Fechar Janela

The Coupled Aerosol and Tracer Transport model to the Brazilian developments on the Regional Atmospheric Modeling System: model description and validation

Saulo Ribeiro de Freitas, CPTEC-INPE, sfreitas@cptec.inpe.br (Presenting)
Karla Maria Longo, CPTEC-INPE, longo@cptec.inpe.br
Maria Assução Faus da Silva Dias, CPTEC-INPE, IAG-USP, assuncao@cptec.inpe.br
Pedro Leite Silva Dias, IAG-USP, CPTEC-INPE, pldsdias@master.iag.usp.br
Robert Chatfield, NASA-AMES, chatfield@clio.arc.nasa.gov
Paulo Artaxo, IF-USP, artaxo@if.usp.br

The atmospheric transport of biomass burning emissions is studied through a numerical simulation of the air mass motions using the CATT-BRAMS (Coupled Aerosol and Tracer Transport to the Brazilian developments on the Regional Atmospheric Modeling System). CATT-BRAMS is an on-line transport model fully consistent with the simulated atmospheric dynamics. The sources emission from biomass burning and technological activities for several gases and aerosol may be defined from several published dataset and remote sensing. The mass concentration prognoses accounts also for convective transport by shallow and deep cumulus, wet and dry deposition and plume rise. The model has been applied to simulate carbon monoxide (CO) and particulate material PM2.5 transport during the SMOCC/RACCI campaign during the 2002 dry season. Comparison between model results and MODIS, MOPITT, AIRS products and local observations are showed. The results from model simulation have good predictability skills for smoke tracers' concentration and allow the understanding of the synoptic controls on the biomass burning emissions transport.

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