

National Report about geodetic work in Latvia



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Outline:

- National geodetic network database (NGNDB)
- Horizontal geodetic network
- GPS reference system – LatPos;
- National height network;
- Gravimetrical measurements;
- National geomagnetic repeat station network;
- Surveying of state border;
- Plans for the next year.

Work with research, analysis and aggregation of geodetic data is in progress:

- In order to make data of National Geodetic Network available for wide circle of users:
 - Coordinate catalogue of geodetic points of third order of the Republic of Latvia is prepared for Vidzeme region. Catalogue is prepared in order to provide all the information on points of third order of the National Geodetic Network in Vidzeme region in an easy accessible way. There are 877 points included in the catalogue.
 - “Coordinate catalogue of geodetic points of first and second order of the Republic of Latvia” and data of permanent base station network (LatPos) of Global Positioning System (GPS) is placed in the LGIA web-site;

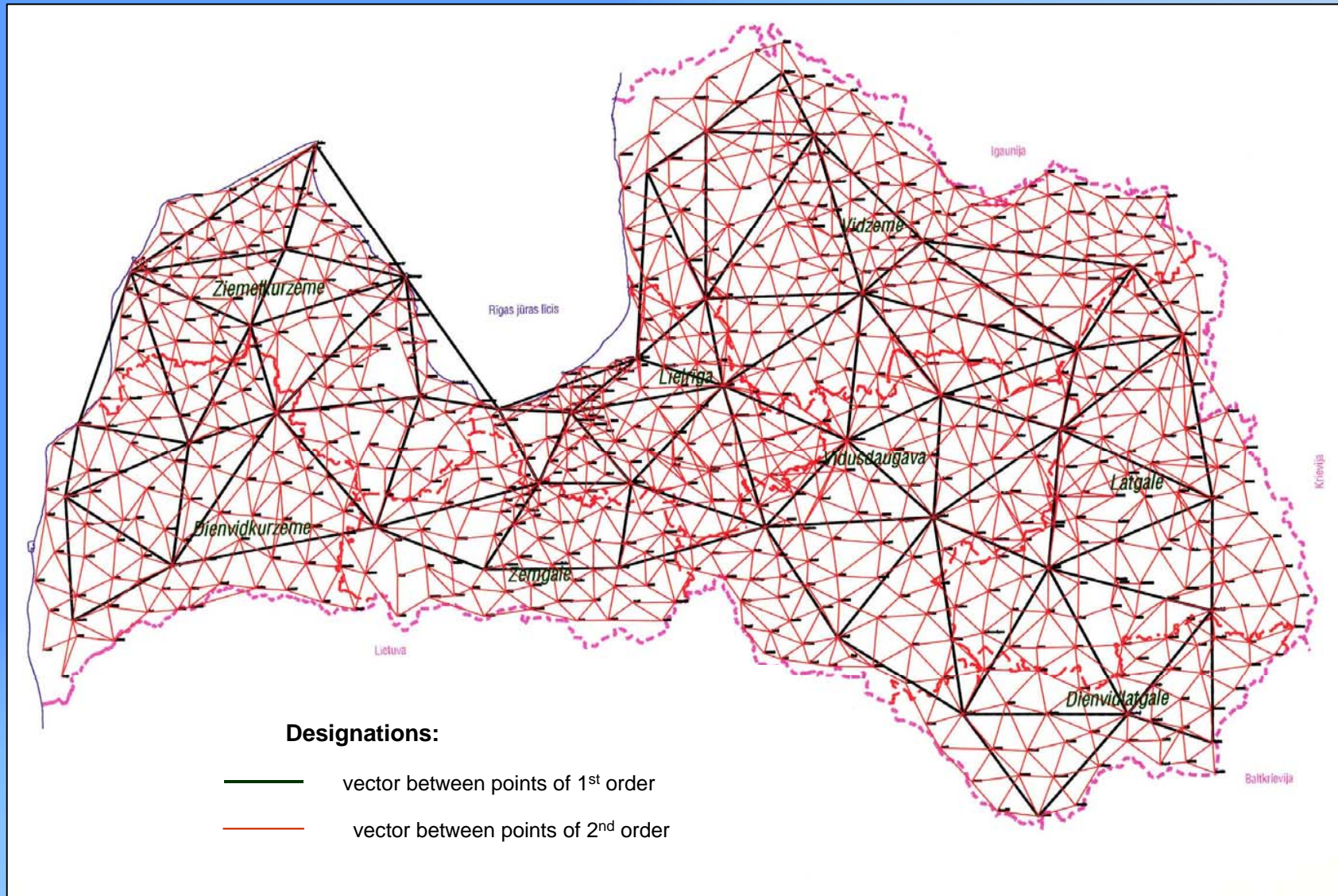
- **National geodetic network database (NGNDB)** is established in order to aggregate, store and maintain up-to-date information on National Geodetic Network. Approximately 4300 points of National Geodetic Network are recorded there. It is envisaged in future to link NGNDB with the central database of LGIA and data distribution system.

