Samuel C. Zipper

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University of Kansas
Kansas Geological Survey
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Education

2015 **Ph.D.**, Freshwater & Marine Science, University of Wisconsin-Madison, Madison WI

2009 **B.A.,** *cum laude*, Geology, Pomona College, Claremont CA

Professional Appointments

2019–current **Assistant Scientist - Groundwater Hydrology**
Kansas Geological Survey, University of Kansas, Lawrence KS

2016–2019 **Postdoctoral Fellow** (PIs: Tom Gleeson, Jeff McKenzie)
Dep't of Civil Engineering, University of Victoria, Victoria BC
Dep't of Earth & Planetary Sciences, McGill University, Montreal QC

2011–2016 **Graduate Research Assistant & Postdoctoral Research Associate** (PI: Steve Loheide)
Dep't of Civil & Environmental Engineering, University of Wisconsin-Madison, WI

2009–2010 **Summer Student Fellow & Research Assistant I** (PIs: Liviu Giosan, Jeff Donnelly)
Dep't of Geology & Geophysics, Woods Hole Oceanographic Institution, Woods Hole MA

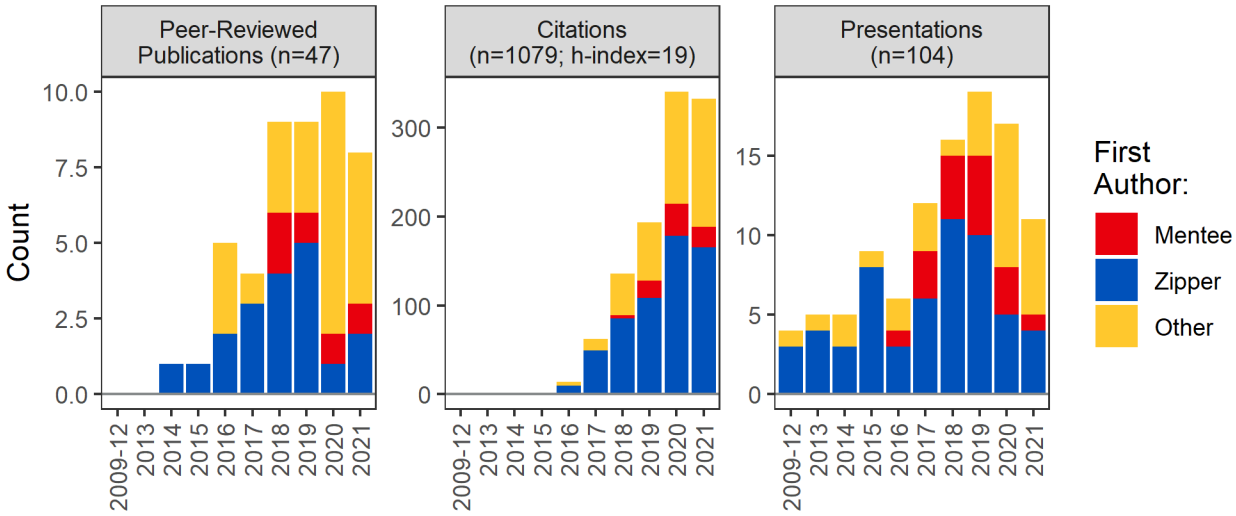
Visiting Positions

03-04/2019 **Visiting Researcher** (Host: Line Gordon, Lan Wang-Erlandsson)
Stockholm Resilience Centre, Stockholm, Sweden

09-10/2016 **Green Talents Fellow** (Host: Stefan Kollet)
Centre for High-Performance Scientific Computing in Terrestrial Systems
Universität Bonn, Bonn, Germany

01-03/2015 **Visiting Scientist** (Host: Esteban Jobbágy)
Universidad Nacional de San Luis, San Luis, Argentina

Scientific Output



Citation data from Google Scholar, updated 8/12/2021. Preprints and in review papers not included.

Peer-Reviewed Publications

Underlined + italicized = student or postdoc under my direct supervision
Underlined = students I worked closely with as a postdoc

Published/In Press

47 **Zipper SC**, JC Hammond, M Shanafield, MA Zimmer, T Datry, CN Jones, KE Kaiser, SE Godsey, R Burrows, JR Blaszczak, MH Busch, AN Price, KS Boersma, AS Ward, K Costigan, GH Allen, CA Krabbenhoft, WK Dodds, MC Mims, JD Olden, SK Kampf, AJ Burgin, DC Allen (2021). Pervasive changes in stream intermittency across the United States. *Environmental Research Letters.* DOI: 10.1088/1748-9326/ac14ec

46 *Li Q*, T Gleeson, **SC Zipper**, B Kerr (2021). Too many streams and not enough time or money? Analytical depletion functions for streamflow depletion estimates. *Groundwater.* DOI: 10.1111/gwat.13124

45 Dillis C, V Butsic, J Carah, **SC Zipper,** T Grantham (2021). Cannabis farms in California rely on wells outside of regulated groundwater basins. *Environmental Research Communications.* DOI: 10.1088/2515-7620/ac1124

44 Price AN, CN Jones, JC Hammond, MA Zimmer, **SC Zipper** (2021). The drying regimes of non-perennial rivers and streams. *Geophysical Research Letters.* DOI: 10.1029/2021GL093298

43 Graham EB, C Averill, B Bond-Lamberty, JE Knelman, S Krause, AL Peralta, A Shade, AP Smith, SJ Cheng, N Fanin, C Freund, PE Garcia, SM Gibbons, MW Van Goethem, MB Guebila, J Kempinnen, RJ Nowicki, JG Pausas, SP Reed, J Rocca, A Sengupta, D Sihi, M Simonin, M Slowinski, SA Spawn, A Sutherland, JD Tonkin, NI Wisnoski, **SC Zipper** (2021). Toward a Generalizable Framework of Disturbance Ecology Through Crowdsourced Science. *Frontiers in Ecology and Evolution.* DOI: 10.3389/fevo.2021.588940

42 **Zipper SC**, T Gleeson, *Q Li*, B Kerr (2021). Comparing streamflow depletion estimation approaches in a heavily-stressed, conjunctively-managed aquifer. *Water Resources Research.* DOI: 10.1029/2020WR027591

41 Hammond JC, M Zimmer. M Shanafield, K Kaiser, SE Godsey, MC Mims, **SC Zipper**, RM Burrows, SK Kampf, W Dodds, CN Jones, CA Krabbenhoft, KS Boersma, T Datry, JD Olden, GH Allen, AN Price, K Costigan, R Hale, AS Ward, DC Allen (2021). Spatial patterns and drivers of non-perennial flow regimes in the contiguous US. *Geophysical Research Letters.* DOI: 10.1029/2020GL090794

40 Lucas MC, N Kublik, DBB Rodrigues, AA Meira Neto, A Almagro, DdCD Melo, **SC Zipper**, PTS Oliveira (2021). Significant Baseflow Reduction in the Sao Francisco River Basin. *Water.* DOI: 10.3390/w13010002

39 *Li Q*, **SC Zipper**, T Gleeson (2020). Streamflow depletion from groundwater pumping in contrasting hydrogeological landscapes: Evaluation and sensitivity of a new management tool. *Journal of Hydrology.* DOI: 10.1016/j.jhydrol.2020.125568

