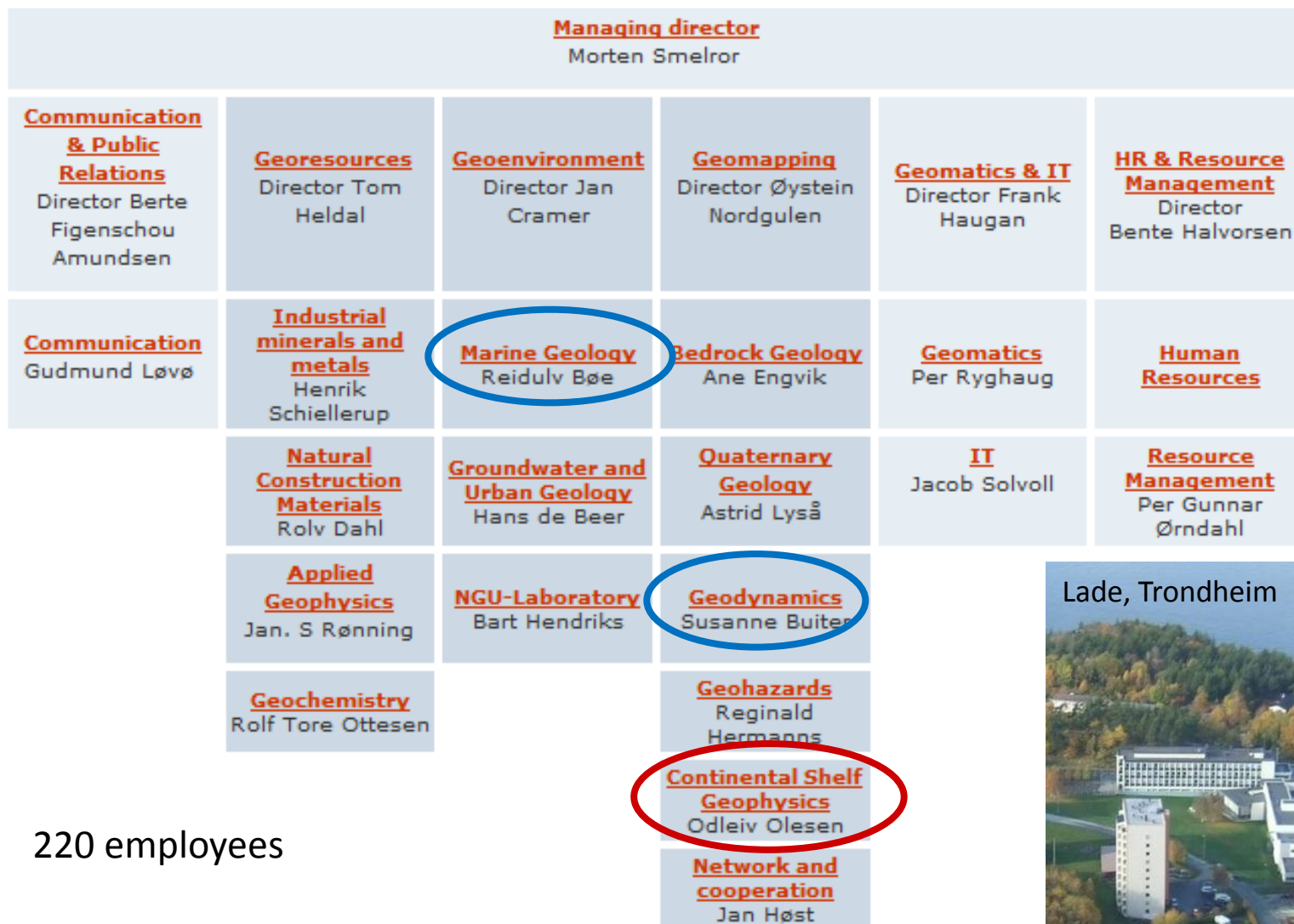


Geological Survey of Norway Organisation



Lade, Trondheim



220 employees

Areas of mapping responsibility

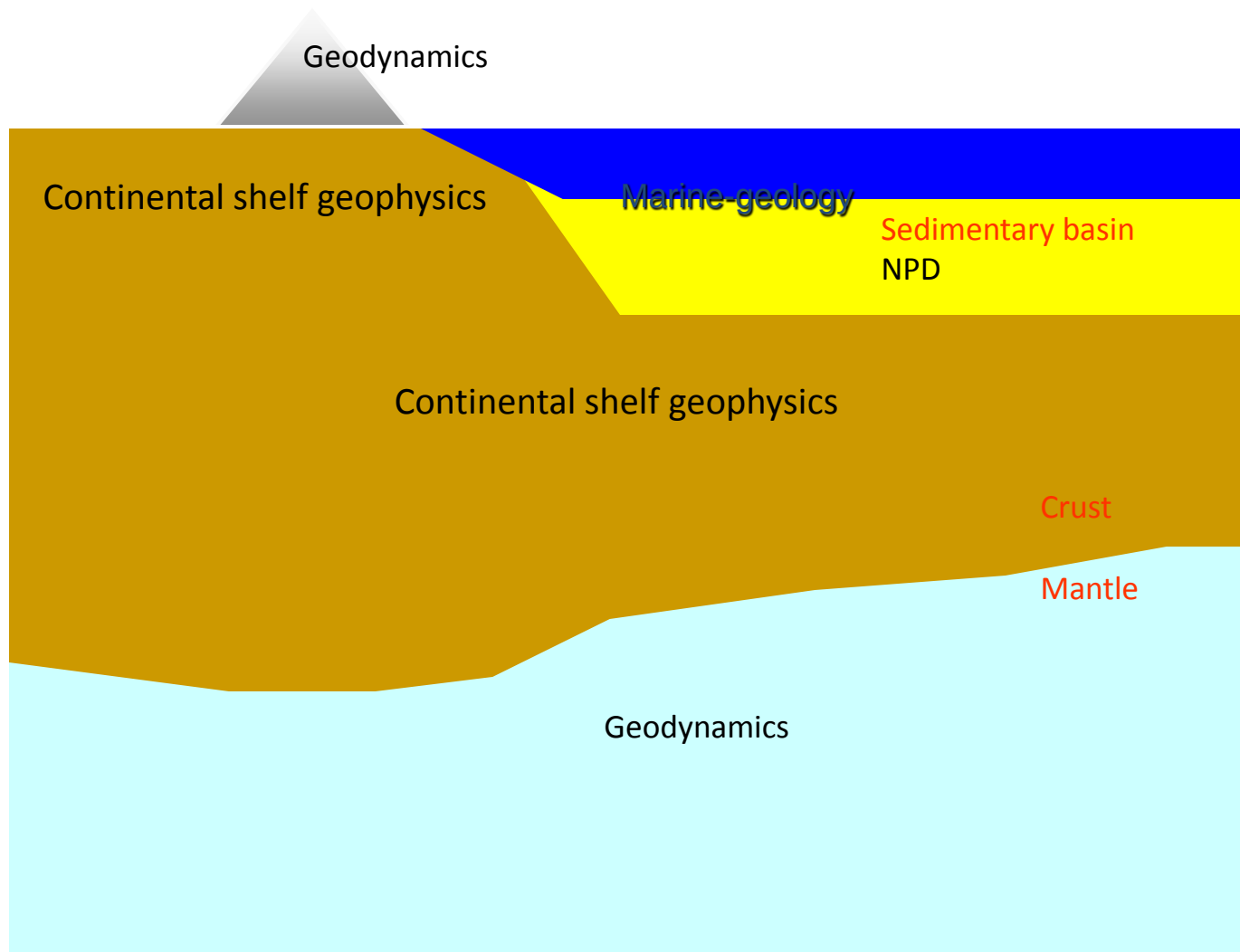
NGU - NPD

New projects:

