

Erica L. McCormick

Stanford University | School of Earth, Energy & Environmental Sciences
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EDUCATION

Stanford University Ph.D. Earth System Science	Expected 2027
University of Texas at Austin B.S. Environmental Science, Geology	2016-2020
Phillips Exeter Academy , NH High School (boarding)	2012-2016
Milton Mountain School , VT High School (semester)	Fall 2014

RESEARCH EXPERIENCE & PROFESSIONAL POSITIONS

ORISE Research Fellow , US Forest Service <i>Dr. David Dralle</i> <ul style="list-style-type: none">• Worked on project relating hydrologic risk to recreational desirability in S. CA forests.• Assisted with proposal and data collection/processing.• Acquired and processed remote sensing data products for use in modeling efforts.	June-Aug 2022
Research Engineering/Scientist Assistant (Full Time) , UT Austin <i>Dr. Daniella Rempe</i> , Vadose Zone Hydrology Lab <ul style="list-style-type: none">• Design and lead high-impact research projects with an international team of collaborators• Develop instructional material for courses and workshops with a focus on Google Earth Engine and Python• Assist in writing grant proposals and science communication articles which highlight recent results• Conduct field measurements of rock moisture using NMR (nuclear magnetic resonance) and neutron probe	2021-2022
Undergraduate Researcher , Jackson School of Geosciences, UT Austin <i>Dr. Daniella Rempe</i> , Vadose Zone Hydrology Lab <ul style="list-style-type: none">• Compiled literature review of rooting into bedrock• Measured rock moisture in the field using NMR (nuclear magnetic resonance) and neutron probe• Assisted graduate student in conducting lab experiments for novel applications of NMR to hydrology	2019-2020
Summer Research Intern , U.S. Forest Service <i>Dr. David Dralle</i> <ul style="list-style-type: none">• Compiled literature review of rooting into bedrock• Wrote report on impact of root depth distributions on forest and watershed management	2020
Undergraduate Researcher , Jackson School of Geosciences, UT Austin <i>Dr. Ashley Matheny</i> , Ecohydrology Lab <ul style="list-style-type: none">• Conducted large scale data analysis and ecohydrologic modeling using Matlab and ArcGIS• Designed and built sensors for use in urban vegetation and climate monitoring• Installed sapflow sensors and conducted fieldwork at University of Michigan Biological Station	2018-2020
Undergraduate Research Assistant , Department of Geography, UT Austin <i>Dr. Timothy Beach and Sara Eshleman</i> , Geoarchaeology & Soil Lab <ul style="list-style-type: none">• Performed soil chemical analyses including organic carbon, nitrogen, phosphorous, grain size, and magnetic susceptibility measurements• Designed and implemented research project and literature review to compare organic carbon measurement techniques on under-represented Belizean lowland and Peruvian highland soils• Conducted one month of field work in remote Belizean rainforest involving exploratory caving, soil sampling, and archaeological and vegetation mapping	2017-2020

HONORS & AWARDS

National Science Foundation Graduate Research Fellowship, <i>NSF</i>	2022
GCA Zone VI Fellowship in Urban Forestry, Garden Club of America, <i>Garden Club of America</i>	2019
Plan II Skaaren Climate Fellowship, <i>College of Liberal Arts, UT Austin</i>	2019
Plan II Travel Grant for Research <i>College of Liberal Arts, UT Austin</i>	2018
Undergraduate Research Grant, <i>College of Liberal Arts, UT Austin</i>	2018
Dean's Honor List (Magna cum laude), <i>UT Austin</i>	2018-2020

PUBLICATIONS

Google Scholar <https://scholar.google.com/citations?user=XnvaTh4AAAAJhl=en>

Orcid ID: 0000-0002-7160-398X

6. D.M. Rempe*, **E.L. McCormick***, W.J. Hahm, G.G. Persad, C. Cummins, D.A. Lapides, K.D. Chadwick, D.N. Dralle (In Prep). Resilience of woody ecosystems to precipitation variability. <https://eartharxiv.org/repository/view/3356/>. *co-first authors.
5. W.J. Hahm, D.A. Lapides, D.M. Rempe, **E.L. McCormick**, D.N. Dralle (2022). The age of evapotranspiration: lower-bound constraints from distributed water fluxes across the continental United States. *Water Resources Research*. <https://doi.org/10.1029/2022WR032961>.
4. **E.L. McCormick**, D. Dralle, W.J. Hahm, A. Tune, L. Schmidt, K.D. Chadwick, D.M. Rempe. (2021) Evidence for widespread woody plant use of water stored in bedrock. *Nature*. <https://doi.org/10.1038/s41586-021-03761-3>.
3. D. Dralle, W.J. Hahm, K.D. Chadwick, **E.L. McCormick**, D. M. Rempe. (2021) Technical note: Accounting for snow in the estimation of root-zone water storage capacity from precipitation and evapotranspiration fluxes. *Hydrology and Earth System Sciences*. <https://doi.org/10.5194/hess-25-2861-2021>.
2. Matheny, A.M., P. Marchetto, J. Powell, A. Rechner, J.-Y. Chuah, **E. L. McCormick**, S. Pierce (2019) LEAF: Logger for Ecological and Atmospheric Factors. *HardwareX*. <https://doi.org/10.1016/j.ohx.2019.e00079>.
1. Mursinna, A.R., **E. L. McCormick**, K. Van Horn, L. Sartin, A.M. Matheny (2018) Plant hydraulic trait co-variation: a global meta-analysis to reduce degrees of freedom in trait-based hydrologic models. *Forests*. <https://doi.org/10.3390/f9080446>. **Cover Article**.

