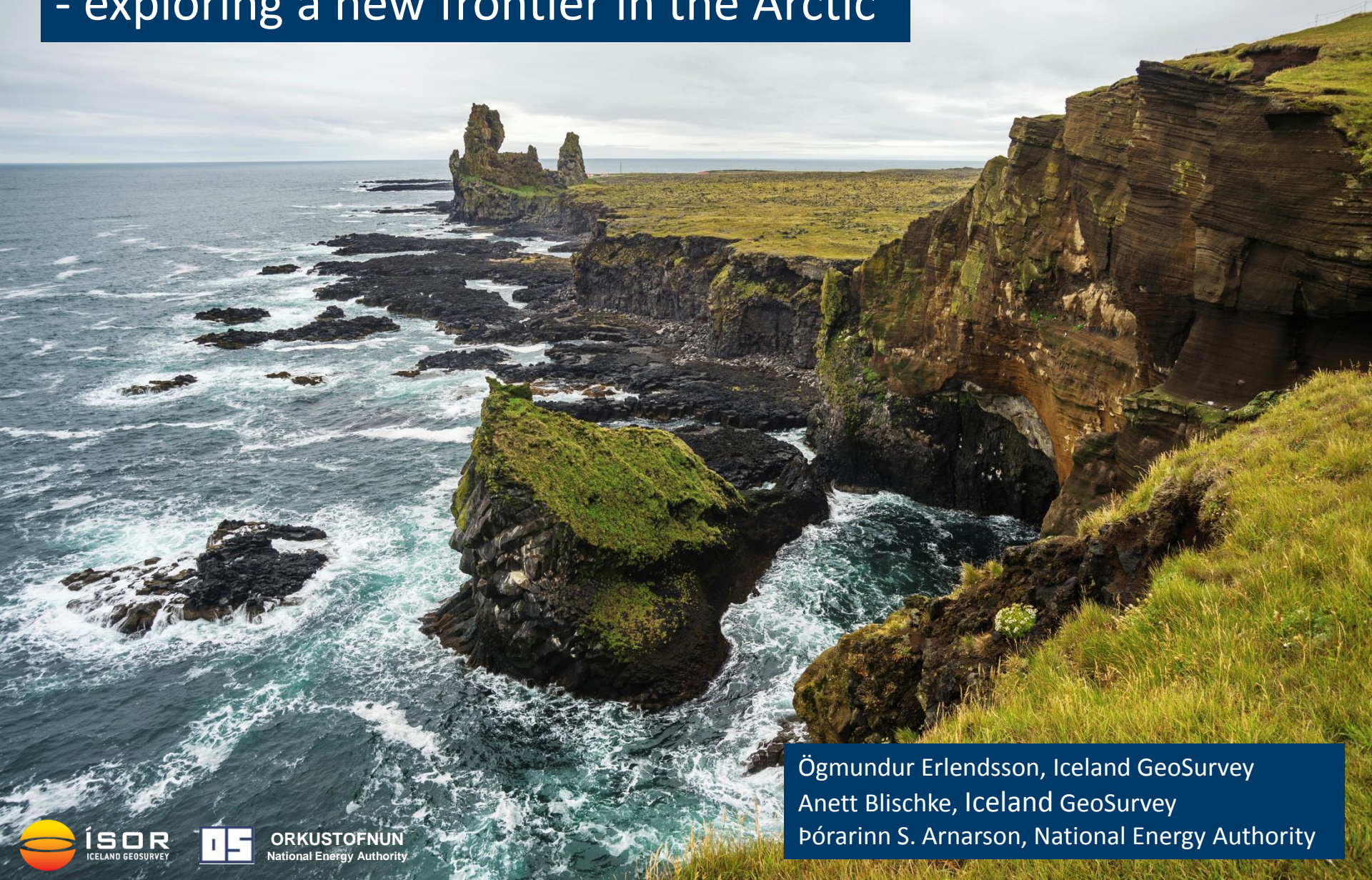


Iceland

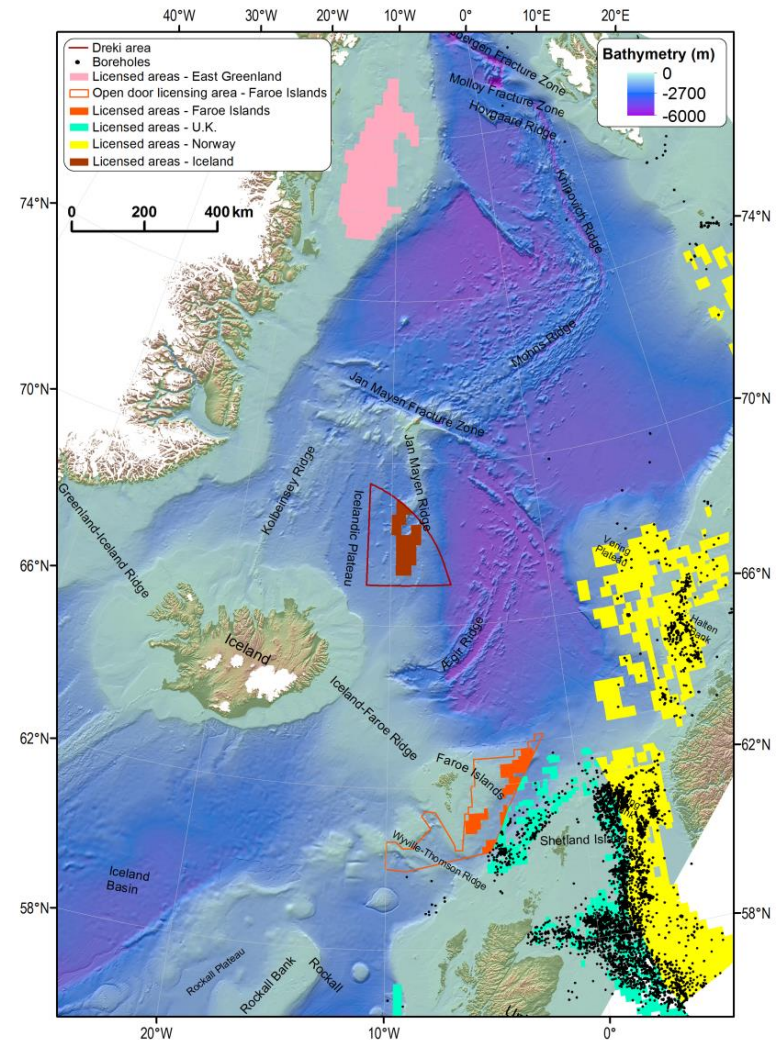
- exploring a new frontier in the Arctic