NEONOR2, Neotectonics in Nordland – implications for petroleum exploration

BASE, Basement fracturing and weathering

RESOURCE, Research onshore to understand response to offshore extension



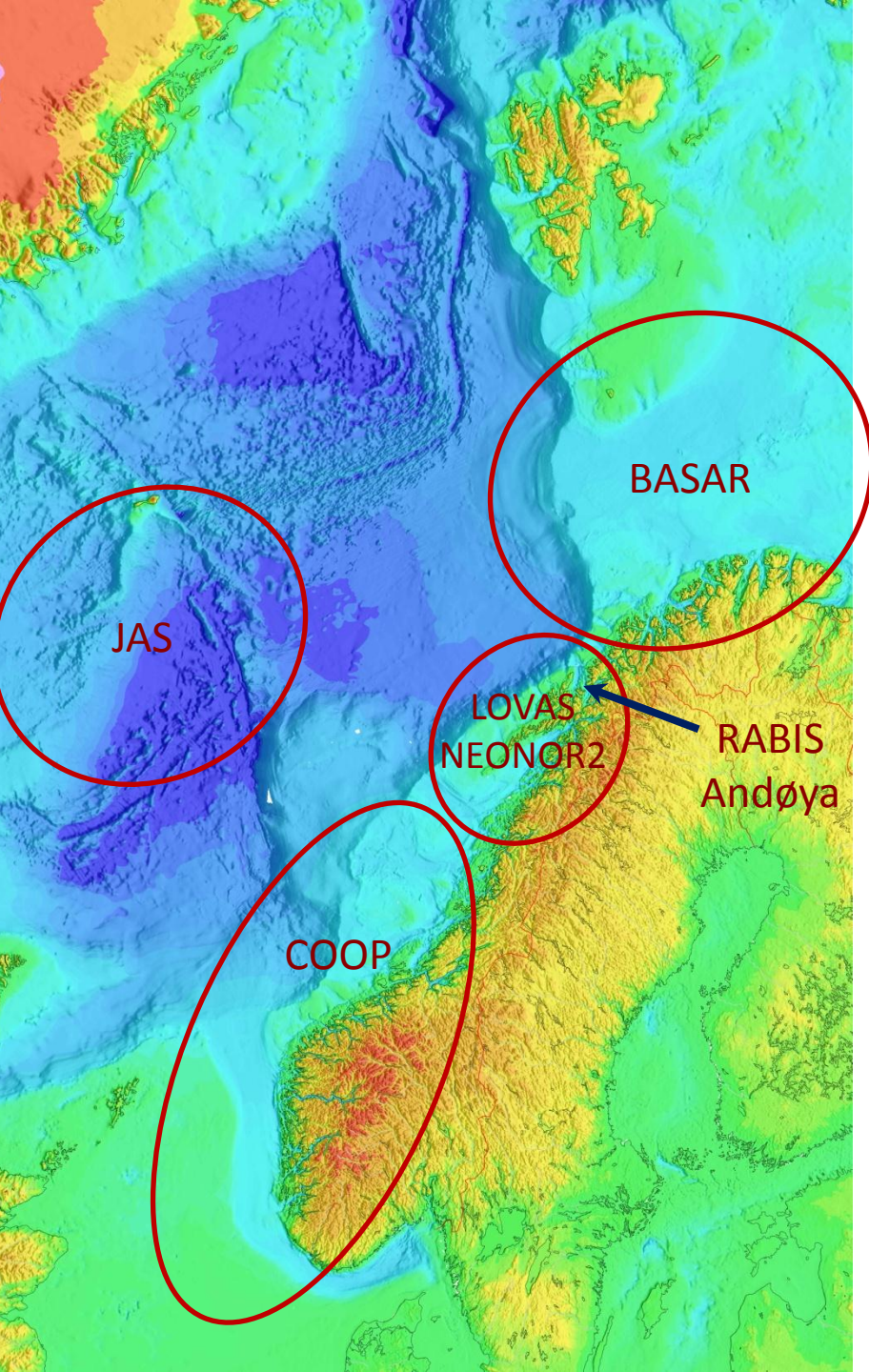
OLJEDIREKTORATET



Geological Survey of Norway

Continental shelf geophysics





NEW INTEGRATED CRUSTAL STUDIES on the Norwegian Continental Shelf

BASAR	Barents Sea Aeromagnetic Remapping
LOVAS	Lofoten-Vestfjorden Aeromagnetic Survey
RABIS	Ramså Basin Integrated Study
NEONOR2	Neotectonics in Nordland
JAS	Jan Mayen Aeromagnetic Survey
COOP	Crustal Onshore-Offshore Project

NAG-TEC Northeast Atlantic Geoscience
Tectonostratigraphic Atlas

www.ngu.no/flymag

Coop

Crustal Onshore-Offshore Project

Main objectives

- Basement characterization

Petrophysics

Heat production

Lithology

Deep weathering

Age dating

- Depth to basement
- Fault zones (onshore-offshore)
- Dyke swarms
- 2D & 3D crustal modelling
- 3D thermal modelling
- Geodynamic and tectonic interpretations
- Subcrop pattern
- Quaternary sand channels

