



## **Modernization of the Forecast Production System at CMC**

Jacques Marcoux

Gouvernement of Canada, Environment Canada and Climate Change, Canada (jacques.marcoux@canada.ca)

[1pt, fullpage, twoside, letterpaper]article amssymb [pdftex]graphicx amsfonts

# Modernization of the Forecast Production System at CMC

Denis B., Verville M., Poulin L., Chang W. and Marcoux J.

April 11, 2019

## Abstract

To cope with the constant flow of science & technology innovations and the ever expanding amount of data and information generated by the Canadian Meteorological Centre, the current forecasting system must adapt and respond to evolving client needs. Output from the various numerical prediction systems have not yet been optimally integrated into the forecast production system. Furthermore, information may be diluted in the production chain due to aging technologies and legacy services specifications making the outcome of the prediction systems underused and difficult to access by external users.

This presentation will highlight key points in the transformation of the weather elements production system. As of now, basic weather elements<sup>1</sup> needed for forecast production are available, in experimental mode, on a grid instead of at specific points aiming to represent a region. To promote a more agile development cycle, a collaborative framework has been set-up providing the operational forecaster with tools to routinely evaluate the product<sup>2</sup> and to communicate with the developers<sup>3</sup>.

In addition, work is underway to transition the point based nowcasting system to a 2D grid. The core of the new system will be a mesoscale analysis on a 2.5-km resolution grid. The hourly near real-time analysis ( $\approx 10 - 20$  min delay) over Canada will be produced by processing observations from the surface network, GOES16/17 and the new Canadian Radar Network with the 2D-VAR MIDAS assimilation system. Observation based Nowcasting algorithms<sup>4</sup> will focus on the first 6 hours then transition to model data out to 12 hours. Final output, having the same look and feel as the weather elements on grid, will be evaluated using the same framework.

---

<sup>1</sup>for the first 48 hours

<sup>2</sup>geospatial map among others

<sup>3</sup>the Government of Canada social media platform

<sup>4</sup>including, but not limited to, radar extrapolation, satellite extrapolation and adaptive bias correction