Examination of Measured Total Ozone, 2001-Present, Derived from UV Spectral Irradiance Measurements and Dobson Ozone Spectrophotometers

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Measurement of Earth's ozone layer can be made using any of a variety of optical spectrometer systems. In August 2001, an ultraviolet (UV) spectrometer (UV5; Figure 1) was installed at NOAA's David Skaggs Research Center (DSRC) in Boulder, Colorado. This instrument uses a Bentham DTM300 spectroradiometer and has a scanning range of 285-450 nm. The primary use of this instrument is the absolute measurement of spectral solar UV for the investigation of the interaction of ozone and solar radiation. By use of the Stamnes method (i.e., use of the 340 and 305 irradiance ratio), total ozone values can be produced from this data set. As part of CMDL's global network for detecting and understanding atmospheric change, Dobson ozone spectrophotometer D061 (Figure 2) makes daily total-column ozone measurements at DSRC. These ozone values will be used as the reference in this examination of the two time series. This presentation examines the differences between the two different data sets.

Figure 1. UV5 spectrometer.

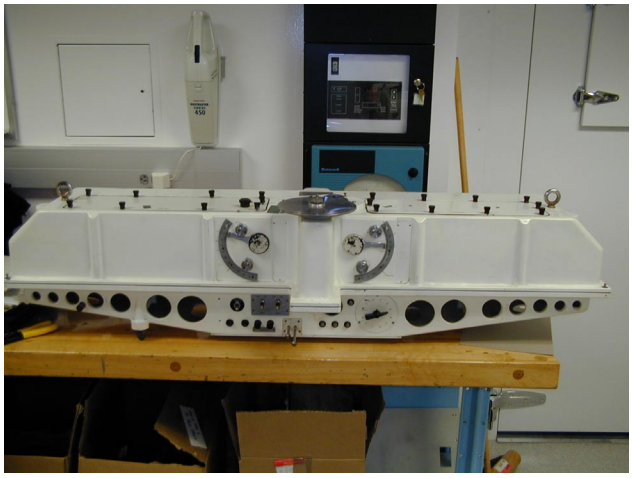

Figure 2. Dobson ozone spectrophotometer.