bayerngas



ConocoPhillips



Eni Norge

e-on

GDF SUEZ

Lundin



MAERSK OIL

NORECO



OLJEDIREKTORATET

RWE The energy to lead



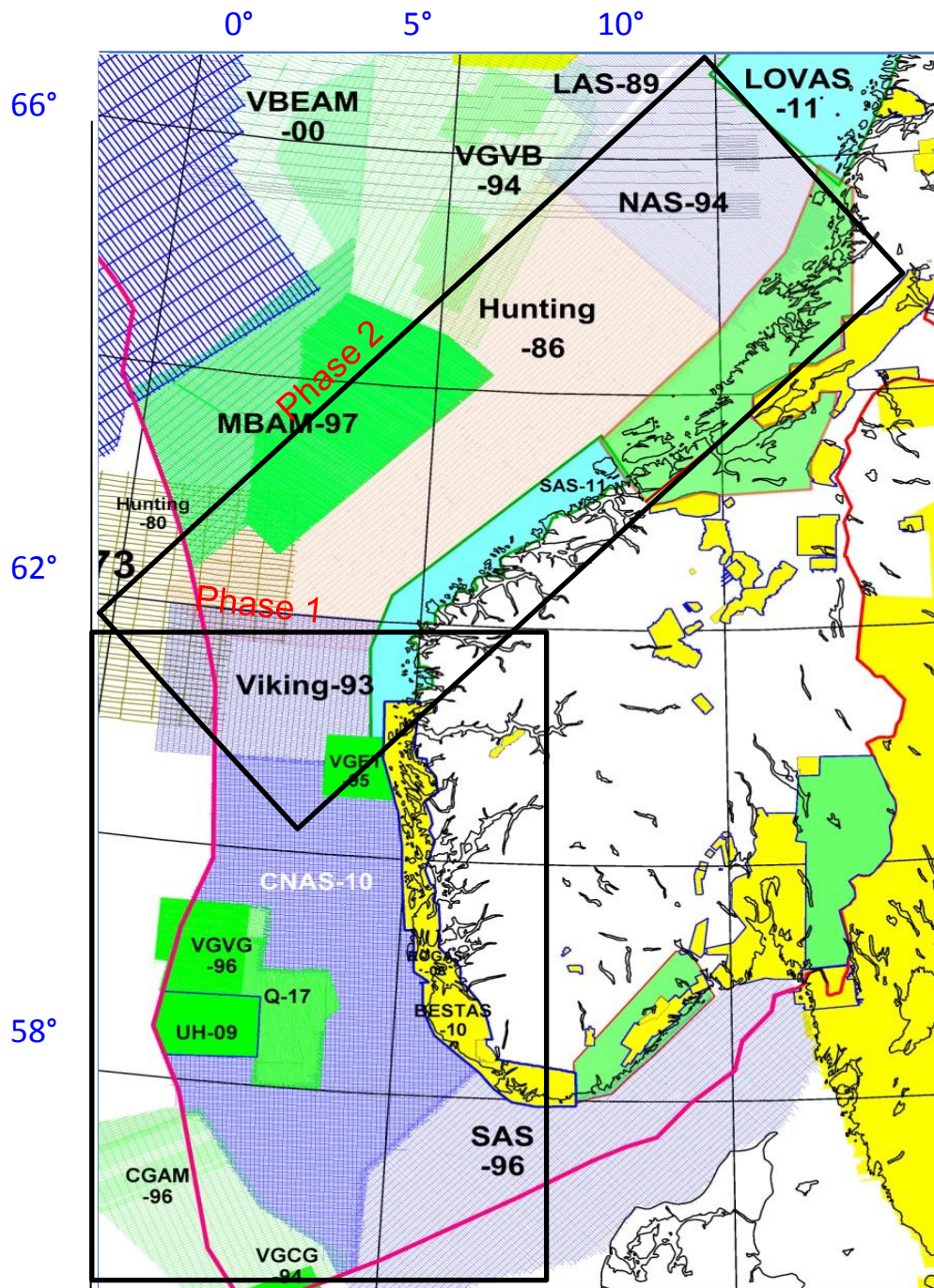
TOTAL

Verbundnetz Gas AG

wintershall

NGU
Geology for Society since 1858

coop
litt ditt



Aeromagnetic data Coop Project

bayerngas



ConocoPhillips



Eni Norge

e-on

GDF SUEZ

Lundin

MAERSK OIL

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RWE The energy to lead



TOTAL

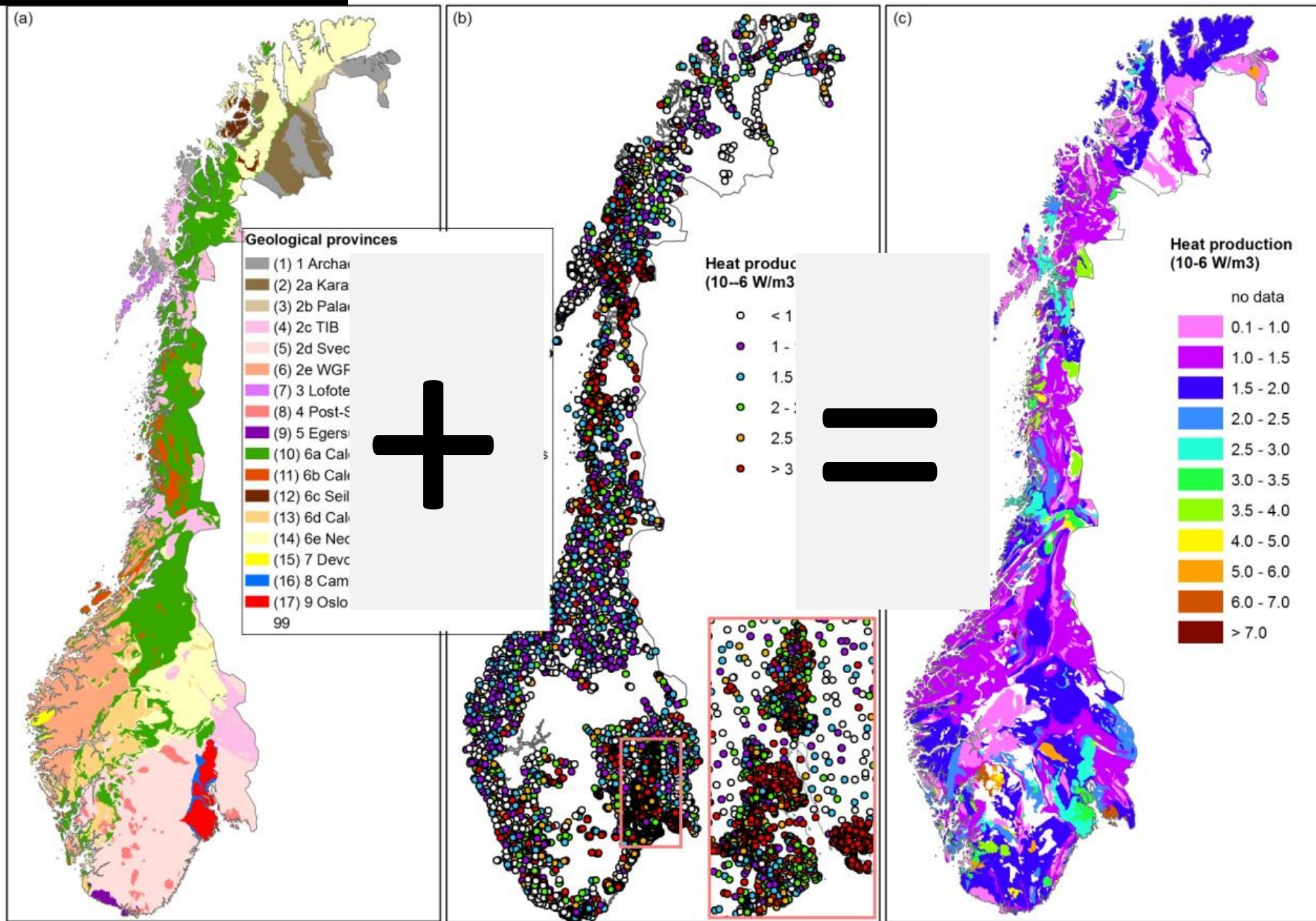
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wintershall

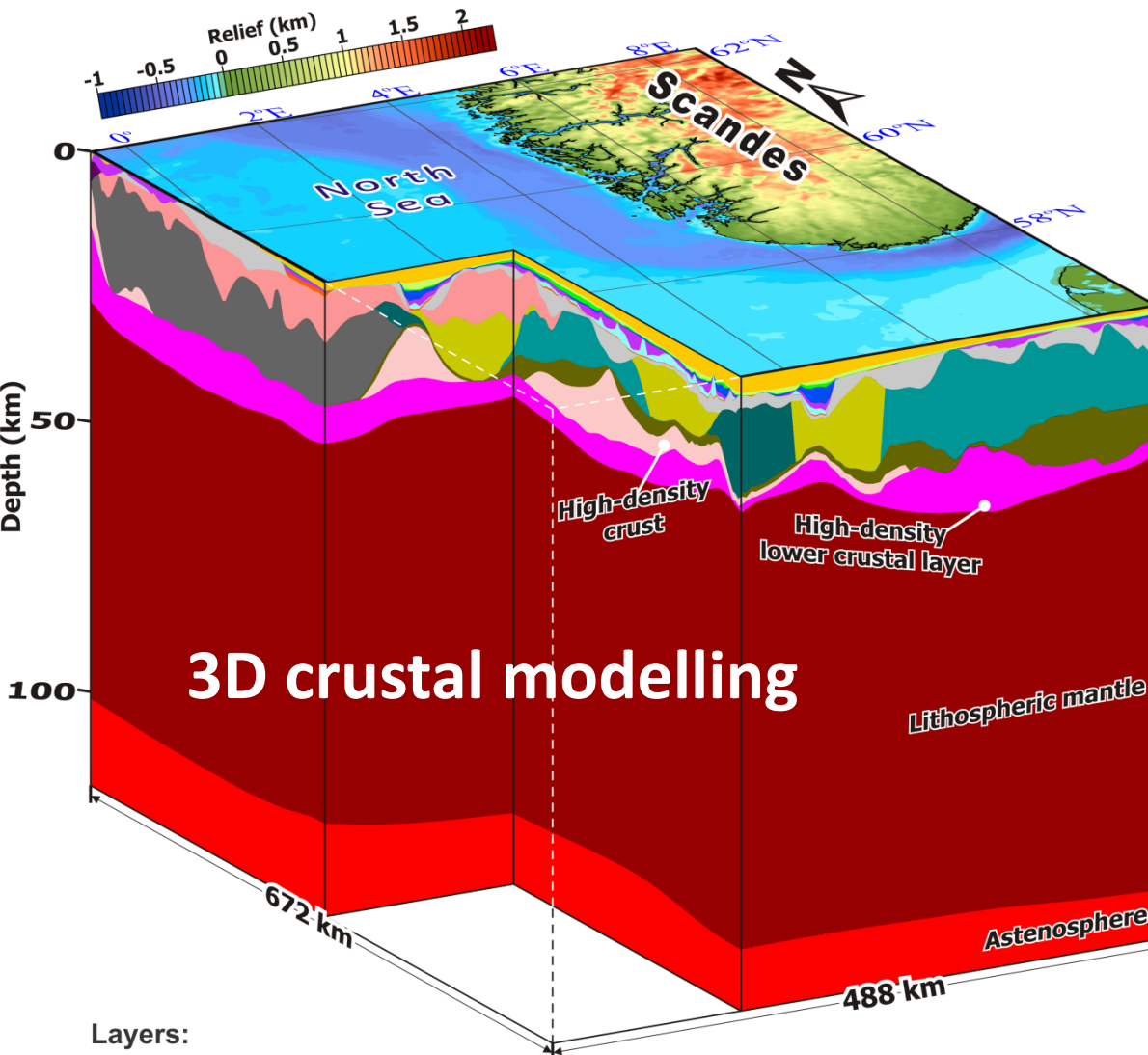
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Determining heat production



Coop – Crustal Onshore-Offshore Project



Layers:

Sea water	Zechstein salt	Middle crust of Laurentia
Cenozoic	Zechstein clastics and carbonates	Middle crust of Baltica
Upper Cretaceous	Lower Permian and pre-Permian sediments	Lower crust of Baltica
Lower Cretaceous	Upper crystalline crust	High-density crust
Jurassic	Granites or gneiss	High-density lower crustal layer
Triassic	Granitoid rocks	

