EXPLOITATION OF DISPLAY HOLOGRAPHY IN MAPPING, FACING NEW CHALLENGES IN THE FIELD OF ENVIRONMENTAL PROTECTION

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Abstract

Satellite data can be used for monitoring natural and agricultural environment and related processes. Same sets of data are commonly used in the production of highly detailed maps. In this paper we present the production of a holographic map displaying latest satellite information of critical environmental parameters of an area of interest.

Mapping environmental parameters is an essential step for environmental management. Among the multitude of environmental parameters, land cover and its multi-temporal change is a spatial parameter of high importance for the manager, as it provides the spatial location of environmental threats and their impact on the ecosystems. CORINE Land Cover is an important source of environmental information and is available at a pan European scale for 1990, 2000 and 2006, excluding a few countries.

Except for CORINE, a wide range of data sources are currently available, including satellite imagery, which offer several advantages: wall-to-wall coverage of the study area, information about inaccessible locations, easy repetition across time and high resolution multispectral information at relatively low cost.

3D mapping is an important tool in environmental mapping and visualization. The advantages of using holographic methods for visualization of environmental information are the true representation of the objects of interest, simultaneous viewing of multiple levels of information, easy understanding by non-experts in photogrammetry, improved visualization for decision making, and easier communication for raising awareness.

As study area the Peninsula of Holy Mountain was chosen, as there were readily available suitable data while environmental disasters are minimized due to the special status of this area.