



Assessing climate change impacts on European wind power production

Isabelle Tobin (1), Robert Vautard (1), Sonia Jerez (2), Françoise Thais (3), Michel Déqué (4), Sven Kotlarski (5), Cathrine Fox Maule (6), Erik Van Meijgaard (7), Grigory Nikulin (8), Claas Teichmann (9), and Thomas Noël (1)
(1) LSCE/IPSL/CNRS, Gif sur Yvette, France (isabelle.tobin@lscce.ipsl.fr), (2) Department of Physics, University of Murcia, Spain, (3) I-tésé,CEA, Gif sur Yvette, France, (4) CNRM, Toulouse, France, (5) ETH Zürich, Switzerland, (6) DMI, Copenhagen, Denmark, (7) KNMI,de Bilt, Netherlands, (8) Rossby Center, SMHI,Sweden, (9) MPI,CSC,Hamburg, Germany

Wind energy industry is expected to widely develop as part of the answer to challenges of global warming, national energy independence and fossil resource depletion. However, wind turbines are fueled by near-surface winds which are likely to be altered in a changing climate. Assessing future changes in near-surface winds and their implications for wind power production should help optimize wind energy development by identifying regional opportunities and risks.

We propose to address this issue over Europe by combining a multi-model ensemble of recent regional climate projections, carried out in the EURO-CORDEX project, with a simple model of wind power generation. In particular, power production changes over current and projected wind farms in Europe are assessed. Different emission scenarios are considered. The sensitivity of the results to the spatial resolution of the regional models is also explored.