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Development of a WebGIS-based monitoring and environmental protection and preservation system for the Black Sea: The ECO-Satellite project

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The ECO-Satellite project has been approved in the frame of the Joint Operational Program "Black Sea Basin 2007-2013" and it is co-financed by the European Union through the European Neighborhood and Partnership Instrument and the Instrument for Pre-Accession Assistance and National Funds. The overall objective of the project is to contribute to the protection and preservation of the water system of the Black Sea, with its main emphasis given to river deltas and protected coastal regions at the seaside. More specifically, it focuses on the creation of an environmental monitoring system targeting the marine, coastal and wetland ecosystems of the Black Sea, thus strengthening the development of common research among the involved partners and increasing the intraregional knowledge for the corresponding coastal zones. This integrated multi-level system is based on the technological assets provided by satellite Earth observation data and Geo-Informatics innovative tools and facilities, as well as on the development of a unified, easy to update geodatabase including a wide range of appropriately selected environmental parameters. Furthermore, a Web-GIS system is under development aiming in principle to support environmental decision and policy making by monitoring the state of marine, coastal and wetland ecosystems of the Black Sea and managing all the aforementioned data sources and derived research results. The system is designed in a way that is easily expandable and adaptable for environmental management in local, regional national and trans-national level and as such it will increase the capacity of decision makers who are related to Black Sea environmental policy. Therefore, it is expected that administrative authorities, scientifically related institutes and environmental protection bodies in all eligible areas will show interest in the results and applications of the information system, since the ECO-Satellite project could serve as a support tool for the environmental monitoring, protection and preservation of the Black Sea system.
In this presentation the design and development of the system architecture along with the innovative technologies for environmental monitoring implemented in the Web-GIS system of the ECO-Satellite project are presented and analyzed. Additionally, the collection and processing of current and historical data and the design and structure of the developed geodatabase are described. Finally, the testing of system components and geodatabase levels in different demonstration sites are also discussed in the frame of a variety of environmentally oriented project applications.