

GOP analysis centre - **2010/2011**

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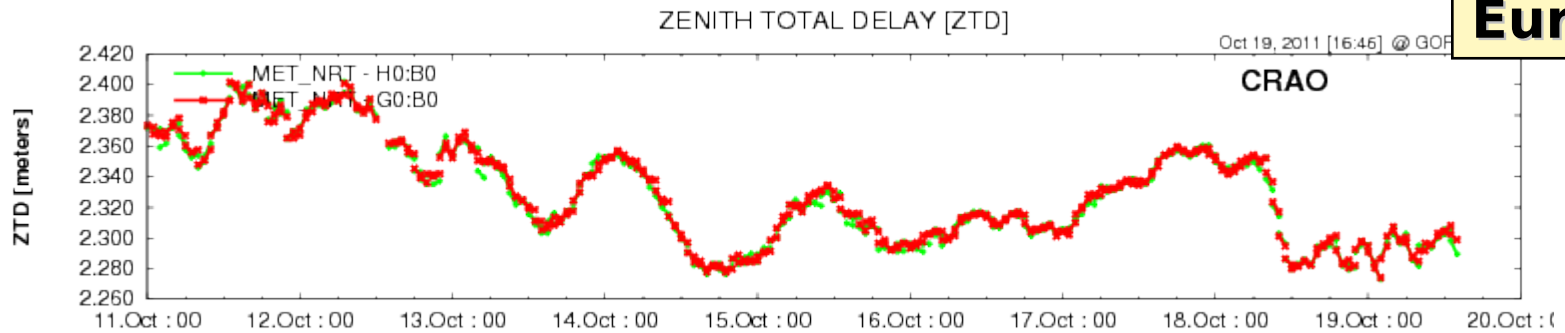


GOP near real-time ZTD activities:

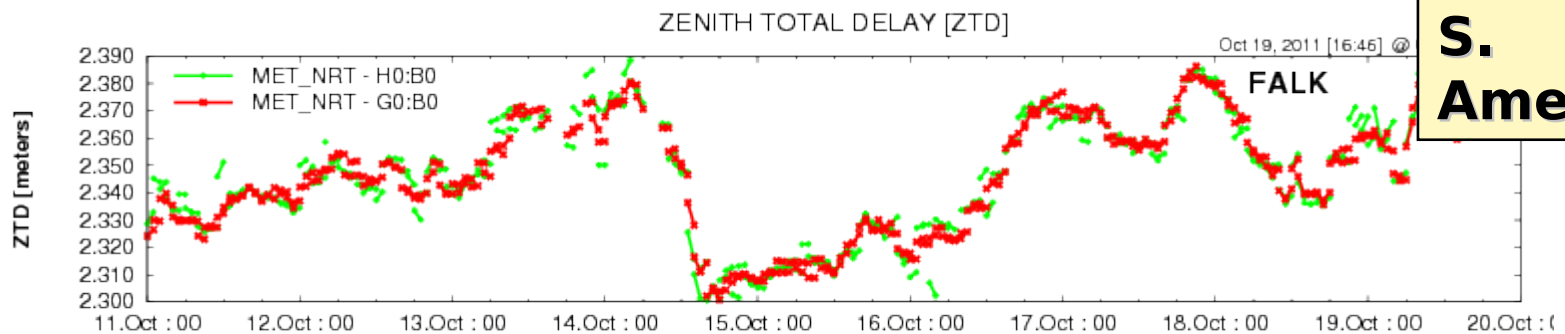
- **Status of GOP regional solution**
Strategy based on 4-h sliding window
12-hour NEQ stacking for troposphere estimation
28-day NEQ stacking for precise coordinate solution
- **Global hourly ZTD solution**
Derived from regional solution (4-h sliding window)
Requirements for a high solution robustness!
Station-specific result quality
Additional product filtering based on formal errors!
One-year evaluation
- **Multi-GNSS**
Operational GPS+GLONASS solution in parallel
Evaluation vs. GPS (the official solution)
- **I05/I08 RF and PCV**
Evaluations of old and new models

