Matteo Giuliani

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Politecnico di Milano
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KEY INFORMATION

Matteo Giuliani is an Associate Professor in the Environmental Intelligence Lab at Politecnico di Milano. He is also Affiliate Scientist at the RFF-CMCC European Institute on Economics and the Environment (EIEE). He graduated with a double MSc degree in Environmental and Land Planning Engineering from Politecnico di Milano and Politecnico di Torino in 2010, and obtained the Diploma of the Alta Scuola Politecnica — V cycle in 2011. He received a PhD in Information Technology from Politecnico di Milano in 2014, after a visiting period at Penn State University (PA, USA). From 2018 to 2020, he was Academic Guest at ETH Zurich for a collaboration with the Swiss Competence Center for Energy Research Supply of Electricity (SCCER-SoE).
The primary focus of his research is the integrated management of water resources in complex engineering systems involving multiple actors and exposed to evolving multisectoral demands and global change; his main research areas include multi-objective optimization and control algorithms, reinforcement learning, decision-making under uncertainty and climate change adaptation design, machine learning and artificial intelligence for extreme events analysis.
Dr. Giuliani is co-author of 81 publications in international journals, 28 conference proceedings, and more than 200 contributions to international conferences. For his contribution to research, he was awarded the 2021 EGU Outstanding Early Career Scientist Award for the Hydrological Sciences Division and the 2018 Early Career Research Excellence Award by the international Environmental Modelling & Software society. His publications received the National Champion of the Frontiers Planet Prize, Best Policy-Oriented and Best Research-Oriented Paper Awards on the Journal of Water Resources Planning and Management, and the IDEAS/AAMAS Best Paper Award.
He is member of the IFAC Technical Committee TC8.3 on Modelling and Control of Environmental Systems, for which he is serving as Vice-Chair for social media, of the AGU Water & Society committee, of the ASCE/EWRI Environmental & Water Resources Systems technical committee, and of the Working Group on Artificial Intelligence for Multi-Sector Dynamics. He is Section Editor of Journal of Water Resources Planning and Management, and Associate Editor of the Journal of Hydrology and Frontiers in Water (section Water and Artificial Intelligence). In 2014 and 2016 he was given an Outstanding Reviewer Award for his services to the Journal of Water Resources Planning and Management, and in 2015 he was named outstanding AGU reviewer for his services to Water Resources Research.

EDUCATION

PhD in Information Technology (cum laude)
Thesis: Agent-based water resources management in complex decision-making contexts.

Politecnico di Milano
Milano, I
February 2014

Alta Scuola Politecnica Diploma - V cycle
Thesis: VALORIVER – sustainable valorization project of the Sangone River

Politecnico di Milano and Politecnico di Torino
Milano and Torino, I
June 2011

MSc in Environmental and Land Planning Engineering (cum laude)
Thesis: Dealing with Multi Criteria Problems in Water Resources Planning and Management

Politecnico di Milano and Politecnico di Torino
Milano and Torino, I
October 2010

PROFESSIONAL EXPERIENCE

Current position

Associate Professor
Dept. of Electronics, Information and Bioengineering

Politecnico di Milano
Milano, I
December 2024 - present

Affiliated Scientist at RFF-CMCC European Institute on Economics and the Environment (EIEE)

Euro-Mediterranean Center on Climate Change
Italy
May 2025 - present

Past positions

Assistant Professor (senior / tenure track)
Dept. of Electronics, Information and Bioengineering

Politecnico di Milano
Milano, I
December 2021 - December 2024

National Scientific Qualification Exams at a level of Associate Professor

Academic Field: **09/G1 Automation and Control**
13/11/2020-13/11/2029

Assistant Professor (junior / untenured)
Dept. of Electronics, Information and Bioengineering

Politecnico di Milano
Milano, I
November 2016 - December 2021

Postdoctoral Research Fellow
Dept. of Electronics, Information and Bioengineering

Politecnico di Milano
Milano, I
January 2014 - October 2016

PhD Student Information Technology
Dept. of Electronics, Information and Bioengineering

Politecnico di Milano
Milano, I
January 2011 - December 2013

Visiting positions

Academic Guest
ETH Zurich / SSCER-SoE

ETH Zurich
Zurich, CH
November 2018 - December 2020

Visiting PhD Student
Hydroinformatics Research Group (Prof. P.M. Reed)

Penn State University
University Park, PA, USA
September - December 2012

AWARDS

2024: *Best Policy-Oriented Paper Award* on the Journal of Water Resources Planning and Management for the paper “Equity in Water Resources Planning: A Path Forward for Decision Support Modelers”

2023: *National Champion of the Frontiers Planet Prize* for the paper “Unintended consequences of climate change mitigation for African river basins”

2021: *EGU Outstanding Early Career Scientist Award* for the Hydrological Sciences Division

2021: *Best Research-Oriented Paper Award* on the Journal of Water Resources Planning and Management for the paper “Integrated Design of Dam Size and Operations via Reinforcement Learning”

2018: *Early Career Research Excellence Award* by the international Environmental Modelling & Software society

2016: *Best Research-Oriented Paper Award* on the Journal of Water Resources Planning and Management for the paper "Multiagent systems and distributed constraint reasoning for regulatory mechanism design in water management"

2016: *IDEAS/AAMAS Best Paper Award* for the paper "Using multiagent negotiation to model water resources systems operations"

2016: *Best Young Researcher Contribution Award* for the presentation "Modeling water user behaviour: from smart metered data to agent based modeling" at the Smart Systems for Water Management summer school (ex-equo with Andrea Cominola)

2016: *Outstanding Reviewer Award* for the Journal of Water Resources Planning and Management

2015: *Premio Rotary alla Ricerca* for young scientists

2015: *Outstanding AGU Reviewer Award* for Water Resources Research

2014: *Outstanding Reviewer Award* for the Journal of Water Resources Planning and Management

2011: *Fondazione Fratelli Confalonieri PhD fellowship*

2008: *Alta Scuola Politecnica fellowship*

Invited Presentations and Seminars

2024: M. Giuliani, *Hydropower planning in the evolving landscape of African energy systems*, University of Sheffield, Sheffield (UK), 03 June.

