



Hazardous sea states in the North Sea hindcast simulation

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The knowledge of extreme sea states is important for many offshore operations, such as designing of platforms and vessels or ship routing. Typically upper percentiles, maxima or return values of the significant wave height are used to describe the climatology of extreme sea states. However such criteria can only poorly describe potentially high-risk situations for vessels or offshore platforms. In recent years some other criteria are being introduced to better describe hazardous sea states. Here we focus on wave steepness, crossing seas and rapid developing seas. The analysis is based on a long wave hindcast (1958- 2014) for the North Sea. Beside average conditions, interannual and long-term variability for each parameter, joint distributions and the occurrence of two or more critical parameters will be discussed. Results show a pronounced spatial variations and some interannual variability, but no substantial long-term trend can be identified.