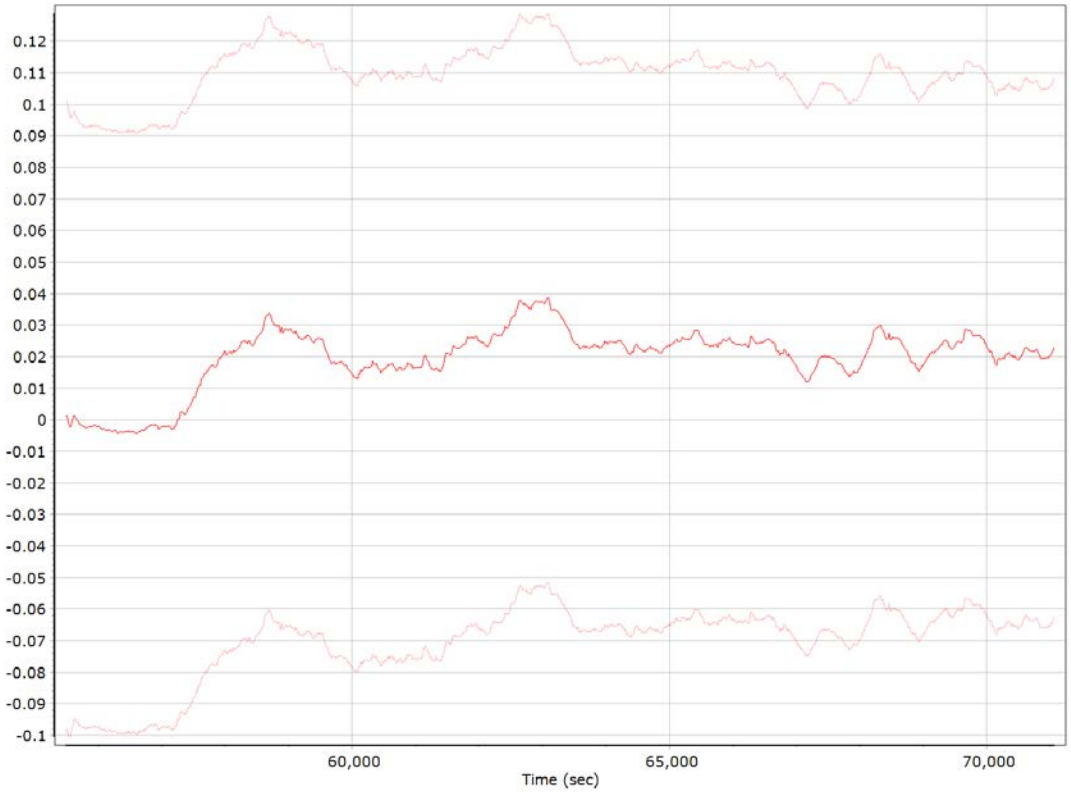
Gyro Bias (deg/h)



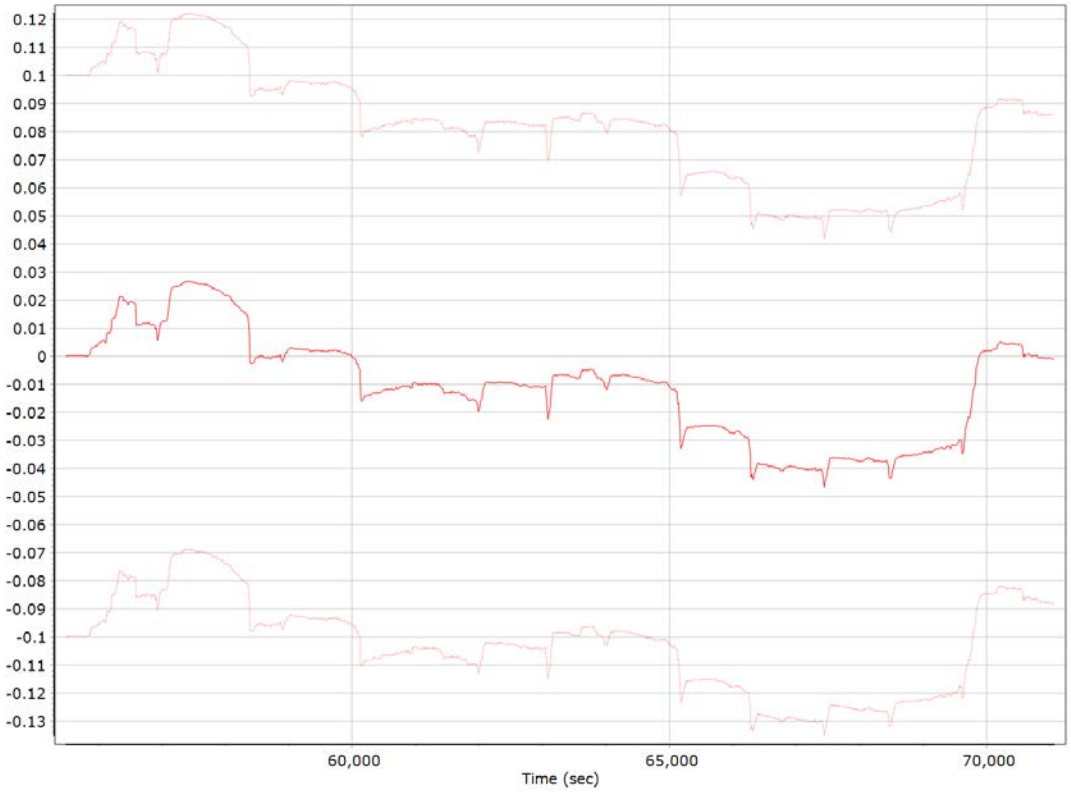
X Gyro Bias (deg/h)



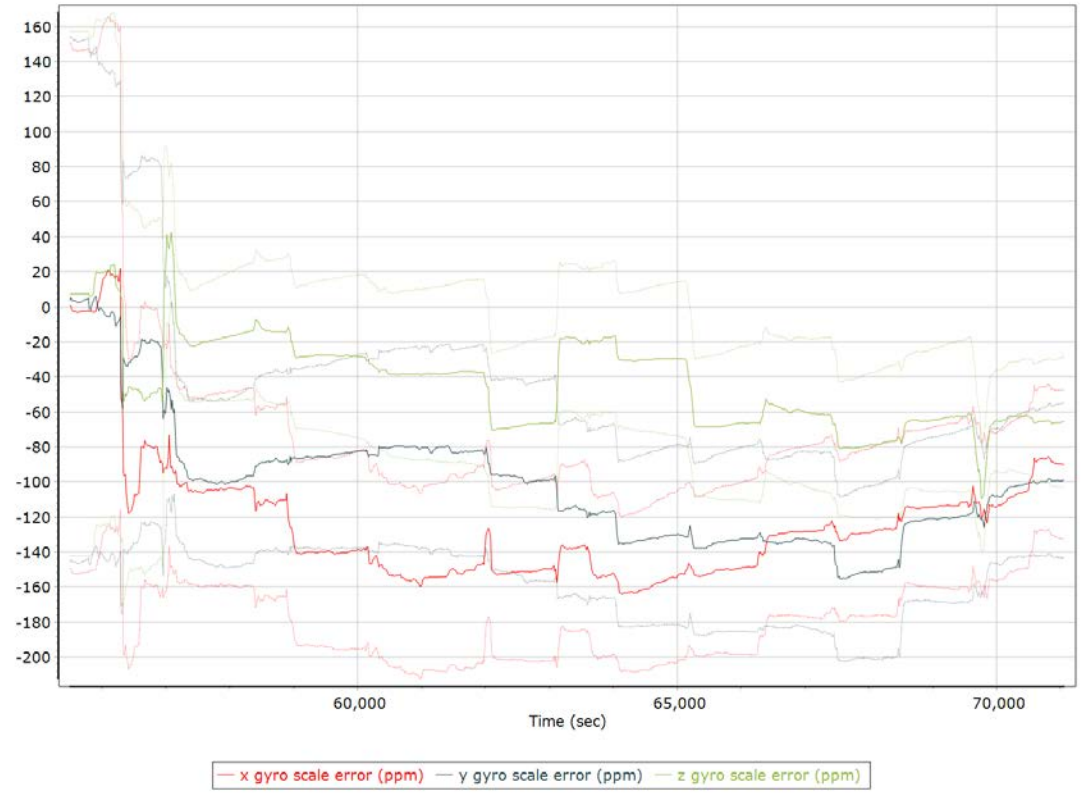
Y Gyro Bias (deg/h)



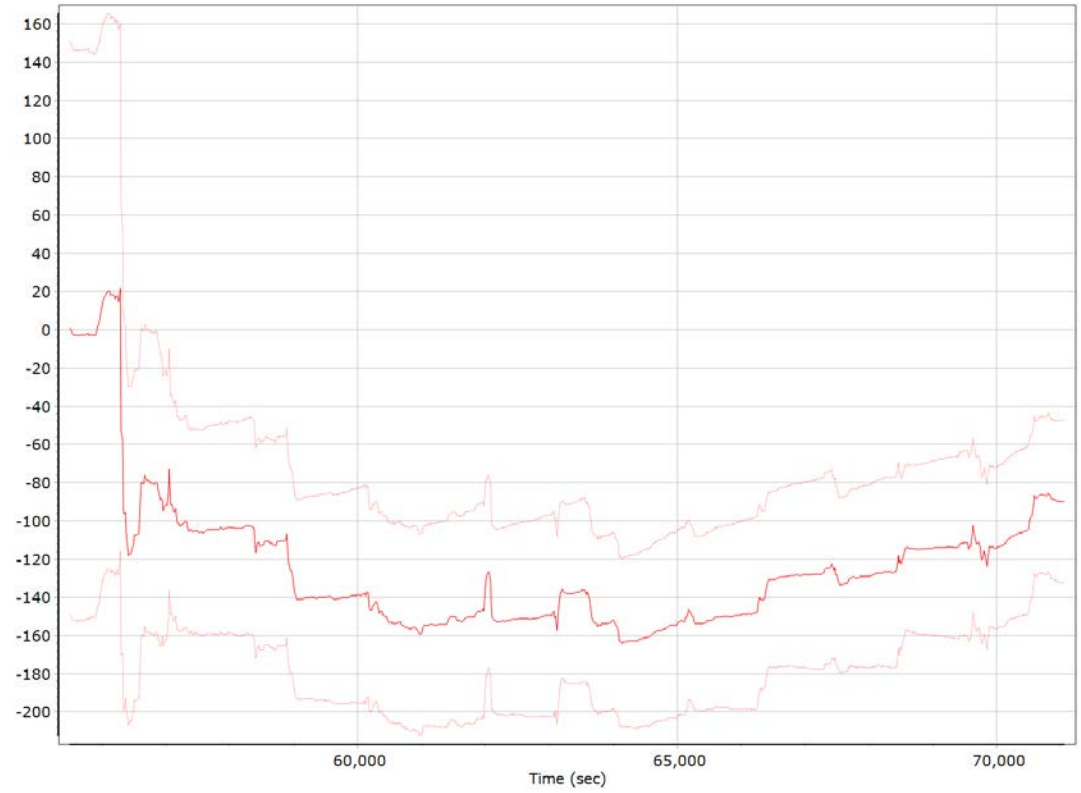
Z Gyro Bias (deg/h)



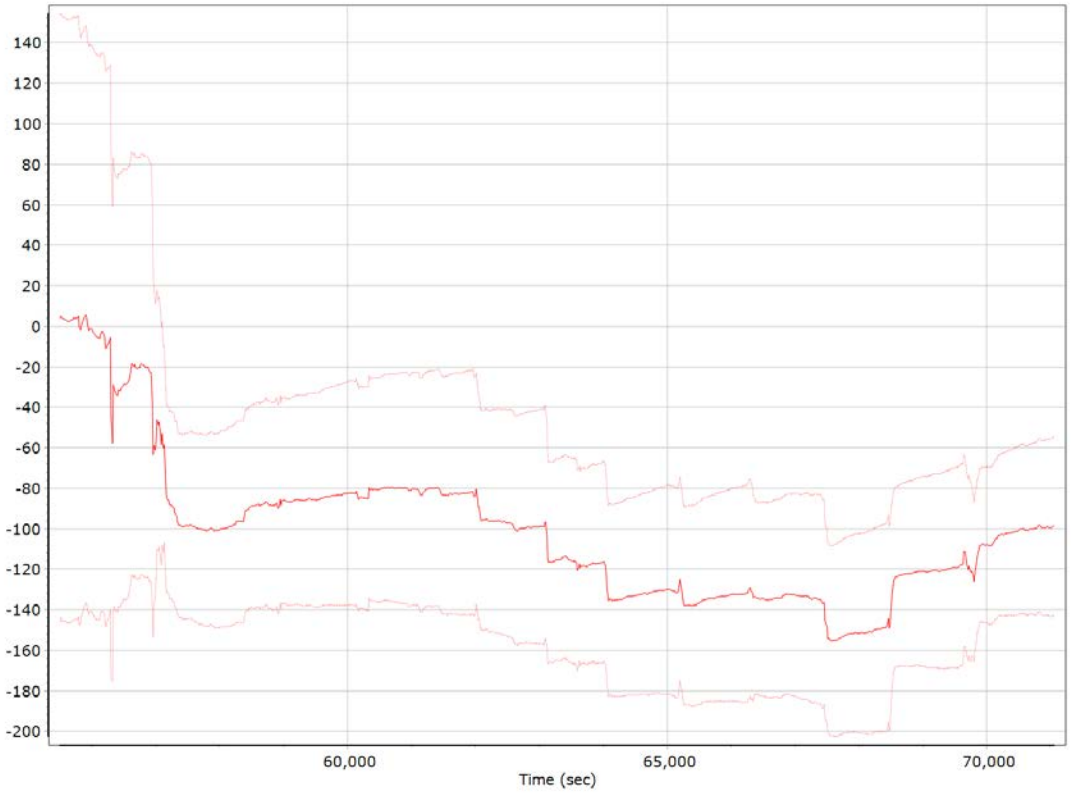
Gyro Scale Error (ppm)



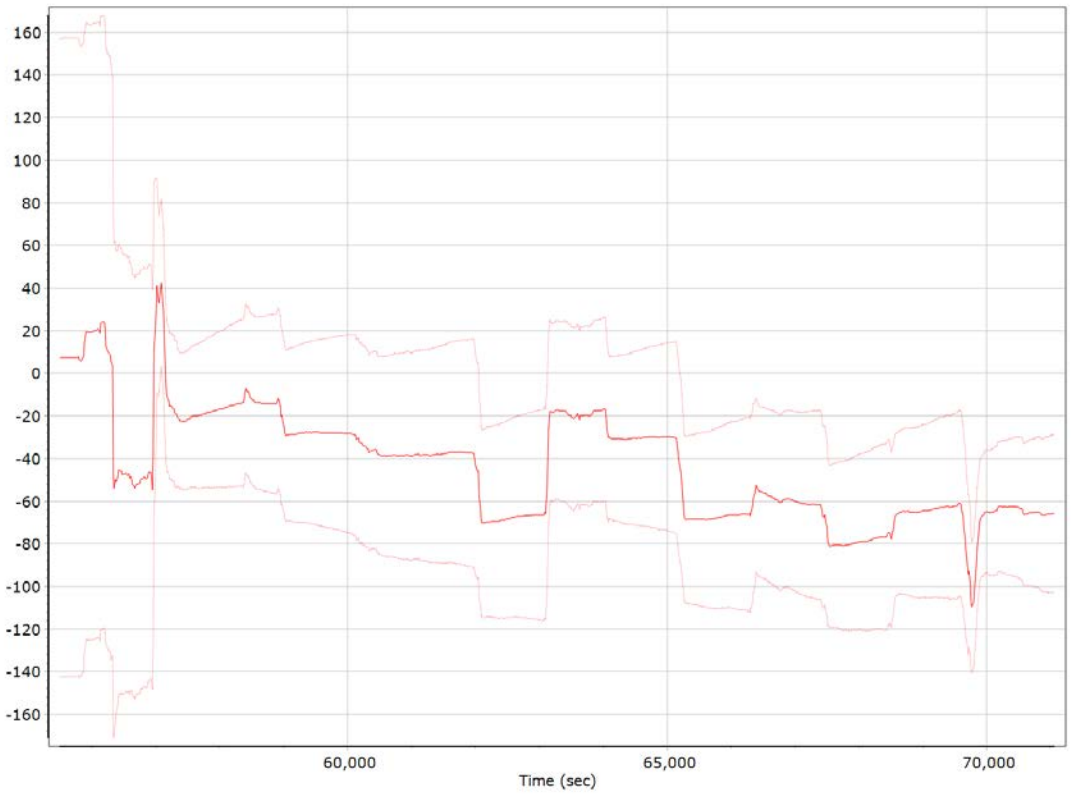
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)



Z Gyro Scale Error (ppm)



Smoothed Performance Metrics

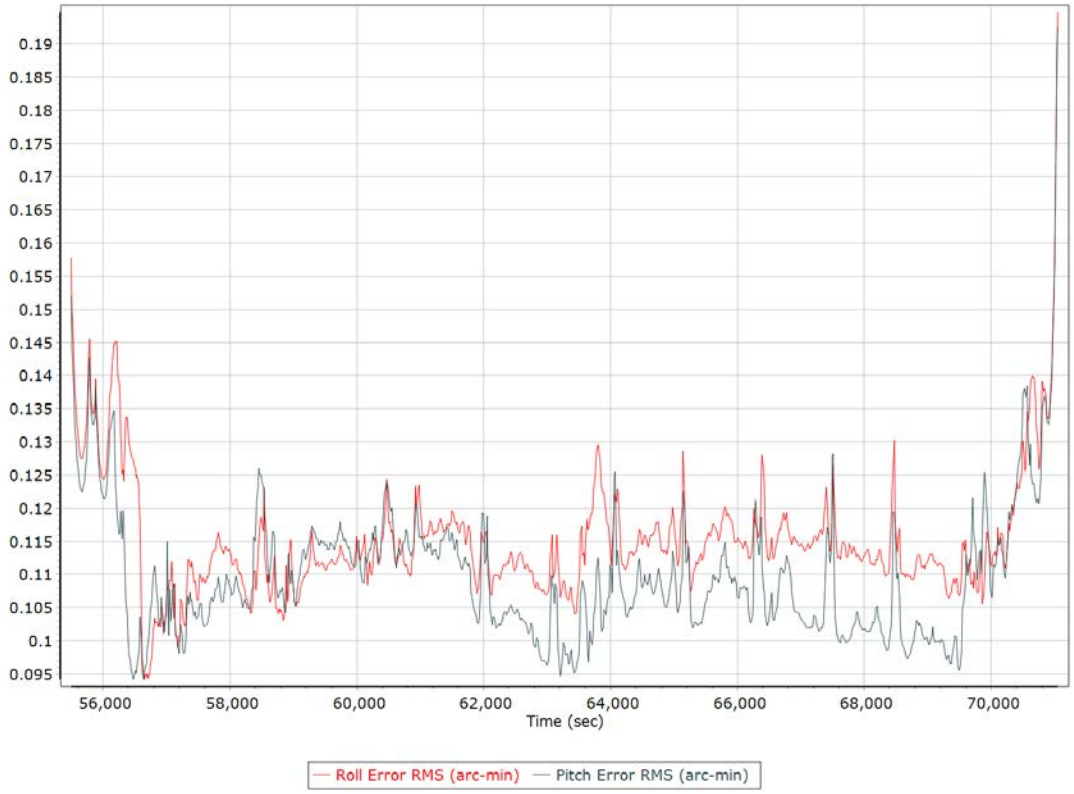
Position Error RMS (m)



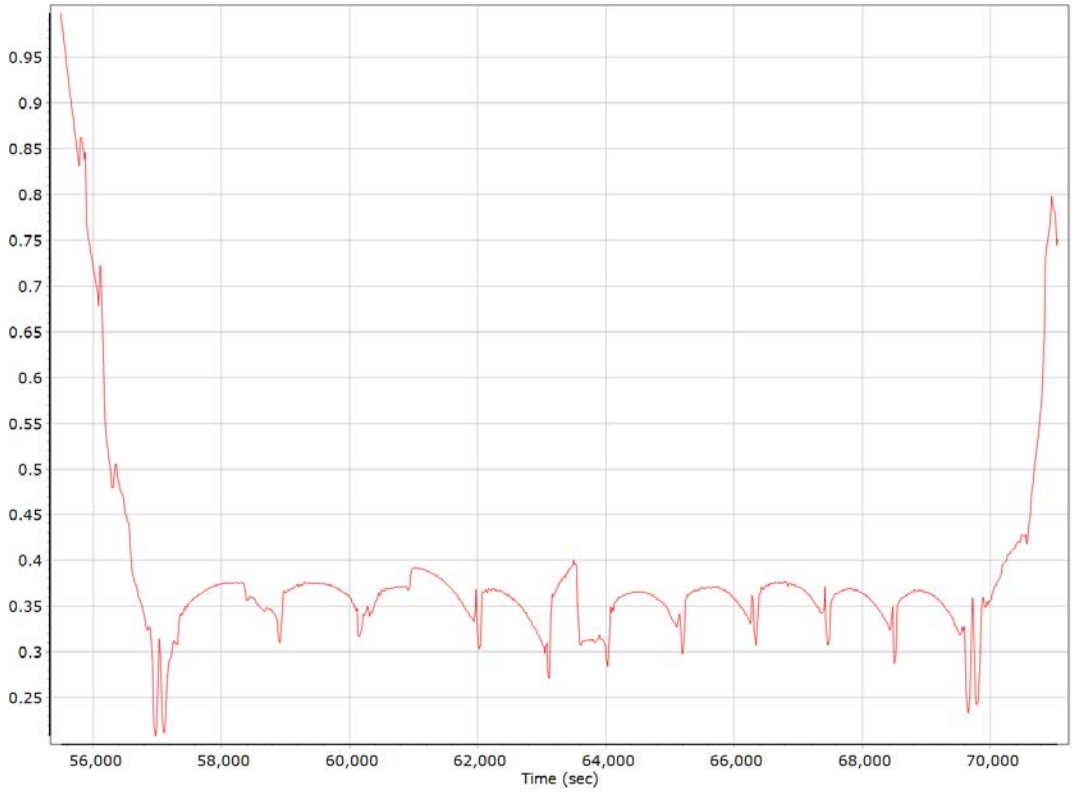
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)



Heading Error RMS (arc-min)

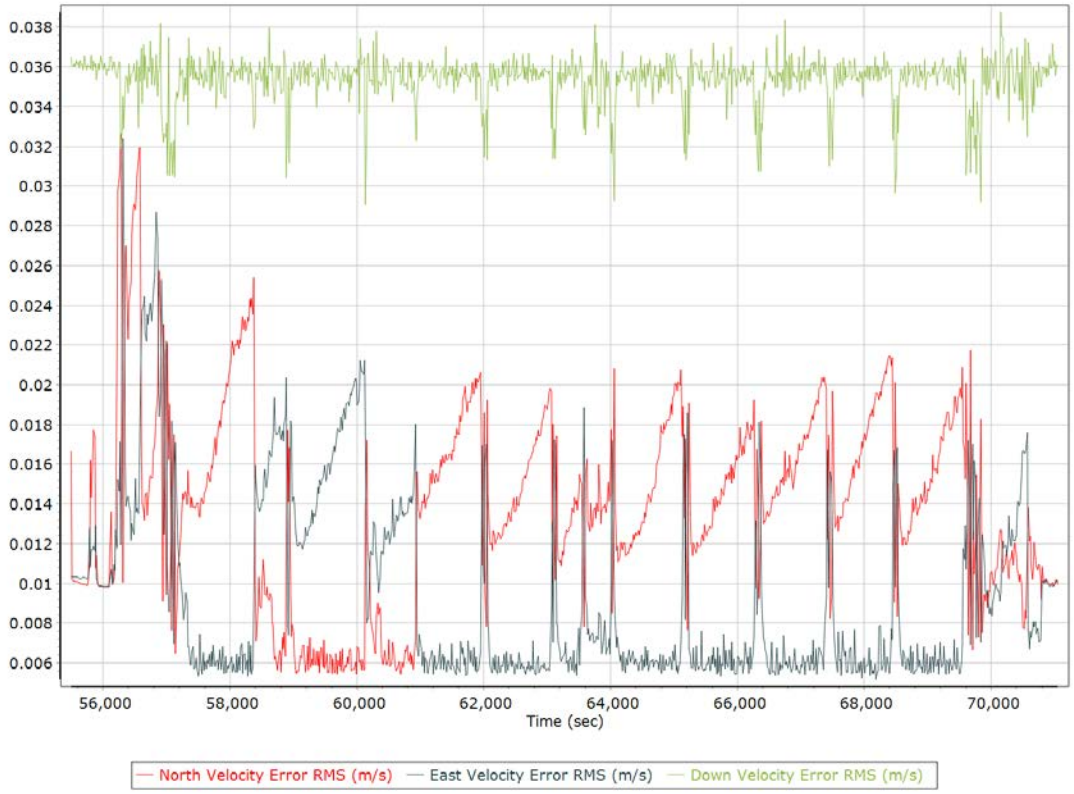


Forward Processed Performance Metrics

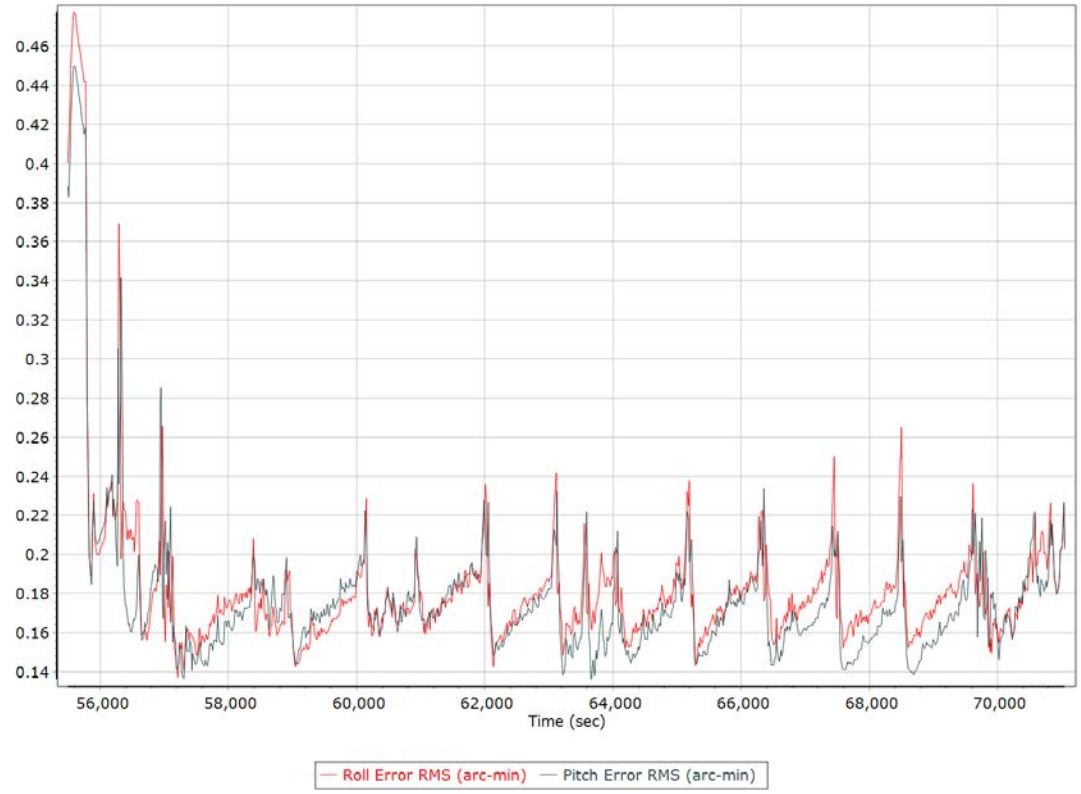
Position Error RMS (m)



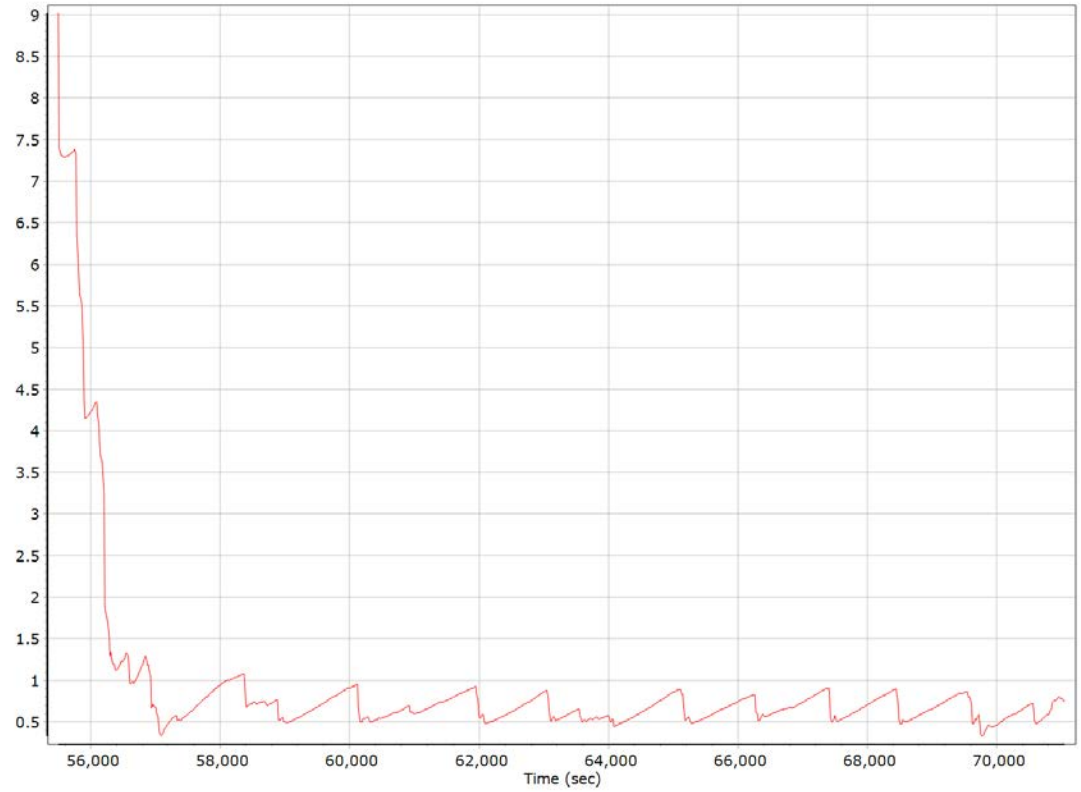
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

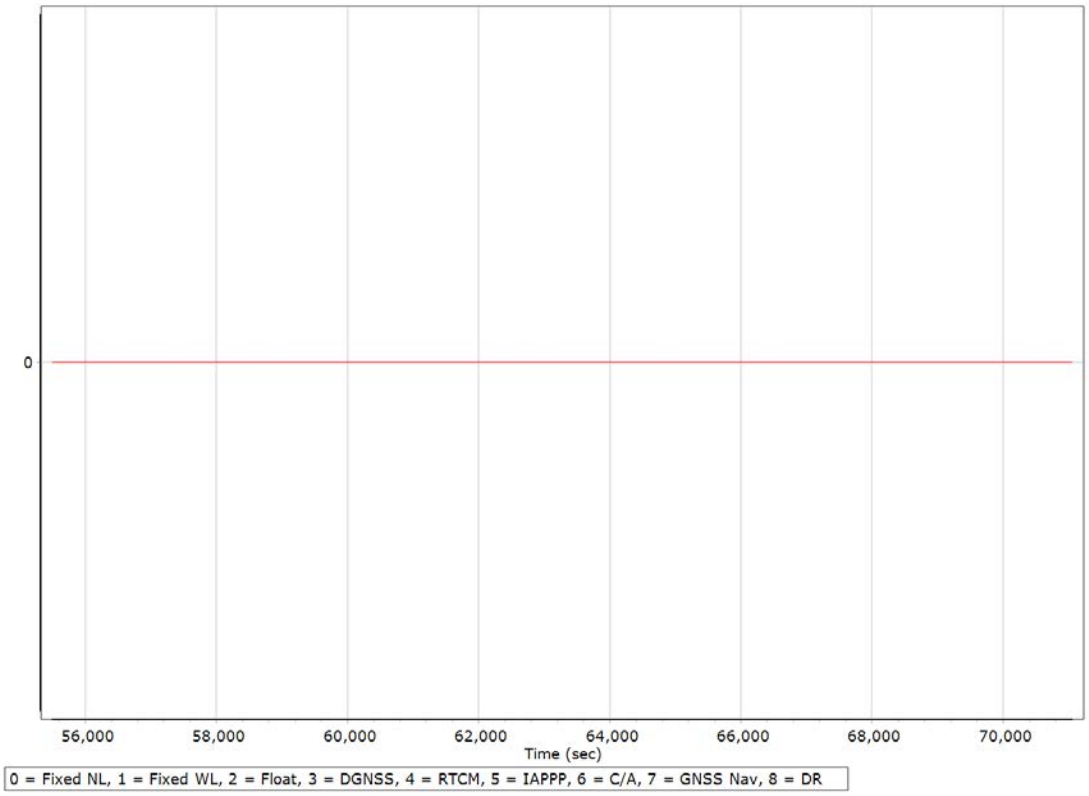


Heading Error RMS (arc-min)

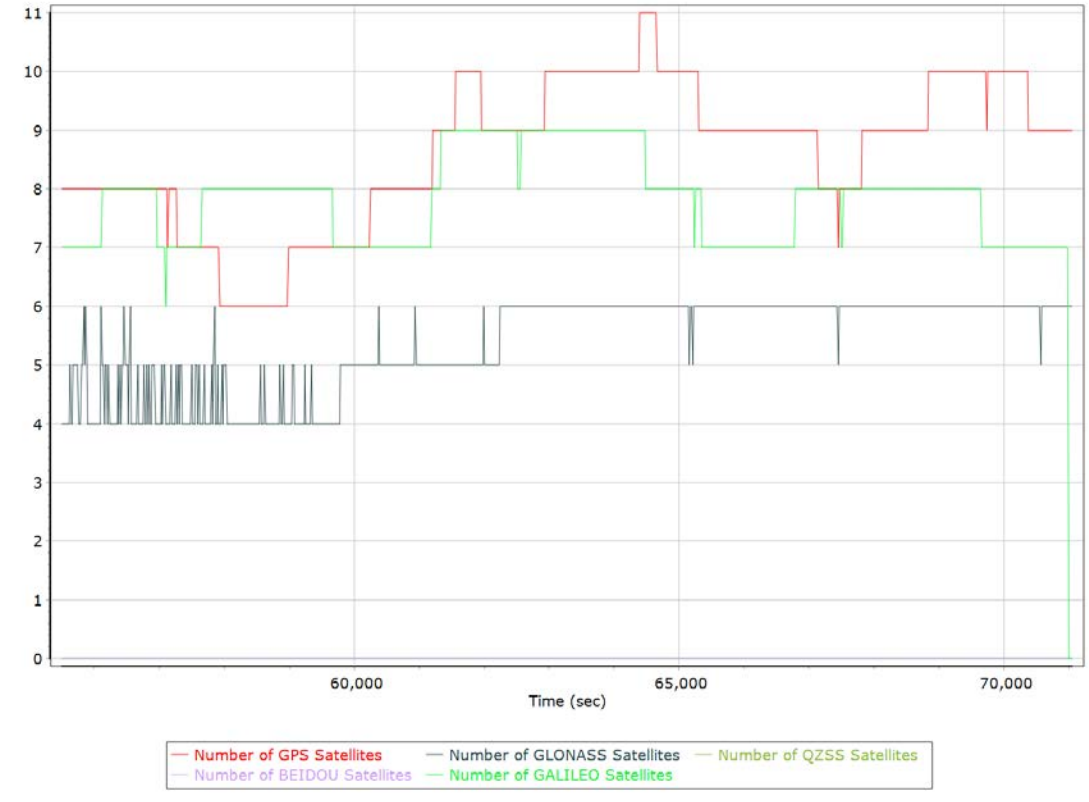


Forward Processed Solution Status

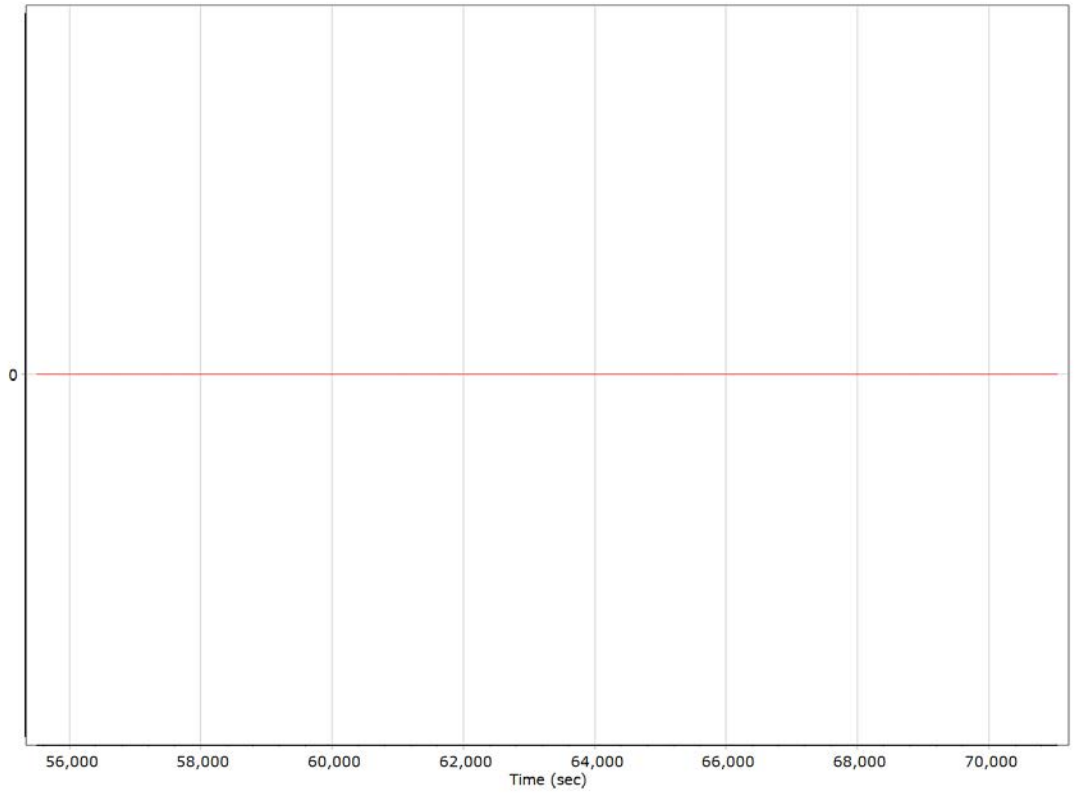
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07242023A_4051
Processing date	2023-07-28 16:49:19
Mission date	2023-07-24 15:34:45
Mission duration	04:38:35.009
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.199	POS Data
CP780.200	POS Data
CP780.201	POS Data
CP780.202	POS Data
CP780.203	POS Data
CP780.204	POS Data
CP780.205	POS Data
CP780.206	POS Data
CP780.207	POS Data
CP780.208	POS Data
CP780.209	POS Data
CP780.210	POS Data
CP780.211	POS Data
CP780.212	POS Data
CP780.213	POS Data
CP780.214	POS Data
CP780.215	POS Data
CP780.216	POS Data
CP780.217	POS Data
CP780.218	POS Data
CP780.219	POS Data
CP780.220	POS Data
CP780.221	POS Data
CP780.222	POS Data
CP780.223	POS Data
CP780.224	POS Data
CP780.225	POS Data
CP780.226	POS Data
CP780.227	POS Data
CP780.228	POS Data
CP780.229	POS Data
CP780.230	POS Data
CP780.231	POS Data
CP780.232	POS Data
CP780.233	POS Data
CP780.234	POS Data
CP780.235	POS Data
CP780.236	POS Data
CP780.237	POS Data

Input Files

File Name	File Type
Ephm2050.23g	GLONASS Broadcast Ephemeris
Ephm2050.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07242023A_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.199		
Last raw data file	CP780.237		
Start GPS week	2272		
Start time	142466.840 (7/24/2023 3:34:26 PM)		
End time	159181.849 (7/24/2023 8:13:01 PM)		
Start of fine alignment	142490.254 (7/24/2023 3:34:50 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

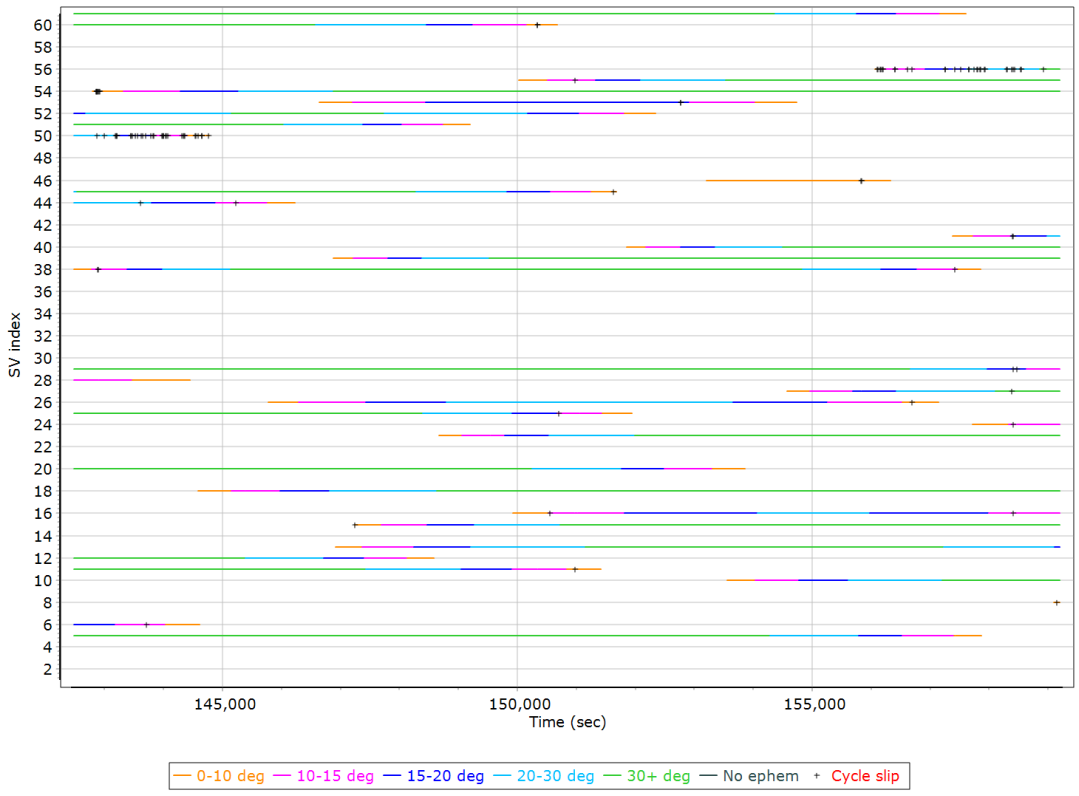
Rover Data QC

Raw IMU Import QC Summary

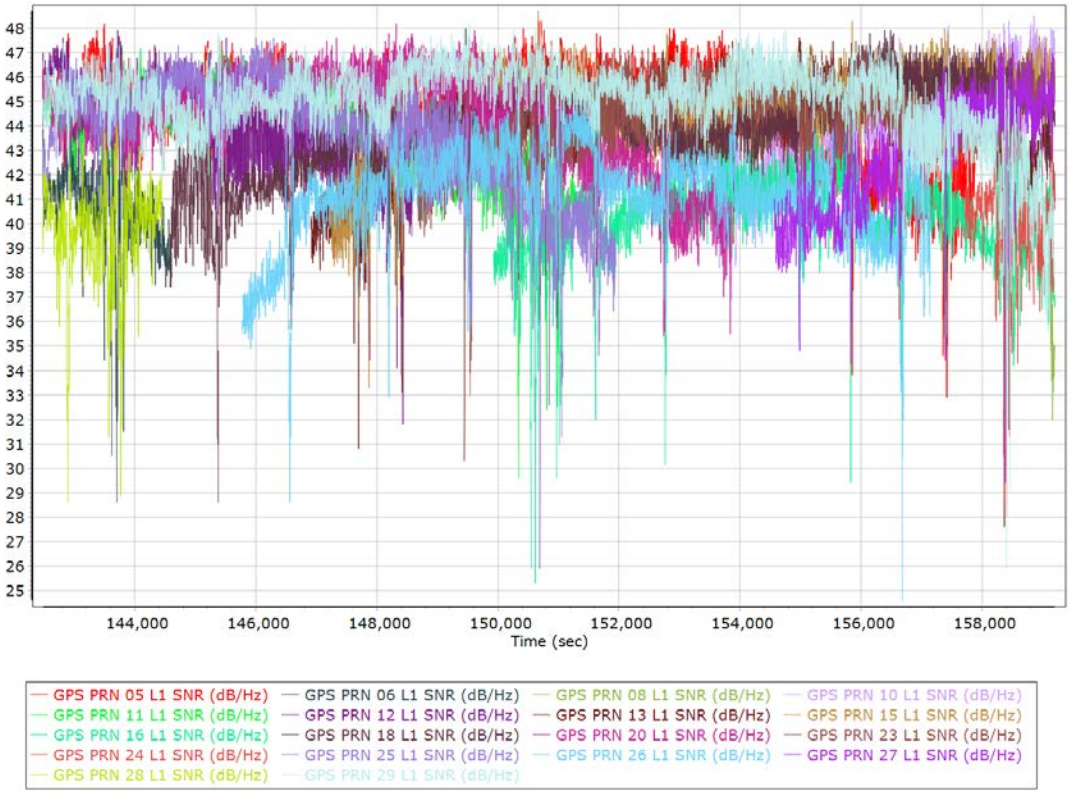
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07242023A_4051.log
IMU Records Processed	3342509
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

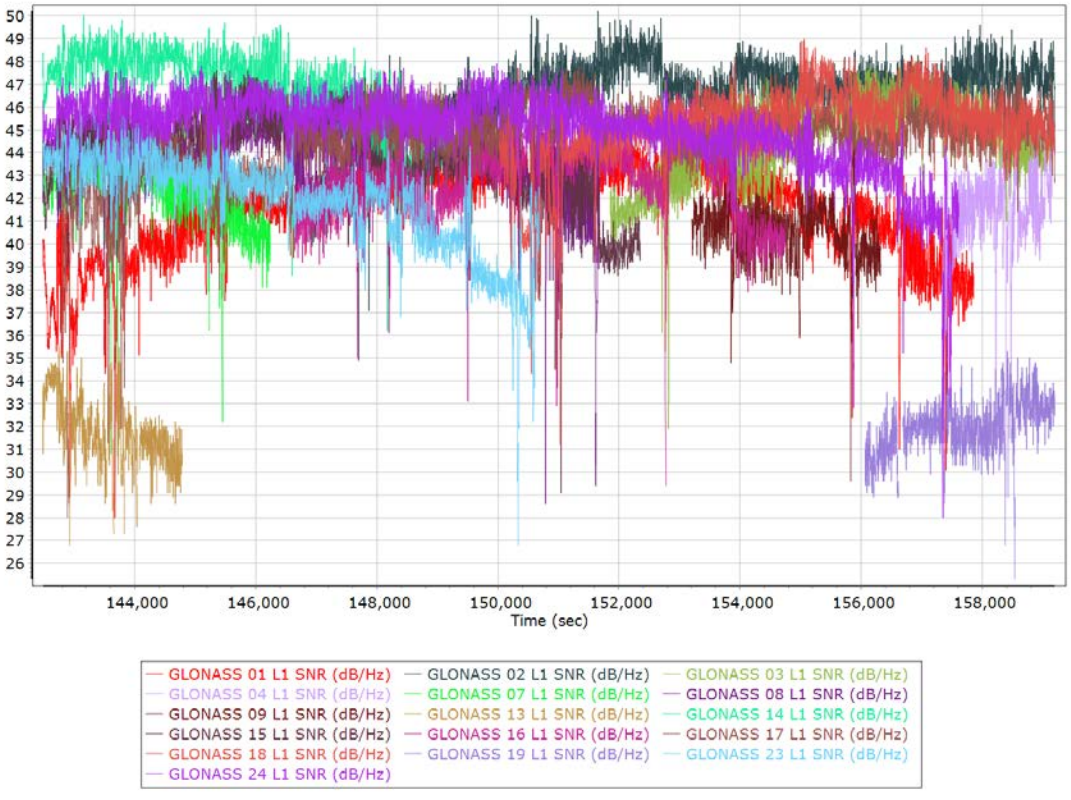
GPS/GLONASS L1 Satellite Lock/Elevation



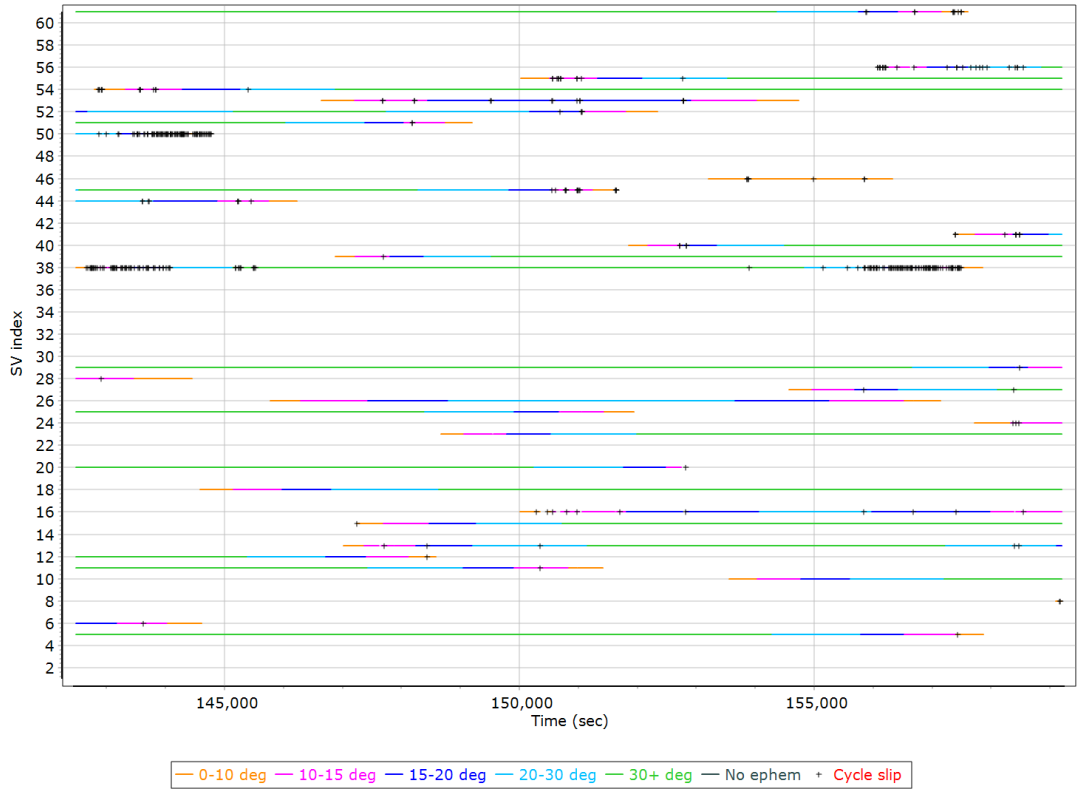
GPS L1 SNR



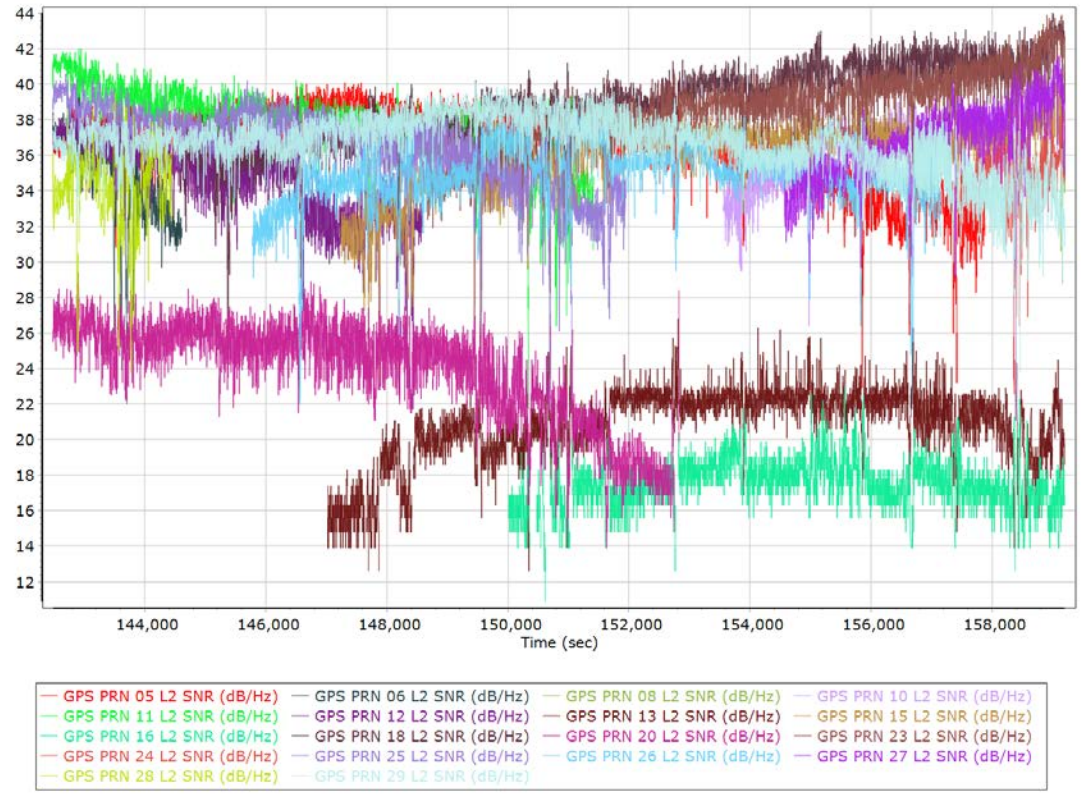
GLONASS L1 SNR



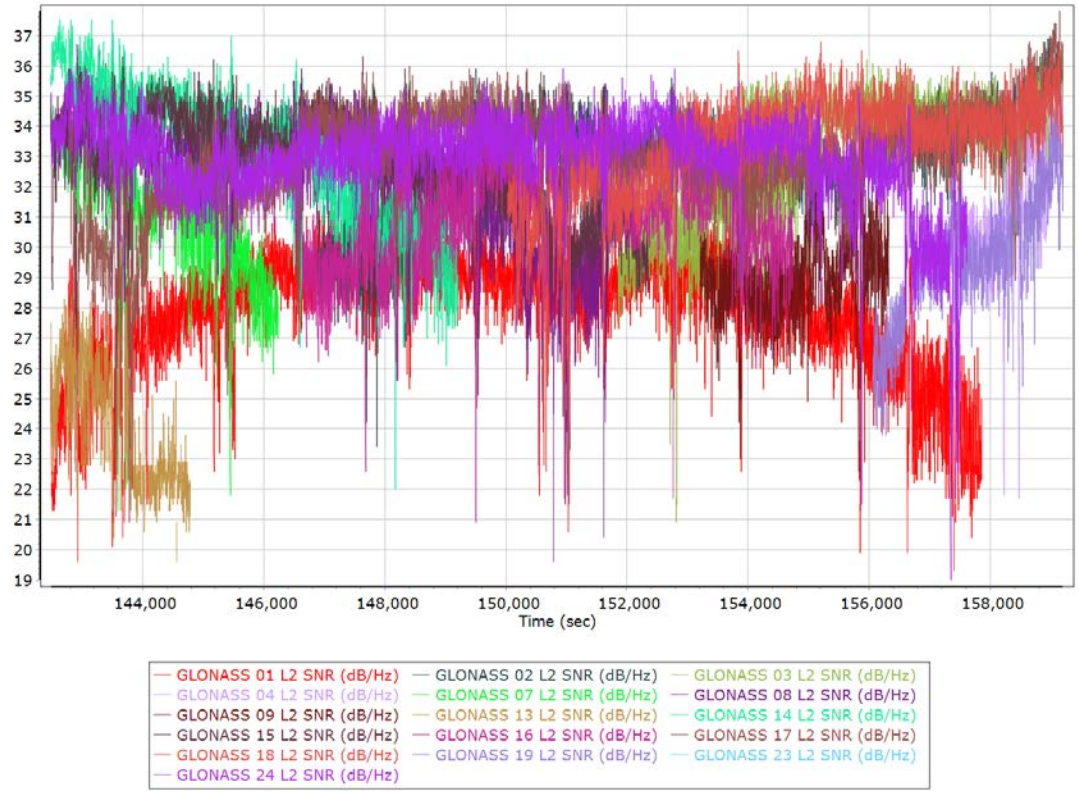
GPS/GLONASS L2 Satellite Lock/Elevation



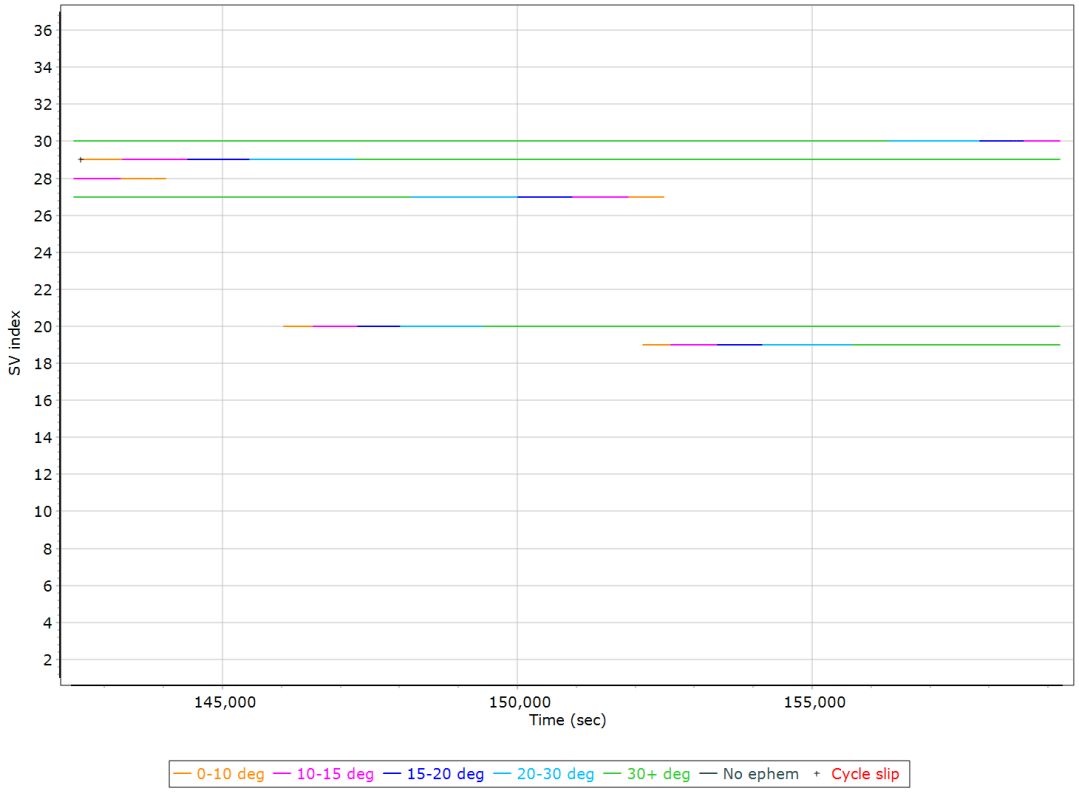
GPS L2 SNR



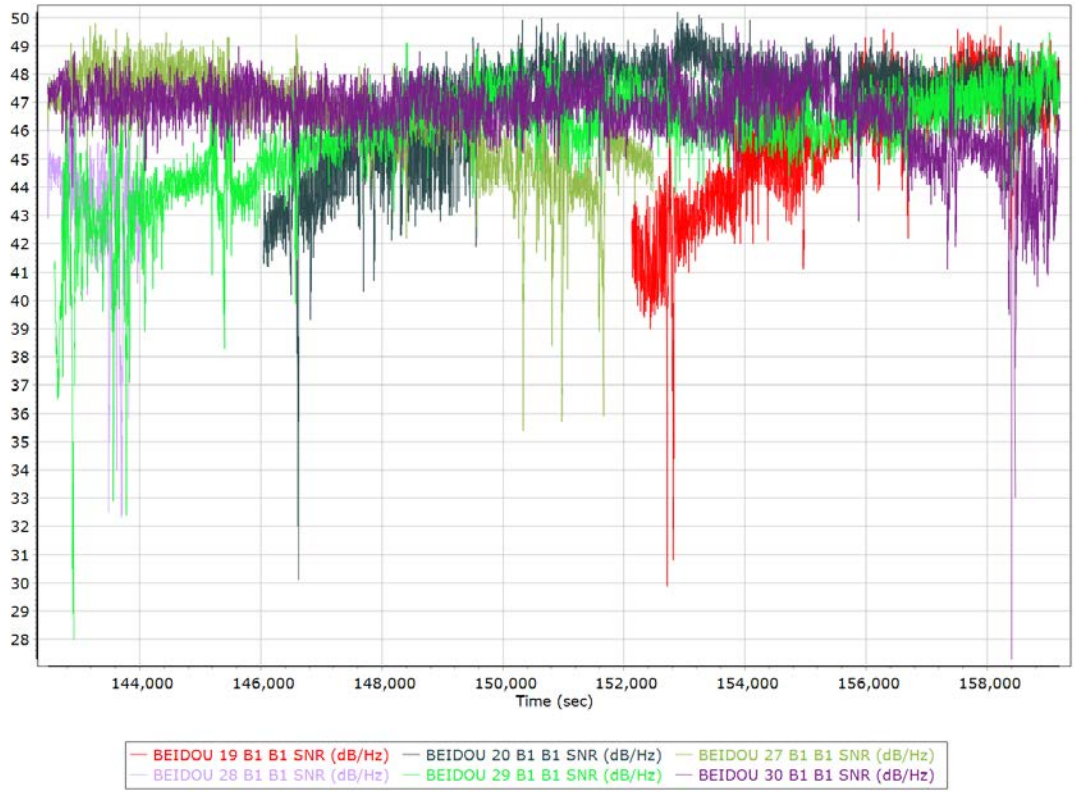
GLONASS L2 SNR



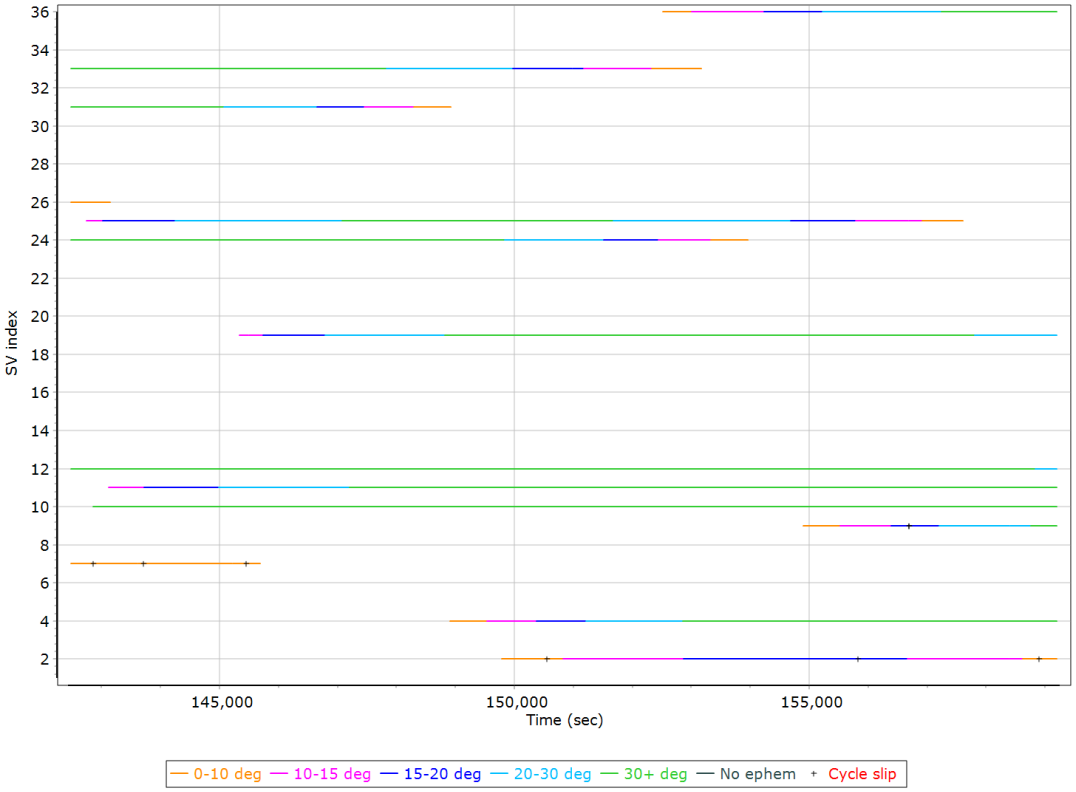
BEIDOU Satellite Lock/Elevation



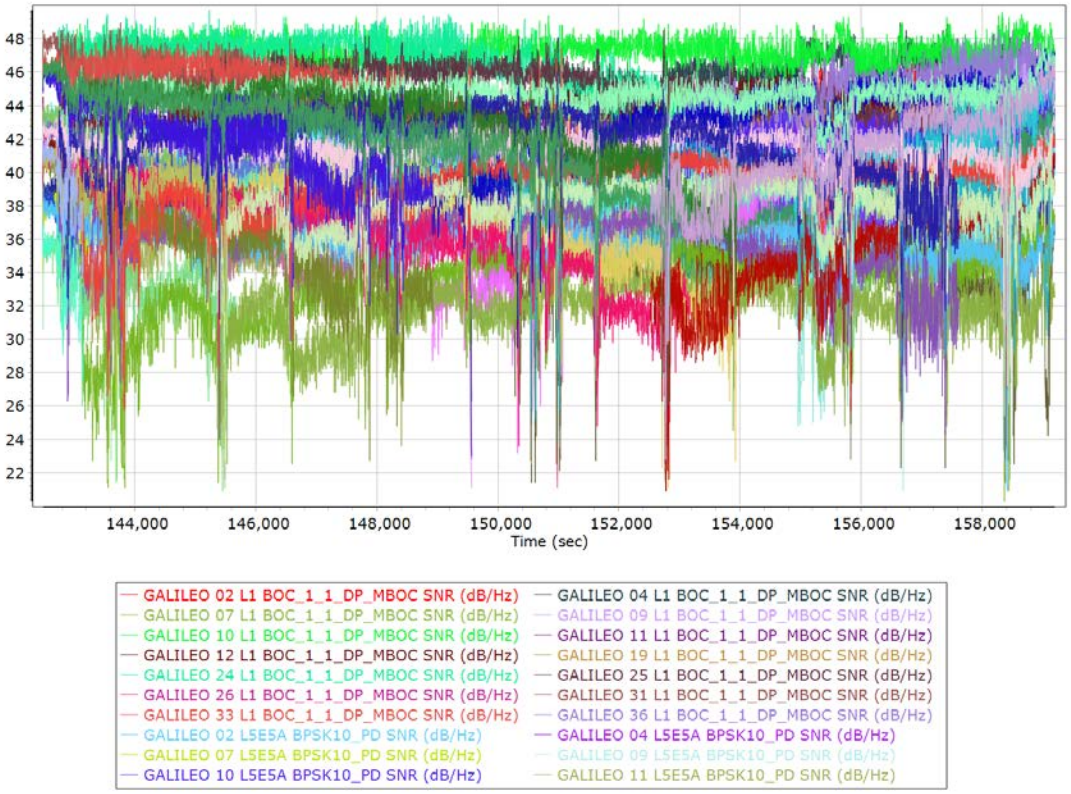
BEIDOU SNR



GALILEO Satellite Lock/Elevation

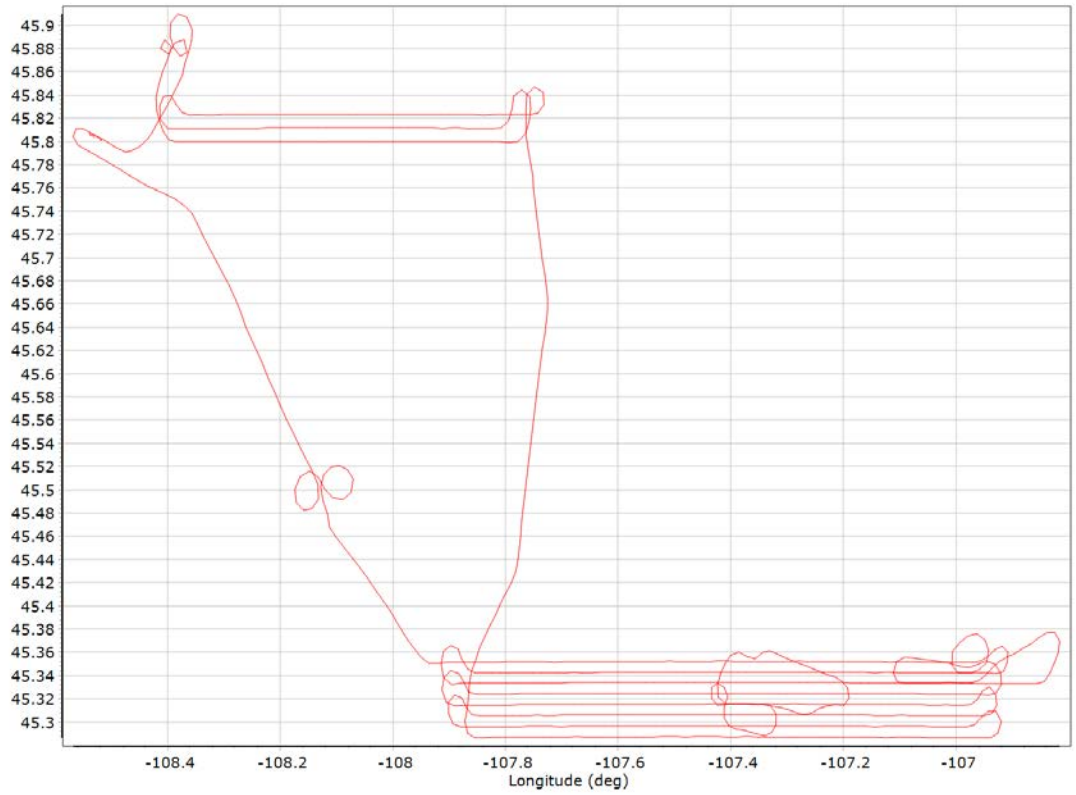


GALILEO SNR

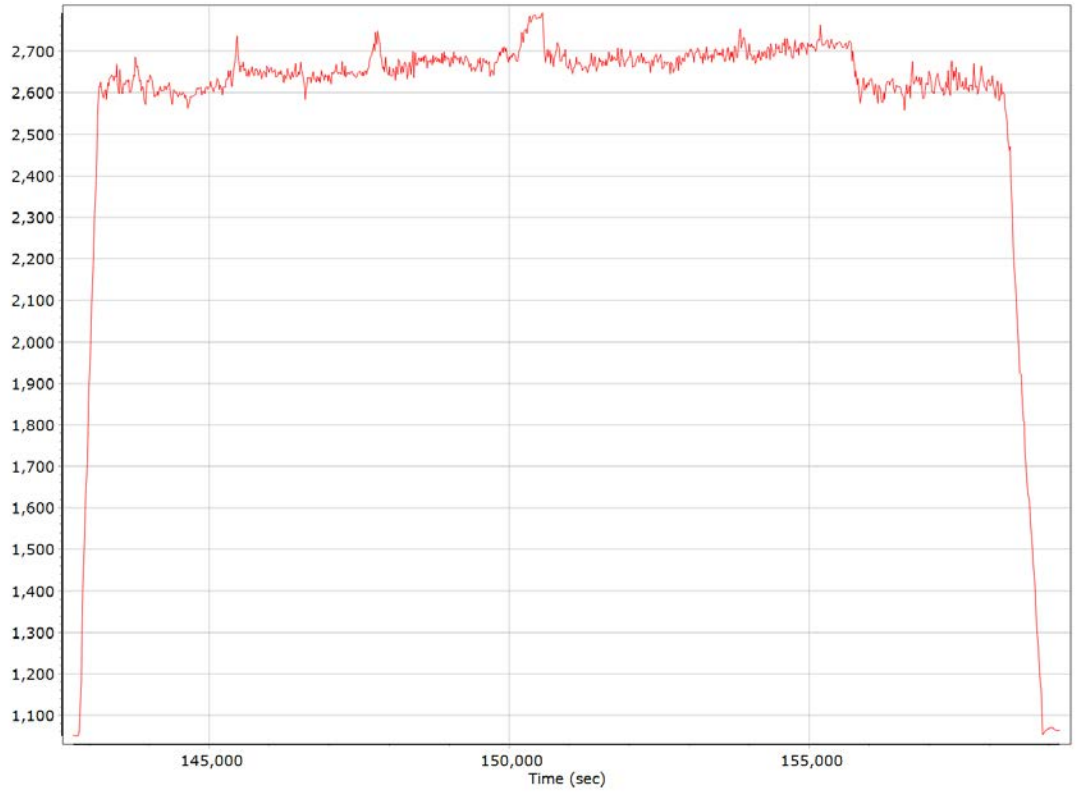

48
46
44
42
40
38
36
34
32
30
28
26
24
22
144,000
146,000
148,000
150,000
152,000
154,000
156,000
158,000
Time (sec)
GALILEO 02 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 07 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 09 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 10 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 26 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 33 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 07 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

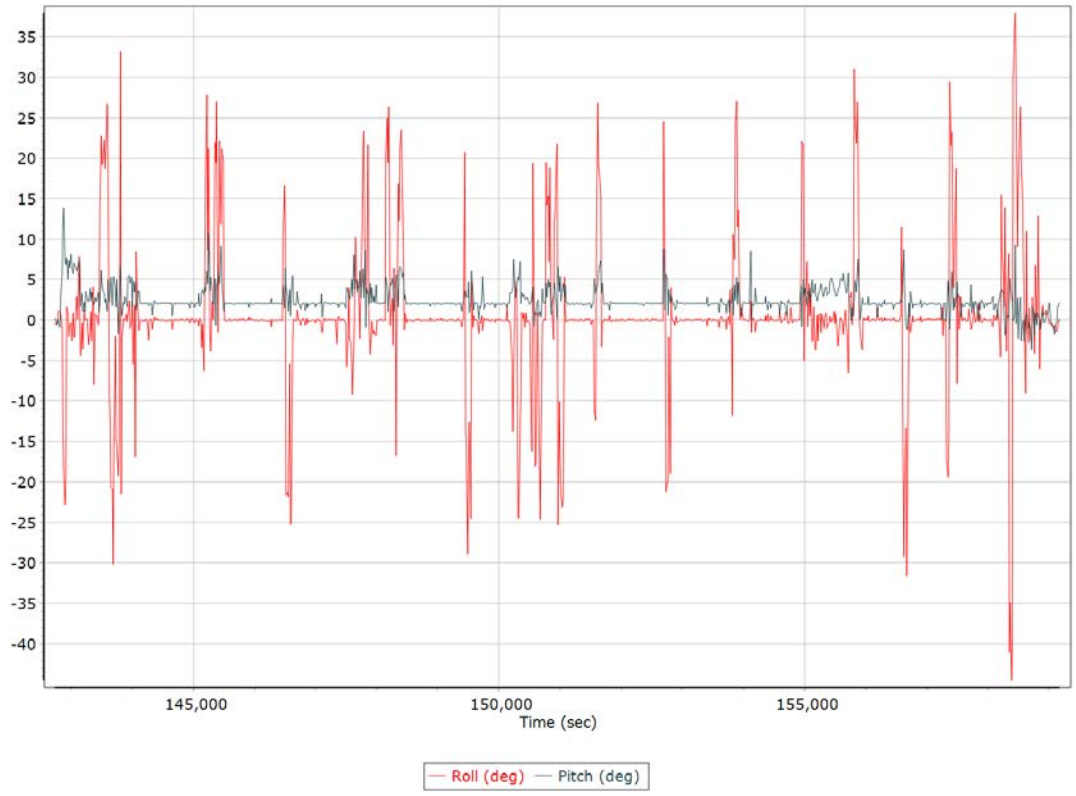
Top View



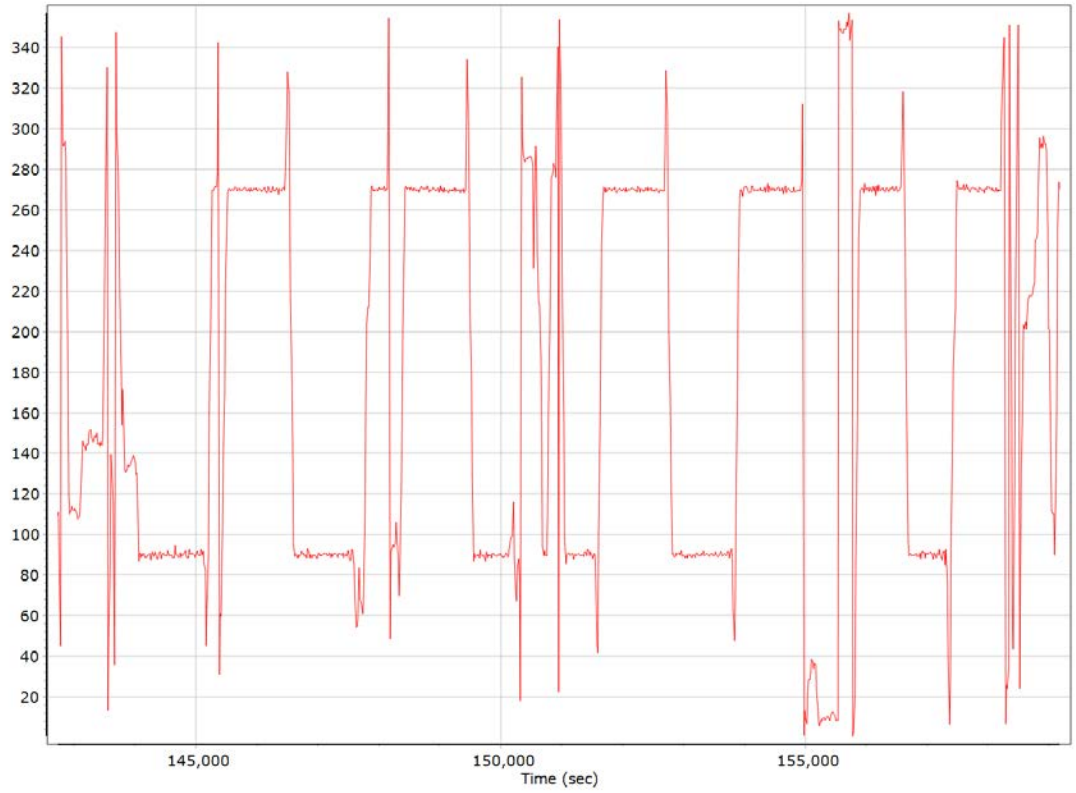
Altitude



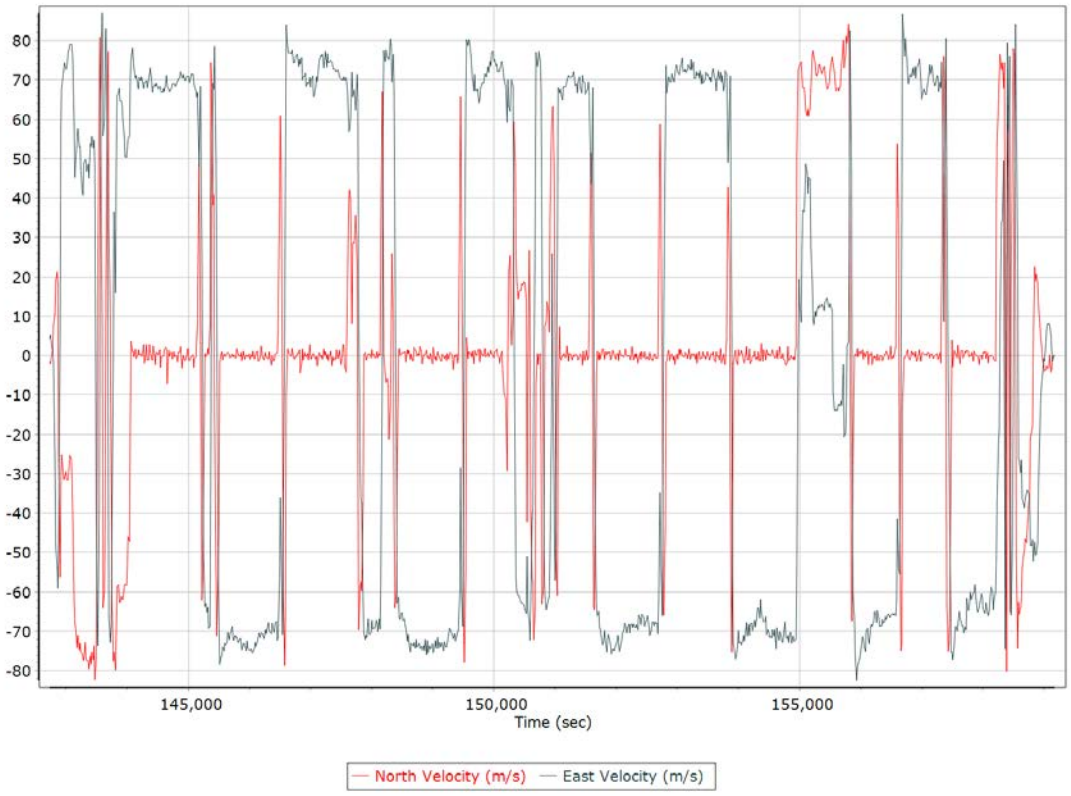
Roll/Pitch



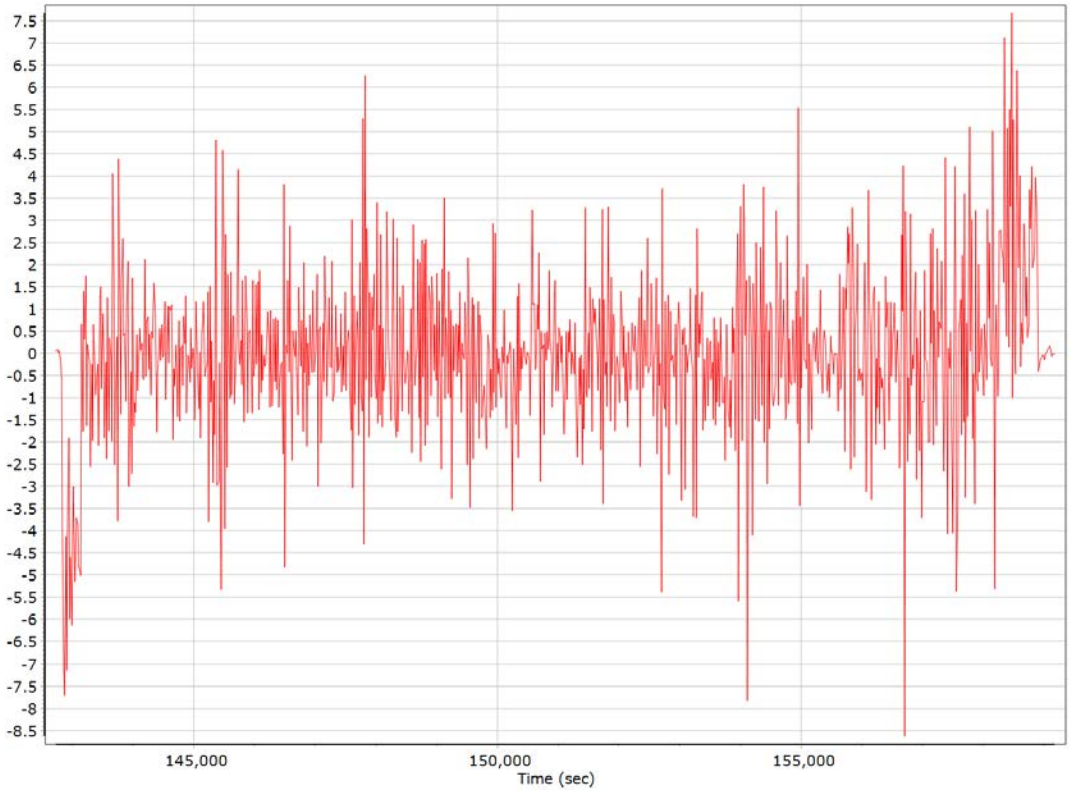
Heading



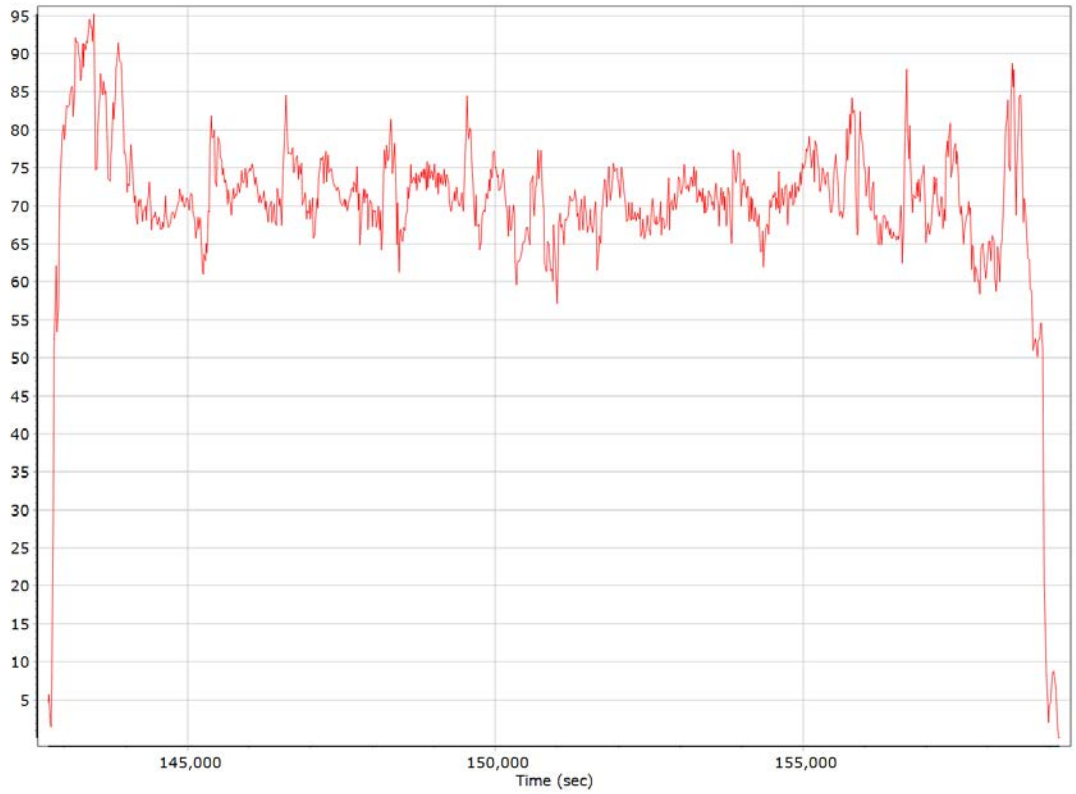
North/East Velocity



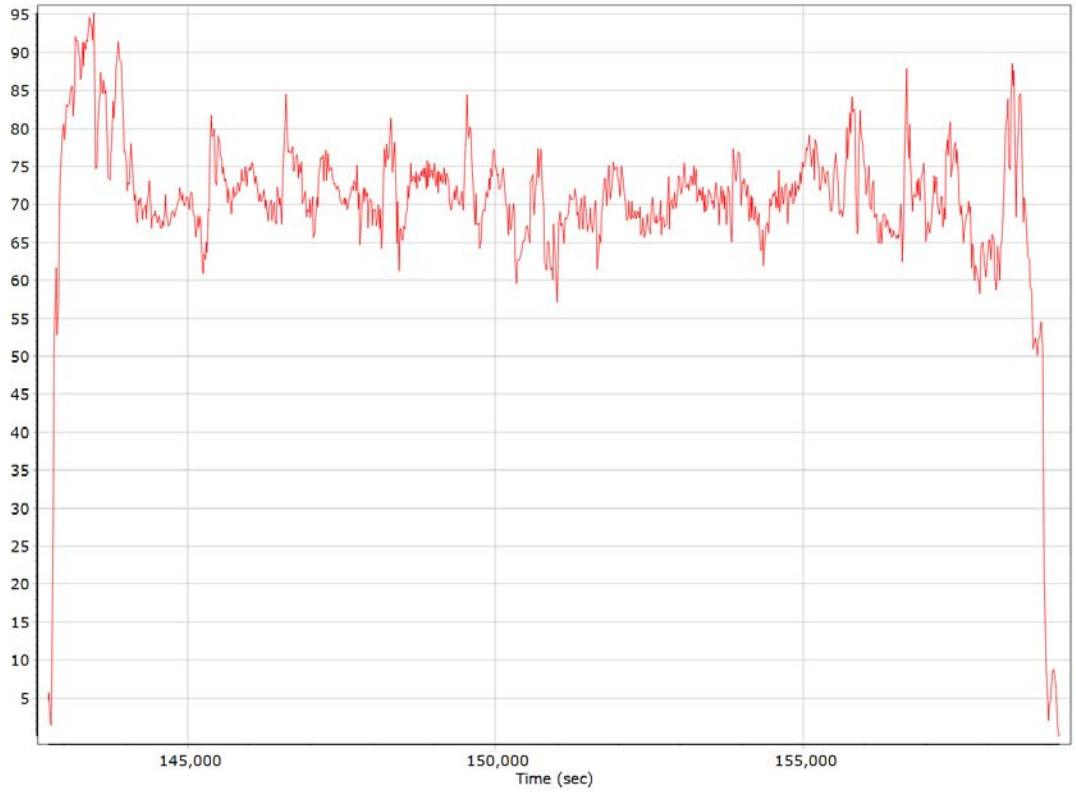
Down Velocity



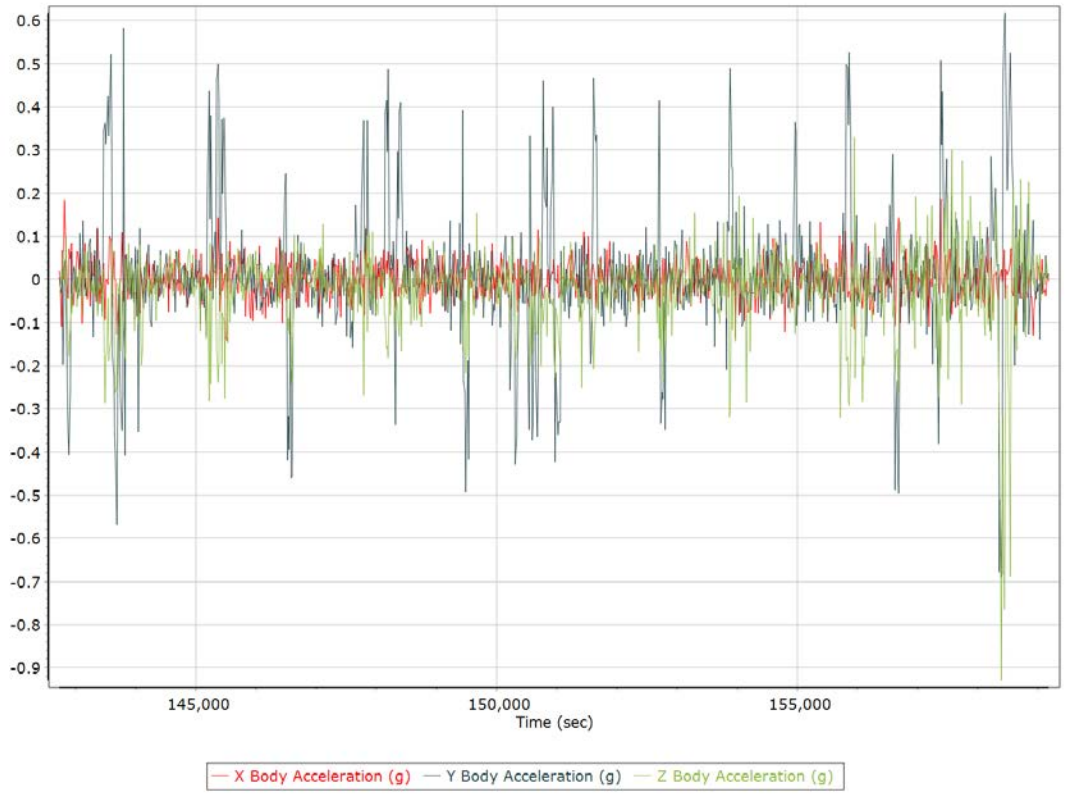
Total Speed



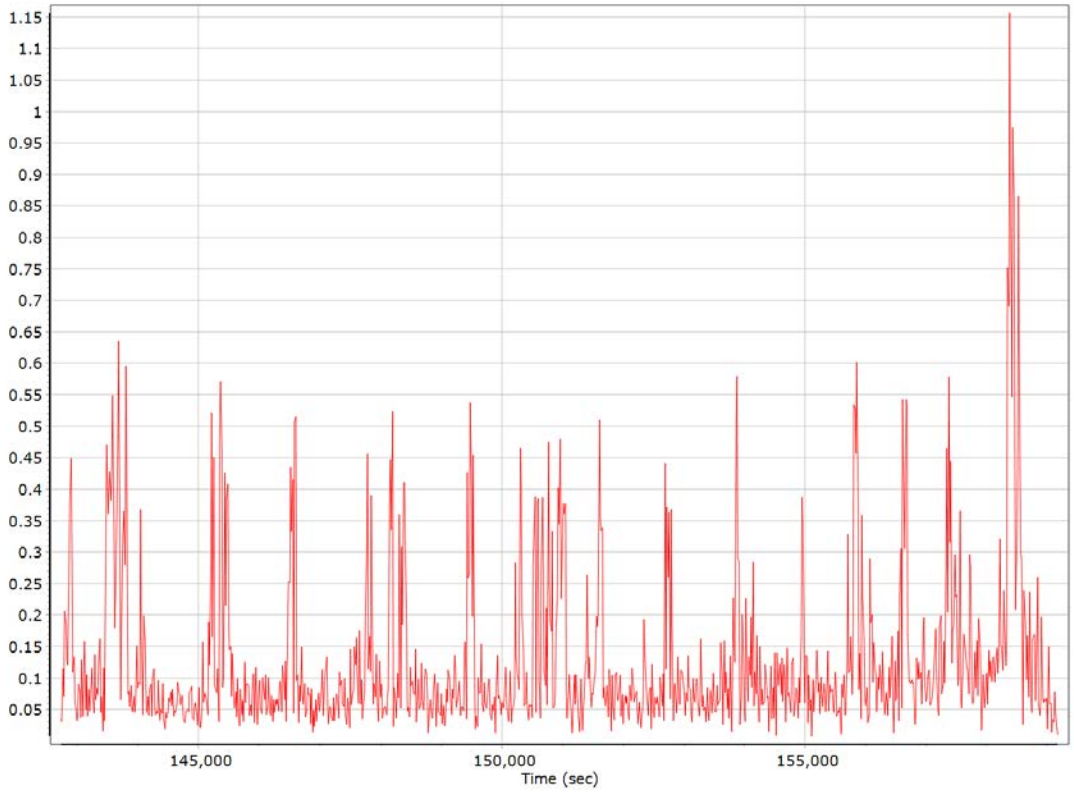
Ground Speed



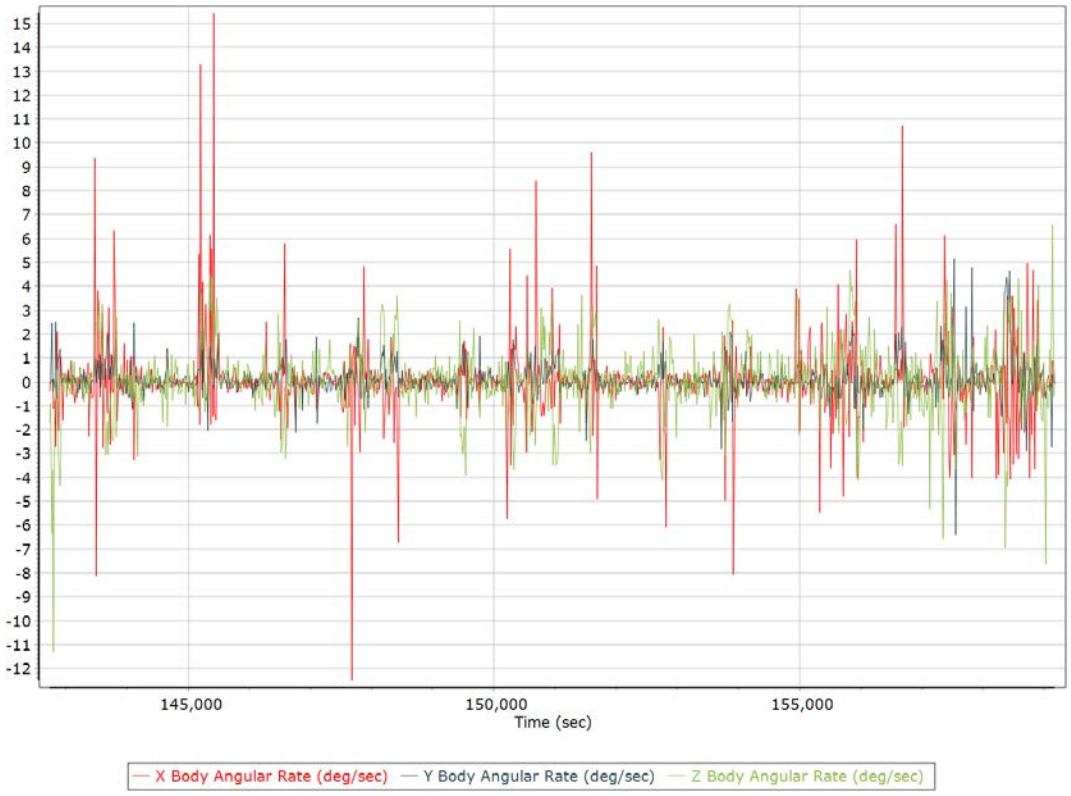
Body Acceleration



Total Body Acceleration

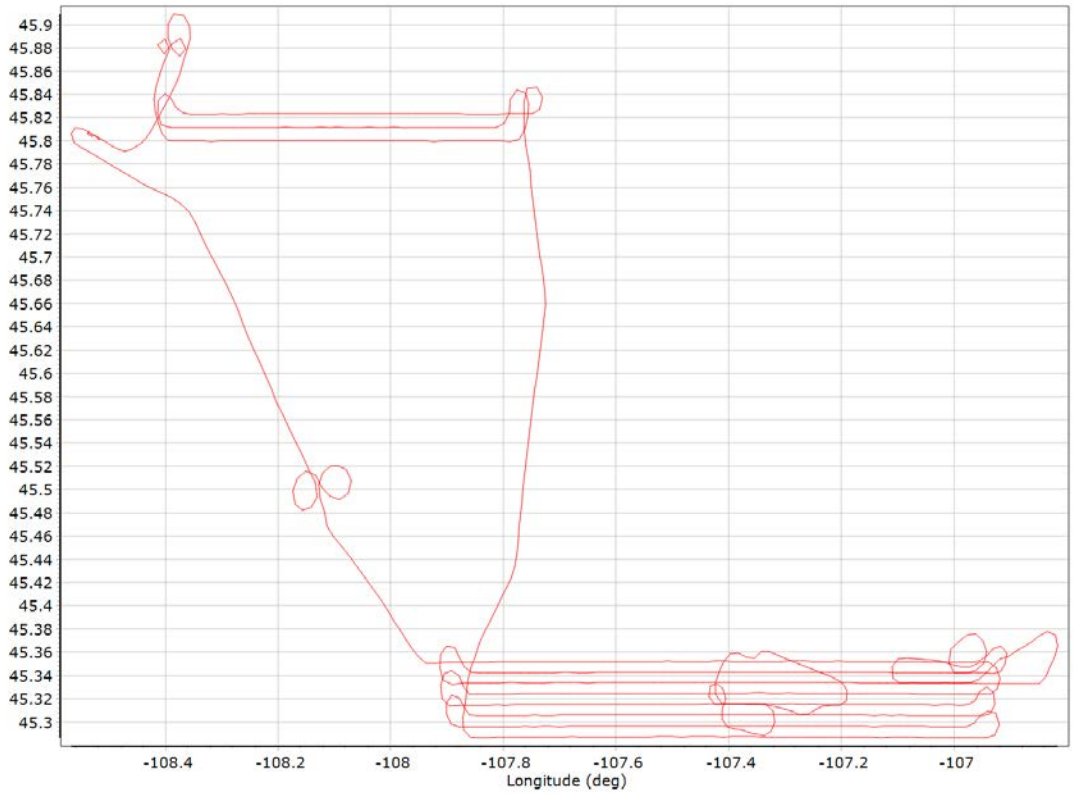


Body Angular Rate

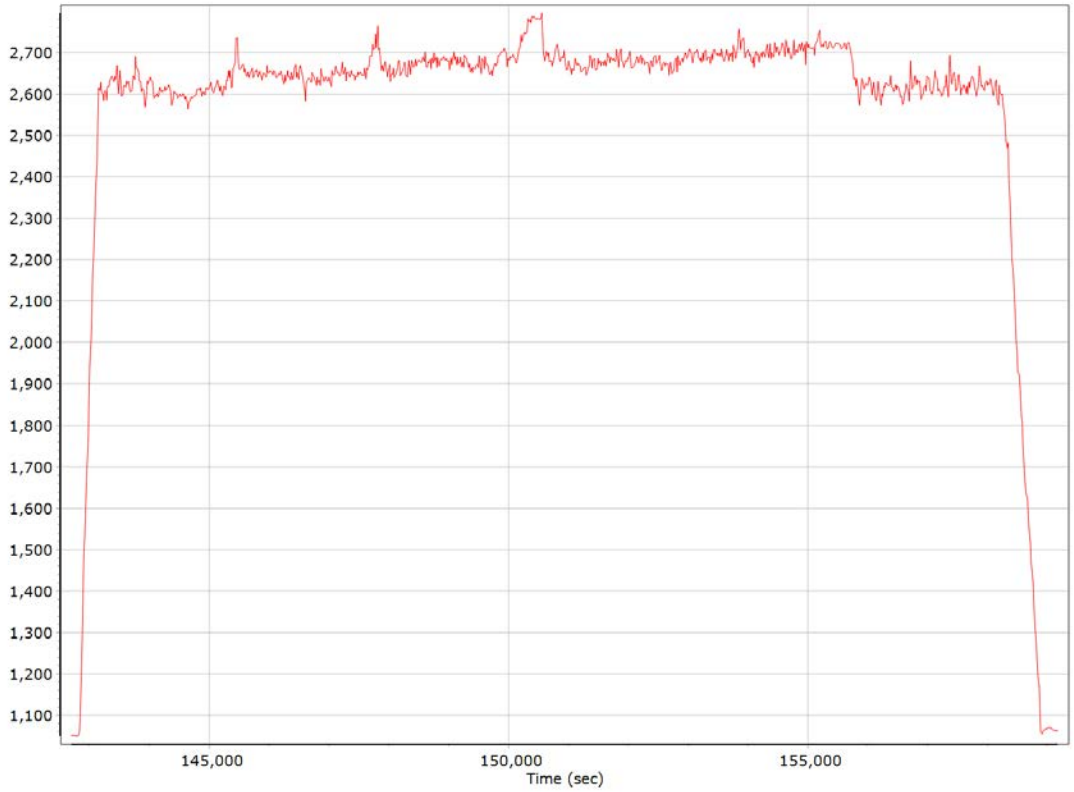


Forward Processed Trajectory Information

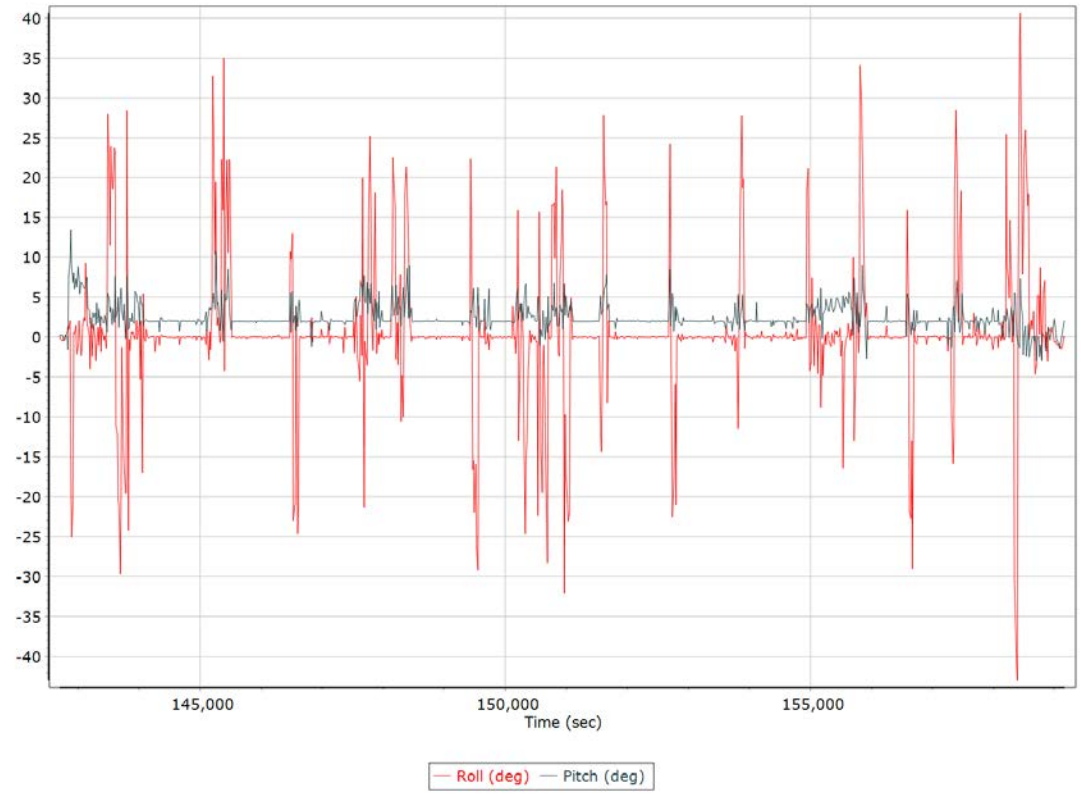
Top View



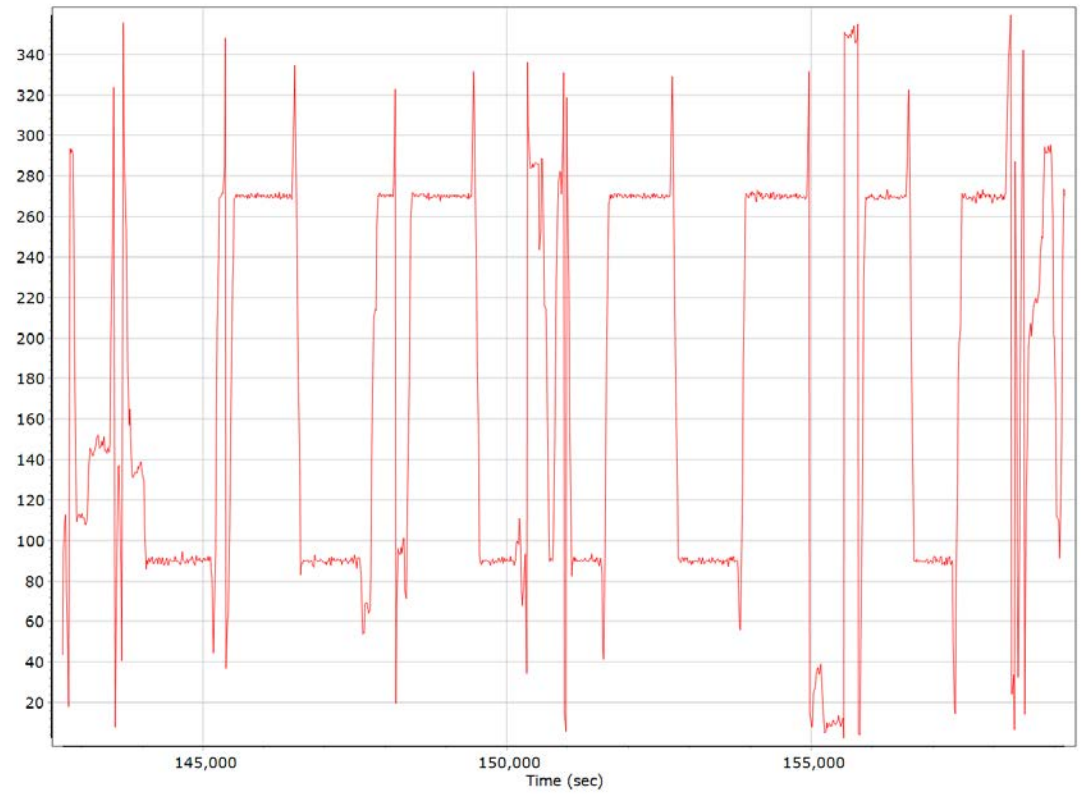
Altitude



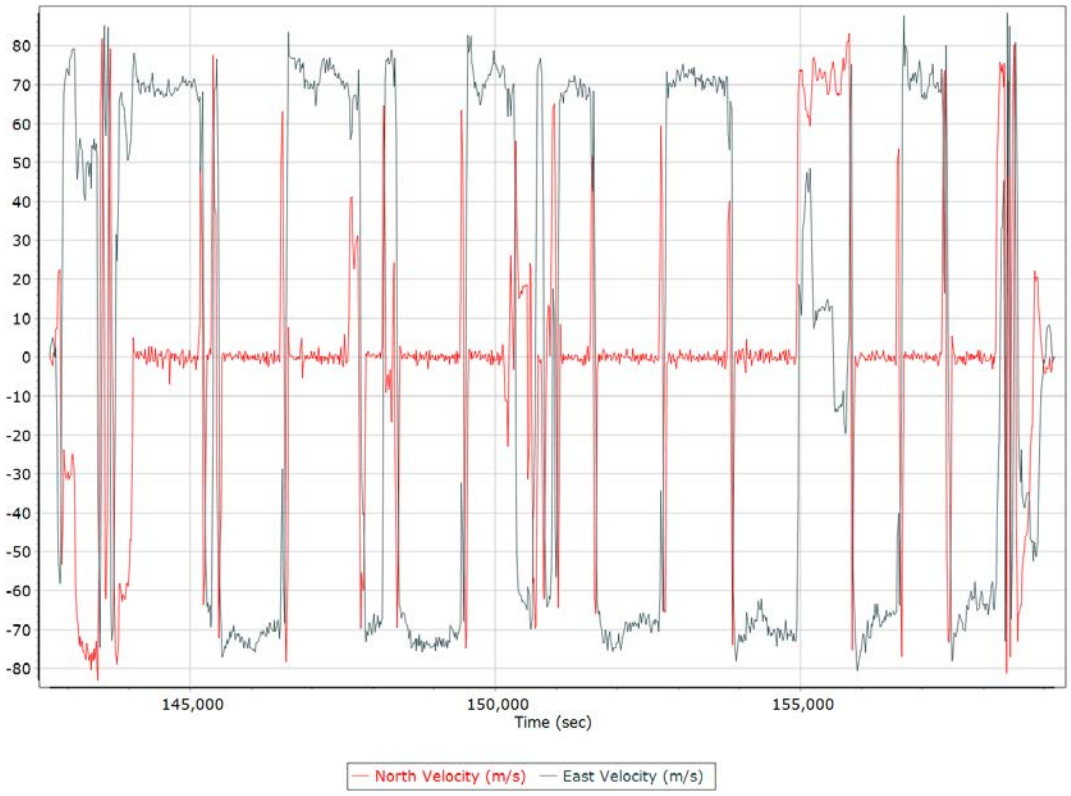
Roll/Pitch



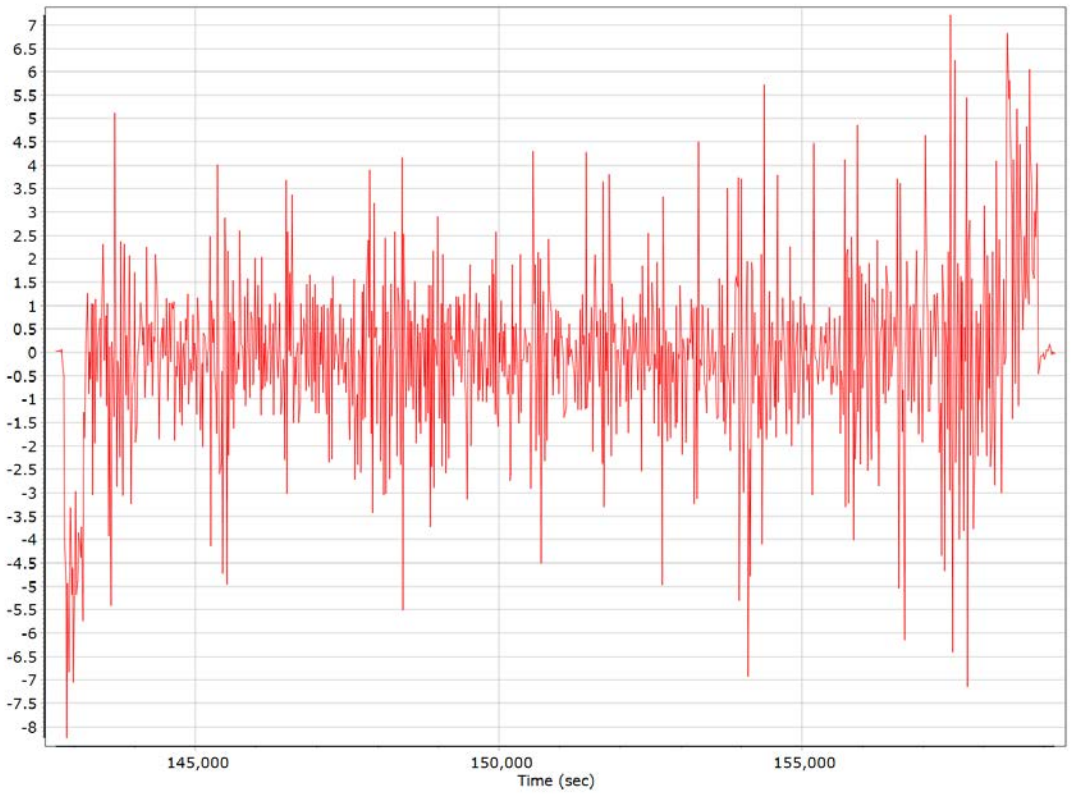
Heading



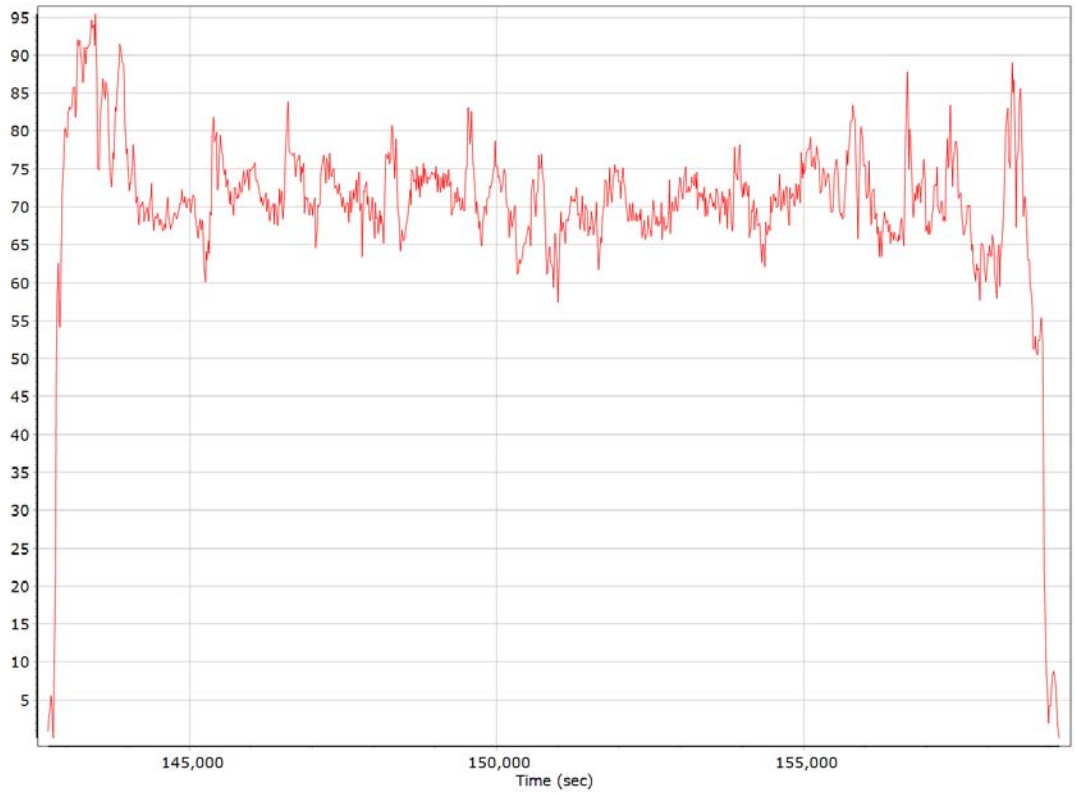
North/East Velocity



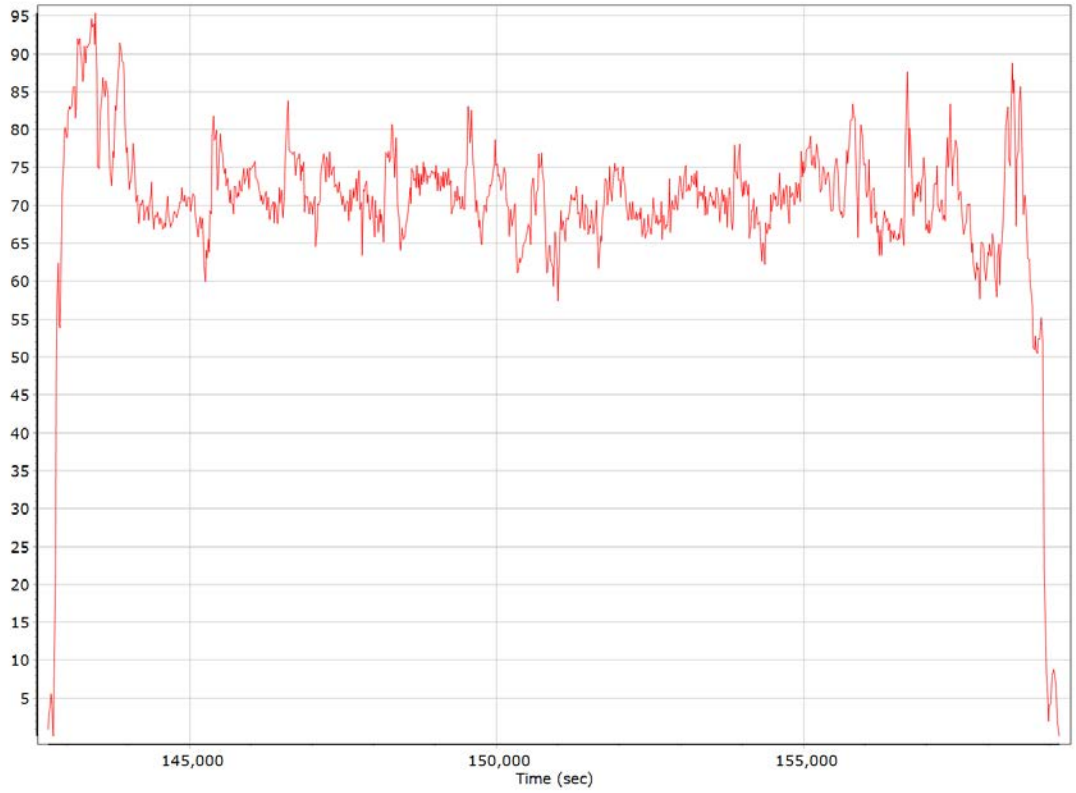
Down Velocity



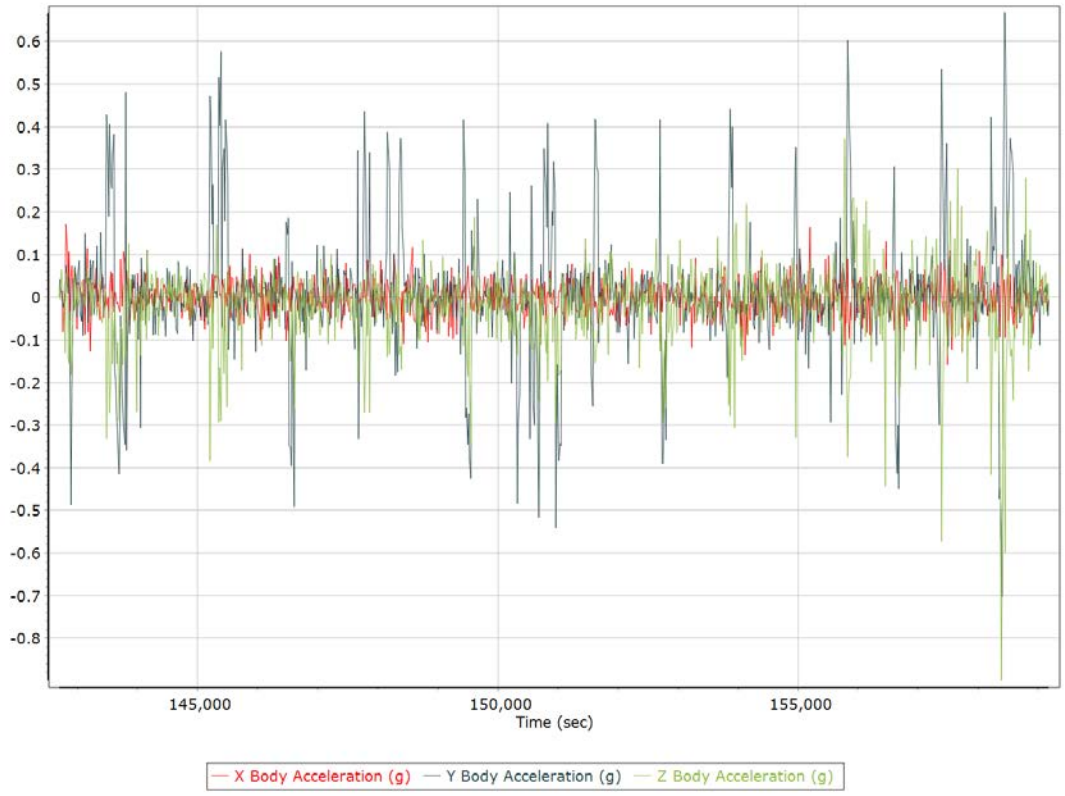
Total Speed



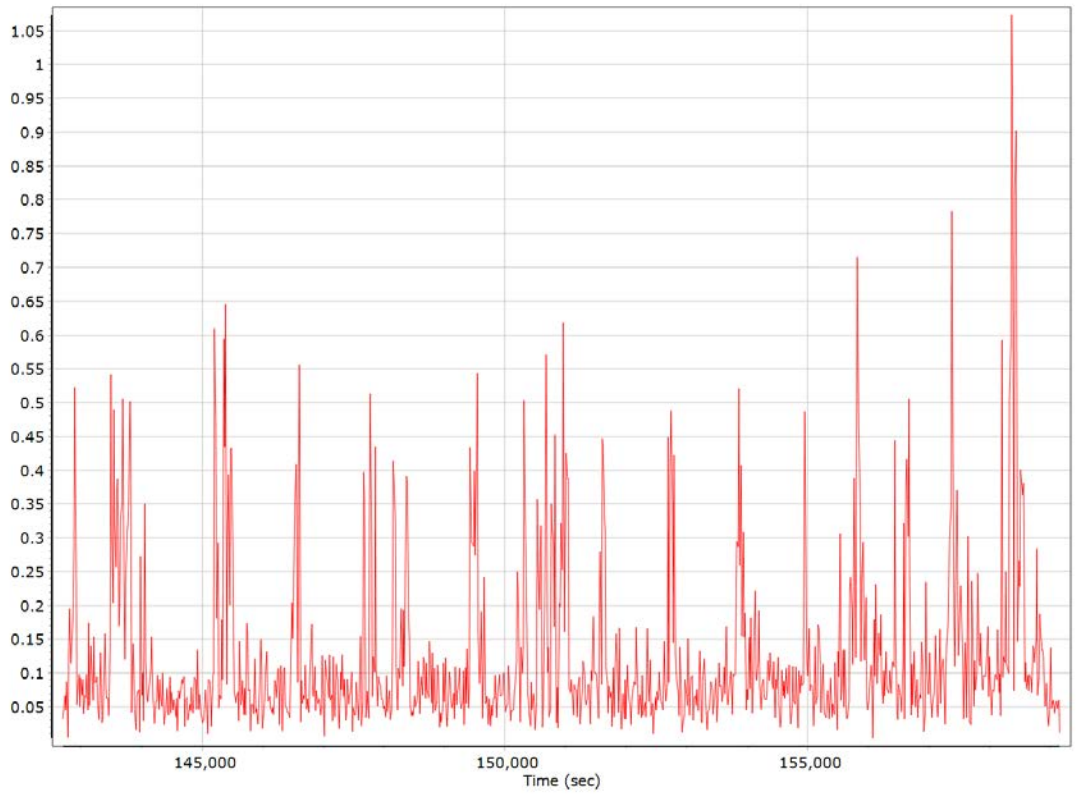
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

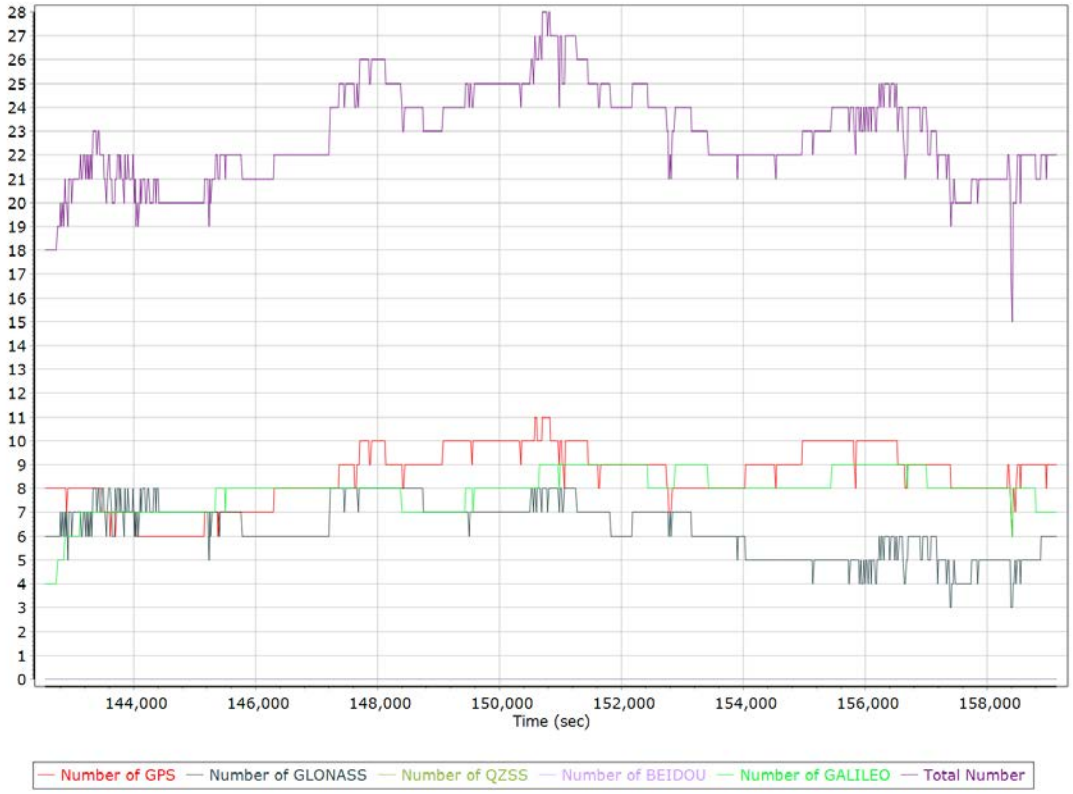


GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	4	11	9
Number of GLONASS SV	3	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	4	9	8
Total number of SV	14	28	23
PDOP	0.89	2.02	1.14
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	16663.00	0.00	0.00
Percentage	100.00	0.00	0.00

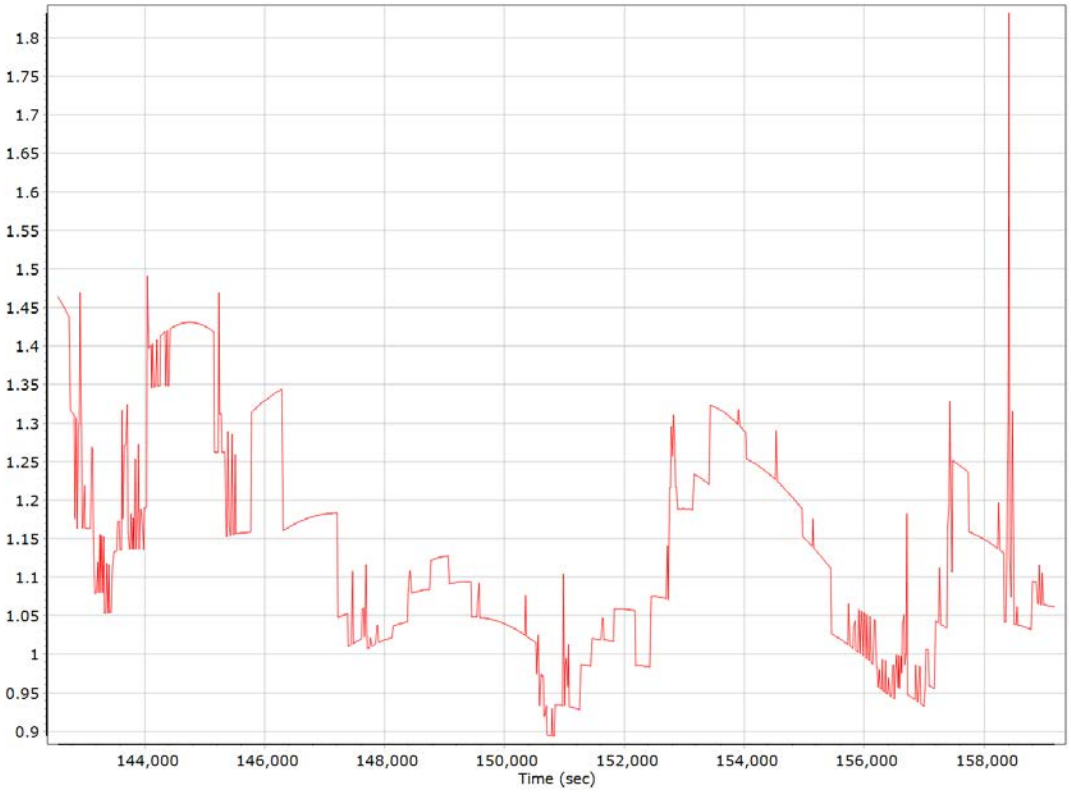
Num SVs in solution



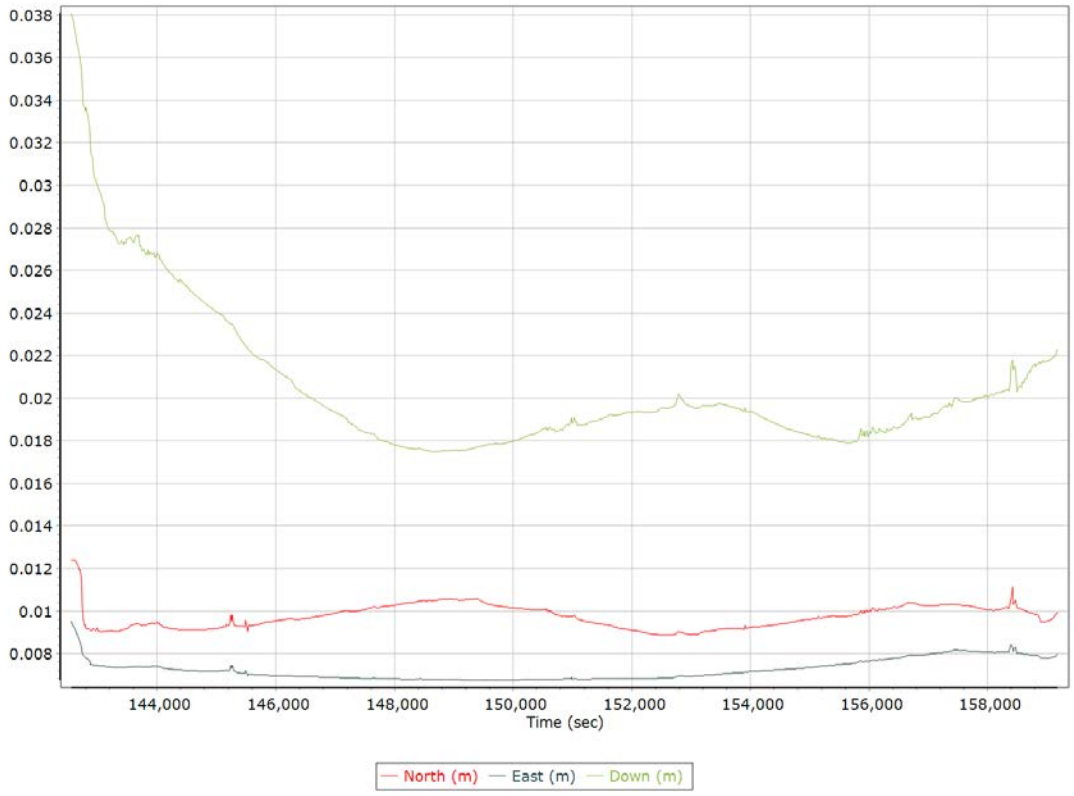
Forward/Reverse Separation



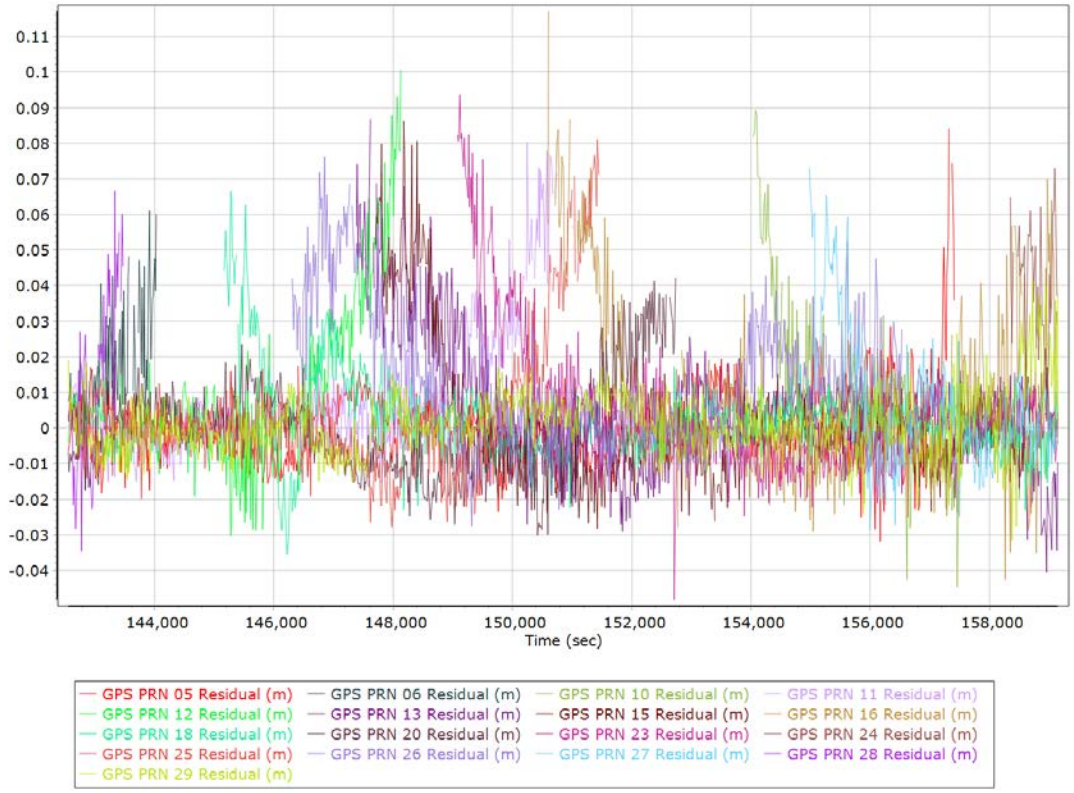
PDOP



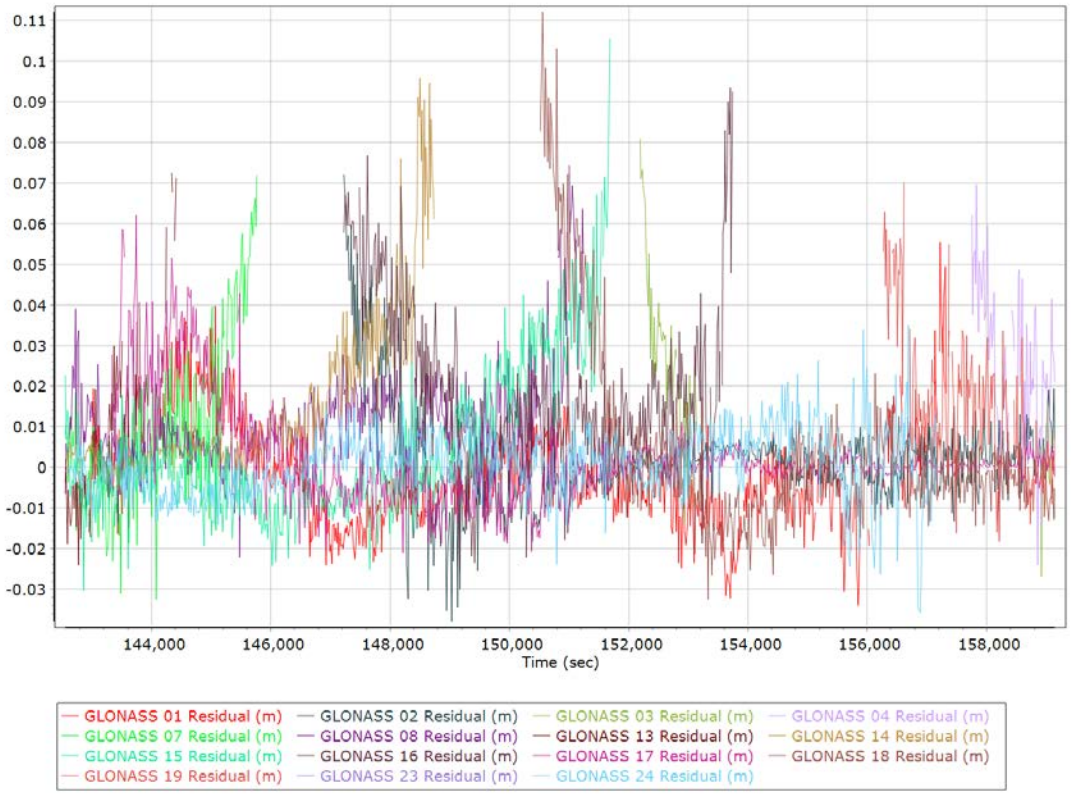
Estimated Position Accuracy



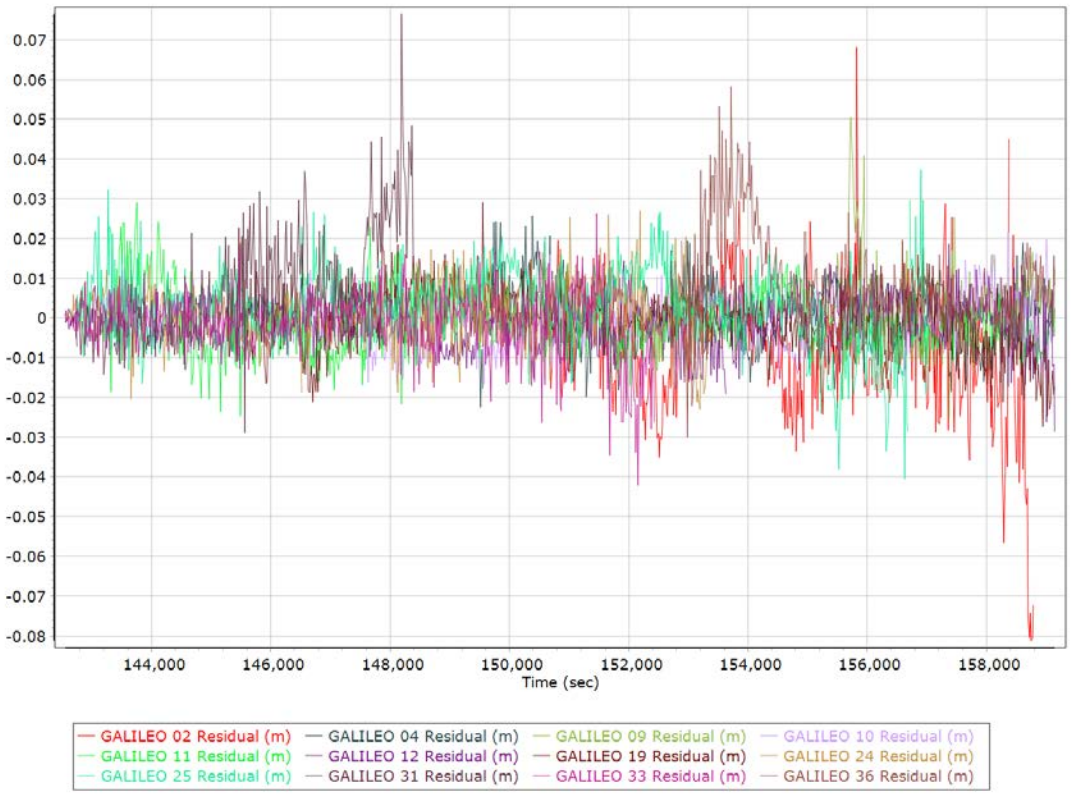
GPS Residuals



GLONASS Residuals



GALILEO Residuals



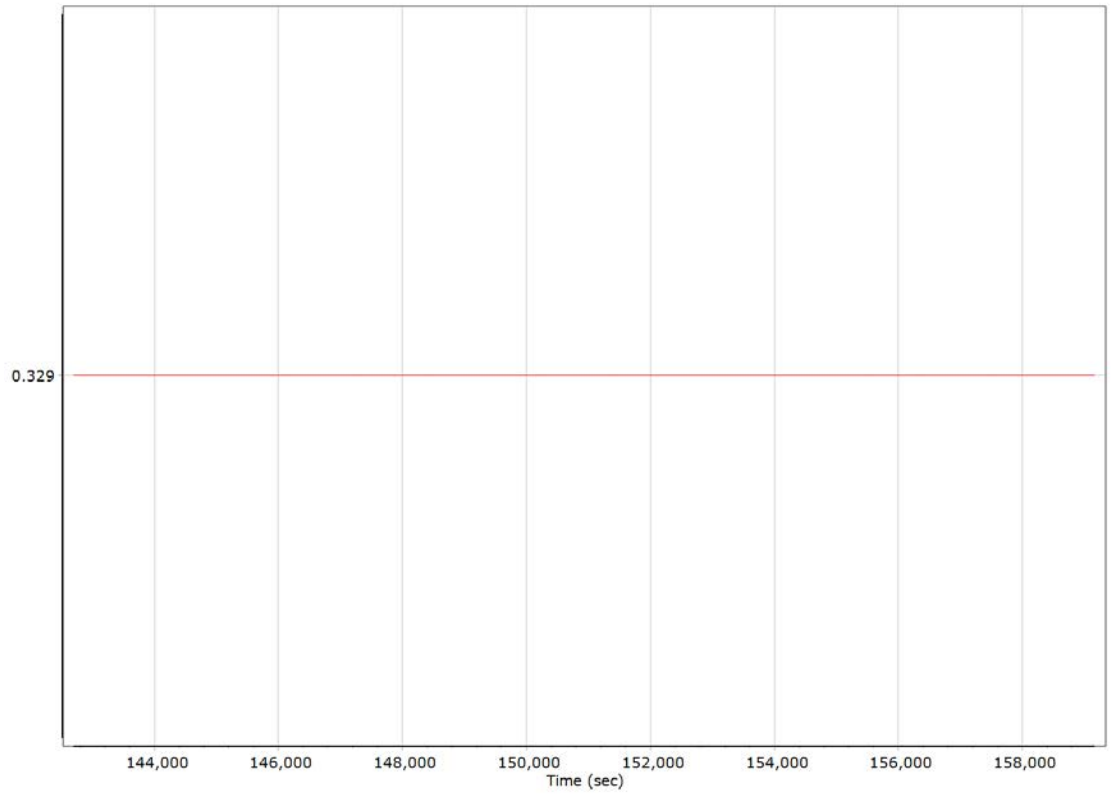
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	142467.000 (7/24/2023 3:34:27 PM)		
Processing end time	159182.000 (7/24/2023 8:13:02 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

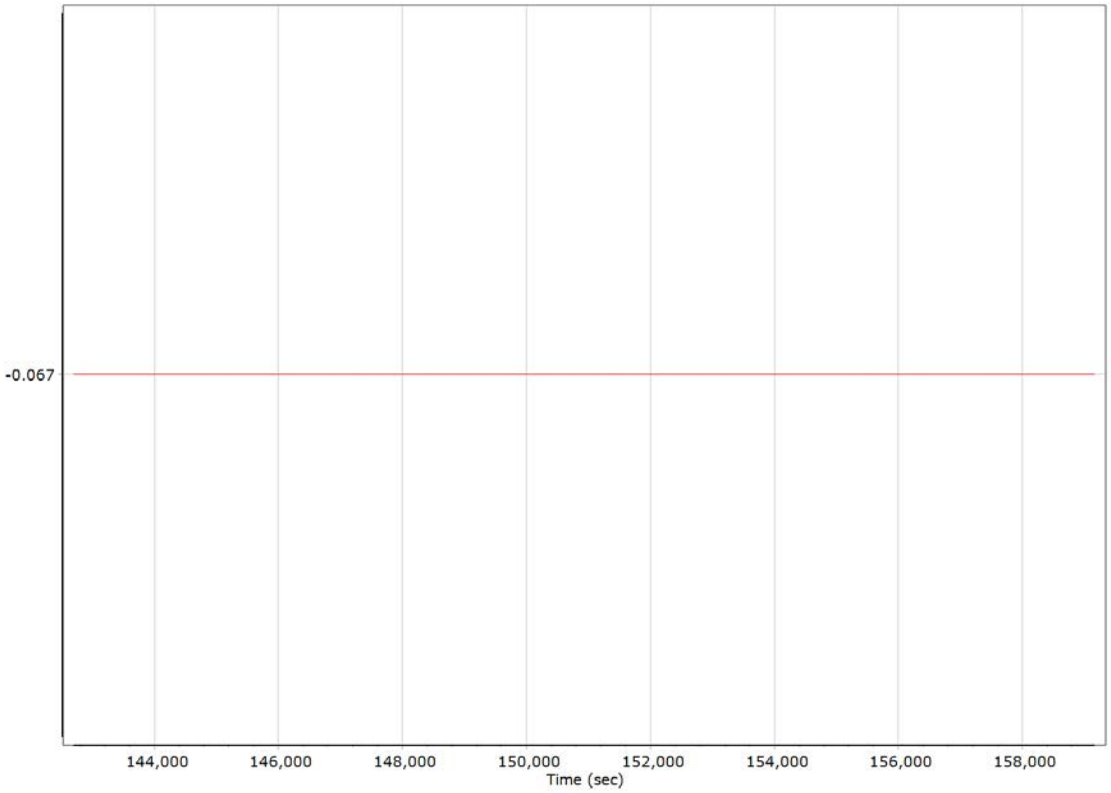
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

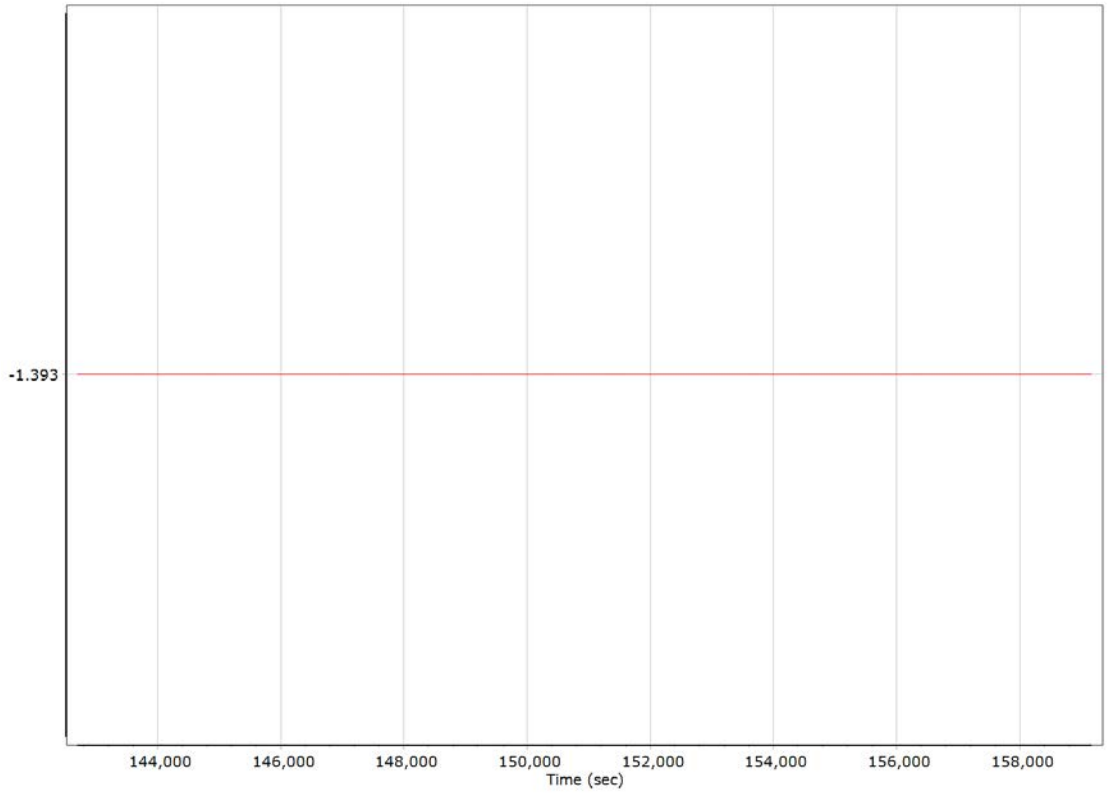
X Reference-Primary GNSS Lever Arm (m)



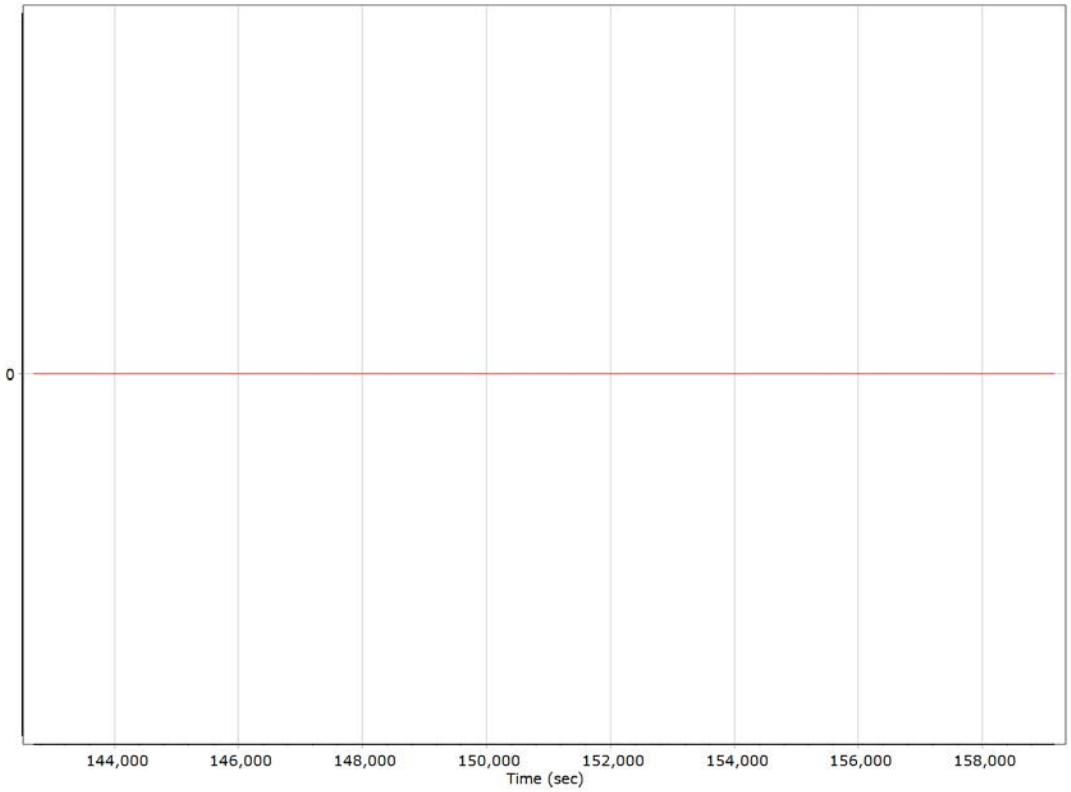
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



