

Andrea Castelletti

Dept. of Electronics, Information,
and Bioengineering
Politecnico di Milano
Piazza Leonardo da Vinci, 32
20133 Milano, Italy

Phone: +39 (0)2 2399 3584
Fax: +39 (0)2 2399 3412
andrea.castelletti@polimi.it
<http://www.ei.deib.polimi.it>

KEY INFORMATION



Andrea Castelletti is an associate professor of Natural Resources Management and Environmental Systems Analysis and Management at Politecnico di Milano, Italy and a senior scientist at the Department of Civile and Environmental Engineering, ETH Zurich, Switzerland. He received a MSc degree in Environmental Engineering and a PhD in Information Engineering from Politecnico di Milano in 1999 and 2005. He was visiting scholar at Cornell University, Lancaster University, and University of Western Australia. From 2007 to 2015 he was Adjunct Professor at the Centre for Water Research of the University of Western Australia. He is the head of the Environmental Intelligence Lab at Politecnico di Milano.

Dr. Castelletti research interest includes water systems planning and control under uncertainty and risk, decision-making for complex engineering systems, big environmental data analytics and smart sensing, information theory and selection for environmental decision making. He is leading a group with 1 assistant professor, 4 post-docs, 4 PhD students and 2 research associates, and he is involved in a number of national and international projects as coordinator or principal investigator, raising more than 3.8 M€ in the last six years.

Dr. Castelletti is co-author of 2 international books on integrated water resource management, more than 180 publications in international journals, book chapters and conference proceedings. In 2009 is was awarded a senior fellowship by the Japanese Society for the Promotion of Science, in 2010 an Early Career Excellence Award by the International Environmental Modelling and Software Society, in 2013 the Italy-Canada Innovation prize, in 2016 the EFARRI award, and in 2018 he was Biennial Medalist for the International Environmental Modelling and Software Society.

Dr. Castelletti serves the scientific community as the chair of the EGU Program Committees on Water policy, management and operation and member of the ASCE/EWRI Environmental and Water Resources Systems Technical Committee (since 2011). He is the past chair and current deputy chair of the IFAC Technical Committee TC8.3 on Modelling and Control of Environmental Systems (2008-2014). He is Associate Editor of Water Resources Research, Environmental Modelling and Software, and the Socio-Ecological Systems Modelling. More information on <http://www.ei.deib.polimi.it/>.

EDUCATION

PhD in *Information Engineering* (cum laude)

Politecnico di Milano
Milano, I
May 2005

MSc in *Environmental and Land Planning Engineering*

Politecnico di Milano
Milano, I
June 1999

PROFESSIONAL EXPERIENCE

Current position

Associate Professor (habilitation as Full Professor)
Dept. of Electronics, Information, and Bioengineering

Politecnico di Milano
Milano, I
December 2014 -

Senior Researcher
Inst. of Environmental Engineering

ETHZ
Zurich, CH

June 2014 -

Past positions

Assistant Professor
Dept. of Electronics and Information

Politecnico di Milano
Milano, I
September 2006 - November 2014

Adjunct Professor
Centre for Water Research

University of Western Australia
Perth, WA
2009-2015

Post-doc
Dept. of Electronics and Information

Politecnico di Milano
Milano, I
March 2004 - September 2006

PhD Student Information Engineering
Dept. of Electronics and Information

Politecnico di Milano
Milano, I
February 2001 - March 2005

Research Associate
Dept. of Electronics and Information

Politecnico di Milano
Milano, I
October - December 2000
June - December 1999

Visiting positions

Ezra Systems Engineering Visiting Scholar
Dept. of Systems Engineering

Cornell University
Ithaca, NY, USA
October 2019

Mary Upson Visiting Professor
Dept. of Civil and Environmental Engineering

Cornell University
Ithaca, NY, USA
July - September 2018

JSPS Fellow
Dept. of Civil Engineering

Tottori University
Tottori, J
July - August 2009

Gledden Research Fellow
Centre for Water Research

University of Western Australia
Perth, WA
November 2007 - February 2008
August 2009 - November 2009

