



MAA-AMET 30

# National Report ESTONIA

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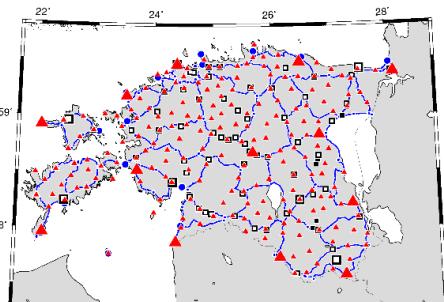
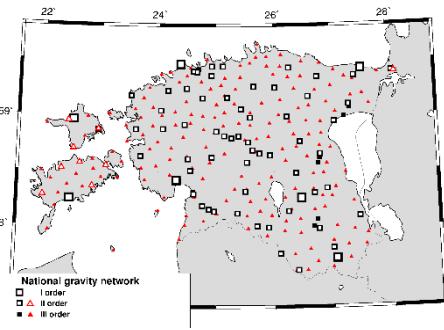
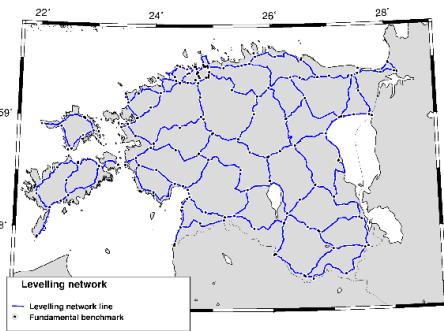
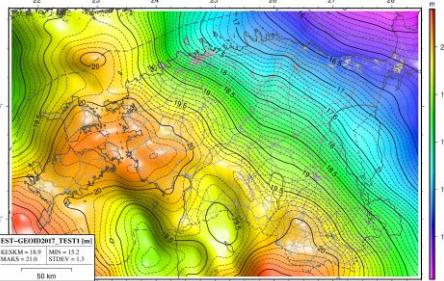
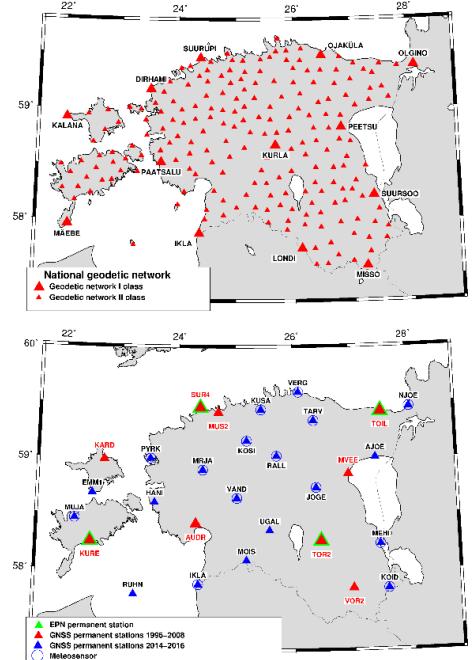
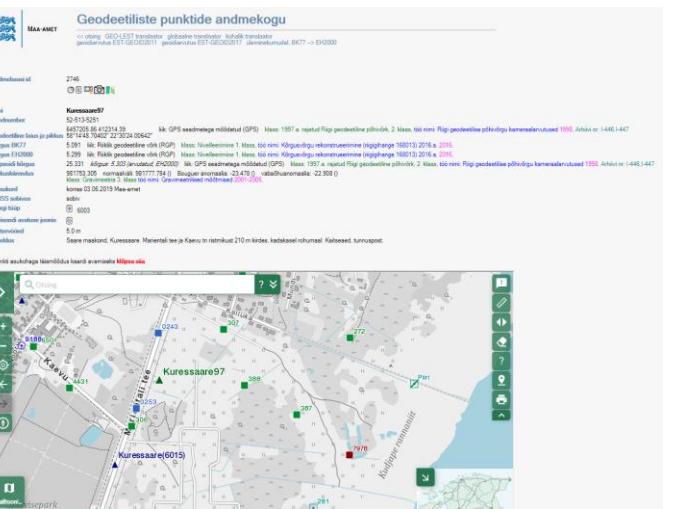
Department of Geodesy  
Estonian Land Board

