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Extending the CoastDat datasets with high resolution river discharge

Stefan Hagemann and Beate Geyer
Helmholtz-Zentrum Geesthacht, Institute of Coastal Research, Geesthacht, Germany (stefan.hagemann@hzg.de)

The coastDat datasets were produced to give a consistent and homogeneous database mainly for assessing weather statistics and climate changes for the recent decades, e.g., in frequencies of extremes for Europe, especially in data sparse regions. The atmospheric parts of these datasets are regional climate reconstructions for the entire European continent, including the Baltic Sea and North Sea and parts of the Atlantic. The simulations were conducted with the regional climate model COSMO-CLM (CCLM). CoastDat2 (Geyer 2014) covers the period 1948-2017 with a horizontal grid size of 0.22 degree in rotated coordinates, and global reanalysis data of NCEP1 were used as forcing and for the application of spectral nudging. CoastDat3 covers the period 1979-2016 with a horizontal grid size of 0.11 degree in rotated coordinates, and global reanalysis data of ERA-Interim were used as forcing and for the application of spectral nudging.

In order to also allow a consistent assessment of hydrological changes, we extended these datasets with high resolution river discharge. The discharge was simulated with the recently developed 5 Min. version of the Hydrological discharge (HD) model (Hagemann et al., submitted). Note that for the development of this HD model version, no river specific parameter adjustments were conducted so that the HD model is generally applicable for climate change studies and over ungauged catchments. In our presentation, we evaluate the simulated discharge using various metrics.

References

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Hagemann, S., T. Stacke and H. Ho-Hagemann, High resolution discharge simulations over Europe and the Baltic Sea catchment. Frontiers in Earth Sci., submitted.