

OZONE, TRACE GASES AND AEROSOLS IN A PASTURE SITE IN THE AMAZON BASIN DURING THE WET SEASON

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The tropics contain the Earth's most productive ecosystems. Studies have shown that the tropical forests are an important source of VOC (volatile organic compounds), as well as a number of other atmospheric trace gases, including carbon monoxide and methane. The tropical forest is also a source of primary aerosol particles as well as secondary particles produced from biogenic organic trace gases. Ozone is produced in the troposphere by gas-phase oxidation of hydrocarbons and CO catalyzed by hydrogen oxide radicals and nitrogen oxides.

From January to March 1999 trace gases and aerosols were collected in a pasture site as part of the LBA (The Large Scale Biosphere-Atmosphere Experiment in Amazonia) experiment in Rondônia, Brazil (10° 46.42'S, 62° 20.22'W). The concentrations of O₃, CO, NO_x, VOC, SVOC (semi volatile organic compounds) were measured in parallel with aerosol mass, organic carbon, light scattering and absorption. Several meteorological parameters such as solar radiation, PAR, temperature, humidity, wind speed and direction were also monitored. Ozone at nighttime averages 2-3 ppb. Daytime ozone can reach 30 ppb in clear days, and with cloudy weather values of 15 ppb are common. Typical levels of CO are 150 ppb, with maximum values of around 300 ppb. Diurnal cycle of isoprene and monoterpenes were measured in parallel with other species. Very low values of black carbon (from 30-50 ng/m³) assure small anthropogenic contribution from biomass burning in the wet season. Organic carbon aerosol comprises 10-30% of aerosol mass for particles less than 10 µm, a low value for natural biogenic aerosol.

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