National Report of Finland

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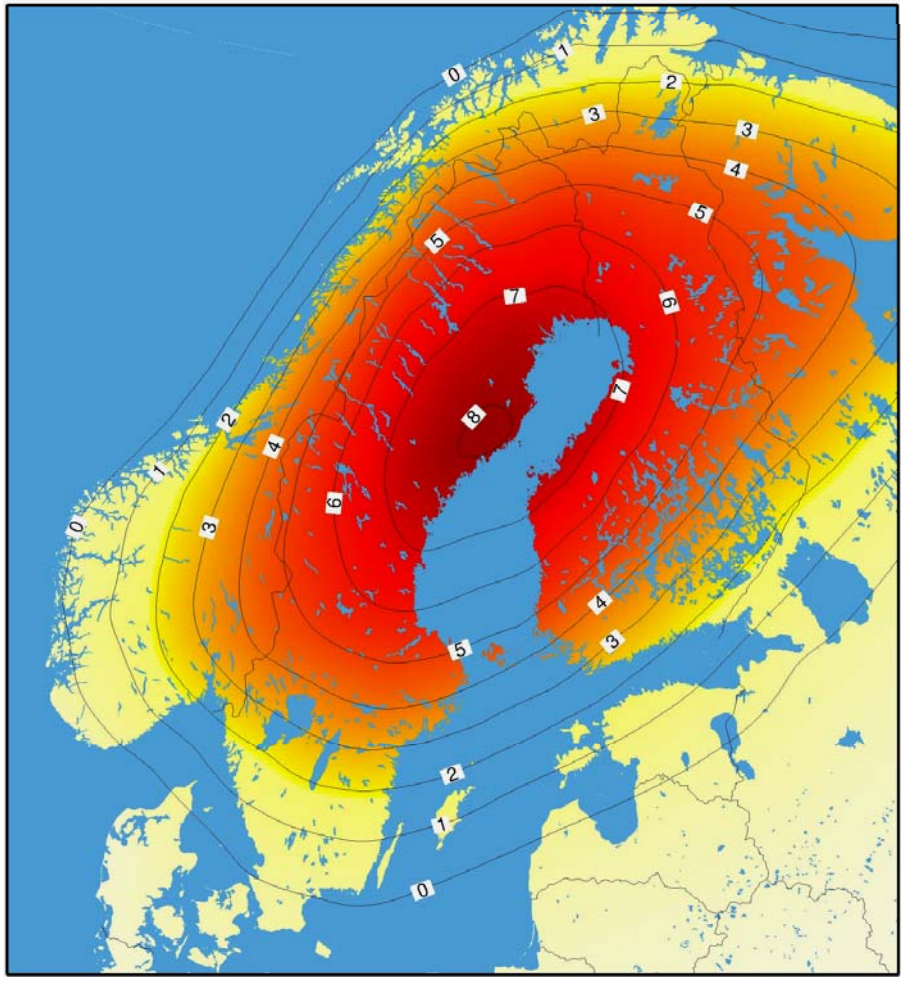
Maintenance of ETRS89 coordinates

- ETRS89 realised through ITRF96(1997.0) leading to ETRF96(1997.0), called EUREF-FIN
- coordinates kept fixed even if the post-glacial rebound is deforming the crust – approx. 3-10 cm uplift since 1997.0, also small horizontal component
- NKG has developed a geodynamical model to transform ITRF2000 coordinates accurately to national realisations



Maintenance of EUREF-FIN coordinates *at permanent stations*

- no changes in instrumentation (=antennas) since the beginning to avoid jumps in timeseries
- regular monitoring independently from GPS: centring measurements of the mast/pillar with precision tacheometry
- regular precise levellings of the antennas started 2007
- upgrade to GNSS planned in the future, present plan: old stations remain untouched – new stations next to the old ones

