

Topographic databases

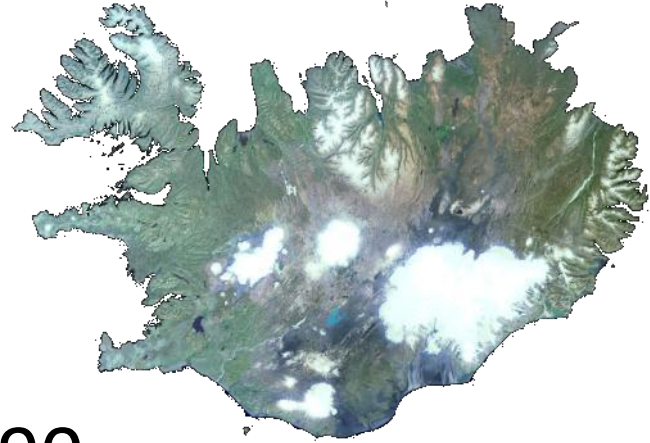
Ljubljana, February 5th. 2014

Gunnar H Kristinsson

National Land Survey of Iceland

Background

- Land area is 103.000 km²
- Mapped by Denmark around 1900 – 1:100.000
- Mapped by USA from 1949-1990 – 1:50.000
- First version of IS 50V in 2003
 - GIS database
- Current law prohibit large scale mapping!



IS 50V

Topographical database

- Roads (GPS measured < 5m accuracy)
- Height information
 - 20 m contours
 - DEM 25 m grid (10 m in production)
- Hydro (accuracy 5 - 50 m)
- Land cover (Corine)
- Buildings (points)
- Place names (point, poly, line)
- Administrative Boundaries



Standard

- Own standard ÍST120 (ISO 19110)
 - Only framework, descriptions in feature catalogue



IS 50V maintainence

- Road network
 - Surveying (drive all roads and tracks)
- Hydrography
 - Vectorized from:
 - Aerial photo (streams/rivers)
 - Extracted from:
 - Infrared satellite imagery (lakes and wide rivers)
- Surface
 - Corine



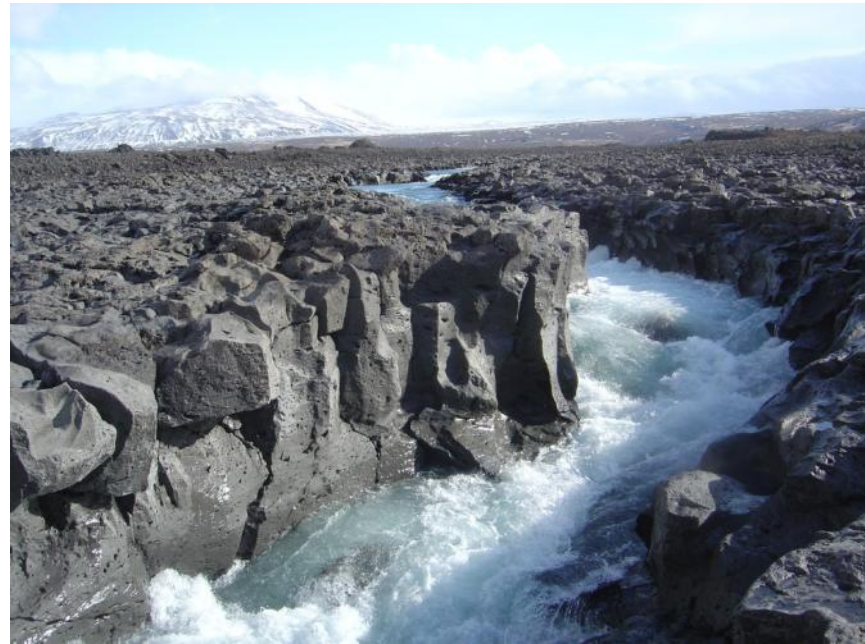
IS 50V Maintenance

- Height information
 - Lidar (glaciers)
 - Aerial photography
 - Satellite radar scanning
 - Optical radar scanning
- Buildings (rural)
 - Satellite images
- Place names
 - Aerial images
 - Satellite images
 - Crowdsourcing



Quality checking

- Quality checked multiple times using best known practices
- Checked on multiple levels: horizontal accuracy, logical consistency, implemented value and range domains in the database
- Combination of various cross-checks.

