

Sensitivity Test and Calibrations of Simulations of WRF Model During Mei-Yu Season 2004 on the Taiwan Area

SHYUAN-RU MIAW¹, PAY-LIAM LIN¹, FAN-CHIN CHIEN², BEN J.-D. JOU³,
JING-SUN HONG⁴, JHIH-YING CHEN¹, WEN-JING CHANG²,
SUE-PING LIU³

¹*Department of Atmospheric Science, National Central University, Taiwan*

²*Department of Earth Science, National Taiwan Normal University, Taiwan*

³*Department of Atmospheric Science, National Taiwan University, Taiwan*

⁴*Central Weather Bureau, Taiwan*

This studying is using the WRF (Weather Research & Forecasting Model) model to do some sensitivity tests during the Mei-Yu season (May 15- June 15) 2004. In the same physic conditions, we change five different initial conditions, include different vertical and horizontal resolutions, expanding domain to east and using 3D-Var data assimilation, to compare temperature, wind field (U and V) and moisture field (RH) of simulating and observation in seventeen surface stations by using bias score and root mean square error (RMSE). The results show that the different initial conditions in WRF model caused the different simulating results. High vertical resolution cases simulating error is less than other runs in temperature field. Expanding domain to east made simulating results of zonal wind field (V) better than control run. Initial data used WRF-3DVAR having the best results during the early forecast period (about 12-24 hours) in temperature and wind field.