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ABSTRACT BOOK

**SEVENTH LBA-ECO
SCIENCE TEAM
BUSINESS MEETING** 
**FORTALEZA, CEARÁ, BRAZIL
NOVEMBER 5-8, 2003**

Presenter: Dar Roberts

11.3 Nitrogen dynamics during till and no-till pasture reformation sequences in Rondônia, Brazil

Presenter: Janaina Carmo

11.4 Two-dimensional resistivity profiling: a potential tool to monitor the below-ground environment in ecosystem studies.

Presenter: Joice Ferreira

11.5 Land-use changes and wet deposition in Amazon Basin

Presenter: Luciene Lara

11.6 Regional patterns in inorganic nutrient losses across the central Amazon Basin: preliminary results

Presenter: Megan McGroddy

11.7 Effects of cover plants on the soil P fractions in tillage and no-tillage systems in the Cerrado Region

Presenter: Mercedes Bustamante

11.8 Deposition fluxes of trace elements in Western Amazon Basin during 20th century inferred from aerosol deposits in Illimani ice core, Bolivian Andes

Presenter: Paulo Artaxo

11.9 The Role of Sorption in Retention of Dissolved Organic Carbon in Soils Typical of the Lowland Amazon Basin

Presenter: Sonya Remington

11.10 The age of carbon respired from tropical forest soils

Presenter: Susan Trumbore

Session 12: Trace Gases and Aerosols

12.1 Climate Data Records of aerosols and surface flux at distributed sites in the Amazon Basin

Presenter: Brent Holben

12.2 Impact of green manuring and nitrogen fertilization on trace gas fluxes (NO, N₂O, CO₂) in a cornfield in the Cerrado Region of Brazil

12.1: Climate Data Records of aerosols and surface flux at distributed sites in the Amazon Basin

Tom Eck/GSFC/teck@ltpmailx.gsfc.nasa.gov
Joel Schafer/GSFC/joel.schafer@gsfc.nasa.gov
Paulo Artaxo/USP/artaxo@if.usp.br
Alberto Setzer/
Marcia Y./USP/
Aline Sarmento Procopio./USP/aline@if.usp.br

Climate trends may be assessed from long term observations of key parameters. Our project has amassed several important data sets, termed Climate Data Records (CDR), that address aerosol loading and optical properties and radiation flux at the surface both broadband and PAR at key locations in the Amazon Basin. Recent access to MODIS data allows regional characterization of the aerosol properties anchored by the point CDRs. We report here the summary to date of the CDR data-base derived from a decade of AERONET aerosol observations and new analysis of four years of coincident pyranometer and PAR observations.

In Brazil, we now have a data set of broadband flux measurements at several sites distributed across the Amazon basin, with a record spanning more than 4 years at some locations. Pyranometers, PAR sensors (400-700nm), and filtered pyranometers (PAR+UV) have been operated with varying lengths of data record. This network represents one of the few such long-term flux data-bases available for this region, and provides an opportunity to characterize the nature of atmospheric effects on surface, broadband irradiance.

Smoke from biomass burning has a profound impact on PAR and UV flux. We have examined the disproportionately greater reductions in sub 700nm irradiance relative to the full solar spectrum in previous papers. PAR irradiance can be modeled reasonably well from total broadband flux for low and moderate AOT conditions, but much less confidently during heavy smoke conditions. Here we present an empirical relationship for estimating PAR+UV flux from only total broadband flux and AOT, and test its effectiveness for predicting PAR+UV for independent data sets of pyranometer and AOT data in Brazil.

We found that we were able to predict with reasonable accuracy even the daily integrated PAR+UV irradiance from daily integrated total broadband flux during high AOT months, despite the variations in cloud conditions that exists over this timeframe. Monthly averaged CDRs of AOD, SSA, broadband flux, PAR flux and PAR +UV flux and modeled PAR+UV flux will be presented.

Presenting Author: Brent Holben (Poster)

Science Theme: TG (Trace Gases)

Session: Trace Gases and Aerosols