

8th International Conference on Hydroinformatics 2009

**Held in conjunction with the 7th International Symposium on
Ecohydraulics to form the International Conference of Science
and Information Technologies for Sustainable Management of
Aquatic Ecosystems**

**Concepcion, Chile
12-16 January 2009**

Volume 1 of 2

ISBN: 978-1-61782-059-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2009) by the International Association of Hydro-Environment Engineering & Research
All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact the International Association of Hydro-Environment Engineering & Research at the address below.

International Association of Hydro-Environment Engineering & Research
Paseo Bajo Virgen del Puerto, 3
28005 Madrid Spain

Phone: +34 91 335 7986

Fax: +34 91 335 7935

iahr@iahr.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Volume 1

HIC-1A1-DATA MINING I

Application of Minimum Relative Entropy Update to Long Term Forecast of Cooling Water Problems in the Rhine	1
<i>Steven V. Weijs, Martine Rutten</i>	
Bayesian-Based Detection of Measurement Anomalies in Environmental Data Series	11
<i>Nemanja Branisavljevic, Zoran Kapelan, Dusan Prodanovic</i>	
Sea Level Anomalies from Satellite Altimetry - Retrieval and Validation	21
<i>C. J. Calkoen, H. Wensink, D. J. Twigt, A. Sisomphon, A. E. Mynett</i>	
Encoding Hydrologic Information Via a Fractal Geometric Approach	31
<i>Carlos E. Puente, Bellie Sivakumar, Andrea Cortis</i>	
Nonlinear Analysis of Monthly Rainfall Dynamics in the Korean Peninsula	41
<i>Bellie Sivakumar, Min Soo Kyoung, Yong Won Lee, Hung Soo Kim</i>	
Wavelets Transform Applied to Hydrological Time Series	51
<i>Diego Rivera, Mario Lillo, José Arumí, Mehmet Cüneyd Demirel</i>	

HIC-1A2-APPLICATIONS OF MODELS I

Modeling the Impacts of Land Use Change in a Strategic Wetland with a Fully Distributed Model	61
<i>Jong-Sook Park, Ian Cluckie</i>	
Comparison of Kalman Filter and Inter-model Correlation Method for Data Assimilation in Tidal Prediction	71
<i>Yabin Sun, Piyamarn Sisomphon, Vladan Babovic, Eng Soon Chan</i>	
An Attempt Towards Improved Flood Forecasting by Basin Level Modelling	82
<i>Mohammad Khaled Akhtar, Flemming Jakobsen, Alejandro Ernesto Lasarte</i>	
Green LiDAR + Two Dimensional Hydraulic Floodplain Modeling: An Optimal Tool for Flood Outreach and Planning	92
<i>Diego Caamaño, Mary McGown, Peter Goodwin</i>	
Rainfall Nowcast System	102
<i>S. Y. Liong, C. D. Doan, H. H. Nguyen</i>	
Real-Time Optimisation in Water Resources Management	112
<i>Henrik Madsen, Bertrand Richaud, Claus B. Pedersen, Dan Rosbjerg</i>	

HIC-1A3-COMPUTATIONAL HYDRAULICS I

Specific Linear Potential in the Stretches of a Hydrological Network: The Mayo-Chinchipec Case in Ecuador	122
<i>Pablo Vanegas, Dirk Cattrysse, Felipe Cisneros, Paul Torres, Esteban Pacheco, Diego Mora, Jos Van Orshoven</i>	
Three-Dimensional Reservoir Sedimentation Modelling	132
<i>Rogério Campos, James C. Bathurst</i>	
Modeling of Hydraulic Jumps Formed at Drops Using ANNs	142
<i>Abdelazim M. Negm</i>	
Hillslope Erosion Submodel for Implementation in a Gis Hydrologic Model	152
<i>Alejandro Dussaillant-J.</i>	
Considering Factors to Decrease Coastal Sedimentation and Destruction; A Case Zone in Iran	N/A
<i>S. M. Mosaddad, B. Dahanzade, S. H. Mosaddad</i>	
A Morphodynamic Process Based Model for Long-Term Basin Filling Studies	160
<i>Flávio Martins, Selma Gabriel</i>	

