

Interactive comment on “A multi-decadal wind-wave hindcast for the North Sea 1949–2014: coastDat2” by Nikolaus Groll and Ralf Weisse

Anonymous Referee #1

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This manuscript presents a new multi-decadal wind-wave hindcast for the North Sea. The hindcast spans 1949-2014 and forms part of the CoastDat database. The hindcast provides a long record (60 years) at relatively high spatial resolution (3 nautical miles). The study assesses the skill of the hindcast relative to a set of in-situ platform and buoy wave observations in the North Sea. The earliest data to which a validation was carried out were two observation points (EKO and K13) both commencing in 1980. The performance of the hindcast was compared to the skill of wave fields derived from the ECMWF ERA-Interim reanalysis. Key differences between the datasets are displayed in Figure 6, where the CoastDat2 hindcast displays a tendency to overestimate observed wave heights, whereas ERA-Interim fields slightly underestimate significant wave heights. This is presented as a potential benefit for the database in providing

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a conservative estimate for extreme wave heights in the North Sea for planning purposes. In general however, Table 2 suggests ERA-Interim has greater skill relative to observations than the presented CoastDat2 database.

Despite the ERA-Interim database demonstrating greater skill in the region of interest, the paper argues the extended time-series, the high spatial resolution, and the over-estimated (conservative) extreme wave height estimates provide a distinctive dataset which will be of value to the user community in the North Sea. While the high spatial resolution offers value, I have reservations about the merit of the extended time-series given no investigation of the skill of the hindcast to represent trends (against long independent datasets) or of the homogeneity of the dataset has been carried out on the database. Given this shortcoming, my recommendation is the study undergo major revision before being published. This revision should include some consideration of the skill of the full temporal extent of the time-series.

Other than this consideration, the paper is generally well written and clear. I have only a few further minor comments which I would also like to see considered in the revised version of the manuscript.

Abstract: Second sentence. No statistics have yet been introduced. Some revision of English is required.

Figures 2, 6 and 7. Please label x and y axes, as opposed to including information in caption.

Figures 4, 5 and 8. Please provide some axis information, in order to resolve spatial scales.

An equivalent table to Table 2, 3 and 4 for directional information would add benefit.

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