Appendix 1: Supporting figures and tables for the methods section

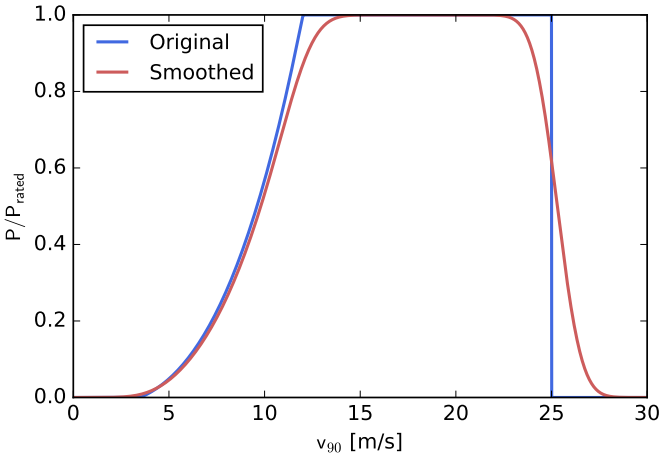

Fig A. Power curve. Power curve used to convert wind velocities in a height of 90 m (v_{90}) to wind power generation data. In order to account for wind farms and velocity variations, the single turbine power curve (blue) is smoothed using a gaussian kernel (red).

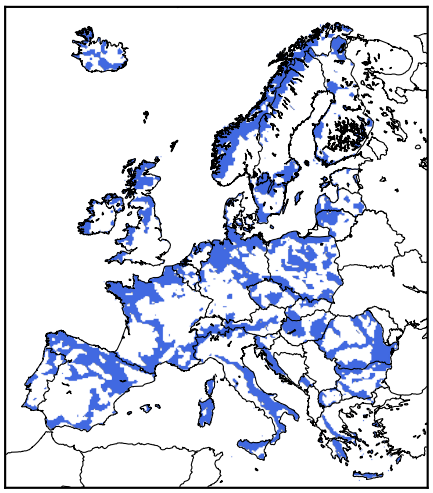

Fig B. Placement of wind farms. Wind farms are homogeneously placed on colored sites. On these sites the 31-year average of the wind yield is higher than the country average. For this derivation, ERA-Interim data [1] is used. In a sensitivity study, wind farms are placed homogeneously at each grid point inside a country (see Figs D-F in S4 Appendix).

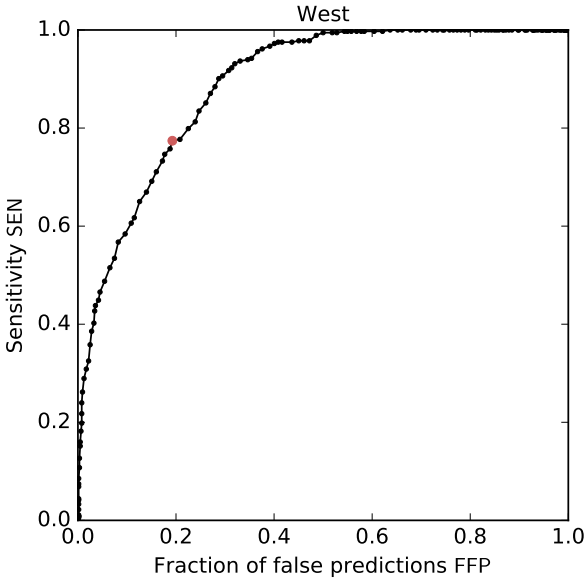

Fig C. ROC curve. Receiver operating characteristic (ROC) curve to assess the performance of the f-parameter to classify days with low wind power generation. For each pre-defined threshold value f_{th}, the sensitivity SEN and the fraction of false predictions FFP are calculated. The optimal value of f_{th} (red dot) minimizes the distance to the point (SEN, FFP) = (1,0), which corresponds to a perfect classifier. Results are shown for the western CWT.

Table A. Global circulation models used in the EURO-CORDEX ensemble. The downscaled data has a resolution of 0.11° and 3 hours [2]. Table adapted from [3]

Model name	**Institution**
CNRM-CM5 (CNRM Coupled Global Climate Model, version 5)	Centre National de Recherches Météorologiques (CNRM), France
EC-EARTH (EC-Earth Consortium)	European Consortium (EC)
IPSL-CM5A-MR (IPSL Coupled Model, version 5, coupled with NEMO, medium resolution)	Institut Pierre Simon Laplace (IPSL), France
MPI-ESM-LR (MPI Earth System Model, low resolution)	Max Planck Institute (MPI) for Meteorology, Germany
HadGEM2-ES (Hadley Centre Global Environment Model, version 2, Earth System)	Met Office Hadley Centre, United Kingdom

References

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2. Jacob D, Petersen J, Eggert B, Alias A, Christensen OB, Bouwer LM, et al. EURO-CORDEX: new high-resolution climate change projections for European impact research. Regional Environmental Change. 2014;14(2):563–578. doi:10.1007/s10113-013-0499-2.

3. Reyers M, Moemken J, Pinto JG. Future changes of wind energy potentials over Europe in a large CMIP5 multi-model ensemble. International Journal of Climatology. 2016;36(2):783–796.