



Activities at the BEK Local Analysis Centre

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EPN LAC Workshop Frankfurt,
22-23.10.08



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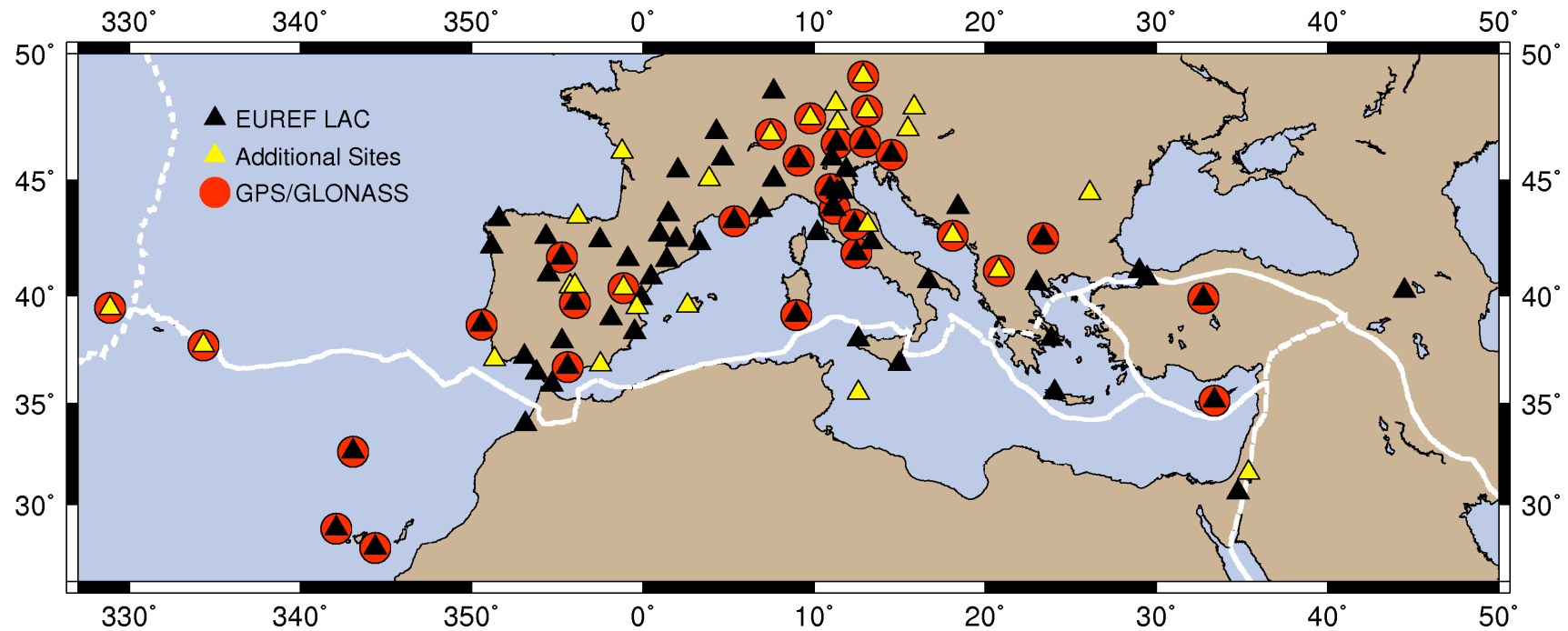


BEK LAC activities

- Start of operation in 1996.
- Using BERNESSE since 1996 (now version 5.0).
- LAC focuses on the southern part of the EPN (Mediterranean + ALPS).
- Number of assigned and total number of sites differs significantly:
 - Geodynamics of the Mediterranean,
 - Geodynamics of the ALPS.
- Real Time products do not play of role at BEK (yet?!).



Current Status (distribution of sites)



Total # sites	93
Assigned sites	68
GPS/GLONASS	29



GLONASS

- One third (29/90) of the sites within the BEK network observe *GPS* as well as *GLONASS* satellites.
- First processing attempts with *GLONASS* data have been carried out.
 - *CODE* orbits and *ERPs* have been used.
 - *ESA* orbits still need to be tested and results compared.
- The coordinates change only marginal.
 - BEK awaits improvements for the ambiguity resolution strategy
- BEK will attempt to include *GLONASS* directly after the workshop.

