# Symposium Guidebook

## International Symposium on Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions

**（ICCWRA 2011）**

**October 21-23, 2011,**

**Xi'an, China**

# International Symposium on Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions

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Xi'an University of Technology

International Water Resources Association, **IWRA**

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# International Symposium on Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions

## Scientific Committee

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| **Chair:** | | |
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| | Prof. Huifang Jiang | Xinjiang Agricultural University |

# International Symposium on Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions

# Organizing Committee

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| **Chair:** | | |
| | Prof. Xiaode Zhou | Xi'an University of Technology |
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| | Prof. Pute Wu | Vice President of Northwest Agriculture and forestry University |
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# International Symposium on Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions

## The schedule of first day (21, Oct.)

The Hall of the Library

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| **Welcome speech (8:30 - 9:20)** | Chaired by：Prof. Bing Shen |
| **8:30 - 9:20** | ***Director Wenhai Xu***, Representative of Vice Minister Siyi Hu, Ministry of Water Resources, China<br>***Prorf. Xingqi Luo***, Vice President of Xi'an University of Technology<br>***Prof. Jun Xia***, President of International Water Resources Association (IWRA)<br>***Prof. Gordon Young***, President of International Association of Hydrological Sciences(IAHS)<br>***Prof. Janos Bogardi ,*** Executive Director , IPO, Global Water System Project(GWSP) |
| **Award Section (9:20 - 9:40)** | Chaied by：Prof. Xiao-de Zhou |
| **9:20-9:30** | ***Prof. Asit K. Biswas,*** President of the Third World Centre for Water Management (TWCWM)**,** launches "The International Prize for Outstanding Contributions to Water Management" in 2011 to Prof. Jun Xia |
| **9:30-9:40** | ***Prof. Jun Xia*** express his thanks to the Third World Centre for Water Management and Prof. Asit K. Biswas |
| **9:40-10:00** | Take Photo（In front of the Library） Chaired by: Zhi-gang Wang |
| **Key Note Presentation (10:00 - 12:00)** | Chaired by：Prof. Cecilia Tortajada and Prof. Huai-en Li |
| **10:00-10:30** | ***Prof. Asit K. Biswas,*** Water Management in a Rapidly Changing World |
| **10:30-11:00** | ***Prof. Jun Xia,*** Water Resources Vulnerability & Adaptive Management to Climate Change Impact: Case study in China |
| **11:00-11:30** | ***Prof. Gordon Young,*** Global Water Challenges in Arid and Semi-arid Regions |
| **11:30-12:00** | ***Prof. Janos Bogardi,*** Executive Director , IPO, Water Security in the 21st Century: Global Challenge and Regional Concern |
| **12:00-14:00** | **Dinner** |
| **Key Note Presentation (14:00 - 16:00)** | Chaired by：Prof. Chang-xing Jin and Prof. Zhong-hua Jia |
| **14:00-14:30** | ***Prof. James Nickum,*** The Evolution of Water Rights Regimes in the US West under Anthropogenic Change |
| **14:30-15:00** | ***Prof. Xiaode Zhou,*** Study on the River Basin's Water Ecologic Carrying Capacity |
| **15:00-15:30** | ***Prof. Cecilia Tortajada,*** Water Quality Management: Challenges and Expectations |
| **15:30 - 16:00** | ***Prof. Xu Zongxue,*** Impact of Climate Change on Flood Risk in the Taihu Basin: GCM Assessment and Scenario Uncertainty |

