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Swiss Federal Office of Topography swisstopo

# National Report of Switzerland

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# Zimmerwald 50<sup>th</sup> anniversary

- 1957 <-> 1991: 49 supernovas, 7 comets and >100 minor planets observed
- New building hosting atmosphere observations (Univ. Berne)

## Zimmerwald Observatory

### Cooperating Institutions and Instruments

1956 – 2006



Astronomical Institute  
University Berne

- 1 „Old Telescope“ (0.4/0.6 m Schmidt- und 0.6 m Cassegrain-Instrument)
- 2 ZIMLAT (1 m Laser- and Astrometry-Telescope)
- 3 ZIMSMART (0.2 m Small Aperture Robotic Telescope)

swisstopo  
Swiss Federal Office of Topography  
Wabern

- 4 GPS antenna: IGS/AGNES reference station
- 5 GPS/GLONASS antenna(s): IGS stations
- 6 Temporary GPS/GLONASS receiver
- 2 ZIMLAT (Laser- and Astrometry-Telescope)

Geodesy and Geodynamics Lab GGL  
Institute of Geodesy and Photogrammetry  
ETH Zurich

- 7 Earth tide gravimeter

Section Microwave Physics  
Institute of Applied Physics  
University Berne

- 8 Remote sensing of the atmosphere

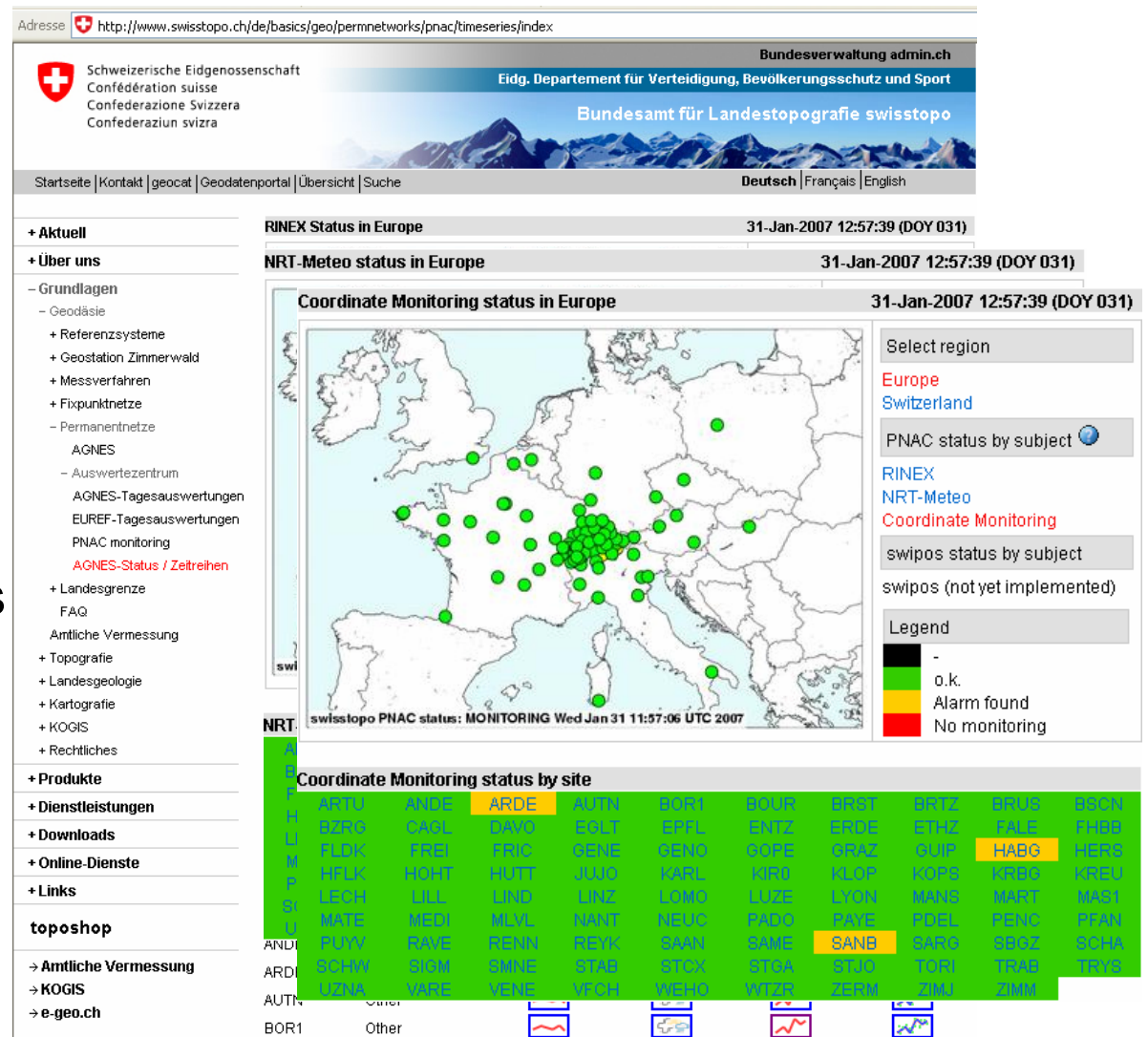
Competence Centre Air pollution Control  
Ministry of Economic Affairs of the  
Canton Berne

