



Middle atmospheric water vapour measurements obtained at the Maito observatory on la Réunion with a ground-based microwave radiometer

Brigitte Tschanz (1,2), Valentin Duflot (3,4), Niklaus Kämpfer (1,2)

(1) University of Bern, Bern, Switzerland, (2) Oeschger Centre for Climate Change Research, University of Bern, Bern, Switzerland, (3) LACy (CNRS), Météo-France, and Université de La Réunion, Saint Denis de la Réunion, France, (4) UMS 3365 (CNRS), and Université de la Réunion, Saint Denis de la Réunion, France

The ground-based microwave radiometer MIAWARA-C measures middle atmospheric water vapour profiles and is especially designed for the use on campaigns. The instrument is of a compact design, has a simple set up procedure and can be operated remotely. It has been operational for five years and has successfully participated in measurement campaigns under various climatic conditions in Germany, Switzerland, California, Finland and has started to measure on la Réunion (21S, 56E) in September 2013. Under most tropospheric conditions, the instrument can obtain water vapour profiles with a temporal resolution of approximately 2 hours. MIAWARA-C is a reliable instrument and has been validated against similar instruments and satellite experiments. The data sets obtained with MIAWARA-C offer the possibility of comparison with other ground-based instruments and with satellites as well as case studies of atmospheric dynamics.

In the southern hemisphere and particularly in the tropical region ground-based measurements of the middle atmosphere are scarce. In MIAWARA-C's water vapour data set a strong seasonal cycle in the stratosphere and signatures of the Semi-Annual Oscillation in the mesosphere are expected. Additionally, the high temporal resolution of the measured data set allows the investigation of short period signals such as diurnal variations. First results after four months of measurements are presented including signatures of the Semi-Annual Oscillation and a first transition to summer condition. In addition, short-term variations observed by MIAWARA-C are analysed.