

Sam Zipper

Web: samzipper.com

Email: samzipper@ku.edu

Twitter: [@ZipperSam](https://twitter.com/ZipperSam)

University of Kansas

Kansas Geological Survey

1930 Constant Ave, Lawrence KS, 66047

+1-785-864-0364

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**
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**
Dep't of Civil & Environmental Engineering, University of Wisconsin-Madison, WI

2009–2010 **Summer Student Fellow & Research Assistant I**
Dep't of Geology & Geophysics, Woods Hole Oceanographic Institution, Woods Hole MA

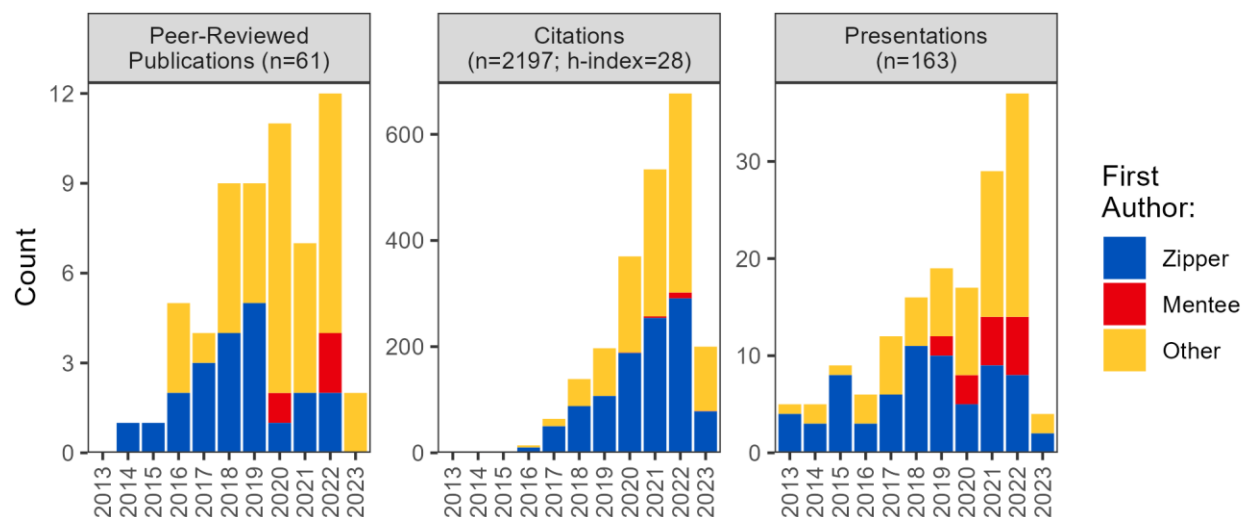
Visiting Positions

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



Data from [Google Scholar](https://scholar.google.com/) (4/6/2023). Preprints and in press papers not included. Last 10 years shown.

