GOP LAC re-processing - status report

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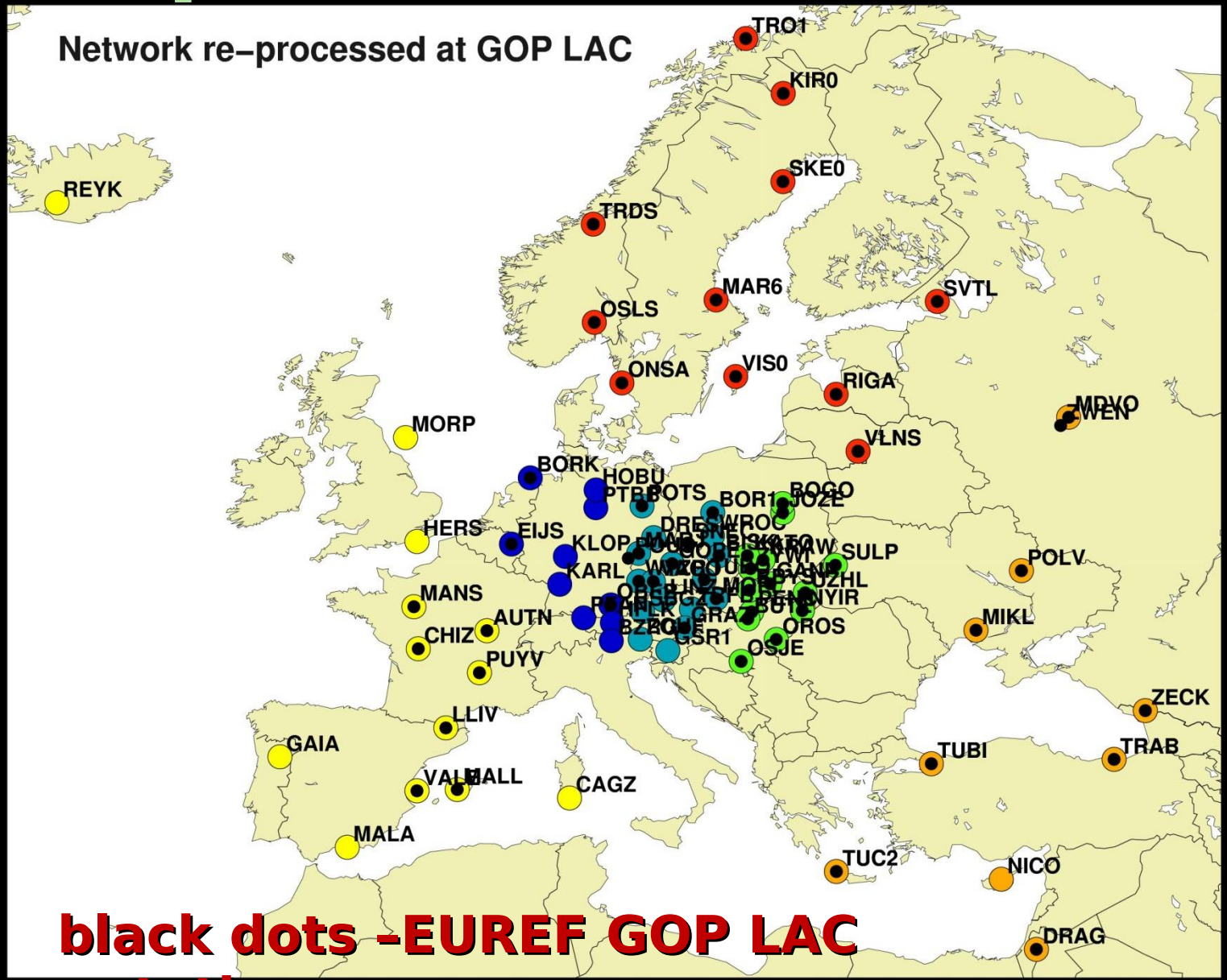
Introduction

