

UiT

**THE ARCTIC
UNIVERSITY
OF NORWAY**

Department of Geology University of Tromsø The Arctic University of Norway

Matthias Forwick (Head of Department) &
Alfred Hanssen (Leader of ARCEX)

FORCE seminar *Joining Forces 2016*
Stavanger

February 3rd 2016



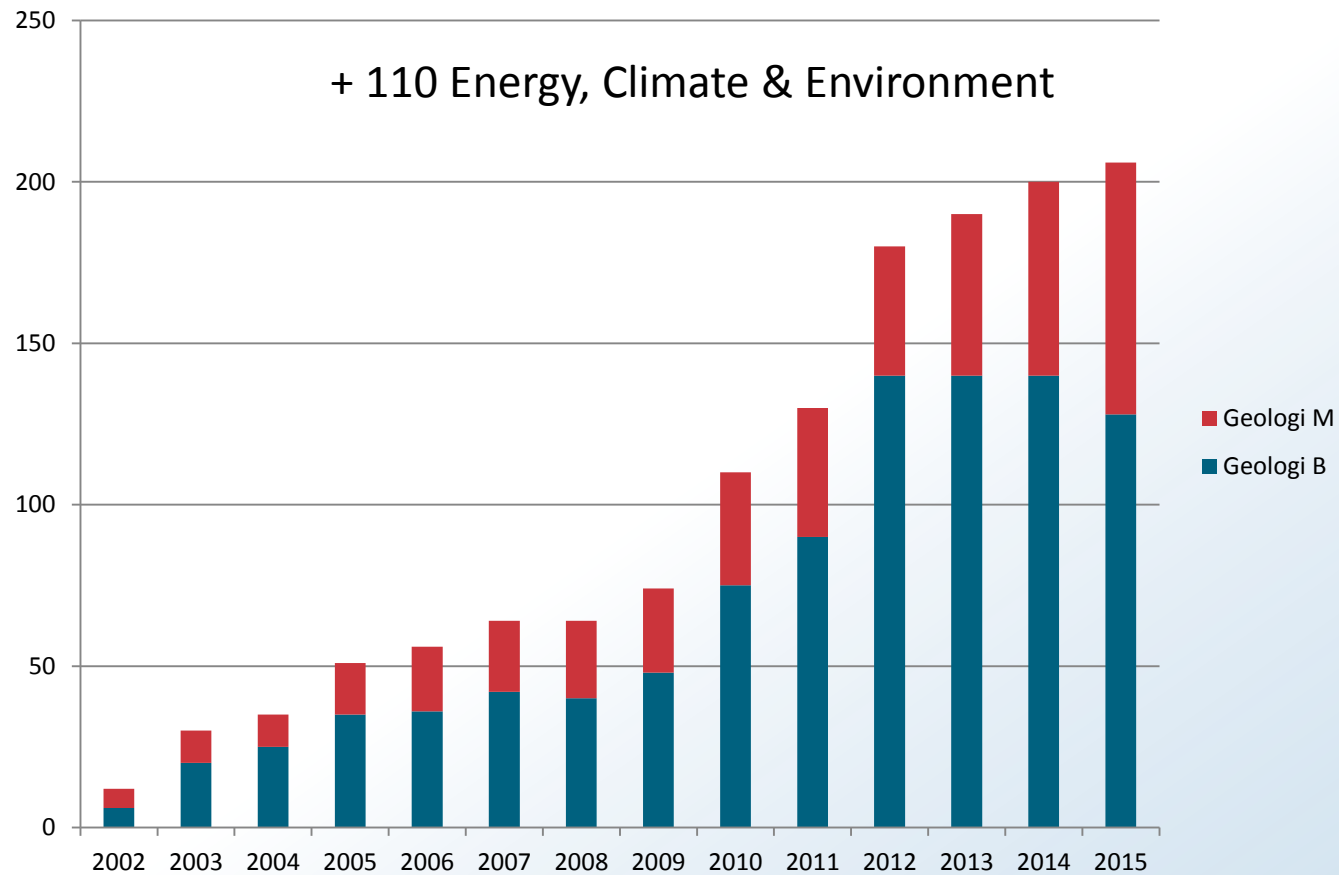
Some facts – UiT The Arctic University of Norway



