NEW MEASUREMENTS OF $H_2\,^{16}O$ LINE INTENSITIES AROUND 8800 CM^{-1} AND 1300 CM^{-1}

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A precise knowledge of spectroscopic parameters for atmospheric molecules is necessary for the control and the modelling of the Earth's atmosphere. The water vapor take a special key as it participate to the global radiative balance of the atmosphere. Our laboratory is engaged since many years in the study of $H_2{}^{16}O$ vapor and its isotopologues [1, 2, 3]. An important work has been already made in the spectral region of 4000 to 6600 cm^{-1} [3] and it continues now in the following spectral window : 6600-9000 cm^{-1}. We have focused on the lines around 8800 cm^{-1}, as the latest version of HITRAN database still relies on the work of Mandin et al. performed in 1988 [4, 5]. We have recorded several spectra of water vapor with our step-by-step Fourier Transform Spectrometer built in our laboratory [6, 7]. We present here our intensity measurements compared to recent literature data [8] and HITRAN2008 database. Also we have performed a study around 1300 cm^{-1}. The precise knowledge of water vapor for this spectral range is very useful for inversion of IASI spectra. We show some comparisons between our new intensity measurements and LISA database, HITRAN2004, and recent literature data [9].

References: [1] M. Carleer, A. Jenouvrier, A.-C. Vandaele, M.-F. Mrienne, R. Colin, N. F. Zobov, O.L. Polyansky, J. Tennyson and V. A. Savin, J. Chem Phys 111 (1999) 2444-2450. [2] M.-F. Mrienne, A. Jenouvrier, C. Hermans, A.-C. Vandaele, M. Carleer, C. Clerbaux, P.-F. Coheur, R. Colin, S. Fally, M. Bachc J. Quant. Spectrosc. Rad. Trans. 82 (2003) 99117. [3] A. Jenouvrier, L. Daumont, L. Rgalia-Jarlot, Vl. G. Tyuterev, M. Carleer, A. C. Vandaele, S. Mikhailenko and S. Fally, JQSRT, 105 (2007) 326-355. [4] J.-Y. Mandin, J.-P. Chevillard, J.-M. Flaud, C. Camy-Peyret, Can. J. Phys, 66 (1988) 997-1011. [5] J.-Y. Mandin, J.-P. Chevillard, J.-M. Flaud, C. Camy-Peyret, J. Mol. Spectrosc, 132 (1988) 352-360. [6] J-J. Plateaux, A. Barbe and A. Delahaigue, Spectrochim. Acta, 51A (1995) 1169-1153 [7] L. Rgalia, Thesis, Reims, 1996 (France). [8] R. N. Tolchenov, J. Tennyson, J. Mol. Spectrosc., 231 (2005) 23-27. [9] L.H. Coudert, G.Wagner, M.Birk, U.I. Baranov, M.J. Lafferty, J-M. Flaud, J. Mol. Spect, 251 (2008) 357-339