



Potential climate change impact on wind energy resources in northern Europe

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There is considerable interest in the potential impact of climate change on the feasibility and predictability of wind energy. We present dynamically downscaled near-surface wind fields and examine the impact of climate change on near-surface flow and hence wind energy density across northern Europe. It will be shown that: Simulated wind fields from the Rosby Centre coupled Regional Climate Model (RCM) (RCAO) with boundary conditions derived from ECHAM4/OPYC3 AOGCM during the control period (1961-1990) exhibit reasonable and realistic features as documented in reanalysis data products. Near-surface wind speed calculated for a climate change projection period of 2071-2100 are higher than during the control run for two emission scenarios. The RCAO simulations also indicate evidence for a small increase in the annual wind energy resource over northern Europe between the control run and climate change projection period and for more substantial increases in energy density during the winter season. Methods for obtaining these results and uncertainties in the projections will be presented.