Air Quality Assessment for Europe from Regional to Continental Scale
The Air4EU Mapping Tool

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Abstract

As part of the work carried out in the Air4EU project a web based GIS mapping utility has been developed. This tool allows maps of air quality to be shown for a wide variety of pollutants and all spatial scales using an interactive GIS system.

Maps on all scales and from different regions can be selected, visualized, compared and printed in a homogenous and interactive fashion. The maps available include cities and case studies carried out within the Air4EU project as well as other contributed maps.

Further contributions from other sources are welcome and will be integrated in the mapping tool.

Fig1. Air4EU mapping tool home page

1. Mapping tool database

The mapping tool contains a GIS database containing standard features such as roads, urban areas, parks, water, etc. and a large number of air quality maps from a number of different regions including Oslo, London, England, Europe, Athens, Prague, Paris, Rotterdam, etc.

The maps displayed are chiefly derived from case studies within the Air4EU project but also include maps produced by the EMEP unified model, from individual city air quality assessment studies and from studies for EEA by the ETC/ACC.

The maps chiefly address EU legislative concerns including compounds such as PM10, PM2.5, NO2, SO2, Benzene, etc.

The interactive design of the Air4EU mapping tool allows the multiple selection, viewing and printing of all available pollutant maps within the Air4EU database.

The main functionalities are:

2. Selection of maps

Selection of maps can be made using the six defining map properties displayed (Region, pollutant name, indicator, period, mapping method and map type).
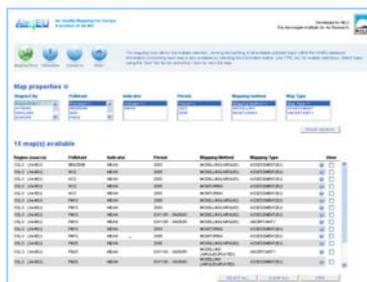

Fig2. Search Air4EU database page

3. View available maps:

The mapping tool allows maps on all scales to be displayed, along side each other if required, using a homogenous colour scaling and map projection.

This allows easy intercomparison of maps from different regions, of maps on different scales and of maps produced by different methodologies.

It contains a number of examples of different methodologies that can be used to produce maps including modelling, interpolation of monitoring data and various data assimilation methods such as optimal interpolation, ensemble Kalman filters and regression analysis.

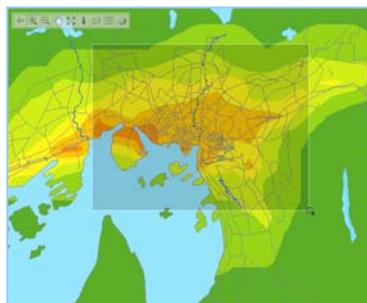Information on the maps and further links are also contained within the database.
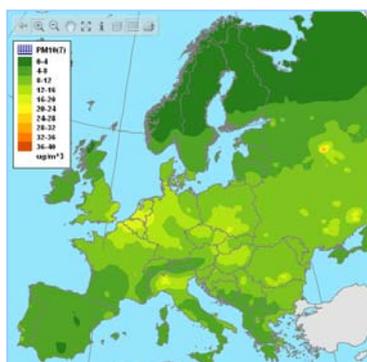

Fig3. Oslo map, Airquis, PM10, 2003

Fig4. Europe map, EMEP, PM10, 2003

Single or multiple maps can be viewed by choosing the appropriate maps. Within each selected map navigation, zooming and printing is possible.
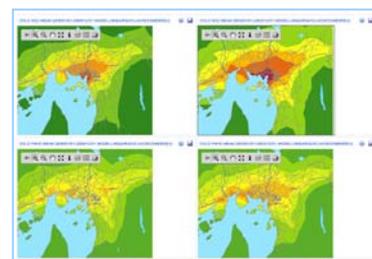

Fig5. Oslo, multiple map, 2003

A large number of maps are accompanied by uncertainty maps that have been produced based on recommendations from the Air4EU project.

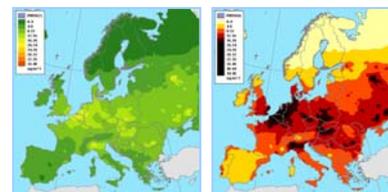These uncertainty maps allow the viewer to directly see the comparative quality of maps displayed.

Modelling   Uncertainty

Fig6. Europe, EMEP, PM10, 2003

4. Saving maps:

Maps which are currently displayed can be saved with a mouse click as word documents.

5. Information about layers:

In addition to standard technical information information about the maps extra information concerning the model, the monitoring data, the method used to construct the map, and URL references to other relevant links is also provided.
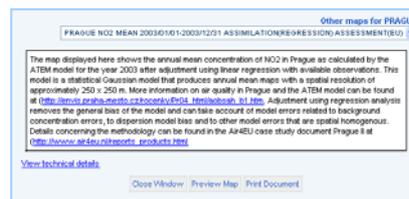

Fig7. Map description window

Air4EU mapping tool:
www.air4eumaps.info

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For more information about Air4EU please visit www.air4eu.nl
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