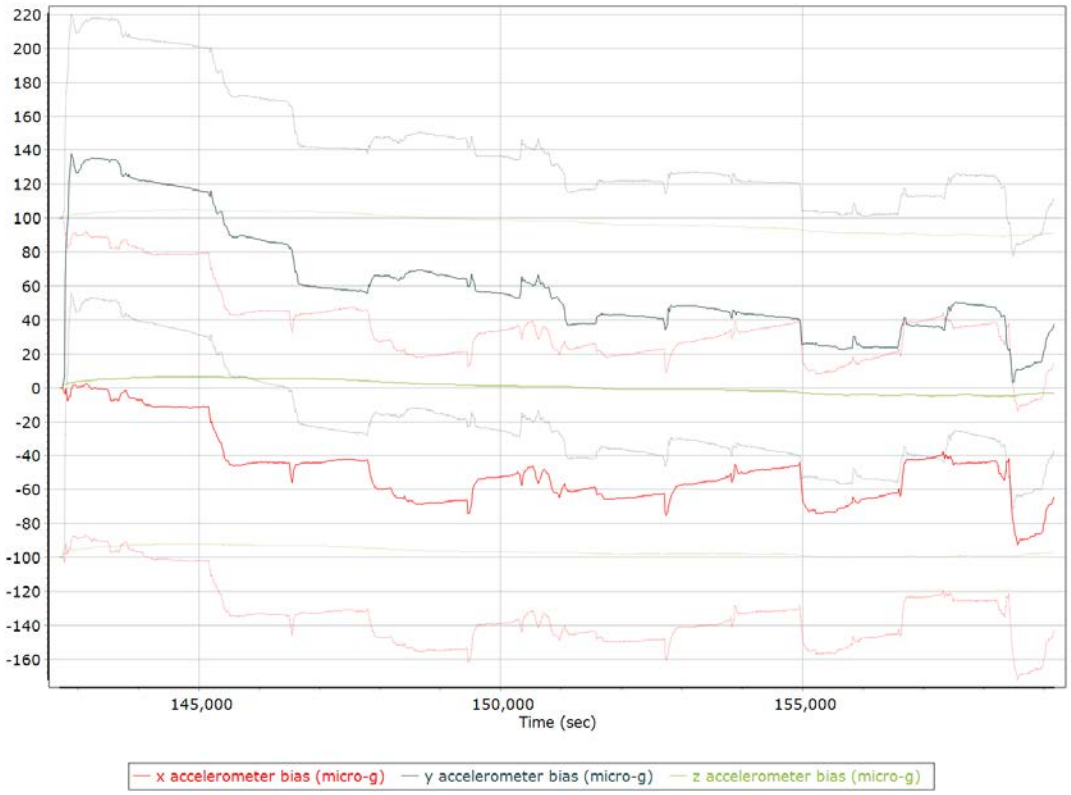
Reference-Primary GNSS Lever Arm Figure of Merit



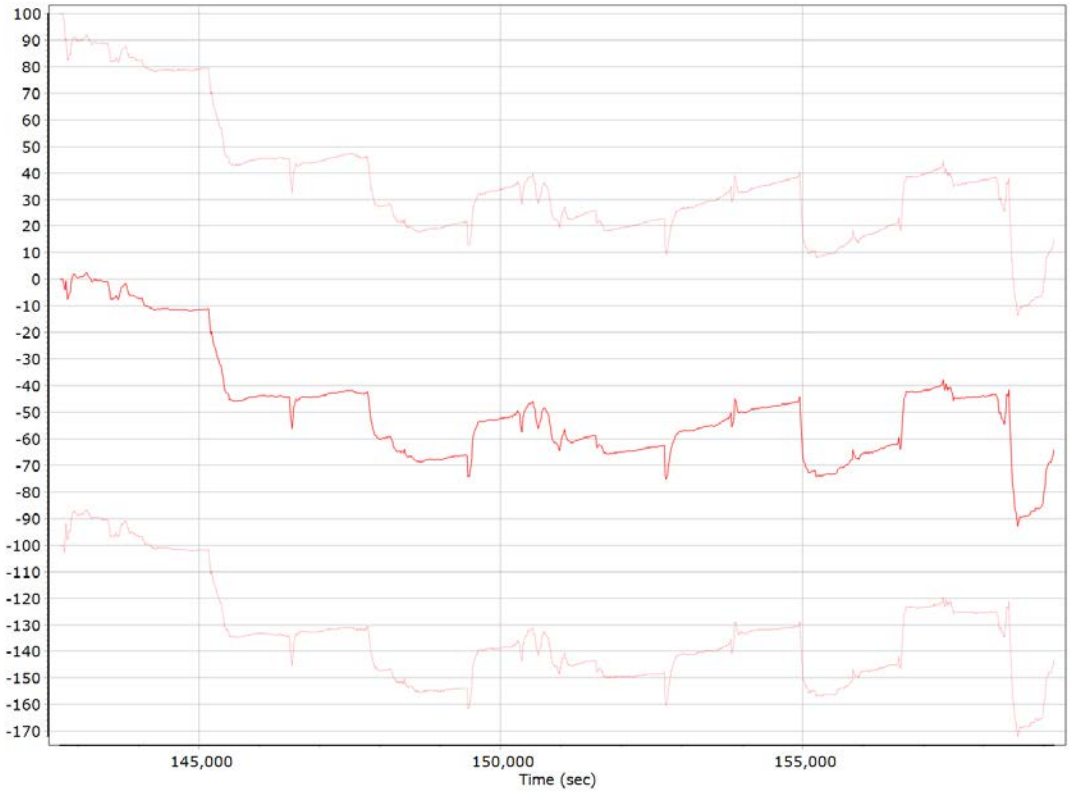
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

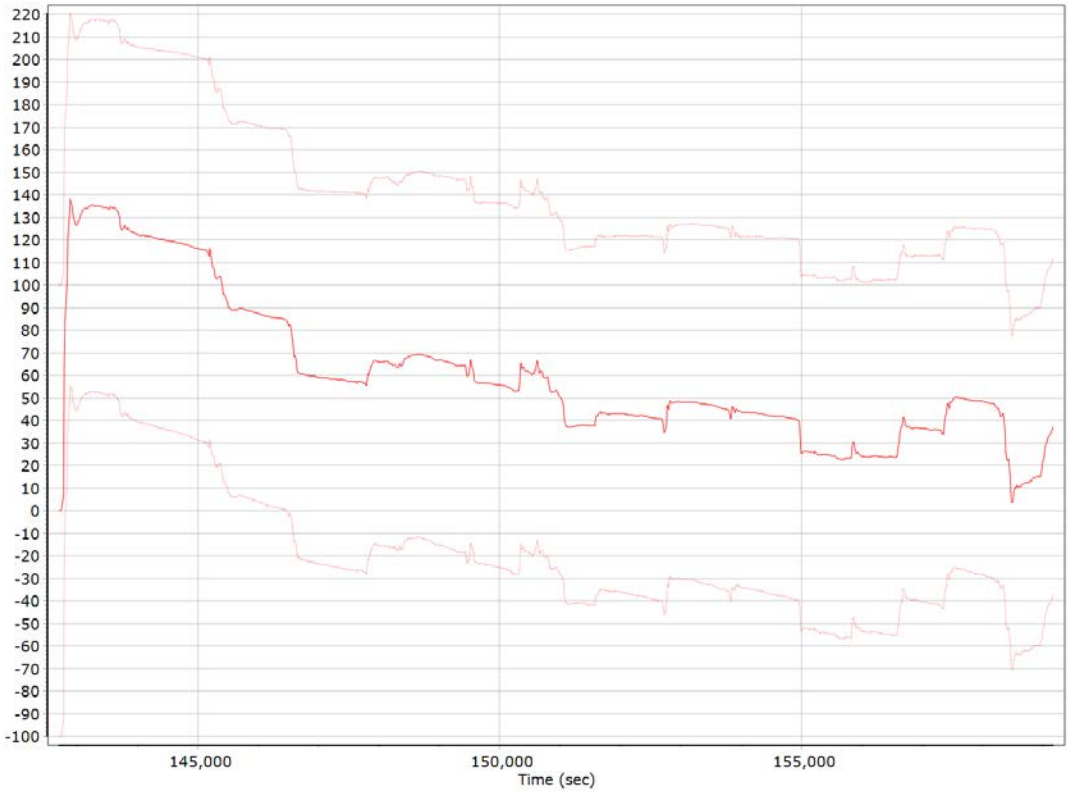
Accelerometer Bias (micro-g)



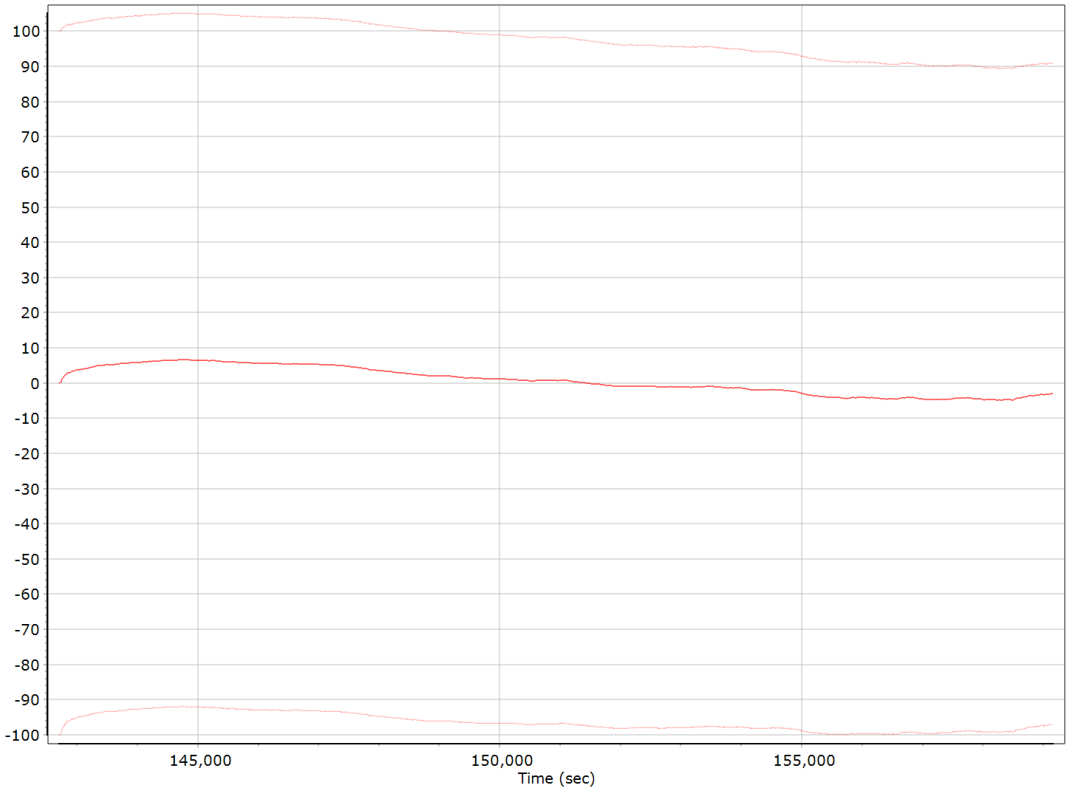
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



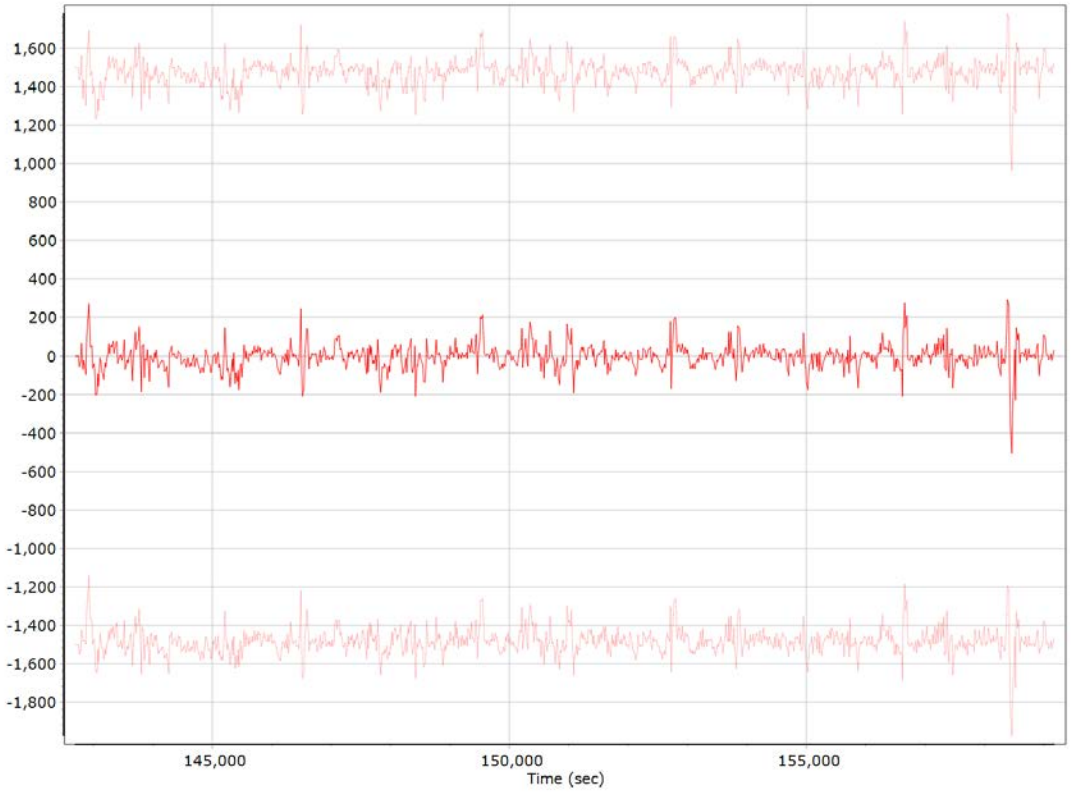
Z Accelerometer Bias (micro-g)



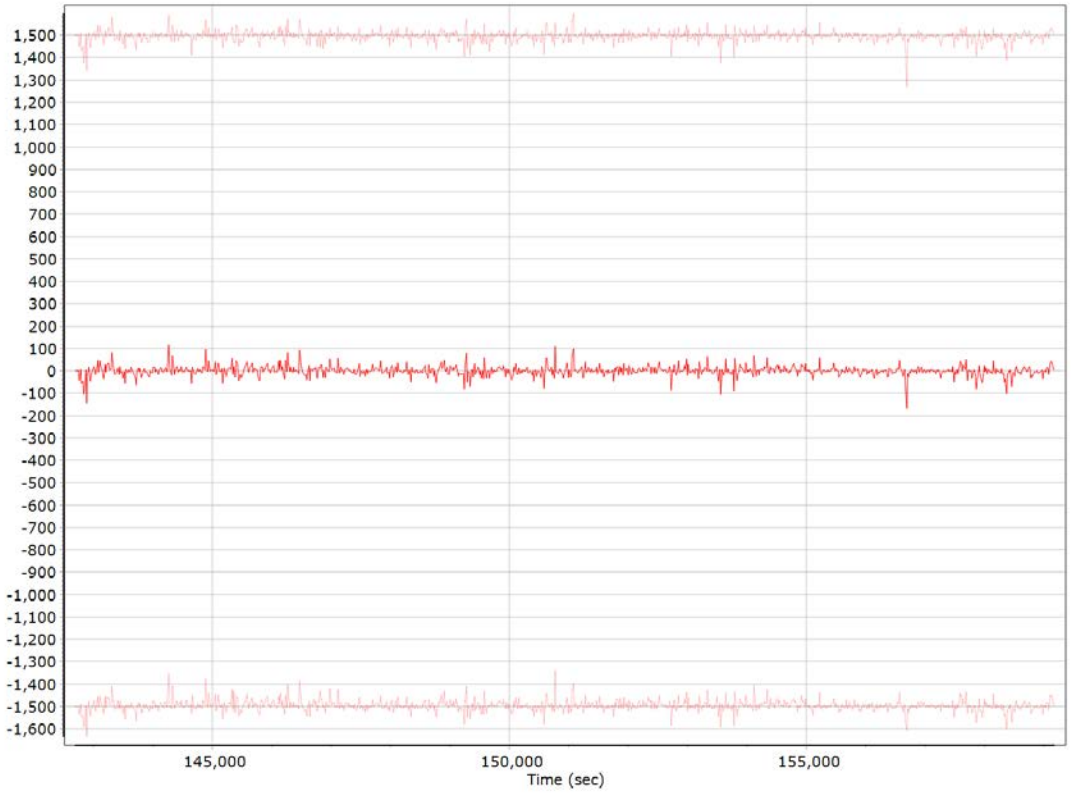
Accelerometer Scale Error (ppm)



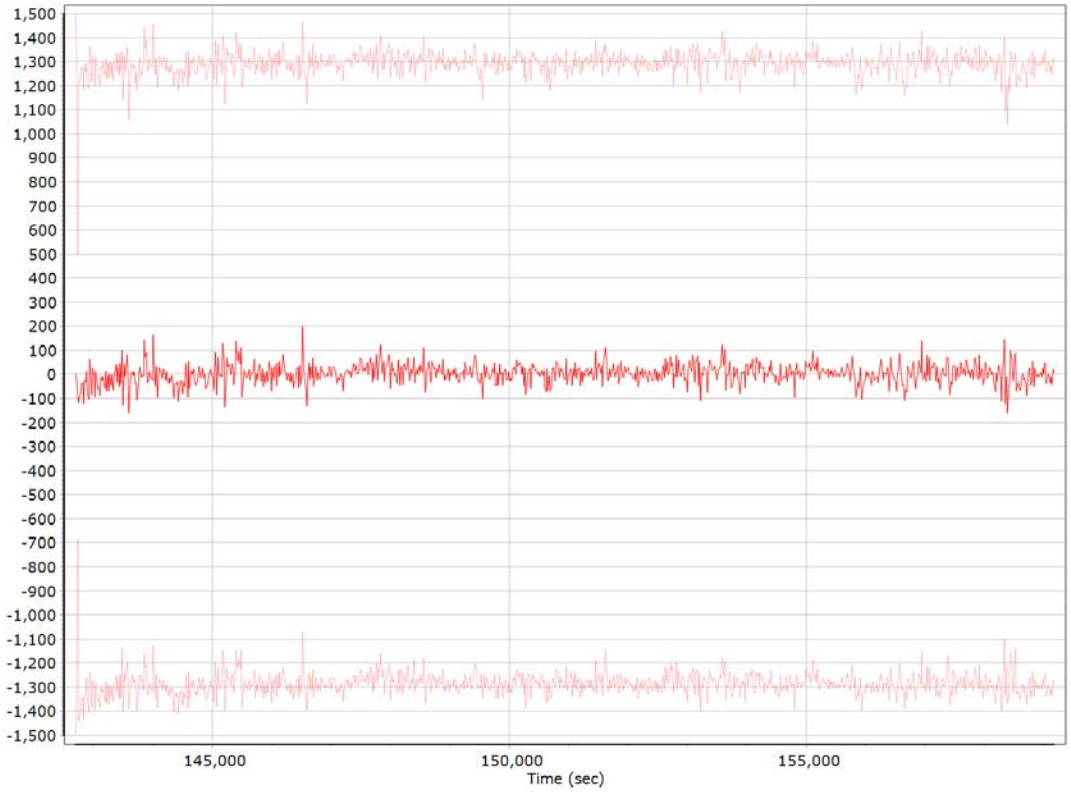
X Accelerometer Scale Error (ppm)



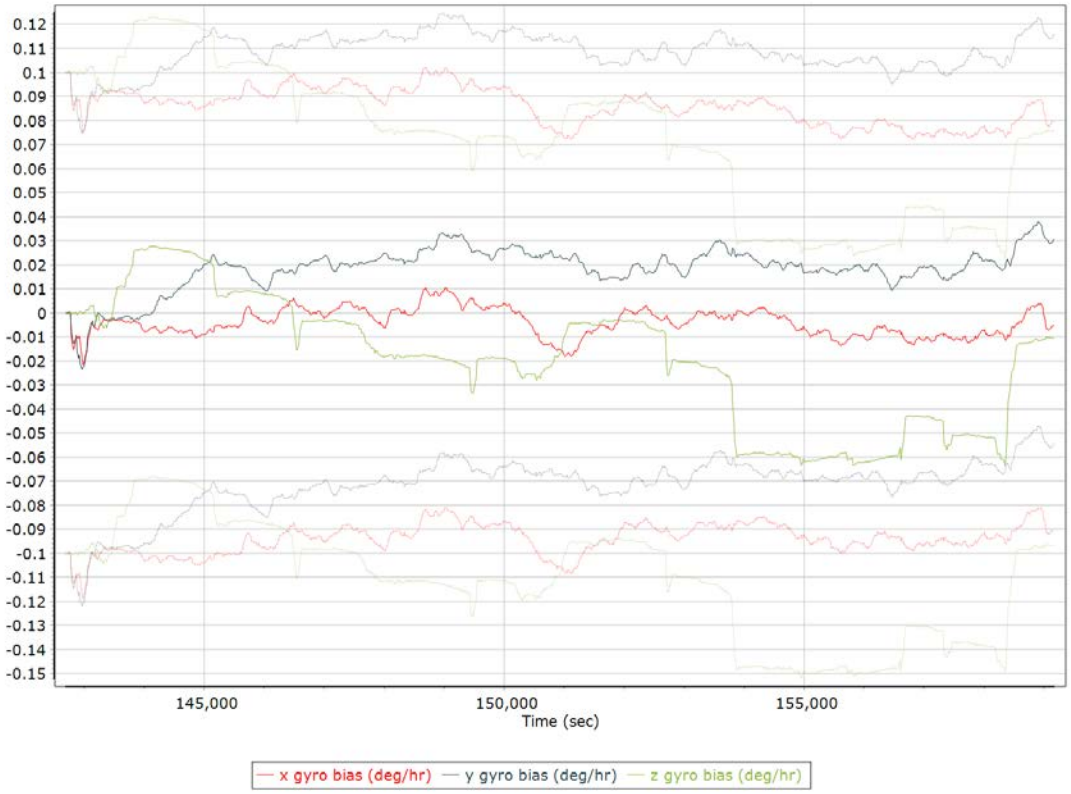
Y Accelerometer Scale Error (ppm)



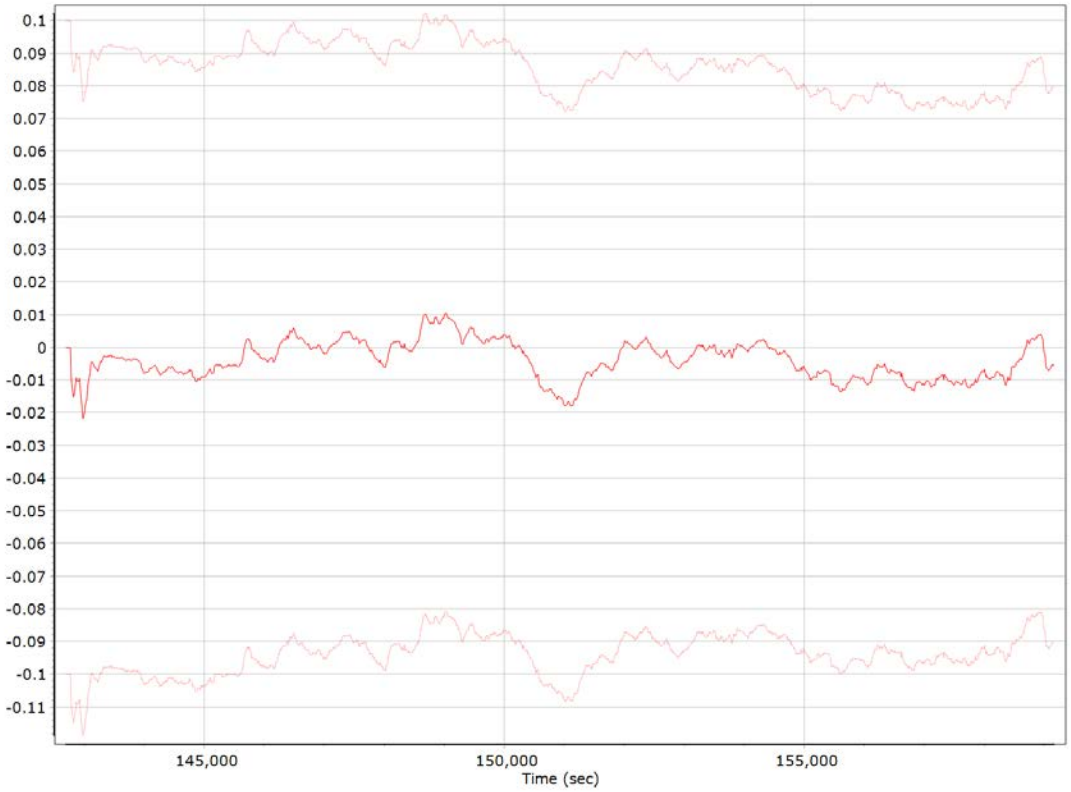
Z Accelerometer Scale Error (ppm)



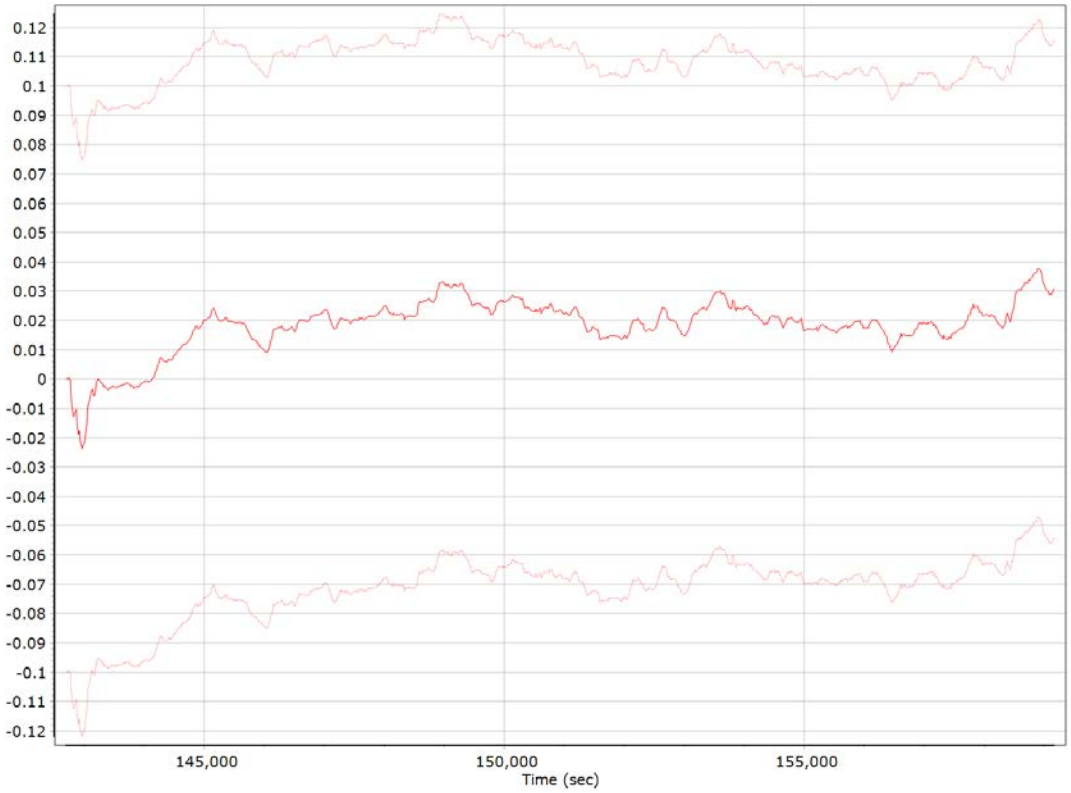
Gyro Bias (deg/h)



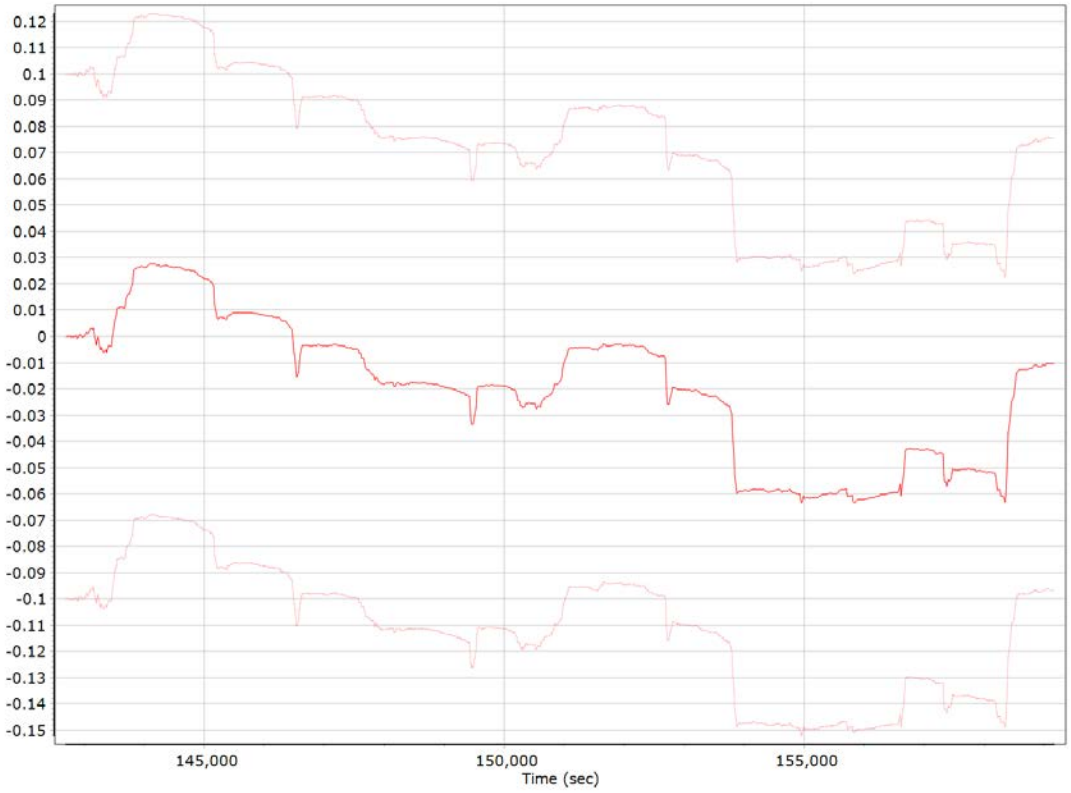
X Gyro Bias (deg/h)



Y Gyro Bias (deg/h)



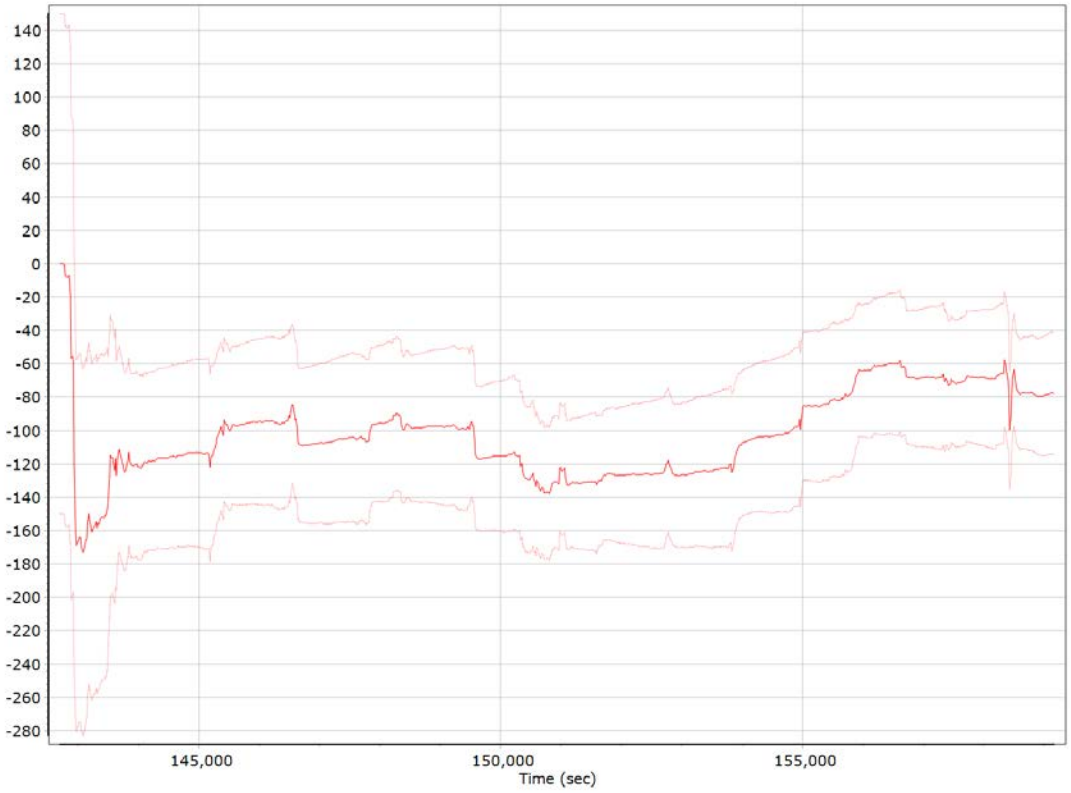
Z Gyro Bias (deg/h)



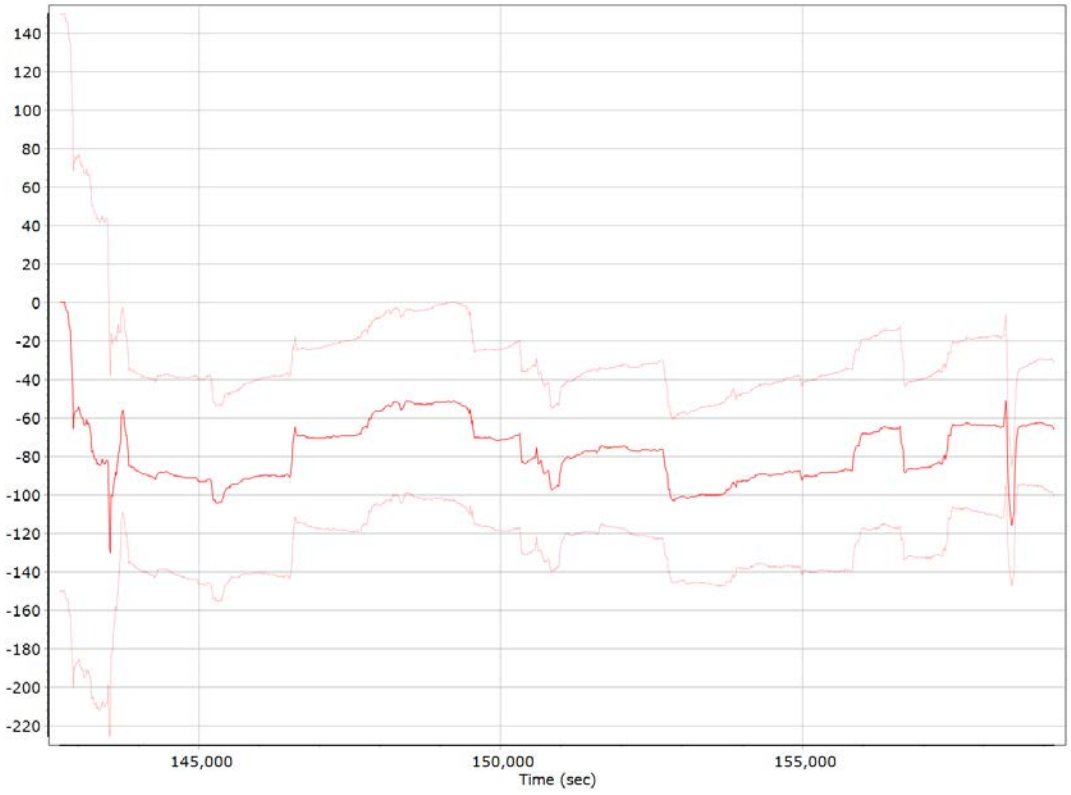
Gyro Scale Error (ppm)



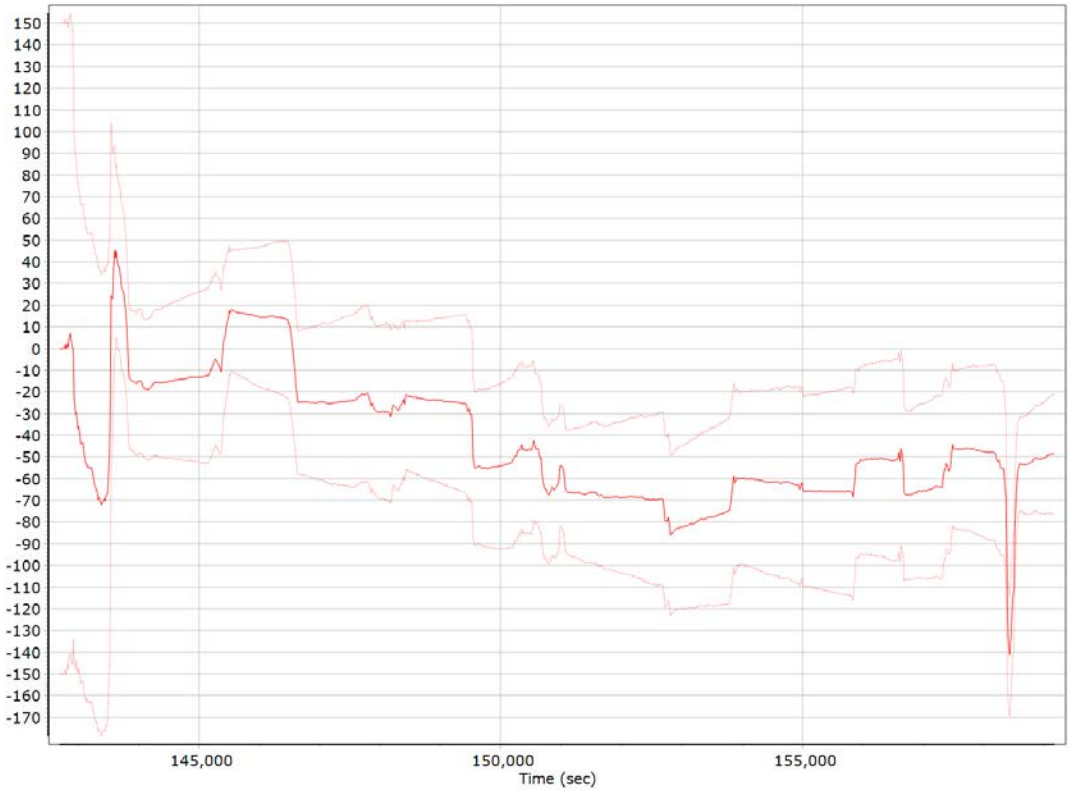
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)



Z Gyro Scale Error (ppm)

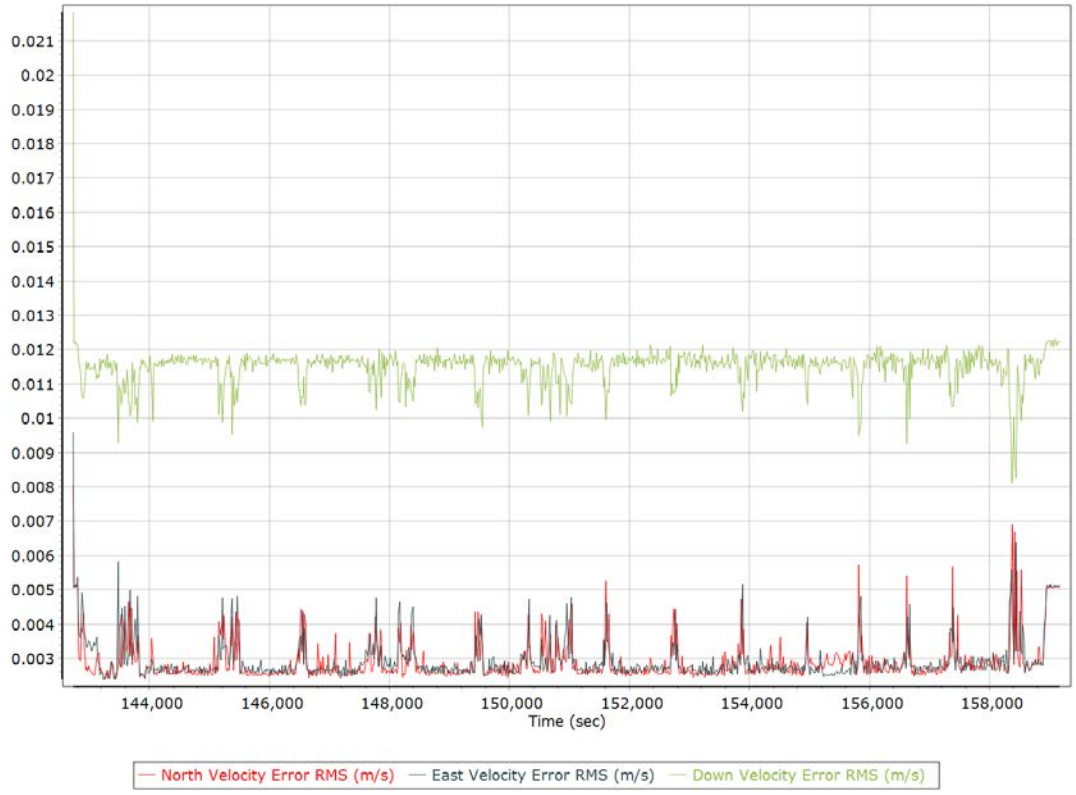


Smoothed Performance Metrics

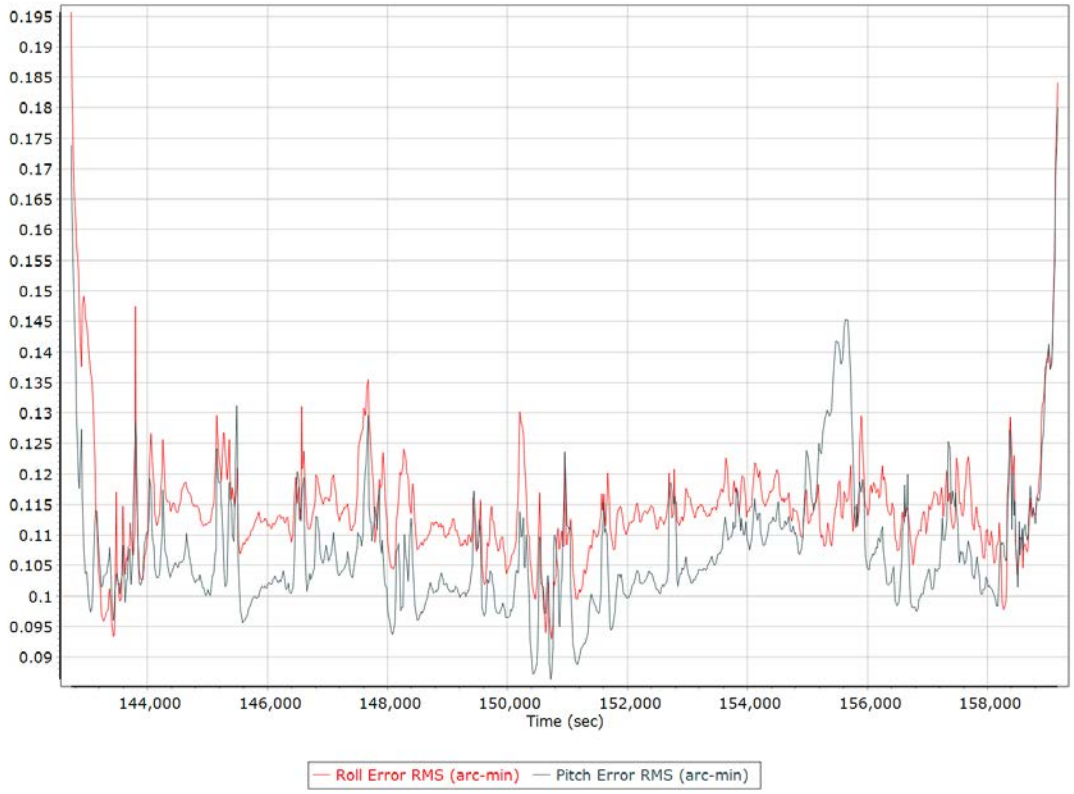
Position Error RMS (m)



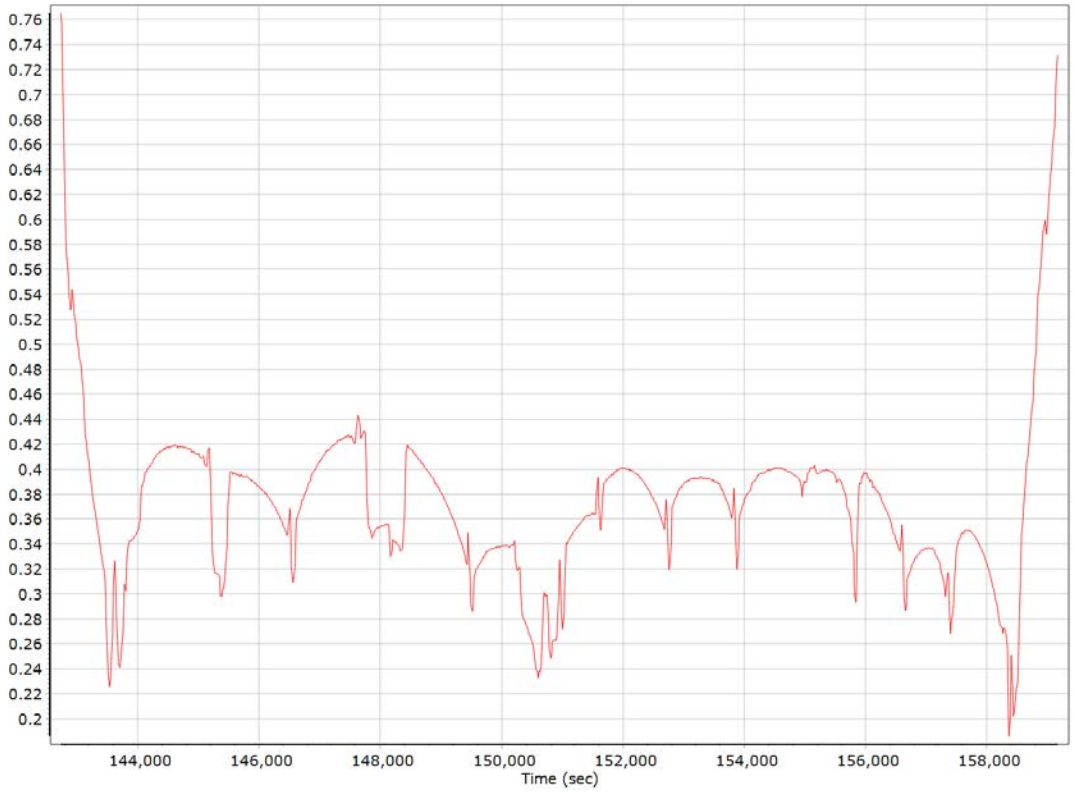
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)



Heading Error RMS (arc-min)

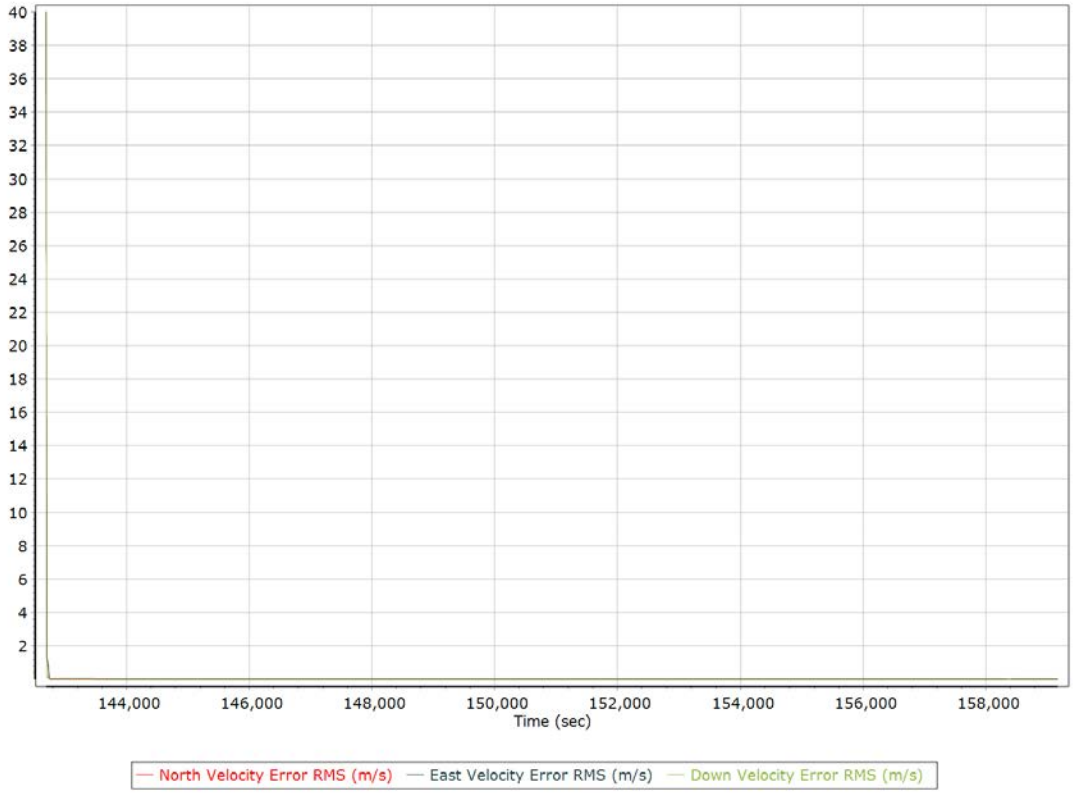


Forward Processed Performance Metrics

Position Error RMS (m)



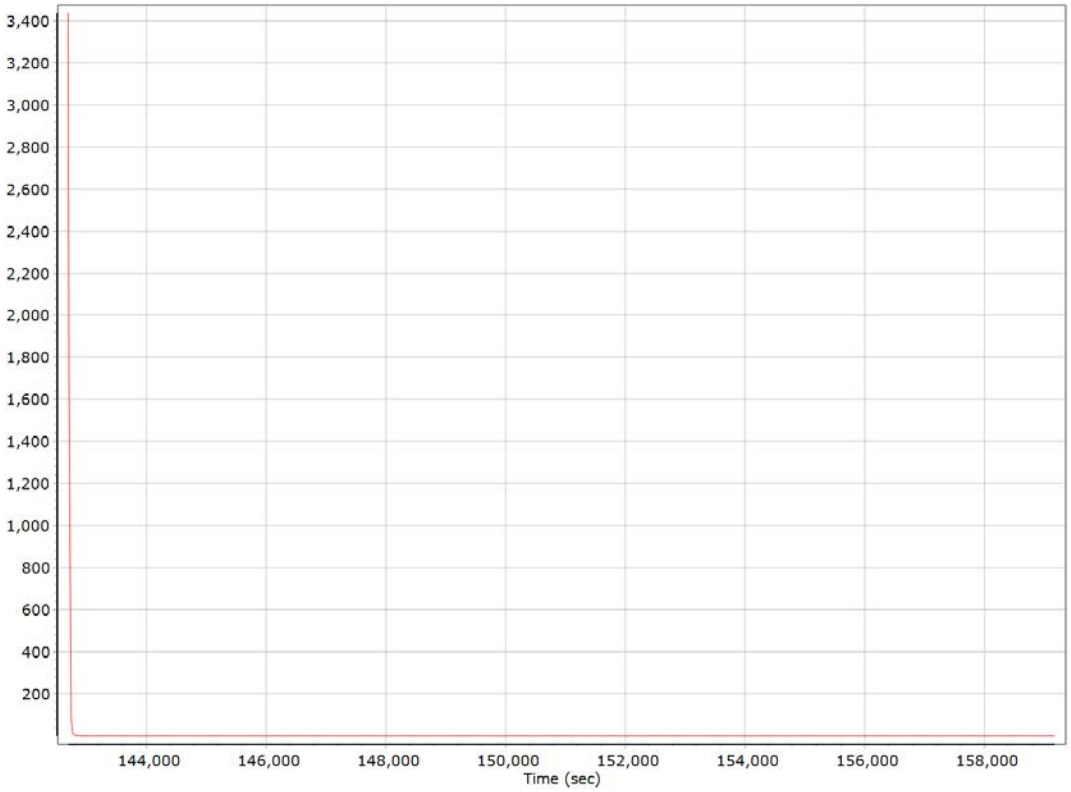
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

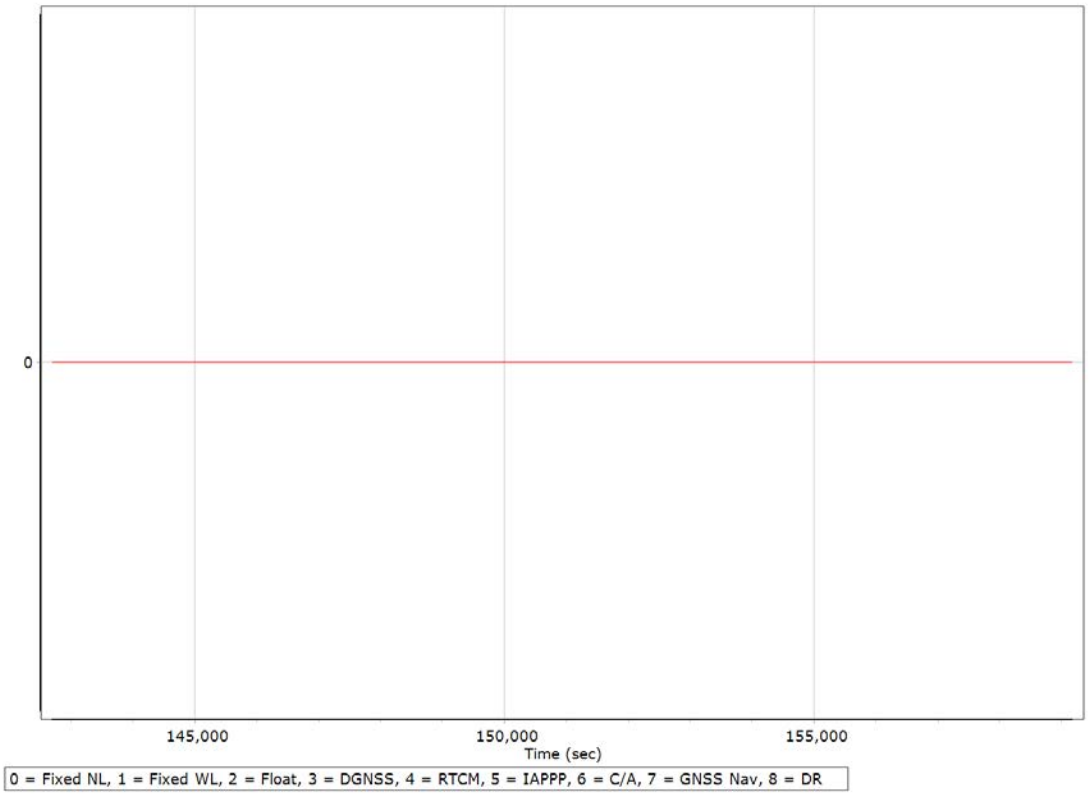


Heading Error RMS (arc-min)

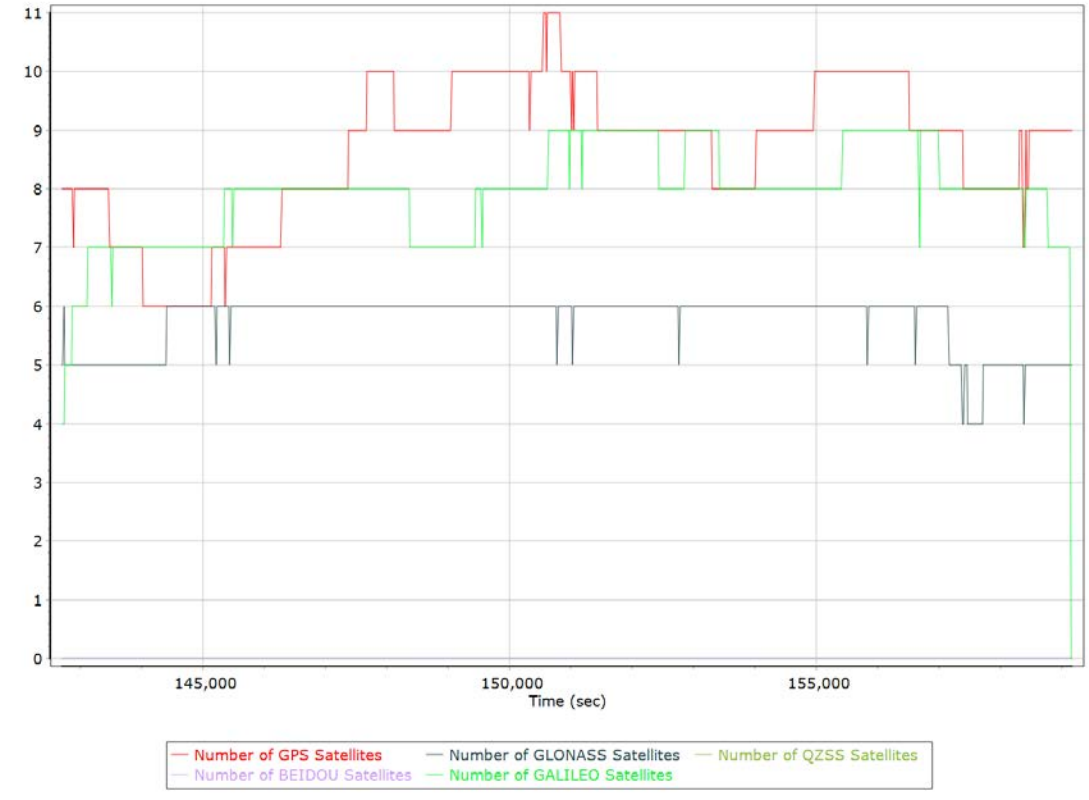


Forward Processed Solution Status

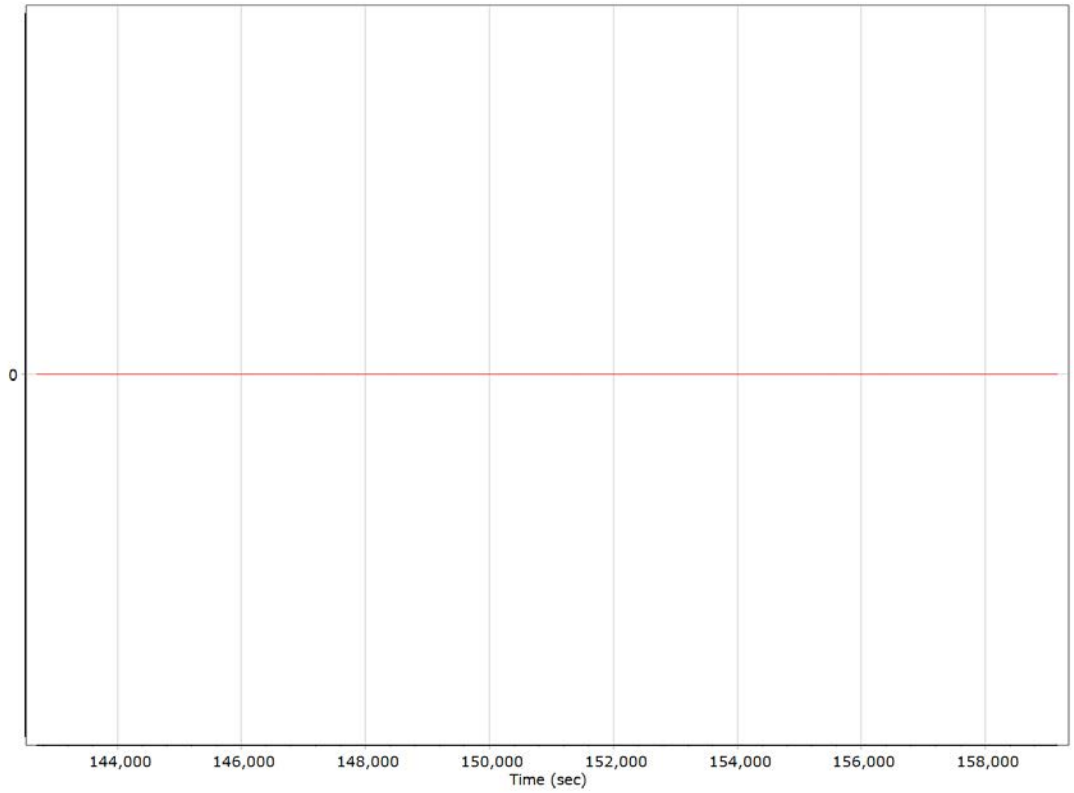
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07262023A_4051
Processing date	2023-07-28 17:08:49
Mission date	2023-07-26 15:05:56
Mission duration	04:48:13.078
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.002	POS Data
CP780.003	POS Data
CP780.004	POS Data
CP780.005	POS Data
CP780.006	POS Data
CP780.007	POS Data
CP780.008	POS Data
CP780.009	POS Data
CP780.010	POS Data
CP780.011	POS Data
CP780.012	POS Data
CP780.013	POS Data
CP780.014	POS Data
CP780.015	POS Data
CP780.016	POS Data
CP780.017	POS Data
CP780.018	POS Data
CP780.019	POS Data
CP780.020	POS Data
CP780.021	POS Data
CP780.022	POS Data
CP780.023	POS Data
CP780.024	POS Data
CP780.025	POS Data
CP780.026	POS Data
CP780.027	POS Data
CP780.028	POS Data
CP780.029	POS Data
CP780.030	POS Data
CP780.031	POS Data
CP780.032	POS Data
CP780.033	POS Data
CP780.034	POS Data
CP780.035	POS Data
CP780.036	POS Data
CP780.037	POS Data
CP780.038	POS Data
CP780.039	POS Data
CP780.040	POS Data
CP780.041	POS Data

Input Files

File Name	File Type
Ephm2070.23g	GLONASS Broadcast Ephemeris
Ephm2070.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07262023A_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.002		
Last raw data file	CP780.041		
Start GPS week	2272		
Start time	313538.031 (7/26/2023 3:05:38 PM)		
End time	330831.109 (7/26/2023 7:53:51 PM)		
Start of fine alignment	313778.777 (7/26/2023 3:09:38 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

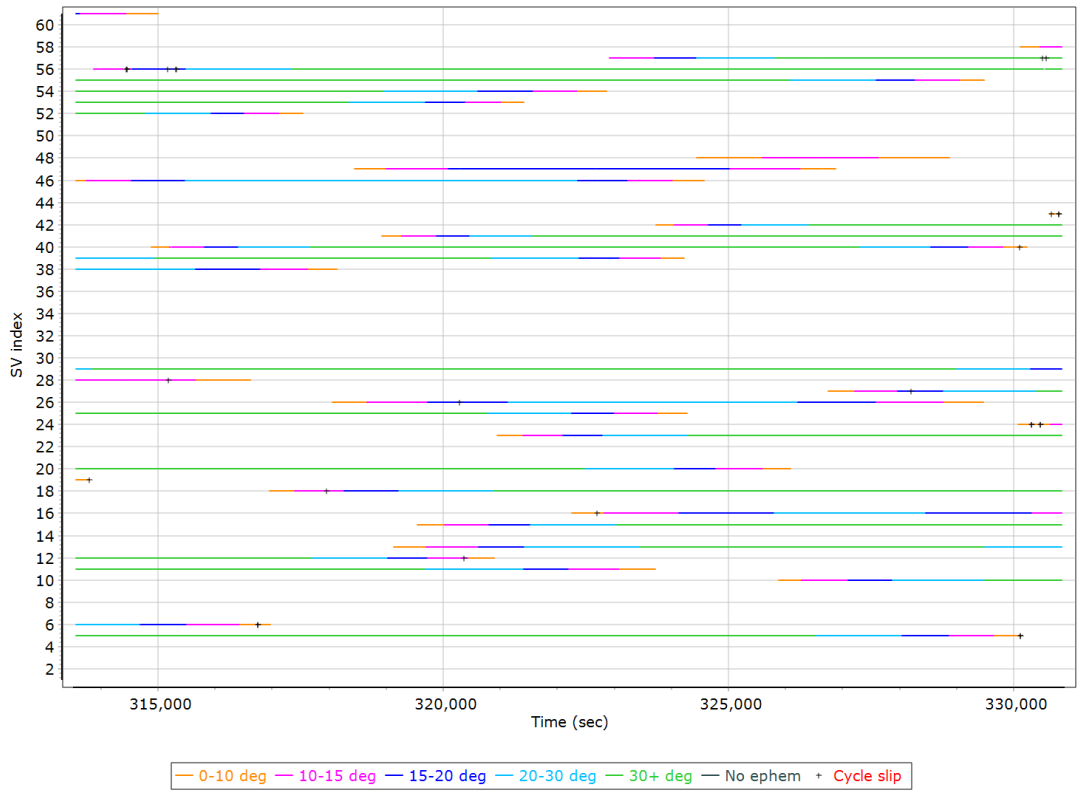
Rover Data QC

Raw IMU Import QC Summary

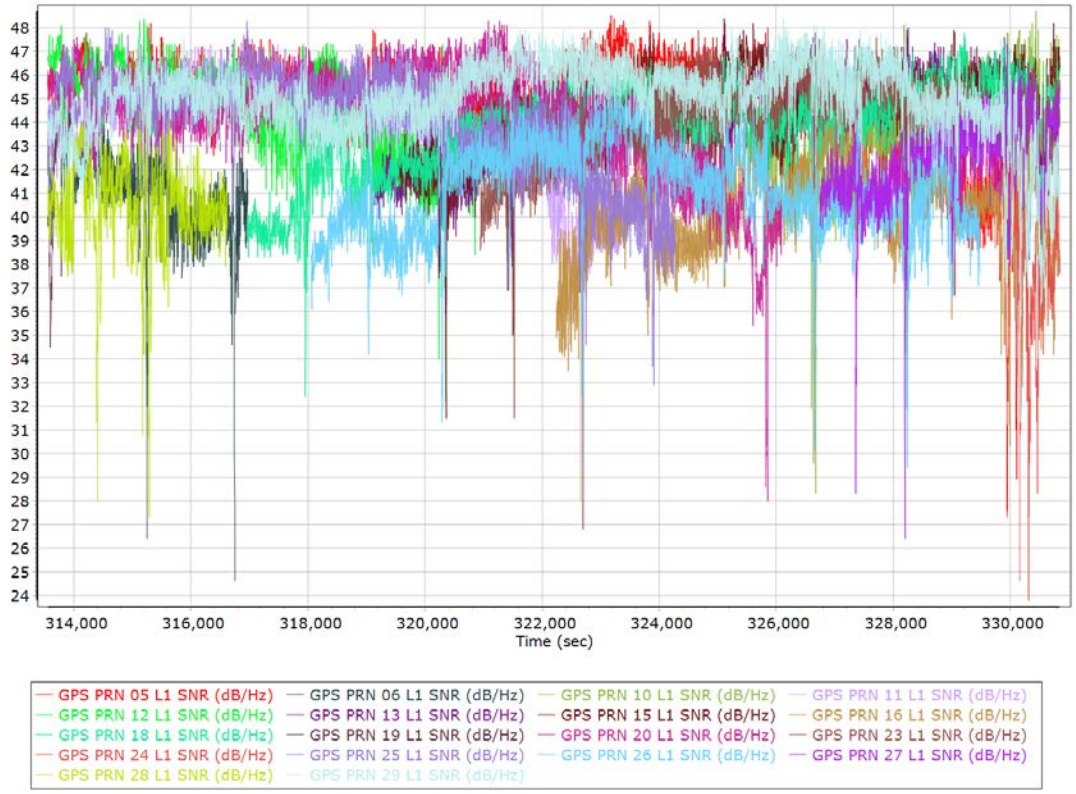
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07262023A_4051.log
IMU Records Processed	3458156
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

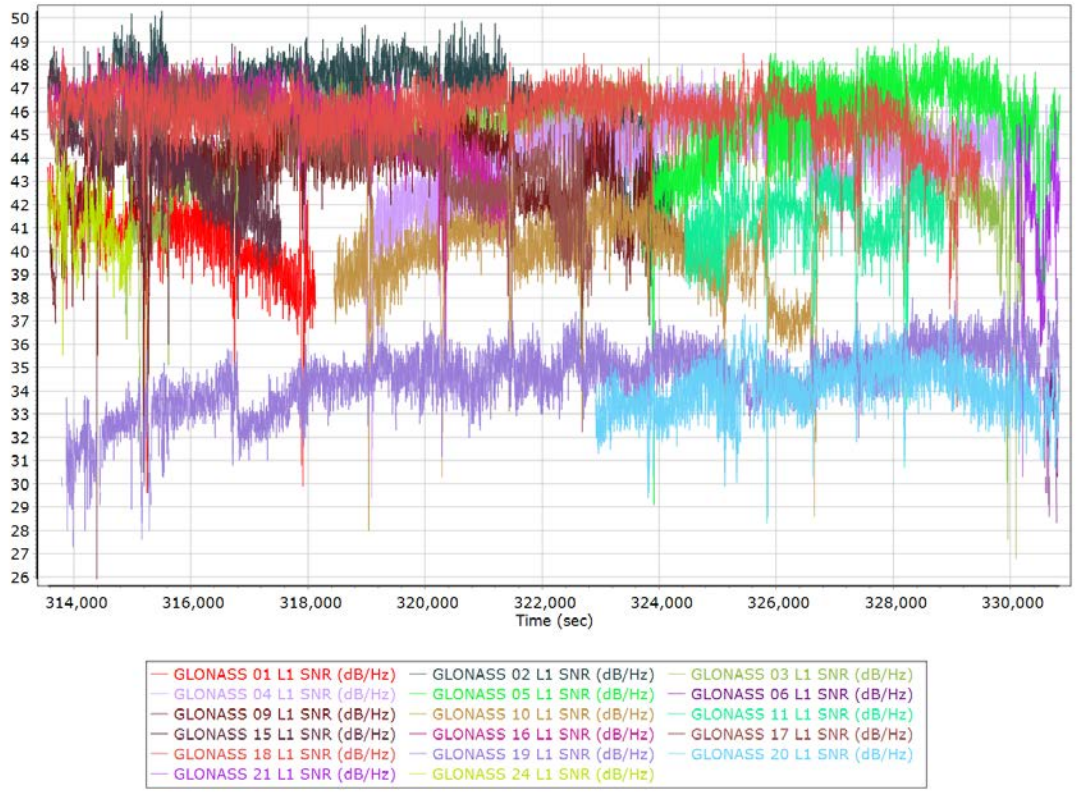
GPS/GLONASS L1 Satellite Lock/Elevation



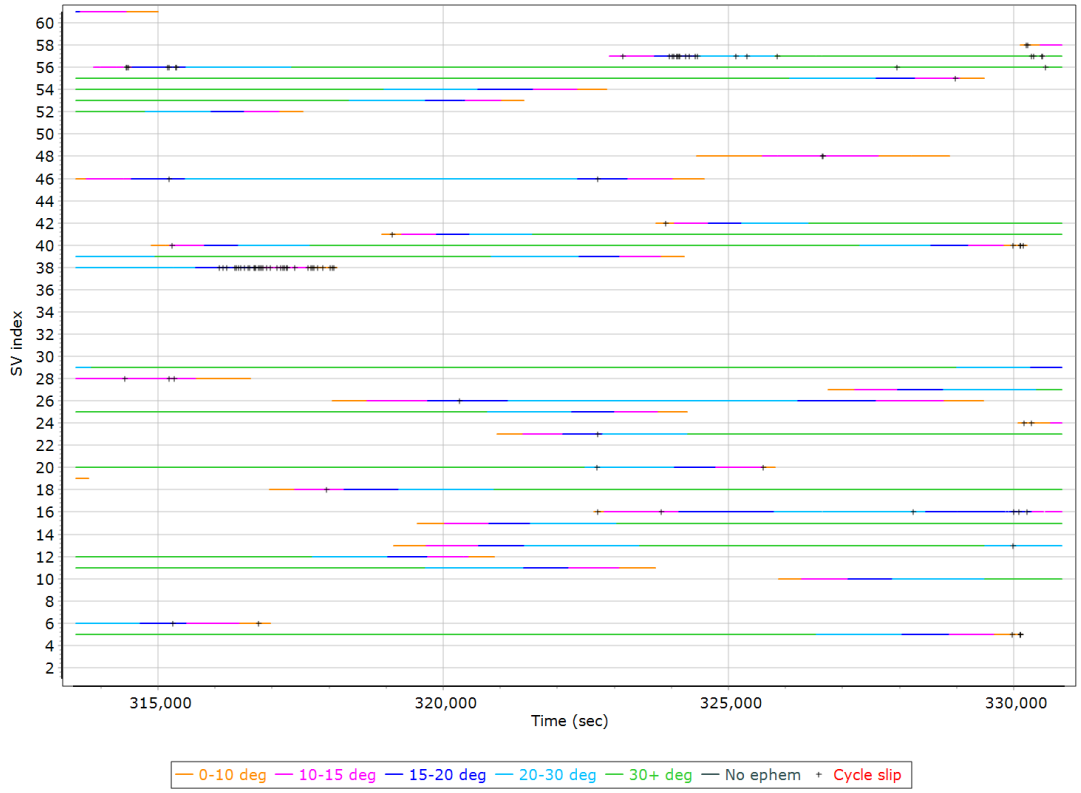
GPS L1 SNR



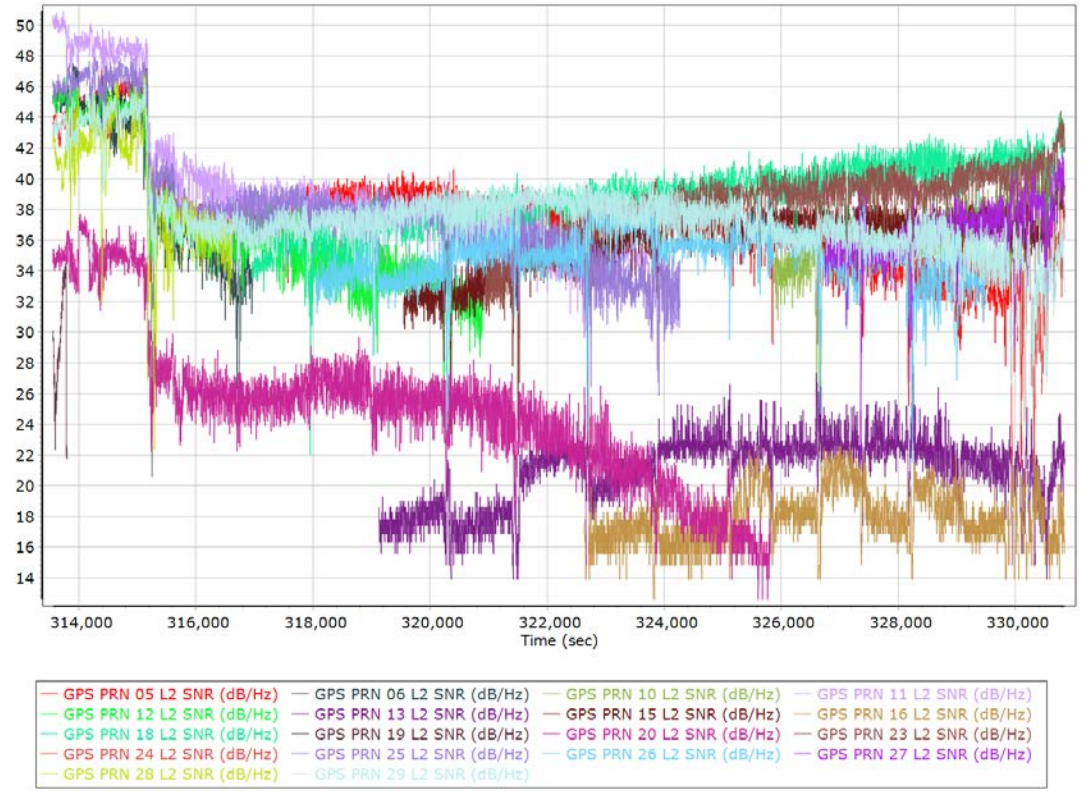
GLONASS L1 SNR



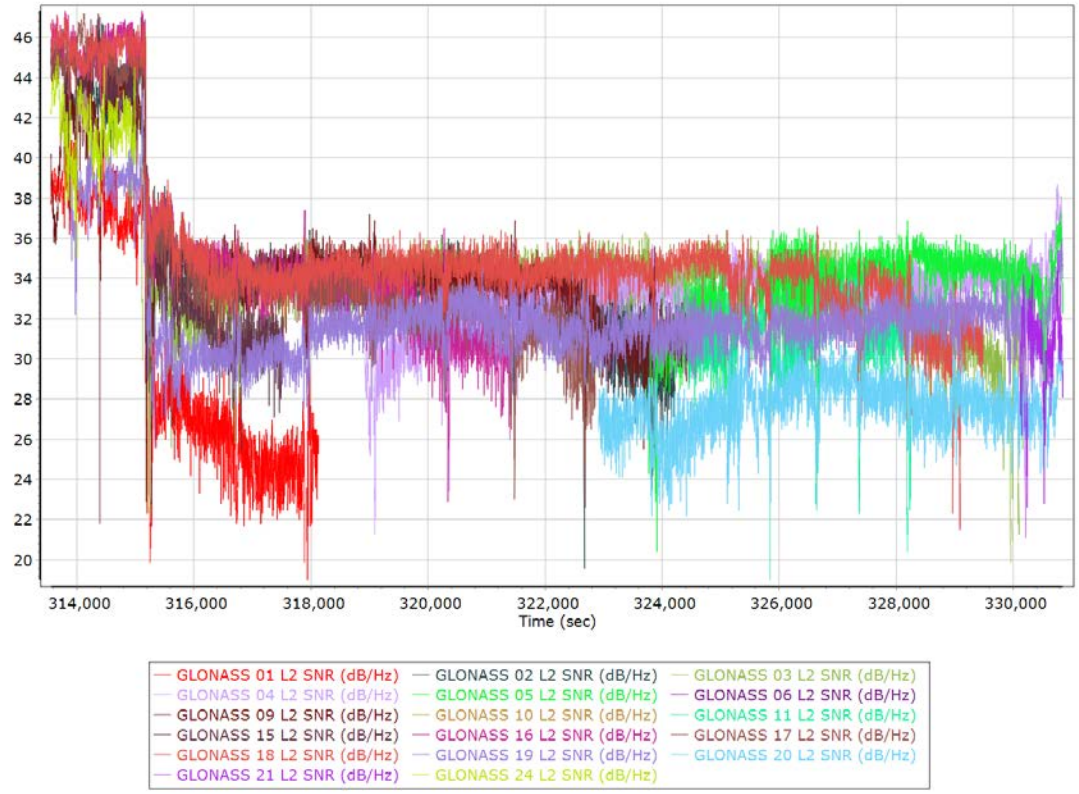
GPS/GLONASS L2 Satellite Lock/Elevation



GPS L2 SNR



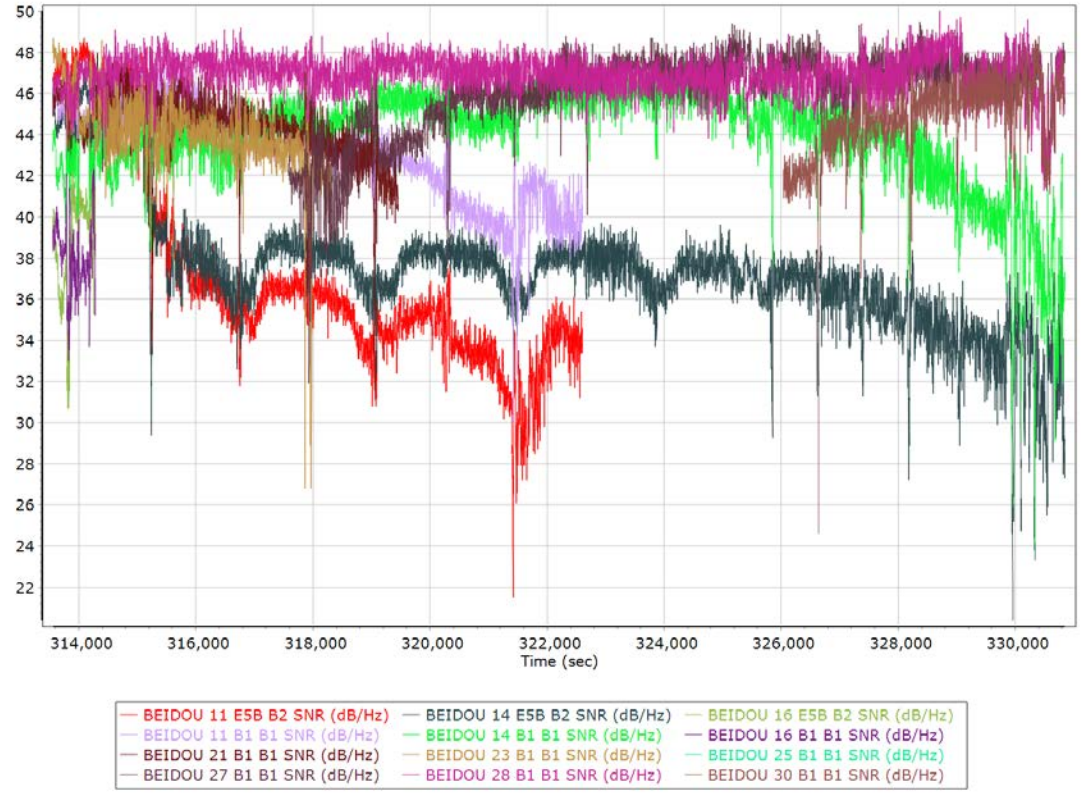
GLONASS L2 SNR



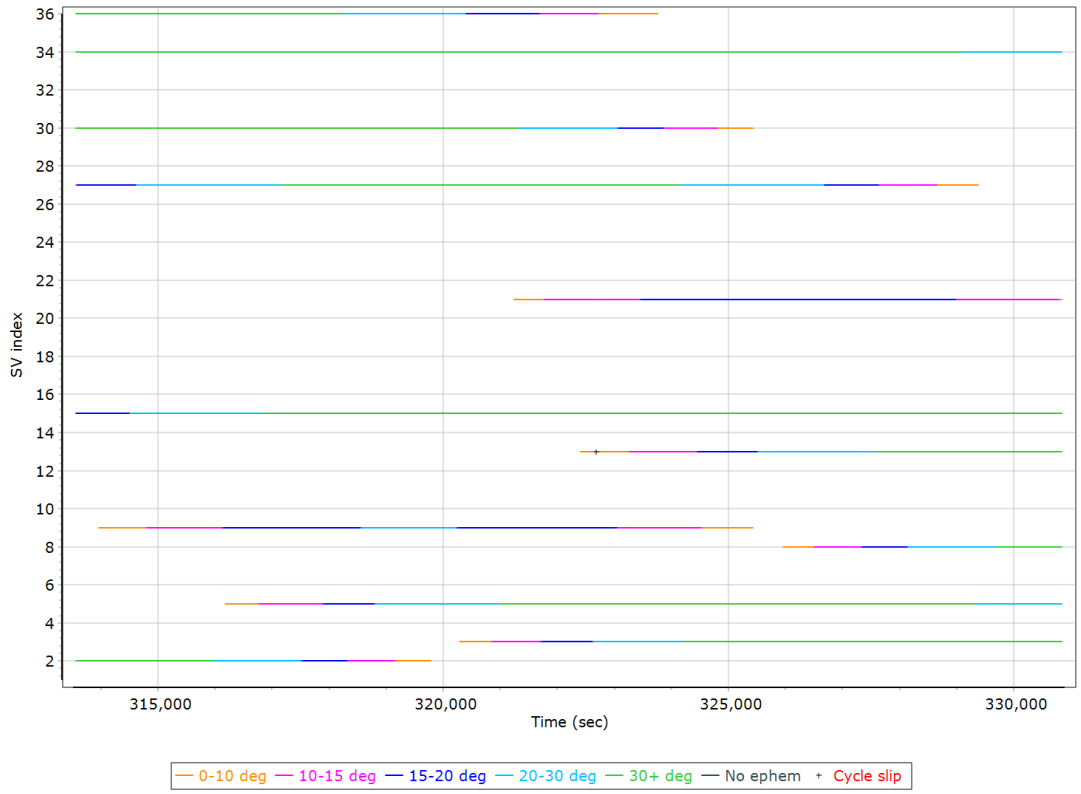
BEIDOU Satellite Lock/Elevation



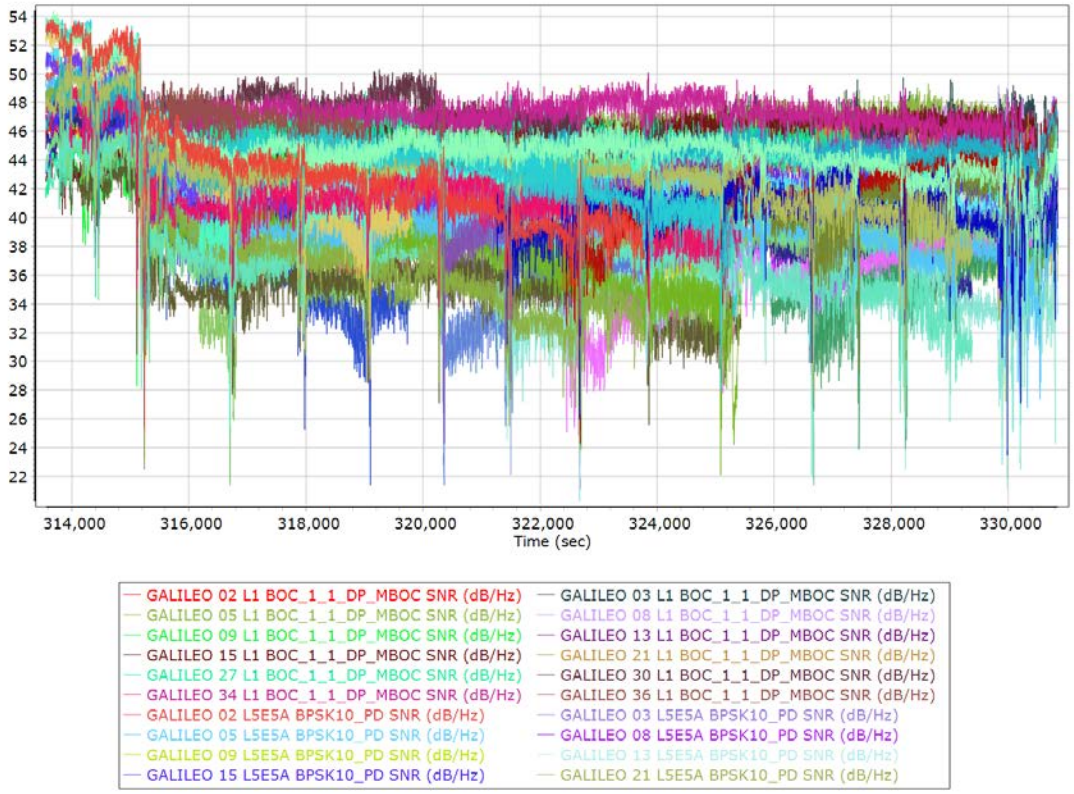
BEIDOU SNR



GALILEO Satellite Lock/Elevation

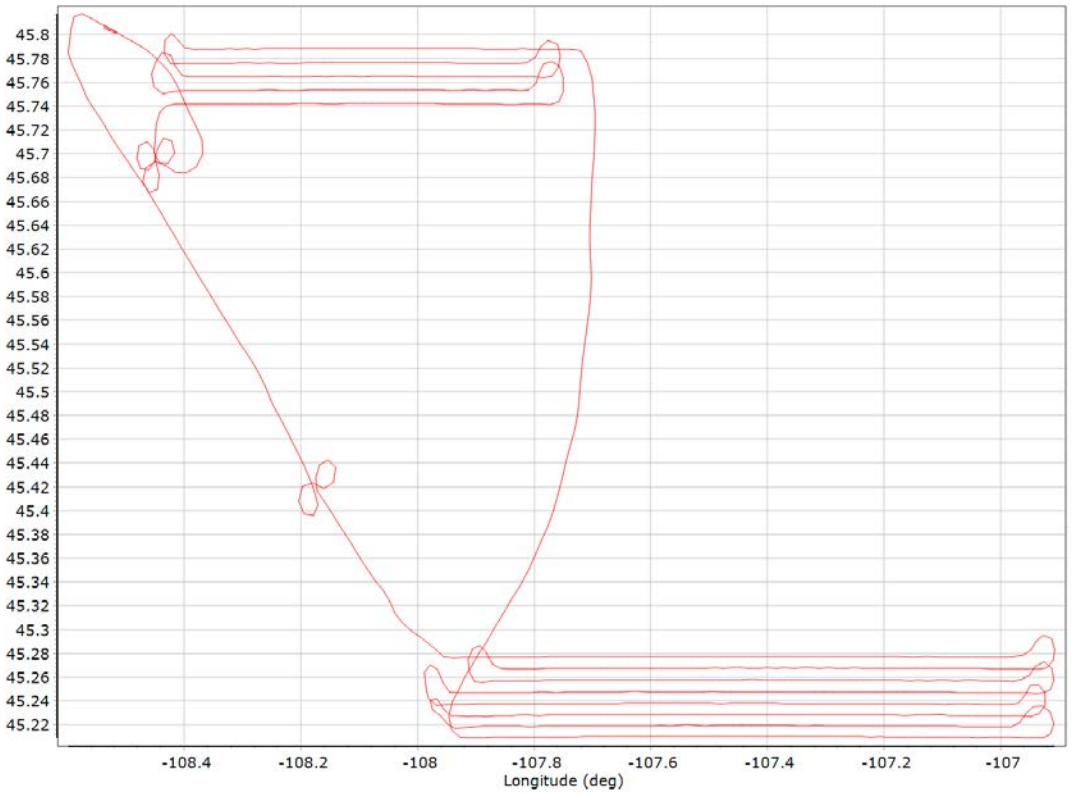


GALILEO SNR


54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
314,000
316,000
318,000
320,000
322,000
324,000
326,000
328,000
330,000
Time (sec)
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 08 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 15 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 21 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 27 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 30 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 34 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 03 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 05 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 08 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 13 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 15 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 21 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

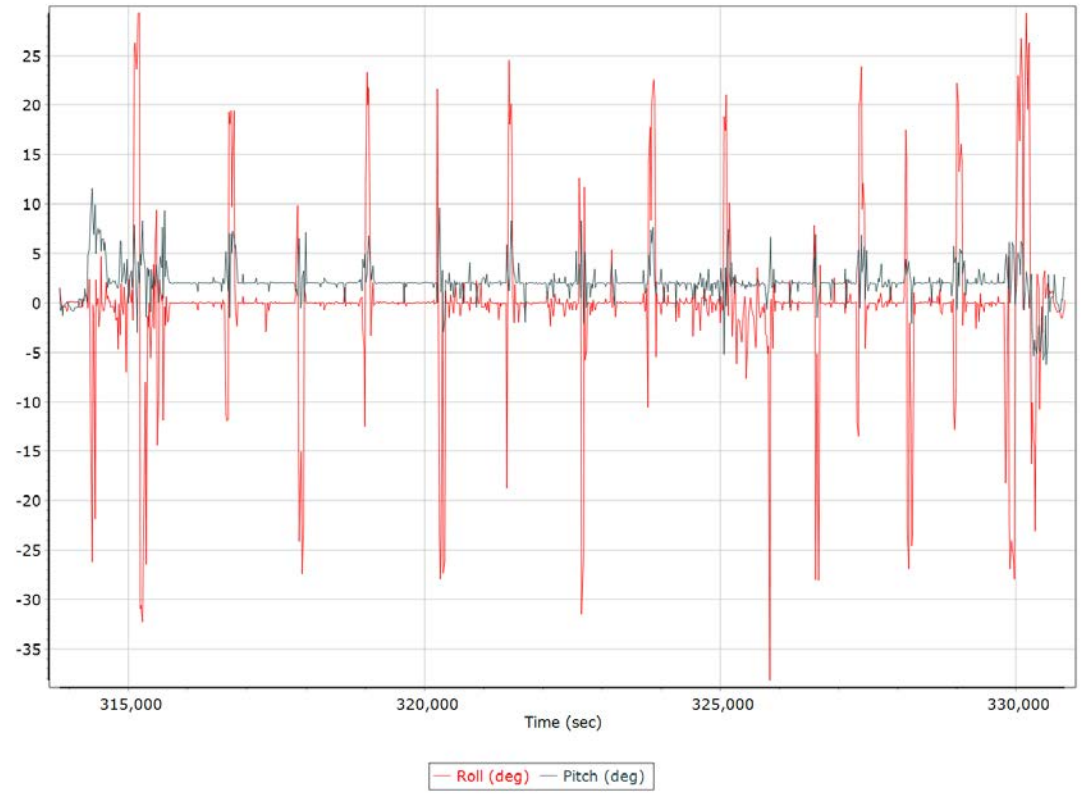
Top View



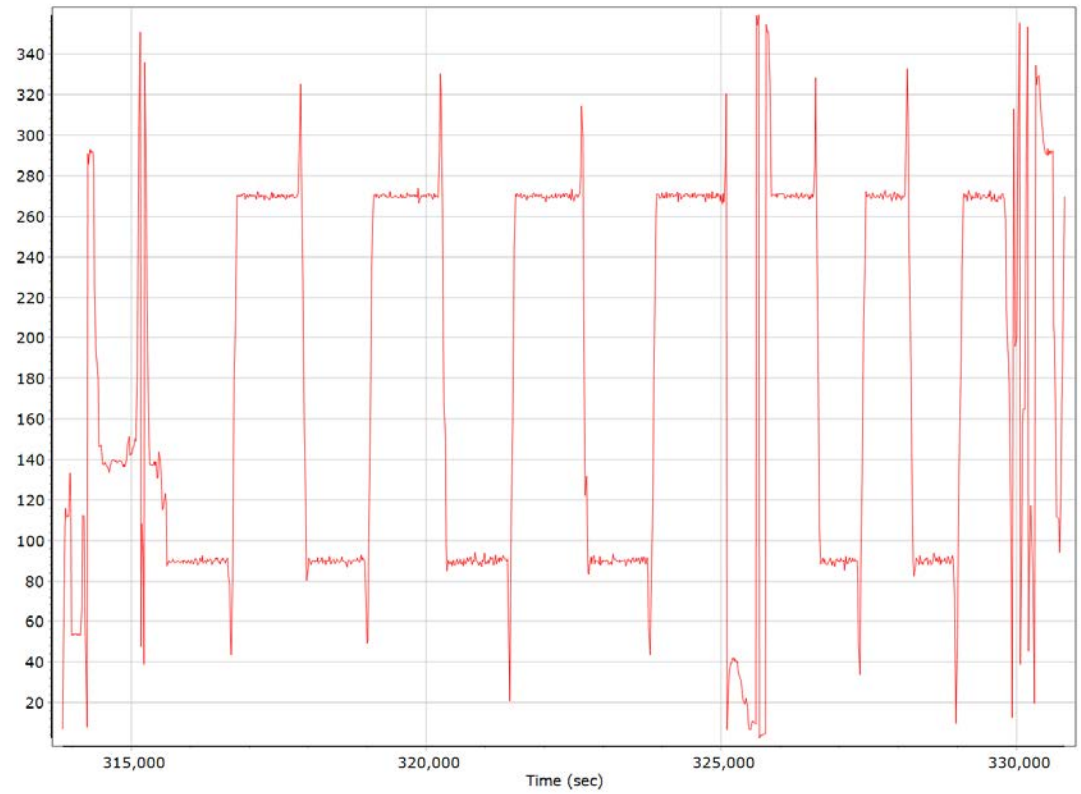
Altitude



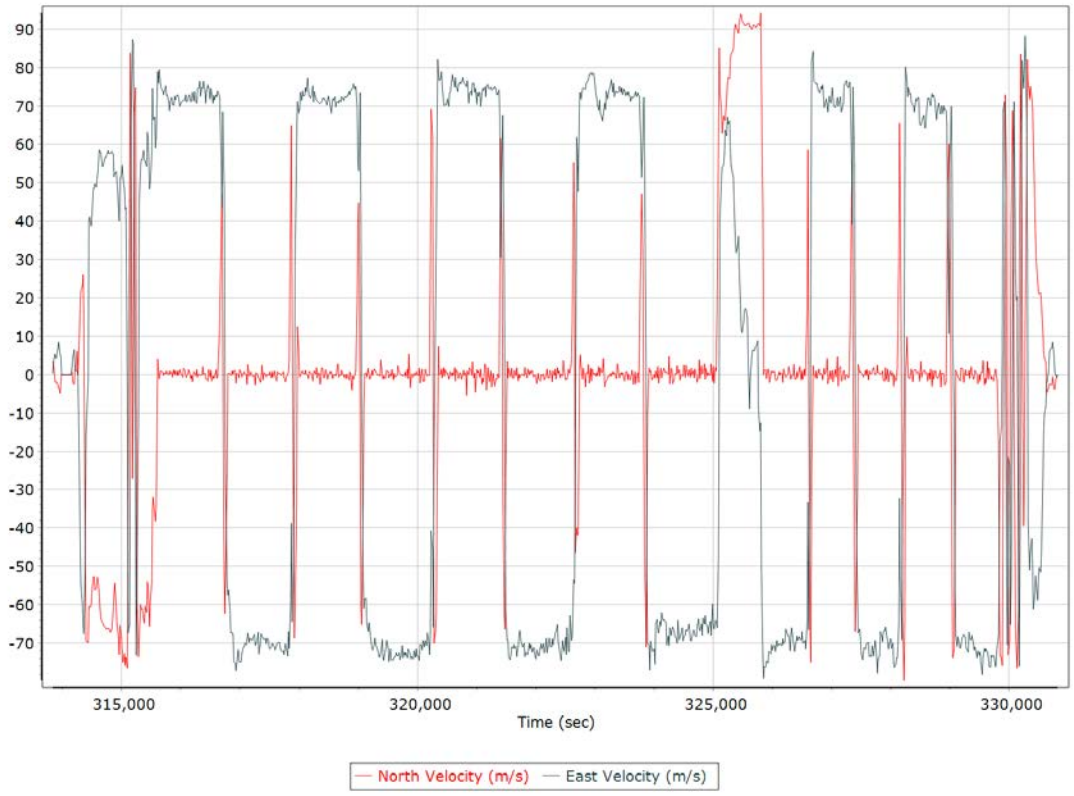
Roll/Pitch



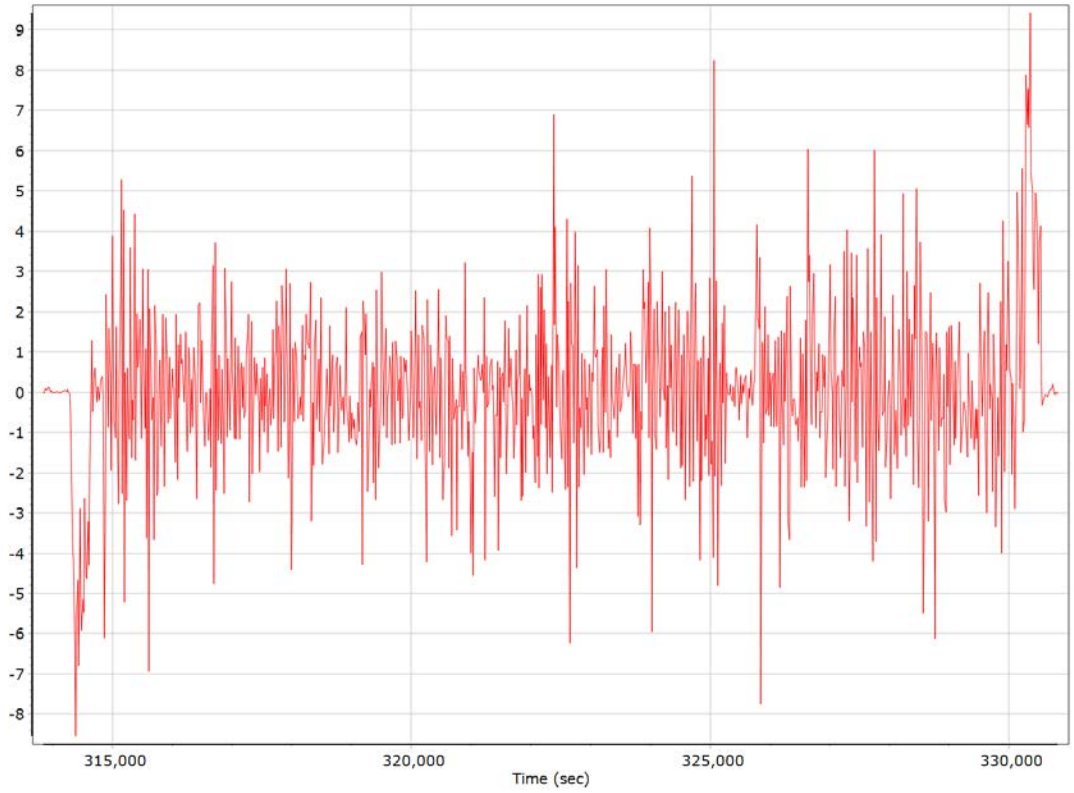
Heading



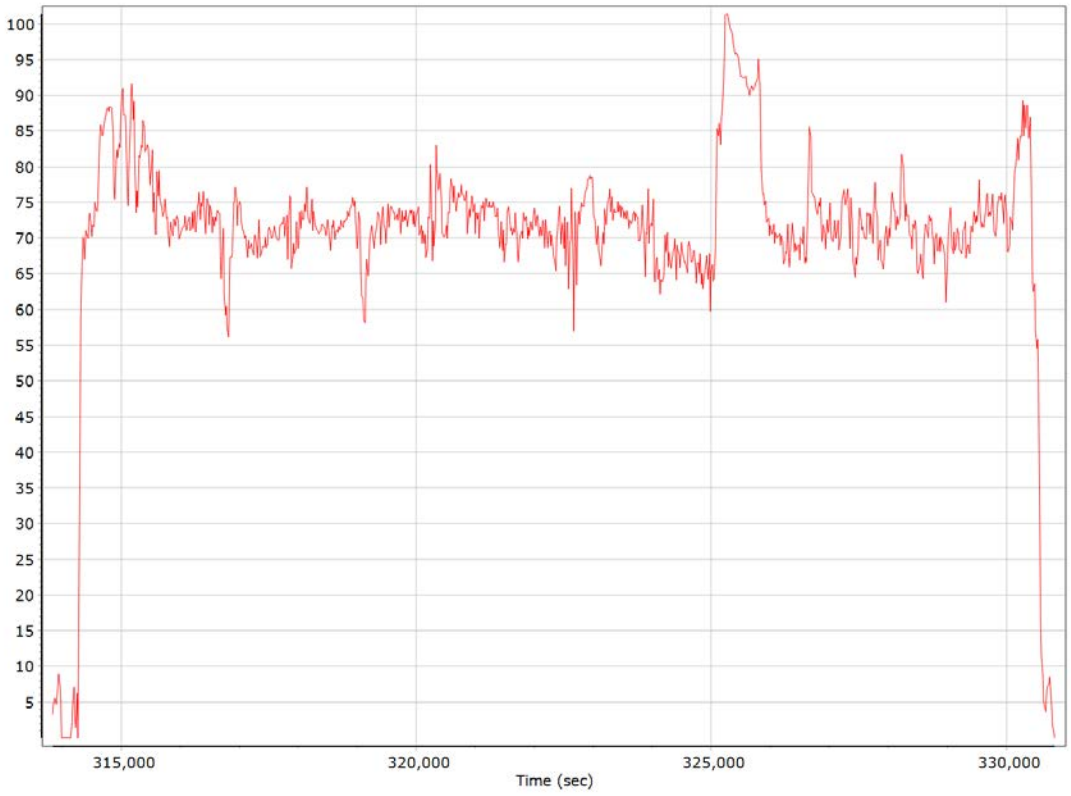
North/East Velocity



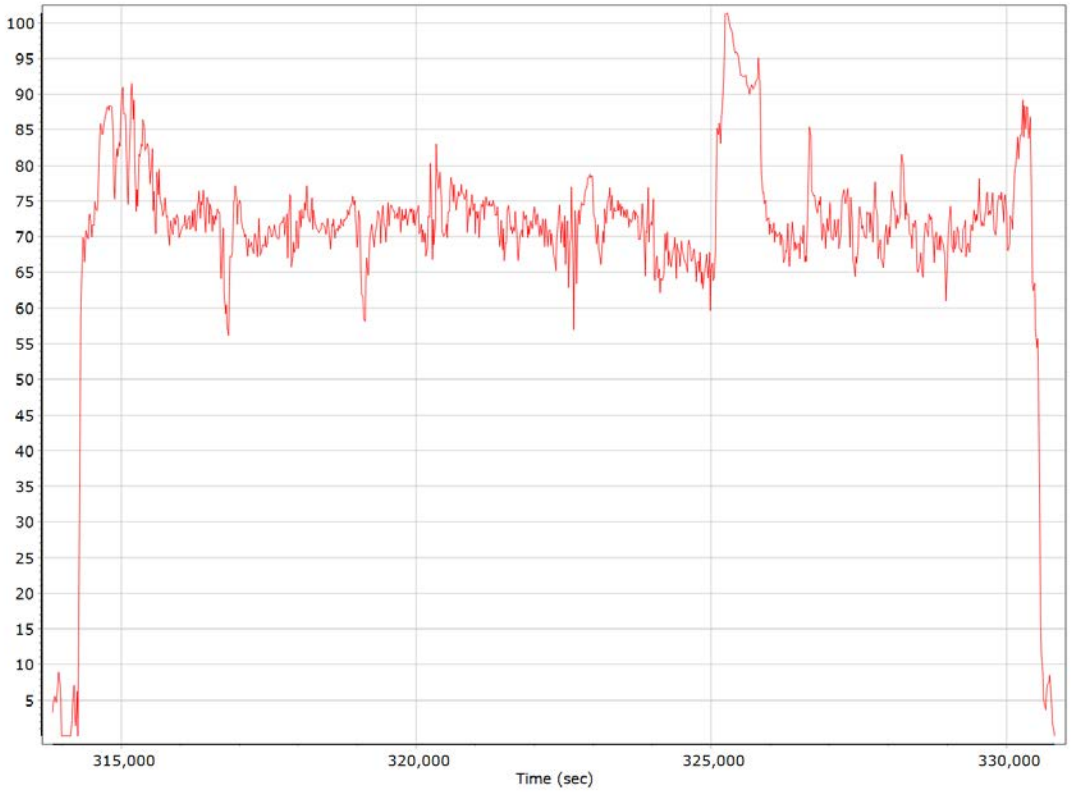
Down Velocity



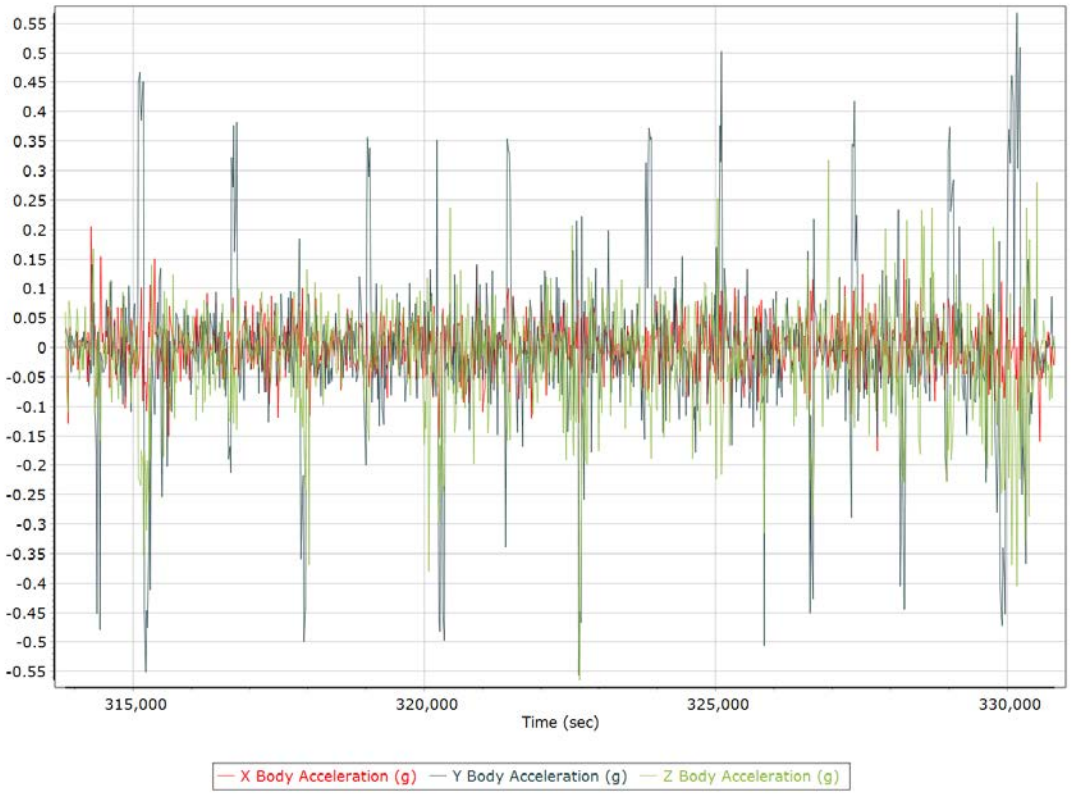
Total Speed



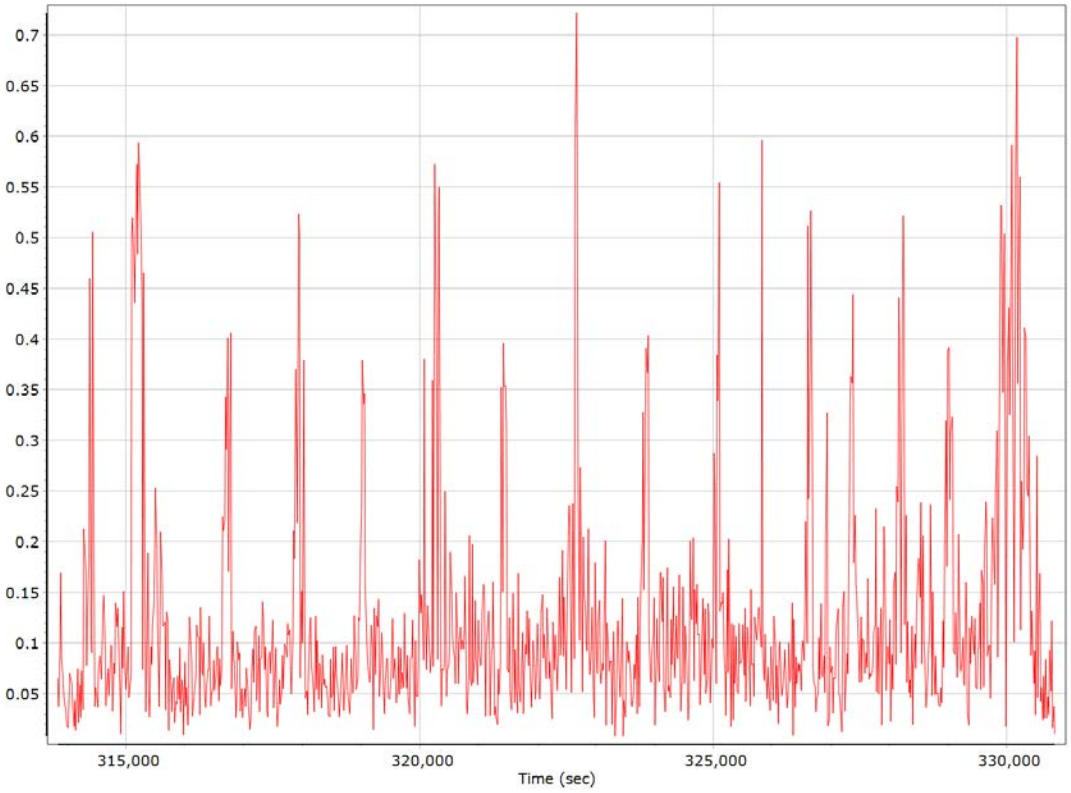
Ground Speed



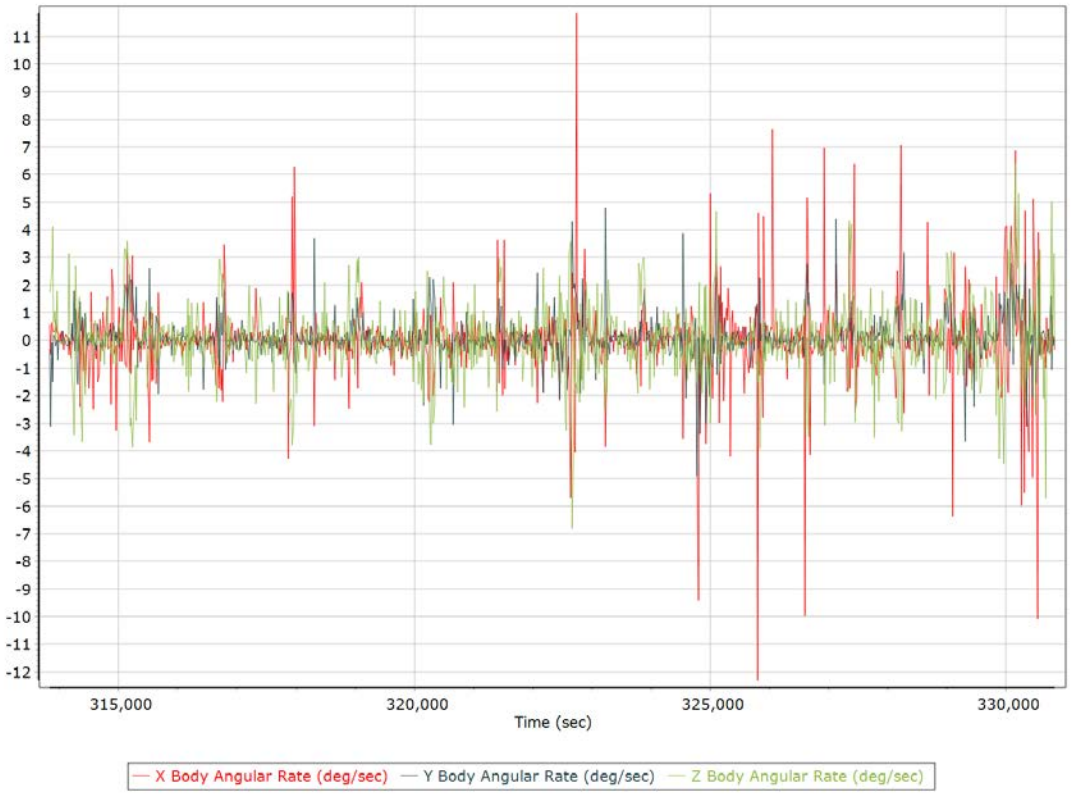
Body Acceleration



Total Body Acceleration

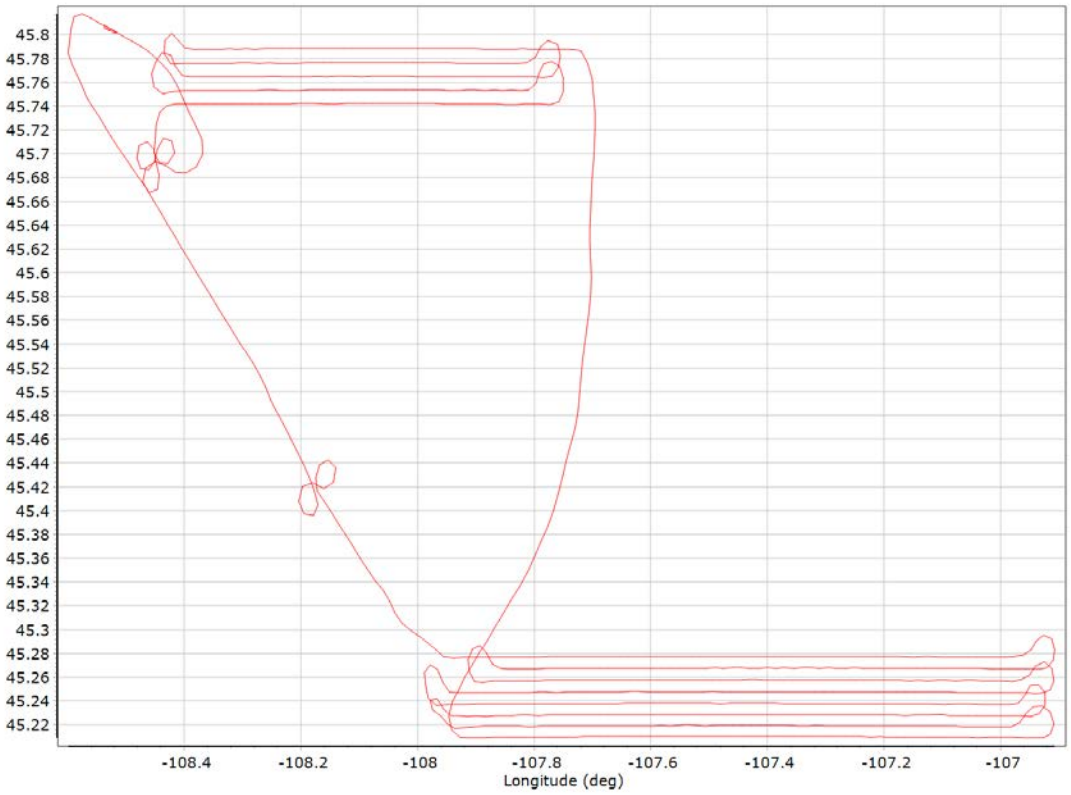


Body Angular Rate



Forward Processed Trajectory Information

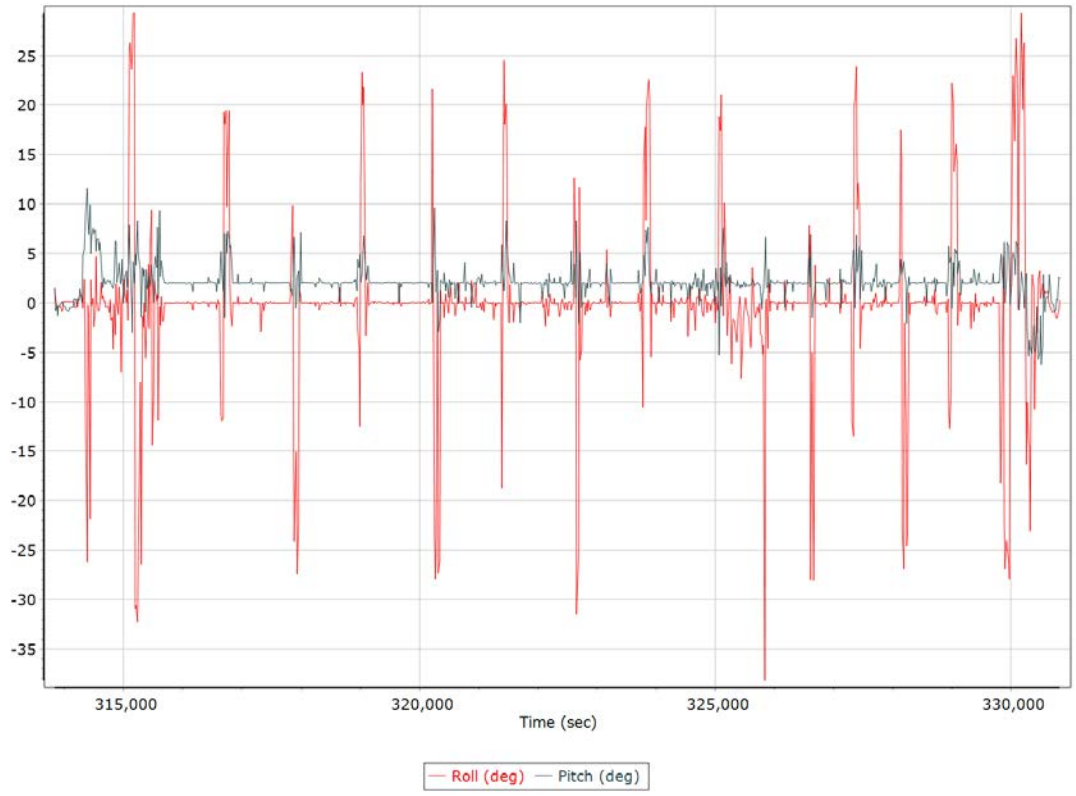
Top View



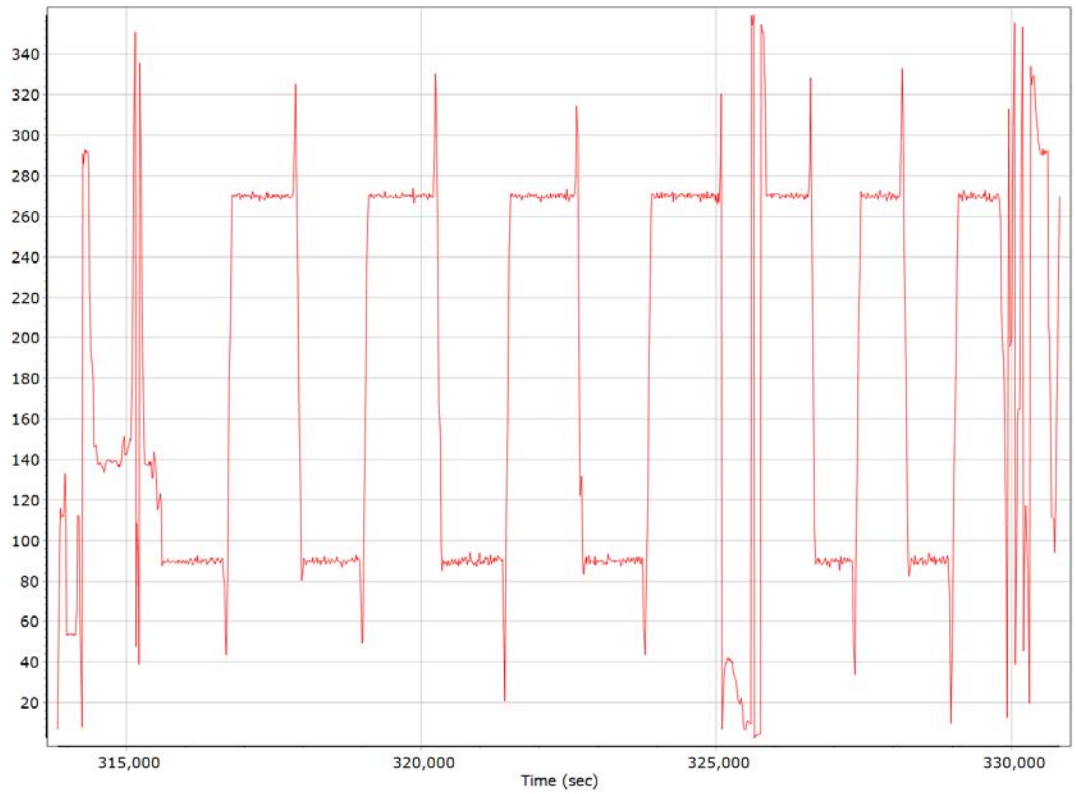
Altitude



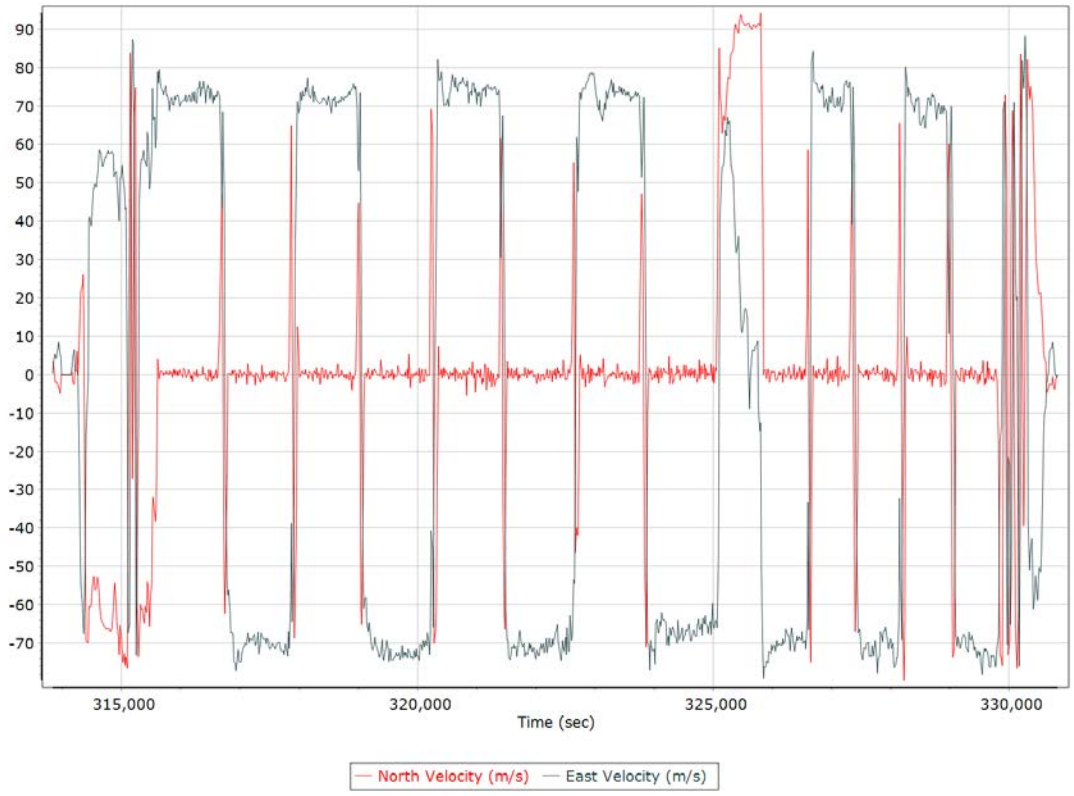
Roll/Pitch



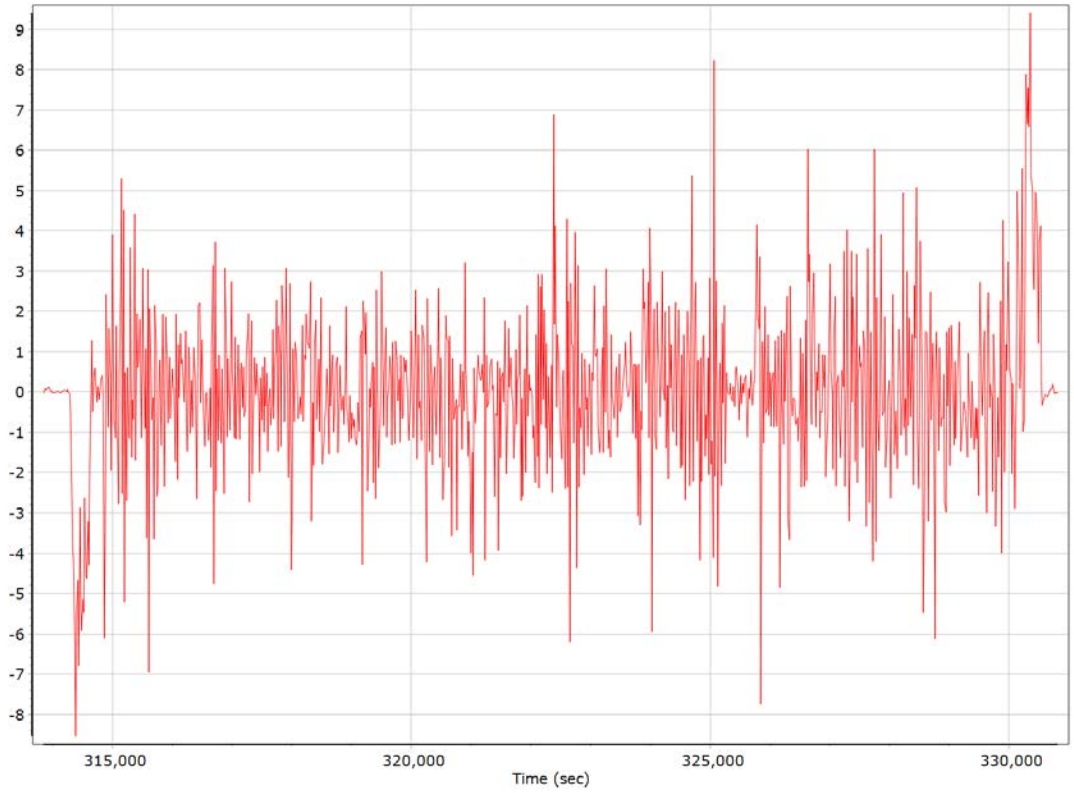
Heading



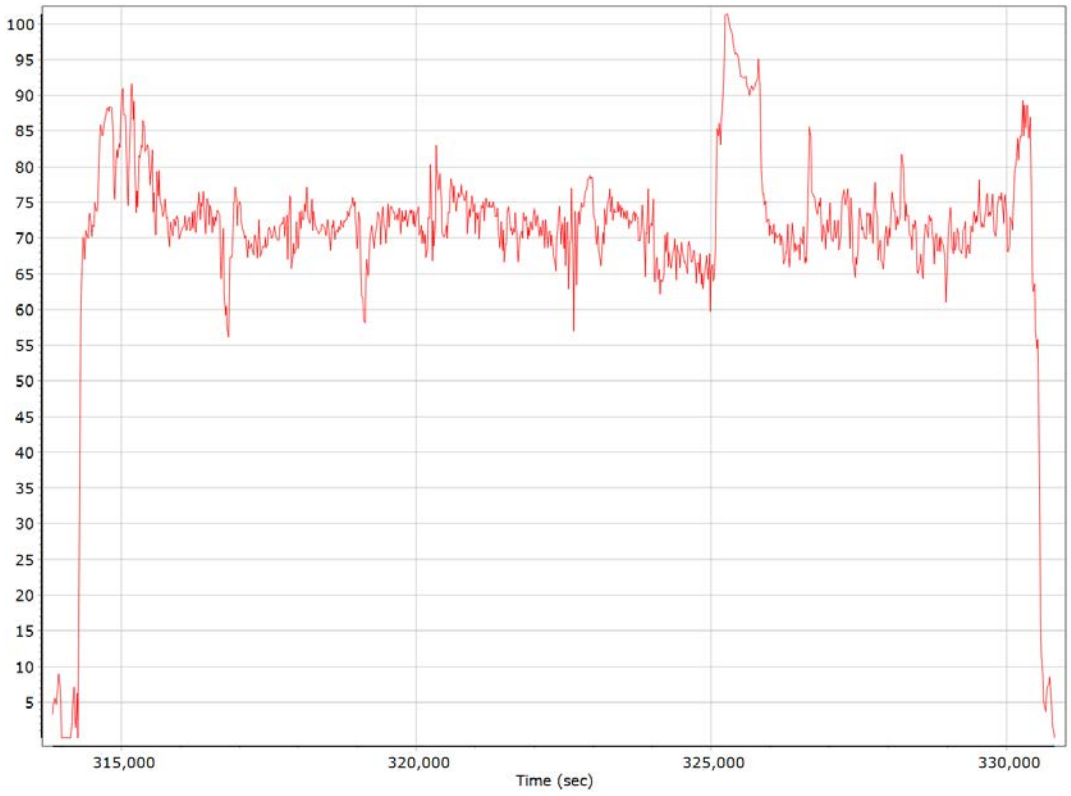
North/East Velocity



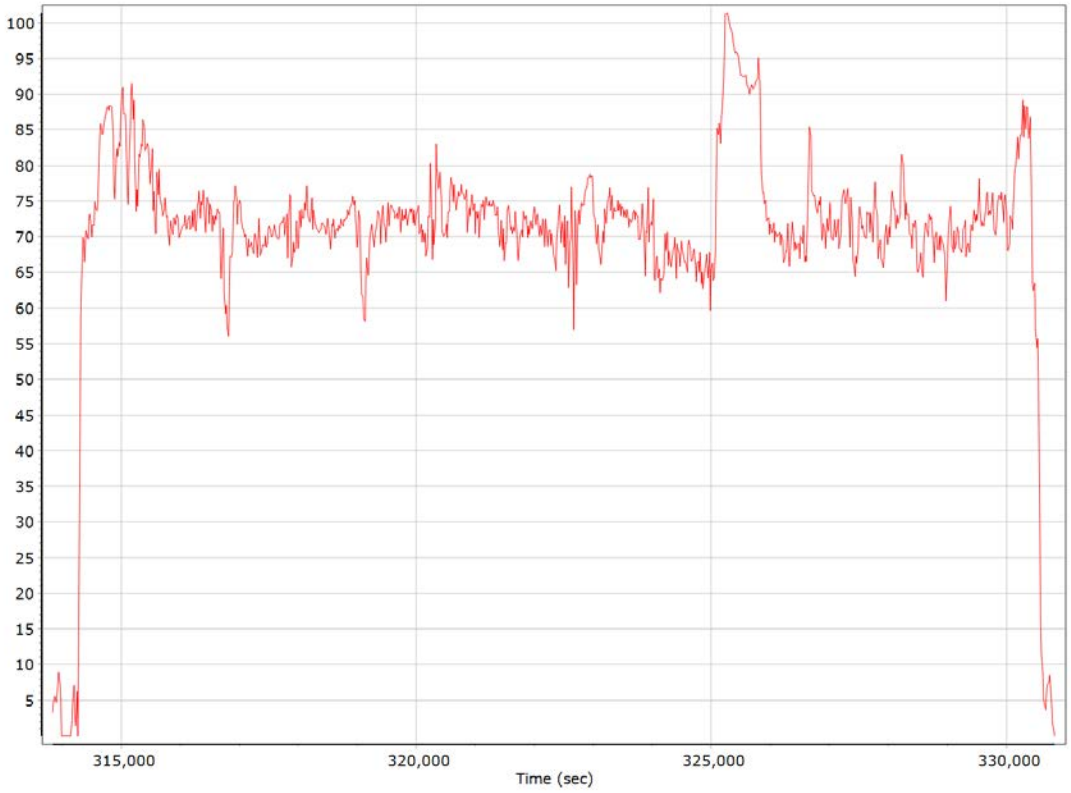
Down Velocity



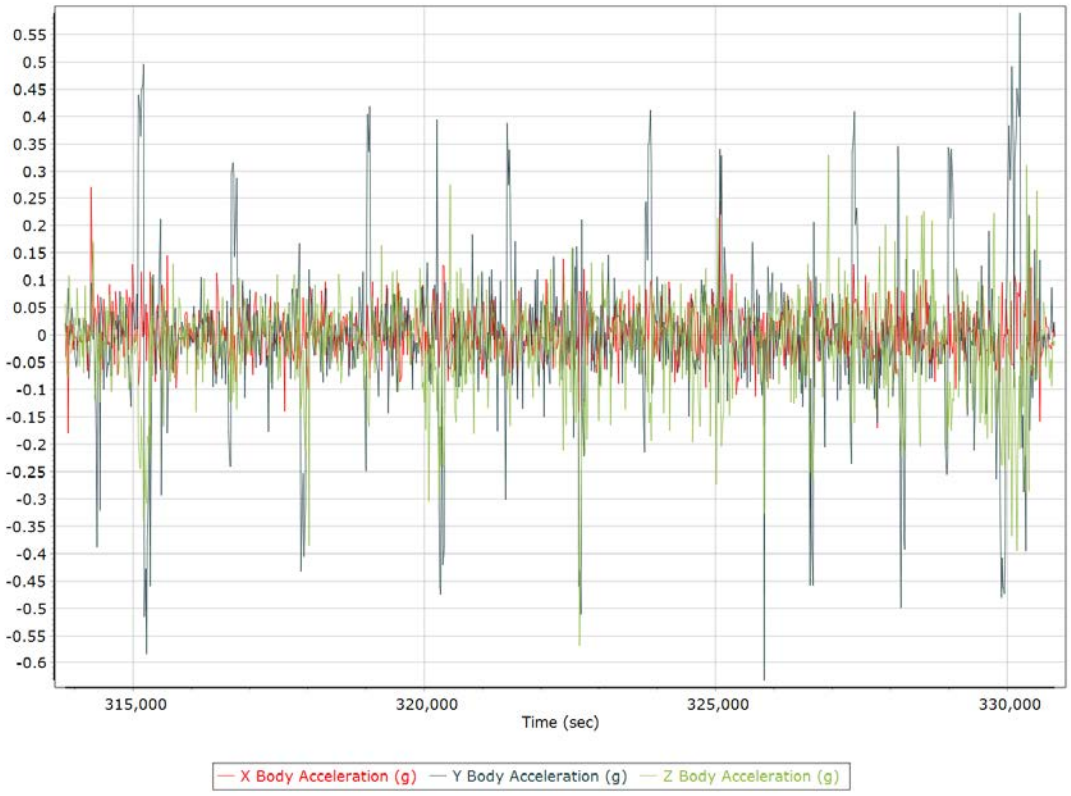
Total Speed



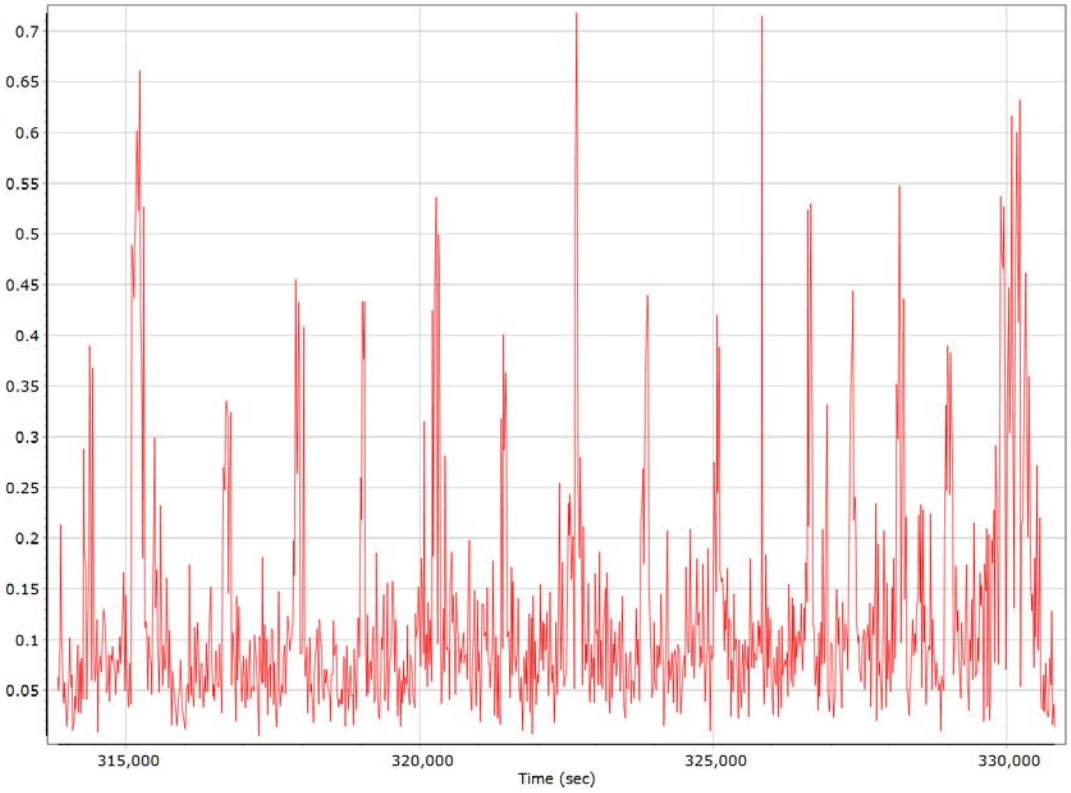
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

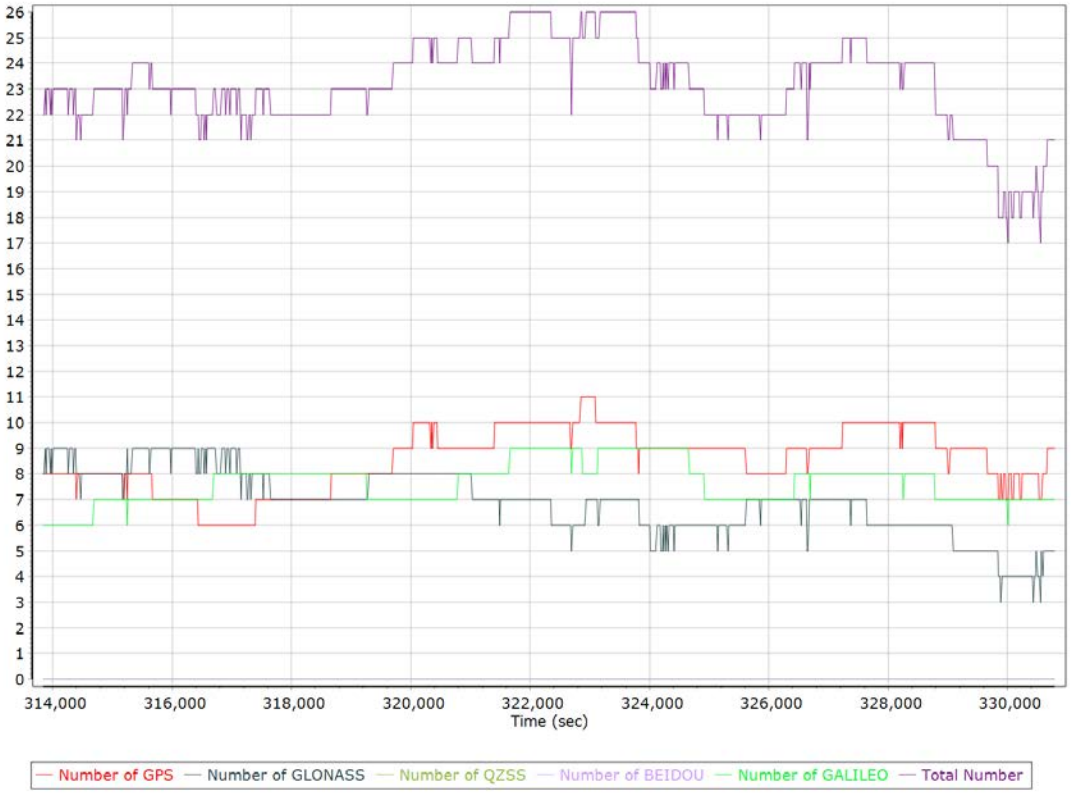


GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	11	9
Number of GLONASS SV	3	9	7
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	6	9	8
Total number of SV	17	26	23
PDOP	0.95	1.55	1.12
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	17232.00	0.00	0.00
Percentage	100.00	0.00	0.00

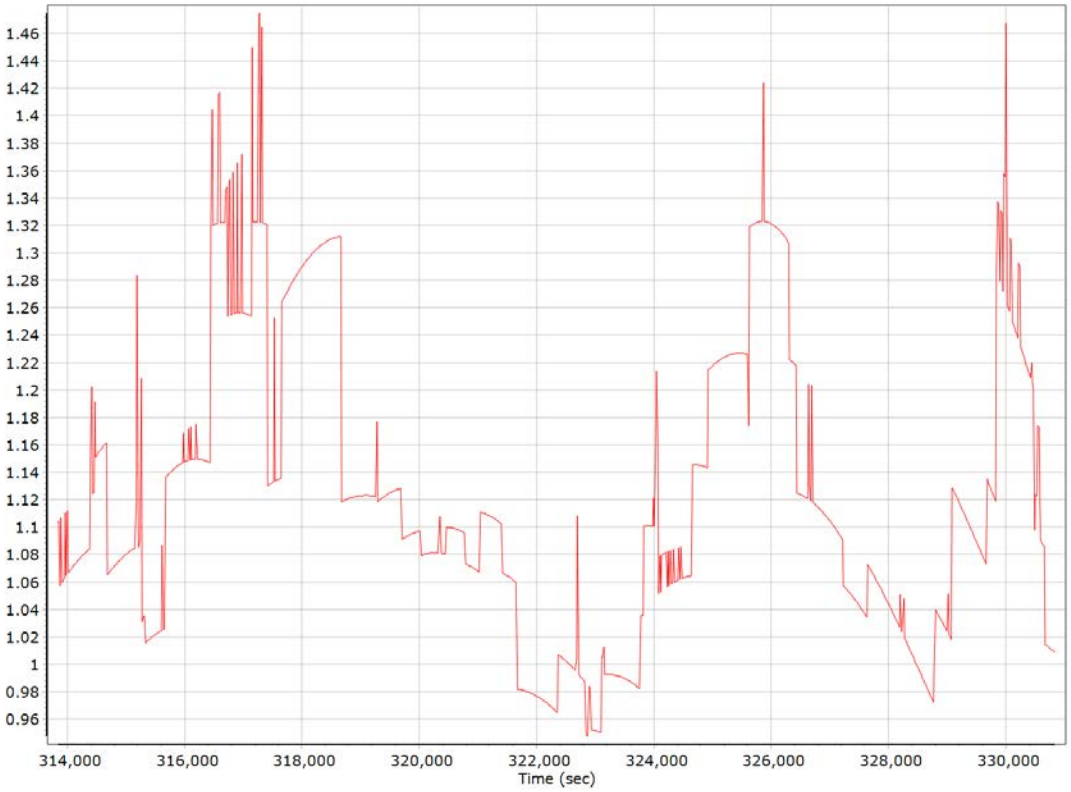
Num SVs in solution



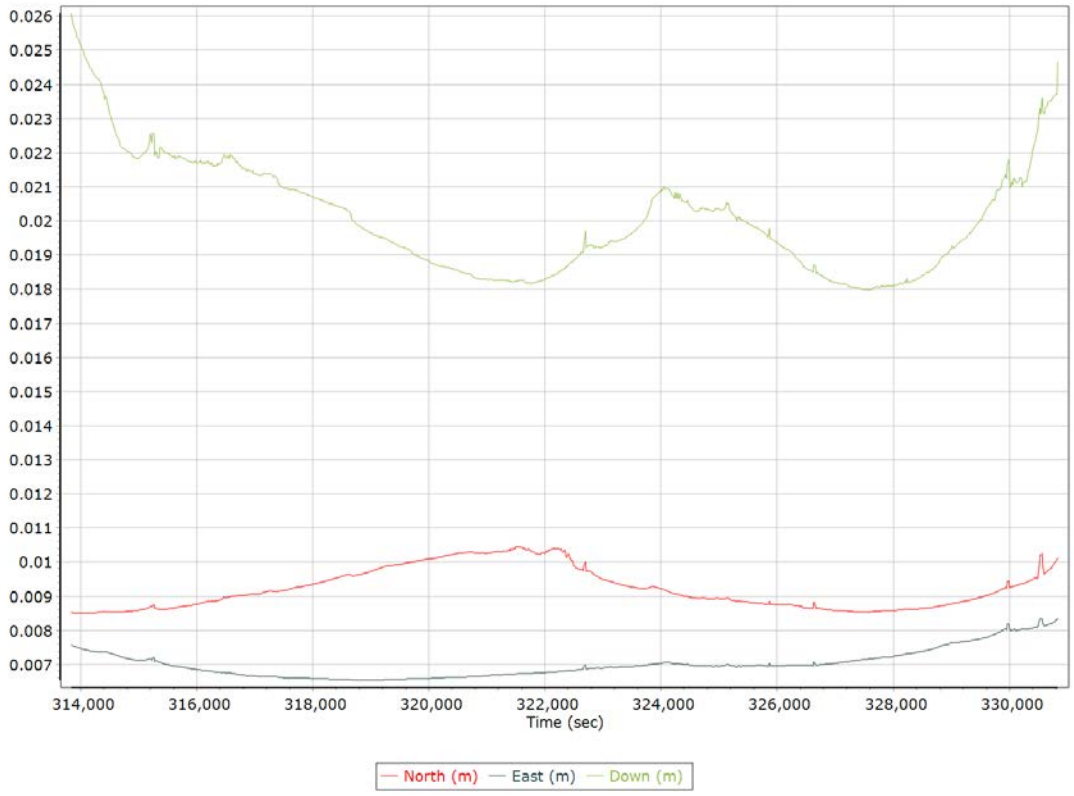
Forward/Reverse Separation



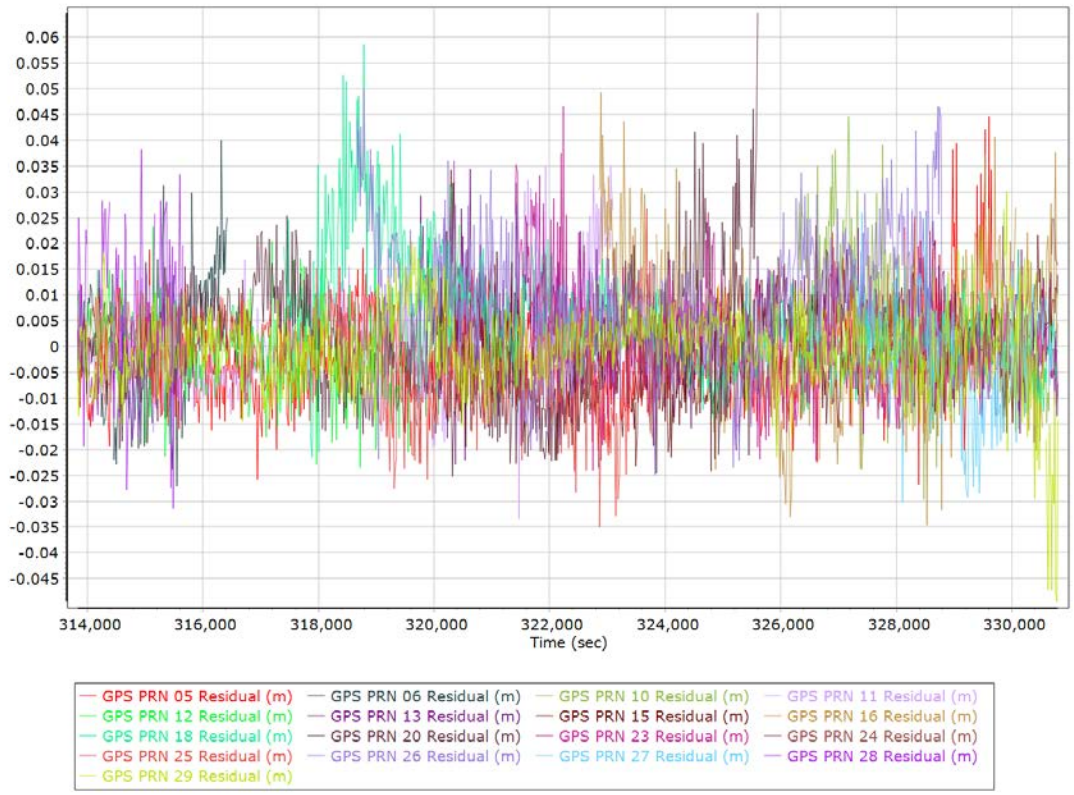
PDOP



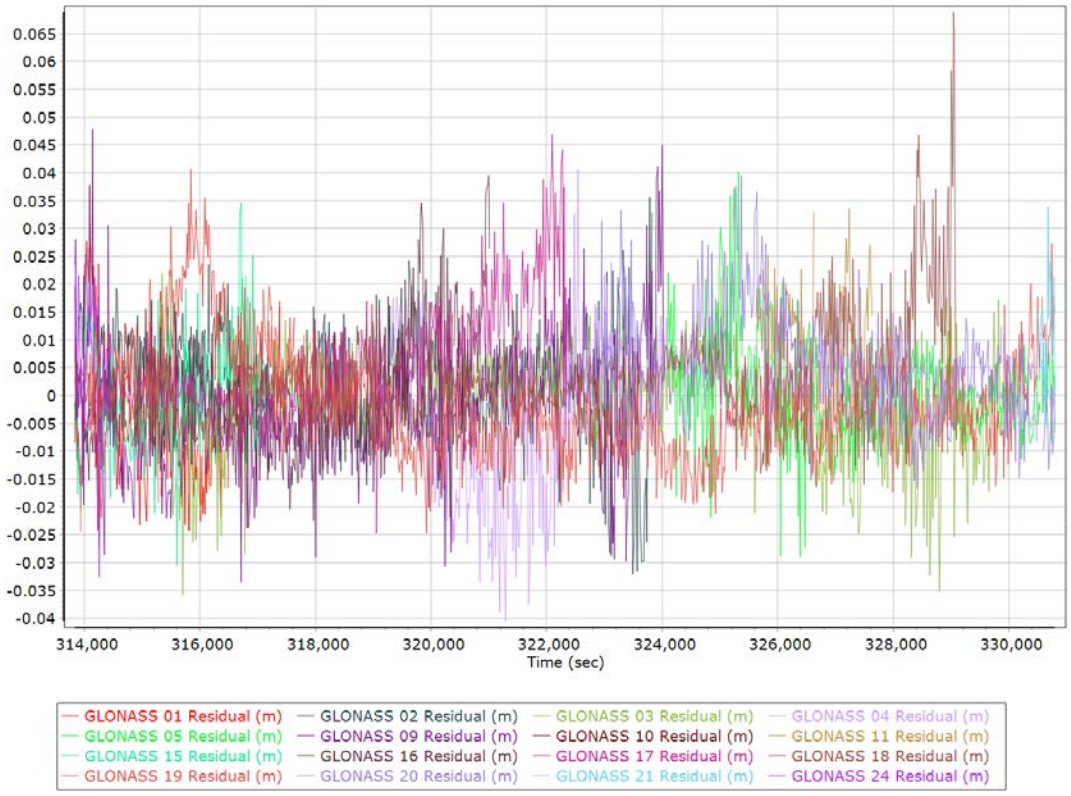
Estimated Position Accuracy



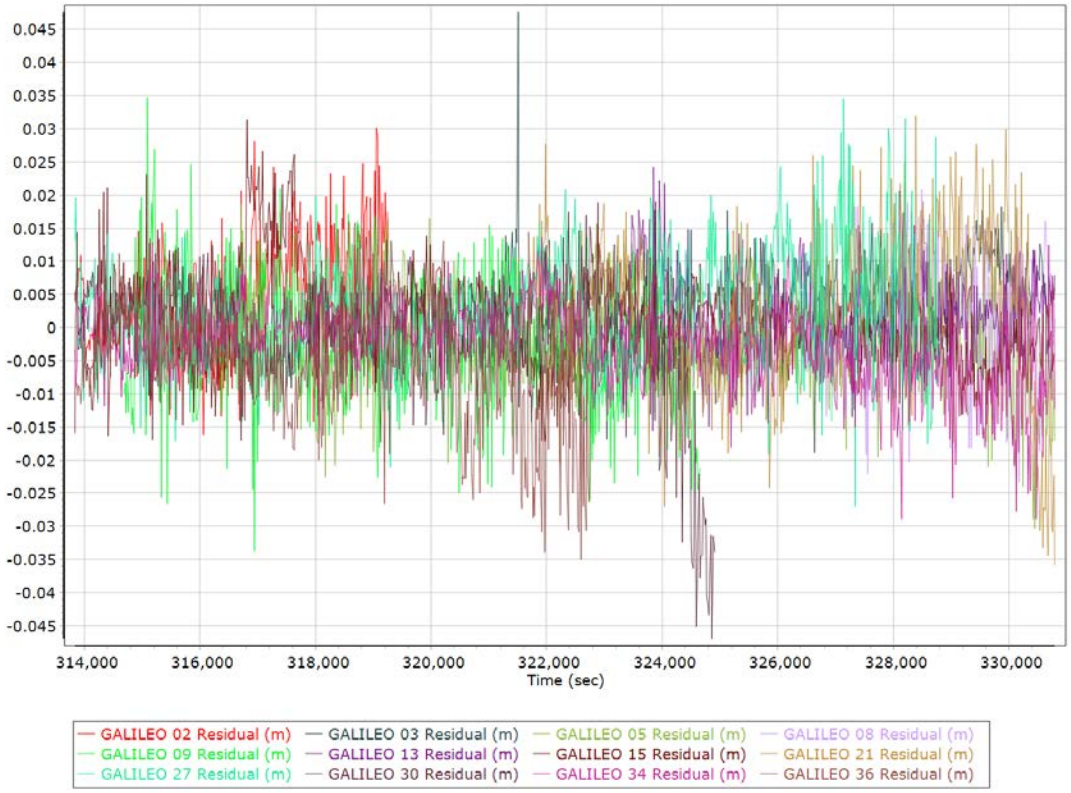
GPS Residuals



GLONASS Residuals



GALILEO Residuals



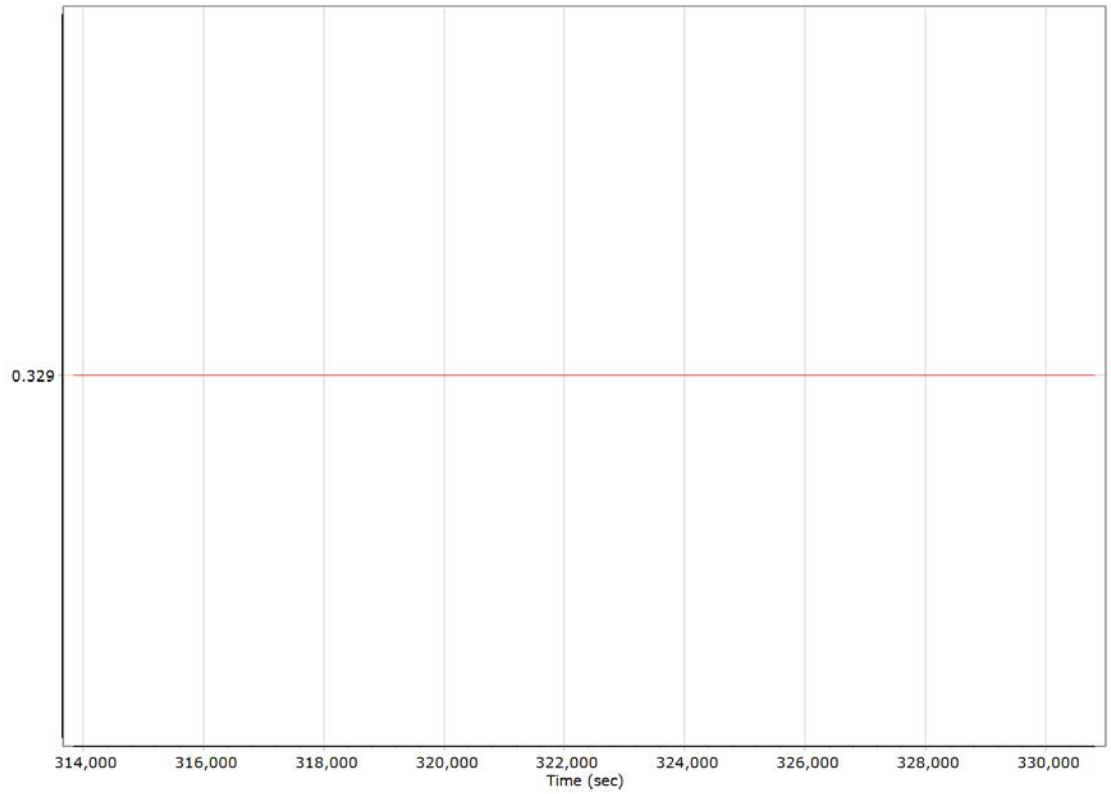
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	313538.016 (7/26/2023 3:05:38 PM)		
Processing end time	330831.000 (7/26/2023 7:53:51 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

