



CO₂ catalogue from SOIR on board Venus Express

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The SOIR instrument 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.

The wavelength range probed by SOIR allows a detailed chemical inventory of the Venus atmosphere above the cloud layer (65 to 150 km) with an emphasis on vertical distribution of the gases. In particular, measurements of CO₂ vertical profiles have been routinely performed. Its isotopologues have also been studied. The detection of the up to then unobserved 01111-00001 absorption band of ¹²C¹⁶O¹⁸O [1, 2] initiated an extensive and systematic search of other such unobserved CO₂ bands.

Here we report the detection of several new absorption bands of different isotopologues of CO₂ as observed by SOIR on board the Venus Express mission.

1. Bertaux, J.-L., A.C. Vandaele, V. Wilquet, F. Montmessin, R. Dahoo, E. Villard, O. Korablev, and A. Fedorova, First observation of 628 CO₂ isotopologue band at 3.3 mm in the atmosphere of Venus by solar occultation from Venus Express, *Icarus*, 195(1), 28-33, 2008.

2. Wilquet, V., A. Mahieux, A.C. Vandaele, V.I. Perevalov, S.A. Tashkun, A. Fedorova, O. Korablev, F. Montmessin, R. Dahoo, and J.-L. Bertaux, Line parameters for the 01111-00001 band of ¹²C¹⁶O¹⁸O from SOIR measurements of the Venus atmosphere, *Journal of Quantitative Spectroscopy and Radiative Transfer*, 109, 895-905, 2008.