

NATIONAL REPORT OF LITHUANIA TO EUREF 2021

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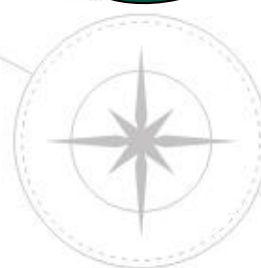
Ministry of Agriculture

J. Špūraitė, R. Žygaitė

National Land Service under the Ministry of Agriculture



- CORS Network LitPOS
- First order network re-measurements
- Ellipsoidal heights
- Orthophotomapping



LitPOS(1):

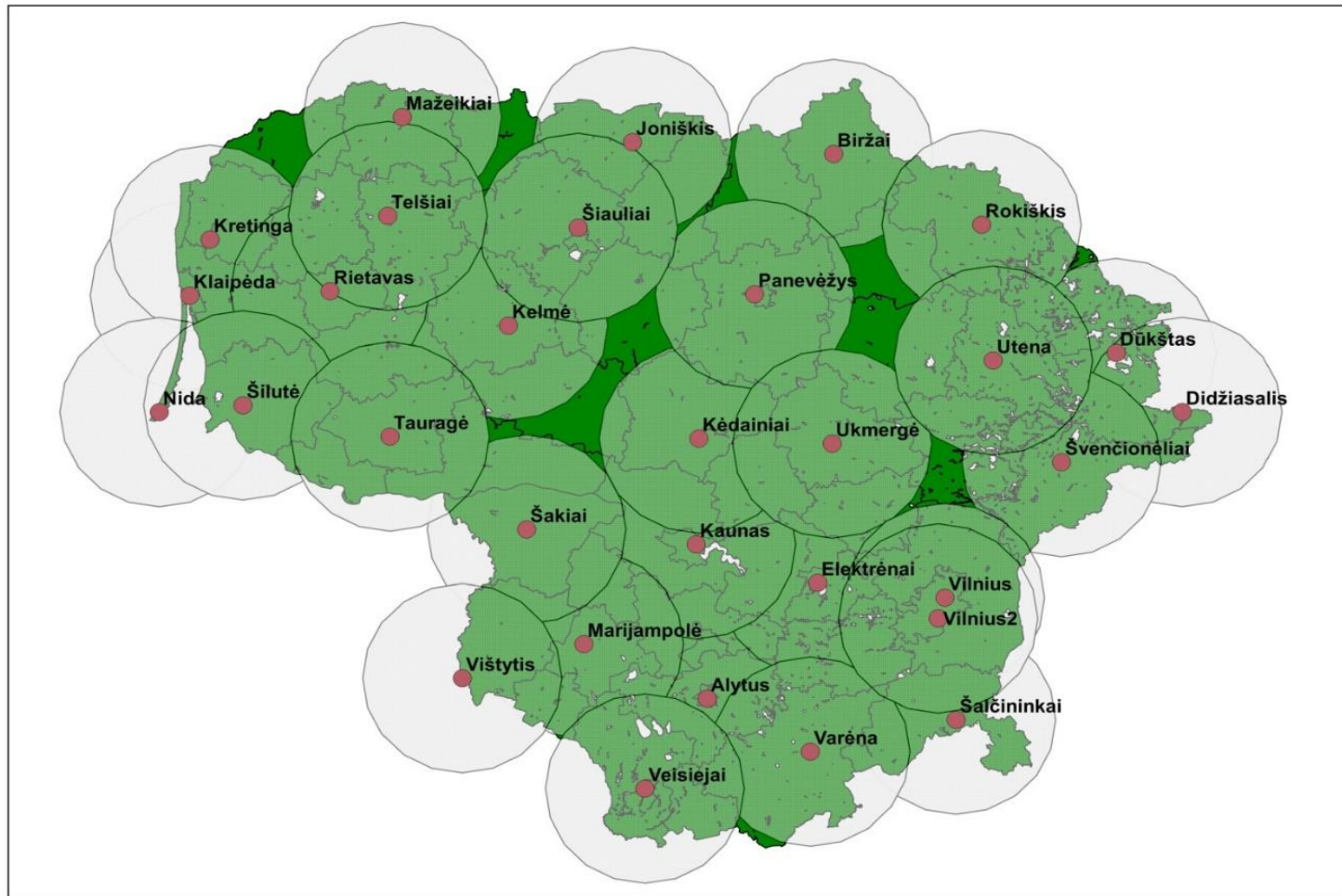


LitPOS (Lithuanian Positioning System), the network of permanent reference GNSS stations, became operational in July 2007. It provides data both for real-time and post-processing applications.

