

GNSS Activities at GFZ for E-GVAP

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E-GVAP Expert Teams and Plenary Meeting

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Overview GNSS Processing at GFZ

NRT:

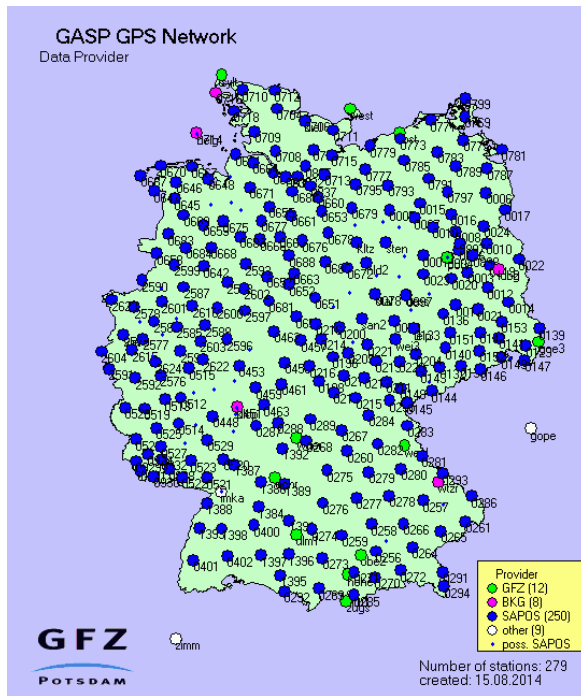
- (1) EPOS-6 software, E-GVAP operational**
- (2) EPOS-8, GPS only, pre-operational**
- (3) EPOS-8, Multi-GNSS, MGEX operational + TROPO tests**

Real-Time:

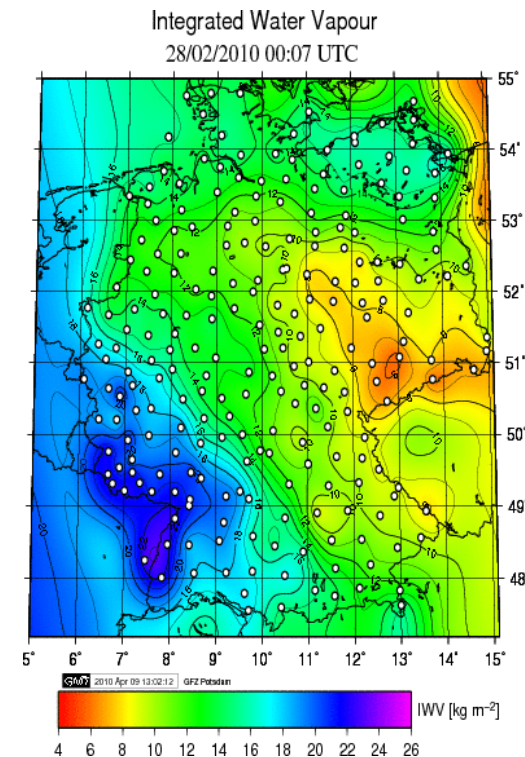
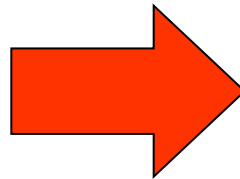
- (4) EPOS-RT, GPS only, pre-operational**
- (5) EPOS-RT, Multi-GNSS, test processing**

(1) Operational Processing at GFZ

- E-GVAP official GFZ product
- ~300 stations in processing (SAPOS+EUREF)
- GFZ EPOS-6 software
- GPS only
- ZTD/IWV with 15 min. time resolution
- STD with 2.5 min.
- PPP strategy, GFZ orbits/clocks as input, CPU of ~10 min

