



Investigation of convective transport in the tropical stratosphere using a lightweight uv-visible spectrometer sonde

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The occurrence of deep convective overshooting reaching altitudes up to 20 km is known for long above the tropical continents. They were shown recently shown to carry tropospheric chemical species, ice crystals, and possibly lightning NO_x , in the lower stratosphere. For better investigating such process, a light UV-Visible spectrometer SAOZ balloon sonde, called mini-SAOZ, was developed on more advanced technology than the older instrument. The payload, weighting 9 kg, includes two spectrometers: a visible-near IR system for the measurement of O_3 , NO_2 , H_2O , O_4 and O_2 and aerosol attenuation, and a UV system for BrO, OCIO and CH_2O). The mini-SAOZ sonde has been tested and qualified in flight with the help of CNES In Kiruna in Northern Sweden in 2010 and 2011.

The plan is to fly several times this sonde on small balloons of 1500 m³ in South East Brazil in February-March 2012, next or immediately above convective systems during a TRO-pico campaign dedicated to the study of stratospheric hydration by geyser like injection of ice crystals and more generally fast convective lofting of tropospheric air in the stratosphere across the tropopause.

After a short description of the instrument, the presentation will show the first results of those flights.