



DIEL, VERTICAL AND SEASONAL TRENDS OF BVOCs IN THE AMAZONIAN RAINFOREST FROM THE 325M ATTO TOWER

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Biogenic Volatile Organic Compounds (BVOCs), emitted from the Earth's surface, play a key role in global atmospheric chemistry. Over 1000 megatons of carbon are emitted in this form to the atmosphere each year, primarily from terrestrial vegetation in the tropics. BVOCs react rapidly with the atmosphere's primary oxidizing agent the OH radical, producing a multitude of gas phase and particulate products, which have adverse effects on human health and air quality. There is still considerable uncertainty associated with BVOC emissions, their atmospheric chemistry, and their effect on climate drivers.

We collected ambient air samples during November 2017 (dry season) and March 2018 (wet season) at the remote field site ATTO (Amazonian Tall Tower Observatory) in the pristine Brazilian Amazonian rainforest. Two liters samples were collected on adsorbent filled sampling tubes equipped with ozone scrubbers every three hours for 2 weeks at different heights above the forest canopy (80, 150 and 325m) and analysed in the laboratory through a TD-GC-TOF-MS (Thermodesorption-Gas Chromatograph-Time Of Flight-Mass Spectrometer, Markes International). The main chemical species were identified by comparison with literature mass spectra and by injection of a standard and quantified through a targeted analysis of the relevant mass fragments. Preliminary results show that isoprene and alpha pinene are the main VOCs emitted by the forest, with higher concentrations reported during the dry season.