



NORWEGIAN MAPPING
AUTHORITY

NATIONAL REPORT FROM NORWAY

SPATIAL DATA – FOR BENEFIT OF THE SOCIETY

Continuously operating reference stations (CORS)

Main Land 144 stations + 3 under construction



PERMANENT STATIONS

In the Arctic



- New twin VLBI antennas will be built
- The project is approved by the ministry
- 28 mill NOK allocated so far



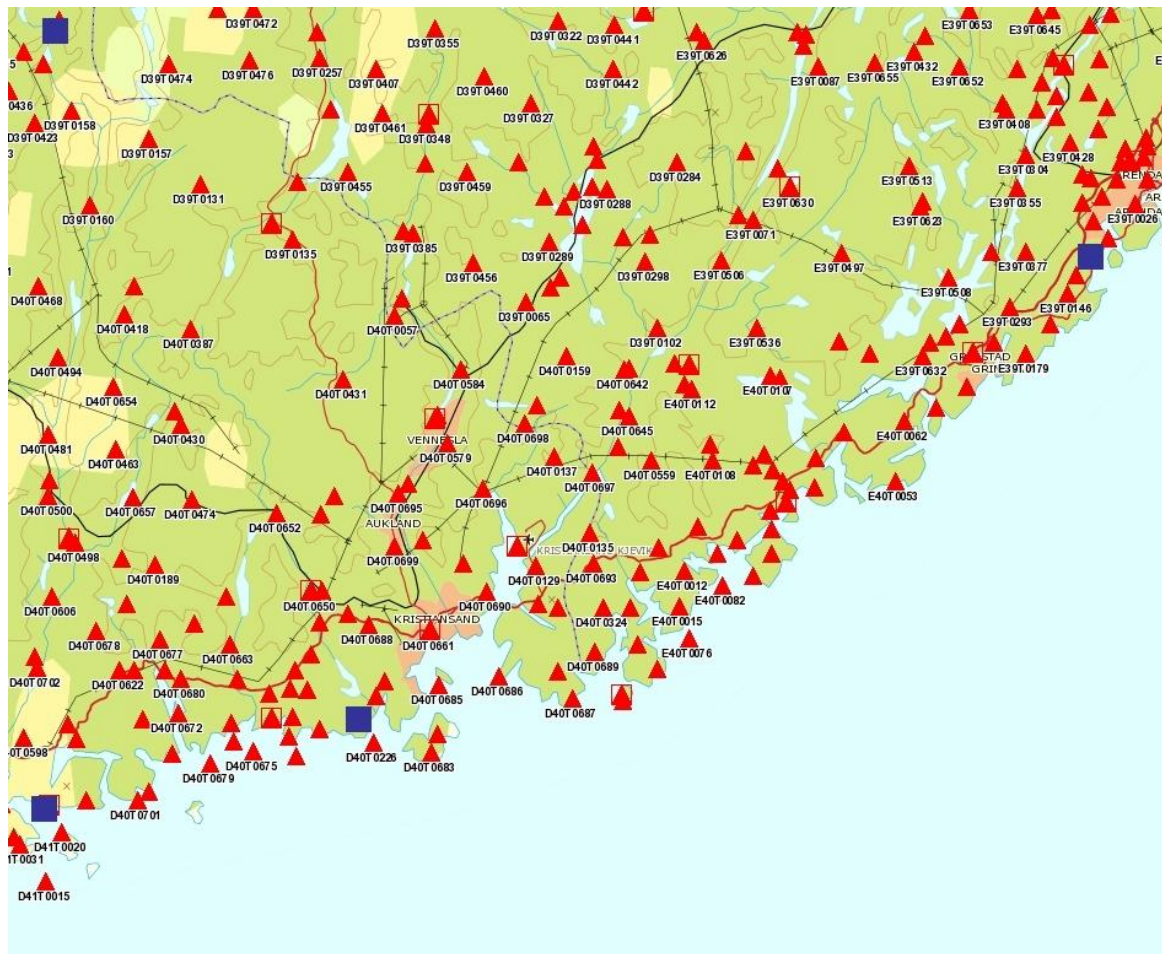
REFERENCE NETWORK

First order, called Stamnett



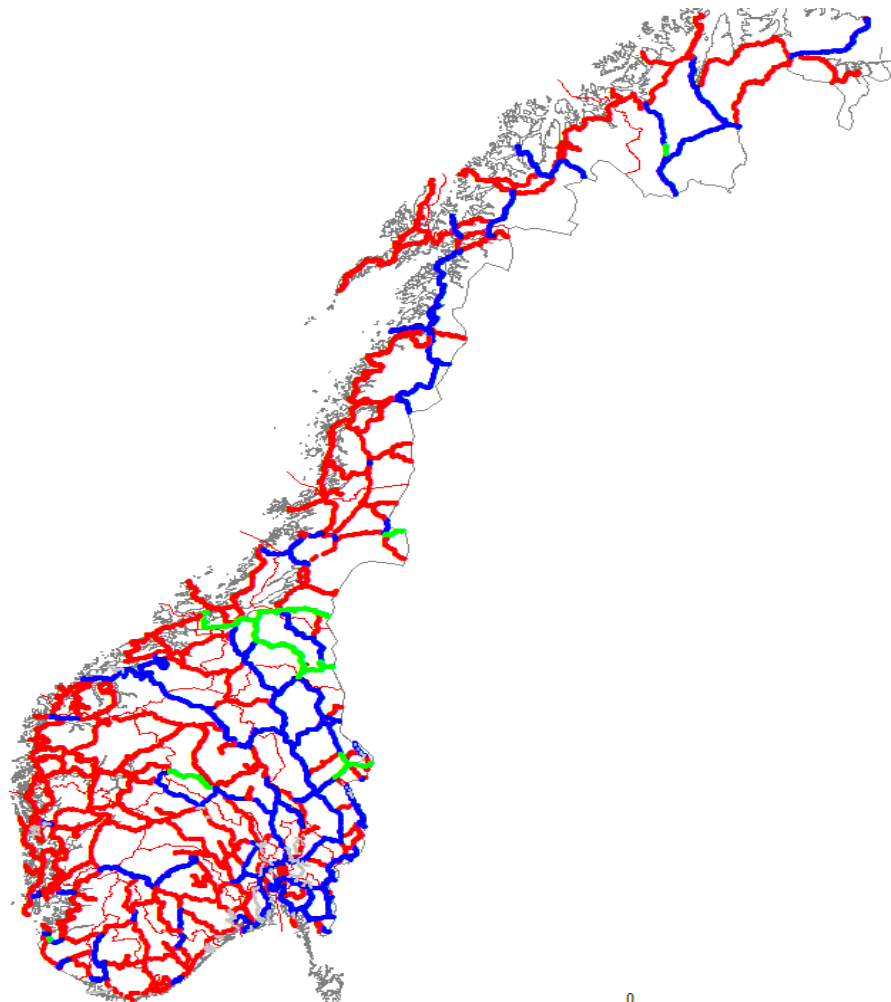
REFERENCE NETWORK

Second order, called Landsnett.



