Atmospheric chemistry study of the Guariroba Basin in Mato Grosso do Sul, Brazil

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The Guariroba hydrographic Basin is part of the Paraná River basin and it is the main source of water supplying to Campo Grande city, Mato Grosso do Sul State Capital, about 700.000 people of urban population. It is localized 25 km eastward from Campo Grande city urban limit, between latitudes 20° and 20°30‘S and longitudes 54° and 54°30‘W, with an approximated area of the 371.6 km2. In this study the basin is monitored aiming to determine the following meteorological parameters: air temperature, relative humidity, pressure, winds, Photosynthetic Available Radiation, PAR and global radiation. To the atmospherical chemistry study, the land cover is characterized through remote sensing and the topographic data is obtained from the digital elevation model. The biogenic Emissions are quantified and the compounds analyzed were monoterpenes, isoprenes, and others volatile hydrocarbon no methane and NOx that are secondary contaminant precursors species like ozone and photochemistry aerosols. The CAMx (Comprehensive Air Quailty model with Extensions, ENVIRON International Corporation) is used to model the atmosphere basin while represent the chemistry process evolution. CAMx is provided with various inputs that defines the meteorology, emissions, initial and boundary conditions, surface characteristics, and photochemical conditions of the atmosphere. The Brazilian Regional Atmospheric Model, BRAMS is used to supply meteorological conditions to CAMx, in this region, during the strong dry season (August to September) the ozone concentration is around 86 ppb.