HYDROGEN PEROXIDE DETECTED ON MARS

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"On June 20, we made an unambiguous detection of hydrogen peroxide (H$_2$O$_2$) 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$_2$O$_2$ over the Martian disk shows some enrichment in the equatorial region. The inferred H$_2$O$_2$ 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$_2$O$_2$ is seasonally variable. H$_2$O$_2$ has been suggested as the possible oxidant for the surface of Mars."