

Laura K. Lautz

Professor

Department of Earth Sciences

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EDUCATION

Ph.D., 2005 Department of Earth Sciences, Syracuse University, Syracuse, NY
M.Ed., 1999 Graduate School of Education, Harvard University, Cambridge, MA
B.S., 1998 Department of Geology & Environmental Geosciences, Lafayette College, Easton, PA
(*Magna Cum Laude*)

PROFESSIONAL APPOINTMENTS

2017 – present Professor, Department of Earth Sciences, Syracuse University, Syracuse, NY
2012 – 2017 Associate Professor, Department of Earth Sciences, Syracuse University, Syracuse, NY
2008 – 2012 Assistant Professor, Department of Earth Sciences, Syracuse University, Syracuse, NY
2005 – 2008 Assistant Professor, Department of Forest and Natural Resources Management, State University of New York, College of Environmental Science & Forestry, Syracuse, NY
2004 – 2005 Instructor, Department of Forest and Natural Resources Management, State University of New York, College of Environmental Science & Forestry, Syracuse, NY
2001 – 2002 Education and Public Outreach Coordinator, NASA's Comet Nucleus Tour (CONTOUR) Mission, Department of Astronomy, Cornell University, Ithaca, NY
1999 – 2001 Geology/Physical Science Teacher, Henry M. Gunn Senior High School, Palo Alto, CA

AWARDS AND HONORS

SyracuseCoE Faculty Fellow (SyracuseCoE is New York State's Center of Excellence for Environmental and Energy Systems), 2016-2019
Excellence in Graduate Education Faculty Recognition Award, Syracuse University, 2013
NSF CAREER Grant Recipient, 2008

PROFESSIONAL DEVELOPMENT

Faculty Leadership and Professional Development Program, Cornell University, January 2016
Denice Denton Emerging Leaders Workshop, University of Wisconsin-Madison, June 2016

RESEARCH FOCUS: I am a hydrogeologist whose research goal is to advance understanding of how physical hydrologic processes influence water quality and movement through watersheds and their underlying aquifers. I am interested in how water moves through paired surface water and groundwater systems, heat tracing, and interactions between energy and water systems. I work on interdisciplinary research projects, within which I use field observations coupled with modeling and stochastic methods.

RESEARCH FUNDING

Total Funding Awarded as PI: \$4,967,936; Total Funding Awarded as PI and co-PI: \$6,515,150

Temporal changes in methane concentrations in domestic groundwater wells in the Marcellus Shale region, Syracuse Center of Excellence, November 2016 – June 2017, **PI: L. Lautz**, co-PI's: G. Hoke, Z. Lu

Total Award: \$25,000

NRT: Education Model Program on Water-Energy Research (EMPOWER) at Syracuse University, National Science Foundation, April 2015 – March 2020, **PI: L. Lautz**, co-PI's: C. Driscoll, C. Scholz, T. Kahan, D. Torrance **Total Award: \$2,990,339**

Collaborative Research: Groundwater-surface water interactions in tropical alpine catchments and their influence on sources and stability of water supply during glacial recession, National Science Foundation, July 2013 – June 2018, **PI: L. Lautz**, co-PI's: B. Mark (Ohio State) **Total Award: \$611,900**

RAPID: Developing sensitive tests for detecting contamination associated with shale bed methane production in the Appalachian Basin, National Science Foundation, January 2013 – June 2015, **PI: L. Lautz**, co-PI's: G. Hoke, Z. Lu, D. Siegel, S. Samson **Total Award: \$95,574**

Early Career: Acquisition of an Isotopic Liquid-Water Analyzer for Hydrology and Earth Science Research and Education at Syracuse University, National Science Foundation, July 2012 – June 2013, **PI: L. Lautz**, co-PI's: G. Hoke, Z. Lu **Total Award: \$88,098**

Collaborative Research: Impacts of in-stream restoration on hydrological, chemical, and biological heterogeneity in the hyporheic zone, National Science Foundation, January 2010 – December 2015, **PI: L. Lautz**, co-PI's: T. Endreny, K. McGrath (SUNY-ESF) **Total Award: \$472,980**

