

EDUCATION

- 2015 PhD, Freshwater & Marine Science; Environmental Remote Sensing minor
University of Wisconsin-Madison, Madison WI
- 2009 BA, Geology; Environmental Analysis minor (*cum laude*)
Pomona College, Claremont CA
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APPOINTMENTS & EXPERIENCE

- 2016-current Postdoctoral Fellow, Department of Earth and Planetary Sciences
McGill University, Montreal QC, Canada
- 2016 Visiting Scientist (Green Talents Fellow)
Centre for High-Performance Scientific Computing in Terrestrial Systems
Universität Bonn, Bonn, Germany
- 2016 Postdoctoral Research Associate, Department of Civil & Environmental Engineering
University of Wisconsin-Madison, Madison WI
- 2014-2016 SESYNC Graduate Research Fellow
National Socio-Environmental Synthesis Center, Annapolis MD
- 2015 Visiting Scientist
Universidad Nacional de San Luis, San Luis, Argentina
- 2011-2015 Graduate Research Assistant, Department of Civil & Environmental Engineering
University of Wisconsin-Madison, Madison WI
- 2009-2010 Summer Student Fellow & Research Assistant I, Department of Geology & Geophysics
Woods Hole Oceanographic Institution, Woods Hole MA
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PUBLICATIONS

2017

- 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*, Accepted (in press).
- 8 **Zipper SC**, J Schatz, CJ Kucharik, SP Loheide II (2017). Urban heat island-induced increases in evapotranspirative demand. *Geophysical Research Letters*, Accepted (in press). DOI: [10.1002/2016GL072190](https://doi.org/10.1002/2016GL072190)

2016

- 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):094021. DOI: [10.1088/1748-9326/11/9/094021](https://doi.org/10.1088/1748-9326/11/9/094021)
*SCZ. and J.Q. contributed equally and 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, Part A:153-165. DOI: [10.1016/j.ecoser.2016.08.007](https://doi.org/10.1016/j.ecoser.2016.08.007)
- 5 Vonk JE, AF Dickens, L Giosan, ZA Hussain, B Kim, **SC Zipper**, RM Holmes, DB Montlucon, V Galy, TI Eglinton (2016). Arctic deltaic lake sediments as recorders of fluvial organic matter deposition. *Frontiers in Earth Science*, 4:77. DOI: [10.3389/feart.2016.00077](https://doi.org/10.3389/feart.2016.00077)
- 4 Kang Y, M Ozdogan, **SC Zipper**, M Roman, J Walker, SY Hong, M Marshall, V Magliulo, J Moreno, L Alonso, A Miyata, B Kimball, SP Loheide II (2016). How universal is the relationship between remotely sensed vegetation indices and crop leaf area index? A global assessment. *Remote Sensing* 8(7):597. DOI: [10.3390/rs8070597](https://doi.org/10.3390/rs8070597)
- 3 **Zipper SC**, J Schatz, A Singh, P Townsend, CJ Kucharik, SP Loheide II (2016). Urban heat island impacts on plant phenology: Intra-urban variability and response to land cover. *Environmental Research Letters* 11(5):054023. DOI: [10.1088/1748-9326/11/5/054023](https://doi.org/10.1088/1748-9326/11/5/054023)

2015

- 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).
AGU EOS Research Spotlight, 20 January 2016

2014

- 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).
#13 'Hottest Article', *Agricultural & Forest Meteorology*, July-Sept. 2014

Currently Submitted or In Review

Zipper SC, ME Soylu, CJ Kucharik, SP Loheide II. Indirect groundwater-mediated effects of urbanization on agroecosystem productivity: Introducing MODFLOW-AgroIBIS (MAGI), a complete critical zone model. *In review (Ecological Modelling)*.

Zipper SC, KH Smith, B Breyer, J Qiu, A Kung, DL Herrmann. Socio-environmental drought response in a mixed urban-agricultural watershed: Synthesizing biophysical and governance responses. *In review (Ecology and Society)*.

Qiu J, SC Carpenter, EG Booth, MM Motew, **SC Zipper**, CJ Kucharik, X Chen, SP Loheide II, J Seifert, MG Turner. Scenarios reveal pathways to sustain future ecosystem services in an agricultural landscape. *In review (Ecological Applications)*.