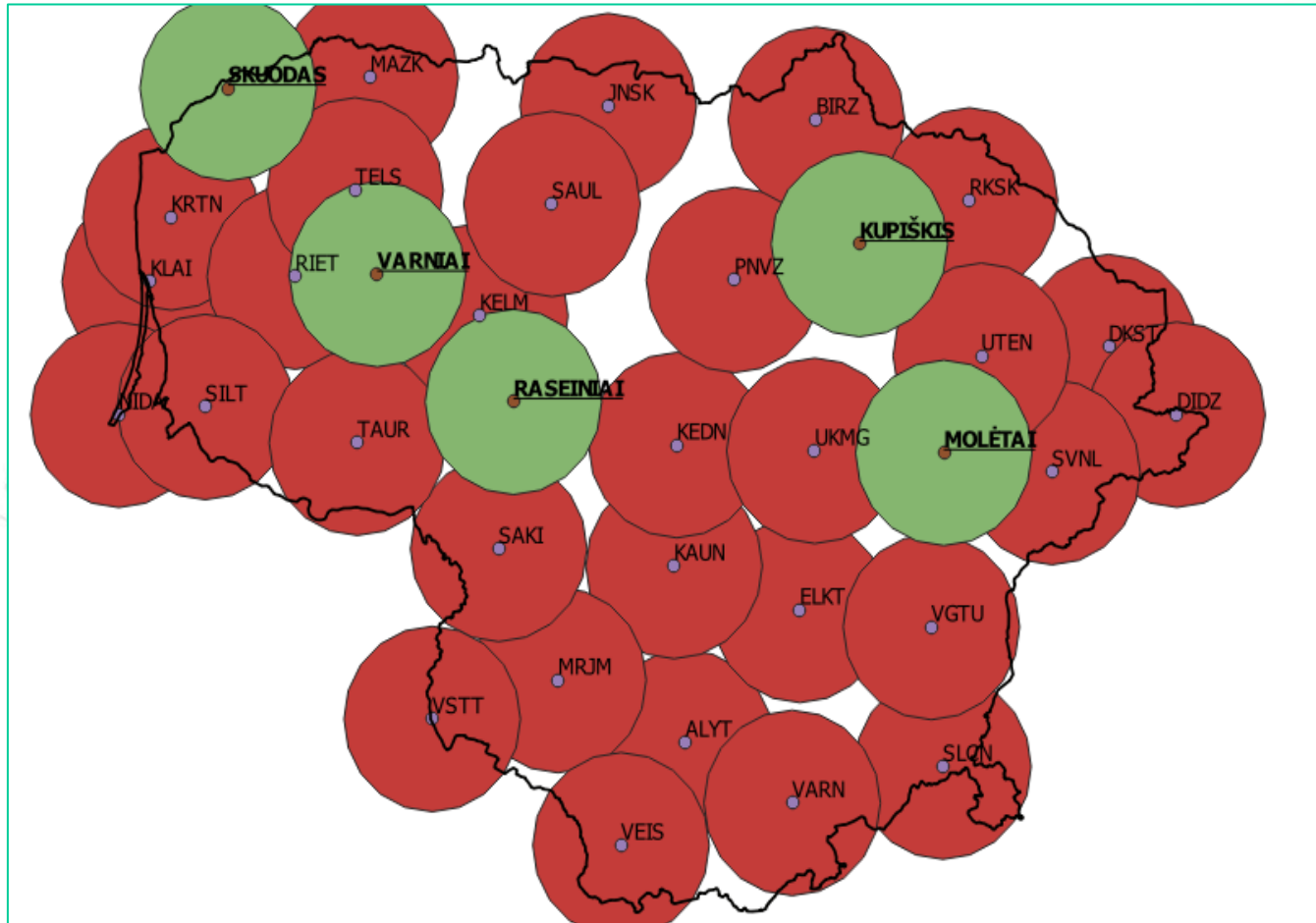
LitPOS stations cover the whole territory of Lithuania. Total number of LitPOS GNSS stations is **31**. LITPOS includes also **3** ASG-EUPOS Polish stations and **6** LATPOS Latvian stations

