

ACADEMIC RECORD

Stefania Tamea graduated summa cum laudae in Civil Engineering at the Politecnico di Torino in 2003. During her studies, she spent one year at Cardiff University (Cardiff, UK) with the Erasmus student mobility program. She obtained the Ph.D. degree in Water Engineering in 2007 with a thesis on the probabilistic prediction of river flows and she spent two years at the Princeton University (Princeton, NJ, United States) working with Ignacio Rodriguez-Iturbe on eco-hydrology and the relation between stochastic precipitation, groundwater, and vegetation. After returning to Italy, she has worked as a post-doc on the modeling of soil water balance in the presence of vegetation and on water resources for hydropower with applications to irrigation channels. As a senior post-doc and as a Research Assistant, she has worked in the "Water for Food" research group at the Politecnico di Torino, dealing with water resources for agriculture and food production, the virtual water trade network and the nexus between water and food security. After a 3-year tenure-track contract and a maternal leave she is now employed as Associate Professor at the Politecnico di Torino in the field of hydrology and hydraulic infrastructures.



RESEARCH INTERESTS

Stefania is a researcher in the field of water resources, with expertise in hydrology, eco-hydrology, statistical and environmental modeling. Her research interests focus on

- water resources for agriculture and food production, green and blue water footprint accounting, effects of water stress on crop yield;
- virtual water associated to international food trade, causes and propagation of food crises, country dependency and vulnerability;
- soil water balance modelling, role and dynamics of vegetation, interactions between soil moisture, precipitation and groundwater, groundwater-dependent ecosystems and wetlands, stochastic modelling in eco-hydrology;
- water resources for hydropower, technology advancement, productivity and applications to irrigation channels.

AWARDS AND DISTINCTIONS

- Appointment as "Junior Marchi Lecturer" awarded by the Italian group of water scientists (GII-Gruppo Italiano Idraulica) in 2015;
- "WRR Editors' Choice Award" assigned to the authors of the best articles published in "Water Resources Research" on the basis of the relevance and originality of the work; the award refers to the paper "Drivers of the virtual water trade" by Tamea et al. (2014);
- Invitation for a Keynote speech at the European Geosciences Union (EGU) General Assembly 2014 on the future of hydrology in the service of society
- National scientific qualification (Abilitazione Scientifica Nazionale) for associate professorship in the field of Hydraulics, hydrology and hydraulic infrastructures (field 08/A1) in 2013.

PROJECTS

Across the years, Stefania participated to some research projects on a range of topics.

- "Coping with water scarcity in a globalized world" (CWASI), ERC Consolidator Grant to Francesco Laio (2014-current), collaborator;
- "The global virtual-water network: social, economic, and environmental implications" (ViWaN), MIUR grant Futuro in ricerca (2012-2015), main collaborator.
- "Research and experimentation on new water turbines for irrigation channels" (TURNING POINT), Poli di innovazione POR-FESR 07/13 grant (2010-2013), collaborator.
- "Criteria and guidelines to verify the rated power in hydropower plants in a framework of uncertainty" (Regione Piemonte, 2008-2010), executive responsible.
- "Uncertainty characterization in hydrological observations" (PRIN, 2008), collaborator.

ACADEMICS AND LECTURING

Stefania has a long teaching experience of water-related courses at the Politecnico di Torino. Her academic activity includes the responsibility for different courses:

"Hydrology" in Civil Engineering in english (since 2017);

"Hydrology/Climatology" in Environmental Engineering (2016);

"Water footprint assessment" module at the 2nd-level Master in Water engineering for drinking, civil and industrial uses (2015, 2016);

"Hydraulics I" and "Fluid Mechanics" in english (2008,2011,2018);

plus collaboration to different courses ("Laboratory of GIS, since 2019) and a number of hours as teaching assistant for the courses of "Hydrology", "Hydrology/Climatology", "Hydraulics", "Fluid Mechanics" in the programs of Environmental, Civil, Mechanical and Automotive Engineering.

