

## A STUDY OF THE SURFACE OZONE AND ITS PRECURSOR EMISSIONS OF NO<sub>x</sub> IN ISTANBUL BASED ON DATA ANALYSIS AND MODEL SIMULATION

U. Anteplioglu<sup>1</sup>, S. Incecik<sup>2</sup>, S. Topcu<sup>2</sup>

<sup>1</sup>*Division of Meteorology, Kandilli Observatory, Bosphorus University, Istanbul, Turkey*

<sup>2</sup>*Department of Meteorology, Istanbul Technical University, Istanbul, Turkey*

Photochemical air pollution is a new environmental issue since the fuel switching program in Istanbul and first incidence was reported in 1999. In this paper, the levels of NO<sub>x</sub> emissions and ozone concentrations covering the urban areas of Istanbul were investigated based on the measurements and model simulation. Seasonal cycles of surface ozone and NO<sub>x</sub> in the city in the period of 1998-2003 were studied. We were considered that an important part of the local anthropogenic effects on NO<sub>x</sub> levels are expected to arise from traffic emissions in urban areas. An evaluation of the influence of NO<sub>2</sub> abatement on the ozone levels which is monitored at two stations in both European and Asian parts of the city is made using six monitoring stations in the city province. In order to investigate the influence of NO<sub>x</sub> emissions on ozone levels and to clarify the temporal and spatial variation of photochemical air pollution in Istanbul and surrounding area, PSU/NCAR Mesoscale Meteorological Model (MM5) and CAMx were applied for July 2003 as a typical summer month. Domain 4-the inner domain has been used with 91x139 horizontal grids. Model runs were conducted for 2 km grid arrangement. CAMx is an Eulerian photochemical model for integrated assessment of air pollution. In this study, CAMx has been used with 2 km resolution and 60x60 grids. In order to better understand the impact of the wind characteristics on ozone in the city, we presented the Bosphorus channel flows and local circulations at the south of the city.