

Integrated Water Management & Development of Yangtze River Simulator

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Abstract

This presentation addresses the issue on integrated water management for sustainable development under a changing environment in large river basin, through a case study of Yangtze River basin in China. Yangtze River is the largest river in China and the 3rd largest river in the world with 6,397 km long and 1.8 million km², which was called as the mother river and the life river for social & economic sustainable development in China due to its population of 4000 million, and GDP 4000 billion CNY, and water resources amount 990 billion m³. Under the impact of climate change and significant land use & cover change, Yangtze River basin faces a series of challenges on water security and integrated water management issue, particularly due to hydrological processes change in upstream, middle stream and downstream, as well as water environmental issues resulting from river development and urbanization, and ecosystem degradation including lake eutrophication in urban and rural water areas. The sustainable development of the Yangtze River Basin has become a priority issue for the national social & economy development. To provide simulation analysis, evaluation and decision support for integrated water management, a Yangtze River Simulator (YRS) system has been developed to provide an integrated modeling tool served for Yangtze Basin with functions of assessment, modelling, alarming, prediction and decision support, through its Monitory-Modelling-Nexus, that emphasizing interactions among upstream, middle stream and downstream, deeply interdisciplinary of natural science and social science, supported by big data and artificial intelligence. Some of case studies will be given to present the YRS applications in China

Keywords: Yangtze River basin, Yangtze River Simulator, Integrated Water Management