



Statistical Analysis of Extreme Wind in Regional Climate Model Simulations over Europe

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Extreme winds cause vast amounts of damage every year and represent a major concern for numerous industries including construction, insurance, afforestation, wind energy and many others. A critical component of climate change adaptation is to improve our understanding of extreme events and to estimate how their frequency and magnitude are likely to vary in the future. Accurate projections of these changes will be invaluable to decision makers and to society as a whole.

Extreme winds have been examined in the DMI and SMHI downscalings of both the Bergen Climate Model and the ECHAM5/MPI-OM coupled GCM. This approach has allowed for an inter-comparison of the extreme wind between different GCM-RCM combinations. By employing a peaks-over-threshold method and using the Generalized Pareto Distribution (GPD), the projected change in the 50-year return wind was estimated, along with its associated uncertainties.

It was found that for most of Europe the change in the 50-year return wind projected by the models was smaller than the uncertainty associated with the statistical estimation of such a rare event; and far smaller than the inter-model spread in the 50-year return wind. The detailed results of this analysis will be presented and discussed, along with an effort to apply this statistical method and these projections to a single location relating to a large-scale construction project.