THE HIGH RESOLUTION INFRARED SPECTRUM OF THE LOWER WAVENUMBER BANDS OF ³⁴SO₂

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The infrared spectrum of sulfur dioxide becomes of importance after volcanic eruptions in which large amounts of SO₂ are emitted into the atmosphere. While the spectrum of the normal species, ³²SO₂, has been very well studied and an excellent set of molecular constants obtained, this is not the case for the rarer isotopic species, ³⁴SO₂, the abundance of which is about 4.2% of the normal species. In order to improve our knowledge of the ³⁴SO₂ spectrum we have studied a sample of SO₂ enriched to 95% in ³⁴S over a wavenumber region including all the fundamental bands, the relatively strong combination bands $\nu_2 + \nu_3$ and $\nu_1 + \nu_3$ as well as the weaker $2\nu_1 + \nu_3$ and $2\nu_3$ bands. The resolution was 0.0019 cm⁻¹. The two lowest hot bands of the bending mode, ν_2 , have also been assigned as well as the hot bands of the other two fundamental bands and the $\nu_1 + \nu_2 + \nu_3 - \nu_2$ band. The spectroscopic constants obtained will be presented.