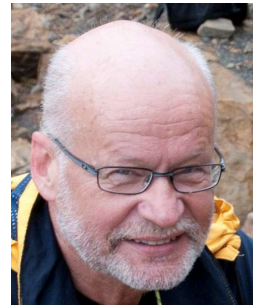
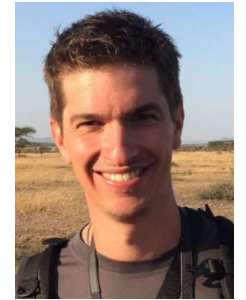


Applied Basin Analysis: Processes, Resources and Evolution of Life

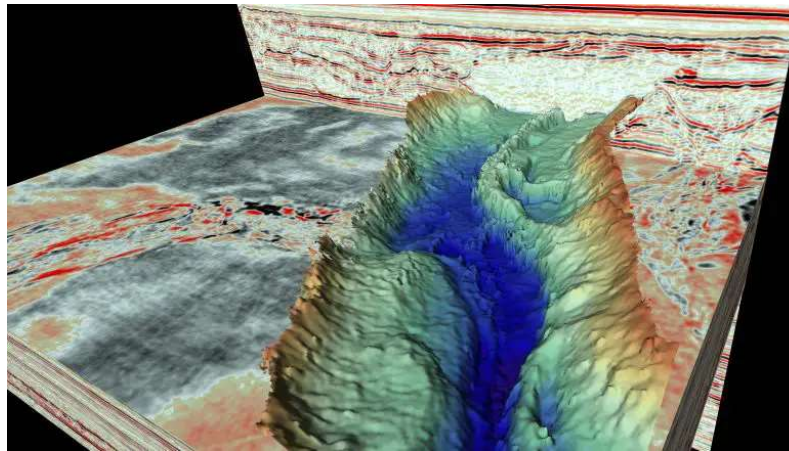


Study of sedimentary basins: The People



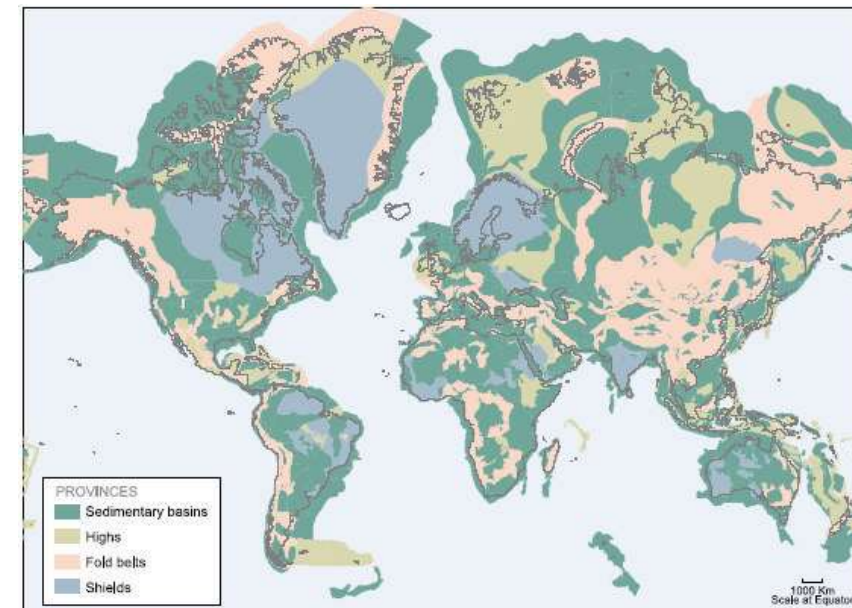
The other people:
Guest, adjunct

Applied Basin Analysis: Processes, Resources and Evolution of Life



Credit: James Kirkham

- Investigates sediments and the information they contain, and how life has evolved and diversified
- Sedimentary basins – window into Earth's History.
- Hosts fossil fuels, drinking water, geothermal energy, minerals, ores, building material, fossils, are sites for CO₂ storage, compressed water storage/H₂ storage – sustainable resource use and extraction/climate change negation
- Understanding of basins and their infill history, the formation of different depositional environments and the subsequent sedimentary rock characteristics, the post-depositional history, compaction, alteration and fluid circulation : Approached through a variety of geological and geophysical methods



after Bradshaw and Dance, 2005; and USGS, 2001a



Mandatory courses

You select courses after consulting with your supervisor or [coordinator of the programme option](#).