2024: M. Giuliani, A. Castelletti, A. Carlino, and W. Arnold, *Reconsidering hydropower in the African energy transition*, in EGU General Assembly, Vienna (Austria), 18 April.

2022: M. Giuliani, J.R. Lamontagne, M.I. Hejazi, P.M. Reed, and A. Castelletti, *Unintended Consequences of Climate Change Mitigation for African River Basins*, in AGU Fall Meeting, Chicago (IL), 12 December.

2021: M. Giuliani, *Putting humans in the loop: coupling behavioral modeling with natural systems' models*, Hydrological Sciences Division Outstanding Early Career Scientist Award Lecture, EGU General Assembly 2021, online, 22 April.

2020: M. Giuliani and A. Carlino, *A decision analytic framework to design sustainable development pathways in transboundary river basin*, Seminar at the Tufts CREATE Solutions kick-off, Tufts University, Boston (MA), 7 February.

2020: A. Castelletti, M. Giuliani, and M. Zaniolo, *Dammed or damned: Five open challenges in sustainable river basin development*, Environmental Science Seminar Series, Massachusetts Institute of Technology, Boston (MA), 5 February.

2019: M. Giuliani, *Balancing competing multisector services via multi-objective optimization and a-posteriori decision making*, Capacity building workshop of Climate pOlicy assessment and Mitigation Modeling to Integrate national and global Transition pathways (COMMIT) research project, RFF-CMCC EIEE, Milan (Italy), 22 November.

2019: M. Giuliani, *Six challenges to successfully inform hydropower operation by improved hydro-meteorological forecasts*, Climate conference: making climate services a reality in Europe, Bruxelles (Belgium), 13-14 November.

2018: A. Castelletti and M. Giuliani, *Operationalizing weather and climate services for robust water resources management and planning*, CMCC Seminar, Mediterranean Centre for Climate Change, Bologna (Italy), 23 October.

2018: M. Giuliani, *The DAFNE project: a decision analytic framework to explore the water-energy-food nexus in African transboundary river basins*, Universitat Politecnica de Valencia, Valencia (Spain), 11 July.

2017: M. Giuliani, *Modelling and managing the water, energy and food nexus in a changing Vietnam*, Italy-Vietnam workshop on Approaches to Water Issues: Management-Monitoring-Treatment, Ho Chi Minh City (Vietnam), 13 October.

2016: M. Giuliani, *The SmartH2O project: an integrated platform combining smart water meters, data intensive modelling and gamified ICT to support residential water management*, Engineering Systems and Design Seminar Series, Singapore University of Technology and Design, Singapore, 4 March.

TEACHING ACTIVITY

Lecturer

2024-: *Advanced Environmental Systems Analysis* (10 ECTS), MSc in Environmental and Land Planning Engineering, Politecnico di Milano, Milano, I.

2019-: *Natural Resources Management - 1* (5 ECTS), MSc in Environmental and Land Planning Engineering, Politecnico di Milano, Milano, I.

2018-2024: *Participatory and Integrated Water Resources Planning Laboratory* (2 ECTS), MSc Programme of the Department of Civil, Environmental and Geomatic Engineering, ETH Zurich, Zurich, CH.

2015-2023: *Advanced Environmental Systems Analysis - 2* (5 ECTS), MSc in Environmental and Land Planning Engineering, Politecnico di Milano, Milano, I.

Advanced Courses/Lectures

2023/2024: *Perspective in Science, Technology and Policy for Sustainable Change* (2 modules), PhD course, Politecnico di Milano, Milano, I.

2023: *Optimal reservoir operations*, REBECCA project knowledge transfer workshop, Ha Noi University of Natural Resources and Environment (HUNRE) and online.

2023: *Summer school on the Water, Energy, Food, and Ecosystems Nexus* (2 lectures), AWESOME project summer school, online.

2021: *Water, Energy and Food Nexus in the ZRB and OTB: from models to negotiations*, IDEA League Autumn School - Water, Energy, Food and Environment Nexus, online.

2021: *Data and models for drought management at different spatial scales*, International Alliance for Digital E-learning E-mobility and E-research in Academia (ide3a), online.

2018: *Planning and managing complex water resources systems* (4 hrs with Andrea Castelletti), Idea League Doctoral School - Engineering Complex Systems with Big data and Information Technology, Lecco, Italy.

2016: *IMRR School - Integrated and sustainable water Management of Water reservoirs in a changing climate* (22 hrs with Daniela Anghileri and Phuong Nam Vu), Advanced Course for young researchers selected from different Vietnamese institutions, Da Nang, Vietnam.

2015: *Tools and methods for climate change impact analysis of water resources systems* (26 hrs with Andrea Castelletti and Daniela Anghileri), Advanced Course at the Institute for Water Resources Planning, Hanoi, Vietnam.

Teaching Assistant

2022-: Teaching Assistant of *Analysis and management of environmental systems* (10 ECTS), BSc in Environmental and Land Planning Engineering, Politecnico di Milano, Milano, I.

2018-2022: Laboratory Tutor of *Water Resources Management*, MSc Programme of the Department of Civil, Environmental and Geomatic Engineering, ETH Zurich, Zurich, CH.

2012-2019: Teaching Assistant of *Natural Resources Management* (10 ECTS), MSc in Environmental and Land Planning Engineering, Politecnico di Milano, Milano, I.

2017-2019: Laboratory Tutor of *Modeling and Simulation* (10 ECTS), BSc in Environmental and Land Planning Engineering, Politecnico di Milano, Milano, I.

2010-2014: Teaching Assistant of *Natural Resources Management and Integrated Water Resources Management* (10 ECTS), MSc in Geomatic and Environmental Engineering, School of Civil and Environmental Engineering, Politecnico di Milano, Milano, I.

2011-2012: Laboratory Tutor of *Analysis and management of environmental systems* (10 ECTS), BSc in Environmental and Land Planning Engineering, Politecnico di Milano, Milano, I.

PhD student supervision

Martina Merlo (XXXVIII -). *Advancing drought detection and management to improve the resilience of mul-*

tisector systems under climate change. PhD in Science, Technology and Policy for Sustainable Change, Politecnico di Milano.

