



2026



National Report of the Czech Republic

Czech Office for Surveying, Mapping and Cadastre:

Land Survey Office,

*Department of
Geodetic Control*

Jan Řezníček

*Research Institute of Geodesy,
Topography and Cartography,*

*Geodetic Observatory
Pecný*

*Jan Douša, Jaroslav Šimek
Vojtěch Pálinkáš, Petr Štěpánek*

Administration of CZEPOS network



since 2004

- 30 Czech stations
- 27 neighboring stations

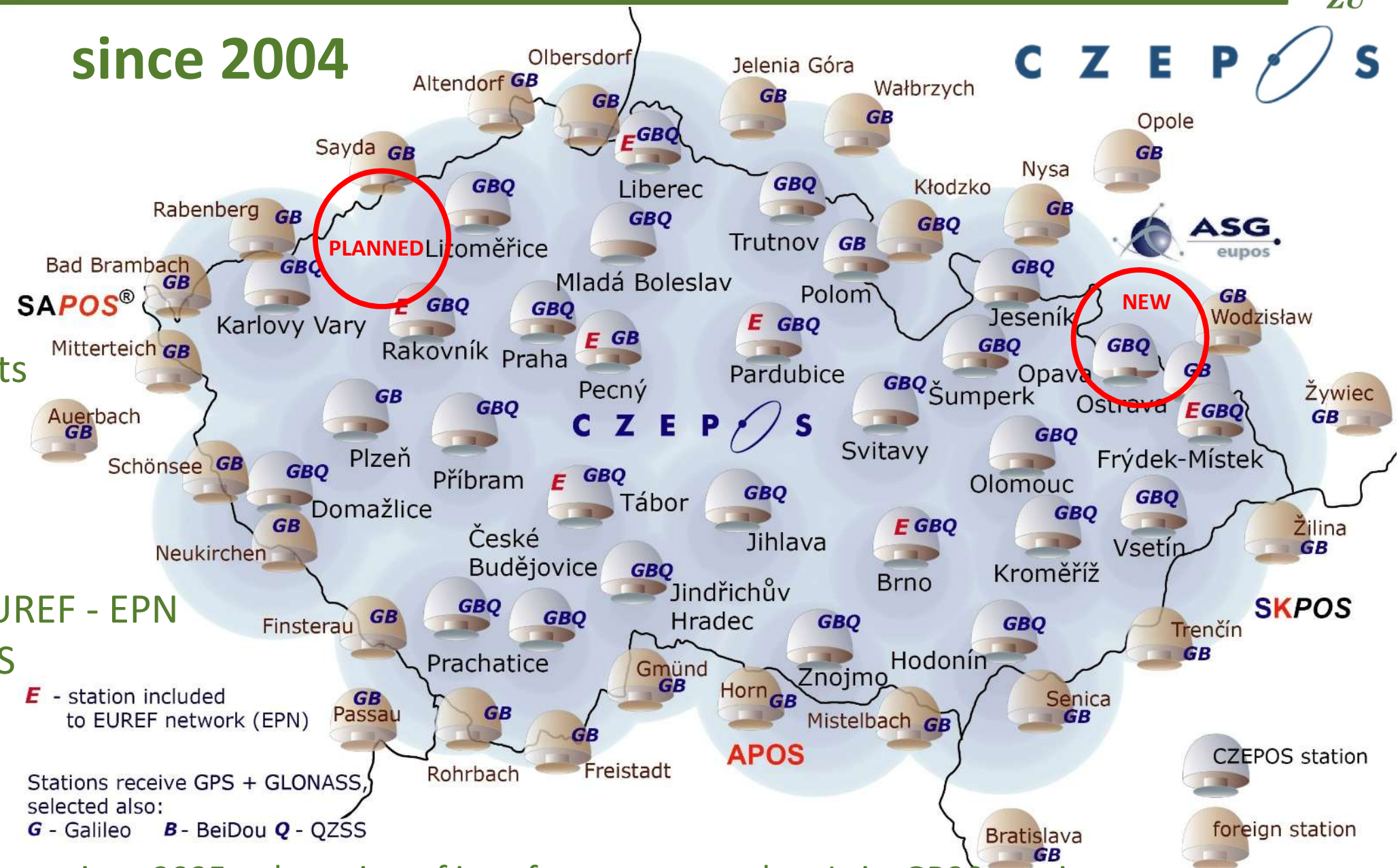
- real-time services
- post-processing products
- GPS/GLONASS
- Galileo + BeiDou (since 2017)

