

Use of Earth Observation / Geoscientific Data and Web-GIS Techniques for Water Resources Management of Nestos River Basin

Marianthi STEFOULI, Eleimon TILIGADAS and Sotiria DEVENE, Greece

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SUMMARY

The diversity of the natural heritage is one of the biggest assets of Rhodope region (Thrace, Northern Greece) with a view to sustainable development. The water management practices for both quantity and quality control are not uniform along transnational regions. Different regulations are adopted by EU and non-EU countries on how they would comply with the existing Water Framework Directive. Such is the case of water quantity/quality control by separate laws at different governments. Also the users are primarily concerned with the immediate geographic area and may be unaware of the effects of exercising their rights upon the other users who may be in border nations and may be themselves subject to different rules and regulations. The other dilemma is the intergovernmental conflict that may occur between state governments concerning interstate surface water and groundwater bodies.

Modern reality makes necessary the use of valuable information provided by the various remote sensing systems along with digital information systems, which are to act as effective tools for supporting decisions that are related to the management of water resources. Furthermore, the results should be communicated to decision-makers.

The Nestos river basin has been used as pilot project area of study. The objective of work has been to evaluate the use of integrated Earth observation and GIS techniques for the sustainable water resources management of transnational river basins. Processing techniques have been applied for the application of both image processing / GIS vector data techniques, along the image integration and creation of data fusion image products. Data have been classified using unsupervised neural network techniques. Automatic raster combination of the classification results with the vector GIS data have been applied for the final map updating.