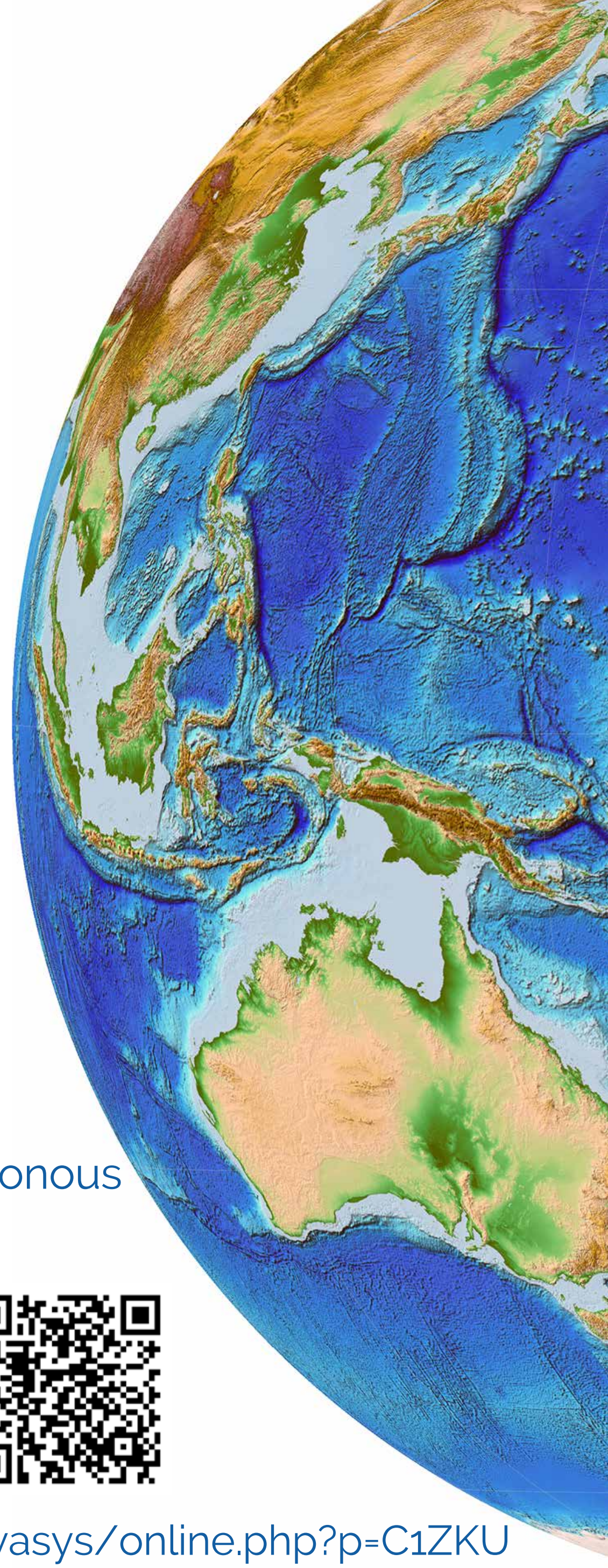
GEOMAR-iMAGE CREATE Seafloor Mapping School

training in remote predictive geological mapping techniques, with a focus on seafloor geology



Learn how to

- compile and integrate data
- access data repositories
- identify key datasets
- set up GIS-based map projects
- interpret data to construct a geological map and legend

Delivery:

a blend of online interactive/ synchronous training plus asynchronous learning activities

Dates:

15th - 26th of September 2025

Registration:

https://studfeedback.uni-kiel.de/evasys/online.php?p=C1ZKU
until 30th of June 2025

iMAGE CREATE

NSERC CRSNG

GEOMAR
Helmholtz Centre for Ocean Research Kiel

C A U
Kiel University
Christian-Albrechts-Universität zu Kiel
interdisciplinary Master School of Marine Sciences (iMSMS)

sea·EU
EUROPEAN UNIVERSITY OF THE SEAS

SEA-EU Marine Module description

Module offers for the SEA-EU 'Virtual Marine Open Elective Modules'

General Information

Module/Course Name	GEOMAR-iMAGE CREATE Seafloor Mapping School	
Module/Course Code	-	
Field of Education	Generic programmes and qualifications	☐
	Education	☐
	Arts and humanities	☐
	Social sciences, journalism and information	☐
	Business, administration and law	☐
	Natural sciences, mathematics and statistics	☒
	Information and Communication Technologies	☐
	Engineering, manufacturing and construction	☐
	Agriculture, forestry, fisheries and veterinary	☐
	Health and welfare	☐
	Services	☐
Study programme	Not included in any study programme; organized by the Marine Mineral Resources Workgroup GEOMAR Helmholtz Centre for Ocean Research Kiel, Earth and Environmental Sciences Department - University of Ottawa, iMAGE-CREATE (NSERC Collaborative Research and Training Experience project)	
Number of ECTS and total student workload	5 ECTS / 150 hours, graded	
Contact hours and Independent study hours	40 hrs contact time and 110 hrs independent study (mapping project and report writing)	
Typology of contact hours	Online lectures and practical exercises with GIS in cooperation with additional 10 iMAGE-CREATE students from Canada. Independent work on the mapping project and report writing is expected.	
Academic Year	For SEA-EU counted for 2025/2026	
Semester / Specific period	SEA-EU autumn/winter term (Sept 2025-Jan 2026)	
Teaching Language	English	