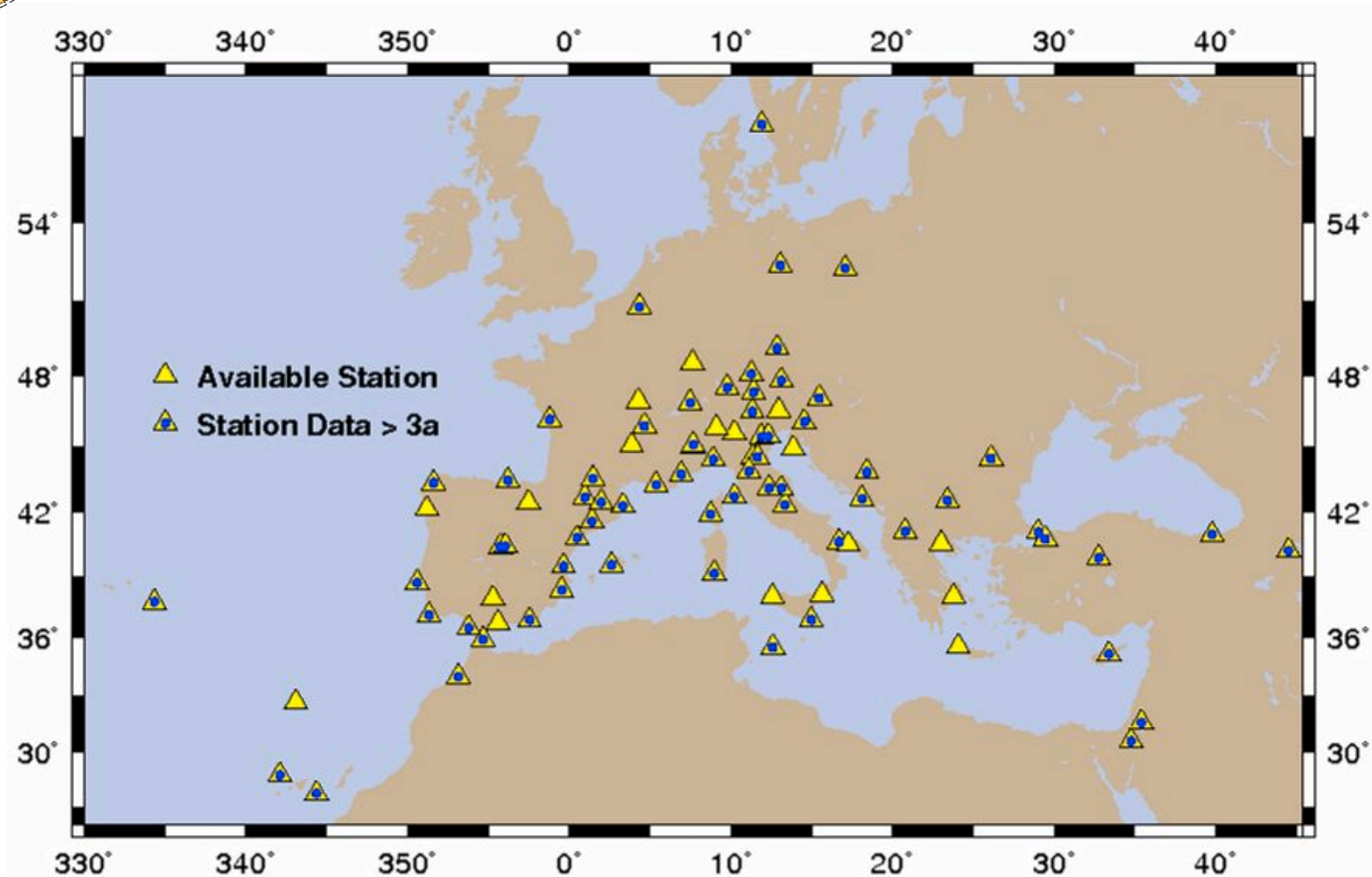


Reprocessing Activities at BEK

- 10 years of data (1996-2006) have been reprocessed in 2007.
- Results have been presented at the EUREF symposium in London.
- Network covers the Mediterranean (*Mittelmeernetz*)
 - Extension to the north in order to allow connections to other reprocessed networks (POTS, BRUS, ONSA, BOR1)
- Orbits and ERP were provided by GFZ Potsdam, TU Dresden and TU Munich (PDR05)



