Frances C. O'Donnell, PhD
Assistant Professor
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a. Professional Preparation

Harvard University, Cambridge, MA, USA	Organismic & Evolutionary Biology	B.A.	2007
Princeton University, Princeton, NJ, USA	Civil & Environmental Engineering	Ph.D.	2013

b. Appointments

Assistant Professor	Auburn University, Auburn, AL, USA	2016-Present
Post-Doctoral Scholar	Northern Arizona University, Flagstaff, AZ, USA	2013-2016
Graduate Research Assistant	Princeton University, Princeton, NJ, USA	2007-2013
Undergraduate Researcher	Harvard University, Cambridge, MA, USA	2005-2007
REU Participant	Michigan Tech University, Houghton, MI, USA	2006

c. Publications

- Prior, E.M., **F.C. O'Donnell,** C. Brodbeck, G.B. Runion, and S.L. Shepherd (*accepted*). Investigating UAV multispectral imagery for total suspended solids and turbidity monitoring in small streams. *International Journal of Remote Sensing.*
- **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
- 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*, p.105701.
- Zipper, S.C., Stack Whitney, K., Deines, J.M., Befus, K.M., Bhatia, U., Albers, S.J., Beecher, J., Breslford, C., Garcia, M., Gleeson, T., and **O'Donnell, F.** (2019). Balancing Open Science and Data Privacy in the Water Sciences. *Water Resources Research:* 55(7): 5202-5211.
- 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. Fulé. (2018). Forest restoration as a strategy to mitigate climate impacts on wildfire, vegetation, and water in semiarid forests. *Ecological Applications.* DOI: 10.1002/eap1746
- **O'Donnell, F.C.,** K.K. Caylor, A. Bhattachan, K. Dintwe, P. D'Odorico, and G.S. Okin. (2015). A quantitative description of the species-level diversity of belowground structure in savanna woody plants. *Ecosphere* 6(9). DOI: 10.1890/es14-00310.1
- Sankey, T., J. Donald, J. McVay, M. Ashley, **F. O'Donnell**, S. Masek Lopez, and A. Springer (2015). Multi-scale analysis of snow dynamics at the southern margin of the North American continental snow distribution. *Remote Sensing of Environment* 169: 307-319. DOI: 10.1016/j.rse.2015.08.028
- Ha, W., T.E. Kolb, A.E. Springer, S. Dore., **F.C. O'Donnell**, R. Martinez Morales, S. Masek Lopez, and G.W. Koch. (2014). Evapotranspiration comparisons between eddy covariance

measurements and meteorological and remote sensing-based models in disturbed ponderosa pine forests. *Ecohydrology* 8(7): 1335-1350. DOI: 10.1002/eco.1586

- Robles, M.D., R.M. Marshall, **F. O'Donnell**, E.B. Smith, J.A. Haney, and D.F. Gori. (2014). Effects of climate variability and accelerated forest thinning on watershed-scale runoff in Southwestern USA ponderosa pine forests. *PLoS ONE* 9(10): e111092 DOI:10.1371/journal.pone.0111092
- Wyatt, C.J.W., **F.C. O'Donnell**, and A.E Springer (2014). Semi-arid aquifer responses to forest restoration treatments and climate change. *Groundwater* 53(2): 207-216. DOI: 10.1111/gwat.12184
- Wang, L., C. Zou, **F. O'Donnell**, S. Good, T. Franz, G.R. Miller, K.K. Caylor, J.M. Cable, and B. Bond (2012). Characterizing ecohydrological and biogeochemical connectivity across multiple scales: a new conceptual framework. *Ecohydrology* 5(2): 221-233. DOI: 10.1002/eco.187
- **O'Donnell, F.C.**, and K.K. Caylor (2012). A model-based evaluation of woody plant encroachment effects on coupled carbon and water cycles. *Journal of Geophysical Research: Biogeosciences* 117(G2). DOI: 10.1029/2011JG001899
- Bhattachan, A., M. Tatlhego, K. Dintwe, **F.C. O'Donnell**, K.K. Caylor, G.S. Okin, D.O. Perrot, S. Ringrose, and P. D'Odorico (2012). Evaluating ecohydrological theories of woody root distributions in the Kalahari. *PloS One* 7(3): e33996. DOI: 10.1371/journal.pone.0033996