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Lundin

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Statoil

Verbundnetz Gas AG

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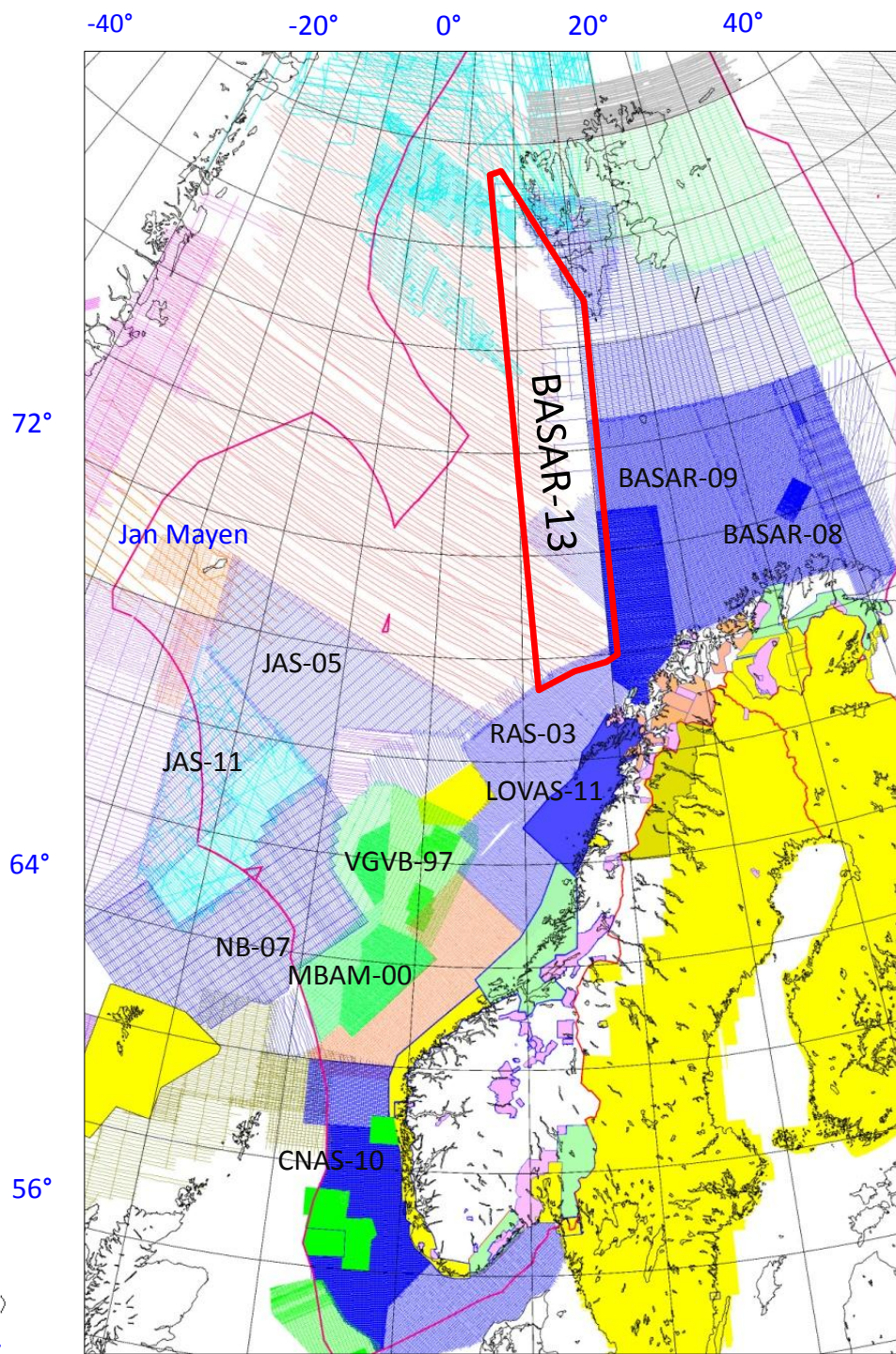
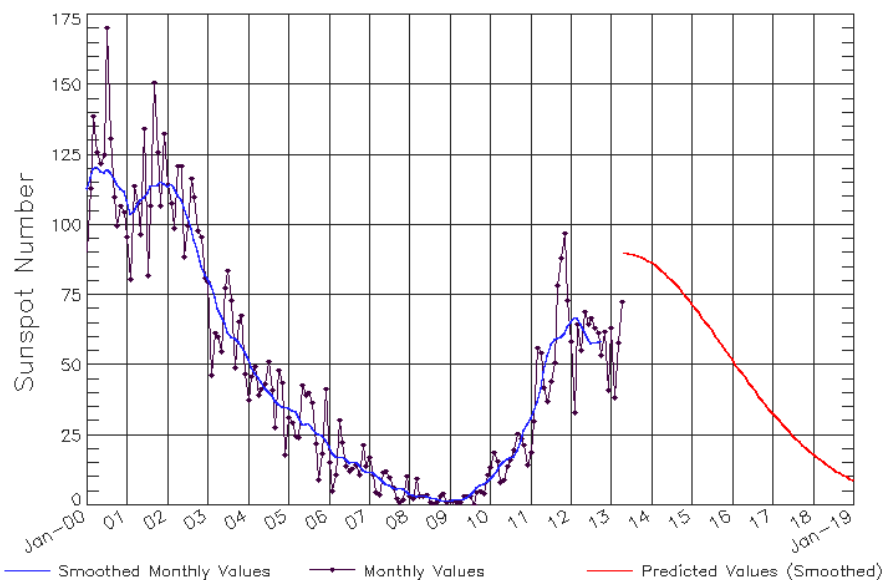
OLJEDIREKTORATET



