



First results from the Tropical Envisat Validation Campaign: an overview

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During June and July 2005 a tropical ENVISAT validation campaign was performed in Teresina/Brasil (5°S, 42°W) using balloon borne instrumentation. Measurements are available up to altitudes of about 38 km. The instruments deployed where the whole air sampler BONBON, an Ozone isotope sampler, the multi channel tuneable diode laser spectrometer SPIRALE, the Michelson FTIR instrument MIPAS, the DOAS spectrometer and the FTIR spectrometer LPMA. These instruments have provided measurements of long and short lived chemical species from the bromine, chlorine, iodine and nitrogen families as well as mean age tracers. Vertical profiles of these species are presented which characterize the major features of transport and photochemistry in the TTL and tropical stratosphere. Tropical tracer-tracer correlations are discussed, which are distinctly different from mid and high latitude data. The vertical profiles of mean age derived from the observations of CO₂ and SF₆ show much younger air in the tropics than in mid and high latitudes. Measurements of the ozone reactive species indicate (a) their variable composition in the TTL, and (b) a low NO_x, but high HO_x and BrO_x regime between the local tropopause and ~25 km, and above a NO_x dominated photochemistry. Estimates of the iodine oxide concentrations around the tropical

tropopause are also presented. We will further compare observations of different tracers in the TTL region with tropospheric data, in order to discuss the possibility of back transport from the stratosphere into the troposphere and the time delay for air masses to reach the tropical tropopause.