# General Information

## Mission Information

| | |
|---|---|
| **Project name** | 12076 |
| **Processing date** | 2021-03-09 22:19:26 |
| **Mission date** | 2021-03-03 21:20:17 |
| **Mission duration** | 02:40:54.302 |
| **Processing mode** | IN-Fusion PP-RTX |

## Rover Hardware Information

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

# Project File List

## Rover Data Files

| File name | File type |
|---|---|
| 20210303.064 | POS Data |
| 20210303.065 | POS Data |
| 20210303.066 | POS Data |
| 20210303.067 | POS Data |
| 20210303.068 | POS Data |
| 20210303.069 | POS Data |
| 20210303.070 | POS Data |
| 20210303.071 | POS Data |
| 20210303.072 | POS Data |
| 20210303.073 | POS Data |
| 20210303.074 | POS Data |
| 20210303.075 | POS Data |
| 20210303.076 | POS Data |
| 20210303.077 | POS Data |
| 20210303.078 | POS Data |
| 20210303.079 | POS Data |
| 20210303.080 | POS Data |
| 20210303.081 | POS Data |
| 20210303.082 | POS Data |
| 20210303.083 | POS Data |
| 20210303.084 | POS Data |

## Input Files

| File Name | File Type |
|---|---|
| Ephm0620.21g | GLONASS Broadcast Ephemeris |
| Ephm0620.21n | GPS Broadcast Ephemeris |
| Ephm0630.21g | GLONASS Broadcast Ephemeris |
| Ephm0630.21n | GPS Broadcast Ephemeris |

## Output Files

| Filename | File type |
|---|---|
| sbet_12076.out | SBET Trajectory File |
| eo_12076.txt | ZI Imaging POSEO Output |
| sbet_12076_NAD83(2011).out | Custom Smoothed BET Export Output |
| lever_arm_values.txt | ReferenceToPrimaryLeverArms Export Output |

# Rover Data Summary

| | | | |
|---|---|---|---|
| **First raw data file** | 20210303.064 | | |
| **Last raw data file** | 20210303.084 | | |
| **Start GPS week** | 2147 | | |
| **Start time** | 336016.629 (03/03/2021 21:20:16) | | |
| **End time** | 345670.931 (03/04/2021 00:01:10) | | |
| **Start of fine alignment** | 336413.529 (03/03/2021 21:26:53) | | |
| **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 | 180.000 |
| **Reference to Primary GNSS lever arm (m)** | -0.108 | -0.248 | -0.901 |
| **Reference to Primary GNSS lever arm std dev (m)** | -1.000 | | |
| **Aircraft to Reference mounting angles (deg)** | 0.000 | 0.000 | 0.000 |

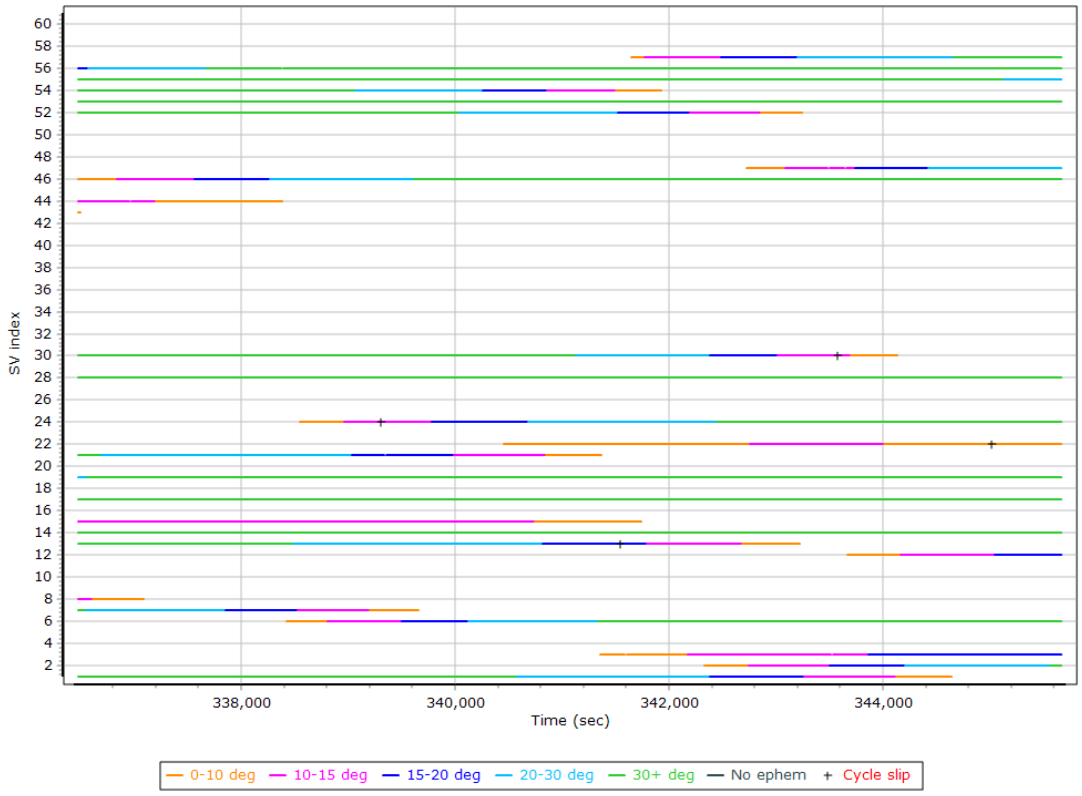
# Rover Data QC

## Raw IMU Import QC Summary

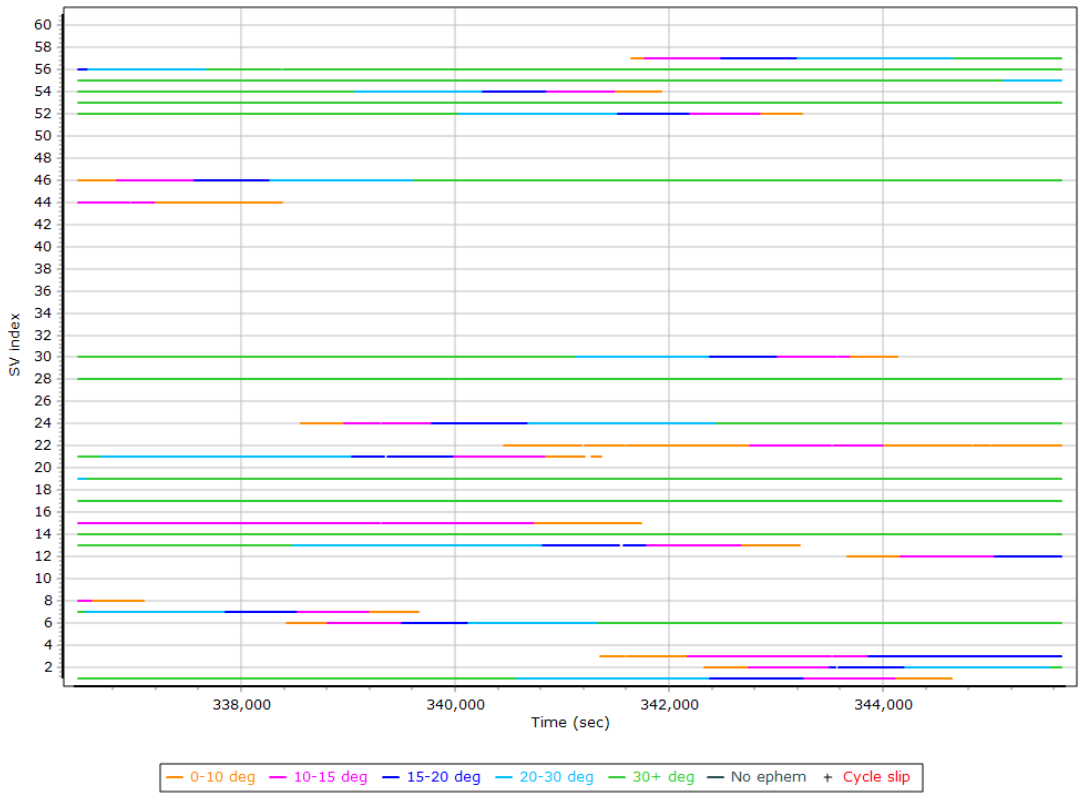
| | |
|---|---|
| **IMU data input file** | imu_12076.dat |
| **IMU data check log file** | imudt_12076.log |
| **IMU Records Processed** | 1930502 |
| **Termination Status** | Normal |
| **IMU Anomalies** | 0 |