Visiting Graduate Student
System and Control Group

Lancaster University
Lancaster, UK
September - December 2003

Visiting Graduate Student
Operations Research Group

SUPSI - IDSIA
Lugano, CH
June - December 2001

AWARDS

Prizes and Fellowships

- 2019: *1st Ezra Systems Engineering Visiting Scholar* Cornell University, Ithaca, NY.
2019: *2018 Best Practice Oriented Paper Award*, Journal of Water Resources Planning and Management.
2018: *iEMSs Biennial Medallist*.
2018: *Mary Upson Fellowship* Cornell University, Ithaca, NY.
2018: *WssTP Innovation Award* for the category Digital Water Prize.
2016: *EFARRI Award for Responsible Research and Innovation*.
2016: *2016 IDEA AAMAS Best Paper Award*.
2016: *2015 Best Research Paper Award*, Journal of Water Resources Planning and Management.
2013: *Canada-Italy Innovation Award*.
2012: *Editors' Citation for Excellence in Refereeing* for Water Resources Research.
2010: *iEMSs Early Career Research Excellence Award*.
2009: *Japan Society for the Promotion of Science (JSPS) Fellowship*.
2008: *Outstanding Reviewer Award* for Environmental Modelling and Software.
2007: *Gledden Fellowship* for senior researchers, University of Western Australia, Perth, WA.
2006: *Rotary-Fondazione Cariplo* prize for young environmental scientists.
2005: *Dimitri Chorafas* international prize for the best Ph.D. thesis in ICT at Politecnico di Milano.

Keynote Speeches and Lectures

- 2020: *Dammed or damned: Five open challenges in river basin development: the role of ICT*, Environmental Science Seminar Series, Parson Lab, MIT, Boston, MA, USA.
2019: *Dam filling: An overlooked aspect of dam planning*, World Hydropower Congress, Paris, France.
2018: *Good Dams, Bad Dams – Strategic Dam Planning and Contextual Operation Design Drive Hydropower Sustainability*, AGU Fall Meeting, Washington DC, USA.
2018: *Improving seasonal forecasts through the state of multiple large-scale climate signals to inform water management*, AGU Fall Meeting, Washington DC, USA.
2018: *Soft-Path solutions for hard water problems: A journey in the drying Italian sub-alpine lake district*, EZRA's Round Table Systems Seminars, Cornell University, Ithaca, NY, USA.
2016: *Embedding human behavior in natural systems models: From myth to reality?*, Weston Roundtable Series, Nelson Institute University of Wisconsin Madison, Madison, WI, USA.
2016: *Water and energy nexus under changing climate: challenges and opportunities from a water management perspective*, Understanding the Water-Energy Nexus: Integrated Water and Power System Modelling - A workshop organised by the European Commission and the US Department of Energy, Ispra, Italy.
2016: *Modeling and managing urban water demand through smart meters, big data and gamified ICT*, RISE 2016, Hanoi, VietNam.
2015: *Exploring the energy and food nexus under changing climate: lessons learnt from a cooperation project in the Red River Basin*, VACI 2015, Hanoi, VietNam.
2015: *Integrated water management under change: insights from a case study in Northern Italy*, GIWP International Workshop on Groundwater Over-exploitation Control and Management Measures, Beijing, China.
2015: *Challenges and benefits of Direct Policy Search in advancing multiobjective reservoir management*. EGU Annual Assembly. Vienna, Austria.
2014: *Dynamic emulation modelling for the optimal operation of water systems: an overview*. AGU Fall Meeting. San Francisco, CA, USA.
2014: *On the direct use of exogenous information in water system real time control*, Workshop "From operational hydrological forecast to reservoir management optimization", Canadian Water Association and Rio Tinto Alcan, Québec City, Québec, Canada.
2012: *Improved reservoir operation by direct use of hydro-meteorological information*. EGU Annual Assembly. Vienna, Austria.

TEACHING ACTIVITY

Lectures

2019- : *Environmental Systems Analysis and Management*, Bachelor in Environmental and Land Planning Engineering, School of Civil and Environmental Engineering, Politecnico di Milano, Milano, Italy.

2008- : *Natural Resources Management*, MSc in Environmental and Land Planning Engineering, School of Civil and Environmental Engineering, Politecnico di Milano, Milano, Italy.

2012- : *Participatory and Integrated Water Resources Planning*, Master of Advanced Studies (MAS) in Sustainable Water Resources and MSc in Environmental Engineering, ETH, Zurich, Switzerland.

