High-Resolution Climate Modeling on Unstructured Meshes

This project envelops different activities using the multi-resolution Finite Element Sea Ice-Ocean Model (FESOM) for climate studies. FESOM is used primarily at Climate Sciences division of AWI and is being broadly applied to a spectrum of research involving general ocean and sea ice dynamics, ice shelfs, basal mass loss, etc. The multi-resolution approach of FESOM allows to use enhanced horizontal resolution in dynamical active regions while keeping a coarse-resolution setup everywhere else. FESOM is also intensively used in the fully coupled climate studies, where it is coupled to the atmospheric model ECHAM6.
The climate model ECHAM6–FESOM is planned to be the AWI contribution to the prestigious CMIP (Coupled Model Intercomparison Project). Besides research activities involving FESOM, the technical efforts are being put into optimizing the coupled and uncoupled setups including the development of new dynamical cores.