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INSTITUT NATIONAL
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Institut national de l'information géographique et forestière — EUREF 2026 — National Report of France 2026

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NATIONAL REPORT FRANCE

EUREF 2026 Symposium
Paris

José De Oliveira Pinheiro

IGN France, Service of Geodesy and Metrology

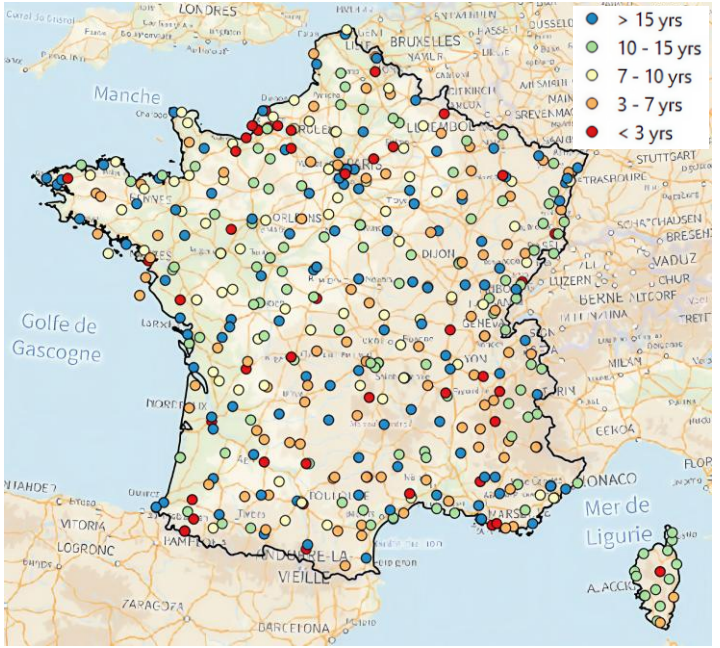
GNSS PERMANENT NETWORK

RGP Network

IGN France acts as a coordinator of ~50 partners

(private networks, public and scientific sectors)

- **510** permanent stations (31/05/2026)
- **458** stations in continental Europe
- **34** stations part of **EPN** (**26 active**)
- **261** stations included in **EPOS**



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Products

- Hourly, daily and weekly solutions
- Collaboration with **Météo-France** (French National Meteorological Service) for hourly **ZTD** production

Services

- Website: https://rgp.ign.fr > **3000 visitors / month**
- **RINEX** data download: ~**1500 users / month** (~**600 GB / month**)
- Online **GNSS** processing service (**differential** and **PPP**): > **600 requests / month**



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CONTRIBUTIONS TO THE GLOBAL GEODETIC INFRASTRUCTURE

IGS

- IGS reference frame combination centre
- Global data centre

EUREF / EPN

- Analysis centre and local data centre
- Contribution to EPN repro3 campaign

DORIS

Partnership with CNES

- Network maintenance and evolution
- IDS data centre
- IDS analysis centre

REGINA

Partnership with CNES

Global GNSS network of 40 stations with real-time capacities, integrated in the IGS network

- Operational infrastructure management
- Redundant mission centre

SONEL

Partnership between CNRS, IGN, SHOM, LEGOS, LIENSs

Sea-level observation from tide gauges and GNSS Datacentre for GLOSS (Global Sea Level Observing System)