- Currently lack of manpower ☹
- Re-processing system setup (Sep 2010)
- 1st run completed (Sep-Oct 2010)
  - Initial check for the routine settings, data and product availability, solution stability
  - A few problems were resolved
  - First raw daily time-series
- 2nd run in progress (Nov 2010)
  - Improved input RINEX data handling according to minimize data removal (problem using older version of teqc software)
  - weekly solution

Configuration

- **Network**
  - 75 EPN stations over entire Europe
    - 59 EPN stations processed routinely at GOP
    - 16 EPN stations requested for the re-processing
- **Hardware & software**
    - 2x dual-core CPU AMD Opteron
    - 4GB RAM
    - x86_64 architecture
    - Debian GNU/Linux – 5.0.6 (lenny)
    - Bernese GPS V5.0
- **Time needed for the complete 1996–2007 re-processing**
  - approximately 1 month using a single server

Re-processed network



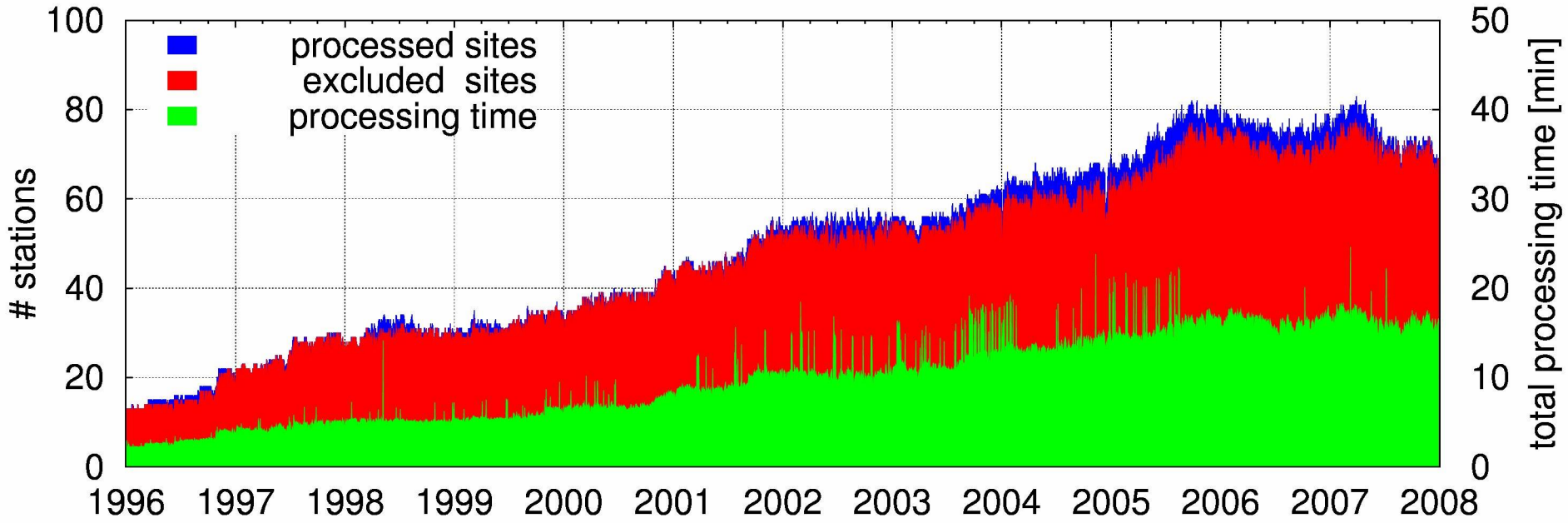
black dots –EUREF GOP LAC

Processing strategy

- Based on IGS Repro-1 orbits & ERPs
- All currently used models consistent with the existing GOP routine for EUREF network
- Basic strategy consistent with standard weekly GOP contribution to the EPN
- Extensive parallelization using 4-CPUs with adaptable cluster definition
- Robust procedure with a possibility of re-iteration after identifying problems with individual satellite or station
- Datum definition on a daily basis for the estimation of ETRS89 coordinates used for the draft time-series plot

