COLLISION-INDUCED ABSORPTION STUDIES OF THE v=1 $\leftarrow$ 0 BAND OF O_2 IN PURE O_2 AND O_2/N_2 MIXTURES

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Accurate knowledge of the atmospheric opacity is important for atmospheric modeling and remote sensing applications. As part of an effort to improve our knowledge of the contribution to the atmospheric opacity from binary O_2-O_2 and O_2-N_2 collisions we have undertaken a systematic study of the collision-induced absorption of O_2 between between 1300 cm^{-1} and 2000 cm^{-1}, in the vicinity of the electric-dipole forbidden v=1 $\leftarrow$ 0 fundamental vibrational band. Measurements were made using a Fourier-transform infrared spectrometer operating at a spectral resolution of 0.5 cm^{-1} and an optical pathlength of 84 m. Pure O_2 and O_2/N_2 mixtures were studied at total densities up to $\sim$9 Amagats and temperatures between 230 K and 300 K. The results are compared with recent measurements by Orlando et al. [J.J. Orlando, G.S. Tyndall, K.E. Nickerson, J.G. Calvert, J. Geophys. Res. **96**, 755 (1991)] and Thibault et al. [F. Thibault, V. Menoux, R. Le Doucen, L. Rosenmann, J.-M. Hartmann, and Ch. Boulet, to be published].