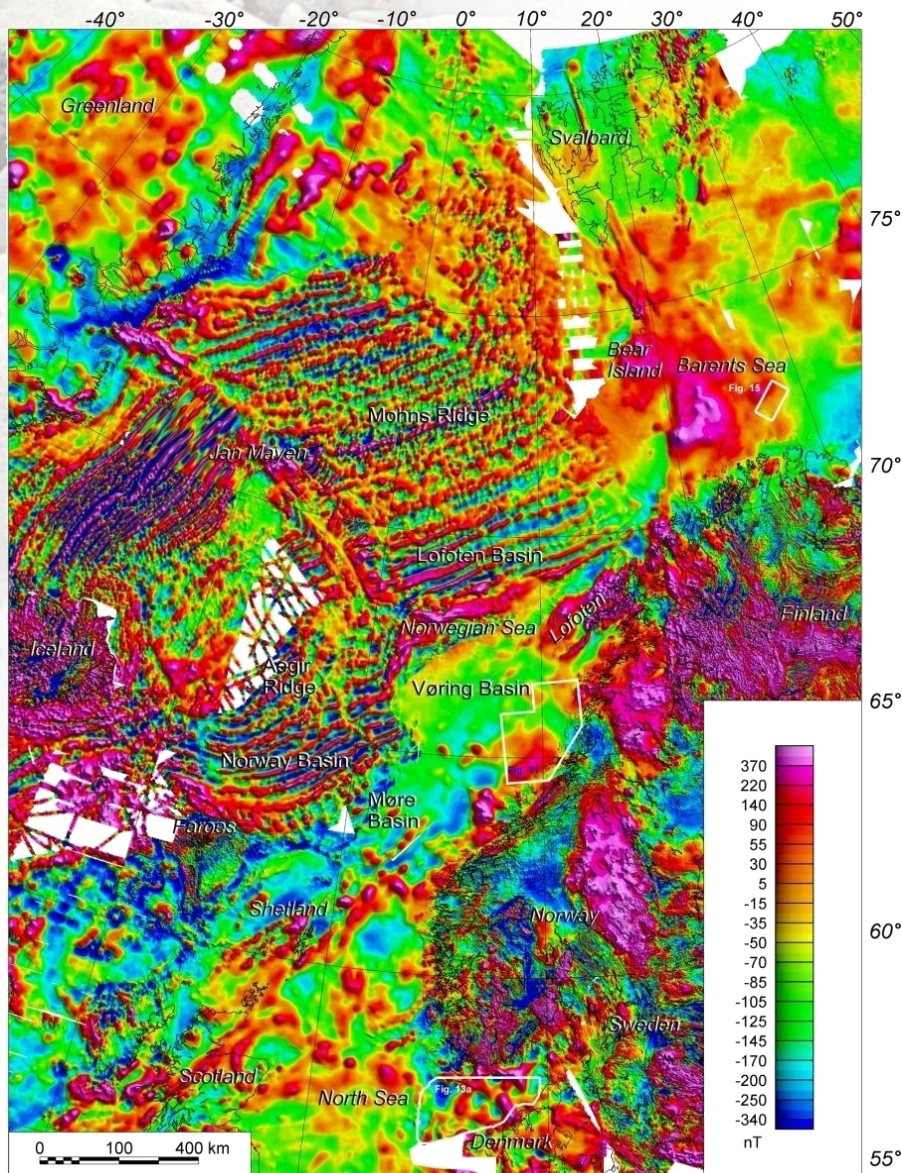
Aeromagnetic data NE Atlantic

Sunspot number

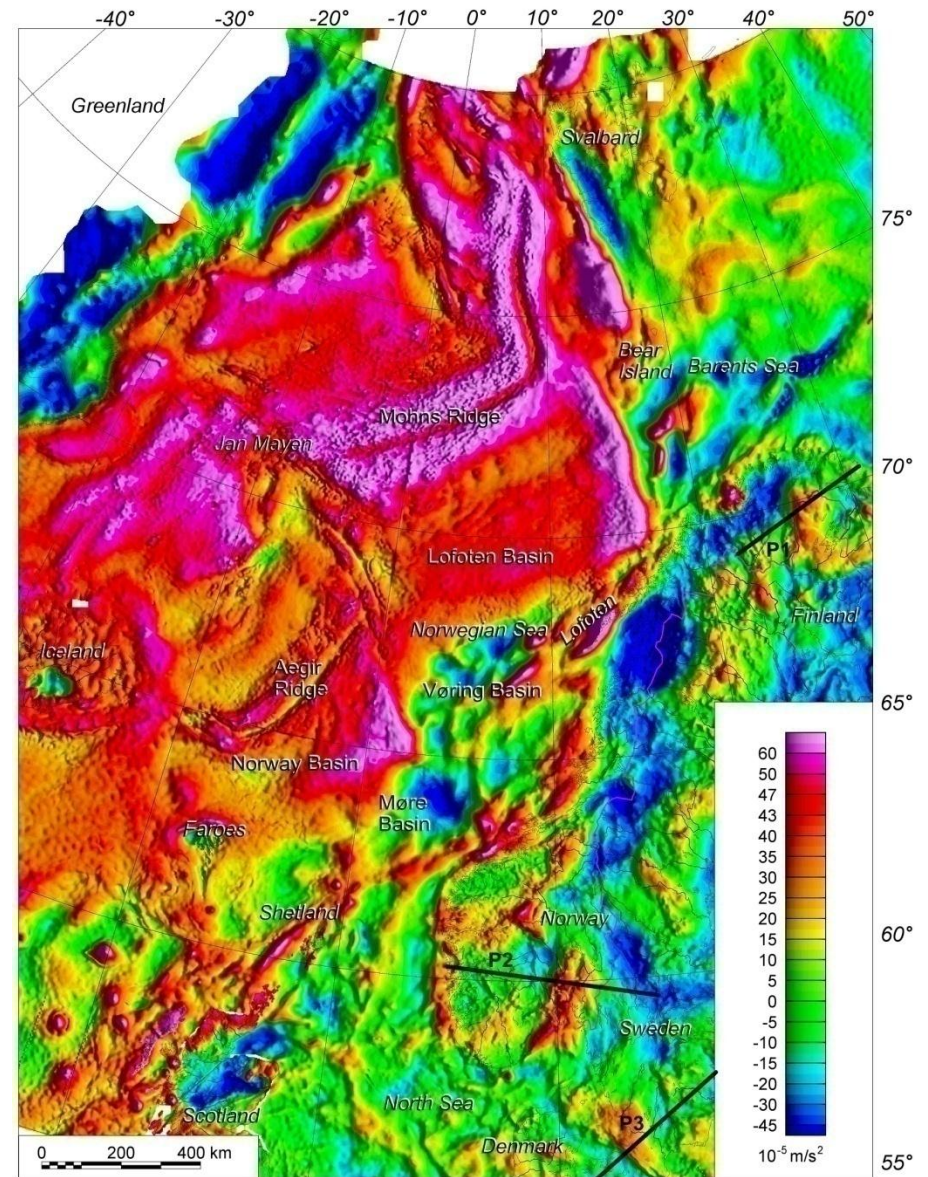
ISES Solar Cycle Sunspot Number Progression
Observed data through Apr 2013



