

Education

- 2015 **Ph.D.**, Freshwater & Marine Science, University of Wisconsin-Madison, Madison WI
- 2009 **B.A.**, *cum laude*, Geology, Pomona College, Claremont CA

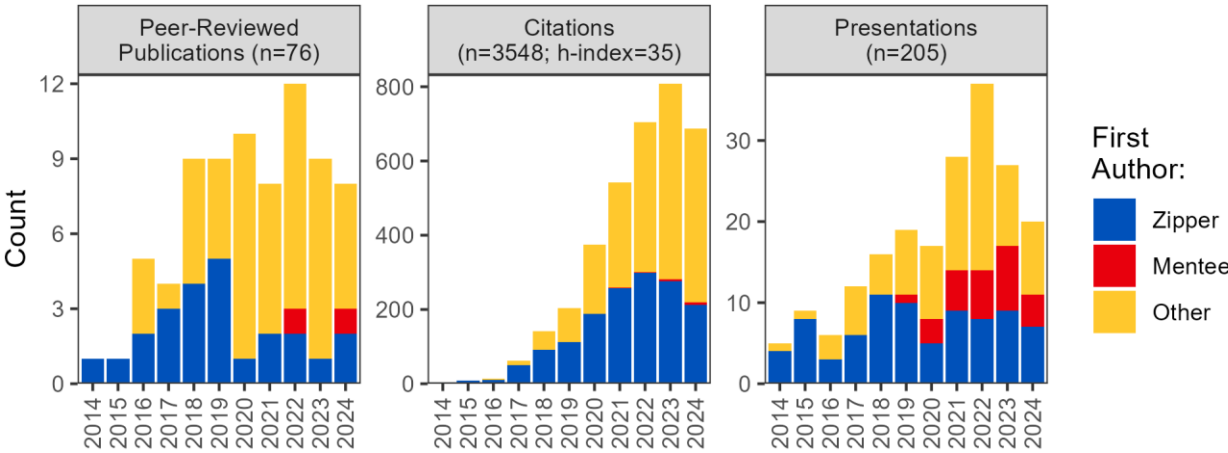
Professional Appointments

- 2019–current **Assistant Scientist**, Kansas Geological Survey, University of Kansas, Lawrence KS
- 2024–current **Assistant Professor**, Department of Geology, 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

Mission Statement

My research group investigates how local, regional, and global change can and will affect the water resources of Kansas and the Great Plains now and in the future. We seek to conduct useful, targeted, and actionable science meeting the needs of diverse stakeholders including water managers, policymakers, conservation groups, and producers. In addition to our core Kansas-focused research program, we study how socio-environmental systems around the world experience and respond to relevant water issues and connect these insights to local challenges. To accomplish this, we collaborate with physical and social scientists around the world as well as local stakeholders; openly share our methods, tools, and results; and continually move towards the intersection of scientific novelty and societal relevance.

Scientific Output



Data from [Google Scholar](https://scholar.google.com) (updated 9/25/2024). Preprints not included. Last 10 years shown.

Peer-Reviewed Publications

Underlined + italicized = student or postdoc in my research group

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

- Under Review CT Bond, BA Nave, AL Kemajou, E Stanley, LH Zeglin, CR Jackson, **S Zipper**, K Ago, AJ Burgin, Y You, R Ramos, KA Kuehn. Fungal communities across a surface water permanence gradient in a non-perennial prairie stream network. *The ISME Journal* (submitted 9/4/2024).
- Under Review Lapides DA, **S Zipper**, JC Hammond. Potential impacts of groundwater pumping on stream temperature are greatest in streams with substantial cold groundwater inflows. In review at *Hydrological Processes* (revisions submitted 7/22/2024).
- Under Review *Bosompemaa P*, AE Brookfield, **S Zipper**, MC Hill. Using a national hydrologic model to obtain regional surface-water supply estimates in a heavily-stressed basin. In revision at *Environmental Modeling & Software* (revisions submitted 8/29/2024).
- 77 *ME Orduna Alegria*, **S Zipper**, HC Shin, JM Deines, NP Hendricks, JJ Allen, GC Bohling, B Golden, BW Griggs, S Lauer, C-Y Lin, LT Marston, SM Smith, DO Whittemore, BB Wilson, DJ Yu, QC Yu, JJ Butler. Unlocking aquifer sustainability through irrigator-driven groundwater conservation. *Nature Sustainability* (accepted, in press).
- 76 **Zipper S**, J Kastens, T Foster, BB Wilson, F Melton, *A Grinstead*, J Deines, JJ Butler, LT Marston (2024). Estimating irrigation water use from remotely sensed evapotranspiration data: Accuracy and uncertainties across spatial scales. In review at *Agricultural Water Management* 303: 109036. DOI: [10.1016/j.agwat.2024.109036](https://doi.org/10.1016/j.agwat.2024.109036)
- 75 Price A, MA Zimmer, A Bergstrom, AJ Burgin, EC Seybold, C Krabbenhoft, **S Zipper**, MH Busch, WK Dodds, A Walters, J Rogosch, R Stubbington, R Walker, J Stegen, T Datry, M Messenger, J Olden, SE Godsey, M Shanafield, D Lytle, R Burrows, KE Kaiser, GH Allen, MC Mims, JD Tonkin, M Bogan, JC Hammond, K Boersma, A Myers-Pigg, A DelVecchia, D Allen, S Yu, A Ward (2024). Biogeochemical and ecological responses to the return of water in non-perennial streams. *Nature Water* 2: 815-826. DOI: [10.1038/s44221-024-00298-3](https://doi.org/10.1038/s44221-024-00298-3)
- 74 Lin, C-Y, *ME Orduna Alegria*, S Dhakal, **S Zipper**, LT Marston. PyCHAMP: A Crop-Hydrological-Agent Modeling Platform for Groundwater Management. *Environmental Modeling & Software* 181: 106187. DOI: [10.1016/j.envsoft.2024.106187](https://doi.org/10.1016/j.envsoft.2024.106187)
- 73 **Zipper S**, A Brookfield, H Ajami, J Ayers, C Beightel, M Fienen, T Gleeson, J Hammond, M Hill, AD Kendall, B Kerr, D Lapides, M Porter, S Parimalarenganayaki, MM Rohde, C Wardropper (2024). Streamflow depletion caused by groundwater pumping: Fundamental research priorities for management-relevant science. *Water Resources Research* 60(5): e2023WR035727. DOI: [10.1029/2023WR035727](https://doi.org/10.1029/2023WR035727)
- 72 Kanti Kar K, T Roy, **S Zipper**, SE Godsey (2024). Nonlinear trends in drying of non-perennial US streams. *Journal of Hydrology*. 635: 131131. DOI:

- 71 *Swenson L, S Zipper*, DM Peterson, CN Jones, AJ Burgin, EC Seybold, MF Kirk, C Hatley (2024). Changes in water age during dry-down of a non-perennial stream. *Water Resources Research* 60(1):e2023WR034623. DOI: [10.1029/2023WR034623](https://doi.org/10.1029/2023WR034623)
- 70 Peterson D, S Kampf, K Puntenney-Desmond, M Fairchild, **S Zipper**, J Hammond, M Ross, M Sears (2024). Predicting Streamflow Duration from Crowd-Sourced Flow Observations. *Water Resources Research* 60(1):e2023WR035093. DOI: [10.1029/2023WR035093](https://doi.org/10.1029/2023WR035093)
- 69 Smidt S, EMK Haacker, X Bai, K Cherkauer, B Choat, O Crompton, JM Deines, J Groh, SM Guzman, S Hartman, AD Kendall, M Safeeq, W Kustas, BM McGill, MA Nocco, J Pensky, J Rapp, A Schreiner-McGraw, M Sprenger, L Wan, L Weldegebiel, **S Zipper**, D Zocatelli (2023). Forming the Future of Agrohdrology. *Earth's Future* 11(12):e2022EF003410. DOI: [10.1029/2022EF003410](https://doi.org/10.1029/2022EF003410).
- 68 Aho K, D Derryberry, S Godsey, R Ramos, S Warix, **S Zipper** (2023). Communication Distance and Bayesian Inference in Non-Perennial Streams. *Water Resources Research* 59(11):e2023WR034514. DOI: [10.1029/2023WR034513](https://doi.org/10.1029/2023WR034513)
- 67 Seybold EC, A Bergstrom, CN Jones, A Burgin, **S Zipper**, SE Godsey, WK Dodds, MA Zimmer, M Shanafield, T Datry, R Mazor, M Messenger, JD Olden, A Ward, S Yu, KE Kaiser, A Shogren, RH Walker. How low can you go? Widespread challenges in measuring low stream discharge and a path forward. *Limnology and Oceanography Letters* 8(6):804-811. DOI: [10.1002/lol2.10356](https://doi.org/10.1002/lol2.10356)
- 66 **Zipper S**, KM Befus, R Reinecke, D Zamrsky, T Gleeson, S Ruzzante, K Jordan, *K Compare*, D Kretschmer, M Cuthbert, T Castronova, T Wagener, MFP Bierkens (2023). GroMoPo: A Groundwater Model Portal to enable Findable, Accessible, Interoperable, and Reusable (FAIR) groundwater modeling. *Groundwater* 61(6):764-767. DOI: [10.1111/gwat.13343](https://doi.org/10.1111/gwat.13343)
- 65 Huang B, **S Zipper**, S Peng, J Qiu. Groundwater effects on net primary productivity and soil organic carbon: A global analysis (2023). *Environmental Research Letters* 18:8. DOI: [10.1088/1748-9326/ace636](https://doi.org/10.1088/1748-9326/ace636)
- 64 Aho K, C Kriloff, SE Godsey, R Ramos, *C Wheeler*, Y You, S Warix, D Derryberry, **S Zipper**, RL Hale, CT Bond, KA Kuehn (2023). Non-perennial stream networks as directed acyclic graphs: The R-package streamDAG. *Environmental Modeling and Software* 167:105775. DOI: [10.1016/j.envsoft.2023.105775](https://doi.org/10.1016/j.envsoft.2023.105775)
 - [Excellence in Research Award](#), International Research Awards on Network Science and Graph Analytics
- 63 Brookfield AE, **S Zipper**, AD Kendall, H Ajami, JM Deines (2023). Estimating groundwater pumping for irrigation - A method comparison. *Groundwater*. DOI: [10.1111/gwat.13336](https://doi.org/10.1111/gwat.13336)
- 62 Lapides DA, **S Zipper**, JC Hammond (2023). Identifying Hydrologic Signatures Associated with Streamflow Depletion Caused by Groundwater Pumping. *Hydrological Processes* 37(4):e14877. DOI: [10.1002/hyp.14877](https://doi.org/10.1002/hyp.14877)

- 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* 6:855-864. 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* 73(1):9-22. 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* 7:11. 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* 5:830-842. 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* 58(7):e2022WR032295. 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* 17:7. 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* 5:586-592. 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* 27:5. 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* 41:2. 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* 58(2):289-312. 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* 14(7):1660. DOI: [10.3390/rs14071660](https://doi.org/10.3390/rs14071660)
 - 50 Lapides DA, BM Maitland, **SC Zipper**, AW Latzka, A Pruitt, R Greve (2022). Advancing environmental flows approaches to streamflow depletion management. *Journal of Hydrology* 607:127447. 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* 13:439. 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* 60(1):145-155. 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* 14(12). 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* 16:8. DOI: [10.1088/1748-9326/ac14ec](https://doi.org/10.1088/1748-9326/ac14ec)
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 - 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* 3:7. 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* 48(14):e2021GL093298. 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 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* 9. DOI:

- 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* 57(2):e2020WR027591. 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* 48(2):e2020GL090794. 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* 13(1). 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* 590:125568. 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* 12(13). 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* 25(2):23. 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* 7(3):e1436. DOI: [10.1002/wat2.1436](https://doi.org/10.1002/wat2.1436)
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- 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* 233:106061. DOI: [10.1016/j.agwat.2020.106061](https://doi.org/10.1016/j.agwat.2020.106061)

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- 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* 8(2):e2019EF001377. DOI: [10.1029/2019EF001377](https://doi.org/10.1029/2019EF001377)
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- 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* 34(7):1665-1673. 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* 242:118336. 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* 1:12. 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* 11(21):2460. 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* 693:133484. 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* 577:123920. 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* 55(7):5807-5829. 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* 55(7):5202-5211. 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* 2:475-483. 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* 14:4. 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, DE Bennett, EC Clark, SJM Cousins, BA Dubik, M Garcia, HA Haig, EA Koebele, J Qiu, RC Richards, CC Symons, **SC Zipper** (2019). Integrating team science into interdisciplinary graduate education: an exploration of the SESYNC Graduate Pursuit. *Journal of Environmental Studies and Sciences* 9:218-233. 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* 123(10):2677-2694. 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* 565:106-122. 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* 13:8. 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* 54(8):5471-5486. 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* 54(4):3062-3080. 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* 13:5. 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, M Baraer (2018). Does hillslope trenching enhance groundwater recharge and baseflow in the Peruvian Andes? *Hydrological Processes* 32(3):318-331. DOI: [10.1002/hyp.11423](https://doi.org/10.1002/hyp.11423)
- 13 **Zipper SC** (2018). Agricultural research using social media data. *Agronomy Journal* 110(1):349-358. 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* 28(1):119-134. 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* 22(4):39. 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* 359:201-219. 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* 20:1468-1482. 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* 44(2):873-881. 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* 11:9. 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* 21:153-165. DOI: [10.1016/j.ecoser.2016.08.007](https://doi.org/10.1016/j.ecoser.2016.08.007)
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- 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* 51(8):6338-6358. 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* 197:91-102. 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

- 9 **Zipper S**, J Ifft, ME Orduna Alegria, JJ Butler, LT Marston, Q Yu, S Metzger (2024). Water management challenges and potential solutions related to the U.S. federal crop insurance program. *Kansas Geological Survey Open-File Report 2024-11*. Available at: <https://www.kgs.ku.edu/Publications/OFR/2024/OFR2024-11.pdf>
- 8 Manning D, R Rockel, J Schneekloth, A Stoecker, J Warren, **S Zipper** (2024). Crop Insurance. *Ogallala Summit 2024 White Paper*. Available at: <https://www.irrigationinnovation.org/2024-summit-white-papers>
- 7 Gambill I, **S Zipper**, MF Kirk, EC Seybold (2024). Exploring drivers of groundwater recharge at Konza Prairie (Flint Hills region, Kansas, USA) using transfer function noise models. *Kansas Geological Survey Open-File Report 2024-6*. Available at: <https://www.kgs.ku.edu/Publications/OFR/2024/OFR2024-6.pdf>
- 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.pdf>
- 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](#)
- 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](#)

Published Datasets

Underlined + italicized = student or postdoc under my direct supervision

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

- 21 **Zipper S** (2024). Data and Code release: Estimating irrigation water use from remotely sensed evapotranspiration data: Accuracy and uncertainties at field, water right, and regional scales (published in Agricultural Water Management). *HydroShare*.
<https://doi.org/10.4211/hs.36fa9e69ff0849bb941b9ab2835b8a6e>
- 20 Ramos R, A Burgin, **S Zipper** (2023). AIMS_GP_approach3_ENVI. *HydroShare*.
<http://www.hydroshare.org/resource/95c18f7643534def99d40b7b07971bee>
- 19 **Zipper S**, *I Popescu*, *K Compare*, C Zhang, EC Seybold (2022). Alternative stable states and hydrological regime shifts in a large intermittent river (data and code). *Open Science Framework*. <https://doi.org/10.17605/OSF.IO/Y47AD>
- 18 Lapedes D, **S Zipper**, J Hammond (2022). lapidesd/streamflow_depletion_metrics_replacement: Submission for Zenodo (zenodo_submission). *Zenodo*. <https://doi.org/10.5281/zenodo.7072886>
- 17 **Zipper SC**, J Hammond, M Shanafield, M Zimmer, T Datry, N Jones, S Godsey, K Kaiser, RM Burrows, JR Blaszcak, MH Busch, AN Price, K Boersma, AS Ward, K Costigan, G Allen, C Krabbenhoft, WK Dodds, MC Mims, JD Olden, S Kampf, AJ Burgin, DC Allen (2021). Data and Code Release: Pervasive Changes in Stream Intermittency Across the United States (published in Environmental Research Letters), *HydroShare*.
<https://doi.org/10.4211/hs.fe9d240438914634abbfdcfaf03bed863>
- 16 Price AN, M Zimmer, N Jones, J Hammond, **S Zipper** (2021). Data release for "The drying regimes of non-perennial rivers", *HydroShare*.
<https://doi.org/10.4211/hs.5f974604766a4c03a2e24b9d1ba720d4>
- 15 Huggins X, T Gleeson, M Kummu, **SC Zipper**, Y Wada, TJ Troy, JS Famiglietti (2021). Data from: Hotspots for social and ecological impacts from freshwater stress and storage loss. *Borealis*. <https://doi.org/10.5683/SP3/SLR3GF>

- 14 **Zipper S** (2021). Republican River analytical depletion functions. *Open Science Framework*. <https://doi.org/10.17605/OSF.IO/CPV94>
- 13 Deines JM, M Schipanski, B Golden, **SC Zipper**, S Nozari, C Rottler, B Guerrero, V Sharda. (2020). Derived data and code for Deines et al. 2020, Agricultural Water Management (v1.0.0) [Data set]. *Zenodo*. <https://doi.org/10.5281/zenodo.3661369>
- 12 **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 (DATA + CODE). *figshare*. <https://doi.org/10.6084/m9.figshare.7825499.v1>
- 11 **Zipper S**, J Carah, C Dillis, T Gleeson, B Kerr, MM Rohde, JK Howard, J Zimmerman (2019). Cannabis and residential groundwater pumping impacts on streamflow and ecosystems in Northern California (data and code). *Open Science Framework*. <https://doi.org/10.17605/OSF.IO/AW4D7>
- 10 **Zipper S**, 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 (data and code). *Open Science Framework*. <https://doi.org/10.17605/OSF.IO/E6XR4>
- 9 **Zipper SC**, J McKenzie, P Lamontagne-Halle, AV Rocha (2018). Groundwater model data and code. *Figshare*. <https://doi.org/10.6084/m9.figshare.7070177.v2>
- 8 Kucharik C, SP Loheide, EG Booth, **S Zipper** (2017). Meteorological Field Measurements in Yahara River Watershed ver 2. *Environmental Data Initiative*. <https://doi.org/10.6073/pasta/8265a2b7e8c488688dfdd07dff4a363>
- 7 Kucharik C, SP Loheide, EG Booth, **S Zipper** (2017). Hydrologic Field Measurements in Yahara River Watershed ver 1. *Environmental Data Initiative*. <https://doi.org/10.6073/pasta/b1e649a3d88aaa39b48e93afcfc4c259>
- 6 **Zipper S**, EG Booth, SP Loheide (2015). WSC - Gridded sample points at Wibu field site including yield, soil texture, water table depth, and estimated soil water retention parameters ver 5. *Environmental Data Initiative*. <https://doi.org/10.6073/pasta/957b55c473e296304a92da5b31fea077>
- 5 **Zipper S**, EG Booth, SP Loheide (2015). WSC - Water surface elevation (WSE) and water table depth (WTD) from 14 points at the Wibu field site, 2012-2013 growing seasons ver 4. *Environmental Data Initiative*. <https://doi.org/10.6073/pasta/4a8bab842d44767b98af25d3d03473fc>
- 4 **Zipper S**, EG Booth, SP Loheide (2015). WSC - Yield and water table depth shapefiles from Wibu field site ver 4. *Environmental Data Initiative*. <https://doi.org/10.6073/pasta/af72a3f20b6be1e98c95feb935241827>
- 3 **Zipper S**, EG Booth, SP Loheide (2015). WSC - Leaf area index (LAI) at various points within Wibu field site, 2012-2014 ver 4. *Environmental Data Initiative*. <https://doi.org/10.6073/pasta/a579a3ae1dd50263b2efb0bc927d4b77>

- 2 **Zipper S**, EG Booth, SP Loheide (2015). WSC - Soil moisture, temperature, and water potential at Wibu field site ver 4. *Environmental Data Initiative*.
<https://doi.org/10.6073/pasta/aab85fe7324b15bb0e8f048ead7826c2>
- 1 **Zipper S**, J Schatz, SP Loheide (2015). WSC - Hourly meteorological data for Wibu field site, 2012-2013 ver 4. *Environmental Data Initiative*.
<https://doi.org/10.6073/pasta/4cdf67b003591fc4be9a3d8db100ef4a>

Grants

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

Grants - Active Projects

- 2024-2025 **Phase 2 - Advancing operational analytical streamflow depletion models in Sonoma County and Scott Valley, CA**
Total Award: \$84,000
Funder: The Nature Conservancy-California
PI: S Zipper (lead)
Zipper Role: Project PI and leading streamflow depletion modeling efforts.
- 2024-2026 **Quantitative Analysis of Trends in Kansas' Hydroclimatic Compound Extremes**
Total Award: \$161,879
Funder: Kansas Water Office
PIs: S Zipper (lead), G Talukdar, EC Seybold, J Kastens
Zipper role: Project PI; leading integration across objectives and personnel supervision.
- 2024-2025 **Hydrologic Stable States Analysis**
Total Award: \$17,546
Funder: KU Research GO
PIs: J Roundy (lead), S Zipper
Zipper role: Contributing to analysis of streamflow and groundwater stability.
- 2024-2028 **Integrating on-farm solar arrays to enhance recharge, produce energy, and diversify farm income**
Total Award: \$881,526 (+ \$881,527 matching funds)
Funder: Foundation for Food and Agriculture Research, Seeding Solutions program
PIs: S Zipper (lead), J Butler, J Kalbas, BB Wilson, J Ifft, A Kendall, A Anctil
Zipper Role: Project PI; leading coalition-building and implementation.
- 2023-2024 **Developing a groundwater quality model to investigate irrigation and climate impacts on Uranium and sulfate contamination in the Upper Arkansas River corridor**
Total Award: \$35,000
Funder: Kansas Water Office
PIs: G Liu (lead), EC Seybold, S Zipper
Zipper Role: Primary mentor of student who will be conducting the modeling.
- 2023-2027 **Increasing Water Productivity, Soil Carbon and Sustainability of Integrated Multi-Crop Systems Using Field Scale Research**
Total Award: \$7.7 million (+ \$8.7 million matching funds)

Funder: Foundation for Food and Agriculture Research, Sustainable Water Management program area

PIs: D Ruiz Diaz (lead), J Aguilar, S Archontoulis, J Dhillon, J Holman, V Kumar, A Margenot, A Obour, B Olson, O Ortezt, M Reiman, C Rice, A Rosa, L Zeglin, **S Zipper (KU lead)**

Zipper Role: KU lead PI; leading soil hydrology and groundwater aspects of project.

