

# A Comparison of Net\_Diff and RTKLIB

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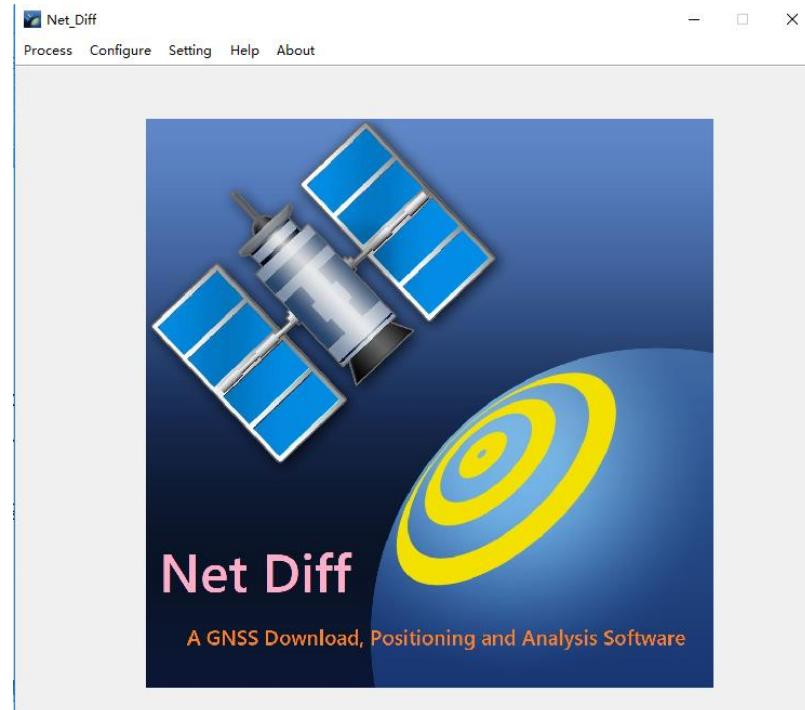
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# Net\_Diff

## ● Functions:

- ✓ 1. SPP/PPP/RTK/DGNSS
- ✓ 2 GPS/Glonass/Galileo/BeiDou/QZSS/IRNSS
- ✓ 3 Single-frequency, dual-frequency
- ✓ 4 Data download
- ✓ 5 Observation and positioning analysis
- ✓ 6 Ntrip receiving, data conversion
- ✓ 7 Orbit simulation
- [https://github.com/YizeZhang/Net\\_Diff](https://github.com/YizeZhang/Net_Diff)



# Features of Net\_Diff

## □ 1 Efficiency

- 1) Less manual operation: auto-download, make report, Google earth kml
- 2) Friendly: voice, processing status
- 3) SPP/PPP/RTK template

## □ 2 Highlights and More Functions(Compared with RTKLIB)

- 1) Newest troposphere model (GPT2w, UNB3m, EGNOS)
- 2) Inter System Bias (Constant, White noise, Random walk)
- 3) Inter Frequency Bias( Linear model, Frequency depended)
- 4) BeiDou attitude & PCO correction (Different IGS AC use different attitude mode)
- 5) Robust cycle slip detection(GF+MW+LLI+P1C1)
- 6) Pseudo-range smoothing (Hatch, CNMC, Divergence-free)
- 7) Doppler aided kinematic RTK(Currently not showed in GUI)
- 8) Long baseline RTK

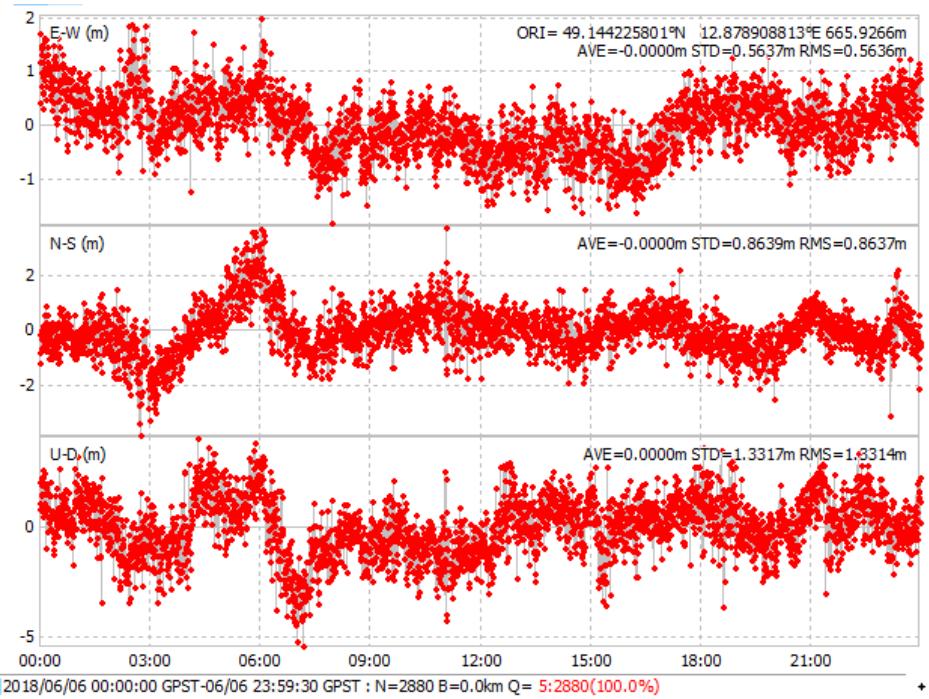
# Features of Net\_Diff

## □ 2 Highlights and More Functions(Compared with RTKLIB)

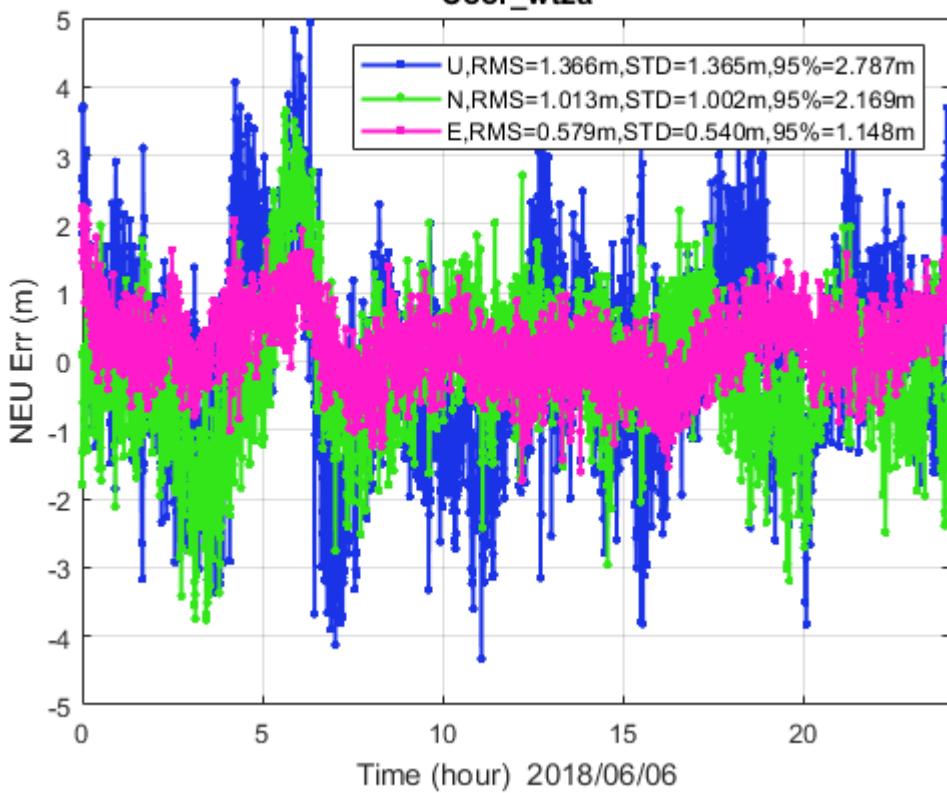
- 9) Tightly combined RTK
- 10) PPP-AR using products from CNES and JAXA
- 11) PPP-RTK(CLAS)
- 12) Mixed frequency combination and mixed observation combination
- 13) Android GNSS raw data processing
- 14) GPS CNAV
- 15) BDS new signal(B1C,B2a)
- 16) Partial AR
- More functions and changes, see:  
[https://github.com/YizeZhang/Net\\_Diff/blob/master/README.md](https://github.com/YizeZhang/Net_Diff/blob/master/README.md)