Global GOP ZTD - example time-series

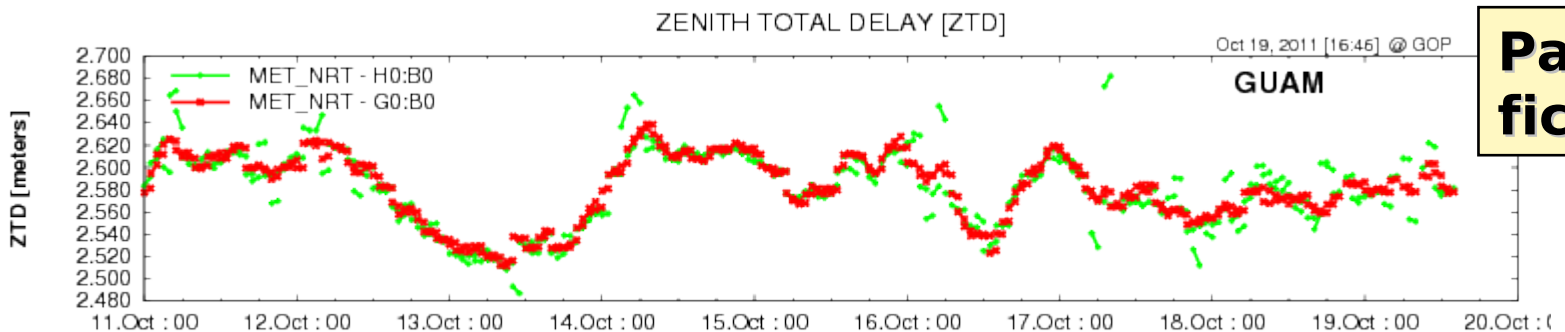
Europe



**S.
America**

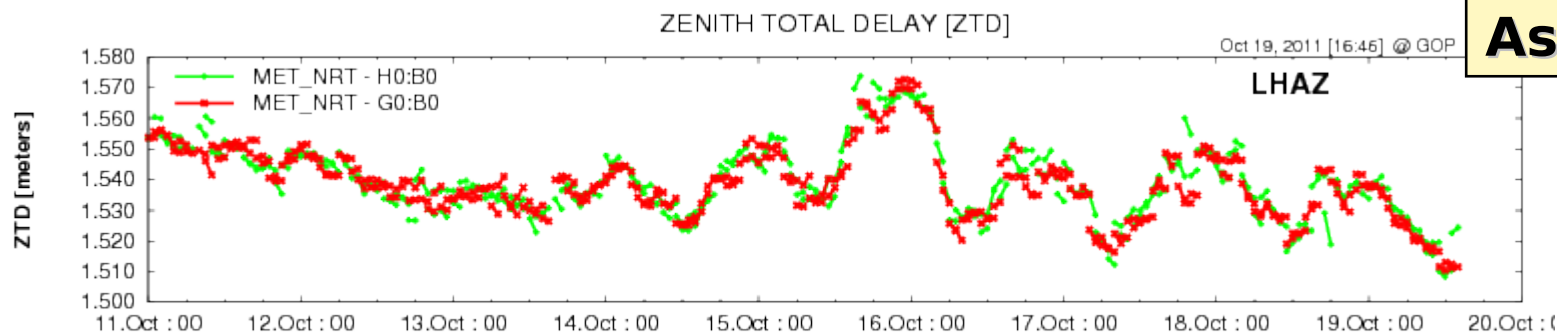


**Paci
fic**

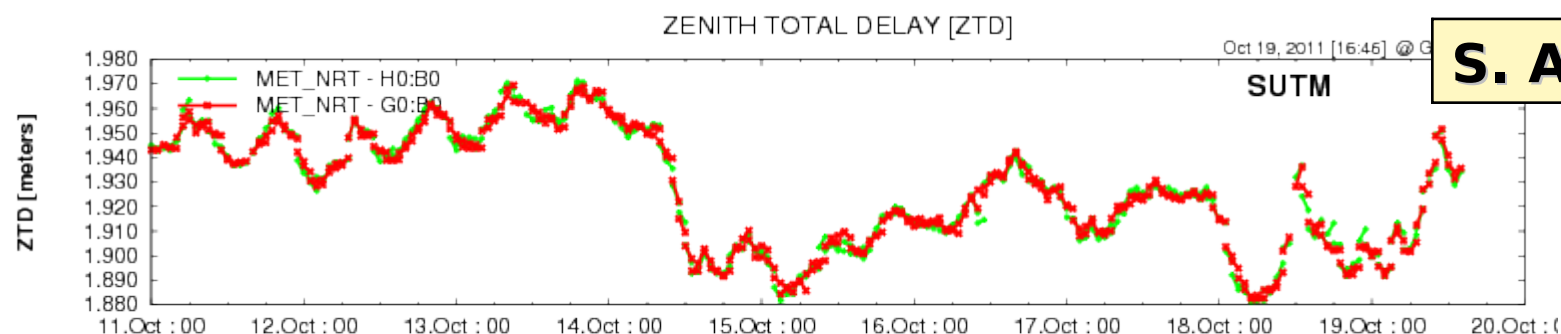


Global GOP ZTD - periodic signals

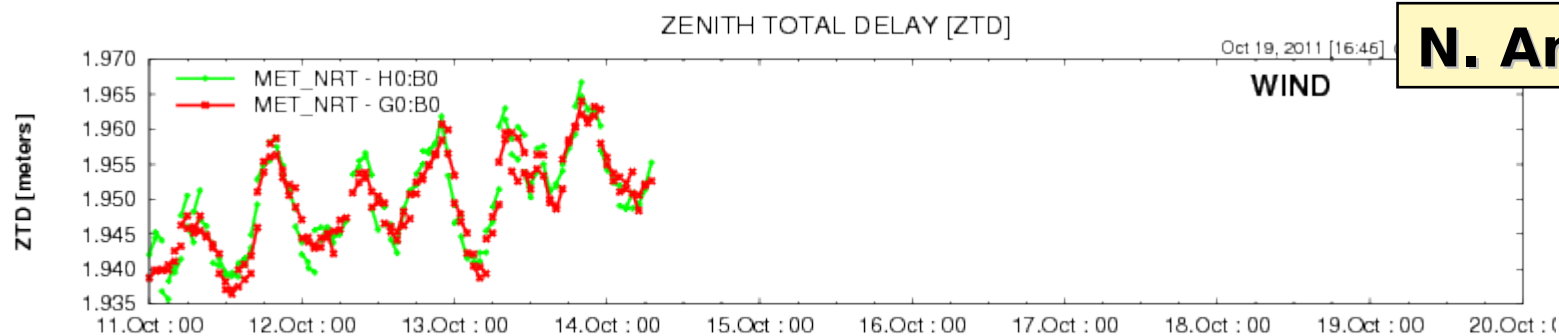
Asia



S. Africa