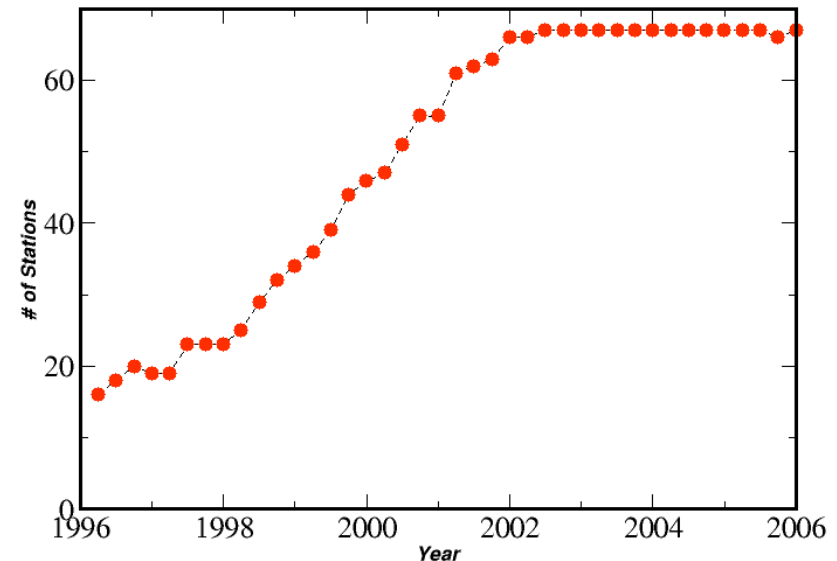
The Reprocessed Network





Network Characteristics of the BEK Subnetwork (2007)

- Over the past 10 years 92 stations were included
- But only 62 stations cover at least 3 years of data
- Daily solutions were processed using BERNESE 5.0
 - Troposphere: one estimate every two hours, one gradient per day
 - Abs. PCV for SV and ground antenna (additions from the GEO++ database)
- Data were processed on three PENTIUM IV computers (OS: Debian Linux)

