



Vertical profiles of PAN, C₂H₆, and H₂CO as measured by MIPAS-B in the tropics

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Trace species like peroxyacetyl nitrate (PAN), ethane (C₂H₆) and formaldehyde (H₂CO) are produced mainly by biomass burning and fuel combustion processes. While the atmospheric lifetime of H₂CO is comparably short, emissions of C₂H₆ and PAN can be intercontinentally transported in the upper troposphere due to their long lifetime of up to three months. The first flight of the Michelson Interferometer for Passive atmospheric sounding (MIPAS-B) in the tropics was performed from Teresina in Brazil (~5°S) on 13-14 June 2005 dedicated mainly to ENVISAT validation tasks and scientific studies within the tropical tropopause layer (TTL). The measurements covered convective outflow air masses as well as air masses unaffected from recent convection representing background TTL conditions. Retrieval calculations of the species PAN, C₂H₆, and H₂CO were carried out in the mid-infrared bands centered at 794 cm⁻¹, 822 cm⁻¹, and 1746 cm⁻¹, respectively. The focus of the paper will be on the analysis of these species together with a comparison to previously published observations.