GNSS reference station system Latpos in Latvia, regional cooperation with Lithuania

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LATVIJAS ĢEOTELPISKĀS
INFORMĀCIJAS AĢENTŪRA

Introduction

Territory   64,589 km^2
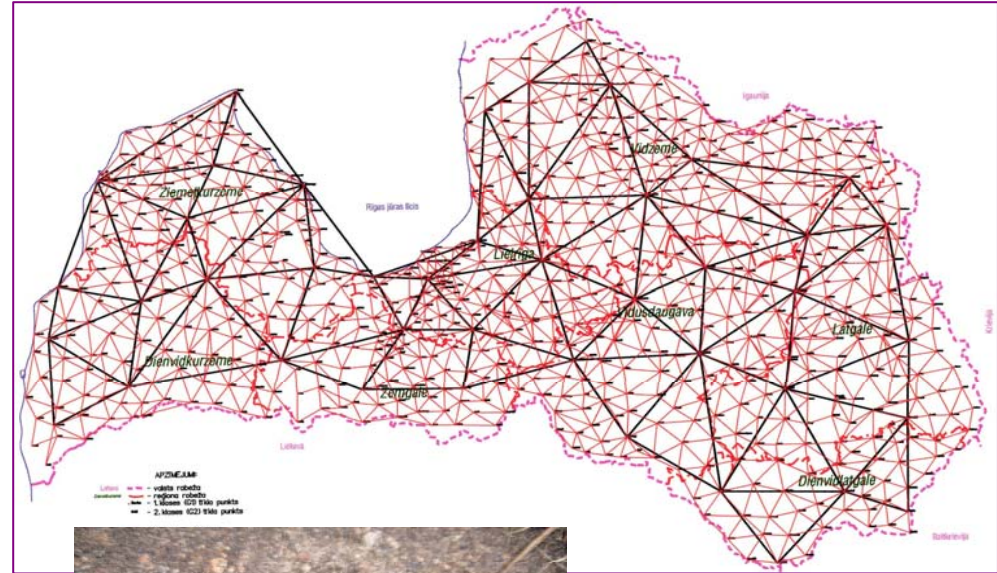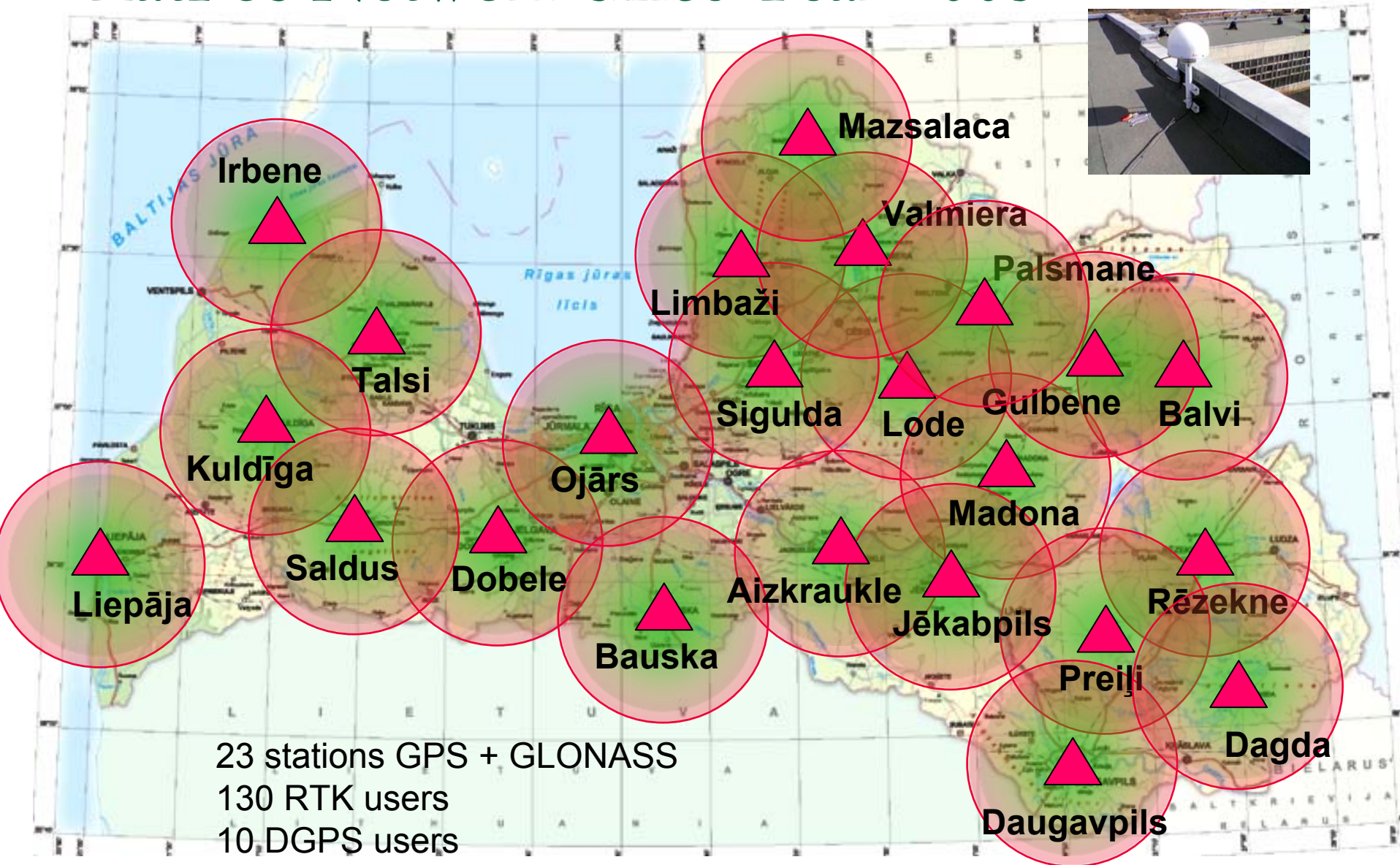Population   2,23 million