Peer-Reviewed Publications

Underlined + italicized = student or postdoc under my direct supervision

Underlined = student/postdoc I worked closely with as a key mentor

- 61 Huggins X, T Gleeson, D Serrano, **S Zipper**, F Jehn, MM Rohde, R Abell, K Vigerstoll, A Hartmann (2023). Overlooked risks and opportunities in groundwatersheds of the world's protected areas. *Nature Sustainability*. DOI: [10.1038/s41893-023-01086-9](https://doi.org/10.1038/s41893-023-01086-9)
- 60 Datry T, A Truchy, JD Olden, MH Busch, R Stubbington, WK Dodds, **S Zipper**, S Yu, ML Messenger, JD Tonkin, KE Kaiser, JC Hammond, EK Moody, RM Burrows, R Sarremejane, AG DelVecchia, ML Fork, CJ Little, RH Walker, AW Walters, D Allen (2022). Causes, responses, and implications of anthropogenic versus natural flow intermittence in river networks. *BioScience*. DOI: [10.1093/biosci/biac098](https://doi.org/10.1093/biosci/biac098)
- 59 Marston L, **S Zipper**, SM Smith, JJ Allen, JJ Butler, S Gautam, D Yu (2022). The importance of fit in groundwater self-governance. *Environmental Research Letters*. DOI: [10.1088/1748-9326/ac9a5e](https://doi.org/10.1088/1748-9326/ac9a5e)
- 58 Chrysafi A, V Virkki, M Jalava, V Sandström, J Piipponen, M Porkka, SJ Lade, K La Mere, L Wang-Erlandsson, L Scherer, LS Andersen, E Bennett, KA Brauman, GS Cooper, A De Palma, P Döll, AS Downing, TC DuBois, I Fetzer, EA Fulton, D Gerten, H Jaafar, J Jägermeyr, F Jaramillo, M Jung, H Kahiluoto, L Lassaletta, AW Mackay, D Mason-D'Croz, MM Mekonnen, KL Nash, AV Pastor, N Ramankutty, B Ridoutt, S Siebert, BL Simmons, A Staal, Z Sun, A Tobian, A Usubiaga-Liaño, RJ van der Ent, A van Soesbergen, PH Verburg, Y Wada, **S Zipper**, M Kummu (2022). Quantifying Earth system interactions for sustainable food production via expert elicitation. *Nature Sustainability*. DOI: [10.1038/s41893-022-00940-6](https://doi.org/10.1038/s41893-022-00940-6)
- 57 *Glose T*, **S Zipper**, DW Hyndman, AD Kendall, JM Deines, JJ Butler Jr (2022). Quantifying the impact of lagged hydrological responses on the effectiveness of groundwater conservation. *Water Resources Research*. DOI: [10.1029/2022WR032295](https://doi.org/10.1029/2022WR032295)
- 56 **Zipper S**, *I Popescu*, *K Compare*, C Zhang, EC Seybold (2022). Alternative stable states and hydrological regime shifts in a large intermittent river. *Environmental Research Letters*. DOI: [10.1088/1748-9326/ac7539](https://doi.org/10.1088/1748-9326/ac7539)
- 55 Krabbenhoft C, GH Allen, P Lin, SE Godsey, DC Allen, RM Burrows, A DelVecchia, K Fritz, M Shanafield, AJ Burgin, MA Zimmer, T Datry, WK Dodds, CN Jones, MC Mims, C Franklin, JC Hammond, **S Zipper**, AS Ward, K Costigan, H Beck, JD Olden (2022). Assessing placement bias of the global river gauge network. *Nature Sustainability*. DOI: [10.1038/s41893-022-00873-0](https://doi.org/10.1038/s41893-022-00873-0)
- 54 Ayers JR, G Villarini, K Schilling, C Jones, A Brookfield, **SC Zipper**, WH Farmer (2022). The role of climate in monthly baseflow changes across the Continental United States. *Journal of Hydrologic Engineering*. DOI: [10.1061/\(ASCE\)HE.1943-5584.0002170](https://doi.org/10.1061/(ASCE)HE.1943-5584.0002170)
- 53 DelVecchia AG, M Shanafield, MA Zimmer, MH Busch, CA Krabbenhoft, R Stubbington, KE Kaiser, RM Burrows, J Hosen, T Datry, SK Kampf, **SC Zipper**, K

- Fritz, K Costigan, DC Allen (2022). Reconceptualizing the hyporheic zone for non-perennial rivers and streams. *Freshwater Science*. DOI: [10.1086/720071](https://doi.org/10.1086/720071)
- 52 **Zipper SC**, WH Farmer, A Brookfield, H Ajami, HW Reeves, C Wardropper, JC Hammond, T Gleeson, J Deines (2022). Quantifying streamflow depletion from groundwater pumping: A practical review of past and emerging approaches for water management. *JAWRA Journal of the American Water Resources Association*. DOI: [10.1111/1752-1688.12998](https://doi.org/10.1111/1752-1688.12998)
- 51 Ebert LA, A Talib, **S Zipper**, AR Desai, KT Paw U, AJ Chisholm, J Prater, MA Nocco (2022). How high to fly? Mapping evapotranspiration from remotely piloted aircrafts at different elevations. *Remote Sensing*. DOI: [10.3390/rs14071660](https://doi.org/10.3390/rs14071660)
- 50 Lapidés D, BM Maitland, **SC Zipper**, AW Latzka, A Pruitt, R Greve (2022). Advancing environmental flows approaches to streamflow depletion management. *Journal of Hydrology*. DOI: [10.1016/j.jhydrol.2022.127447](https://doi.org/10.1016/j.jhydrol.2022.127447)
- 49 Huggins X, T Gleeson, M Kummu, **SC Zipper**, Y Wada, TJ Troy, JS Famiglietti (2022). Hotspots of social and ecological impacts from freshwater stress and storage loss. *Nature Communications*. DOI: [10.1038/s41467-022-28029-w](https://doi.org/10.1038/s41467-022-28029-w)
- 48 **Li Q**, T Gleeson, **SC Zipper**, B Kerr (2022). Too many streams and not enough time or money? Analytical depletion functions for streamflow depletion estimates. *Groundwater*. DOI: [10.1111/gwat.13124](https://doi.org/10.1111/gwat.13124)
- 47 Gleeson T, T Wagener, P Döll, **SC Zipper**, C West, Y Wada, R Taylor, B Scanlon, R Rosolem, S Rahman, N Oshinlaja, R Maxwell, M-H Lo, H Kim, M Hill, A Hartmann, G Fogg, JS Famiglietti, A Ducharne, I de Graaf, M Cuthbert, L Condon, E Bresciani, and MFP Bierkens (2021). GMD Perspective: the quest to improve the evaluation of groundwater representation in continental to global scale models. *Geoscientific Model Development*. DOI: [10.5194/gmd-14-7545-2021](https://doi.org/10.5194/gmd-14-7545-2021)
- 46 **Zipper SC**, JC Hammond, M Shanafield, MA Zimmer, T Datry, CN Jones, KE Kaiser, SE Godsey, R Burrows, JR Blaszcak, 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](https://doi.org/10.1088/1748-9326/ac14ec)
- [Science news highlight](#)
- 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](https://doi.org/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](https://doi.org/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 Kempinen, 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.5751/ES-11515-250223)
- 36 Zimmer M, K Kaiser, J Blaszcak, **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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1029/2019EF001377)
- [AGU Eos research spotlight](#); *Earth's Future* top-cited article for 2020-2021
- 31 Tague CL, SA Papuga, C Gerlein-Safdi, S Dymond, RR Morrison, EW Boyer, 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1002/hyp.11423)

