

National Report of Spain

Instituto Geográfico Nacional

Spanish GNSS Reference Stations Network (ERGNSS)

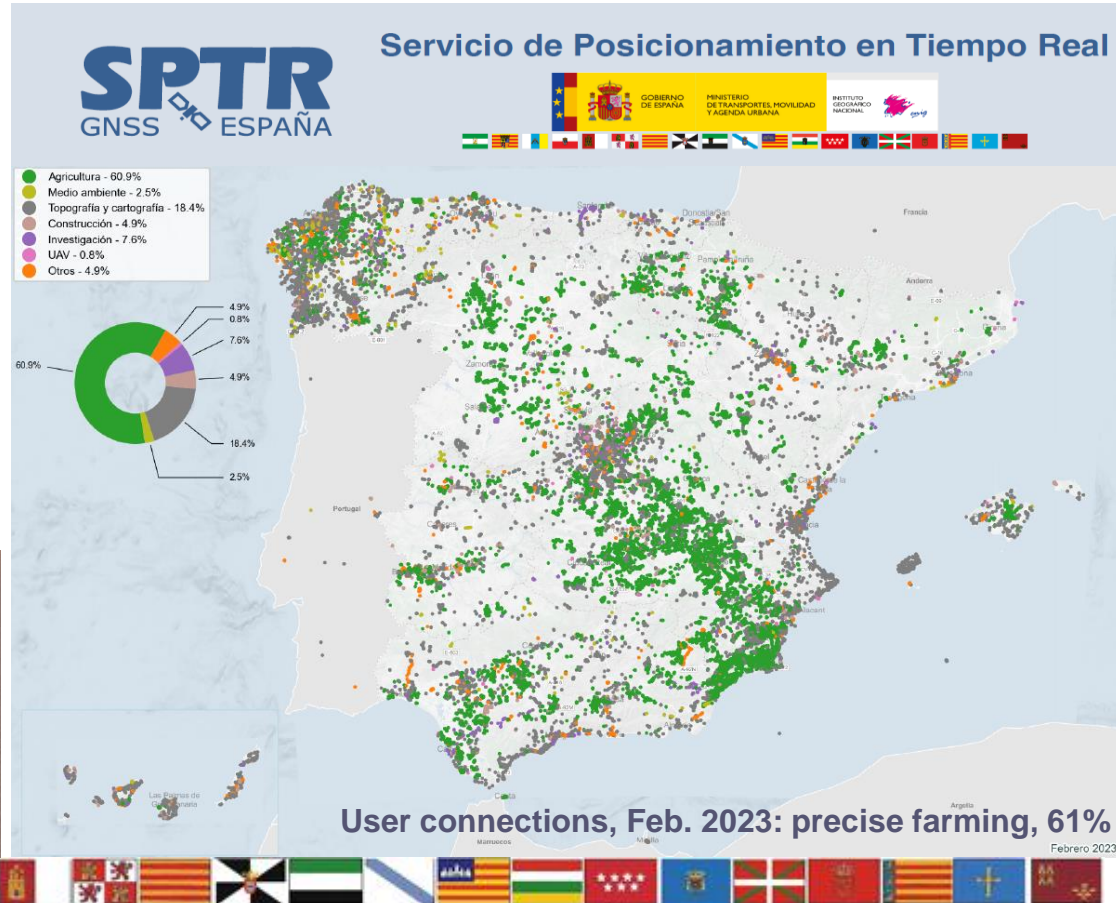
- ERGNSS: 122 permanent st.:
 - 4 IGS + 25 EPN.
 - New: 2023 Antarctic campaign, Livingstone and Deception Islands, 5 stations, permanent comm. Integration in IGS?
 - Local Data Center: <https://www.ign.es> server.
 - Daily 30 s.
 - Hourly 1 s, 30 s.
- EPOS GNSS data node
 - 297 stations, populating the DB.



Real Time positioning Service

Network-based (245 stations):

- IGN + Regional GNSS networks service
- Homogeneous & updated ETRF00 frame.
- Free of charge.
- Solutions:
 - VRS, MAC, FKP network based.
 - Individual station and NEAREST.
- GPS+GLO+GAL+BDS
- > 10,000 users



High precisión levelling network & absolute gravimetry & tide gauges

- REDNAP: high precision levelling network: 25.000 km, 30.150 benchmarks.
- Current works: linking all GNSS permanent stations to REDNAP (orthometric height, grav. measurements). Almost finished.
- Absolute gravimetry network campaigns with FG5 and A10 gravimeters.
- Installation of superconductor gravimeter in VGOS station in Azores (PT) and FG5 campaign.
- Maintenance works of tide gauges in Peninsula and Islands.

