

## SRI LANKA

Sri Lanka, a tropical island is located in the Indian Ocean at the southern tip of the Indian subcontinent. The thin ozone layer over the tropics has shown little change throughout the year. As such, UV radiation reaching the earth surface is expected to be high. Slight reduction in the ozone concentration will have disastrous effects on the tropics including Sri Lanka. Therefore UV and the total column ozone measurement are necessary in order to educate the public as well as to take action for protection. There are satellite measurements being done and these observations have to be improved. However in order to obtain a clear picture in a small area it is important to have ground base measurements. These types of measurements are needed to compare with the satellite base data in order to make any correction to satellite derived data as well. When the data sparse tropics are considered, Sri Lanka is ideally located to set up a monitoring station that can provide very valuable ground truth data to the world research community while using it for local and national planning.

As party to the Montreal protocol, Sri Lanka, in cooperation with other countries, is phasing out the consumption of ozone-depleting substances in an effort to safeguard the ozone layer. Sri Lanka maintains records of ground level ozone concentration in Colombo city in relation to air pollution. The Department of Meteorology, Sri Lanka started recording UV-B with Pyranometer about ten years ago at two locations in Sri Lanka. However these instruments are now out of order.

In 2002 the Department of Physics of the University of Colombo has done some total column ozone measurements using MICROTOPS II Sun Photometer. Short wavelengths of ultraviolet radiation are much more readily absorbed by ozone than other long wavelengths in the same UV bandwidth. Therefore the amount of ozone between the observer and the sun is proportional to the ratio of two wavelengths of the solar ultraviolet radiation. MICROTOPS II uses this relationship to derive the total ozone column from the measurement of 3 wavelengths in the UV region; 300nm, 305.5nm and 312.5nm respectively.

This study reveals the ozone variation over Sri Lanka obtained from ground based measurement at various locations over more than five months. They have selected Colombo, Galle, Hambanthota, Monaragala, Diyatalawa and Kandy as locations for measurements in order to cover various geometrical positions. Hourly measurements have been taken from middle of November-2002 to June –2003, 8.00 a.m. to 5.00 p.m. At noon, the highest ozone density is observed in diurnal variation due to high solar activity. Averaged ozone value, 283 DU for this period is observed and the highest value is found in May and February/March has the lowest values. Most of data has been collected in remote areas and the difference between the places has been minimal. The maximum value recorded is 385DU and minimum is 215 DU.

The instruments used in this study are not working properly now and there are difficulties in repairing or replacing them mainly due to problems in obtaining funds. Therefore Sri Lanka is in need of assistance to set up a network of stations for observations and research. With such assistance Sri Lanka will be in a better position to join the global community through research as well as in providing data.

### Ozone variation from Nov.-2002 to June-2003

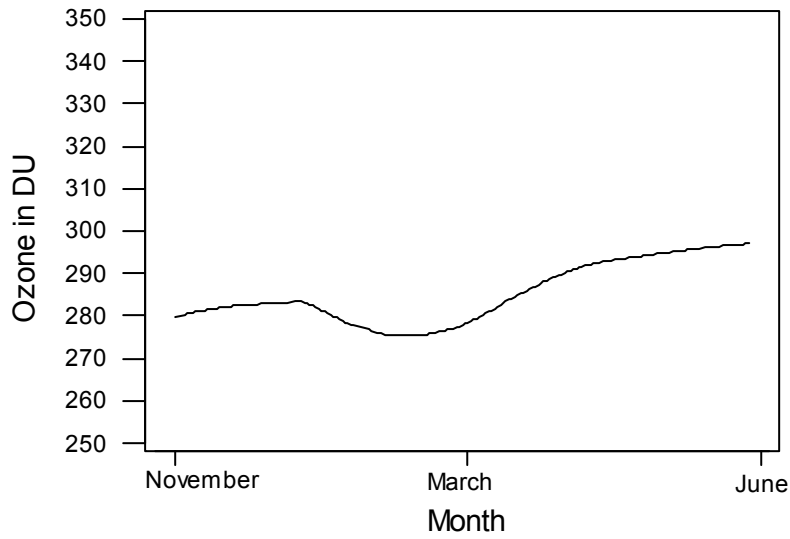


Figure 1: Average total column Ozone values for Sri Lanka.

### Diurnal Ozone Variation (12/15/2002)

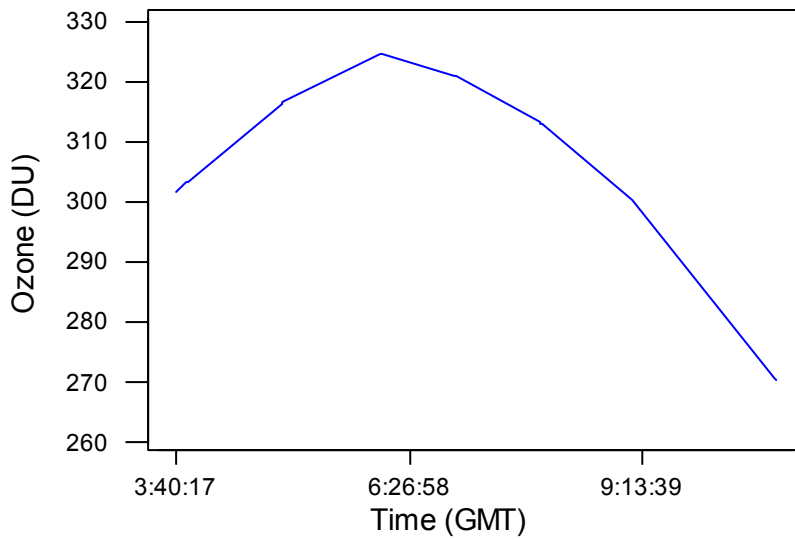


Figure 2: Diurnal variation of total column ozone on December 15, 2002.

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