



High-resolution Hydro- and Sediment Dynamics in the East Frisian Wadden Sea

J.-O. Wolff

University Oldenburg, ICBM, Physical Oceanography, Oldenburg, Germany (wolff@icbm.de)

A detailed review of scientific methods and results of high resolution numerical modelling efforts of the hydro- and sediment dynamics in the area of the East-Frisian Wadden Sea, southern North Sea, in the first decade of the 21st century is presented here. The activities have been concentrated in the research group "BioGeoChemistry of the Wadden Sea" funded by the German Research Foundation (DFG) from 2001 - 2009.

Based on a hypothesis that the East Frisian Wadden Sea is a strongly transgressive system that is loosing finer sediments over longer periods of time, either during normal tidal periods or through extreme wind events (storm floods), various numerical experiments have been conducted to understand the regional dynamics. These experiments encompass changes in sea level height, significant wave height and strong winds.

Validation of the model, sensitivity studies and results for extreme events are discussed and future developments using multi-scale modelling techniques are presented.