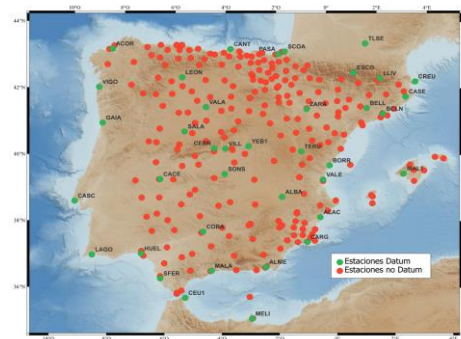
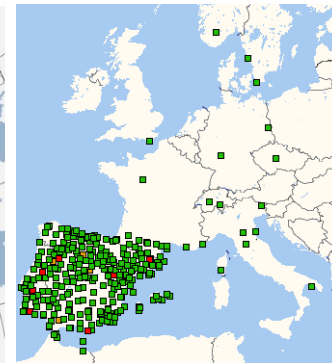


IGE GNSS Analysis Centre - Summary

All projects migrated to BSW 5.4

- EUREF Analysis Center
 - LAC: EPN processing (final & rapid) → 99 stations.
 - EPN-D & European Dense Velocities → 380 stations.
 - Next Repro3 EPN process → ??? stations

- Other GNSS processing projects
 - IBERRED Project (time series & velocities) → 380 st.
 - National coordinates cumulative yearly solutions
 - E-GVAP Project (EUMETNET, ZTD) → 380 st.
 - Rapid solution (< 15 min)
 - Dense solution (30 min)
 - Volcanic Monitoring System (Canary Islands) → 40 st.



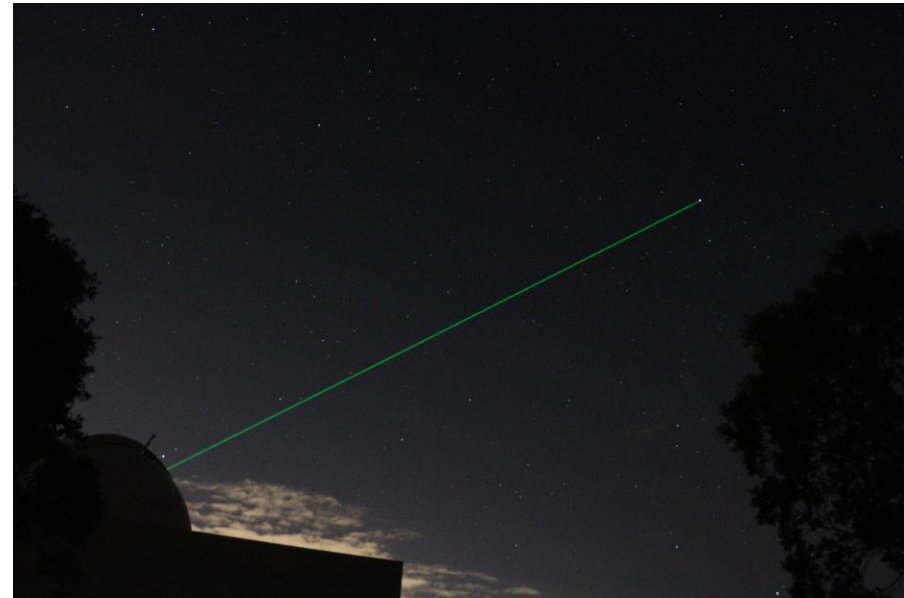
VLBI Analysis Centre

- IGE, official IVS AC since March 2020
- Software package: Where (Norwegian Mapping Authority).
- Operational products:
 - Antenna coordinates
 - Source coordinates
 - Earth Orientation Parameters
- Additional activities
 - ITRF2020 reprocessing
 - Analysis of VGOS sessions
 - Determination of the gravitational deformation of RAEGE antennas (terrestrial laser-scanner and photogrammetry)



Yebes Observatory: SLR

- A SLR has been installed, so called YLARA (Yebes LAser RAnging).
- The station is in the phase of site acceptance tests and will start regular operations by early 2024.
- Yebes Observatory will become a fundamental geodetic station: VLBI + SLR + GNSS, local tie network and SC gravimetry.
- Additionally, YLARA will be capable to track space debris too.





Thank you for your attention

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