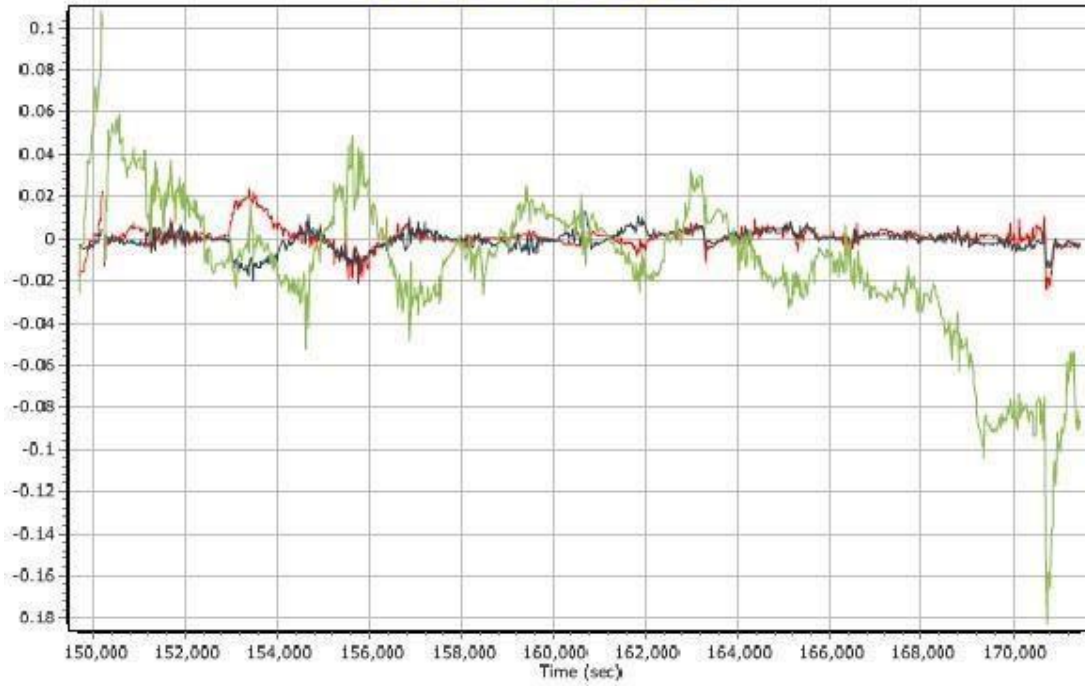


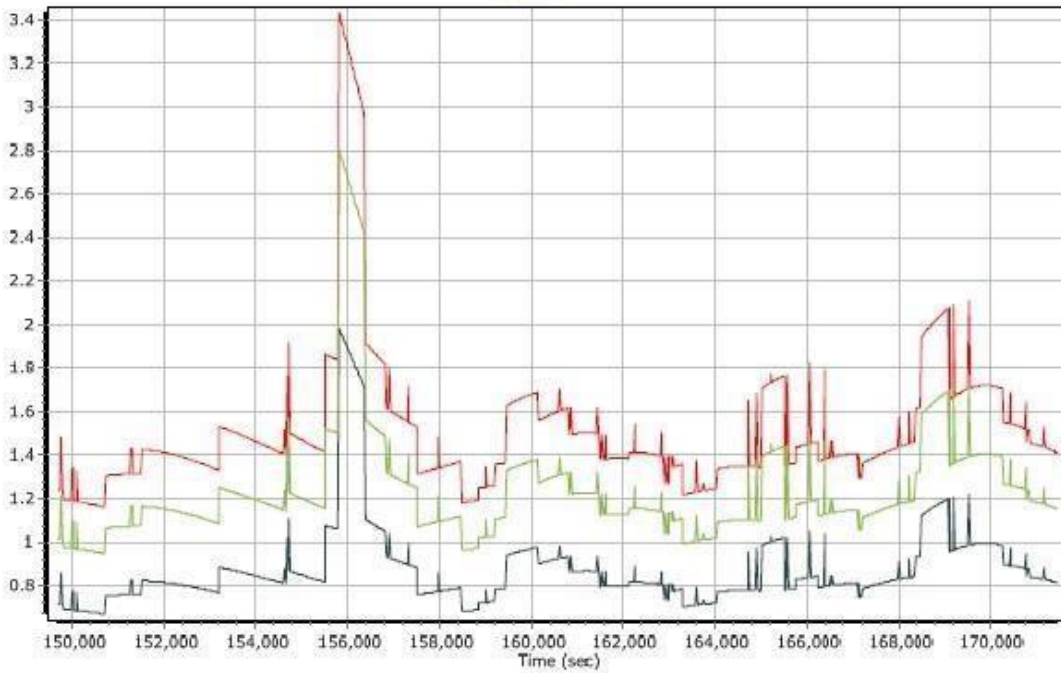


**Forward/Reverse Separation**

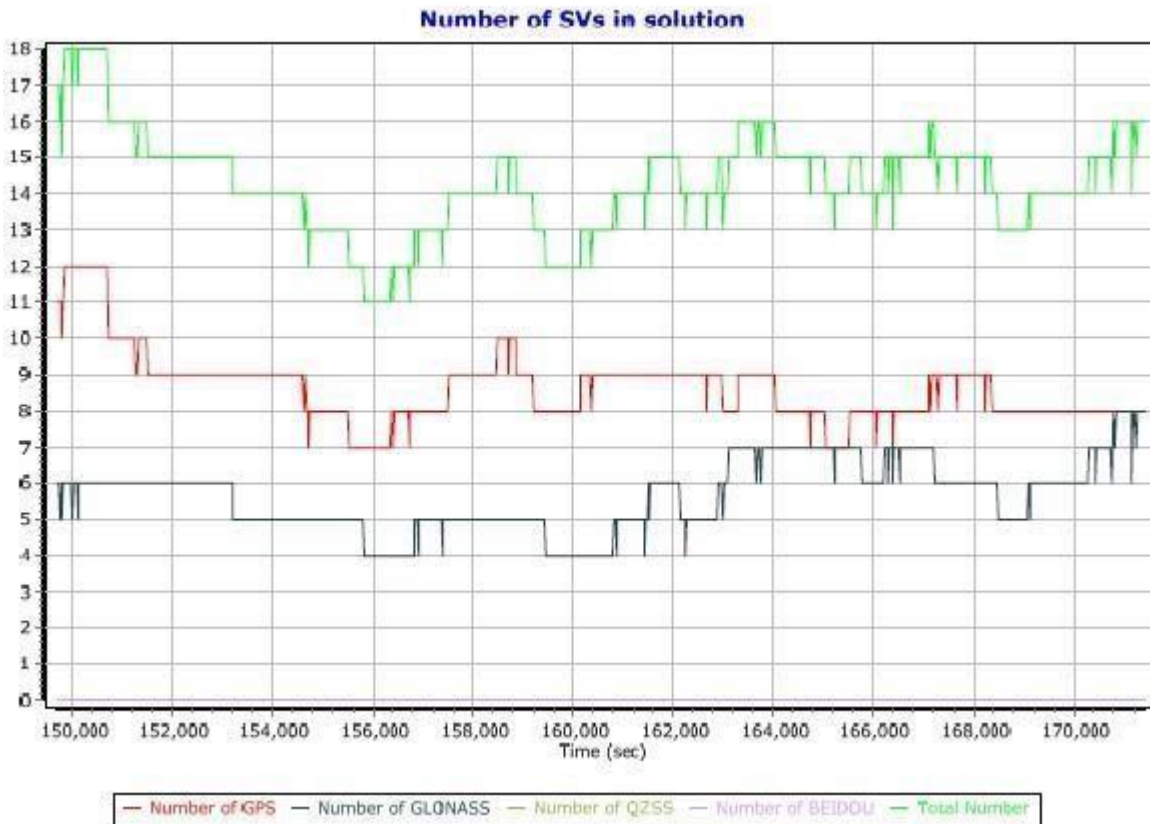


— North Separation (m) — East Separation (m) — Down Separation (m)

**DOP**



— PDOP — HDOP — VDOP



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IINPP Forward-Backward Navigator [Jun 28 2017]  
 Copyright (c) 2008-2017 Applanix Corporation. All rights reserved.  
 Date : 02/18/18      Time : 12:01:11

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Extracted data path    : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418043a\05\_INS-GPS\_PROC\01\_POS\5418043a\5418043a\Extract  
 Extracted data kernel : 5418043a  
 Processed data path    : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418043a\05\_INS-GPS\_PROC\01\_POS\5418043a\5418043a\Proc  
 Processed data kernel : 5418043a Processing start time : 150067.618  
 Processing end time    : 171459.000

-----

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Selected GNSS mode                    : IN-Fusion SmartBase  
 Selected base station                : ASB  
 Selected subsystems                   : IMU  
                                       : Primary GNSS  
                                       : Base GNSS

Vehicle to reference alignment angles : 0.000 0.000 0.000  
 Multipath setting                    : LOW  
 Reference to IMU lever arm           : 0.000 0.000 0.000  
 Reference to IMU alignment angles    : 0.000 0.000 0.000  
 Reference to primary GNSS lever arm  : 0.693 -0.224 -1.083

Base GNSS coordinates : 32.895135711 -102.298861509 2722.603

-----  
---

Mask angle : 10.000

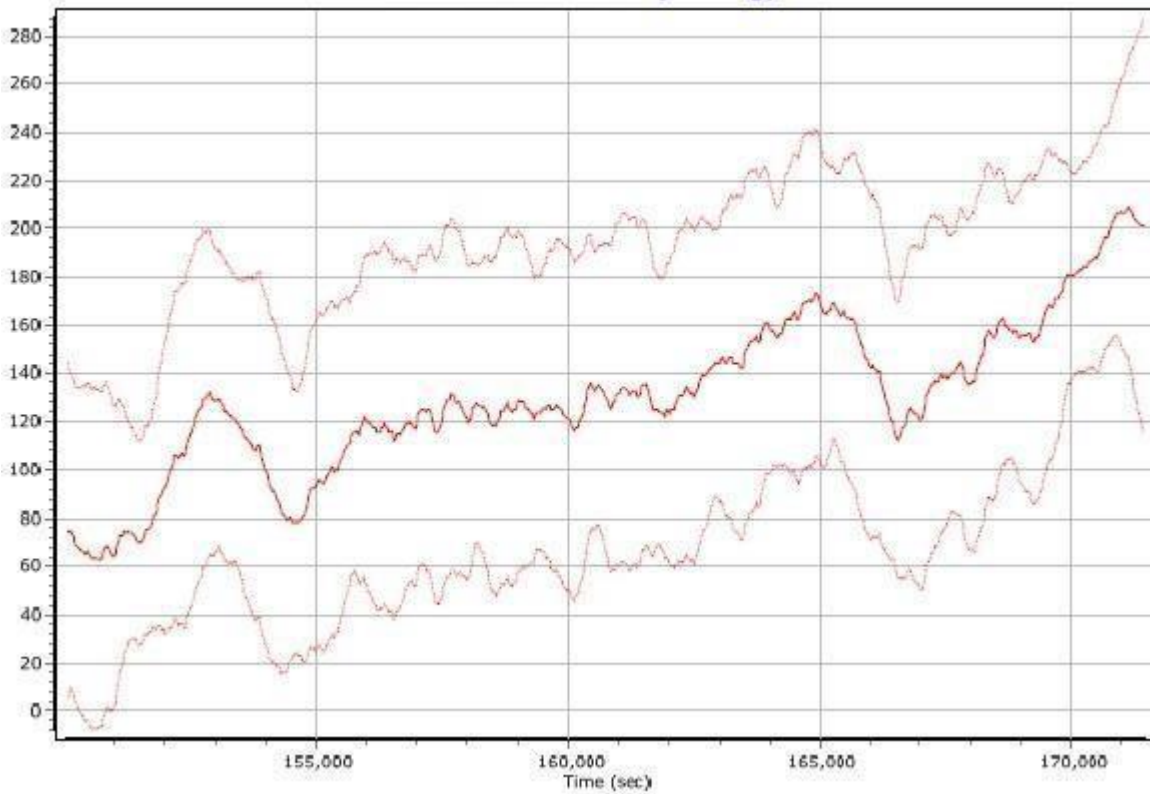
-----  
150067.623 : New or modified IIN install data  
Reference-IMU lever arm: 0.00 0.00 0.00  
Referenceprimary GNSS lever arm: 0.69 -0.22 -1.08 Multipath  
environment: LOW 150067.623 : Forward-time processing  
started  
150067.718 : IIN coarse leveling started.  
150068.717 : IIN coarse leveling ended.  
150068.717 : IIN navigator initialized.  
150068.717 : IIN degraded navigation solution. 150068.717 : IIN  
initial position valid.  
150069.002 : SmartBase observables in use 150069.002 :  
IIN primary GNSS solution in use.  
150069.002 : IIN primary GNSS observables in use.  
150069.002 : IIN in Fixed NL RTK mode.  
150069.102 : IIN navigator alignment active.  
150190.000 : WARNING : Gap in primary GNSS navigation data 150191.003 :  
IIN primary GNSS solution not in use.  
150191.003 : IIN in Fixed WL RTK mode.  
150192.003 : IIN primary GNSS solution in use.  
150192.003 : IIN in Fixed NL RTK mode.  
150193.002 : IIN WL ambiguity failure cleared  
158995.001 : IIN WL ambiguity failure cleared  
167632.002 : IIN WL ambiguity failure cleared  
171459.000 : WARNING : End of primary GNSS observables data 171459.000  
: WARNING : End of reference GNSS observables data  
171459.004 : Processing ended

-----  
Termination status : Normal  
Execution time : 54.48

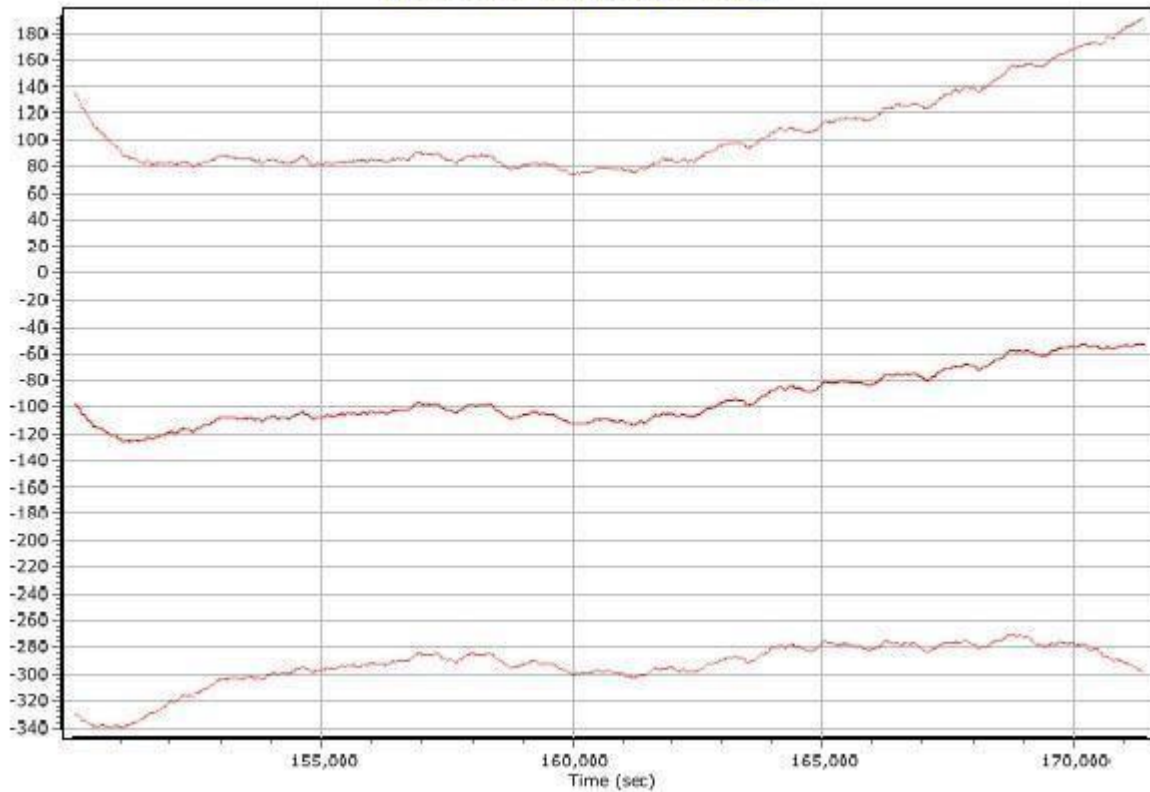
-----  
Processing completed.

# Mission 1 - 5418043a Sensor Errors

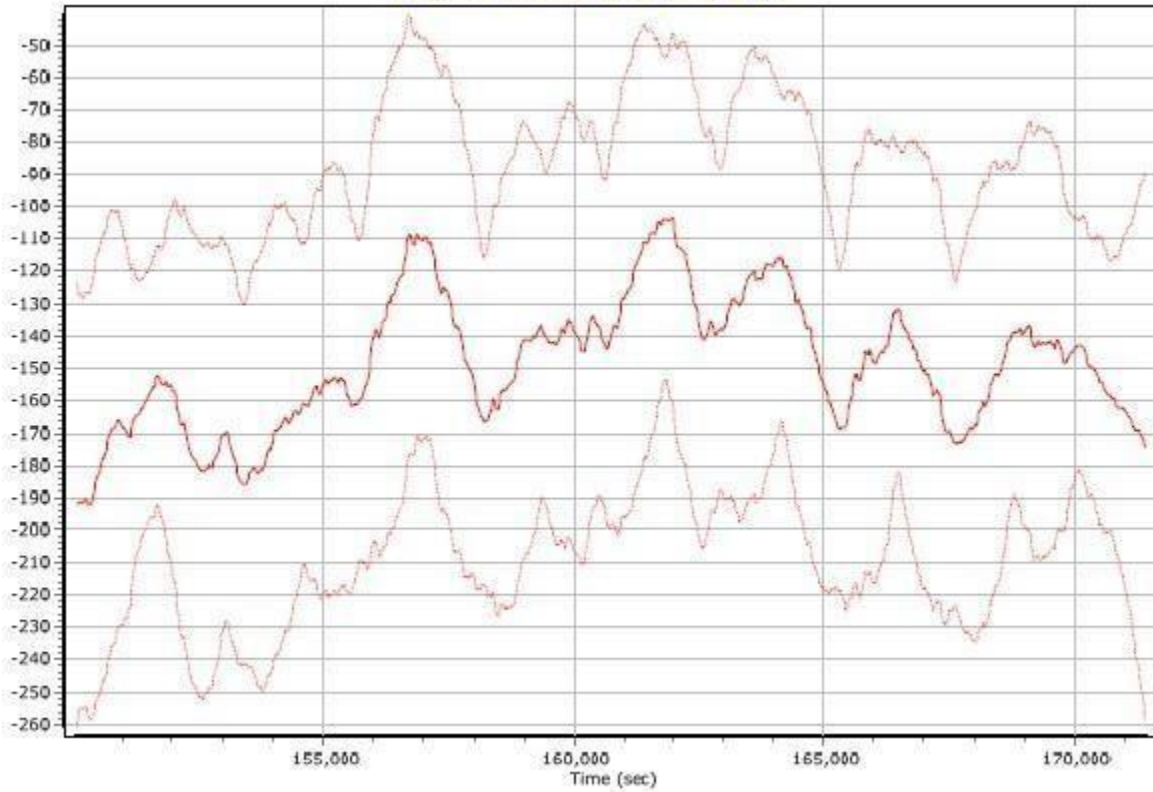
## x accelerometer bias (micro-g)



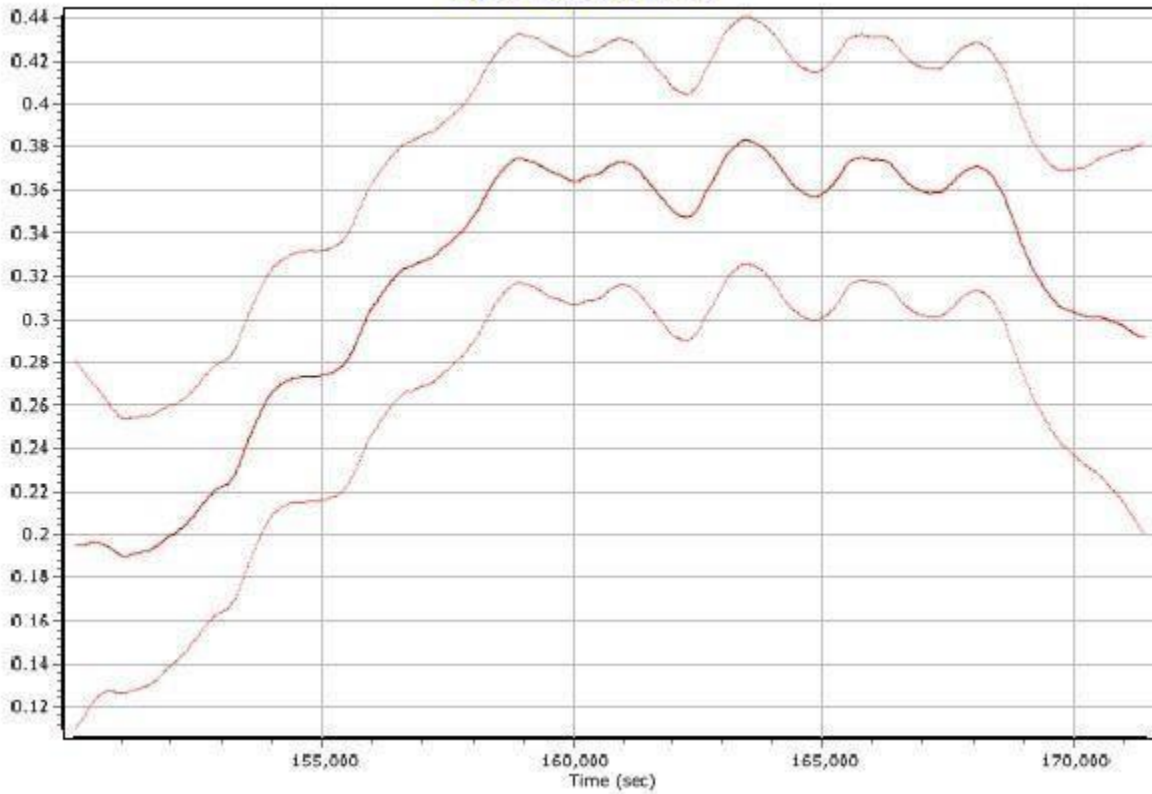
## z accelerometer bias (micro-g)



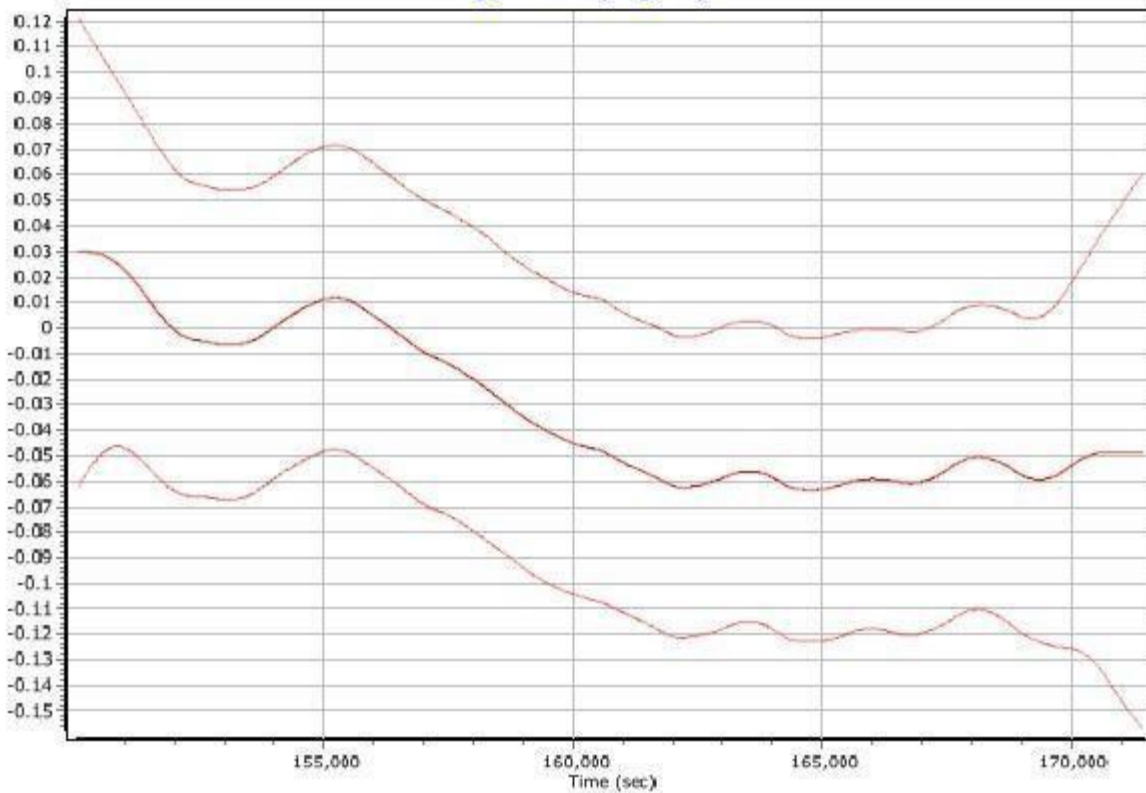
**y accelerometer bias (micro-g)**



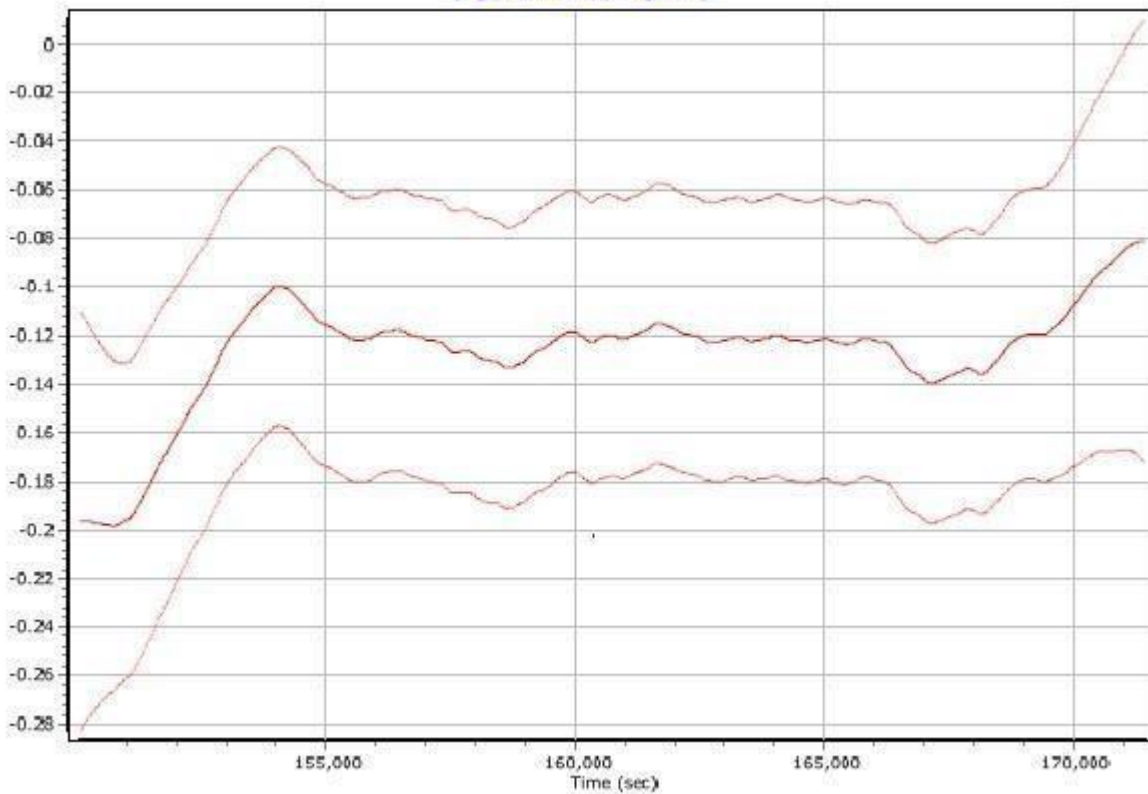
**x gyro bias (deg/hr)**



**z gyro bias (deg/hr)**



**y gyro bias (deg/hr)**



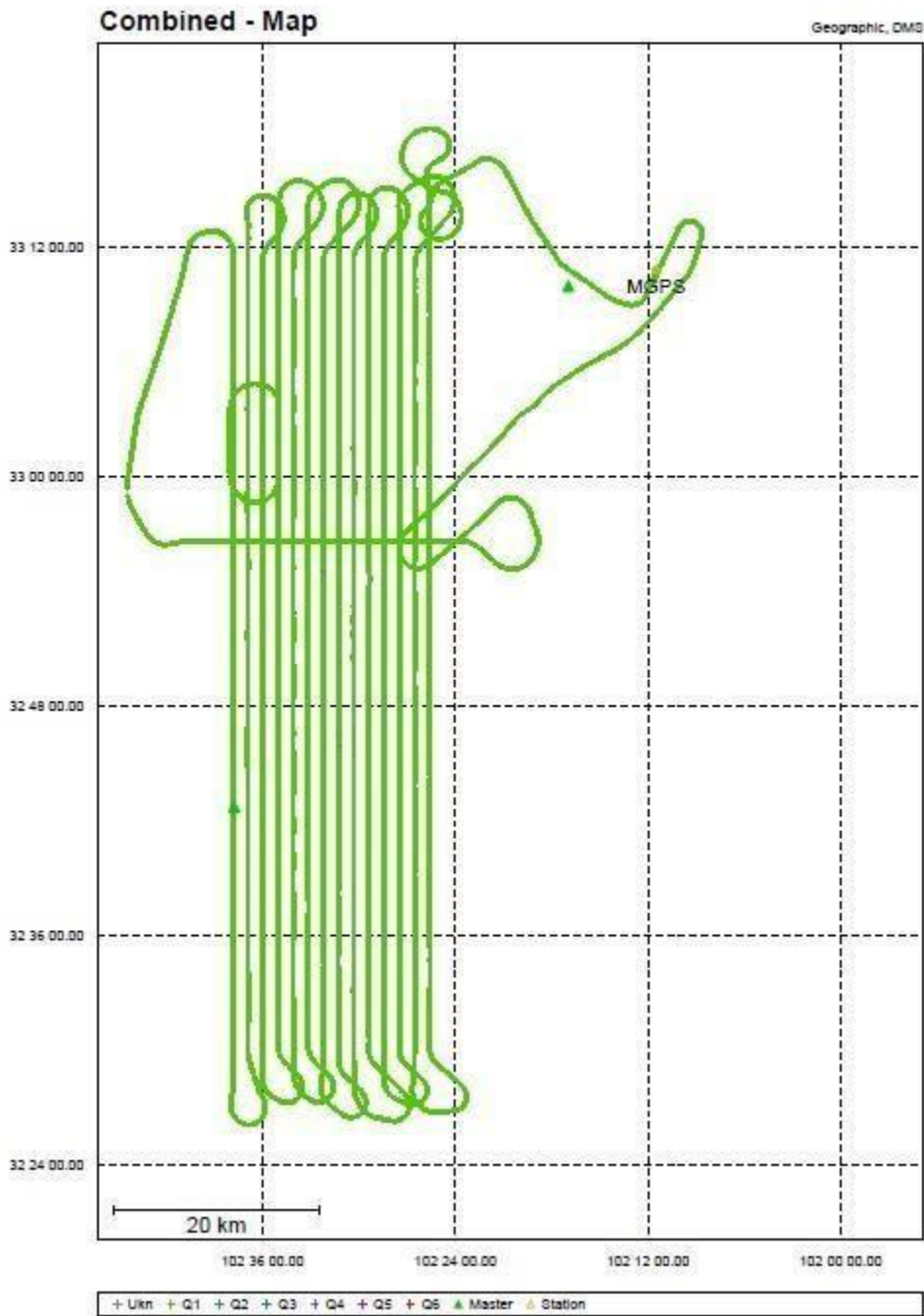




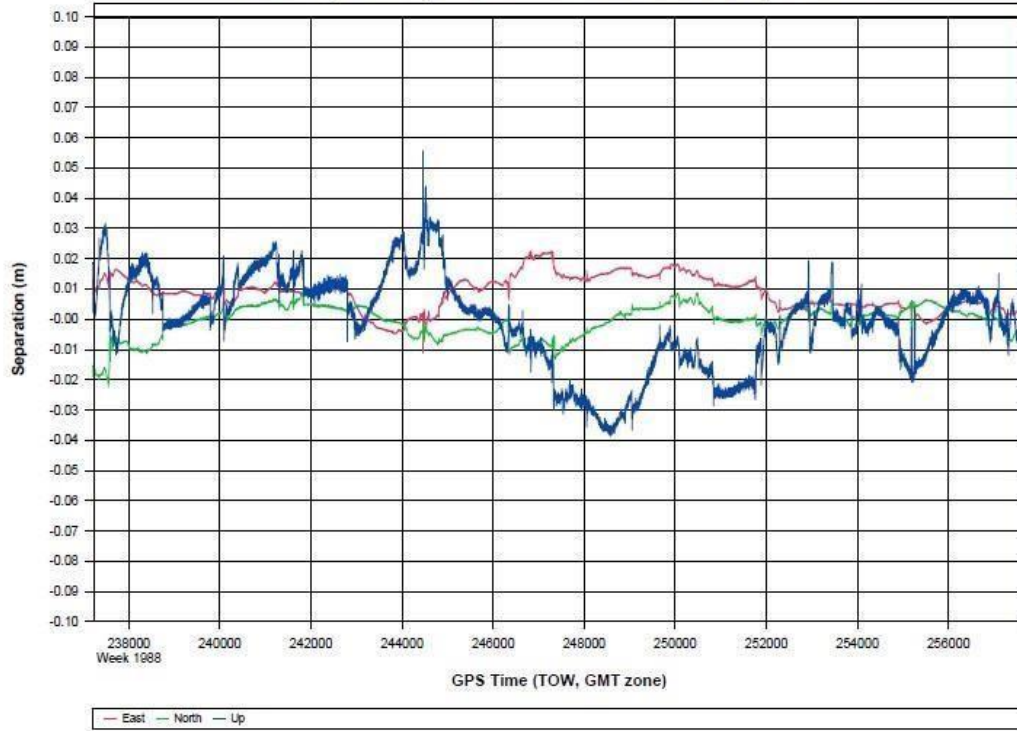
# Mission 2 - 5418044a GNSS Processing

Project: 5418044a

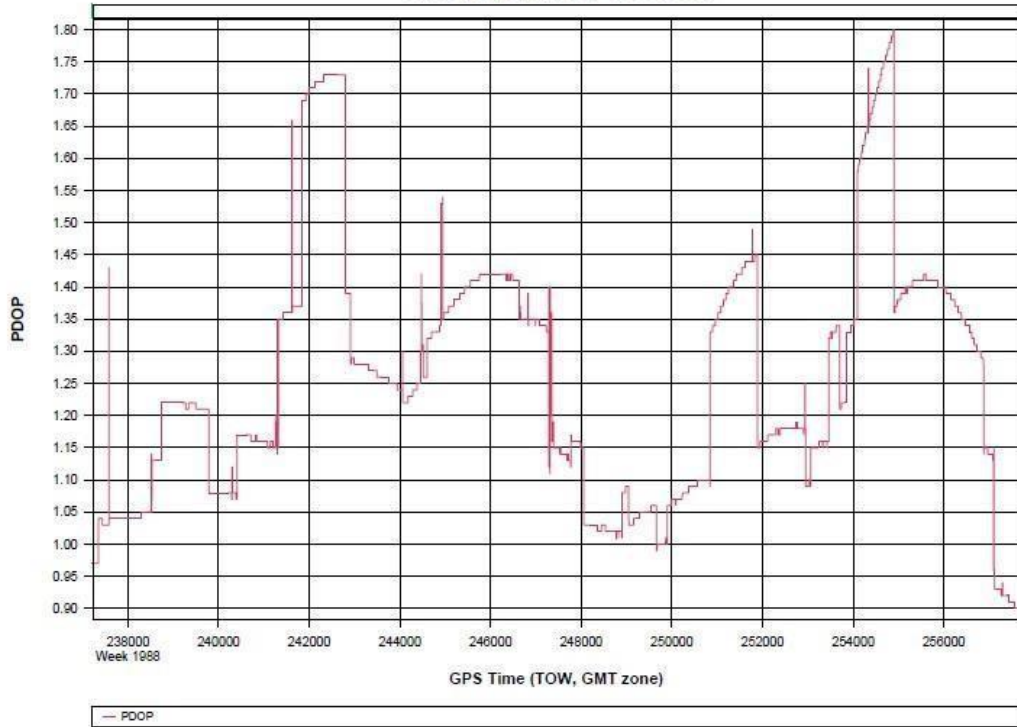
GrafNav v8.50.4320

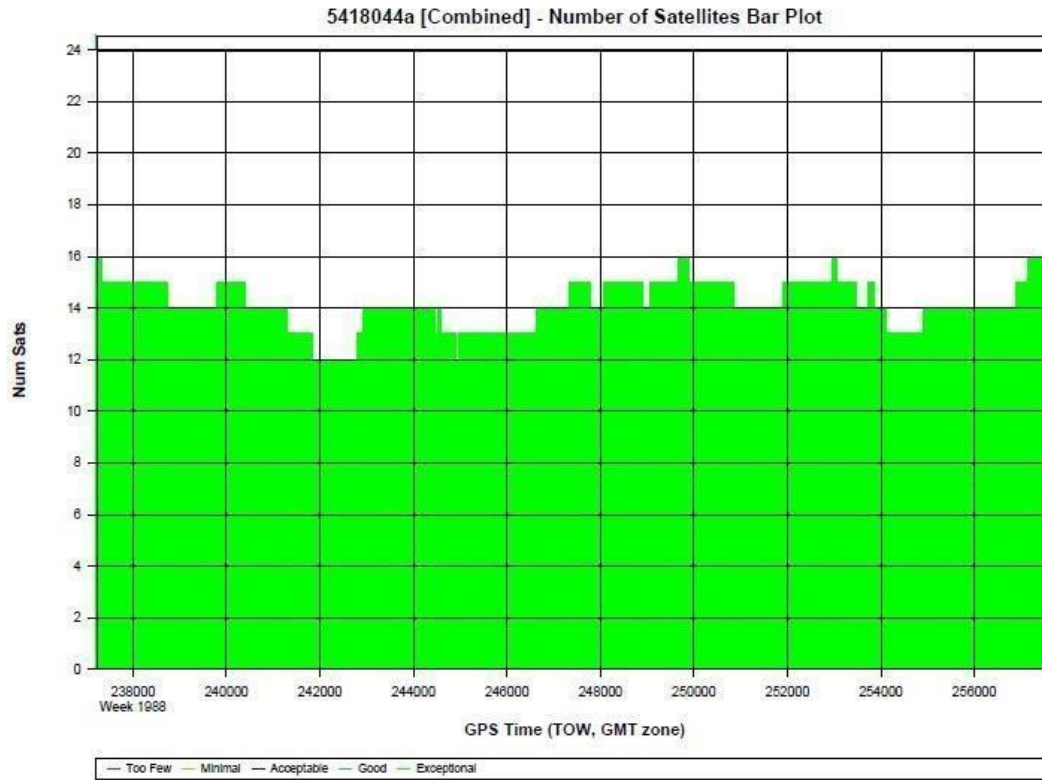


5418044a [Combined] - Forward/Reverse or Combined Separation Plot



5418044a [Combined] - PDOP Plot





### Processing Summary Information

Program: GrafNav

Version: 8.50.4320

Project: D:\Projects\3141\_Dewberry-Brownfield\Lidar\5418044a\05\_INS-GPS\_PROC\01\_POS\5418044a\5418044a\GNSS\5418044a.gnv

Solution Type: Combined

Number of Epochs:

Total in GPB file: 20651

No processed position: 178

Missing Fwd or Rev: 4

With bad C/A code: 0

With bad L1 Phase: 0

Measurement RMS Values:

L1 Phase: 0.0201 (m)  
C/A Code: 0.80 (m)  
L1 Doppler: 0.554 (m/s)

Fwd/Rev Separation RMS Values:

East: 0.010 (m)  
North: 0.005 (m) Height: 0.019  
(m)

Fwd/Rev Sep. RMS for dual FWD/REV fixes (20468 occurrences):

East: 0.010 (m)  
North: 0.005 (m) Height: 0.015  
(m)

Quality Number Percentages:

Q 1: 99.9 %  
Q 2: 0.1 %  
Q 3: 0.0 %  
Q 4: 0.0 %  
Q 5: 0.0 %  
Q 6: 0.0 %

Position Standard Deviation Percentages:

0.00 - 0.10 m: 100.0 %  
0.10 - 0.30 m: 0.0 %  
0.30 - 1.00 m: 0.0 % 1.00 - 5.00  
m: 0.0 % 5.00  
m + over: 0.0 %

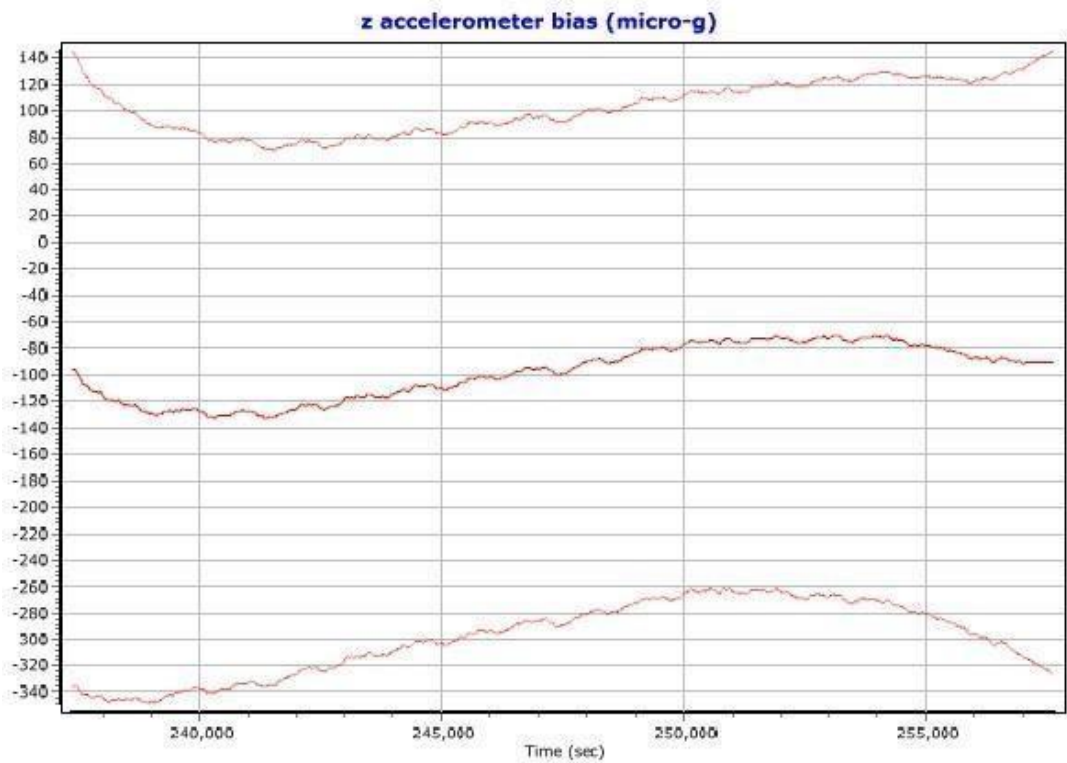
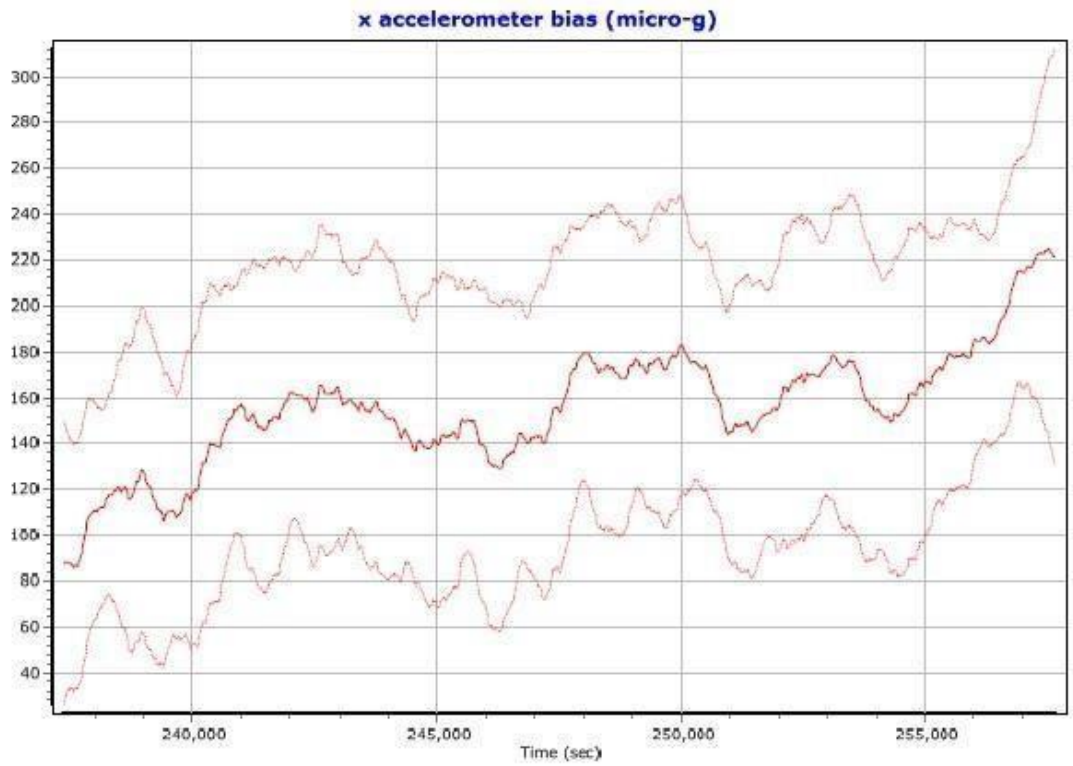
Percentages of epochs with DD\_DOP over 10.00:

DOP over Tol: 0.0 %

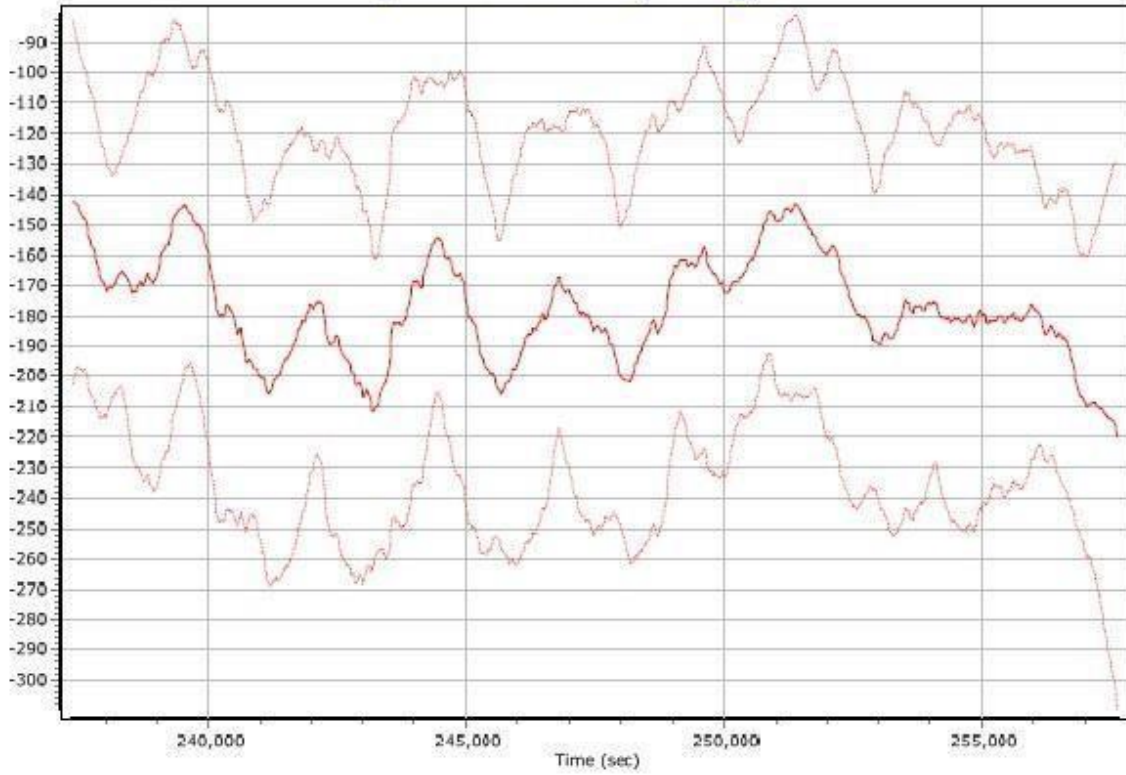
Baseline Distances:

Maximum: 57.698 (km)  
Minimum: 1.972 (km)  
Average: 26.565 (km)  
First Epoch: 36.152 (km)  
Last Epoch: 36.351 (km)