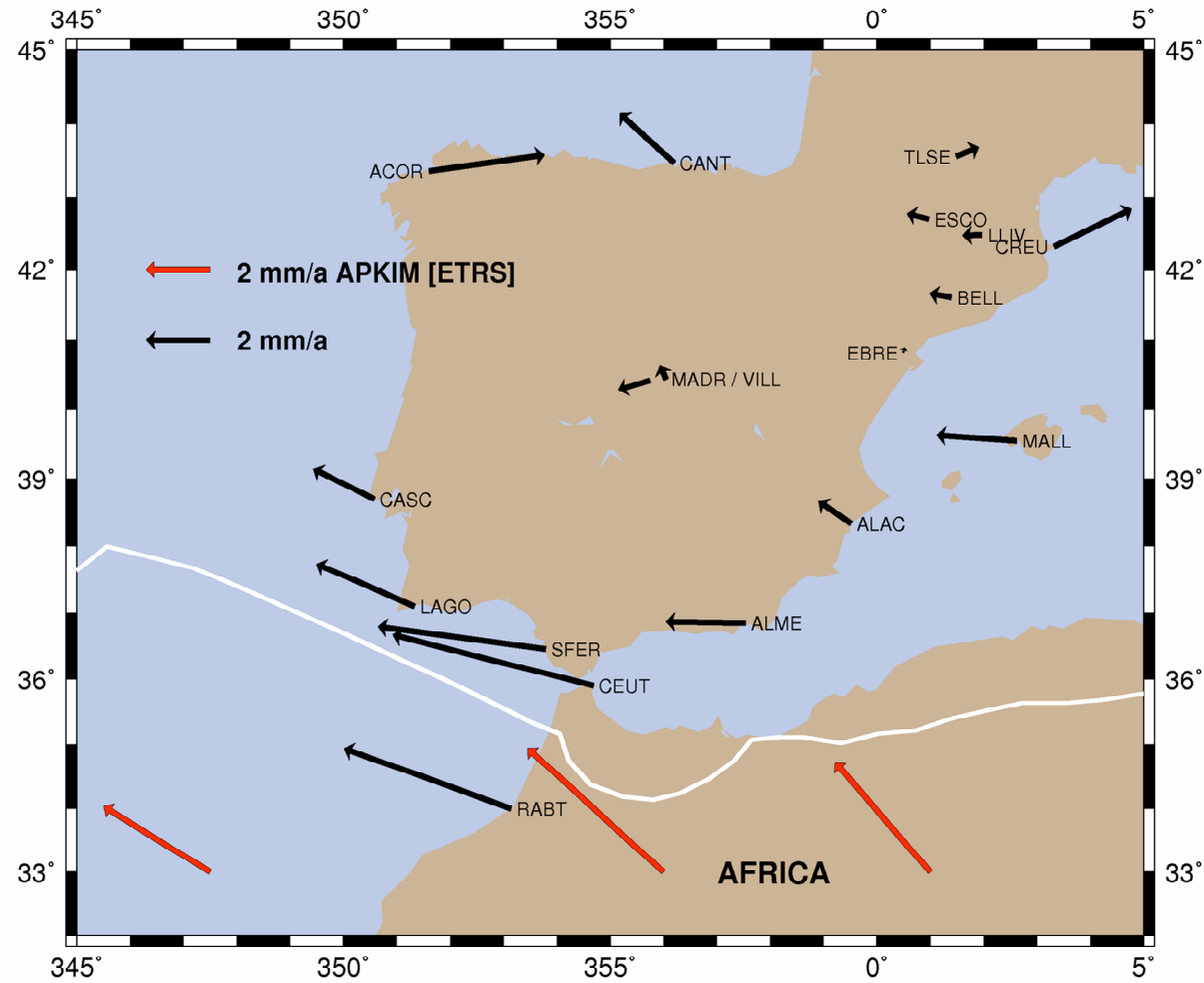


Achieved repeatabilities of the daily solutions:

North: 2.0 mm
East: 2.2 mm
Height: 5.1 mm



Velocities: Iberian Peninsula (ETRS)



