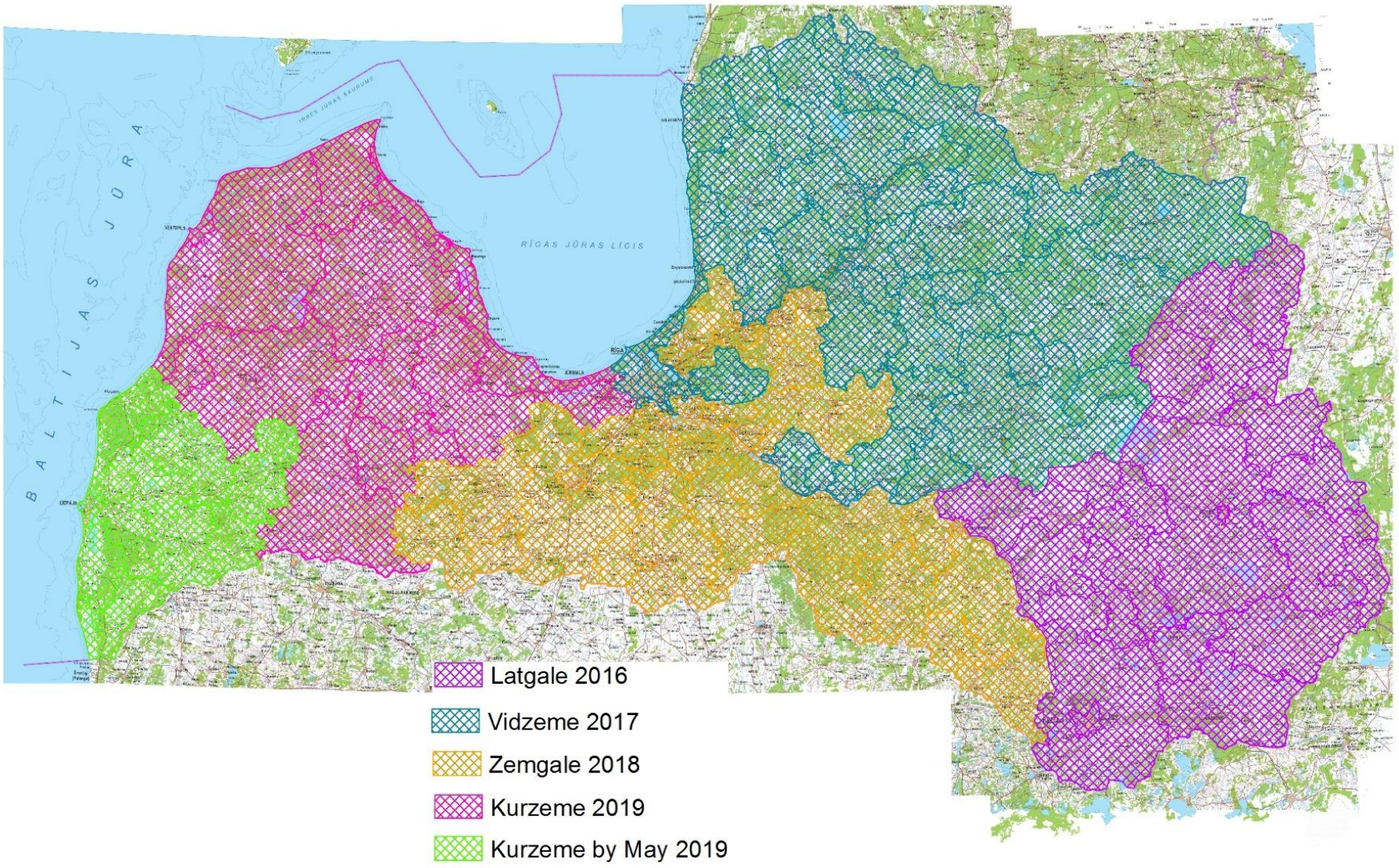
Latvian Geospatial
Information Agency

National report of Latvian Geospatial information agency

EUREF Symposium 2019 Tallinn, 23 May 2019

Geodetic department Geodetic measurement sector
Sector chief Jānis Sakne

Benchmark inventory four year cycle (started at 2016)



Levelling in 2018

National levelling networks of 1st (II) and 2nd (II) order. Survey routes in red (III).