## Primary Observables & Satellite Data

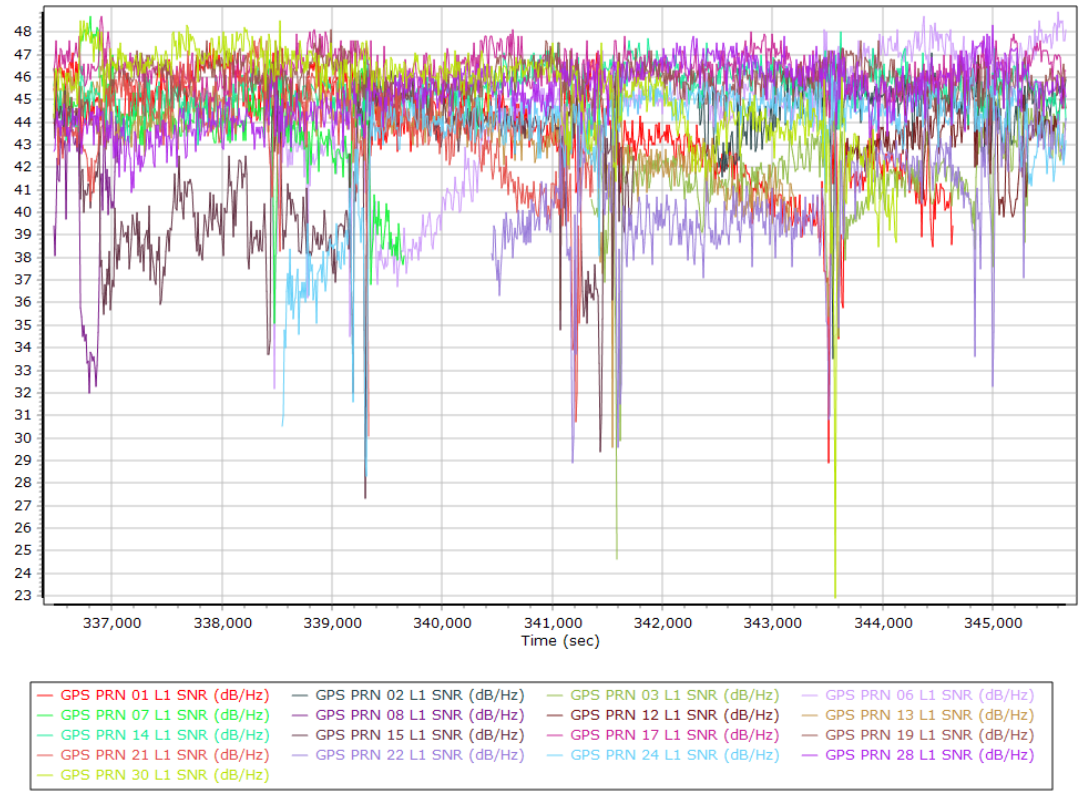
### L1 Satellite Lock/Elevation



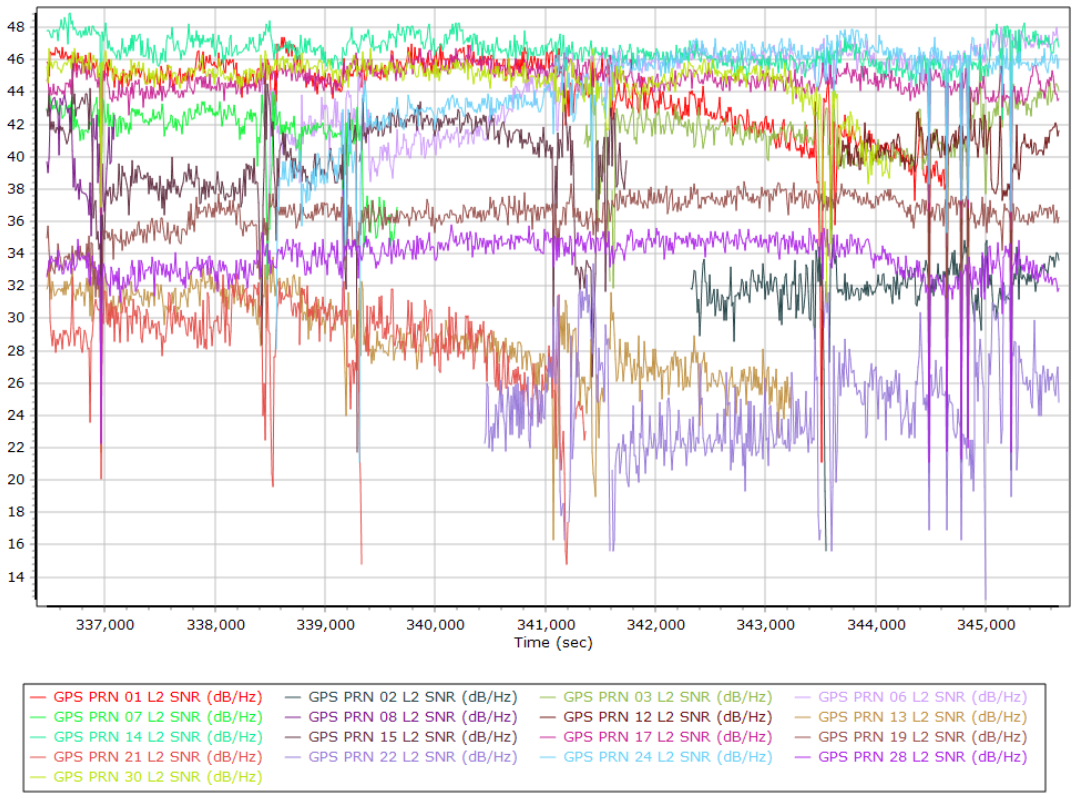
## L2 Satellite Lock/Elevation



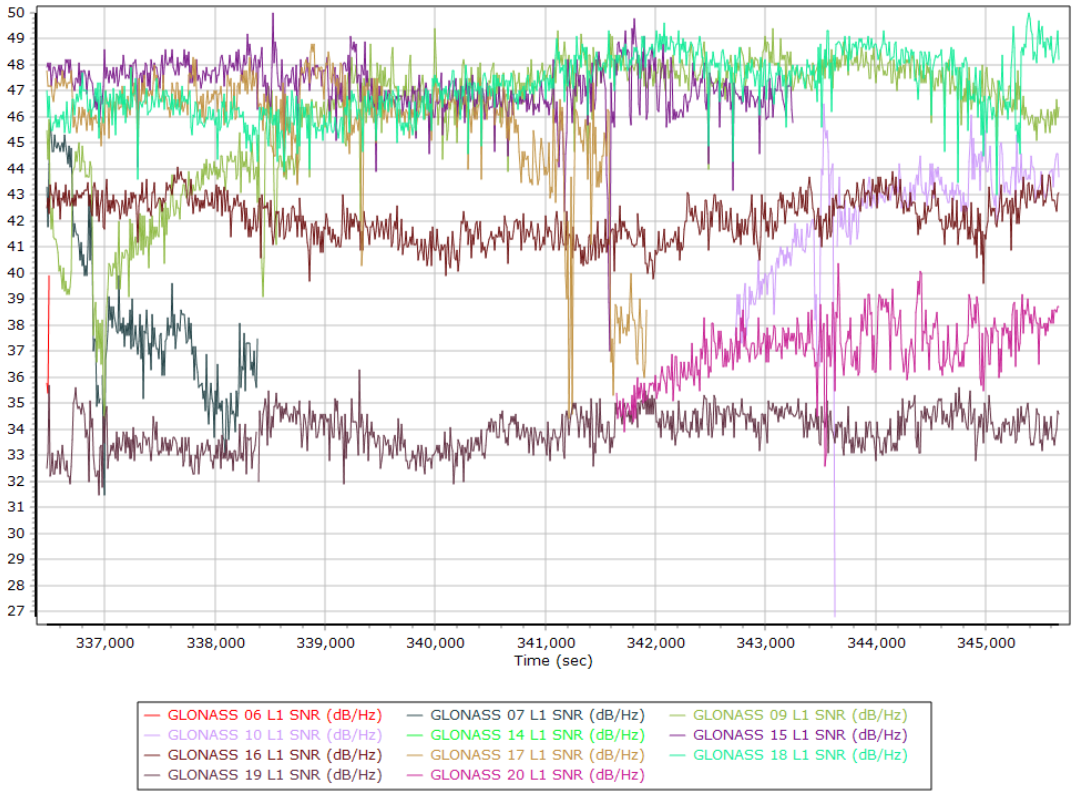

## GPS L1 SNR



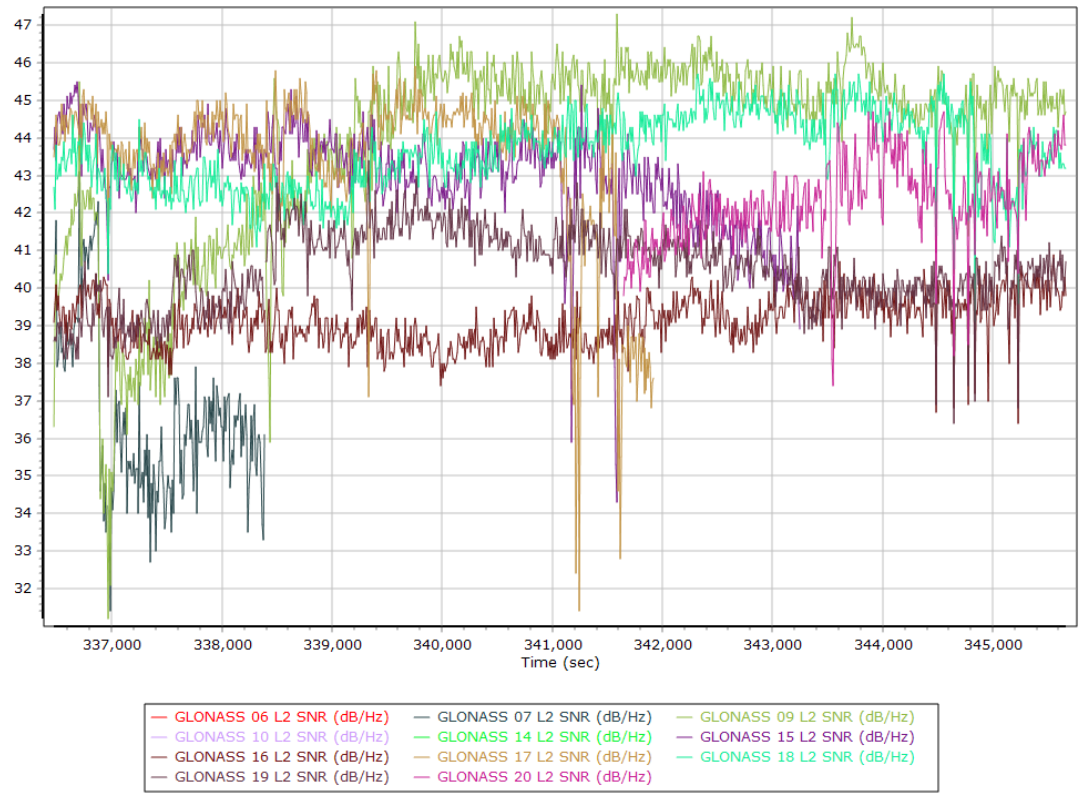
## GPS L2 SNR



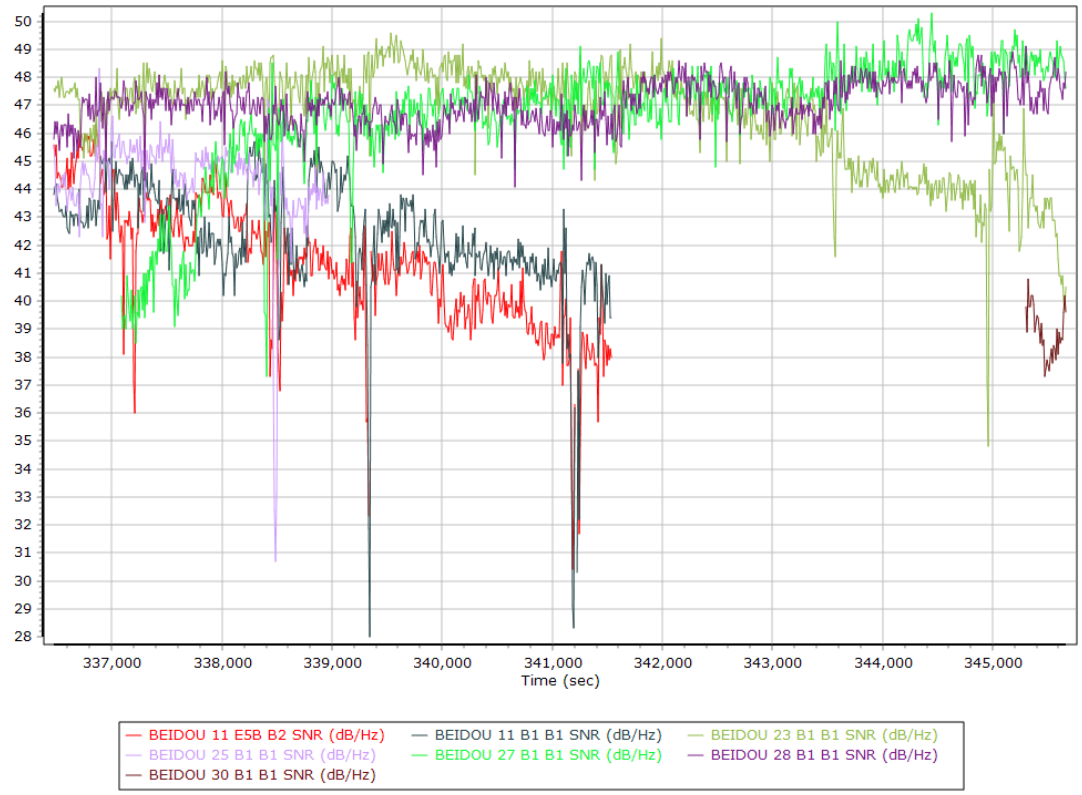

## GLONASS L1 SNR



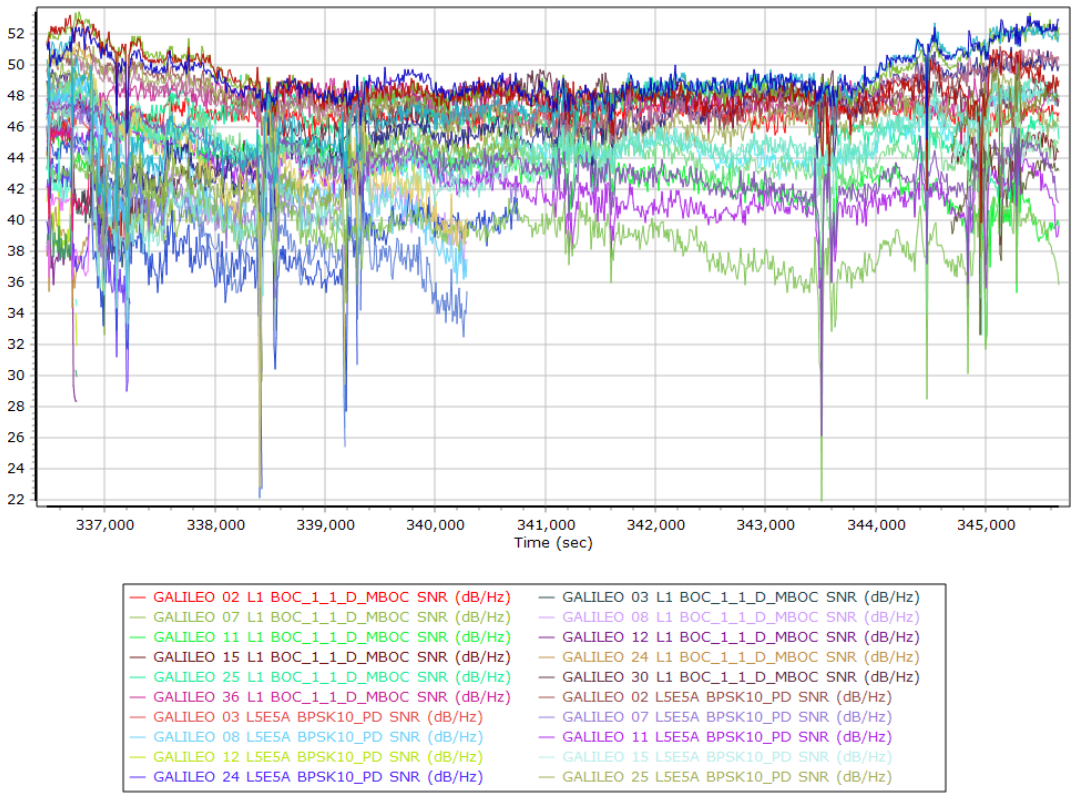
## GLONASS L2 SNR




## BEIDOU SNR

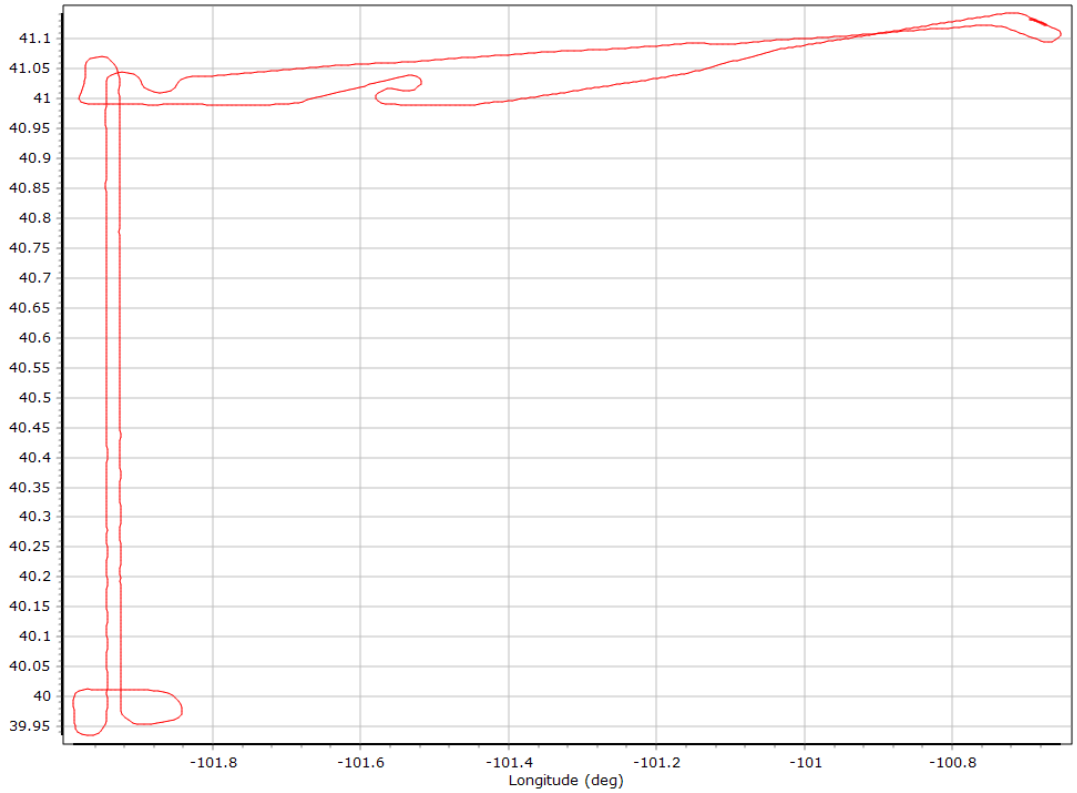


## GALILEO SNR

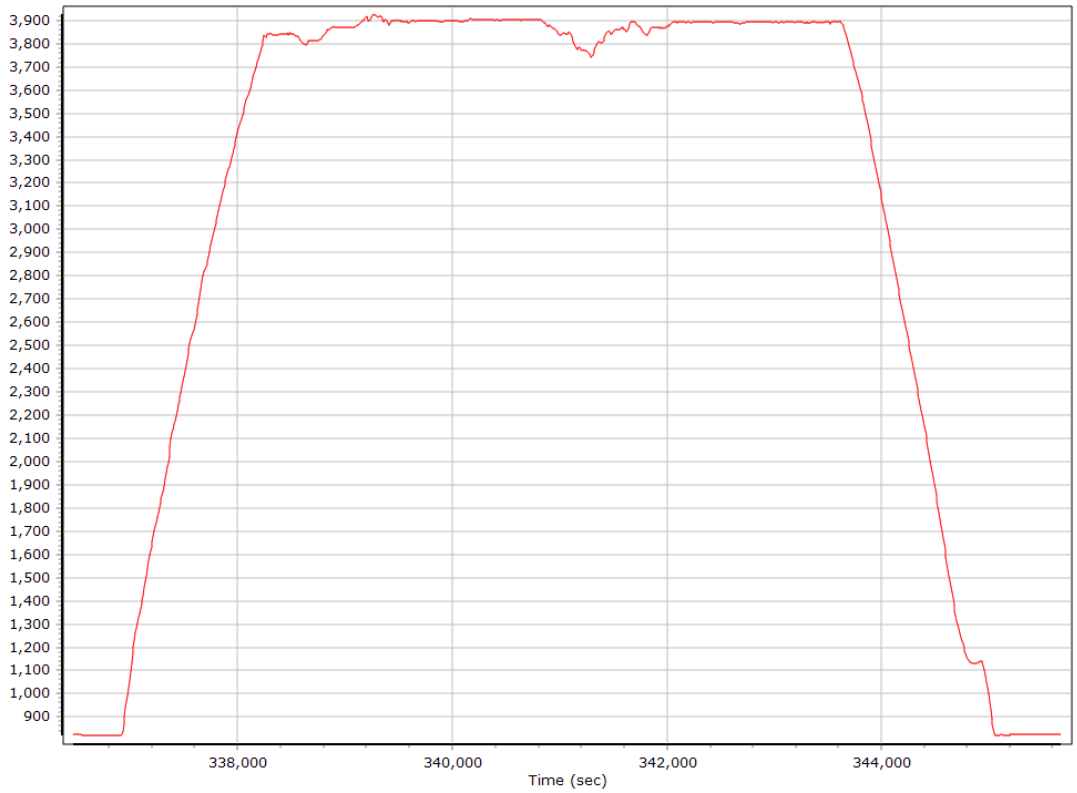

52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
337,000
338,000
339,000
340,000
341,000
342,000
343,000
344,000
345,000
Time (sec)
GALILEO 02 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 03 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 07 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 08 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 11 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 12 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 15 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 24 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 25 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 30 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 36 L1 BOC_1_1_D_MBOC SNR (dB/Hz)
GALILEO 02 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 03 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 07 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 08 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 11 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 12 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 15 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 24 L5E5A BPSK10_PD SNR (dB/Hz)
GALILEO 25 L5E5A BPSK10_PD SNR (dB/Hz)

