



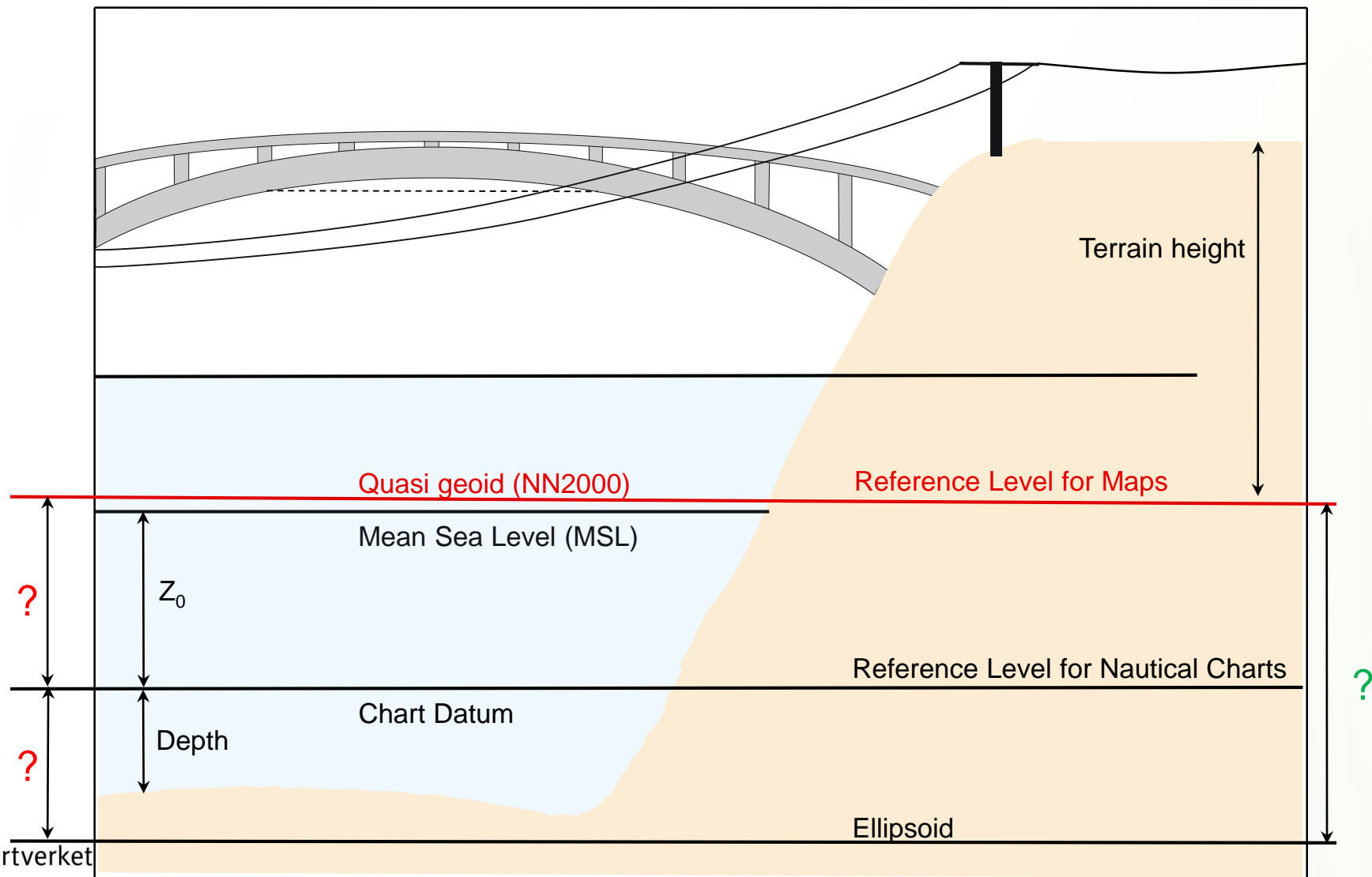
Kartverket

# A common reference frame

*Hilde Sande Borck  
Norwegian Mapping Authority, Hydrographic Service  
TWCWG, April 2018*