Location – transport

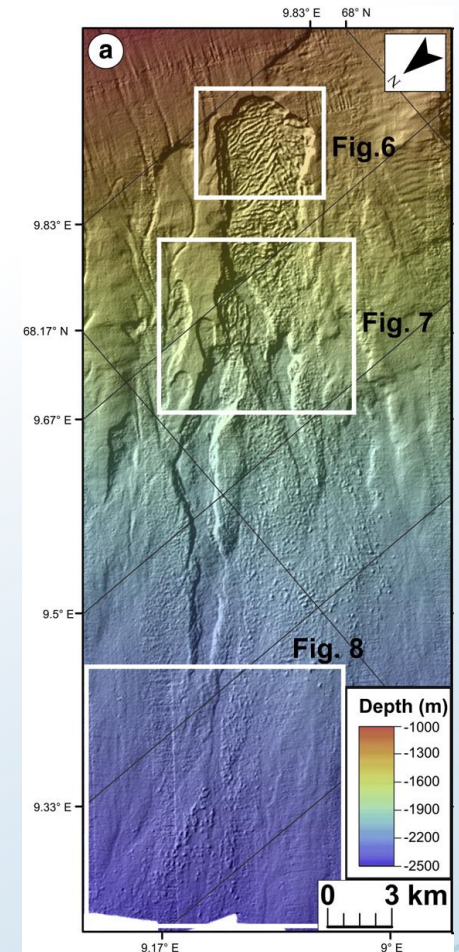


Some facts (no. of students)



Polar Marine Geology and Geophysics

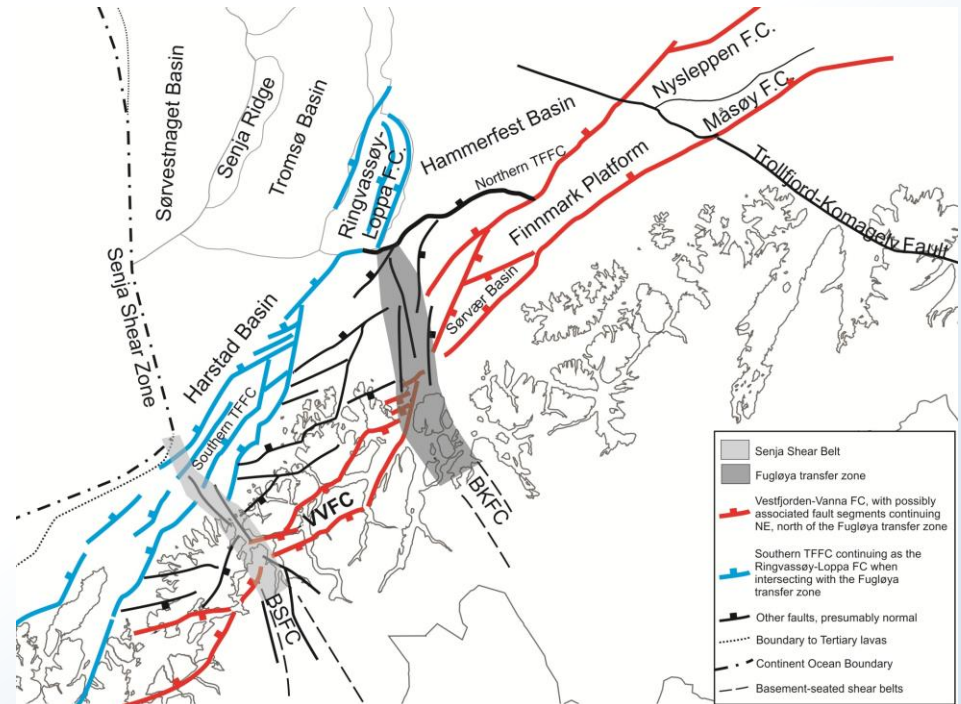
- Erosion and sediment fluxes
- Geo-hazards (submarine landslides)
- Gas hydrates & Fluid flow
- High-resolution 4D seismics