# Smoothed Trajectory Information

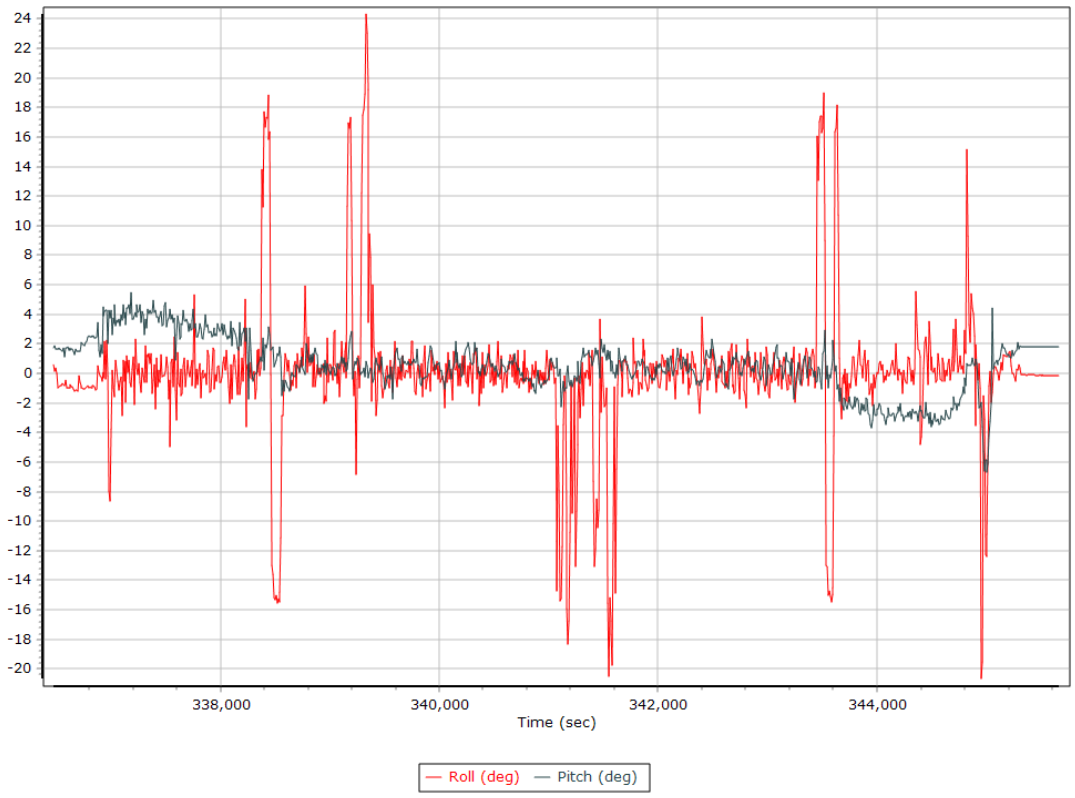
## Top View



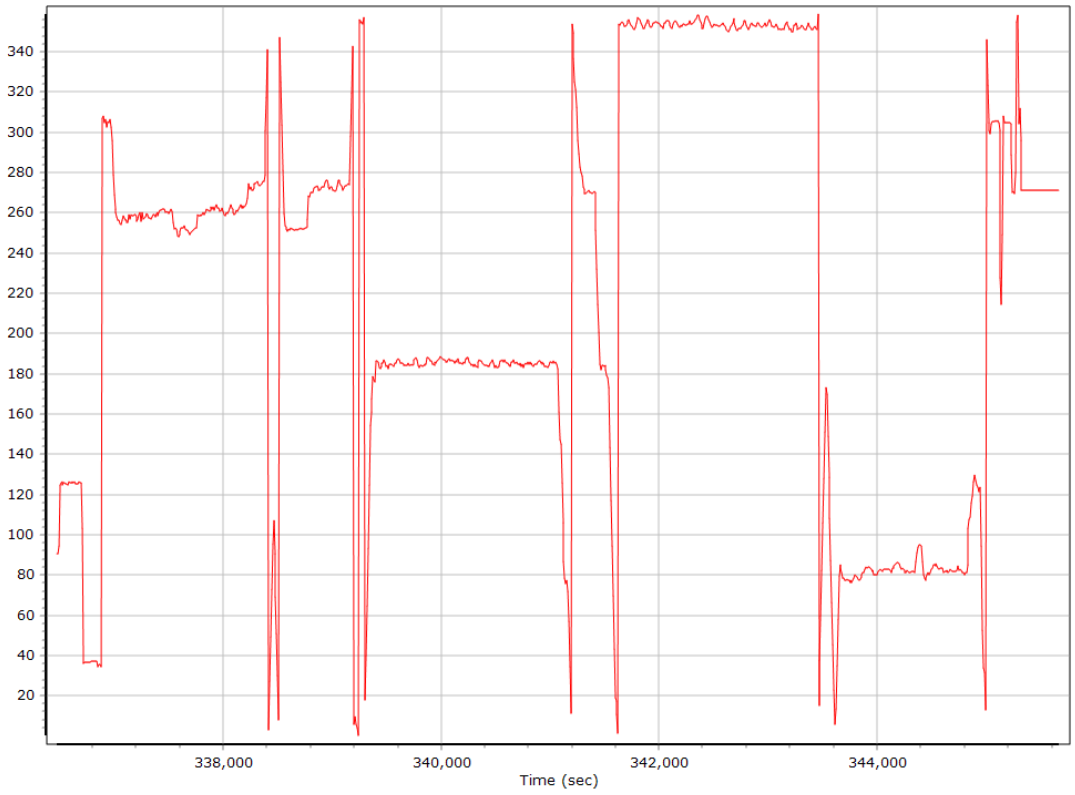

## Altitude



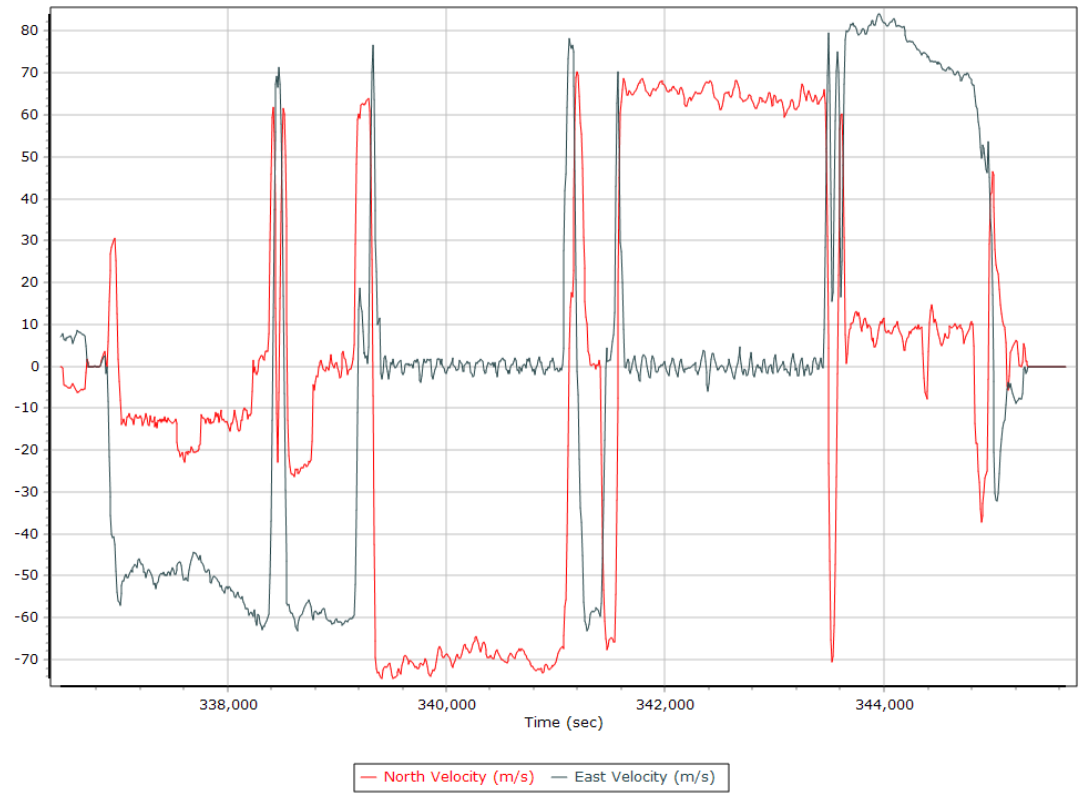
## Roll/Pitch



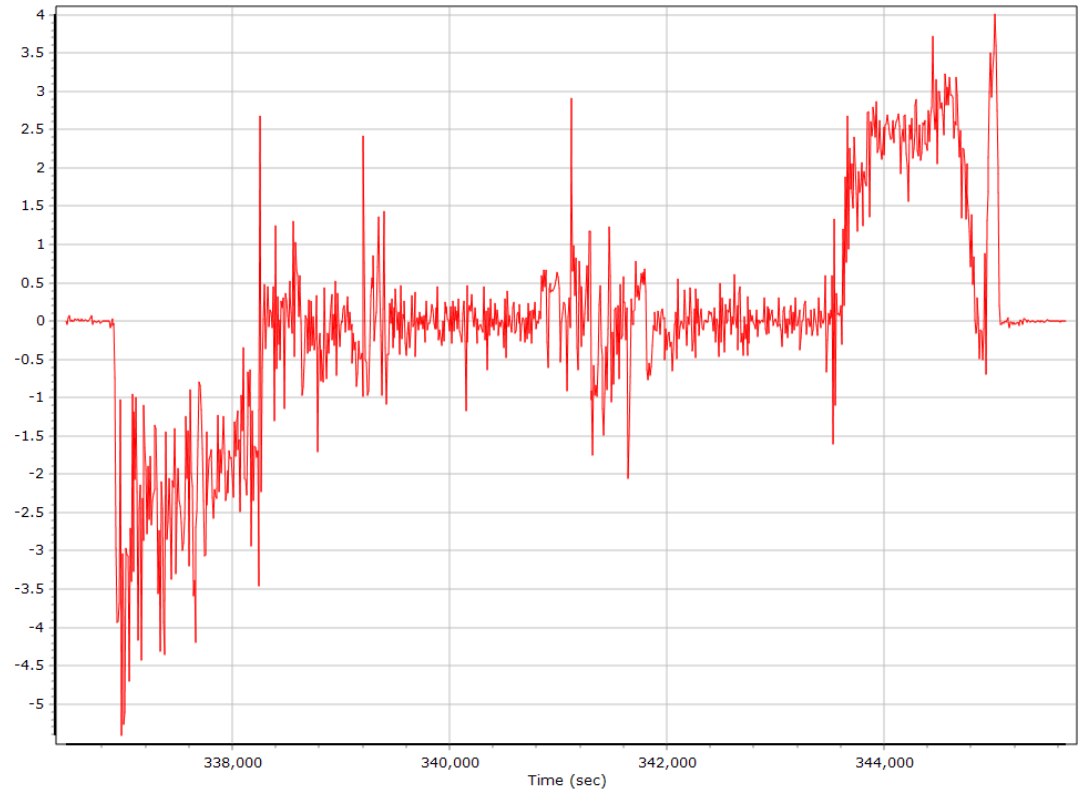

## Heading



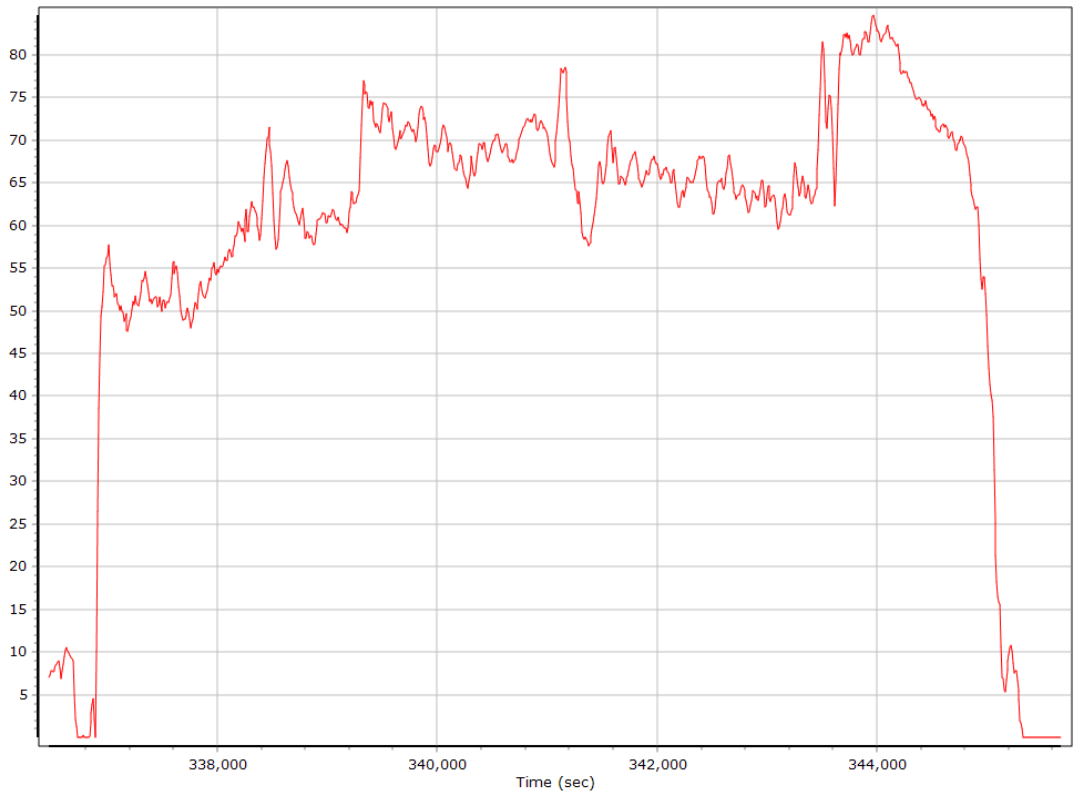
## North/East Velocity



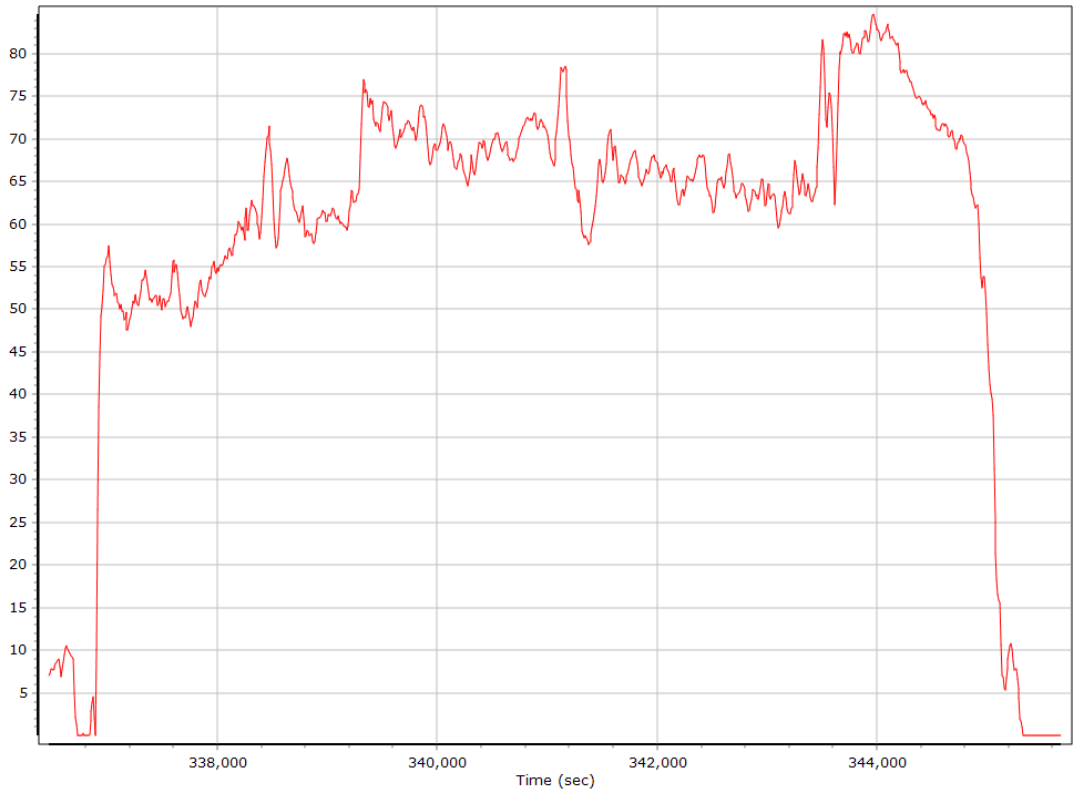

## Down Velocity



## Total Speed

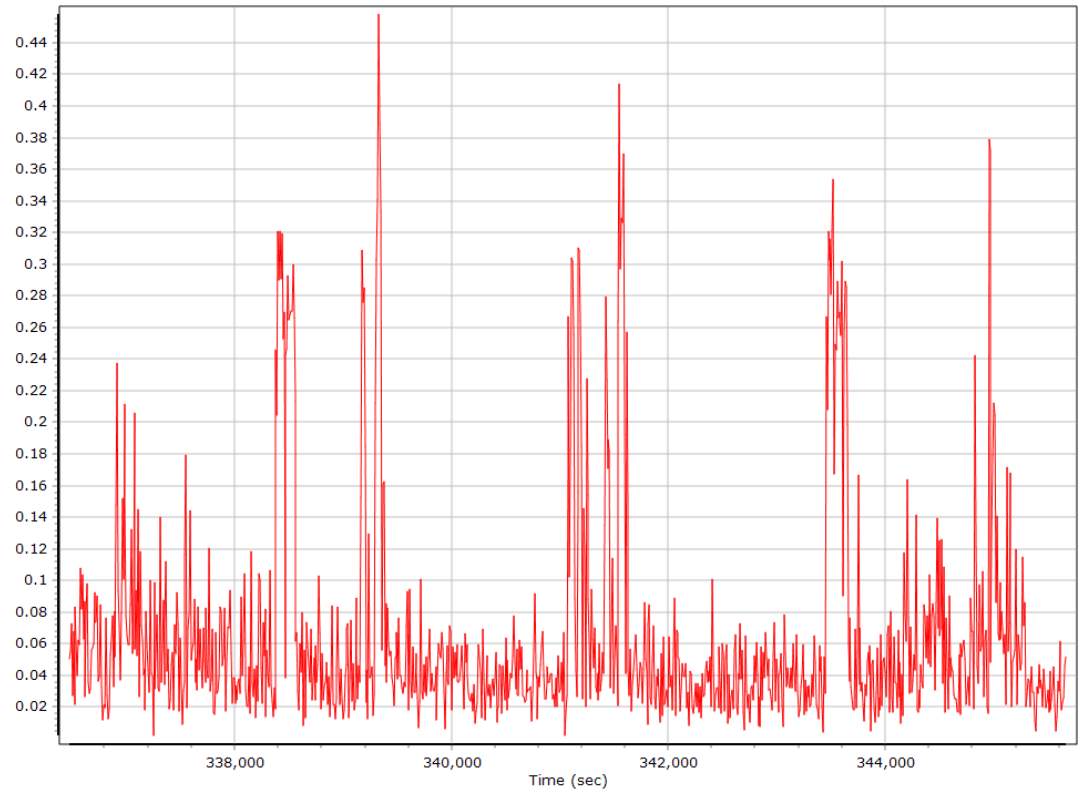



## Ground Speed



## Body Acceleration

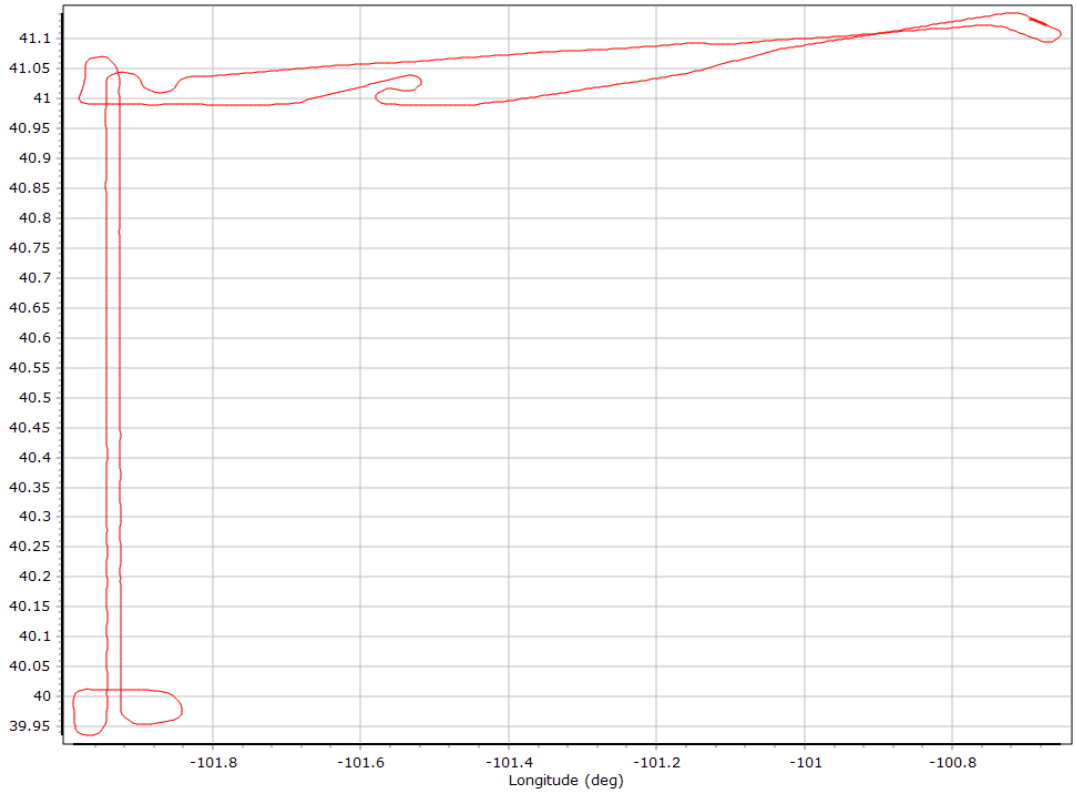

## Total Body Acceleration



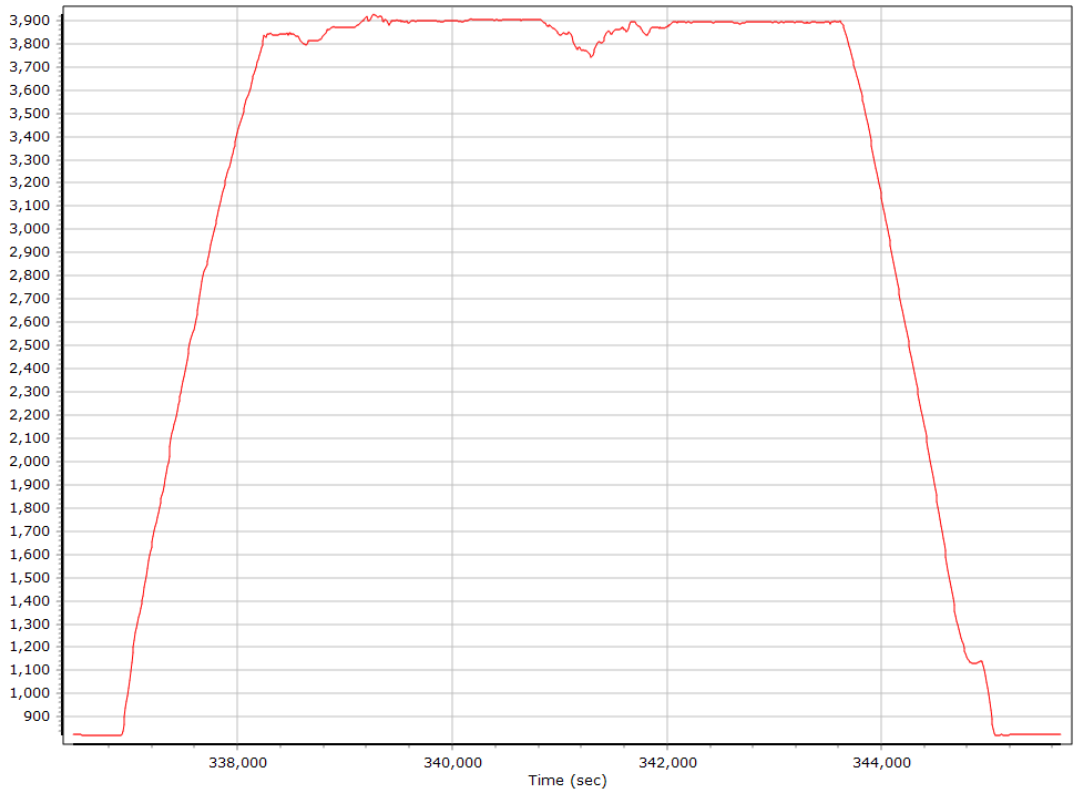
## Body Angular Rate

# Forward Processed Trajectory Information

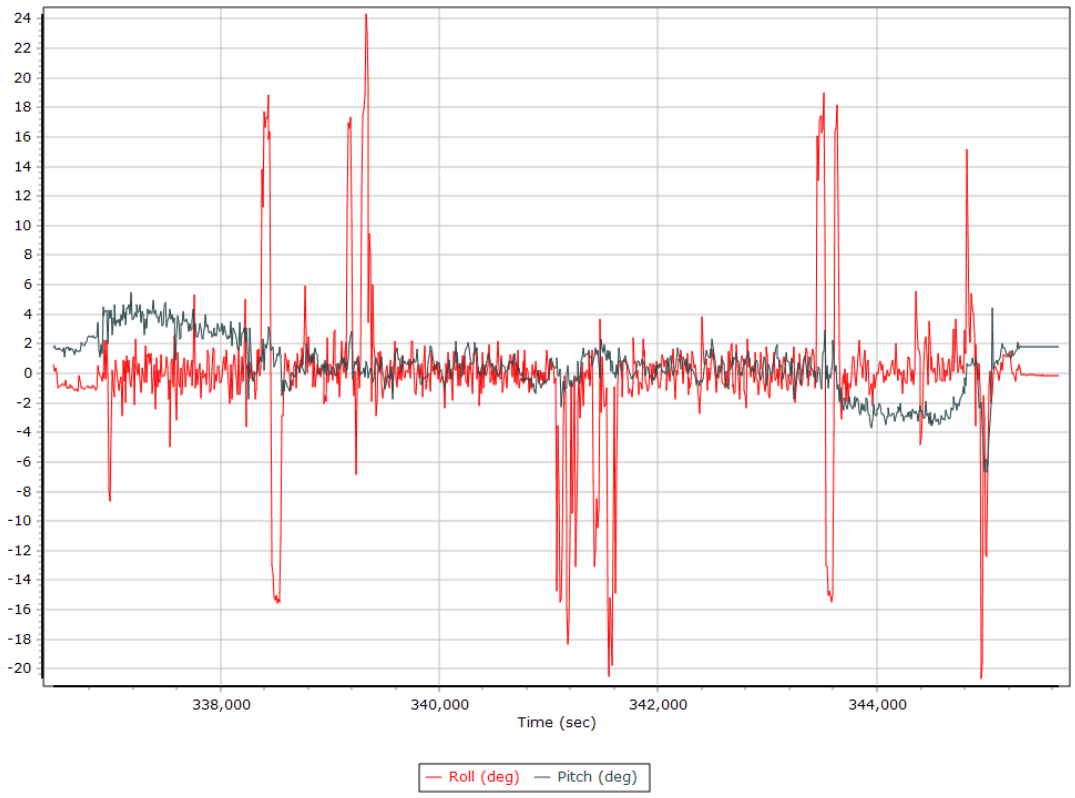
## Top View



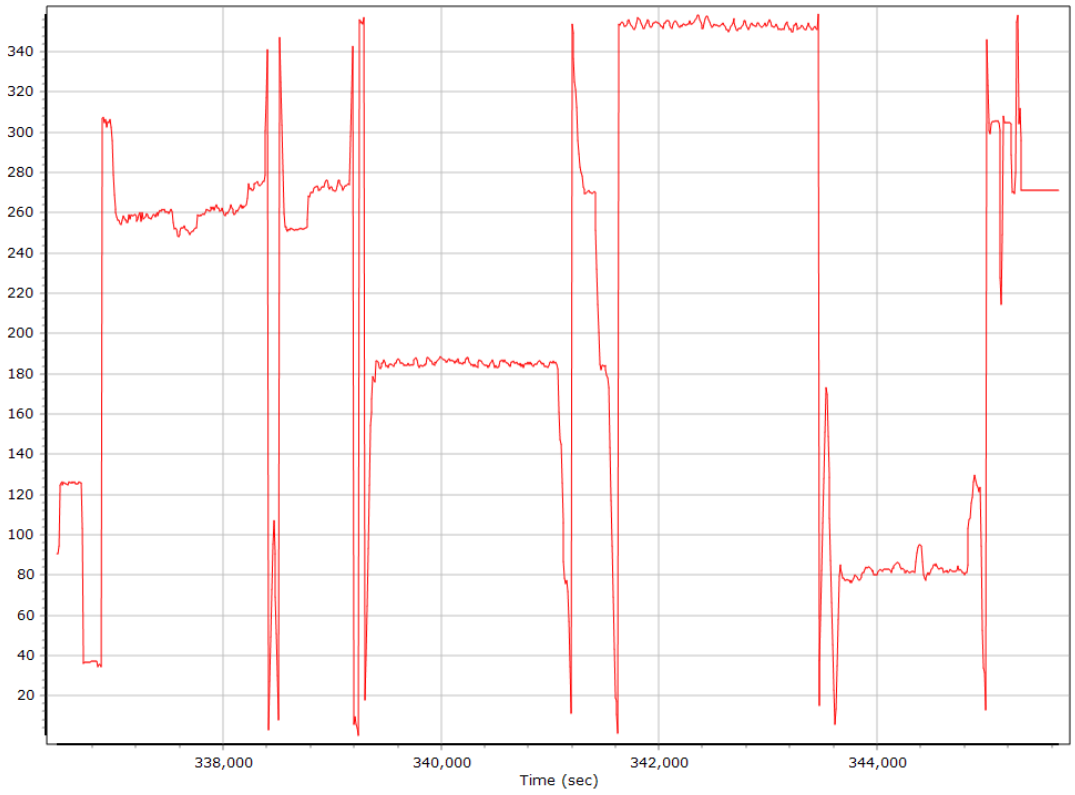

## Altitude



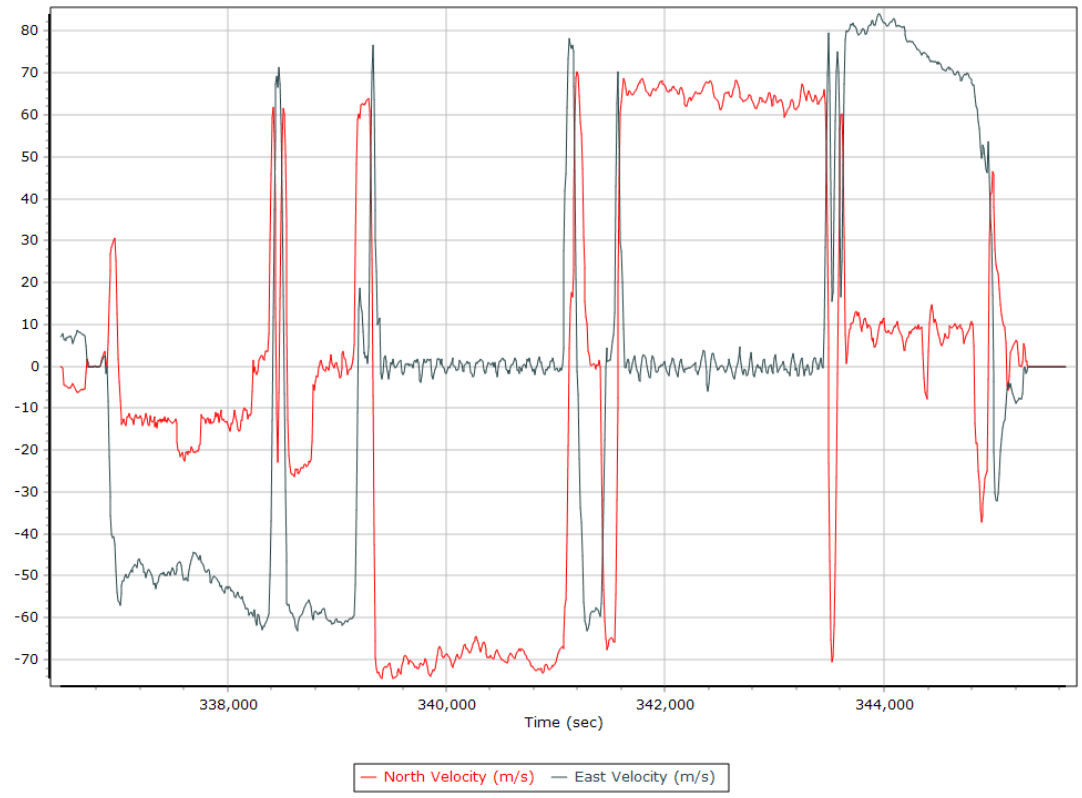
## Roll/Pitch



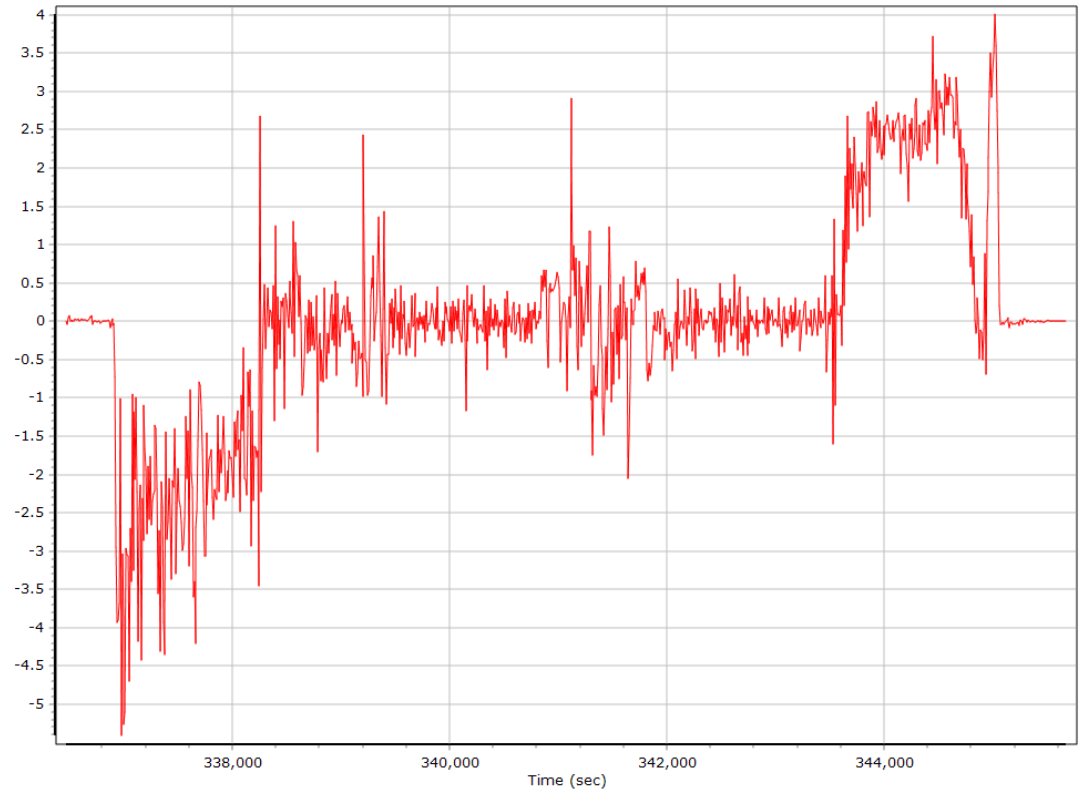

## Heading



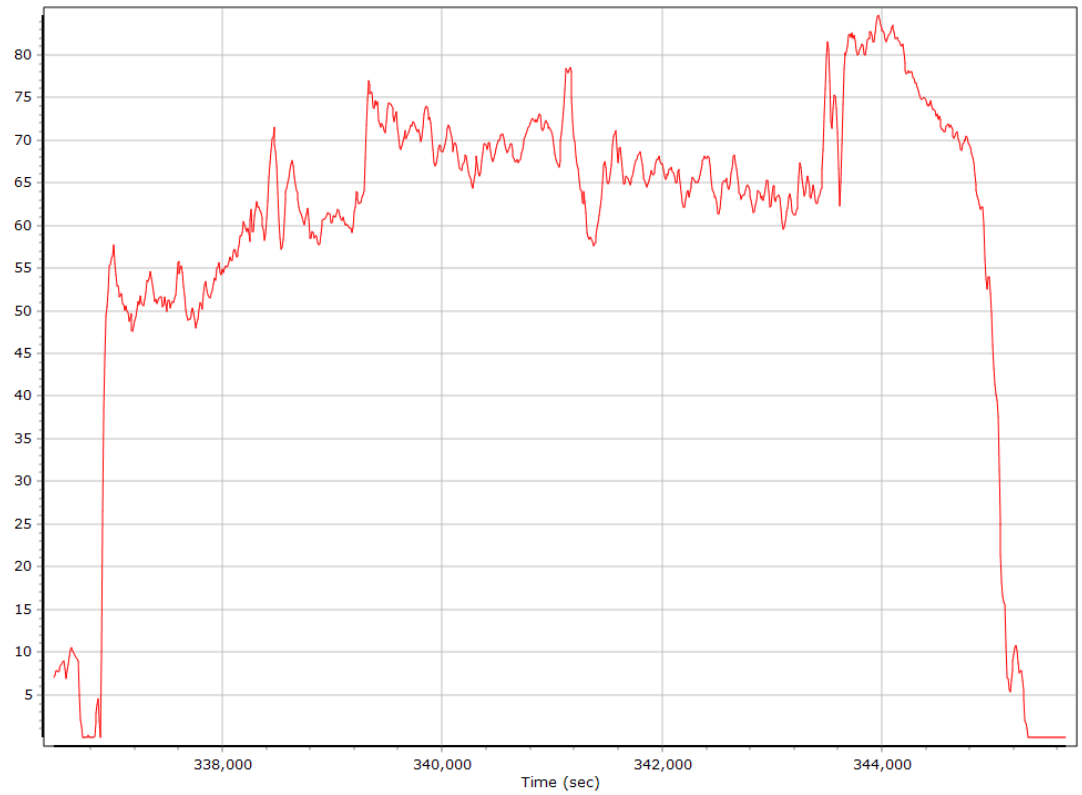
## North/East Velocity



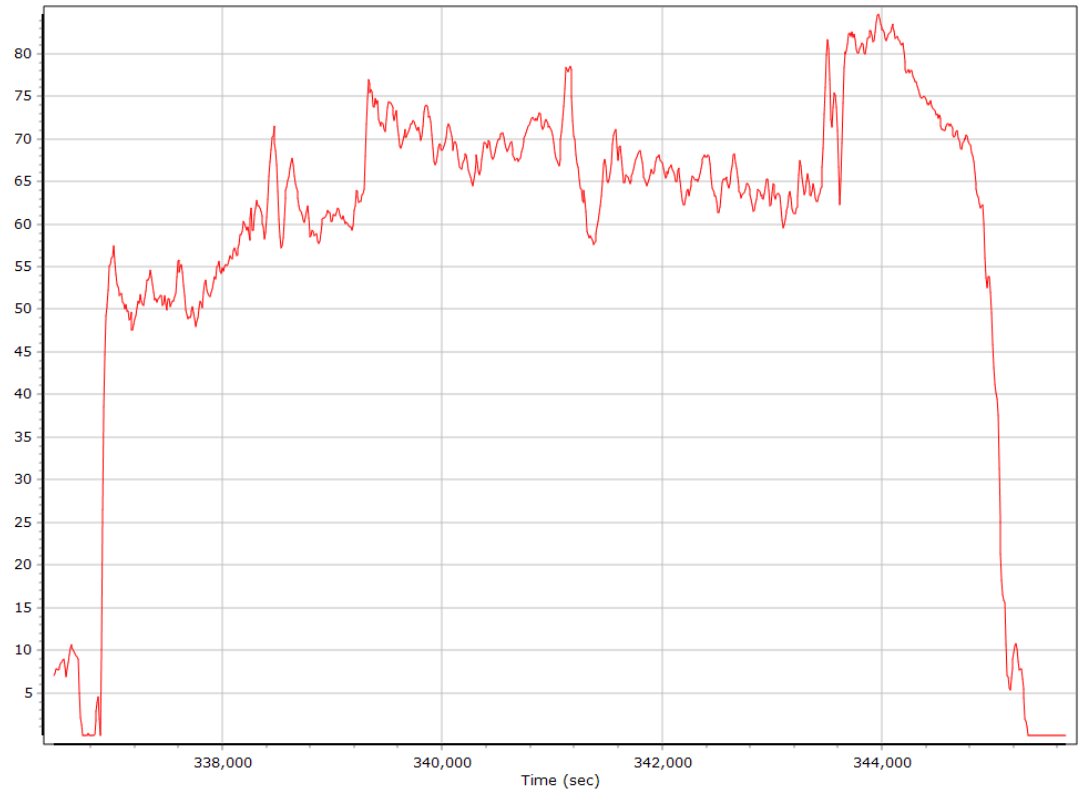

## Down Velocity



## Total Speed

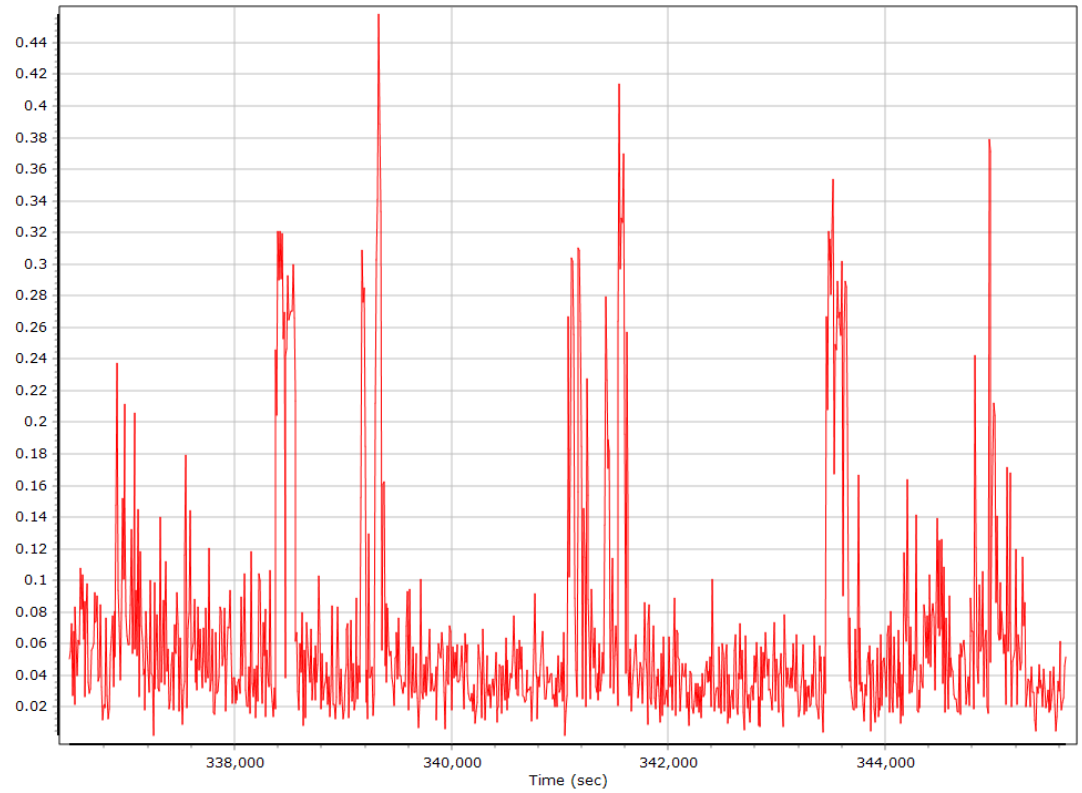



## Ground Speed



## Body Acceleration


## Total Body Acceleration



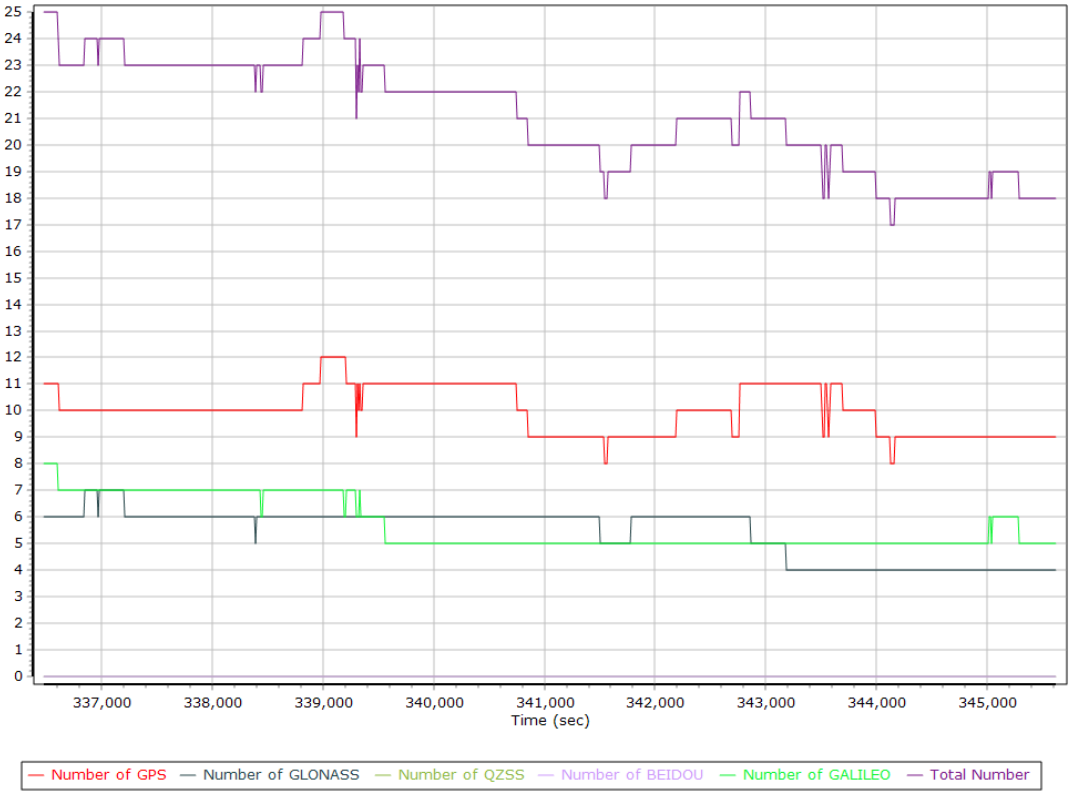
## Body Angular Rate

# GNSS QC

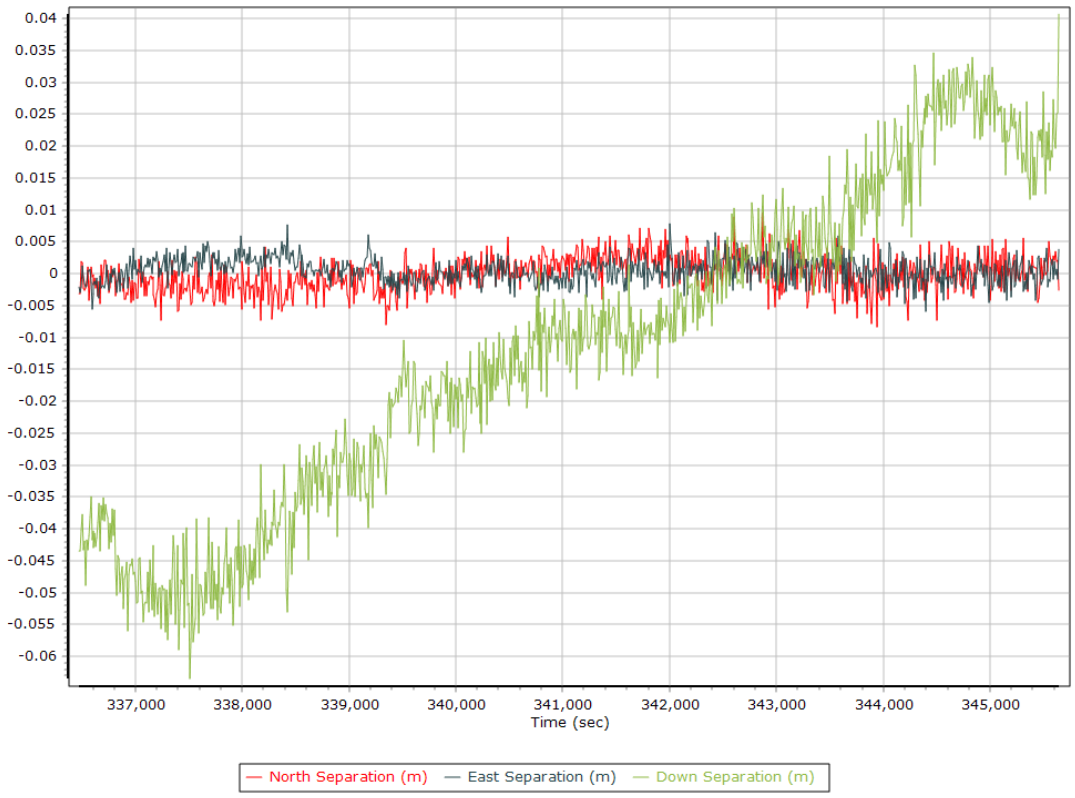
## GNSS QC Statistics

| Statistics | Min | Max | Mean |
|---|---|---|---|
| Baseline length (km) | 0.00 | 0.00 | |
| Number of GPS SV | 8 | 12 | 10 |
| Number of GLONASS SV | 4 | 7 | 5 |
| Number of QZSS SV | 0 | 0 | 0 |
| Number of BEIDOU SV | 0 | 0 | 0 |
| Number of GALILEO SV | 5 | 8 | 6 |
| Total number of SV | 17 | 25 | 21 |
| PDOP | 0.93 | 1.58 | 1.11 |
| QC Solution Gaps | 0.00 | 0.00 | |
| Solution Type | Fixed | Float | No solution |
| Epoch (sec) | 9609.00 | 0.00 | 0.00 |
| Percentage | 100.00 | 0.00 | 0.00 |