2022-2025 **Managing Temporal Trade-Offs through Irrigation and Yield Forecasting to Advance Groundwater Conservation**

Total Award: \$100,000

Funder: 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

Funder: USDA NIFA Agriculture and Food Research Initiative, Water Quantity and Quality program area

PIs: **S Zipper (lead)**, KS Nelson, E Seybold, V Sharda

Zipper Role: Project PI; lead of hydrologic analysis and socio-environmental integration.

2022-2024 **Sustaining ecosystem services in agricultural landscapes through a better understanding of decision-support systems**

Total Award: \$299,509

Funder: USDA NIFA Agriculture and Food Research Initiative, Sustainable Agroecosystems program area

PIs: C Wardropper (lead), **S 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: \$1,611,722

Funder: 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.

2020-2024 **RII Track II-FEC: Aquatic Intermittency effects on Microbiomes in Streams (AIMS).**

Total Award: \$6,597,214

Funder: 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.

Grants - Completed Projects

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)

Funder: Kansas Water Resources Institute/USGS 104b

PIs: Admin Husic (lead), **S Zipper**

Zipper Role: Co-PI; leading numerical modeling as supervisor of GRA on project.

2023-2024 **Developing a Unified Modeling Approach to Assess Streamflow Depletion Impacts Due to Groundwater Pumping**

Total Award: \$82,500

Funder: The Nature Conservancy-California

PI: **S Zipper (lead)**

Zipper Role: Project PI and leading streamflow depletion modeling efforts.

2019-2023 **Evaluating playas in Western Kansas: Recharge to the High Plains Aquifer and economics of cropping**

Total Award: \$277,615

Funder: EPA Wetland Program Development Grant (through Kansas Water Office).

PIs: R Stotler (lead), AE Brookfield, J Kastens, **S Zipper**

Zipper Role: Co-PI; lead of ecohydrological modeling.

2020-2022 **Spatial variability and subsurface controls of groundwater recharge and nutrient mobilization in dry streams**

Total Award: \$40,000

Funder: Kansas Water Resources Institute/USGS 104b

PIs: EC Seybold (lead), **S Zipper**, C Zhang

Zipper Role: Co-PI; lead of hydrogeological analysis

2019-2021 **Visualizing the Invisible: Causes, Consequences, Changes, and Management of Streamflow Depletion across the U.S.**

Total Award: \$163,530

Funder: USGS Powell Center Working Group.

PIs: AE Brookfield (lead), LM Hays, MC Hill, **S 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

Funder: Colorado Water Center Research Team Grant.

PIs: A Bhaskar (lead), 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)

Funder: FORMAS- Swedish Research Council for Sustainable Development

PIs: L Gordon (lead), L Wang-Erlandsson, F Jaramillo

Zipper Role: Co-wrote proposal as postdoc under PI Tom Gleeson, carried out Earth System interactions analysis.

2019 **Using unmanned aerial vehicles (UAVs) for variable rate soil and water management in the Wisconsin Central Sands**

Total Award: \$15,000

Funder: Wisconsin Potato and Vegetable Growers Association.

PIs: M Nocco (lead), J Prater, **S 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)

Funder: BC Ministry of Environment Groundwater Science Program

PI: T Gleeson

Zipper Role: Lead Author and Project Leader as postdoc under T Gleeson.

2015-2016 **Learning for and adapting to surprises: Resilience to water-related hazards in Germany and the USA**

Total Award: \$2000 + travel funds

Funder: 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

Funder: 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

Funder: University of Wisconsin Anna Grant Birge Memorial Fund

Zipper Role: Award recipient as Ph.D. student

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 & Fellowships

2022 **Kohout Early Career Award.** Geological Society of America Hydrogeology Division.

2022 **Hydroinformatics Innovation Fellowship.** Consortium of Universities for the Advancement of Hydrologic Sciences, Inc. (CUAHSI).

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.

2015 **Green Talents Award.** German Federal Ministry of Education and Research (BMBF).

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

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

2009 **Summer Student Fellowship.** Woods Hole Oceanographic Institution.

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

Presentations – Invited Seminars and Panels

- 37 Seminar: Developing opportunities for improved water, crop, and energy outcomes in Kansas. *Kansas Farm Bureau Environment and Natural Resources committee*. 2024.
- 34 – 36 Seminar: Agrohydrology in the Anthropocene: Irrigation impacts on the stream, aquifer, and atmosphere.
- Presented at:
- Baylor University, Department of Geosciences, 2024.
 - University of Arkansas, Department of Geosciences, 2023.
 - University of Kansas, Department of Geology, 2023.
- 33 Panel: Successful U.S. Interagency Government Partnerships. *NASA Water Resources Program Meeting*, 2023.
- 32 Seminar: Exploring linkages between hydrology and biogeochemistry across perennial to non-perennial flow regimes in the Great Plains – and beyond. (Joint seminar with Erin Seybold). *USGS Kansas Water Science Center*, 2023.
- 31 Seminar: 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.
- 30 Panel: Streamflow Depletion- Visualizing the Invisible, A USGS Powell Center Working Group Experience. *Transforming Critical Zone Research Through Shared Science, Tools, Data, and Philosophy*, American Geophysical Union, 2022.
- 29 Seminar: 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 (Virtual)*, 2022.
- 28 Seminar: Where did my water go? Irrigation and water conservation impacts on the stream, aquifer, and atmosphere. *Iowa State University, Department of Agronomy (Virtual)*, 2021.
- 27 Panel: Synthesis- Collaboration, Integration, and Approach. Part of web panel on *Tools for integrating and synthesizing data from CZOs and watershed sites*, Consortium of Universities for the Advancement of Hydrologic Sciences Inc (CUAHSI). 2021.
- 21 – 26 Seminar: 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 (Virtual), 2021.
 - University of Nebraska-Lincoln, Department of Civil & Environmental Engineering (Virtual), 2021.
 - University of Cincinnati, Department of Geography (Virtual), 2021.
 - Wichita State University, Department of Geology (Virtual), 2020.
 - Kansas State University, Ecology and Evolutionary Biology Seminar (Virtual), 2020.
 - University of Tulsa, Department of Geosciences (Virtual), 2020.

- 20 Seminar: Climate Change and Groundwater Resources in Kansas. Kansas Department of Agriculture, Division of Water Resources (Virtual), 2020.
- 19 Panel: Effectively Using and Ethically Sharing Open Data. *Navigating Academic Waters: Essential Skills to Thrive as a Student and Early Career Scientist*, Consortium of Universities for the Advancement of Hydrologic Sciences Inc (CUAHSI). 2020.
- 18 Panel: Understanding the Broader Range of Concerns Related to Drainage Water Management. *Linking Soil and Watershed Health to In-Field and Edge-of-Field Management Workshop*. Foundation for Food and Agriculture Research, 2020.
- 14 – 17 Seminar: 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.
- 13 Seminar: Cannabis California: Testing Analytical Streamflow Depletion Models for Conjunctive Water Management in Data-Limited Settings. California Water Science Team, The Nature Conservancy (Virtual), 2019.
 - 12 Seminar: Evaluating cannabis and residential pumping impacts on streamflow using analytical tools. Western Groundwater Working Group, The Nature Conservancy (Virtual), 2019.
 - 11 Seminar: Of Corn, Cities, and Cannabis: Hydrogeology for landscape-scale water and ecosystem sustainability. Kansas Geological Survey, University of Kansas, 2018.
 - 10 Seminar: Hydrogeology for landscape-scale water and ecosystem sustainability. University of Wisconsin-Stevens Point, Center for Watershed Science and Education, 2018.
 - 9 Seminar: 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.
 - 8 Seminar: Of Corn, Cities, and Cannabis: Groundwater connections between local land use and distant ecosystems. Pomona College, Department of Geology, 2018.
 - 7 Panel: Data Sandbox Panelist. *Socio-Hydrological Dynamics Workshop*, Santa Fe Institute. 2018.
 - 6 Seminar: Eco-hydrogeologic feedbacks following land cover change. University of Alaska-Anchorage, Department of Geological Sciences, 2018.
 - 5 Seminar: Hydrogeologic controls on ecosystem services. University of Iowa, Department of Earth & Environmental Sciences, 2018.
 - 4 Seminar: Ecohydrology for the Anthropocene. University of Birmingham (UK), Geography Department, 2017.
 - 3 Seminar: Groundwater, agroecosystems, and urbanization: Land use as an ecohydrological lever. Appalachian State University, Department of Geology, 2017.

- 2 Seminar: Groundwater, crop yield, and urbanization. Forschungszentrum Jülich (Germany), TR32 General Meeting, 2016.
- 1 Seminar: The ecohydrology of agroecosystems: Implications for food, water, and watersheds. Montana State University, Department of Land Resources and Environmental Sciences, 2016.

Presentations – Conferences and Meetings

Underlined + italicized = student or postdoc under my direct supervision
* = invited speaker

- 166 ***Zipper S (invited speaker)** (2024). Linking crop insurance and water management through satellite-derived OpenET data. *USDA RMA Ogallala Aquifer Meeting*.
- 165 **Zipper S**, JJ Butler, T Foster, J Kastens, LT Marston, W Ndlovu, M Rahman, B Wilson (2024). Managing Temporal Trade-Offs through Irrigation and Yield Forecasting to Advance Groundwater Conservation. *NASA Water Resources Program Annual Meeting*.
- 164 Reinecke R, **S Zipper**, D Zamrsky, S Ruzzante, K Befus (2024). GroMoPo: A Groundwater Model Portal to enable Findable, Accessible, Interoperable, and Reusable (FAIR) groundwater modeling. *IAH2024 World Groundwater Congress*.
- 163 Ifft J, **S Zipper** (2024). Kansas Water Management Challenges and the US Federal Crop Insurance Program. *Kansas 2024 Risk and Profit Conference*.
- 162 Marston LT, C-Y Lin, ME Orduna Alegria, S Dhakal, **S Zipper** (2024). PyCHAMP: A Crop-Hydrological-Agent Modeling Platform for Groundwater Management. *iEMSs Biennial Conference*.
- 161 **Zipper S**, KM Befus, R Reinecke, D Zamrsky, T Gleeson, S Ruzzante, K Jordan, K Compare, D Kretschmer, M Cuthbert, T Castronova, T Wagener, MFP Bierkens, Y Pasner (2024). GroMoPo: A Groundwater Model Portal to enable Findable, Accessible, Interoperable, and Reusable (FAIR) groundwater modeling. *WaterSciCon*.
- 160 **Zipper S**, J Kastens, T Foster, BB Wilson, F Melton, A Grinstead, JM Deines, JJ Butler, LT Marston (2024). Estimating irrigation water use using remotely sensed evapotranspiration data: Accuracy and uncertainties. *WaterSciCon*.
- 159 Talukdar G, **S Zipper**, A Custard, C Hatley, EC Seybold (2024). Unraveling Changing Precipitation Patterns over US Great Plains. *WaterSciCon*.
- 158 Hatley C, EC Seybold, **S Zipper**, DW Kincaid, K Underwood, DM Rizzo, JN Perdrial, L Li, AJ Burgin (2024). Event-scale concentration-discharge relationships in a strongly reservoir-impacted regional river basin. *WaterSciCon*.
- 157 Chatterjee S, EC Seybold, **S Zipper** (2024). Exploring Temporal Dynamics of Nitrate Export in the Eastern Kansas River Basin. *WaterSciCon*.
- 156 Seybold EC, AJ Burgin, R Ramos, L Swenson, **S Zipper**, J Wilhelm, S Flynn, C Atkinson, M Wolford, K Zarek, CN Jones (2024). Network Fragmentation Drives Changes in Dissolved Streamwater Chemistry in a Non-perennial Stream Network. *WaterSciCon*.

