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Measurements of Ozone in the Stratosphere and lower Mesosphere at the Tropical Mérida Atmospheric Research Station (MARS) by ground-based Microwave Radiometry

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Since March 2004 the millimeter wave radiometer MIRA 2 is in operation at the inner tropical Mérida Atmospheric Research Station (MARS) on Pico Espejo (8.58˚N, 71.15˚W, 4765 m asl) at Mérida in the Venezuelan Andes. Due to its high elevation this site provides a high tropospheric transmission during long periods of the year and is therefore well suited for ground-based microwave observations. The instrument observes spectral signatures of ozone, ClO, HNO3, and N2O in the frequency range 268-280 GHz.

From the measured spectra a time-series of ozone vmr profiles in the altitude range 17-65 km has been retrieved which shows variations of the ozone concentration in the middle stratosphere on a time scale of several months. In the upper stratosphere and lower mesosphere the diurnal variation of ozone due to photochemistry can also be observed in the retrieved profiles.