After Baeten et al., 2013

Crustal Dynamics

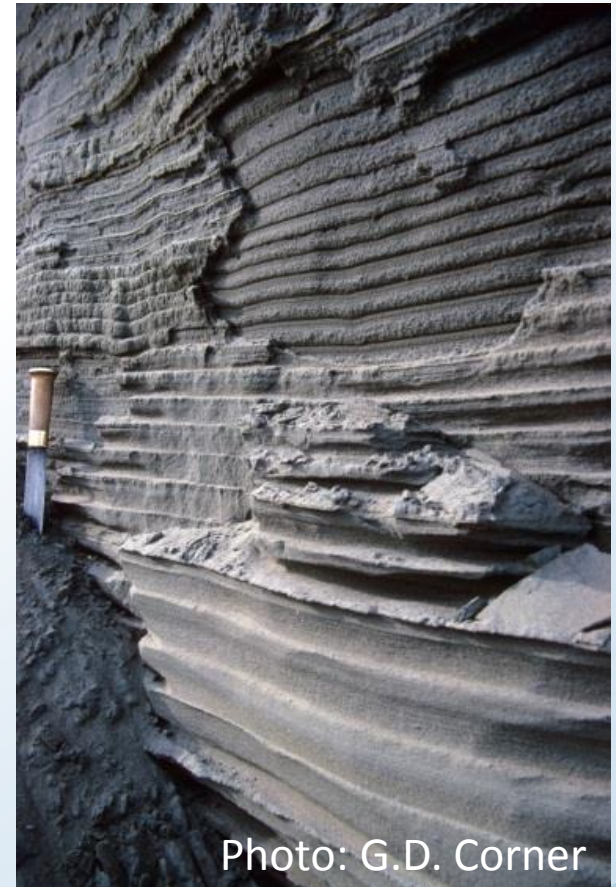
- Tertiary tectonics on Svalbard and in the Barents Sea
- Onshore-offshore correlation of tectonic structures



Indrevær et al., 2014

Coastal and Terrestrial Geosciences

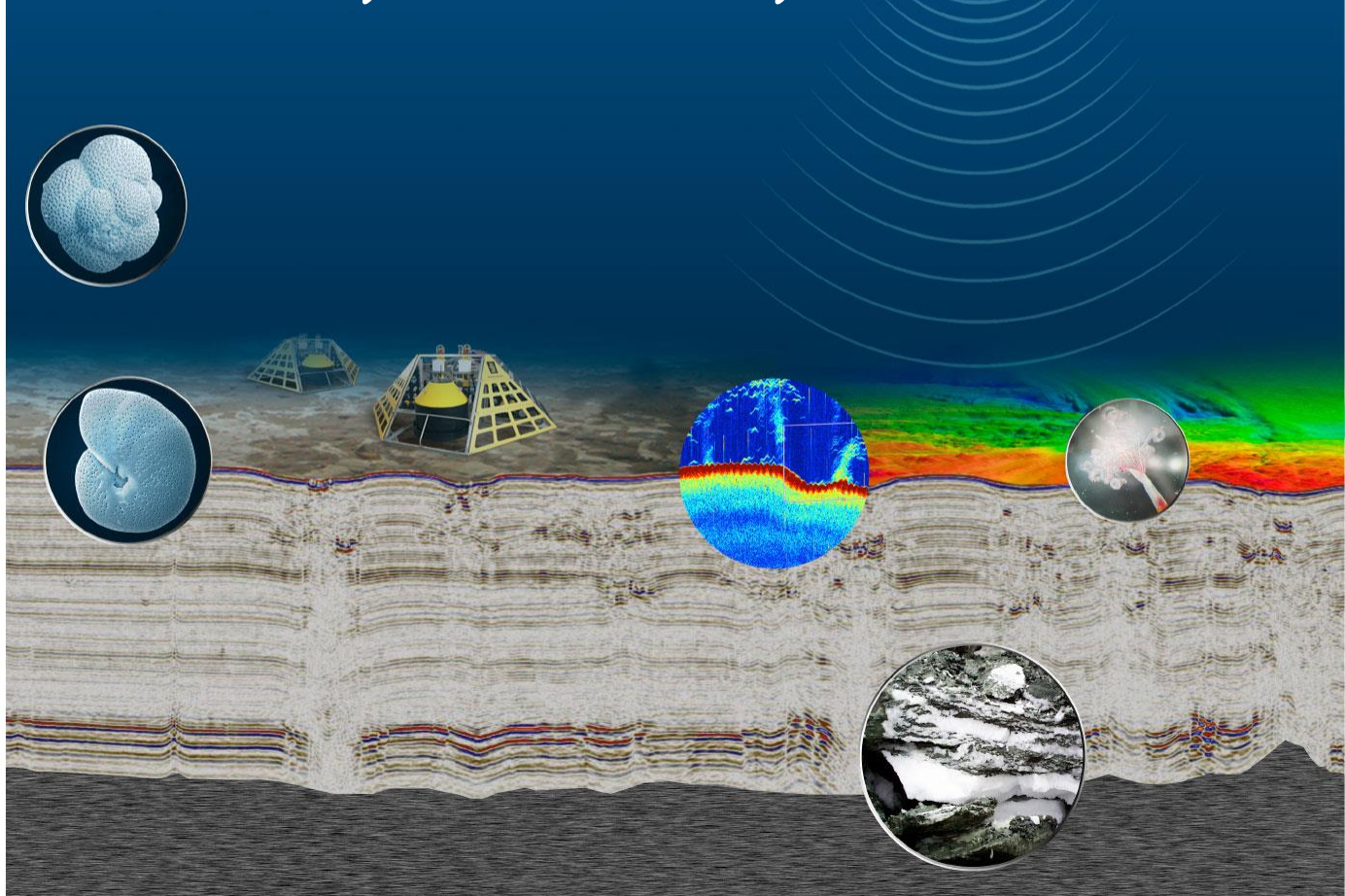
- Sedimentary processes
- Deltaic processes
- Geohazards





