Geophysical Research Abstracts
Vol. 16, EGU2014-242, 2014
EGU General Assembly 2014

INTERCOMPARISON BETWEEN MICROWAVE RADIOMETER AND RADIOSONDING DATA

Florica Toanca (1) and Sabina Stefan (1)

(1) University of Bucharest, Faculty of Physics, P.O.BOX MG-11, Magurele, Bucharest, Romania, (2) National Institute of R&D for Optoelectronics, Laser Remote Sensing, Magurele, Romania (flori@inoe.inoe.ro)

The aim of this study is to compare relative humidity and temperature vertical profiles measured by ground based Microwave Radiometer (MWR) RPG HATPRO installed at the Romanian Atmospheric Observatory (Magurele, 44.35 N, 26.03 E) and by radio-sounding (RS) (Baneasa, 44.30 N, 26.04 E) provided by National Meteorological Administration. MWR uses passive microwave detection in the 22.335 to 31.4 GHz and 51to 58 GHz bands to obtain the vertical profiles of temperature and relative humidity up to 10km with a temporal resolution of several minutes. The reliability of atmospheric temperature and relative humidity profiles retrieved continuously by the MWR for the winter and summer of year 2013 was studied. The study was conducted, comparing the temperature and humidity profiles from the MWR with the ones from the radio soundings at 0:00 a.m. Two datasets of the humidity show a fairly good agreement for the interval between ground and 1.5 km in the January month for winter and up to 2 km in the July month for summer. Above 2 km, for the both seasons, the humidity profiles present in most of the selected cases the same trend evolution. The temperature vertical profiles agreed in 95% of the cases during summer and 85% during winter. It is very important for intercomparison that for both seasons almost all temperature vertical profiles highlight temperature inversions. Two cases have been analyzed in order to find possible explanations for the discrepancies between vertical profiles, focusing on advantages and disadvantages of MWR measurements.