# SPP:WTZA

RTKLIB: [0.56, 0.86, 1.33]m

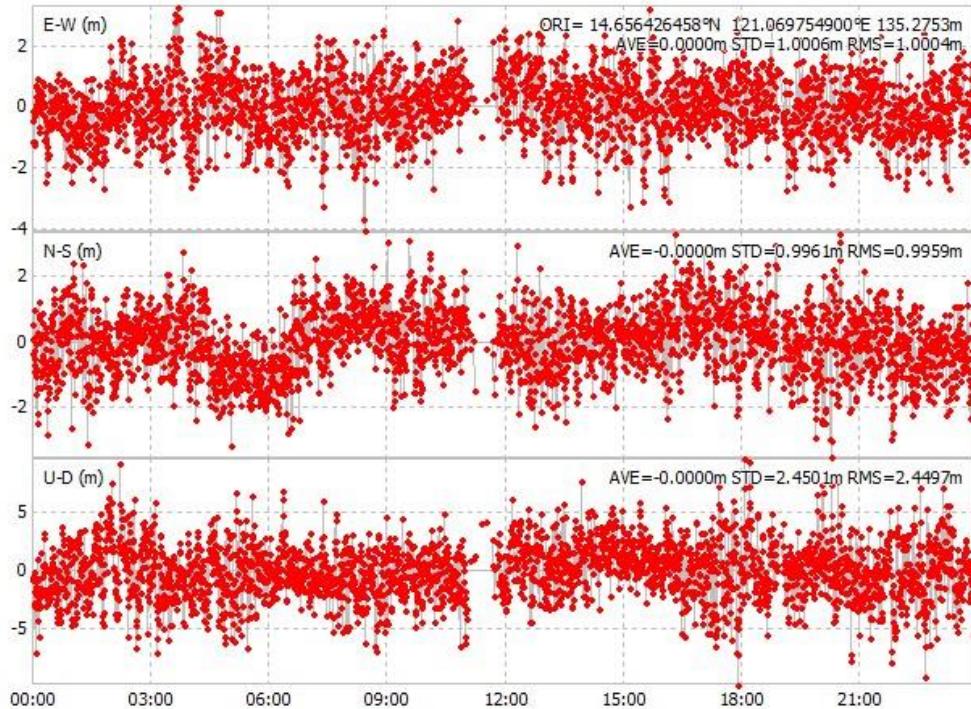


Net\_Diff: [0.54, 1.00, 1.36]m  
Coor\_wtza

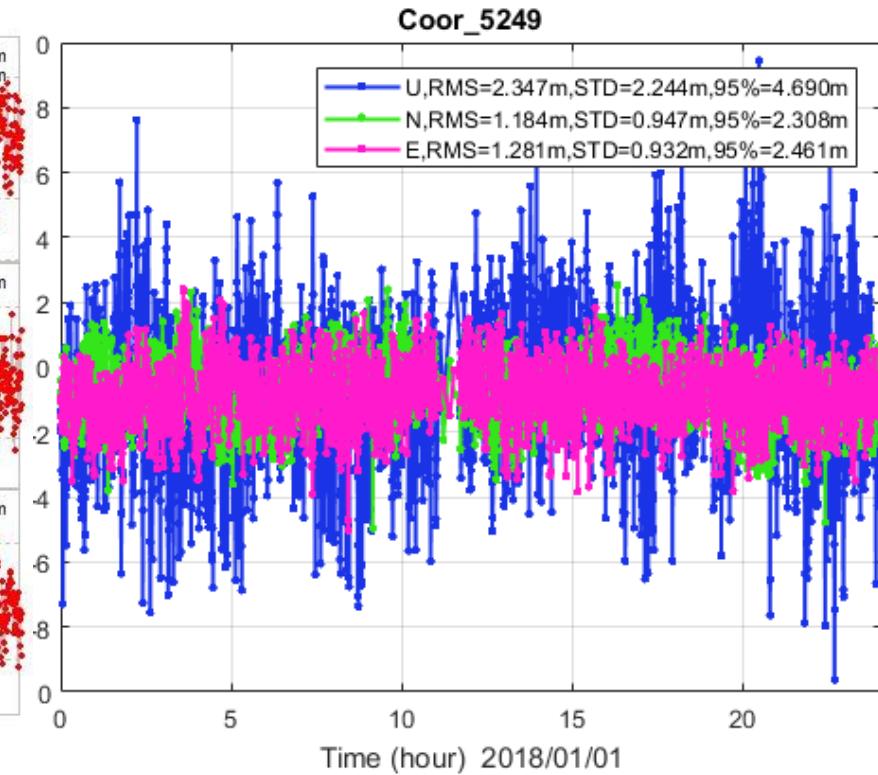


# SPP:UOP(GPS only)

RTKLIB: [1.00, 0.99, 2.45]m



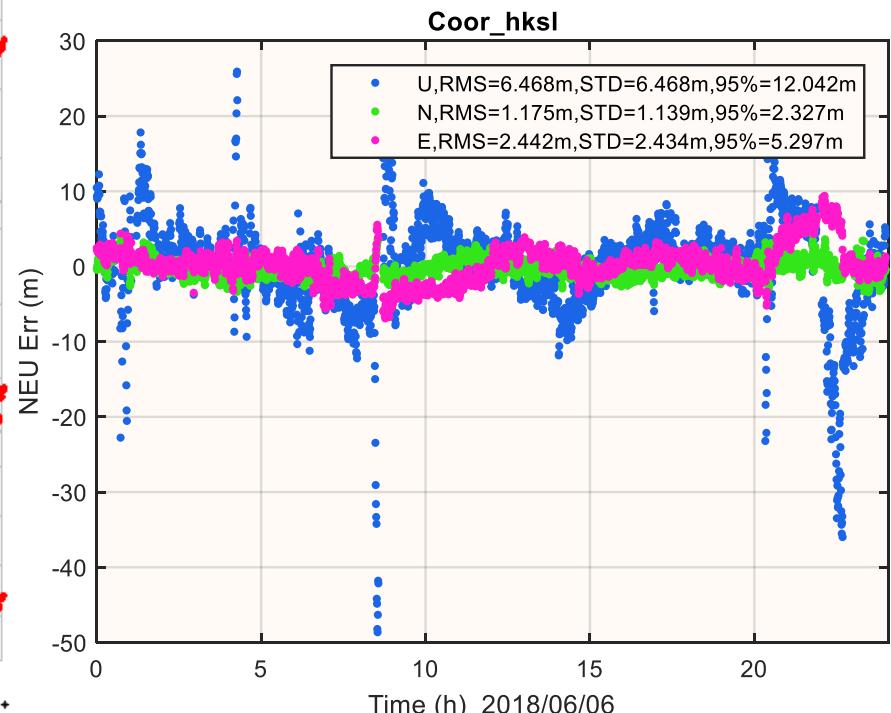
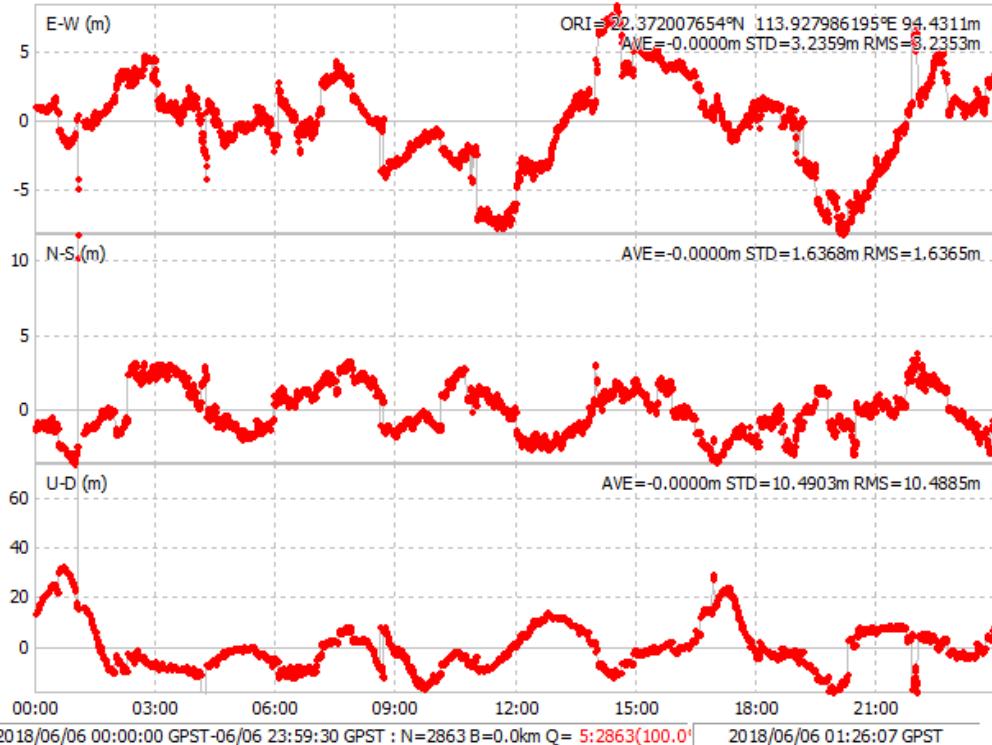
Net\_Diff:[0.95, 0.93, 2.24]m



# GLONASS SPP: HKSL

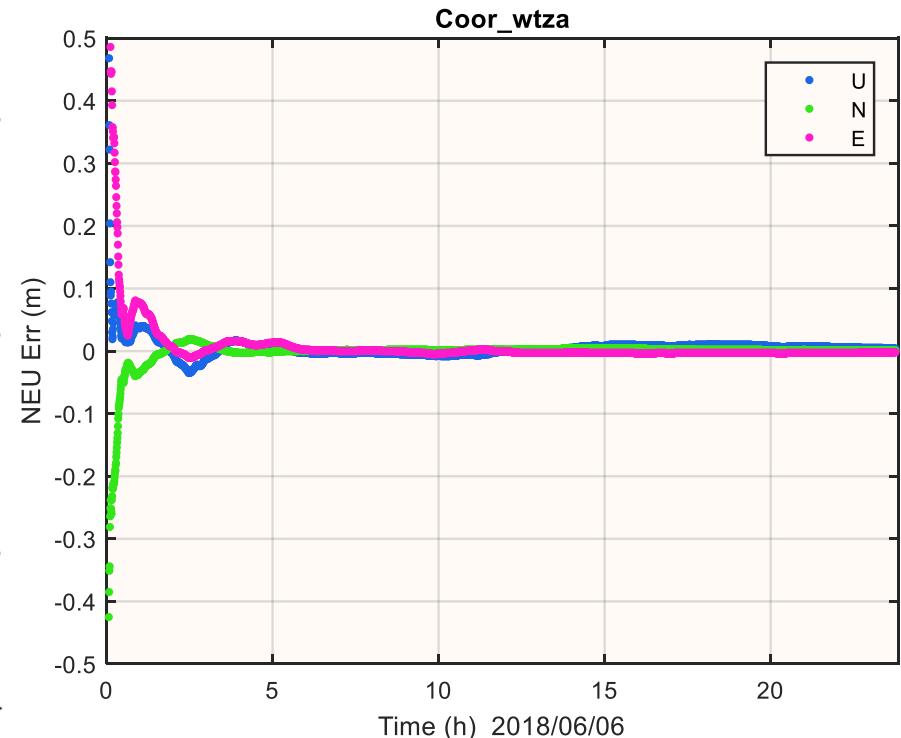
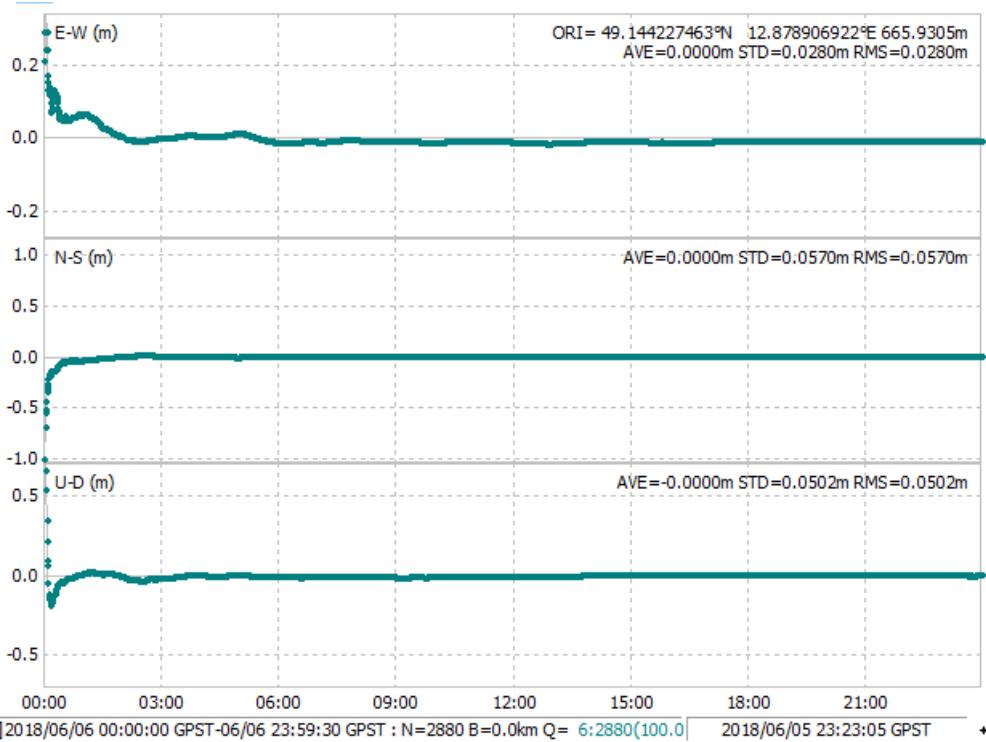
RTKLIB: [3.23, 1.64, 10.49]m

