

**TESTING OF THE MAXIMUM OZONE CONCENTRATION PREDICTION METHOD
BASED ON TYPICAL WEATHER SITUATIONS**

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Czech Hydrometeorological Institute (CHMI) has participated at the project IST-99-11764 "APPETISE" (Air pollution Episodes: Modelling Tools for Improved Smog Management) included into EU Framework V programme. The main objective of APPETISE was to trial a variety of advanced statistically based data mining and modelling techniques in application to air quality modelling. Nevertheless, the problem could be treated not only from the statistical point of view, but also from meteorological one.

For this purpose, interconnections among meteorological characteristics and peak level ozone concentrations in the Middle Europe region were analysed. It was assumed that classes of typical synoptic situations-General Weather Situations (GWS) „supporting“ high ozone concentrations exist. A calendar of GWS favourable for the high ozone concentrations for the years provided by Free University Berlin, have been applied in this analysis. Percentiles p98, p95 and p50 for each GWS were calculated for ozone monitoring stations.

The results of the analysis provided enable the following probabilistic approach to the ozone level forecast a point: having a synoptic situation predicted from the numerical forecast model and clustered to one of the GWSs, probability of ozone concentration threshold exceedance could be estimated on each station. Results of such kind of "probabilistic" prediction method could be included into information system intended for warning of the public in case of the summer smog occurrence.

Performance of this simple "climatic" method of the threshold exceedance probability evaluation was tested by means of comparison with monitored ozone data. Comparison with the outputs of the more sophisticated models was also provided.