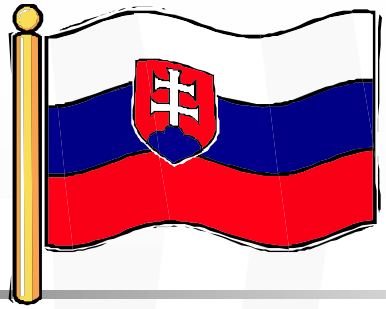


National report of Slovakia

Branislav DROŠČÁK, Dušan FERIANC [1)], Ján HEFTY [2)] Katarína LEITMANNOVÁ [3)]

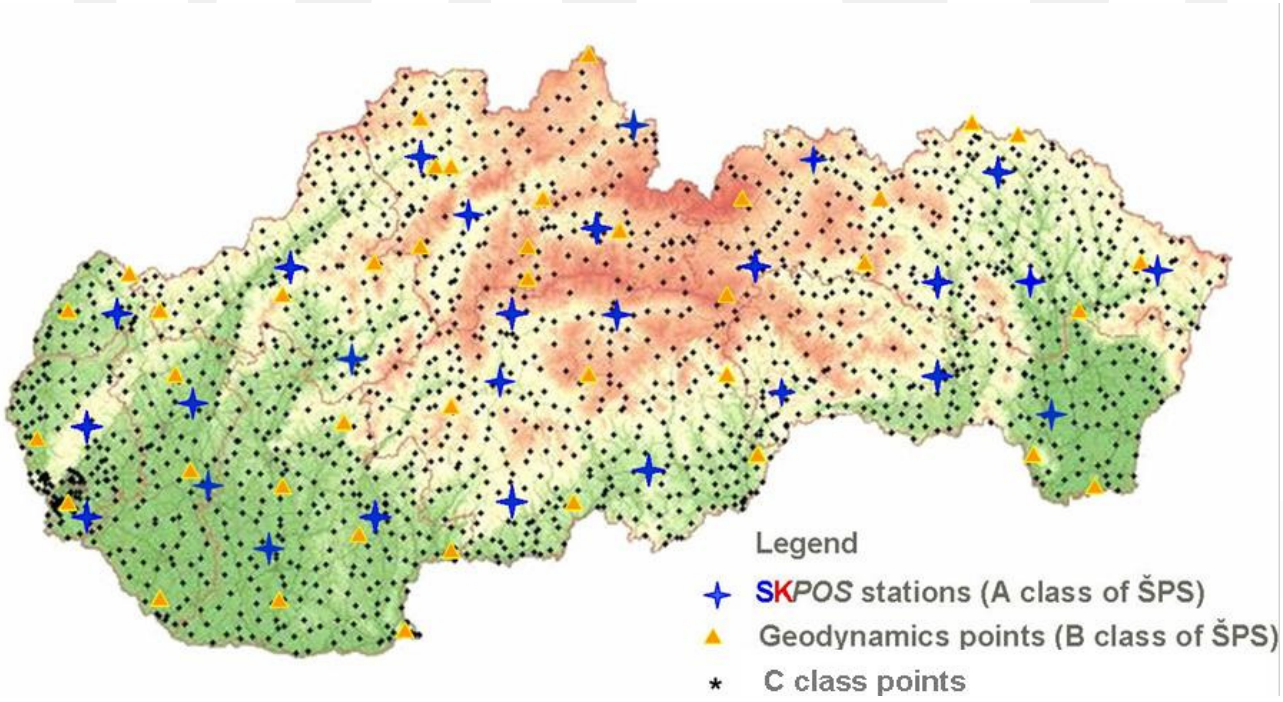
1) Geodetic and Cartographic Institute in Bratislava
2) Slovak University of Technology in Bratislava, Faculty of Civil Engineering, Department of theoretical Geodesy
3) Geodesy, Cartography and Cadastre Authority of the Slovak Republic