Punkta parametri	
Datu atlase	Datu registrēšana
Nosaukums: Cepļi Klase: T1 x,y (UKS 92): 269154.358; 497434.184 Administratīvā adrese: Jelgavas rajons	
Pamata dati Koordinātas un augstumi Ģeodētiskā zīme Adreses Gravimetriskie un magnetometriskie dati Apskošana Abriss/Foto	
Nosaukumi Punkta nosaukums: <input type="text" value="Cepļi"/> Citi nosaukumi: <input type="text"/> Citi nosaukumi (2): <input type="text"/> Citi nosaukumi (3): <input type="text"/> Darbu numurs: <input type="text" value="2"/> ... Nivēlšanas nosaukums: <input type="text"/> Gravimetrisks nosaukums: <input type="text"/>	Tīkls Klase: <input type="text" value="T1"/> Punkta veids: <input type="text" value="tr"/> Tīds: Valsts ģeodētiskais tīds Horizontālais tīds GPS (G) Triangulācija (T) Vertikālais tīds Nivelējuma (N) Nivelēšanas punkta veids Gravimetrisks tīds Gravimetrija (Gr) Ģeomagnētiskais tīds Magnetometrija (Mg) Globālās pozicionēšanas pastāvīgo staciju tīds Uzmēršanas tīds Vietējas nozīmes tīds Poligonometrija (P)
1. Iase [T1] 2. Iase 3. Iase 4. Iase	
<input type="button" value="Jauns"/> <input type="button" value="Dzēst"/> <input type="button" value="Drukāt koku"/> <input type="button" value="Beigt"/>	

Valsts ģeodēziskā tīkla punkts		
Nosaukums: Cēpiņi Tipi, nosaukums: Grāv, nosaukums: Cēti nosaukums:		
Adrese: Jēkabpils rajons Jaunsērulauks pagasts Stājiena Punkta stādieni pie ceļa Stājiena-Jaunsērulauka		
Atbilstoši virzienam: G ziņ.		
Ģeodēziskā zīme Zīmes informācija: Māksl. Nr.: 53996 Punkta stādītājs: Uztais 05.12.1948. Apskaides numurs: 1980		Zīmes veidošanas gads: 1928 - 1977 Zīmes tips: g3-001
Oriģināls: Nr. 1 2 Datojums: 1977.03.27 259/4237		
Atskaite (R) 710 632		
Informācija: AP - apzīmējums; AV - aizsargājamais; K - apraksts (hupcija); N - norādītājs; P - priekšmats; PS - pašreizējais stāds; S - signāls; SS - signāls.		
Klasē: T1 Koordinātas: UTM: 1977.03.27 x=263154.258 y=497434.184 m (- ģeom. n.v.) (- tīk. n.v.) GPS mērījumi veikti: Novērtējuma veikti: Darba Nr.: 2;		
Pasīvis:		Izveidots centimetros

National Geodetic Network is established and maintained

National Geodetic Network



In the horizontal network

- 22 points of first order of National Geodetic Network are surveyed in order to carry out repeated alignment of basic network and increase of accuracy;
- check and more accurate definition of geodetic points;
- 1800 geodetic points have been inspected;