- 155 Burgin AJ, K Aho, D Allen, C Atkinson, J Benstead, S Godsey, RL Hale, C Jackson, NJ Jones, K Kuehn, D Lemke, KA Lohse, EC Seybold, AJ Shogren, S Speir, Y You, L Zeglin, **S Zipper**, MH Busch, SC Cook, M Kraft, J Ibal, S Plont, R Ramos, AM Belskis, E Bilbrey, C Brown, A Babbitt, E Crowther, CT Bond, H Czech, J Hanschu, S Flynn, ALK Tchamba, P Knight, R Lanfear, B Nave, J Leavell, S Newcomb, D Peterson, M Sclafani, BL Richards, C Smith, A Sniadach, A Sommerville, SG Thomas, C Utzman, R Wakefield, C Wheeler, J Wilhelm, M Wolford, K Zarek (2024). Fostering big data integration using team science: The Aquatic Intermittency effects of Microbiomes in Streams (AIMS) Project. *WaterSciCon*.
- 154 Brookfield AE, P Bosompemaa, MC Hill, B Tian, Q Wei, H Wilson, **S Zipper** (2024). Supporting Sustainable Water Management Decisions with Science. *Toward Sustainable Groundwater in Agriculture Conference*.
- 153 ***Zipper S (invited symposium speaker)** (2024). Linking agricultural water management to the soil-plant-atmosphere continuum through a social-environmental systems approach. *Soil Science Society of America Bouyoucos Summer Meeting*.
- 152 Swenson L, **S Zipper**, A Husic, A Pandit (2024). Evaluating deep learning model performance for simulating streamflow depletion caused by groundwater pumping. *HydroML 2024 Symposium*.
- 151 Lin C-Y, ME Orduna Alegria, **S Zipper**, LT Marston (2024). CHAMP: A Modeling Playform for Sustainable Groundwater Management Through Human-Environmental Interactions. *EWRI Congress 2024*.
- 150 Orduna Alegria ME, **S Zipper**, JJ Butler, B Golder, BB Wilson, BW Griggs, C-Y Lin, DJ Yu, DO Whittemore, GC Bohling, HC Shin, JM Deines, JJ Allen, LT Marson, MR Sanderson, NP Hendricks, Q Yu, S Lauer, SM Smith (2024). From Local Success to Global Solutions: Tenets for Effective Groundwater Governance. *European Geophysical Union General Assembly*.
- 149 Yuan X, G Liu, EC Seybold, **S Zipper**, D Whittemore, B Wilson (2024). Model assessment of groundwater contamination by sulfate and uranium in the Upper Arkansas River corridor. *Kansas Natural Resources Conference*.
- 148 Onyekwelu I, V Sharda, **S Zipper** (2023). Managing irrigation water resources under novel climate risks: A Spatial Crop Model Framework for the Eastern Kansas River Basin of the US Great Plains. *South Dakota Student Water Conference*.
- 147 ***Zipper S (invited speaker)**, BB Wilson, T Foster, J Kastens, A Grinstead, JM Deines, J Butler, L Marston (2023). Evaluating irrigator-driven groundwater conservation practices using remotely sensed evapotranspiration data. *American Geophysical Union Fall Meeting*.
- 146 **Zipper S**, KM Befus, R Reinecke, D Zamrsky, T Gleeson, S Ruzzante, K Jordan, K Compare, D Kretschmer, M Cuthbert, T Castronova, T Wagener, MFP Bierkens (2023). GroMoPo: A Groundwater Model Portal to enable Findable, Accessible, Interoperable, and Reusable (FAIR) groundwater modeling. *American Geophysical Union Fall Meeting*.

- 145 Swenson L, **S Zipper**, A Husic, A Pandit (2023). Predicting Streamflow in Intensively-Managed Agricultural Basins across High Plains Aquifer. *American Geophysical Union Fall Meeting*.
- 144 Lin C-Y, ME Orduna Alegria, **S Zipper**, LT Marston (2023). Exploring the Interplay of Heterogeneity in Coevolved Human-Water Systems for Effective Community-Driven Groundwater Management. *American Geophysical Union Fall Meeting*.
- 143 Orduna Alegria ME, C-Y Lin, **S Zipper**, LT Marston (2023). Effective Groundwater Governance for Agriculture: Advancing Understanding of Social and Environmental Processes for Effective Groundwater Management. *American Geophysical Union Fall Meeting*.
- 142 Orduna Alegria ME, **S Zipper**, JJ Butler (2023). Managing Groundwater Depletion: Insights from the Irrigator-Driven Sheridan-6 Local Enhanced Management Area in Kansas. *American Geophysical Union Fall Meeting*.
- 141 Hill MC, RW Barron, P Pfromm, V Amanor-Boadu, H Wu, L Edmonds, A Brookfield, **S Zipper**, P Bosompemaa, A Modarresi, J Bloodgood, J Symons (2023). Low Carbon Opportunities for Arid Agricultural Areas Impacted by Climate Change: The FEWtures Experience in the Central Arkansas River basin (CARB) with Global Interaction Evaluation using GCAM. *American Geophysical Union Fall Meeting*.
- 140 Onyekwelu I, V Sharda, **S Zipper**, SM Welch, X Lin (2023). Managing irrigation water resources under novel climate risks in the Eastern Kansas River Basin of the US Great Plains. *BioKansas Innovation Festival*.
- 139 **Zipper S**, BB Wilson, F Melton, T Foster, J Kastens, A Grinstead, JM Deines, J Butler, L Marston (2023). Evaluating remotely sensed estimates of irrigation at the field, well, and district scale. *Kansas Hydrology Seminar*.
- 138 Orduna Alegria ME, **S Zipper**, JJ Butler (2023). Policy, Hydrological, and Economic Factors and Outcomes Underlying the SD-6 LEMA's First Decade. *Kansas Governor's Conference on the Future of Water*.
- 137 **Zipper S**, BB Wilson, F Melton, T Foster, J Kastens, A Grinstead, JM Deines, J Butler, L Marston (2023). Evaluating irrigator-driven groundwater conservation practices using remotely sensed evapotranspiration data. *Kansas Governor's Conference on the Future of Water*.
- 136 Rahman M, **S Zipper** (2023). Irrigation water use and crop yield prediction using AquaCrop-OSPy model and OpenET data. *Kansas Governor's Conference on the Future of Water*.
- 135 Gambill I, **S Zipper**, MF Kirk (2023). Exploring drivers of groundwater recharge in Konza Prairie with transfer function noise models. *Kansas Governor's Conference on the Future of Water*.
- 134 Chatterjee S, EC Seybold, **S Zipper** (2023). Exploring temporal trends of nitrate expert in the Eastern Kansas River basin. *Kansas Governor's Conference on the Future of Water*.

- 133 Hatley C, EC Seybold, **S Zipper**, AJ Burgin, D Kincaid, J Perdrial, L Li (2023). Event scale nitrate transport dynamics in the Kansas River basin. *Kansas Governor's Conference on the Future of Water*.
- 132 Ndlovu W, **S Zipper**, T Foster (2023). Sensitivity Analysis and Performance Evaluation of the AquaCrop-OS Model for Corn Yield and Irrigation in Northwestern Kansas. *ASA, CSSA, SSSA International Annual Meeting*.
- 131 Bosompemaa P, AE Brookfield, **S Zipper**, MC Hill (2023). Using a National Hydrologic Model to Obtain Regional Water Supply Estimates: The Case of the Heavily-Stress Central Arkansas River Basin (CARB). *Geological Society of America Annual Meeting*.
- 130 **Zipper S**, JJ Butler, T Foster, J Kastens, LT Marston, W Ndlovu, M Rahman, B Wilson (2023). Managing Temporal Trade-Offs through Irrigation and Yield Forecasting to Advance Groundwater Conservation. *NASA Water Resources Program Annual Meeting*.
- 129 Onyekwelu I, V Sharda, **SC Zipper**, SM Welch, X Lin (2023). Towards managing and preserving irrigation resources under novel climate risks in the Eastern Kansas River Basin of the US Great Plains. *American Society of Agricultural and Biological Engineers (ASABE) Annual International Meeting*.
- 128 Ndlovu W, **S Zipper**, T Foster (2023). Global Sensitivity Analysis of the AquaCrop-OSPy Model for Corn Yield and Irrigation Under Different Water Treatments (Sheridan, KS). *Community Surface Dynamics Modeling Conference*.
- 127 Hill M, P Bosompemaa, **S Zipper**, A Brookfield, E Peltier (2023). 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*.
- 126 Zamrsky D, **S Zipper**, R Reinecke, K Befus, D Kretschmer, S Ruzzante, K Compare, K Jordan, M Bierkens, T Gleeson (2023). Groundwater Model Portal (GroMoPo) – collecting and sharing groundwater model information in a standardized open-access database. *European Geophysical Union Annual Meeting*.
- 125 **Zipper S**, DA Lapides, JC Hammond (2022). Hunting for hints of streamflow depletion in hydrographs. *American Geophysical Union Fall Meeting*.
- 124 *Zeglin L, T Kerner, K Aho, J Brisendine, C Bond, A Burgin, P Hansen, C Jackson, K Kuehn, S Lee, B Nave, R Ramos, T Semenova-Nelsen, E Seybold, B Sikes, L Swenson, ALK Tchamba, S Thomas, C Wheeler, A Wohler, Y You, **S Zipper** (2022). Assessing terrestrial-aquatic microbiome connectivity in non-perennial streams. *American Geophysical Union Fall Meeting*. ***Invited speaker**.
- 123 Burgin A, D Allen, C Brown, S Cook, S Flynn, B Nave, E Seybold, L Swenson, C Wheeler, J Wilhelm, L Zeglin, K Zarek, **S Zipper** (2022). 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*.