EUREF-FIN and densifications

I order network

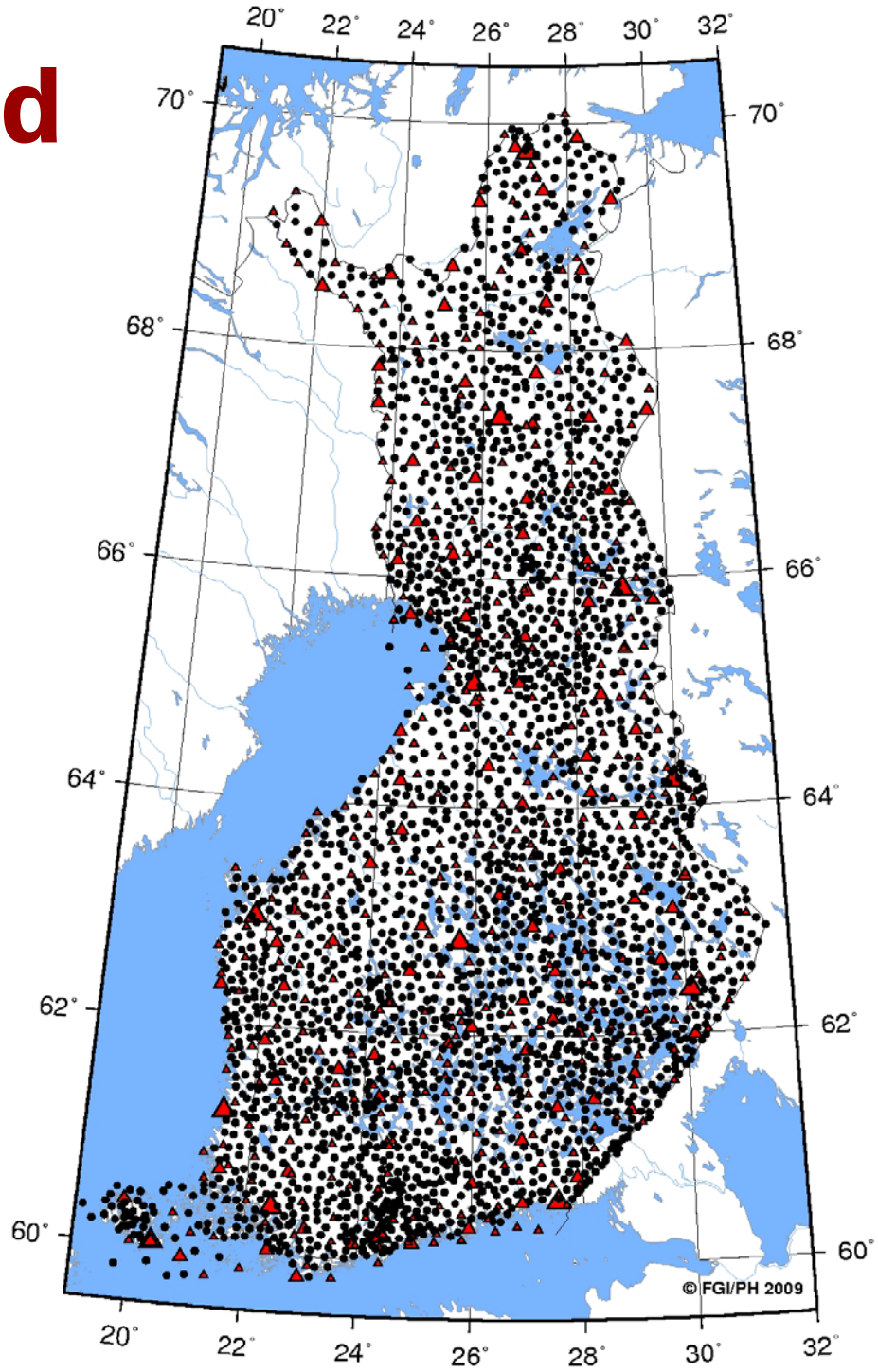
- FinnRef Permanent GPS network – 13 stations
- Realization 1996-97 – 100 points

Ib order network

- Densification 1998-99 – 350 points

II order network

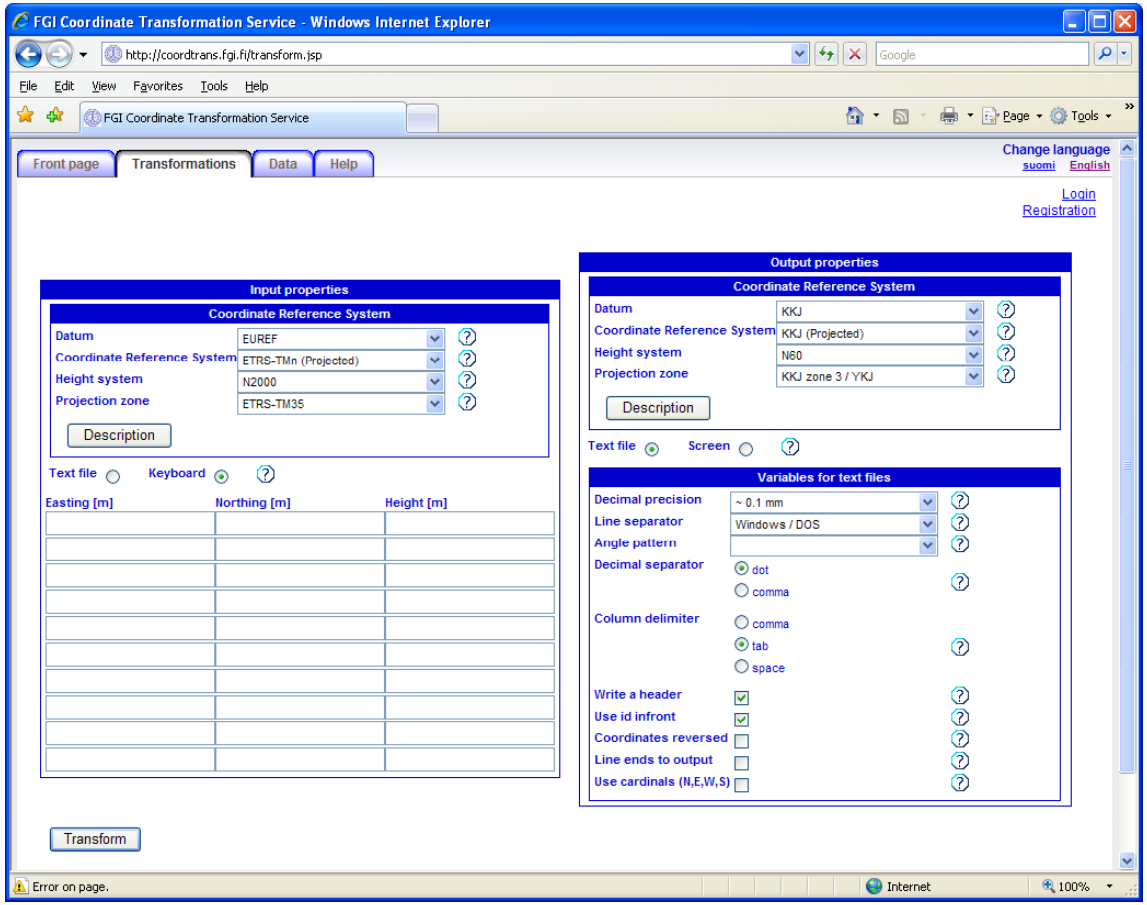
- Densifications by NLS
  - completed in 2008
  - approx. 2500 points