10.03.2020



# In the field of Geodesy

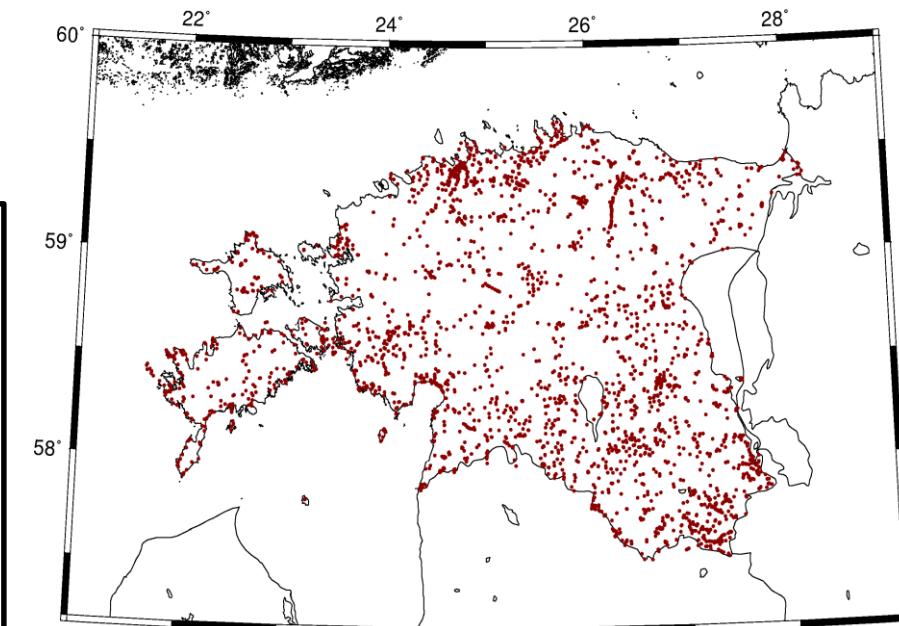
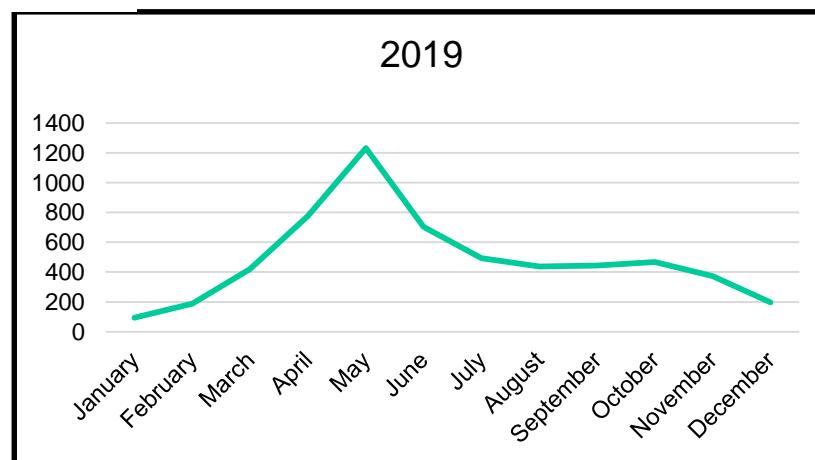
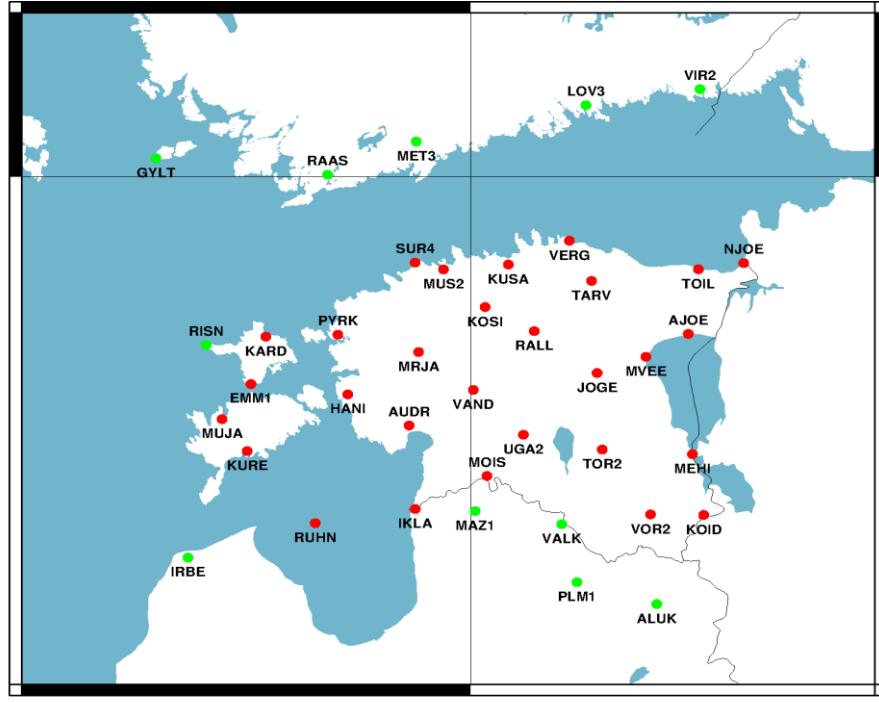
- Maintenance of geodetic networks
  - Maintenance of the GNSS-RTK Network ESTPOS
  - Maintenance of geodetic marks
  - Maintenance of the geodetic point database
  - Metrology of geodetic instruments





