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RESEARCH GROUP
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DeDeCC - Comparison of VLBI data analysis software - results

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IDEA:

compare different VLBI analysis software packages on the basis of the computed delay

SETUP:

1 baseline (Westford - Wettzell)

1 source

various sessions

(e.g. 14 days @ 30 min)

→ “self-made” NGS files (resp. databases)



INPUT PARAMETERS:

- constant EOP
- constant air pressure & temperature
- no atmosphere loading
- *details: <http://views.hg.tuwien.ac.at>*

TU Vienna, **VieVS**

T. Artz (IGG Bonn), **CALC/Solve**

Solve release: 2008.07.31, mod. version

D. Gordon (GSFC), **CALC10.0/Solve**

S. Bolotin (GSFC), **SteelBreeze**

O. Titov (Geosc. Australia), **Occam 6.2**

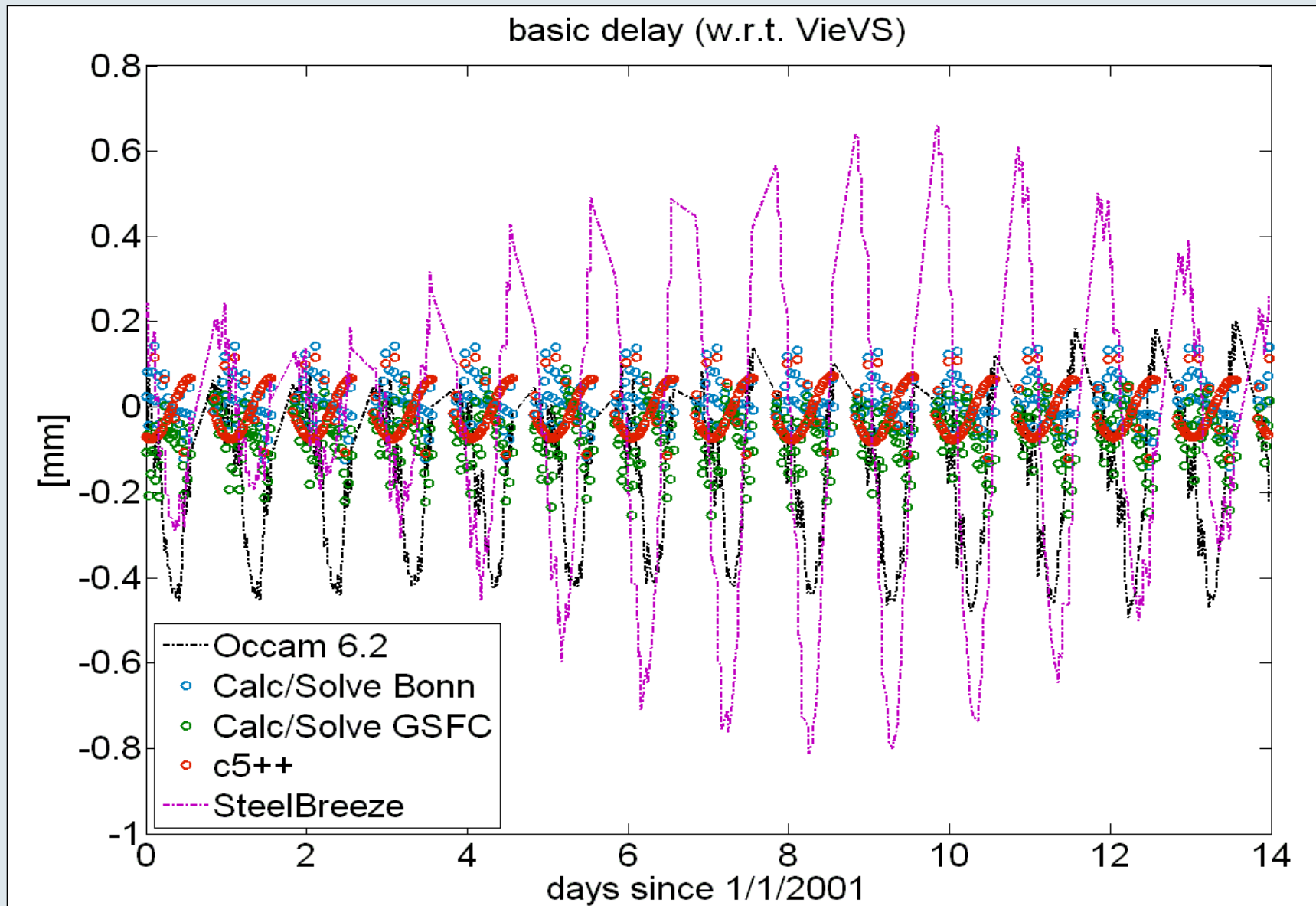
T. Hobiger (NICT), **c5++**

- goal:

overall accuracy of

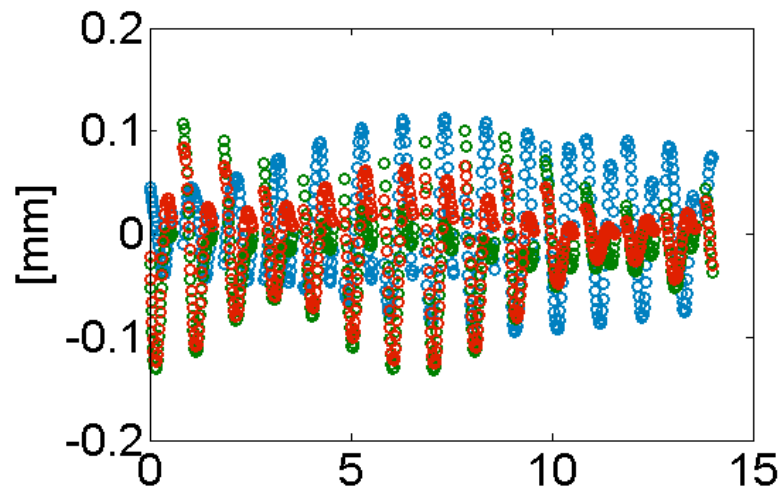
$$0.3 \text{ mm} \approx 1 \text{ ps}$$

- problems:
 - exactly the same models &
 - how to implement them

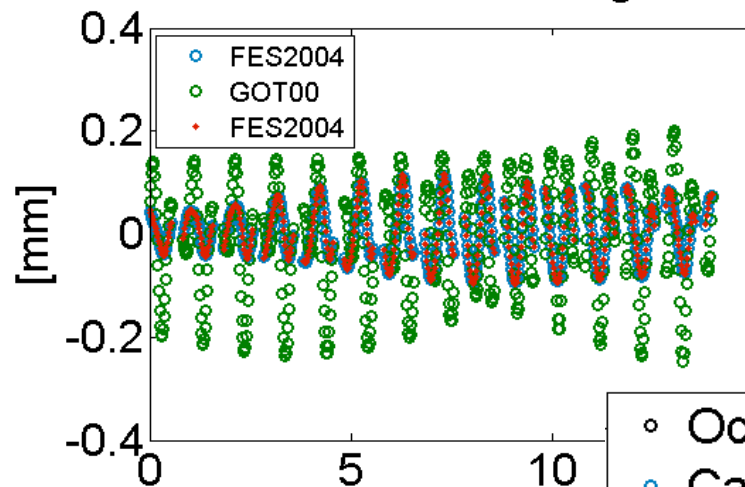


MODELS 1 (w.r.t. VieVS)