- 13 **Zipper SC** (2018). Agricultural research using social media data. *Agronomy Journal*,. DOI: [10.2134/agronj2017.08.0495](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1016/j.agrformet.2014.06.009)

Reports and Non-Peer-Reviewed Publications

Underlined + italicized = student or postdoc under my direct supervision

Underlined = student/postdoc I worked closely with as a primary mentor

- 6 Popescu, I, **S Zipper**, E Seybold (2022). Identifying Regime Shifts in the Arkansas River Near Larned, Kansas. *Kansas Geological Survey Open-File Report 2022-4*. Available at: <https://www.kgs.ku.edu/Publications/OFR/2022/OFR2022-4/index.html>
- 5 **Zipper SC**, Farmer WH, Brookfield A, Ajami H, Reeves HW, Wardropper C, Hammond JC, Gleeson T, Deines J (2022). Quantifying streamflow depletion from groundwater pumping: A practical review of past and emerging approaches for water management. *KGS Research Spotlight*. Available at: <https://www.kgs.ku.edu/Publications/ResearchSpotlights/zipper-feb2022.pd>
- 4 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>
- 3 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](#)
- 2 **Zipper SC** (2020). Book Review: Water Resources: Science and Society. *Groundwater*. DOI: [10.1111/gwat.13011](https://doi.org/10.1111/gwat.13011)
- 1 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](https://doi.org/10.1029/2020EO139902)

Grants & Fellowships

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

- 2022-2025 **Managing Temporal Trade-Offs through Irrigation and Yield Forecasting to Advance Groundwater Conservation**
Total Award: \$100,000
Program: NASA A.34 Earth Science Applications: Water Resources)
PIs: S Zipper (lead), J Butler, T Foster, J Kastens, L Marston, B Wilson
Zipper Role: Project PI; leading decision needs assessment and data analysis.
- 2022-2026 **Irrigation at the new 100th Meridian: Adaptation to manage climate risks and preserve water resources in the Eastern Kansas River Basin**
Total Award: \$750,000 (\$503,988 to KU)
Program: USDA NIFA Agriculture and Food Research Initiative, Water Quantity and Quality program area
PIs: SC Zipper (lead), KS Nelson, E Seybold, V Sharda
Zipper Role: Project PI; lead of hydrologic analysis and socio-environmental integration.
- 2022-2024 **Forecasting streamflow and groundwater depletion with deep learning models to sustain Kansan water resources**
Total Project Amount: \$50,000 (+\$50,000 matching funds), 100% to KU
Program: Kansas Water Resources Institute/USGS 104b
PIs: Admin Husic (lead), Sam Zipper
Zipper Role: Co-PI; leading numerical modeling as supervisor of GRA on project.
- 2022-2024 **Sustaining ecosystem services in agricultural landscapes through a better understanding of decision-support systems**
Total Award: \$299,509 (\$132,417 to KU)
Program: USDA NIFA Agriculture and Food Research Initiative, Sustainable Agroecosystems program area
PIs: C Wardropper (lead), SC Zipper (KU lead), Adam Zwickle
Zipper Role: KU lead PI; lead of physical science analysis. Supervising GRA.
- 2022-2026 **DISES: Toward resilient and adaptive community-driven management of groundwater dependent agricultural systems.**
Total Award: \$1,599,999 (\$590,042 to KU)
Program: NSF Dynamics of Integrated Social and Environmental Systems
PIs: L Marston (lead), S Zipper (KU lead), J Butler, M Sanderson, D Yu
Zipper Role: KU lead PI; lead of coupled socio-environmental model development. Supervising GRA and postdoc.
- 2022 **Advancing a Community Groundwater Model Portal (GroMoPo).**
Total Project Amount: \$4976 (100% to KU)
Program: CUAHSI Hydroinformatics Innovation Fellowship
PI: SC Zipper (lead), K Befus, J Castilla-Rho, T Gleeson, R Reinecke, D Zamrsky.
- 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, KU lead), DC Allen, CL Atkinson, SE Godsey, KA Kuehn, CR Jackson, LH Zeglin
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/USGS 104b
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.
Zipper Role: Co-PI; assist with high-resolution evapotranspiration mapping.
- 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 Role: Lead Author and Project Leader 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: Award 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: Award 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

