WATER VAPOR LINE PARAMETER MEASUREMENTS AT 1.5 AND 1.9 μm

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High-resolution (0.008 cm^{-1}) Fourier transform spectra of water vapor were measured in the 1.5 and 1.9 μm regions. Some 733 absorption lines were fit by nonlinear least squares, yielding line positions, intensities and self-broadening coefficients. Comparison to the HITRAN database [a] shows that these new fitted parameters are, in many cases, improvements over those currently in HITRAN. Water vapor in the 1.9 μm region has not been updated since HITRAN 86, nor have the strongest lines in the 1.5 μm region. (Lines of medium strength in the 1.5 μm region were updated more recently, using the measurements of Toth [b].)

[a] L.S. Rothman, R.R. Gamache, R.H. Tipping, C.P. Rinsland, M.A.H. Smith, D. Chris Benner, V. Malathy Devi, J.-M. Flaud, C. Camy-Peyret, A. Perrin, A. Goldman, S.T. Massie, L.R. Brown, and R.A. Toth, "The HITRAN molecular database: Editions of 1991 and 1992," JQSRT 48, pp. 469-507 (1992).

[b] Robert A. Toth, "Extensive measurements of $H_2^{16}O$ line frequencies and strengths: 5750 to 7965 cm^{-1}," Appl. Optics 33, pp. 4851-4867 (1994).