

Experimental post-processing of air quality forecasts for the Toronto 2015 PanAm and ParaPanAm Games

A. Teakles^{1*}, J. Baik², R. So², R. Seto³

¹Meteorological Service of Canada, Environment and Climate Change Canada (ECCC), Dartmouth, Nova Scotia, Canada

²Meteorological Service of Canada, ECCC, Vancouver, British Columbia, Canada

³University of British Columbia, Vancouver, British Columbia, Canada

An experimental infrastructure for the statistical post-processing of operational forecasts was applied to support researchers and meteorologist with air quality forecasts during the Toronto 2015 PanAm and ParaPanAm Games. The event provided a useful benchmark for the real-time forecast capabilities of the system and its ability to meet ongoing air quality forecast program needs. Prototypes using three different statistical techniques (linear model, random forest, and Kalman filter) were used to deliver additional forecast guidance for both air quality monitor locations and the individual sport venues. Innovative approaches were taken to leverage output from a new experimental GEM-MACH version at 2.5km resolution and improvements to the air quality objective analysis.

The presentation overviews the development efforts taken above and highlight the lessons learned from this project. This work has provided a base design for a new MSC initiative, named PROGNOS, to extend the capacity of the existing UMOS system for operational post-processing. PROGNOS aims to provide a more versatile, innovative post-processing system.

*Corresponding Author: Andrew Teakles (e-mail: Andrew.Teakles@canada.ca)

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