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| **Tea Break (16:00 - 16:10 )** | |
| **Key Note Presentation (16:10 - 18:10)** | Chaired by：Prof. Zong-xue Xu and Prof. James |
| **16:10 - 16:40** | ***Prof. Rafael Izquierdo*** Public-Private Partnership model for wastewater treatment in Aragon |
| **16:40 - 17:10** | ***Prof. Dong Wang,*** Monthly and annual runoff variation of the Yellow River under climate change and human activities |
| **17:10-17:40** | ***Prof. Vijay Kumar,*** Rainfall Trends in India: implications for climate change adaptation |
| **17:40-18:10** | ***Prof. Yang Dawen,*** Assessment and Prediction of Climate Change Impact on Water Resources - Case Studies in China |
| **Banquet (18:30 - 20:30 )** | Chaired by: Prof. Qiang Huang |
| *18:30-20:30* | *Banquet speech: by Prof. Jun Xia(IWRA), Prof. Gordon Young(IAHS), Prof. Janos Bogardi(GWSP) and Prof. Xiaode Zhou* |

# Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions

## The schedule of second day (22, Oct.)

Room 101 of No.4 Building

| 8:30-10:00 | | Chaired by: Prof. Asit K. Biswas, and Prof. Wan Luo | | |
|---|---|---|---|---|
| No. | Time | First author | Auther's affiliation | Title of presentation |
| 1 | 8:30-8:45 | Haiyan Yu | Oxford Center for Water Research, England | Gender and Integrated Water Resources Management in China |
| 2 | 8:45-9:00 | G. Q. Wang | Nanjing Water Science Institute, China | Simulating the impact of climate change on runoff in the Kuyehe river catchment of the Loess Plateau, China |
| 3 | 9:00-9:15 | Inom Sh. Normatov | Hydropower and Ecology of the Academy of Sciences, Republic of Tajikistan | Impact of climate change on agricultural water use in republic of Tajikistan |
| 4 | 9:15-9:30 | Huang Qiang | Xi'an University of Technology, China | The Yellow River Upstream Runoff Abrupt Change Analysis and Climate Response |
| 5 | 9:30-9:45 | Karim C. Abbaspour | Swiss Federal Institute of Aquatic Science and Technology, Swiss | Impact of Climate Change on Water Resources of Iran |
| 6 | 9:45-10:00 | Jinzhu Ma | Lanzhou University, China | Principal-components analysis as an integrated tool to quantify the impacts of climate change and human activities on water resources in a desert catchment: case study for the Shiyang River Basin in Northwestern China |
| Tea Break | | 10:00-10:10 | | |
| 10:10-11:50 | | Chaired by: Prof. Jun Xia and Prof. Cecilia Tortajada | | |
| 7 | 10:10-10:25 | Chiyuan Miao | Beijing Normal Univ., China | Bayesian Multi-model Estimation of Chinawide temperature Change in Means and Extremes based on CMIP3 Data |
| 8 | 10:25-10:40 | M. Summerton | UmgeniWater, Pietermaritzburg, South Africa | Including potential climate change impacts on water supply and water resources management |
| 9 | 10:40-10:55 | Wang Qi | Yellow River Conservancy Press | Analysis on climate change and its impacts on water amount in the Yellow River basin in recent 60 years |
| 10 | 10:55-11:10 | Ramesh K. Singh | Earth Resources Observation and Science (EROS) Center, USA | Sustainability of Water Resources in the Great Plains of the United States under Changing Land Use and Climate Change |
| 11 | 11:10-11:25 | Wang Zhongjing | Tsinghua University, China | Improved SEBAL Based on Ideal Dry and Wet Limits: Study and Application in the Hekou-Longmen Section of the Middle Yellow River |