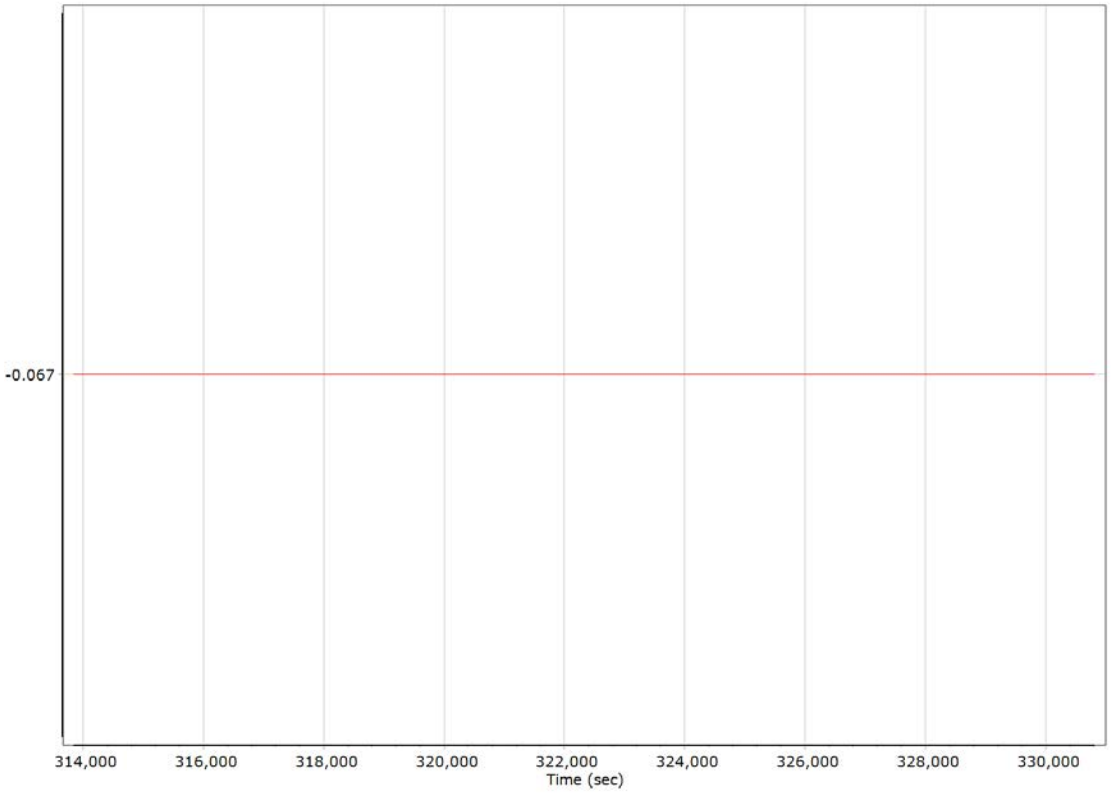
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

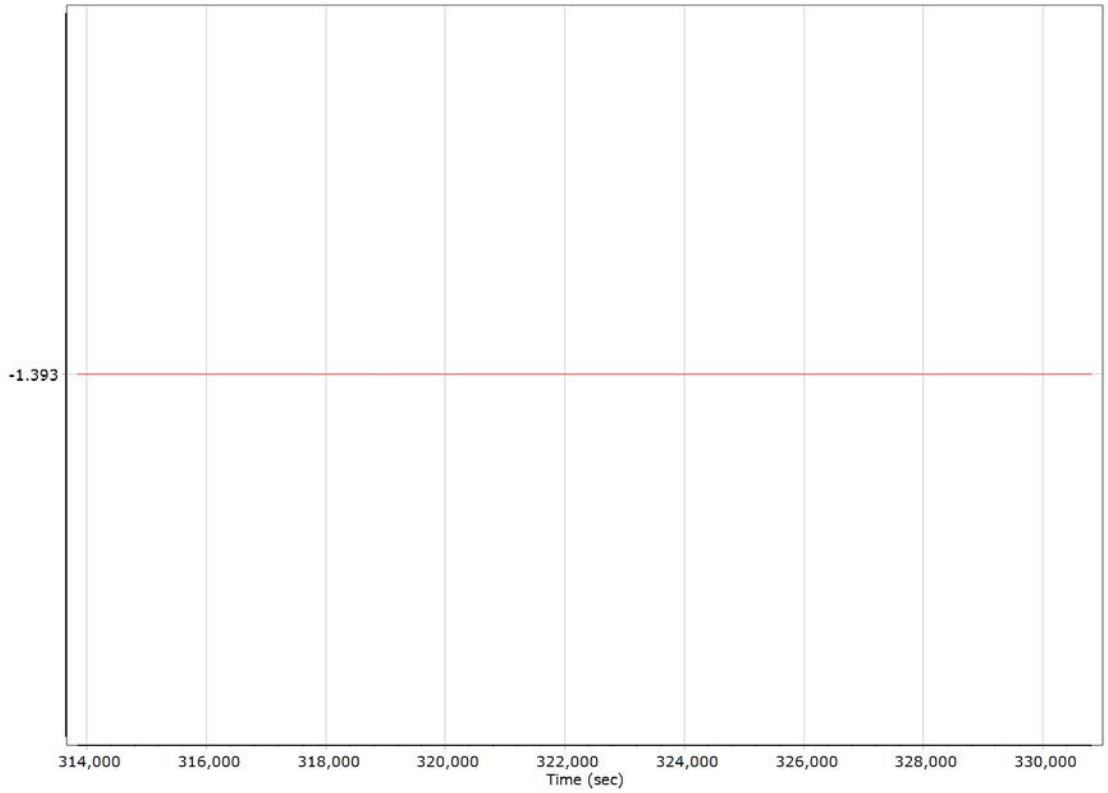
X Reference-Primary GNSS Lever Arm (m)



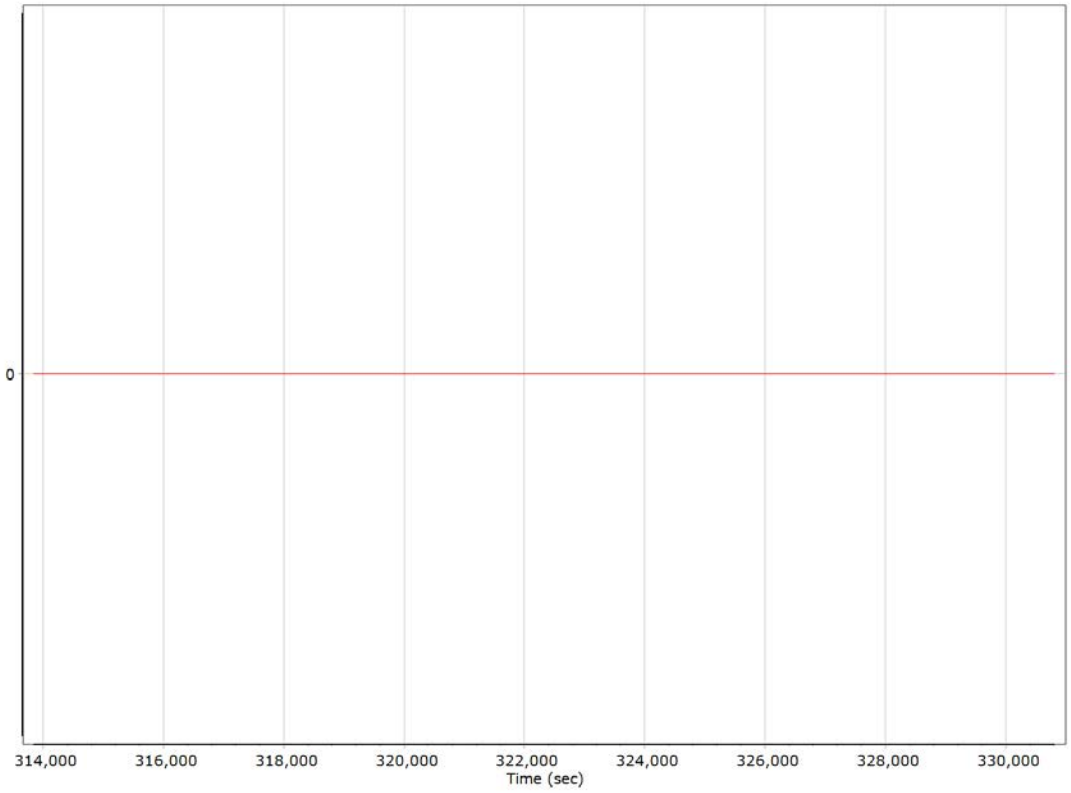
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



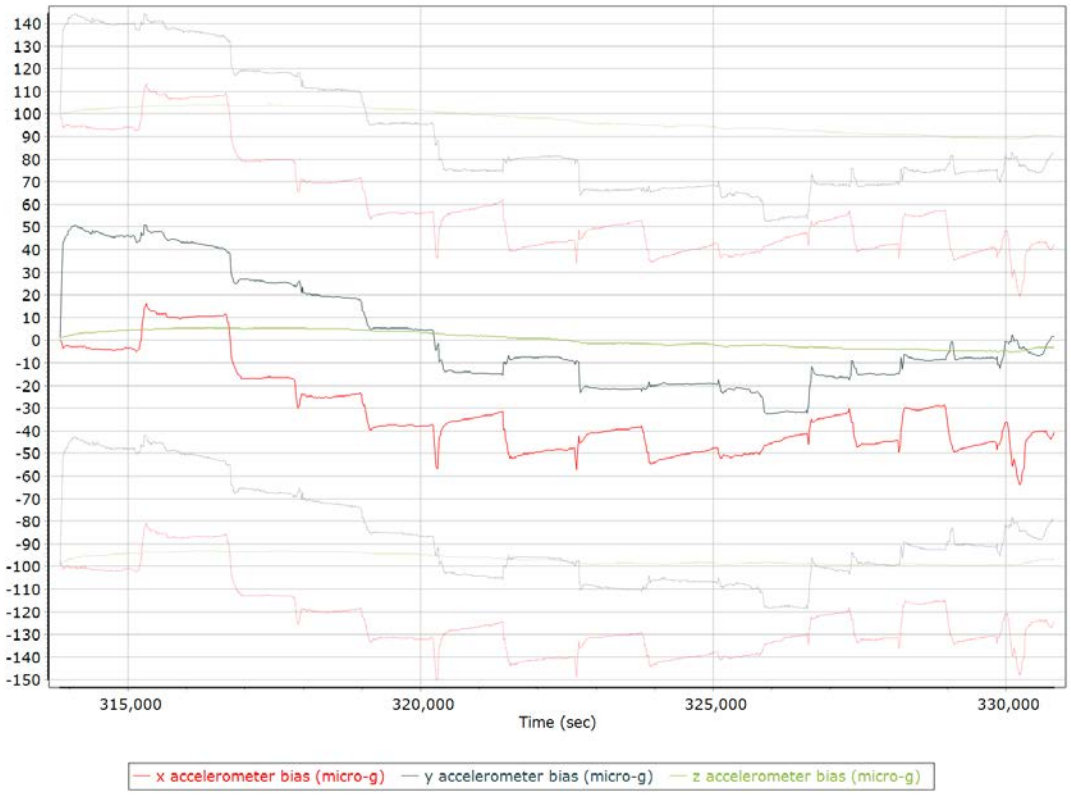
Reference-Primary GNSS Lever Arm Figure of Merit



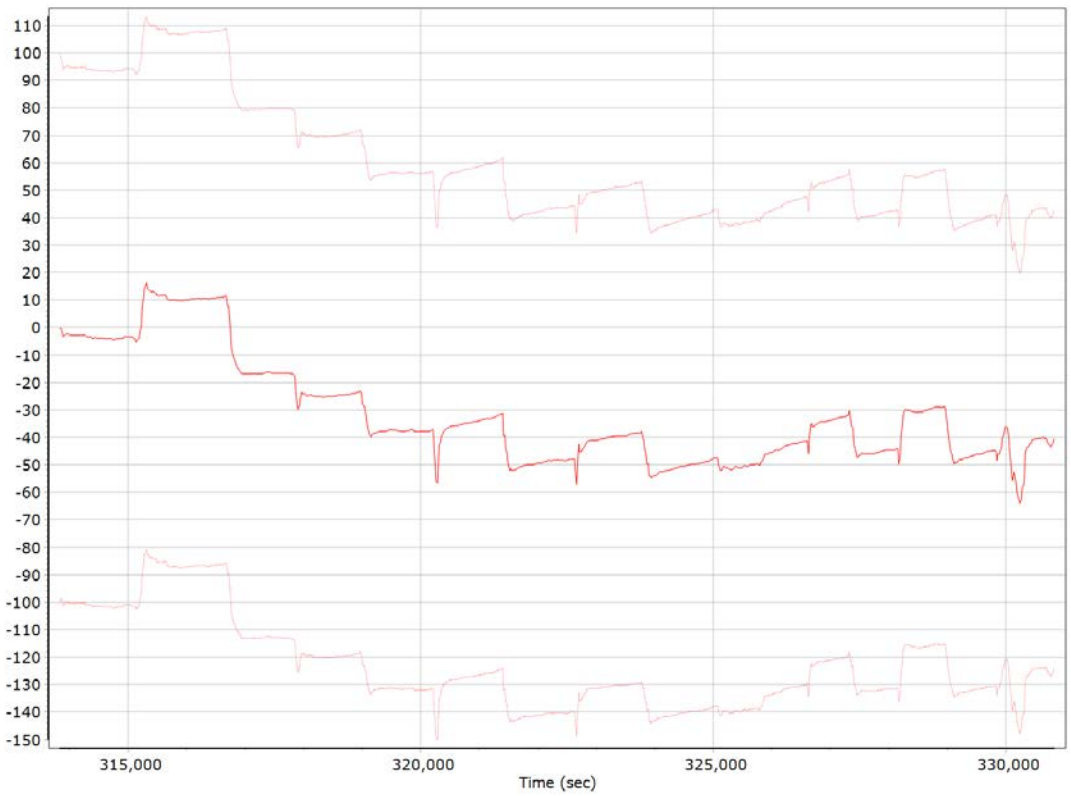
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

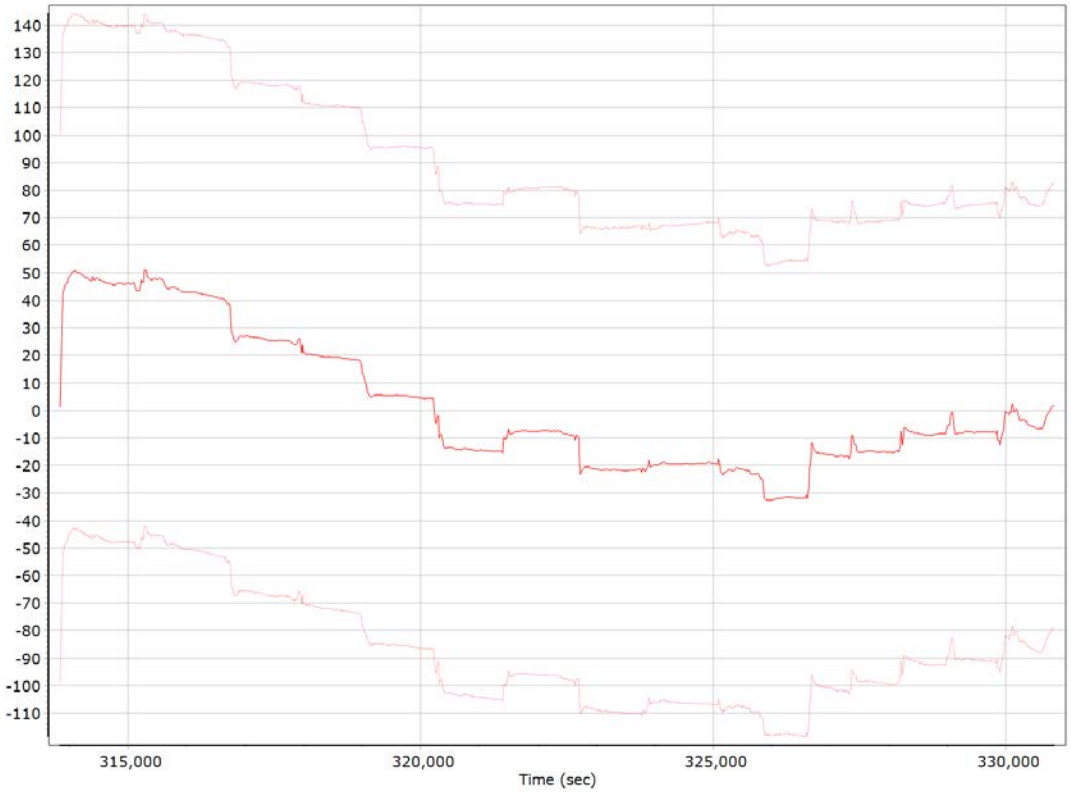
Accelerometer Bias (micro-g)



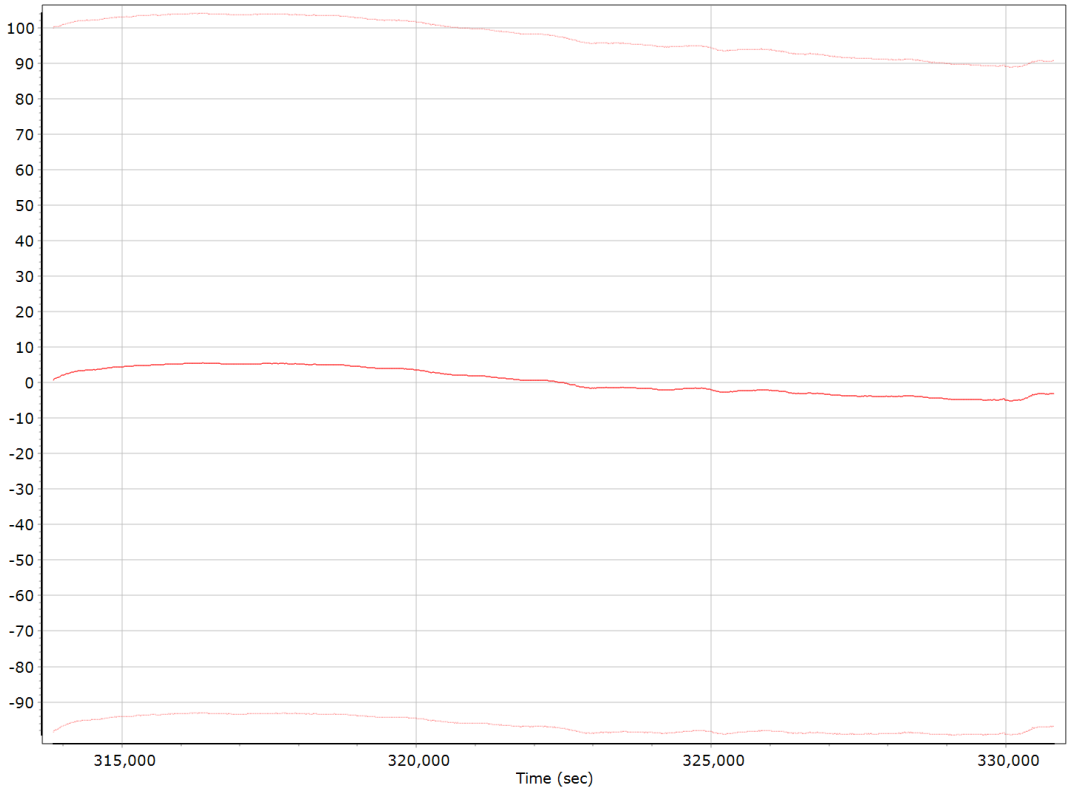
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



Z Accelerometer Bias (micro-g)



Accelerometer Scale Error (ppm)



X Accelerometer Scale Error (ppm)



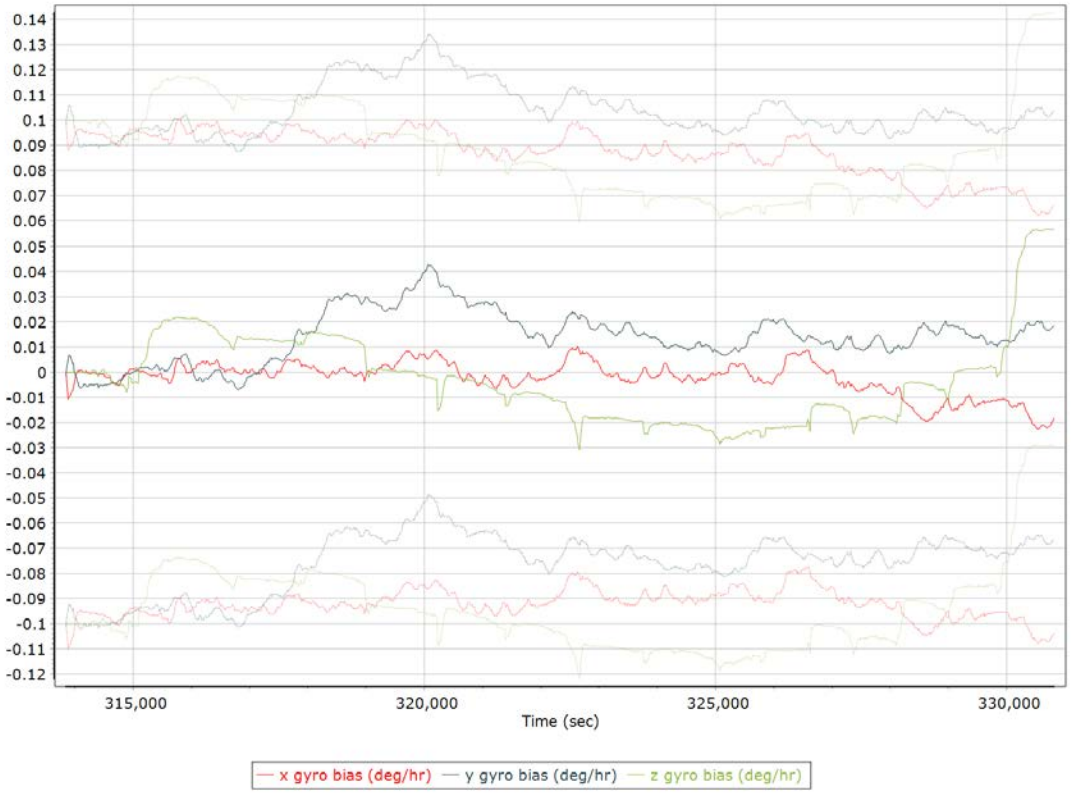
Y Accelerometer Scale Error (ppm)



Z Accelerometer Scale Error (ppm)



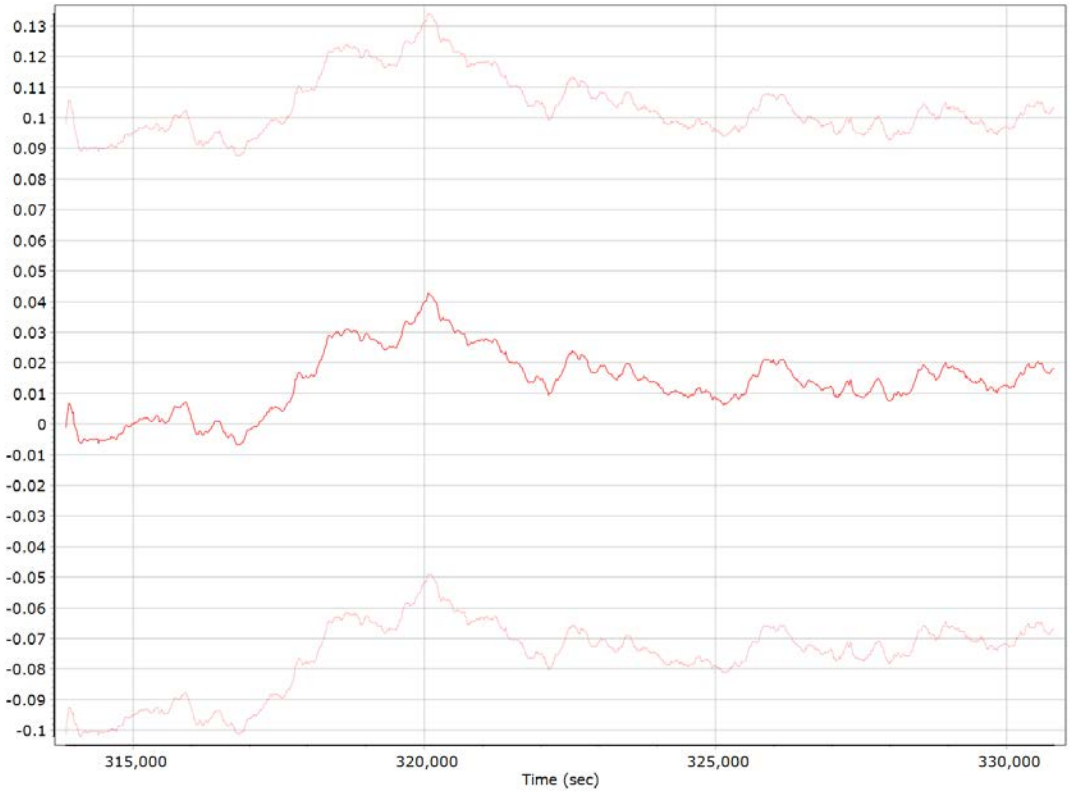
Gyro Bias (deg/h)



X Gyro Bias (deg/h)



Y Gyro Bias (deg/h)



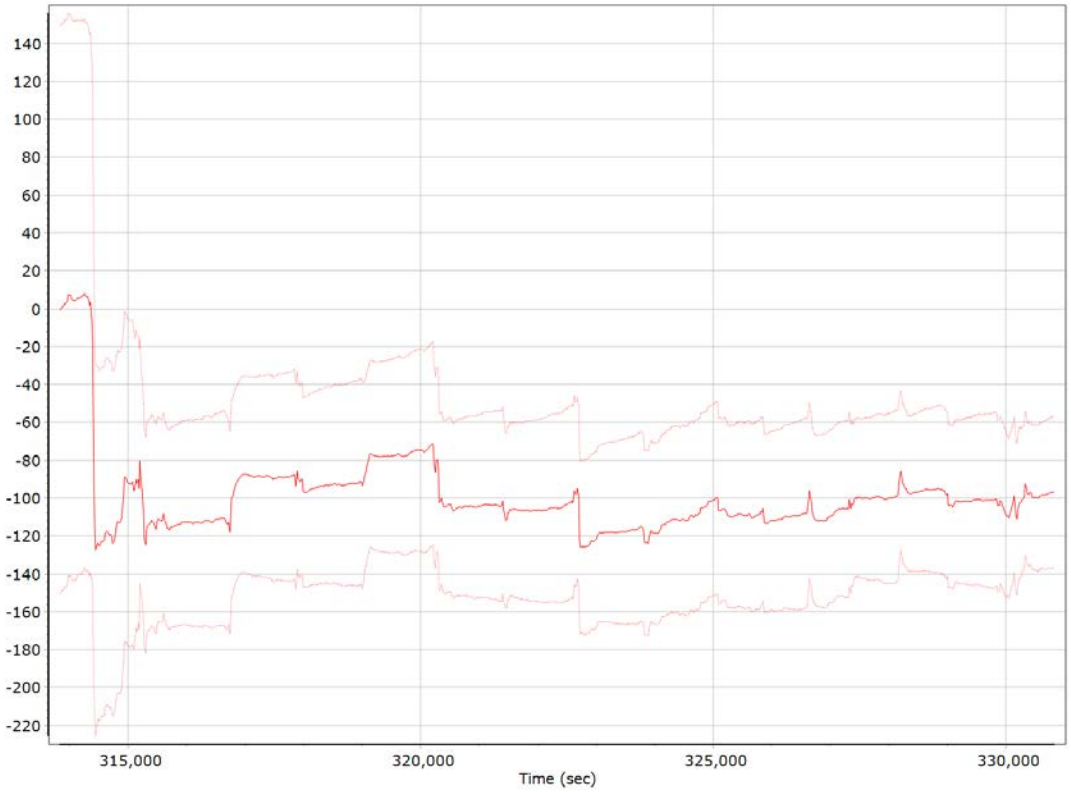
Z Gyro Bias (deg/h)



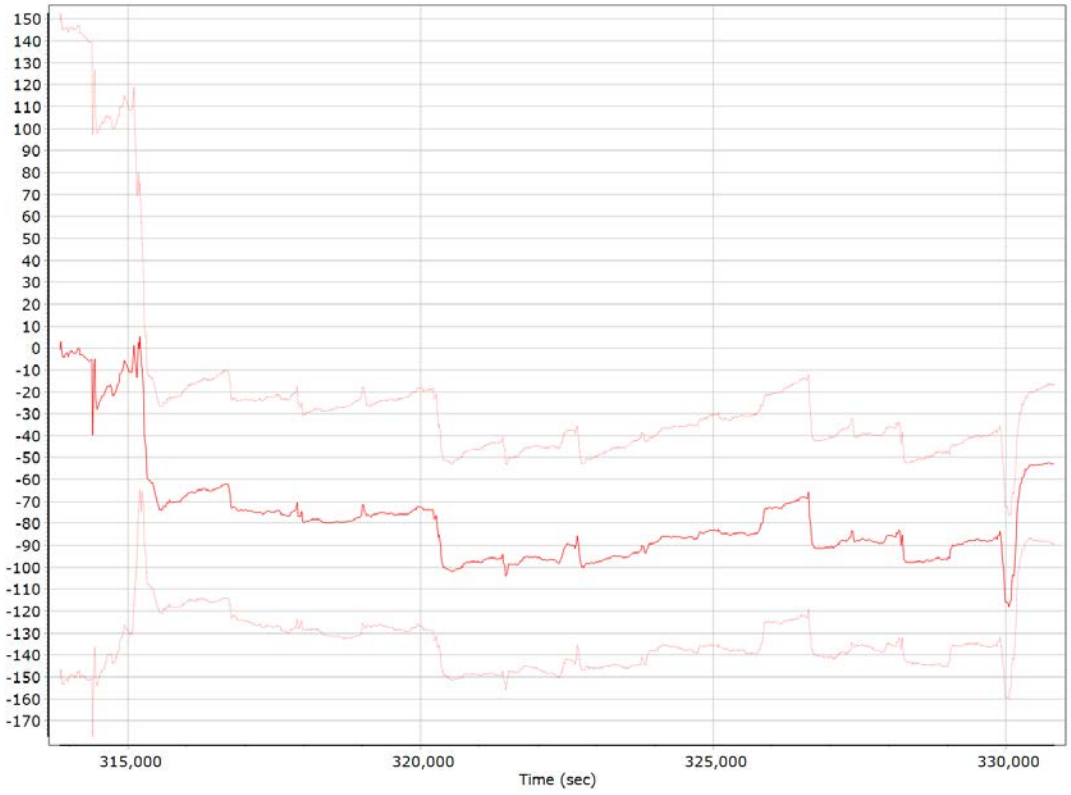
Gyro Scale Error (ppm)



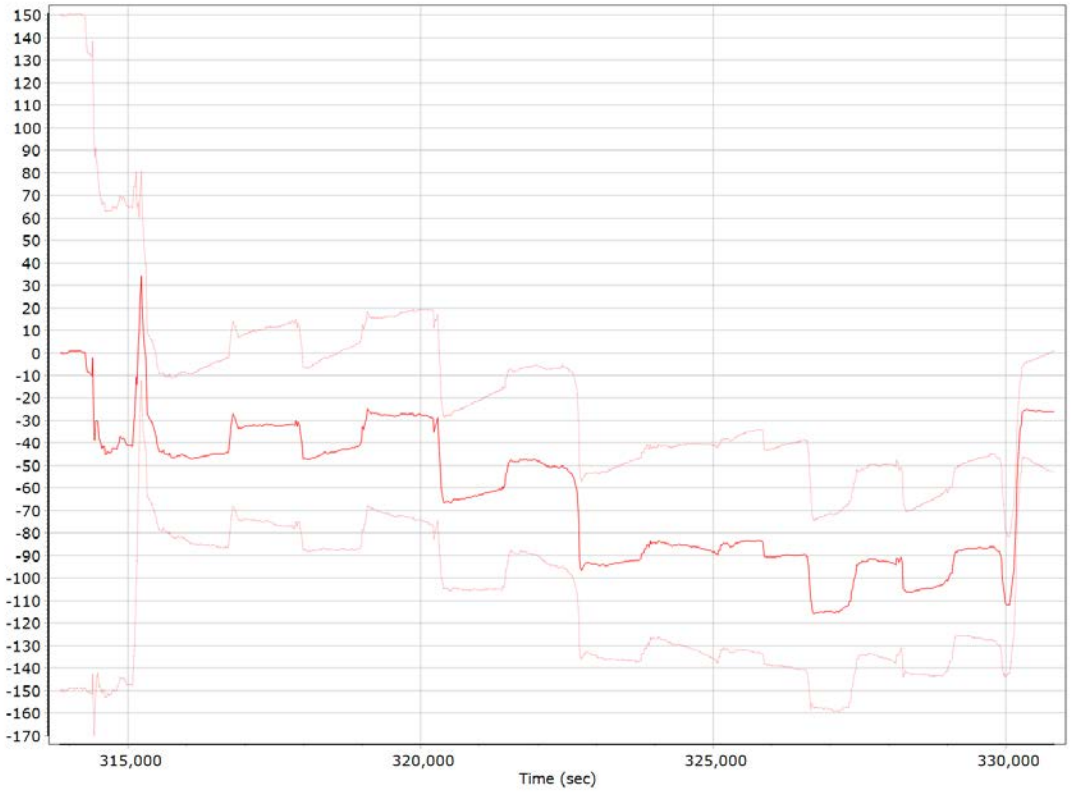
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)



Z Gyro Scale Error (ppm)



Smoothed Performance Metrics

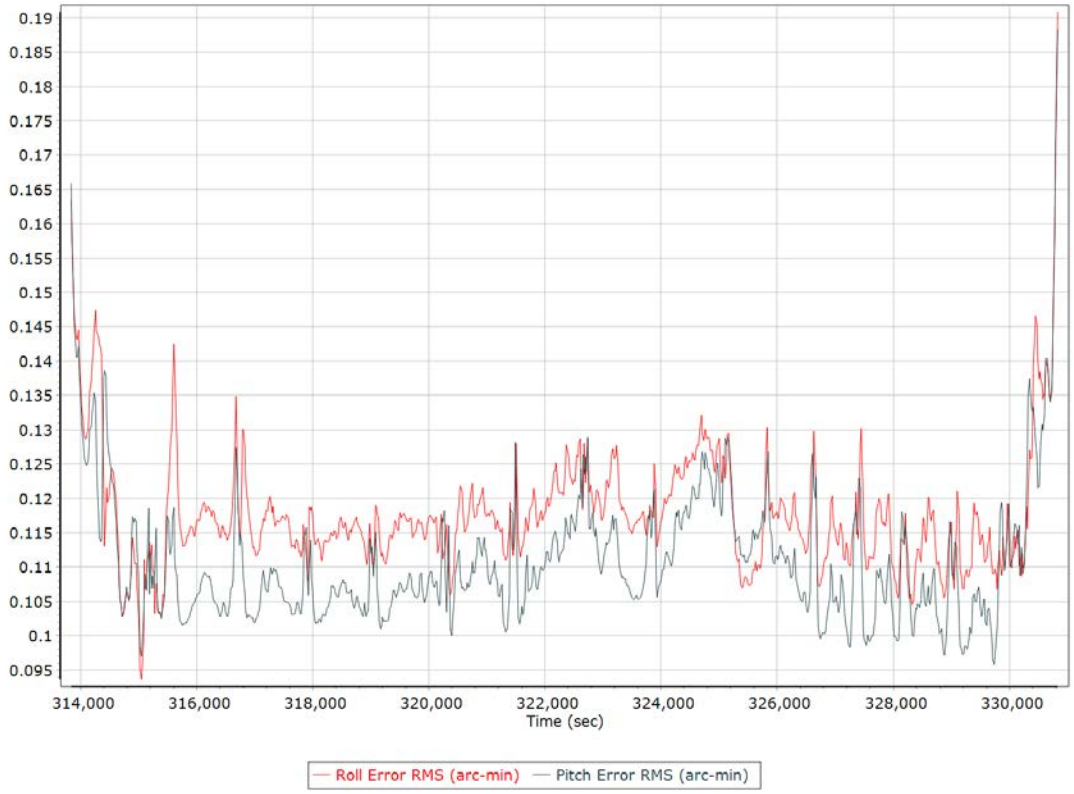
Position Error RMS (m)



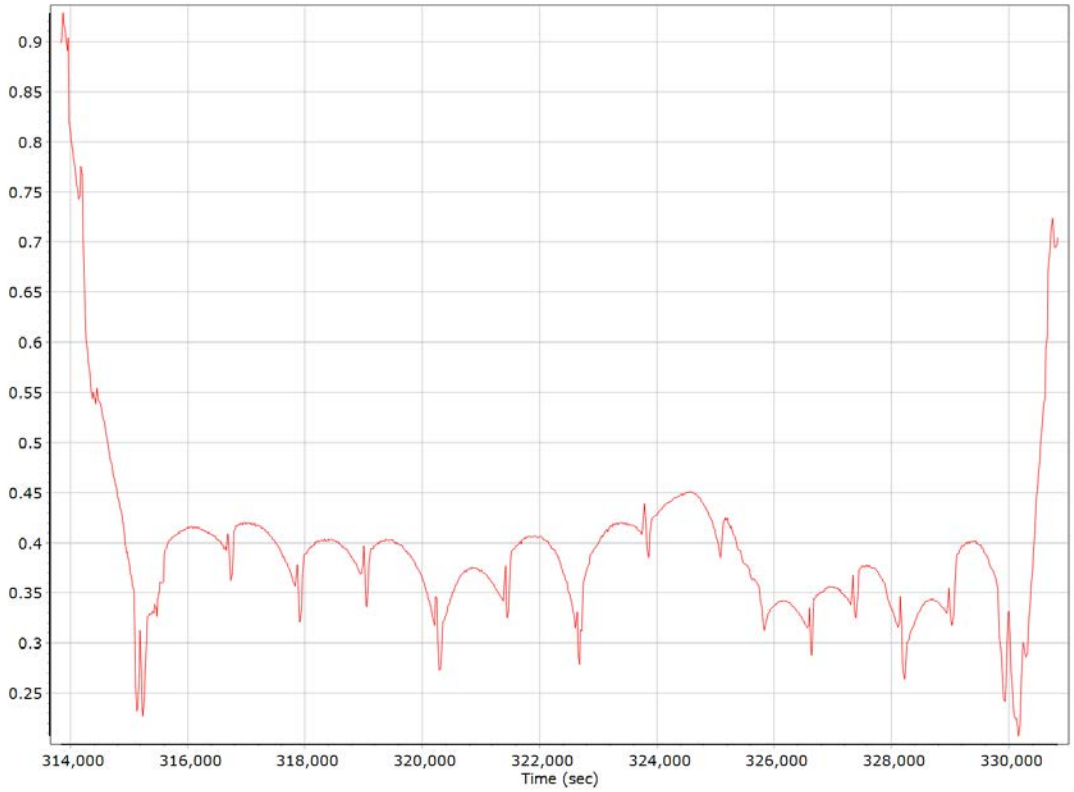
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

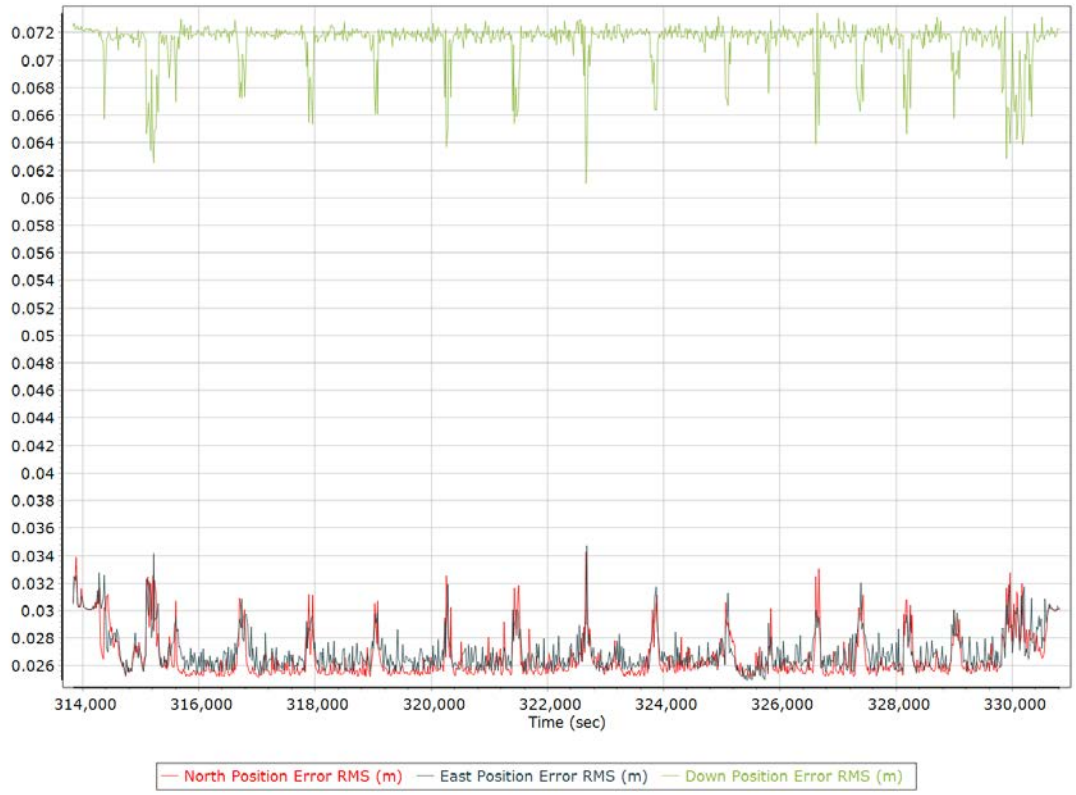


Heading Error RMS (arc-min)



Forward Processed Performance Metrics

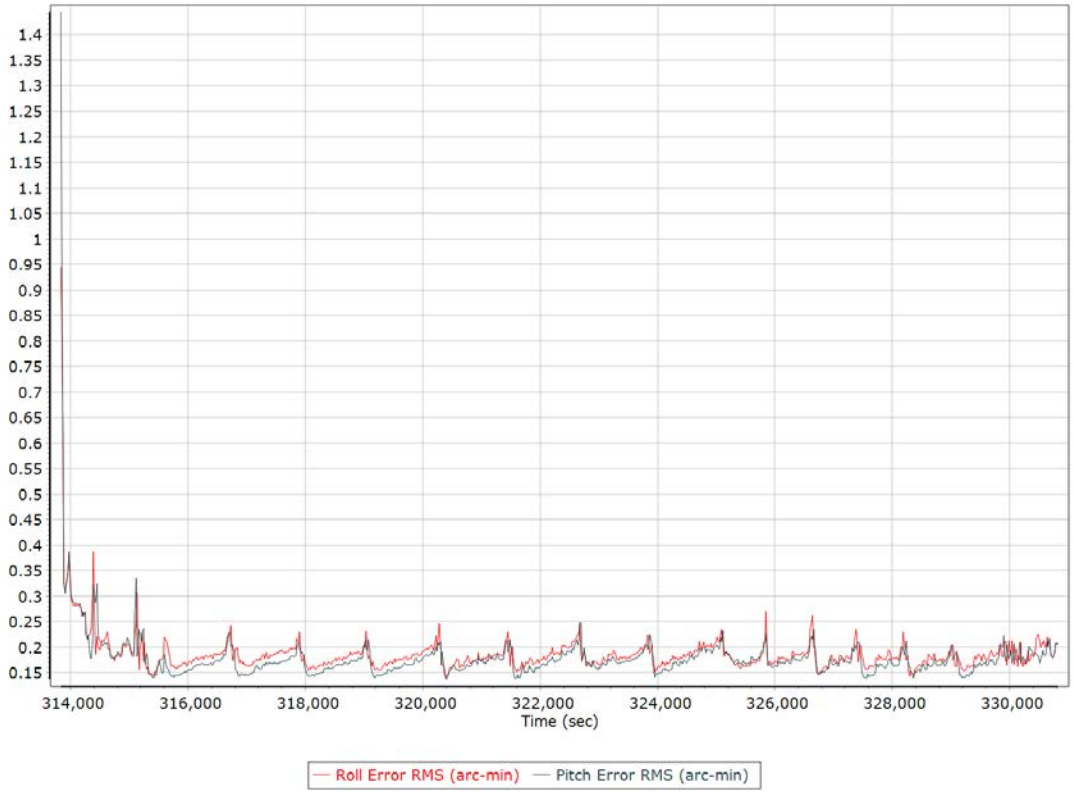
Position Error RMS (m)



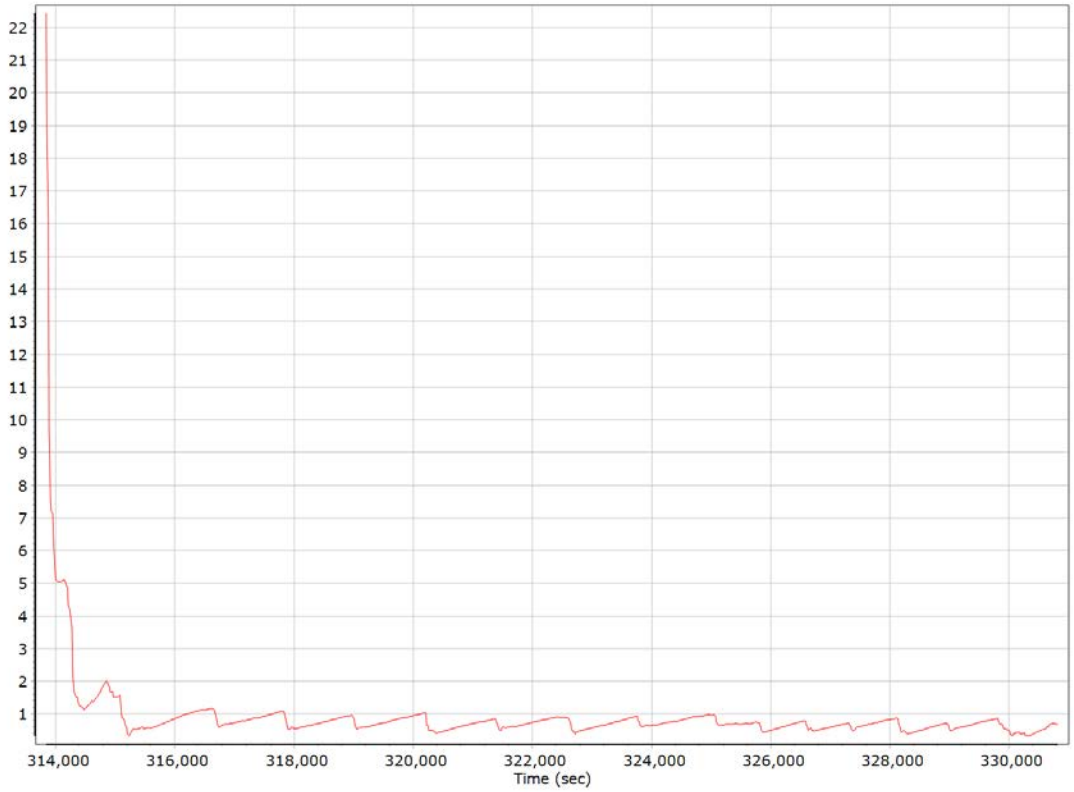
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

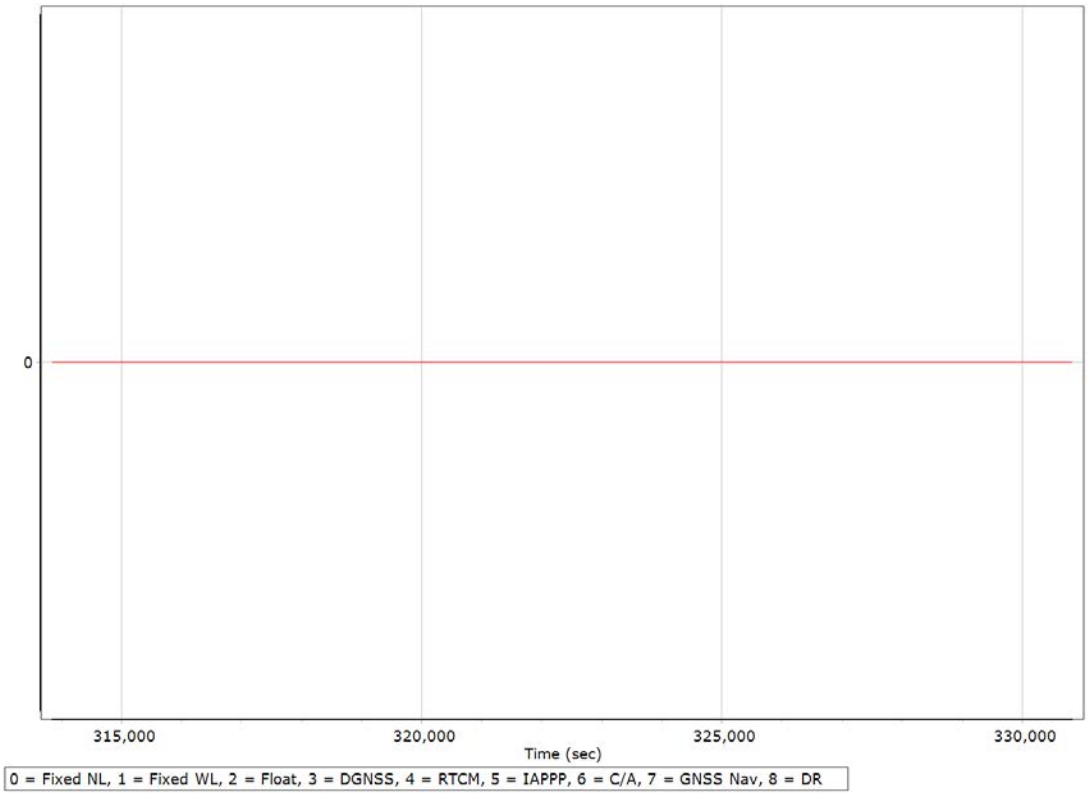


Heading Error RMS (arc-min)

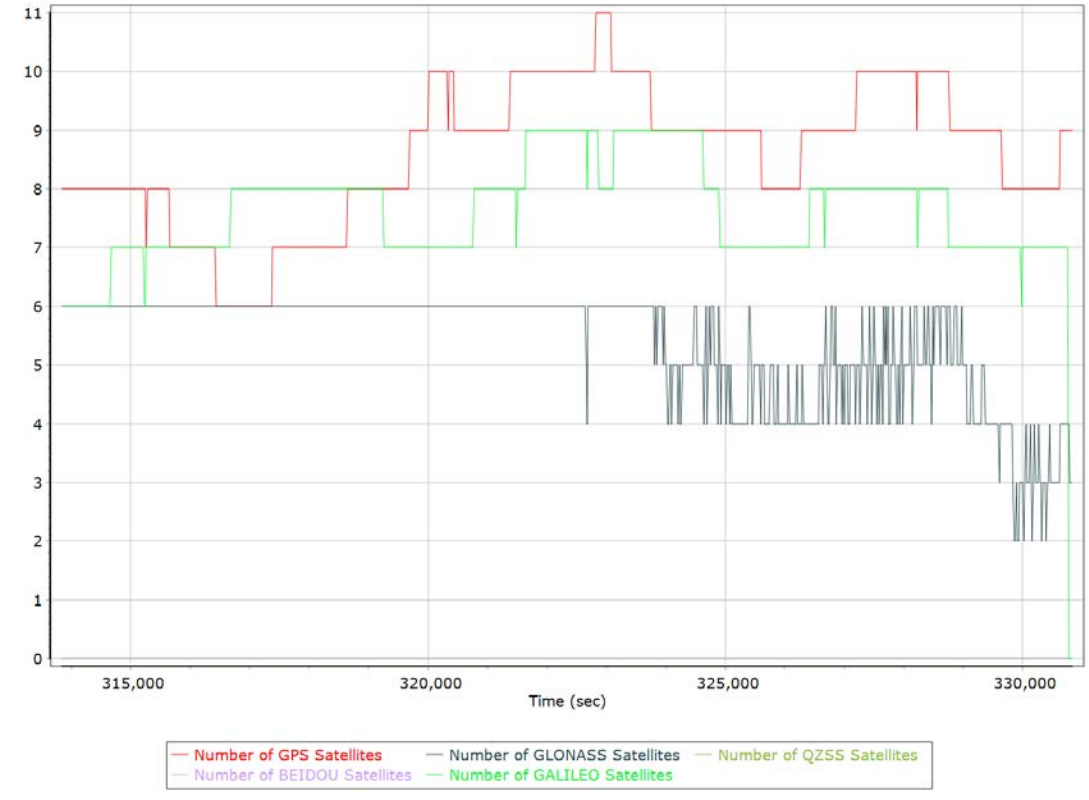


Forward Processed Solution Status

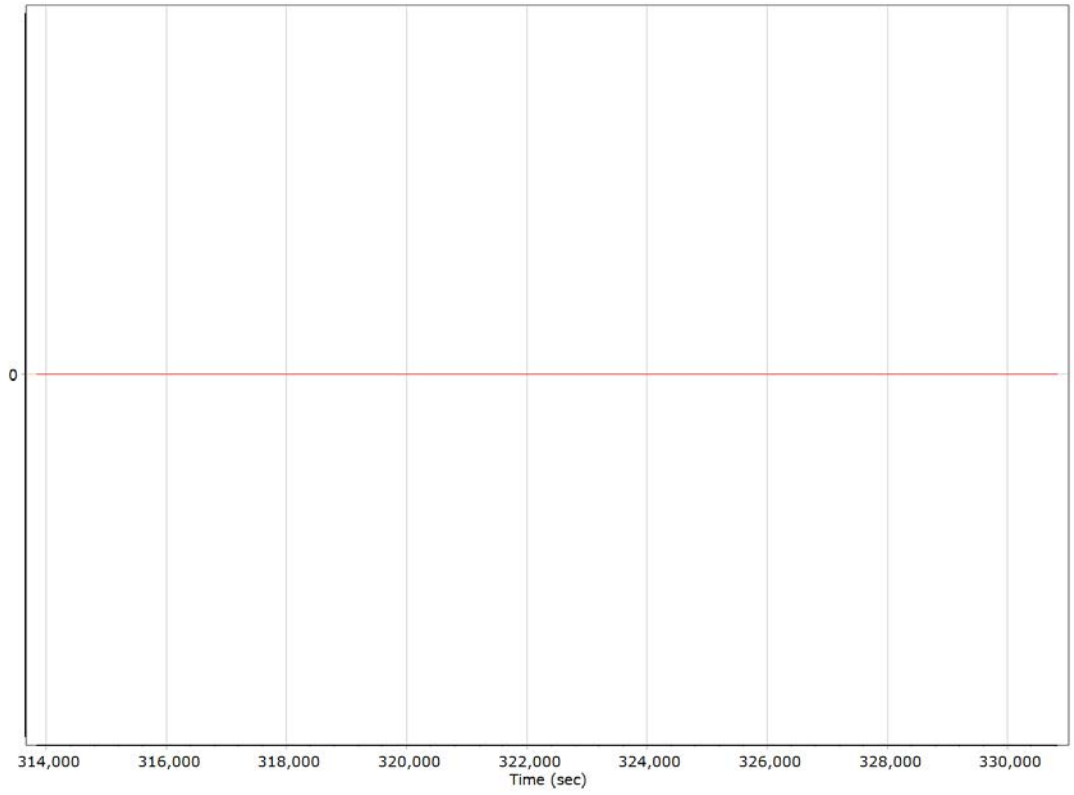
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07272023A_4051
Processing date	2023-08-01 15:41:14
Mission date	2023-07-27 15:48:33
Mission duration	04:30:47.884
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.043	POS Data
CP780.044	POS Data
CP780.045	POS Data
CP780.046	POS Data
CP780.047	POS Data
CP780.048	POS Data
CP780.049	POS Data
CP780.050	POS Data
CP780.051	POS Data
CP780.052	POS Data
CP780.053	POS Data
CP780.054	POS Data
CP780.055	POS Data
CP780.056	POS Data
CP780.057	POS Data
CP780.058	POS Data
CP780.059	POS Data
CP780.060	POS Data
CP780.061	POS Data
CP780.062	POS Data
CP780.063	POS Data
CP780.064	POS Data
CP780.065	POS Data
CP780.066	POS Data
CP780.067	POS Data
CP780.068	POS Data
CP780.069	POS Data
CP780.070	POS Data
CP780.071	POS Data
CP780.072	POS Data
CP780.073	POS Data
CP780.074	POS Data
CP780.075	POS Data
CP780.076	POS Data
CP780.077	POS Data
CP780.078	POS Data
CP780.079	POS Data
CP780.080	POS Data

Input Files

File Name	File Type
Ephm2080.23g	GLONASS Broadcast Ephemeris
Ephm2080.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07272023A_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.043		
Last raw data file	CP780.080		
Start GPS week	2272		
Start time	402495.033 (7/27/2023 3:48:15 PM)		
End time	418742.917 (7/27/2023 8:19:02 PM)		
Start of fine alignment	402518.242 (7/27/2023 3:48:38 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

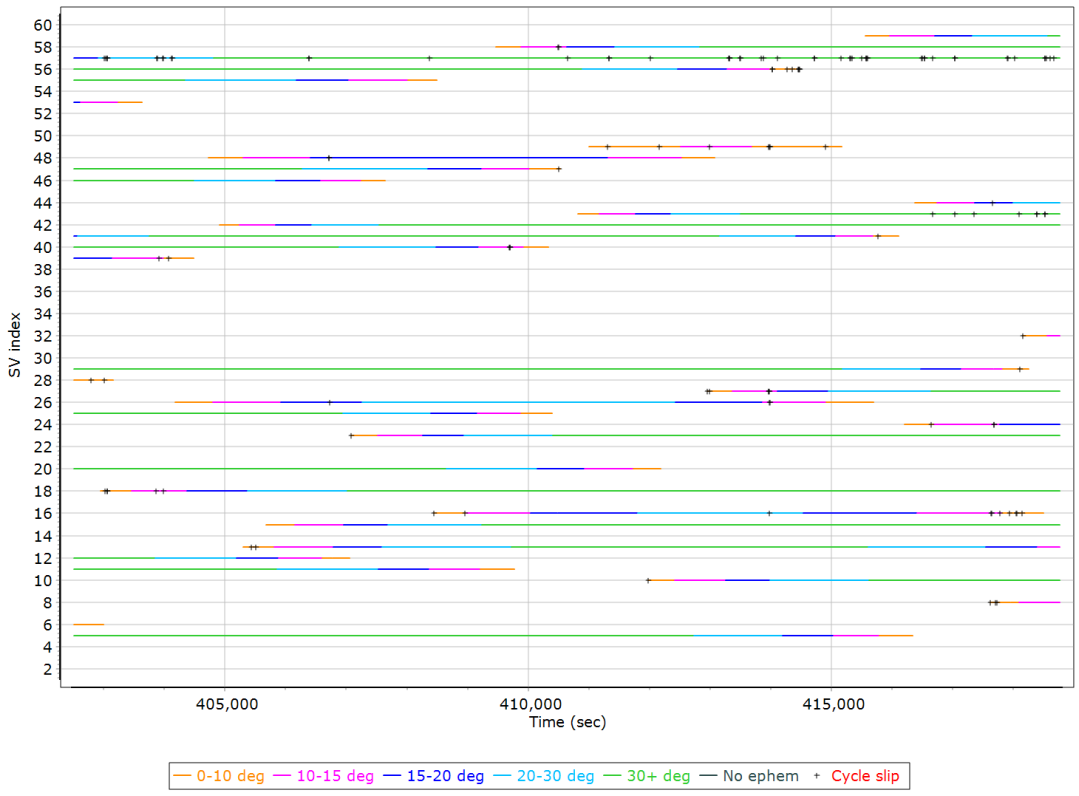
Rover Data QC

Raw IMU Import QC Summary

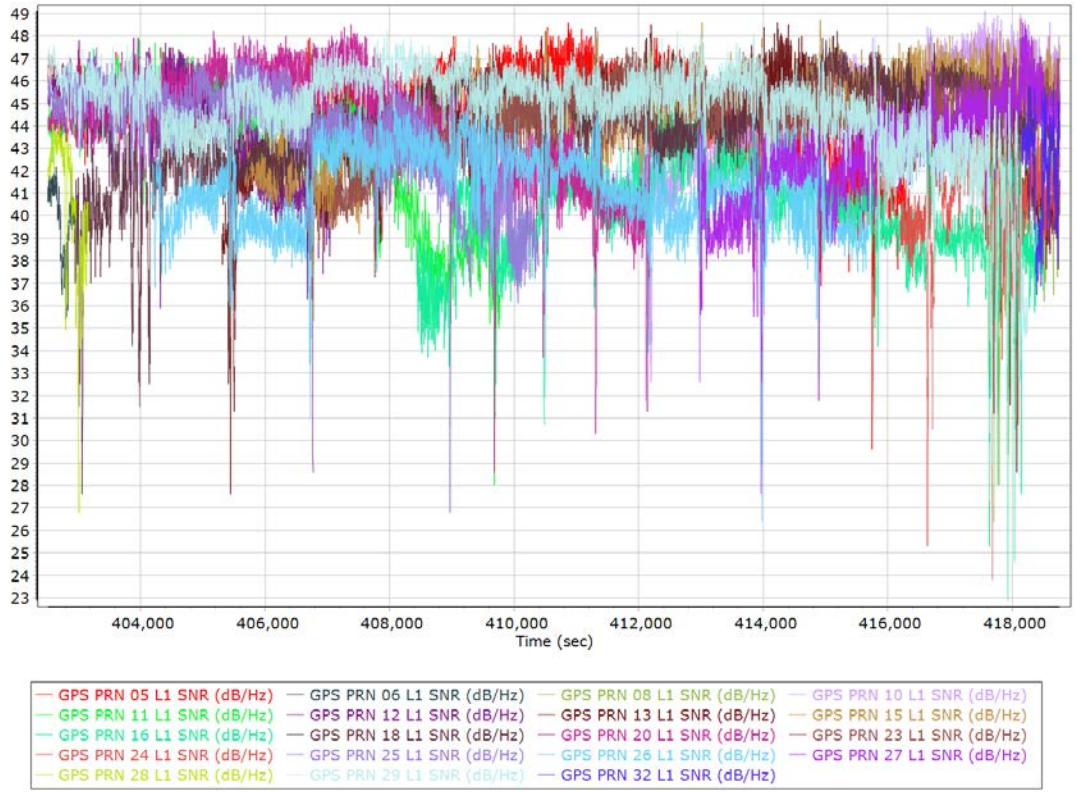
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07272023A_4051.log
IMU Records Processed	3249093
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

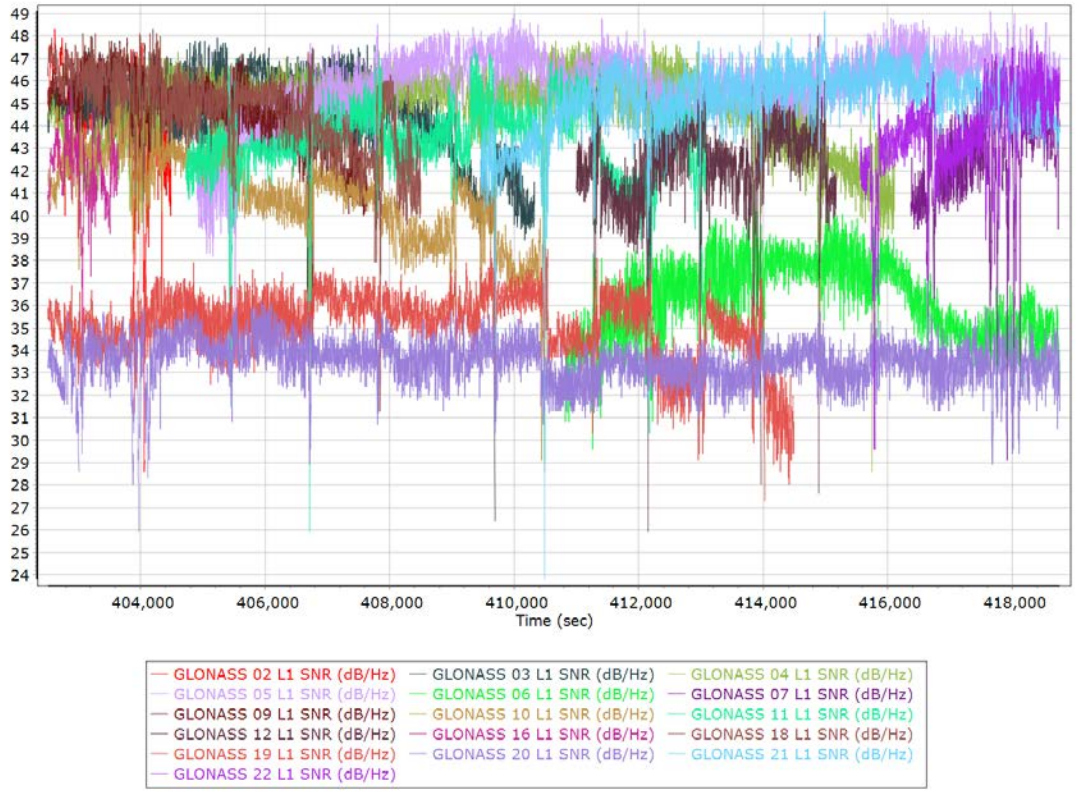
GPS/GLONASS L1 Satellite Lock/Elevation



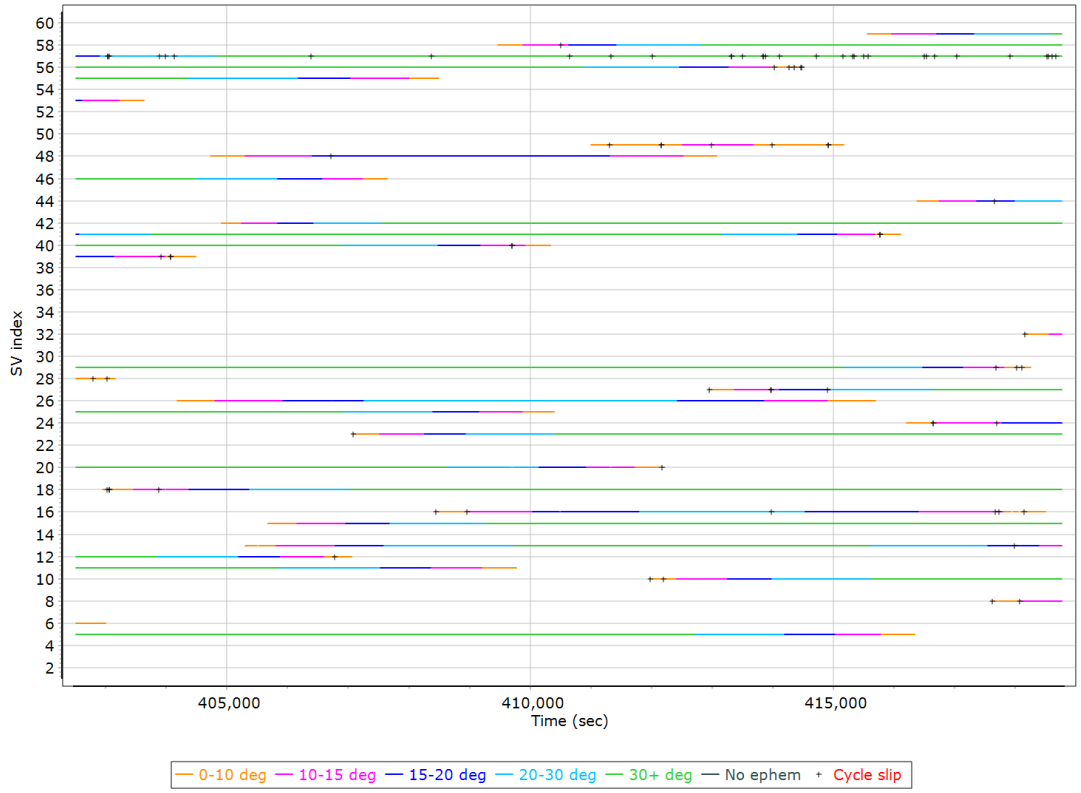
GPS L1 SNR



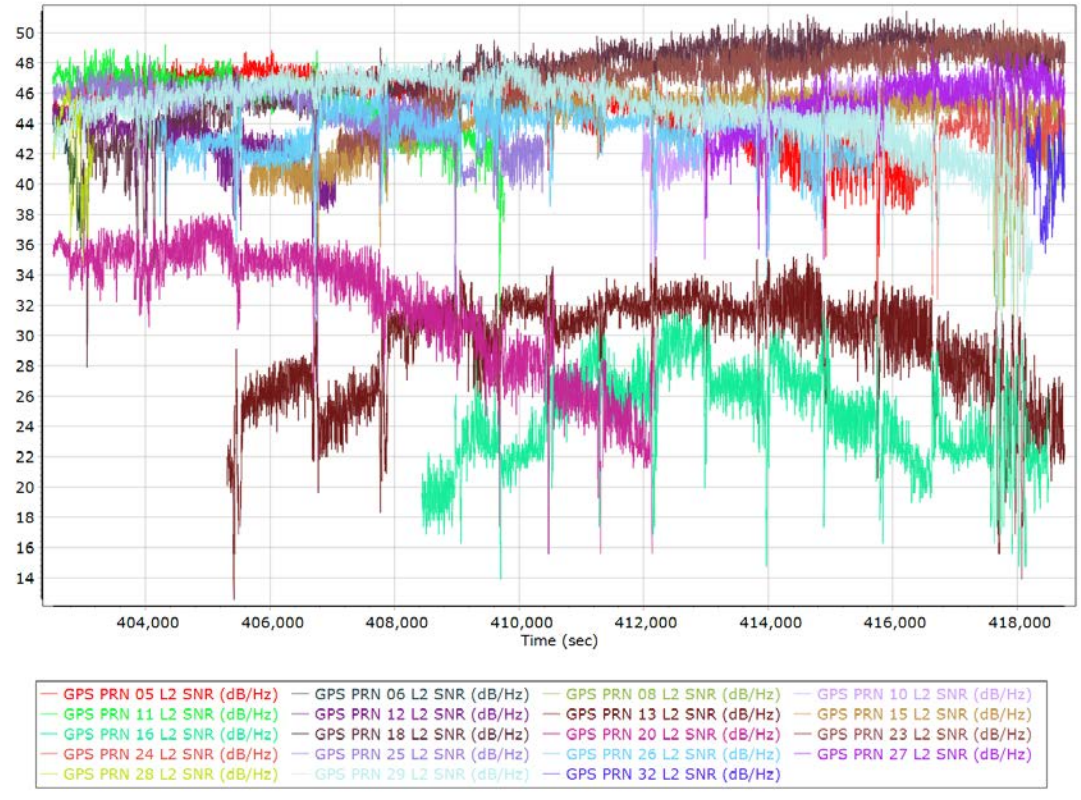
GLONASS L1 SNR



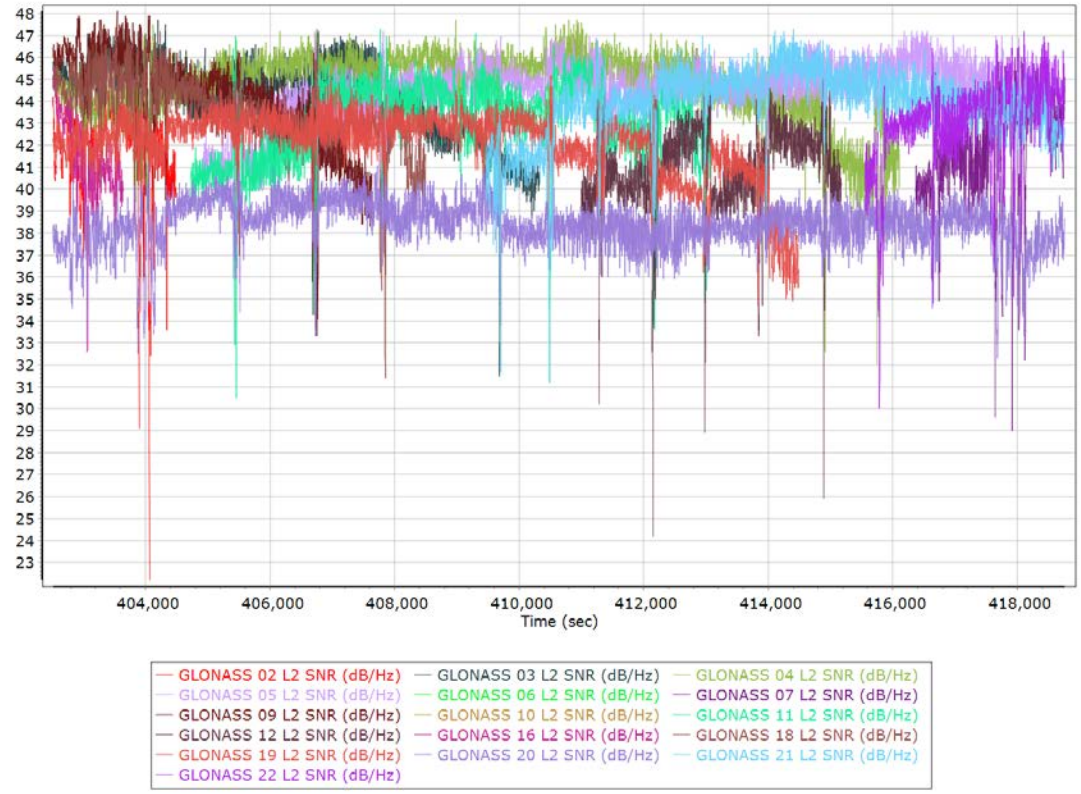
GPS/GLONASS L2 Satellite Lock/Elevation



GPS L2 SNR



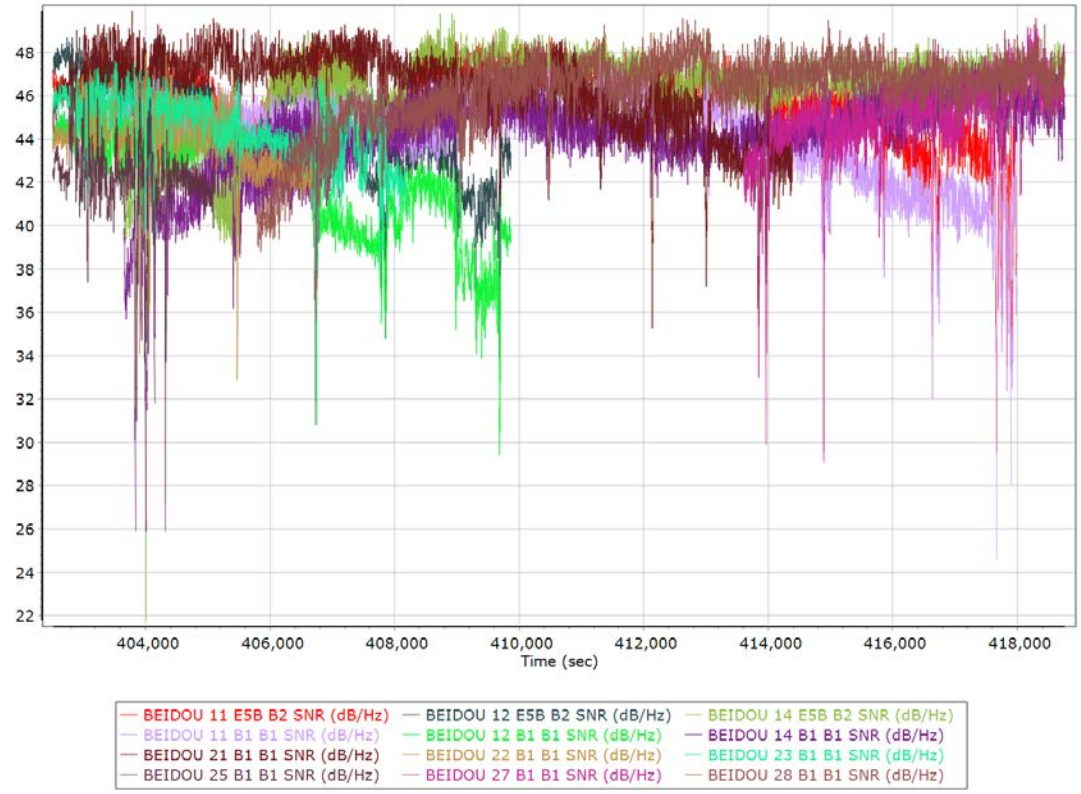
GLONASS L2 SNR



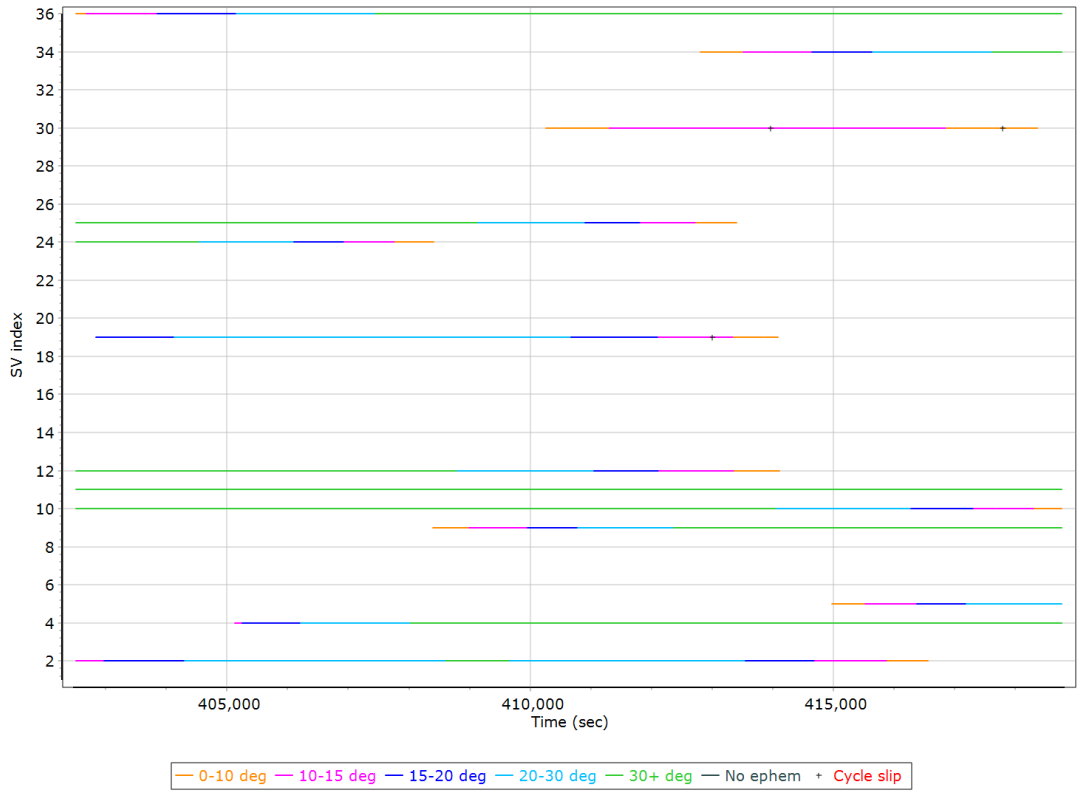
BEIDOU Satellite Lock/Elevation



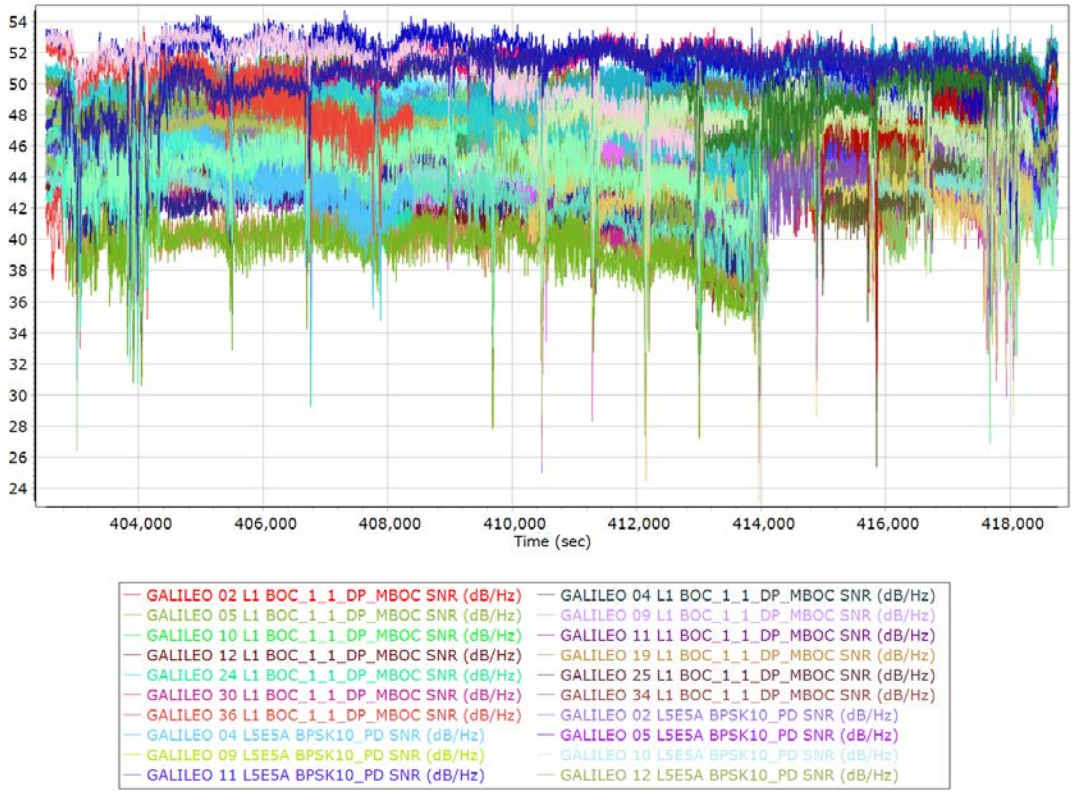
BEIDOU SNR



GALILEO Satellite Lock/Elevation

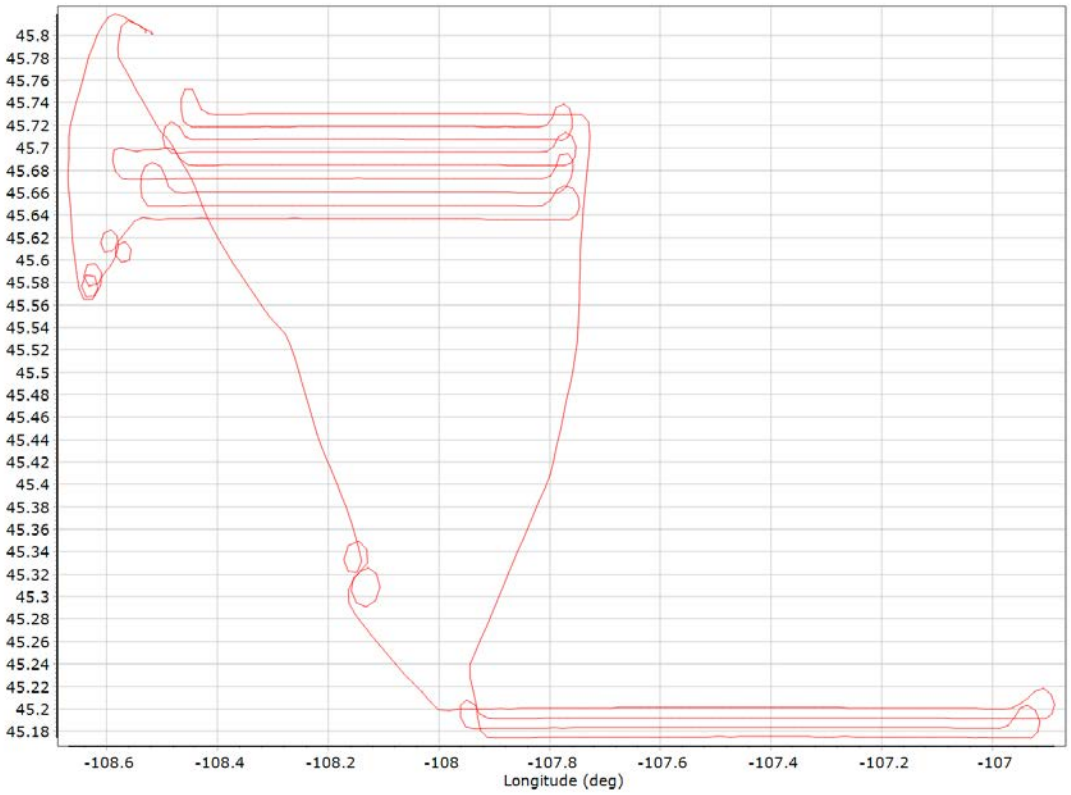


GALILEO SNR

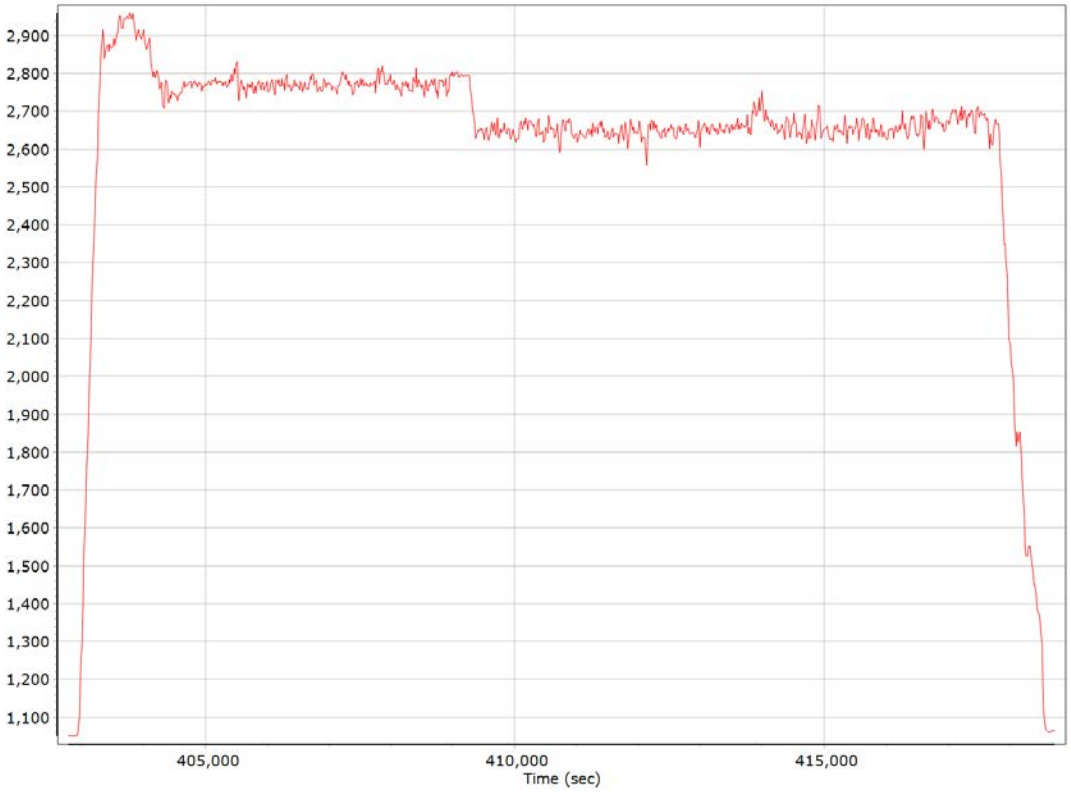

54
52
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44
42
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36
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32
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404,000
406,000
408,000
410,000
412,000
414,000
416,000
418,000
Time (sec)
GALILEO 02 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 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 30 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 34 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 05 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

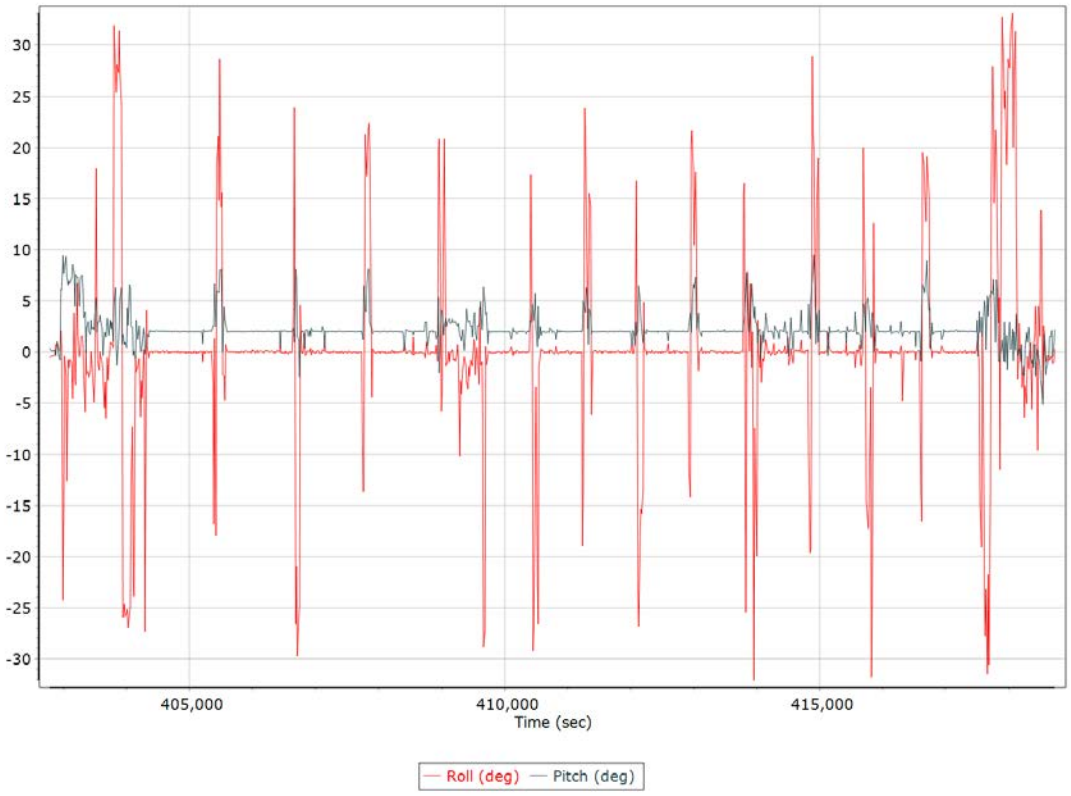
Top View



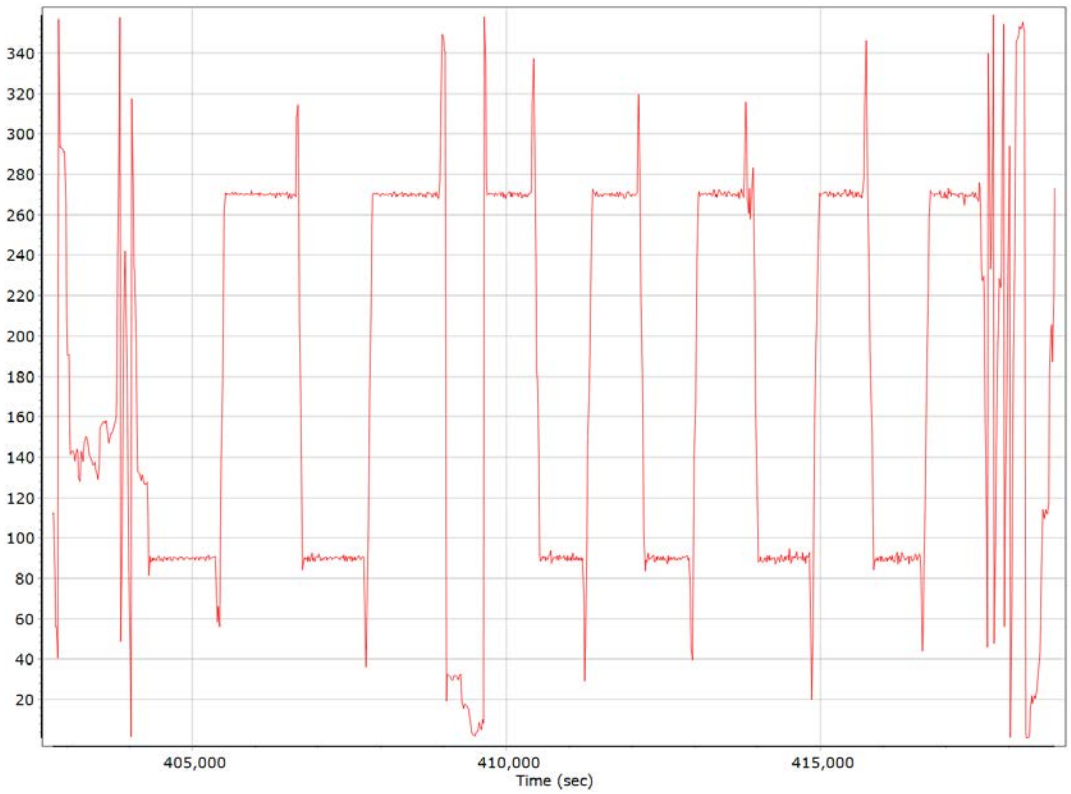
Altitude



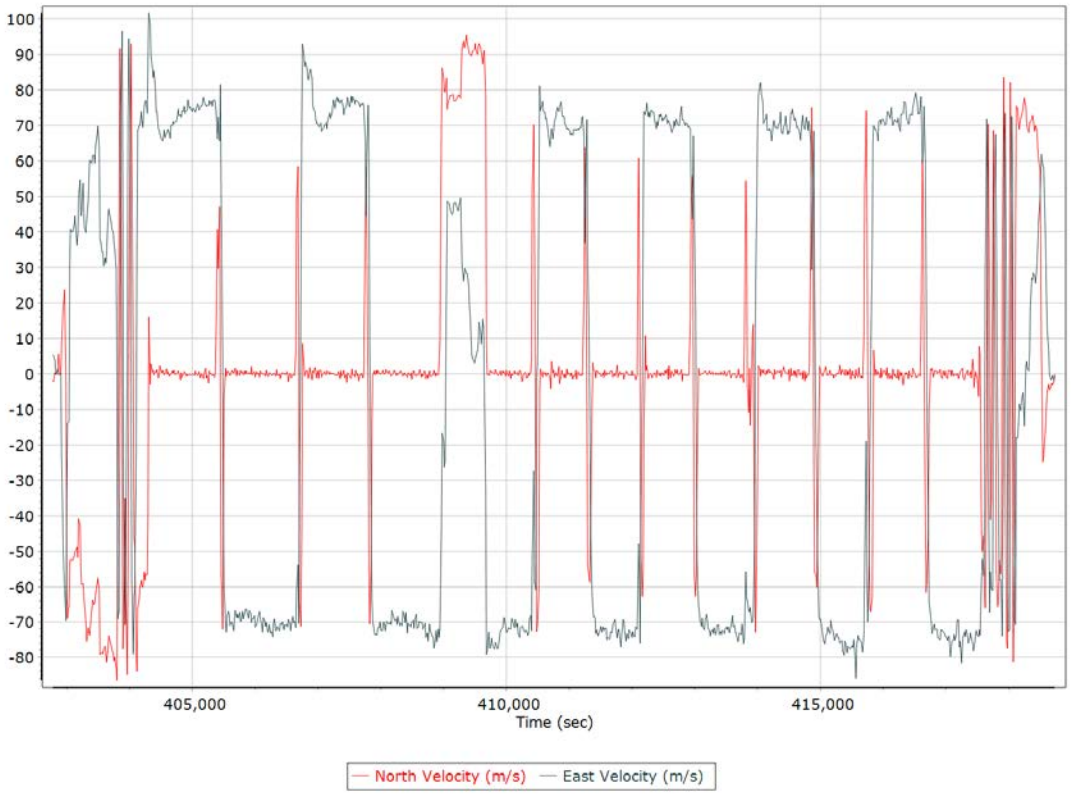
Roll/Pitch



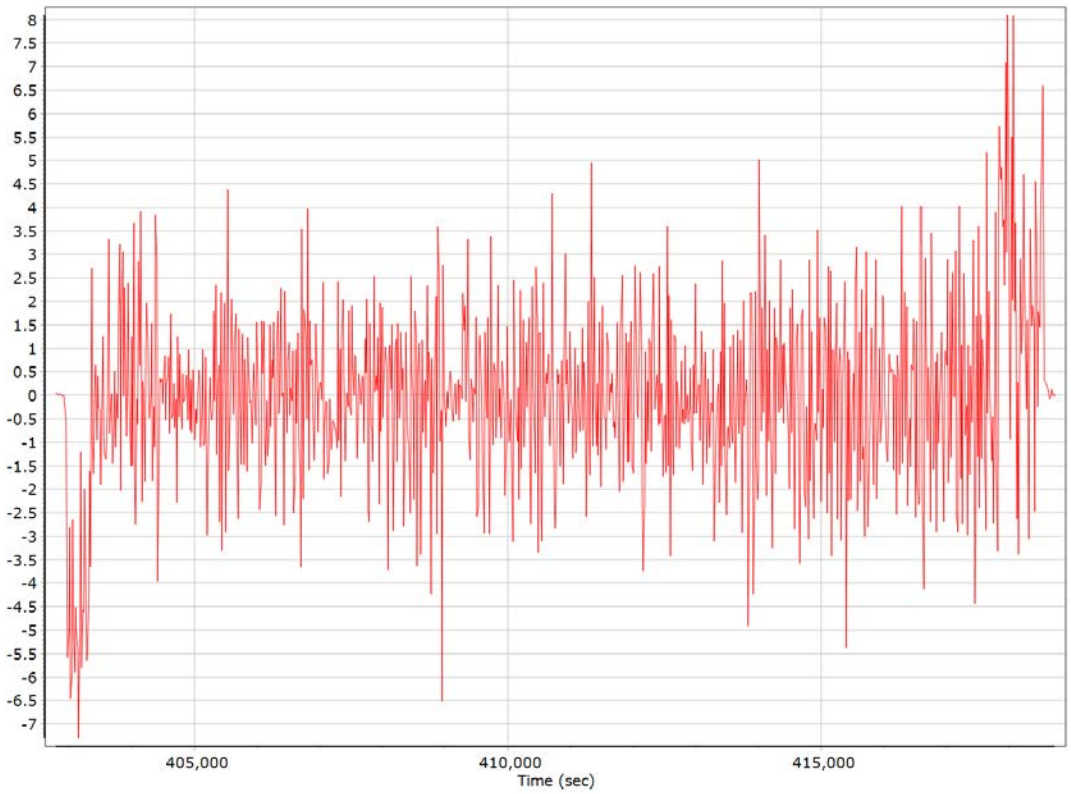
Heading



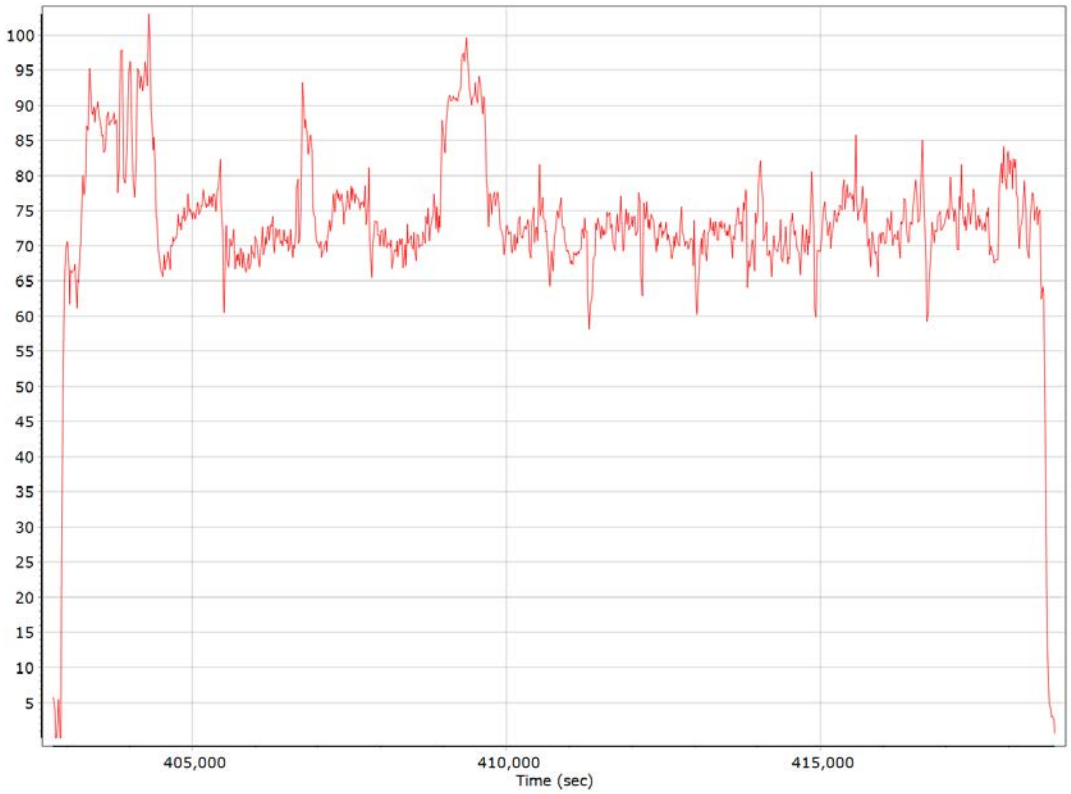
North/East Velocity



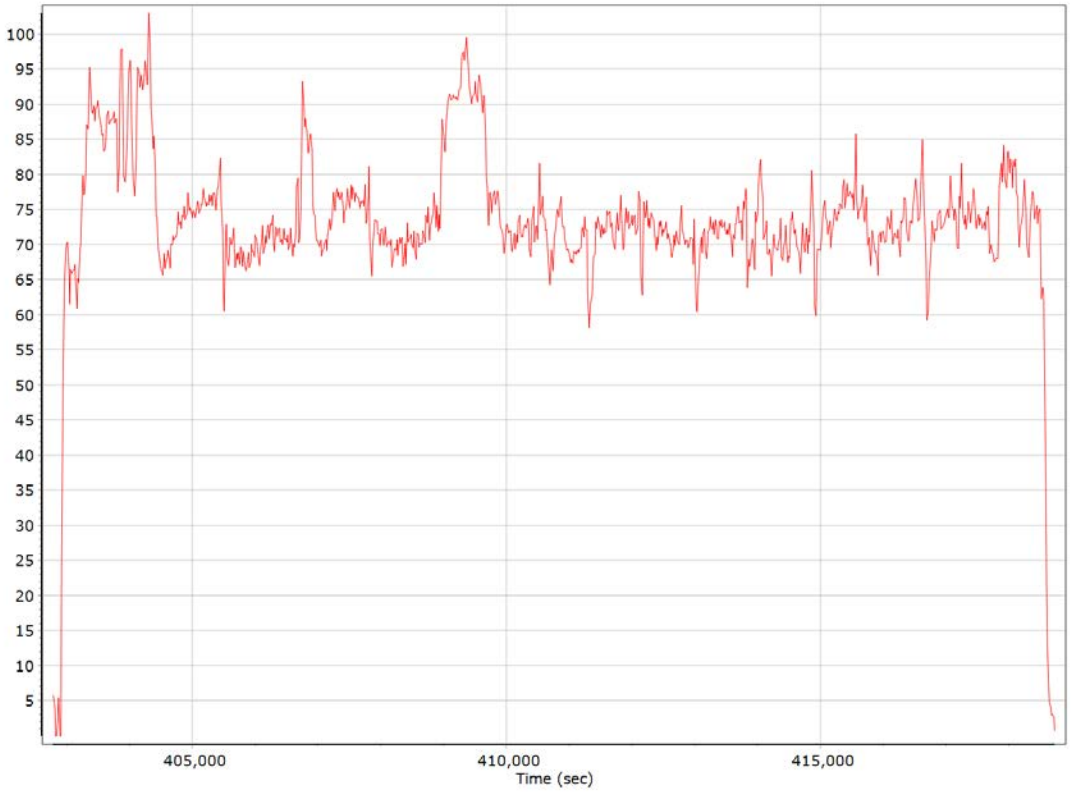
Down Velocity



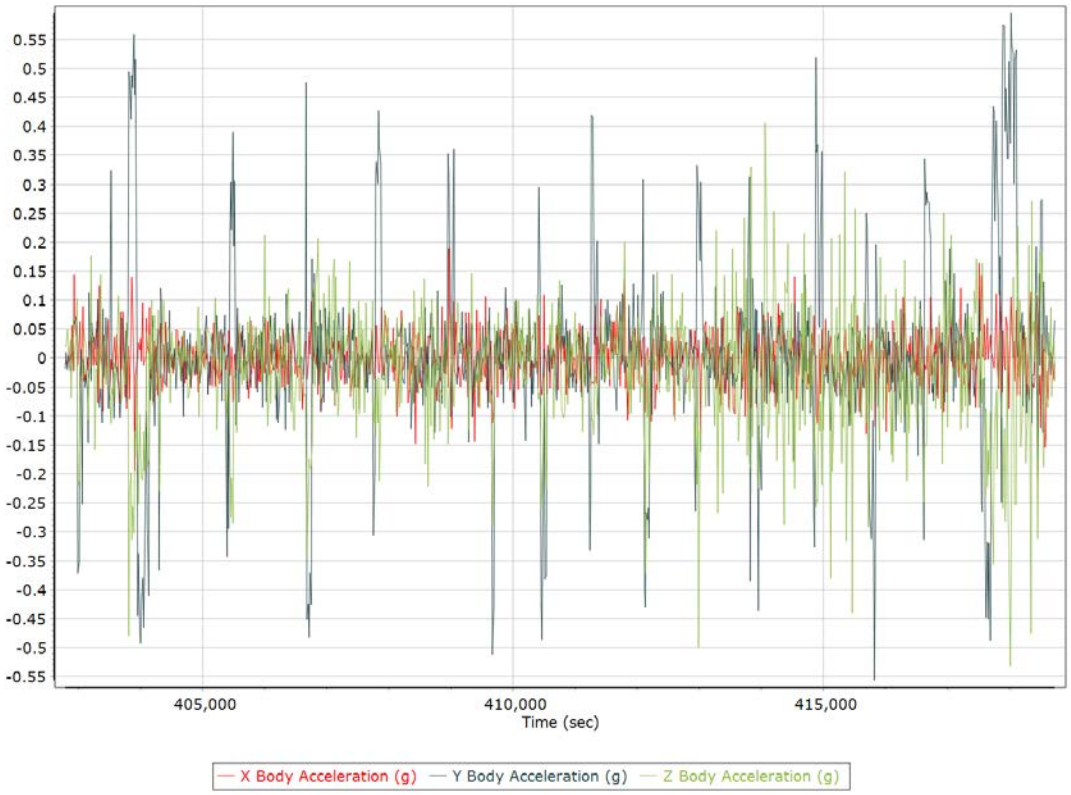
Total Speed



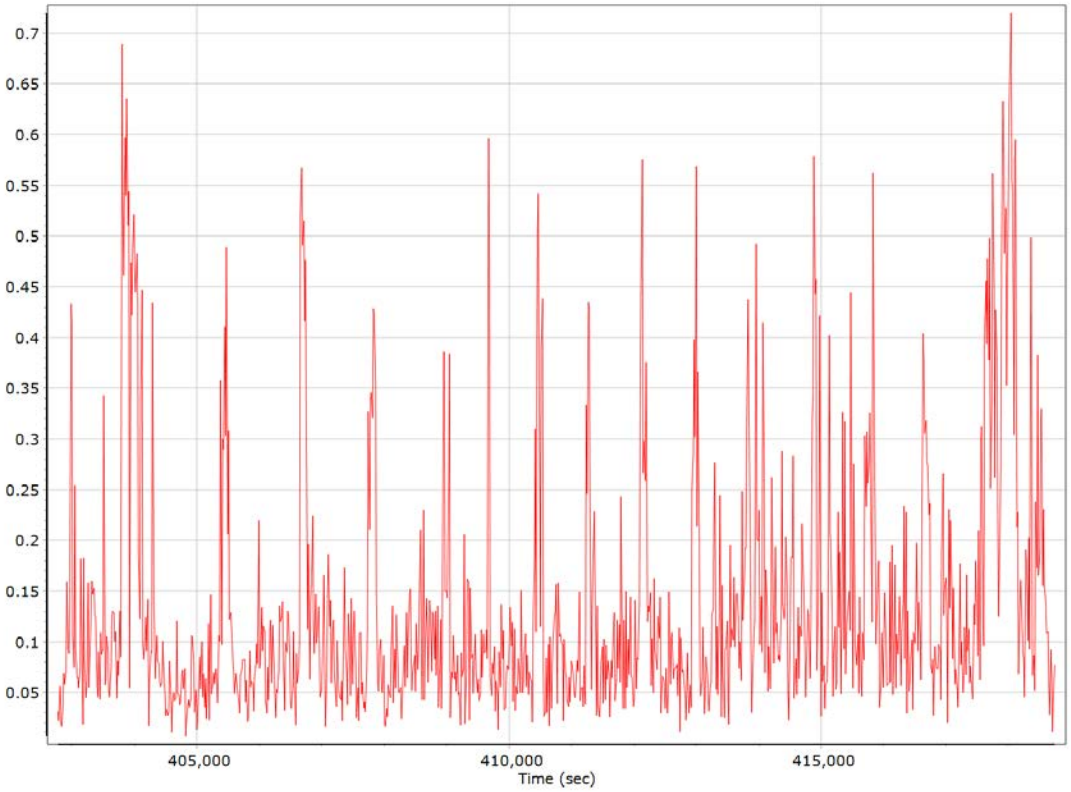
Ground Speed



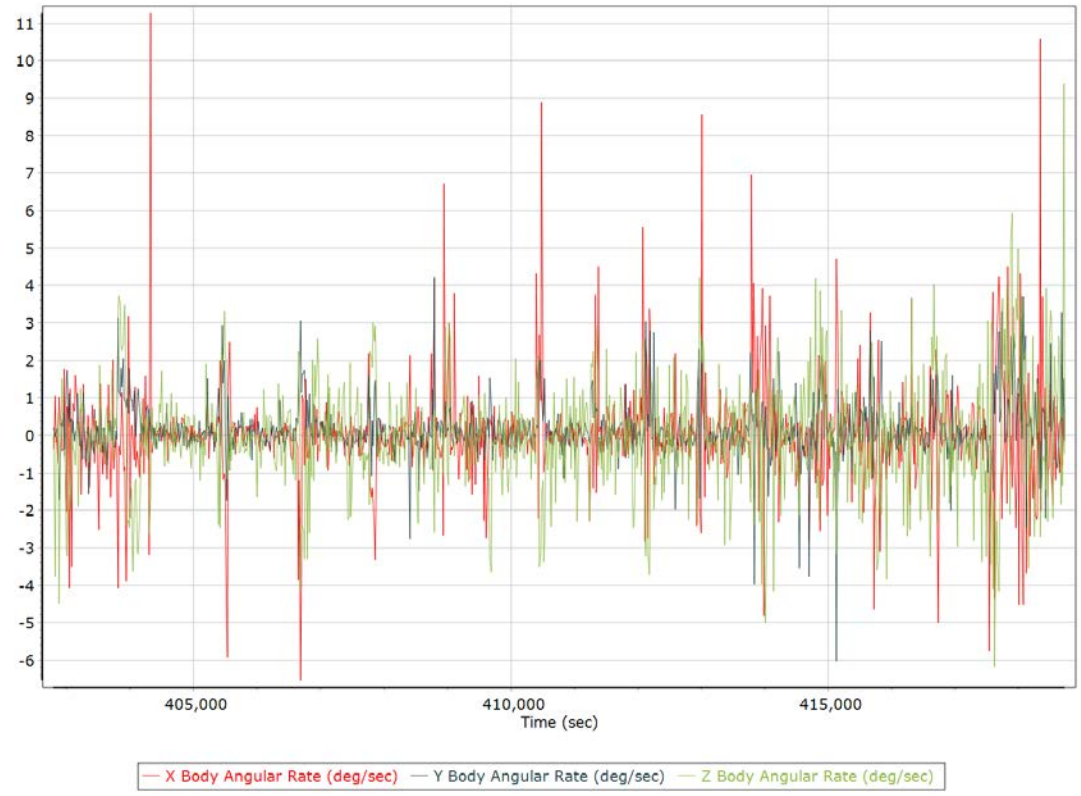
Body Acceleration



Total Body Acceleration

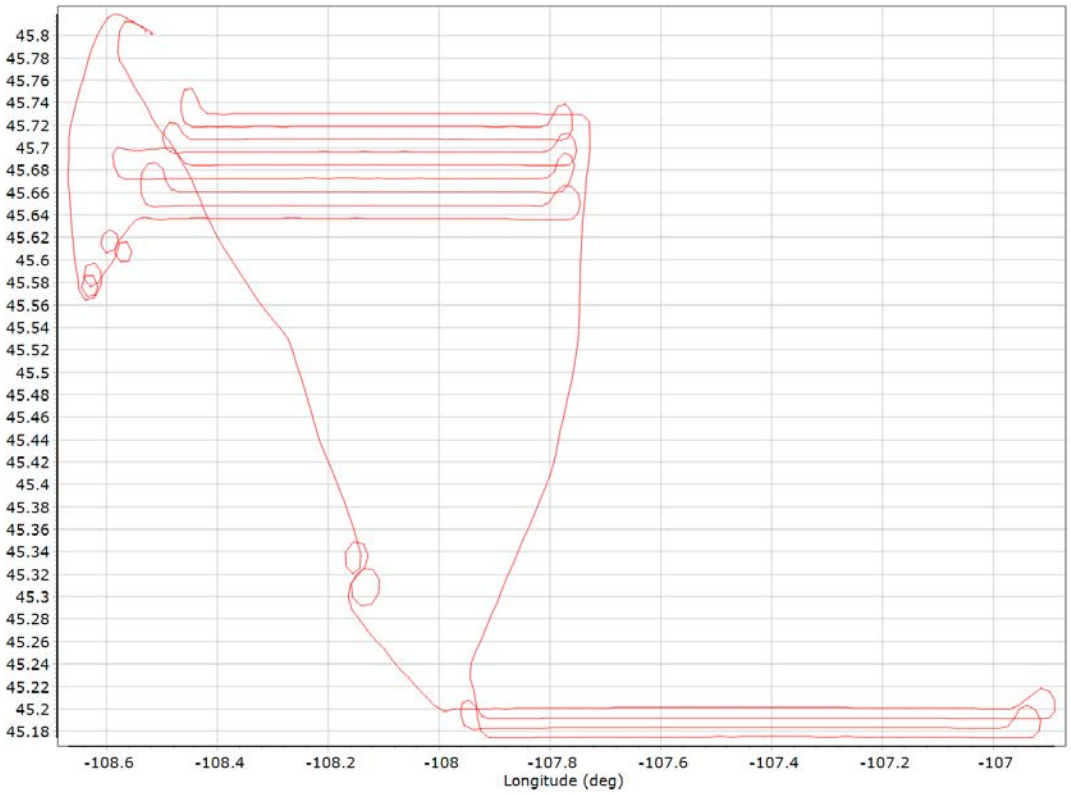


Body Angular Rate

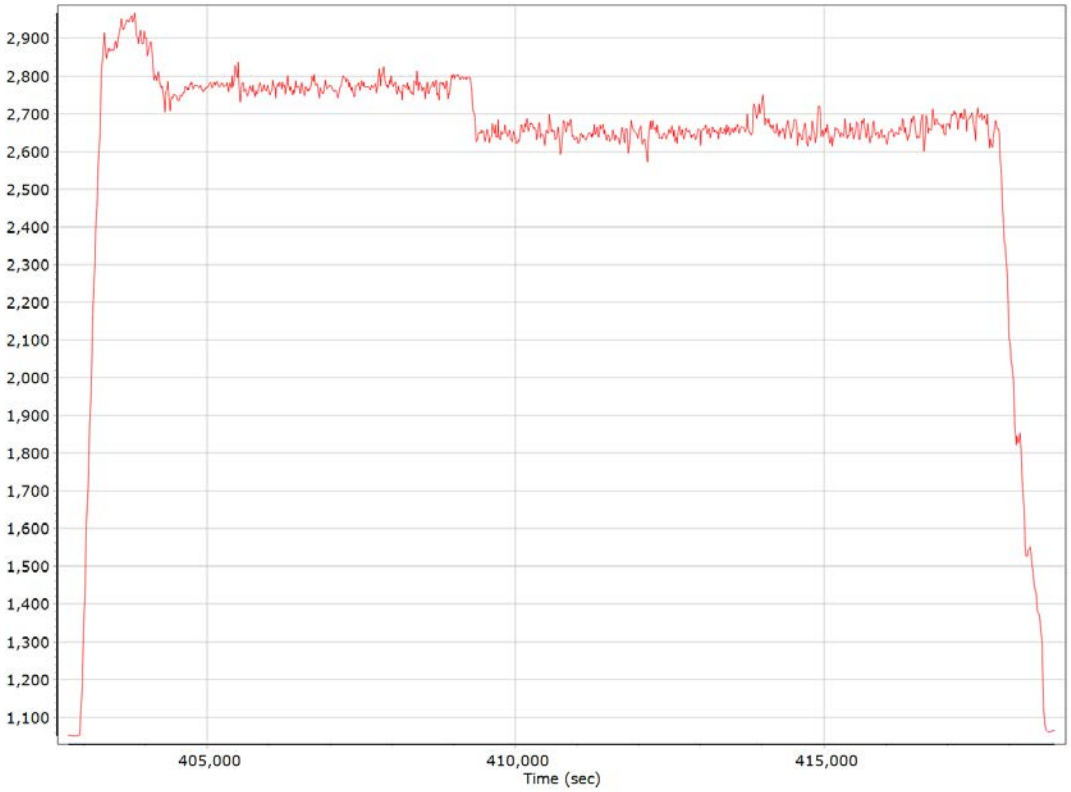


Forward Processed Trajectory Information

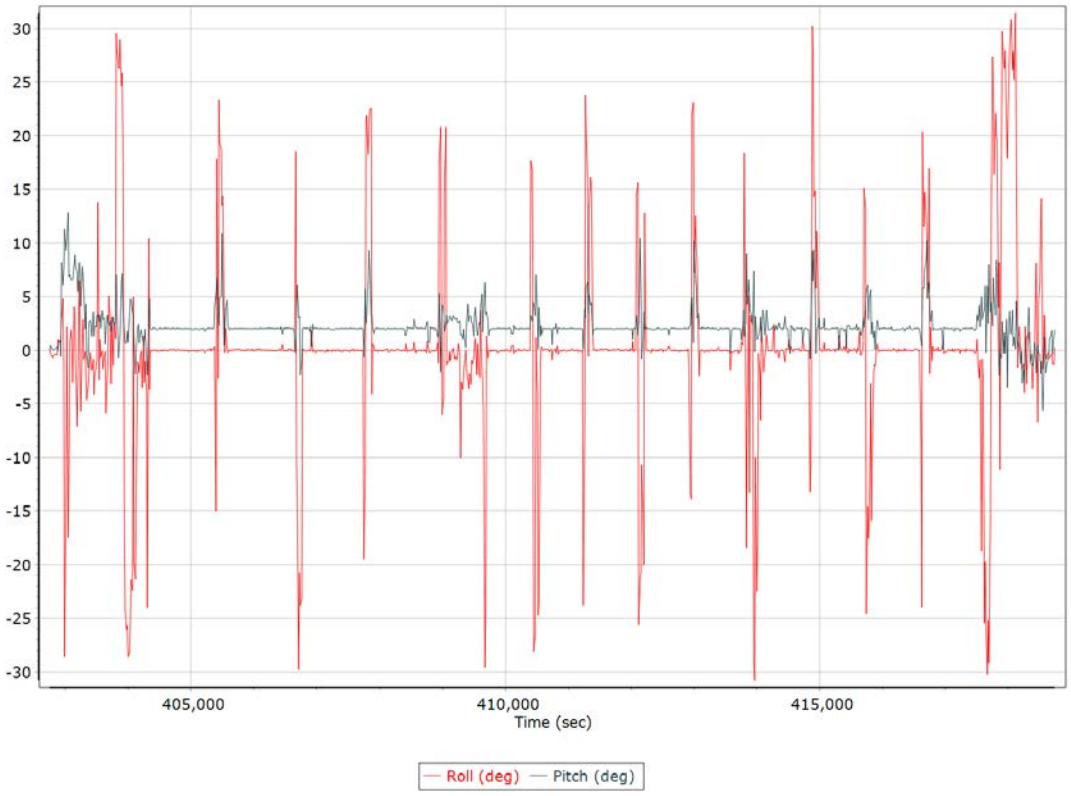
Top View



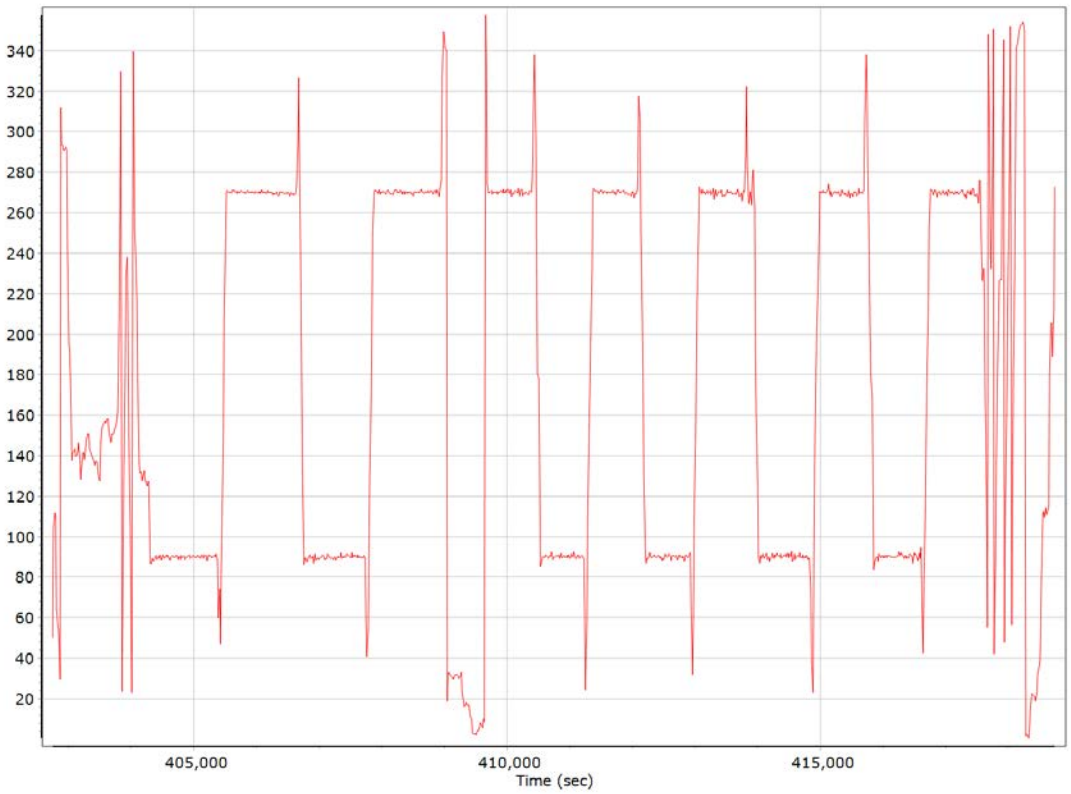
Altitude



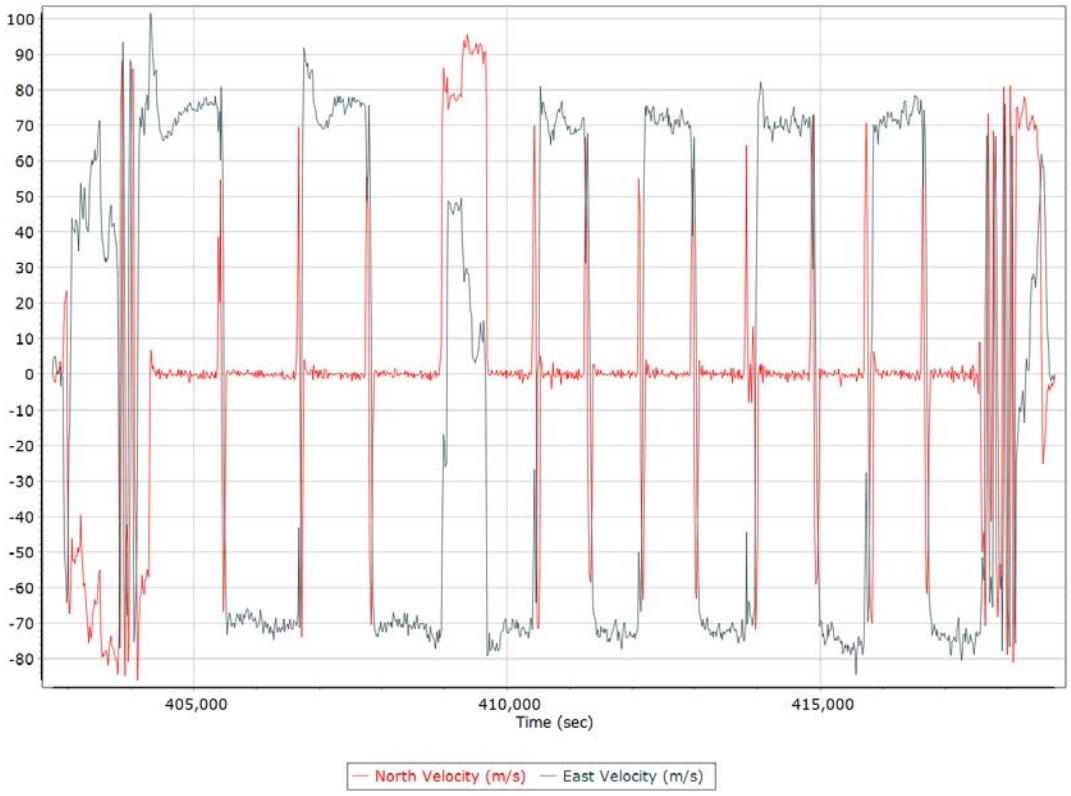
Roll/Pitch



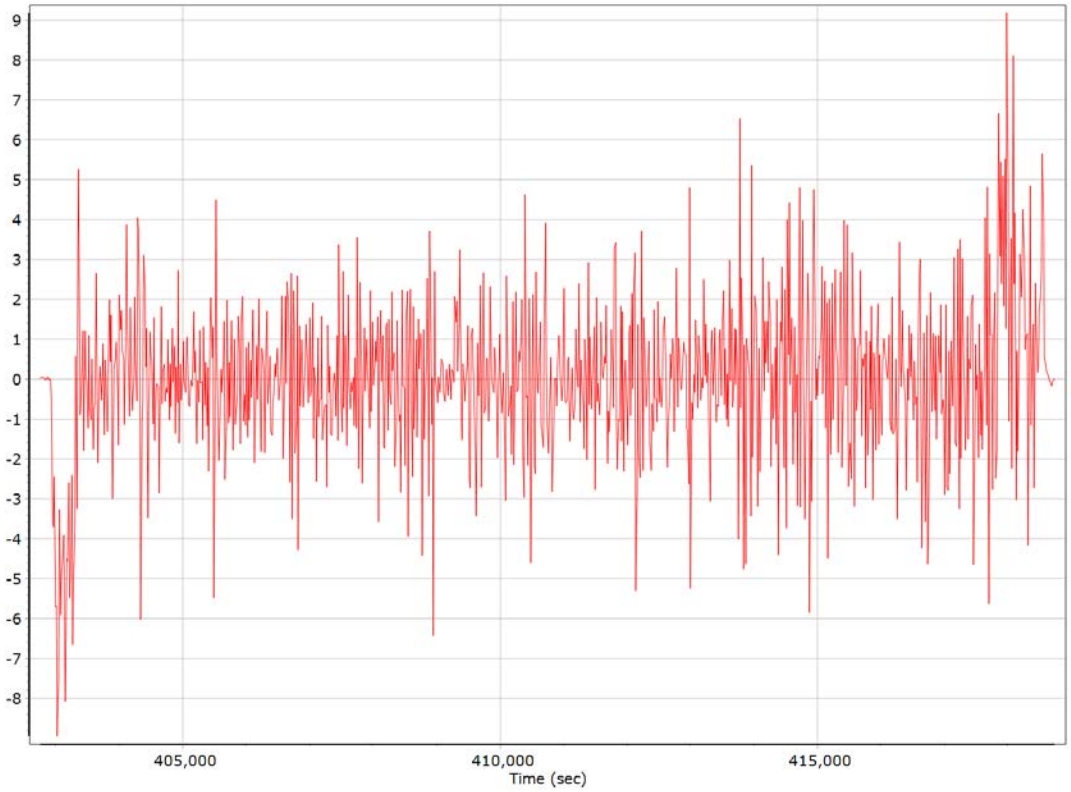
Heading



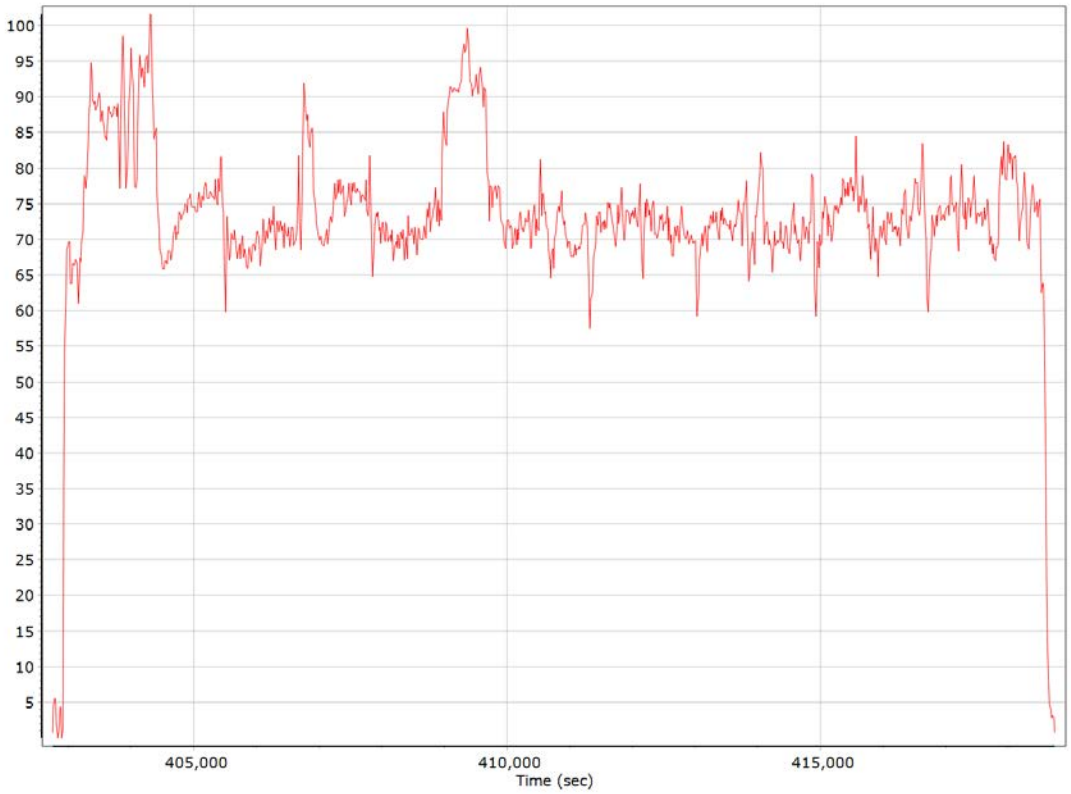
North/East Velocity



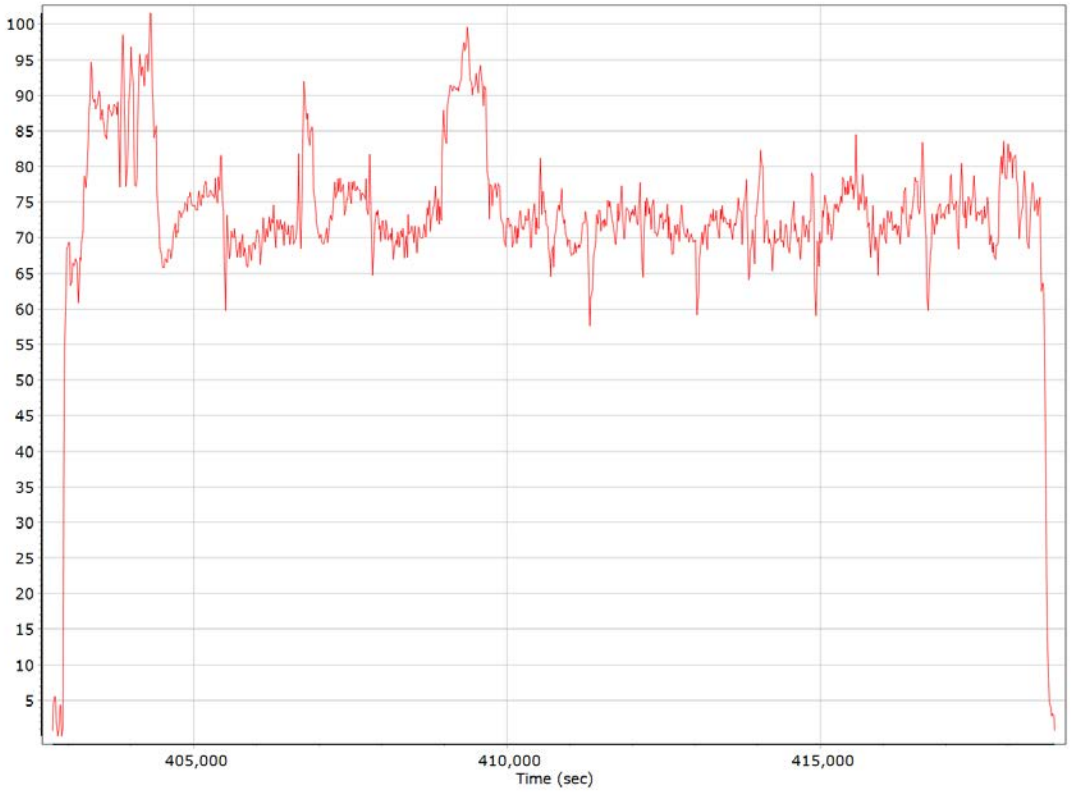
Down Velocity



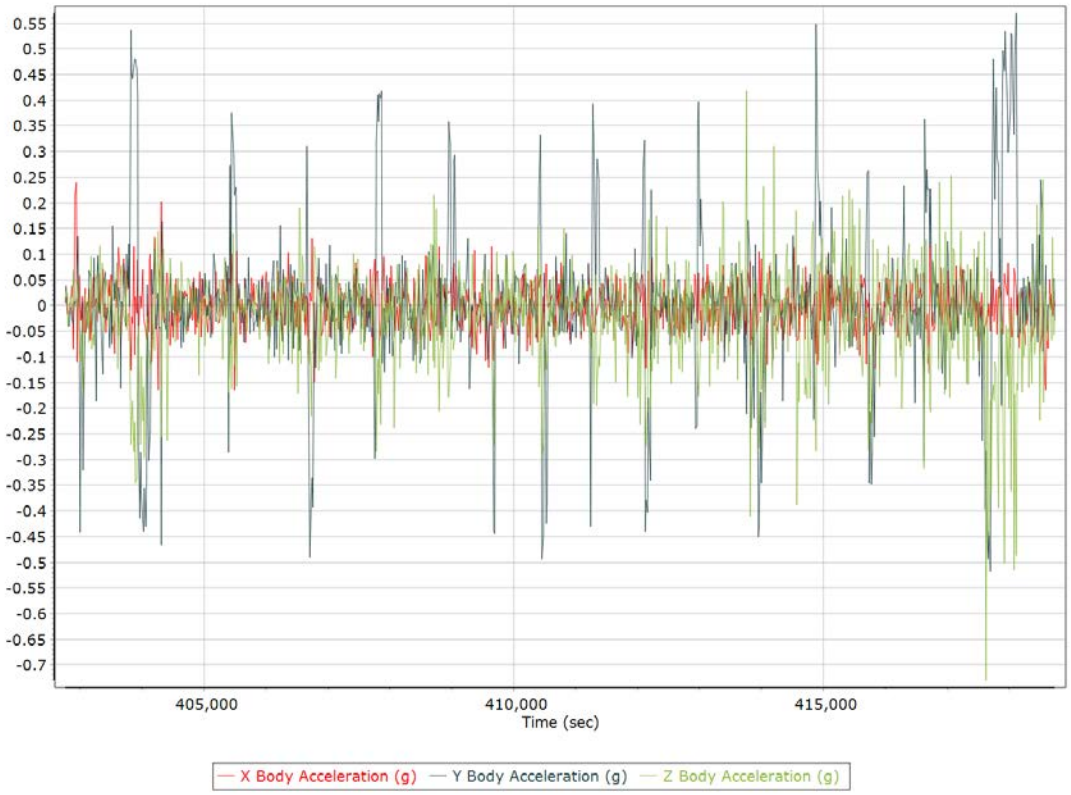
Total Speed



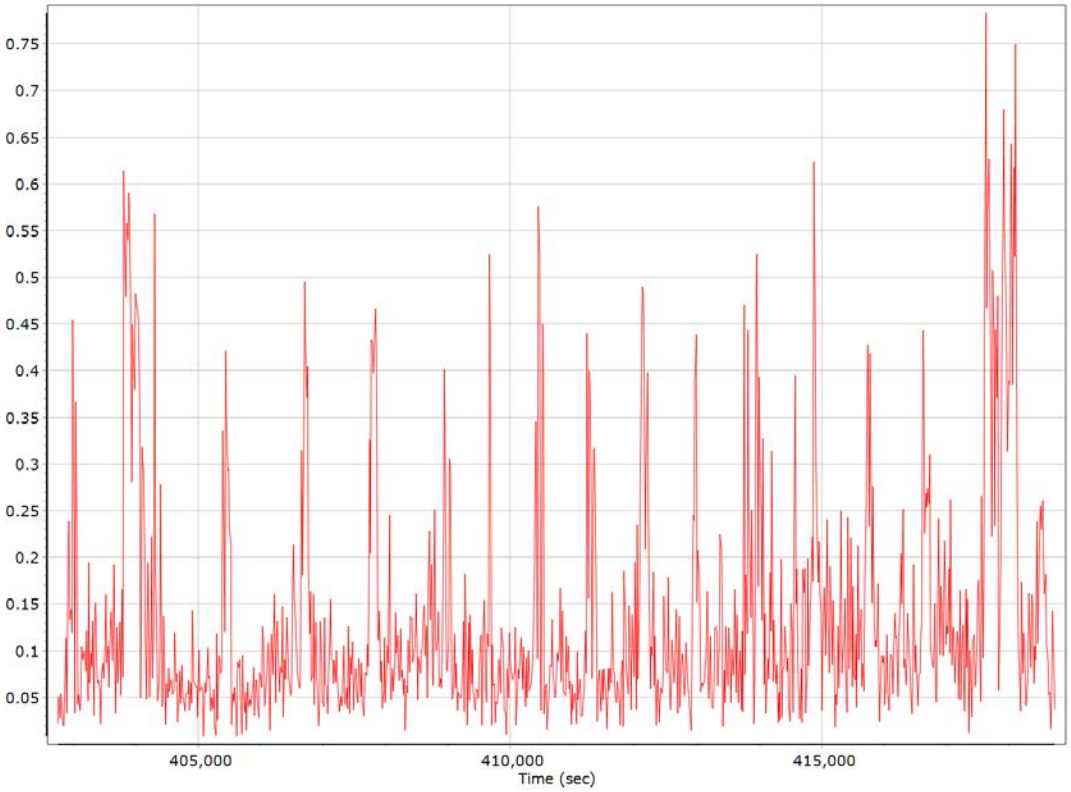
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

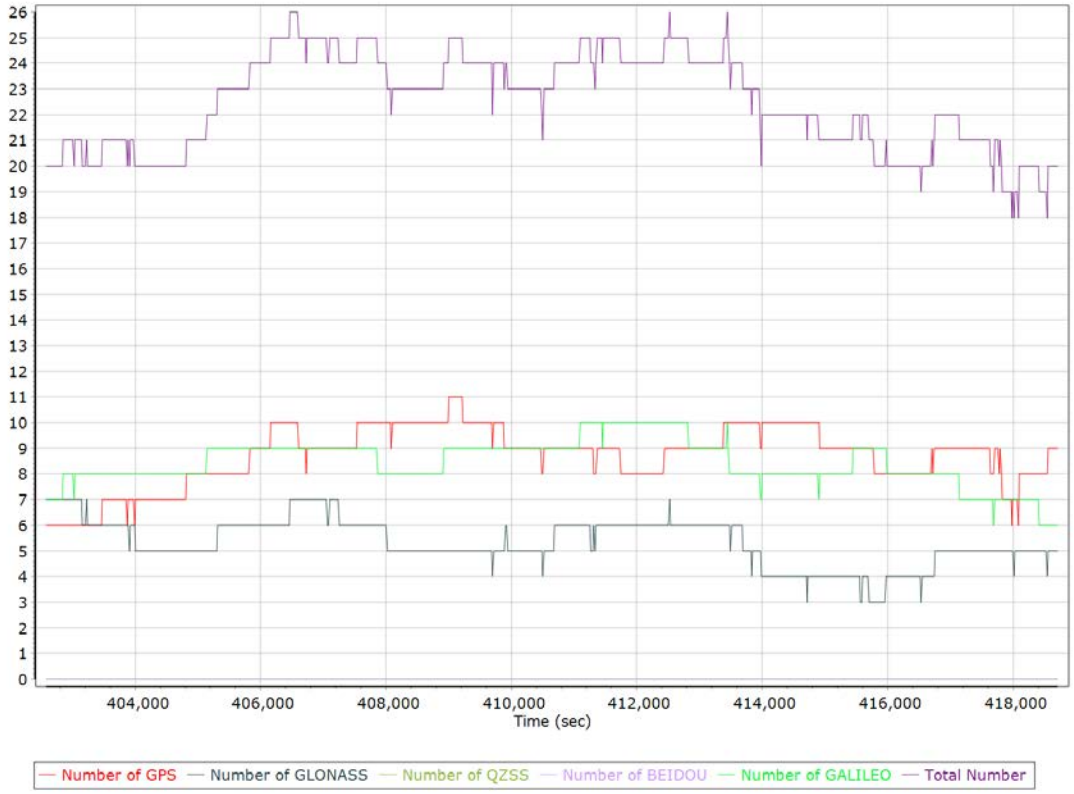


GNSS QC

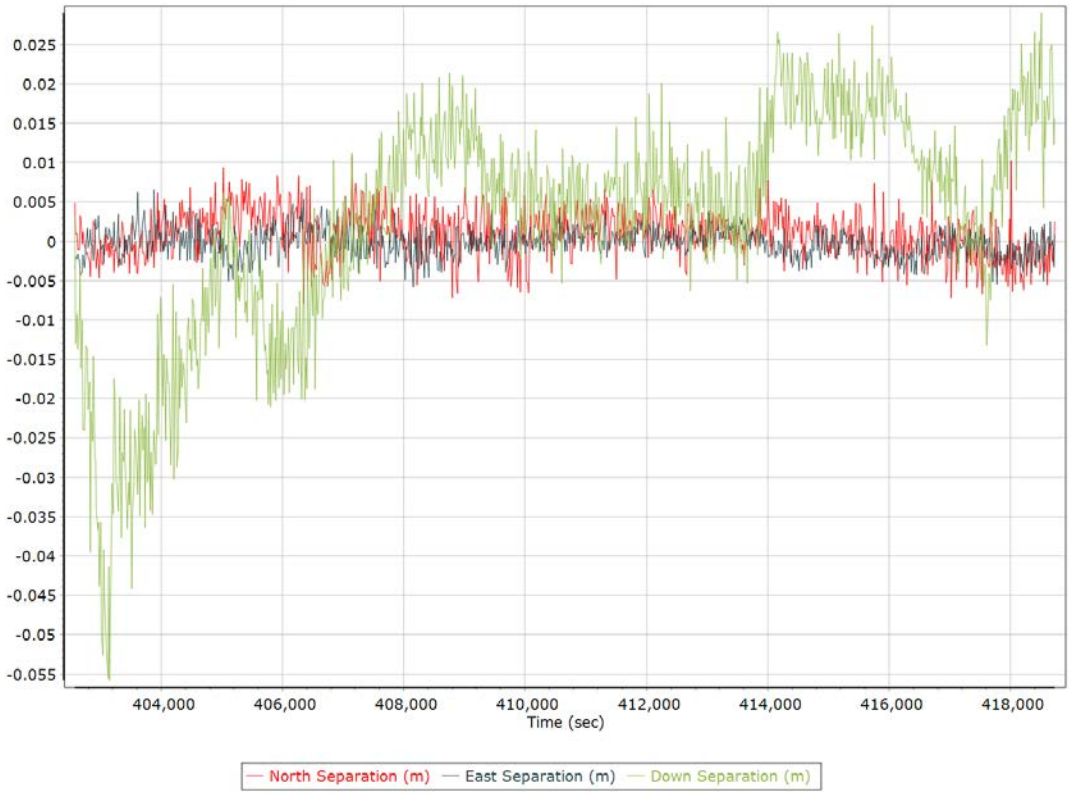
GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	11	9
Number of GLONASS SV	3	7	5
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	6	10	8
Total number of SV	18	26	22
PDOP	0.96	1.54	1.11
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	16208.00	0.00	0.00
Percentage	100.00	0.00	0.00