38 Orduña Alegría ME, N Schütze, **SC Zipper** (2020). A Serious Board Game to Analyze Socio-Ecological Dynamics towards Collaboration in Agriculture. *Sustainability*. DOI: 10.3390/su12135301

37 Brelsford C, M Dumas, E Schlager, BJ Dermody, M Aiuvalasit, MR Allen-Dumas, J Beecher, U Bhatia, P D'Odorico, M Garcia, P Gober, D Groenfeldt, S Lansing, K Madani, L Méndez-Barrientos, E Mondino, MF Müller, FC O'Donnell, PM Owuor, J Rising, MR Sanderson, FAA Souza, **SC Zipper** (2020). Developing a sustainability science approach for water systems. *Ecology and Society*. DOI: 10.5751/ES-11515-250223

36 Zimmer M, K Kaiser, J Blaszczak, **SC Zipper**, J Hammond, KM Fritz, KH Costigan, J Hosen, SE Godsey, GH Allen, S Kampf, RM Burrows, CA Krabbenhoft, W Dodds, R Hale, JD Olden, M Shanafield, AG DelVecchia, AS Ward, MC Mims, T Datry, MT Bogan, KS Boersma, MH Busch, CN Jones, A Burgin, DC Allen (2020). Zero or not? Causes and consequences of zero-flow stream gage readings. *WIREs Water*. DOI: 10.1002/wat2.1436

35 Gleeson T, L Wang-Erlandsson, **SC Zipper**, M Porkka, F Jaramillo, D Gerten, I Fetzer, SE Cornell, L Piemontese, L Gordon, J Rockström, T Oki, M Sivapalan, Y Wada, KA Brauman, M Flörke, MFP Bierkens, B Lehner, P Keys, M Kummu, T Wagener, S Dadson, TJ Troy, W Steffen, M Falkenmark, JS Famiglietti (2020). The Water Planetary Boundary: Interrogation and Revision. *One Earth*. DOI: 10.1016/j.oneear.2020.02.009

34 Deines JM, ME Schipanski, B Golden, **SC Zipper**, S Nozari, C Rottler, B Guerrero, V Sharda (2020). Transitions from irrigated to dryland agriculture in the Ogallala Aquifer: Land use suitability and regional economic impacts. *Agricultural Water Management.* DOI: 10.1016/j.agwat.2020.106061

33 Gleeson T, L Wang-Erlandsson, M Porkka, **SC Zipper**, F Jaramillo, D Gerten, I Fetzer, SE Cornell, L Piemontese, L Gordon, J Rockström, T Oki, M Sivapalan, Y Wada, KA Brauman, M Flörke, MFP Bierkens, B Lehner, P Keys, M Kummu, T Wagener, S Dadson, TJ Troy, W Steffen, M Falkenmark, JS Famiglietti (2020). Illuminating water cycle modifications and Earth System resilience in the Anthropocene. *Water Resources Research*. DOI: 10.1029/2019WR024957

- AGU *Eos* research spotlight; top 10% most downloaded paper in *WRR*, 2020

32 **Zipper SC**, F Jaramillo, L Wang-Erlandsson, SE Cornell, T Gleeson, M Porkka, T Häyhä, A-S Crépin, I Fetzer, D Gerten, H Hoff, N Matthews, C Ricaurte-Villota, M Kummu, Y Wada, L Gordon (2020). Integrating the water planetary boundary with water management from local to global scales. *Earth's Future*. DOI: 10.1029/2019EF001377

- AGU *Eos* research spotlight

31 Tague CL, SA Papuga, C Gerlein-Safdi, S Dymond, RR Morrison, EWBoyer, D Riveros-Iregui, E Agee, B Arora, YG Dialynas, A Hansen, S Krause, S Kuppel, SP Loheide, SJ Schymanski, **SC Zipper** (2020). Adding our leaves: a community-wide perspective on research directions in ecohydrology. *Hydrological Processes.* DOI: 10.1002/hyp.13693

30 Zhang C, G He, Q Zhang, S Liang, **SC Zipper**, R Guo, X Zhao, L Zhong, J Wang (2020). The evolution of virtual water flows in China's electricity transmission network and its driving forces. *Journal of Cleaner Production.* DOI: 10.1016/j.jclepro.2019.118336

29 **Zipper SC,** JK Carah, C Dillis, T Gleeson, B Kerr, MM Rohde, JK Howard, JKH Zimmerman (2019). Cannabis and residential groundwater pumping impacts on streamflow and ecosystems in Northern California. *Environmental Research Communications.* DOI: 10.1088/2515-7620/ab534d

28 Nocco M, **SC Zipper**, EG Booth, C Cummings, SP Loheide, CJ Kucharik (2019). Combining evapotranspiration and soil apparent electrical conductivity mapping to identify potential precision irrigation benefits. *Remote Sensing.* DOI: 10.3390/rs11212460

27 Motew MM, Chen X, SR Carpenter, EG Booth, J Seifert, J Qiu, SP Loheide, MG Turner, **SC Zipper**, CJ Kucharik (2019). Comparing the effects of climate and land use on surface water quality using future watershed scenarios. *Science of the Total Environment.* DOI: 10.1016/j.scitotenv.2019.07.290

26 Chen X, MM Motew, EG Booth, **SC Zipper**, SP Loheide II, CJ Kucharik (2019). Management of minimum lake levels and impacts on flood mitigation: A case study of the Yahara Watershed, Wisconsin, USA. *Journal of Hydrology.* DOI: 10.1016/j.jhydrol.2019.123920

25 **Zipper SC**, T Gleeson, B Kerr, JK Howard, MM Rohde, J Carah, J Zimmerman (2019). Rapid and accurate estimates of streamflow depletion caused by groundwater pumping using analytical depletion functions. *Water Resources Research.* DOI: 10.1029/2018WR024403

24 **Zipper SC**, K Stack Whitney, JM Deines, KM Befus, U Bhatia, SJ Albers, J Beecher, C Brelsford, M Garcia, T Gleeson, F O'Donnell, D Resnik, E Schlager (2019). Balancing open science and data privacy in the water sciences. *Water Resources Research.* DOI: 10.1029/2019WR025080

- Top 10% most downloaded papers in *WRR*, 2018-2019

23 *Qiu J, ***SC Zipper**, MM Motew, EG Booth, CJ Kucharik, SP Loheide II (2019). Nonlinear groundwater influence on biophysical indicators of ecosystem services. *Nature Sustainability.* DOI: 10.1038/s41893-019-0278-2

Equal contributions; **SCZ and JQ share first authorship.*

- Highlighted in *Nature Sustainability* News & Views, 'Including the subsurface in ecosystem services' (link)

22 **Zipper SC**, J Keune, S Kollet (2019). Land use change impacts on European heat and drought: Remote land-atmosphere feedbacks mitigated locally by shallow groundwater. *Environmental Research Letters.* DOI: 10.1088/1748-9326/ab0db3

21 Wallen K, K Filbee-Dexter, J Pittman, S Posner, C Romulo, [+11 equally-contributing authors including **SC Zipper**] (2019). Integrating team science into interdisciplinary graduate education: an exploration of the SESYNC Graduate Pursuit. *Journal of Environmental Studies and Sciences.* DOI: 10.1007/s13412-019-00543-2

20 **Zipper SC,** P Lamontagne-Halle, JM McKenzie, AV Rocha (2018). Groundwater controls on post-fire permafrost thaw: Water and energy balance effects. *Journal of Geophysical Research: Earth Surface.* DOI: 10.1029/2018JF004611

