Geophysical Research Abstracts,
Vol. 11, EGU2009-9082, 2009
EGU General Assembly 2009

A tree species inventory over Europe

C. Ambelas Skjøth, C. Geels, M. Hvidberg, O. Hertel, J. Brandt, L. M. Frohn, K. M. Hansen, G. B. Hedegaard, J. H. Christensen, and L. Moseholm

National Environmental Research Institute, Dept. of Atmospheric Environment, Roskilde, Denmark (cas@dmu.dk, 0045-4630-1214)

Atmospheric transport models are used in studies of atmospheric chemistry as well as aerobiology. Atmospheric transport models in general needs accurate emissions inventories, which includes biogenic emissions such as Volatile Organic Compounds (VOCs) and pollen. Trees are important VOC and pollen sources and a needed requirement is specie distribution which takes into account important species such as Betula and Alnus. We present here a detailed tree species inventory covering Europe, parts of Africa and parts of Asia.

Forest inventories have been obtained for each European country, parts of Asia and parts of Africa. The national inventories vary with respect to number of species as well as the number of sub-regions each nation is divided into. The inventories are therefore harmonised within a GIS system and afterwards gridded to the model grid defined by the EMEP model: 50 km x 50 km. The inventory is designed to be used with existing land-use data, which separates forest cover into broad leaved, mixed and conifer forests. This will be exemplified by using two different remote sensing products with different grid resolution such as GLC2000 and CLC2000 in selected areas.

The final inventory includes 16 conifer species and 23 broadleaved species that are important for biogenic VOCs or pollen emission calculations. For example: Oak (Quercus), poplar (Populus), pines (Pinus), spruce (Picea), birch (Betula) and alder (Alnus). 774 regions with forest inventories are included, mainly on sub-national level. The coverage of each specie ranges from national to European scale, where the latter includes VOC and allergy relevant species such as Quercus, Alnus and Betula.

The inventory is gridded to the model grid defined by the EMEP model, which is also the basis for many emissions inventories throughout Europe. The inventory is therefore prepared for easy implementation into atmospheric transport models by providing an extension to already applied land use data such as the Corine Land Cover (CLC2000) or Global Land Cover (GLC2000). Possible applications of the inventory include emissions of VOCs and pollen, CO2 fluxes and dry deposition – in general calculations which are tree specie dependent.