

Intelligent Environmental Decision Support Systems for Integrated River Basin Management: Experiences and Challenges

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River basin management is a complex task since it involves the integration of a huge amount of quantitative and qualitative data and expert knowledge, obtained from different scientific disciplines (hydraulics, ecology, economy, etc.). This integration requires dealing with the uncertainty and imprecision of information and the multiplicity of scales. Intelligent Environmental Decision Support Systems (IEDSSs) seem to be useful tools for dealing with this complexity as they can link statistical, numerical and artificial intelligence models so that all this information can be represented. The proposed workshop will present the more than fifteen years experience of our research group on developing and implementing IEDSSs capable to offer real solutions for different tasks of the river basin management: planning [1;2], design [3], control [1;4;5], operation and maintenance [6;7] of wastewater collection and treatment systems and management of river systems [8;9]. Currently our research group is working on the development of IEDSS to support the integrated management of water infrastructures at river basin scale to reach a good ecological status. Specifically, the aim of the workshop will be to give (i) a brief presentation of the nine IEDSSs developed and the methodology used; (ii) an explanation of the experience gained during these fifteen years with respect to the bottlenecks encountered in the development, application and upgrading of the IEDSSs developed; and (iii) a hands-on demonstration of some of the computer support tools developed. An open discussion about the usability of IEDSSs in the river basin domain will be encouraged, highlighting benefits and weak points.

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