SCIENTIFIC PRESENTATIONS

Year	Total	Presenting Author	Non-Presenting Author
2017	1	0	1
2016	6	3	3
2015	8	7	1
2014	4	3	1
2013	5	4	1
2012	4	3	1
2009	1	0	1

Invited Presentations

‘Groundwater, crop yield, and urbanization: Land use as an ecohydrological level’. Forschungszentrum Jülich (Germany), TR32 General Meeting, 2016.

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

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

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

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

Presenting Author

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

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

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

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

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

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

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

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

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

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

'Spatially variable impacts of shallow groundwater and soil texture on yield'. Water for Food 2014 Global Conference, 2014. Poster.

**First Prize, Scholarly Poster Competition.*

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

'Shallow groundwater impacts on corn biophysics and yield during a drought'. American Water Resources Association WI Section, 2013. Oral.

**Best Student Presentation Award.*

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

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

'Lacustrine records of historical hydrology: Mackenzie River Delta, N.W.T., Canada'. American Geophysical Union Fall Meeting, 2009. Poster.

GRANTS & FELLOWSHIPS

Pending Decision *Interactions between Hydrological and Terrestrial Sensitivity to Drought across a Climate Gradient* (\$144,681). US Geological Survey, Powell Center for Analysis and Synthesis. Role: PI.

EAR-PF: Bi-directional feedbacks between agroecosystems and groundwater (**\$174,000**). National Science Foundation, Earth Sciences Division Postdoctoral Fellowship Program. Role: PI.

2015 *Fellow, Green Talents – International Forum for High Potentials in Sustainable Development* (**€5250 + travel funds**). German Federal Ministry of Education and Research (BMBF). Recipient of Green Talents funding (~5% success rate) to attend Science Forum and 3-month research stay in Germany. Role: Fellow.

- 2014 *Learning for and adapting to surprises: Resilience to water-related hazards in Germany and the USA (\$2000 + travel funds)*. National Socio-Environmental Synthesis Center (SESYNC), graduate student pursuit fellowship. Role: Fellow.
Shallow groundwater, soil texture, and corn yield in the Argentine Pampas (\$2000). University of Wisconsin Anna Grant Birge Memorial Fund. Role: PI.
- 2012 *High-resolution imaging of the Yahara River Watershed (\$675)*. University of Wisconsin Anna Grant Birge Memorial Fund. Role: PI.
- 2009 *Summer Student Fellowship (\$6000 + travel funds)*. Woods Hole Oceanographic Institution. Role: Fellow.
- 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 & RECOGNITION

- 2016 *James R. Villemonte Excellence in Research Award*. University of Wisconsin-Madison Department of Civil & Environmental Engineering, Madison WI.
- 2014 *First Prize, Scholarly Poster Competition*. Water for Food Global Conference.
- 2013 *Best Student Oral Presentation*. American Water Resources Association WI Section.
- 2009 *Mason L. Hill Memorial Award in Geology*. Pomona College, Claremont CA.

TEACHING & MENTORING EXPERIENCE

- 2016 *Teaching Assistant*. Ecohydrology (CEE 619), University of Wisconsin-Madison, Madison WI.
- 2011-2015 *Undergraduate Research Advisor*. University of Wisconsin-Madison, Madison WI.
 Students (majors) advised: Hannah Friedrich (Geography), Erin Gross (Geological Engineering), Jeffrey Hatzel (GIS Certificate), Allison Lobue (Geosciences/Geological Engineering), Taylor Pomije (Biological Aspects of Conservation).
- 2015 *Teaching Assistant*. Ecohidrologia (Ecohydrology), Uni. Nacional de San Luis (Argentina).
- 2011 *Staff Science Tutor*. Harlem Village Academies High School, New York NY.
- 2007-2008 *Teaching Assistant*. Pomona College Geology Department, Claremont CA.
 Courses: Introductory Geology; Oceanography; Earth History; and Space: To Boldly Go?

Guest Lectures

- 2016 ‘Groundwater and crop yield’. Groundwater and Water Resources, McGill University.
 ‘Food security and environmental sustainability’. Resources & Sustainability, University of Wisconsin-Baraboo.
- 2015 ‘Ecohydrology: Earth science at the intersection of water and life’. Introduction to Environmental Geology, University of Wisconsin-Baraboo.

PROFESSIONAL SERVICE

Leadership

- 2013-2015 Graduate Student Site Representative
North Temperate Lakes (NTL-LTER)
Long Term Ecological Research Network
- 2012-2015 Graduate Student Representative
University of Wisconsin Ecology

Conference Sessions Chaired

‘Agriculture, Food Security, and Ecohydrology’. Green Talents Alumni Meeting, Berlin Germany, October 2016.