Ögmundur Erlendsson, Iceland GeoSurvey
Anett Blischke, Iceland GeoSurvey
Þórarinn S. Arnarson, National Energy Authority

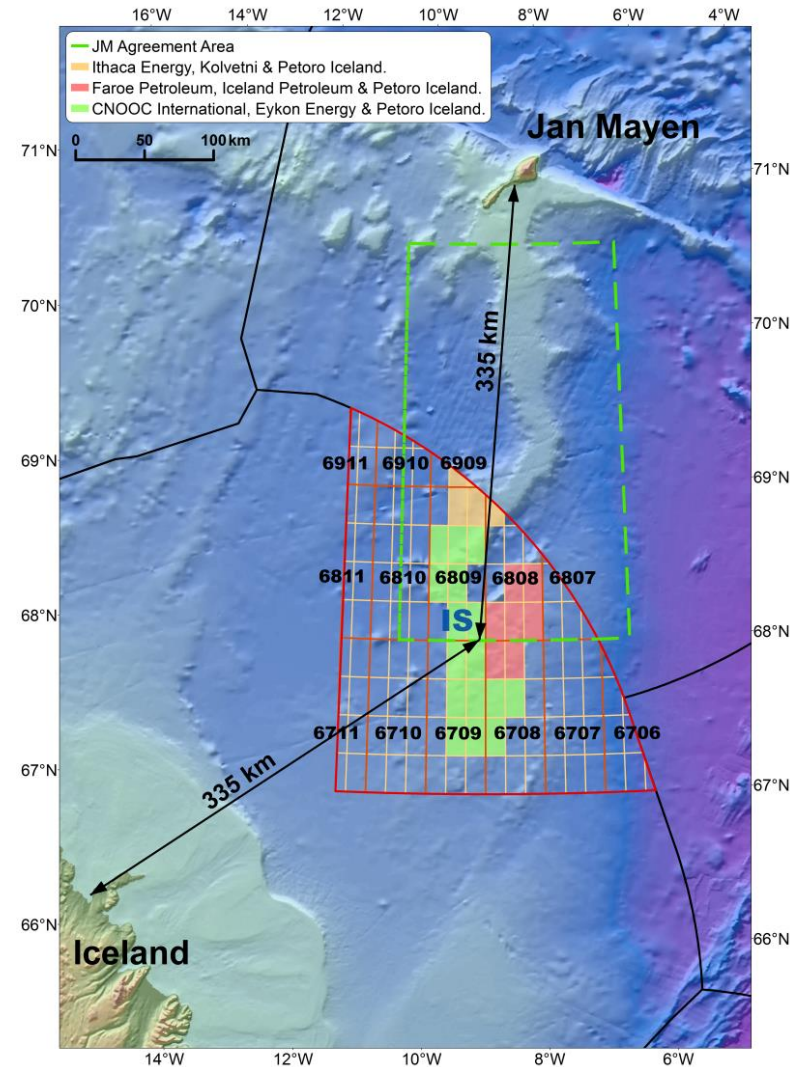
Dreki Area – Jan Mayen Microcontinent

- North Dreki area is part of the Jan Mayen Microcontinent with indications of continental strata and suitable structures for hydrocarbon systems.
- Expected similarities to licensing areas on and off East-Greenland and off Mid-Norway
 - Møre and Vøring basins are proven hydrocarbon provinces.



First exploration and production licenses

- Three licenses granted
 - **Faroe Petroleum (67.5%)**
Iceland Petroleum (7,5%)
Petoro Iceland (25%)
 - **Ithaca Petroleum (56.25%)**
Kolvetni (18,75%)
Petoro Iceland (25%)
 - **CNOOC International (60%)**
Eykon Energy (15%)
Petoro Iceland (25%)

