



Multi-model ensemble extreme value analysis of European storm events

Gregor C. Leckebusch, T. Pardowitz, M.G. Donat, D. Renggli, T. Kruschke, and U. Ulbrich

Freie Universität Berlin, Institute for Meteorology, Berlin, Germany (gcl@met.fu-berlin.de, +49 (0)30 838-71128)

From the impact sectors perspective extreme European wind storms are the relevant meteorological hazard in Europe. Nevertheless, up to now a clear trend of these events could not be identified in the recent century, and it remains unclear in how far an observed increase in storm activity of the decades from 1960-2000 could be attributed to anthropogenic climate change already.

By means of an ensemble of state-of-the-art coupled global climate models, an attempt is presented to achieve robust estimations of extreme value statistical parameters (like e.g. return periods), utilising the inter-model variability to enlarge the statistical sample size. Model simulations for the recent climate period as well as for a potential future scenario (IPCC SRES A1B) are investigated.

In order to achieve a high degree of comparability an objective storm severity measure is applied to the impact related parameter of 10m wind speed, taking model specific characteristics into account. This will allow for the direct comparability between the model storms, as the strength of each specific event is thus related to each models basic wind features.

First results reveal, besides a high level of interdecadal variability, the applicability of this method for different regions of Europe and the North-Atlantic sector, where the diagnosed future trend of decreasing return periods (from an ensemble mean perspective) of extreme storm events is estimated with more robustness than from a single model analysis.