

Seafloor morphology – 2 credits

Course Number: 224.4036

Lecturer: Prof. Michael Lazar

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Course Type: Seminar

Course Level: MSc/ PhD

Prerequisites: None

Course Description:

The course provides an overview of the seafloor and the geological/sedimentological processes that shape its morphology, from currents to submarine landslides.

Topics:

1. Measurements – single beam, multibeam, backscatter.
2. Creation and recycling of the seafloor – subduction and other processes.
3. Sediments – terrigenous, neritic and pelagic. Sources and transport. Chemical deposition in the ocean.
4. Submarine fans.
5. Submarine landslides – triggering mechanisms, types, recognition in seismic data.
6. Turbidity currents – formation, maintenance and resulting seafloor features.
7. Contour currents and contourites – formation processes and resulting seafloor features.
8. Seamounts.
9. Pockmarks and their connection to gas escape from the seafloor.
10. The law of the sea – seafloor resources and mining rights.
11. Student lectures.

Learning Outcomes:

At the end of the course students will be able to understand the processes affecting the morphology of the seafloor, be able to read and interpret a bathymetric (multibeam) map and recognize ancient seafloor features in seismic data.

Requirements: Attendance, oral report in class and final paper.

Grading: Oral report: 30%, written report: 70%.

Reading List: Relevant scientific publications.