Centre for
Arctic Gas Hydrate,
Environment and Climate

Integrated Technologies

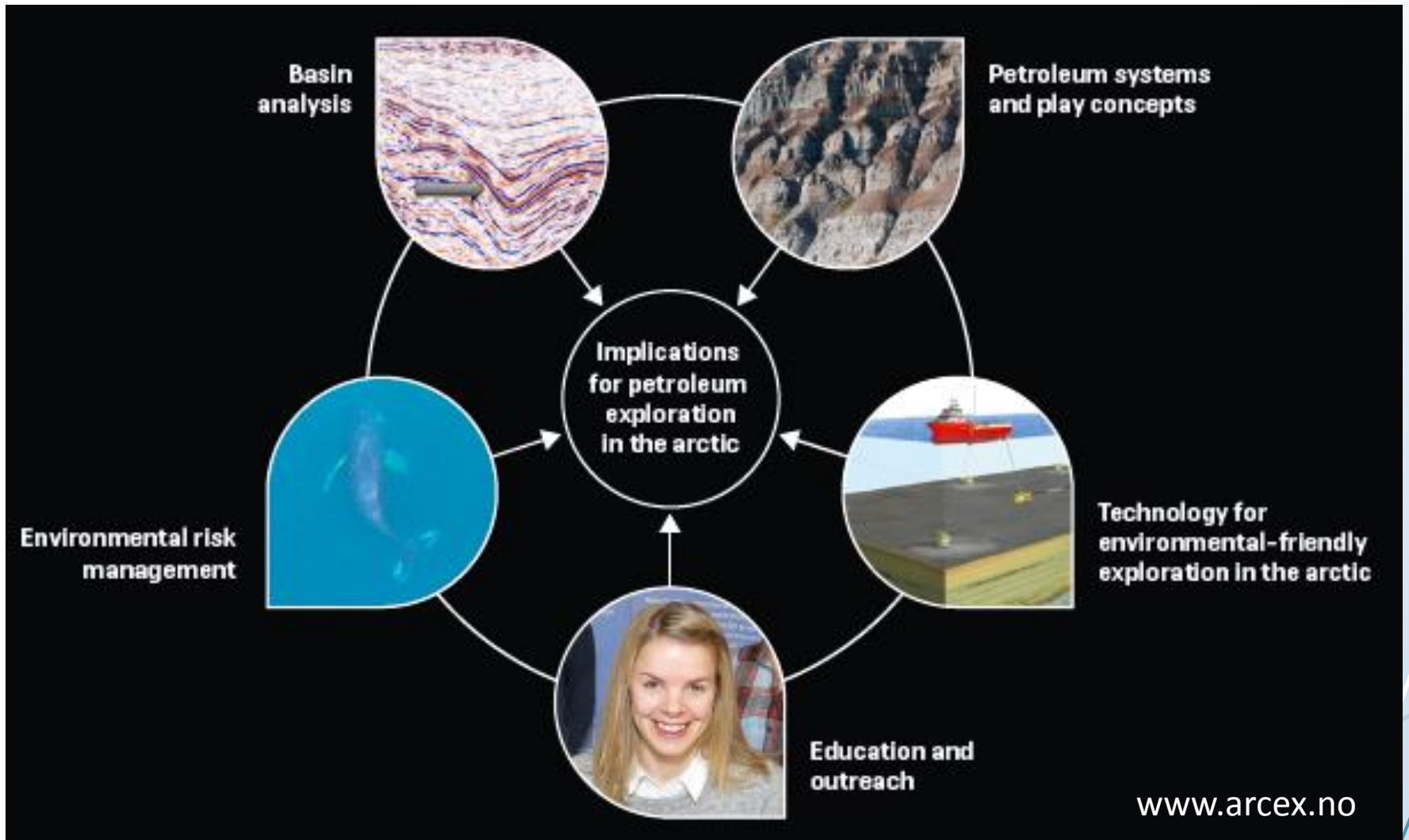


Jürgen Mienert
Director

www.cage.uit.no



Research Centre for Arctic Petroleum Exploration (ARCEX)



Environmental Waste Management (EWMA) & Barents Sea drill cuttings research initiative (BARCUT)



- Environmental effects of operational discharges and industrial waste
- Deposition and spreading of drill cuttings and mine tailings
- Education
- <https://site.uit.no/ewma/>

Infrastructure



Infrastructure – RV *Helmer Hanssen*



- Multibeam echo sounder
- Chirp
- High-resolution 3D seismics
- Coring
- ...

Infrastructure – *RV Kronprins Haakon*

- New, ice-going research vessel
- Operative from 2018
- Helicopter hangar
- Seismics
- Moon pool
- Handling of shallow-drilling gear



- ... new horizons opening up for national and international activities ...

Thank you for your attention!
(Department of Geology in late spring)

www.uit.no/geologi

UiT

THE ARCTIC
UNIVERSITY
OF NORWAY

ARCEX
Research Centre for
Arctic Petroleum Exploration

ARCEX

Prof. Alfred Hanssen

Director ARCEX (since summer of 2015)

Deputy leader, OG21 – TTA1 (Energy efficient and environmentally sustainable technologies)