Combined state geodetic network in Daugavpils

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Total length of levelling double run -25km

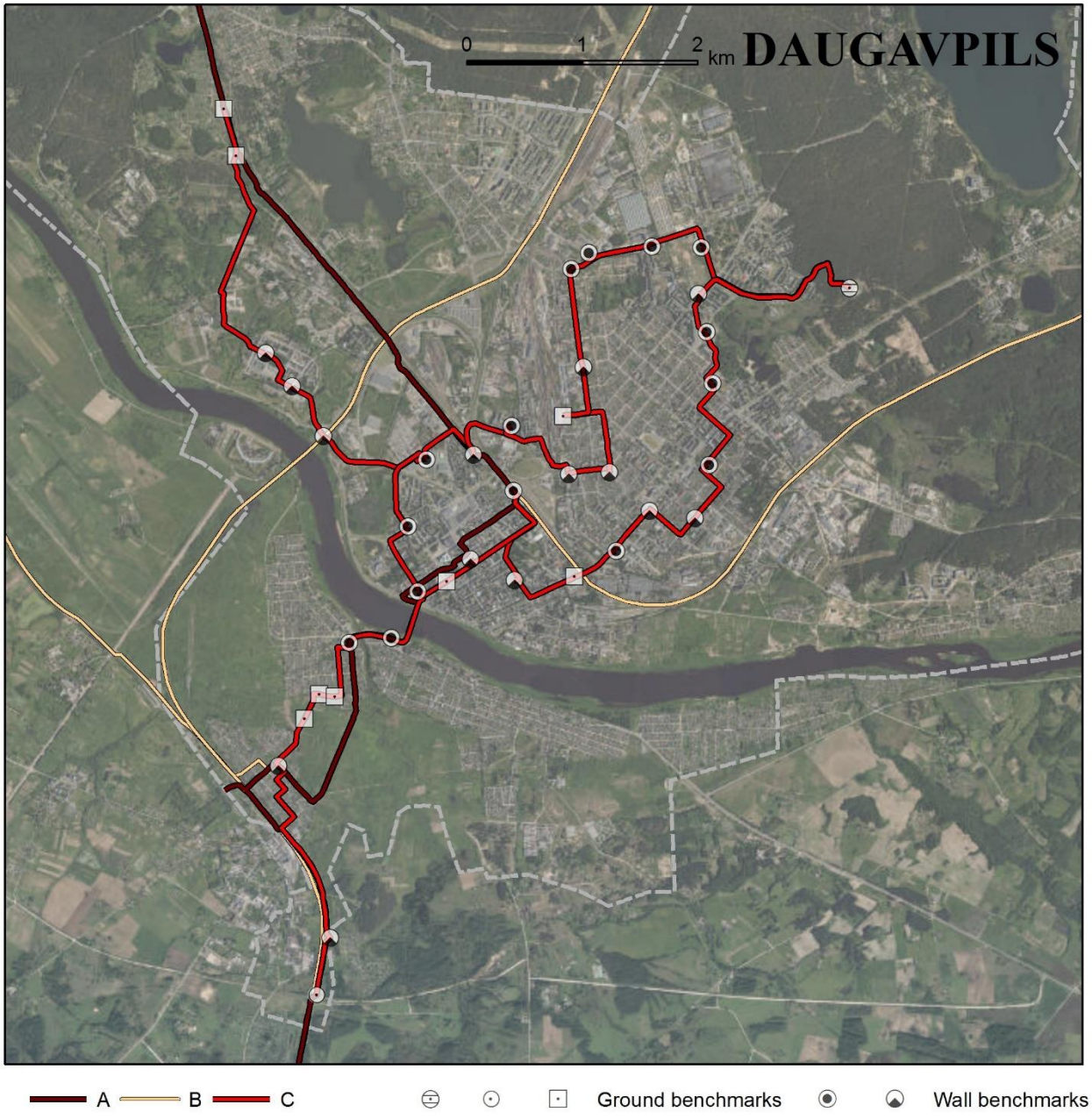
St.dev. of levelling run - 0,6mm

Total length of tacheometric runs -22km

Max st.dev. of coordinates for the state geodetic network is 10mm

30 benchmarks measured with global positioning

Levelling network of 1st (A) and 2nd (B) order in the city of Daugavpils. 2018 survey routes in red (C). Previously used and added geodetic points shown.