EUREF 2011 Symposium
24 -28 May 2011, Chisinau, Moldova

National spatial network - ETRS89

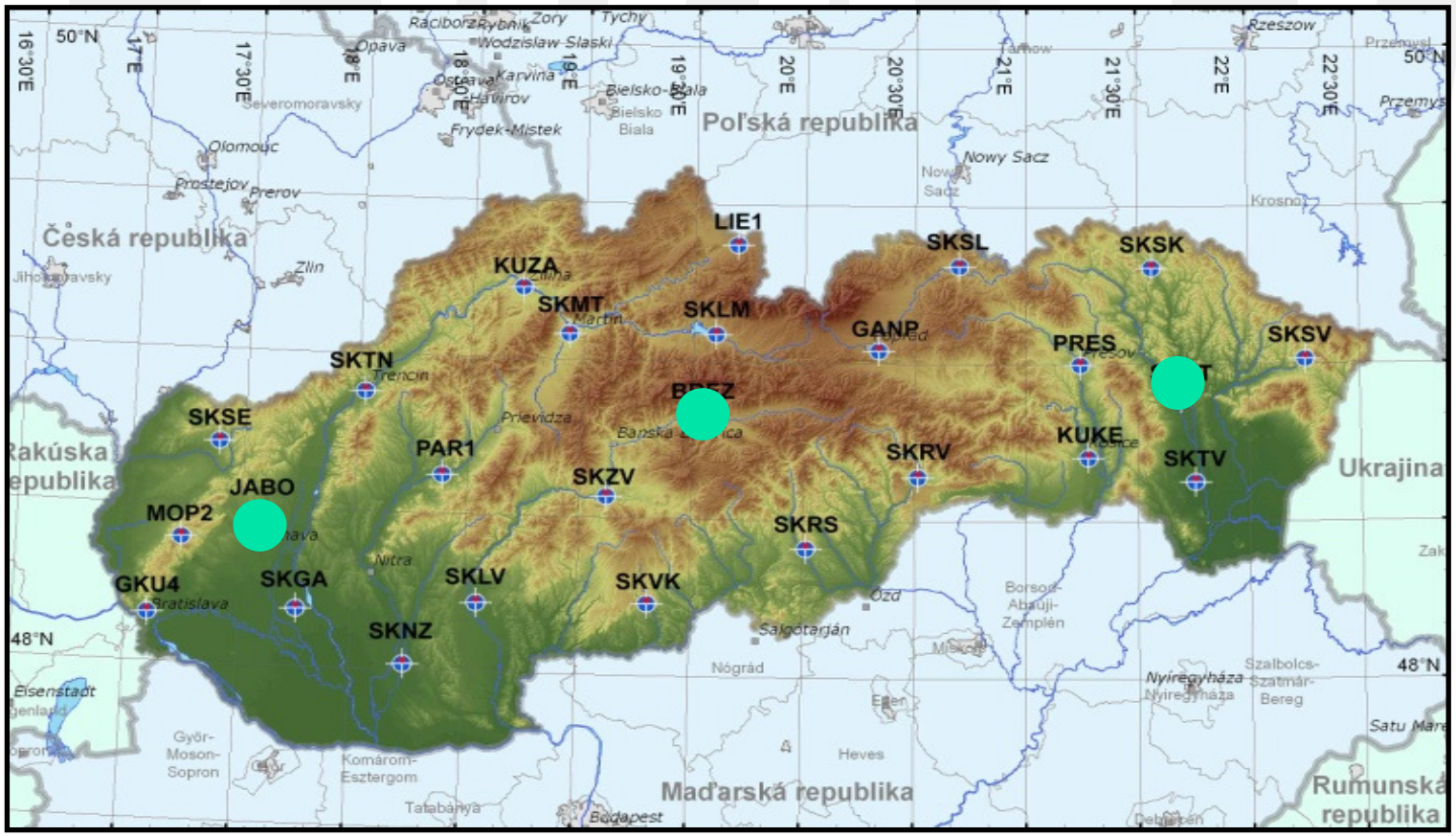
- Active part (permanent stations) – **A** class (**SK*POS***)
- Passive part (passive points)
  - **B** class – points for geodynamical research (Hz 5-6mm, V 12-15mm)
  - **C** class – reference passive points (Hz 1cm, V 2cm)
  - **D** class – other points with ETRS89 coordinates (Hz 3cm, V 5.5cm)

class	*amount*
A	27
B	71
C	1 650
D	2 900



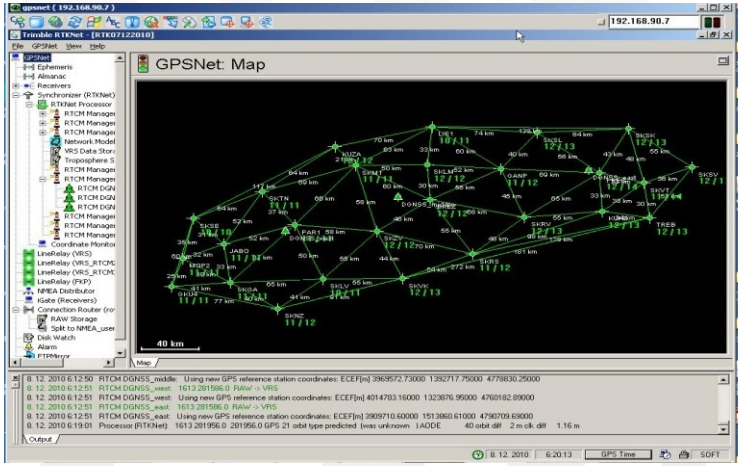
SK*POS* status in May 2011
infrastructure

