

Kunii, M., 2014: The 1000-member ensemble Kalman filtering with the JMA nonhydrostatic mesoscale model on the K computer. *J. Meteor. Soc. Japan*, **91**, 623-633.

Special Edition on AICS International Workshop on Data Assimilation

<http://dx.doi.org/10.2151/jmsj.2014-607>

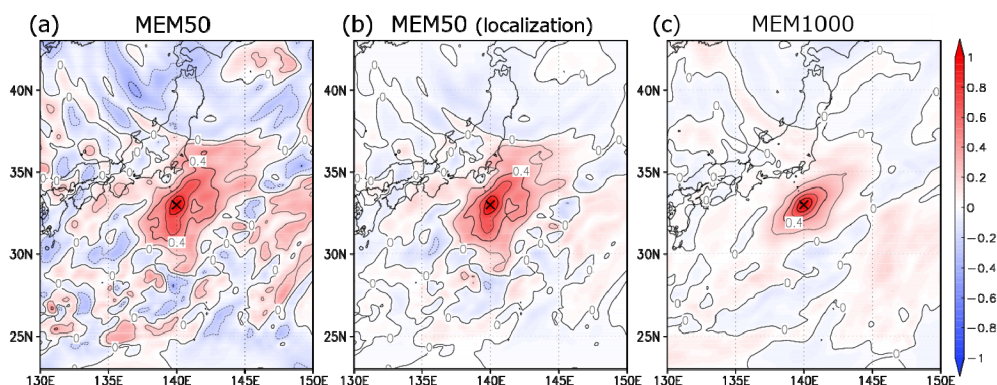


Figure 1. Maps of the horizontal distribution of the error correlation of the horizontal wind at the 500-hPa level from the center location (denoted by the cross marks) estimated from (a) 50 ensemble perturbations without localization, (b) 50 ensemble perturbations with localization, and (c) 1000 ensemble perturbations without localization.

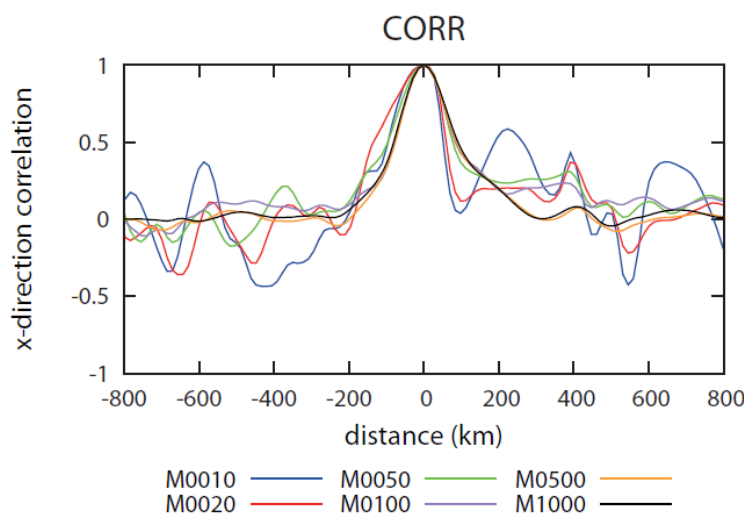


Figure 2. Horizontal cross section of the horizontal wind error covariance at the 500-hPa level shown in Fig. 1c, estimated from different numbers of ensemble perturbations: 10, 20, 50, 100, 500, and 1000.

- The influence of sampling noise on background error covariance was estimated by running the 1000-member EnKF with the JMA nonhydrostatic mesoscale model on the K computer.
- The background error covariance estimated from 1000 ensemble members contained negligible sampling noise even at distant locations without covariance localization (Fig. 1).
- For the case in the current study, an ensemble size of 500 would be large enough to approximate the error covariance under the configuration with a horizontal resolution of 15 km (Fig.2).