

GOP reprocessing status report

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GOP Reprocessing status

- **Data 1995.0 – 2014.0 processed**
- **Error found in Alcatel Antenna phase law application – data before 2005 need to be processed again**
 - Error remained undetected in initial tests
 - Source of the problem was the error in original Alcatel antex (elevation step 10 deg. Instead of 5 deg.)
 - New version of Alcatel antex from late October 2013 is corrected (unfortunately reprocessing started before)
 - The error in the Antex file was evidently corrected by somebody, but no warning was sent to ACs....???
- **Plan to re-deliver the solutions**
 - DORIS data processing in paralel on additional machine (technically more difficult than expected)
 - Goal was to deliver sinexes until end of March, but more realistic is the middle of April

Satellite selection

- HY-2A both solutions with and without delivered for later decision
- Jason-1 not included
 - which probably leads to Scale decrement in period between T/P and Jason-2.
 - Therefore also two solutions with and without Jason-1 are planned, if possible

Orbit parameters

- **Dynamical orbit (contrary to older GOP wd3X series, where empirical-stochastic approach was applied)**
- **Strategy optimized according to testing results summarized in** Stepanek, P.; Rodriguez-Solano, C.J.; Hugentobler, U.; Filler, V., 2014. Impact of orbit modeling on DORIS station position and Earth rotation estimates, ADVANCES IN SPACE RESEARCH, 53(7):1058-1070, DOI: 10.1016/j.asr.2014.01.00 <http://dx.doi.org/10.1016/j.asr.2014.01.007>
- **Contrary to other ACs, SRP is not fixed on pre-defined values**
- **Data processed in iterative process**
 - **first iteration: 1 SRP/day, 1drag/day, no 1-rev parameters**
 - **second iteration: 1 SRP/day, 6 drag/ day (T/P, Jason) or 48 drag/day („low“ satellites), 1-rev parameters**
 - SRP and drag estimates from 1st run taken in second iteration as a priori with constraints
 - SRP in second iteration strongly constrained (nearly fixed) 0.0001
 - Drag softly constrained in second iteration (constraint =1).
- **Solutions created in two version, with employment of cross track harmonics (wd42) and without (wd43)**
 - **Analysis from Guilhem confirmed, that adjustment of cross track harmonics degrades the ERP estimation, while does not improve station parameters.**

Scale increment in 2012

Ocurre again in new series - the attached slide from Toulouse 2013 presentation, data from operational solutions („old“ standards)

- From August 2011 to August 2012 the scale of GOP solution w.r.t. ITRF 2008 increased about 17 mm
- For the other ACs the increment is not so strong (7-14 mm, 10 mm in average)
 - *only visual check of combination center plots (created by Guilhem Moreaux)*
- Hy-2A single addition in the solution explains only less than half of the scale increment in the multi-satellite solution
- some minor scale increment could be present due to the Envisat data termination
- In GOP single-satellite solutions were found about **20 mm scale „jumps“ for Cryosat-2 and Jason-2**
- Cryosat -2 week 1672/1673 (January/February 2012), Jason-2 week 1694/1695 (June/July 2012)

