

DANIELLA MARIE REMPE

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EDUCATION

Ph.D. Earth and Planetary Science	University of California, Berkeley	2016
M.S. Environmental Engineering	University of California, Berkeley	2008
B.S. Geosystems Engineering and Hydrogeology	University of Texas at Austin	2007

PROFESSIONAL POSITIONS HELD

Assistant Professor, Dept. Geological Sciences, Univ. of Texas	2016-present
Graduate Student Researcher, Dept. Earth & Planetary Science, Univ. of California, Berkeley	2009-2016

HONORS & AWARDS

Jackson School Service award to the DGS Faculty Women, <i>Jackson School of Geosciences</i>	2017
Billy Carr Distinguished Teaching Fellowship, <i>Environmental Science Institute, UT Austin</i>	2017-2018
Department of Energy, Office of Science Graduate Fellowship, <i>U.S. DOE</i>	2010-2014
ExxonMobil SAGE Scholar, <i>ExxonMobil</i>	2010
Jane Lewis Fellowship, <i>University of California, Berkeley</i>	2008-2010

PEER REVIEWED PUBLICATIONS

Google Scholar <https://scholar.google.com/citations?user=rjfXmv8AAAAJ&hl=en>

* indicates graduate student advisee † indicates undergraduate advisee

Submitted, in review, or in revision:

3. Hahm, W. J., D. N. Dralle, **D. M. Rempe**, T. E. Dawson, A. B. Bryk, S. Thompson, and W.E. Dietrich. Where less is more: Limited subsurface water storage capacity can shield forests from drought, In review: *Nature Geoscience*
2. Hahm, W. J., W. E. Dietrich, **D. M. Rempe**, D. N. Dralle, T. E. Dawson, S. M. Lovill, A. B. Bryk, D. L. Bish, and J. Schieber. Lithologically controlled bedrock weathering determines water storage capacity and presence of evergreen forest versus savanna under similar climate, In revision: *Water Resources Research*
1. Abed-Elmdoust, A., **D. M. Rempe**, Z.L. Yang. Spectral characterization of river drainage networks, Submitted: *Science Advances*

In print, in press or accepted:

10. Richardson, J.B., Aguirre, A.A., Buss, H.L., Toby O Geen, A., Gu, X., **D. M. Rempe**, de B. Richter, D., (2018) Mercury Sourcing and Sequestration in Weathering Profiles at Six Critical Zone Observatories. *Global Biogeochem. Cycles* 32, 1542-1555.
9. Flinchum, B.A., Steven Holbrook, W., **D. M. Rempe**, Moon, S., Riebe, C.S., Carr, B.J., Hayes, J.L., St. Clair, J., Peters, M.P., (2018) Critical Zone Structure Under a Granite Ridge Inferred From Drilling and Three-Dimensional Seismic Refraction Data. *Journal of Geophysical Research Earth Surface*. 123, 1317-1343.
8. Dralle, D. N., W. J. Hahm, **D.M. Rempe**, N.J. Karst, W. E. Dietrich, and S.E. Thompson, Identifying the dynamic storage that does not drive runoff, Accepted: *Hydrological Processes*
7. **Rempe, D.M.**, and W.E. Dietrich, (2018) Direct observations of a rock moisture, a hidden component of the hydrologic cycle, *Proceedings of the National Academy of Science*, 115 (11), 2664-2669.

6. Druhan, J.L., Fernandez, N., Wang, J., Dietrich, W.E. and **D. M. Rempe**, (2017) Seasonal shifts in the solute ion ratios of vadose zone rock moisture from the Eel River Critical Zone Observatory. *Acta Geochimica*, pp.1-4. <https://doi.org/10.1007/s11631-017-0169-z>
5. Wymore, A. S., West, N. R., Maher, K., Sullivan, P. L., Harpold, A., Karwan, D., Marshall, J. A., Perdrial, J., **Rempe, D. M.**, and Ma, L. (2017) Growing new generations of critical zone scientists. *Earth Surf. Process. Landforms*, doi: 10.1002/esp.4196.
4. **Rempe, D.M.** and W.E. Dietrich (2014), A bottom up approach to determining fresh bedrock topography under landscapes, *Proceedings of the National Academy of Science* 111(18), 6576-6581.
3. Salve, R., and **D. M. Rempe** (2013) Backfill Impacts on Moisture Measurements in Fractured Rock. *Vadose Zone Journal*
2. Simonin, K. A., Link, P., **Rempe, D.M.**, Miller, S., Oshun, J., Bode, C., Dietrich, W.E., Fung, I. Dawson, T. E. (2013). Vegetation induced changes in the stable isotope composition of near surface humidity, *Ecohydrology*
1. Salve, R., **Rempe, D. M.**, and Dietrich, W. E. (2012). Rain, rock moisture dynamics, and the rapid response of perched groundwater in weathered, fractured argillite underlying a steep hillslope, *Water Resources Research*, 48(11)

OTHER PUBLICATIONS

1. Rempe, D.M., L.S. Schmidt, and W.J. Hahm, In-situ nuclear magnetic resonance detection of fracture-held water in variably saturated bedrock, Accepted: SEG Technical Program Expanded Abstracts.