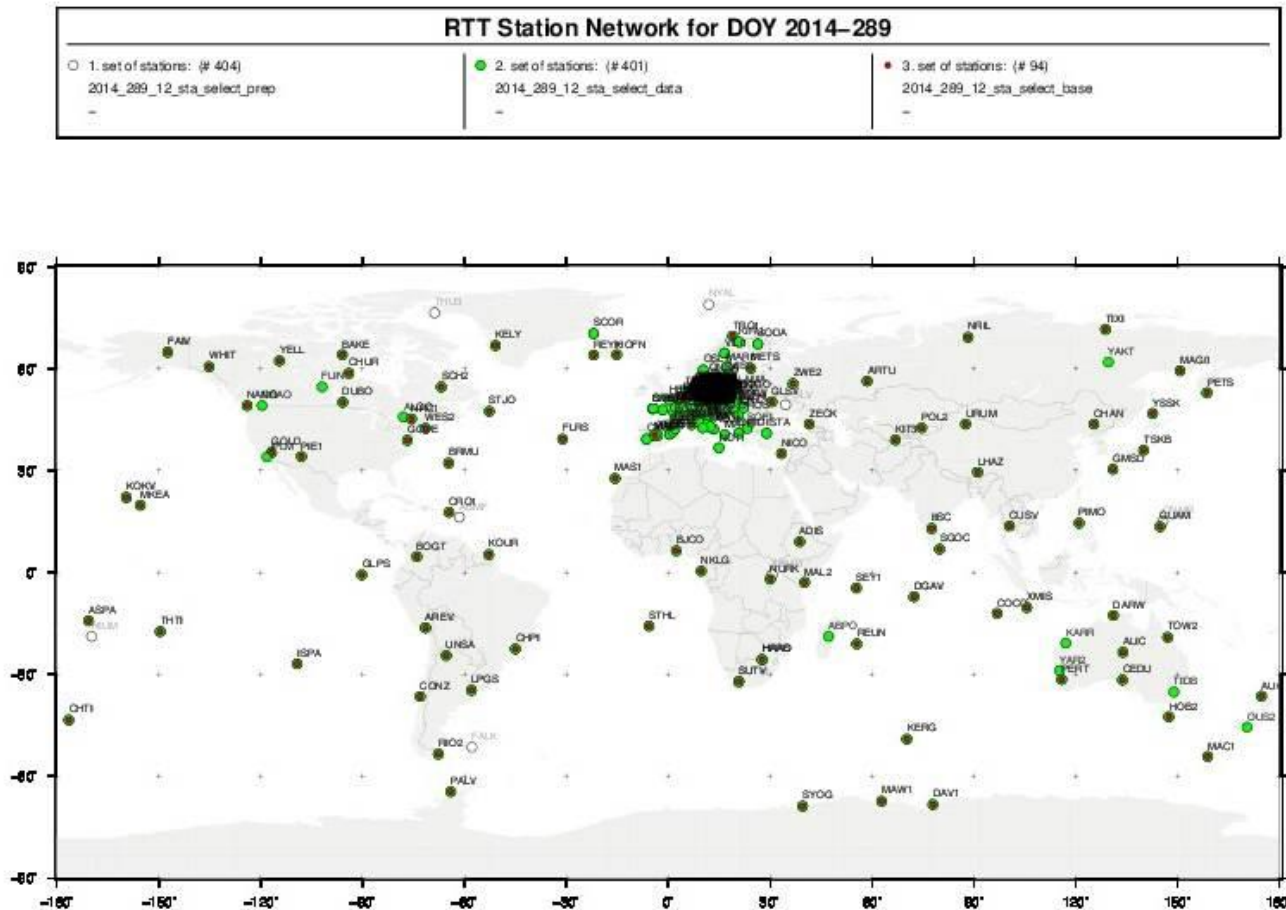


ZTD/IWV/STD
in NRT



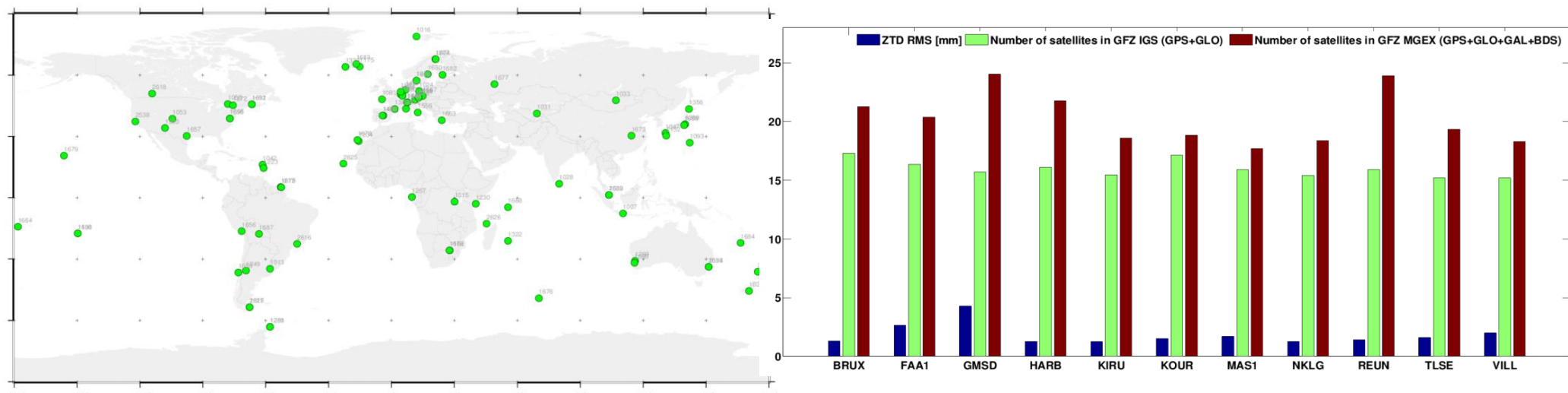
(2) Pre-operational NRT Processing

- **future E-GVAP product “GFZ2”, prepared for upload to TEST**
- **EPOS-8 software (updated models), PPP strategy**