- 7 stations involved in EUREF - EPN
- cooperation with EUPOS

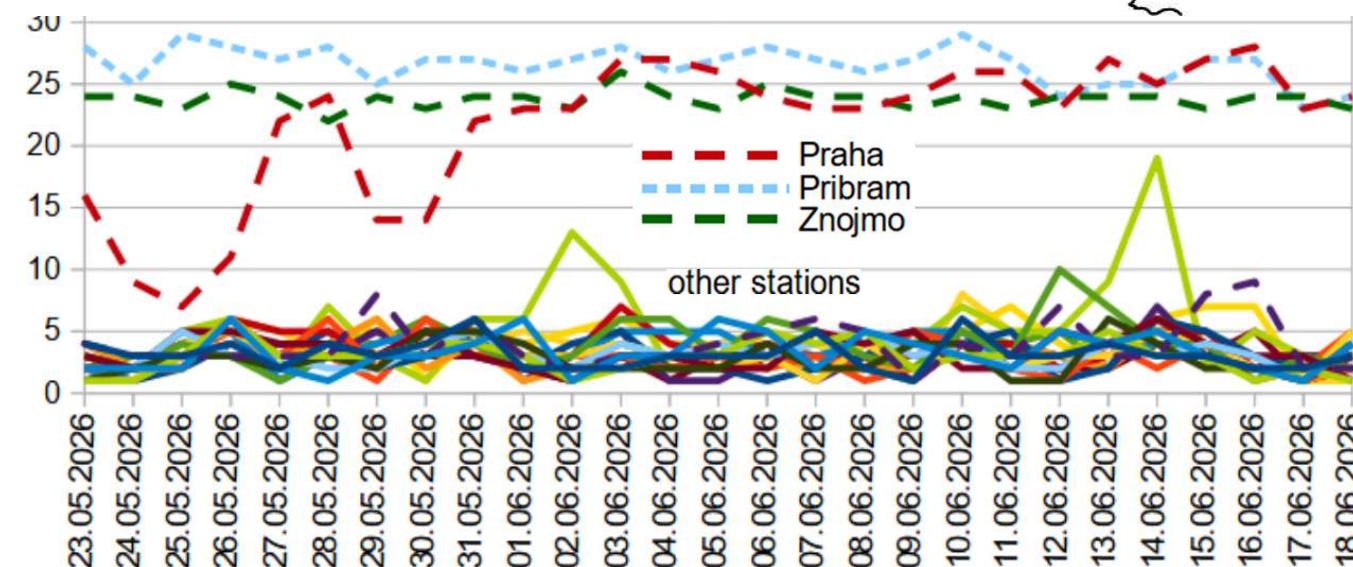


2026/06:
3300 users

since 2021
HxGN SmartNet



since 2025 – detection of interferences started on LeicaGR30 receivers

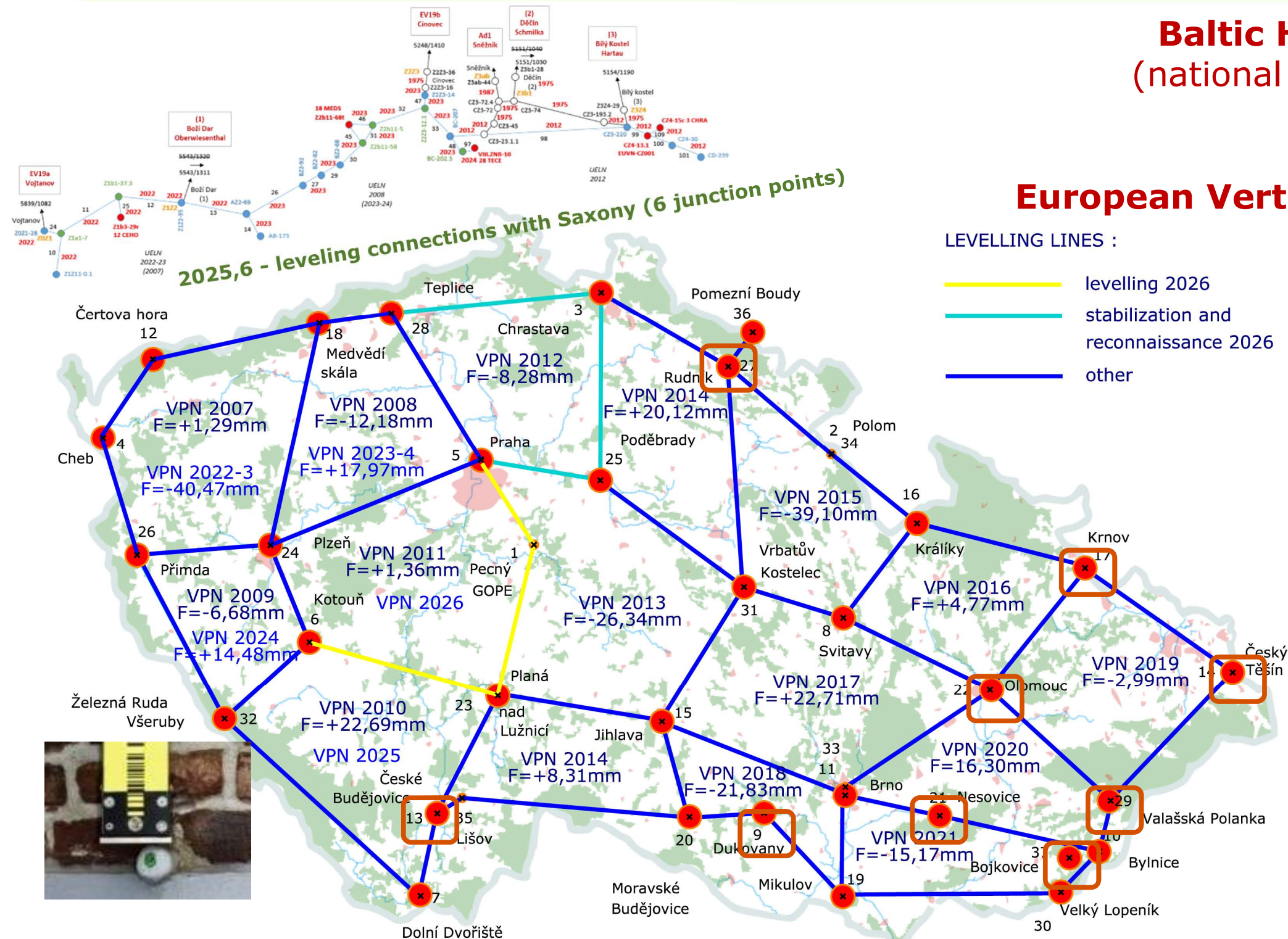


Levelling and absolute gravity measurements



Baltic Height System
(national realization - Bpv)

