

Retrieving ozone partial columns from HIRS measurements

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The High Resolution Infrared Radiation Sounder HIRS/4 is an atmospheric sounder for temperature and humidity profiles, surface temperature, cloud parameters and total ozone. HIRS/4 has 19 infrared channels (3.8-15 μm) and 1 visible channel. HIRS has been onboard NOAA satellites since 1979, and is also included in the payload of the two first Metop satellites of EUMETSAT. The HIRS instruments can, therefore, provide long time-series of ozone data.

This presentation will focus on the HIRS/4 that was launched onboard the Metop-A satellite in October 2006. Metop-A is the first of three satellites of the EUMETSAT Polar System (EPS). The current HIRS Total Ozone product algorithm of the Ozone and Atmospheric Chemistry Monitoring SAF (O3M SAF) developed by Meteo France is based on a regression method. Here we present a new version of the retrieval scheme for ozone partial column amounts. The HIRS 9.7 micron ozone absorption band is used in conjunction with other HIRS thermal infrared bands to obtain temperature, water vapour and ozone profiles. The partial column ozone is integrated from the profile data. The retrievals are based on the optimal estimation method [1] using the NWP SAF RTTOV 8.7 Radiative Transfer model and Met Office 1DVar code.

The first results using the optimal estimation method for retrieving ozone amount from HIRS radiances and comparison of retrieved ozone partial columns to ozone soundings and ECMWF ERA Interim ozone fields will be presented.

References

[1] C.D. Rodgers, *Inverse Methods for Atmospheric Sounding: Theory and Practise*, Atmos. Oceanic Planet. Phys., vol. 2. 238 pp., World Sci., 2000.