

Production of CORINE land cover 2006 and land cover changes between 2000-2006 in Finland

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The European Commission introduced the CORINE programme in 1985 in order to gather information relating to the environment for the European Union. CORINE land cover (CLC) classification is produced using satellite images and visual interpretation.

In Finland, CLC has been made differently in order to produce more detailed land cover information for national use at the same time. Finnish CORINE 2000 was based on automated interpretation of satellite data and data integration with existing digital map data. LANDSAT 7 ETM satellite data received 1999-2002 was used (IMAGE2000).

The same process is repeated with CORINE 2006 project where CORINE 2000 data is updated and land cover changes detected. The update is completed using a new coverage of satellite images received 2005-2008 (=IMAGE2006). Finnish IMAGE2006 consists of 80 IRS P6 Liss and 51 Spot 4/5 images. There are two image coverages; one summer coverage (47 + 35) and another spring/autumn coverage (33+16). Clouds and their shadows were interpreted visually and masked out. Atmospheric correction was done using ATCOR2 of Erdas Imagine. The aim of atmospheric correction was to remove the effects of atmospheric disturbances and make the corrected images as similar as possible with IMAGE2000 mosaics.

Following map databases were used in the production of land cover 2006: SLICES land use element, Topographic database, Building and Dwelling Register 2006 and environmental registers. Estimation of tree variables was made using field sample plots measured in National Forest Inventory #10 during 2004-2007. The employed method is the same which is applied in the operative multisource forest inventory of Finland (kNN prediction). Also manual and semi-automatic interpretation of satellite images were used (for.ex. harbors, airports, peat-production areas etc). All collected and produced land cover data layers are processed into same 25 m grid and combined together according to priority list, which is based on the accuracy and importance of data.

Land cover changes between 2000 and 2006 were retrieved by comparing two data sets: 1) change areas detected using image-to-image comparison and 2) changes detected by direct comparison of thematic land cover classifications year 2000 and 2006.

The outputs are IMAGE2006 satellite images and mosaics, CORINE 2006 land cover classification and changes between 2000-2006. These will be produced in different spatial resolutions: raster data with spatial resolution of satellite images and European LC and LC changes with MMU of 25 and 5 hectares. European vector data sets are produced using automated generalization procedures from raster data.

The technical team of European CLC project validate land cover change database qualitatively. An independent validation will be tendered out by EEA in the end of project (2010).