European Vertical Reference System
(EVRS)



ZGS POINTS :

- original stabilization
- forced centration

LEVELLING ACCURACY :

F= ... levelling enclosures in the polygons

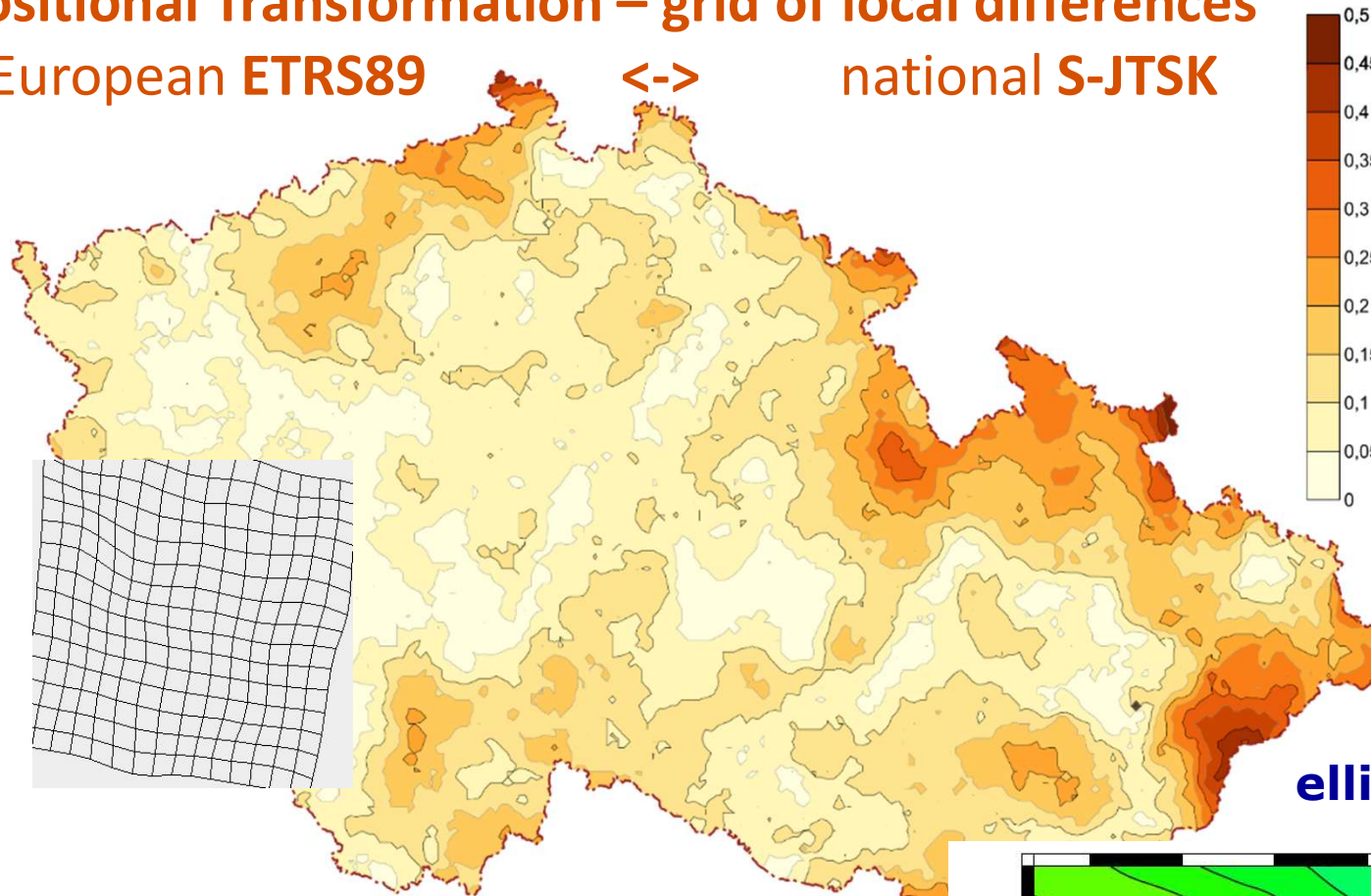
National realization of EVRS - precise leveling → grid densification



Transformation grids



Positional Transformation – grid of local differences European ETRS89 <-> national S-JTSK