Marta Zaniolo (XXXII – 2020). *Feature Representation Learning in complex water decision making problems*. PhD in Information Technology, Politecnico di Milano (co-supervisor).

Federico Giudici (XXXII – 2020). *Optimal design of off-grid water-energy systems in small Mediterranean islands*. PhD in Information Technology, Politecnico di Milano (co-supervisor).

Federica Bertoni (XXXII – 2020). *Advancing joint design and operation of water resources systems under uncertainty*. PhD in Information Technology, Politecnico di Milano (co-supervisor).

Emanuele Mason (XXX cycle - 2018). *Beyond full rationality: modeling tradeoff dynamics in multi-objective water management*. PhD in Information Technology, Politecnico di Milano (co-supervisor).

Andrea Cominola (XXIX cycle - 2017). *Modelling residential water consumers' behavior. From smart metered data to demand management*. PhD in Information Technology, Politecnico di Milano (co-supervisor).

MSc student supervision

Silvia Capponi (A.Y. 2023-2024), *Coupling energy systems planning and water quality models to quantify the impacts of African hydropower expansion on freshwater fish biodiversity*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Luca Proserpio (A.Y. 2023-2024), *Modeling Mediterranean Cyclones Hazards via Machine Learning*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Giada Truoccolo (A.Y. 2023-2024), *Modeling the impacts of drought events on the energy sector*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Francesco Bressi (A.Y. 2022-2023), *Satellite-based Reconstruction of Water Reservoir Dynamics in the Zambezi Watercourse*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Carola Calisi (A.Y. 2022-2023), *Assessing the impacts of temperature extremes on crop production in the Adda River basin*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Giorgia Sica (A.Y. 2022-2023), *Enhancing droughts resilience via expansion of water storage infrastructures*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Martina Merlo (A.Y. 2021-2022), *A pan-European analysis of drought events and impacts*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Irene Galbiati (A.Y. 2021-2022), *Multi-objective Robust Decision Making to discover future vulnerabilities of the Júcar river basin under climate change*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Emma Krampe (A.Y. 2021-2022), *Advancing the Operation of a Multi-Reservoir System Using Global Hydrological Forecast Products*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Veronica Piuri (A.Y. 2020-2021), *Integrating desalination and aquaponics in the Nile River Basin*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Nicola Crippa (A.Y. 2020-2021), *Assessing the value of seasonal forecasts in informing reservoir operations in the water-stressed Mediterranean basins*, Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano. Luca Rampon (A.Y. 2019-2020). *Integrating aquaponics technologies in strategic river basin management*. Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Yousra Saudi (A.Y. 2018-2019). *Assessing the value of hydroclimatic services for hydropower megadams*. Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Martina Daddi (A.Y. 2018-2019). *Integrating hydrological constraints for hydropower in energy models:The case study of the Zambezi River Basin in the Southern African Power Pool*. Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Riccardo Badagliacca & Linda Spinelli (A.Y. 2017-2018). *Designing robust and sustainable development pathways in the Omo-Turkana basin*. Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Alessandro Gentile (A.Y. 2016-2017). *Informing water reservoir operations with climate teleconnections*. Master of Science in Environmental and Land Planning Engineering, Politecnico di Milano.

Co-supervision of 30 MSc theses at Politecnico di Milano, including 24 in Environmental and Land Planning Engineering or Environmental and Geomatic Engineering, 4 in Computer Engineering, and 2 in Automation and Control Engineering. Co-supervision of 3 MSc theses at ETH Zurich and 2 MSc theses at IHE Delft Institute for Water Education.

RESEARCH ACTIVITIES

Research projects

2025-2028 | *BERLIN - BEhavioRaL INtelligence for evidence-based adaptation policies*, Fondo Italiano per la Scienza, Role: Principal Investigator, Total grant: € 1.650.574,20.

2021-2025 | *SAHARA: StorAge enHAnced droughts management for Resilient river bAsins*, PRIN-PNRR, Role: Project Coordinator, Total grant: € 239,970 | Grant income: € 104,000.

2021-2025 | *SOS-Water: Water Resources System Safe Operating Space in a Changing Climate and Society*, EU-Horizon, Role: Research Investigator, Total grant: € 4,548,074 | Grant income: € 605,625.

2021-2025 | *CLINT: CLImate INTelligence: extreme events detection, attribution and adaptation design using machine learning*, EU-H2020, Role: Work Package Leader, Total grant: € 6,067,720 | Grant income: € 1,081,125.

2021-2025 | *GONEXUS: Innovative tools and solutions for GOverning the water-energy-food-ecosystems NEXUS under global change*, EU-H2020, Role: Research Investigator, Total grant: € 4,999,813 | Grant income: € 468,125.

2021-2022 | *STREAM: SusTainable REservoir mAnagement in water-stressed Mediterranean areas*, Prince Albert II of Monaco Foundation, Role: Principal Investigator, Total grant: € 46,800 | Grant income: € 18,430.

2020-2023: *AWESOME: managing water, ecosystems and food across sectors and scales in the south Mediterranean*, EU-H2020, Role: Work Package Leader, Total grant: €1,120,074 | Grant income: €385,000.

2020-2021: *A data intensive framework to modelling human behaviours in coupled human natural systems*, MISTI Global Seed Funds, Role: Co-PI, Total grant: € 15,000 | Grant income: € 7,000.

2019-2022: *ADDApt: Contrasting drying climate with soft- paths measures: lake Como, Italy*, Regione Lombardia, Role: Research Investigator, Total grant: € 600,000 | Grant income: € 400,000.

2019-2022: *IN-WOP: Mind the Water Cycle Gap: Innovating Water Management Optimisation Practice*, EU-Water JPI, Role: Principal Investigator, Total grant: € 705,636 | Grant income: €150,000.

2018-2022: *Project O: demonstration of planning and technology tools for a circular, integrated and symbiotic use of water*, EU-H2020, Role: Research Investigator, Total grant: € 9,261,272 | Grant income: €902,750.

2016-2020: *DAFNE: Decision-Analytic Framework to explore the water-energy-food NExus in complex and trans-boundary water resources systems of fast growing developing countries*, EU-H2020, Role: Research Investigator, Total grant: € 5,320,410 | Grant income: € 512,920.

