A01 Atmospheric Sciences General Contributions

The Effect of New Ozone Cross Sections Applied to SBUV and TOMS Retrievals

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The ozone cross sections as measured by Bass and Paur have been used for processing of SBUV and TOMS data since 1986. While these cross sections were a big improvement over those previously available, there were known minor problems with accuracy for wavelengths longward of 330 nm and with the temperature dependance. Today's requirements to separate stratospheric ozone from tropospheric ozone and for the derivation of minor species such as BrO and NO2 place stringent new requirements on the accuracy needed. The ozone cross section measurements of Brion, Daumont, and Malicet (BDM) are being considered for use in UV-based ozone retrievals. They have much better resolution, an extended wavelength range, and a more consistent temperature dependance. Tests show that BDM retrievals exhibit lower retrieval residuals in the satellite data; i.e., they explain our measured atmospheric radiances more accurately. Total column ozone retrieved by the TOMS instruments is about 1.5% higher than before. Ozone profiles retrieved from SBUV using the new cross sections are lower in the upper stratosphere and higher in the lower stratosphere and troposphere.

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