



An Experimental Numerical Prediction System for the 2010 Vancouver Winter Olympic Games

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The 2010 Winter Olympic and Paralympic Games will be held in Vancouver, Canada, 12-28 February 2010 and 12-21 March 2010, respectively. In order to provide the best possible numerical guidance with current state-of-the-art science and technology, Environment Canada is currently setting up an experimental numerical prediction system for these special events. This system consists of a 1-km limited-area atmospheric model that will be integrated for 16-h, twice daily, with improved microphysics compared to that currently used operationally at the Canadian Meteorological Centre.

In addition, several new tools will be used to adapt and refine predictions near and at the surface. Very high-resolution two-dimensional surface systems, with 100-m and 20-m mesh size, will cover the Vancouver Olympics area. Using adaptation methods to improve the forcing from the lower-resolution atmospheric models, these 2D surface models better represent surface processes. This leads to improved predictions of snow conditions and near-surface air temperature. Based on a similar strategy, a single-point model will be implemented to better forecast surface conditions at each station of an observing network specially installed for the 2010 events. The main advantage of this single-point system is that surface observations are used as forcing for the land surface models and can even be assimilated to improve initial conditions of surface variables such as snow depth and surface temperatures. Another adaptation tool, based on 2D stationary solutions of a simple dynamical system, will be used to produce near-surface winds on the 100-m grid, corrected for the high-resolution orography.

The configuration of the experimental numerical prediction system will be presented along with preliminary results for the 2008 winter.