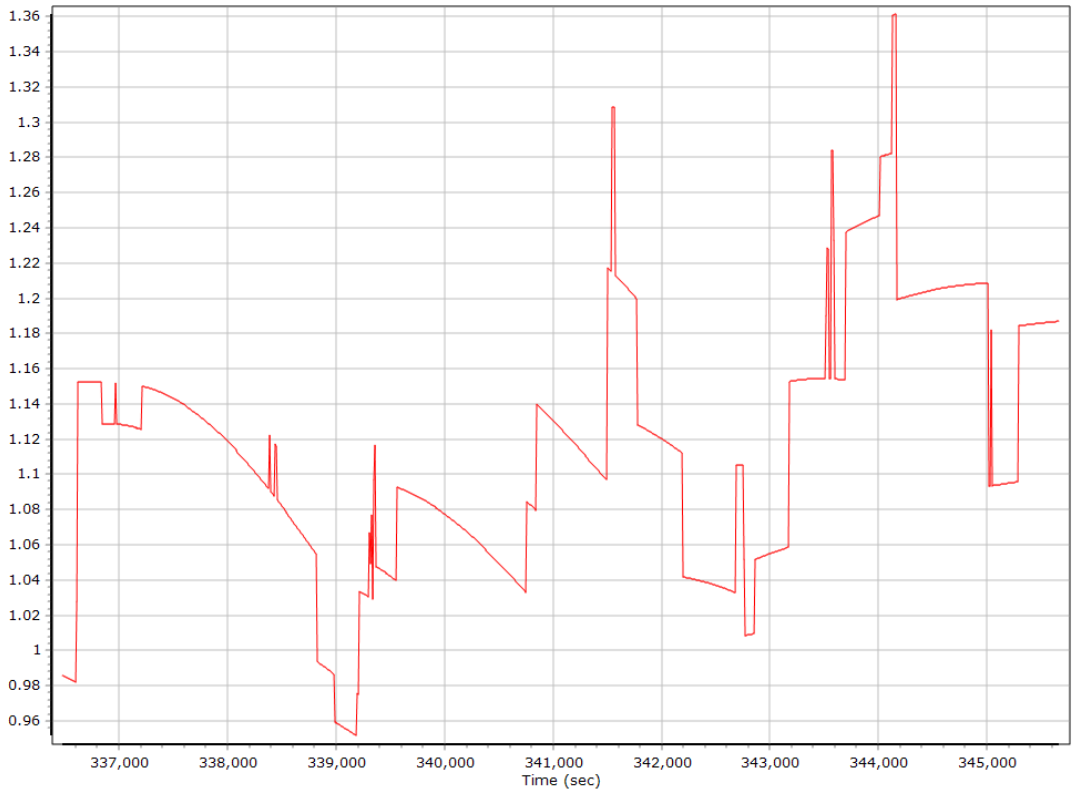
## Num SVs in solution



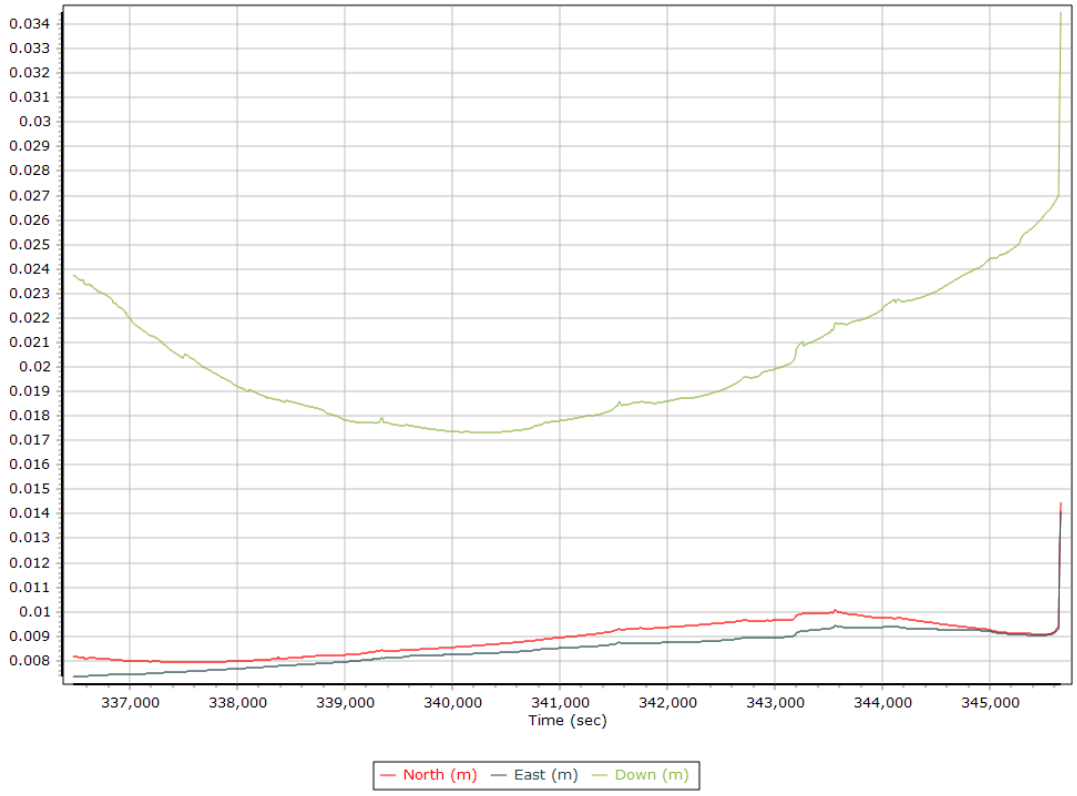
## Forward/Reverse Separation



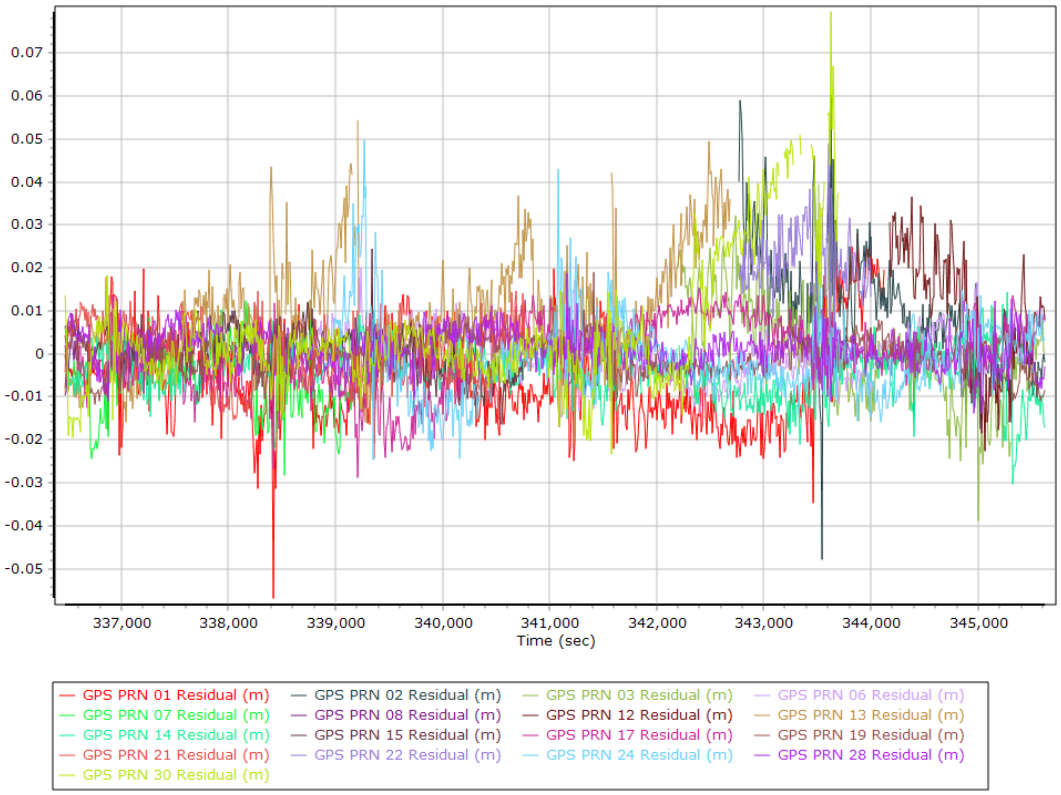

## PDOP



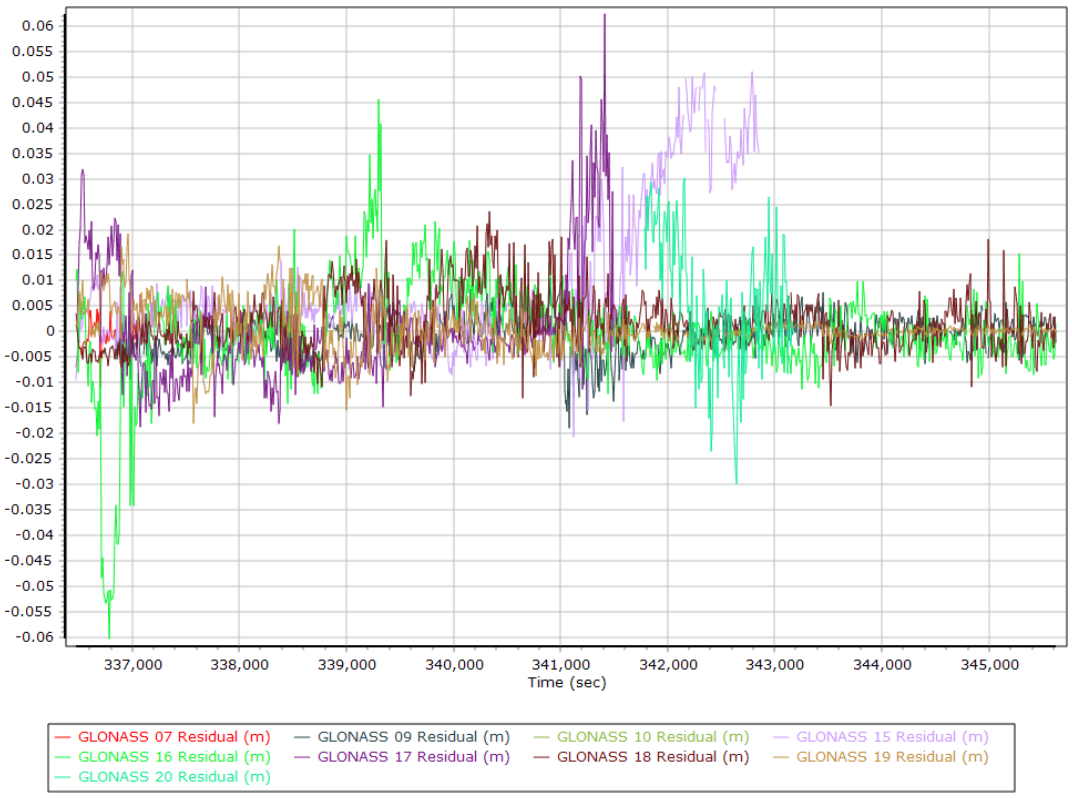
## Estimated Position Accuracy



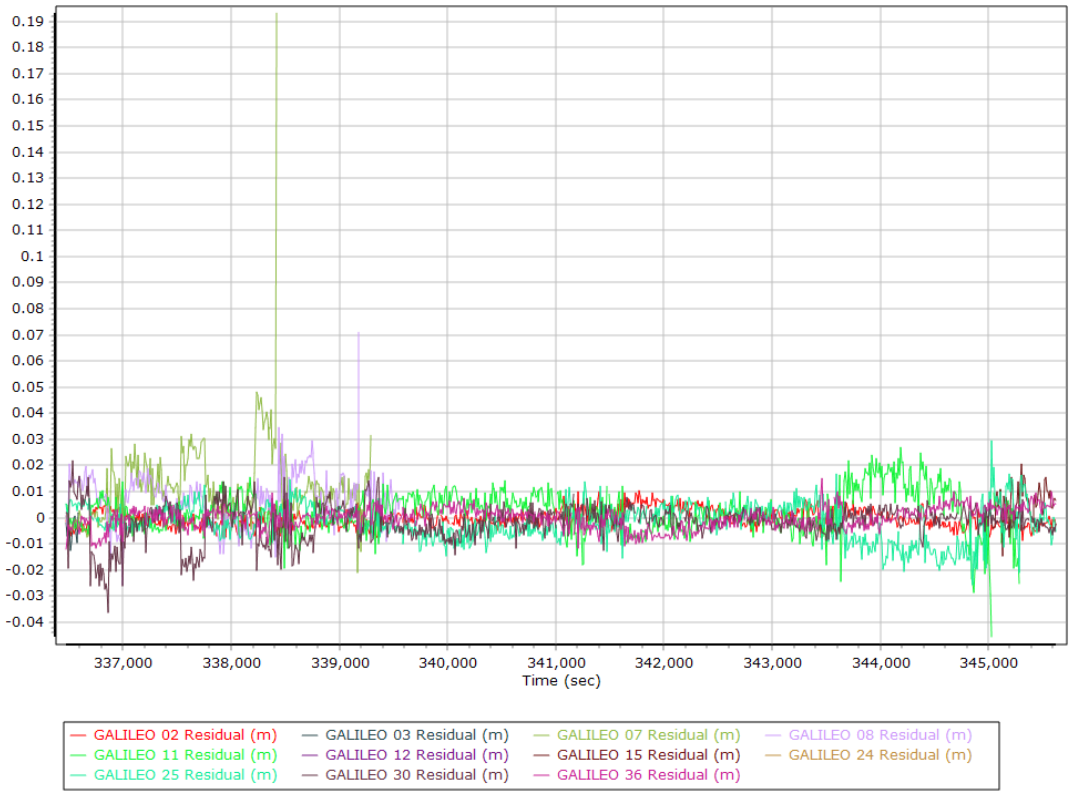

## GPS Residuals



## GLONASS Residuals




## GALILEO Residuals



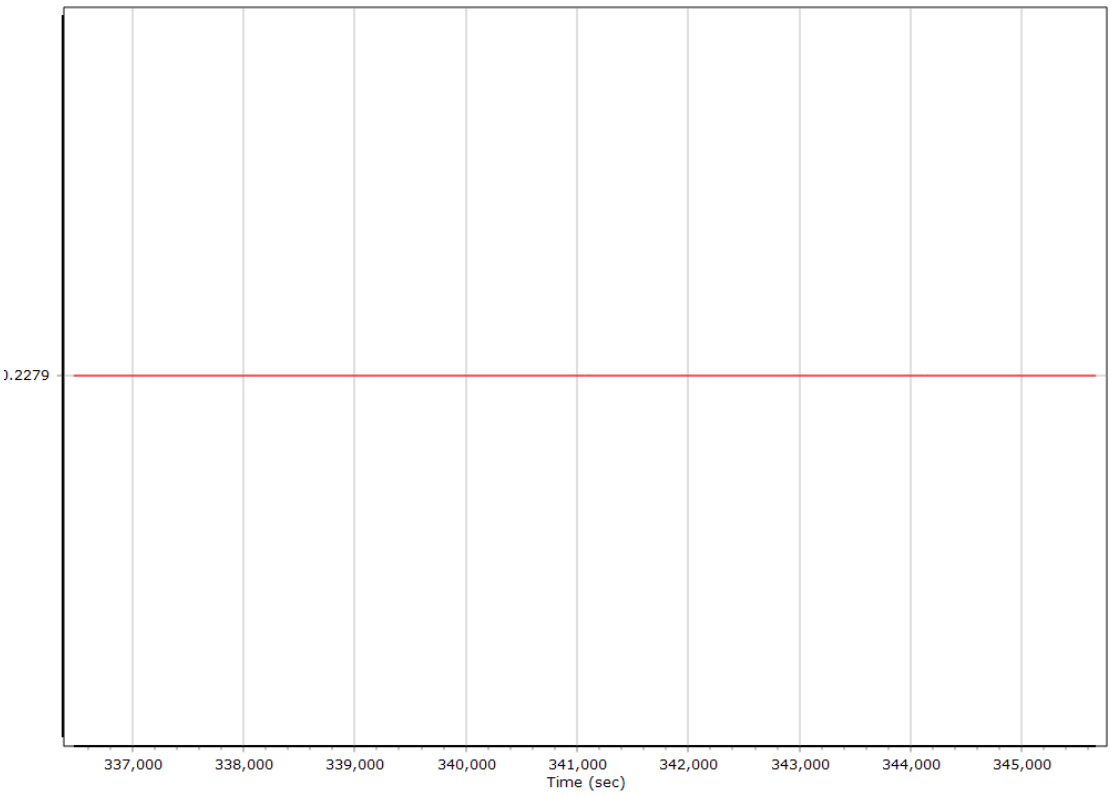
# GNSS-Inertial Processor Configuration

| | | | |
|---|---|---|---|
| **Processing mode** | IN-Fusion PP-RTX | | |
| **Stabilized mount** | False | | |
| **Processing start time** | 336017.000 (03/03/2021 21:20:17) | | |
| **Processing end time** | 345671.000 (03/04/2021 00:01:11) | | |
| **Initial attitude source** | Real-Time VNAV/RNAV Attitude | | |
| **IMU Sensor Context** | Processing with Onboard IMU | | |
| **Reference to IMU lever arm (m)** | 0.000 | 0.000 | 0.000 |
| **Reference to IMU mounting angles (deg)** | 0.000 | 0.000 | 180.000 |
| **Reference to Primary GNSS lever arm (m)** | 0.228 | -0.286 | -0.967 |
| **Reference to Primary GNSS lever arm std dev (m)** | 0.030 | 0.030 | 0.030 |
| **Aircraft to Reference mounting angles (deg)** | 0.000 | 0.000 | 0.000 |

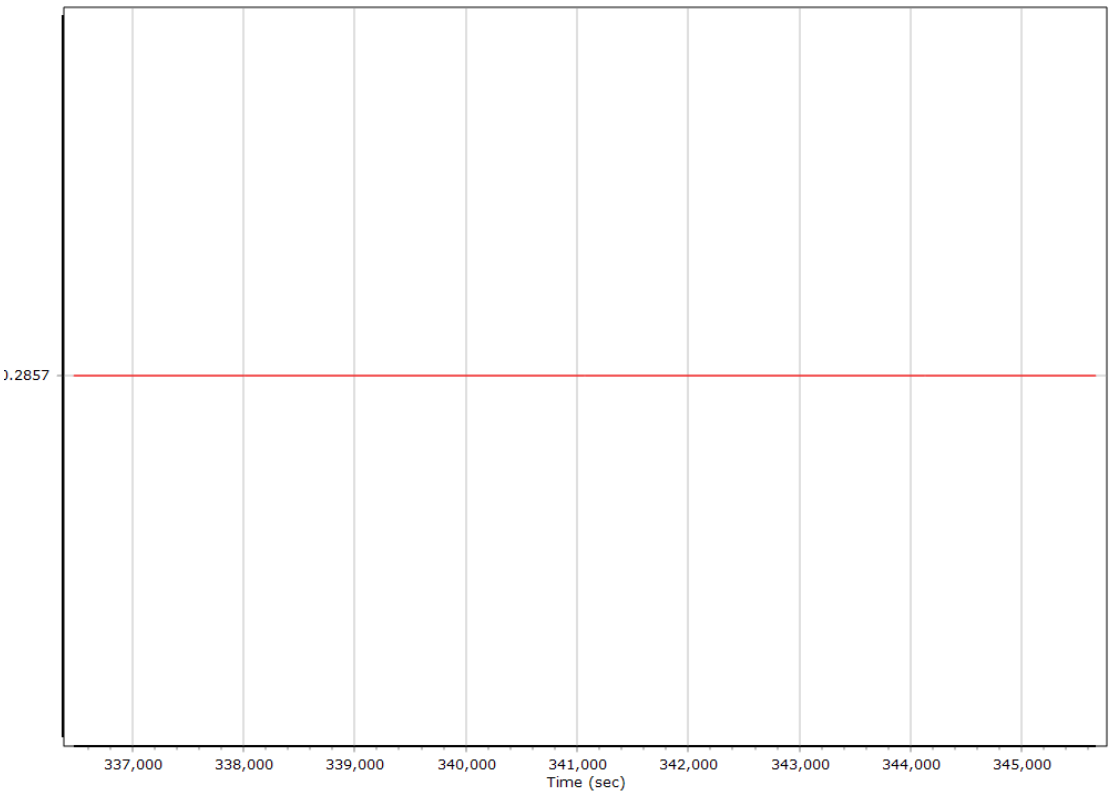
# Calibrated Installation Parameters

## Reference-Primary GNSS Lever Arm (m)

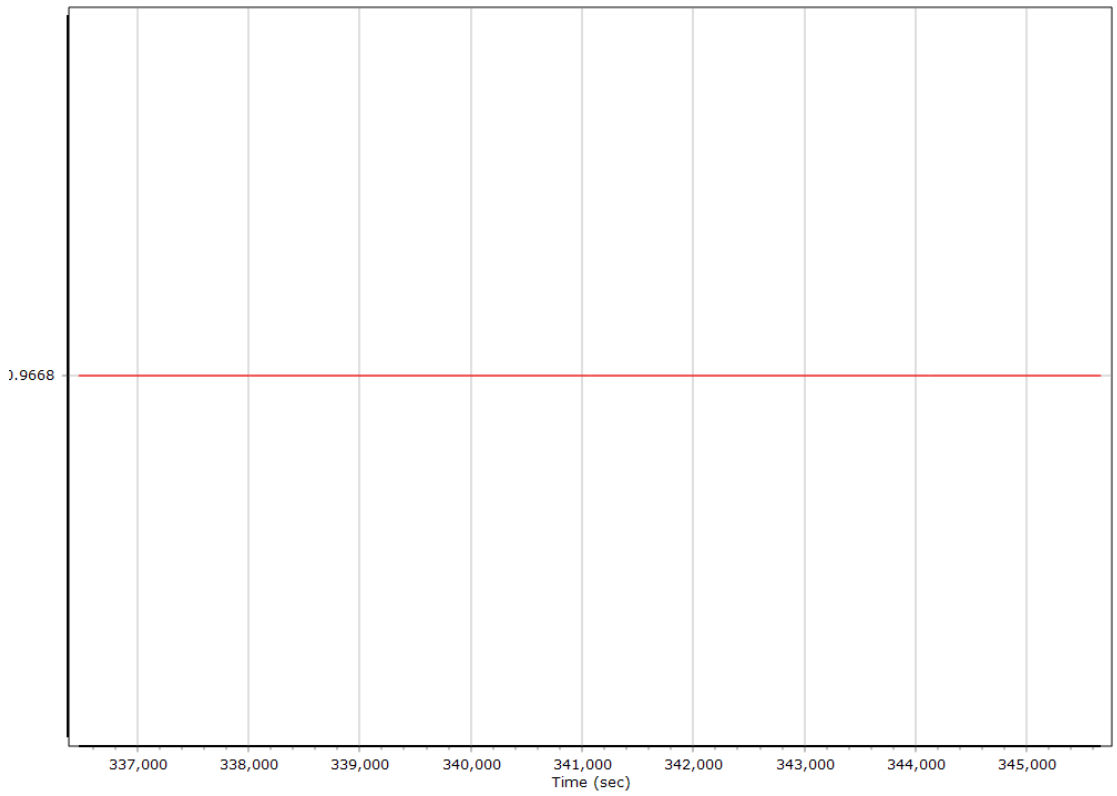
### X Reference-Primary GNSS Lever Arm (m)



