

## Episodic Characteristics of Ozone and Its Precursors in Urban Atmosphere of Istanbul, Turkey for 1998-2003

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Surface ozone the most well known substance within photochemical smog, plays an important role in affecting the regional climate and causing harmful effects on health and ecosystem. Surface ozone in urban areas is generated by a series of complicated photochemical reactions involving NOx and HCs in the present o sunlight. Surface ozone concentrations are increasing in the city depending on increasing number of cars that use mostly gasoline and poor dispersion conditions. Istanbul is one of the highly populated cities in the world and the most populated city in Turkey, with a population of about 12 million inhabitants. The history of photochemical air pollution in Istanbul is not long. The number of motor vehicles in Istanbul increased at a very fast rate (according to 2003 figure its about 1.7 million). It is two fold in the last ten years. High ozone days in ozone seasons are frequently observed when anticyclonic pressure systems are in the vicinity of Istanbul area.

In this study, the interaction patterns of nitric oxides and ozone are investigated based on measured data based in two urban sites in Istanbul, during the period of 1998-2003.

The paper presents also an investigation of meteorological features that were present during high ozone days in Istanbul in the same period. The study identifies both synoptic and mesoscale controlling patterns as well as vorticity fields over the region and examines the relationships between surface ozone concentrations and meteorological parameters. In order to understand the characteristics of ozone formation in this region, meteorological parameters are examined according to classification of ozone levels and its precursors with high ozone days. Furthermore the interactive characteristics between O3 and NOx are statistically studied.