

UV Index and Total Ozone Column Climatology of Nepal Himalaya Using TOMS and OMI Data

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ABSTRACT

Ultraviolet index (UVI) and Total Ozone Column (TOC) climatology of six stations of Nepal Himalaya using ground measurement, and OMI / TOMS satellite data is presented. The positive bias found in the OMI UV index from previous study is corrected empirically using a ratio factor using the clear sky coincident data of OMI and ground measurement from NILU UV multi-band filter radiometer (MBFR). UV index >3 in the winter months (e.g. December) and more than 9 during the summer months (May-August) are common in most of the stations. High altitude stations even have more extreme values (>11) during the summer months. Under some meteorological conditions, UV index often found more than 16 at the high altitude station (latitude 28°, altitude 2850m) during a clear sky day in the monsoon season. Diurnal and altitudinal variability is also highlighted. Monthly average TOC climatology from November 1978 to March 2012 using TOMS (Nimbus 7, Meteor3 and Earth Probe) and OMI is also presented. The ozone column data follows the annual cycle, minimum in November/December and maximum in April/May. In addition, slight negative trend of TOC is found in the data from 1978 to 2012.

Keywords: *UV index, Total Ozone Column, Nepal Himalayas, TOMS/OMI data, Climatology, NILU UV*