NATIONAL REPORT OF LITHUANIA TO EUPOS 2022

Arūnas Būga, Eimuntas Paršeliūnas, Simonas Valotka, Jurgita Špūraitė, Ramūnė Žygaitė

Ministry of Agriculture, National Land Service, Vilnius Gediminas Technical University

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Content

WG Reference Frames
- CORS Network LitPOS
- Vertical network

WG GEOID
- Gravity survey
- Marine gravity survey

AOB
- Harmonization of Lithuanian and Latvian geodetic systems
- Geomagnetic secular variations
• CORS Network LitPOS
LitPOS new stations (31+4)

Users: ~1900
Rovers: ~5000

Trimble R9 receivers
Choke ring antennas
Trimble Pivot 4.7.2
LitPOS connections

Latvia

Poland
LitPOS processing
LitPOS processing

- **Operational processing** started from GPS week 1934.
- Currently working on **2220** week processing.
- Manual processing 😞

- **2008-2021** weekly SINE\textsubscript{X} files (with COV matrix) was uploaded to EPN ftp server with intention to fill the gap of Lithuania in European dense velocity field.
LitPOS processing

WRMS: 1.19 mm NRMS: 2.28 #: 340 data Rate: 11.64 +/- 1.00 mm/yr

Data alyt_GPS North

WRMS: 1.11 mm NRMS: 2.73 #: 340 data Rate: 20.34 +/- 1.20 mm/yr

Data alyt_GPS East

WRMS: 2.82 mm NRMS: 1.78 #: 339 data Rate: 3.18 +/- 2.34 mm/yr

Data alyt_GPS Up
LitPOS processing

WRMS: 4.06 mm NRMS: 17.73 #: 327 data Rate: -25.55 ± 7.88 mm/yr

Data pnvz_GPS North

WRMS: 2.32 mm NRMS: 8.56 #: 327 data Rate: 41.20 ± 3.80 mm/yr

Data pnvz_GPS East
• Vertical Network
Determination of Ellipsoidal heights of First and Second order vertical networks points (250)

0 – red
1 – green
2 - blue
IIIrd order Vertical Network of Lithuania

2019-2022
~4000 km
• Gravity survey
I\textsuperscript{st} and II\textsuperscript{nd} order Gravity Network of Lithuania
GRAVITY SURVEY IN 2016-2017-2018

32950 points
Gravity survey in the Baltic sea
(Lithuanian waters)
Gravity survey in the Baltic sea
(Lithuanian waters)
2021

Brabander
Gravity survey in the Baltic sea (Lithuanian waters)  

MSG-6  

Cooperation with Gdańsk University of Technology
Gravity survey in the Baltic sea (Lithuanian waters)
Gravity survey in the Baltic sea
Gravity survey in the Baltic sea
(Lithuanian waters)
Gravity survey in the Baltic sea
(Lithuanian waters)
2022
Gravity survey in the Baltic sea (Lithuanian waters)
2022

~1200 km
Gravity survey in the Baltic sea
(Lithuanian waters)
2022
• Harmonization of Lithuanian and Latvian geodetic systems
Harmonization of Lithuanian and Latvian geodetic systems in border areas

Scheme of Lithuanian and Latvian cross border GNSS observations

Legend
- Good horizon
- Possibly a good horizon
- Bad horizon or mark type
- Not enough information
- Lithuanian ground point
- Latvian ground point
- Baselines between ground benchmarks
- LatPos base station
- LitPOS base station
Harmonization of Lithuanian and Latvian geodetic systems in border areas
Harmonization of Lithuanian and Latvian geodetic systems in border areas
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Future plans

• Gravity survey in the Baltic Sea in 2023-2024 (4000 km).
• Second Re-measurement of the 1st order Vertical Network of Lithuania in 2022-2026 (1800 km)
Thank You for your attention!