

MARTA TUNINETTI

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www.watertofood.org

RESEARCH APPOINTMENTS

Dept. of Environment, Land and Infrastructure Engineering Politecnico di Torino, WaterToFood Lab	Assistant professor since 2021
Dept. of Ecology and Evolutionary Biology Princeton University, Levin Lab	Department Guest since 2022
Dept. of Environment, Land and Infrastructure Engineering Politecnico di Torino	Postdoctoral Researcher 2018-2021

EDUCATION

<i>Water debt indicator for sustainable water use</i> , paper Institute for Sustainable Resources, University College London	Visiting Scholar 2017
<i>Water footprint assessment to support local and global sustainability</i> , thesis Ph.D. in Environmental Engineering, Politecnico di Torino	Ph.D. student 2014-2018
<i>Majors: Hydrology, Hydraulics, GIS</i> M.Sc. in Environmental Engineering, Politecnico di Torino	M.Sc. student 2011-2014
<i>Majors: Geotechnique, Environmental Sciences</i> B.Sc. in Environmental Engineering, Politecnico di Torino	B.Sc. student 20008-2011
<i>Processed-based water-crop model</i> , paper University of Virginia	Visiting Student 2013

COURSES TAUGHT

(1) [Politecnico di Torino](#)

<i>Agri-tech: technologies for a sustainable agriculture</i>	B.Sc in Engineering since 2023
<i>Climate crises and cognitive bias</i>	B.Sc in Engineering since 2022
<i>Water-Food-Energy nexus under climate change</i>	M.Sc in Climate Change since 2020
<i>Hydraulics</i>	M.Sc in Building Engineering 2021-2023
<i>Hydrology</i>	M.Sc in Civil Engineering 2017-2021

(2) [International Training Centre of the ILO](#)

<i>Technology and Sustainable Agriculture and Food</i>	M.Sc in Technology and Public Policy 2023
<i>Water-Food-Energy nexus</i> (3) Slow Food Italia	M.Sc in Management of Development 2020
<i>Agriculture and Water Footprint</i>	2019-2021

GRANTS AND AWARDS

<i>Seasonal Prediction of water-availability, SPHERE</i> PRIN 2022 funded by NextGenerationEU (200k€)	PI 2023-2025
<i>Safeguarding Freshwater Resilience in the Anthropocene, SAFER</i> Swedish Research Council for Sustainable Development (500k€)	Collaborator 2023-2026
<i>Local water, global food commodities: Opportunity space vs collapse in arid farming regions</i> Water Grand Challenge, Princeton University (87.5k€)	Co-PI 2022-2024
<i>Next Generation WE: consultancy for public administration</i> Compagnia di San Paolo (60k€)	PI 2022-2024
<i>Global mapping of crop climate resilience</i> University of Delaware (15k€)	Co-PI 2021-2022
<i>Renewables for African Agriculture, RE4AFAGRI</i> Horizon Europe 2020	Collaborator 2020-2023
<i>WaterToFood: dissemination and communication project</i> European Research Council, project No 647473 (40k€)	Collaborator 2020-2022
<i>Best Short Films Awards featuring in the FoodxFilm Festival, video</i> World Food Forum 2021	Awardee 2021
<i>International food trade and water resources WaterToFood</i> European Research Council, project No 647473 (100k€)	Postdoctoral researcher 2018-2021
<i>Best Ph.D. thesis in Environmental Engineering</i> Politecnico di Torino (2.5k€)	Awardee 2018
<i>Post-graduate fellowship</i> Politecnico di Torino (5k€)	Fellow 2014
<i>M.Sc thesis fellowship</i> University of Virginia (1.5k€)	Fellow 2013