Net\_Diff: [2.44, 1.17, 6.47]m  
A proper handle of IFB in Net\_Diff



# PPP Static:WTZA (GPS only)

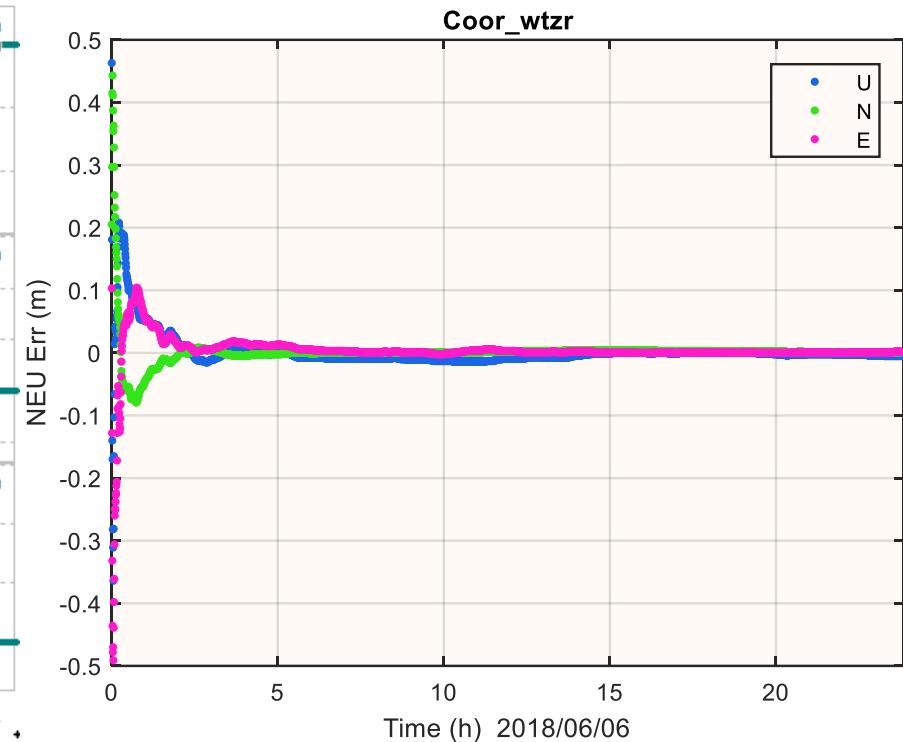
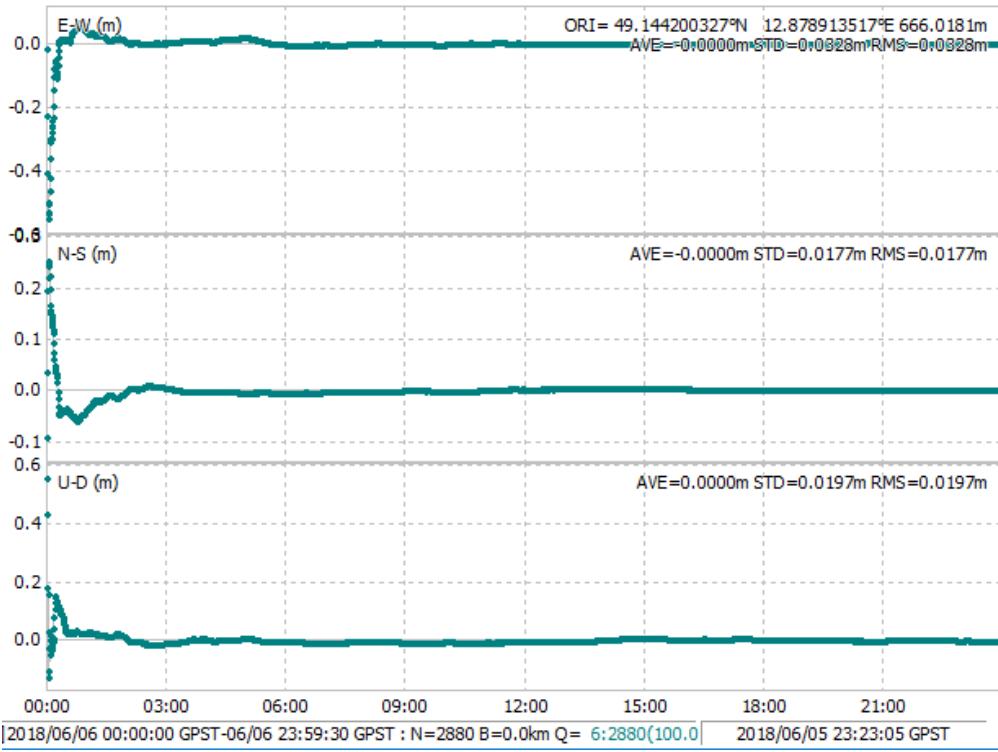
RTKLIB: [0.9, 0.0, 1.1]cm  
Net\_Diff: [0.1, 0.2, 0.4]cm



# PPP Static:WTZR (GPS only)

RTKLIB: [0.2, 0.3, 0.3]cm

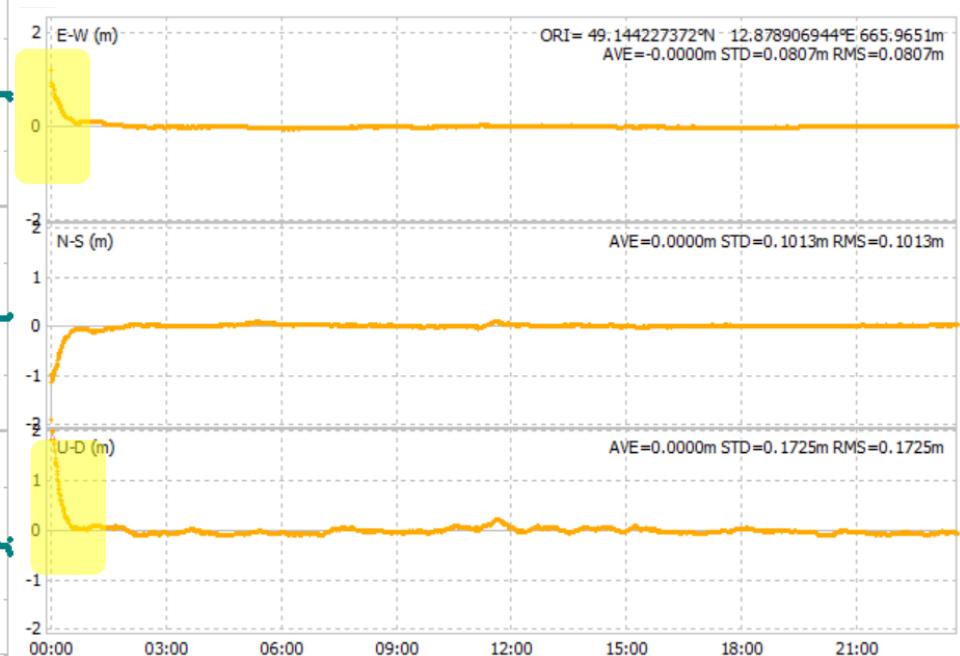
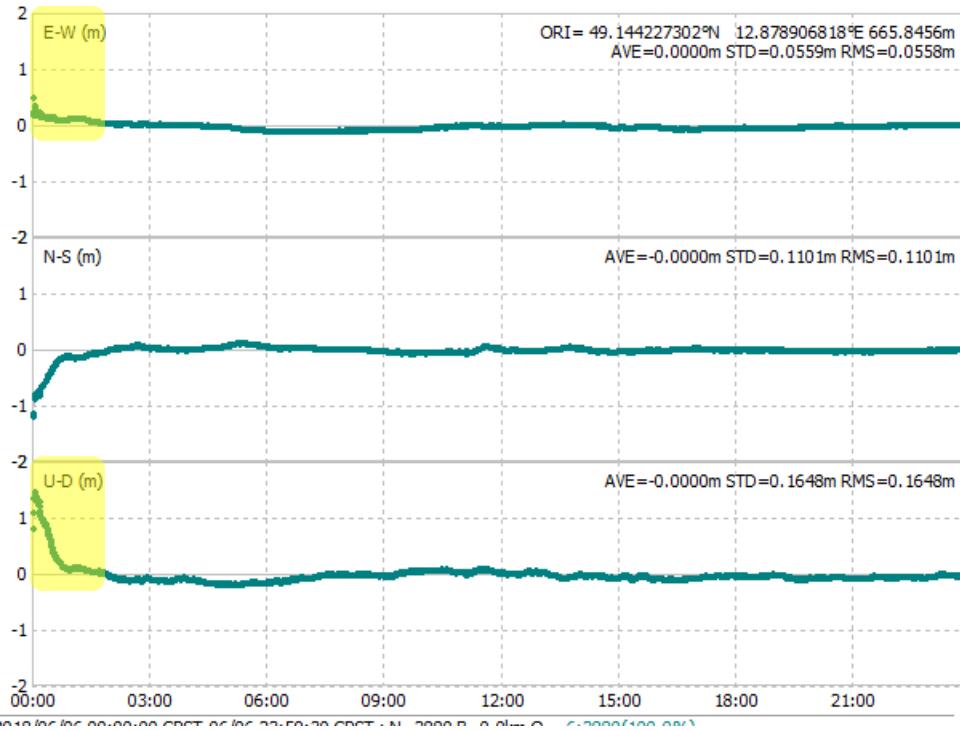
Net\_Diff: [0.1, 0.2, -0.5]cm



