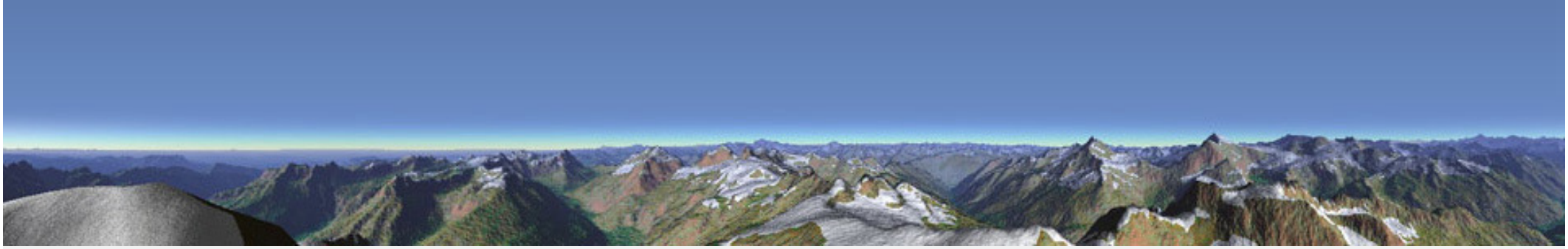

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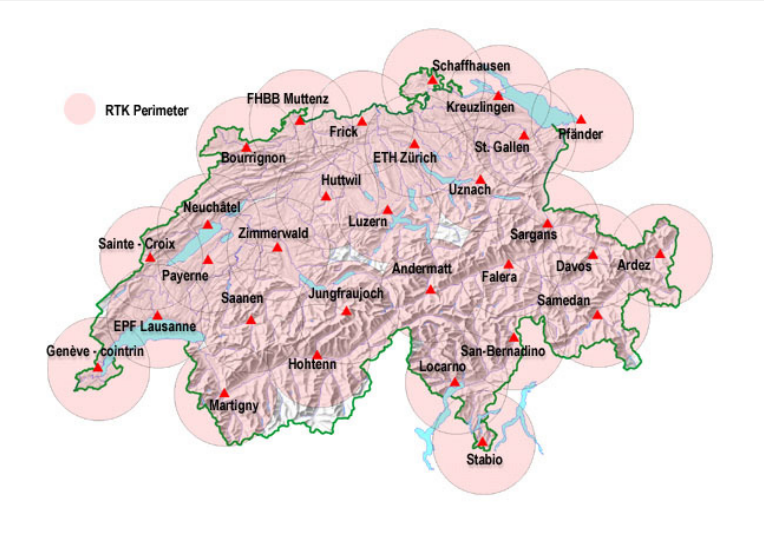
EUREF'04: National Report of Switzerland

Fundamental station Zimmerwald

- Contribution to ECGN: Collocation of various geodetic observations (see paper by E. Brockmann)

Permanent GPS network (AGNES)

- High performance: Average of data availability: > 99 %
- Replacement of receivers (Trimble 4000SSI → 4700) resulted in significantly improved performance of RTK positioning (faster data output)
- New station software (GPS-Base Vers. 2.10)



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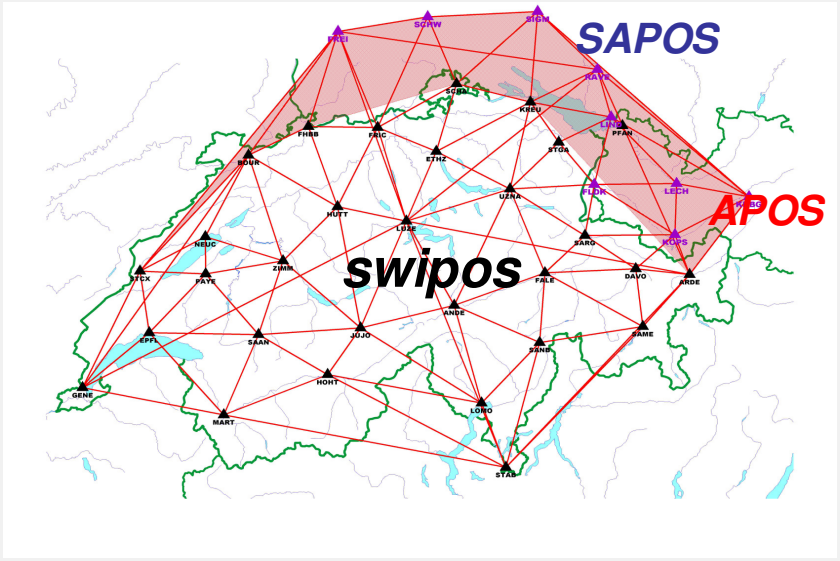
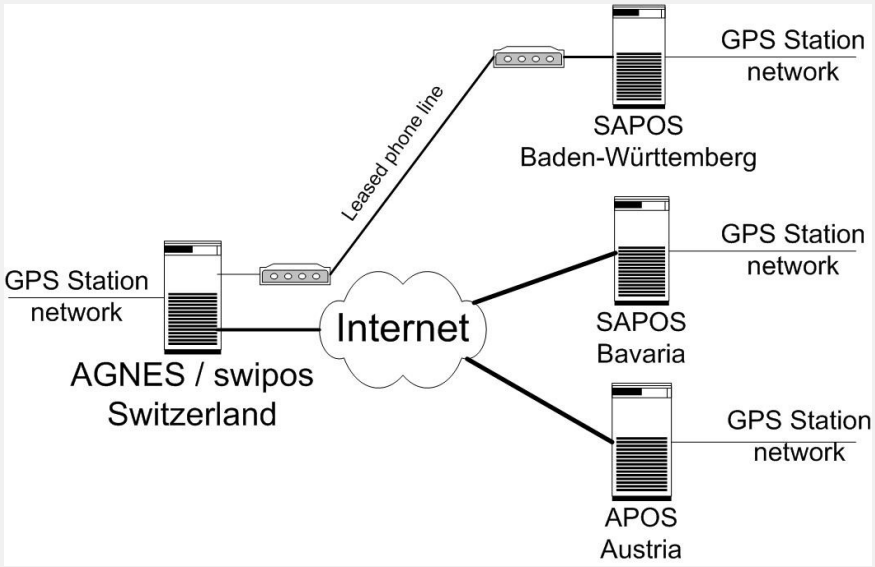
Real time positioning service „swipos“