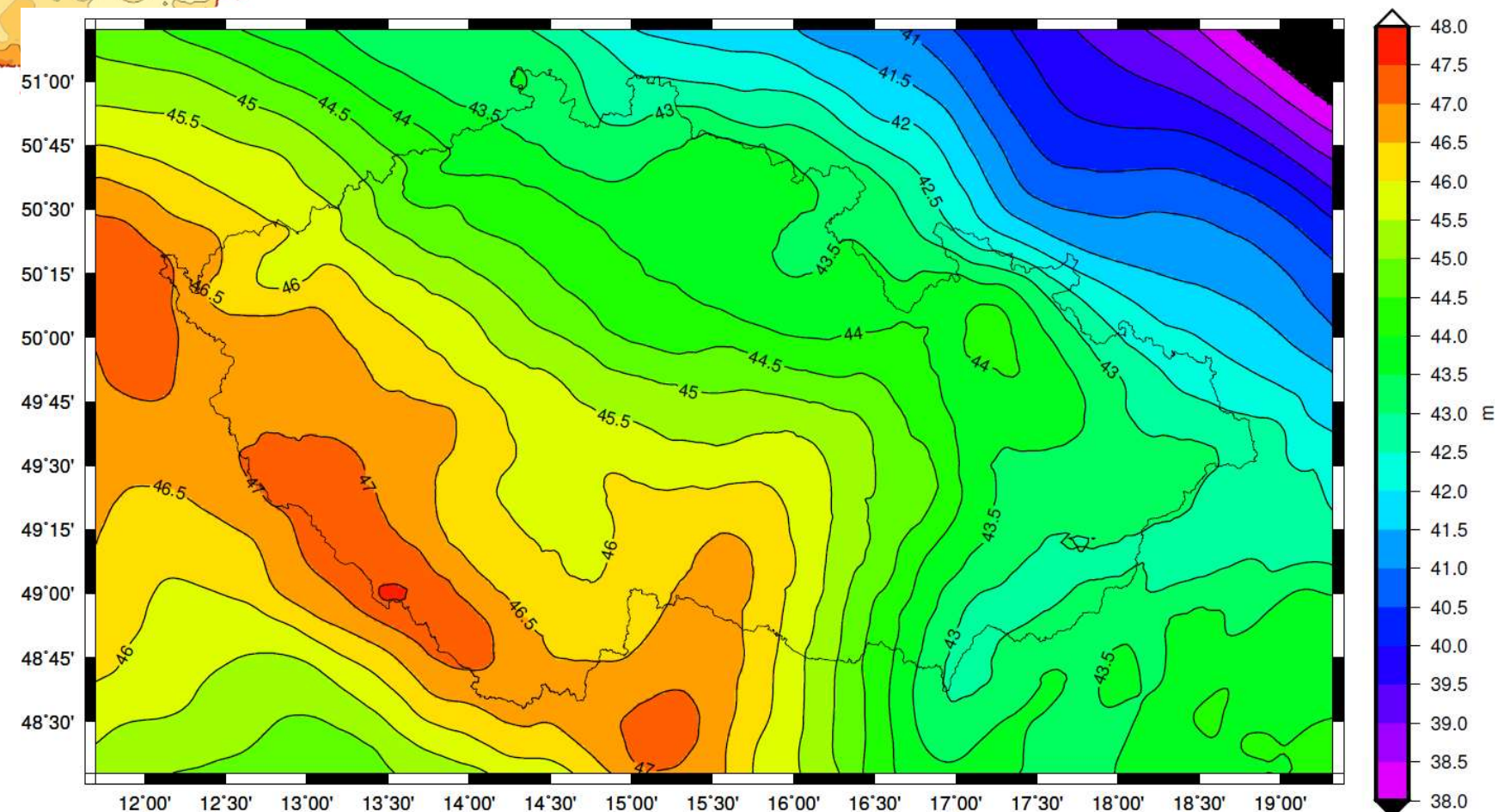


- Actual realization 2017
 - computed from 4000 identical points observed with GNSS
- 2018 – present:
 - additional identical points observed
- 2029 new realization (planned)

ellipsoidal heights GRS80 <-> Baltic Height System

Quasigeoid QGZÚ-2014:

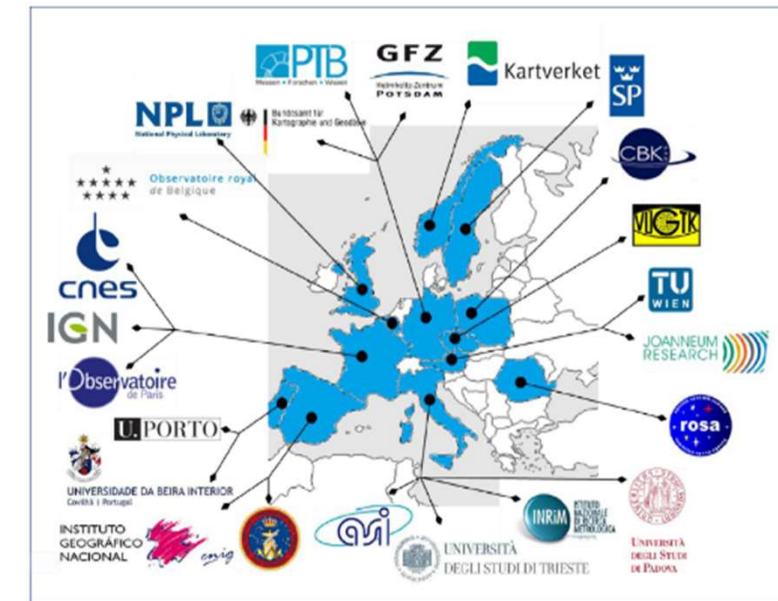
- computed in cooperation with Research Institute of Geodesy and Cartography
- **new GNSS/gravimetric measurements**