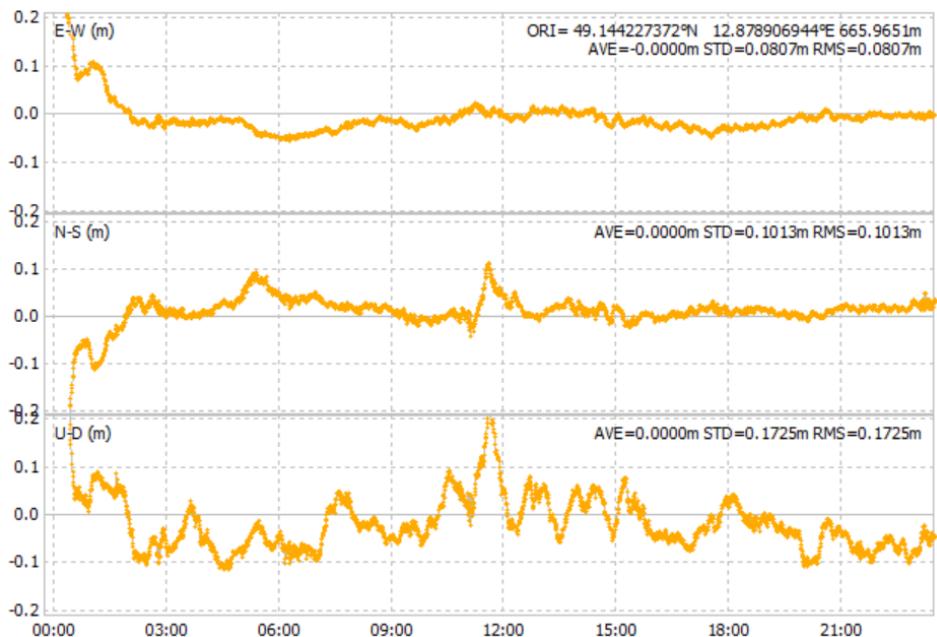
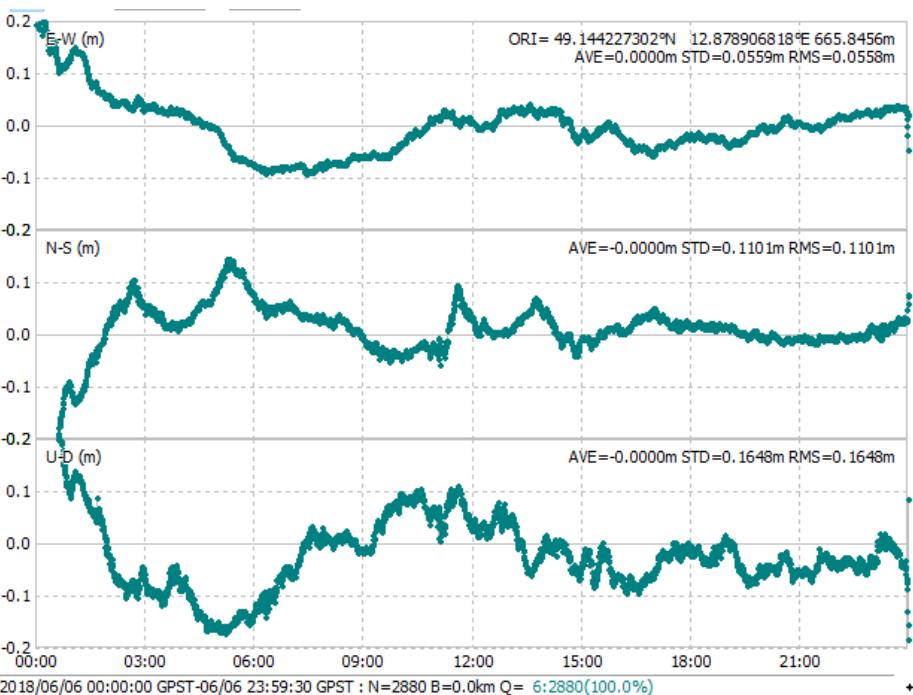
# PPP Kinematic : WTZA (GPS only)

RTKLIB: [5.6, 11.0, 16.5]cm

Net\_Diff: [8.0, 10.1, 17.3]cm



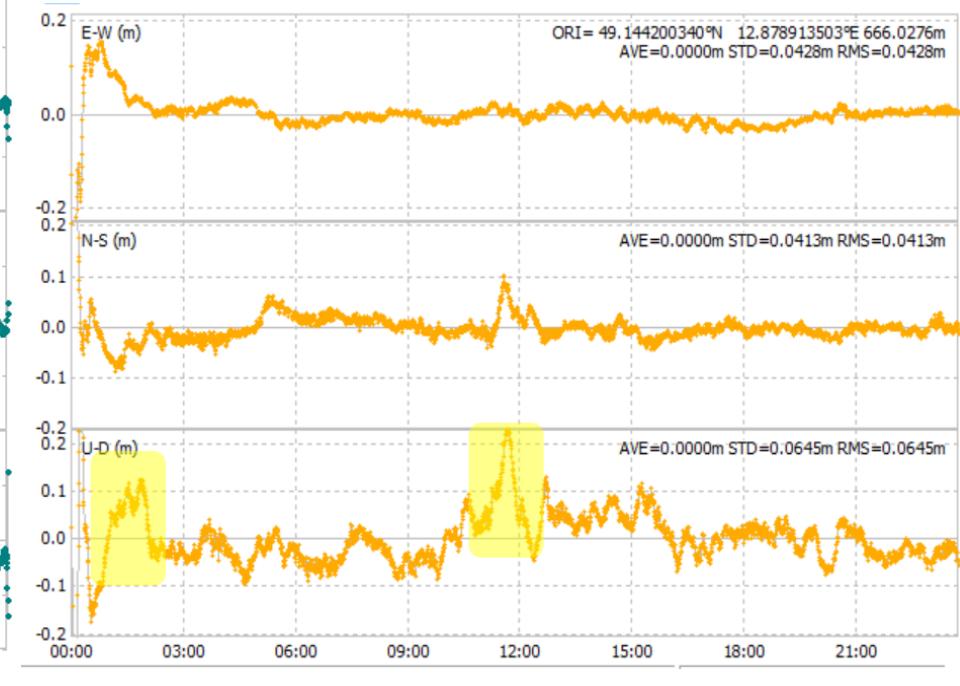
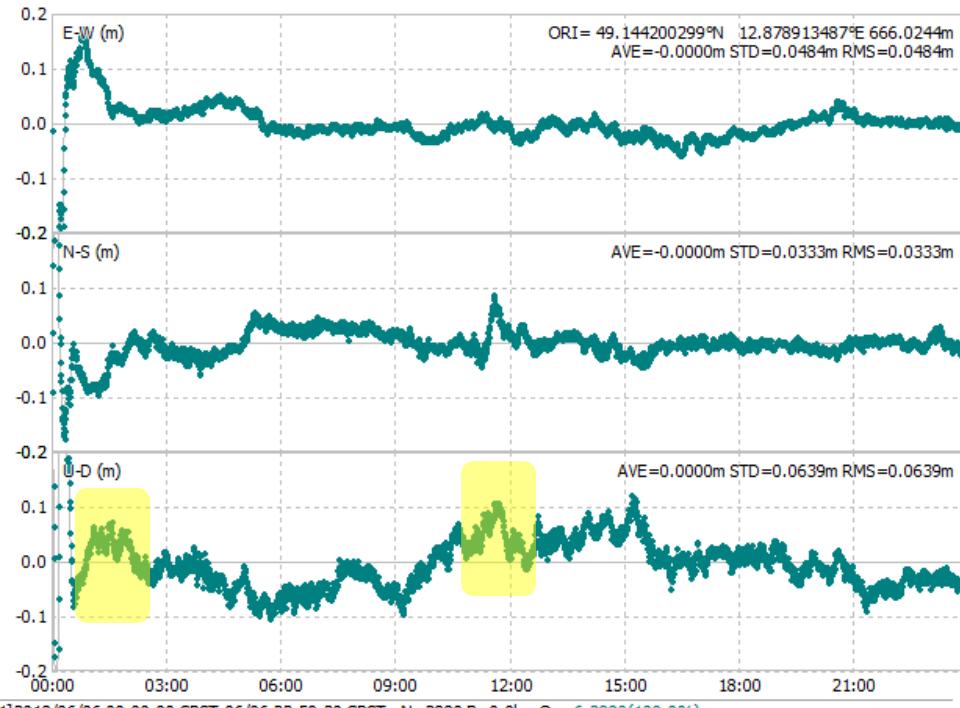
# PPP Kinematic : WTZA (GPS only)



