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National Report of Switzerland

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Analysis of Permanent GNSS Networks

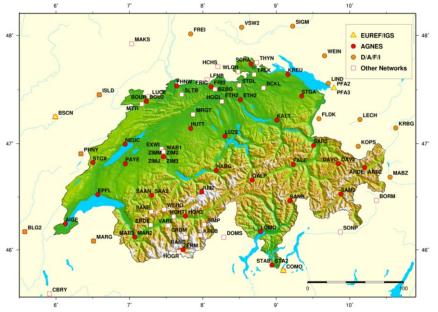
Automated GNSS Network for Switzerland (AGNES)

NaGNet and other permanent GNSS stations in or near Switzerland

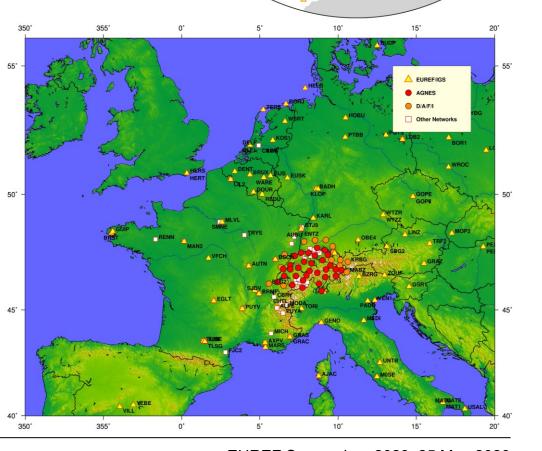
EUREF Permanent GNSS Network stations

• IGS (reference frame) stations

Bernese GNSS Software 5.3+ (modified)

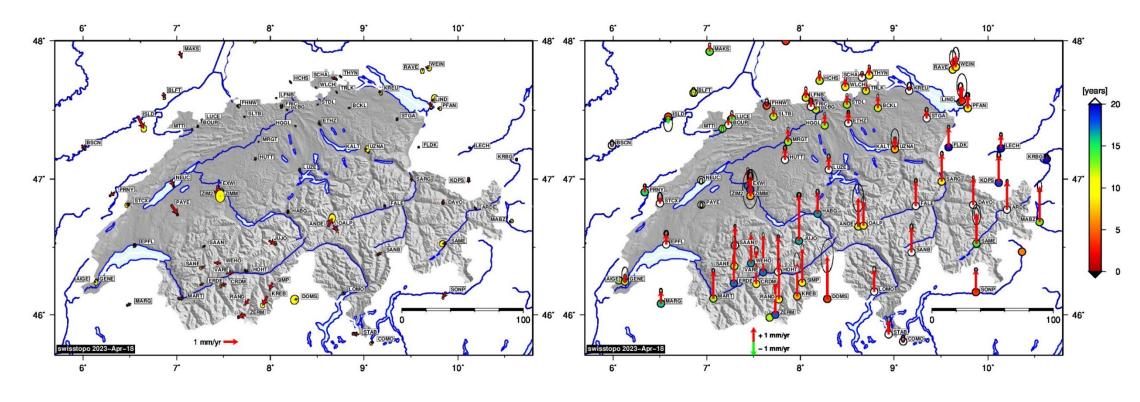








Multi-Year GNSS Station Velocities

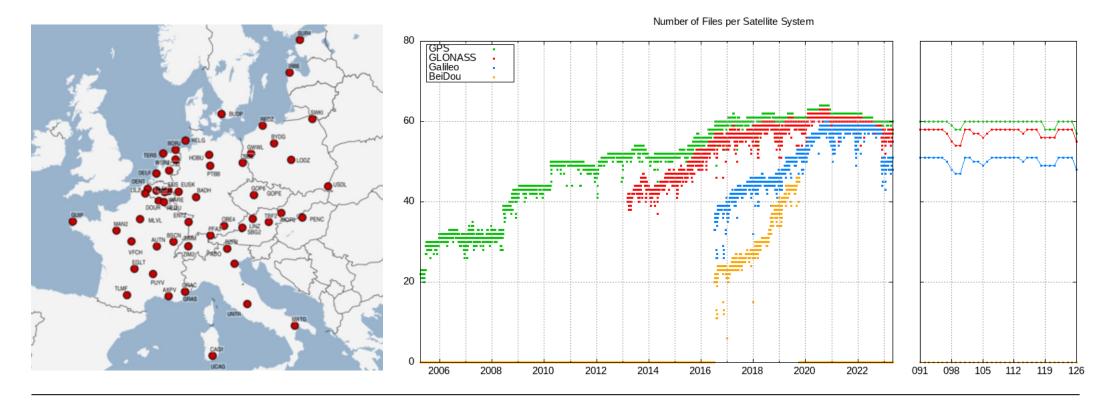


Horizontal (left) and vertical (right) velocity field determined with the daily updated multi-year solution of permanent GNSS stations.