- 9 Ozone measurement station



# Monitoring AGNES / EPN Network

- Data: 50 EPN sites
- Products:
  - RINEX
  - Meteo
  - Coordinates

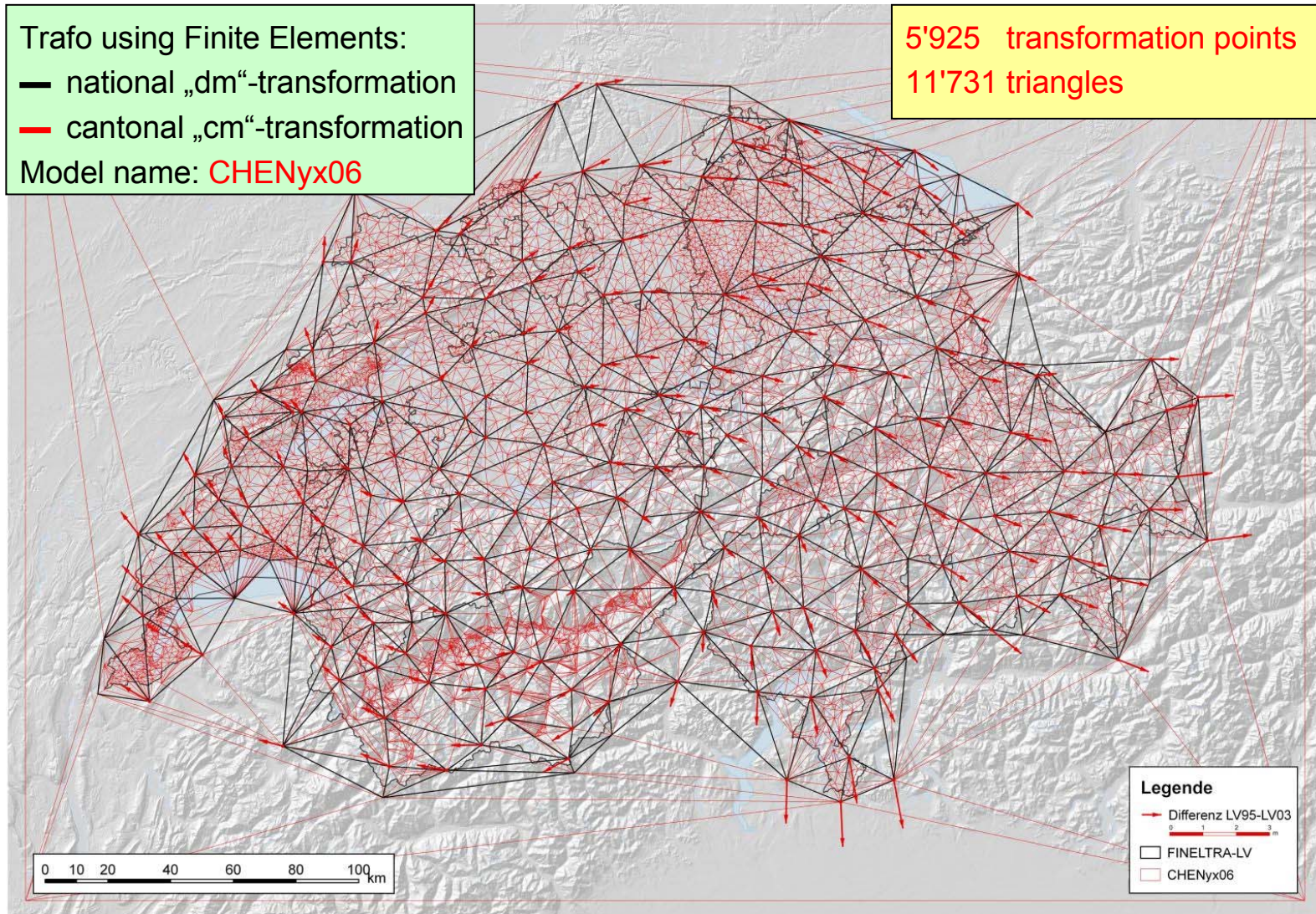






# Transformation: Old <-> New System

LV03                      LV95

