

The GOP activity report

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Current GOP activities

- Routine processing (1993.0 – 2010.0)
- 2009.0 – 2010.0 in two versions (with and without Jason-2)
- Troposphere ZTD comparison DORIS-GNSS
- Empirical modeling of the observation error from residuals
- SPOT-5 and South Atlantic anomaly
- Development of the new orbit modeling

Solution with and without Jason-2

- Tx,Ty,Tz and scale variations are significantly reduced adding the Jason-2
- Impact on Tz is very strong

Offset (vs. ITRF2005) in mm

J-2	Tx	Ty	Tz	Scale
Yes	-8.2	3.8	8.2	-7.8
No	-3.3	9.3	-9.9	-5.8

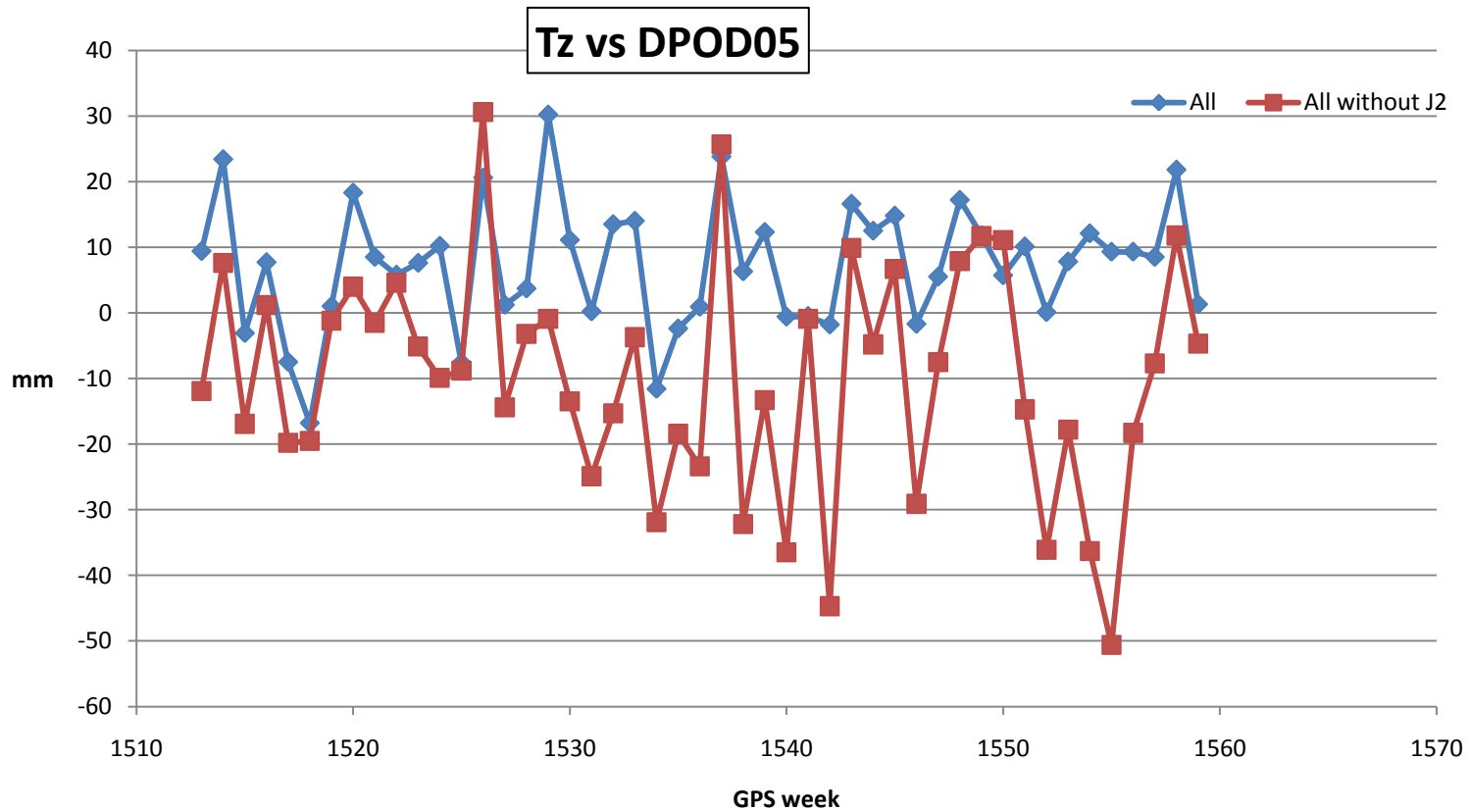
Std. dev. in mm

J-2	Tx	Ty	Tz	Scale
Yes	5.6	6.6	9.4	2.6
No	7.0	8.1	17.2	3.0

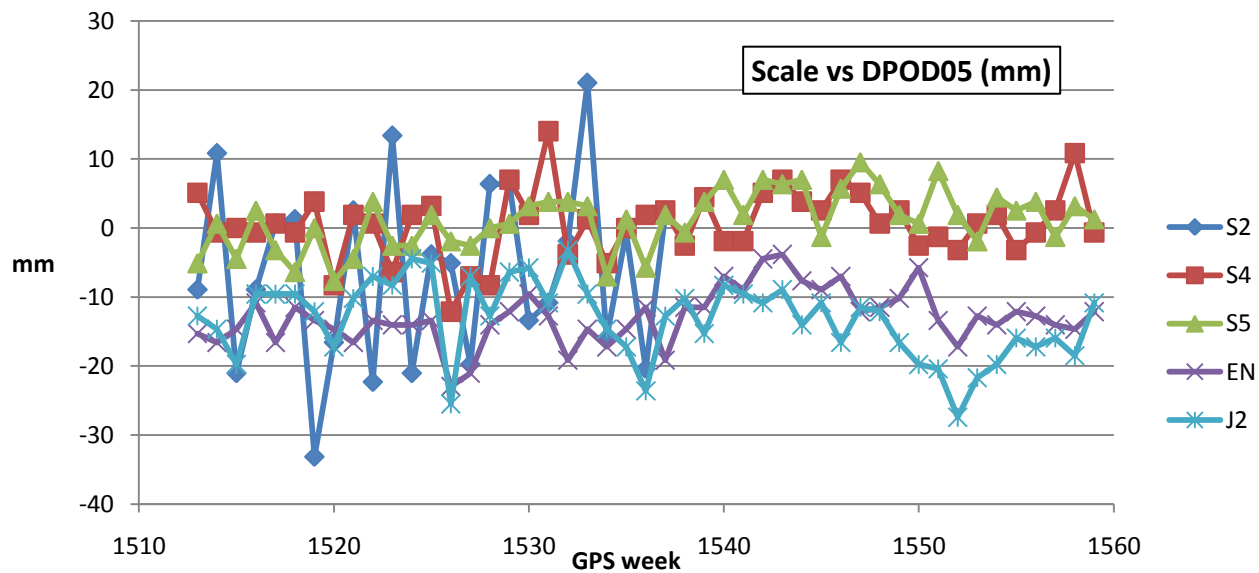
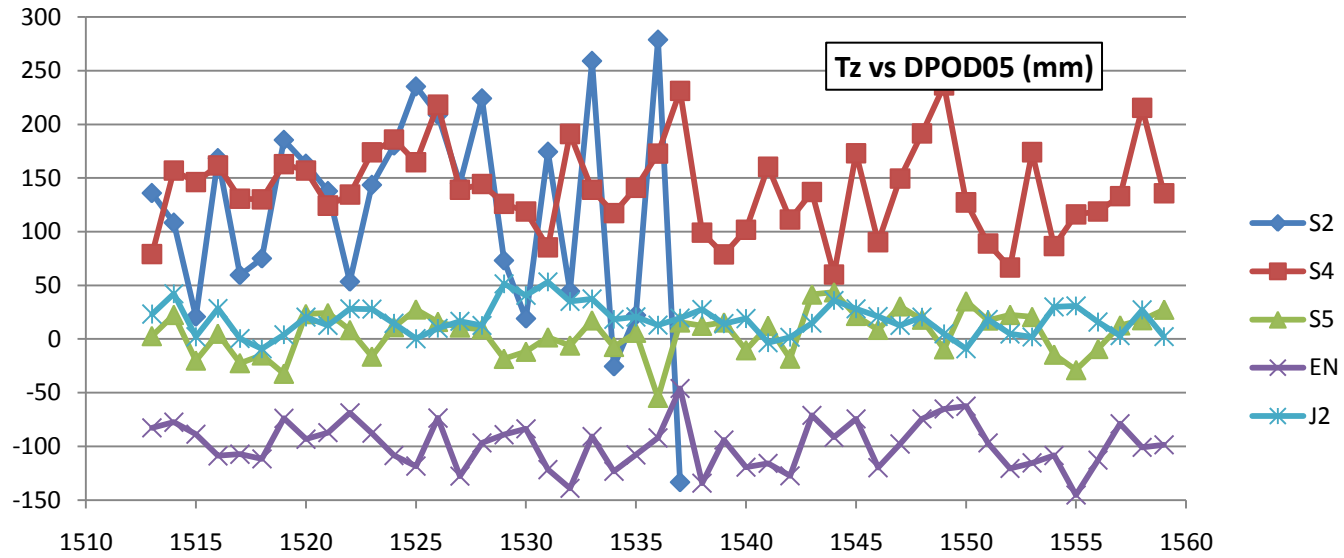
Z-component of Geocenter estimated with and without Jason-2