# ESTPOS

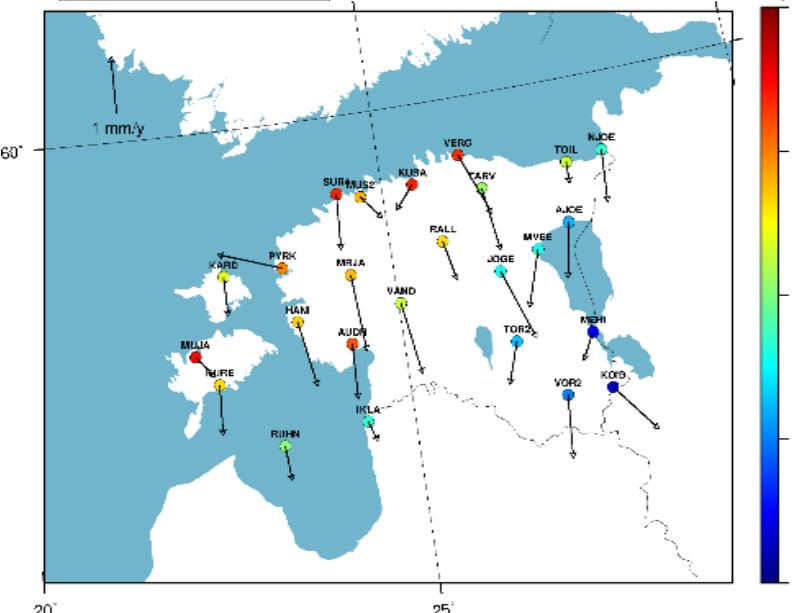
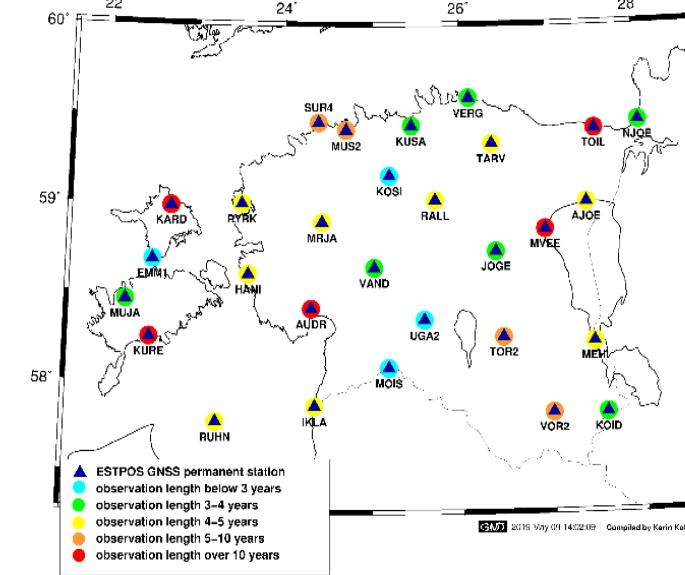
- 29 ELB operated stations
- 10 stations from neighbouring countries
- 1 station from Maritime Administration
- GPS+GLONASS+GALILEO
- 14 meteosensors



