



## **A combined statistical and dynamical approach for downscaling large-scale footprints of European windstorms**

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The occurrence of mid-latitude windstorms is related to strong socio-economic effects. For detailed and reliable regional impact studies, large datasets of high-resolution wind fields are required. In this study, a statistical downscaling approach in combination with dynamical downscaling is introduced to derive storm related gust speeds on a high-resolution grid over Europe. Multiple linear regression models are trained using reanalysis data and wind gusts from regional climate model simulations for a sample of 100 top ranking windstorm events. The method is computationally inexpensive and reproduces individual windstorm footprints adequately. Compared to observations, the results for Germany are at least as good as pure dynamical downscaling. This new tool can be easily applied to large ensembles of general circulation model simulations and thus contribute to a better understanding of the regional impact of windstorms based on decadal and climate change projections.