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Investigation of Chemical Composition and Sources of Atmospheric Aerosols at a Rural Area over Northwestern Turkey

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Ambient aerosol samples were collected at a rural area in Kırklareli city of Turkey, near the Bulgarian border, from April 2006 to September 2006. Aerosol samples were collected daily on cellulose fiber filters (Whatman-41) using a high volume sampler. The samples were analyzed for elemental concentrations by ICP-MS. The highest concentrations were measured for Ca, Al, Fe, K and Mg. Enrichment factor calculation, using the Al as a reference crustal material, showed that Al, Mg, Ca, Fe, K and Mn were crustal, while Cr, Ni, Cu, Zn, As, and Pb were non-crustal. Factor analysis technique apportioned five sources for the observed suspended particulate matter. Trajectories were used to apportion the daily measured concentrations as a function of direction. The 5 day back HYSPLIT4 air mass trajectory analysis suggests that Eastern Europe and Western Europe may be the potential source regions of anthropogenic pollutants, like Ni, Cr, Cu and Zn.