

Preface

There is hardly a process on Earth where water is not changing in some form or another; life on Earth is a water-processing system. Evidence is growing that human-induced climate and land use/cover changes have a direct influence on processes and elements of the hydrological cycle. Human activities impact water supply and increase water disasters. The International Commission on Water Resources Systems (ICWRS) of IAHS has, for many years, embraced Integrated Water Resources Management (IWRM) as the main topic of its research agenda. The ICWRS has organized regular symposia on IWRM starting in 2000 at the University of California, Davis, USA¹. The second symposium was organized in Stellenbosch, South Africa in 2003. The third and fourth were held at Ruhr-University, Bochum, Germany in 2006², and in Johannesburg, South Africa in 2008, respectively.

This book is the outcome of the 5th *International Symposium on Integrated Water Resources Management* and the 3rd *International Symposium on Methodology in Hydrology*, held at Hohai University in Nanjing, China, on 19–21 November, 2010. ICWRS of IAHS, State Key Laboratory of Hydrology-Water Resources and Hydraulic Engineering, Hohai University, and Nanjing Hydraulic Research Institute, jointly organized the symposia. The Chinese National Committee for IAHS, International Training and Research Center on Hydrology, Water Resources and Environment, UNESCO, China's 111 Project initiated by the Ministry of Education and State Administration of Foreign Experts Affairs (B08048), and the Project Funded by the Priority Academic Program Development of Jiangsu Higher Education Institutions, were the main sponsors of the event. More than 200 participants from the USA, Canada, UK, France, Germany, the Netherlands, Spain, Norway, Japan, Australia, Mexico, Malaysia, Pakistan, and China, assembled in Nanjing. Prof. Weiya Xu (Vice-President of Hohai University) and Dr Pierre Hubert (former IAHS Secretary General), delivered welcome speeches on behalf of Hohai University and IAHS, respectively. Prof. Gunter Blöschl (ICWRS President of IAHS, Director of the Centre for Water Resources Systems, Vienna University of Technology) sent a letter of congratulation on the opening of the symposium. Prof. Liliang Ren, ICWRS Vice-President of IAHS, the Secretary General of the 5th International Symposium on IWRM, chaired the opening ceremony.

Academician Changming Liu, Academician Hao Wang, Academician Jianyun Zhang (President of Chinese National Committee for IAHS), Prof. E. Sudicky (University of Waterloo), Prof. V. P. Singh (Texas A & M University, Editor-in-Chief *ASCE Journal of Hydrologic Engineering*), Dr Pierre Hubert, Prof. A. Schumann (Ruhr-Universität Bochum, ICWRS Vice-President), Prof. Nick van de Giesen (Delft University of Technology, ICWRS Secretary), Dr I. Littlewood (Editor-in-Chief *Hydrology Research*), Prof. N. R. Sævið (University of Oslo), gave the invited keynote lectures and oral presentations in the Plenary Session in the morning and afternoon of 20 November, respectively. On 21 November, there were nine parallel sessions held in three meeting rooms, including the following themes:

- Hydrological processes in a changing environment
- Water resources assessment and management

¹ Collection of papers published in *Integrated Water Resources Management* (ed. by M. A. Marino & S. P. Simonovic). IAHS Publ. 272 (2001), IAHS Press, Wallingford, UK.

² Collection of papers published in *Reducing the Vulnerability of Societies to Water Related Risks at the Basin Scale* (ed. by A. Schumann & M. Pahlow). IAHS Publ. 317 (2007). IAHS Press, Wallingford, UK.

- Ecohydrological approach to water resources sustainability
- Water environment
- Subsurface water and groundwater
- Uncertainty in hydrologic modeling
- Hydrological data mining and data assimilation
- Hydrological data retrieval by remote sensing methods
- Hydrological modelling supported by multi-source information

The 2-day symposia brought together experts from different disciplines to present research results describing the hydrological cycle in changing environments and discriminating amongst impacts caused by various factors, to exchange experiences with quantitative methodology for water resources assessment in a changing environment, and eco-hydrological approaches to water resources sustainability, so that we can ensure water security in a changing background. During the preparation of the symposia, the secretariat received more than 190 manuscripts. This volume contains a selection of the papers that were presented orally during the symposium in Nanjing. The Academic Committee of the International Symposia reviewed all the submitted papers, and finally accepted 108 papers. This book is dedicated to the 95th anniversary of Hohai University.

The editors would like to thank many people who have helped produce this volume, including the members of the Academic Committee of the Symposia who reviewed all the submitted papers, Mr Qing Liu who kept trace of the manuscripts as they were received. Last but not least, the support of Penny Perrins and Cate Gardner at IAHS Press, Wallingford, is greatly appreciated.

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