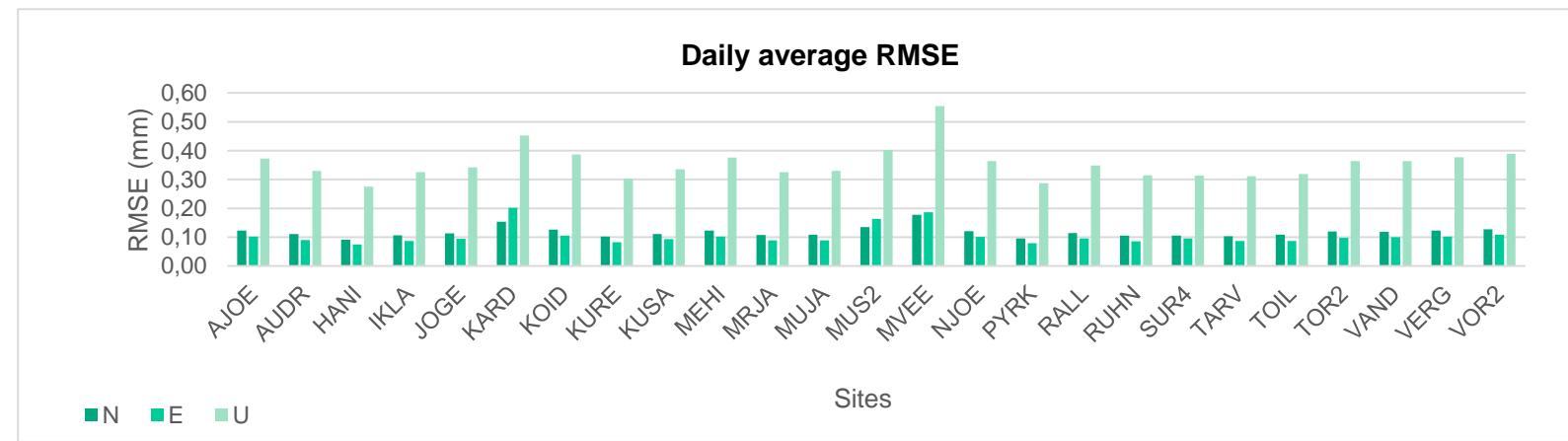


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# Multi-year solution for ESTPOS