My journey: From rocket science to rock science



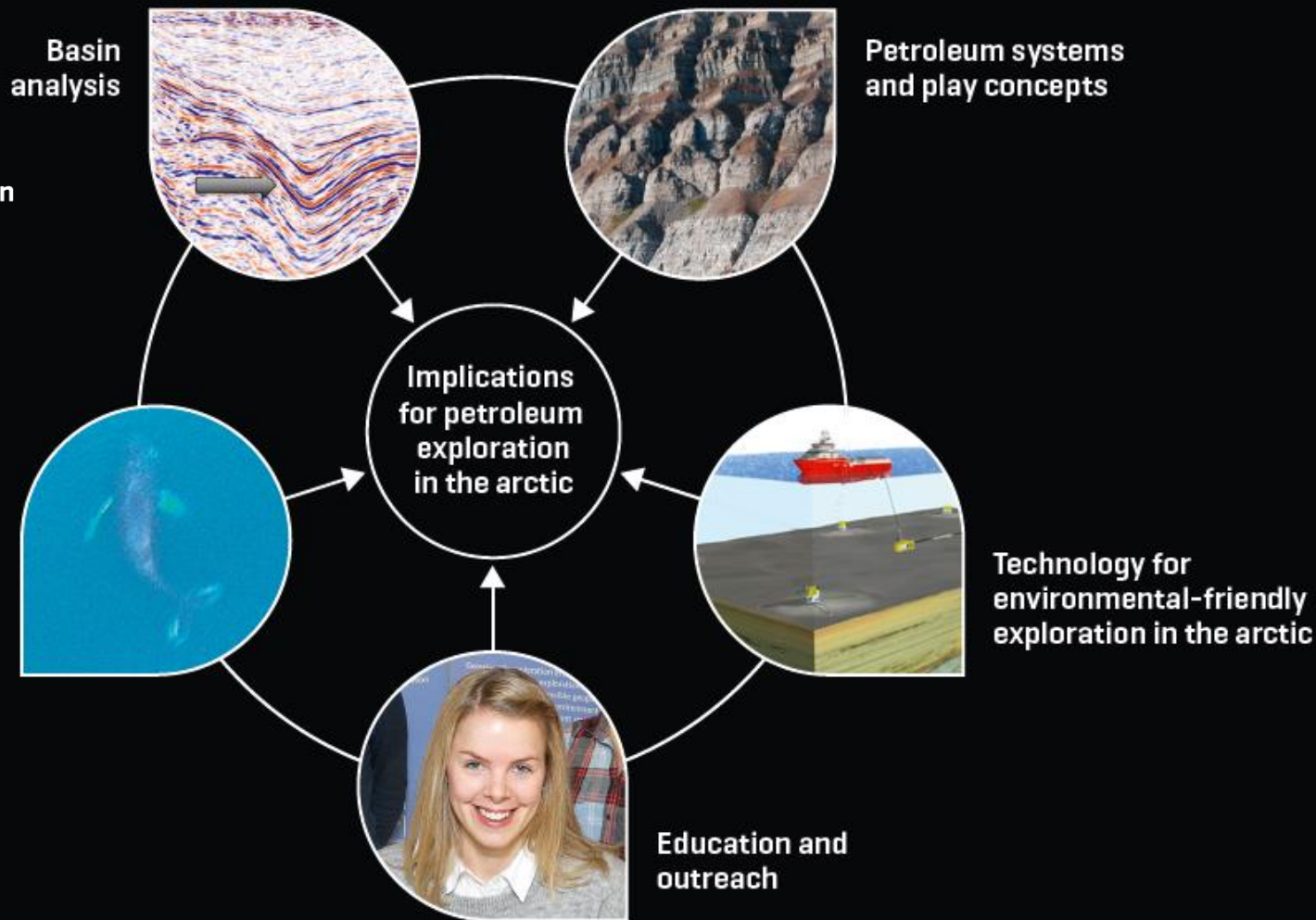


UiT / THE ARCTIC UNIVERSITY OF NORWAY



+ 21 international research partners





ARCEX in numbers

- 10 PhD students (out of 14)
- 5 Postdocs (out of 15)
- 6 adjunct profs.
- Project funding for 17 senior scientists
- 1.5 administration

- About 160 individuals

- Total budget about 230 MNOK (2014 – 2021)



