Multi-Year (2013-2016) Performance Evaluation of FireWork Wildfire PM Forecasts for North America

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Adverse effects of wildfires on human health, visibility, and the environment are of great concern to Canadians during the wildfire season from April to October. In order to provide more accurate guidance on wildfire impacts on air quality and visibility, Environment and Climate Change Canada (ECCC) has been running an experimental air quality forecast system with near-real-time wildfire emissions at the Canadian Meteorological Center Operations division since 2013. Initially, only 3 summertime months (June, July and August) were covered by FireWork forecasts, but since 2016, when this system became operational at ECCC, the FireWork air quality forecast system has been run over the seven-months period from April 1 to October 31.

Modelling wildfire emissions and dispersion and forecasting time series of concentrations of air pollutants is essential in monitoring air quality and assessing wildfire impacts. Over the past four years, the performance of the FireWork system was regularly scored and analysed at ECCC. In this presentation we will show multi-year results for different statistical scores such as RMSE, correlation, and MB and some categorical scores. Some conclusions about FireWork performance analysis and potential improvements will also be shown.