**Frances C. O'Donnell**

Associate Professor of Water Resources Engineering

Department of Civil and Environmental Engineering

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**Professional Preparation**

Ph.D., Civil and Environmental Engineering, Princeton University, Princeton, NJ, 2013.

Focus area: Environmental Engineering and Water Resources.

Thesis: *An evaluation of spatial and temporal heterogeneities in the carbon and water cycles of savanna ecosystems.* Adviser: Dr. Kelly Caylor.

B.A. *cum laude*, Organismic and Evolutionary Biology, Harvard University, Cambridge, MA, 2007. Thesis: *Carbon dynamics of a New England temperate forest five years after selective logging.* Adviser: Dr. Steven Wofsy.

**Positions Held**

Associate Professor, Department of Civil and Environmental Engineering, Auburn University, 2023-Present.

Assistant Professor, Department of Civil and Environmental Engineering, Auburn University, 2016-2023.

Postdoctoral Scholar, School of Earth Sciences and Environmental Sustainability, Northern Arizona University, 2013-2016. Adviser: Dr. Abe Springer.

Assistant in Research, Department of Civil and Environmental Engineering, Princeton University, 2007-2013.

Research Assistant, Department of Earth and Planetary Science, Harvard University, 2006-2007. Supervisor: Dr. Steven Wofsy.

Laboratory Assistant, Department of Organismic and Evolutionary Biology, Harvard University, 2004-2006. Supervisor: Dr. Rachel Spicer.

Research Experience for Undergraduates Program Participant, School of Forest Resources and Environmental Science, Michigan Technological University, Summer 2005. Supervisor: Dr. Linda Nagel.

**Selected Publications**

\*Indicates graduate student advisee ^Indicates undergraduate student advisee

\*Ogisma, L., T. Li, H. Xiao, **F.C. O’Donnell**, and J.J. Molnar (*in review*). Analysis of community-level factors contributing to cholera infection and water testing access in the Northern Corridor of Haiti. *Water Environment Research.*

\*Biessan, D.G.V.V., B.F. Bowers, **F.C. O’Donnell**, J.G. Vasoncelos, and J.R. Ellis\* (2023). Practical tool for the design and cost optimization of permeable pavements in the planning stage of stormwater management. *Transportation Resarch Record*, p. 03611981231161052. DOI: [10.1177/036119812311610](https://doi.org/10.1177/03611981231161052)

Pachaly, R.L., D.G.V.V. Biessan\*, J.G. Vasconcelos, **F.C. O’Donnell,** B.F. Bowers (2023). Continuous hydrologic modeling of a parking lot and related best management practices. *Journal of Contemporary Water Resarch and Education*, 177(1), 72-82.

\*Ellis, J.R., D.G.V.V. Biessan,\* **F.C. O’Donnell**, J.G. Vasoncelos, and B.F. Bowers (2022). Developing a practical tool for integrating green infrastructure into cost-effective stormwater management plans. *ASCE Journal of Hydrologic Engineering*, 27(2), p. 04021045.

\*Asima, H., V. Niedzinski\*, **F.C. O’Donnell,** and J. Montgomery (2022). Comparison of Vegetation Types for Prevention of Erosion and Shallow Slope Failure on Steep Slopes in the Southeastern USA. *Land,* 11(10), p. 1739.

**O’Donnell, F.C.**, J. Donager, T. Sankey, S. Masek Lopez, and A.E. Springer (2021). Vegetation structure controls on snow and soil moisture in restored ponderosa pine forests. *Hydrological Processes*, 35(11), e14432.

**O’Donnell, F.C.,** C.L. Atkinson, and M.E. Frischer (2021). A participatory approach for balancing accuracy and complexity in modeling resilience and robustness. *Integrative and Comparative Biology,* 61(6), p. 2154-2162.