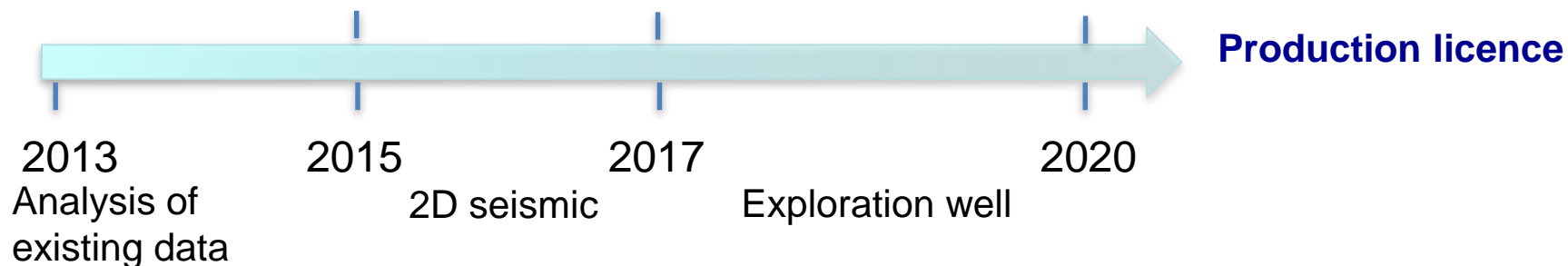


Licence timelines

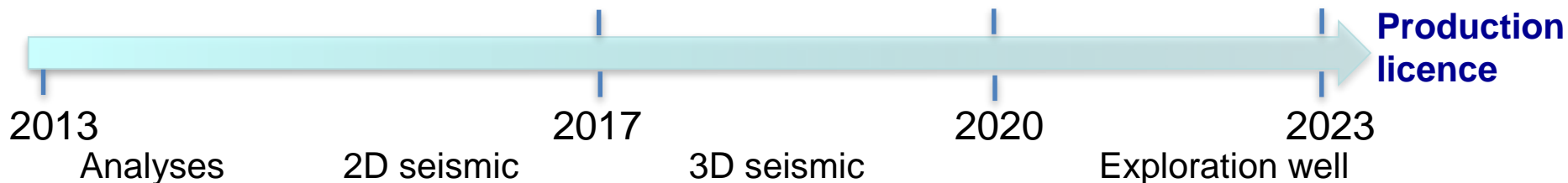
Faroe Petroleum licence – 7 years

Decision points

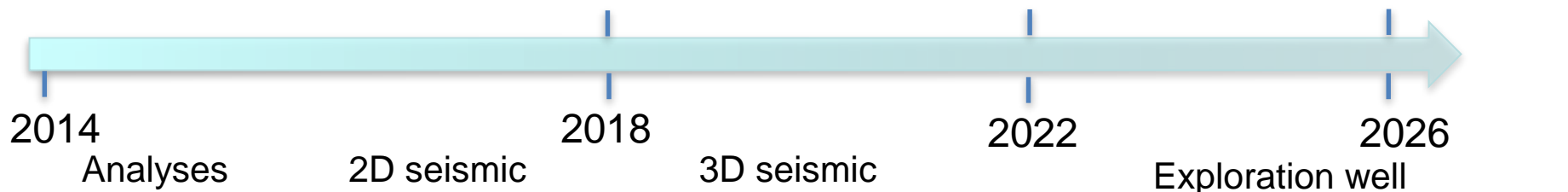
Expiration of licence or extension for production