ARCEX Management Team



Prof. J.I. Faleide, UiO



Prof. S. Olausen, UNIS



Assoc. prof. S.A. Grundvåg, UiT



Deputy dir. J. Carroll, APN



Prof. S. Johansen, NTNU



Prof. T.A. Johansen, UiB



Prof. J.S. Laberg, UiT

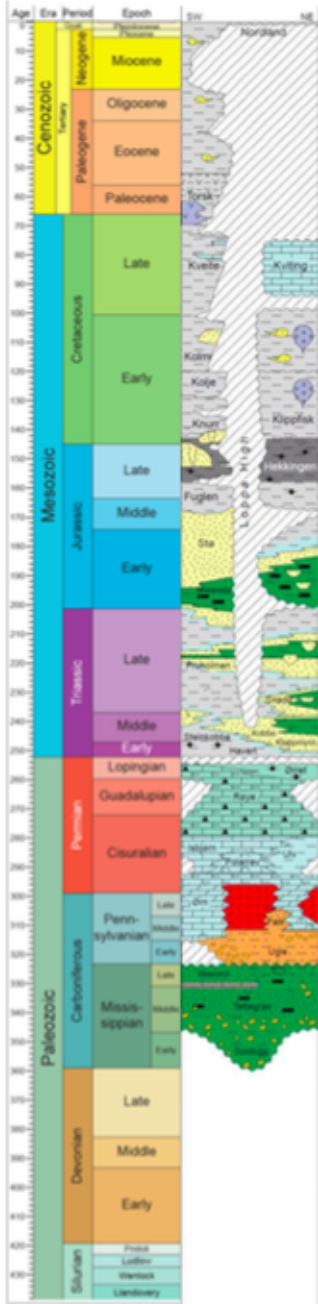


Assoc. prof. J. Nahrgang, UiT

Board: Statoil, ENI, Lundin, Tullow (Det norske)
UiT, APN, UiB (UiO)