Modernization of LatPos system and plans for the future

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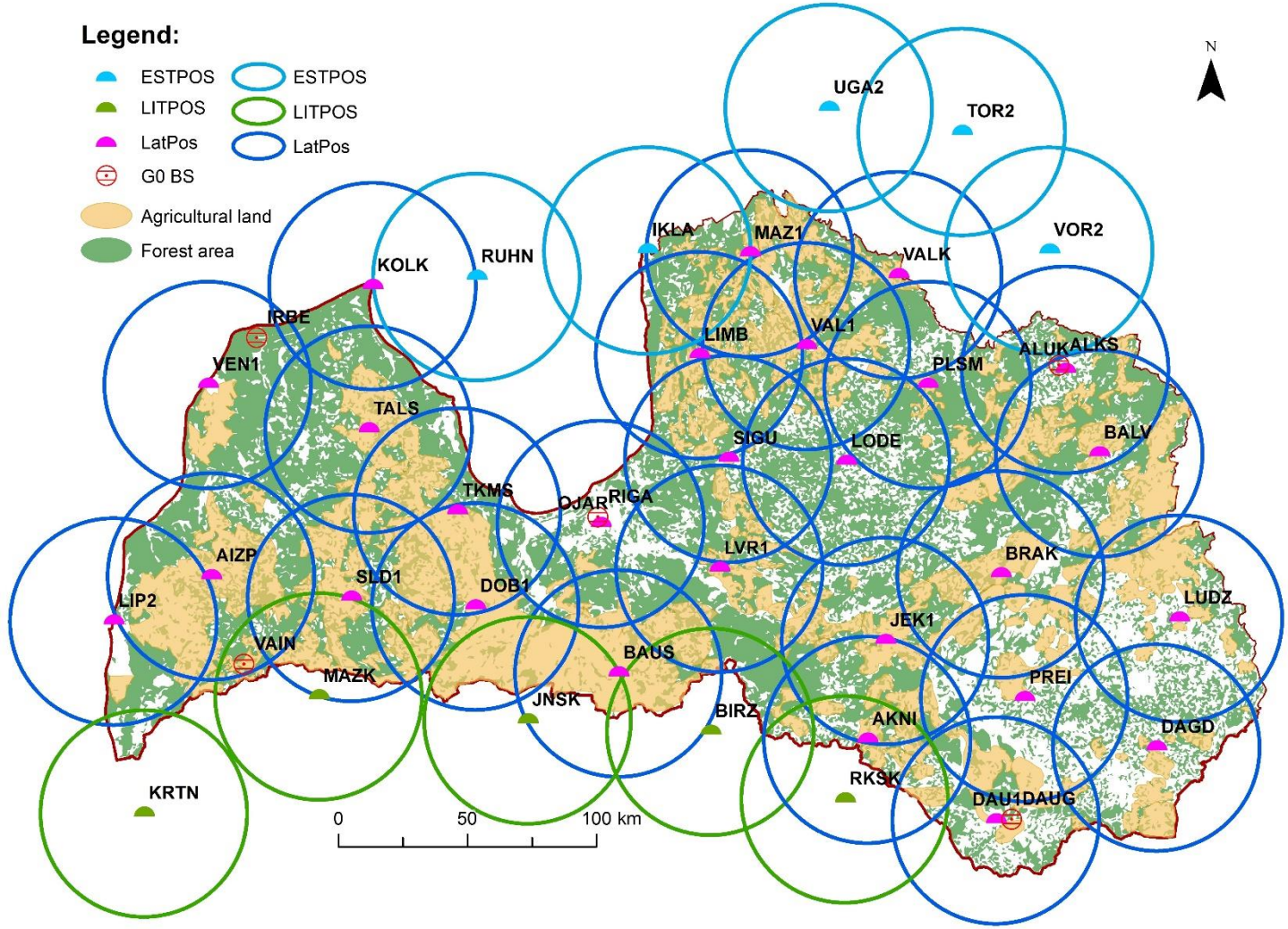