- **ZTD/IWV/STD products, GPS only, GLONASS will be included**
- **~400 stations in processing (SAPOS + EUREF+ global IGS stations)**
- **pre-operational test run since January 2014**



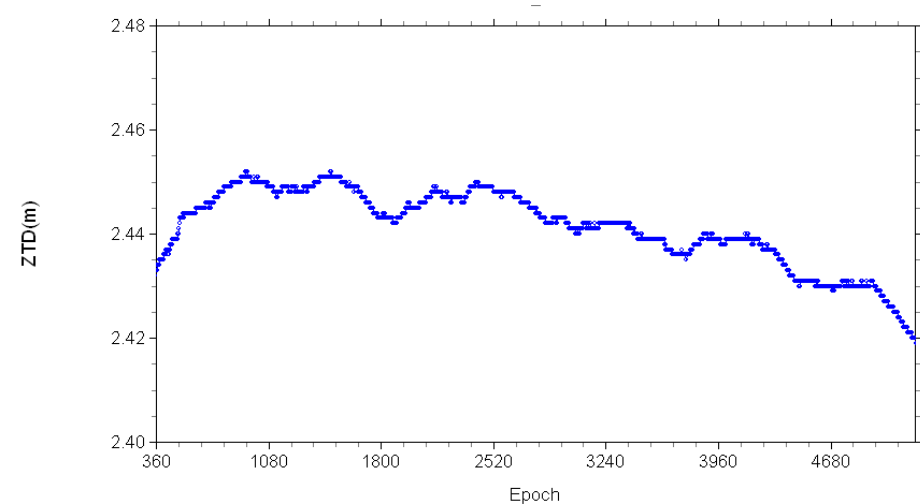
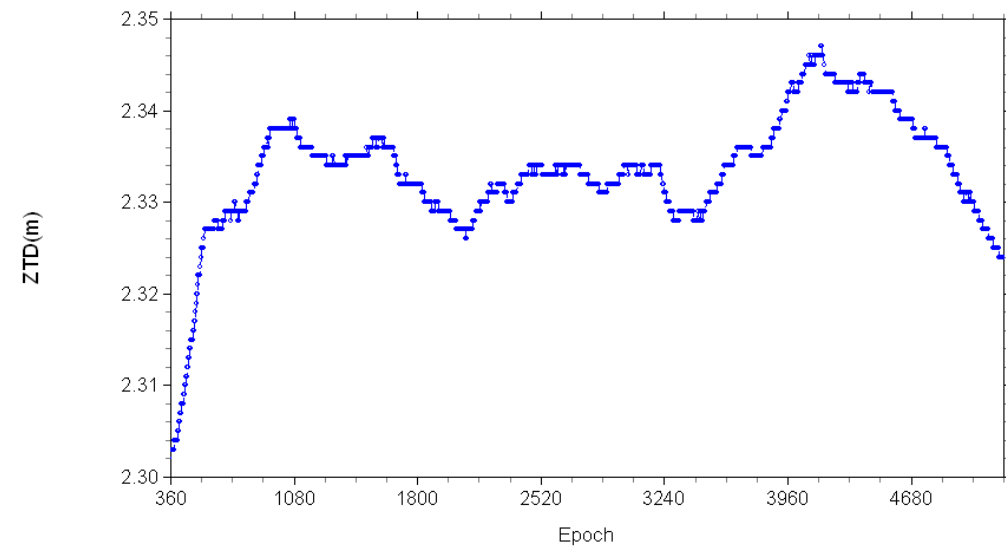
(3) Multi-GNSS NRT Processing

