



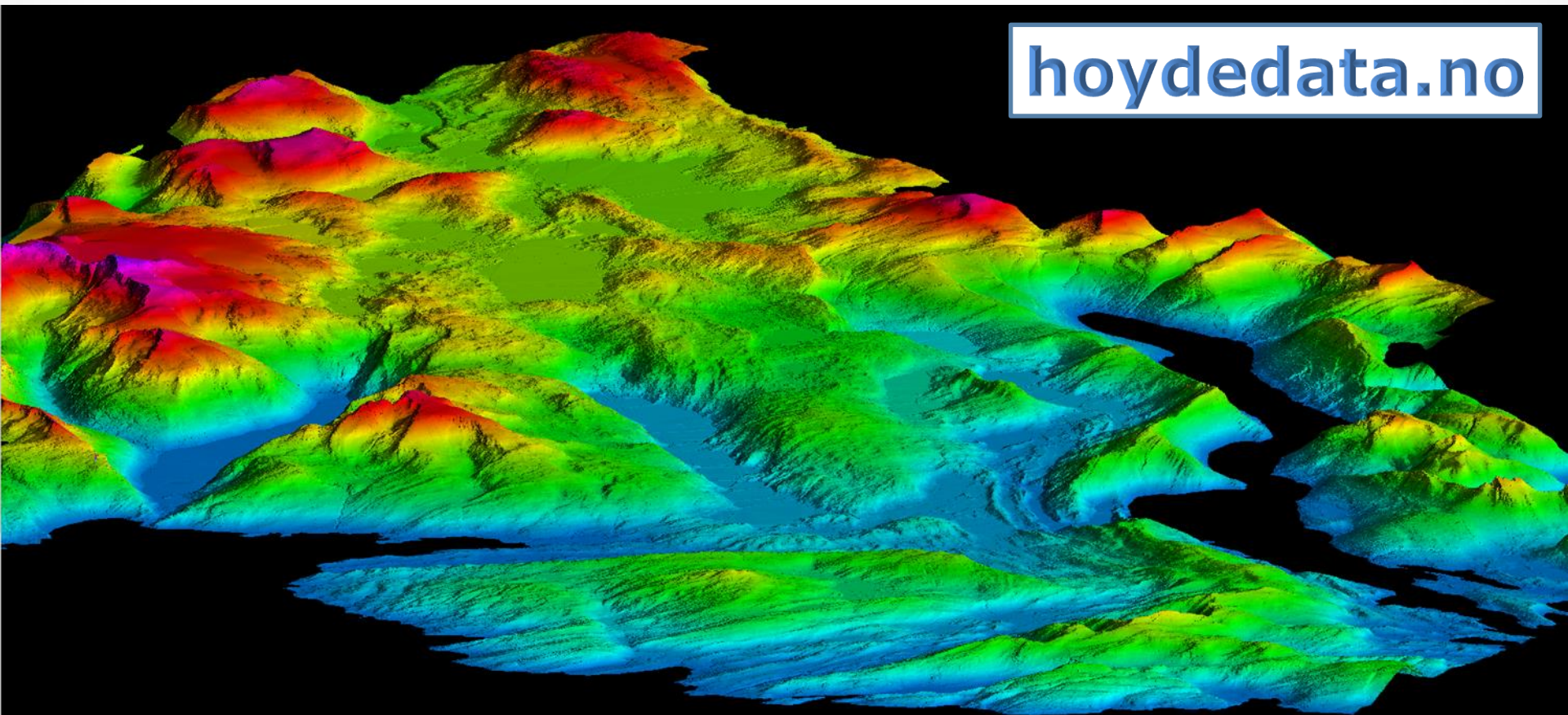
Kartverket

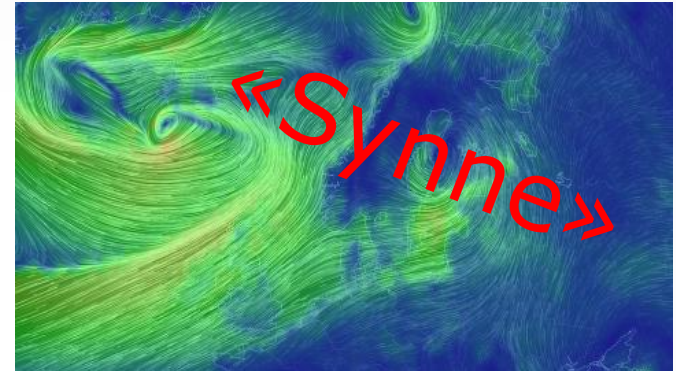
Management and distribution of elevation data in Norway

EuroSDR workshop, Tønsberg, January 2016

Håkon Dåsnes, NMA

hoydedata.no





By the end of 2020 completed data collection and the establishment of detailed elevation data for the entire mainland of Norway (325,000 km²), with a minimum of 2 points per m².