Num SVs in solution



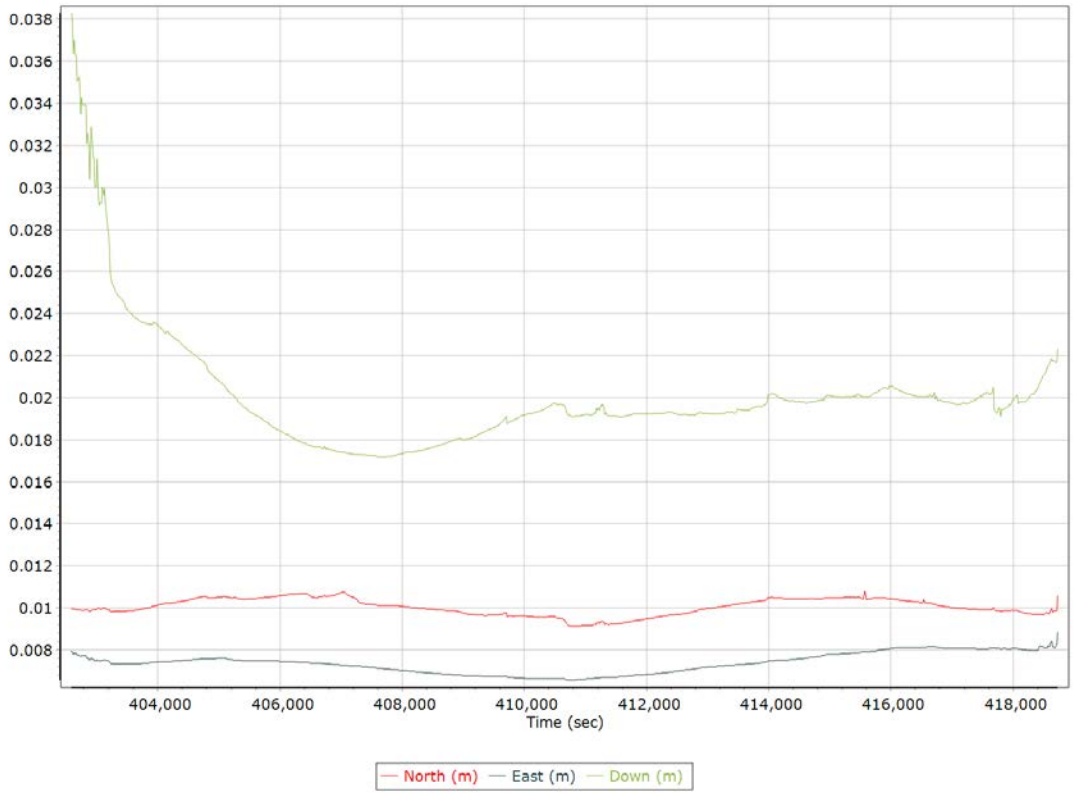
Forward/Reverse Separation



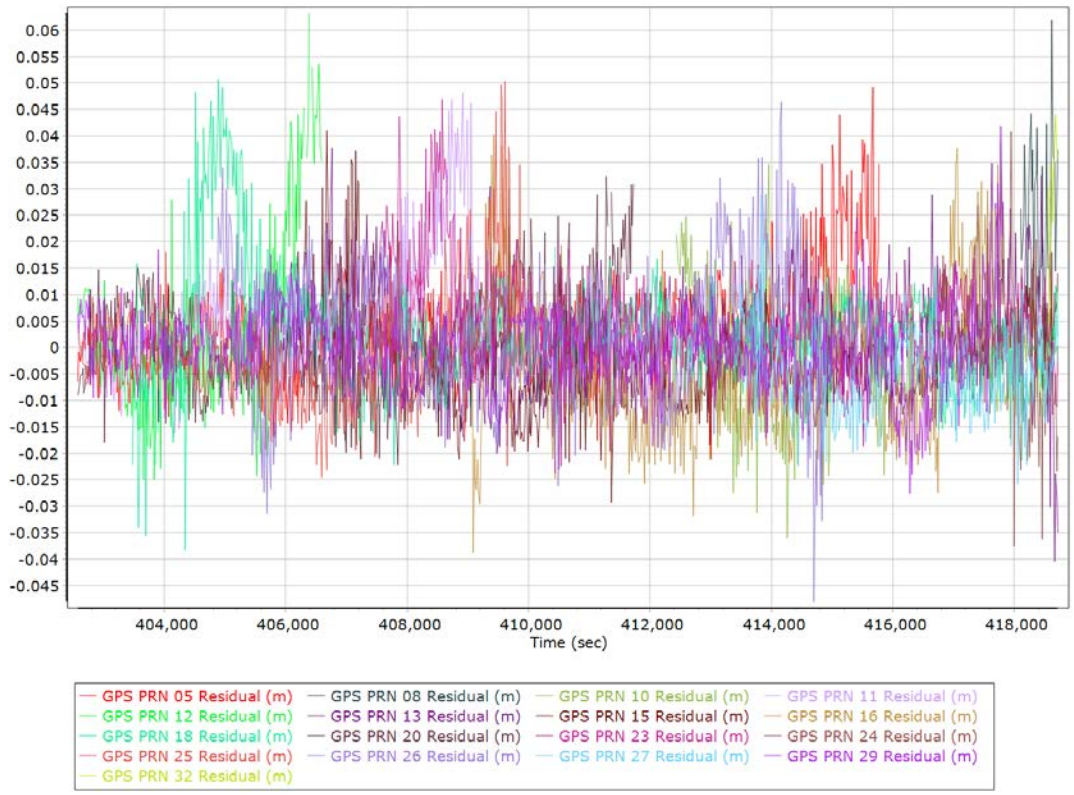
PDOP



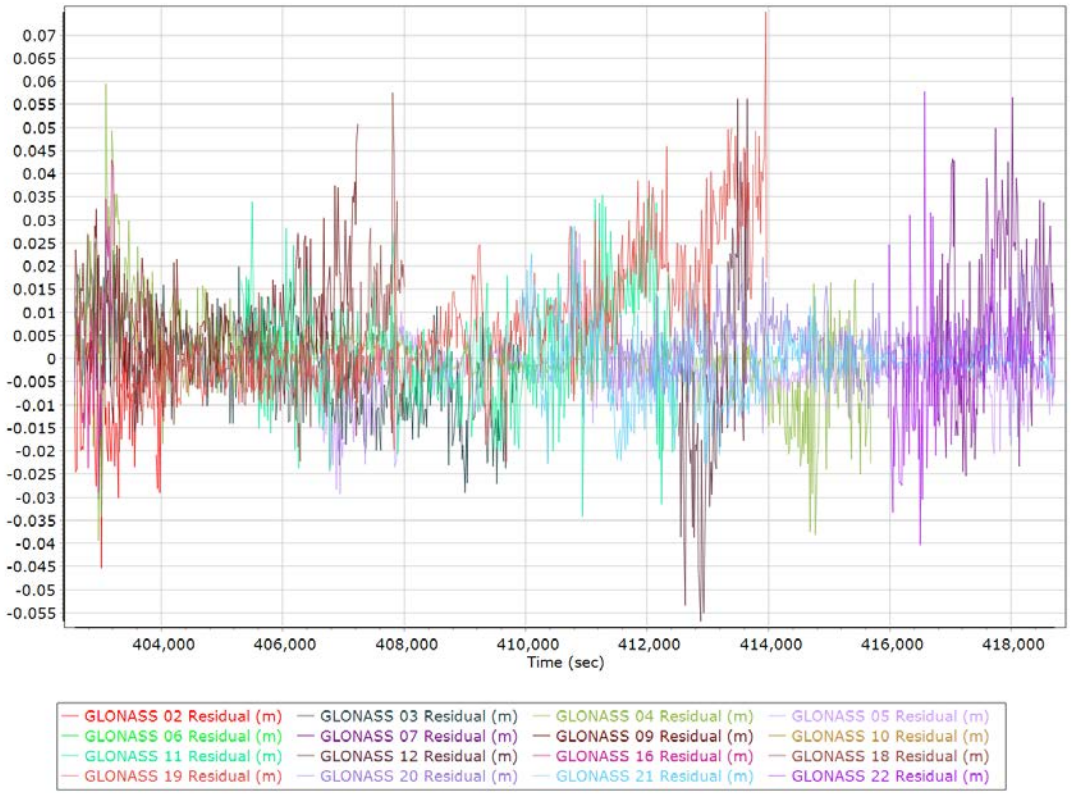
Estimated Position Accuracy



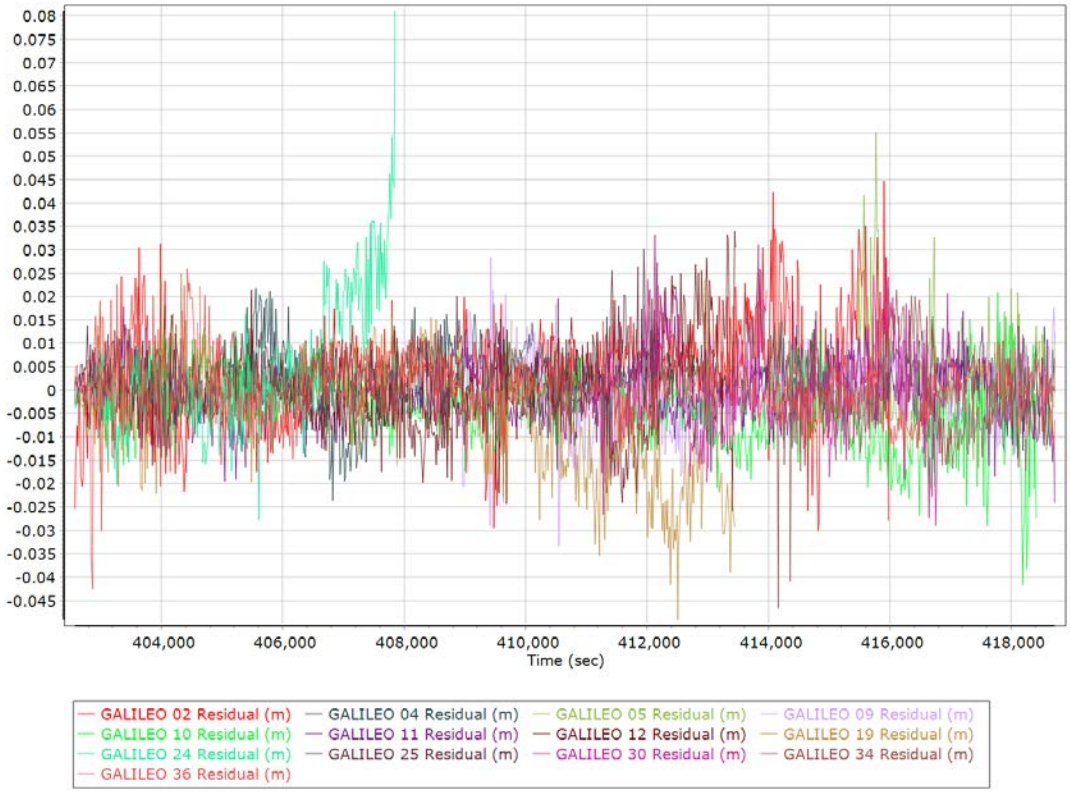
GPS Residuals



GLONASS Residuals



GALILEO Residuals



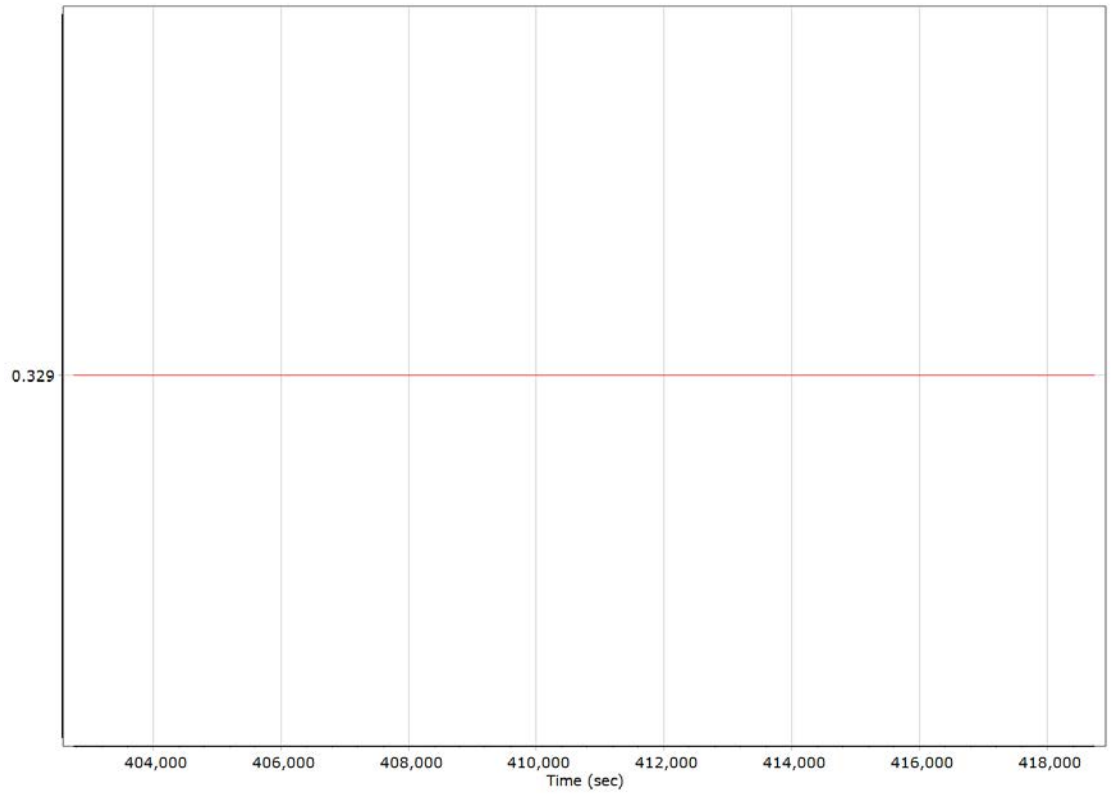
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	402495.033 (7/27/2023 3:48:15 PM)		
Processing end time	418743.000 (7/27/2023 8:19:03 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

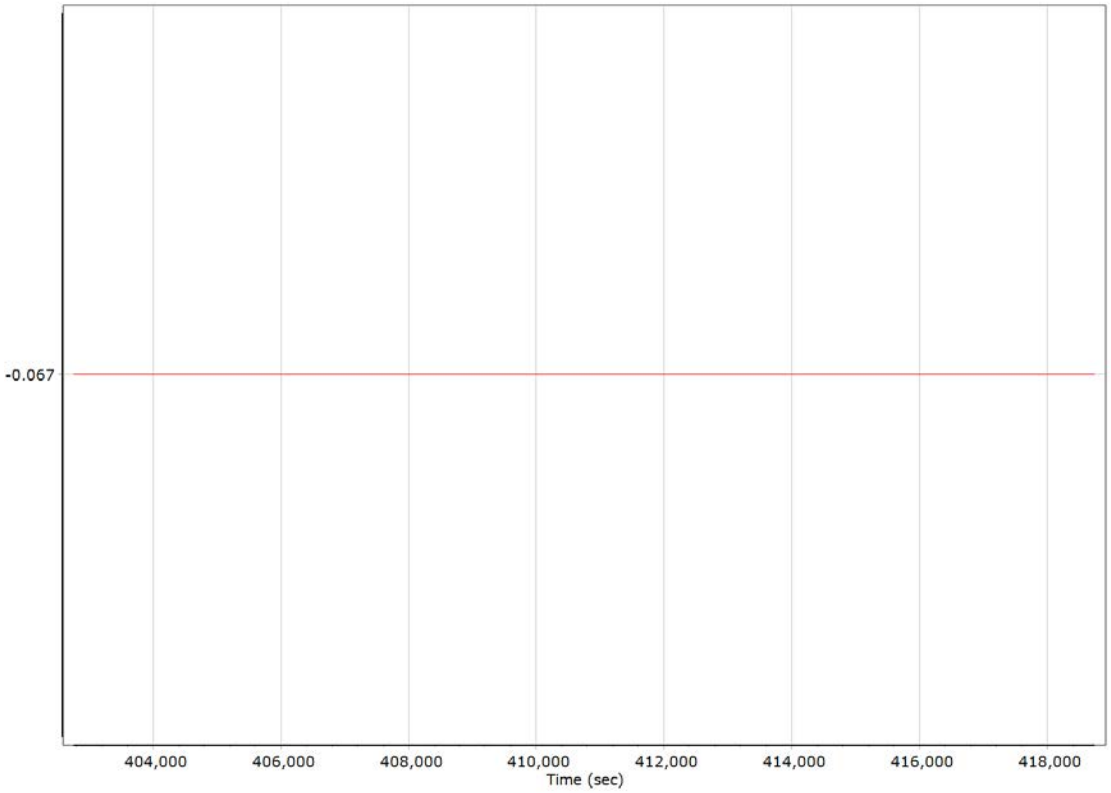
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

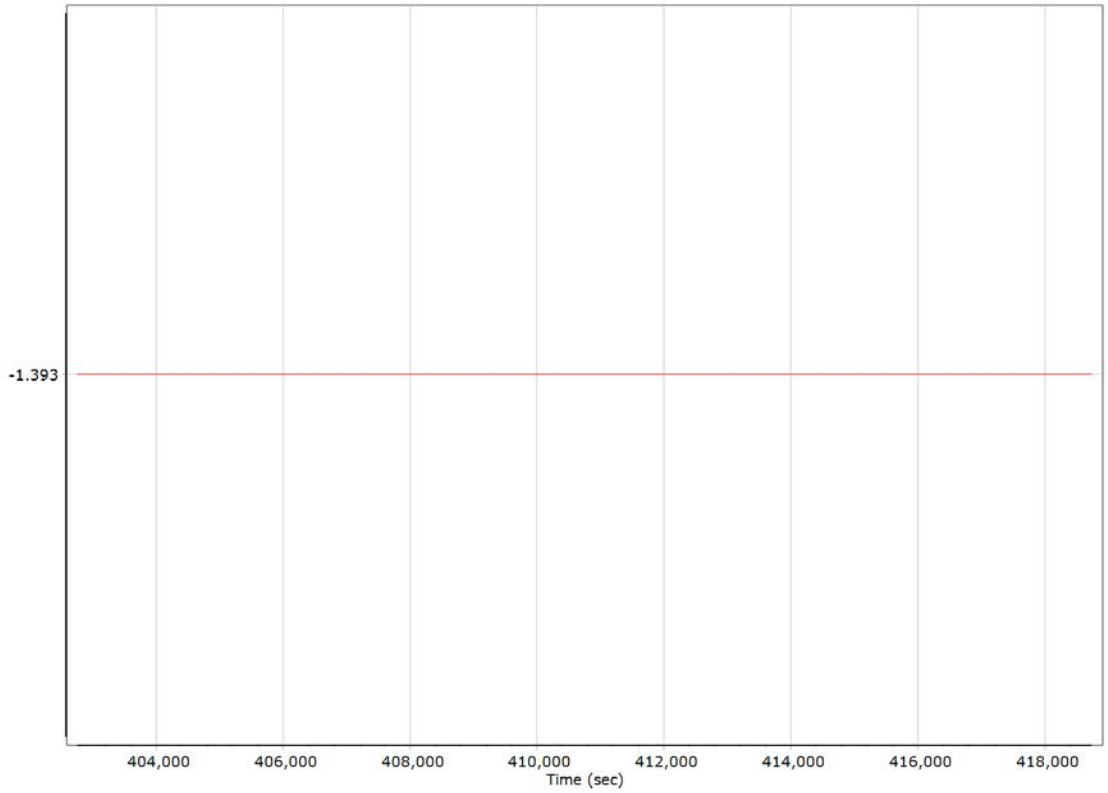
X Reference-Primary GNSS Lever Arm (m)



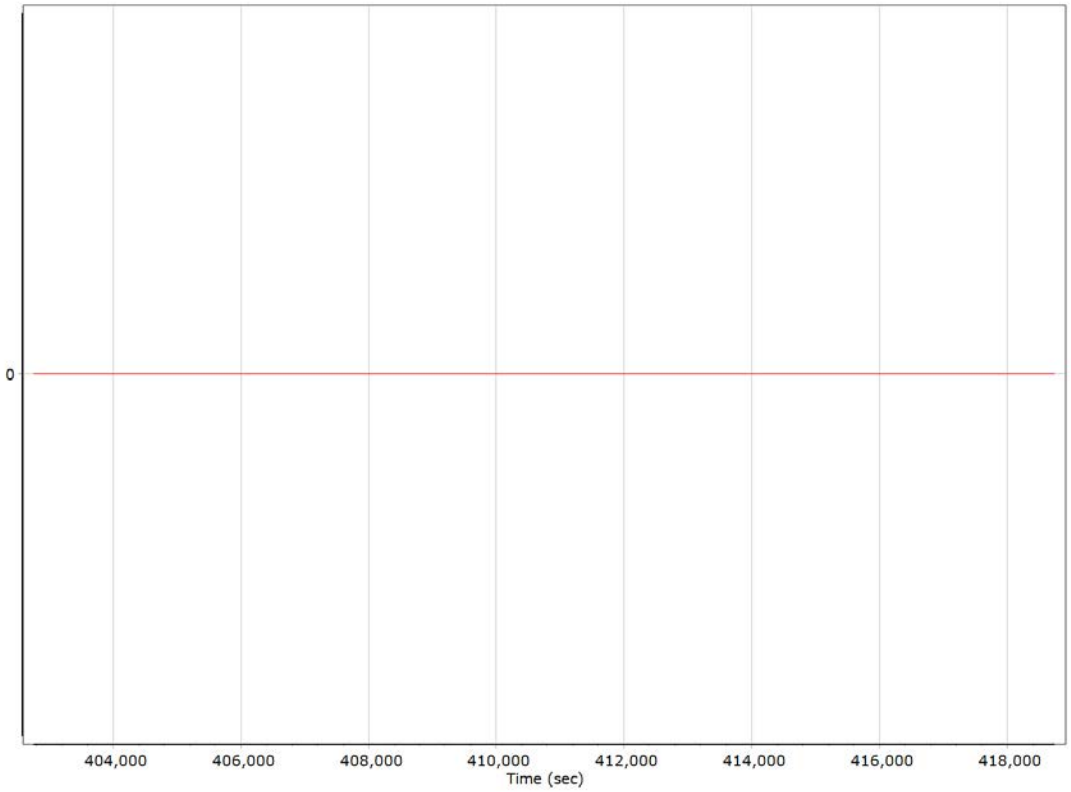
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



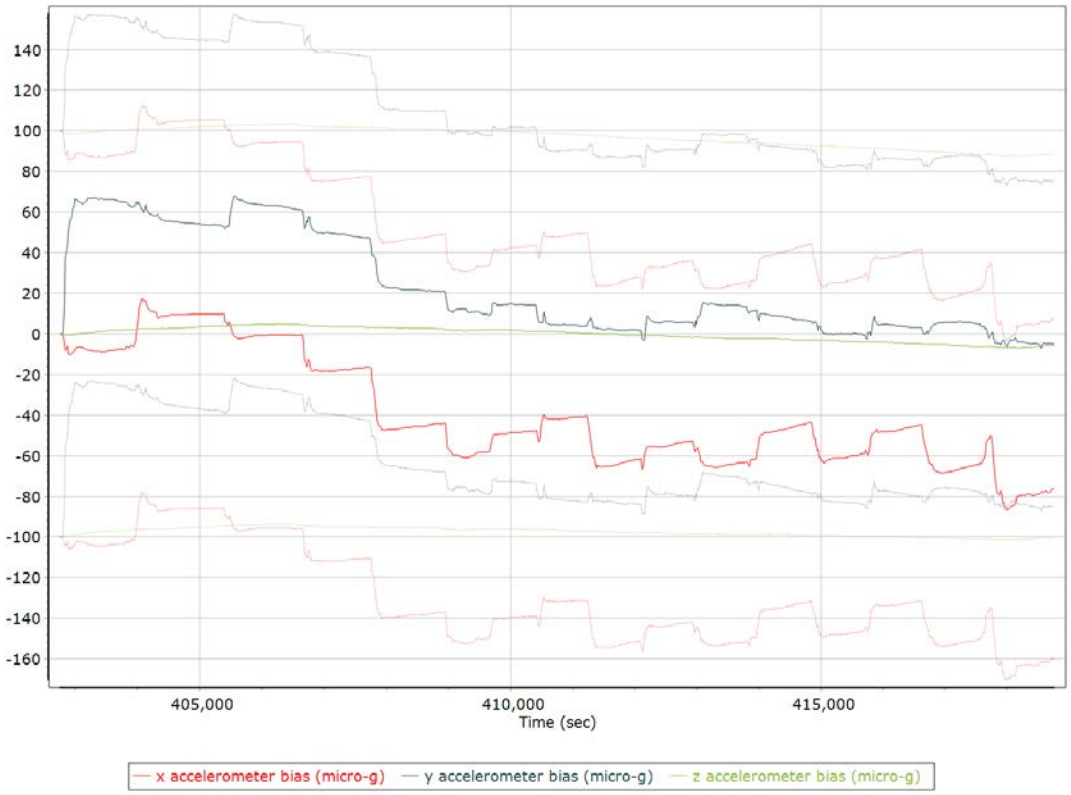
Reference-Primary GNSS Lever Arm Figure of Merit



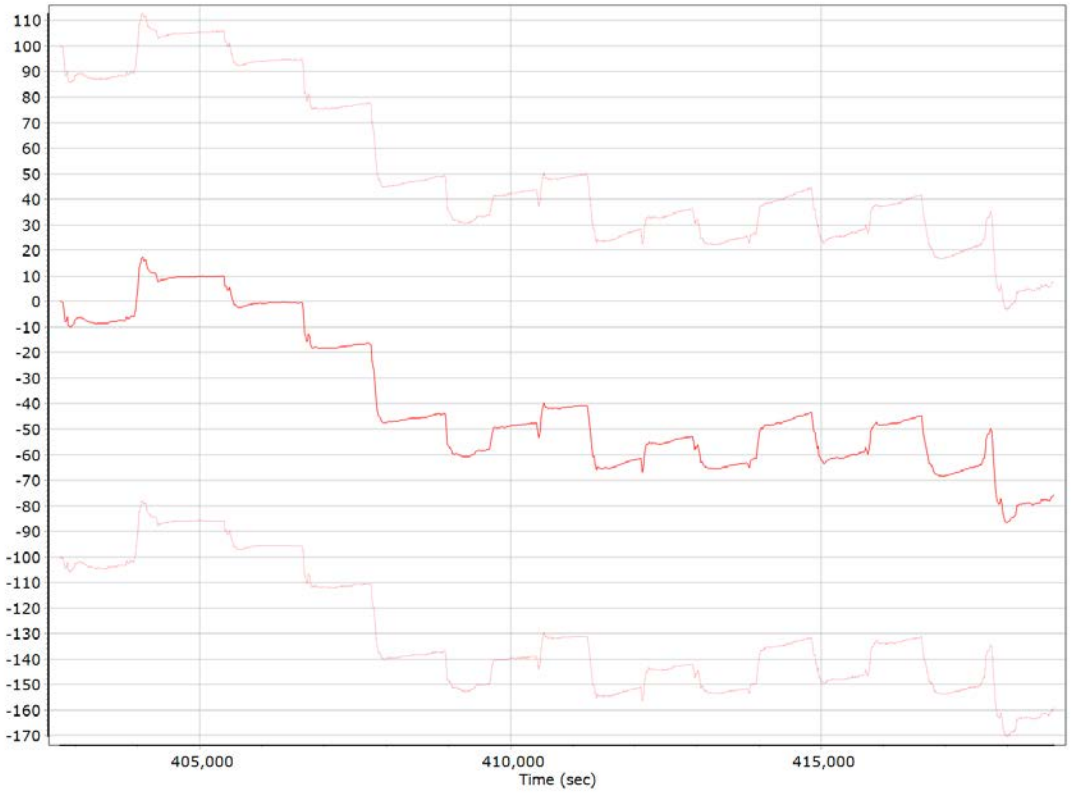
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

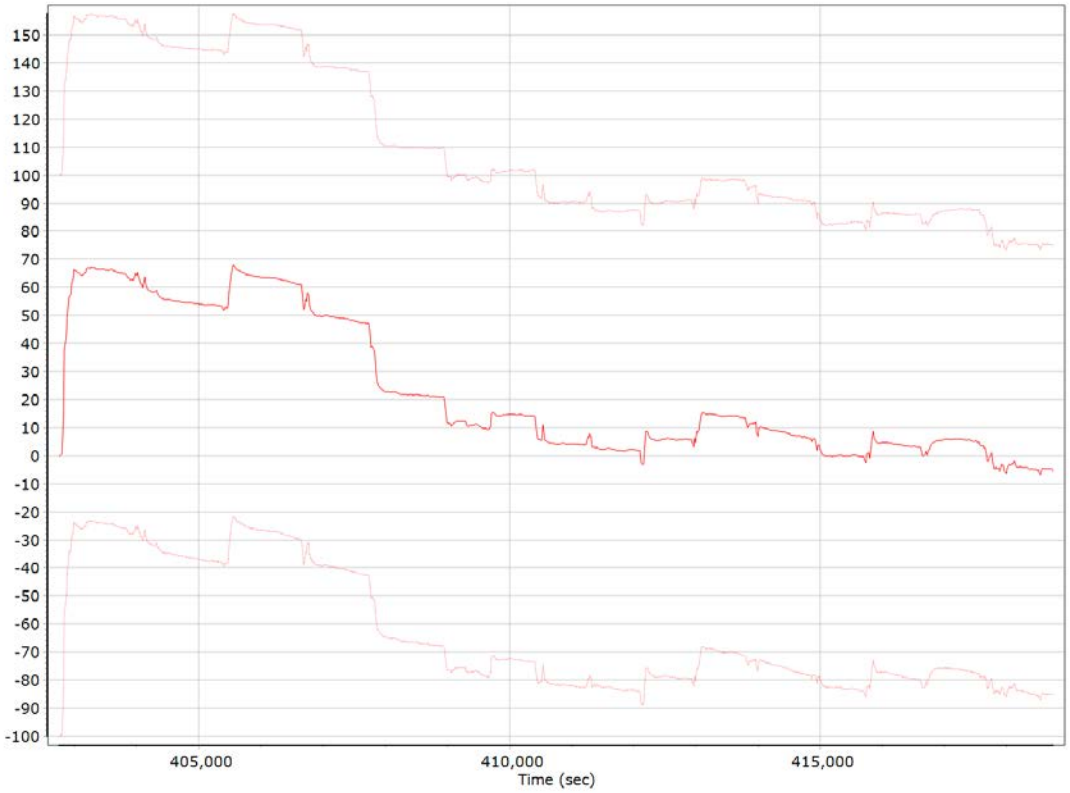
Accelerometer Bias (micro-g)



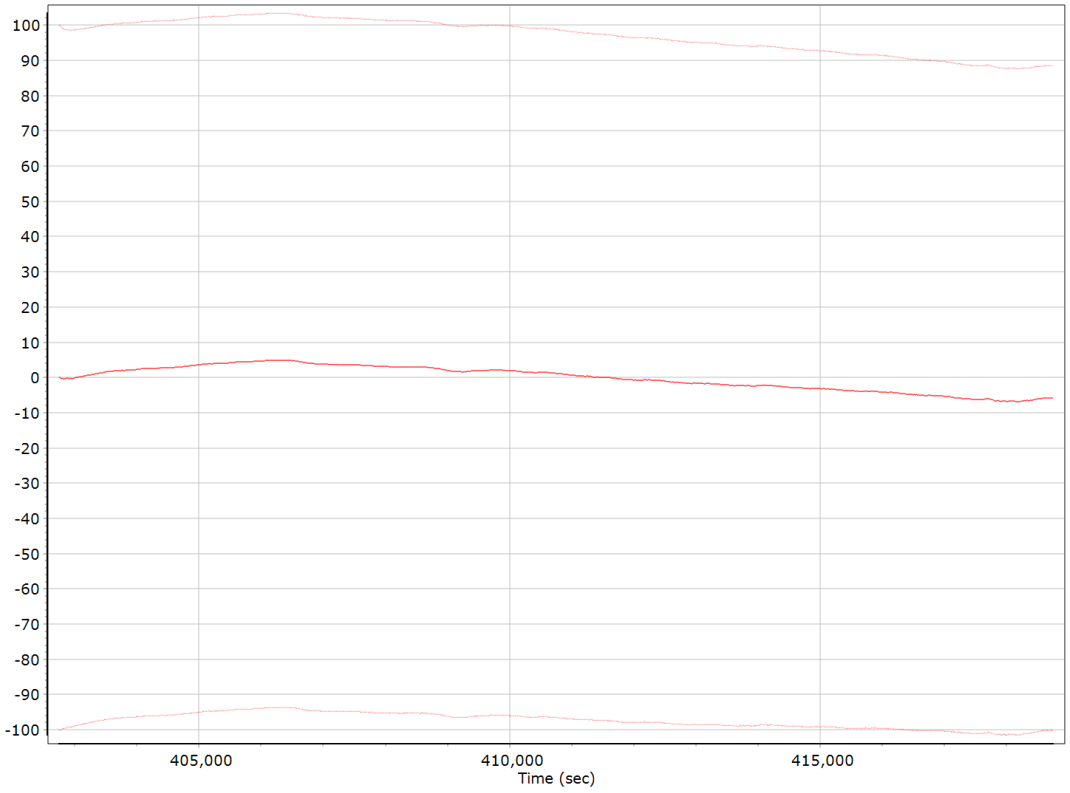
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



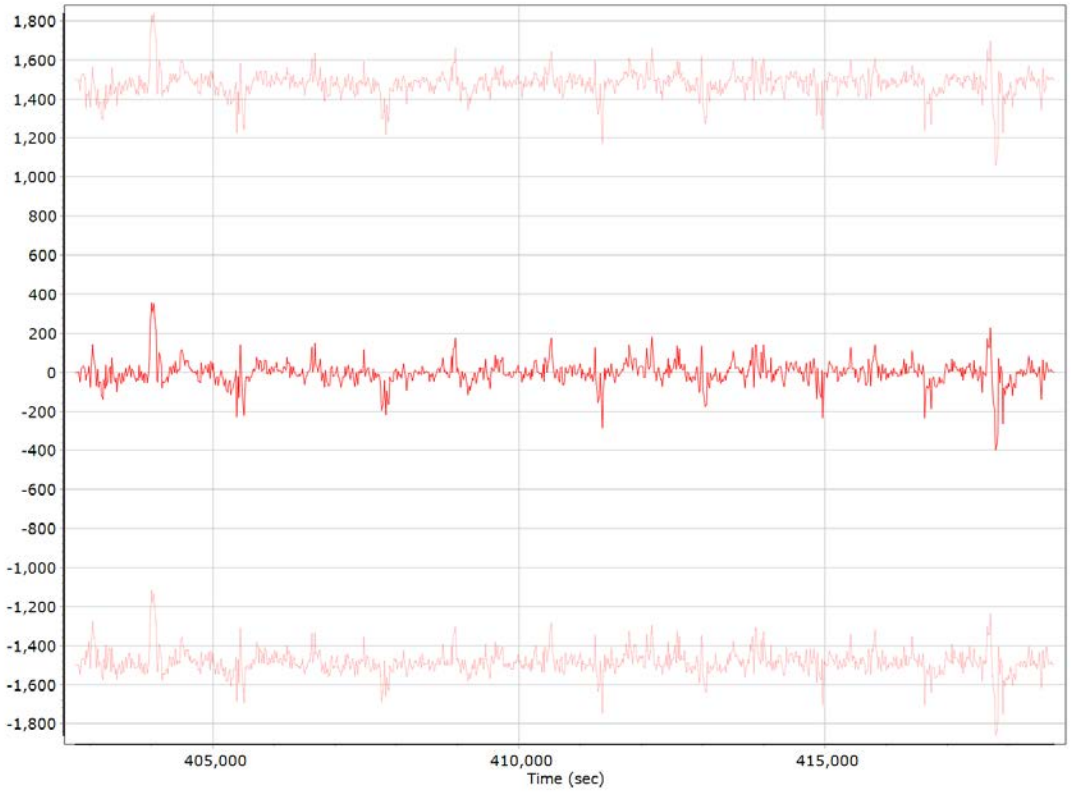
Z Accelerometer Bias (micro-g)



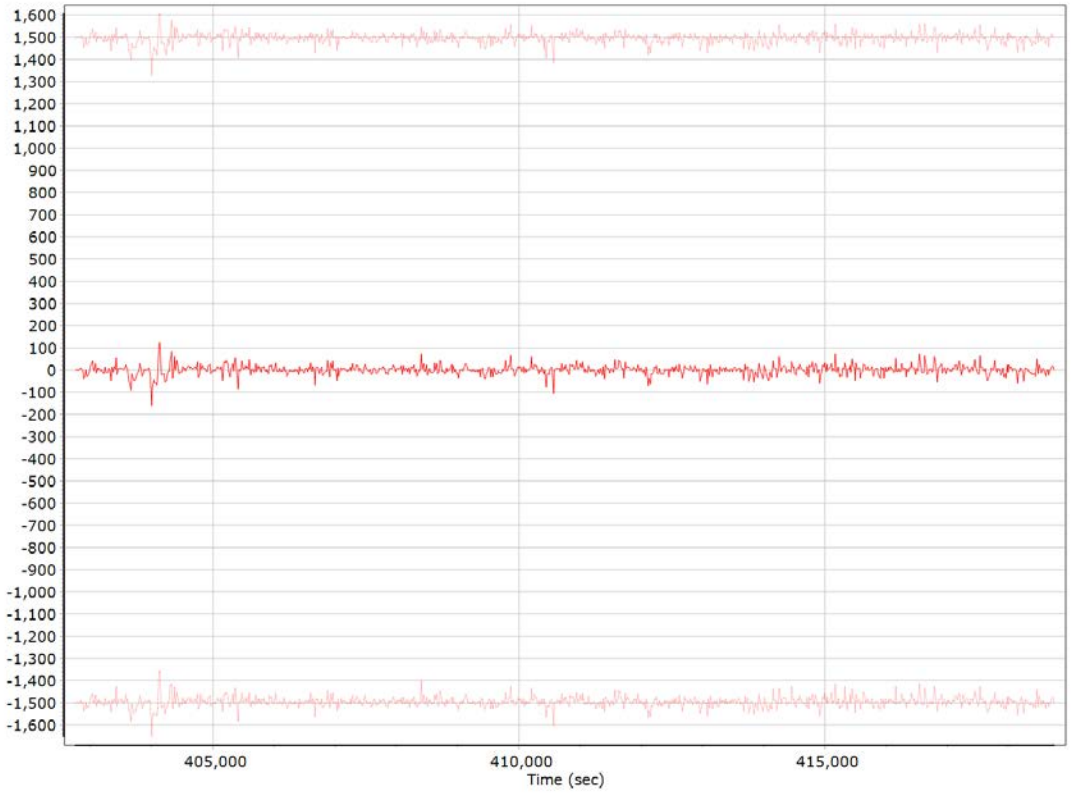
Accelerometer Scale Error (ppm)



X Accelerometer Scale Error (ppm)



Y Accelerometer Scale Error (ppm)



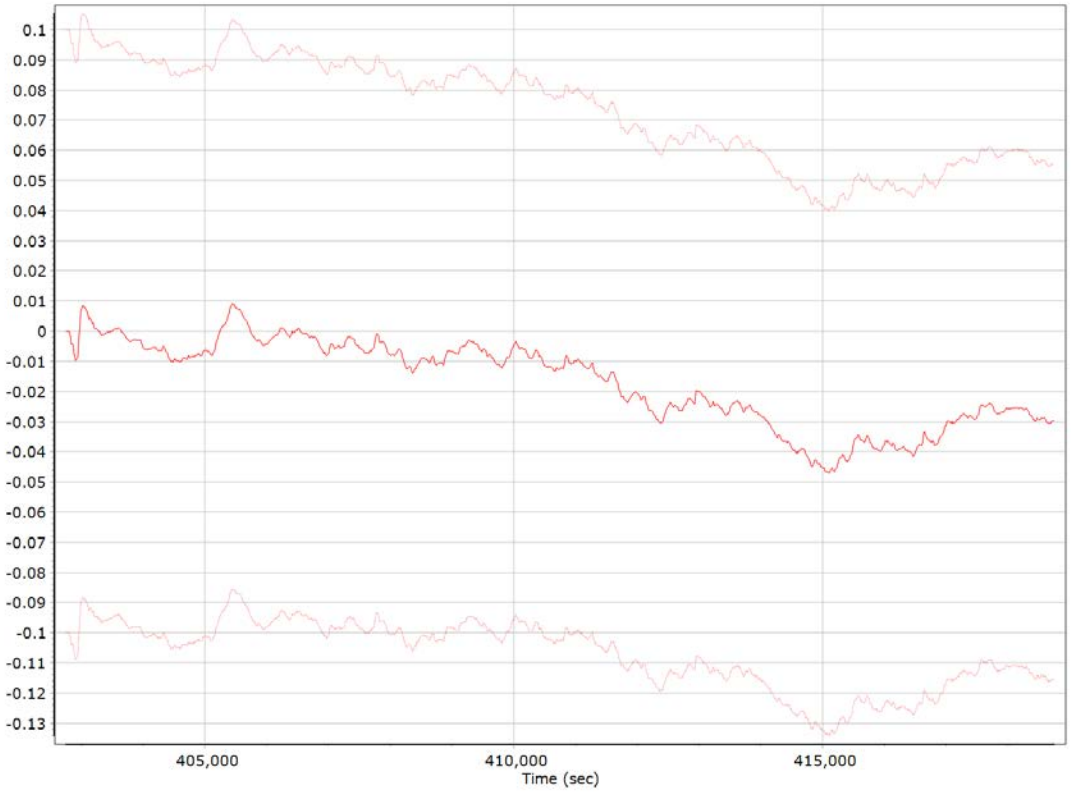
Z Accelerometer Scale Error (ppm)



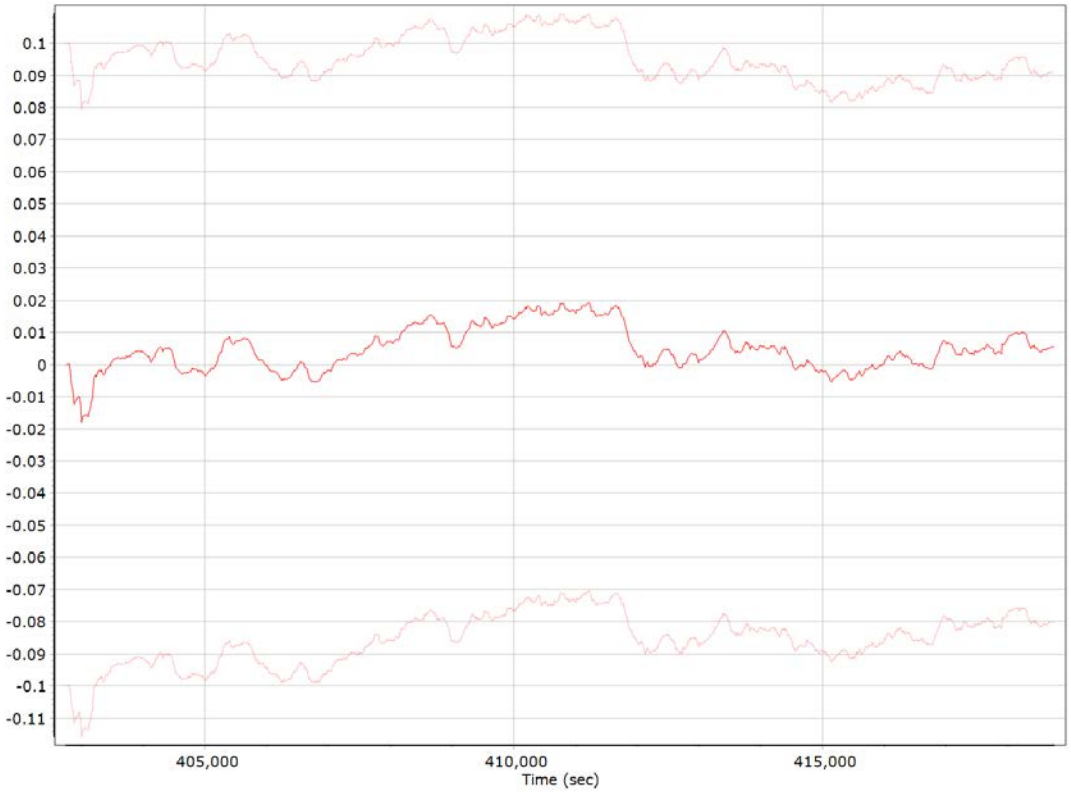
Gyro Bias (deg/h)



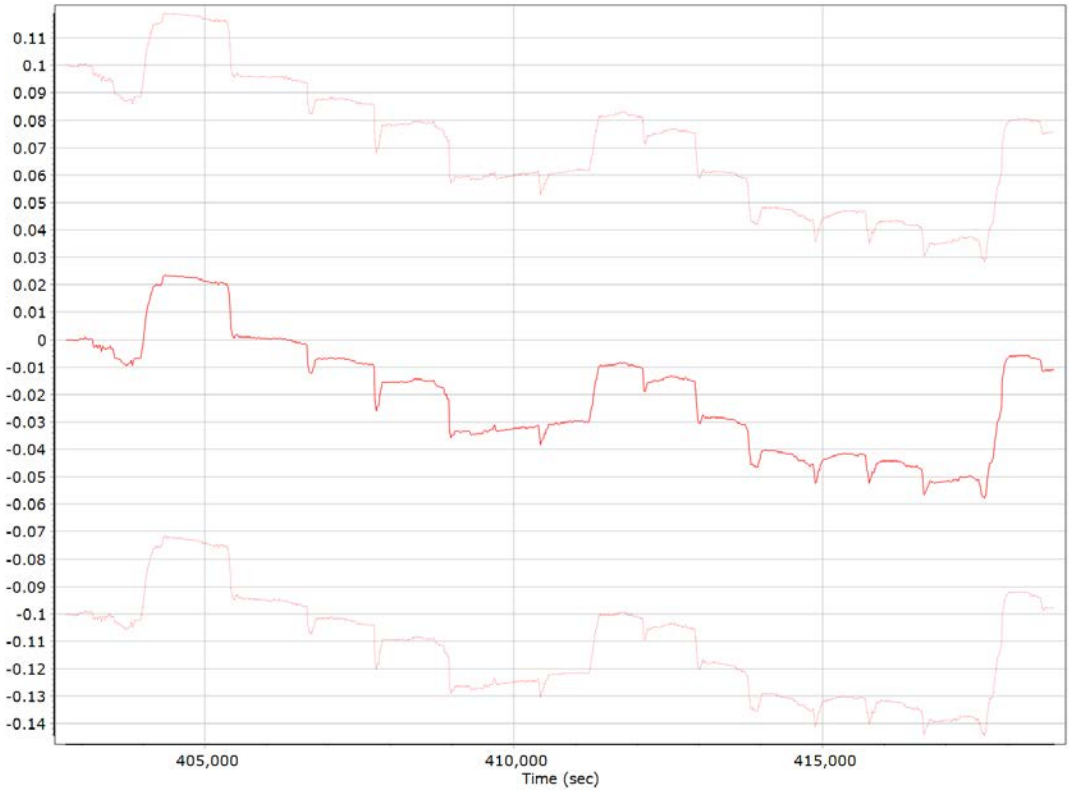
X Gyro Bias (deg/h)



Y Gyro Bias (deg/h)



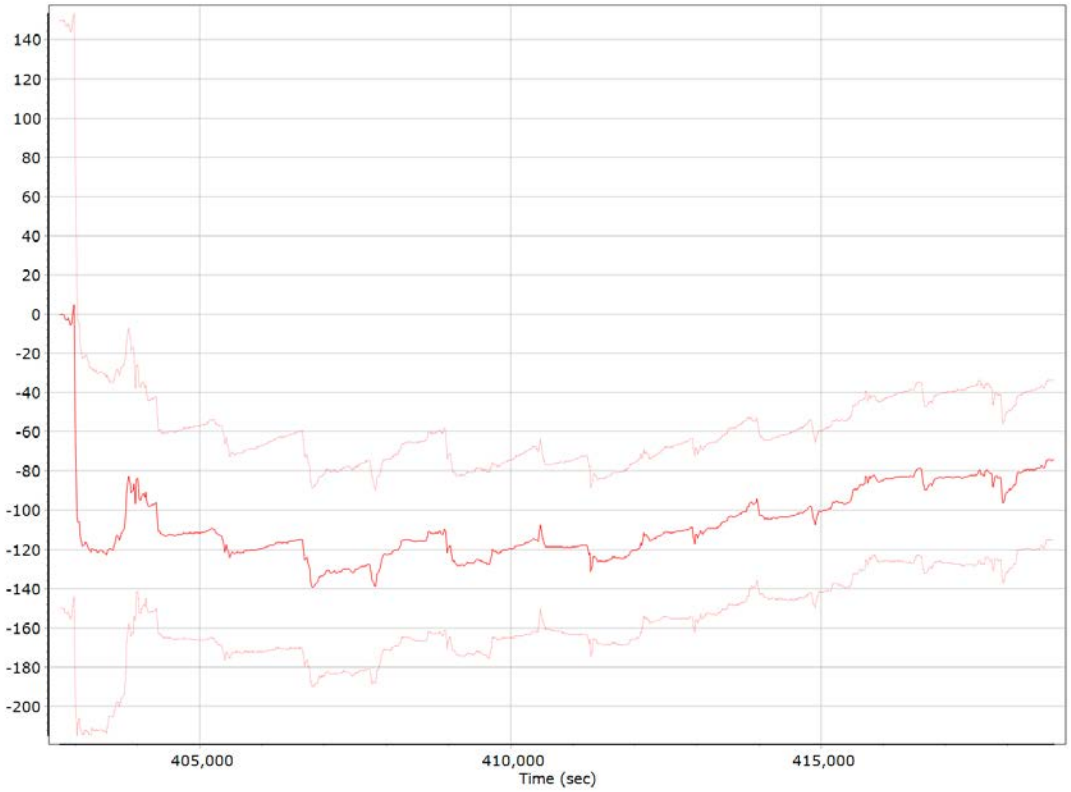
Z Gyro Bias (deg/h)



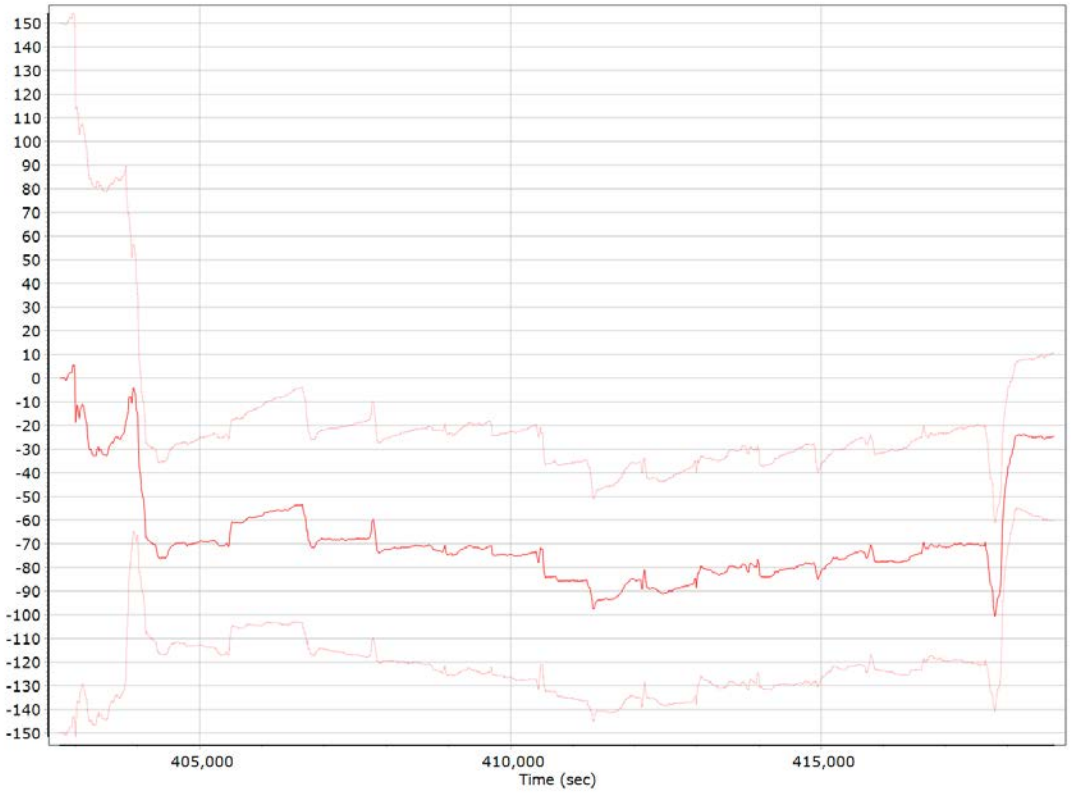
Gyro Scale Error (ppm)



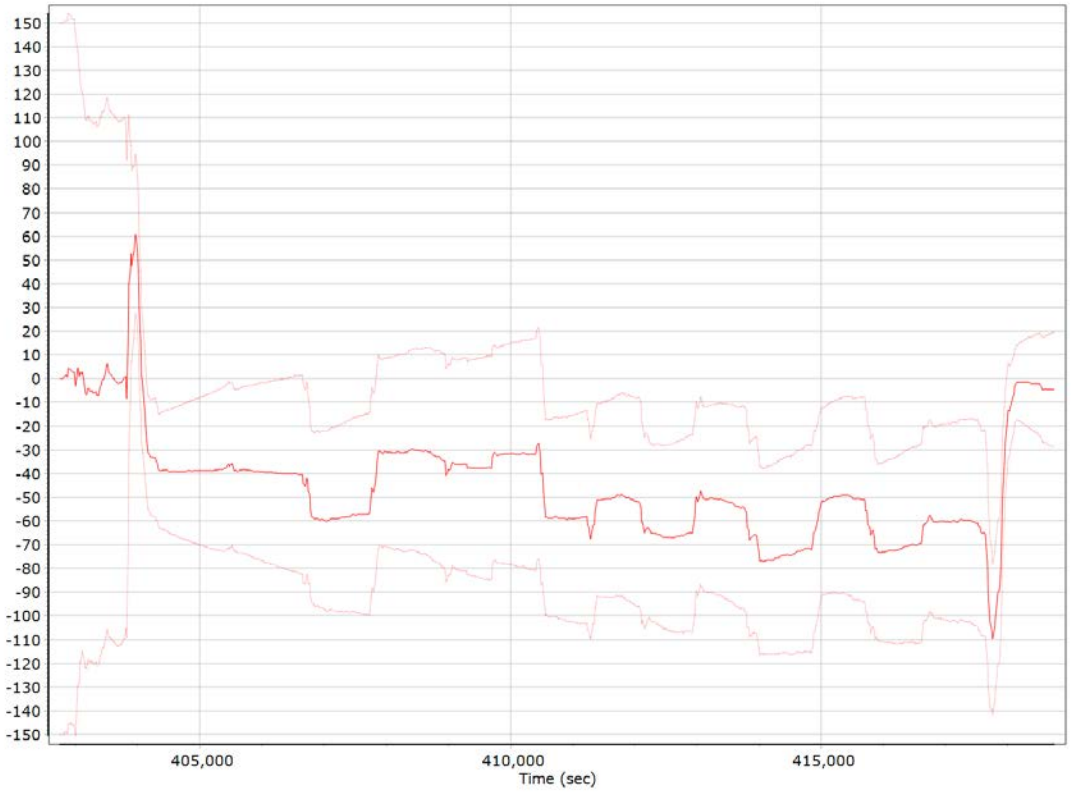
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)



Z Gyro Scale Error (ppm)

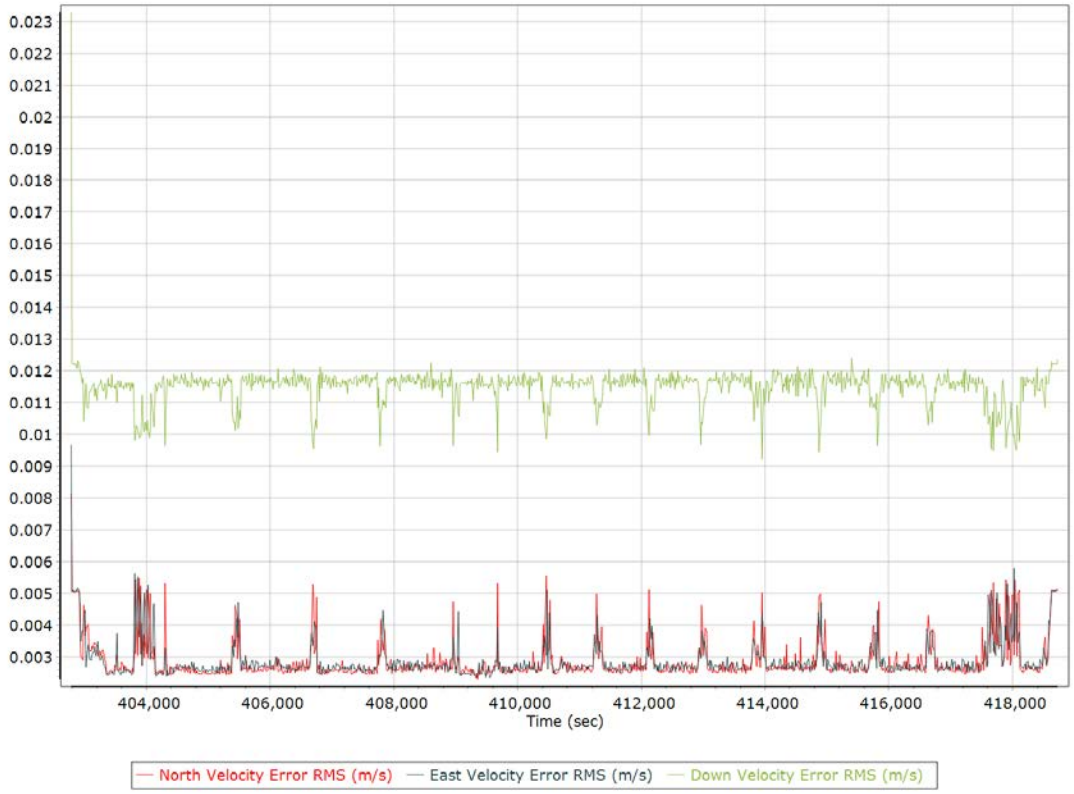


Smoothed Performance Metrics

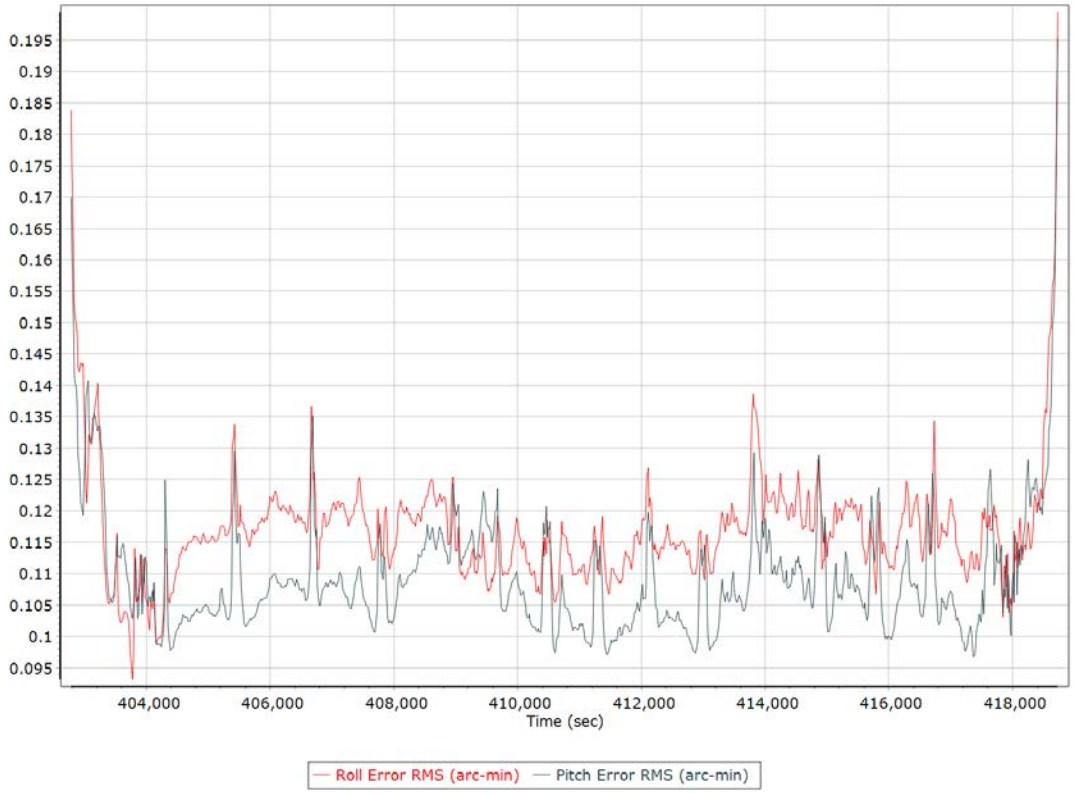
Position Error RMS (m)



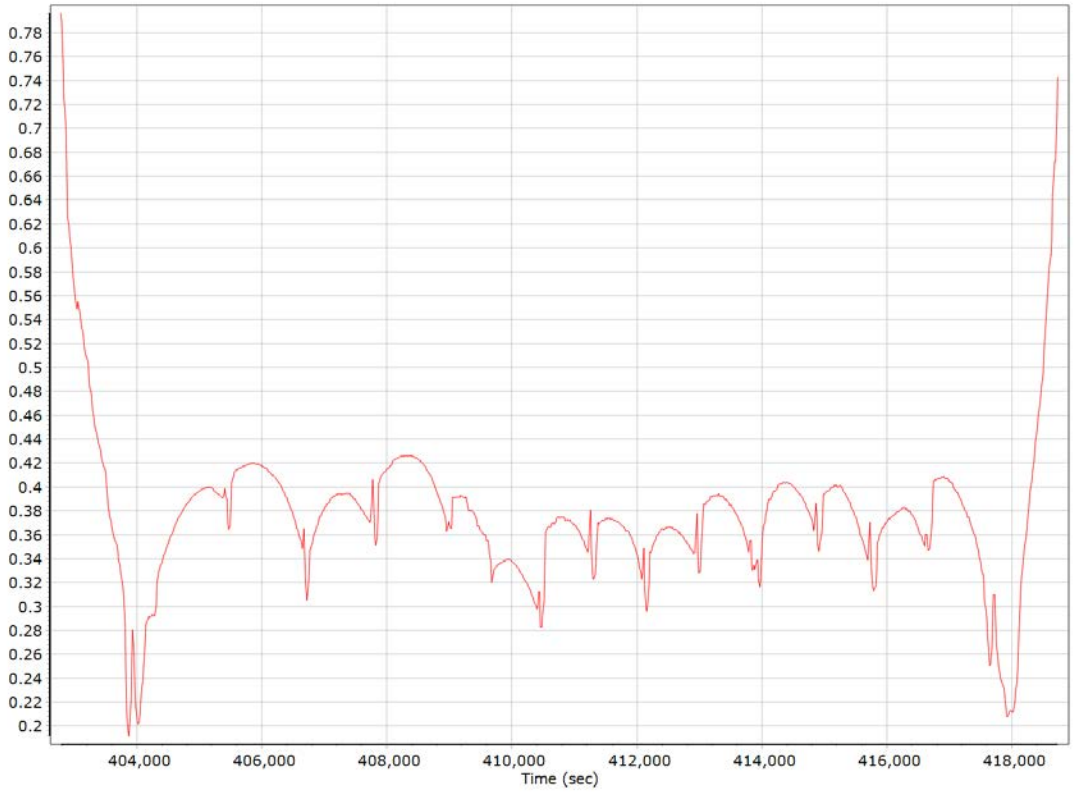
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)



Heading Error RMS (arc-min)

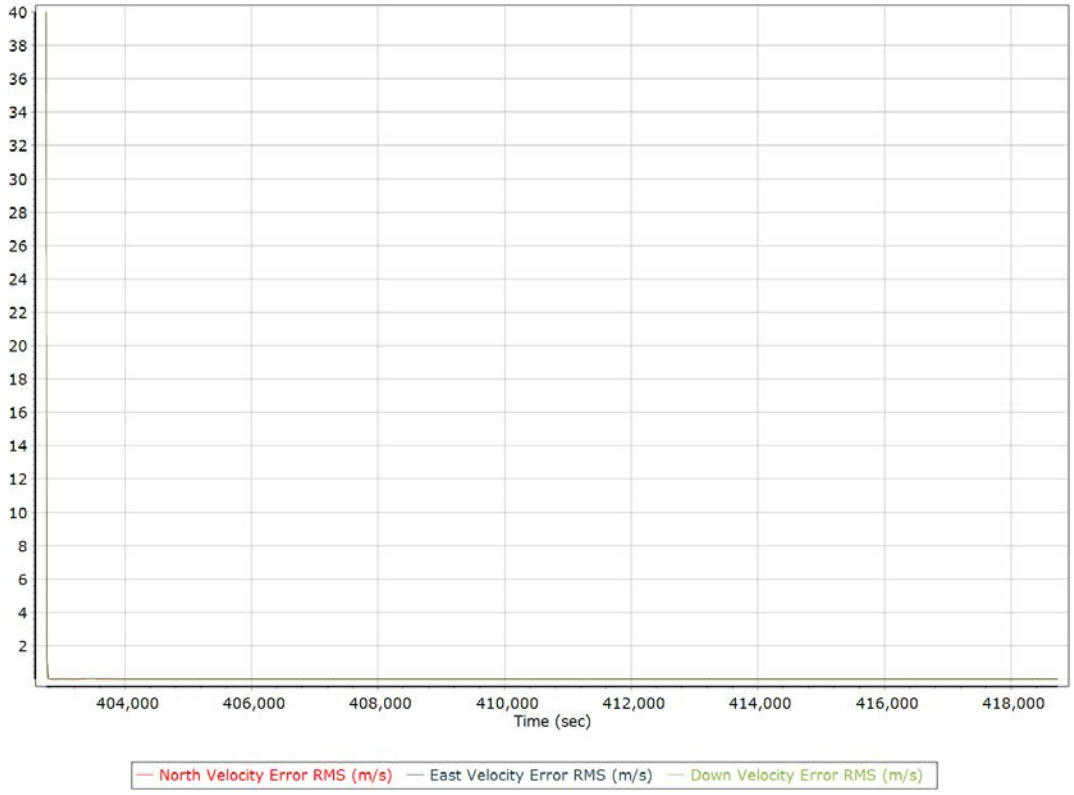


Forward Processed Performance Metrics

Position Error RMS (m)



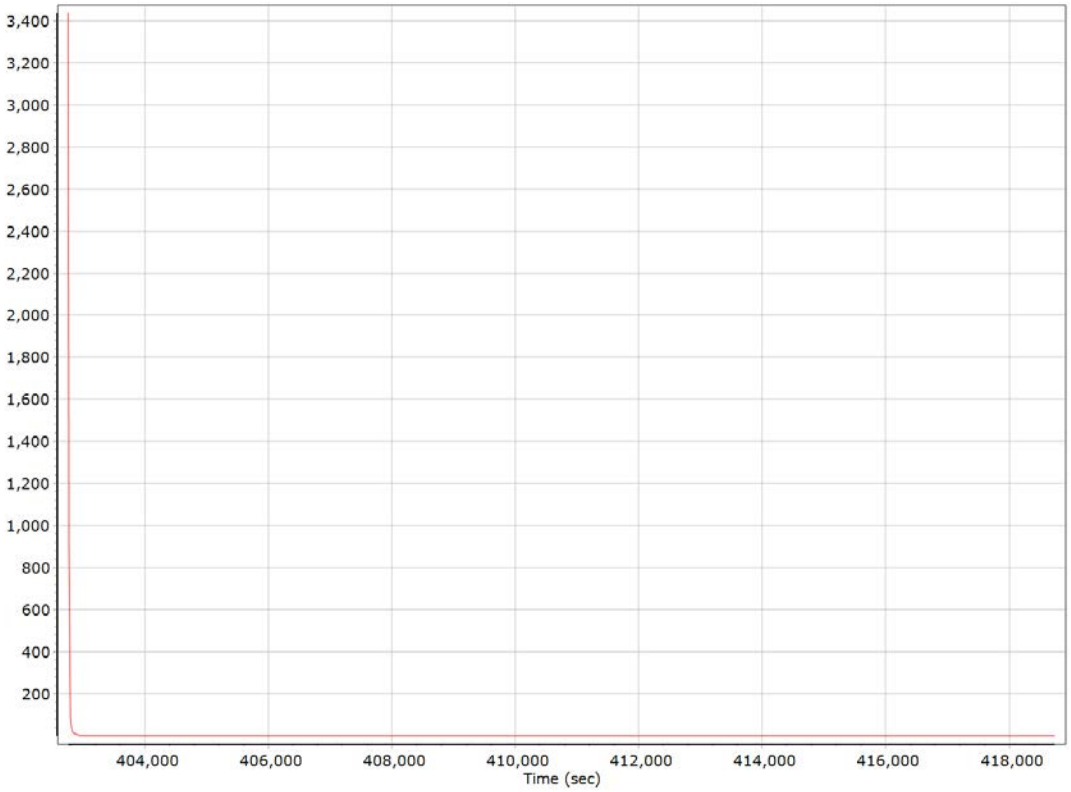
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

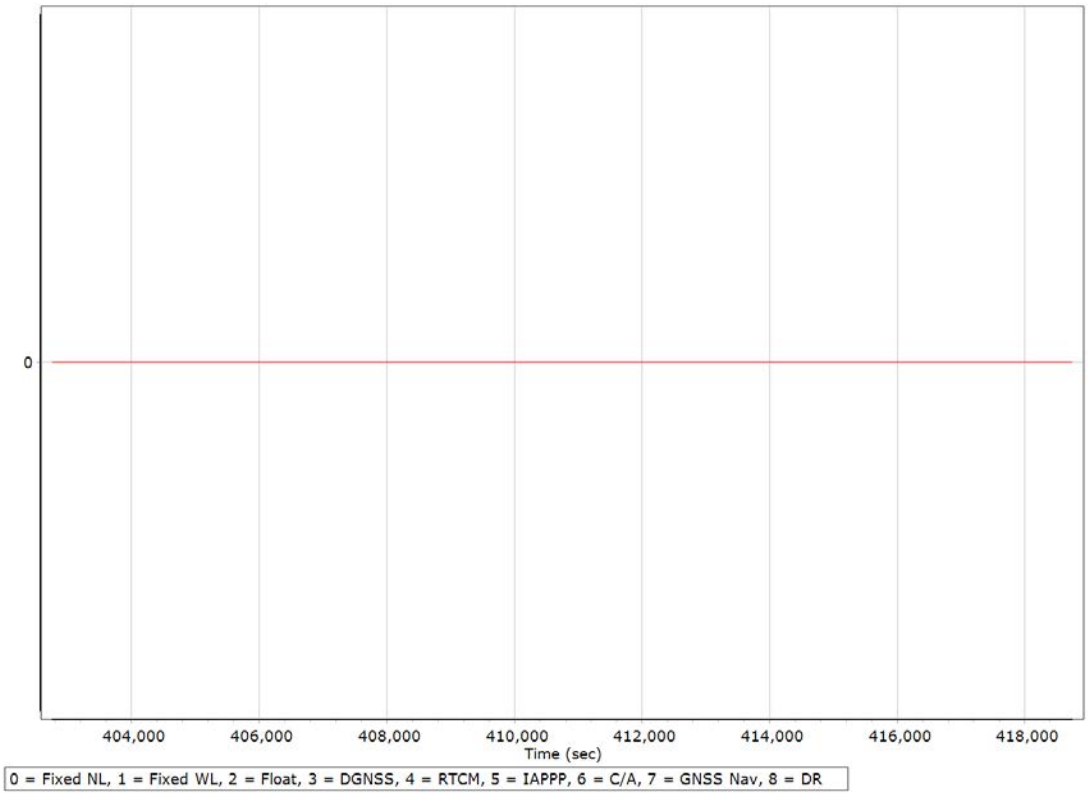


Heading Error RMS (arc-min)

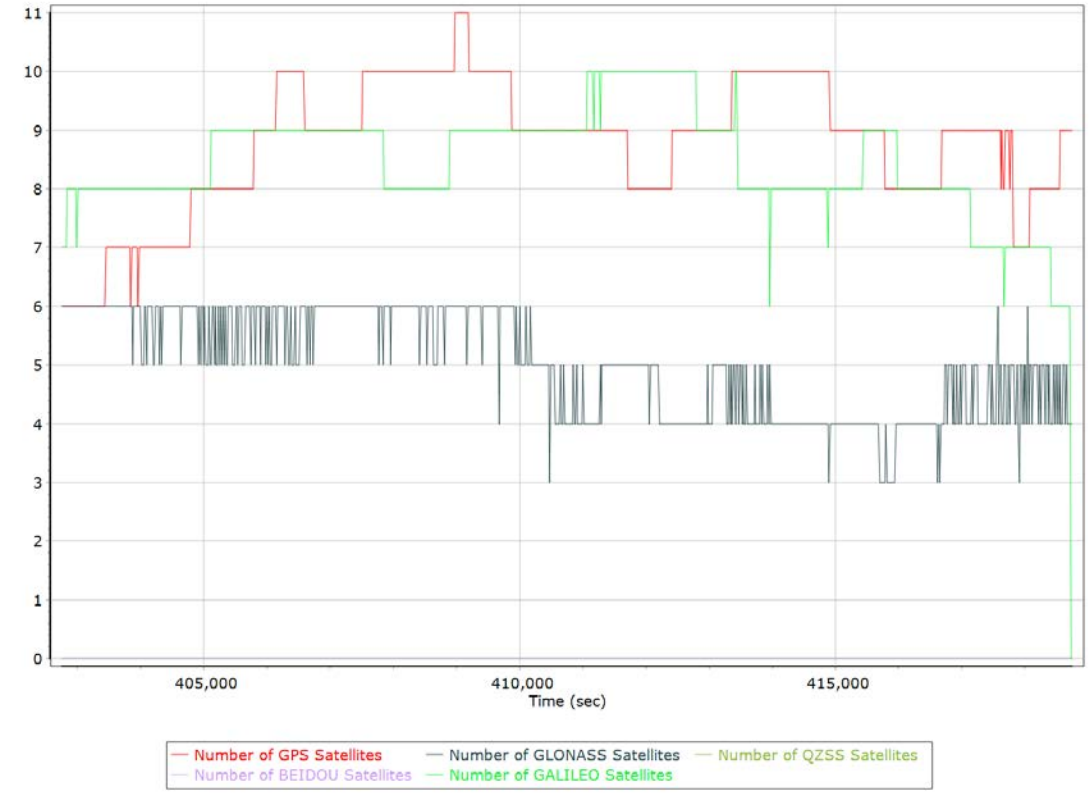


Forward Processed Solution Status

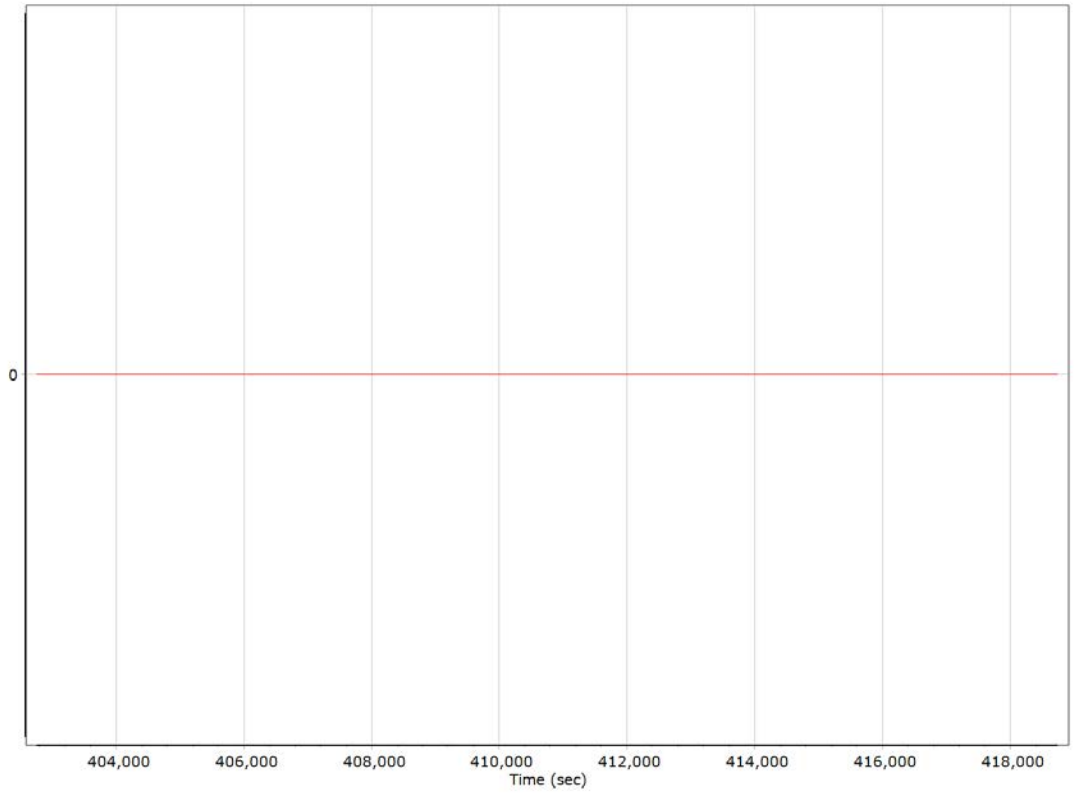
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	07282023B_4051
Processing date	2023-08-01 16:14:16
Mission date	2023-07-28 21:27:30
Mission duration	01:11:33.766
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.123	POS Data
CP780.124	POS Data
CP780.125	POS Data
CP780.126	POS Data
CP780.127	POS Data
CP780.128	POS Data
CP780.129	POS Data
CP780.130	POS Data
CP780.131	POS Data
CP780.132	POS Data

Input Files

File Name	File Type
Ephm2090.23g	GLONASS Broadcast Ephemeris
Ephm2090.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_07282023B_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.123		
Last raw data file	CP780.132		
Start GPS week	2272		
Start time	509231.645 (7/28/2023 9:27:11 PM)		
End time	513525.411 (7/28/2023 10:38:45 PM)		
Start of fine alignment	509255.454 (7/28/2023 9:27:35 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

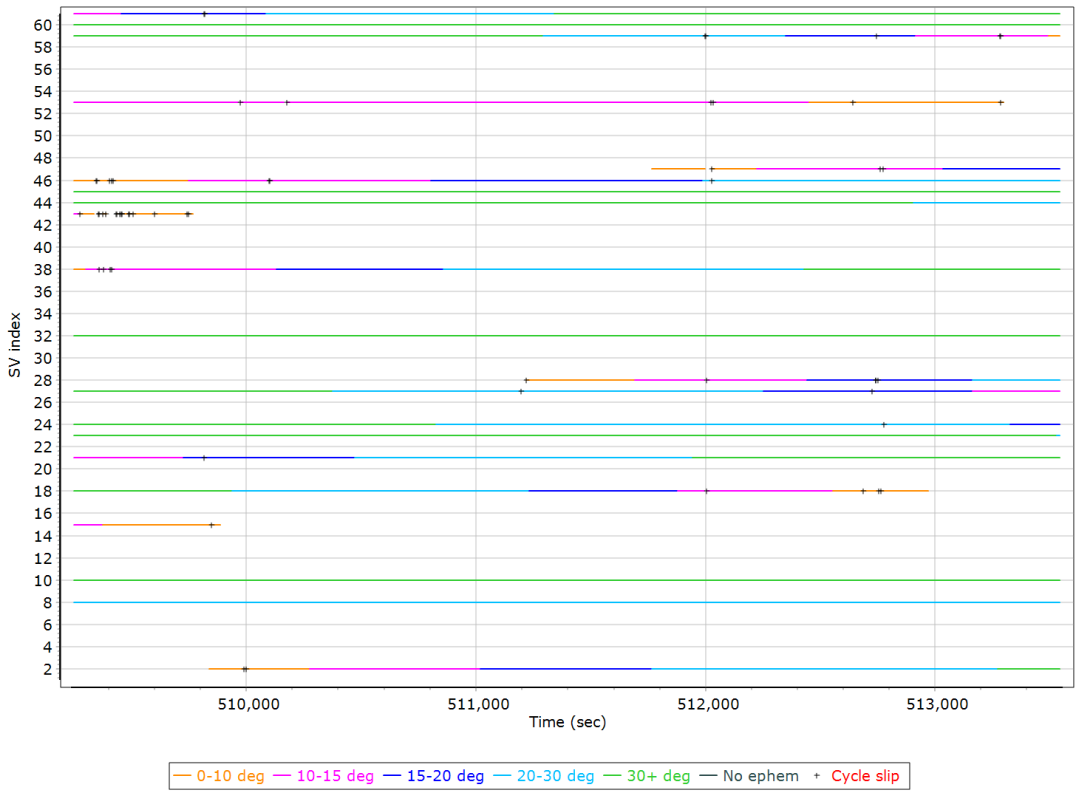
Rover Data QC

Raw IMU Import QC Summary

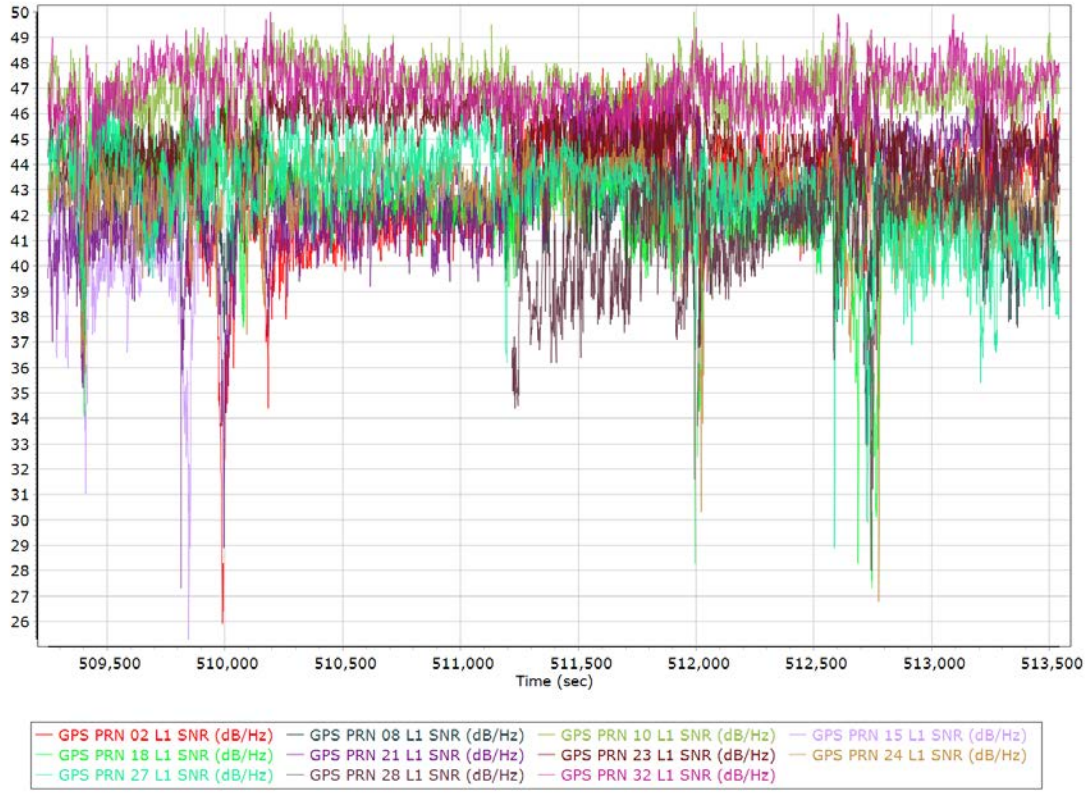
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07282023B_4051.log
IMU Records Processed	858647
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

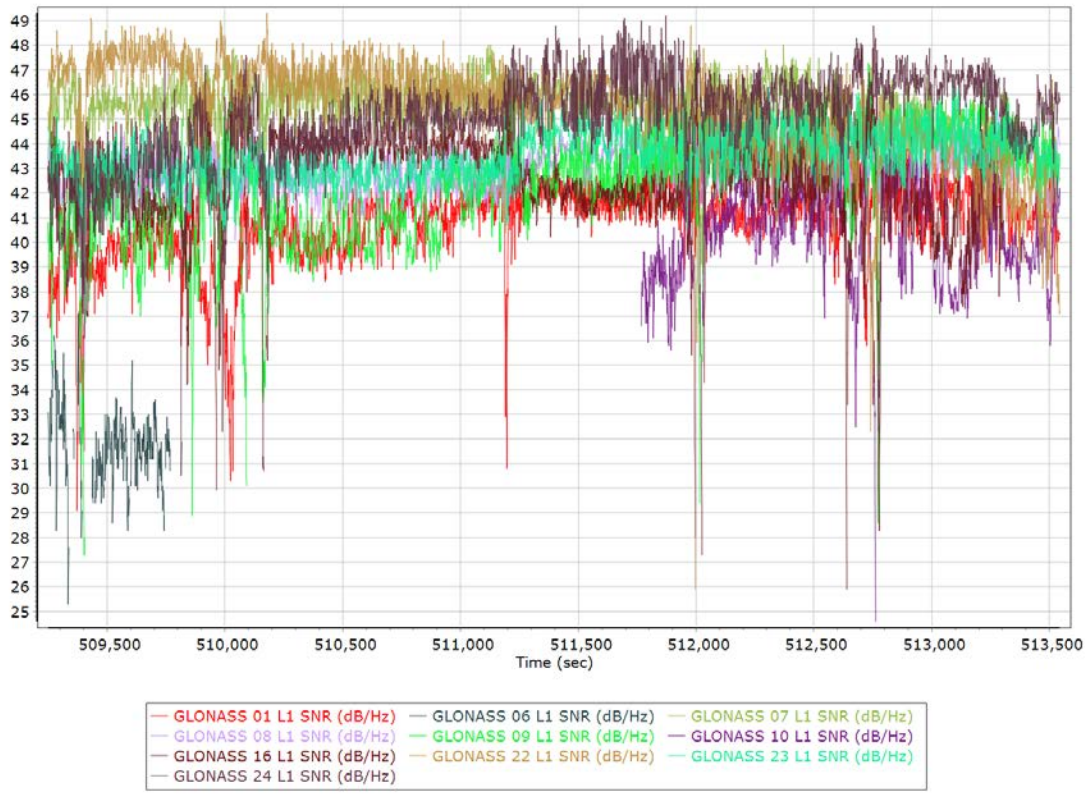
GPS/GLONASS L1 Satellite Lock/Elevation



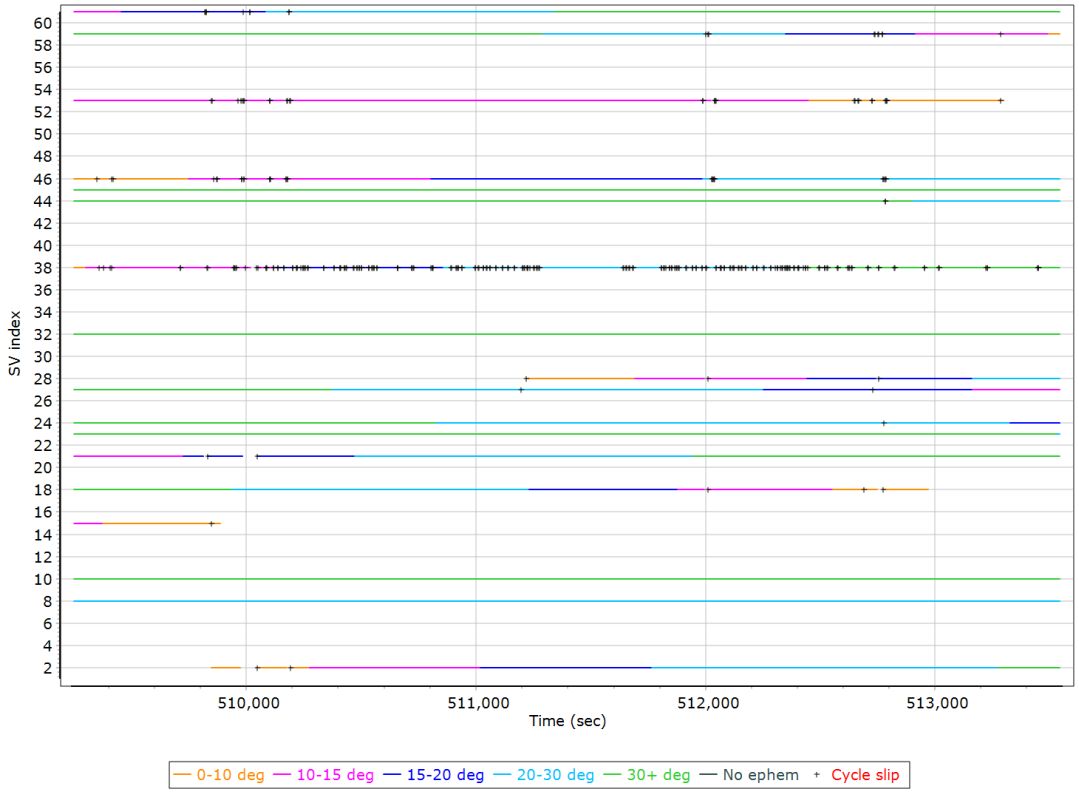
GPS L1 SNR



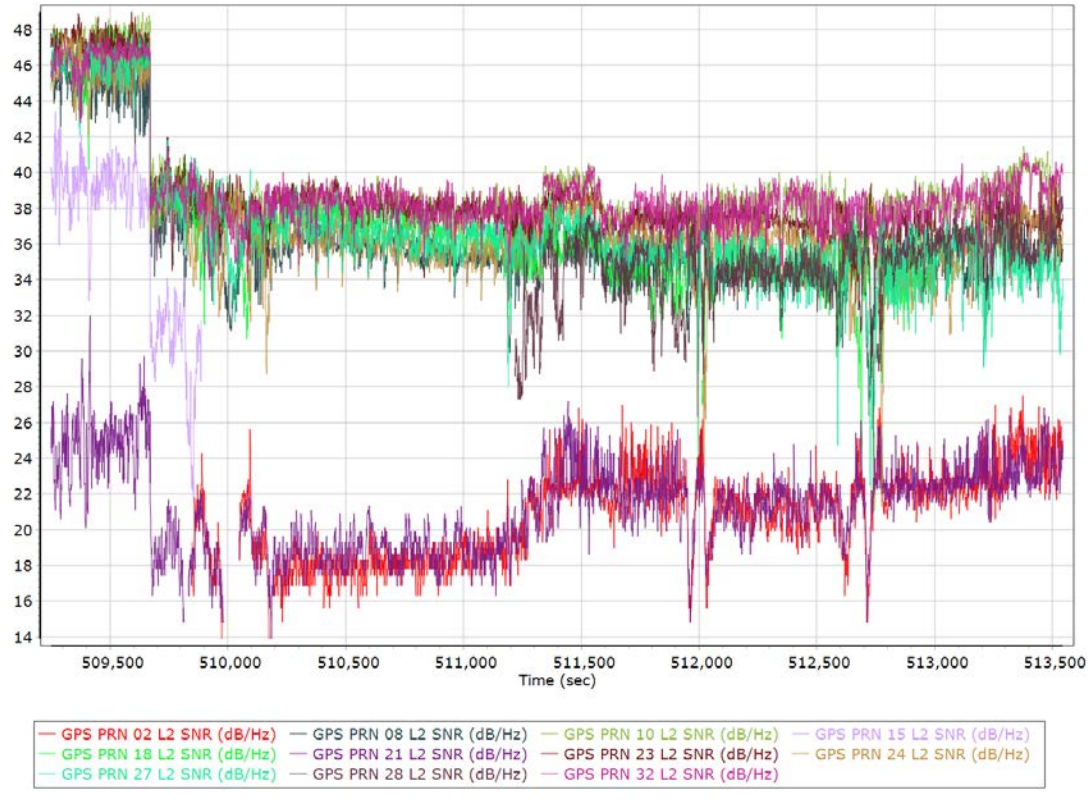
GLONASS L1 SNR



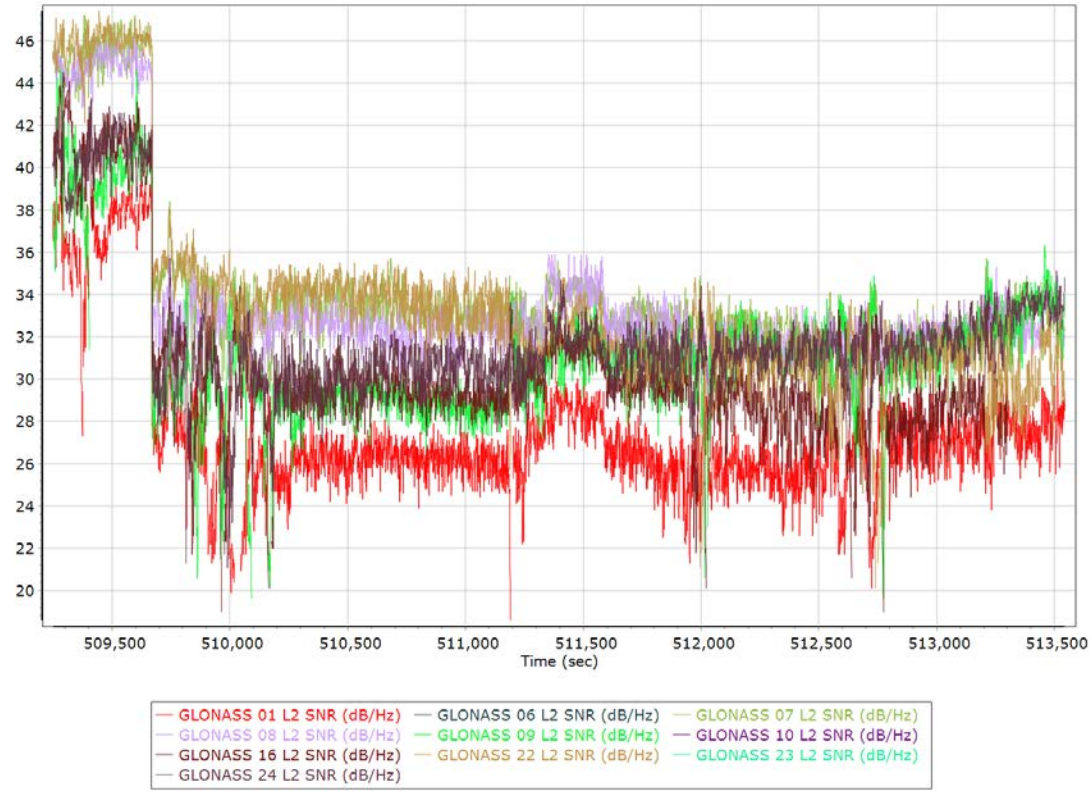
GPS/GLONASS L2 Satellite Lock/Elevation



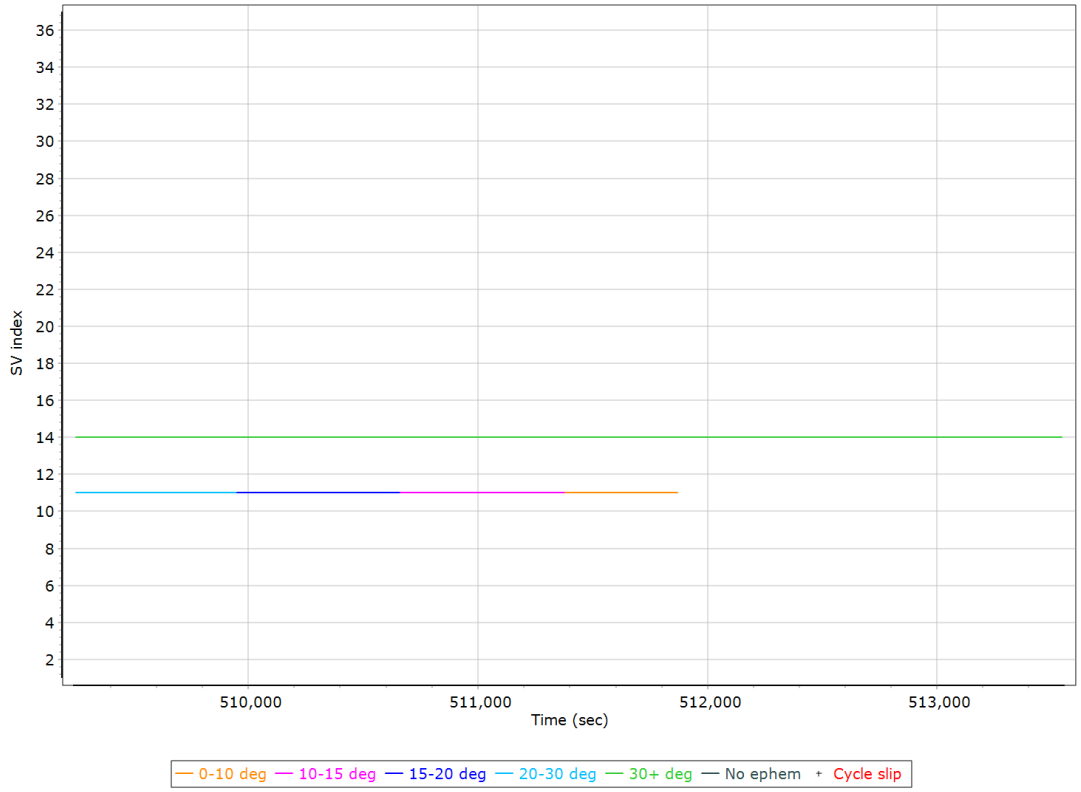
GPS L2 SNR



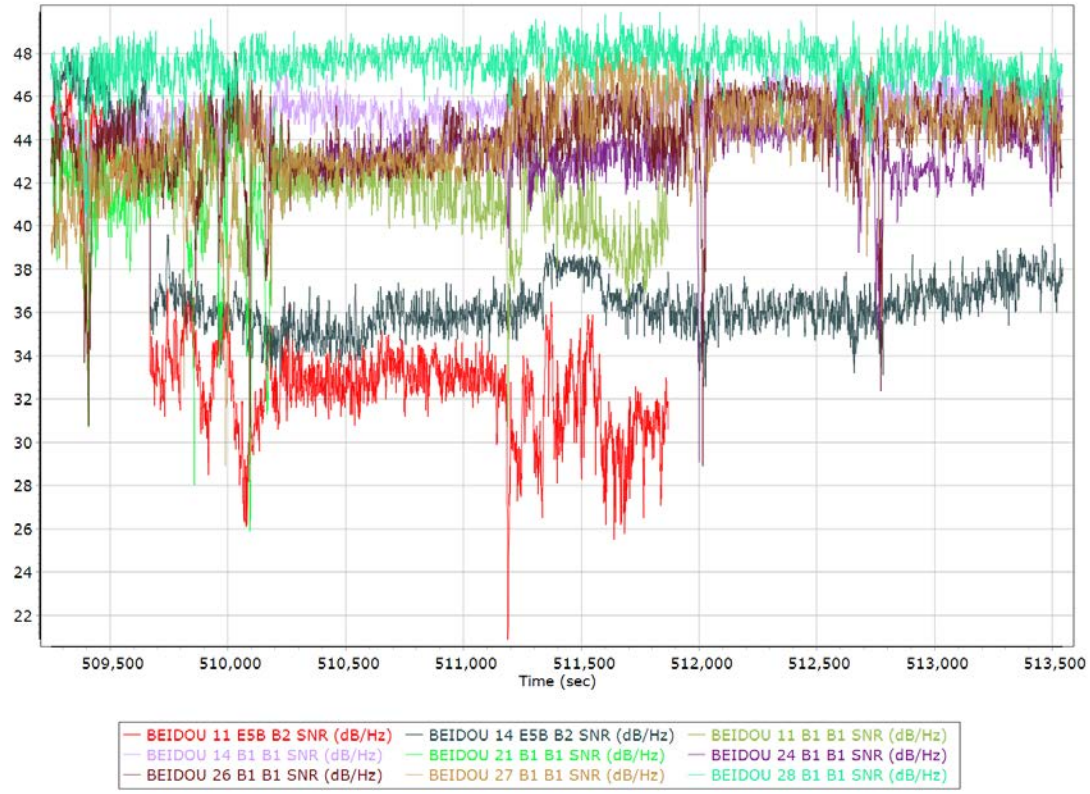
GLONASS L2 SNR



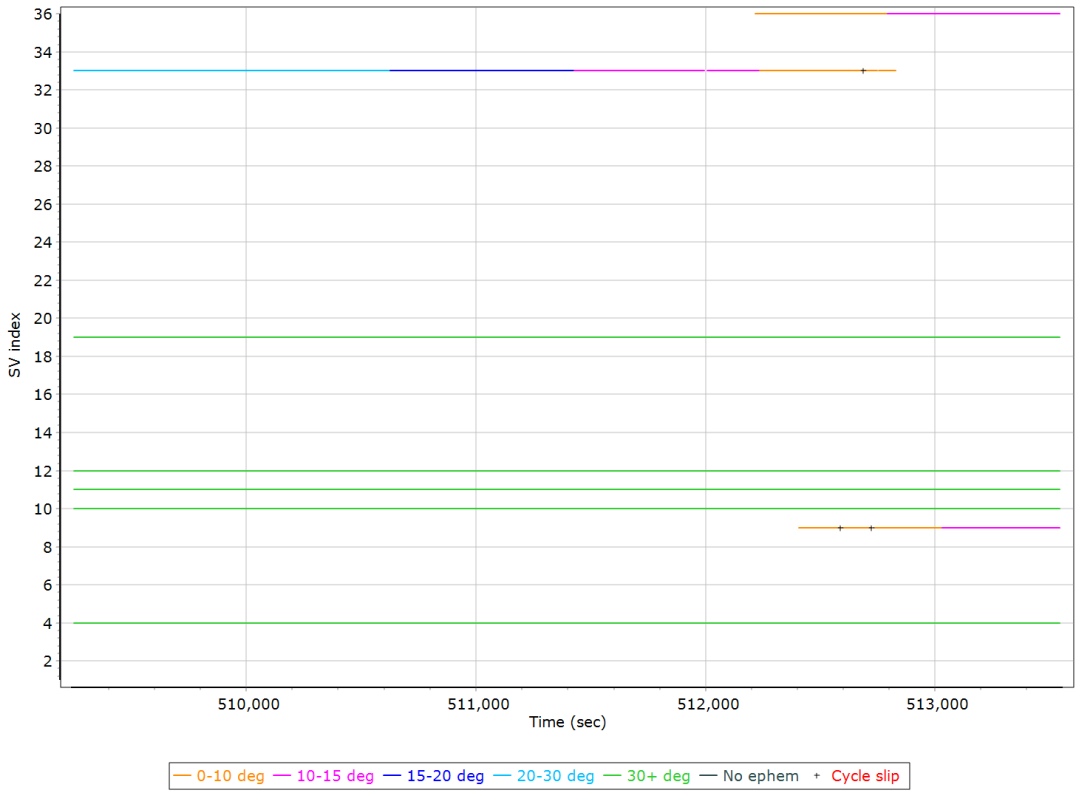
BEIDOU Satellite Lock/Elevation



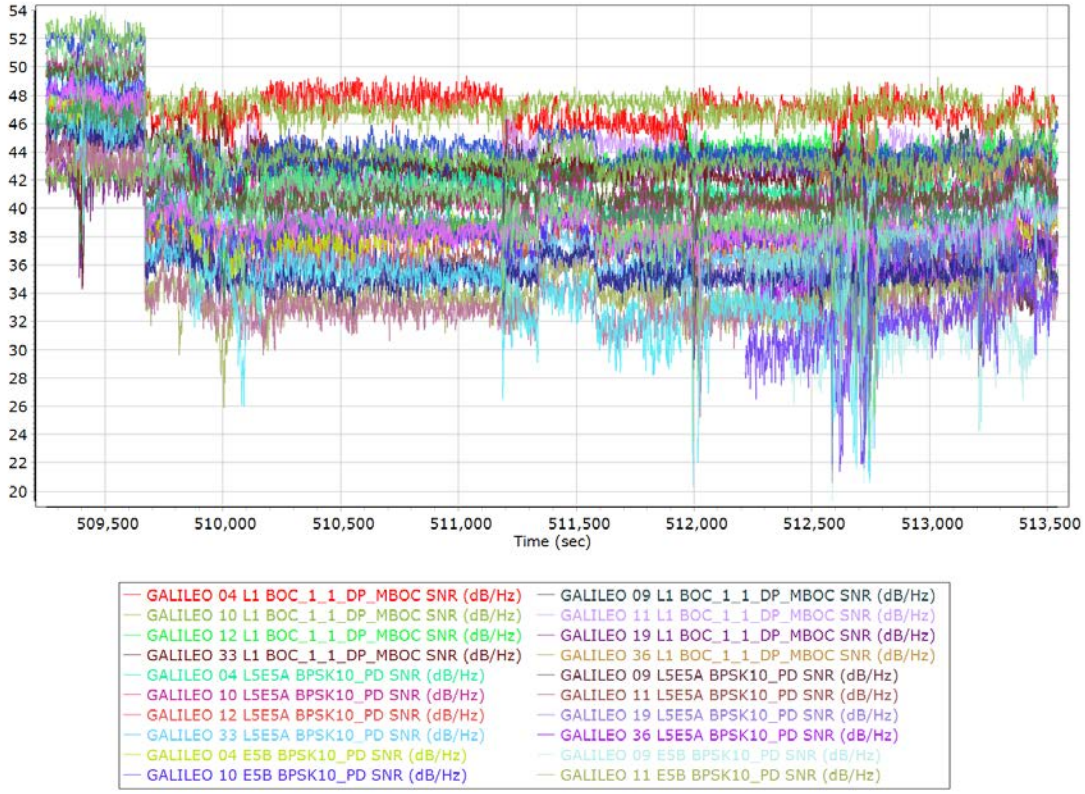
BEIDOU SNR



GALILEO Satellite Lock/Elevation

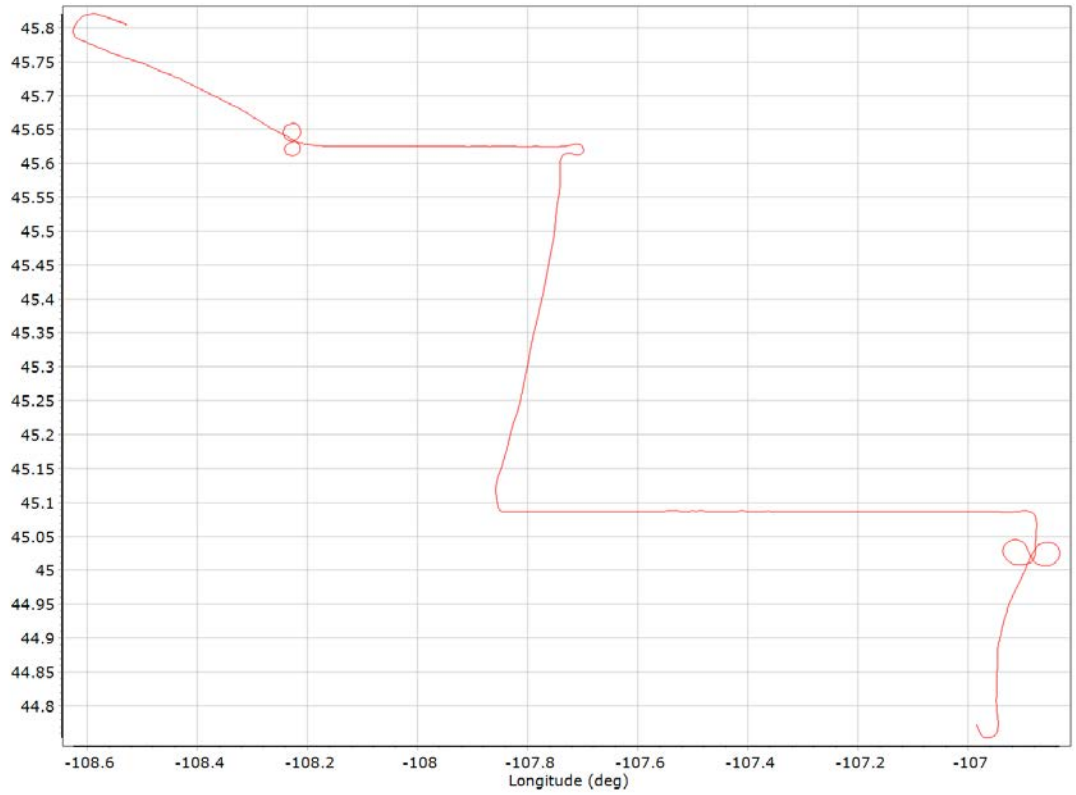


GALILEO SNR

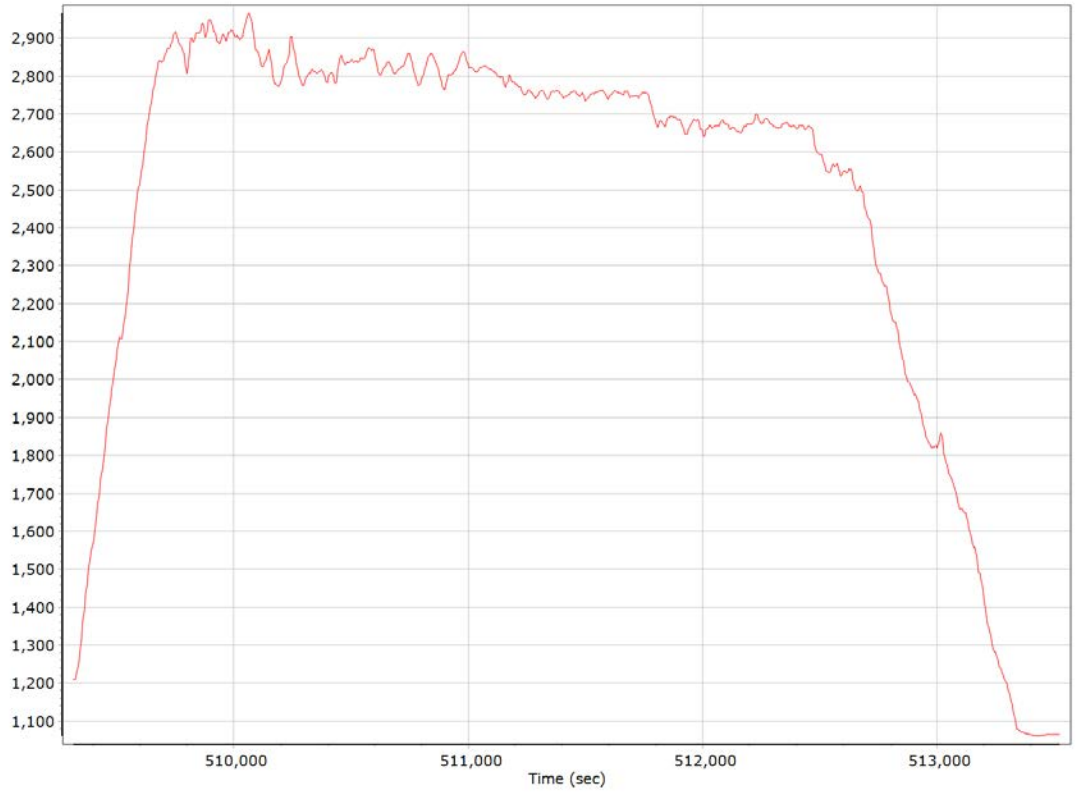

54
52
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26
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509,500
510,000
510,500
511,000
511,500
512,000
512,500
513,000
513,500
Time (sec)
GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 09 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 10 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 33 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 09 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 19 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 33 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 36 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 09 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 10 E5B BPSK10_PD SNR (dB/Hz)
GALILEO 11 E5B BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

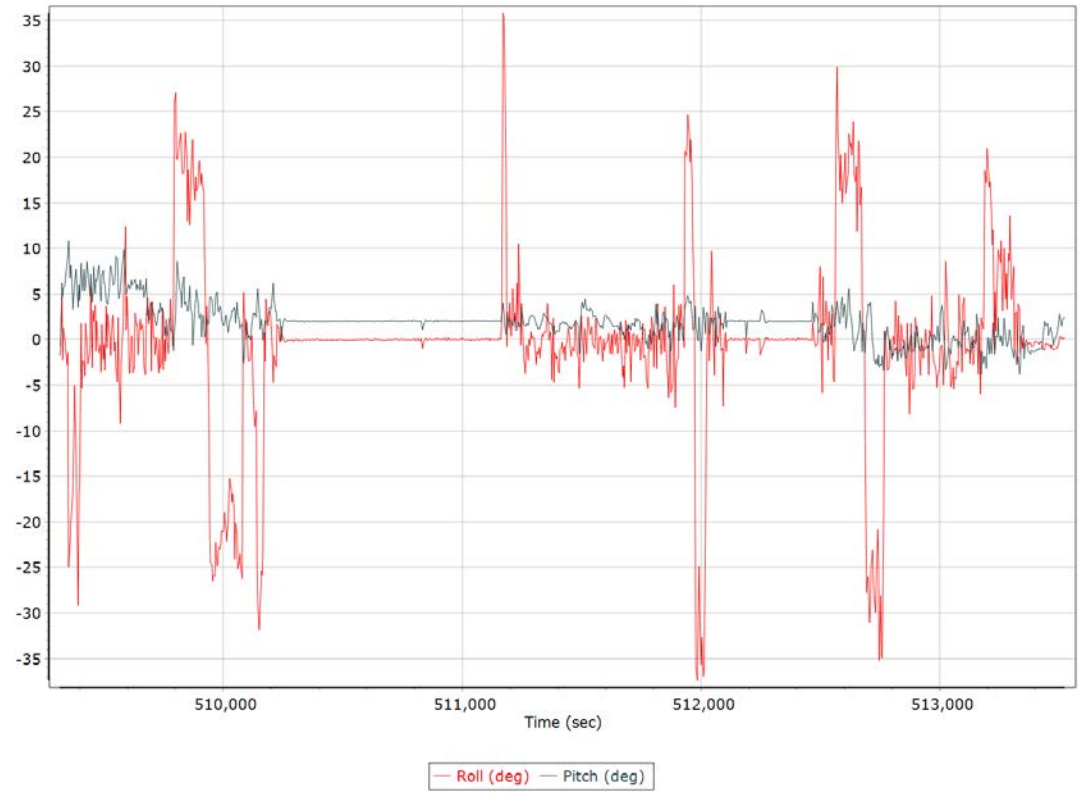
Top View



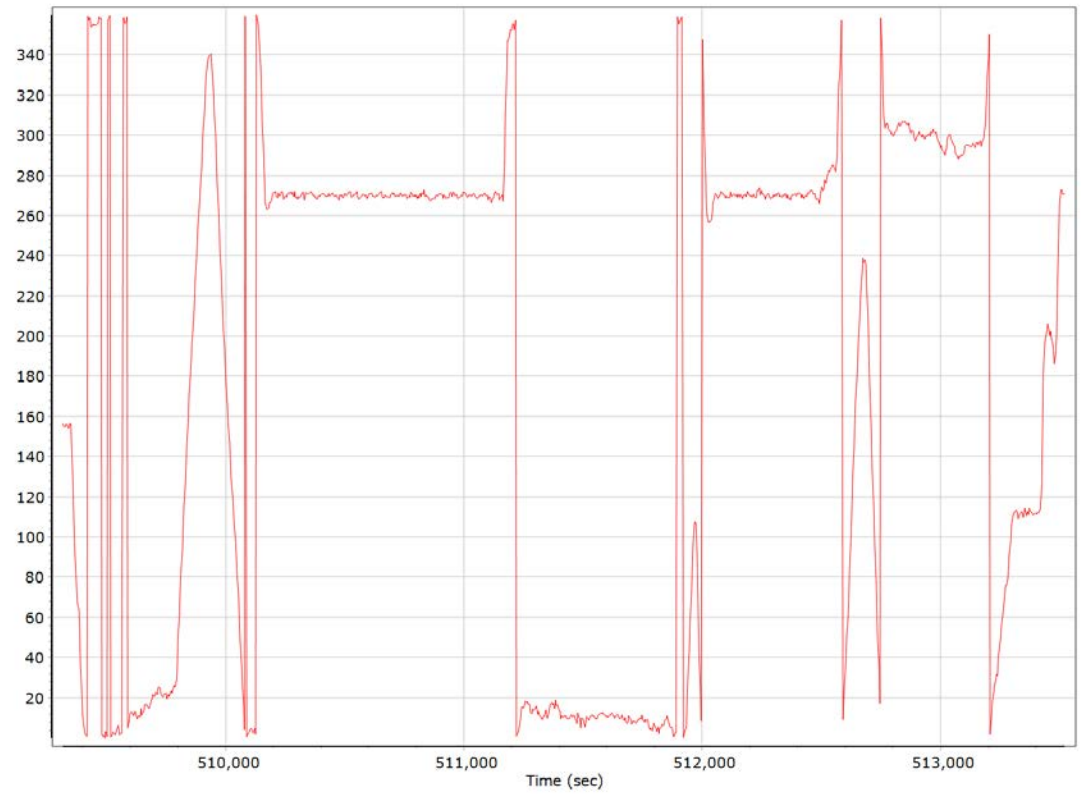
Altitude



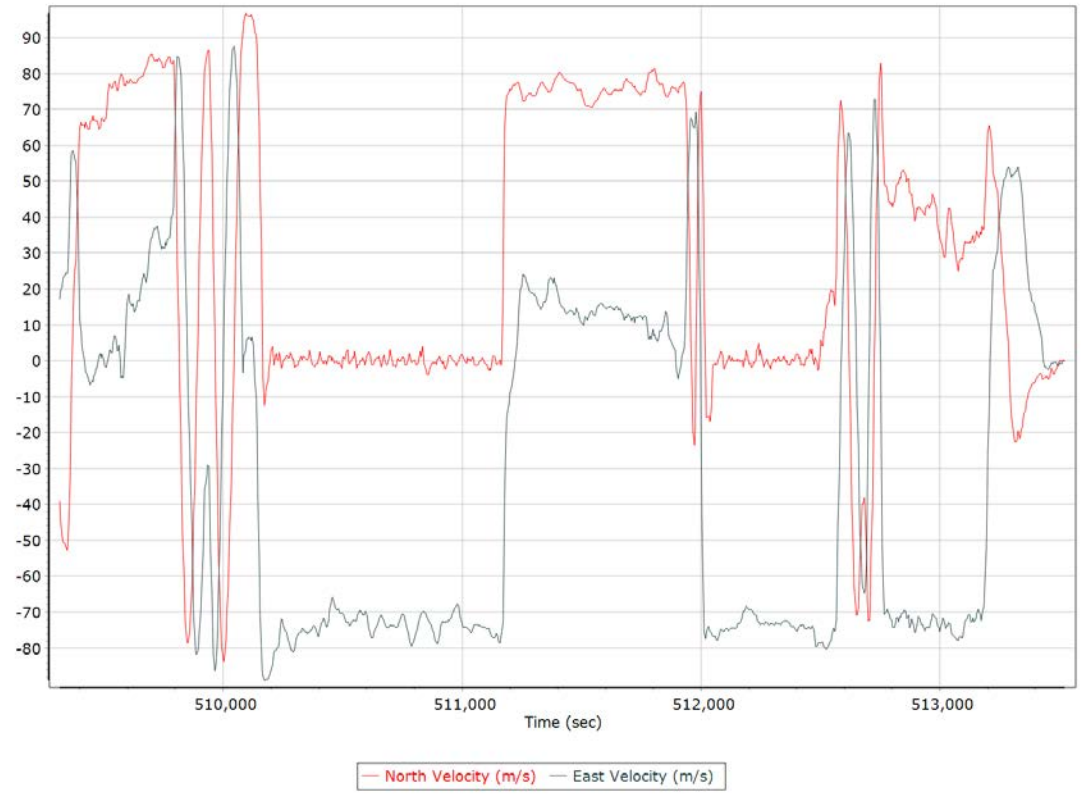
Roll/Pitch



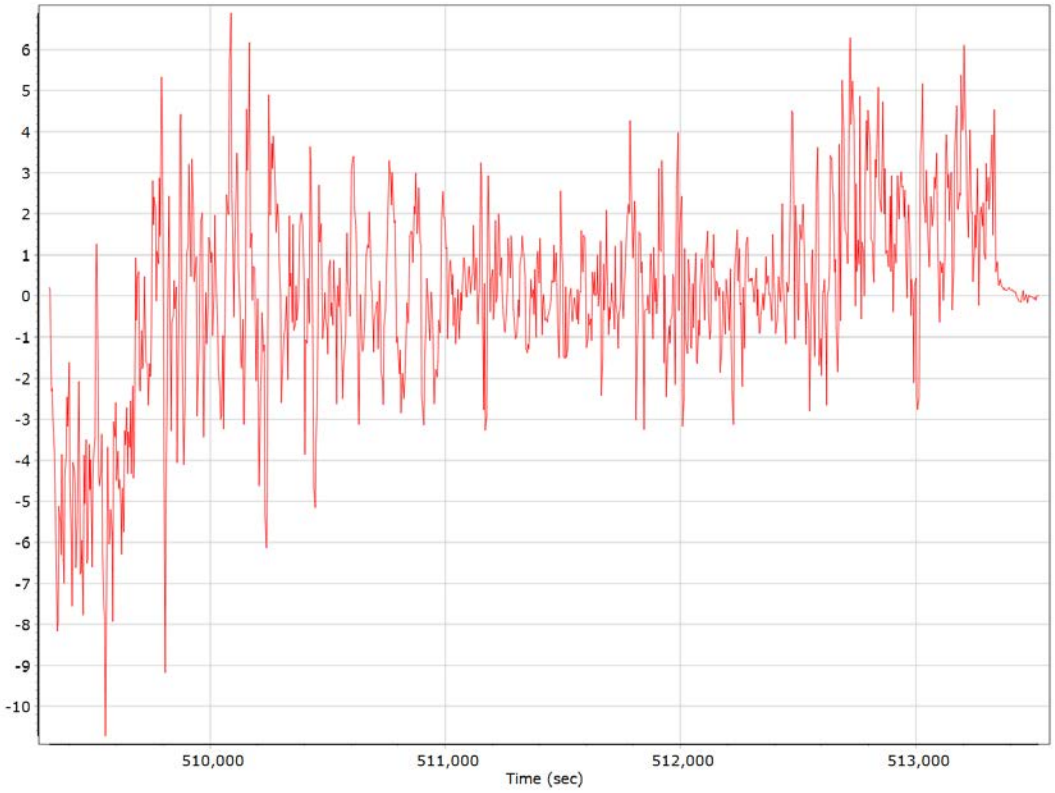
Heading



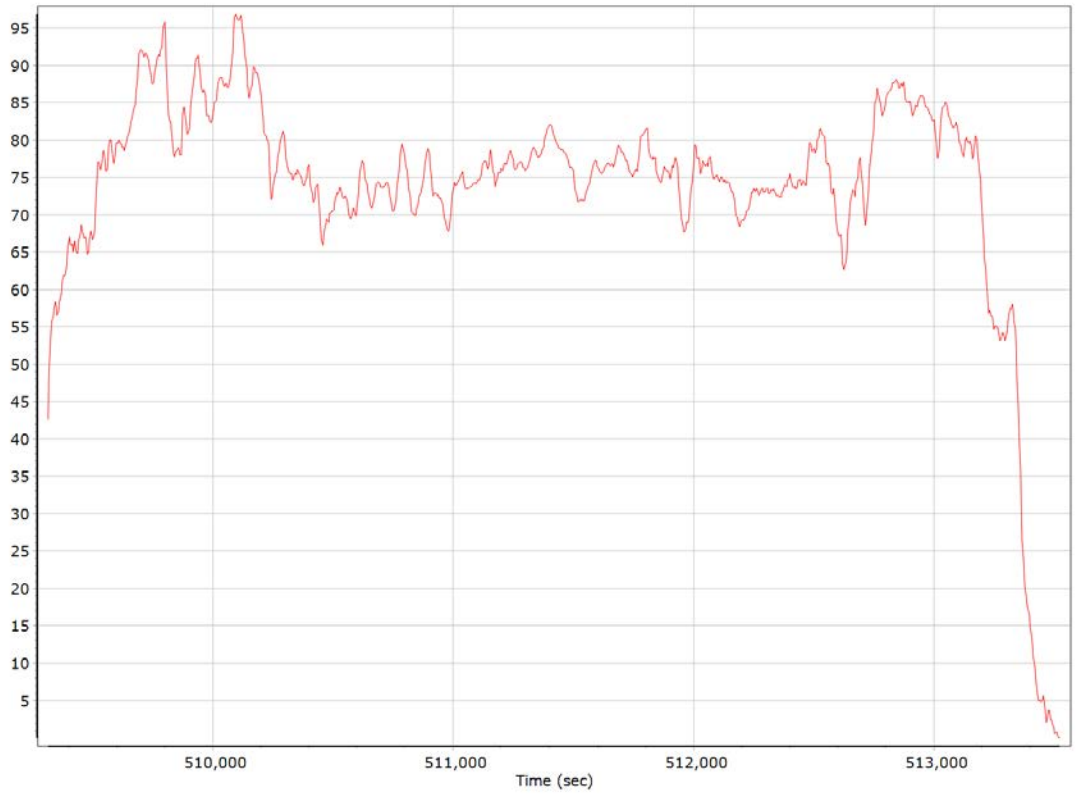
North/East Velocity



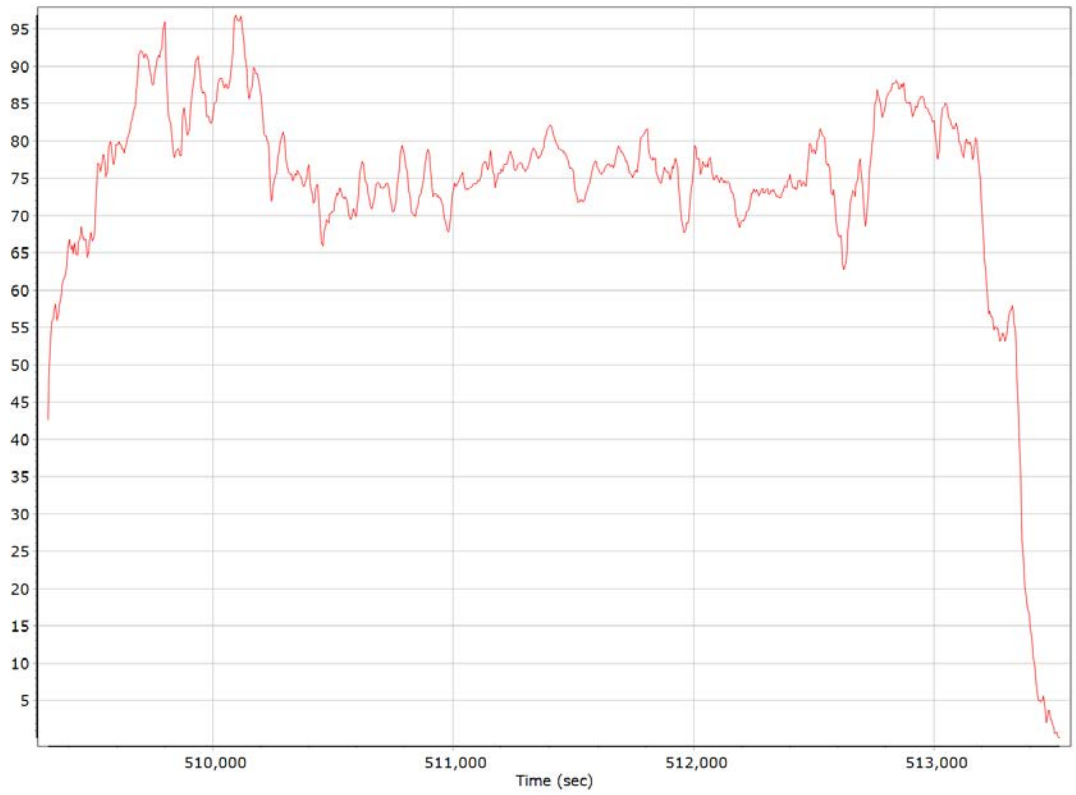
Down Velocity



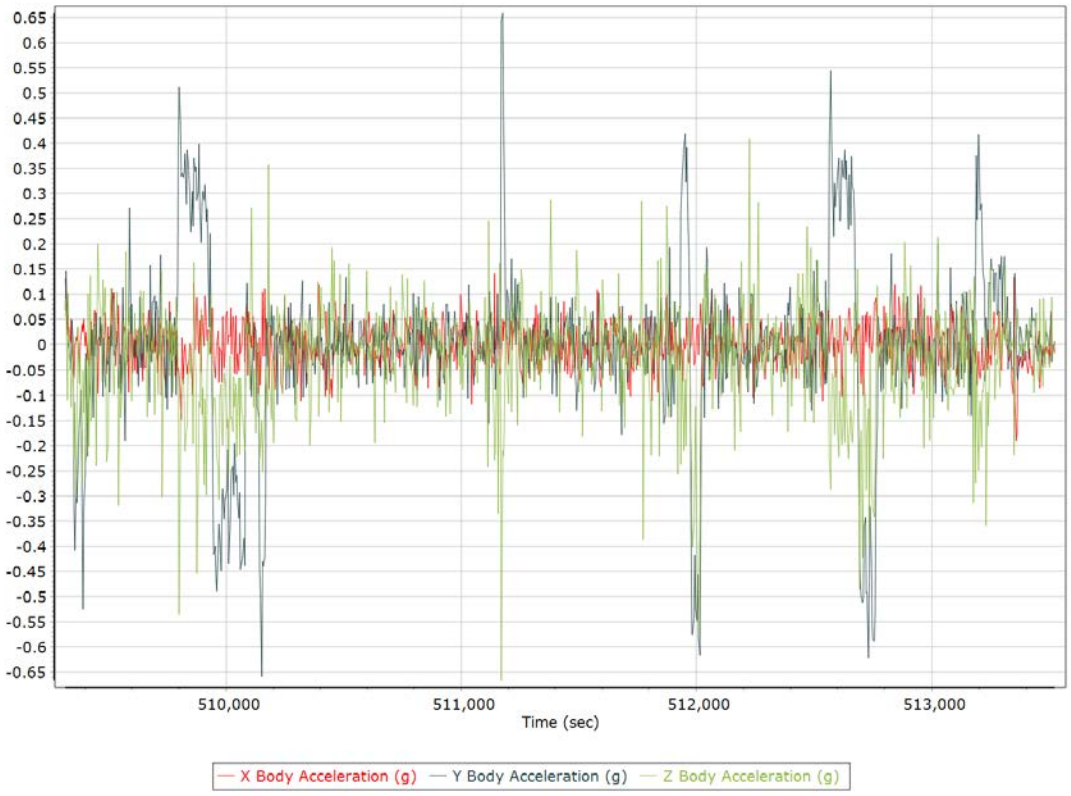
Total Speed



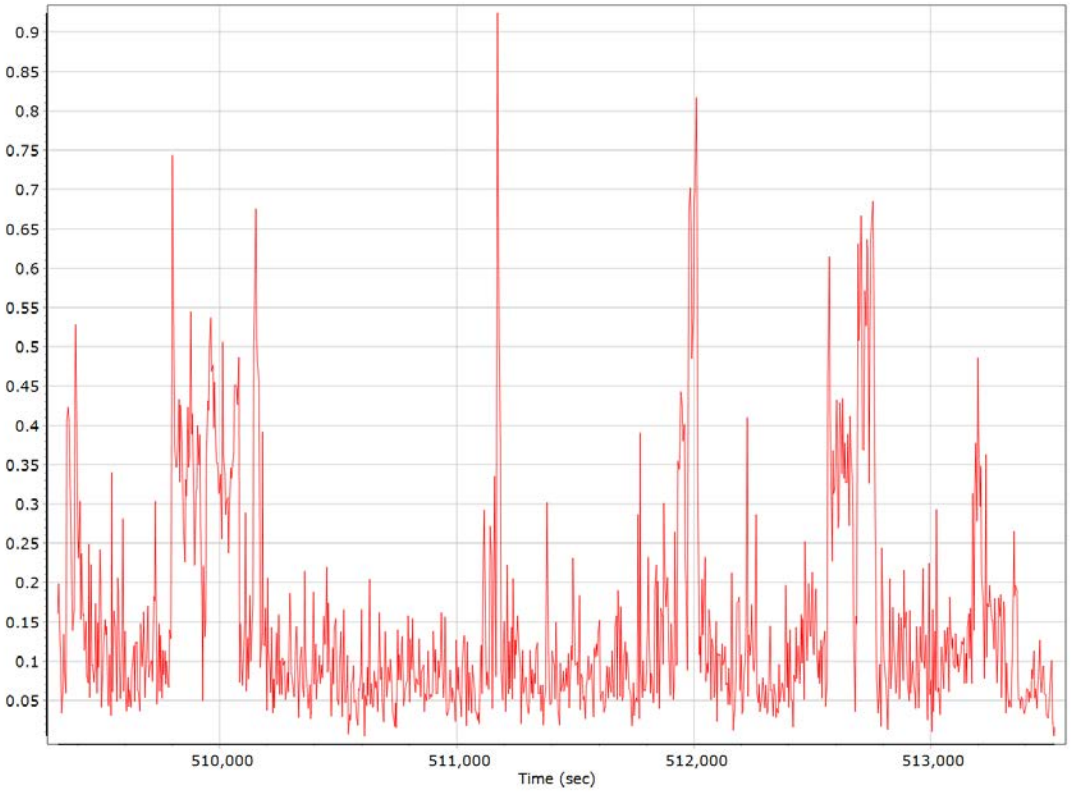
Ground Speed



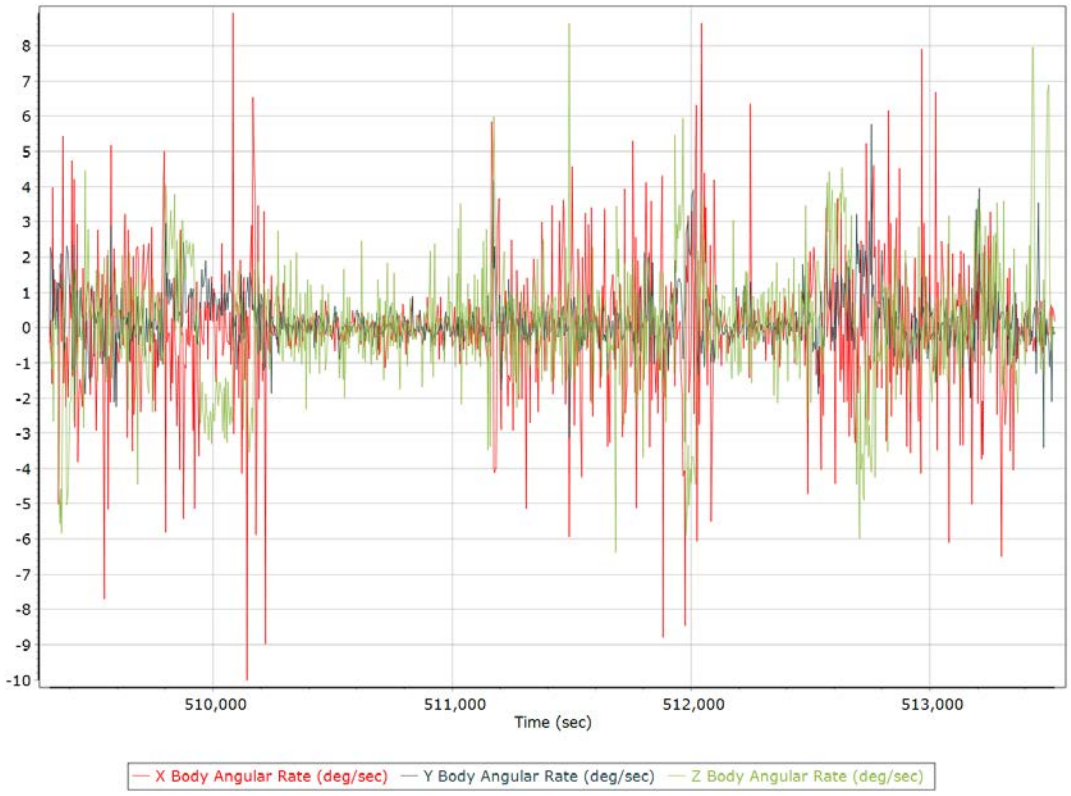
Body Acceleration



Total Body Acceleration

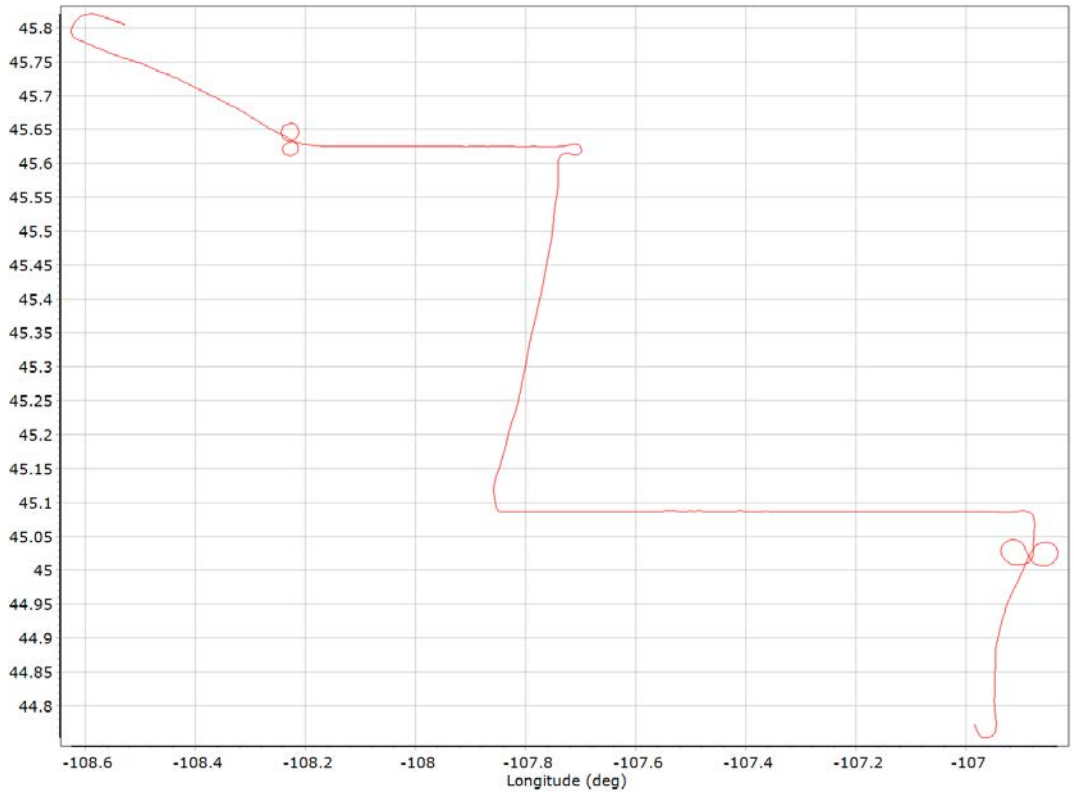


Body Angular Rate

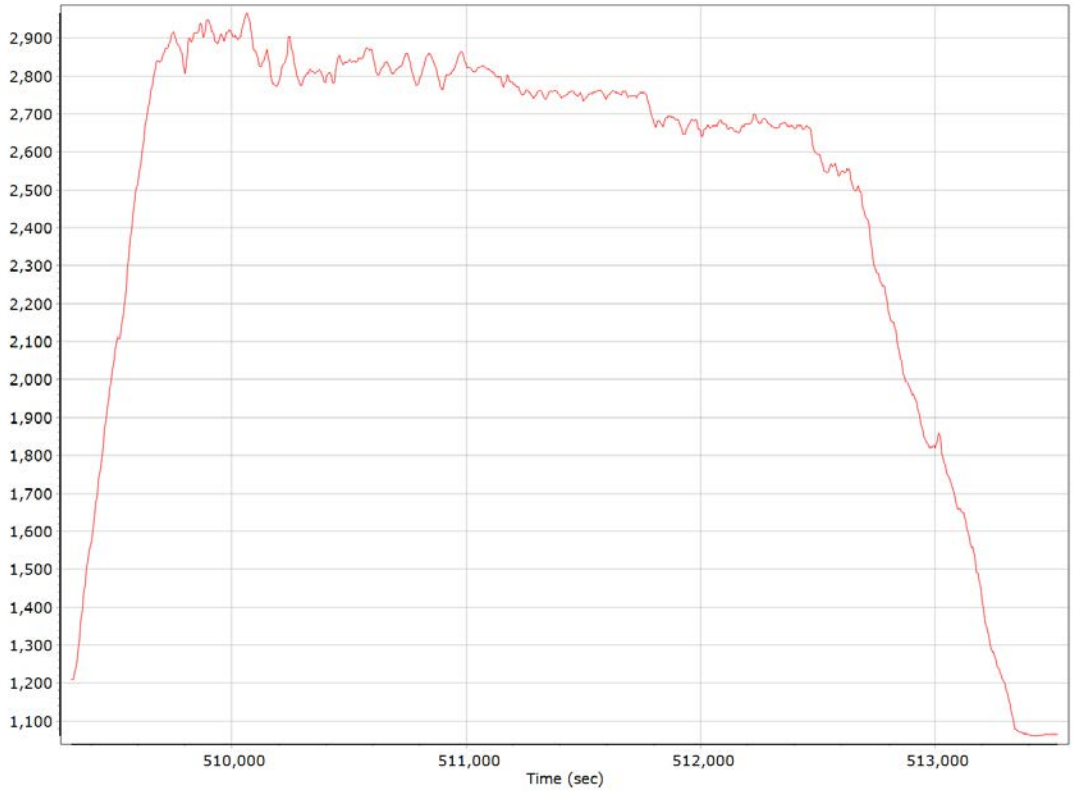


Forward Processed Trajectory Information

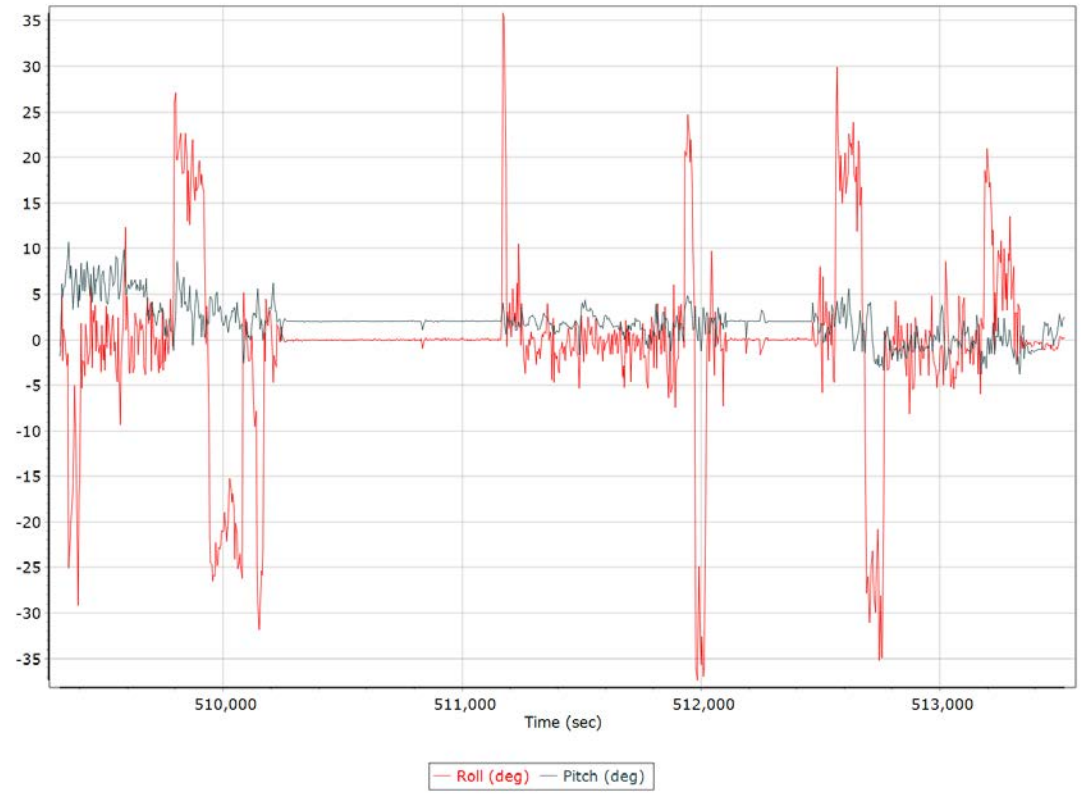
Top View



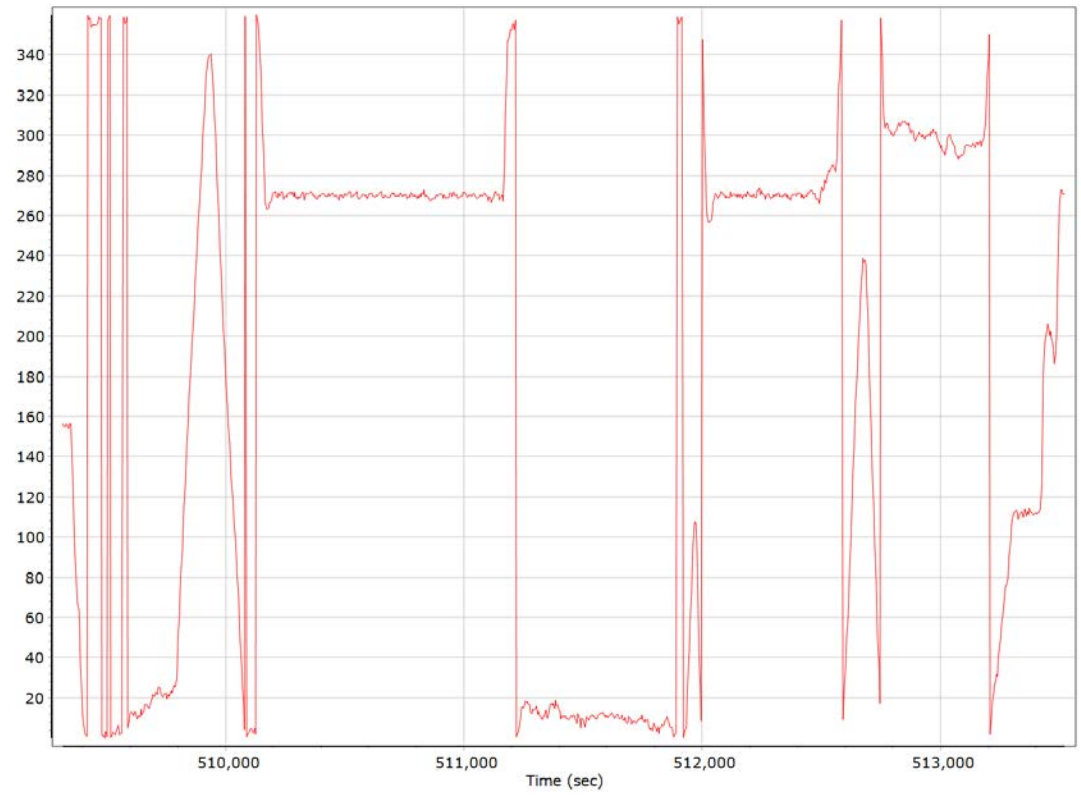
Altitude



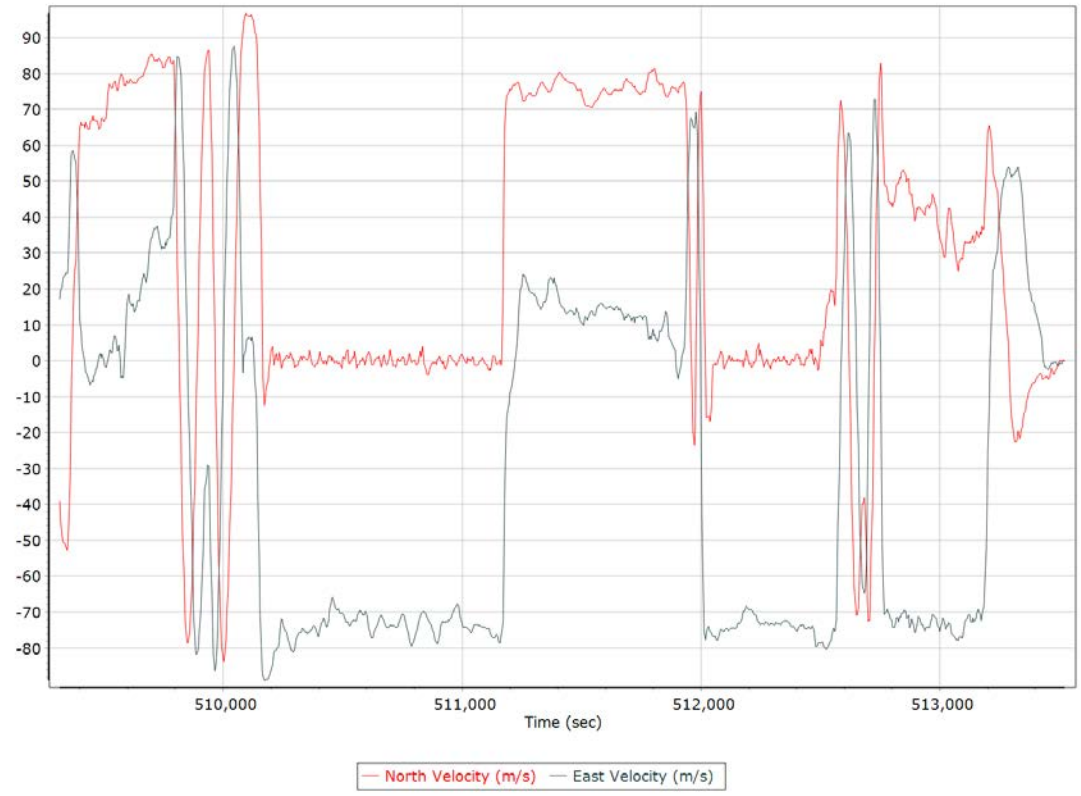
Roll/Pitch



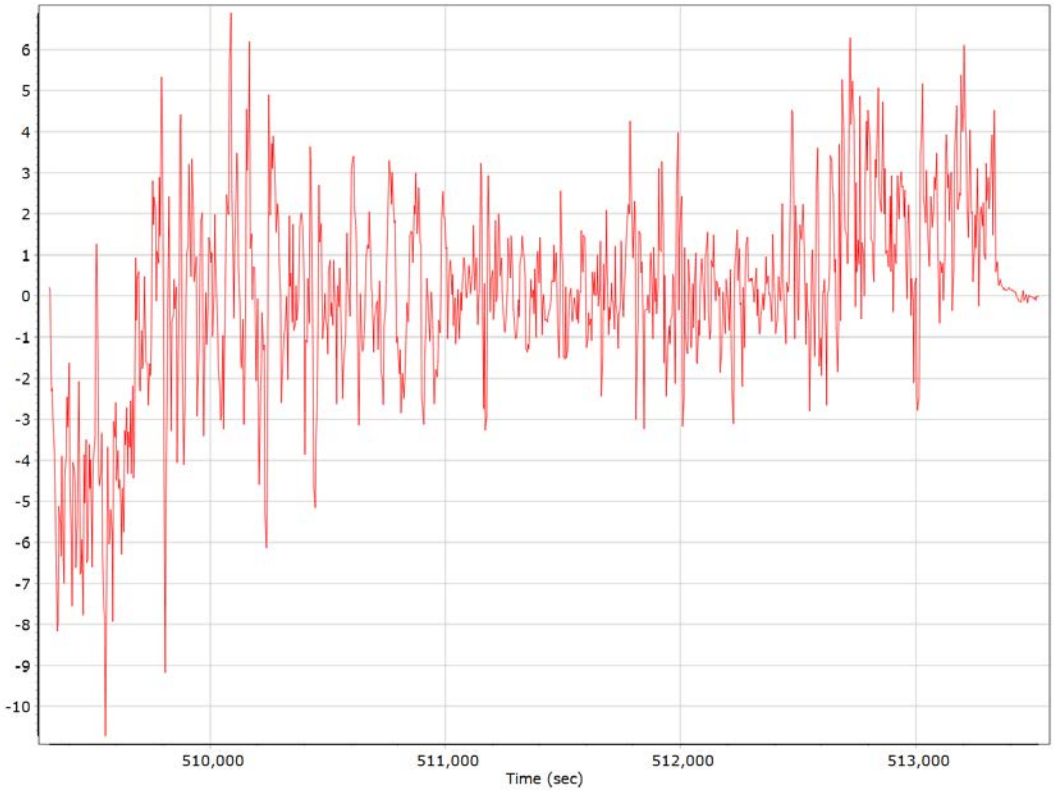
Heading



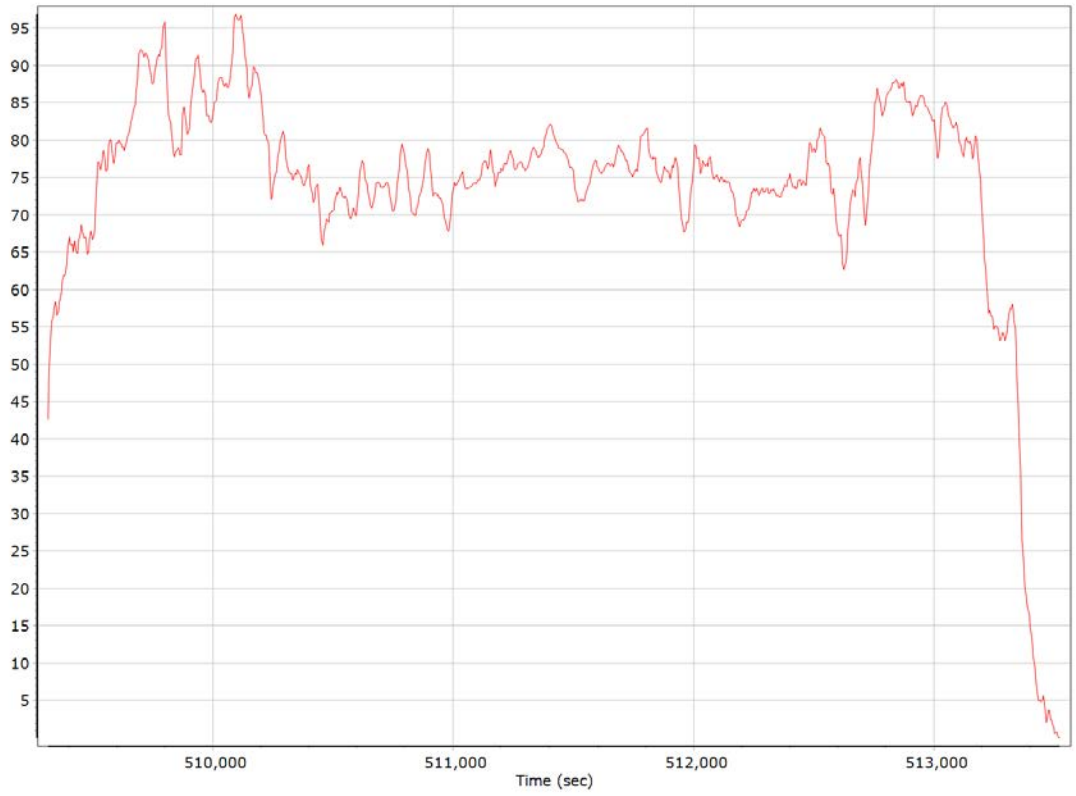
North/East Velocity



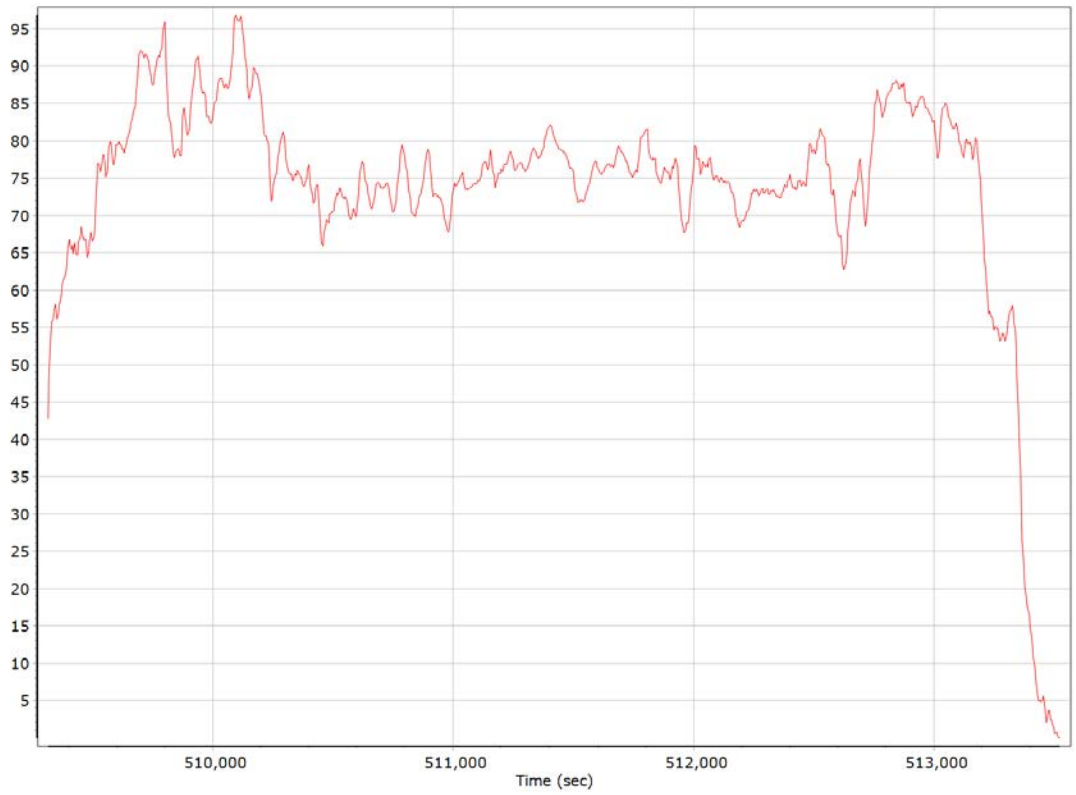
Down Velocity



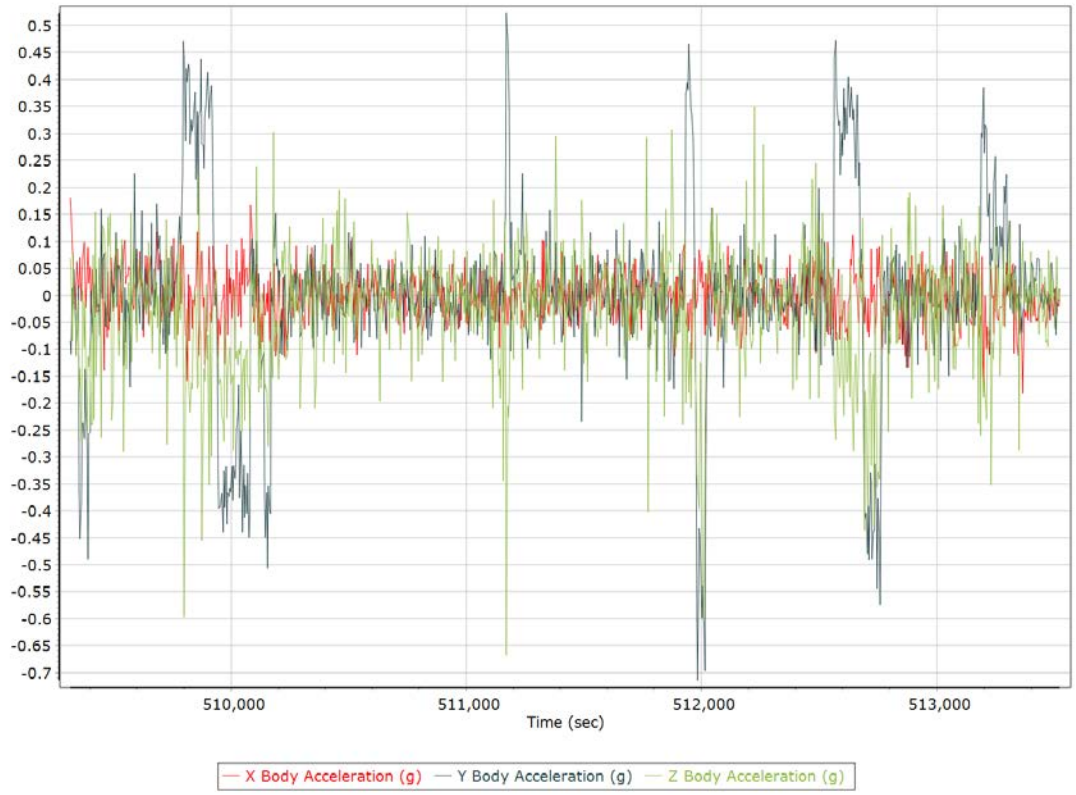
Total Speed



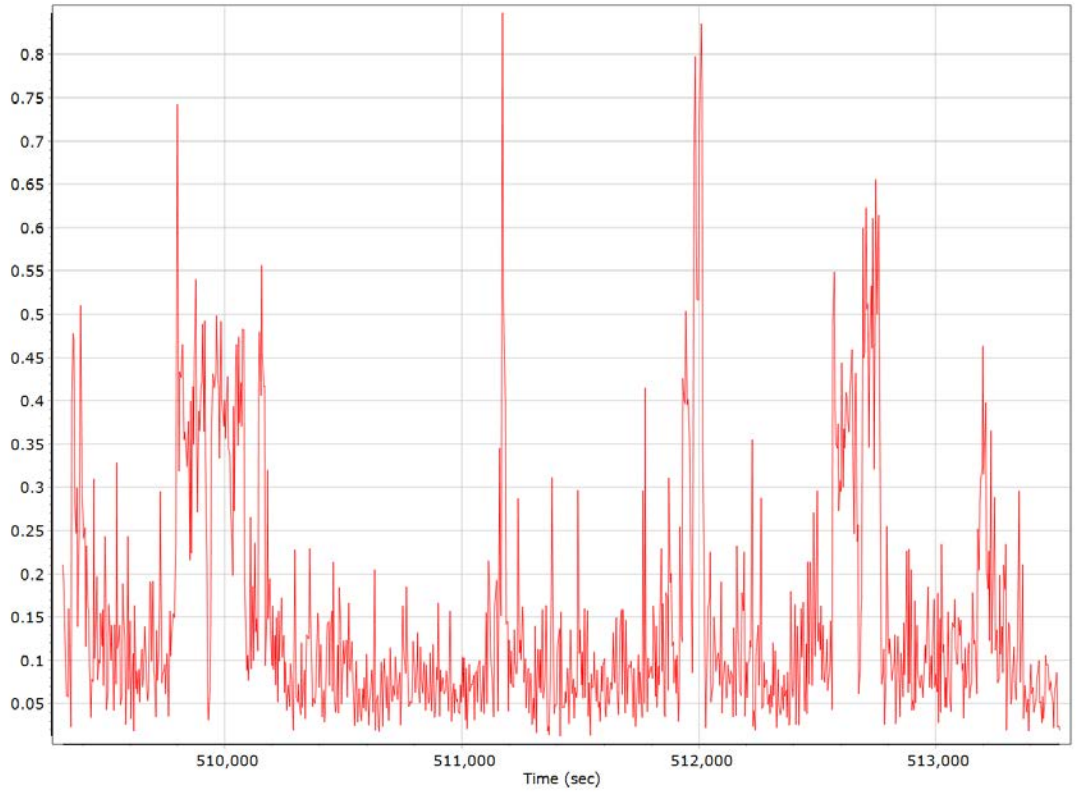
Ground Speed



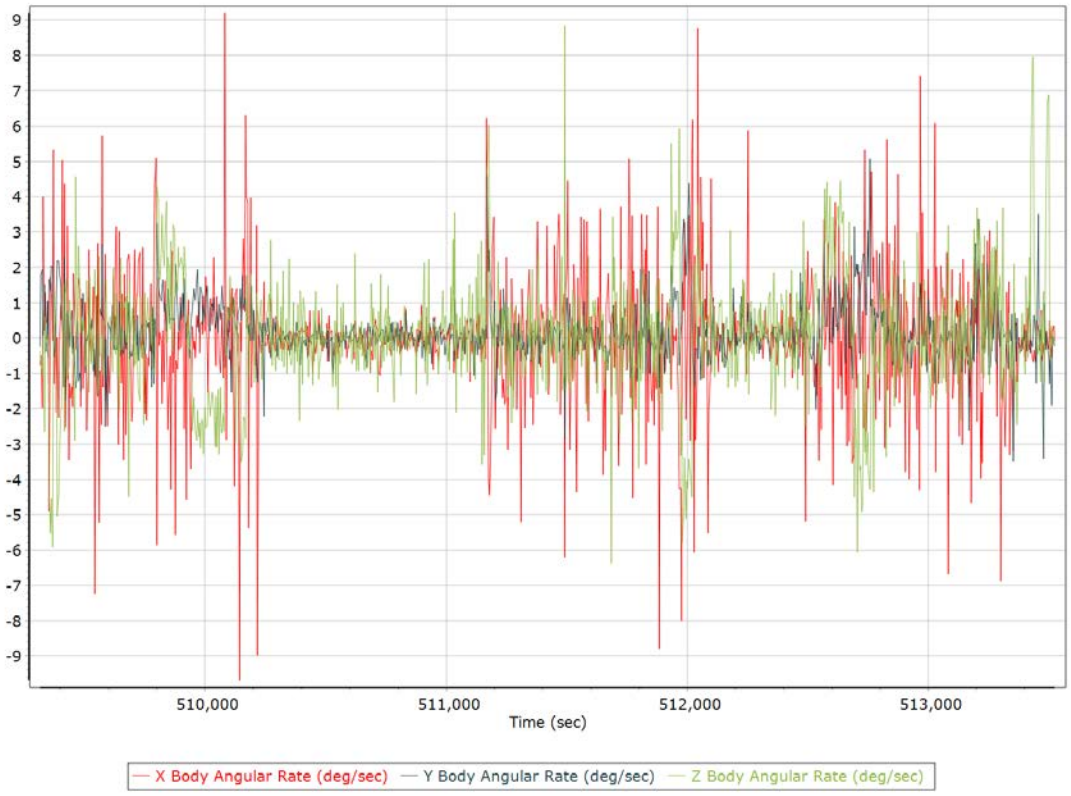
Body Acceleration



Total Body Acceleration



Body Angular Rate

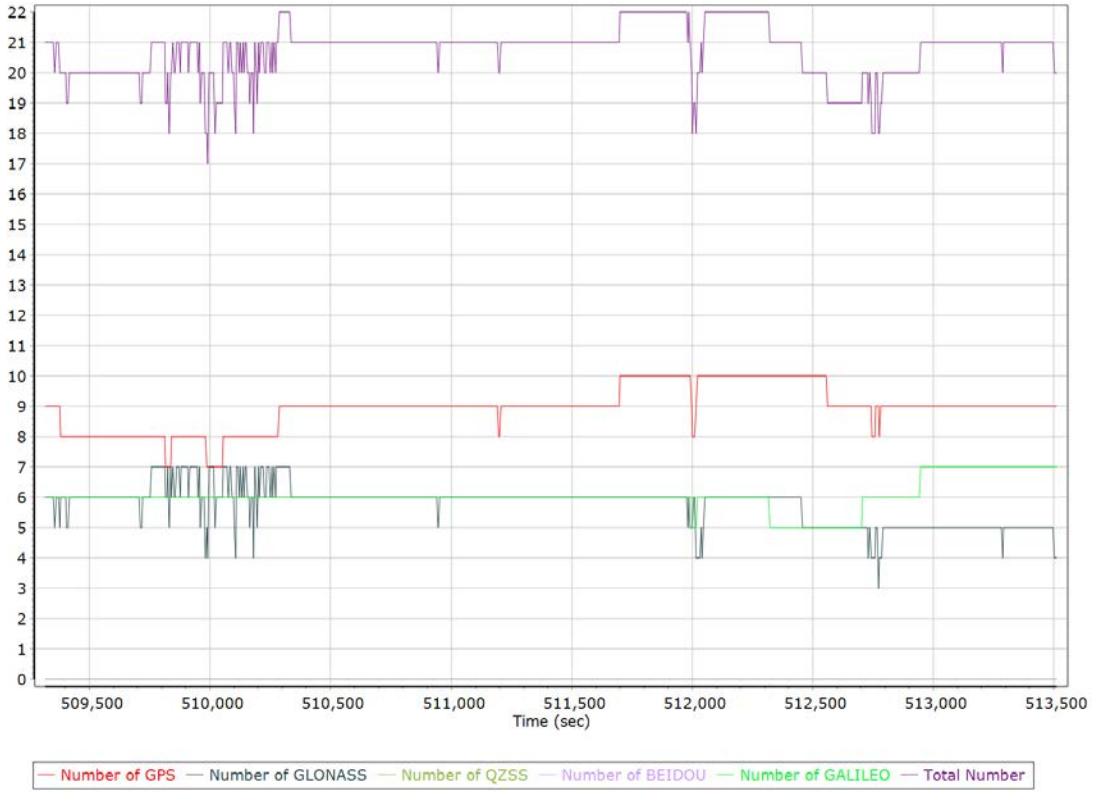


GNSS QC

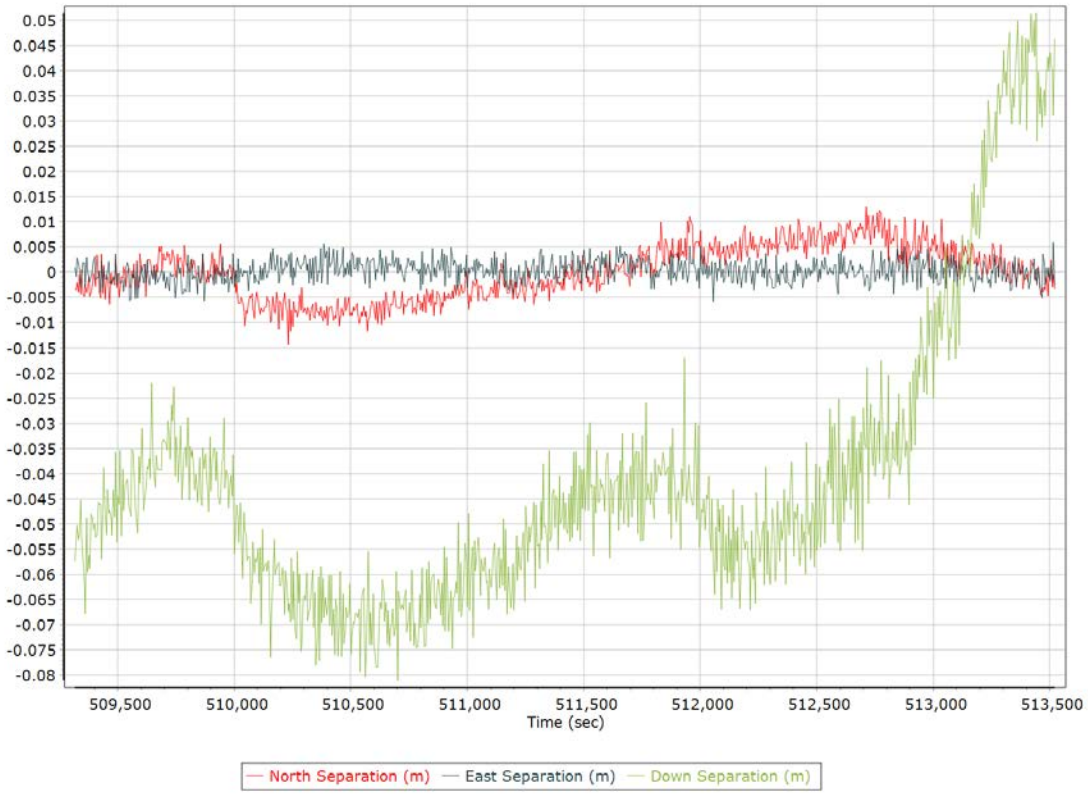
GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	7	10	9
Number of GLONASS SV	3	7	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	5	7	6
Total number of SV	17	22	21
PDOP	1.05	1.61	1.14
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	4261.00	0.00	0.00
Percentage	100.00	0.00	0.00