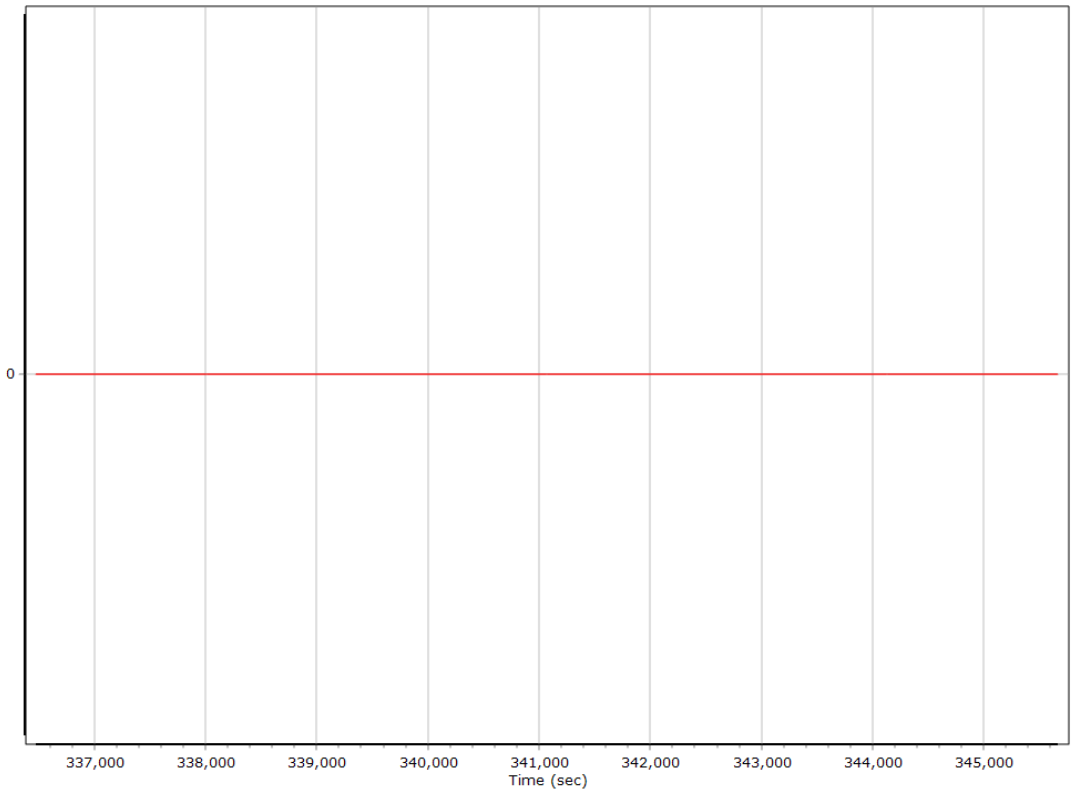

### Y Reference-Primary GNSS Lever Arm (m)



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



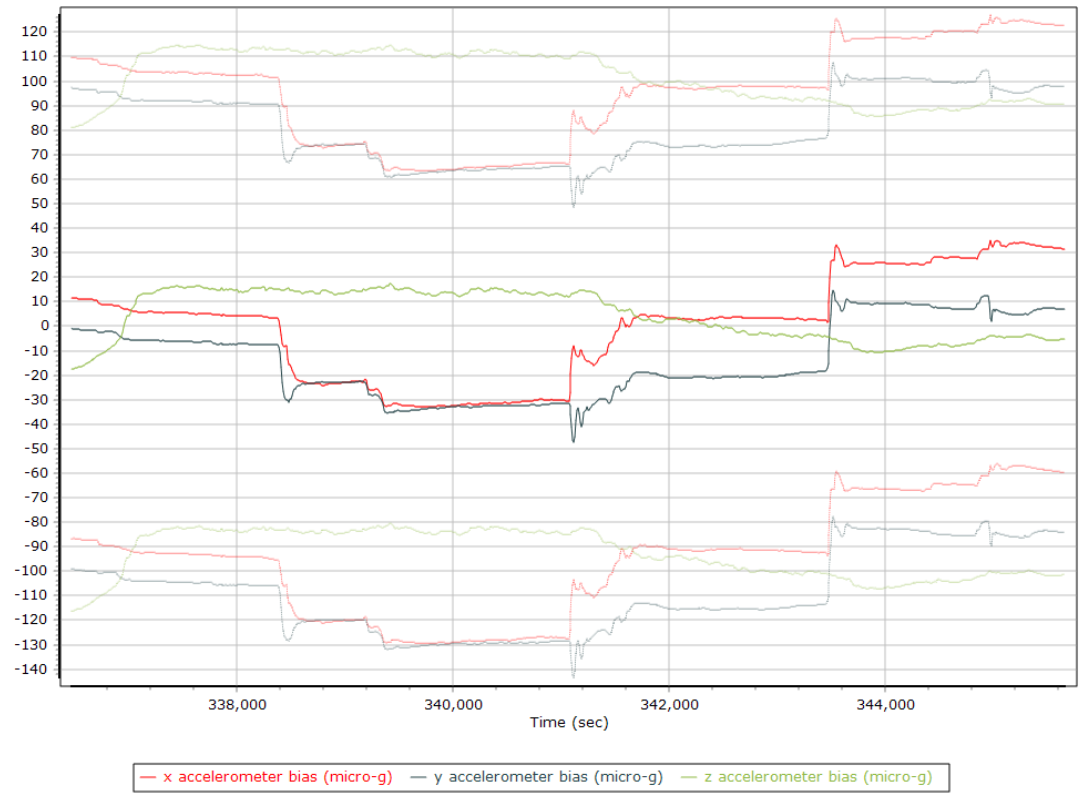

## Reference-Primary GNSS Lever Arm Figure of Merit



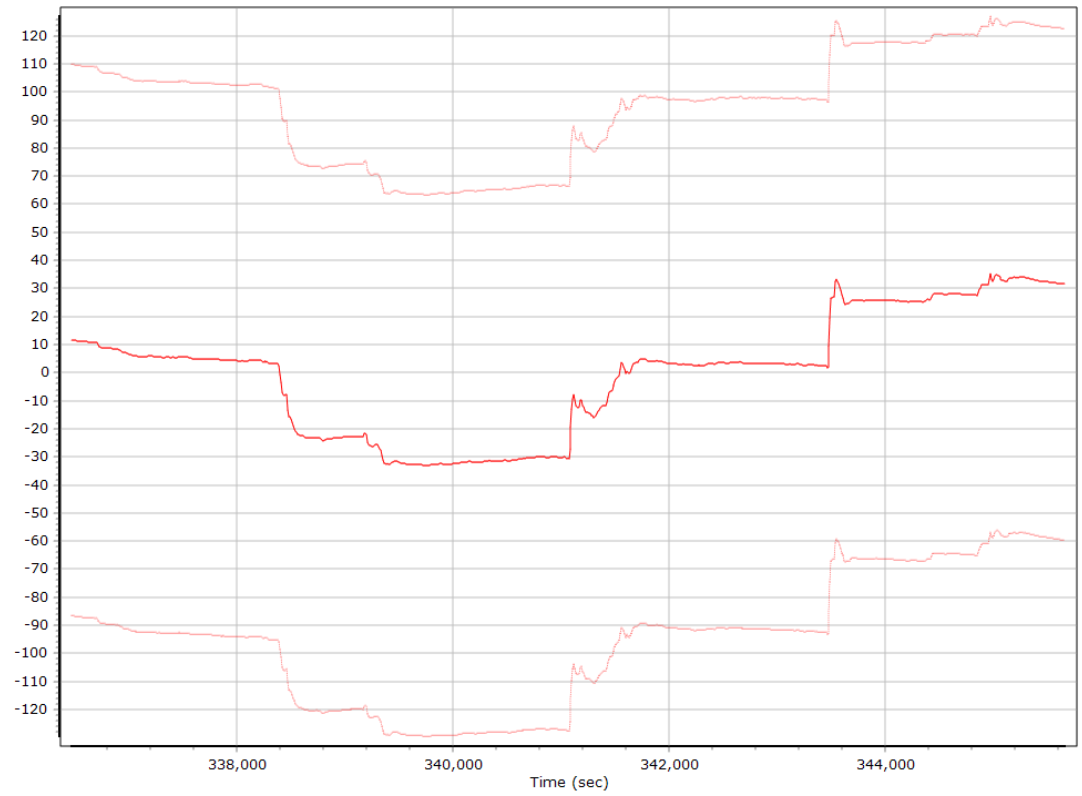
# IN-Fusion QC

## Forward Processed Estimated Errors, Reference Frame

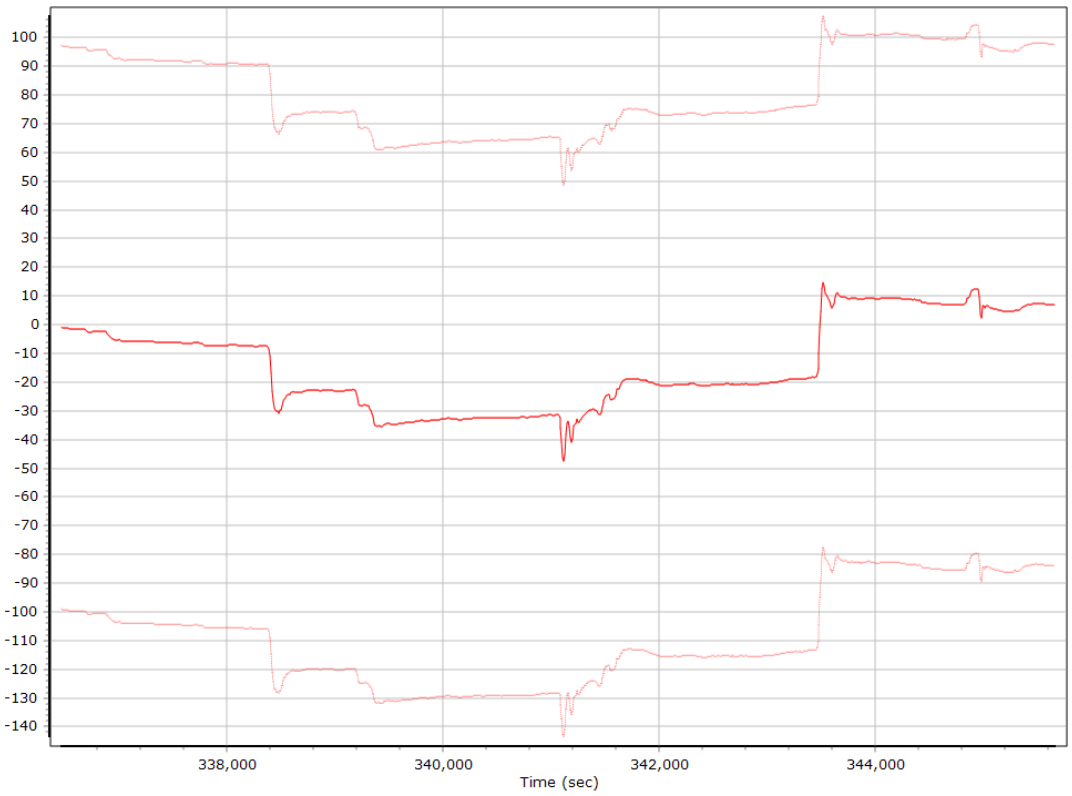
### Accelerometer Bias (micro-g)



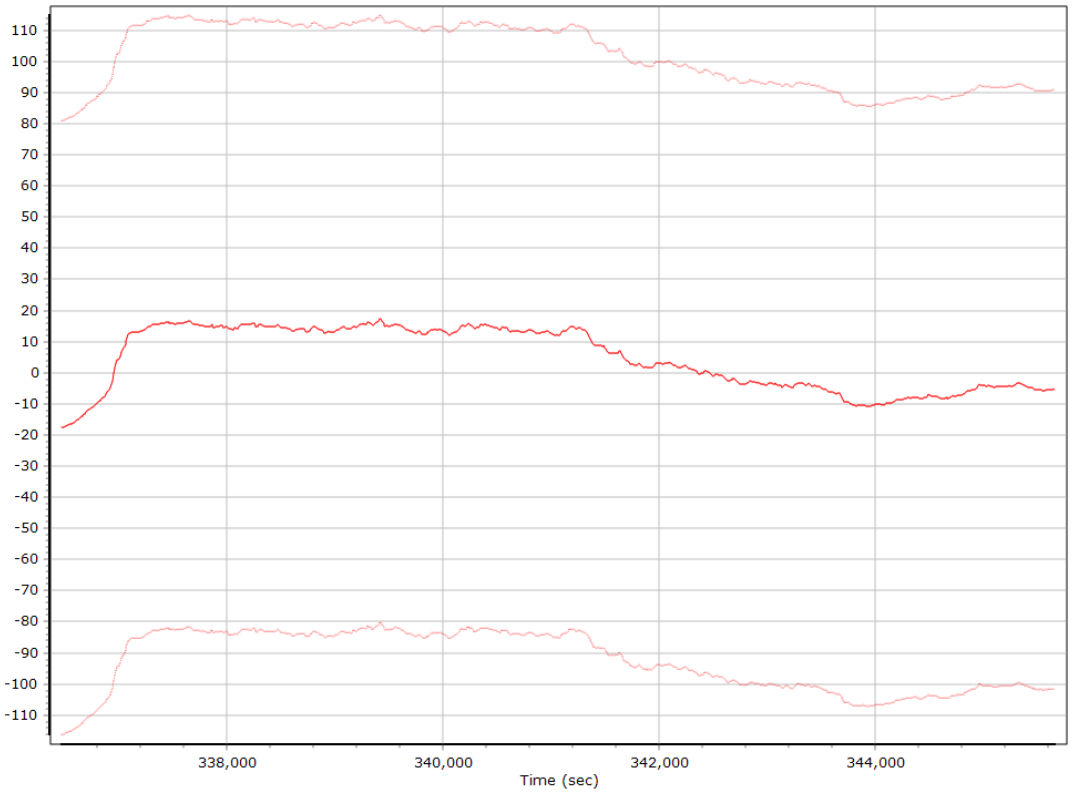

### X Accelerometer Bias (micro-g)



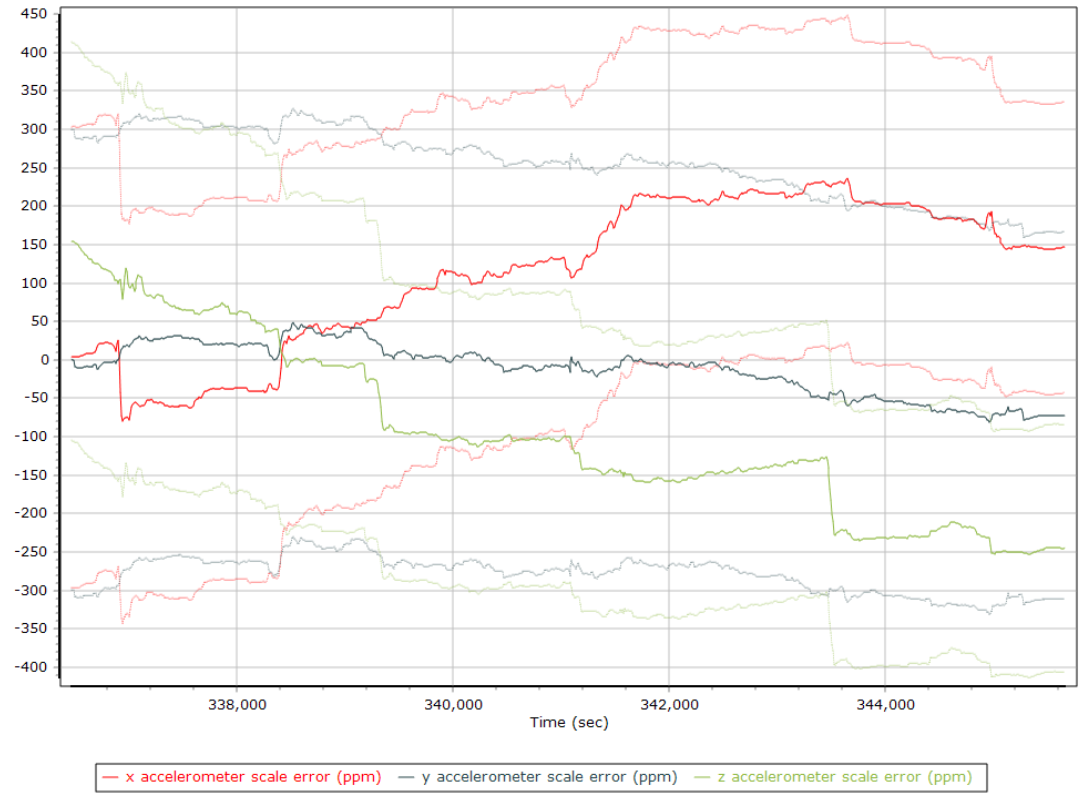
## Y Accelerometer Bias (micro-g)



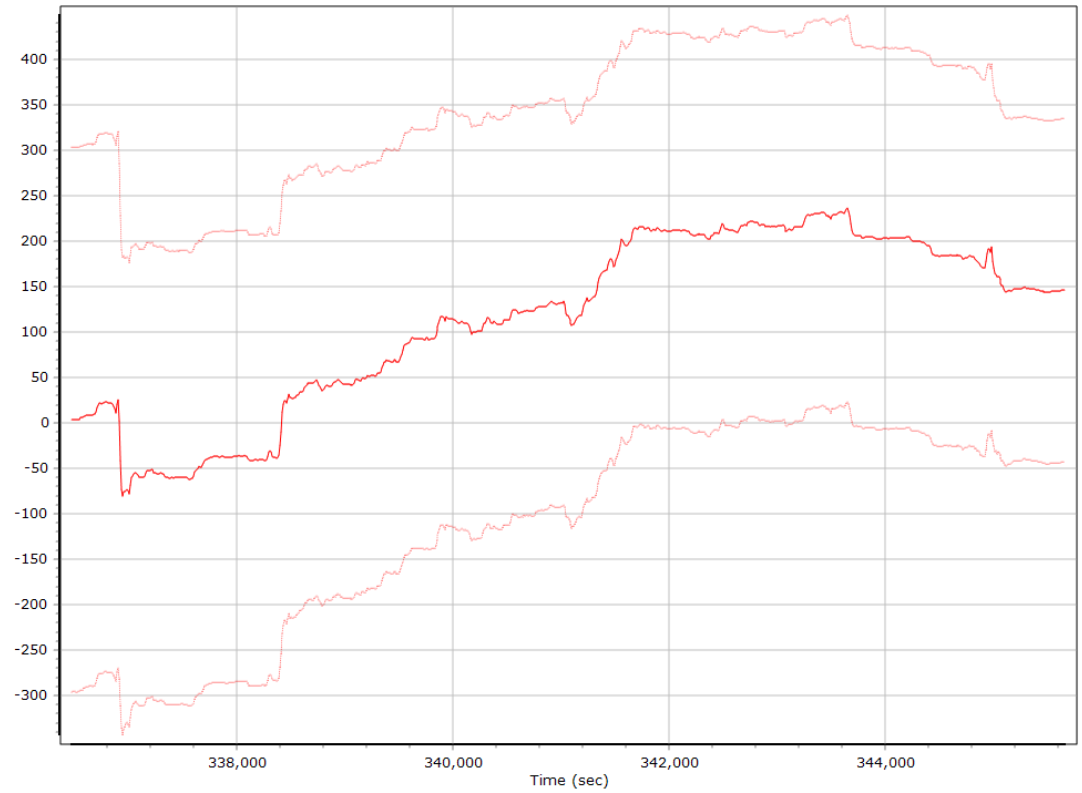

## Z Accelerometer Bias (micro-g)



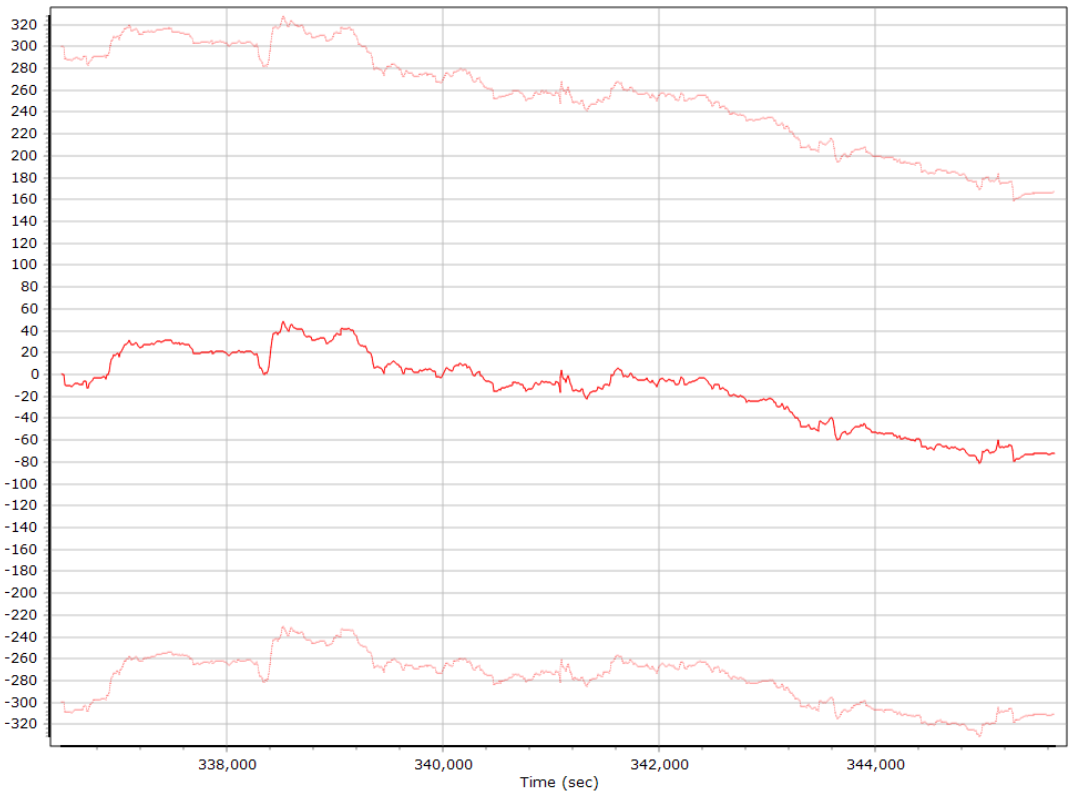
## Accelerometer Scale Error (ppm)



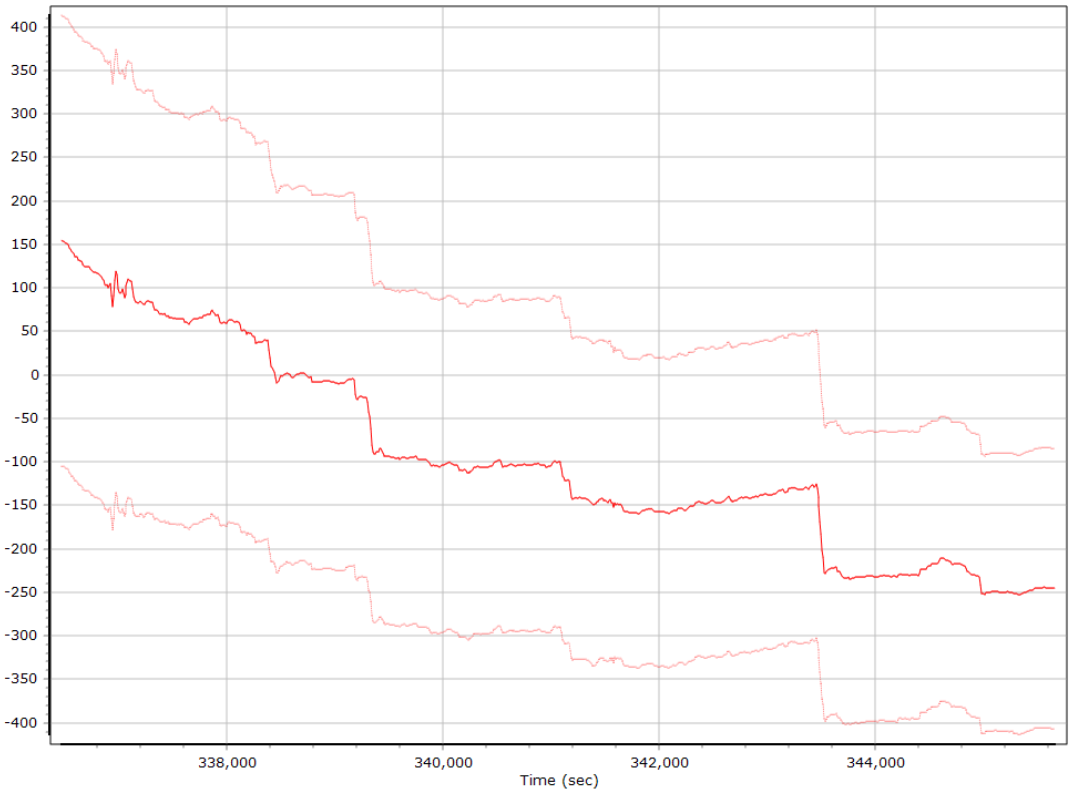

## X Accelerometer Scale Error (ppm)



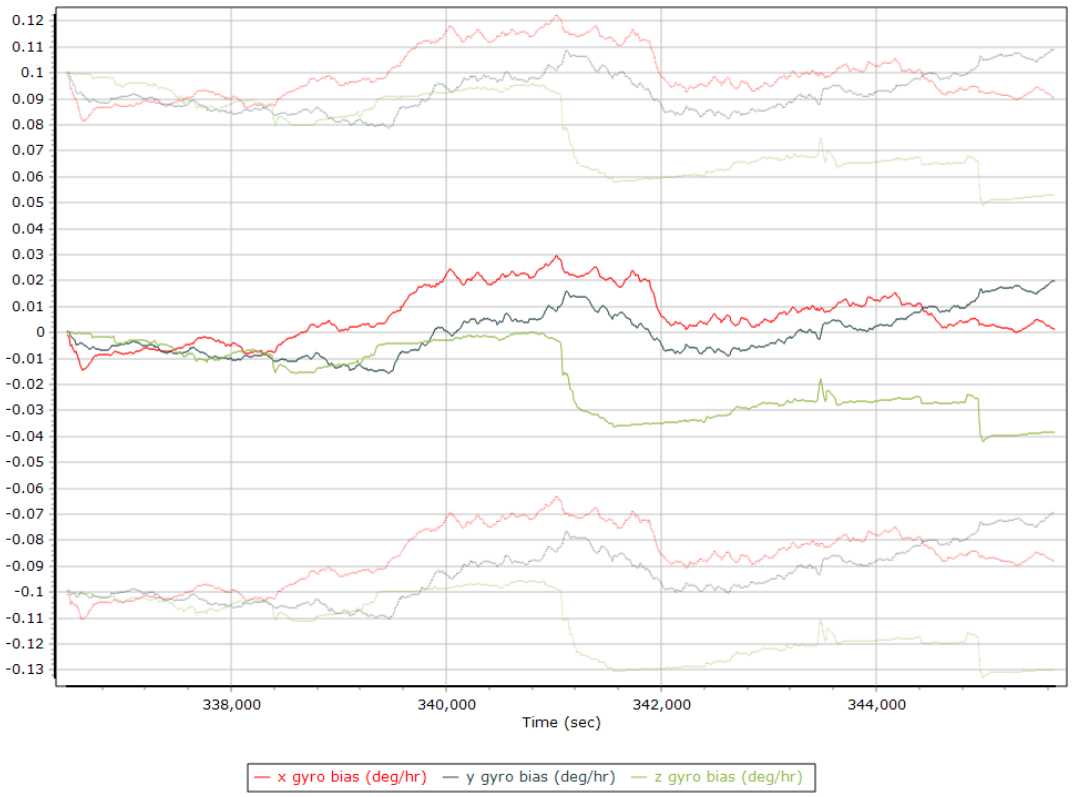
## Y Accelerometer Scale Error (ppm)