CAREER: Integrating Research and Education to Advance the Use of Heat as a Tracer of Surface- Ground Water Interaction at Multiple Spatial and Temporal Scales, National Science Foundation CAREER Grant Program, March 2008 – July 2014, **PI: L. Lautz** (no co-PI's) **Total Award: \$595,130**

The Impact of Changing Climate on Winter Nitrogen Export from a Forested Watershed of the Adirondack Mountains, USDA McIntire-Stennis Cooperative Forestry Research Program, August 2007 - July 2010, **PI: L. Lautz**, co-PI: M. Mitchell (SUNY ESF) **Total Award: \$81,230**

Heat and Chemical Tracing of Contaminant Fluxes to Ninemile Creek, SUNY ESF Competitive Seed Grant, October 2007 - September 2008, **PI: L. Lautz** (no co-PI's) **Total Award: \$7,685**

Environmental Monitoring and Geoscience Surveying Applications for sUAS at Syracuse University, Research and Education for Safe and Secure Unmanned Systems: Phase I, College of Engineering & Computer Science and Office of Research, \$32,320, Nov 2016 – June 2017, **PI: C. Kelleher, Co-PIs: L. Lautz, R. Moucha, L. Condon, C. Scholz, J. Karson** **Total Award: \$35,322**

Project SWIFT: Shale-water Interaction Forensic Tools, Developing sensitive tests for detecting contamination associated with shale bed methane production in the Appalachian Basin: A pilot project in New York's Southern Tier, Syracuse University Seed Grant, June 2012 - December 2012. **PI: G. Hoke, co-PI's: L. Lautz, D. Siegel, Z. Lu** **Total Award: \$19,390**

Life Down Under: The forgotten hyporheic zone in stream restoration and development of a bioindicator of subsurface recovery, EPA: Syracuse Center of Excellence, August 2008 – July 2010, **PI: K. McGrath (SUNY ESF), co-PI: L. Lautz** **Total Award: \$100,000**

Evaluation and Protection of Adirondack Ecosystems: Impacts of Acid and Mercury, NYS Energy Research and Development Authority (NYSERDA), May 2008 - April 2011, **PI: M. Mitchell (SUNY ESF),**

co-PI's: L. Lautz, C. Driscoll (Syracuse Univ), P. McHale (SUNY-ESF), B. Mayer (Univ of Calgary)
Total Award: \$378,568

Water Flux and Nitrogen Cycling in the Hyporheic Zones of a Semi-Arid Watershed: Hydrologic and Geomorphic Driving Forces in a Transitional Climate, Water Cycle Research Program, EAR - Hydrologic Sciences, National Science Foundation, May 2005 - April 2010, PI: Siegel (Syracuse Univ), **co-PI's:** L. Lautz, A. Costello-Staniec (Syracuse Univ), T. Endreny, M. Mitchell (SUNY ESF)
Total Award: \$744,069

A Decision-Support System for Forest Management under Forest Tent Caterpillar Defoliation, USDA Forest Service NSRC, June 2007 – May 2009, PI: R. Yanai (SUNY ESF), **co-PI's:** L. Lautz, D. Parry, D. Allen (SUNY ESF), J. Carlson (NYS DEC), S. Wilmot (VT Forests, Parks and Rec) **Total Award: \$107,767**

Establishing, Maintaining and Monitoring the Willow Phytoremediation System at Fort Drum's Old Sanitary Landfill, Malcolm Pirnie, Inc, May 2007 - April 2008, PI: C. Novak (SUNY ESF), **co-PI:** L. Lautz, T. Volk (SUNY ESF) **Total Award: \$113,009**

Assessing the Ecosystem Services of Open Space for Water Resource Protection in the Moodna Watershed, NY, Water Resources Research Grant Program (Administered by the USGS, DOI and NYS DEC), PI: K. Limburg, V. Luzadis (SUNY ESF), **co-PI: L. Lautz** **Total Award: \$49,089**

PUBLICATIONS

*Student author, directly supervised by Lautz at time of publication;

**Student author of collaborator at time of publication

Google Scholar h-index = 21; Web of Science h-index = 17 (as of May 2017)

In Review:

*Chien, NP, **LK Lautz**, GD Hoke, Z Lu. in revision. Discriminant analysis as an improved quantitative method for geochemical fingerprinting of groundwater salinity.