INVITED SCHOLARLY PRESENTATIONS

Baylor University, Baylor Geosciences Seminar	October 5, 2018
Colorado School of Mines, Van Tuyl Lecture, Dept of Geology and Geological Engineering	April 19, 2018
Pennsylvania State University, Department Colloquium, Dept of Geosciences	October 31, 2017
University of Illinois, Urbana-Champaign, Buckley Lecture, Dept of Geology	September 7, 2017
University of Texas at Austin, Bureau of Economic Geology Seminar Series	March 24, 2017
Purdue University, Department Seminar, Dept of Earth Atmospheric and Planetary Sciences	March 31, 2016
University of California, Riverside, Department Seminar	February 25, 2015
USGS Unsaturated Zone Interest Group Webinar	January 16, 2015
University of Wyoming, Geophysics Seminar	September 30, 2014

ADVISEE HONORS AND AWARDS

Logan Schmidt <i>Geological Society of America Student Research Grant</i>	2018
Alison Tune, <i>National Science Foundation Graduate Research Fellowship</i>	2018-2020
Shawn Lee, <i>American Geophysical Union, Hydrology, Outstanding Student Presentation Award</i>	2017
Alison Tune, <i>Geological Society of America Student Research Grant, Outstanding Grant Award</i> ,	2017
Armaghan Abed-Elmdoust, <i>National Center for Earth Surface Dynamics 2 Post-doctoral fellow</i>	2018-2019
Caroline Hackett, <i>Ozarka "Every drop counts" Scholarship</i> ,	Fall 2016
Caroline Hackett, <i>Texas American Water Works Association Capital Area Chapter Scholarship</i>	Fall 2016

ADVISEES

Name	Date of Supervision	Role	Current Status
Armaghan Abed-Elmdoust (<i>UT-JSG</i>)	8/17-06/18	Co-supervisor	Jupiter Intelligence (<i>UT</i>)

Doctoral

Name	Date of Supervision	Role	Current Status
Michelle Pedrazas (<i>UT-JSG</i>)	8/18-present	Supervisor	PhD student (<i>UT</i>)
Evan Ramos (<i>UT-JSG</i>)	1/18-present	Committee member	PhD student (<i>UT</i>)
Logan Schmidt (<i>UT-JSG</i>)	8/17-present	Supervisor	PhD student (<i>UT</i>)
Alison Tune (<i>UT-JSG</i>)	8/16-present	Co-supervisor	PhD student (<i>UT</i>)
Michael O'connor (<i>UT-JSG</i>)	8/16-present	Committee member	PhD candidate (<i>UT</i>)
Max Daniller-Varghese (<i>UT-JSG</i>)	8/16-present	Committee member	PhD candidate (<i>UT</i>)
Hima J. Hassenruck-Gudipati (<i>UT-JSG</i>)	5/17-present	Committee member	PhD candidate (<i>UT</i>)
Charles Abolt (<i>UT-JSG</i>)	8/16-present	Committee member	PhD candidate (<i>UT</i>)
Allan Jones (<i>UT-JSG</i>)	8/16-05/17	Committee member	

Masters

Name	Date of Supervision	Role	Current Status
Paul Southard (<i>UT-JSG</i>)	8/17-present	Co-supervisor	MS student (<i>UT</i>)
Caroline Hackett (<i>UT-JSG</i>)	8/16-present	Co-supervisor	MS student (<i>UT</i>)
Shawn Lee (<i>UT-JSG</i>)	8/16-present	Supervisor	ARL (<i>UT</i>)

Undergraduate

Name	Date of Supervision	Role	Current Status
Kindra Nicholaides (<i>UT-JSG</i>)	8/16-present	Committee member	Undergraduate student (<i>UT</i>)
Sebastian Munoz (<i>UT-JSG</i>)	8/16-present	Committee member	Undergraduate student (<i>UT</i>)
Rachel Breunig (<i>UT-JSG</i>)	12/18-present	EVS Capstone Supervisor	Undergraduate student (<i>UT</i>)

CURRENT AND PENDING FUNDING

Department of Energy Office of Science, Biological and Environmental Research, Subsurface Biogeochemical Research, **2017-2019**

The weathered bedrock vadose zone: A hidden control on water availability in the western United States

PI: Daniella Rempe

Total award: \$110,000 per year over 2 years

PROPOSALS SUBMITTED

National Geospatial Intelligence Agency, Academic Research Program (NARP) **2018**

Removing Sub-microGal Hydrologic Signals in Absolute Gravity Observations

PI: Daniella Rempe, Co-PI: Clark Wilson

Proposed budget: \$459,685, Status: Under review

National Science Foundation, EAGER Signals in the Soil (SiTS) **2018**

Moving beyond water content: Advancing real-time monitoring of in-situ dynamic water storage via nuclear magnetic resonance measurements