- International co-operation “D-A-CH”: Seamless positioning service along the national borders to Germany and Austria due to mutual integration of stations of the real-time networks: D: *SAPOS*, A: *APOS* and CH: *swipos*
- Data exchange between the control centers: SAPOS (BW) in Karlsruhe, *SAPOS* (BAY) in Munich, *APOS* in Vienna and *swipos* in Wabern.
- Delivery of RTCM data of station Zimmerwald to EUREF-IP over Internet
- Development of a monitoring device for assessing VRS/RTK

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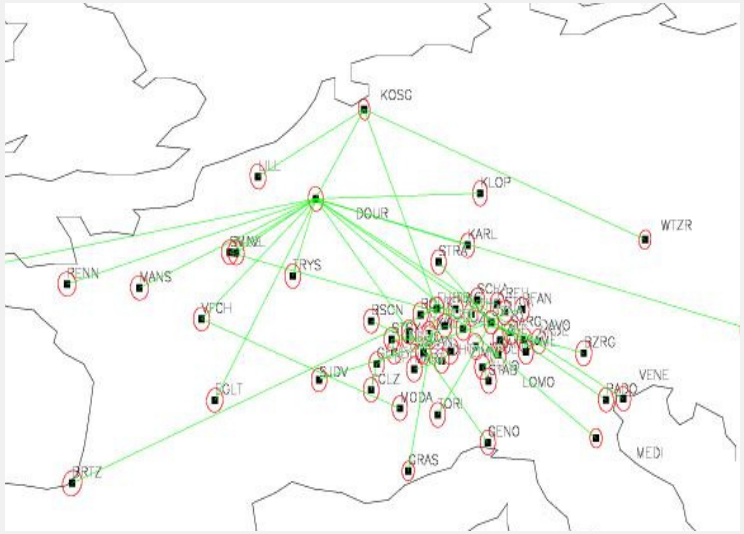
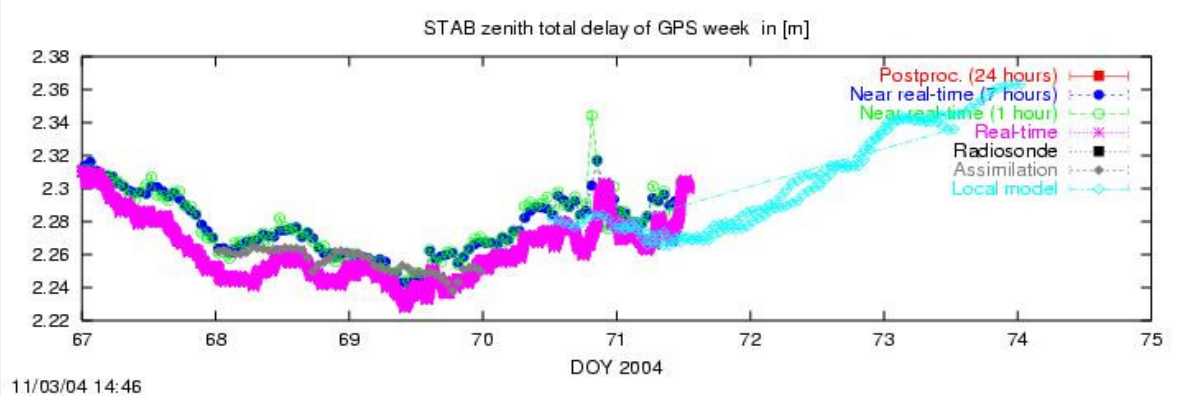
Analysis of permanent GPS networks