HIC-1A4-PLANNING & WARNING TOOLS I

An Urban Watershed Division Model for Reduction of Peak Outflows from Urban Sewer Systems	170
<i>Joong Hoon Kim, Jung-Ho Lee, Hwandon Jun</i>	

Sydney Catchment Authority's Real-Time Flow Forecasting System MIKE Flood Watch	180
<i>Agnes Sakal, James E. Ball, Grantley Smith</i>	
Design of a Maritime Security System under Uncertainty Using an Evolutionary Real Options Framework	187
<i>Stephen Zhang, Vladan Babovic, Joost Buurman</i>	
Development of Dynamic Flood Forecasting Services	197
<i>Péter Borsányi, Ivar Olaf Peereboom, Paul Christen Røhr</i>	
Combining Different Verification Methods for Analysis of Flood Early Warnings: Fogera Plain, Lake Tana, Upper Blue Nile Case Study	207
<i>Kibreab Amare Assefa, Schalk Jan Van Andel, Andreja Jonoski, Arnold Lobbrecht</i>	
A Discussion of Paradigms in Operational Flood Forecasting and Their Influence on Forecasting System Design and Forecasting Organisation	217
<i>Micha Werner, Astrid Janssen</i>	

HIC-1B1-DATA MINING II

Statistical Approach to Error Correction on Water Level Forecasts in Venice	227
<i>Cheng Zi Chew, Jacob V. Tornfeldt Sorensen</i>	
A Fuzzy Approach in Curve Number Hydrology to Reduce Uncertainty	237
<i>Biswa Bhattacharya</i>	
Wavelet Transformation Based Data Assimilation for Improved Water Level Modeling - Singapore Case Study	247
<i>Rao Raghuraj, Vladan Babovic</i>	
Submission and Querying Tools for A Hydrologic Information Systems Database	257
<i>Kevin McCarty, Milos Manic, Peter Goodwin, Michael Piasecki</i>	
Encapsulation of Monte-Carlo Uncertainty Analysis Results in a Predictive Machine Learning Model	266
<i>Durga Lal Shrestha, Nagendra Kayastha, Dimitri Solomatine</i>	

HIC-1B2-APPLICATIONS OF MODELS II

Application of Wavelet Analysis to Facilitate Regionalisation in Rainfall Run-off Modelling	276
<i>I. M. Younas</i>	
Evaluation of the Uncertainties in Rainfall-Runoff Model Using Meta-Gaussian Approach	284
<i>Byung Sik Kim, Bo Kyung Kim, Jin Yong Kim, Hahk Hahm Chang</i>	
Integration of Hydrologic and Hydraulic Models: Analysis of Flood Inundation Risk	291
<i>Kenichiro Kobayashi, Kaoru Takara, Takahiro Sayama</i>	
Utility of Different Strategies in Using Emergency Flood Storage Basins in the Middle Yangtze River, China	301
<i>Liangzhu Chen, Micha Werner</i>	
A Hydrology-Hydraulics-Meteo Integrated Tool to Support Operation of Hydropower Reservoirs for Flood Attenuation	N/A
<i>Andrea Maffio, Leonardo Mancusi</i>	
Comparison between Neural Network and Linear Regression Methods to Estimate Mean Annual Precipitation Using Topographic Variables	311
<i>Sebastian Elgueta-A., Alejandro Dussaillant-J.</i>	

HIC-1B3-APPLICATIONS OF MODELS III

ANN - FEM Mixed Simulation in Groundwater Flow	322
<i>Lars Weber, K.-P. Holz</i>	
Water Use Management Systems on a Basis of GPRS Application	332
<i>M. V. Markosyan</i>	
Enhancing Delft3D-Bloom/Gem for Algae Spatial Pattern Analysis: Model Improvement	336
<i>Hong Li, Mijail Arias, Anouk Blauw, Steef Peters, Arthur E. Mynett</i>	
Integration of Environmental Models Using R	346
<i>Wouter Buytaert</i>	
Habitat, a Spatial Analysis Tool for Environmental Impact and Damage Assessment	356
<i>M. Haasnoot, J. S. Verkade, K. M. De Bruijn</i>	

