**Free-tropospheric NO2 and HCHO mixing ratios**

**derived from MAX-DOAS measurements at two high altitude stations**

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Nitrogen dioxide (NO2) and formaldehyde (HCHO) from surface sources occasionally reach the free troposphere due to meteorology, orographic uplift of boundary layer air masses or pyro-convection. However, observations of such trace gases in the upper part of the troposphere are generally sparse and mainly performed during short field campaigns.

The presentation focuses on mixing ratios of NO2 and HCHO in the free troposphere as obtained from MAX-DOAS measurements at two mountain stations in the mid-latitudes and tropics using a modified geometrical approach. The method is applied in the UV wavelength range and thus, allows the detection of HCHO mixing ratios, in addition to NO2. The presentation reports that mixing ratios of both species are increased in the tropical free troposphere due to biomass burning.