- 2022 **Kohout Early Career Award.** Geological Society of America Hydrogeology Division.
- 2022 **Excellence Award in Interdisciplinary Scholarship.** Michigan State University Chapter of the Honor Society of Phi Kappa Phi. (Award to a collaborative team including S Zipper)
- 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 and Panels

Exploring linkages between hydrology and biogeochemistry across perennial to non-perennial flow regimes in the Great Plains – and beyond. (Joint invited seminar with Erin Seybold). USGS Kansas Water Science Center, 2023.

No Flow? No Problem! Long-Term Change and Regime Shifts in Non-Perennial Streams. Universidade Federal de Mato Grosso do Sul (Brazil), Programa de Pós-Graduação em Tecnologias Ambientais, 2023.

Web panel on Streamflow Depletion: Visualizing the Invisible, A USGS Powell Center Working Group Experience. Part of an American Geophysical Union (AGU) Town Hall on Transforming Critical Zone Research Through Shared Science, Tools, Data, and Philosophy. 2022. (~30 attendees).

Where did my water go? Irrigation and water conservation impacts on the stream, aquifer, and atmosphere. Montana State University, Department of Land Resources and Environmental Sciences, 2022.

Where did my water go? Irrigation and water conservation impacts on the stream, aquifer, and atmosphere. Iowa State University, Department of Agronomy, 2021.

Web panel on Synthesis: Collaboration, Integration, and Approach. Part of web panel on Tools for integrating and synthesizing data from CZOs and watershed sites organized by the Consortium of Universities for the Advancement of Hydrologic Sciences Inc (CUAHSI). 2021. (~30 attendees)

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.

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

Panel on 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)

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.

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

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.

Presentations

Zipper Presenting

Hunting for hints of streamflow depletion in hydrographs. American Geophysical Union Fall Meeting, 2022.

Evaluating groundwater conservation using emerging remotely sensed products. Kansas Governor's Conference on the Future of Water, 2022.

Groundwater-driven alternative stable states in a large non-perennial river. Geological Society of America Annual Meeting, 2022.

Managing Temporal Trade-Offs through Irrigation and Yield Forecasting to Advance Groundwater Conservation. NASA Western Water Applications Office/Earth Science Applications Meeting, 2022.

Alternative stable states and stabilizing feedbacks in a large non-perennial river. AGU/CUAHSI Frontiers in Hydrology Meeting, 2022.

Do we know how to estimate streamflow depletion caused by groundwater pumping? Envisioning a community benchmarking resource. AGU/CUAHSI Frontiers in Hydrology Meeting, 2022.

Flow regimes and alternate stable states in a non-perennial river. American Geophysical Union Fall Meeting, 2021.

Quantifying Streamflow Depletion for Science-Based Water Management: Challenges and Emerging Approaches. American Geophysical Union Fall Meeting, 2021.

Groundwater-driven flow regimes and alternate stable states in the Middle Arkansas River, Kansas. Kansas Governor's Conference on the Future of Water, 2021.

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

Underlined + italicized = student or postdoc under my direct supervision

Underlined = student/postdoc I worked closely with as a primary mentor

Ndlovu, W. Assessment of the AquaCrop-OSPy model in simulating crop-water productivity in a corn field (Sheridan-6 LEMA, Kansas). Kansas Governor's Conference on the Future of Water, 2022.

Swenson, L. Changes in Baseflow Sources During the Dry-Down of a Non-Perennial Headwater Stream. Kansas Governor's Conference on the Future of Water, 2022.

Wheeler, C. STICr: An open-source package and workflow for processing and analyzing stream intermittency data. Kansas Governor's Conference on the Future of Water, 2022.

Modi, R. Characterizing subsurface flow pathways underlying an intermittent river using multiple geophysical methods. Geological Society of America Annual Meeting, 2022.

Bosompemaa, P. Quantifying Water Sustainability in the Central Arkansas River Basin: Evaluating Existing Tools at the Regional Scale. AGU/CUAHSI Frontiers in Hydrology Meeting, 2022.

Wheeler, C. Examining the role of dynamic watershed storage as a driver of stream intermittency (Konza Prairie Biological Station, Kansas, USA). AGU/CUAHSI Frontiers in Hydrology Meeting, 2022.

Swenson, L. Changes in Baseflow Sources During the Dry-Down of a Non-Perennial Headwater Stream. AGU/CUAHSI Frontiers in Hydrology Meeting, 2022.

Bosompemaa, P. Quantifying Water Sustainability in the Central Arkansas River Basin: Evaluating Existing Tools at the Regional Scale. MODFLOW & More, 2022.

