

## ABSTRACT

Variation of Ozone column density over Sri Lanka using solar UV radiation received at ground level

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Ozone is a gas with its molecule containing three oxygen atoms, blue in colour and has a strong pungent odor. The depletion of ozone layer is a global issue and not just a problem limited to the countries in the polar region. Concern about the ozone depletion has an obvious basis; the ozone layer reduces the amount of harmful UV-B radiation in the wavelength range of 280-315 nm from the sun that reaches the earth surface. Total amount of ozone molecules occupying a column overhead, widely known as the ozone column density, is measured in many countries all over the world to understand the amount of harmful UV-B radiation reaching to the earth surface and to study the recovery rate of depleted ozone layer.

This study describes an attempt made to study the ozone columnar density in various locations in Sri Lanka. To the best of our knowledge this is the first time that such a ground based study has been carried out in Sri Lanka. Measurements were conducted in six places Colombo, Galle, Hambanthota, Monaragala, Diyatalawa and Kandy during the period November 2002 to May 2003.

A MICROTOP II 5-channel Ozone Monitor & Sun Photometer tested and calibrated using Dobson Spectrometer was used for the measurement. The instrument measures direct solar radiation at 300.0, 305.5, and 312.5 nm windows and calculate the ozone column density in Dobson Units. Hourly ozone column density data between 0800 h to 1700 h were obtained and downloaded to a computer connected to the instrument. Accurate location parameters needed for ozone calculation were obtained using a GPS instrument. Data were analyzed using Minitab Statistical package.

The highest ozone density was observed at the noon and the results tally with those of international measurements. The average ozone columnar density value over Sri Lanka obtained for these seven month period was  $(283 \pm 20)$  DU with maximum value 385 DU recorded in June and minimum 215 DU in February. The monthly variation of ozone columnar density measured over Sri Lanka is found to be tally with that of satellite data.