A Trial of Mesoscale Ensemble Forecasts with a Lagged Average Method

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In the last decade or two, ensemble methods in numerical weather predictions (NWPs) have been developed and used operationally to evaluate the growth of possible errors included in the initial conditions. Chaotic nature of the atmospheric motions causes exponential spread of small initial differnces between the ensemble members. The spread is an important measure of predictability in operational NWPs. Nowadays ensemble forecasts are very common in medium- and extended-range NWPs with global models. On the other hand, ensemble methods in mesoscale weather forecasts are still under development. In this study, we will briefly review the history of ensemble methods in global NWPs and the current situation of mesoscale ensemble forecasts. We make a trial of ensemble forecasts using a simple lagged average method with a mesoscale model, MM5. We perform downscaling experiments of NCEP FNL over Indochina region, and evaluate the model performance using the observational data at 17 stations in Lao PDR.