19 **Zipper SC**, MM Motew, EG Booth, X Chen, J Qiu, CJ Kucharik, SR Carpenter, SP Loheide II (2018). Continuous separation of land use and climate effects on the past and future water balance. *Journal of Hydrology.* DOI: 10.1016/j.jhydrol.2018.08.022

18 Lamontagne-Halle PLH, BL Kurylyk, **SC Zipper**, JM McKenzie (2018). Changing groundwater discharge dynamics in permafrost regions. *Environmental Research Letters.* DOI: 10.1088/1748-9326/aad404

17 **Zipper SC,** T Dallemagne, T Gleeson, T Boerman, A Hartmann (2018). Groundwater pumping impacts on real stream networks: testing the performance of simple management tools. *Water Resources Research.* DOI: 10.1029/2018WR022707

16 Breyer B, **SC Zipper**, J Qiu (2018). Sociohydrological impacts of water conservation under anthropogenic drought in Austin, Texas. *Water Resources Research.* DOI: 10.1002/2017WR021155

15 Qiu J, SR Carpenter, EG Booth, M Motew, **SC Zipper**, CJ Kucharik, SP Loheide, MG Turner (2018). Understanding relationships among ecosystem services across spatial scales and over time. *Environmental Research Letters.* DOI: 10.1088/1748-9326/aabb87

14 Somers, LD, JM McKenzie, **SC Zipper**, B Mark, P Lagos, and M Baraer (2018). Does hillslope trenching enhance groundwater recharge and baseflow in the Peruvian Andes? *Hydrological Processes*. DOI: 10.1002/hyp.11423

13 **Zipper SC** (2018). Agricultural research using social media data. *Agronomy Journal*,. DOI: 10.2134/agronj2017.08.0495

12 Qiu J, SC Carpenter, EG Booth, MM Motew, **SC Zipper**, CJ Kucharik, X Chen, SP Loheide II, J Seifert, MG Turner (2018). Scenarios reveal pathways to sustain future ecosystem services in an agricultural landscape. *Ecological Applications.* DOI: 10.1002/eap.1633

11 **Zipper SC,** KH Smith, B Breyer, J Qiu, A Kung, DL Herrmann (2017). Socio-environmental drought response in a mixed urban-agricultural watershed: Synthesizing biophysical and governance responses. *Ecology and Society.* DOI: 10.5751/ES-09549-220439

10 **Zipper SC,** ME Soylu, CJ Kucharik, SP Loheide II (2017). Indirect groundwater-mediated effects of urbanization on agroecosystem productivity: Introducing MODFLOW-AgroIBIS (MAGI), a complete critical zone model. *Ecological Modelling*. DOI: 10.1016/j.ecolmodel.2017.06.002

9 Motew MM, X Chen, EG Booth, SR Carpenter, P Pinkas, **SC Zipper**, SP Loheide II, S.D. Donner, K Tsuruta, P Vadas, CJ Kucharik (2017). The influence of legacy P on lake water quality in a Midwestern agricultural watershed. *Ecosystems.* DOI: 10.1007/s10021-017-0125-0

8 **Zipper SC,** J Schatz, CJ Kucharik, SP Loheide II (2017). Urban heat island-induced increases in evapotranspirative demand. *Geophysical Research Letters*. DOI: 10.1002/2016GL072190
- GRL Editor Highlight

7 **Zipper SC***, J Qiu*, CJ Kucharik (2016). Drought effects on US maize and soybean production: Spatiotemporal patterns and historical changes. *Environmental Research Letters*. DOI: 10.1088/1748-9326/11/9/094021
Equal contributions; **SCZ and JQ share first authorship.*

6 Booth EG, **SC Zipper**, CJ Kucharik, SP Loheide II (2016). Is groundwater recharge always serving us well? Water supply provisioning, crop production, and flood attenuation in conflict in the Yahara River Watershed, Wisconsin, USA. *Ecosystem Services*. DOI: 10.1016/j.ecoser.2016.08.007

5 Vonk JE, AF Dickens, L Giosan, ZA Hussain, B Kim, **SC Zipper**, RM Holmes, DB Montlucon, V Galy, TI Eglinton (2016). Arctic deltaic lake sediments as recorders of fluvial organic matter deposition. *Frontiers in Earth Science*. DOI: 10.3389/feart.2016.00077

4 Kang Y, M Ozdogan, **SC Zipper**, M Roman, J Walker, SY Hong, M Marshall, V Magliulo, J Moreno, L Alonso, A Miyata, B Kimball, SP Loheide II (2016). How universal is the relationship between remotely sensed vegetation indices and crop leaf area index? A global assessment. *Remote Sensing*. DOI: 10.3390/rs8070597

3 **Zipper SC**, J Schatz, A Singh, P Townsend, CJ Kucharik, SP Loheide II (2016). Urban heat island impacts on plant phenology: Intra-urban variability and response to land cover. *Environmental Research Letters*. DOI: 10.1088/1748-9326/11/5/054023

2 **Zipper SC**, ME Soylu, EG Booth, SP Loheide II (2015). Untangling the effects of shallow groundwater and soil texture as drivers of subfield-scale yield variability. *Water Resources Research*. DOI: 10.1002/2015WR017522
- WRR Editor Highlight

1 **Zipper SC**, SP Loheide II (2014). Using evapotranspiration to assess drought sensitivity on a subfield scale with HRMET, a high resolution energy balance model. *Agricultural & Forest Meteorology*. DOI: 10.1016/j.agrformet.2014.06.009.

Other/Non-Peer-Reviewed Publications

Underlined + italicized = student or postdoc under my direct supervision
Underlined = students I worked closely with as a postdoc

Compare, K, **SC Zipper**, C Zhang, E Seybold (2021). Characterizing streamflow intermittency and subsurface intermittency in the Middle Arkansas River Basin. *Kansas Geological Survey Open-File Report 2021-1*. Available at: http://www.kgs.ku.edu/Publications/OFR/2021/OFR2021-1.pdf

Li Q, **SC Zipper**, T Gleeson (2020). Analytical depletion functions and response times of groundwater pumping impacts on environmental flow. *BC Ministry of Environment Groundwater Report.* Report ID: 58704

Zipper SC (2020). Book Review: Water Resources: Science and Society. *Groundwater.* DOI: 10.1111/gwat.13011

Shanafield M, SE Godsey, T Datry, R Hale, **SC Zipper**, [+13 additional co-authors] (2020). Science Gets Up to Speed on Dry Rivers. *Eos*. DOI: 10.1029/2020EO139902

Grants & Fellowships

Foreign currencies converted to USD based on exchange rate at time of submission

2022-2026 **DISES: Toward resilient and adaptive community-driven management of groundwater dependent agricultural systems**.
Total Award: $1,599,999
Program: NSF Dynamics of Integrated Social and Environmental Systems
PIs: L Marston (lead), J Butler, M Sanderson, D Yu, SC Zipper
Zipper Role: Co-PI; KU lead PI ($590,042 to KU).

2020-2024 **RII Track II-FEC: Aquatic Intermittency effects on Microbiomes in Streams (AIMS).**
Total Award: $5,998,875
Program: NSF EPSCoR Research Infrastructure Improvement Program: Track-2 Focused EPSCoR Collaborations
PIs: A Burgin (lead), DC Allen, CL Atkinson, SE Godsey, KA Kuehn, K Aho, JP Benstead, RL Hale, CR Jackson, JT Johnson, CN Jones, J Brooks-Kieffer, EC Seybold, Y You, LH Zeglin, SC Zipper
Zipper Role: Co-I; lead of hydrology team.