- Possible future E-GVAP product
- EPOS-8 software, network global solution
- GPS + BeiDou, GLONASS+Galileo possible
- ZTD products
- ~125 stations in processing (about 50 with BeiDou)
- operational run for BeiDou orbits/clocks since January 2014 for IGS MGEX project
- First validation results for ZTDs with GPS+GLO+GAL+BeiDou



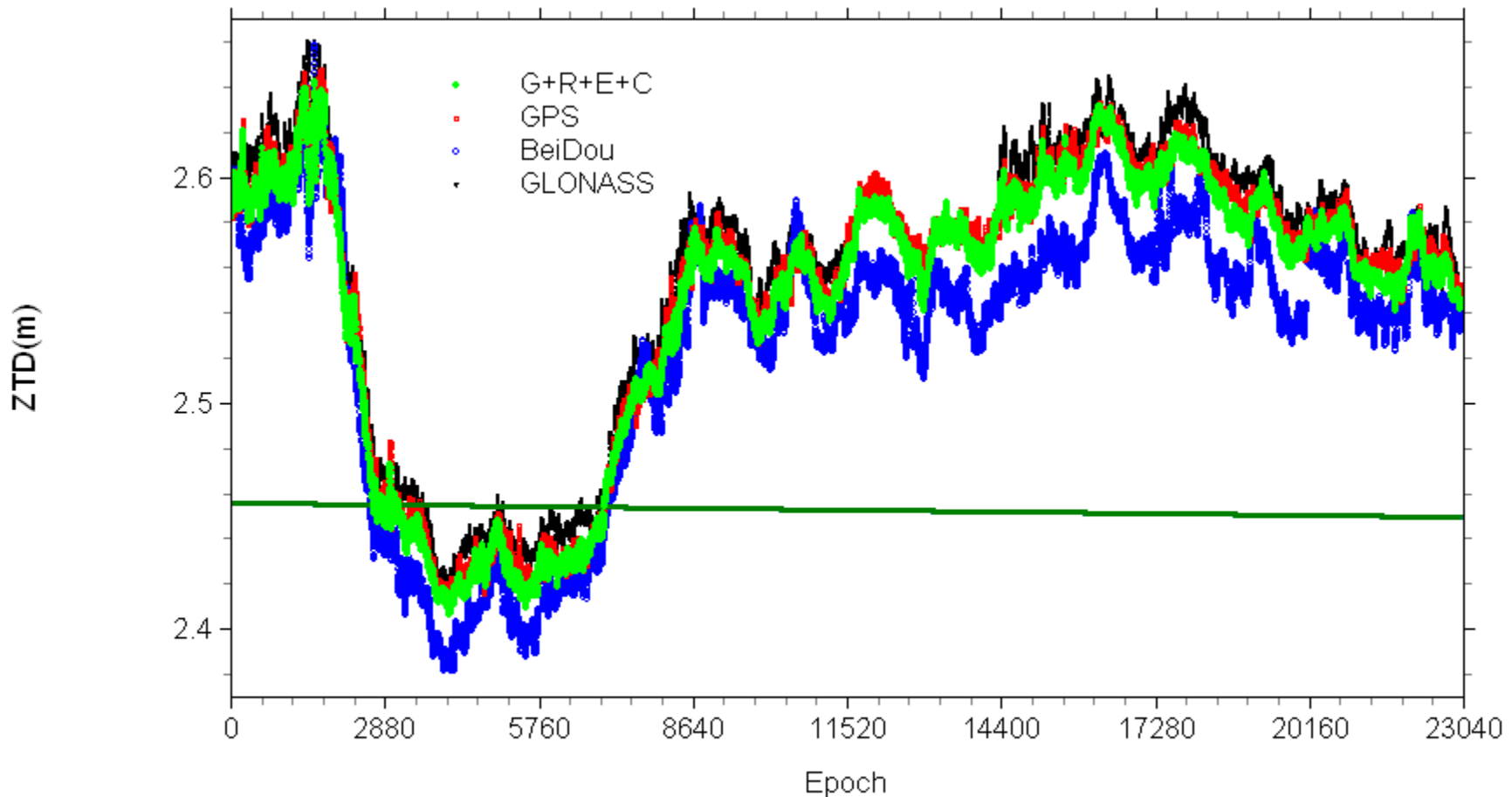