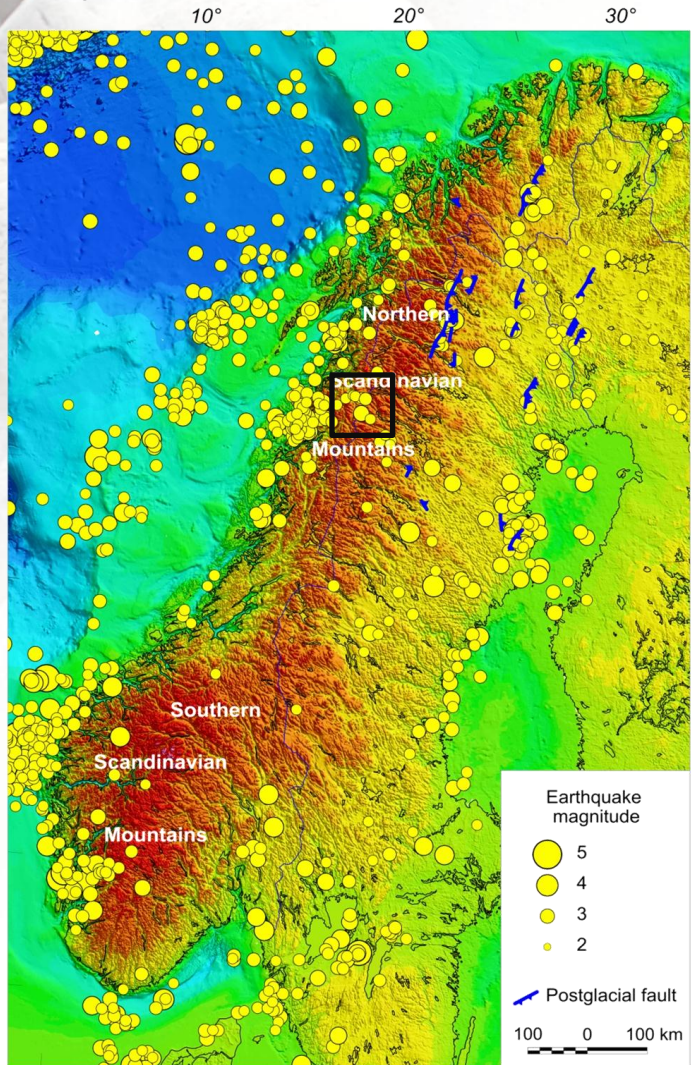
Aeromagnetic compilation



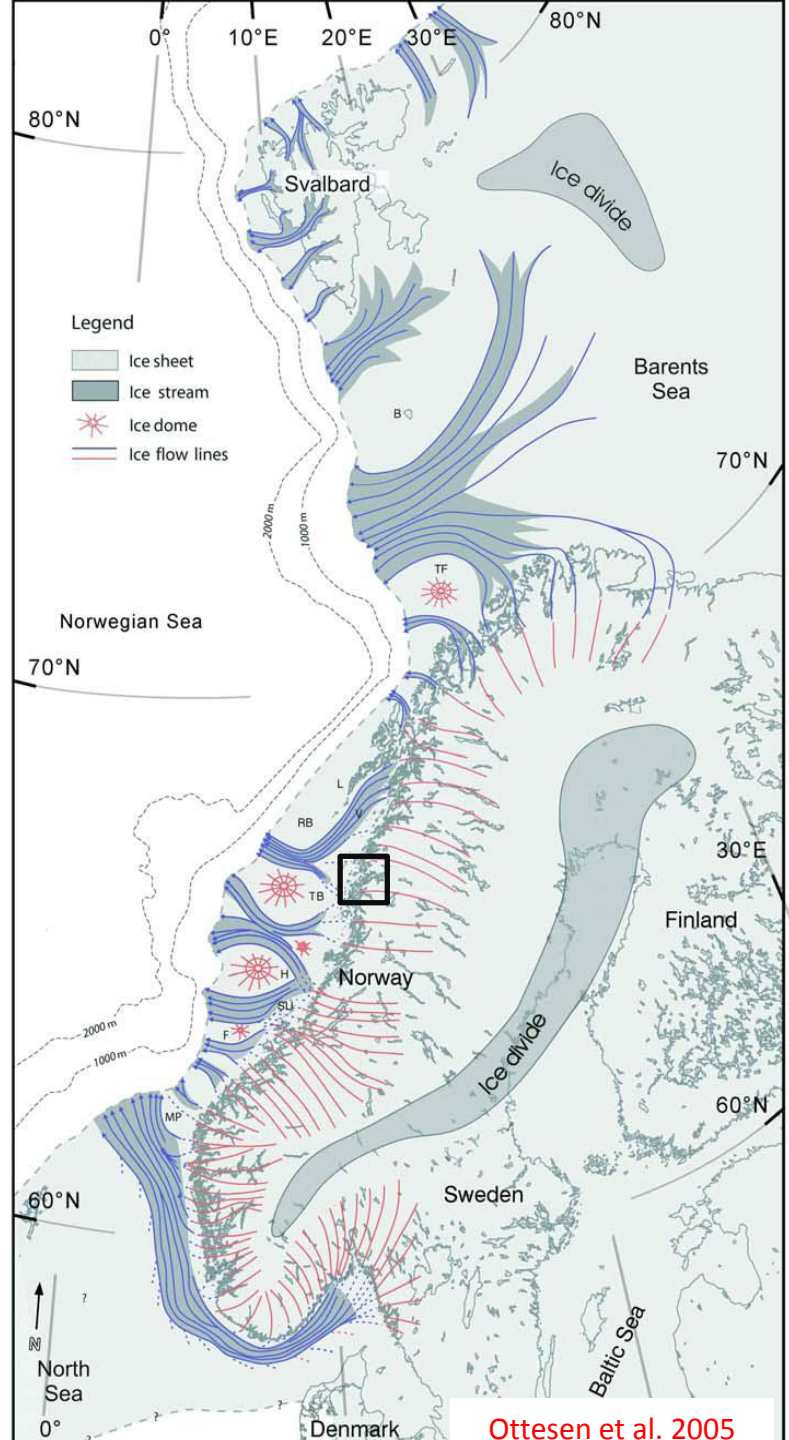
Gravity compilation Isostatic residual



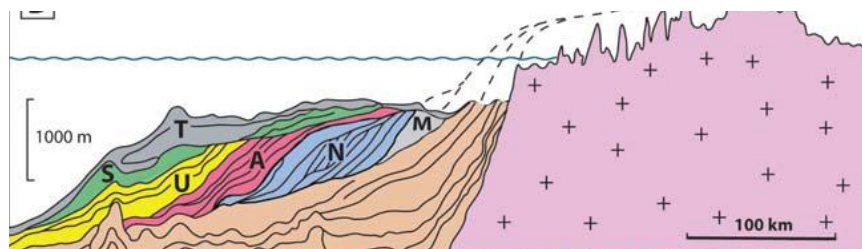
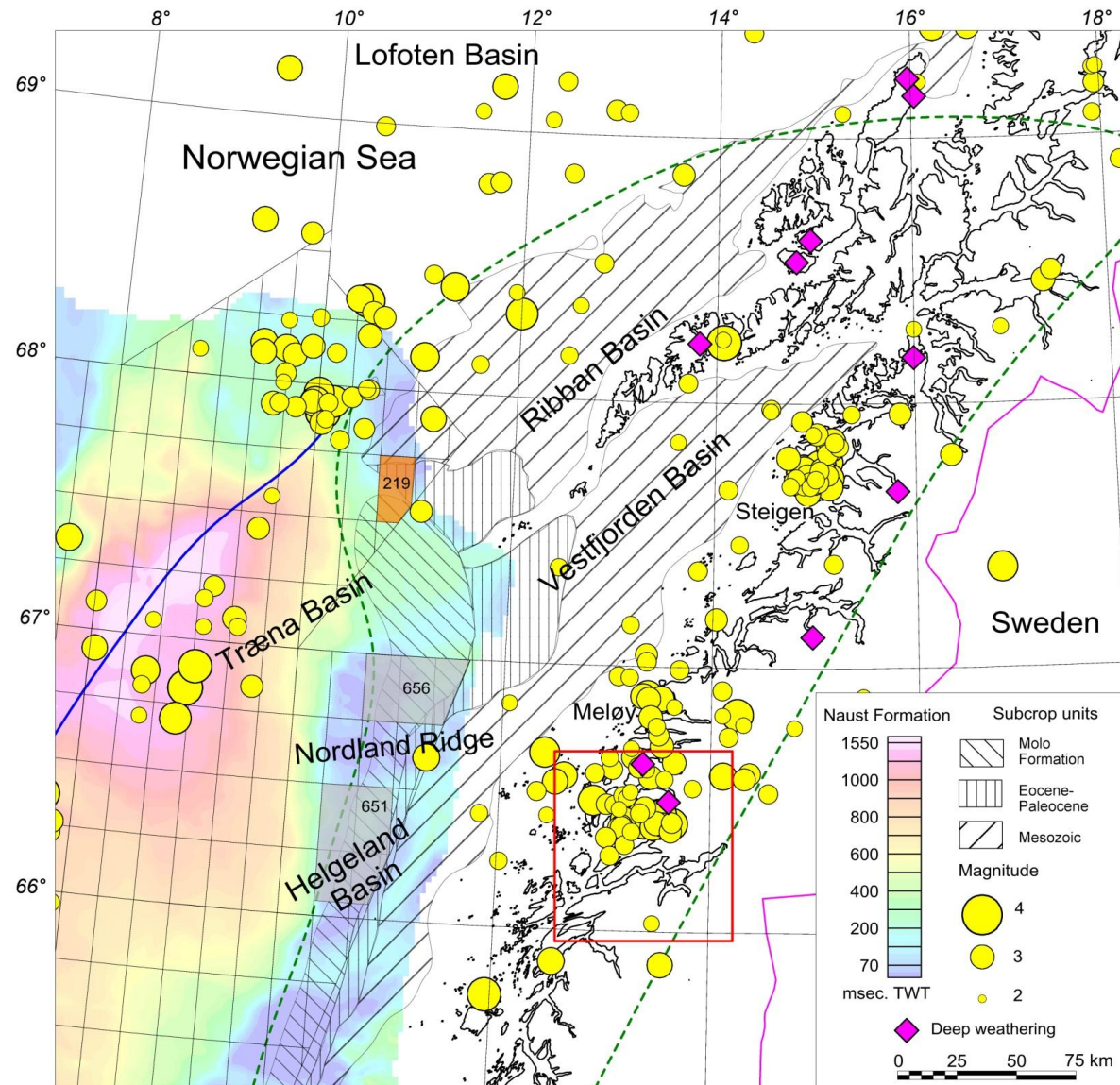
NEONOR2 – Neotectonics in Norland – implications for petroleum exploration



