



Spatial variations of the oxygen atomic lines with Spicam on Mars Express

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During dayglow limb observations obtained on October and November 2004, the SPICAM UV imaging spectrometer on Mars Express [1] measured emissions from atomic oxygen in the martian upper atmosphere. The altitude of the Mars nearest point of the line of sight was from 70 to 400 km. One spectrum was recorded each second, resulting in more than 1000 spectra for each observation. These emissions already observed by Mariner [2] and more recently by HUT (Hopkins Ultraviolet Telescope) on Astro-2 [3] are produced mainly by scattering of solar photons, photoelectron impacts on atomic oxygen and photon or electron impact dissociative excitation of carbon dioxide. A precise measurement of the profiles and the variations with latitudes and longitudes of the 1304 Å and 1356 Å lines of atomic oxygen can provide information on column density profile of atomic oxygen and on excitation mechanisms of these emissions. It could also provide constraints for numerical models of the martian upper atmosphere. Results and comparisons with previous measurements will be presented and implications will be discussed.

[1] Bertaux J.L. et al (2000). The Study of the Martian Atmosphere from Top to Bottom with SPICAM Light on Mars Express. *Planet. Space Sci.* **48**, 1303-1320

[2] Barth C.A. et al (1971). Mariner 6 and 7 Ultraviolet Spectrometer Experiment : Upper Atmosphere Data, *J.G.R.* **76**, 2213-2227

[3] Feldman P.D. et al (2000). Far-Ultraviolet Spectroscopy of Venus and Mars at 4Å Resolution with the Hopkins Ultraviolet Telescope on Astro-2. *Astroph. Journal.* **538**, 395-400