

COASTDAT at IfK of GKSS, II:

Detailed projections of coastal climate change until 2100 in N Europe

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In a concerted effort of a series of quasi-realistic models of the regional atmosphere, the hydrodynamics of the North Sea and of the wave conditions, global climate change scenarios prepared for IPCC are downscaled to a high-resolution grid presentation of storminess, currents, water levels and wave heights in Northern Europe and particularly in the North Sea area. In this way, possible and plausible future developments are derived with an hourly time increment.

The analysis of the changing conditions indicates that for most parts of Northern Europe, storminess will increase at least in the domain of the North Sea. Maximum wind speeds may increase by about 10% accordingly, storm surge heights may rise by some 20 cm in the German Bight. Adding these increases to the expected mean sea level rise, higher storm water levels in Hamburg of 60 and more cm are plausible for the end of the 21st century. In this scenario, high waves in the German Bight may grow by another 20 cm. With such expectations for the end of the century, it appears unlikely that any man-made changes in the wind conditions and related effects in coastal zones can be detected within the next couple of decades.

The resulting hourly, high-resolution data set forms another of two major components of the data set COASTDAT, which is provided by the Institute for Coastal Research at GKSS to a variety of clients dealing mainly with coastal defense.