Analysis Center for EUREF ("LPT")

- Daily and weekly final, daily rapid, as well as hourly near real-time multi-GNSS solutions
- Application of the IGS Repro-3 standards at the end of 2022 (e.g. consideration of only calibrated frequencies) for the final product line

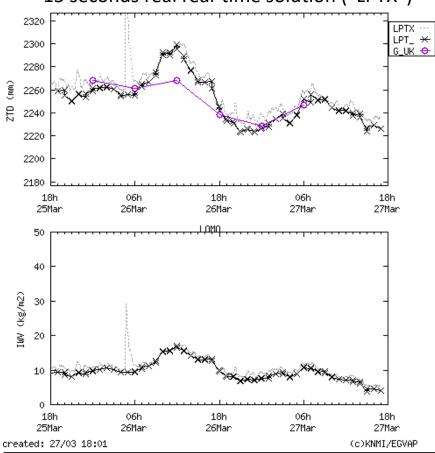




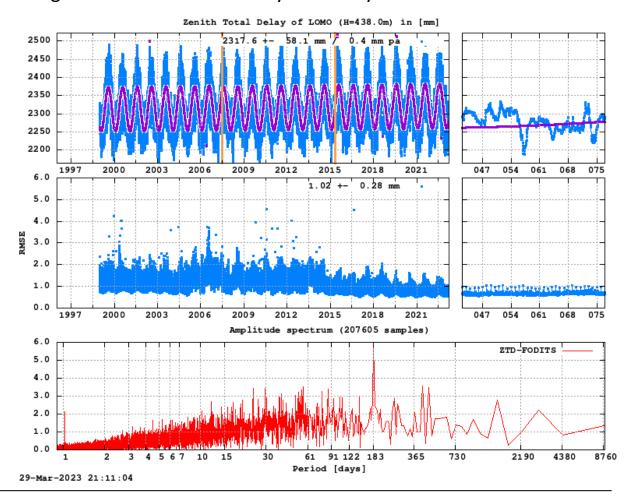
Contributions to GNSS Meteorology

ZTD estimates submitted to EUMETNET

- Hourly near real-time solution ("LPT")
- 15 seconds real real-time solution ("LPTX")



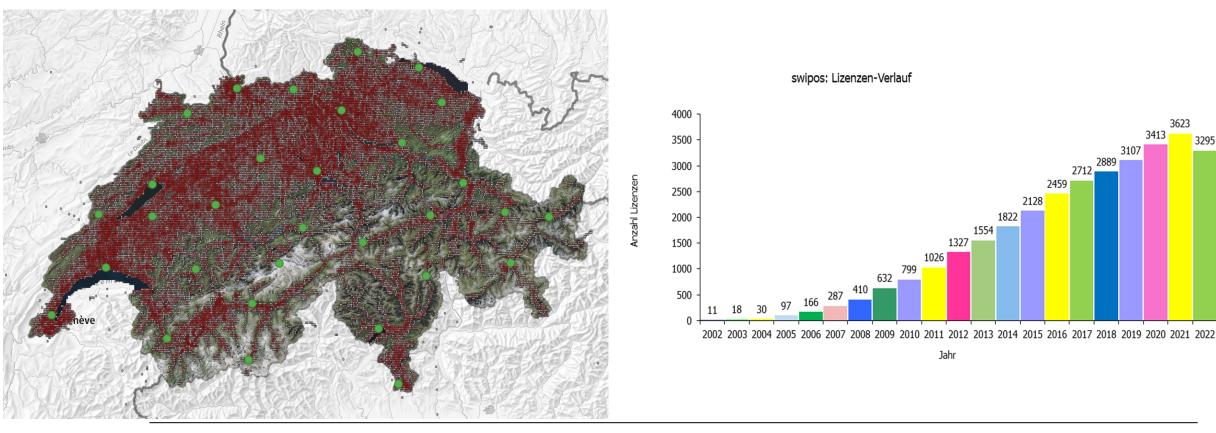
Long-term trends in the hourly ZTD analysis





Swiss Positioning Service (swipos)

→ ensures the access to the Swiss reference frame (LV95) using RTK

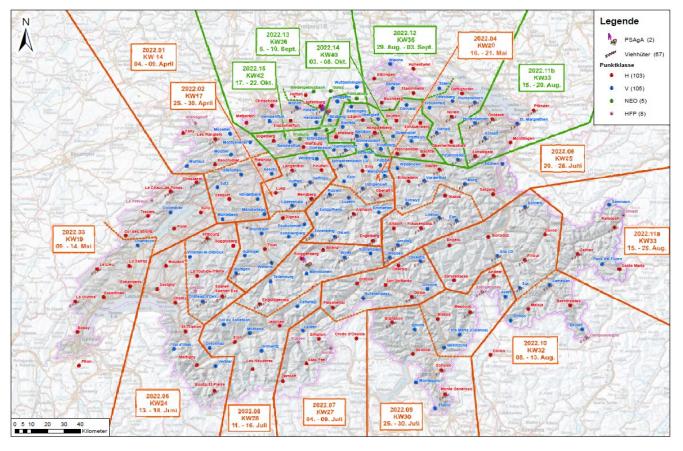


Federal Office of Topography swisstopo



CHTRF Campaign 2022

1998 - 2004 - 2010 - 2016 - 2022



Campaign statistics:

- 221 measured ref. points
- 44 h observation time
- 8 GNSS receivers
- 10 operators
- 16 weeks
- 214 person-field-days

41 AGNES permanent stations



Geostation Zimmerwald / Gravity

- Supporting SLR activities (access to ITRF)
- Our GNSS link to EUREF (stations ZIMM and ZIM2)

- Gravity measurements:
 - three absolute gravimetry measurements in 2022