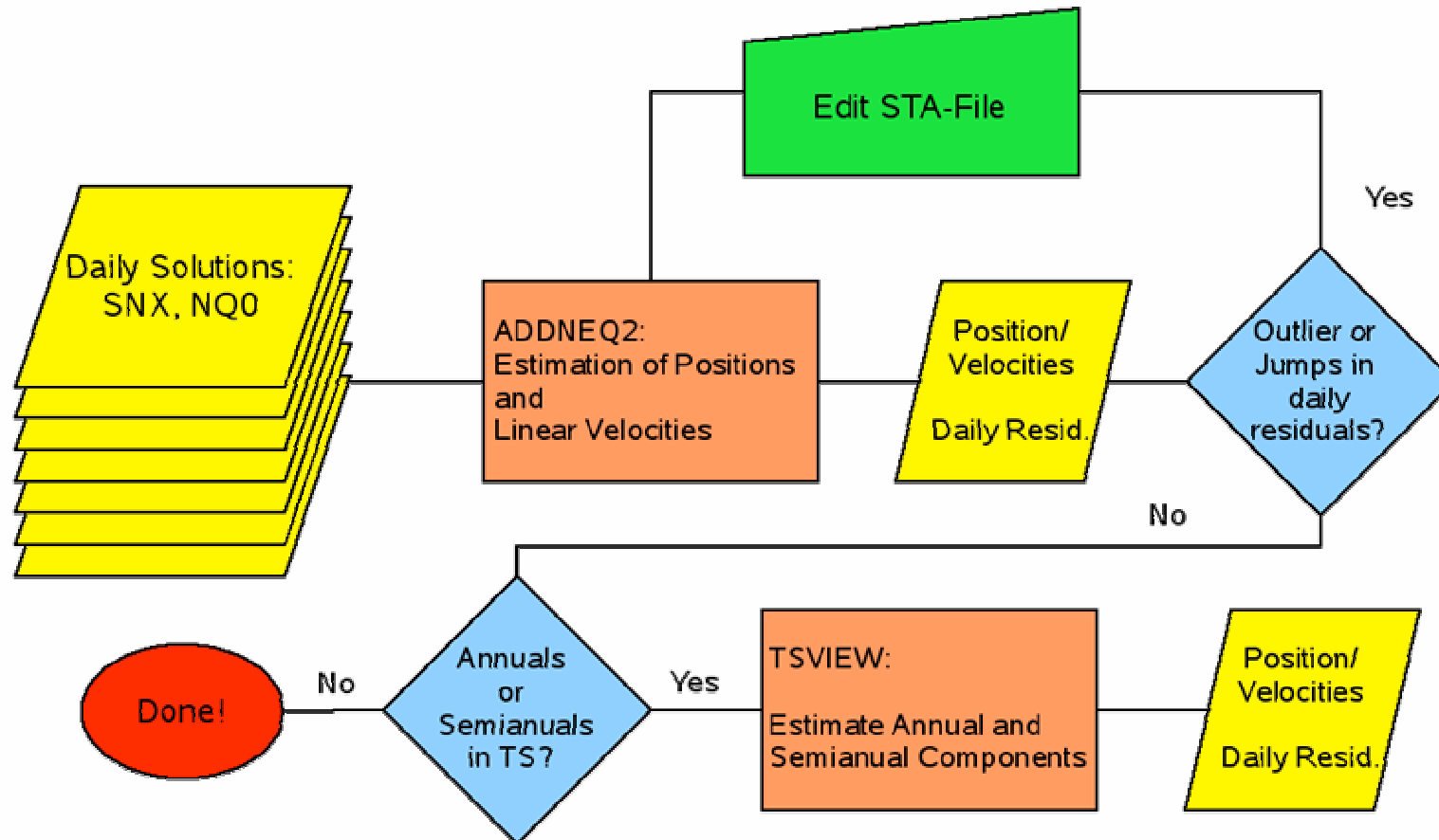


Reprocessing /Future

- BEK is prepared to continue its reprocessing activities.
- Reprocessed Orbits and ERP of the IGS are now available.
- Joint efforts of all or a part of the LACs for reprocessing activities should be evaluated.
- Reprocessed coordinates can be a product of the LACs, but
 - Activities of the partners must be visible (requested by the funding agencies)
- Special study group on Reprocessing can be set up?!

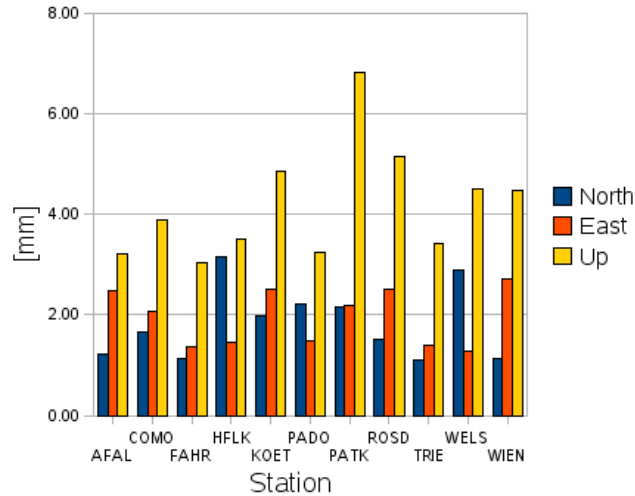


Treatment of the Seasonal Components (Estimation of the velocity field)