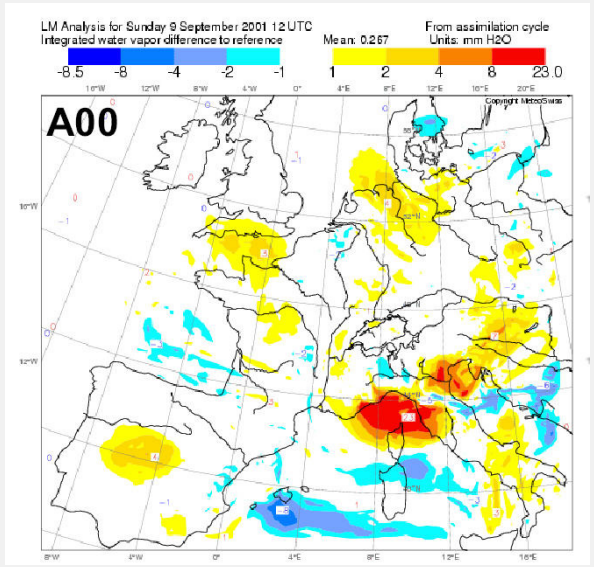
- Networks:

EUREF subnetwork	20 -> 25 (1 AGNES)	daily observations	21 days
AGNES + subnet EUREF	65 -> 72 (29 AGNES)	daily observations	21 days
AGNES + subnet EUREF	63 -> 72 (29 AGNES)	hourly observations	0.5 hours



- GPS Meteorology:
  European collaboration within research projects COST-716 and TOUGH





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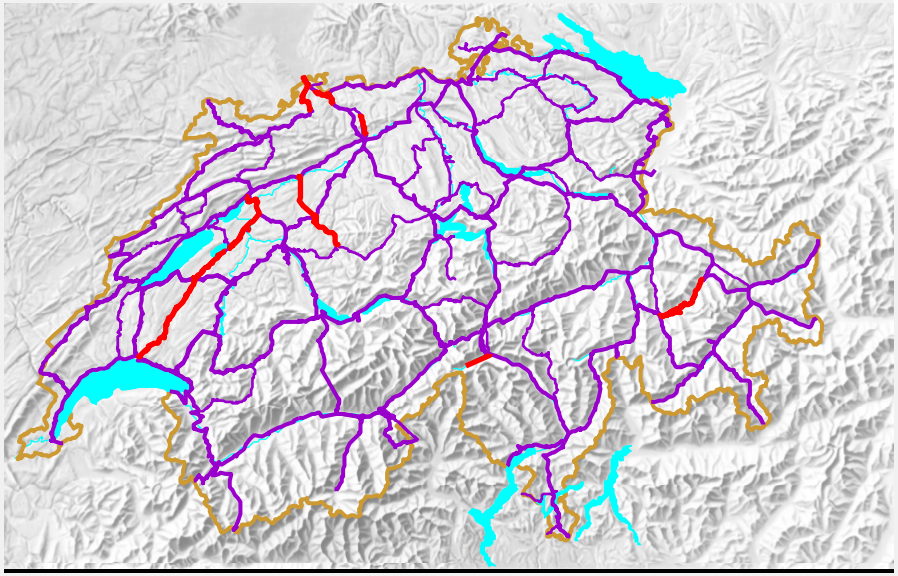
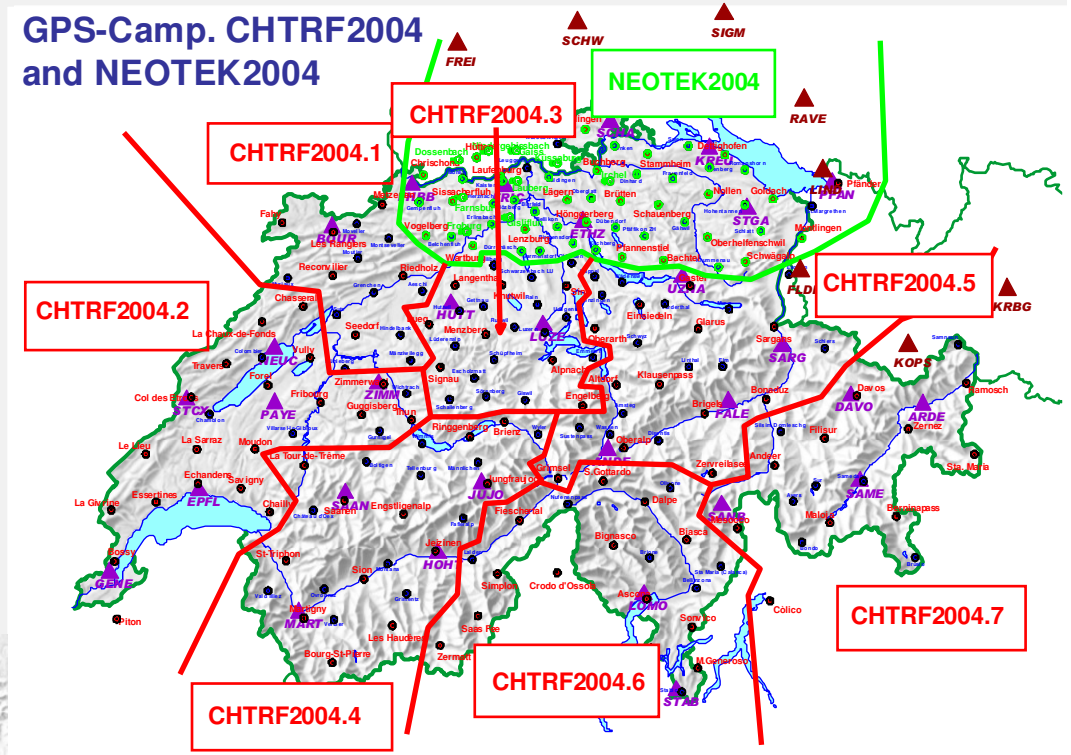
National Reference Frames