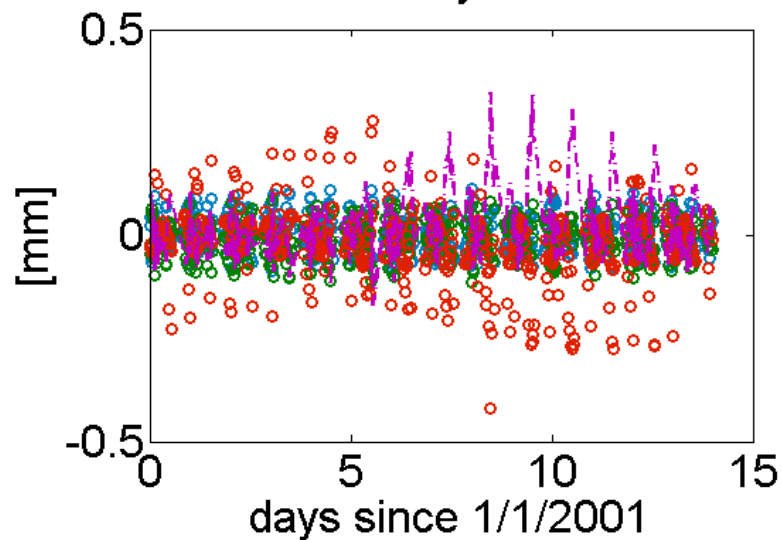
solid Earth tides



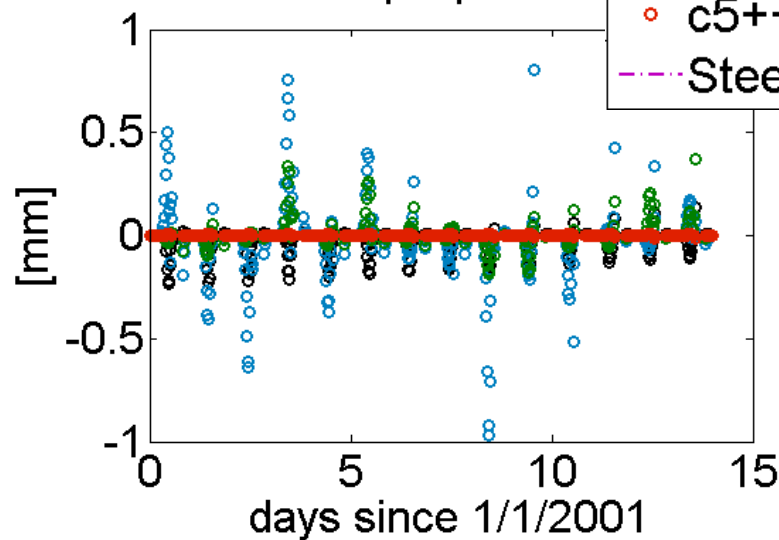
tidal ocean loading



subdaily EOP

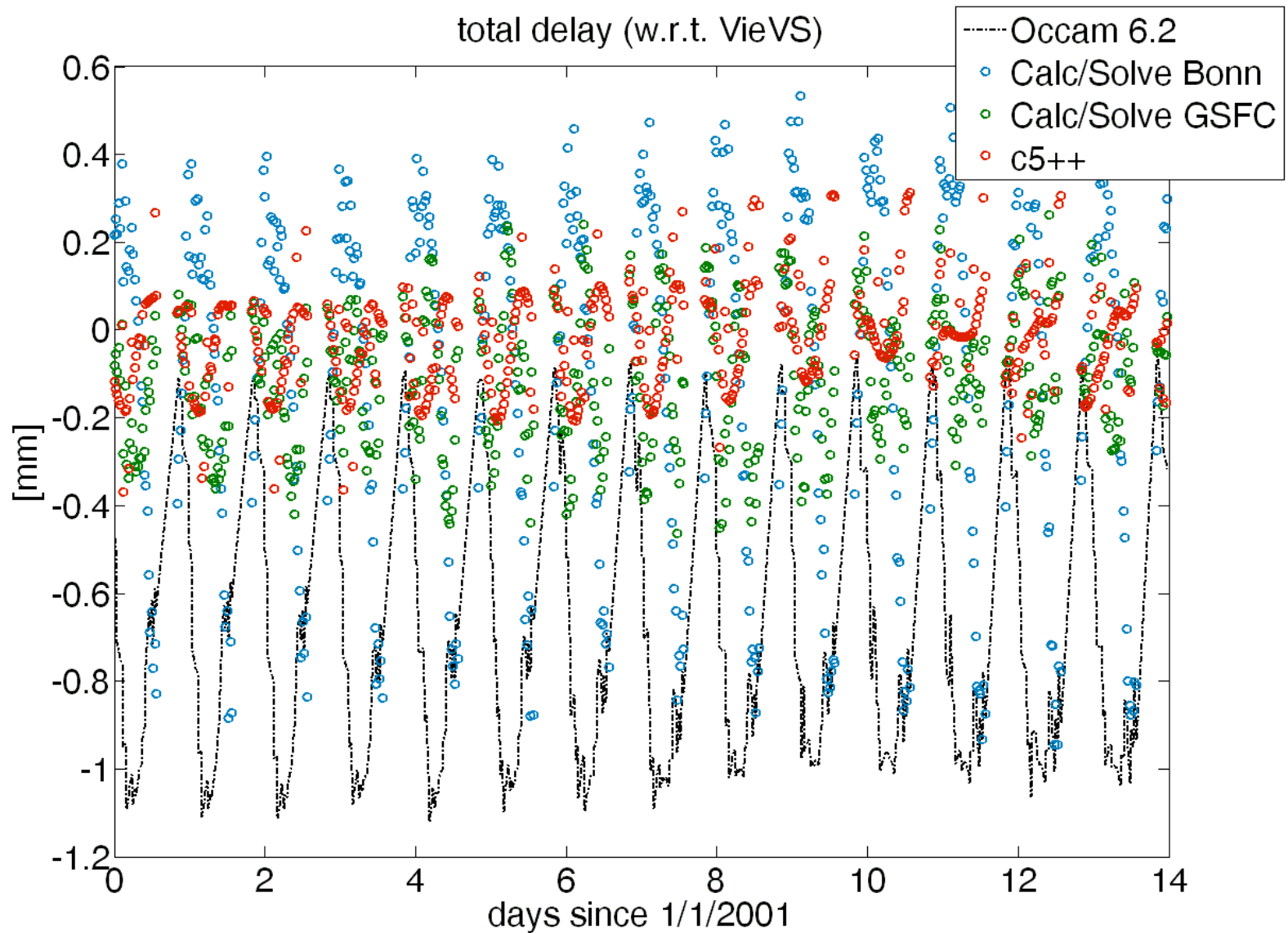


troposphere



- Occam 6.2
- Calc/Solve Bonn
- Calc/Solve GSFC
- c5++
- - - SteelBreeze

- **CALC/Solve Bonn:** - axis offset up to 0.8 mm
- **CALC/Solve GSFC:** - no station velocities
- **C5++:** ok
- **Occam 6.2:** - thermal deformation 1 mm
- **SteeleBreeze:** - not enough iterations;
SET: 2 mm
GOT00: 3 mm



- Comparison is still difficult
 - when are corrections applied?
- Shows the complexity and sensitivity of VLBI data analysis
- Accuracy of 1 ps (0.3 mm) is largely fulfilled (but not much better!)
- Open questions:
 - Bigger deviations at other time periods?
 - Are deviations at the mm-level critical for combined products?
 - Interpolation of EOP (excluded in DeDeCC)?
 - Detailed Conventions needed (e.g. table of ocean loading coefficients,...)

- Effort of participants?
- Continuation?
- Partial?

Big Thanks to all participants!