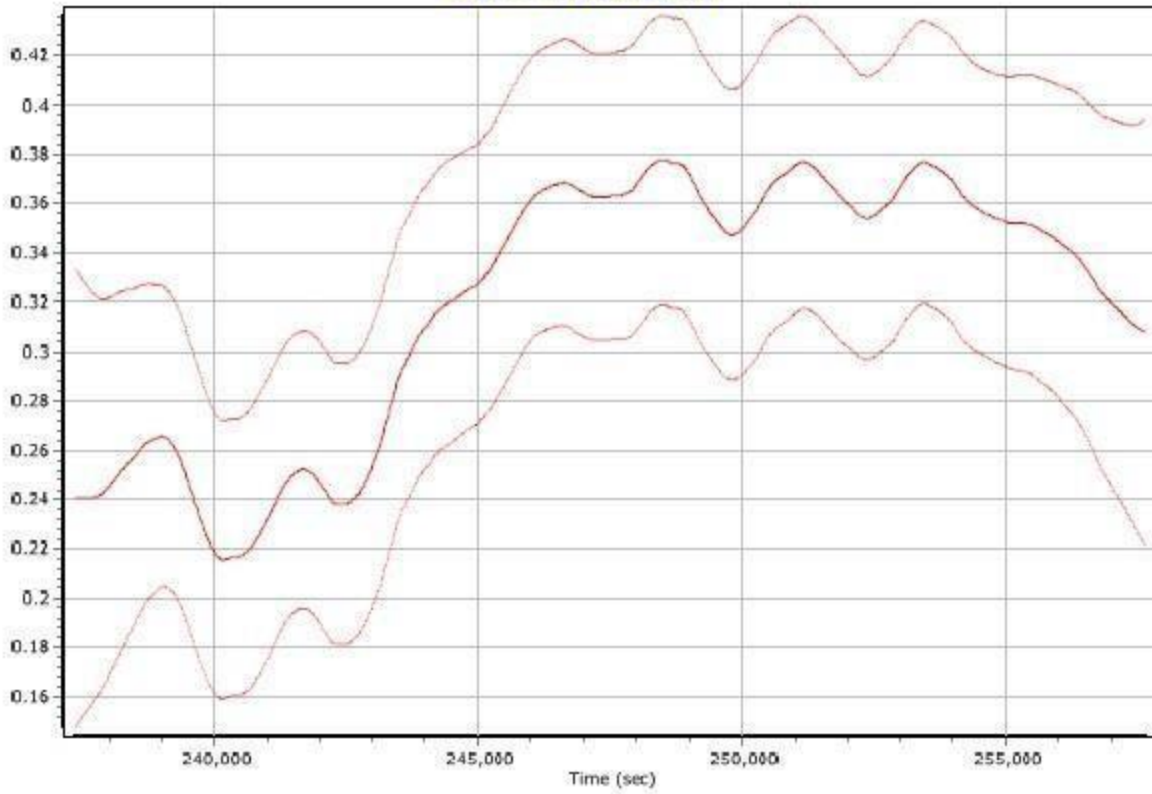
## Mission 2 - 5418044a Sensor Errors



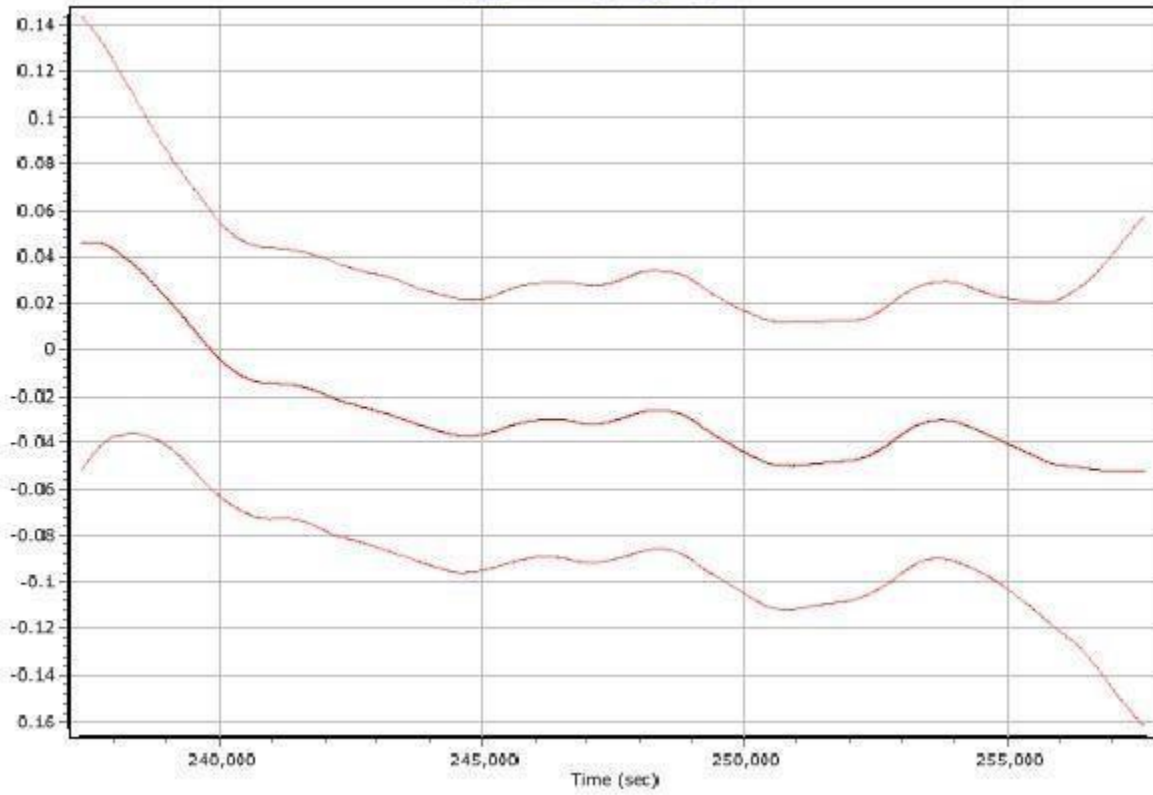
**y accelerometer bias (micro-g)**



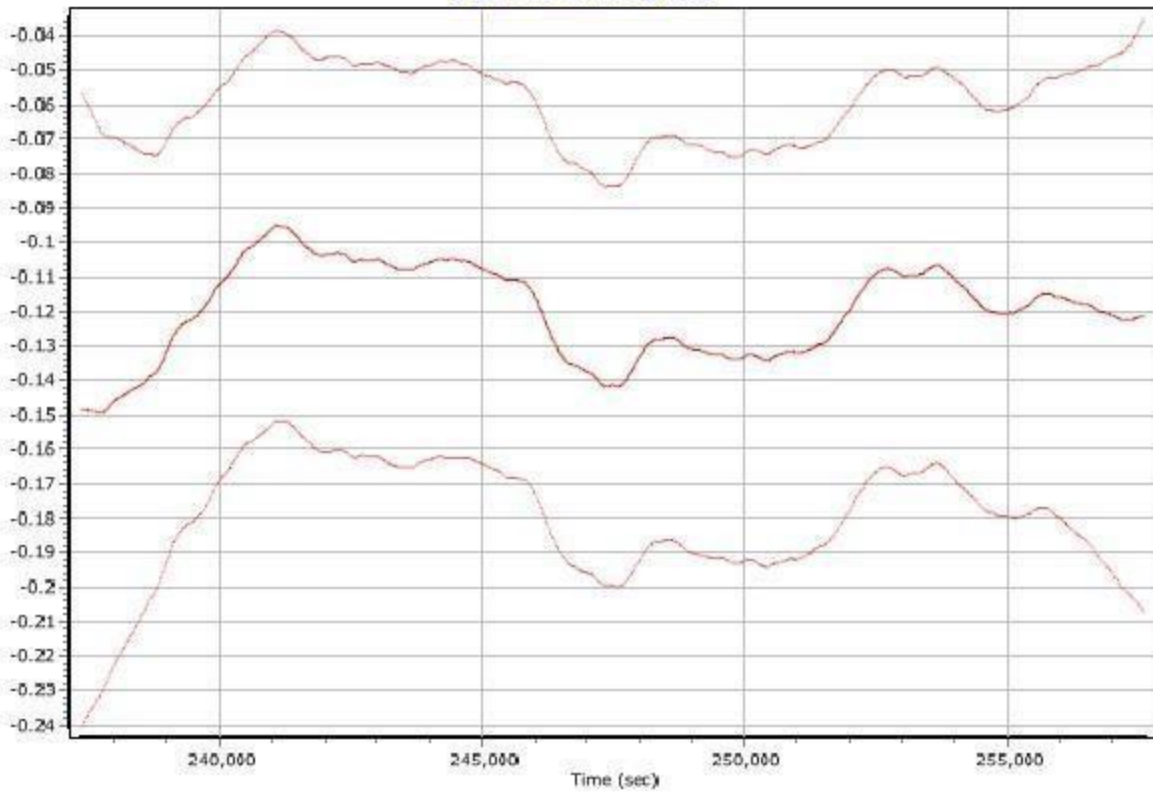
**x gyro bias (deg/hr)**



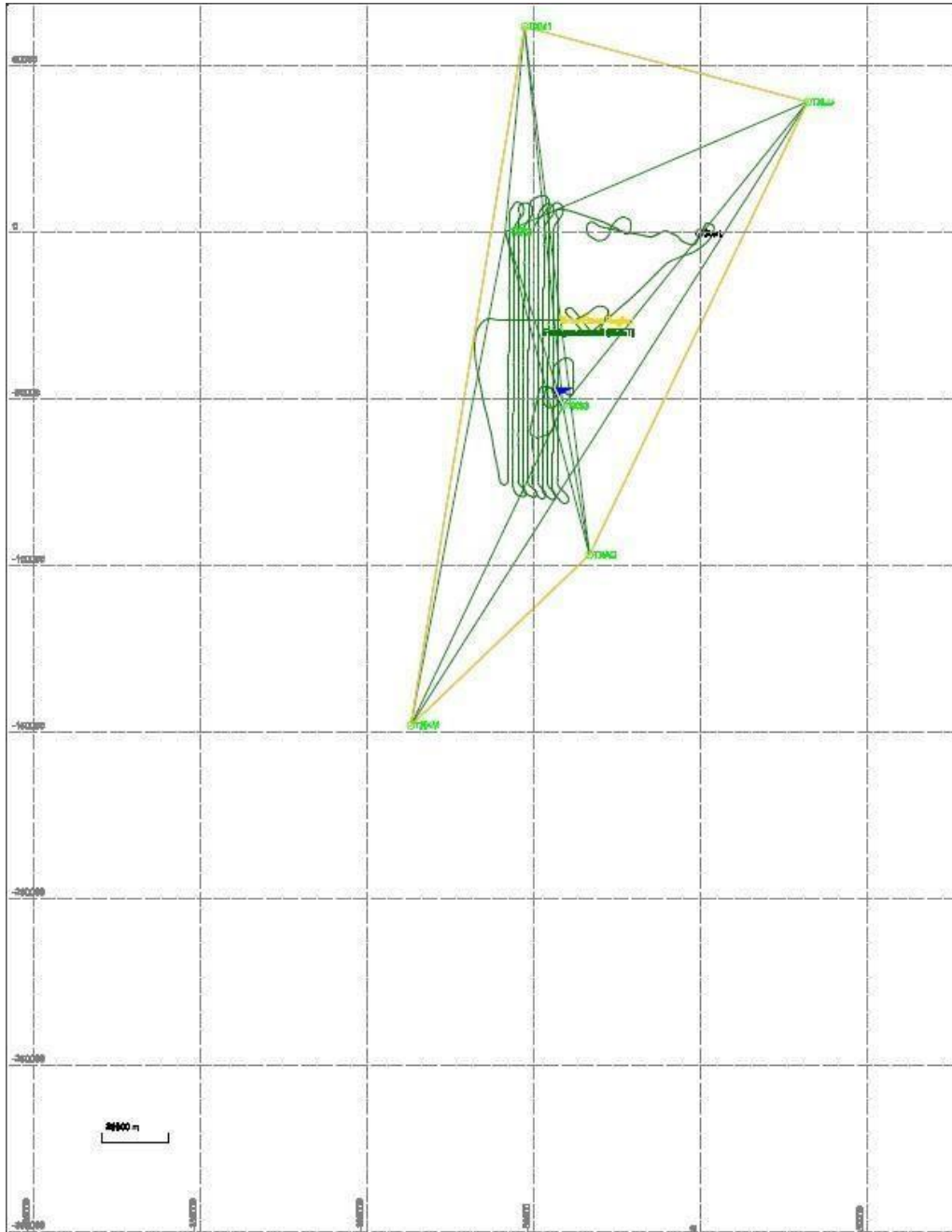
**z gyro bias (deg/hr)**



**y gyro bias (deg/hr)**

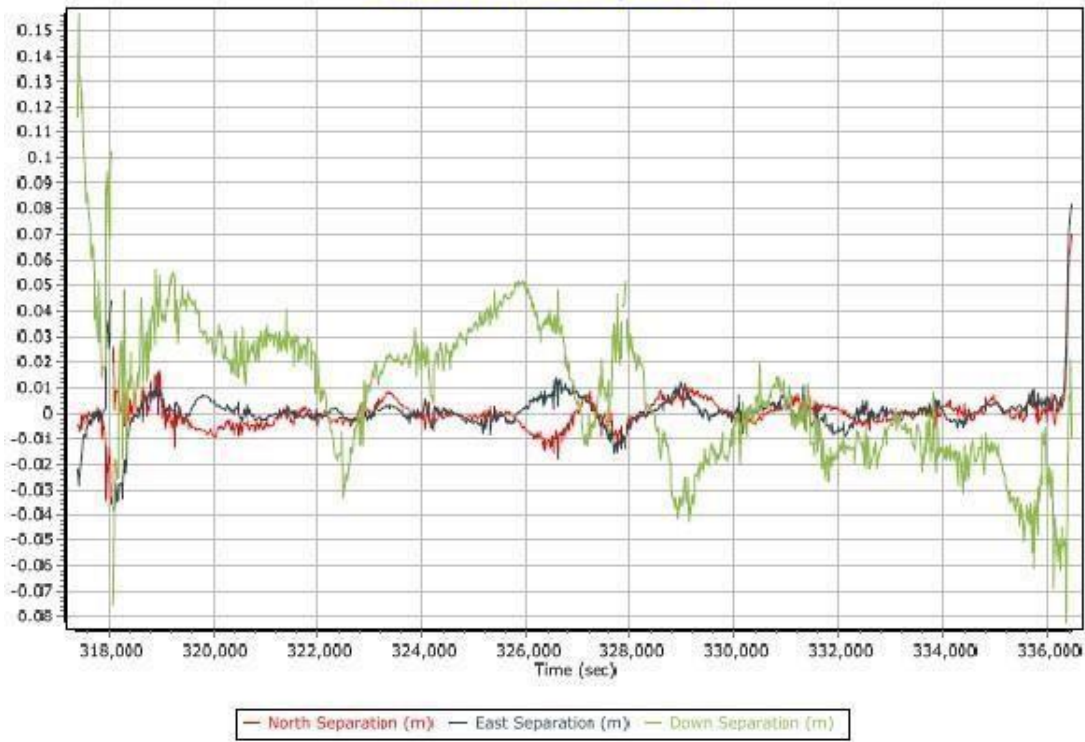


# Mission 3 - 5418045a GNSS Processing

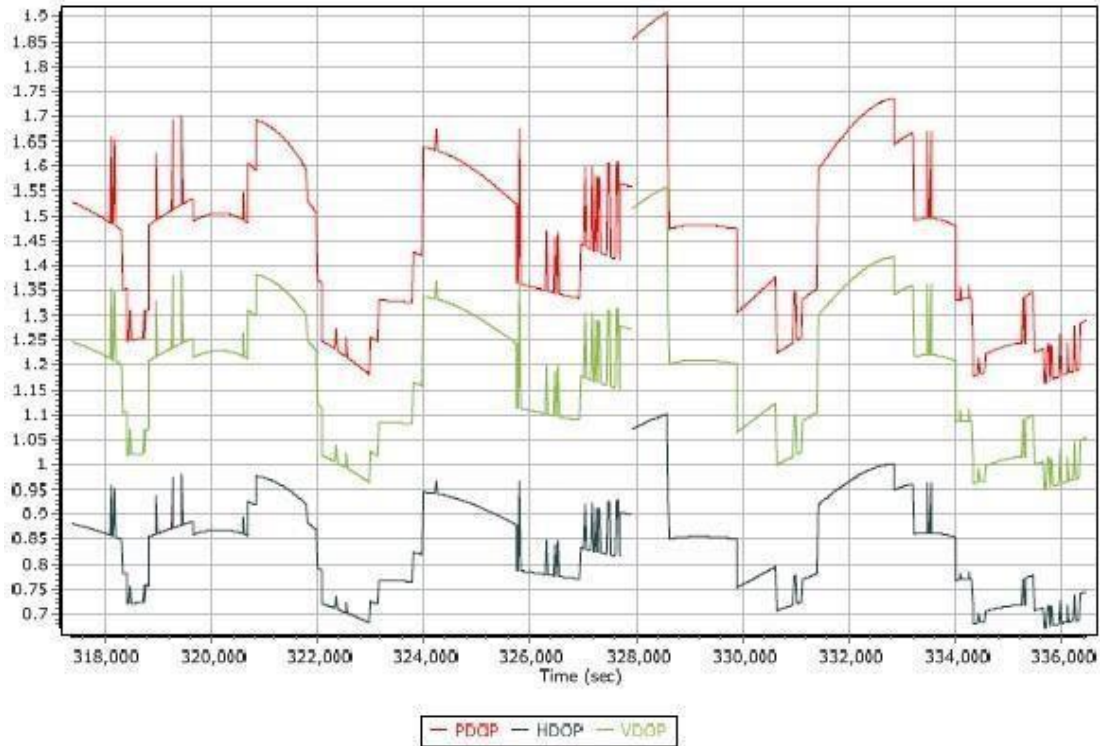




### Forward/Reverse Separation

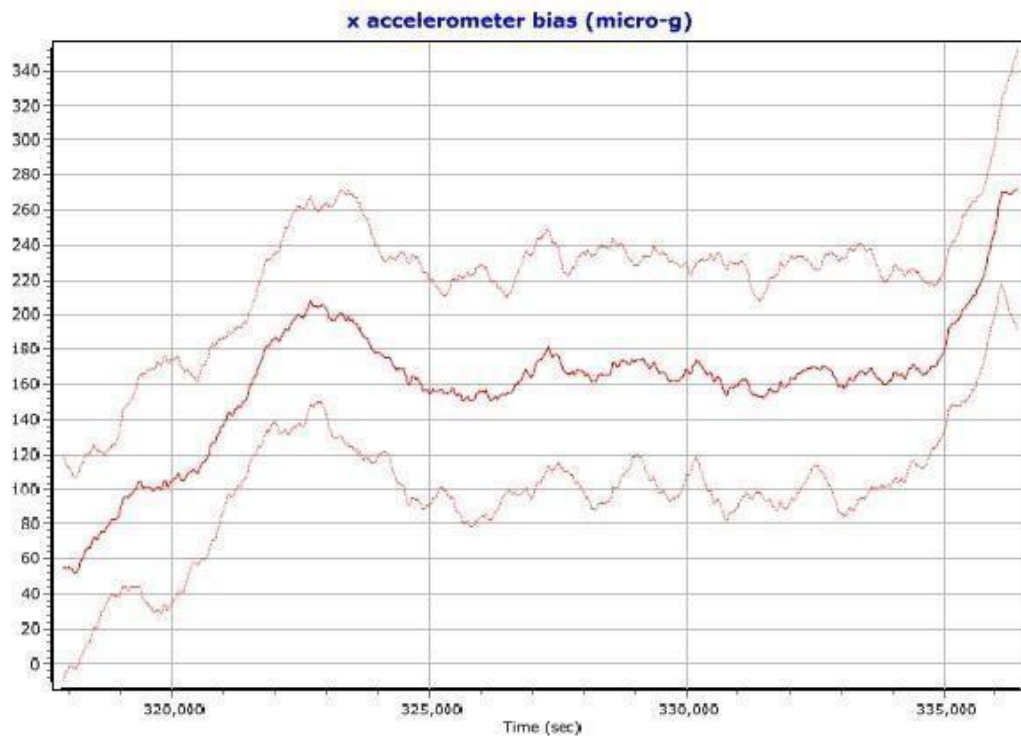


### DOP

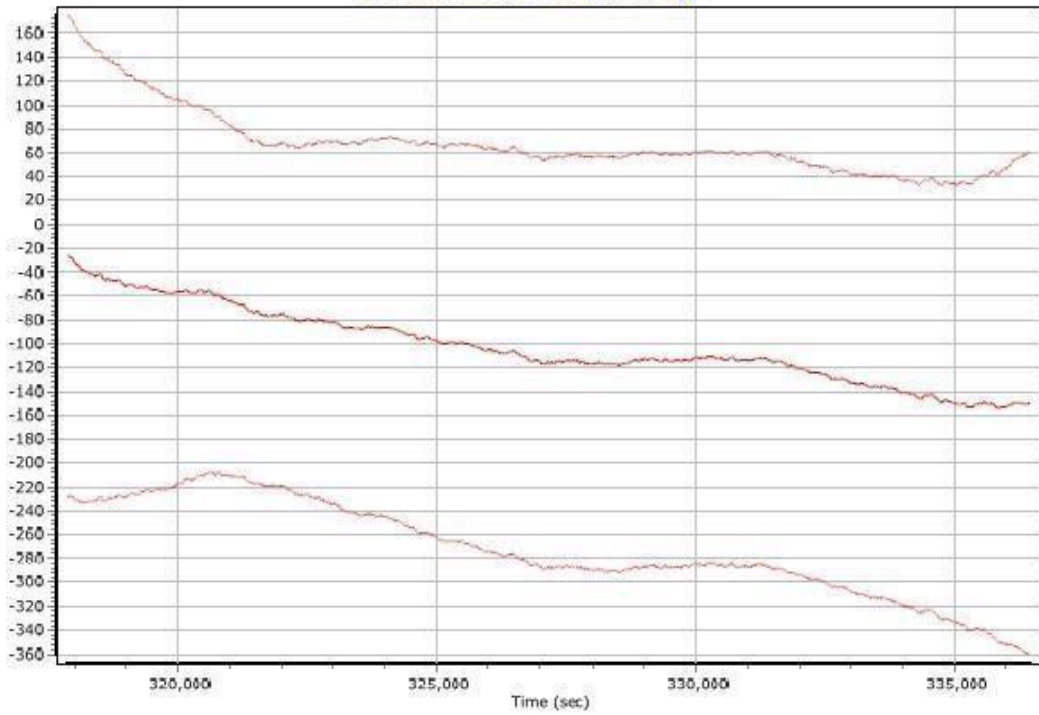




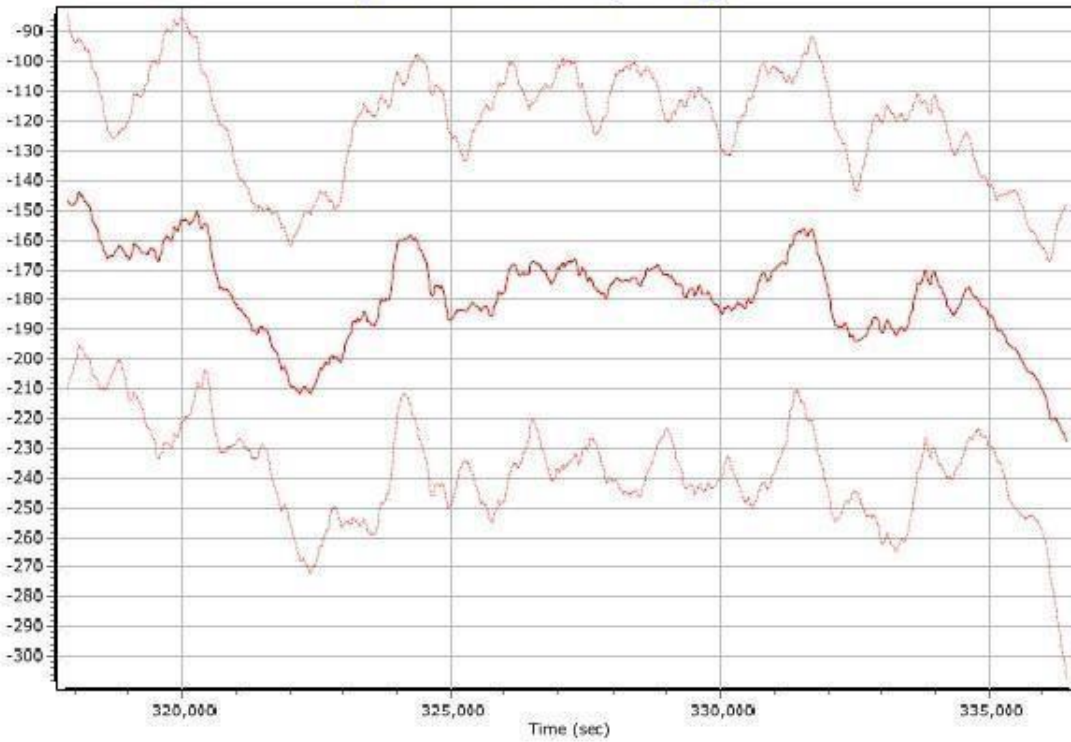
### Mission 3 - 5418045a Sensor Errors



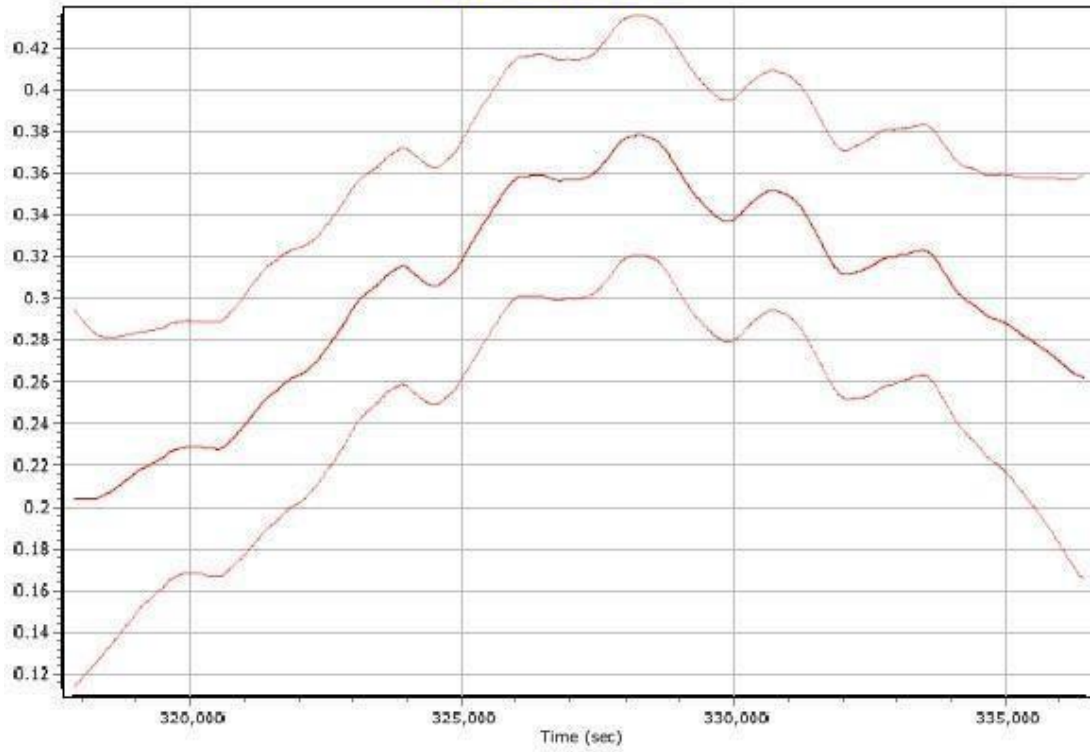
**z accelerometer bias (micro-g)**



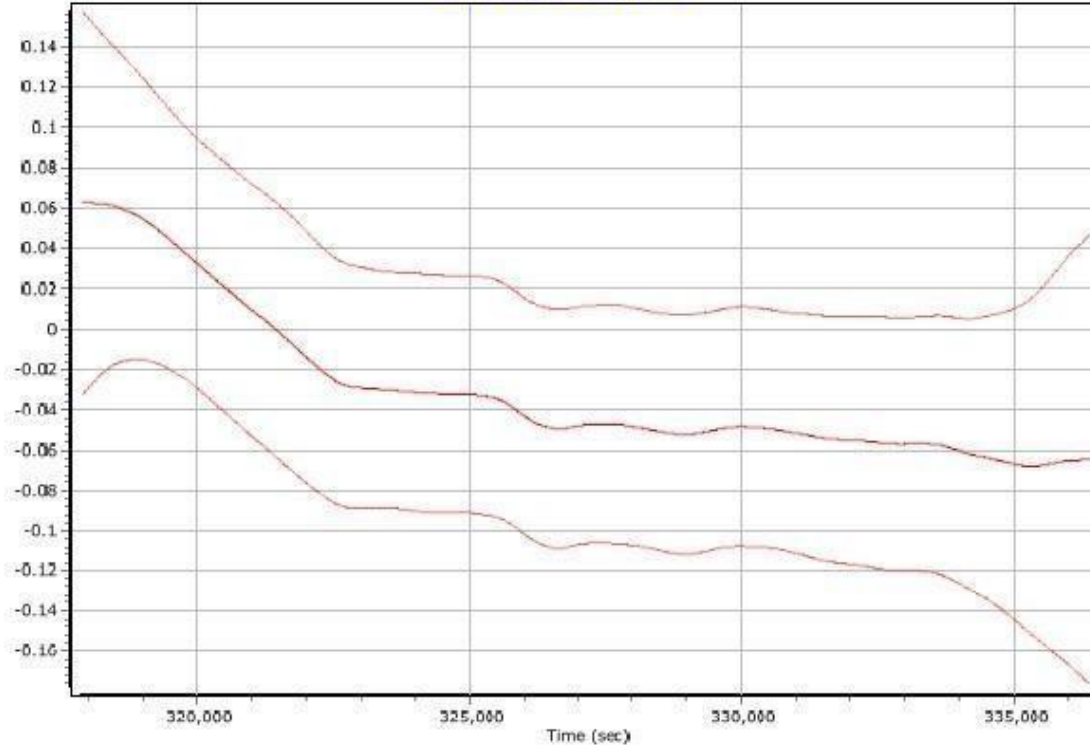
**y accelerometer bias (micro-g)**

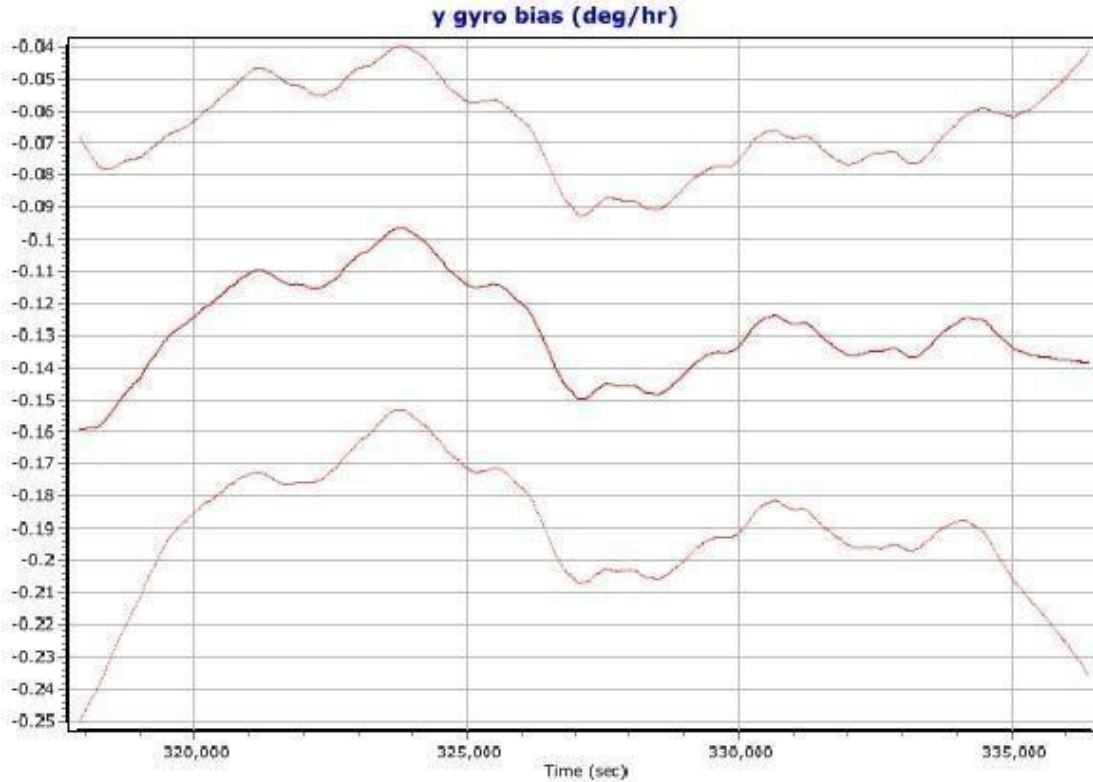


**x gyro bias (deg/hr)**



**z gyro bias (deg/hr)**





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 IINPP Forward-Backward Navigator [Jun 28 2017]

Copyright (c) 2008-2017 Applanix Corporation. All rights reserved.

Date : 02/19/18 Time : 11:54:25  
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 -----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418045a\05\_INSGPS\_PROC\01\_POS\5418045a\5418045a\Extract  
 Extracted data kernel : 5418045a  
 Processed data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418045a\05\_INSGPS\_PROC\01\_POS\5418045a\5418045a\Proc  
 Processed data kernel : 5418045a  
 Processing start time : 317886.319  
 Processing end time : 336466.000  
 -----

----- Selected  
 GNSS mode : IN-Fusion SmartBase  
 Selected base station : ASB  
 Selected subsystems : IMU  
 : Primary GNSS  
 : Base GNSS  
 Vehicle to reference alignment angles : 0.000 0.000 0.000  
 Multipath setting : LOW  
 Reference to IMU lever arm : 0.000 0.000 0.000

Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.693 -0.224 -1.083  
Base GNSS coordinates : 32.900566995 -102.652091246 977.767

-----  
-----  
Mask angle : 10.000

----- 317886.319

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00

Reference-primary GNSS lever arm: 0.69 -0.22 -1.08

Multipath environment: LOW

317886.319 : Forward-time processing started 317886.414 :  
IIN coarse leveling started.

317887.414 : IIN coarse leveling ended.

317887.414 : IIN navigator initialized.

317887.414 : IIN degraded navigation solution.

317887.414 : IIN initial position valid.

317888.004 : SmartBase observables in use 317888.004 :

IIN primary GNSS solution in use.

317888.004 : IIN primary GNSS observables in use.

317888.004 : IIN in Fixed NL RTK mode.

317888.104 : IIN navigator alignment active.

318040.000 : WARNING : Gap in primary GNSS navigation data 318041.005

: IIN primary GNSS solution not in use. 318042.005 :

IIN primary GNSS solution in use.

318043.004 : IIN WL ambiguity failure cleared

323328.003 : IIN No ephemerides failure cleared

327826.000 : WARNING : Gap in primary GNSS navigation data 327827.005 :

IIN primary GNSS solution not in use.

327827.005 : IIN primary GNSS observables not in use.

327830.004 : IIN primary GNSS observables in use. 327830.004 :

IIN in C/A GNSS aided mode.

327831.004 : IIN WL ambiguity failure cleared 327831.004 :

IIN NL ambiguity failure cleared 327832.004 : IIN primary  
GNSS solution in use.

327832.004 : IIN in Fixed NL RTK mode.

327886.000 : WARNING : Gap in primary GNSS navigation data 327887.001 :

IIN primary GNSS solution not in use.

327887.001 : IIN primary GNSS observables not in use.

327890.000 : IIN primary GNSS observables in use. 327890.000 :

IIN in C/A GNSS aided mode.

327891.000 : IIN WL ambiguity failure cleared 327891.000 :

IIN NL ambiguity failure cleared 327892.000 : IIN primary  
GNSS solution in use.

327892.000 : IIN in Fixed NL RTK mode.  
329958.001 : IIN No ephemerides failure cleared  
330948.005 : IIN No ephemerides failure cleared  
330953.004 : IIN No ephemerides failure cleared  
335963.002 : IIN No ephemerides failure cleared  
336227.003 : IIN WL ambiguity failure cleared  
336228.003 : IIN No ephemerides failure cleared  
336466.003 : Processing ended

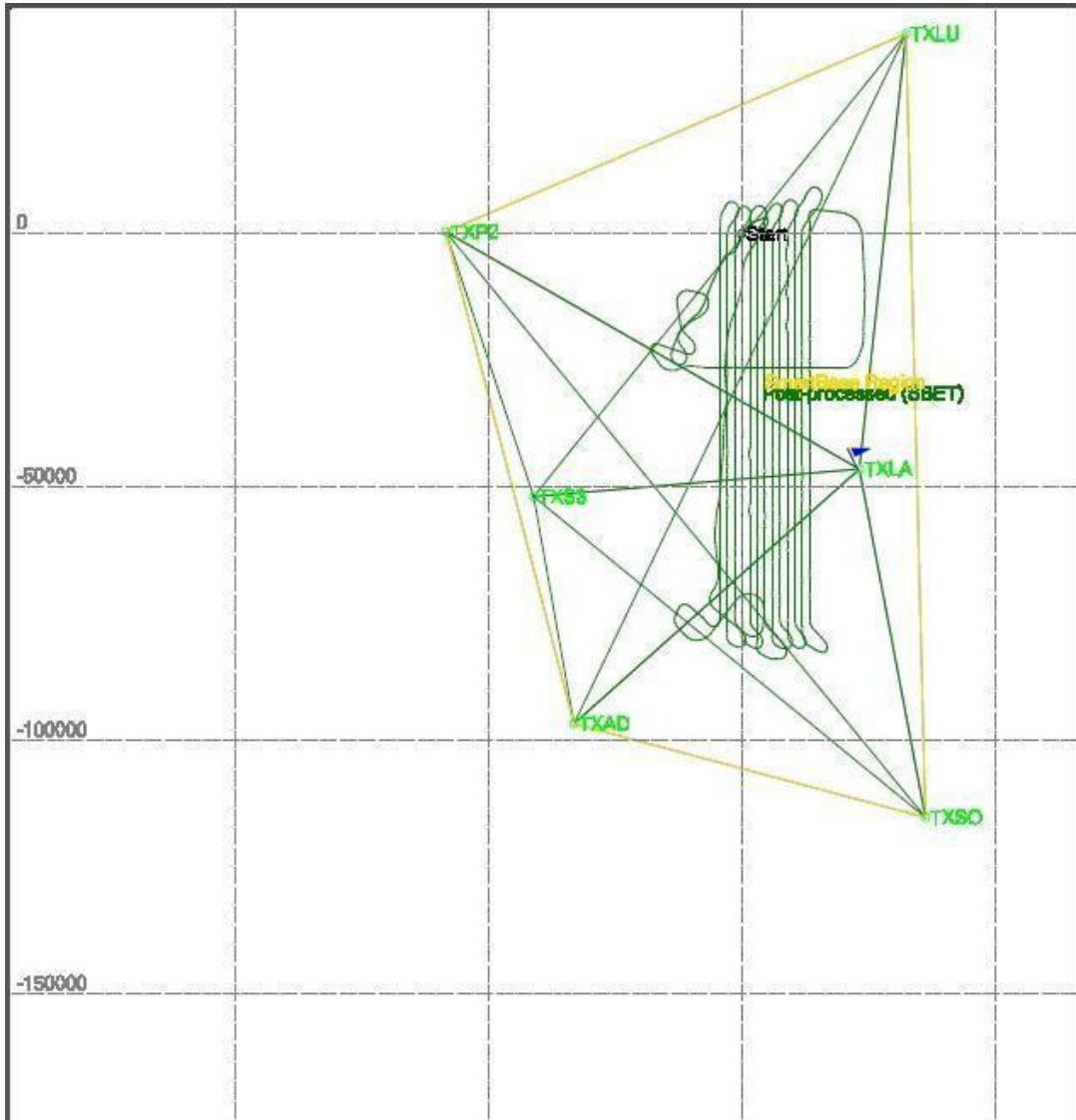
---

Termination status : Normal  
Execution time : 51.08

---

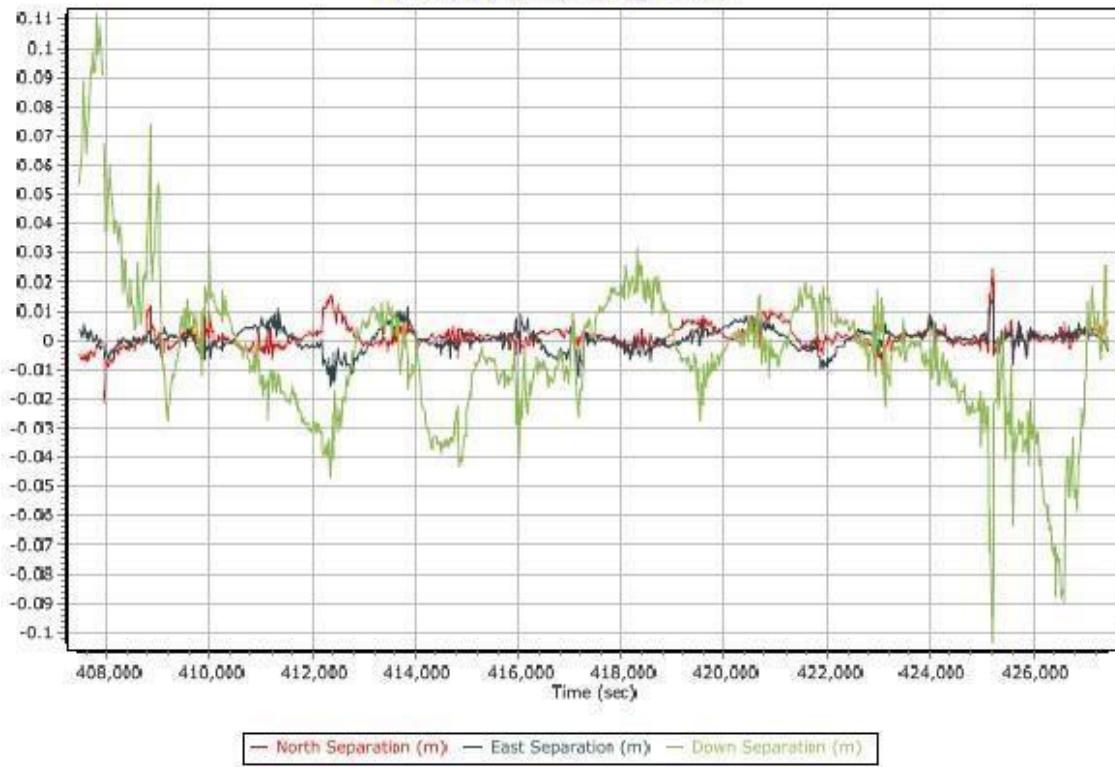
Processing completed.

# Mission 4 - 5418046a GNSS Processing

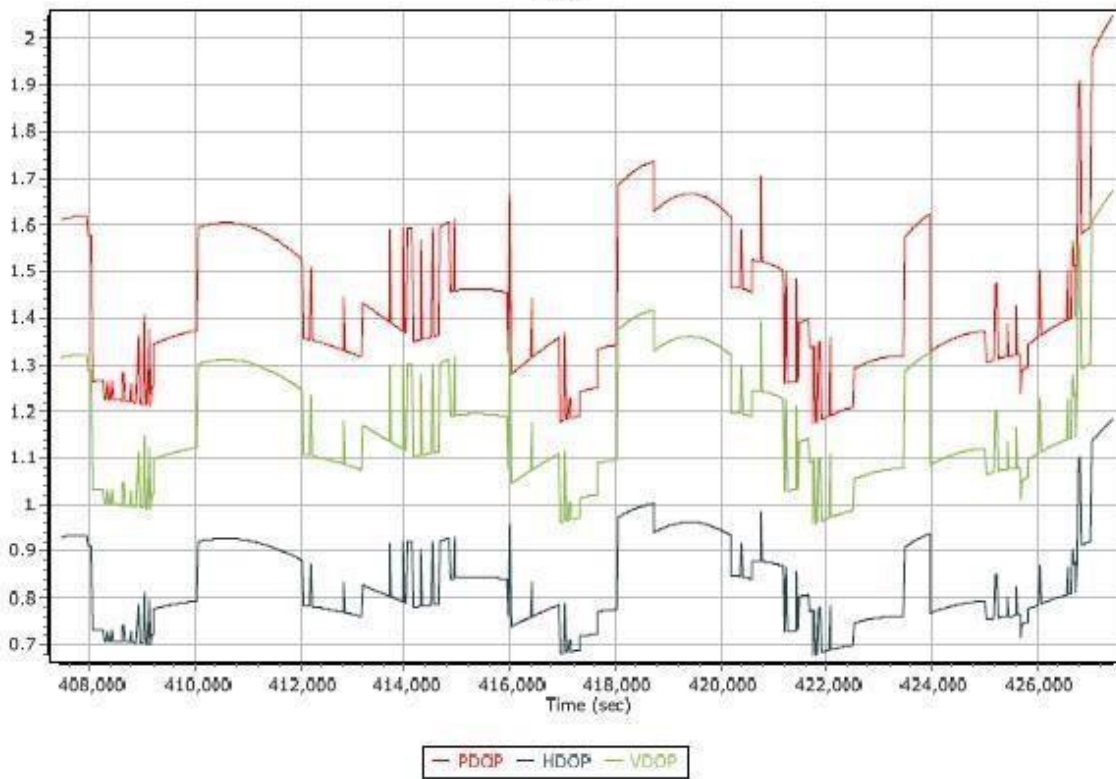


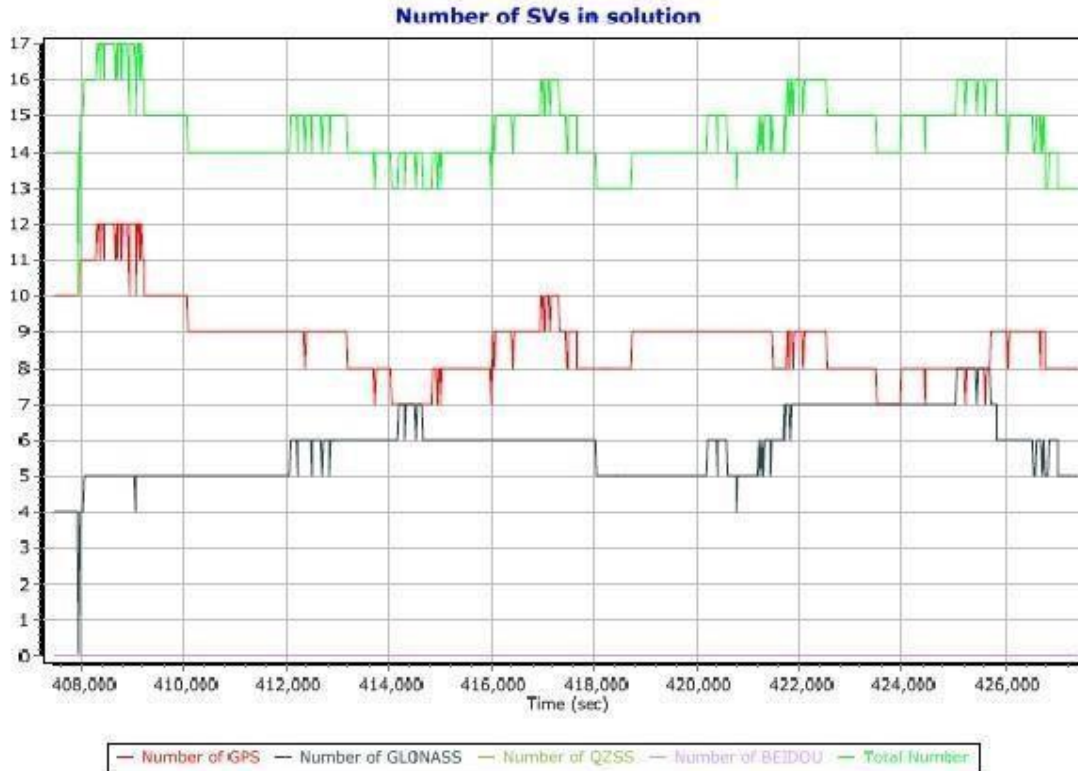


### Forward/Reverse Separation



### DOP





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 IINPP Forward-Backward Navigator [Jun 28 2017]

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Date : 02/19/18 Time : 14:16:51  
 -----

-----  
 -----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418046a\05\_INSGPS\_PROC\01\_POS\5418046a\5418046a\Extract  
 Extracted data kernel : 5418046a  
 Processed data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418046a\05\_INSGPS\_PROC\01\_POS\5418046a\5418046a\Proc  
 Processed data kernel : 5418046a  
 Processing start time : 407791.216  
 Processing end time : 427463.000  
 -----

----- Selected

GNSS mode : IN-Fusion SmartBase  
 Selected base station : ASB  
 Selected subsystems : IMU  
 : Primary GNSS  
 : Base GNSS  
 Vehicle to reference alignment angles : 0.000 0.000 0.000  
 Multipath setting : LOW  
 Reference to IMU lever arm : 0.000 0.000 0.000

Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.693 -0.224 -1.083  
Base GNSS coordinates : 32.869432337 -102.153803875 891.645

-----  
-----  
Mask angle : 10.000

----- 407791.216

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00

Reference-primary GNSS lever arm: 0.69 -0.22 -1.08

Multipath environment: LOW

407791.216 : Forward-time processing started 407791.311 :  
IIN coarse leveling started.