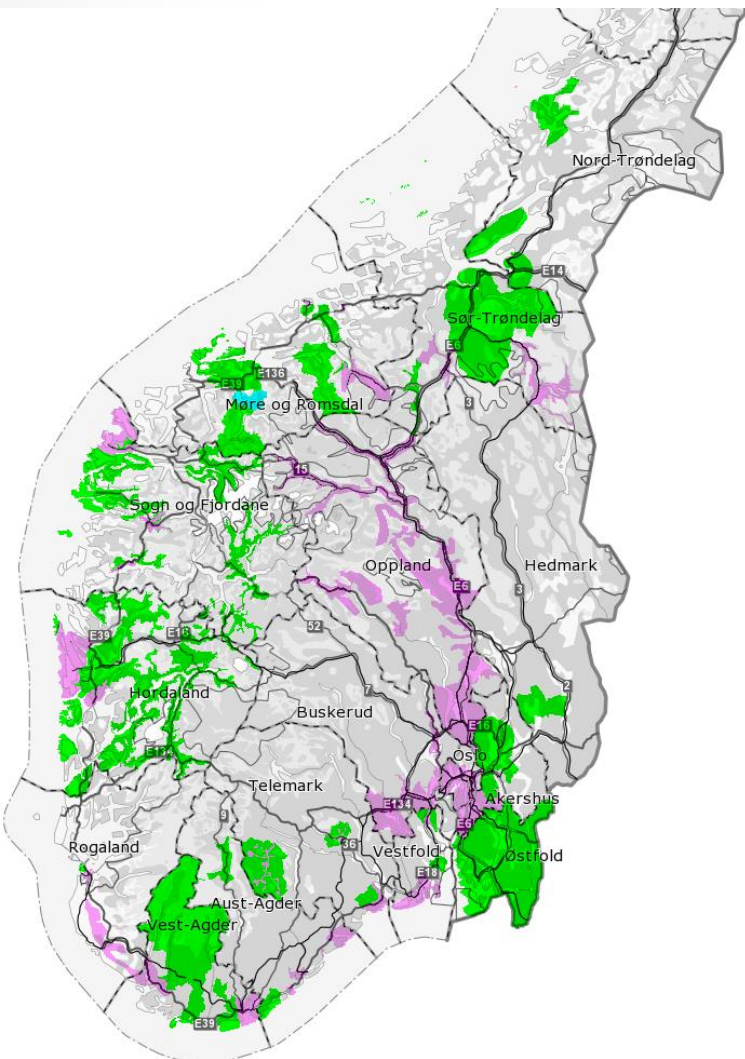


Data acquisition

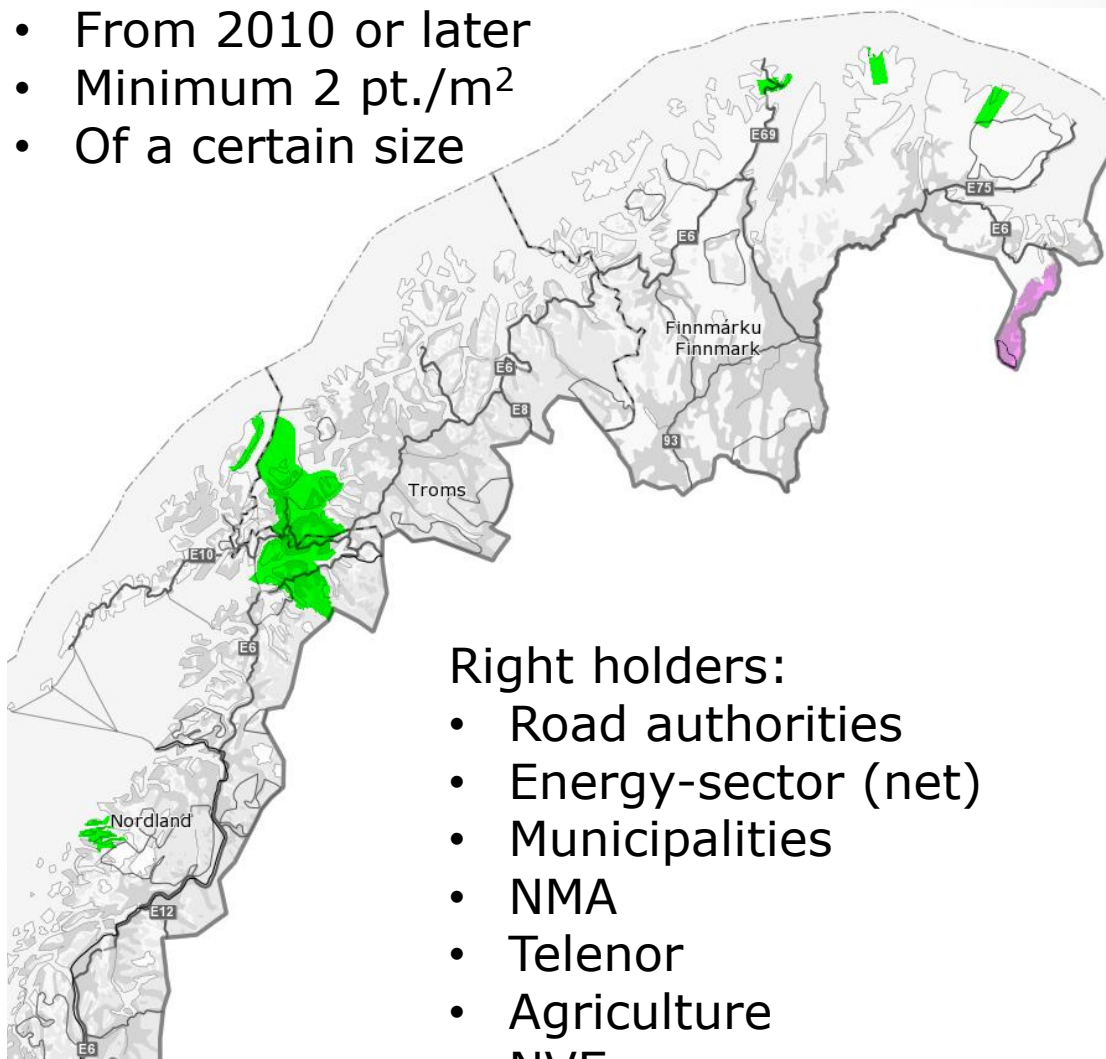
- New laser scanning, point density 2 pts/m², 225 000km²
- Image matching in mountain areas, and re-use of existing data
- Possibility for higher point density (5 pts/m²) - additional funding from local interests
- Test of bathymetric laser scanning in shallow coastal water (0-5 meter depth)



Existing data – 50.000 km²



- From 2010 or later
- Minimum 2 pt./m²
- Of a certain size



Right holders:

- Road authorities
- Energy-sector (net)
- Municipalities
- NMA
- Telenor
- Agriculture
- NVE