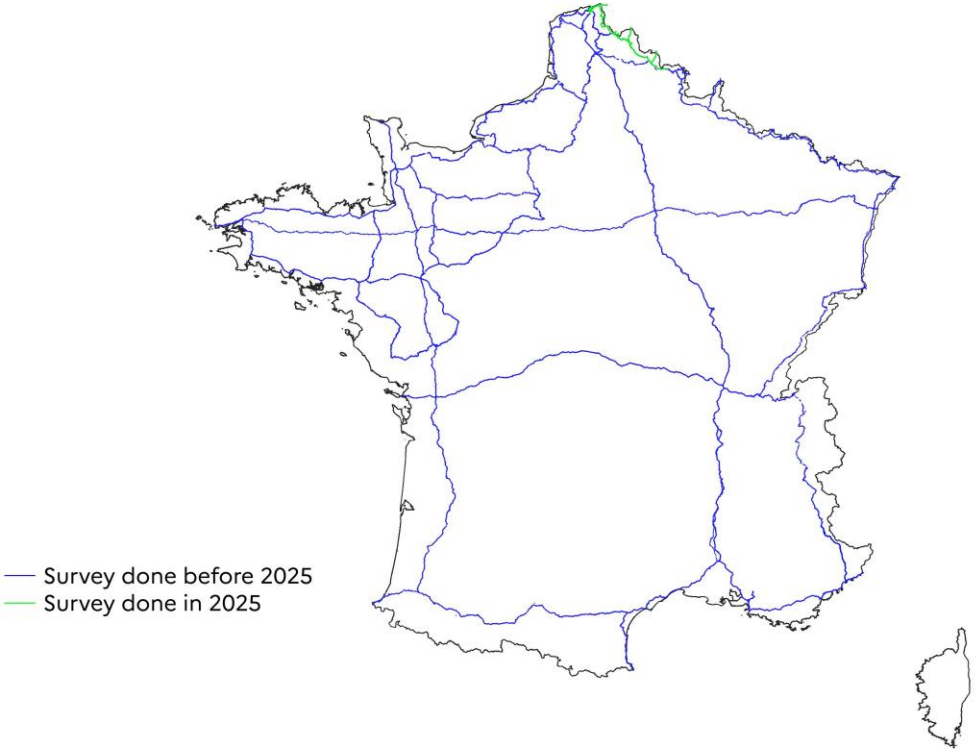
- GNSS data centre
- GNSS stations implantation, management and measurement

LEVELLING

Scientific Levelling (NIREF)