- Set up of *Leica GR30 Highline* GNSS recievers and *Leica AR20* GNSS antennas in year 2019.-2020. Capability of receiving GPS NAVSTAR, GLONASS, Galileo and BeiDou GNSS signals in all base stations
- Relocation of base stations to ensure 40 km nearest station solution and to cover whole state territory

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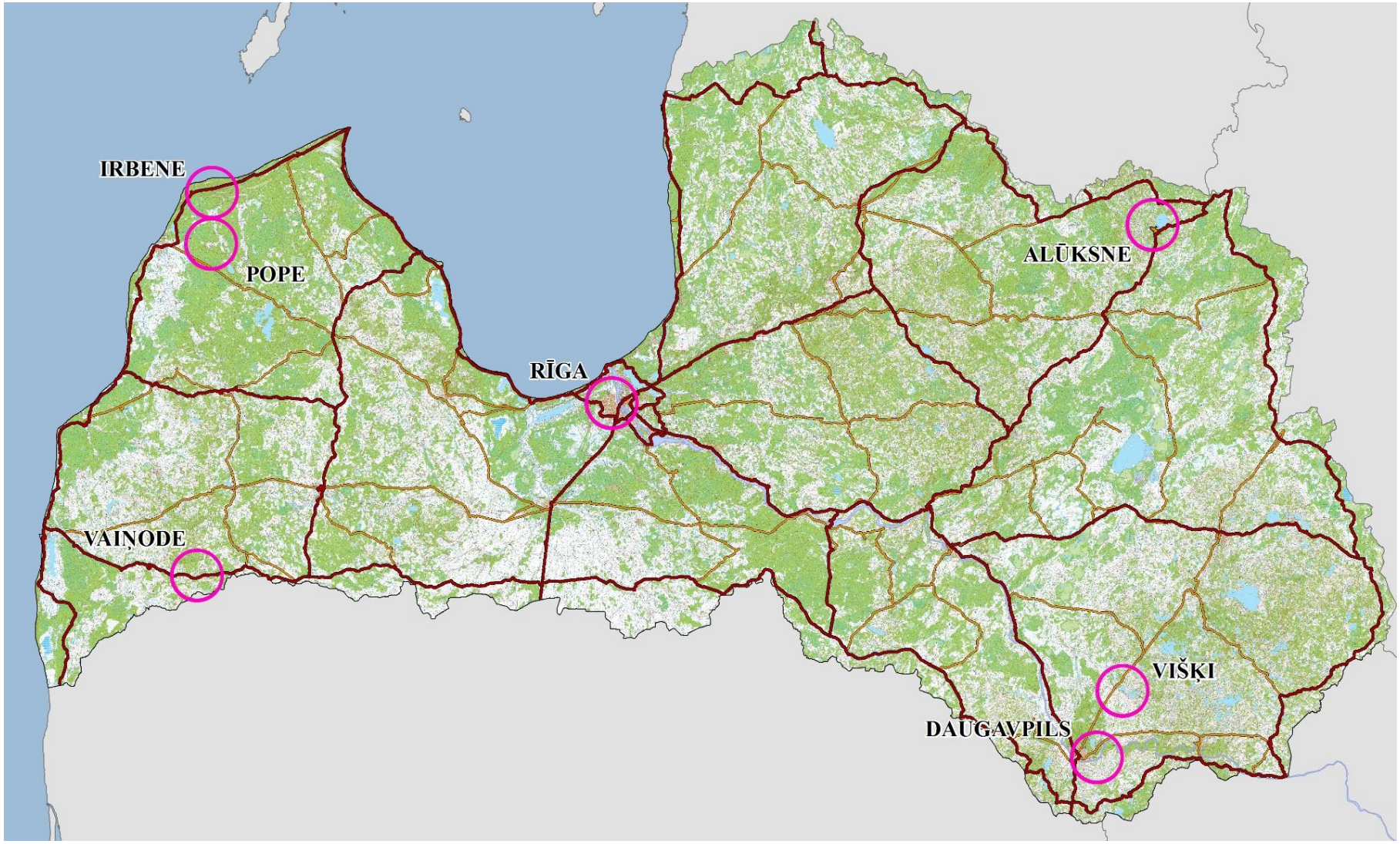
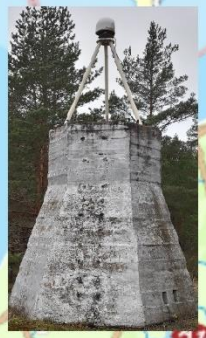
Absolute gravity measurements in year 2019 in cooperation with Finnish Geodetic Institute