Geodetic Networks in Latvia

• Reference system founded in Year 1992

• Class G0   4 points
• Class G1   41 point
• Class G2   673 points
• Class G3 3703 points
• Other   ~ 6500 points

LatPos Network since Year 2005

Map of Latvia showing LatPos network stations:

- Mazsalaca
- Irbene
- Valmiera
- Palsmane
- Talsi
- Limbaži
- Sigulda
- Lode
- Gulbene
- Balvi
- Kuldīga
- Ojārs
- Madona
- Saldus
- Dobele
- Aizkraukle
- Liepāja
- Jēkabpils
- Rēzekne
- Bauska
- Preiļi
- Dagda
- Daugavpils

23 stations GPS + GLONASS
130 RTK users
10 DGPS users
500 Post processing

LATPOS Base station

Metal box

- UPS keeping up for two days
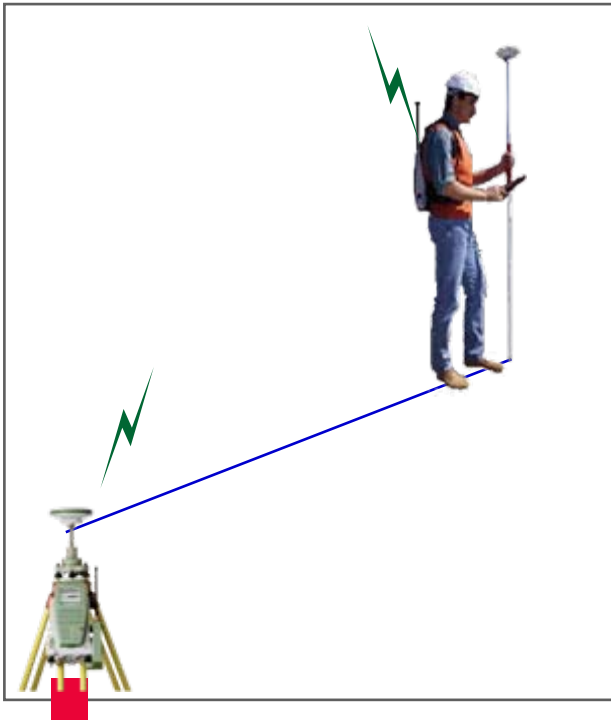- Internal memory 4 Gb