Planned image matching – 40.000 km²

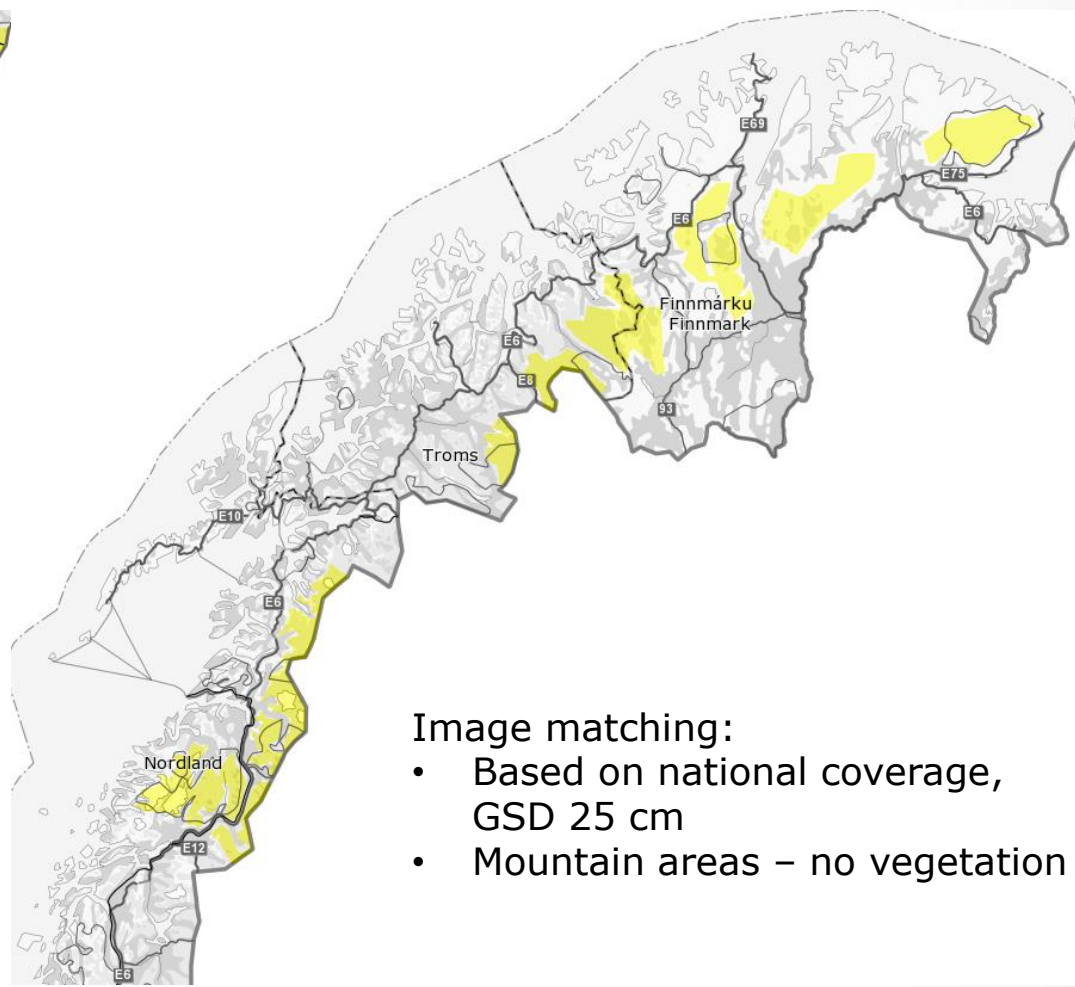
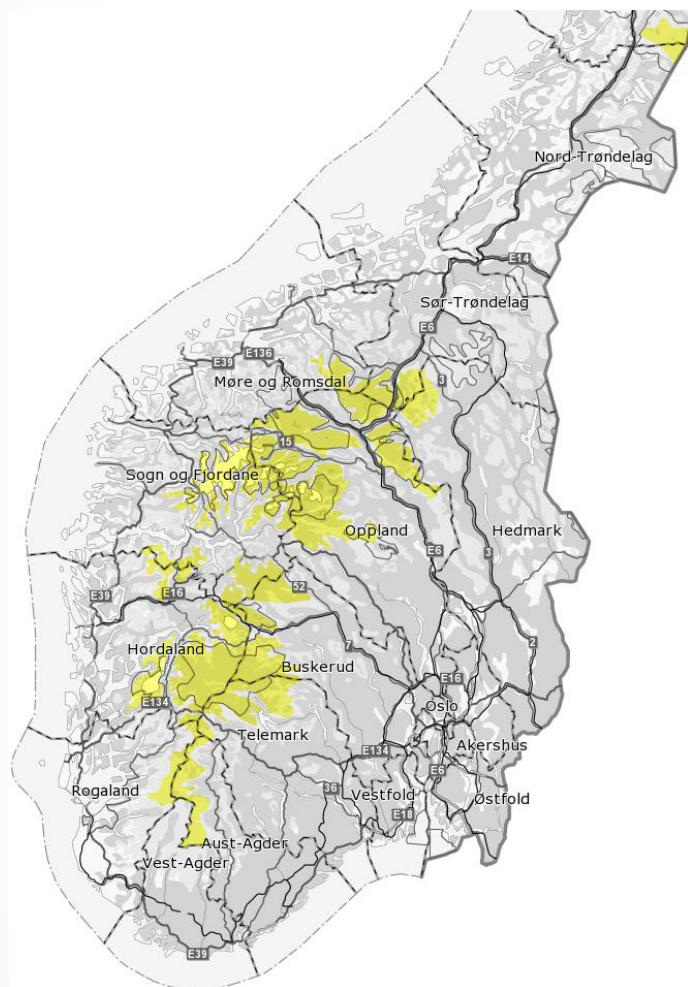
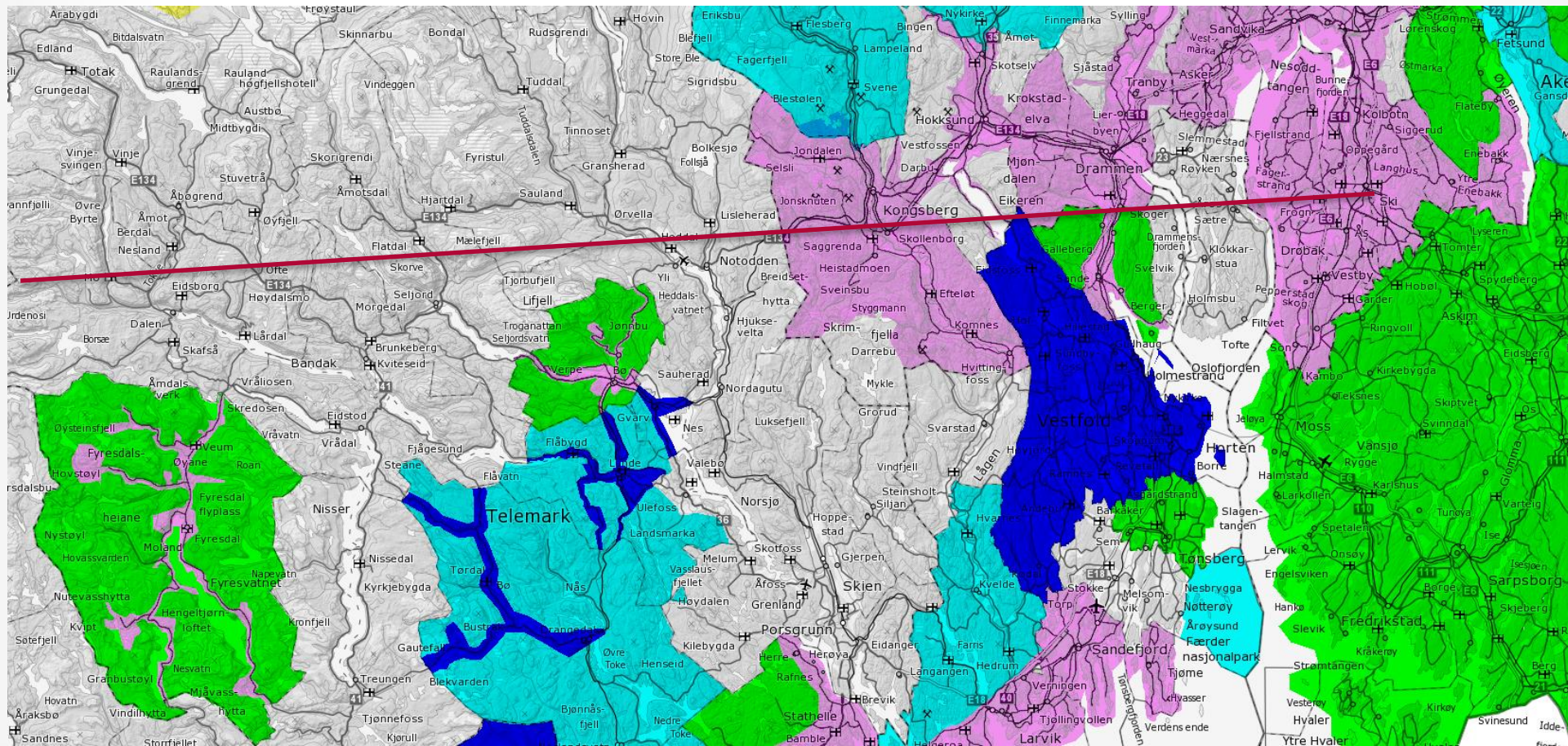


Image matching:

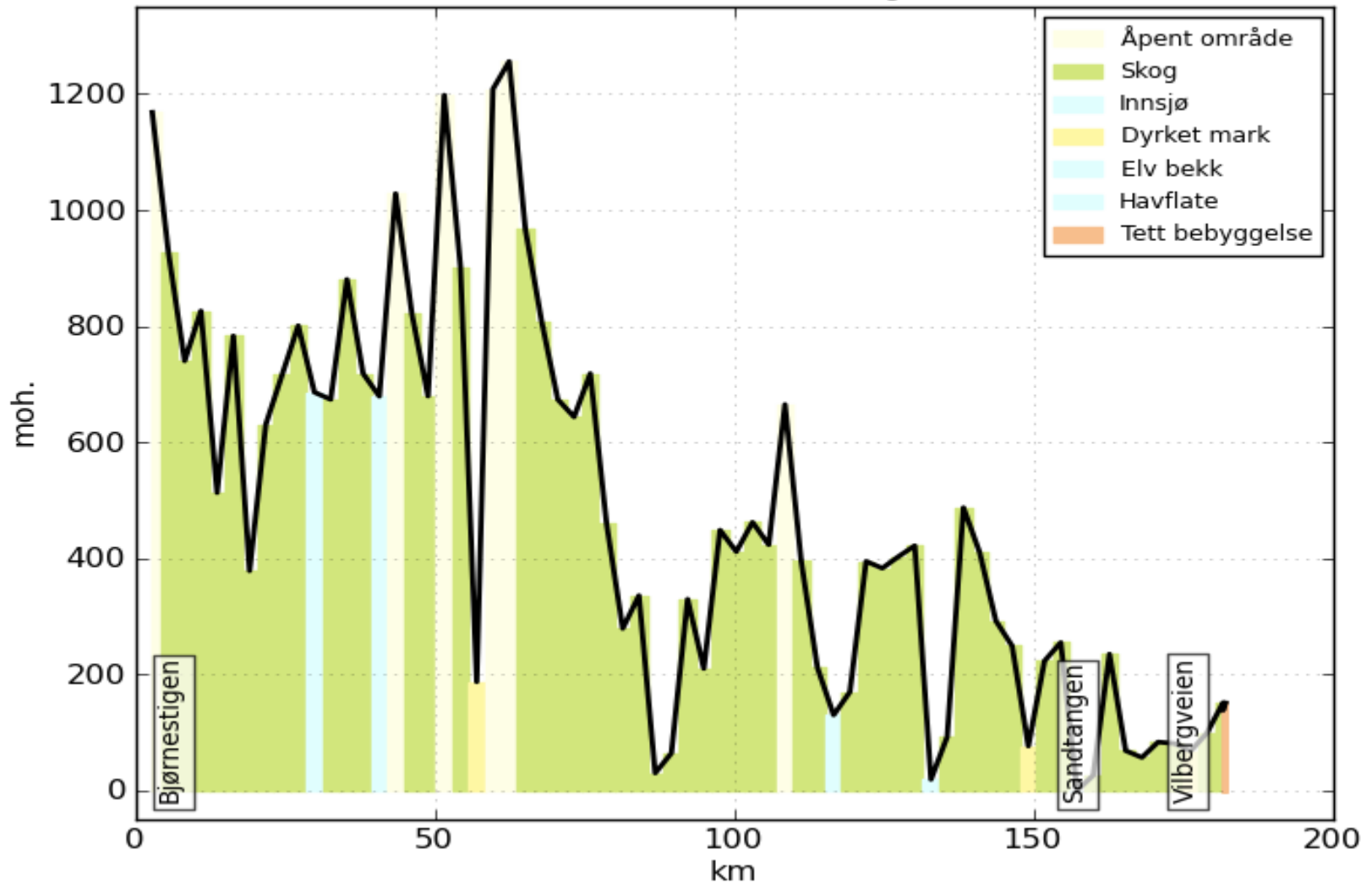
- Based on national coverage, GSD 25 cm
- Mountain areas – no vegetation