# PPP Kinematic : WTZR (GPS only)

RTKLIB: [4.8, 3.3, 6.4]cm

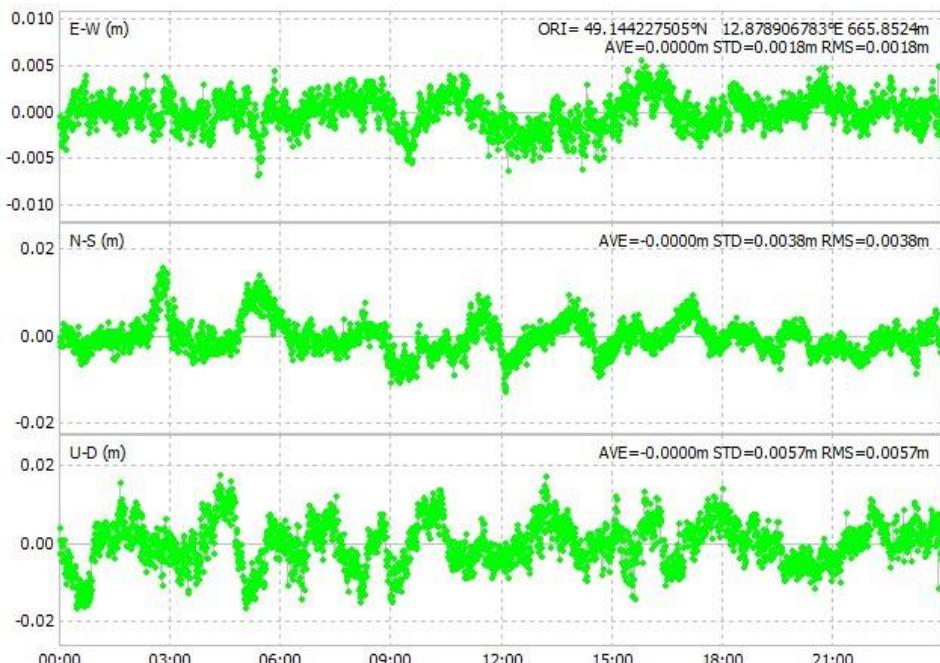
Net\_Diff:[4.1, 4.3, 6.5]cm



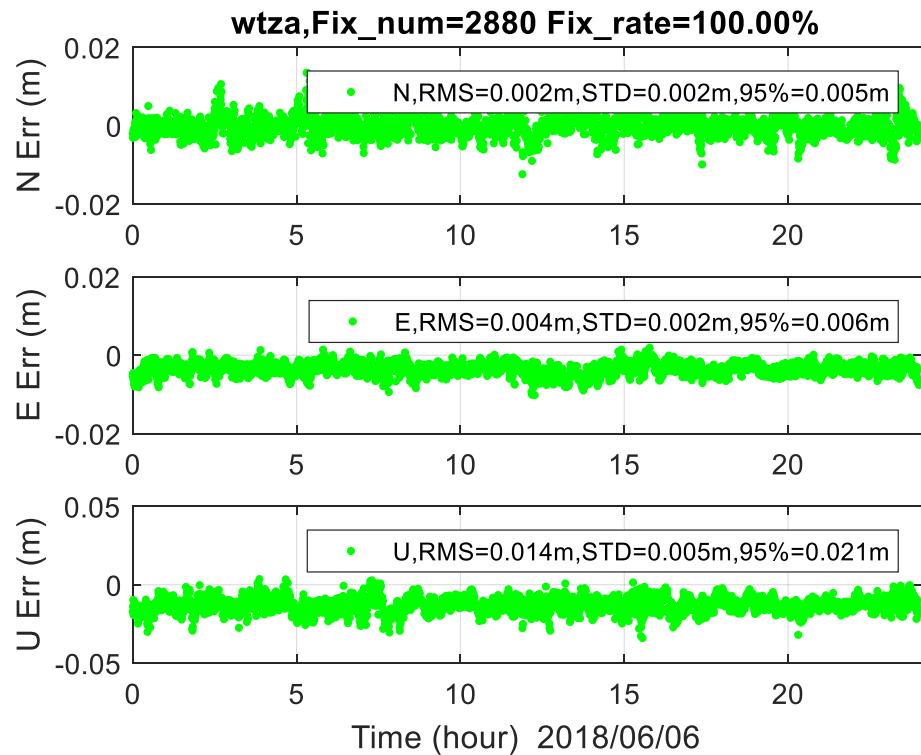
# RTK short baseline: wtzr-wtza,L1+L2

Fix & Hold solution, RTKlib doesn't correct PCO and PCV

RTKLIB: [0.18, 0.38, 0.57]cm

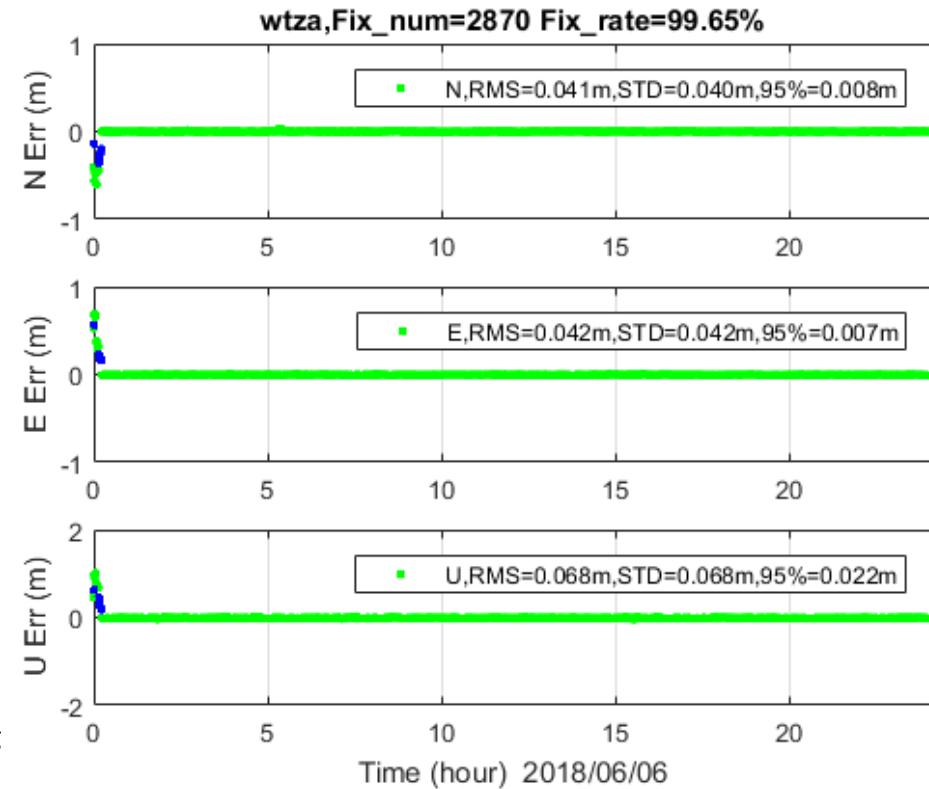
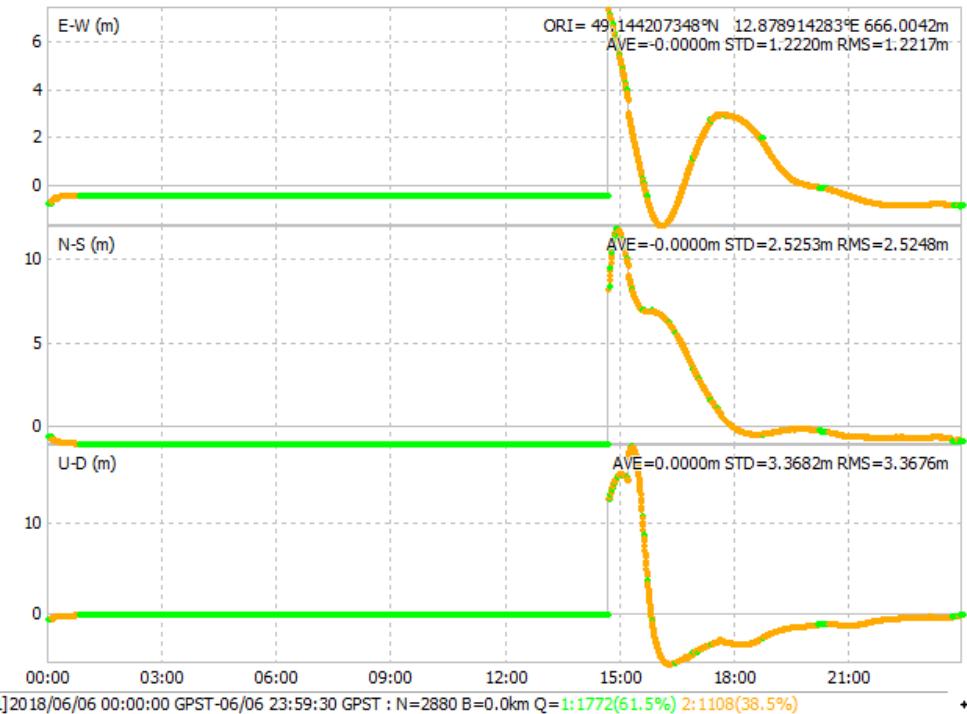