Uninterrupted power supply
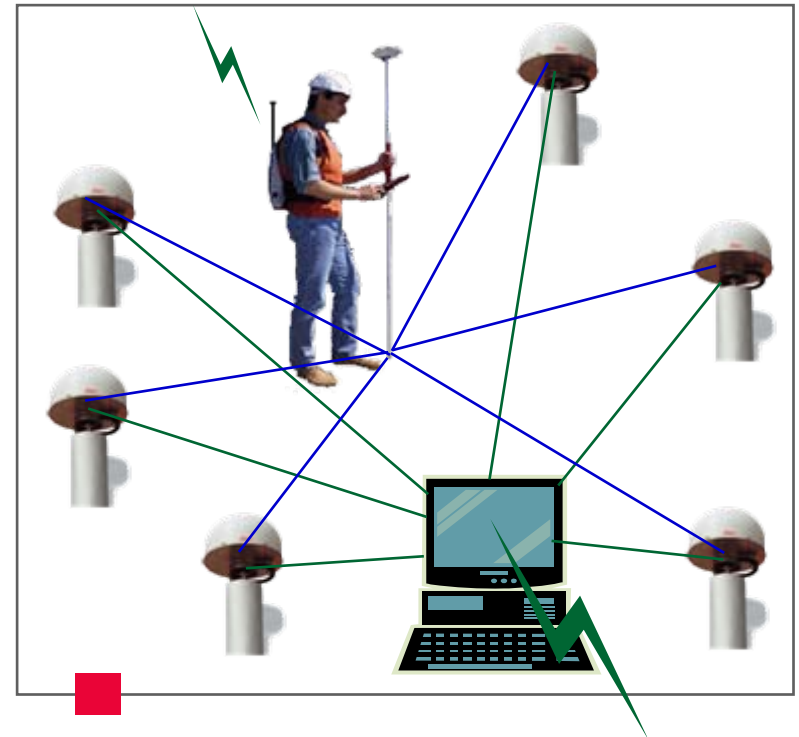
Antenna mount

