

Abrupt, Past and Future Climate Changes

Lecture content:

This course introduces to the reconstruction and modeling of abrupt climate changes, provides an overview of paleo and historical climate changes (from the role of oceanic gateways in the Cenozoic through Pleistocene climate cycles to natural climate variability during the Holocene) and presents an outlook on future climate changes in response to projected anthropogenic climate forcings. Available evidence for past climate changes (from ice and marine sediment cores) as well as current climate change (from historical and instrumental data) is discussed. Computer lab exercises with conceptual climate models and results of comprehensive climate models are used throughout to investigate the processes that cause those climate changes.

Competences:

- to become familiar with the reconstructed climate variations for selected time intervals of the Cenozoic
- to gain an understanding of the dynamics of abrupt climate changes
- to become able to assess the respective roles of natural and anthropogenic climate variations in past and future climate changes

Further course details –see homepage of the MSc Marine Geosciences

(<https://www.geo.uni-bremen.de/page.php?pageid=1056>) and/or

MSc Applied Geosciences (<https://www.geo.uni-bremen.de/page.php?pageid=1057>)