



water
FUTURES

WATER FUTURES
Conference

PALAZZO BO, UNIVERSITY OF PADOVA, VIA 8 FEBBRAIO, 2, Padova, Italy

JUNE 10- 11, 2019

The two-days conference is jointly organised by the University of Padova (Italy), the Ministry for Foreign Affairs and International Cooperation (Italy), the Ministry for Science, Technology and Space (Israel) and the University of California – Berkeley (USA).

Scientific Committee:

Moshe Ben-Sasson, Ministry for Science, Technology and Space, Israel
Giancarlo Dalla Fontana, University of Padova, Italy
Alessandro Paccagnella, University of Padova, Italy
Alessandra Pastorelli, Ministry of Foreign Affairs and International Cooperation, Italy
Andrea Rinaldo, University of Padova, Italy, École Polytechnique Fédérale de Lausanne, Switzerland
Mara Thiene, University of Padova, Italy
Yacov Tsur, The Hebrew University of Jerusalem, Israel
David Zilberman, University of California, Berkeley, USA



Water futures draws together several lines of argument to suggest that a coherent framework, rooted in water studies, is firmly placed at the center of modern sustainability concepts. By sustainable development, in fact, we should mean development in which wealth per head, including the natural capital and adjusted for its distribution, does not decline in time. Water studies, especially if seen in the perspective cast by accelerating climatic change, suggest that we may be able to account quantitatively for the depreciation of natural capital, and that the interaction between water use, technology and institutions is may be the key to successful regulatory processes. Natural capital that we are currently squandering in many parts of the world include ecosystems that provide important services like storage, recreation, flood protection, nutrient uptake, erosion control, water purification, carbon sequestration and safe water, to name a few.

Water futures aims at a reflection on challenges posed to contemporary water science. Can we generalize the lessons in water management learned from the Israeli successes in granting water security? Can global water resources meet the food and energy needs of humanity? Will future large-scale water resources plans include the reduction of the loss of biodiversity? Are we capable to build a compelling argument for preventing water development schemes when facing increased burden of waterborne disease? Can biological invasions, including historic population migrations that shaped human community compositions as we see them now, be predicted? Are there recognizable, combined hydrologic and human mobility drivers and controls on the spreading of water-related disease? Can we contribute to bridge development thinking, argued to be stacked against nature, and environmental thinking via water futures? Can we evaluate quantitatively ecosystem services discounting the future? Will economic regulation of water systems embed ecosystem alterations? These – and other – important questions need reliable science promptly communicated to the decision maker.

The *Water futures* conference will bring together leading scholars from Israel, Berkeley and Padua to foster reflections on the above topics.

**Programme:**

Monday 10 June 2019		
Time	Session	Venue
8.30 – 9.00	Registration	Archivio Antico, Palazzo Bo
9.00 – 9.45	<p>Welcome and introduction Chairman: Alessandro Paccagnella</p> <p>Rosario Rizzuto, Rector of the University of Padova Min Plen Fabrizio Nicoletti, Ministry of Foreign Affairs and International Cooperation, Italy Dr Moshe Ben-Sasson, Ministry of Science, Technology and Space, Israel Gregory Biging, University of California, Berkeley, USA Representative of Veneto Region Representative of City of Padova</p>	Archivio Antico, Palazzo Bo
10:00 – 10:45	<p>Session 1: Water futures and global concerns Chairman: Mara Thiene</p> <p>Speakers: Benny Chefetz, Hebrew University, Israel <i>From wastewater to our Plate: Human Exposure to Pollutants of Emerging Concern</i></p> <p>Andrea Rinaldo, University of Padova, Italy; EPFL, Switzerland <i>River networks as ecological corridors. Water futures for species, populations, pathogens</i></p> <p>David Zilberman, University of California, Berkeley, USA <i>Water use sustainability: interaction between water use, technology, and institutions</i></p>	
10:45 – 11:15	<i>Coffee break</i>	Basilica, Palazzo Bo
11:15 – 12:30	<p>Session 2: Water demands and systems Chairman: Yacov Tsur</p> <p>Speakers: Paolo D'Odorico, University of California, Berkeley, USA <i>The global food-energy-water nexus: Can the global water resources meet the food and energy needs of humanity?</i></p>	Archivio Antico, Palazzo Bo