Glose, T. Quantification of time-varying aquifer responses to adoption of low-pressure irrigation technology. American Geophysical Union Fall Meeting, 2021.

Glose, T. Weather whiplash across Kansas: Quantification of changes in spatial and temporal trends. American Geophysical Union Fall Meeting, 2021.

Wheeler, C. Stream network spatiotemporal connectivity at Konza Prairie, KS. Kansas Governor's Conference on the Future of Water, 2021.

Glose, T. Weather whiplash in Kansas: Past and future. Kansas Governor's Conference on the Future of Water, 2021.

Nerhus, K. Analyzing recharge through playas with various land uses to the Central High Plains Aquifer in Western Kansas. Geological Society of America Annual Meeting, 2021.

Gutierrez-Cala, L. Looking for the present in the past: Paleoenvironmental analyses and Social-ecological memory to explore changes in the mangroves of the Ciénaga 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.

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

Other

Zamrsky, D. Groundwater Model Portal (GroMoPo) – collecting and sharing groundwater model information in a standardized open-access database. European Geophysical Union Annual Meeting, 2023.

Hill, L. A Strategy that Includes National Models to Evaluate Water Availability for Arid Agricultural Areas Being Impacted by Climate Change: The Case of FEWtures in the Central Arkansas River basin (CARB). CSU Hydrology Days, 2023.

Zeglin, L. (*Invited speaker). Assessing terrestrial-aquatic microbiome connectivity in non-perennial streams. American Geophysical Union Fall Meeting, 2022.

Burgin, A. Building the Aquatic Intermittency effects on Microbiomes in Streams (AIMS) network to enable understanding of how intermittent flow impacts water quality and stream microbiomes. American Geophysical Union Fall Meeting, 2022.

Seybold, E. Linking oxygen regimes to flow regimes in non-perennial streams. American Geophysical Union Fall Meeting, 2022.

Price, A. Quantifying Patterns and Variability in Wetting of Non-Perennial Rivers and Streams. American Geophysical Union Fall Meeting, 2022.

Schneider, B. Using GIS to inform fieldwork safety planning. Kansas Association of Mappers Meeting, 2022.

Porter, ME. Using national datasets to detect streamflow depletion in the Middle Arkansas River Watershed, Kansas. Geological Society of America Annual Meeting, 2022.

Zarek, K. Watershed Network Dry Down Effects on Dissolved Gas Concentrations (N₂, Ar, O₂) in a Prairie Stream. Alabama Water Resource Conference, 2022.

Peterson, D. Investigating physical drivers of stream intermittency in Alabama. Alabama Water Resource Conference, 2022.

Kerner, T. Microbiomes across an intermittent stream network in the Konza Prairie, Kansas, USA. Gordon Research Conference, 2022.

Brookfield, A. Estimating groundwater withdrawals for irrigation – A method comparison. MODFLOW & More, 2022.

Burke, E. Spatial and Temporal Variation in Suspended Solids During the Drydown of a Prairie Watershed. Joint Aquatic Sciences Meeting, 2022.

Burgin, A. Building the AIMS Network: Exploring the Aquatic Intermittency effects of Microbiomes in Streams. Joint Aquatic Sciences Meeting, 2022.

Bond, C. Fungal biodiversity across an intermittent stream network at the Konza Prairie, Kansas, USA. Joint Aquatic Sciences Meeting, 2022.

Kerner, T. Bacterial and Archaeal Communities Across an Intermittent Stream Network in the Konza Prairie. Joint Aquatic Sciences Meeting, 2022.

Nave, B. Bacterial and Fungal Abundance Responses to Hydrological Dynamics in an Intermittent Stream. Joint Aquatic Sciences Meeting, 2022.

Seybold, E. Changes in groundwater contributions influence streamwater chemistry during dry-down of a non-perennial prairie stream network. Joint Aquatic Sciences Meeting, 2022.

Wilhelm, J. How does Drydown of an Intermittent Prairie Stream Network Affect Greenhouse Gas Concentrations? Joint Aquatic Sciences Meeting, 2022.

Datry, T. Comparison of human-induced and naturally intermittent rivers: science, management, and policy implications. Joint Aquatic Sciences Meeting, 2022.

Zarek, K. Watershed Network Dry Down Effects on Dissolved Gas Concentrations (N₂, Ar, O₂) in a Prairie Stream. Joint Aquatic Sciences Meeting, 2022.

Huggins, X. Vulnerable basins for global prioritisation: Hotspots for social and ecological impacts from freshwater stress and freshwater storage loss. European Geophysical Union General Assembly, 2022.

Seybold, EC (*Invited speaker). The effects of flow intermittency and groundwater-surface water exchange on stream biogeochemistry in a non-perennial prairie stream. American Geophysical Union Fall Meeting, 2021.