- **26 permanent stations** (3 new stations)
  - All stations equipped with the same brand of receivers and antennas
  - All stations observe GPS+GLONASS signals
  - 13/26 antennas have individual antenna APCV calibration (50%)

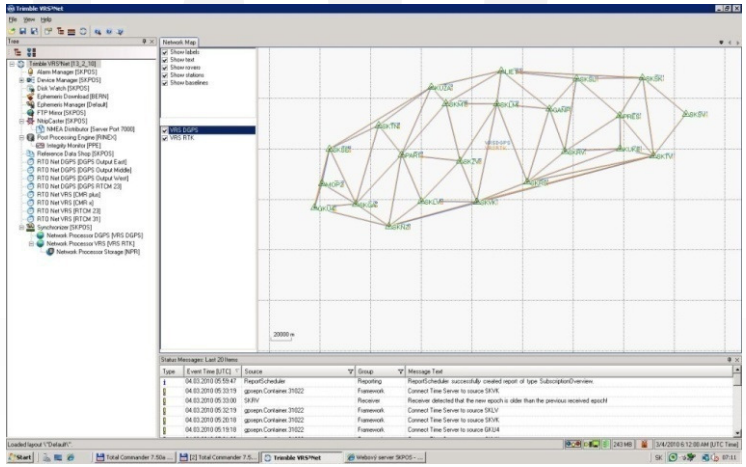


SKPOS control software

- **Trimble GPSNet** software
  - still running
  - will be replaced



- **Trimble VRS3Net** software
  - purchased in April 2010
  - actually tested
  - some problems
    - NMEA storage
    - foreign station introduction (proxy)
  - plan for introduction: July 2011

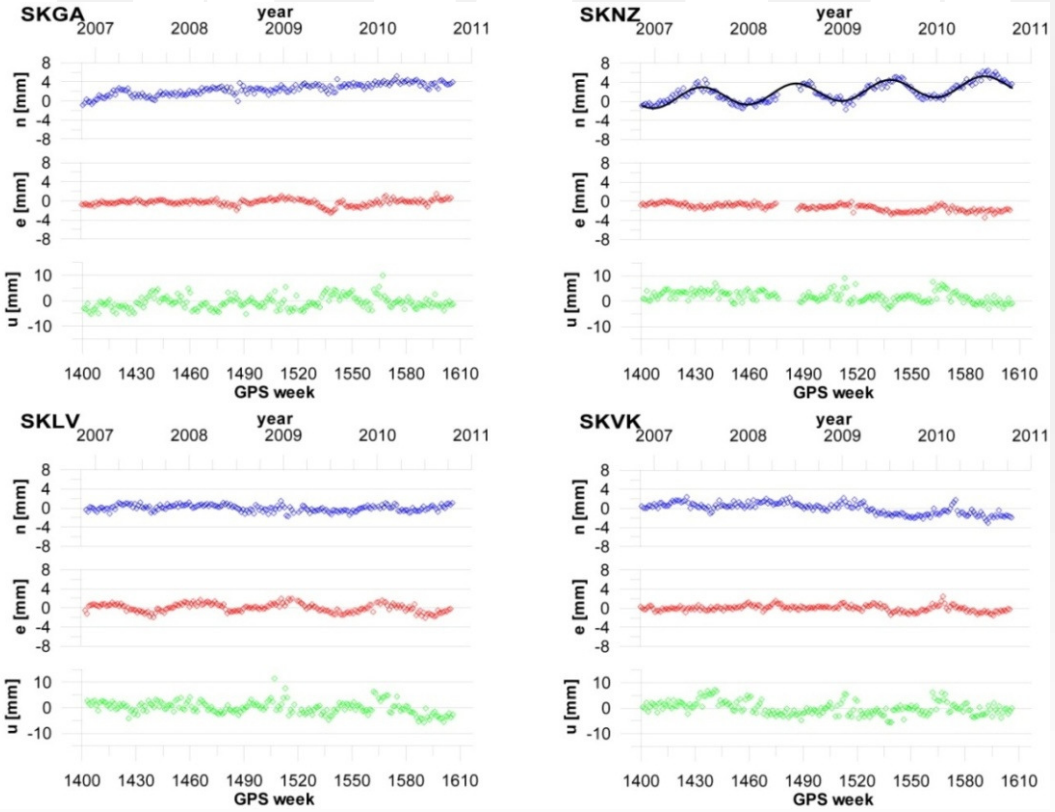


SK*POS* users, charges

- Number of users (registrations)
  - **April 2011**
    - **around 500 registrations;**
    - **710** accounts
- Field of applications
  - 99% - surveying, GIS
- SK*POS* is charged by flat rate per technical year
  - technical year means 365 days from date of registration
  - price **90 EUR** (last year it was **365 EUR**)