LEVELLING NETWORK

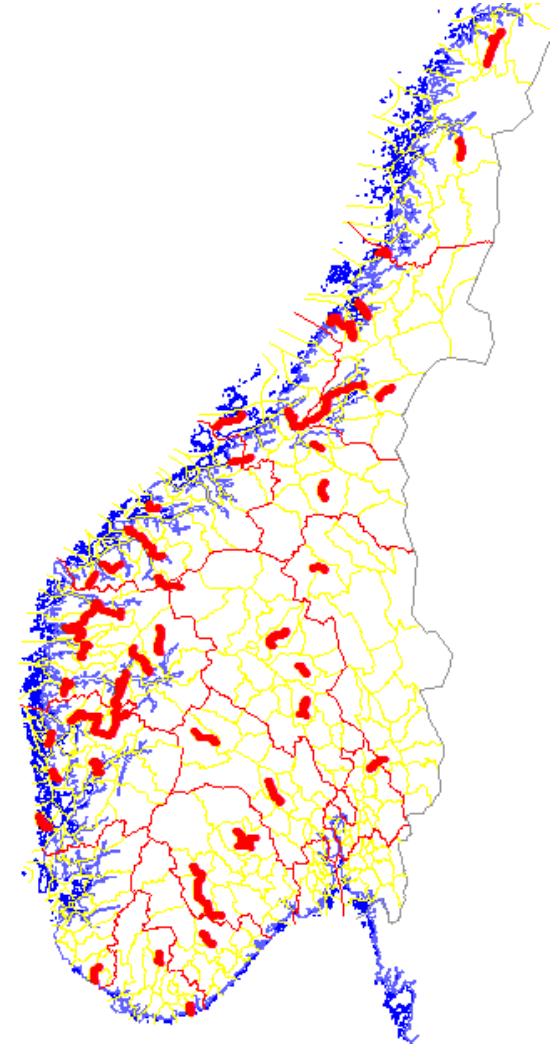
First order



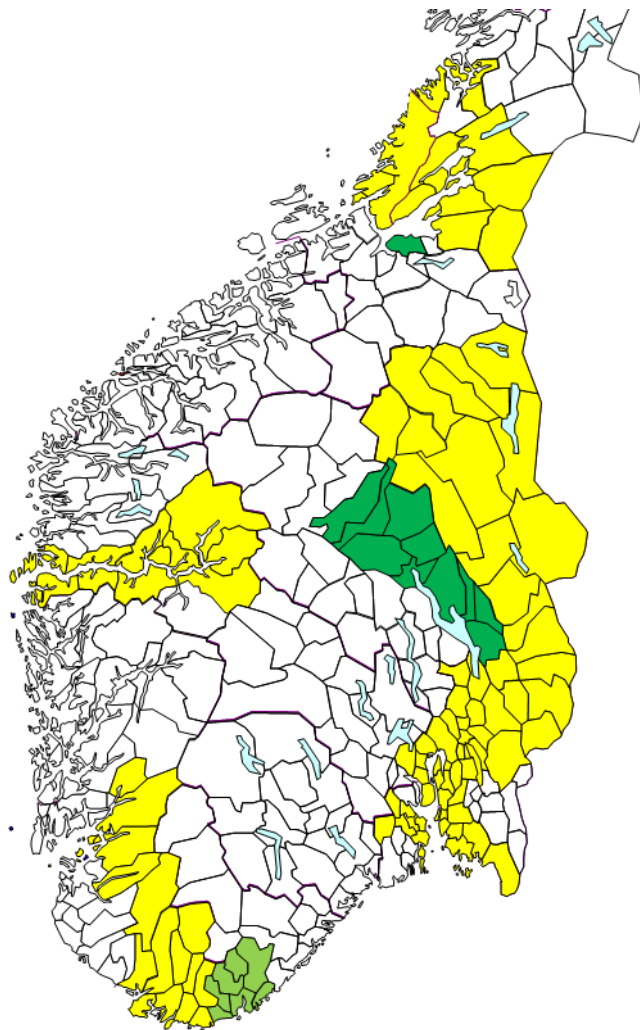
EXTENSION OF THE LEVELLING NETWORK

2008 - 2011

- More GPS/levelling points
- New lines into areas with no precise levelling
- Yearly production of 450 – 500 km



