



High resolution UV SO₂ absorption cross sections for planetary atmosphere studies

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SO₂ is an important constituent of the atmospheres of Io and Venus. Accurate photoabsorption cross-section data at the temperatures of these planetary atmospheres are required for the interpretation of SO₂ observations and for reliable photochemical models.

The previous laboratory photoabsorption measurements have been unable to resolve the very congested SO₂ spectrum. However, using the Imperial College UV Fourier transform spectrometer, new high resolution (resolving power ($\lambda/\delta\lambda \sim 450000$)) SO₂ absorption spectra have been recorded over a range of temperatures and pressures. As part of this new series of measurements we have completed room temperature measurements of SO₂ cross sections in the 190–220nm and 220–328nm regions (Stark et al., JGR Planets 104, 16, 585 (1999) and Rufus et al., JGR Planets 108, 2, 5 (2003)). Further measurements at 160K in the 190–220nm region have also been recorded and the results are in preparation.

Our current laboratory work focuses on a complementary set of SO₂ photoabsorption cross section measurements at 200K, in the wavelength region 220–328nm and preliminary results will be presented.

This work was supported in part by NASA Grant NNG05GA03G and the Leverhulme Trust.