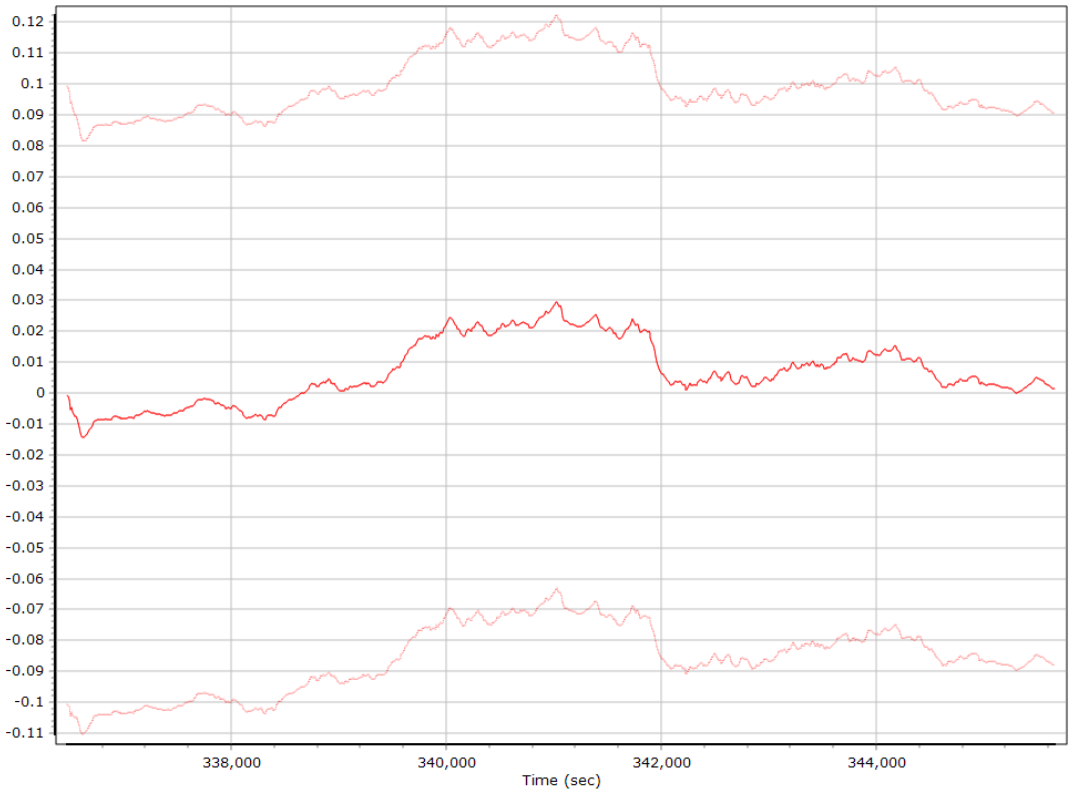

## Z Accelerometer Scale Error (ppm)



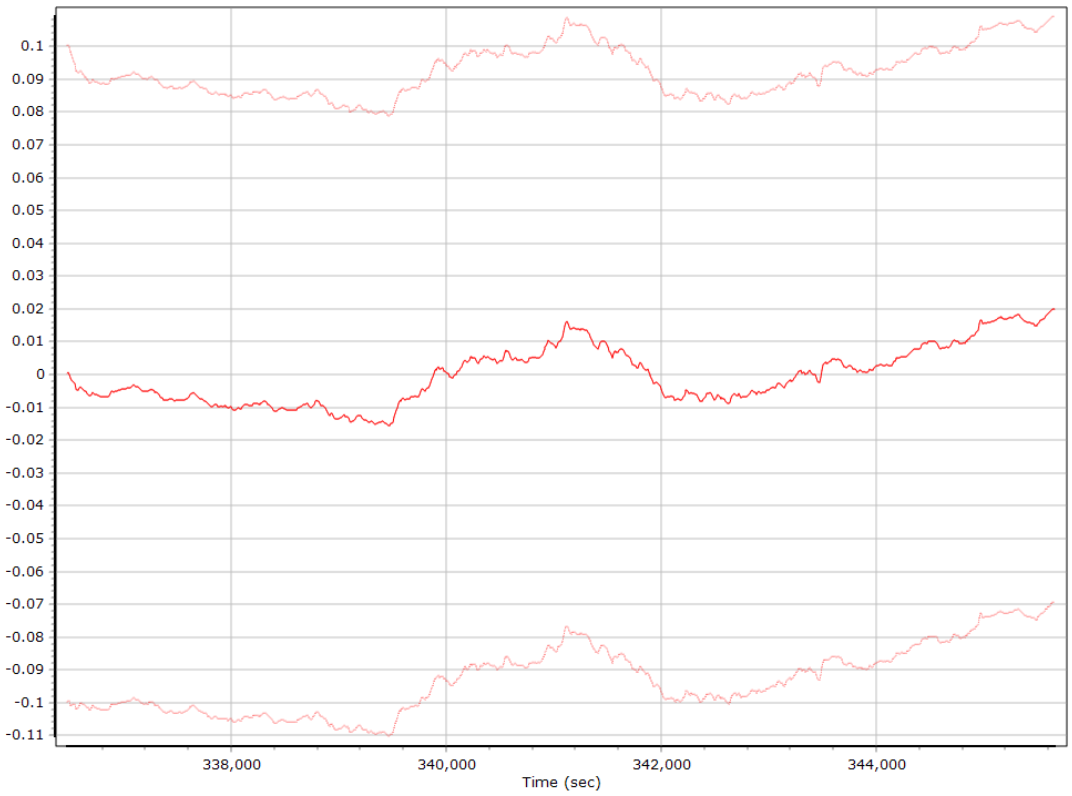
## Gyro Bias (deg/h)



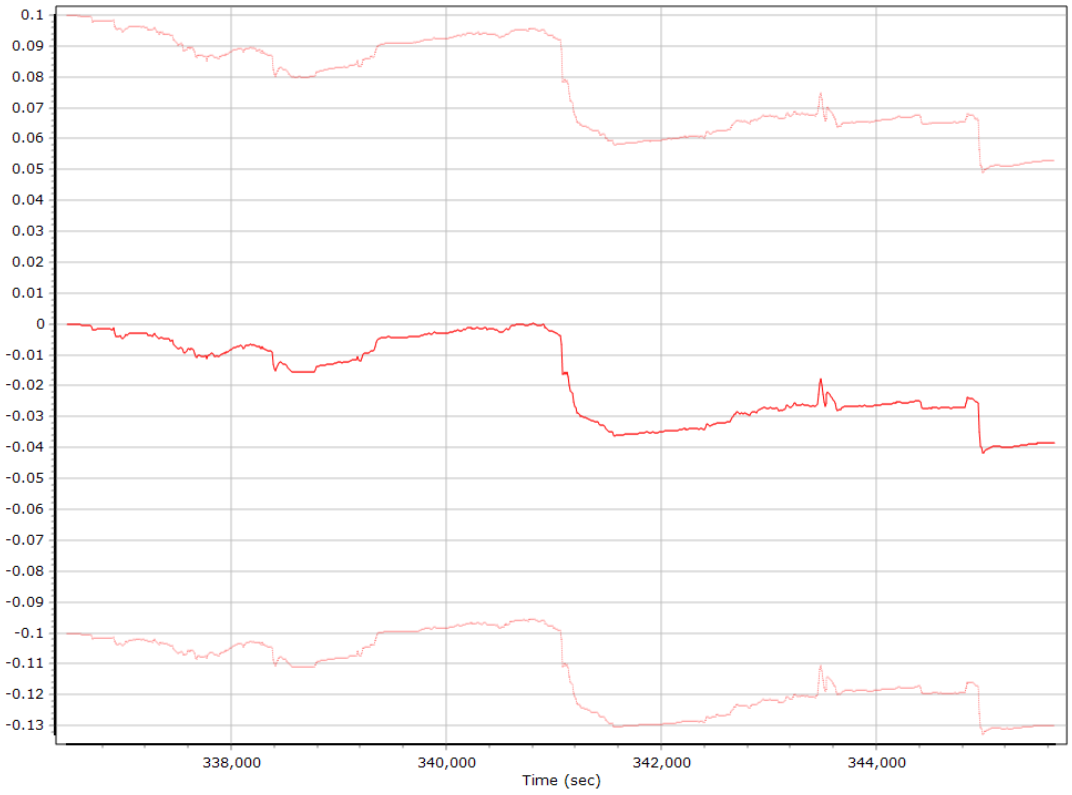

## X Gyro Bias (deg/h)



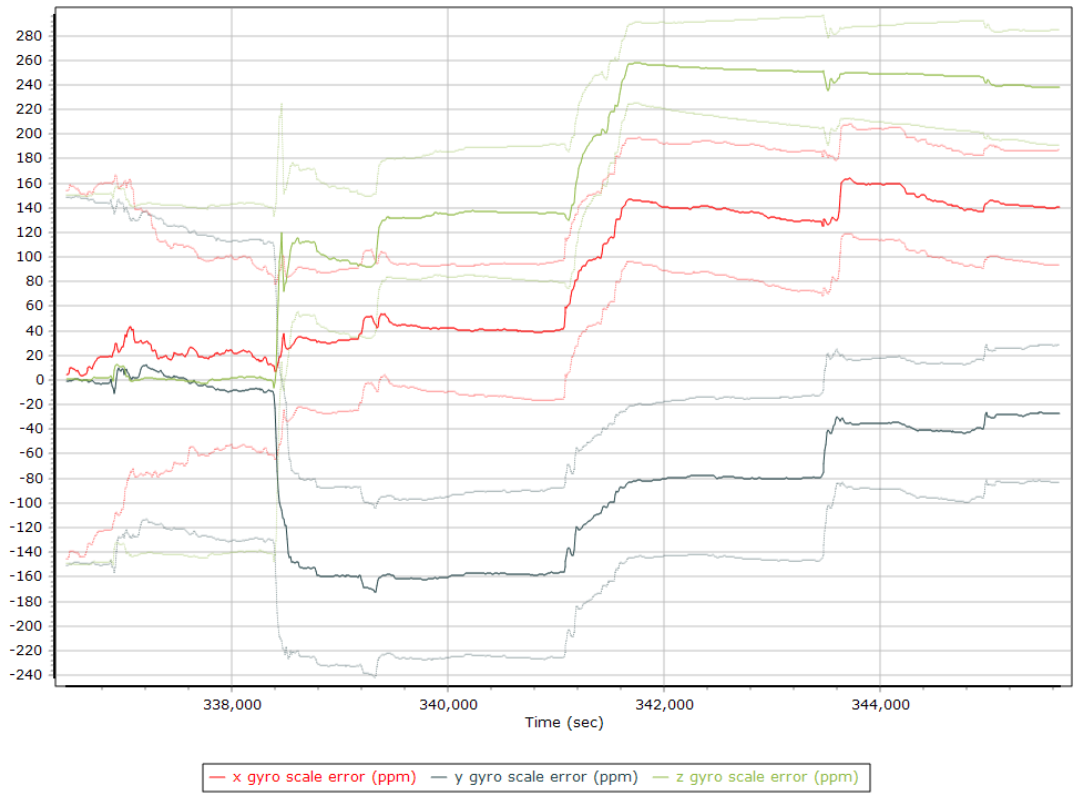
## Y Gyro Bias (deg/h)



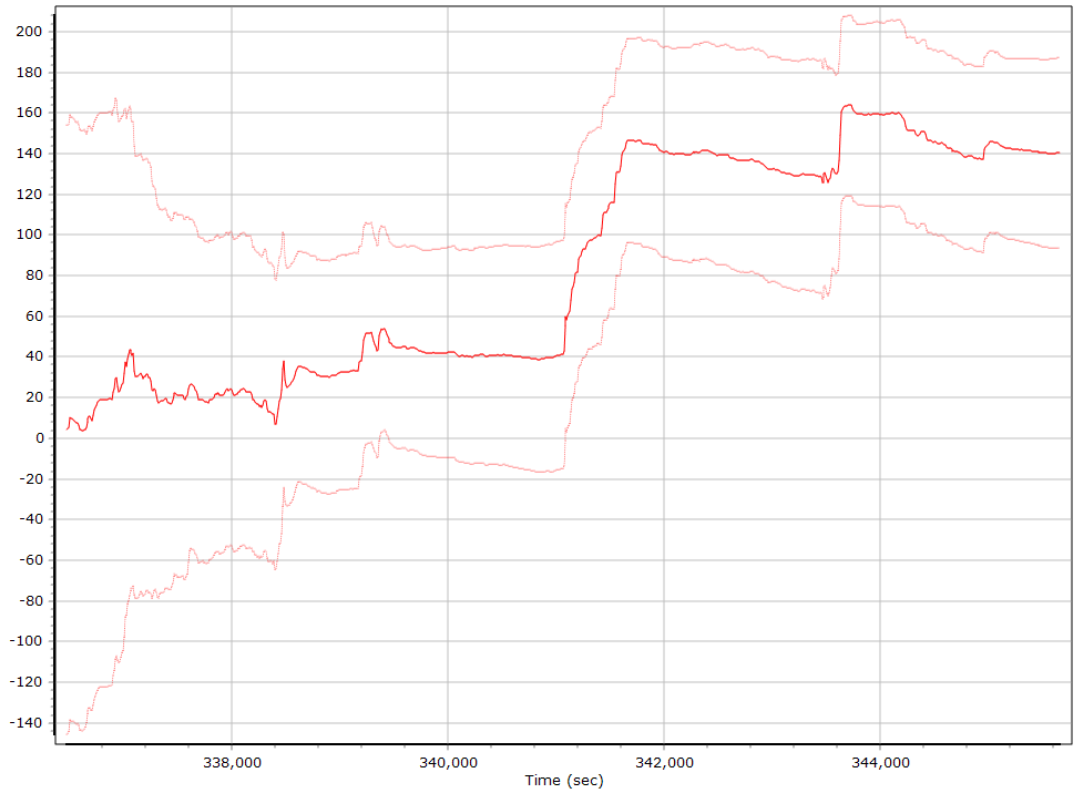

## Z Gyro Bias (deg/h)



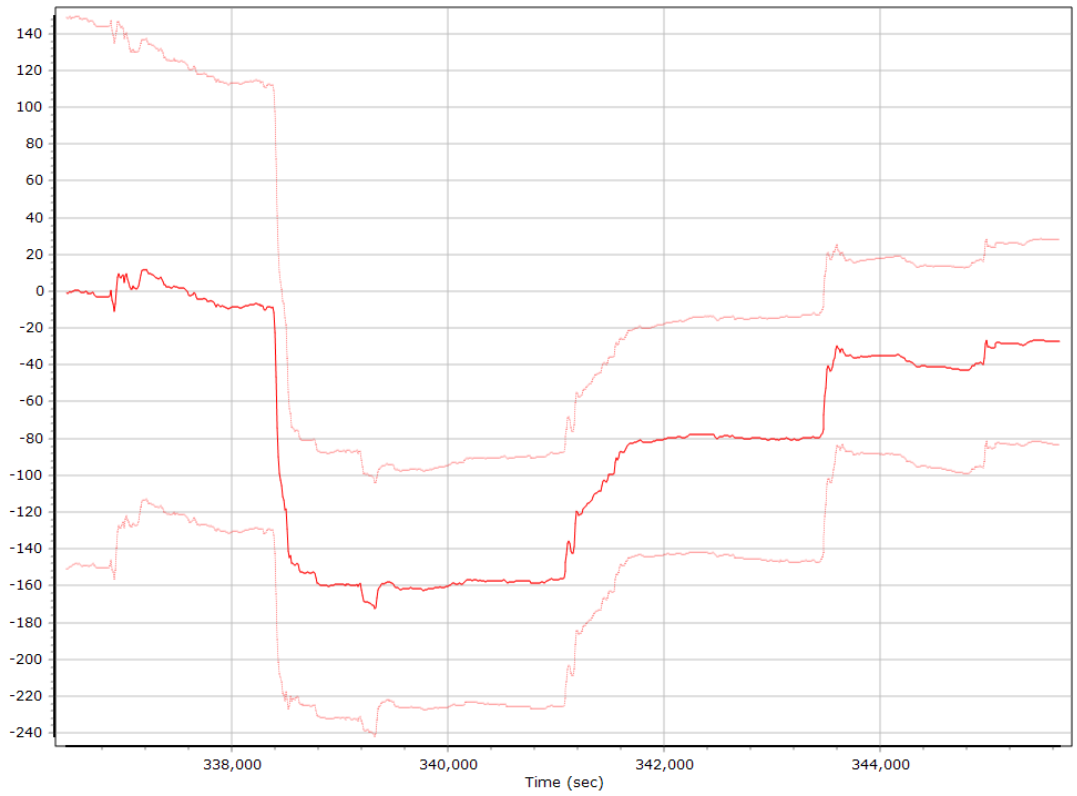
## Gyro Scale Error (ppm)