407792.311 : IIN coarse leveling ended.

407792.311 : IIN navigator initialized.

407792.311 : IIN degraded navigation solution.

407792.311 : IIN initial position valid.

407793.001 : SmartBase observables in use 407793.001 :

IIN primary GNSS solution in use.

407793.001 : IIN primary GNSS observables in use.

407793.001 : IIN in Fixed NL RTK mode.

407793.101 : IIN navigator alignment active.

407922.000 : WARNING : Gap in primary GNSS navigation data 407923.000

: IIN primary GNSS solution not in use. 407924.005 :

IIN primary GNSS solution in use.

407925.005 : IIN WL ambiguity failure cleared

414988.001 : IIN No ephemerides failure cleared

417101.004 : IIN WL ambiguity failure cleared

425342.000 : IIN NL ambiguity failure cleared

425594.003 : IIN WL ambiguity failure cleared

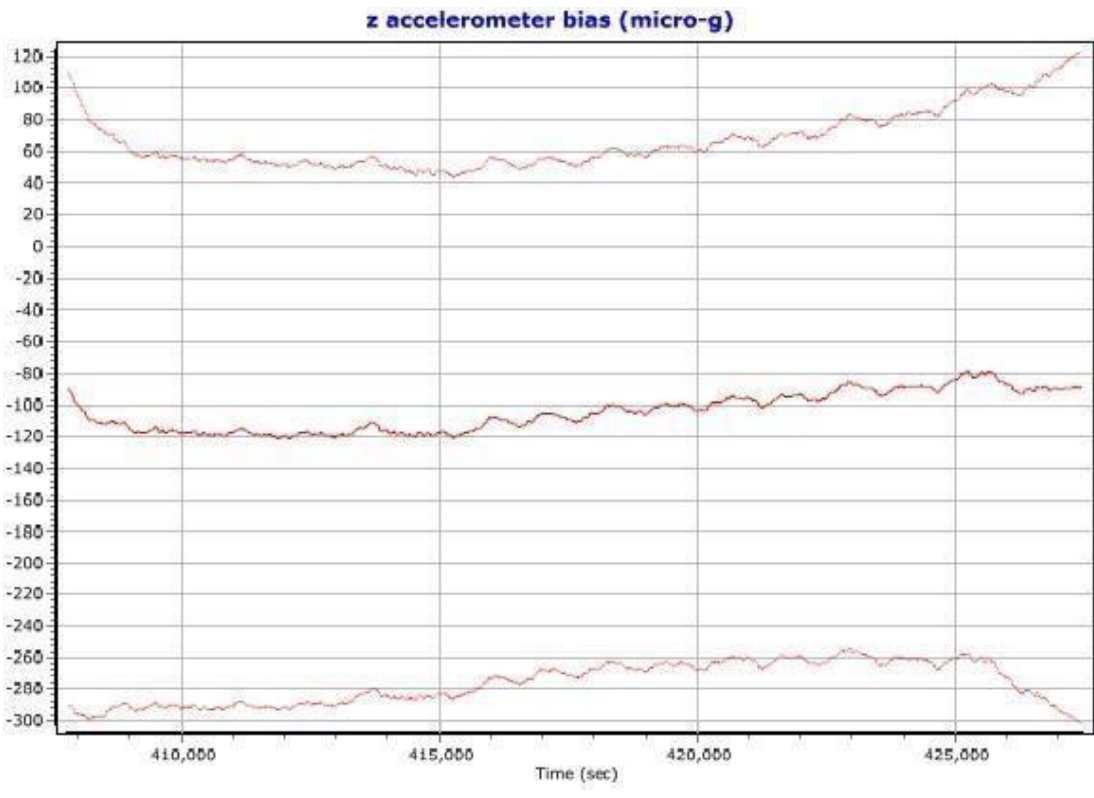
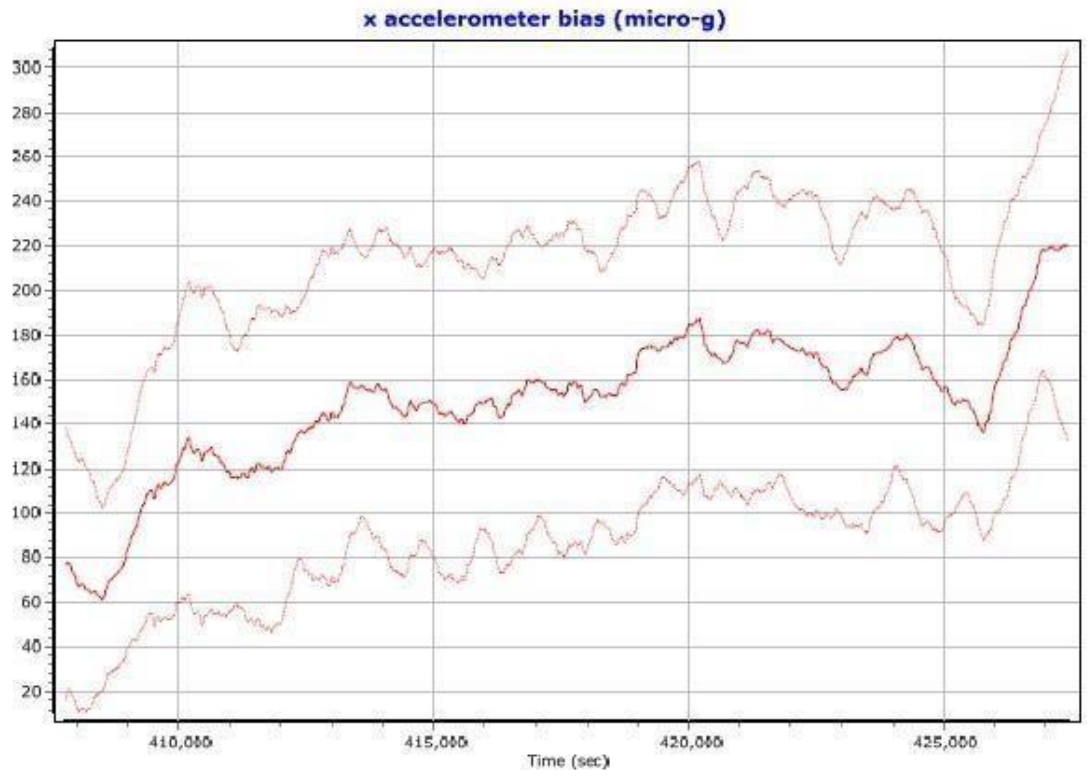
427463.003 : Processing ended

-----  
Termination status : Normal

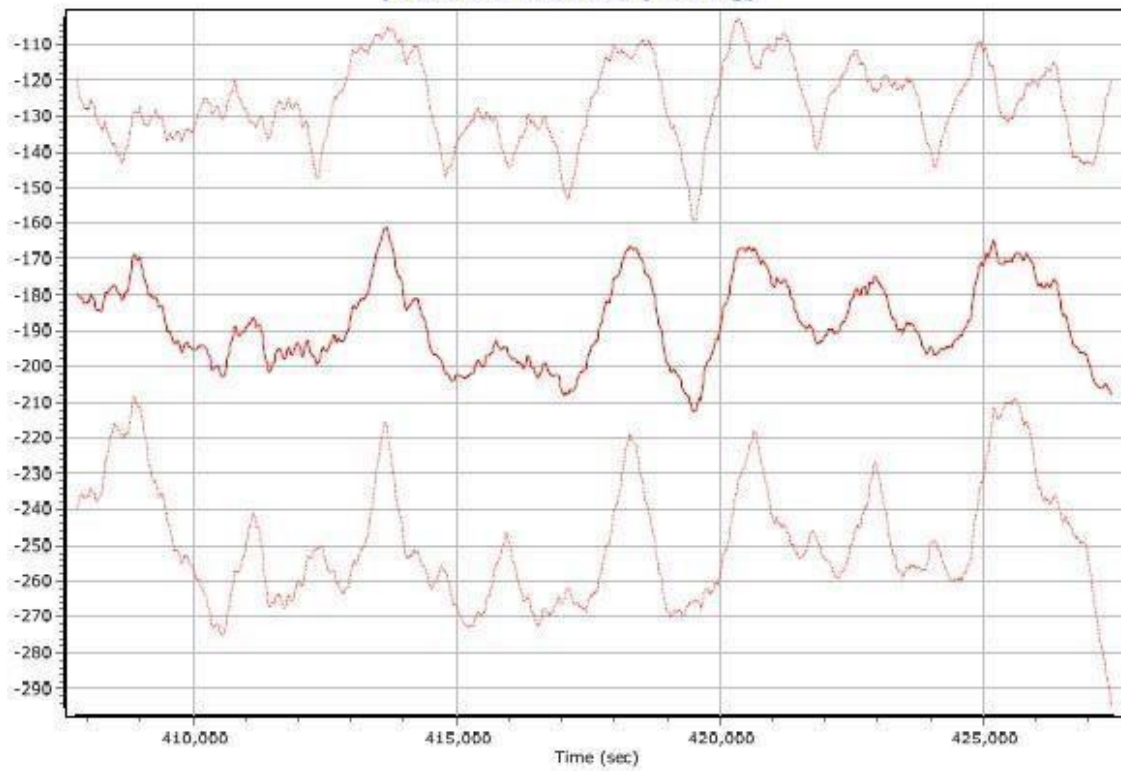
Execution time : 53.61

-----  
Processing completed.

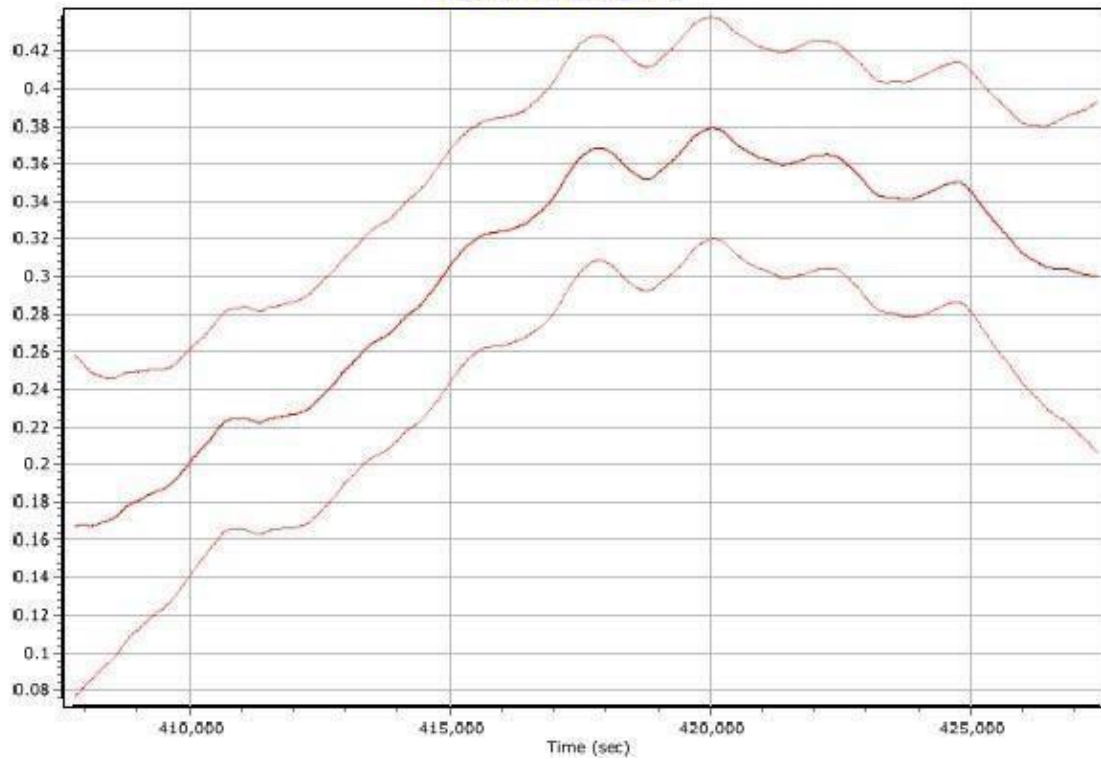
## Mission 4 - 5418046a Sensor Errors



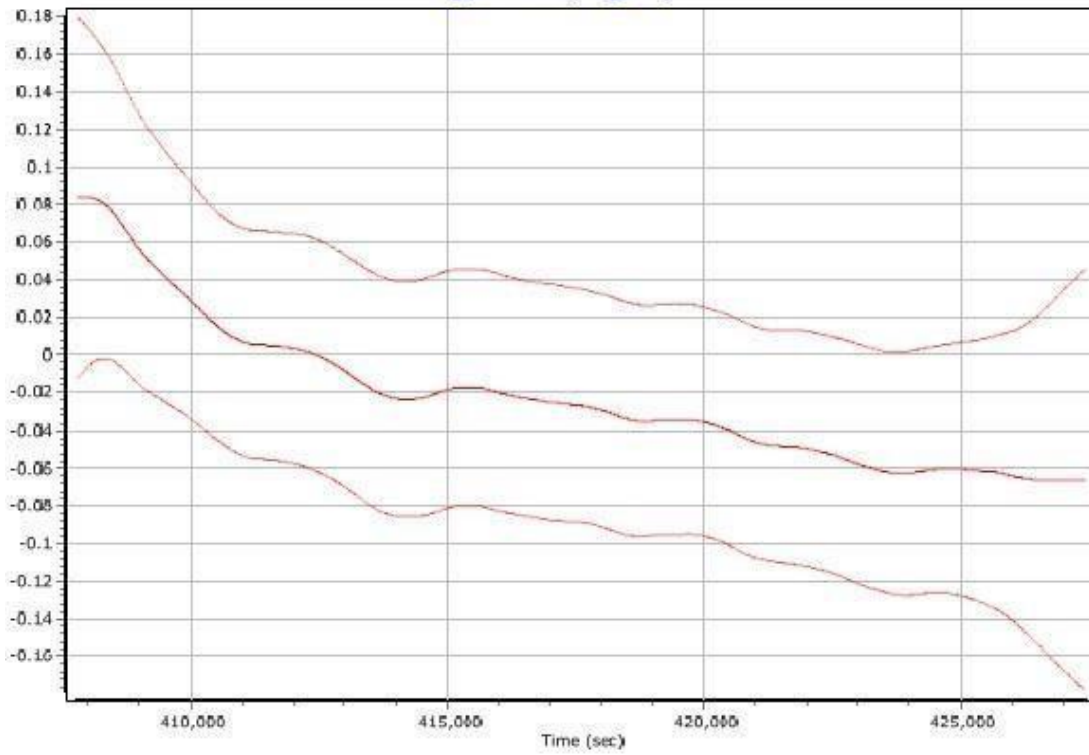
**y accelerometer bias (micro-g)**



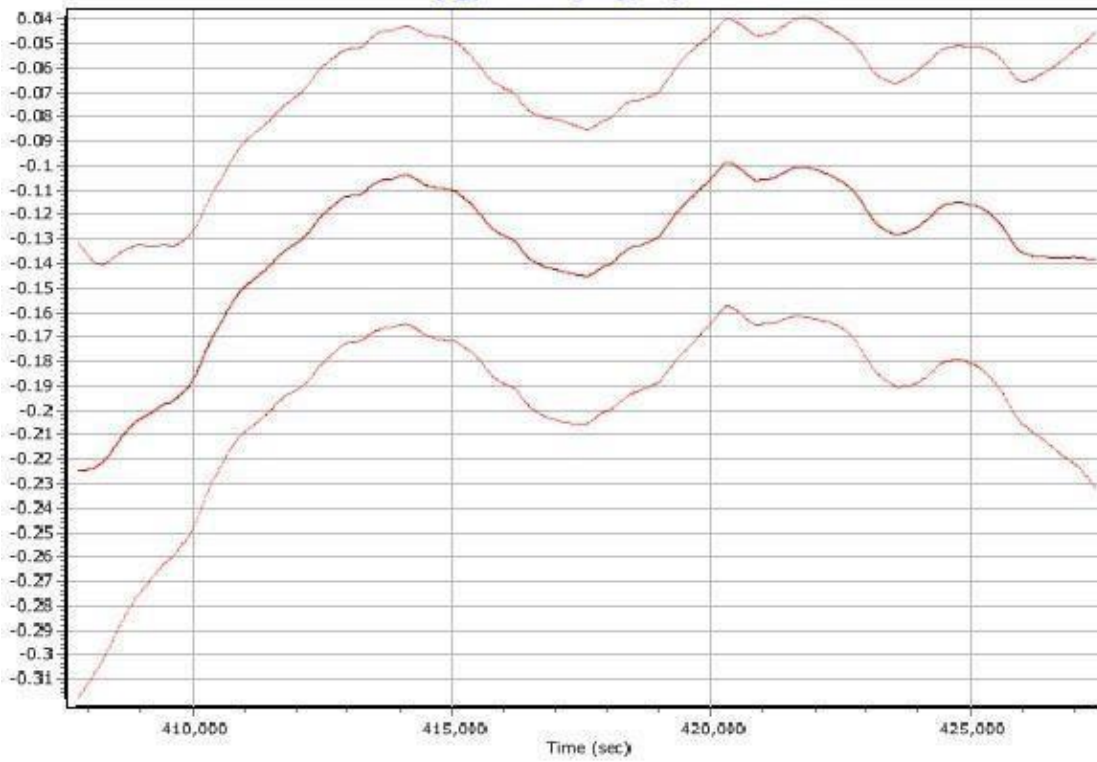
**x gyro bias (deg/hr)**



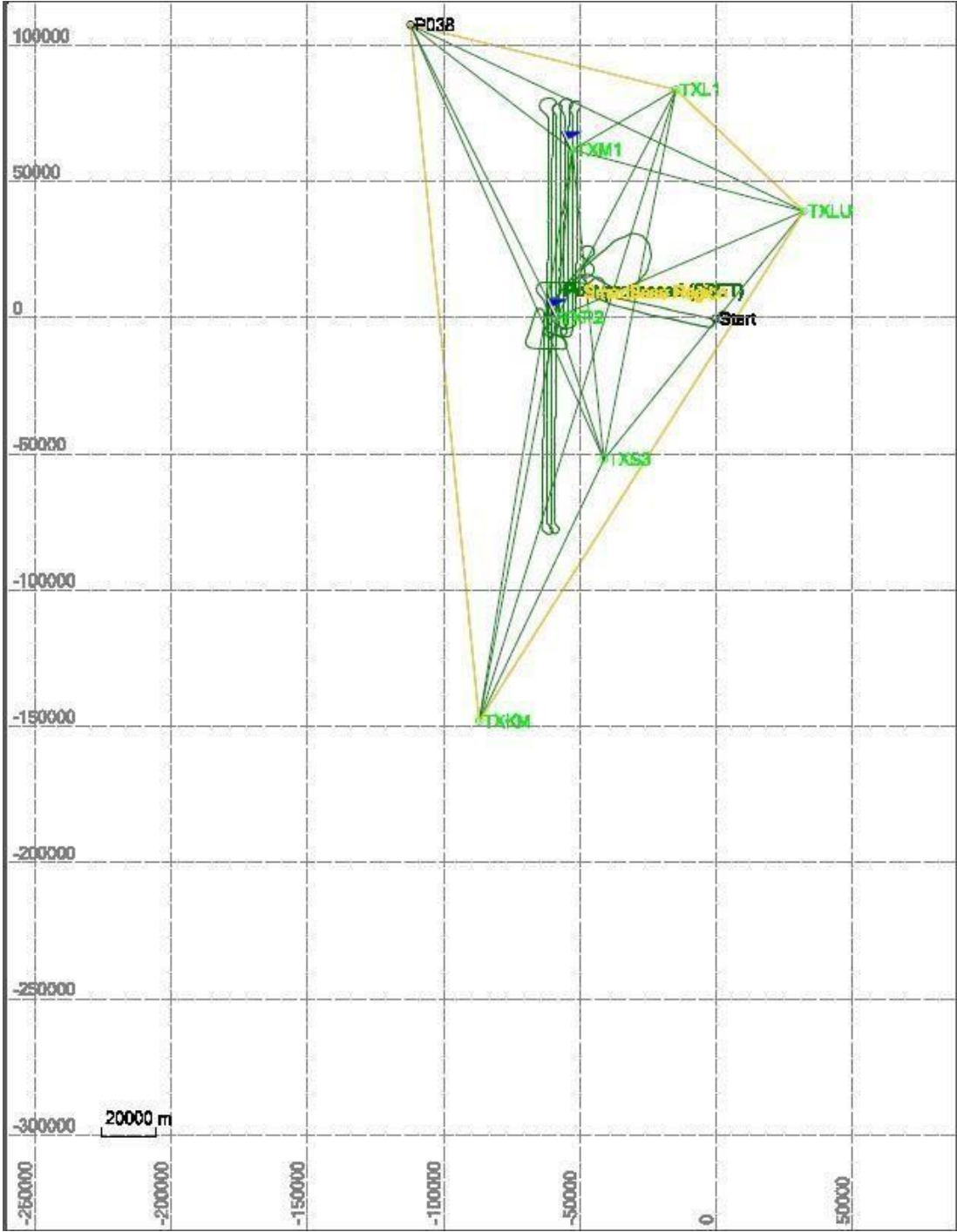
**z gyro bias (deg/hr)**



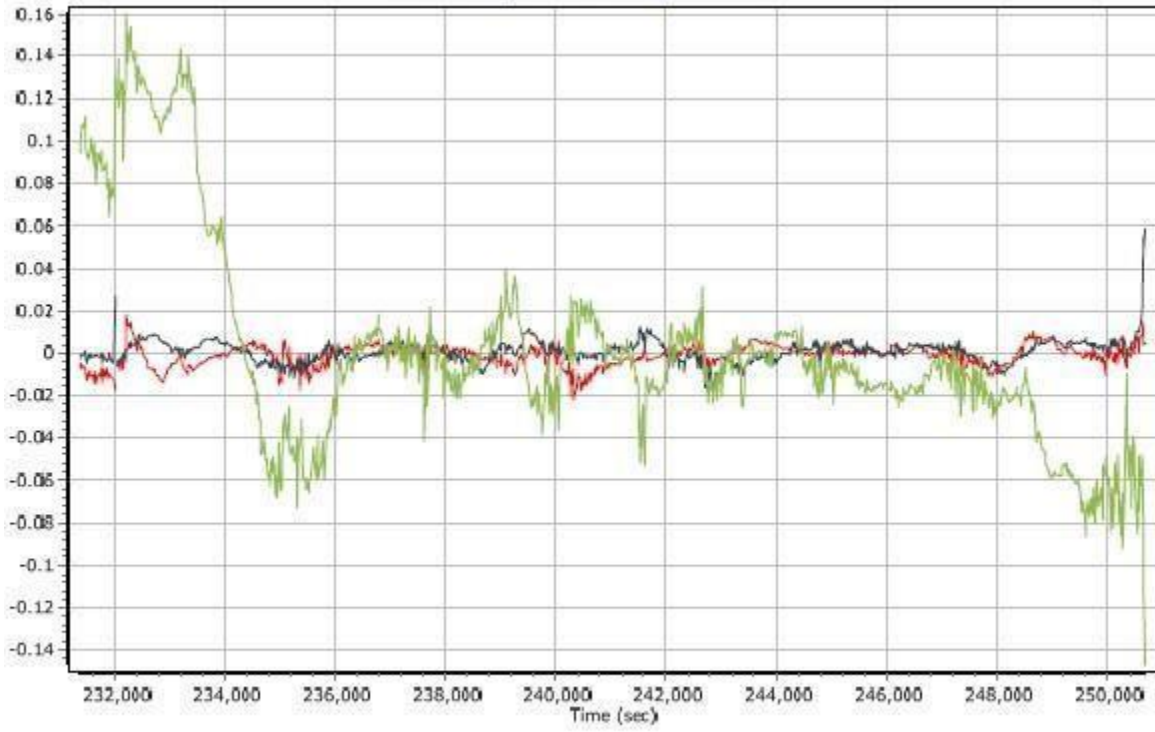
**y gyro bias (deg/hr)**



# Mission 5 - 5418051a GNSS Processing

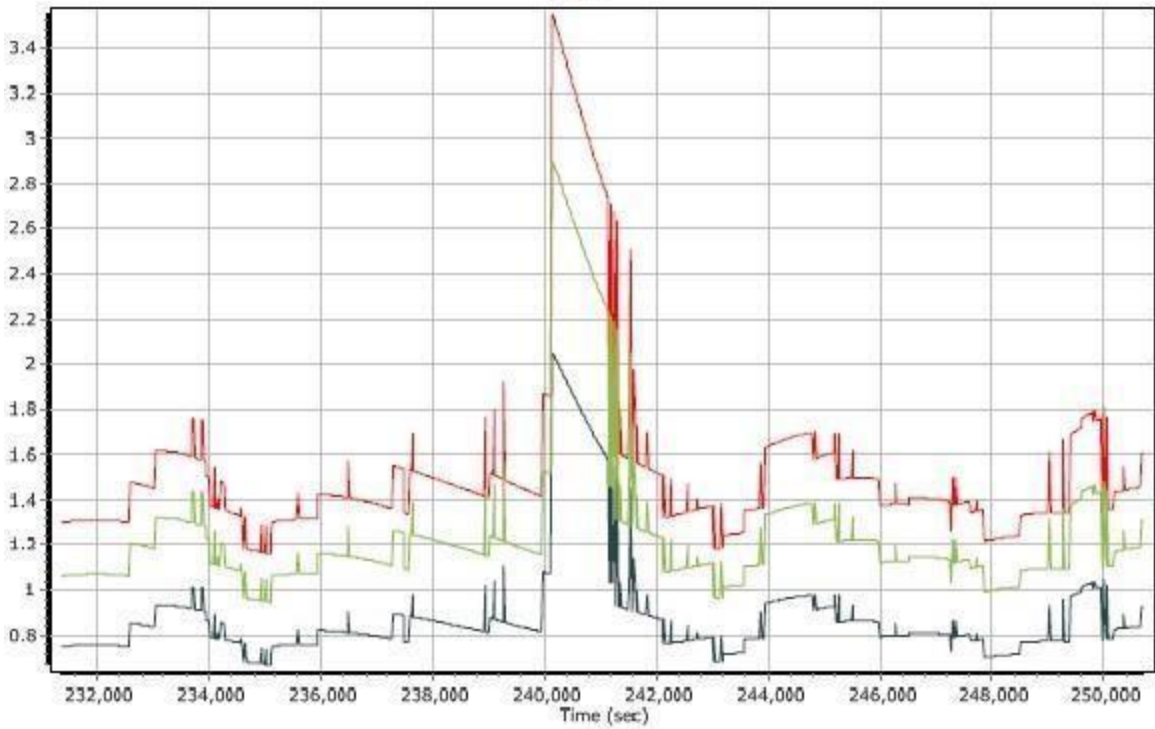


### Forward/Reverse Separation



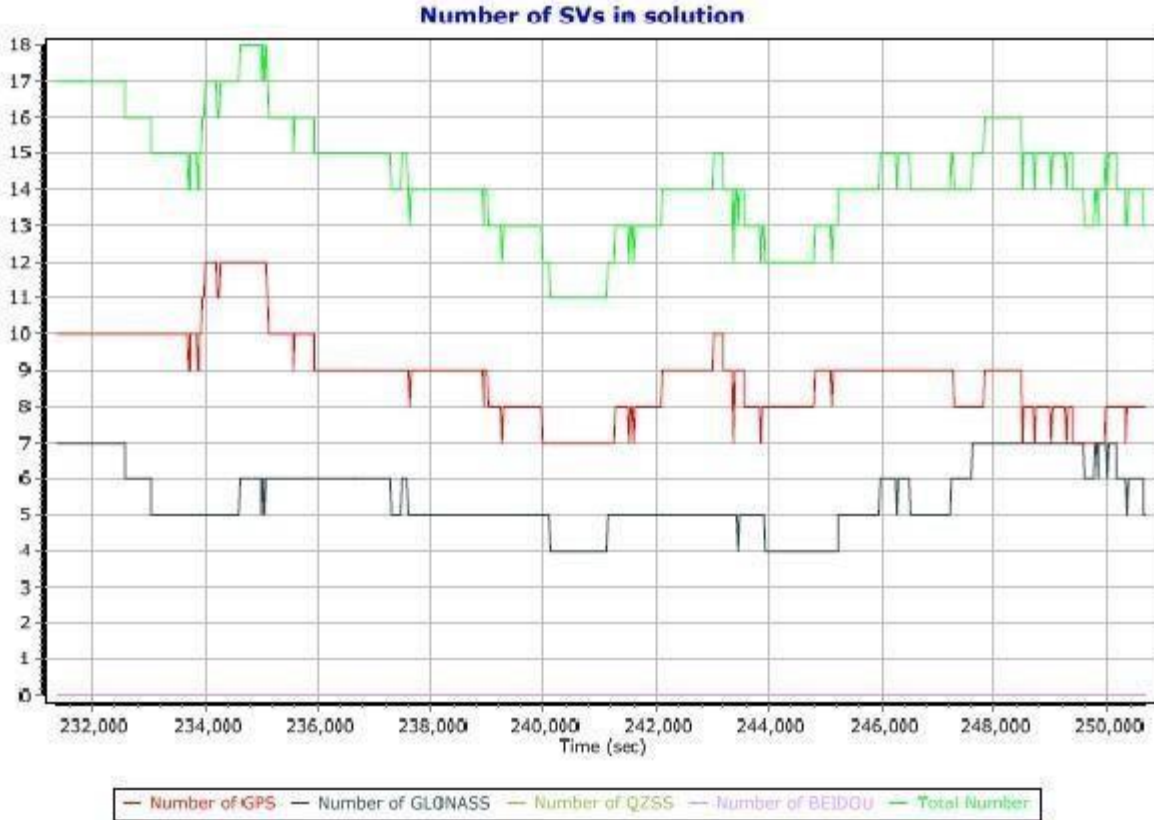
— North Separation (m) — East Separation (m) — Down Separation (m)

### DOP



— PDOP — HDOP — VDOP





-----  
 IINPP Forward-Backward Navigator [Jun 28 2017]

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Date : 02/28/18 Time : 16:07:01  
 -----

-----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418051a\05\_INSGPS\_PROC\01\_POS\5418051a\5418051a\Extract

Extracted data kernel : 5418051a

Processed data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418051a\05\_INSGPS\_PROC\01\_POS\5418051a\5418051a\Proc

Processed data kernel : 5418051a

Processing start time : 231886.081

Processing end time : 250701.000  
 -----

----- Selected

GNSS mode : IN-Fusion SmartBase

Selected base station : ASB

Selected subsystems : IMU

: Primary GNSS

: Base GNSS

Vehicle to reference alignment angles : 0.000 0.000 0.000

Multipath setting : LOW  
Reference to IMU lever arm : 0.000 0.000 0.000  
Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.701 -0.224 -1.072  
Base GNSS coordinates : 33.281576868 -102.727244149 1089.713

-----  
-----  
Mask angle : 10.000

----- 231886.086

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00

Reference-primary GNSS lever arm: 0.70 -0.22 -1.07

Multipath environment: LOW

231886.086 : Forward-time processing started 231886.181 :

IIN coarse leveling started.

231887.181 : IIN coarse leveling ended.

231887.181 : IIN navigator initialized.

231887.181 : IIN degraded navigation solution.

231887.181 : IIN initial position valid.

231888.001 : SmartBase observables in use 231888.001 :

IIN primary GNSS solution in use.

231888.001 : IIN primary GNSS observables in use.

231888.001 : IIN in Fixed NL RTK mode.

231888.101 : IIN navigator alignment active.

232002.000 : WARNING : Gap in primary GNSS navigation data 232003.002 :

IIN primary GNSS solution not in use.

232004.002 : IIN primary GNSS solution in use. 232005.002 : IIN

WL ambiguity failure cleared

242719.004 : IIN WL ambiguity failure cleared

250701.002 : Processing ended

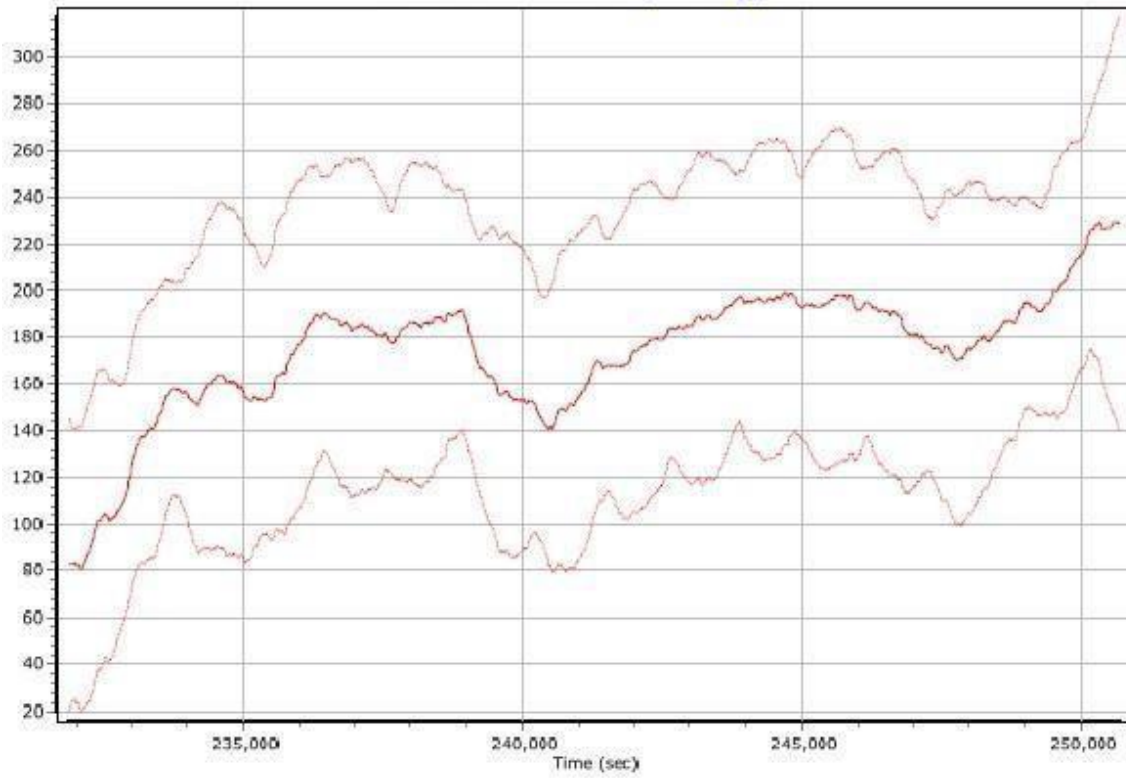
-----  
Termination status : Normal

Execution time : 49.81

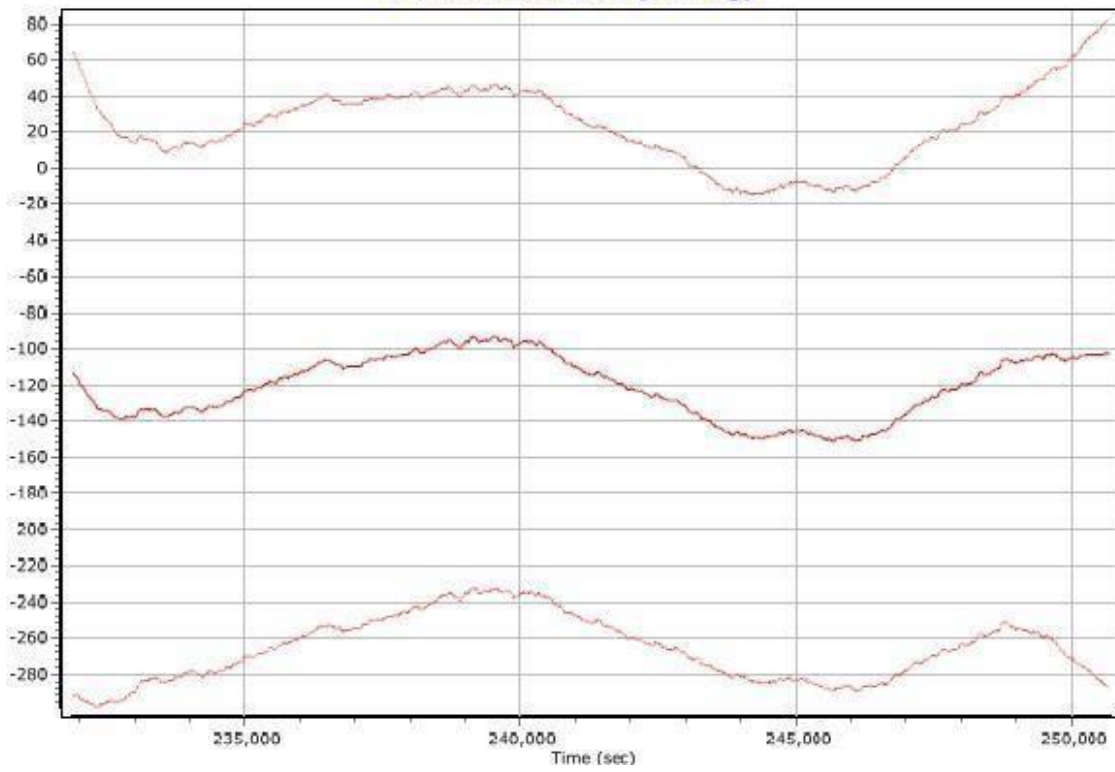
-----  
Processing completed.

# Mission 5 - 5418051a Sensor Errors

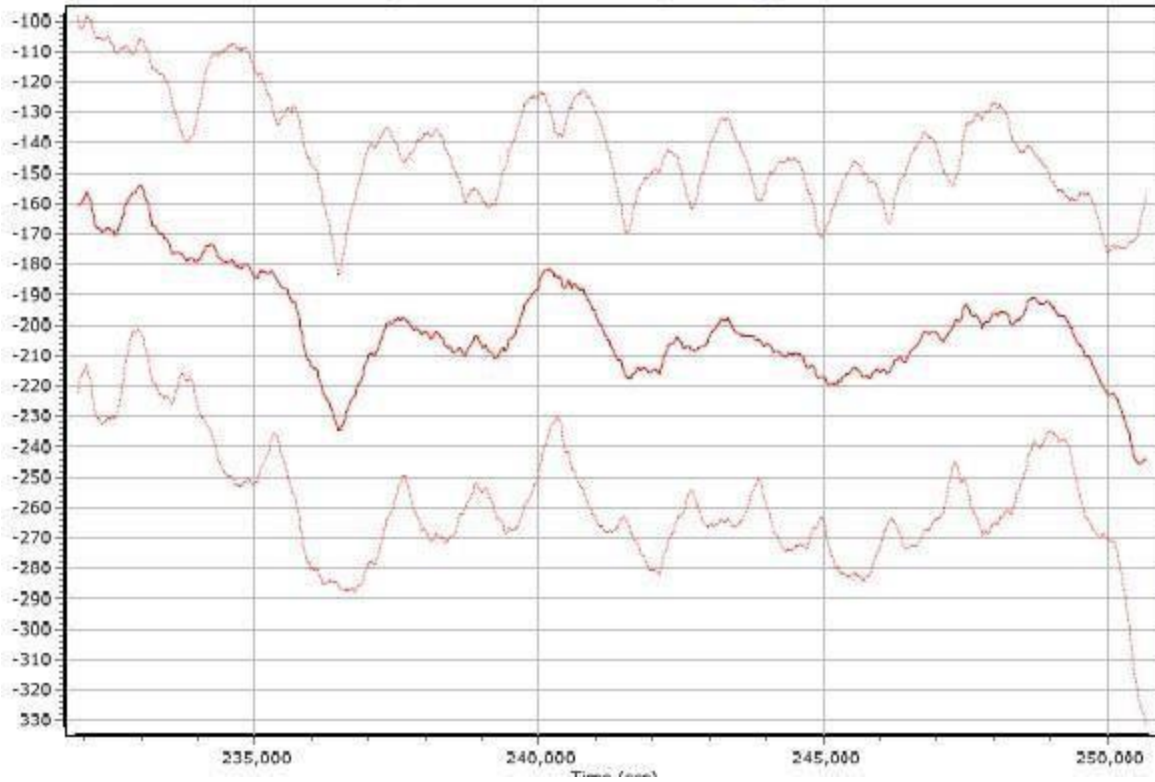
## x accelerometer bias (micro-g)



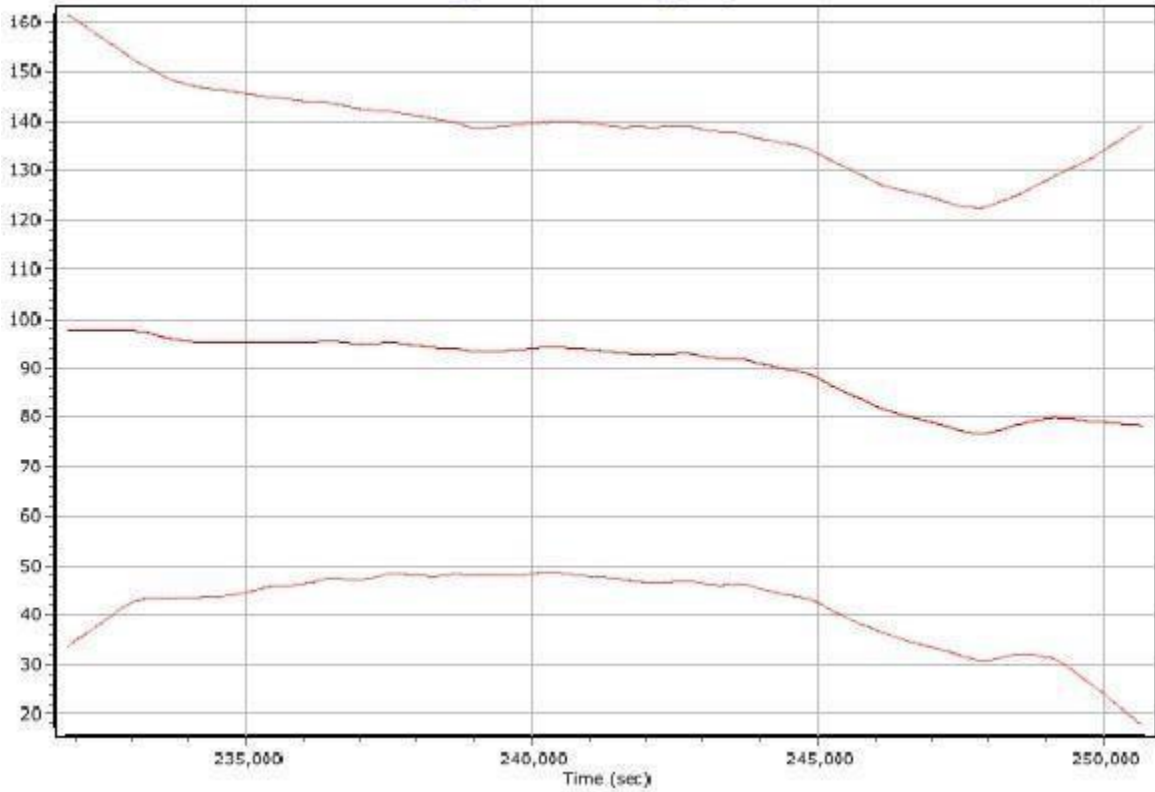
## z accelerometer bias (micro-g)



