## National Report of Estonia

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### Estonian National Geodetic Network

- The National Geodetic Network was measured in July 1997.
- IAG EUREF Commission (Prague 1999):
  - has classified the Network to conform the requirements of the European Reference Frame Class B;
  - It is a densification of EUREF network in Estonia.
- In July 2007, re-measurements on 13 points of the Estonian National Geodetic Network will be carried out.
- 12 points will be measured simultaneously, the expected length of the session will be 70 hours.



#### Fig. 1. I order Estonian National Geodetic Network

# **Precise Levelling**

- So far about 2600 km of levelling lines have been inspected and approximately 1100 km have been levelled.
- 44% of level marks have been destroyed or were unfound.
- Additionally 757 benchmarks of different type have been established.
- In 2007, 279 km of levelling lines will be established and 578 km levelled.
- In 2008 high-precision levelling works are planned for 569 km.



Fig. 2. Estonian Levelling Network

# **Gravity Networks**

- At the end of the summer of 2006 Estonian and Latvian gravity networks were tied using the Land Board's relative gravity meters Scintrex CG-5.
- For 2006, gravity values have been measured on all I and II order points of the Geodetic Network.
- This year relative gravity measurements are continuing on the lines of densification and levelling networks.
- In 2007 it is planned to establish two new absolute gravity stations – one in North-East Estonia (Toila) and the other in South-West Estonia (Pärnu).
- For this year also absolute gravity measurements on three existing absolute stations within the framework of international cooperation are planned.

# Local Geodetic Network

- On the order of the Land Board local geodetic networks have been reconstructed in 50 settlements.
- In the years of 2005 and 2006 local geodetic networks were reconstructed in major Estonian towns – Tallinn, Tartu, Pärnu and Kohtla-Järve.
- In 2007 the reconstruction of local geodetic networks will take place in 12 smaller settlements.
- As well GPS-measurements to check the local networks and specify the transformation parameters are continued by employees of Land Board.



Fig. 3. Reconstruction of Local Geodetic Networks in 2005-2007

## Monitoring of Geodetic Marks and Geodetic Database

- At the end 2005 new tasks were added
- Data of geodetic point inspection are entered into the geodetic database; so far about 2000 geodetic marks have been inspected.
- The geodetic database is continuously expanded and new data added.
- One of major objectives is scanning of point location sketches and entering them into the database. Also the reports of geodetic works are continuously scanned and entered to database.
- At the end of 2006 the Web-interface to the geodetic database became available.



translaator geoidiarvutus

 Nimi:
 Number:
 XL,YL,R:

 Maximum dess, sees, või taga
 Imr, snr, Ibn. Kõiki ei pea täitma
 XL,YL,R:

 Otsi
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#### Fig. 4. Web-interface for geodetic database

## **GPS Permanent Network**

- In October 2006 the Suurupi Permanent Station - the first one in Estonia - was included in EPN.
- It has, with shorter inactivity periods, been operational since November 1996.
- The station was established with the help of the Finnish Geodetic Institute.
- Currently the Suurupi Permanent Station transmits daily and 1-hour data files to EPN.



Photo 1. Suurupi GPS Permanent Station

- In 2007 it is foreseen to establish five new GPS permanent stations.
- It will be possible to establish in Estonia a permanent network EstRef that would serve as basis for the Estonian geodetic system.



Fig. 5. Estonian GPS Permanent Station Network EstRef

### Thanks!

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