



## **Evaluation of the high resolution DEHM/UBM model system over Denmark**

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The air pollutant levels over Denmark are simulated using the high resolution DEHM/UBM model system for the years 2006 to 2014. The system employs a hemispheric chemistry-transport model, the Danish Eulerian Hemispheric Model (DEHM; Brandt et al., 2012) that runs on a 150 km x 150 km resolution over the Northern Hemisphere, with nesting capability for higher resolutions over Europe, Northern Europe and Denmark on 50 km x 50 km, 16.7 km x 16.7 km and 5.6 km x 5.6 km resolutions, respectively, coupled to the Urban Background Model (UBM; Berkowicz, 2000; Brandt et al., 2001) that covers the whole of Denmark with a 1 km x 1 km spatial resolution. Over Denmark, the system uses the SPREAD emission model (Plejdrup and Gyldenkærne, 2011) that distributes the Danish emissions for all pollutants and all sectors in the national emission database on a 1 km x 1 km resolution grid covering Denmark and its national sea territory. The study will describe the model system and we will evaluate the performance of the model system in simulating hourly and daily ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen monoxide (NO), nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) concentrations against surface measurements from eight monitoring stations. Finally we investigate the spatial variation of air pollutants over Denmark on different time scales.

### References

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