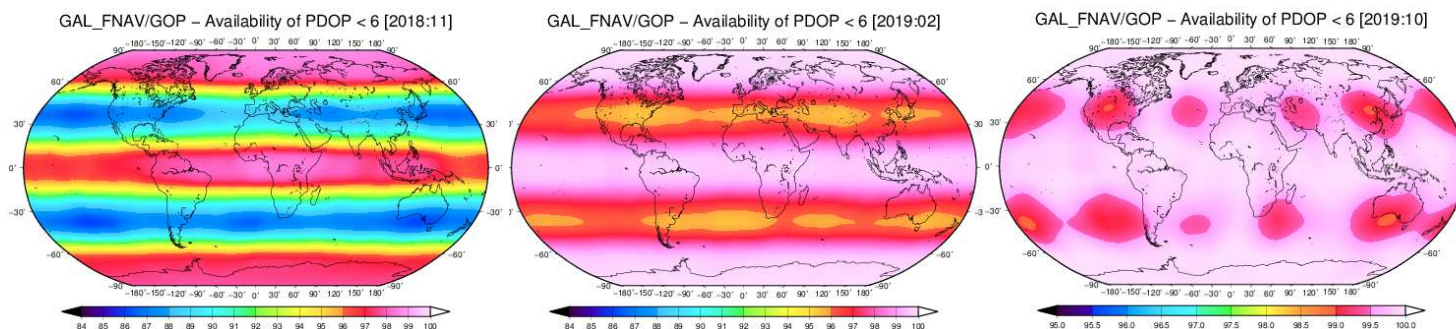
GEMOP project (2023-2029) - Galileo and EGNOS monitoring of Performances by Member States

- reference Galileo + GPS orbits & clock EARLY/RAPID products
- reference consolidated navigation data products
- **Galileo OS / HAS / EGNOS positioning performance monitoring**
- multi-GNSS data quality monitoring of all reference stations
- GNSS/NWM tropospheric products and monitoring

