

URBAN LAND COVER CLASSIFICATION WITH LANDSAT AND SPOT IMAGERY

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The information acquired by Remote Sensing Satellites is useful for urban development control because of the high temporal frequency of acquisition at low cost. The use of this type of information allows the evaluation of urban land cover, as well as its evolution with time. It permits the planing of high spatial data acquisition at areas where major modification occur, if the spatial resolution of the remote sensing data was not enough for a specific analysis. This article presents the results of an experiment of urban land cover extraction from Landsat and SPOT images.

The land cover classes identified are: dense residential areas, medium residential areas, discontinuous residential areas, collective residential areas, asphalt roads, forest areas, herbaceous or bush vegetation areas, areas with little or no vegetation, areas with water. Areas representative of these classes are delineated over a 1:25 000 numeric topographic map. The Landsat and Spot images are geometrical corrected with the map and the areas delineated are used to make a spectral characterisation of the land cover classes, with the construction of n - dimensional confidence ellipsoids for the classes in the multispectral space (n = number of bands).

The areas delineated are used for training and test areas for Supervised Classification of Spot and Landsat images. Maximum Likelihood, Minimum Distance and Parallelepiped algorithms are used and their performance compared. For the same algorithm the performance of the Landsat and the SPOT data are discussed.

Improvements of the Supervised Classification are made with the integration of textural information and the results are discussed.