High improvement achieved using Jason-2 data

Estimated Z-geocenter variation reduced by nearly 50%

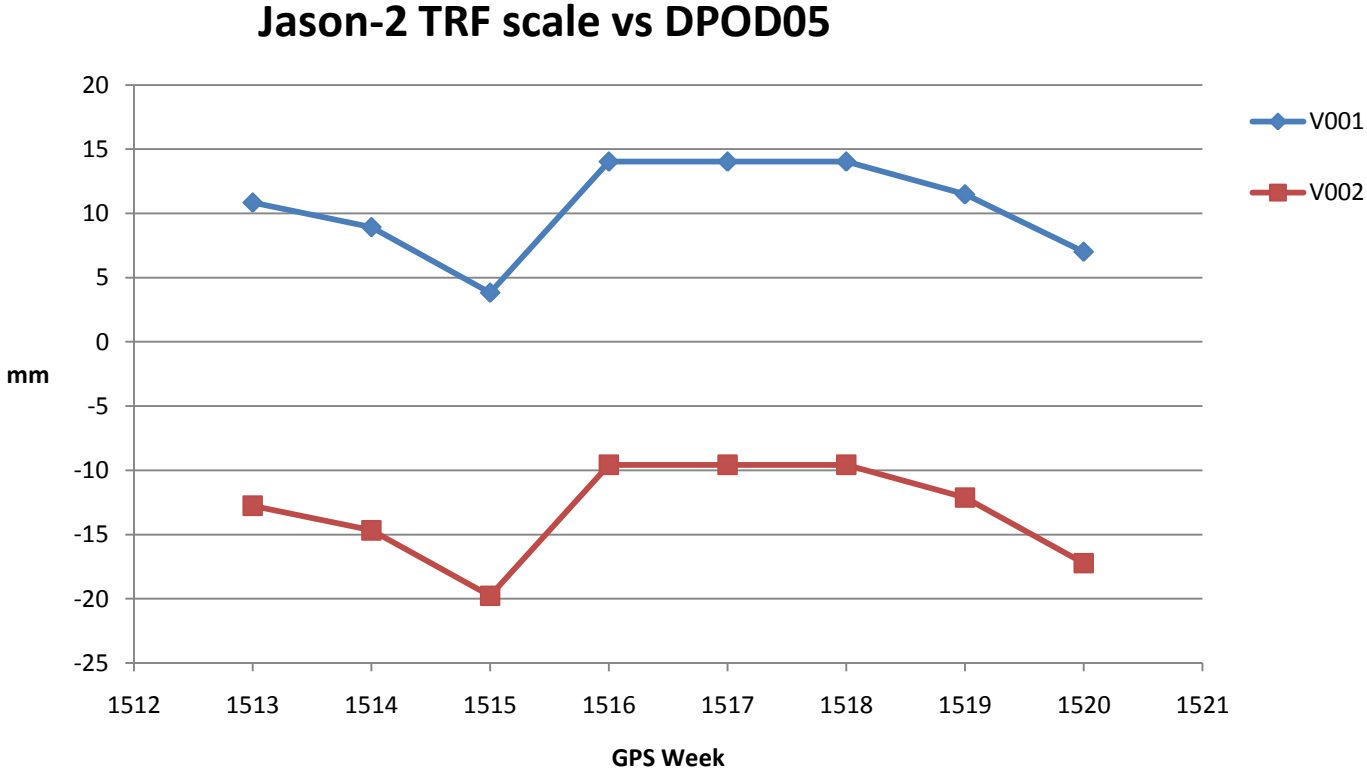


Tz and scale derived from single-satellite solutions



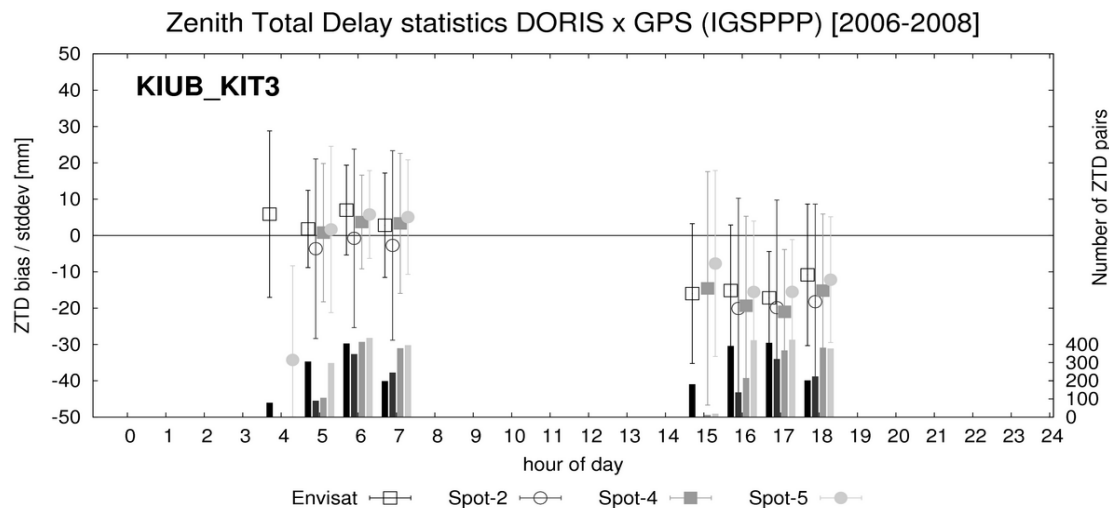
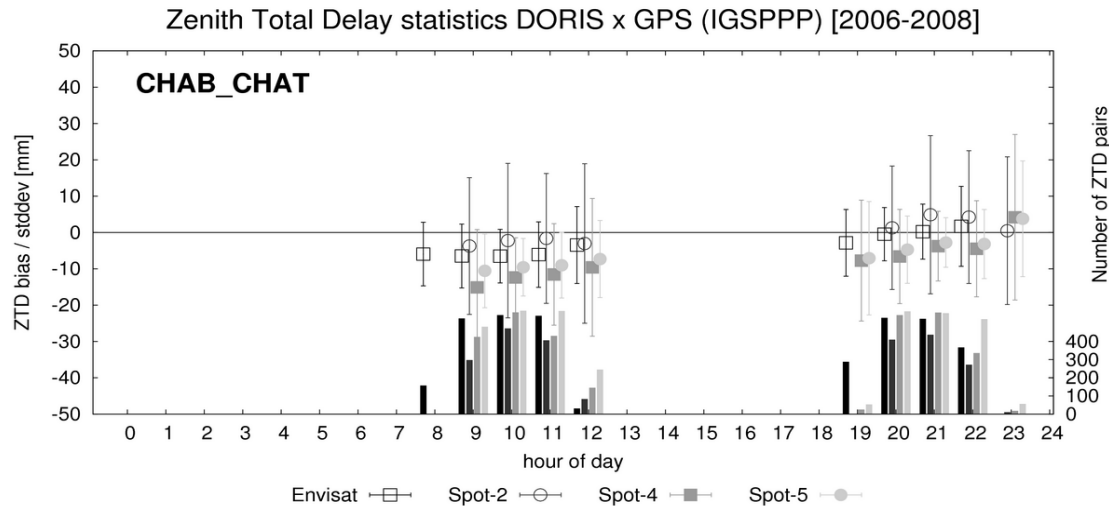
Jason -2, data versions 001, 002

About 23 mm difference in scale



ZTD comparison GNSS/DORIS

- DORIS ZTD estimates derived from single-satellite solutions
- Millimeter level overall DORIS-GNSS offset (between -2 and -5 mm)
- High offset for stations Cachoeira Paulista, Santiago and Arequipa (SPOT-5)
- Offset between Ascending and Descending passes (all Sat.)
 - Max. around 20 mm, generally higher for equatorial stations



Orbit modeling development

- ❑ Motivation: improvement of GOP solution, more stable time-series, orbits
- ❑ Current version: stochastic and empirical parameters, no macromodels
- ❑ Version under development: as other ACs (macromodels, box-wing attitude models)
- ❑ Development in cooperation with Technical University Munchen (Urs Hugentobler)
- ❑ Current state: testing of the first very early version.