Kendall, A. Simulating the Hydrologic Effects of Aquifer-wide Adoption of Efficient Irrigation Technologies. American Geophysical Union Fall Meeting, 2021.

Ayers, J. On the role of climate in monthly baseflow changes across the continental United States. American Geophysical Union Fall Meeting, 2021.

Loheide, SP (*Invited speaker). Groundwater-crop interactions: How shallow groundwater affects yield and how groundwater management can close the yield gap. American Geophysical Union Fall Meeting, 2021.

Kar, K. Identifying Nonlinear Change in Non-perennial Streamflow. American Geophysical Union Fall Meeting, 2021.

Price, A. The Drying Regimes of Non-Perennial Rivers and Streams. American Geophysical Union Fall Meeting, 2021.

Schneider, B. Looking Forward: URGE action items underway from the KansasGeo Pod. Geological Society of America Annual Meeting, 2021.

Price, A. The Drying Regimes of Non-Perennial Rivers and Streams. California section of the Society for Freshwater Sciences, 2021.

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.

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.**

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.

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.

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.

Teaching & Mentoring

Supervising

Co-Director (with Erin Seybold), [KGS Geohydrology Internship Program](#), 2020-present.

KGS Interns supervised:

- Grinstead, Ashley, University of California-Santa Barbara, Summer 2022.
- Modi, Rashi, Colorado School of Mines, Summer 2022.
- Popescu, Ilinca, Stanford University, Summer 2021.
- Donnellan, Matthew, Temple University, Summer 2021.
- Compare, Kyle, Florida State University, Summer 2020.

Postdoctoral Scholars supervised:

- Orduna Alegria, Maria Elena (Malena). Kansas Geological Survey, University of Kansas. 01/2023 – present.
- Glose, Thomas (Tom). Kansas Geological Survey, University of Kansas. 08/2019 – 08/2021.
- Li, Qiang (John). Civil Engineering, University of Victoria. 10/2018 – 09/2019.

Graduate students supervised:

- Ndlovu, Wayne. M.S., Geology. University of Kansas. 08/2022 – present.
- Wheeler, Christopher. Ph.D., Geology. University of Kansas. 07/2021 – present.
- Swenson, Logan. M.S., Geology. University of Kansas. 08/2021 – present.
- Bosompemaa, Patience Ph.D., Geology. University of Kansas. 08/2020 – present. (Academic supervisor: Mary Hill).
- Gutierrez-Cala, Lina. M.Sc., Stockholm Resilience Centre. 04/2019 – 12/2020. (Co-supervisor: Fernando Jaramillo).

Graduate student committees as chair:

- Bosompemaa, Patience Ph.D., Geology. University of Kansas. 08/2020 – present. (GEOL co-chair: Mary Hill)
- Ndlovu, Wayne. M.S., Geology. University of Kansas. 08/2022 – present.
- Swenson, Logan. M.S., Geology. University of Kansas. 08/2021 – present. (GEOL co-chair: Rick Devlin).
- Wheeler, Christopher. Ph.D., Geology. University of Kansas. 07/2021 – present. (GEOL co-chair: Dave Fowle).

Graduate student committees as participant:

- Bosompemaa, Patience Ph.D., Geology. University of Kansas. 08/2020 – present.
- Nerhus, Kaela. M.S., Geology, University of Kansas. 02/2021 – 05/2022.

- Onyekwelu, Ikenna. Ph.D., Biological & Agricultural Engineering, Kansas State University. 01/2023 – present.
- Podzikowski, Laura. Ph.D., Ecology & Evolutionary Biology, University of Kansas. 01/2021 – present.
- Porter, Elizabeth (Misty). Ph.D., Geology, University of Kansas. 02/2020 – present.
- Yu, Qiuyun (Cecilia). Ph.D., Civil & Environmental Engineering, Virginia Tech. 10/2021 – present.

Undergraduate theses supervised:

- Popescu, Ilinca. Earth System Science. Stanford University. 08/2021 – 05/2022.
Thesis title: Evaluating Regime Shifts and Shifting Environmental Policy in the Arkansas River near Larned, KS.
- McCarthy, Abby. Geology. Pomona College. 06/2020 – 05/2021.
Thesis title: Time Series Analysis of Groundwater Level Change in the Kansas River Alluvial Aquifer.
- 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

- 2023 **Instructor.** Hydrologic Data Visualization. Invited instructor of weeklong graduate intensive course at Universidade Federal de Mato Grosso do Sul, Programa de Pós-Graduação em Tecnologias Ambientais. Developed and led course including lectures, assignments, and assessment. Enrollment = 10 students.
- 2022 **Instructor.** Advanced Interdisciplinary Water Science (GEOL791), University of Kansas. Instructor for graduate-level hydrology course at KU as part of [CUAHSI Virtual University program](#). Administered 3-credit graduate course, including developing and leading 4-week module on Hydrologic Data Visualization taught to students at all participating universities. KU course enrollment = 11 students. Module enrollment = 27 students.
- 2018 **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