Net\_Diff: [0.2, 0.2, 0.5]cm



# RTK short baseline: wtzr-wtza, L1

Continuous solution, some bug in RTKLIB



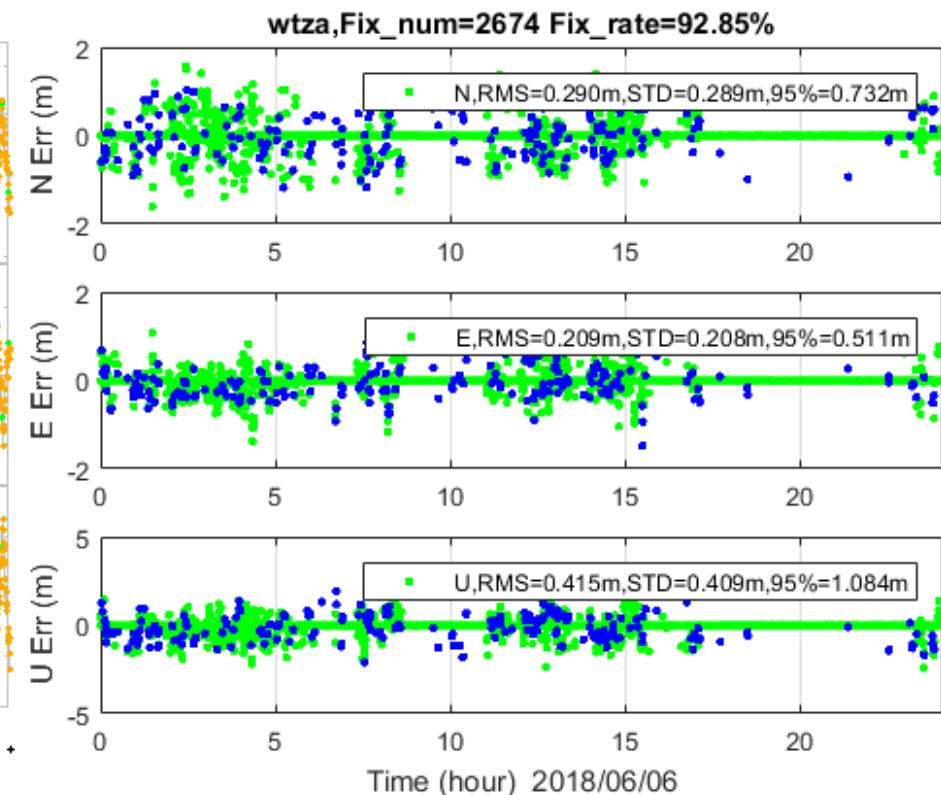
# RTK short baseline: wtzr-wtza, L1

Instantaneous solution. RTKlib doesn't use partial AR

RTKLIB: Fix rate=23%, [0.24, 0.34, 0.51]m



Net\_Diff: Fix rate=93%, [0.21, 0.29, 0.41]m

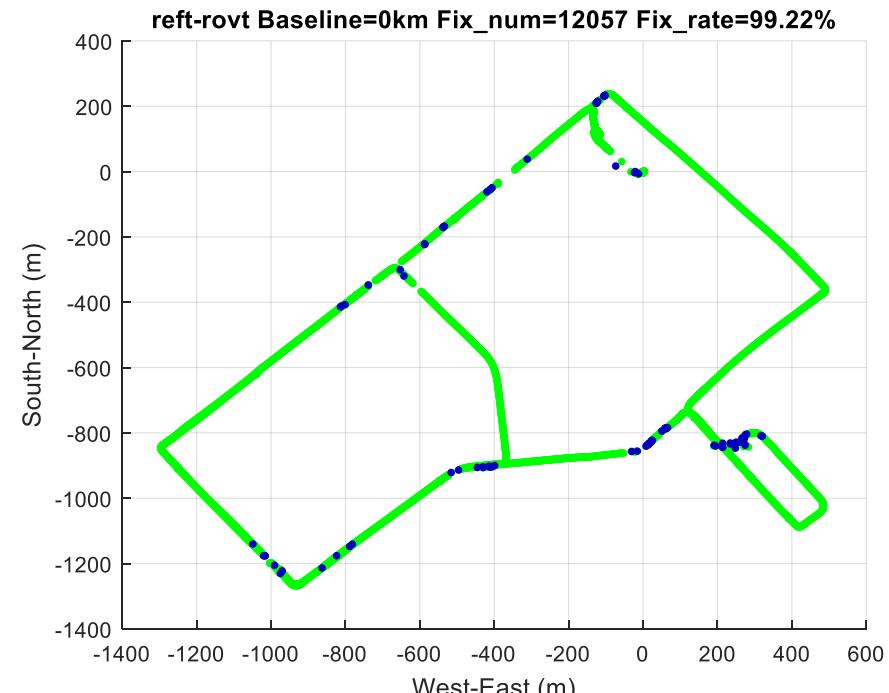


# RTK real urban: Trimble L1+L2

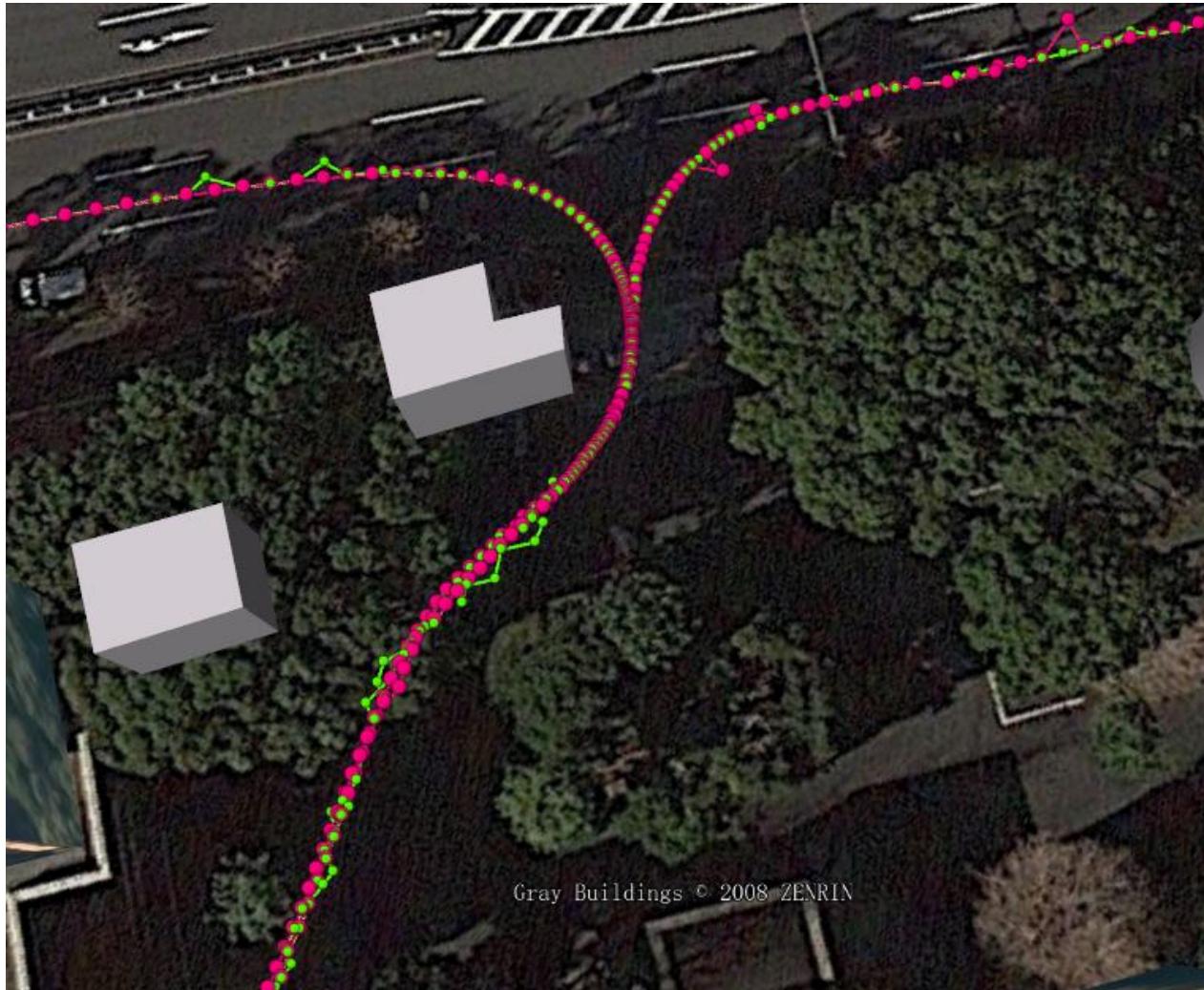
RTKLIB: Fix N=10948, Fix rate=90.7%



Net\_Diff: Fix N=12057, Fix rate=99.22%

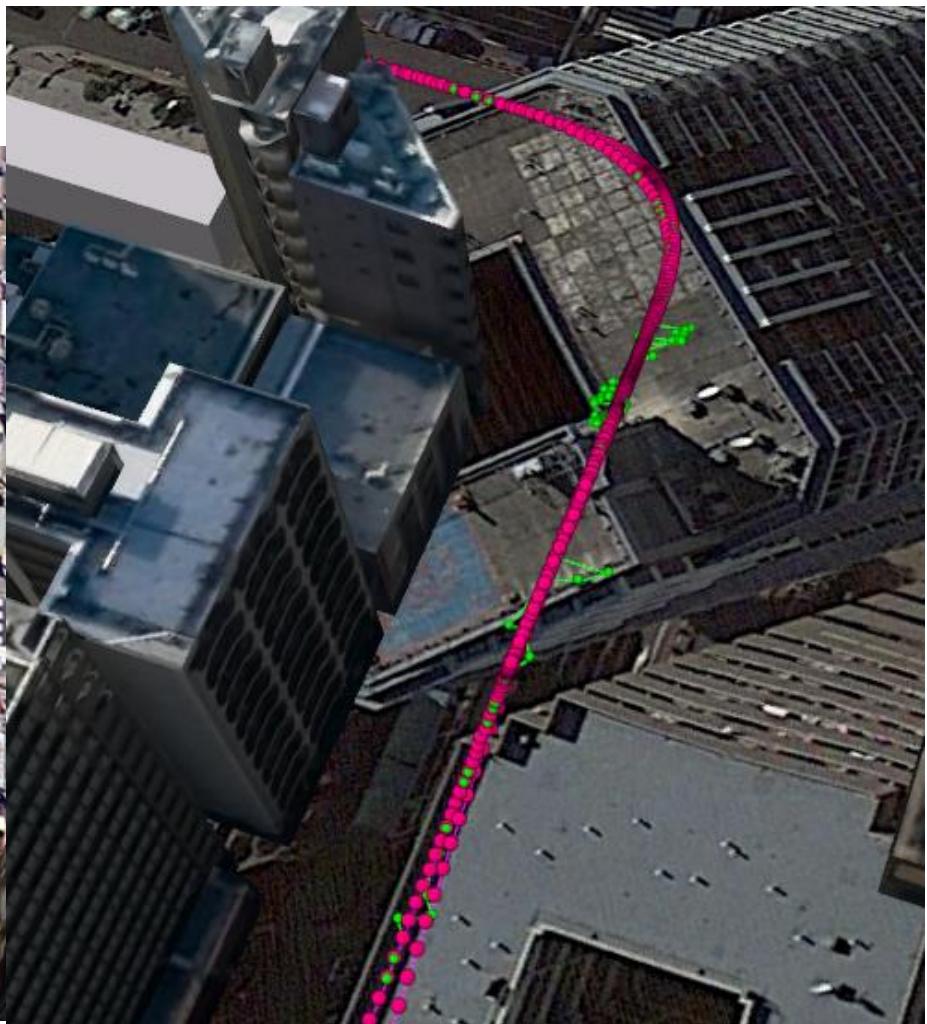
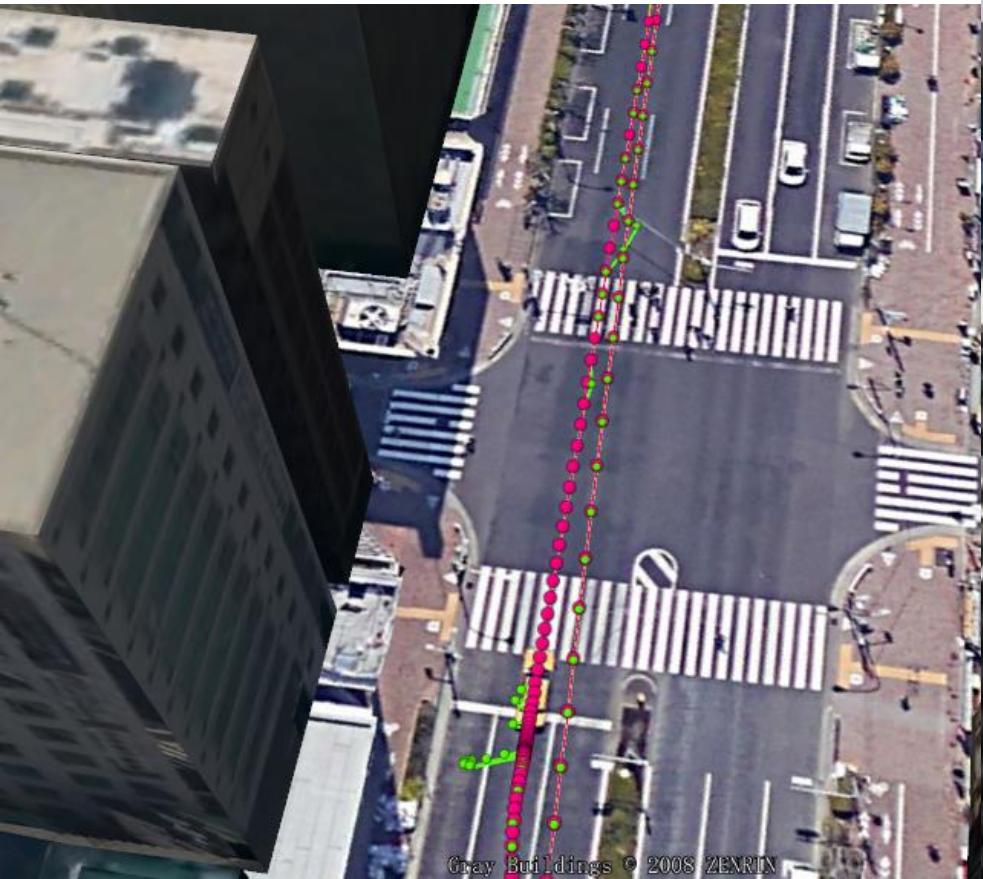