Ithaca Petroleum licence – 10 year

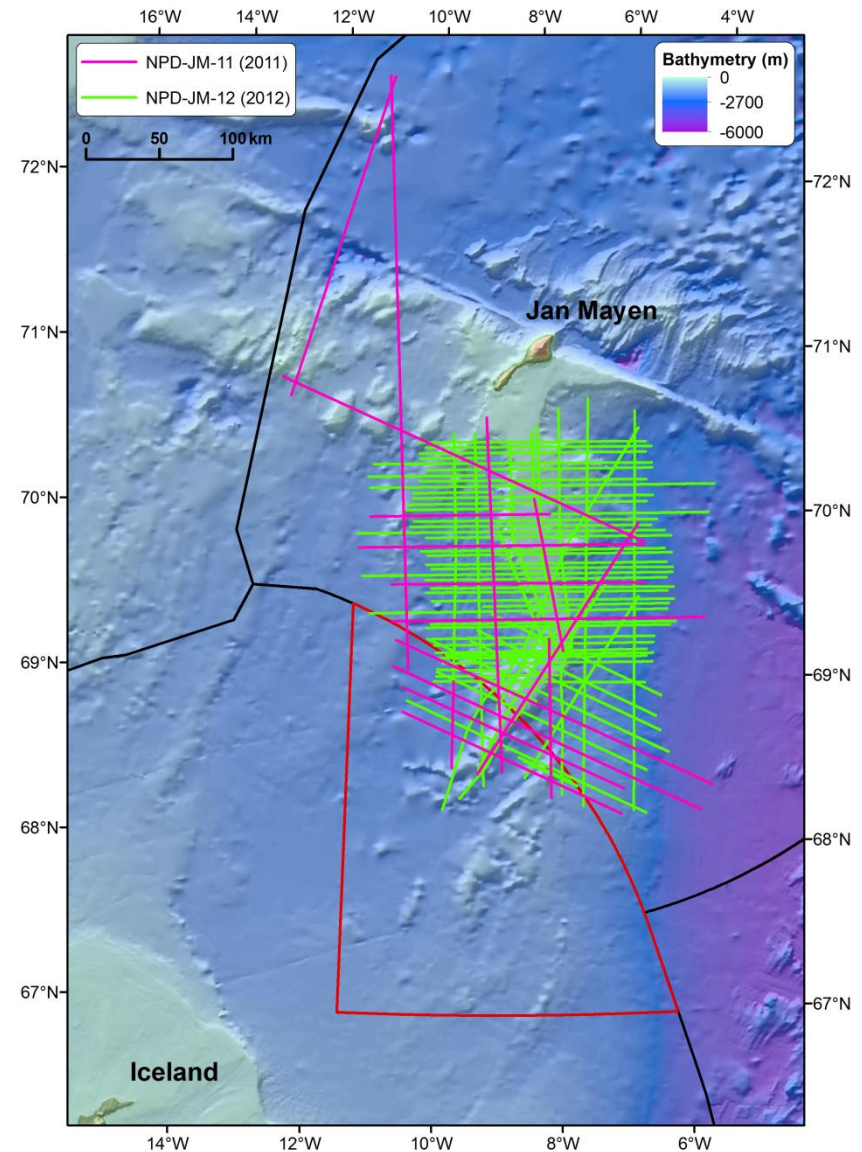


CNOOC International licence – 12 years



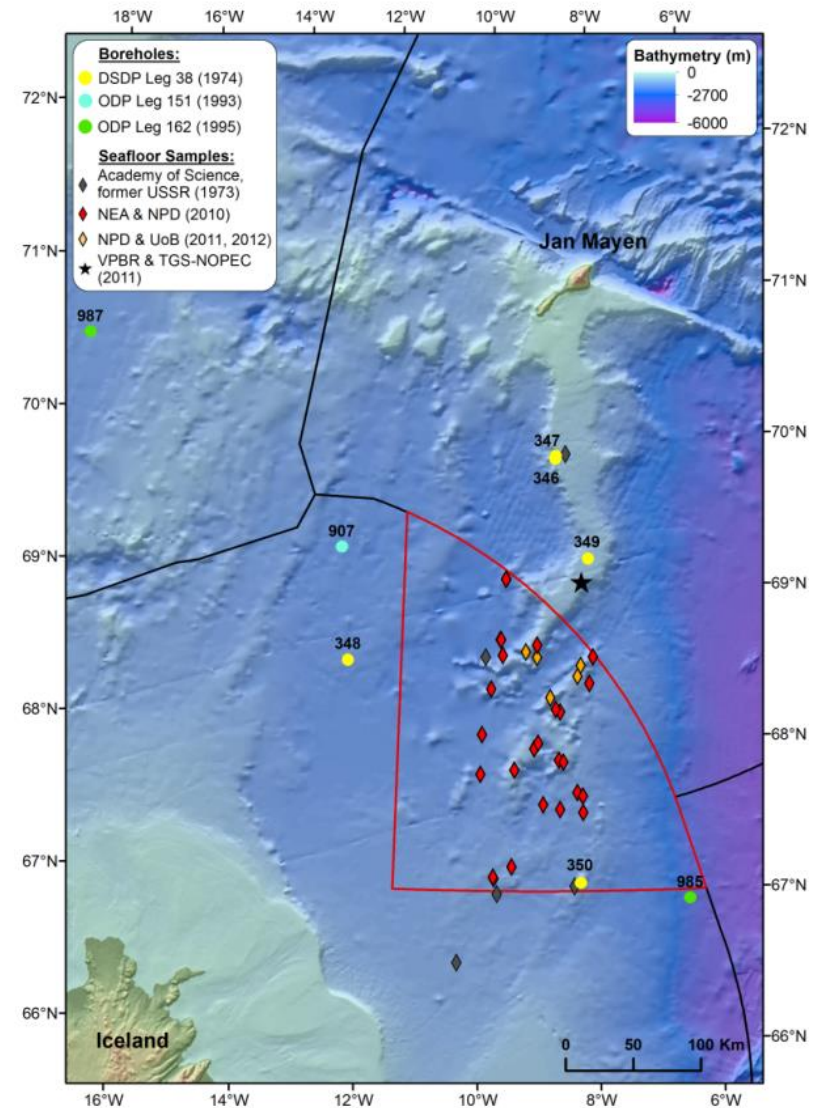
Exploration data

- Major sources for 2D seismic reflection data:
 - Norwegian/Icelandic governmental surveys in 1985 and 1988, available from Orkustofnun or NPD in Norway.
 - Spectrum reprocessing of the data, available from Spectrum.
 - InSeis survey in 2001, available from Orkustofnun.
 - Wavefield-Inseis survey in 2008 and reprocessed 2001 data, available from Spectrum.
 - TGS-NOPEC survey in 2002, available from Orkustofnun.
 - Norwegian governmental surveys in 2011 and 2012 available from NPD.