PUBLISHED DATASETS AND CODE

E.L. McCormick, D. Dralle, W.J. Hahm, A. Tune, L. Schmidt, K.D. Chadwick, D.M. Rempe (2021). Dataset for "Evidence for widespread woody plant use of water stored in bedrock." *CUAHSI HydroShare*. <https://doi.org/10.4211/hs.a2f0d5fd10f14cd189a3465f72cba6f3>.

E.L. McCormick, D. Dralle, W.J. Hahm, A. Tune, L. Schmidt, K.D. Chadwick, D.M. Rempe. Code for manuscript: "Evidence for widespread woody plant use of water stored in bedrock." (v1.0.0). *Zenodo*. <https://doi.org/10.5281/zenodo.4904037>.

INVITED PRESENTATIONS

UT Austin, EVS121 (2021, 2022) Invited panelist, "Recent Env. Science Graduates"

American Geophysical Union Meeting (2021) "Weathered bedrock commonly supplies water to woody plants"

University of Wisconsin, Madison (2021) "Widespread woody plant use of bedrock water storage"

UT Austin "Water, Climate, and Energy Seminar" (2021) "Widespread woody plant use of bedrock water storage"

CONFERENCE ABSTRACTS

Gary, M., Applied Karst Hydrogeology Team (2019). Surface Water - Groundwater Interaction and Background Water Quality of Honey Creek and the Middle Trinity Aquifer in Comal County, Texas. Presentation, South Central Texas Water Research Interest Group, San Antonio, TX.

Rechner, A., He, C., Cabraal, S., Baiocchi, J., Demir, C., Denham, A., Edgington, A., Ferrari, B., Fisher, C., Goldfarb, E., Jones, B., Manlove, H., **McCormick, E. L.**, Pedrazas, M., Restrepo Acavedo, A.M., Roumelis, C., Smith-Salgado, C., Trcka, J., Beal, L., Southard, P., Ferencz, S., Li, L., Perkins, G., Roback, R., O'Connor, M., Matheny, M. (2019) Groundwater and surface water interactions in the Valles Caldera Watershed, New Mexico: An evaluation of water chemistry sensitivity to precipitation variability. Poster Presentation, American Geophysical Union, San Francisco, CA.

Rutherford, T., Gorjian, V., Paulsen, T., Granucci, N., Blackwell, J., Jenkins, K., **McCormick, E. L.**, Rosseau, B. (2014) Color-Magnitude Relationships Among Quasars and Type 1 Seyfert Galaxies, American Astronomical Society, Seattle, WA.

PRESS

Science & Vie Magazine (France): Les Arbres Boivent De L'eau Dans Les Roches	Dec 2021
Scientific American : "Trees Drill into Deep Bedrock for Water Surprisingly Often" by Tess Joosse	Dec 2021
AGU Ecohydrology : "Meet A Leaf" blog profile	Nov 2021
Eos : "Thirsty Plants Pull Water from Bedrock" by Katherine Kornei	Oct 2021
UT News : "Water in Bedrock is Sustaining Trees Across Country" by Monica Kortsha	2021
Simon Fraser News : "Could the Water in Bedrock Save our Forest Ecosystems from Climate Change?"	2021

TEACHING EXPERIENCE

University of Texas at Austin

GEO 371/391 Vadose Zone Hydrology (Web Based) Undergraduate/Graduate

Teaching Assistant S2021; Professor: Dr. Daniella Rempe; Enrollment: 18 students (9 grad, 9 undergrad)

- Assisted with office hours and preparation of instructional material
- Prepared and conducted lecture covering Hydrus 1D software and Google Earth Engine

TC 358 Law and Ethics of Climate Change (Web Based) Undergraduate

Teaching Assistant F2020; Professor: Amon Burton; Enrollment: 18 students

- Designed new course content focusing on hydrology and climate change
- Prepared and conducted lecture on hydrogeology issues of central TX
- Managed student meetings, visiting speakers, field trips, and grading

COURSEWORK

◦ Short course, * Field course

2020 Spatial Data Analytics and Geostatistics | Mathematical Methods in Geophysics | Python for Geoscience | Research Design, Data Analysis, and Visualization | Intro to Field and Stratigraphic Methods* | UT Summer Statistics Institute: Bayesian Statistics◦

2019 Field Methods in Groundwater Hydrology* | Groundwater Hydrogeology | Applied Karst Hydrogeology* | Water Resources of Latin America | Vadose Zone Hydrology (Soil Physics)

2018 Field Seminar in Sustainability* | Research Methods for Environmental Science | Ecohydrology and Biomeeteorology | Environmental Geographic Information Systems | Physical Hydrology

COMPUTER SKILLS

Basic: Shell-scripting, Julia

Proficient: R, Matlab, Hydrus 1D, Adobe Illustrator, ArcGIS, HTML, CSS

Advanced: Python, Google Earth Engine, GitHub, QGIS, \LaTeX

COMMUNITY SERVICE

Events Volunteer: Esquina Tango, (<i>Austin, TX</i>)	2021 - Present
Volunteer: Yellow Bike Project, (<i>Austin, TX</i>)	Aug 2020 - Present
Volunteer: Helping Hand Home for Children, (<i>Austin, TX</i>)	Oct 2017 - June 2018
Gardener & caretaker for special needs adults (<i>Camphill Callan & Ballytobin, Ireland</i>)	Jan 2016 - March 2016

SIGNIFICANT EXTRACURRICULAR ACTIVITIES

Triathlete (4th place in age group at Kerrville Tri, 2021)	2020-Present
Bluegrass and folk musician	2013 - 2020
<ul style="list-style-type: none">• Guitar, banjo, vocals, and songwriter with "Three Quarter Moon."• Work includes a full-length album ("Southbound", 2016) and EP ("Boiling Blue", 2017).	
Certified Wilderness First Responder (WFR) and Rock Climbing Instructor	