CliNSBaS – Climate change impacts and adaptation in the North Sea – Baltic Sea region

Ongoing climate change poses a major challenge for the North Sea – Baltic Sea region and respective coastal areas. In particular, the projected sea-level rise in combination with potential changes in frequency and intensity of wind storms and storm surges, as well as precipitation and related runoff via rivers and canals mouthing into these basins is of high relevance for the German coastlines. Furthermore, changes in ocean temperature and salinity – both, regarding the mean state as well as the frequency and intensity of extreme events (e.g. marine heat waves) – may also induce significant consequences for different socio-economic sectors, such as the fishing and shipping industry or tourism.

The *German Federal Maritime and Hydrographic Agency* (BSH) is part of the *BMDV Network of Experts* (ExpN), a research project that pools the expertise and resources of seven departmental research institutes and specialist authorities in order to put competences onto a broader common basis, to link them more intensively and thus promote the transfer of knowledge and technology. Moreover, the network intensifies the dialogue between experts in science and research, industry and economy as well as in politics and administration. The respective BSH activities are associated with ExpN Topic area 1: Climate change impacts and adaptation. This comprises the analysis of the multi-model ensemble of global and regional climate simulations available from the *Coupled Model Intercomparison Project* (CMIP6) regarding (positive and negative) storm surges along the German coasts, precipitation induced runoff and related consequences for water levels in river estuaries, with special emphasis on events that may impact transport infrastructure and its use, e.g. the accessibility and functionality of harbours. In addition to the analysis of climate simulations already available, BSH participates in the development of a regional climate model ocean component based on NEMO4, covering the European shelf in order to perform climate model simulations both, in coupled and uncoupled mode tailored to the above-mentioned scientific questions.

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