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Global Change and Baltic Coastal Zones

Chapter 1: Regionalisation of Climate Scenarios for the Western Baltic Sea

Gräwe, U.[1], Burchard, H.[1]

(1) Leibniz Institute for Baltic Sea Research Warnemünde

Abstract
Global coupled climate models are generally capable of reproducing the observed trends in the globally averaged atmospheric temperature. However, the global models do not perform as well on regional scales. Here, we present results from two 140-year, high-resolution regional ocean model experiments for the Western Baltic Sea. The forcing is taken from a regional atmospheric model and a medium scale ocean model. The model runs with two greenhouse gas emission scenarios (each for 100 years), A1B and B1, for the period 2000 to 2100. A control run (C20) from 1960–2000 is used for validation.
For both scenarios, the results show the expected warming, with an increase of 0.5–2.5 K at the sea surface and 0.7–2.8 K below 40 m. The simulations further indicate a decrease in salinity, a change in stratification, and an increase of the return period of storm surges.