

Biomass burning events influence in aerosol data by Brewer Spectrophotometer at Southern Space Observatory

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Langley Method has been applied recently at Southern Brazil to retrieve aerosol optical depth (AOD) data by Brewer Spectrophotometer. The preliminary analyses presented low AOD values for the region, about 0.2, except for some days, when AOD presents values from 3 to 9 times higher than the average, called here aerosol peaks. The aim of this work is to relate these peaks to biomass burning came from Northern and Central Brazil besides others Southern Latin America Countries as Paraguay and Argentina. The instrumentation used consists in a Brewer Spectrophotometer MKIII #167 which is operating at Southern Space Observatory (29.4 S, 53.8 W) since 2002. It detects ultraviolet radiation spectrally with double monochromatic optic system. NOAA and AQUA infrared sensors satellites that provide biomass-burning sites over Latin America and NCEP wind field direction data were required to study the relation. NCEP data were used to check the wind field direction for different altitudes. As an example of case analysis, the day September 13th, 2003, was selected to study the probable interference of biomass burning in aerosol data. This day was chosen due to the existence of aerosol peak and the inexistence of rainfall in the forward days around the region. Satellite data presented a large number of biomass burning sites over Argentina, Paraguay, Northern and Central Brazil in the forward days. The wind field direction analyses showed clearly that the winds around 500 hPa and 700 hPa that left Central and Northern Brazil arrived at Southern Space Observatory through Paraguay and Argentina at the specified day. Terra and AQUA satellites images, using MODIS sensor, showed a plume leaving Amazon Basin and Central Brazil coming toward Southern Brazil. Therefore, using this and others event analysis, it was observed that biomass burning from remote Brazilian regions as Central and North and also Argentina and Paraguay influences aerosol data at Southern Brazil