

Passive ground-based analyses for interpreting satellite fire data - Applications to AVHRR and MODIS active fire detections in Amazonia

Manoel Cardoso, Complex Systems Research Center, University of New Hampshire, Durham, NH 03824 United States, manoel.cardoso@unh.edu (Presenting)

George Hurtt, Complex Systems Research Center, University of New Hampshire, Durham, NH 03824 United States, george.hurtt@unh.edu

Berrien Moore III, Complex Systems Research Center, University of New Hampshire, Durham, NH 03824 United States, b.moore@unh.edu

Carlos Afonso Nobre, Centro de Previsao de Tempo e Estudos Climaticos, Rod. Pres. Dutra, Km 40, Cachoeira Paulista, SP 12630-000 Brazil, nobre@cptec.inpe.br

Heather Bain, Complex Systems Research Center, University of New Hampshire, Durham, NH 03824 United States, h_bain03@yahoo.com

Because of their broad spatial and temporal coverage, satellites are very important for providing information on fire activity in Amazonia. A key to the application of these tools for environmental studies is the accurate interpretation of the data they provide. Examples of factors that should be considered include temporal sampling, cloud coverage, fire intensity below detection, and confounding reflective surfaces. To enhance the interpretation of satellite data for this region, we collected ground-based information on fire activity and statistically related them to corresponding satellite-based data. Ground-based data were collected in Para in 2001 and in Mato Grosso in 2002 using a simple and passive method. Corresponding fire data from AVHRR and MODIS were then obtained and related to the ground-based data using error matrixes. Results from these analyses indicate that the total accuracy for both fire products was very high and dominated by accurate non-fire detection. Fire-detection accuracy was lower, and errors of commission were less than errors of omission. Satellite fire products differed in the frequency of omission and commission errors for fires. Omission errors were lower for AVHRR, and commission errors were lower for MODIS. Preliminary attribution studies suggest that sampling time, fire size and land cover are important complicating factors for active fire detection in the region. Results from this study show that passive ground-based analyses can substantially contribute to the interpretation of satellite fire data.

Submetido por Manoel Ferreira Cardoso em 18-MAR-2004

Tema Científico do LBA: LC (Mudanças dos Usos da Terra e da Vegetação)

Sessão: S19

Tipo de Apresentação: Oral

ID do Resumo: 263