PROGRESS IN THE KNOWLEDGE OF C_2H_2 SPECTROSCOPIC PARAMETERS IN THE IR

D. JACQUEMART, L.S. ROTHMAN, *Harvard-Smithsonian Center for Astrophysics, Atomic and Molecular Physics Division, 60 Garden Street, Cambridge, MA 02138, USA*; V. DANA, J.-Y. MANDIN, C. CLAVEAU, A. VALENTIN, *Laboratoire de Physique Moléculaire et Applications, CNRS, case courrier 76, Université Pierre-et-Marie-Curie, 75252 Paris Cedex 05, France*; L. RÉGALIA-JARLOT, A. BARBE, *Groupe de Spectrométrie Moléculaire et Atmosphérique, Université de Reims-Champagne-Ardenne, CNRS, BP 1039, 51687 Reims Cedex, France*.

The acetylene molecule is important for atmospheric, planetary, and astrophysics applications. In order to improve the knowledge of C_2H_2, systematic measurements of line parameters have been performed. Two main spectral regions have been studied in this work. First, in the 13.6-μm region, line intensities were revisited for the ν_5 band and determined for some hot bands, allowing us to update the HITRAN database. Second, in the 5-μm region, numerous line parameters, including positions, intensities, self-broadening coefficients, and self-shifting coefficients of lines belonging to 18 bands were measured for the first time. Intensities were also measured for some new lines in the 4.5-μm region, and a good agreement was observed between previous measurements. Concerning the 3-μm region, where two cold bands were already analyzed for positions and intensities, but where the intensities of numerous hot lines are missing in HITRAN, a study is in progress, and preliminary results will be presented.