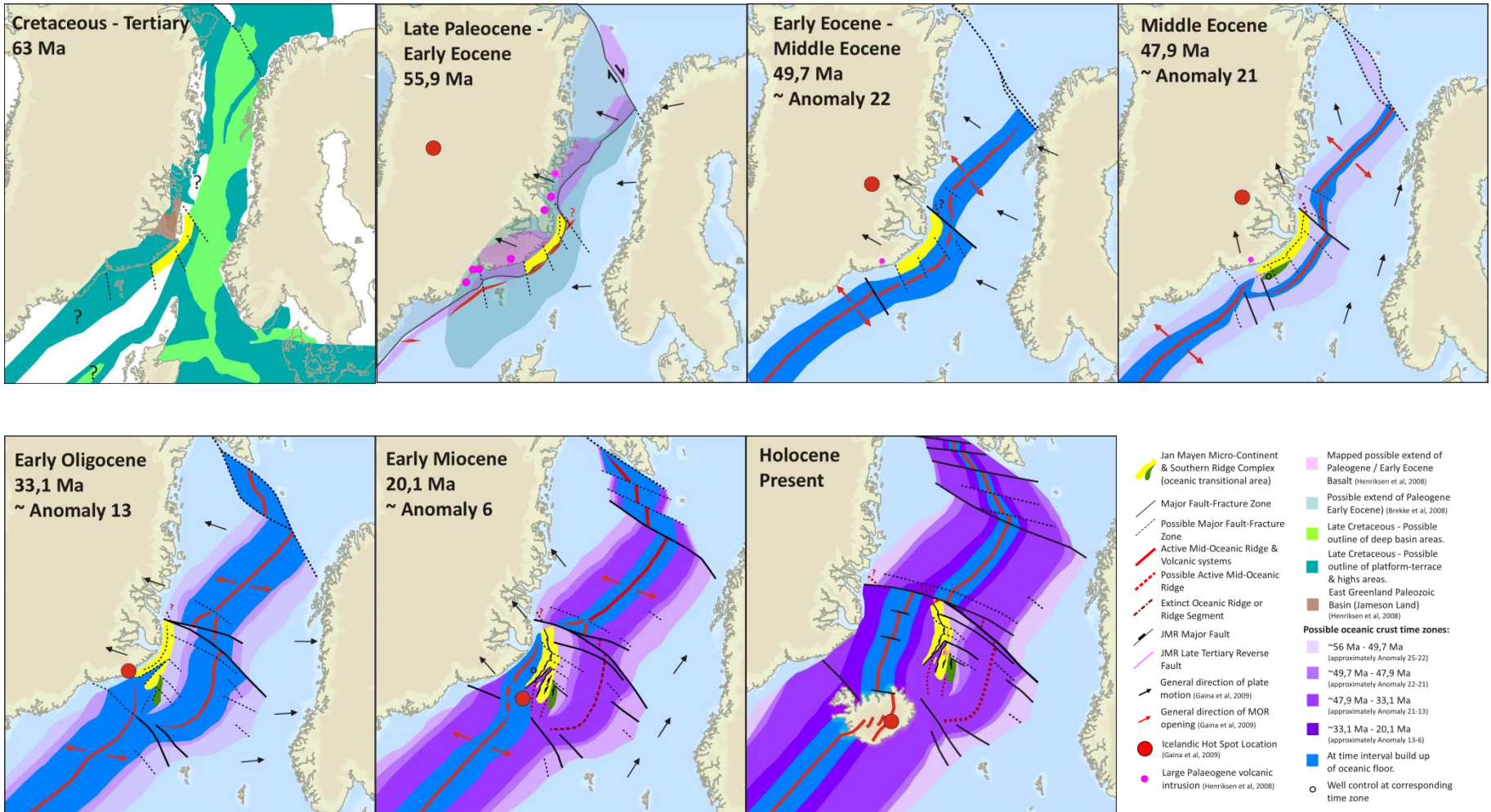


Exploration data

- Shallow boreholes from the DSDP and ODP, reaching down to Mid-Eocene.
- Surface seafloor samples.
 - Report on sampling by TGS and VBPR in 2011 available for sale from VBPR.
 - The report contains key information on the potential of the area.
 - Suggest seepage of Jurassic oil and the existence of a petroleum system.
 - Rock samples collected in Icelandic EEZ by NPD in 2011 and 2012, accessible at NPD upon request to Orkustofnun.
 - Confirm a presence of pre-opening sediments.



