EMS Annual Meeting Abstracts,
Vol. 6, EMS2009-199, 2009
9th EMS / 9th ECAM

9th EMS Annual Meeting
9th European Conference on Applications of Meteorology
High resolution meteorology
- applications and services

The database of land surface parameters ECOCLIMAP-II on Europe.

S. Faroux, J.L. Roujean, A. Kaptue, and V. Masson
CNRM-GAME, Météo-France, CNRS, GMME, Toulouse, France (stephanie.faroux@meteo.fr, +33 (0)5 61 07 93 55)

ECOCLIMAP-II is an updated version of the database of land surface parameters ECOCLIMAP on Europe. ECOCLIMAP is used to initialize the soil-vegetation-atmosphere transfer schemes (SVATs) in meteorological and climate models.

ECOCLIMAP consists first of a global land cover map at 1-km resolution. Each ecosystem is defined as a partition of 4 surface types: sea, water, nature, town. In the tile « nature », 12 vegetation types are defined to describe the composition of the ecosystems.
Most surface parameters are then initialized at the vegetation types level. Only the LAI (Leaf Area Index), the soils depths, the heights of trees vary with the vegetation types and with the covers.
Values of parameters in a grid point are calculated as a linear weighted aggregation of the values for the vegetation types present in the point. They are available for several levels of aggregation in terms of vegetation types and geographic resolution. The decadal annual cycle of LAI is introduced, therefore parameters depending on LAI also vary in time.

The map of ECOCLIMAP-I includes 215 ecosystems. It was built by crossing existing land cover maps with climate maps. The NOAH/AVHRR NDVI (Normalized Difference Vegetation Index) time series for year 2000 were used to distinguish ecosystems.
The second version on Europe comprises 273 ecosystems. In this version, more recent land cover maps are considered; moreover, an automatic k-means classification is applied on SPOT/VEGETATION 1999-2005 time series, longer and of better spatial resolution. In the first version, the LAI for the vegetation types in covers was deduced from the NDVI time series. In ECOCLIMAP-II, LAI time series are smoothed MODIS satellite data.

Some validations have been performed through comparisons with land cover data: CORINE2000 at 100-m and 1-km resolution, GLC2000, AGRESTE statistics on France, ISLSCP2 1-degree map for the C4 crops fraction, etc.
Tests are current to go further into the validation, in the SIM (Safran Isba Modcou) system for example, or on the South-West of France in touch with the CarboEurope campain.