

## **Relation between atmospheric ozone and summer monsoon circulation over Indian region**

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Atmospheric Ozone is an absorber of shortwave radiation from the sun as well as longwave radiation from the ground. It is influenced by changes in circulation which can cause changes in transport of trace gases. Indian Summer Monsoon is a powerful circulation system that can influence the distribution and transport of Ozone. This study examines the variations in total Ozone content over India during strong and weak monsoon years. The data used are Total Column Ozone (DU) data from Total Ozone Mapping Spectrometer, Tropospheric Ozone Residual from NASA and Outgoing Long Wave Radiation (W/m<sup>2</sup>) from NCEP Reanalysis. Composites of Total ozone and OLR are plotted for Indian Region (0°N-40°N and 60°E -100°E) for five active and five weak monsoon years. The difference between the two composites is also plotted. It was found that Total Ozone Content is more during weak monsoon years. Composite analysis of Outgoing Longwave Radiation for the above years was done to study the variation of cloud cover in concentration of Ozone. Composite difference of OLR also shows negative values over most part of India with more intensity over oceanic region. The monthly variation of total ozone shows its peak value during the month of May. The concentration of tropospheric ozone seems to be influenced by the seasonal changes as well as the monsoon circulation. The values of tropospheric ozone is found to be enhanced during months of Indian Summer Monsoon and dissipating after that. The tropospheric Ozone is the main contributor of variations in total ozone. The ozone concentration can be influenced by deep convection over Indian region. The increased vertical transport could contribute to the intensity of the Brewer Dobson circulation which causes anomalous ozone levels during monsoon season.