EMS Annual Meeting Abstracts
Vol. 8, EMS2011-539, 2011
11th EMS / 10th ECAM

Forecasting the weather
- ensemble techniques
in probabilistic weather prediction

The intensity of urban heat island in July in 2010 and the quality of air in the agglomerations of Gdansk and Szczecin

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The essential material was based on hourly values of air temperature and the concentrations of nitrogen oxides, ozone and suspended particulate matter PM10 and PM2,5, automatically registered at the stations belonging to the Agency of the Regional Monitoring of Atmosphere of Gdansk Agglomeration (ARMAAG) and the Regional Inspectorate of Environmental Protection in Szczecin. The intensity of urban heat island was determined by means of differences of hourly values of air temperature between central and peripheral parts of the two agglomerations. Despite the fact that the mean monthly temperature in July in Szczecin was larger by about 4oC, and in Gdansk by about 3oC than the norm, the concentrations of most impurities maintained, on the whole, at the levels approximate to those registered over the years 2006-2009. Only in some regions of the two cities, the increased immission was shown by nitrogen oxides, carbon oxide and particulate matter PM10.
Using the analysis of regression, the effect of urban heat island on the variability and the quantity of concentrations of the analysed impurities was determined, both in terms of hourly values and mean daily ones. It was shown that the intensity of UHI had a statistically significant effect, mainly on the immission of nitrogen oxides and both fractions of particulate matter.