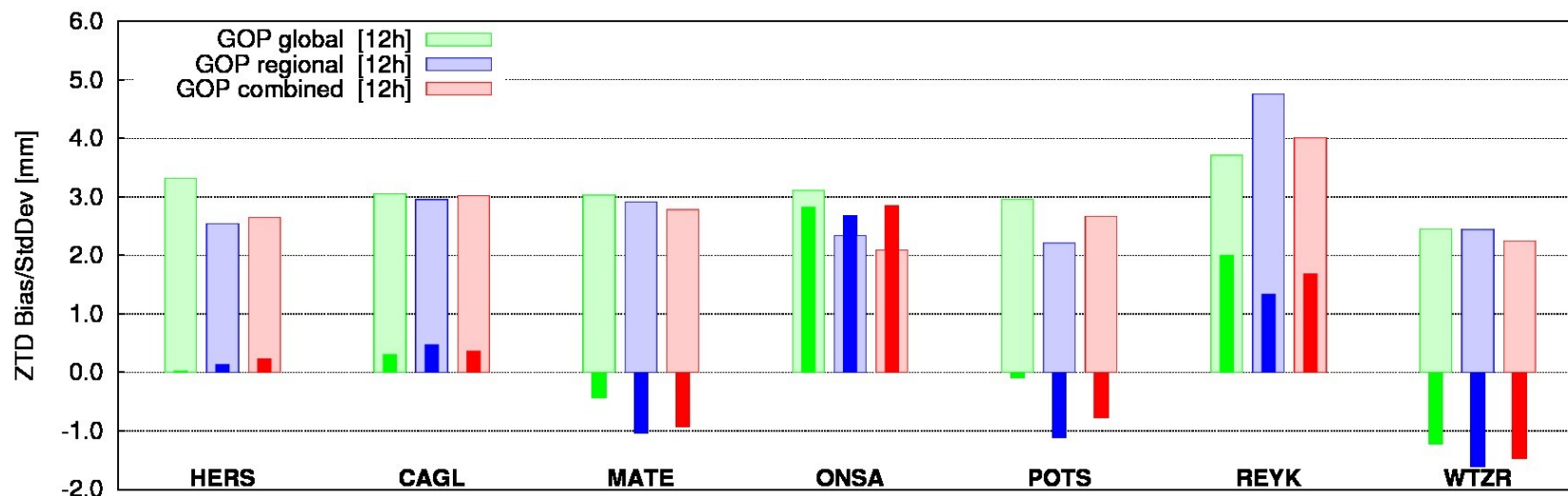


N. America

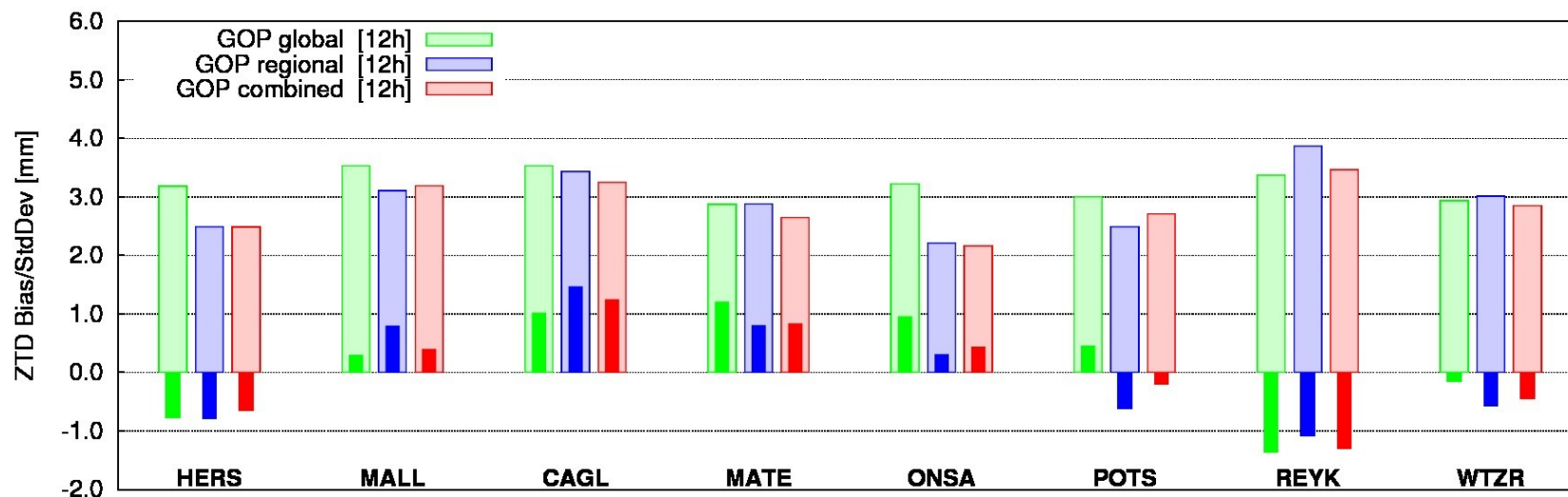


Combination of Global and Regional ZTDs

ZTD comparison : global/regional/combined [NRT] x ppp_IGS [PP]

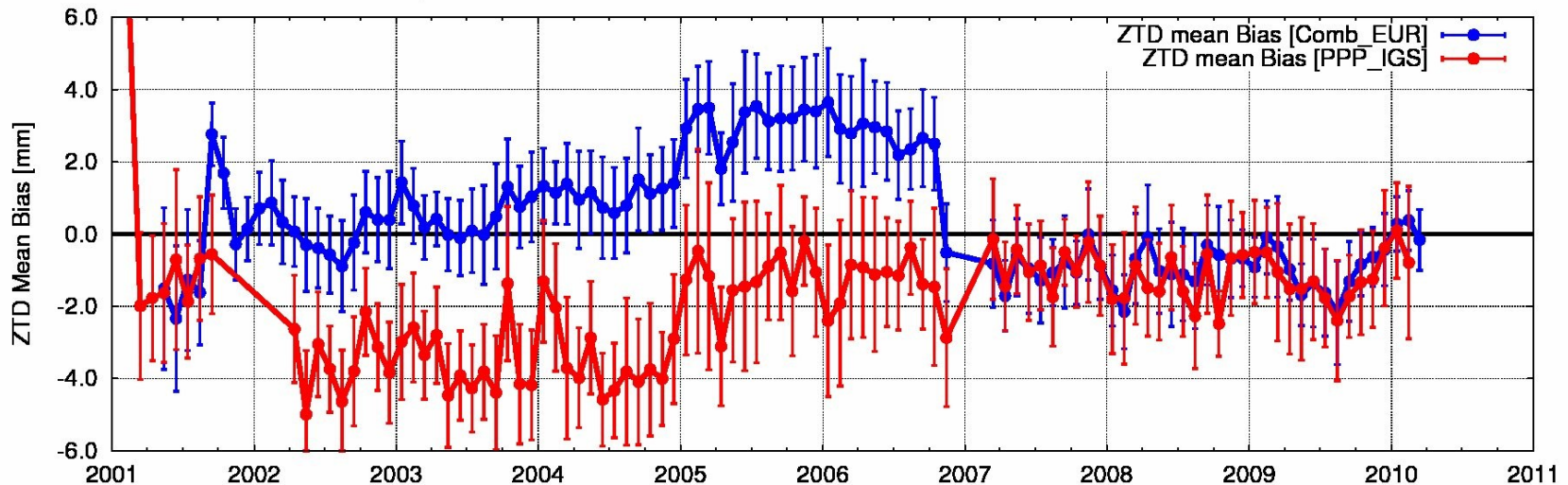


ZTD comparison : global/regional/combined [NRT] x Comb_EUR [PP]