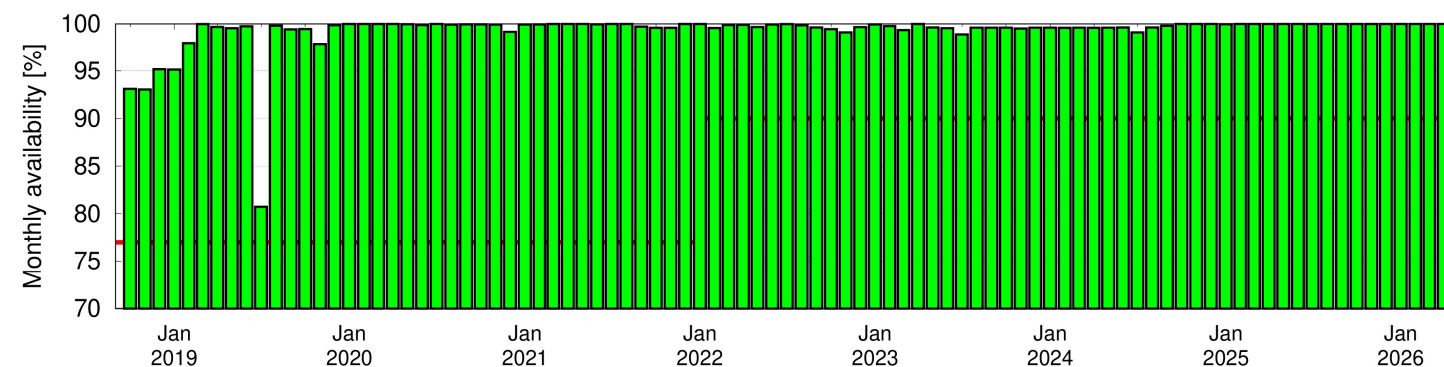
GEMOP consortium



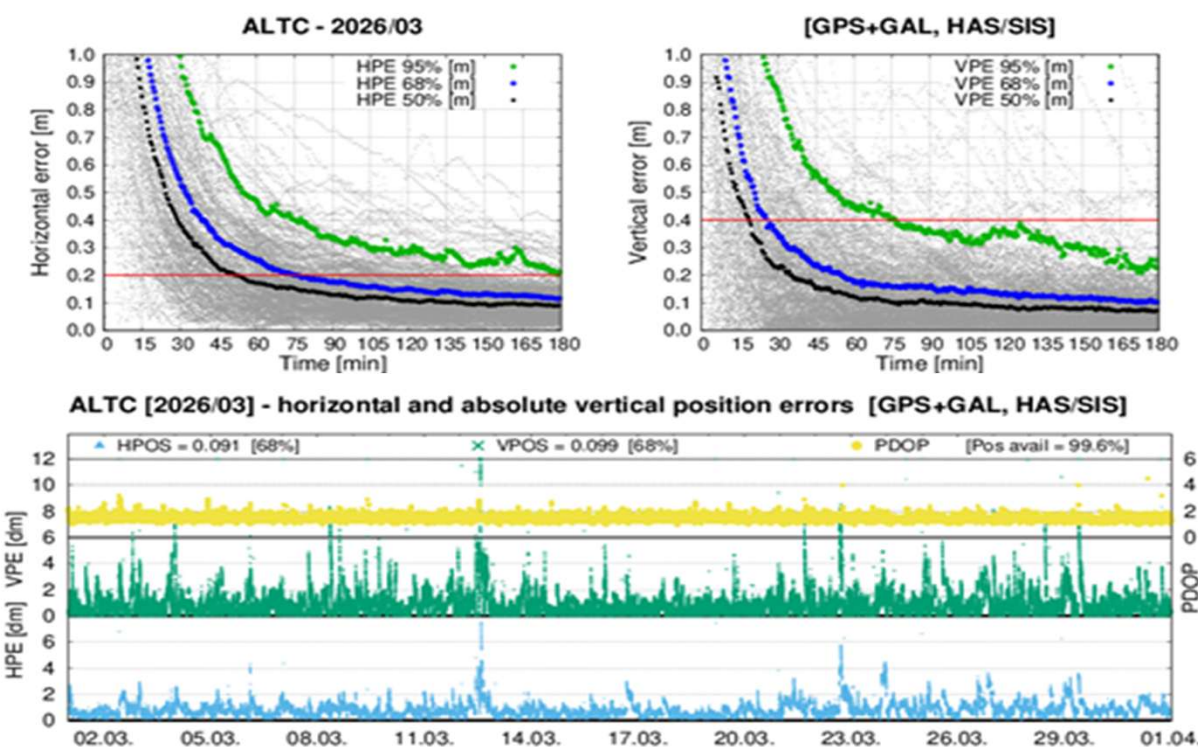
Galileo OS service volume monitoring



Galileo INAV - global availability of Global 3D Dilution of Precision (PDOP < 6)



Galileo HAS site positioning



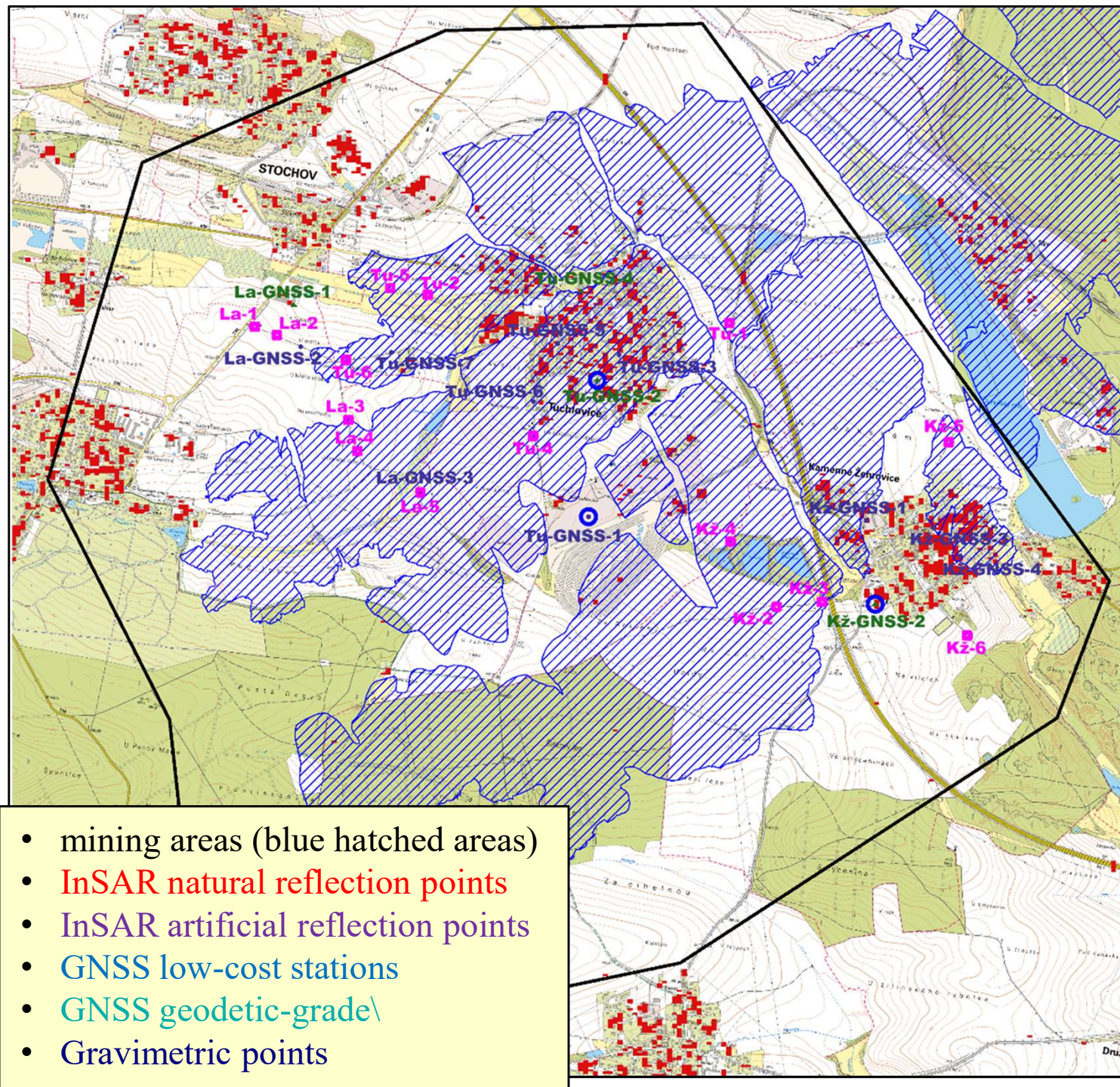
DiAMo - Automated monitoring of flooding of closed mines