1st processing run finished

- Excluded stations with data less than 12 h
- Number of all stations 17 - 75
- Processing time from 4 – 18 min
- 4x increase in total number of stations → 4x processing time

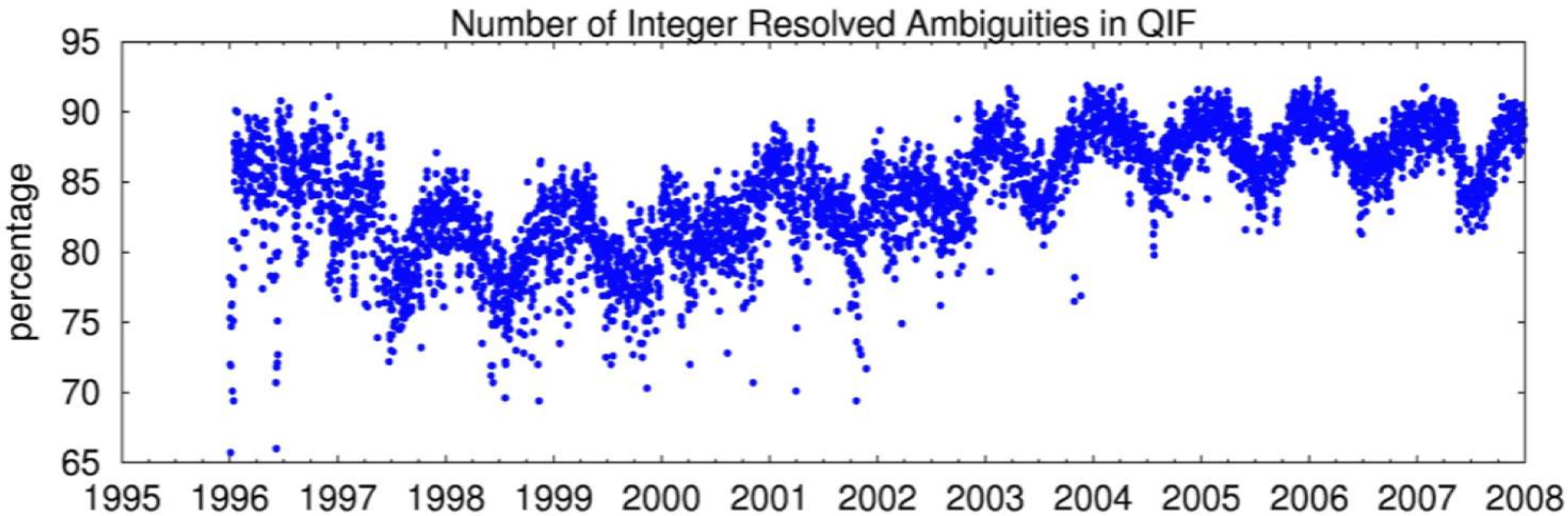


1st run fixed problems

- 1999:266
  - More than 50% observations removed
  - IG1 orbits (1028 4) – irrelevant drift in clocks
  - Fixed by using broadcast clocks
- 2004:101
  - RXOBV3 setup wavelength factor 2/1 instead of 1/1 for G10
  - Crashed at MAUPRP for GRAZ
  - Fixed by removing the end of data for GRAZ
- 2005:357
  - HELMR1 – no redundancy for check (solution instability)
  - Fixed by setting TRA instead of ROT+TRA