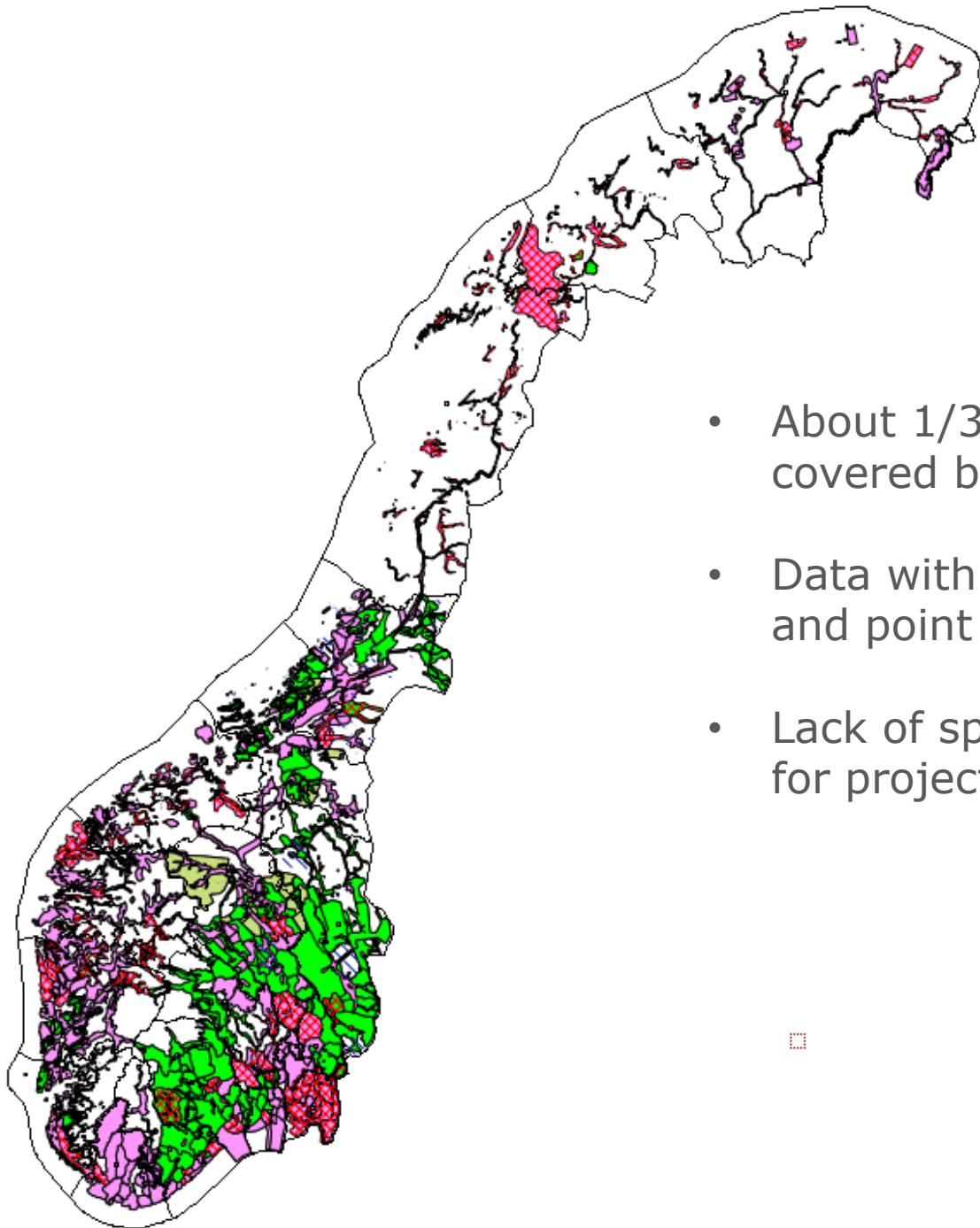
A small «detail» study



A small «detail» study

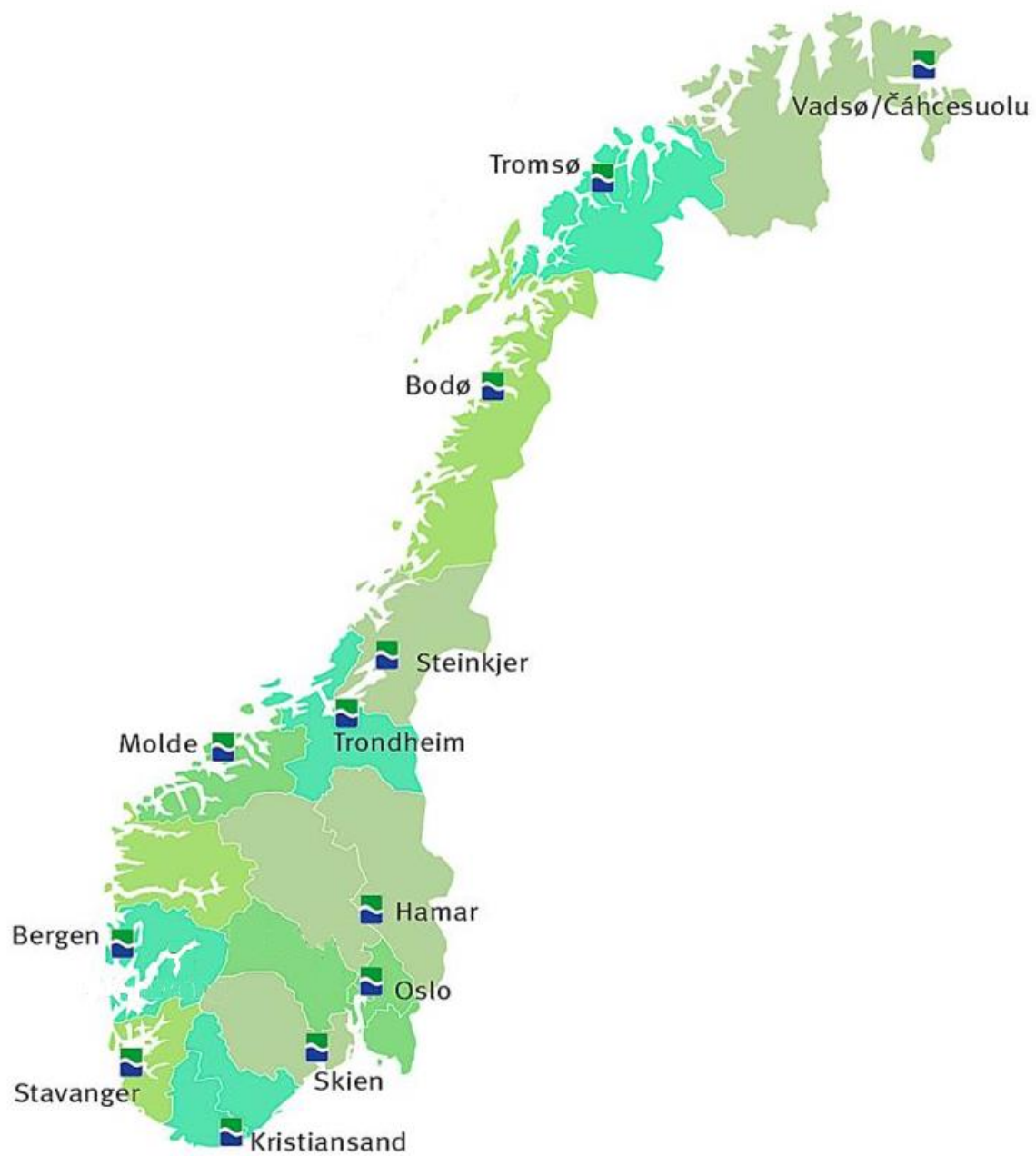
Kilde: Statens kartverk, Geovekst og kommuner

