



Impact on the short-term forecast using radar data assimilation on the South and Southeast region of Brazil

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The objective of this study was to analyze the behavior of the precipitation related to the numerical weather forecast employing the Atmospheric Weather Research and Forecasting model (WRF) and the Data assimilation Weather Research and Forecasting model Data Assimilation Three Dimensional-Variational (WRFDA / 3D-VAR) system for a Convective system occurred in the summer of 2015/2016 on the southern and southeastern regions of Brazil. The datasets used were radar data in the region of interest and observational data from the Global Telecommunications System (GTS). The data assimilated were radial velocity (directly) and reflectivity (indirectly) and variables of the state - air temperature, surface pressure, wind speed and direction, among others. Three experiments were performed to evaluate the weather forecast for the selected case: i) without any type of assimilation, (ii) assimilated GTS data, and (iii) assimilated data from available radars. The prediction until to 6 hours of convective system intensity was evaluated, which were validated with the combined precipitation data from satellites and surface. The results showed the positive impact of the short-term forecast using experiments with the radar and GTS data when compared to the experiment without using them. Thus, this study is expected to contribute to the development of modeling and the operation of the assimilation of radar data in the numerical weather prediction over the regions of study.