(4) Real-Time GPS Processing

- Possible future E-GVAP product
- EPOS-RT software, PPP strategy
- GPS only, GLO+GAL+BeiDou possible
- ZTD products, STD possible in future
- ~15 Bavarian SAPOS stations in processing
- pre-operational run since August 2014



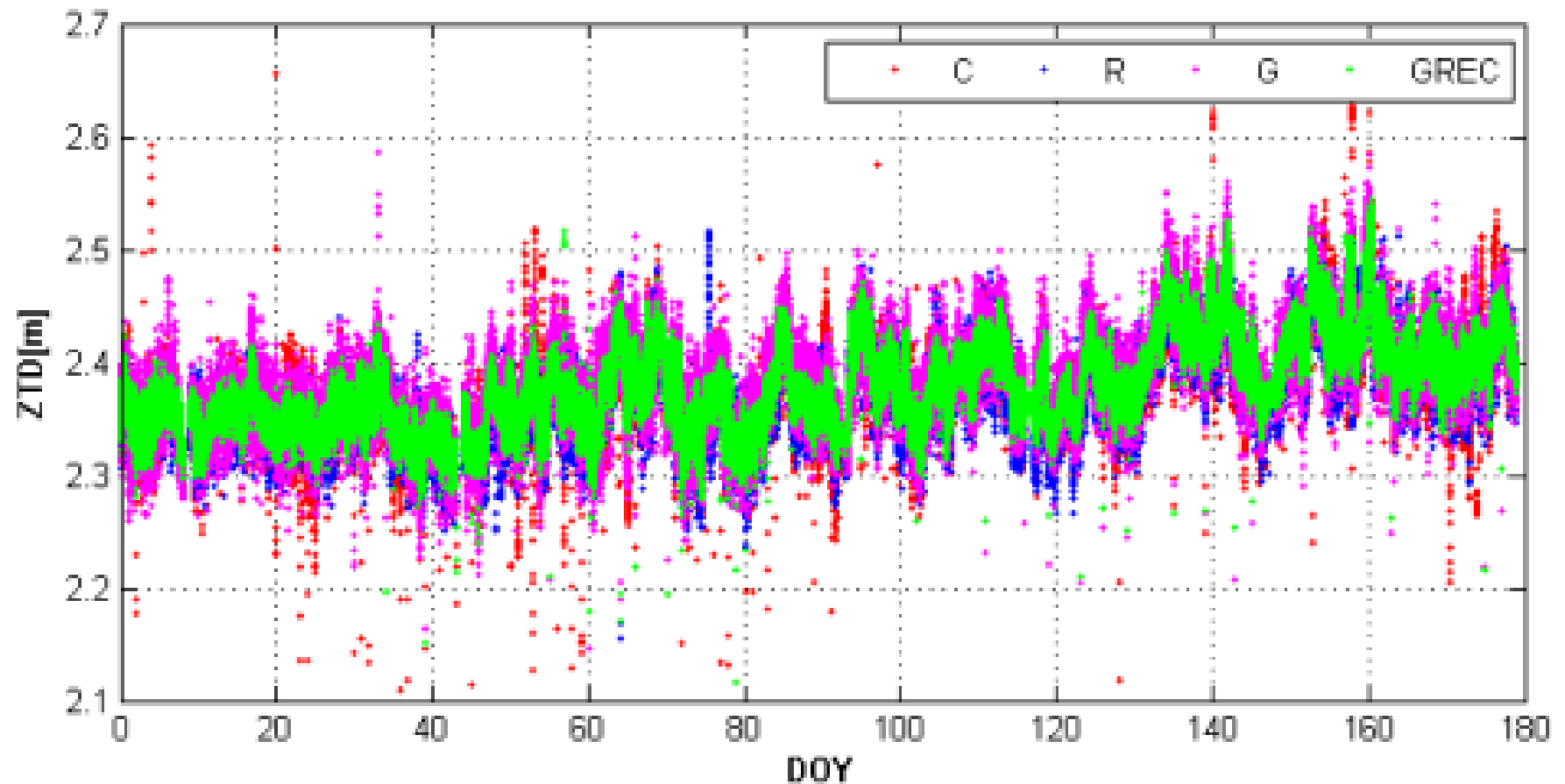
Example of RT ZTD results for Bavarian SAPOS stations 0256 and 0268 for September 8th, 2014