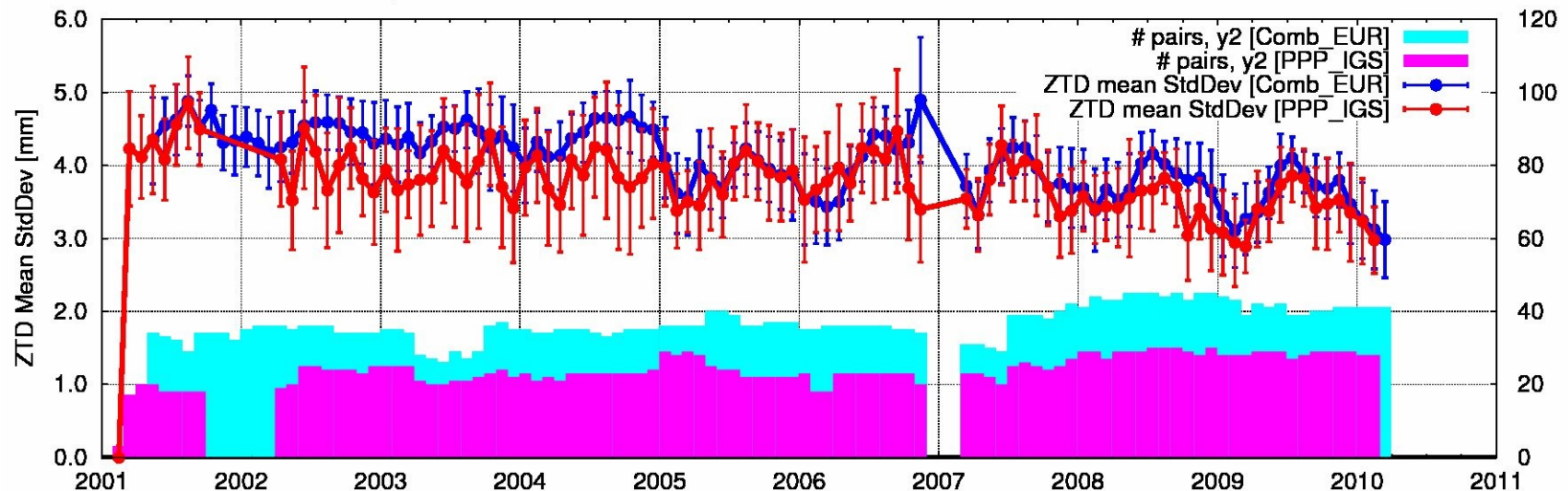


ZTD: NRT GOP x PPP-IGS / Comb-EUR

Monthly ZTD comparisons : GOP_ [NRT] vs. Comb_EUR / PPP_IGS [PP]

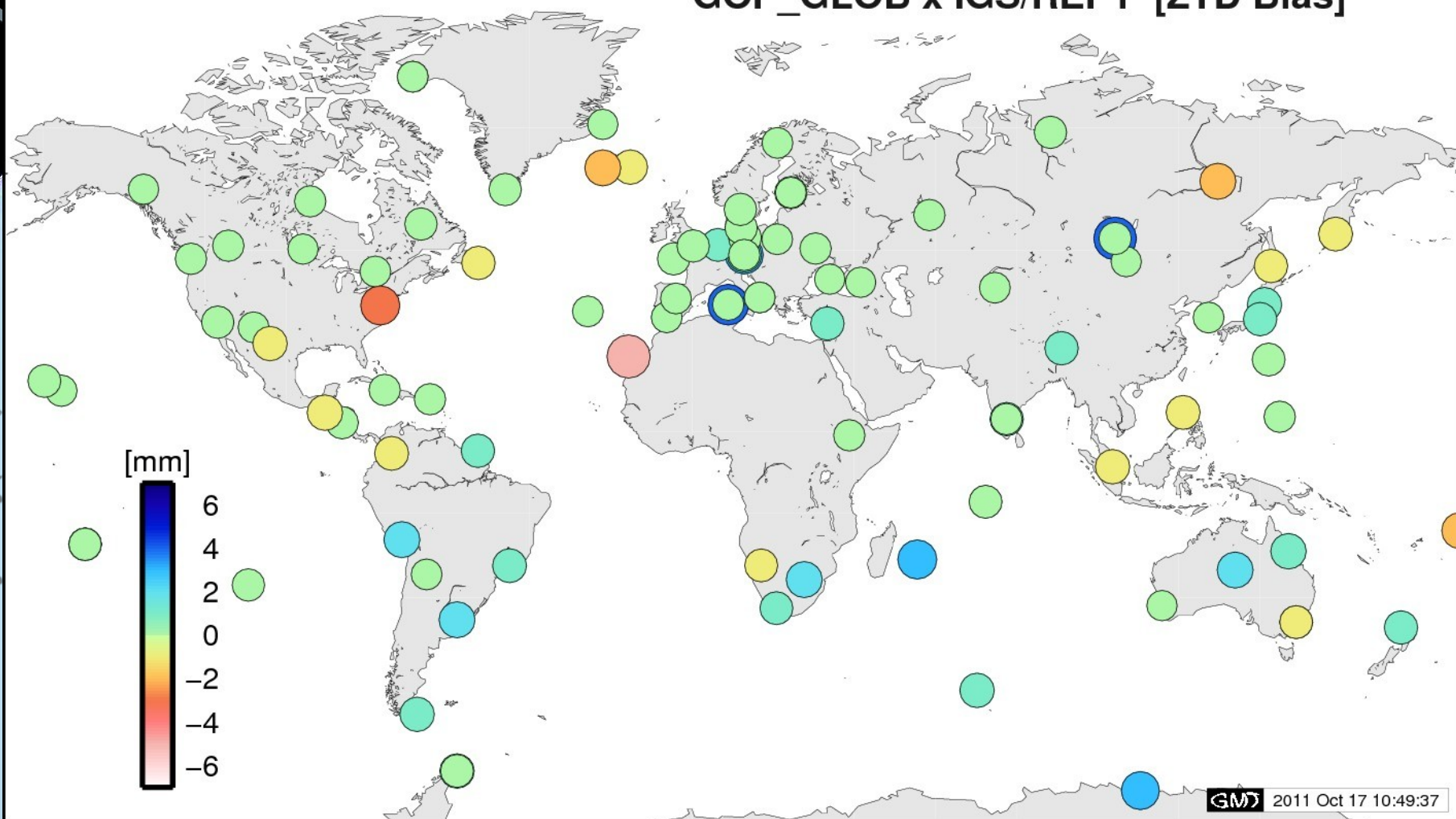


Monthly ZTD comparisons : GOP_ [NRT] vs. Comb_EUR / PPP_IGS [PP]