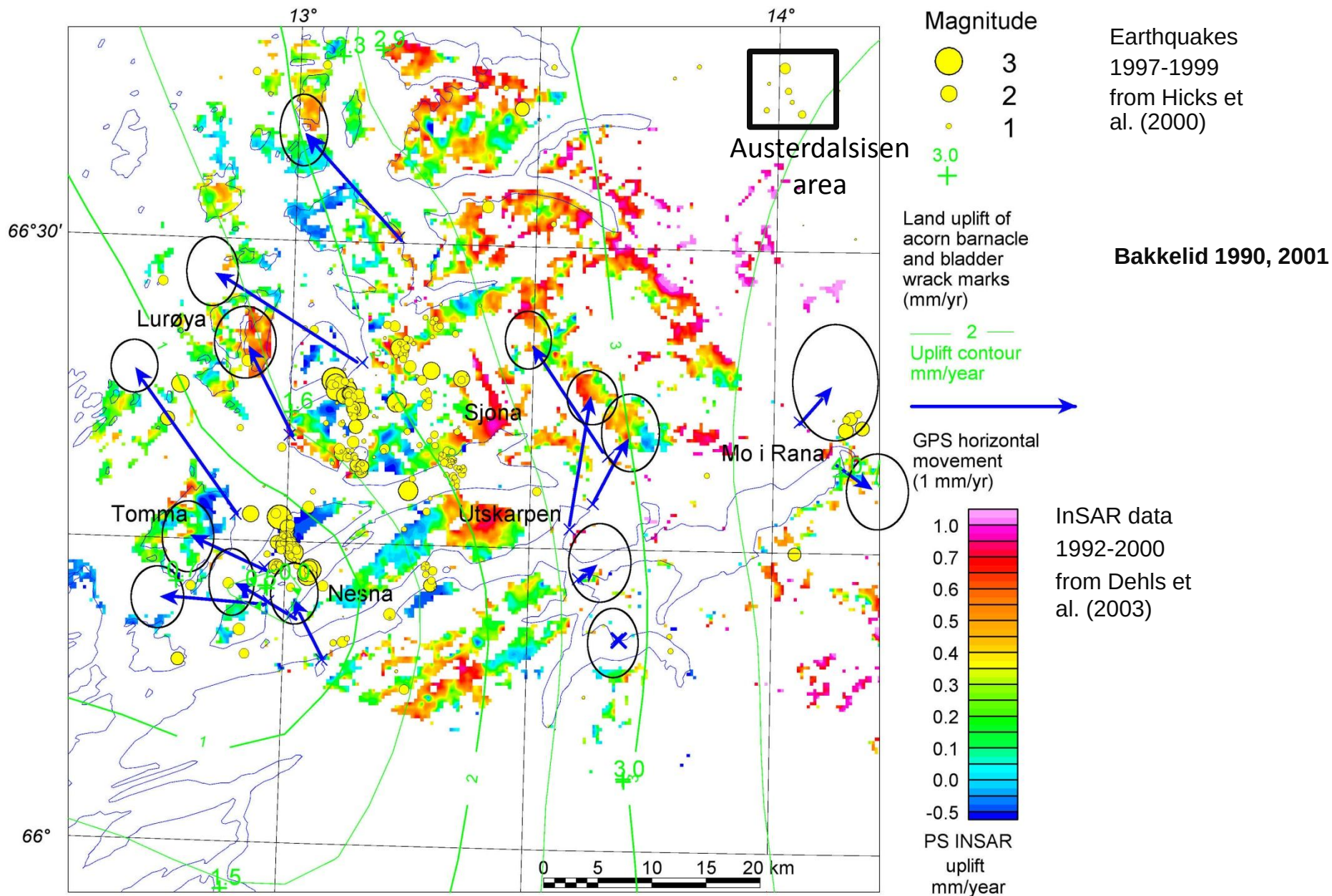
Glacial erosion beneath
ice streams



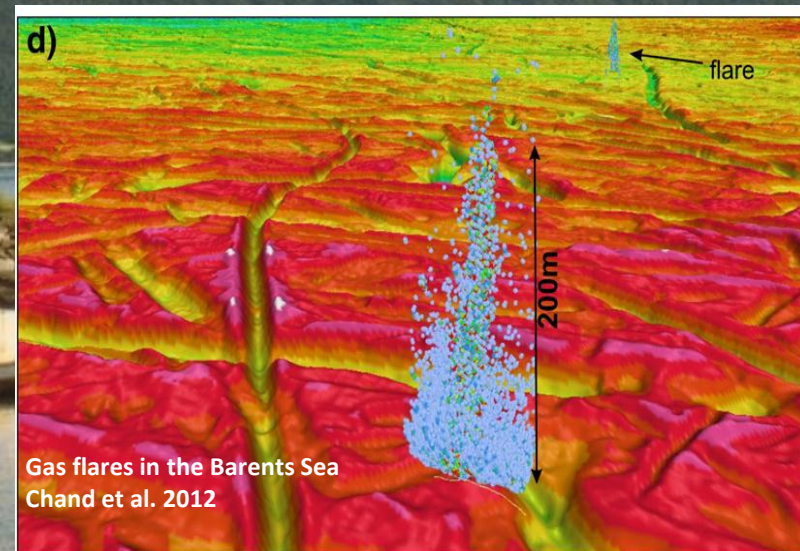
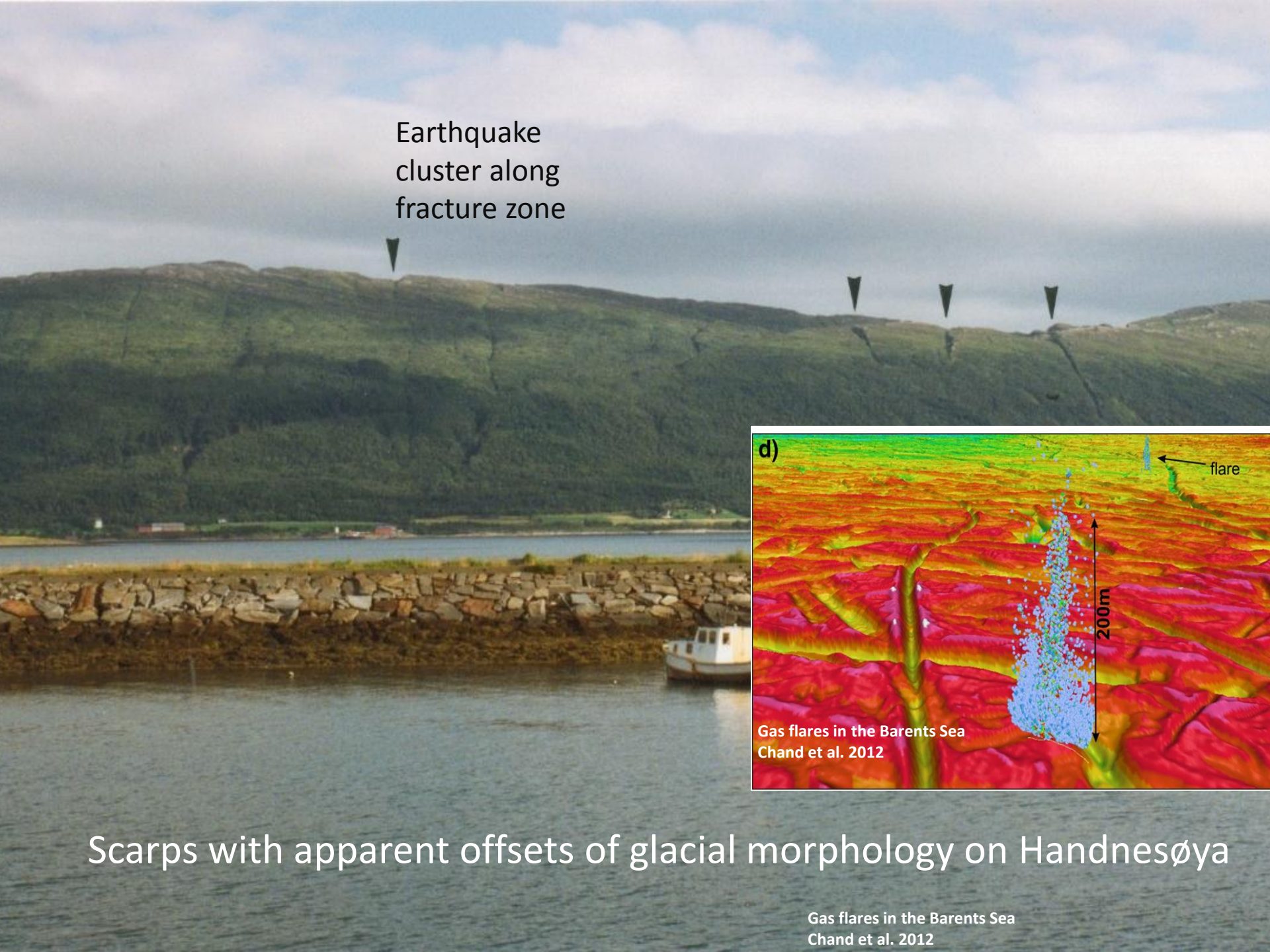
**Source catchment
area of glacial
erosion (green line)
and area of
offshore deposition
(thickness of Naust
Formation)**



Seismicity, GPS vectors and PS INSAR data



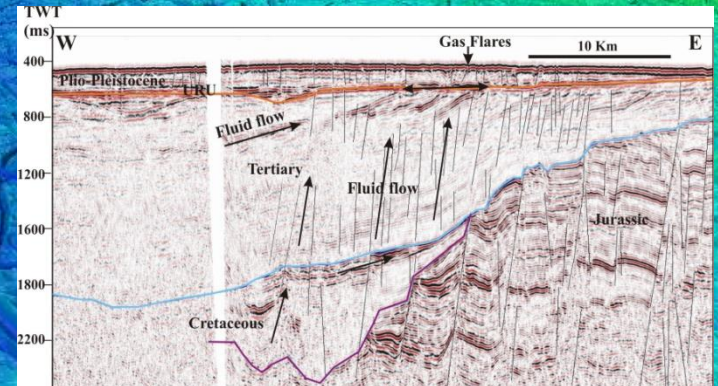
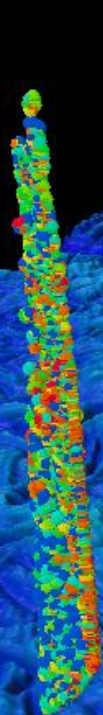
Earthquake
cluster along
fracture zone



Scarps with apparent offsets of glacial morphology on Handnesøya

Marine geology

Neotectonics and Fluid Flow Processes – Phase III - 2013-2016 - Studies of Carbonate Crusts