PUBLICATIONS

PEER-REVIEWED ARTICLES

1. Bertassello, L., Wiechman, A., Muller-Itten, M.C., Penny, P., **Tuninetti, M.**, and Muller, M. (2023). "Food demand displaced by global refugee migration influences water use in already water stressed countries". *Nature Communications*, **PAPER**
2. De Petrillo, E., **Tuninetti, M.**, Ridolfi, L., and Laio, F. (2023). International corporations trading Brazilian soy are keystone actors for water stewardship, *Communications Earth and Environment*, **PAPER**
3. Ostadzadeh, E., Elshorbagy, A., **Tuninetti, M.**, Laio, F., and Abdelkader, A. (2023). Who will dominate the global fossil fuel trade?, *Economic Systems Research*, **PAPER**
4. Davis, K.F., Dalin, C., Kummu, M., Marston, L., Pingali, P., and **Tuninetti, M.** (2022). "Beyond the Green Revolution: A roadmap for sustainable food systems research and action". *Environmental Research Letters*, **PAPER**
5. Falchetta, G., ...**Tuninetti, M.**, (2022). A renewable energy-centred research agenda for planning and financing Nexus development objectives in rural sub-Saharan Africa, *Energy Strategy Reviews*, **PAPER**
6. Khan, L., ... **Tuninetti, M.**, (2022). "Emerging themes and future directions of multi-sector nexus research and implementation". *Frontiers in Environmental Science*
7. **Tuninetti, M.**, Ridolfi, L., and Laio, F. (2022). Compliance with EAT–Lancet dietary guidelines would reduce global water footprint but increase it for 40% of the world population, *Nature Food*, **PAPER**
8. De Angelis, P., **Tuninetti, M.**, Bergamasco, L., Calianno, L., Asinari, P., Laio, F., and Fasano, M. (2021). A data-driven appraisal of renewable energy potentials for sustainable freshwater production in Africa, *Renewable and Sustainable Energy Reviews*, **PAPER**
9. Sciarra, C., **Tuninetti, M.**, and Falsetti, B. (2021). L'acqua nascosta nel nostro carrello della spesa – The hidden water of our food baskets. PANGEA, vol. 6, p. 38-40, ISSN: 2704-7458
10. Tamea, S., **Tuninetti, M.**, Soligno, I., and Laio, F. (2021). Virtual water trade and consumptive water footprint of agricultural products: the 1961-2016 CWASI database, *Earth System Science Data*, **PAPER**
11. **Tuninetti, M.**, Ridolfi, L., and Laio, F. (2020). "Ever-increasing agricultural land and water productivity: a global multi-crop analysis", *Environmental Research Letters*, **PAPER**
12. **Tuninetti, M.**, Ridolfi, L., and Laio, F. (2020). "Charting out the future evolution of the international agricultural trade" *Science of the total environment*, **PAPER**
13. Distefano, T., **Tuninetti, M.**, Ridolfi, L., and Laio, F. (2020). "Estimating and reconstructing the trade network: GRAS or Gravity?" *Economic System Research*, **PAPER**
14. D'Odorico, P., Carr, J., Dalin, C., Dell'Angelo, J., Konar, M., Laio, F., Ridolfi, L., Rosa, L., Suweis, S., Tamea, S., **Tuninetti, M.** (2019). "Global virtual water trade and the hydrological cycle: Patterns, drivers, and socio-environmental impacts" *Environmental Research Letters*, **PAPER**
15. **Tuninetti, M.**, Tamea, S., Dalin, C. (2019). "Water debt indicator reveals where agricultural water use exceeds sustainable levels". *Water Resources Research*, **PAPER**
16. Abdelkader, A., Elshorbagy, A., **Tuninetti, M.**, Laio, F., Ridolfi, L., Fahmy, H., Hoekstra, A. Y. (2018). "National water, food, and trade modeling framework: The case of Egypt". *Science of the total environment*, **PAPER**
17. **Tuninetti, M.**, Tamea, S., Laio, F., and Ridolfi, L. (2017). "A Fast-Track approach to deal with the temporal dimension of crop water footprint" *Environmental Research Letters* **PAPER**
18. **Tuninetti, M.**, Tamea, S., Laio, F., and Ridolfi, L. (2016). "To trade or not to trade: link prediction in the virtual water network" *Advances in Water Resources* **PAPER**
19. **Tuninetti, M.**, Tamea, S., D'Odorico, P., Laio, F., and Ridolfi, L. (2015). "Global sensitivity of high-resolution estimates of crop water footprint" *Water Resources Research*, 51(10), 8257-8272

PAPER

BOOK

20. De Petrillo, E., Falsetti, B., Sciarra, C., and **Tuninetti, M.** (2022). "A data-viz book about the water footprint of food production and trade", ISBN-9791220096362

PUBLISHED BOOK CHAPTERS

21. **Tuninetti, M.**, Laio, F., and Distefano, T. (2022). "Environmental and economic sustainability of cocoa production in west sub-Saharan Africa" in *Assessing Progress toward Sustainability* edited by Fiore, S., and Teodosiu, C., Elsevier
22. Laio, F., Tamea, S., and **Tuninetti, M.** (2020). "The water-food nexus in Italy: water footprint and virtual water trade of agricultural products" in *Water Resources of Italy. Control protection and use* edited by Rossi, G., and Benedini, M., *New Book Series Springer World Water Resources*
23. Tamea, S., **Tuninetti, M.**, and Rolle, M., (2020). "Green and blue water use for agricultural production: volumes and efficiencies" in *Water Resources and Economic Growth* edited by Distefano, T., Routledge

SUBMITTED ARTICLES

24. Falchetta, G., Semeria, F., **Tuninetti, M.**, Giordano, V., Pachauri, S., and Byers, E. (2023). "Quantifying the economic feasibility of solar irrigation in sub-Saharan Africa". *Environmental Research Letters*, under review
25. Giordano, V., **Tuninetti, M.**, and Laio, F. (2023). "Future crop water footprint scenarios across the African continent". *Communications Earth and Environment*, under review
26. Sharretts, T., Mehta, P., Ali, T., Zoe, Y., Chiarelli, D.D., Deng, Q. Marston, L., Rulli, M.C., **Tuninetti, M.**, Xie, W., Davis, K.F. (2023). "Deepening water scarcity in breadbasket nations". *Nature Communications*, under review
27. **Tuninetti, M.** and Davis, K.F. (2023). "Addressing global hotspots of climate-related crop production loss". *Nature*, under review

