

NATIONAL REPORT OF LITHUANIA

Working Group of Reference frames

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2026 Helsinki

Organizational Changes



- The National Land Service (NŽT) has undergone an administrative change.
- It is now governed under the Ministry of Environment, functioning alongside the Group on Spatial Data Policy.

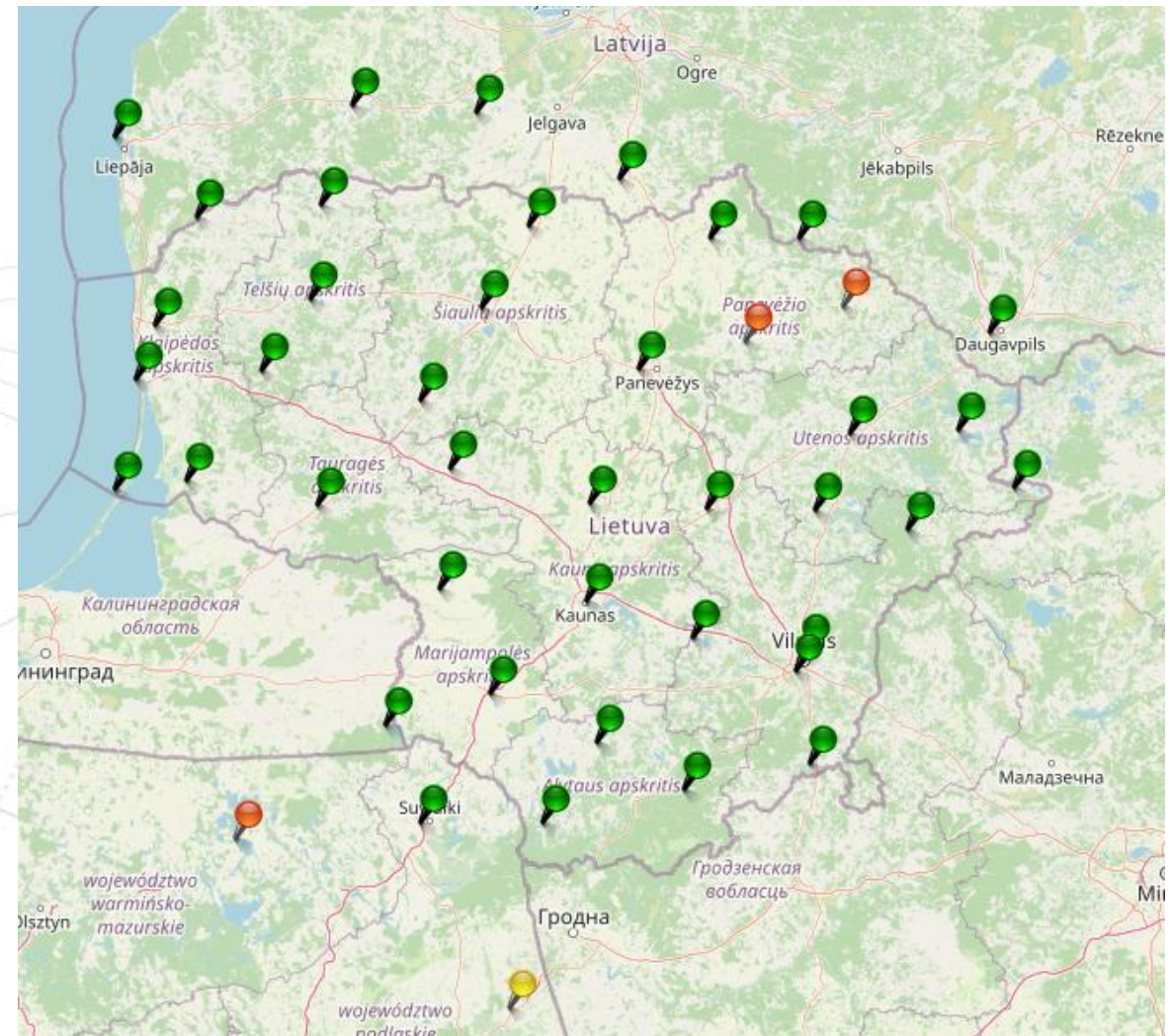


**Lietuvos
Respublikos
aplinkos
ministerija**

CORS Network LitPOS: Infrastructure



- The LitPOS network currently consists of 44 stations in total.
- This includes 35 domestic LitPOS stations, 6 LatPOS stations from Latvia, and 3 ASG-PL stations from Poland.
- The network reliably serves a large user base of approximately 2200 users and 6000 rovers.