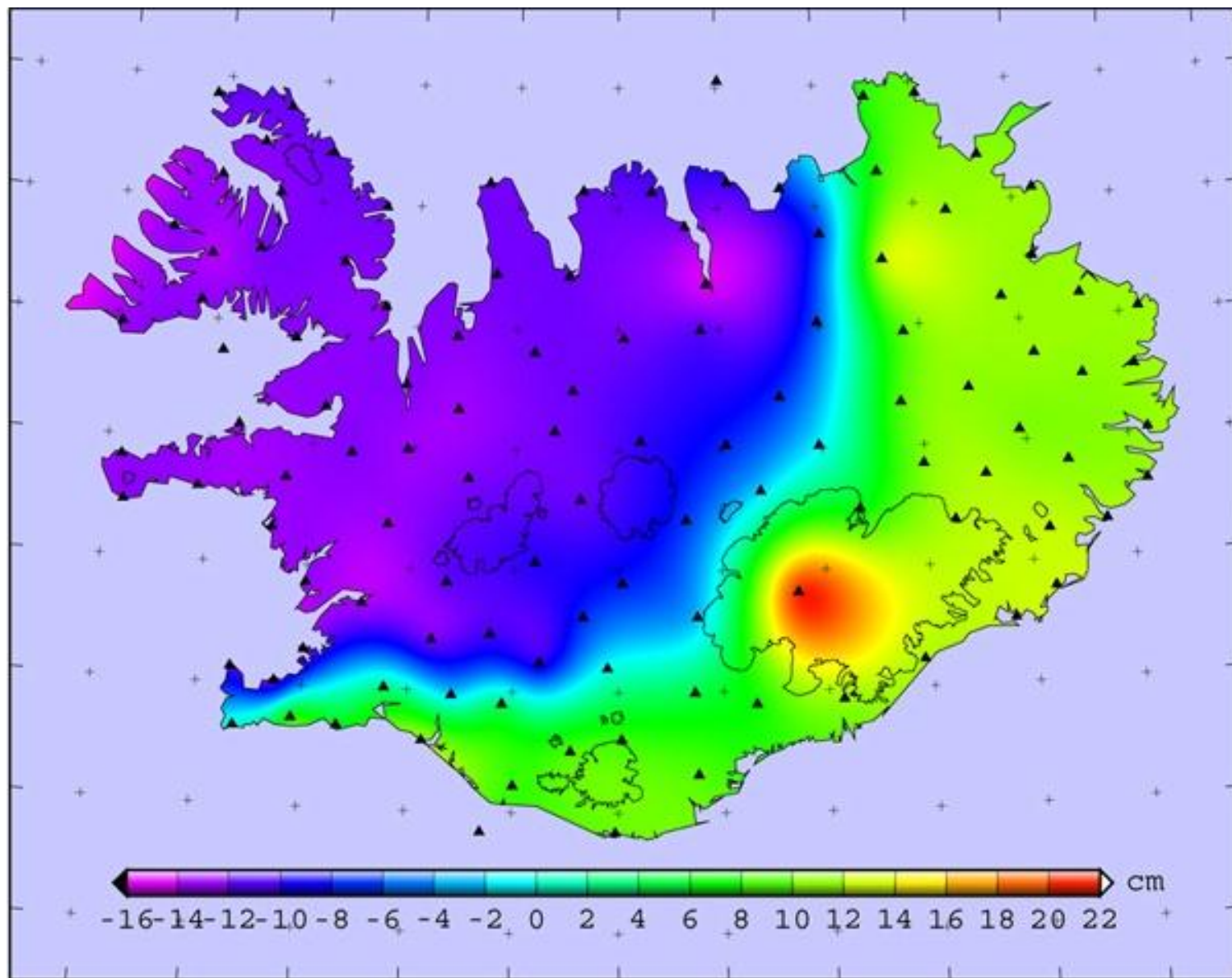


Software and services

- ESRI ELA agreement
 - ESRI stack from ArcGIS to Flex
 - Oracle database
- Open source stack
 - PostgreSQL/PostGIS
 - Geoserver
 - Open Layers
- ISO 27001 certified backup service