2025 Activities

- Finalisation of the **Bavay–Dunkirk** levelling line

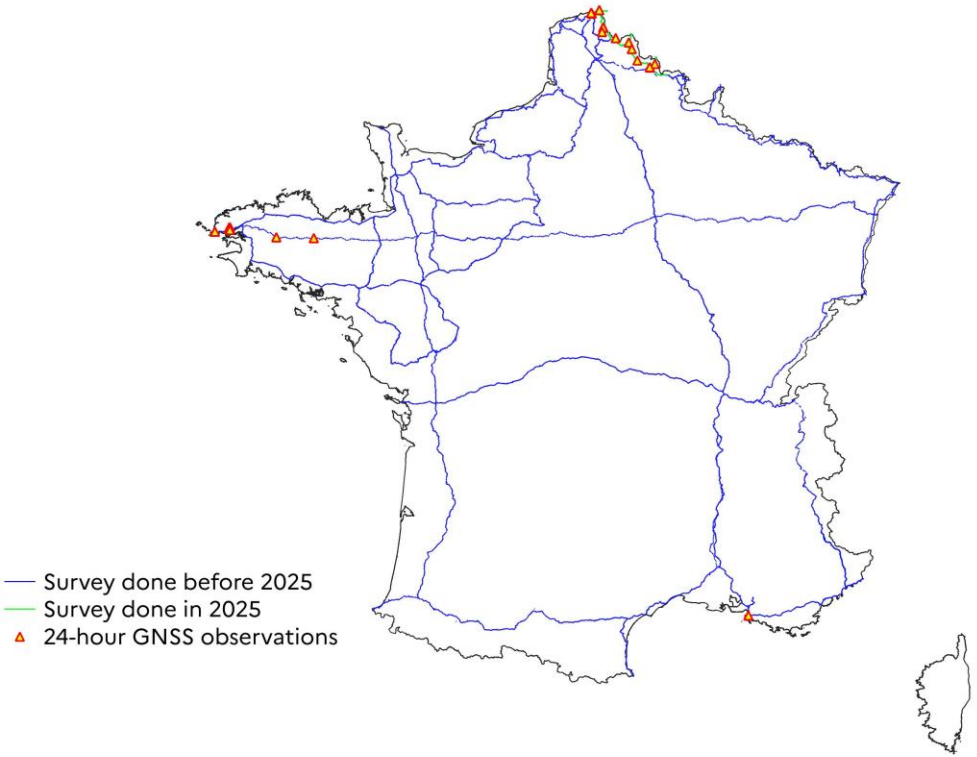


LEVELLING

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- Continuation of 24-hour GNSS observations on the **NIREF** line between **Strasbourg** and **Brest**



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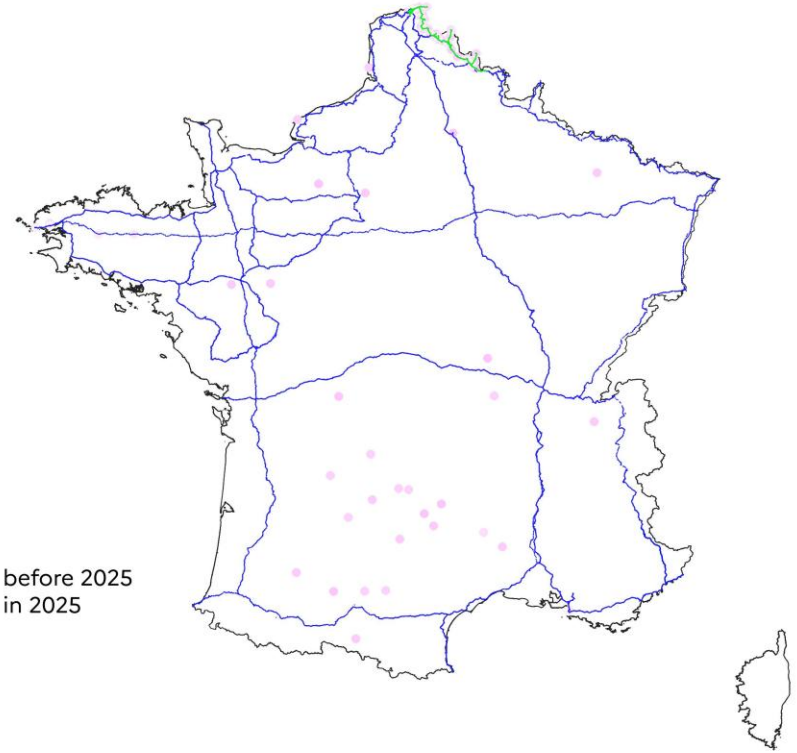
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2026-2027 Outlook

- 400 km measurement campaign to link existing **NIREF** lines or **first-order NGF** lines with **PSMSL tide gauges**

