Geophysical Research Abstracts, Vol. 8, 07232, 2006
SRef-ID: 1607-7962/gra/EGU06-A-07232

Emissions of primary particles and secondary aerosol precursors from natural and biogenic sources

- Overview of the NATAIR Project -

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Air pollutants from natural and biogenic sources contribute to atmospheric processes and ambient air concentrations in the same way as anthropogenic emissions. The knowledge about these sources is limited, however. Uncertainty introduced by inadequate coverage of natural emissions to assess anthropogenically induced effects may

be considerable. As emission control activities successfully decrease anthropogenic emissions in many sectors over time, the relative importance of other sources even increases. The NATAIR project has been devised to specifically address and improve the situation for these less explored sources of air pollutants.

The project uses the Atmospheric Emission Inventory Guidebook (EEA, 2004) as its starting point. New research results, improved input information and modelling techniques to account for emission processes are considered to devise advanced emission calculation procedures. The following compounds considered responsible for direct and indirect (secondary) air pollution are covered: NO_x, SO_x, NH_3, PM10, PM2.5, NMVOC; CH_4, CO, DMS. Natural sources, i.e. those fully unaffected from human activities, are included, as well as emissions from biogenic processes. Specifically, the following sources are covered:

* Natural and semi-natural vegetation

* Biomass burning and forest fires

* NO from soils (natural, agricultural)

* Primary Biological Aerosol Particles

* Wild animals, Humans and Pets

* Anoxic soil processes (wetlands

* Wind blown dust

* Volcanoes

* Lightning

* Sea salt

* Coastal zones

A consistent methodology to assess emissions of primary particles and secondary aerosol precursors is now available. While this methodology consists of several quite diverse approaches, specific care has been taken to identify and eliminate potential overlaps or gaps in the assessment. This provides the necessary basis for the next project phases. These will include a quantitative assessment of natural and biogenic emissions for the European Union as well as for the whole of Europe in gridded form, and a scenario analysis of European policies taking account of this improved information on the unaffected “background” sources.

Reference:

EEA (2004). Joint EMEP/CORINAIR Atmospheric Emission Inventory Guidebook, 4^{th} Ed. European Environment Agency, Copenhagen. Available at http://reports.eea.eu.int/ EMEPCORINAIR4/en