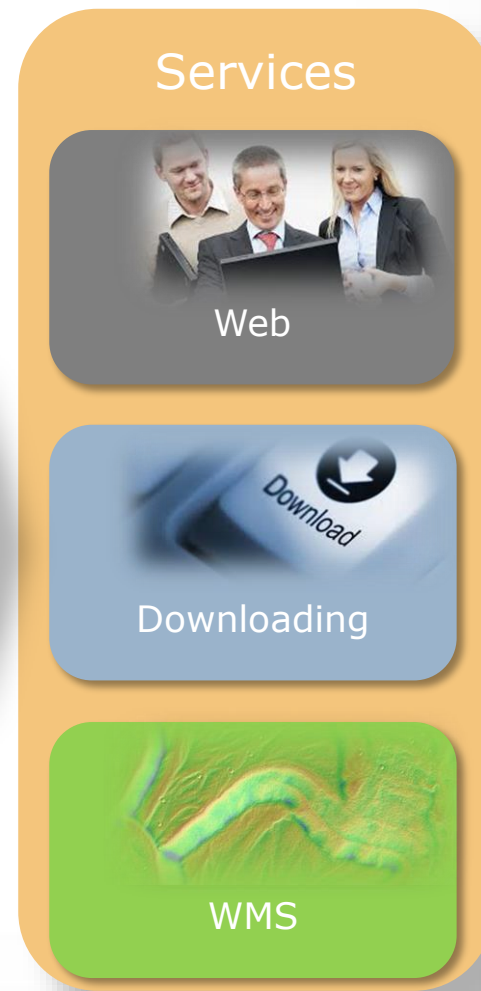
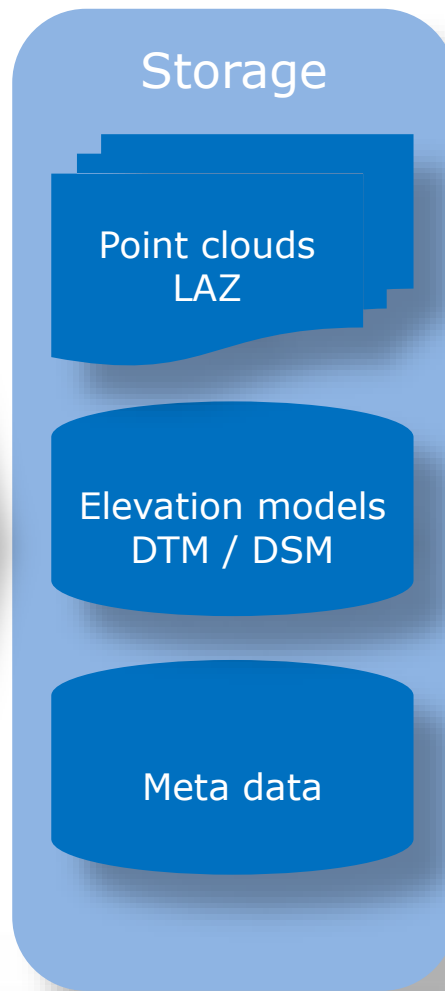
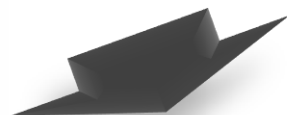
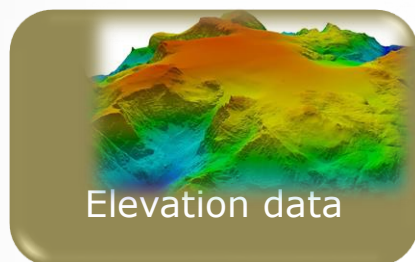




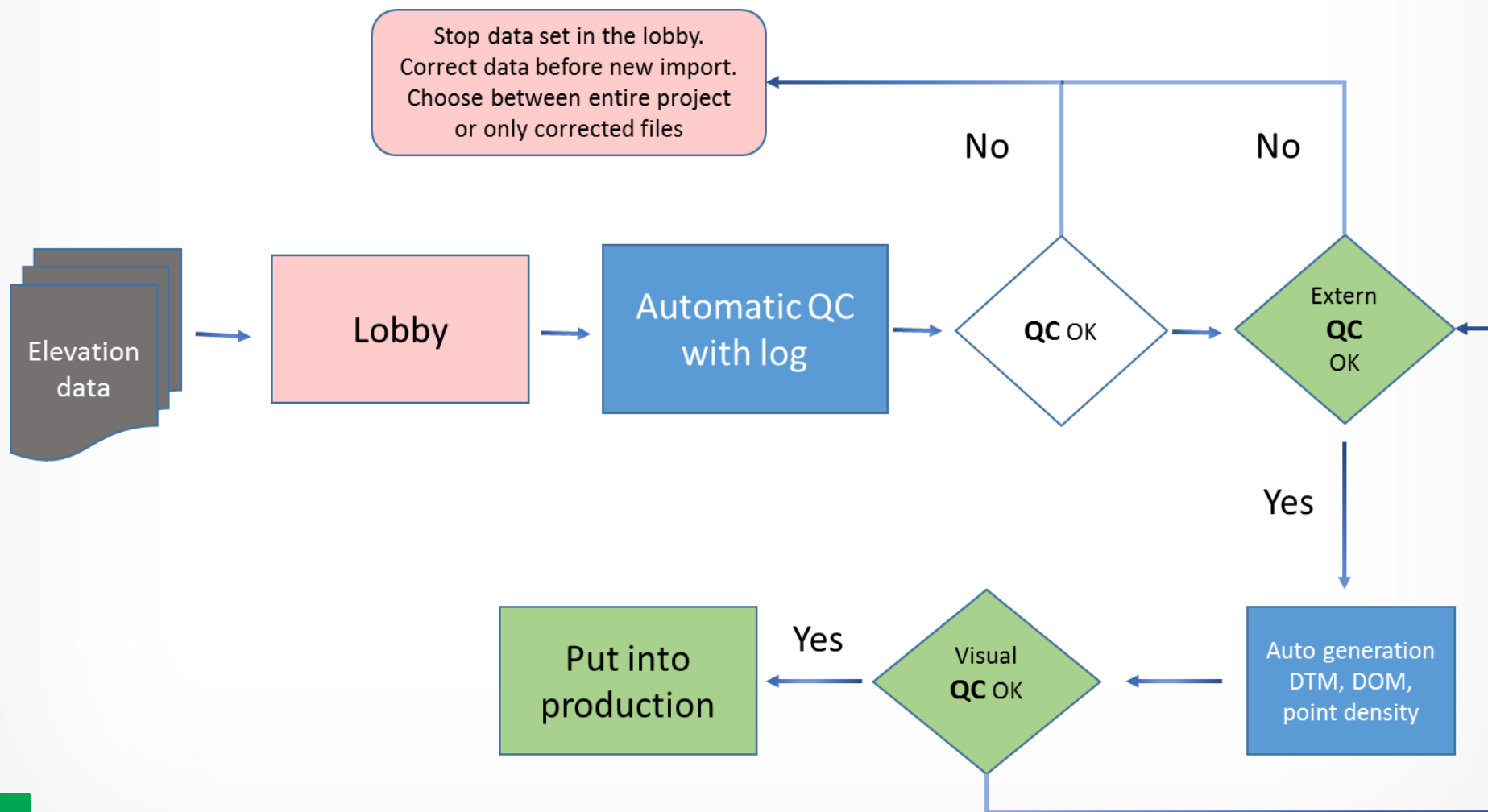
- About 1/3 of the country already covered by lidar data
- Data with different origin, accuracy and point density
- Lack of specifications and meta data for projects older than 2010