- 2022 Open Science Workflow with RStudio ([link](#)), Instructor, 4/27/2022.
- 2021 Introduction to R Data Carpentry Workshop ([link](#)), Helper, 12/3/2021.
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

- 2022 Hydrogeology Field Methods. Environmental Monitoring and Field Methods (CE 736). University of Kansas.
- 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

- 2023 Microaggressions in the STEM Workplace. What are they and how do we address them? Kansas Geological Survey/University of Kansas.
- 2022 SafeZone QT* Ally Training. Kansas Geological Survey/University of Kansas.
 Heartsaver First Aid, CPR, and AED Training. American Heart Association
 Building Supportive Communities: Harassment Prevention. University of Kansas.
- 2021 Diversity Recruiting. Kansas Geological Survey/University of Kansas.
 Implicit Bias in the STEM Workforce. Kansas Geological Survey/University of Kansas.
- 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

- 2023–
 current **Kohout Early Career Award Committee.**
Geological Society of America, Hydrogeology Division.
 Contributions include soliciting and reviewing nominations for the GSA’s Kohout Early Career Award.

- 2018–
current **Ecohydrology Technical Committee Member (2018-current).**
Chair of Social Media Subcommittee (2018-2022).
American Geophysical Union, Hydrology Section
Contributions include integrating multiple social media platforms, creating Career Resources page, and publicizing events and resources related to ecohydrology.
- 2020–
current **Diversity, Equity, Inclusion, and Belonging (DEIB) founding co-chair.**
Kansas Geological Survey.
Founding co-chair of DEIB committee; see ‘Contributions to Diversity, Equity, and Inclusion’ section below for specific activities.
- 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>); downloaded >11,000 times as of September 2022.

Co-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, Inclusion, and Belonging (DEIB) committee: Founding co-chair (April 2021-present). <https://www.kgs.ku.edu/General/deib.html> . Activities include:

- Developed code of conduct and resource map for KGS staff
- Surveyed KGS staff to identify priorities for DEIB improvements in the workplace
- Host workplace trainings including addressing implicit bias and improving diversity in recruiting and hiring.

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

Global Impact of Non-perennial Waterways: Integrating Hydrological, Geochemical, Microbiological, and Social Perspectives. American Geophysical Union Fall Meeting. 2022.

Bridging Resolutions: Co-Developing a Practical Guide for Integrating Equity, Justice, and Place-Based Nuances for Water Scientists, Social Scientists, and Everyone In-Between. AGU/CUAHSI Frontiers in Hydrology Meeting. 2022.

Non-perennial Streams: An Interface Between Hydrology, Ecology, Biogeochemistry, and Society. American Geophysical Union Fall Meeting. 2021.

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, 2021.
- American Geophysical Union Fall Meeting, 2020.
- American Geophysical Union Fall Meeting, 2019.
- European Geophysical Union General Assembly, 2019.
- 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

- Legislative-Citizen Commission on Minnesota Resources, 2022 (ad hoc, 1 proposal reviewed)
- Babbitt Center Dissertation Fellowship Program, 2022 (ad hoc, 1 proposal reviewed)
- NEF HEGS, 2022 (ad hoc, 1 proposal reviewed)
- NSF EAR-PF, 2022 (ad hoc, 1 proposal reviewed)
- KU Research Rising review panel, 2022 (panelist)
- NSF EAR Hydrologic Sciences, 2021 (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*

80 *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
- River Research and Applications
- 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 Marysville – Wastewater treatment facility improvements (2022)

- Osborne County Rural Water District #1a – Water line replacement (2022)
- City of Esbon – Water line replacement (2022)
- City of Hutchinson – Headworks grit removal (2022)
- City of Seneca – Water treatment plant (2022)
- Smith County – Rural water district no. 1 (2022)
- City of Oketo – Water supply improvements (2022)
- City of Frontenac – Wastewater treatment improvements (2022)
- City of Belle Plaine – Lift stations (2022)
- City of Wichita – Wastewater treatment improvements (2022)
- City of Burr Oak – Nitrate removal plant and lift stations (2022)
- City of Moscow – Water well replacement (2022)
- Miami County (Bucyrus) – Wastewater treatment plant improvements (2021)
- City of Hanston – Wastewater treatment plant improvements (2021)
- City of Marysville – Wastewater treatment facility improvements (2021)
- City of Leavenworth – WaterWorks (2021)
- City of Vermillion – Water supply system (2021)
- 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 Norcatour – 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