GOP near real-time ZTD products

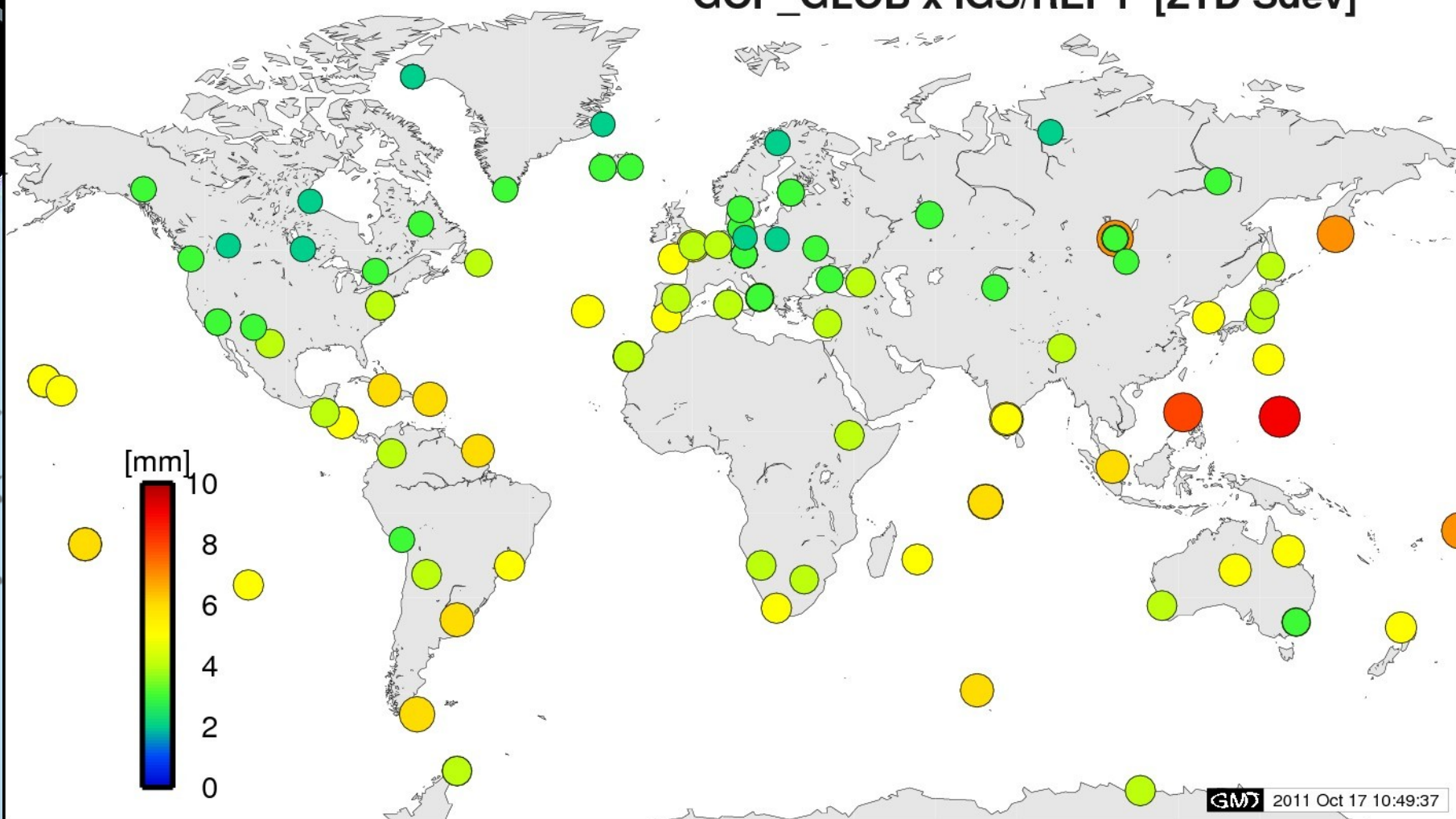
GOP_GLOB x IGS/REP1 [ZTD Bias]



GMD 2011 Oct 17 10:49:37

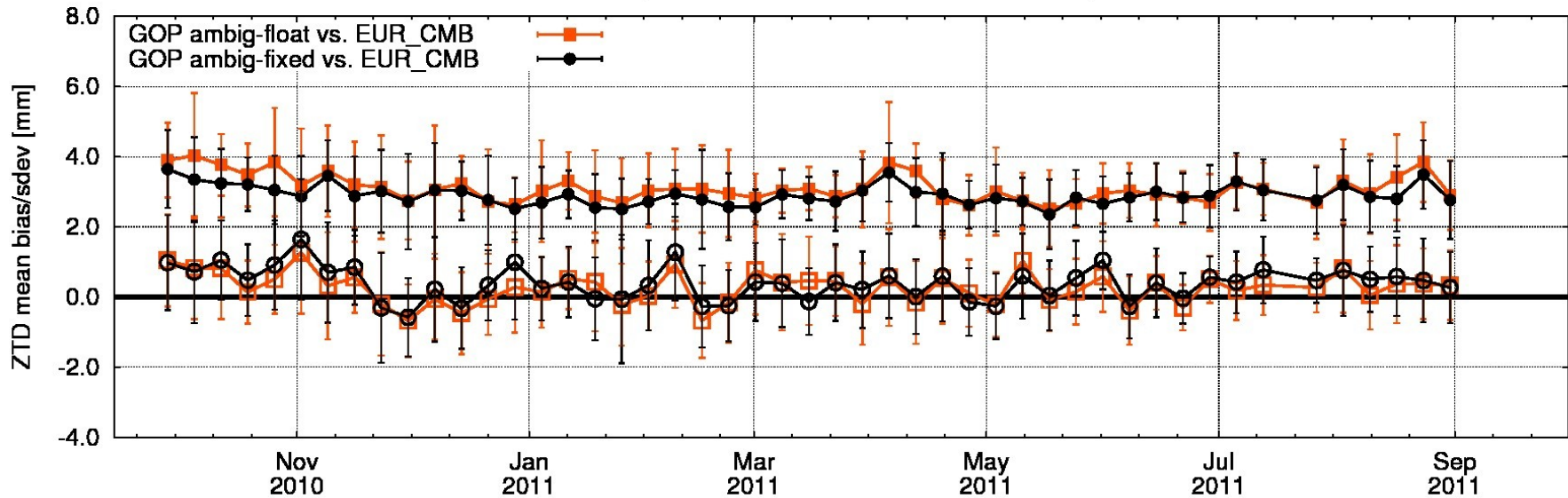
GOP near real-time ZTD products

GOP_GLOB x IGS/REP1 [ZTD Sdev]