	<p>Marco Borga, University of Padova, Italy <i>Water futures in decarbonized energy generation: water cycles, climate variables, and intermittent renewable power production</i></p> <p>Dave Sunding, University of California, Berkeley, USA <i>Forecasting urban water demands. Rethinking model selection</i></p> <p>Alberto Biancardi, Gestore Servizi Energetici, Italy <i>Economic regulation and water system</i></p> <p>Mara Thiene, University of Padova, Italy <i>Customers' satisfaction and willingness to support water utilities actions: the role of information</i></p>	
12:30 – 14:00	<i>Lunch</i>	Basilica, Palazzo Bo
14:00 – 15:15	<p>Session 3: Water and ecosystems Chairman: Paolo D'Odorico</p> <p>Speakers: Nunzio Romano, University of Napoli Federico II, Italy <i>Global change impacts on ecosystem services: a soil hydrology perspective for future water demands</i></p> <p>David Russo, Volcani Center, Israel <i>Applications of physically based flow and transport models for salinity control in agricultural fields irrigated with low-quality waters</i></p> <p>Ehud Meron, Ben Gurion University, Israel <i>Nonlinear dynamics of desertification</i></p> <p>Claudio Gandolfi, University of Milano, Italy <i>Irrigation water futures – sharing knowledge, unlocking solutions</i></p> <p>Daniele Penna, University of Firenze, Italy <i>Interdisciplinary approaches to trace water fluxes in terrestrial ecosystems</i></p>	Archivio Antico, Palazzo Bo
15:15 – 15:45	<i>Coffee break</i>	Basilica, Palazzo Bo
15:45 – 17:00	<p>Session 4: Water transport Chairman: Andrea Rinaldo</p> <p>Speakers: Aldo Fiori, University of Roma III, Italy <i>Physically based modeling of water age in catchments: A Boussinesq approach</i></p>	Archivio Antico, Palazzo Bo



	<p>Noam Weisbrod, Ben Gurion University of the Negev, Israel <i>Transport of nanoparticles and radionuclides in fractured carbonate rocks</i></p> <p>Alberto Bellin, University of Trento, Italy <i>Transport processes across scales in heterogeneous environments: how flow non-uniformity helps contaminant attenuation</i></p> <p>Brian Berkowitz, Weizmann Institute of Science, Israel <i>Preferential Pathways and Residence Times of Chemical Species in Geological Formations</i></p>	
17:00 – 17:45	Guided tour of Palazzo Bo	Palazzo Bo
19:30 – 20.00	Drinks reception By Invitation	Orto Botanico
20:00 - late	Dinner By invitation	Orto Botanico

Tuesday 11 June 2019		
Time	Session	Venue
09:00 – 10:15	<p>Session 5: Water extremes and climate Chairman: Maria Cristina Rulli</p> <p>Speakers: Alberto Montanari, University of Bologna, Italy <i>Changing climate in water science</i></p> <p>Marco Marani, University of Padova, Italy <i>Water extremes: current trends and future projections</i></p> <p>Francesco Laio, Politecnico of Torino, Italy <i>Cutting-edge computer vision technology for real time weather monitoring</i></p>	Archivio Antico, Palazzo Bo



	<p>Armando Brath, University of Bologna, Italy <i>Perspectives on flood and drought risks management in the Po river basin</i></p> <p>Gianluca Botter, University of Padova, Italy <i>Beyond static rivers: climatic controls on stream network dynamics</i></p>	
10:15 – 10.45	<i>Coffee break</i>	Basilica, Palazzo Bo
10:45 – 11:45	<p>Session 6 Chairman: David Zilberman</p> <p>Speakers: Water challenges and sustainability Doug Parker, California Institute for Water Resources, USA <i>Evolution of University Research and Outreach to Address California and International Water Challenges</i></p> <p>Maria Cristina Rulli, Politecnico of Milano, Italy <i>Water constraints on sustainable food security</i></p> <p>Yacov Tsur, The Hebrew University of Jerusalem, Israel <i>Closing the gap between water needs and water resources in the Jordan River Basin</i></p> <p>Andrea D'Alpaos, University of Padova, Italy <i>Rising water levels, increasing human pressure, and the future of the Venice Lagoon</i></p> <p>Conclusions: What's next? Chairman: Alessandro Paccagnella</p>	Archivio Antico, Palazzo Bo
13:00 – 14:00	Lunch	Basilica, Palazzo Bo

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