Coordinate transformation web application

- Transformations between national reference frames
- Data
  - geoid models
  - transformation grids
- Information about Finnish reference frames
- ITRFs not (yet) available
- Free of charge

http://coordtrans.fgi.fi



Metsähovi

AG

regular measurements

SCG

continuous

SLR

under renovation

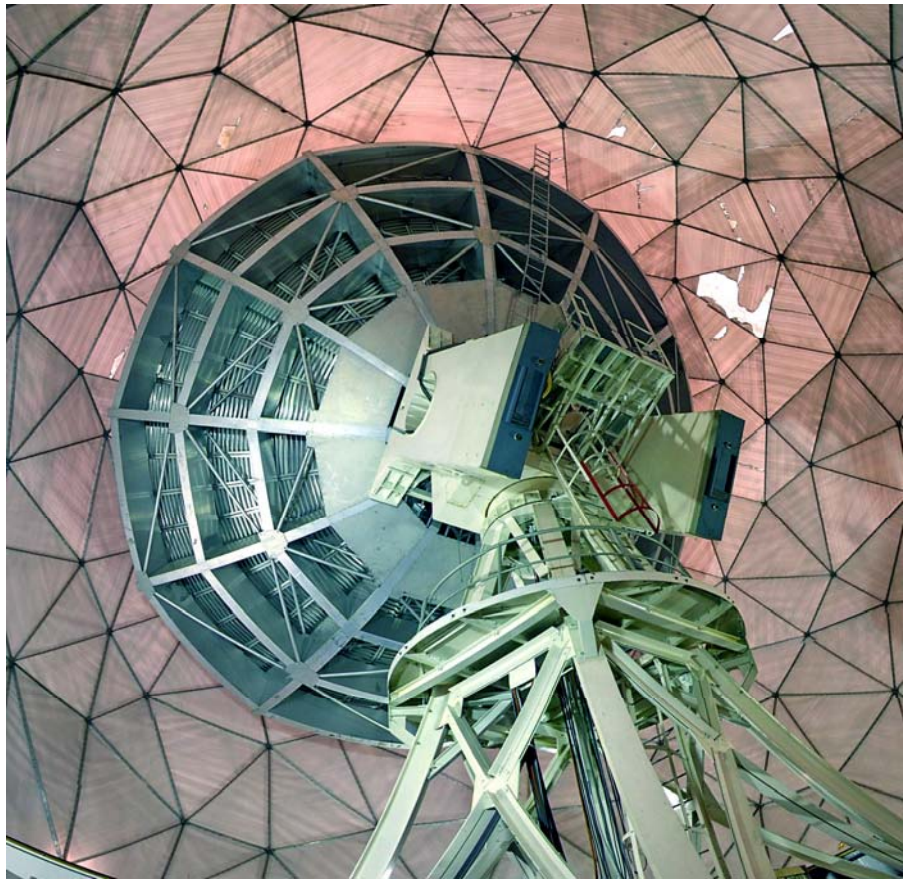
geoVLBI

8 campaigns in 2008

Metsähovi local ties - VLBI

- Current tie measurements started 2007
  - precision tacheometry
  - GPS
- Reference point dependent on:
  - Time
  - Temperature
  - Azimuth/elevation

  → 1mm accuracy difficult to achieve
- Centring with GPS
  - 2 GPS antennas mounted to telescope
  - Tests with static and kinematic data
- Results by the end of 2009



National Standards Laboratory – Acceleration of free fall

- Absolute gravity measurements
  - 10 points in Finland
  - 7 points in Estonia
  - 2 comparisons in Metsähovi

National Standards Laboratory – Length

- EMRP (European Metrology Research Programme)
  - Calibration of the BEV baseline in Innsbruck
  - Extended uncertainty (k=2) 7×10^{-7} (0.77mm for 1080m) with respect to the definition of the metre
- EDM/GPS measurements in Kyviskes, Lithuania
- Scale transfer to Vääna, Estonia