



Changes in extreme sea-levels in the Baltic Sea

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In a climate change context changes in extreme levels rather than changes in the mean are of particular interest in view of its importance for coastal protection. In this work extreme sea-levels in the Baltic sea are investigated from daily tide gauge records for the period 1916-2005 using the block maxima approach on annual means. Extreme events are analyzed based on the Generalized Extreme Value (GEV) distribution considering both stationary and time-varying models. The likelihood ratio test is applied to select between stationary and non-stationary models for the maxima and return values are estimated from the final model. As an independent and complementary approach quantile regression is applied for comparison with the results from extreme value theory. The rates of change in the uppermost quantiles are in general consistent and more pronounced for the northernmost stations.