Hydrologic Modeling Using Object-Oriented Programming	366
<i>Cristiano Das Neves Almeida, Bruno Neiva Moreno, Alain Marie Bernard Passerat De Silans, Amílcar Soares Jr., Renato De Queiróz Porto, Celso Augusto Guimarães Santos</i>	
Integration of GIS Tools on Hydrologic and Hydraulic Modelling of Small Urban Rivers	376
<i>Daniel Silva, Ana Padilha, Tiago Gomes, Paulo Monteiro</i>	

HIC-1B4-EMERGING COMPUTATIONAL I

Interpretation of River Main-flow from Remote Sensing Images: Studying on Dynamic Transmission Cross-correlation Fuzzy Analysis Method	386
<i>Lin Han, Xuegong Liu, Yanning Zhang, Hongwei She</i>	
Diagnostic Evaluation of Monte-Carlo Model Simulations Using Self-Organizing Maps	396
<i>Marcus Herbst, Markus C. Casper, Hoshin V. Gupta</i>	
Multicriteria Interval Goal Optimization in the Regulation of Lake-River Systems	406
<i>Raimo P. Hämäläinen, Otso Ojanen</i>	
Possibilistic Uncertainty Analysis of Hydrological Models	416
<i>Alexandra P. Jacquin, Asaad Y. Shamseldin</i>	
Utility of the Wavelet Analysis in Assessing the Performance of Different Soil Moisture Models	425
<i>Ibrahim El-Baroudy, Amin Elshorbagy</i>	
Interactive Genetic Algorithm with Mixed Initiative Interaction for Water Resources Optimization	435
<i>Meghna Babbar-Sebens, Barbara S. Minsker</i>	

HIC-2A1-DATA MINING III

A Case Study of Rainwater Tank Water Quality Testing in Western Sydney, Australia	445
<i>Marlène Van Der Sterren, Gary Dennis, Aatur Rahman, Garry Ryan, Glenn Barker</i>	
Development of a New Case-Based Reasoning Tool for the Comparison of Water Stress Related Information in Europe	457
<i>Neno Kukuric, Frank Robijn, Jasper Griffioen</i>	
Groundwater Recharge Estimation Using Dual Processes of Data-Driven Modelling and Physically-Based Modelling: A Case Study for Jeju Island, Korea	467
<i>Jejung Lee, Changhui Park, Min-Ho Koo</i>	
Prediction of Beach Volumes at Duck Using Transfer Function Models	477
<i>Suzana Ilic, Yohama Gunawardena, Harry Pinkerton, Renata Romanowicz</i>	
Induction of Lagrangian Sewer Flow Models Using Evolutionary Polynomial Regression	487
<i>Angelo Doglioni, Orazio Giustolisi, Darko Joksimovic, Zoran Kapelan, Dragan A. Savic</i>	

HIC-2A2-APPLICATIONS OF MODELS IV

Urban Water Modelling and the Daily Time Step: Issues for a Realistic Representation	497
<i>Christos Makropoulos, Evangelos Rozos, David Butler</i>	
MHBox - Analysis and Prediction of Sea Level Anomalies and Associated Currents in Singapore and Malacca Straits	507
<i>Herman Gerritsen, Daniel Twigt, Arthur Mynett, C. J. Calkoen, Vladan Babovic</i>	
Application of Graph Theory in Calibration of Water Supply System Models	518
<i>Daniel Kozelj, Jochen Deuerlein, Roman Klasinc, Franci Steinman</i>	
Runoff Time Series Forecasting of Pearl River Catchment in China	530
<i>Yu Xinying, S. Y. Liong</i>	
The Severn Barrage: Hydro-environmental Impact Assessment and Water Quality Modelling Studies	538
<i>Reza Ahmadian, Roger A. Falconer, Binliang Lin</i>	
A Conceptual Flow-Sediment Routing Model for Large Watersheds Part I: Model Description	547
<i>Moayad S. Khaleel, Mohammad E. Mohammad, Hamed R. Rasheed</i>	

HIC-2A3-COMPUTATIONAL HYDRAULICS II

A Parallelized Regional Hydrological Soil Model: Conceptual Approach and Application	558
<i>Y. Du, W. Wang, J. Delfs, O. Kolditz</i>	
Discharge and Bed Roughness Estimation from Water Level Data Analysis	568
<i>Giovanni Corato, Tullio Tucciarelli, Roberto Gueli</i>	