Modernization of Latvian geodetic coordinate system

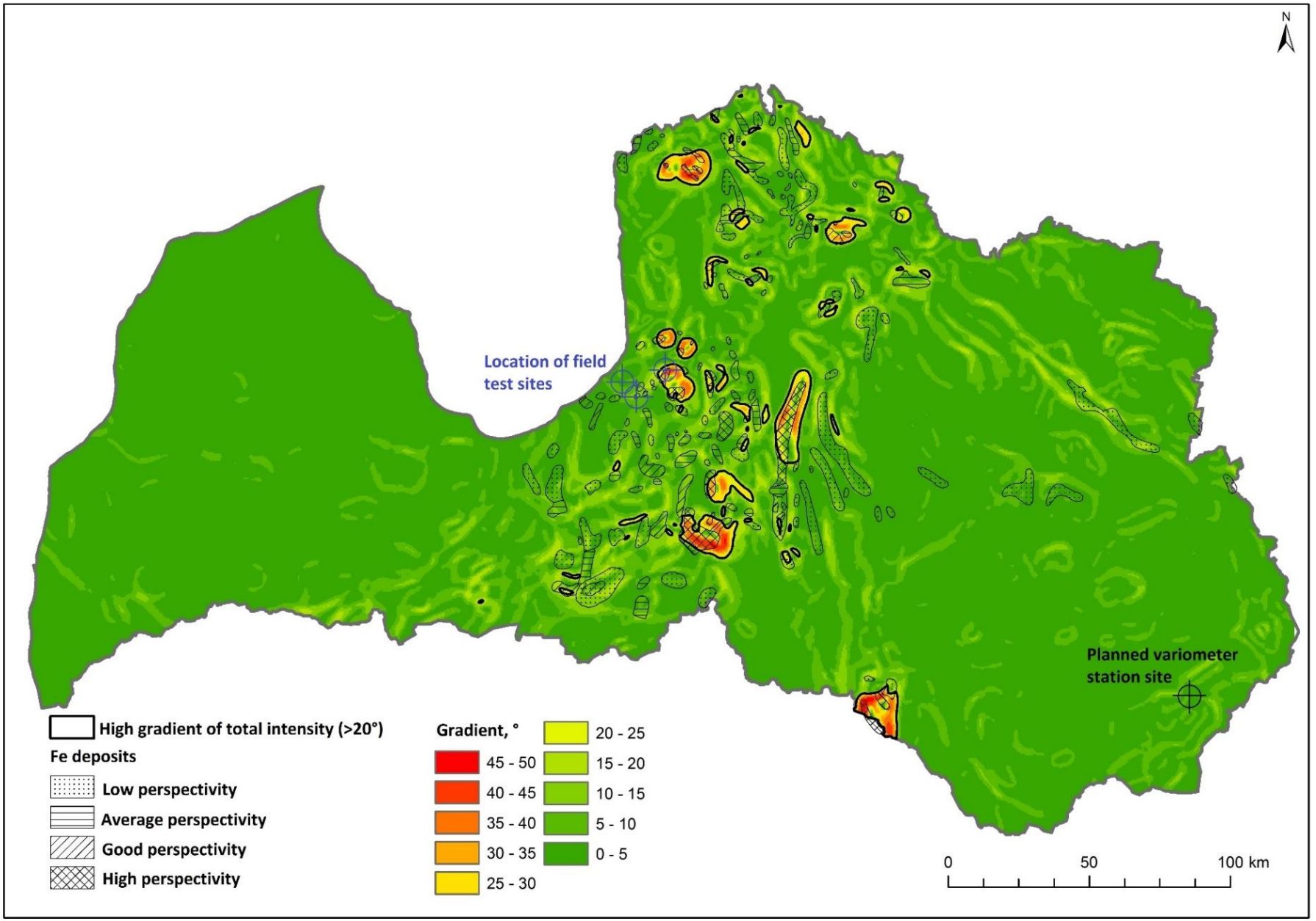


Kuressaare
Pärnu
Viljandi
Tartu
Elva
Põlva
Pskov
Ainaži
Mazsalaca
Aloja
Salacgrīva
Strenči
Seda
Valmiera
Limbaži
Smiltene
Cēsis
Saulkrasti
Līgatne
Valdemārpils
Stende
Sabile
Kuldīga
Kandava
Tukums
Pāvilosta
Aizpute
Saldus
Dobele
Kalnciems
Olaine
Ķegums
Jaunjelgava
Plaviņas
Aizkraukle
Jēkabpils
Varakļāni
Viļāni
Rēzekne
Ludza
Madona
Lubāna
Cesvaine
Kārsava
Viļaka
Balvi
Līvāni
Viesīte
Akmene
Subate
Krāslava
Šiauliai
(Rėkyva)
Panevėžys
Klaipėda

IKLA
MAZ1
RUHN
VALK
VOR2
LIMB
VAL1
PLSM
TTALS
SIGU
LODE
BALV
KUL2
TKMS
MADO
LVR1
LIP2
SLD1
DOB1
JEK1
REZ1
BAUS
PREI
MAZK
JNSK
BIRZ
DAGD
RKSK
KRTN
UGA2
TOR2

Apzīmējumi:
ESTPOS
LITPOS
LatPos