2020-2022 **Spatial variability and subsurface controls of groundwater recharge and nutrient mobilization in dry streams.**
Total Award: $40,000
Program: Kansas Water Resources Institute
PIs: EC Seybold (lead), SC Zipper, C Zhang
Zipper Role: Co-PI; lead of hydrogeological analysis

2019-2021 **Evaluating playas in Western Kansas: Recharge to the High Plains Aquifer and economics of cropping.**
Total Award: $277,615
Program: EPA Wetland Program Development Grant (through Kansas Water Office).
PIs: R Stotler (lead), AE Brookfield, J Kastens, SC Zipper
Zipper Role: Co-PI; lead of ecohydrological modeling.

2019-2021 **Visualizing the Invisible: Causes, Consequences, Changes, and Management of Streamflow Depletion across the U.S.**
Total Award: $163,530
Program: USGS Powell Center Working Group.
PIs: AE Brookfield (lead), LM Hays, MC Hill, SC Zipper.
Zipper Role: Co-PI; lead of depletion metrics subgroup.

2019-2020 **Harnessing the power of the crowd to monitor urban street flooding.**
Total Award: $25,000
Program: Colorado Water Center Research Team Grant.
PIs: A Bhaskar, S Kampf, G Newman
Zipper Role: Co-Investigator.

2018-2019 **Ripples of Resilience: Navigating cross-scale SDG interactions of water, land, and climate within planetary boundaries.**
Total Award: 1,999,537 SEK (~$220,00 USD)
Program: FORMAS- Swedish Research Council for Sustainable Development
PIs: L Gordon (lead), L Wang-Erlandsson, F Jaramillo
Zipper Role: Co-wrote as postdoc under PI Tom Gleeson.

2019 **Using unmanned aerial vehicles (UAVs) for variable rate soil and water management in the Wisconsin Central Sands**
Total Award: $15,000
Program: Wisconsin Potato and Vegetable Growers Association.
PIs: M Nocco (lead), J Prater, SC Zipper.

2018-2019 **Analytical models and lag times for groundwater pumping impacts on Environmental Flow Needs: Identifying the best approaches across BC**
Total Award: $42,000 CAN (~$32,000 USD)
Program: BC Ministry of Environment Groundwater Science Program
PI: T Gleeson (Zipper was Lead Author and Project Lead as postdoc under T Gleeson)

2015-2016 **Green Talents – International Forum for High Potentials in Sustainable Development**
Total Award: €5250 (~$6000 USD) + travel funds
Program: German Federal Ministry of Education and Research (BMBF)
Zipper Role: Fellow

2015-2016 **Learning for and adapting to surprises: Resilience to water-related hazards in Germany and the USA**
Total Award: $2000 + travel funds
Program: NSF National Socio-Environmental Synthesis Center graduate pursuits
Zipper Role: Student Fellow

2015 **Shallow groundwater, soil texture, and corn yield in the Argentine Pampas**
Total Award: $2000 USD
Program: University of Wisconsin Anna Grant Birge Memorial Fund
Zipper Role: Recipient as Ph.D. student

2012 **High-resolution imaging of the Yahara River Watershed**
Total Award: $675
Program: University of Wisconsin Anna Grant Birge Memorial Fund
Zipper Role: Recipient as Ph.D. student

2009 **Summer Student Fellowship**
Total Award: $6000 + travel funds
Program: Woods Hole Oceanographic Institution
Zipper Role: Student Fellow

Travel Grants

Becker Student Travel Grant ($300), 2015. University of Wisconsin-Madison.
Becker Student Travel Grant ($250), 2014. University of Wisconsin-Madison.
Becker Student Travel Grant ($420), 2014. University of Wisconsin-Madison.

Awards & Recognition

2017 **IOP Outstanding Reviewer**. Environmental Research Letters.

2016 **James R. Villemonte Excellence in Research Award**. University of Wisconsin-Madison Department of Civil & Environmental Engineering.

2014 **First Prize, Scholarly Poster Competition**. Water for Food Global Conference.

2013 **Best Student Oral Presentation**. American Water Resources Association WI Section.

2009 **Mason L. Hill Memorial Award in Geology**. Pomona College.

Invited Seminars

No Flow? No Problem! Drivers of Flow and Long-Term Change in Non-Perennial Streams. *Presented at:*

- University of Florida, H.T. Odum Center for Wetlands, 2021.
- University of Nebraska-Lincoln, Dep't of Civil & Environmental Engineering, 2021.
- University of Cincinnati, Department of Geography, 2021.
- Wichita State University, Department of Geology, 2020.
- Kansas State University, Ecology and Evolutionary Biology Seminar, 2020.
- University of Tulsa, Department of Geosciences, 2020.

Climate Change and Groundwater Resources in Kansas. Kansas Department of Agriculture, Division of Water Resources, 2020.

Corn, Cannabis, and… Kansas? Groundwater's role in landscape-scale water and ecosystem sustainability. *Presented at:*

- Kansas State University, Department of Geography and Geospatial Sciences, 2019.
- University of Kansas, Department of Geology, 2019.
- University of Kansas, Kansas Biological Survey, 2019.
- University of Kansas, Department of Geography & Atmospheric Science, 2019.

Cannabis California: Testing Analytical Streamflow Depletion Models for Conjunctive Water Management in Data-Limited Settings. The Nature Conservancy (California) water science team webinar, 2019.

Evaluating cannabis and residential pumping impacts on streamflow using analytical tools. The Nature Conservancy – Western Groundwater Working Group, 2019.

Of Corn, Cities, and Cannabis: Hydrogeology for landscape-scale water and ecosystem sustainability. Kansas Geological Survey, University of Kansas, 2018.

Hydrogeology for landscape-scale water and ecosystem sustainability. University of Wisconsin-Stevens Point, Center for Watershed Science and Education, 2018.

Oops... Did I do that? Separating climate and land use impacts on the past and future water balance of the Yahara Watershed. University of Wisconsin-Madison Climate, People, and Environment Program, 2018.

Of Corn, Cities, and Cannabis: Groundwater connections between local land use and distant ecosystems. Pomona College, Department of Geology, 2018.

Eco-hydrogeologic feedbacks following land cover change. University of Alaska-Anchorage, Department of Geological Sciences, 2018.

Hydrogeologic controls on ecosystem services. University of Iowa, Department of Earth & Environmental Sciences, 2018.

Ecohydrology for the Anthropocene. University of Birmingham (UK), Geography Department, 2017.

Groundwater, agroecosystems, and urbanization: Land use as an ecohydrological lever. Appalachian State University, Department of Geology, 2017.

Groundwater, crop yield, and urbanization. Forschungszentrum Jülich (Germany), TR32 General Meeting, 2016.

The ecohydrology of agroecosystems: Implications for food, water, and watersheds. Montana State University, Department of Land Resources and Environmental Sciences, 2016.