Objective: assess and monitor surface changes

Pilot area: Tuchlovice + Lány + Žehrovice

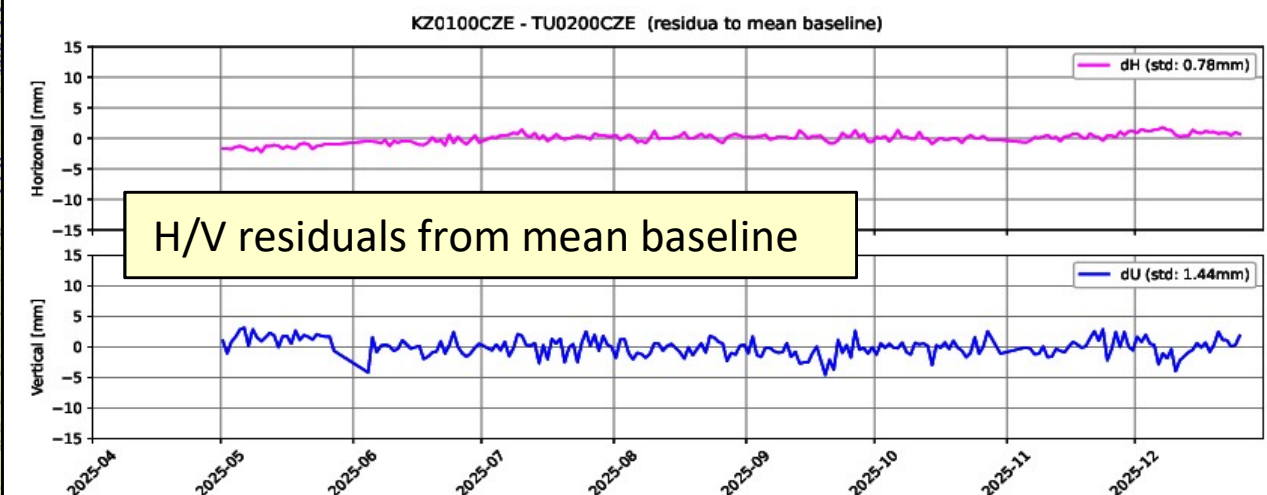
- support risk management of post-mining deformations
- support management of further area development



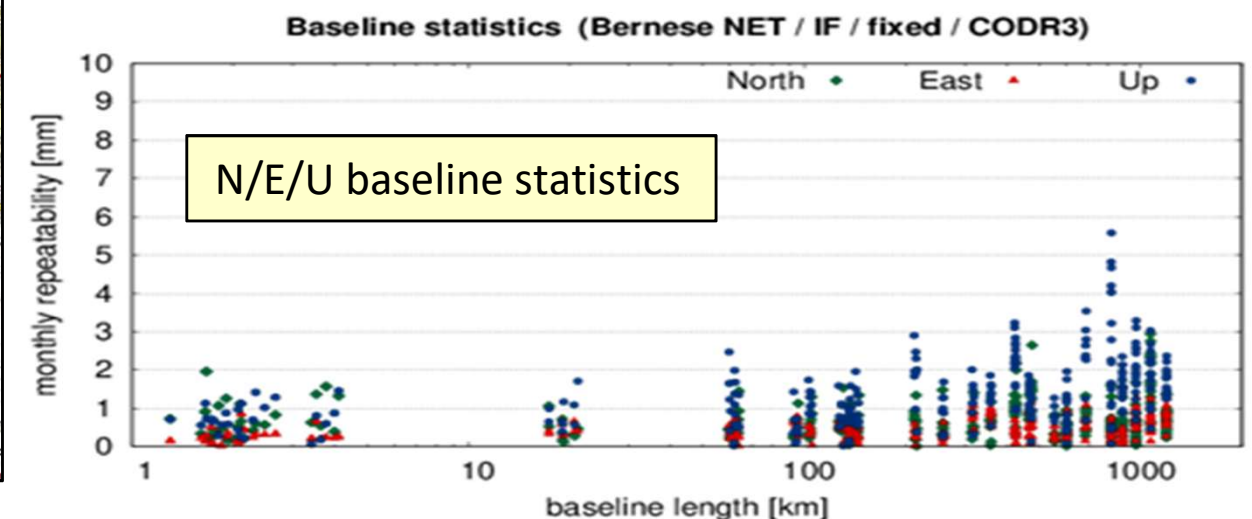
- mining areas (blue hatched areas)
- InSAR natural reflection points
- InSAR artificial reflection points
- GNSS low-cost stations
- GNSS geodetic-grade\
- Gravimetric points