- Determination of all AGNES stations in the official reference frames (LV95, LV03 and LHN95)
- Re-observation of the GPS reference network LV95 in 2004 (total: 208 stations, 60 control points of monitoring network)





- Continued re-measurement of levelling lines which are part of the National Vertical Network (LHN95)

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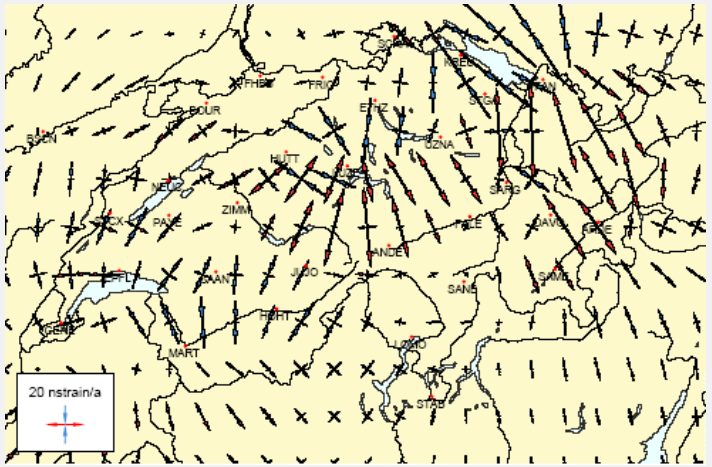
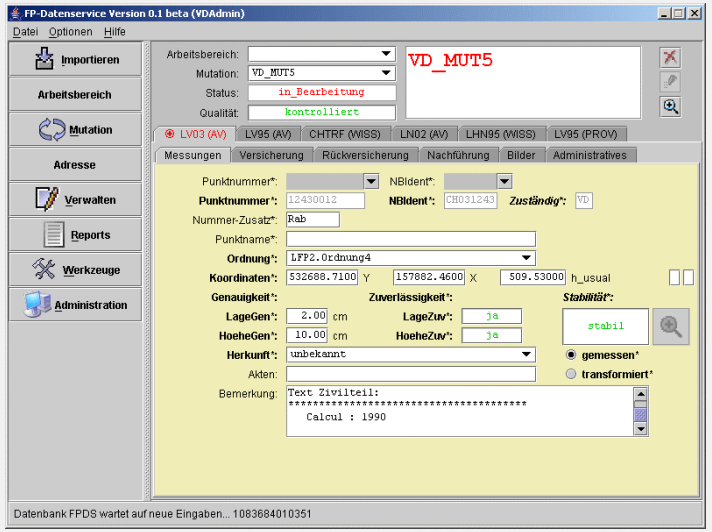
Current projects

National Vertical Network LHN95: Software „HTRANS“ for the transformation of heights between the old (LN02) and the new vertical reference frames (LHN95). Differences: -60 to +20 cm



Swiss-4D: Kinematic analysis of repeated (levelling) or permanent (GPS) observation data for the investigation of crustal deformation, and tests with differential interferometric SAR for monitoring land subsidence and to validate the results with precise levelling



Control Point Data Service: Making available all control point data via the Internet

GIS National Border:
Establishment of a GIS for the documentation of data pertaining to the national border

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