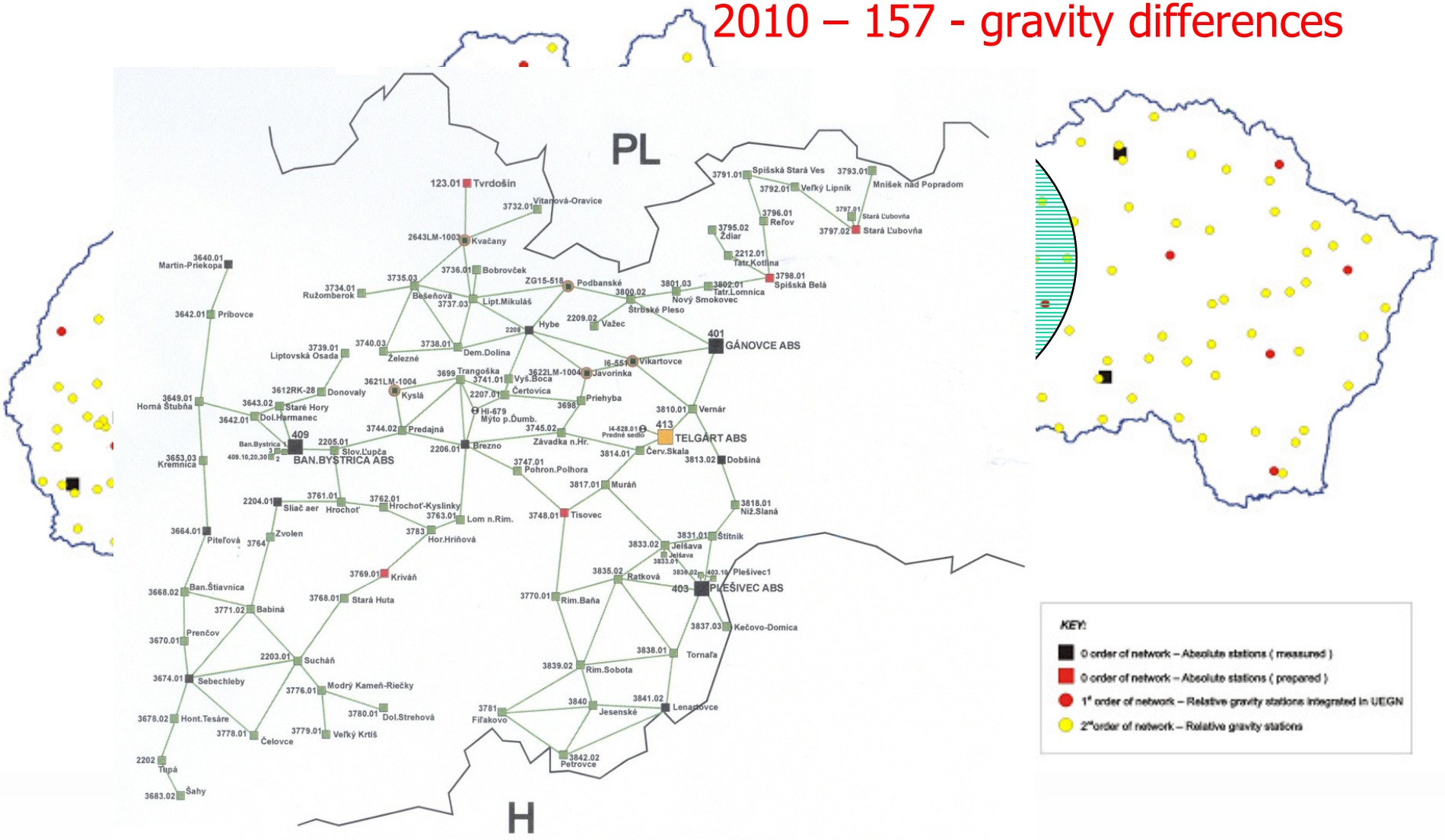
SKPOS permanent stations time series analysis

- period 2007-2011
- Coordinates determination
  - Bernese software 5.0
- Timeseries analysis
  - MathCAD 14 software
  - Every 3 months
- Analysis for
  - Trend
  - Seasonal variation
  - Anomalous behavior

