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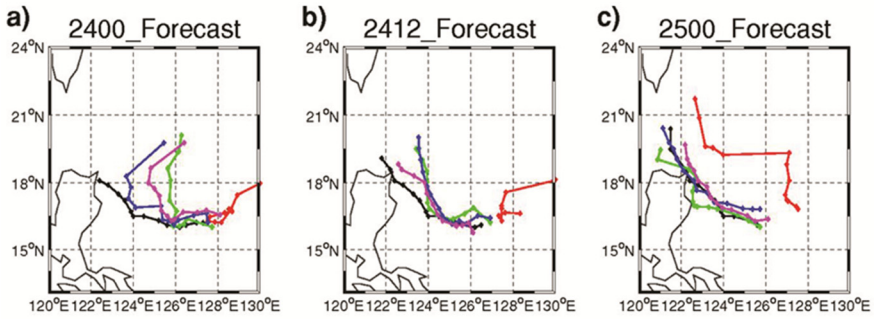
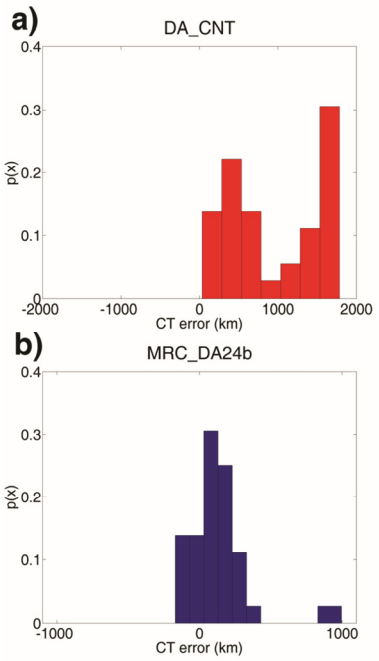


↑ Figure 1. Mean of ensemble forecast initialized at (a) 0000UTC August, (b) 1200UTC 24 August and (c) 0000UTC 25 August. The black line denotes the best track issued by Central Weather Bureau. The red, green, blue and magenta lines denote the results from different assimilation experiments: DA_CNT (without the MRC method) and MRC_DA24a, MRC_DA24b and MRC_DA24c forecasts (with different MRC strategies), respectively.



← Figure 2. The probability histogram of the typhoon cross track error based on (a) DA_CNT and (b) MRC_DA24b 48-h ensemble forecasts initialized at 0000UTC 25 August.

- Mean Recentering method (MRC) is proposed to improve the ensemble forecast with a poor performance, which suffers from the non-Gaussian distribution and not being able to capture the evolution of the nature. With the MRC method, this study focuses on improving the track prediction of Typhoon Nanmadol (2011), which had an abrupt change in its movement.
- A critical factor for the MRC method to have positive impact is the metric of selecting the best member. Cluster analysis (MRC_DA24c in Fig. 1) is suggested to determine the best member for operational purpose.
- With the MRC method, the Gaussianity of the ensemble forecast can be better maintained (figure 2).
- For operational purpose, although future information is required to determine the best member, the MRC method can provide an important tradeoff by adjusting the ensemble during the early developing stage of tropical cyclones.