(5.1) Multi-GNSS Real-time Activities



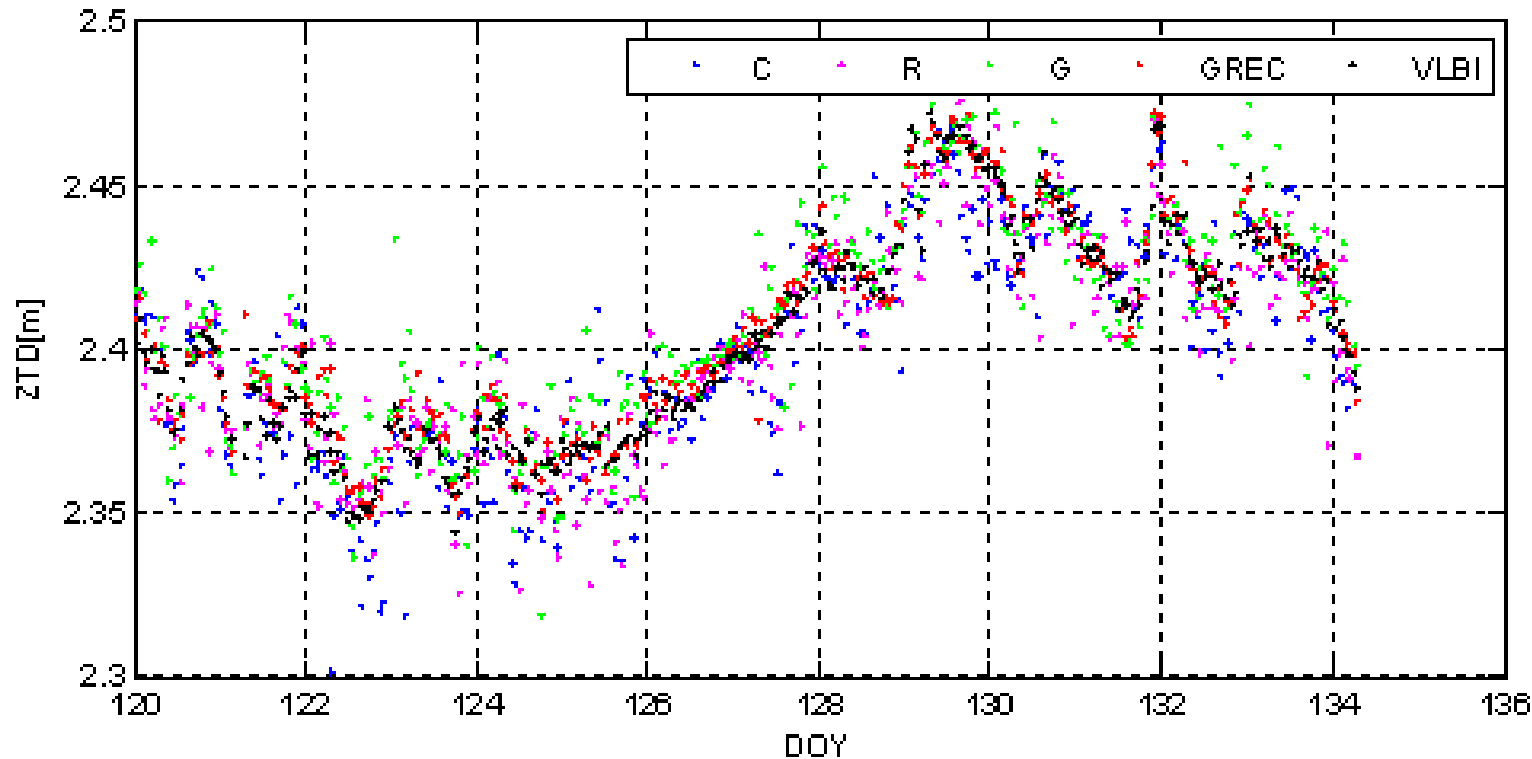
Multi-GNSS ZTD results with simulated RT data for station GMSD (Japan)
Time period from the 1st of September 2014

