



## Forecasting for Wind Power Plants in Quebec, Canada

Sarah Dyck and the Hydro-Quebec / Environment Canada Collaboration Team  
Environment Canada, Numerical Weather Prediction Research, Dorval, Canada

The SPEO project (Système de Prévisions Éoliennes) is a collaborative research effort between Environment Canada (EC) and Hydro-Québec (HQ) and has been in operation since May of 2007. It provides a 48 hour high resolution (2.5 km) wind forecast, four times daily, in order to assist in the successful management of wind power from plants in the Gaspé Region of Québec, Canada. Early in 2010, the number of forecasts increased to four times a day.

The Canadian Global Environmental Multiscale-Limited Area Model (GEM-LAM), at the heart of this system, is driven by the operational regional forecasts at 15 km resolution from the Canadian Meteorological Centre. This system has been evaluated using observations from EC meteorological stations and special masts installed at wind power plants and the results will be discussed. Specifically, an effort was made to examine the predictability of rare events critical in the operations of wind power plants such as strong winds and high atmospheric turbulence, which can force wind turbines to shut down.

Future research for the improvement of this forecasting system will also be presented.