

8th VieVS User Workshop

Superstation file V3.0

Hana Krásná



TU Wien

Department of Geodesy and Geoinformation

Research Area Advanced Geodesy

Superstation file

- Binary (.mat) file containing all static station-dependent data:
VieVS/TRF/superstation.mat
- TRF, time-independent corrections and coefficients of periodic time dependencies
- The input files are stored in:
VieVS/TRF/create/superstation/neededFiles
 - TRF catalogues
 - antenna information, eccentricities
 - tidal ocean loading parameters (phase + amplitude)
 - tidal atmosphere loading (with cosine and sine components of the deformation)
 - ocean pole tide loading (real and imag. part of the tide coefficients)
- corrections without periodic time dependencies are saved as time series (i.e., not in the superstation file)
 - non-tidal atmosphere loading (VieVS/ATM/)
 - hydrology loading (VieVS/HYDLO/)

Reference frames

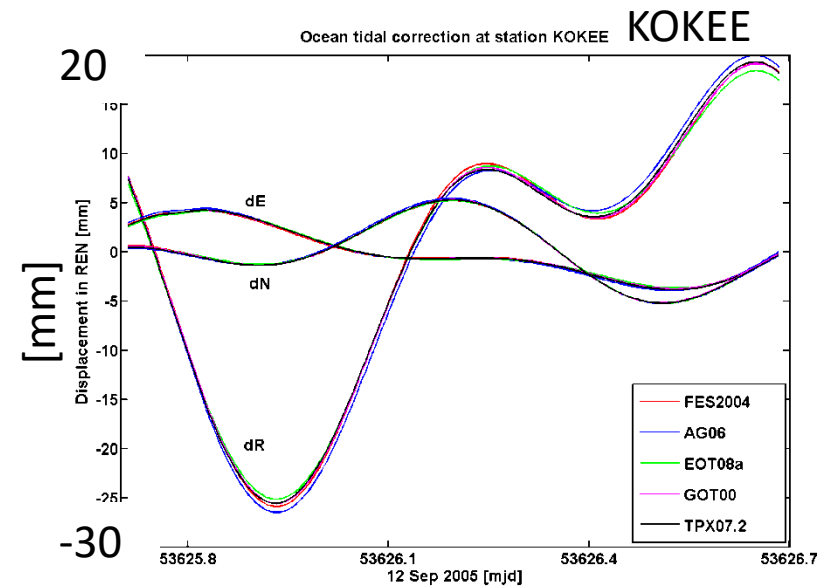
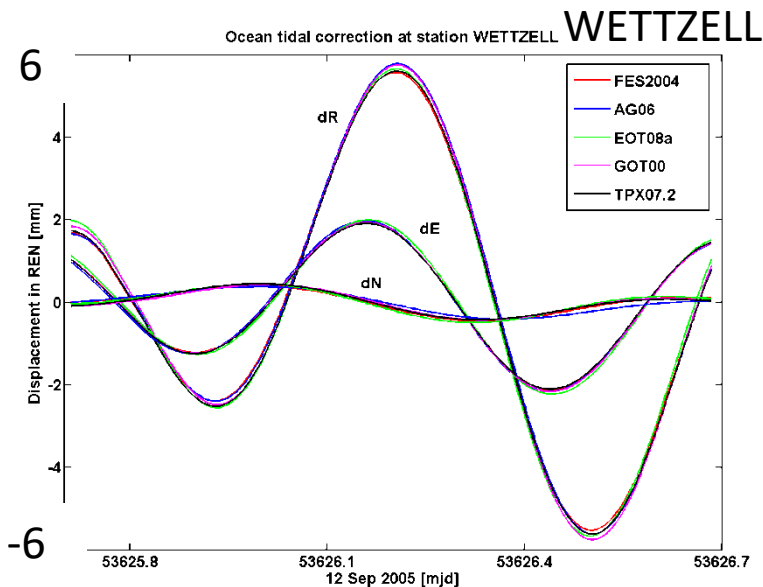
- Following frames can be chosen in VieVS 3.0

- ITRF2005
- ITRF2008
- ITRF2014
- VTRF2008
- VTRF2014
- VieTRF13
- viewsTrf (= backup)
- User own TRF



Tidal Ocean Loading (comparison)

model	reference	input	resolution
TPX07.2	Egberg et al. (2002)	inverse hydrodynamic solution from T/P altimetry+GRACE	0.25° x 0.25°
GOT00	Ray (1999)	T/P	0.5° x 0.5°
FES2004	Letellier (2004)	numerical model	0.125° x 0.125° DEFAULT
EOT08a	Savcenko et al. (2008)	Multi-mission altimetry	0.125° x 0.125°
AG06	Andersen (2006)	Multi-mission altimetry	0.5° x 0.5°



Loading

Ocean tidal loading

- FES2004, GOT00, EOT08a, TPXO72, AG06
- User own

**manual change
of the input .txt
files needed**

Ocean pole tide loading

- IERS Conventions 2010: Desai (2002)
- User own

Atmosphere tide loading

- TU Wien
- GSFC Group
- (T. Van Dam)
- User own

**computed
automatically**

Let's start with the exercise...

Analyse the NGS file: VIEVS/DATA/NGS/2002/02VIE22XA_N004
which contains a new VLBI antenna TUVIENNA

1. Run a normal VieVS analysis
2. VieVS stops with a message: "No entry for station TUVIENNA in the superstation file!"

Superstation file - exercise

3. Open VIEVS\TRF\create\superstation\neededFiles\viewsTrf.txt and VIEVS\DATA\NGS\2002\02VIE22XA_N004 (in a .txt editor)
4. Copy the coordinates of the TUVIENNA given in the 02VIE22XA_N004 to the viewsTrf.txt
5. Go in the GUI to Models – Reference frames – TRF Create file
6. Click in the new Superstation GUI on "Search for files" and put a path in the lower right corner where the new superstation file should be stored:
..\TRF\superstation_vie.mat (you are in VIEVS\WORK)
7. Click on Create
8. Have a look at the Command Window, load the superstation file in the Workspace

```
load('..\TRF\superstation_vie.mat')
```
9. Below 4.1 you see the message NO OCEAN TIDE LOADING for TUVIENNA

Superstation file - exercise

10. Go to: <http://holt.oso.chalmers.se/loading/> and apply the ocean loading parameters for the TUVIENNA station.
11. **Skip the Step 10** in order to avoid an overload of the server.
Open the .txt file in VIEVS\WORK\OTL_email_FES2004.txt
12. Copy the block for TUVIENNA to TRF\create\superstation\neededFiles**ocean_loading_FES2004.TXT**
13. Add the station TUVIENNA also to TRF\create\superstation\neededFiles**ns-codes.txt**
*C- Name----- --DOMES-- CDP- Comments/description
Tu TUVIENNA 999999999 9999 VLBI antenna in Austria
14. Create the superstation file again (via the Superstation GUI)
15. Run the Analysis of the session again – with the new superstation file in Models – Reference frames – TRF Choose file

Thank you for your attention!