LitPOS Network: Technological Upgrades



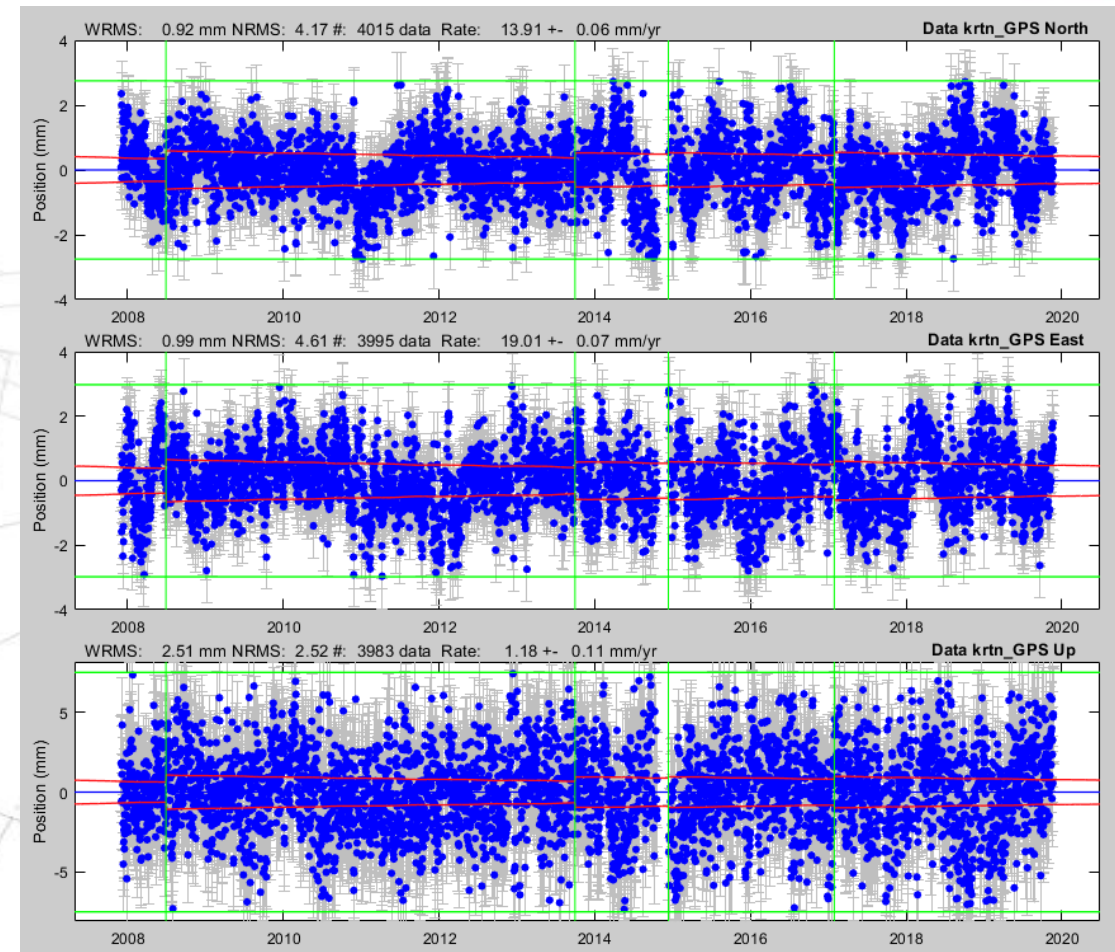
- All stations are equipped with Trimble NETR9 receivers and TRM59900.00 choke ring antennas.
- The system operates on Trimble Pivot, which was successfully upgraded from version 4.7 to 5.1, utilizing the RTX processor