You choose at least 20 ECTS from the courses below.

- [GEO4014 – Basin Analysis - Scientific Writing, Presentation and Field Course](#) (spring)
- [GEO4216 – Sedimentology and Sequence Stratigraphy](#) (autumn)
- [GEO4240 – Seismic Interpretation](#) (spring)
- [GEO4250 – Reservoir Geology](#) (autumn, will change the name to *Subsurface characterization* in 2024)
- [GEO4260 – Geophysical Monitoring](#) (spring)
- [GEO4850 – Basin Tectonics and Structures](#) (autumn)

4th semester	Master's thesis		
3rd semester	Elective course / master's thesis	Master's thesis	
2nd semester	Mandatory course / elective course	Elective course / mandatory course	Master's thesis / elective course
1st semester	Mandatory course + HSE-courses	Elective course / mandatory course	Elective course / mandatory course
	10 ECTS credits	10 ECTS credits	10 ECTS credits

GEO4014 – Basin analysis, seminar and field course



Examples of study directions

- **Structural geology and sedimentology:** Understand how basins are formed through tectonic processes (faults), and how sediments are transported and stored in basins, how tectonic forces, volcanoes, compaction, chemical alterations impact deposits. Large-scale (global), regional local basins/formations, to microscopic

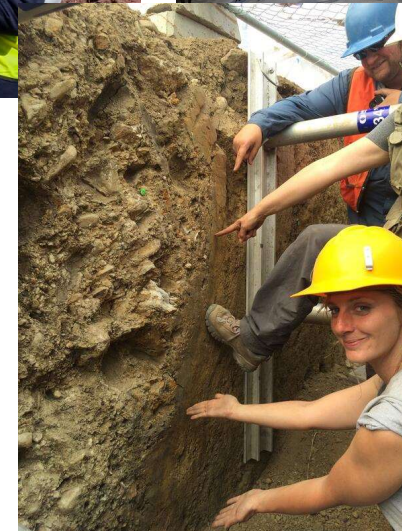
Field-based, lab-based, computer based

- **Subsurface characterization: CCS, exploration, geothermal, ore resources.** Applied study - Resources, future energy, climate solutions
- **Paleontology/micropaleontology**
- The evolution of life - geochronology
- Tracking climate change/plate reconstructions



Future working environments

- Consultant, advisor
- Mineral and mining, exploration
- Oil and Gas
- CCS
- Political advisor
- Geotechnical/construction
- Academia, research, museum
- Research organization: NGI, Sintef



Some available MSc thesis, or talk to a supervisor

- [Rifting mechanism and breakup along the NE Atlantic: insights from basin modelling across the Lofoten and the NE Greenland conjugate margins](#)
- [From sedimentary basin to volcanic passive margin: the central west Greenland case example](#)
- [Assessing the possible interplay between normal faulting and development of depositional environments in the Upper Cretaceous Blackhawk Formation](#)
- [Uncertainty quantification of geomechanical data for CO2 containment risk assessment](#)
- [Using Machine Learning to classify hydroacoustic events in a large acoustic database from the Indian Ocean](#)
- [Available master projects Spitsbergen Mesozoic Research Group \(SMRG\)](#)
- [Marine faunas in the Holocene of the Oslofjord area – climate, sea level, faunal invasion](#)
- [Paleo-oceanographic reconstructions of environmental change during the past centuries in contrasting northern Barents Sea environments](#)
- [Laboratory-scale microseismic data analysis](#)