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Progress of the canadian ensemble prediction system

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At the Meteorological Service of Canada, the Ensemble Kalman Filter (EnKF) technique is used to provide a reservoir of initial conditions which are suitable to initiate medium-range ensemble forecasts. Sixteen of the available 96 analyses are chosen to initiate two differently configurated dynamical models for 16-day forecasts, twice daily.

In an effort to improve and unify the model error simulation in the EnKF and the medium-range ensemble prediction system (EPS), the two-model strategy that is currently operational in the EPS is being revised to be also used in the EnKF system. Both systems will be using a single dynamical model with different flavors of parameterizations for different ensemble members. A set of parameters is stochastically perturbed and a set of more up-to-date parameterizations is selected. The proposed system will be easier to maintain since only one dynamical core will be used.

A stochastic kinetic energy backscatter algorithm is tested in the EPS suite. A number of issues, particularily related to the kinetic energy power spectra generated using different flavors of this scheme, are discussed. Verifications of the ensemble forecasts will be presented with examples of the pertinence of modifications brought to the system.