2016-2019: *SO-WATCH: SOft path WATer management adaptation to CHanging climate*, Cariplo Foundation Grants, Role: Communication Director and Research Investigator, Total grant: € 298,410. Grant income: € 154,350.

2015-2019: *IMPREX: IMproving PRedictions and management of hydrological EXtremes*, EU-H2020, *Role*: Research Investigator.

2014-2017: *SmartH2O: an ICT Platform to leverage on Social Computing for the efficient management of Water Consumption*, EU-FP7, *Role*: Research Investigator.

2014-2015: *PROACTIVE: Protezione del territorio con infrastrutture ICT avanzate, cittadinanza attiva e reti*

sociali, FESR, *Role*: Research Investigator.

2012-2015: *IMRR Integrated and Sustainable Water Management of Red-Thai Binh River System (Vietnam)*, Italian Ministry of Foreign Affairs, *Role*: Research Investigator.

SERVICES

Scientific societies and affiliations

Member of the Working Group on Artificial Intelligence for Multi-Sector Dynamics (since 2024).

Member of the AGU Water & Society Committee (since 2022).

Member of the IFAC Technical Committee TC8.3 on Modelling and Control of Environmental Systems (since 2016).

Member of the ASCE/EWRI Environmental & Water Resources Systems Technical Committee (since 2014).

Member of the European Geoscience Union (EGU, since 2015) and of the American Geophysical Union (AGU, since 2012).

Journals editorial boards

Section Editor for *ASCE Journal of Water Resources Planning and Management*.

Associate Editor for *Journal of Hydrology*.

Associate Editor for *Frontiers in Water (section Water and Artificial Intelligence)*.

Reviewer for *Water Resources Research, Environmental Research Letters, Hydrology and Earth System Sciences, Environmental Modelling & Software, Journal of Water Resources Planning and Management, Advances in Water Resources, IEEE Transactions of Control Systems Technologies, IEEE Control Systems Letters*.

Faculty

Member of the Board of the PhD program in Science, Technology and Policy for Sustainable Change, Politecnico di Milano.

Member of the Advisory board for ERASMUS candidates in Environmental and Land Planning Engineering, Politecnico di Milano.

Member in three PhD evaluation committees of the Information Technology program at Politecnico di Milano; a Phd evaluation committee in the Department of Civil and Structural Engineering at the University of Sheffield.

Conference session organization

2025

Convener of the Session on Decision Making Under Deep Uncertainty for Planning Water Systems Adaptation to Global Change (with D. Gold, J. Zatarain Salazar, C. Rougé) at the *EGU General Assembly 2025*, Vienna, April 2025

2024

Convener of the Session on Water and Society: Water Resources Management and Policy (with A. Hadjimichael, C. Kirchhoff, R. Schmitt) at the *AGU Fall Meeting 2024*, Washington D.C., December 2024

2023

Convener of the Session on Water and Society: Water Resources Management and Policy (with M. Muller, A. Hadjimichael, M. van Vliet) at the *AGU Fall Meeting 2023*, San Francisco, December 2023

2022

Convener of the Session on Water and Society: Water Resources Management and Policy (with M. Muller, A. Hadjimichael, M. van Vliet) at the *AGU Fall Meeting 2022*, Chicago, December 2022

Chair of the National Organizing Committee of the *IFAC Workshop on Control Methods for Water Resource*

Systems, Milan, September 2022

Co-convener of the Session on Water resources policy and management - forecast and control methods (with C. Rougé, L. Crochemore, S. Galelli) at the *EGU General Assembly 2022*, Vienna, April 2022

2021

Co-convener of the Session on Water and Society: Water Resources Management and Policy (with M. Konar, A. Bruce, D. Garrick) at the *AGU Fall Meeting 2021*, New Orleans & Online Everywhere, December 2021

Convener of the Session on Improving hydroclimatic services for water sectors: from forecasts to management and policy (with L. Arnal, T. aus der Beek, L. Crochemore, S. Galelli, C. Rougé, A. Schepen, C. White) at the *vEGU General Assembly 2021*, Gather Online, April 2021

2020

Co-convener of the Session on Water and Society: Water Resources Management and Policy (with J.R. Kasprzyk, M. Konar, A. Bruce) at the *AGU Fall Meeting 2020*, Online Everywhere, December 2020

Co-convener of the Session on Water resources policy and management - forecast and control methods (with S. Galelli, C. Rougè, P. Block, J. Kasprzyk) at the *EGU General Assembly 2020*, Vienna, Austria, April 2020

2019

Convener of the Session on Water resources policy and management - forecast and control methods (with S. Galelli, J. Quinn, A. Tilmant) at the *EGU General Assembly 2019*, Vienna, Austria, April 2019

2018

Co-convener of the Session on Advances in modeling and control of environmental systems: from drainage and irrigation to hybrid energy generation (with A. Kolechkina, A. Efstratiadis, A. Efstratiadis, E. Duviella, S. Galelli, D. Anghileri) at the *EGU General Assembly 2018*, Vienna, Austria, April 2018

2017

Co-convener of the Session on Water and Society: Water Resources Management and Policy in a Changing World (with K. Madani, P.M. Reed, A. Escriva-Bou) at the *AGU Fall Meeting 2016*, San Francisco, California, December 2016

Co-convener of the Session on Renewable energy and environmental systems: modelling, control and management for a sustainable future (with A. Kolechkina, A. Efstratiadis, N. Sheutze, R. van Nooijen) at the *EGU General Assembly 2017*, Vienna, Austria, April 2017

2016

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

Co-convener of the Session on Harnessing the resources offered by sun, wind and water: control and optimization (with A. Kolechkina, A. Efstratiadis, N. Sheutze, R. van Nooijen) at the *EGU General Assembly 2016*, Vienna, Austria, April 2016

2015

Co-convener of the Session on Harnessing the resources offered by sun, wind and water: control and optimization (with R. van Nooijen, A. Kolechkina, P. Burlando, A. Efstratiadis, N. Sheutze, F. Pianosi, P.M. Reed, R. Romanowicz) at the *EGU General Assembly 2015*, Vienna, Austria, April 2015

