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Ozone vertical profiles from TGO/NOMAD-UVIS: an inter-comparison of three retrieval schemes

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We will present the vertical distribution of **ozone** obtained from **NOMAD-UVIS solar occultations** and we will compare the results of three retrieval schemes.

NOMAD (Nadir and Occultation for MArs Discovery) is a spectrometer composed of 3 channels: 1) a solar occultation channel (SO) operating in the infrared (2.3-4.3 μm); 2) a second infrared channel LNO (2.3-3.8 μm) capable of doing nadir, as well as solar occultation and limb; and 3) an ultraviolet/visible channel **UVIS** (200-650 nm) that can work in the three observation modes [1,2].

The UVIS channel has a spectral resolution <1.5 nm. In the solar occultation mode it is mainly devoted to study the climatology of **ozone** and **aerosols** content [3].

Since the beginning of operations, on 21 April 2018, NOMAD UVIS acquired more than 4000 solar occultations with an almost complete coverage of the planet.

NOMAD-UVIS spectra are simulated using three different retrieval scheme:

1) An onion peeling approach based on [4,5] deriving slant columns at the different altitudes sounded, from which local densities are obtained;

2) The line-by-line radiative transfer code ASIMUT-ALVL developed at IASB-BIRA [6] using the Optimal Estimation Method to derive the local density profile in one go (on all transmittances of one occultation observation);

3) A direct onion peeling method deriving sequentially from top to bottom the local densities in the different layers probed.

We will compare results obtained from the different retrieval methods as well as their uncertainties and we will discuss the advantages and difficulties of each method.

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