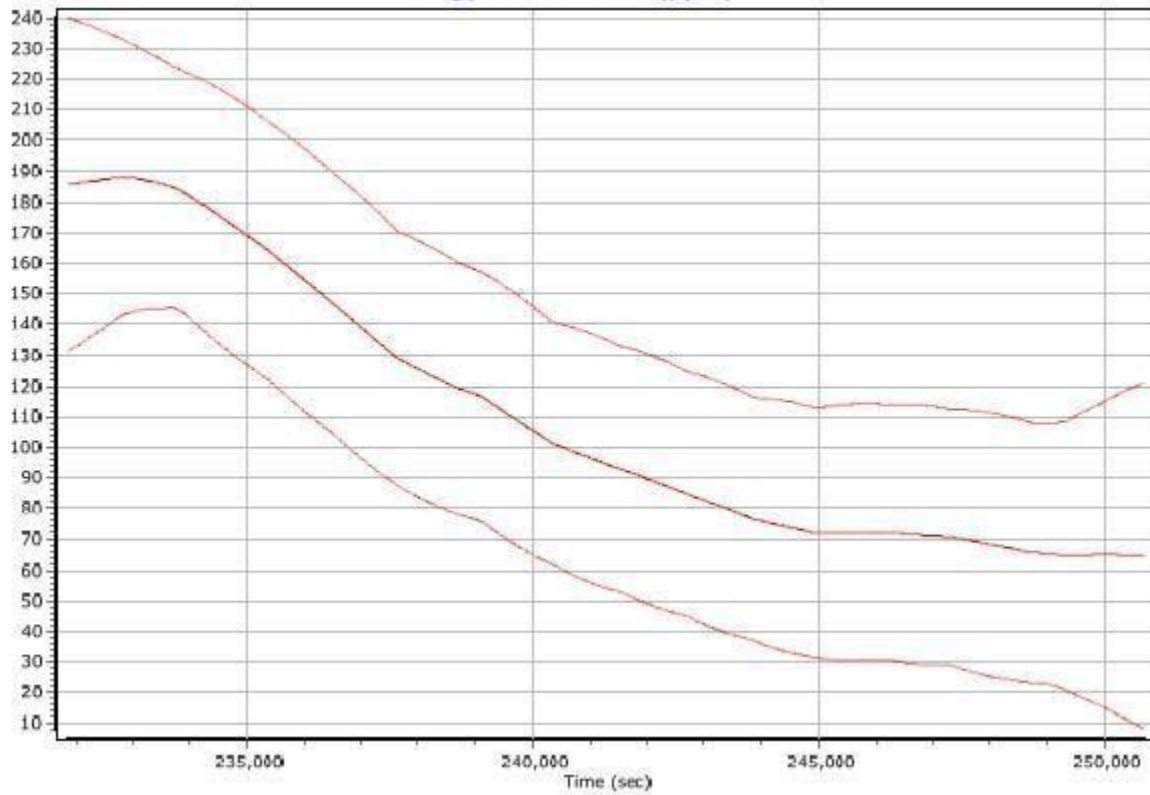
**y accelerometer bias (micro-g)**



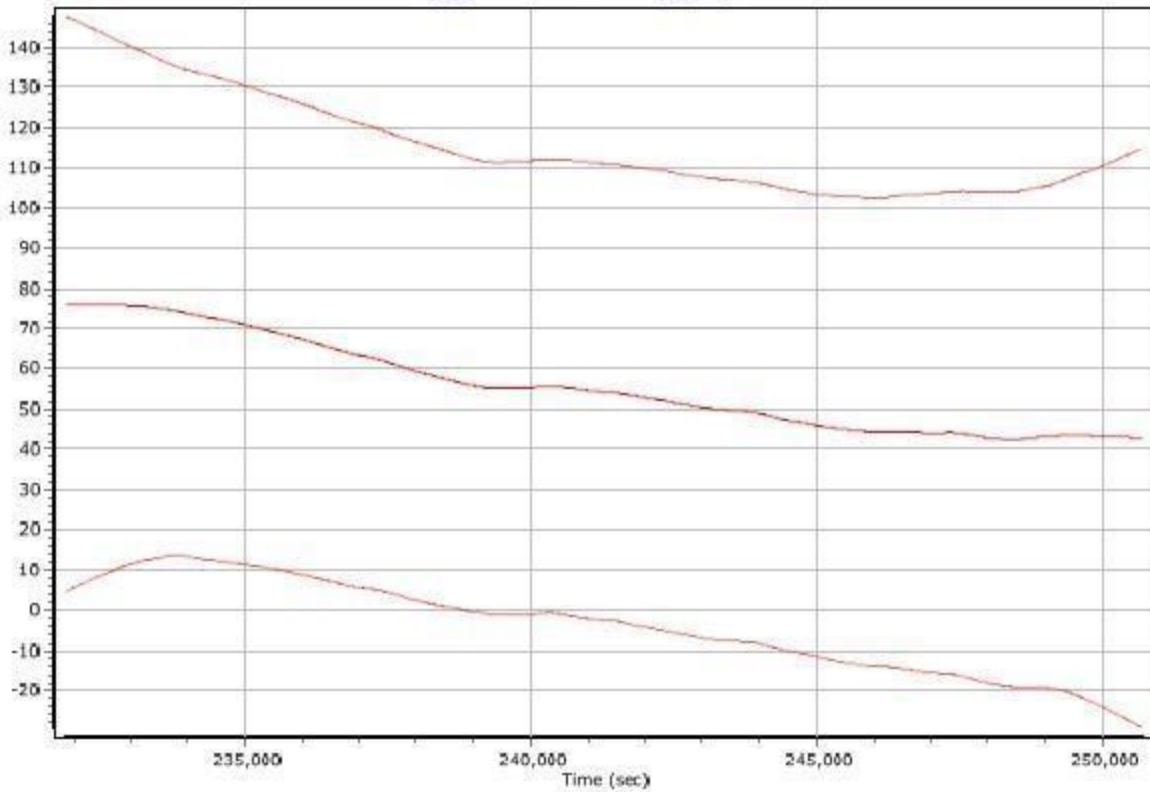
**x gyro scale error (ppm)**



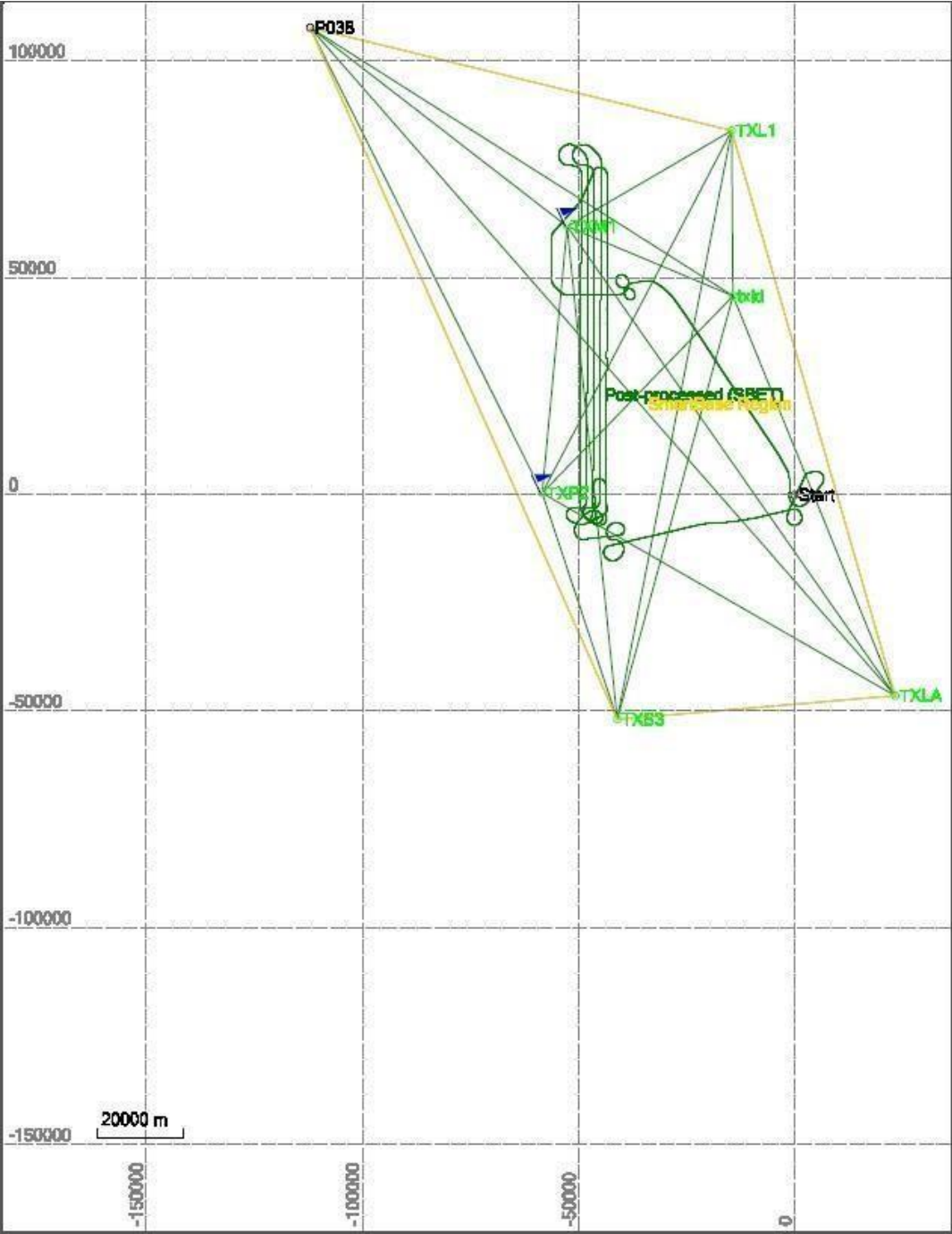
**z gyro scale error (ppm)**



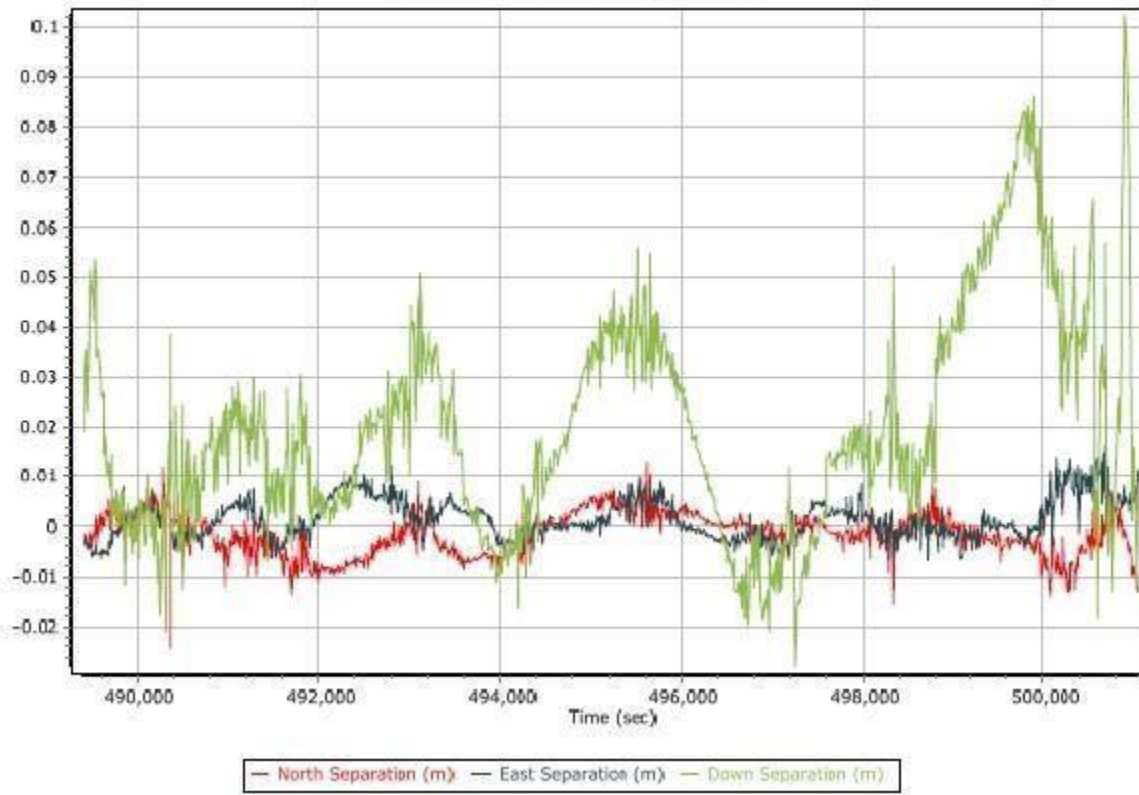
**y gyro scale error (ppm)**



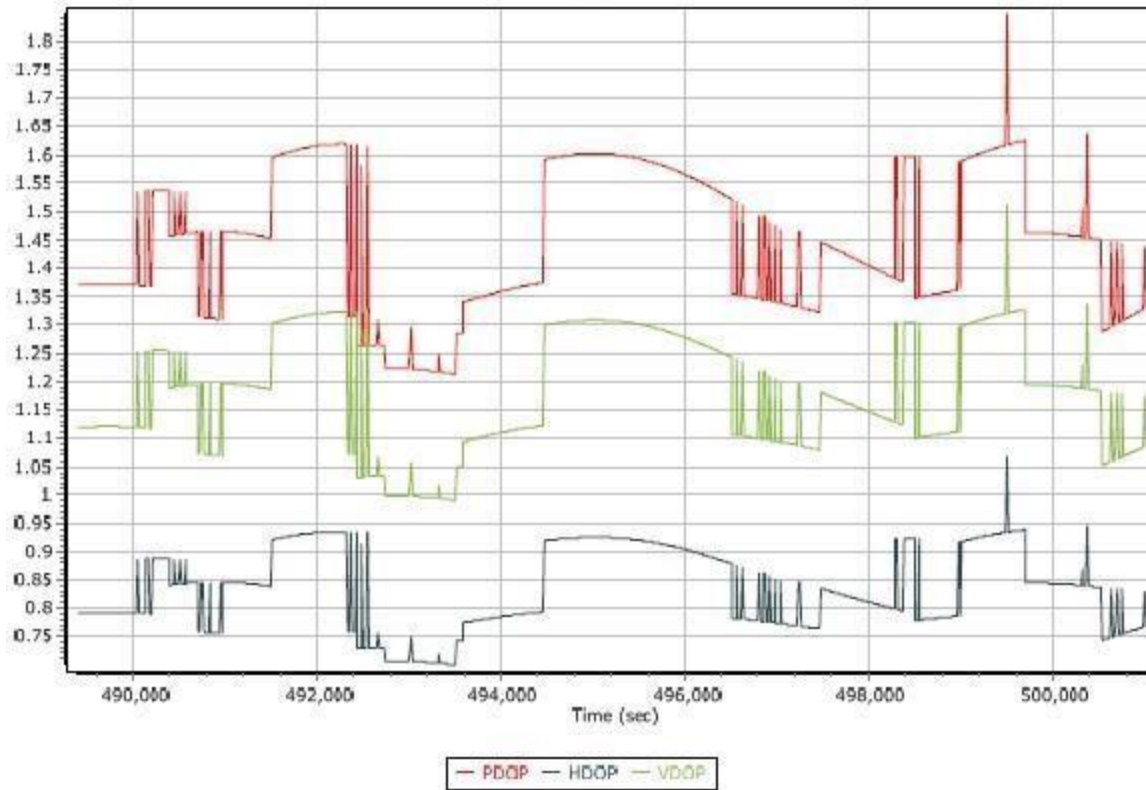
Mission 6 - 5418054a GNSS Processing

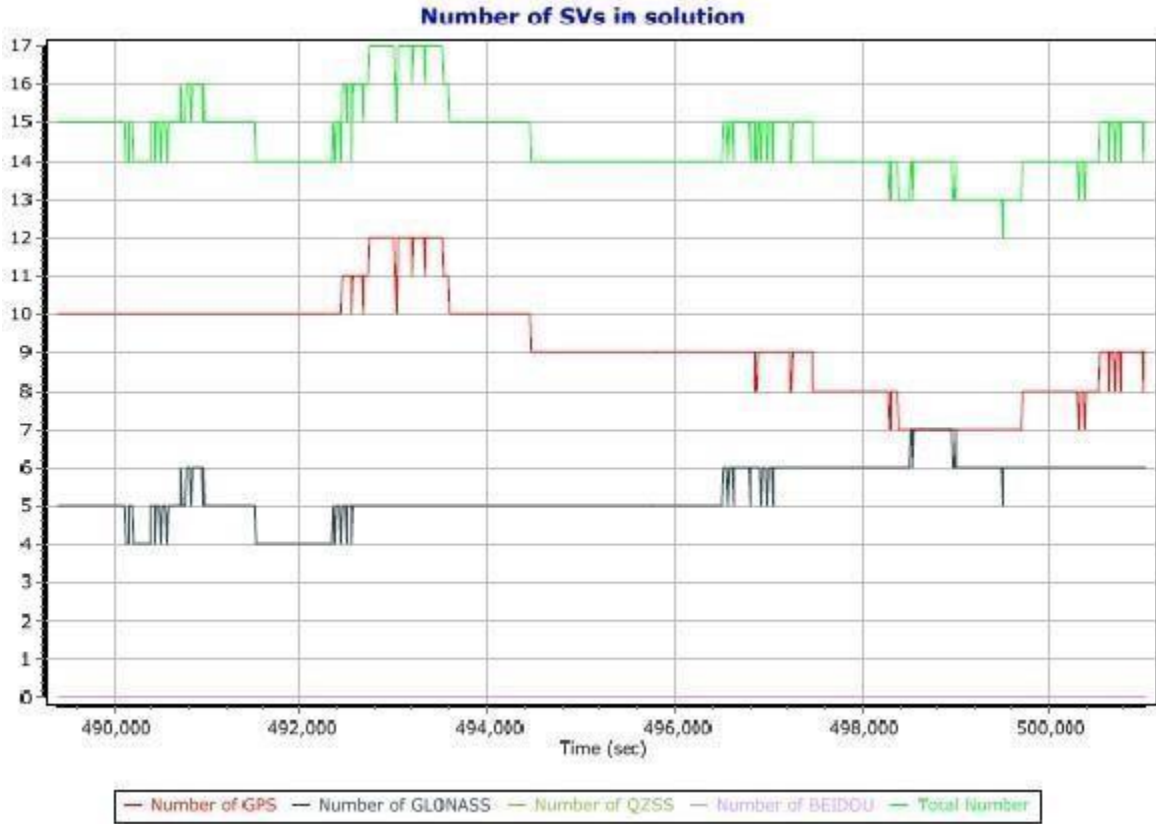


### Forward/Reverse Separation



### DOP





-----  
 IINPP Forward-Backward Navigator [Jun 28 2017]

Copyright (c) 2008-2017 Applanix Corporation. All rights reserved.

Date : 03/02/18 Time : 15:19:00  
 -----

-----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418054a\05\_INSGPS\_PROC\01\_POS\5418054a\5418054a\Extract

Extracted data kernel : 5418054a

Processed data path : D:\Projects\3141\_Dewberry-

Brownfield\Lidar\5418054a\05\_INSGPS\_PROC\01\_POS\5418054a\5418054a\Proc

Processed data kernel : 5418054a

Processing start time : 490216.701

Processing end time : 501047.000  
 -----

----- Selected

GNSS mode : IN-Fusion SmartBase

Selected base station : ASB

Selected subsystems : IMU

: Primary GNSS

: Base GNSS

Vehicle to reference alignment angles : 0.000 0.000 0.000

Multipath setting : LOW



Reference to IMU lever arm : 0.000 0.000 0.000  
Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.700 -0.222 -1.074  
Base GNSS coordinates : 33.402403099 -102.566211746 1089.713

-----  
-----  
Mask angle : 10.000

----- 490216.701

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00

Reference-primary GNSS lever arm: 0.70 -0.22 -1.07

Multipath environment: LOW

490216.701 : Forward-time processing started 490216.796 :

IIN coarse leveling started.

490217.796 : IIN coarse leveling ended.

490217.796 : IIN navigator initialized.

490217.796 : IIN degraded navigation solution.

490217.796 : IIN initial position valid.

490218.001 : SmartBase observables in use 490218.001 :

IIN primary GNSS solution in use.

490218.001 : IIN primary GNSS observables in use.

490218.001 : IIN in Fixed NL RTK mode.

490218.101 : IIN navigator alignment active.

490348.000 : WARNING : Gap in primary GNSS navigation data 490349.005 :

IIN primary GNSS solution not in use.

490349.005 : IIN in Fixed WL RTK mode.

490350.005 : IIN primary GNSS solution in use.

490350.005 : IIN in Fixed NL RTK mode.

490351.005 : IIN WL ambiguity failure cleared

500298.001 : IIN WL ambiguity failure cleared

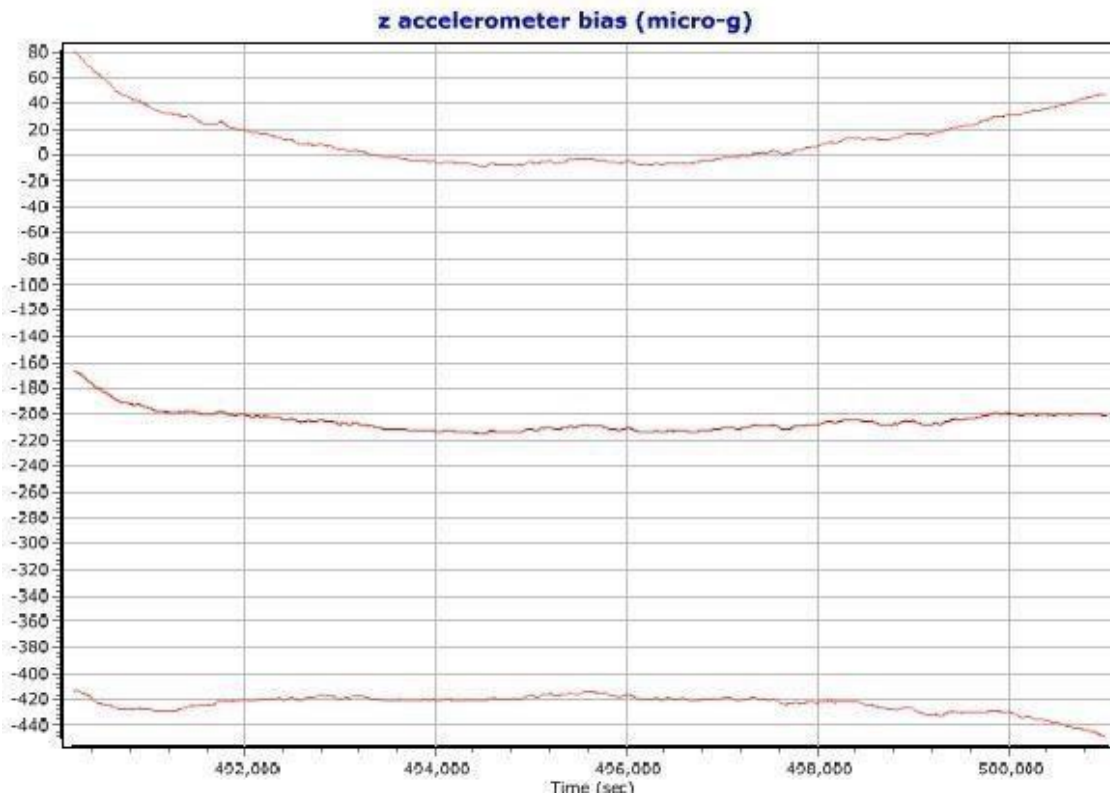
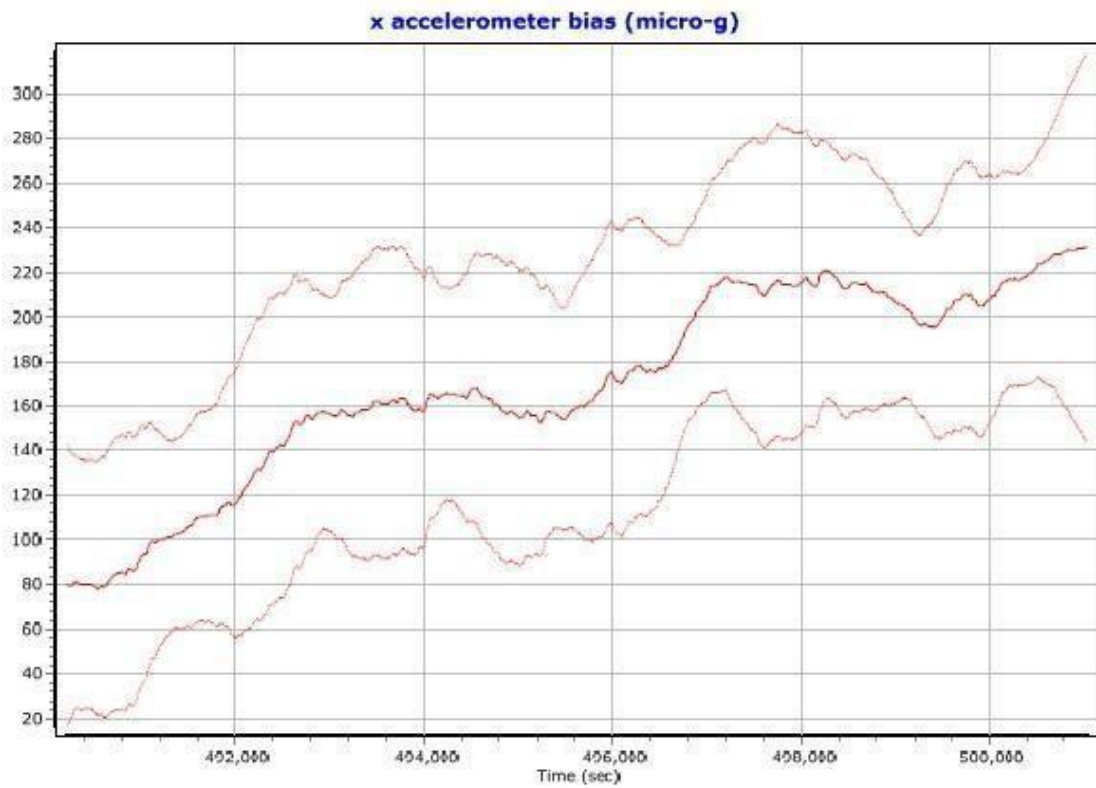
501047.001 : Processing ended

-----  
Termination status : Normal

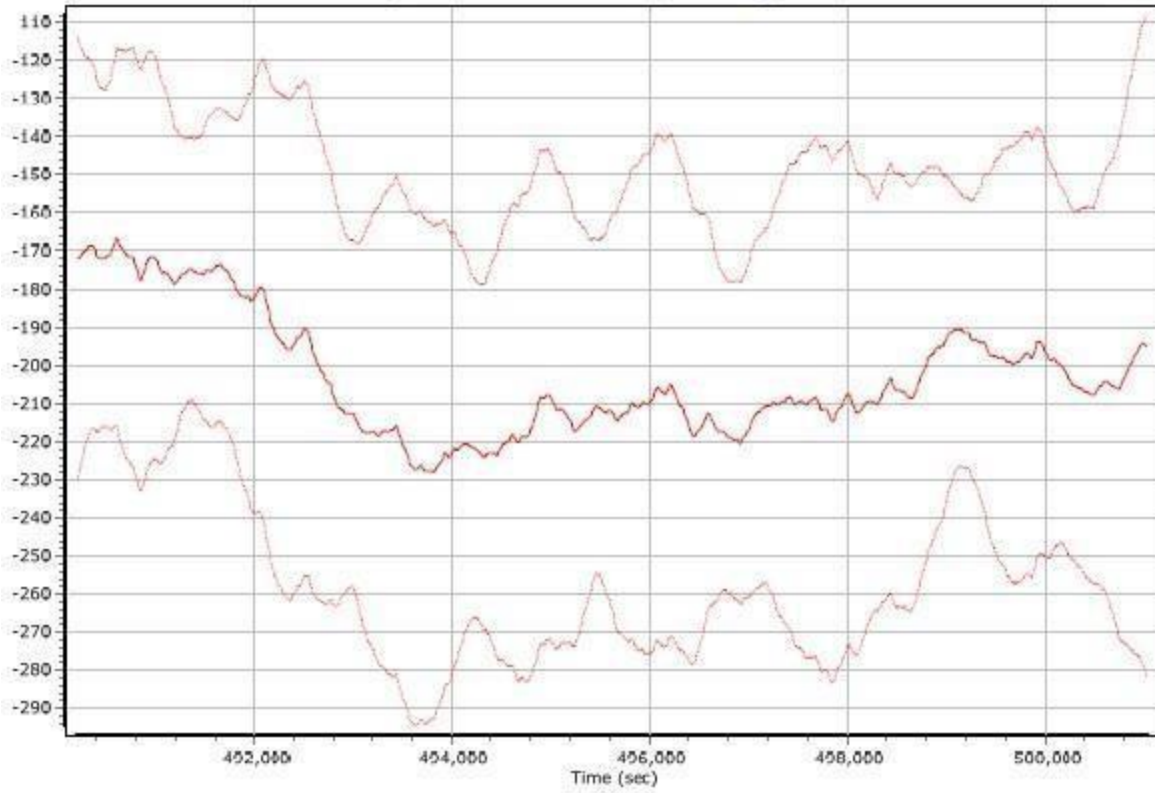
Execution time : 29.78

-----  
Processing completed.

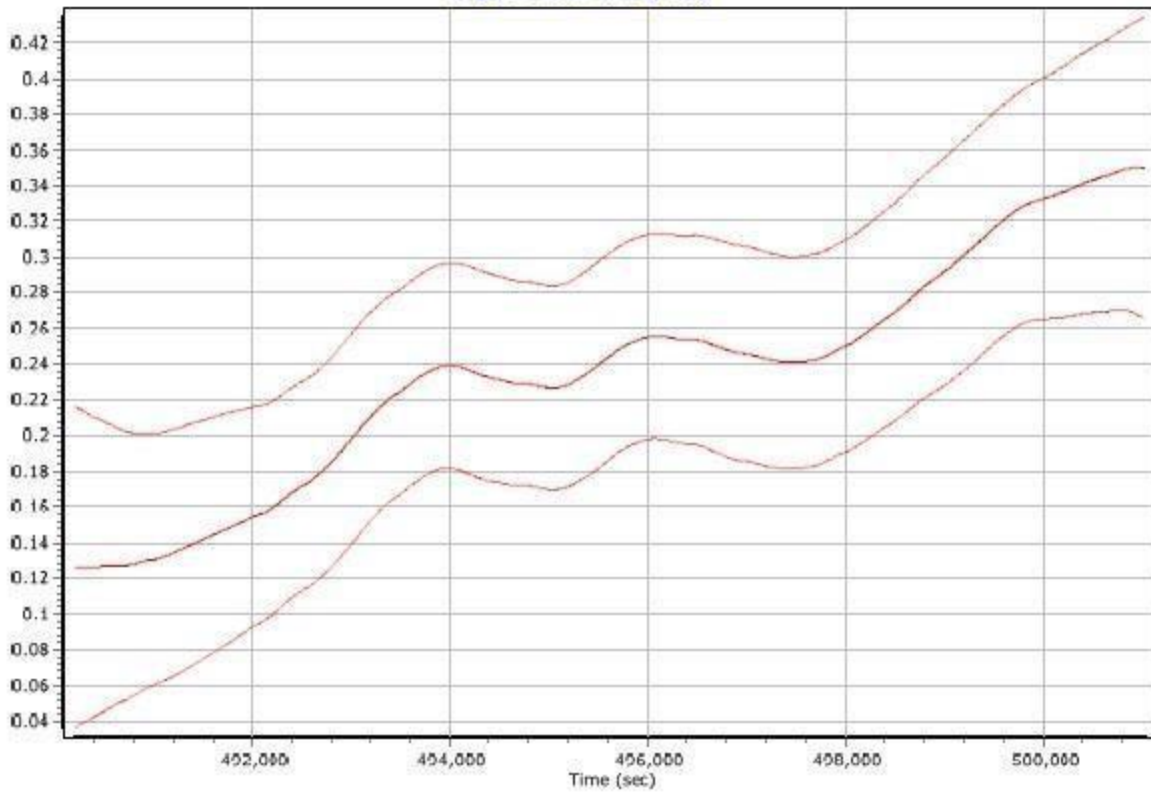
## Mission 6 - 5418054a Sensor Errors



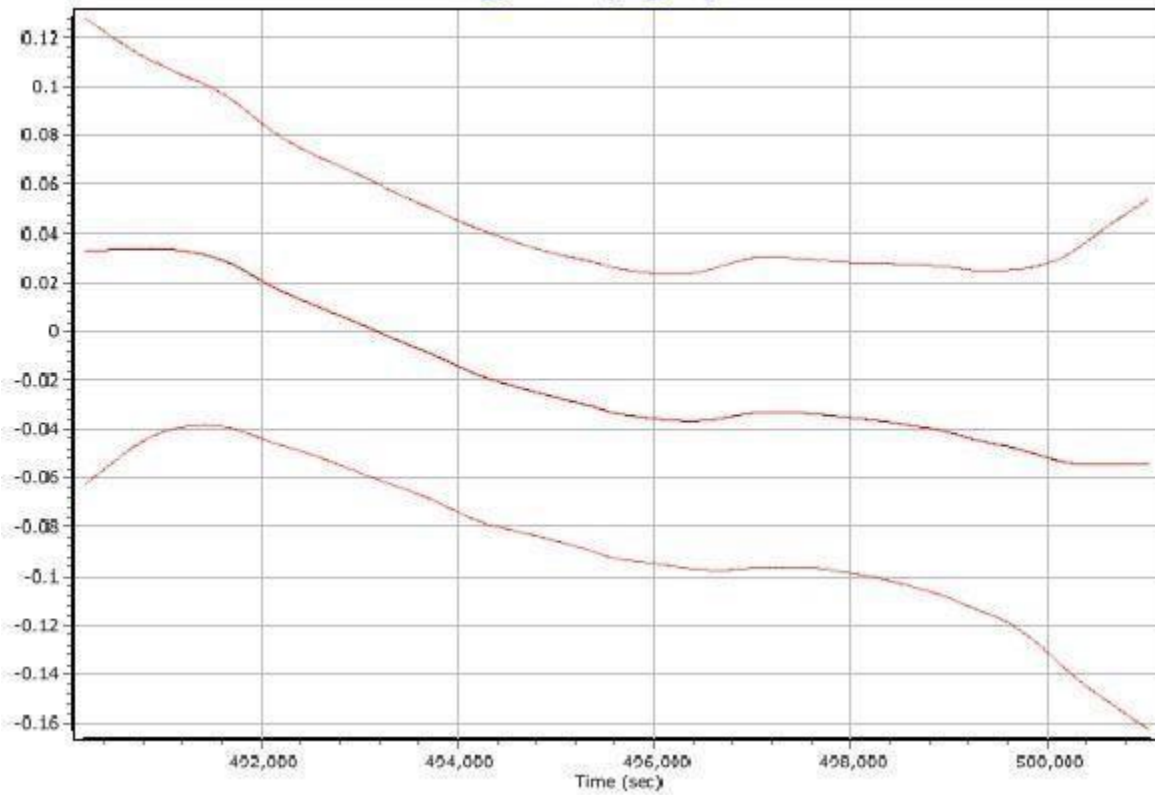
**y accelerometer bias (micro-g)**



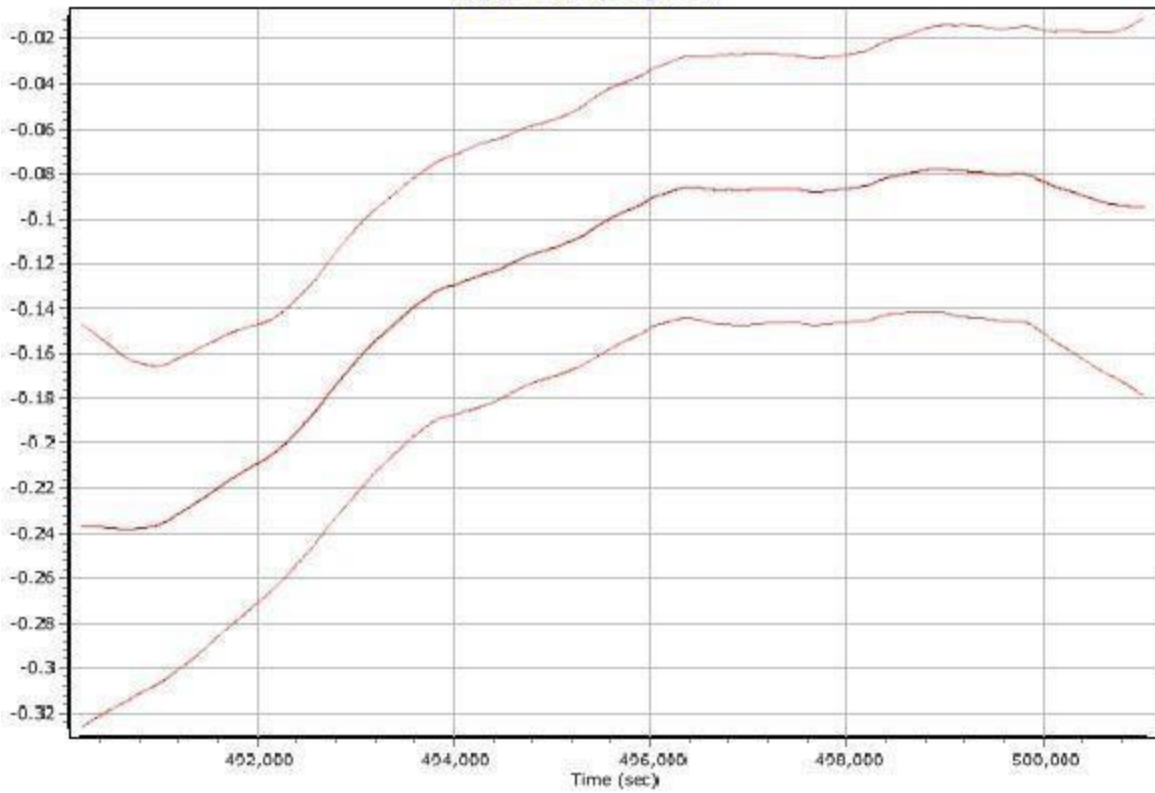
**x gyro bias (deg/hr)**



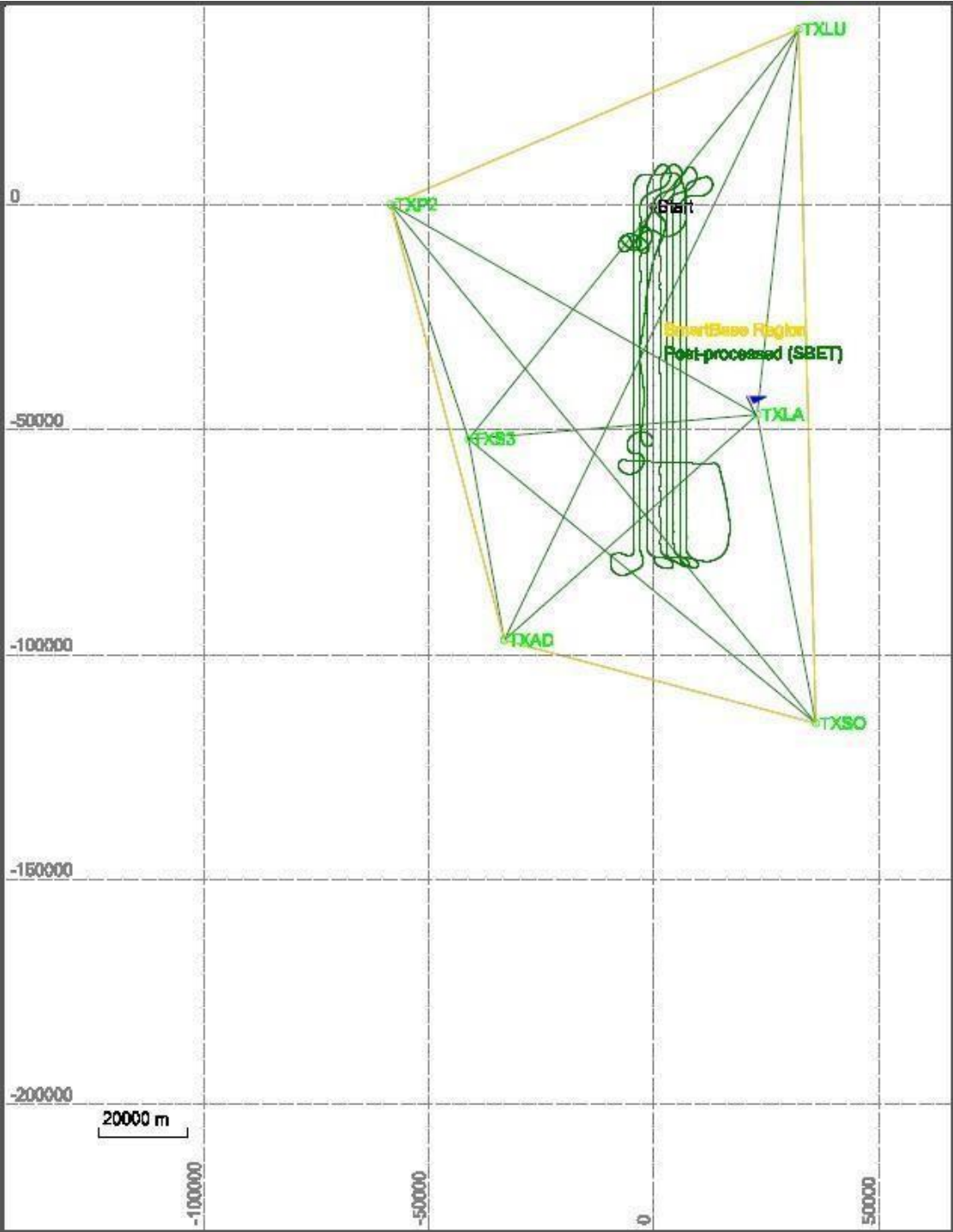
**z gyro bias (deg/hr)**



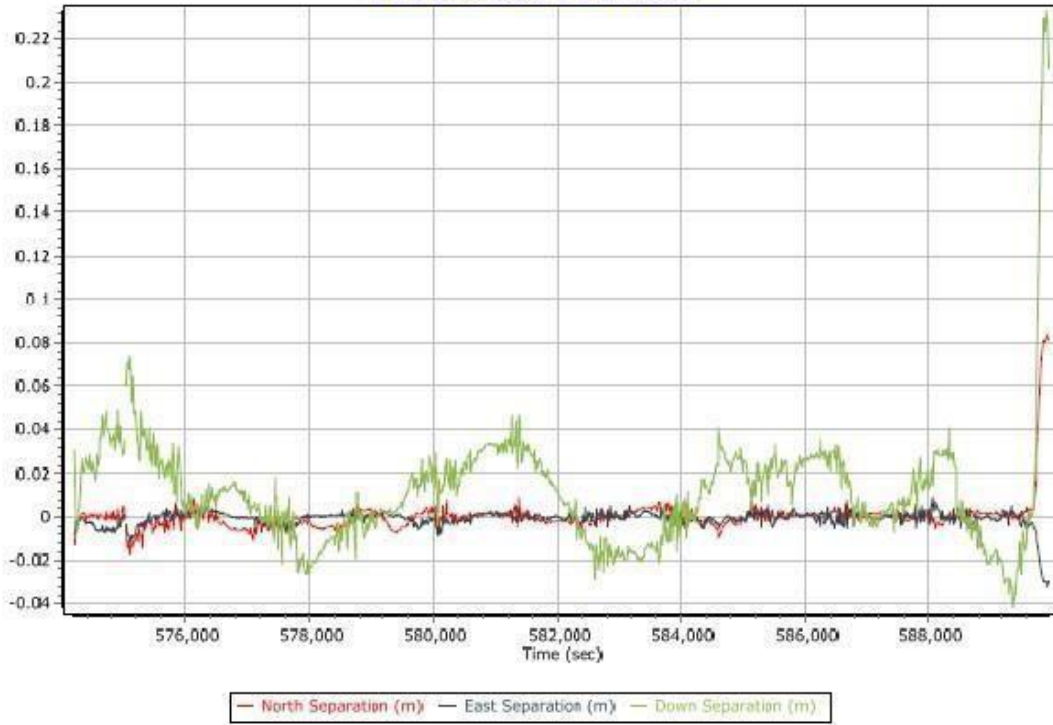
**y gyro bias (deg/hr)**



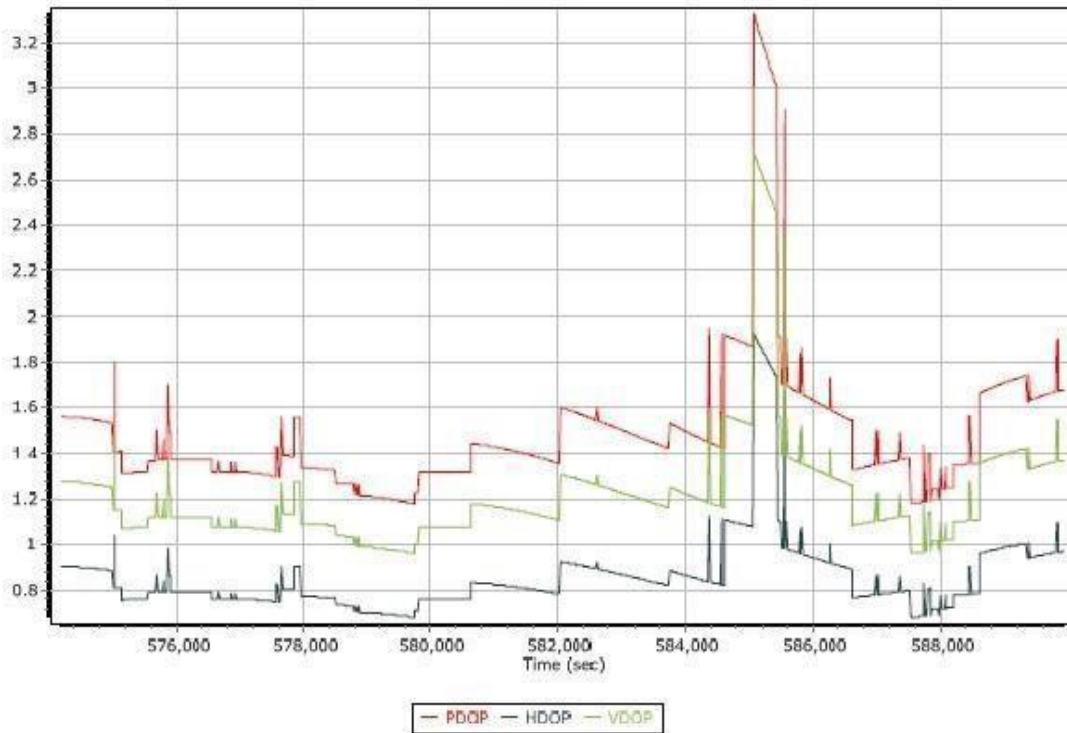
Mission 7 - 5418055a GNSS Processing

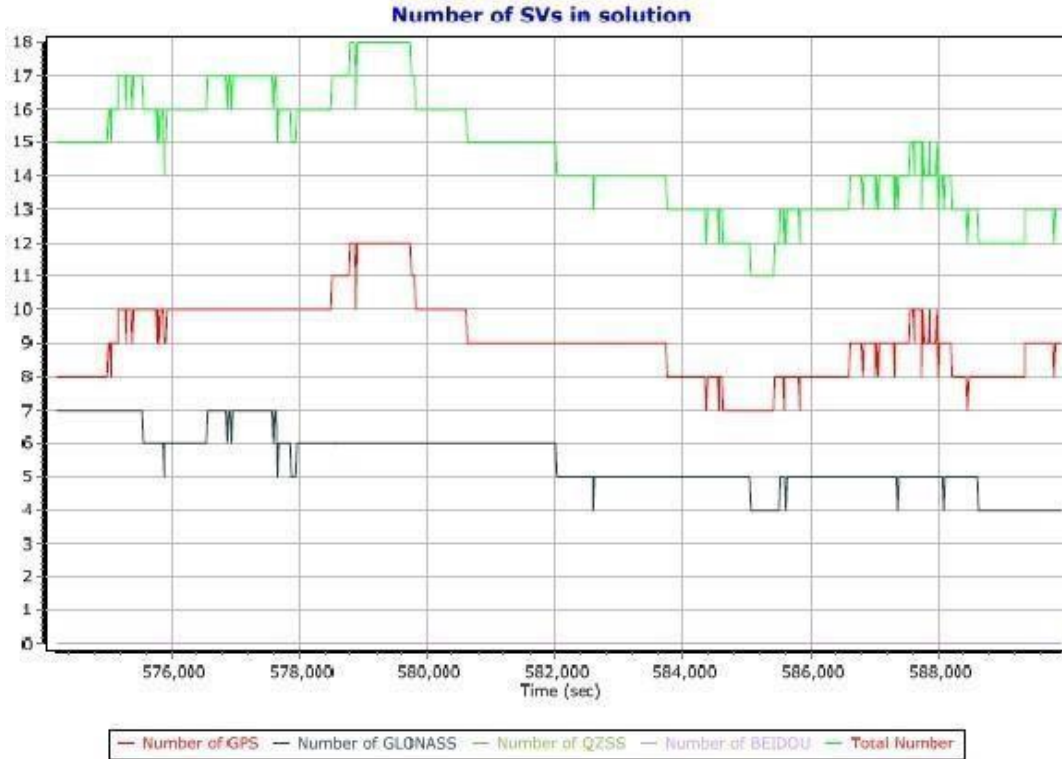


**Forward/Reverse Separation**



**DOP**





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 IINPP Forward-Backward Navigator [Jun 28 2017]

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Date : 03/04/18    Time : 10:24:27  
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-----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418055a\05\_INSGPS\_PROC\01\_POS\5418055a\5418055a\Extract

Extracted data kernel : 5418055a

Processed data path : D:\Projects\3141\_Dewberry-

Brownfield\Lidar\5418055a\05\_INSGPS\_PROC\01\_POS\5418055a\5418055a\Proc

Processed data kernel : 5418055a

Processing start time : 574885.996

Processing end time : 589939.000  
 -----

----- Selected

GNSS mode : IN-Fusion SmartBase

Selected base station : ASB

Selected subsystems : IMU

: Primary GNSS

: Base GNSS

Vehicle to reference alignment angles : 0.000 0.000 0.000

Multipath setting : LOW  
Reference to IMU lever arm : 0.000 0.000 0.000  
Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.708 -0.227 -1.074  
Base GNSS coordinates : 32.889333296 -102.175537331 891.645

-----  
-----  
Mask angle : 10.000

----- 574885.996

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00

Reference-primary GNSS lever arm: 0.71 -0.23 -1.07

Multipath environment: LOW

574885.996 : Forward-time processing started 574886.091 :  
IIN coarse leveling started.

574887.091 : IIN coarse leveling ended.

574887.091 : IIN navigator initialized.

574887.091 : IIN degraded navigation solution.

574887.091 : IIN initial position valid.

574888.001 : SmartBase observables in use 574888.001 :  
IIN primary GNSS solution in use.

574888.001 : IIN primary GNSS observables in use.

574888.001 : IIN in Fixed NL RTK mode.

574888.101 : IIN navigator alignment active.

575014.000 : WARNING : Gap in primary GNSS navigation data 575015.000

: IIN primary GNSS solution not in use. 575016.000 :

IIN primary GNSS solution in use.

575017.005 : IIN WL ambiguity failure cleared

584538.001 : IIN No ephemerides failure cleared

587589.001 : IIN WL ambiguity failure cleared

589939.000 : WARNING : End of primary GNSS observables data

589939.000 : WARNING : End of reference GNSS observables data

589939.005 : Processing ended

-----  
Termination status : Normal

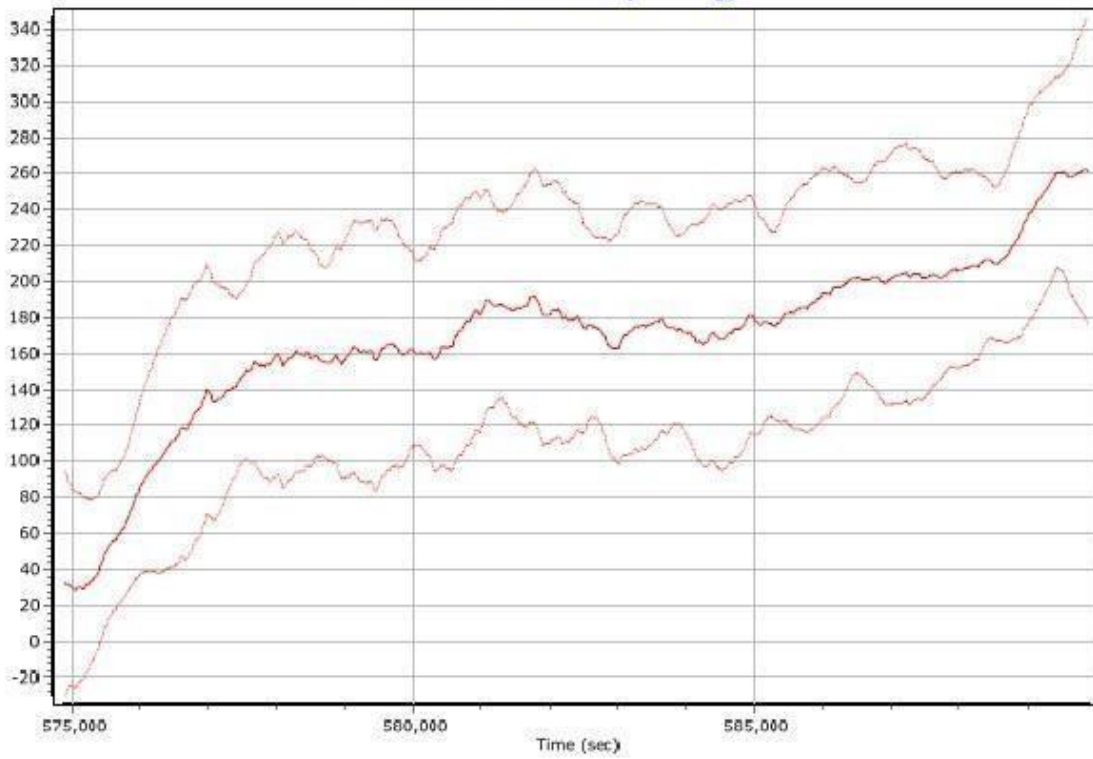
Execution time : 41.13

-----  
Processing completed.