(5.2) Multi-GNSS Real-time Activities



Multi-GNSS ZTD results with simulated RT data for station Onsala (Sweden)
Time period: first 6 months of 2014

(5.3) Multi-GNSS Real-time Activities



Multi-GNSS ZTD results with simulated RT data and VLBI for station Onsala (ONS1)
Time period: DOY 120 to 136, 2014

(5.4) Multi-GNSS Real-time Activities

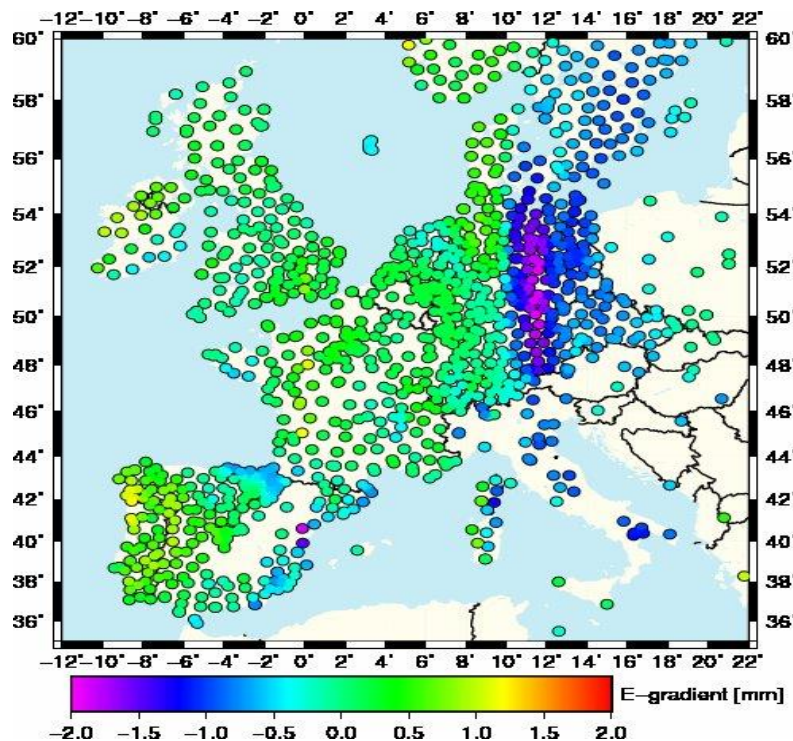
GNSS/VLBI	Mean (mm)				STD (mm)			
	G	R	C	GREC	G	R	C	GREC
WARK	3.32	1.67	-5.17	-0.05	17.32	16.59	17.31	9.19
ONS1	5.19	-3.47	-5.06	1.29	12.68	12.08	14.33	7.30
WTZR	2.71	-7.02	-2.61	-1.15	15.31	13.57	17.68	9.67

Multi-GNSS ZTD results from simulated RT data compared with VLBI results
Time period: DOY 120 to 136 of 2014

Other Activities

- Generation of NWM based Zenith Delays, Mapping Functions & Horizontal Gradients (F. Zus)
- Plots (& in near future data) are available with no latency:
<ftp://ftp.gfz-potsdam.de/home/kg/zusflo/EGVAP>
<ftp://ftp.gfz-potsdam.de/home/kg/zusflo/WORLD>
- Purpose: compare the NWM solution with the GPS solution (ZTDs, gradi)

NWM



GPS