PUBLICATIONS

Summary

- 81 papers in International Journals, 28 papers in Conference Proceedings, 4 Book Chapters, 201 Conference Abstracts
- Citations (March 2025): 5701 (Google Scholar), 4039 (Scopus), 3631 (Web of Science)
- h-index (March 2025): 38 (Google Scholar), 35 (Scopus), 34 (Web of Science)

Journals

[A.1] Camps-Valls, G., et al. (2025), Artificial intelligence for modeling and understanding extreme weather and climate events, *Nature Communications*, *16*, doi: 10.1038/s41467-025-56573-8

[A.2] Zanutto, D., A. Ficchì, M. Giuliani, and A. Castelletti (2025), Reinforcement learning of multi-timescale forecast information for designing operating policies of multi-purpose reservoirs, *Water Resources Research*, *61*, doi: 10.1029/2023WR036724

[A.3] Pérez-Aracil, J., C. Marina, E. Zorita, P. Zaninelli, M. Giuliani, A. Castelletti, P. Gutierrez, and S. Salcedo-Sanz (2024), Autoencoder-based flow-analogue probabilistic reconstructionof heat waves from pressure fields, *Annals of the New York Academy of Sciences*, doi: 10.1111/nyas.15243

[A.4] Ascenso, G., A. Ficchì, M. Giuliani, E. Scoccimarro, and A. Castelletti (2024), Downscaling, bias correction, and spatial adjustment of extreme tropical cyclone rainfall in ERA5 using deep learning, *Weather and Climate Extremes*, *46*, doi: 10.1016/j.wace.2024.100724

[A.5] Jordan, S., J. Quinn, M. Zaniolo, M. Giuliani, and A. Castelletti (2024), Dam Reoperation to Mitigate Changing Climate Extremes in the Omo River Basin, Ethiopia, *Journal of Water Resources Planning and Management*, *150*(11), doi: 10.1061/JWRMD5.WRENG-6468

[A.6] Pérez-Aracil, J., D. Fister, C. Marina, C. Peláez-Rodriguez, L. Cornejo-Bueno, P. Gutiérrez, M. Giuliani, A. Castelletti, and S. Salcedo-Sanz (2024), Long-term temperature prediction with hybrid autoencoder algorithms, *Applied Computing and Geosciences*, *23*, doi: 10.1016/j.acags.2024.100185

[A.7] Giuliani, M., and A. Castelletti (2024), Integrating Inverse Reinforcement Learning and Direct Policy Search for modeling multipurpose water reservoir systems, *IEEE Control Systems Letters*, *8*, 1529–1534, doi: 10.1109/LCSYS.2024.3411831

[A.8] Arnold, W., M. Giuliani, and A. Castelletti (2024), Floating photovoltaics may reduce the risk of hydro-dominated energy development in Africa, *Nature Energy*, *9*, 602–611, doi: 10.1038/s41560-024-01510-0

[A.9] Quinn, J., P. Reed, M. Giuliani, and A. Castelletti (2024), Average domination: A new multi-objective value metric applied to assess the benefits of forecasts in reservoir operations under different flood design levels, *Advances in Water Resources*, *185*, 1–44, doi: 10.1016/j.advwatres.2024.104638

[A.10] Salcedo-Sanz, S., et al. (2024), Analysis, characterization, prediction, and attribution of extreme atmospheric events with machine learning and deep learning techniques: a review, *Theoretical and Applied Climatology*, *155*, 1–44, doi: 10.1007/s00704-023-04571-5

[A.11] Castelletti, A., et al. (2023), Model Predictive Control of water resources systems: A review and research agenda, *Annual Reviews in Control,*, *55*, 442–465, doi: 10.1016/j.arcontrol.2023.03.013

[A.12] Arnold, W., J. Z. Salazar, A. Carlino, M. Giuliani, and A. Castelletti (2023), Operations eclipse sequencing in multipurpose dam planning, *Earth?s Future*, *11*, doi: 10.1029/2022EF003186

[A.13] Crippa, N., M. Grillakis, A. Tsilimigkras, G. Yang, M. Giuliani, and A. Koutroulis (2023), Seasonal forecast-informed reservoir operation. Potential benefits for a water-stressed Mediterranean basin, Climate Services, *Climate Services*, *32*, doi: 10.1016/j.cliser.2023.100406

[A.14] Carlino, A., M. Wildemeersch, C. Chawanda, M. Giuliani, S. Sterl, W. Thiery, A. van Griensven, and A. Castelletti (2023), Declining cost of renewables and climate change curb the need for African hydropower expansion, *Science*, *381*(6658), doi: 10.1126/science.adf5848

[A.15] Yang, G., M. Giuliani, and S. Galelli (2023), Valuing the Codesign of Streamflow Forecast and Reservoir Operation Models, *Journal of Water Resources Planning and Management*, *149*(8), doi: 10.1061/JWRMD5.WRENG-6023

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[D.2] Merlo, M., M. Giuliani, and A. Castelletti (2025), Advancing the detection of multi-sector drought impacts via feature extraction and multi-task learning, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.3] Castelletti, A., W. Arnold, and M. Giuliani (2025), Enhancing Robustness and Addressing Inequities through Operational Flexibility in Cooperative River Basin Management, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.4] Palcic, G., G. Ascenso, M. Giuliani and A. Castelletti (2025), Bridging Global Teleconnections and Local Data for Subseasonal-to-Seasonal Forecasting of Lake Como Inflows, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.5] Calisi, C., M. Giuliani, R. McAdam, A. Squintu, E. Scoccimarro, and A. Castelletti (2025), Assessing the impacts of temperature extremes on crop production in the Adda River basin , in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

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[D.13] Giuliani, M., M. Sangiorgio, A. Castagna, C. Gandolfi, and A. Castelletti (2024), Multi-sector multi-purpose adaptation of Alpine water systems in a changing world, in *World Environmental & Water Resources Congress (ASCE EWRI 2024)*, Milwaukee (WI)

[D.14] Giuliani, M., A. Castelletti, A. Carlino, and W. Arnold (2024), Reconsidering hydropower in the African energy transition, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria), *(invited)*

