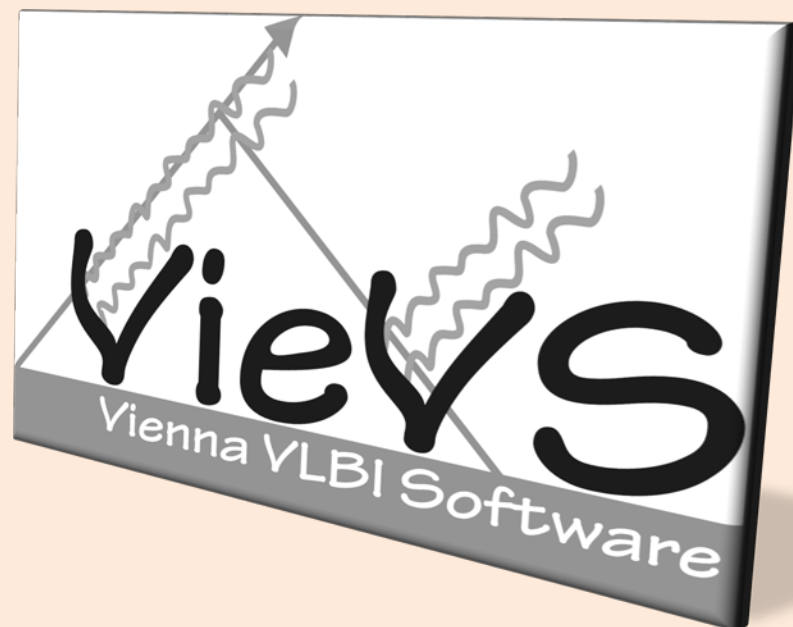


# Superstation & Supersource file

Hana Krásná

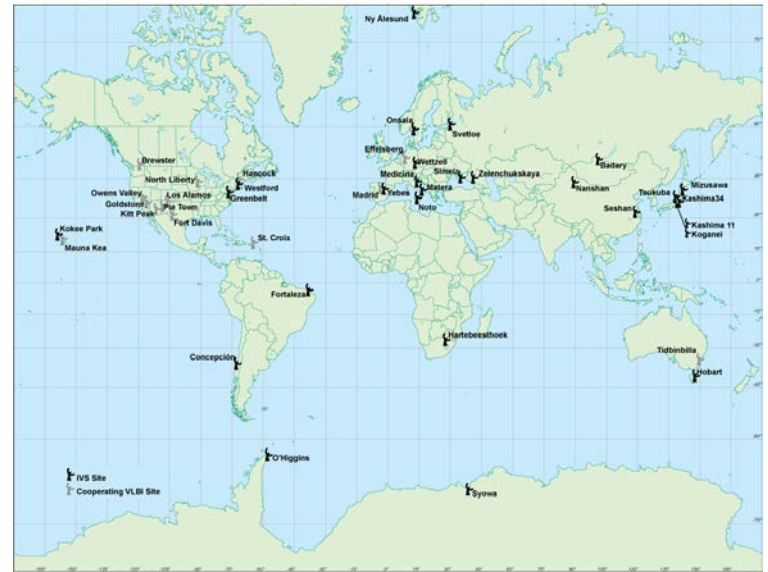


# Superstation file

- 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/)