- 122 Seybold E, A Burgin, C Brown, S Speir, C Wheeler, **S Zipper** (2022). Linking oxygen regimes to flow regimes in non-perennial streams. *American Geophysical Union Fall Meeting*.
- 121 Molling CM, **S Zipper** (2022). The interdependence of soil health, hydrology, carbon, and greenhouse gas emissions: A multi-model comparison. *American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting*.
- 120 Schneider B, K Jordan-Koenig, **S Zipper** (2022). Using GIS to inform fieldwork safety planning. *Kansas Association of Mappers Meeting*.
- 119 **Zipper S**, A Brookfield, J Deines, J Kastens (2022). Evaluating groundwater conservation using emerging remotely sensed products. *Governor's Conference on the Future of Water in Kansas*.
- 118 Ndlovu W, **S Zipper** (2022). Assessment of the AquaCrop-OSPy model in simulating crop-water productivity in a corn field (Sheridan-6 LEMA, Kansas). *Governor's Conference on the Future of Water in Kansas*.
- 117 Swenson L, **S Zipper**, A Burgin, C Hatley, N Jones, M Kirk, D Peterson, E Seybold (2022). Changes in Baseflow Sources During the Dry-Down of a Non-Perennial Headwater Stream. *Governor's Conference on the Future of Water in Kansas*.
- 116 Wheeler C, **S Zipper**, S Cook, D Peterson, S Godsey (2022). STICr: An open-source package and workflow for processing and analyzing stream intermittency data. *Governor's Conference on the Future of Water in Kansas*.
- 115 **Zipper S**, I Popescu, K Compare, C Zhang, EC Seybold (2022). Groundwater-driven alternative stable states in a large non-perennial river. *Geological Society of America Annual Meeting*.
- 114 Modi R, **S Zipper**, B Schneider, E Seybold (2022). Characterizing subsurface flow pathways underlying an intermittent river using multiple geophysical methods. *Geological Society of America Annual Meeting*.
- 113 Porter ME, AE Brookfield, **S Zipper**, MC Hill (2022). Using national datasets to detect streamflow depletion in the Middle Arkansas River Watershed, Kansas. *Geological Society of America Annual Meeting*.
- 112 **Zipper S**, JJ Butler, T Foster, J Kastens, LT Marston, B Wilson (2022). Managing Temporal Trade-Offs through Irrigation and Yield Forecasting to Advance Groundwater Conservation. *NASA Water Resources Program Annual Meeting*.
- 111 Zarek K, C Wheeler, J Wilhelm, E Seybold, **S Zipper**, A Burgin (2022). Watershed Network Dry Down Effects on Dissolved Gas Concentrations (N₂, Ar, O₂) in a Prairie Stream. *Alabama Water Resource Conference*.
- 110 Peterson D et al (2022). Investigating physical drivers of stream intermittency in Alabama. *Alabama Water Resource Conference*.
- 109 Kerner T et al (2022). Microbiomes across an intermittent stream network in the Konza Prairie, Kansas, USA. *Gordon Research Conference*.

- 108 **Zipper S**, I Popescu, K Compare, E Seybold, C Zhang (2022). Alternative stable states and stabilizing feedbacks in a large non-perennial river. *AGU/CUAHSI Frontiers in Hydrology Meeting*.
- 107 **Zipper S** (2022). Do we know how to estimate streamflow depletion caused by groundwater pumping? Envisioning a community benchmarking resource. *AGU/CUAHSI Frontiers in Hydrology Meeting*.
- 106 Bosompemaa P, **S Zipper**, A Brookfield, M Hill (2022). Quantifying Water Sustainability in the Central Arkansas River Basin: Evaluating Existing Tools at the Regional Scale. *AGU/CUAHSI Frontiers in Hydrology Meeting*.
- 105 Wheeler C, **S Zipper**, A Burgin (2022). 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*.
- 104 Swenson L, **S Zipper**, A Burgin, C Hatley, N Jones, M Kirk, D Peterson, E Seybold (2022). Changes in Baseflow Sources During the Dry-Down of a Non-Perennial Headwater Stream. *AGU/CUAHSI Frontiers in Hydrology Meeting*.
- 103 Brookfield A, H Ajami, J Deines, A Kendall, **S Zipper** (2022). Estimating groundwater withdrawals for irrigation – A method comparison. *MODFLOW & More*.
- 102 Bosompemaa P, **S Zipper**, A Brookfield, M Hill (2022). Quantifying Water Sustainability in the Central Arkansas River Basin: Evaluating Existing Tools at the Regional Scale. *MODFLOW & More*.
- 101 Burke E, S Speir, C Wheeler, AJ Shogren, J Wilhelm, **S Zipper**, A Burgin (2022). Spatial and Temporal Variation in Suspended Solids During the Drydown of a Prairie Watershed. *Joint Aquatic Sciences Meeting*.
- 100 Burgin A, K Aho, DC Allen, C Atkinson, JP Benstead, J Brooks-Kieffer, SE Godsey, RL Hale, C Jackson, JT Johnson, CN Jones, KA Kuehn, KA Lohse, J Meisel, EC Seybold, AJ Shogren, Y You, LH Zeglin, **S Zipper**, SC Cook, BL Richards, SL Speir, SG Thomas, A Belskis, E Bilbrey, CT Bond, H Czech, SM Flynn, ALK Tchamba, P Kerner, RS Lanfear, L Swenson, BA Nave, DM Peterson, CJ Smith, CT Wheeler, JF Wilhelm, MA Wolford (2022). Building the AIMS Network: Exploring the Aquatic Intermittency effects of Microbiomes in Streams. *Joint Aquatic Sciences Meeting*.
- 99 Bond C, BA Nave, C Wheeler, T Kerner, K Aho, A Burgin, C Jackson, EC Seybold, Y You, LH Zeglin, **S Zipper**, K Kuehn (2022). Fungal biodiversity across an intermittent stream network at the Konza Prairie, Kansas, USA. *Joint Aquatic Sciences Meeting*.
- 98 Kerner T, BA Nave, C Wheeler, CT Bond, A Burgin, Seybold, K Kuehn, LH Zeglin, **S Zipper**, S Cook, K Aho, Y You (2022) Bacterial and Archaeal Communities Across an Intermittent Stream Network in the Konza Prairie. *Joint Aquatic Sciences Meeting*.
- 97 Nave B, AJ Burgin, CT Bond, KA Kuehn, C Wheeler, EC Seybold, Y You, **S Zipper**, LH Zeglin (2022). Bacterial and Fungal Abundance Responses to Hydrological Dynamics in an Intermittent Stream. *Joint Aquatic Sciences Meeting*.

- 96 Seybold EC, CA Atkinson, JP Benstead, CL Brown, SM Flynn, R Hale, CN Jones, SL Speir, L Swenson, C Wheeler, JF Wilhelm, MA Wolford, **S Zipper**, AJ Burgin (2022). Changes in groundwater contributions influence streamwater chemistry during dry-down of a non-perennial prairie stream network. *Joint Aquatic Sciences Meeting*.
- 95 Wilhelm JF, AJ Burgin, EC Seybold, C Wheeler, **SC Zipper**, K Zarek (2022). How does Drydown of an Intermittent Prairie Stream Network Affect Greenhouse Gas Concentrations? *Joint Aquatic Sciences Meeting*.
- 94 Datry T, D Allen, GH Allen, A Burgin, MH Busch, R Burrows, AG DelVecchia, W Dodds, M Fork, J Hammond, K Kaiser, CJ Little, M Messenger, M Mims, E Moody, J Olden, R Sarremejane, R Stubbington, J Tonkin, A Truchy, RH Walker, A Walters, S Yu, **S Zipper** (2022). Comparison of human-induced and naturally intermittent rivers: science, management, and policy implications. *Joint Aquatic Sciences Meeting*.
- 93 Zarek K, C Wheeler, J Wilhelm, E Seybold, **S Zipper**, A Burgin (2022). Watershed Network Dry Down Effects on Dissolved Gas Concentrations (N₂, Ar, O₂) in a Prairie Stream. *Joint Aquatic Sciences Meeting*.
- 92 Huggins X, T Gleeson, M Kummu, **S Zipper**, Y Wada, TJ Troy, JS Famiglietti (2022). Vulnerable basins for global prioritisation: Hotspots for social and ecological impacts from freshwater stress and freshwater storage loss. *European Geophysical Union General Assembly*.
- 91 **Zipper S**, K Compare, I Popescu, E Seybold, C Zhang (2021). Flow regimes and alternate stable states in a non-perennial river. *American Geophysical Union Fall Meeting*.
- 90 **Zipper S**, W Farmer, A Brookfield, H Ajami, H Reeves, C Wardropper, J Hammond, T Gleeson, J Deines (2021). Quantifying Streamflow Depletion for Science-Based Water Management: Challenges and Emerging Approaches. *American Geophysical Union Fall Meeting*.
- 89 Glose T, A Kendall, **S Zipper**, G Liu, J Deines, B Wilson, D Hyndman, J Butler (2021). Quantification of time-varying aquifer responses to adoption of low-pressure irrigation technology. *American Geophysical Union Fall Meeting*.
- 88 Glose T, **S Zipper** (2021). Weather whiplash across Kansas: Quantification of changes in spatial and temporal trends. *American Geophysical Union Fall Meeting*.
- 87 *Seybold EC, M Wolford, C Brown, A Burgin, S Flynn, S Godsey, R Hale, NC Jones, D Peterson, C Smith, S Speir, C Wheeler, J Wilhelm, **S Zipper** (2021). The effects of flow intermittency and groundwater-surface water exchange on stream biogeochemistry in a non-perennial prairie stream. *American Geophysical Union Fall Meeting*. ***Invited speaker**.
- 86 Kendall A, A Brady, J Deines, T Glose, **S Zipper**, X Liu, J Butler, D Hyndman (2021). Simulating the Hydrologic Effects of Aquifer-wide Adoption of Efficient Irrigation Technologies. *American Geophysical Union Fall Meeting*.
- 85 Ayers J, G Villarini, K Schilling, C Jones, A Brookfield, **S Zipper**, W Farmer (2021). On the role of climate in monthly baseflow changes across the continental United States. *American Geophysical Union Fall Meeting*.