Published or In Press:

49. *Ledford, SH, **LK Lautz**, PG Vidon, JC Stella. accepted and available online. Impact of seasonal changes in stream metabolism on nitrate concentrations in an urban stream. Biogeochemistry. doi: 10.1007/s10533-017-0336-7
48. *Glose, AM, **LK Lautz**, *EA Baker. 2017. Stream heat budget modeling with HFLUX: model development, verification, and applications across contrasting sites and seasons. Submitted to Environmental Modeling & Software. doi: 10.1016/j.envsoft.2017.02.021
47. Irvine, DJ, MA Briggs, **LK Lautz**, RP Gordon, JM McKenzie, I Cartwright. 2017. Using diurnal temperature signals to infer vertical groundwater-surface water exchange. Groundwater, 55(1): 10-26. doi: 10.1111/gwat.12459
46. *Irvine, DJ, MA Briggs, I Cartwright, CR Scruggs, **LK Lautz**. 2017. Improved vertical streambed flux estimation using multiple diurnal temperature methods in series. Groundwater, 55(1): 73-80. doi: 10.1111/gwat.12436
45. **Somers, L, *RP Gordon, JM McKenzie, **LK Lautz**, **O Wigmore, *AM Glose, *R Glas, **C Aubry-Wake, BG Mark, M Baraer, T Condom. 2016. Quantifying groundwater-surface water interactions in a proglacial valley, Cordillera Blanca, Peru. Hydrological Processes, 30(17):2915-2929. doi: 10.1002/hyp.10912

44. **Gutchess, K, L Jin, **LK Lautz**, SB Shaw, **X Zhou, Z Lu. 2016. Chloride sources in urban and rural headwater catchments, central New York. *Science of the Total Environment*, 565:462-472. doi: 10.1016/j.scitotenv.2016.04.181
43. *Ledford, SH, **LK Lautz**, JC Stella. 2016. Hydrogeologic processes impacting storage, fate, and transport of chloride from road salt in urban riparian aquifers. *Environmental Science & Technology*, 50(10):4979-4988. doi: 10.1021/acs.est.6b00402
42. *Christian, K, **LK Lautz**, GD Hoke, DI Siegel, Z Lu, J Kessler. 2016. Methane occurrence is associated with sodium-rich valley waters in domestic wells overlying the Marcellus Shale in New York State. *Water Resources Research*, 52(1):206-226. doi: 10.1002/2015WR017805
41. Birkel, C, C Soulsby, *DJ Irvine, I Malcolm, **LK Lautz**, D Tetzlaff. 2016. Heat-based hyporheic flux calculations in heterogeneous salmon spawning gravels. *Aquatic Sciences*, 78(2):203-213. doi: 10.1007/s00027-015-0417-4
40. **Aubry-Wake, C, M Baraer, JM McKenzie, BG Mark, **O Wigmore, R Hellstrom, **LK Lautz**. 2015. Glacier surface temperature measurements using ground-based infrared imagery: new insights for melt influence of margins and debris cover. *Geophysical Research Letters*, 42(20):8489-8497. doi:10.1002/2015GL065321.
39. *Irvine, DJ, **LK Lautz**, MA Briggs, *RP Gordon, JM McKenzie. 2015. Experimental evaluation of the applicability of phase, amplitude, and combined methods to determine water flux and thermal diffusivity from temperature time series using VFLUX 2. *Journal of Hydrology*, 531(3):728-737. doi:10.1016/j.jhydrol.2015.10.054
38. **Smidt, S, **J Cullin, A Ward, **J Robinson, *M Zimmer, **L Lautz**, T Endreny. 2015. A comparison of hyporheic transport at a stream restoration structure and natural feature. *Ground Water*, 53(6):859-871. doi:10.1111/gwat.12288.
37. Lu, Z, **S Hummel, **LK Lautz**, GD Hoke, **X Zhou, J Leone, DI Siegel. 2015. Iodine as a sensitive tracer for detecting influence of organic-rich shale in shallow groundwater. *Applied Geochemistry*, 60: 29-36. doi: 10.1016/j.apgeochem.2014.10.019
36. *Irvine, DJ, **LK Lautz**. 2015. High resolution mapping of hyporheic fluxes using streambed temperatures: Recommendations and limitations. *Journal of Hydrology*, 524:137-146. doi:10.1016/j.jhydrol.2015.02.030
35. *Gordon, RP, **LK Lautz**, JM McKenzie, BG Mark, **D Chavez, M Baraer. 2015. Sources and pathways of stream generation in tropical proglacial valleys of the Cordillera Blanca, Peru. *Journal of Hydrology*, 522:628-644. doi:10.1016/j.jhydrol.2015.01.013
34. *Irvine, DJ, R Cranswick, CT Simmons, M Shanafield, **LK Lautz**. 2015. The effect of streambed heterogeneity on temperature time series methods to quantify groundwater-surface water exchange. *Water Resources Research*, 51(1):198-212. doi:10.1002/2014WR015769
33. *Zimmer, MA, **LK Lautz**. 2015. Pre- and post-restoration assessment of stream-ground water interactions: impacts on hydrological and chemical heterogeneity in the hyporheic zone. *Freshwater Science*, 34(1):287-300. doi: 10.1086/679514.
32. *Ledford, SH, **LK Lautz**. 2015. Floodplain connection buffers seasonal changes in urban stream water quality. *Hydrological Processes*, 29(6):1002-1016. doi:10.1002/hyp.10210
31. Briggs, MA, **LK Lautz**, SF Buckley, JW Lane. 2014. Practical limitations on the use of vertical temperature profiles to quantify groundwater upwelling. *Journal of Hydrology*, 519 Part B:1739-1751. doi:10.1016/j.jhydrol.2014.09.030.
30. **Lautz, LK**, GD Hoke, Z Lu, DI Siegel, *K Christian, J Kessler, **NG Teale. 2014. Using discriminant analysis to determine sources of salinity in shallow groundwater prior to hydraulic fracturing. *Environmental Science & Technology*, 48(16):9061-9069. doi: 10.1021/es502244v.