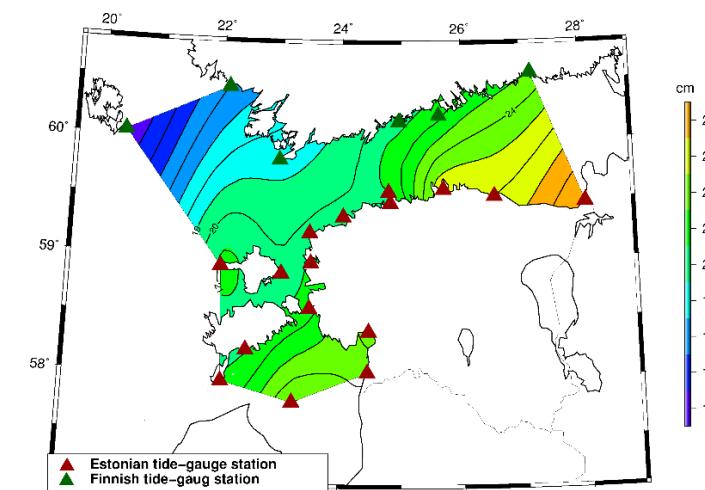
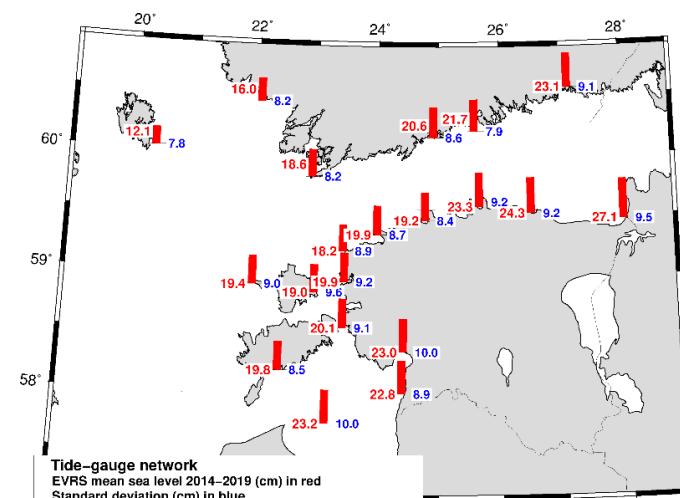
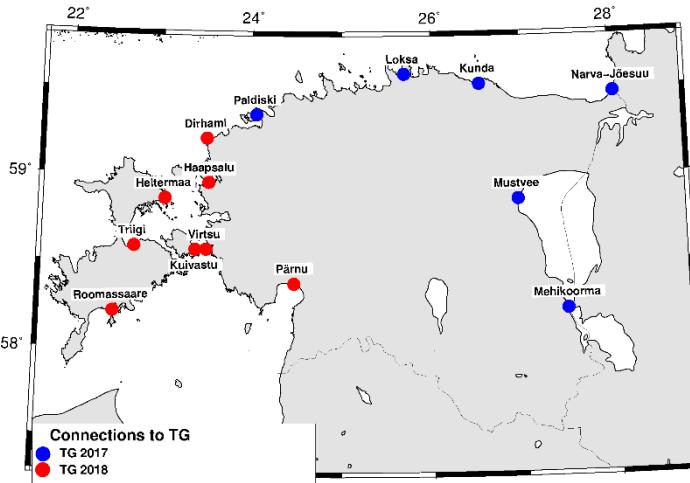
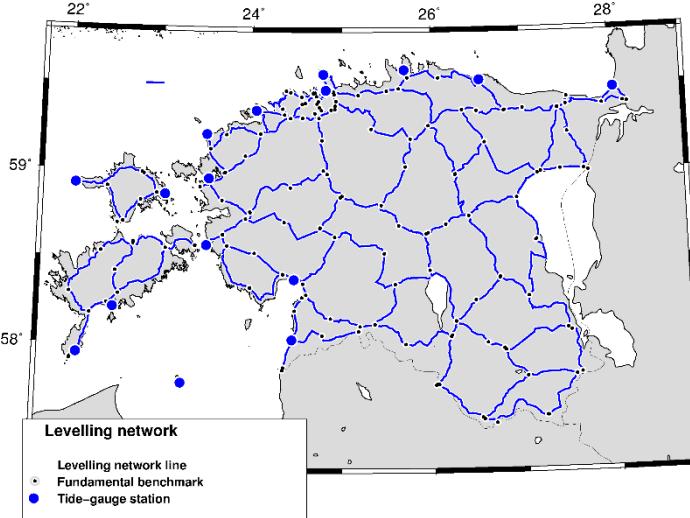
- Based on weekly solutions by ELB
- Majority of stations have observations for more than 3 years
- Time span GPS weeks 1408-2034
- Epoch 2013.00
- Coordinates and velocities in IGS14 and ETF89
- Included to EPN densification





# Connections to EH2000

- Connect local levelling networks to EH2000
  - 2017-19
  - 161 km – 248 benchmarks
  - High-precision levelling to check the tide-gauge connections
- MSL estimated at the Estonian coast
  - 2014 - 2019