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| 12 | 11:25-11:40 | Yiping Wu | Earth Resources Observation and Science Center, USA | Assessment of hydrological responses to increased carbon dioxide and climate change in the Midwestern United States |
| 13 | 11:40-11:55 | Sufen Wang | China Agricultural University, China | Predicting runoff response to climate change in the Zamu River Basin of Northwest China |
| Dinner | | 12:00-14:00 | | |
| 14:00-15:45 | | Chaired by: Prof. Guoqing Wang and Prof. James E. Nickum | | |
| 14 | 14:00-14:15 | Ruiliang Jia | Xinjiang Agriculural Univ., China | Research review on the influence of climate change on the groundwater resources in China |
| 15 | 14:15-14:30 | Yanli Liu | Nanjing Hydraulic Research Institute | Assessing Uncertainty in Catchment-scale runoff Modeling under Climate change (Case of the Huaihe River, China) |
| 16 | 14:30-14:45 | Li Zhang | Xian University of Architecture and Technology | The impact of climate change on runoff in Weihe River basin |
| 17 | 14:45-15:00 | Yu Qun-wei | Beijing Normal University, China | Assessing the performance of GCMs over the Yellow River Basin |
| 18 | 15:00-15:15 | Pengfei Huang | Tsinghua University, China | Impact of climate change on utilization and distribution of water resources in Shule River basin, Northwest China |
| 19 | 15:15-15:30 | Prof.Chan Ngai Weng | | Coping with Water Scarcity: Some Examples from Malaysia |
| 20 | 15:30-15:45 | Meng Cai-xia | Chongqing Jiaotong Univ., China | Trend analysis on the meteorological elements of Hotan oasis during the past fifty-five years |
| Tea Break | | 15:45-15:55 | | |
| 15:55-16:55 | | Chaired by: Prof. Lihua Xiong and Prof. Vijay Kumar | | |
| 21 | 15:55-16:10 | Wu Lijun | Hohai Univ., China | Trend Analysis and Prediction of Utilizable Precipitation in Northwest China under the Condition of Climate Change |
| 22 | 16:10-16:25 | Yu Kunxia | Wuhan Univ., China | Influence of Predictor Variables Choice on Precipitation Generation for the Qingjiang River Basin |
| 23 | 16:25-16:40 | Yinke Yang | Xi'an Univ. of Technology, China | A 248-year reconstruction of precipitation based on the central Qilian Mountains tree rings |
| 24 | 16:40-16:55 | Feng Jing | Donghua Univ., China | Impacts of Climate Change on Water Resources in Heihe River Basin |

## The Library Hall

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| 17:15-17:50 | | Chaired by: Prof. Qiang Huang |
| 25 | Closure Ceremony | Prof. Qiang Huang, Declare the symposium closed |
| 26 | Summarization | Prof. Jun Xia |
| 27 | Acknowledge | Prof. Xiaode Zhou |

# Impacts of Climate Change on Water Resources Allocation and Reservoir Operation in Arid and Semi-arid Regions

## The schedule of second day (22, Oct.)

Room 318 on Third Floor of No.4 Building

| 8:30-10:00 | | Chaired by: Prof. Zhongjing Wang and Prof. Claudia Pahl-Wostl | | |
|---|---|---|---|---|
| No. | Time | First author | Auther's affiliation | Title of presentation |
| 1 | 8:30-8:45 | Chang-xing Jin | Ani GuhaEnvironmental Consulting and Technology, Inc, USA | Using LiDAR data and ArcHydro tools in Floodplain Modeling Case study in Cardinal Lane Watershed |
| 2 | 8:45-9:00 | Liu Guoshuai | Hohai University, China | Short-term Optimization Operation and Economical Operation of Three Gorges Cascade by Genetic Algorithm Based on Advanced Selection Operator |
| 3 | 9:00-9:15 | Bai Tao | Xi'an Univ. of Technology, China | The Study on Cascade Reservoirs Optimal Operation in Arid and Semi-arid Areas under Climate Change |
| 4 | 9:15-9:30 | Liu Qingyong | Water Research Institute of Shandong, China | Optimal Allocation study of Water Resources Based on WEAP Model |
| 5 | 9:30-9:45 | Li Lan | Wuhan Univ., China | Analysis of the Influence of Three Gorges Reservoir on Lower Yangtze Region Drought |
| 6 | 9:45-10:00 | Jiao Zheng | Hohai University, China | The Research on Combined Simulative Optimal Operation of Reservoirs system in Hubei province based on TOU power price |
| Tea Break | | 10:00-10:10 | | |
| 10:10-11:50 | | Chaired by: Prof. Zongxue Xu and Prof. Hong Yang | | |
| 7 | 10:10-10:25 | Zhao Jingbo | Shaanxi Normal University, China | Dynamic Change of Soil Moisture from Artificial Forest Land in Recent 6 Years in Guanzhong Plain |
| 8 | 10:25-10:40 | Zhou Ran | Hohai University, China | Research of Optimal Operation of Giant Reservoirs in hubei Province based on Monte Carlo Simulation Method of Latin Hypercube Sampling |
| 9 | 10:40-10:55 | Li Miao | Institute of Geographical Sciences & Natural Resources Research, CAS, China | DFA based predictability indices analysis of climatic dynamics in Haihe River Basin, China |
| 10 | 10:55-11:10 | Gu jun-fang | Hohai University, China | The comparative study of impact of climate change on mountain and plain river hydrologic regime |
| 11 | 11:10-11:25 | Xu Jing | Nanjing University, China | The prediction of Meteorological Drought based on PDSI and Markov Chain Model |