2011-2016 : *Natural Resources Management and Integrated Water Resources Management*, MSc in Geomatic and Environmental Engineering, School of Civil and Environmental Engineering, Politecnico di Milano, Milano, Italy.

2004-08: *Modelling and Control of Environmental Systems*, MSc in Environmental and Land Planning Engineering, School of Civil and Environmental Engineering, Politecnico di Milano, Milano, Italy.

PhD and other advanced courses

2020/2019: *Global water challenges: Water management in a changing world*, PhD Course Resource Planning and Management within Sustainable Development, Politecnico di Milano, Italy.

2018: *Beyond Stochastic Dynamic Programming: Approximate Dynamic Programming and Reinforcement Learning for the optimal control of water resources systems*, Summer School on Water Resources Systems, Universidad de Chile, Santiago, Chile.

2018: *Complex environmental systems*, IDEA League Doctoral School Engineering Complex Systems with Big data and IT, Politecnico di Milano, Italy.

2018: *Planning and managing complex water resources system*, IDEA League Doctoral School Engineering Complex Systems with Big data and IT, Politecnico di Milano, Italy.

2015: *Dammed or damned: the role of hydropower in the water energy nexus*, E4D Winter School on Global Water Challenges, ETH, Zurich, Switzerland.

2014: *Water as a Global Resource*, Spring School 2014, Alta Scuola Politecnica, Belgirate, Italy.

2011: *Integrated and Participatory Water Resources Management*, Master of Advanced Studies (MAS) in Sustainable Water Resources, ETH, Zurich, Switzerland.

2011: *Integrated and Participatory Management of Water Resources for flood risk mitigation and river quality control: problems, solutions and tools*, Workshop organized by the Polish Ministry of Environment, Poland.

2010: *Integrated and Participatory Management of Water Resources for flood risk mitigation and river quality control: problems, solutions and tools*, Advanced Course at the Escuela Politecnica do Litoral (ESPOL), Guayaquil, Ecuador.

2009: *The Italian/Swiss conflict in the management of Lake Maggiore*, Spring School 2009, Alta Scuola Politecnica, Bardonecchia, Italy.

2008: *Decision support for flood protection*, Master of Advanced Studies (MAS) in Hydraulic Engineering, ETH, Zurich, Switzerland.

2008: *Integrated and Participatory Water Resources Management: problems, solutions and tools*, Advanced Course at the Institute for Water Resources Planning, Hanoi, VietNam.

2008: *The Italian/Swiss conflict in the management of Lake Maggiore*, Spring School 2008, Alta Scuola Politecnica, Bardonecchia, Italy.

2005: *Integrated planning and management of water resources* Master in Business and Environmental Management (MEMA), Università Bocconi, Milano, Italy.

2001: *Decision Support System for environmental resource management: reinforcement learning and neurodynamic approach to management policies design*, Ph.D School in Automation and Control, Università di Brescia, Italy.