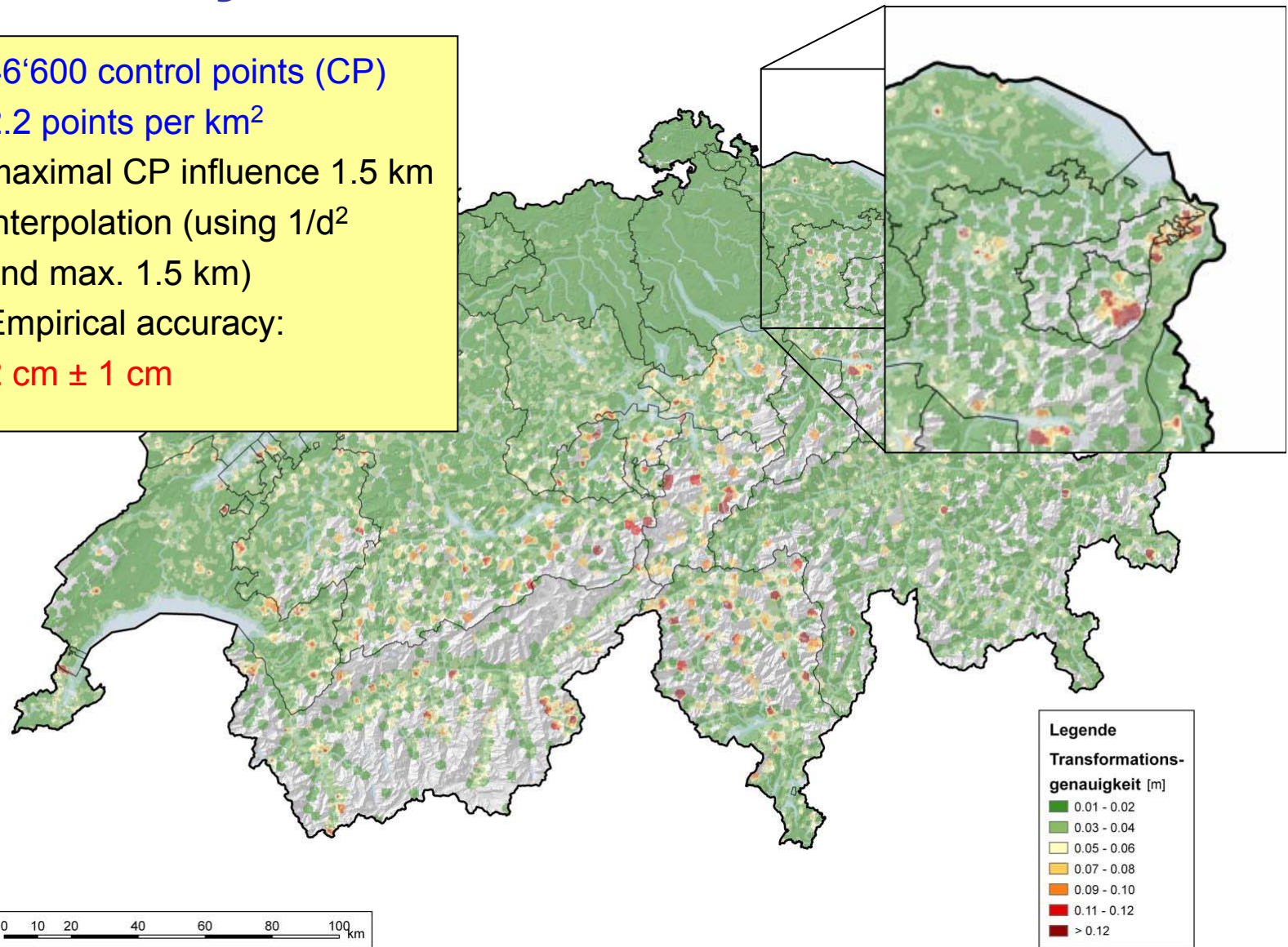






# Accuracy of the transformation

- 46'600 control points (CP)  
2.2 points per km<sup>2</sup>
- maximal CP influence 1.5 km
- interpolation (using  $1/d^2$   
and max. 1.5 km)
- Empirical accuracy:  
**2 cm  $\pm$  1 cm**

