

Irene Palazzoli

Personal information

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Nationality	Italian
ORCID	0000-0001-8273-2472
Current position	Postdoctoral fellow Department of Agricultural and Food Sciences (DISTAL) Alma Mater Studiorum – University of Bologna, Bologna, Italy

Work experience

Jan 2025 – present <i>Bologna, Italy</i>	Postdoctoral Research Scientist (assegno di ricerca) <i>Department of Department of Agricultural and Food Sciences Alma Mater Studiorum – University of Bologna</i>
Feb 2024 – Jan 2025 <i>Bologna, Italy</i>	Postdoctoral Research Scientist (assegno di ricerca) <i>Department of Civil, Chemical, Environmental, and Materials Engineering Alma Mater Studiorum – University of Bologna</i>
Feb 2023 – Jan 2024 <i>Bologna, Italy</i>	Postdoctoral Research Scientist (assegno di ricerca) <i>Department of Civil, Chemical, Environmental, and Materials Engineering Alma Mater Studiorum – University of Bologna</i>
Feb 2022 – Jan 2023 <i>Bologna, Italy</i>	Postdoctoral Research Scientist (assegno di ricerca) <i>Department of Civil, Chemical, Environmental, and Materials Engineering Alma Mater Studiorum – University of Bologna</i>
May – Dec 2022 <i>New York, NY, USA</i>	Visiting Postdoctoral Research Scientist <i>Department of Earth and Environmental Engineering Columbia University in the City of New York</i>
Sept 2017 – Dec 2018 <i>Boston, MA, USA</i>	Research Assistant <i>Department of Earth and Environment Boston University</i>
Nov 2014 – March 2015 <i>Milan, Italy</i>	Research Assistant <i>Department of Civil and Environmental Engineering Polytechnic of Milan</i>
April – Sept 2014 <i>Milan, Italy</i>	Facility Management Intern <i>Robert Bosch GmbH</i>

Education

June 14, 2022 <i>Bologna, Italy</i>	Ph.D. in Structural and Environmental Health Monitoring and Management <i>Alma Mater Studiorum – University of Bologna</i> • Thesis: Anthropogenic and climatic controls on surface water across the contiguous United States.
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May 17, 2017 Boston, MA, USA	• Supervisors: Prof. Serena Ceola (primary), Prof. Alberto Montanari (co-supervisor).
	Master of Arts in Earth Sciences
	<i>Boston University</i>
	• Thesis: <i>Identification of the most effective factors responsible for the flushing of a tracer in a system of shallow bays.</i> • Supervisor: Prof. Sergio Fagherazzi.
December 18, 2013 Milan, Italy	Master of Science in Environmental Engineering
	<i>Polytechnic of Milan</i>
	• Thesis: <i>Assessing the impact of climate change on agriculture in Indrawati Basin, Nepal.</i> • Supervisors: Prof. Daniele Bocchiola (primary), Prof. Dr. Stefan Uhlenbrook, Prof. Dr. Shreedhar Maskey (co-supervisors).
September 21, 2010 Milan, Italy	Bachelor of Science in Environmental Engineering
	<i>Polytechnic of Milan</i>
	• Thesis: <i>Indagine di laboratorio sulla compressibilità di terreni ricostituiti.</i> • Supervisor: Prof. Cristina Jommi.

Publications

International peer-reviewed journals

- [1] **Palazzoli I.**, Ceola S., and Gentile P. (2025). GRA/ICE: reconstructing Terrestrial Water Storage Anomalies with recurrent neural networks. *Scientific Data*, 12, 146. doi:10.1038/s41597-025-04403-3
- [2] **Palazzoli I.**, Lelli G., and Ceola S. (2024). Land cover and spatial distribution of surface water loss hotspots in Italy. *Sustainability*, 16, 8021. doi:10.3390/su16188021
- [3] Domeneghetti A., Ceola S., Pugliese A., Persiano S., **Palazzoli I.**, Castellarin A., Marinelli A., and Brath A. (2024). Potential legacy of SWOT mission for the estimation of Flow-Duration Curves. *Remote Sensing*, 16, 2607. doi:10.3390/rs16142607
- [4] **Palazzoli I.**, Montanari A., and Ceola S. (2023). Contribution of anthropogenic and hydroclimatic factors on the variation of surface water extent across the contiguous United States. *Environmental Research Communications*, 5, 051006. doi:10.1088/2515-7620/acd510
- [5] **Palazzoli I.**, Montanari A., and Ceola S. (2022). Influence of urban areas on surface water loss in the contiguous United States. *AGU Advances*, 3, e2021AV000519. doi:10.1029/2021AV000519. **Editor's highlight**
- [6] **Palazzoli I.**, Leonardi N., Jiménez-Robles A. M., and Fagherazzi S. (2020). Velocity skew controls the flushing of a tracer in a system of shallow bays with multiple inlets. *Continental Shelf Research*, 192, 104008. doi:10.1016/j.csr.2019.104008
- [7] **Palazzoli I.**, Maskey S., Uhlenbrook S., Nana E., and Bocchiola D. (2015). Impact of prospective climate change on water resources and crop yields in the Indrawati Basin, Nepal. *Agricultural Systems*, 133, 143–157. doi:10.1016/j.agsy.2014.10.016