GNSS receiver GRX1200 Pro

Benefits of Base station system

Single station

Network solution

One Baseline

Two surveyors

Low reliability

Many baselines

One surveyor

High reliability

Data distribution

- RTK – real-time, by internet and mobile communications

- Post Processing

- WEB – manually download data

- FTP – automatically by post processing software

LatPos applications

- **RTK data   up to 2 cm level**

    Cadarstral surveying

    Topographical surveying

    Construction works

Used by surveying Companies
70 Companies,   ~130 instruments

LatPos applications

- DGPS real-time data, up to submeter

  Handheld GIS receivers

  Agriculture field measurements
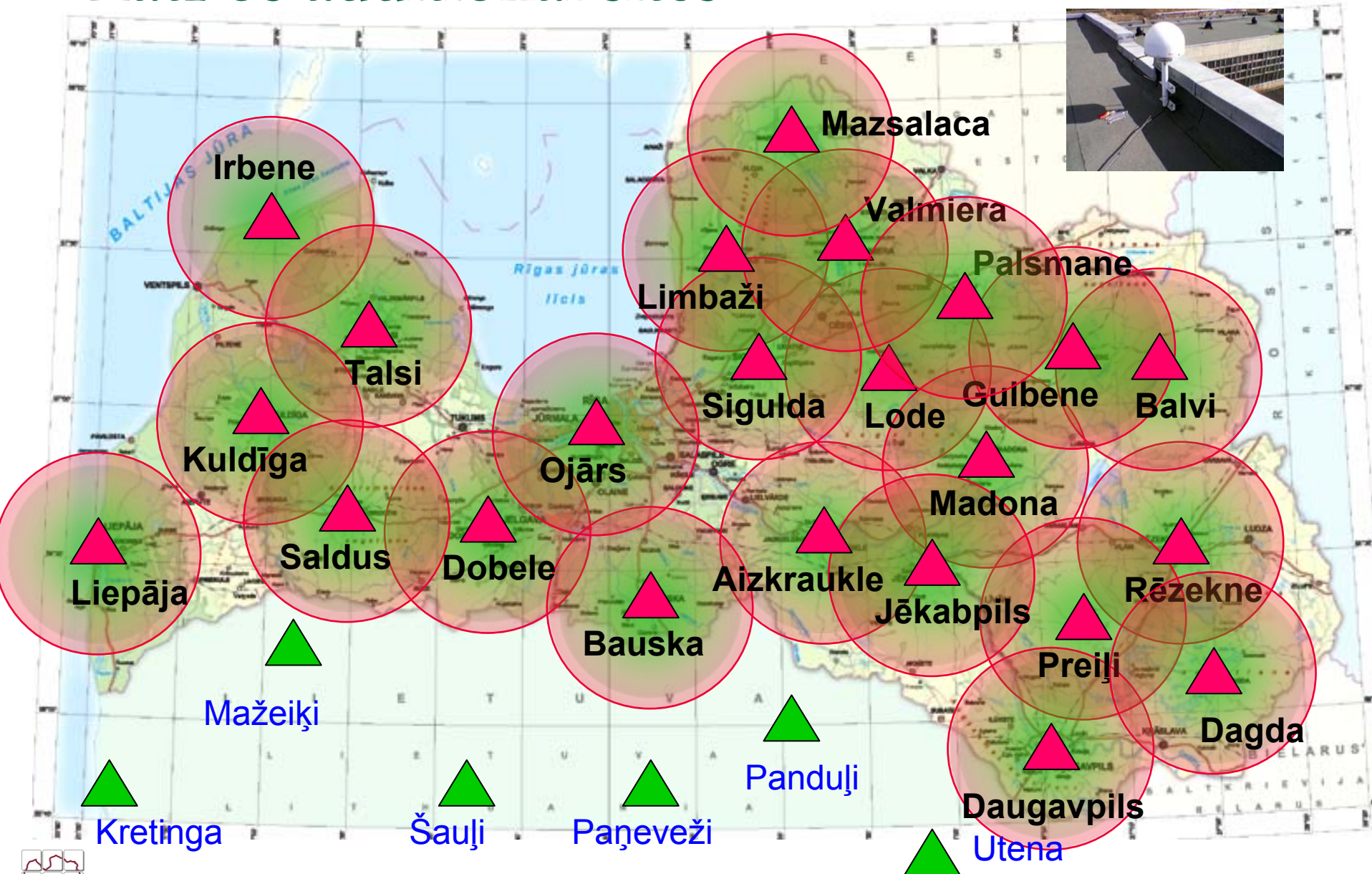 ~ 200   users

  Forest control
  ~400 users

Precise farming
 agriculture machine guidence

LatPos additional sites

Mazsalaca

Irbene

Valmiera

Palsmane

Limbaži

Talsi

Sigulda

Lode

Gulbene

Balvi

Kuldīga

Ojārs

Madona

Saldus

Dobele

Aizkraukle

Rēzekne

Liepāja

Jēkabpils

Preiļi

Bauska

Mažeiķi

Panduļi

Dagda

Daugavpils

Kretinga

Šauļi

Paņeveži

Utena

Lithuanian raw data stream

Conclusions

- GPS base station Network replaces old fashion geodetic network

- GPS base station Network realizes homogenous network over all country

- Multi purpose applications

- Regional cooperation between countries improves data quality on border territories

Thank You for Your attention!