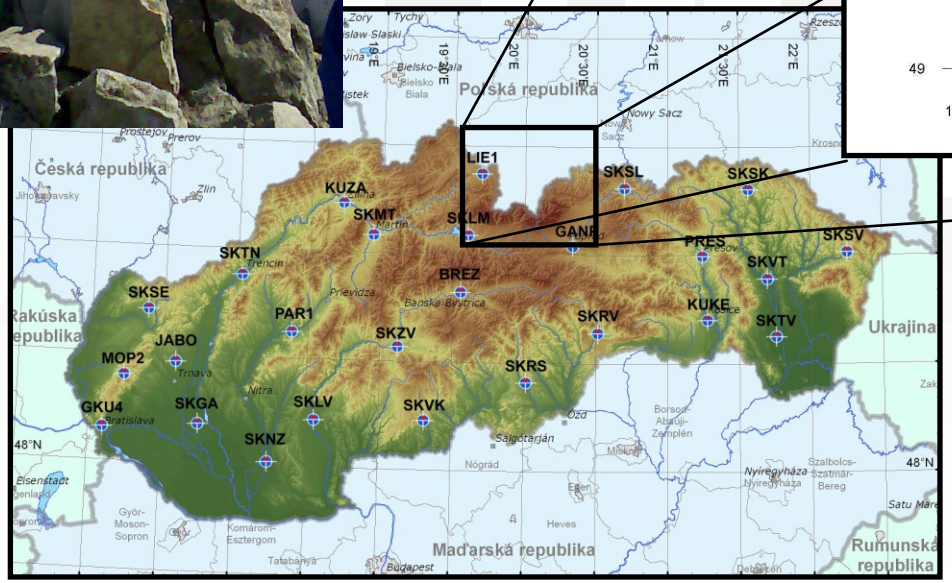


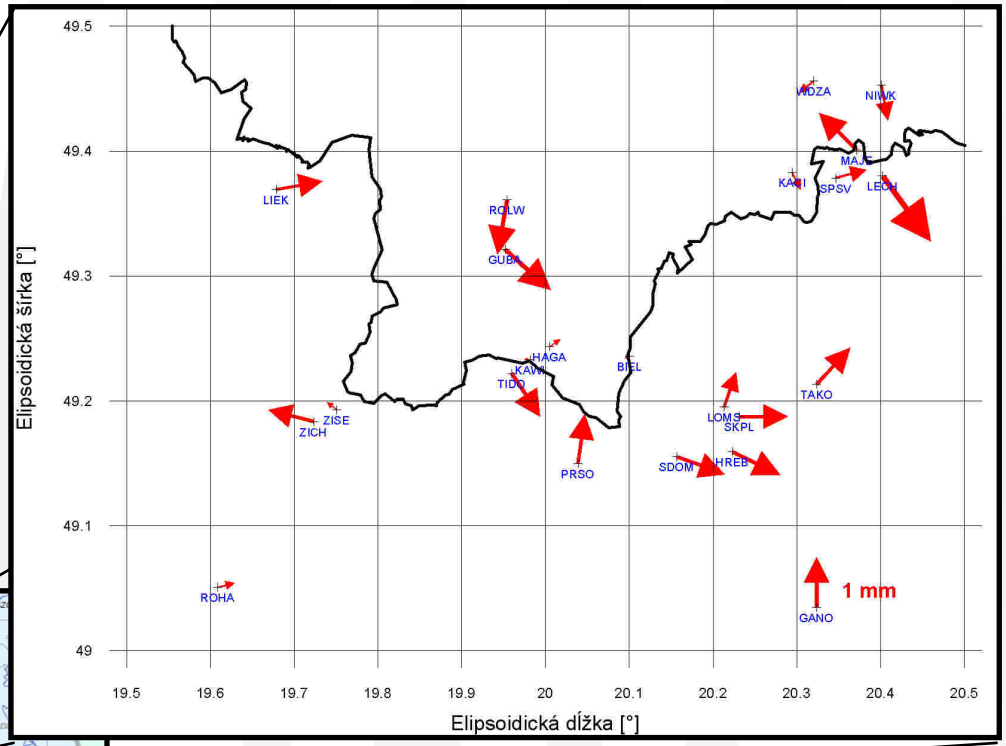
National gravimetric network

2010 – 157 - gravity differences

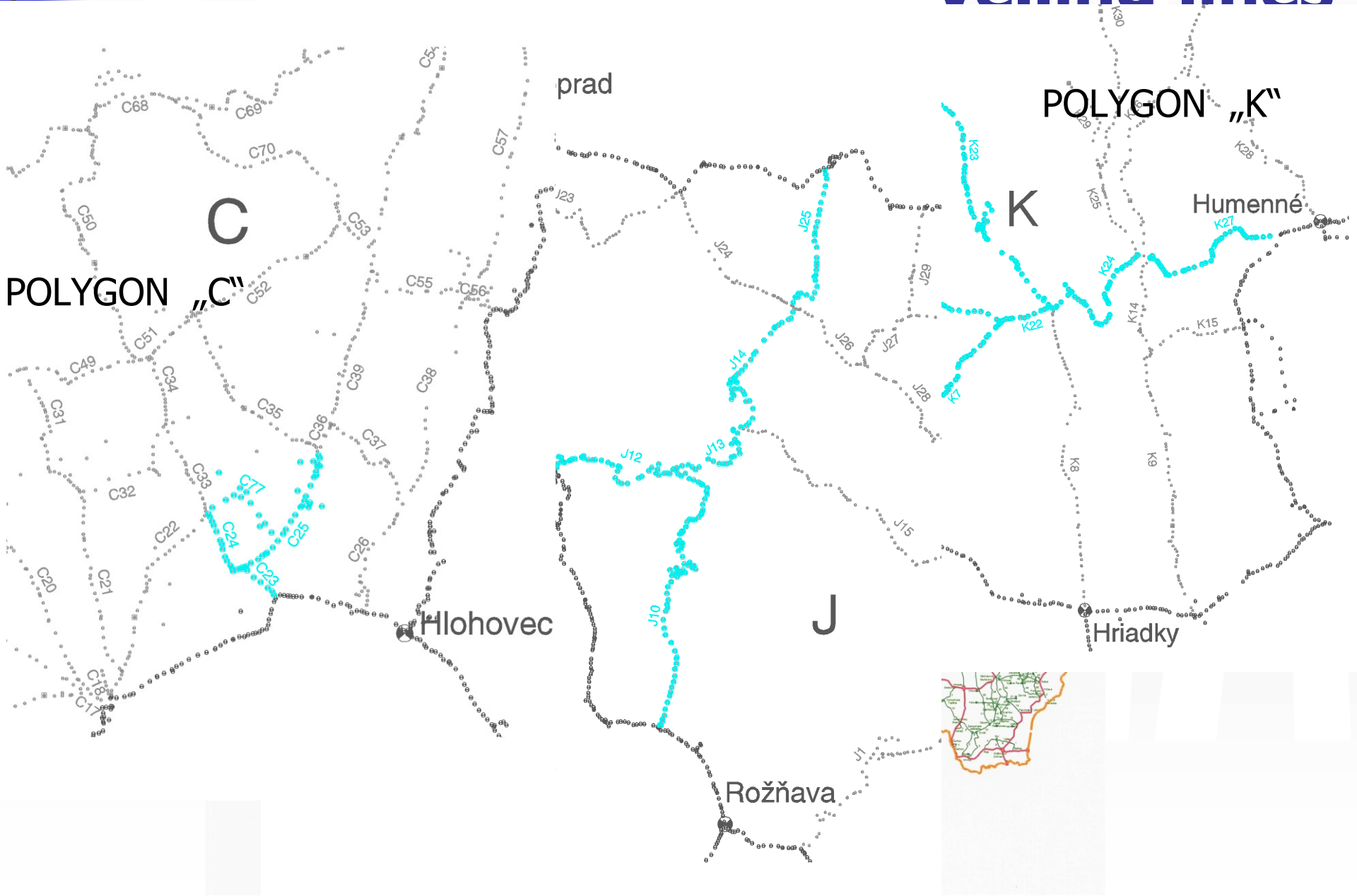


Local geodynamic network **TATRY**





Precise levelling of 2nd order levelling lines



Other news from Slovakia

