



Implementation of NEMO v4.0.1 as ocean component for the regional climate modeling framework

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The 'German Strategy for Adaptation to Climate Change' (DAS) provides the political framework to climate change mitigation and adaptation in Germany. The associated 'Adaption Action Plan' envisages the establishment of an operational forecasting and projection service for climate, extreme weather and coastal and inland waterbodies. This service is intended to make use of a regional climate modeling framework, with NEMO v4.0.(1) as the ocean component. The atmospheric component will be provided by the German Weather Service (either the current weather forecasting model ICON or COSMO will be used) and will be coupled to NEMO after testing and calibration of NEMO on the regional scale.

The area of interest includes besides the North Sea and the Baltic Sea the entire North-West-Shelf to take into account cross-shelf transport, the water exchange between North Sea and Baltic Sea and the impact of North Atlantic weather systems on the internal dynamics of the seas. One focus area will be German Bight, well known for its large tidal flats, which make wetting & drying a desirable model feature, which will be tested in future. The used/implemented bathymetry includes the up to date measurements of the sea floor from the EMODNET network.

To achieve a proper description of the dynamics in this region the model has to be calibrated with regard to the timing and amplitude of the water levels in the coastal waters, the water inflow through the Danish straits, the thermal stratification as well as the seasonality and thickness of the sea ice in the Northern Baltic Sea.

These efforts are carried out in the pilot project 'Projection Service for Waterways and Shipping' (ProWaS).

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