- 84 *Loheide SP, **S Zipper**, ME Soylu, I Varvaris, C Kucharik (2021). Groundwater-crop interactions: How shallow groundwater affects yield and how groundwater management can close the yield gap. *American Geophysical Union Fall Meeting*. ***Invited speaker**.
- 83 Kar K, **S Zipper**, T Roy (2021). Identifying Nonlinear Change in Non-perennial Streamflow. *American Geophysical Union Fall Meeting*.
- 82 Price A, N Jones, J Hammond, M Zimmer, **S Zipper** (2021). The Drying Regimes of Non-Perennial Rivers and Streams. *American Geophysical Union Fall Meeting*.
- 81 **Zipper S**, E Seybold (2021). Groundwater-driven flow regimes and alternate stable states in the Middle Arkansas River, Kansas. *Governor's Conference on the Future of Water in Kansas*.
- 80 Wheeler C, **S Zipper** (2021). Stream network spatiotemporal connectivity at Konza Prairie, KS. *Governor's Conference on the Future of Water in Kansas*.
- 79 Glose T, **S Zipper** (2021). Weather whiplash in Kansas: Past and future. *Governor's Conference on the Future of Water in Kansas*.
- 78 Nerhus K, R Stotler, T Layzell, J Kastens, M Bowen, D Baker, A Brookfield, **S Zipper** (2021). Analyzing Land Use Effects on Recharge through Playas to the High Plains Aquifer in Western Kansas. *Geological Society of America Annual Meeting*.
- 77 Schneider B, MB Suarez, **S Zipper**, D Ortega-Ariza, LJ Seals, K Jordan, NM McLean, T Glose, D Mongovin, A Ahlert, M Proulx, A Gottberg (2021). Looking Forward: URGE action items underway from the KansasGeo Pod. *Geological Society of America Annual Meeting*.
- 76 Price AN, NC Jones, JC Hammond, MA Zimmer, **SC Zipper** (2021). The Drying Regimes of Non-Perennial Rivers and Streams. *California Section of the Society for Freshwater Sciences*.
- 75 Burgin AJ, J Brooks-Kieffer, B Richards, S Thomas, **S Zipper**, A Babbit, E Seybold (2021). Aquatic Intermittency effects on Microbiomes in Streams (AIMS): Successes and Challenges in Launching a new Track 2 during COVID. *National EPSCoR Meeting (Virtual)*.
- 74 Reeves H, **SC Zipper** (2021). Estimating impacts of groundwater withdrawals on streamflow. *International Association of Great Lakes Research meeting*.
- 73 Gutierrez-Cala L, A Zúñiga, C Gonzalez, J Salgado, L Saavedra-Díaz, M Lina, C Ricaurte, **S Zipper**, F Jaramillo. (2021). 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*.
- 72 Price A, NC Jones, J Hammond, M Zimmer, **S Zipper** (2021). The drying regimes of non-perennial rivers. *European Geophysical Union General Assembly*.
- 71 **Zipper S**, K Compare, E Seybold, C Zhang (2021). Groundwater-driven intermittency regimes in the Arkansas River, Kansas. *Geological Society of America – South Central Section Meeting*.

- 70 Glose T, **S Zipper**, J Deines, A Kendall, D Hyndman, J Butler (2021). Time lags between pumping reductions and recharge response under groundwater conservation. *Geological Society of America – South Central Section Meeting*.
- 69 **Zipper S**, K Kaiser, S Godsey, J Hammond, C Jones, J Blaszcak, M Shanafield, K Costigan, M Zimmer, D Allen, T Datry, G Allen, K Boersma, W Dodds, S Kampf, C Krabbenhoft, M Mims, J Olden, A Price (2020). Trends and drivers of changing stream intermittency across the United States. *American Geophysical Union Fall Meeting*.
- 68 McCarthy A, **S Zipper**, L Reinen (2020). Past and future drivers of surface water-groundwater interactions in the Kansas River Alluvial Aquifer. *American Geophysical Union Fall Meeting*.
- 67 Glose T, **S Zipper**, JM Deines, AD Kendall, DW Hyndman (2020). Projecting the long-term effectiveness of groundwater conservation initiatives: A western Kansas case study. *American Geophysical Union Fall Meeting*.
- 66 Compare K, **S Zipper**, E Seybold, C Zhang (2020). Groundwater-Driven Drying Regimes in a Seventh-Order Intermittent River. *American Geophysical Union Fall Meeting*.
- 65 Allen G, JD Olden, C Krabbenhoft, P Lin, M Shanafield, KM Fritz, CN Jones, WK Dodds, C Franklin, RL Hale, **SC Zipper**, AS Ward, T Datry, H Beck, JC Hammond, AJ Burgin, S Godsey, R Burrows, MA Zimmer, KH Costigan, M Mims, A Ruhi, AG DelVecchia, DC Allen (2020). Is our finger on the pulse? Assessing placement bias of the global river gauge network. *American Geophysical Union Fall Meeting*.
- 64 Hammond J, MA Zimmer, M Shanafield, S Godsey, KE Kaiser, M Mims, R Burrows, C Krabbenhoft, **SC Zipper**, SK Kampf, AN Price, T Datry, DC Allen, CN Jones, WK Dodds, GH Allen, KH Costigan, AS Ward, M Bogan, RL Hale, KS Boersma, JD Olden, J Hosen (2020). Assessing spatial patterns and drivers of intermittent flow in the contiguous U.S. *American Geophysical Union Fall Meeting*.
- 63 Huggins X, T Gleeson, M Kummu, **SC Zipper**, TJ Troy, Y Wada, JS Famiglietti (2020). Mapping the social-ecological hotspots of changing global freshwater availability. *American Geophysical Union Fall Meeting*.
- 62 Kerr B et al (2020). Connecting surface water and groundwater supply and demand over time and space to support sustainable water management. *International Water Resources Association Online Conference*.
- 61 Brookfield AE, W Farmer, A Hansen, MC Hill, T Layzell, M Porter, P Sullivan, **S Zipper** (2020). Untangling the implications of water management on hydrologic systems. *Geological Society of America Annual Meeting*.
- 60 Huang B, **SC Zipper**, J Qiu, SL Peng (2020). Groundwater effects on global ecosystem services. *Ecological Society of America*.
- 59 Wang-Erlandsson L, T Gleeson, F Jaramillo, **SC Zipper**, D Gerten, A Tobian, M Porkka, H Dahlmann, A Pranindita, RVD Ent, P Keys, I Fetzer, M Kummu, A Chrysafi, W Steffen, H Savenije, M Taniguchi, L Gordon, S Cornell, A Staal, Y Wada, M Falkenmark, J

- Rockström (2020). Towards a quantification of the water planetary boundary. *European Geophysical Union*.
- 58 Jaramillo F, S Manzoni, AS Crepin, J Rocha, L Wang-Erlandson, **S Zipper**, T Gleeson, P D’Odorico (2020). Exploring the existence of hydrological tipping points at the catchment-scale. *European Geophysical Union*.
 - 57 **Zipper S**, TP Gleeson, Q Li, B Kerr (2019). Exploring the potential and limits of analytical depletion functions for estimating streamflow. *American Geophysical Union Fall Meeting*.
 - 56 Boerman T, TP Gleeson, Q Li, **S Zipper** (2019). Modelling the Transient Effects of Groundwater Pumping on Groundwater Storage and Surface Water using Artificial Neural Networks. *American Geophysical Union Fall Meeting*.
 - 55 Li Q, **S Zipper**, T Gleeson, K Rathfelder, JA Ishikawa, M Simpson (2019). Quantifying the environmental flow response time to groundwater pumping using analytical depletion functions. *American Geophysical Union Fall Meeting*.
 - 54 **Zipper S** (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*.
 - 53 **Zipper S**, T Gleeson, B Kerr, Q Li, J Carah, J Howard, M Rohde, J Zimmerman, C Dillis (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*.
 - 52 Glose T, **S Zipper**, C Lowry, M Hausner (2019). Simplifying streambed heterogeneity representation for the investigation of streamflow depletion. *American Geophysical Union: Chapman Conference on Aquifer Sustainability*.
 - 51 Lamontagne-Hallé P, B Kurylyk, JM McKenzie, **S Zipper** (2019). Cold regions groundwater modelling: Are surface boundary conditions important? *International Union of Geodesy and Geophysics General Assembly*.
 - 50 Huggins X, TP Gleeson, **SC Zipper**, Y Wada, T Troy, JS Famiglietti (2019). The human dimensions of changing global freshwater availability. *American Geophysical Union Fall Meeting*.
 - 49 Gleeson T, L Wang-Erlandsson, **SC Zipper**, M Porkka, F Jaramillo, D Gerten, R Johan, T Oki, M Sivapalan, Y Wada, KA Brauman, M Flörke, MF Bierkens, B Lehner, P Keys, M Kumm, T Wagener, SJ Dadson, T Troy, W Steffen, M Falkenmark, JS Famiglietti (2019). Water cycle modifications and Earth System resilience: roadmap to a new water planetary boundary. *American Geophysical Union Fall Meeting*.
 - 48 Ebert L, A Chisholm, J Prater, **S Zipper**, A Talib, A Desai, M Nocco (2019). Using remotely piloted aircrafts to evaluate potato water stress in Central Wisconsin. *American Geophysical Union Fall Meeting*.
 - 47 Kurylyk B, J McKenzie, M Walvoord, P Lamontagne- Hallé, **S Zipper** (2019). Cold regions, groundwater and climate change: State of the science and future directions. *GAC-MAC-IAH Conference*.

- 46 **Zipper S**, TP Gleeson, B Kerr, J Howard, MM Rohde, JKH Zimmerman, J Carah (2018). Cannabis California: Testing analytical streamflow depletion models for conjunctive water management in data-limited settings. *American Geophysical Union Fall Meeting*.
- 45 **Zipper S**, K Stack Whitney, U Bhatia, JM Deines, KM Befus, C Brelsford, ME Garcia, TP Gleeson, FC O'Donnell, E Schlager (2018). Balancing open science and individual data privacy in the Earth Sciences. *American Geophysical Union Fall Meeting*.
- 44 Boerman T, T Gleeson, **S Zipper**, Y Wada (2018). Innovative water planning and management tool: Estimating streamflow depletion caused by groundwater pumping using neural networks. *American Geophysical Union Fall Meeting*.
- 43 Lamontagne-Hallé P, B Kurylyk, JM McKenzie, **SC Zipper** (2018). How will permafrost thaw affect the groundwater contribution to streams and lakes? *American Geophysical Union Fall Meeting*.
- 42 Kerr B, **S Zipper** (2018). Decision Support Tools for Sustainable Water Management. *California State Water Resources Control Board Groundwater-Surface Water Workshop*.
- 41 **Zipper S**, T Gleeson, B Kerr, M Rohde, J Howard, J Zimmerman, J Carah (2018). Keep It Simple, Stupid? An analytical decision-support tool for quantifying depletions of interconnected surface water due to groundwater pumping. *Western Groundwater Congress*.
- 40 **Zipper S**, T Gleeson, B Kerr (2018). Simple, transferable approaches for estimating streamflow depletion from wells. *Canadian Water Resources Association National Meeting*.
- 39 Boerman T et al (2018). Estimating streamflow depletion by groundwater pumping under transient conditions using neural networks. *Canadian Water Resources Association National Meeting*.
- 38 **Zipper S**, P Lamontagne- Halle, AV Rocha, JM McKenzie (2017). Groundwater controls on post-fire permafrost thaw. *American Geophysical Union Fall Meeting*.
- 37 Qiu J, **SC Zipper**, M Motew, E Booth, CJ Kucharik, LI Steven (2017). Nonlinear ecosystem services response to groundwater availability under climate extremes. *American Geophysical Union Fall Meeting*.
- 36 **Zipper S**, P Lamontagne- Hallé, JM McKenzie, AV Rocha (2017). Groundwater-permafrost interactions following fire: Water and energy balance effects. *Geological Society of America Annual Meeting*.
- 35 **Zipper S**, Loheide SP, JM McKenzie, T Gleeson, CJ Kucharik, ME Soylu (2017). Land use change in four dimensions: Groundwater as a vector for the lateral transmission of ecohydrological impacts. *NSF Critical Zone Science meeting*.
- 34 **Zipper S**, JM McKenzie, P Lamontagne-Halle, S Gruber (2017). Permafrost response to fire-induced changes in the energy and water balance. *Canadian Geophysical Union Annual Meeting*.