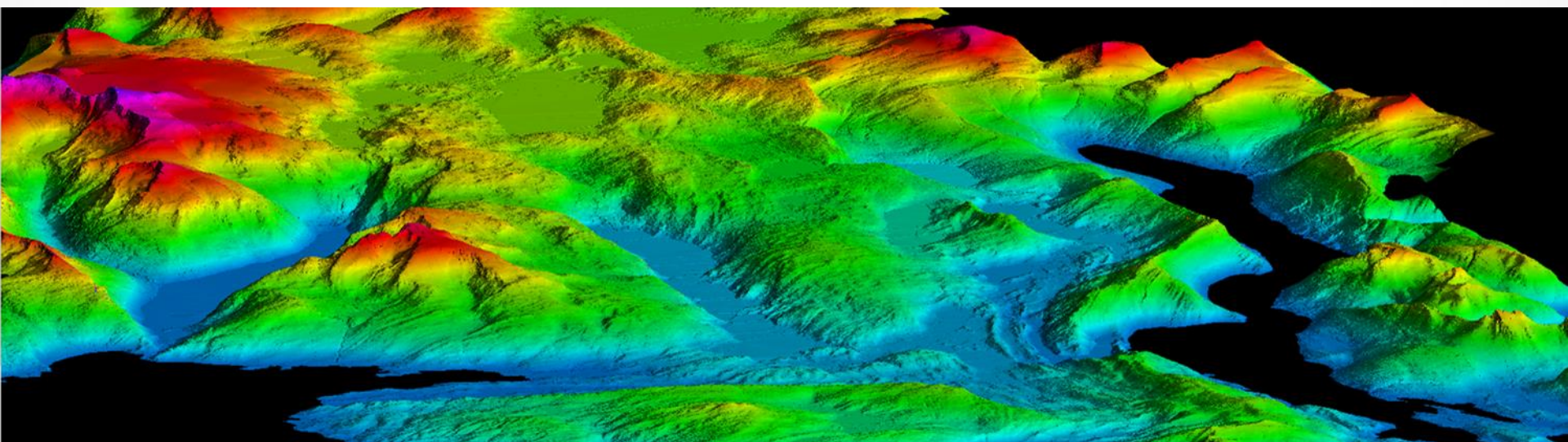
Workflow data entry



Data content (1)



- Point clouds:
 - LAZ and Zlas format
 - Lidar, Image matching, (MobileLidar and BathyLidar)
- GRID
 - Project DTM and DSM (0.25, 0.50, 1, 10, 50 m)
 - National DTM and DSM (1, 10, 50m)



Data content (2)

- Metadata
 - Project boundary (vector)
 - Flight strip (vector)
 - Point density map all points (raster)
 - Point density map ground points (raster)
 - Project report (pdf)
- Various
 - Surveying data (Control surfaces)
 - Trajectory-files
 - ...



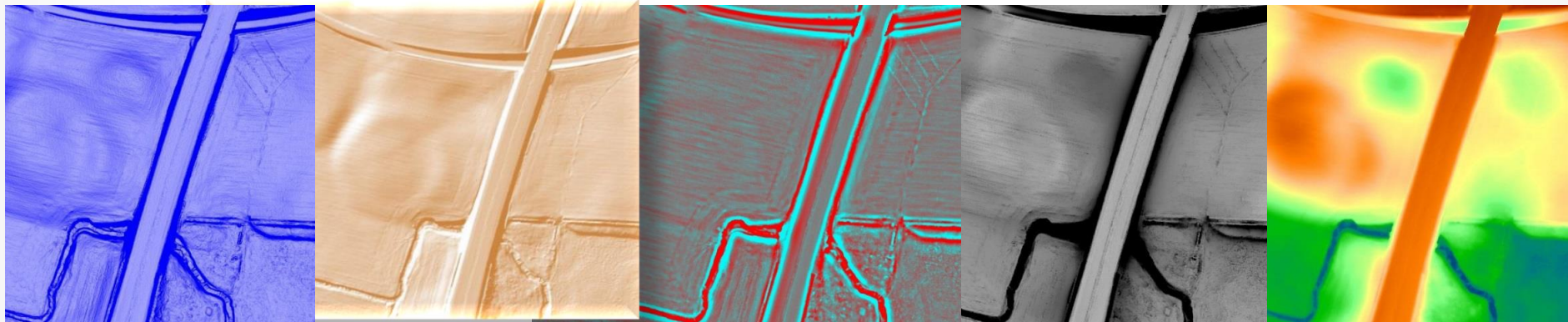
Functionality – Web client

- Advanced search
- Downloading areas:
 - Polygons, rectangular
 - Uploaded file
 - Lines or point with buffer
- Measurement of distance and area
- GeoRSS with newest projects available
- List of newest projects



Web services

- WMS-visning:
 - HillshadeTerrain and HillshadeSurface
 - HeightTerrain and HeightSurface
 - LocalReliefModel, SkyViewFactor, Slope, MultiHillshade
 - PointdensityAll, PointdensityGround
- Subscription for downloading



Rediger prosjekt

Navn på prosjekt

Hemsedal 2015

Årstall

2015

Beskrivelse

Test nordre del av Nord-Buskerud

Type

Laser ▾

Prioritet

2 ▾

Tilgang

Lukket ▾

Prosjektnr

1

Koordinatsystem

EUREF89 UTM Sone 32 ▾

Høydesystem

NN2000 ▾

Punkttetthet

2,0

Ansvarlig forvalter

Håkon Dåsnes ▾

Leverandør

Terratec ▾

Opplastingsansvar

Forvalter ▾

Lagre

Avbryt



Lobby

1) Velg prosjekt

Hemsedal



Opplasting

Prosjektfiler 0

2) Velg katalog for opplasting

☒ /☐ /metadata☐ /diverse

3) Velg filer fra lokal maskin (maks 2000 om gangen)

☒ Overskriv eksisterende filer

Klikk eller dra og slipp filer her for å
starte opplasting til valgt katalog

Aktive opplastinger

✓ Alle filer er lastet opp

[◀ Til prosjektets hjemmeside](#)

Hemsedal 2015 (67)

 Dataopplasting

14 filer er lastet opp til lobby

12 laz-filer 0 PDF metadata

2 SOSI metadata

Sist oppdatert: 11.11.2015 11:58:57

 Mottakskontroll

5 av 5 kontroller er kjørt (0 feil)

Sist oppdatert: 11.11.2015 12:00:06

Detaljert status  Ekstern kontroll

Bekreftet OK

Sist oppdatert: 11.11.2015 12:00:52

 Kontroll av at det ikke er tomme filer Kontroll av at det ikke er korrupte filer Kontroll av at filnavning stemmer Kontroll av at antall filer stemmer Kontroll av metadata

Hemsedal 2015 (67)

Rediger prosjekt

Dataopplasting

14 filer er lastet opp til lobby
12 laz-filer 0 PDF metadata
2 SOSI metadata
Sist oppdatert: 11.11.2015 11:58:57