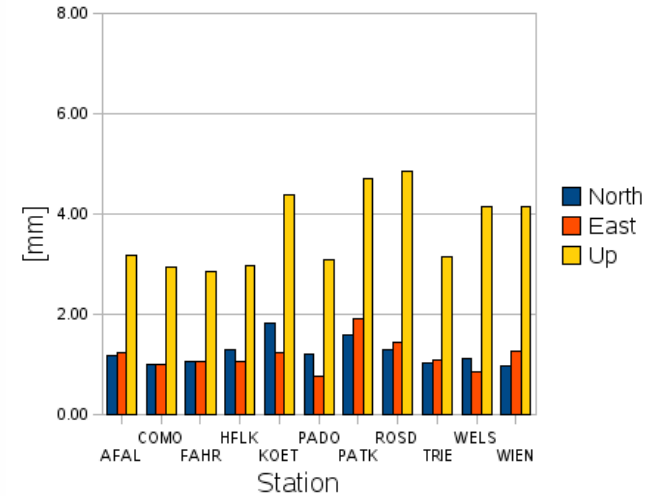


Annual and Semi-Annual Signals

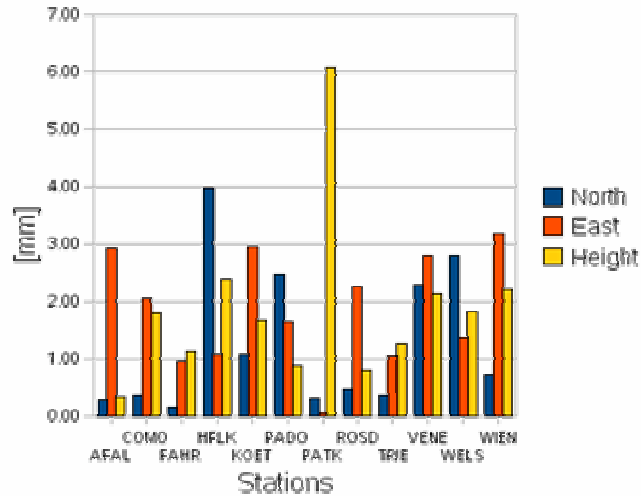
RMS of TS



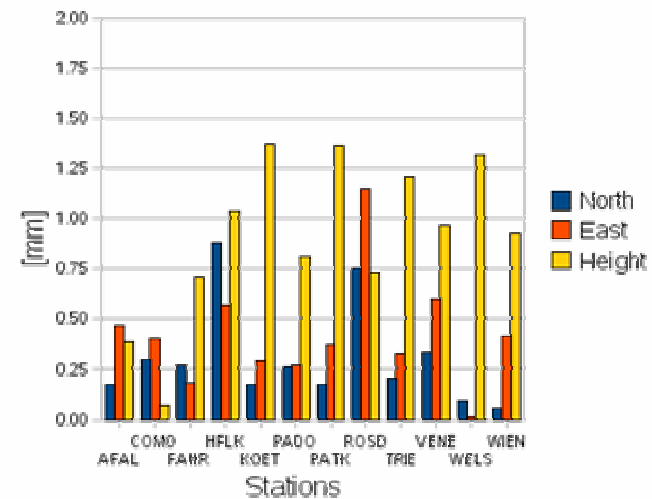
RMS of TS (Removal)



Amplitude Annual Signals



Amplitude Semi-Annual Signals





Seasonal Components

- Several sites show seasonal components that cannot easily attributed to specific phenomena!
- Estimation of the velocity field has been carried out by ADDNEQ2 so far.
- ADDNEQ2 lacks the possibility to estimate seasonal components.
- Intermediate solution:
 - Use TSVIEW on the residuals to estimate seasonal and linear components
- Future?:
 - Possibly cooperation with DGFI in order to use DOGS (DGFI Orbit and Geodetic Parameter Estimation Software)



