CITYDELTA PROJECT: OBJECTIVES, METHODOLOGY, RESULTS

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SHORT ABSTRACT

CityDelta is a project co-ordinated by the JRC-IES (Ispra, Italy) and co-organised by IIASA (Vienna, Austria), EMEP/MSC-W (Oslo, Norway), TNO-MEP (Apeldoorn, The Netherlands) and CONCAWE (Brussels, Belgium). The project is a policy-underpinning model-intercomparison activity to explore the changes in urban air-quality predicted by different atmospheric chemistry-transport-dispersion models in response to changes in urban emissions. It supports the Clean Air for Europe (CAFE) Programme of the DG Environment.

CityDelta aimed at the study of ambient levels of Ozone and Particulate Matter and had for specific objectives 1) to assess the performance of the participating models and compare them against available observational data; 2) to identify the range of responses of models towards emission reductions; 3) to provide information on the effectiveness of Europe-wide emission controls compared to local measures; 4) to provide quantitative information in relation to legal obligations, e.g. whether a certain trend in emissions will comply with air-quality limit values; 5) to provide guidance on how urban air-quality could be included in a European-wide evaluation of the cost-effectiveness of emission control strategies.

Approximately 20 modelling groups (from all over Europe) participated to this project with a total of 40 different model configurations and delivered 6-months (hourly) scenario simulations for O3 and 12-months (daily) simulations for PM for a series of 2010 emission projections. CityDelta provided information concerning the impact of various emission-reduction strategies on Ozone and Particulate Matter in 6 different cities in Europe (Berlin, Katowice, London, Milan, Paris, Prague).

An interactive graphical interpretation tool has been built-up during this exercise and made available to all project participants. Based on an “Ensemble approach” (defined as an average of the participating models), functional relationships of emissions versus concentrations were derived for PM for implementation of the urban signal into the regional EMEP air quality model, and subsequently in the IIASA-RAINS model for cost-effectiveness analysis.

A summary of the main findings of this project will be presented.