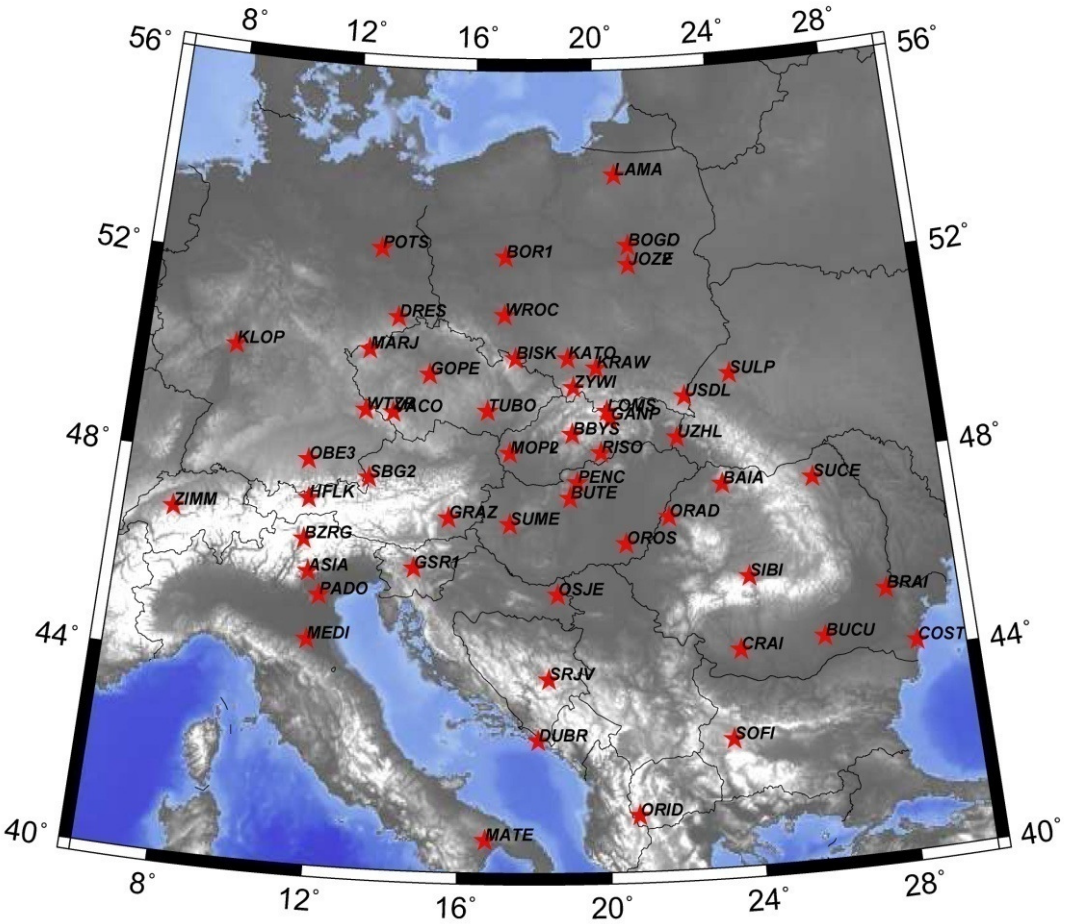
- Introduction of the new realization of national CRS - JTSK03
  - valid from 1st April 2011
  - new realization = new set of coordinates
  - realization introduced by the regulation of UGKK SR
  - JTSK03 based on GNSS (also SK*POS*) measurement