29. *Briggs, MA, **LK Lautz**, *DK Hare. 2014. Residence time control on hot moments of net nitrate production and uptake in the hyporheic zone. *Hydrological Processes*, 28(11):3741-3751. doi:10.1002/hyp.9921
28. *Zimmer, MA, **LK Lautz**. 2014. Temporal and spatial response of hyporheic zone geochemistry to a storm event. *Hydrological Processes*, 28(4):2324-2337. doi:10.1002/hyp.9778
27. *Daniluk, TL, **LK Lautz**, *RP Gordon, TA Endreny. 2013. Surface water-groundwater interaction at restored streams and associated reference reaches. *Hydrological Processes*, 27(25):3730-3746. doi:10.1002/hyp.9501.
26. *Gordon, RP, **LK Lautz**, *TL Daniluk. 2013. Spatial patterns of hyporheic exchange and biogeochemical cycling around cross-vane restoration structures: implications for stream restoration design. *Water Resources Research*, 49(3). doi:10.1002/wrcr.20185.
25. *Briggs, MA, **LK Lautz**, *DK Hare, R González-Pinzón. 2013. Relating hyporheic fluxes, residence times, and redox-sensitive biogeochemical processes upstream of beaver dams. *Freshwater Science*, 32(2):622-641. doi: 10.1899/12-110.1
24. *Kurian, LM, **LK Lautz**, MJ Mitchell. 2013. Winter hydrology and NO₃⁻ export from a forested watershed: a detailed field study in the Adirondack Mountains of New York, USA. *Journal of the American Water Resources Association*, 49(2):264-283. doi: 10.1111/jawr.12012
23. Jin, L, DI Siegel, **LK Lautz**, Z Lu. 2012. Identifying streamflow sources during spring snowmelt using water chemistry and isotopic composition in semi-arid mountain streams. *Journal of Hydrology*, 470-471:289-301. doi:10.1016/j.jhydrol.2012.09.009
22. **Lautz, LK**, *RE Ribaudo. 2012. Scaling up point-in-space heat tracing of seepage flux using bed temperatures as a quantitative proxy. *Hydrogeology Journal*, 20(7):1223.1238. doi: 10.1007/s10040-012-0870-2
21. **Lautz, LK**. 2012. Observing temporal patterns of vertical flux through streambed sediments using time-series analysis of temperature records. *Journal of Hydrology*, 464-465:199-215. doi:10.1016/j.jhydrol.2012.07.006.
20. *Briggs, MA, **LK Lautz**, JM McKenzie, *RP Gordon, *D Hare. 2012. Using high-resolution distributed temperature sensing to quantify spatial and temporal variability in vertical hyporheic flux, *Water Resources Research*, 48, W02527. doi:10.1029/2011WR011227.
19. *Briggs, MA, **LK Lautz**, JM McKenzie. 2012. A comparison of fiber-optic Distributed Temperature Sensing to traditional methods of evaluating groundwater inflow to streams. *Hydrological Processes*, 26(9):1277-1290. doi: 10.1002/hyp.8200.
18. *Gordon, RP, **LK Lautz**, *MA Briggs, JM McKenzie. 2012. Automated calculation of vertical pore-water flux from field temperature time series using the VFLUX method and computer program. *Journal of Hydrology*, 420-421:142-158. doi: 10.1016/j.jhydrol.2011.11.053
17. **Fabian, MW, TA Endreny, A Bottacin-Busolin, **LK Lautz**. 2011. Seasonal variation in cascade driven hyporheic exchange, northern Honduras. *Hydrological Processes*, 25(10):1630-1646. doi:10.1002/hyp.7924
16. Endreny, TA, **LK Lautz**, DI Siegel. 2011. Hyporheic flow path response to hydraulic jumps at river steps: hydrostatic model simulations. *Water Resources Research*, 47, W02518. doi:10.1029/2010WR010014.
15. Endreny, TA, **LK Lautz**, DI Siegel. 2011. Hyporheic flow path response to hydraulic jumps at river steps: flume and hydrodynamic models. *Water Resources Research*, 47, W02517. doi:10.1029/2009WR008631.
14. *Hubbard, KA, **LK Lautz**, MJ Mitchell, B Mayer, ER Hotchkiss. 2010. Evaluating nitrate uptake and spiraling in a Rocky Mountain stream using labeled 15N and ambient nitrate chemistry. *Hydrological Processes*, 24(23):3322-3336. doi: 10.1002/hyp.7764