Zoning of magnetic conditions in Latvia using aeromagnetic data



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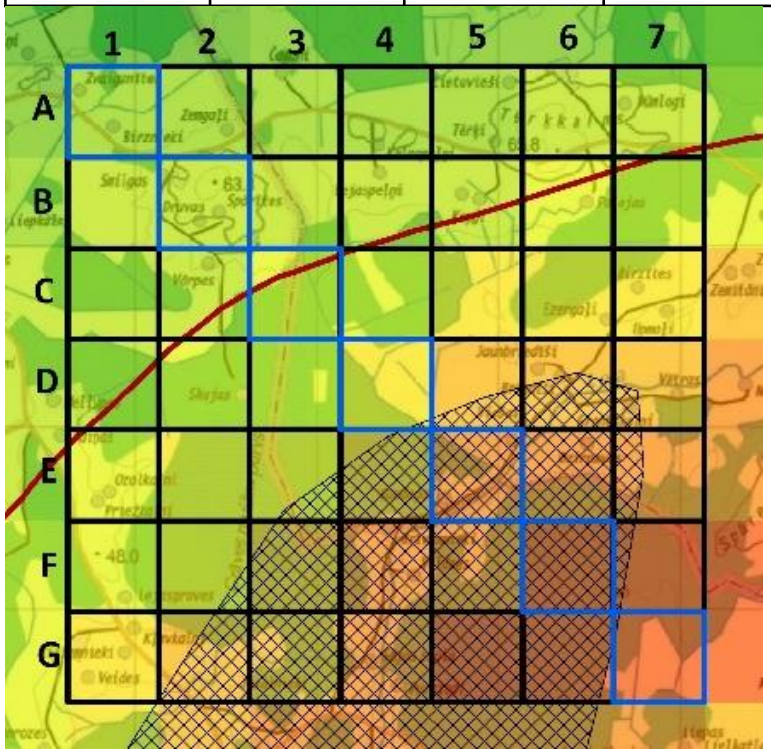
Total field intensity measurements in one of the test sites

	A1	B2	C3	D4	E5	F6	G7
Gradient nT/m	~0,4	~0,3	~0,3	~0,5	~1,8	~3,0	~2,7



- Profile of ~5 km over diverse magnetic conditions was made in one of the test sites using GSM-19TW proton precession magnetometer
- According to IAGA guidelines, it is not recommended make absolute measurements (e.g. establish a repeat station) in a spot with total intensity gradient larger than 2,5 nT/m
- Zoning of magnetic conditions makes it possible to predict such locations as it has been proven by field measurements.

