



A New High-Resolution Medium-Range Weather Forecast Model at the Meteorological Service of Canada

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A new high-resolution atmospheric model is on the verge of being implemented at the Meteorological Service of Canada (MSC) for operational medium-range weather forecasts. In addition to the significant increase in horizontal and vertical resolution (33 km versus 100 km and 58 levels versus 28 levels), most of the physical processes related to the water cycle have been improved. The Kain-Fritsch scheme is now used for deep convection, together with a newly-developed shallow convective scheme, called Kuo Transient. Also, the ISBA land surface scheme has been implemented in this new global model, with initial conditions for soil moisture provided by a land surface sequential assimilation of low-level air characteristics. Intensive testing of this new system show significant improvement of the comparison against radiosondes and upper-air analyses (RMSs, biases, anomaly correlations). As well, verification against surface stations, global precipitation analyses, and remote-sensing observations indicate a much better representation of condensation processes in the new system. In particular, it is found that the new system is able to better capture intense precipitation events, as well as soil hydrology anomalies. These positive results will be presented at the conference, along with discussions on the strengths and weaknesses of the new configuration, and prospects of future modeling developments.