PI: Daniella Rempe, Co-PI: Zoya Heidari

Proposed budget: \$299,076, Status: Rejected with intent to resubmit

American Chemical Society Petroleum Research Fund, **2017**

Advancing natural fracture characterization in shales through a field study on topographically induced fracturing

PI: Daniella Rempe

Proposed budget: \$190,000, Status: Rejected

PROPOSALS IN PREPARATION

National Science Foundation, Geobiology and low-temperature geochemistry

Directly linking critical zone structure to the composition of streamflow through reactive transport modeling constrained by high spatiotemporal observations

PI: Daniella Rempe, Co-PI: Jennifer L. Druhan (University of Illinois, Urbana-Champaign)

Proposed budget: \$315,000, Status: Under preparation

Department of Energy , Terrestrial Ecosystem Science *Novel field experiments to advance representation of deep rooting and transpiration of vadose zone water in weathered bedrock* PI: Daniella Rempe, Co-PI: Ate Visser, Lawrence Livermore National Laboratory, Todd Dawson and William E. Dietrich, UC Berkeley **Proposed budget: \$300,000**, Status: Under preparation

National Science Foundation , Frontier Research in Earth Sciences

Building a unified framework for transient watershed evolution

PI: Kate Maher, Co-PI: Daniella Rempe, Seulgi Moon (UCLA), Erkan Istanbuluoglu (U. Washington), Rosemary Carroll (DRI) **Proposed budget: \$3,000,000**, Status: Under preparation

Department of Energy , Subsurface Biogeochemical Research *Towards identifying groundwater flow paths in alpine environments: Field-scale estimation of the three-dimensional hydraulic conductivity tensor in bedrock* PI: Daniella Rempe, Co-PI: Zoya Heidari, University of Texas at Austin **Proposed budget: \$200,000**, Status: Under preparation

TEACHING EXPERIENCE

University of Texas at Austin, Department of Geological Science

GEO 346C Introduction to Physical and Chemical Hydrogeology Undergraduate (Quantitative Reasoning flag)

Taught S2017; Enrollment 23; Overall instructor rating: 4.8/5.0; Overall course rating: 4.5/5.0

Taught S2018; Enrollment 26; Overall instructor rating: 4.8/5.0; Overall course rating: 4.4/5.0

Taught F2018; Enrollment ; Overall instructor rating: 4.7/5.0; Overall course rating: 4.3/5.0

GEO 376S/382S Physical Hydrology Undergraduate/Graduate (Quantitative Reasoning flag)

Taught F2017; Enrollment: 29; Overall Instructor Rating: 4.4/5.0; Overall Course Rating: 4.0/5.0

GEO 376L Field Methods in Groundwater Hydrology

Co-Taught May 2017; Enrollment 14; Overall instructor rating: 4.8/5.0; Overall course rating: 4.8/5.0

Co-Taught May 2018; Enrollment 12; Overall instructor rating: 4.9/5.0; Overall course rating: 4.8/5.0

PROFESSIONAL SERVICE

University of Texas at Austin

Dept. of Geosciences, Undergraduate Advising Committee, textbfChair

09/17 - present

Dept. of Geosciences, Undergraduate Curriculum Reform Committee

09/17 - present

Dept. of Geosciences, Hydrologic Science Search Committee

09/12 - 09/13

External Service: Workshop organization and participation

◦ Contributed to organization as co-chair or co-organizer

AGU Annual Meeting, Washington DC

Session Chair: A second generation of isotopic, trace element, and noble gas tracers

AGU Annual Meeting, New Orleans, LA

Session Chair: A new generation of isotopic, trace element, and noble gas tracers

NSF, Eel River CZO

Critical Zone Observatory network PI meeting[◦]

AGU-SEG, Stanford Univ.

Hydrogeophysics Workshop: Imaging the Critical Zone[◦]

External Service: Referee

Journals: Geophysical Research Letters, Geomorphology, Geological Society of America Bulletin, Hydrological Processes, Groundwater, Applied Geophysics

Proposals: National Science Foundation Geobiology and Low Temperature Geochemistry Program, National Science Foundation Hydrologic Sciences Program, National Science Foundation Geomorphology and Land-use Dynamics, Department of Energy Office of Science Subsurface Biogeochemical Research

External Service: Other

Panelist, GSA Quaternary Geology and Geomorphology student research grants

Spring 2018

OUTREACH ACTIVITIES

° indicates leadership by Rempe Lab group member

Co-Founder of the JSG Geoscience Empowerment Network

01/18 - present

Co-organizer° CUAHSI "Let's Talk About Water" event

04/18

Invited panelist for UT Geoscience Leadership Organization for Women

05/17

Invited faculty speaker for UT Geosociety

09/16

Invited speaker UT-Geoscience Honors Research Program

09/16

PROFESSIONAL MEMBERSHIPS

2007-present Geological Society of America

2009-present Society of Exploration Geophysicists

2009-present American Geophysical Union