Debora Yumi de Oliveira

Curriculum Vitæ Summary

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Education

2019–2023 **University of California, Irvine** | Irvine, USA
Ph.D., Civil and Environmental Engineering
Focus area: Hydrology and Water Resources
Dissertation: Statistical underpinning of process-based diagnostics of hydrologic models
Advisor: Prof. Jasper Alexander Vrugt

2016–2018 **Universidade Federal de Santa Catarina** | Florianópolis , Brazil
Master's degree, Environmental Engineering
Focus area: Hydrology and Applied Hydraulics
Thesis: Bayesian inference applied to interception and rainfall-runoff modeling
Advisor: Prof. Pedro Luiz Borges Chaffe

2010–2015 **Universidade Federal de Santa Catarina** | Florianópolis, Brazil
Bachelor's degree, Sanitary and Environmental Engineering
Thesis: Identification of interception model parameters using an automatic calibration algorithm
Advisor: Prof. Pedro Luiz Borges Chaffe

2012–2013 **École Nationale Supérieure de Géologie** | Nancy, France
BRAFITEC Exchange Program
Focus area: Water Resources/Hydrogeology

Academic Appointments

2025–on **Universidade Presbiteriana Mackenzie** | São Paulo, Brazil
Assistant Professor
Escola de Engenharia

2023–2025 **University of California, Irvine** | Irvine, USA
Postdoctoral Scholar
Department of Civil and Environmental Engineering
Supervisor: Prof. Amir AghaKouchak
Focus: Climate Extremes

- Analyzed the impacts of climate change on compound and cascading events in California as part of the upcoming California's Fifth Climate Change Assessment
- Co-developed a comprehensive assessment framework for identifying, averting, and adapting to vulnerabilities in transboundary water systems
- Analyzed projected changes in US coastal floods by accounting for the compounding effects of river floods and location-specific relative sea level projections updated using spatially variable vertical land motion estimates

2019–2023 **University of California, Irvine** | Irvine, USA
Graduate Student Researcher
Department of Civil and Environmental Engineering
Supervisor: Prof. Jasper Alexander Vrugt
Focus: Diagnostics of Hydrologic Models

- Developed a model-agnostic method for the generation of replicates of discharge records
- Developed methods for the characterization of the uncertainty of hydrologic signatures and the selection of robust signature formulations for process-based diagnostics of hydrologic models
- Evaluated the use of different Bayesian methods for process-based diagnostics of hydrologic models
- Developed a general-purpose MATLAB modeling package for process-based hydrologic modeling

2014–2018 **Universidade Federal de Santa Catarina** | Florianópolis, Brazil
Research Assistant
Department of Sanitary and Environmental Engineering
Supervisor: Prof. Pedro Luiz Borges Chaffe
Focus: Hydrologic Modeling and Uncertainty Analysis

- Implemented multiple conceptual hydrologic models in MATLAB to investigate the influence of the explicit representation of the interception process in rainfall-runoff modeling while accounting for uncertainties using Bayesian inference
- Collaborated in the analysis of changes in the magnitude and frequency of floods in Brazil
- Participated in field-based studies in subtropical forested catchments to collect interception, rainfall, and discharge data

Teaching Experience

02/25–on **Universidade Presbiteriana Mackenzie** | São Paulo, Brazil
Assistant Professor
Fenômenos de Transporte I
Hidráulica I
Hidráulica II

09–11/23 **California State University, Long Beach** | Long Beach, USA
Temporary Lecturer
CE 437. Engineering Hydraulics

01–03/23 **University of California, Irvine** | Irvine, USA
Teaching Assistant
ENGRCEE 171. Water Resources Engineering

09–12/22 **University of California, Irvine** | Irvine, USA
Teaching Assistant
ENGRCEE 20. Introduction to Computational Engineering Problem Solving

09–12/20 **University of California, Irvine** | Irvine, USA
Teaching Assistant
ENGRCEE 20. Introduction to Computational Engineering Problem Solving

Short course instructor
Google Earth Engine (4 hours) | University of Dar es Salaam, Tanzania
Fundamentals of Hydrological Modeling (12 hours) | Universidade Federal do Paraná
Fundamentals of Hydrological Modeling (8 hours) | XXIII Brazilian Symposium on Water Resources
Bayesian Analysis applied to Hydrology (6 hours) | XXII Brazilian Symposium on Water Resources
Introduction to MATLAB | Universidade Federal de Santa Catarina

