



Impact on the short-term forecast of radar data on the South and Southeast regions of Brazil

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Abstract

The objective of this study was to analyze the behavior of the precipitation related to the numerical forecast of the time employing the model Atmospheric Weather Research and Forecasting (WRF) and its Data assimilation Weather Research and Forecasting model Data Assimilation Three Dimensional-Varitional (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 available 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), besides some variables of the state - air temperature, surface pressure, wind speed and direction, among others. Three (3) 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 prediction of time over the regions of study.