Large Scale Variations in Total Ozone from ERS-2-GOME Data

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Abstract

The Global Ozone Monitoring Experiment (GOME) on board the ERS-2 satellite is a nadir-looking experiment which observes solar radiation transmitted through or scattered from the Earth's atmosphere to provide the global distribution of total column ozone. Global ozone maps are presented and demonstrate the ability of the instrument to detect structures on a wide scale. The ozone hole development at high southern latitudes as well as highly variable ozone changes in space and time especially at northern midlatitudes are apparent in GOME data. Amplitudes and phases of planetary scale waves derived from GOME's total column ozone data are presented. It is shown that these parameters serve as a good indicator for large scale variations in the lower stratosphere. Comparisons with other satellite sensors and ground-based Dobson and Brewer-Mast spectrometers are discussed. Monthly zonal mean total column ozone of the GOME results are compared with the CIRA (COSPAR International Reference Atmosphere) ozone model.

Keywords: GOME, total ozone, planetary waves