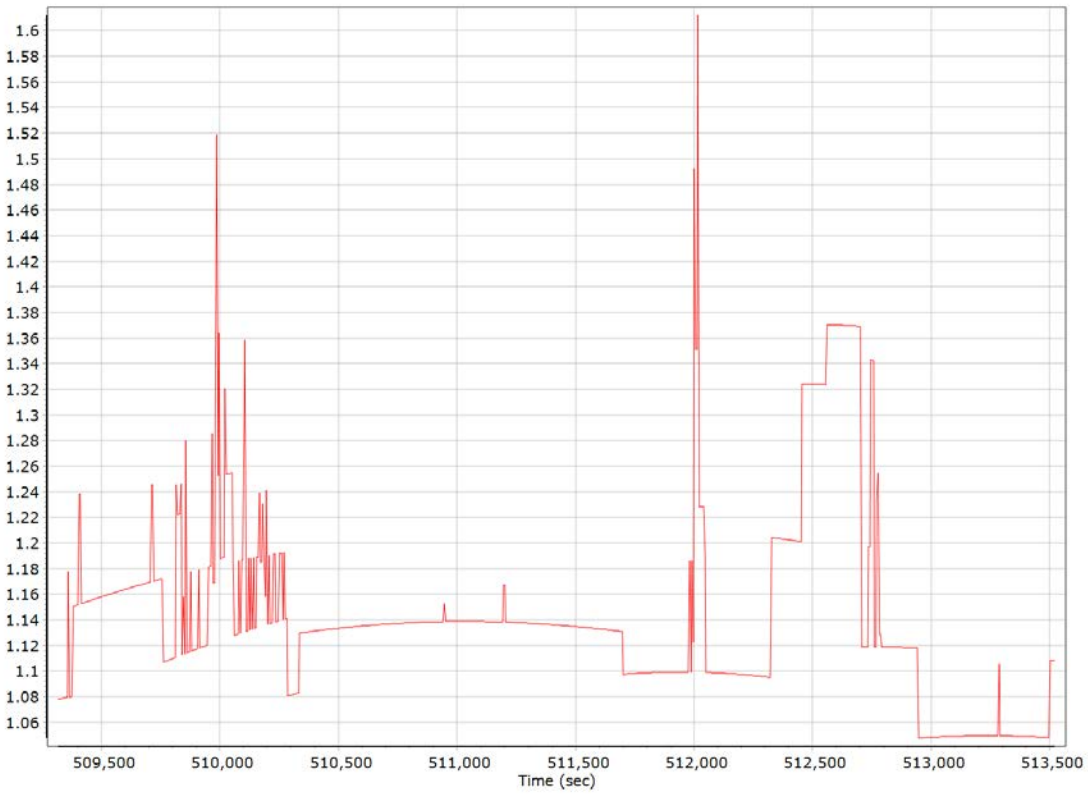
Num SVs in solution



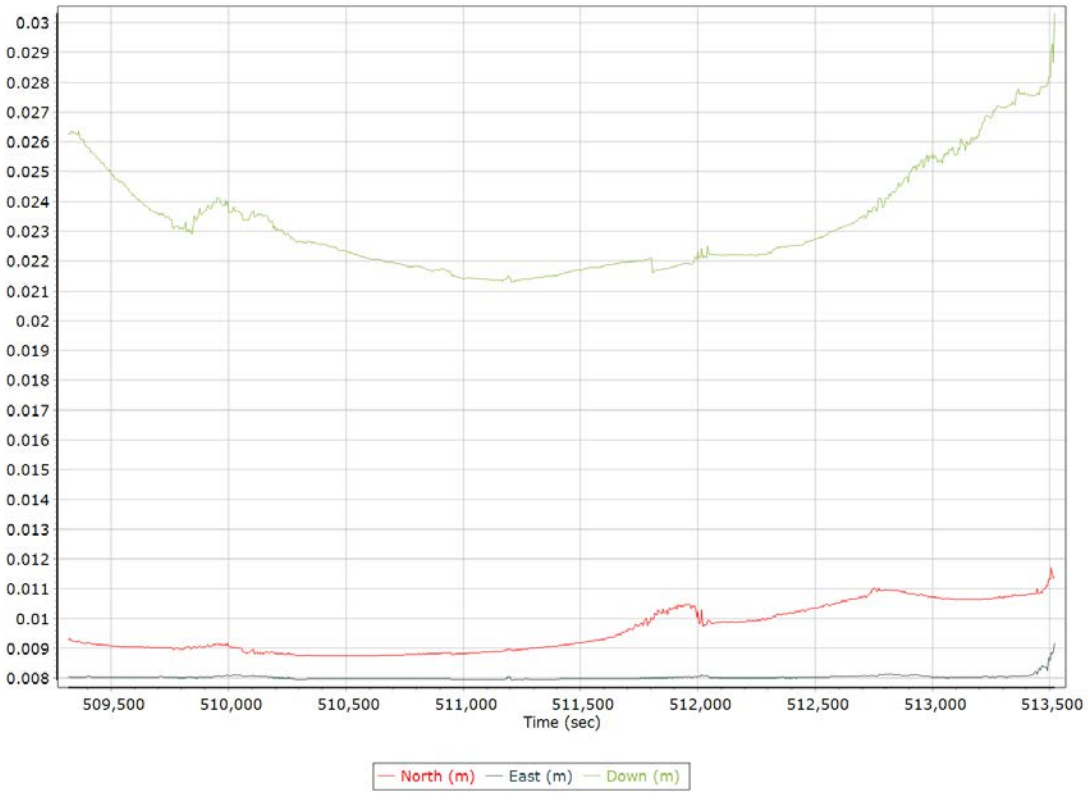
Forward/Reverse Separation



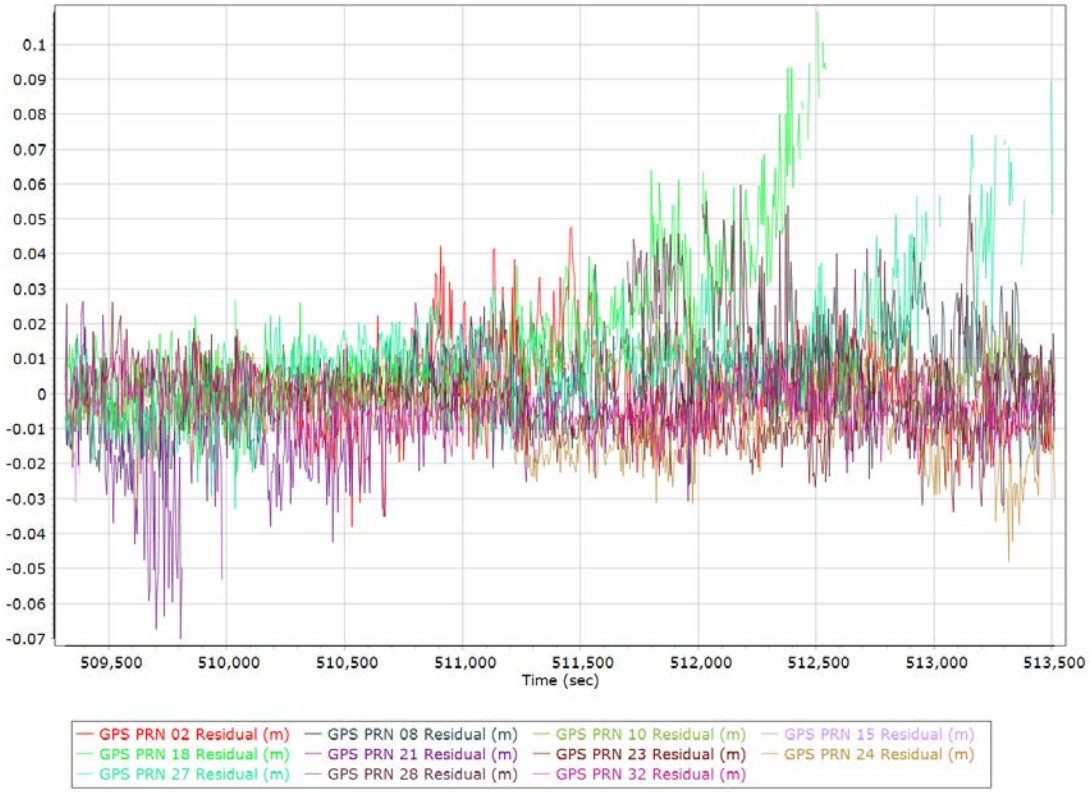
PDOP



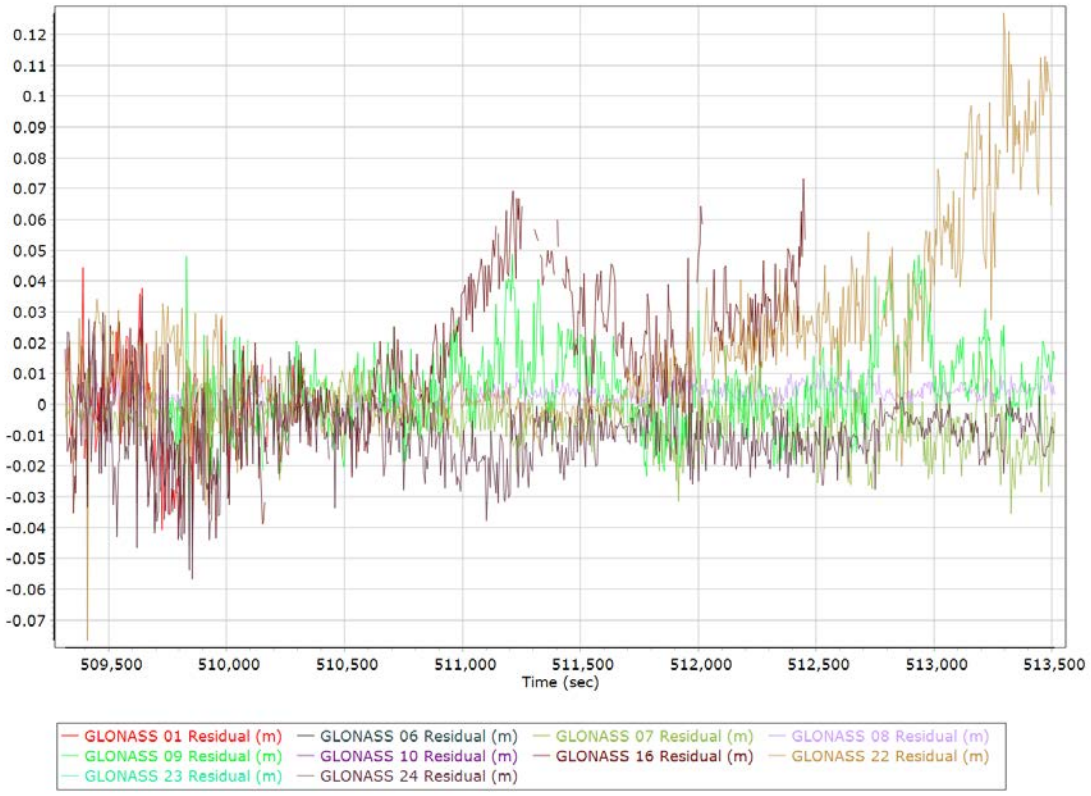
Estimated Position Accuracy



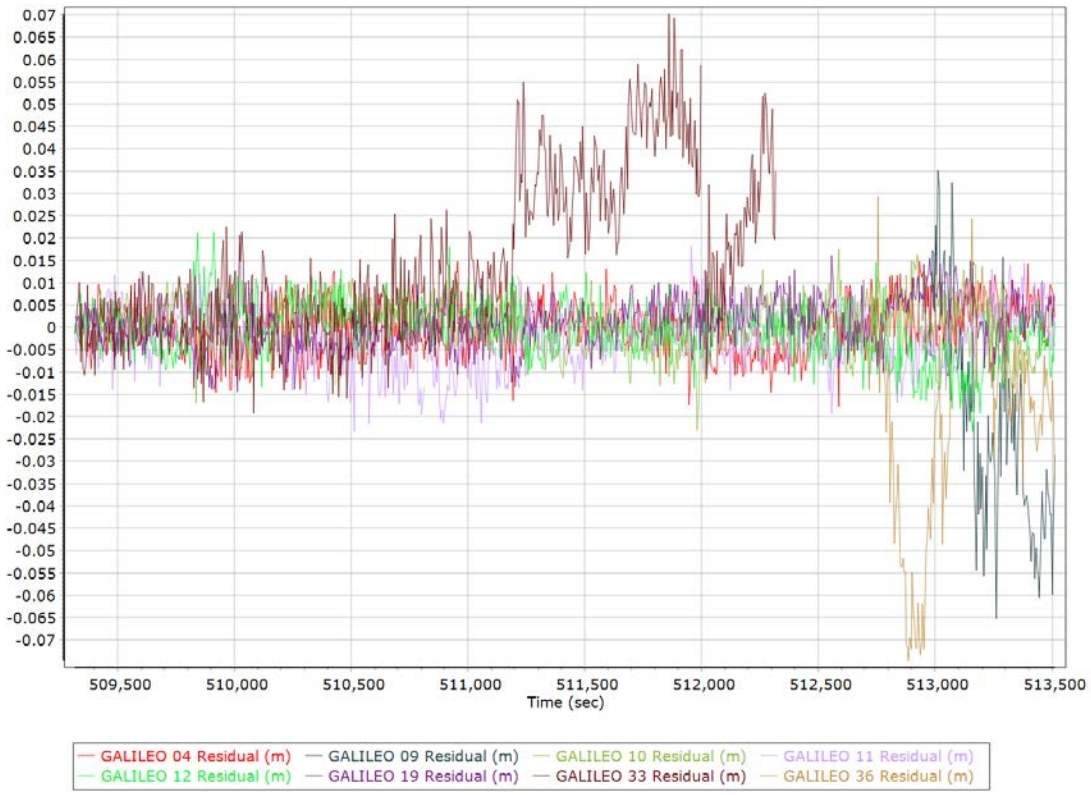
GPS Residuals



GLONASS Residuals



GALILEO Residuals



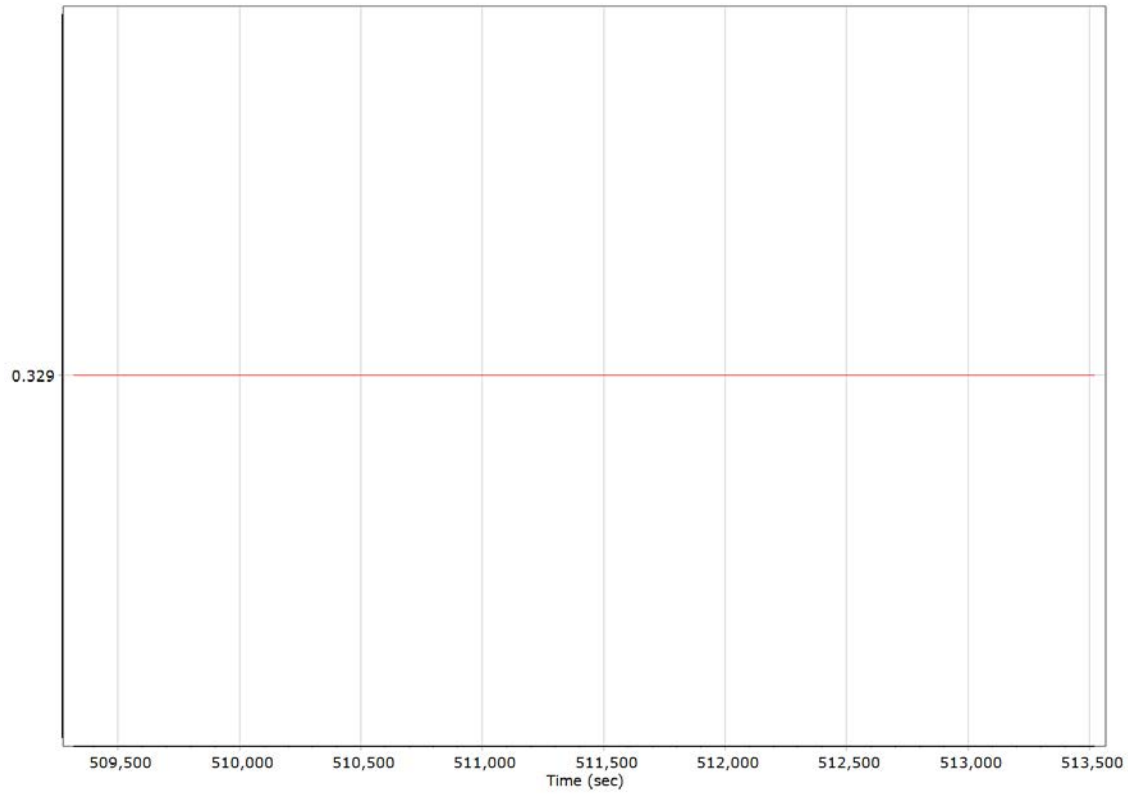
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	509232.000 (7/28/2023 9:27:12 PM)		
Processing end time	513525.000 (7/28/2023 10:38:45 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

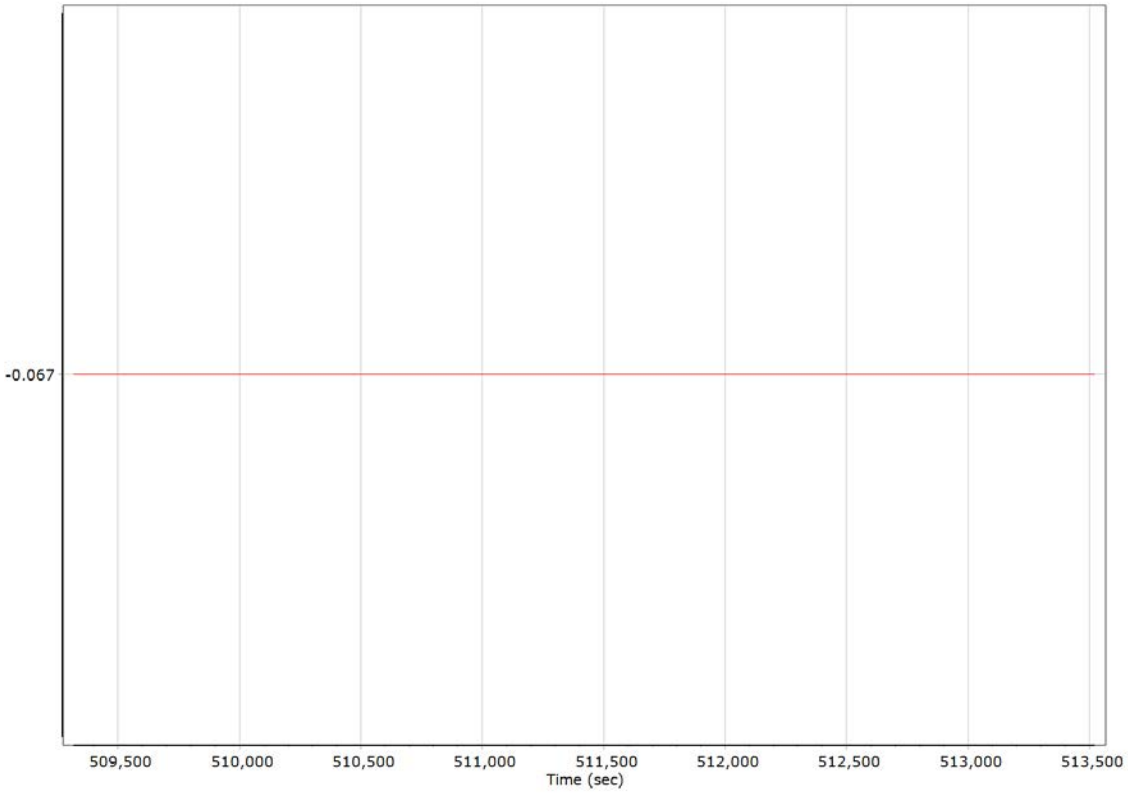
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

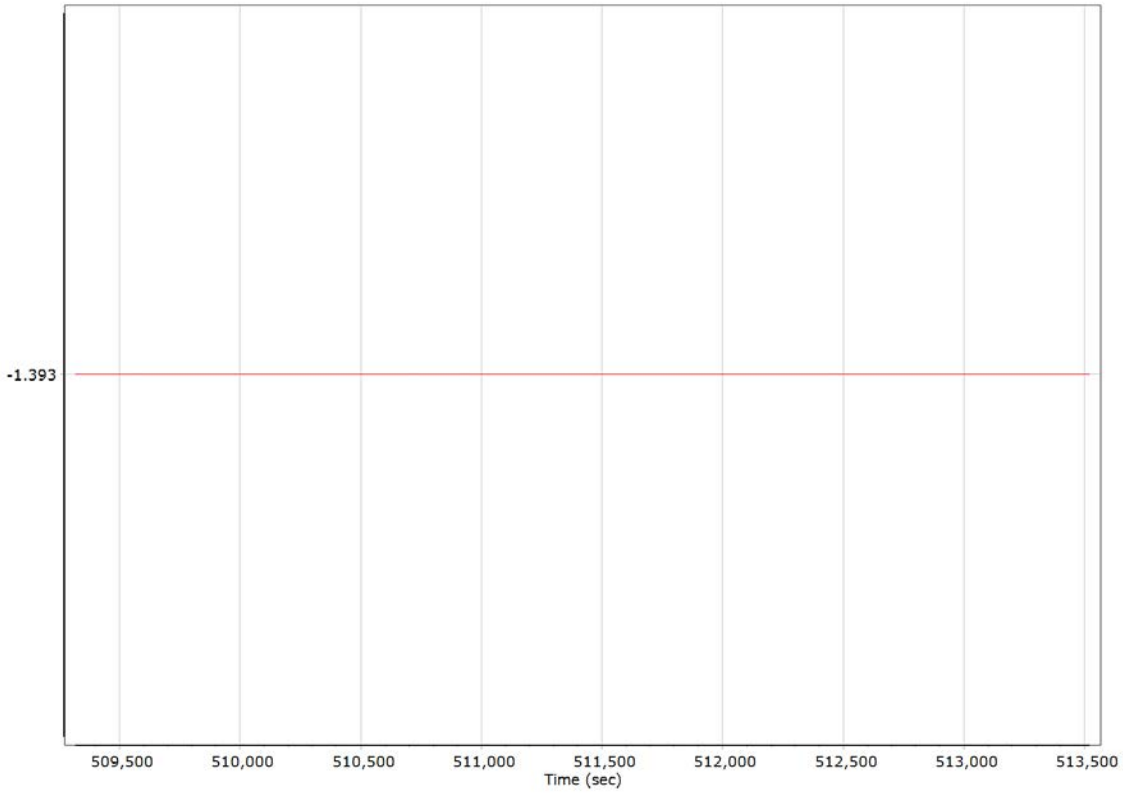
X Reference-Primary GNSS Lever Arm (m)



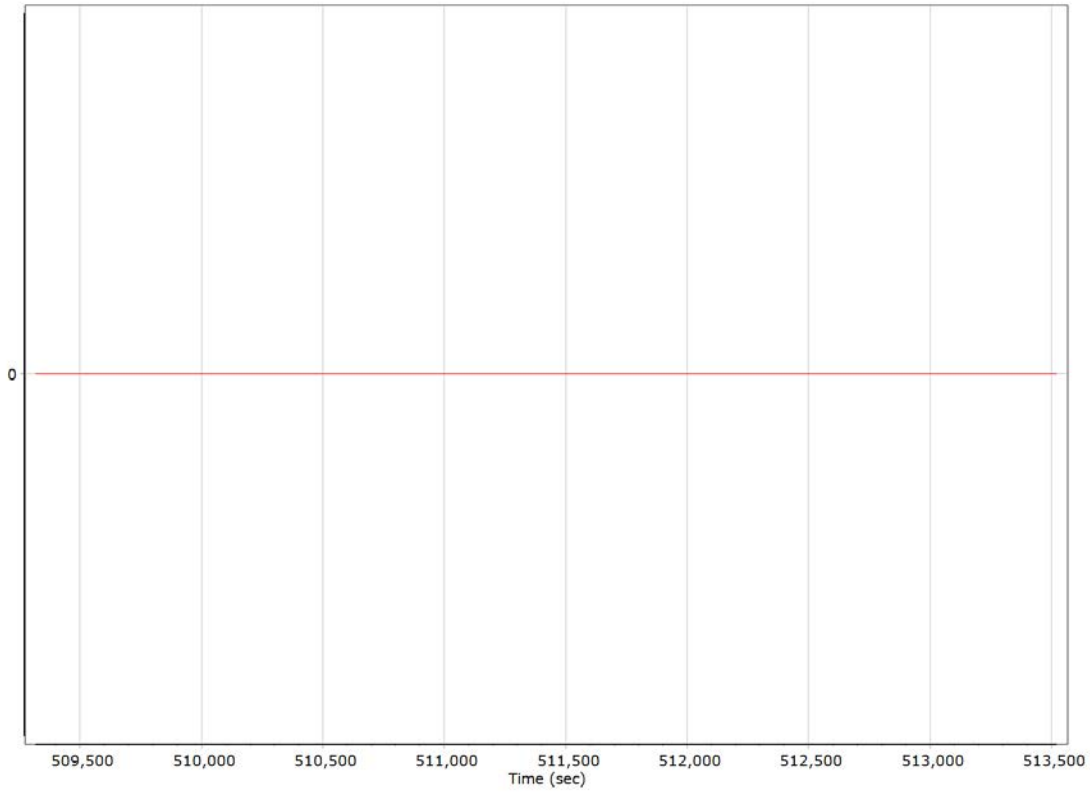
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



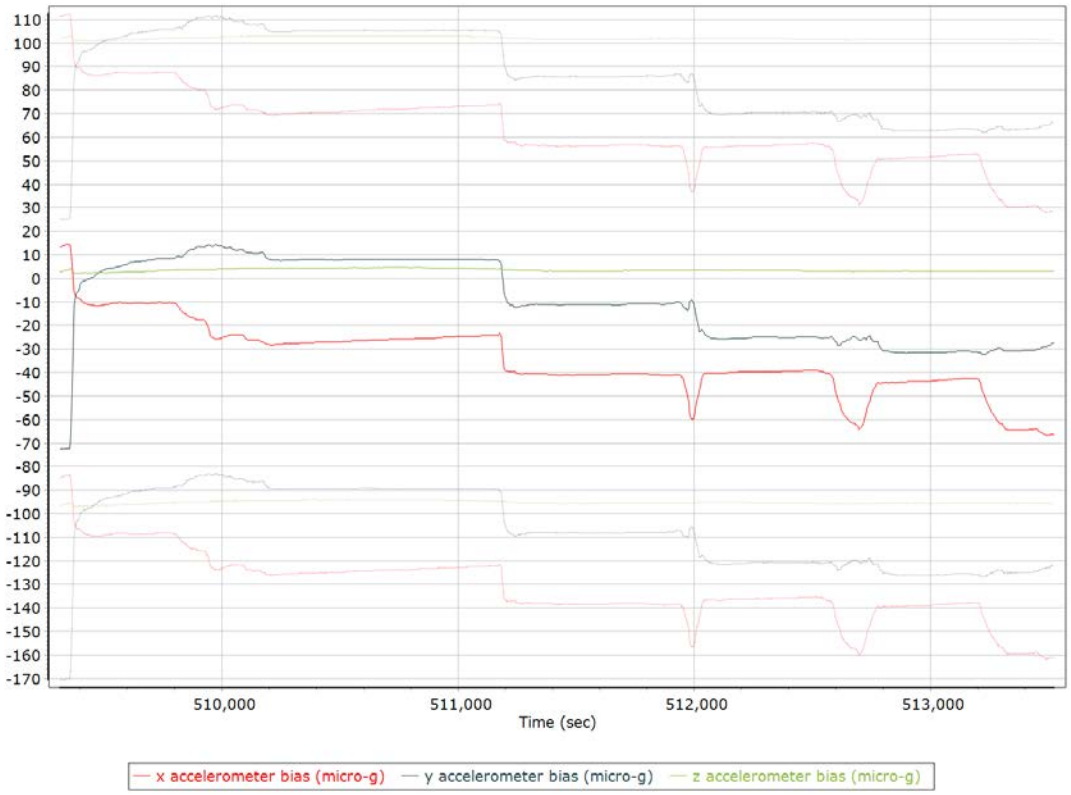
Reference-Primary GNSS Lever Arm Figure of Merit



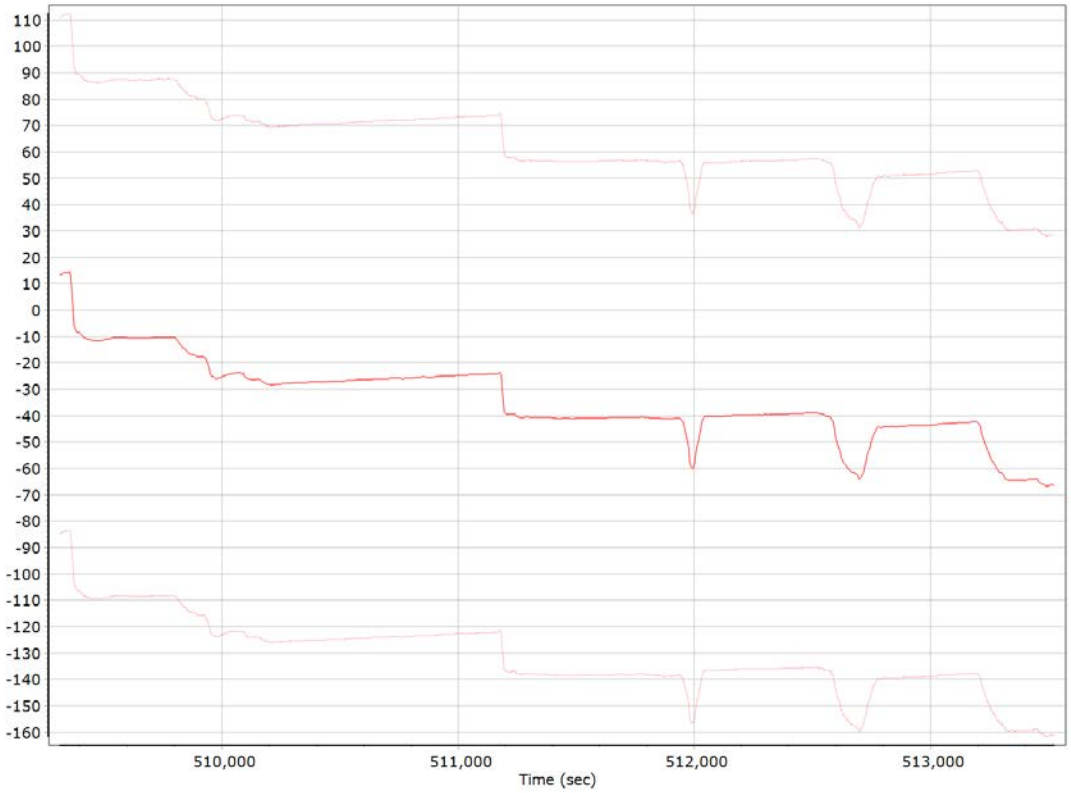
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

Accelerometer Bias (micro-g)



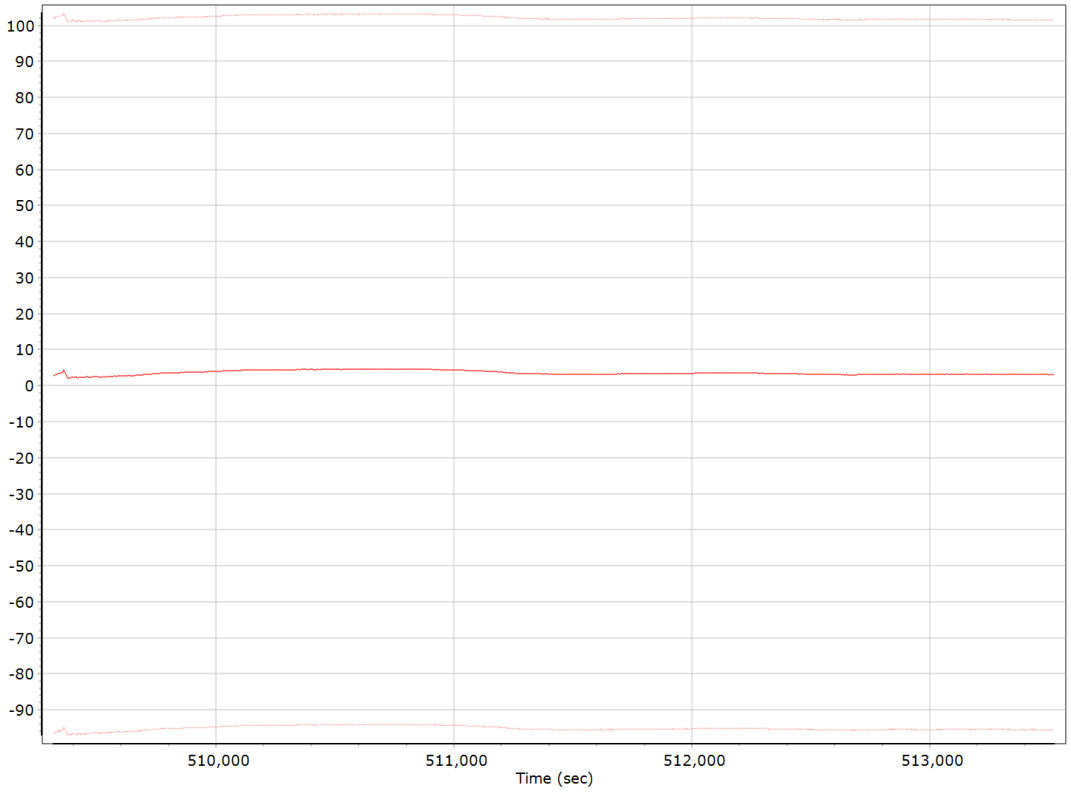
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



Z Accelerometer Bias (micro-g)



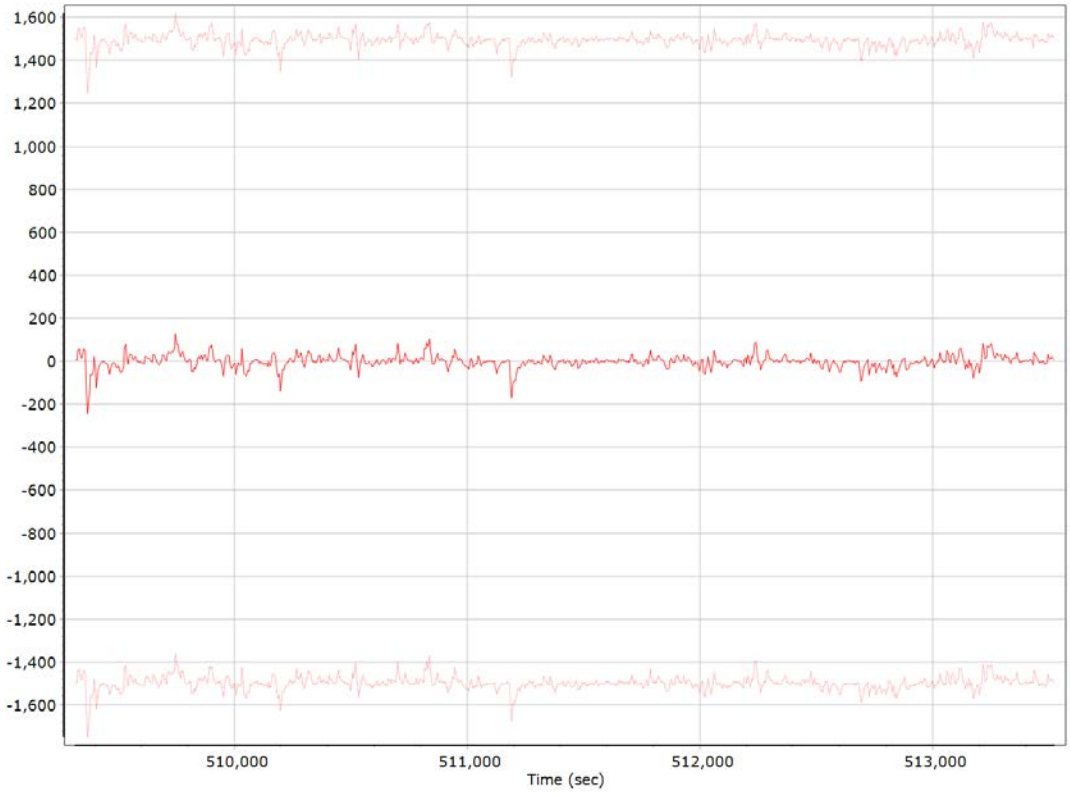
Accelerometer Scale Error (ppm)



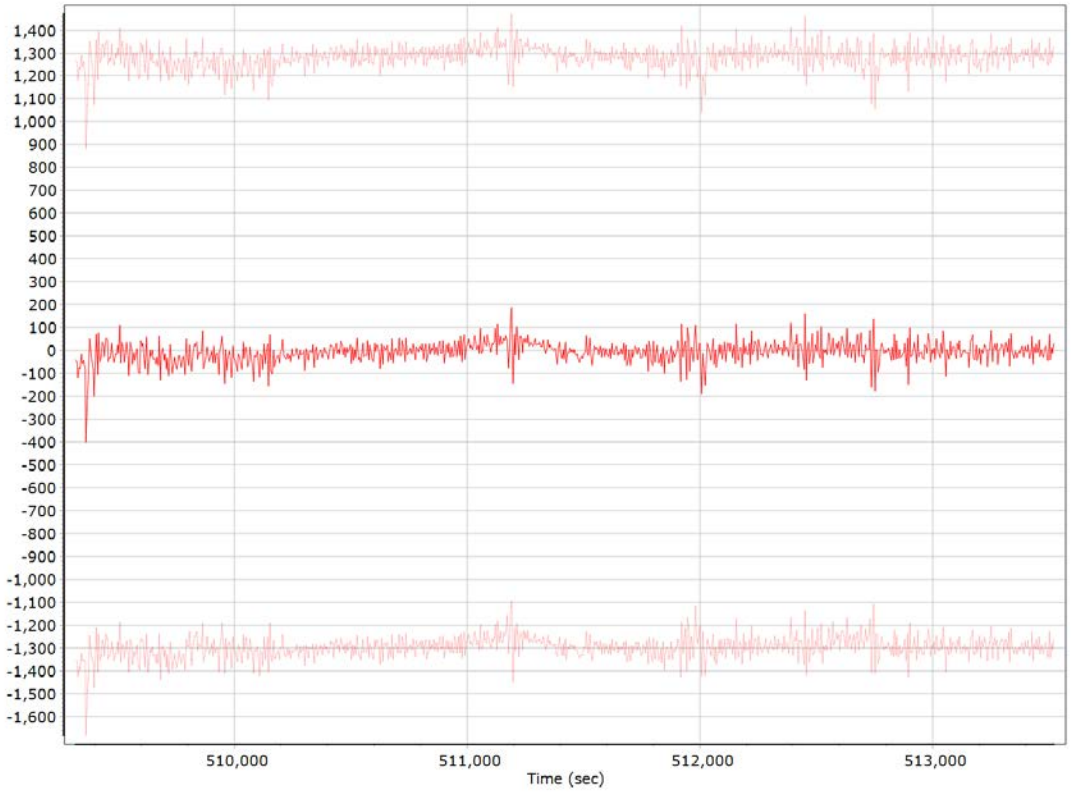
X Accelerometer Scale Error (ppm)



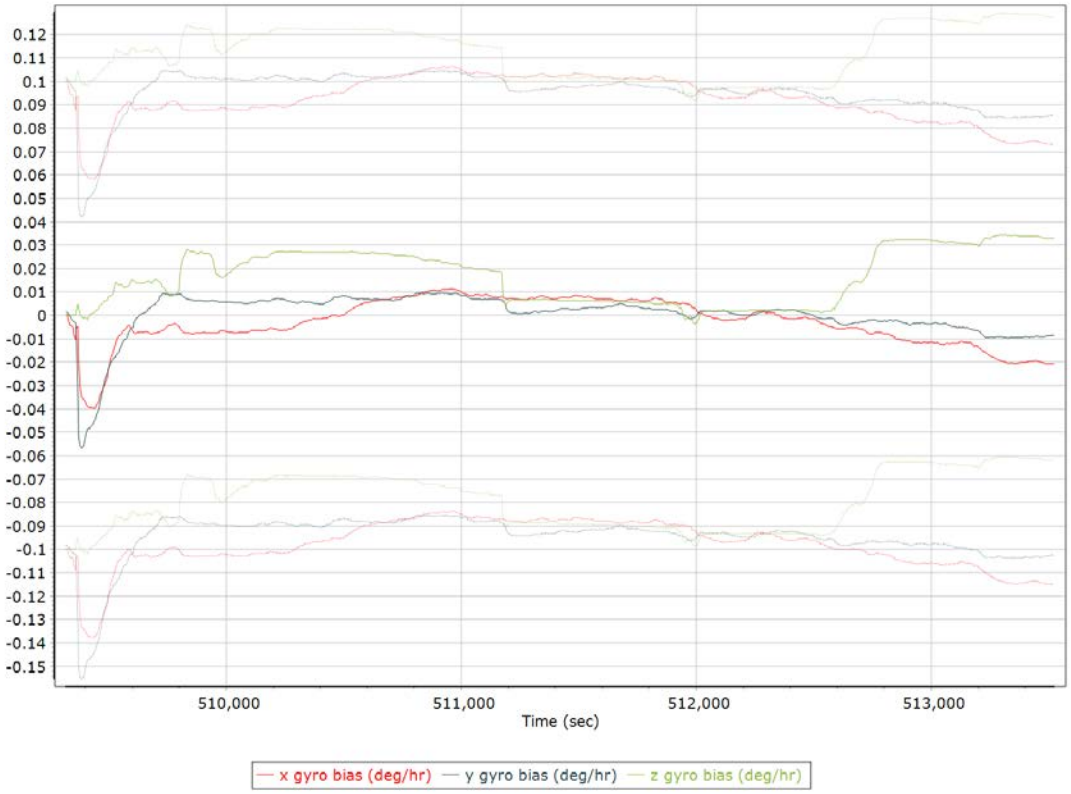
Y Accelerometer Scale Error (ppm)



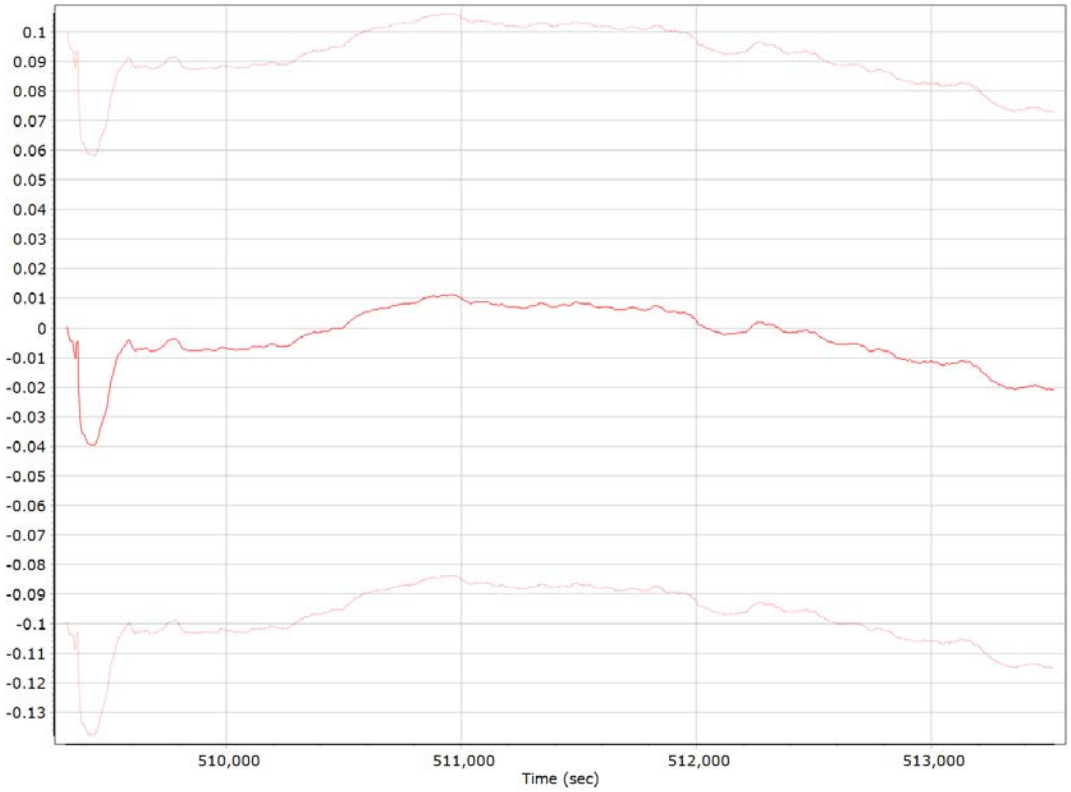
Z Accelerometer Scale Error (ppm)



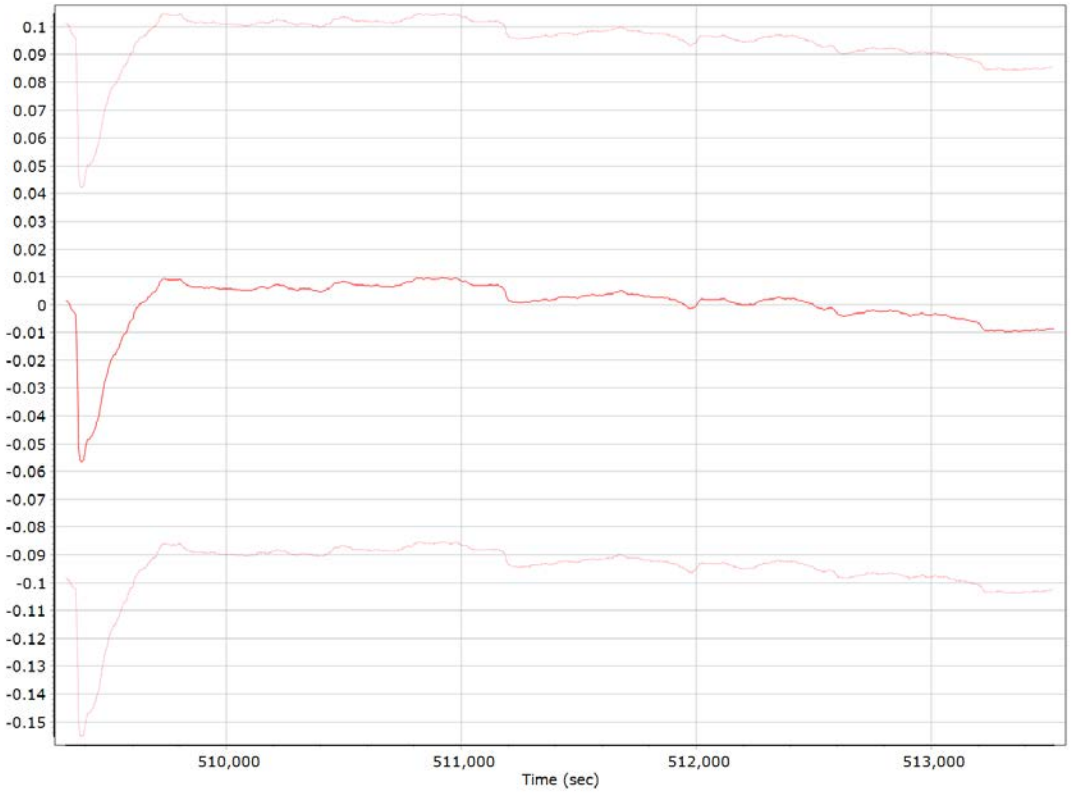
Gyro Bias (deg/h)



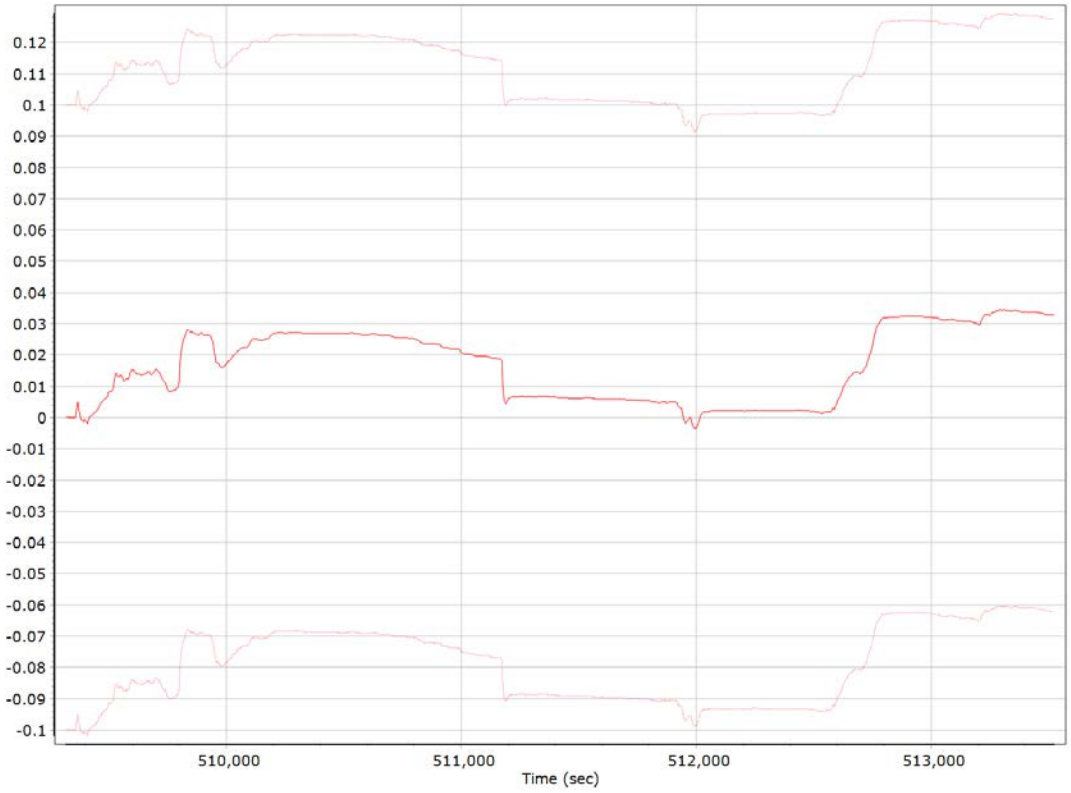
X Gyro Bias (deg/h)



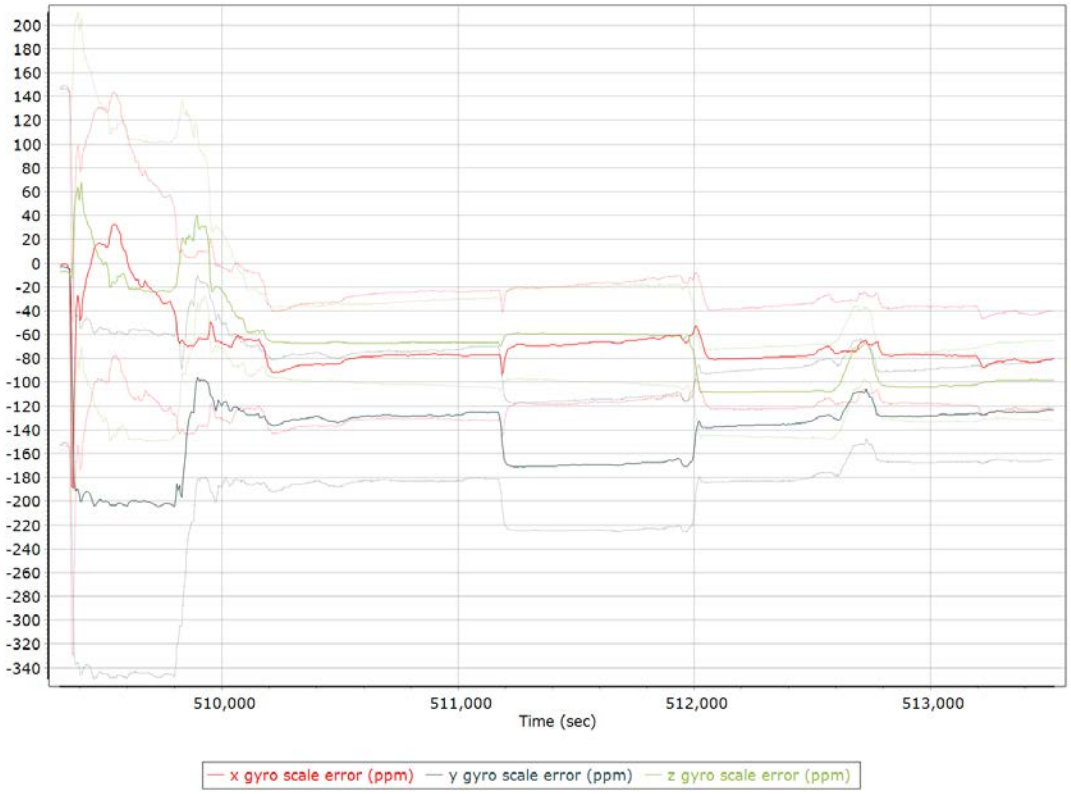
Y Gyro Bias (deg/h)



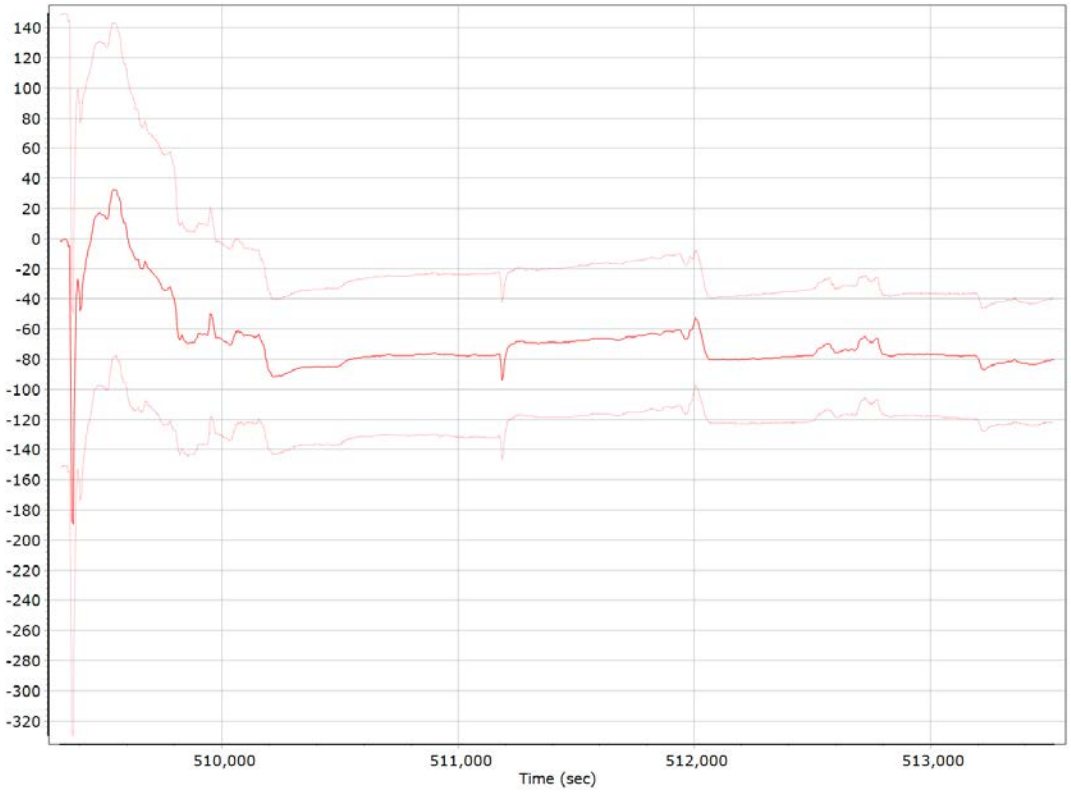
Z Gyro Bias (deg/h)



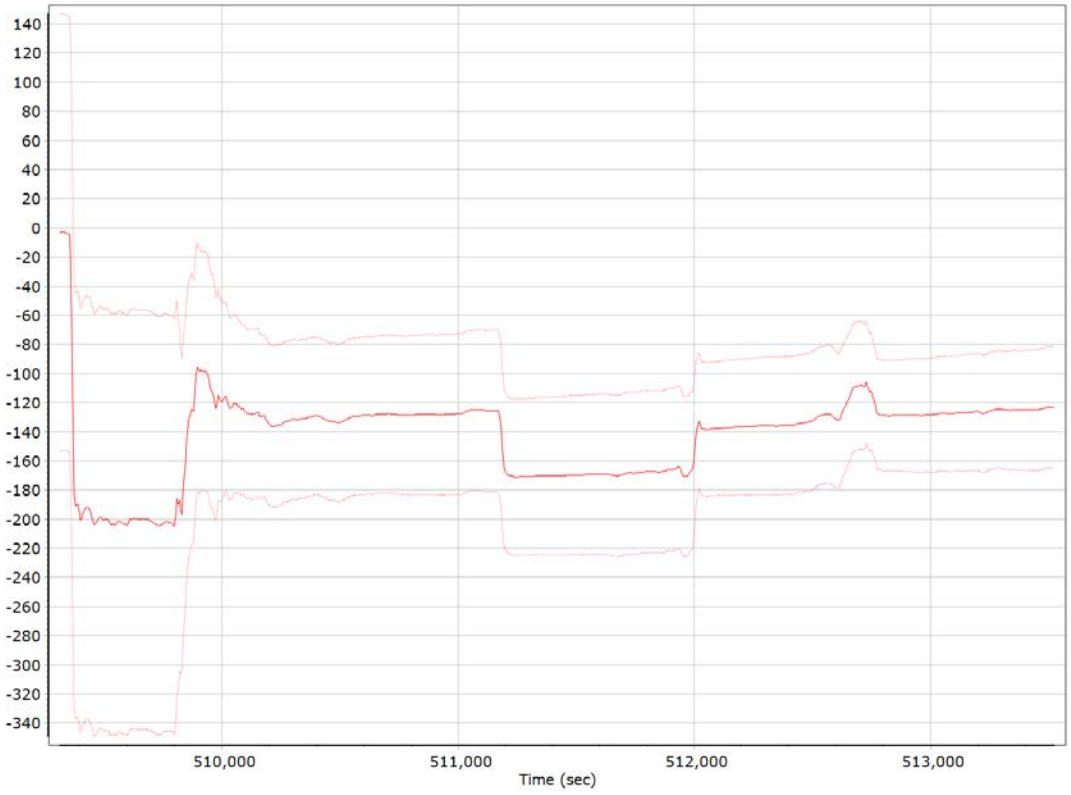
Gyro Scale Error (ppm)



X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)

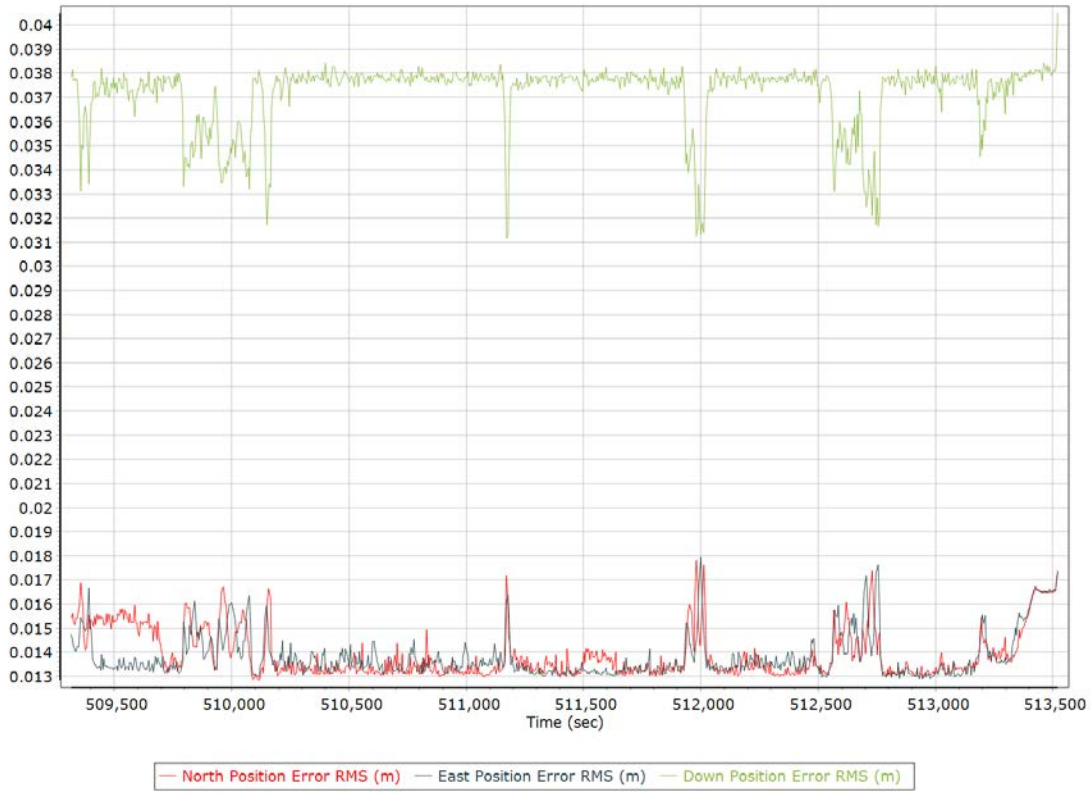


Z Gyro Scale Error (ppm)

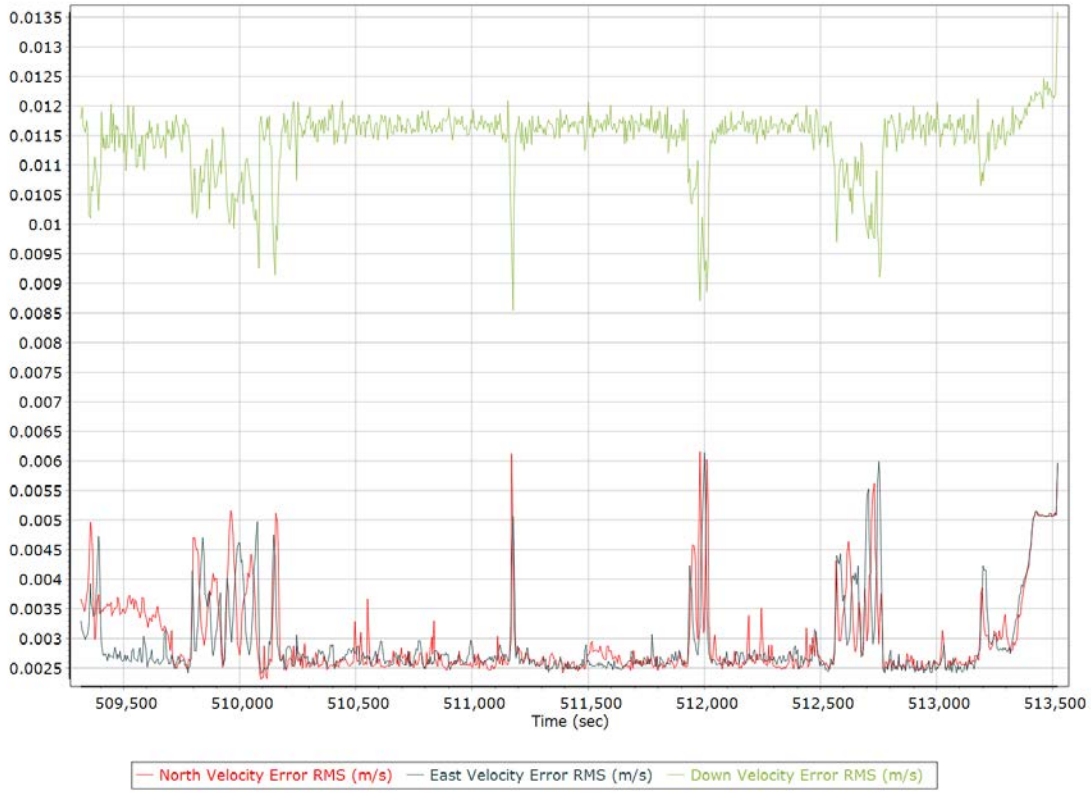


Smoothed Performance Metrics

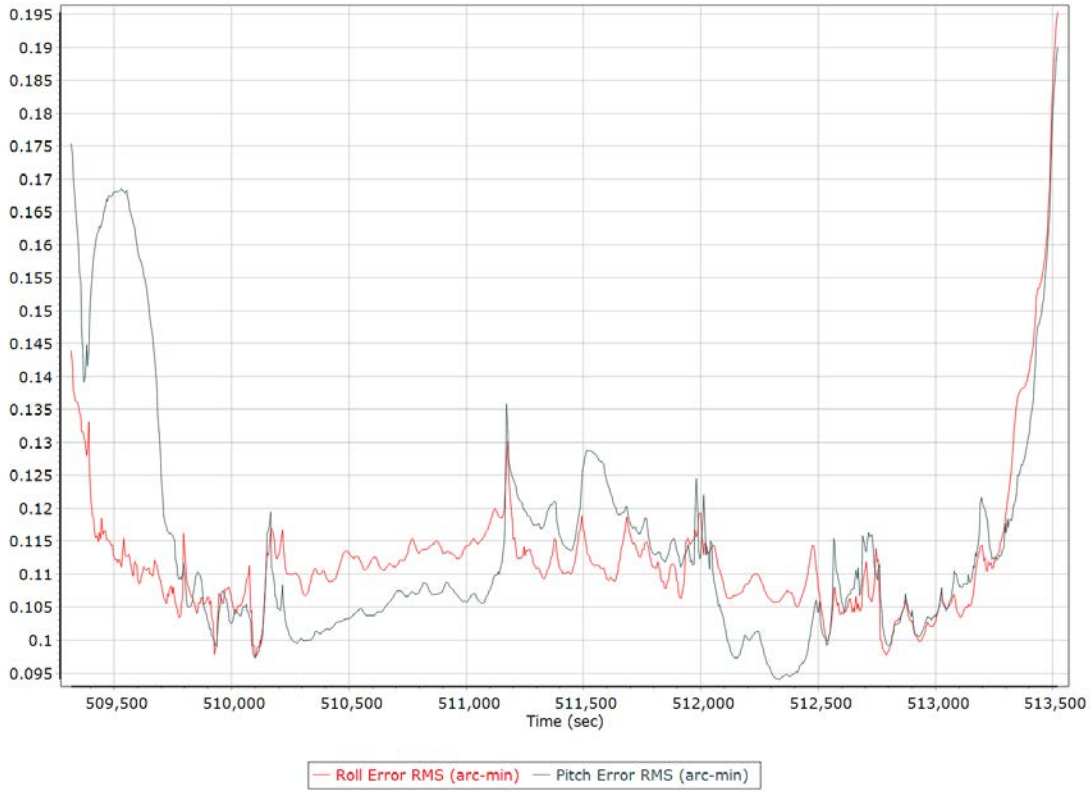
Position Error RMS (m)



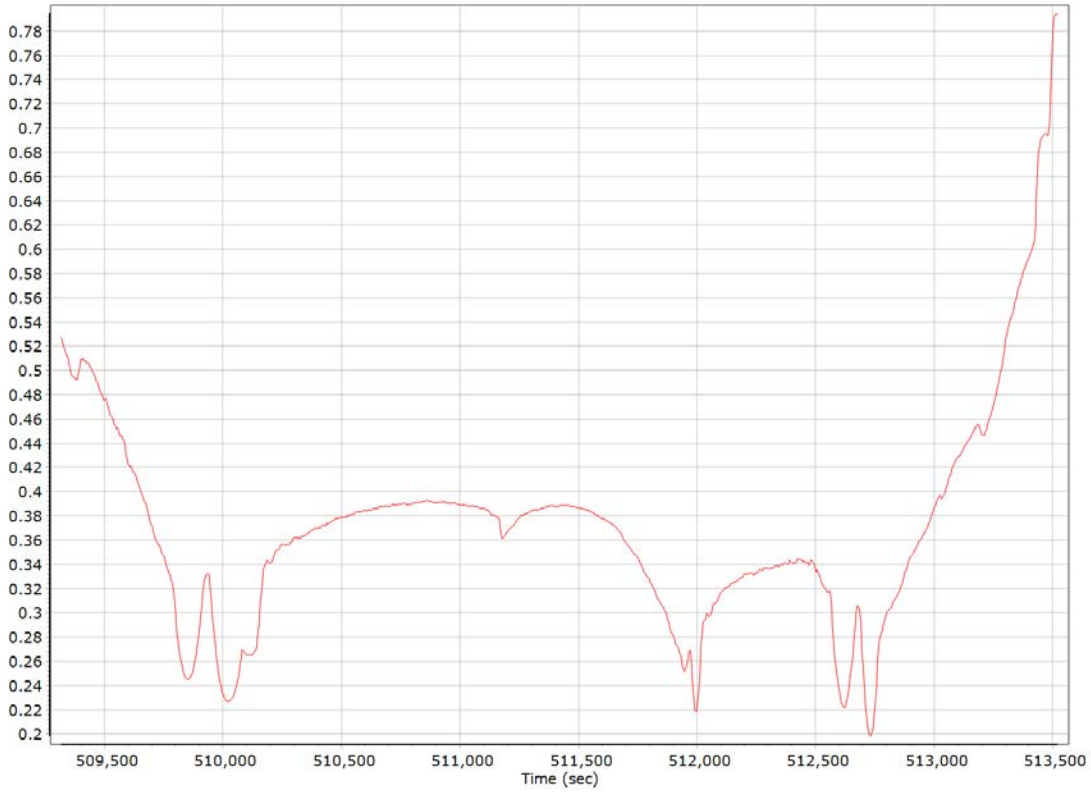
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)



Heading Error RMS (arc-min)

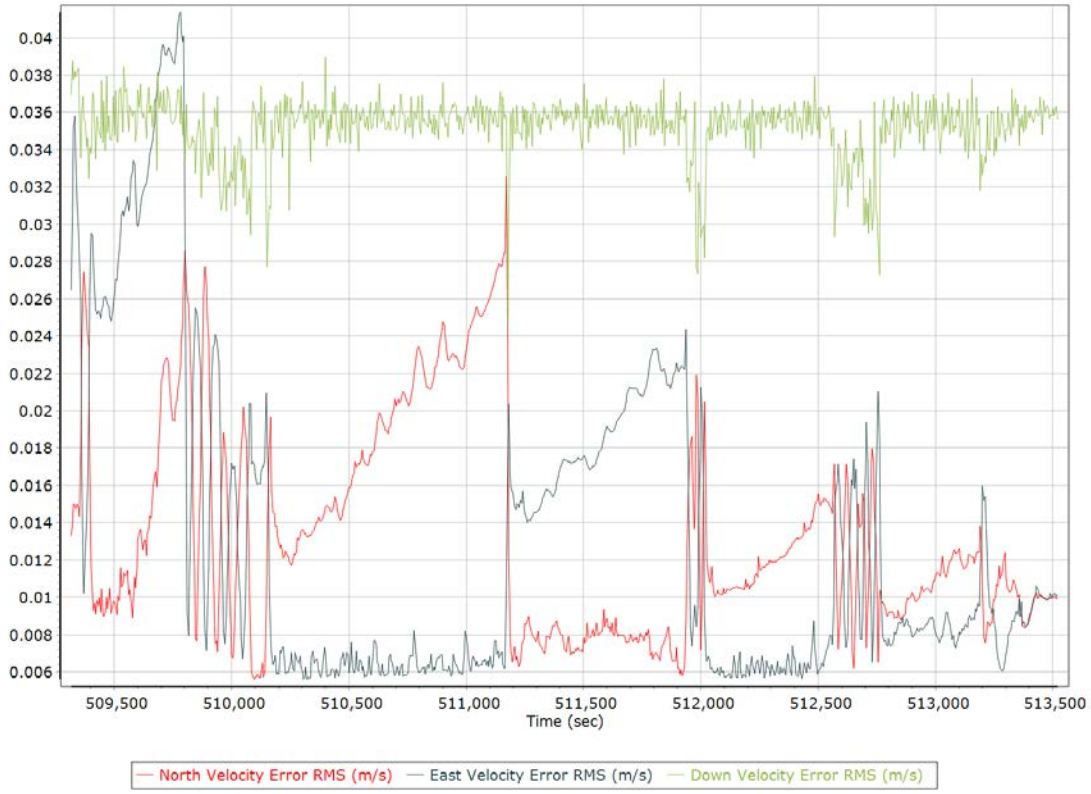


Forward Processed Performance Metrics

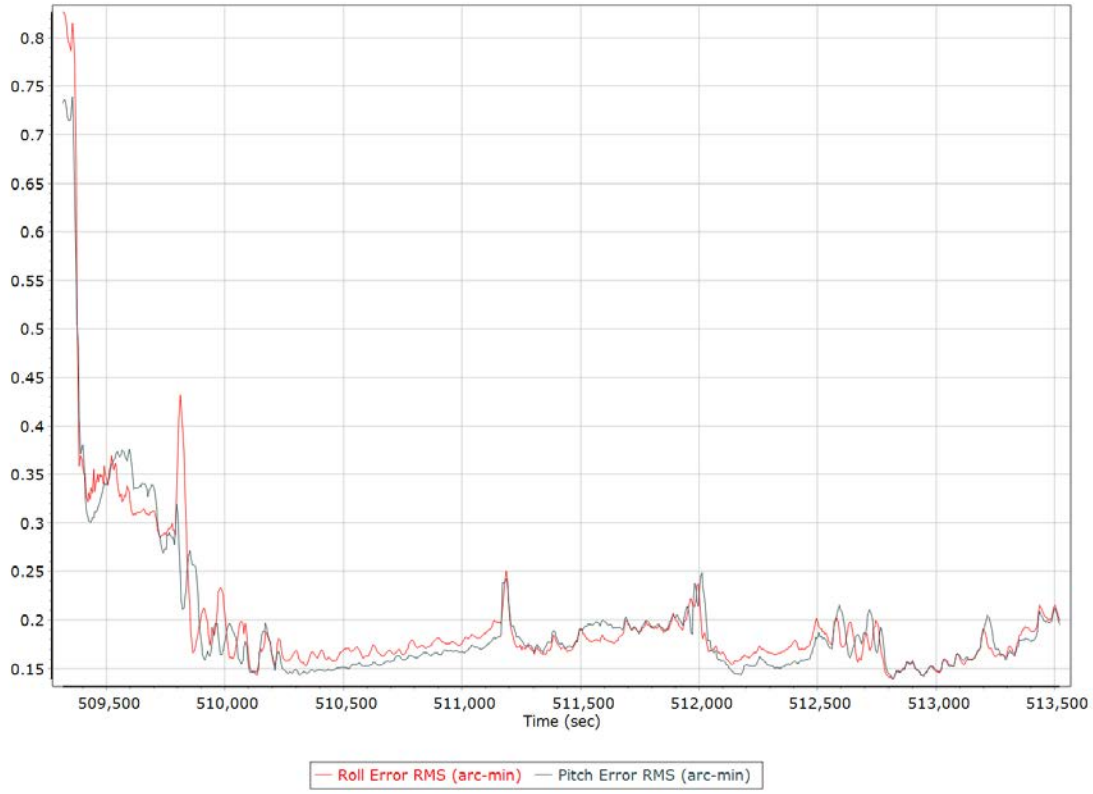
Position Error RMS (m)



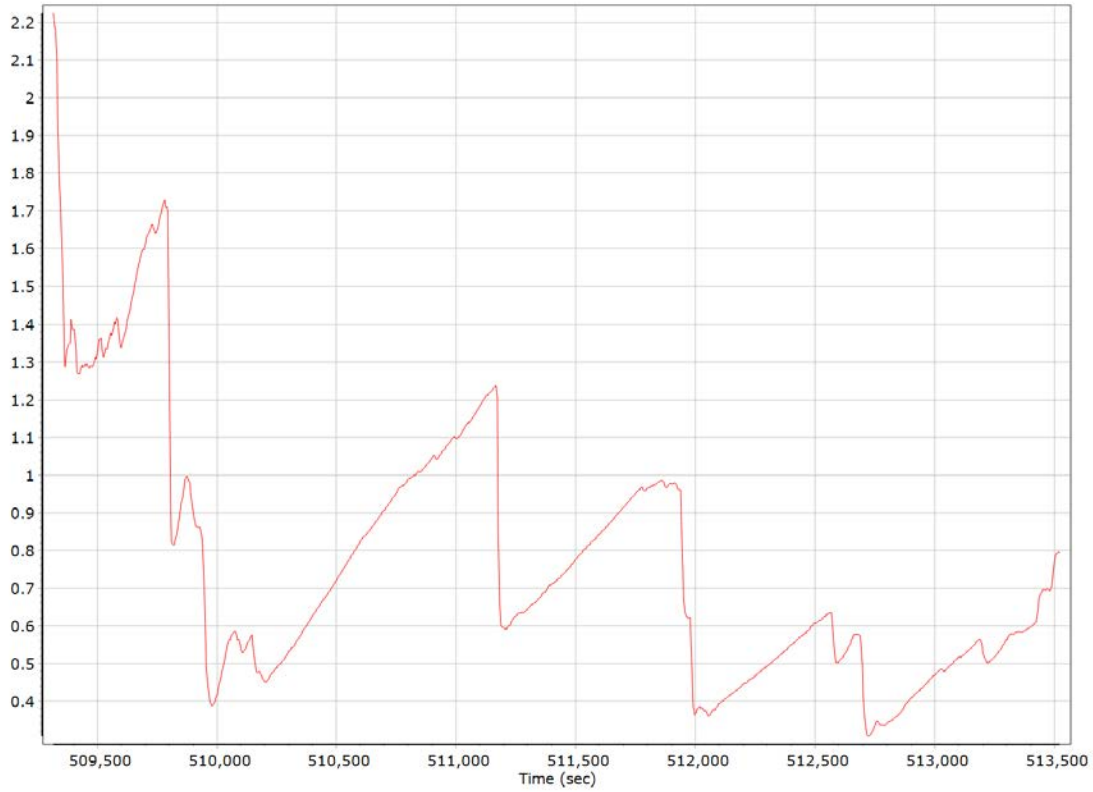
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

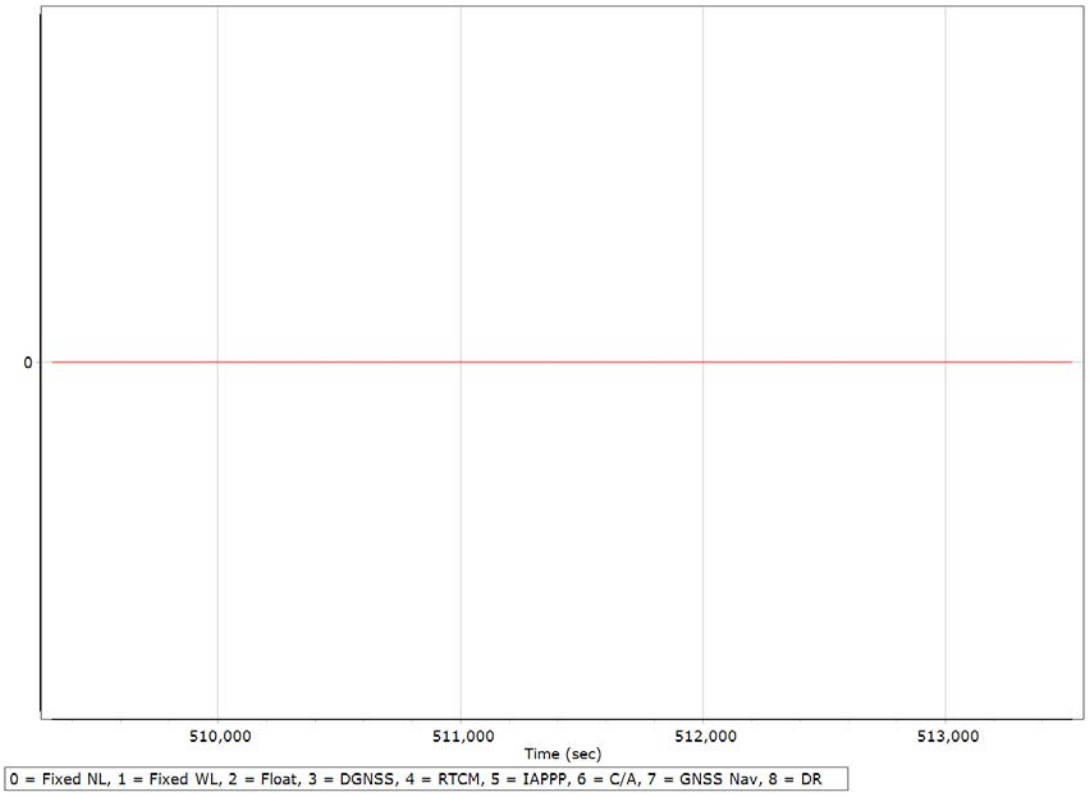


Heading Error RMS (arc-min)

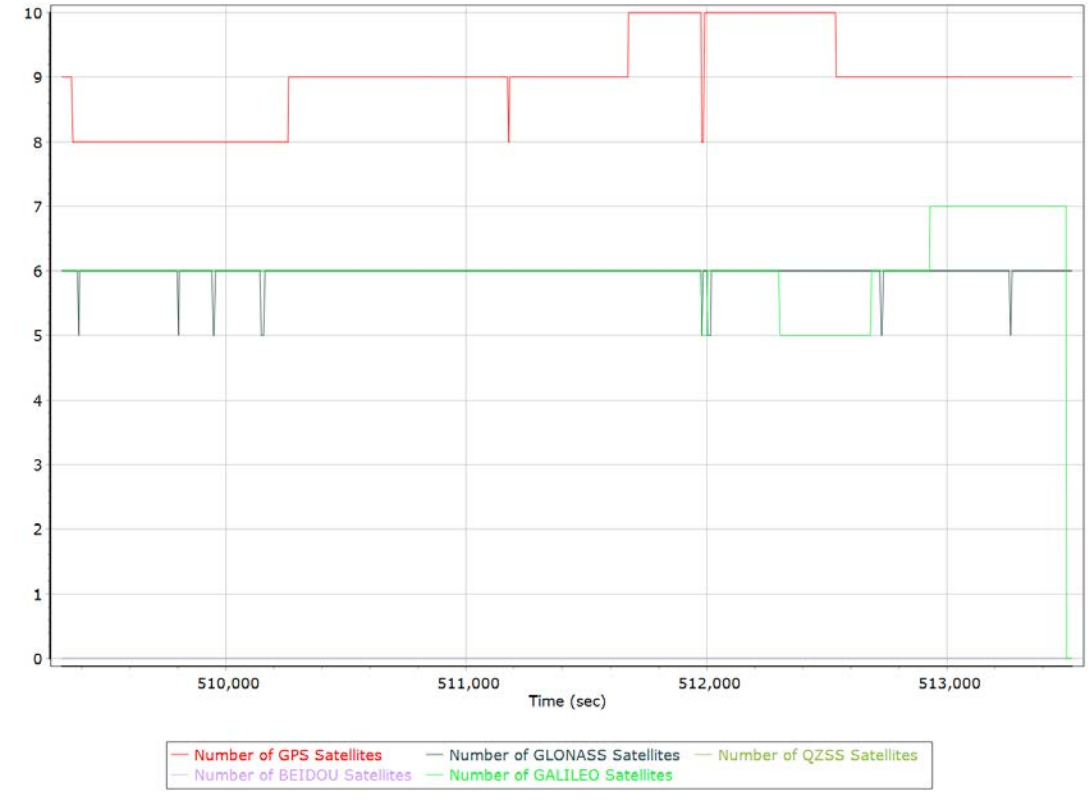


Forward Processed Solution Status

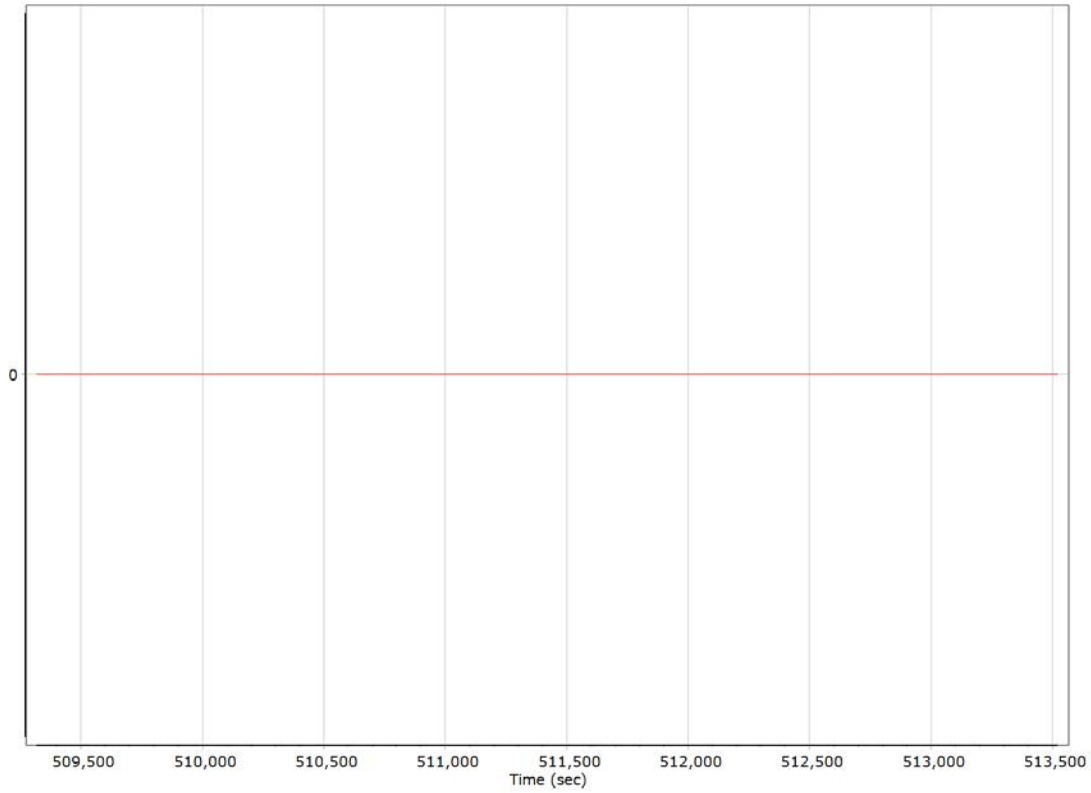
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	
Processing date	2023-08-15 17:52:15
Mission date	2023-07-30 15:47:09
Mission duration	03:53:00.496
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N11221
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
CP780.001	POS Data
CP780.002	POS Data
CP780.003	POS Data
CP780.004	POS Data
CP780.005	POS Data
CP780.006	POS Data
CP780.007	POS Data
CP780.008	POS Data
CP780.009	POS Data
CP780.010	POS Data
CP780.011	POS Data
CP780.012	POS Data
CP780.013	POS Data
CP780.014	POS Data
CP780.015	POS Data
CP780.016	POS Data
CP780.017	POS Data
CP780.018	POS Data
CP780.019	POS Data
CP780.020	POS Data
CP780.021	POS Data
CP780.022	POS Data
CP780.023	POS Data
CP780.024	POS Data
CP780.025	POS Data
CP780.026	POS Data
CP780.027	POS Data
CP780.028	POS Data
CP780.029	POS Data
CP780.030	POS Data
CP780.031	POS Data
CP780.032	POS Data
CP780.033	POS Data

Input Files

File Name	File Type
Ephm2110.23g	GLONASS Broadcast Ephemeris
Ephm2110.23n	GPS Broadcast Ephemeris
IGS0OPSFIN_20232100000_01D_15M_ORB.SP3	GPS Precise Ephemeris

Output Files

Filename	File type
sbet_07302023A_4051.out	SBET Trajectory File

Rover Data Summary

First raw data file	CP780.001		
Last raw data file	CP780.033		
Start GPS week	2273		
Start time	56811.038 (7/30/2023 3:46:51 PM)		
End time	70791.534 (7/30/2023 7:39:51 PM)		
Start of fine alignment	56834.942 (7/30/2023 3:47:14 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.053	-0.183	-1.279
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

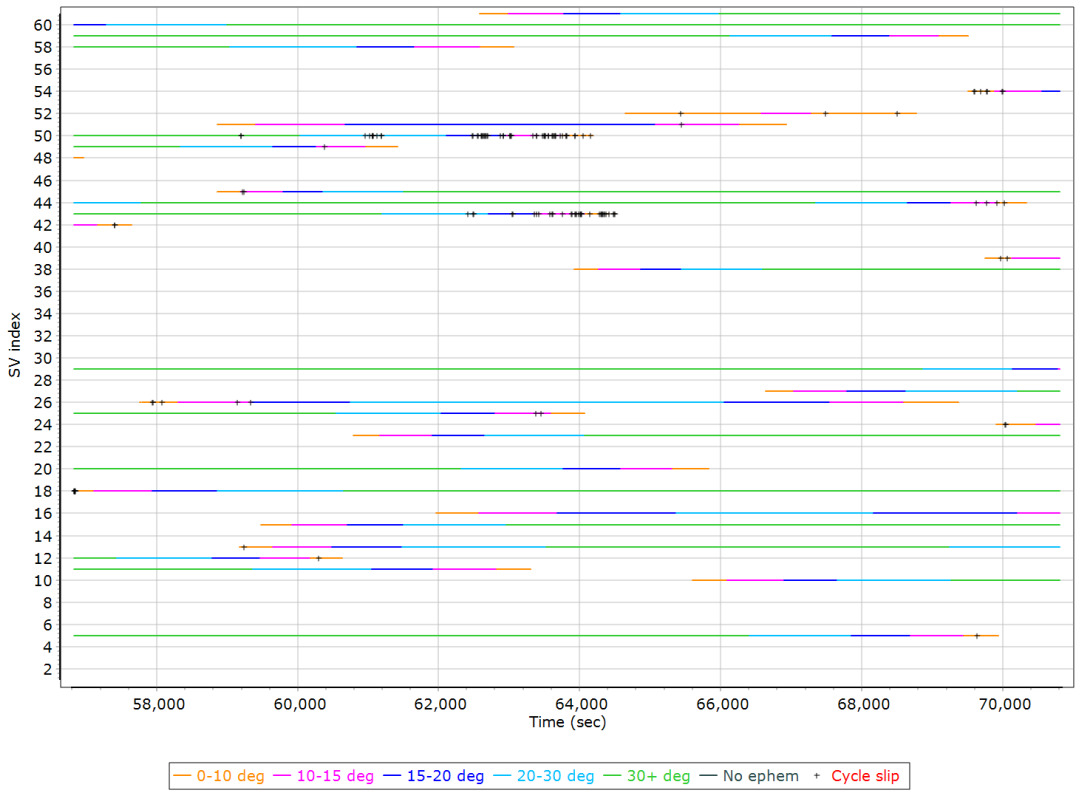
Rover Data QC

Raw IMU Import QC Summary

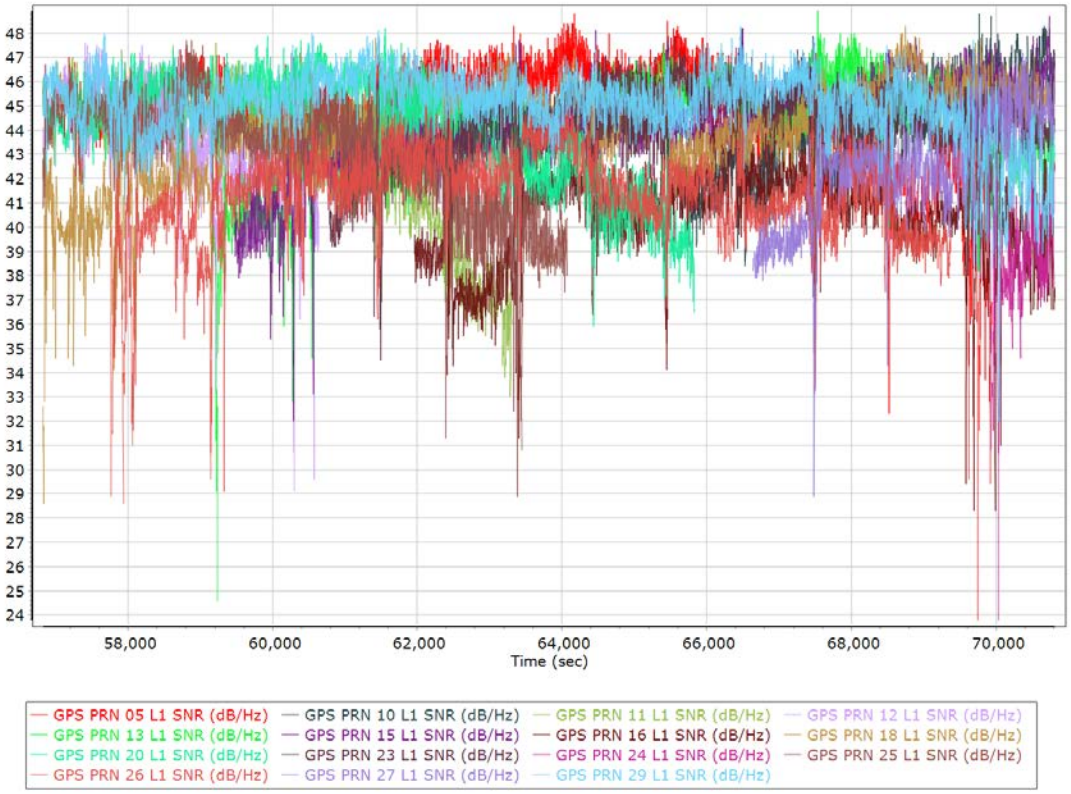
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_07302023A_4051.log
IMU Records Processed	2795741
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

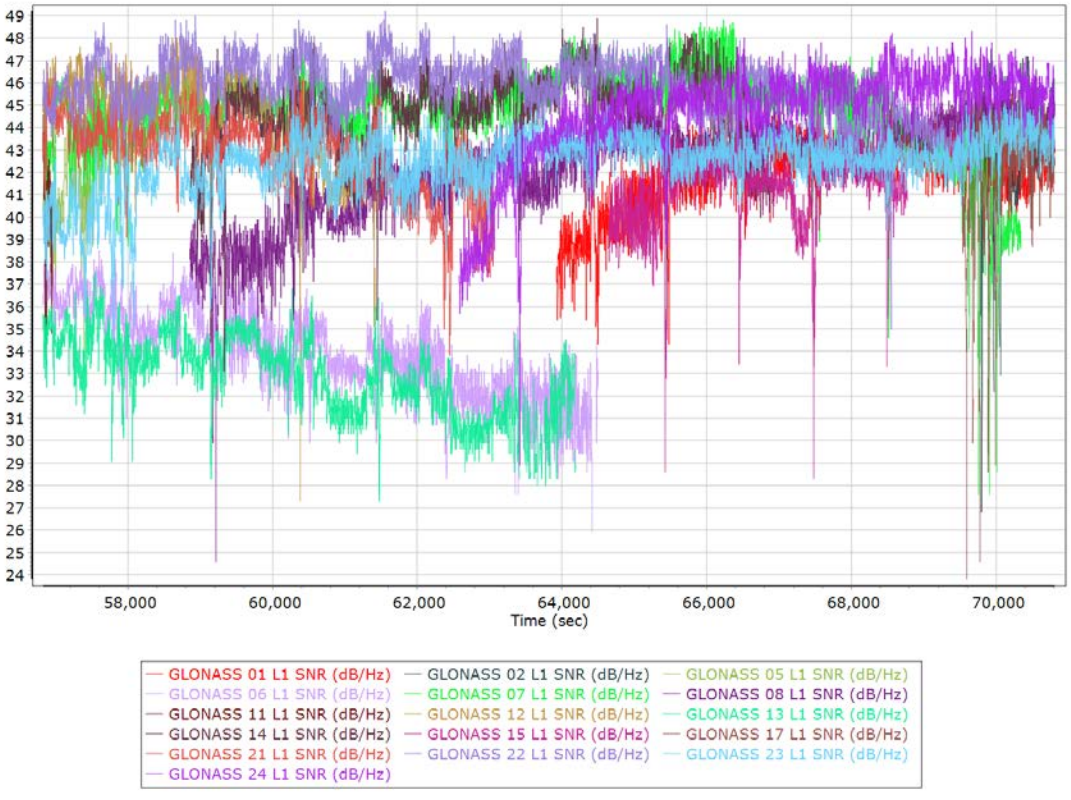
GPS/GLONASS L1 Satellite Lock/Elevation



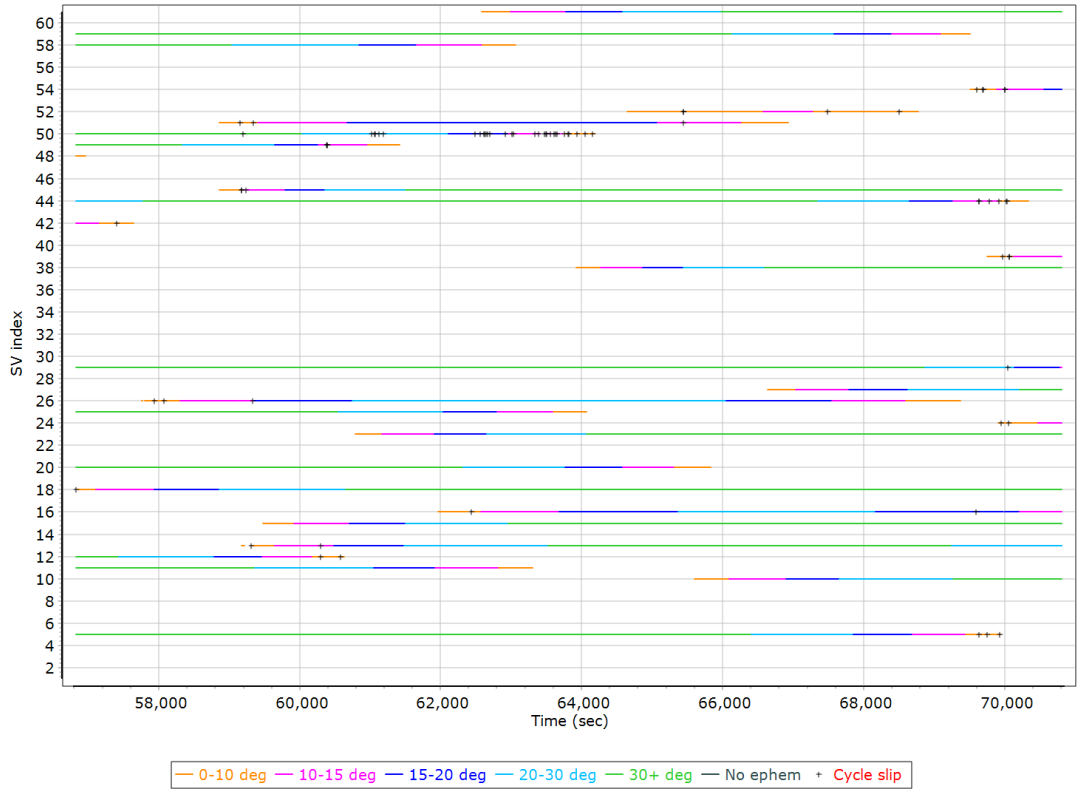
GPS L1 SNR



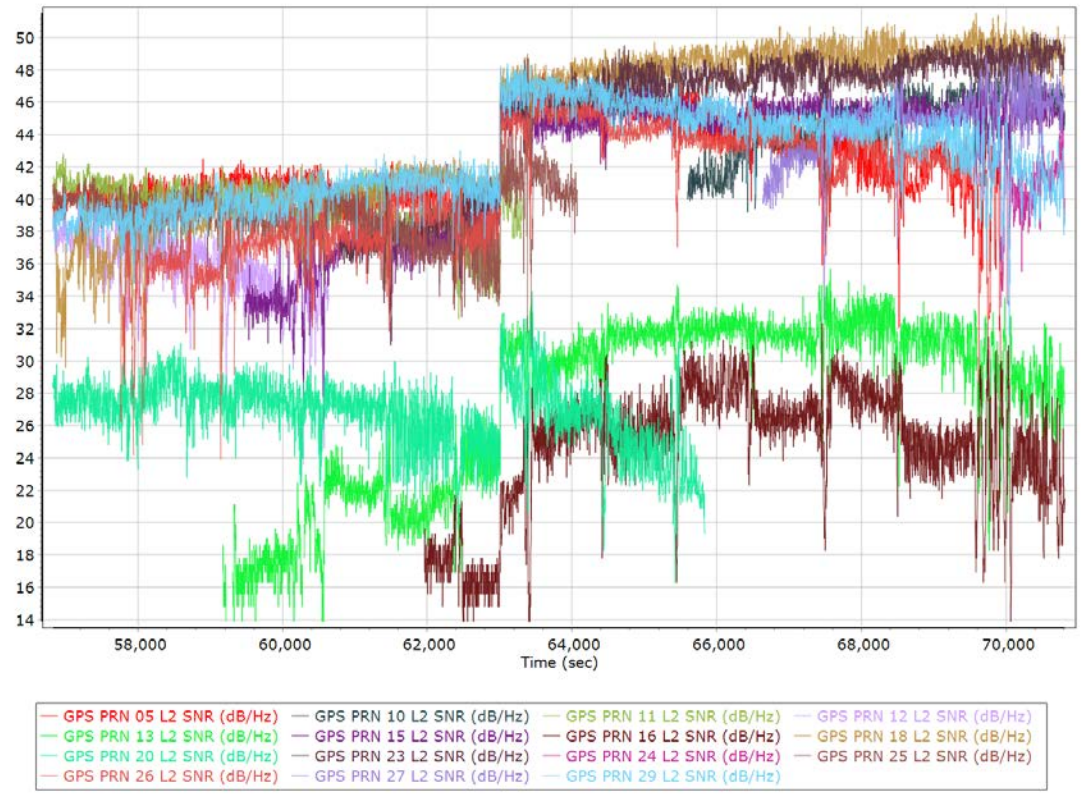
GLONASS L1 SNR



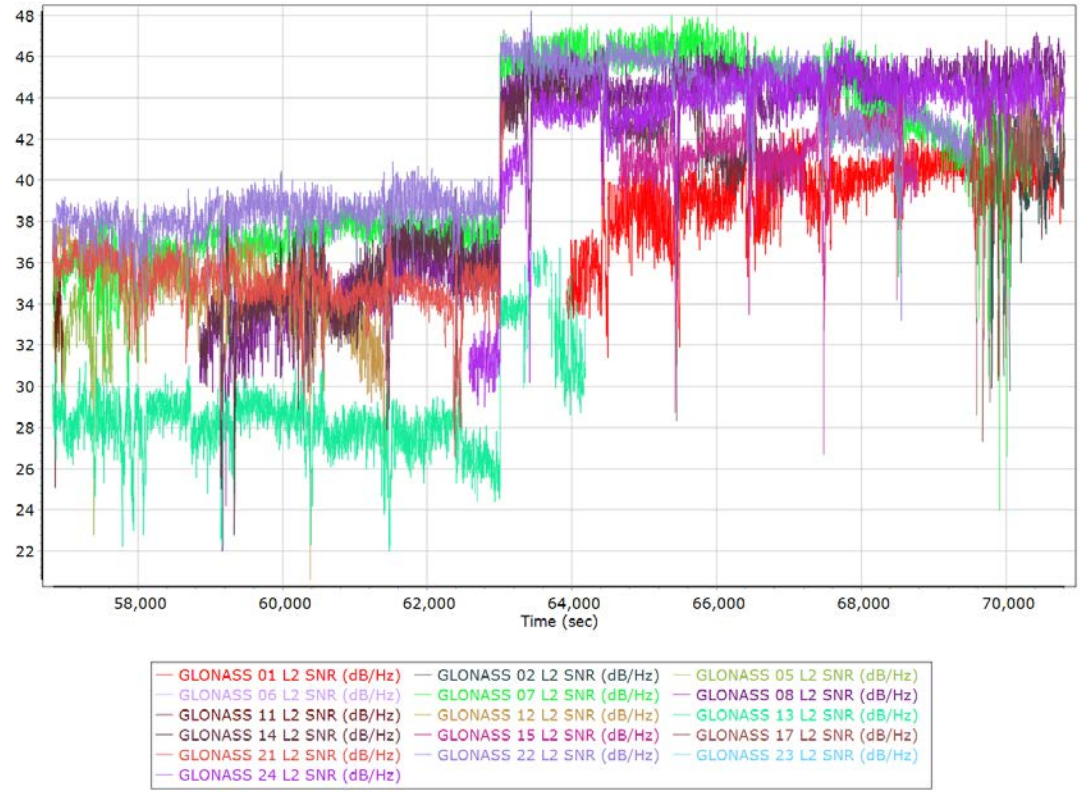
GPS/GLONASS L2 Satellite Lock/Elevation



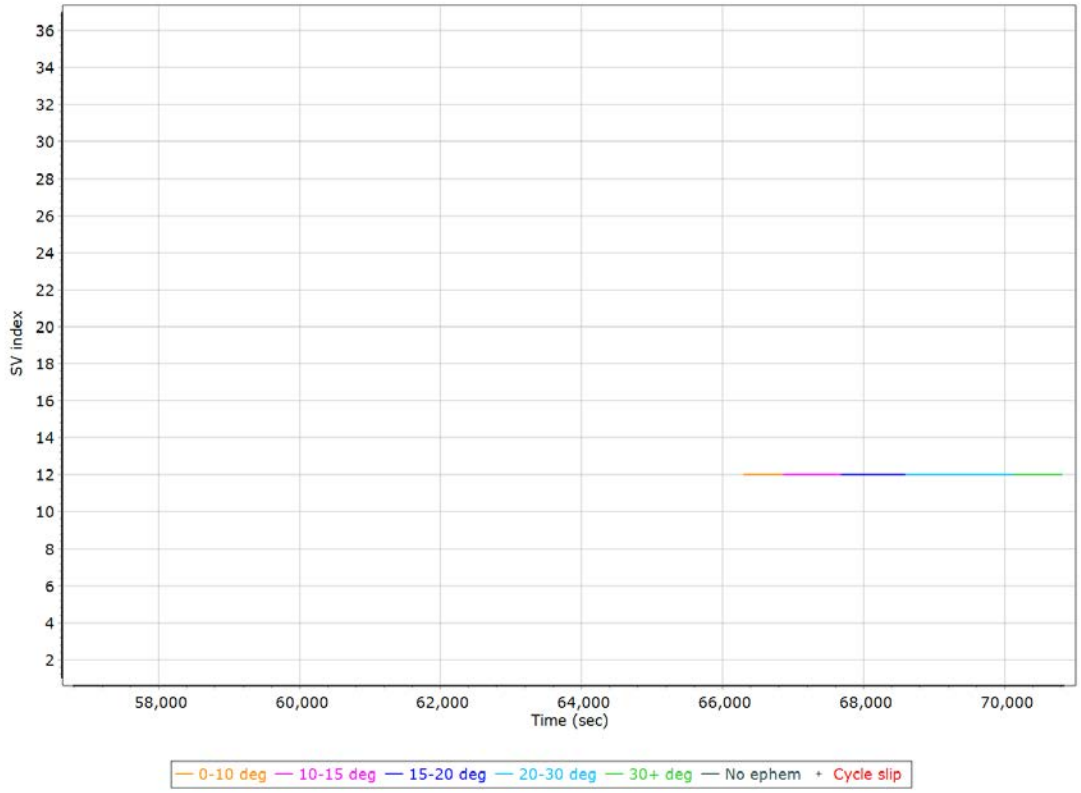
GPS L2 SNR



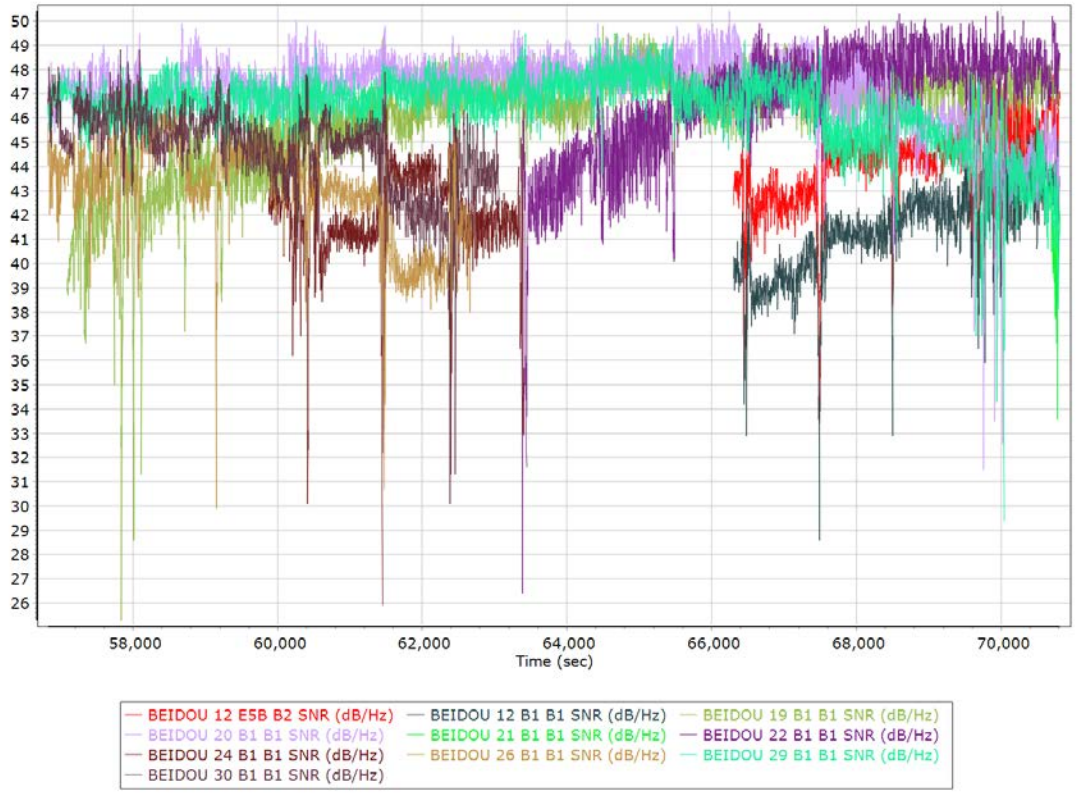
GLONASS L2 SNR



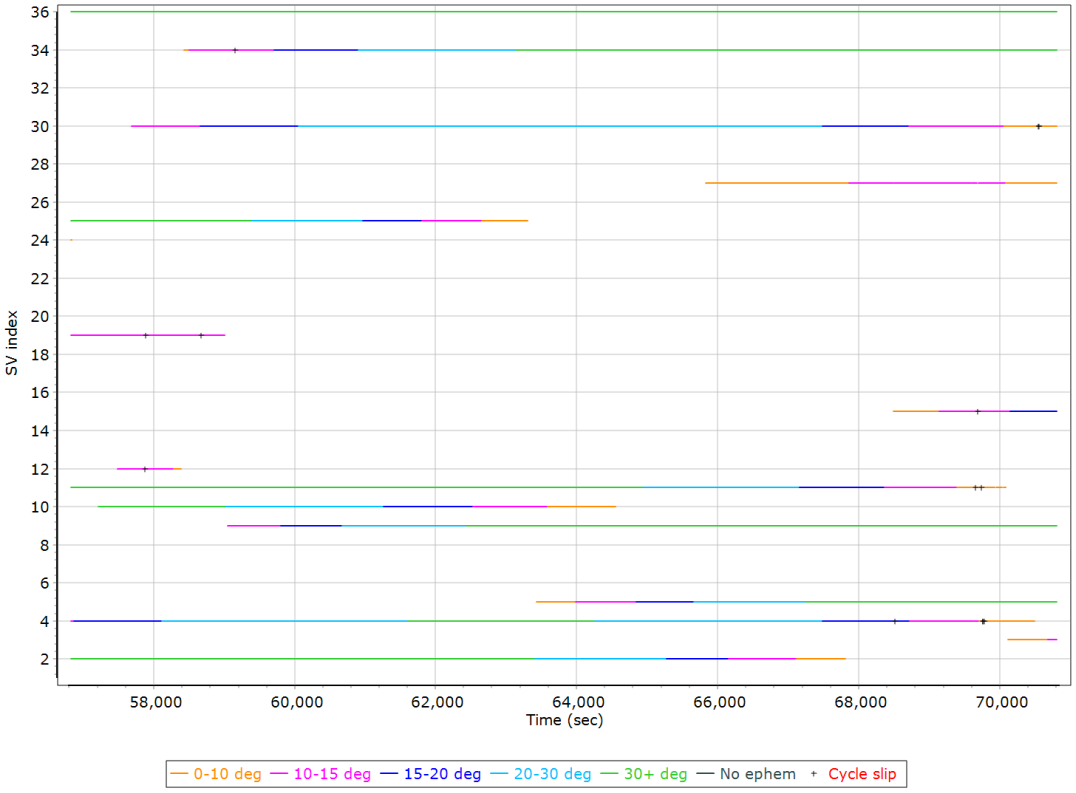
BEIDOU Satellite Lock/Elevation



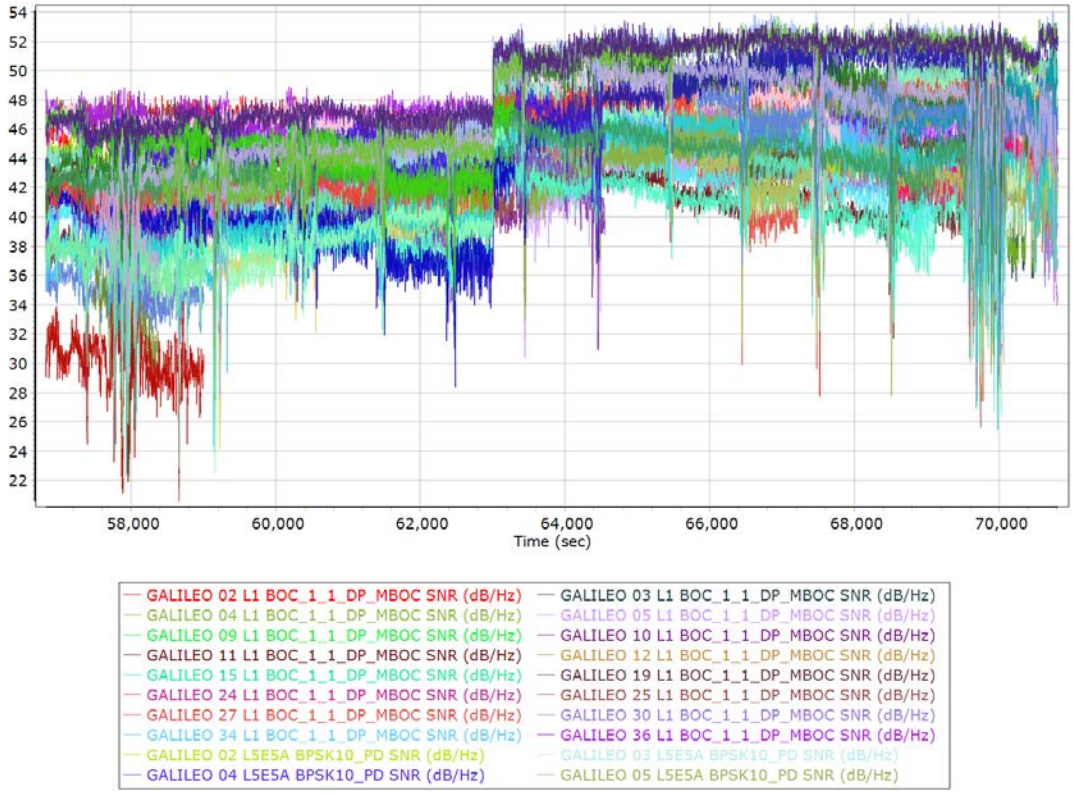
BEIDOU SNR



GALILEO Satellite Lock/Elevation

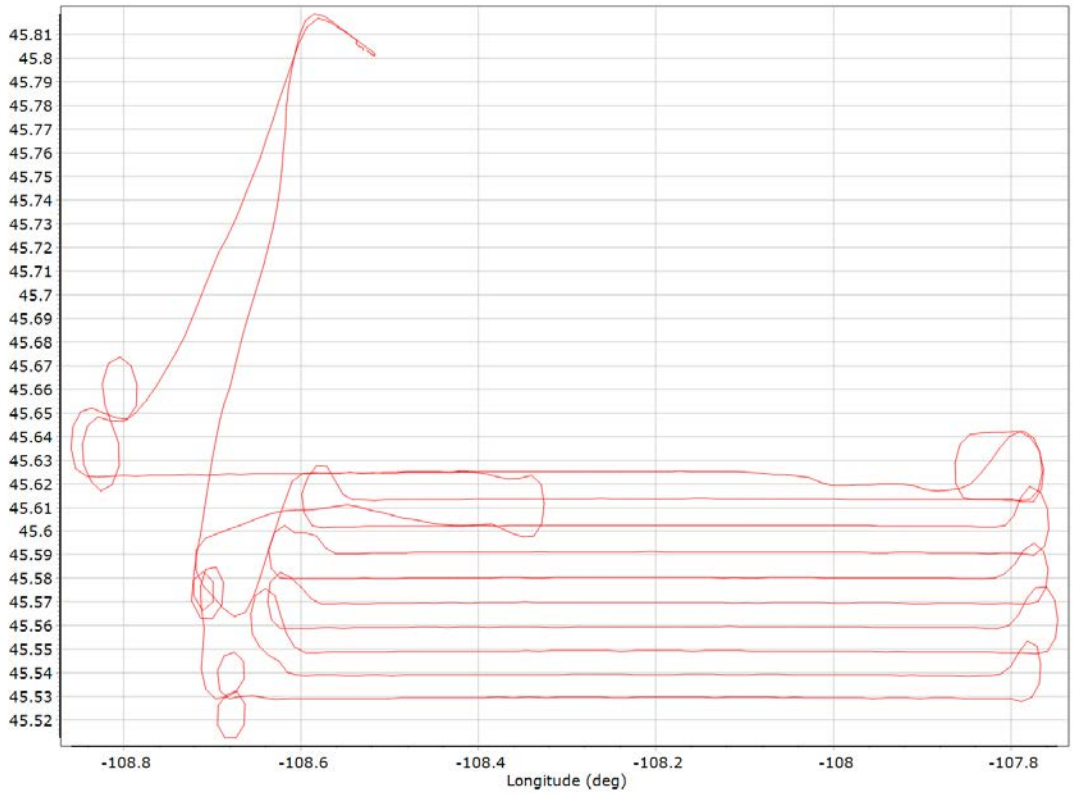


GALILEO SNR


54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
58,000
60,000
62,000
64,000
66,000
68,000
70,000
Time (sec)
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 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 15 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 27 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 30 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 34 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 03 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 05 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