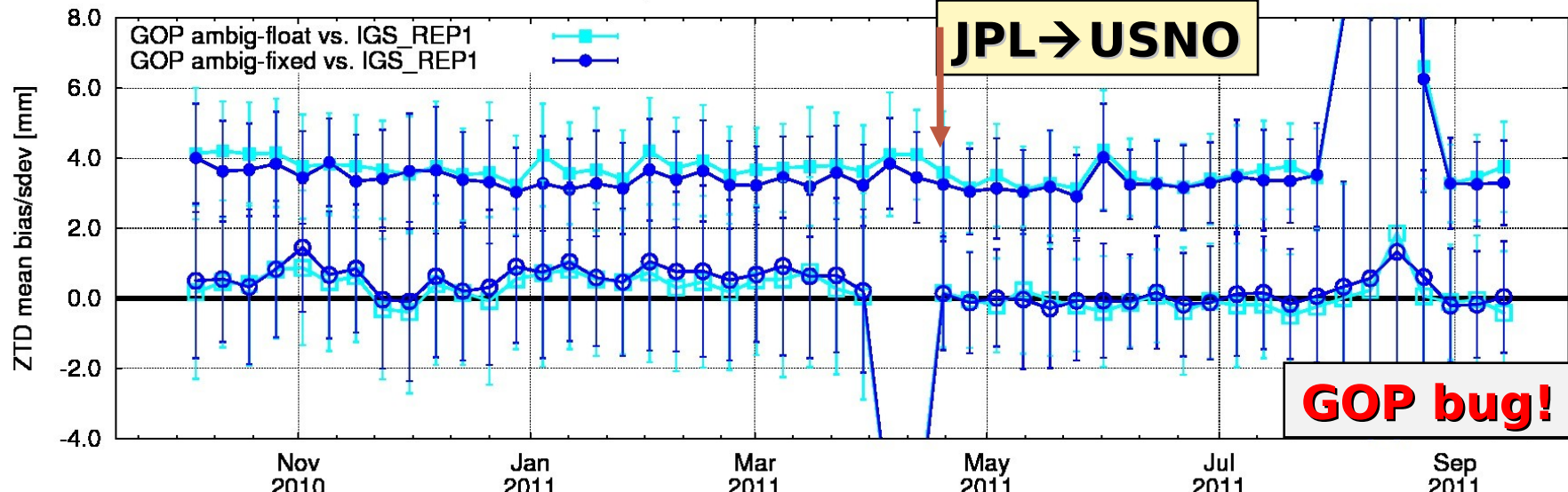


ZTD time-series for European/global stations

Time-series of weekly ZTD comparisons [GOP hourly global solution]



Time-series of weekly ZTD comparisons [GOP hourly global solution]