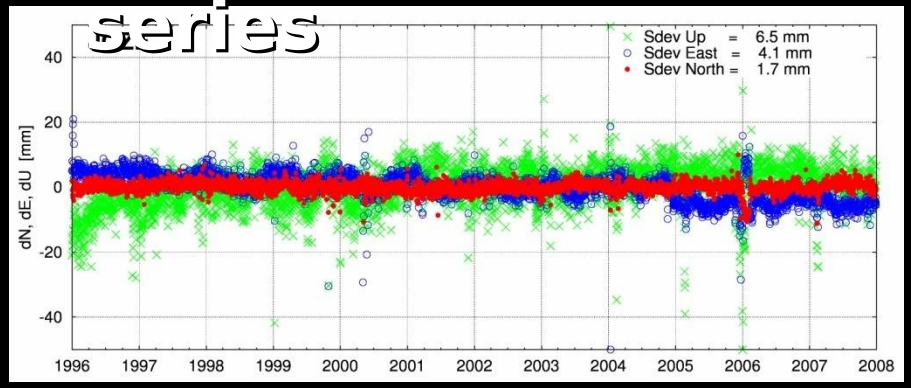
Ambiguity resolution

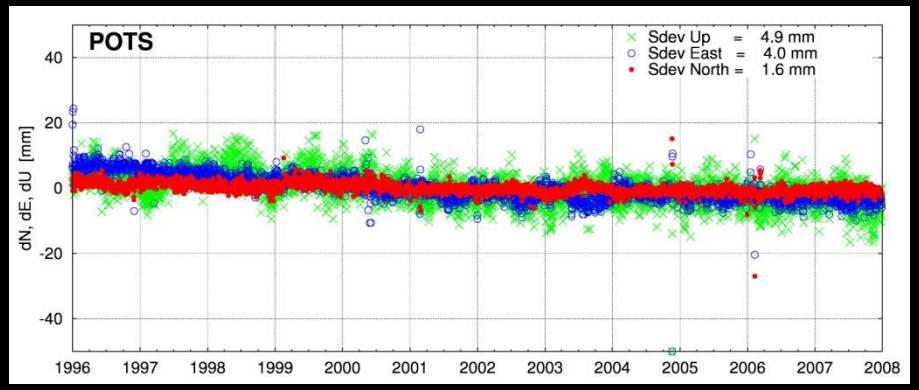
- QIF strategy only used
- ~85% integer ambiguity resolved
- CODE Ionosphere model applied