Numerical Stability Problems in Hydrodynamic Modelling of Confluences with Small Junction Angles	578
<i>Dejana Dordevic</i>	
Numerical Solution of 2D Shallow Water Equations Using High Resolution FV Method over Curvilinear Grid	588
<i>Abdolvahid Mohamadian, Yussef Hassanzadeh</i>	
Using MIKE 11 Environment to Develop a Hydrodynamic Computing Models of River System for Lower Kuban River	599
<i>A. M. Zeiliger, O. S. Ermolaeva, A. L. Buber, M. V. Troshina</i>	
Impact of Air Accumulation on the Hydraulic Regime of Canal (Hypothesis of Critical Impact)	609
<i>Albert Markaryan, Vache Tokmajyan</i>	

HIC-2A4-PLANNING & WARNING TOOLS II

Flood Risk Mitigation and Decision Support Systems in the Context of Romanian Water Sector	616
<i>Ioana Popescu, Andreja Jonoski, Schalk Jan Van Andel, Ednah Onyari</i>	
Dynamic Hazard Maps of Debris Flow on Arial Social Network Service	626
<i>T. Moriyama, H. Nakayama, K. Kon, M. Hirano, H. Hikida</i>	
Development of Integrated Flood Analysis System (IFAS) and its Applications	636
<i>Tomonobu Sugiura, Kazuhiko Fukami, Naoki Fujiwara, Kenichirou Hamaguchi, Shigeru Nakamura, Sadayuki Hironaka, Kazuhiro Nakamura, Takahiro Wada, Masato Ishikawa, Takao Shimizu, Hironori Inomata, Kazuhisa Ito</i>	
Multi-Reservoir-Based Flood Control and Management for the Yellow River in China	646
<i>Shengyang Li, Arthur E. Mynett</i>	
Flood Warning IT System Based on 2-D Hydro-Dynamic Rainfall-Runoff Model and Extended Nowcasting	656
<i>Boosik Kang, Sangsik Park, Jinwook Kwon, Dongmin Yang</i>	
Coupling Fire and Flood Simulation Models in the Framework of the Eu-Funded Research Project SCIER	666
<i>Tomas Metelka, Evzen Zeman, Stanislav Vanecek, Jan Spatka</i>	

HIC-2B1-DATA MINING IV

Phase Space Dimensionality Reduction in Building Storm Surge Prediction Model	676
<i>Michael Siek, Dimitri Solomatine</i>	

Volume 2

System Relations for the Validation, Correction and Interpolation of Measured Water Levels in the Rotterdam Port Area	686
<i>Henk Van Den Boogaard, Herman Gerritsen, Arthur Mynett, Cor Van Der Schelde</i>	
Harnessing the Power of Sensors and Cyberinfrastructure Towards Environmental Sustainability: The Waters Network Vision and Testbedding Research	696
<i>Barbara S. Minsker, Evan Coopersmith, Paul Montagna</i>	
Real-Time Anomaly Detection in Precipitation Sensors	706
<i>David J. Hill, Barbara S. Minsker, Eyal Amir, Jaesik Choi</i>	
Extreme Event Analysis Using SRES A2 Precipitation Change Scenario High Resolution RCM and Conditional Weather GENERator in Korea	716
<i>Hyun Han Kwon, Byung Sik Kim, Bo Kyung Kim, Seok Young Yoon</i>	
Identification of Morphological Tendencies and Velocities in Coastal Zones	724
<i>Peter Milbradt, Catrin Dorow</i>	

HIC-2B2-APPLICATIONS OF MODELS V

Coupled Sediment and Wave Modeling – A Case Study of Paranaguá Bay, Brazil	734
<i>Gregor Dahlem, Aron Roland, Ulrich Zanke, Peter Mewis</i>	
Numerical Morphodynamic Modeling to Trace the Fate of Dredged Matter after Open Disposal in Estuaries	744
<i>Andreas Wurpts, Ulrich Zanke</i>	

Impact of Scarce Rainfall Data on the Hydrological Modelling of Tropical Andean Basins	755
<i>Rolando Celleri, Patrick Willems, Jan Feyen</i>	
Locating Monitoring Water Level Gauges: An Information Theory Approach	765
<i>Leonardo Alfonso, Arnold Lobbrecht, Roland Price</i>	
Hydroinformatics & Waste Waters Management in Sensitive Ecological Coastal Environment	775
<i>Cheng Zi Chew, Philippe Gourbesville</i>	
Database and GIS for Watershed Modeling in Korea	785
<i>Yun Seok Choi, Kyung Tak Kim, Jung Sool Park</i>	