# The objective

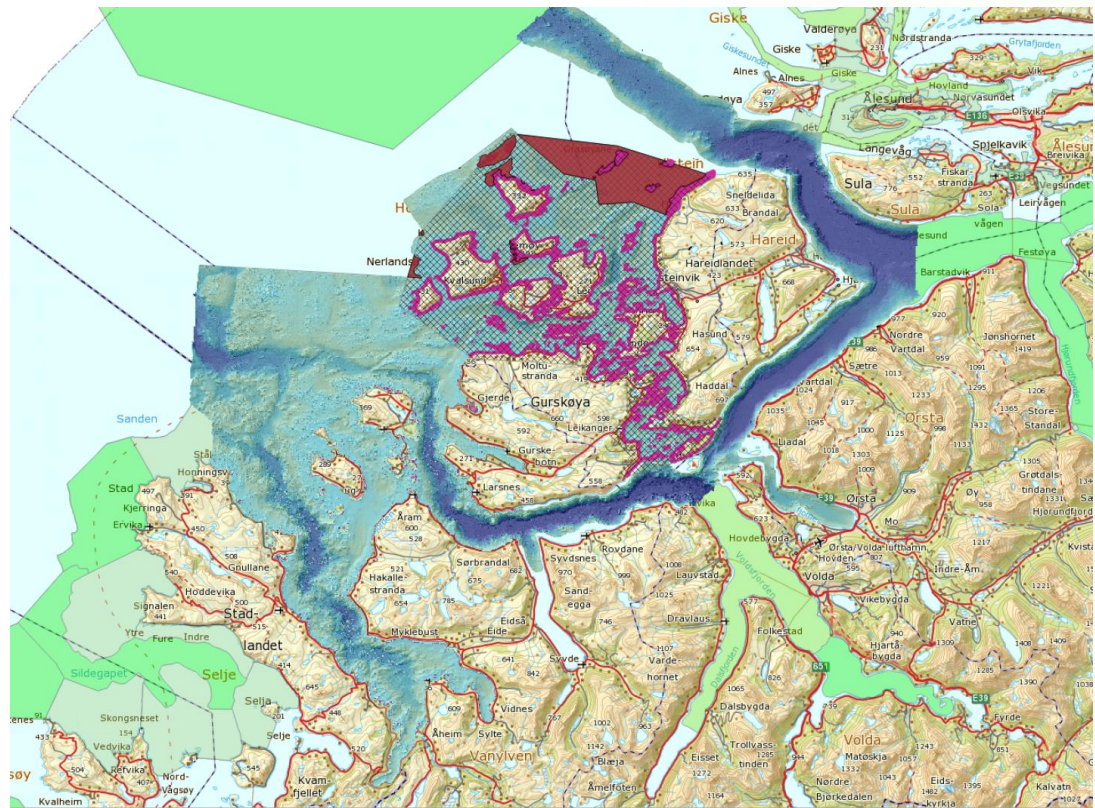


# The objective

- The aim of the project «A common reference frame» is to determine the relationship between the Quasi Geoid Model, the MSS, the LAT surface and the reference ellipsoid (EUREF89).
- Develop a method that can be used along the entire Norwegian coast