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| 12 | 11:25-11:40 | Xingcai Liu | Beijing Normal Univ., China | Impact of climate change on evapotranspiration in the Liao River basin |
| 13 | 11:40-11:55 | Yujuan Fu | Shenyang Agricultural University, China | Water Resources Carrying Capacity in Liao River Basin Liaoning province |
| Dinner | | 12:00-14:00 | | |
| 14:00-15:45 | | Chaired by: Prof. Alexander Zinovogev and Prof. Jinlong Zhou | | |
| 14 | 14:00-14:15 | Samuel Igbatayo | | The Challenges of Transboundry Water Resources Management: Case Study of Lake Chad Basin |
| 15 | 14:15-14:30 | Tao Liu | Binzhou Survey Bureau of Hydrology and Water Resources, China | Issues of Water Resources Utilization in China and Some Ideas on Them |
| 16 | 14:30-14:45 | Chunqing Guo | Guilin University of Technology, China | Impact of Climate Change on runoff of the Typical Sub-catchment in the Loess Plateau |
| 17 | 14:45-15:00 | Chang Jian-xia | Xi'an Univ. of Technology, China | Optimization of Water Reservoir Operating Policies by PSO-GA |
| 18 | 15:00-15:15 | Zhang Yan | Institute of Geographical Sciences & Natural Resources Research, CAS, China | Water resources allocation in Harbin,China under the newly increasing grain yield Plan |
| 19 | 15:15-15:30 | Lingme Huang | Xi'an Univ. of Technology, China | A dissipative hydrological model and application in Hotan Oasis |
| 20 | 15:30-15:45 | Zhang-Jun Cao | Nanjing Univ., China | An application of Wavelet RBF Neural Network in typical Karst area, South China |
| Tea Break | | 15:45-15:55 | | |
| 15:55-16:55 | | Chaired by: Prof. Bing Shen and Prof. Giuseppe Rossi | | |
| 21 | 15:55-16:10 | XUE Xiao-jie | Xi'an Univ. of Technology, China | Reservoirs supply operation in Xi`an area |
| 22 | 16:10-16:25 | Wanqiu Xing | Hohai Univ., China | Response of actual evapotranspiration to climate change: a case study in the sub-basin of the Yellow River Basin |
| 23 | 16:25-16:40 | Jiang Guihui | Shenyang University of Angriculture, China | Game Playing Analysis Based on Water Market About Water Right and Water Resource Tax |
| 24 | 16:40-16:55 | Lv Jiqiang | Xi'an Univ. of Technology, China | Runoff Response to Climate Variation in the Upper Yellow River |

## The Library Hall

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| 17:15-17:50 | | Chaired by: Prof. Qiang Huang |
| 25 | Closure Ceremony | Prof. Qiang Huang, Declare the symposium closed |
| 26 | Summarization | Prof. Jun Xia |
| 27 | Acknowledge | Prof. Xiaode Zhou |