Geodesy





Vertical Reference System ISH2004

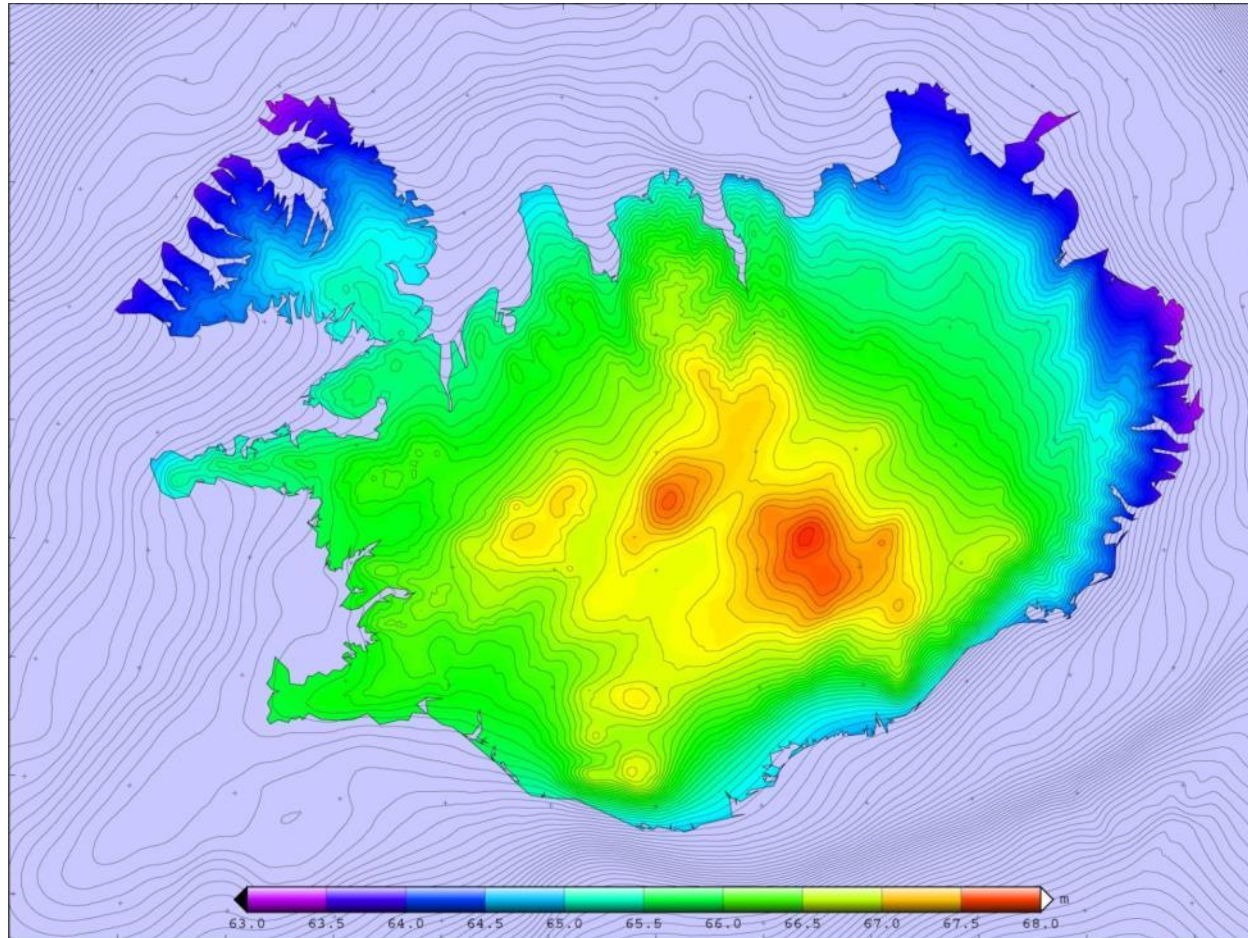
- Leveling ongoing since 1992
- 4000 points
- 300 GPS/Leveling and gravity points
- Over 3000 km



Absolute gravity measurements

- Re-measured in 2007
- Cooperation with the Finish Geodetic Institute
- Gravity changes fits well to the height changes