- 33 Lamontagne-Hallé P, B Kurylyk, JM McKenzie, **S Zipper** (2017). Groundwater models for cold regions: How do surface-layer boundary conditions affect hydrology simulation outcomes? *Canadian Geophysical Union Annual Meeting*.
- 32 Somers LD, JM McKenzie, **SC Zipper**, B Mark, P Lagos, M Baraer (2017). Climate change and enhanced recharge in a non-glacierized mountain catchment, Shullcas River, Peru. *Canadian Geophysical Union Annual Meeting*. **Best Student Presentation Award**.
- 31 Loheide SP, **S Zipper**, E Jobbagy, R Gimenez (2017). The influence of groundwater on agroecosystems and vice versa. *6th International Multidisciplinary Conference on Hydrology and Ecology*. **Keynote Presentation**.
- 30 McKenzie J, P Lamontagne-Hallé, **S Zipper**, B Kurylyk (2017). Advances in the simulation of groundwater flow and permafrost thaw. *European Geophysical Union General Assembly*.
- 29 Nocco M, **SC Zipper**, EG Booth, CR Cummings, MD Ruark, SP Loheide, CJ Kucharik (2017). 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*.
- 28 Nocco M, **SC Zipper**, S Loheide, C Kucharik (2016). 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*.
- 27 Qiu J, EG Booth, MM Motew, X Chen, **S Zipper**, SR Carpenter, CJ Kucharik, MG Turner (2016). Spatial-temporal dynamics of future ecosystem services in an urbanizing agricultural landscape. *Ecological Society of America Annual Meeting*.
- 26 **Zipper S**, ME Soylu, C Kucharik, SP Loheide (2016) AgroIBIS-MODFLOW (AIM): A new coupled groundwater-vadose zone-agroecosystem model. *American Water Resources Association Wisconsin Section Meeting*.
- 25 Soylu ME, **SC Zipper**, SP Loheide, CJ Kucharik (2016). A new coupled Earth's critical zone model: AgroIBIS-MODFLOW (AIM). *European Geophysical Union General Assembly*.
- 24 **Zipper S**, ME Soylu, E Booth, SP Loheide (2015). Impacts of shallow groundwater and soil texture on agricultural drought resistance. *American Geophysical Union Fall Meeting*.
- 23 Booth EG, X Chen, M Motew, J Qiu, **SC Zipper**, SR Carpenter, CJ Kucharik, Loheide SP (2015). 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*.
- 22 **Zipper S** (2015). Soil + Water = Food?. *American Geophysical Union Fall Meeting (Future Directions in Hydrology pop-up talks)*.
- 21 **Zipper S**, EG Booth, SP Loheide (2015). Untangling the influences of shallow groundwater and soil texture on corn yield variability. *American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting*.

- 20 Qiu J, **S Zipper**, CJ Kucharik (2015). 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*.
- 19 **Zipper S**, EG Booth, SP Loheide (2015). Untangling the influences of shallow groundwater and soil texture on corn yield variability. *Long Term Ecological Research Network All Scientist Meeting*.
- 18 **Zipper S**, ME Soyulu, EG Booth, SP Loheide (2015). Critical zone interactions between groundwater, soil, and agricultural production. *Geological Society of America North-Central Meeting*.
- 17 **Zipper S**, SP Loheide (2015). Mapping subfield-scale evapotranspiration to assess agricultural drought sensitivity. *Wisconsin Ecology Symposium*.
- 16 **Zipper S**, J Schatz, CJ Kucharik, SP Loheide (2015). Urban heat island impacts on evapotranspirative demand. *North Temperate Lakes LTER Young Scientist Meeting*.
- 15 **Zipper S**, SP Loheide (2015). Shallow groundwater and soil texture drive subfield-scale yield patterns. *American Water Resources Association Wisconsin Section Meeting*.
- 14 **Zipper S**, SP Loheide (2014). Mapping subfield-scale evapotranspiration to assess agricultural drought sensitivity. *American Geophysical Union Fall Meeting*.
- 13 **Zipper S**, ME Soyulu, S Loheide (2014). Soil texture and groundwater availability as drivers of subfield-scale yield variability. *American Water Resources Association Wisconsin Section Meeting*.
- 12 **Zipper S**, SP Loheide (2014). Spatially variable impacts of shallow groundwater and soil texture on yield. *Water for Food 2014 Global Conference. **First Prize, Scholarly Poster Competition***.
- 11 **Zipper S**, Loheide SP (2014). The influence of shallow groundwater on crop productivity. *International Long-Term Ecological Research All Scientists of the Americas Meeting*.
- 10 **Zipper S**, EG Booth, SP Loheide (2013). Groundwater subsidies and penalties to corn yield. *American Geophysical Union Fall Meeting*.
- 9 Booth EG, **SC Zipper**, SP Loheide, CJ Kucharik (2013). 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*.
- 8 **Zipper S**, SP Loheide* (2013). Persistent patterning of plant water use during drought, Yahara Watershed WI. *North Temperate Lakes LTER Young Scientist Meeting. ***Invited speaker***.
- 7 **Zipper S**, SP Loheide (2013). Mapping persistent patterns of evapotranspiration to assess ecosystem sensitivity. *Wisconsin Ecology Symposium*.
- 6 **Zipper S**, S Loheide (2013). Shallow groundwater impacts on corn biophysics and yield during a drought. *American Water Resources Association Wisconsin Section Meeting. **Best Student Presentation Award***.

- 5 Booth EG, **SC Zipper**, SP Loheide, CJ Kucharik (2012). Recharge as an ecosystem service and disservice in a Midwestern, urbanizing, agricultural watershed with an increasing precipitation trend. *American Geophysical Union Fall Meeting*.
- 4 ***Zipper S**, EG Booth, SP Loheide (2012). Water resources and crop production in the Yahara Watershed, Wisconsin. *Long Term Ecological Research Network All Scientist Meeting*. ***Invited speaker**.
- 3 **Zipper S**, EG Booth, SP Loheide (2012). Changes in crop productivity as a result of shallow groundwater, Yahara Watershed, Wisconsin. *Long Term Ecological Research Network All Scientist Meeting*.
- 2 **Zipper S**, SP Loheide (2012). Linking shallow groundwater to crop yield using remotely sensed data, Yahara Watershed, WI. *American Water Resources Association Wisconsin Section Meeting*.
- 1 **Zipper S**, L Giosan, TI Eglinton, D Montlucon, V Galy, C Ponton, AF Dickens, DR Griffith (2009). Lacustrine records of historical hydrology: Mackenzie River Delta, N.W.T., Canada. *American Geophysical Union Fall Meeting*.

Teaching & Mentoring

Supervising

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

KGS Interns supervised or supervised by my staff with Zipper acting as mentor:

- Compare, Kyle, Florida State University, Summer 2020. (directly supervised)
- Donnellan, Matthew, Temple University, Summer 2021. (directly supervised)
- Gambill, Ian, Colorado School of Mines, Summer-Fall 2023. (directly supervised)
- Grinstead, Ashley, UC-Santa Barbara, Summer 2022. (directly supervised)
- McCarthy, Abby, Pitzer College, Summer 2020. (directly supervised)
- Modi, Rashi, Colorado School of Mines, Summer 2022. (directly supervised)
- Nguyen, Michelle. University of Texas Rio Grande Valley, Summer 2024. (supervised by postdoc Malena Orduna Alegria, Zipper as primary mentor)
- Popescu, Ilinca, Stanford University, Summer 2021. (directly supervised)
- Preota, Sumiaya. University of Texas Rio Grande Valley, Summer 2024. (supervised by postdoc Gaurav Talukdar, Zipper as primary mentor)
- Spooner, Jacob. Kansas State University, Summer 2024. (supervised by Ph.D. student Logan Swenson, Zipper as primary mentor)
- Yu, Qiuyun (Cecilia), Virginia Tech, Summer 2023. (directly supervised)

Postdoctoral Scholars supervised:

Active

- Talukdar, Gaurav. Kansas Geological Survey, University of Kansas. 10/2023 – present.
- Orduna Alegria, Maria Elena (Malena). Kansas Geological Survey, University of Kansas. 01/2023 – present.

Past

- Glose, Thomas (Tom). Kansas Geological Survey, University of Kansas. 08/2019 – 08/2021. *Subsequent position*: Staff Hydrogeologist, LRE Water.
- Li, Qiang (John). Civil Engineering, University of Victoria. 10/2018 – 09/2019. (Primary research supervisor, though official supervisor was Tom Gleeson.). *Subsequent position*: Assistant Professor, Northwestern Agricultural and Forestry Science and Technology University (China).

Visiting Scholars hosted:

- Xiaolong Yuan. Qinghai Institute of Salt Lakes, Chinese Academy of Sciences. 04/2023 – 04/2024.
- S. Parimala Renganayaki. Vellore Institute of Technology (VIT), India. 06/2023 – 07/2023.
- C. Nathan Jones. Department of Biological Sciences, University of Alabama. 10/2022 (2 week visit).

Graduate students supervised committees as chair/co-chair:

Active

- 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.
- Rahman, Mahbubur. M.S., Geography. University of Kansas. 08/2023 – present. (GEOG co-chair: Xingong Li).
- Swenson, Logan. Ph.D., Geology. University of Kansas. 08/2021 – present. (GEOL co-chair: Rick Devlin).

Past

- Wheeler, Christopher. Ph.D., Geology. University of Kansas. 07/2021 – 06/2023. (GEOL co-chair: Dave Fowle).

Graduate student committees as participant:

Active

- Chatterjee, Shreya. Ph.D., Geology, University of Kansas. 03/2024 – present.
- Hatley, Camden. Ph.D., Geology, University of Kansas. 04/2024 – present.
- Nichols, Cody. Ph.D., Geology, University of Kansas. 04/2024 – present.
- Onyekwelu, Ikenna. Ph.D., Biological & Agricultural Engineering, Kansas State University. 01/2023 – present.
- Silwal, Abinash. M.S., Geography, University of Kansas. 06/2024 – present.
- Yu, Qiuyun (Cecilia). Ph.D., Civil & Environmental Engineering, Virginia Tech. 10/2021 – present.

Past

- Nerhus, Kaela. M.S., Geology, University of Kansas. 02/2021 – 05/2022.
- Podzikowski, Laura. Ph.D., Ecology & Evolutionary Biology, University of Kansas. 01/2021 – 05/2023.
- Porter, Elizabeth (Misty). Ph.D., Geology, University of Kansas. 02/2020 – 05/2023.

