

# Activities in the high north

User needs for GNSS at high latitudes



Kjersti Moldeklev  
Norwegian Space Centre  
[Kjersti.Moldeklev@spacecentre.no](mailto:Kjersti.Moldeklev@spacecentre.no)

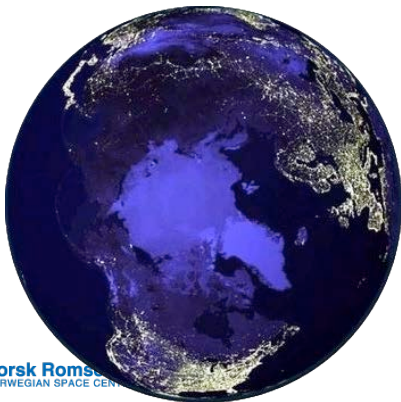
Increasing activities in the Arctic

➔ **Space infrastructures are indispensable in the Arctic**

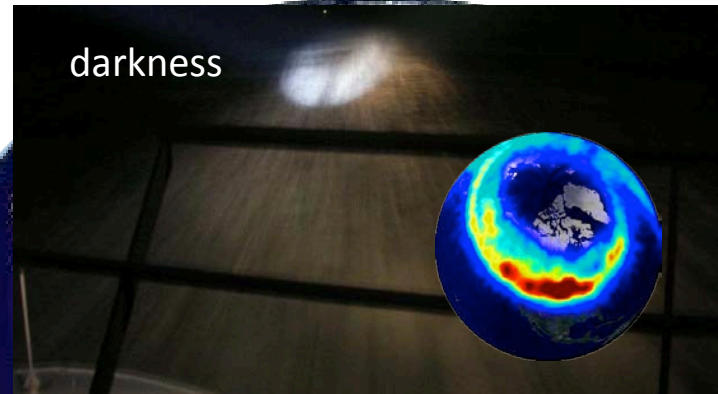
**Vast Arctic ocean**



**Lacking  
infrastructure**



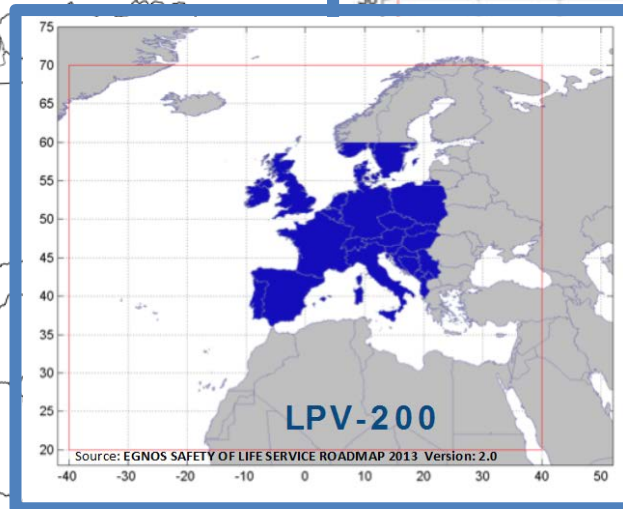
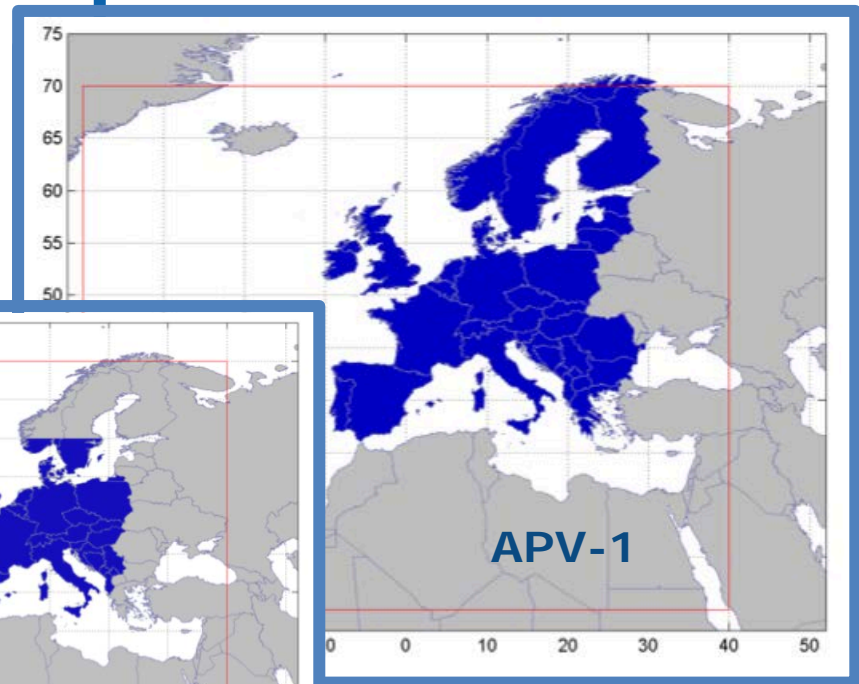
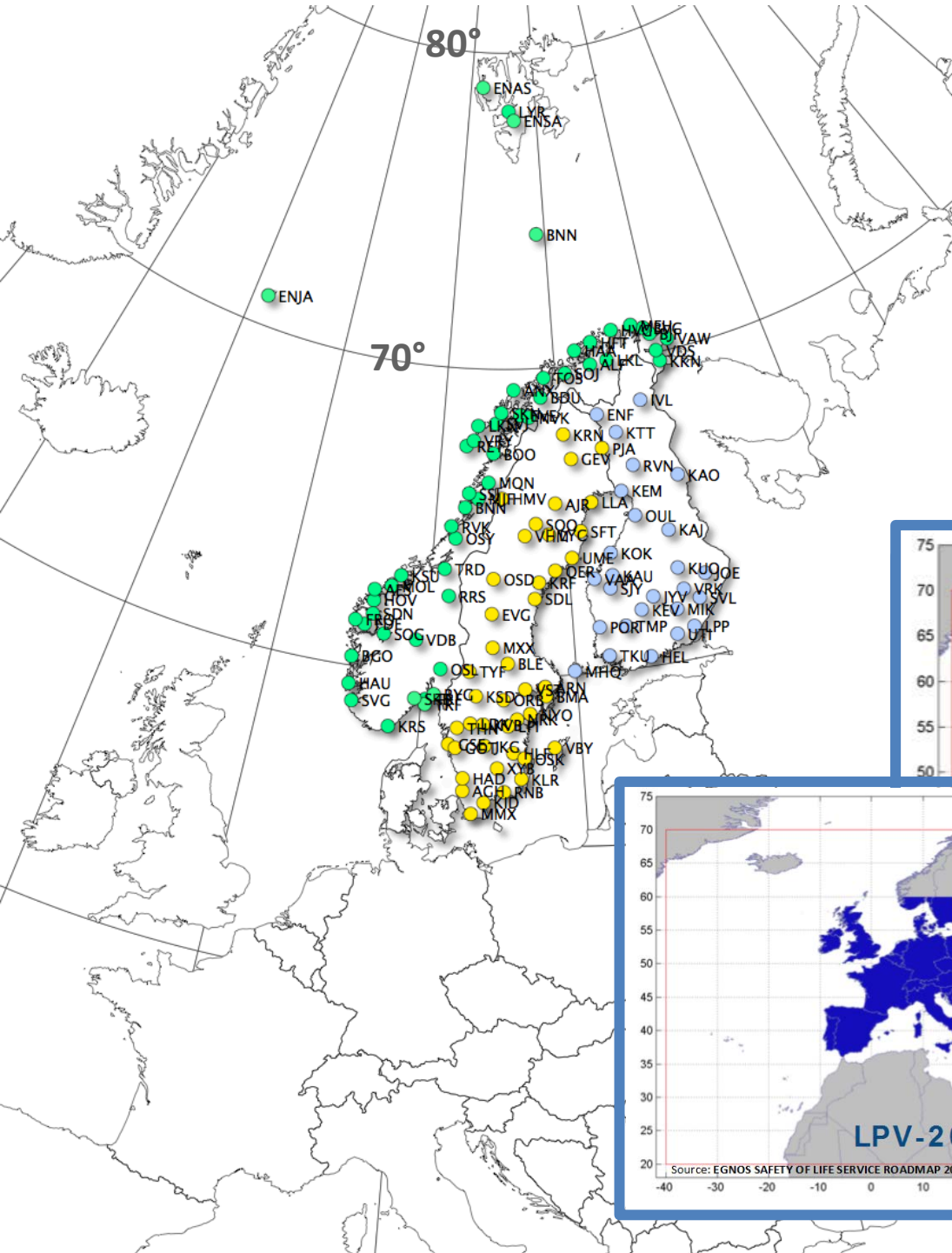
**Challenging weather**