Mottakskontroll

5 av 5 kontroller er kjørt (0 feil)
Sist oppdatert: 11.11.2015 12:00:06

Detaljert status

Ekstern kontroll

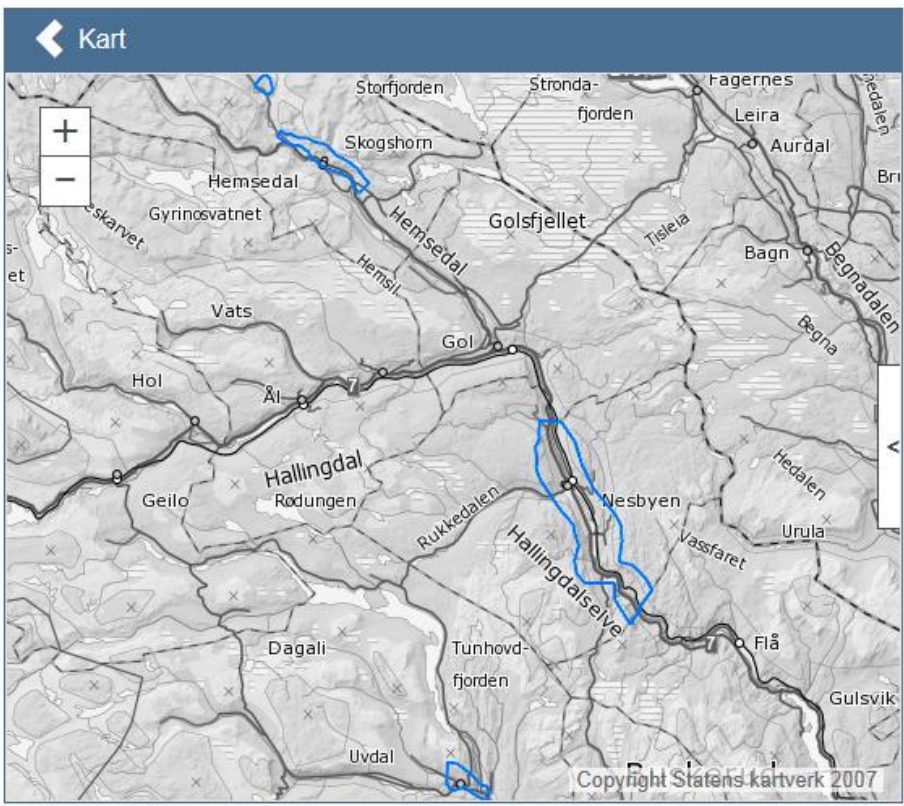
Bekreftet OK
Sist oppdatert: 11.11.2015 12:00:52