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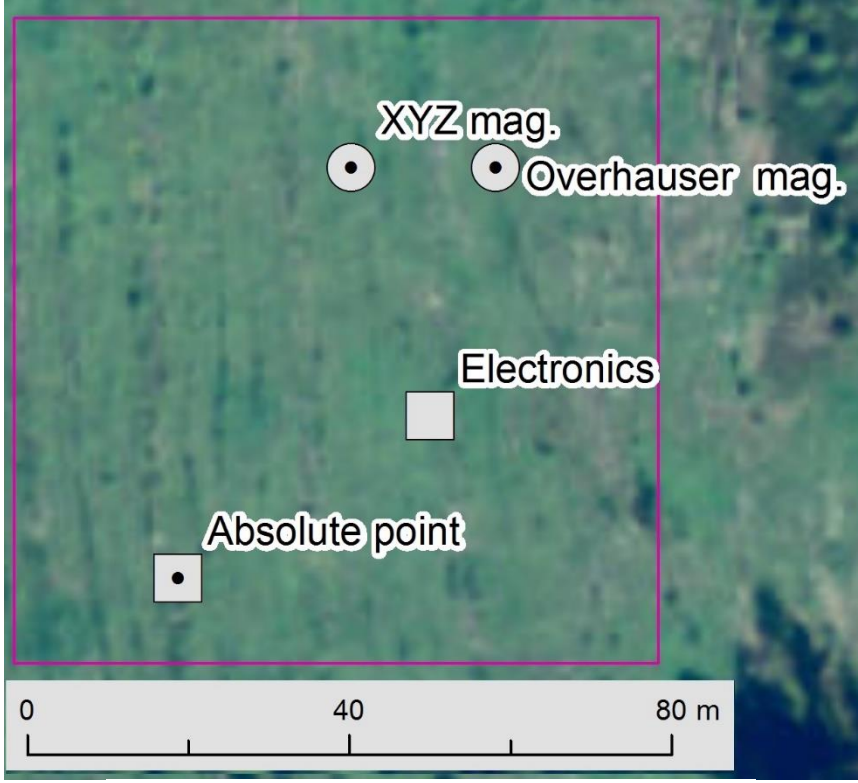
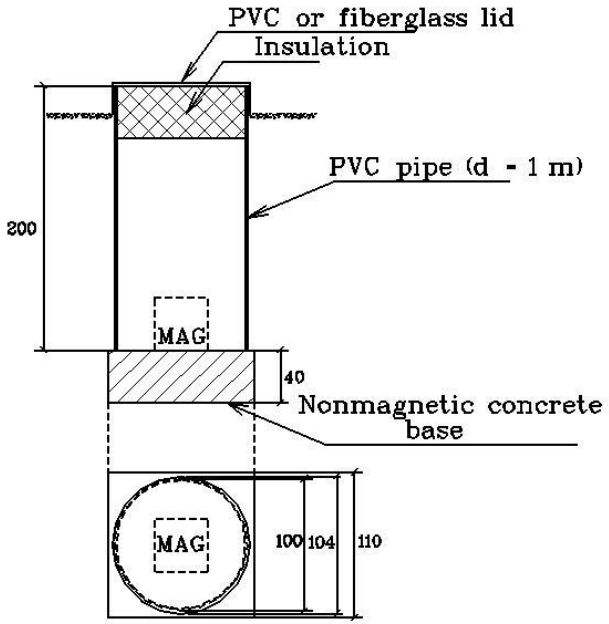
Planned variometer station

- Location for establishing a variometer station has been chosen considering both natural and anthropogenic influence
- Station will consist of 2 magnetometers recording variation of XYZ component and F component continuously, as well as an absolute measurement point
- Magnetometers will be installed underground on a nonmagnetic concrete base for a stable temperature and to avoid tilting of the sensors





Various activities

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Participation in military exercise «Namejs 2018»

Preparatory work for restoration of Struve geodetic arc point Bristen

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Paldies!

Tänan väga!

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