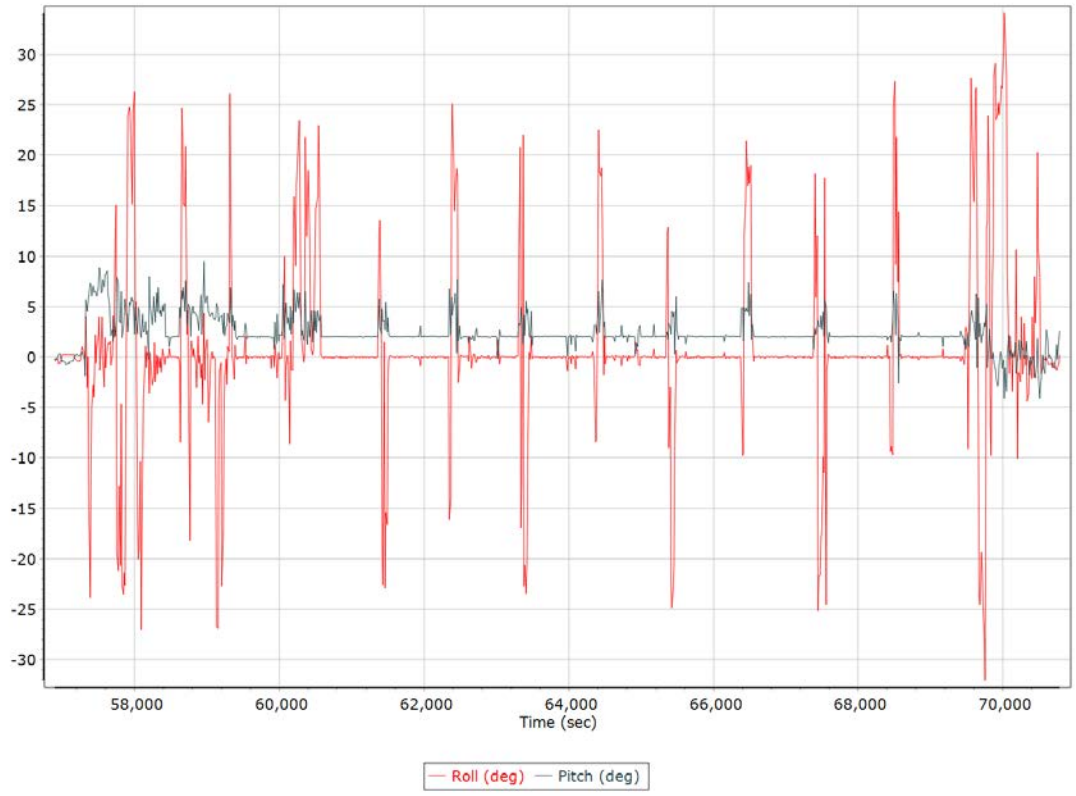
Top View



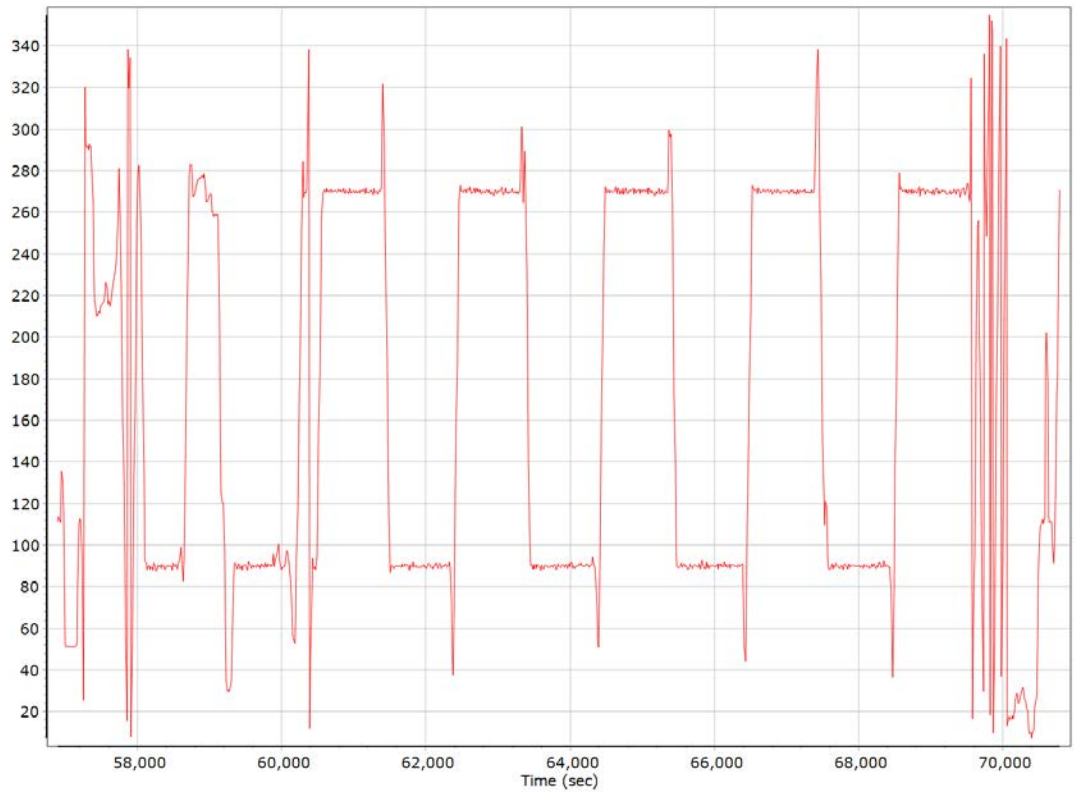
Altitude



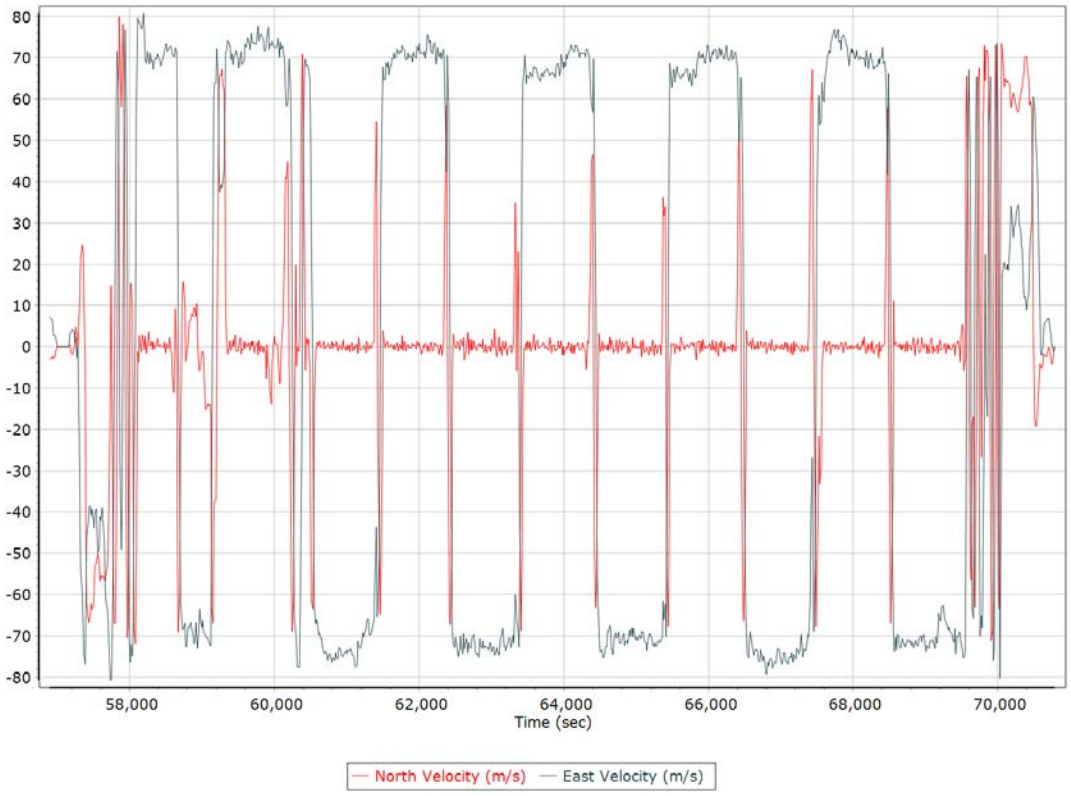
Roll/Pitch



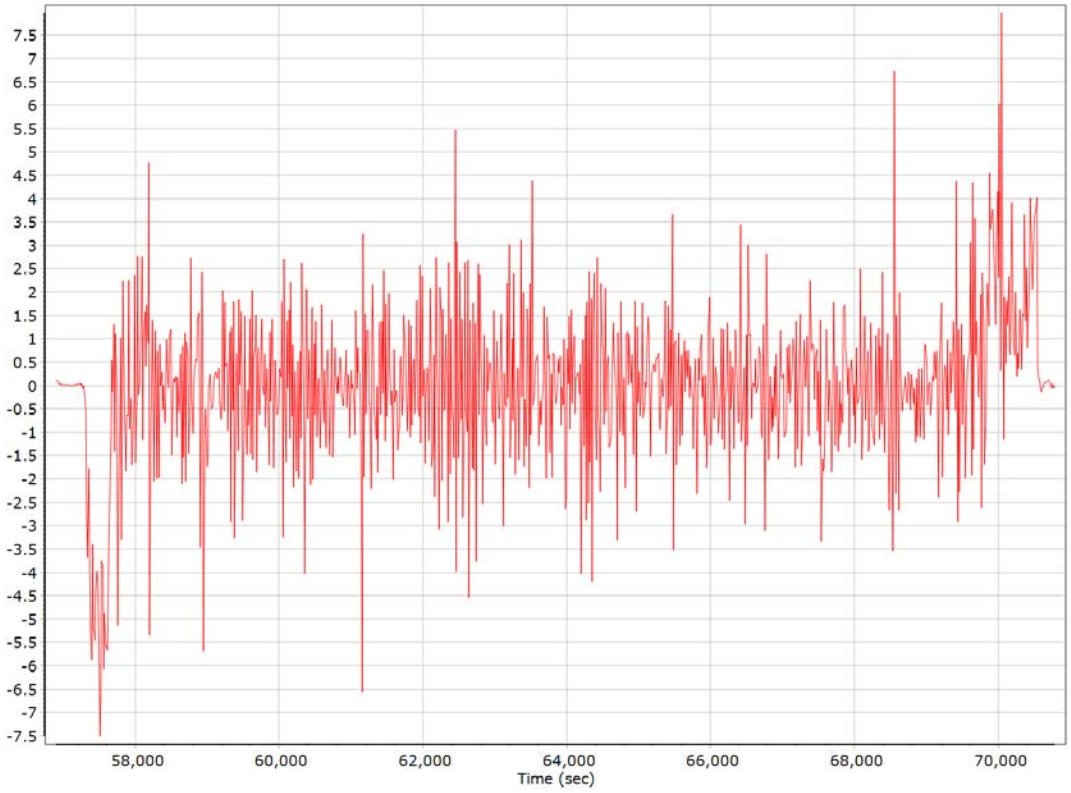
Heading



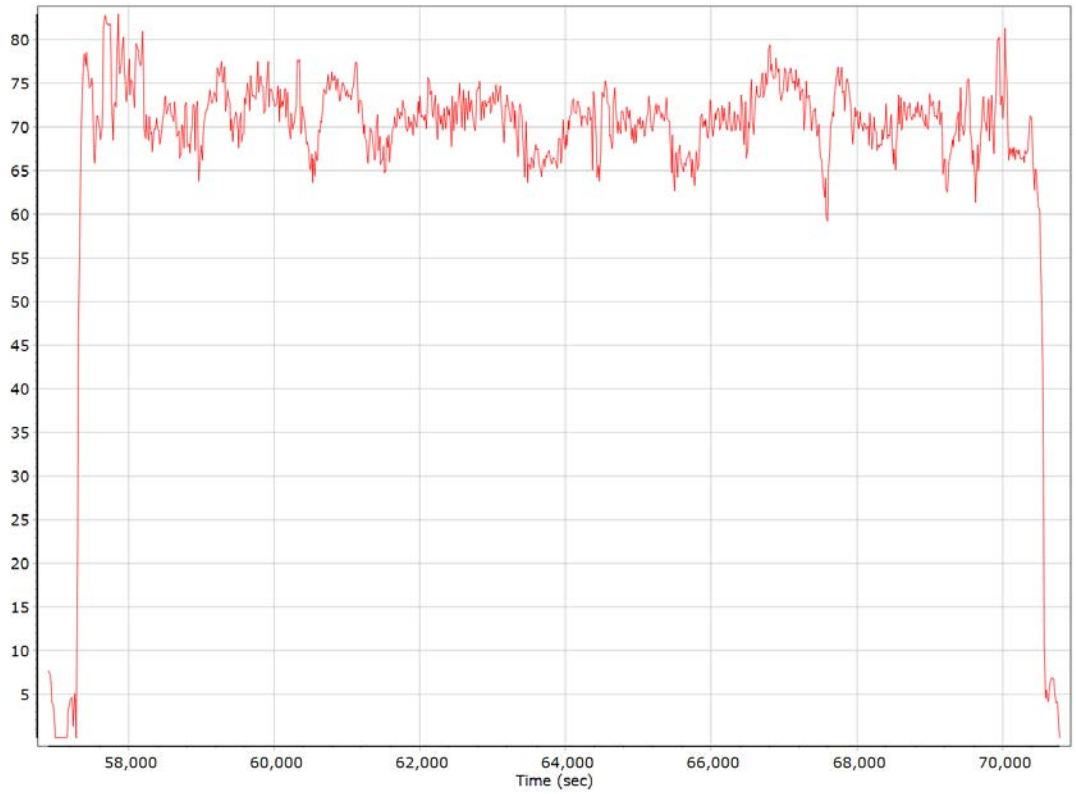
North/East Velocity



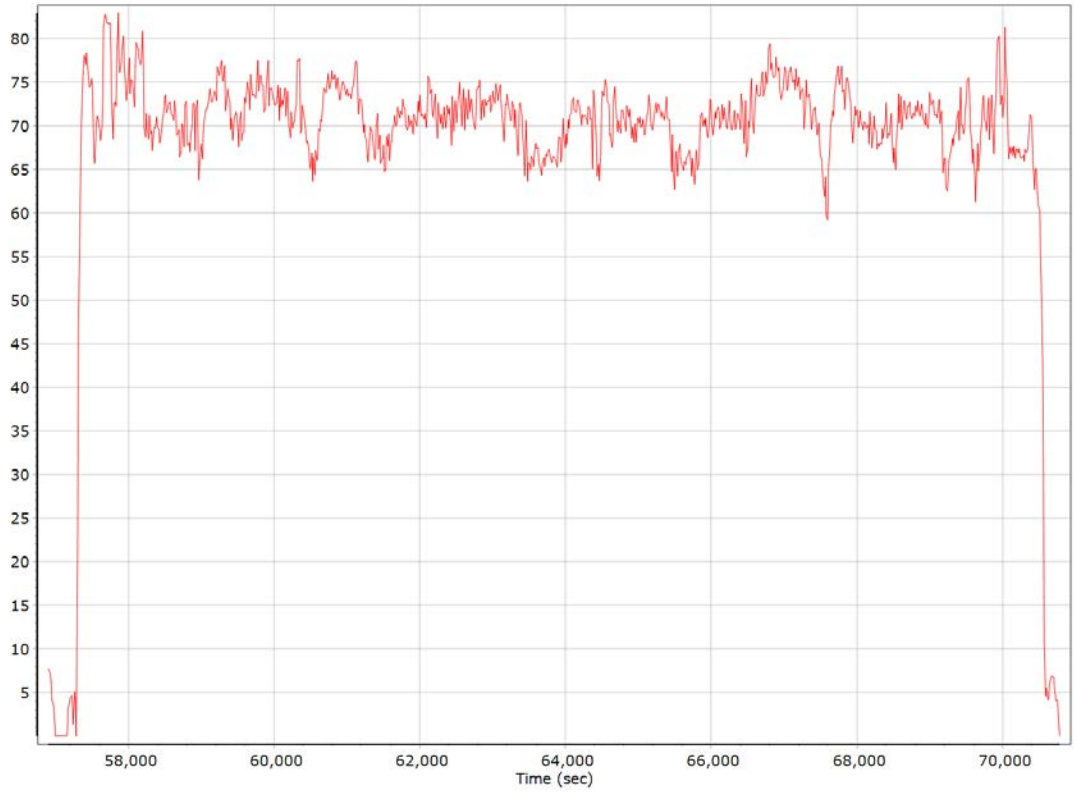
Down Velocity



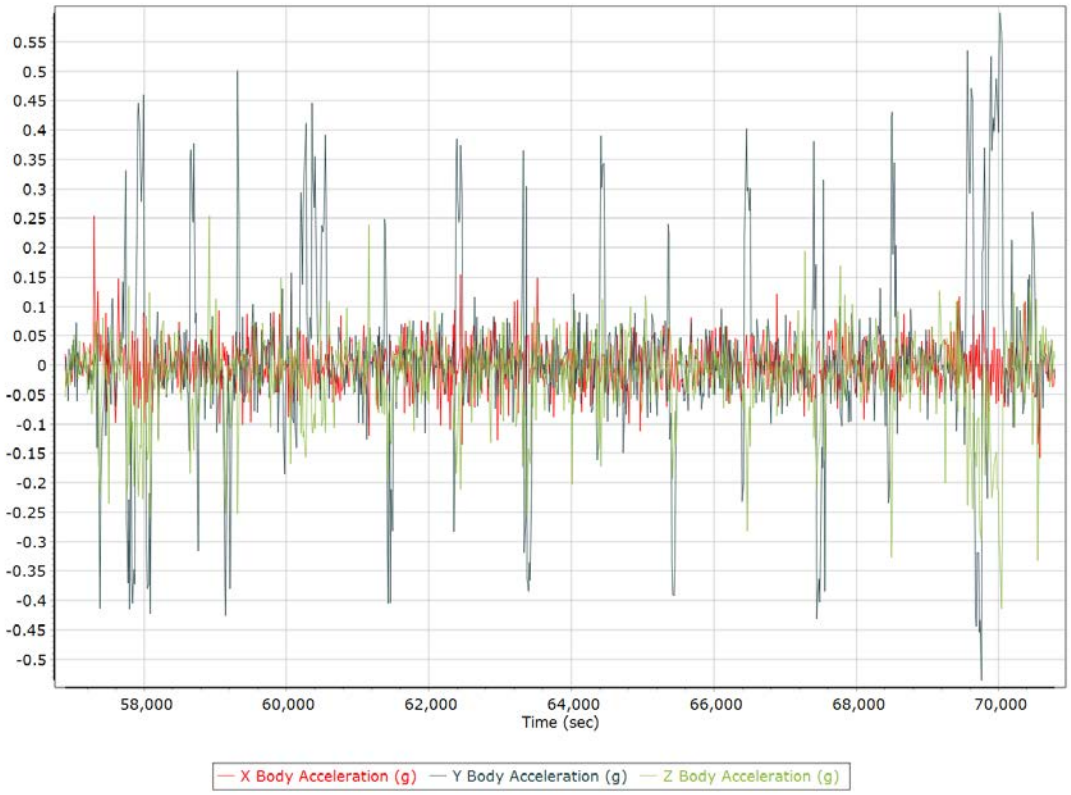
Total Speed



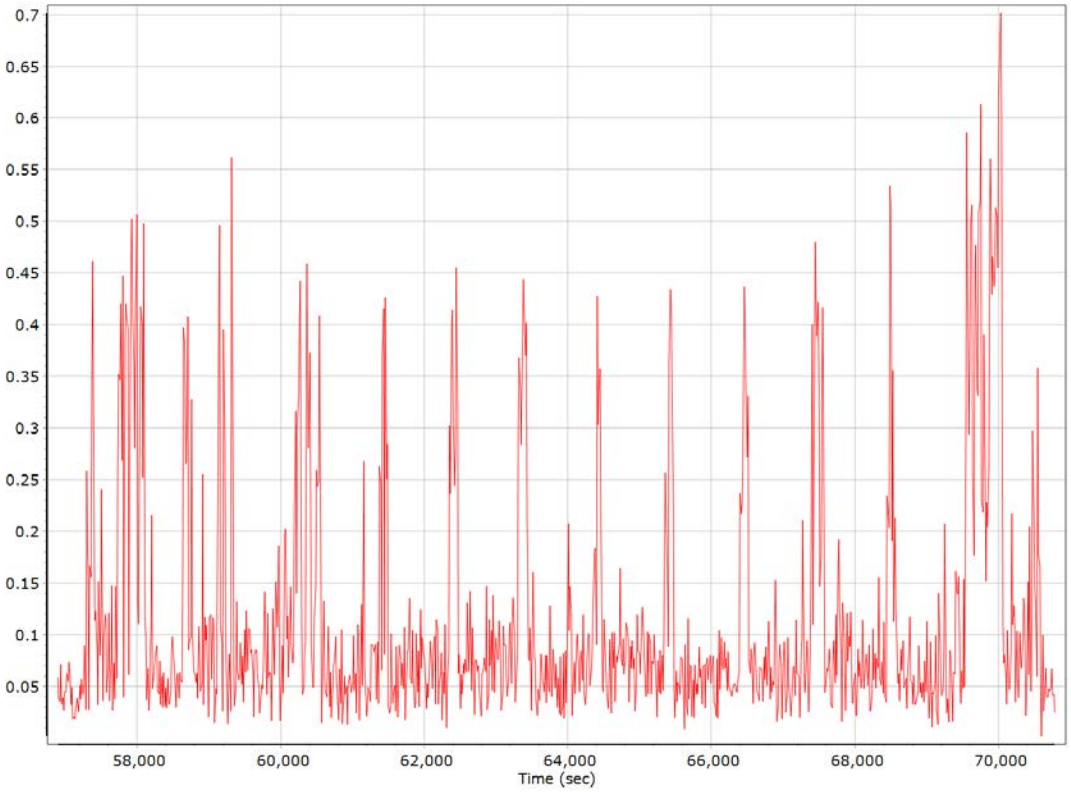
Ground Speed



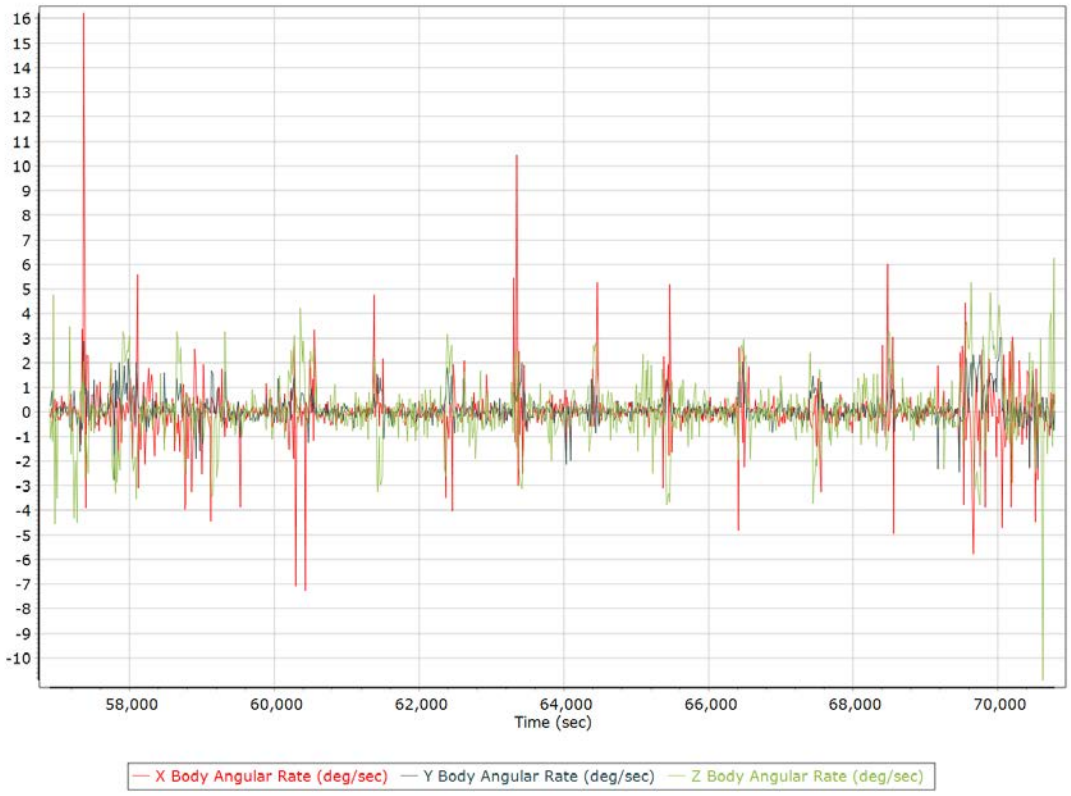
Body Acceleration



Total Body Acceleration

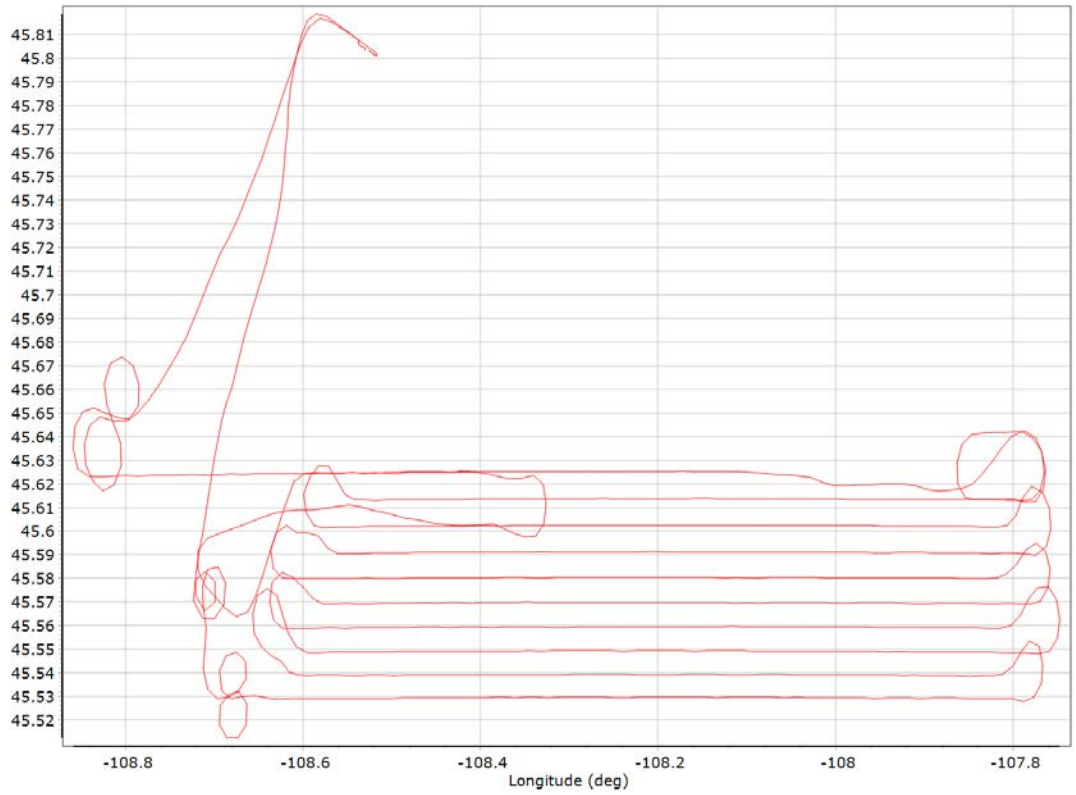


Body Angular Rate



Forward Processed Trajectory Information

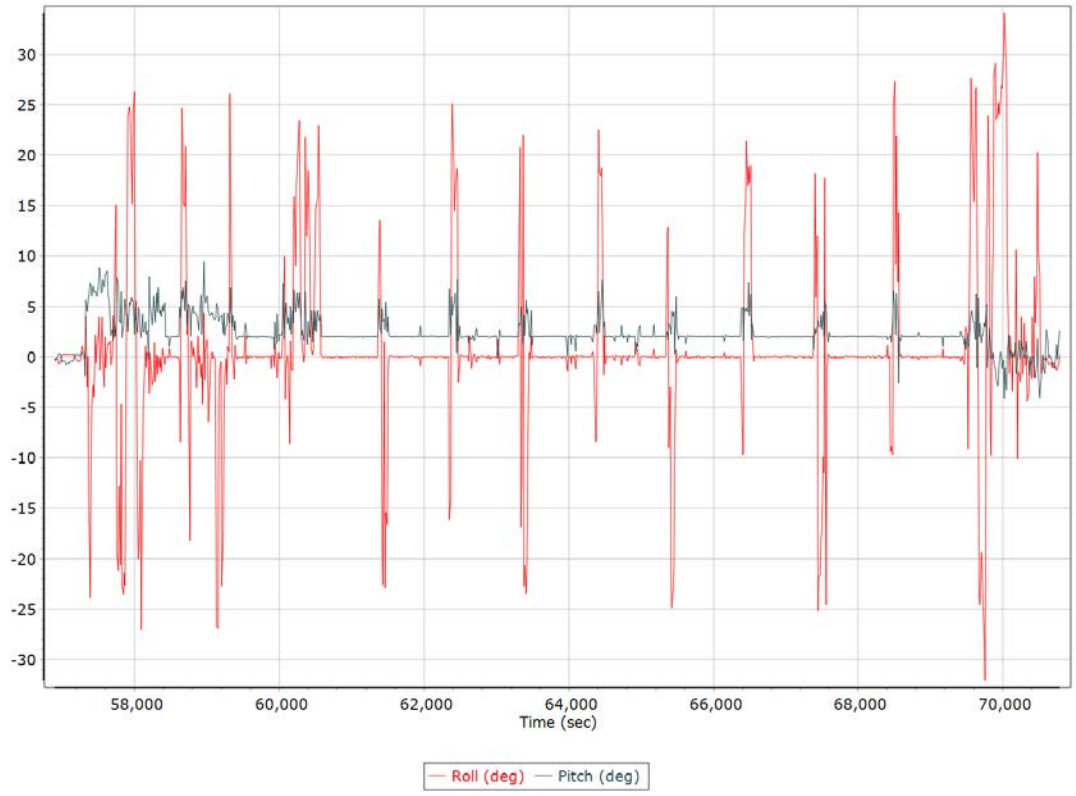
Top View



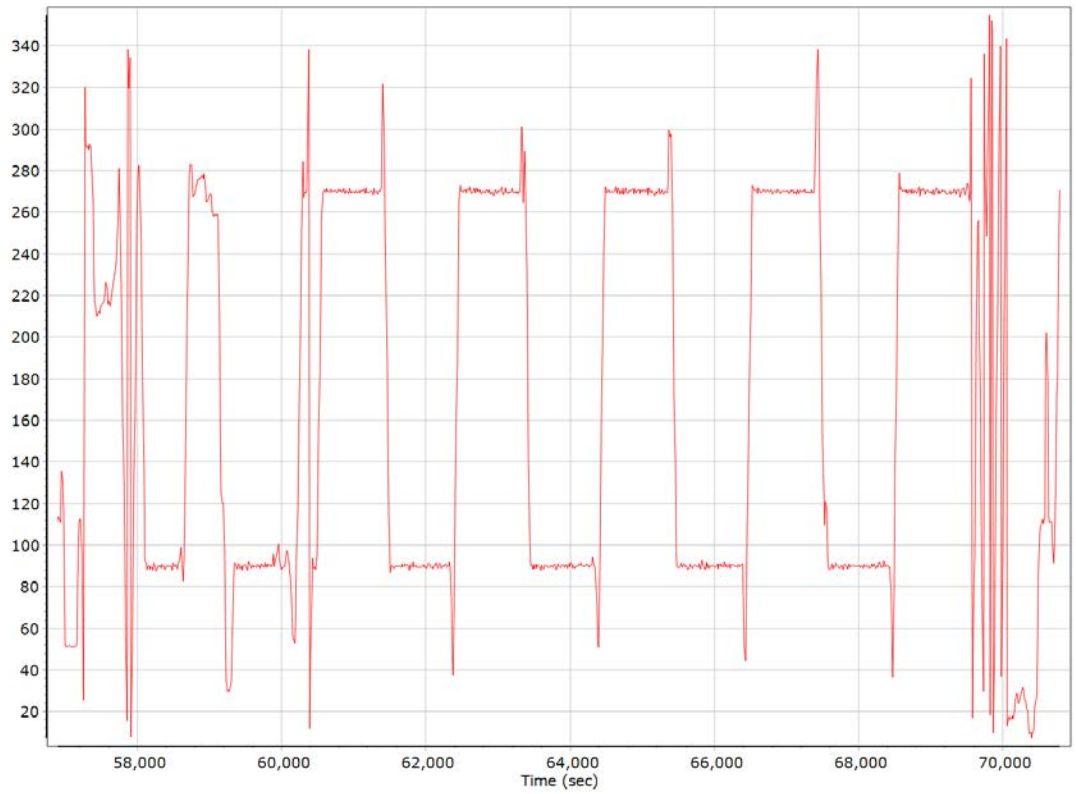
Altitude



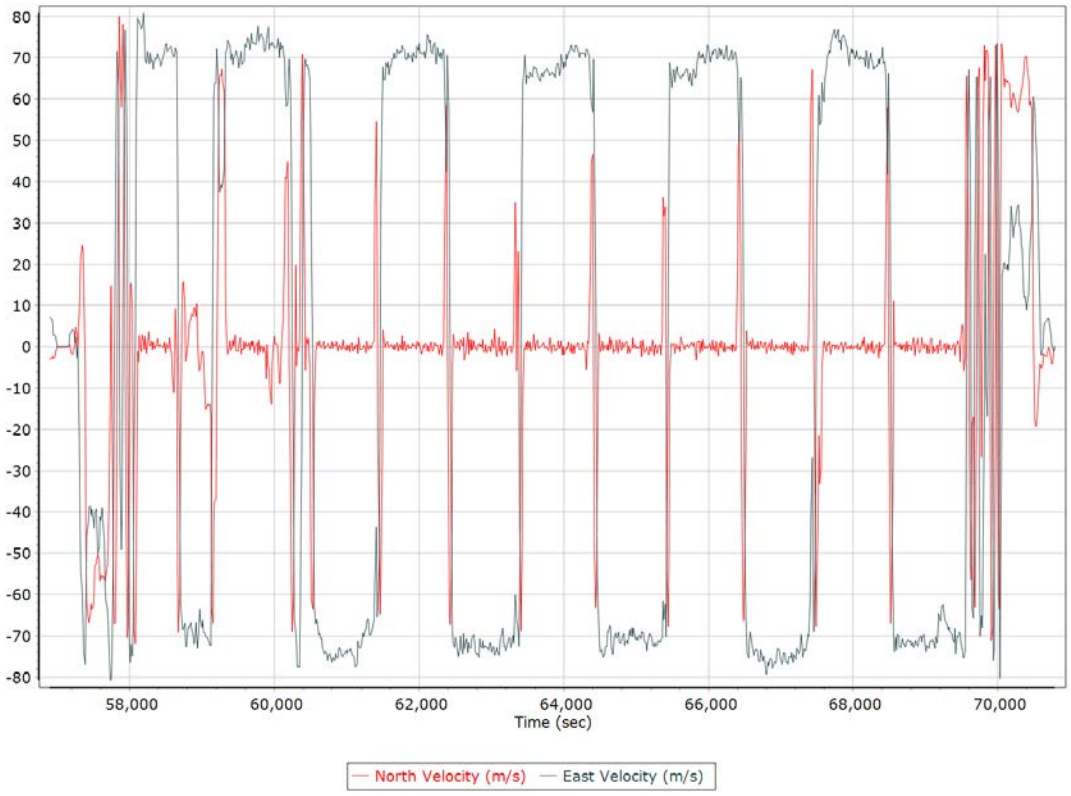
Roll/Pitch



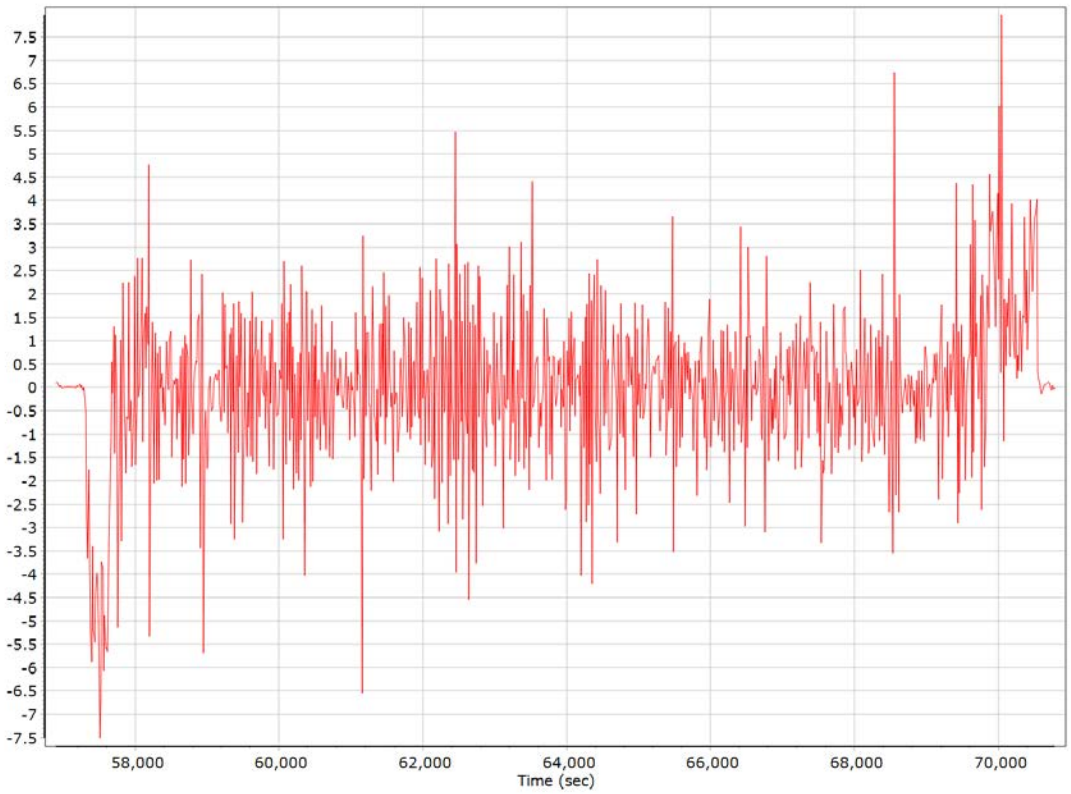
Heading



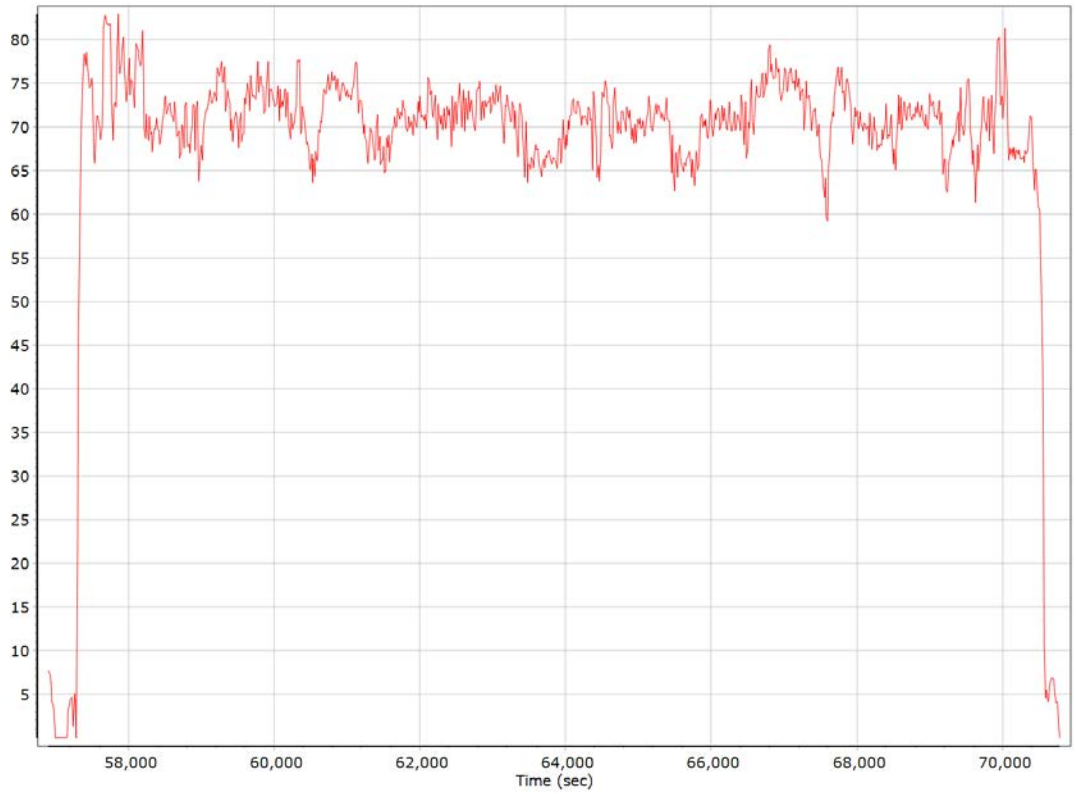
North/East Velocity



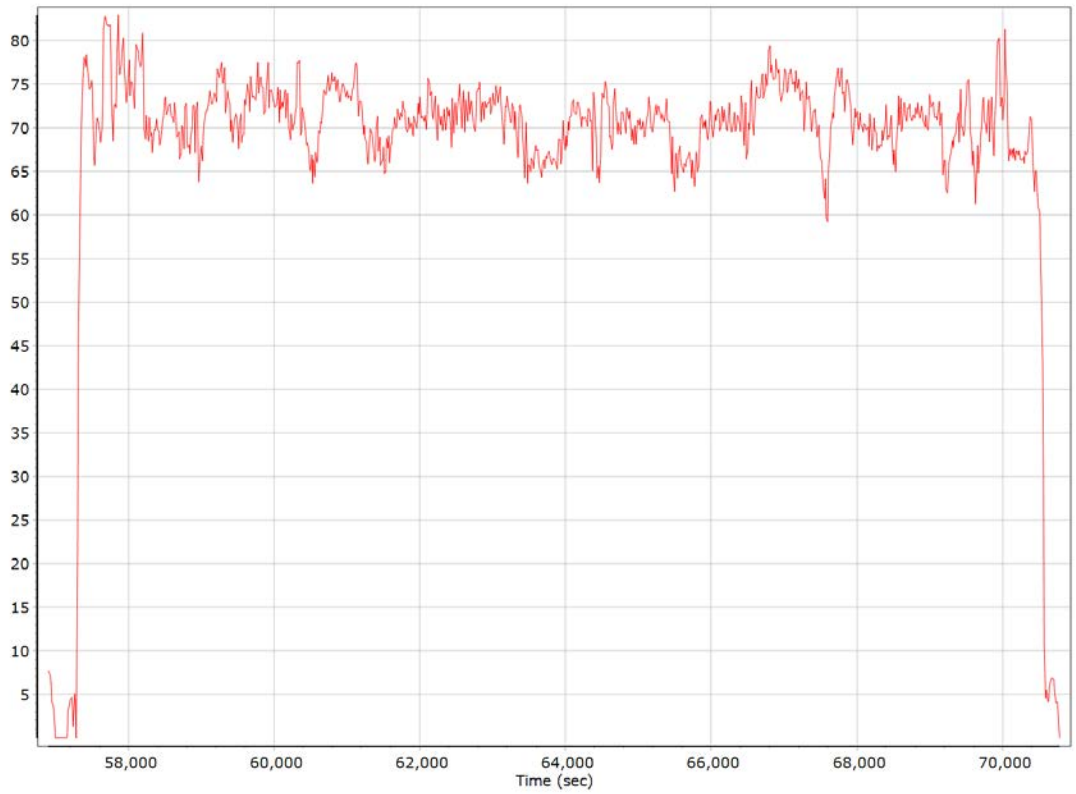
Down Velocity



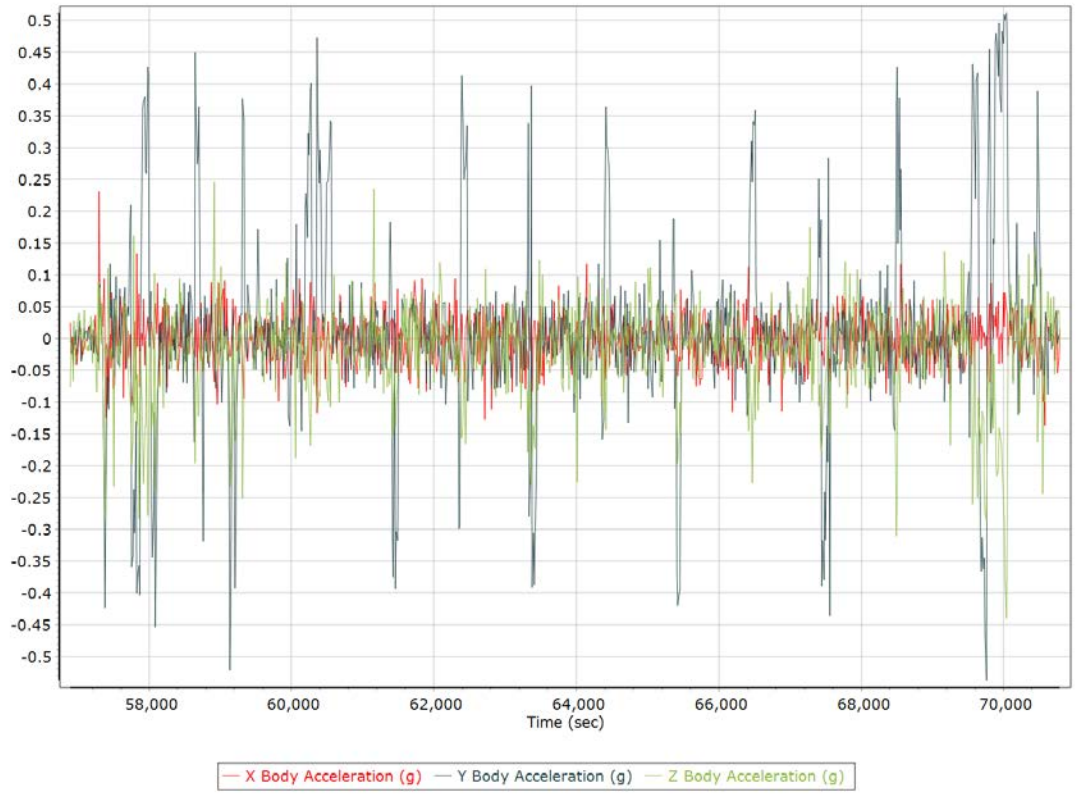
Total Speed



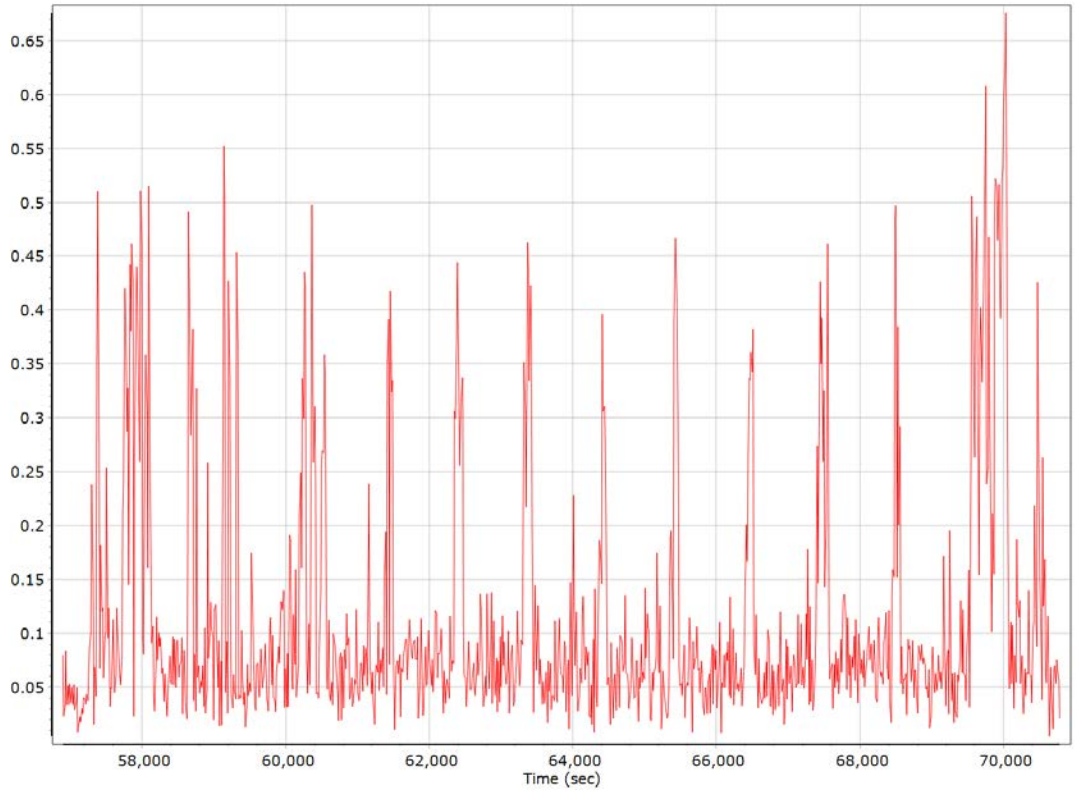
Ground Speed



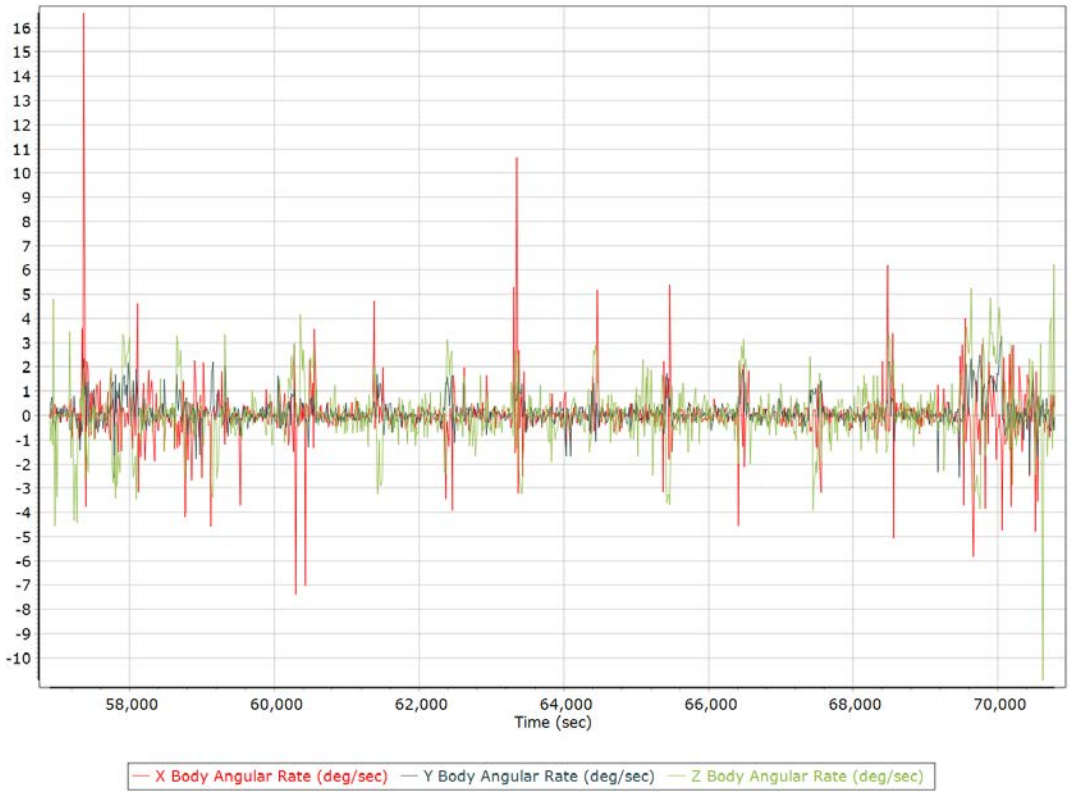
Body Acceleration



Total Body Acceleration



Body Angular Rate



GNSS QC

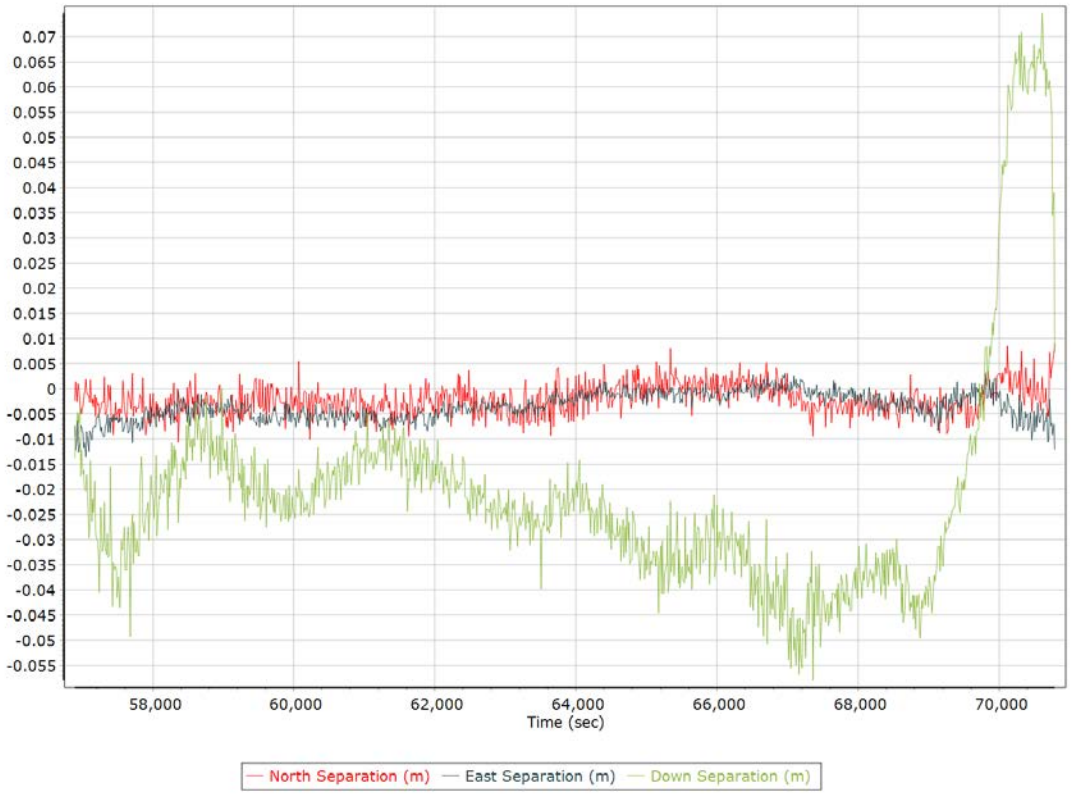
GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	11	9
Number of GLONASS SV	3	7	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	5	9	8
Total number of SV	15	26	23
PDOP	0.93	1.54	1.11
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	13932.00	0.00	0.00
Percentage	100.00	0.00	0.00

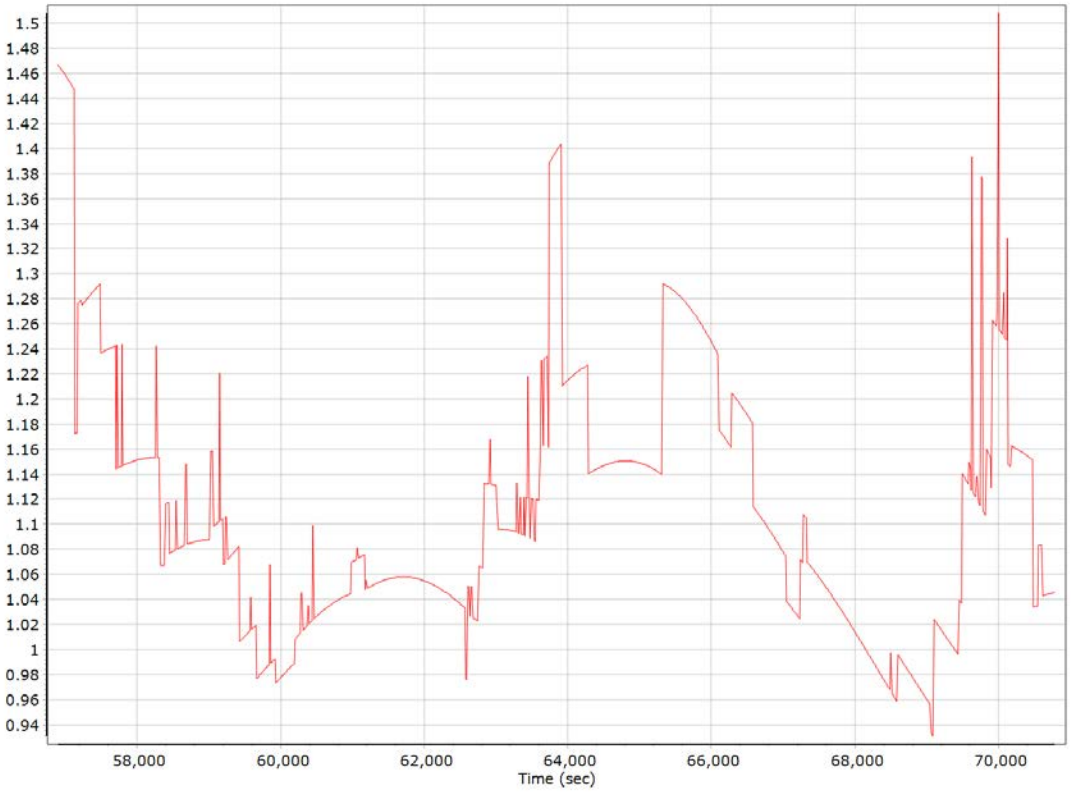
Num SVs in solution



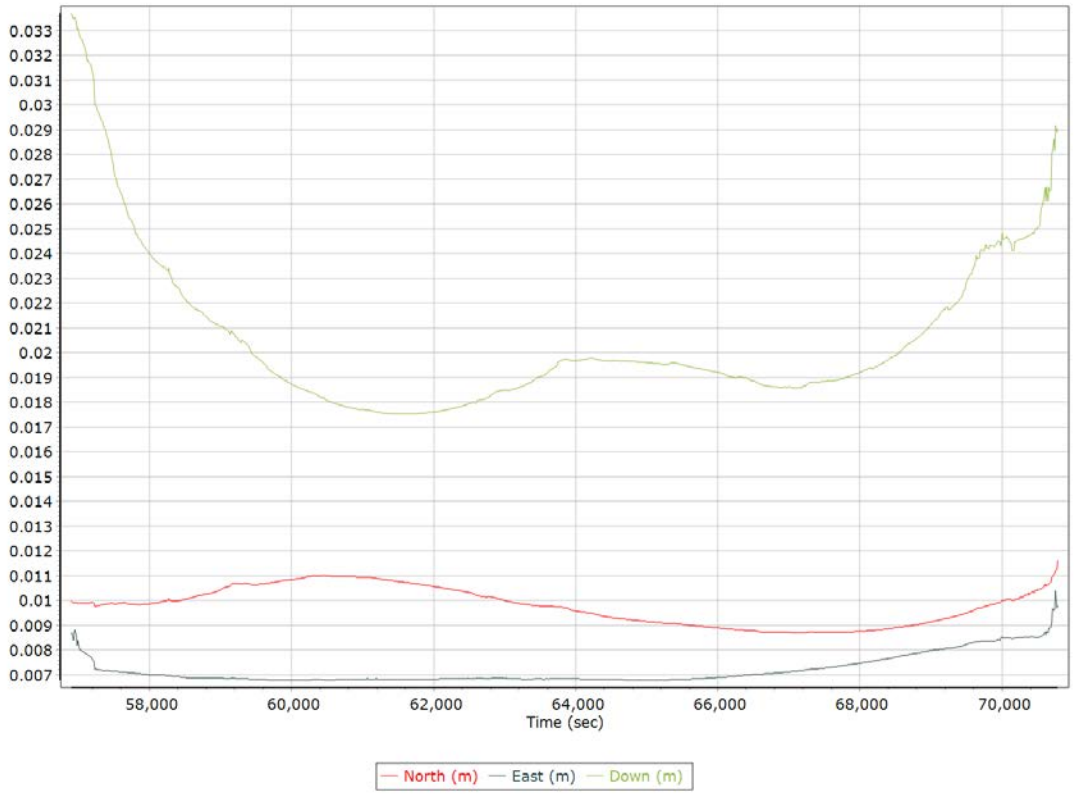
Forward/Reverse Separation



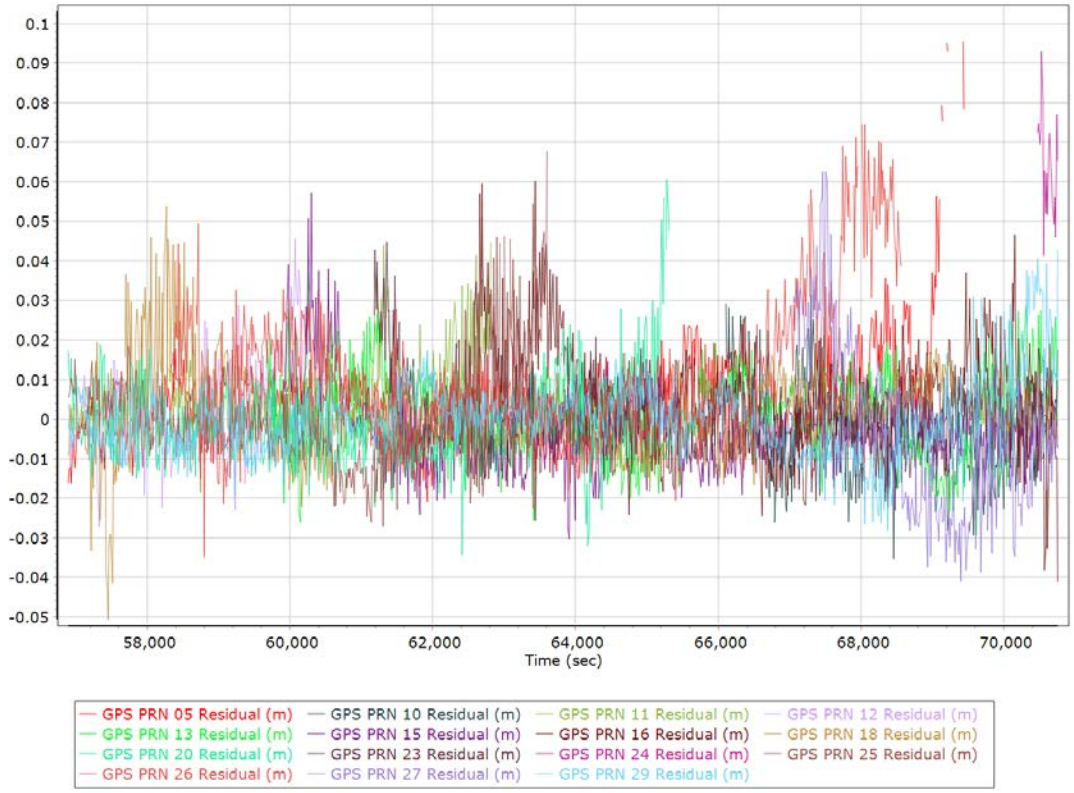
PDOP



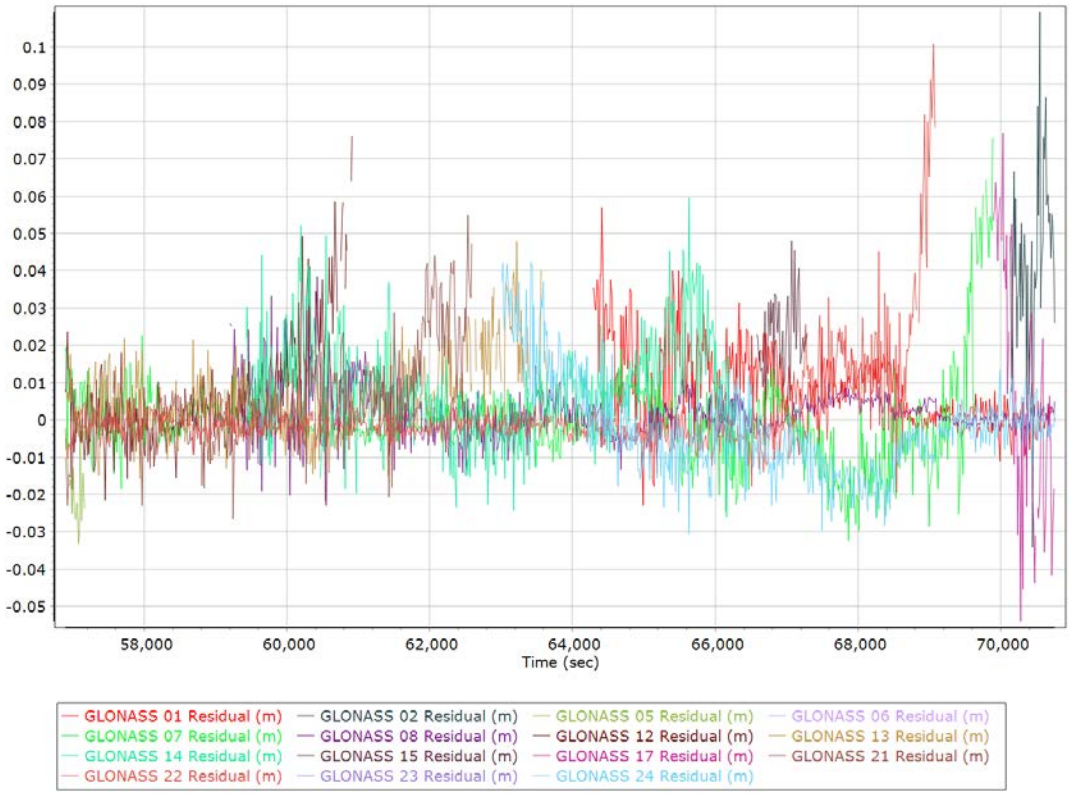
Estimated Position Accuracy



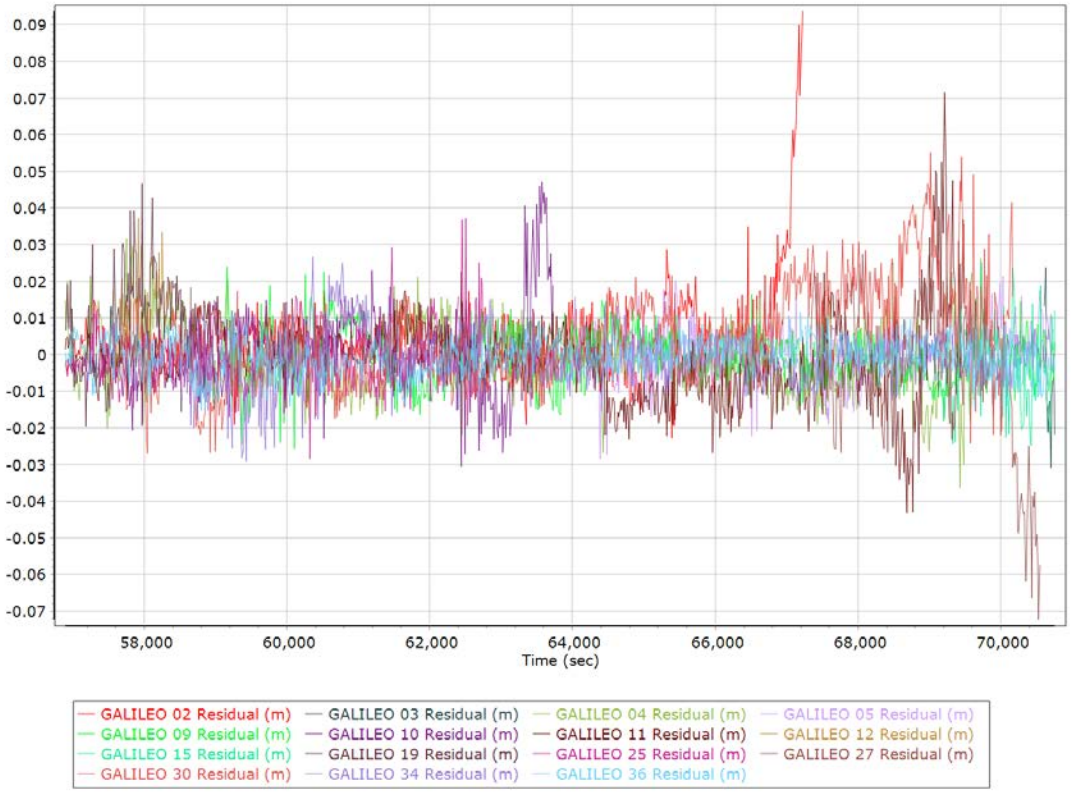
GPS Residuals



GLONASS Residuals



GALILEO Residuals



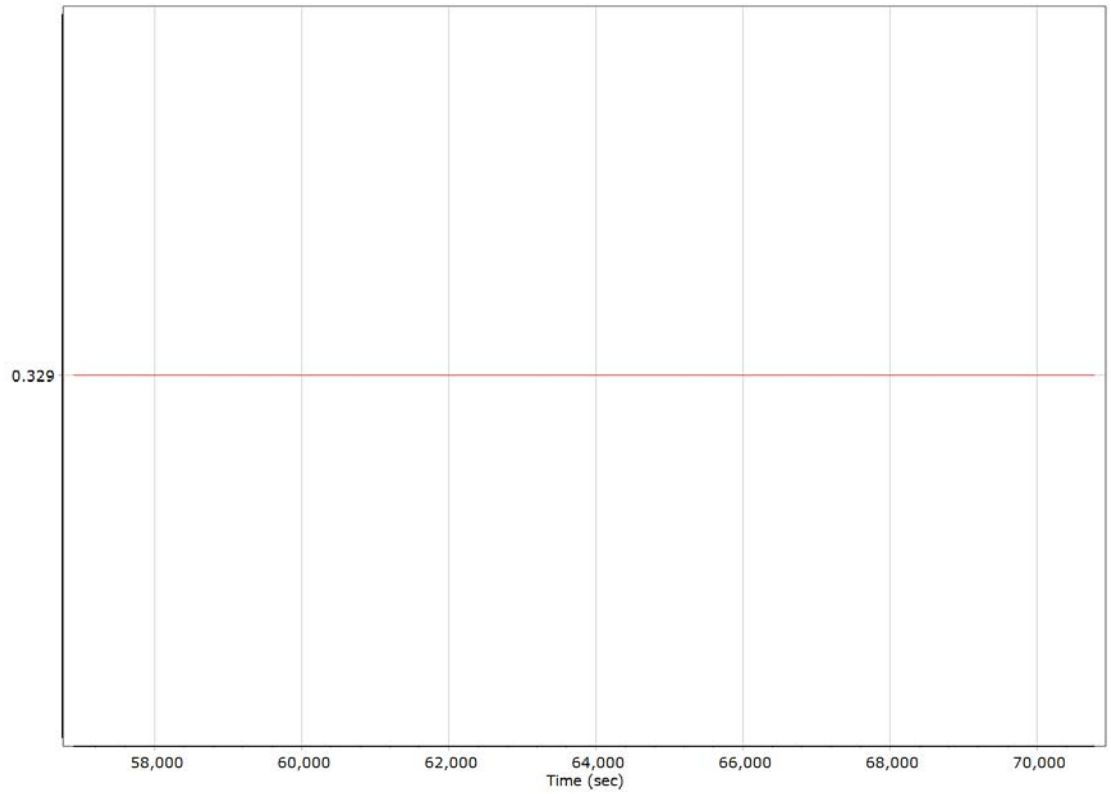
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	56811.033 (7/30/2023 3:46:51 PM)		
Processing end time	70792.000 (7/30/2023 7:39:52 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.329	-0.067	-1.393
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

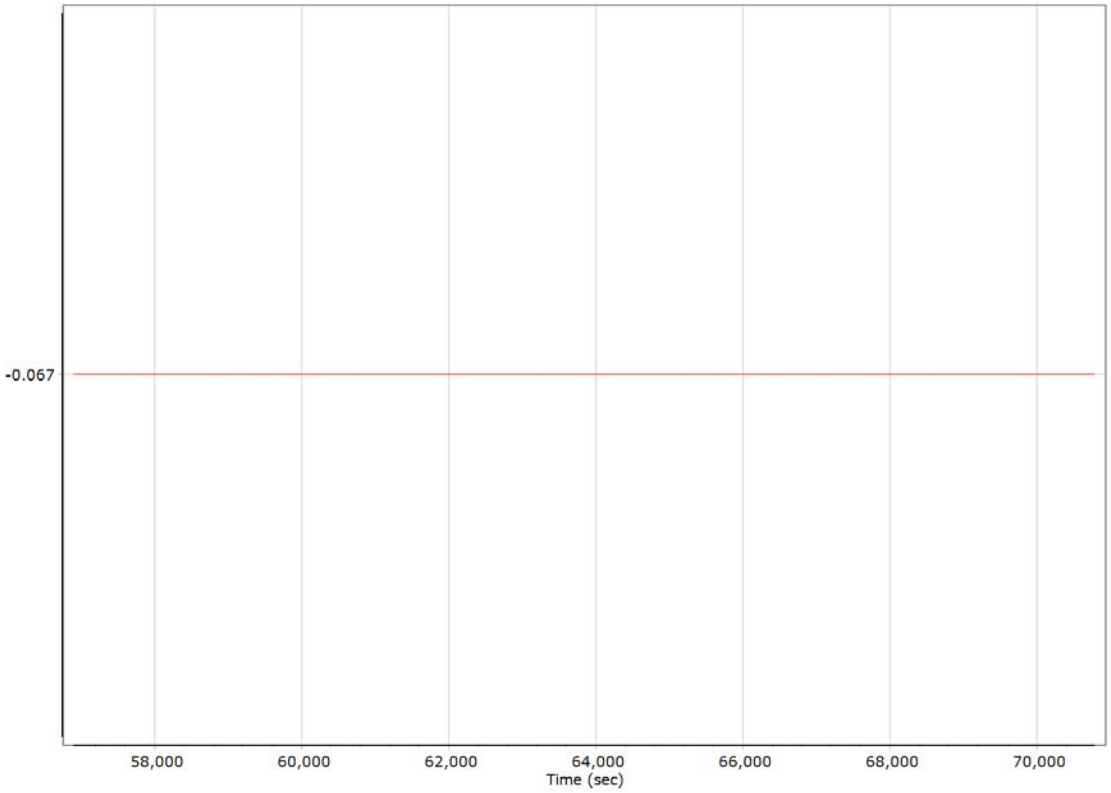
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

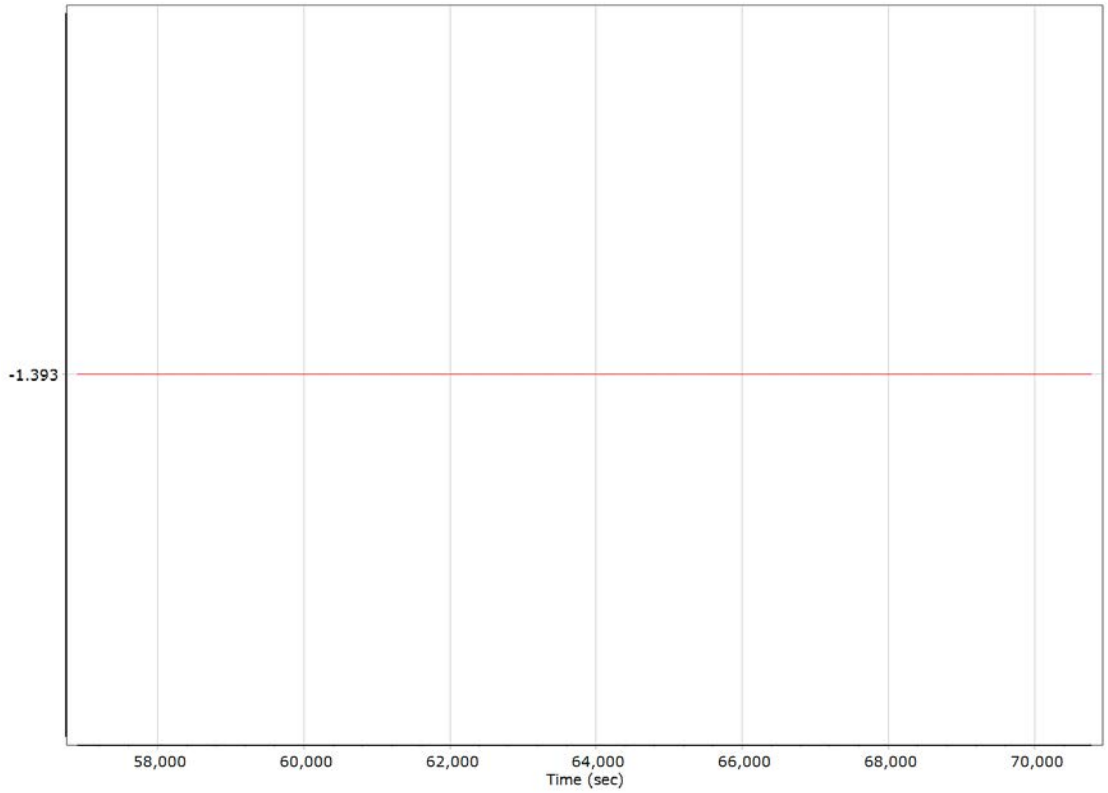
X Reference-Primary GNSS Lever Arm (m)



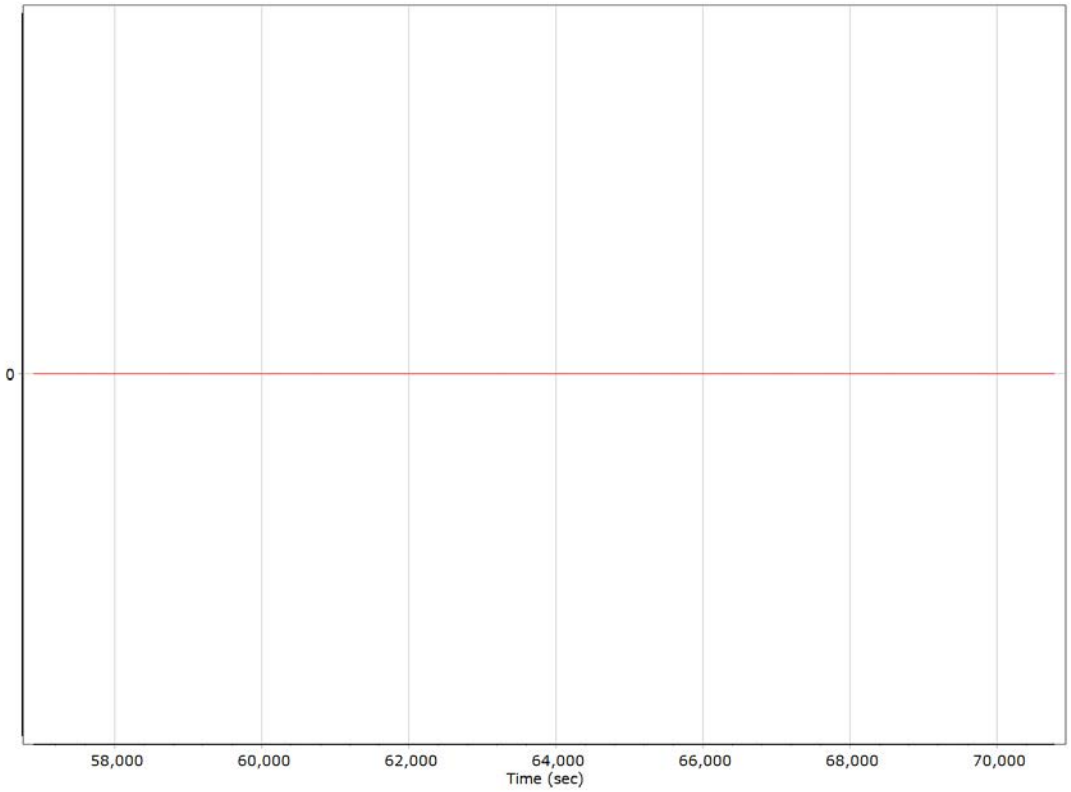
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



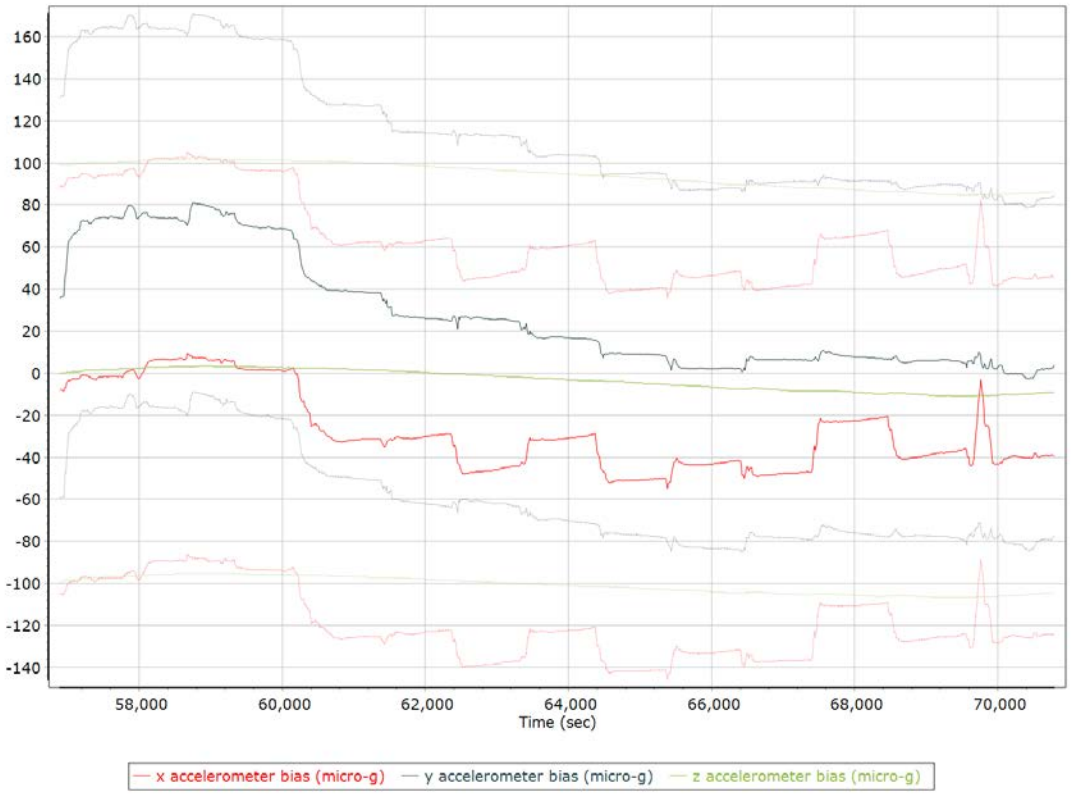
Reference-Primary GNSS Lever Arm Figure of Merit



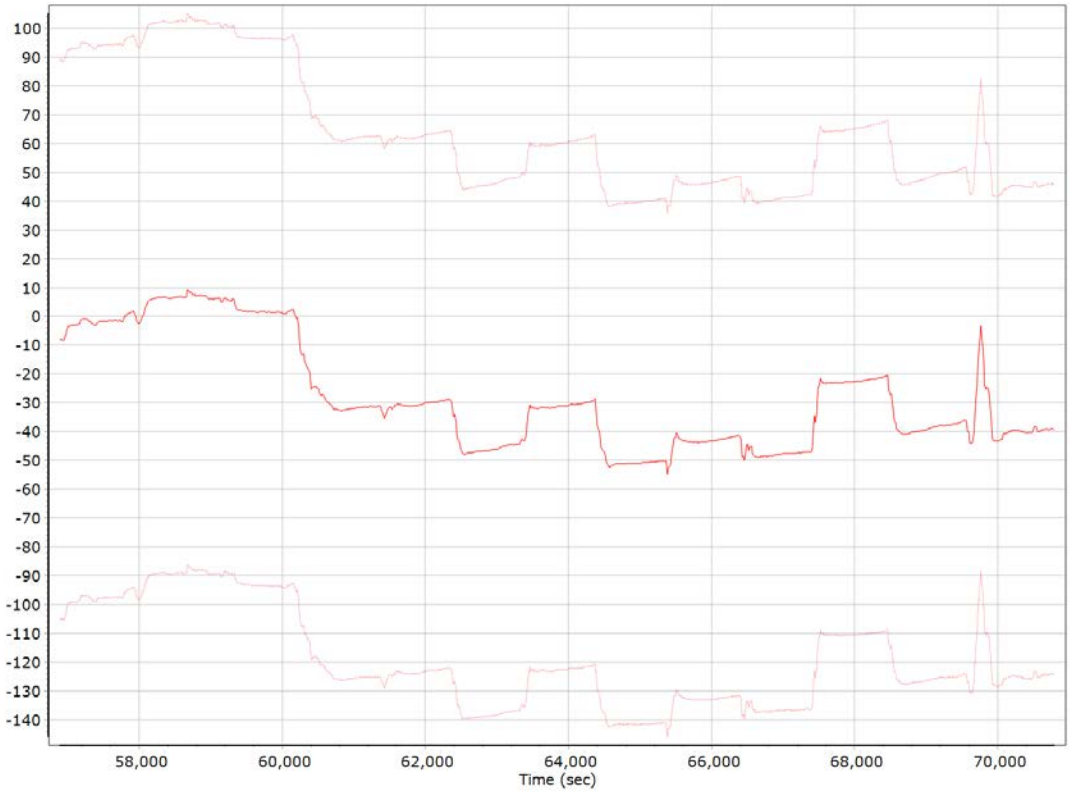
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

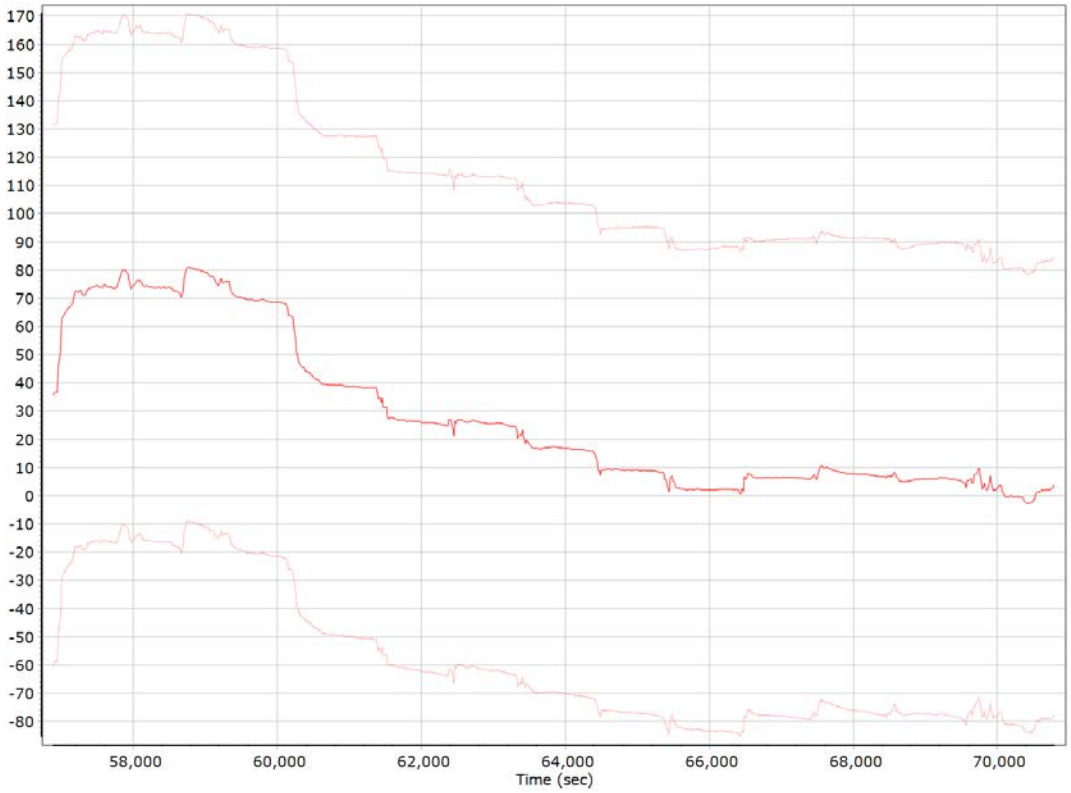
Accelerometer Bias (micro-g)



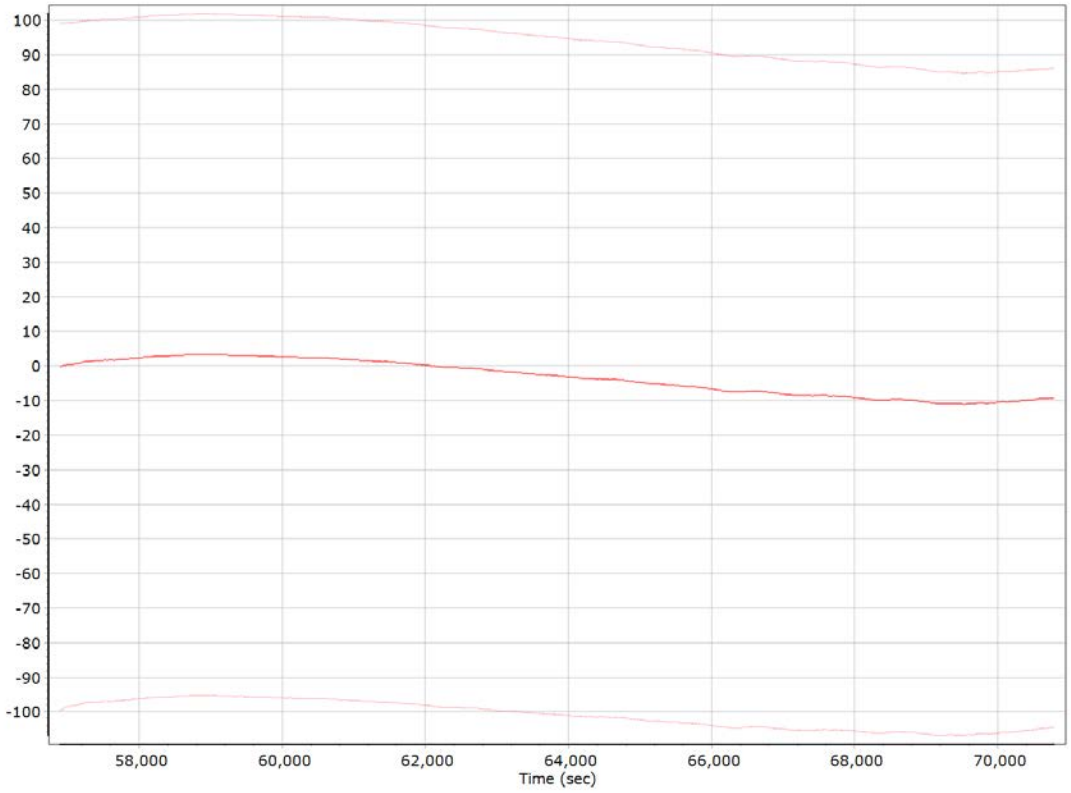
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



Z Accelerometer Bias (micro-g)



Accelerometer Scale Error (ppm)



X Accelerometer Scale Error (ppm)



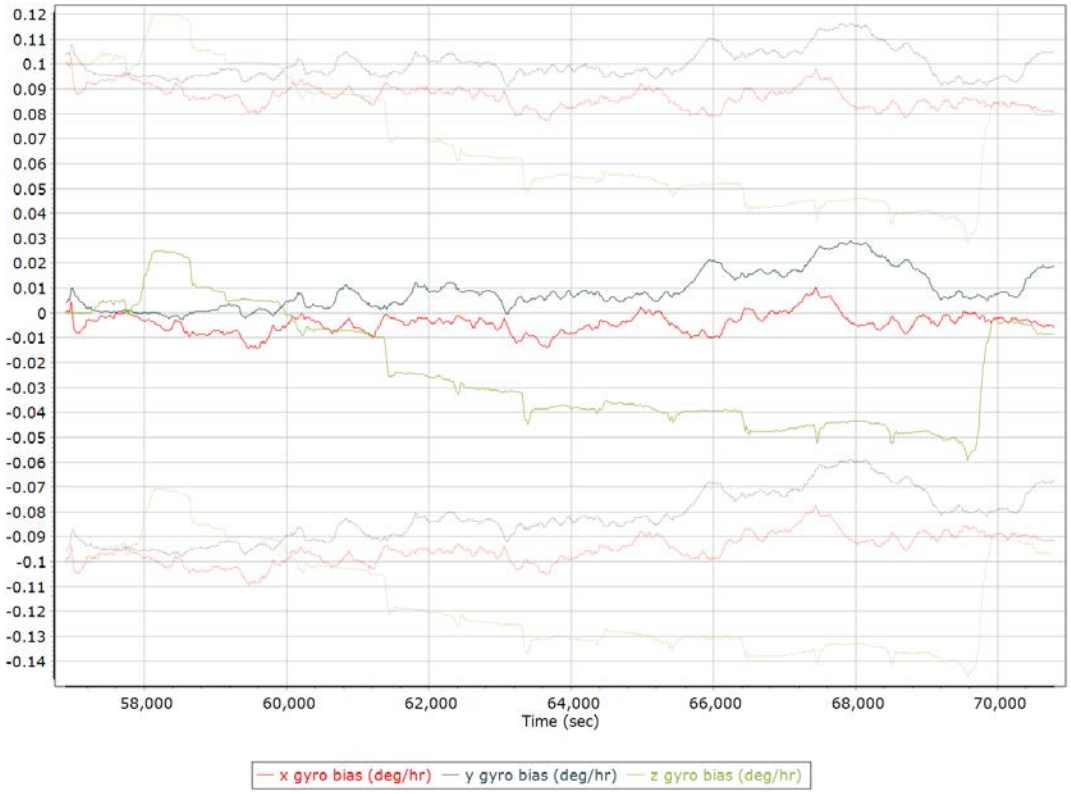
Y Accelerometer Scale Error (ppm)



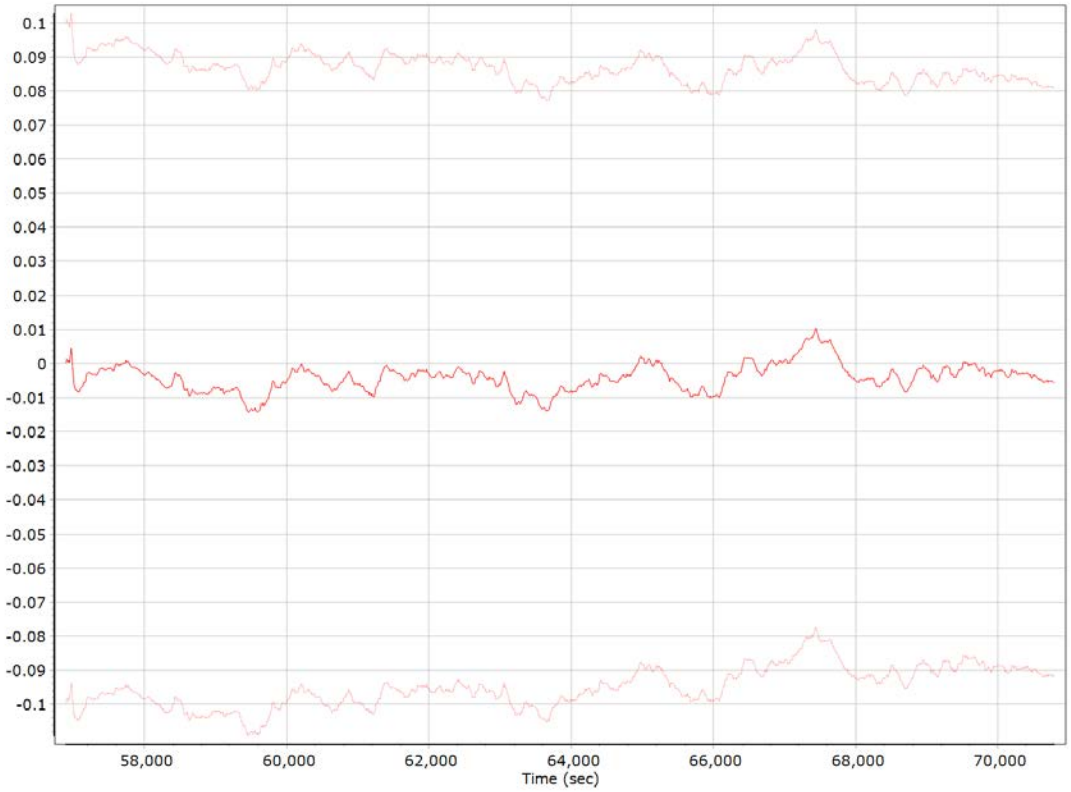
Z Accelerometer Scale Error (ppm)



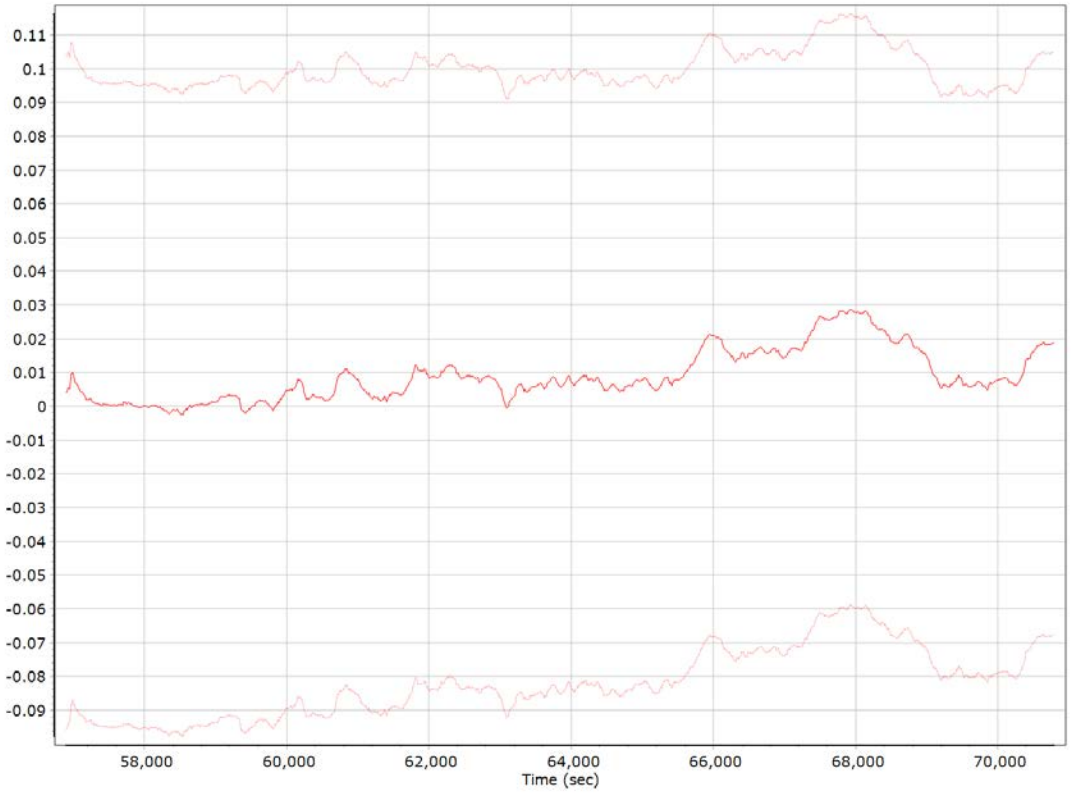
Gyro Bias (deg/h)



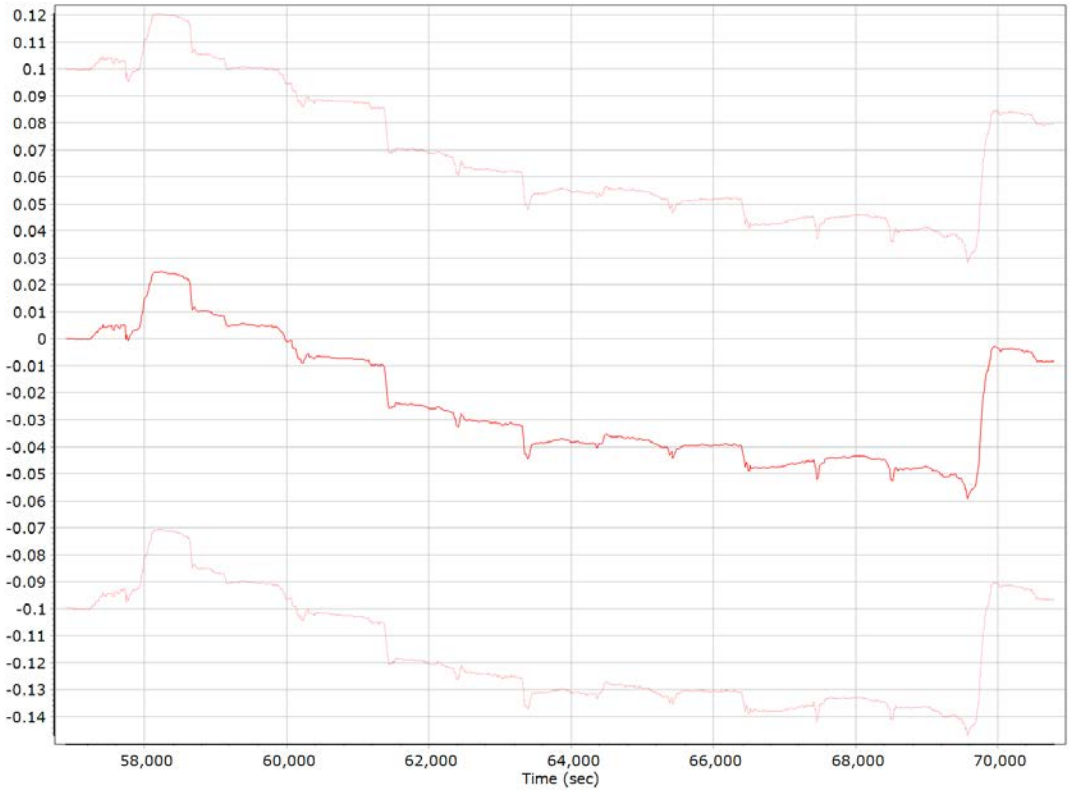
X Gyro Bias (deg/h)



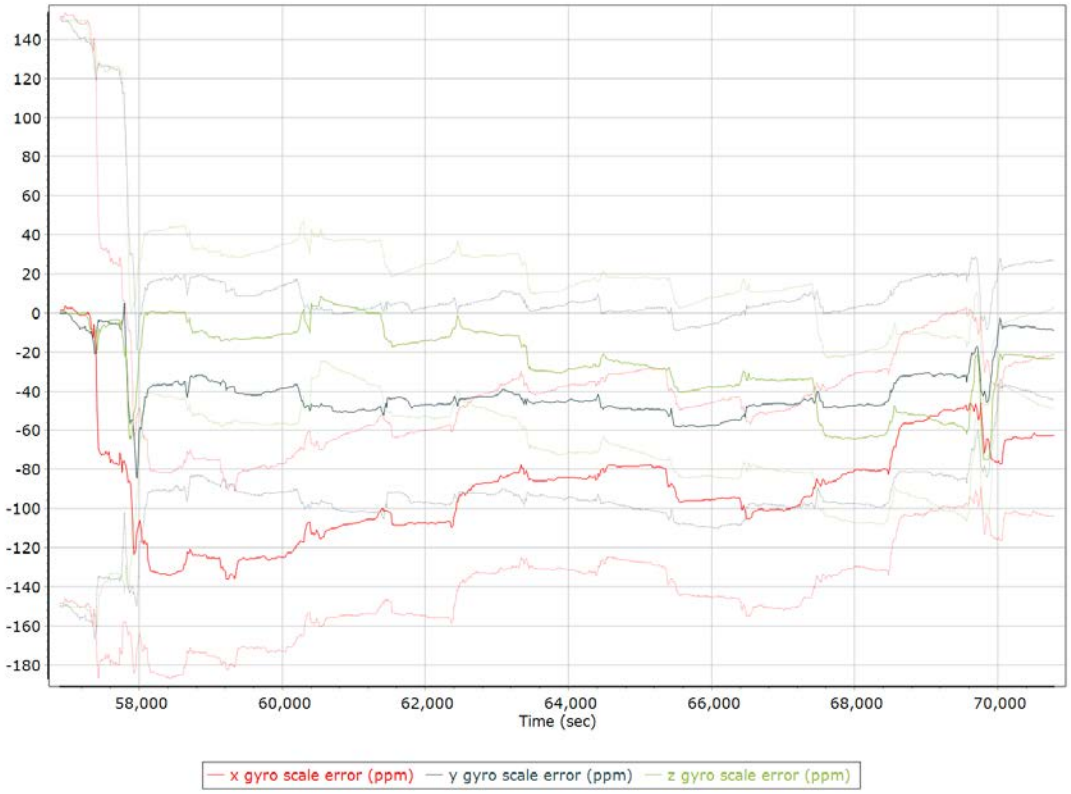
Y Gyro Bias (deg/h)



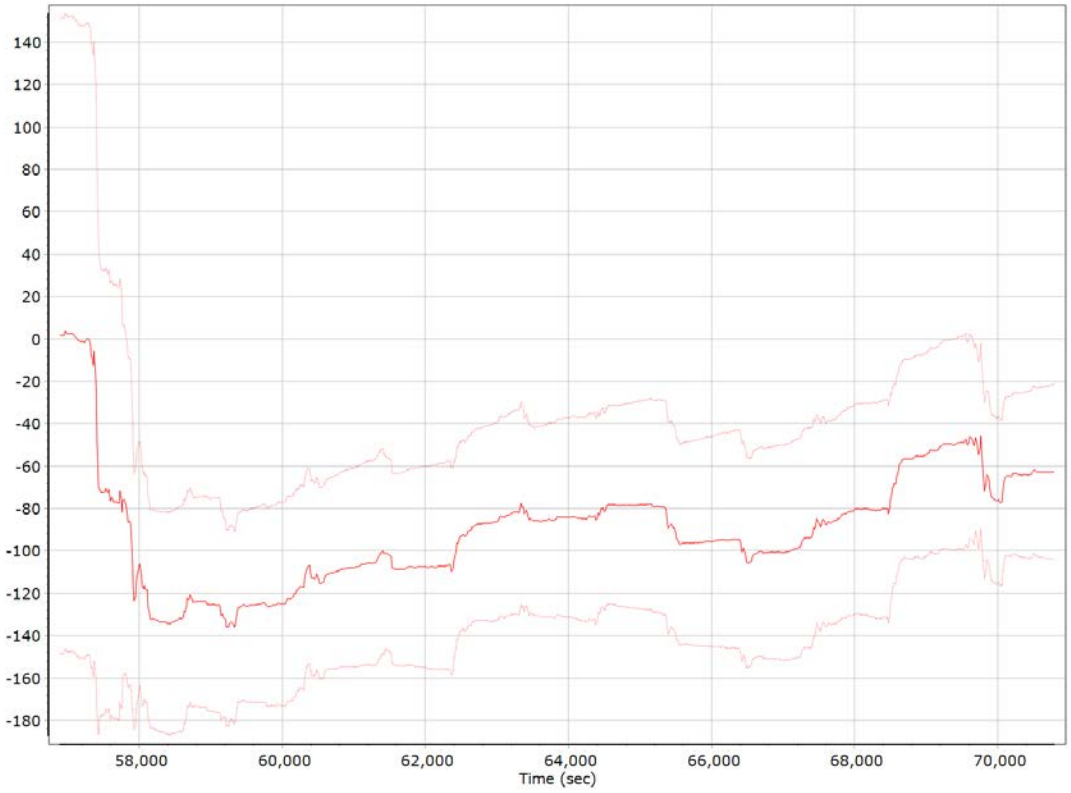
Z Gyro Bias (deg/h)



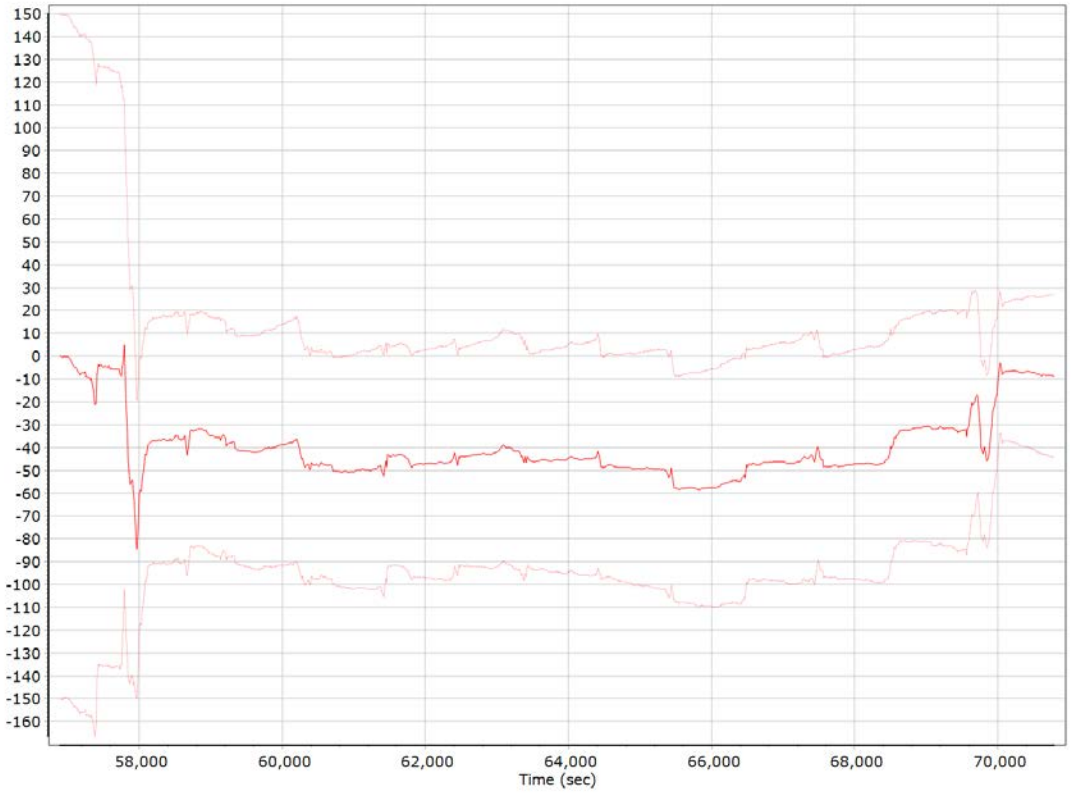
Gyro Scale Error (ppm)



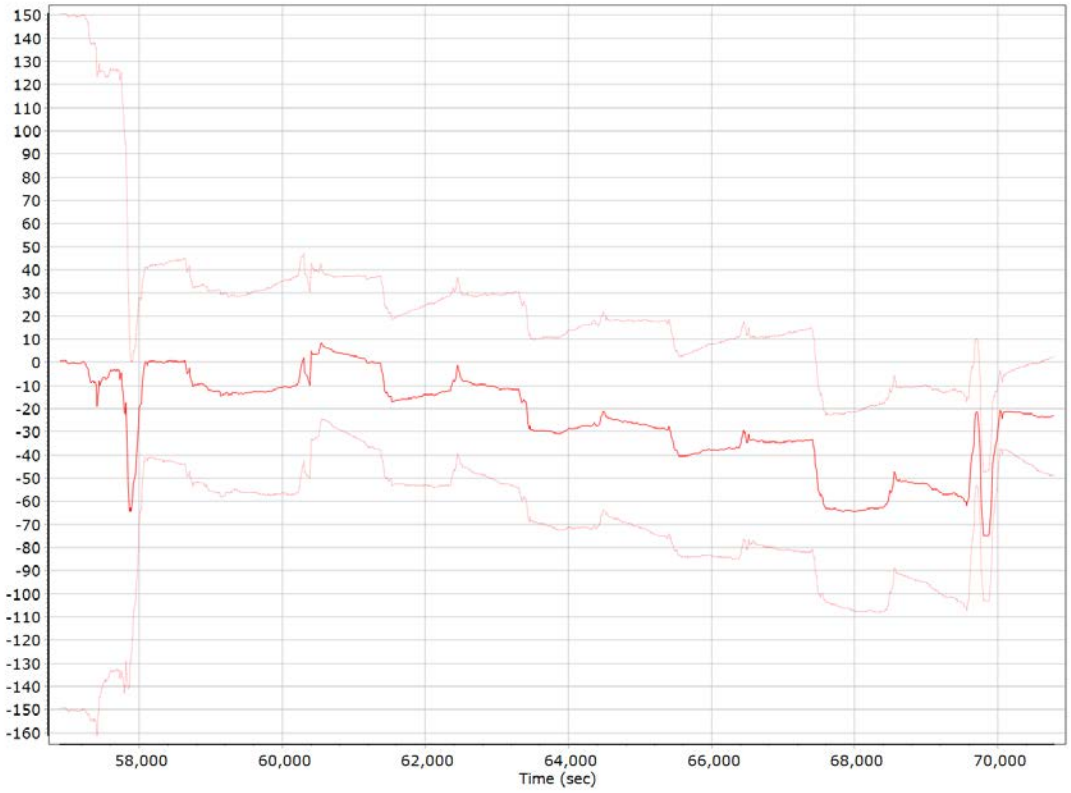
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)



Z Gyro Scale Error (ppm)



Smoothed Performance Metrics

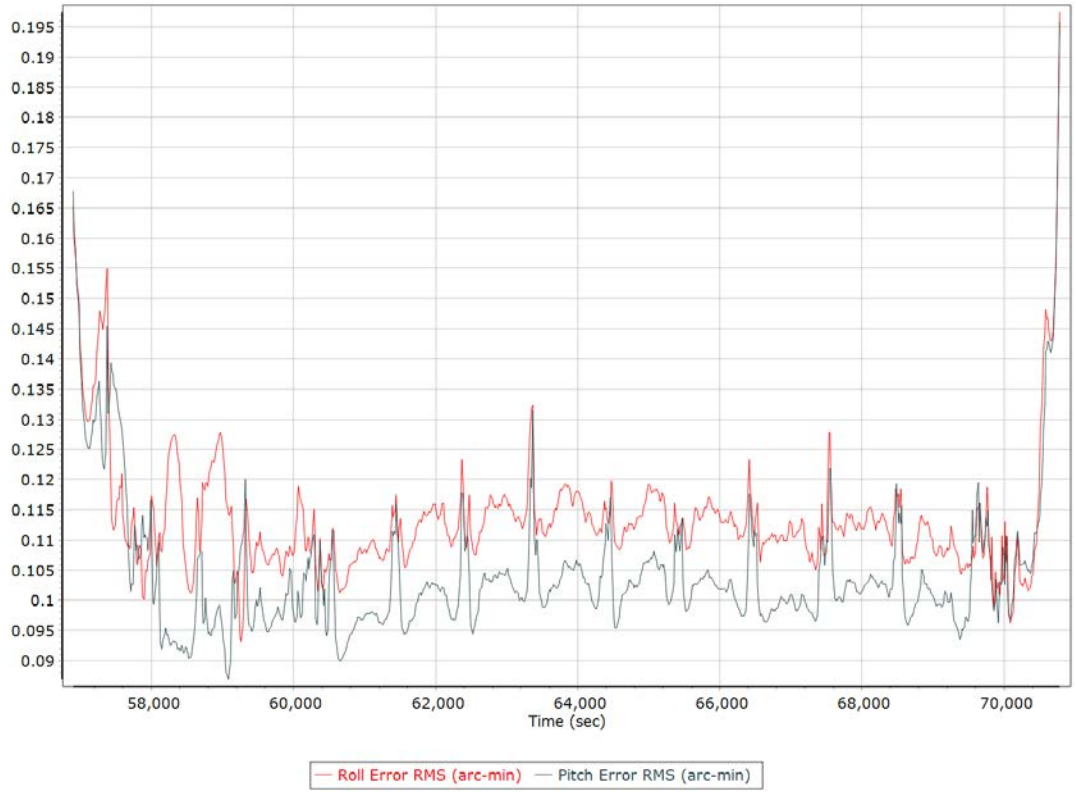
Position Error RMS (m)



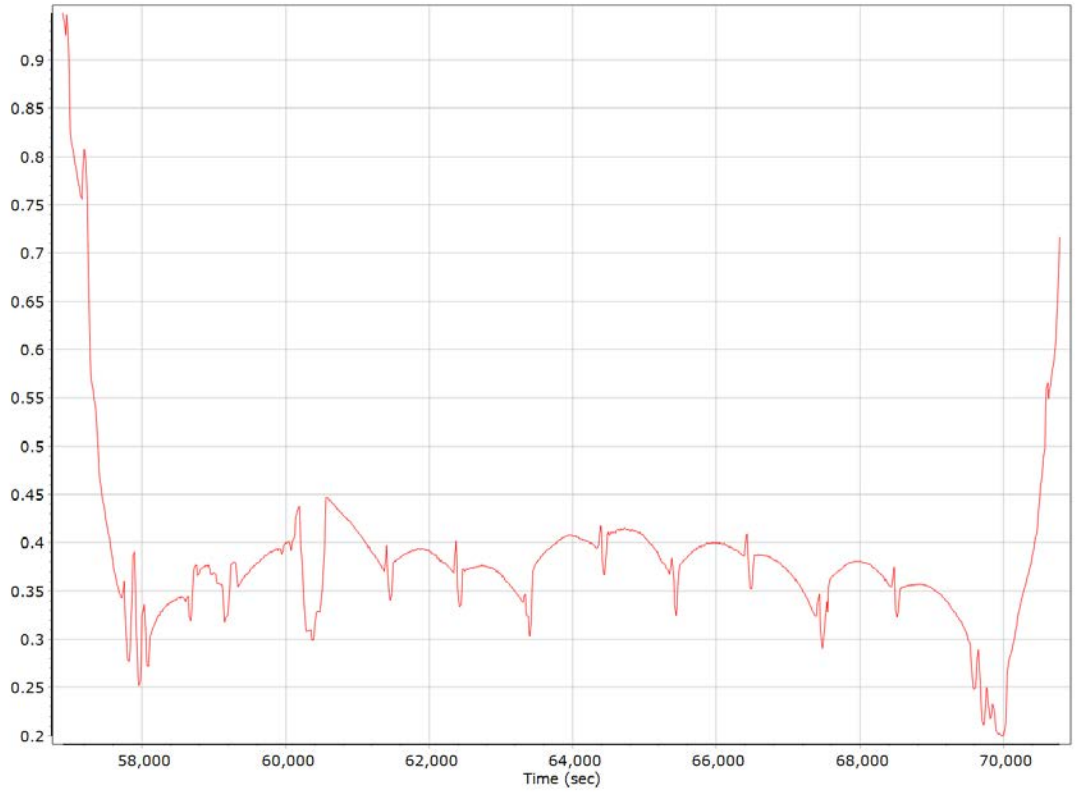
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

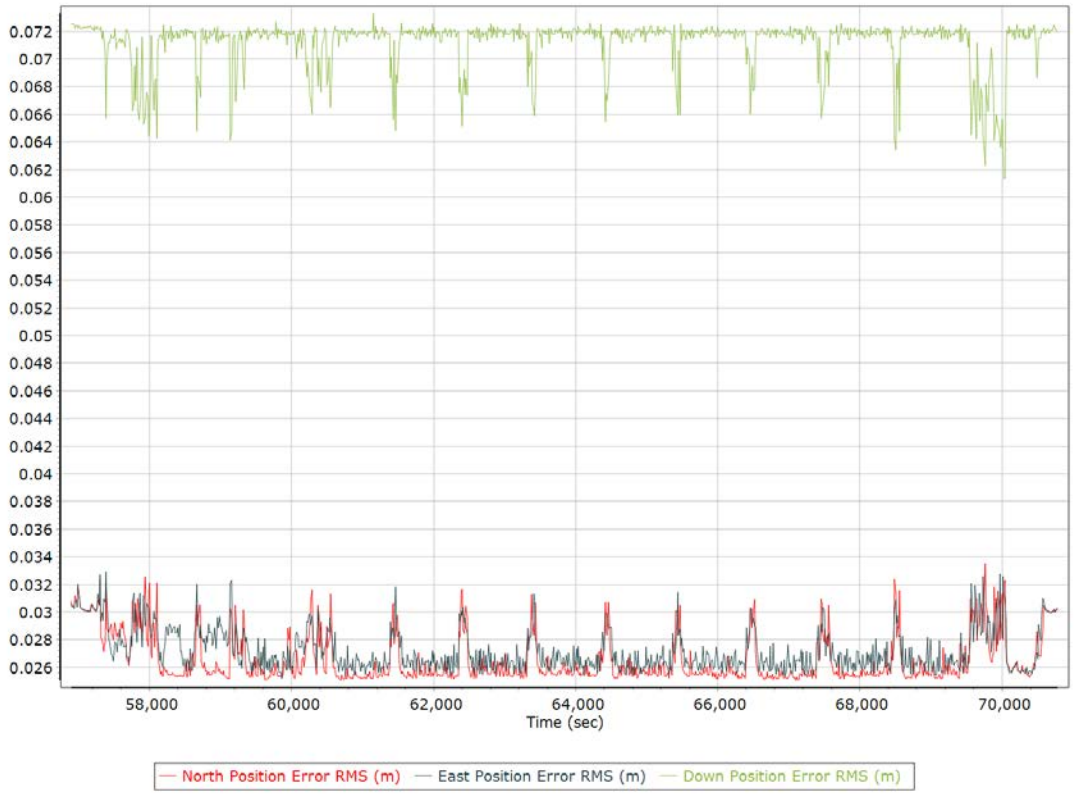


Heading Error RMS (arc-min)



Forward Processed Performance Metrics

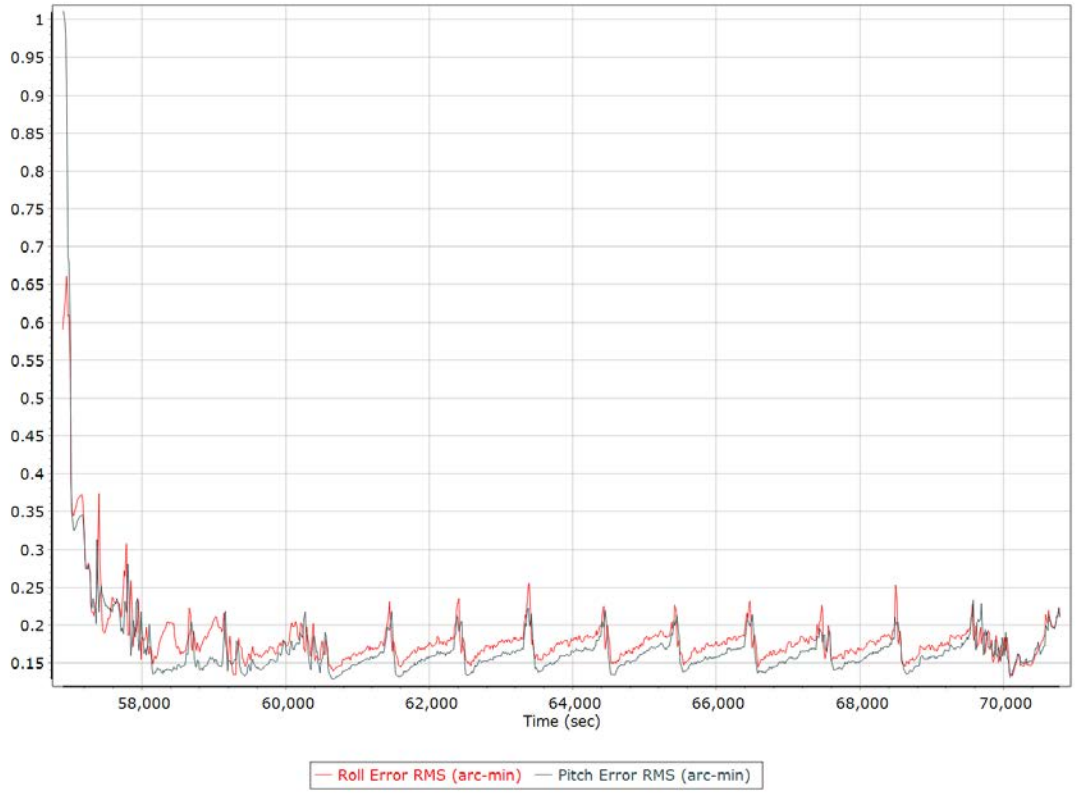
Position Error RMS (m)



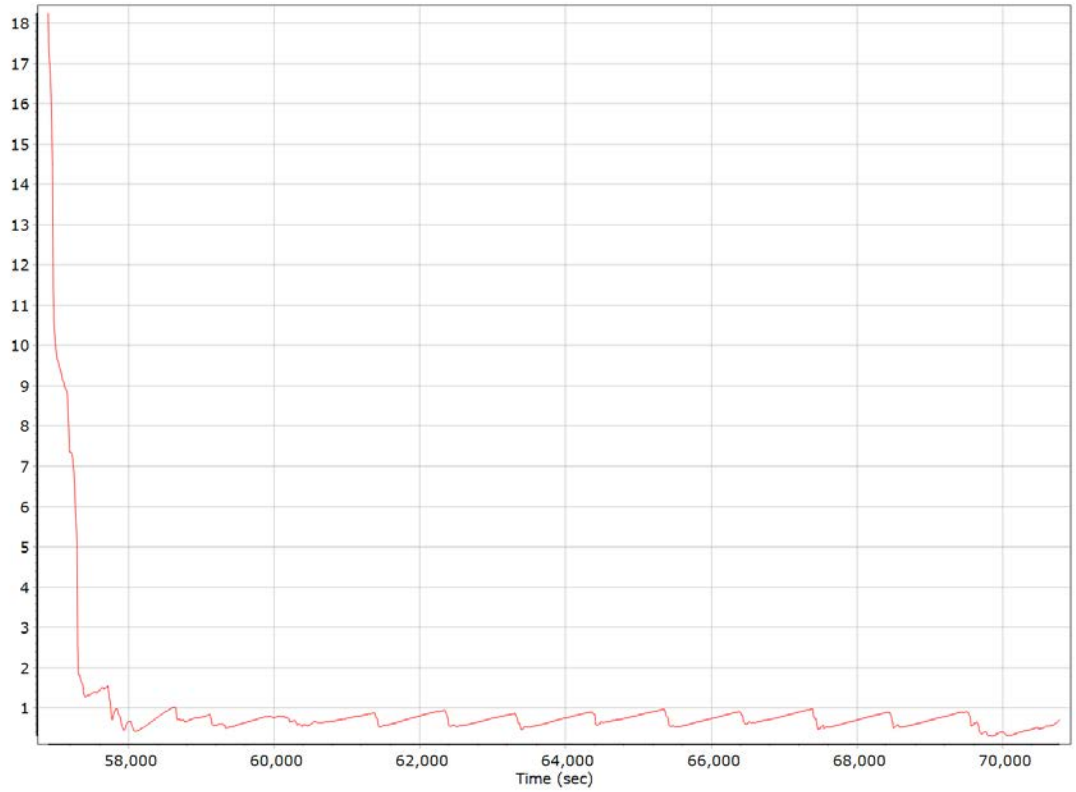
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

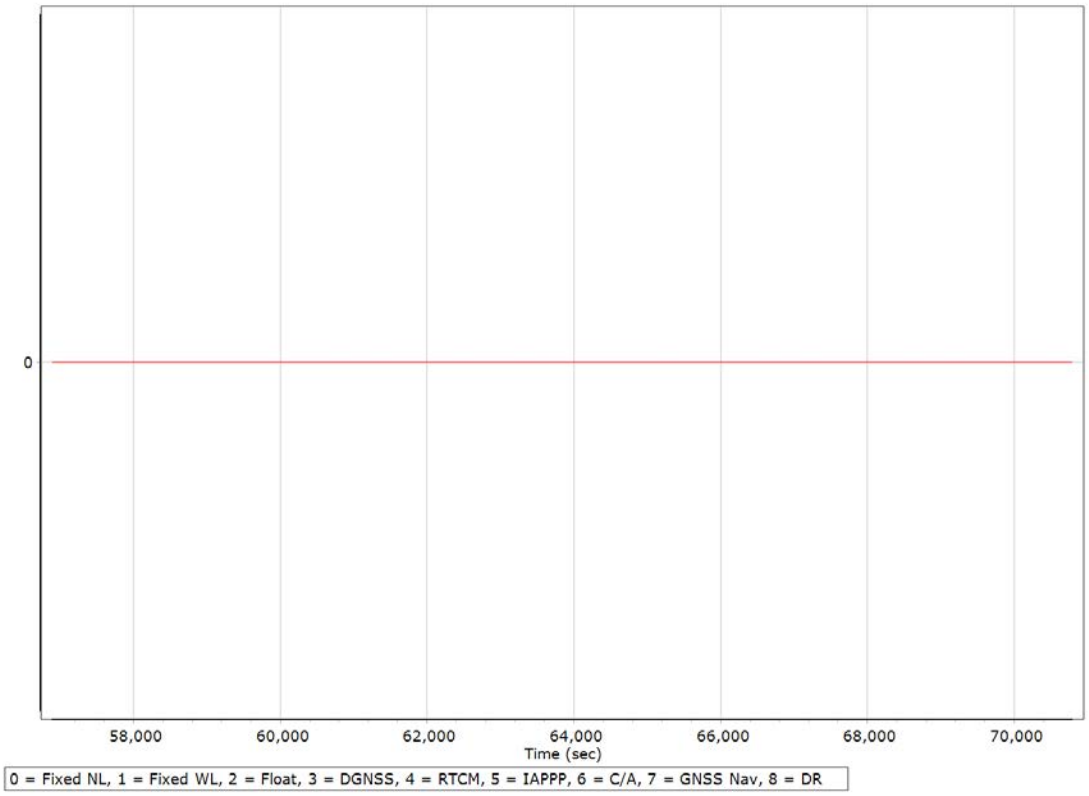


Heading Error RMS (arc-min)

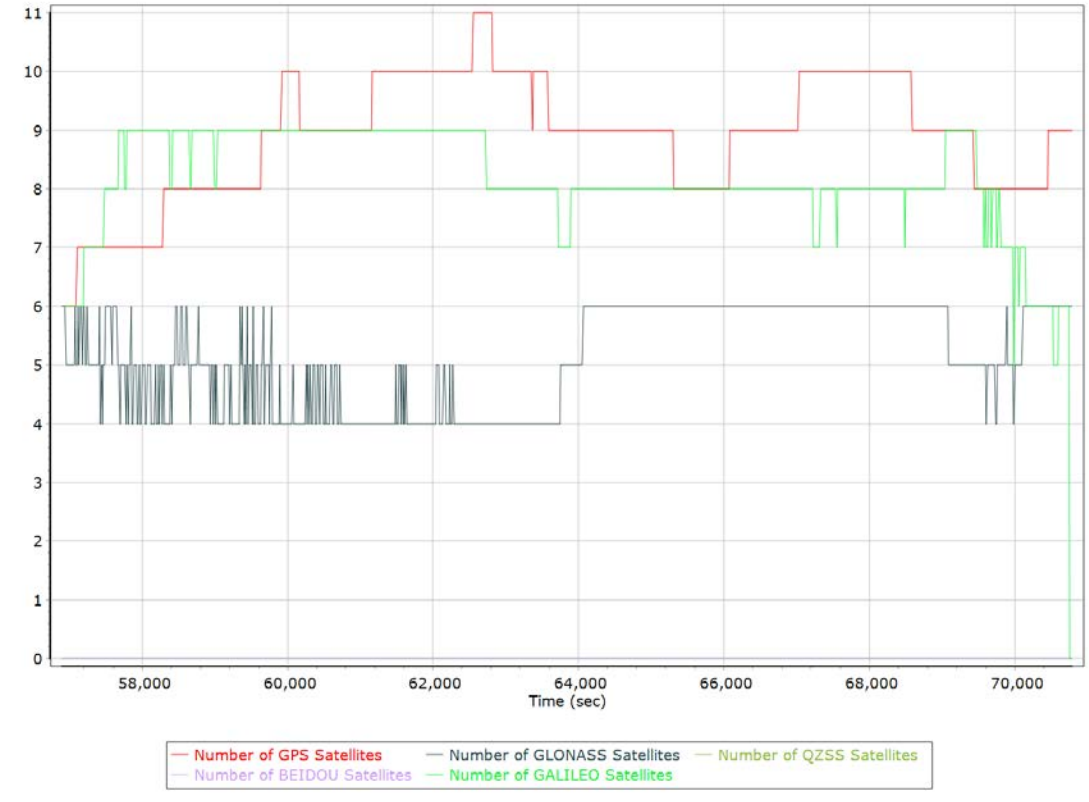


Forward Processed Solution Status

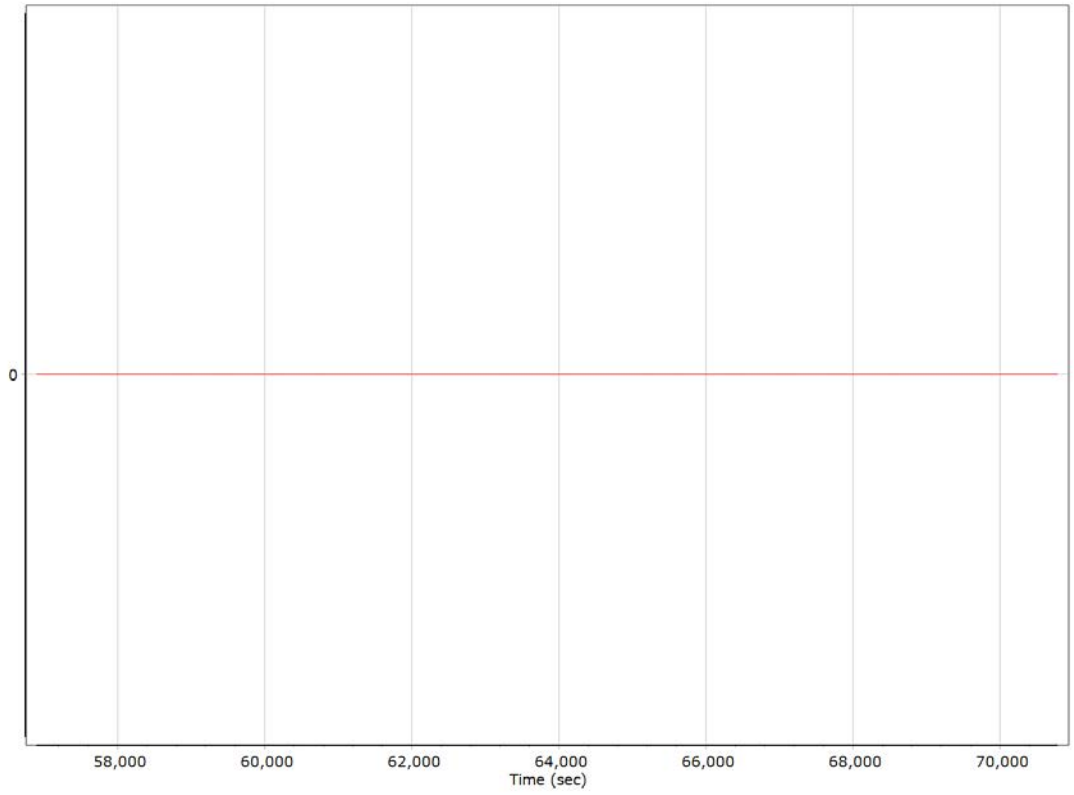
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	08132023A_3543
Processing date	2023-08-19 12:50:33
Mission date	2023-08-13 13:19:14
Mission duration	03:17:16.838
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N9683
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
N62756178.001	POS Data
N62756178.002	POS Data
N62756178.003	POS Data
N62756178.004	POS Data
N62756178.005	POS Data
N62756178.006	POS Data
N62756178.007	POS Data
N62756178.008	POS Data
N62756178.009	POS Data
N62756178.010	POS Data
N62756178.011	POS Data
N62756178.012	POS Data
N62756178.013	POS Data
N62756178.014	POS Data
N62756178.015	POS Data
N62756178.016	POS Data
N62756178.017	POS Data
N62756178.018	POS Data
N62756178.019	POS Data
N62756178.020	POS Data
N62756178.021	POS Data
N62756178.022	POS Data
N62756178.023	POS Data
N62756178.024	POS Data
N62756178.025	POS Data
N62756178.026	POS Data
N62756178.027	POS Data
N62756178.028	POS Data
N62756178.029	POS Data
N62756178.030	POS Data
N62756178.031	POS Data
N62756178.032	POS Data
N62756178.033	POS Data
N62756178.034	POS Data
N62756178.035	POS Data
N62756178.036	POS Data
N62756178.037	POS Data
N62756178.038	POS Data

Input Files

File Name	File Type
Ephm2250.23g	GLONASS Broadcast Ephemeris
Ephm2250.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_08132023A_3543.out	SBET Trajectory File

Rover Data Summary

First raw data file	N62756178.001		
Last raw data file	N62756178.038		
Start GPS week	2275		
Start time	47935.412 (8/13/2023 1:18:55 PM)		
End time	59772.250 (8/13/2023 4:36:12 PM)		
Start of fine alignment	47959.328 (8/13/2023 1:19:19 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	Event 1 Input, Event 2 Input, Event 3 Input		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	0.139	-0.209	-1.290
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

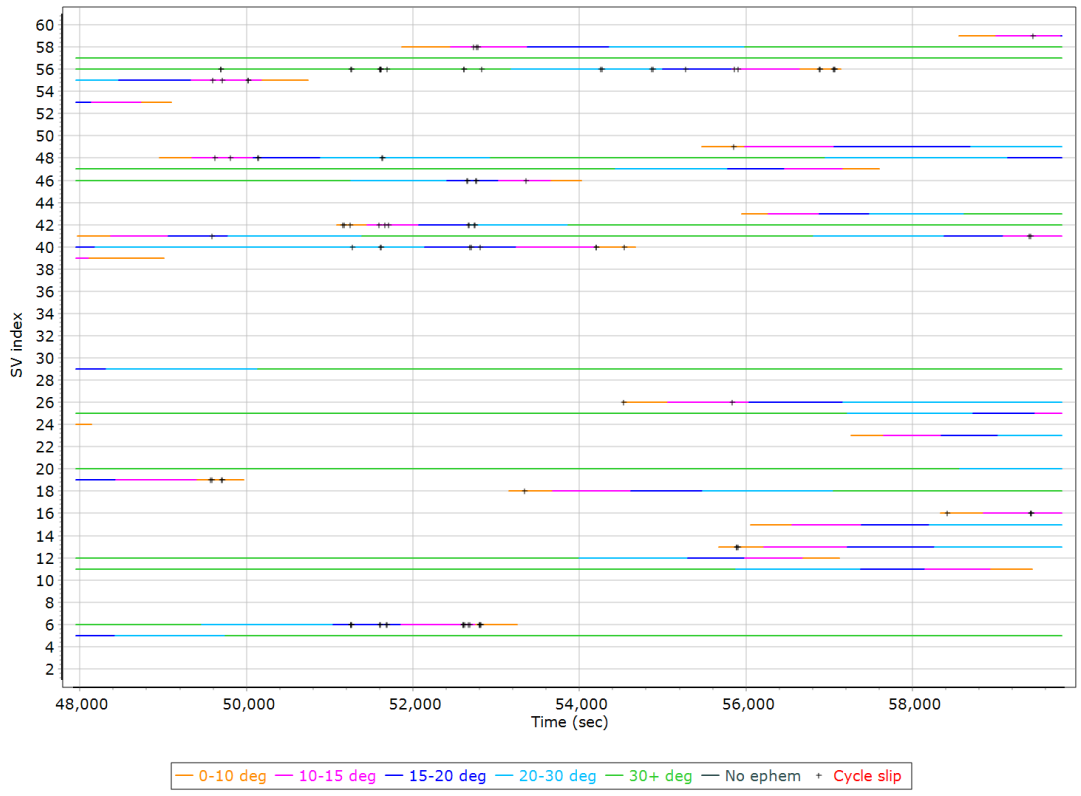
Rover Data QC

Raw IMU Import QC Summary

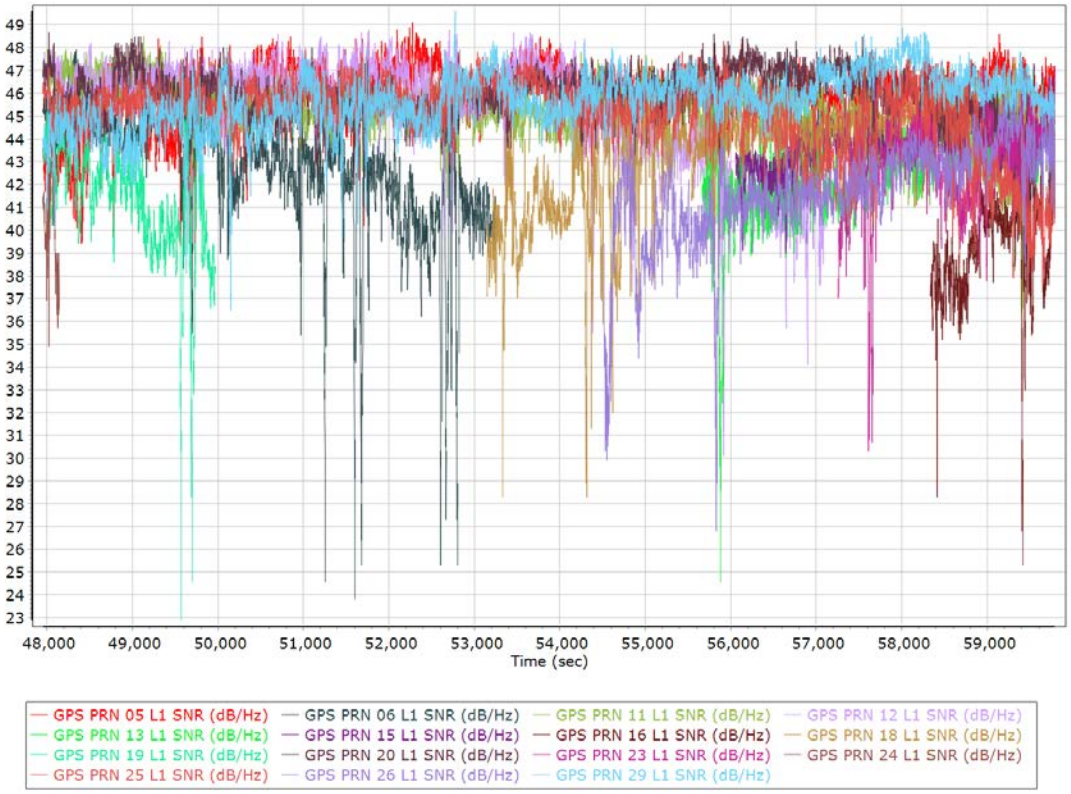
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_08132023A_3543.log
IMU Records Processed	2366936
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

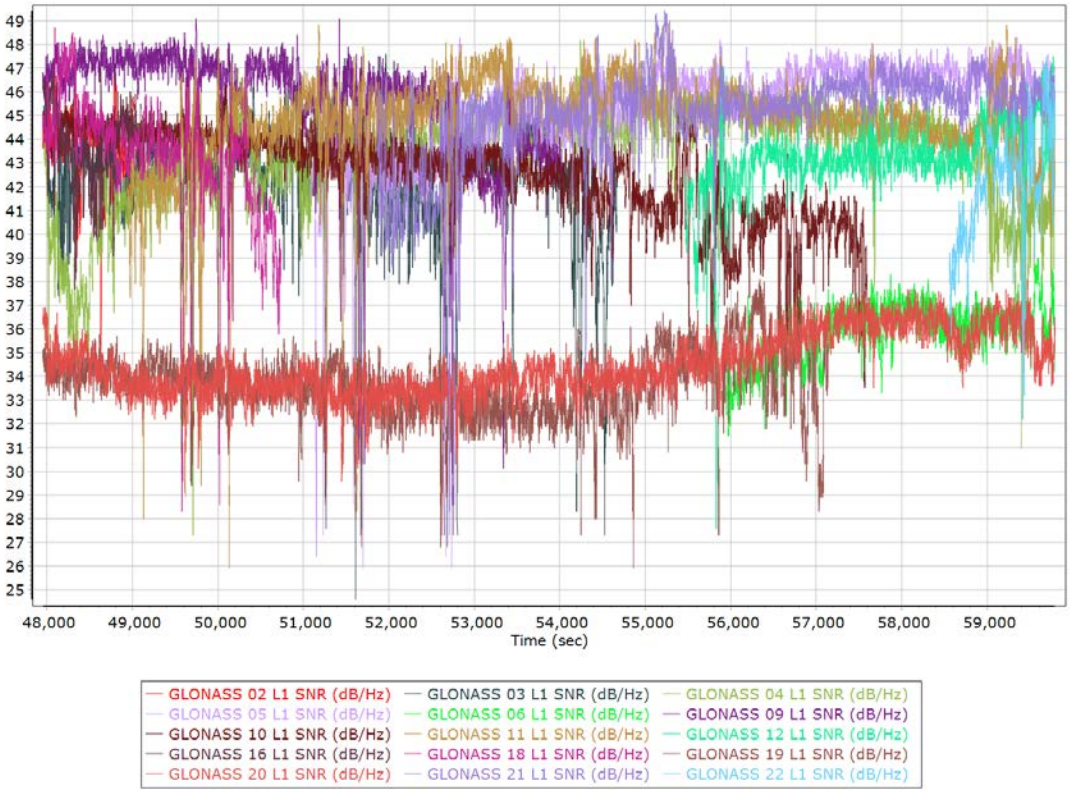
GPS/GLONASS L1 Satellite Lock/Elevation



GPS L1 SNR



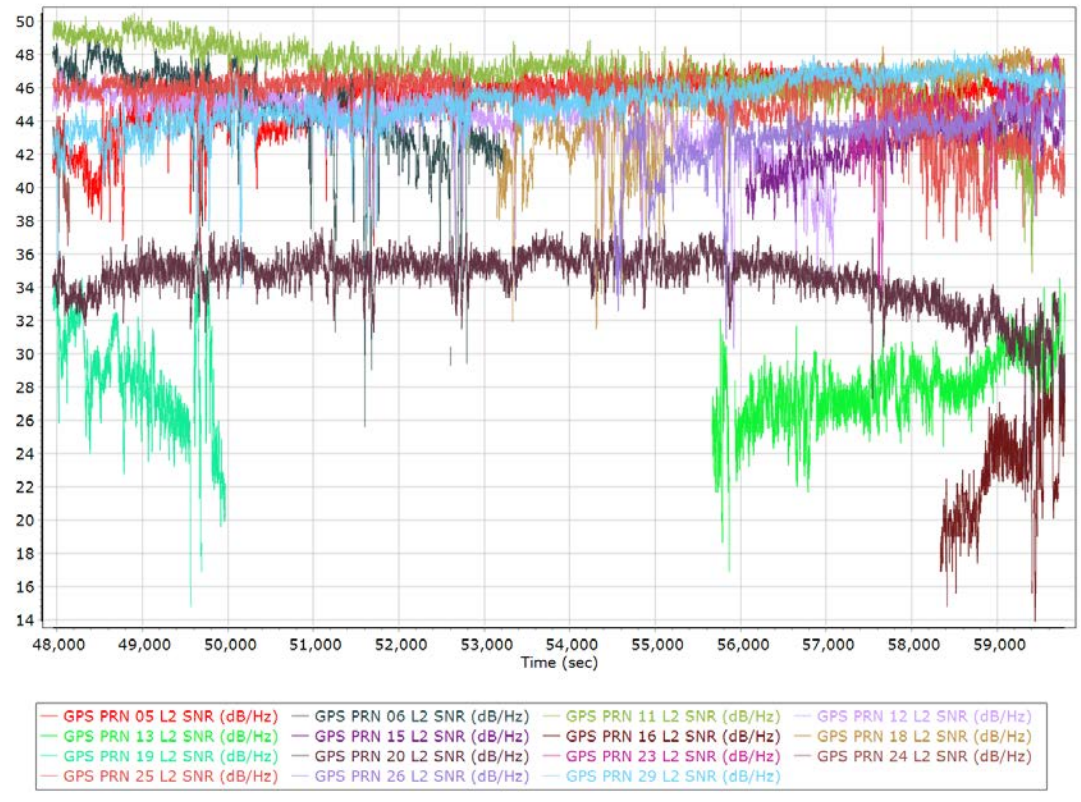
GLONASS L1 SNR



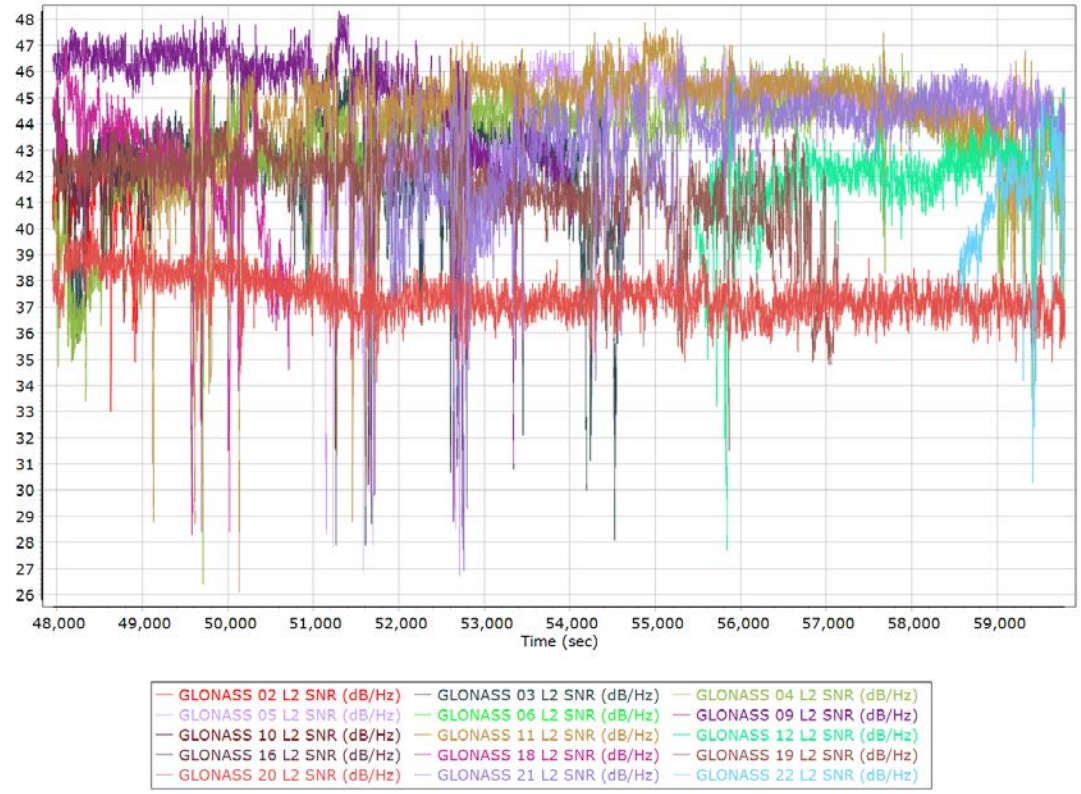
GPS/GLONASS L2 Satellite Lock/Elevation



GPS L2 SNR



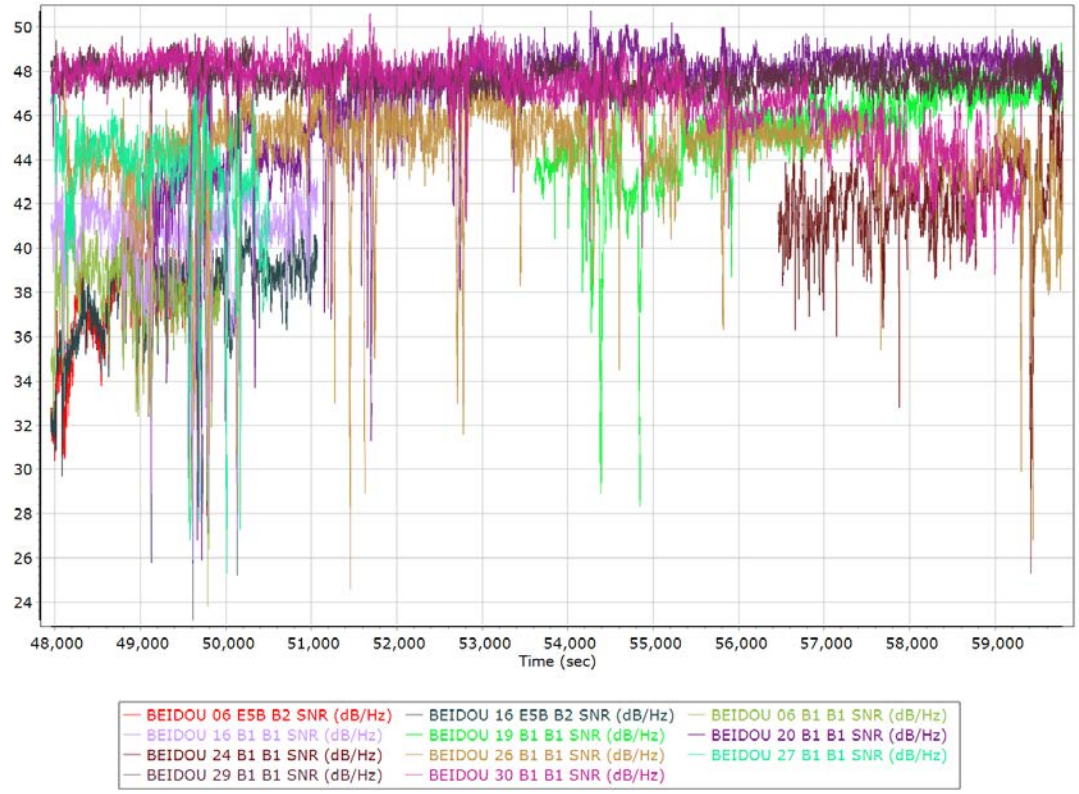
GLONASS L2 SNR



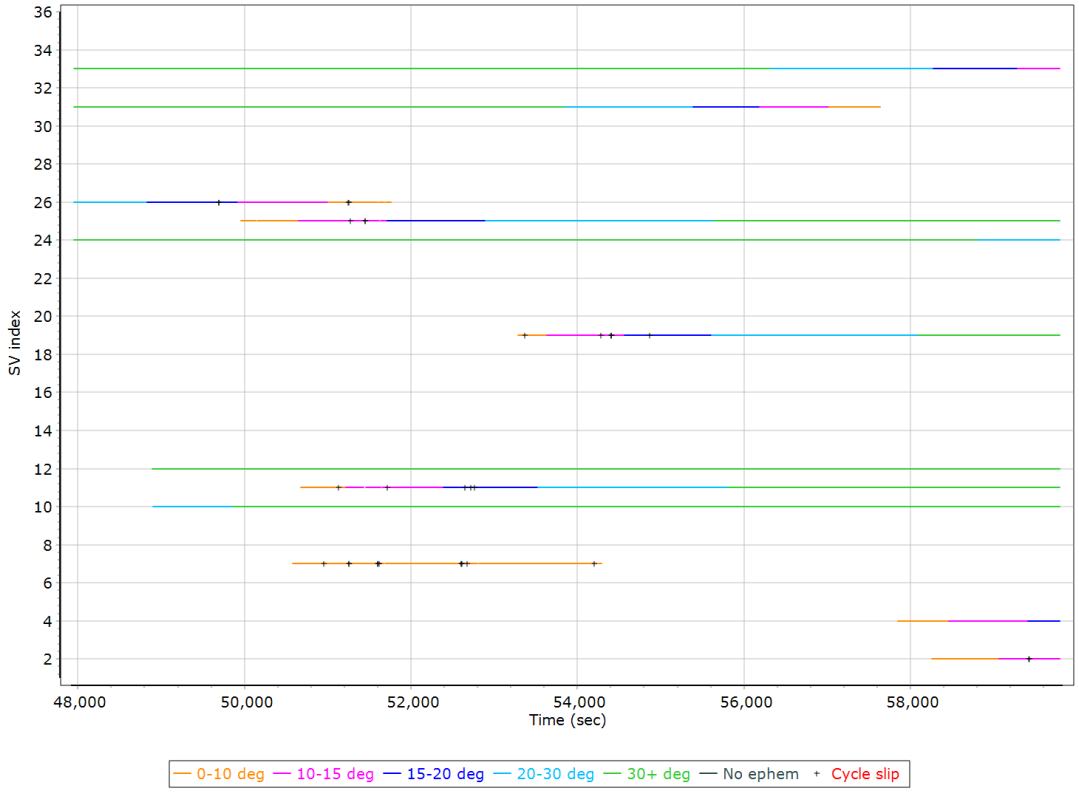
BEIDOU Satellite Lock/Elevation



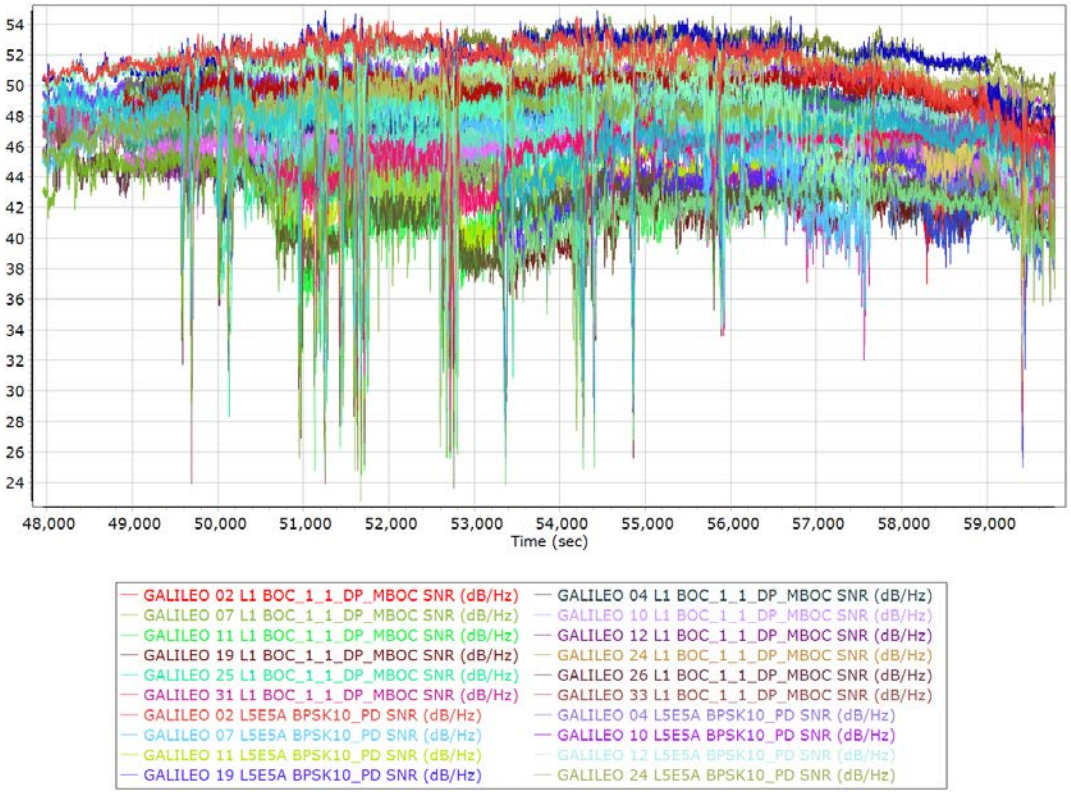
BEIDOU SNR



GALILEO Satellite Lock/Elevation

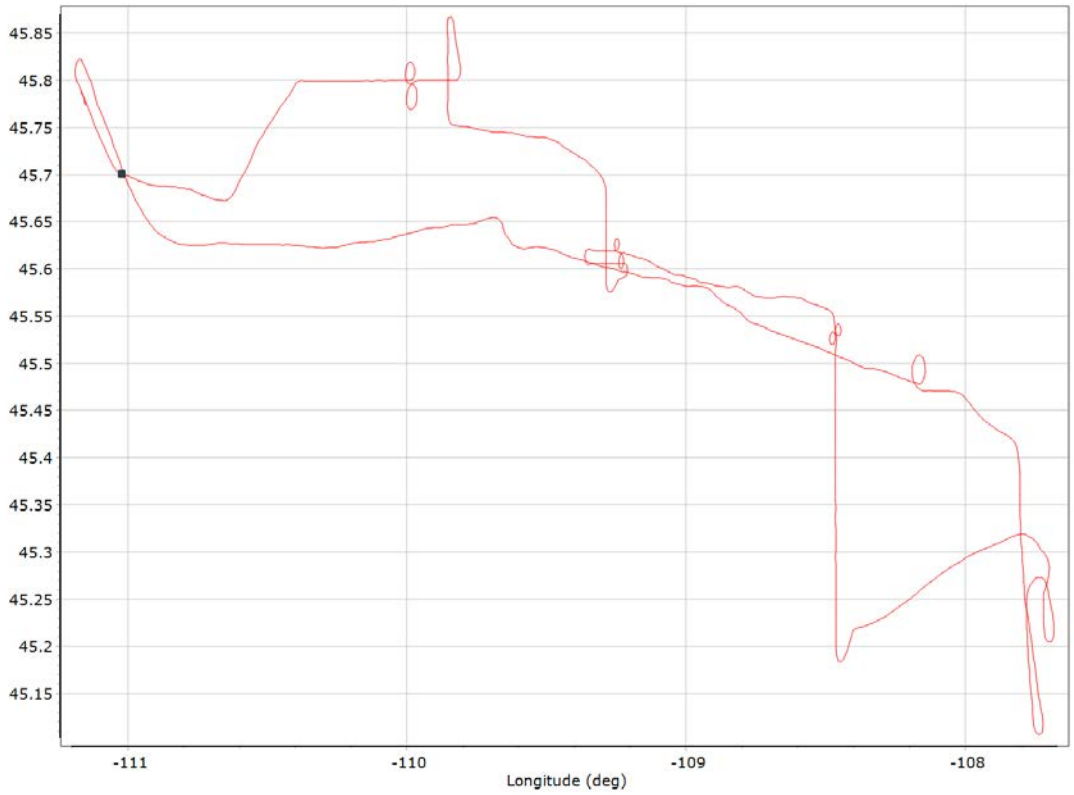


GALILEO SNR

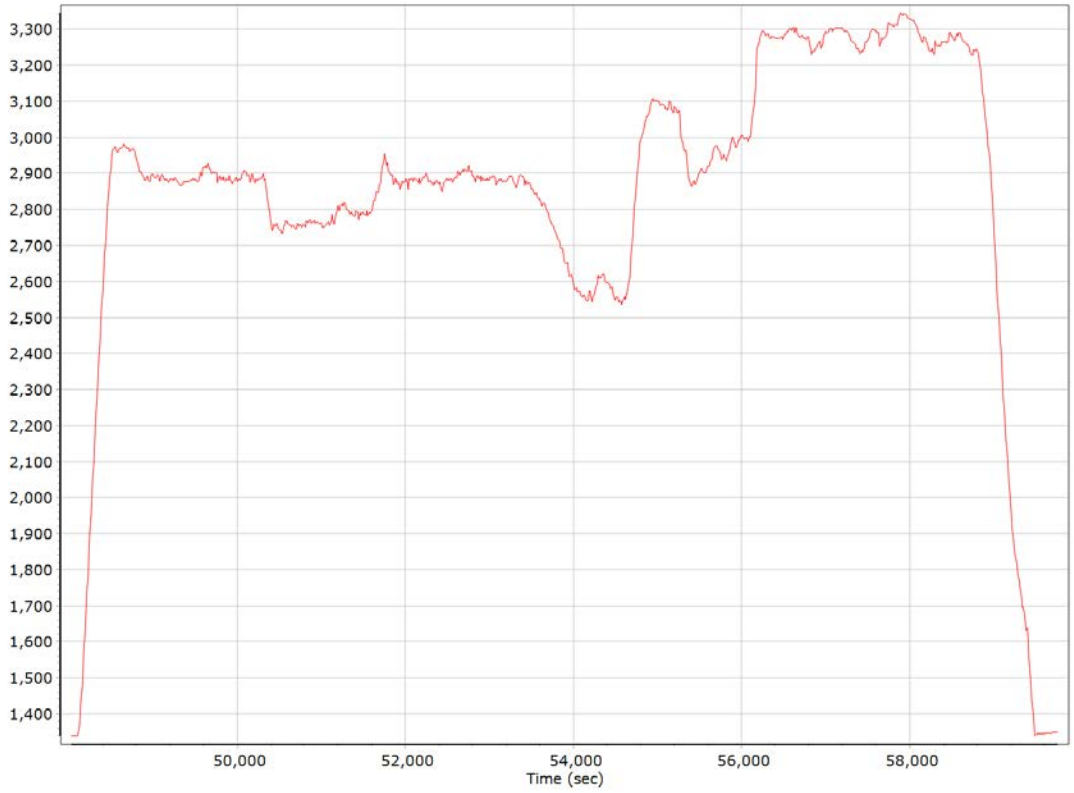

54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
48,000
49,000
50,000
51,000
52,000
53,000
54,000
55,000
56,000
57,000
58,000
59,000
Time (sec)
GALILEO 02 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 04 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 07 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 10 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 26 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 31 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 33 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 07 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 10 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 19 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 24 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