HIC-2B3-APPLICATIONS OF MODELS VI

Flood and Pollutant Dispersal Simulation in Urban Areas	791
<i>Olaf Büttner, Marcus Schulz, Michael Matthies, Michael Rode</i>	
Modelling of Singapore's Coastal Waters	801
<i>Serene Tay Hui Xin, Piyamarn Sisomphon, Vladan Babovic</i>	
Application of Delft3D to Water Quality Modeling of Lake Paranoá in Brasília, Brazil and Lake Constance in Europe: Preliminary Results	811
<i>Thomas Wolf, Flavio Giovanetti De Albuquerque</i>	
Integrated Sediment Transport Modeling Using SWAT-SOBEK OpenMI for Blue Nile	821
<i>Getnet Betrie, Ann Van Griensven, Arthur Mynett, Stef Hummel, Peter Gijssbers</i>	
Comparison of Calibration and Uncertainty Analysis Methods: Case Study of Nzoia River Swat Model	831
<i>Ahmed Adel, Durga Lal Shrestha, Ann Van Griensven, Dimitri Solomatine</i>	
Implementation of Hydroinformatics to Meet Evolving Water Management Practices and Societal Demands	841
<i>Kenneth W. Knox</i>	

HIC-2B4-EMERGING COMPUTATIONAL II

Exploring Multi-Agent Systems in Aquatic Population Dynamics Modelling	851
<i>Hui Qi, Hong Li, Arthur E. Mynett</i>	
Parallel Finite Element Methods for Thermo-Hydro-Mechanical (THM) Coupled Problems: MPI Concepts on Different Parallel Computer Platforms	861
<i>W. Wang, C.-H. Park, T. Schnicke, T. Wieser, G. Kosakowski, T. Kalbacher, N. Watanabe, O. Kolditz</i>	
Hydrological Risk Modelling Using Adaptive Operators. Overview and Applications	871
<i>Efraín Antonio Domínguez Calle, Héctor Andrés Angarita Corredor, Felipe Ardila Camelo, Fabian Mauricio Caicedo Carrascal</i>	
Applying An Statistical and Artificial Neural Network Models to Watershed Regionalization	883
<i>Jorge Alcázar, Cristina Vega-García</i>	
The Analysis and Design of Water Supply Decision Support System Based on Remote Sensing Monitoring for Yellow River Delta Wetland	889
<i>Xuegong Liu, Lin Han, Yanning Zhang, Yunpeng Xue</i>	

HIC-3A1-DATA MINING V

Capacity Building in Flood Risk Management through a Decision Support System for Local Scale Mitigation Utilizing Data Mining Approach	899
<i>Natasa Manojlovic, Ulrich Kemloh, Dejan Antanaskovic, Peter Owotoki, Friedrich Mayer-Lindenberg, Erik Pasche</i>	
Downscaling Global Climate Models Using Modular Models and Fuzzy Committees	911
<i>Gerald Corzo, Andreja Jonoski, Girma Yimer, Yunqing Xuan, Dimitri Solomatine</i>	
Statistical Diagnostic on the Change of Extreme Weather Event using Extreme Indices	921
<i>Byung Sik Kim, Bo Kyung Kim, Seok Young Yoon, Byung Ha Seoh, Hung Soo Kim</i>	
Data-Based Modelling: A Comparison between Artificial Neural Networks and Evolutionary Polynomial Regression	929
<i>Daniele Laucelli, Orazio Giustolisi, Dragan A. Savic</i>	
Computer Model to Extract Precipitation Data from Conventional Pluviogram	939
<i>José Roberto Gonçalves De Azevedo, Renata Do Couto Grandelle</i>	
Automatic Control of Irrigation Canals, A New Semi-Decentralized Approach	949
<i>Carlos Sepúlveda, Manuel Gómez, José Rodellar</i>	

Unstructured Cellular Automata for Enhanced Population Dynamics Modelling	960
<i>Arthur E. Mynett, Yuqing Lin, Qiuwen Chen</i>	

