

TEMPERATURE DEPENDENCES OF AIR-BROADENING AND SHIFT PARAMETERS IN THE ν_3 BAND OF OZONE

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Line parameter errors can contribute significantly to the total errors in retrievals of terrestrial atmospheric ozone concentration profiles using the strong 9.6- μm band, particularly for nadir-viewing experiments^a. Detailed knowledge of the interfering ozone signal is also needed for retrievals of other atmospheric species^b in this spectral region. We have determined Lorentz air-broadening and pressure-induced shift coefficients along with their temperature dependences for a number of transitions in the ν_3 fundamental band of $^{16}\text{O}_3$. These results were obtained by applying the multispectrum nonlinear least-squares fitting technique^c to a set of 31 high-resolution infrared absorption spectra of O_3 recorded at temperatures between 160 and 300 K with several different room-temperature and coolable sample cells at the McMath-Pierce Fourier transform spectrometer at the National Solar Observatory on Kitt Peak. We compare our results with other available measurements and with the ozone line parameters in the HITRAN database^d.

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^cD. Chris Benner *et al.*, *JQSRT* **53** (1995) 705-721.

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