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Influence of coal as the energy source for household heating on PM10 concentrations in three neighboring cities located on mediterranean coast of turkey

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Particulate matter less than 10 μm aerodynamic diameter (PM10) is inhalable and have adverse health effects. PM10 is associated with respiratory and cardiovascular morbidity and mortality from cardiovascular and respiratory diseases and from lung cancer. In this study, the effect of use of coal for household heating to ambient PM10 and SO2 concentrations in three neighboring cities, namely Antalya, Isparta and Burdur, located on the Mediterranean Coast of Turkey is investigated. In these three cities, both natural gas and coal can be used as winter season household heating. However, only in Antalya, air conditioners can be used as an alternative heating source because of higher winter temperatures. Air qualities of these cities are monitored by Ministry of Environment and Civilization. For this study, hourly and daily PM10 data of the year 2014 obtained from these monitoring stations are discussed. The annual PM10 concentrations for Antalya, Burdur and Isparta were 54 μg/m3, 46 μg/m3 and 75 μg/m3, respectively. These values were higher than the annual limit value set by EU directives. The winter season (October-March) PM10 concentrations were 1.7 to 2.7 times higher than the summer season (April-September) concentrations. Especially after evening rush hours, winter season PM10 concentrations were 3 to 4 times higher than those in summer season. Even there is an alternative clean energy source, use of coal as household heating together with radiation inversion had increased PM10 concentrations in the region.

Biography

PhD degree completed at Akdeniz University. Since 1997 she has taught at universities as a teaching assistant and as a doctoral assistant. More than 20 international symposia have participated.

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