‘Water Quality A’. American Water Resources Association Wisconsin Section meeting, Wisconsin Dells WI, March 2016.

‘Drought resistance and resilience: Definitions, drivers, and responses across LTER ecosystems’. Long Term Ecological Research Network (LTER) All Scientist Meeting, Estes Park CO, September 2015. Co-convened with Dominick Ciruzzi.

Student Award Judging

American Water Resources Association Wisconsin Section meeting (March 2016), Graduate Student Oral Presentations Judge

Ad-Hoc Peer Reviewer

10 articles for 8 journals: Archives of Agronomy and Soil Science, Hydrology and Earth System Sciences, Journal of Water Resources Planning and Management, Remote Sensing, Stochastic Environmental Research and Risk Assessment, Urban Forestry & Urban Greening, Vadose Zone Journal, Water Resources Research

Society Memberships

American Geophysical Union (2011-present), American Water Resources Association (2012-present), Geological Society of America (2015-present)

PROFESSIONAL DEVELOPMENT

- 2016 ‘Increasing Research Self-Efficacy of your Trainees’. University of Wisconsin DELTA Program.
- 2015 ‘Preparing for an Academic Career in the Geosciences’. National Association of Geoscience Teachers.
- ‘Creating an Individual Development Plan’. University of Wisconsin DELTA Program.
- ‘Integrating Broader Impacts into your Research Proposal’. Wisconsin Institute for Science Education and Community Engagement.
- 2014 ‘Structural Equation Modeling Workshop’. James Grace (USGS), University of Wisconsin Ecology.

PUBLIC OUTREACH & EDUCATION

Writing for a Public Audience

- ‘The great American groundwater road trip: Interstate 80 over the Ogallala Aquifer’ (2016). *Water Underground*. ([link](#))
- ‘Baseflow, groundwater pumping, and river regulation in the Wisconsin Central Sands’ (2016). *Water Underground*. ([link](#))
- ‘Lake Mendota’s spring thaw and why it matters’ (2015). *Yahara in situ*. ([link](#))
- ‘1 city, 25,000 geoscientists’ (2015). *Yahara in situ*. ([link](#))
- ‘Going global with lessons from the Yahara’ (2014). *Yahara in situ*. ([link](#))
- ‘Pollination and groundwater’ (2014). *Yahara in situ*. ([link](#))
- ‘Crunch time for corn growers and field scientists’ (2014). *Yahara in situ*. ([link](#))

Events

- Toki Middle School Earth Day Every Day (2014).
- Wisconsin State Fair Limnology Exploration Station (2013).
- Winter Limnology (2013).
- Badger Ridge Middle School Day of Science (2012).

Media Coverage

- 2017 ○ *Yahara In Situ* ([link](#)). ‘Here’s more reason to green our cities’.
- 2016 ○ *Environmental Monitor* ([link](#)). ‘Parks can reduce urban heat island’.
- *Conservation Magazine* ([link](#)). ‘Parks provide islands of cool in urban areas’.
- *Voice of America* ([link](#)). ‘Spring comes earlier to urban environments’.
- *Environmental News Network* ([link](#)), *ScienceDaily* ([link](#)), *Phys.org* ([link](#)), *EnvironmentalResearchWeb* ([link](#)). ‘Spring comes sooner to urban heat islands, with potential consequences for wildlife’.
- *AGU Eos Research Spotlight* ([link](#)). ‘Soil texture determine how groundwater and rain impacts crops’.
- 2015 ○ *The Badger Herald* ([link](#)). ‘UW Ph.D. student wins German sustainability award’.
- *University of Wisconsin-Madison News* ([link](#)). ‘Ph.D. student wins Germany’s Green Talents Award’.
- *Wisconsin Ag Connection* ([link](#)). ‘UW-Madison study looks at crop benefits of higher water tables’.
- *Agri-View* ([link](#)). ‘Soggy not always a bad thing’.
- *Wisconsin State Farmer* ([link](#)). ‘High water tables impact crop yields’.
- *Yahara In Situ* ([link](#)). ‘High water tables can be a boon to crop yields’.
- 2014 ○ *Yahara In Situ* ([link](#)). ‘Thermal imagery to precision ag: understanding crop water needs’.