ROTATIONAL ANALYSIS OF THE NEAR INFRARED SINGLET-TRIPLET ELECTRONIC SPECTRUM OF OZONE

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High Resolution Fourier Transform Infrared Spectrometry was used to study the rotational fine structure of the lowest energy singlet-triplet electronic spectrum of ozone, $^{16}O_3$ and $^{18}O_3$ near 9300 cm^{-1}. With a near pure case (b) coupling model, approximately 100 lines were assigned in the spectrum of $^{16}O_3$. A combined least-squares/band contour analysis yielded an overall standard deviation of 0.045 cm^{-1}. The fit to the $^{18}O_3$ spectrum used approximately 30 lines and gave a slightly higher overall standard deviation. The rotational analysis has established that the upper state is $^3A_2$ in agreement with recent theoretical calculations. Numerous perturbations are observed in the spectrum of both isotopomers and limited our least-squares fit to the three rotational constants, the symmetric top distortion constants, the three spin-rotation constants and the alpha spin-spin constant. The talk will feature an overview of the rotational analysis along with a brief discussion of the perturbations seen in the spectrum.