

Nakano, M., Y.-W. Chen and M. Satoh, 2023: Analysis of the Factors that Led to Uncertainty of Track Forecast of Typhoon Krosa (2019) by 101-Member Ensemble Forecast Experiments Using NICAM. *J. Meteor. Soc. Japan*, **101**, 191-207.

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- **Plain Language Summary:** The operational models initialized just after the genesis of typhoon Krosa (2019) showed a very large uncertainty and totally failed to predict the actual track of Krosa. Ensemble simulations showed that the initial difference in the horizontal size of Krosa determined the occurrence of strong interaction with typhoon Lekima and the retreatment of the western north Pacific subtropical high, which led to large uncertainty of Krosa's track forecast.

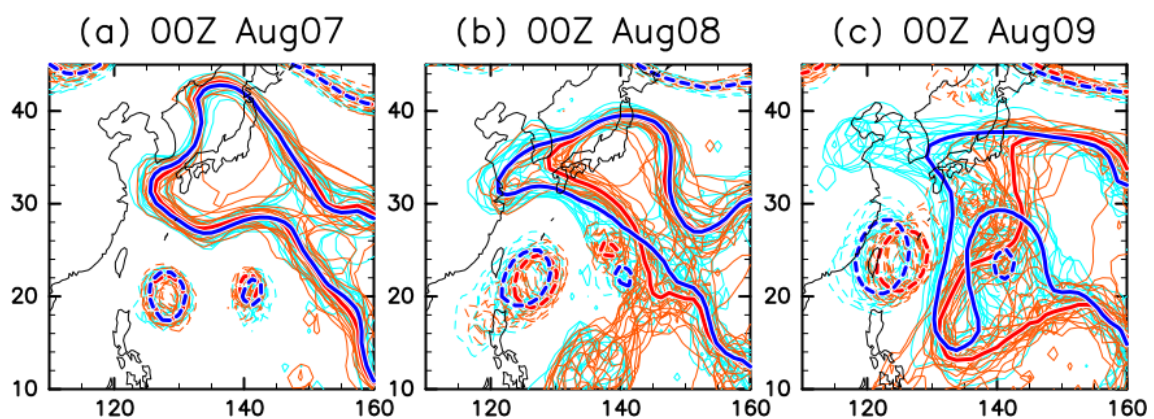


Figure 1. Spaghetti diagram of the 500-hPa geopotential height valid for 0000 UTC of (a) 7 August; (b) 8 August; and (c) 9 August, respectively. The orange (aqua) contours are forecasted by the worst (best) 20 members, and the thick lines are ensemble means of the best and worst members. The contours for 5760 (broken line) and 5860 (solid line) m are shown.

Highlights:

- The operational models initialized just after the genesis of typhoon Krosa (2019) showed a very large uncertainty of Krosa's track forecast.
- One hundred one-member ensemble forecast experiments are performed to examine the causes of the large track forecast uncertainty of typhoon Krosa (2019).
- The results showed that the initial difference in the horizontal size of Krosa determined the occurrence of strong interaction with typhoon Lekima and the retreatment of the western north Pacific subtropical high, which led to large uncertainty of Krosa's track forecast.