CoastDat Reconstruction of marine weather and risks since 1960 – a European strategy with potentials for SE Asia

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At the Institute for Coastal Research of the GKSS Research Center, a cascade of downscaling methods have been implemented to construct recent and possible future developments of regional and local marine weather and risks. The various spatially and temporally detailed data sets constructed in this way are assembled in a databank named “CoastDat”. The downscaling steps feature a state-of-the-art regional atmospheric model, and high-resolution hydrodynamic models of the considered marginal sea to simulate the details of currents, water levels and ocean waves. Eventually a post-processing with empirical transfer (downscaling) models is added where needed. This downscaling cascade has been implemented for both NCEP re-analyses 1948-2005 and for a series of climate change scenarios for NW Europe. Presently efforts are underway to implement and test the approach for SE Asia. The results have been used for a variety of purposes, e.g., from assessing ongoing change (detection of anthropogenic climate change and attribution most plausible causes) ecological cause-and-effect studies, or assessments of coastal hazards and implied construction requirements.

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