International conference abstracts

- [8] Montanari A., **Palazzoli I.**, and Ceola S. (2023). Contribution of anthropogenic and climatic drivers to the surface water extent change in the contiguous United States.

- Geophysical Research Abstracts*, EGU23, 16278. doi:10.5194/egusphere-egu23-16278
- [9] **Palazzoli I.**, Ceola S., and Gentine P. (2023). Predicting terrestrial water storage anomalies at the global scale with a machine-learning model. *Geophysical Research Abstracts*, EGU23, 16641. doi:10.5194/egusphere-egu23-16641
- [10] **Palazzoli I.**, Montanari A., and Ceola S. (2022). Spatial influence of urban areas on surface water loss across the contiguous United States. *IAHS-AISH Scientific Assembly 2022*, IAHS2022, 7. doi:10.5194/iahs2022-7
- [11] **Palazzoli I.**, Montanari A., and Ceola S. (2022). Spatial distribution of surface water losses from urban areas across the contiguous United States. *Geophysical Research Abstracts*, EGU22, 8511. doi:10.5194/egusphere-egu22-8511
- [12] Ceola S. and **Palazzoli I.** (2021). Contribution of urbanization and climate variability on surface water depletion across USA watersheds. *Geophysical Research Abstracts*, EGU21, 484. doi:10.5194/egusphere-egu21-484
- [13] **Palazzoli I.**, Montanari A., and Ceola S. (2021). Influence of urban areas on surface water loss across USA watersheds. *Geophysical Research Abstracts*, EGU21, 554. doi:10.5194/egusphereegu21-554
- [14] **Palazzoli I.**, and Ceola S. (2020). Anthropogenic and climatic controls on surface water loss across USA. *Geophysical Research Abstracts*, EGU2020, 254. doi:10.5194/egusphere-egu2020-254
- [15] **Palazzoli I.**, Bocchiola D., Nana E., Maskey S., and Uhlenbrook S. (2014). Assessing the impact of climate change upon hydrology and agriculture in the Indrawati Basin, Nepal. *Geophysical Research Abstracts*, 16, 12732. url:https://ui.adsabs.harvard.edu/abs/2014EGUGA..1612732P
- Datasets**
- [16] **Palazzoli I.**, Ceola S., and Gentine P. (2024). GRAICE: Terrestrial water storage anomalies reconstructions [data set]. *Zenodo*. doi:10.5281/zenodo.10953658
- [17] **Palazzoli I.**, Lelli G., and Ceola S. (2024). Surface water loss hotspots and areas of human pressure in Italy [data set]. *Zenodo*. doi:10.5281/zenodo.12547464
- [18] **Palazzoli I.**, Montanari A., and Ceola S. (2021). Surface water loss map and urbanization map [data set]. *Zenodo*. doi:10.5281/zenodo.4472831

Presentations at conferences

The underlined name identifies the presenter.