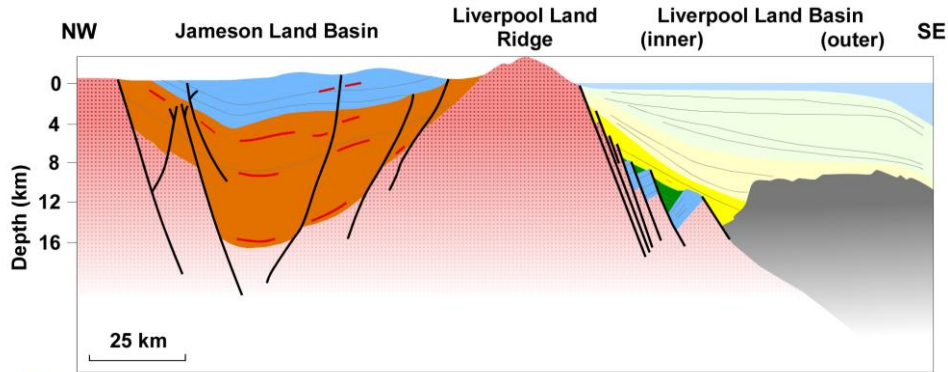
Tectonic History of the JMMC



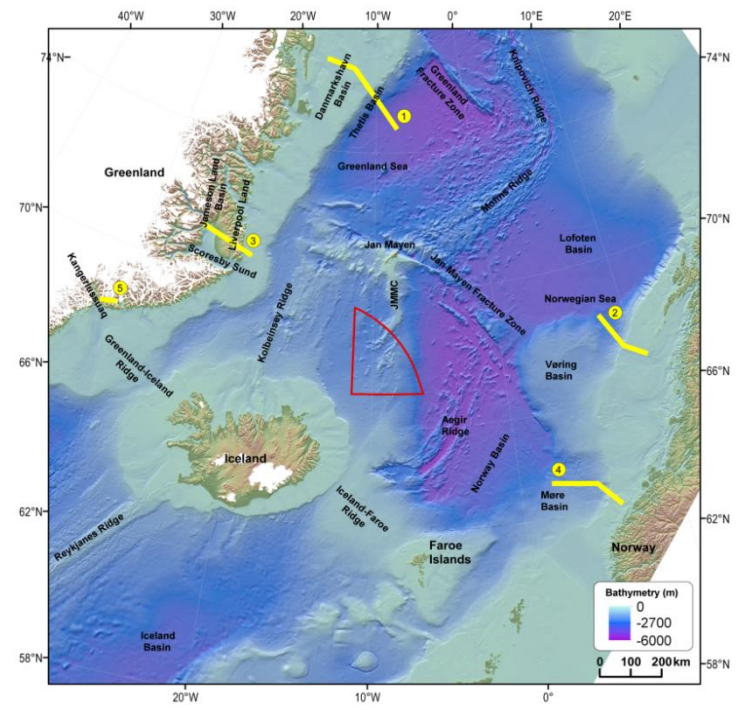
Blischke et al. (2011) used geo-chronological data by Gaina et al. (2009)

Geological cross sections - regional correlations important

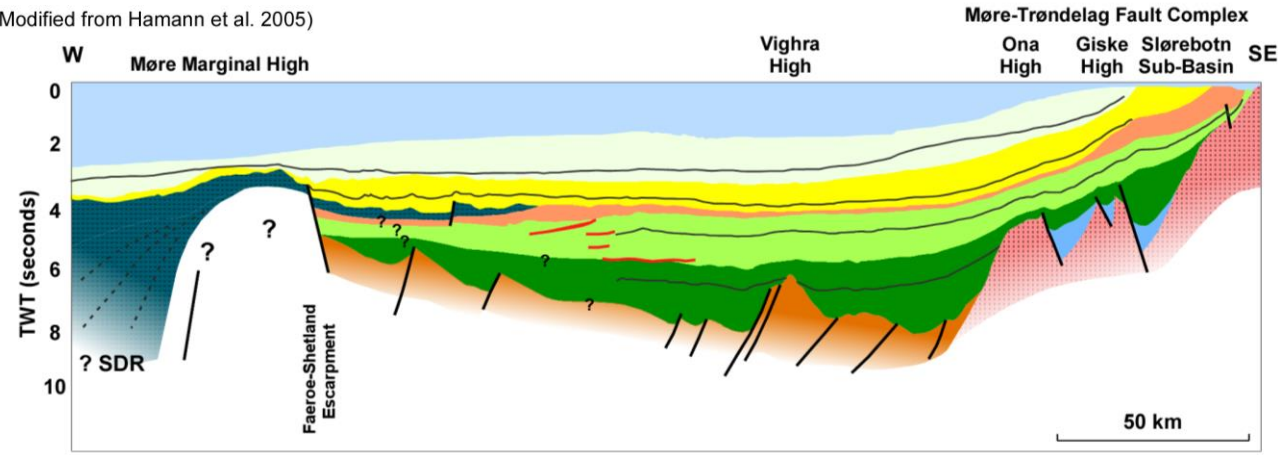
- Liverpool Land Basin
 - Mainly Upper Permian to Jurassic sediments.
 - Thin layers of mapped Cretaceous sediments.



③ Jameson Land Basin, Liverpool High and Basin. (Modified from Hamann et al. 2005)



- Møre Basin
 - Thick section of Cretaceous sediments which thins out towards the marginal high area at the western margin.