- KGS Geohydrology Internship Program search committee, 2023.
- KGS Postdoctoral Researcher search committee, 2023.
- KGS Geohydrology Internship Program search committee, 2022.
- KGS Postdoctoral Researcher search committee, 2022.
- KGS/KGS Research Project Coordinator search committee, 2022.
- KGS Laboratory Director search committee, 2022.
- KGS Field Research Technician search committee, 2021-2022.
- KGS Geohydrology Internship Program search committee, 2021.
- AIMS Data Manager search committee, 2020-2021
- KGS Geohydrology Internship Program search committee, 2020.
- KGS Associate Director of Research search committee, 2019-2020
- KGS Postdoctoral Researcher search committee, 2019

Other

- USGS Ogallala Data Directory advisory group, 2020-present.
- Missouri River Basin stakeholder feedback survey/interview, NASA Western Water Applications Office, 2021

Public Engagement, Outreach, & Education

Engagement with Stakeholders in Kansas and Beyond

- Presenter: Exploring linkages between hydrology and biogeochemistry across perennial to non-perennial flow regimes in the Great Plains – and beyond. Joint invited seminar with Erin Seybold presented to USGS Kansas Water Science Center, 2023.
- Organizer: Discussion with Wheatland Electric Cooperative about potential solar recharge project in south-western Kansas. March 2023.
- Organizer: Discussion with Western Kansas Groundwater Management District (GMD1) manager about water planning and decision needs. March 2023.
- Organizer: Meeting with Megan Rush, KAWS watershed coordinator for Kansas River, on organizational data needs and collaboration opportunities. March 2023.
- Participant: Discussion with Kansas legislative staff, USDA Risk Management Agency, K-State Extension, and NASA on crop insurance modifications to promote groundwater sustainability. March 2023.
- Organizer: Discussion with Equus Beds Groundwater Management District (GMD2) manager about water planning and decision needs. February 2023.
- Organizer: Meeting with Kansas Water Office and Kansas Department of Agriculture-Division of Water Resources on decision support needs using satellite data. February 2023.
- Organizer: Meeting with Kansas State Research and Extension Director on decision support needs using satellite data. February 2023.
- Presentation: Evaluating groundwater conservation using emerging remotely sensed products. Kansas Geological Survey Advisory Council, December 2022.
- Participant: Meeting with BNIM Architecture staff about Inland Water Institute, November 2022.
- Presentation: Quantifying Streamflow Depletion from Groundwater Pumping: A Practical Review of Past and Emerging Approaches for Water Management. Kansas Hydrology Seminar, Association of Environmental and Engineering Geologists, November 2022.
- Participant: Meeting with Ducks Unlimited conservation staff, November 2022.
- Participant: Working group, US Army Corps of Engineers/The Nature Conservancy Sustainable Rivers Program, October 2022.
- Organizer: SAFE KAW project stakeholder advisory group meeting (environmental, agricultural, and state agency constituents), October 2022.
- Organizer: Flickner Innovation Farm site visit, September 2022.
- Organizer: Wichita Aquifer Storage and Recovery facility tour, September 2022.
- Participant: Working group, US Army Corps of Engineers/The Nature Conservancy Sustainable Rivers Program, September 2020.

- Presentation: Climate Change and Groundwater Resources in Kansas. Kansas Department of Agriculture, Division of Water Resources, September 2020.
- Presentation: Evaluating cannabis and residential pumping impacts on streamflow using analytical tools. The Nature Conservancy – Western Groundwater Working Group, September 2019.
- Presentation: 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, November 2019.
- Presentation: Cannabis California: Testing Analytical Streamflow Depletion Models for Conjunctive Water Management in Data-Limited Settings. The Nature Conservancy (California) water science team webinar, July 2019.

Writing for a Public Audience

- 2015-present Professionally engaged on scientific social media (Twitter: [@ZipperSam](#)), >3000 followers
- 2022 Groundwater and granny gears: Hydrogeological tourism on wheels! *Water Underground*. ([link](#)).
- 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

- 2023 Why Protected Areas Must Consider What’s Beneath the Surface. *TNC Science Brief*. ([link](#))
- 2022 Sharda awarded USDA grant to develop irrigation strategies in eastern Great Plains. *Kiowa County Signal*. ([link](#))
- Project to Help Ag Communities Prepare for Climate Change in Eastern Great Plains. *Kansas Ag Connection*. ([link](#))
- Beyond boundaries: Earth’s water cycle is being bent to breaking point. *Mongabay*. ([link](#))
- How much do we know about our watersheds? New study says gaps in knowledge exist because of ‘bias’ in stream gauge placement. *NM Political Report*. ([link](#))
- The US is losing some of its biggest freshwater reserves. *Popular Science*. ([link](#))
- Sheridan Co. part of groundwater conservation study. *Hays Post*. ([link](#))
- Kansas Geological Survey to study social, environmental factors of successful groundwater conservation programs. *KU News Service*. ([link](#))
- Virginia Tech leads team to assess the processes and vulnerabilities of groundwater self governance. *VTX*. ([link](#))
- 2021 Climate change is drying out many part-time streams in the United States. *Science*. ([link](#))
- 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](#)).