Effect of wind field on rainfall value of Doppler radar

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Wind field is the main driving force of water vapor transportation, and also an important factor affecting precipitation numerical forecast and rainfall. In view of the current low resolution of conventional sounding wind measurement, long data acquisition time, the inability to reflect small-scale changes in wind field in time, and the limited application in numerical forecasting, the WRF (Weather Research and Forecasting) mesoscale is adopted. Numerical model and its three-dimensional variational assimilation system, combined with NCEP/NCAR reanalysis data and Doppler radar wind field inversion data, three-dimensional variational assimilation numerical simulation comparison of precipitation process, analysis of high-resolution single point multi-point The effect of the Pule radar wind field data on the initial and forecast fields. Comparing the surface rainfall with the wind field effect into the echo and comparing the surface rainfall with the ground automatic rainfall station measured surface rainfall, the results show that it is feasible to assimilate the single-point Doppler radar wind field data in the WRF mode. After assimilation, the wind field and humidity field of the initial field of the wind profile radar site are obviously improved, and the flow field within a certain range around the site also has different degrees of influence. At the same time, the precipitation intensity and the prediction results of the falling area are also improved to some extent. In particular, the downwind direction of the wind profile radar station is closer to the actual situation than before the assimilation. In other directions, the closer the distance to the radar is, the more obvious the improvement effect is.

Keywords: wind field, rainfall value, Doppler radar
南宁市48小时降水量实况
5月27日07时—5月29日07时

南宁市气象台
5月29日07时制作