[D.15] Giuliani, M., F. Bosso, C. Bertini, D. Solomatine, and S.J. van Andel (2024), Leveraging climate data at different spatial scales via machine learning to improve sub-seasonal drought predictions, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.16] Merlo, M., M. Giuliani, Y. Du, I. Pechlivanidis, and A. Castelletti (2024), Advancing drought detection and management using ML enhanced impact-based drought indexes, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

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[D.18] Scarpellini, L., A. Ficchì, M. Giuliani, and A. Castelletti (2024), Parametric insurance for hydropower: Comparing alternative schemes combining hydrologic and market data, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.19] Bonserio, T., A. Carlino, M. Giuliani, and A. Castelletti (2024), Impact of Socio-Economic and Climatic Scenarios on Power Trade Vulnerability in Africa, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.20] Leoni, A., N. Stevanato, A. Carlino, A. Castelletti, and M. Giuliani (2024), From multi-decadal energy planning to hourly power dispatch: evaluating the reliability of energy projections in the Southern African Power Pool, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.21] Xia, W., M. Giuliani, E. Politti, H. Macian-Sorribes, S. Ricart, S. Arias-Lopez, T. Kahil, M. Pulido-Velázquez, and A. Castelletti (2024), A Multi-dimensional Safe Operating Space Evaluation Framework for Regional Water Resources Systems, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.22] Pérez-Aracil, J., C.M. Marina, P. Gutiérrez, D. Barriopedro, R. García-Herrera, M. Giuliani, R. McAdam, E. Scoccimarro, E. Zorita, A. Castelletti, and S. Salcedo-Sanz (2024), Autoencoder-based model for improving reconstruction of heat waves using the analogue method, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.23] van Andel, S.J., C. Bertini, C. Ramos Sánchez, A. Ficchì, M. Giuliani, M. Pezij, D. Lugt, L. De Stefano, I. Pechlivanidis, M. Werner, and A. Castelletti (2024), Use-case specific performance assessment of sub-seasonal to seasonal drought predictions for local-scale applications in the Netherlands, Spain, and Italy, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.24] Spinelli, D., M. Giuliani, and A. Castelletti (2024), Opportunities and challenges of Ensemble Forecast and Cross-Validation for MOEA optimisation in water resources management, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.25] Dainelli, F., G. Ascenso, E. Scoccimarro, M. Giuliani, and A. Castelletti (2024), Rethinking Tropical Cyclone Genesis Potential Indices via Feature Selection, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.26] Ascenso, G., G. Palcic, E. Scoccimarro, M. Giuliani, and A. Castelletti (2024), A Systematic Framework for Data Augmentation for Tropical Cyclone Intensity Estimation Using Deep Learning, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.27] Wang, J., B. Pernici, M. Giuliani, and A. Castelletti (2024), Constructing a Social Media-Based Index to Capture the Socio-Economic Impacts of Droughts, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.28] Giuliani, M., W. Arnold, and A. Castelletti (2023), Floating Photovoltaics as Complement and Substitute to Hydropower Development in Africa, in *2023 AGU Fall Meeting*, San Francisco (CA)

[D.29] S.V. Sunkara, J.D. Herman, and M. Giuliani (2023), Climate and performance thresholds for dynamic re-optimization of reservoir control policies, in *2023 AGU Fall Meeting*, San Francisco (CA)

[D.30] Castelletti, A., A. Carlino, T. Bonserio, M. Wildemeersch, M. Giuliani, W. Thiery, S. Sterl, C.J. Chawanda, and A. van Griensven (2023), Climate change, declining cost of renewables, and political stability shape future African hydropower evolution, in *2023 AGU Fall Meeting*, San Francisco (CA)

[D.31] Giuliani, M., C. Bertini, F. Bosso, D. Solomatine, and S.J. van Andel (2023), Leveraging climate data at different spatial scales via machine learning to improve subseasonal drought predictions, in *SISC 11th Annual Conference (SISC2023)*, Milano (Italy)

[D.32] Merlo, M., M. Giuliani, Y. Du, I. Pechlivanidis, and A. Castelletti (2023), A pan-European analysis of drought events and impacts, in *SISC 11th Annual Conference (SISC2023)*, Milano (Italy), *winner of the best poster award*

[D.33] Dainelli, F., R. Taormina, G. Ascenso, E. Scoccimarro, M. Giuliani, A. Castelletti (2023), Synthetic generation of extra-tropical cyclones' fields with generative adversarial networks, in *SISC 11th Annual Conference (SISC2023)*, Milano (Italy)

[D.34] Ascenso, G., A. Ficchì, M. Giuliani, E. Scoccimarro, L. Cavicchia, L. Magnusson, A. Castelletti (2023), Enhancing tropical cyclone rainfall reanalysis and forecasts for anticipatory action using deep learning, in *SISC 11th Annual Conference (SISC2023)*, Milano (Italy)

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[D.36] Giuliani, M., W. Arnold, J. Zatarain Salazar, A. Carlino, and A. Castelletti (2023), Operations Eclipse Sequencing in Multipurpose Dam Planning, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

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[D.39] Bonserio, T., A. Carlino, M. Giuliani, and A. Castelletti (2023), Political instability influence on hydropower planning in Africa: a continental scale analysis, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

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[D.41] Dainelli, F., R. Taormina, G. Ascenso, E. Scoccimarro, M. Giuliani, and A. Castelletti (2023), Synthetic Generation of Extra-Tropical Cyclones' fields with Generative Adversarial Networks, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.42] Galbiati, I., M. Giuliani, H. Macian-Sorribes, M. Pulido Velazquez, and A. Castelletti (2023), Discovering future vulnerabilities of the Jucar River Basin under climate change, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.43] Ficchì, A., G. Ascenso, M. Giuliani, E. Scoccimarro, L. Magnusson, R. Emerton, E. Stephens, and A. Castelletti (2023), Machine-learning enhanced forecast of tropical cyclone rainfall for anticipatory humanitarian action, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.44] Matta, E., A. Cominola, C. Laspidou, A.C. Rodriguez, M. Micotti, M. Pulido Velazquez, M. Giuliani and A. Castelletti (2023), How effectively (or not) can science and research be turned into adopted solutions and policies?, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.45] Piuri, V., E. Matta, G. Yang, M. Giuliani, G. Papagiannis, A. Yannacopoulos, M. Sardo, D.D. Chiarelli, M.C. Rulli, P. Kondouri and A. Castelletti (2023), Closing the loop between water supply and demand in the Nile River Basin under global change, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.46] Giuliani, M., J. Lamontagne, M.I. Hejazi, P.M. Reed, and A. Castelletti (2022), Unintended Consequences of Cimate Change Mitigation for African River Basins, in *2022 AGU Fall Meeting*, Chicago (IL), *(invited)*

