



Western Amazonia aerosol and VOC measurements: Overview of 2018 intensive campaign and associated measurements

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This work presents the results of an intensive field campaign in Western Amazonia focusing on aerosol physico-chemical properties and gas-phase species during the dry season of 2018. The sampling site was operated in the environs of Rio Branco, in the Acre State, bordering Bolivia and Peru. The comprehensive instrumentation deployed included a Proton-Transfer-Reaction Mass Spectrometer (PTR-MS) and an Aerosol Chemical Speciation Monitor (ACSM) for real-time VOC concentration and aerosol chemical composition, respectively. Complementary instrumentation provided trace gases (O_2 , NO_2 , CO , CO_2) and aerosol microphysical properties (number, size distribution and optical properties). A Total Carbon Analyzer (TCA) provided near real-time TC concentration and filters were collected for quantification of trace elements (XRF) and OC/EC (thermo-optical).

During the period of our campaign (Oct 2018), atmospheric conditions were fairly polluted, with particle number concentration average values of 3700 cm^{-3} and black carbon (BC) concentration of $1.17\text{ }\mu\text{g m}^{-3}$. The average PM_{10} was estimated at $4.22\text{ }\mu\text{g m}^{-3}$, being dominated by Organics (52%), although with a significant contribution of BC (19%). Such significant contribution of BC is also observed in the SSA, yielding 0.80, one of the lowest values observed for dry season in Amazonia. As for the gas-phase, mid-afternoon Isoprene levels were on average 1.76 ppb and the sum of its oxidation products (MVK, MACR, ISOPOOH) of 0.71 ppb. Peak levels of O_3 reached 40 ppb at this western sampling site. The results shall be presented within the context of recent field campaigns in highly degraded (Rondonia, 2012), remote (Central Amazon, 2013) and urbanized areas (Manaus, 2014).