Red: Net\_Diff  
Green: RTKLIB



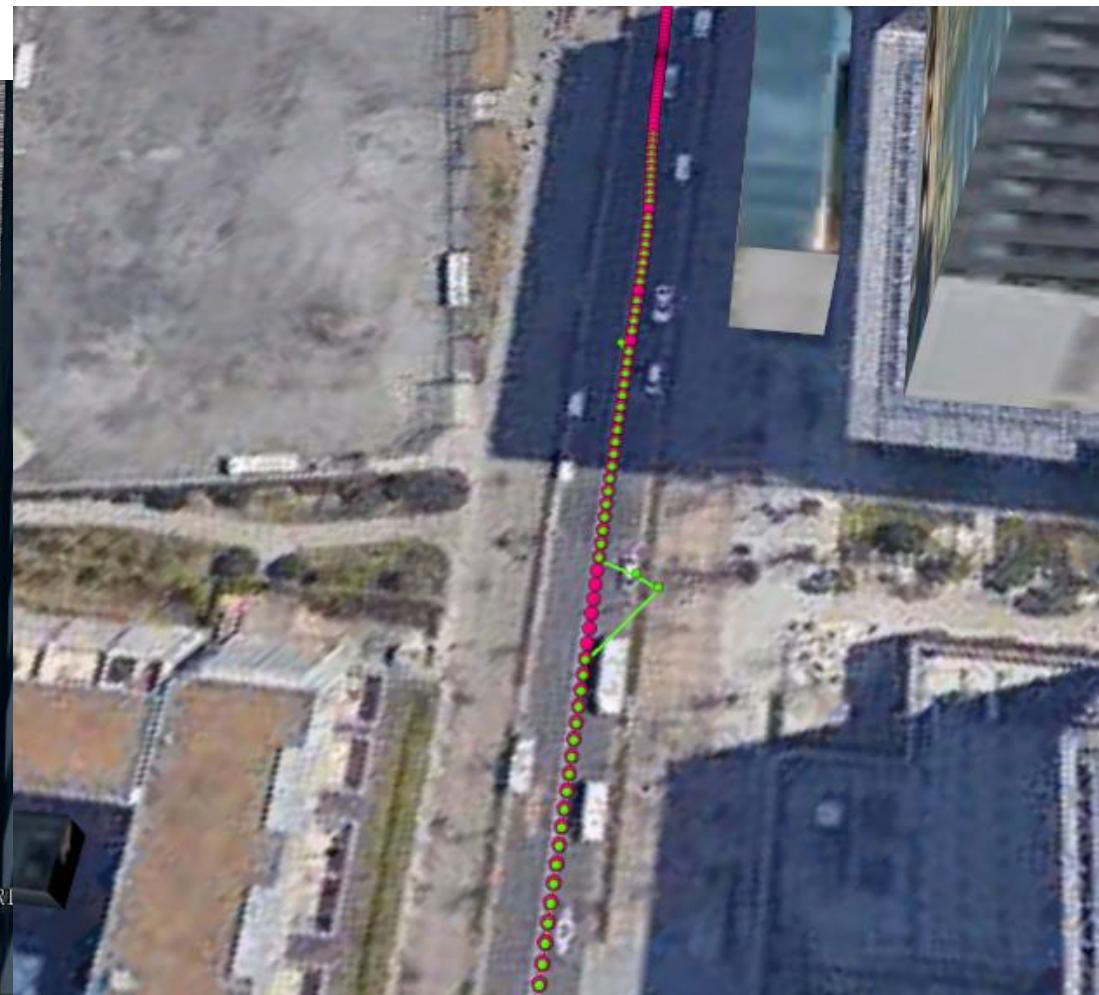
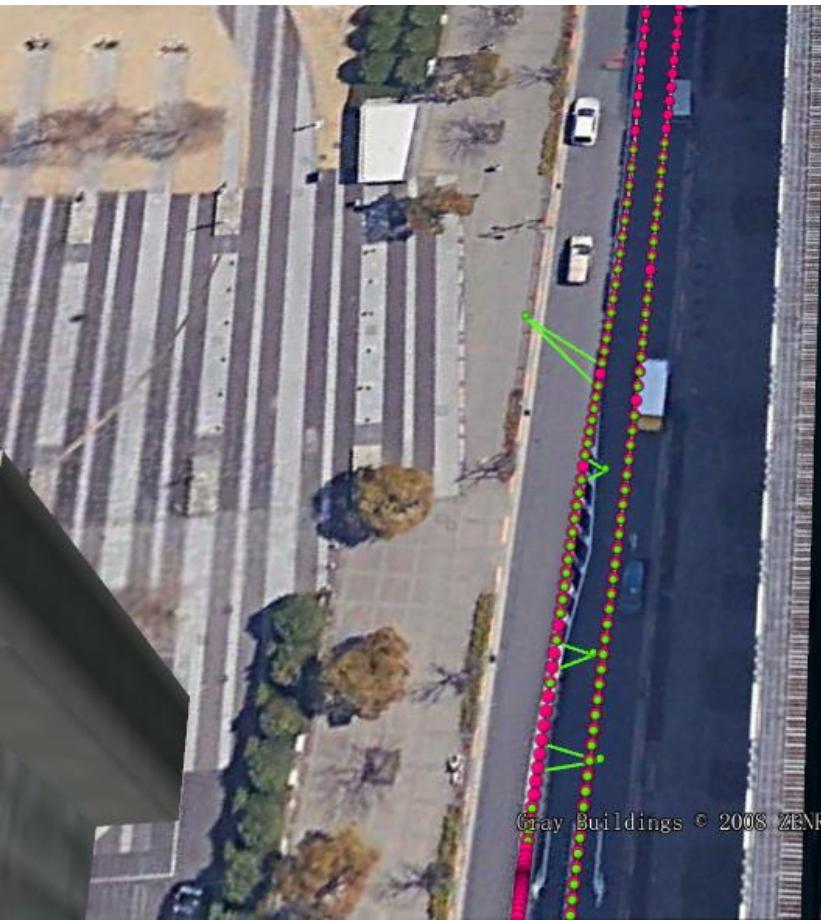
**Red: Net\_Diff**