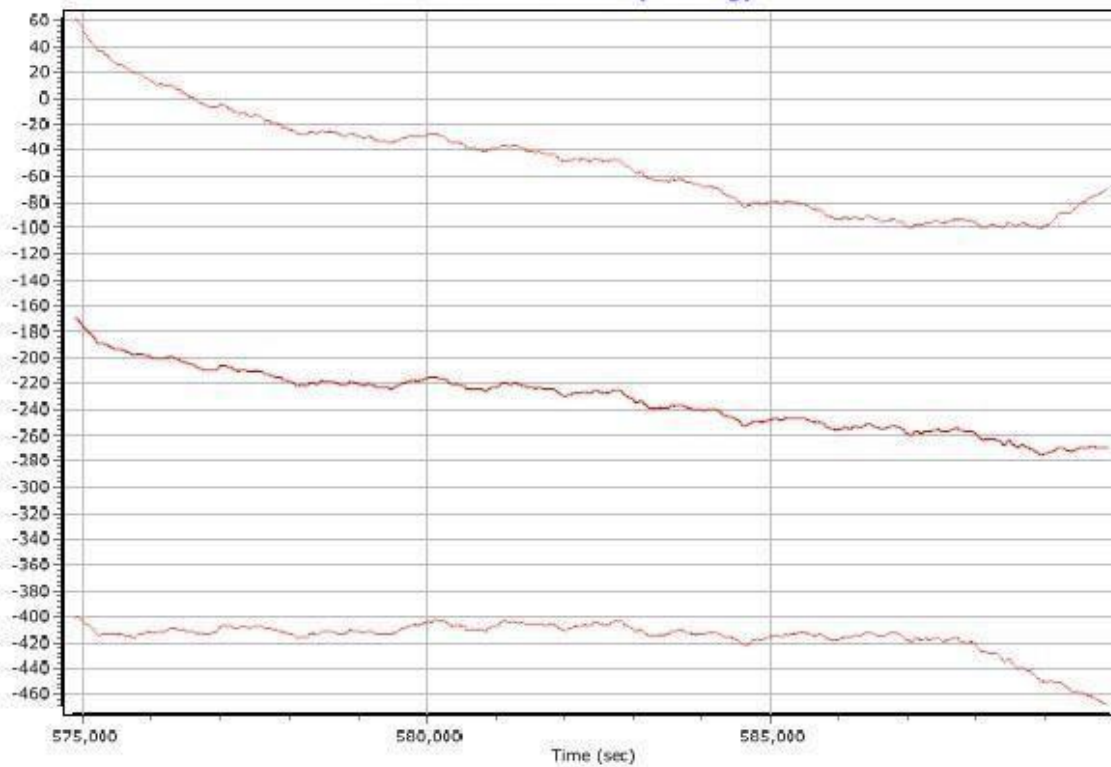


# Mission 7 - 5418055a Sensor Errors

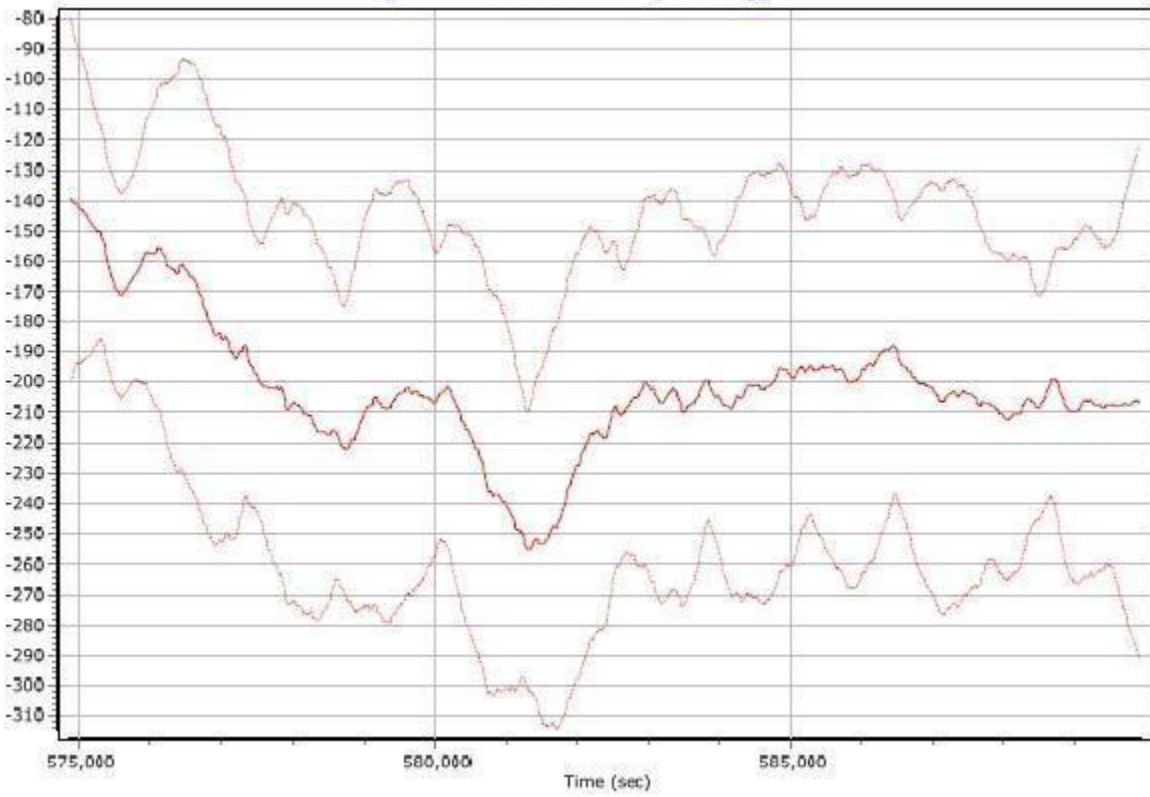
x accelerometer bias (micro-g)



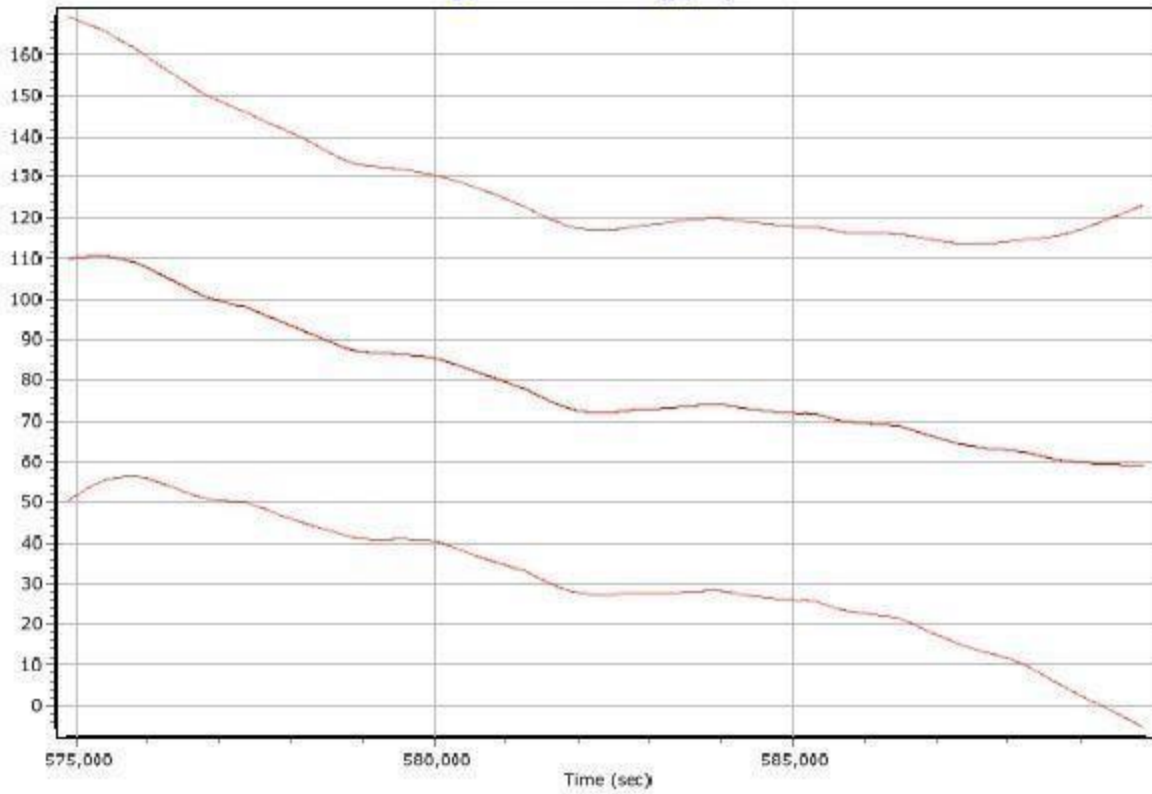
z accelerometer bias (micro-g)



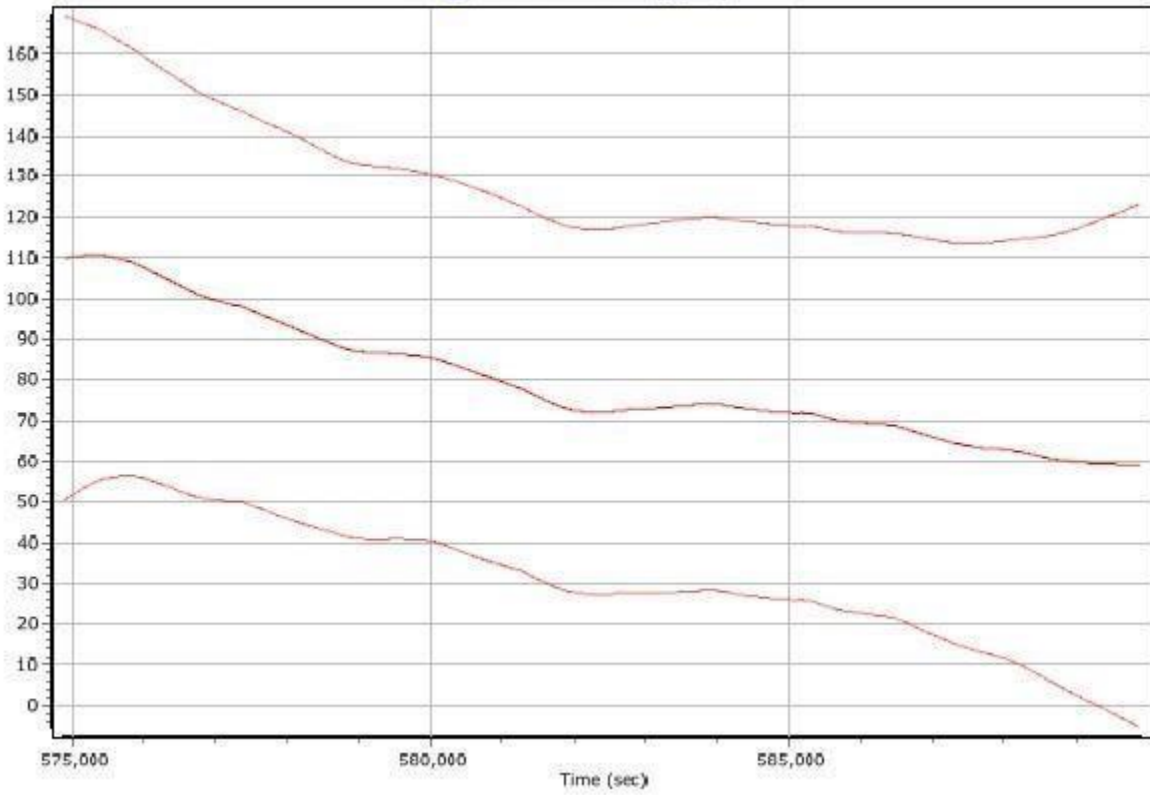
**y accelerometer bias (micro-g)**



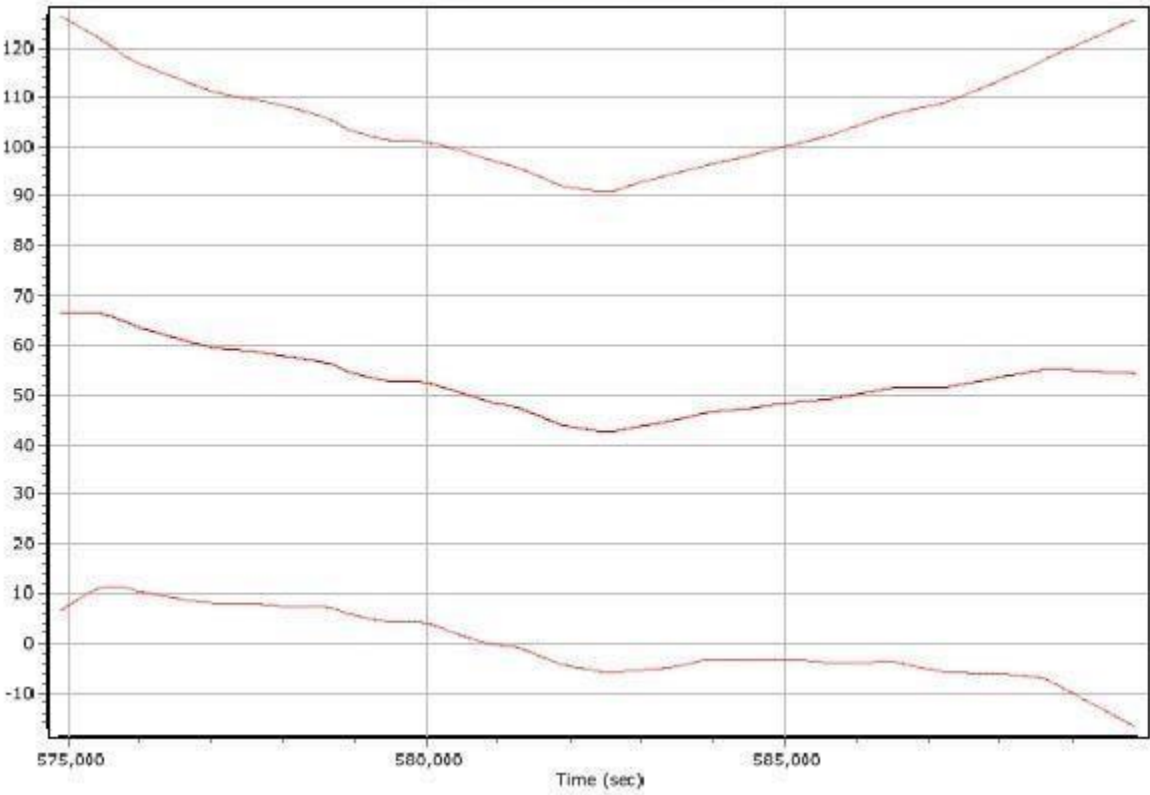
**x gyro scale error (ppm)**



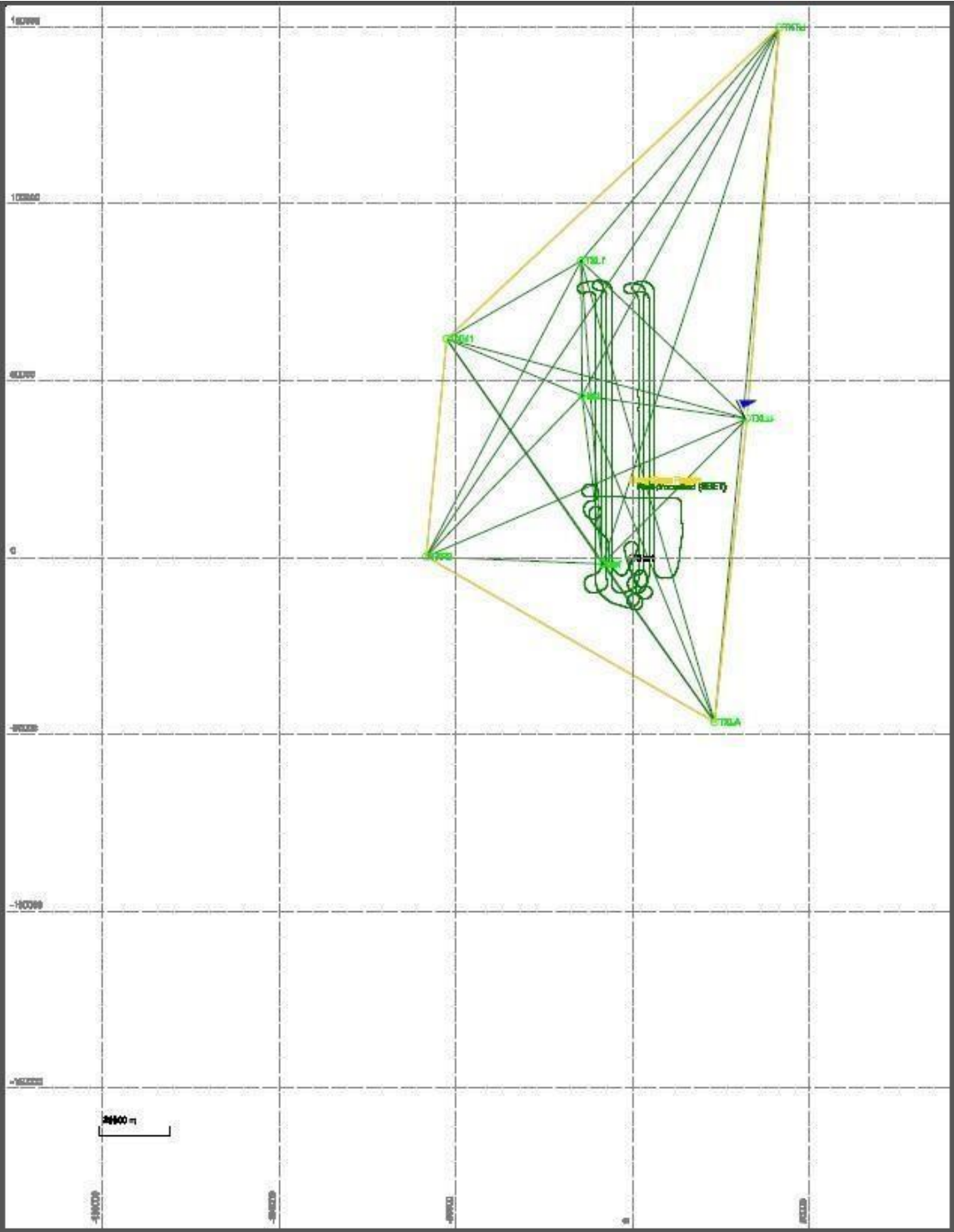
**x gyro scale error (ppm)**



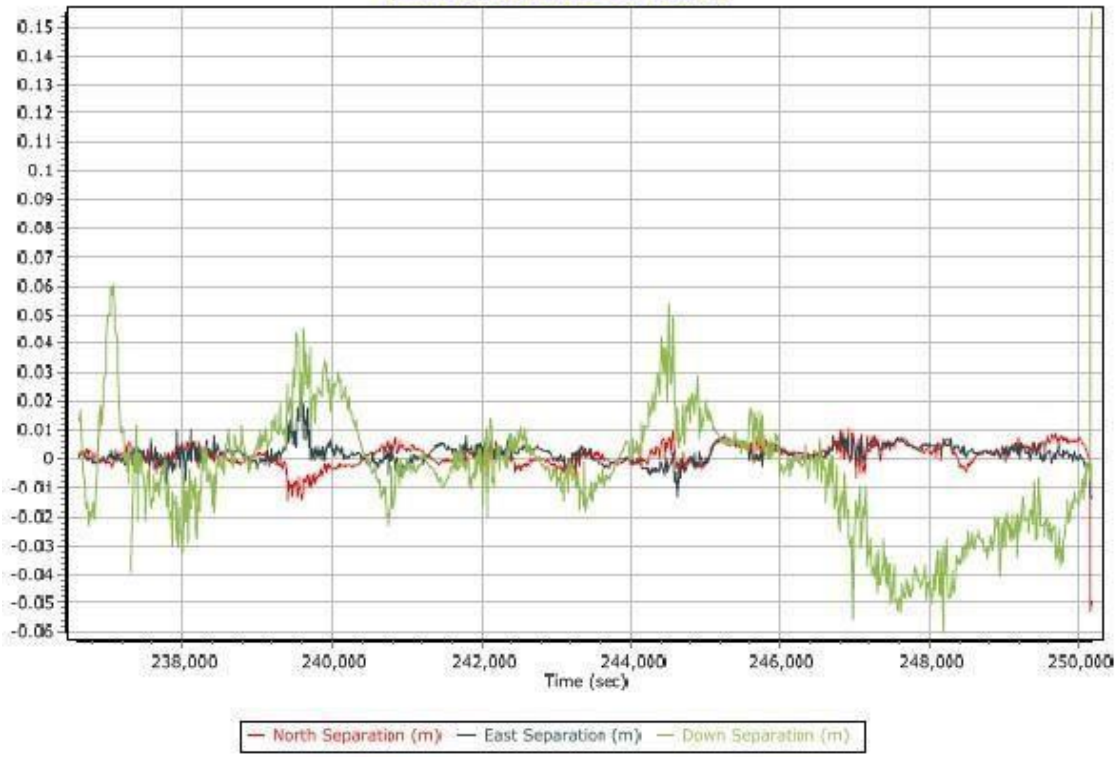
**y gyro scale error (ppm)**



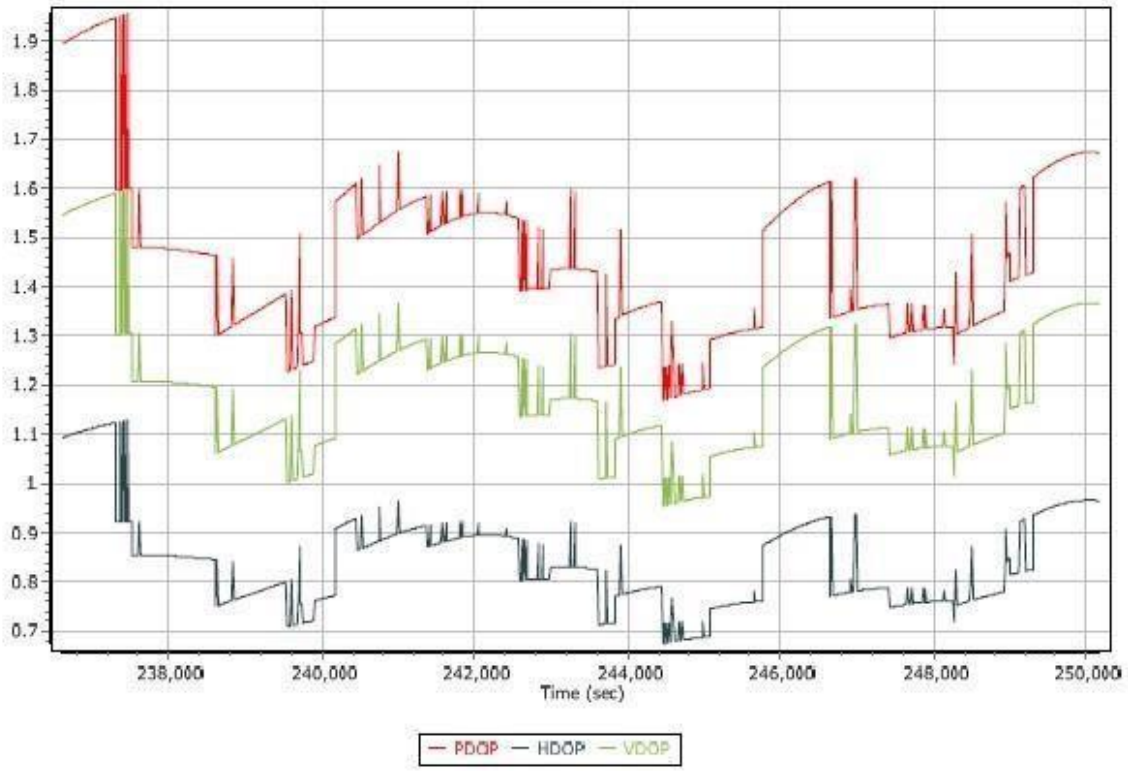
# Mission 8 - 5418065a GNSS Processing

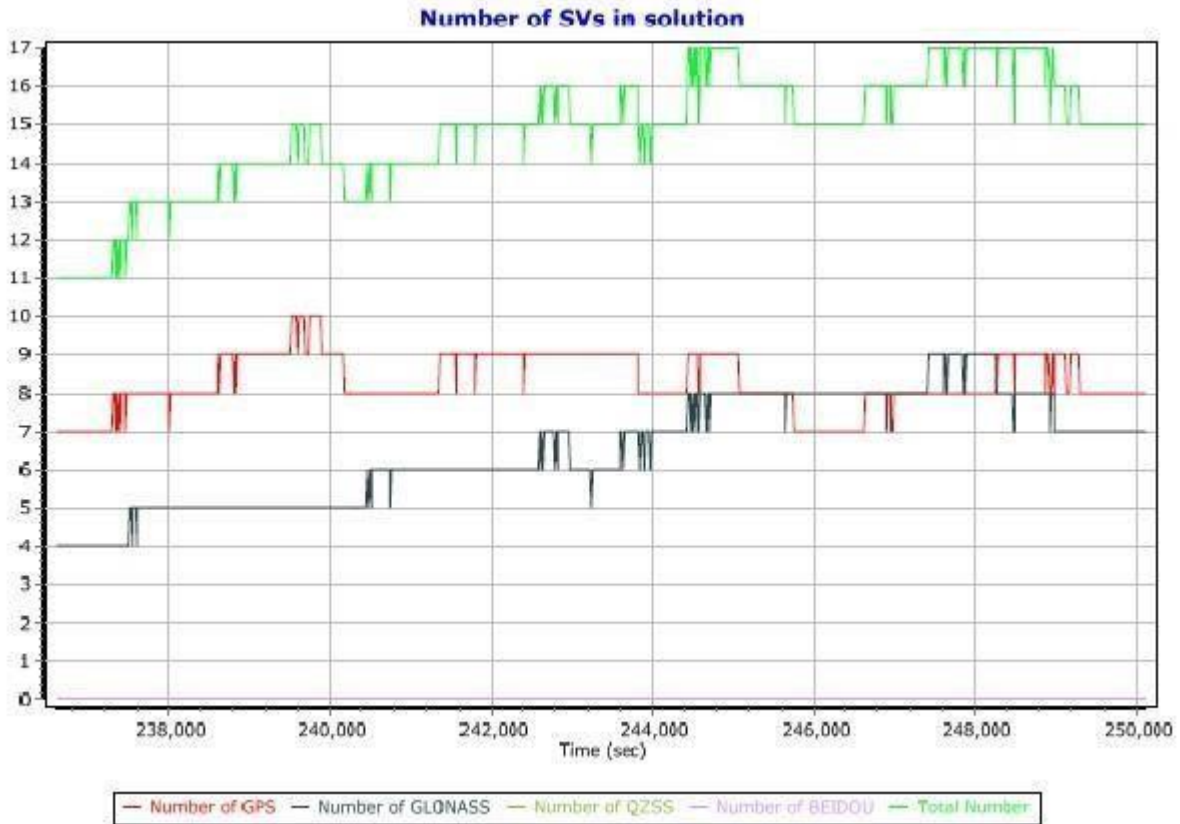


### Forward/Reverse Separation



### DOP





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 IINPP Forward-Backward Navigator [Jun 28 2017]

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Date : 03/11/18 Time : 11:08:50  
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-----  
 -----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418065a\05\_INSGPS\_PROC\01\_POS\5418065a\5418065a\Extract

Extracted data kernel : 5418065a

Processed data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\5418065a\05\_INSGPS\_PROC\01\_POS\5418065a\5418065a\Proc

Processed data kernel : 5418065a

Processing start time : 237065.575

Processing end time : 250162.000  
 -----

----- Selected

GNSS mode : IN-Fusion SmartBase

Selected base station : ASB

Selected subsystems : IMU

: Primary GNSS

: Base GNSS

Vehicle to reference alignment angles : 0.000 0.000 0.000

Multipath setting : LOW  
Reference to IMU lever arm : 0.000 0.000 0.000  
Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.719 -0.235 -1.071  
Base GNSS coordinates : 33.414867583 -102.211738570 956.023

-----  
-----  
Mask angle : 10.000

----- 237065.580

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00

Reference-primary GNSS lever arm: 0.72 -0.23 -1.07

Multipath environment: LOW

237065.580 : Forward-time processing started 237065.675 :

IIN coarse leveling started.

237066.674 : IIN coarse leveling ended.

237066.674 : IIN navigator initialized.

237066.674 : IIN degraded navigation solution.

237066.674 : IIN initial position valid.

237067.004 : SmartBase observables in use 237067.004 :

IIN primary GNSS solution in use.

237067.004 : IIN primary GNSS observables in use.

237067.004 : IIN in Fixed NL RTK mode.

237067.104 : IIN navigator alignment active.

237295.000 : WARNING : Gap in primary GNSS navigation data 237296.003 :

IIN primary GNSS solution not in use.

237297.002 : IIN primary GNSS solution in use. 237298.002 : IIN

WL ambiguity failure cleared

245741.002 : IIN WL ambiguity failure cleared

250162.001 : Processing ended

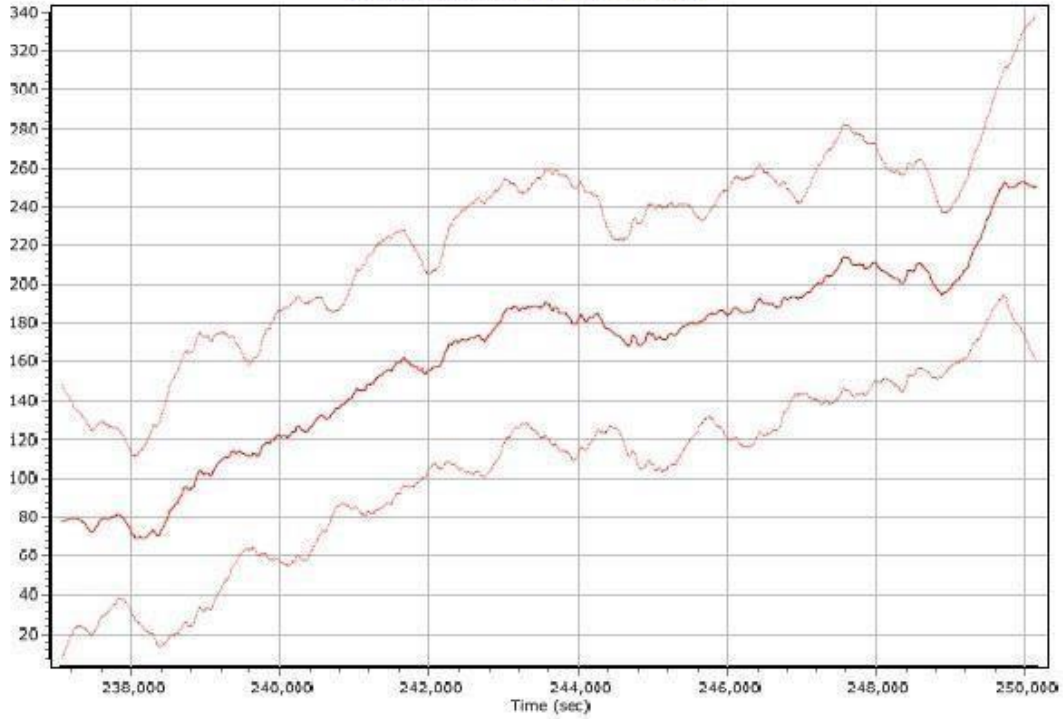
-----  
Termination status : Normal

Execution time : 36.33

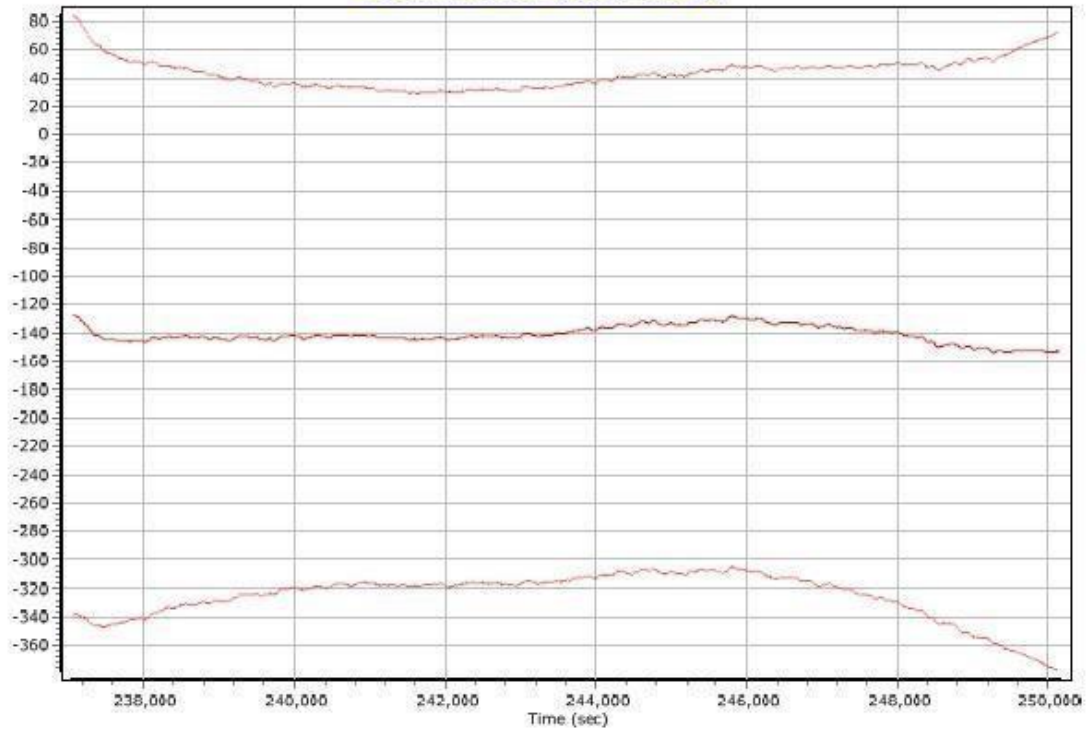
-----  
Processing completed.

# Mission 8 - 5418065a Sensor Errors

x accelerometer bias (micro-g)

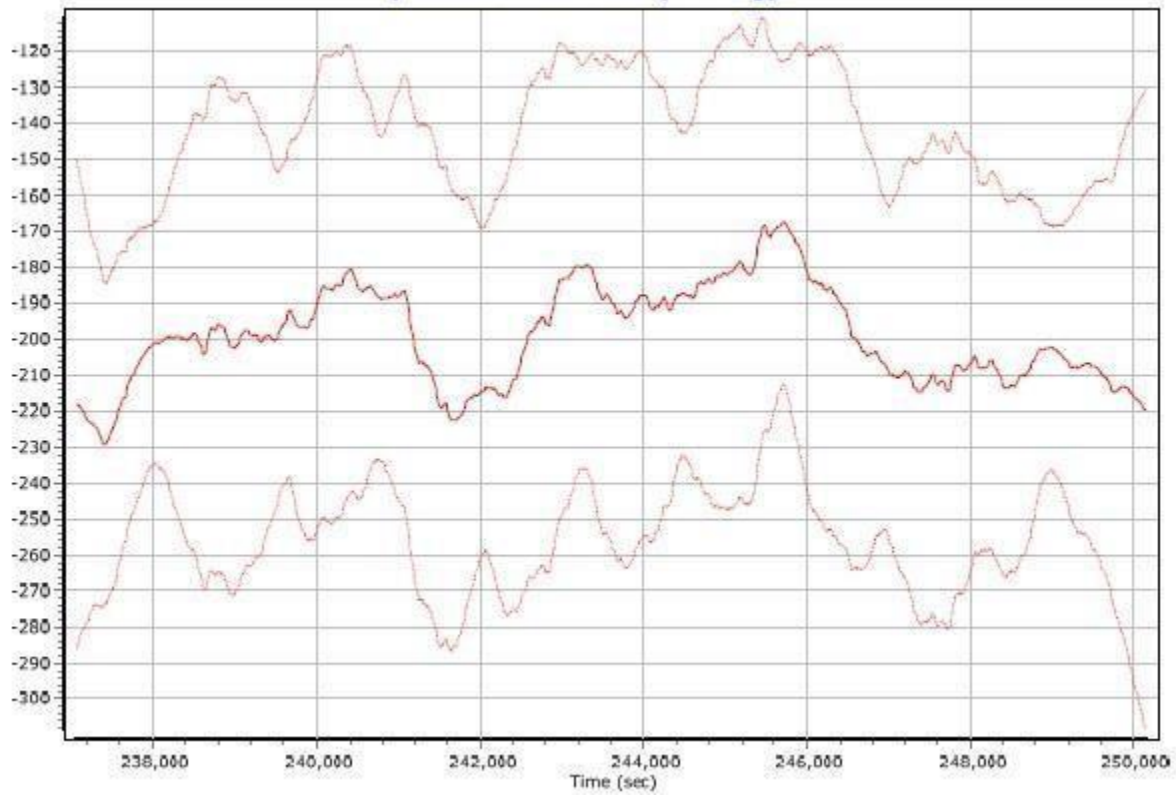


z accelerometer bias (micro-g)

