Study of long-range transportation of biomass burning event during the winter of 2010 in the Metropolitan region of São Paulo - Brazil using Lidar, AERONET and CALIPSO satellite

Felipe V. Araujo[1], Eduardo Landulfo[1], Walter M. Nakaema[1], and Fábio J. S. Lopes[2]

[1]*Centro de Lasers e Aplicações (CLA) - Instituto de Pesquisas Energéticas e Nucleares (IPEN), Av. Lineu Prestes 2242, Cidade Universitária, CEP 05508-000, São Paulo - SP, Brazil*
[2]*Instituto de Astronomia, Geofísica e Ciências Atmosféricas (IAG) - Universidade de São Paulo (USP), Rua do Matão 1226, Cidade Universitária, CEP 05508-000, São Paulo - SP, Brazil*
felipe.vasconcelos.araujo@usp.br

Abstract: According to IPCC 2007, the biomass burning is one of the most important sources of air pollution in the whole globe [1]. In that context, Brazil has an important role in the biomass burning in South America scene with detection of thousands of fire spots every year. Most of these events are concentrated in the North, Mid-Western and Southeast during the dry season (July-November) and consequently there is transport of these aerosol smokes for large areas in the whole continent associated with wind circulations [2]. In this context, several efforts has been done to improve the measurements of horizontal, vertical and temporal distribution of aerosol particles in local and global scale, achieving a better understanding of the optical properties of this specific type of aerosol. We present in this study a case of biomass burning aerosol type transported from the North and Mid-Western region of Brazil that has been detected in the Metropolitan region of São Paulo. Data products from AERONET sun-photometer were used to analyze aerosol optical properties parameters from four different locations in the North and Mid-Western region of Brazil. In order to monitor the transportation of aerosol air masses parcels the HYSPLIT modeling was used in synergy with CALIOP and MODIS instruments. Results indicate a transport of biomass burning aerosol to Southeast region of Brazil, and the arrival of these biomass burning aerosol plumes was detected by a backscatter lidar system installed at São Paulo.

References

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