MID-INFRARED SPECTRUM OF THE ATMOSPHERICALLY SIGNIFICANT N_2-H_2O COMPLEX

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Rovibrational transitions associated with tunneling states in the vibration of the N_2–H_2O complex have been recorded using a supersonic jet quantum cascade laser spectrometer at 6.2μm. Analysis of the resulting spectra is facilitated by incorporating fits of previously recorded microwave and submillimeter data accounting for Coriolis coupling to obtain the levels of the ground vibrational state. The results are then used to confirm assignment of the ν_3 vibration and explore the nature of tunneling dynamics in associated vibrationally excited states of the complex.