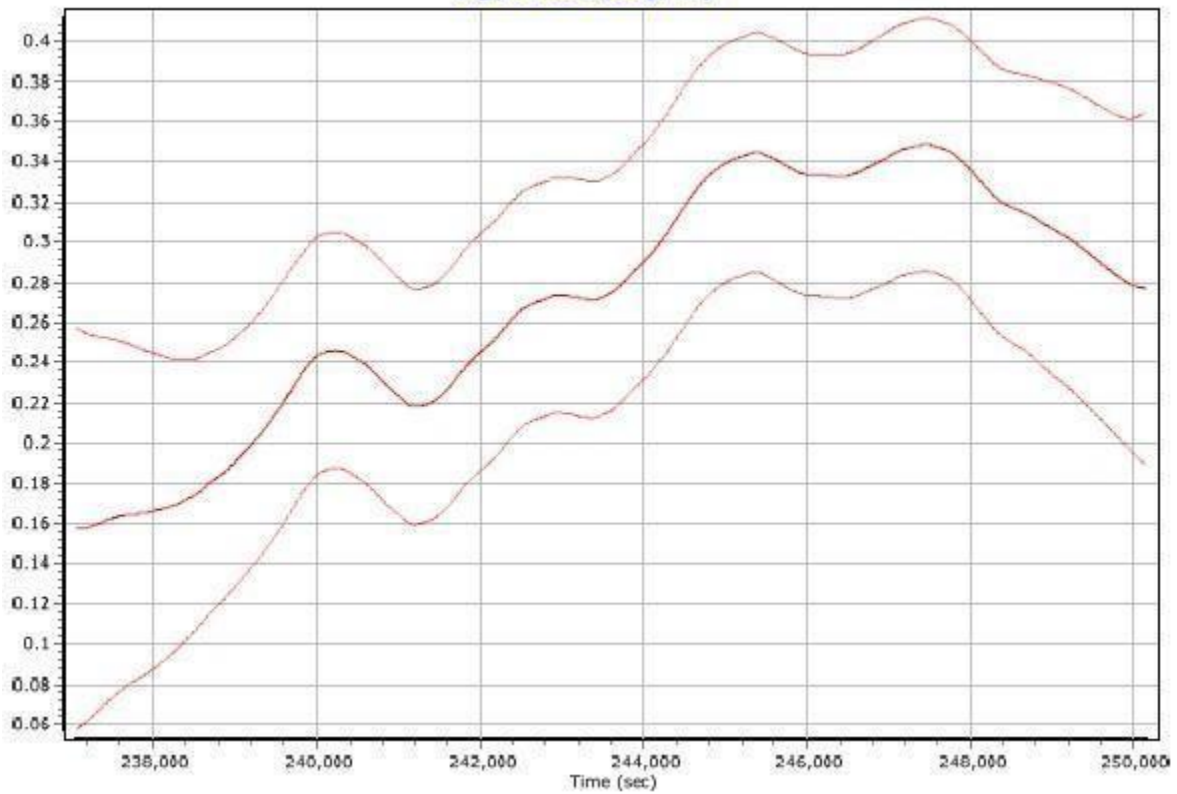




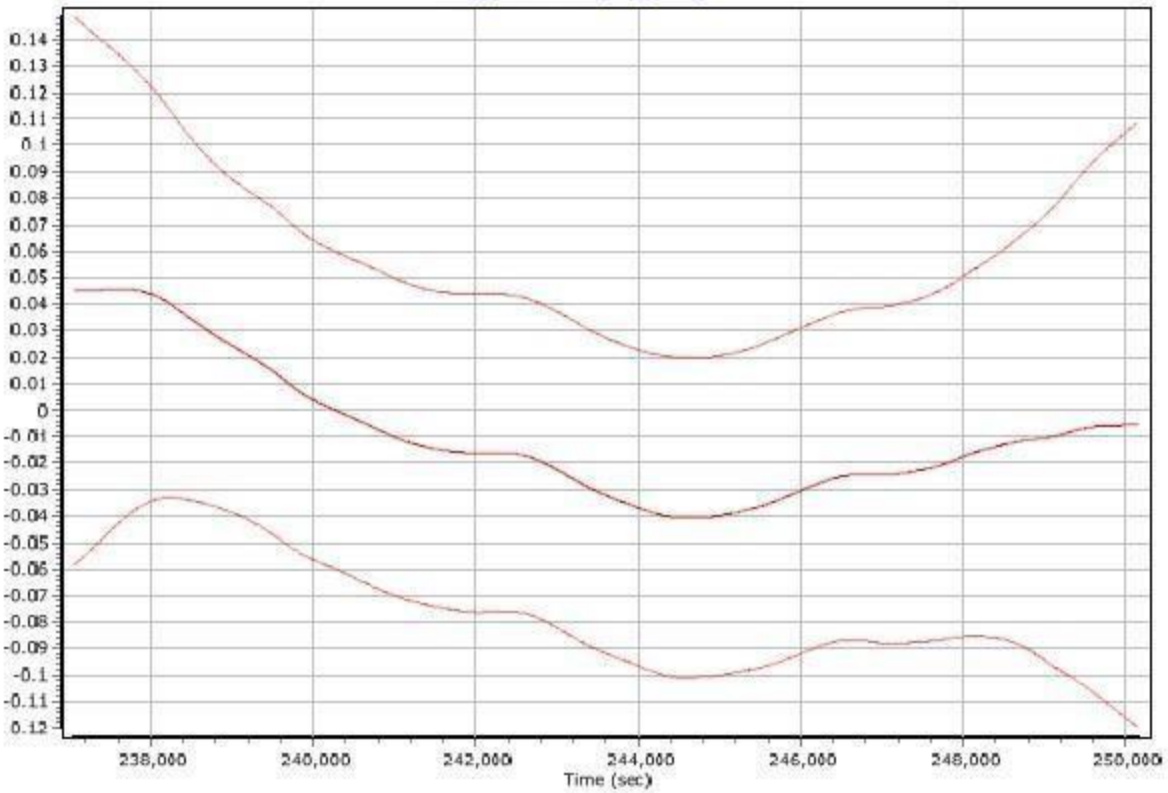
**y accelerometer bias (micro-g)**



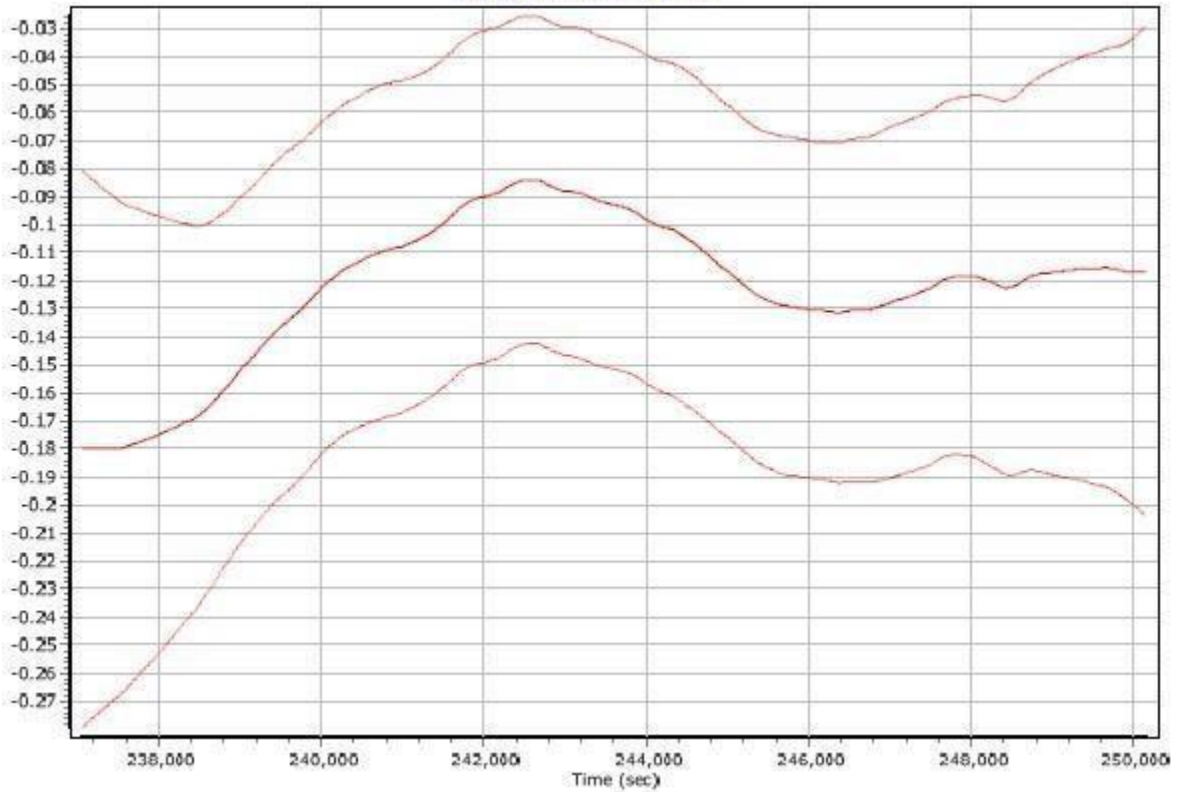
**x gyro bias (deg/hr)**



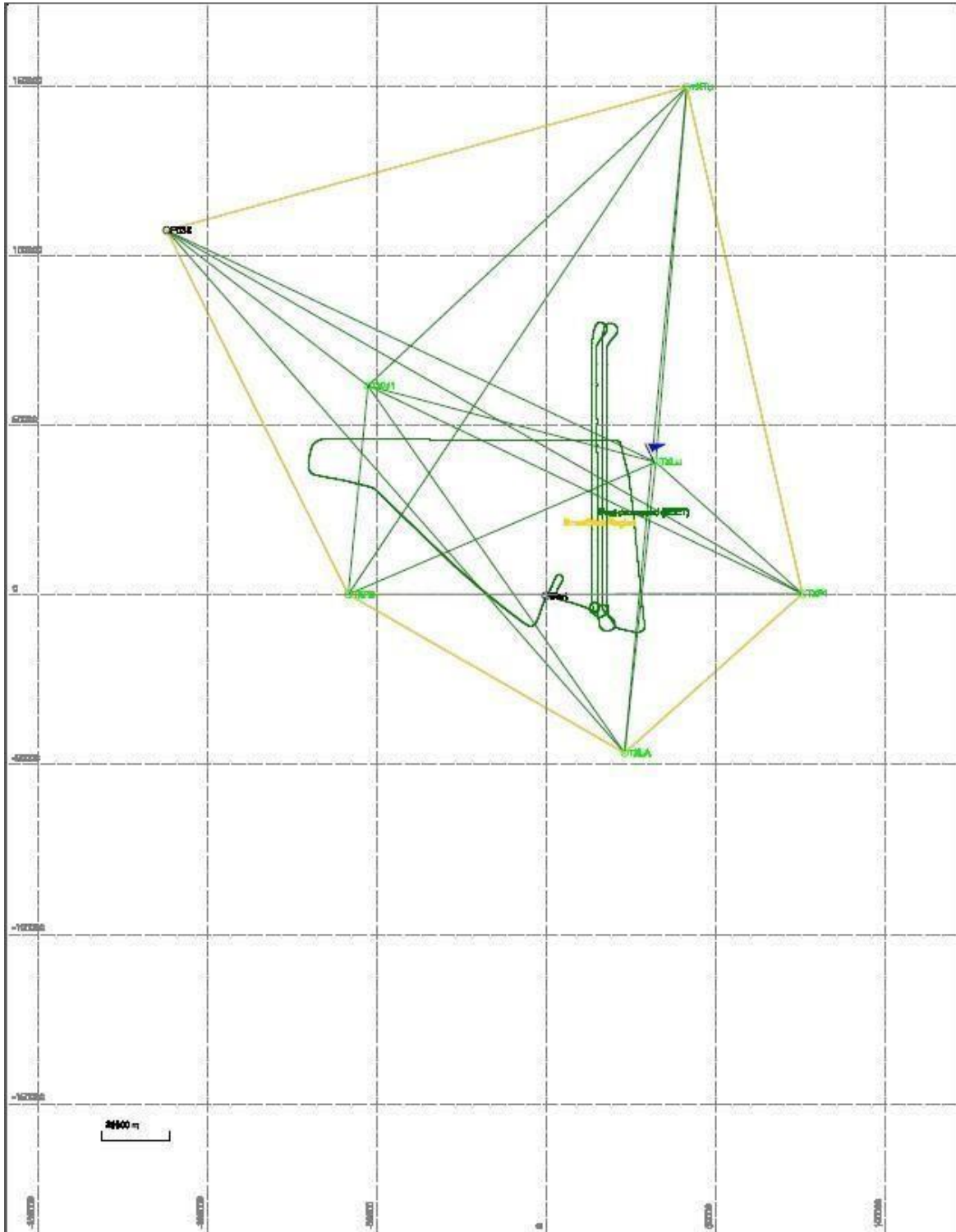
**z gyro bias (deg/hr)**



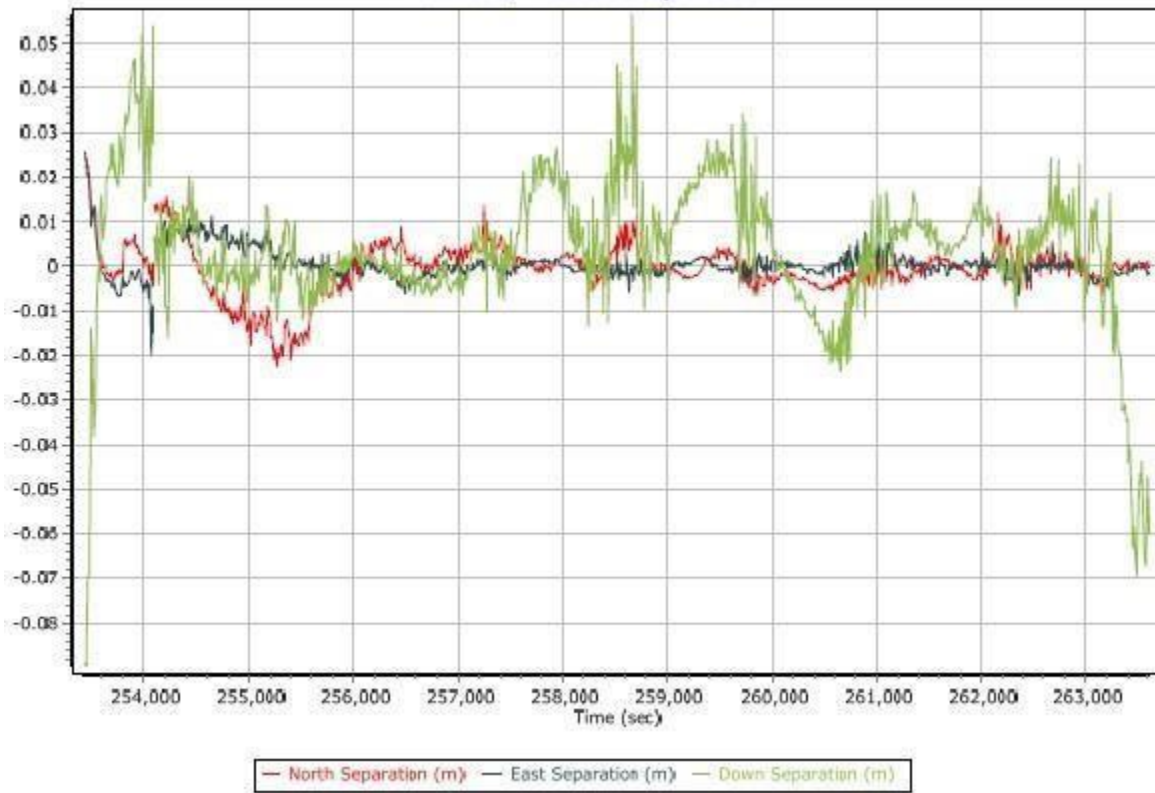
**y gyro bias (deg/hr)**



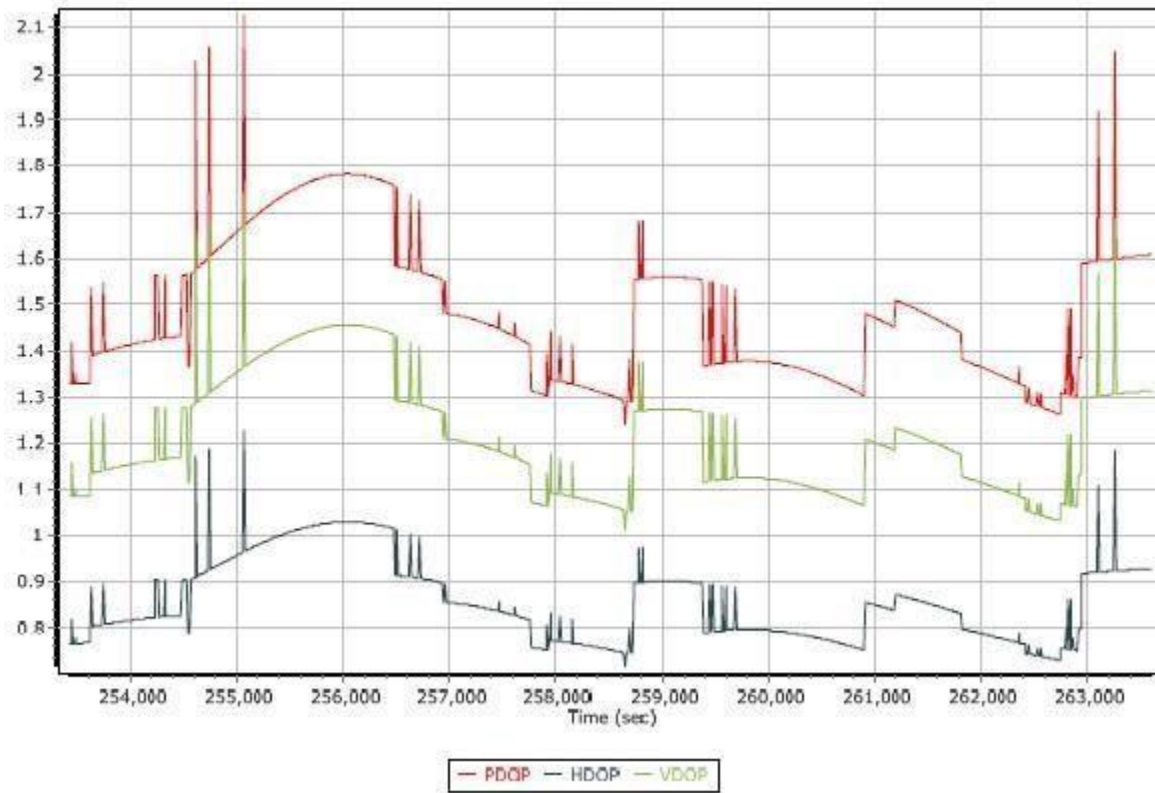
# Mission 9 - 5418044b GNSS Processing

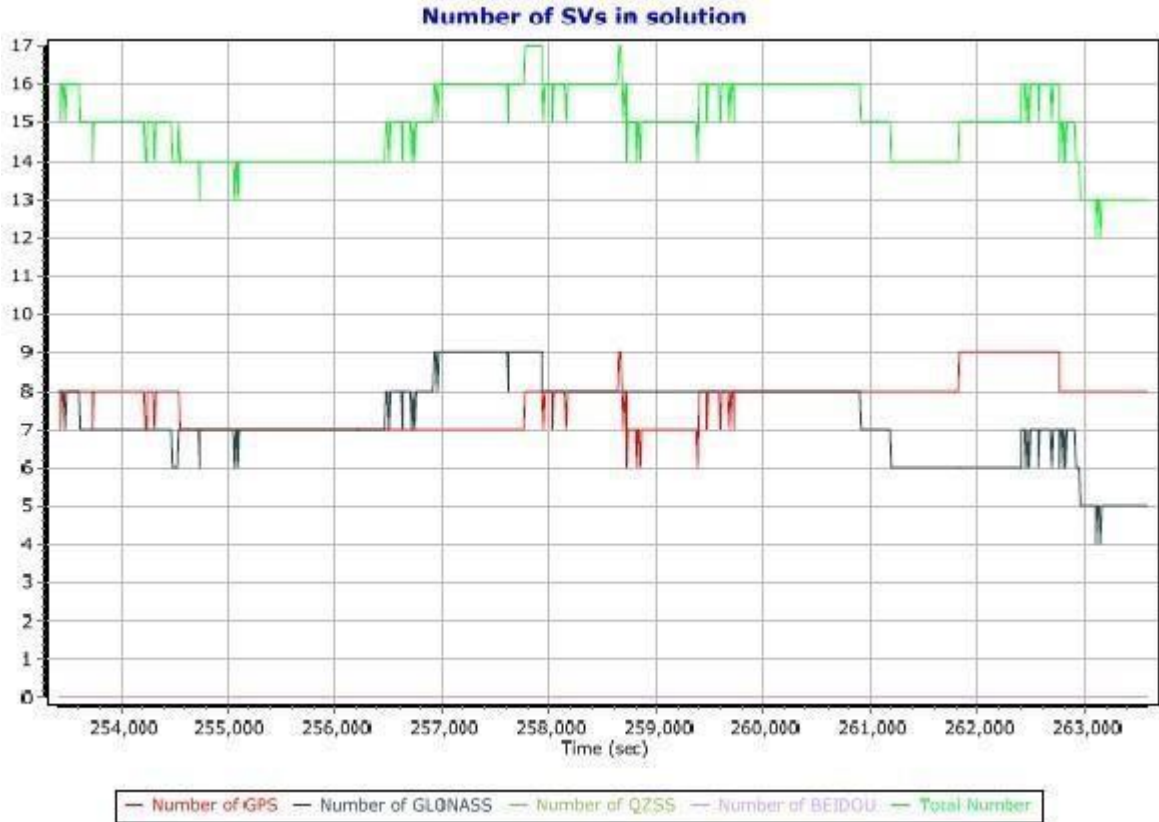


**Forward/Reverse Separation**



**DOP**





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 IINPP Forward-Backward Navigator [Jun 28 2017]

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Date : 02/21/18 Time : 13:12:48  
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-----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\6418044b\05\_INSGPS\_PROC\01\_POS\6418044b\6418044b\Extract

Extracted data kernel : 6418044b

Processed data path : D:\Projects\3141\_Dewberry-

Brownfield\Lidar\6418044b\05\_INSGPS\_PROC\01\_POS\6418044b\6418044b\Proc

Processed data kernel : 6418044b

Processing start time : 253692.331

Processing end time : 263599.000  
 -----

----- Selected

GNSS mode : IN-Fusion SmartBase

Selected base station : ASB

Selected subsystems : IMU

: Primary GNSS

: Base GNSS

Vehicle to reference alignment angles : 0.000 0.000 0.000

Multipath setting : LOW  
Reference to IMU lever arm : 0.000 0.000 0.000  
Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.143 -0.238 -0.942  
Base GNSS coordinates : 33.409163589 -102.149460869 956.023

-----  
-----  
Mask angle : 10.000

----- 253692.336

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00

Reference-primary GNSS lever arm: 0.14 -0.24 -0.94

Multipath environment: LOW

253692.336 : Forward-time processing started 253692.431 :

IIN coarse leveling started.

253693.431 : IIN coarse leveling ended.

253693.431 : IIN navigator initialized.

253693.431 : IIN degraded navigation solution.

253693.431 : IIN initial position valid.

253694.001 : SmartBase observables in use 253694.001 :

IIN primary GNSS solution in use.

253694.001 : IIN primary GNSS observables in use.

253694.001 : IIN in Fixed NL RTK mode.

253694.101 : IIN navigator alignment active.

254071.000 : WARNING : Gap in primary GNSS navigation data 254072.002 :

IIN primary GNSS solution not in use.

254073.002 : IIN primary GNSS solution in use. 254074.003 : IIN

WL ambiguity failure cleared

262741.001 : IIN WL ambiguity failure cleared

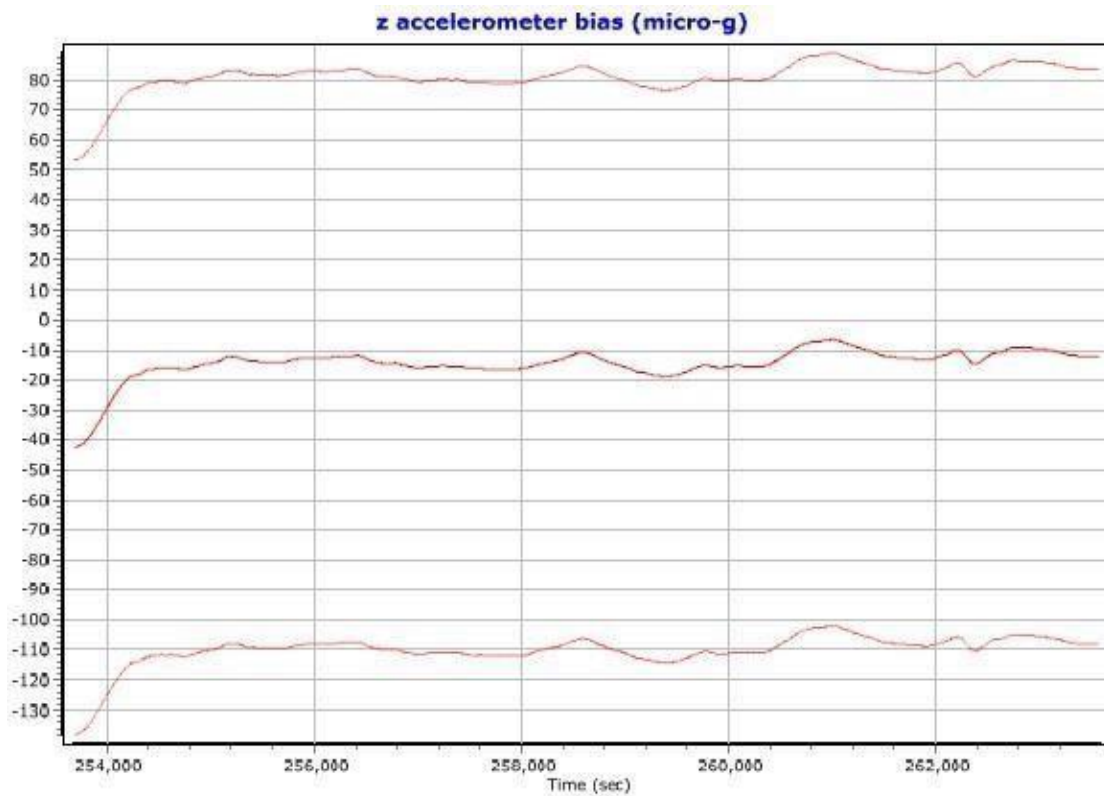
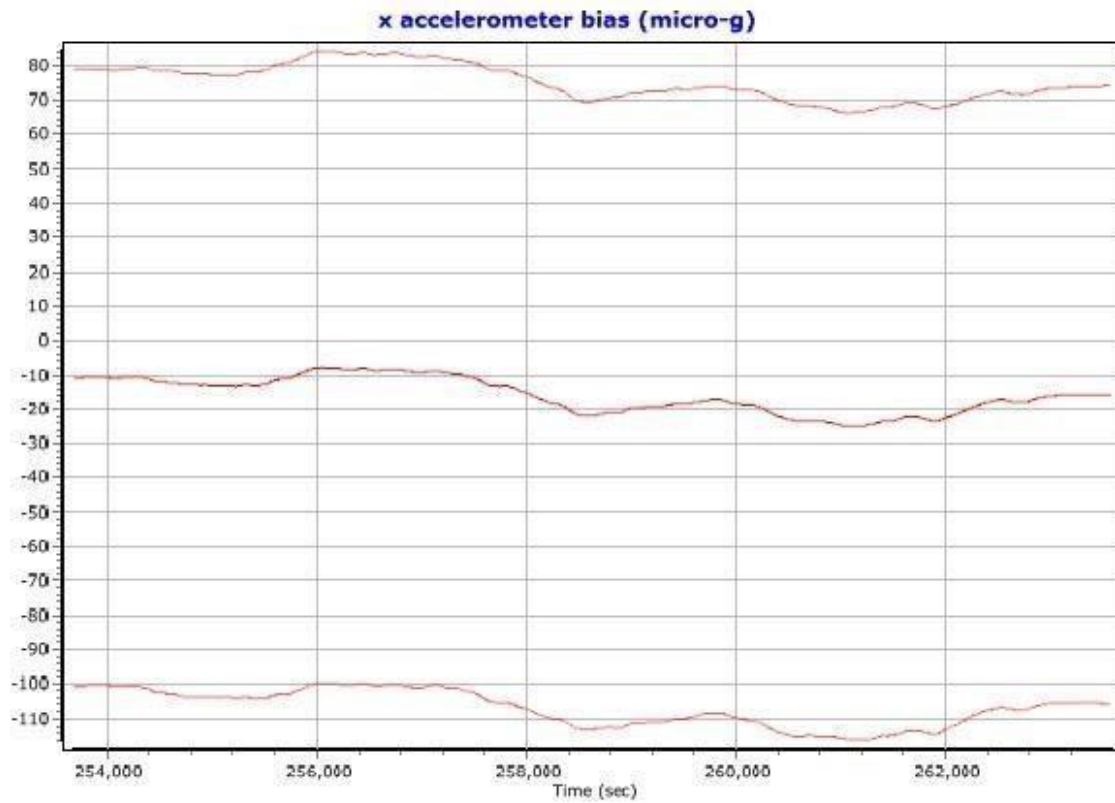
263599.003 : Processing ended

-----  
Termination status : Normal

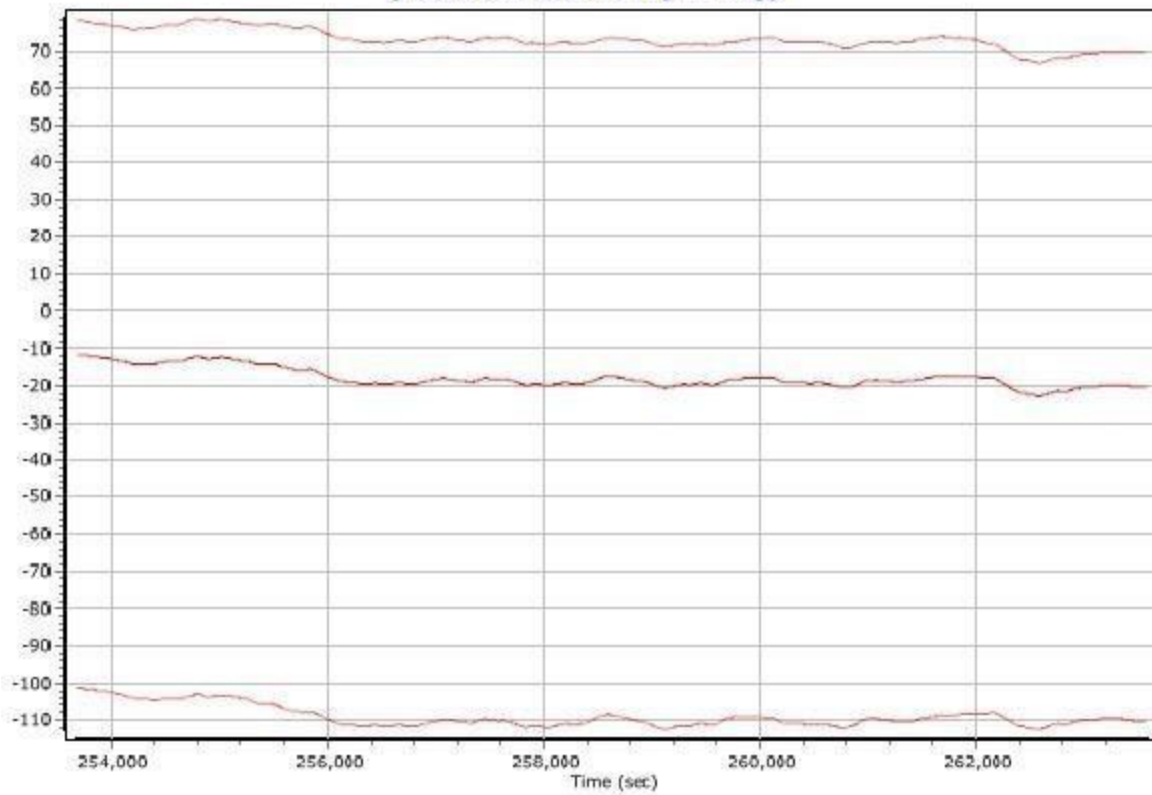
Execution time : 27.75

-----  
Processing completed.

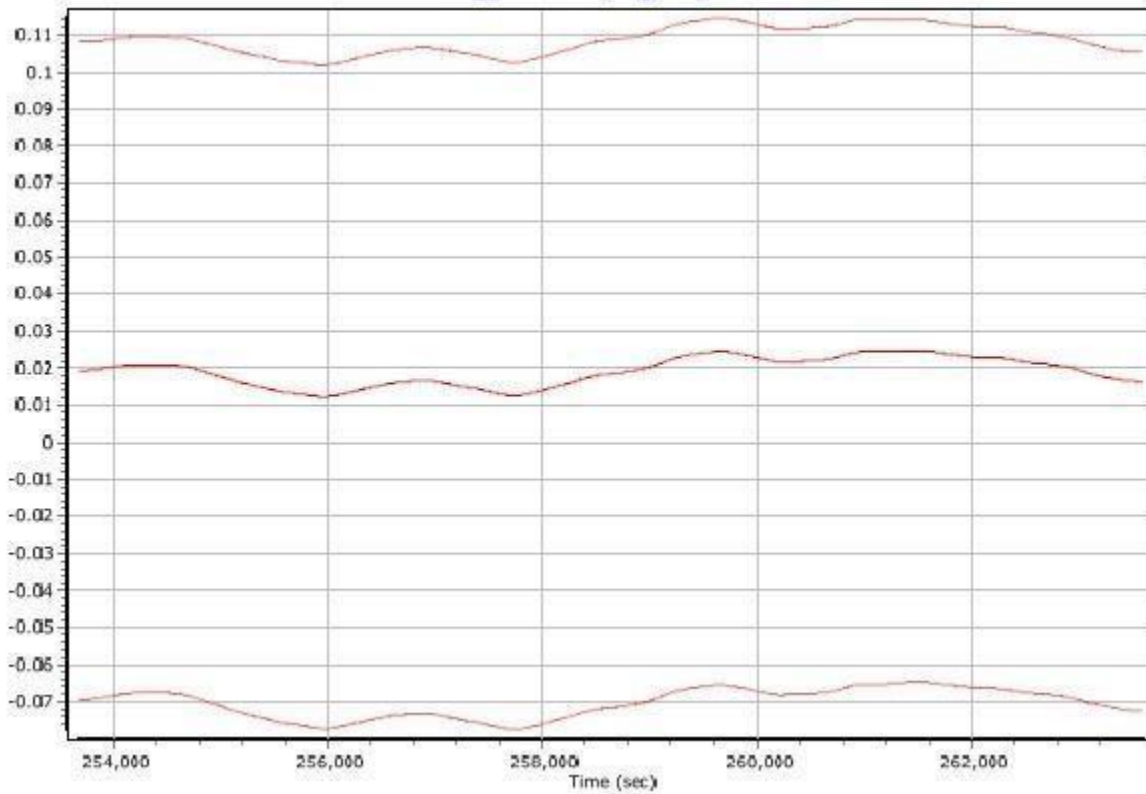
## Mission 9 - 5418044b Sensor Errors



**y accelerometer bias (micro-g)**

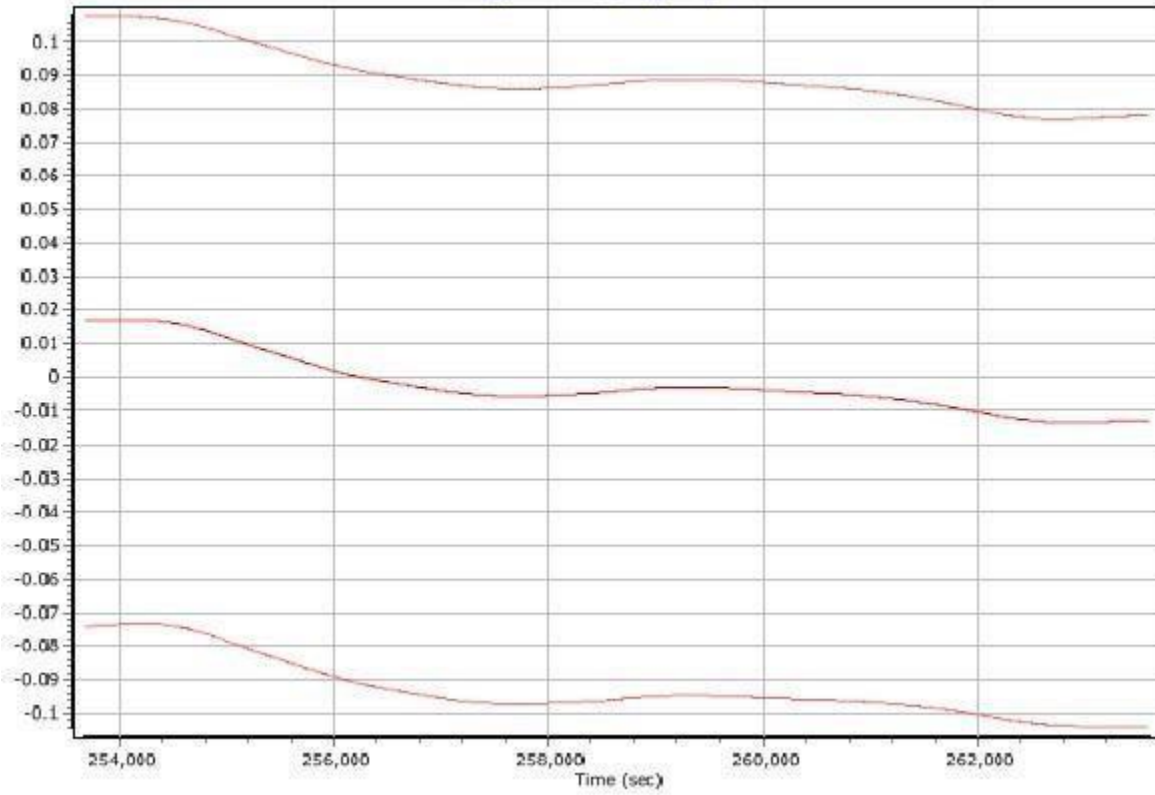


**x gyro bias (deg/hr)**

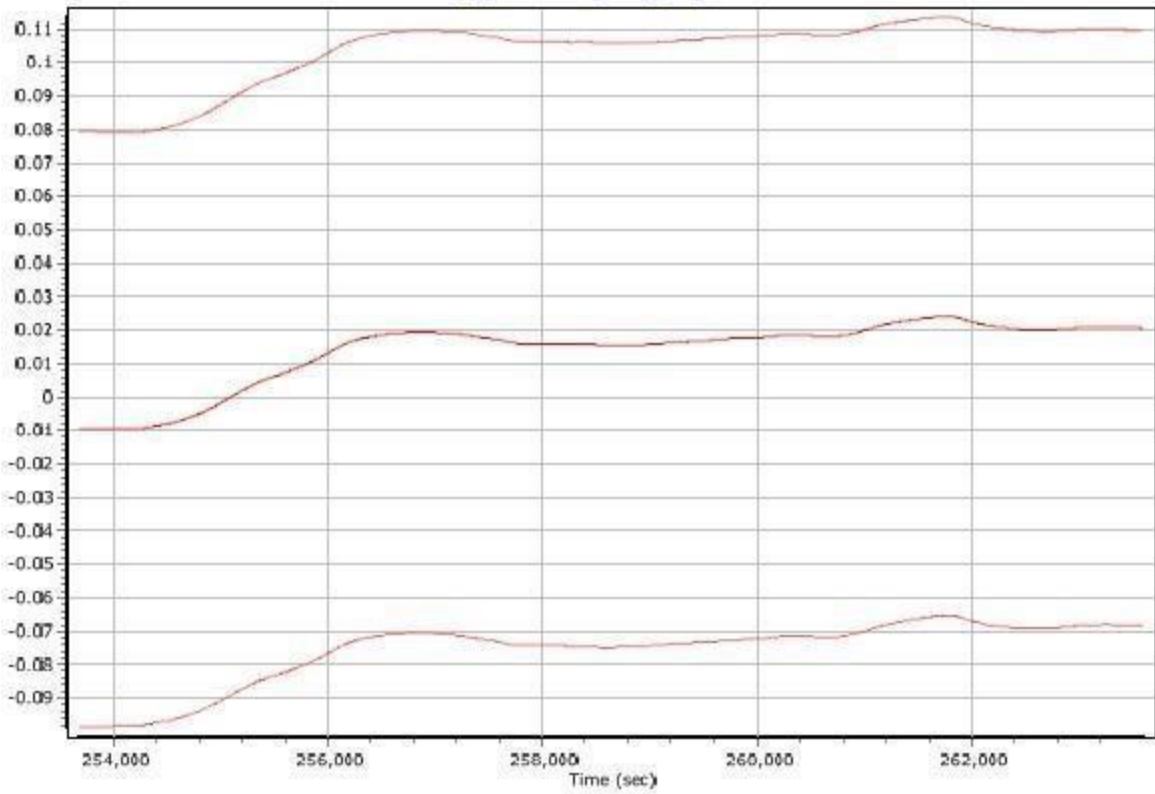




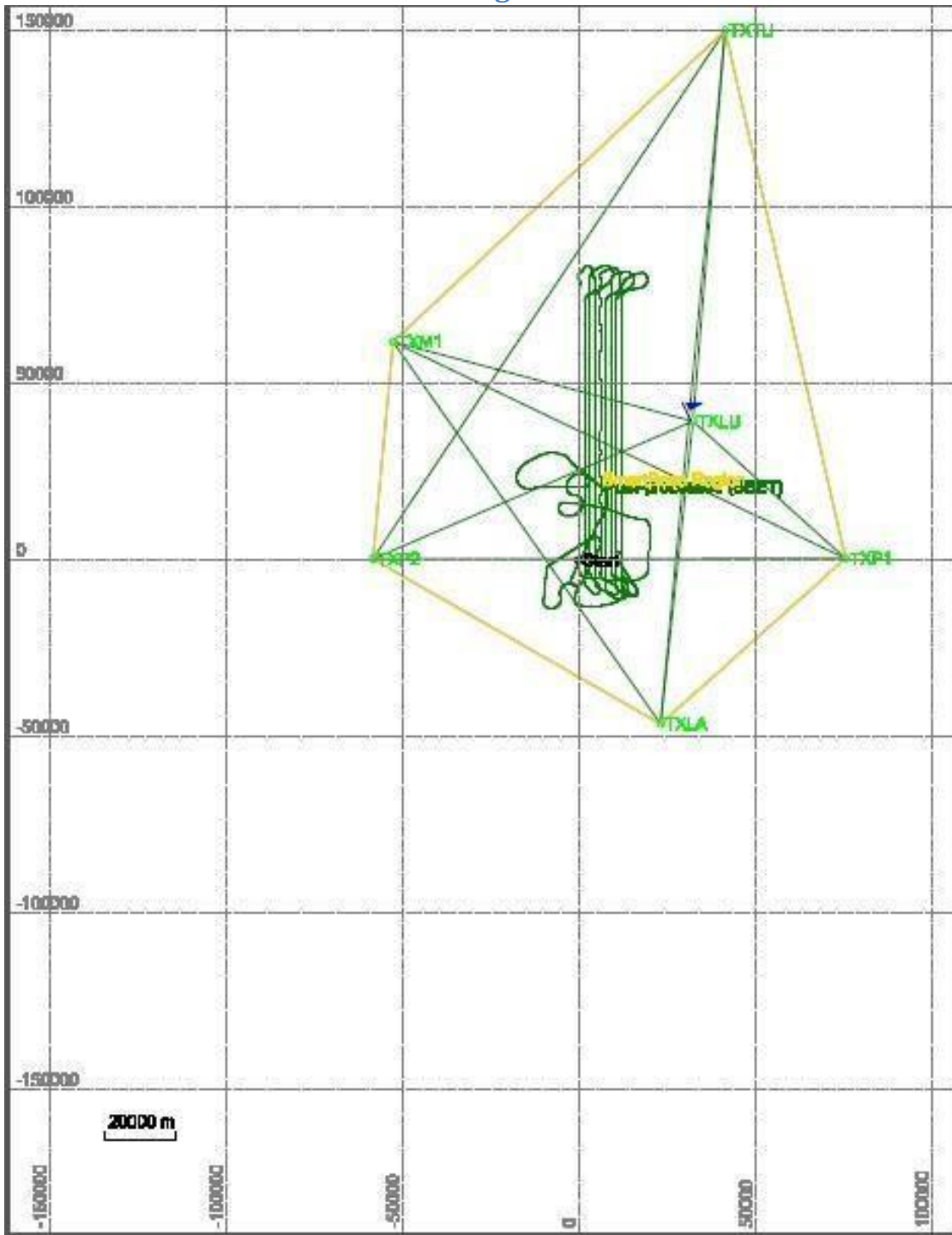
**z gyro bias (deg/hr)**



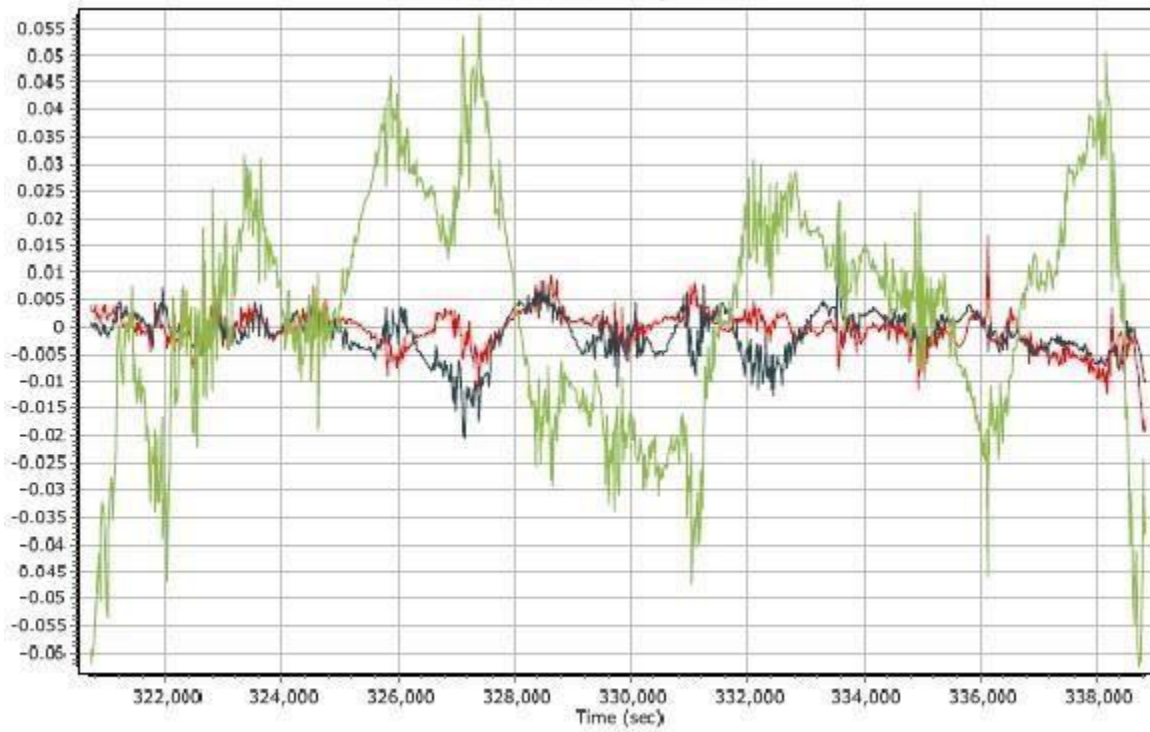
**y gyro bias (deg/hr)**



# Mission 10 - 5418045a GNSS Processing

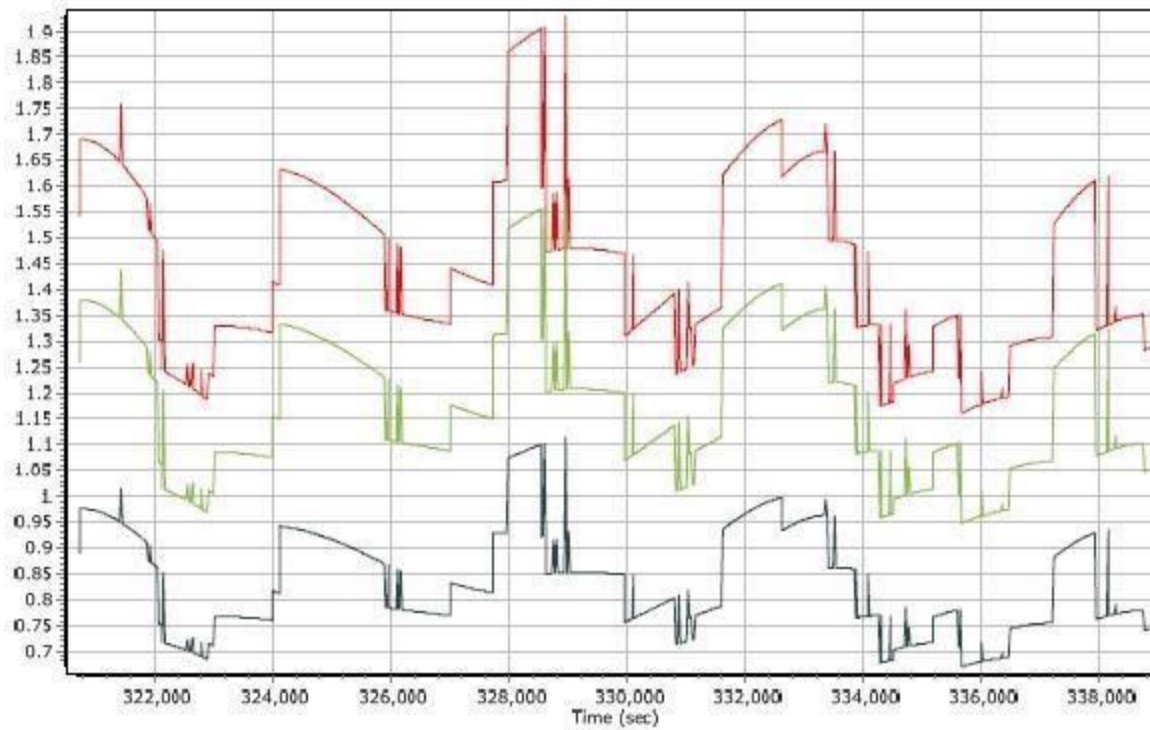


**Forward/Reverse Separation**

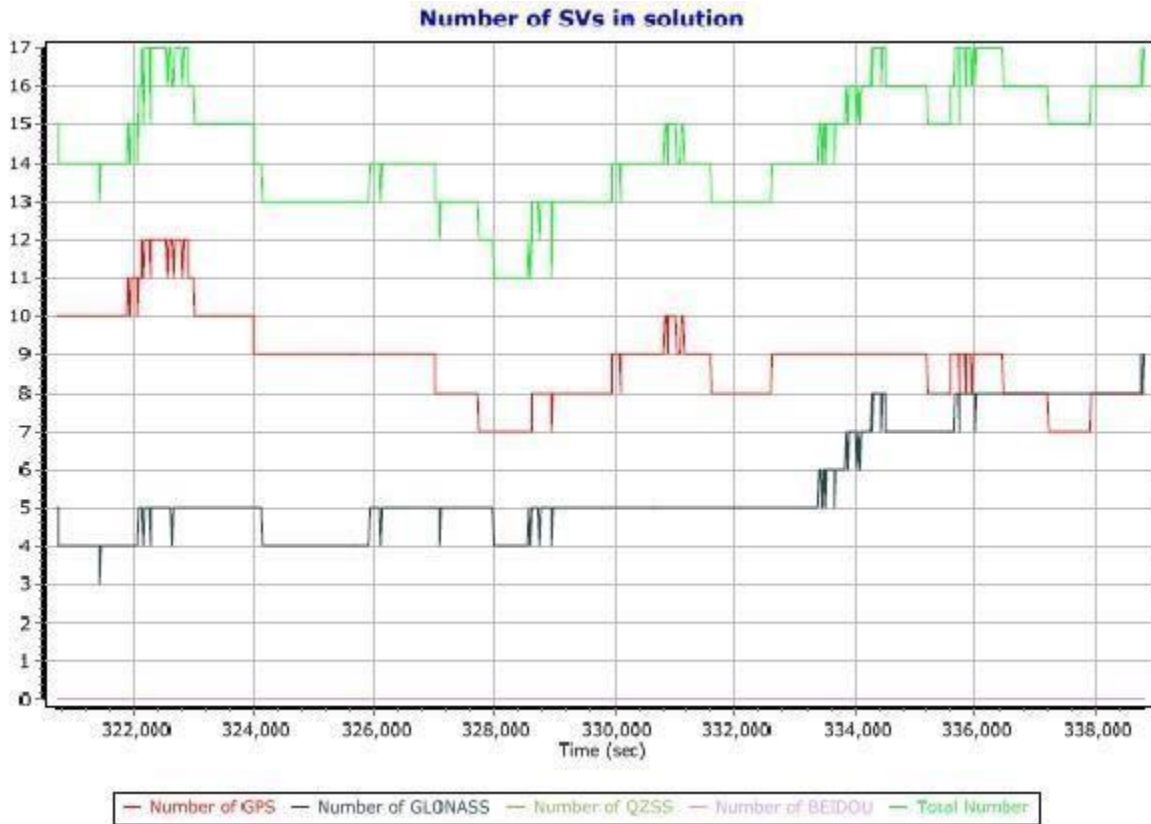


— North Separation (m) — East Separation (m) — Down Separation (m)

**DOP**



— PDOP — HDOP — VDOP



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 IINPP Forward-Backward Navigator [Jun 28 2017]

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Date : 02/21/18 Time : 17:28:33  
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-----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\6418045A\05\_INSGPS\_PROC\01\_POS\6418045a\6418045a\Extract

Extracted data kernel : 6418045a

Processed data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\6418045A\05\_INSGPS\_PROC\01\_POS\6418045a\6418045a\Proc

Processed data kernel : 6418045a

Processing start time : 321003.986

Processing end time : 338852.000  
 -----

----- Selected  
 GNSS mode : IN-Fusion SmartBase

Selected base station : ASB

Selected subsystems : IMU

: Primary GNSS

: Base GNSS

Vehicle to reference alignment angles : 0.000 0.000 0.000

Multipath setting : LOW  
Reference to IMU lever arm : 0.000 0.000 0.000  
Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.143 -0.238 -0.942  
Base GNSS coordinates : 33.422289760 -102.131743116 956.023

-----  
-----  
Mask angle : 10.000

----- 321003.986

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00  
Reference-primary GNSS lever arm: 0.14 -0.24 -0.94  
Multipath environment: LOW 321003.986

: Forward-time processing started 321004.081 : IIN

coarse leveling started. 321005.001 : SmartBase  
observables in use 321005.001 : IIN coarse leveling  
ended.

321005.001 : IIN navigator initialized.

321005.001 : IIN degraded navigation solution.

321005.001 : IIN initial position valid.

321005.001 : IIN primary GNSS solution in use.

321005.001 : IIN primary GNSS observables in use.

321005.001 : IIN in Fixed NL RTK mode.

321005.101 : IIN navigator alignment active.

321762.000 : WARNING : Gap in primary GNSS navigation data 321763.001 :  
IIN primary GNSS solution not in use.

321764.001 : IIN primary GNSS solution in use. 321765.002 : IIN

WL ambiguity failure cleared

331592.003 : IIN WL ambiguity failure cleared

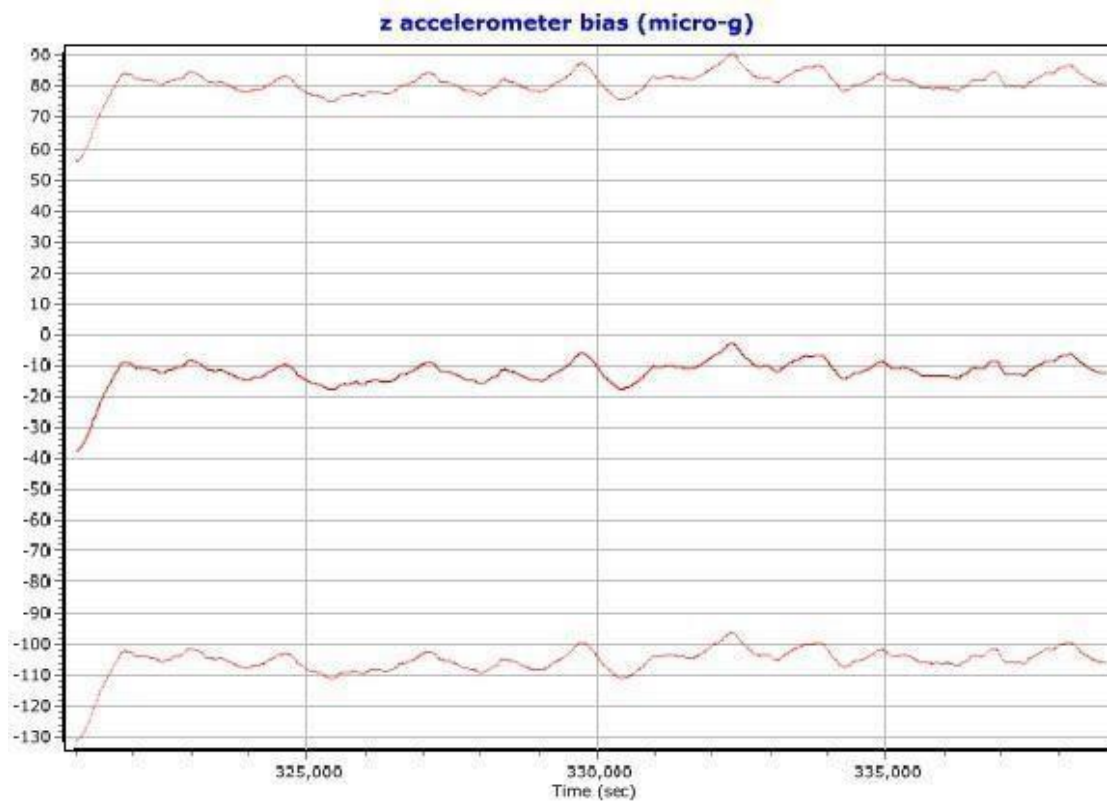
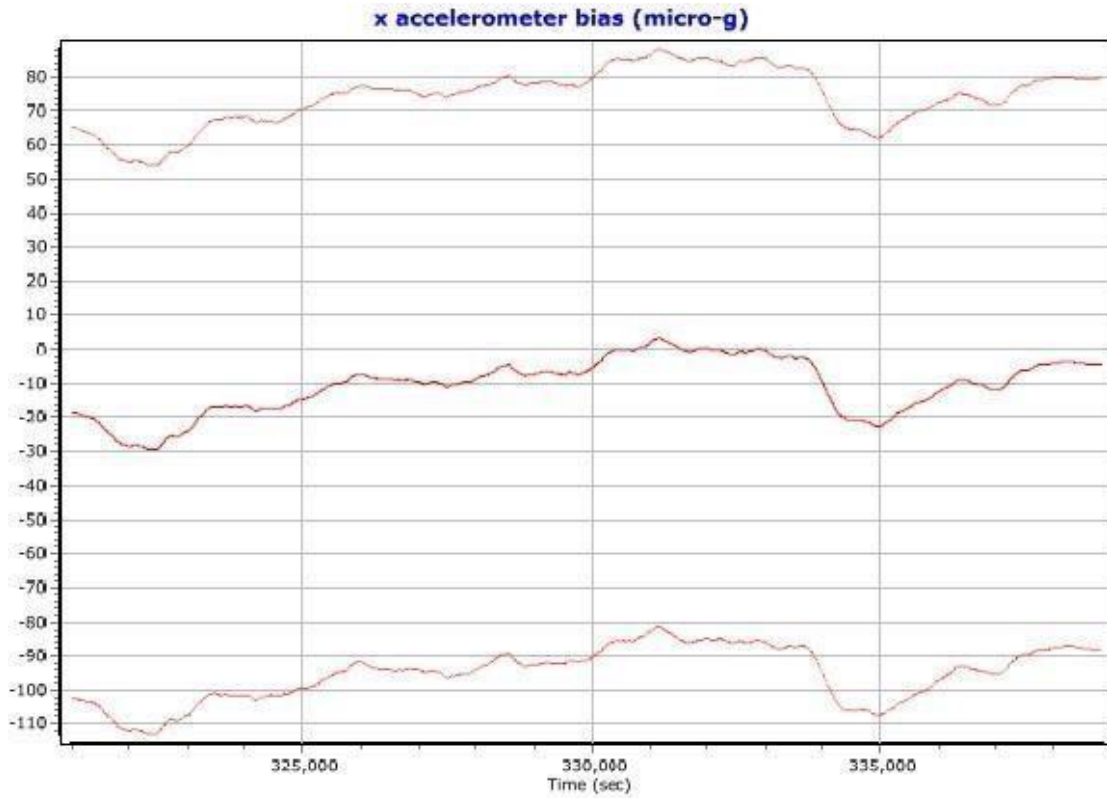
338852.000 : Processing ended

-----  
Termination status : Normal

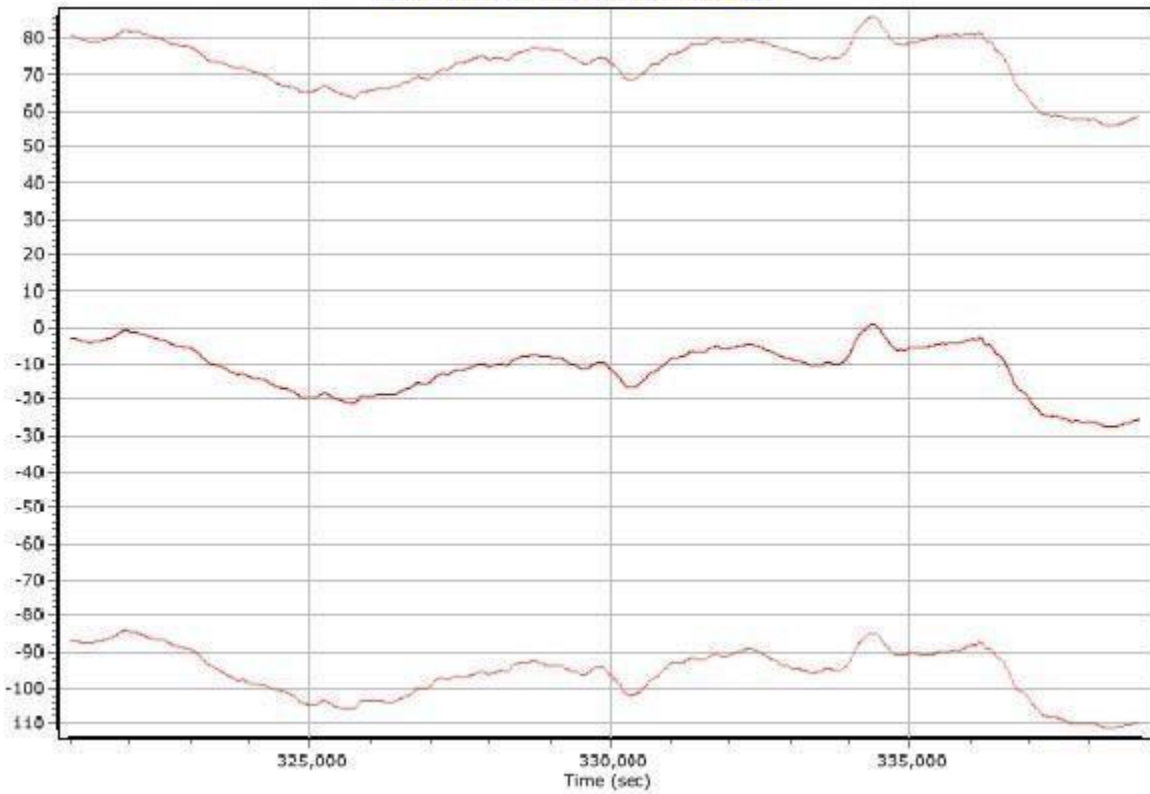
Execution time : 48.50

-----  
Processing completed.