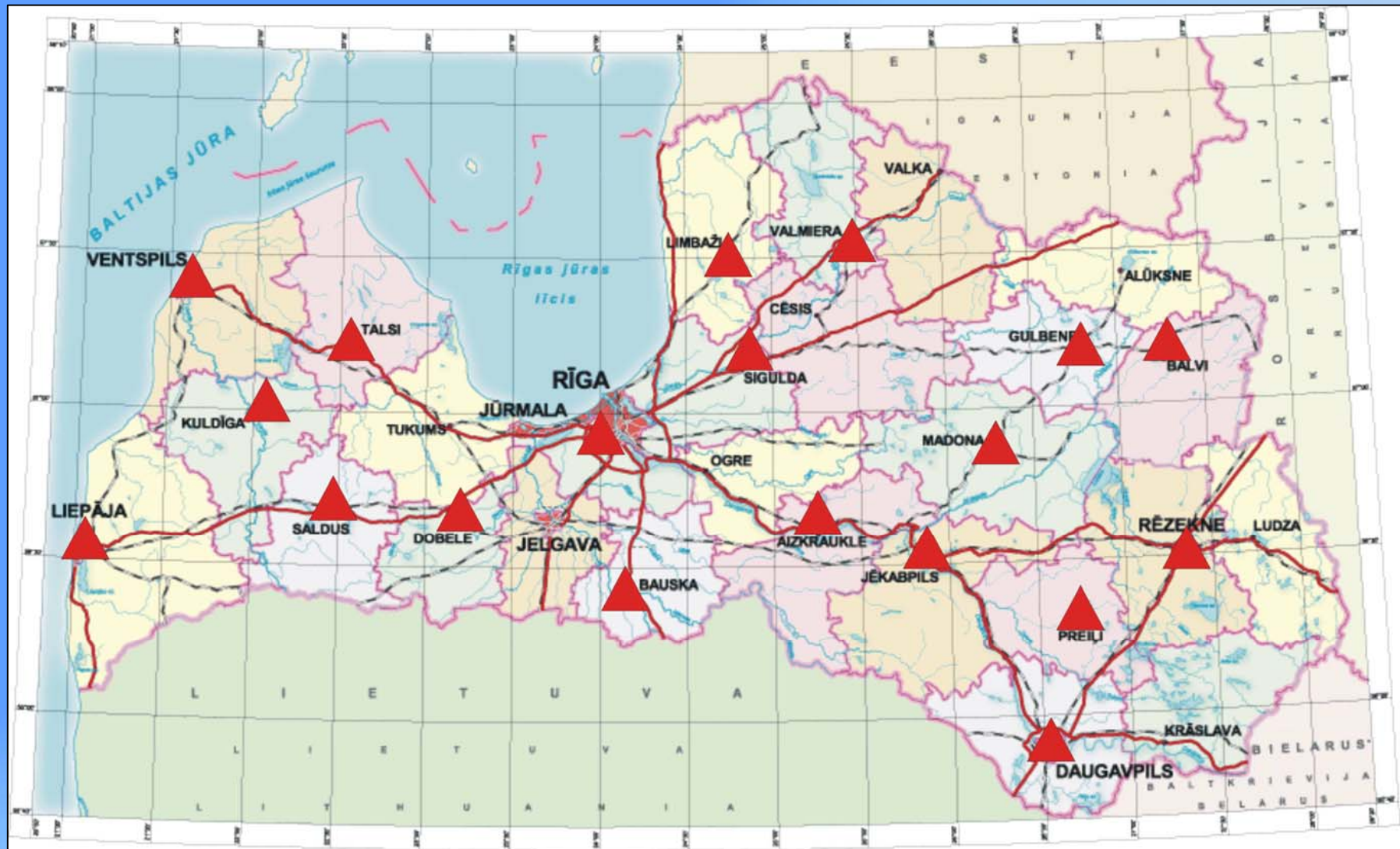


In LatPos, network of base stations of Global Positioning System (GPS)

- 19 GPS base stations are maintained;
- software is upgraded from version 1.0 to version 1.3,
- re-installed, whereby coordinates thereof are recalculated.

LatPos, network of permanent GPS base stations, consists of 19 base stations in total (17 stations are produced by Leica and 2 stations are produced by Trimble). They are attached to Latvian system of geodetic points and are evenly distributed in the entire territory of the state. Station network with united data control centre in Rīga was established in 2005.

Network of base stations



In the national height network

Work with restoration of national leveling network of class I is in progress

- leveling works are carried out in amount of **371 km**;
- inclusion of geodetic basic points Arājs, Indra, Kangari in the restored leveling network of first order is ensured;
- values of elevation between the leveled survey markers are calculated in the leveled lines;
- working heights are calculated for the leveled survey markers in the Baltic normal height system of 1977;
- preparation of lines planned in 2007 is performed, wall benchmarks and ground benchmarks for leveling are monumented and provided with witness posts;
- leveling accuracy figures were controlled regularly and analyzed;
- vertical movements of the Earth crust are analyzed by use of recent leveling data

In the gravimetric network:

Connection between Estonian and Latvian gravimetric networks in the section Tallinn – Pärnu – Rīga – Višķi – Tartu – Tallinn is carried out together with colleagues from Estonia. Aggregation of gravimetric values is carried out in the geodetic points for the creation and maintenance of national gravimetric measurement system.