Honors and Awards

2022 **AGU 2021 Editors' Citation for Excellence in Refereeing for Water Resources Research**
American Geophysical Union

2017 **Prêmio Jovem Pesquisador**
Brazilian Water Resources Association (ABRHidro)

2015 **Top graduating student in Sanitary and Environmental Engineering**
Universidade Federal de Santa Catarina

Service to the Community

Journal reviewer
Nature
Hydrology and Earth System Sciences
Water Resources Research
Brazilian Journal of Water Resources
Revista de Gestão de Água da América Latina

Referred Journal Publications

2025 AghaKouchak, A, et al. including de Oliveira, DY. Building urban fire resilience to enhance national security. *Nature Cities*. doi:10.1038/s44284-025-00296-w.

2024 Huning, LS, et al. including de Oliveira, DY. Sustainability nexus analytics, informatics, and data (AID): Drought. *Sustainability Nexus Forum*. doi:10.1007/s00550-024-00546-w.

Anzolin, G, de Oliveira, DY, Vrugt, JA, AghaKouchak, A, Chaffe, PLB. Nonstationary frequency analysis of extreme precipitation: Embracing trends in observations. *Journal of Hydrology*. doi:10.1016/j.jhydrol.2024.131300.

de Oliveira, DY, Vrugt, JA. Reply to Comment by W. Knoben and M. Clark on The Treatment of Uncertainty in Hydrometric Observations: A Probabilistic Description of Streamflow Records. *Water Resources Research*. doi:10.1029/2023WR036550.

2022 Vrugt, JA, de Oliveira, DY, Schoups, G, Diks, CGH. On the use of distribution-adaptive likelihood functions: Generalized and universal likelihood functions, scoring rules and multi-criteria ranking. *Journal of Hydrology*. doi:10.1016/j.jhydrol.2022.128542.

de Oliveira, DY, Vrugt, JA. The Treatment of Uncertainty in Hydrometric Observations: A Probabilistic Description of Streamflow Records. *Water Resources Research*. doi:10.1029/2022WR032263.

Vrugt, JA, de Oliveira, DY. Confidence intervals of the Kling-Gupta efficiency. *Journal of Hydrology*. doi:10.1016/j.jhydrol.2022.127968.

David, PC, Chaffe, PLB, Chagas, VBP, dal Molin, M, de Oliveira, DY, Klein, AHF, Fenicia, F. Correspondence Between Model Structures and Hydrological Signatures: A Large-Sample Case Study Using 508 Brazilian Catchments. *Water Resources Research*. doi:10.1029/2021WR030619.

2020 Paiva, RCD, et al. including de Oliveira, DY. Advances and challenges in the water sciences in Brazil: a community synthesis of the XXIII Brazilian Water Resources Symposium. *Revista Brasileira de Recursos Hídricos*, doi:10.1590/2318-0331.252020200136.

Franco, ACL, de Oliveira, DY, Bonumá, NB. Comparison of single-site, multi-site and multi-variable SWAT calibration strategies. *Hydrological Sciences Journal*. doi:10.1080/02626667.2020.1810252.

2019 Bartiko, D, de Oliveira, DY, Bonumá, NB, Chaffe, PLB. Spatial and seasonal patterns of flood change across Brazil. *Hydrological Sciences Journal*, doi:10.1080/02626667.2019.1619081.

David, PC, de Oliveira, DY, Grison, F, Kobiyama, M, Chaffe, PLB. Systematic increase in model complexity helps to identify dominant streamflow mechanisms in two small forested basins. *Hydrological Sciences Journal*. doi:10.1080/02626667.2019.1585858.

2018 de Oliveira, DY, Chaffe, PLB, Sá, JHM. Extending the Applicability of the Generalized Likelihood Function for Zero-Inflated Data Series. *Water Resources Research*. doi:10.1002/2017WR021560.

2015 Sá, JHM, Chaffe, PLB, de Oliveira, DY. Análise comparativa dos modelos de Gash e de Rutter para a estimativa da interceptação por floresta ombrófila mista. *Revista Brasileira de Recursos Hídricos*. doi:10.21168/rbrh.v20n4.p1008-1018.

Languages

Portuguese as native language
Fluent English
Basic French