[D.47] Castelletti, A., V. Piuri, G. Yang, E. Matta, and M. Giuliani (2022), How water demand interventions can influence water management in the Nile River Basin, in *2022 AGU Fall Meeting*, Chicago (IL)

[D.48] Carlino, A., M. Wildemeersch, S. Sterl, C.J. Chawanda, A. van Griensven, W. Thiery, M. Giuliani, and A. Castelletti (2022), Climate change, hydrological variability, and declining cost of renewables reduce economic viability of African hydropower potential, in *2022 AGU Fall Meeting*, Chicago (IL)

[D.49] Ekblad, L., J.D. Herman, S. Steinschneider, M. Giuliani, and A. Castelletti (2022), Connecting spatial climate information to infrastructure operations using deep reinforcement learning, in *2022 AGU Fall Meeting*, Chicago (IL)

[D.50] Ficchì, A., A. Castelletti, M. Giuliani, and D. Zanutto (2022), Advancing the Operation of Multipurpose Water Reservoirs with Multi-timescale Forecasts: Application to Lake Como, in *2022 AGU Fall Meeting*, Chicago (IL)

[D.51] Giuliani, M., G. Yang, and S. Galelli (2022), From forecast-informed reservoir operations to integrated forecast-control design, in *2nd IFAC Workshop on Control Methods for Water Resource Systems (CMWRS 2022)*, Milano (Italy)

[D.52] Yang, G., M. Giuliani, and A. Castelletti (2022), Operationalizing equity in multipurpose water systems control, in *2nd IFAC Workshop on Control Methods for Water Resource Systems (CMWRS 2022)*, Milano (Italy)

[D.53] Zanutto, D., A. Ficchì, M. Giuliani, and A. Castelletti (2022), Multi-timescale hydro-meteorological forecasts for the optimal control of the multipurpose Lake Como, in *2nd IFAC Workshop on Control Methods for Water Resource Systems (CMWRS 2022)*, Milano (Italy)

[D.54] Sangiorgio, M., A. Amaranto, M. Micotti, E. Weber, G. Yang, M. Giuliani, A. Castelletti (2022), Climate change adaptation through water portfolios planning in Alpine water systems, in *World Environmental & Water Resources Congress (ASCE EWRI 2022)*, Atlanta (GA)

[D.55] Giuliani, M., P. Bonetti, A.M. Metelli, M. Restelli, and A. Castelletti (2022), Advancing drought monitoring via feature extraction and multi-task learning algorithms, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.56] Cavicchia, L., G. Ascenso, E. Scoccimarro, A. Castelletti, M. Giuliani, and S. Gualdi (2022), Tropical cyclone genesis potential in CMIP6 climate models, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.57] Valerio, C., M. Giuliani, A. Castelletti, A. Garrido, and L. De Stefano (2022), Optimizing the operating rule of a controversial interbasin water transfer: the Tagus-Segura aqueduct (Spain), in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

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[D.59] Castelletti, A., D. Zanutto, A. Ficchì, and M. Giuliani (2022), Extracting the most valuable information from multi-timescale hydrological forecasts for informing the operation of multipurpose water systems, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.60] Crippa, N., G. Yang, M. Grillakis, A. Koutroulis, and M. Giuliani (2022), Assessing the value of seasonal forecasts in informing reservoir operations in water-stressed Mediterranean basins, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.61] Piuri, V., G. Yang, and M. Giuliani (2022), Exploring the potential of desalination and aquaponics in the integrated management of arid river basins: the case of the Nile River basin, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.62] Costa, A., M. Giuliani, S. Sinclair, N. Peleg, R. van der Linden, V.A. Truong, A.H. Fink, A. Castelletti, and P. Burlando (2022), Robust River Basin planning under extreme climate events and socio-economic changes: the Red River Basin in China-Vietnam, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.63] Koutroulis, A., M. Grillakis, N. Crippa, G. Yang, and M. Giuliani (2022), Sub-seasonal to climatic hydrologic predictions for sustainable reservoir management in water-stressed Mediterranean basins, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.64] Carlino, A., M. Wildemeersch, M. Giuliani, and A. Castelletti (2022), Hydropower capacity expansion in the African continent under different socio-economic and climate policy scenarios, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.65] Yang, G., M. Giuliani, E. Matta, V. Piuri, and A. Castelletti (2022), Dynamic Water-Energy-Food nexus management in transboundary river basins incorporating water infrastructure operation and demand control, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.66] Giuliani, M., A.M. Metelli, M. Restelli, and A. Castelletti (2021), Advancing drought monitoring using feature extraction algorithms, in *2021 AGU Fall Meeting*, New Orleans & Online Everywhere

[D.67] Robba, F., M. Giuliani, A. Amaranto, and A. Castelletti (2021), Can we use flood control infrastructures in forecast-based drought management in a drying climate?, in *the 9th SISC Annual Conference "Accelerating Climate Action: A just transition in a post-Covid era"*, Online

[D.68] Zaniolo, M., M. Giuliani, S. Sinclair, P. Burlando, and A. Castelletti (2021), When timing matters - misdesigned dam filling impacts hydropower sustainability, in *the 2nd International Symposium on Water System Operations*, online

[D.69] Zaniolo, M., M. Giuliani, and A. Castelletti (2021), Policy Representation Learning for multiobjective reservoir policy design with different objective dynamics, in *the 2nd International Symposium on Water System Operations*, online

