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Three years of vertically resolved CO_2/CH_4/CO measurements at the tallest tower in the Amazon - Amazonian Tall Tower Observatory (ATTO, Brazil)

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The 330 m-tall tower that is currently in its final phase of construction at the Amazonian Tall Tower Observatory (ATTO, Brazil; 2˚08'S, 59˚00'W), is the counterpart of the 304 m-tall tower of the Zotino Tall Tower Observatory tower (ZOTTO), located in central Siberia (Russia; 60˚48'N, 89˚21'E). The ATTO tall tower will extend above the atmospheric surface layer and the nocturnal stable boundary layer, and aims at delivering ground breaking findings that will be the basis for improved climate models. While awaiting the completion of the tall tower, a number of campaign or continuous pilot measurements are taking place on the ATTO site at and around the currently tallest Amazonian tower and mast (80 m a.g.l.).

Since March 2012, we run continuous high precision CO_2/CH_4/CO measurements in an air-conditioned container at the foot of the 80 m tower. The sample air inlets are 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.

Even if due to proximity of our measurements to the canopy ($\sim$ 35 m a.g.l.) the data is influenced by local sources and sinks, it still provides a valuable insight into the diurnal and seasonal variations of the measured gas species. Additionally, the data set has proven to be also interesting combined with the parameters that are measured by other groups at the site in parallel either continuously or during intensive observation periods (e.g. VOCs, reactive trace gases, aerosols). A first analysis of the available data is presented.

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