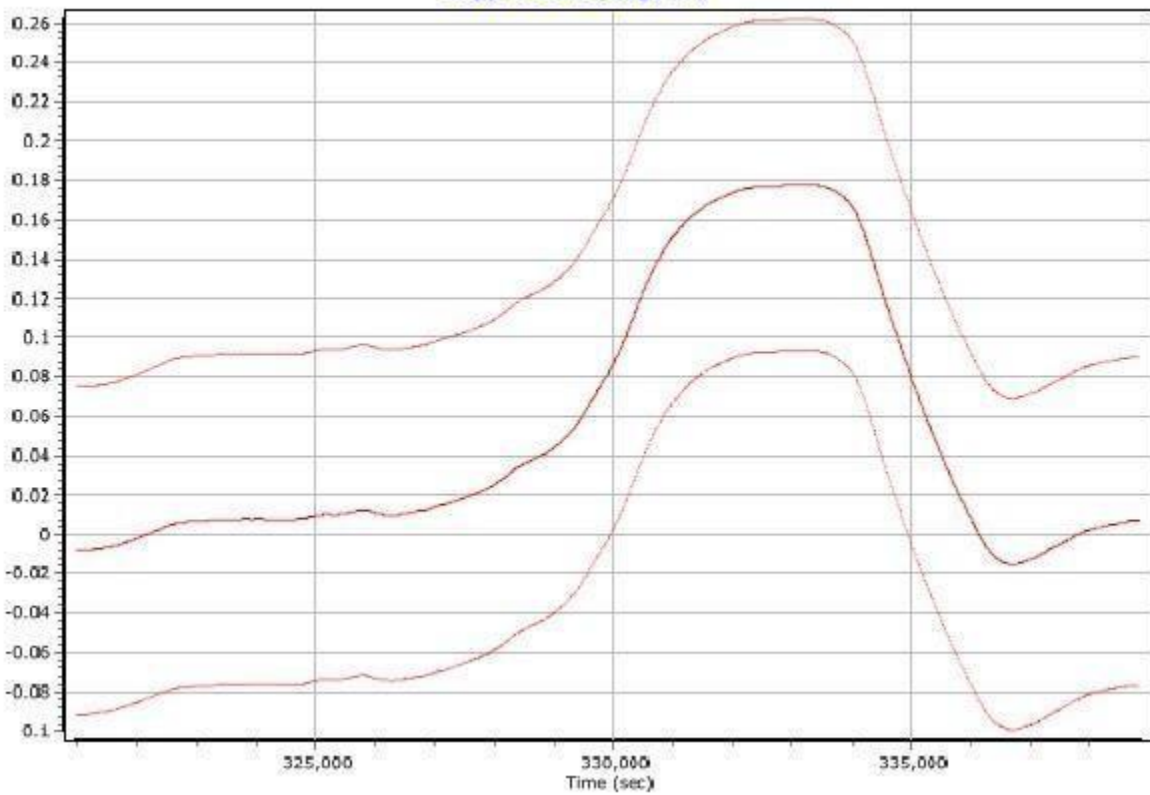
# Mission 10 - 5418045a Sensor Errors



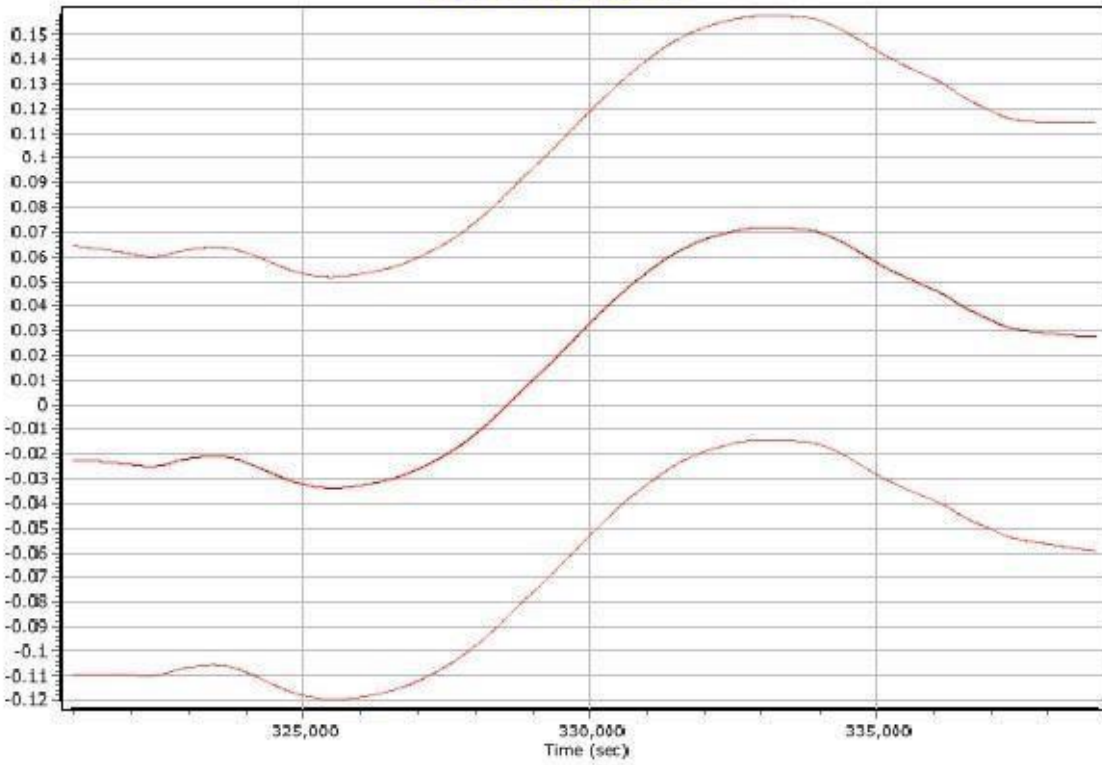
**y accelerometer bias (micro-g)**



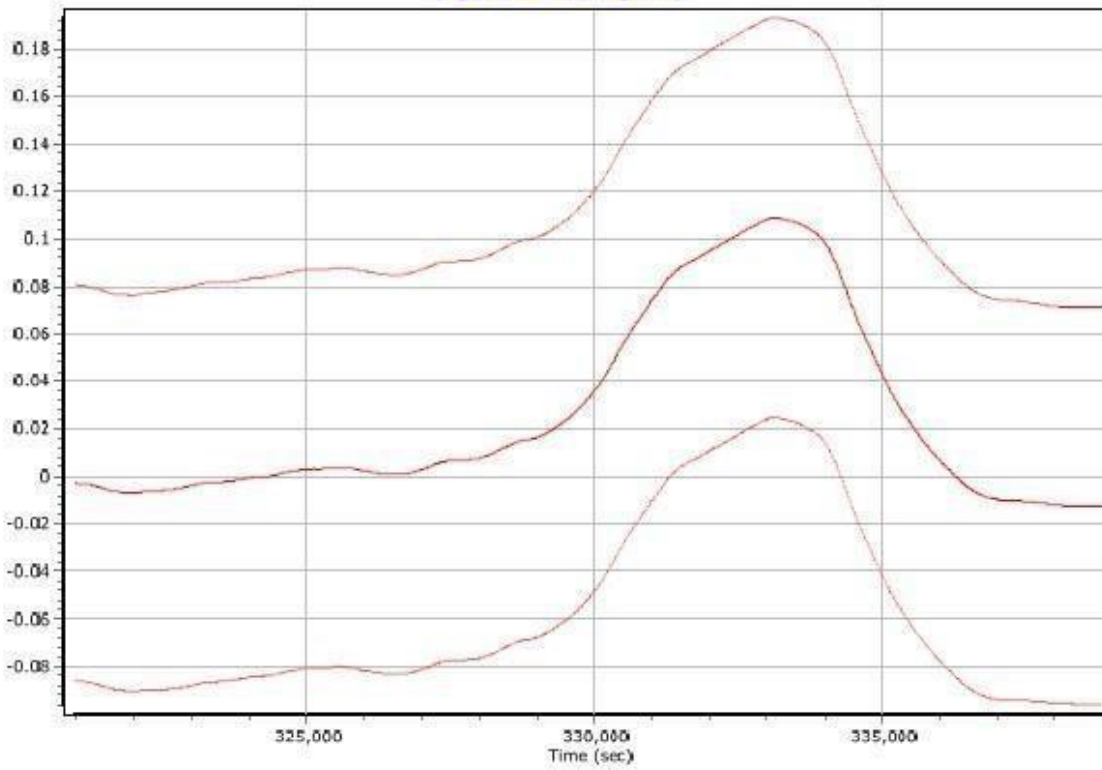
**x gyro bias (deg/hr)**



**z gyro bias (deg/hr)**

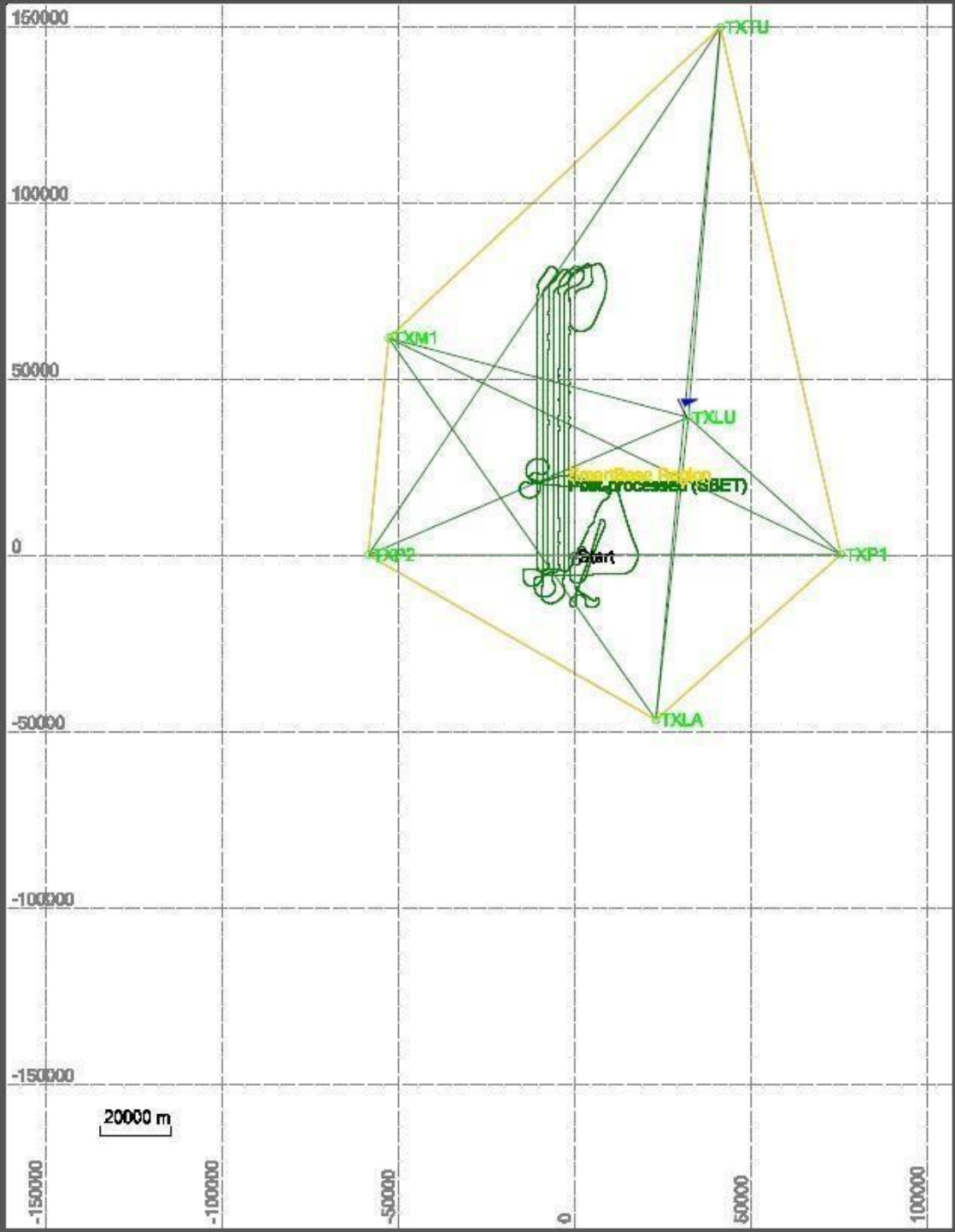


**y gyro bias (deg/hr)**

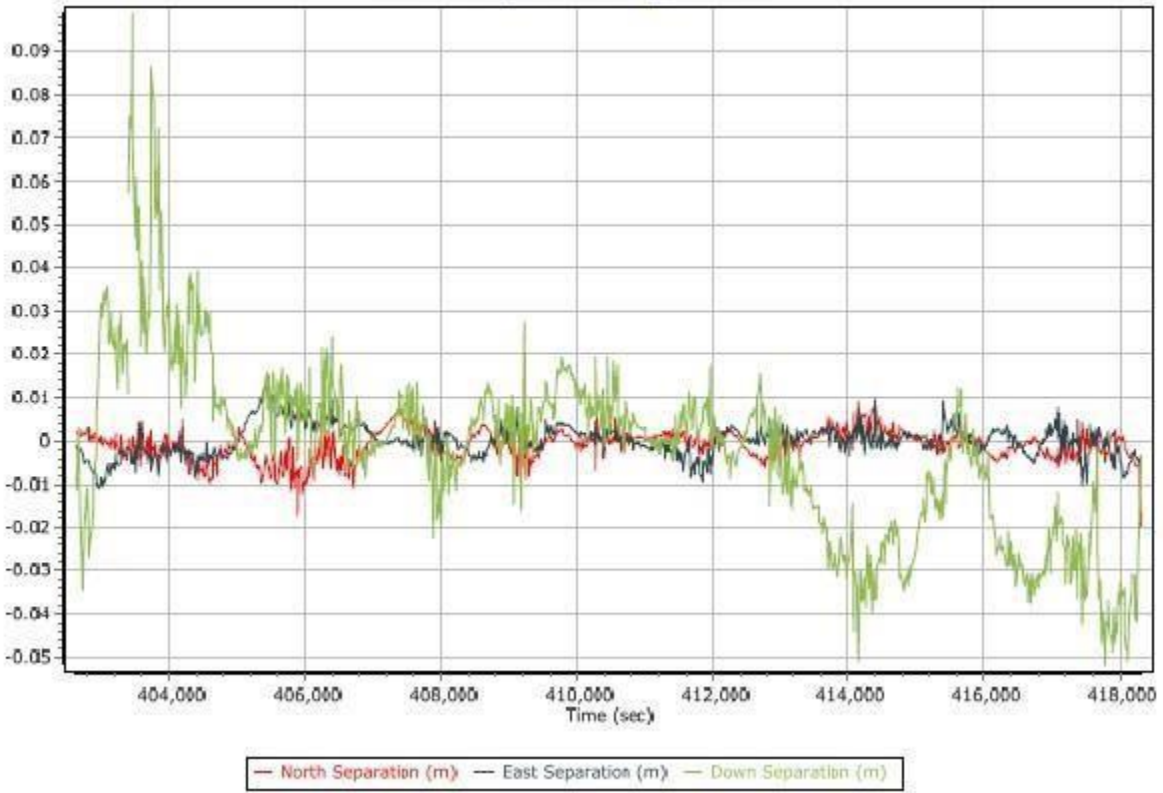




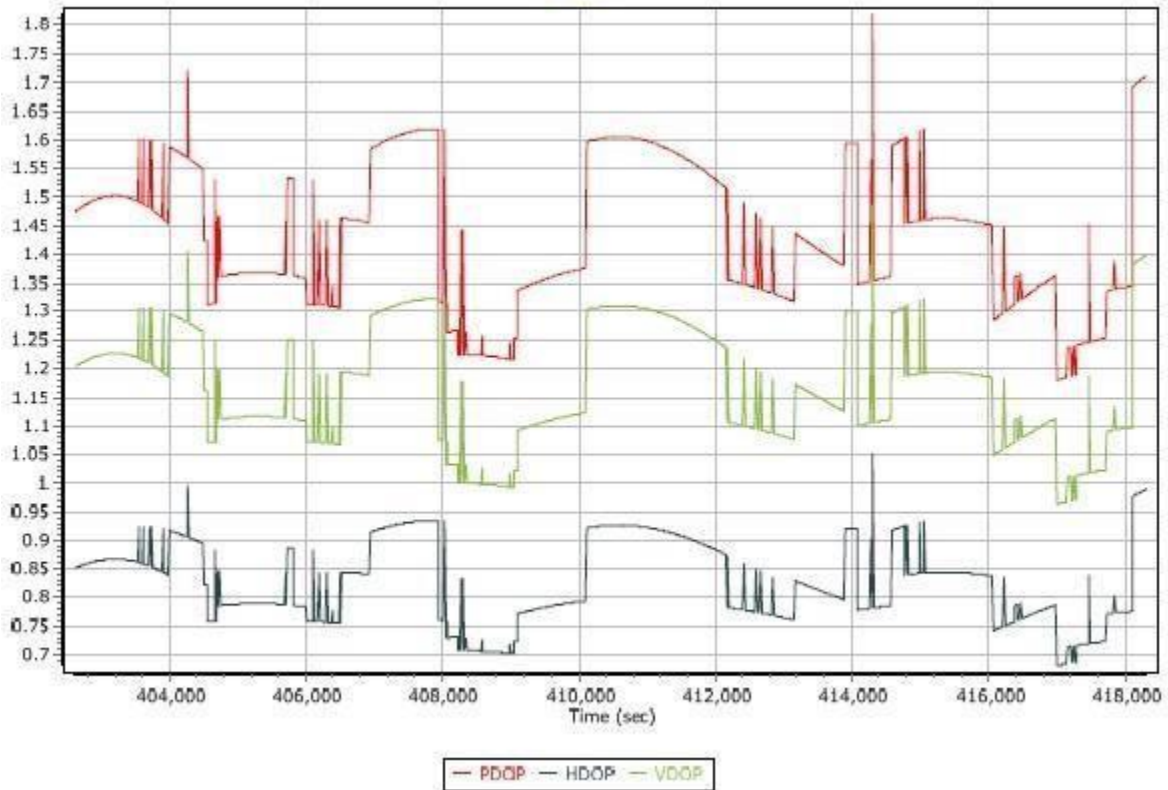
# Mission 11 - 5418046a GNSS Processing

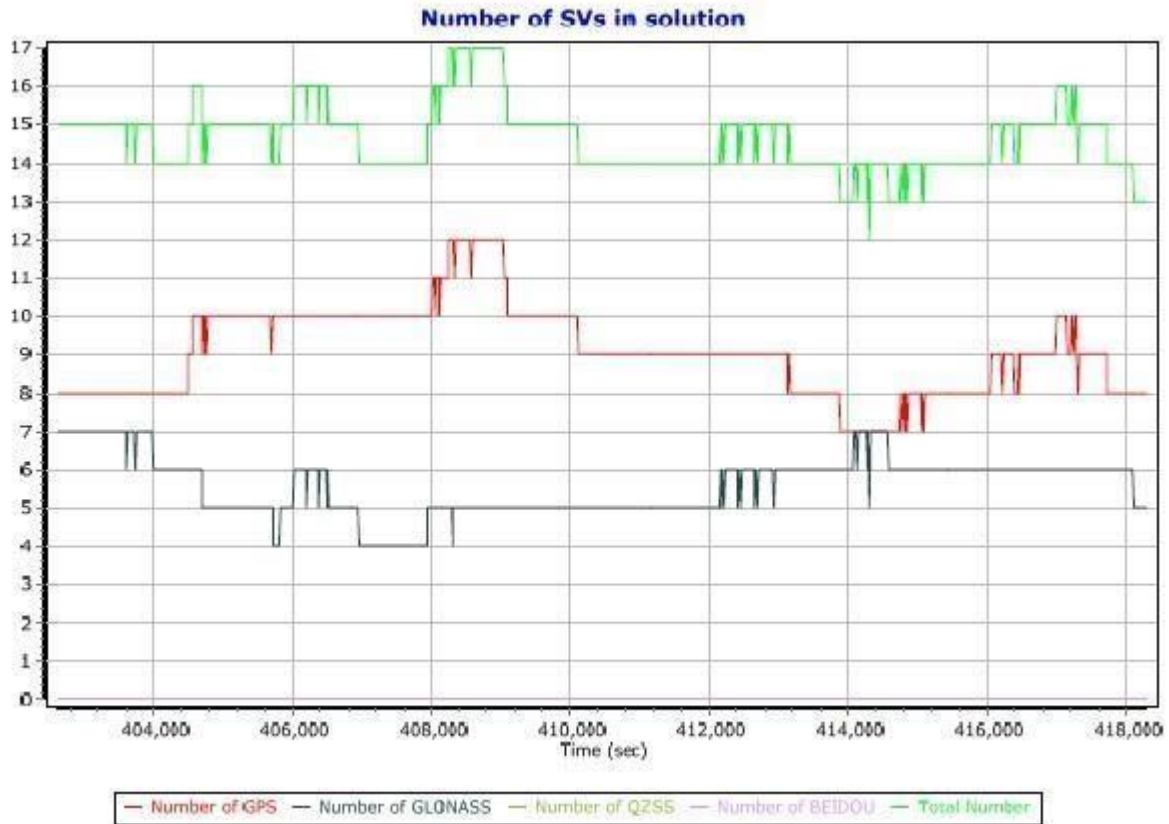


### Forward/Reverse Separation



### DOP





-----  
 IINPP Forward-Backward Navigator [Jun 28 2017]

Copyright (c) 2008-2017 Applanix Corporation. All rights reserved.

Date : 02/25/18 Time : 13:27:28  
 -----

-----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\6418046a\05\_INSGPS\_PROC\01\_POS\6418046a\6418046a\Extract

Extracted data kernel : 6418046a

Processed data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\6418046a\05\_INSGPS\_PROC\01\_POS\6418046a\6418046a\Proc

Processed data kernel : 6418046a

Processing start time : 402609.212

Processing end time : 418317.000  
 -----

----- Selected  
 GNSS mode : IN-Fusion SmartBase

Selected base station : ASB

Selected subsystems : IMU

: Primary GNSS

: Base GNSS

Vehicle to reference alignment angles : 0.000 0.000 0.000

Multipath setting : LOW  
Reference to IMU lever arm : 0.000 0.000 0.000  
Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.149 -0.242 -0.933  
Base GNSS coordinates : 33.425699182 -102.221853955 956.023

-----  
-----  
Mask angle : 10.000

----- 402609.217

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00

Reference-primary GNSS lever arm: 0.15 -0.24 -0.93

Multipath environment: LOW

402609.217 : Forward-time processing started 402609.312 :  
IIN coarse leveling started.

402610.312 : IIN coarse leveling ended.

402610.312 : IIN navigator initialized.

402610.312 : IIN degraded navigation solution.

402610.312 : IIN initial position valid.

402611.002 : SmartBase observables in use 402611.002 :  
IIN primary GNSS solution in use.

402611.002 : IIN primary GNSS observables in use.

402611.002 : IIN in Fixed NL RTK mode.

402611.102 : IIN navigator alignment active.

403366.000 : WARNING : Gap in primary GNSS navigation data 403367.004 :  
IIN primary GNSS solution not in use.

403368.004 : IIN primary GNSS solution in use. 403371.004 : IIN

WL ambiguity failure cleared

417904.005 : IIN WL ambiguity failure cleared

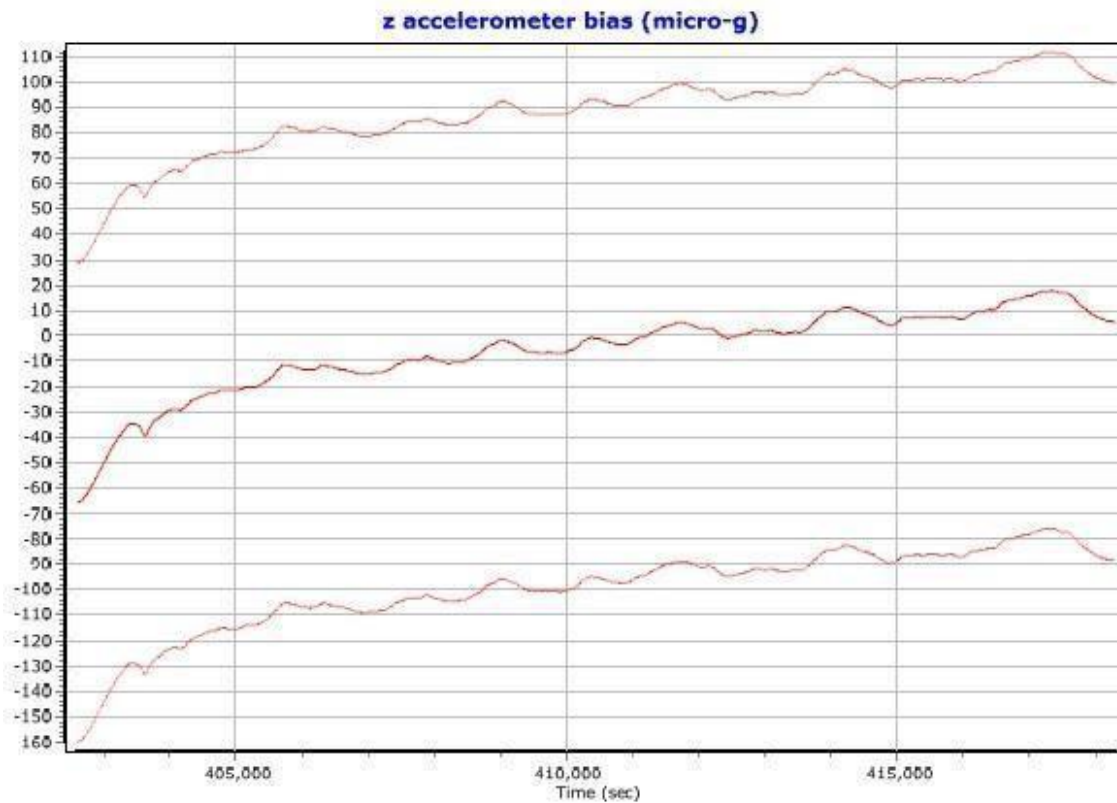
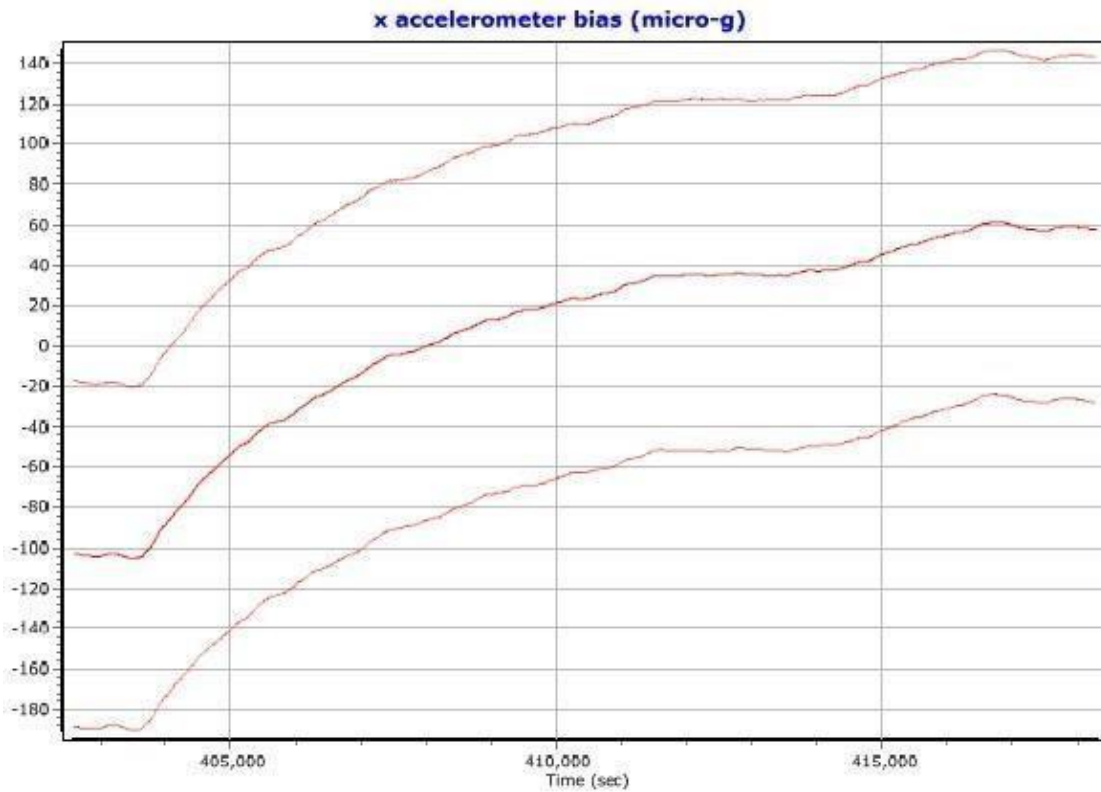
418317.000 : Processing ended

-----  
Termination status : Normal

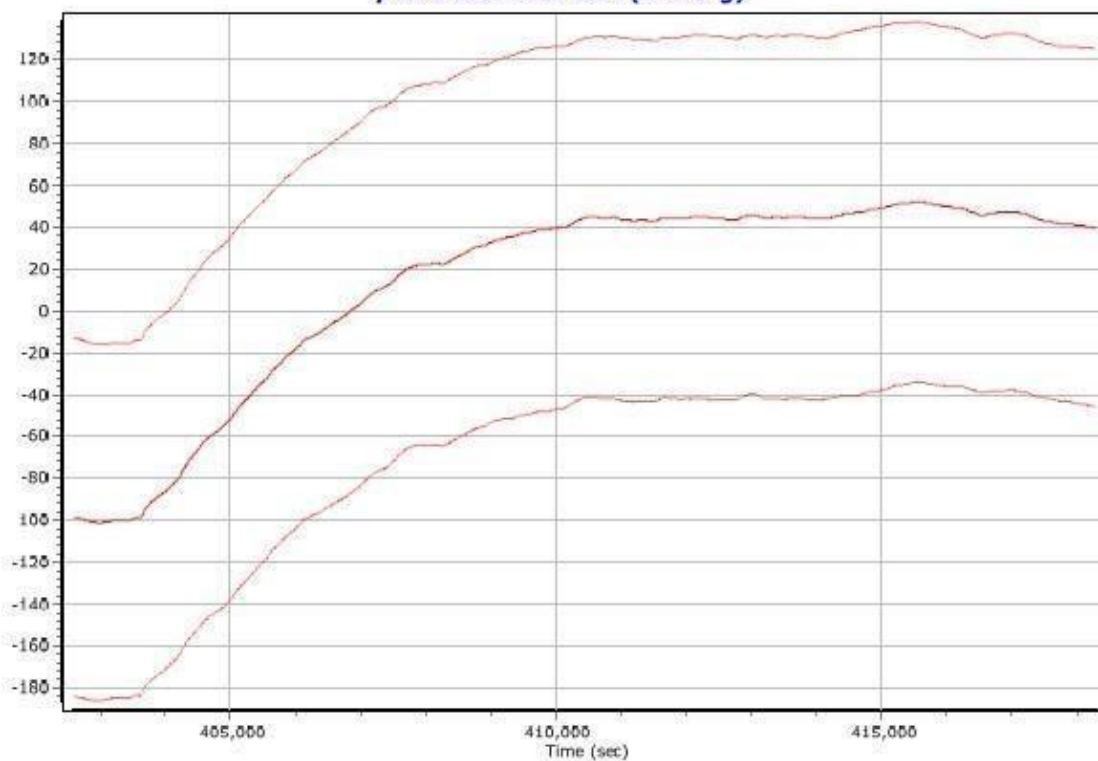
Execution time : 44.53

-----  
Processing completed.

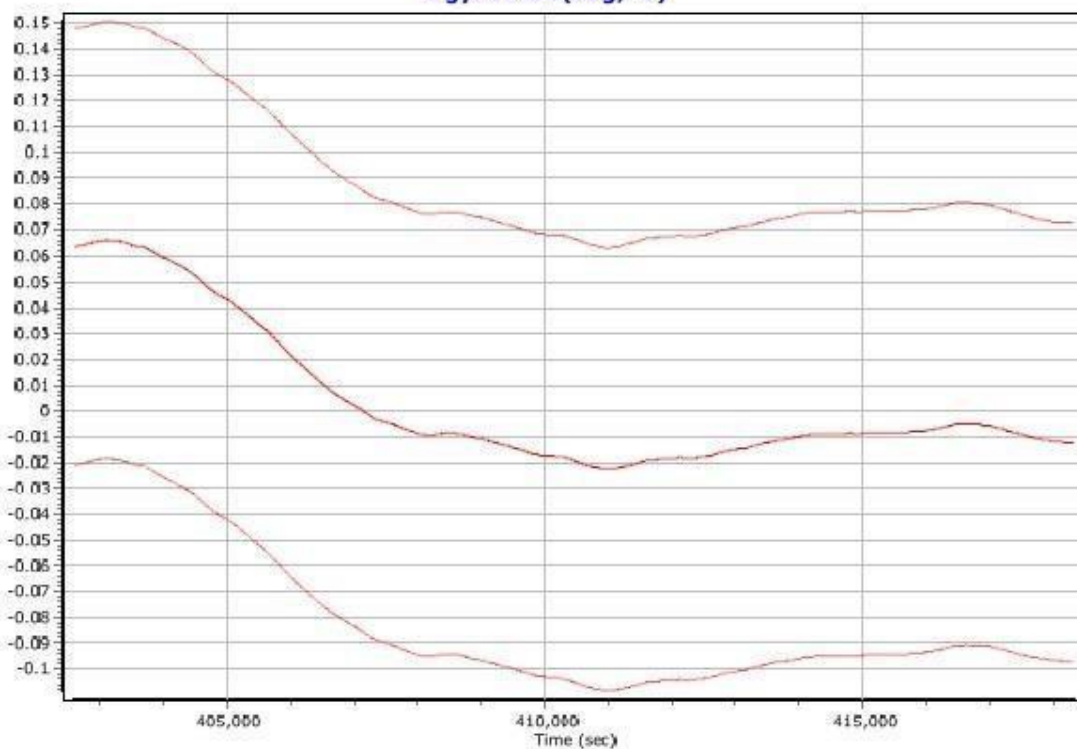
## Mission 11 - 5418046a Sensor Errors



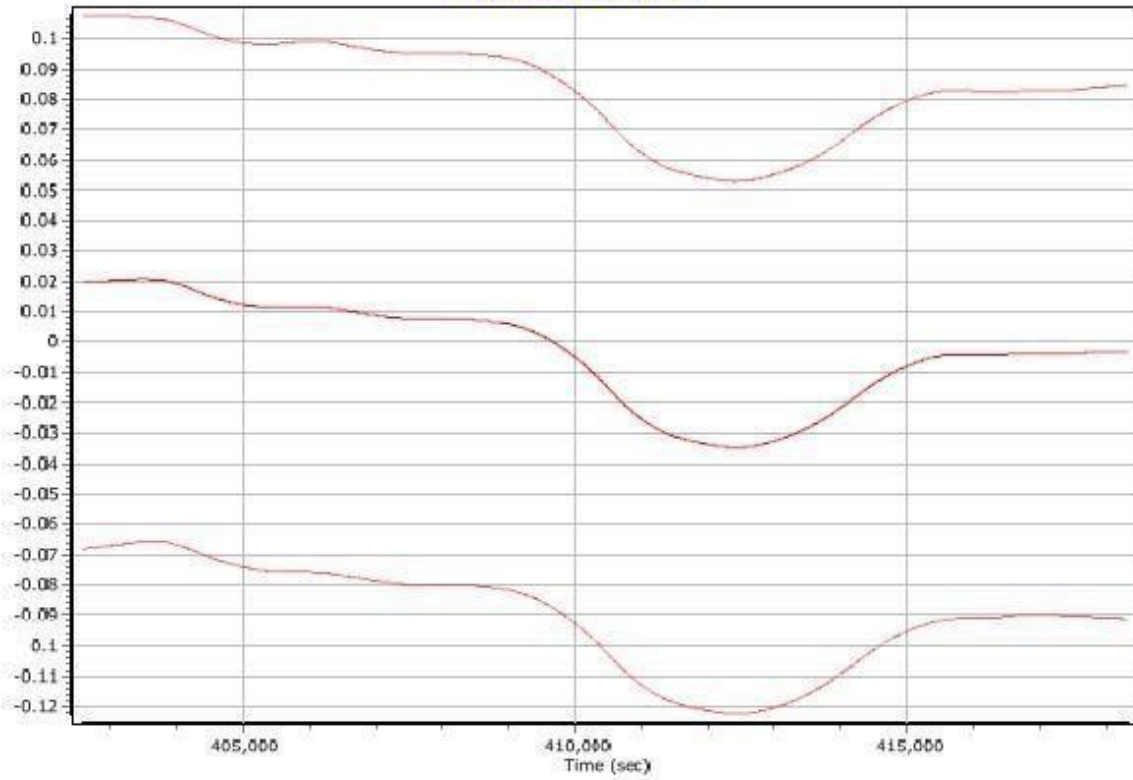
**y accelerometer bias (micro-g)**



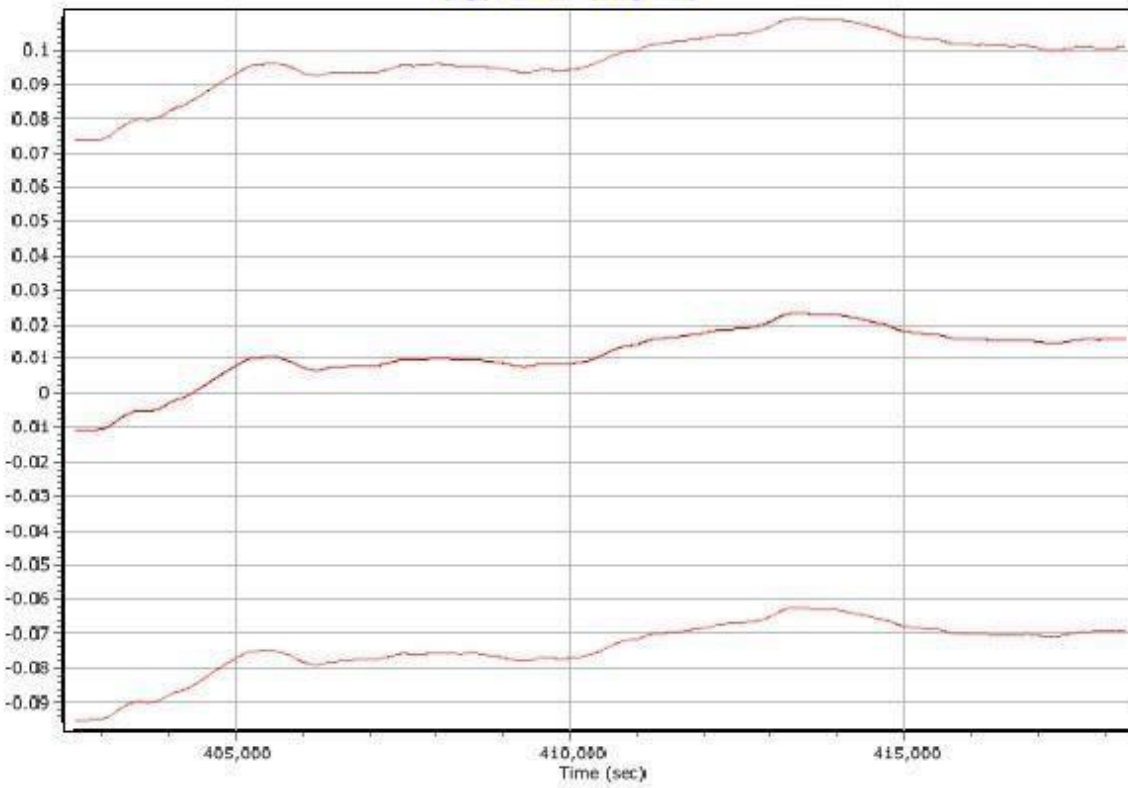
**x gyro bias (deg/hr)**



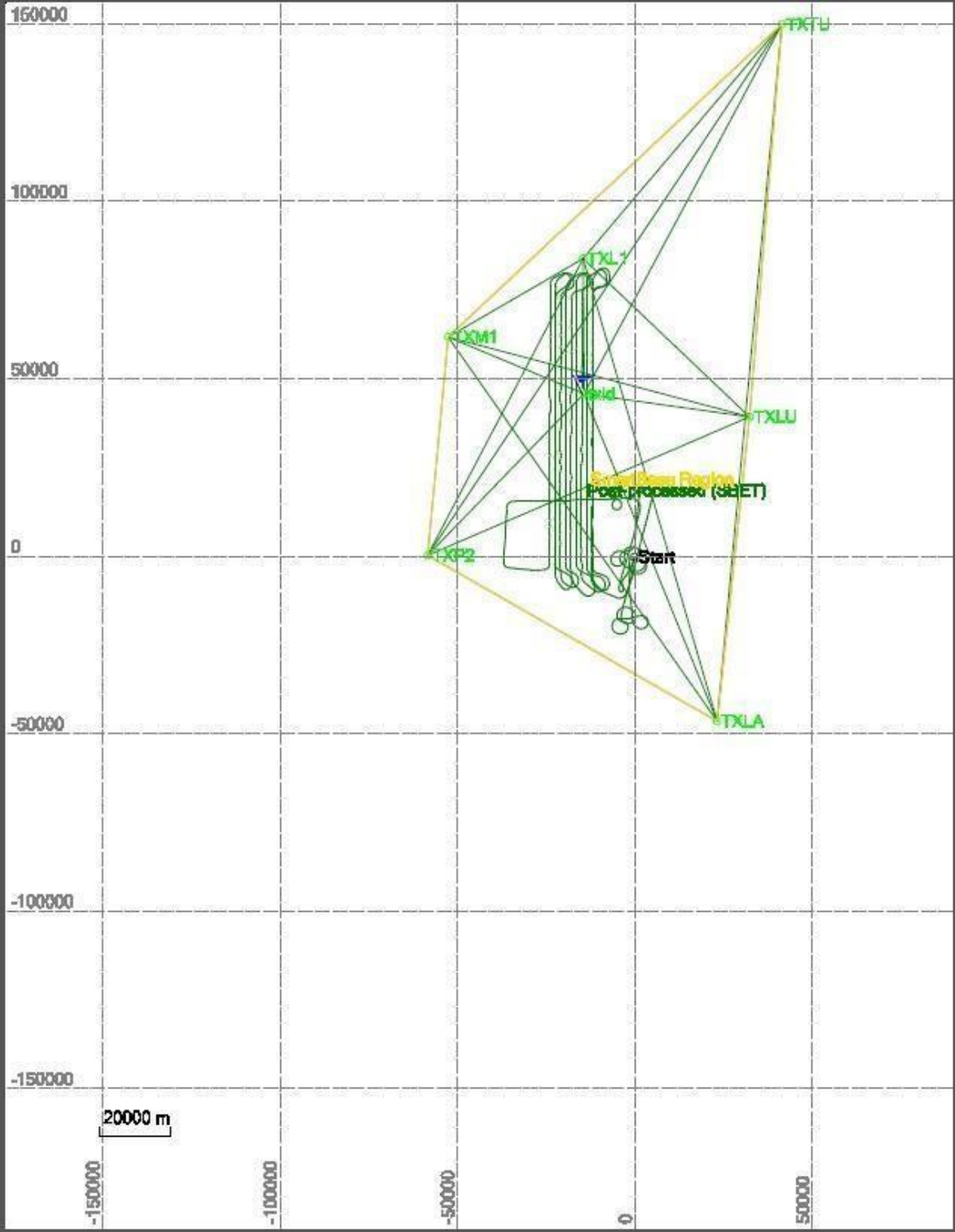
**z gyro bias (deg/hr)**



**y gyro bias (deg/hr)**

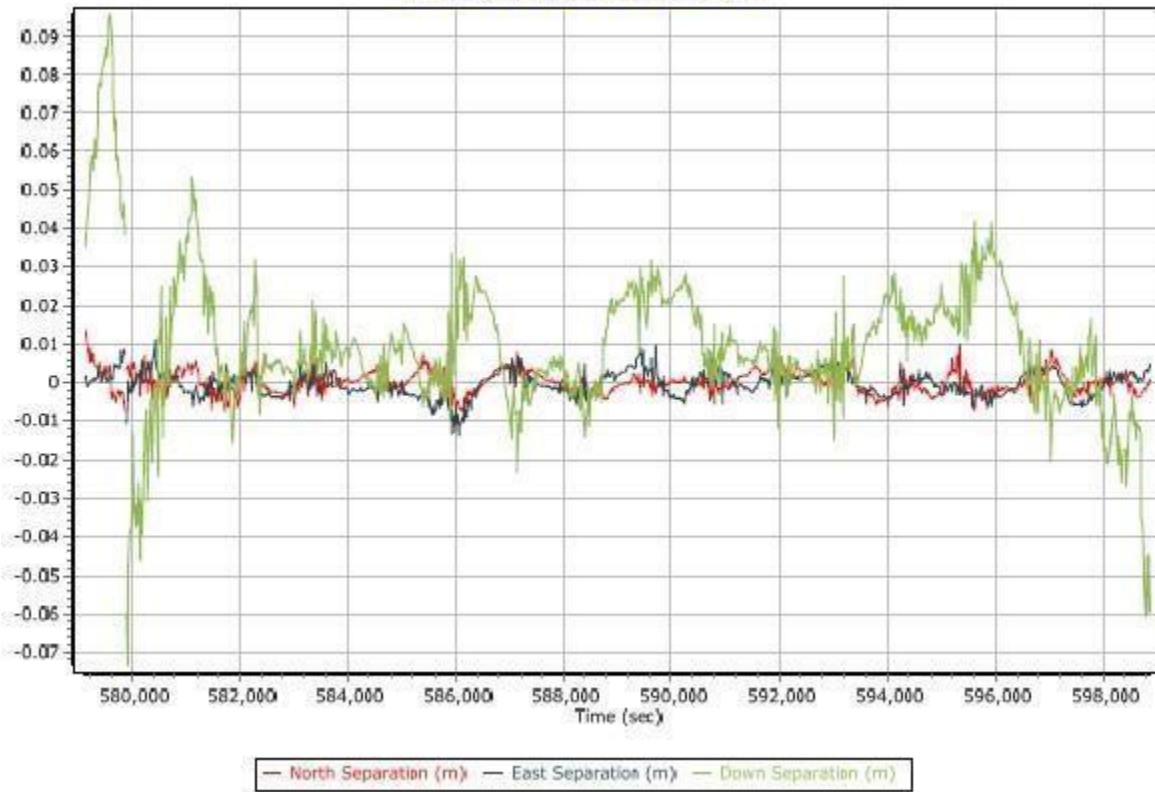


Mission 12 - 5418048a GNSS Processing

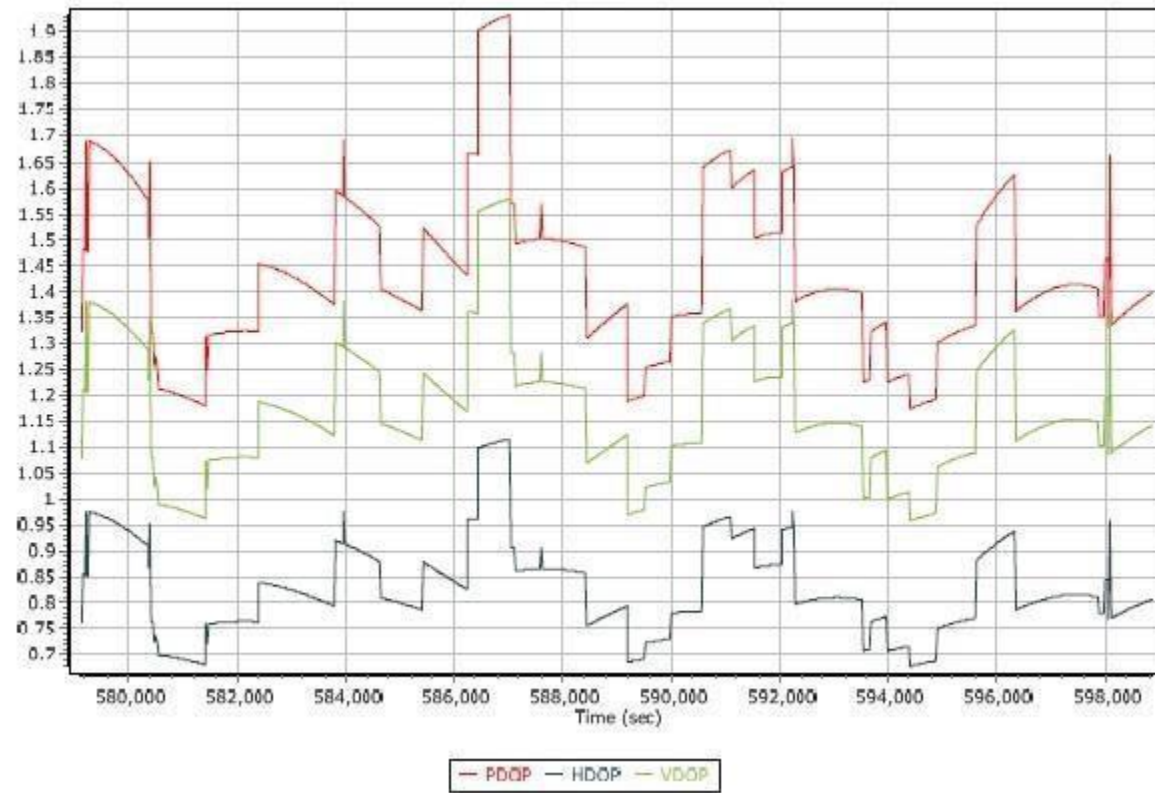


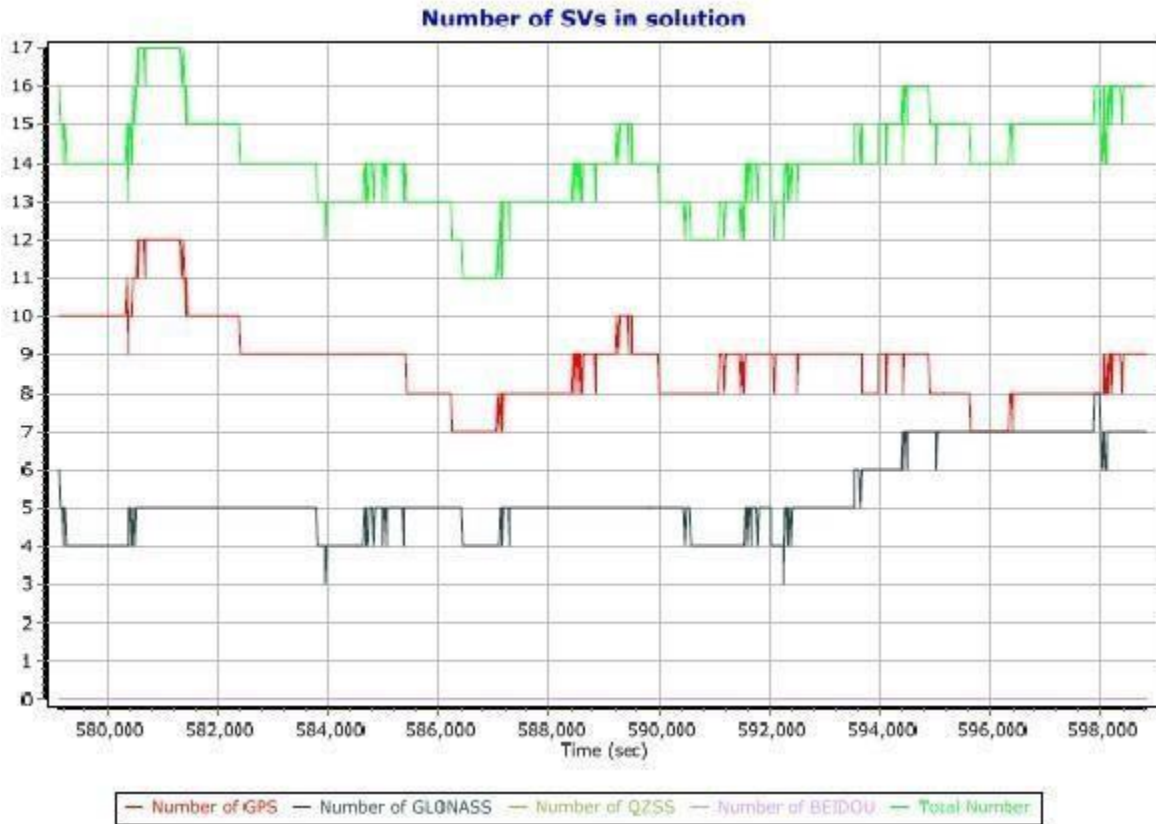


### Forward/Reverse Separation



### DOP





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 IINPP Forward-Backward Navigator [Jun 28 2017]

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Date : 02/28/18 Time : 13:04:23  
 -----

-----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\6418048a\05\_INSGPS\_PROC\01\_POS\6418048a\6418048a\Extract

Extracted data kernel : 6418048a

Processed data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\6418048a\05\_INSGPS\_PROC\01\_POS\6418048a\6418048a\Proc

Processed data kernel : 6418048a

Processing start time : 579290.873

Processing end time : 598875.000  
 -----

----- Selected  
 GNSS mode : IN-Fusion SmartBase

Selected base station : ASB

Selected subsystems : IMU

: Primary GNSS

: Base GNSS

Vehicle to reference alignment angles : 0.000 0.000 0.000

Multipath setting : LOW  
Reference to IMU lever arm : 0.000 0.000 0.000  
Reference to IMU alignment angles : 0.000 0.000 0.000  
Reference to primary GNSS lever arm : 0.147 -0.241 -0.933  
Base GNSS coordinates : 33.412100138 -102.338377132 1052.153

-----  
-----  
Mask angle : 10.000

----- 579290.878

: New or modified IIN install data

Reference-IMU lever arm: 0.00 0.00 0.00

Reference-primary GNSS lever arm: 0.15 -0.24 -0.93

Multipath environment: LOW

579290.878 : Forward-time processing started 579290.973 :

IIN coarse leveling started.

