THE $3\nu_1$ OVERTONE BAND OF HONO: ROVIBRATIONAL PARAMETERS AND BAND INTENSITY USING INTRACAVITY LASER ABSORPTION SPECTROSCOPY

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The high-resolution spectra of the second overtone of the OH stretch of trans-nitrous acid, HONO, were recorded using IntraCavity Laser Absorption Spectroscopy between 10220 and 10350 cm^{-1}. The spectra were analyzed to yield a complete set of rovibrational parameters, including the A, B, and C rotational constants. In the atmosphere, HONO is photolyzed to form the hydroxyl radical by UV radiation during daytime hours, and during early morning and late evening hours when UV radiation is not prevalent, visible excitation of the OH overtone could provide an alternative route to HONO photodissociation. Atmospheric models that include overtone-induced processes require accurate measurements of overtone intensities, but in many cases rely on estimates that are extrapolated from the intensity of the fundamental. We measured the band intensity of the second overtone of the OH stretch and calculated the contribution of the overtone-induced mechanism to the photolysis of HONO.