National levelling network

- Levelling and **GNSS** observations: **triplet benchmarks**



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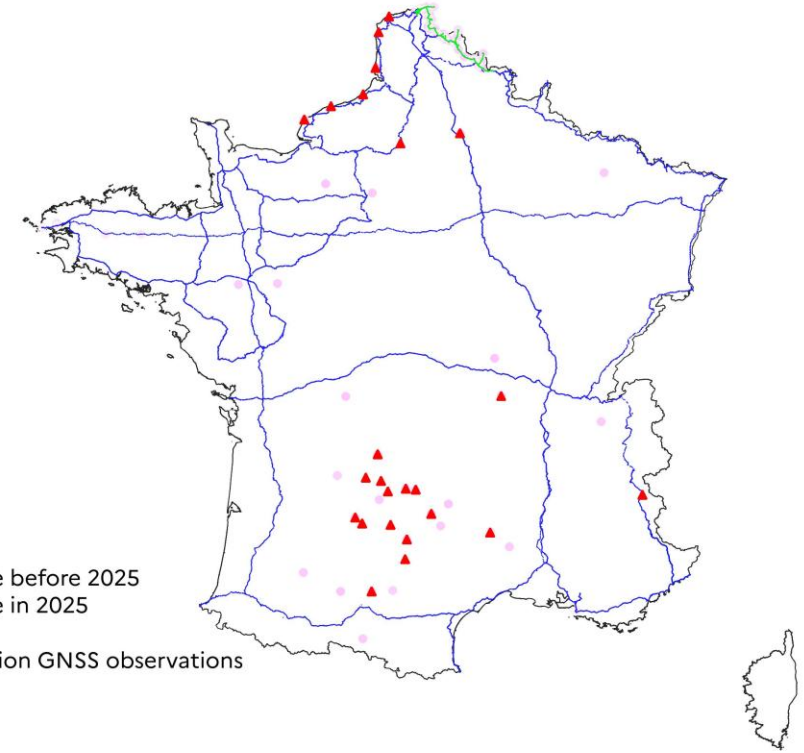
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National levelling network

- Levelling and **GNSS** observations: **triplet benchmarks**

National Geodetic network

- Short-duration **GNSS** observations



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National levelling network

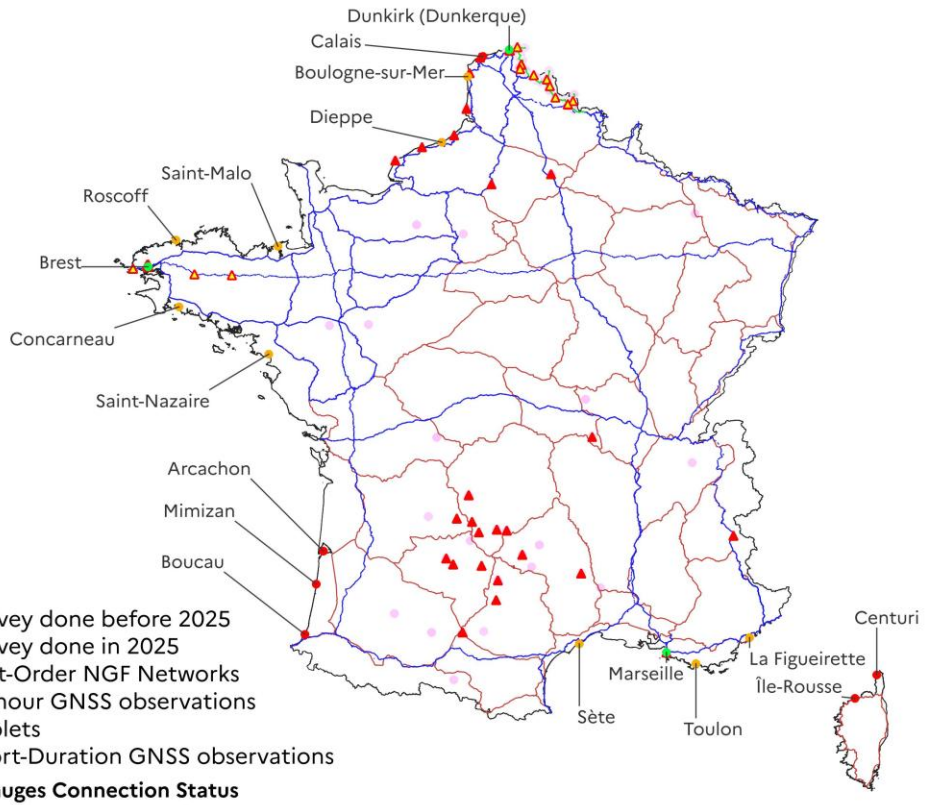
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National Geodetic network

- Short-duration **GNSS** observations

Overseas levelling networks

- **2025:** Post-cyclone **Chido** survey in **Mayotte**
- **2026:** Altitude updates for **Futuna** and **Alofi**







