Abstracts

Search for Sulfur (H/sub 2/S) on Jupiter at Millimeter Wavelengths

J. Joiner, P.G. Steffes and K.S. Noll. "Search for Sulfur (H/sub 2/S) on Jupiter at Millimeter Wavelengths." 1992 Transactions on Microwave Theory and Techniques 40.6 (Jun. 1992 [T-MTT] (Special Issue on Microwaves in Space)): 1101-1109.

We have observed Jupiter at two wavelengths near 1.4 mm in an attempt to detect gaseous hydrogen sulfide (H/sub 2/S) or place new upper limits on its abundance in Jupiter's atmosphere. Although we were not successful in detecting H/sub 2/S, we report the first brightness temperature observations of Jupiter at 1.4 mm with a spectral resolution of approximately 1 GHz using Mars as the calibration standard. We also discuss the methodology and results of a laboratory experiment in which we measured H/sub 2/S absorption at 1.4 mm in a simulated Jovian atmosphere (predominantly H/sub 2/ and He). We apply the results of our laboratory measurements to a radiative transfer model which we use to interpret our observations of Jupiter.

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