^Prior, E.M., **F.C. O’Donnell**, C. Brodbeck, W.N. Donald, G.B. Runion, and S.L. Shepherd (2020). Measuring High Levels of Total Suspended Solids and Turbidity Using Small Unoccupied Aerial Systems (sUAS) Multispectral Imagery. *Drones*, 4(3), p.54. DOI: 10.3390/drones4030054

Schenk, E.R., **F. O'Donnell**, A.E. Springer, and L.E. Stevens, (2020). The impacts of tree stand thinning on groundwater recharge in aridland forests. *Ecological Engineering*, 145: 105701. DOI: 10.1016/j.ecoleng.2019.105701

^Prior, E.M., **F.C. O’Donnell,** C. Brodbeck, G.B. Runion, and S.L. Shepherd (2020). Investigating UAV multispectral imagery for total suspended solids and turbidity monitoring in small streams. *International Journal of Remote Sensing,* 1-26. DOI: 10.1080/01431161.2020.1798546.

**O’Donnell, F.C.,** J. Tingerthal, and S. White (2020). Estimation of ground snow loads for low-latitude, high-elevation regions. *ASCE Journal of Cold Regions Engineering*, 34(2). DOI: 10.1061/(ASCE)CR.1943-5495.0000209

Zipper, S.C., K. Stack Whitney, J.M. Deines, K.M. Befus, U. Bhatia, S.J. Albers, J. Beecher, C. Brelsford, M. Garcia, T. Gleeson, **F.C. O’Donnell**, D. Resnik, and E. Schlager (2019). Balancing open science and data privacy in the water sciences. *Water Resources Research* 55(7): 5202-5211. DOI: 10.1029/2019WR025080

\*McDaniel, R.D., and **F.C. O’Donnell** (2019). Assessment of hydrologic alteration metrics for detecting urbanization impacts. *Water* 11: 1017. DOI: 10.3390/w11051017

**O’Donnell, F.C.,** W.T. Flatley, A.E. Springer, and P.Z. Fule (2018). Forest restoration as a strategy to mitigate climate impacts on wildfire, vegetation, and water in semi-arid forests. *Ecological Applications* 28(6): 1459-1472. DOI: 10.1002/eap.1746

**Teaching Experience**

*Lead Instructor, Auburn University*

Civil Engineering 7140: Ecohydrology.

Civil Engineering 5120/6120: Hydrologic Analysis and Modeling.

Statistics 3010: Statistics for Scientists and Engineers.

Civil Engineering 3110: Hydraulics.

Engineering 1110: Introduction to Civil Engineering.

*Assistant in Instruction, Princeton University*

Civil and Environmental Engineering 307: Field Ecohydrology.

Civil and Environmental Engineering 303: Introduction to Environmental Engineering.

Environmental Studies 201: Fundamentals of Environmental Studies.

Civil and Environmental Engineering 306: Hydrology.

**Mentoring and Advising Experience**

*Current Graduate Students*

Auburn University: Jessica Calhoun (PhD), Suranjana Chatterjee (PhD), Abraham Alvarez Reyna (PhD), John Anderson, Jr. (MS), Jeldane Joseph (MS).

*Completed Graduate Students*

Auburn University: Lonege Ogisma (PhD), J. Ross Ellis (MS), Reid McDaniel (MS), Don Guy Biessan (MS), Victoria Niedzinski (MS), Homayra Asima (MS).

*Current Undergraduate Researchers*

Auburn University: Katherine Wilson, Chase Frazier, Mahogany Hill (NSF REU), Emily Boudreau (USGS URE).

*Completed Undergraduate Researchers*

Auburn University: Hannah Crosson, Elizabeth Prior (Auburn Undergraduate Fellowship Recipient), C. Preston Waid, Zoe Hilliard-Shepherd, Sofia Sauceda (NSF REU).

Northern Arizona University: Carl Thomson, William Woods.

Princeton University: Jeremy Chen, Ming Lu, Rodrigo Mun͂oz-Rodgers, Molly O’Connor.