Invited Panels

Navigating Academic Waters: Essential Skills to Thrive as a Student and Early Career Scientist. Webinar on Effectively Using and Ethically Sharing Open Data. Consortium for the Advancement of Hydrologic Sciences Inc (CUAHSI). 2020. (~200 attendees)

Understanding the Broader Range of Concerns Related to Drainage Water Management. Workshop: Linking Soil and Watershed Health to In-Field and Edge-of-Field Management. Organizer: Foundation for Food and Agriculture Research. 2020. (~50 attendees)

Data Sandbox. Workshop: Socio-Hydrological Dynamics Organizer: Santa Fe Institute. 2018. (~25 attendees)

Presentations

Zipper Presenting

Groundwater-driven intermittency regimes in the Arkansas River, Kansas. Geological Society of America – South Central Section Meeting. 2021.

Trends and drivers of changing stream intermittency across the United States. American Geophysical Union Fall Meeting, 2020.

Exploring the potential and limits of analytical depletion functions for estimating streamflow. American Geophysical Union Fall Meeting, 2019.

Lots of streams, not much time or money? Developing & testing analytical tools for evaluating groundwater pumping impacts on streamflow. Kansas Hydrology Seminar, Association of Environmental and Engineering Geologists, 2019.

Lots of Streams, Not Much Time or Money? Rapid and Accurate Analytical Tools for Evaluating Groundwater Pumping Impacts on Streamflow and Ecosystems. American Geophysical Union: Chapman Conference on Aquifer Sustainability, 2019.

Cannabis California: Testing analytical streamflow depletion models for conjunctive water management in data-limited settings. American Geophysical Union Fall Meeting, 2018.

Balancing open science and individual data privacy in the Earth Sciences. American Geophysical Union Fall Meeting, 2018.

Decision Support Tools for Sustainable Water Management. California State Water Resources Control Board groundwater-surface water workshop, December 2018.

Keep It Simple, Stupid? An analytical decision-support tool for quantifying depletions of interconnected surface water due to groundwater pumping. Western Groundwater Congress. 2018.

Simple, transferable approaches for estimating streamflow depletion from wells. Canadian Water Resources Association National Meeting. 2018.

Groundwater controls on post-fire permafrost thaw. American Geophysical Union Fall Meeting. 2017.

Groundwater-permafrost interactions following fire: Water and energy balance effects. Geological Society of America Annual Meeting. 2017.

Land use change in four dimensions: Groundwater as a vector for the lateral transmission of ecohydrological impacts. NSF Critical Zone Science meeting. 2017.

Permafrost response to fire-induced changes in the energy and water balance. Canadian Geophysical Union Annual Meeting, 2017.

AgroIBIS-MODFLOW (AIM): A new coupled groundwater-vadose zone-agroecosystem model. American Water Resources Association WI Section, 2016.

Impacts of shallow groundwater and soil texture on agricultural drought resistance. American Geophysical Union Fall Meeting, 2015.

Soil + Water = Food?. American Geophysical Union Fall Meeting (Future Directions in Hydrology pop-up talks), 2015.

Untangling the influences of shallow groundwater and soil texture on corn yield variability. Soil Science Society of America (Tri-Societies) Annual Meeting, 2015.

Untangling the influences of shallow groundwater and soil texture on corn yield variability. Long Term Ecological Research Network All Scientist Meeting, 2015.

Critical zone interactions between groundwater, soil, and agricultural production. Geological Society of America North-Central Meeting, 2015.

Mapping subfield-scale evapotranspiration to assess agricultural drought sensitivity. Wisconsin Ecology Symposium, 2015.

Urban heat island impacts on evapotranspirative demand. North Temperate Lakes LTER Young Scientist Meeting, 2015.

Shallow groundwater and soil texture drive subfield-scale yield patterns. American Water Resources Association WI Section, 2015.

Mapping subfield-scale evapotranspiration to assess agricultural drought sensitivity. American Geophysical Union Fall Meeting, 2014.

Soil texture and groundwater availability as drivers of subfield-scale yield variability. American Water Resources Association WI Section, 2014.

Spatially variable impacts of shallow groundwater and soil texture on yield. Water for Food 2014 Global Conference, 2014. ***First Prize, Scholarly Poster Competition.***

Groundwater subsidies and penalties to corn yield. American Geophysical Union Fall Meeting, 2013.

Persistent patterning of plant water use during drought, Yahara Watershed WI. North Temperate Lakes LTER Young Scientist Meeting, 2013. ***Invited speaker.***

Mapping persistent patterns of evapotranspiration to assess ecosystem sensitivity. Wisconsin Ecology Symposium, 2013.

Shallow groundwater impacts on corn biophysics and yield during a drought. American Water Resources Association WI Section, 2013. ***Best Student Presentation Award.***

Water resources and crop production in the Yahara Watershed, Wisconsin. Long Term Ecological Research Network All Scientist Meeting, 2012. ***Invited speaker.***

Changes in crop productivity as a result of shallow groundwater, Yahara Watershed, Wisconsin. Long Term Ecological Research Network All Scientist Meeting, 2012.

Linking shallow groundwater to crop yield using remotely sensed data, Yahara Watershed, WI. American Water Resources Association WI Section, 2012.

Lacustrine records of historical hydrology: Mackenzie River Delta, N.W.T., Canada. American Geophysical Union Fall Meeting, 2009.

Mentee Presenting, Zipper Co-Author

Gutierrez-Cala, L. Looking for the present in the past: Paleoenvironmental analyses and Social-ecological memory to explore changes in the mangroves of the Cienaga Grande de Santa Marta – Colombia. European Geophysical Union General Assembly, 2021.

Glose, T. Time lags between pumping reductions and recharge response under groundwater conservation. Geological Society of America – South Central Section Meeting. 2021.

McCarthy, A. Past and future drivers of surface water-groundwater interactions in the Kansas River Alluvial Aquifer. American Geophysical Union Fall Meeting, 2020.

Glose, T. Projecting the long-term effectiveness of groundwater conservation initiatives: A western Kansas case study. American Geophysical Union Fall Meeting, 2020.

Compare, K. Groundwater-Driven Drying Regimes in a Seventh-Order Intermittent River. American Geophysical Union Fall Meeting, 2020.

Boerman, T. Modelling the Transient Effects of Groundwater Pumping on Groundwater Storage and Surface Water using Artificial Neural Networks. American Geophysical Union Fall Meeting, 2019.

Li, Q. Quantifying the environmental flow response time to groundwater pumping using analytical depletion functions. American Geophysical Union Fall Meeting, 2019.

Glose, T. Simplifying streambed heterogeneity representation for the investigation of streamflow depletion. American Geophysical Union: Chapman Conference on Aquifer Sustainability, 2019.

Lamontagne-Hallé, P. Cold regions groundwater modelling: Are surface boundary conditions important? International Union of Geodesy and Geophysics General Assembly, 2019.

Boerman, T. Innovative water planning and management tool: Estimating streamflow depletion caused by groundwater pumping using neural networks. American Geophysical Union Fall Meeting, 2018.

Lamontagne-Hallé, P. How will permafrost thaw affect the groundwater contribution to streams and lakes? American Geophysical Union Fall Meeting, 2018.

Boerman, T. Estimating streamflow depletion by groundwater pumping under transient conditions using neural networks. Canadian Water Resources Association National Meeting, 2018.

Somers, LD. Climate change and enhanced recharge in a non-glacierized mountain catchment, Shullcas River, Peru. Canadian Geophysical Union Annual Meeting, 2017. ***Best Student Presentation Award.***

Lamontagne-Hallé, P. Groundwater models for cold regions: How do surface-layer boundary conditions affect hydrology simulation outcomes? Canadian Geophysical Union Annual Meeting, 2017.

