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Session abstract

Title: Computational methods for optimal management of water resources systems

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Features inherent to problems of natural water management in river basins or aquifer systems provide challenging tasks for planners. Commonly, operations have to be designed over long periods of time, in a heterogeneous and uncertain environment. Each case is unique and typically involves multiple decision criteria and constraints over a wide range of levels in time and space. Moreover, robust results at the larger scale depend on assumptions about the performance of smaller scale systems in operation.

Integrating optimization tools and hydrologic simulation models has become a necessity for water resources management, but it is still challenging.

This session aims to exploit innovative methods from the fields of classic optimization concepts, simulation-optimization, Bayesian decision theory, artificial intelligence and operations research to tackle complex problems in water resources management. We invite papers that investigate techniques, which are still uncommon in current planning practice, bear the theoretical potential to advance the state-of-the art, particularly towards effective and efficient solutions and improved integral and strategic problem solving models.

Keywords: optimal water resources management, simulation-optimization, integrated hydrological models