[D.70] Giuliani M. (2021), Putting humans in the loop: coupling behavioral modeling with natural systems' models, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.71] Schmitt, R., M. Giuliani, S. Bizzi, M. Kondolf, G. Daily, and A. Castelletti (2021), Robust multiscale strategies for increasing the resilience of the Mekong Delta, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.72] Matta, E., M. Giuliani, R. Palatnik, M. Shechter, C. Pyka, D. Cekin, M. Hassanen, M.V. Rocco, M.C. Rulli, P. Kondouri, S. Vergalli, and A. Castelletti (2021), The AWESOME Project: A decision analytic framework for managing Water Energy Food and Ecosystems across sectors and scales in the South Mediterranean, in *Geophysical Research Abstracts*, in EGU General Assembly, Vienna (Austria)

[D.73] Giuliani, M., A. Castelletti, I. Chiricò, N. Peleg, and P. Burlando, Robust design of dam heightening in a changing climate: a case study in the Swiss Alps, in *2020 AGU Fall Meeting*, Online Everywhere

[D.74] Castelletti, A., S. Cazzaniga, and M. Giuliani, Stability and equity in transboundary river basins facing changes in climate and society, in *2020 AGU Fall Meeting*, Online Everywhere

[D.75] Jordan, S., J. Quinn, M. Zaniolo, M. Giuliani, and A Castelletti, Advancing the representation of reservoir operations in SWAT to evaluate alternative water management strategies: A case study in the Omo River Basin, Ethiopia, in *2020 AGU Fall Meeting*, Online Everywhere

[D.76] Zatarain Salazar, J., F. Bertoni, M. Giuliani, and A. Castelletti (2020), Robust Infrastructure Sequencing and Management for Growing Food Energy and Water Demands in the Zambezi River Basin, in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

[D.77] Amaranto, A., M. Giuliani, D.D. Chiarelli, M.C. Rulli, D. Juizo, and A. Castelletti (2020), Disentailing Sources of Future Uncertainties for Water Management Policies in a Subtropical Water System, in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

[D.78] Moreno Dumont Goulart, H., M. Giuliani, J.D. Herman, S. Steinschneider, and A. Castelletti (2020), Assessing the operational value of short-term forecast information under climate change, in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

[D.79] Zaniolo, M., M. Giuliani, P.J. Block, and A. Castelletti (2020), Dynamic retrieval of informative inputs for multi-sector reservoir policy design with diverse spatio-temporal objective scales, in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

[D.80] Castelletti, A., F. Bertoni, M. Giuliani, and P.M. Reed (2020), Informed water infrastructure design: improving coupled dam sizing and operation by streamflow forecasts, in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

[D.81] Saoudi, Y., L. Crochemore, I. Pechlivanidis, and M. Giuliani (2020), Assessing the value of hydroclimatic services for hydropower megadams: the case of the Grand Ethiopian Renaissance Dam, in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

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[D.83] Gandolfi, C., A. Castagna, A. Castelletti, M. Giuliani, M.C. Lippera, and M. Rienzner (2020), Water-food-energy-ecosystems nexus in irrigation systems adaptation to climate change: a case study of the Adda basin (Italy), in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

[D.84] Daddi, M., A. Barbieri, A. Castelletti, M. Giuliani, E. Colombo, M. Rocco, and N. Stevanato (2020), Integrating hydrological constraints for hydropower in energy models: the case of the Zambesi River Basin in the Southern African Power Pool, in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

[D.85] Trombetta, G., A. Castelletti, M. Giuliani, M. Zaniolo, and P. Block (2020), From individualistic behavior to full cooperation: optimal management policy design under varying cooperation levels in the Nile River basin, in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

[D.86] Liang, B., M. Giuliani, L. Zhang, S. Chen, and A. Castelletti (2020), Fitted Q-iteration for optimal water reservoir network operation under varying hydro-climatic conditions, in *Geophysical Research Abstracts Vol 21*, EGU General Assembly, Vienna (Austria)

[D.87] Giuliani, M., L. Crochemore, I. Pechlivanidis, and A. Castelletti (2019), Isolating the role of end-user behavior in the assessment of seasonal forecast value, in *2019 AGU Fall Meeting*, San Francisco (CA)

[D.88] Giuliani, M., M. Zaniolo, A. Castelletti, G. Davoli, and P.J. Block (2019), Do we really need inflow forecasts to improve reservoir operations?, in *2019 AGU Fall Meeting*, San Francisco (CA)

[D.89] Zatarain Salazar, J., F. Bertoni, M. Giuliani, A. Castelletti, and M. Micotti (2019), Optimal infrastructure expansion sequencing and management to meet water, food and energy demands in the Zambezi river basin, in *2019 AGU Fall Meeting*, San Francisco (CA)

[D.90] Bertoni, F., A. Castelletti, M, Giuliani, and P.M. Reed (2019), Exploring How Reservoir Design and Operational Trade-offs Are Shaped by Information Feedbacks, in *2019 AGU Fall Meeting*, San Francisco (CA)

[D.91] Castelletti, A., M. Zaniolo, M. Giuliani, and P. Burlando (2019), Seasonal drought forecasts to optimally balancing multisector interests during reservoir filling transients, in *2019 AGU Fall Meeting*, San Francisco (CA)

[D.92] Zaniolo, M., M. Giuliani, P.J. Block, and A. Castelletti (2019), Neuro-Evolutionary Policy Search for Identifying Key Inputs to Operate Multi-objective Reservoirs Exhibiting Variable Dynamics, in *2019 AGU Fall Meeting*, San Francisco (CA)

[D.93] Cominola, A., M. Giuliani, A. Castelletti, P. Fraternali, A.E. Rizzoli, and J. Guardiola (2019), Water saving tips, peer pressure, and gamification: long-term behavior change and rebound effects from a long experimental trial, in *2019 AGU Fall Meeting*, San Francisco (CA)

[D.94] Castelletti, A., M. Giuliani, M.H. Ramos, M. Pulido-Velazquez, G. David, H. Macian-Sorribes, L. Crochemore, I. Pechlivanidis, G. Thirel, and M. Cassagnole (2019), Six challenges to successfully inform hydropower operation by improved hydro-meteorological forecasts, in *2019 AGU Fall Meeting*, San Francisco (CA)

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