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## 78 Using Radar Data Assimilation to Improve Short-range Precipitation Forecasts

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It is being developed at CPTEC the Local Modeling System (LMS) which is an extension of the Regional Modeling System (RMS). The RMS comprises nested domains with resolutions of 16 km and 4 km over South America and southeastern Brazil and a 3DVar data assimilation scheme based on the Gridpoint Statistical Interpolation (GSI) system using full observation system, including conventional data, satellite radiances, and GPS data. The LMS uses the RMS's 4 km domain output as input to perform local data assimilation using the WRF Data Assimilation system (WRFDA) including radar data. The analysis from WRFDA is used to start a 24-h forecast with 1 km resolution. Also, the SOS-CHUVA project has been carried out in Sao Paulo state. This project intends, throughout a 2 years field campaign, to study the precipitation characteristics and improve the short-range forecast using several instruments including a dual polarization X band radar, disdrometers, raingauges, hail pads, and numerical weather prediction models. Therefore, SOS-CHUVA has become a pilot experiment for LMS in order to improve the system and implement it in other Brazilian cities, e. g., Manaus. Actually, effort has already been made in order to implement the LMS-MANAUS. This work aims to assess the preliminary results from this CPTEC LMS and the value of radar information through sensitivity experiments regarding its assimilation cycling methodology. The forecasts evaluation was performed by calculating the FSS and CFAD of reflectivity. Additionally, the impact of microphysics parameterization was also investigated and compared to radar data.



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