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.** 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 = 7 students. Module enrollment = 23 students.
- 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– **Teaching Assistant.** Pomona College Geology Department.
2008 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

- 2024 Geospatial Analysis using R. Numerical Methods in the Earth Sciences (GEOL 503). University of Kansas.
- 2023 Hydrogeology Field Methods. Environmental Monitoring and Field Methods (CE 736). University of Kansas.
- 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

- 2024 Giving and Receiving Feedback. University of Kansas.
Active Threat Training. Kansas Geological Survey/University of Kansas.
- 2023 Building Emerging STEM Scholars of Tomorrow – Entering Mentoring Training. Kansas Geological Survey/University of Kansas.
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– **Kohout Early Career Award Committee.**
current *Geological Society of America, Hydrogeology Division.*
Contributions include soliciting and reviewing nominations for the GSA’s Kohout Early Career Award.
- 2018– **Ecohydrology Technical Committee Member (2018-current).**
current **Deputy Chair (2024-2026).**
Head 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.
- 2021– **Diversity, Equity, Inclusion, and Belonging (DEIB) founding co-chair.**
2023 *Kansas Geological Survey.*
Founding co-chair of DEIB committee; see ‘Contributions to Diversity, Equity, and Inclusion’ section below for specific activities.
- 2013– **Graduate Student Site Representative**
2015 *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– **Graduate Student Representative**
2015 *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-creator 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-July 2023). <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.
- Created field safety documents for planning and leading field research
- Provided structured input to KGS Director search process
- Surveyed KGS-affiliated students regarding barriers to inclusion

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 Convened/Chaired/Moderated

The Coupling Mechanism of the Human-Nature System and the Path for the System Regulation. Asia Oceania Geosciences Society Annual Meeting, 2024.

Non-Perennial and Variably Inundated Waterways: Integrating Hydrological, Geochemical, Ecological, and Social Perspectives. American Geophysical Union Fall Meeting, 2023.

Hydrologic Trends in Kansas. Governor's Conference on the Future of Water in Kansas, 2023.

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, 2023.
- 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

- Natural Sciences and Engineering Research Council of Canada, 2024 (ad hoc, 1 proposal reviewed)
- 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*

86 *ad hoc* peer reviews for journals:

- Agricultural and Forest Meteorology
- Agricultural Water Management
- Archives of Agronomy and Soil Science
- Case Studies in Environment
- Communications Earth & Environment
- 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
- Nature Sustainability
- 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

- 2024 City of Haddam – Lift station project
- City of Coffeyville – Water treatment plant expansion
- City of Winfield – Water treatment improvements
- City of Hays – Water supply project
- 2023 City of West Mineral – Sanitary sewer system
- (14x) City of Edgerton – Dwyer Farms sanitary sewer
- City of Dexter – Water lines replacement
- City of Palmer – Lift station replacement
- City of Olsburg – Wastewater system improvements
- City of Ingalls – Wastewater system improvements
- City of Caney – Water system improvements
- Riley County – University Park wastewater system
- City of Kirwin – Water system improvements
- City of Parsons – Water meter replacement
- City of Canton – Water system improvements
- City of Atchison – Combined sewer system improvement
- City of Chase – Wastewater system improvements
- City of Tonganoxie – Wastewater treatment plant improvements
- 2022 City of Marysville – Wastewater treatment facility improvements
- (14x) Osborne County Rural Water District #1a – Water line replacement
- City of Esbon – Water line replacement
- City of Buren – Water distribution and sanitation projects
- City of Cedar Vale – Wastewater system improvements
- City of Hutchinson – Headworks grit removal
- City of Seneca – Water treatment plant

- Smith County – Rural water district no. 1
- City of Oketo – Water supply improvements
- City of Frontenac – Wastewater treatment improvements
- City of Belle Plaine – Lift stations
- City of Wichita – Wastewater treatment improvements
- City of Burr Oak – Nitrate removal plant and lift stations
- City of Moscow – Water well replacement
- 2021 Miami County (Bucyrus) – Wastewater treatment plant improvements (2021)
- (10x) 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)
- 2020 City of Linn Valley – Wastewater treatment lagoon project (2020)
- (9x) 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)
- 2019 City of Gove – Water tower improvements (2019)
- (3x) City of Cimarron – Wastewater treatment facility improvements (2019)
- City of Fredonia – Wastewater treatment facility improvements (2019)

Committees

* = committee chair or co-chair

- *KGS Postdoctoral Researcher search committee, 2024.
- *KGS Solar Recharge Project Coordinator search committee, 2024.
- *KGS Hydrologic Data Analyst search committee, 2024.
- *KGS Geohydrology Internship Program search committee, 2024.
- *KGS Hydrologic Data Scientist search committee, 2023-2024.
- *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.
- KBS/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 - KGS

- Evacuation Floor Marshall, Moore Hall 4th Floor, 2023 – present.
- Led emptying, cleaning, renovations, and repurposing for seven KGS office and laboratory spaces: Moore Hall 403, 413, 415, 503, 508, 519, and 604 (jointly with Erin Seybold).

Other – KU

- KU Organizational Representative, Consortium of Universities for the Advancement of Hydrologic Sciences Inc (CUAHSI), 2022 – present.

Other - External

- Effective Aquifer Governance for Agriculture working group participant, International Association of Hydrological Sciences (IAHS), 2023-current.
- USGS Ogallala Data Directory advisory group, 2020-2022.
- Missouri River Basin stakeholder feedback survey/interview, NASA Western Water Applications Office, 2021.

Public Engagement, Outreach, & Education

Engagement with Stakeholders in Kansas and Beyond

- Presentation: Presentation/discussion to appointed administrator of USDA Risk Management Agency on crop insurance and water management. September 2024.
- Participant: Interviewed by reported from High Plains Public Radio about solar power and groundwater recharge project. September 2024.
- Participant: Discussion with environmental nonprofit about water conservation monitoring and decision-making in Kansas. September 2024.
- Presentation: Presentation/discussion with California Department of Water Resources on streamflow depletion estimation approaches related to well permitting process and groundwater management. August 2024.
- Presentation: Presentation on water management and crop insurance at K-State Ag Econ Risk & Profit Conference for producers and agricultural finance industry. August 2024.
- Participant: Meeting with BC Ministry of Forests staff on approaches for assessing streamflow depletion caused by groundwater pumping. August 2024.
- Presentation: Presentation/discussion with California State Water Resources Control Board on streamflow depletion estimation approaches related to well permitting process and groundwater management. August 2024.
- Presentation: Presentation to California Department of Fish and Wildlife on streamflow depletion estimation approaches related to well permitting process. [Note: Prepared presentation, but staff member under my supervision gave presentation]. July 2024.

- Participant: Conversation with Environmental Defense Fund and KSU Extension regarding evapotranspiration monitoring for groundwater conservation. May 2024.
- Participant: Conversation with producers, KSU Extension, and Kansas Water Office staff about designing sensor networks to improve irrigation efficiency. April 2024.
- Participant: Kansas River Cleanup organized by Friends of the Kaw. April 2024.
- Participant: Conversation with producer and ag-tech company about sensor options for field-scale irrigation monitoring. March 2024.
- Participant: Background interview with journalist about crop insurance and water management practices. March 2024.
- Participant: Ogallala Summit (2-day event organized by Irrigation Innovation Consortium). March 2024.
- Participant: Discussion with producer, Kansas Water Office, and NASA about in-field instrumentation needs for satellite data validation. March 2024.
- Participant: Discussion with groundwater management district engineer and manager about watershed restoration plan. February 2024.
- Presentation: Developing opportunities for improved water, crop, and energy outcomes in Kansas. Kansas Farm Bureau Environment and Natural Resources committee. February 2024
- Organizer: Meeting with Lawrence Arts Center and KGS Outreach/Education staff about opportunities for science-art integration. February 2024.
- Organizer: Crop Insurance/Water Management Summit. ~35 attendees spanning agriculture, agency, policy, and research sectors. January 2024.
- Organizer: Meeting with Lawrence Arts Center staff about opportunities for science-art integration. December 2023.
- Participant: Discussion with producer, USDA RMA, and NASA regarding potential applications of evapotranspiration data for within-season water management and crop insurance programs. October 2023.
- Presentation: Evaluating remotely sensed estimates of irrigation at the field, well, and district scale. Kansas Hydrology Seminar, Association of Environmental and Engineering Geologists, November 2022.
- Participant: Discussion with Kansas Department of Agriculture, producers, and ag tech company about research and management possibilities related to real-time water use data. October 2023.
- Organizer: Discussion with USDA Risk Management Agency and K-State Extension on potential crop insurance and water management workshop. October 2023.
- Organizer: Discussion with K-State Extension on role of crop insurance in water management. October 2023.
- Organizer: Discussion with Kansas Department of Agriculture-Division of Water Resources about role of deep learning in water management. October 2023.
- Organizer: Discussion with farm and agricultural technology company on possibilities working with NASA data. October 2023.
- Organizer: SAFE KAW project stakeholder advisory group meeting (environmental, agricultural, and state agency constituents), October 2023.
- Participant: Meeting with NGO (The Nature Conservancy) and water tech company (Foundry Spatial) on appropriate tools for streamflow depletion assessment in well permitting. October 2023.

- Organizer: Discussion with farm and agricultural technology company on high-resolution water use data. September 2023.
- Organizer: Discussion with agricultural technology company on water rights and monitoring data. July 2023.
- Participant: Meeting with Kansas Department of Agriculture-Division of Water Resources on current state-level water research priorities. July 2023.
- Participant: Meeting with SW Kansas producer about potential dairy industry collaboration on water conservation efforts in GMD3. July 2023.
- Participant: Discussion with Savion and Evergy about ecology and hydrology aspects of proposed Kansas Sky Energy Project solar development near Lawrence KS. June 2023.
- Participant: Discussion with Evergy Corporate Strategy and Corporate Sustainability staff on climate resiliency in Kansas. June 2023.
- Presenter: Kansas Geological Survey Field Conference presentation on the hydrology of the Arkansas River. June 2023.
- Organizer: Discussion with Kansas Farm Bureau about potential solar recharge project in south-western Kansas. May 2023.
- Organizer: Discussion with Wheatland Electric Cooperative and Thunderstruck Farms about potential solar recharge project in south-western Kansas. May 2023.
- Participant: Meeting with Kansas producer (Dwane Roth) regarding potential for satellite-based irrigation management. May 2023.
- 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.
- Organizer: Meeting with Kansas Water Office and Kansas State Ag Extension staff about research priorities in the Kansas River watershed, April 2021.
- Organizer: Meeting with Friends of the Kaw and The Nature Conservancy – Kansas staff about research priorities in the Kansas River watershed, April 2021.
- 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.
- Organizer: Meeting with The Nature Conservancy – Kansas staff about water research priorities, March 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

- 2023 Hello to GroMoPo: Introducing a Community Groundwater Model Portal. *CUAHSI HydroInformatics Blog*. ([link](#))
- 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

- Beers of the Kaw. Friends of the Kaw, Lawrence KS (2023).
- 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

- 2024 Interview by Calen Moore, *High Plains Public Radio*, about solar recharge project (September 2024).
- I am striving to help sustain Kansas's water resources. *University of Kansas Office of Research* video series (July 2024). ([link](#)).
- 2023 Interviewed by A Martinez, *National Public Radio Morning Edition*, about planetary boundaries, climate change, and water resources (September 2023).
- Interviewed by Laura Bliss, writer for *Bloomberg News*, about groundwater pumping impacts on water resources (July 2023).
- Interviewed by Emma Flannery, writer for *Kansas City Magazine*, about climate-smart agriculture (July 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](#)).