# Phase 1 (-> 2017)



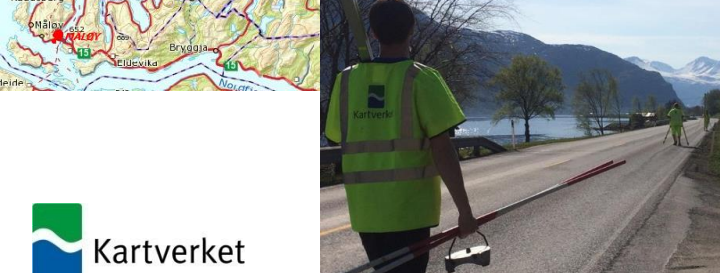
# Challenging topography

- Rough topography
- High mountains
- Deep fjords
- Complex coastline

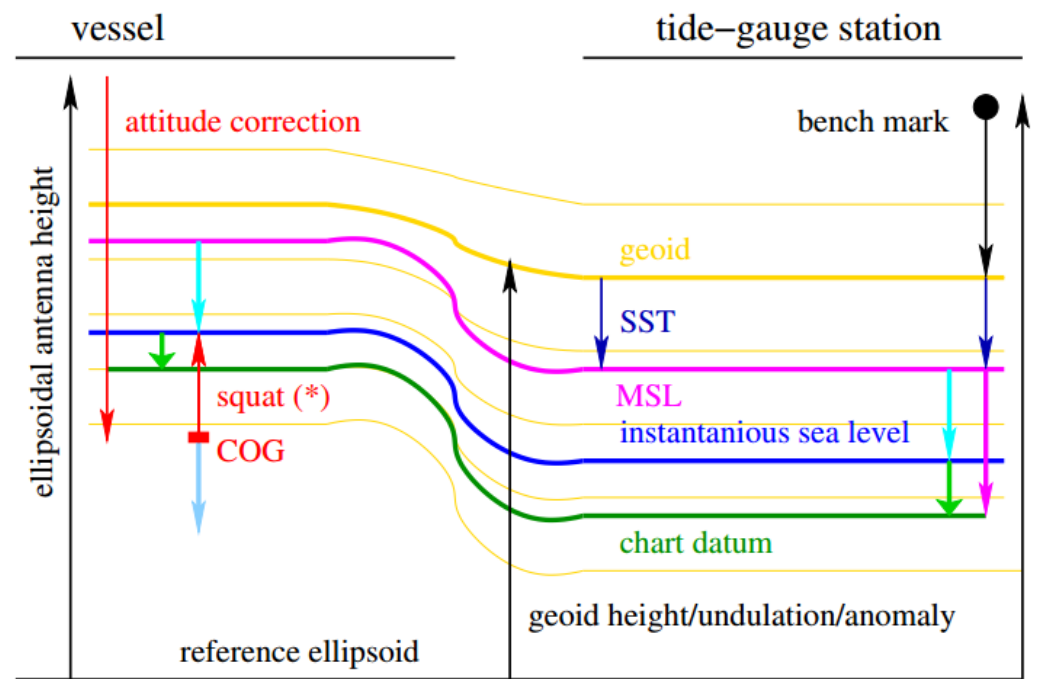




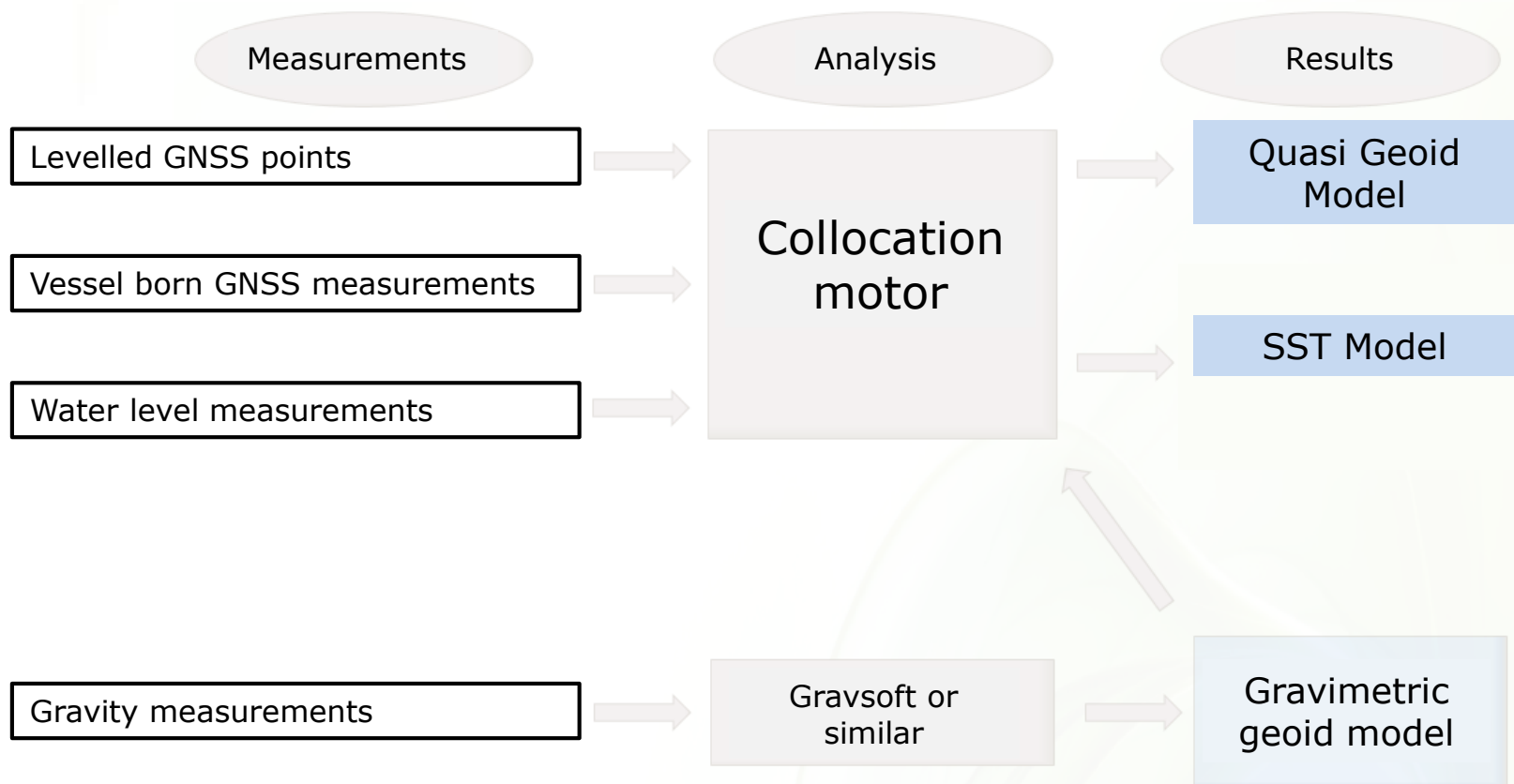
# Fieldwork



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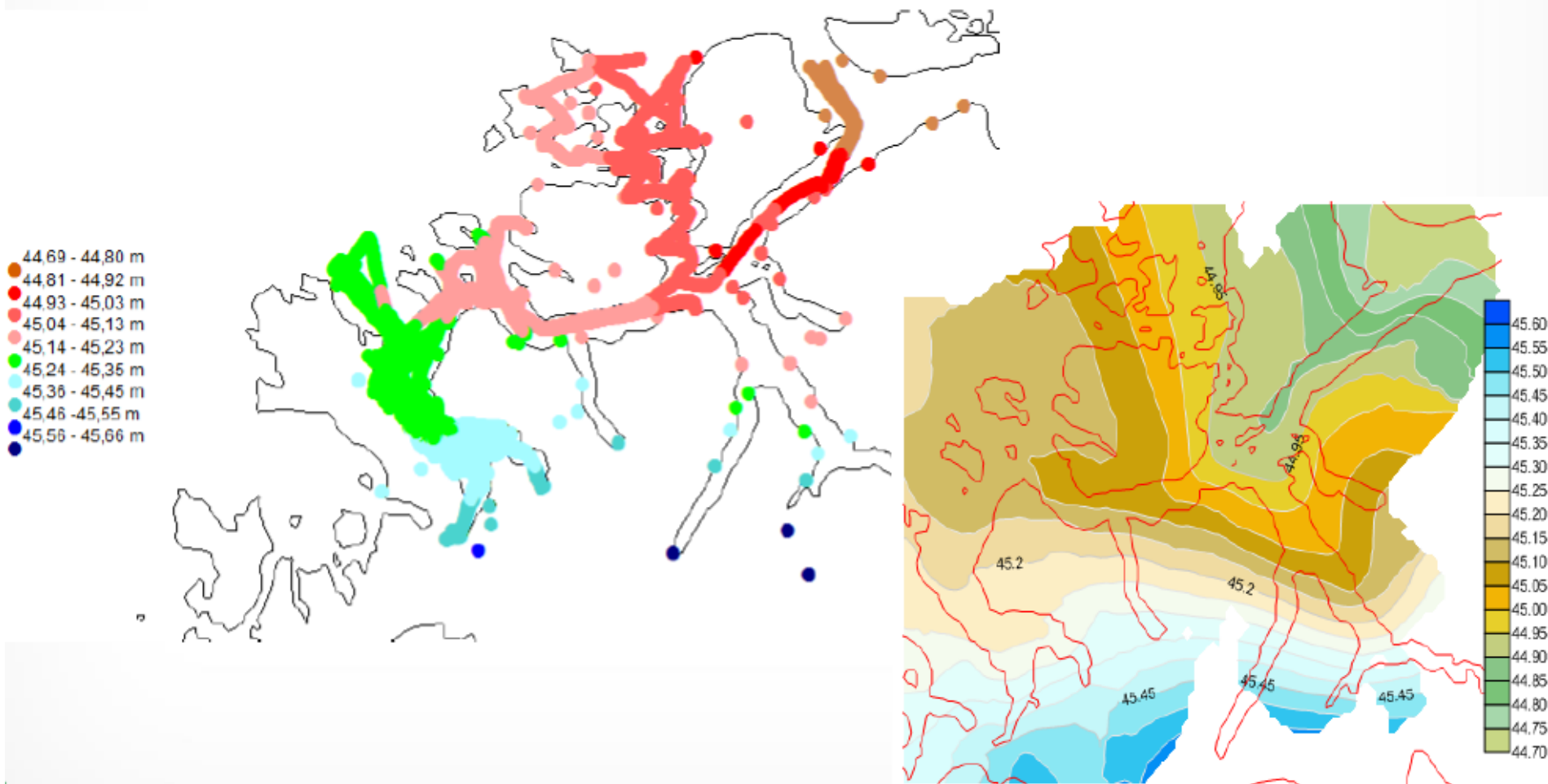