CORS Network - LitPOS





Coverage of LitPOS stations ($R=35$ km)

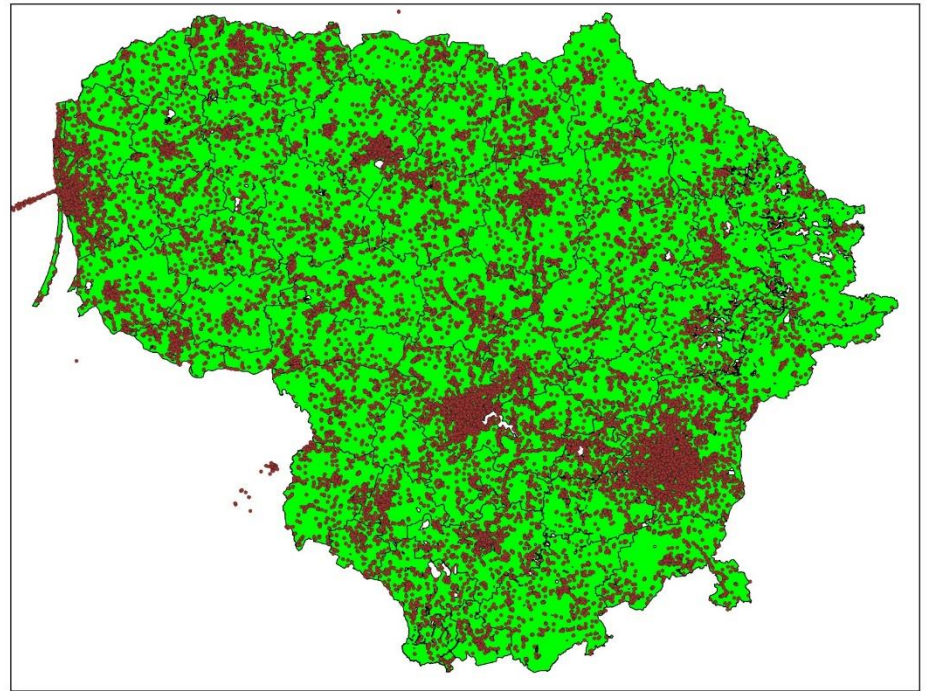
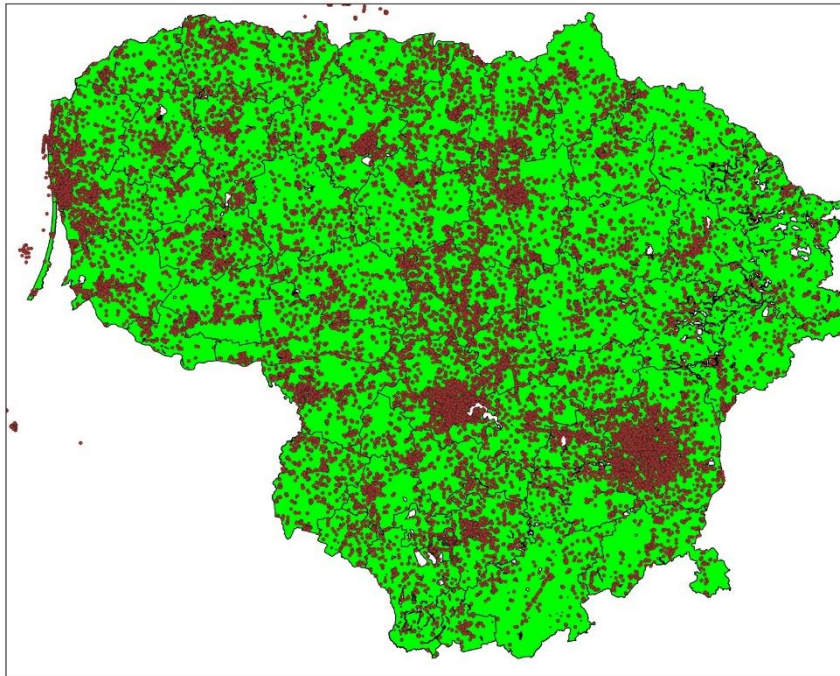