Nocco, M. High resolution mapping of evapotranspiration and apparent electrical conductivity in the Wisconsin Central Sands: Could precision irrigation conserve groundwater? American Water Resources Association-Wisconsin Section Meeting, 2017.

Nocco, M. Using high-resolution remote sensing, lysimetry, and big leaf modeling to infer crop water use in the Wisconsin Central Sands. American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, 2016.

Other

Burgin, AJ. Aquatic Intermittency effects on Microbiomes in Streams (AIMS): Successes and Challenges in Launching a new Track 2 during COVID. National EPSCoR Meeting (Virtual), 2021.

Reeves, H. Estimating impacts of groundwater withdrawals on streamflow. International Association of Great Lakes Research meeting, 2021.

Price, A. The drying regimes of non-perennial rivers. European Geophysical Union General Assembly, 2021.

Allen, G. Is our finger on the pulse? Assessing placement bias of the global river gauge network. American Geophysical Union Fall Meeting, 2020.

Hammond, J. Assessing spatial patterns and drivers of intermittent flow in the contiguous U.S. American Geophysical Union Fall Meeting, 2020.

Huggins, X. Mapping the social-ecological hotspots of changing global freshwater availability. American Geophysical Union Fall Meeting, 2020.

Kerr, B. Connecting surface water and groundwater supply and demand over time and space to support sustainable water management. IWRA, 2020.

Brookfield, AE. Untangling the implications of water management on hydrologic systems. Geological Society of America, 2020.

Huang, B. Groundwater effects on global ecosystem services. Ecological Society of America, 2020.

Wang-Erlandsson, L. Towards a quantification of the water planetary boundary. European Geophysical Union, 2020.

Jaramillo, F. Exploring the existence of hydrological tipping points at the catchment-scale. European Geophysical Union, 2020.

Huggins, X. The human dimensions of changing global freshwater availability. American Geophysical Union Fall Meeting, 2019.

Gleeson, T. Water cycle modifications and Earth System resilience: roadmap to a new water planetary boundary. American Geophysical Union Fall Meeting, 2019.

Ebert, L. Using remotely piloted aircrafts to evaluate potato water stress in Central Wisconsin. American Geophysical Union Fall Meeting, 2019.

Kurylyk, B. Cold regions, groundwater and climate change: State of the science and future directions. GAC-MAC-IAH Conference, 2019.

Qiu, J. Nonlinear ecosystem services response to groundwater availability under climate extremes. American Geophysical Union Fall Meeting, 2017.

Loheide, SP. The influence of groundwater on agroecosystems and vice versa. 6th International Multidisciplinary Conference on Hydrology and Ecology, 2017. ***Keynote Presentation.***

McKenzie, J. Advances in the simulation of groundwater flow and permafrost thaw. European Geophysical Union General Assembly 2017.

Qiu, J. Spatial-temporal dynamics of future ecosystem services in an urbanizing agricultural landscape. Ecological Society of America Annual Meeting, 2016.

Soylu, ME. A new coupled Earth's critical zone model: AgroIBIS-MODFLOW (AIM). European Geophysical Union General Assembly 2016.

Booth, EG. From provocative narrative scenarios to quantitative biophysical model results: Simulating plausible futures to 2070 in an urbanizing agricultural watershed in Wisconsin, USA. American Geophysical Union Fall Meeting, 2015.

Qiu, J. Influence of drought on US crop production: Variability and sensitivity of response. American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, 2015.

Loheide, SP. The influence of shallow groundwater on crop productivity. International Long-Term Ecological Research All Scientists of the Americas Meeting, 2014.

Booth, EG. Is groundwater recharge always serving us well? Water supply and crop production in conflict in the Yahara River Watershed, Wisconsin. American Geophysical Union Fall Meeting, 2013.

Booth, EG. Recharge as an ecosystem service and disservice in a Midwestern, urbanizing, agricultural watershed with an increasing precipitation trend. American Geophysical Union Fall Meeting, 2012.

Invited Presentations (declined)

Geological Society of America Annual Meeting. 2018. *Invited Speaker*. Session: Advances in Agrohydrology: A Multidisciplinary Approach to Water Resources, Land Management, and Food Systems (Conveners: Sam Smidt, Erin Haacker, Jill Deines).

4th International Conference on Water Resources and Environment. 2018. Haohsiung, Taiwan.

World Congress on Climate Change. 2018. Rome, Italy.

4th International Conference on Agricultural and Biological Sciences. 2018. Hangzhou, China.

Teaching & Mentoring

Direct Supervision

Co-Director (with Erin Seybold), **KGS Geohydrology Internship Program**, 2020-2021.
KGS Interns supervised:
- Compare, Kyle. Florida State University. 05/2020 – 08/2020.

Postdoctoral Scholars supervised:
- Glose, Thomas (Tom). Kansas Geological Survey, University of Kansas. 08/2019 - present
- Li, Qiang (John). Civil Engineering, University of Victoria. 10/2018 – 09/2019.

Graduate students supervised:
- Bosompemaa, Patience. Geology. University of Kansas. 08/2020 – present. (Academic supervisor: Mary Hill).
- Gutierrez-Cala, Lina. M.Sc., Stockholm Resilience Centre. 04/2019 – present. (Co-supervisor: Fernando Jaramillo).

Graduate students committees:
- Nerhus, Kaela. M.S., Geology, University of Kansas. 02/2021 – current.
- Podzikowski, Laura. Ph.D., Ecology & Evolutionary Biology, University of Kansas. 01/2021 – current.
- Porter, Elizabeth (Misty). Ph.D., Geology, University of Kansas. 02/2020 – current.

Graduate students mentored as a post-doc:
- Boerman, Thomas. Ph.D., Civil Engineering, University of Victoria. 05/2017 – 08/2019.
- Lamontagne-Halle, Pierrick. Ph.D., Earth and Planetary Sciences, McGill. 11/2016 – 11/2017.
- Nocco, Mallika. Ph.D., Environment and Resources, UW-Madison. 06/2014 - 09/2017.
- Hatzel, Jeffrey, GIS Certificate, UW-Madison. 06/2014 - 05/2015.

- Somers, Lauren. Ph.D., Earth and Planetary Sciences, McGill. 11/2016 - 12/2017.

Undergraduate theses supervised:
- McCarthy, Abby. Geology. Pomona College. 06/2020 - present
- Meyers, Max. Geology, Pomona College. 01/2019 – 12/2019.
  Thesis Title: Effects of Crop Rotation on Water Consumption in the High Plains Aquifer.

Undergraduate research assistants (majors) supervised:
- Bergquist, Galen. Botany, UW-Madison. 05/2014 - 09/2014.
- Cozadd, Austin. Geology, University of Kansas. 03/2020 – 07/2020.
- Deel, Krystal. Haskell-KU Bridge Program. 10/2020 – current.
- Friedrich, Hannah. Geography, UW-Madison. 05/2014 - 05/2015.
- Gross, Erin. Geological Engineering, UW-Madison. 08/2011-12/2012.
- LoBue, Allison. Biological & Biosystems Engineering, UW-Madison. 11/2013 - 12/2014.
- Pomije, Taylor. Biological Aspects of Conservation, UW-Madison. 05/2012 - 08/2013.