  - Topographical database is stored in ETRS89

Refinement of the velocity field in Central Europe based on reprocessed permanent and epoch-wise GPS observations

Network of selected permanent stations in Central Europe

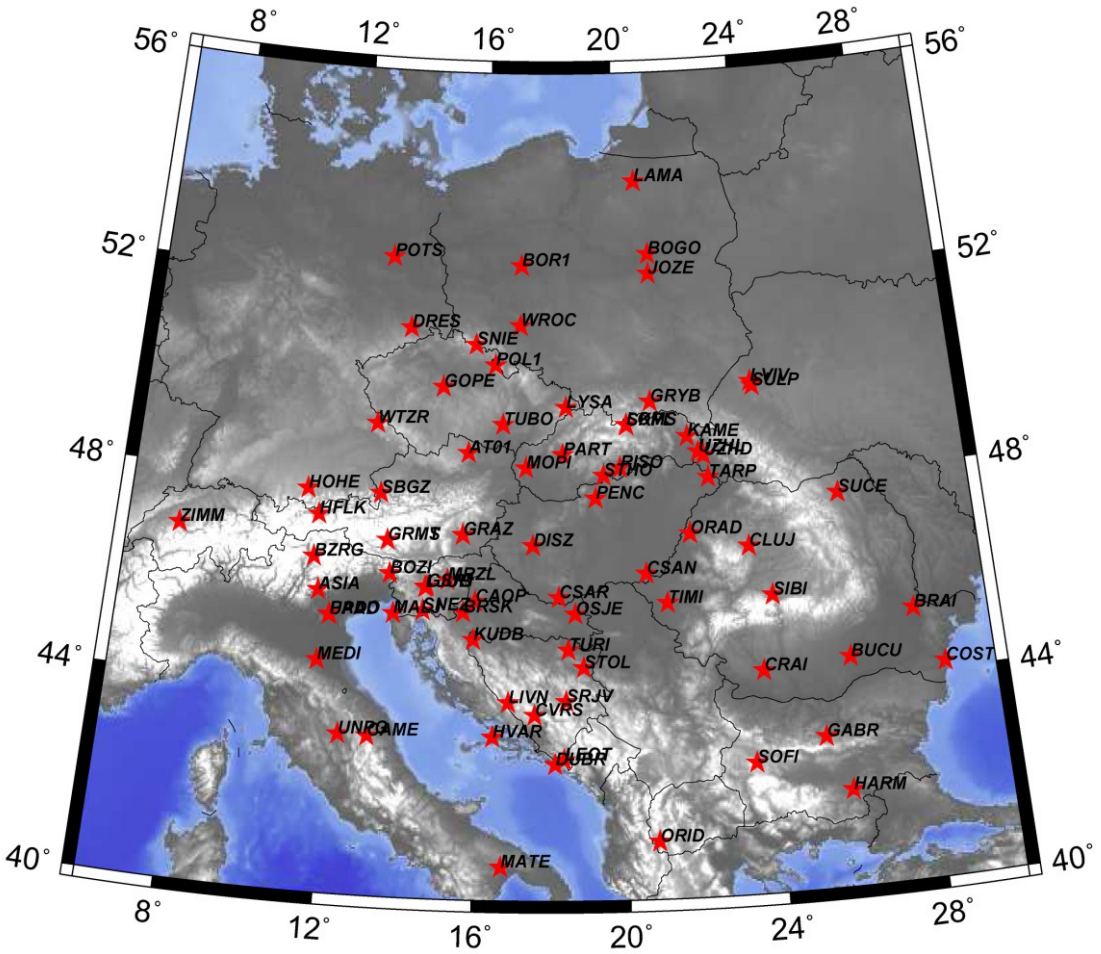
- Reprocessed at LAC SUT Bratislava
- 45 EPN and 9 non-EPN permanent stations (from 18 in 1996 to 56 in 2011)
- Observation interval 1996 – 2010



