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Climatology of the neutral atmosphere as measured by SOIR on board Venus Express

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The SOIR instrument on board Venus Express performs solar occultation measurements in the IR region (2.2 - 4.3 μm) at a resolution of 0.12 cm-1, the highest on board Venus Express. It combines an echelle spectrometer and an AOTF (Acousto-Optical Tunable Filter) for the order selection [1, 2].

The wavelength range probed by SOIR allows a detailed chemical inventory of the Venus atmosphere above the cloud layer with an emphasis on vertical distribution of the [3, 4] H2O, HCl, HF, CO gases, as well as those of their isotopologues.

Recent improvements of the retrieval method [5] allowed us to reinvestigate the vertical profiles of these minor constituents of the Venus mesosphere. In addition, the number of occultations dedicated to the above-mentioned molecules in combination with CO2 measurements (the major constituent of the Venus atmosphere) increased by more than 50 % during last year. The complete data set now covers 2.5 years with fairly good geographical coverage, although limited by the geometry of the orbit. We will present the climatology for some of the observed species.

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