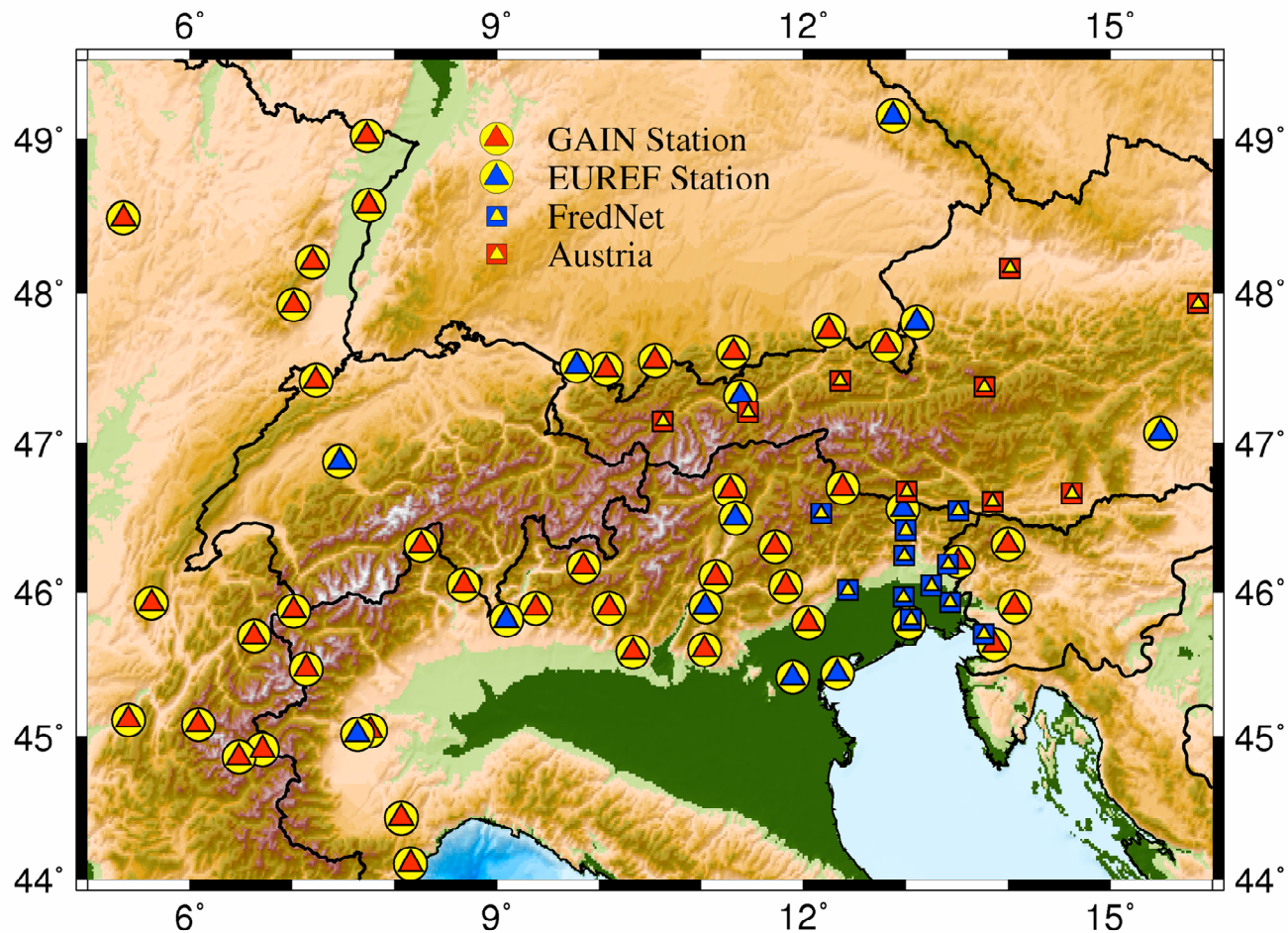
Other (Related) Activities

- **ALPS GPSQUAKENET**
 - Study the geodynamics of the ALPS
 - Higher resolution than EPN (Switzerland??)
 - Long time series are still not available
- **ISGPS**
 - Focus are the deformation on Iceland (plate tectonics, earthquakes, volcanism)
 - Almost ten years of data are available!
 - Reprocessing in PDR05 has been carried out.
 - Significant vertical deformation has been determined.