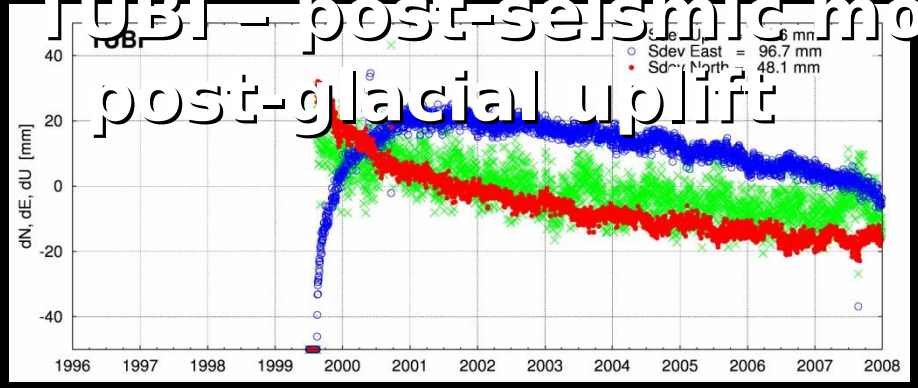
1st run daily raw ETRS time-series

JOZE & POTS - continuously smooth time-series

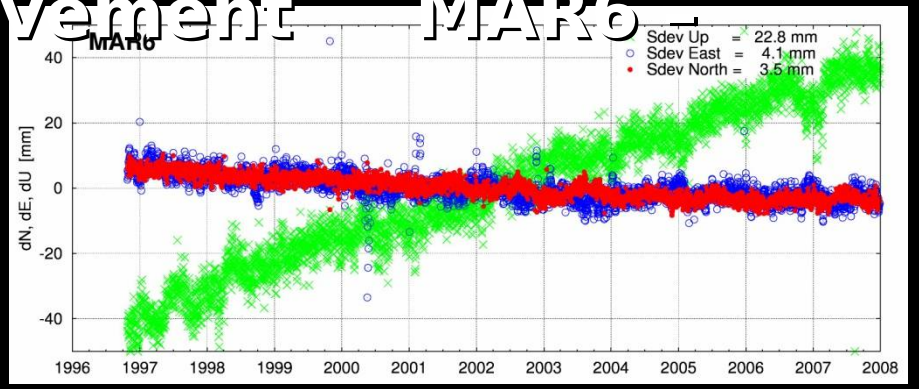




TUBI – post-seismic movement



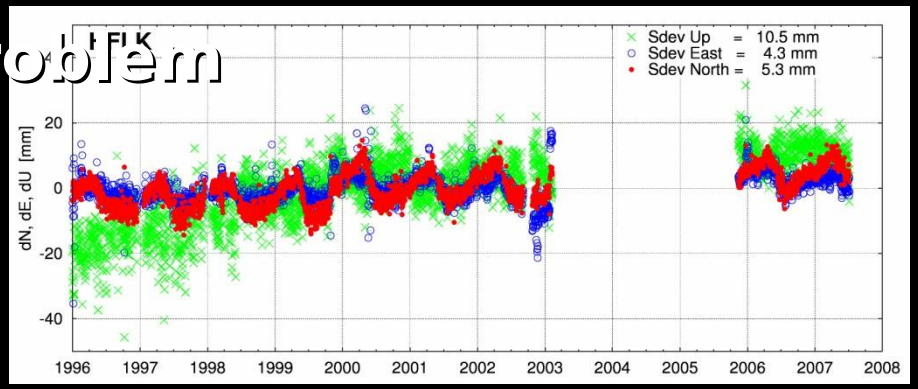
MAR6 – post-glacial uplift

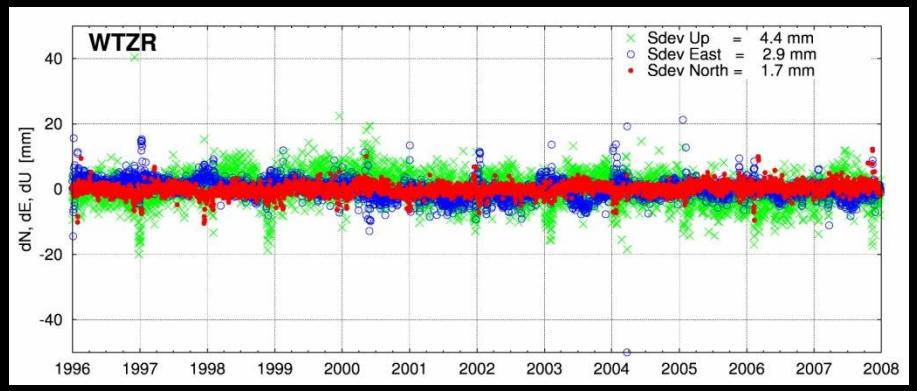