# Impacts of Climate Change on Water Environmental and Ecological Response in Arid and Semi-arid Regions

## The schedule of second day (22, Oct.)

Room 207 on Second Floor of No.4 Building

| 8:30-10:00 | | Chaired by: Prof. Dawen Yang and Prof. Xiaoyu Song | | |
|---|---|---|---|---|
| No. | Time | First author | Auther's affiliation | Title of presentation |
| 1 | 8:30-8:45 | Sahibzada Irfanullah Khan | | Management of Scarce Water Resources for Rehabili-tyation of Degraded Lands in Arid and Semi-arid Re-gion of Southern Pakista |
| 2 | 8:45-9:00 | Dengfeng Liu | Xi'an Univ. of Technology, China | Simulation and evaluation of ecohydrological effect of water transfers at Alagan in lower Tarim River |
| 3 | 9:00-9:15 | Huaifeng Ge | China Institute of Hydropower and Water Resources Research | Study about Yearly Total Amount of Ammonia Nitrogen Allowing into Water Bodies in Tianjin Based on the Improved SWAT Model |
| 4 | 9:15-9:30 | Fu Qiuping | Northwest A & F University, China | Effects of supplemental irrigation on water use efficiency, evapotranspiration and yield of winter wheat in the Loess Plateau of China |
| 5 | 9:30-9:45 | Ying Wang | Xi'an Univ. of Technology, China | Study on the Dynamic Change of Water Environment Carrying Based on the System Dynamics in the Weihe River |
| 6 | 9:45-10:00 | Cui Lei | Hohai Univ., China | The Research Progress of Temperature Changes in Urbanization Influence |
| 10:00-10:10 | | Tea Break | | |
| 10:10-11:50 | | Chaired by: Prof. Wen Cheng and Associate Prof. Jiake Li | | |
| 7 | 10:10-10:25 | HE Di | China Agricultural University, China | Effect of Climate Change on Reference Crop Evapotranspiration in Central and Western of Inner Mongolia |
| 8 | 10:25-10:40 | Song Xiao-yu | Xi'an Univ. of Technology, China | Establishing and application on single parameter model of soil water diffusivity in Nanxiaohegou basin |
| 9 | 10:40-10:55 | Zhou Hong-fei | Xinjiang Institute of Ecology & Geography, the Chinese Academy of Sciences, China; | Self Water Collection for Desert Shrubs and Its Ecological Significance |
| 10 | 10:55-11:10 | Zhao Jingbo | Shaanxi Normal University, China | A Recovery of soil water in the dry layers in the northwest area of Qinghai Lake |
| 11 | 11:10-11:25 | Gu Xue-ming | Nanjing Univ., China | Analysis of Water Resource utilization and Change in Fujian Province Base on Water Footprint |
| 12 | 11:25-11:40 | Shao Tianjie | Shaanxi Normal University, China | Study on moisture content of sand layer and its origin in a mega-dune area in the Badain Jaran |