Design and implement data collection to assess the **intensity** and **extent** of the impact of underground flooding on the surface

Surface **movements** + **deformations** and **scope** of the affected area



H/V residuals from mean baseline



N/E/U baseline statistics

Final Report

REGIONAL COMPARISON OF ABSOLUTE GRAVIMETERS

EURAMET.M.G-K2.2023 Key Comparison

and Additional Comparison

Pilot laboratory: Research Institute of Geodesy, Topography and Cartography, Czech Republic

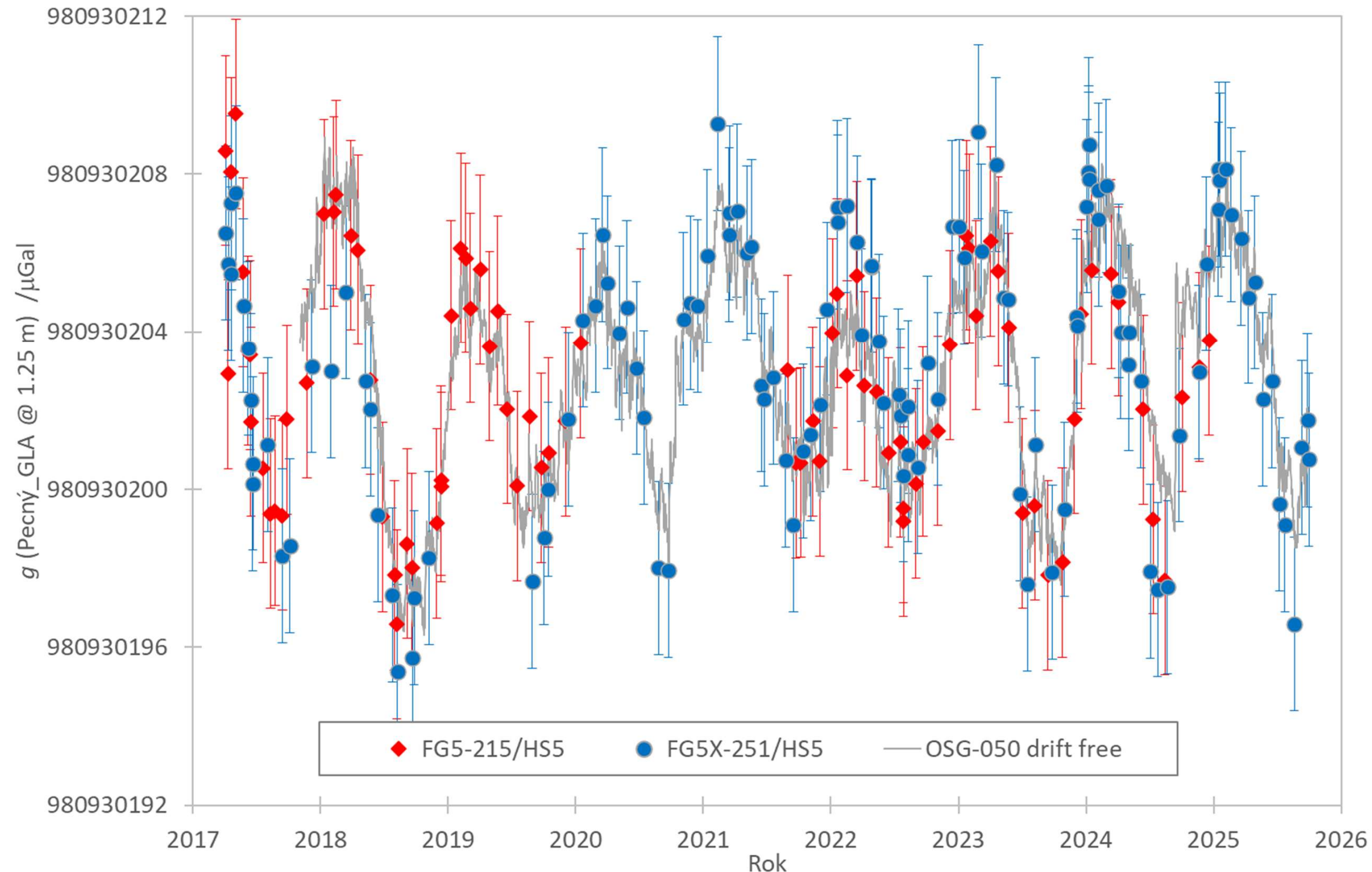


- The final report for the European comparison of absolute gravimeters conducted in Wettzell in 2024 has been published
- The comparison was organized in cooperation between BKG and VÚGTK

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- A traceable reference gravity function (compatible with International Terrestrial Gravity Reference System) has been determined at the Pecný station and is used for the calibration and validation of absolute gravimeters



DORIS analysis center



- analysis center GOP (VÚGTK), part of International DORIS Service (IDS)
- weekly solutions
- contribution to IDS products
- stations coordinates, Earth rotation parameters
- Precise orbit determination
- contribution to the development of ITRF
- cooperation with TU Munich, CNES, CLS, NASA,....