579291.973 : IIN coarse leveling ended.

579291.973 : IIN navigator initialized.

579291.973 : IIN degraded navigation solution.

579291.973 : IIN initial position valid.

579292.003 : SmartBase observables in use 579292.003 :

IIN primary GNSS solution in use.

579292.003 : IIN primary GNSS observables in use.

579292.003 : IIN in Fixed NL RTK mode.

579292.103 : IIN navigator alignment active.

579854.000 : WARNING : Gap in primary GNSS navigation data 579855.003

: IIN primary GNSS solution not in use. 579856.004 :

IIN primary GNSS solution in use.

579857.004 : IIN WL ambiguity failure cleared

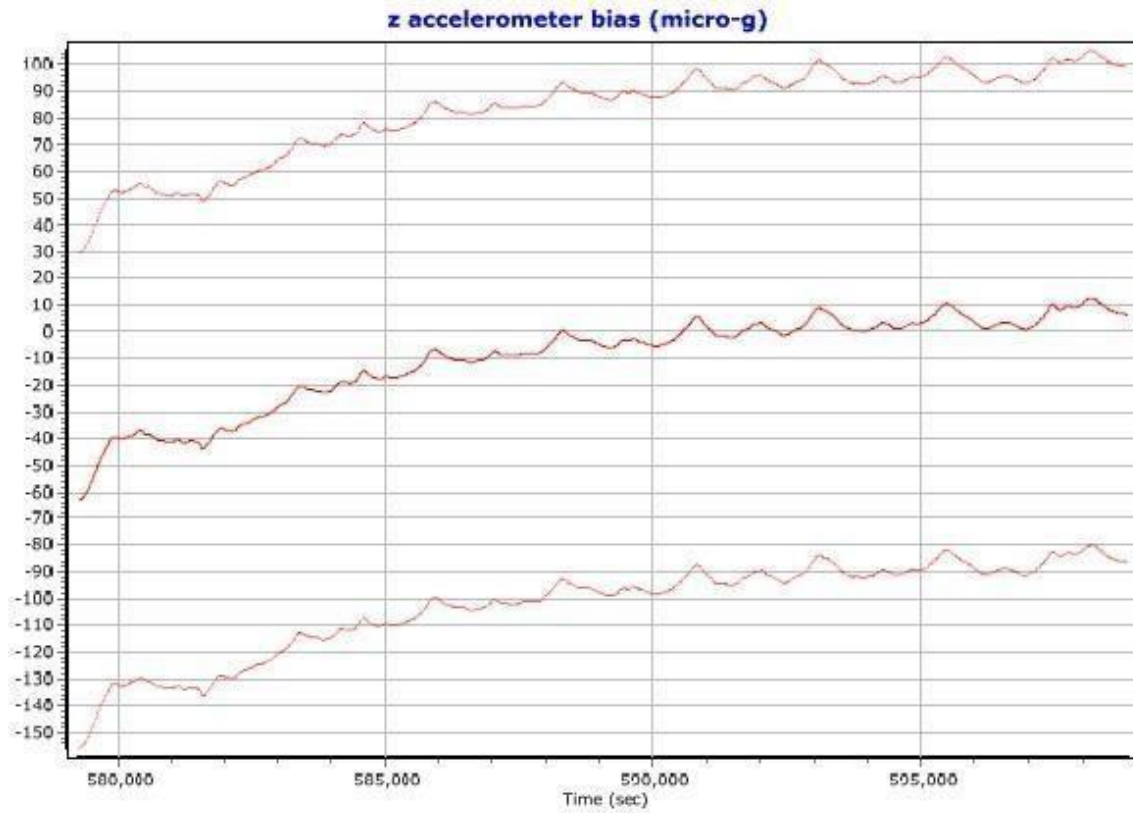
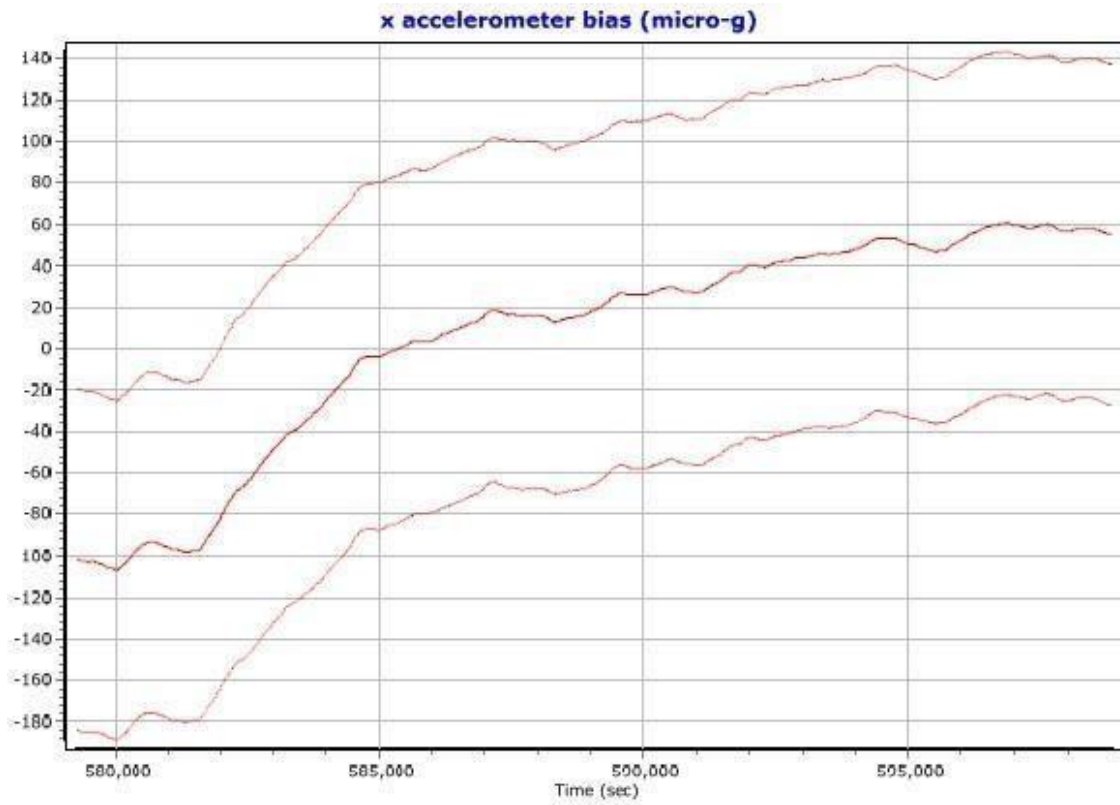
598875.002 : Processing ended

-----  
Termination status : Normal

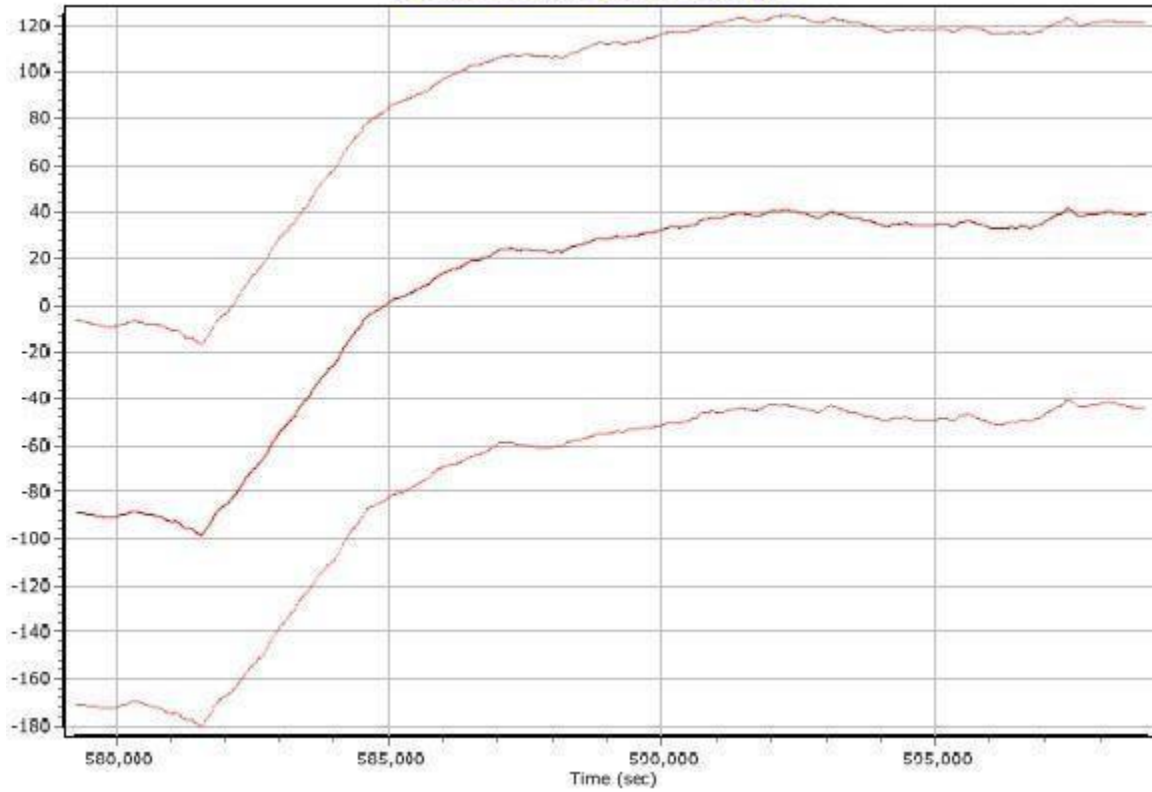
Execution time : 54.50

-----  
Processing completed.

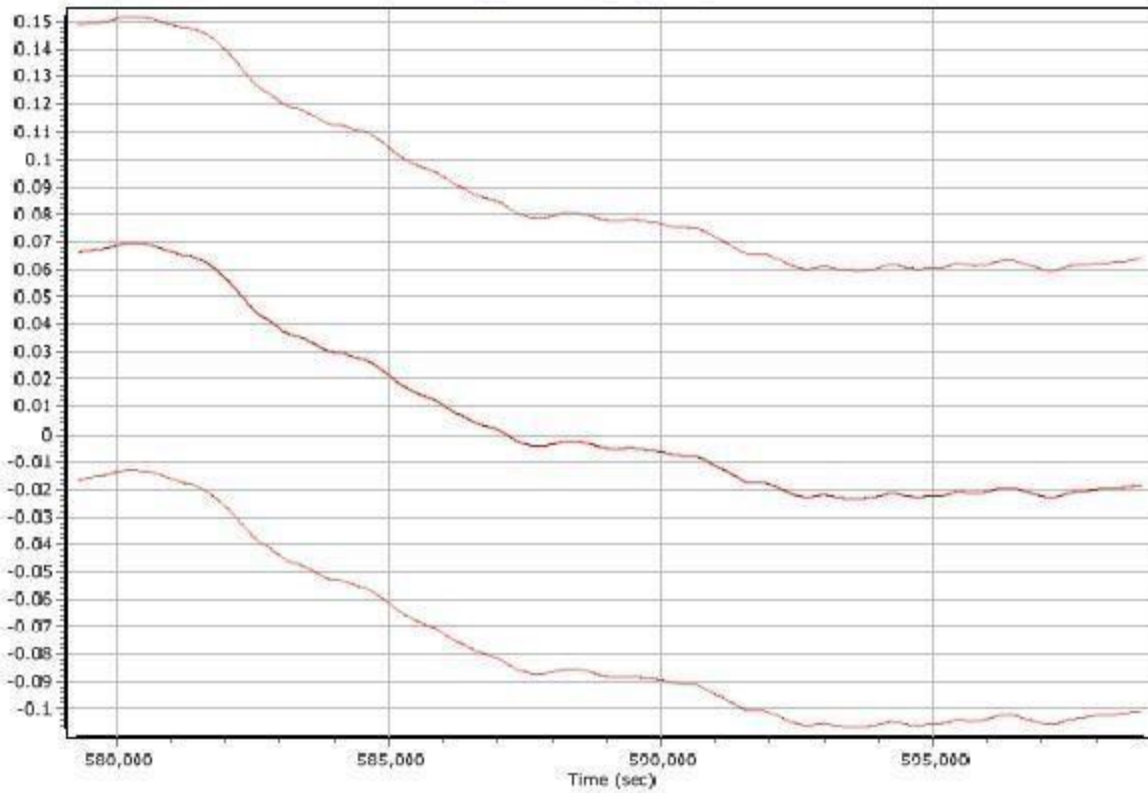
## Mission 12 - 5418048a Sensor Errors



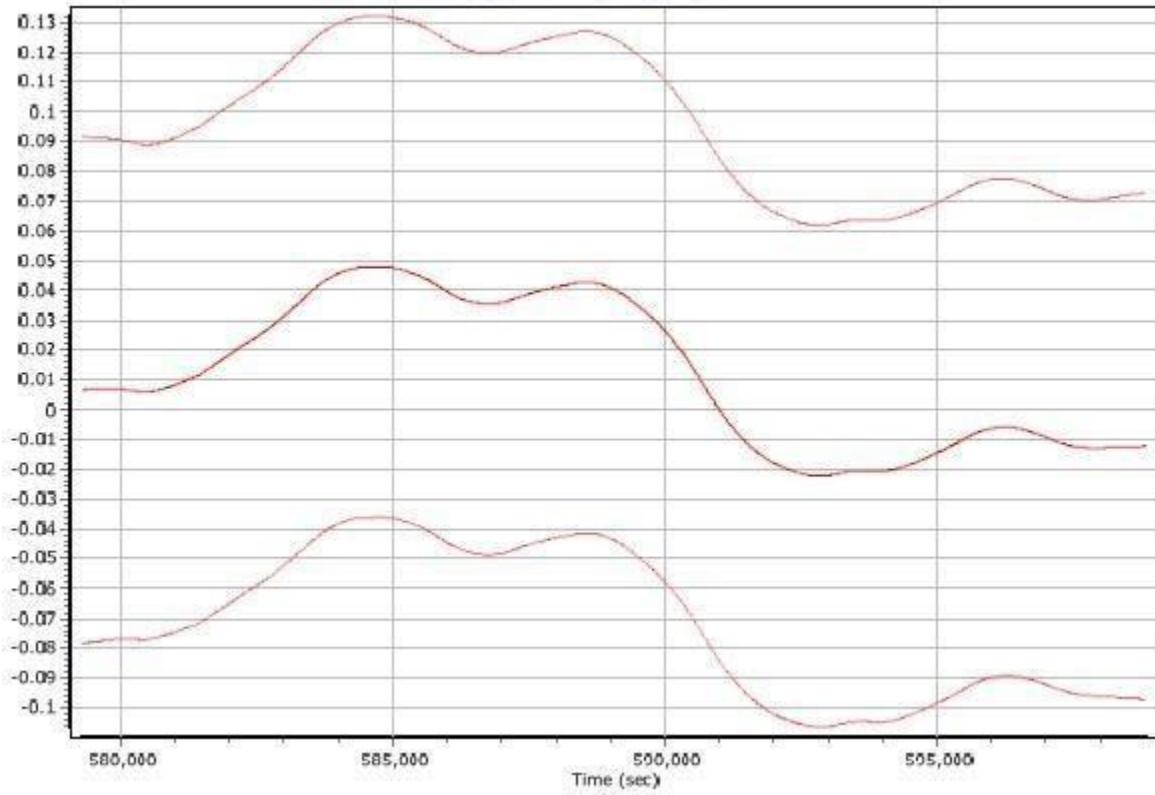
**y accelerometer bias (micro-g)**



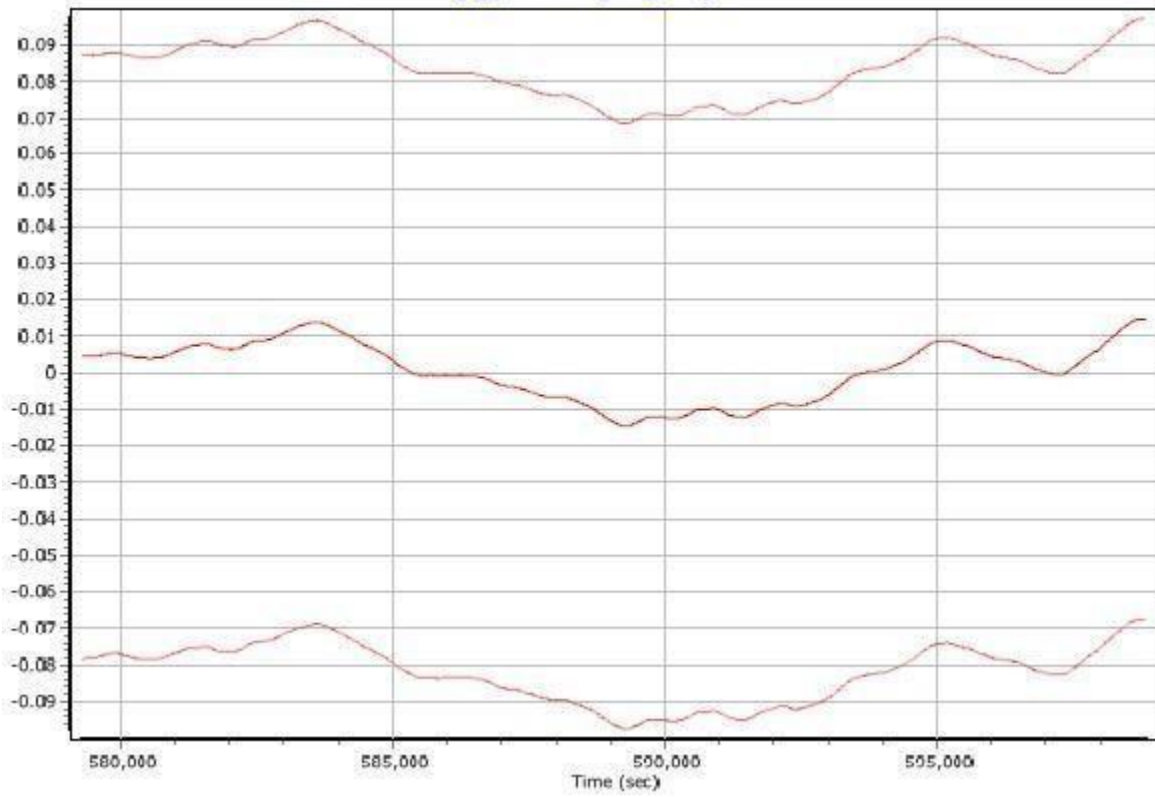
**x gyro bias (deg/hr)**



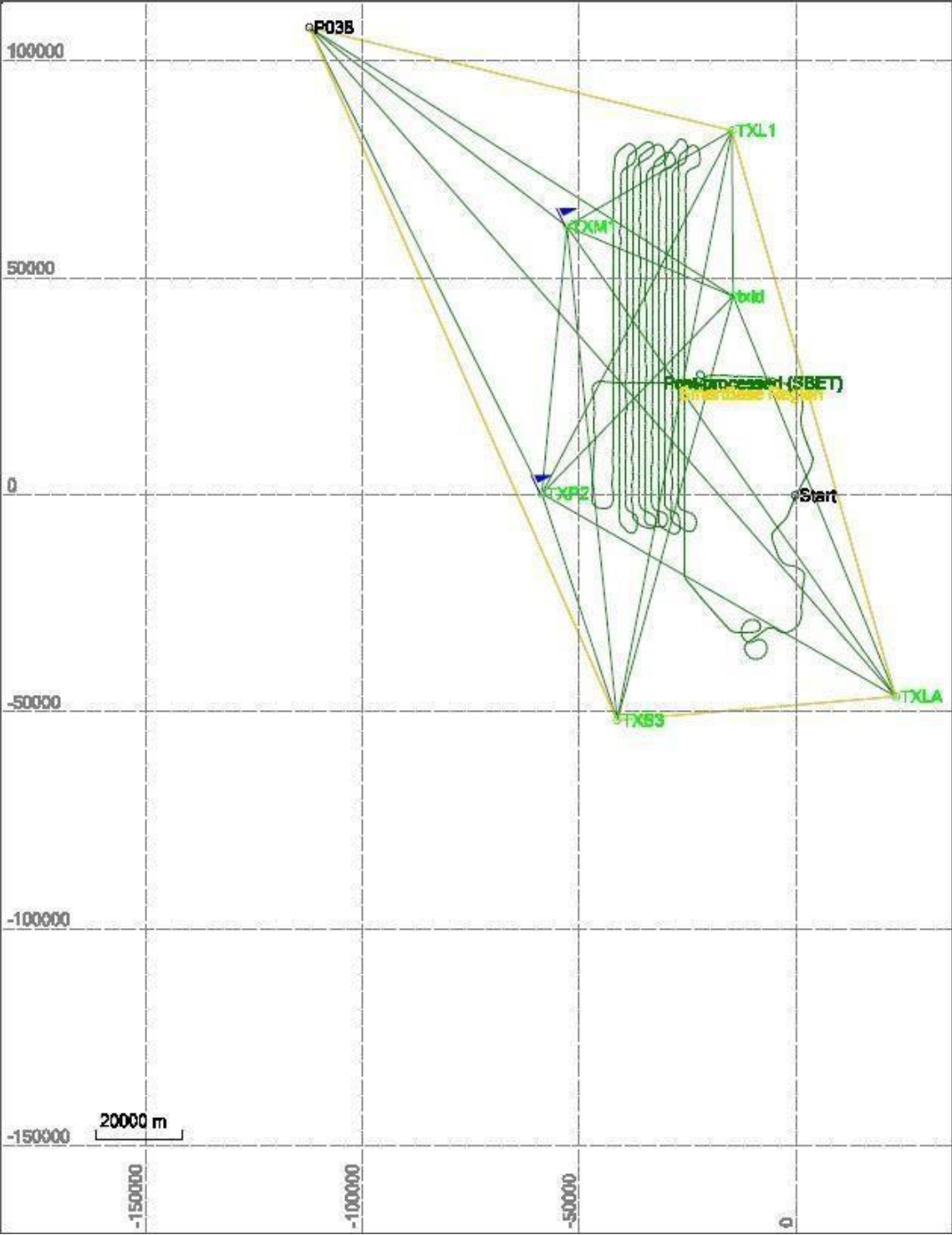
**z gyro bias (deg/hr)**



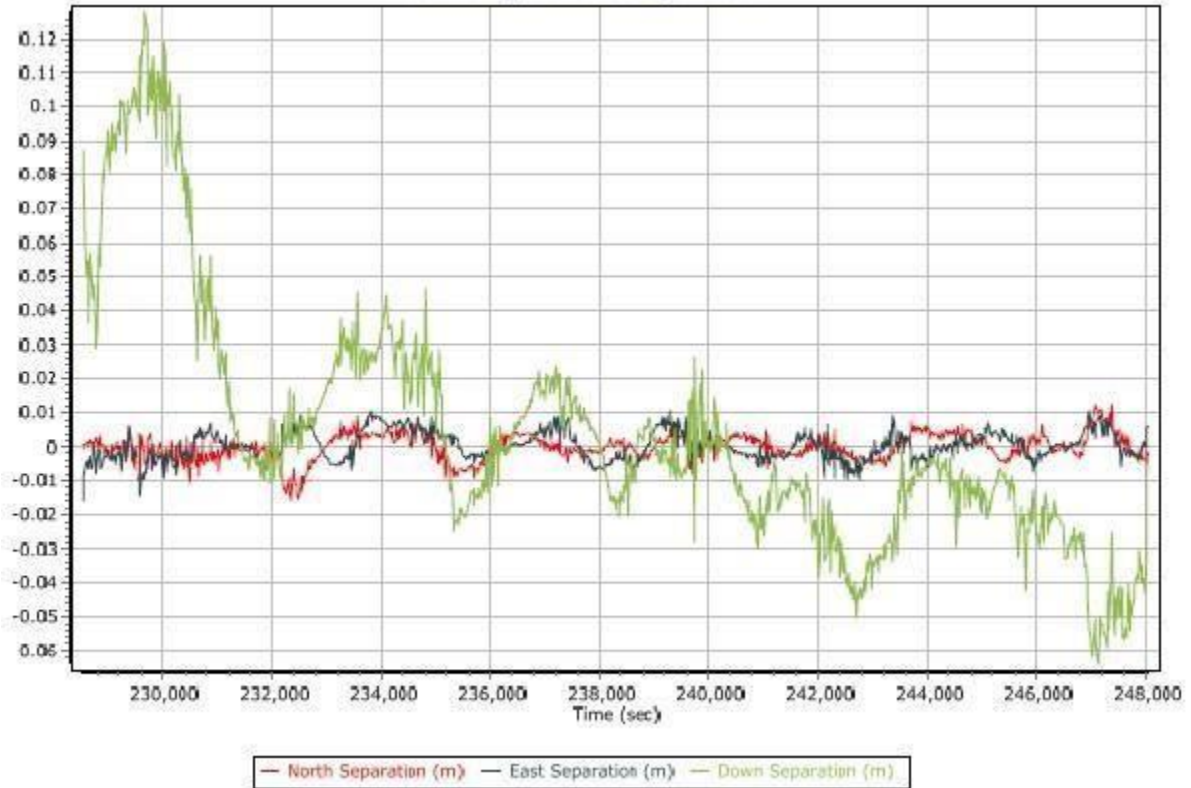
**y gyro bias (deg/hr)**



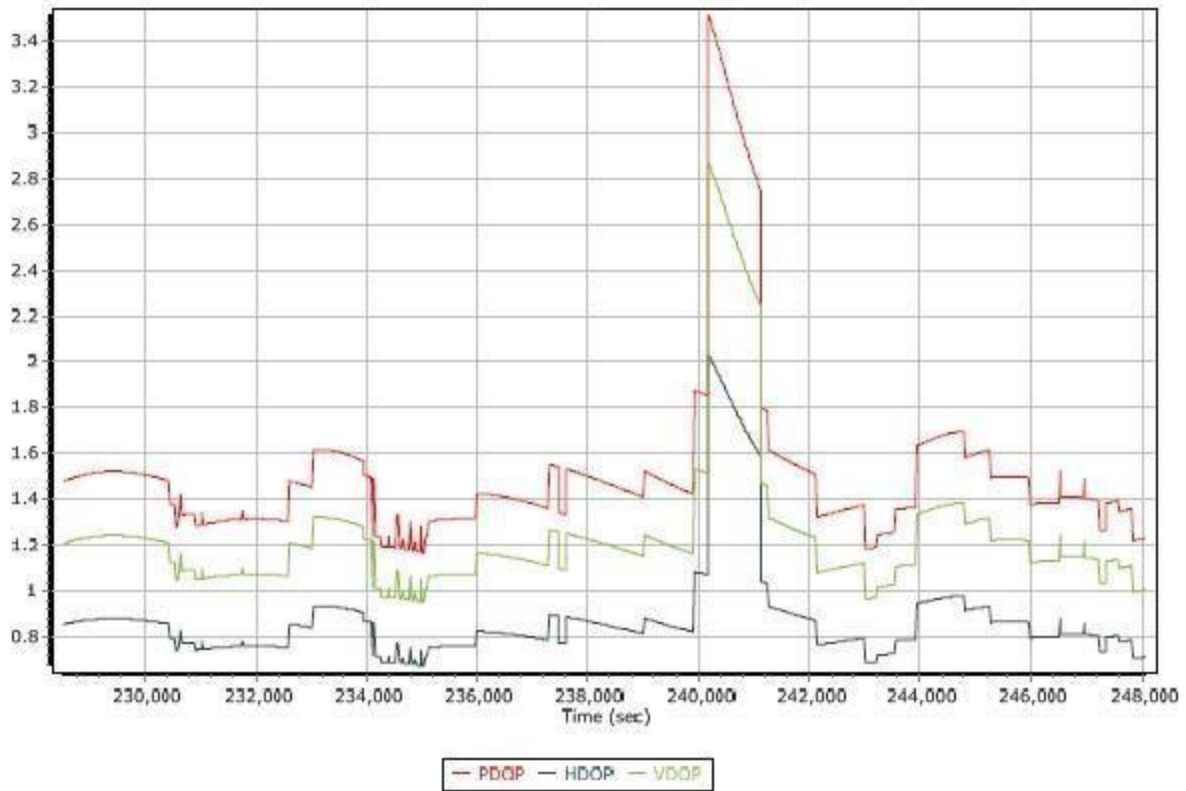
Mission 13 - 5418051a GNSS Processing



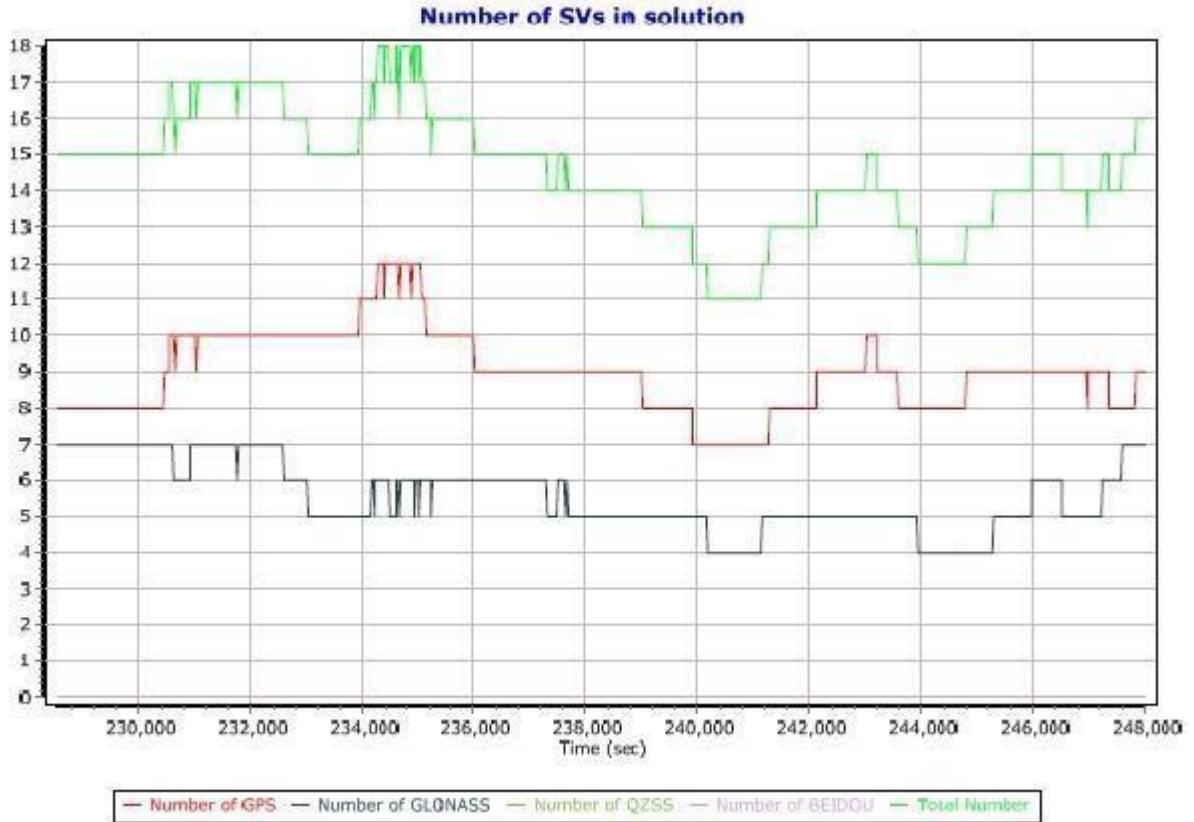
### Forward/Reverse Separation



### DOP







-----  
 IINPP Forward-Backward Navigator [Jun 28 2017]  
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 Date : 03/02/18 Time : 12:23:56  
 -----

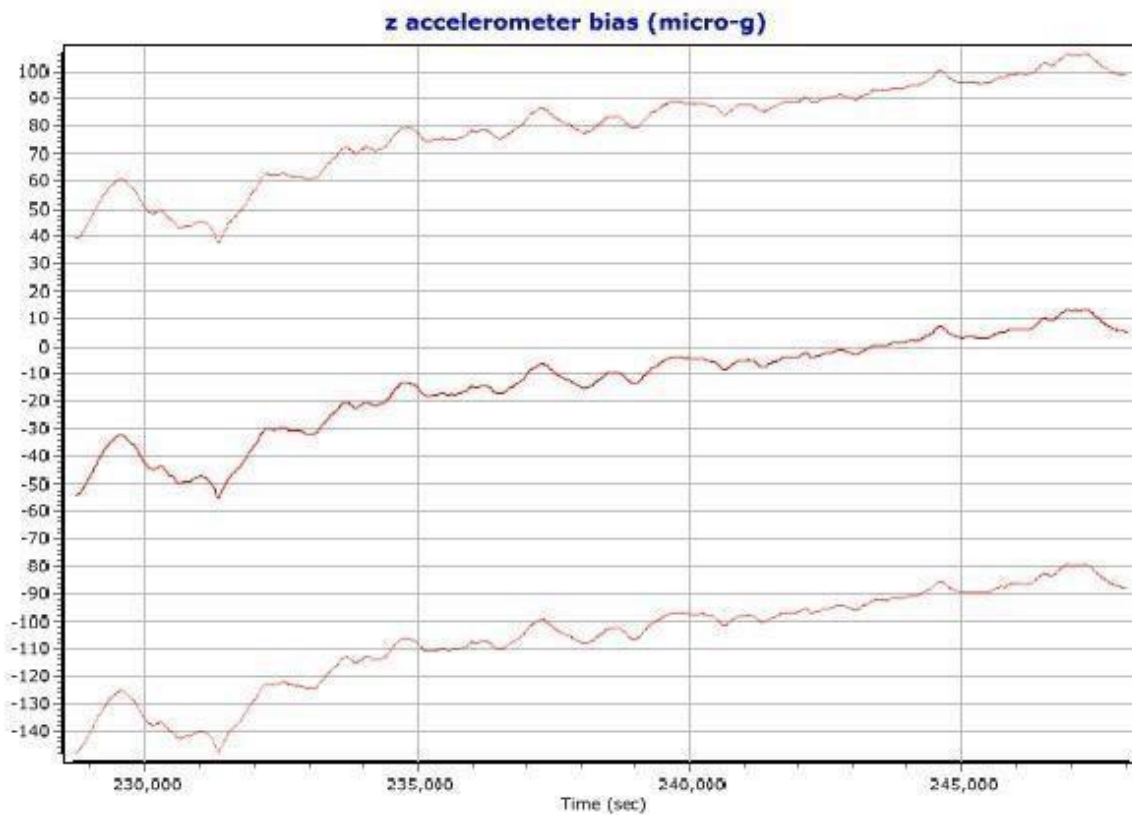
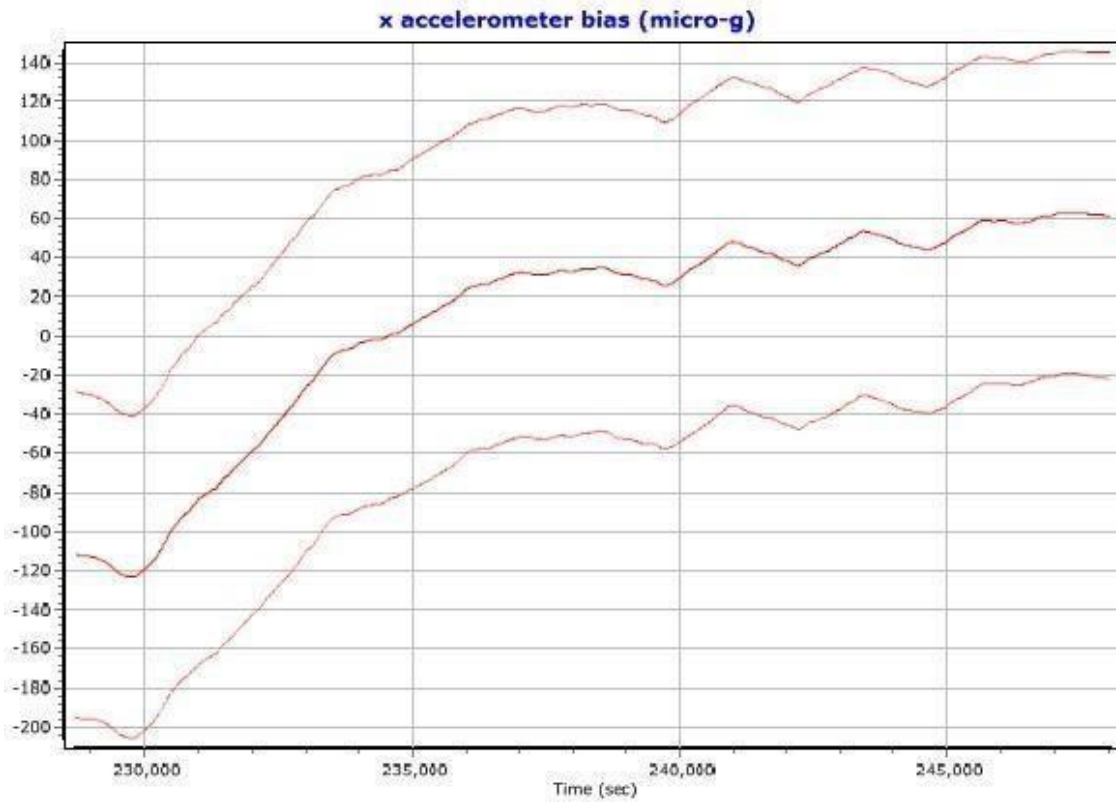
-----  
 Extracted data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\6418051a\05\_INSGPS\_PROC\01\_POS\6418051a\6418051a\Extract  
 Extracted data kernel : 6418051a  
 Processed data path : D:\Projects\3141\_Dewberry-  
 Brownfield\Lidar\6418051a\05\_INSGPS\_PROC\01\_POS\6418051a\6418051a\Proc  
 Processed data kernel : 6418051a  
 Processing start time : 228720.511  
 Processing end time : 248062.000  
 -----

----- Selected

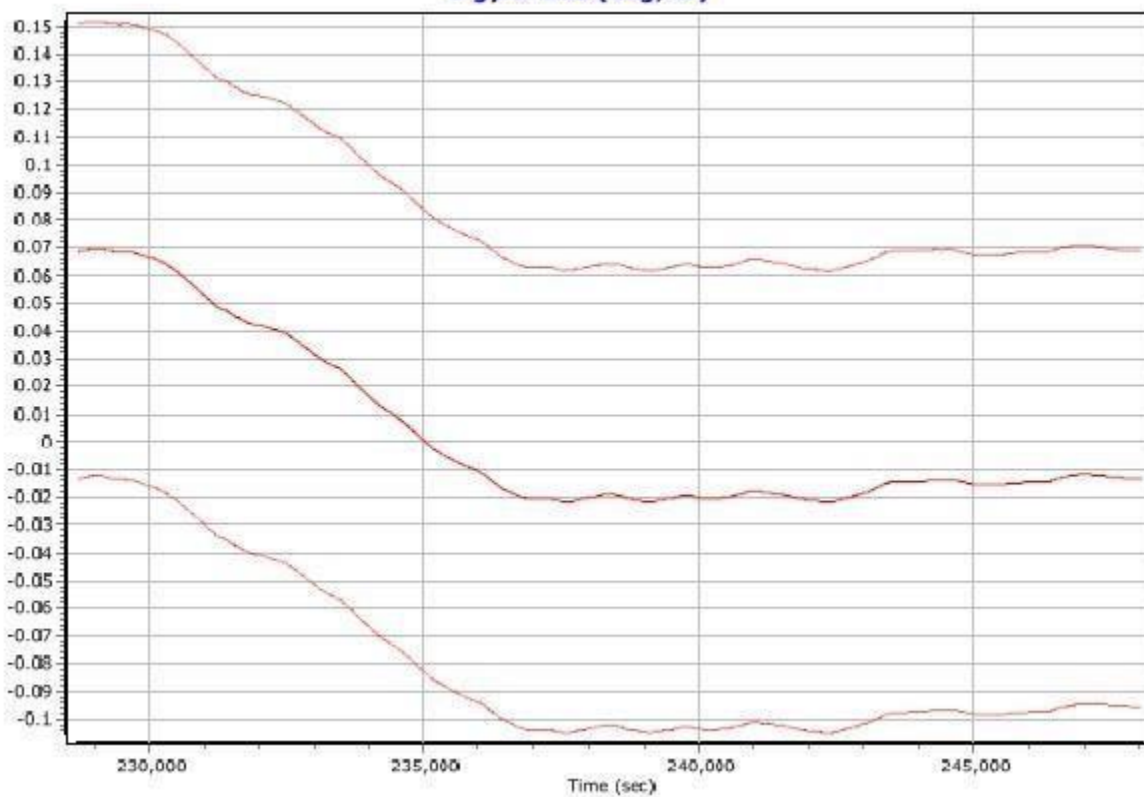
GNSS mode : IN-Fusion SmartBase  
 Selected base station : ASB  
 Selected subsystems : IMU  
 : Primary GNSS



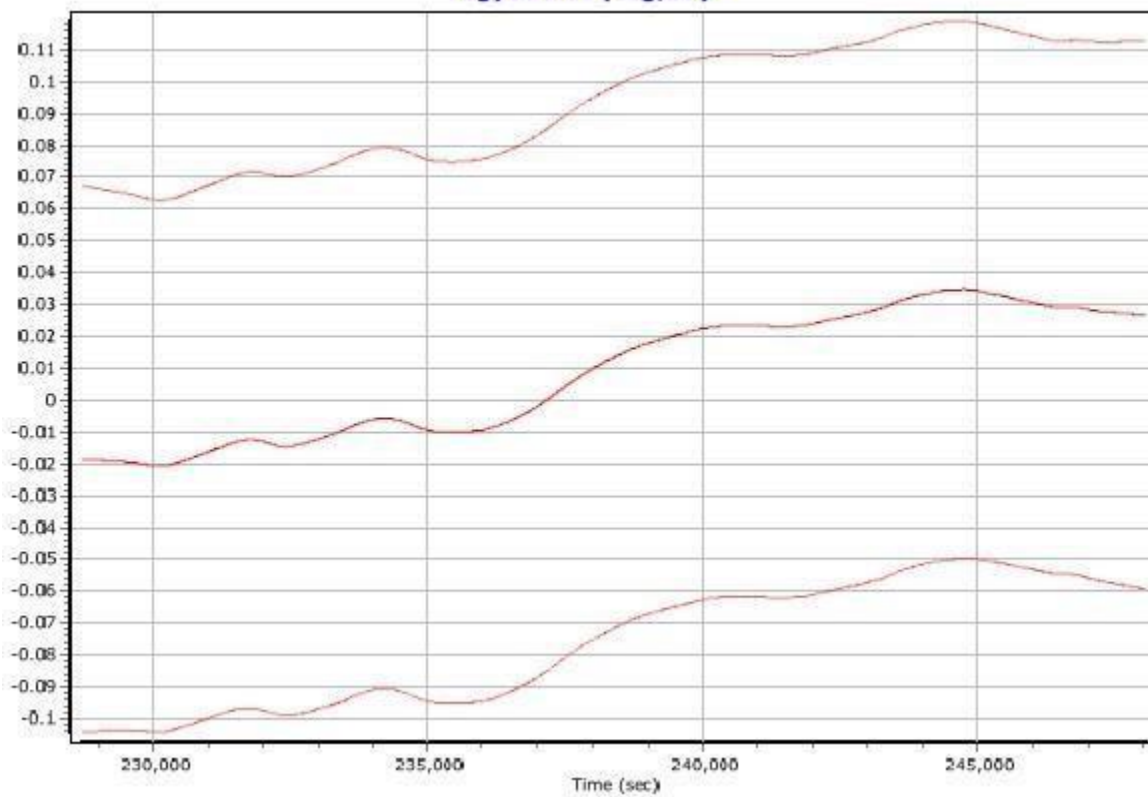
## Mission 13 - 5418051a Sensor Errors



**x gyro bias (deg/hr)**



**z gyro bias (deg/hr)**



y gyro bias (deg/hr)