HIC-3A2-APPLICATIONS OF MODELS VII

The Application of Evidence Theory in Decision Support for Water Distribution System Operations	970
<i>Josef Bicik, Christos Makropoulos, Zoran Kapelan, Dragan A. Savic</i>	
On-Line Development for Water Supply and Distribution Modelling System Integrated into GIS Environment	980
<i>Petr Ingeduld, Alejandro Lasarte, Evzen Zeman</i>	
Updating of Management Rules of Sidi Salem Dam for Exceptional Floods	988
<i>Mohamed Djebbi, Khelifa Maalel</i>	
Hydraulic Management of Filamentous Algae in Open-Channel Networks: Case Studies in Southern France	998
<i>O. Fovet, G. Belaud, L. Lancar, X. Litrico, J.-P. Baume, P.-O. Malaterre, O. Genthon</i>	
Effect of Land Reclamation on Water Exchange in Tianjin Port and its Surrounding Water Body	1008
<i>Yuan Dekui, Chusheng Wang, Lv Yingxue, Sun Jian</i>	
Understanding Pre-Colombian Irrigation through Hydraulic Modeling	1018
<i>Maurits W. Ertsen</i>	

HIC-3A3-COMPUTATIONAL HYDRAULICS III

A New Control Scheme for Improving the Performance of Pressure Reducing Valves in Water Distribution Networks	1028
<i>Ping Li, Ian Postlethwaite, Emmanuel Prempain, Bogumil Ulanicki</i>	
Numerical Computation of Hydrodynamics in Open Channels: Development and Verification of Jazz1D	1038
<i>Jeannette Donoso, Oscar Link</i>	
Three Dimensional Hydrodynamic Numerical Modelling of the Cruces River and the Carlos Anwandter Sanctuary, Valdivia, Chile	1048
<i>Rob Nairn, Qimiao Lu, Charles P. Fournier, Pantoja Cristóbal</i>	
KALYPSO – An Open Source Software Tool for Flood Studies in Rivers	1058
<i>Nico Schrage, Dejan Antanaskovic, Thomas Jung, Erik Pasche</i>	
High Performance Computing for Long-Term Hydrodynamics and Water Quality Modelling	1068
<i>Jean-Michel Hervouet, Emile Razafindrakoto, Pascal Vezolle</i>	

HIC-3A4-PLANNING & WARNING TOOLS III

Sea Level Rise Effect on Storm Water System of Guayaquil City, Ecuador	1078
<i>David Matamoros, Danilo Jimenez</i>	
Web-Based Flood Management Knowledge Dissemination using Google Maps and Google Earth Platforms	1085
<i>Andreja Jonoski, Ioana Popescu, Adrian D. S. Almoradie, Marjolein Mens</i>	
Evaluation of the Methodologies to Quantify the Risk of Flood in Floodplain	1095
<i>Miguel Angel Perozo Ynestroza</i>	
Hydroasia: Network for Collaborative Engineering and Hydroinformatics	1105
<i>Philippe Gourbesville, S. Y. Liong, Gye Woon Choi, Eiichi Nakakita, Yuwen Zhou, Muskand Babel</i>	
On-Line Competence Based Learning in Hydroinformatics at Unesco-IHE	1115
<i>Ioana Popescu, Andreja Jonoski, Biswa Bhattacharya, Carel Keuls</i>	
Flow Resistance in Gravel-Bed Rivers	1125
<i>E. Shadbahr, M. R. M. Tabatabai</i>	
Measuring and Modelling of Stormwater Runoff and Associated Nutrient Load at an Experimental Catchment Near Lake Balaton, Hungary	1133
<i>Adrienne Clement, Kalman Buzas, Eva Fetter</i>	

HIC-3B1-CYBERINFRASTRUCTURE

A 3D Terrain Discretisation Grid Service for Hydrodynamic Modelling	1143
<i>Stefan Kurzbach, Erik Pasche</i>	