Refinement of the velocity field in Central Europe based on reprocessed permanent and epoch-wise GPS observations

Central European Geodynamic Reference Network

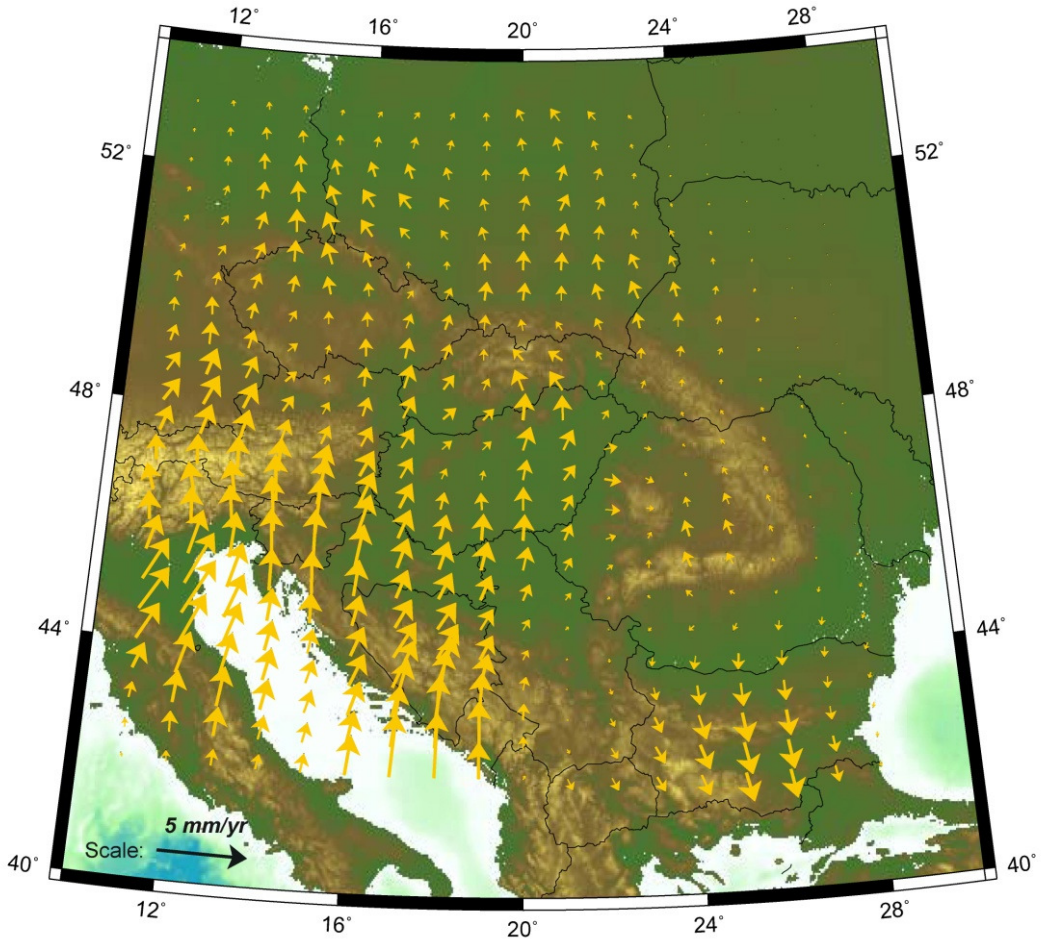
- Epoch observations from 1994 to 2009 (in one or two year intervals)
- Number of stations: 27 in 1994, 84 in 2009 (max. in 2005: 98).
- Processing strategy: similar as in network of permanent stations in Central Europe



Refinement of the velocity field in Central Europe based on reprocessed permanent and epoch-wise GPS observations

Final refined CE velocity field pattern

- Interpolated horizontal velocity field estimated by using least square collocation
- Based on data from 110 permanent and epoch sites (7 sites excluded)
- Maximum difference between interpolated and observed velocity ~ 1.5 mm/year.
- This velocity pattern is characteristic for the Central Europe region and can be used as limitation for intraplate velocities in regional scale



Thank you for your attention