LitPOS densification: 5 new stations during 2020-21

Users statistics (2021-01-31):

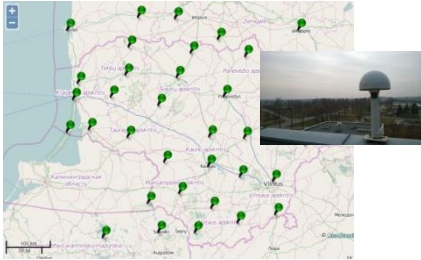
- **Number of LitPOS registered users: 1709 (+139)**
- **Number of registered receivers: 4121**

Users connections during April 2020

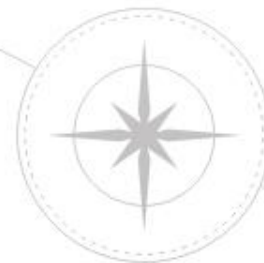


Users connections during November 2020

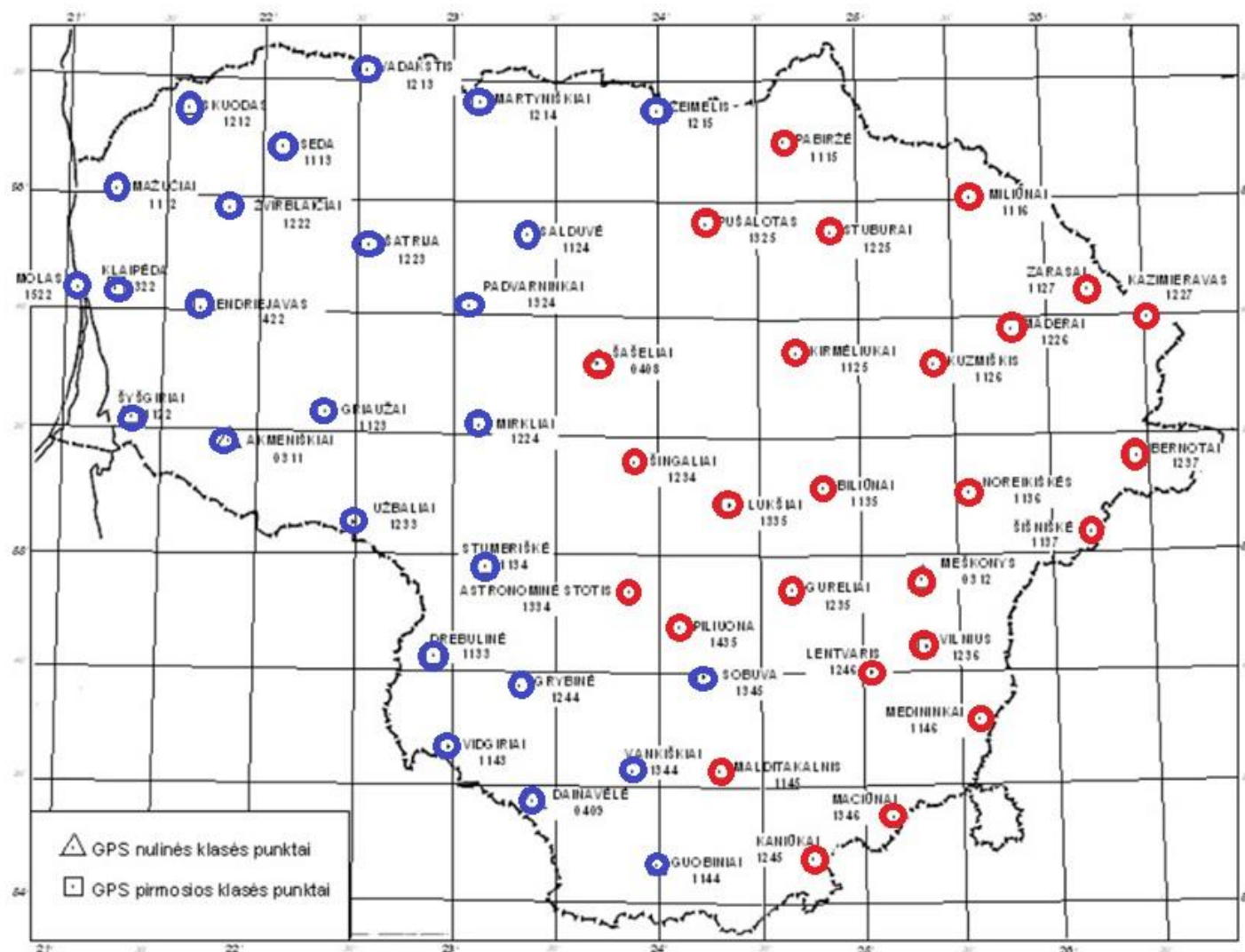


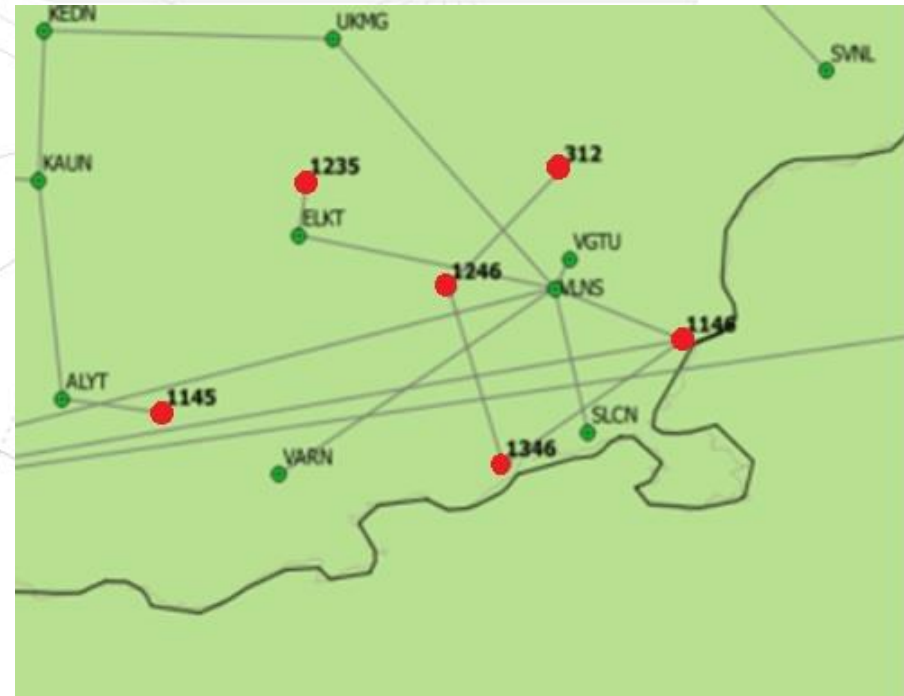


- **First-order GPS network re-measurements**



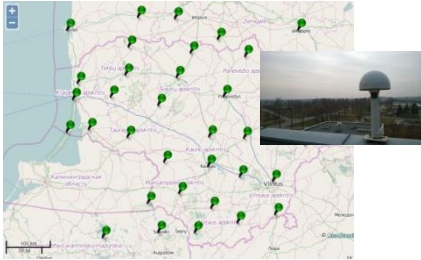
First-order GPS network re-measurements in 2018-2019



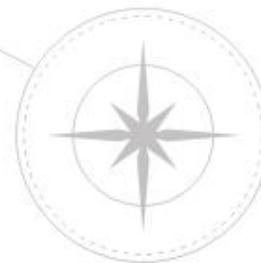


Zero and First-order GPS network re-measurements in 2018-2019 (4+48 points)