CONFERENCES

SELECTED PRESENTATIONS (*=invited)

Conferences on water resources web	Accademia delle Scienze
<i>Cibo-acqua: un legame profondo e problematico</i>	2023*
Geography Department Seminar web	University of Delaware
<i>Challenges for a sustainable food system: the water resources perspective</i>	2023*
Critical transition workshop III web	Princeton University
<i>Addressing global hotspots of climate-related crop production losses</i>	2023*
ISSNAF Annual Event web	Embassy of Italy (Washington DC)
<i>The big challenges toward a sustainable and robust food system</i>	2022*
Theoretical Ecology Lab Tea web	Princeton University
<i>Transition to sustainable diets: implications for local and global water resources</i>	2022*
Session on Energy-Water-Land interactions web	AGU General Assembly
<i>International corporations are keystone actors for water stewardship</i>	2021*
Session on	AGU General Assembly
<i>The Water-Food nexus: a global and time-varying database</i>	2019
Session on	AGU General Assembly
<i>Future scenarios of agricultural market-induced impacts on water resources</i>	2019
Session on	EGU General Assembly
<i>The future virtual-water trade network</i>	2018

Session on
Link prediction in the network of global virtual water trade

IAHS, Porth Elisabeth, South Africa
2017

Session on
Link prediction in the network of global virtual water trade

EGU General Assembly
2016

EDITORIAL ACTIVITIES

Environmental Research Letter

Special Issue in 2023-24: **Sustainable Food System Transformation**
Special Issue in 2021-22: **Focus on Sustainable Food System**

Guest Editor

since 2021

Journal of Hydrology

Associate Editor

2022

Peer-reviewed journals

*Water Resources Research, Environmental Research Letters,
Journal of Hydrology, Advances in Water Resources, Water
Science of the Total Environment*

Reviewer

since 2016

CO-ORGANIZED PANELS

Convener

in years **Session 2020, Session 2021, Session 2023**

European Geophysical Union

since 2020

Convener

in years **Session 2020, Session 2021, Session 2022**

American Geophysical Union

since 2020

ADVISING EXPERIENCE

Ph.D. students

Vida Varnaseri (visiting in 2020), Elena De Petrillo (2021-present), Francesco Semeria (2022-present), Nike Chiesa Turiano (2023-present), Vajira Lasantha (2023-present at Stockholm Resilience Center), Romi Lotcheris (2023-present at Stockholm Resilience Center).

M.Sc. students

Marianna Lomurno (2016), Giuseppe Zaccaria (2016), Claudio Spadavecchia (2019), German Raffo (2019), Elena De Petrillo (2020), Nicola Cocco (2020), Dalila Pisani (2021), Vittorio Giordano (2021), Isabella Ghirardo (2023-present), Isabella Zordan (2023-present), Carlo Bertolini (2023-present).

MEDIA AND OUTREACH

Italian Edition of Scientific American **Le Scienze**

Food demand displaced by global refugee migration influences water use in already water stressed countries

Scientist

2023

National newspaper **Food and Tech - La Stampa**

Diet Gap: a new indicator to monitor the health and sustainability of global food systems

Educator

2023

National newspaper **Il Corriere della Sera**

The water-food nexus affects our food choices

Author

2022

National TV program **Kalipè - Meraviglioso**

Invited speaker

2021

Water Footprint and sustainable food production

Speaker
2021

National TV program **TG1**

WaterToFood presentation for the World Water Day

Water Footprint consultant
since 2020

Food festival **Makeittasty**

Public event against food waste for Millennials

Co-founder
2020

Cultural Association **WeSTEAM**

Scientific dissemination in schools and festivals

Invited Speaker
2020

Education in schools **Slow Food Italia**

Sustainable water use in agriculture

Invited Speaker
2020

Science festival **Settima Edizione del Festival dell'Innovazione e della Scienza**

Sustainable water use in agriculture

Organization committee
2019

School education **Climate change**

Partnered with local institutions as Hydroaid, MACA, Città Metropolitana.

Invited speaker
2018

School education **Fondo Ambiente Italiano**

Partnered with local institutions such as Hydroaid, MACA, Città Metropolitana.

Organization committee
2017

Italian Ph.D. days **Italian Group of Hydraulics**

Partnered with local institutions as Hydroaid, MACA, Città Metropolitana.

Organization committee
2016

First Water Symposium

Results on the ViWaN FIRB project coordinated by F. Laio