MUNICIPALITIES CHANGING TO NN2000



NN2000

Status pr. 05.06.2012

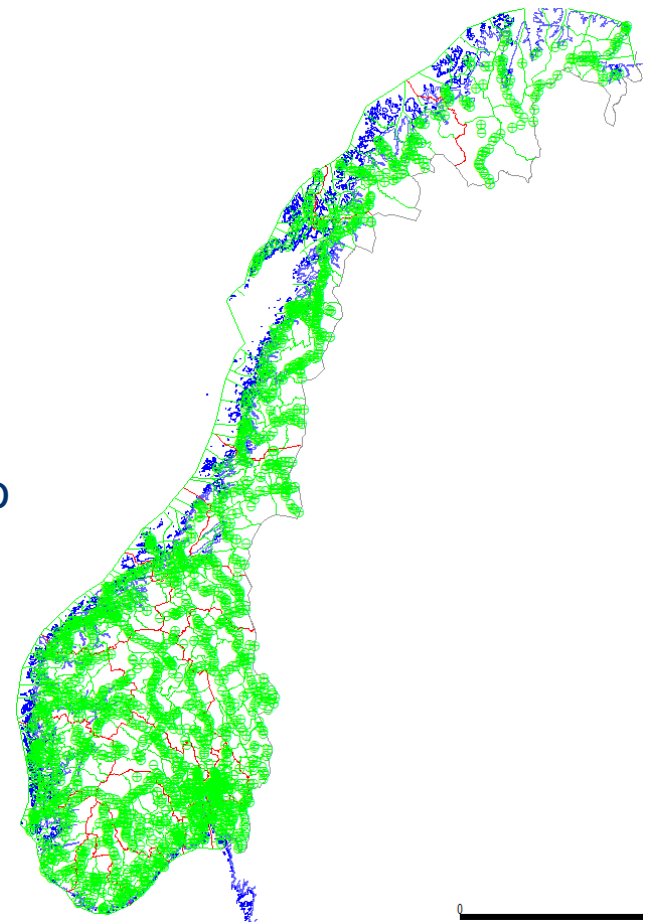
- Changed to NN2000 (11)
- Will change this year (7?)
- Project running (101)



GPS/LEVELLING POINTS

Connection between geometrical and geophysical reference frame

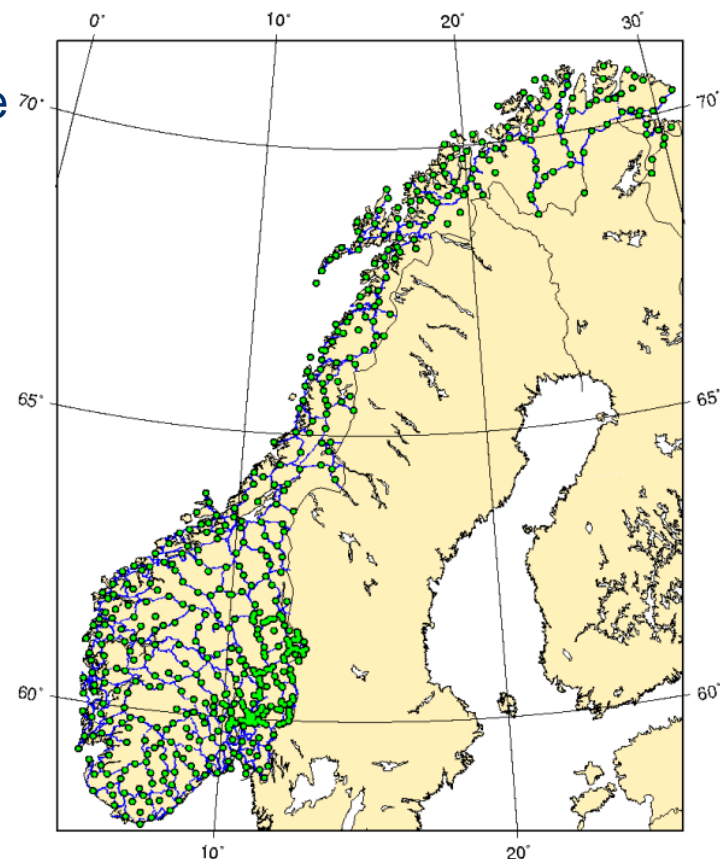
- 2380 leveled points in the Reference Network
 - Validation of gravity based geoid models
 - Connection points for Height Reference Models
- More points necessary
 - A project is going on to determine the density of GPS/levelling points in order to achieve 1 cm accuracy.
 - In parts of Norway there must be less than 10 km between the GPS/levelling points.
- NN2000 in the reference network will be calculated using a Height Reference Model



A NEW REFERENCE FRAME, IGS05N


A new scientific reference frame

- Uncertainty about the accuracy of the ellipsoidal heights in our existing reference frame EUREF89
 - Main focus in 1996 was the horizontal components
- Re-measuring points in our reference network to a spacing of 30 km
 - Five days of continuous measuring
 - Possessed with the Bernese GPS software
- Recalculating the whole reference network, 1st - and 2nd order network
- Official ellipsoidal heights transformed to EUREF89 from IGS05N.



600 campaign points



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- Thank you for your attention!