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Development of Iterative Method for Hindcast of Tropical Cyclone

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In this study an iterative method for the hindcast of tropical cyclones using the WRF-ARW (Advanced Research Weather Research and Forecast) model is developed and is applied for two typhoons, Maemi (0314) and Sanba (1216) occurred in the North Western Pacific. Both typhoons are classified into a category 5 super typhoon. Conventional reanalysis methods using meteorological background, e.g., NCEP-FNL, underestimate significantly typhoon intensities. In this study, the atmospheric field calculated from the previous run is used as an input background data for the next iteration. Both bogussing and relocation of typhoon using RSMC (Regional Specialized Meteorological Center) best track data are performed in each iteration. As the number of iteration increases, the calculated track data approaches to the RMSC best track data including central pressure, maximum wind velocity and position of typhoon center for the life span of typhoon. The iterative method proposed in this study is highly efficient and improves the quality of typhoon hindcast especially when the best track data is reliable.