# Research on weather, climate and wildlife



# Aviation north of current EGNOS coverage



22% of world's  
undiscovered  
oil & gas resources

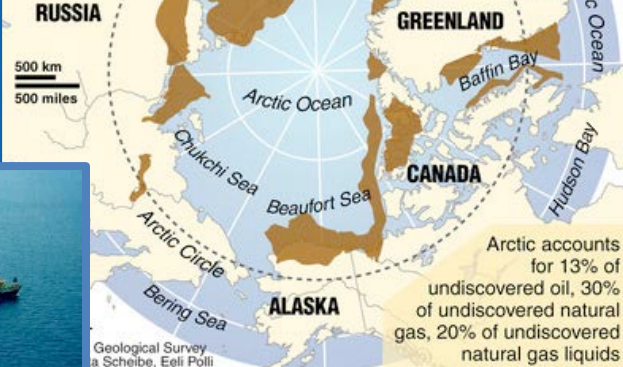
## Oil and gas in the Arctic

Area north of the Arctic Circle has an estimated 90 billion barrels of undiscovered oil.

Probability  
of finding oil, gas

50-100%

500 km  
500 miles



75°  
74°  
73°  
72°



# Maritime activities relying on GNSS for navigation, reporting and surveillance

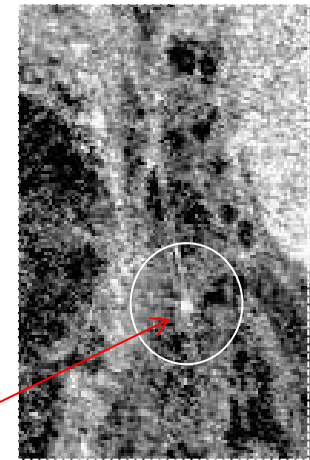
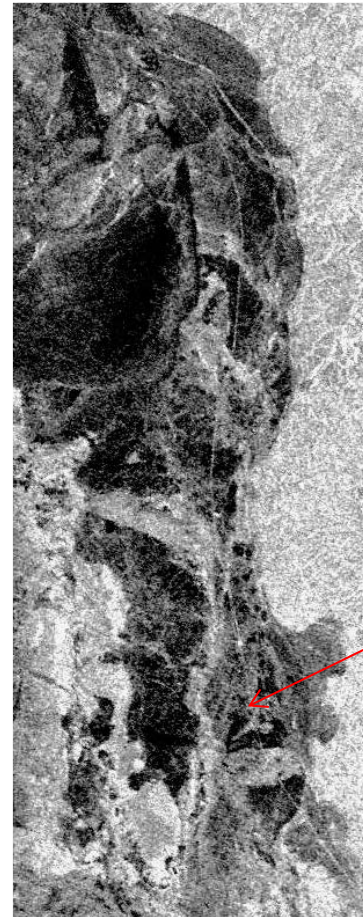