Funded Research

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- USDA NIFA-AFRI Foundational and Applied Science Program, 2020-2023. "A landscape-scale approach to wetland mitigation of non-point source agricultural runoff." Principal Investigator, $500,000.
- Auburn University Highway Research Center, 2020. "Use of Vegetative Covers for repairing shallow slope failure and mowing-induced rutting." Principal Investigator, $35,000.
- Alabama Water Resources Research Institute 104(b) Grants, 2020. "Determination of hydrologic behavior of porous pavements on Alabama soils." Principal Investigator, $25,000.
- Alabama Water Resources Research Institute 104(b) Grants, 2019. "Optimization of green infrastructure for stormwater management in Alabama communities." Principal Investigator, $25,000.
- 100+ Women Strong Undergraduate Research Award, 2017. Principal Investigator, $5,000.
- Auburn Intramural Grants Program, 2016. "A multi-disciplinary analysis of the vulnerability and resilience of coastal communities to climate-related hazards." Principal Investigator, $40,000.
- Northern Arizona University Research Development Grant Program, 2016. "Planning for the Watershed Ecohydrology Institute." Co-Principal Investigator, $1,500.
- The Nature Conservancy, 2015. "Rio Grande Water Fund Area Runoff Modeling Study." Principal Investigator, $5,000.
- Coconino County, Arizona, 2015. "Ground Snow Load Case Study for Coconino County." Principal Investigator, $29,035.
- Bureau of Reclamation, WaterSMART Applied Science Grants for the Southern Rockies Landscape Conservation Cooperative, 2014-2016. "Linking forest landscape management and climate change to the conservation of riparian habitat in the Grand Canyon." Co-Investigator, $96,535.
- Bureau of Reclamation, WaterSMART Applied Science Grants for the Desert Landscape Conservation Cooperative, 2013-2015. "Predicting snow water equivalence (SWE) and soil moisture response to restoration treatments in headwater ponderosa pine forests of the Desert LCC." Project Manager, $127,546.

Teaching Experience

Lead Instructor, Auburn University

Civil Engineering 7140: Ecohydrology, 2018 & 2020.
Civil Engineering 5120/6120: Hydrologic Analysis and Modeling, 2017 & 2019.
Statistics 3010: Statistics for Scientists and Engineers, 2017-2020.
Civil Engineering 3110: Hydraulics, 2017-2020.
Engineering 1110: Introduction to Civil Engineering, 2019.

Assistant in Instruction, Princeton University

Civil and Environmental Engineering 307: Field Ecohydrology, 2010 & 2013.
Civil and Environmental Engineering 303: Introduction to Environmental Engineering, 2011 & 2012.
Environmental Studies 201: Fundamentals of Environmental Studies, 2011 & 2012.
Civil and Environmental Engineering 306: Hydrology, 2008 & 2011.

Mentoring and Advising

Current Graduate Students

Auburn University: Jessica Calhoun (PhD), Lonege Ogisma (PhD), Coleman Barrie, (PhD), , Don Guy Biessan (MS), Victoria Niedzinski (MS).

Completed Graduate Students

Auburn University: Reid McDaniel (MS), J. Ross Ellis (MS).

Completed Undergraduate Researchers

Auburn University: Elizabeth Prior, Hannah Crosson, Matthew Ballard, C. Preston Waid.

Northern Arizona University: Carl Thomson, William Woods.

Princeton University: Jeremy Chen, Ming Lu, Rodrigo Muñoz-Rodgers, Molly O'Connor.

Service and Membership

Reviewer for 15 journals including *Journal of Geophysical Research: Biogeosciences* (2012 Editors' Citation for Excellence in Refereeing)*, Water Resources Research, Ecology, Forest Ecology and Management, Biogeosciences, Journal of Arid Environments.*

NSF Graduate Research Fellowship Review Panel Participant (2017), NSF and USDA proposal review panelist

2017 Southwest Climate Science Center Science Review Team panelist

Member: American Geophysical Union, American Association of Biological and Ecological Engineers, Ecological Society of America.