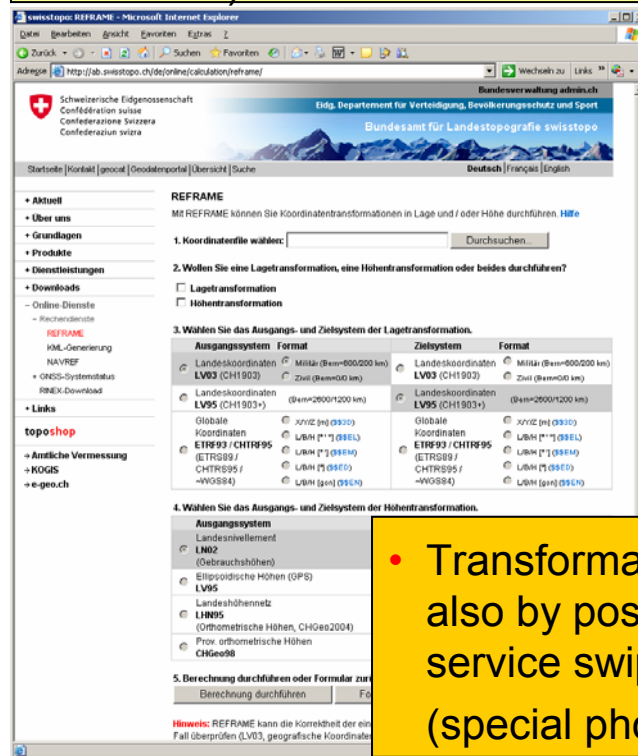




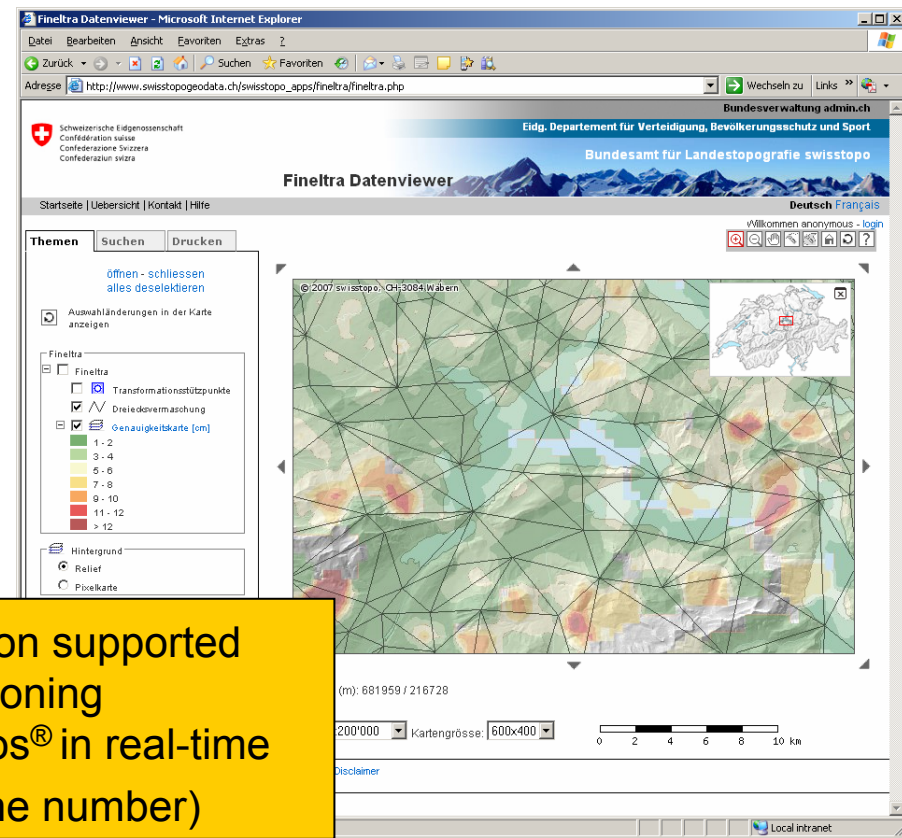
# Internet platform for transformations

- Download of **CHENyx06** data set
- Order forms for **off-line** transformation program “REFRAME”

- **on-line** transformations
  - LV03-LV95-ETRS
  - geoid, height systems LN02-LHN95)



- **View of transformation accuracy**

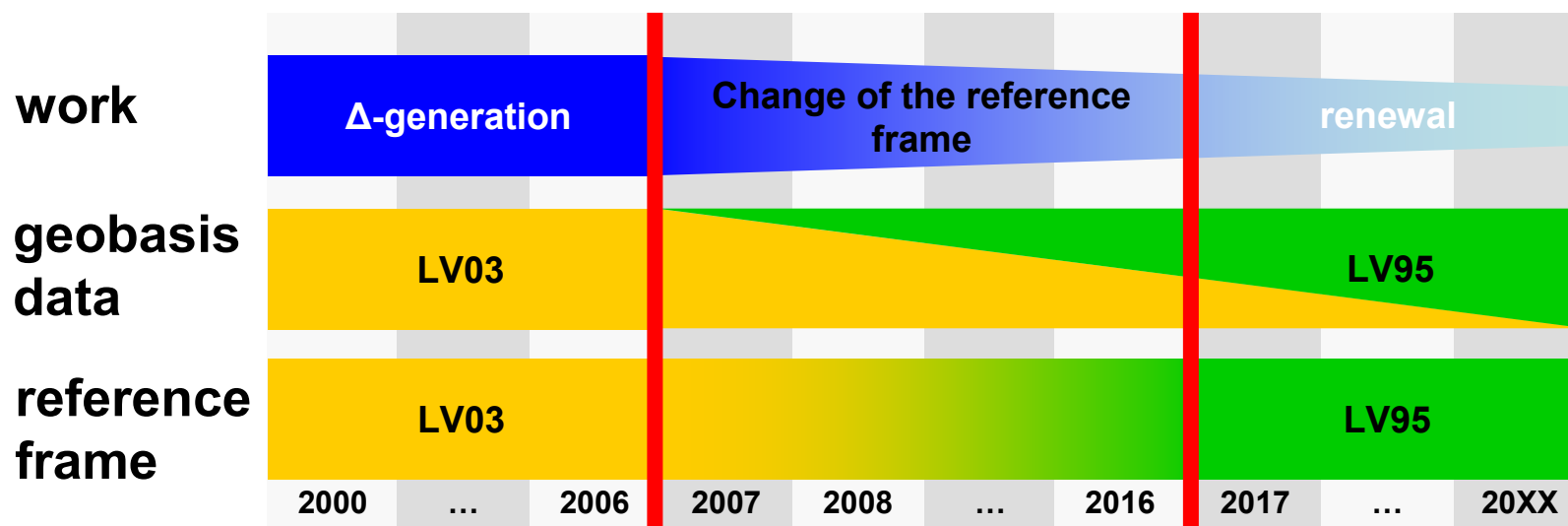


- Transformation supported also by positioning service swipos® in real-time (special phone number)



# Time schedule for geobasis data

- Geographic information law + 10 ordinances, coming into force 1.1.2008 (?)
- Transitions phase for LV95: 2016 for geobasis data regulated by federal law; 2020 for all geobasis data







# AGNES from GPS -> GPS/GLONASS

Replacement  
starting end of  
June 2007