# Position is key for combination of data sources to provide location based services

Transport in the ice –  
clear sky

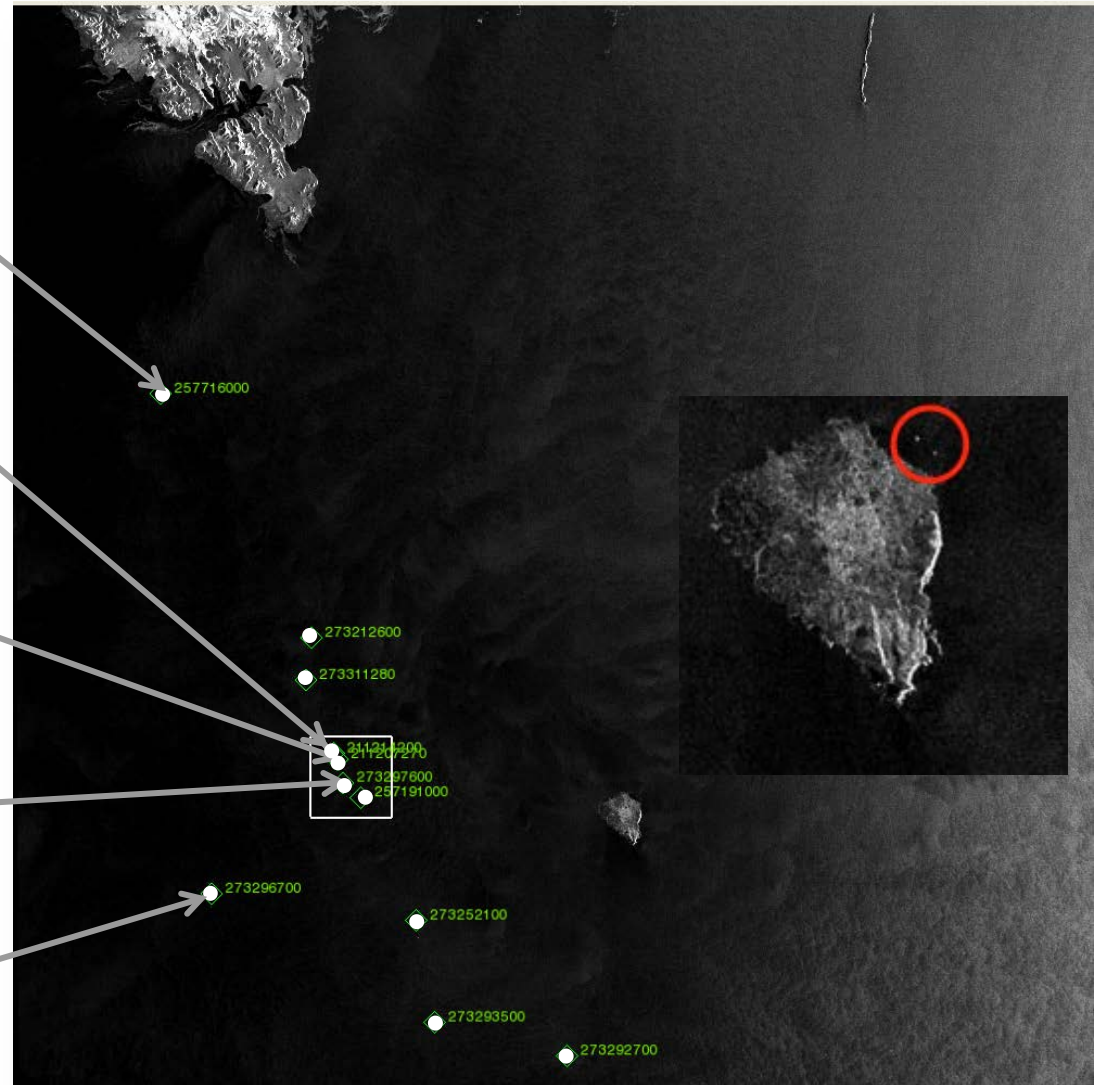


Radar data  
from Envisat

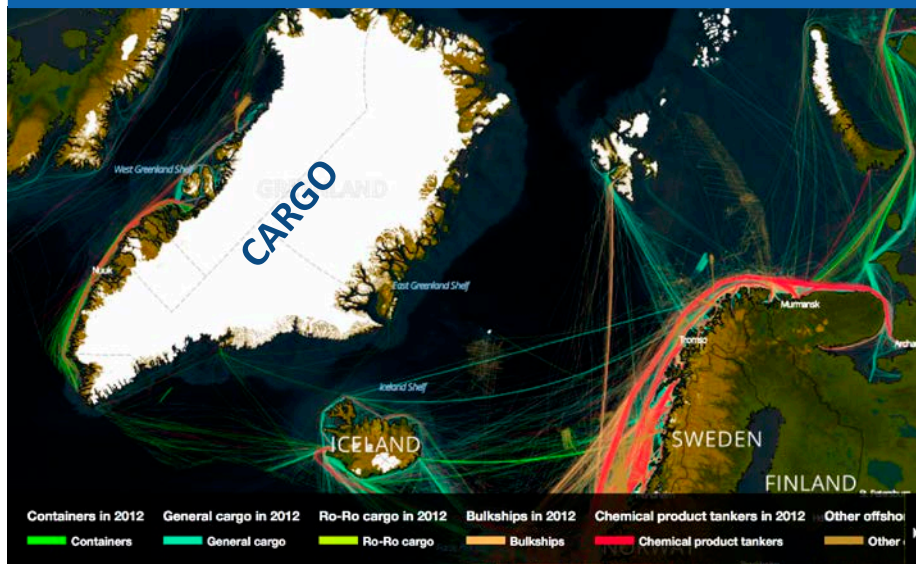
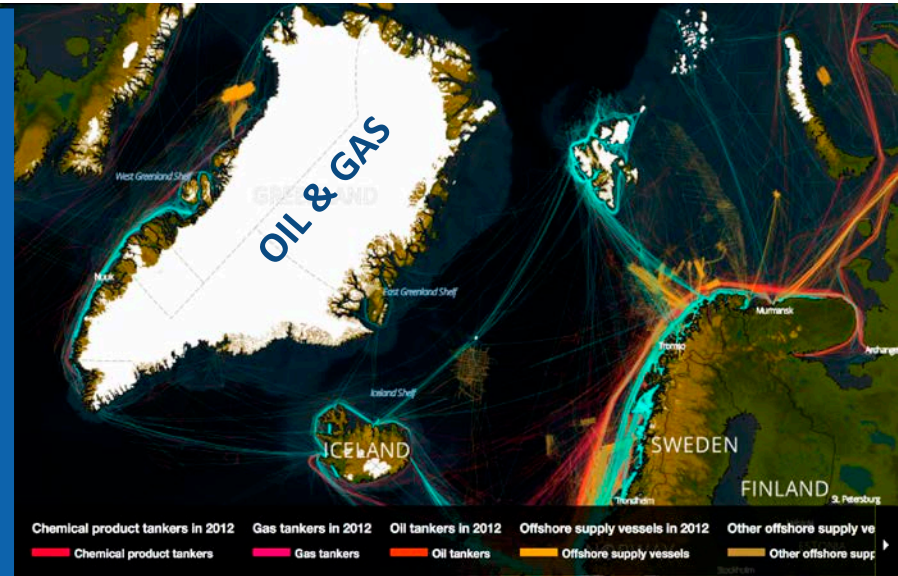
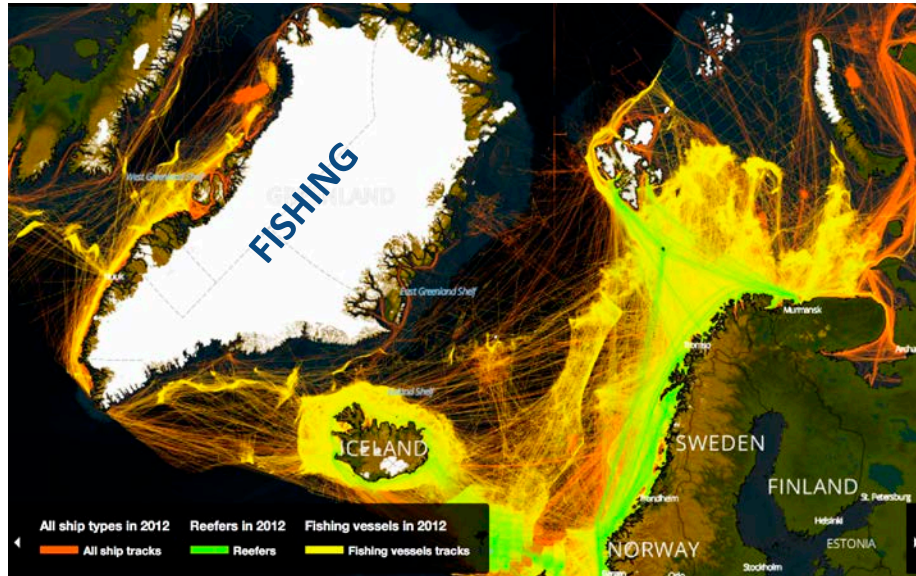


**Ice navigation based on satellite imaging, satellite navigation,  
and satellite communication**

# AIS (and radar satellite) for ship surveillance



# Maritime activities – fishing is the largest volume



# GNSS is indispensable for safety



LRIT  
Long Range Identification and Tracking



# Galileo Svalbard MEOLUT