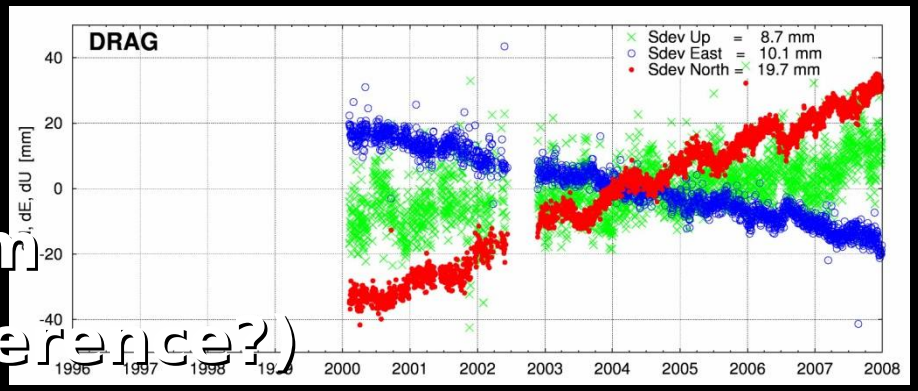
1st run daily raw ETRS time-series

HFLK, WTZR – snow/ice problem

DRAG - seasonal problem

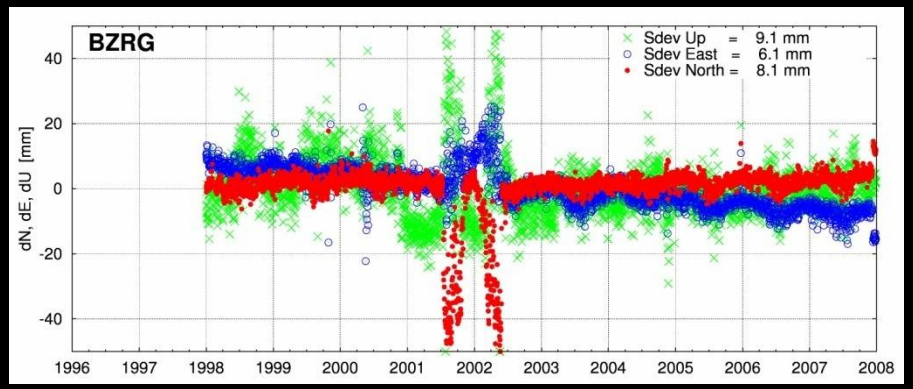


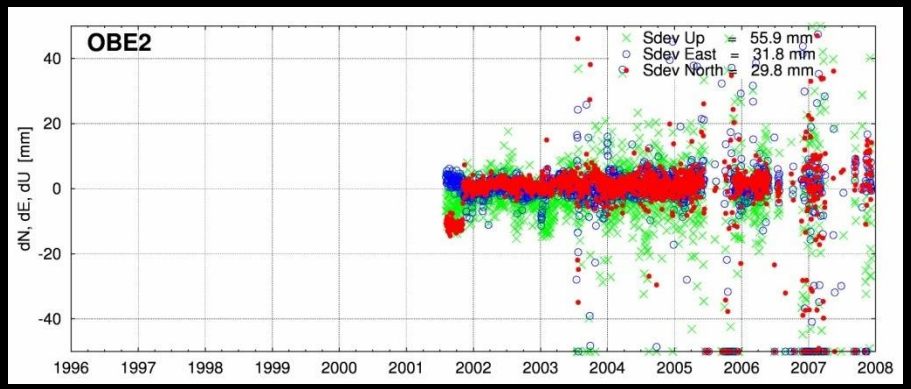




BZRG – occasional problem

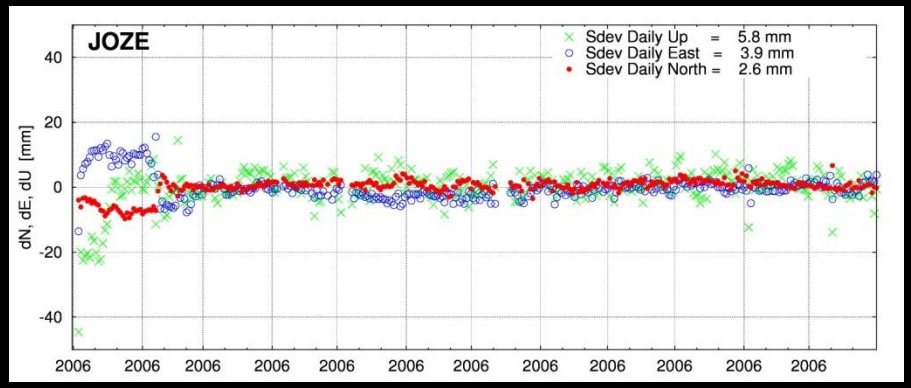
OBE2 – low quality (interference?)

