

Reprocessing @ ESOC

Lessons learned

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- IGS reprocessing
 - 1995 to 2008 done and submitted.
 - 1994 done but results are not good enough (early AS years)
- IDS reprocessing
 - 1992 to 2008 done and submitted.
 - Using Envisat, Spot-1, 2, 3, 4, and 5, Jason 1 and 2.
- ILRS reprocessing
 - 1993 to 2008 done but not submitted due to “benchmark”
 - Using Lageos-1/2 and Etalon-1/2

**All reprocessing done with one software:
NAPEOS**

- Robustness and Reliability
 - No failures, 15 years = 5500 days!
 - 1% failure rate means 55 problems!
- Efficiency
 - Short processing time per solution! (1 cpu hour per day)
 - Short processing time over whole reprocessing (< 1month)
- Reference Frame was difficult in first repro!
 - In particular 1994/1995
- Great tool for science!
 - Repeat a couple of years with slightly different strategies
- Almost a “must” for testing software changes
 - ACs should validate if a change has any “long term” effects
- Need tools to analyze the results
 - Fast and efficient!

ESOC Reprocessing Summary and Conclusions



- Reprocessing repeated several times
 - Improved Reference Frame
 - Added PCO
 - Added 30 sec clocks
 - Several software changes (from NAPEOS 2.6 to 3.5)
- Latest repro solution includes:
 - PCO values for all GPS satellites
 - 30 second clocks (used for Jason-1 and -2 reprocessing)
 - LOD bug fix (ESA now has really great LOD, wk 1565)
- Reprocessing should be done regularly
 - If software is efficient enough
 - If enough CPU power is available

Future Reprocessing Plans



- Able to do with current software version
 - Include GLONASS from 2008 onwards
 - Combined with LEOs (Jason-1 and -2)
 - Spherical harmonics for PCVs
 - More stations, plan to go from 150 to 600
 - Fully correlated! No clusters
- Able to do after some software enhancements
 - GPS and GLONASS attitude model
 - Improved box-wing model with partials
 - Latest versions of IERS 2003 standards
 - Need new sub-daily ERP model!!!??
 - Higher time resolutions for troposphere
 - Second order ionosphere

THANK YOU

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