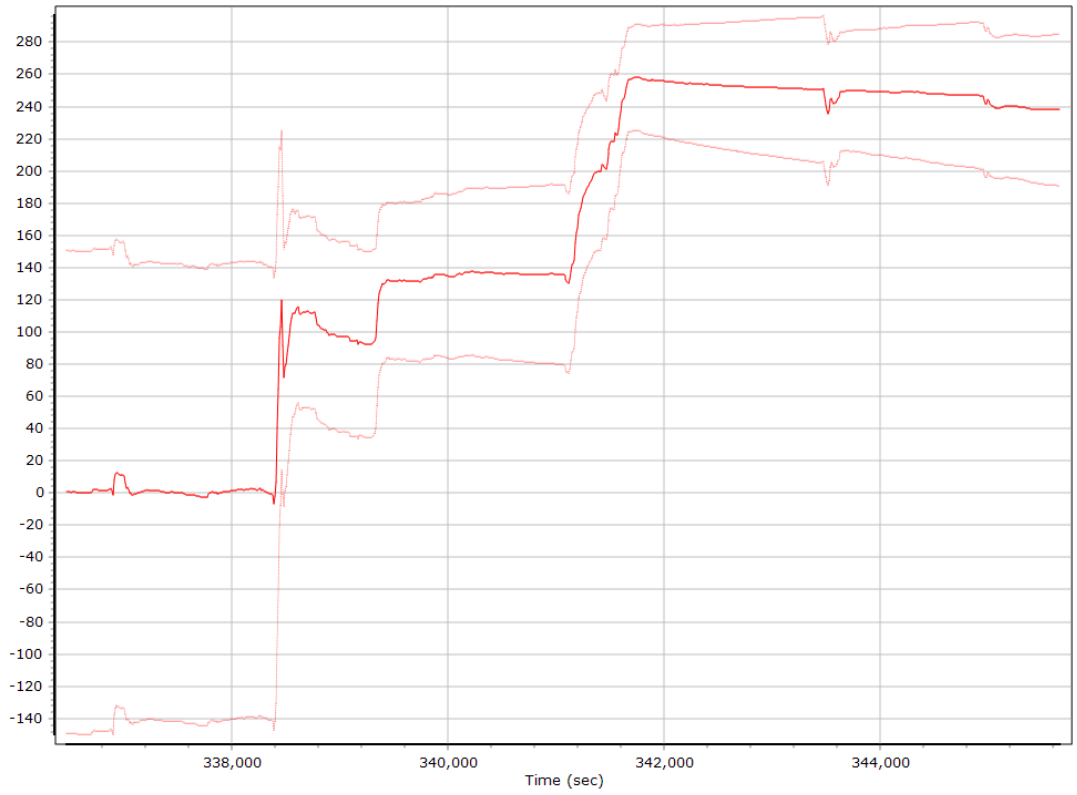

## X Gyro Scale Error (ppm)



## Y Gyro Scale Error (ppm)

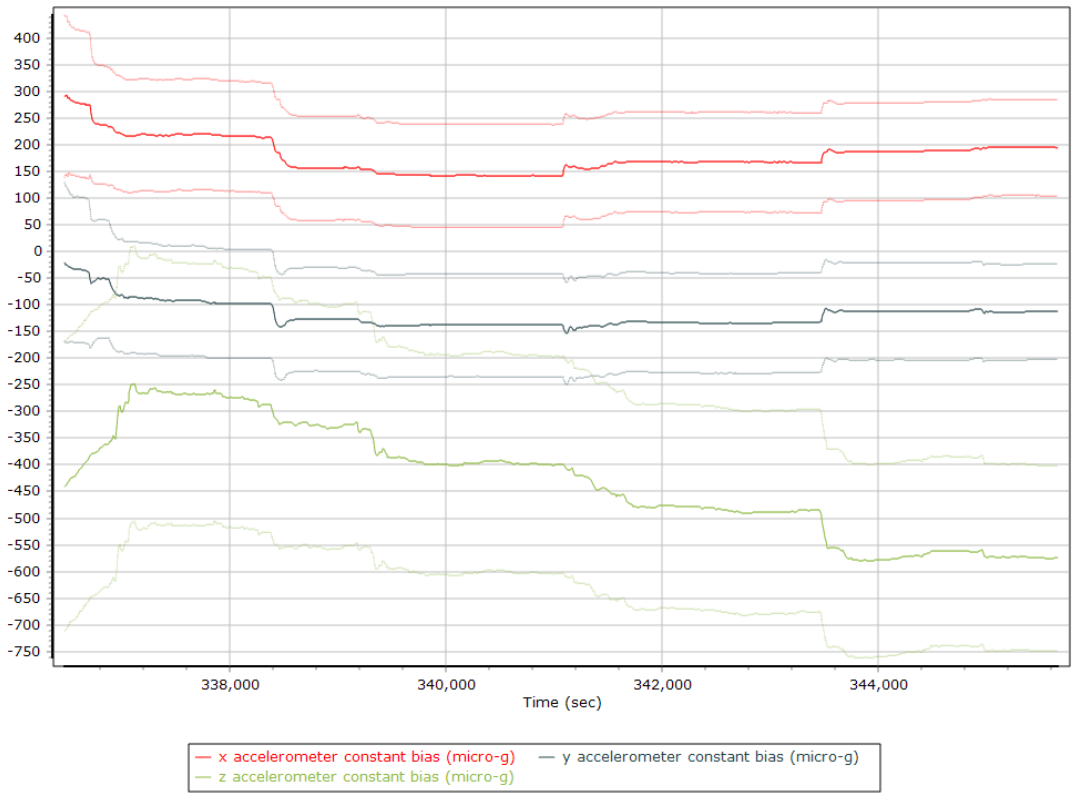



## Z Gyro Scale Error (ppm)

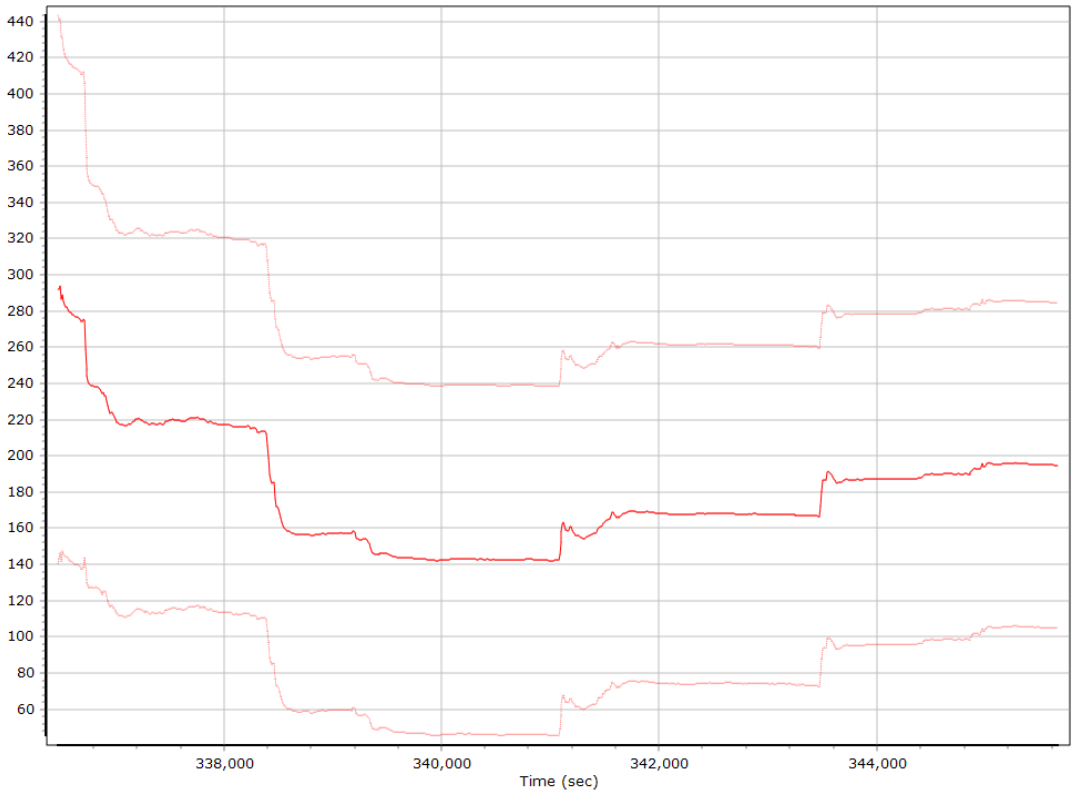


# Forward Processed Estimated Constant Errors, Reference Frame

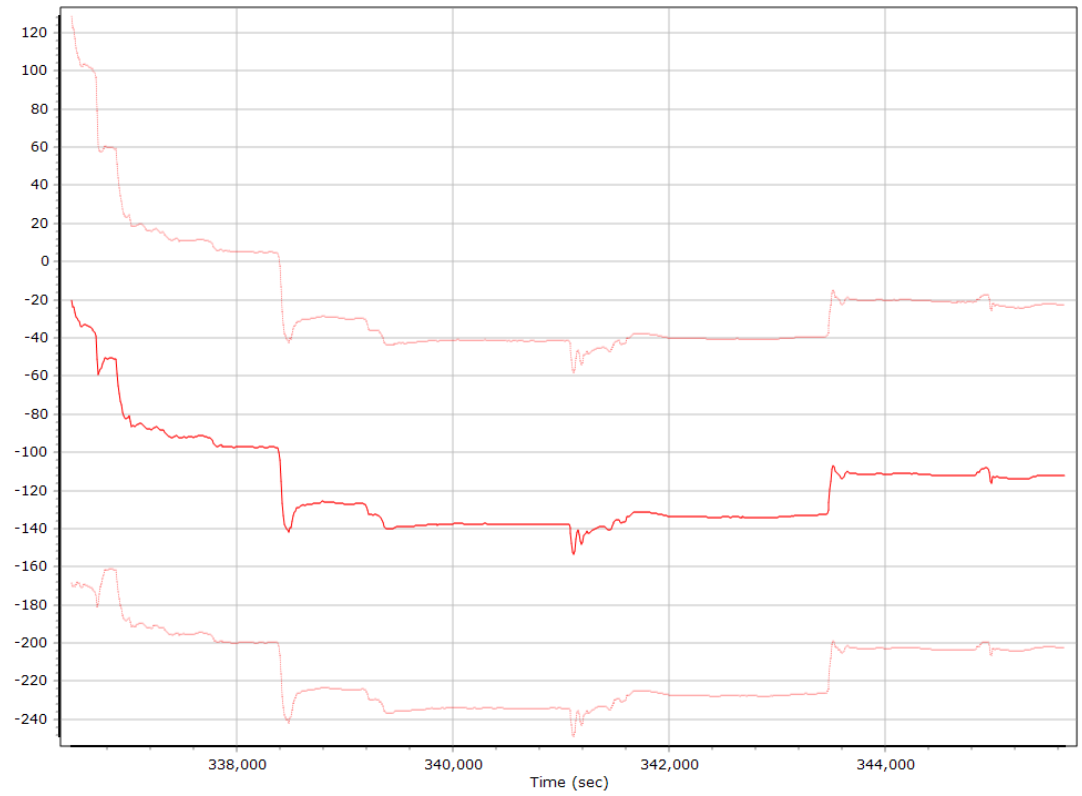
## Accelerometer Bias (micro-g)



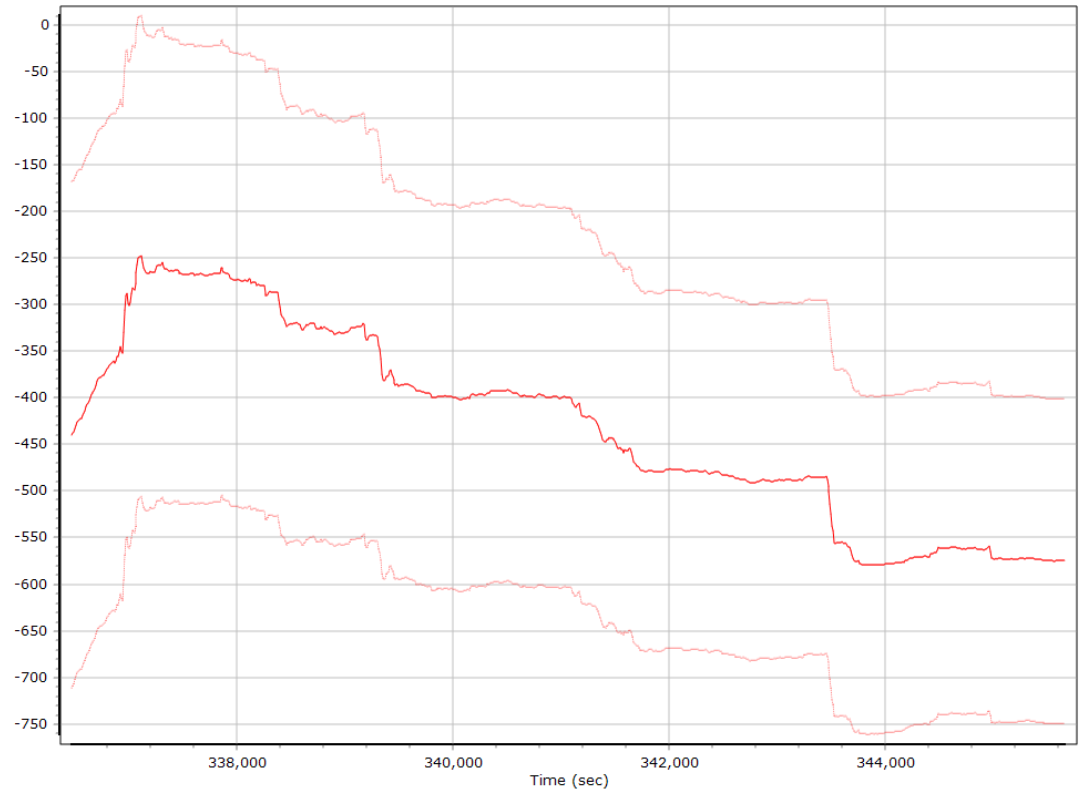

## X Accelerometer Bias (micro-g)



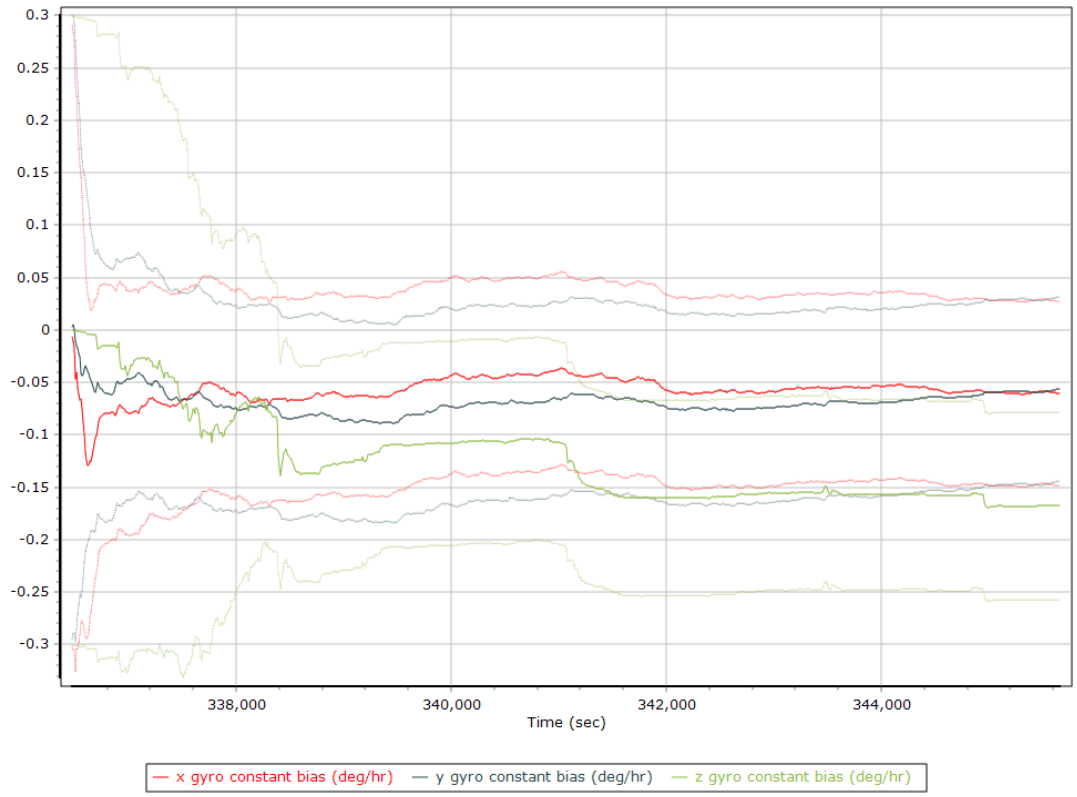
## Y Accelerometer Bias (micro-g)



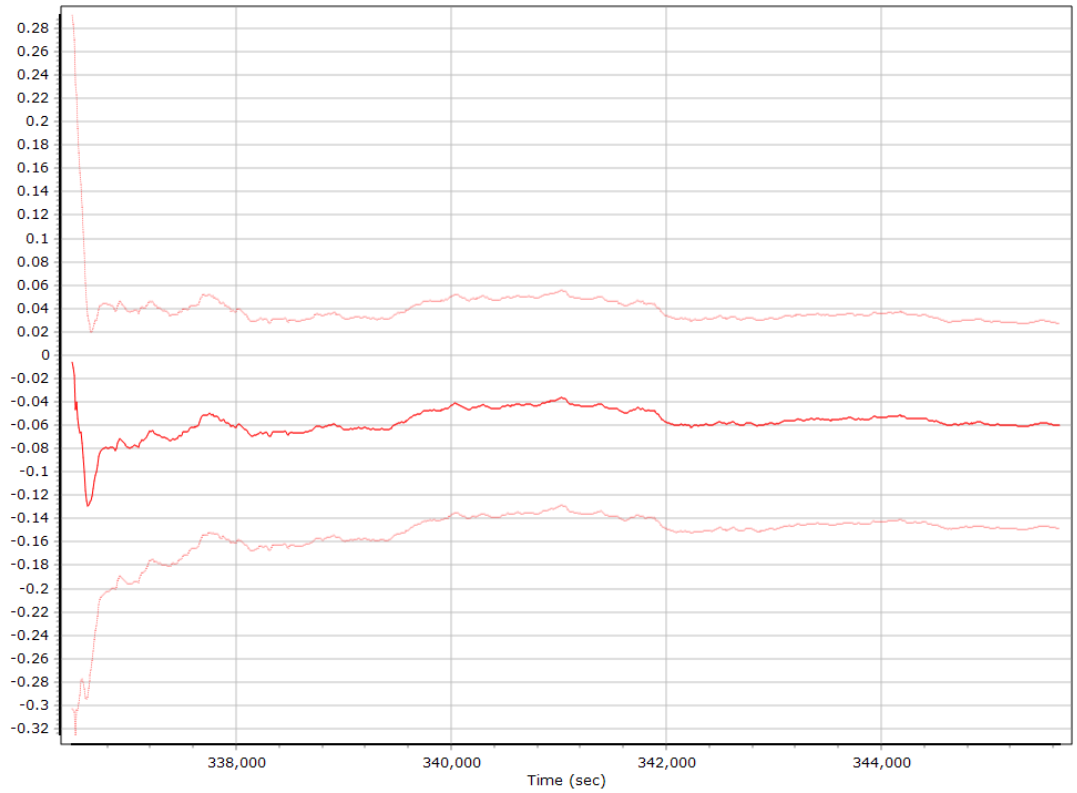

## Z Accelerometer Bias (micro-g)



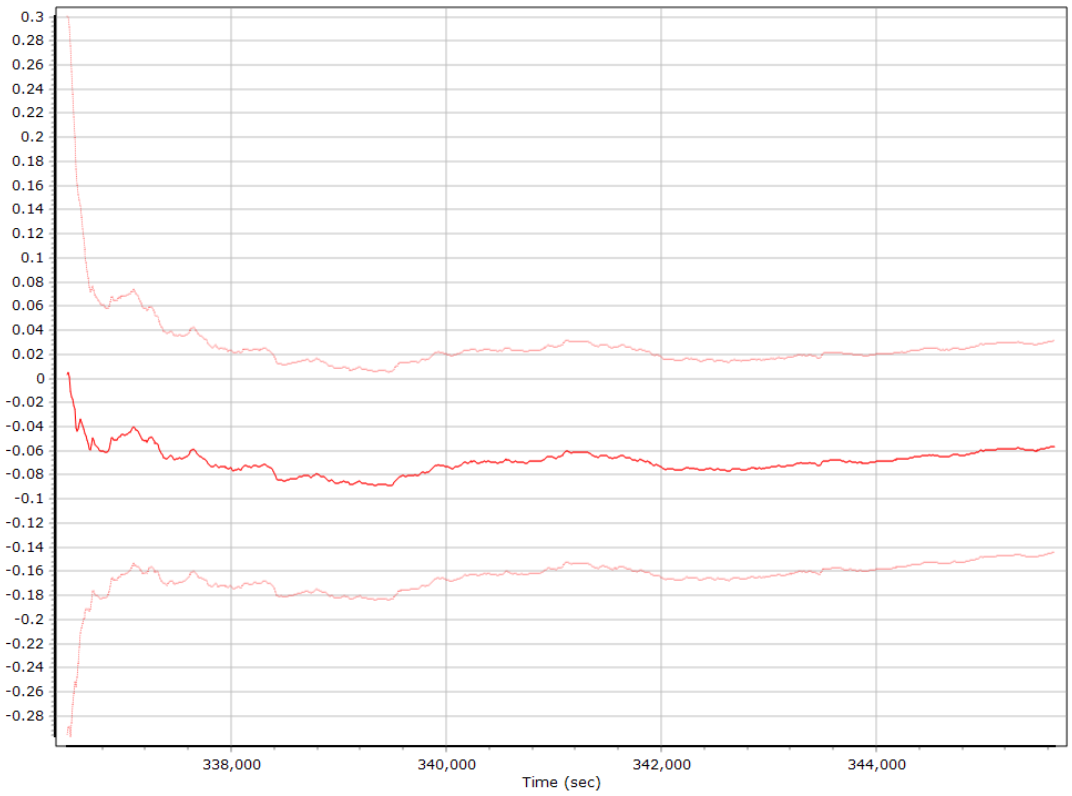
## Gyro Bias (deg/h)



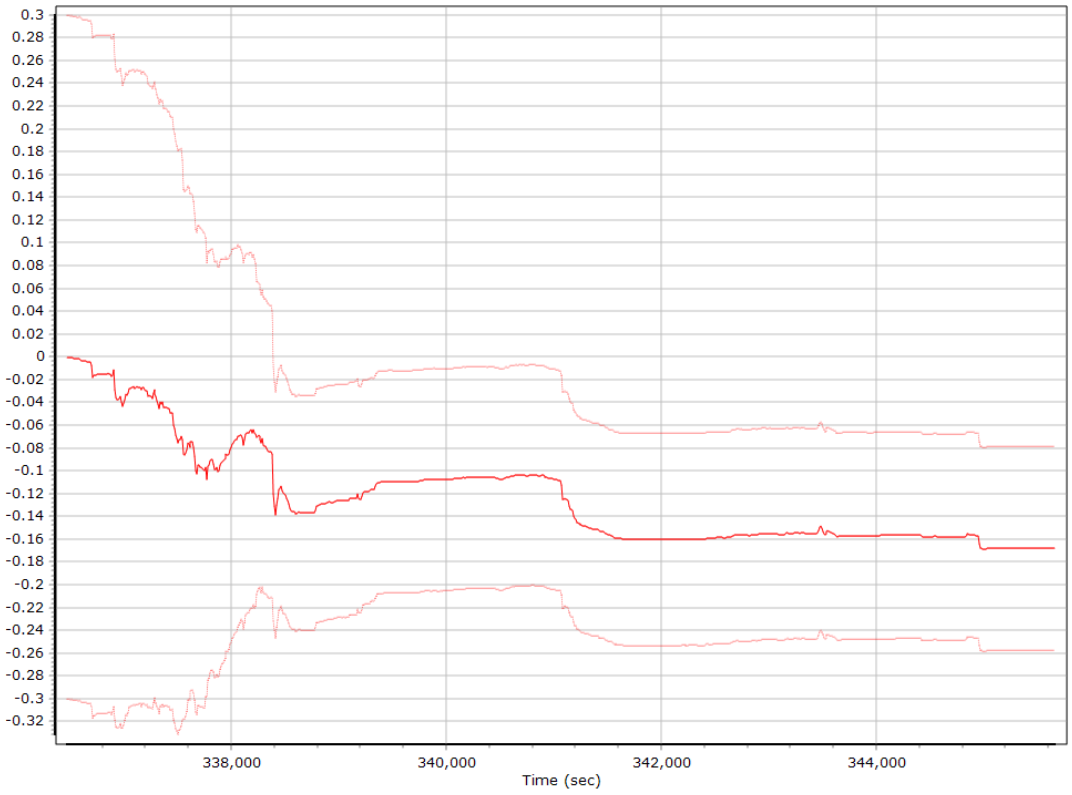

## X Gyro Bias (deg/h)



## Y Gyro Bias (deg/h)

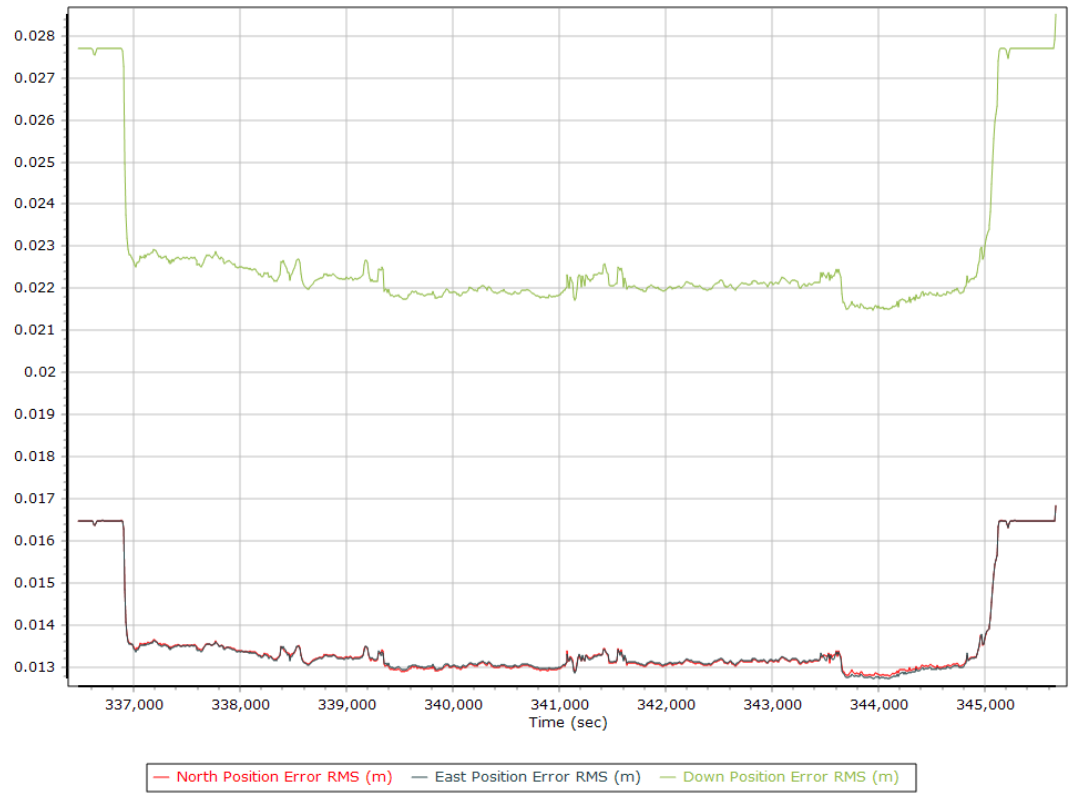



## Z Gyro Bias (deg/h)

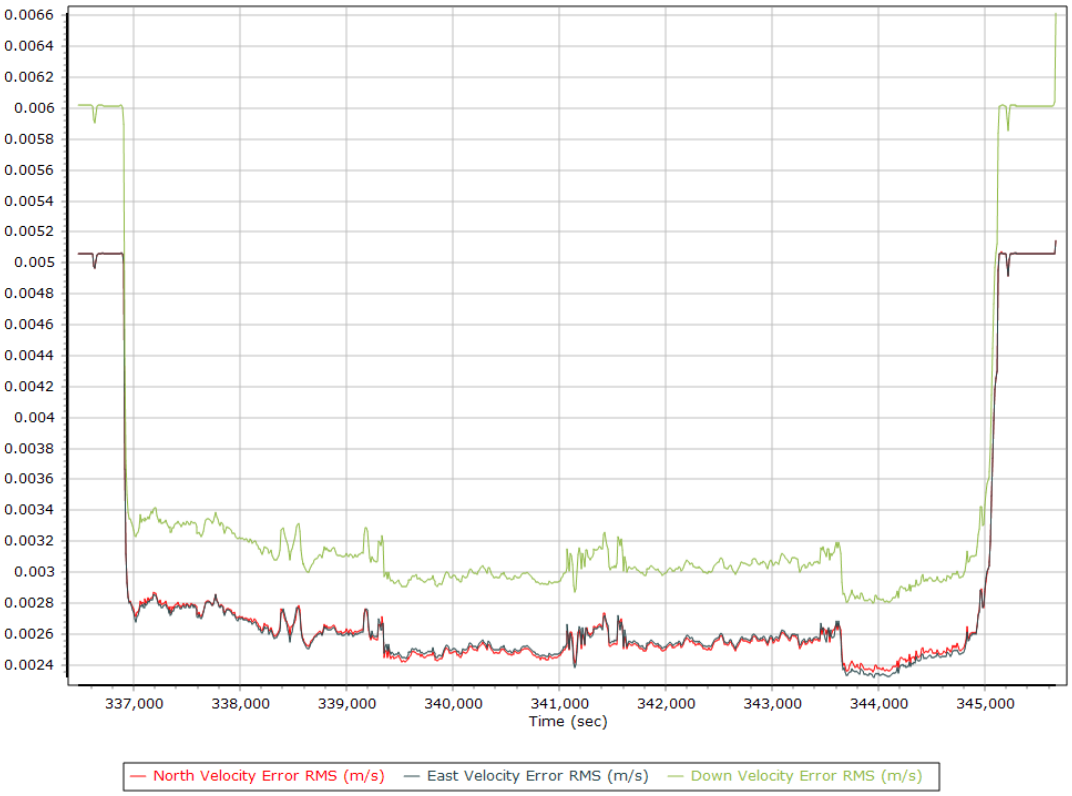


# Smoothed Performance Metrics

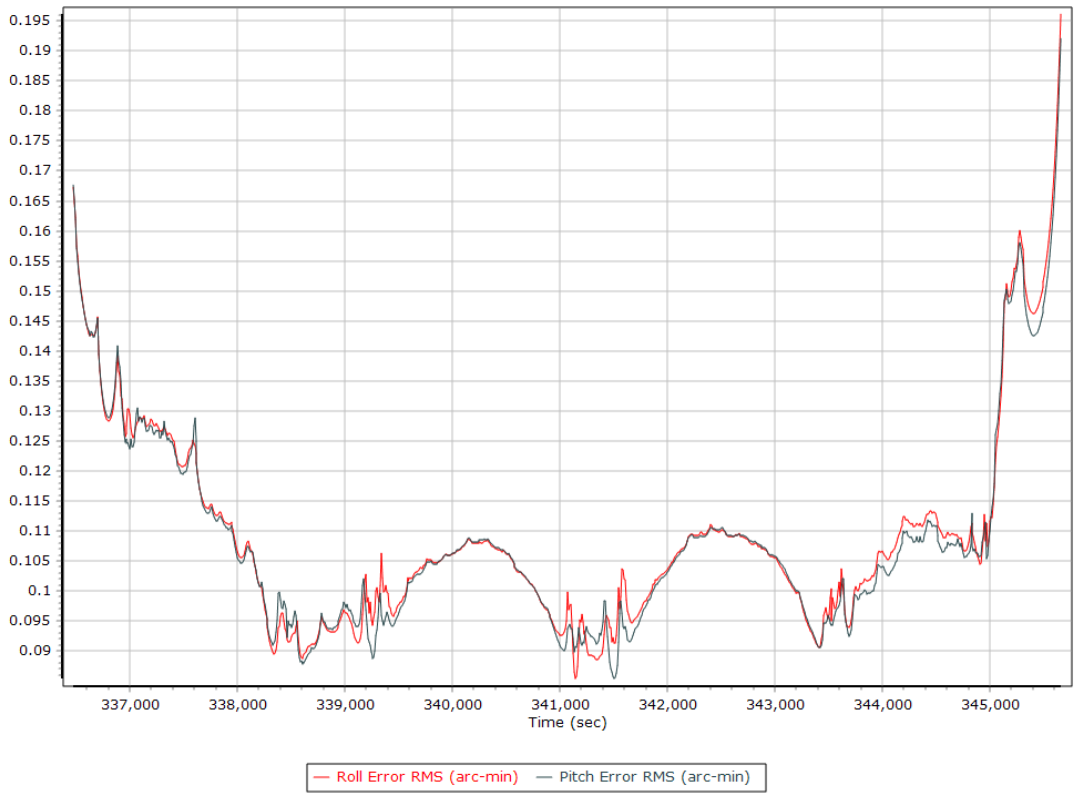
## Position Error RMS (m)