Operational Processing & Time Series Analysis

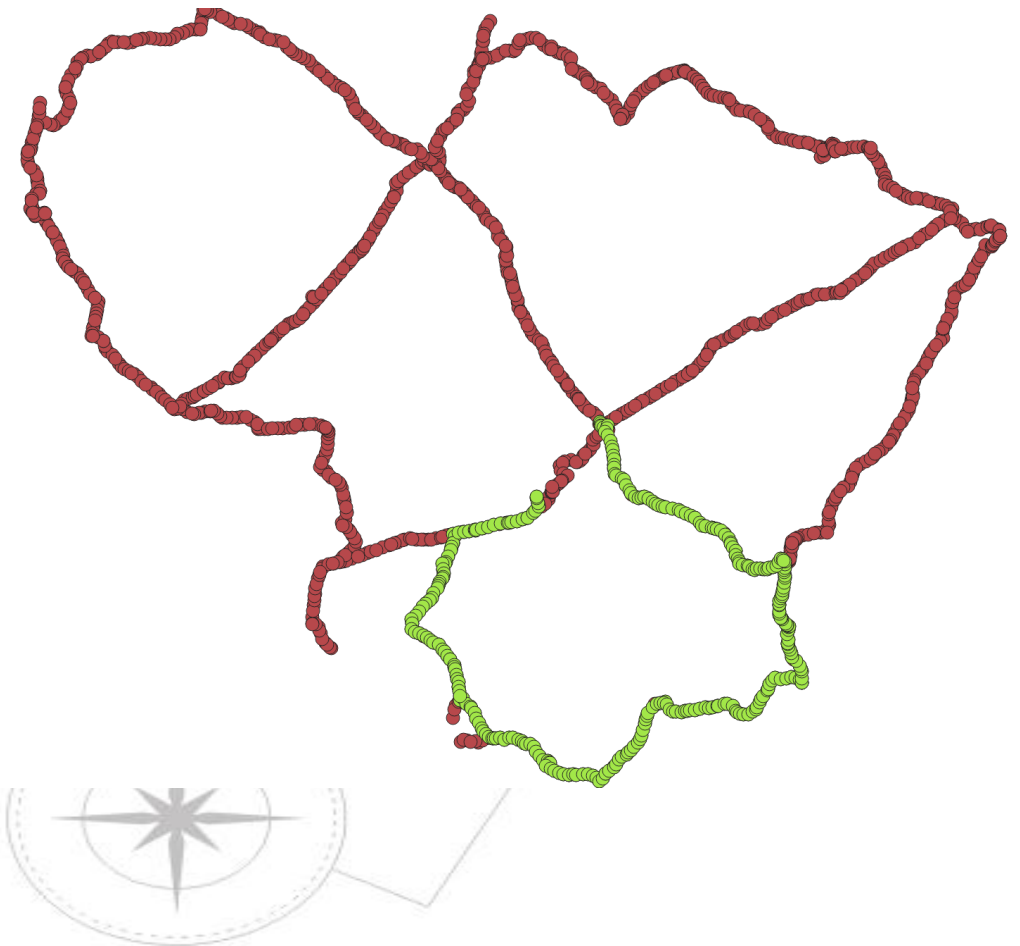


- Operational calculations are fully automated and processed using Bernese GNSS Software.
- The processing engine was recently and successfully updated from Bernese version 5.2 to version 5.4.
- Calculations are up to date, currently working on GPS week 2409.
- Time Series Analysis Example (KRTN Station):** Long-term coordinate stability shows velocities of 13.91 mm/yr (North), 19.01 mm/yr (East), and 1.18 mm/yr (Up).
- Newer Stations (Established 2021):** Coordinate analysis yields reliable preliminary velocities, such as 13.29 mm/yr North for the MLTI station and 13.87 mm/yr North for the RSNi station.