Invited lectures and seminars

- 2020: *Dammed or damned: Six open challenges in river basin development: the role of ICT*, Wuhan University, Wuhan, China.
- 2020: *Dammed or damned: Six open challenges in river basin development: the role of ICT*, CROSS Seminar, ZJU-UIUC Institute, Zhejiang University, Zhejiang, China.
- 2019: *Six open challenges in river basin development: the role of ICT*, TU Berlin, Berlin, Germany.
- 2018: *Soft-Path solutions for hard water problems: a journey in the drying Italian sub-alpine lake district*, ISTP Colloquium, ETH, Zurich, Switzerland.
- 2018: *Operationalizing weather and climate services for robust water resources management and planning*, CMCC Seminar, Mediterranean Centre for Climate Change, Bologna, Italy.
- 2018: *Sediment connectivity and strategic river basin planning: new opportunities from parsimonious sediment budget modelling and robust optimization*, EWRS Seminar, Cornell University, Ithaca, NY, USA.
- 2018: *Integrated management of the Red Thai Binh River dam systems*, Hanoi University of Natural Resources, Hanoi, VietNam.
- 2017: *Intelligent metering systems, big data and informatics - A long-term vision from the academic perspective*, Porto Water Innovation Week, Porto, Portugal.
- 2017: *Direct Policy Search: a flexible and robust approach to complex water operation problems?*, Fondazione Eni Enrico Mattei (FEEM), Milan, Italy.
- 2016: *Embedding human behavior in natural systems models: From myth to reality?*, International Food Policy Research Institute (IFPRI), Washington DC, USA.
- 2016: *Beyond SDP: recent advances in multiobjective control for water systems operation*, DHI, Copenhagen, Denmark.
- 2015: *Integrated and participatory water resources planning: some ideas*, ICO Workshop, Urmia, Iran.
- 2015: *Irrigation water management in a changing climate: From inertia to co-adaptation*, JRC Ispra, Italy.
- 2015: *An integrated platform coupling smart water meters, data intensive modelling and gamified ICT to support residential water management*, ETH, Zurich, Switzerland.
- 2015: *The role of coordination and information for integrated water management in a changing climate*, International Expert Meeting on the Zayandeh-Rud River Sustainability, Isfahan, Iran.
- 2014: *Beyond Dynamic Programming: some recent advances in multiobjective control to overcome DP's curses in water system operation*, Cornell University, Ithaca, NY, USA.
- 2013: *A procedural approach to integrated and participatory water resource planning*, Laval University, Quebec City, Canada.
- 2012: *Recent advances in approximate dynamic programming for water reservoir operation*, Atelier Rio Tinto Alcan Hydro-Québec Production en Optimisation stochastique de la production hydroélectrique, Montreal, Canada.
- 2012: *Interactive response surface using computationally intensive models for lake water quality remediation*, Singapore Delft Water Alliance, National University of Singapore, Singapore.
- 2010: *Recent experiences in dealing with complexity and high dimensionality in water resources management*, Montefiore Institute, University of Liège, Liège, Belgium.
- 2010: *Recent experiences in dealing with complexity and high dimensionality in water resources management*, ETH, Zurich, Switzerland.
- 2009: *Multi-objective optimal design of water quality rehabilitation interventions in lakes and reservoirs*, CWR Seminars, University of Western Australia, Perth, Australia.
- 2009: *A procedural approach to integrated and participatory water resource planning*, DPRI, Kyoto University, Kyoto, Japan.
- 2009: *A procedural approach to integrated and participatory water resource planning*, Tottori University, Tottori, Japan.

2008: *A procedural approach to integrated and participatory water resource planning*, CWR Seminars, University of Western Australia, Perth, Australia.

2004: *TwoLe a Multi-Objective Decision Support System for implementing the IMA-PIP procedure*, Synthesis Workshop of Harmoni-CA/ WP5, Osnabrück, Germany.

2003: *Integrated planning and management of water reservoir systems: the Lake Maggiore case study*, Environmental Science Seminars, Lancaster University, United Kingdom.

Student supervision

PhD students:

2018 - : Angelo Carlino, *Multiobjective optimal climate control policy design*.

2018 - : Marco Tangi, *Strategic robust dam planning under multiple co-varying uncertainties*.

2017 - : Marta Zaniolo, *Dynamic information selection in evolutionary direct policy search*.

2017 - : Paolo Gazzotti, *Agent based modelling of climate policy negotiations* (co-supervisor).

2016 - 2020: Dr. Federico Giudici, *Optimal design of off-grid water-energy systems in small Mediterranean islands*.

2016 - 2020: Dr. Federica Bertoni, *Advancing joint design and operation of water resources systems under uncertainty* now digital data scientist at Falck Renewables.

2014 - 2018: Dr. Emanuele Mason, *Beyond full rationality: Modelling tradeoff dynamics in multiobjective water management* now consultant at Enersen.

2014 - 2017: Dr. Simona Denaro, *Conflict mitigation in water resources systems by informed data-driven control and financial hedging tools* now Post-doc at University of North Carolina at Chapel Hill.

2013 - 2017: Dr. Rafael Schmitt, *CASCADE: A framework for modeling fluvial sediment connectivity and its application for designing low impact hydropower portfolios* now Post-doc at Stanford University.

2013 - 2017: Dr. Andrea Cominola, *Modelling residential water consumers behaviour: From smart metered data to demand management* now Assistant Professor at TU Berlin.

2012 - 2016: Dr. Li Yu, *Advancing coupled human-water systems analysis by agent-based modeling* now Post-doc at ETH Zurich.