Punkto kodas	X , m	m_X mm	Y , m	m_Y mm	Z , m	m_Z mm
36S-1113	3298012.3818	1.5	1337868.3628	0.9	5275244.2023	1.8
66S-1115	3234675.7179	1.7	1482718.1836	1.2	5275655.5636	2.4
76S-1116	3222292.8532	0.8	1543985.6146	0.6	5265797.0629	1.1
34S-1123	3357540.0261	1.3	1379550.3295	0.9	5227030.8213	1.7
55S-1124	3287900.4697	1.4	1420005.5500	0.9	5260196.1099	1.9
65S-1125	3283047.8099	0.9	1509751.3407	0.6	5238277.0822	1.3
75S-1126	3267782.4271	0.9	1551392.9103	0.6	5235776.9253	1.2
85S-1127	3227104.1026	1.2	1591130.2039	0.8	5248970.0988	1.6
43S-1134	3373211.0529	0.8	1442546.4534	0.6	5200005.6624	1.1



- **Ellipsoidal heights**



Determination of Ellipsoidal heights of First and Second order vertical networks points (250)

Duration: 2 days sessions

Team: 2 persons

Number of points: 3 - 4 points per session

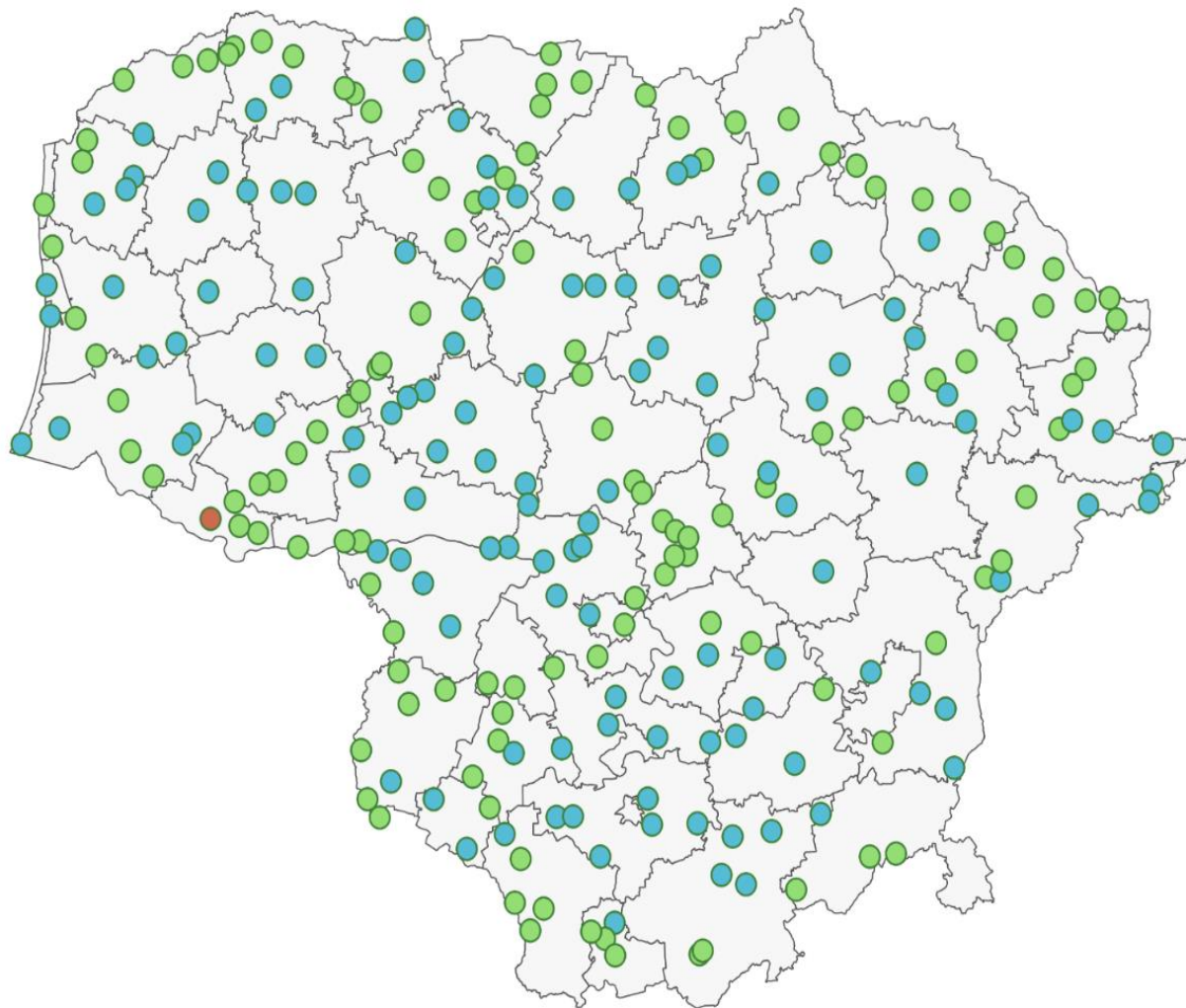
Instruments: Trimble 5700 + Trimble Zephyr Geodetic antennas

