

IBAMA special session on

"Satellite-derived fire and burn scar products throughout the Amazon"

In conjunction with INPE, Atech, NASA's LBA-Ecology, and GOF-C Fire team

7 April 2003

within the 9th Brazilian Remote Sensing Symposium

April 5-10, 2003 (<http://www.ltid.inpe.br/sbsr2003>)

Meeting Objective:

The meeting will bring together researchers interested in the use of satellite technologies to study fire, burned area, and emissions throughout the Amazon region. The focus will be an overview of current fire monitoring activities, user perspectives, and open discussion on future directions. Participants are welcome to bring posters showing related work on fire/burn-scar/emission in the region.

Agenda:

Section 1 - Overview for Fire Monitoring in Brazil

8:30-9:00 Welcome, Introduction, and status of the GOF-C/GOLD regional network (João Pereira and Jeff Morissette)

9:00-9:30 IBAMA's current operational fire monitoring (Wilfrid Schroeder)

09:30-10:00 INPE's current research on fire, burn scar and emissions (Alberto Setzer)

10:00-10:30 Internet products and data access from IBAMA-INPE fire monitoring system (Luis Maurano*)

Break

Section 2 - Fire Monitoring Methods

10:45-11:00 Fire detection with DMSP (Vinita Ruth Hobson)

~~11:00-11:15~~ 11:00-11:15 Fire detection with AVHRR (Alberto Setzer)

11:15-11:30 Fire detection with GOES (material provided by Elaine Prins)

11:30-11:45 Fire detection with MODIS (Morissette)

11:45-12:00 Discussion

(Presenters are asked to limit talks to strictly 15 minutes, covering a description of the sensor, its fire algorithm, and experience with their user community)

lunch

Section 3: Field Validation and User's Experience

1:30-3:30

- Use of satellite fire products in large-scale models (Manoel Cardoso)
- Fire and burn scar research in Acre (Foster Brown et al.)
- GBA 2000 data over Brazil (possible material from Jose Pereira)

3:30-3:45 break

Section 4: Open Discussion:

3:45-5:00

- Possible enhancements for user community
- "Fuel load" products for both fire risk and emissions estimate
- Combined fire and land cover analysis to determine conversion vs. maintenance fires
- Coordinated validation activities through GOF-C/CEOS-LPV

Use of satellite fire products in large-scale models

Manoel Cardoso, George Hurtt, Berrien Moore, Carlos Nobre(*), Elaine Prins(**), and Alberto Setzer(*)

Complex Systems Research Center - University of New Hampshire, Durham, NH 03824 USA. (*) Centro de Previsão de Tempo e Estudos Climáticos - Cachoeira Paulista, SP 12630-000 Brazil. (**) NOAA/NESDIS/ORA Advanced Satellite Products Team, University of Wisconsin, Madison, WI 53706 USA.

Fires are important phenomena in the tropics, related to both natural and anthropogenic processes. They are potentially as important as deforestation in emitting greenhouse gases to the atmosphere, modify vegetation, alter nutrient fluxes and stocks, and have other effects. In this presentation, we will describe new data and models used to project future fire activity in Amazonia. These models were developed by relating satellite-based fire data to underlying causal factors. These models project that without additional mitigation initiatives, fire frequency could increase across the region 22% to 123% in response to intermediate and complete deforestation scenarios, respectively. A critical aspect of these projections is the interpretation of satellite fire pixel data in models. For example, clouds can interfere with fire detection, small fires can be missed, and reflective surfaces can potentially generate false positives. We report on two new research activities designed to refine the interpretation of satellite fire data in models. The first is a passive ground-based database on fires used in accuracy assessment of MODIS- and AVHRR-based fire products. The second is the analyses of consistent remote sensing fire and land-cover transitions data. Data from these studies suggest that omission is larger than commission error, and land-cover transitions from secondary vegetation to clear land are related to most of the fire activity analyzed. Results using these and other validation studies to refine model estimates will be presented.