

# A SEARCH FOR H<sub>2</sub>O<sub>2</sub> IN THE MARTIAN ATMOSPHERE

**T.Encrenaz**[1],T.Greathouse[2],B.Bezard[1],S.Atreya[3] and M.Richter[2].

[1]LESIA,Paris Obs.[therese.encrenaz@obspm.fr],[2]U.Texas,[3]U.Michigan

H<sub>2</sub>O<sub>2</sub> has been suggested as a possible oxidizer of the Martian surface. However, this minor species has not been detected so far. An upper limit of  $3 \cdot 10^{-8}$  for its mixing ratio has been derived by Krasnopolsky et al. (JGR 102, 6525, 1997) for  $L_s = 222^\circ$ , corresponding to a mean abundance of 10 pr-microns. This value is within the maximum ( $5 \cdot 10^{-8}$ ) predicted by the 1D photochemistry model of Atreya and Gu (JGR 99, 13133, 1994).

We have searched for H<sub>2</sub>O<sub>2</sub> in the northern hemisphere of Mars, on Feb. 2-3, 2001 ( $L_s = 112^\circ$ ), at a time corresponding to a maximum water vapor abundance (above 50 pr-microns at latitudes of  $60-90^\circ$ ). The Texas high-resolution grating spectrograph was used at the NASA/Infrared Telescope Facility (IRTF<sup>o</sup>) with a resolving power of  $10^5$ . The northern hemisphere of Mars was mapped with a pixel size of 0.3 arcsec. Individual lines of the H<sub>2</sub>O<sub>2</sub>  $\nu_6$  band have been searched for in the 1226-1235  $\text{cm}^{-1}$  range, and were not detected on individual spectra. A full analysis of the data should provide a new stringent constraint upon the H<sub>2</sub>O<sub>2</sub> abundance on Mars.