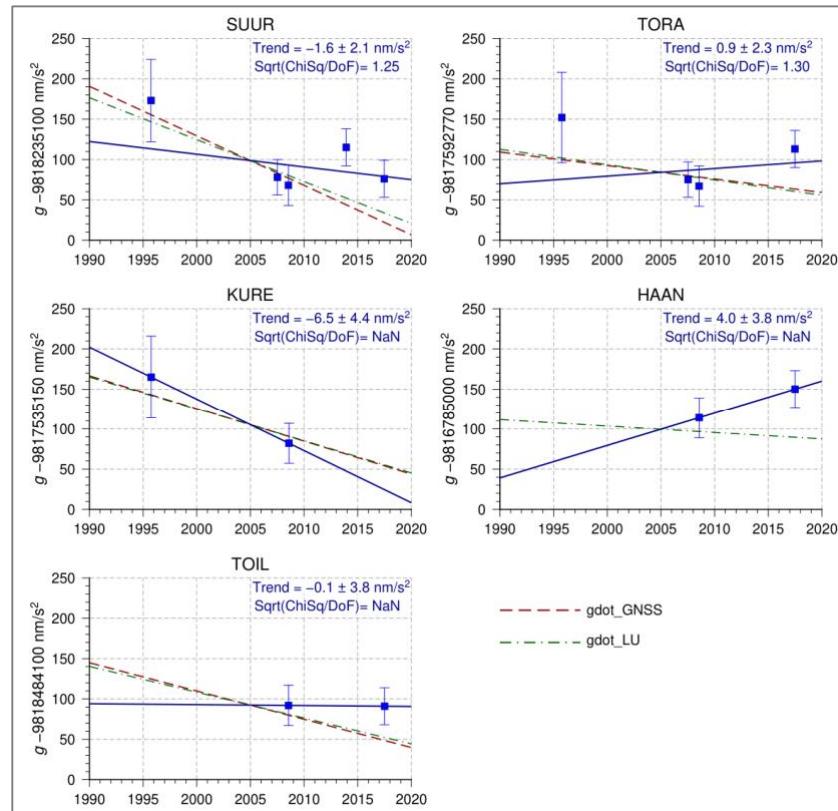
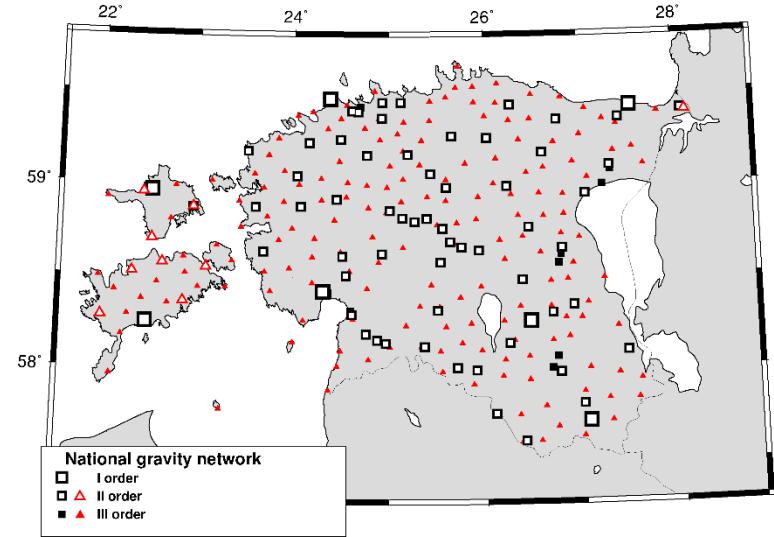




# Gravity network



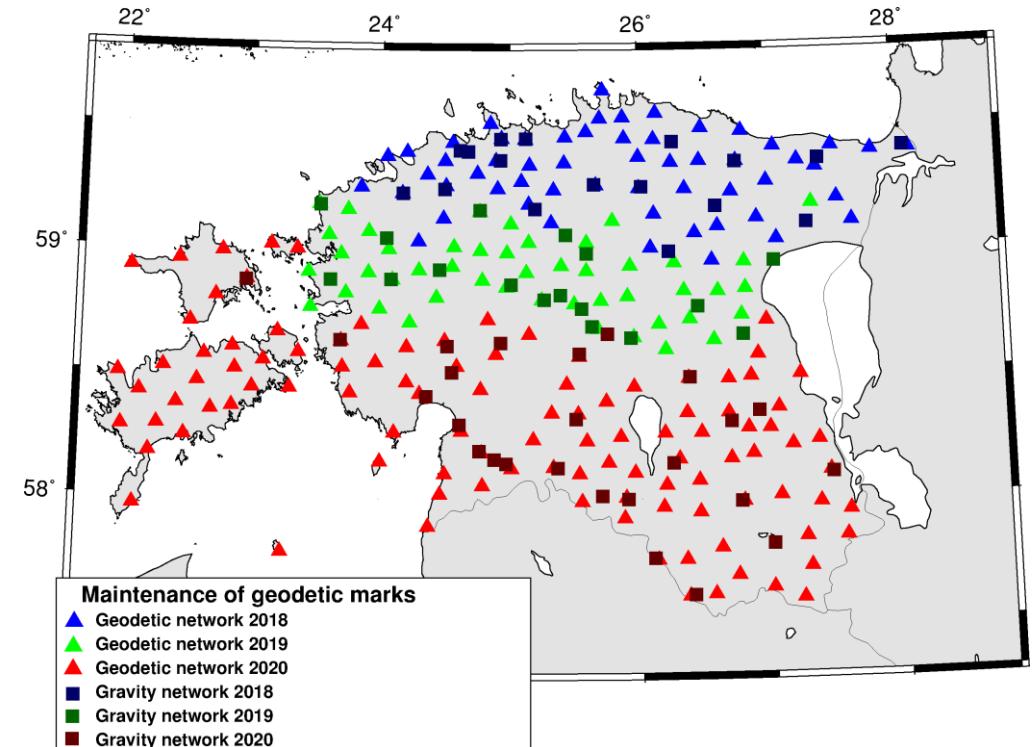
- Absolute gravity measurements  
1995, 2007, 2008, 2017
  - Computations 2018-2019
- Relative gravity measurements  
2000-2016
  - Adjustment 2019
- Absolute gravity points 7
- II order: 79 points,  
accuracy  $\pm 0.021$  mGal
- III order: 206 points,  
accuracy  $\pm 0.051$  mGal