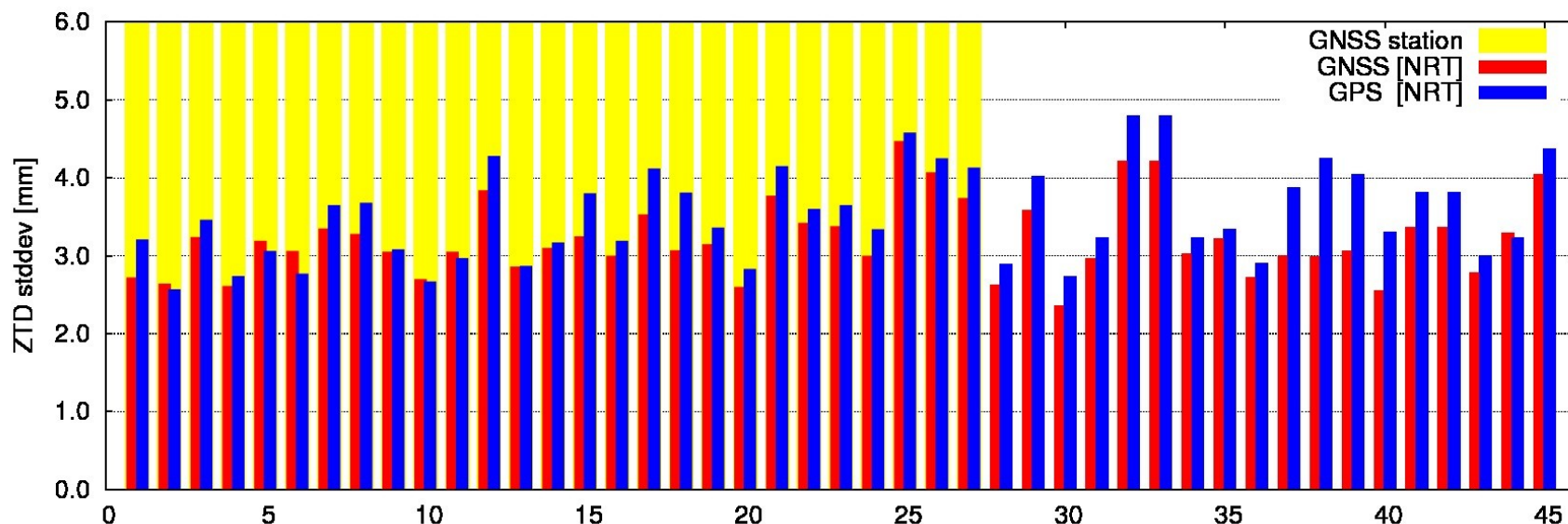


Global NRT ZTD vs. radiosondes

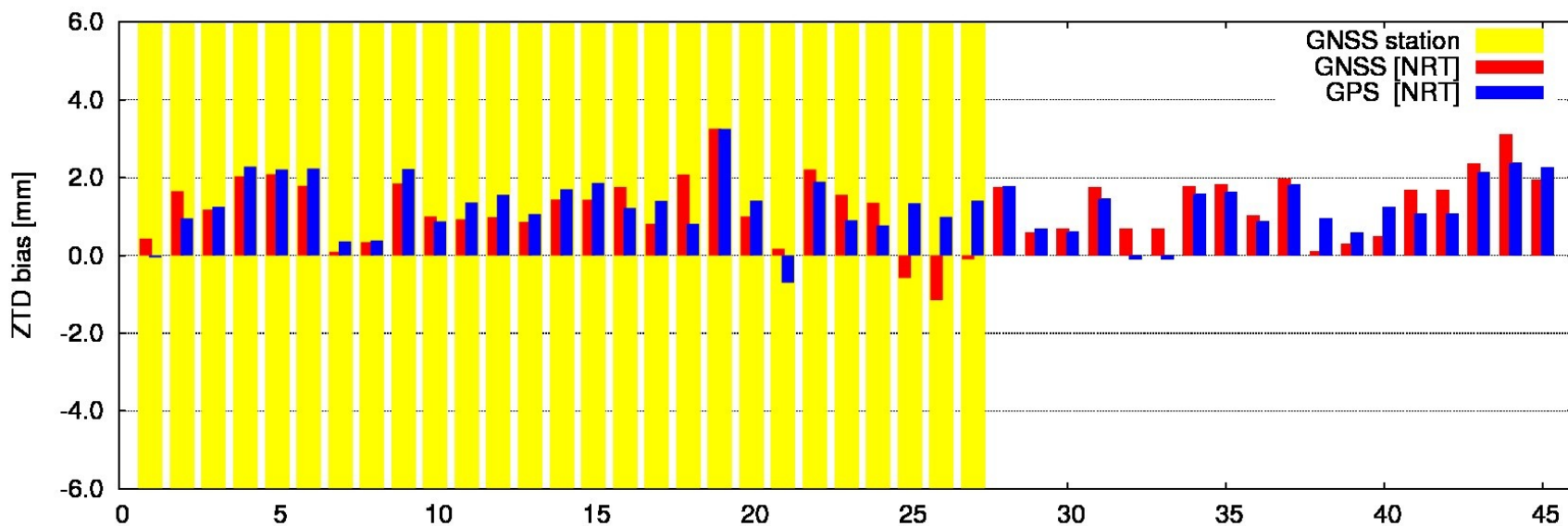
| GPS | Raobs | Lat [deg] | Lon [deg] | H [m] | dHor [km] | dVer [m] | # pairs GPS-RS | # excl GPS-RS | bias [mm] | stddev [m] |
|------|-------|-----------|-----------|--------|-----------|----------|----------------|---------------|-----------|------------|
| NRIL | 23078 | 69.36 | 88.35 | 48.0 | 7 | 16 | 270 | 16 | 4.69 | 5.22 |
| YAKT | 24959 | 62.03 | 129.68 | 103.5 | 4 | 0 | 375 | 21 | 0.23 | 7.06 |
| PETS | 32540 | 53.02 | 158.65 | 102.2 | 10 | 18 | 401 | 13 | 2.62 | 9.18 |
| JOZ2 | 12374 | 52.09 | 21.03 | 152.5 | 34 | 58 | 482 | 13 | -4.36 | 7.63 |
| TITZ | 10410 | 51.03 | 6.43 | 156.2 | 72 | 3 | 367 | 13 | 20.34 | 8.95 |
| ULAB | 44292 | 47.86 | 107.05 | 1575.6 | 21 | 268 | 419 | 21 | -73.84 | 9.12 |
| YSSK | 32150 | 47.02 | 142.71 | 91.4 | 8 | 67 | 356 | 19 | -20.62 | 6.71 |
| CAGL | 16560 | 39.13 | 8.97 | 238.4 | 16 | 234 | 513 | 26 | -55.06 | 11.08 |
| TSK | 4764 | 36.1 | 140 | | | | | | | |

GOP NRT GPS x GNSS solutions after 1632

ZTD comparison - GOP GNSS/GPS [NRT] x Combined EUR [PP]

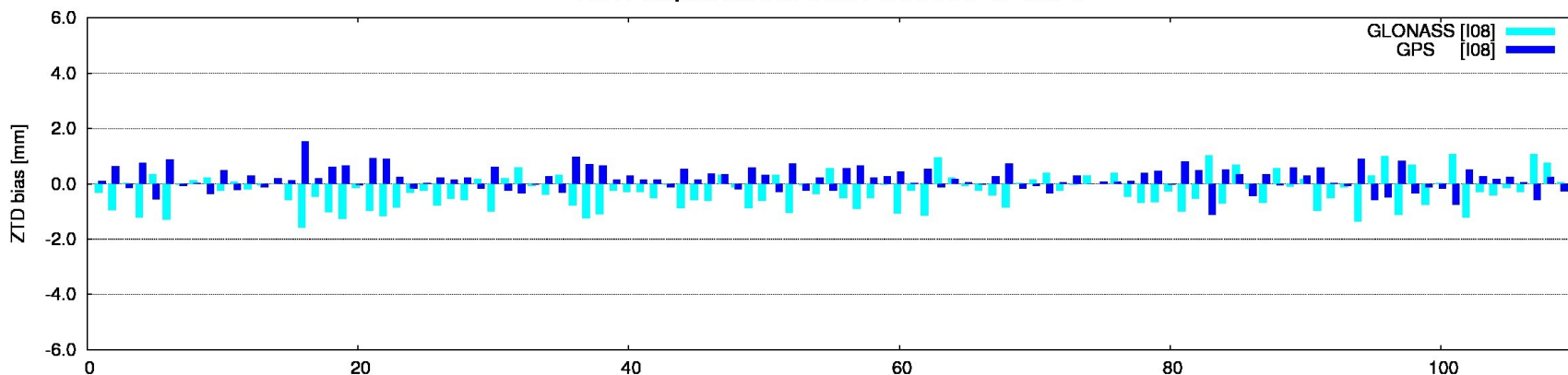


ZTD comparison - GOP GNSS/GPS [NRT] x Combined EUR [PP]