In the geomagnetic repeat station network:

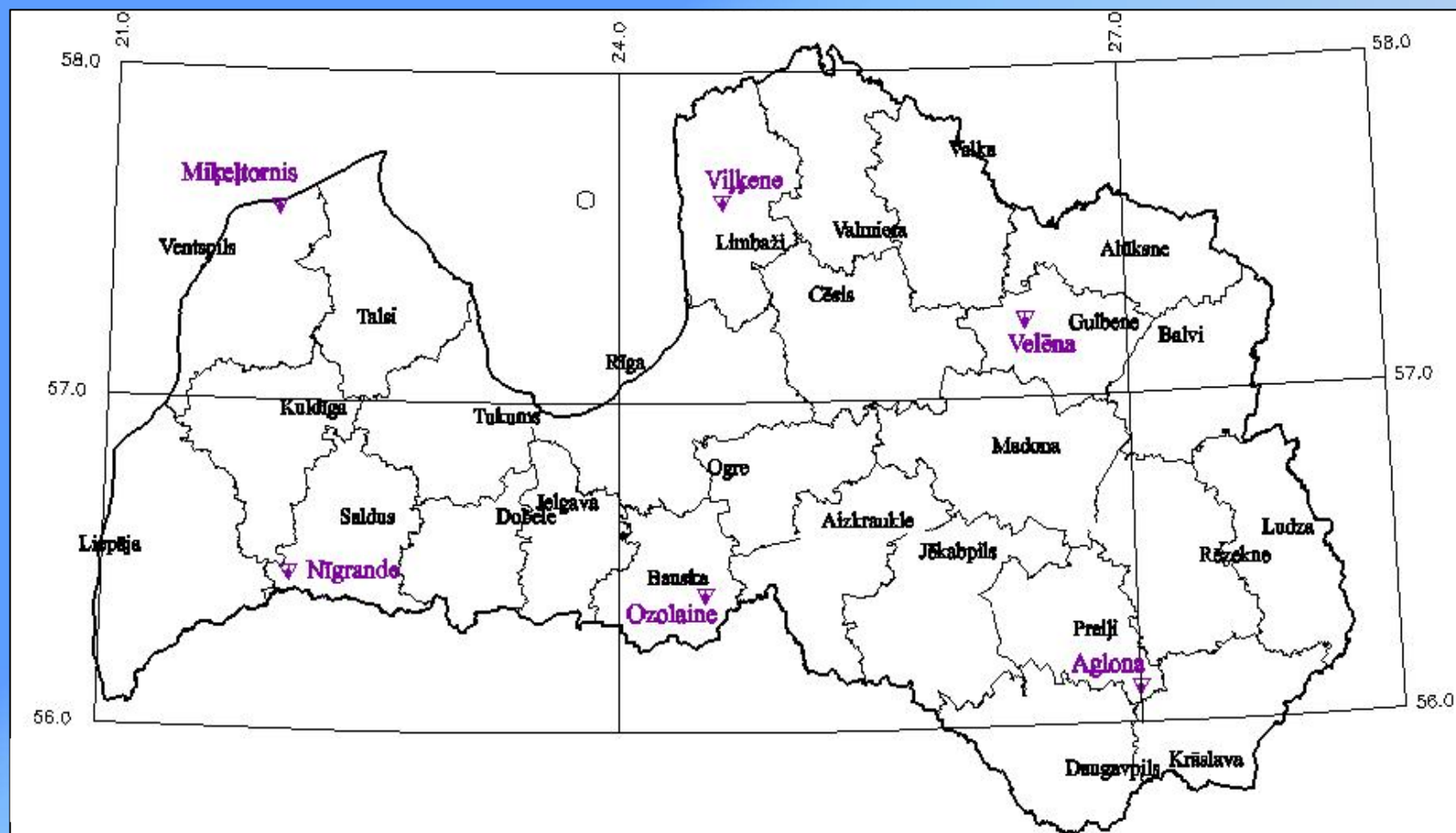


Work with establishment and maintenance of national geomagnetic measurement system and elaboration of normative documents for it was in progress in 2005.



Annual measurements of the magnetic field of Earth are carried out at 6 repeat points of basic network. Basic network points will serve as reference points for further geomagnetic measurements. Results are depicted in mapping materials.

Location of six Latvian geomagnetic repeat stations



Surveying of state border is carried out

- demarcation of Latvian – Belarusian state border is in progress, mapping of border is started;
- coordinates for reference points necessary for coordination of border markers are determined and coordinates for 100 border markers are determined on the Latvian – Belarusian border;
- 200 Borderland markers of Latvian – Belarusian border are established in the terrain;
- Agency participated in the organization of aerial photography of Latvian – Belarusian border;
- scheme on distribution of map sheets of border map is coordinated with Belarus.

Plans for the next year

- Latvian Geospatial Information Agency will continue to deploy and expand its activities, to work at projects concerning the development of national geodetic networks;
- to develop Geographic Information System (GIS) of the Agency and to start distribution of geospatial data information; to publish in LGIA web site geodetic point catalogues and other geodetic information necessary for third persons;
- it is necessary to put in order the internal regulations in national level for the solution of geodetic issues;
- to complete the deployment of GPS base station network (**LatPos**);
- to improve **National Geodetic Network Data Base**;
- to re-establish damaged or destroyed national geodetic points;
- etc.

Thank you for attention!



**LATVIAN GEOSPATIAL
INFORMATION AGENCY**



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