Oral presentations

- Winbourne, J.B., **Palazzoli, I.**, Schifman, L., Gately, C., Smith, I.A., Hutyra, L.R. "Spatial and seasonal trends in biogenic and fossil fuel carbon dioxide fluxes among three metropolitan regions". Session A41N-1754. *AGU Fall Meeting 2024*, Washington, D.C., USA. 09/12/2024 – 13/12/2024.
- **Palazzoli, I.**, Ceola, S., and Gentine, P. "Predicting Terrestrial Water Storage Anomalies at the Global Scale with a Machine-Learning Model". Session HS3.1 – Hydroinformatics: data analytics, machine learning, hybrid modelling, optimisation. *EGU General Assembly 2023*, Wien, Austria. 24/04/2023 – 28/04/2023.
- Montanari, A., **Palazzoli, I.**, Ceola, S. "Contribution of Anthropogenic and Climatic drivers to the Surface Water Extent Change in the Contiguous United States". Session HS7.4 – Steps towards future hydroclimatic scenarios for water resources

management in a changing world. *EGU General Assembly 2023*, Wien, Austria. 24/04/2023 – 28/04/2023.

- **Palazzoli, I.**, Zhao, W., Ceola, S., and Gentine, P., "A Machine-Learning Model of Terrestrial Water Storage Changes at the Global Scale". H26A: Advances in Machine Learning for Earth Science: Observation, Modeling, and Applications. *AGU Fall Meeting 2022*, online. 12/12/2022 – 16/12/2022.
- **Palazzoli, I.**, Ceola, S., and Montanari, A., "Anthropogenic and Climatic Factors Contributing to the Change in Surface Water Extent across the Contiguous United States". H25G: Water and Society: Water Resources Management and Policy in a Changing World. *AGU Fall Meeting 2022*, online. 12/12/2022 – 16/12/2022.
- **Palazzoli, I.**, Ceola S., and Montanari A., "Urbanization Effects on Surface Water Loss Across the Contiguous United States". Session 20 – Socio-idrologia e dinamiche di interazione tra società, gestione sostenibile delle risorse idriche e rischio idrogeologico. *XXXVIII National Assembly of Hydraulic and Hydraulic Constructions, IDRA 2022*, Università degli Studi Mediterranea di Reggio Calabria, Reggio Calabria, Italy. 04/09/2022 – 07/09/2022.
- **Palazzoli, I.**, Montanari, A., and Ceola, S., "Spatial influence of urban areas on surface water loss across the contiguous United States". Session S6 – Understanding the human footprint on the hydrological cycle/processes in a changing world. *IAHS XIth Scientific Assembly*, Montpellier, France. 29/05/2022 – 03/06/2022.
- **Palazzoli, I.**, Montanari, A., and Ceola, S. "Spatial Distribution of Surface Water Losses from Urban Areas Across the Contiguous United States". Session HS1.1.4 – Panta Rhei: Hydrology, Society & Environmental Change. *EGU General Assembly 2022*, online. 23/05/2022 – 27/05/2022.
- **Palazzoli, I.**, Montanari, A., and Ceola, S., "Spatial Influence of Urban Areas on Surface Water Loss Across the Contiguous United States". Session E31E – Monitoring the Effects of Human Management of Hydrological Systems: From in Situ Observations to Remote Sensing and Modeling. *AGU Fall Meeting 2021*, online. 13/12/2021 – 17/12/2021.
- **Palazzoli, I.**, Montanari, A., and Ceola, S., "Influence of urban areas on surface water loss across the contiguous United States". Theme 03 – Water Resources and Human Behavior: Analysis and Modeling of Coupled Water-Human Systems Feedbacks and Coevolution. *Delft International Conference on Sociohydrology*, online. 06/09/2021 – 08/09/2021.

Poster presentations

- **Palazzoli, I.**, Ceola, S., and Gentine, P. "Predicting Terrestrial Water Storage Anomalies at the Global Scale with Machine-Learning". *Sub-Riemannian Geometry Harmonic Analysis, PDEs and Applications conference*, Department of Mathematics, University of Bologna, Bologna, Italy. 03/07/2023 – 05/07/2023.
- **Palazzoli, I.**, Montanari A., and Ceola S., "Interaction between Anthropogenic and Hydroclimatic Factors and Surface Water Extent in the Contiguous United States". *Hydrology Days 2022 by the Italian Hydrological Society*, Università degli Studi di Genova, Genova, Italy. 09/11/2022 – 11/11/2022.
- **Palazzoli, I.** and Ceola, S., "Contribution of Anthropogenic and Climatic Drivers on the Variation of Surface Water Extent Across the Contiguous United States". Session H55V – Panta Rhei: Hydrology, Society, and Environmental Change. *AGU Fall Meeting 2021*, online. 13/12/2021 – 17/12/2021.