2010 - 2013: Dr. Matteo Giuliani, *Agent-based modeling for water resources management in complex decision-making contexts* (co-supervisor) now Assistant Professor at Politecnico di Milano.

2010 - 2013: Dr. Daniela Anghileri, *Management of multi-purpose reservoirs under climate change: impact assessment and adaptation strategies* (co-supervisor) now Post-doc at University of Southampton.

2009 - 2012: Dr. Roberta Fornarelli, *An analytical and modelling approach to assess the impact of water transfers on reservoir water quality* (co-supervisor, University of Western Australia) now data analytics specialist at Curtin University.

2008 - 2011: Dr. Xuan Thi Quach, *Assessing and optimizing the operation of the HoaBinh reservoir in Vietnam by multiobjective optimal control techniques* (co-supervisor).

2007 - 2010: Dr. Stefano Galelli, *Dealing with complexity and dimensionality in water resources management* (co-supervisor) now Associate Professor at Singapore University of Technology and Design.

2005 - 2008: Dr. Francesca Pianosi, *Novel methods for water reservoir management* (co-supervisor) now Lecturer at University of Bristol.

MSc students: supervisor of more than 80 MSc theses since 2002 on topics related to modelling and control of water resources systems.

RESEARCH ACTIVITIES

Research projects

Since 2014, I have raised more than 3.8 M€ of fundings with the following projects:

2020-2022 *MODFaBe, Modelling individual farmer behaviours in Coupled Human Natural Systems under changing climate and society*, EU H2020-MSCA-IF-2018, Role: Coordinator. Grant income: € 171,473.

2020-2023 *NEWAVE, Next Water Governance*, H2020-MSCA-ITN-2019, Role: Principal Investigator. Total grant: 4,039,273. Grant income: € 261,499.

2019-2021: *ADDapt: Contrasting drying climate with soft-paths measures: lake Como, Italy*, Regione Lombardia, Role: Coordinator. Total grant: € 600,000. Grant income: € 400,000.

2018-2021: *ProjectO: Demonstration of planning and technology tools for a circular, integrated and symbiotic use of water*, EU H2020-IND-CE-2016-17, Role: Principal Investigator Total grant: € 9,261,272. Grant income: € 902,750.

2018-2019: *US-EU Integrated Power and Water Systems Modelling study*, EU-DG Energy, Role: Principal Investigator. Total grant: € 204,000. Grant income: € 100,000.

2017-2020: *IRIS: Italian Research and development Initiative for Spaceborne river monitoring*, ISPRA, Accordo di collaborazione tecnico-scientifica, art. 15, L. n. 241/1990, Role: Principal Investigator. Grant: € 178,000.

2016-2018: *SO-WATCH: SOft-path WATer management adaptation to CHanging climate*, Cariplo Foundation Grants, Role: Coordinator. Total grant: € 298,410. Grant income: € 154,350.

2016-2019: *AMBER: Adaptive Management of Barriers in European Rivers*, EU H2020-SC5-07, Role: Principal Investigator. Total grant: € 6,238,103. Grant income: € 249,625.

2016-2019: *DAFNE: A Decision-Analytic Framework to explore the water-energy-food NExus in complex and transboundary water resources systems of fast growing developing countries*, Eu H2020-Water5, Role: Principal Investigator, Deputy coordinator. Total grant: € 5,320,410. Grant income: € 512,920.

2015-2018: *IMPRESX: IMProving PRedictions and management of hydrological EXtremes*, EU H2020-Water2, Role: Principal Investigator. Total grant: € 7,996,848. Grant income: € 253,250.

2014-2016: *SmartH2O: an ICT Platform to leverage on Social Computing for the efficient management of Water Consumption*, EU-FP7-ICT, Role: Principal Investigator, Deputy coordinator. Total grant: € 2,508,842. Grant income: € 623,927.

2014-2015: *Assessing the operational value of SAR retrieved snow information*, ASI (Italian Space Agency), Role: Investigator.

2012-2015: *IMRR Integrated and Sustainable Water Management of Red-Thai Binh River System (Vietnam)*, Italian Ministry of Foreign Affairs, Role: WP leader: Grant: 1,592,250.