Observers: NPD and RCN





Main geological events affecting the western-central Barents Sea:

- + Basement
- ↔ Multiple rift phases
- ↓ Regional subsidence
- ↔ Contraction/inversion
- ↑ Regional uplift/erosion

LoCrA, Trias North, BarPz

www.nhm2.uio.no/norlex

3D-model of the Hammerfest Basin



Seismics in sea ice – field measurements at Svalbard



(Photo: Tor Arne Johansen, UiB)

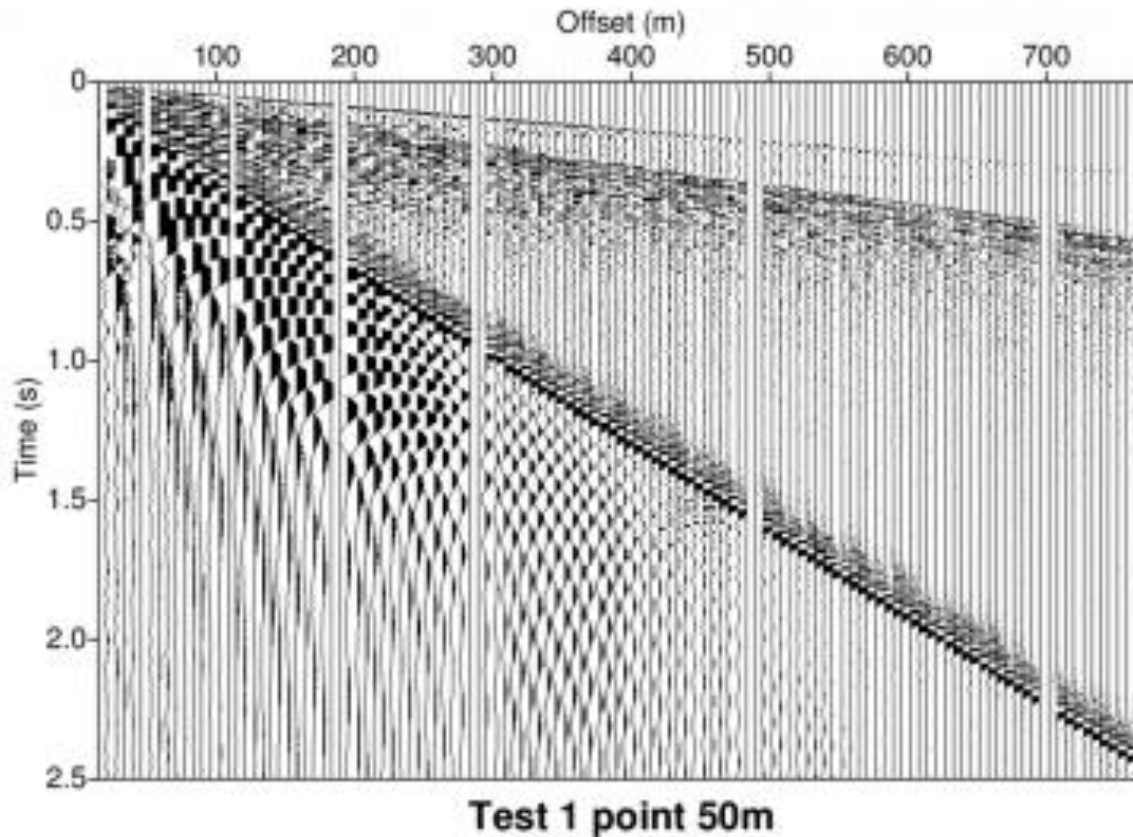


Seismics in sea ice (simulations)

