

# **Development of a MPAS-JEDI Prototype in CWA: System Setup and Preliminary Results**

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## **Abstract**

To enhance short-term convective-scale forecasting, the Central Weather Administration (CWA) of Taiwan and the NSF National Center for Atmospheric Research (NCAR) are co-developing a prototype ensemble forecasting system. This system is based on the Model for Prediction Across Scales – Atmosphere (MPAS-A) within the Joint Effort for Data assimilation Integration (JEDI) framework. It utilizes the Gain-form local Ensemble Transform Kalman Filter (GETKF) and assimilates radar data from the Taiwan network alongside geostationary satellite radiances. The system provides continuously cycling, rapid-update analyses using a variable-resolution mesh refined to 2 km centered on Taiwan.

Recently, the CWA successfully ported the MPAS-JEDI prototype to its local Fujitsu FX1000 high-performance computing (HPC) cluster. While the GETKF system is still under development, it is being optimized for the local HPC and enhanced to incorporate CWA surface observations through the CWA-NCAR collaboration. In this presentation, we demonstrate the preliminary assimilated results of prototype using real cases in 2022 and outline future development strategies.

Key words: MPAS, MPAS-JEDI, GETKF, data assimilation