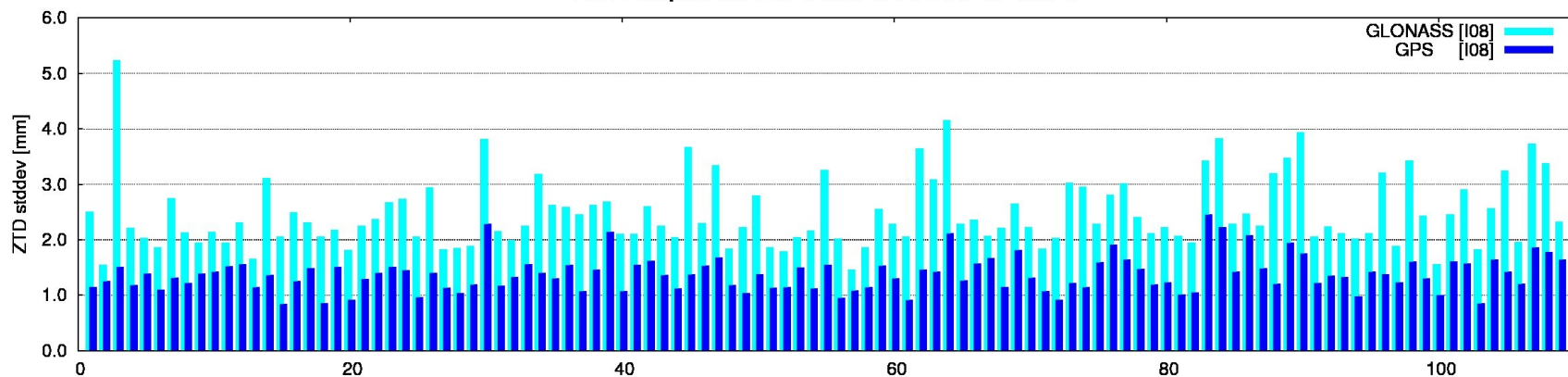


GPS and GLONASS vs. multi-GNSS (all EPN multi-GNSS stations)

ZTD comparison : GPS and GLONASS vs GNSS



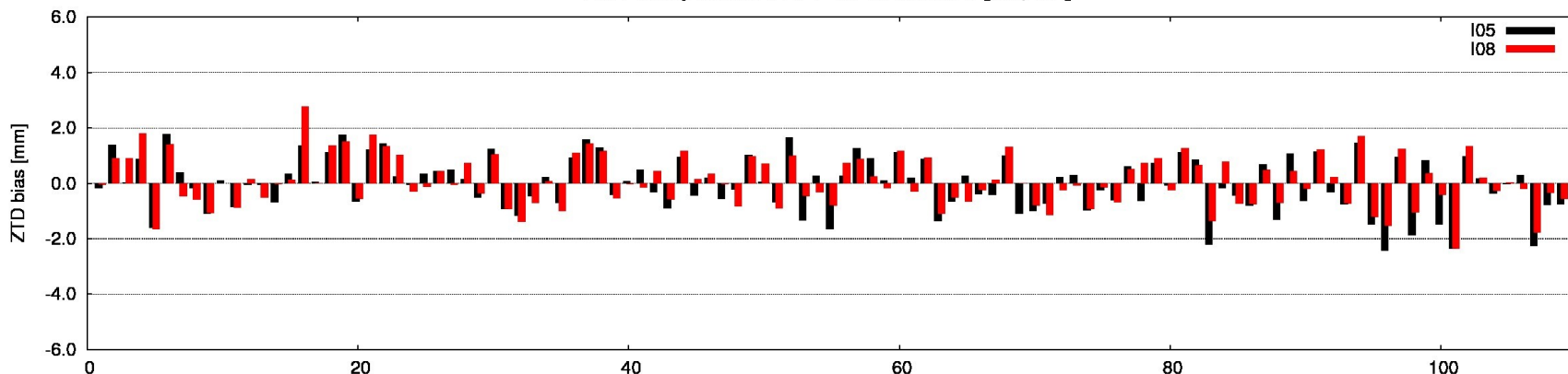
ZTD comparison : GPS and GLONASS vs GNSS



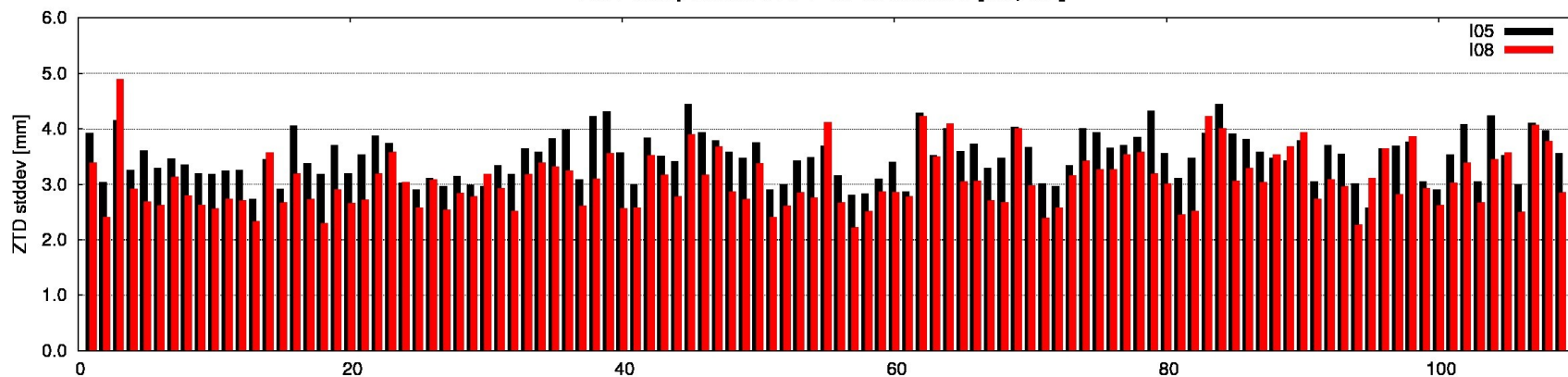
GPS vs. GLONASS

(using I05 and I08 ITRF+PCV models)

ZTD comparison : GPS vs GLONASS [I05, I08]



ZTD comparison : GPS vs GLONASS [I05, I08]



Photography

Many stations with poor data quality - after removal (config kept ~150, Fig 2)

