

HYDROGEN PEROXIDE DETECTED ON MARS

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MARS

T. Encrenaz and B. Bezard, Paris Observatory; T. K. Greathouse and J. H. Lacy, University of Texas at Austin; M. J. Richter, University of California, Davis; and S. K. Atreya and A. S. Wong, University of Michigan, report:

"On June 20, we made an unambiguous detection of hydrogen peroxide (H_2O_2) on Mars ($L_s = 206$ deg), using high-resolution infrared spectroscopy at the NASA Infrared Telescope Facility (TEXES grating spectrograph) at Mauna Kea. Six individual spectral lines were identified in the range 1237 - 1244 cm^{-1} . The spatial distribution of H_2O_2 over the Martian disk shows some enrichment in the equatorial region. The inferred H_2O_2 abundance is significantly larger than the upper limit we derived from observations on 2001 Feb. 2-3 ($L_s = 112$ deg) using the same technique (Encrenaz et al. 2002, *Astron. Astrophys.* 396, 1037), and it appears to be within the range of predictions from photochemical models. These observations show that H_2O_2 is seasonally variable. H_2O_2 has been suggested as the possible oxidant for the surface of Mars."