# Principles of calculation

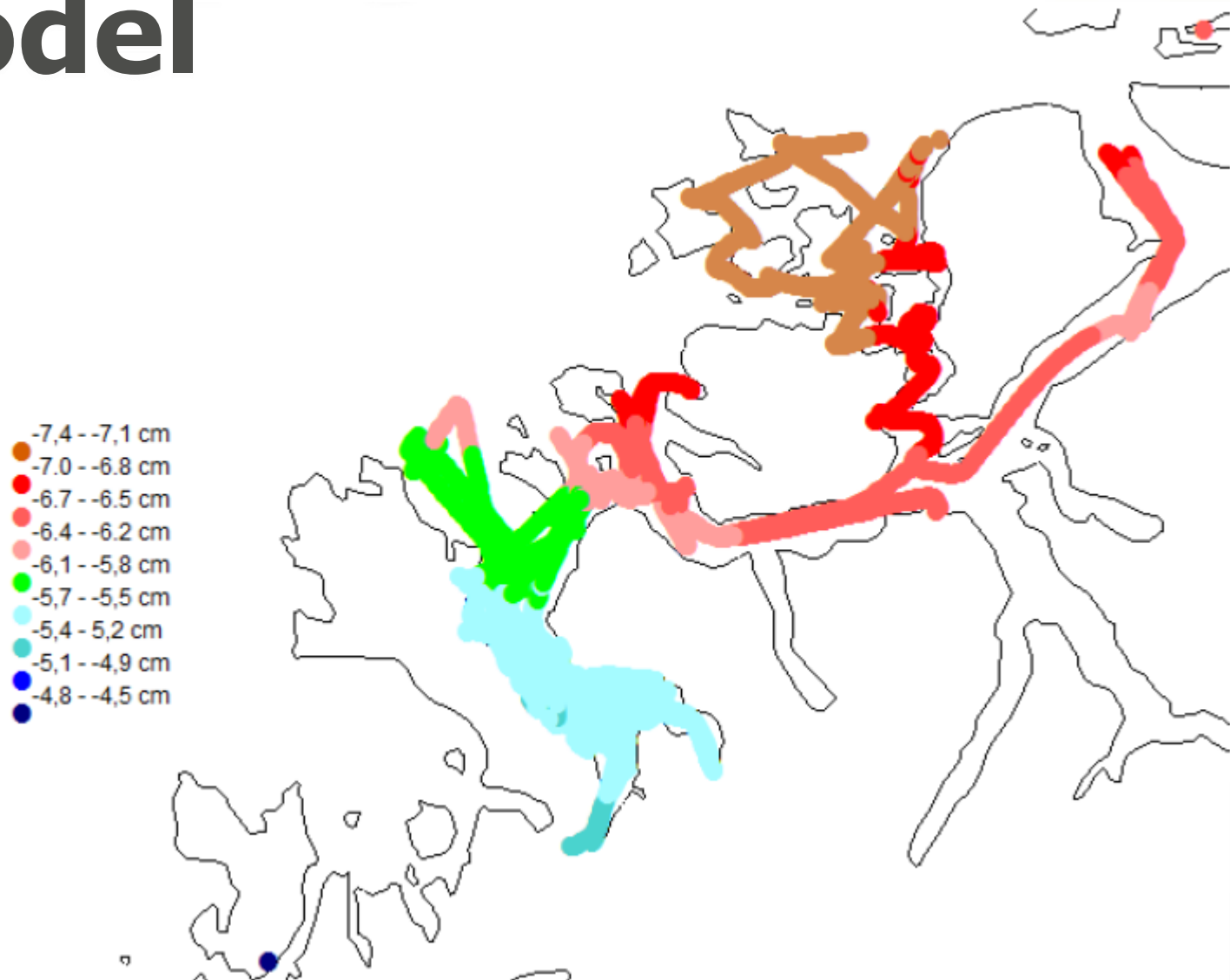




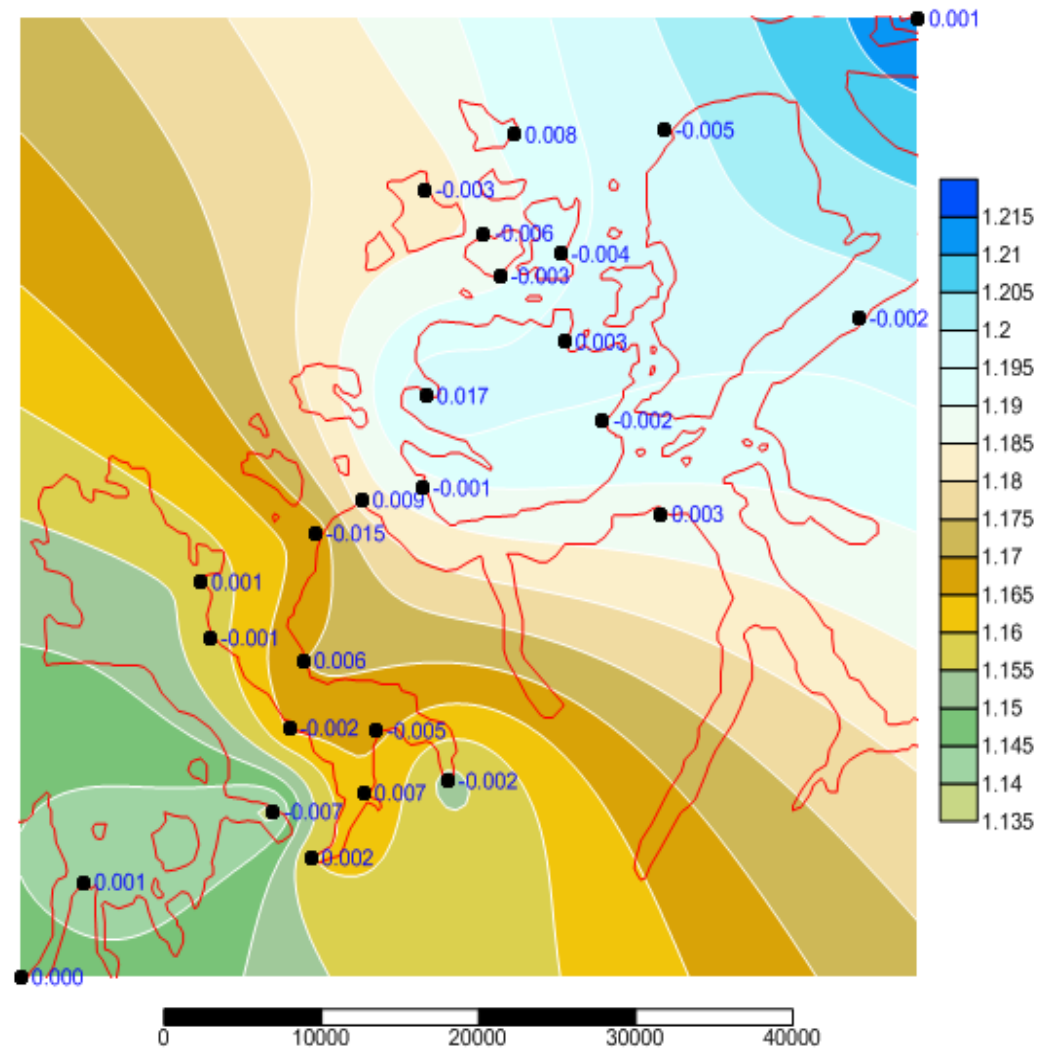
# Quasi geoid model



# Sea surface topography model



# Results - Z0 model





# Preliminary results

- The 4 months mean of the measured sea level at the water level gauges showed really good consistency within the same fjord system.
- There are, as expected, larger errors connected to the vessel born, corrected GNSS measurements of the mean sea level, as these are snapshots in time.
- There are some challenges related to the time dependency of the MSL.
- MSL determined within 1-2 cm

# Phase 2 - ongoing

- Apply (and check) the method in an area where the dynamic topography is expected to be more significant:  
in the 210 kilometers long and narrow Sognefjord.
- Hydrodynamic modelling to investigate the SST.
- Use satellite altimetry with new retracking methods to close the gap between the MSS carried out during this project and the open ocean MSS based on traditional satellite altimetry carried out by DTU.

# Thank you for your attention!