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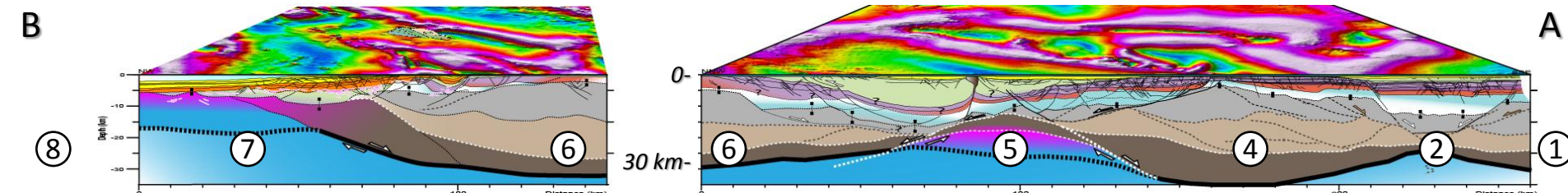
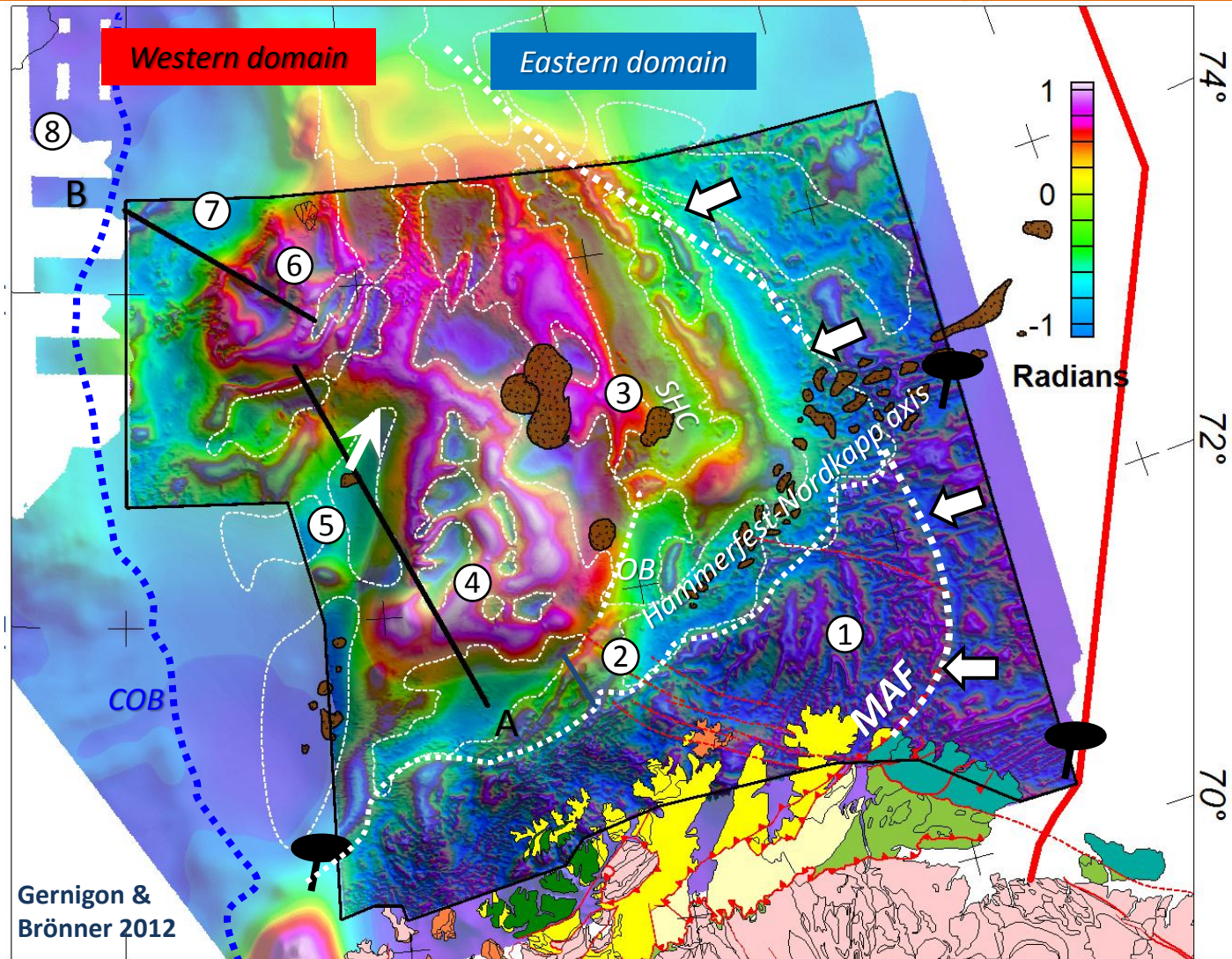
Forsvarets
forskningsinstitutt

Petter Lågstad
petter.lagstad@ffi.no

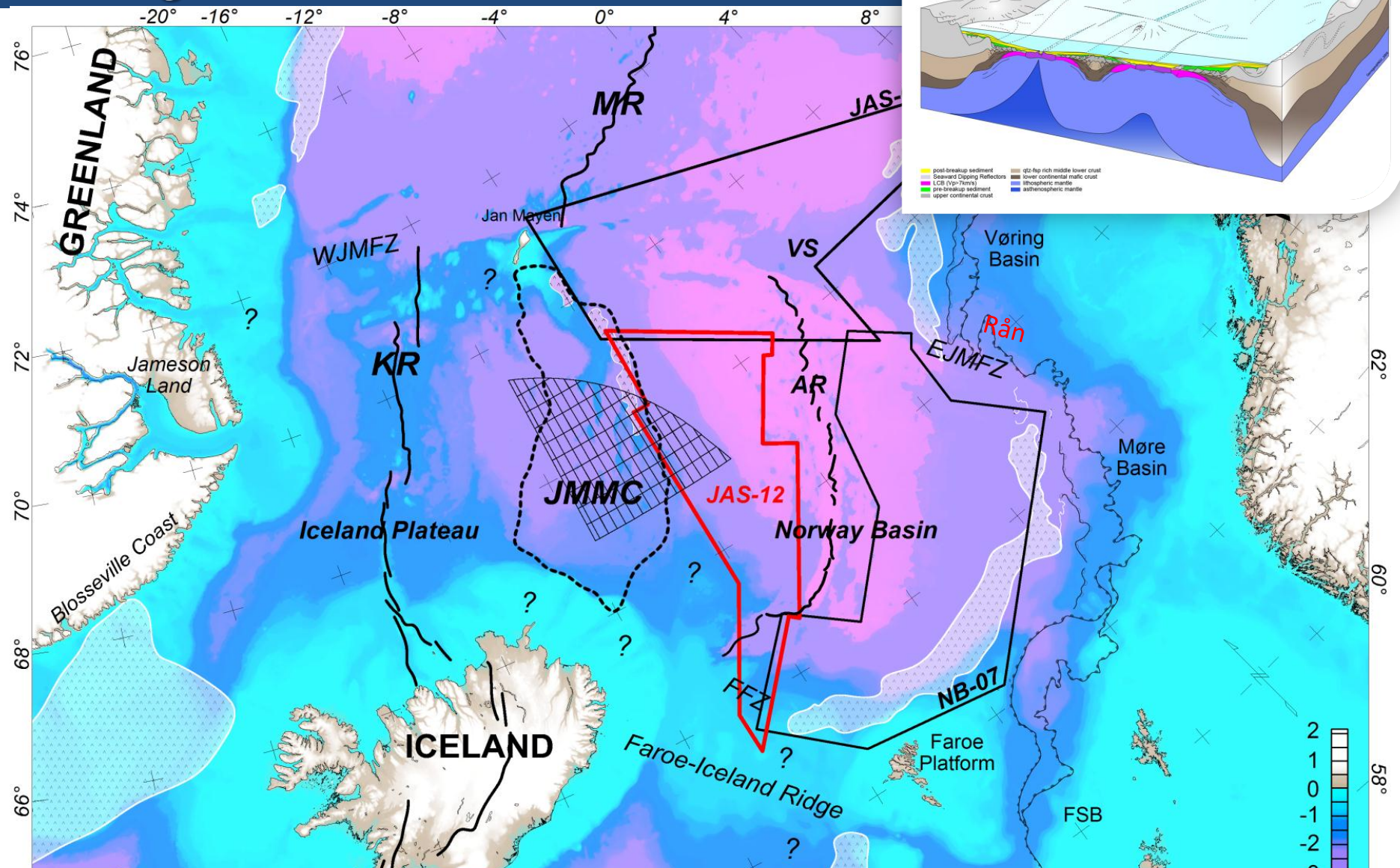
From Caledonian nappes to breakup: BASAR tectonic summary

DIFFERENT CRUSTAL DOMAINS:

- 1. Stable platform.** Caledonian nappes mostly preserved, poorly reactivated
- 2. Hammerfest-Nordkapp hinge axis:** A old Caledonian strike-slip deformation belt ?
- 3. Scott Hansen Complex.** Deep Late Palaeozoic basins, reactivation of old Caledonian thrusts
- 4. Loppa High: rigid and thick continental ribbon** (Precambrian ?)
- 5. Bjørnøya Basin:** highly extended propagating aulacogen system



Norwegian-Greenland Sea activities



JAS-12: spreading history, conjugate margin system and microcontinent formation (NGU, NPD & Orkustofnun)

JAS-05, NB-07 -2005-2007 (Gernigon et al., 2009, 2012)