New Geoid 2011



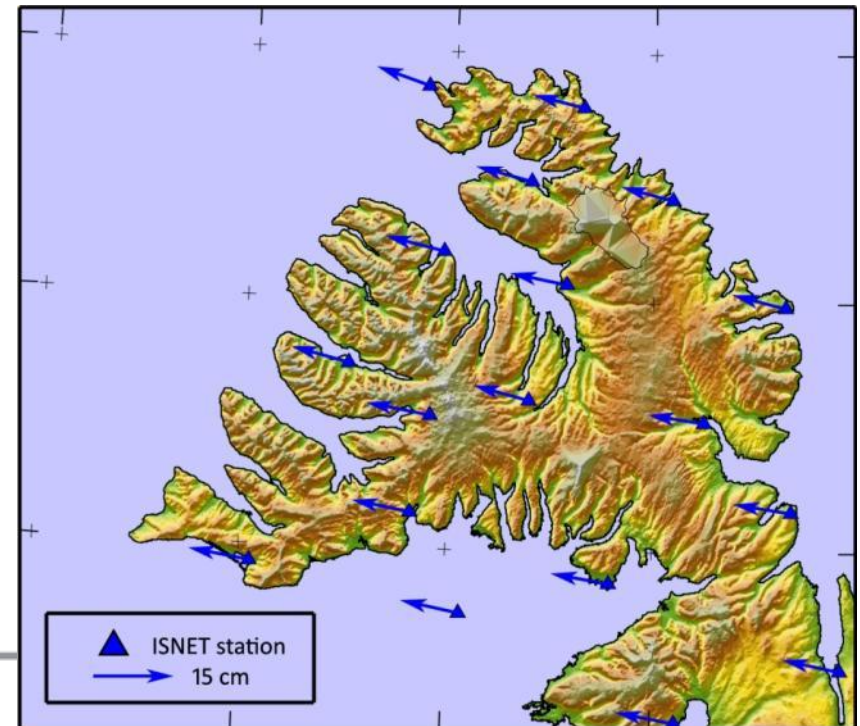
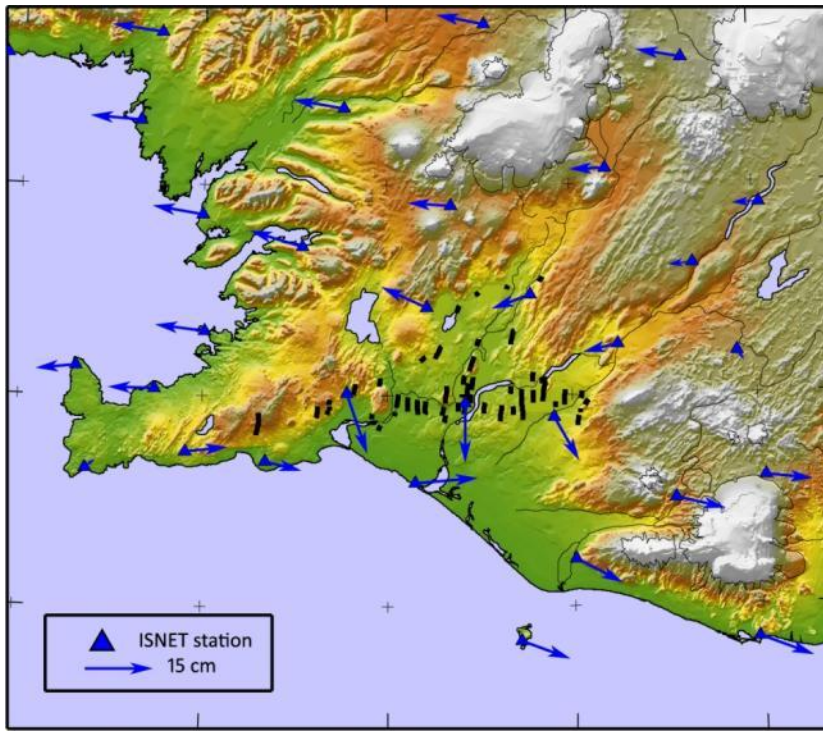
Icelandic CORS system

- 14 stations (24 planned)
- Geo++ software
- Free RINEX data
- Free DGPS RTK



Geodetic reference frame

- ISN 2004 (replacing ISN93)
- Around 150 points
- Remeasured 2015



www.lmi.is