2010-2011: *HALTFLOOD: Hydrological models correction by data-driven approaches*, Contract by RSE-WEB spa, Role: Coordinator. Grant: € 20,000.

2009-2010: *Tono Dam Optimization*, Tottori University for the Japan Ministry of Construction, Role: Coordinator. Grant: € 33,000.

2007-2009: *CAVE: Using abandoned mine to control floods*, Cariplo Foundation; Role: Investigator. Total grant: € 355,000. Grant income: € 150,000.

2005-07: *TwoLe: A decision-support system for water resources planning and management at the regional scale*, Cariplo Foundation; Role: Investigator.

2004-05: *Decision Support Systems for water resources management: state of the art and open issues*, MIUR-COFIN, Role: Investigator.

2004-05: *Harmonised Modelling Tools for Integrated River basin Management (Harmoni-CA)*, EU-FP5, Role: Consultant to PIK Potsdam.

2001-04: *Management of the Environment and Resources using Integrated Techniques*, EU-FP5, Role: Investigator - Total grant: € 1,099,834 (EU contribution). Grant income: € 155,550.

2001-03: *Designing the optimal operation of regulated lakes in a multi-objective context (application to*

Lake Iseo, Italy, Lake Iseo Environmental Agency; Role: Investigator.

1999-01: *Supporting the negotiations between Italy and Switzerland on the operation of Lake Maggiore*, EU-Interreg II, Role: Investigator.

SERVICES

Scientific societies

Chair of EGU Subdivision of Hydrology - Water policy, management and control, since 2016.

Chair of the IFAC Technical Committee on Modelling and Control of Environmental Systems (T.C. 8.3), 2008-2014.

Member of the IAHS Working Group on Natural and man-made control systems in water resources, since 2014.

Member of the ASCE/EWRI Environmental & Water Resources Systems Technical Committee since 2011.

Member of the IFAC Technical Committee on Modelling and Control of Environmental Systems (T.C. 8.3), since 2002.

Journals editorial boards

Associate Editor of Journal of Hydrology since 2020.

Associate Editor of Socio-Environmental Systems Modelling since 2018.

Associate Editor of Water Resources Research since 2013.

Associate Editor of Environmental Modelling and Software since 2011.

Associate Editor of Journal of Water Resources Planning and Management since 2014-2019.

Associate Editor of Acta Geophysica 2011 - 2019.

Guest Editor of Environmental Modelling and Software for the Special Issue "Urban Water Demand Management" (with A. Rizzoli, D. Savic, R. Stewart), 2017-18.

Guest Editor of Environmental Modelling and Software for the Thematic Issue "Emulation techniques for the reduction and sensitivity analysis of complex environmental models" (with M. Ratto and A. Pagano) 2008-09.

Guest Editor of Environmental Modelling and Software for the Special Issue "Bayesian Networks in water resources planning and management" (with R. Soncini Sessa), 2005-06.

PhD committees

University of Saskatchewan, Canada, 2019

University of Oulu, Finland, 2019

Griffith University, Australia, 2017

Conference scientific committees and session organisation

2019

Member of the Advisory Board of the 16th International Specialised Conferences on Small Water and Wastewater Systems, Murdoch, Australia, 1-5 December 2019.

Chair of the International Programme Committee of the 1st IFAC Workshop on Control Method for Water Resource Systems, Delft, The Netherlands, September 2019.

Convener of the session on Water and Society: Water, Energy, and the City (with A. Cominola, A. Stillwell, N. Ajami) at the *AGU Fall Meeting* in San Francisco, CA, USA December 2019. **2018**

Convener of the Session on Modelling and Managing Urban Water and Energy Demands in the Era of Big Data (with A. Cominola, A. Stillwell, S. Galelli) at the 9th International Congress on Environmental Modelling and Software (iEMSs 2018), Fort Collins, CO, USA, June 2018.

Convener of the Session on Challenges and opportunities for sustainable sediment management on basin scales (with G.M. Kondolf, P. Carling, R. Batalla, H. Habersack) at the *EGU General Assembly 2018*, Vienna, Austria, April 2018.

Convener of the Session on Water Resources Management and Policy in a Changing World (with T. Foster, J. Kwakkel, K. Madani, J. Harou, M. Pulido-Velazquez, G. Characklis, P. Reed, A. Tilmant) at the *EGU General Assembly 2018*, Vienna, Austria, April 2018.