Classroom Instruction

2018 **Sessional Instructor**. Sustainable Water Resources (CIVE340), University of Victoria.
Instructor for core undergraduate water resource engineering course. Leading all lectures, in-class activities, homework assignments, and exams.

2016 **Teaching Assistant**. Ecohydrology (CEE 619), University of Wisconsin-Madison.
Developed new module on rainfall-runoff partitioning including student modeling exercise in MATLAB simulating formation and migration of banded vegetation. Lectured on various topics in class and assisted with curriculum design.

2015 **Teaching Assistant**. Ecohidrologia (Ecohydrology), Uni. Nacional de San Luis (Argentina).
Led student development of ecohydrological 'bucket model' in programming language R and implementation of site-specific modifications for research applications.

2011 **Staff Science Tutor**. Harlem Village Academies High School (New York NY)
Resident tutor for high school-level chemistry, biology, and earth sciences curriculum. Public charter school serving primarily students from underrepresented communities.

2007–2008 **Teaching Assistant**. Pomona College Geology Department.
Worked one-on-one and in small groups with students on during labs, field trips, and peer writing evaluations. Led in-class discussions. Graded homework, labs, and exams.
Courses: Introductory Geology; Oceanography; Earth History; and Space: To Boldly Go? (Scientific critical writing seminar for freshman).

Workshops

2021 Geospatial Analysis in R Data Carpentry Workshop (link), Instructor, 8/4-8/5/2021.

2020 KU Software Carpentry Workshop (link), Helper, 7/31/2020.

Guest Lectures

2020 Lots of streams, not much time or money? Developing & testing analytical tools for evaluating groundwater pumping impacts on streamflow. Introduction to Watershed Systems (GEOG 441). University of North Carolina. Virtual lecture during COVID-19.

Hydrogeology Field Methods. Environmental Monitoring and Field Methods (CE 736). University of Kansas. Virtual lecture during COVID-19.

2017 Groundwater, ecosystems, and humans. Hydrogeology (EOS 491). University of Victoria.

Unsaturated flow. Hydrogeology (EPSC 549). McGill University.

Ecohydrology. Hydrogeology (EPSC 549), McGill University.

Hydraulic Properties and Aquifer Testing. Hydrogeology (EPSC 549). McGill University.

2016 Groundwater and crop yield. Groundwater and Water Resources (EPSC 550), McGill University.

Food security and environmental sustainability. Resources & Sustainability (CHE 390), University of Wisconsin-Baraboo

2015 Ecohydrology: Earth science at the intersection of water and life. Introduction to Environmental Geology (GLG 135), University of Wisconsin-Baraboo.

Professional Development

2020 Managing Difficult Conversations training. University of Kansas.

Carpentries Foundation: Instructor Training and Certification.

Responding to sexual harassment and sexual violence. University of Kansas.

2019 Make sense of the mess: How to keep your research project on track. European Geophysical Union.

Social science methods for natural scientists. European Geophysical Union.

Data To Motivate Synthesis Workshop. National Socio-Environmental Synthesis Center (SESYNC).

2018 Effective Climate Conversations: Exploring Communications Solutions. ICLEI Canada.

2017 No Means No: How to Step Up and Stop Harassment. Geological Society of America.

Science Communication 101. Canadian Society for Ecology and Evolution.

2016 Increasing Research Self-Efficacy of your Trainees. University of Wisconsin.

2015 Preparing for an Academic Career in the Geosciences. National Association of Geoscience Teachers.

Creating an Individual Development Plan. University of Wisconsin-Madison.

Integrating Broader Impacts into your Research Proposal. University of Wisconsin-Madison.

2014 Structural Equation Modeling Workshop. James Grace, US Geological Survey.

Professional Service

Leadership

2018–current **AGU Ecohydrology Technical Committee Member**
Chair of Social Media Subcommittee
American Geophysical Union, Hydrology Section
Contributions include integrating multiple social media platforms, creating Career Resources page, and publicizing events and resources related to ecohydrology.

2013–2015 **Graduate Student Site Representative**
North Temperate Lakes, Long Term Ecological Research Network (NTL-LTER)
Contributions include organizing network-wide student research day at 2015 All Scientist Meeting and serving as bridge between NTL site and nationwide LTER network.

2012–2015 **Graduate Student Representative**
University of Wisconsin Ecology
Contributions include planning and staffing symposia, organizing ecology job fair.

Open Science Initiatives

Author of streamDepletr R package for analytical streamflow depletion models (https://cran.r-project.org/package=streamDepletr)

Curator of CRAN Hydrology Task View (https://cran.r-project.org/web/views/Hydrology.html)

Organized, staffed 'Coding Help Desk' at American Geophysical Union Fall Meeting (with Sheila Saia), 2018 and 2019. (link)

High-Resolution Mapping of EvapoTranspiration (HRMET) model on GitHub (link).

All dissertation data available online at North Temperate Lakes LTER repository (link).

Code and data for all current projects public on GitHub (link).

Certified Carpentries Instructor (August 2020).

Contributions to Diversity, Equity, and Inclusion

KGS Diversity, Equity, and Inclusion committee: Founding co-chair (April 2021-present)

Member of KGS URGE (Unlearning Racism in Geosciences Education) pod.

Coordinated ecohydrology membership drive for 500 Women Scientists' Request a Scientist Database (https://500womenscientists.org/request-a-scientist)

Conference Sessions Chaired

Agrohydrology in a Changing World: From Global Processes to Local Outcomes. American Geophysical Union Fall Meeting. Recurring session in 2018, 2019.

Putting Humans in the Hydroscape: Mapping the world's sociohydrologic landscapes. Santa Fe Institute Workshop on Socio-Hydrological Dynamics. 2018.

Understanding the Extent and Impacts of Land Use/Land Cover Change on Water Resources (H42H). American Geophysical Union Fall Meeting, 2017.

Agriculture, Food Security, and Ecohydrology. Green Talents Alumni Meeting, 2016.

Water Quality A. American Water Resources Association Wisconsin Section meeting, 2016.

Drought resistance and resilience: Definitions, drivers, and responses across LTER ecosystems. Long Term Ecological Research Network (LTER) All Scientist Meeting, 2015.

Student Award Judging

- American Geophysical Union Fall Meeting, 2020.
- American Geophysical Union Fall Meeting, 2019.
- European Geophysical Union General Assembly, 2019 (6 presentations judged)
- American Geophysical Union Fall Meeting, 2018.
- American Geophysical Union Fall Meeting, 2017.
- American Water Resources Association Wisconsin Section meeting, 2017.