She has been co-supervisor of 18 final-year theses and 2 Ph.D. students at the Politecnico di Torino and at the Princeton University.

INTERNATIONAL COLLABORATIONS

Major international collaborations, documented by shared publications, are: Ignacio RODRIGUEZ-ITURBE (Princeton University, USA) on ecohydrology, Paolo D'ODORICO (University of Virginia, USA) on ecohydrology and virtual water, Marta ANTONELLI (King's College,

UK and EAWAG, CH) on virtual water trade, Rachata MUNEEPEERAKUL (Arizona State University, USA) on environmental modeling, Carole DALIN (University College London) on water footprint sustainability.

CONFERENCE ORGANIZATION, EDITORIAL BOARDS AND REVIEWING

As a convener and as a chairman, she has organized and led sessions at international meetings, the most recent ones on the topic of "*Water footprint*" and "*Water and food security*".

Convener, and often also chairman, of scientific sessions at international meetings of the EGU and AGU on the following topics: Wetland Ecohydrology (EGU 2008), Ecology-hydrology interfaces (EGU 2009), Groundwater-dependent ecosystems (AGU 2010), Water and food security: integrating perspectives from geophysics and social sciences (EGU 2014), Water footprint assessments for food and water security (EGU 2015, 2016, 2018).

She actively participates in the peer-review process of international journals such as "Water Resources Research", "Advances in Water Resources", "Geophysical Research Letters", "Environmental Research Letters", "Scientific Reports", and others. She has also received the "2014 Editors' Citation for Excellence in Refereeing" for the constant and valuable contribution to the peer-review process of the journal Water Resources Research.

PUBLICATIONS

The scientific activity of Stefania is documented by her publications, available at this link.

Most ISI papers were published in top quartile ranking (Q1) for the categories "Multidisciplinary Geosciences", "Water Resources" and "Environmental Sciences" and have an average impact factor equal to 4.0 (IF-2016).

ISI papers have attracted about 450 citations, without self-citations, and the Hirsh index is 13 (Web of Science, Nov 2018).

SOLICITED SPEECHES

05/2020: *Sustainably Supply Food, Water, and Energy*. Webinar in the series "Challenges for Engineers for a Greener Future", Politecnico di Torino, Italy.

01/2020: *The international virtual water trade, from modelling to policies*. Invited lecture for the Master in Sustainable Development at the University of Basel, Switzerland.

06/2019: *Spatio-temporal variation of water use worldwide: volumes, efficiency and sustainability*, SGRI XII Conference, Trento, Italy

10/2018: *Sostenibilità del sistema acqua-agricoltura-cibo in scenari di cambiamento* (italian). Biennale della sostenibilità, Turin, Italy

06/2018: *The international virtual water trade, from modelling to policies*. Invited lecture for the Master in Sustainable Development at the University of Basel, Switzerland.

03/2018: *Water resources for agriculture: Water footprint and beyond*. Noon talks, Politecnico di Torino, Italy.

03/2016: *Water footprint: a measure of efficiency and sustainability of water use for agricultural production*. Accademia dell'Agricoltura, Torino, Italy.

12/2015: *A global sensitivity analysis of crop virtual water content*. American Geophysical Union (AGU) Fall Meeting, San Francisco, US.

06/2015: *Virtual water fluxes: a multidisciplinary approach to the water-food-trade nexus*. Workshop GII (Gruppo Italiano Idraulica) on "Water and Fluid Frontiers", Cagliari, Italy.

04/2014: *Linking water resources to food security through virtual water*. Keynote speech at the session "Panta Rhei: a vision and an agenda for the next 10 years of hydrological research in support of society"; European Geosciences Union (EGU), General Assembly, Vienna, Austria.

03/2013: *Local and global perspectives on the virtual water trade*. Workshop "Water and globalization" at the Venice International University, Venezia, Italy.

11/2011: *Validation methods for uncertainty estimates in hydrology*. Workshop GII, Bologna, Italy.