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**(a) Professional Preparation**

Susquehanna University, Selinsgrove, PA	Environmental Science	B.S., 1997
Penn State, University Park, PA	Forest Resources	M.S., 1999
Oregon State University, Corvallis, OR	Forest Engineering	Ph.D., 2004
Georgia Institute of Technology	Hydrology	Postdoc, 2004-2005

**(b) Appointments**

2020-present **Professor**, Associate (2014-20), Assistant (2012-14), Dept. of Forest Resources and Environmental Conservation, Virginia Tech

2024-present **Director**, Virginia Water Resources Research Center, Virginia Tech

2010-present **Associate Director**, Virginia Water Resources Research Center, Virginia Tech

2009-2012 **Research Assist. Prof.**, Virginia Water Resources Research Center, Virginia Tech

2005-2008 **Assistant Professor**, Center for the Environment, Plymouth State University

2005-2008 **Research Hydrologist**, Northern Research Station, US Forest Service

**(c) Select Publications** (from >85 peer-reviewed articles)

1. Benettin, P., Rodriguez, N.B., Sprenger, M., Kim, M., Klaus, J., Harman, C.J., van der Velde, Y., Hrachowitz, M., Botter, G., **McGuire, K.J.**, Kirchner, J.W., Rinaldo, A., McDonnell, J.J., 2022. Transit time estimation in catchments: Recent developments and future directions. *Water Resources Research*, 58, e2022WR033096.
2. Gannon, J.P, **McGuire, K.J.**, 2022. An interactive web application helps students explore water balance concepts, *Frontiers in Education*, 7:873196, 10.3389/feduc.2022.873196.
3. Green, M.B., Bailey, S.W., Campbell, J.L., **McGuire, K.J.**, Bailey, A.S., Fahey, T.J., Lany, N., Zietlow, D., 2021. A catchment water balance assessment of an abrupt shift in evapotranspiration at the Hubbard Brook Experimental Forest, New Hampshire, USA. *Hydrological Processes*, 35(8), e14300, <http://doi.org/10.1002/hyp.14300>.
4. Lee, R.M., **McGuire, K. J.**, Strahm, B. D., Knoepp, J. D., Jackson, C. R., Stewart, R. D., 2020. Revisiting the Hewlett and Hibbert (1963) hillslope drainage experiment and modeling effects of decadal pedogenic processes and leaky soil boundary conditions. *Water Resources Research*, 56, <http://doi.org/10.1029/2019WR025090>.
5. Jensen, C. K., **McGuire, K. J.**, Prince, P. S., 2017. Headwater stream length dynamics across four physiographic provinces of the Appalachian Highlands, *Hydrological Processes*, 31(19): 3350–3363, <http://doi.org/10.1002/hyp.11259>.
6. Kelly, C.N., **McGuire, K.J.**, Miniati, C.F., Vose, J.M., 2016. Forest management changes streamflow response to increasing precipitation extremes, *Geophysical Research Letters*, 43(8), 3727–3736, <http://doi.org/10.1002/2016GL068058>.
7. Gannon, J.P., Bailey, S.W., **McGuire, K.J.**, 2014. Organizing groundwater regimes and response thresholds by soils: A framework for understanding runoff generation in a

headwater catchment, *Water Resources Research*, 50(11): 8403–8419, <http://doi.org/10.1002/2014WR015498>.

8. **McGuire, K.J.**, Torgersen, C.E., Likens, G.E., Buso, D.C., Lowe, W.H., Bailey, S.W., 2014. Network analysis reveals multiscale controls on streamwater chemistry, *Proceedings of the National Academy of Sciences*, 111(19): 7030-7035, <http://doi.org/10.1073/pnas.1404820111>.
9. **McGuire, K.J.**, McDonnell, J.J., 2010. Hydrological connectivity of hillslopes and streams: characteristic timescales and nonlinearities. *Water Resources Research*, 46(10): W10543, <http://doi.org/10.1029/2010WR009341>.
10. **McGuire, K.J.**, McDonnell, J., Weiler, M., Kendall, C., Welker, J., McGlynn, B., Seibert, J., 2005. The role of topography on catchment-scale water residence time. *Water Resources Research*, 41, W05002, <http://doi.org/10.1029/2004WR003657>.

#### **(d) Synergistic Activities**

1. Co-organizer/co-convener: 5 NORTH-WATCH workshops; 8 AGU/EGU sessions; 1 LTER All Scientists Meeting workshop
2. Conference Chair: Gordon Research Conference on Catchment Science, 2015 (vice)/2017 (chair); US-Japan Catchment Hydrology & Forest Biogeochemistry Symposium (chair), 2013; and Universities Council on Water Resources Annual Meeting (chair), 2018
3. Associate Editor: *Hydrological Processes*, *Journal of Environmental Quality*, *Water Resources Research*; Specialty Chief Editor: *Frontiers in Forests and Global Change – Forest Hydrology section*
4. Other: VT Commission on Research CNRE representative, 2016-present; University representative, Consortium of Universities for the Advancement of Hydrologic Science, Inc., 2009-present, AGU Catchment Hydrology Technical Committee; UCOWR Delegate/Alt rep.

#### **(e) Teaching and Student-Centered Activities**

- Current Courses: WATR 3104 Principles of Watershed Hydrology, FREC 4354 Forest Soil and Watershed Management, FREC 5144 Watershed Hydrology
- Student Group Advisor: VT Chapter of the AWRA
- Program Chair: Watershed Management minor; Watershed Management Graduate Certificate
- Graduate Program Director: Dept. Forest Resources and Environmental Conservation
- Graduate Committee Chair/Co-Chair: 6 Ph.D. and 8 M.S. students

#### **(f) Select Grants and Funding**

- Lateral weathering gradients typify critical zone architecture in glaciated catchments, 2017-2023, NSF Geobiology and Low Temperature Geochemistry, PI, \$509,292
- Integrated environmental quality sensing system prototype and field validation, 2017-2019, DOE SBIR/STTR, Co-PI, \$1,435,169
- LTER: Long-Term Ecological Research at the Hubbard Brook Experimental Forest, 2017-2023, NSF Long-term Ecological Research, \$104,981 (of \$6,762,000)
- Landform controls on the coupling and feedbacks between pedogenesis and runoff generation processes, 2010-2014, NSF Hydrologic Sciences, PI, \$422,037
- A summer research experience at Hubbard Brook Experimental Forest: investigating and communicating change in ecosystems, 2008-2010, NSF DBI/EAR, PI, \$233,443