2017

Convener of the Session on Water Resources Management and Policy in a Changing World (with K. Madani, J. Kwakkel, J. Harou, M. Pulido-Velazquez, G. Characklis, P. Reed, A. Aghakouchak, L. Garrote, A. Tilmant) at the *EGU General Assembly 2017*, Vienna, Austria, April 2017.

2016

Convener of the *Symposium and Summer School on Smart Systems for Water Management* (with A. Rizzoli), Ascona, CH, August 2016.

Convener of the session on Conflict resolution and multi-objective decision-making at the *Environmental and Water Resources Institute (EWRI) Conference* in West Palm Beach, FL, May 2016.

Convener of the session ICT for Energy and Water Demand Management (with M. Giuliani, A. Rizzoli, K. Madani, M. Pulido-Velazquez, D.E. Rosenberg, D. Savic, M. Tavoni) at the *8th International Congress on Environmental Modelling and Software (iEMSs)*, Toulouse, France, July 2016.

Convener of the session Water Resources Management and Planning - Modeling and Software for Improving Decisions and Engaging Stakeholders (with Julien Harou, P. Reed, A. Tilmant, D. Rosenberg, J. Kasprzyk) at the *8th International Congress on Environmental Modelling and Software (iEMSs)*, Toulouse, France, July 2016.

Convener of the Session on Water Resources Management and Policy in a Changing World (with K. Madani, J. Harou, M. Pulido-Velazquez, W. Buytaert, G. Characklis, P. Reed, A. Aghakouchak, L. Garrote, A. Tilmant, S. Pande) at the *EGU General Assembly 2016*, Vienna, Austria, April 2016.

2015

Convener of the Session on Metamodeling and Surrogate Modeling: Addressing Model Uncertainty and Support for Decision (with M. Fienen, A. Jakeman, S. Razavi) at the *AGU Fall Meeting* in San Francisco, CA December 2015

Convener of the Session on Control of Water Systems (with R. van Nooijen, A. Kolechkina) at the *26th IUGG General Assembly*, Prague, June 2015.

Convener of the Session on Individual Preferences & Management Institutions at the *Environmental and Water Resources Institute (EWRI) Conference*, Austin TX, May 2015.

Convener of the Panel Discussion: Past Successes, Current State of the Art, and Future Challenges for Water Resources Systems Analysis (with K. Madani) at the *Environmental and Water Resources Institute (EWRI) Conference*, Austin TX, May 2015.

Convener of the Session on Water Resources Management and Policy in a Changing World (with K. Madani, J. Harou, M. Pulido-Velazquez, W. Buytaert, C. Brown, G. Characklis, P. Reed, A. Aghakouchak, L. Garrote, A. Tilmant, S. Pande) at the *EGU General Assembly 2015*, Vienna, Austria, April 2015.

2014

Chair of the session on Modelling and Control of Environmental Systems (TC8.3), *19th IFAC World Congress*, Cape Town, SA, August 2014.

Convener of the session Water Resources Management and Planning - Modeling and Software for Improving Decisions and Engaging Stakeholders (with J. Harou, P. Reed, A. Tilmant, D. Rosenberg, J. Kasprzyk), *7th International Congress on Environmental Modelling and Software (iEMSs)*, San Diego CA, USA, June 2014.

Convener of the Session on Decentralized (Agent-Based) Modeling for Water Resources Systems Analysis (with X. Cai and E. Zechman) at the *Environmental and Water Resources Institute (EWRI) Conference* in Portland OR, May 2014.

Convener of the Session on Hydrology and management of controlled water systems (with R.R.P. van Nooijen, N. Sheutze, A. Kolechkina, F. Pianosi, and R. Romanowicz) at the *EGU General Assembly 2014*, Vienna, Austria, April 2014.

2013

Convener of the Session on Advances in modelling and control of large-scale water resources systems (with S. Galelli, H. Maier, P. Reed, D. Savic, G. Kuczera, G. Dandy and M. Thyer) at the 20th International Conference on Modeling and Simulation, Adelaide, Australia, December 2013.

Convener of the Session on Decentralized Modelling for Water Resources System Analysis (with X. Cai and K. Madani) at the *Environmental and Water Resources Institute (EWRI) Conference* in Cincinnati OH, May 2013.