Source: Marcus Landschulze 2015



Seismics in ice: nonlinear flexure waves

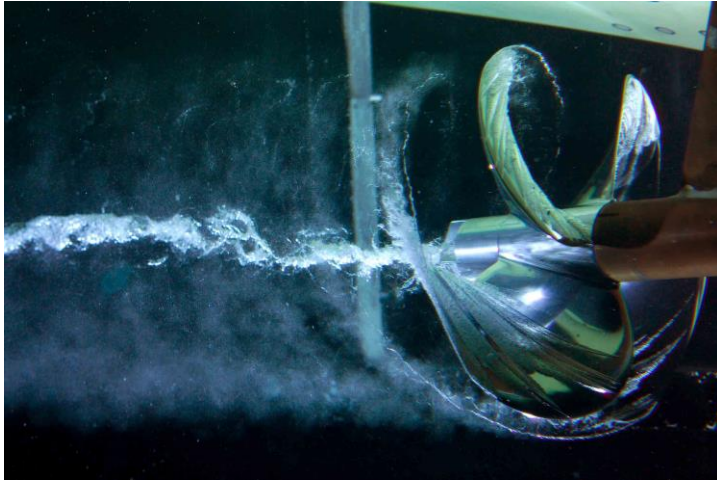


(Bent Ole Ruud, UiB)

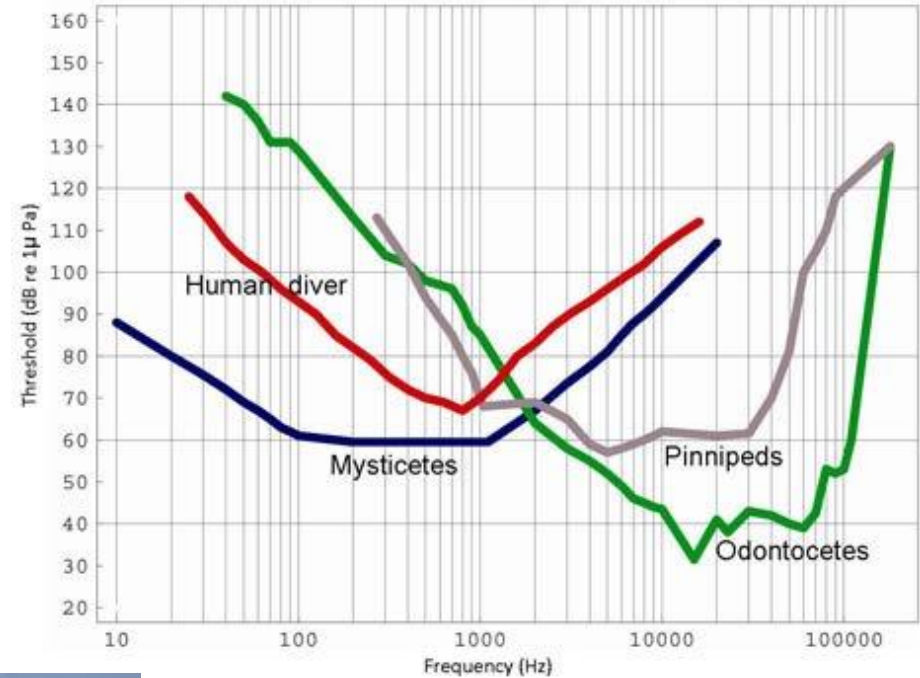
Dynamics on tectonic/regional scale is very similar to ice flexure



Seismic exploration and sea mammals



Cavitation -> collapse -> HF noise



M. Landrø & L. Amundsen. "Marine Seismic Sources Part V: The Hearing Of Marine Mammals."

(Photo: Audun Rikardsen, Nov. 2015)



Connections to some other projects (partial list)

- LoCrA (UiS/UNIS; industry)
- Trias North (UiO; RCN + industry)
- BarPz (RCN)

- Arctic Seismic Data Laboratory (UiB; ENI)

- SYMBOSES (Akvaplan-niva; RCN)

- CEED (SFF, UiO; RCN)
- CAGE (SFF, UiT; RCN)
- CIRFA (SFI, UiT; RCN + industry)

- CASE (NTNU; industry)



Conclusions

- Great potential to use ARCEX as an umbrella for new projects that fit in, or for continuation of old projects that end
- Need new capital to expand
- Several expansion routes are explored
- Can FORCE play a role?



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Check out our web:

www.arcex.no

Photo: Iver Martens



ARCEX