David Litwin

Groundwater · Landscape Evolution · Catchment Hydrology

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Education

2018 – present **Ph.D.** Geography and Environmental Eng. Johns Hopkins University, Baltimore, MD
Concentration in Landscape Hydrology, Ph.D. Candidate as of May 2021

2013 – 2018 **B.S.** Civil Eng. (University Honors) University of Illinois at Urbana-Champaign, Urbana, IL
Concentration in Hydrology and Hydraulic Engineering

2013 – 2018 **B.M.** Music Performance University of Illinois at Urbana-Champaign, Urbana, IL
Concentration in Double Bass Performance

Research Experience

2018 – present **Doctoral Researcher** Johns Hopkins University, Baltimore, MD
Coevolution of landscapes and runoff generation using numerical models and field data

2019 **Research Associate** INSTAAR, University of Colorado, Boulder, CO
Development of open source numerical tools for doctoral research

2017 **Undergraduate Researcher** Biosphere 2, University of Arizona, Oracle, AZ
NSF-REU developing numerical tools for use of electrical resistivity tomography in a soil lysimeter.

2016 **Undergraduate Researcher** NGRREC and University of Illinois, Urbana, IL
National Great Rivers Research and Education Center (NGRREC) REU collecting and analyzing data to understand mixing at small stream confluences.

Teaching Experience

SP2021 **Lead Course Assistant** Johns Hopkins University, Baltimore, MD
500.113 Gateway Computing: Python. Held weekly office hours, assisted with lecture three times weekly, graded bi-weekly assignments.

FA2018, SP2020 **Teaching Assistant** Johns Hopkins University, Baltimore, MD
570.353 Hydrology. Held weekly office hours, gave three lectures and prepared associated course material.

Publications

Journal Publications

1. **Litwin, D. G.**, Tucker, G. E., Barnhart, K. B., Harman, C. J. Groundwater affects the geomorphic and hydrologic properties of coevolved landscapes. *Journal of Geophysical Research: Earth Surface*, 127, e2021JF006239. https://doi.org/10.1029/2021JF006239.

2. **Litwin, D. G.**, Tucker, G. E., Barnhart, K. B., Harman, C. J. (2020). GroundwaterDupuitPercolator: A Landlab component for groundwater flow. *Journal of Open Source Software*, 5(46), 1935. https://doi.org/10.21105/joss.01935

Selected Conference Presentations and Posters

*Presenting author

3. **Litwin, D.**,* C. J. Harman, Tucker, G.E., Barnhart, K. R., (2021), EP45G-1574: The Hydrogeomorphic Evolution of Variable Source Areas. Poster. *American Geophysical Union Fall Meeting*.
4. Sklar, L. S.*, Callahan, R. P., Carr, B., Chiaviello, A., Cist, N., Davis, E., Flinchum, B., Harman, C. J., Hayes, J. L., Holbrook, H., **Litwin, D.**, Moon, S., Neely, A., Plante, Z., Richter Jr, D. B., Riebe, C. S., Singha, K., Weinheimer, N. (2021) EP45G-1573: Variation in Hillslope Sediment Size Controlled by Differences in Subsurface Weathering in a Transient Piedmont Landscape, South Carolina, USA. Poster. *American Geophysical Union Fall Meeting*.
5. Harman, C. J.*, Bemis, S. P., Callahan, R. P., Carr, B., Eppinger, B., Flinchum, B., Hayes, J. L., Holbrook, H., **Litwin, D.**, Moon, S., Riebe, C. S., Singha, Sklar, L. S., (2021), H41B-06: Panola Mountain revisited: intensive geophysical and geochemical studies reveal the structure of the deep critical zone at a classic hydrologic study site. Oral. *American Geophysical Union Fall Meeting*.
6. **Litwin, D.**,* C. J. Harman, Tucker, G.E., Barnhart, K. R., (2021), EGU21-5863: A hydrogeomorphic perspective on emergent topographic properties at landscape equilibrium. Virtual. *European Geosciences Union General Assembly*.
7. **Litwin, D.**,* C. J. Harman, Tucker, G.E., Barnhart, K. R., (2020), EP040-03: Groundwater affects geomorphic and hydrologic properties of coevolved landscapes. Oral. *American Geophysical Union Fall Meeting*.
8. **Litwin, D.**,* C. J. Harman, Tucker, G.E., Barnhart, K. R., (2019), H31O-1954: A Numerical Exploration of Coevolution Between Runoff Pathways, Climate, and Landscape Morphology. Poster. *American Geophysical Union Fall Meeting*.
9. **Litwin, D.**,* C. J. Harman, T. Zaki, (2019): Implicit-spectral solution for a simple landscape evolution model. Poster. *Community Surface Dynamics Modeling System Annual Meeting*.
10. **Litwin, D.**,* A. Meira Neto, P. A. Troch, (2018), H23N-2153: Scaling of flow quantiles and mean catchment fluxes and storage provides empirical formulation of the flow duration curve. Poster. *American Geophysical Union Fall Meeting*.
11. **Litwin, D.**,* A. Meira Neto, P. A. Troch, (2017), 304919: Evaluating the effectiveness of ERT for assessing subsurface structure at the landscape evolution observatory. Poster. *Geological Society of America Annual Meeting*.
12. **Litwin, D.**, A. Meira Neto,* P. A. Troch, (2017), B43A-1548: An electrical resistivity-based method for investigation of subsurface structure. Poster. *American Geophysical Union Fall Meeting*.

Invited Presentations

13. **Litwin, D.**,* (2021), The coevolution of landscape morphology and shallow groundwater. Oral. *Center for Environmental and Applied Fluid Mechanics Seminar Series, Johns Hopkins University*.

Honors and Scholarships

2019 – 2020	Horton Research Grant ($10,000)	American Geophysical Union
2018 – 2019	M. Gordon Wolman Fellowship	Johns Hopkins University
2018 – 2019	Lee and Albert H. Halff Doctoral Student Award ($3,000)	Johns Hopkins University
2018	Melih T. Dural Undergraduate Research Prize ($625)	University of Illinois
2017	Engineering Achievement Scholarship ($1,000)	University of Illinois
2017	Vernon Lucy III/SUEZ Scholarship ($5,000)	American Water Works Association

2017 Clean Drinking Water Scholarship ($1,000) Illinois Water Environment Association
2017 Safe Water Scholarship ($1,500) Illinois Section American Water Works Association
2013 – 2017 Edward Krolick Music Performance Scholarship University of Illinois

Service

2020 – 2021 **Committee Member** American Geophysical Union
Hydrological Sciences Student Subcommittee (H3S)

2019 – 2021 **Department Representative** Johns Hopkins University
Graduate Representative Org. (GRO)

2019 – 2020 **Department Representative** Johns Hopkins University
Environmental Health and Engineering Student Org. (EHESO)

15 May 2020 **Invited panelist** Consortium of Universities for the Adv. of Hydrologic Sci., Inc.
Virtual Forum: Transitioning to Online Education, Graduate Student Panel.

Extracurricular Activities

2022 – Present **Editorial Team** Water Underground Blog
Blog posts about groundwater science, teaching, and community. See latest here.

2020 – Present **Contributing Author** Geobites.org
I write about hydrology and geomorphology for science–curious audiences. See latest here.