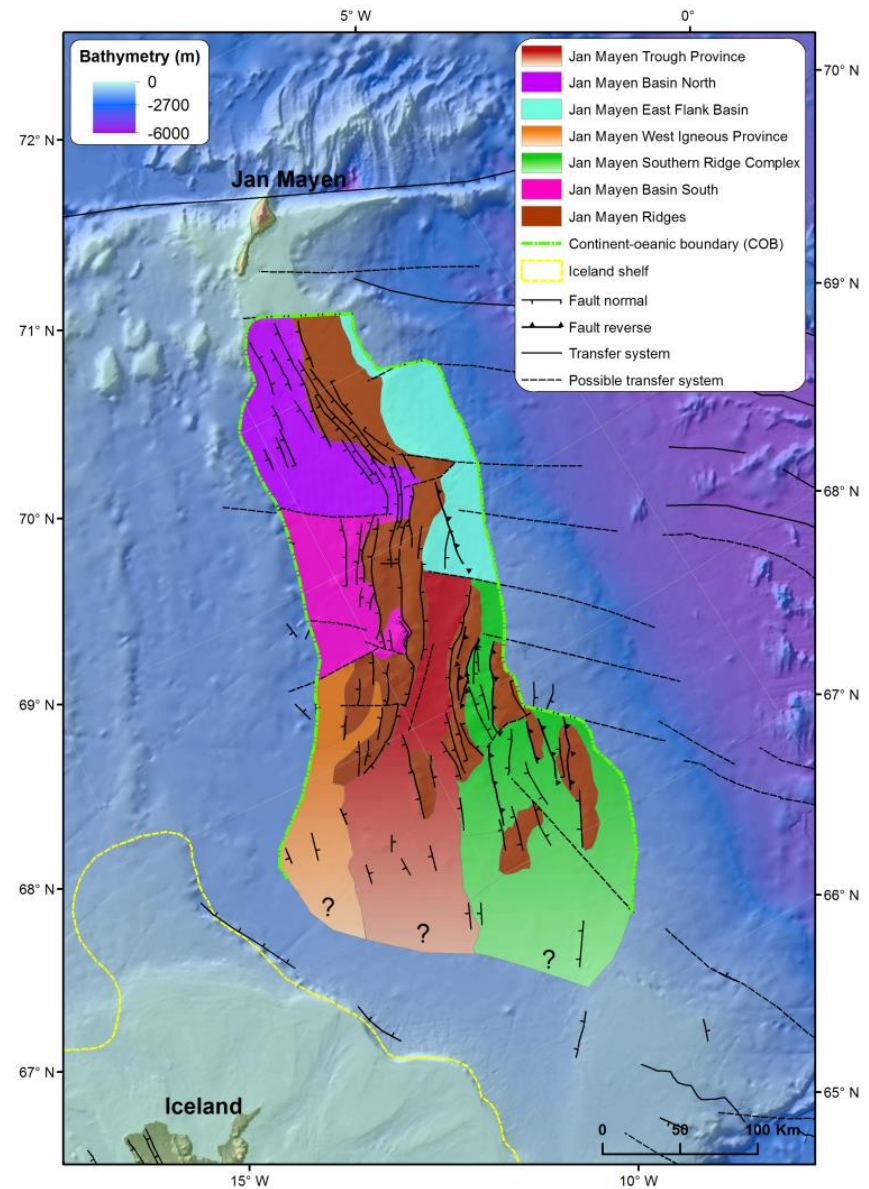


④ Møre Basin. (Modified from Brekke 2000)



Structural Elements - JMMC

- JMMC located between volcanic complex of Jan Mayen Island and the northeastern coastal shelf area of Iceland.
- The eastern margin is characterized by an eastward thickening Tertiary strata and basaltic lava flows .
- The western margin are characterized by tilted extensional fault blocks and an extensive complex of sills or lava flows which covers the deep basins west of the ridge.
- Northern part
 - Well defined, continuous and flat-topped single ridge.
- Southern part
 - several smaller ridges which become indistinct towards south.

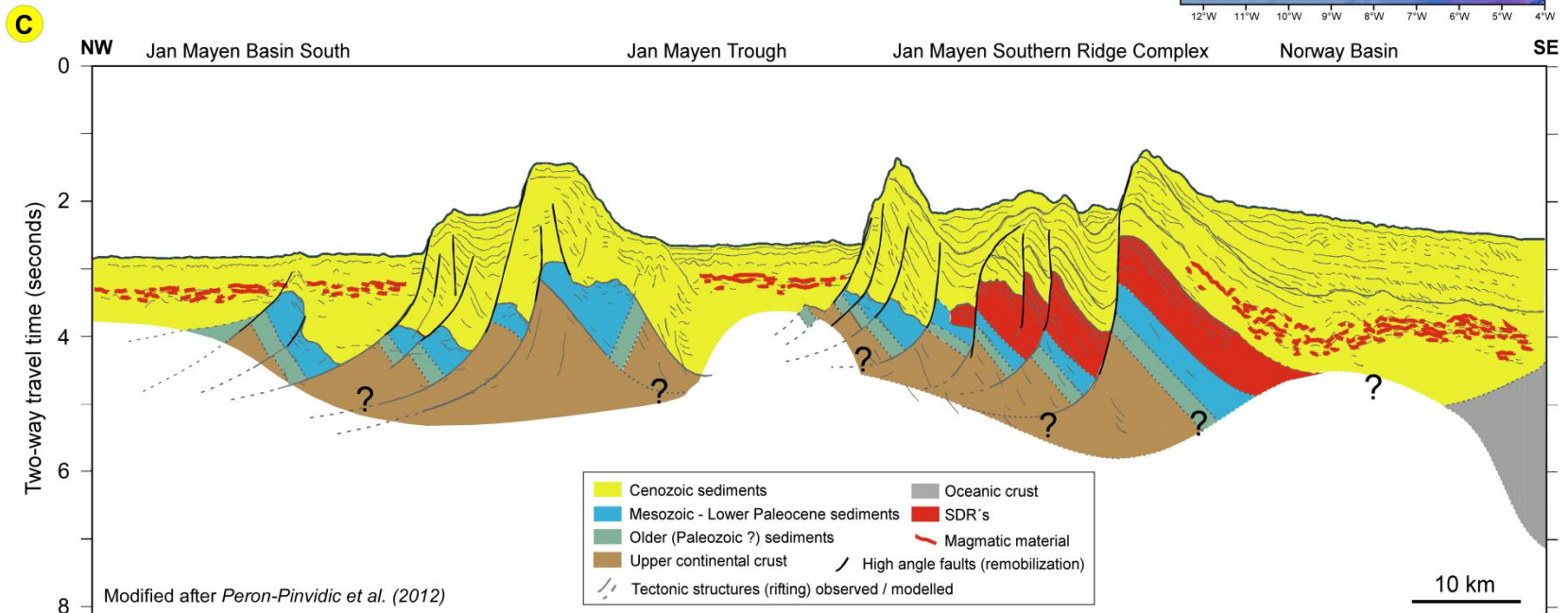
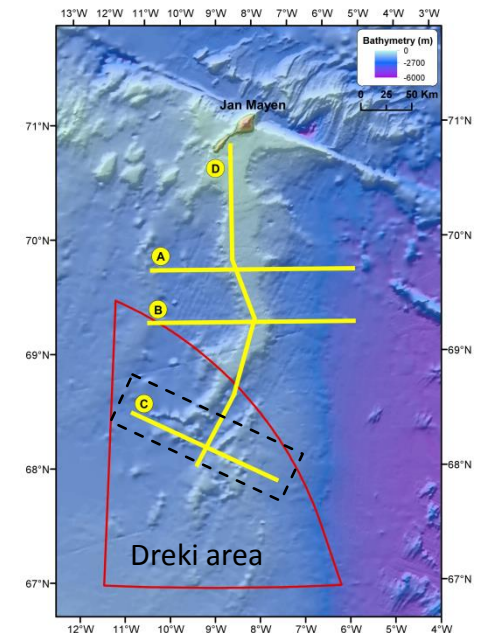