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| 13 | 11:40-11:55 | ZHAO Ling-yu | China Agricultural University, China | The crop water consumption characteristics in North Agro-pastoral Transitional Zone (Wuchuan County) under the background of climate change |
| 12:00-14:00 | | Dinner | | |
| 14:00-15:45 | | Chaired by: Associate Prof. Peng Li and Associate Prof. Hong Wei | | |
| 14 | 14:00-14:15 | Mo shu-hong | Xi'an Univ. of Technology, China | Interval Two-stage Stochastic Integer Programming for Urban Water Resources Management Under Uncertainties |
| 15 | 14:15-14:30 | Lizhu Hou | China University of Geosciences | Experimental Investigation of Water Fluxes in Irrigated Maize using Environmental Isotopes |
| 16 | 14:30-14:45 | Wangying | Xi'an Univ. of Technology, China | Study on Reasonable Biomass Simulation of Aquatic Plants in Yanming Lake of Xi'an |
| 17 | 14:45-15:00 | Chen Junfeng | Taiyuan University of Technology, China | Influence of Air Temperature Changes on Soil Water Resources During the Seasonal Freeze-Thaw Period |
| 18 | 15:00-15:15 | Jianhong Lu | North China Univ. of Water Conservancy and Electric Power, China | Irrigation Schedule Research for Water Saving and High Yield in Wheat-maize Rotation Mode in Northern Semi-arid Region |
| 19 | 15:15-15:30 | Xiankui Zeng | Nanjing University, China | Uncertainty analysis of groundwater model by considering conceptual model and model parameters uncertainties |
| 20 | 15:30-15:45 | Wen-Juan Shi | Xi'an Univ. of Technology, China | Characteristics of water and salt transport in layered soils |
| 15:45-15:55 | | Tea Break | | |
| 15:55-16:55 | | Chaired by: Associate Prof. Ni Wang and Associate Prof. Junhu Wu | | |
| 21 | 15:55-16:10 | Peng Li | Xi'an Univ. of Technology, China | Effects of Perennial Vegetation on Runoff and Erosion for Field Plots on Loess Plateau in China |
| 22 | 16:10-16:25 | Xin Tong | Nanjing Univ. China | Bivariate Annual Maximum Flood Analysis of the Yellow River Using Copula Method |
| 23 | 16:25-16:40 | Y.Li | Xi'an Univ. of Technology, China | Effect of aggregate sizes on soil water movement and solute transport |
| 24 | 16:40-16:55 | B.B.Zhou | Xi'an Univ. of Technology, China | Effect of Macropore Continuity on Water Movement and Solute Transport in a Lossial Soil |

## The Library Hall

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|---|---|---|
| 17:15-17:50 | | Chaired by: Prof. Qiang Huang |
| 25 | Closure Ceremony | Prof. Qiang Huang, Declare the symposium closed |
| 26 | Summarization | Prof. Jun Xia |
| 27 | Acknowledge | Prof. Xiaode Zhou |

# Workshop of the Global Water System Project:

## *Detection of Non-stationary Hydrological Processes and Adaptive Water Resources Management under the Changing Environment*

## The schedule of second day (22, Oct.)

The Exhibition Room on the Third Floor of No.4 Building

09:00-17:00 hrs

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Detection of non-stationary hydrological processes in basin scale is one of the key issues in recognizing hydrological time-space variability and study of extreme events such as floods and droughts based on past records. This topic is also important in design and management of water resources projects in the changing environment. Traditionally, water resources have been managed assuming the governing processes to be stationary. However, in view of the past and likely climate changes, the emerging view is that the stationarity assumption is no longer valid. Hence, we have to develop methods to identify non-stationarity and make it a part of decision making process.

The major goal of the workshop is to discuss new advances in detection of non-stationary hydrological processes. Attention will be focused on extreme hydrologic events such as floods and droughts in different regions in the world based on current scientific understanding and available historical records. This topic is a key issue of the Global Catchment Initiative (GCI), a flagship project of GWSP. Another objective of the workshop is to discuss adaptive management to minimize the adverse impacts of climate change on water resources due to hydrologic uncertainty and risk. Research cooperation and scientific exchange on these two topics are expected to contribute much in finding solutions towards water security under the changing environment, and rapid development.

The workshop program will feature a few invited keynote presentations followed by a round table discussion of short presentations and then open forum and more discussions. The workshop is expected to result in s special issue of an International journal and report of GWSP.

This workshop will be co-sponsored by GWSP, CAS, IAP, IWRA and IAC for Water Study.

