Poster Presentation
Theme 1.1: The Contemporary Carbon Cycle - Trends, Variability and Time of Emergence of Human Impacts
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Five years of CO2/CH4/CO measurements at the Amazon Tall Tower Observatory (ATTO, Brazil) - site and source area characterisation

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The Amazon plays a major role in the global biogeochemical cycles of greenhouse gases (GHGs). Interannual variations in the global atmospheric CO_2 growth rate are strongly influenced by fluctuations of carbon fluxes in tropical land areas. Methane, another important GHG, has large natural sources in Amazon's wetlands, as well as from biomass burning. Fires in the region are a large source of carbon monoxide (CO), while the tropical troposphere is a major photochemical sink for this gas. Long-term atmospheric observations of GHGs and related gases at ATTO are expected to provide critical data for local, regional and global estimation of GHG budgets.
The Amazon Tall Tower Observatory (ATTO, Brazil; 2°08'S, 59°00'W), where a 325 m-tall tower is currently being equipped with scientific measurement instrumentation, is the counterpart of the Zotino Tall Tower Observatory (ZOTTO; 304 m-tall tower), located in central Siberia (Russia; 60°48'N, 89°21'E). Additionally, a number of campaign or continuous pilot measurements are taking place on the ATTO site at and around a smaller tower and mast (both 80 m tall).
Since March 2012, we run continuous high-precision CO_2/CH_4/CO measurements at the 80 m walk-up tower, with sample air inlets installed at five levels (79, 53, 38, 24, and 4 m a.g.l.). Two frequently calibrated CRDS analyzers (G1301 and G1302; Picarro Inc., USA) are used for measuring CO_2/CH_4 and CO/CO_2, respectively.
Due to the proximity of our measurements to the canopy (~ 35 m a.g.l.), the atmospheric signal is partially influenced by local sources and sinks, which gives us valuable insights into local ecosystem dynamics. In addition, under favorable conditions, we capture signals representative for a much larger source area. Supported by STILT footprint simulations, we present an analysis of the diurnal, synoptic and seasonal variability of the observed trace gas species and attempt a source attribution.

Poster Session (see poster session schedule)