GIS and web-based information as innovative tools for coastal zone management

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This special issue titled “GIS and Web-Based Information as innovative tools for coastal zone management” of the Journal of Coastal Conservation, Planning and Management (JCCPM) gathers nine of the submitted contributions to the 3rd International Conference on Coastal Conservation and Management in the Atlantic and Mediterranean (ICCCM10), held at the Estoril, Portugal, in April 2010. The conference was attended by 800 participants from 24 countries, providing an expanded forum for scientists, engineers, planners and managers to discuss recent and new advances in scientific, technical, and socio-economic understanding of environmental issues related to coastal processes.

The articles in this issue stress the use of GIS and online information from web portals as innovative tools for management of the coastal zone. Numerical modeling applications are used to assess water quality and coastal vulnerability.

Souto et al. examine the benefits of compiling information on local and regional maritime-fluvial cultural heritage using Global Positioning Systems (GPS) and in-depth interviews with local stakeholders, to create a “Patrimonial” Geographic

Information System (GIS) accessible by the targeted coastal communities and the relevant political and social institutions. Mossbauer et al. investigate the effectiveness and efficiency of coastal management web portals, using indicators for the visiting quality, the volume and characteristics of the information flow and the associated costs.

Regarding water quality, Schemewski et al. propose a valuable tool for spatial analysis and development of bathing water profiles combining experiments on the behaviour of *Escherichia coli* bacteria with a three-dimensional flow model. Bresciani et al. assess the temporal evolution and spatial variability of water quality in terms of chlorophyll-a focusing on the importance of remote sensing as a valid tool for long-term whole ecosystem studies concerning cyanobacteria blooms.

Risk assessment and coastal vulnerability are approached by Janeiro et al. who present an integrated tool to support the decision making process at an oil spill event, focusing on the importance of exchanging information in real time for accurate reliable information systems. Neves et al. developed an integrated system to support decision-making for port and coastal engineering modelling, enabling the automatic generation of risk maps for navigation and Martins et al. model coastal vulnerability in a scenario of urban expansion, stressing the need to improve effective urban planning processes to ensure a correct balance between the geophysical resilience of coastal systems as a strategic asset for the regional and national economy.

Performance analysis and validation of numerical simulations of the wave propagation between offshore and in-shore were presented by Fortes et al., and Costa and Taveira-Pinto analyse the most vulnerable areas of a seafront in terms of current velocities and littoral drift, to confirm the effectiveness of coastal protection structures.

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