# Maintenance of geodetic marks

- Inspection of geodetic marks
- Geodetic control measurements
- Maintenance works of geodetic network points (I and II order National Geodetic Network)
- QR codes to identify geodetic mark, direct link to geodetic point database

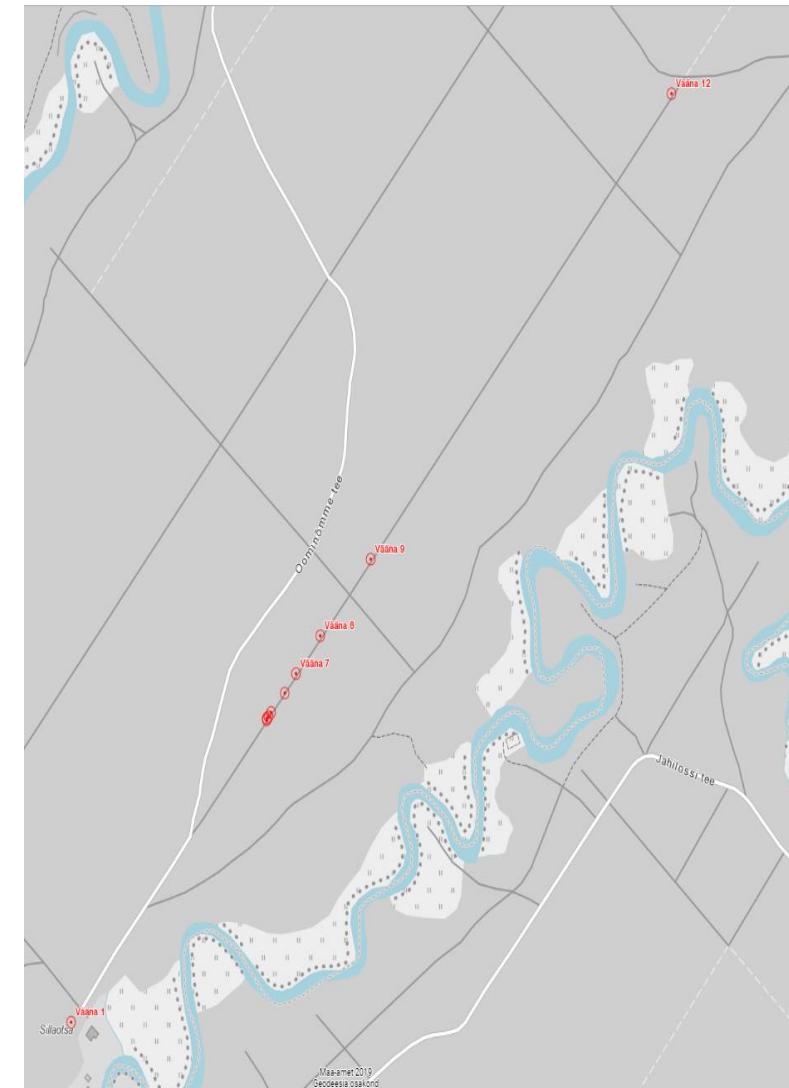




# Metrology of geodetic instruments



- Geodetic baseline in Vääna (ca 30 km from Tallinn)
- Measured by FGI
- Altogether
  - 13 observation pillars (6+7), length 1344 m
  - 3 deep benchmarks and 13 ground benchmarks
- Possibility to check total stations, etc





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# Thank you!

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