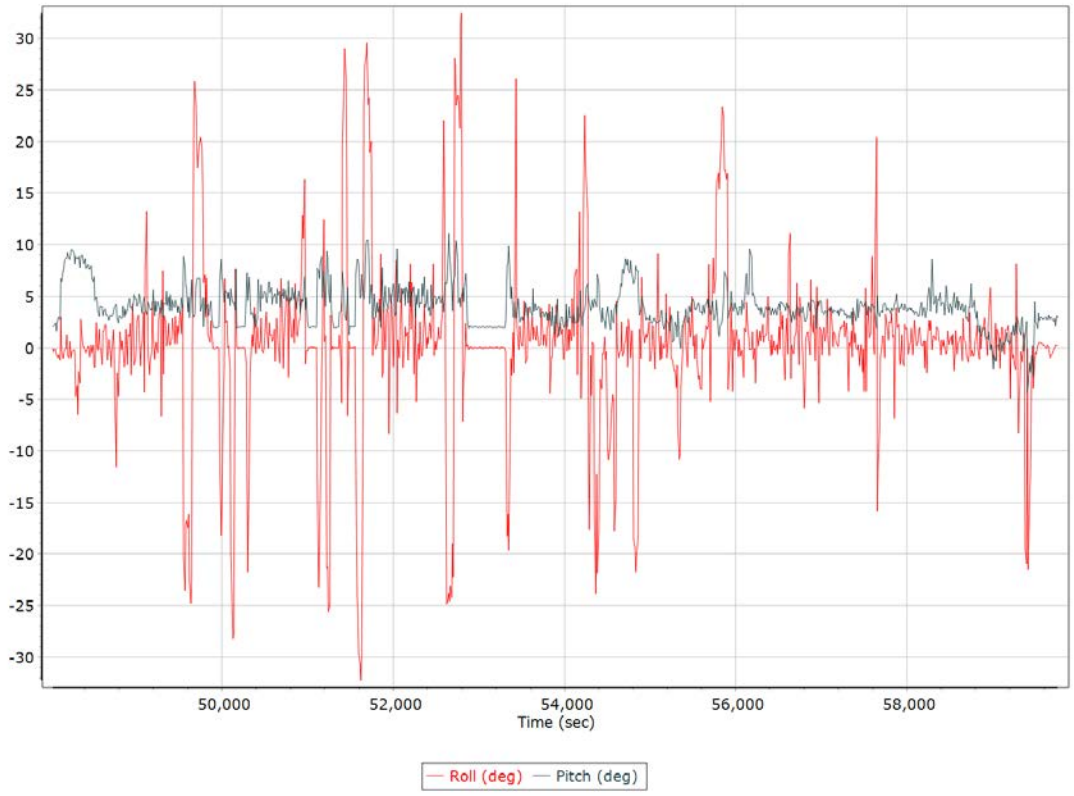
Top View



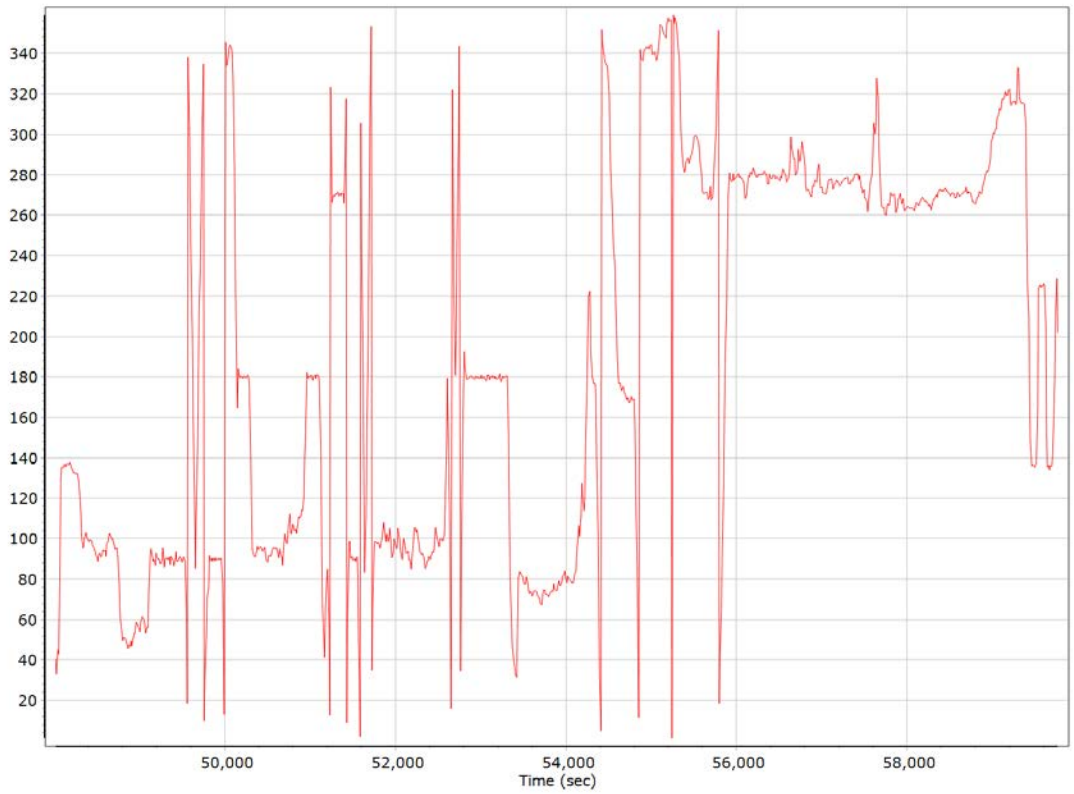
Altitude



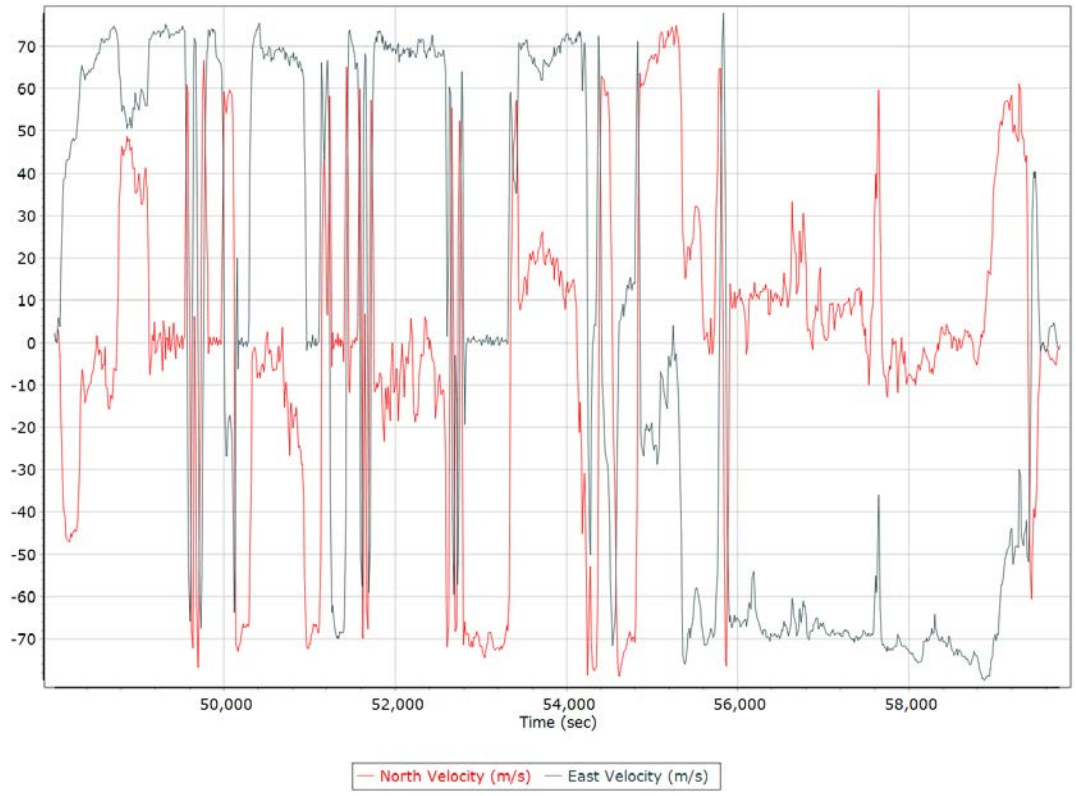
Roll/Pitch



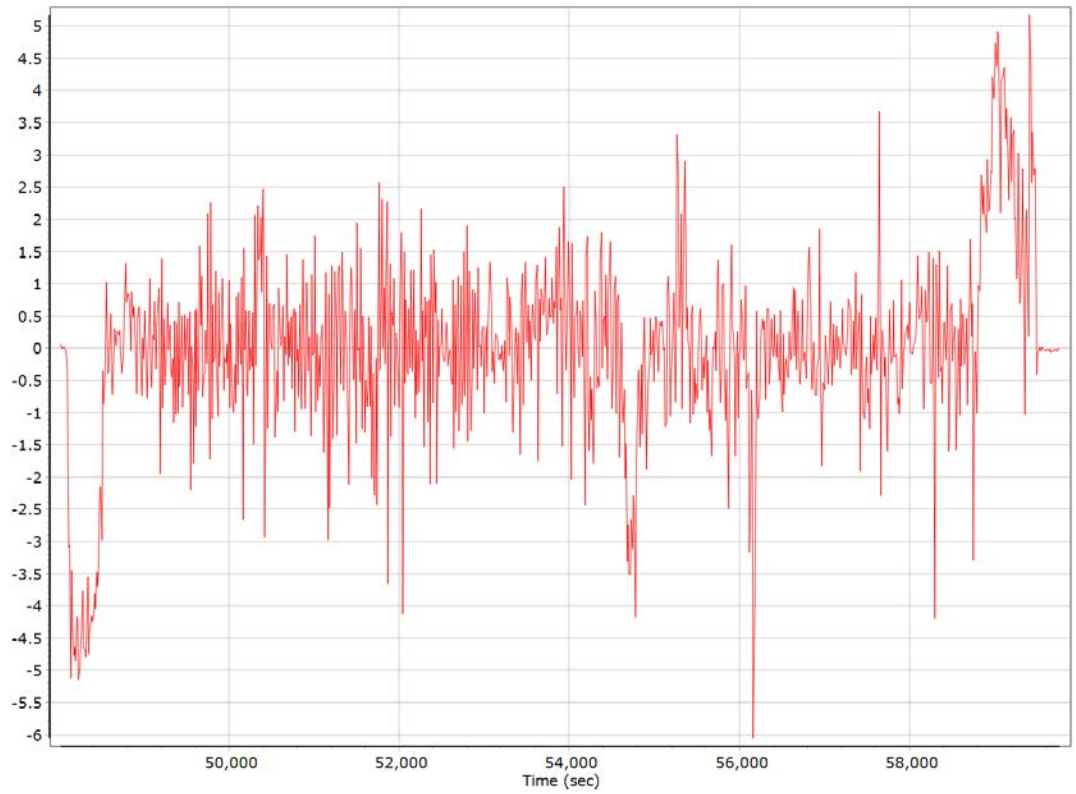
Heading



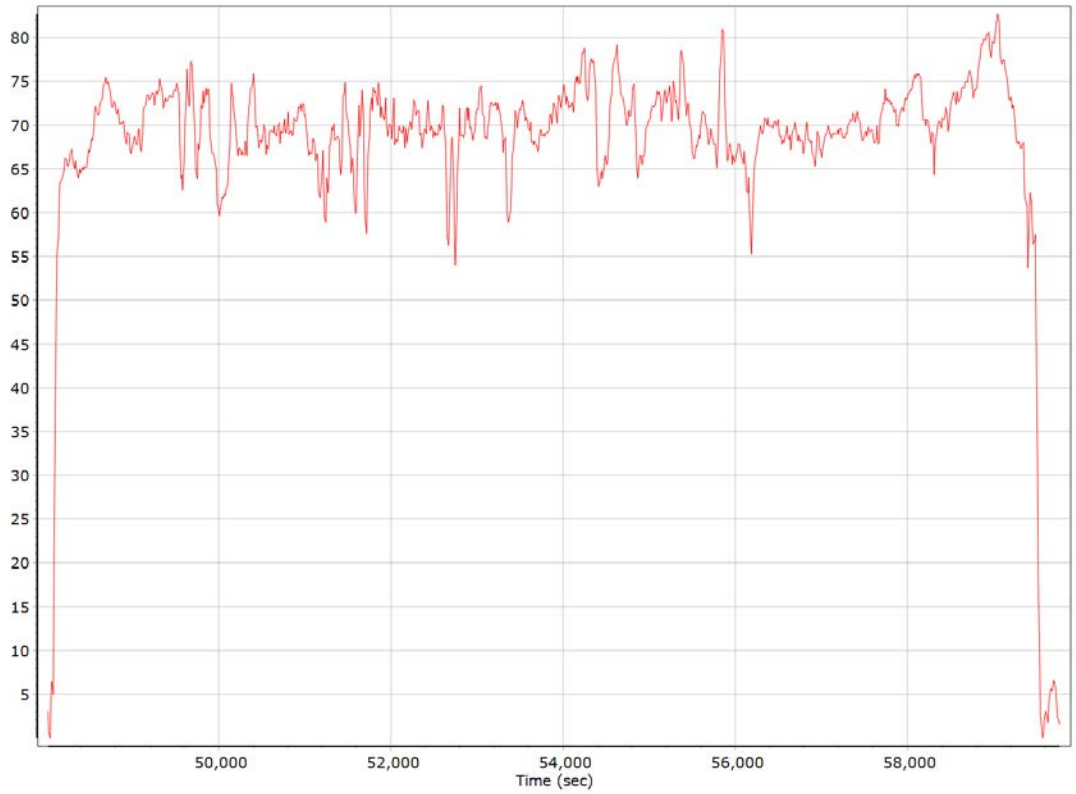
North/East Velocity



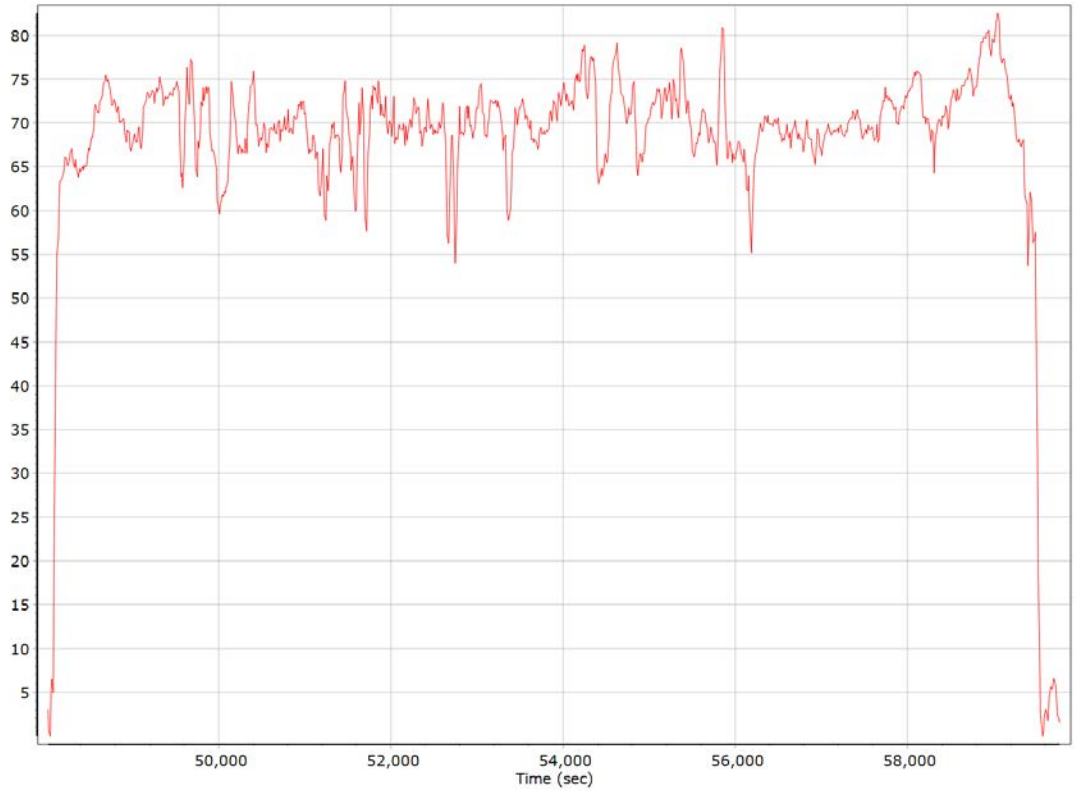
Down Velocity



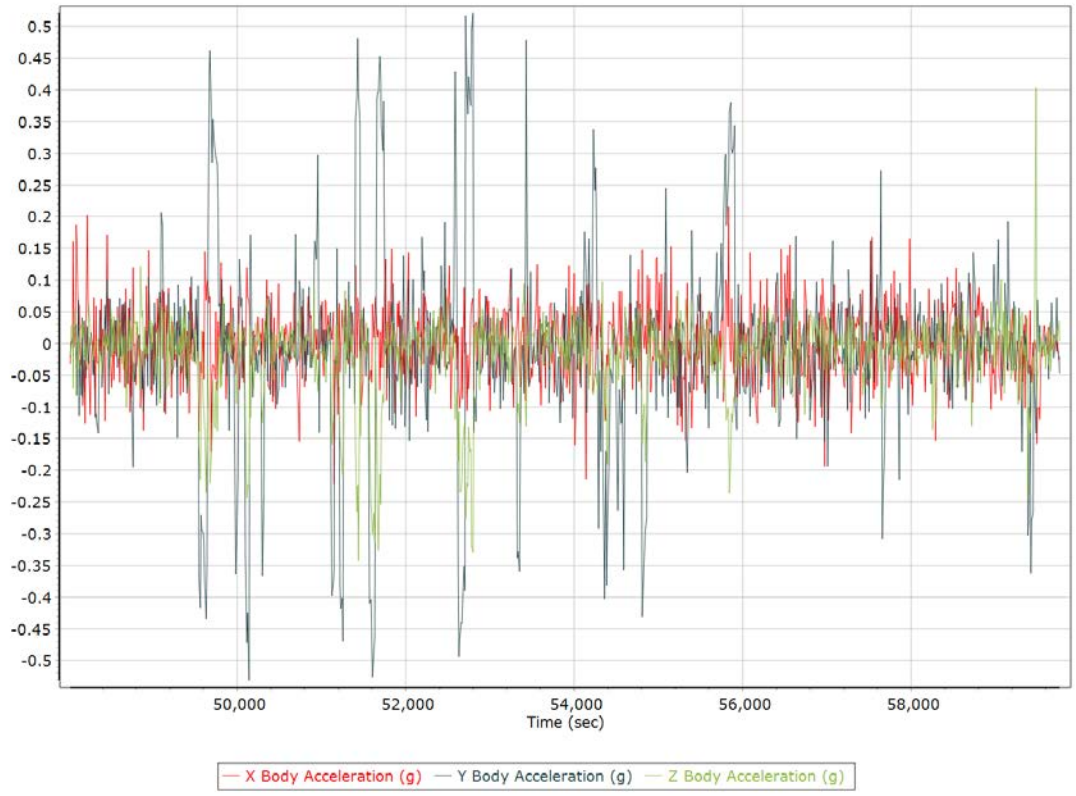
Total Speed



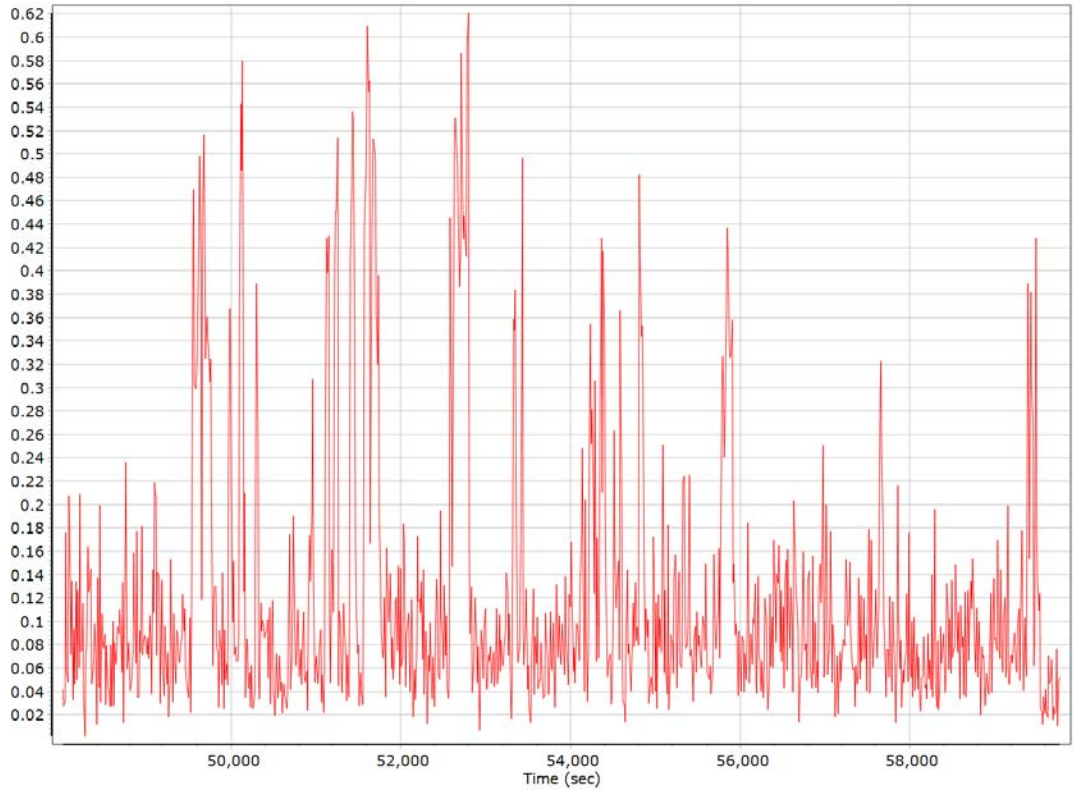
Ground Speed



Body Acceleration



Total Body Acceleration

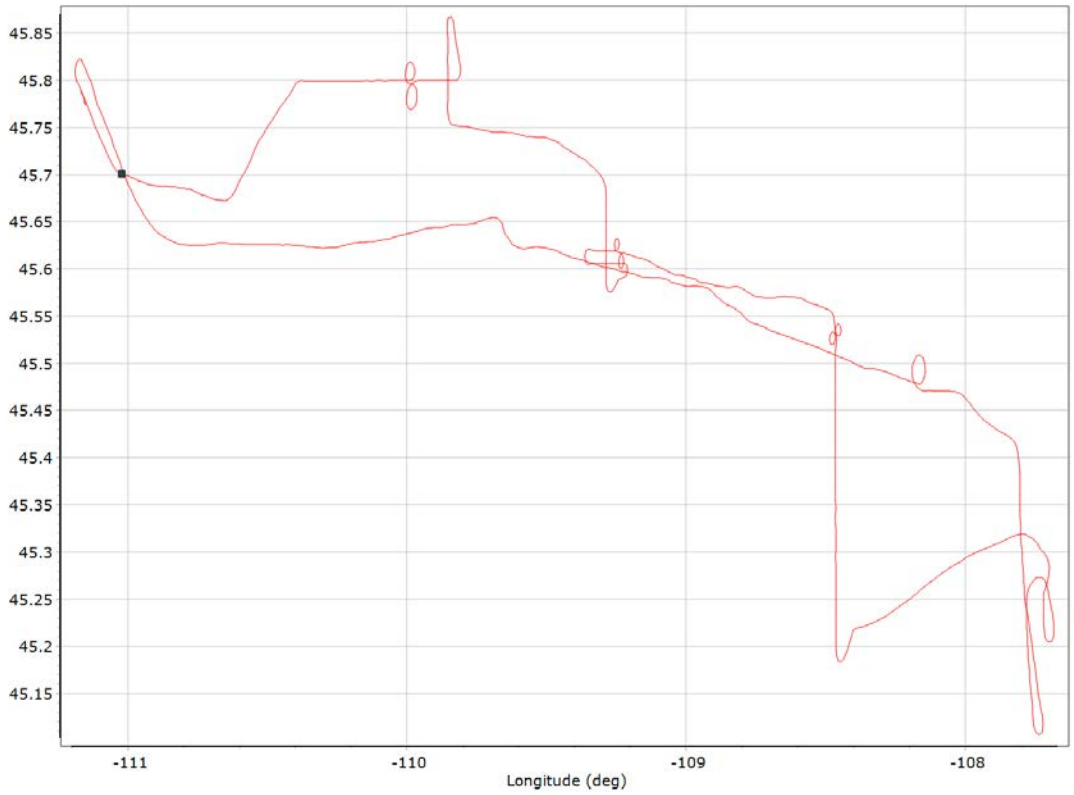


Body Angular Rate

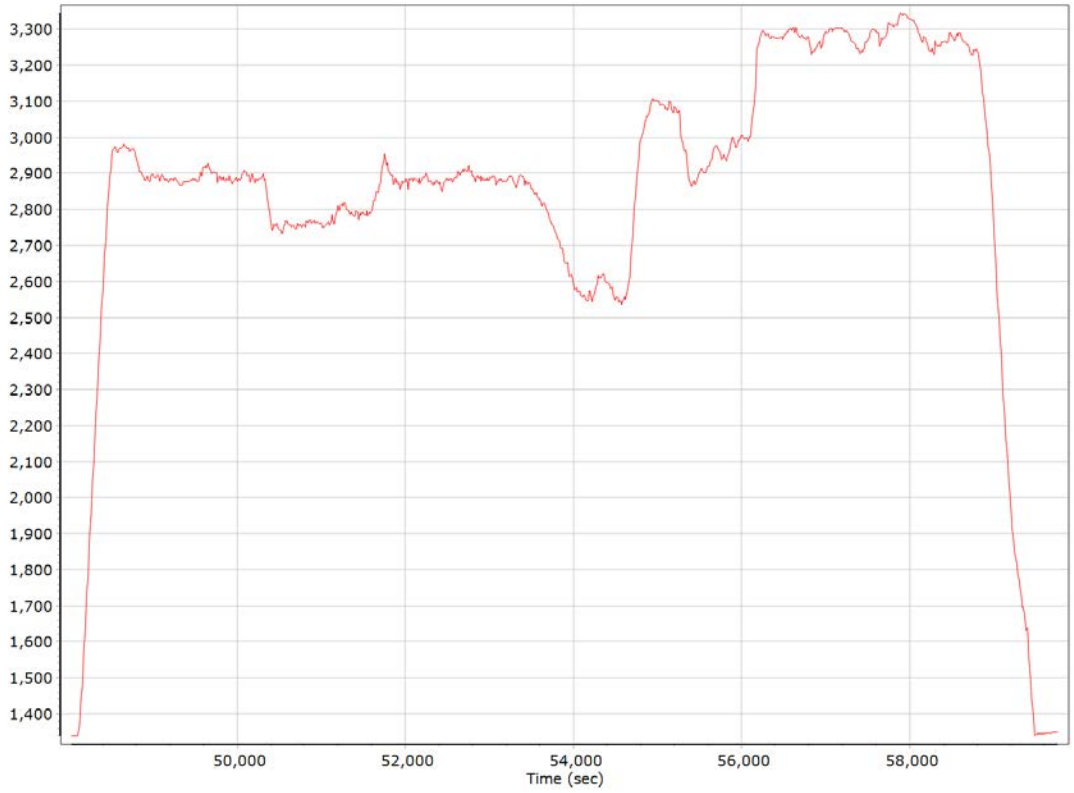


Forward Processed Trajectory Information

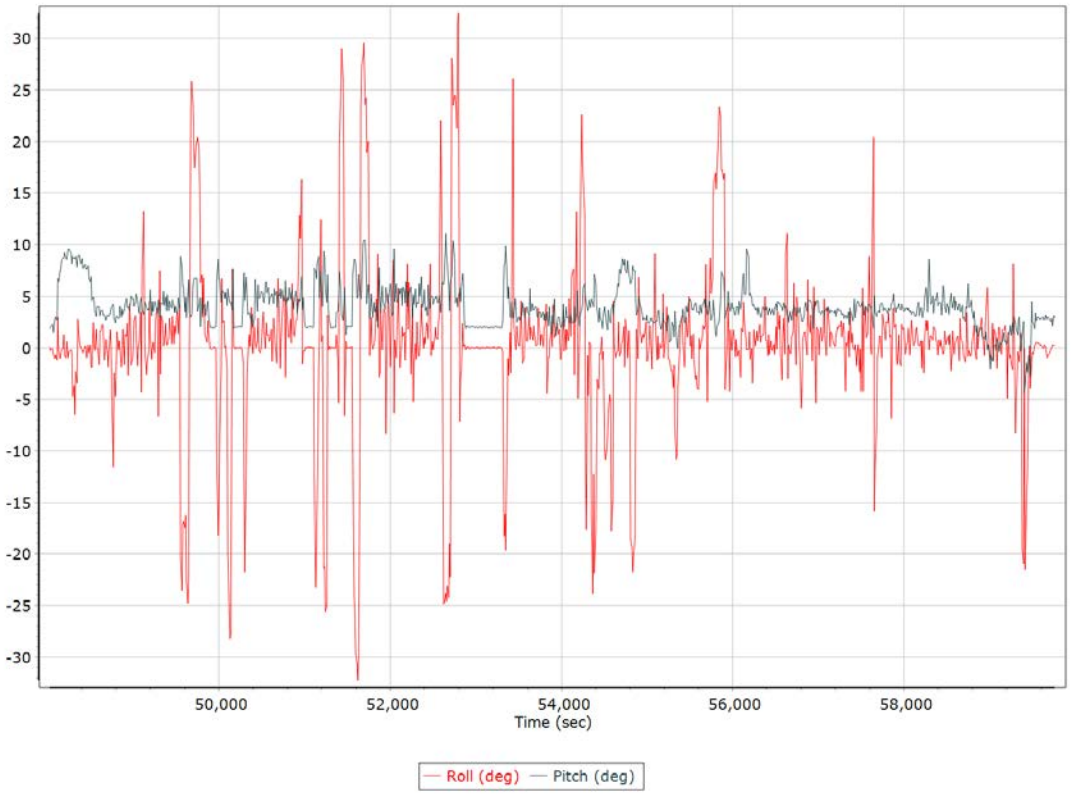
Top View



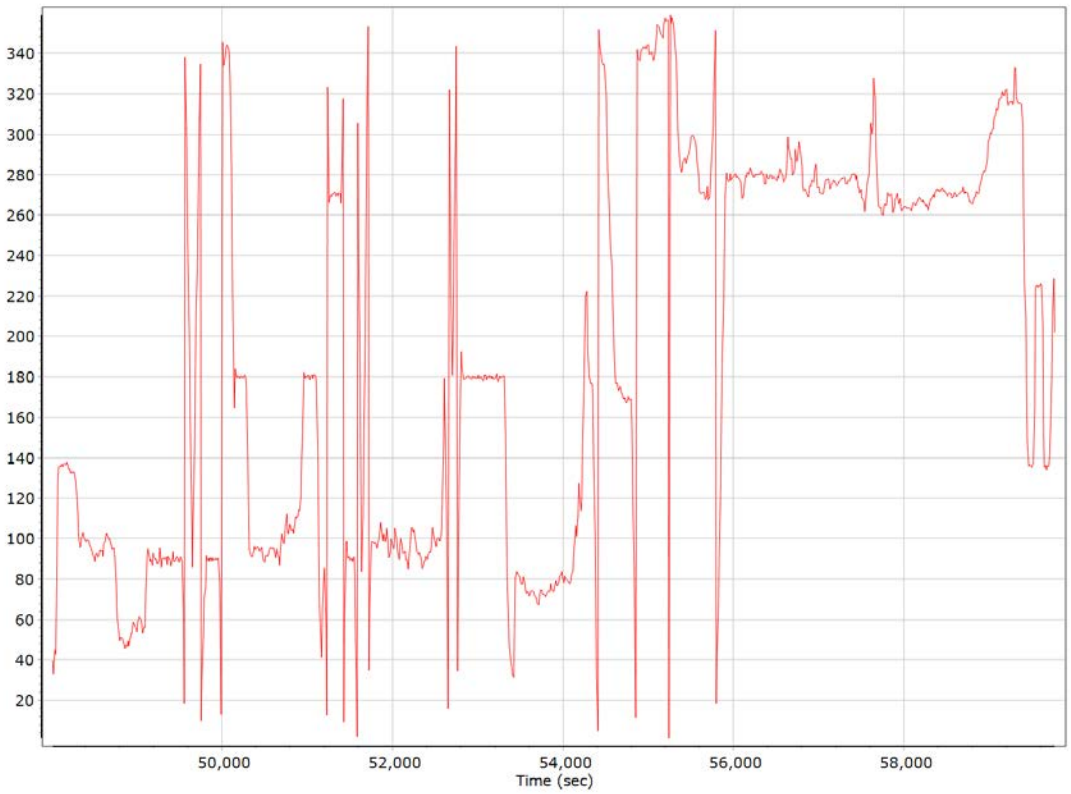
Altitude



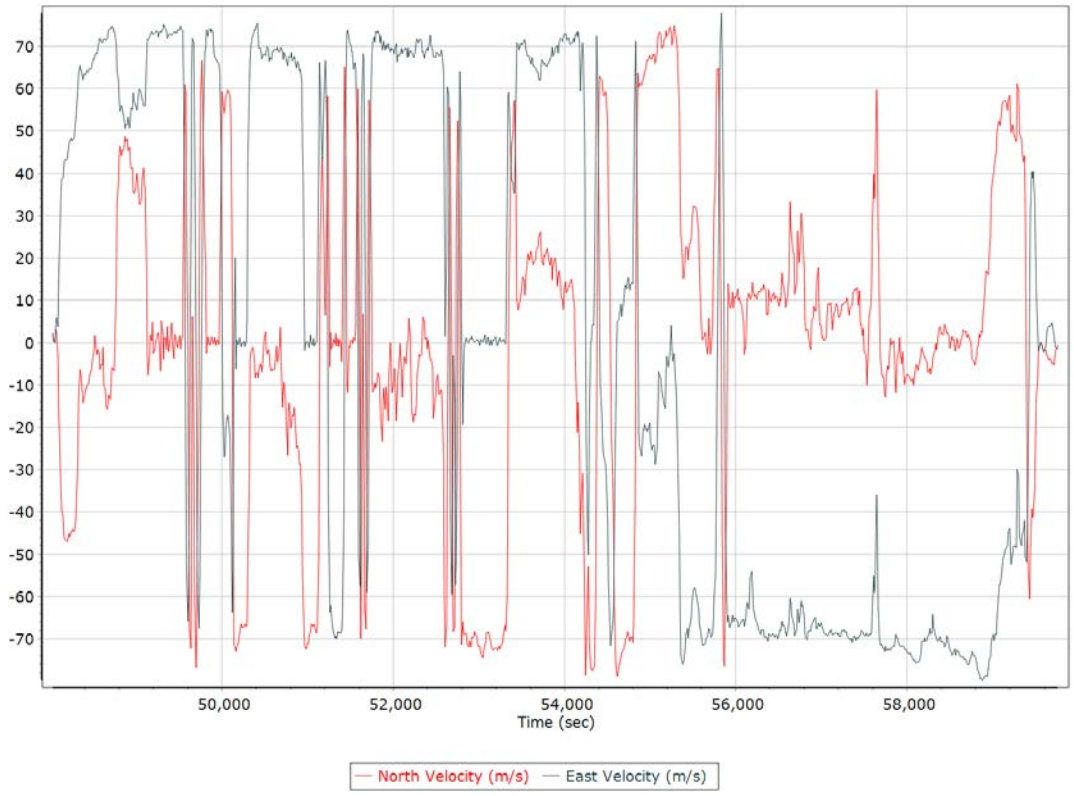
Roll/Pitch



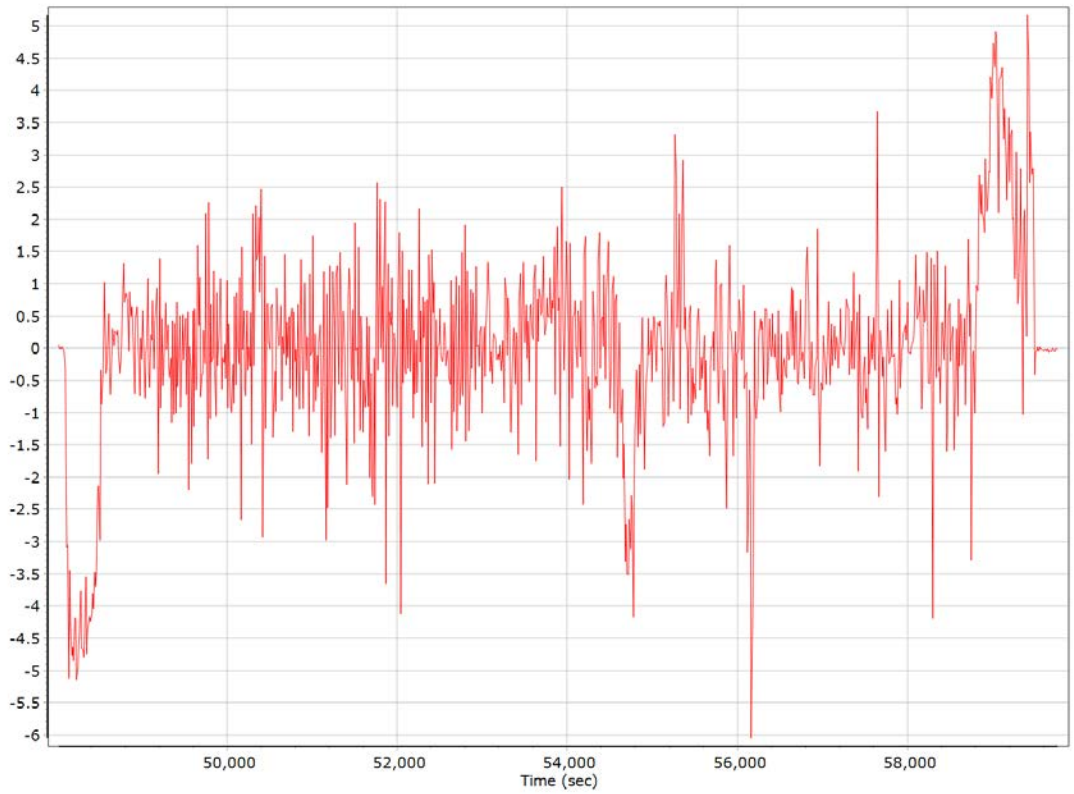
Heading



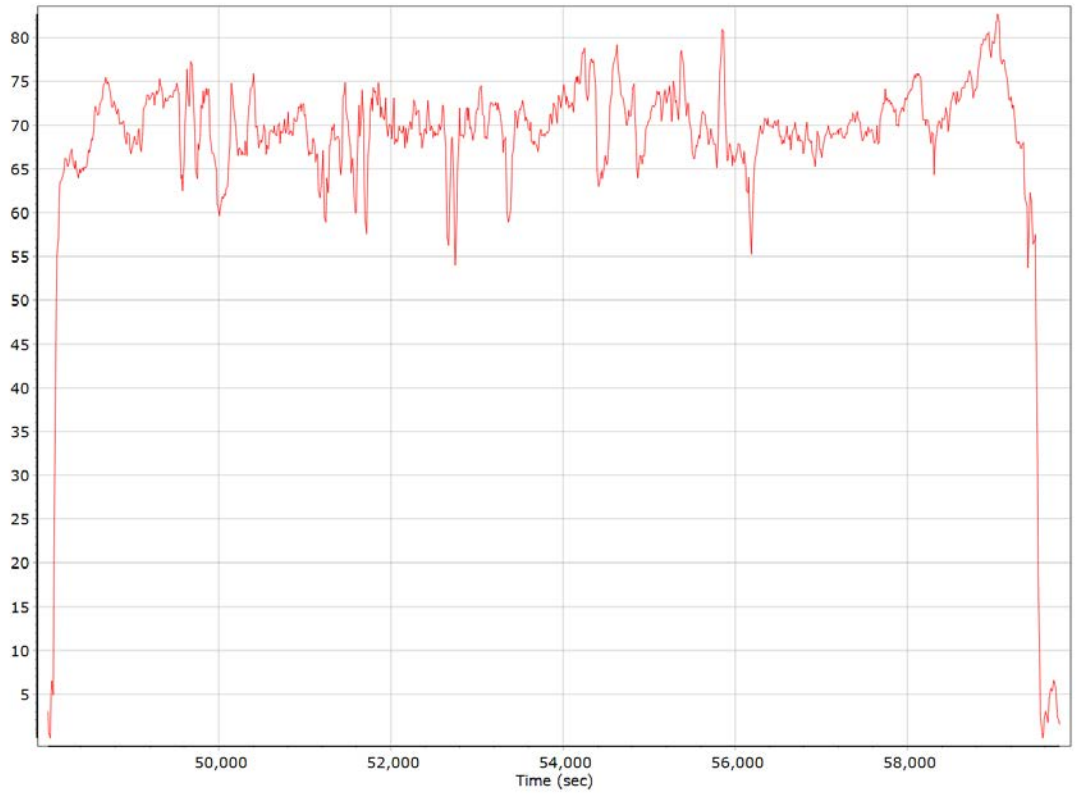
North/East Velocity



Down Velocity



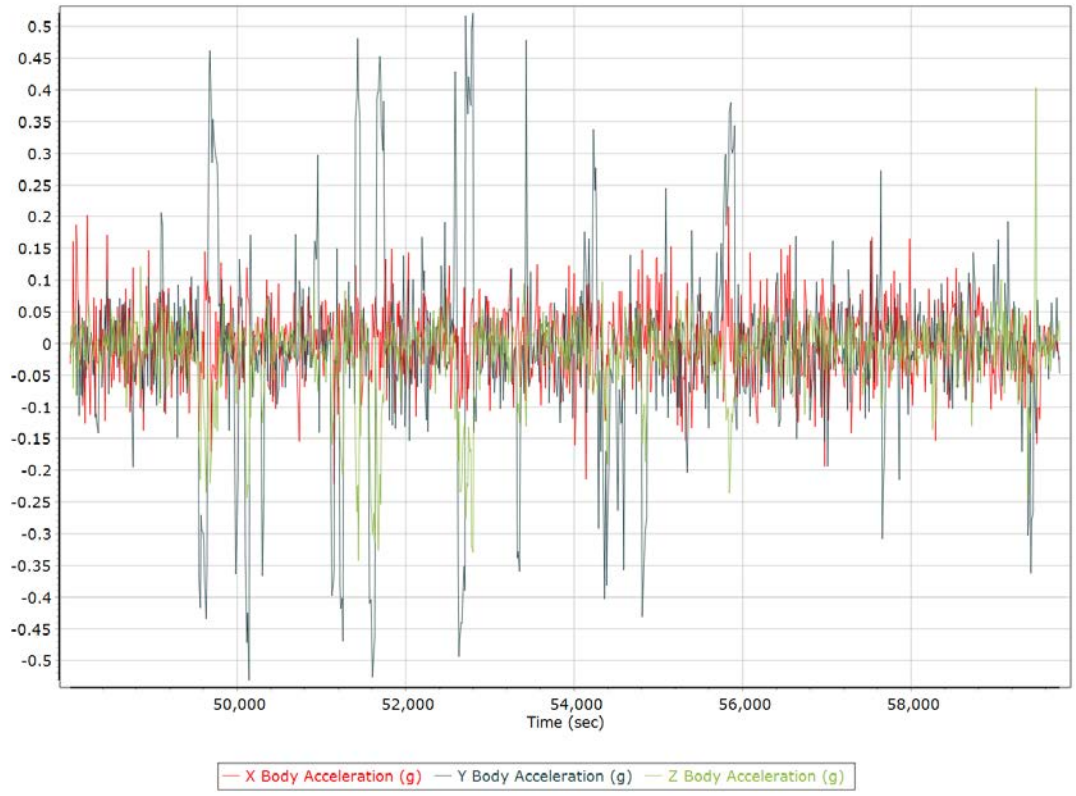
Total Speed



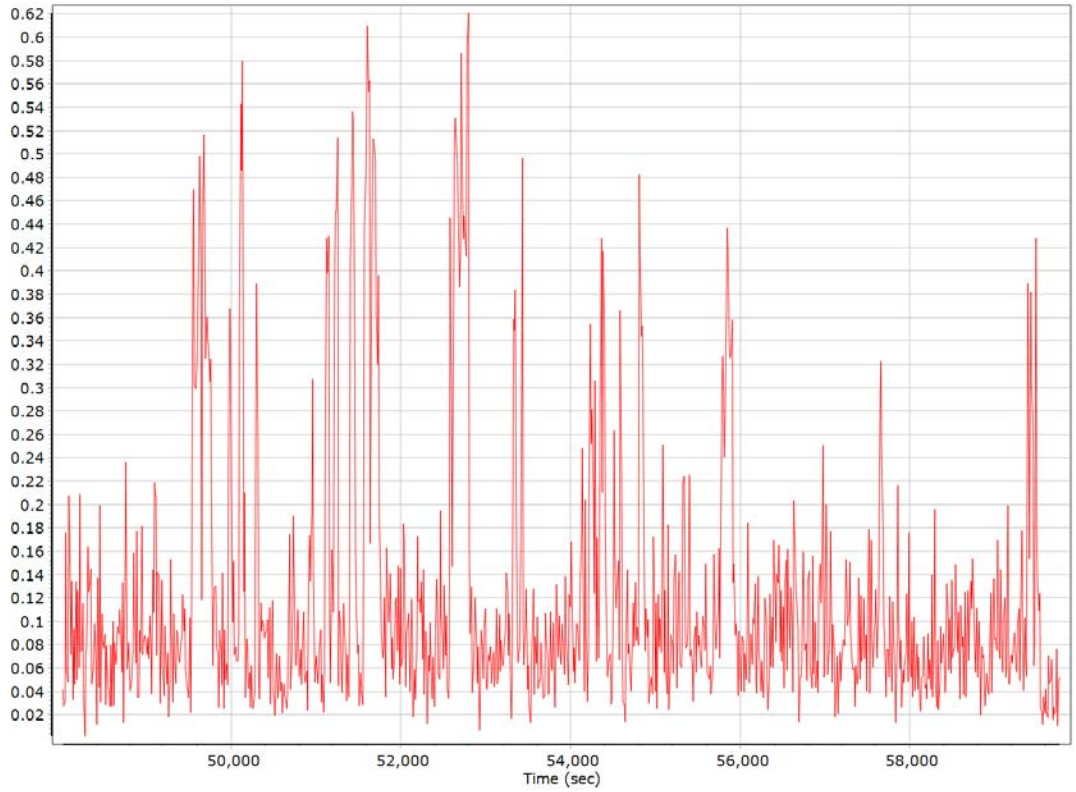
Ground Speed



Body Acceleration



Total Body Acceleration



Body Angular Rate

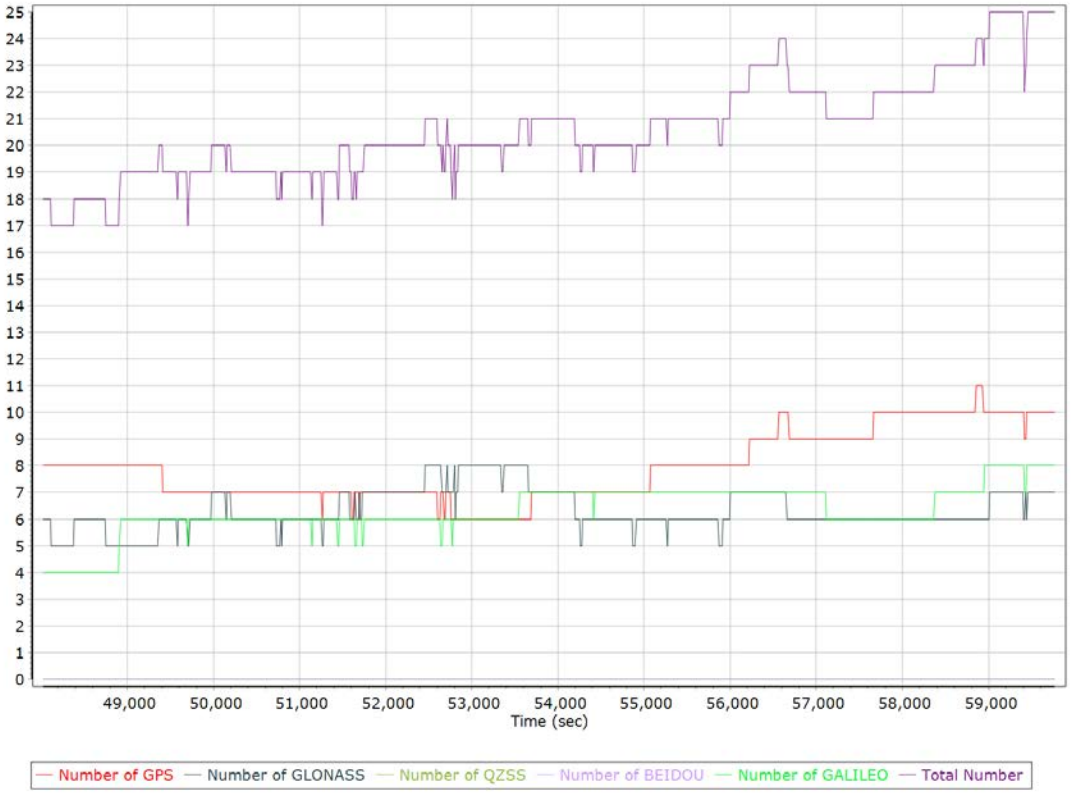


GNSS QC

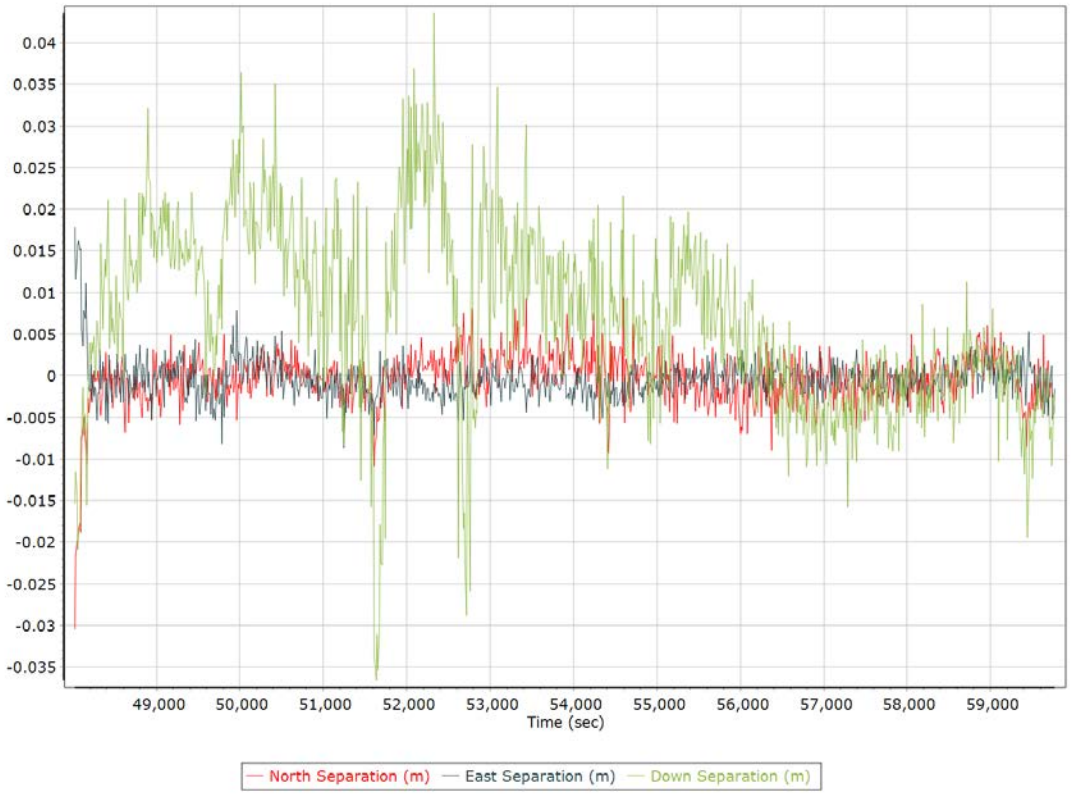
GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	11	8
Number of GLONASS SV	4	8	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	4	8	6
Total number of SV	17	25	21
PDOP	0.95	2.04	1.25
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	11827.00	0.00	0.00
Percentage	100.00	0.00	0.00

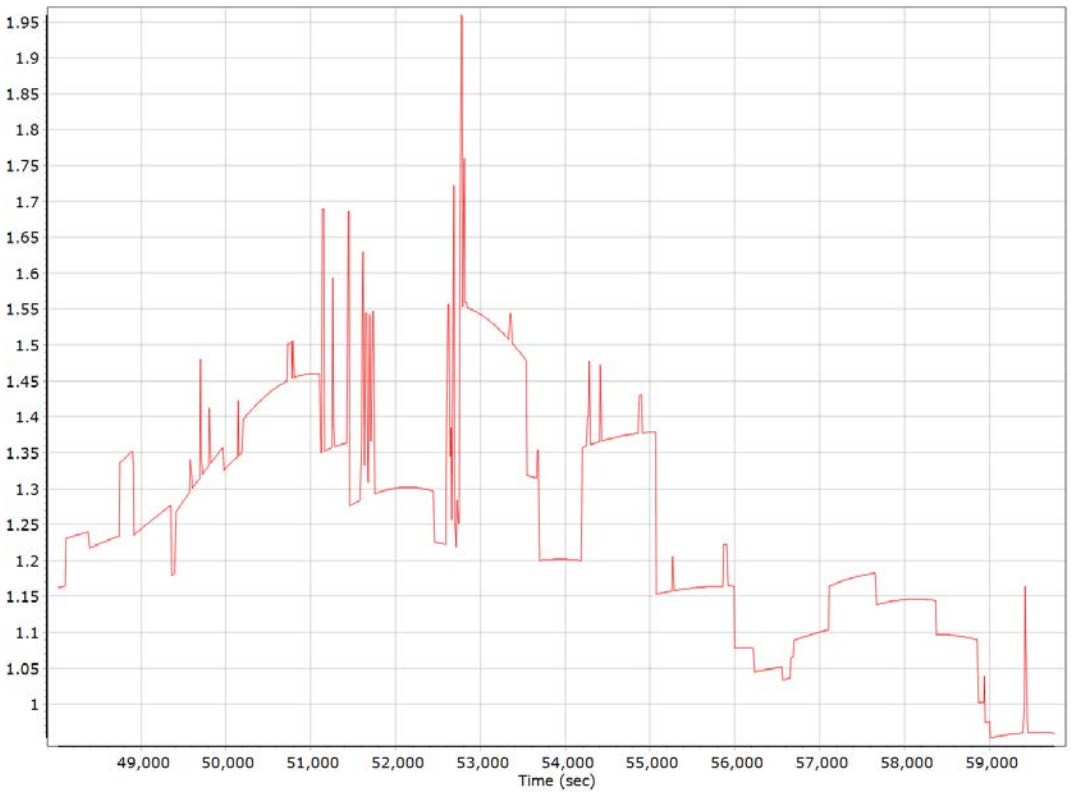
Num SVs in solution



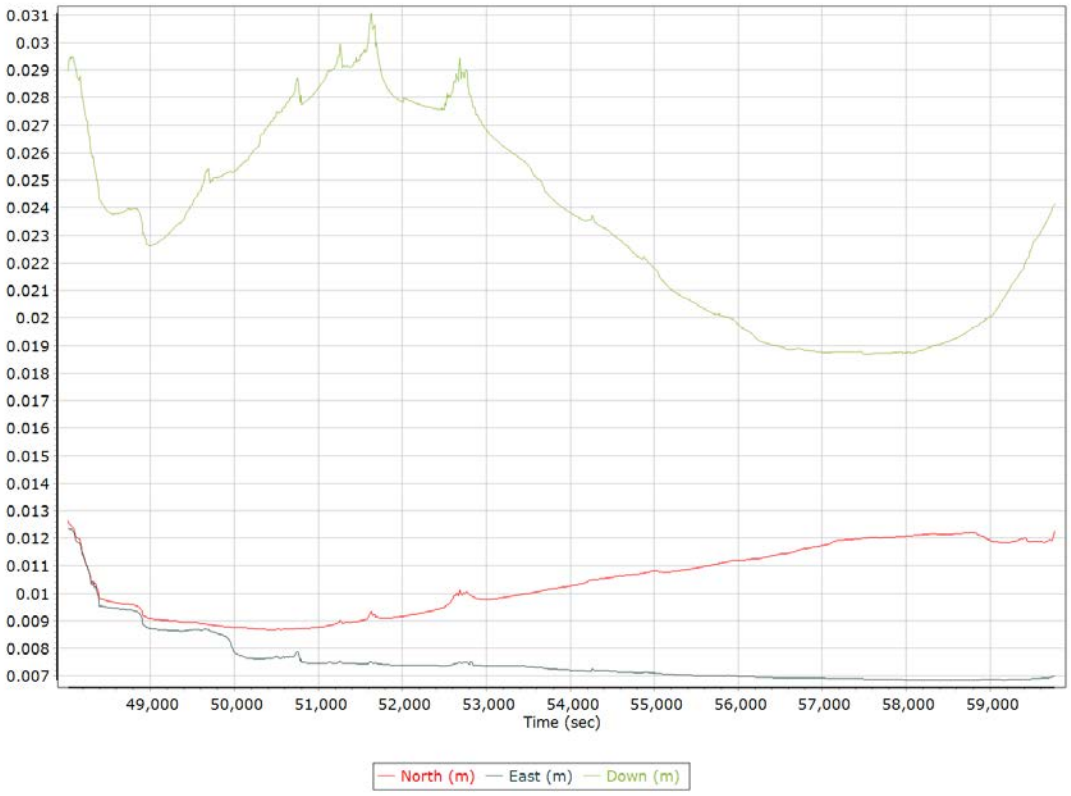
Forward/Reverse Separation



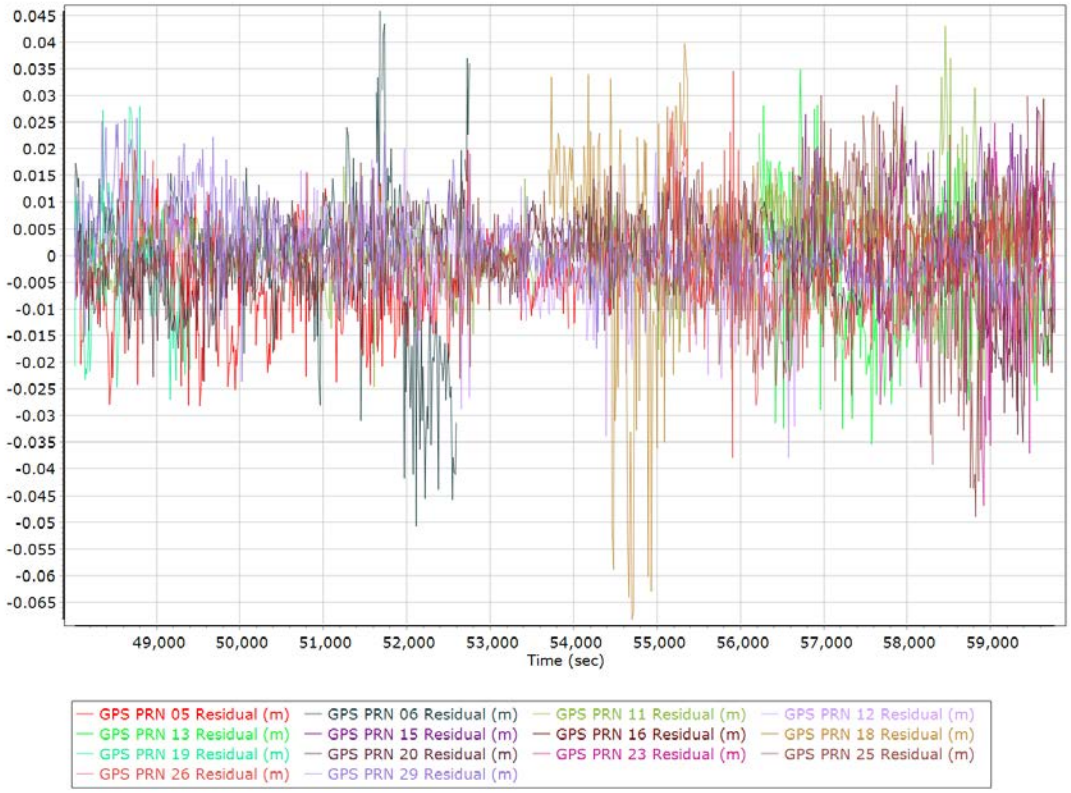
PDOP



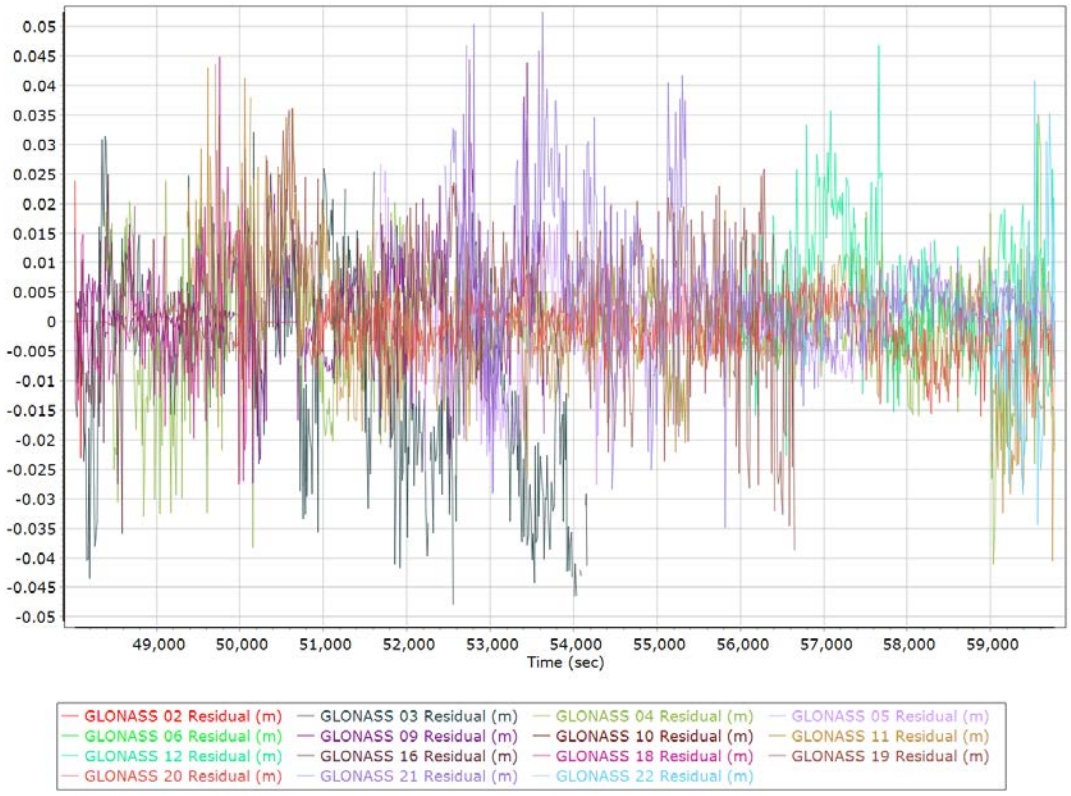
Estimated Position Accuracy



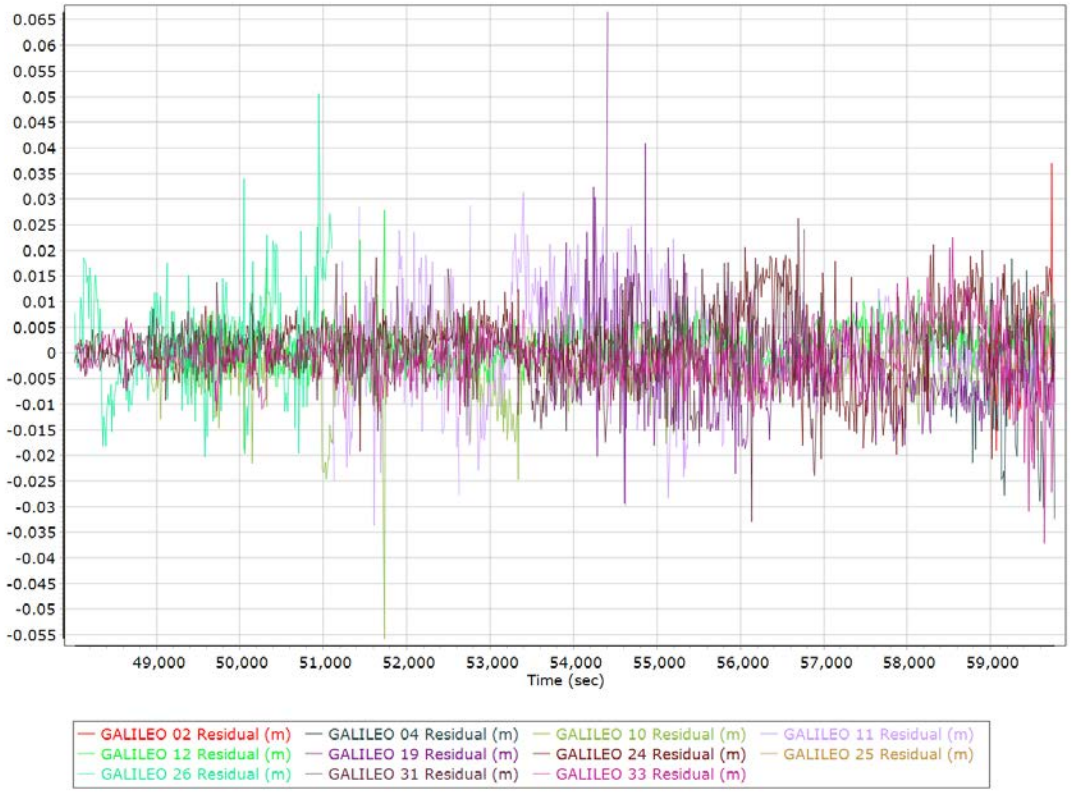
GPS Residuals



GLONASS Residuals



GALILEO Residuals



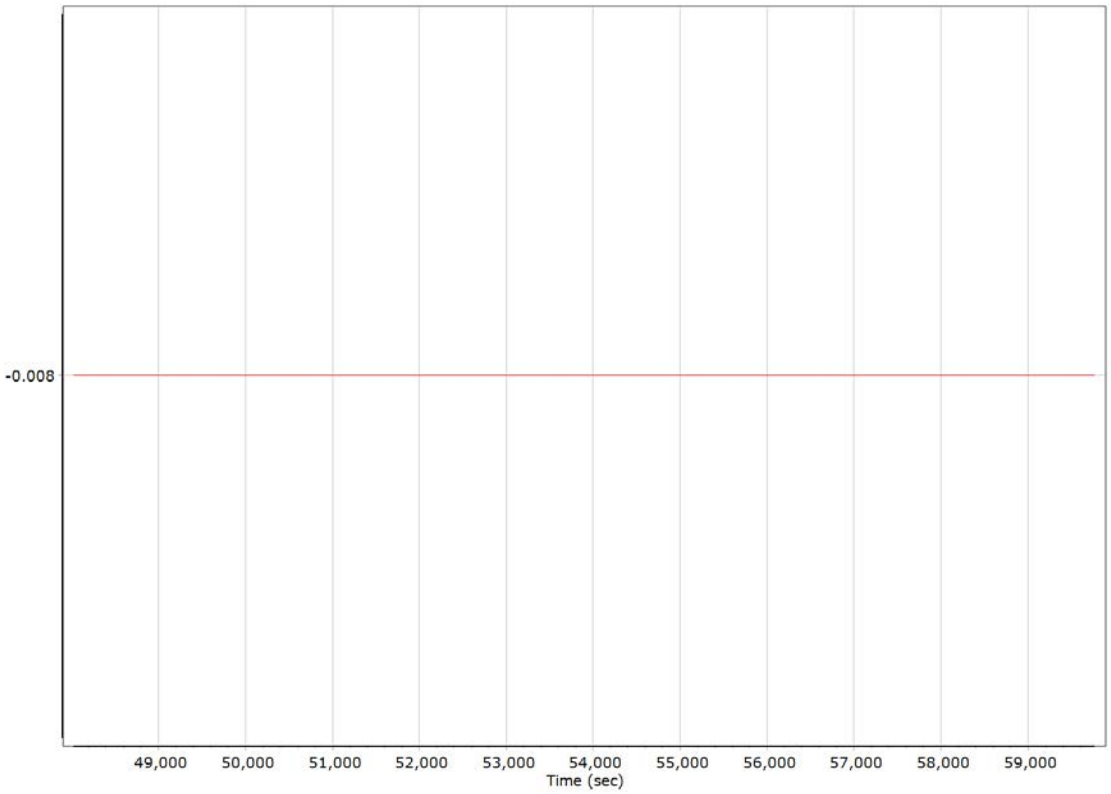
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	47936.000 (8/13/2023 1:18:56 PM)		
Processing end time	59772.000 (8/13/2023 4:36:12 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	-0.008	0.031	-1.294
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

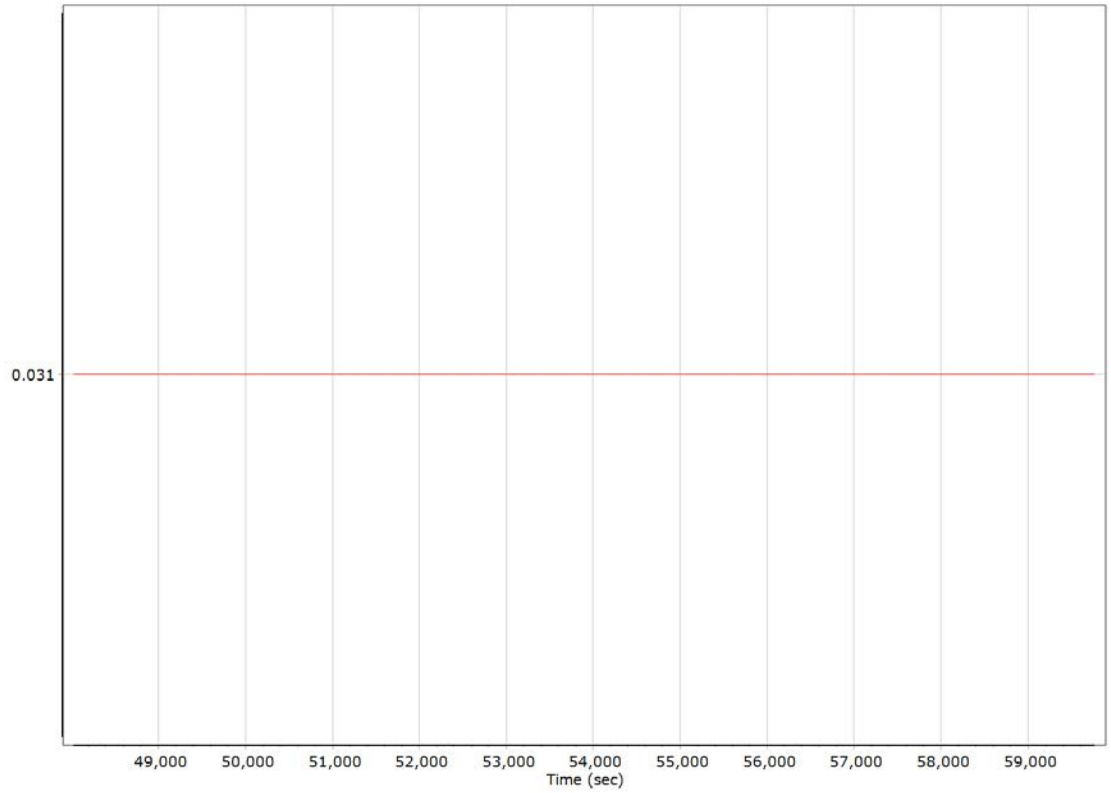
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

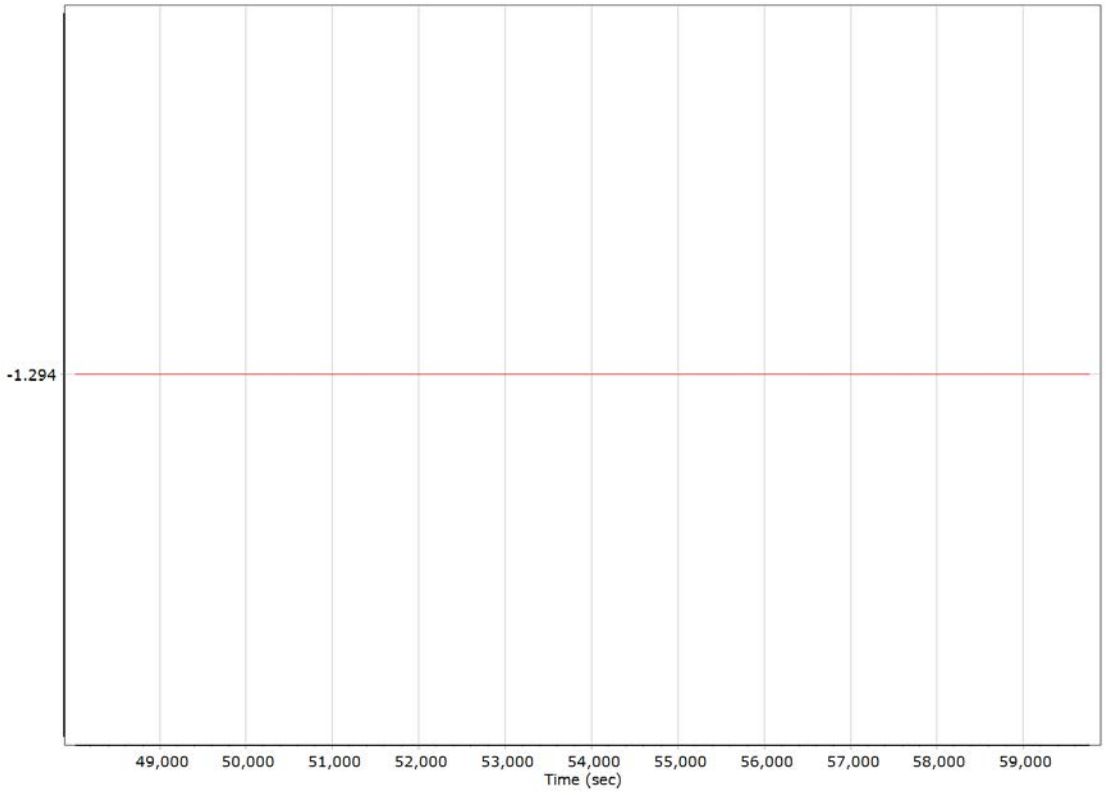
X Reference-Primary GNSS Lever Arm (m)



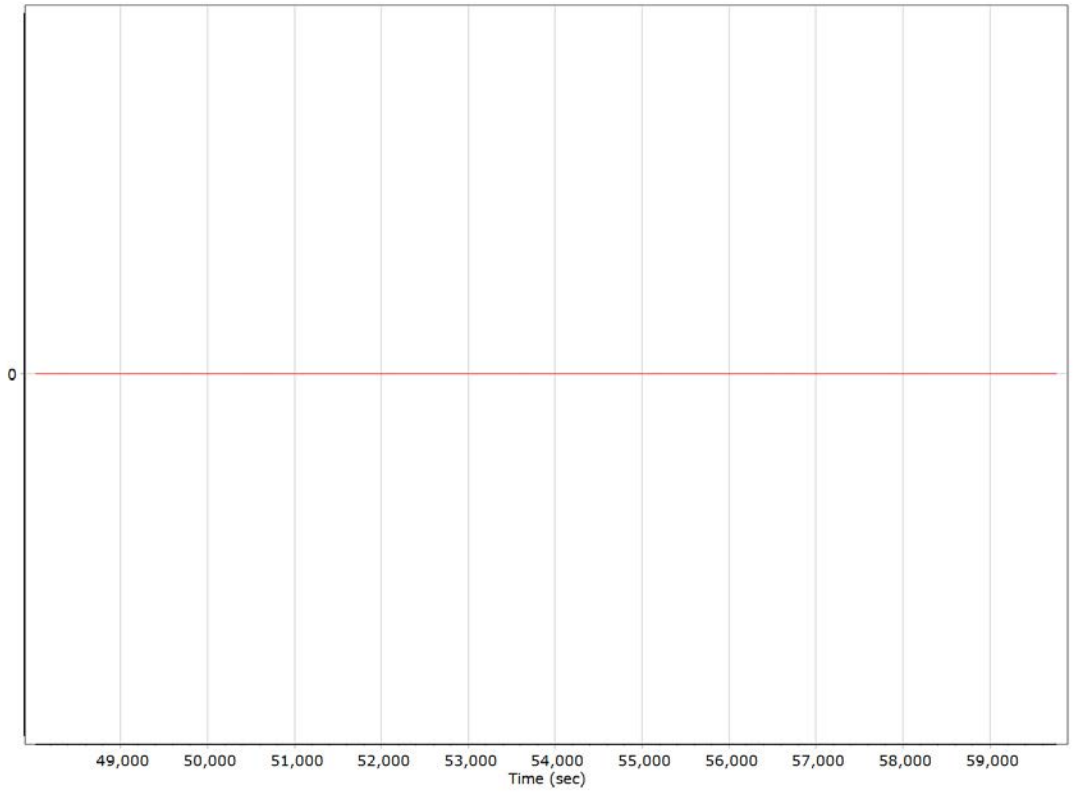
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



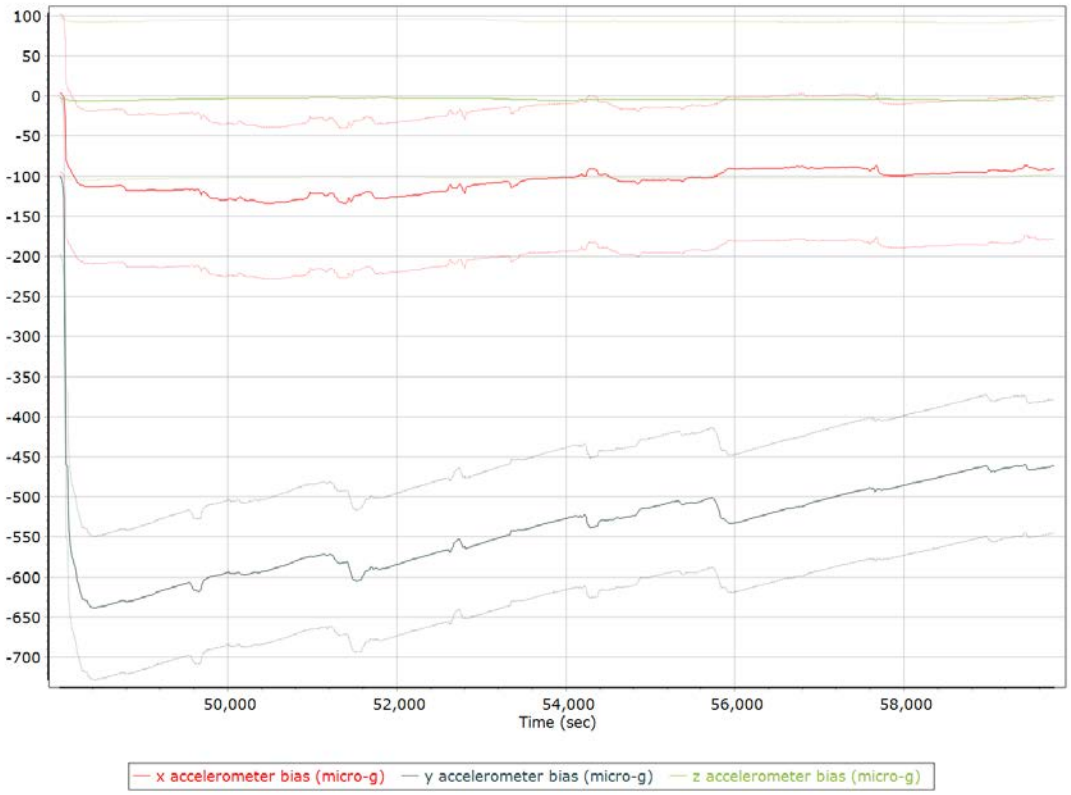
Reference-Primary GNSS Lever Arm Figure of Merit



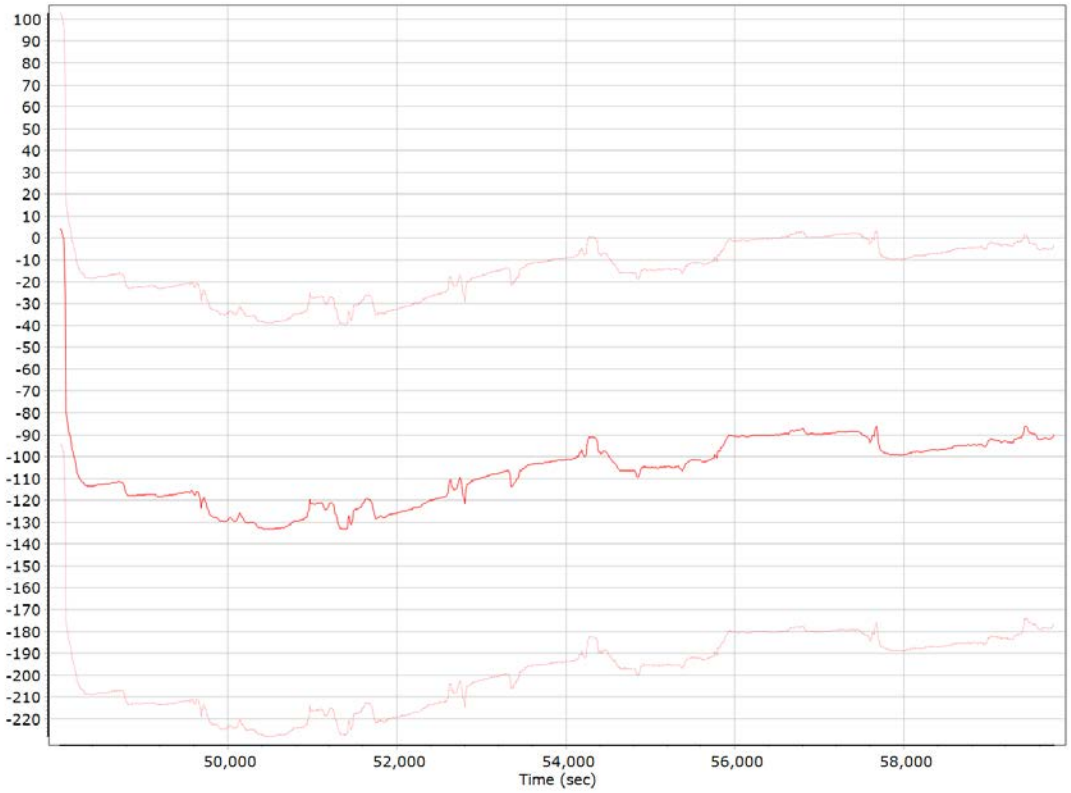
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

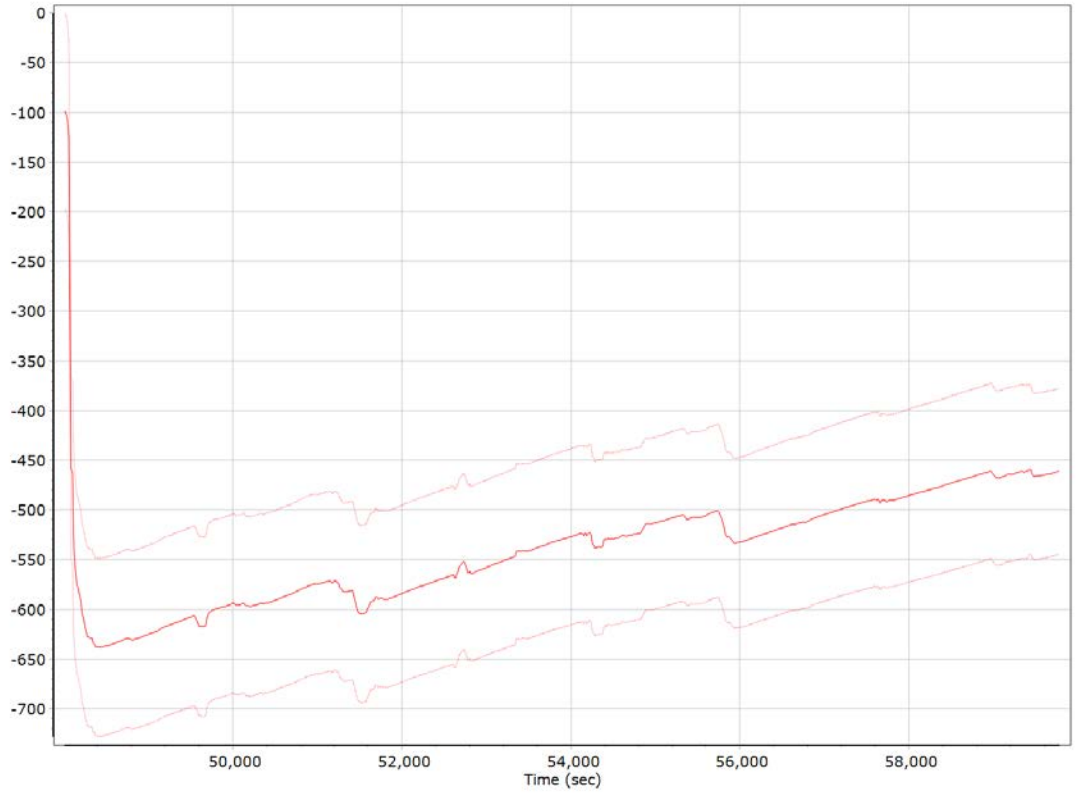
Accelerometer Bias (micro-g)



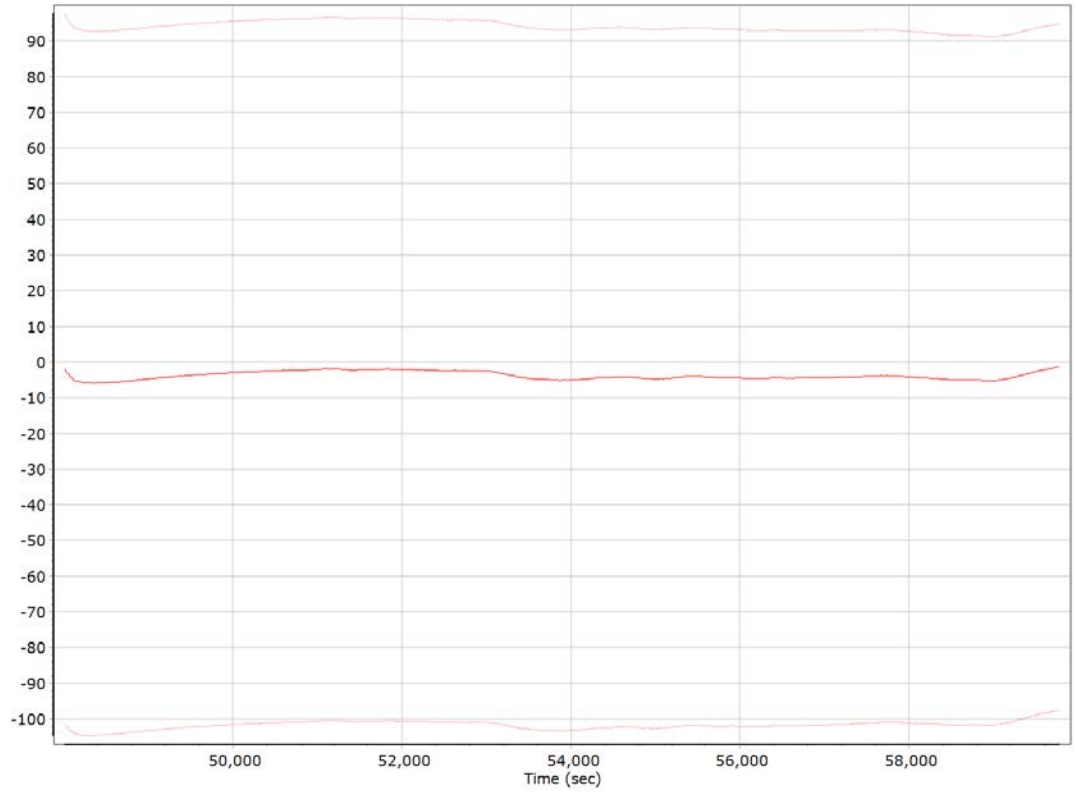
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



Z Accelerometer Bias (micro-g)



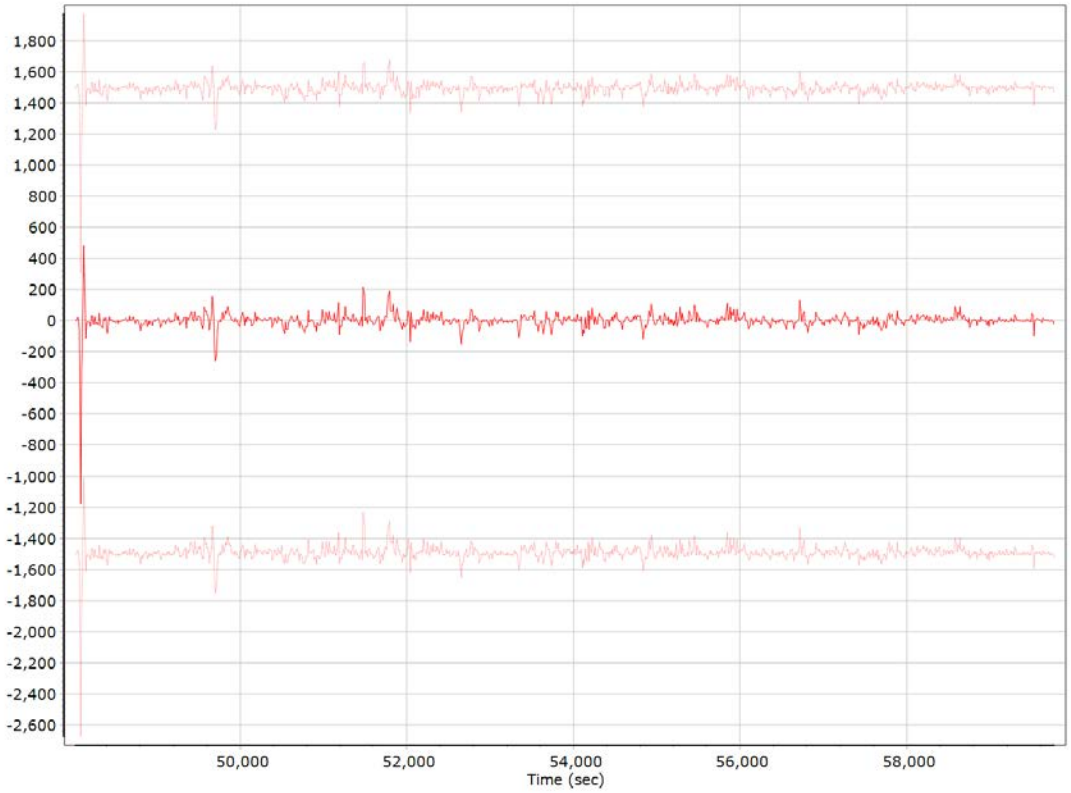
Accelerometer Scale Error (ppm)



X Accelerometer Scale Error (ppm)



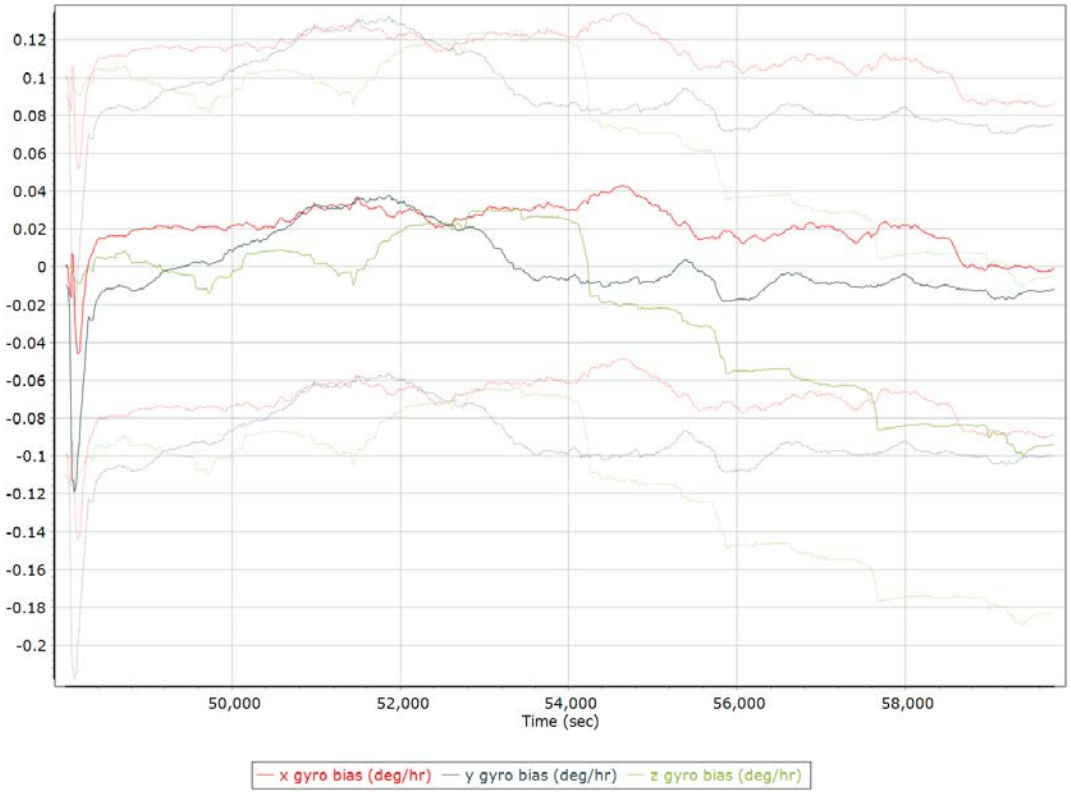
Y Accelerometer Scale Error (ppm)



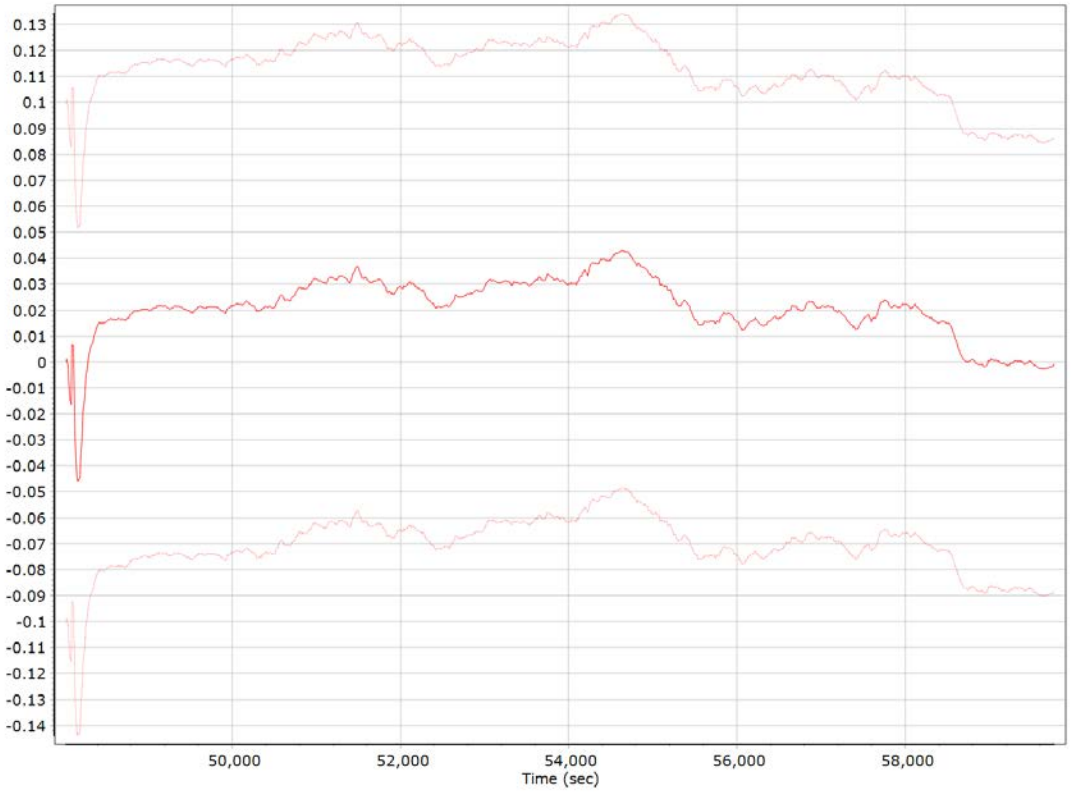
Z Accelerometer Scale Error (ppm)



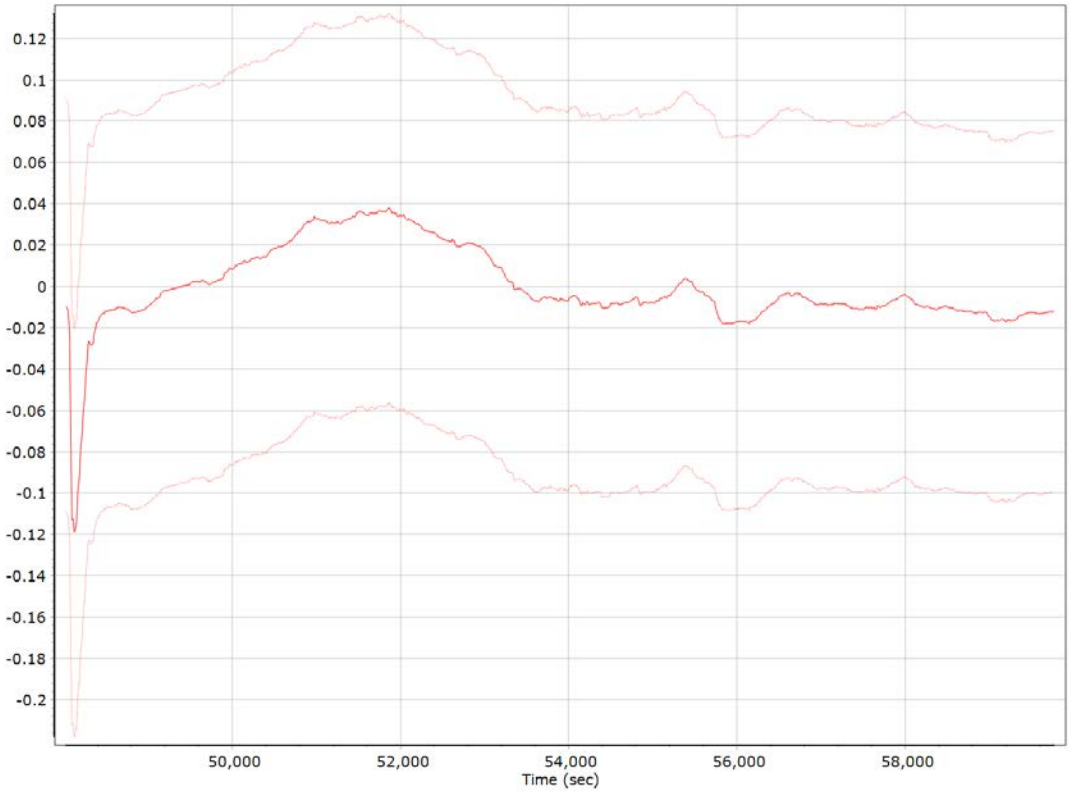
Gyro Bias (deg/h)



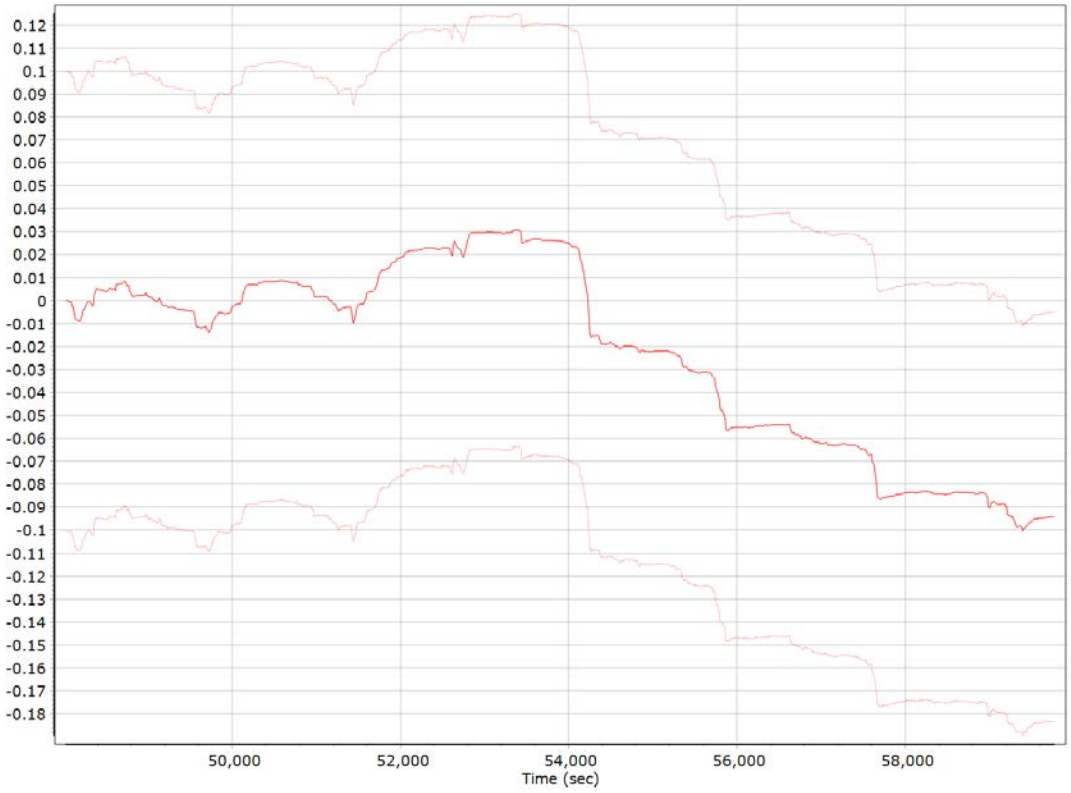
X Gyro Bias (deg/h)



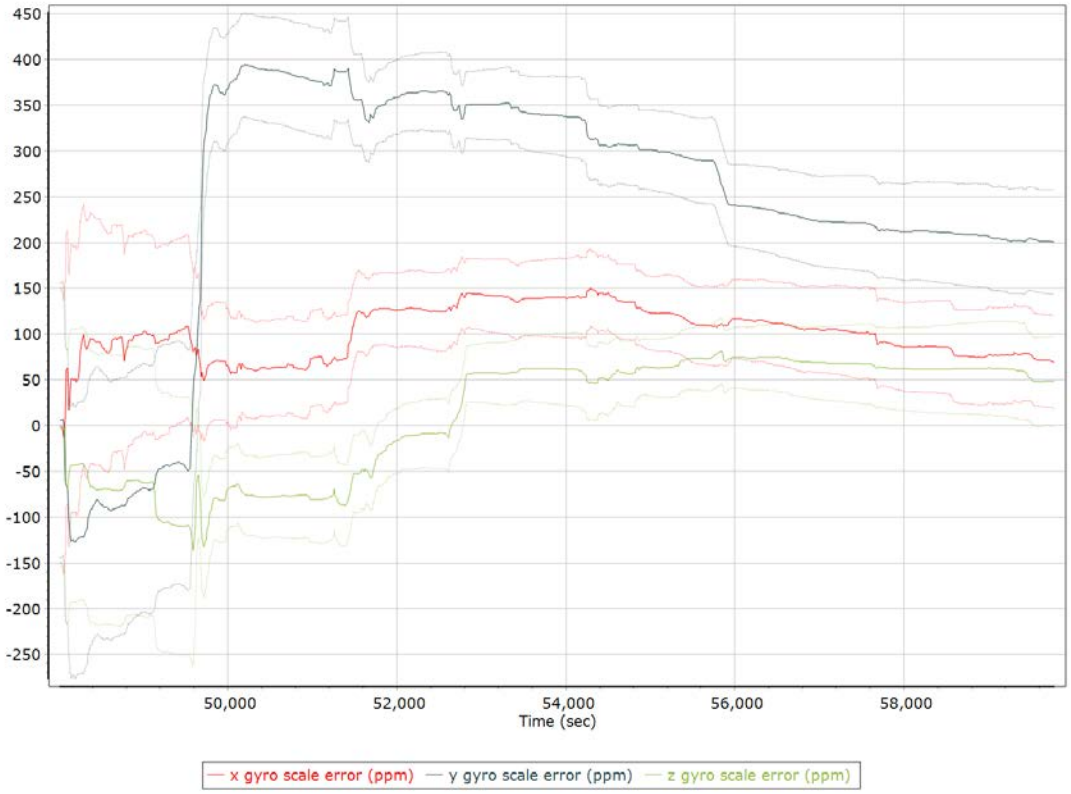
Y Gyro Bias (deg/h)



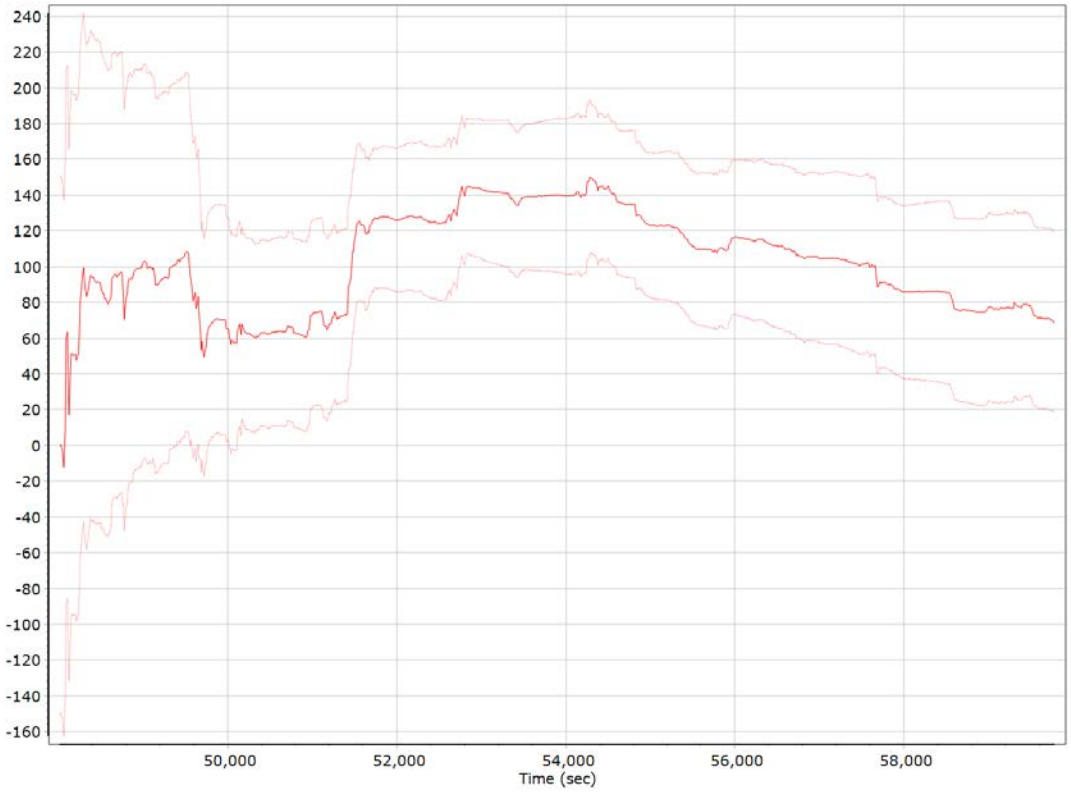
Z Gyro Bias (deg/h)



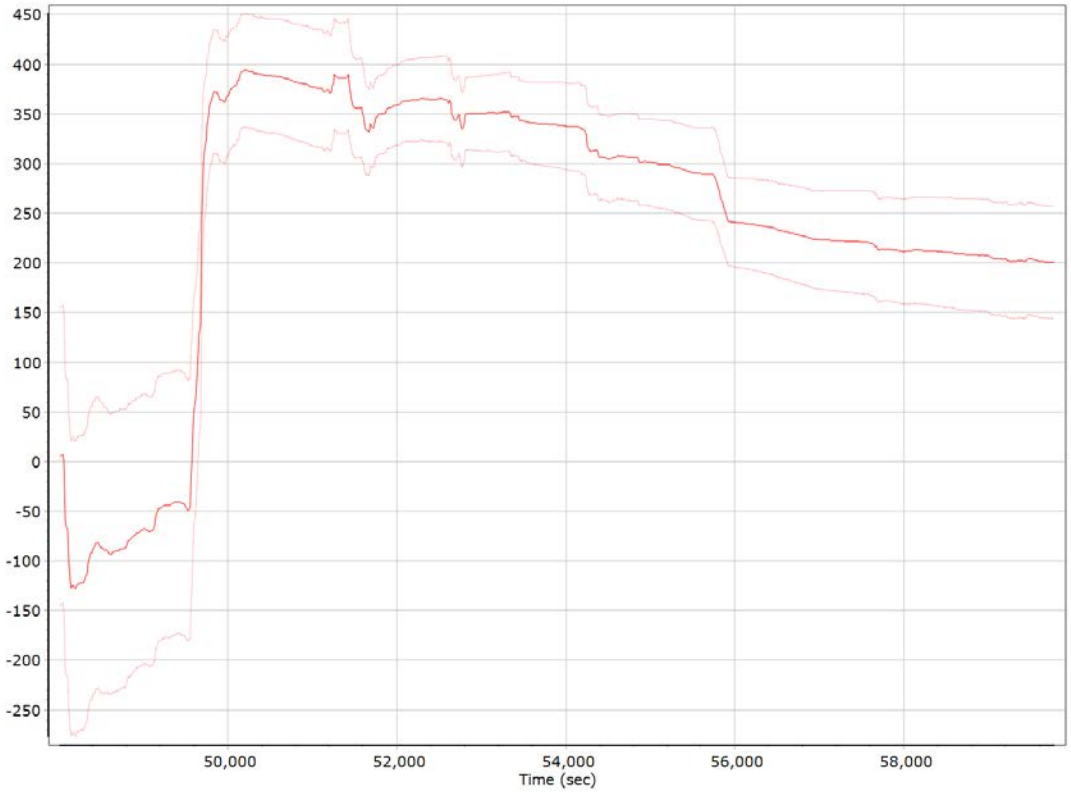
Gyro Scale Error (ppm)



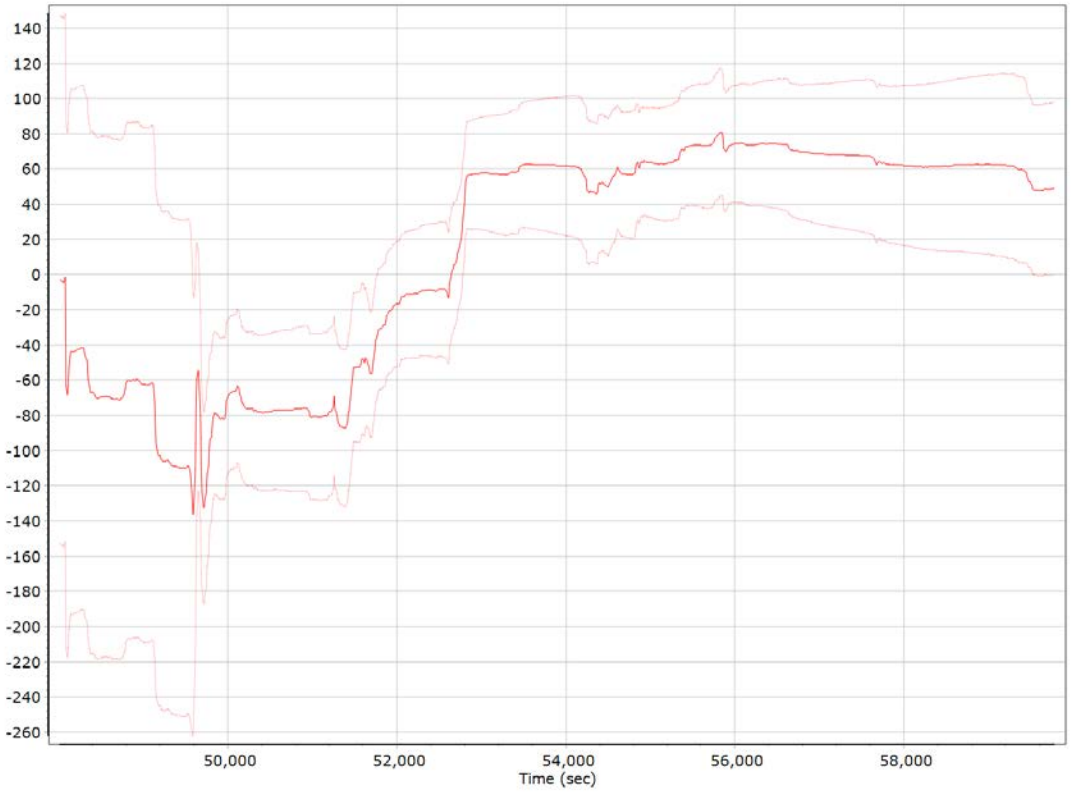
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)



Z Gyro Scale Error (ppm)

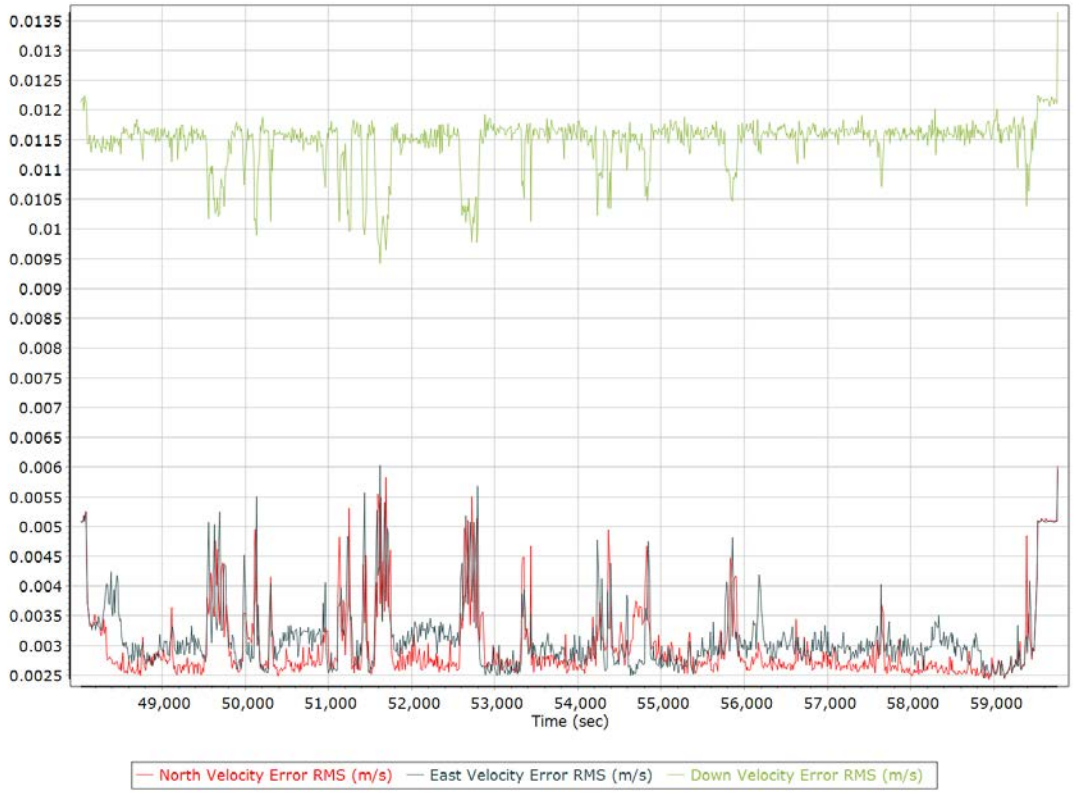


Smoothed Performance Metrics

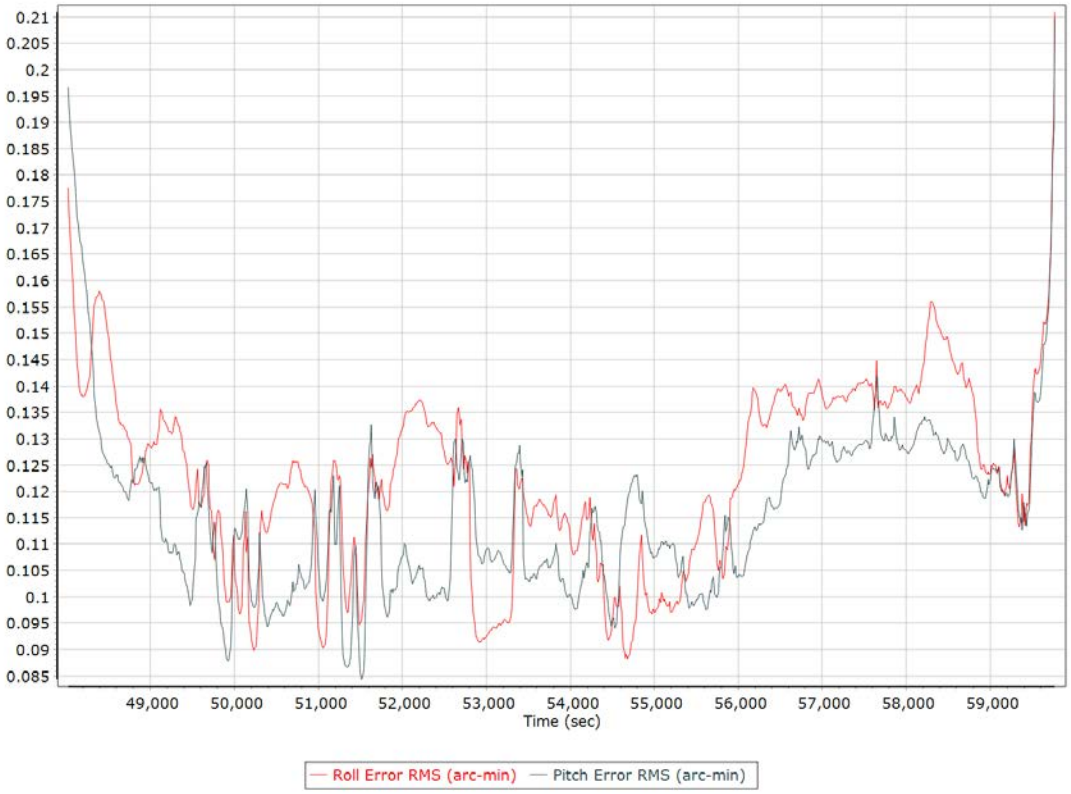
Position Error RMS (m)



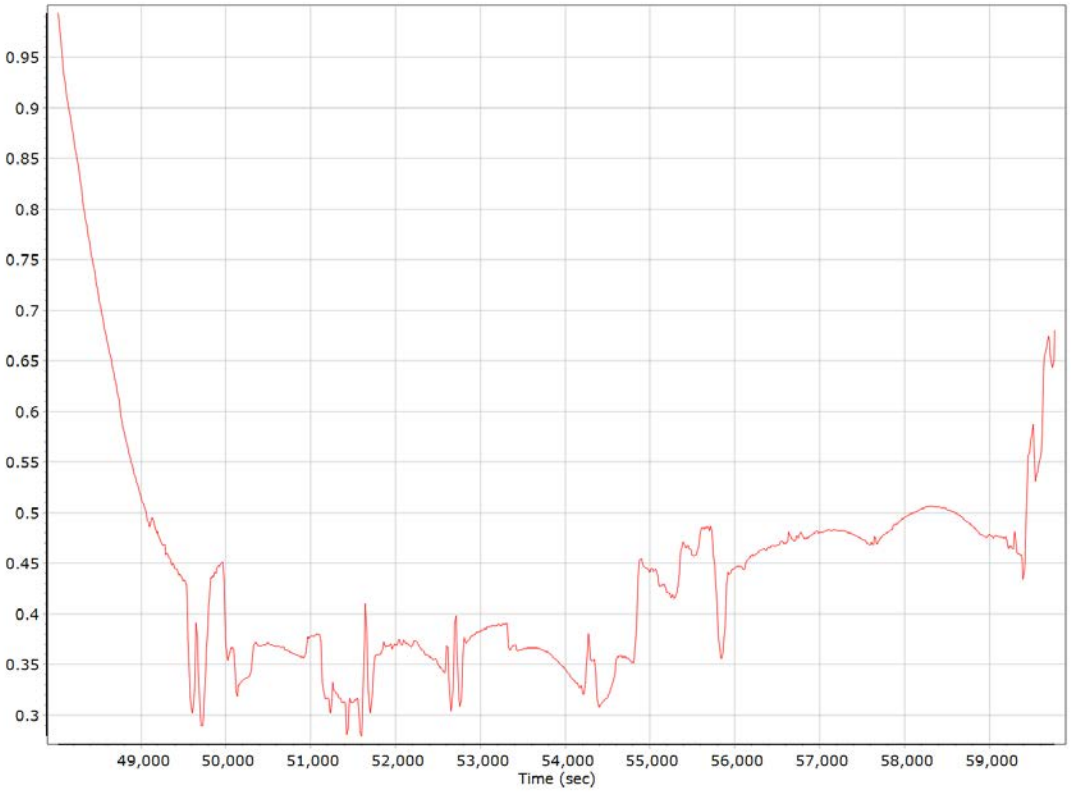
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

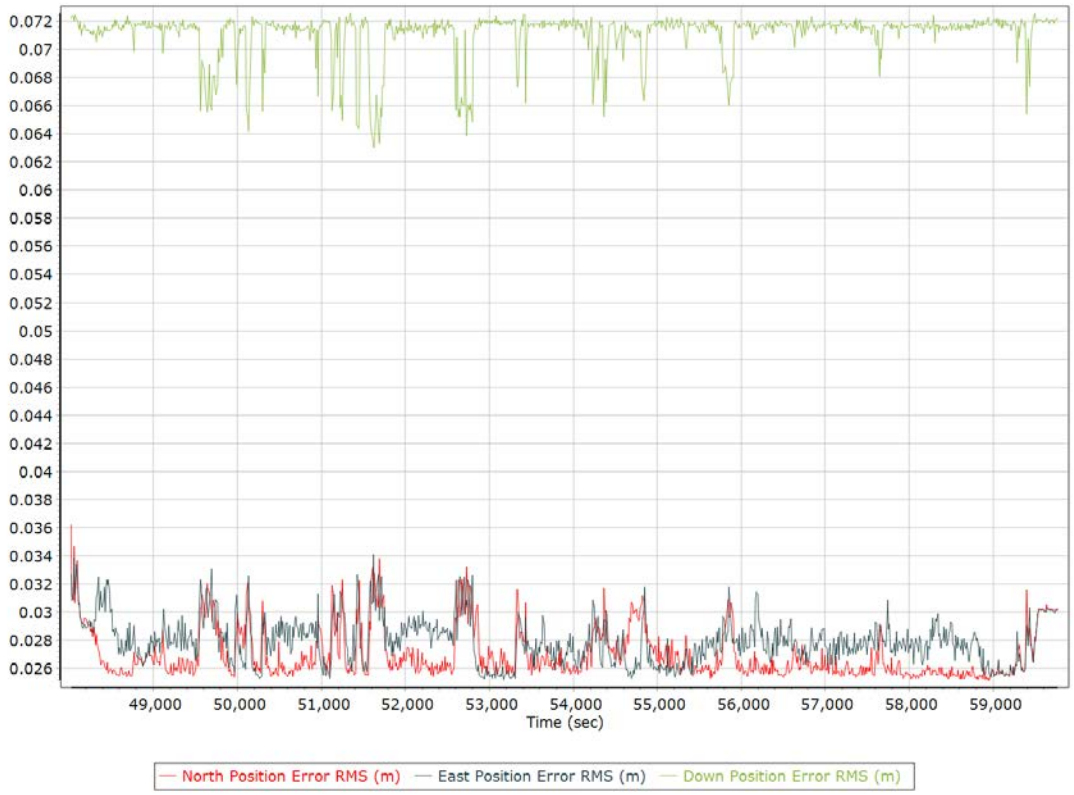


Heading Error RMS (arc-min)



Forward Processed Performance Metrics

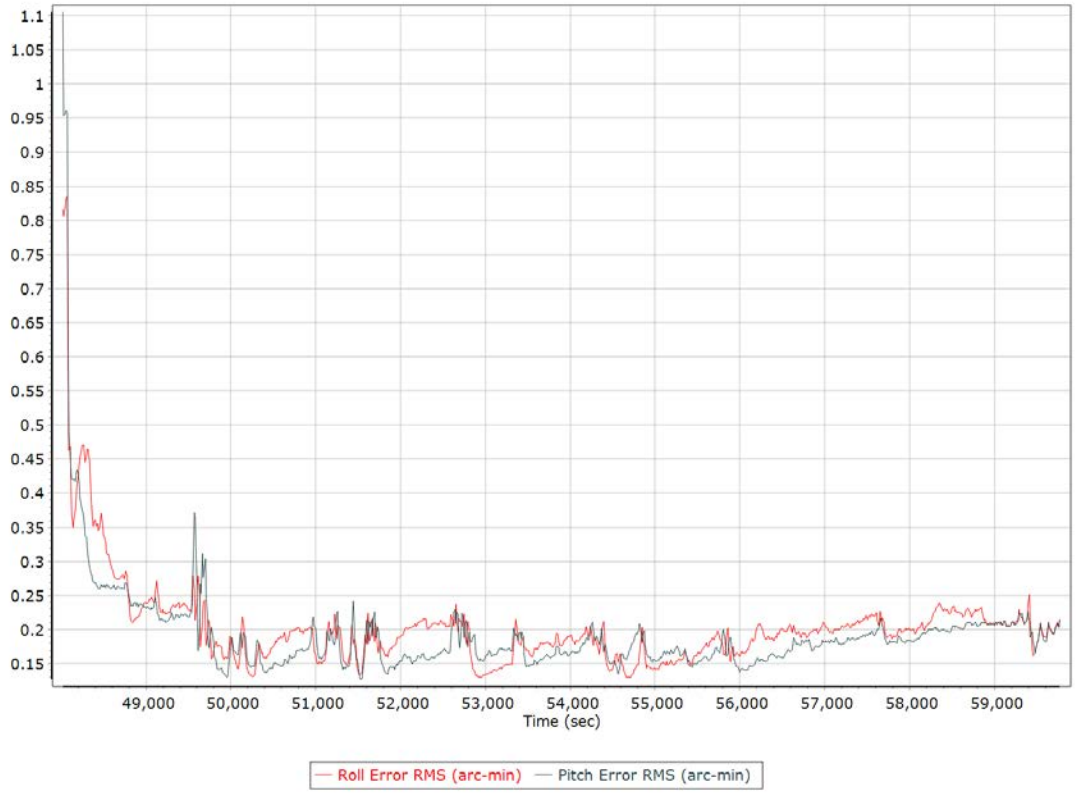
Position Error RMS (m)



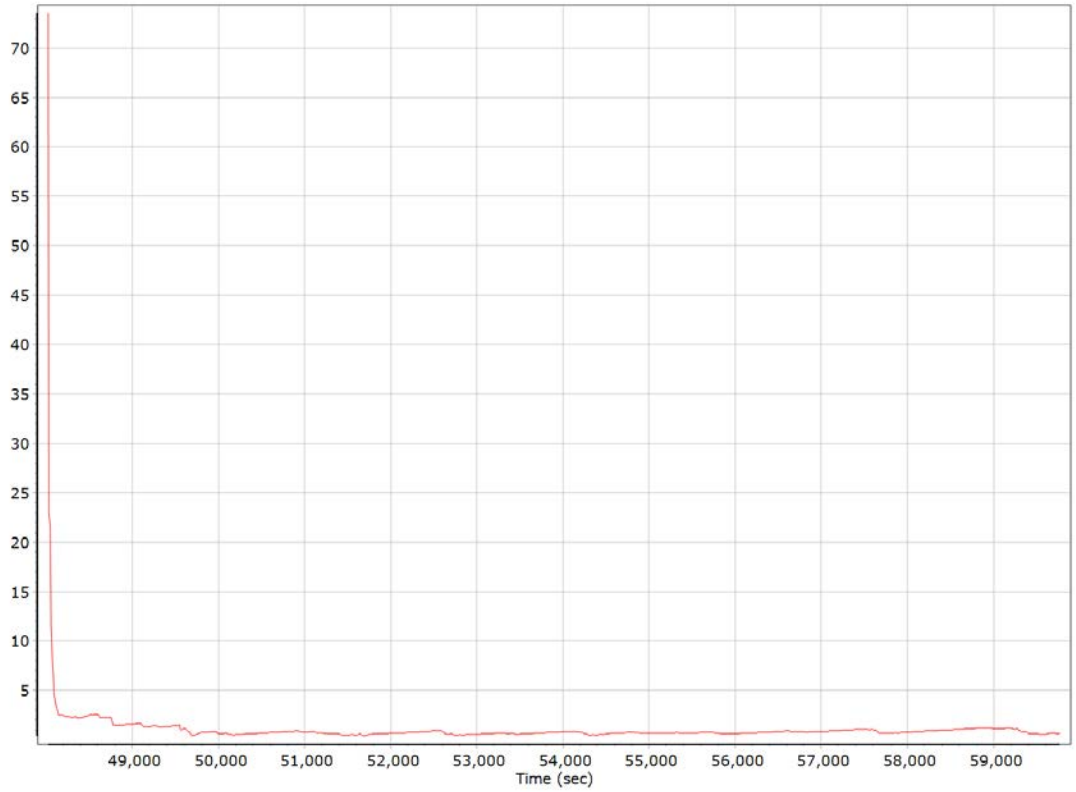
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

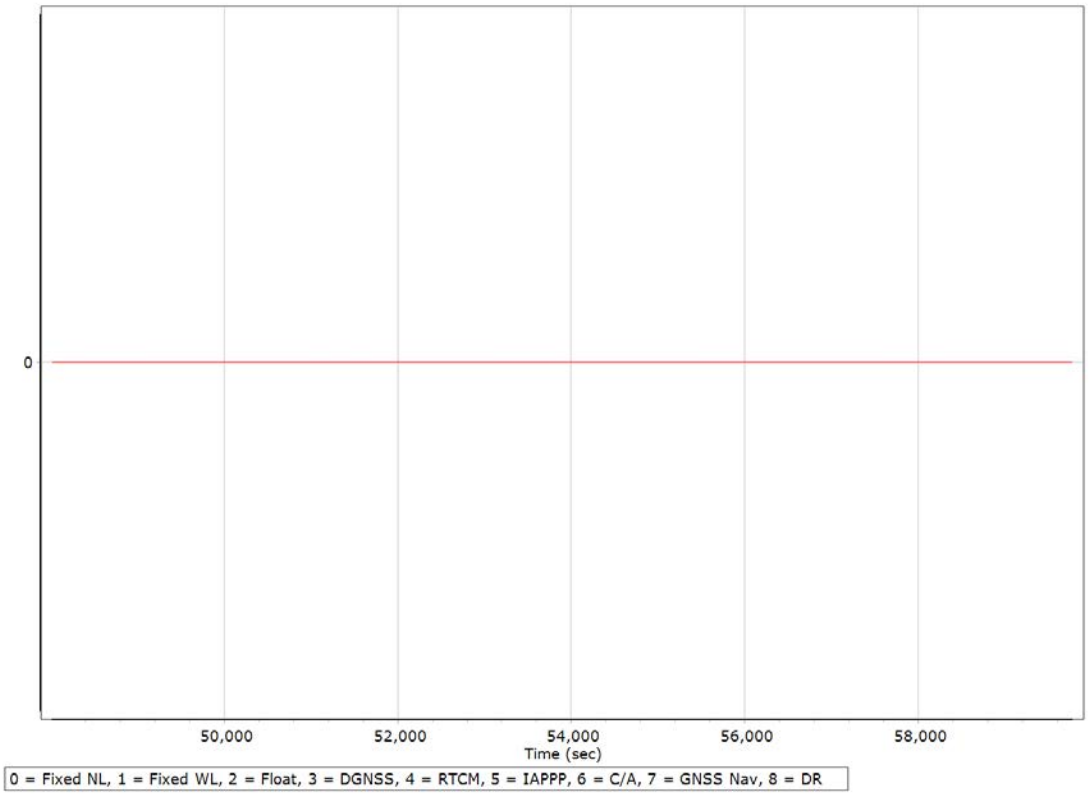


Heading Error RMS (arc-min)

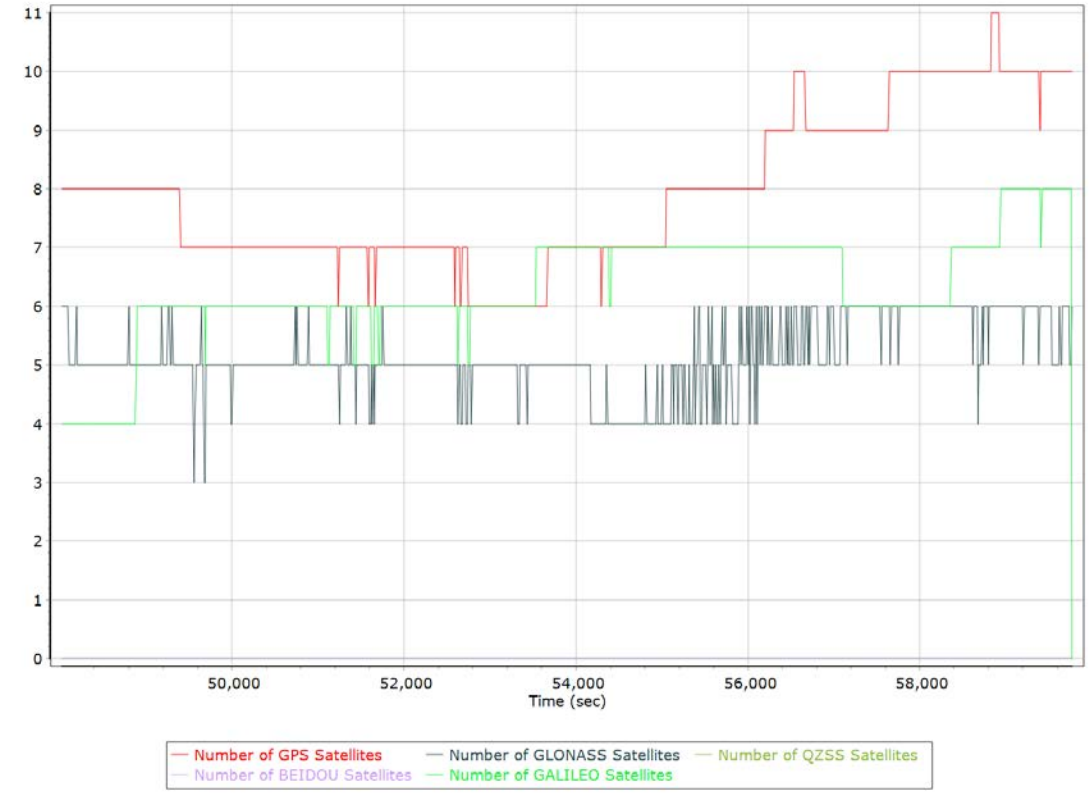


Forward Processed Solution Status

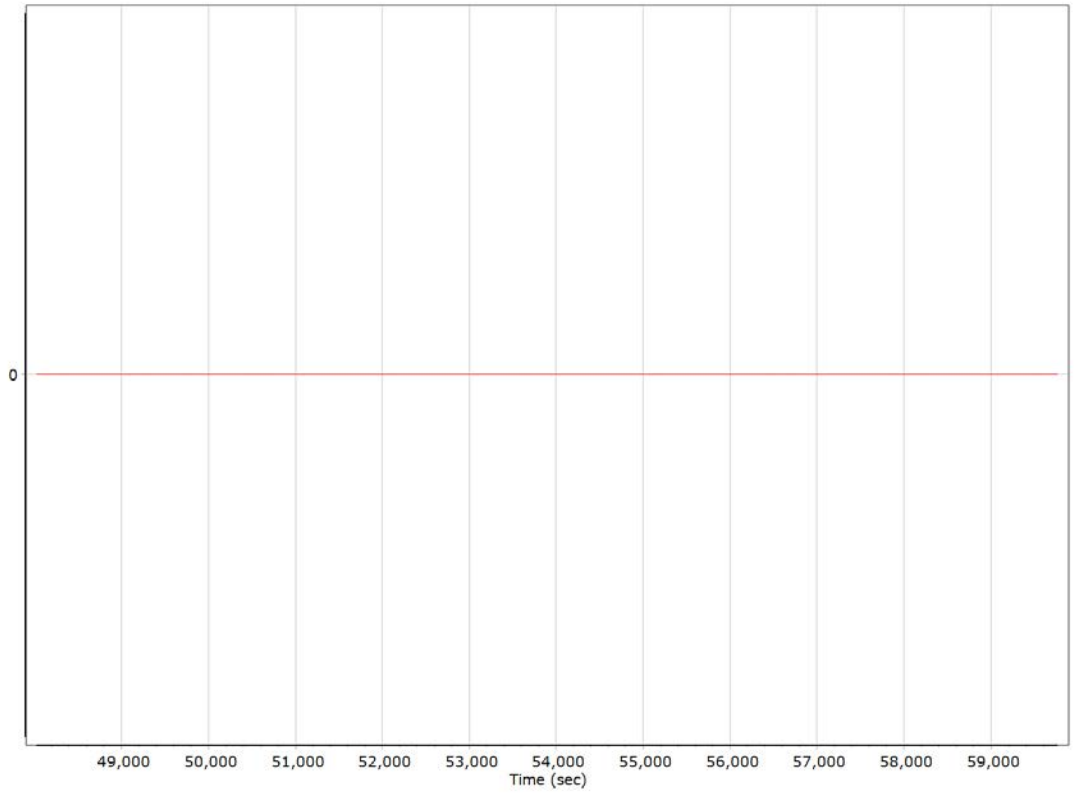
Processing Mode



Number of Satellites



Baseline Length



General Information

Mission Information

Project name	08192023A_3541
Processing date	2023-08-25 18:36:16
Mission date	2023-08-19 13:27:16
Mission duration	05:00:13.484
Processing mode	IN-Fusion PP-RTX

Rover Hardware Information

Product	POS AV 610 VER6 HW2.5-12
Serial number	S/N9642
IMU type	57
Receiver type	BD982
Antenna type	AV59

Project File List

Rover Data Files

File name	File type
ALS.157	POS Data
ALS.158	POS Data
ALS.159	POS Data
ALS.160	POS Data
ALS.161	POS Data
ALS.162	POS Data
ALS.163	POS Data
ALS.164	POS Data
ALS.165	POS Data
ALS.166	POS Data
ALS.167	POS Data
ALS.168	POS Data
ALS.169	POS Data
ALS.170	POS Data
ALS.171	POS Data
ALS.172	POS Data
ALS.173	POS Data
ALS.174	POS Data
ALS.175	POS Data
ALS.176	POS Data
ALS.177	POS Data
ALS.178	POS Data
ALS.179	POS Data
ALS.180	POS Data
ALS.181	POS Data
ALS.182	POS Data
ALS.183	POS Data
ALS.184	POS Data
ALS.185	POS Data
ALS.186	POS Data
ALS.187	POS Data

Input Files

File Name	File Type
Ephm2310.23g	GLONASS Broadcast Ephemeris
Ephm2310.23n	GPS Broadcast Ephemeris

Output Files

Filename	File type
sbet_08192023A_3541.out	SBET Trajectory File

Rover Data Summary

First raw data file	ALS.157		
Last raw data file	ALS.187		
Start GPS week	2275		
Start time	566817.511 (8/19/2023 1:26:57 PM)		
End time	584830.995 (8/19/2023 6:27:10 PM)		
Start of fine alignment	566841.425 (8/19/2023 1:27:21 PM)		
Available subsystems	Primary GNSS, Gimbal, IMU		
POS Event Input	None		
Correction data	None		
IMU Installation Lever Arms & Mounting Angles			
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	-0.137	0.043	-1.289
Gimbal to Primary GNSS lever arm std dev (m)	-1.000		
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

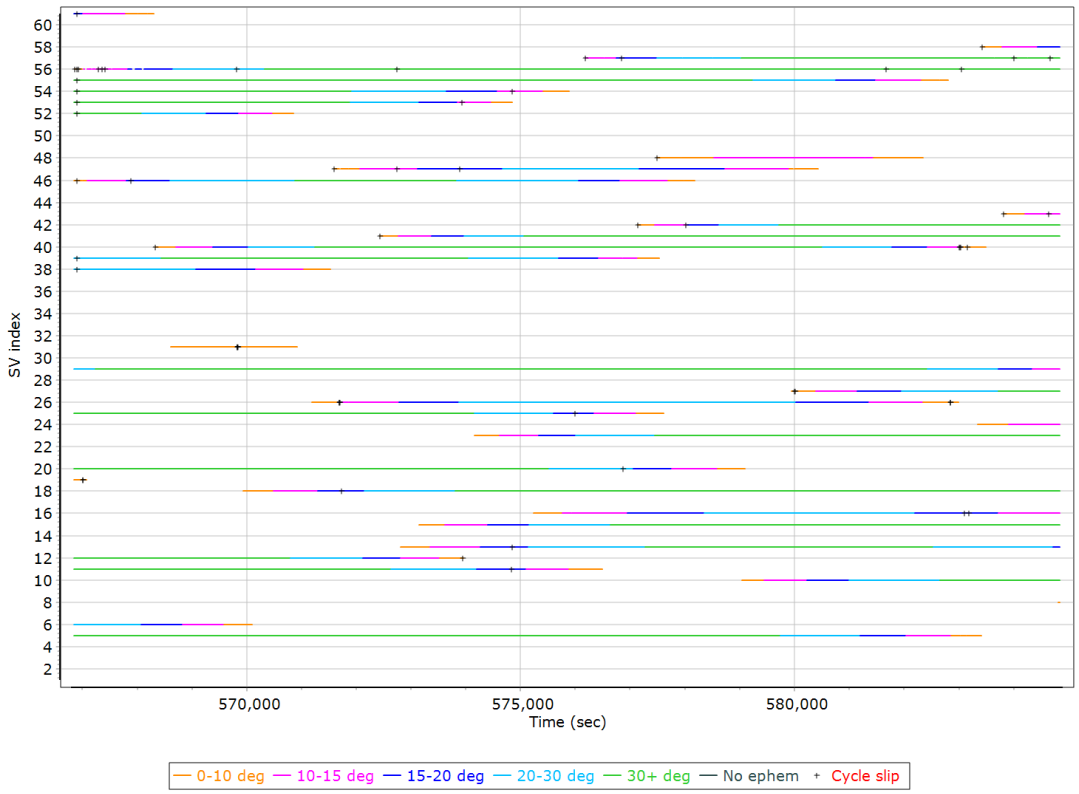
Rover Data QC

Raw IMU Import QC Summary

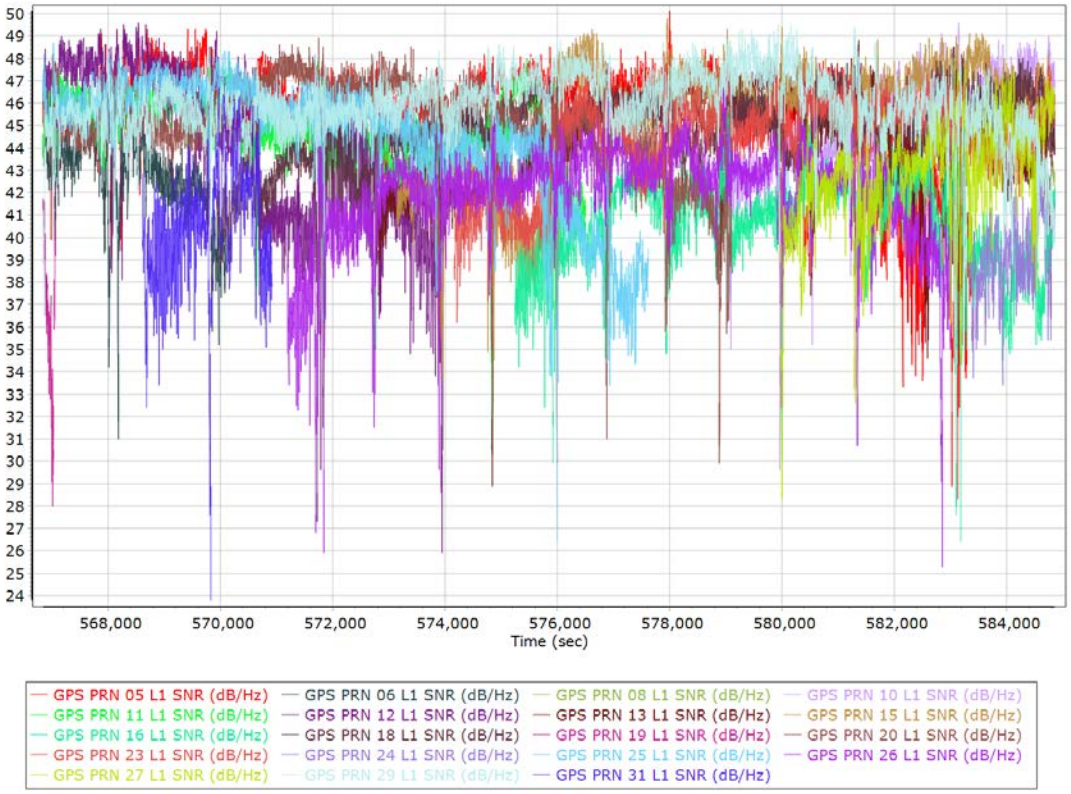
IMU data input file	imu_Mission 1.dat
IMU data check log file	imudt_08192023A_3541.log
IMU Records Processed	3603564
Termination Status	Normal
IMU Anomalies	0

Primary Observables & Satellite Data

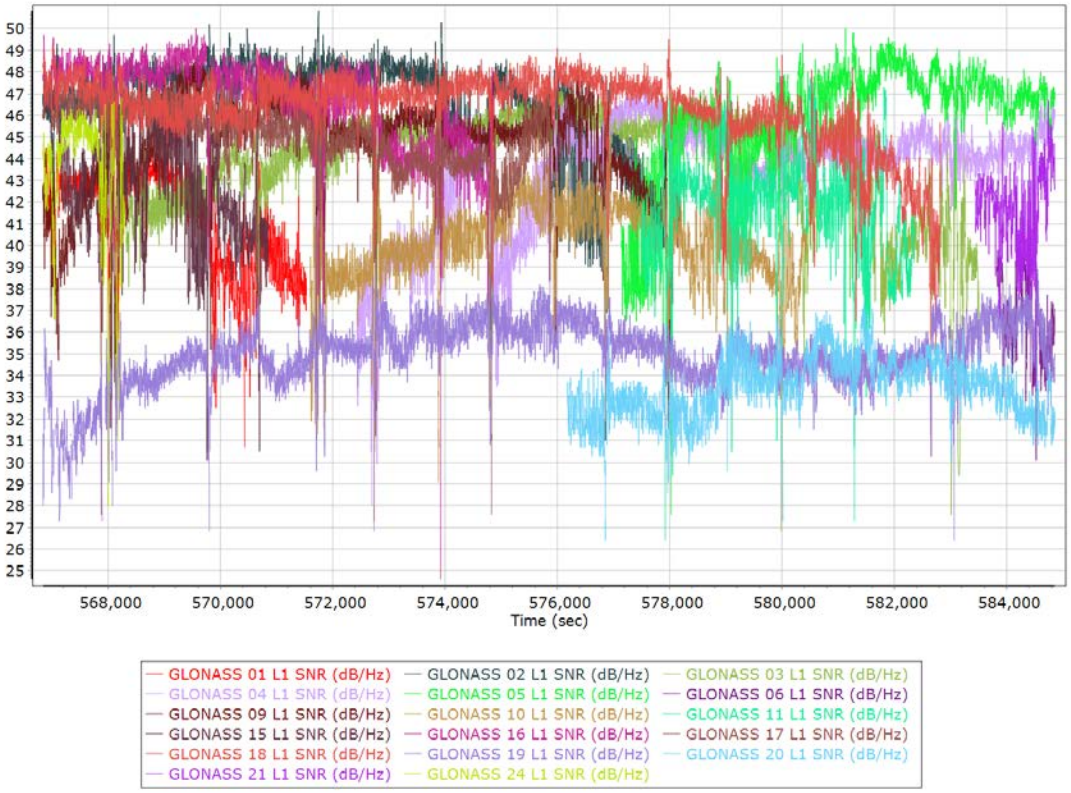
GPS/GLONASS L1 Satellite Lock/Elevation



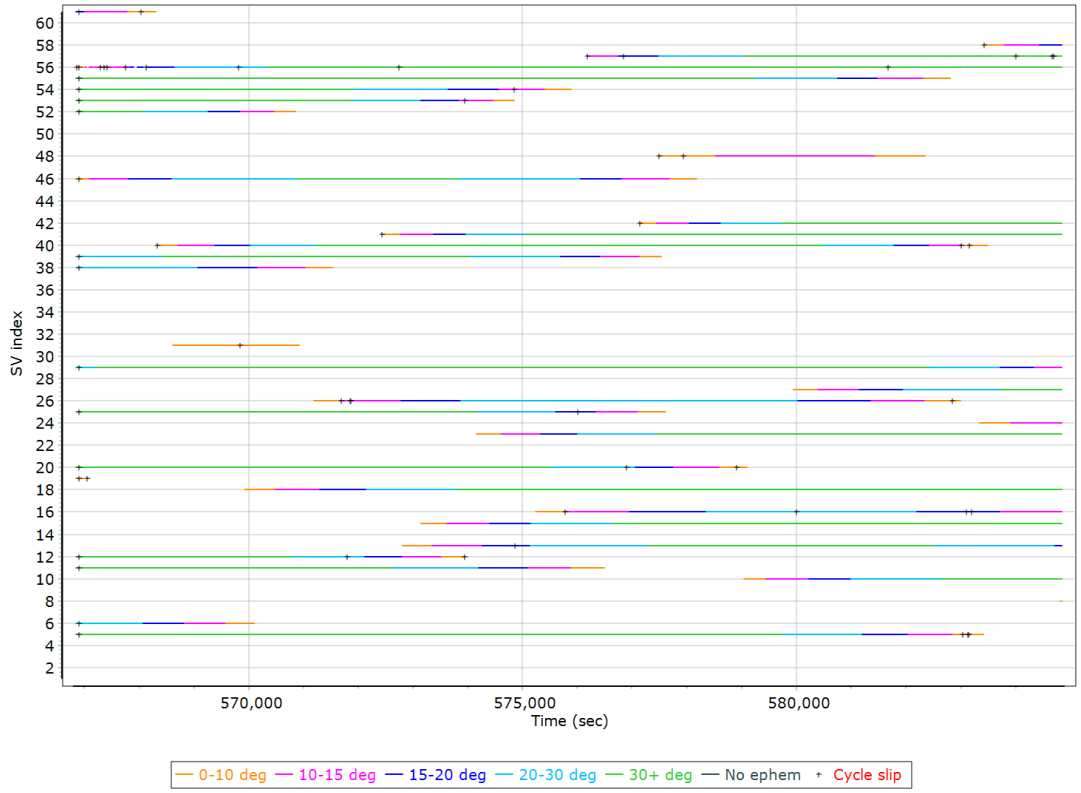
GPS L1 SNR



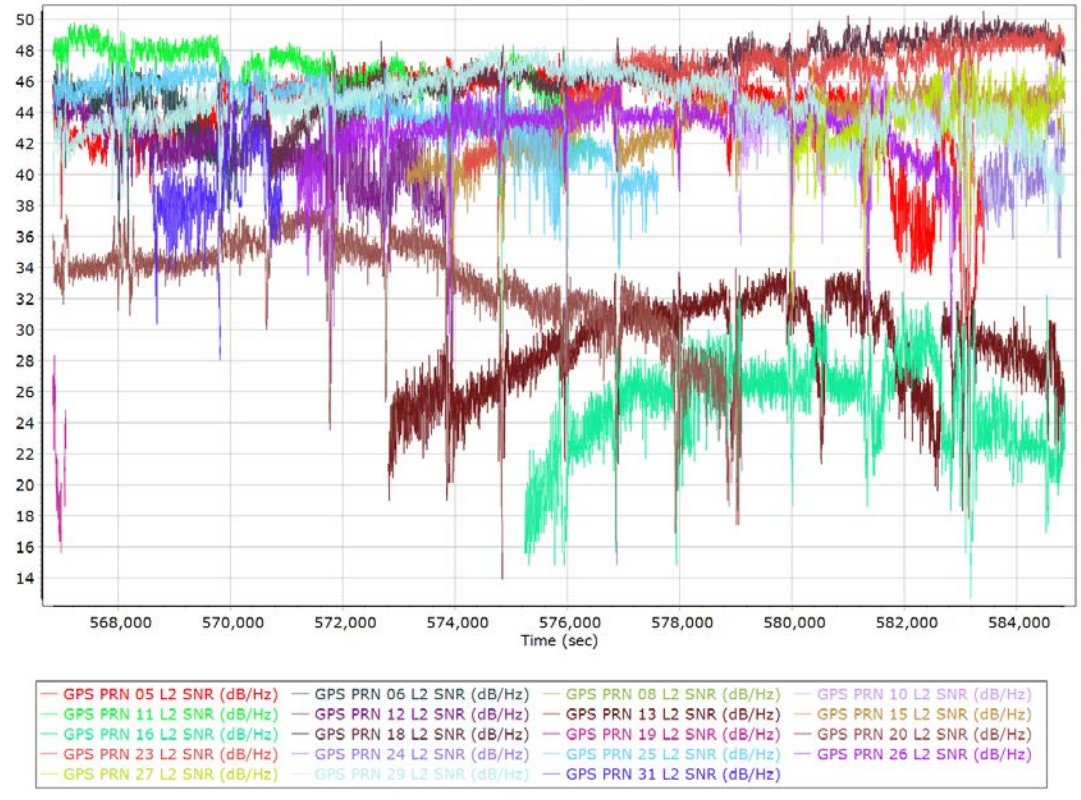
GLONASS L1 SNR



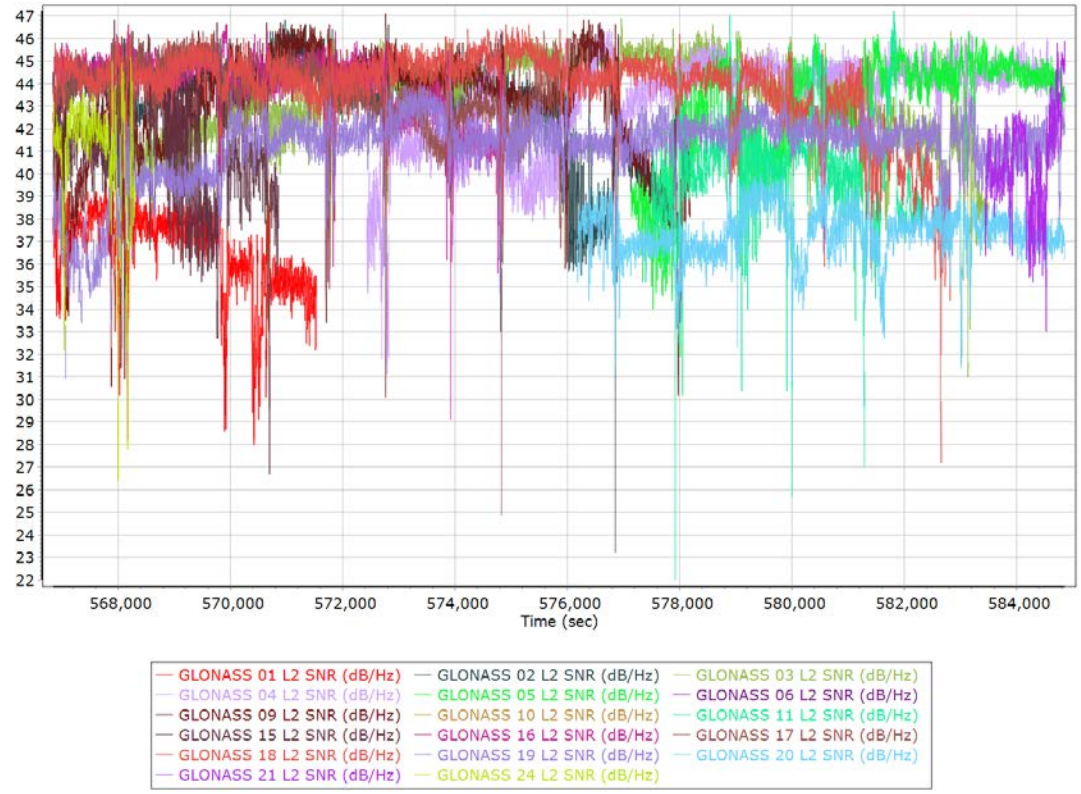
GPS/GLONASS L2 Satellite Lock/Elevation



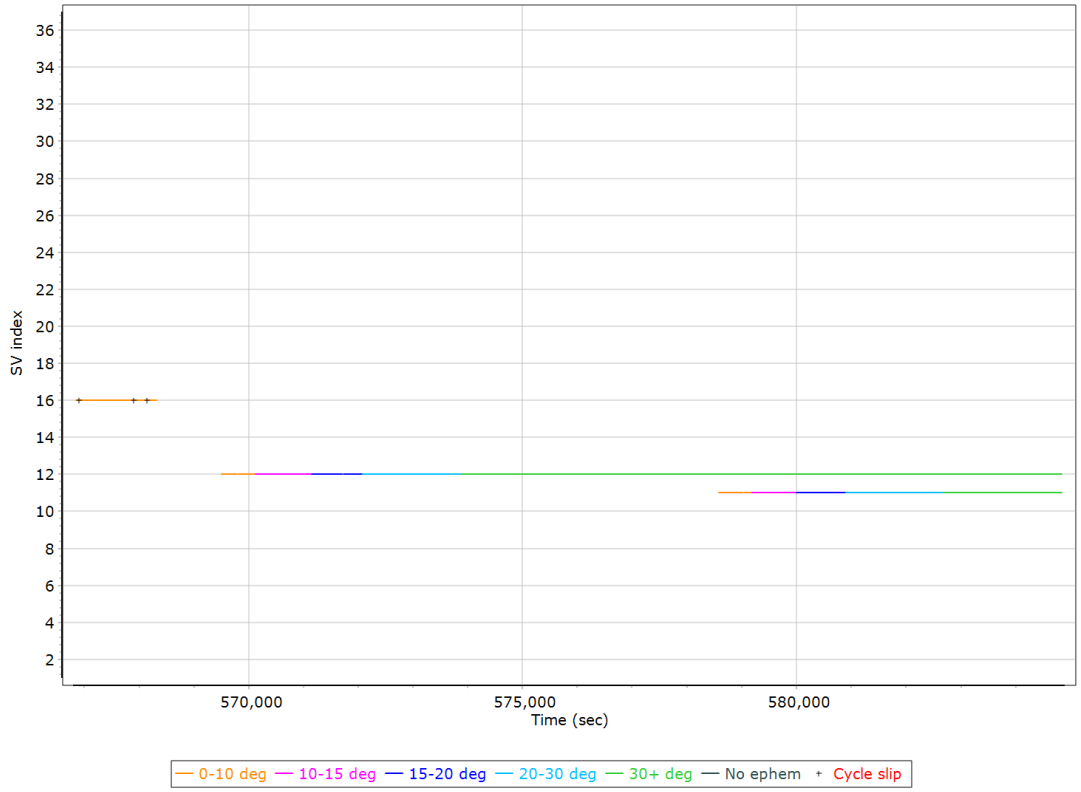
GPS L2 SNR



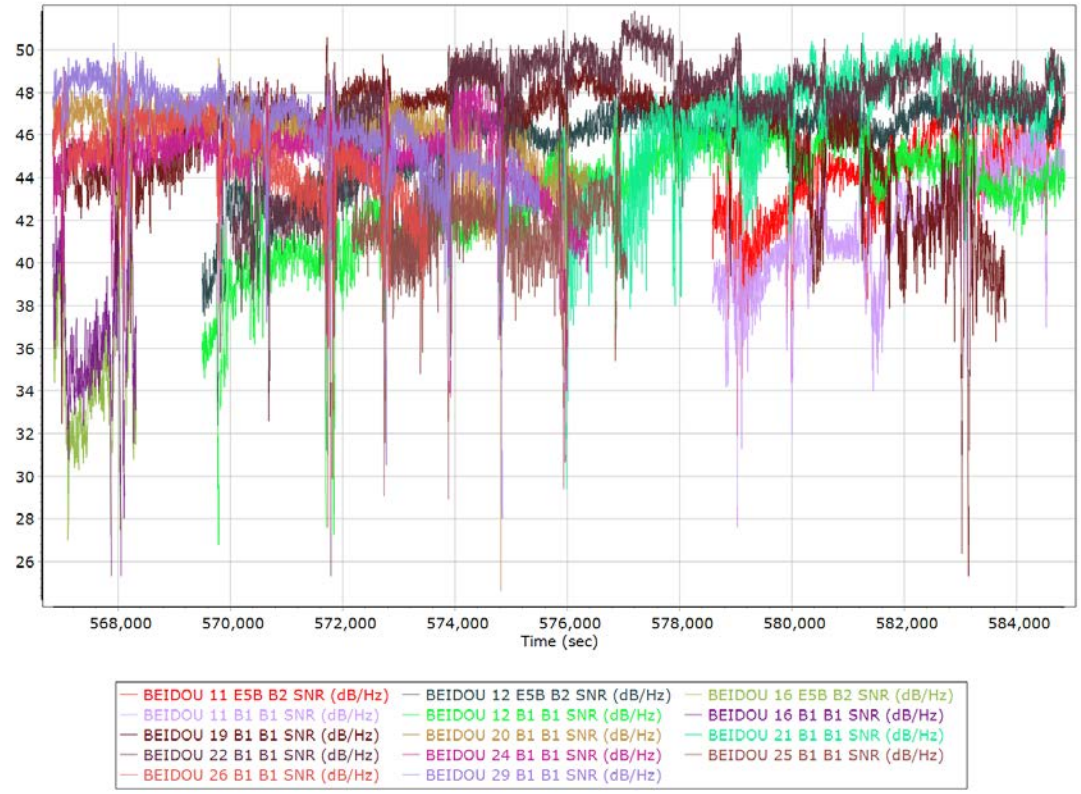
GLONASS L2 SNR



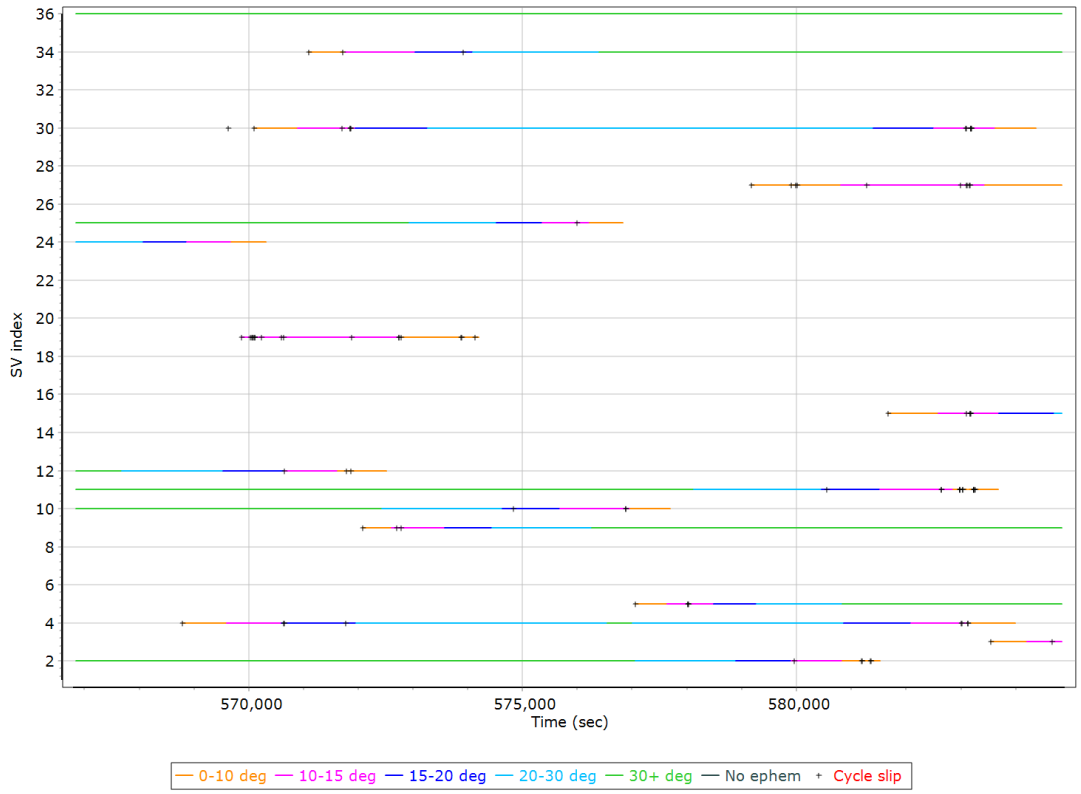
BEIDOU Satellite Lock/Elevation



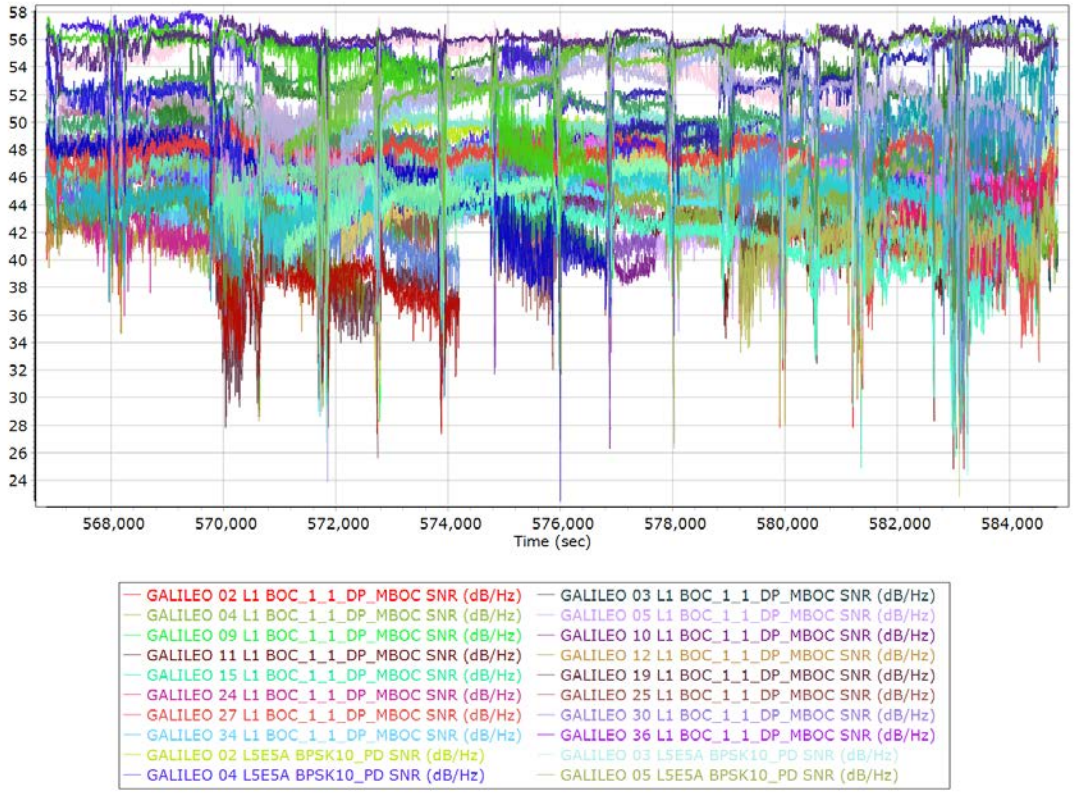
BEIDOU SNR



GALILEO Satellite Lock/Elevation

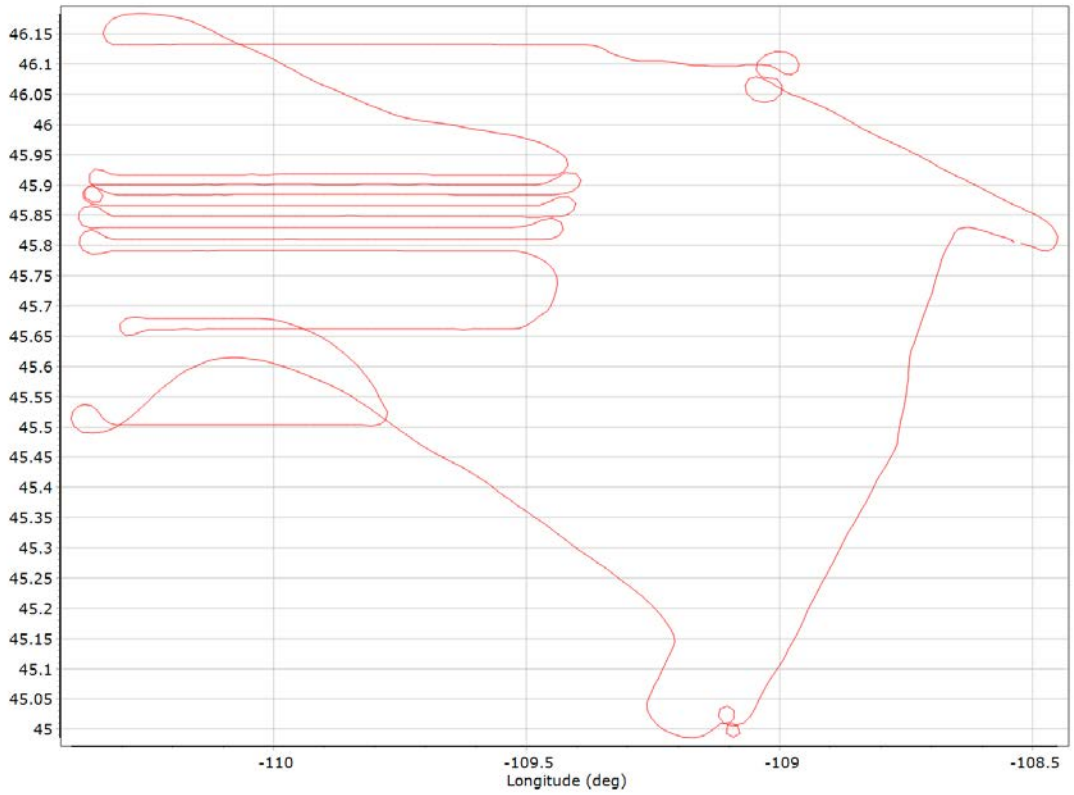


GALILEO SNR

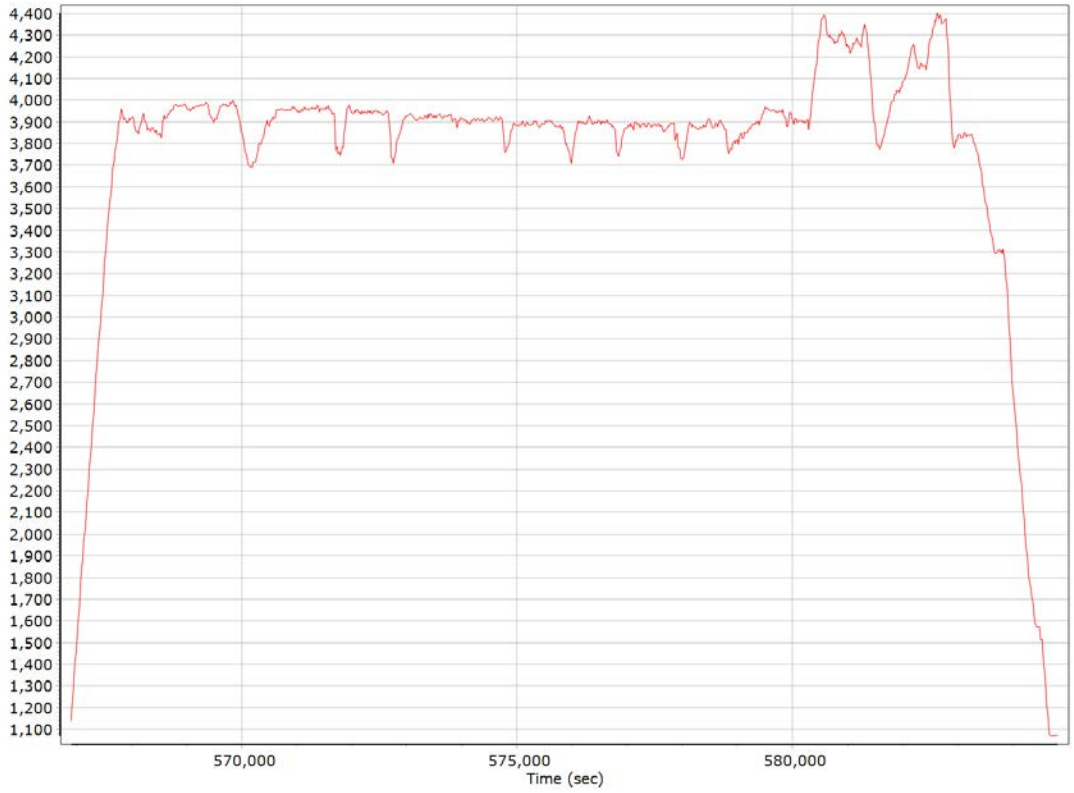

58
56
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36
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32
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28
26
24
568,000
570,000
572,000
574,000
576,000
578,000
580,000
582,000
584,000
Time (sec)
GALILEO 02 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
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 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 15 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 19 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 27 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 30 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 34 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_DP_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 03 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 04 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 05 L5E5A BPSK10_PD SNR (dB/Hz)

