



Wet and dry deposition of polycyclic aromatic hydrocarbons in the industrialized area of Izmit Bay, Turkey

B. Pekey (1), D. Karakas (2), S. Ayberk (1), **A. Karademir** (1)

(1) Dept. of Environmental Engineering, University of Kocaeli, Kocaeli, Turkey (2)
TÜBİTAK-MRC, Earth and Marine Sciences Research Institute, P.O. Box 21, 41470 Gebze,
Kocaeli, Turkey (aykankarademir@yahoo.co.uk/0090 262 3355559)

The aim of this study was to study pollution levels and source apportionment of PAHs in wet and dry deposition samples. The thirty-seven wet deposition and forty dry deposition samples were collected surrounding an industrialized area of Izmit Bay, North-eastern Marmara Sea, Turkey, from September 2002 to July 2003. The samples were analyzed for sixteen US EPA priority PAH compounds by using HPLC-UV technique. State of the present pollution levels, source types and the contributions of the polluting sources were investigated by using the receptor models such as factor analysis and factor analysis-multiple linear regression models. The results were compared to the literature data to assess the pollution level in the study area. Factor analysis revealed four factors explaining the 79.2% of the total variance in the wet deposition samples. Identified factors were 1) traffic, 2) coal and natural gas combustions, 3) oil and LPG combustions and 4) unburnt fossil fuels, wood preservation and carbon black manufacturing. For the dry deposition samples of Izmit Bay, again the factor analysis identified four factors which, explained the 80.7% of the total variance. The factors identified by the factor analysis were 1) coal and natural gas combustions, 2) petrogenic, carbon black manufacturing and wood preservation, 3) traffic and 4) oil and waste oil combustions. Factor analysis-multiple linear regression analyses were applied to the wet and dry deposition samples that were subjected to the factor analysis. The contributions of identified sources were quantified and discussed in details