

Evaluation of Long-Term Records of Geostrophic Wind on the German Coast

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The expansion of knowledge of historical, current and future change of the storminess in North Europe plays an important role with regard to possible storm surges along the coasts of the German Bight and the southern Baltic Sea. However, the detection of trends in storminess from wind observations is almost impossible because of insufficient homogeneity and lack of long records of wind data. Long records of sea level pressure data provide good quality proxy data for wind statistics. An established method for calculating the geostrophic wind is the triangle method. For the period from 1948 to 2012 for the German Bight and 1967 to 2012 for the Baltic Sea areas, time series of geostrophic wind are derived from synoptic sea level pressure data. The results are compared to the same calculations for the Coast-Dat2 dataset and the ERA-Interim Reanalysis. In addition, climate model simulations will be examined with a view to future trends in storminess. A statistical analysis of present-day measurements of wind direction and speed at offshore locations will be shown which relates the occurrence of storm surges to the characteristics of the wind field.