Smoothed Trajectory Information

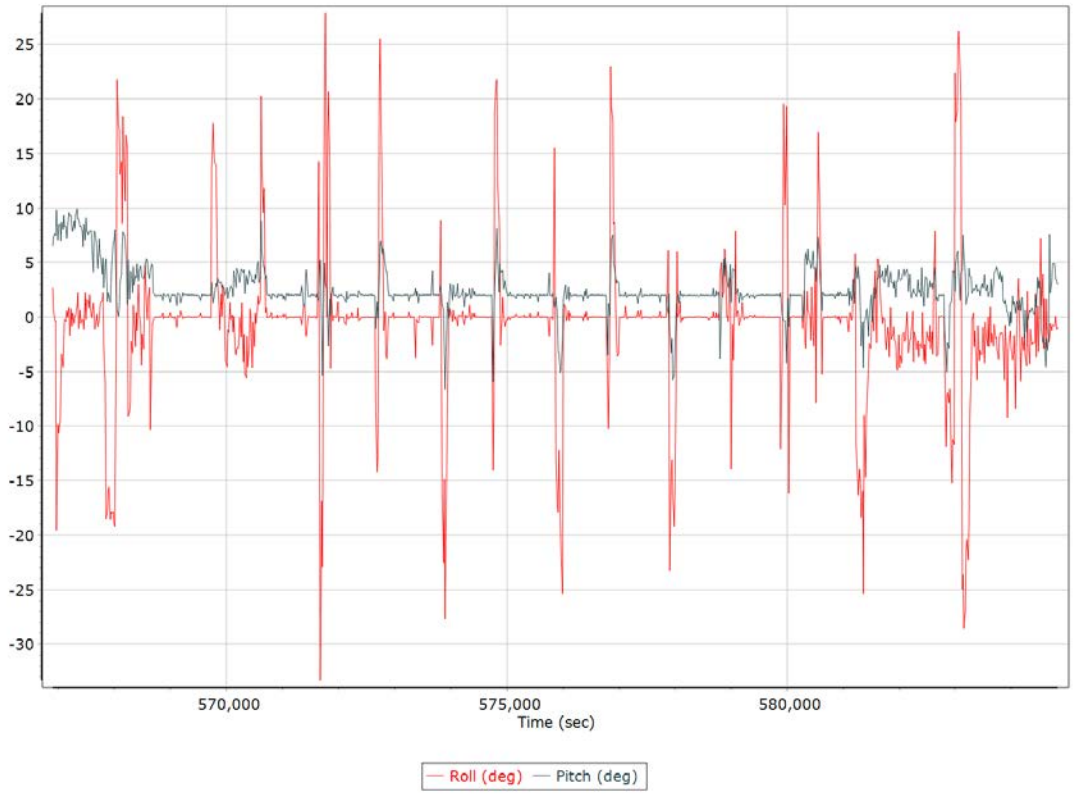
Top View



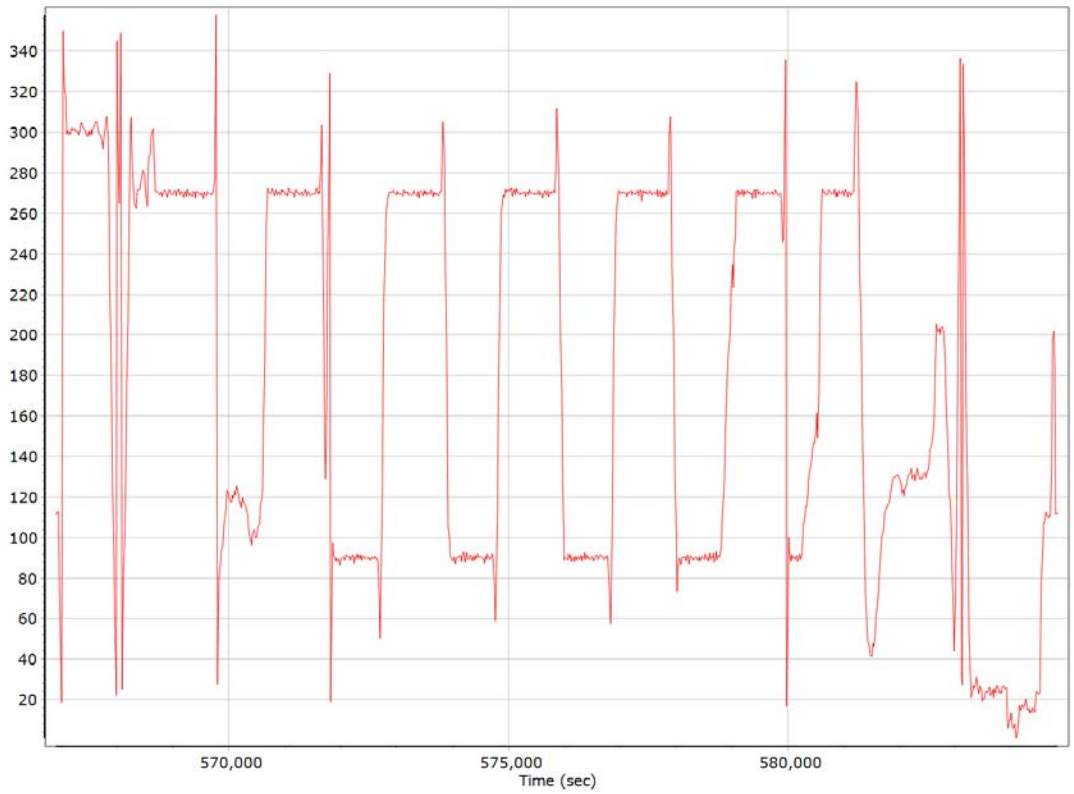
Altitude



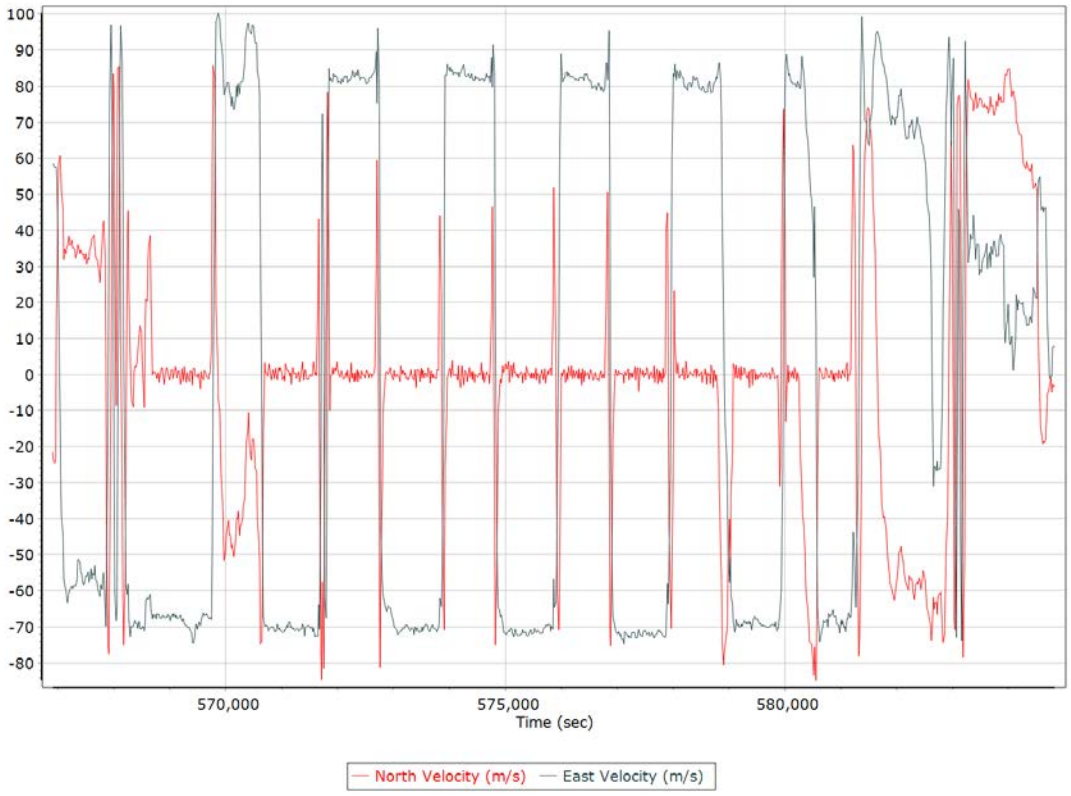
Roll/Pitch



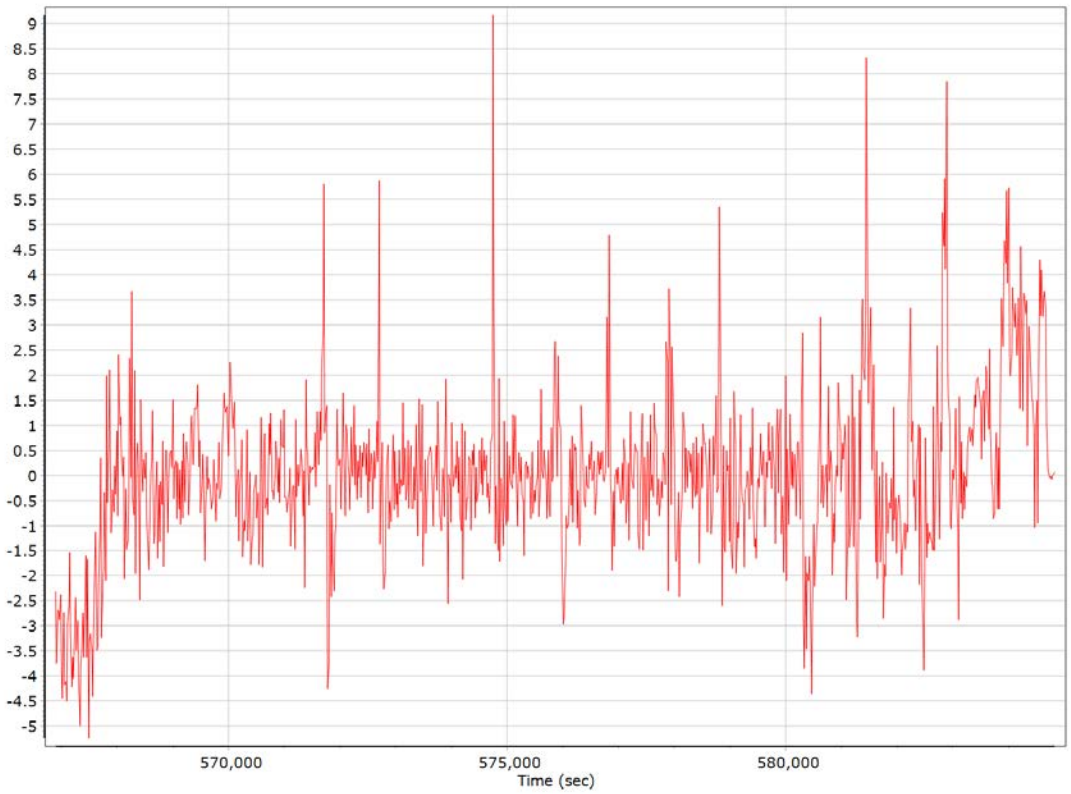
Heading



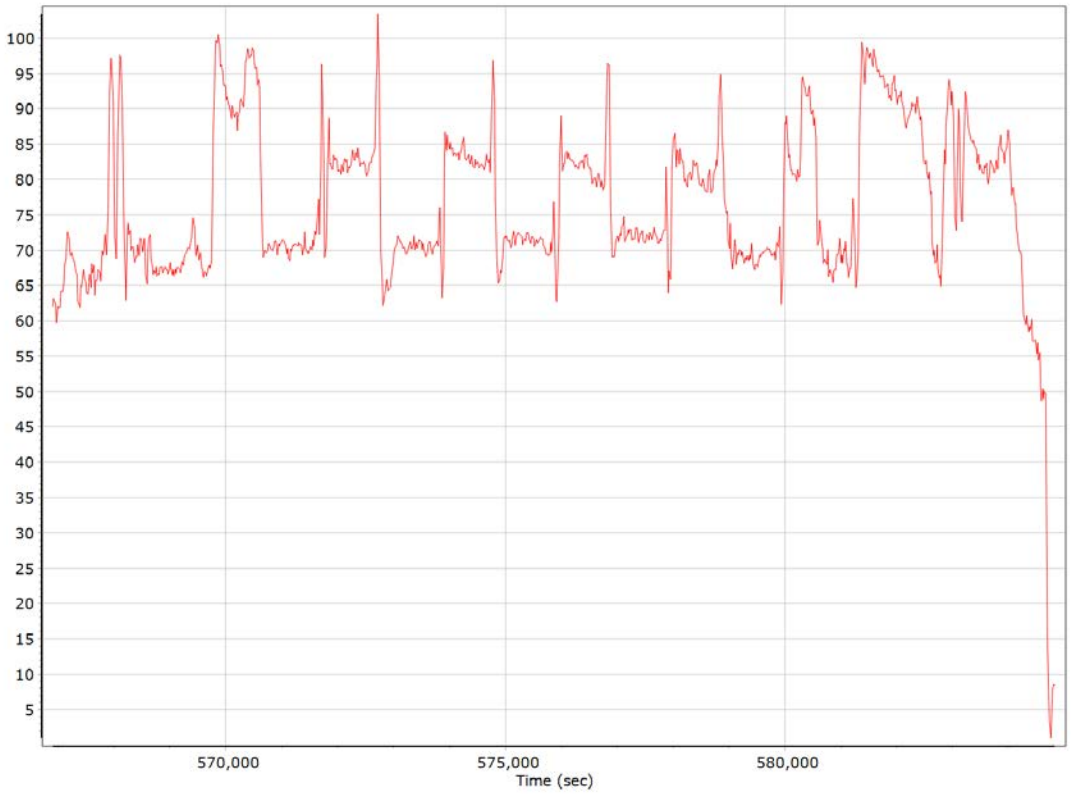
North/East Velocity



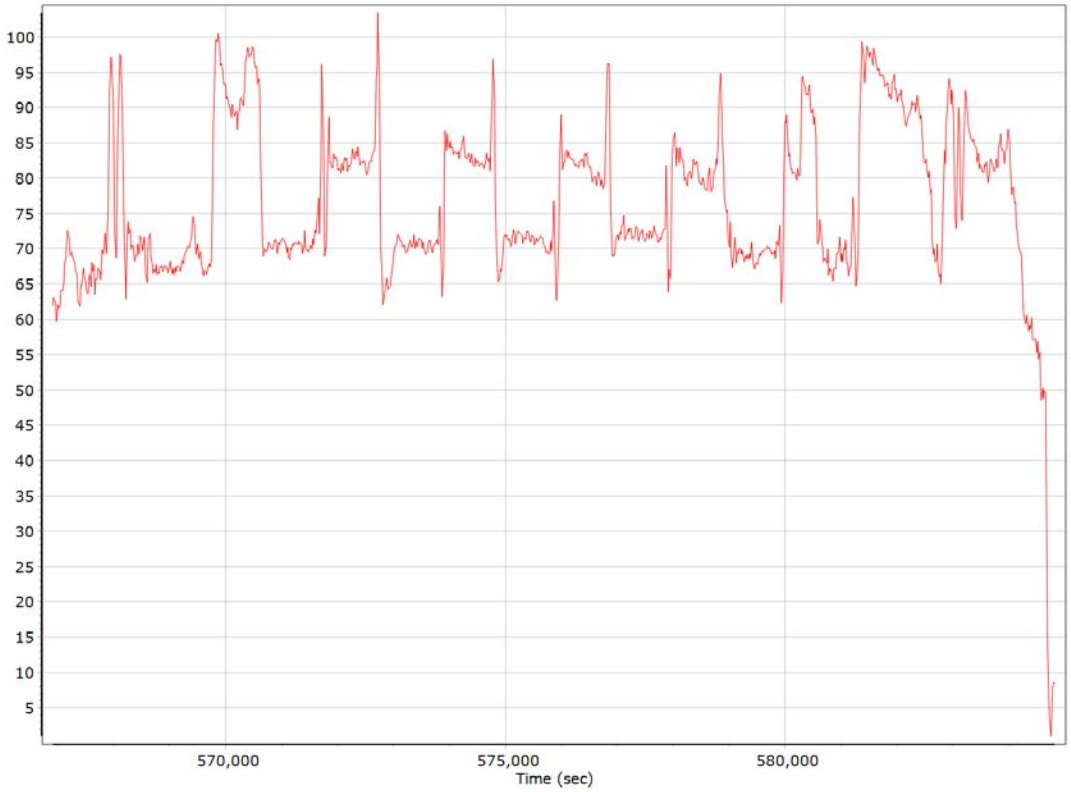
Down Velocity



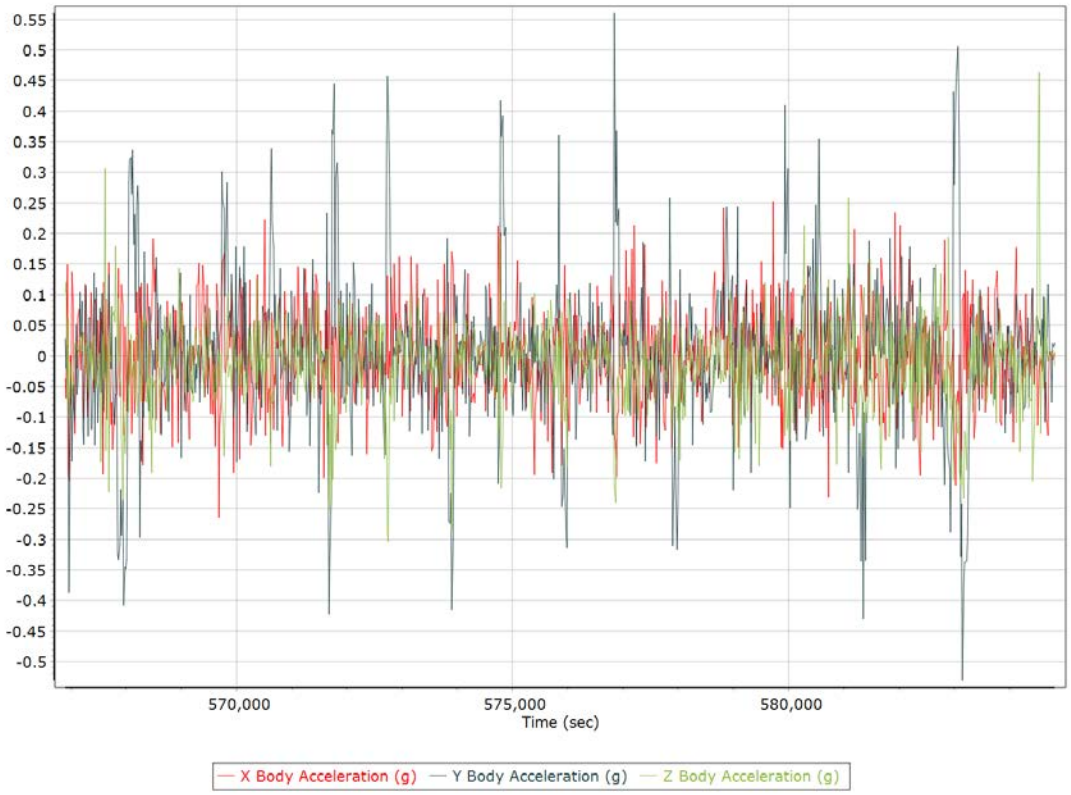
Total Speed



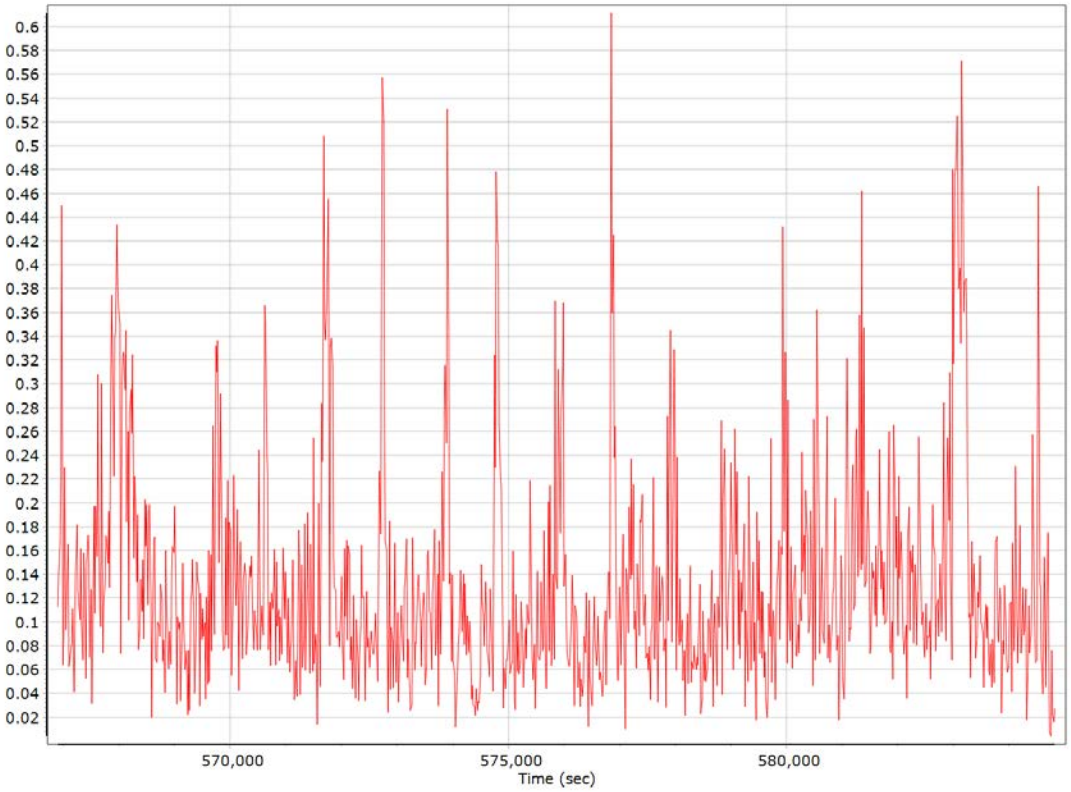
Ground Speed



Body Acceleration



Total Body Acceleration

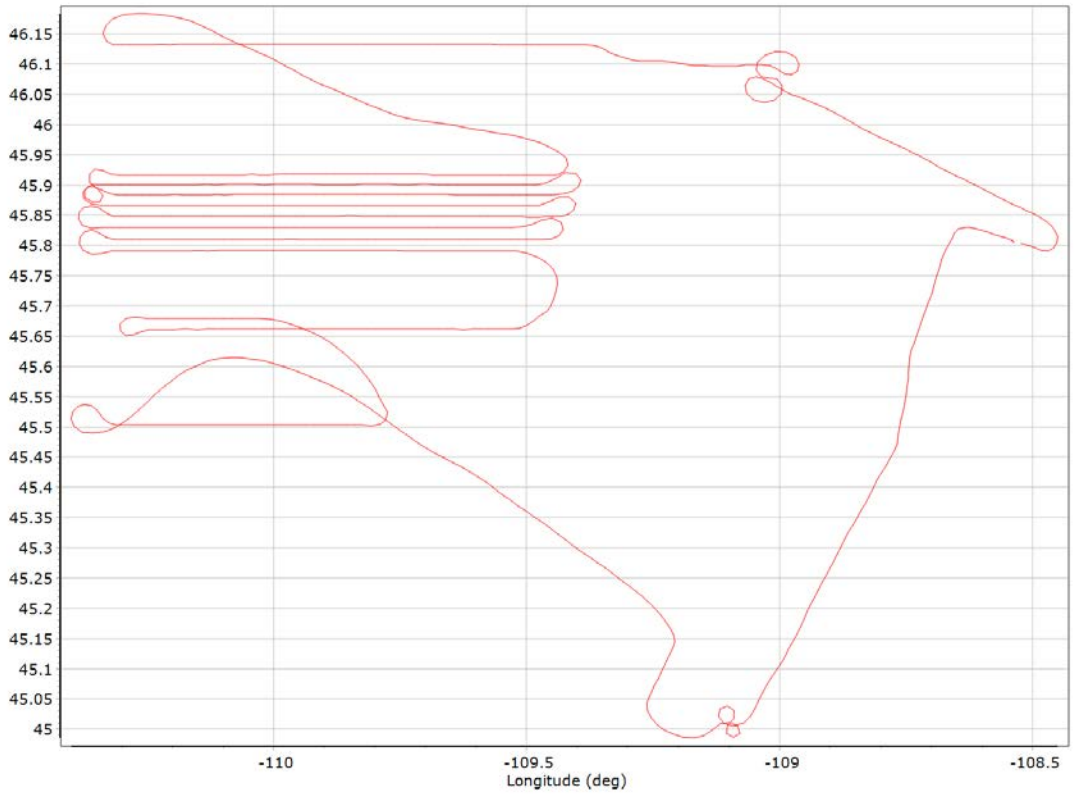


Body Angular Rate

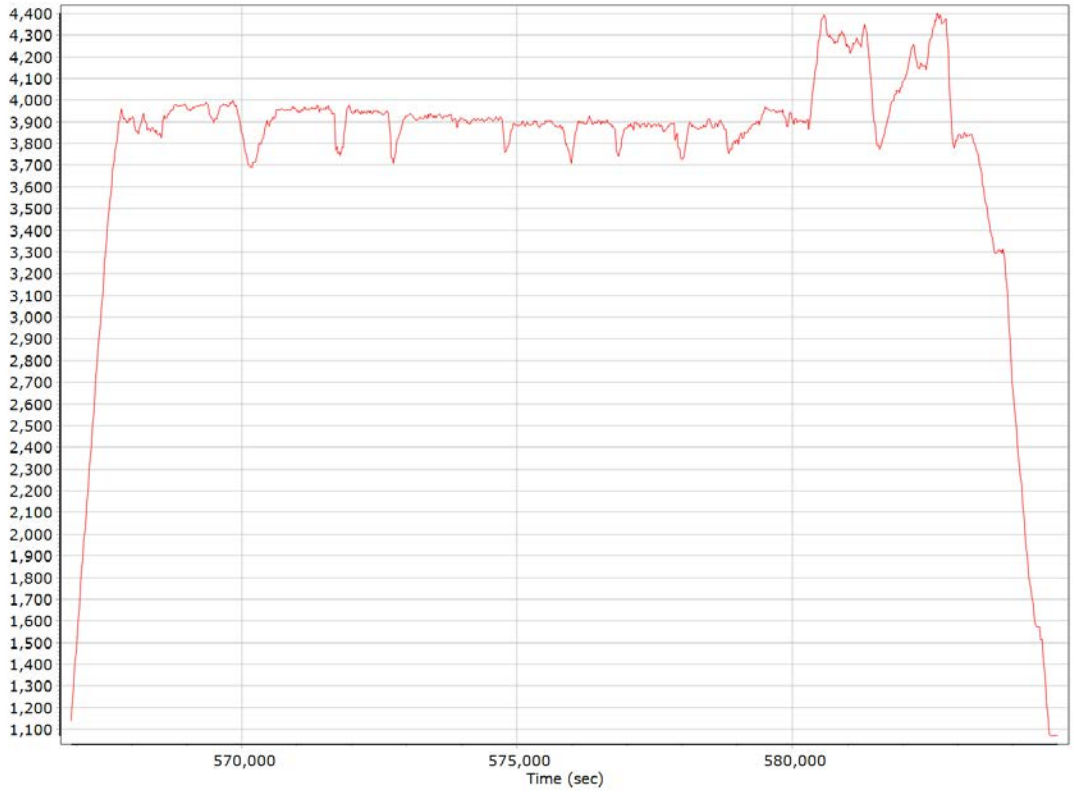


Forward Processed Trajectory Information

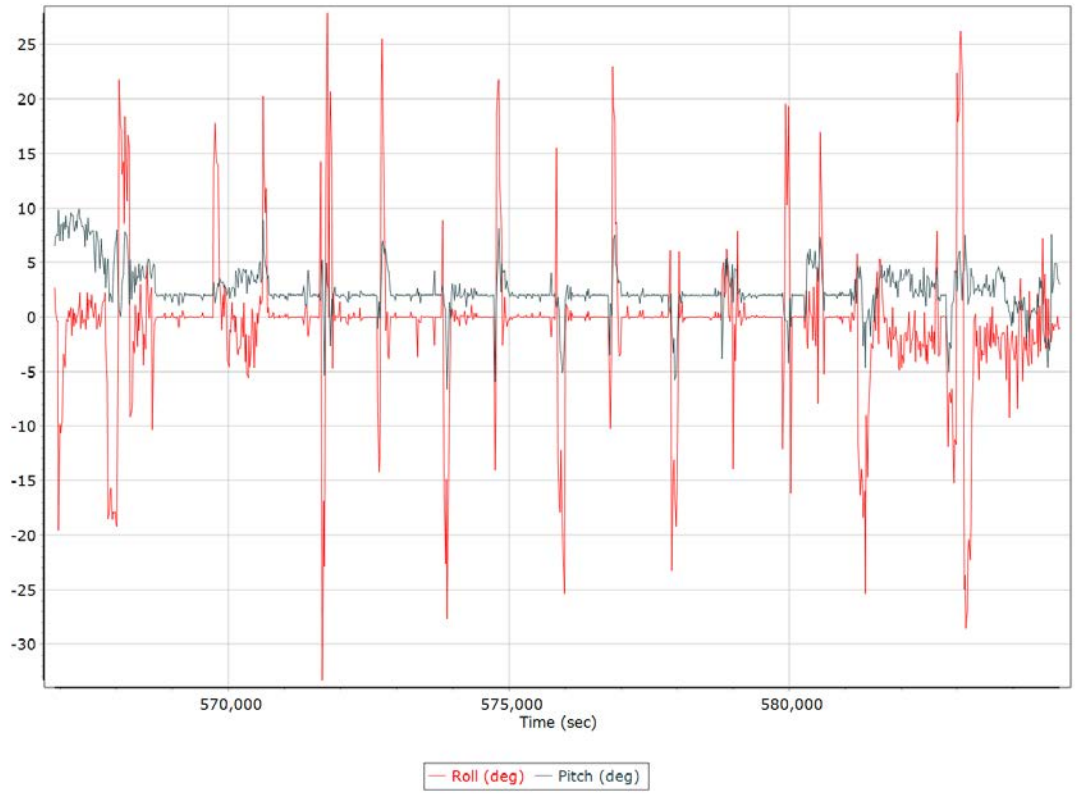
Top View



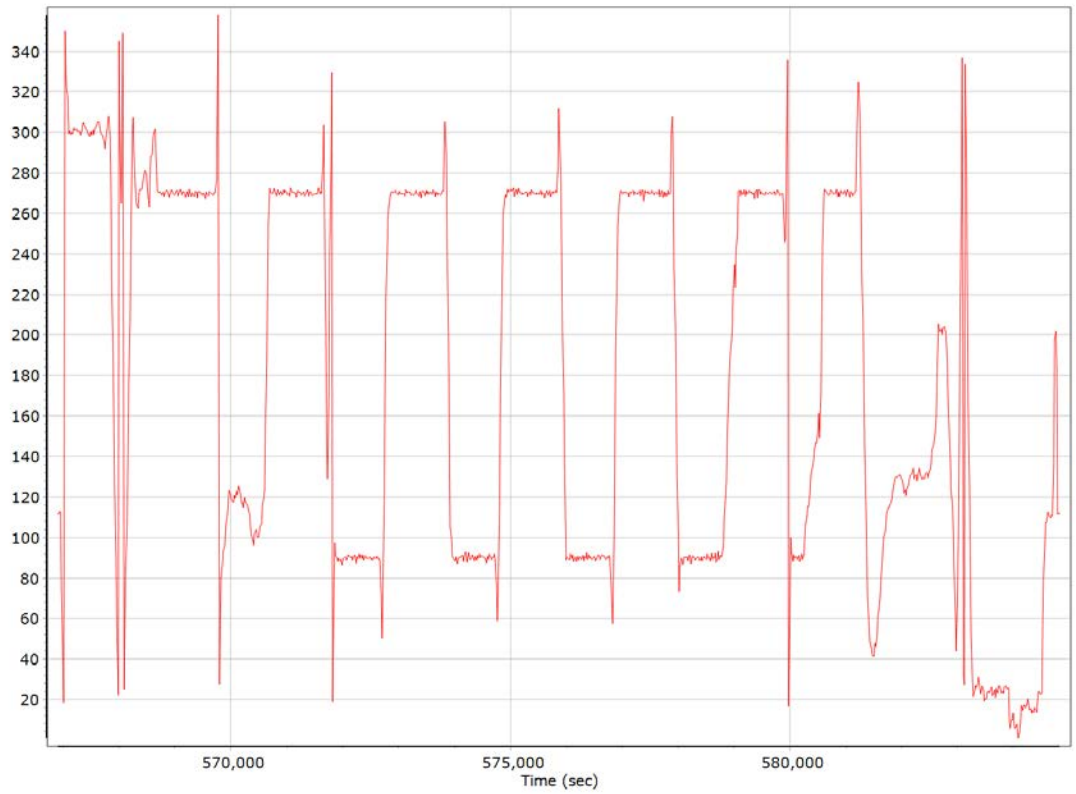
Altitude



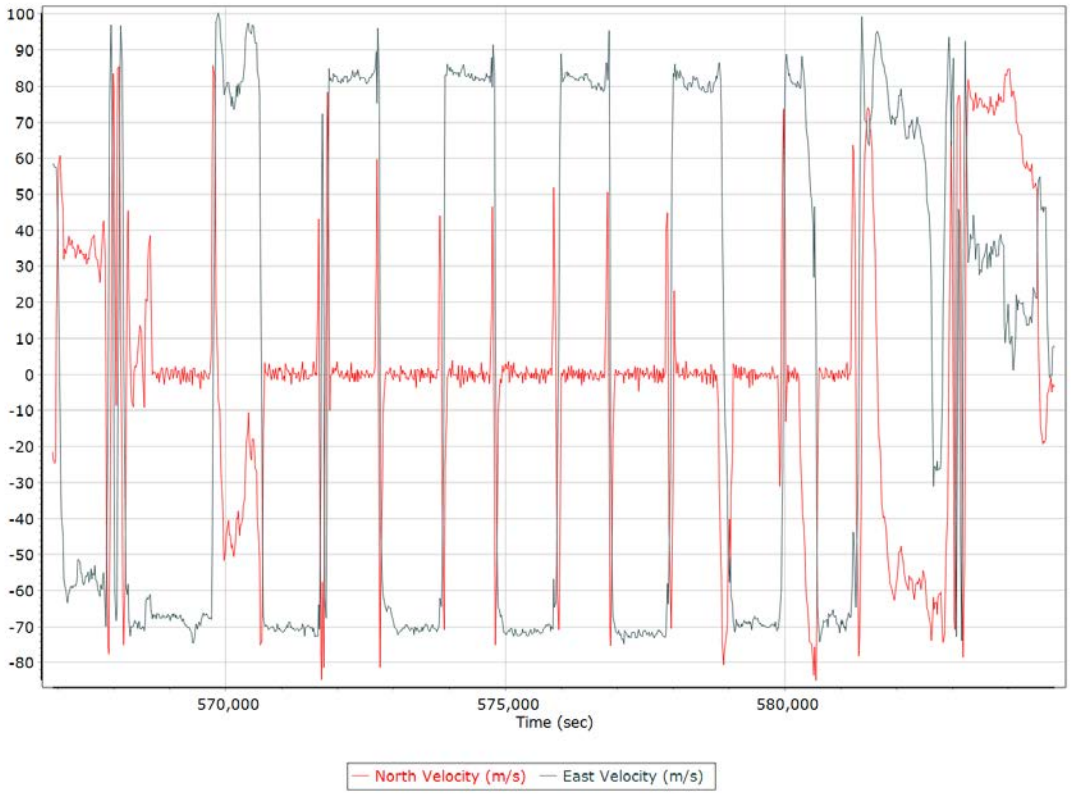
Roll/Pitch



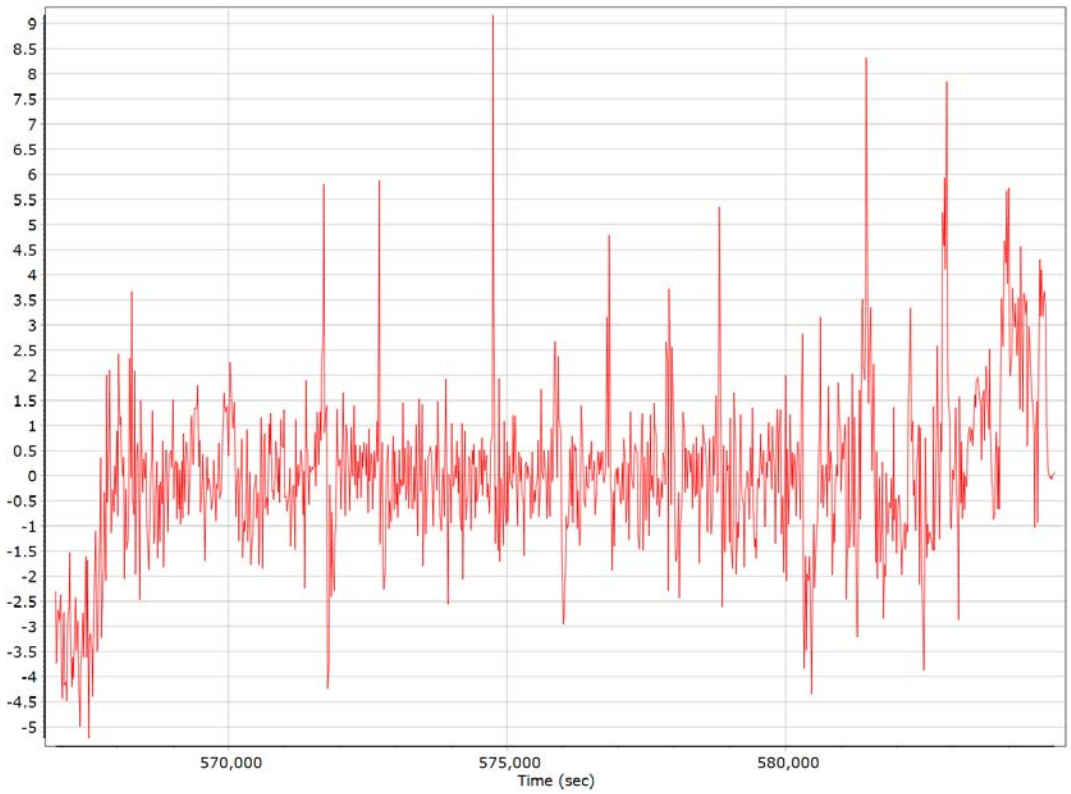
Heading



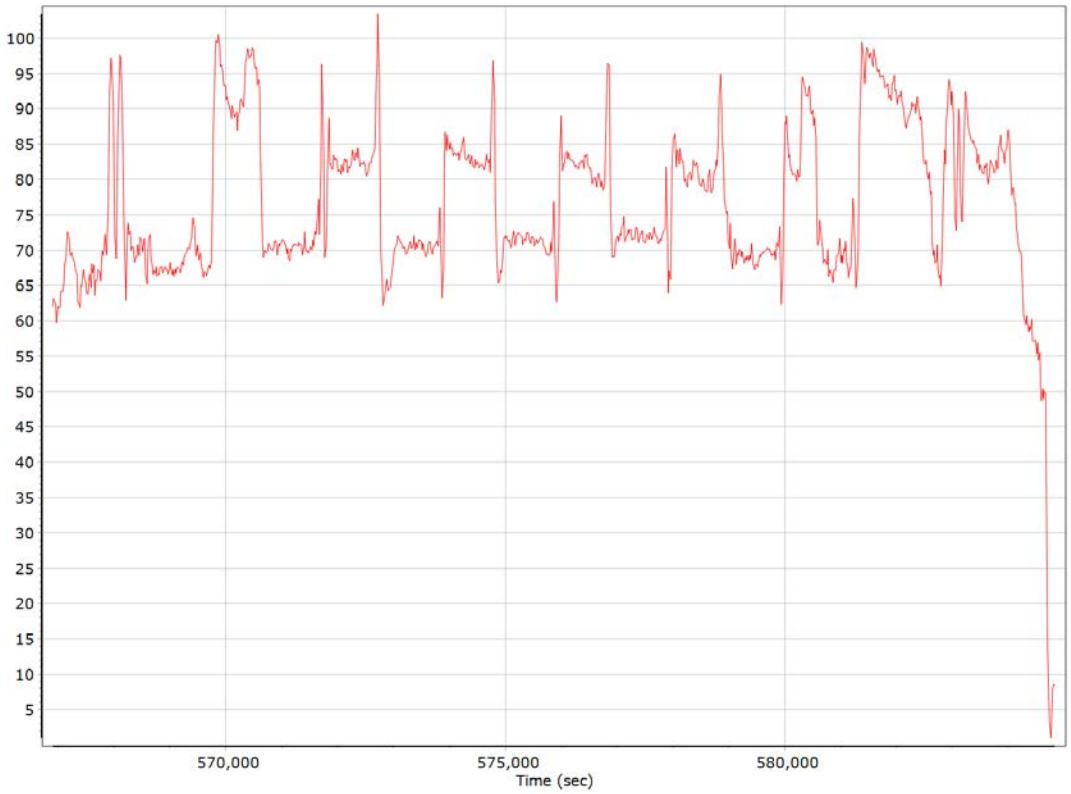
North/East Velocity



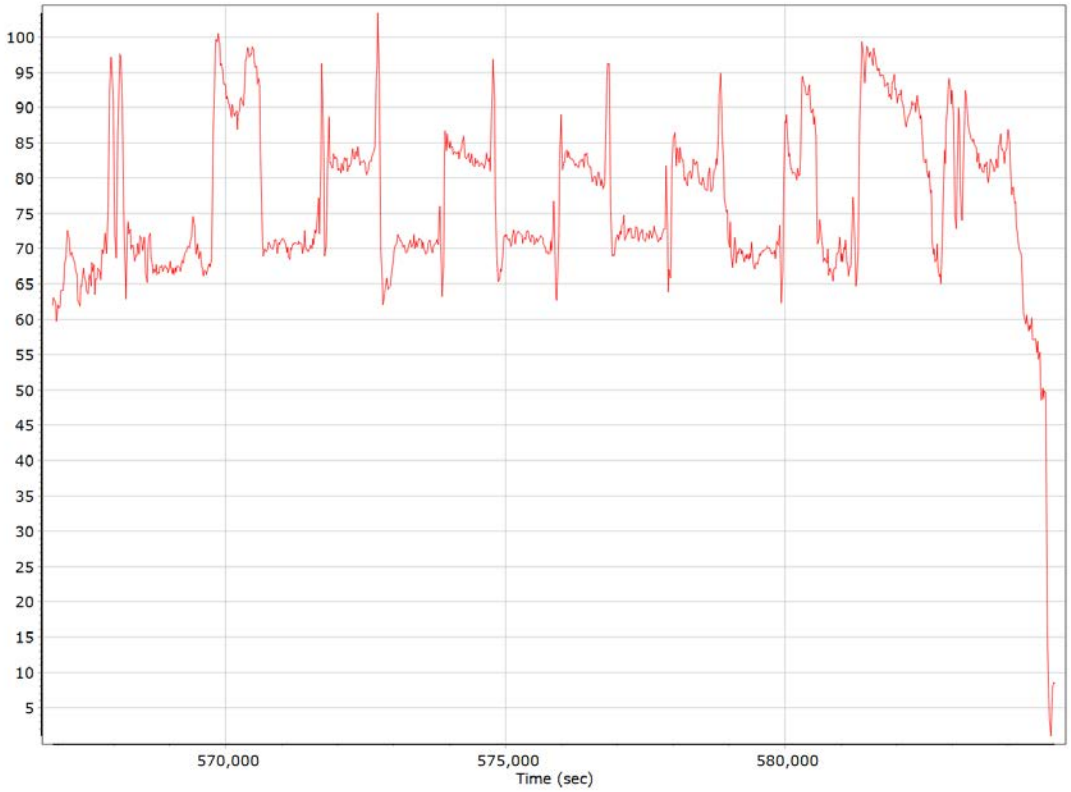
Down Velocity



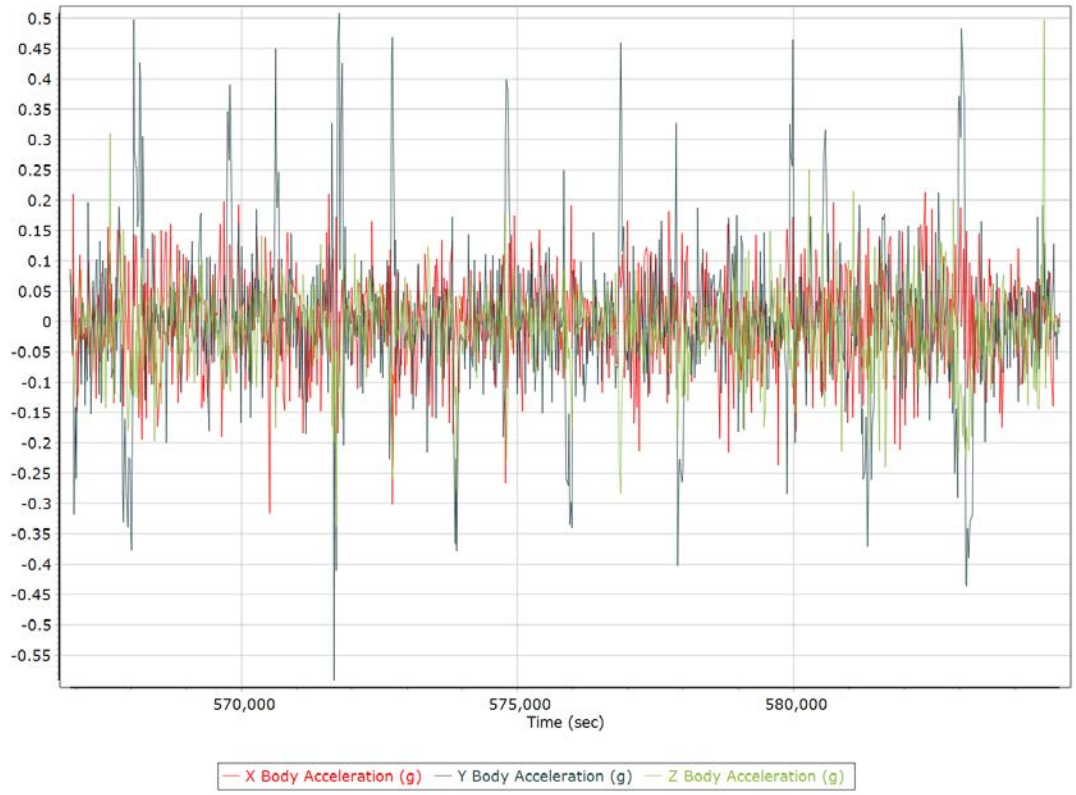
Total Speed



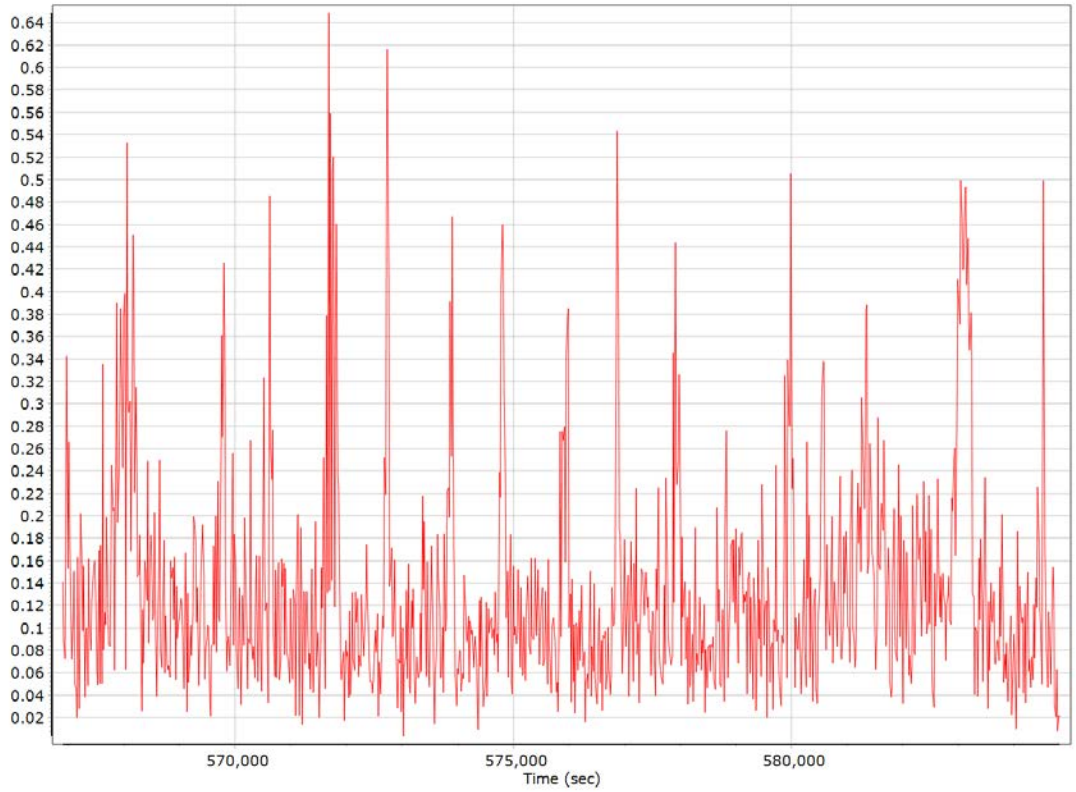
Ground Speed



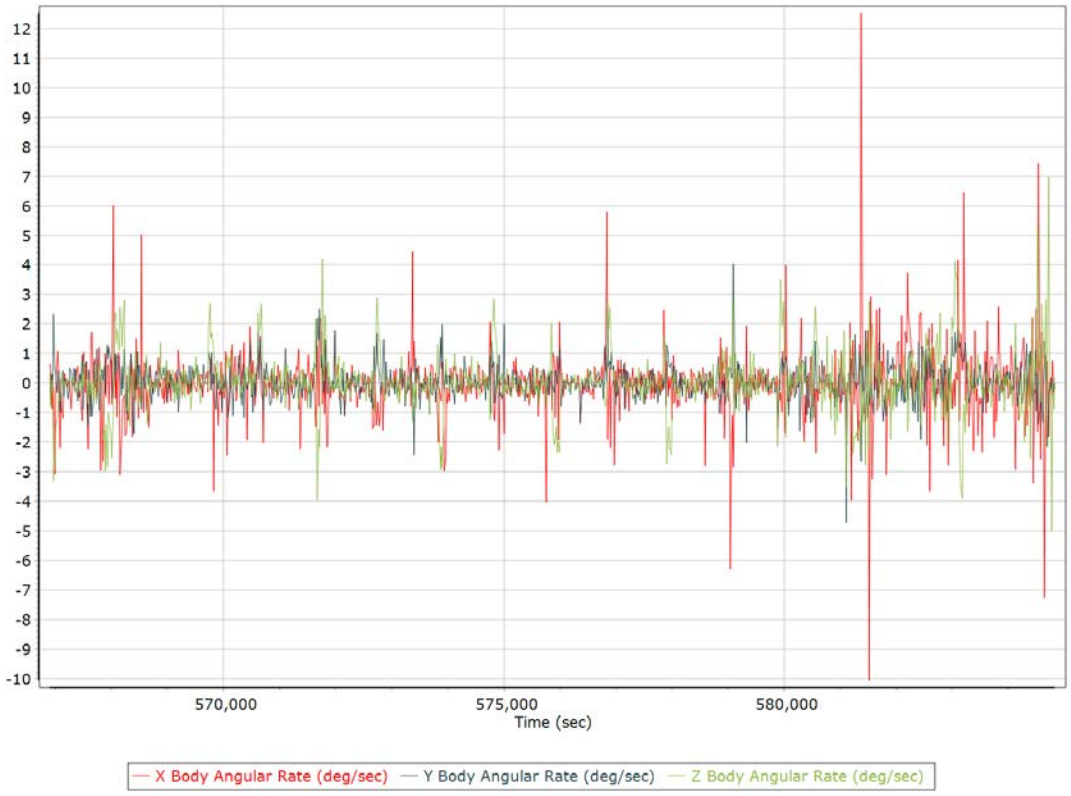
Body Acceleration



Total Body Acceleration



Body Angular Rate

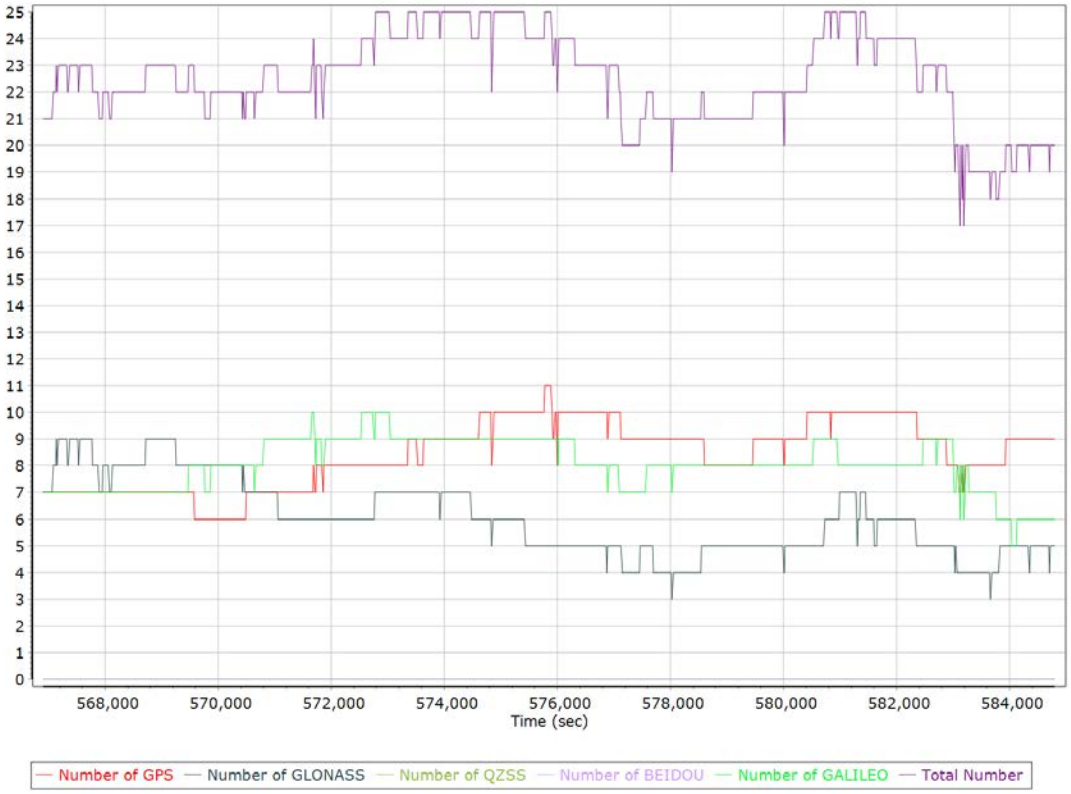


GNSS QC

GNSS QC Statistics

Statistics	Min	Max	Mean
Baseline length (km)	0.00	0.00	
Number of GPS SV	6	11	8
Number of GLONASS SV	0	9	6
Number of QZSS SV	0	0	0
Number of BEIDOU SV	0	0	0
Number of GALILEO SV	5	10	8
Total number of SV	14	25	23
PDOP	0.92	1.59	1.13
QC Solution Gaps	0.00	0.00	
Solution Type	Fixed	Float	No solution
Epoch (sec)	17971.00	0.00	0.00
Percentage	100.00	0.00	0.00

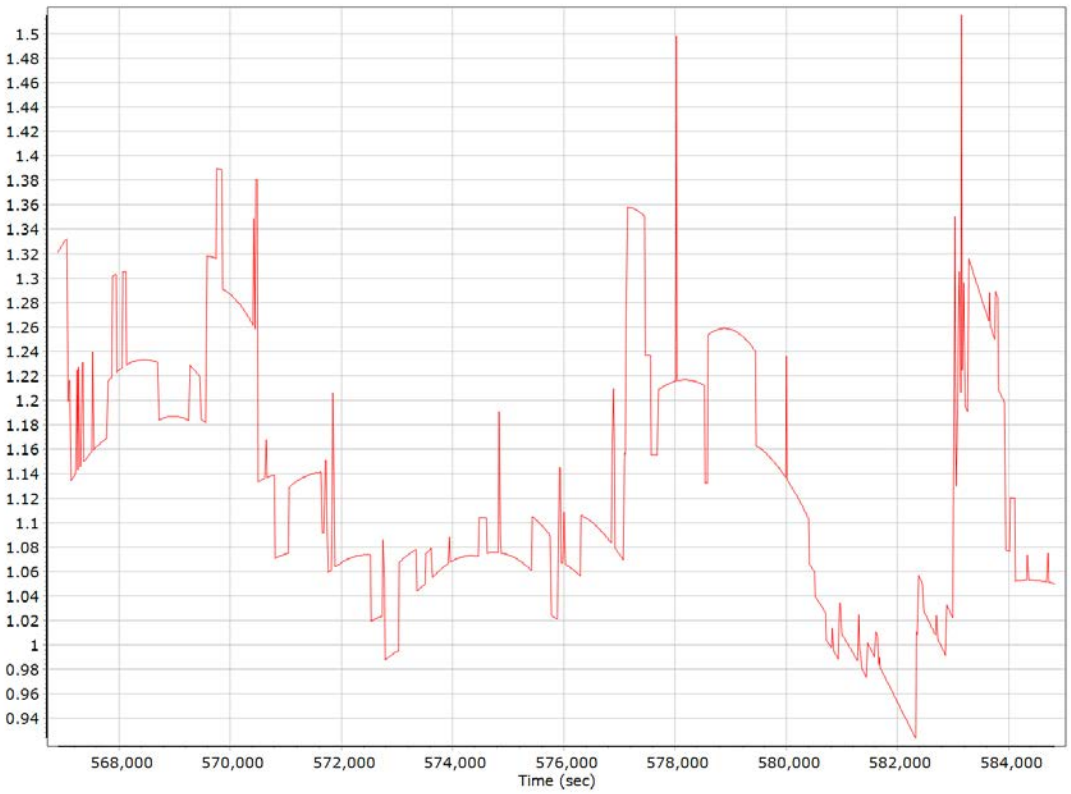
Num SVs in solution



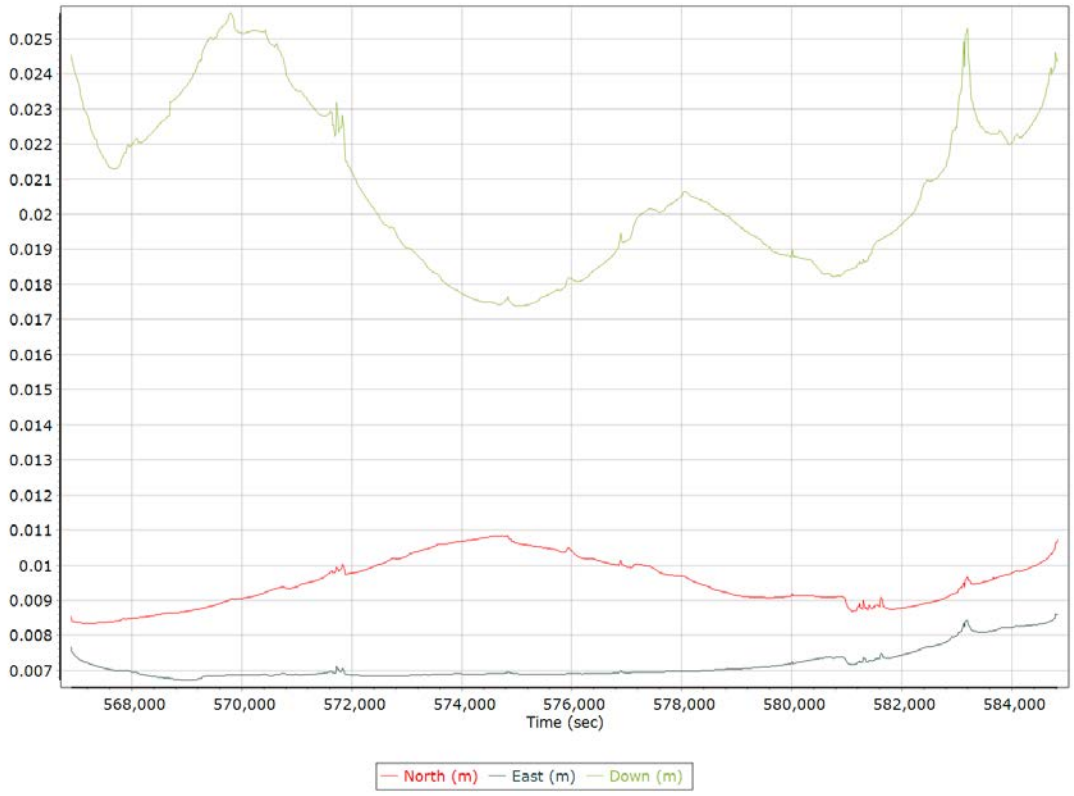
Forward/Reverse Separation



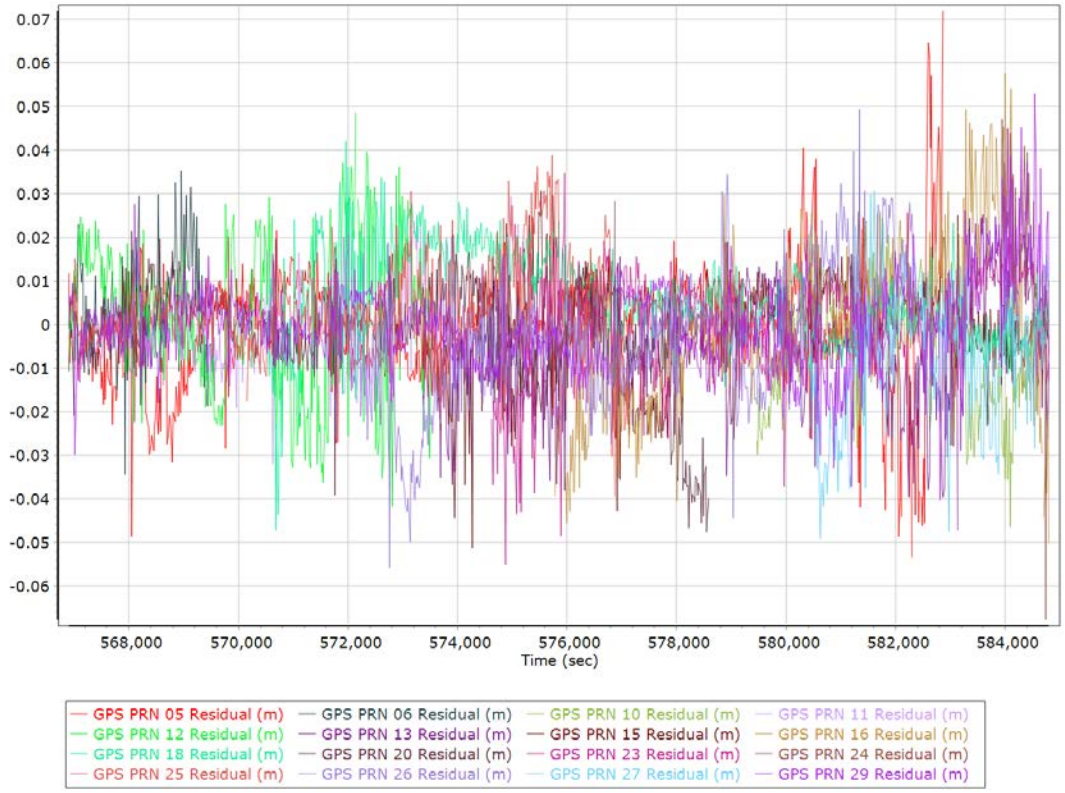
PDOP



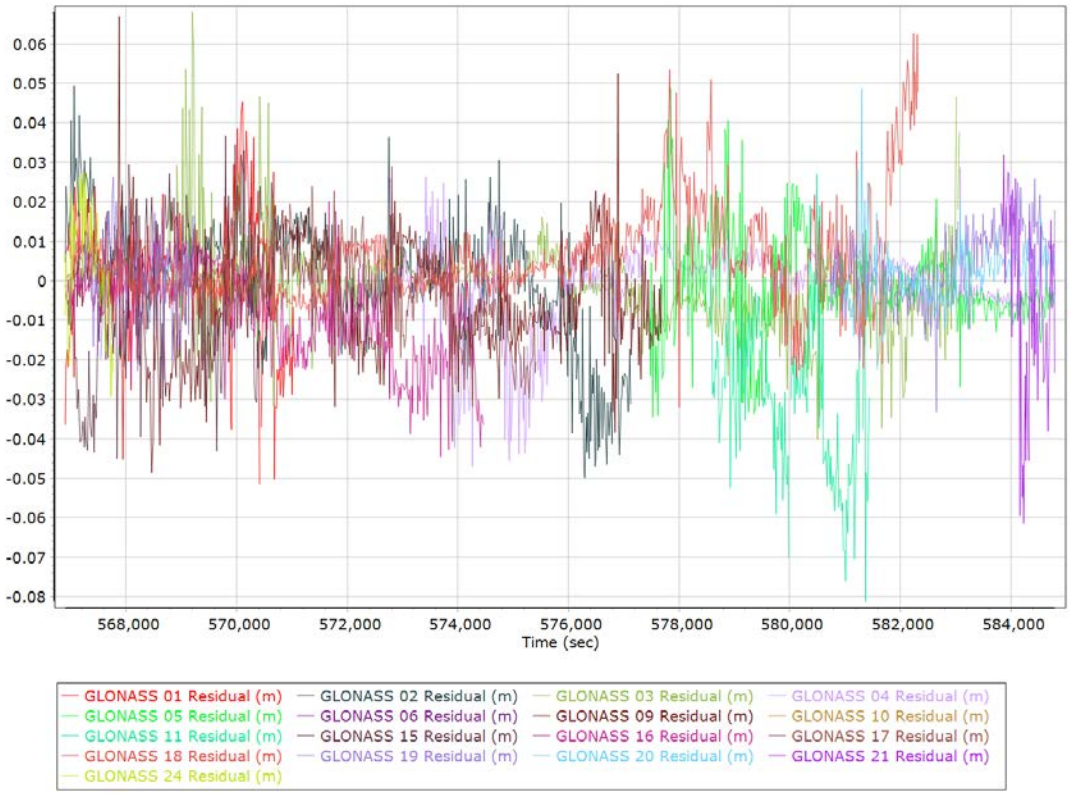
Estimated Position Accuracy



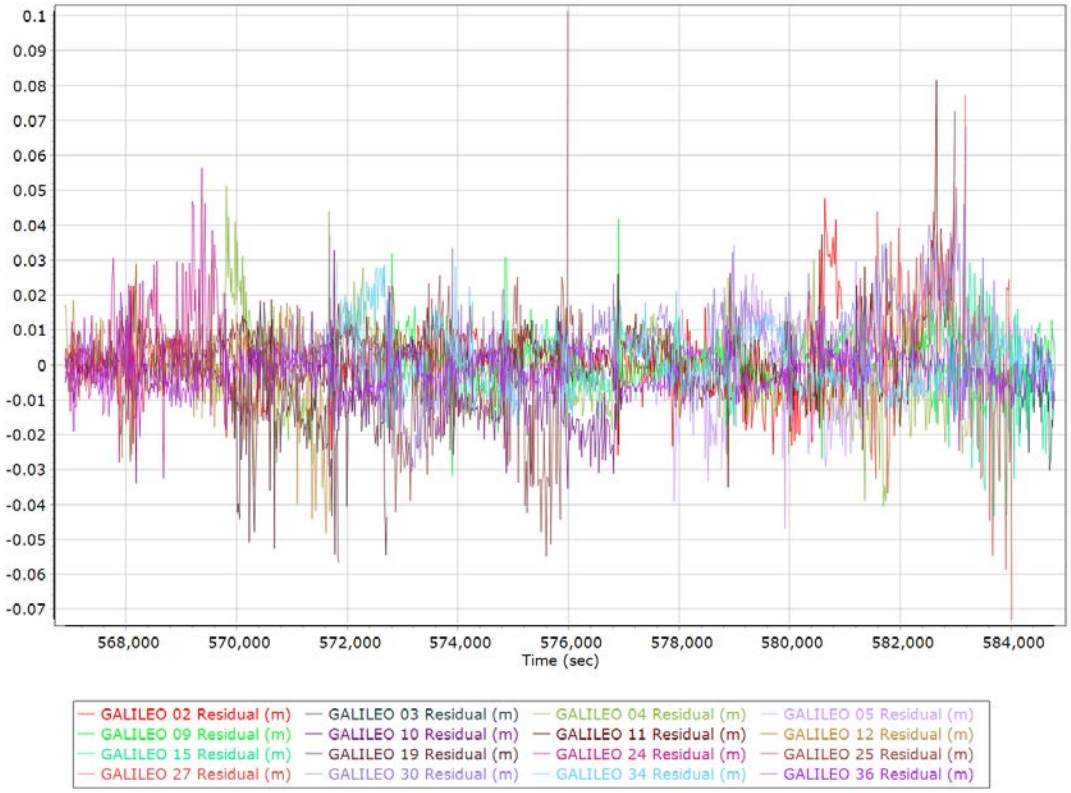
GPS Residuals



GLONASS Residuals



GALILEO Residuals



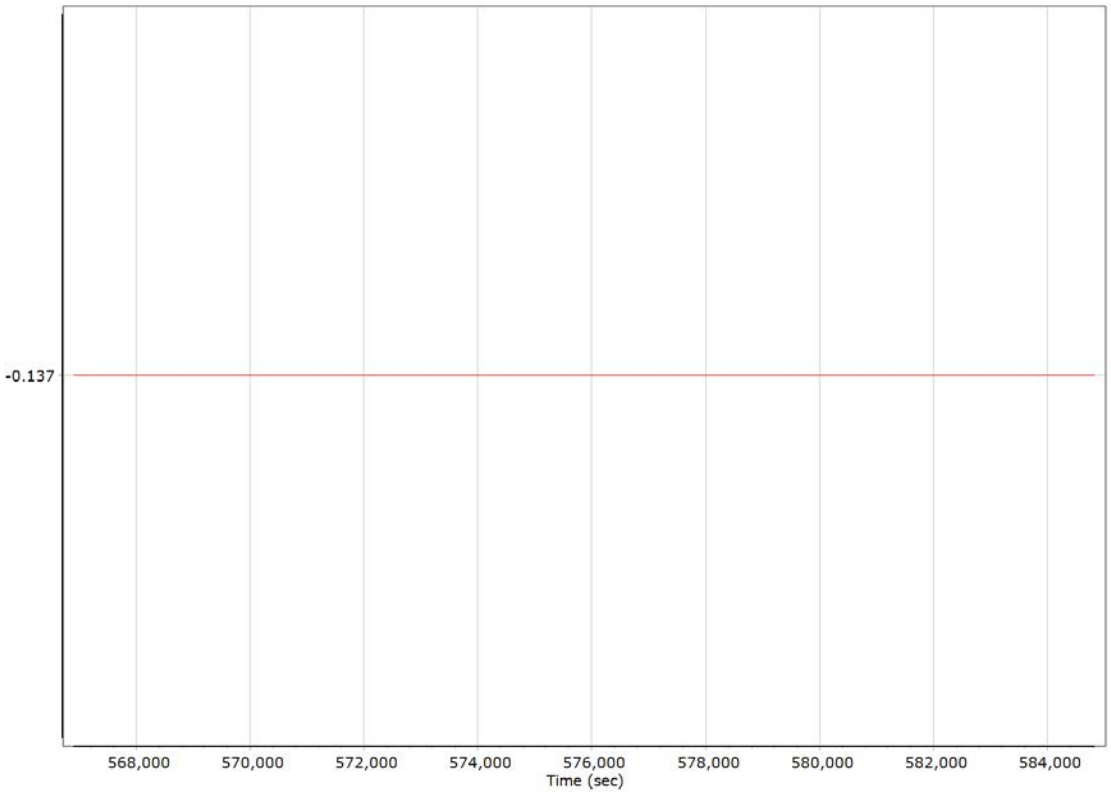
GNSS-Inertial Processor Configuration

Processing mode	IN-Fusion PP-RTX		
Stabilized mount	True		
Processing start time	566818.000 (8/19/2023 1:26:58 PM)		
Processing end time	584837.000 (8/19/2023 6:27:17 PM)		
Initial attitude source	Primary GNSS Track		
IMU Sensor Context	Processing with Onboard IMU		
Gimbal to IMU lever arm (m)	-0.034	-0.010	-0.374
Gimbal to IMU mounting angles (deg)	0.000	0.000	0.000
Gimbal to Primary GNSS lever arm (m)	-0.137	0.043	-1.289
Gimbal to Primary GNSS lever arm std dev (m)	0.030	0.030	0.030
Aircraft to Reference mounting angles (deg)	0.000	0.000	0.000

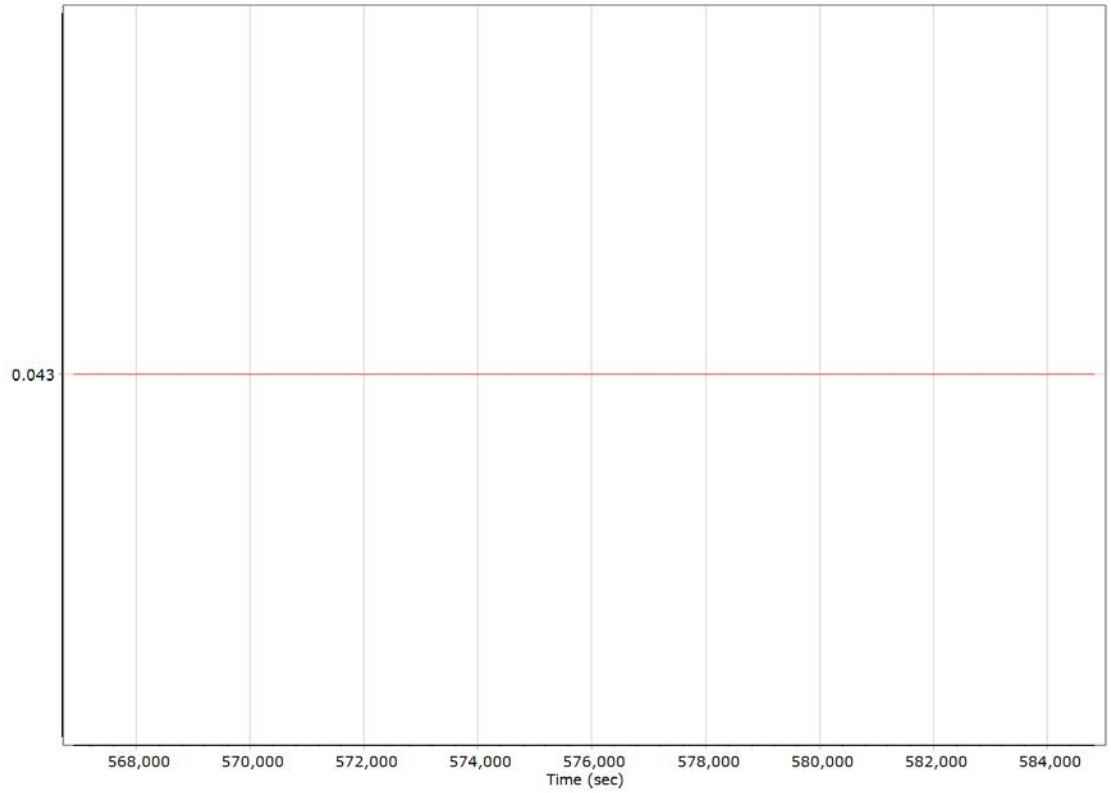
Calibrated Installation Parameters

Reference-Primary GNSS Lever Arm (m)

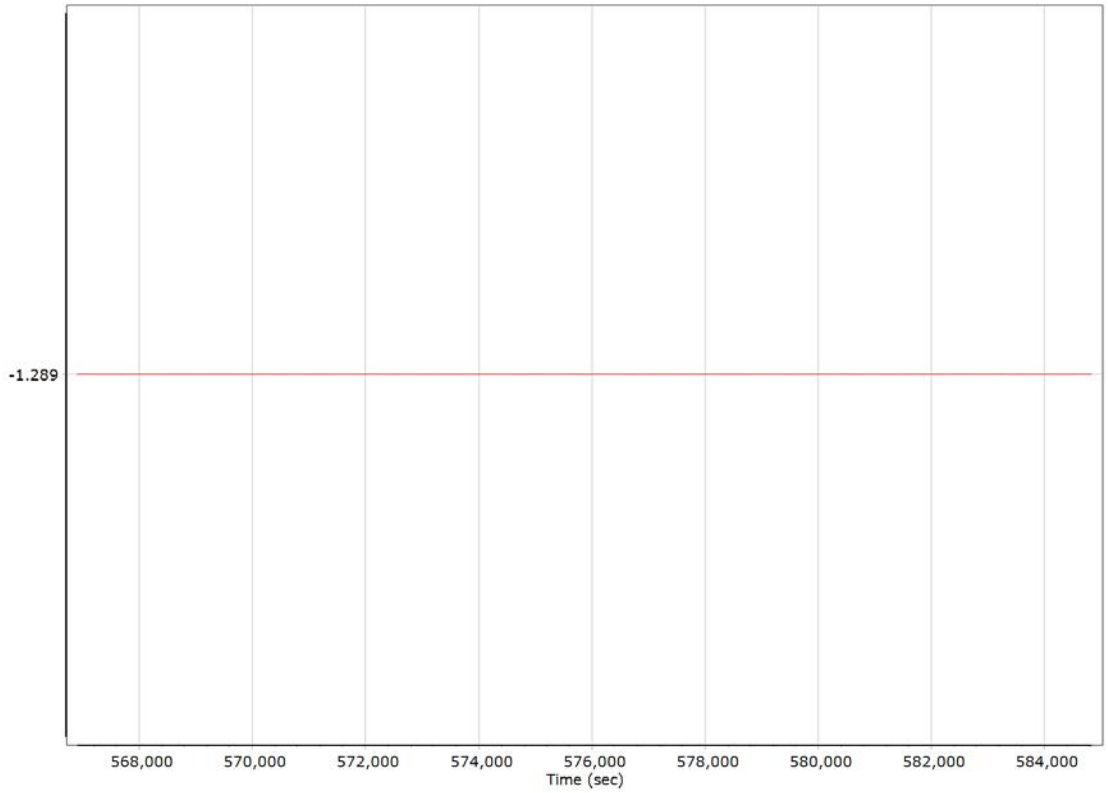
X Reference-Primary GNSS Lever Arm (m)



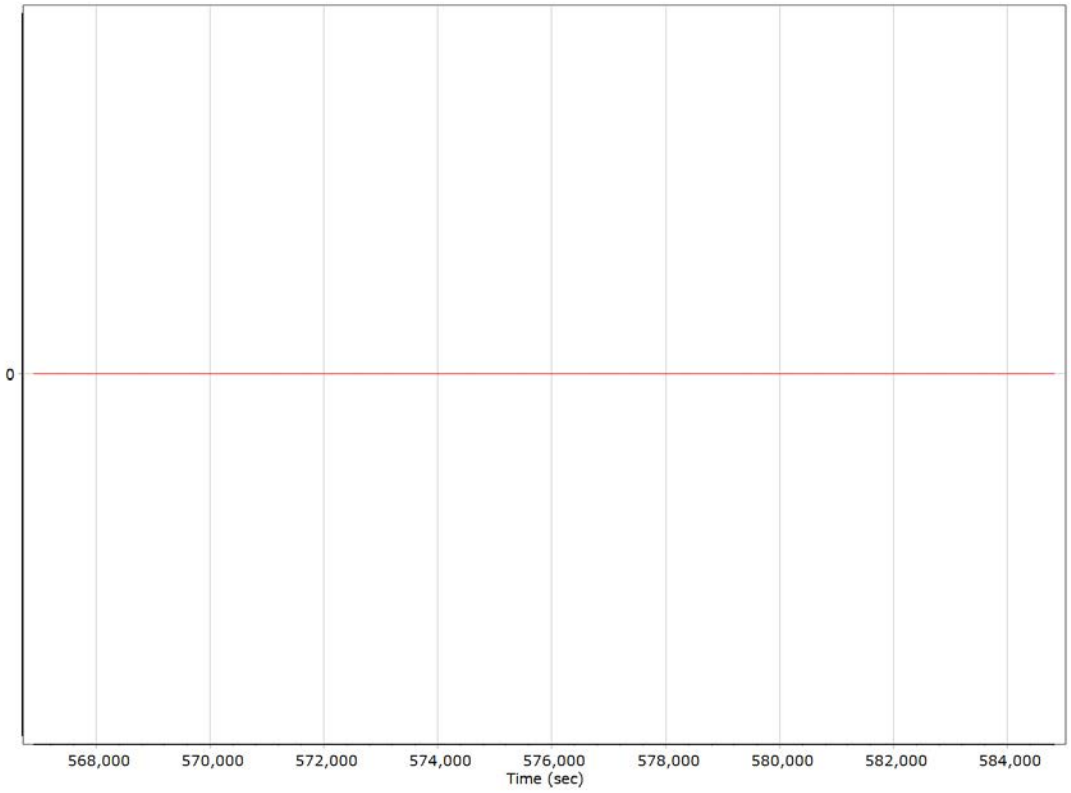
Y Reference-Primary GNSS Lever Arm (m)



Z Reference-Primary GNSS Lever Arm (m)



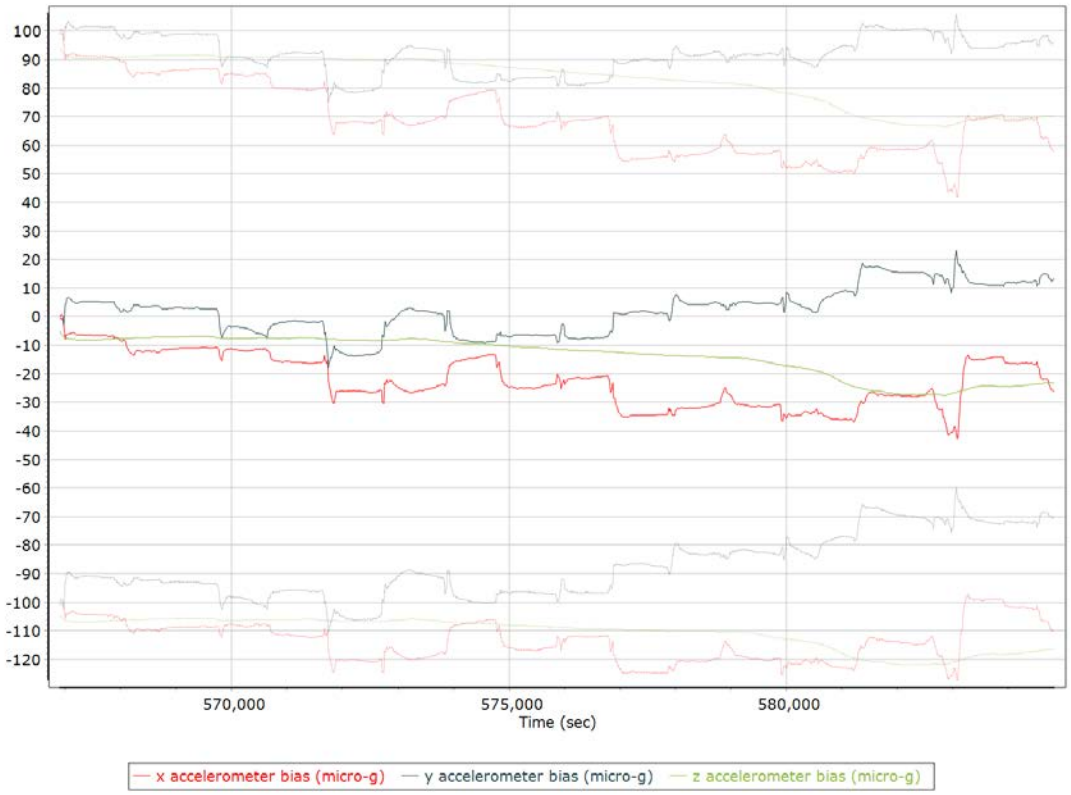
Reference-Primary GNSS Lever Arm Figure of Merit



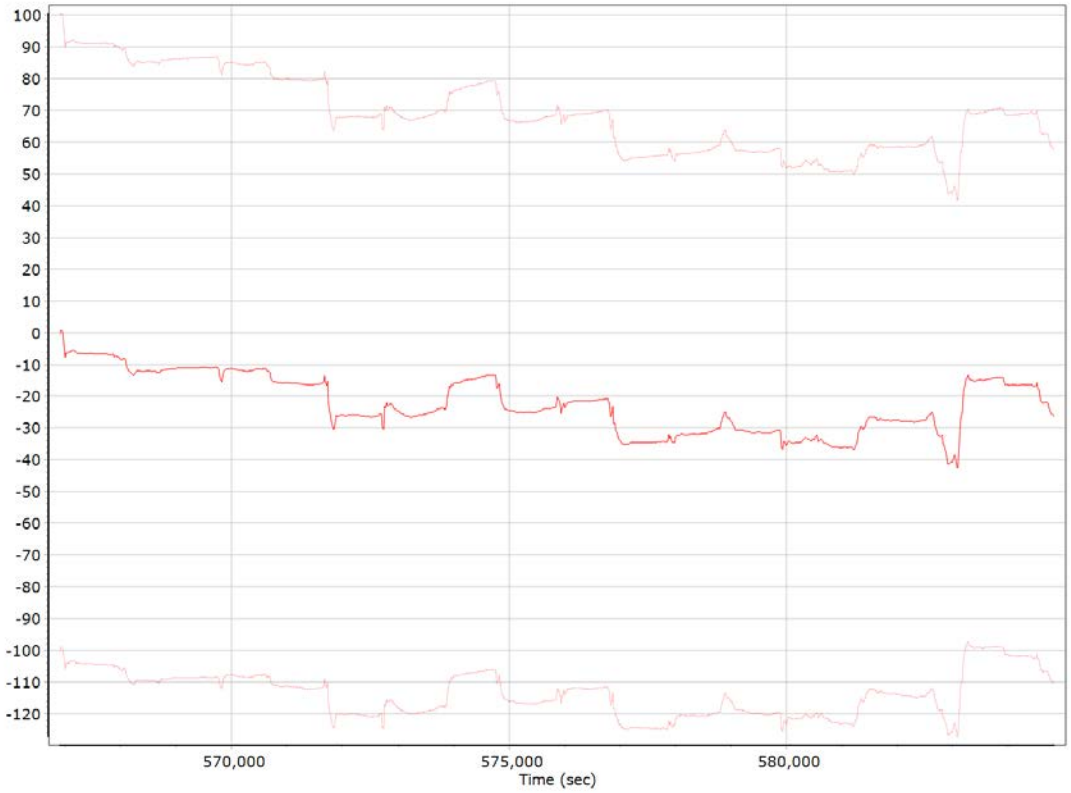
IN-Fusion QC

Forward Processed Estimated Errors, Reference Frame

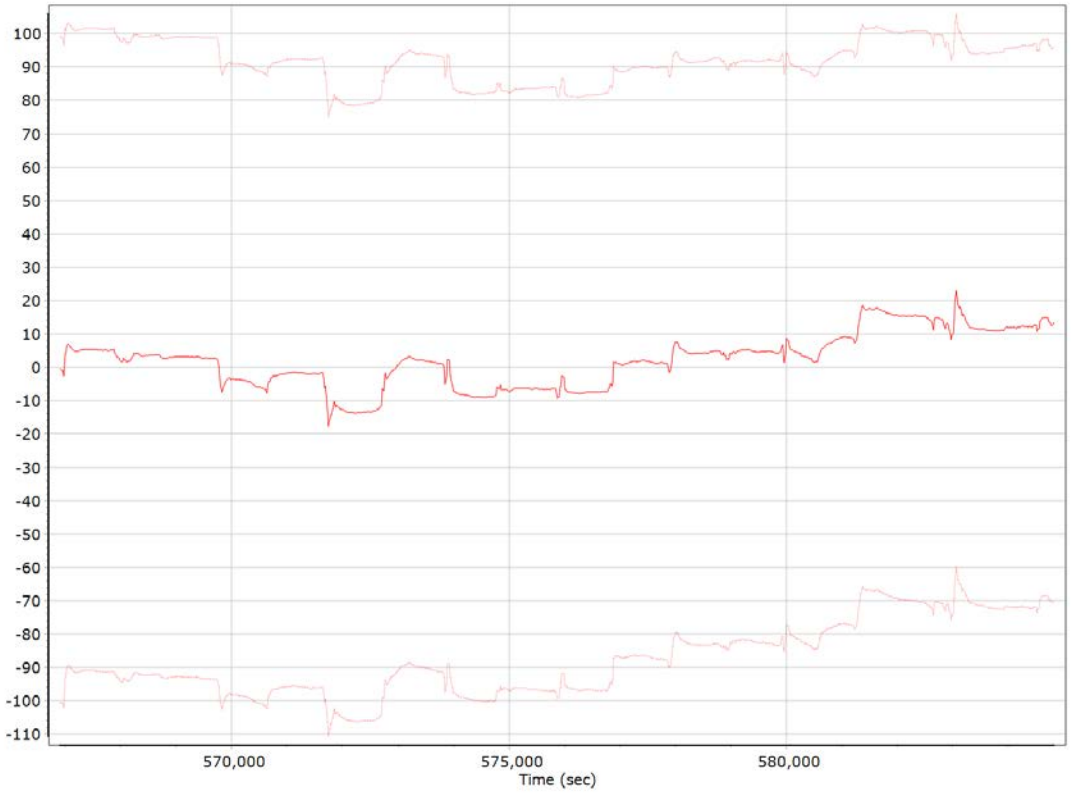
Accelerometer Bias (micro-g)



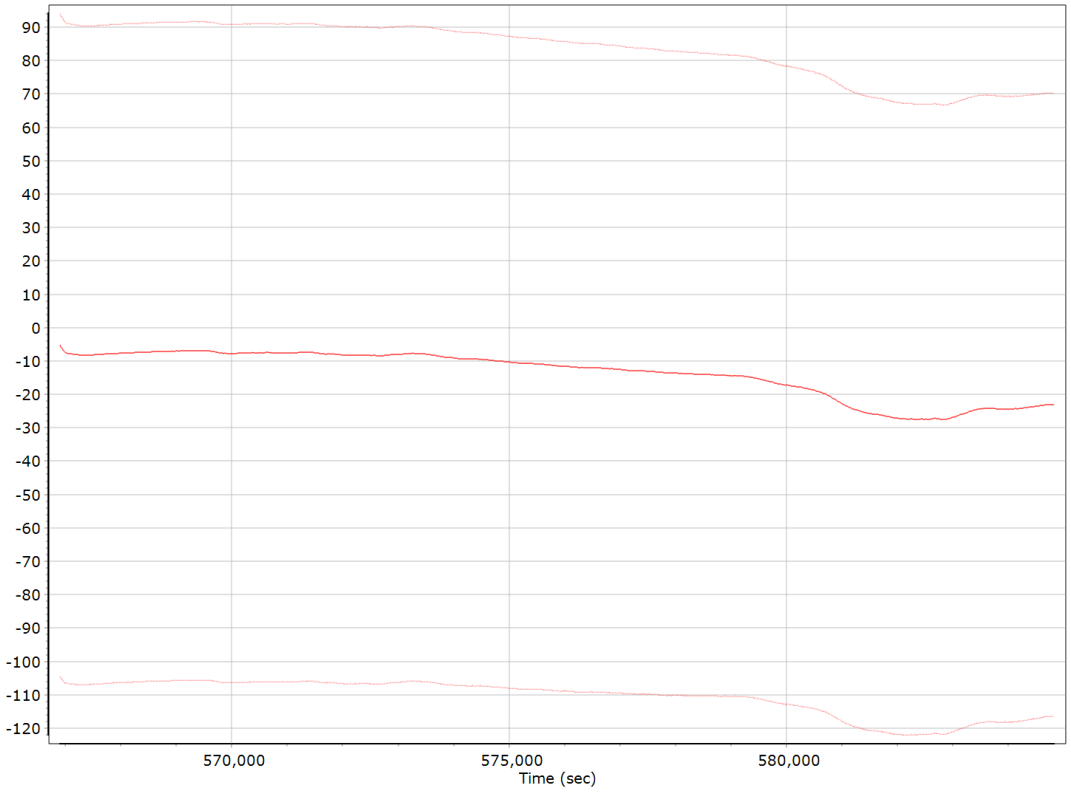
X Accelerometer Bias (micro-g)



Y Accelerometer Bias (micro-g)



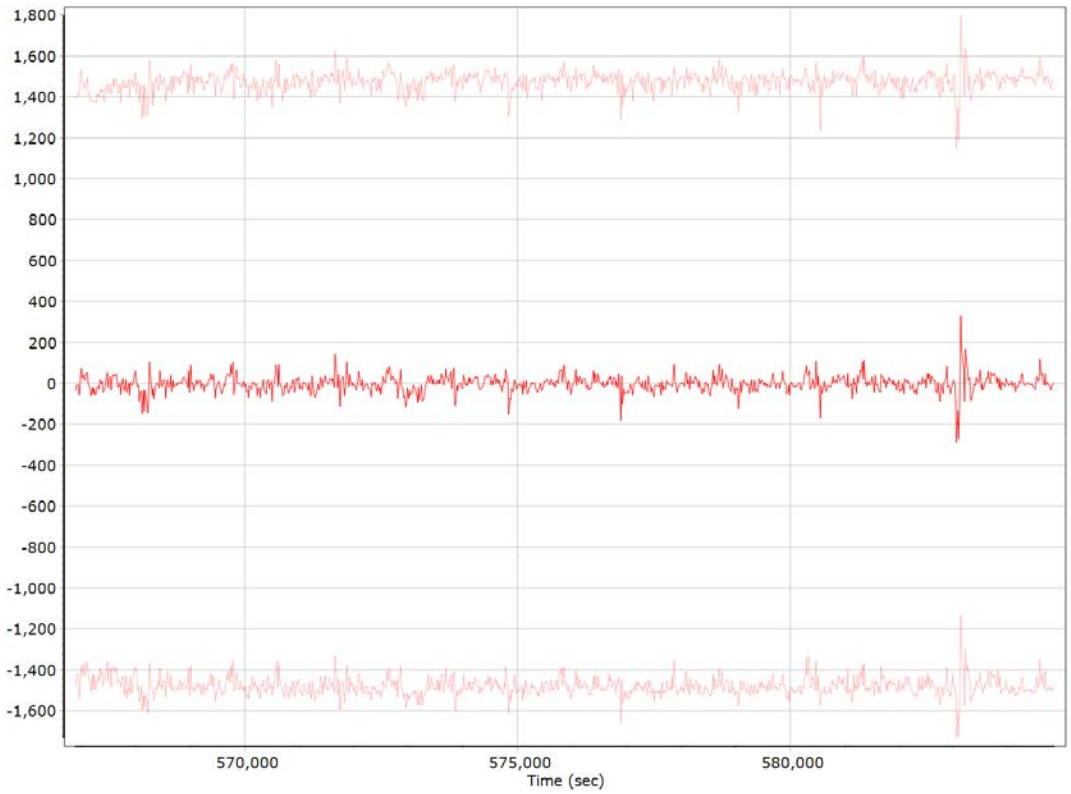
Z Accelerometer Bias (micro-g)



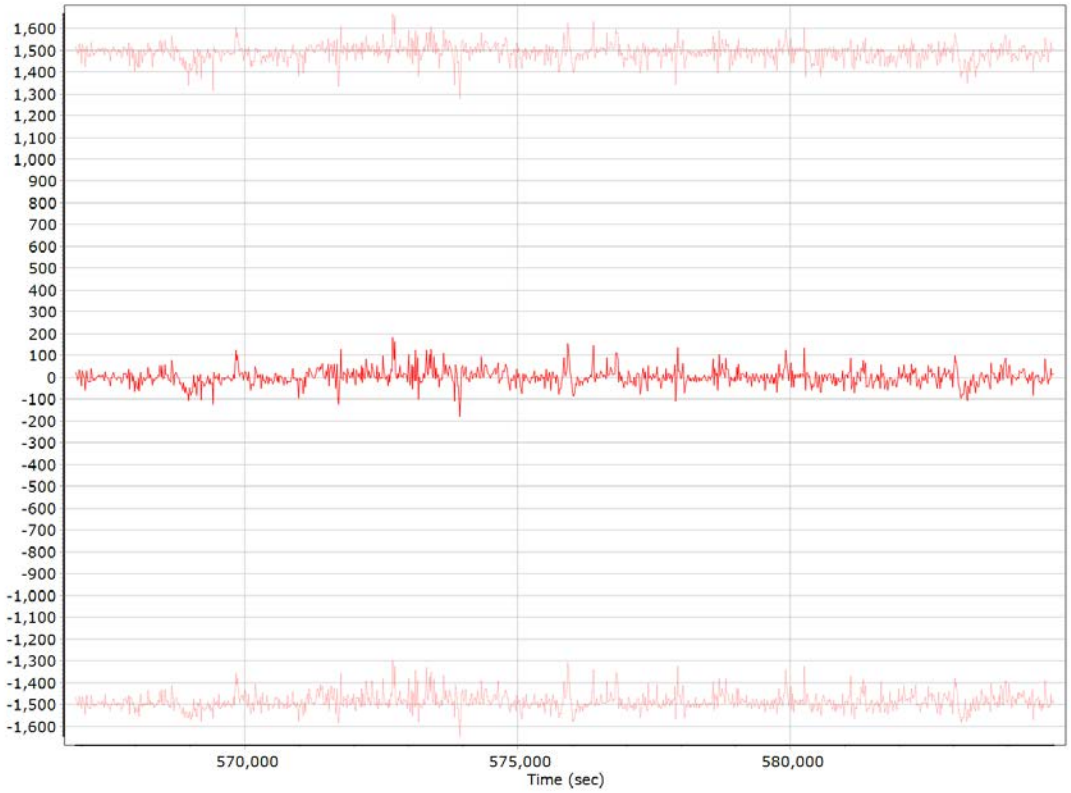
Accelerometer Scale Error (ppm)



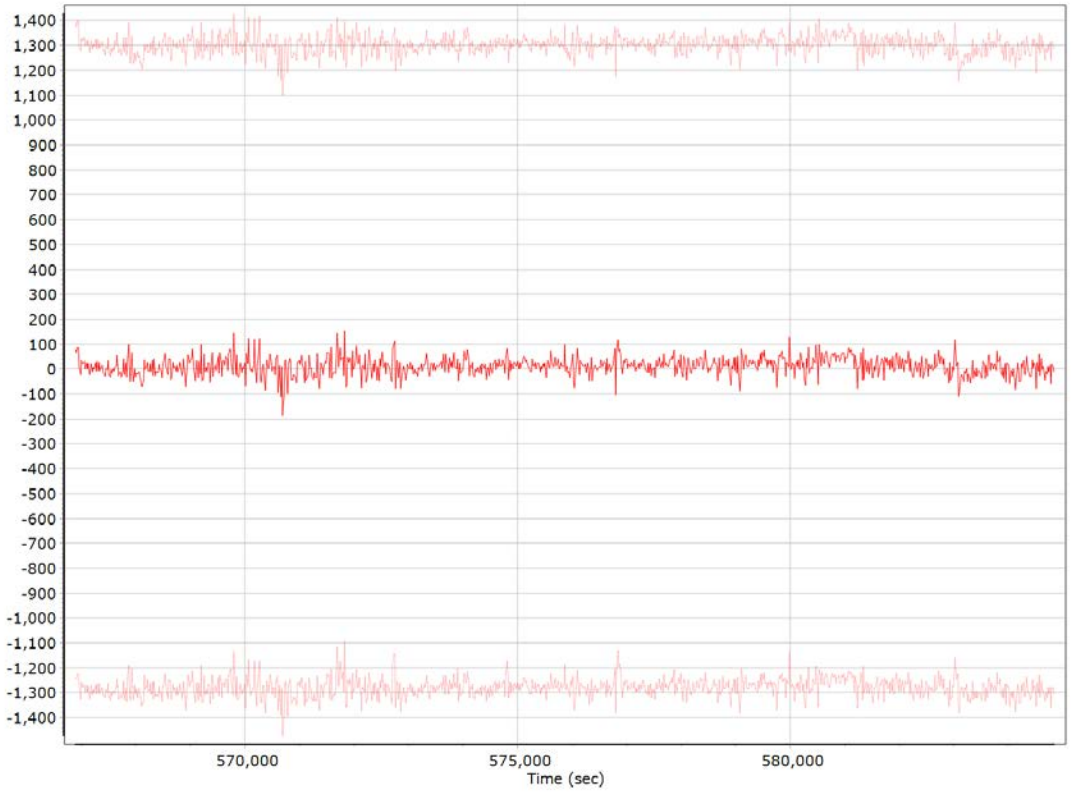
X Accelerometer Scale Error (ppm)



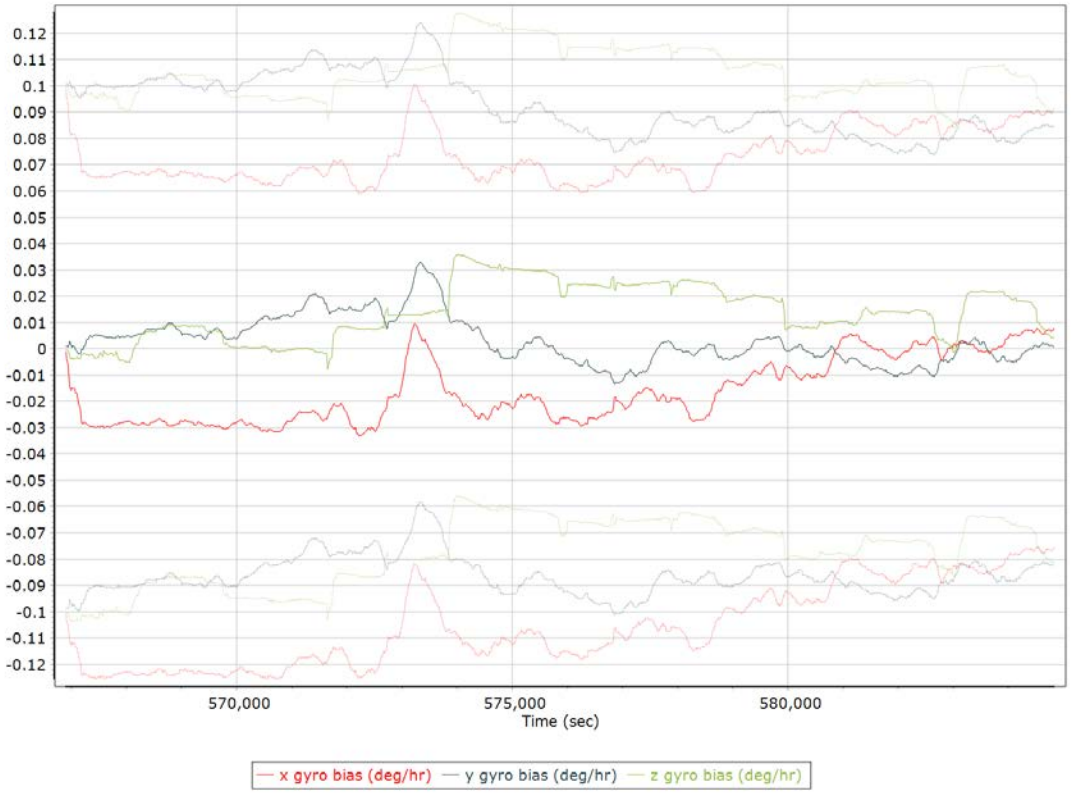
Y Accelerometer Scale Error (ppm)



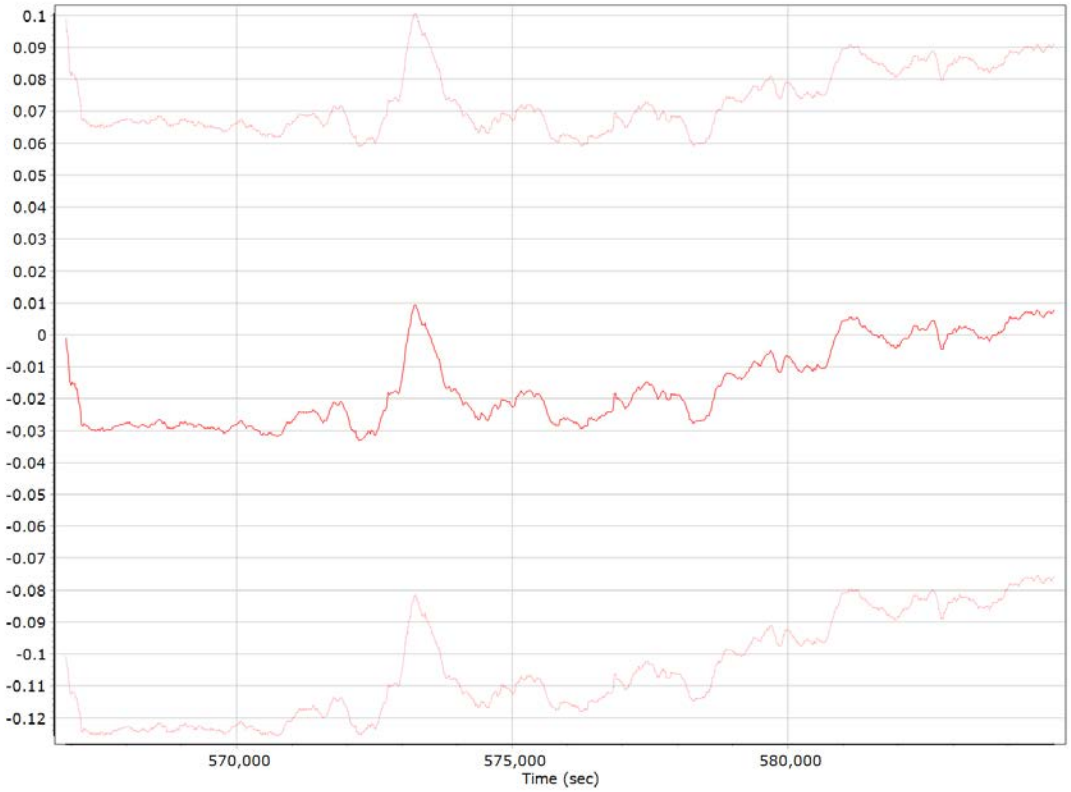
Z Accelerometer Scale Error (ppm)



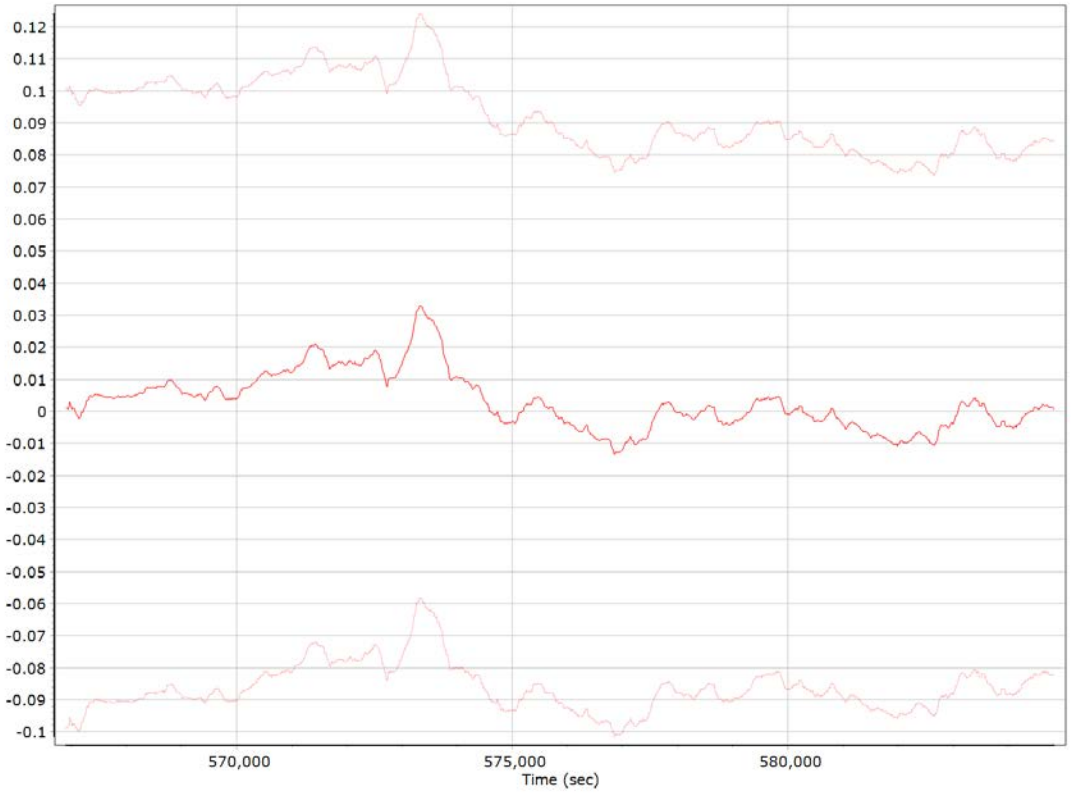
Gyro Bias (deg/h)



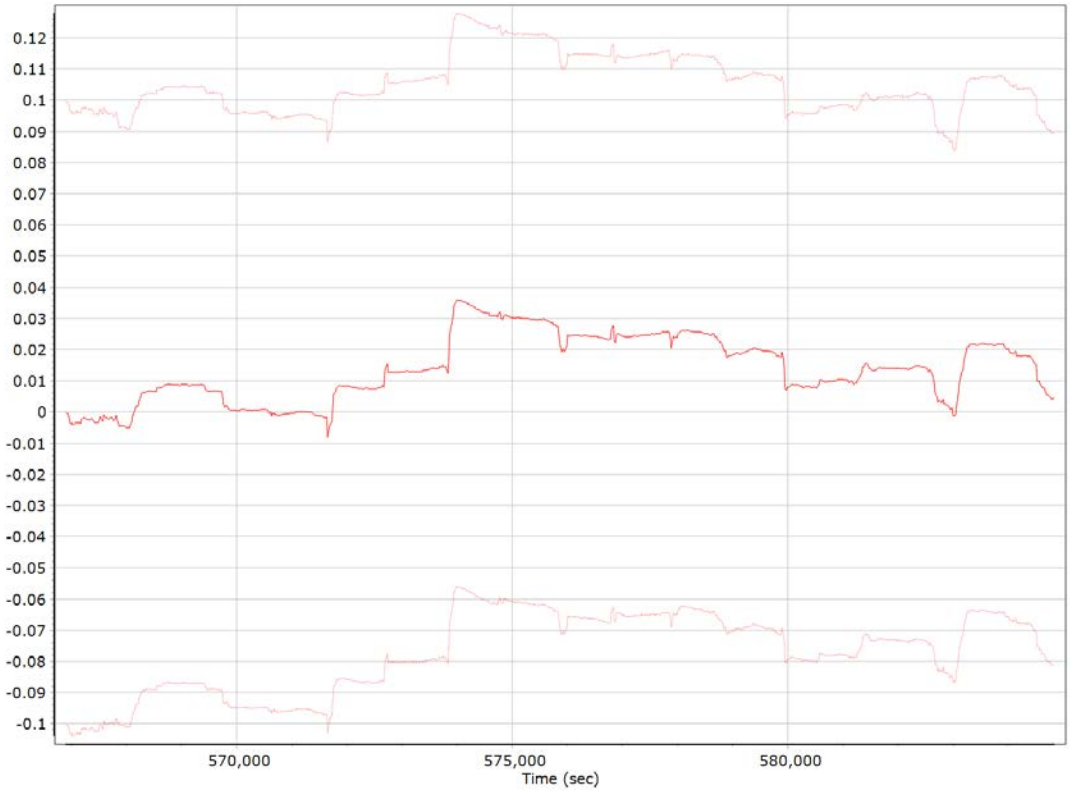
X Gyro Bias (deg/h)



Y Gyro Bias (deg/h)



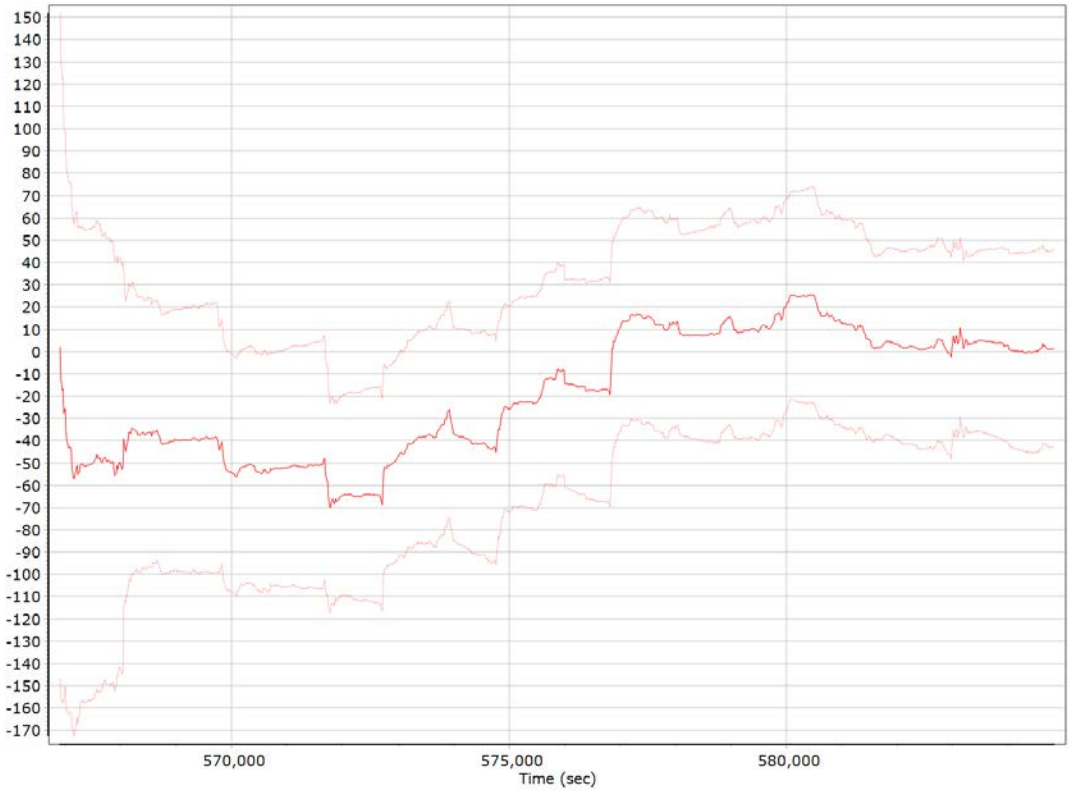
Z Gyro Bias (deg/h)



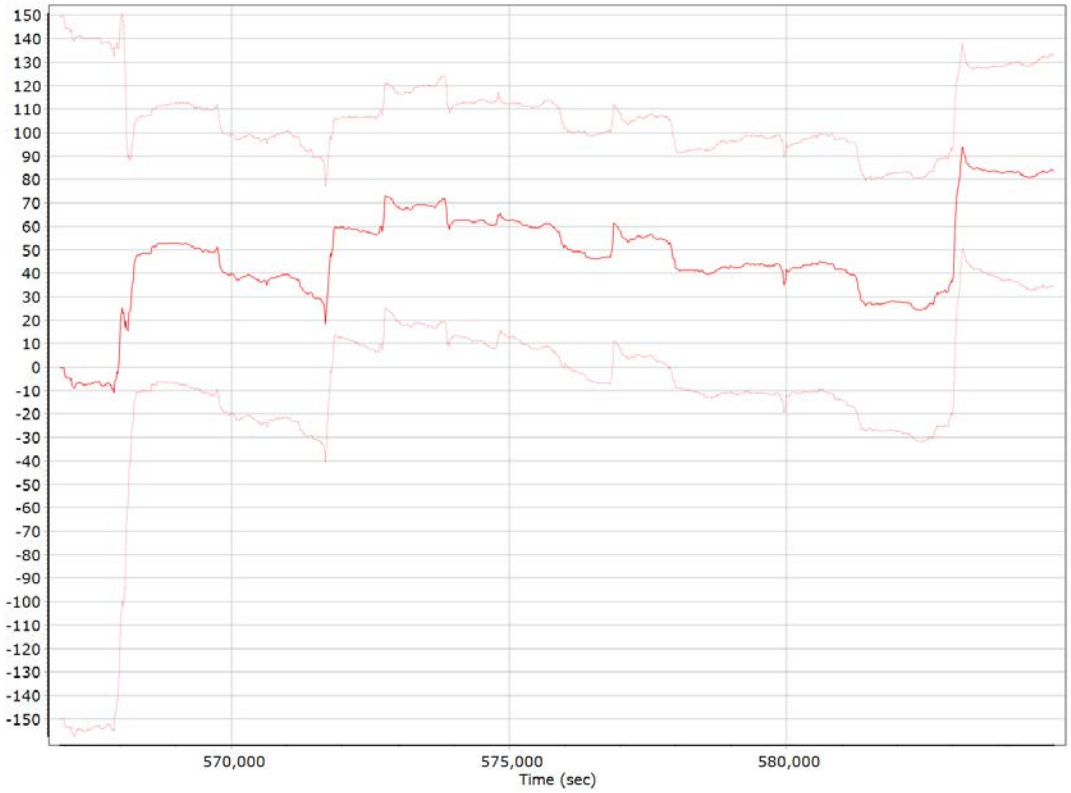
Gyro Scale Error (ppm)



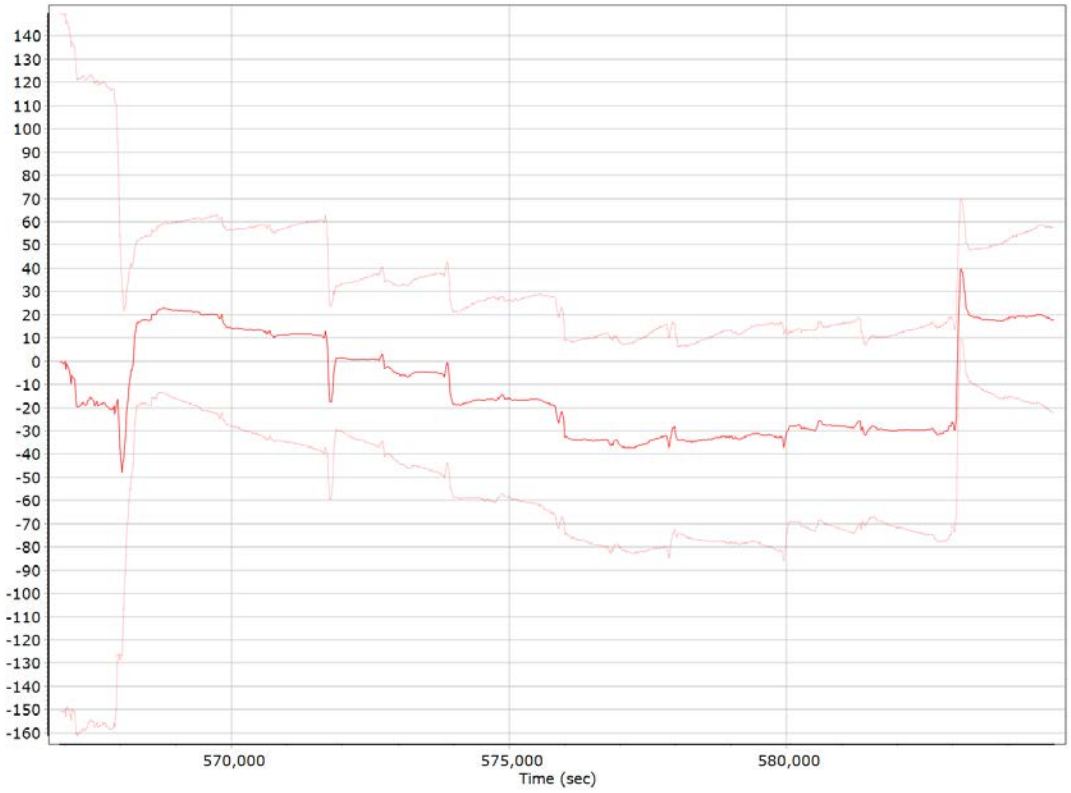
X Gyro Scale Error (ppm)



Y Gyro Scale Error (ppm)



Z Gyro Scale Error (ppm)



Smoothed Performance Metrics

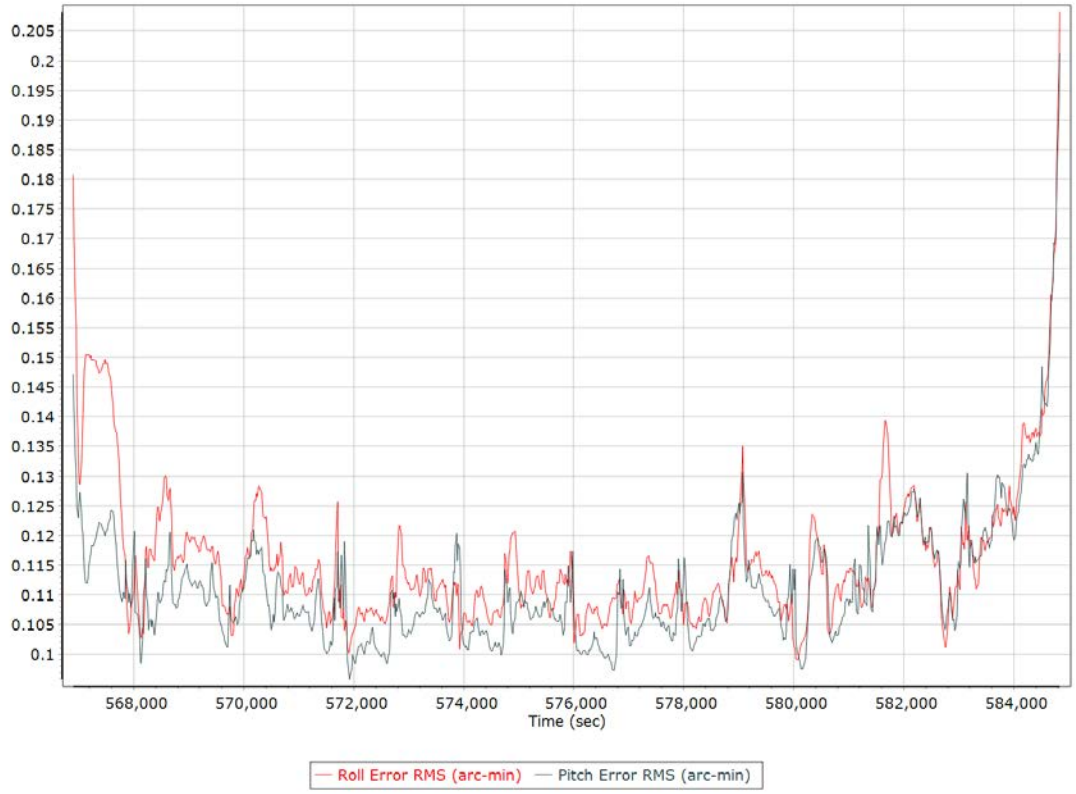
Position Error RMS (m)



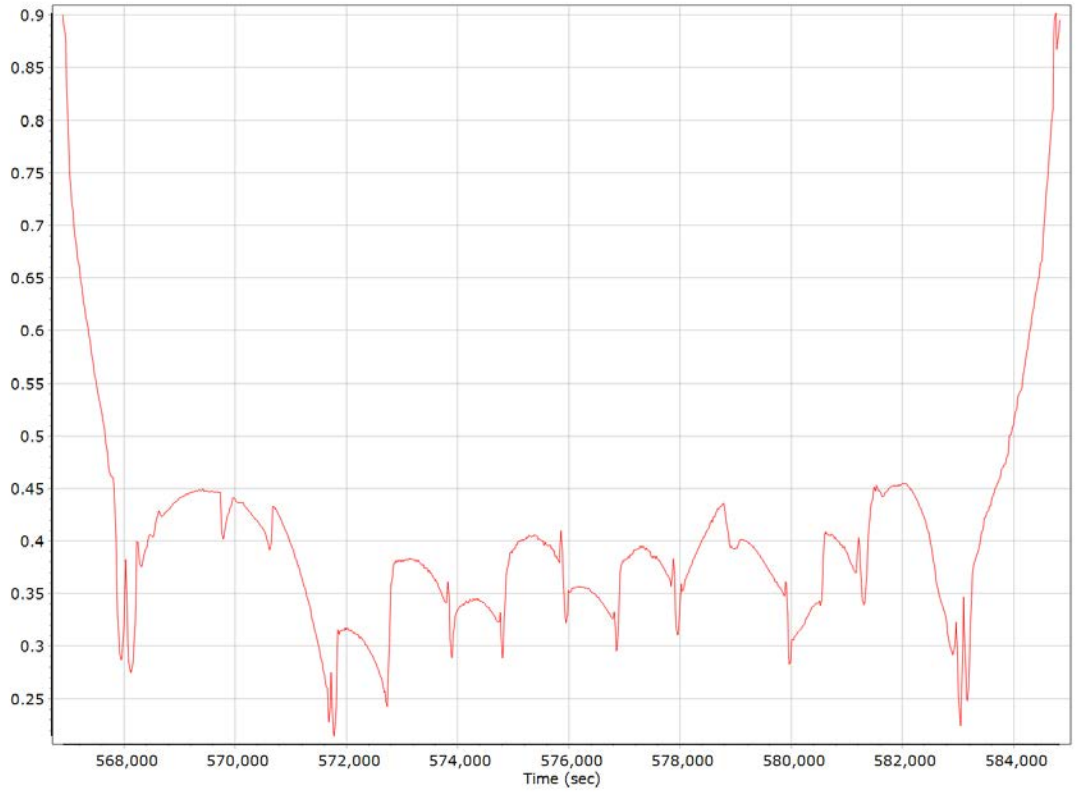
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

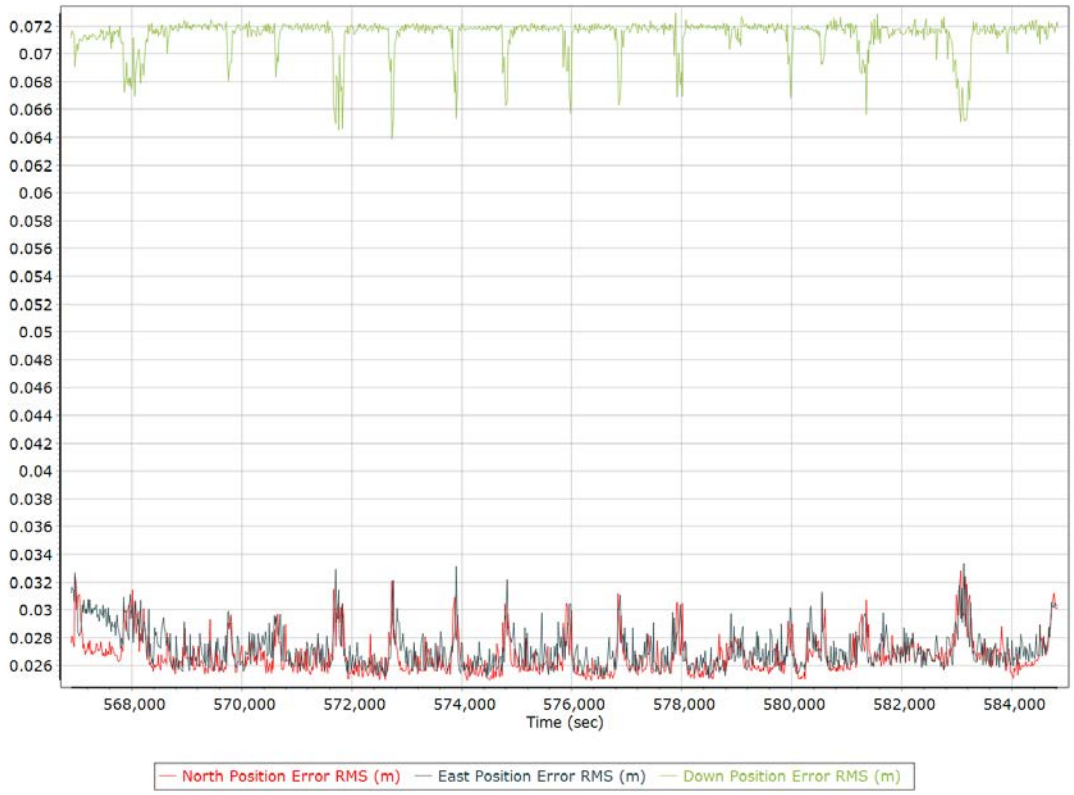


Heading Error RMS (arc-min)

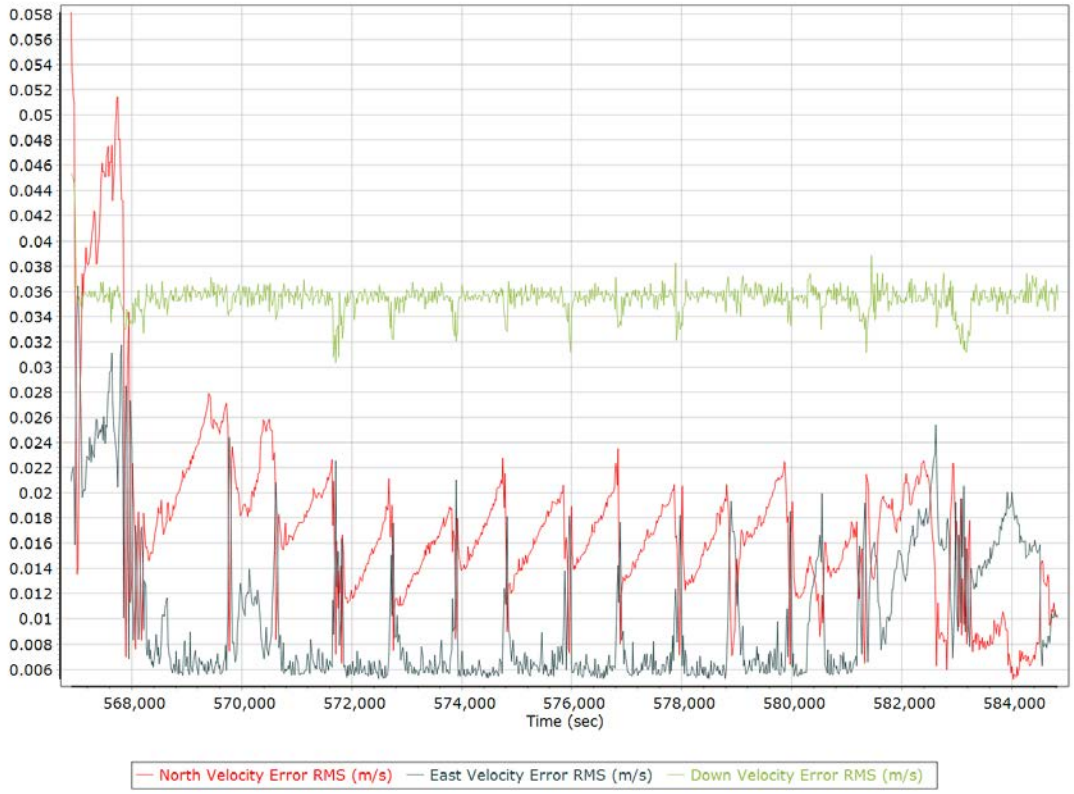


Forward Processed Performance Metrics

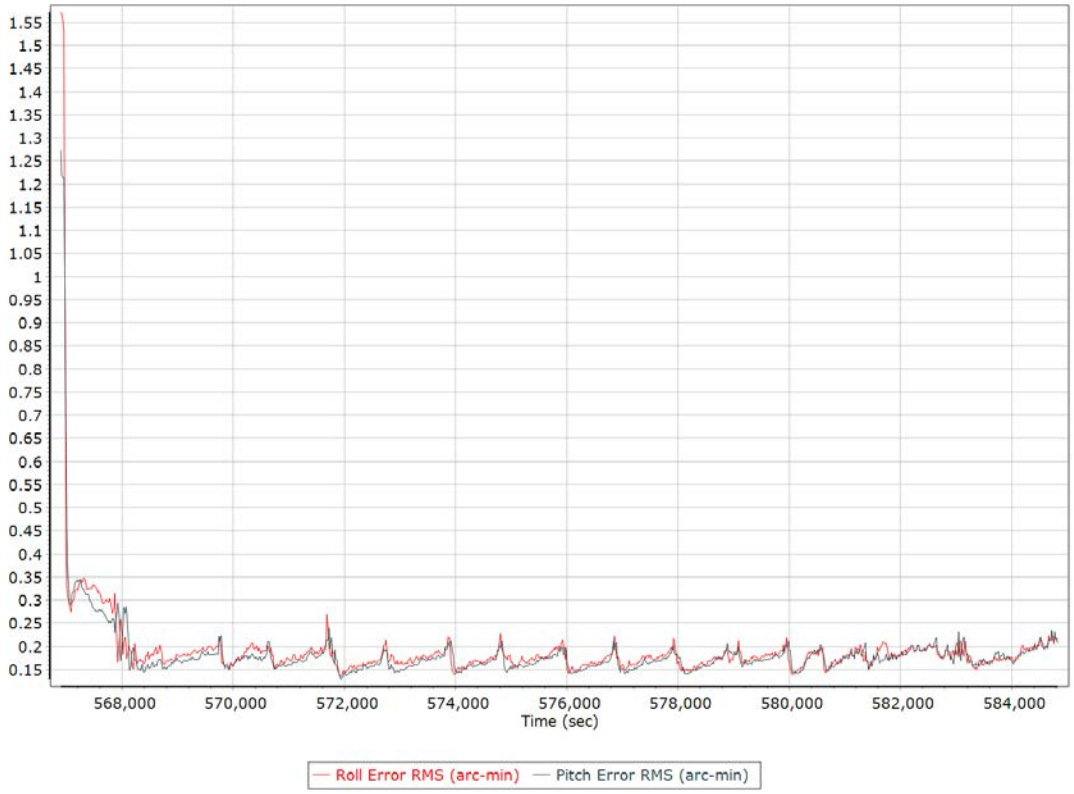
Position Error RMS (m)



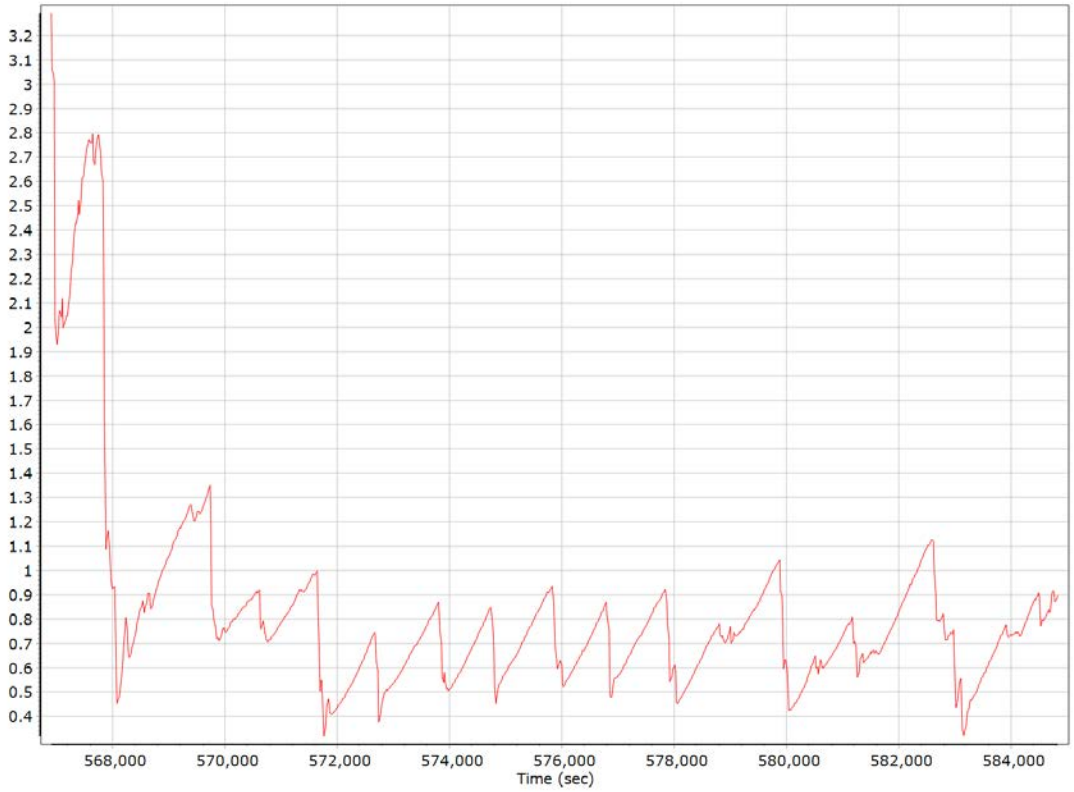
Velocity Error RMS (m/s)



Roll/Pitch Error RMS (arc-min)

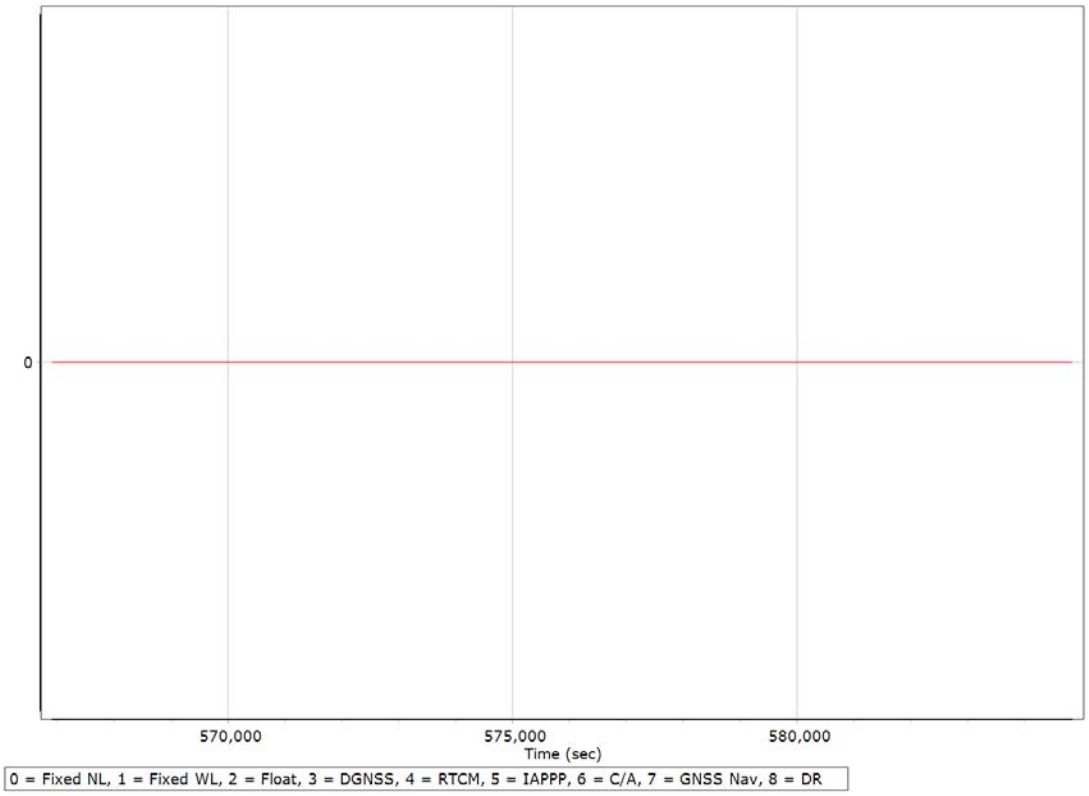


Heading Error RMS (arc-min)

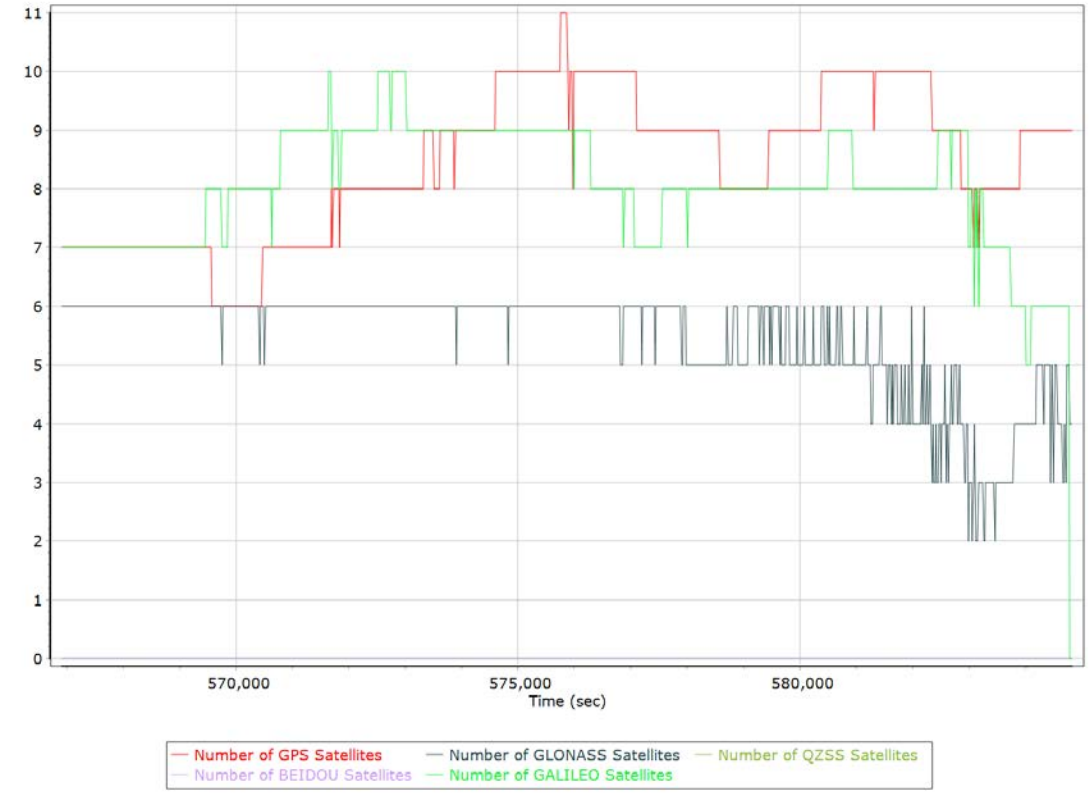


Forward Processed Solution Status

Processing Mode



Number of Satellites



Baseline Length

