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LOWER-TROPOSPHERIC OZONE (LTO) DERIVED FROM TOMS AND GOME DATA NEAR MOUNTAINOUS REGION OF PAKISTAN FROM 1999 - 2003

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Total Ozone Mapping Spectrometer (TOMS) Ver-7 and Global Ozone Monitoring Experiment (GOME) LVL2 used to study the lower tropospheric ozone (LTO) in the northern part near mountainous region such as Karakaram, Hindukash, Himalayas in Pakistan and compare with middle and coastal region south of the country. Ozone profile are also measured using GPS based Radiosonde / Ozonesonde balloon sounding system. The flight were carried out up to 30-35 Km altitude. In this study the tropospheric ozone formation, stratospheric ozone subsidence and its variation (Seasonal) near and above the ground, temperature and dynamic behavior of the troposphere and stratosphere are also discussed. The derived results agree reasonably well with the seasonality of LTO from ozonesonde observation at southern part of the country such as 24 N, 67E. The LTO seasonality found in the biomass burning seasons characterized by the ATSR World Fire Atlas in the middle part of the country are consistent with the influence of biomass burning on the formation of tropospheric ozone in the region. The minimum ozone in the southern part observed in the summer season. A summer LTO minimum occurs in coastal regions due to ozone destruction in low NOx and high H2O marine environment. A summer minimum also occurs in the south east of the country in the rainy season. In the mountainous region 28-36 N, which are subject to the anthropogenic emissions of ozone precursors, high concentrations of ozone are usually found in a summer maximum and low in the winter.