

INTEGRATING CORINE LAND COVER AND THE FRENCH NATIONAL FOREST INVENTORY DATABASE

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The Corine Land Cover project is coordinated, on behalf of the European Union, by the European Environment Agency. It produces in a thematic map of biophysical land cover in Europe, with a 44 items nomenclature. The main data sources are high resolution satellite images (Landsat TM and Spot) and the working scale is 1:100.000.

The project is achieved for 6 countries and in progress in 6 other countries, including eastern countries and Tunisia and Morocco.

For France, the Corine Land Cover cartographic files are available for each administrative region in the format of the commercial software ARC/INFO. They can be obtained from the Institut Français de l'Environnement (IFEN) which realizes the project in close collaboration with the National Space Agency (CNES) and the National Geographic Institute (IGN).

The Inventaire Forestier National (IFN) is a french government agency in charge of the forest inventory of metropolitan France. It maintains two databases elaborated through aerial photograph interpretation and forest plot measures :

- a "dendrometric" database storing many statistical results on stand resources;
- a "cartographic" database featuring three thematic layers, digitized from maps made at scale 1:25.000 : forest regions, ownership classes and vegetation types.

The dendrometric database is runned by IBM's DB2 software and can be accessed through telecommunications. Copies of data are also available in numerous flat file or database formats.

The cartographic database is available for each department in EPPL7 format (efficient compressed raster file) or ARC/INFO format.

Considering the rich complementarity between the CORINE land cover and IFN databases, it has been decided, with a financial support of the European Commission (DG XI), to realize a computerized integration of these data. The expected results should offer a tool for numerous applications like impact studies, forest fire prevention, multi-criteria statistics... This project has shown several difficulties:

- nomenclatures are not completely compatible : each Corine Land Cover item is primarily corresponding to several IFN vegetation types, but the correspondence is not strict, especially in open woodlands, scrubs and shrubs;
- the different scales of the original maps result in non-coincidence of common limits. Furthermore, details of less than 25 ha are omitted by Corine Land Cover, but not by IFN which uses a 2.25 ha resolution.

Generic methods for solving those problems have been investigated, resulting in three levels of integration :

- level 1 : a cartographic database including four geometrically consistent layers : Corine Land Cover and the three IFN layers; available in the ARC/INFO format, these data address GIS applications on graphic workstations, mainly in the UNIX operating system environment.
- level 2 : the same data in EPPL7 format, for use with image processing software; a special visualisation software developed by IFN allows processing of up to a whole administrative region on PC's, thanks to the compactness of EPPL7 format;
- level 3 : the same data, linked with dendrometric data, for use in combined GIS and relational database management software; an extended version of the IFN's visualisation software is also available, providing visual querying of the combined database.

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