# Programme

**Session One: 09:00-10:30 | *20 minute presentations - 10 minute Q/A and discussion***
***Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions - I***

**Welcome remarks by Jun XIA**
**(CNC-GWSP, ANSO-GWSP,IWRA,CAS)**

**Session Chair: Prof. Felino P. Lansigan**

- **Prof. Richard Geoge Lawford,** Member of GWSP–Challenges in managing the risks of floods and droughts associated with changing variability in the global water cycle.
- **Prof. Sharad Kumar Jain,** Indian Institute of Technology, member of GWSP - Issues in Adaptation to Climate Change in Water Sector
- **Prof. Janos J. Bogardi**, executive officer of the Global Water System Project of the Earth System Science Partnership –changes in flood phenomena in Germany due to climate change.

## Coffee Break: 30 Minutes

*Tea, coffee, soft drinks and snacks will be served (vegetarian and halal options will be available)*

**Session Two: 11:00-12:30 | *20 minute presentations -10 minute Q/A and discussion***
***Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions - II***

**Session Chair: Prof. Richard Geoge Lawford**

- **Prof. Felino P. Lansigan,** University of the Philippines Los Baños, College, Los Baños, Laguna 4031, Philippines – Assessing the impact of changing climate on hydrologic extreme events in the Philippines
- **Prof. Buda Su,** Associate professor, National Climate Centre, China Meteorological Administration, Major in climate change impact analysis - Nonstationarity of climatic time series under changing background
- **Prof. Hong Yang,** Swiss Federal Institute of Aquatic Science and Technology (Eawag), Member of GWSP - Impact of Climate Change on Water Resources of Iran

Programme continues on next page…

## Lunch Reception Break: 90 Minutes

**Session Three: 14:00-15:30 | *20 minute presentations - 10 minute Q/A and discussion***
***Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions - III***

**Session Chair: Prof. Sharad Kumar Jain**

- **Prof. Vijay Kumar,** Scientist 'F'/Director, Ministry of Earth Sciences, New Delhi, India - Rainfall Trends in India: implications for climate change adaptation
- **Prof. Jun Xia,** President, IWRA; Director & Leading Professor, Key Lab. of Water Cycle & Related Surface Processes, Chinese Academy of Sciences (CAS); and Director, Center for Water Resources Research, CAS–Drought Characteristic Analysis Based on Bivariate Copula Function and Case Study in Yellow River
- **Prof. Qingyun Duan,** College of Global Change and Earth System Science, Beijing Normal University–An overview of uncertainty quantification methods for climate change projections

## Coffee Break: 30 Minutes

*Tea, coffee, soft drinks and snacks will be served (vegetarian and halal options will be available)*

**Session Three: 16:00-17:00 | *20 minute presentations - 10 minute Q/A and discussion***
***Impacts of Climate Change on Water Resources in Arid and Semi-arid Regions -IV***

**Session Chair: Prof. Jun Xia, President of IWRA**

- **Prof. Guoqing Wang,** Nanjing Hydraulic Research Institute, Research Center for Climate Change, Ministry of Water Resources - Simulating impact of climate change on runoff in the Kuyehe River catchment of the Loess Plateau, China
- **Dr. Peihua Qin,** LASG, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029, China - Effects of groundwater dynamics and runoff mechanism on regional climate over East Asian Monsoon Area