Blischke et al. 2013 modified after : Blischke et al. (2011), Peron-Pinvidic et al. (2012), Vogt et al. (2009), Gaina et al. (2009) & Gernigon et al. (2012)



Southern Jan Mayen Ridges - cross sections

- Southern Ridge Complex
 - Jan Mayen Basin, Jan Mayen Trough, Southern Ridges and Norway Basin.
- Strongly affected by normal and listric faulting.
- Evidences of post-breakup uplift and tilting.



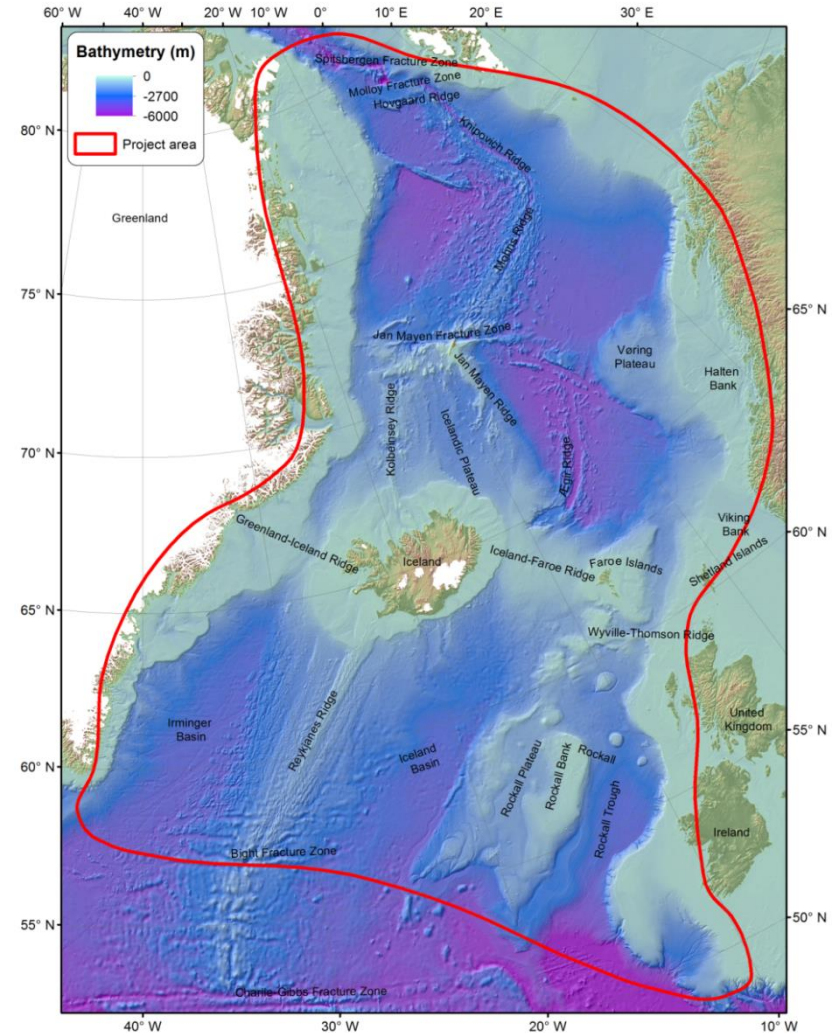
NAG-TEC:

Northeast Atlantic Geoscience Tectonostratigraphic Atlas



www.nagtec.org

- Multinational research project of nine Geological Surveys.
- Developing a new tectonostratigraphic atlas of the Northeast Atlantic region, with emphasis on conjugate margin comparison.
- Increase knowledge on the geological development of the Northeast Atlantic.
- Project will be launched in late 2014.
 - Confidential for 2 years.
- 14 Sponsors



GEUS

BGR Bundesanstalt für Geowissenschaften und Rohstoffe

JARDFEINGI

TNO innovation for life

ÍSOR ICELAND GEOSURVEY



ORKUSTOFNUN
National Energy Authority

Conclusions

- Three licenses granted in the Dreki area.
- Recent independent sampling by VBPR/TGS and NPD confirms the presence of pre-opening sediments.
- Pre-rift stratigraphy probably analogous to the Møre and Liverpool Land Basins.
- NAG-TEC project will form the essential knowledge base for setting regional exploration priorities for the next decade and beyond.
- Booth No. : 9



Thank you very much for your attention !



Jan Mayen Island with view towards the Beerenberg (2277 m) stratovolcano.