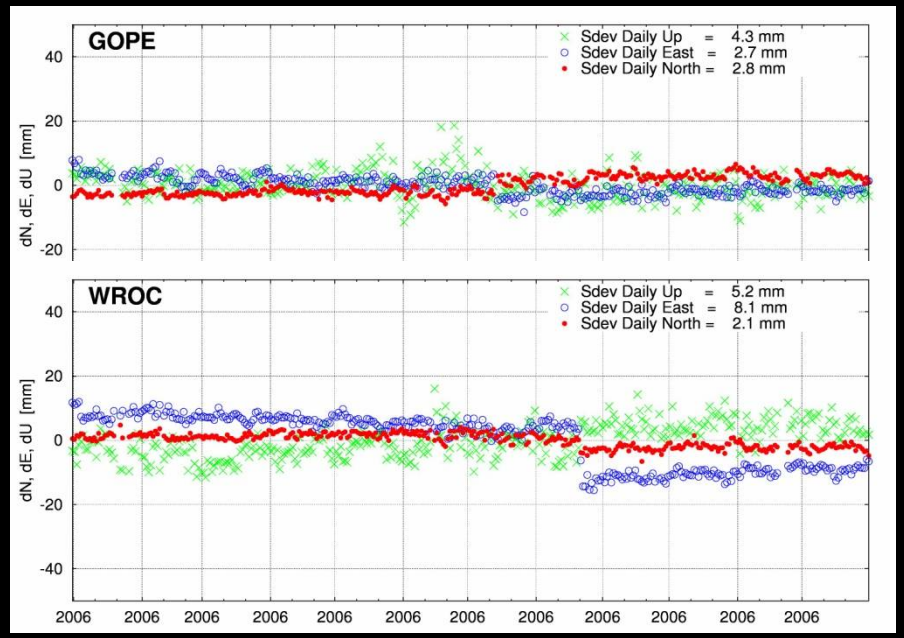




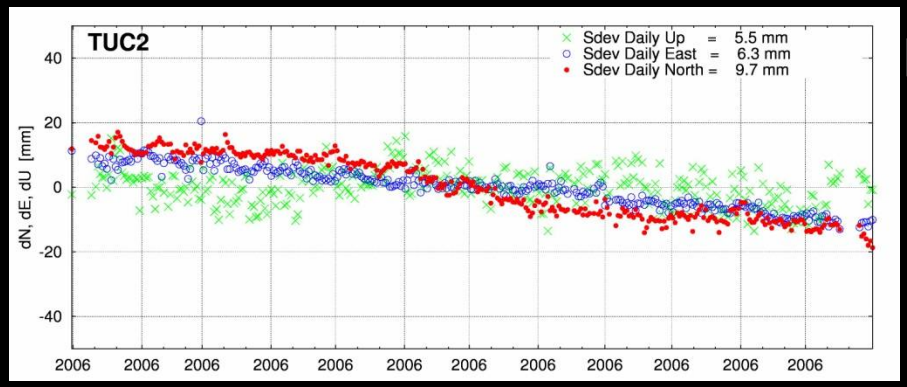
2006 - daily raw ETRS time-series

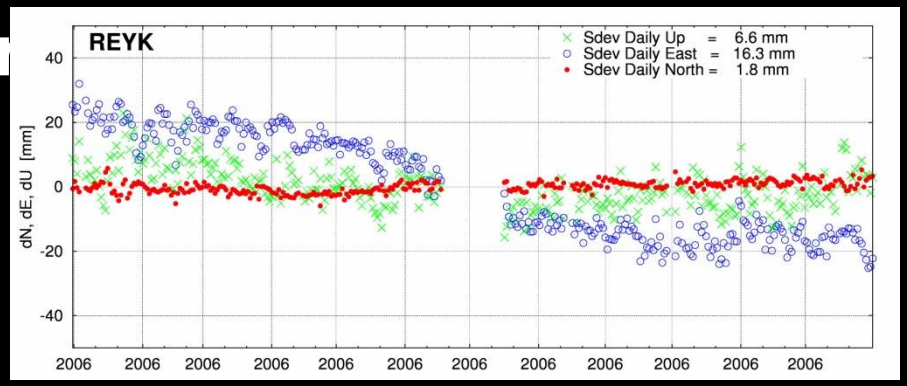
JOZE, GOPE, WROC – antenna changes visible





TUC2 & REYK





Conclusion

- Despite of the current lack of the manpower at GOP, we continue with promised contribution to the EPN re-processing project
- GOP LAC standard network + 16 stations added on request for the re-processing redundancy
- 1st run successfully completed , 2nd run in progress
- First daily coordinates demonstrates good repeatability of the solution (and stability of procedure) over the whole time-span