عنوان مقاله:

Statistical analysis of tropospheric ozone and its precursors using principal component analysis in an urban area of Surat, India

محل انتشار:

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

The objective of this study was to investigate the sources of tropospheric ozone (O_3) precursors in an urban area using principal component analysis. Chemically reactive conventional pollutants such as carbon monoxide (CO), carbon dioxide (CO_2), nitric oxide (NO), and nitrogen dioxide (NO_2), as well as some selected meteorological parameters such as global solar radiation (SR), air temperature (AT), relative humidity (RH), wind speed (WS), and wind direction (WD), were incorporated in this analysis. Real-time observation data were obtained from two monitoring stations, Limbayat and Varachha, situated in Surat city, India. The occurrence of a peak O_3 level in the summer at 5 p.m. proved the well-known fact of interconnection among the temperature, solar radiation, and increment in O_3 concentration. The potencies of CO and NO were remarkable in either the first or second principal component (PC) observed at both locations with more than 45% concentration, which alluded that the main source of O_3 was urban transportation and AT contributed with 50% weightage in the PC ascertained key role of photolysis process in the O_3 formation.

کلمات کلیدی:

Principal Component Analysis, Surat, Tropospheric ozone, Urban transportation

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