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Delivery mode	Online (via Zoom)
Responsible Lecturer	Prof. Dr. Sylvia Sander Phone: +49-(0)431-600-1420, E-mail: ssander@geomar.de
Other lecturers	Prof. Sylvia Sander (GEOMAR) Prof. Mark Hannington (University of Ottawa, CA) Dr. Alan Baxter (University of Ottawa, CA) Dr. Anna Krätschell (GEOMAR) Dr. Philipp Brandl (GEOMAR) Dr. Sven Petersen (GEOMAR) and guest lecturers
Learning outcomes	Students will learn how to compile and integrate geospatial data sets in their mapping projects, accessing various data repositories and be able to identify and understand key datasets for mapping. Students will learn to interpret data to constuct a geological seafloor map and according legend. (keywords: - GIS proficiency, - understanding data archives and protocols, - seabed mapping technologies and applications, - data processing, - navigation, - geophysical and geological data interpretation for seabed mapping)
Course contents	The GEOMAR-iMAGE CREATE Seafloor Mapping School provides intensive introductory training in seafloor geology and remote predictive geological mapping techniques. Students are introduced to data compilation and integration, accessing data repositories, how to process different data sets such as multibeam bathymetry and geophysical data, how to set up map projects in a GIS with the relevant data management tools and editors, and how to interpret the compiled data in terms of the geological attributes of the seafloor. Students learn how to construct a geological map legend, create relevant map layers, including regional time-stratigraphic models, and undertake geodynamic reconstructions of large areas of the oceans. The first four days of the Mapping School are an introduction to marine geology and seabed mapping. The remaining 5-6 days consist of practical exercises, lectures, and discussions.
Prerequisites and/or recommended academic background	Intermediate GIS knowledge and geoscientific background with at least basic geodynamics and geology knowledge.
Assessment	Assignments during the course (e.g., training map) – 15%; mapping project – 50%; written report on map creation and content – 35%. This summer course is internationally and interdisciplinary open.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

	Students of all faculties and disciplines are welcome to join. The ECTS gained could be recognized in the electives section of your curriculum. To make sure, please contact your study advisor or examination office in advance. Several (individual- and group-) assignments, the main mapping project, a written report on the map creation and its content contribute to final mark.
Main bibliography	-

Organisational Information

Maximum number of SEA-EU participants
10
Learning Management System
E-Mail
Course schedule (date and time)
15th September to 26th September 2025, from 14:00-18:00 CEST
Application deadline
30rd June 2025

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

iMAGE CREATE - GEOMAR Seafloor Mapping School - Course Schedule

Date	Topic	Support hours (CEST*)	Live sessions (CEST*)	Live sessions (EST*)	Support hours (EST*)
tbd	Orientation & Technical Requirements	--	15:00-16:00	09:00-10:00	--
Mon 15 Sep	Introduction to the Course & Ocean Exploration	--	14:00-18:00	08:00-12:00	--
Tue 16 Sep	Seafloor Geology & Remote Sensing of the Seafloor+	--	14:00-18:00	08:00-12:00	12:00-13:00
Wed 17 Sep	Introduction to Geological Mapping of the Seafloor	13:00-14:00	14:00-18:00	08:00-12:00	--
Thu 18 Sep	Mapping Project Setup	--	14:00-18:00	08:00-12:00	12:00-13:00
Fri 19 Sep	Mapping Project Theory	13:00-14:00	14:00-18:00	08:00-12:00	12:00-13:00
	Weekend				
Mon 22 Sep	GIS Techniques & Interpretation I	13:00-14:00	14:00-18:00	08:00-12:00	12:00-13:00
Tue 23 Sep	QA/QC & Interpretation II	13:00-14:00	14:00-18:00	08:00-12:00	12:00-13:00
Wed 24 Sep	Cartographic Elements & Interpretation III (Quantitative Analysis)	13:00-14:00	14:00-18:00	08:00-12:00	12:00-13:00
Thu 25 Sep	Final Map Preparation	13:00-14:00	14:00-18:00	08:00-12:00	12:00-13:00
Fri 26 Sep	In-Class Presentations	13:00-14:00	14:00-18:00	08:00-12:00	

**CEST: Central European Summer Time, i.e. current time in Germany; EST: Eastern Daylight Time, i.e. current time in Ottawa. +may overrun*

Times:	10 days (4 hrs lectures and interactive, 1 hr in-class support as required), on-line via Zoom Total of 40 hrs live sessions: 8am-12am Ottawa, 2pm-6pm Kiel; plus, additional time for support and asynchronous tasks!
Participation:	20 students (Masters-level): 10 students enrolled at the CAU, and/or SEA-EU partner universities and 10 Canadian students of the iMAGE-CREATE programme
Focus:	Geological maps for understanding crustal growth and geodynamics Tools for constructing maps, legends, crustal sections and stratigraphic columns of the seafloor
Professors:	Mark Hannington (Univ. Ottawa, CA), Sylvia Sander (CAU and GEOMAR)
Instructors:	Alan Baxter, Anna Krätschell, Mark Hannington, Margaret Stewart, Philipp Brandl, Sven Petersen, Melissa Anderson, Erin Bethell, Chris Galley, Carlos Braga
Assignments:	Training map (100 x 100 km, 1:500,000; what to draw, where to draw it) Project map (regional scale, 1:500,000 to 1:1 Mio scale), individual or in small groups. Written report on the map project.