Convener of the Session on Hydrology and management of controlled water systems (with R.R.P. van Nooijen, N. Sheutze, A. Kolechkina, and F. Pianosi) at the *EGU General Assembly 2013*, Vienna, Austria, April 2013.

2012

Member of the Scientific Committee of the *IWA Conference on New Development in IT and Water*, Amsterdam, The Netherlands, November 2012.

Convener of the Session on Striking the Balance: Advancing Multi-Objective Decision Support for a Changing World (with F. Pianosi, P. Reed, D. Savic, and A.V. Lotov) at the 6th *Biennial meeting of the International Environmental Modelling and Software Society*, Leipzig, Germany, July 2012.

Convener of the Session on System Identification and Control Theory applications for Environmental Systems Management (with M. Volta and A.E. Rizzoli) at the 6th *Biennial meeting of the International Environmental Modelling and Software Society*, Leipzig, Germany, July 2012.

Convener of the Session on Water management and planning - models and tools to help share, allocate and develop water resources in unique institutional, economic and political contexts (with J. Harou, M. Pulido-Velazquez, and E. Qureshi) at the 6th *Biennial meeting of the International Environmental Modelling and Software Society*, Leipzig, Germany, July 2012.

Member of the International Organizing Committee of *IFAC Workshop on Dynamics and Control in Agriculture and Food Processing*, Plovdiv, Bulgaria, June 2012.

Convener of the Session on Hydrology and management of controlled water systems (with R.R.P. van Nooijen, A. Kolechkina, P.C., Young, and F. Pianosi) at the *EGU General Assembly 2012*, Vienna, Austria, April 2012.

Convener of the Session on Stakeholder participation in hydrology (with T. Krueger, G. Carr, A. Voinov, and K. Daniell), *EGU General Assembly 2012*, Vienna, Austria, April 2012.

2011

Chair of the Session on Advances in Modelling and Control of Large-scale Water Resources Systems (with S. Galelli, X. Cai, and P. Reed), *MODSIM2011*, Perth, Australia, December 2011.

Congress Associate Editor, 18th *IFAC World Congress*, Milan, I, August 2011.

Convener of the Session on Stakeholder participation in hydrology (with T. Krueger, G. Carr, and A. Voinov), *EGU General Assembly 2011*, Vienna, Austria, April 2011.

2010

Member of the International Organizing Committee of *IFAC Conference on Modelling and Control in Agriculture, Horticulture and Post-Harvest Processing*, Kyoto, Japan, December 2010.

Member of the Organizing Committee of the 5th *Biennial meeting of the International Environmental Modelling and Software Society*, Ottawa, Canada, July 2010.

Member of the International Organizing Committee of *IFAC Conference on control methodologies and technologies for energy efficiency*, Vilamoura, Portugal, March 2010.

2009

Chair of the Session on Effective use of process based models in environmental decision making (with R. Soncini Sessa), 18th *IMACS World Congress MODSIM09*, Cairns, Australia, July 2009.

2006

Chair of the Special Session on Bayesian Decision Networks (with M. Borsuk and C. Pollino), 3rd *Biennial meeting of the International Environmental Modelling and Software Society*, Burlington, USA, July 2006.

2005

Chair of the session on Modelling and Control of Environmental Systems (TC8.3), 16th *IFAC World Congress*, Prague, CZ, 4-8 July, 2005.

2004

Member of the National Organizing Committee of *IFAC Workshop on Modelling and Control of Water Resource Systems*, Venice, Italy, October 2004.

Faculty services

Member of the Board of the PhD program in Information Technology, Politecnico di Milano.

Member of the Advisory board for ERASMUS candidates, School of Civil and Environmental Engineering, Politecnico di Milano.

Affiliations

Member of the ASCE Environmental Water Resources Institute, since 2010.

Member of the European Geosciences Union (EGU), since 2009.

Member of the American Geophysical Union (AGU), since 2007.

Member of the International Federation of Automatic Control (IFAC), since 2002.

Member of the International Association of Hydrological Sciences (IAHS), since 2002.

Member of the Environmental Modelling and Software Society (iEMSs), since 2001.

PUBLICATIONS

Books

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Andrea Castelletti