ALPS GPSQUAKENET

(73 sites processed)

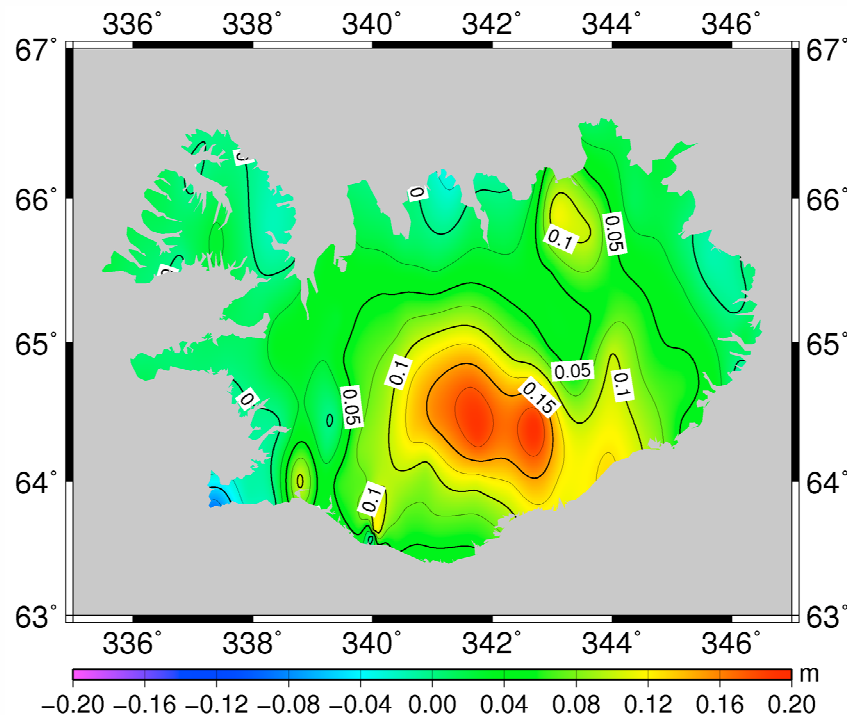


No coverage of Switzerland, yet !!

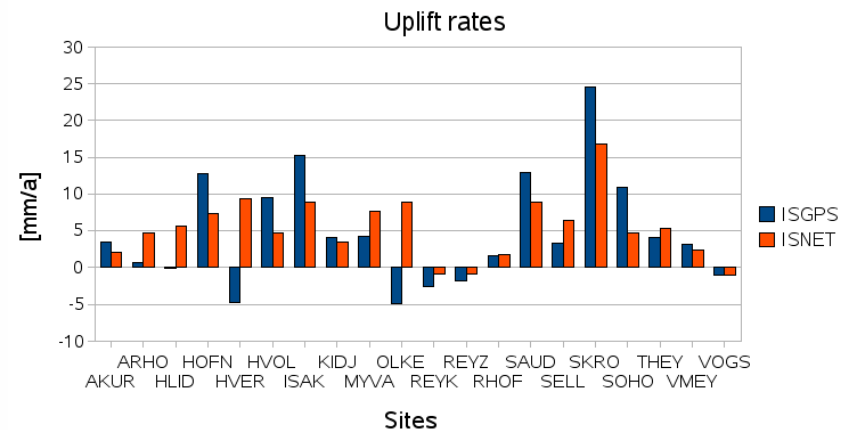


ISGPS (vertical)

Vertical changes between 1993 and 2004



ÍSNET: Realisation of the national geodetic network (120 sites) observed in 1993 and 2004!



Sites of ISGPS and ÍSNET are not identical, therefore the results are not well correlated!



Outlook

- Activities as LAC play a major role at the BEK.
- Ready to include GLONASS in the analysis.
 - What about ambiguity fixing?
- Reprocessing is an important aspect at the BEK.
- New Analysis strategies are expected (BERNESE X.X).
 - New Mapping functions (like Vienna Mapping Function)
- Treatment of seasonal components.
 - What is the cause for the seasonal components?
 - Use of different analysis tools seems necessary.