The Health-e-Waterways Project: Data Integration for Smarter, Collaborative Whole-of-Water Cycle Management	1153
<i>Jane Hunter, Catharine Van Ingen, Eva Abal</i>	
WODCA: A Mobile, Web-Based Field Sampling Support System	1161
<i>Eva Fenrich, Andreas Brodt, Daniela Nicklas</i>	
The Web as a User Interface for Computational Modelling and Analysis Software	1171
<i>Hamish Harvey</i>	
3D Visualization and Virtual Reality Tools for Accelerating Decision Making Processes	1181
<i>Xuan Zhu, Arthur E. Mynett</i>	

HIC-3B2-APPLICATIONS OF MODELS VIII

Influence of Objective Functions on the Automatic Calibration of a Lumped Rainfall Runoff Model	1191
<i>Renato De Queiroz Porto, Cristiano Das Neves Almeida, Alain Marie Bernard Passerat De Silans, Davi De Carvalho Diniz Melo</i>	
Enhancing Delft3D-Bloom/Gem for Algae Spatial Pattern Analysis: Filling Missing Data in RS Images	1201
<i>Mijail Arias, Hong Li, Anouk Blauw, Steef Peters, Arthur E. Mynett</i>	
Three-Dimensional Hydrodynamic Modelling of the Rio de la Plata Estuary	1211
<i>Javier Rodríguez Uthurburu, Hugo N. Rodriguez, Jose Valena</i>	
Dynamic Decision System Support to Assist the Suitable Water Management of an Orchard under Furrow Irrigation	1217
<i>Carlos I. Flores, Eduardo A. Holzapfel</i>	
Composite Modelling by Applying an Inverse Technique in Analysing Interactions Between Beaches and Structures	1227
<i>Henk Van Den Boogaard, Herman Gerritsen, Sofia Caires, Marcel Van Gent</i>	
A Conceptual Flow-Sediment Routing Model for Large Watersheds Part II: Model Application and Testing	1237
<i>Moayad S. Khaleel, Mohammad E. Mohammad, Hamed R. Rasheed</i>	
Sewage Effluent Dispersion from Outfalls in Darwin Harbour, Australia	1247
<i>Philip Totterdell, Eric Valentine</i>	

HIC-3B3-APPLICATIONS OF MODELS IX

Development of Real-time Coastal Current Monitoring System Using Ocean Radar with VHF Band	1257
<i>Shin'Ichi Sakai, Takaki Tsubono, Takumi Yoshii, Masafumi Matsuyama</i>	
Probabilistic Assessment of the Hydrologic Performance of Reconstructed Watersheds	1267
<i>Nader Keshita, Amin Elshorbagy</i>	
Extreme Tidal Surge Modelling in the River Thames Using a Coupled Modelling Approach	1277
<i>Ian Cluckie, Dehua Zhu, Miguel Rico-Ramirez</i>	
Development and Application of an Integrated Modeling Tool for Urban Drainage System: With A Case in China	1287
<i>Xin Dong, Siyu Zeng, Jining Chen, Dongquan Zhao</i>	
Use of an Hydrological - Hydraulic Model to Evaluate a Urban Drainage System in Mainly Flat Areas	1297
<i>Luis Alejandro Sanchez Roman</i>	
A Multi-Criteria Platform for the Rehabilitation of Urban Drainage Systems	1307
<i>Wilmer Barreto, Zoran Vojinovic, Roland Price, Dimitri Solomatine</i>	
Eutrophication Predict Modelling of Bohai Bay Based on Hydroinformatics Technology	1317
<i>Jianhua Tao, Xianquan Xiang</i>	

HIC-3B4-POLICIES I

Mathematical Modelling Can Be a Pragmatic Tool in Assessing the Impact of Drainage System due to Changing Landuse	1324
<i>Mohammad Khaled Akhtar, Mohammad Abdus Salam</i>	
Decision Making Under Severe Uncertainties for Flood Risk Management: A Case Study of Info-Gap Robustness Analysis	1334
<i>Jim W. Hall, Hamish Harvey</i>	
Role of Hydroinformatics in Development of 21st Century Water Resources Policy	1344
<i>David R. Tuthill Jr.</i>	

Project of Bohai Sea Water Diversion to Xilin Gol	1354
<i>Kai-Lin Yang, Tao Wang, Yong-Xin Guo</i>	
Preliminary Assessment of the Demands of New Spanish Legislation on Ecological Flows	1362
<i>Claudio Reyes, Javier Ramírez, María Casado, Mariano Cebrián</i>	
Author Index	