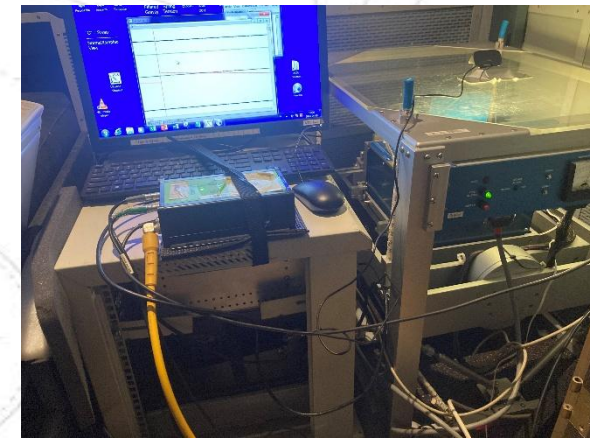
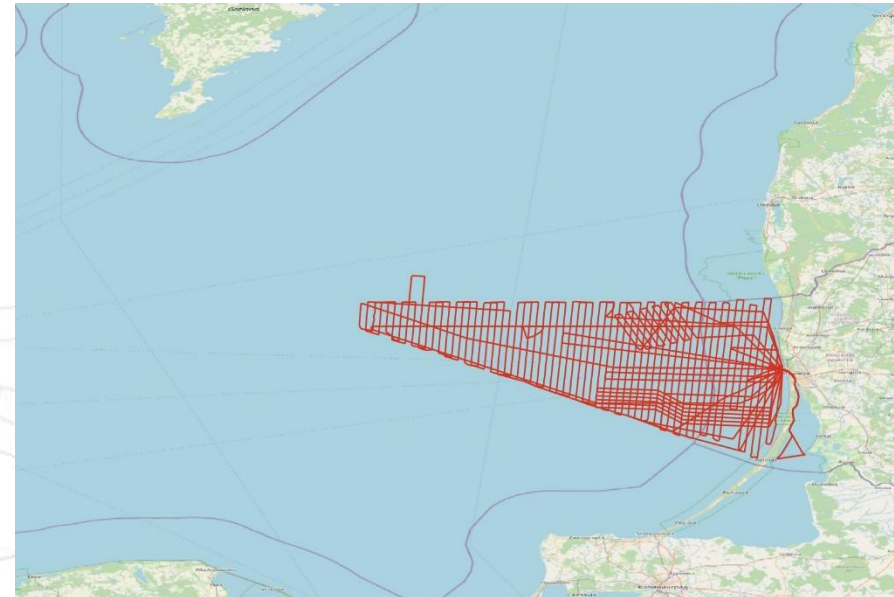
Vertical Network

- Ongoing progress on the Second levelling of the First order vertical network.
- Extensive leveling lines have been completed, particularly highlighting the newly leveled segments in the southern regions as of 2023.

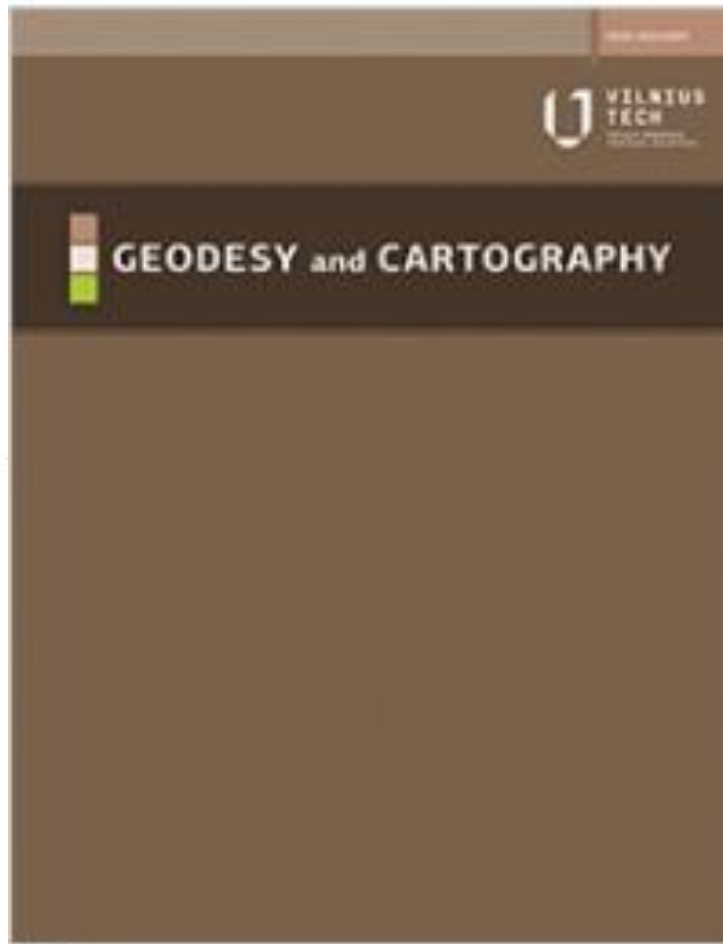


Marine Gravity Survey in the Baltic Sea

- A major gravity survey campaign in Lithuanian waters has seen exponential growth from 2021.
- **Survey Volume Growth:** Expanded from ~1200 km in 2021 to an impressive ~5000 km.
- **Vessels Deployed:** Utilizing different vessels each season, including *Brabander*, *Nawigator XXI*, and *NZ55*.
- Measurements were conducted using specialized Lantmäteriet ZLS D13 equipment.



Summary & Publications



- Continuous modernization of geodetic control networks ensures precise positioning and up-to-date coordinate reference systems.
- Research is actively published, including contributions to the *Geodesy and Cartography* journal (Vilnius Tech).

Thank you for listening