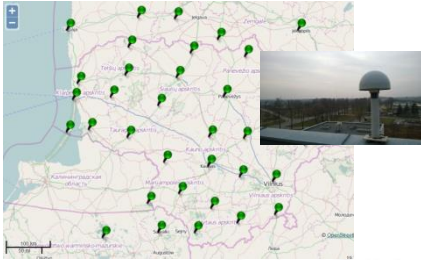
Software: BERNESE 5.2 and TRIMBLE TTC

Accuracy: plane coordinates – 3 mm, ellipsoidal heights – 5 mm

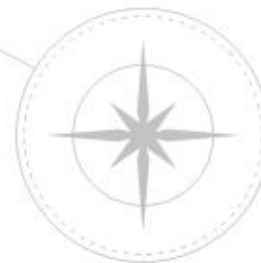
Determination of Ellipsoidal heights of First and Second order vertical networks points (250)

0 – red
1 – green
2 – blue



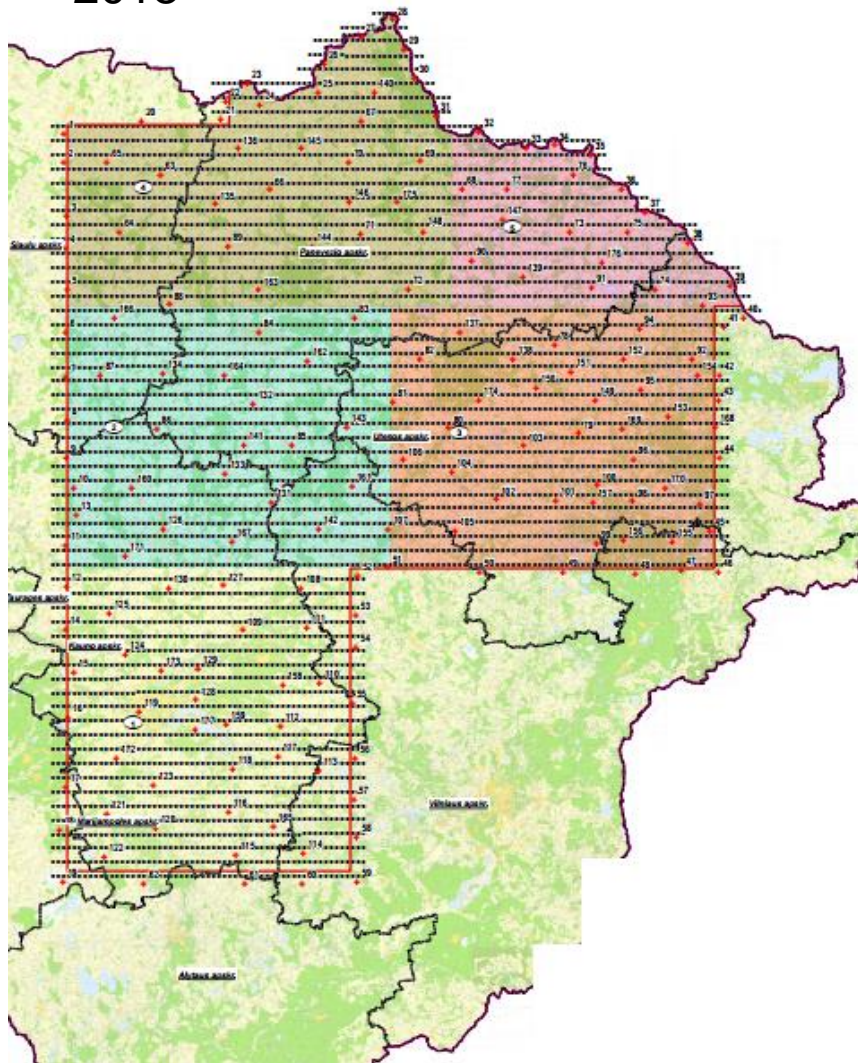


- **Orthophotomapping**

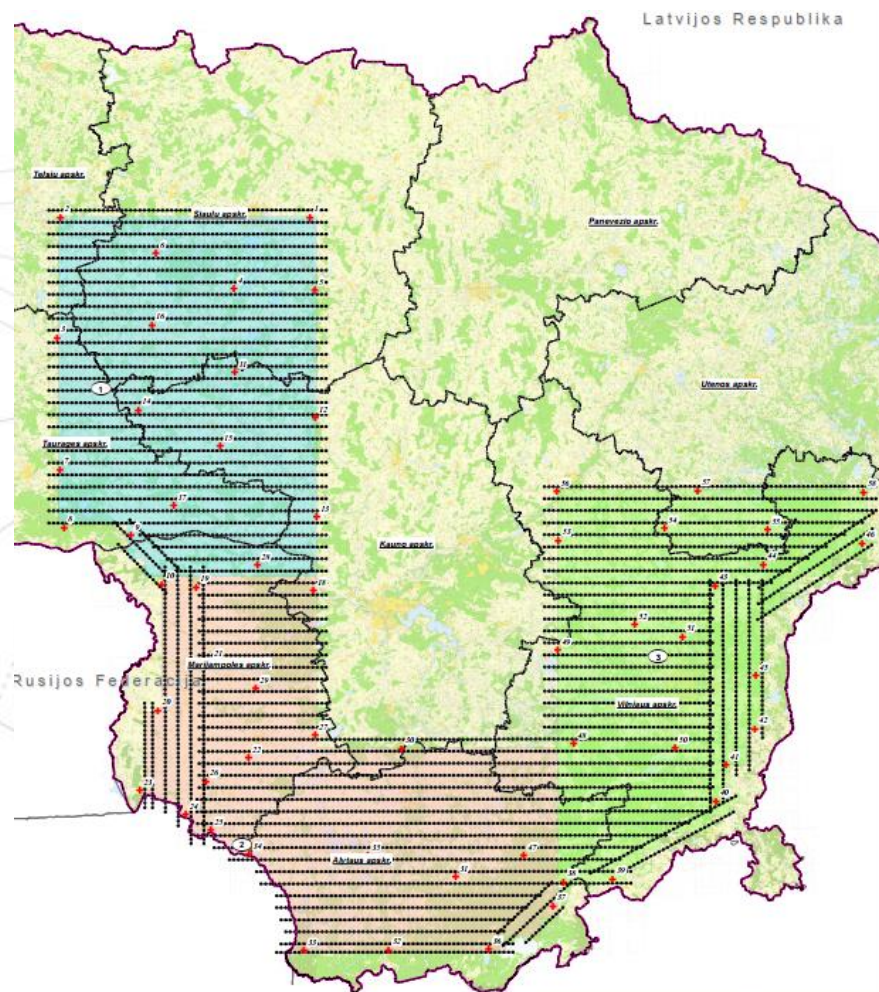


Period 2018-2020

2018



2019



Period 2018-2020

0.250000

0.000000

0.000000

-0.250000

475000.125000

6179999.875000



Future plans

- Development of the 3rd order Vertical Network of Lithuania in **2019-2022 (4000 km)**
- Gravity survey in the Baltic sea (Lithuanian waters) in **2021-2022**
- Re-measurements at the points of secular variations of the geomagnetic field (6 points) in **2021**

THANKS FOR YOUR ATTENTION !

www.gi.ap.vgtu.lt

www.nzt.lt

www.geoportal.lt

www.litpos.lt

www.zis.lt