**PANEL DISCUSSION OF 30 MINS:**
**Chairs: Prof. Sharad Kumar Jain & Prof. Felino P. Lansigan**

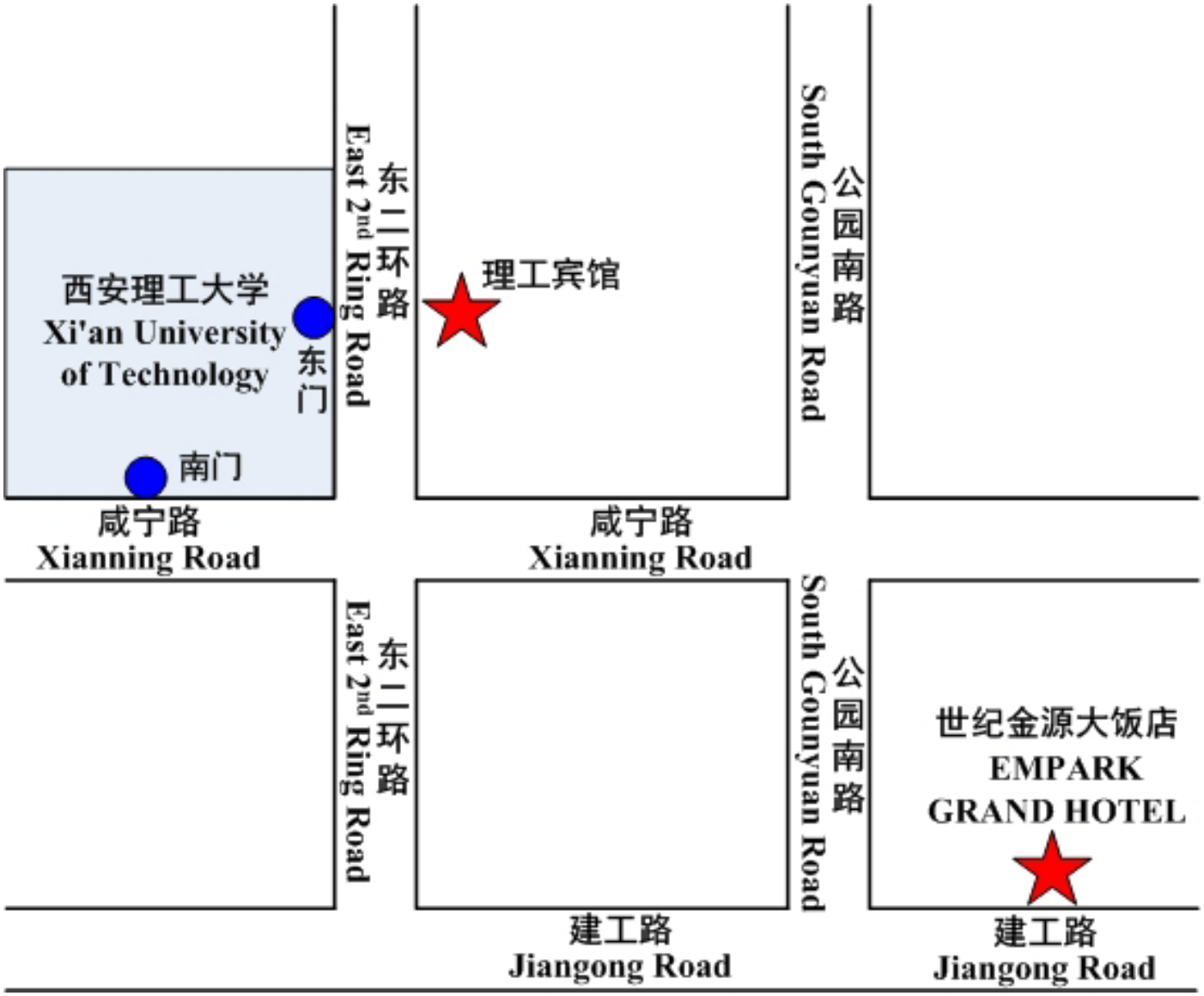
Panel participants will include representatives from:

- **Professor Hongmei Xu, NCC, China Metrological Administration**
- **Professor Lvliu Liu, NCC, China Metrological Administration**

- **Prof. Janos J. Bogardi,, GWSP**
- **Prof. Vijay Kumar**
- **Prof. Jun XIA, CAS**

## The Library Hall

| 17:15-17:50 | | Chaired by: Prof. Qiang Huang |
|---|---|---|
| 20 | Closure Ceremony | Prof. Qiang Huang, Declare the symposium closed |
| 21 | Summarization | Prof. Jun Xia |
| 22 | Acknowledge | Prof. Xiaode Zhou |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