



## High-Resolution Modelling of Health Impacts from Air Pollution for Denmark using the Integrated Model System EVA

Jørgen Brandt (1), Mikael S. Andersen (1), Jakob Bønløkke (2), Jesper H. Christensen (1), Kaj M. Hansen (1), Ole Hertel (1), Ulas Im (1), Steen S. Jensen (1), Matthias Ketzel (1), Ole-Kenneth Nielsen (1), Marlene S. Plejdrup (1), Torben Sigsgaard (2), and Camilla Geels (1)

(1) Aarhus University, Department of Environmental Science, Roskilde, Denmark, (2) Aarhus University, Institute of Public Health, Aarhus, Denmark

We have developed an integrated health impact assessment system EVA (Economic Valuation of Air pollution; Brandt et al., 2013a; 2013b), based on the impact-pathway chain, to assess the health impacts and health-related economic externalities of air pollution resulting from specific emission sources or sectors. The system is used to support policymaking with respect to emission control. The EVA system has previously been used to assess the health impacts based on results from a regional model DEHM (the Danish Eulerian Hemispheric Model; Brandt et al., 2012).

In this study we have used a coupling of two chemistry transport models to calculate the air pollution concentration at different scales; the DEHM model to calculate the air pollution levels with a resolution down to 5.6 km x 5.6 km and the UBM model (Urban Background Model ; Berkowicz, 2000; Brandt et al., 2001) to further calculate the air pollution at 1 km x 1 km resolution for Denmark using results from DEHM as boundary conditions. Both the emission data based on the SPREAD model (Plejdrup and Gyldenkerne, 2011) as well as the population density has been represented in the model system with the same high resolution.

The new developments of the integrated model system will be presented as well as results for health impacts and related external costs over the years 2006-2014 for Denmark. Furthermore, a sensitivity study of the health impact using coarse and fine resolutions in the model system has been carried out to evaluate the effect of improved description of the geographical population distribution with respect to location of local emissions.

### References

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