Visuell kontroll

Gjør visuell kontroll i kartet

Godkjenn

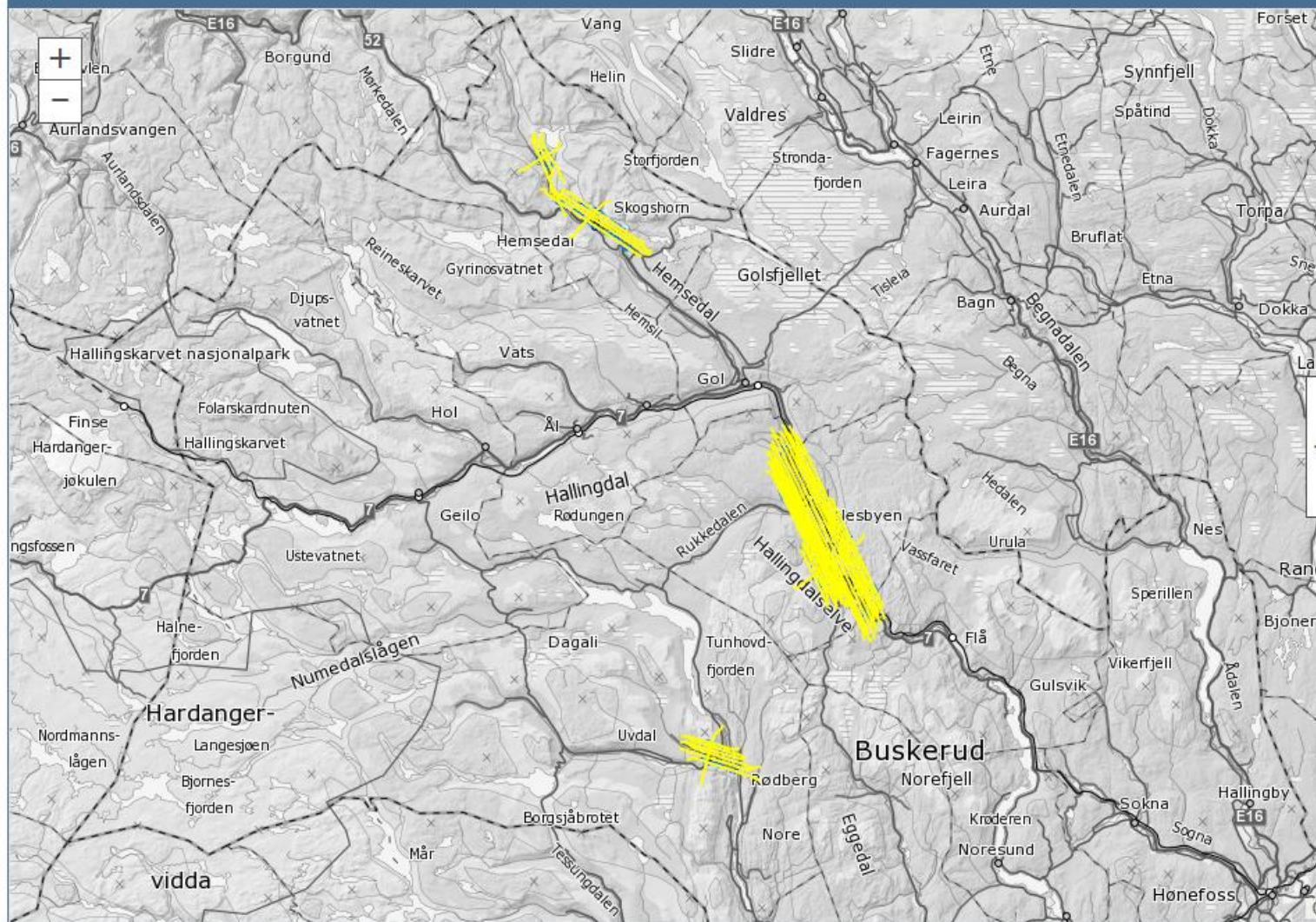
Tilbake til lobby



Informasjon

Opprettet: 11.11.2015
Ansvarlig: Håkon Dåsnes
Leverandør: Terratec

Test nordre del av Nord-Buskerud



Bakgrunnskart

☒ Topo2 Grå

☐ Topo2

☐ Norge i bilder

Prosjektdata

☒ Prosjektavgrensing

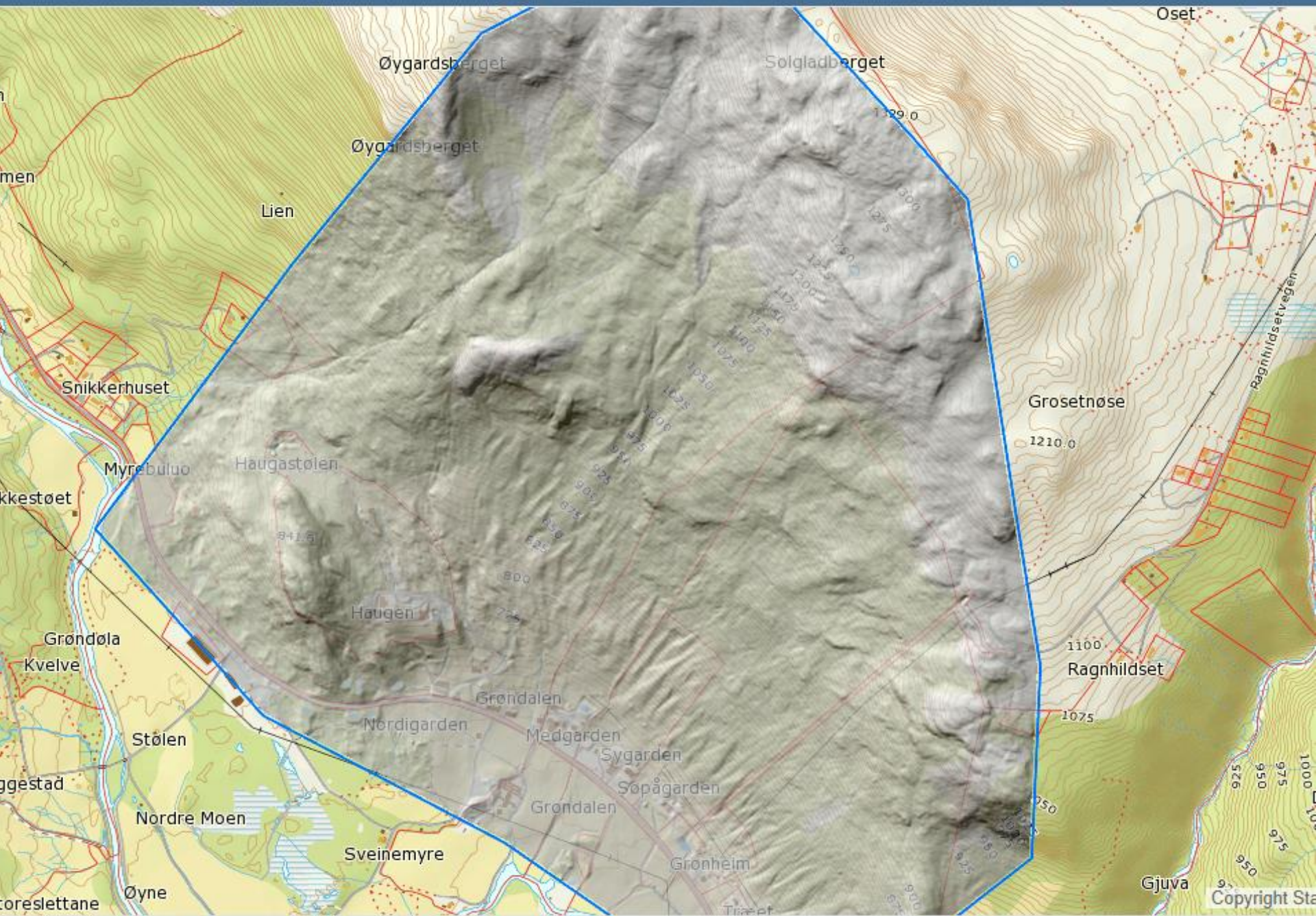
☒ Flystriper

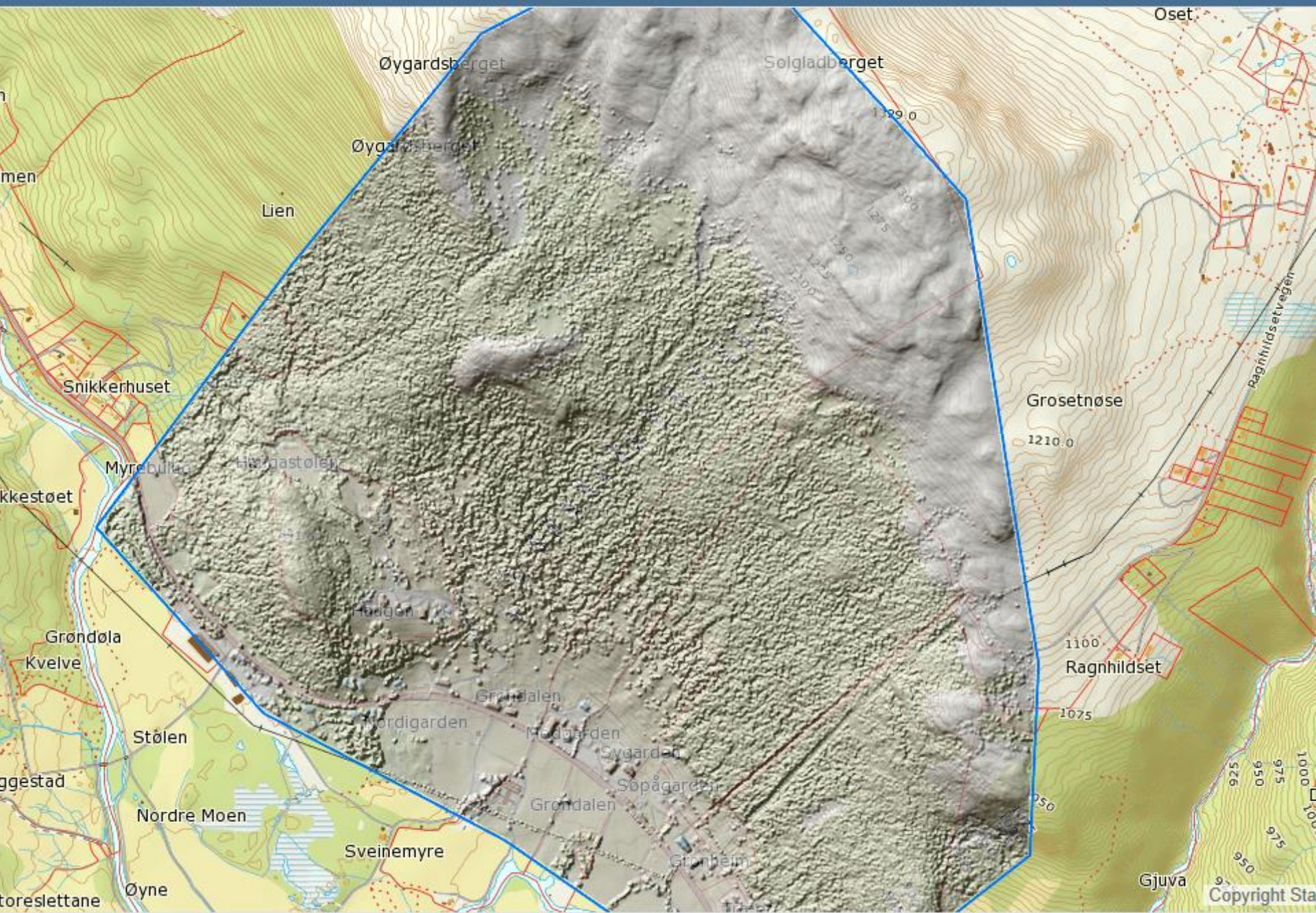
☐ Punkttetthet alle

☐ Punkttetthet bakke

☐ Overflatemodell (DOM)

☐ Terengmodell (DTM)

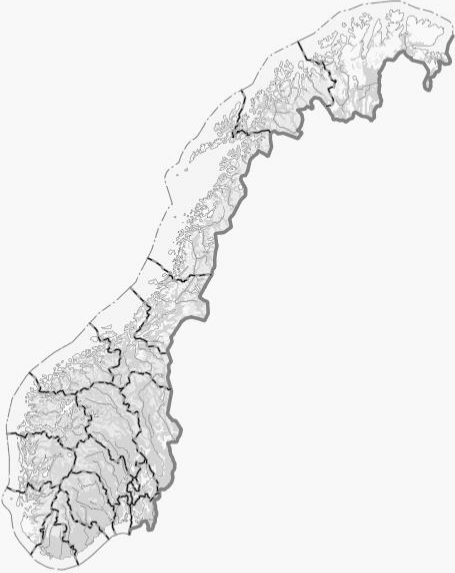


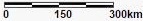




Web solution

Laser innsyn  Find address or coordinate





Map layer Image search Last projects

undefined

Topo2 gråtone

undefined

- ☐ DTM skyggerelieff
- ☐ DOM skyggerelieff
- ☐ DOM
- ☐ DTM
- ☐ DTM helning grader
- ☐ DTM helning prosent
- ☐ DTM multihillshade
- ☐ Lokal relieff
- ☐ Lokal relieff farge

Info

Thematic layer

- ☐ Outline imagery projects

Basemap layer

- ☐ Samferdsel
- ☐ Høydekurver
- ☐ Administrative grenser

Images within map extent
Shows with scale > 1:150000

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