**Green: RTKLIB**



**Red: Net\_Diff**

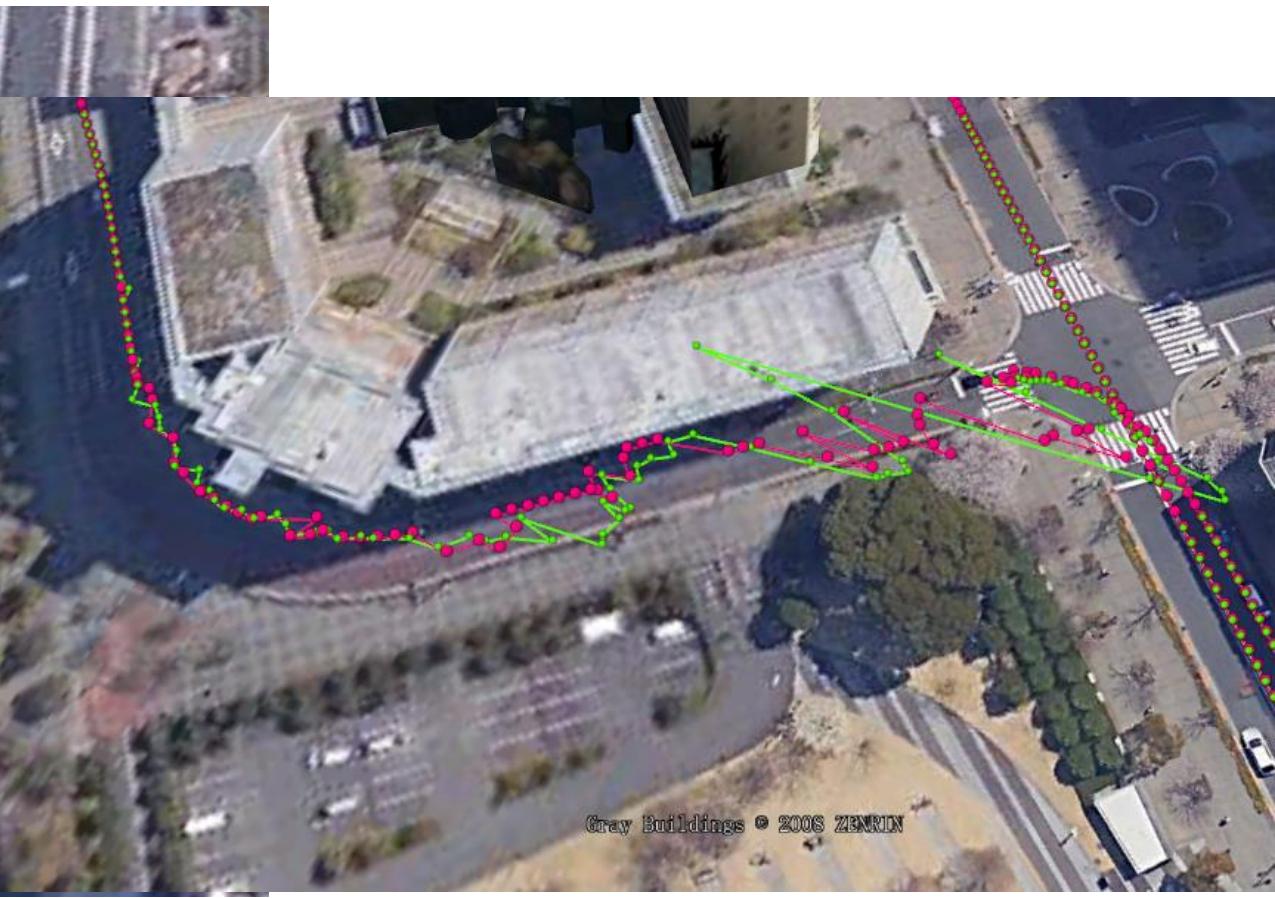
**Green: RTKLIB**



Gray Buildings © 2008 ZENRI

Red: Net\_Diff

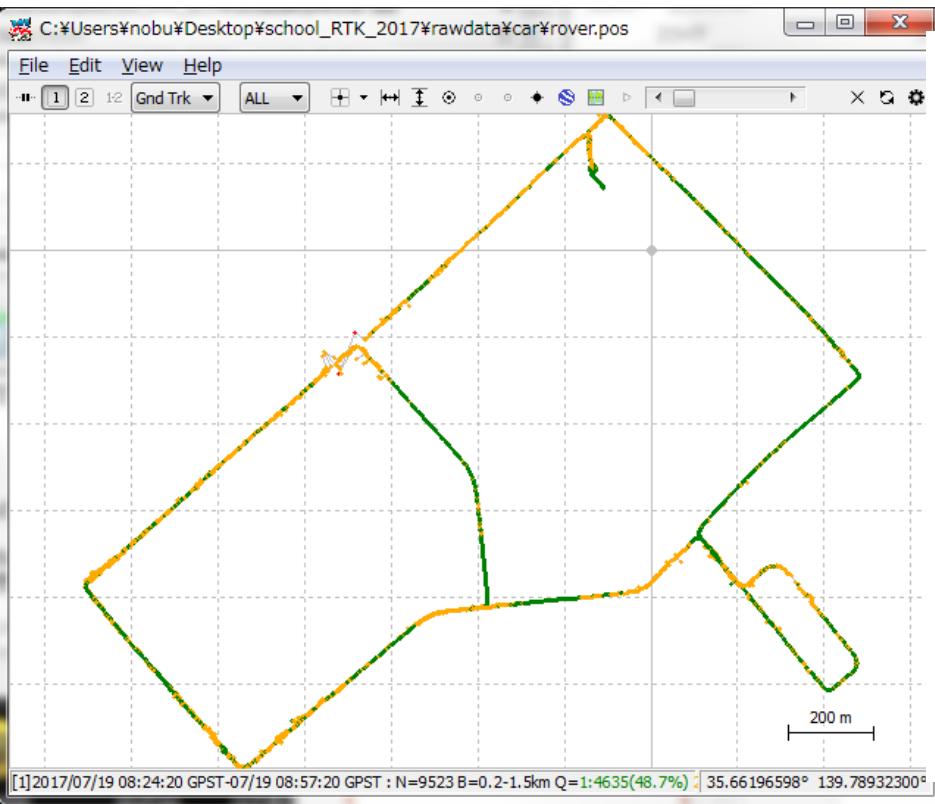
Green: RTKLIB



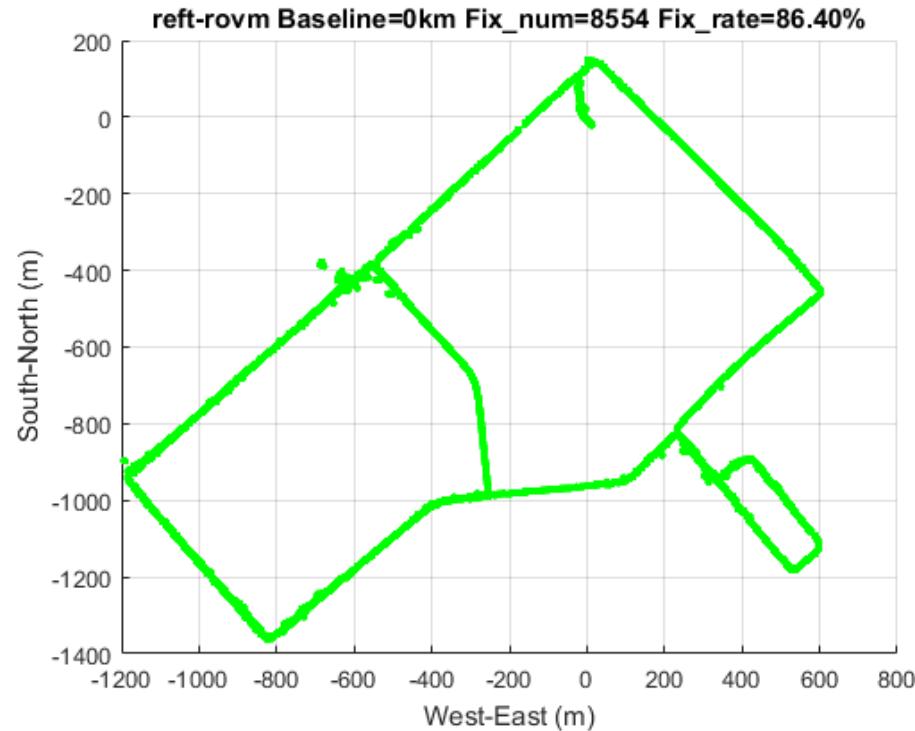
Gray Buildings © 2006 ZENRIN

# RTK real urban: ublox L1

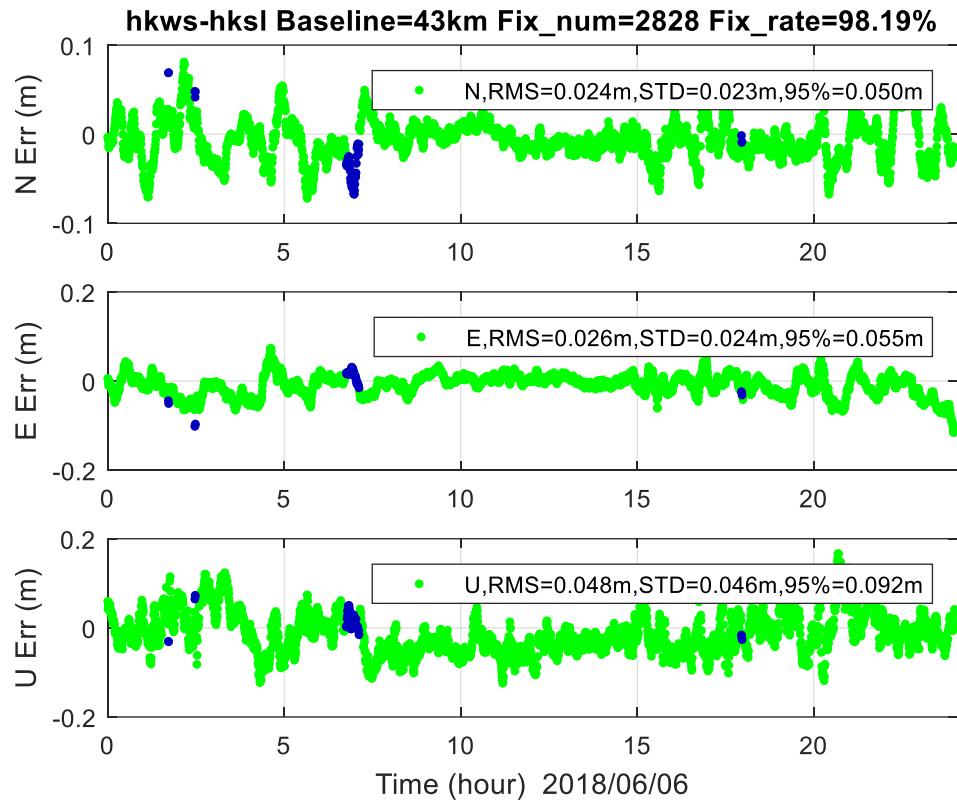
RTKLIB: Fix rate=48.7%



Net\_Diff: Fix rate=86.4%

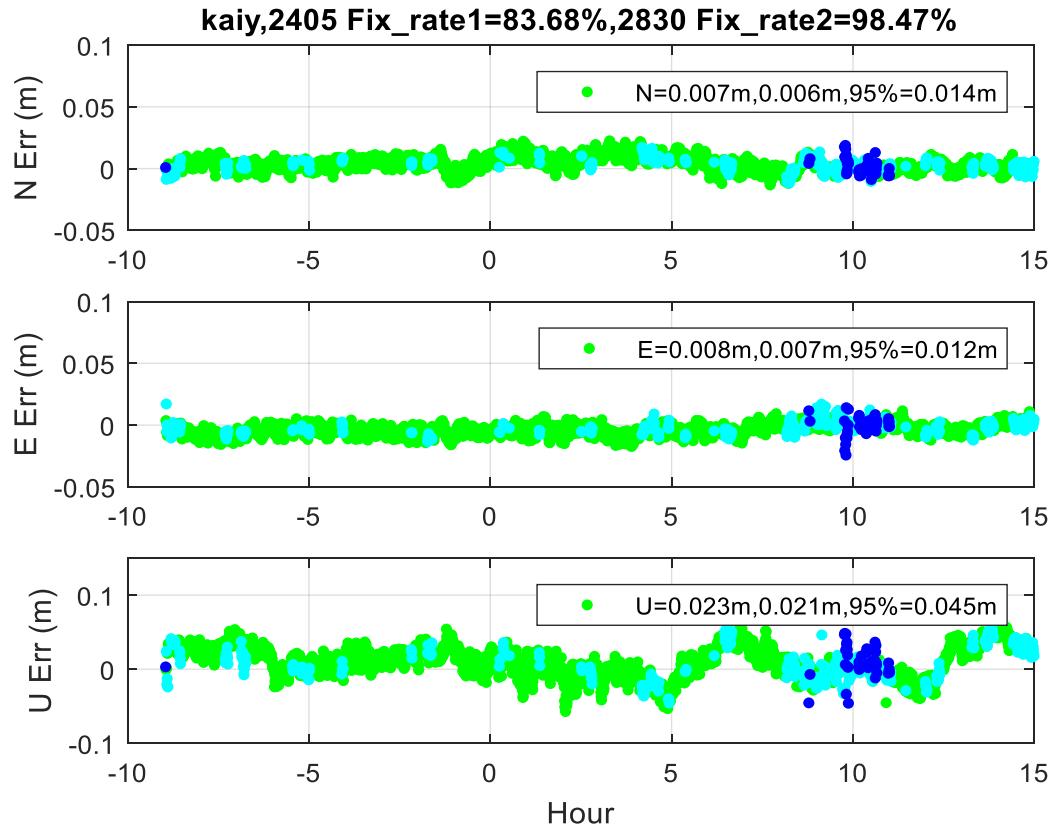


# RTK long baseline: HKSL-HKWS



43km  
G+C  
Fix-rate=98%  
[2.4, 2.6, 4.8]cm

# RTK long baseline: Tokyo-Komatsu



106km  
G+C+J  
Fix-rate=98.5%  
[0.7, 0.8, 2.1]cm