

David Litwin

Groundwater · Landscape Evolution · Catchment Hydrology

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Education

- 8/2018 – Present **Ph.D. Geography and Environmental Eng.** Johns Hopkins University, Baltimore, MD
Concentration in Landscape Hydrology, Ph.D. Candidate as of May 2021
- 8/2013 – 8/2018 **B.S. Civil Eng. (University Honors)** University of Illinois at Urbana-Champaign, Urbana, IL
Concentration in Hydrology and Hydraulic Engineering
- 8/2013 – 8/2018 **B.M. Music Performance** University of Illinois at Urbana-Champaign, Urbana, IL
Concentration in Double Bass Performance

Research Experience

- 8/2018 – Present **Doctoral Researcher** Johns Hopkins University, Baltimore, MD
Coevolution of landscapes and runoff generation using numerical models and field data
- 6/2019-12/2019 **Research Associate** INSTAAR, University of Colorado, Boulder, CO
Development of open source numerical tools for doctoral research
- 6/2017-8/2017 **Undergraduate Researcher** Biosphere 2, University of Arizona, Oracle, AZ
NSF-REU developing numerical tools for use of electrical resistivity tomography in a soil lysimeter.
- 6/2016-8/2019 **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

- Sp. 2021 **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.
- Fa. 2018, Sp. 2020 **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>
3. **Litwin, D. G.**, Tucker, G. E., Barnhart, K. B., Harman, C. J. Evolving hydrological landscapes: diverse morphologies and hydrological processes emerge from a coupled hydrogeomorphic model. *In prep*.

Selected Conference Presentations and Posters

*Presenting author

4. **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*.
5. 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*.
6. 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*.
7. **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*.
8. **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*.
9. **Litwin, D.,*** C. J. Harman, Tucker, G.E., Barnhart, K. R., (2019), H310-1954: A Numerical Exploration of Coevolution Between Runoff Pathways, Climate, and Landscape Morphology. Poster. *American Geophysical Union Fall Meeting*.
10. **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*.
11. **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*.
12. **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*.
13. **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

14. **Litwin, D.,*** (2021), The coevolution of landscape morphology and shallow groundwater. Oral. *Center for Environmental and Applied Fluid Mechanics Seminar Series, Johns Hopkins University*.
15. **Litwin, D.,*** (2022), The coevolution of topography and runoff generation. Oral. *Earth Surface Process Modelling Section Seminar Series, Helmholtz-Zentrum Potsdam, Deutsches GeoForschungsZentrum GFZ*.

Honors and Scholarships

1/2019 – 1/2020
8/2018 – 8/2019
8/2018

Horton Research Grant
M. Gordon Wolman Fellowship
Lee and Albert H. Halff Doctoral Student Award

American Geophysical Union
Johns Hopkins University
Johns Hopkins University

5/2018	Melih T. Dural Undergraduate Research Prize	University of Illinois
8/2017	Engineering Achievement Scholarship	University of Illinois
8/2017	Vernon Lucy III/SUEZ Scholarship	American Water Works Association
8/2017	Clean Drinking Water Scholarship	Illinois Water Environment Association
8/2017	Safe Water Scholarship	Illinois Section American Water Works Association
8/2013 – 5/2017	Edward Krolick Music Performance Scholarship	University of Illinois

Service

Service to University

1/2019 – 8/2021	Department Representative Graduate Representative Org. (GRO)	Johns Hopkins University
8/2019 – 8/2020	Department Representative Environmental Health and Engineering Student Org. (EHESO)	Johns Hopkins University
6/2022 – Present	Founding Leader Environmental Physics, Chemistry, and Biology Seminar (ePCBs)	Johns Hopkins University

Service to Community

1/2020 – 12/2021	Committee Member Member and co-leader of the blog and website for the Hydrological Sciences Student Subcommittee (H3S)	American Geophysical Union
15 May 2020	Invited panelist Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) Virtual Forum: Transitioning to Online Education, Graduate Student Panel.	CUAHSI
1/2020 – Present	Journal Peer Review Geophysical Research Letters, Water Resources Research, Natural Hazards and Earth System Science	

Science Communication and Outreach

1/2022 – Present	Editorial Team Blog posts about groundwater science, teaching, and community. See latest here .	Water Underground Blog
6/2020 – Present	Contributing Author Short features of hydrology and geomorphology papers for science-curious audiences. See latest here .	Geobites.org
28 March 2019	Invited Speaker Presentation on hydrology and geologic history of the Chesapeake Bay for educators.	Living Classrooms Foundation
8 July 2017	‘What if...’ Presenter Presentation on the Landscape Evolution Observatory for Biosphere 2 visitors.	Biosphere 2