

Data Assimilation Impact on the Moisture Transport from the Amazon to the Plata Basin

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The assimilation system at CPTEC is performed using the Physical-space Statistical Analysis System (PSAS), both in the Atmospheric Global Circulation Model and the Regional Model. This scheme solves analysis equations globally, thus eliminating the local approximation and data selection of the optimal interpolation (OI) schemes. PSAS is comparable to the global variational spectral analysis system, but unlike spectral analysis schemes, it works directly in physical space. It minimizes an objective function with the control variable defined in observation space. During the SALLJEX (South American Low-level Jet Experiment) experiment, six radiosonde data were added to the normal dataset which comprises the GTS, ATOVS, TPW and QuikScat data. These radiosondes were operating in an area which was not covered by the operational measurements, the area of the Low Level Jet occurrence. Thus, a better description of the moisture flux from the Amazon to the south is expected to be accomplished. The objective is to show the impact of assimilating these additional data in the analysis system during the SALLJEX, and to show the impact on the magnitude of the moisture flow, using the CPTEC Global model. The results show that there is an intensification of the LLJ and a small shifting of its center towards west and an increase of the humidity in the area of the LLJ.

Submetido por Dirceu L. Herdies em 24-MAR-2004

Tema Científico do LBA: PC (Física do Clima)

Tipo de Apresentação: Poster

ID do Resumo: 461