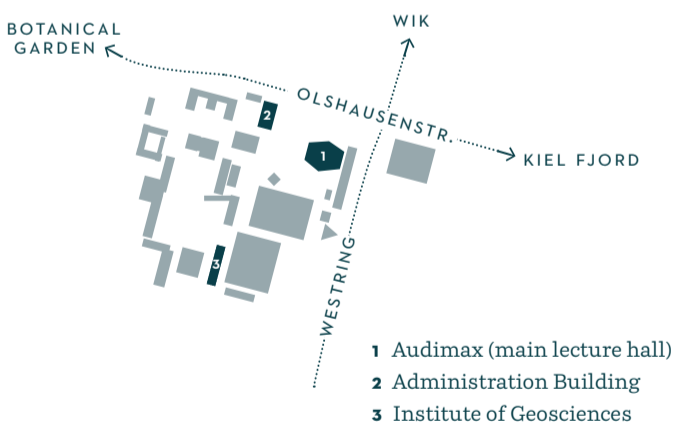
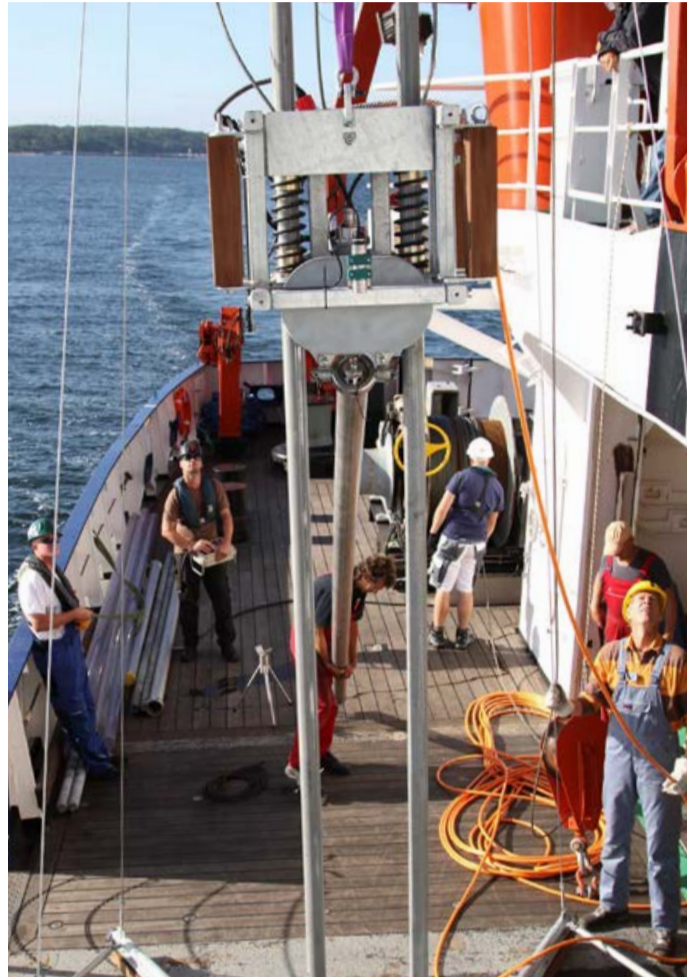


Kiel Marine Science — Connected Research

Marine research in the northernmost German state Schleswig-Holstein has a long tradition reaching back 300 years. Today, the city of Kiel is home to internationally connected, top-level research in the marine sciences both at Kiel University and at non-university research institutes. At Kiel University, the Centre for Interdisciplinary Marine Sciences, Kiel Marine Science (KMS) represents research in the marine and geosciences. KMS supports a wide range of activities in the integrated marine science research projects of more than 40 scientists. Natural scientists work together with researchers from the fields of economics, medicine, law, social sciences, engineering sciences and computer sciences on questions concerning the role of the ocean in global change. Interdisciplinary marine research at Kiel University contributes to the understanding of processes in the ocean and to the development of strategies for sustainable use and preservation of the ocean system.

The marine scientists are connected in research and teaching to other institutes of the university, such as the Research and Technology Centre West Coast in Büsum (FTZ Büsum), the Society for Marine Aquaculture (GMA) and the Gustav Radbruch Network for Environmental Philosophy and Ethics. Furthermore, marine scientists at the Kiel Firth cooperate closely with non-university partners, such as the GEOMAR Helmholtz Centre for Ocean Research Kiel in research and teaching. As a result, collaborative research centres and the Cluster of Excellence “The Future Ocean” have emerged in recent years.



Centre for Interdisciplinary Marine Science

Kiel University

Director of KMS

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→ **Molecular Biology / Plant Physiology**
How can microalgae and their pharmacological activity be used for bioenergy production?

→ **Marine Geology and Paleoclimate Research**
Which processes control the link between land and ocean climates in the geological past?
What role do marine biogeochemical cycles play in global climate change?

→ **Biological Impacts of Ocean Acidification**
How do organisms respond to ocean acidification in regulating their cellular pH?

→ **Polar Ecology**
How do changes in the ocean due to climate (temperature rise, acidification and, in polar regions, the sea ice decrease) affect the distribution, composition, diversity and ecosystem functions of benthic biocoenoses?

→ **Environmental, Resource and Ecological Economics**
How can sustainability of the ocean be conceptualized?
How can sustainable management of marine resources be implemented by means of economic policy instruments?
What are the economic aspects of climate change mitigation, adaptation and climate engineering?

→ **Ocean Surface Chemistry**
How can modern laser spectroscopic methods be used to advance our molecular level understanding of marine processes?
To what extent do oxidation processes alter the organic coating of atmospheric particles?

→ **The Role of Mathematics for Marine Research**
How can we improve the parameterization of near surface vertical mixing processes to better existing global ocean circulation models?

→ **Microbiology**
What are the main players, reactions and process rates in the marine nitrogen cycle?
How can we use marine genetic resources for potential biotechnological and medical applications?

→ **Marine Medicine**
What are the interactions between complex barriers and microbiota in the Ocean?

→ **Marine Aquaculture**
How can we develop environmentally friendly methods for aquaculture?

→ **Geography**
How can the impacts of coastal hazards be assessed?
How can risks arising from the coupling of sea level rise (SLR) and other coastal stressors/hazards be discerned and potential impacts assessed?

→ **Sedimentology, Coastal and Continental Shelf Research**
How does the coastline react to short and long term fluctuations in sea level?

→ **Informatics**
How can marine ecosystem models be assessed and improved?

→ **Coastal Geoscience and Engineering**
Which strategies are best suited for predicting the effects of sea level rise, tsunamis and extreme storms on coastal hydrodynamics and morphodynamics?
Which are the best strategies for predicting human impacts in coastal regions?
How can coastal information systems be set up for the prediction of water levels, currents and waves in quasi real time?

→ **International Law of the Sea**
Which is the legal framework regulating activities being undertaken in the open sea and on the seafloor?
Which liability issues can arise? Which tools can be implemented to conserve marine biological diversity, e.g. in marine protected areas?

→ **Marine Geoscience**
What processes control sediment (re)disposition and transport on the shelf, across the shelf break and on the continental slope?
What are the dominant processes and environmental controls of mass wasting?

→ **Marine Ecology**
How can we evaluate the environmental effects of offshore wind farms, fishery, shipping and garbage with a focus on sea birds?

→ **Computer Science**
How can appropriate workflow support for managing marine science data be achieved?

Centre for Interdisciplinary Marine Science

Connected Research