The New 4D-En-Var Regional Deterministic Prediction System at the Canadian Meteorological Center

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The regional deterministic prediction system (RDPS) at the Canadian Meteorological Center will be replaced in the near future by the 4D-En-Var scheme, in which the background error covariances are a combination of climatological covariances and flow-dependent covariances derived from an ensemble-Kalman-filter global prediction system. The new approach is computationally less expensive than 4D-Var (currently operational) and has shown to be a promising technique in the context of global data assimilation. The RDPS uses a limited-area domain covering all of North America and a horizontal grid spacing of 10 km. Here we discuss the final stages of the development of this scheme, shortly before introduction into operations. Specifically, we show a comparison of the forecasting skill between the operational system and the new 4D-En-Var scheme, as well as the impact of several improvements related to the treatment of observations and the addition of new observation sources such as ground-based GPS.