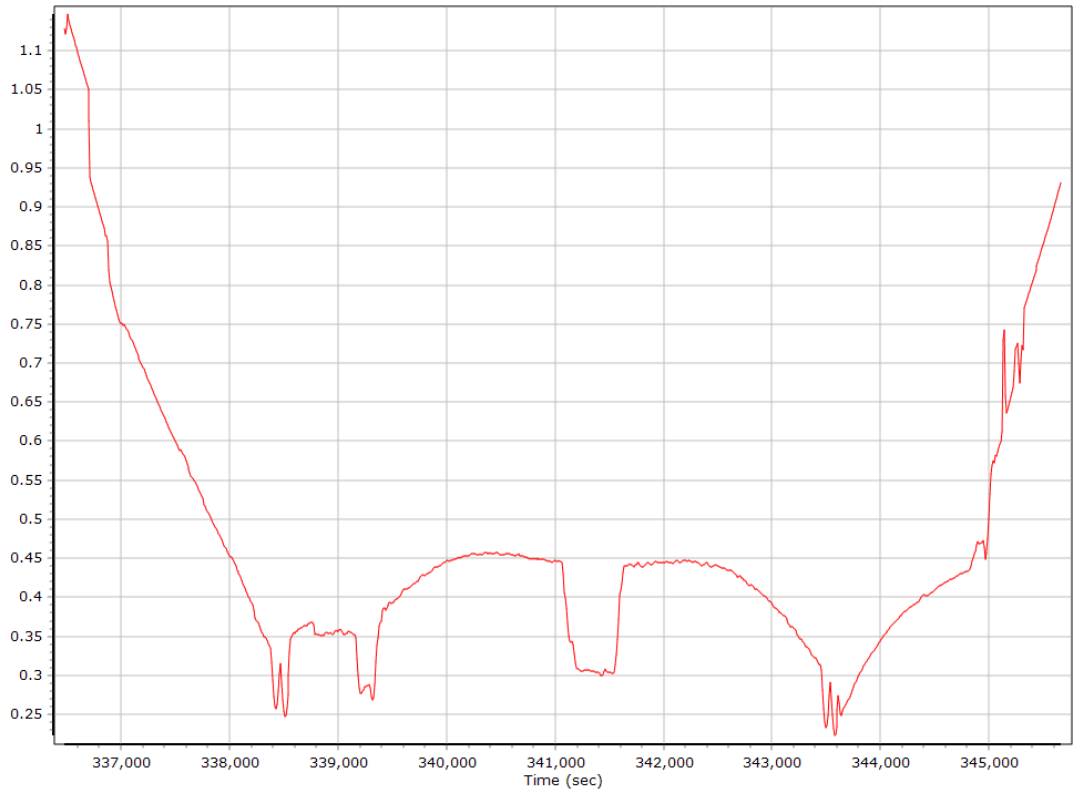

## Velocity Error RMS (m/s)



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

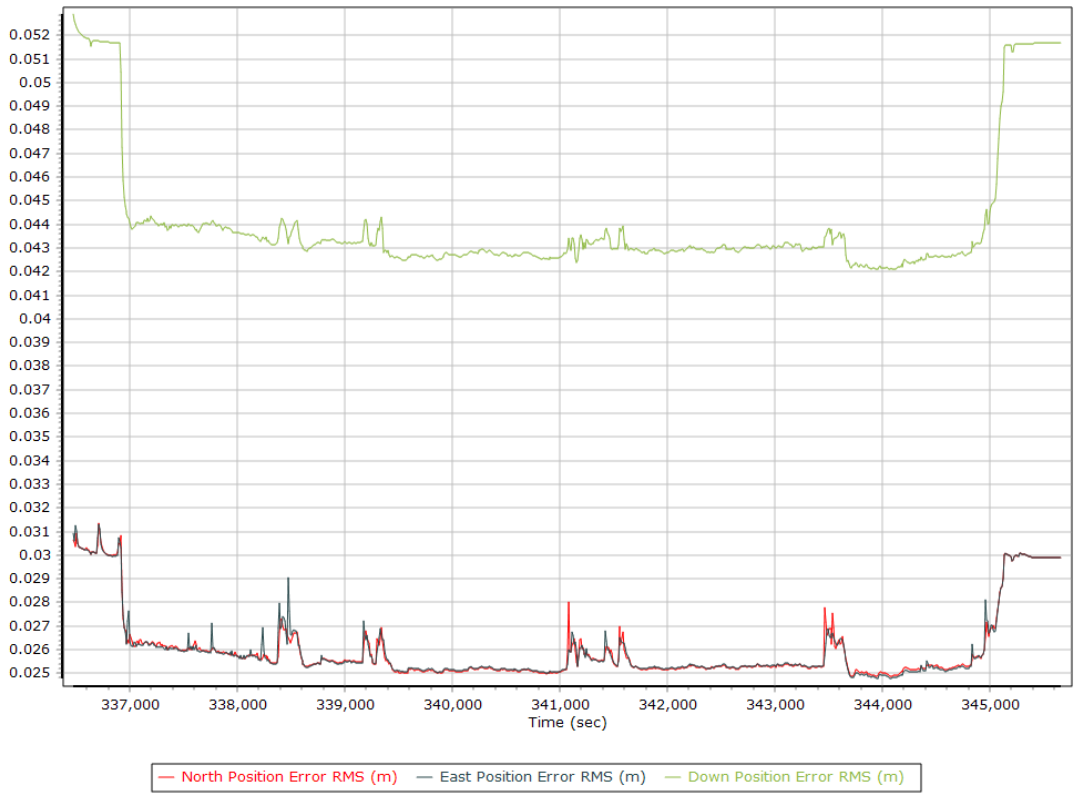



## Heading Error RMS (arc-min)

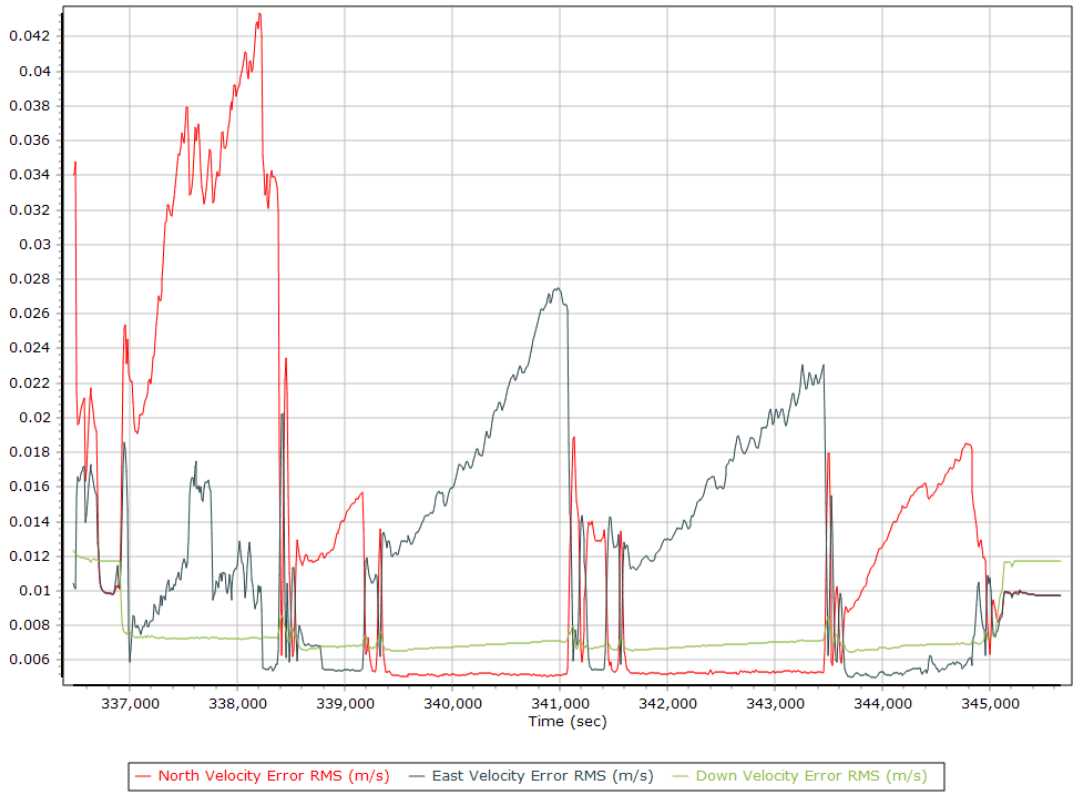


# Forward Processed Performance Metrics

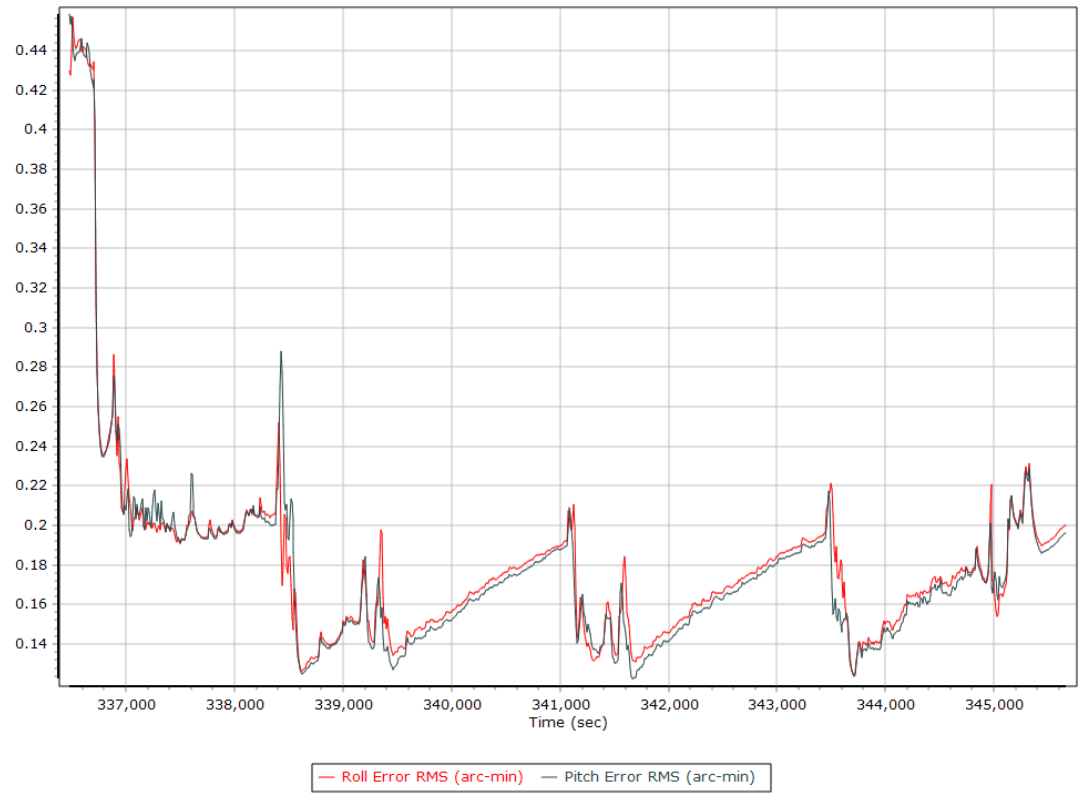
## Position Error RMS (m)



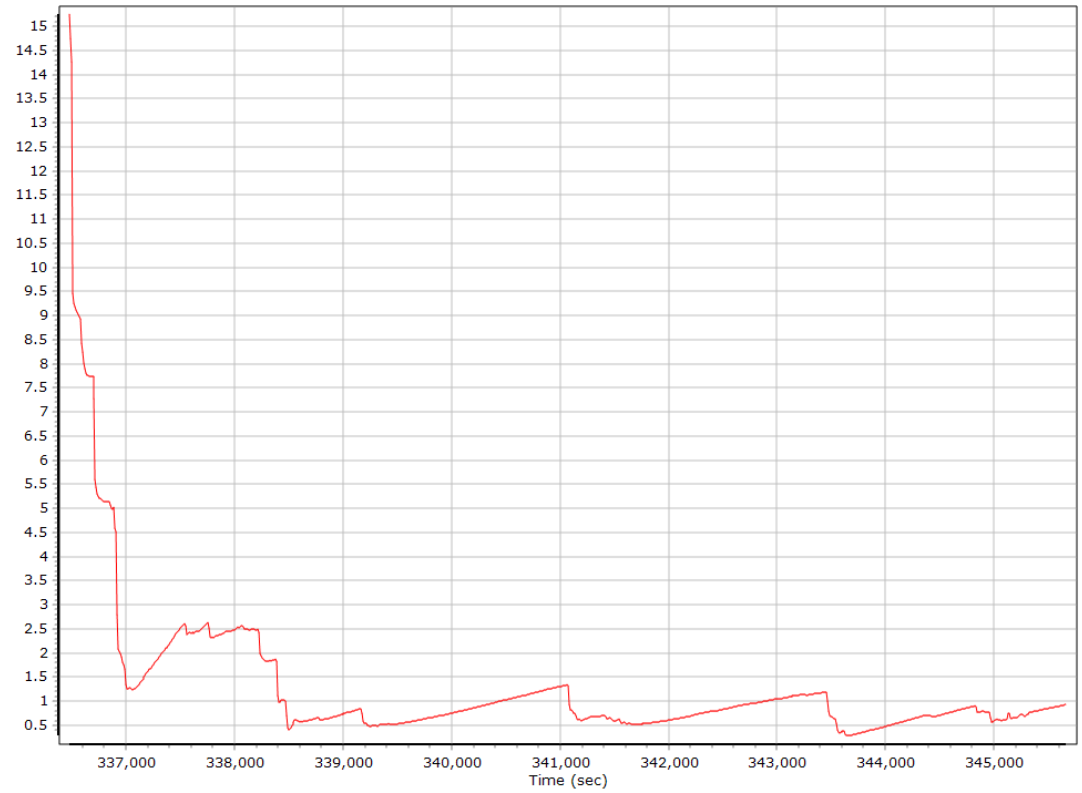

## Velocity Error RMS (m/s)



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

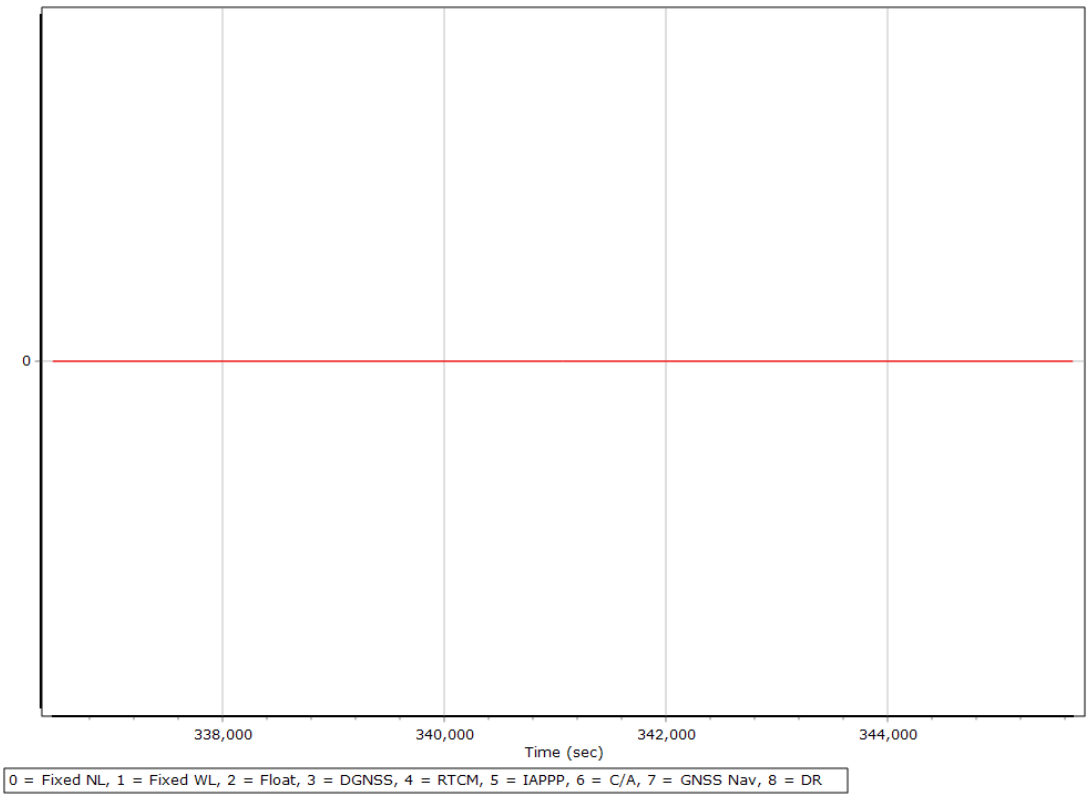



## Heading Error RMS (arc-min)

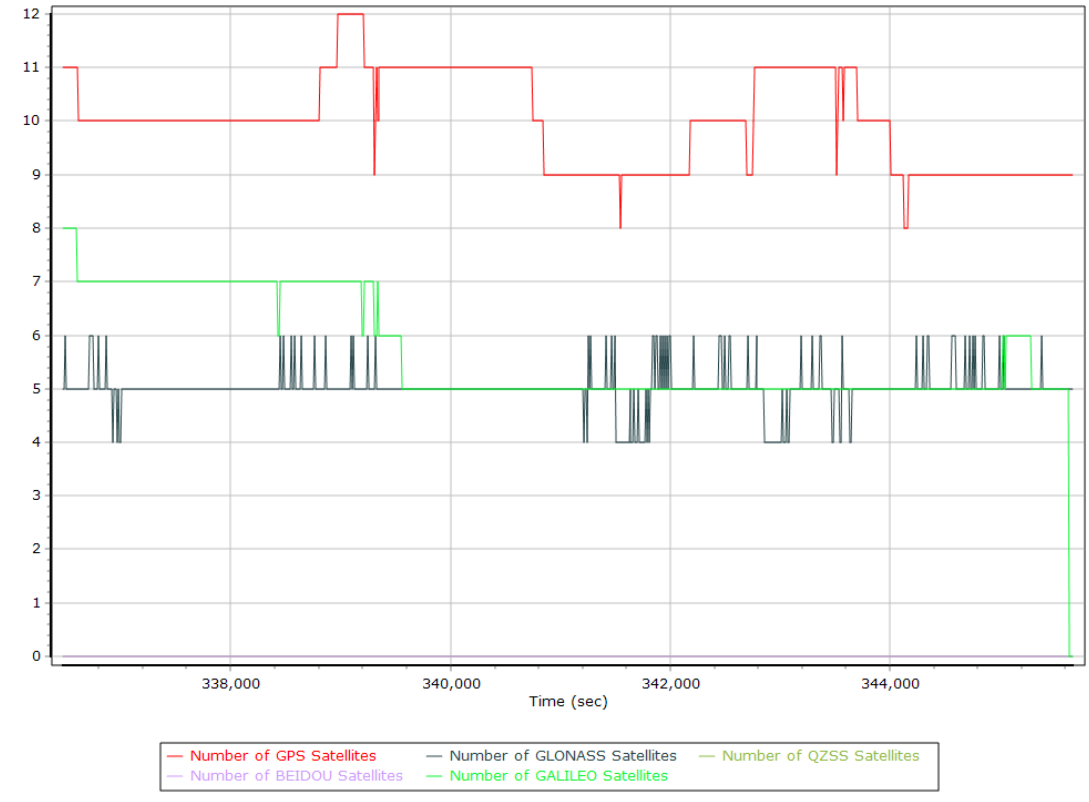


# Forward Processed Solution Status

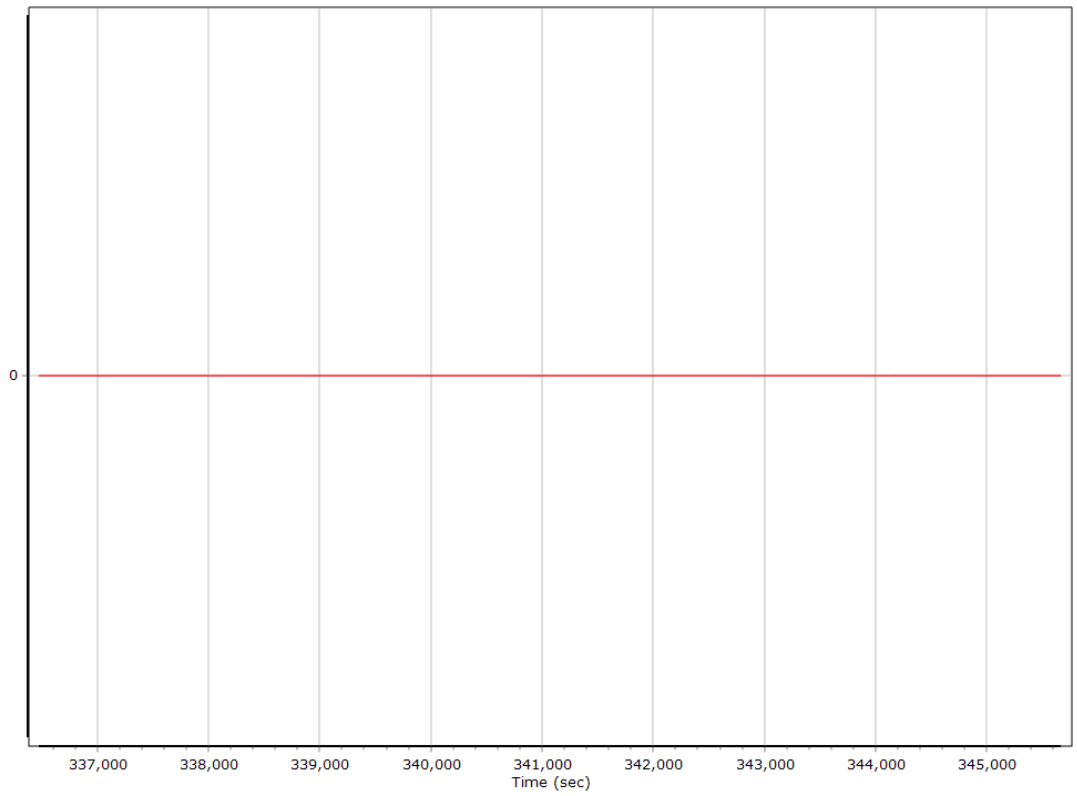
## Processing Mode




## Number of Satellites



## Baseline Length



# Export Summary Section 1

| | | | |
|---|---|---|---|
| **Export file** | sbet_12076_NAD83(2011).out | | |
| **Export format** | Custom Smoothed BET | | |
| **Solution in use** | Post-processed | | |
| **Output rate** | All Records | | |
| **Reference to Output lever arm (m)** | 0.000 | 0.000 | 0.000 |
| **Reference mounting angles (deg)** | 0.000 | 0.000 | 0.000 |
| **Output units (Coordinate / Lat & Lon)** | Meter | Meter | |
| **Export start time** | 336415.005 (03/03/2021 21:26:55) | | |
| **Export end time** | 345671.001 (03/04/2021 00:01:11) | | |
| **Height option** | Ellipsoid Height | | |
| **WGS84 height flag** | False | | |
| **Grid** | | | |
| **Zone** | | | |
| **Datum** | NAD83 (2011) | | |
| **Ellipsoid** | GRS 1980 | | |
| **Local Transformation** | | | |
| **Target Epoch** | 2010 | | |

# Export Summary Section 2

| | | | |
|---|---|---|---|
| **Export file** | lever_arm_values.txt | | |
| **Export format** | ReferenceToPrimaryLeverArms | | |
| **Solution in use** | Post-processed | | |
| **Output rate** | All Records | | |
| **Reference to Output lever arm (m)** | 0.000 | 0.000 | 0.000 |
| **Reference mounting angles (deg)** | 0.000 | 0.000 | 0.000 |
| **Output units (Coordinate / Lat & Lon)** | Meter | Meter | |
| **Export start time** | 336415.005 (03/03/2021 21:26:55) | | |
| **Export end time** | 345671.001 (03/04/2021 00:01:11) | | |
| **Height option** | Ellipsoid Height | | |
| **WGS84 height flag** | False | | |
| **Grid** | Universal Transverse Mercator | | |
| **Zone** | UTM North 14 (102W to 96W) | | |
| **Datum** | WGS84 | | |
| **Ellipsoid** | WGS84 | | |
| **Local Transformation** | NONE | | |
| **Target Epoch** | 2010 | | |

# EO Summary Section 1

| | | | |
|---|---|---|---|
| **EO file** | | | |
| **EO format** | ZI Imaging | | |
| **Lever arm (m)** | 0.000 | 0.000 | 0.000 |
| **Boresight angles (arcmin)** | 0.0000 | 0.0000 | 0.0000 |
| **Output rate** | All Records | | |
| **Rotation sequence** | x omega | y phi | z kappa |
| **Local shift (m)** | 0.000 | 0.000 | 0.000 |
| **Output units (coordinate / angle / lat & lon)** | Meter | Degree | Deg Decimal |
| **Height option** | Ellipsoid Height | | |
| **WGS84 height flag** | False | | |
| **Scale height option** | False | | |
| **Kappa cardinal rotation (deg)** | 0 | | |
| **Solution in use** | Post-processed | | |
| **EO start time** | 336415.005 (03/03/2021 21:26:55) | | |
| **EO end time** | 345671.001 (03/04/2021 00:01:11) | | |
| **Grid** | Universal Transverse Mercator | | |
| **Zone** | UTM North 14 (102W to 96W) | | |
| **Datum** | NAD83 (2011) | | |
| **Ellipsoid** | GRS 1980 | | |
| **Local Transformation** | NONE | | |
| **Target Epoch** | 2010 | | |