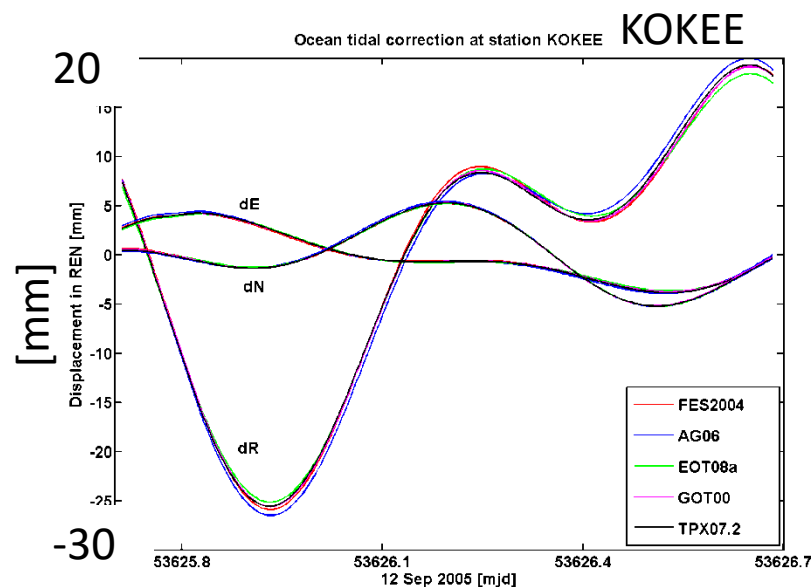
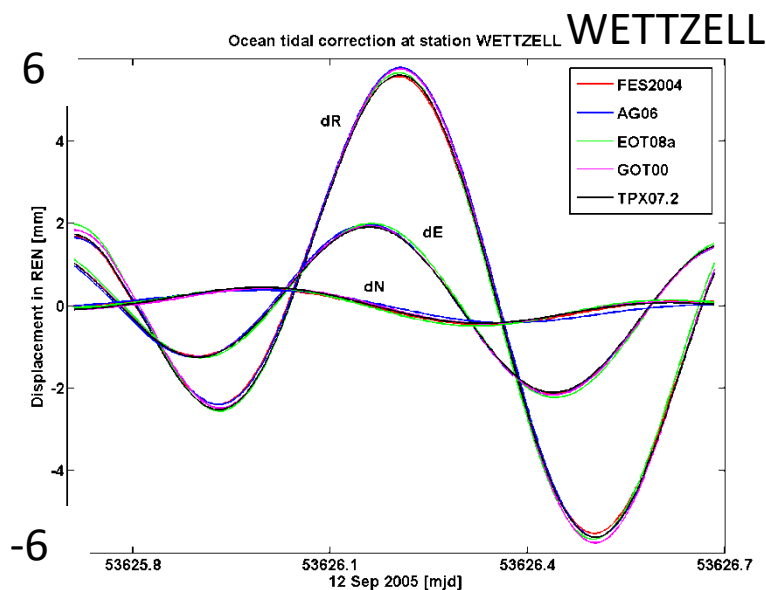
# Reference frames

- Following frames can be chosen in VieVS 2.3
  - ITRF2005
  - ITRF2008
  - 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° <b>DEFAULT</b>
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, TPX072, 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: "Station not found in vievs TRF - write coordinates to ASCII file and renew 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. Create the superstation file again (via the Superstation GUI)
14. Run the Analysis of the session again – with the new superstation file in Models –  
Reference frames – TRF Choose file



# Supersource file

- Binary (.mat) file containing all static source-dependent data:  
**VieVS/CRF/supersource.mat**
- VieVS is using IERS source names, the Common IVS names (used in the NGS files) are also stored
- Several RF can be chosen from the superstation file:
  - ICRF2
  - ICRF1 Ext2
  - VieCRF10a
  - vievsCrf as backup
- Information about the source observation from the catalogues (first obs., last obs., number of sessions, number of observations)

# Supersource file - exercise

- Analyse the NGS file:  
VIEVS/DATA/NGS/**2014/14SOU01XA\_N004** which contains a new source **0000-999**
1. Run a normal VieVS analysis
  2. VieVS stops with a message: "Source 0000-999 does not exist in supersource file (../CRF/supersource.mat) - add there!"

# Supersource file - exercise

3. Open VIEVS\CRF\create\supersource\neededFiles\viewsCrf.txt and VIEVS\DATA\NGS\2014\14SOU01XA\_N004 (in a .txt editor)
4. Copy the coordinates of the source 0000-999 given in the 14SOU01XA\_N004 to the viewsCrf.txt
5. Go in the GUI to Models – Reference frames – CRF Create file
6. Click in the new Supersource GUI on "Search for files" and put a path in the lower right corner where the new supersource file should be stored:  
..\CRF\supersource\_vie.mat (you are in VIEVS\WORK)
7. Click on Create
8. Run the Analysis of the session again – with the new supersource file in Models – Reference frames – CRF Choose file

**Thank you for your attention!**