Funding Agency Panels and Reviews

- NSF EAR Hydrologic Sciences (ad hoc, 1 proposal reviewed)
- NSF GRFP, 2021 (panelist, 17 proposals reviewed)
- NSF CAREER, 2020 (ad hoc, 1 proposal reviewed).
- NSF EAR Hydrologic Sciences, 2020 (panelist, 12 proposals reviewed).
- Biodiversa – European Joint Call on Biodiversity and Climate Change, 2020 (ad hoc, 1 proposal reviewed).
- European Research Council – Starting Grant, 2020 (ad hoc, 1 proposal reviewed)

Journal Reviews

Outstanding Reviewer Award, 2017, *Environmental Research Letters*

56 *ad hoc* peer reviews for journals:

- Agricultural and Forest Meteorology
- Agricultural Water Management
- Archives of Agronomy and Soil Science
- Environmental Research Letters
- Geophysical Research Letters
- Groundwater
- Groundwater Management & Remediation
- Hydrology and Earth System Sciences
- Hydrogeology Journal
- Hydrological Processes
- Hydrological Sciences Journal
- Hydrology and Earth System Sciences
- Journal of Environmental Management
- Journal of Hydrology
- Journal of Hydrology: Regional Studies

- Journal of Water Resources Planning and Management
- Proceedings of the National Academy of Sciences
- Remote Sensing
- Remote Sensing of Environment
- Stochastic Environmental Research and Risk Assessment
- Urban Forestry & Urban Greening
- Utilities Policy
- Vadose Zone Journal
- Water
- Water Resources Research
- Weather and Climate Extremes

Scientific reviewer for:

- Delaware Geological Survey
- Environmental Protection Agency
- Foundry Spatial Ltd.
- USGS Technical Reports
- The Nature Conservancy

Kansas State Agency Reviews

City of Alden – Wastewater treatment facility improvements (2021)

McPherson County – Water distribution system improvements (2021)

Johnson County/Nelson Complex – Wastewater treatment facility improvements (2021)

City of Great Bend – Water meter replacement (2021)

Jefferson County – Rural water district improvement project (2021)

City of Linn Valley – Wastewater treatment lagoon project (2020)

City of Highland – Water treatment facility construction (2020)

Johnson County/Nelson Complex – Wastewater treatment facility improvements (2020)

Osborne County Rural Water District #1a – Water line replacement (2020)

City of Mullinville – Water line replacement (2020)

City of Maize – Wastewater treatment facility improvements (2020)

City of Ashland – Water supply system improvements (2020)

City of Norcatur – Wastewater treatment facility rehabilitation (2020)

City of Wetmore – Cover crop interseeding program (2020)

City of Gove – Water tower improvements (2019)

City of Cimarron – Wastewater treatment facility improvements (2019)

City of Fredonia – Wastewater treatment facility improvements (2019)

Committees

- AIMS Data Manager search committee, 2020-2021
- KGS Associate Director of Research search committee, 2019-2020
- KGS Postdoctoral Researcher search committee, 2019

Other

- Missouri River Basin stakeholder feedback survey/interview, NASA Western Water Applications Office, 2021

Public Engagement, Outreach, & Education

Writing for a Public Audience

2015-present Professionally engaged on scientific social media (Twitter: @ZipperSam), >2000 followers

2020 When Field or Lab Work is not an Option - Leveraging Open Data Resources for Remote Research. *rOpenSci Blog.* (link)

2019 Doing Hydrogeology in R. *Water Underground.* (link)

Getting your toes wet in R: Hydrology, meteorology, and more. *rOpenSci.* (link)

Dowsing for interesting water science: What's exciting at EGU 2019? *Water Underground* (link)

2018 Using social media to advance your knowledge, skills, and career. *GeoGradGuide.* (link)

Socio-hydrology meets Broadway: Can we survive drought if we stop using the toilet? *Water Underground* (link).

2017 Good groundwater management makes for good neighbors. *Water Underground* (link).

Groundwater and agriculture: Tapping the hidden benefits. *Water Underground* (link).

2016 The great American groundwater road trip: Interstate 80 over the Ogallala Aquifer. *Water Underground* (link).

Baseflow, groundwater pumping, and river regulation in the Wisconsin Central Sands. *Water Underground* (link).

2015 Lake Mendota's spring thaw and why it matters. *Yahara in situ* (link).

1 city, 25,000 geoscientists. *Yahara in situ* (link).

2014 Going global with lessons from the Yahara. *Yahara in situ* (link).

Pollination and groundwater. *Yahara in situ* (link).

Crunch time for corn growers and field scientists. *Yahara in situ* (link).

Events

- Skype a Scientist. West University Elementary, Houston TX (2018).
- What's Your Water Footprint? Childpeace Montessori School, Portland OR (2017)
- Earth Day Every Day, Toki Middle School, Madison WI (2014).
- Wisconsin State Fair Limnology Exploration Station, Milwaukee WI (2013).
- Winter Limnology Open House, Madison WI (2013).

- Day of Science, Badger Ridge Middle School, Verona WI (2012).

Interviews and Media Coverage

2021 New Study Finds California Cannabis Farms Irrigating with Groundwater May Affect Stream Flows. *Sierra Sun Times.* (link)

2020 ¿Cuántas Modificaciones Puede Aguantar el Ciclo de Agua de la Tierra? *AGU Eos.* (link)

How much modification can Earth's water cycle handle? *AGU Eos.* (link)

Shaping Water Management with Planetary Boundaries. *AGU Eos.* (link)

修正水的地球行星边界 (Envisioning a revised planetary boundary for water). [In Chinese] (link)

Is the river really dry? Scientific interpretations of zero flow readings. *Advanced Scientific News.* (link)

2019 Reefer sadness: How is cannabis growth impacting climate? *Sustainability Times.* (link)

Increase in cannabis cultivation or residential development could impact water resources. *AAAS EurekAlert.* (link), *Phys.org* (link)

Did formation of the European Union lessen severity of 2003 heatwave? *PhysicsWorld* (link).

Tweets yield crop progress. *FarmLife Magazine,* Spring 2019 issue. (link)

Looking below the surface for landscape resilience. *UW-Madison Engineering News.* (link)

2018 Spring comes quickly in Louisville. Can we blame the heat island? *WPFL (NPR local).* (link).

2017 Letting lawns go brown can preserve water for others during drought. *National Drought Mitigation Center* (link)

Groundwater and tundra fires may work together to thaw permafrost. *Geological Society of America* (link), *ScienceDaily* (link), *Phys.org* (link)

Legacy phosphorus and Wisconsin water. *Wisconsin Public Radio* (link).

Wisconsin study looks at ways to reduce legacy phosphorus. *Wisconsin Public Radio* (link).

Study quantifies effect of legacy phosphorus in reduced water quality. *Science Newsline* (link).

The costs of soil's phosphorus stockpile. *WisContext* (link).

Greener cities could help urban plants endure summer heat. *AGU GeoSpace* (link).

Here's more reason to green our cities. *Yahara In Situ* (link).

2016 How will drought affect US maize and soybean production? *EnvironmentalResearchWeb* (link).

Parks can reduce urban heat island. *Environmental Monitor* (link).

Parks provide islands of cool in urban areas. *Conservation Magazine* (link).

Spring comes earlier to urban environments. *Voice of America* (link), *Big News Network* (link).

Spring comes sooner to urban heat islands, with potential consequences for wildlife. *Environmental News Network* (link)**,** *ScienceDaily* (link)**,** *Phys.org* (link), *EnvironmentalResearchWeb* (link).

Soil texture determine how groundwater and rain impacts crops. *AGU Eos* (link).

2015 UW Ph.D. student wins German sustainability award. *The Badger Herald* (link).

Ph.D. student wins Germany's Green Talents Award. *UW-Madison News* (link).

UW-Madison study looks at crop benefits of higher water tables. *WI Ag Connection* (link).

Soggy not always a bad thing. *Agri-View* (link).

High water tables impact crop yields. *Wisconsin State Farmer* (link).

High water tables can be a boon to crop yields. *Yahara In Situ* (link).

2014 Thermal imagery to precision ag: understanding crop water needs. *Yahara In Situ* (link).