GRAVITY

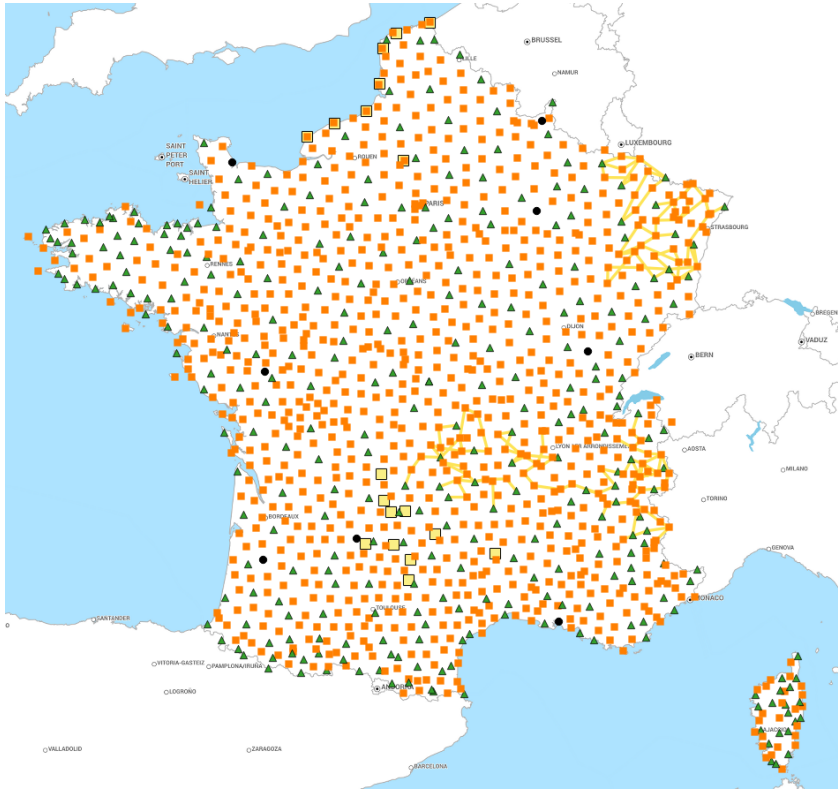
National Gravity Network

2025 Activities

- 56 relative lines
- 40 gradients
- 38 absolute gravity measurements
- **Densificatio**n of the network in **Coastal areas** and the **South-West Region**
- Re-establishment of the **Puy-de-Dôme calibration line**

2026–2027 Outlook

- Automated **vertical deflection** measurement tests



French National Gravity Network

RECENT UPDATES AND PERSPECTIVES

Géodésie de Poche (*"Geodesy in your pocket"* - Android/iOS app)



- Improved collaborative feedback tools for smartphone

Standardisation

- **ISO 19161-1** "Geographic information – Geodetic references – Part 1: International Terrestrial Reference System (ITRS)" Published (2020) — Confirmed in 2025
- **ISO 19161-2** "Geographic information – Geodetic references – Part 2: Unique identification of geodetic ground stations" Under development — Submitted

InSAR infrastructure



- Assessment of InSAR contributions to geodetic network maintenance
- Development of multi-sensor reference stations (GNSS + inSAR reflectors/transponders)

GNSS permanent network

- RINEX 3, Bernese 5.4 and Galileo compatibility planned for 2026–2027
- Cloud-based infrastructure planned for 2028

Proposed Actions for National Infrastructure and Systems

- Participation in **"EUREF Study Group on Alternatives to ETRS89"**: Investigate alignment of **ETRS89** with current and future user needs, proposals for alternative system if it is relevant
- **France's Fundamental Geodetic Infrastructure:** Unified multi-sensor infrastructure integrating GNSS (including RGP stations and materialised geodetic points), InSAR, hydrodynamic and chronometric levelling

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THANK YOU
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