



Study of Carbon monoxide in martian atmosphere.

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By

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CO is an important component of Martian atmosphere. It has never been extensively studied by instruments in orbit around Mars. By ground based telescope has been studied by Krasnopolsky. Here , using the PFS-MEX measurements, we try an extensive study of more than one Martian year of data. CO has 2 major spectral bands in the SWC of PFS, one at 2150 cm⁻¹, and another at 4280 cm⁻¹. PFS measures both bands. We have analysed occasionally both bands to test the fitting method. The analysis has been concentrated on the 4280 cm⁻¹ band because insensitive to the vertical temperature profile of the atmosphere. In order to increase the SNR averages of 50 PFS spectra were considered and best fitted (minimising $\sum (U + F 0 63)^2$) from a pre computed data set with different CO or H₂O mixing ratios. The average water vapour mixing ratio results to be 140 ppm, while the average CO mixing ratio results to be 800 cm⁻¹. In the northern summer the water vapour and CO show a good anticorrelation most of the time, meaning that water has its maximum over the north pole and carbon monoxide has its maximum mixing ratio over the southern pole. Occasionally the CO has a second maximum also at the north pole. This feature , being unexpected is being investigated. The latitude Ls map shows the usual behaviour for H₂O vapour, and an opposite behaviour for CO.