13. **Lautz, LK**, NT Kranes, DI Siegel. 2010. Heat tracing of heterogeneous hyporheic exchange adjacent to in-stream geomorphic features. *Hydrological Processes*, 24(21):3074-3086. doi: 10.1002/hyp.7723
12. **Jin, L, DI Siegel, **LK Lautz**, MJ Mitchell, DE Dahm, and B Mayer. 2010. Calcite precipitation driven by the common ion effect during groundwater-surface water mixing: a potentially common process in streams with geologic settings containing gypsum. *The Geologic Society of America Bulletin*, 122(7-8):1027-1038. doi: 10.1130/B30011.1
11. **Lautz, LK**. 2010. Impacts of non-ideal field conditions on vertical water velocity estimates from streambed temperature time series. *Water Resources Research*, 46, W01509. doi:10.1029/2009WR007917.
10. Bauer, RL, DI Siegel, EA Sandvol, **LK Lautz**. 2009. Integrating hydrology and geophysics into a traditional geology field course: The use of advanced project options. In *Field Geology Education: Historical Perspectives and Modern Approaches*, Geological Society of America Special Papers 2009, 461, p. 135-154. doi:10.1130/2009.2461(12).
9. **Jin, L, DI Siegel, **LK Lautz** and MH Otz. 2009. Transient storage and the scaling of solute transport in a second order mountain stream. *Hydrological Processes*, 23(17):2438-2449. doi: 10.1002/hyp.7359.
8. **Lautz, LK**, *RM Fanelli. 2008. Seasonal biogeochemical hotspots in the streambed around restoration structures. *Biogeochemistry*, 91(1): 85-104. doi: 10.1007/s10533-008-9235-2
7. *Fanelli, RM, **LK Lautz**. 2008. Water, heat and solute fluxes through the hyporheic zone of small dams. *Ground Water*, 46(5): 671-687. doi: 10.1111/j.1745-6584.2008.00461.x
6. **Lautz, LK**. 2008. Estimating groundwater evapotranspiration rates using diurnal water table fluctuations in a semi-arid riparian zone. *Hydrogeology Journal*, 16(3): 483-497. doi: 10.1007/s10040-007-0239-0
5. **Lautz, LK**, DI Siegel, RL Bauer. 2007. Dye tracing through Sinks Canyon: incorporating advanced hydrogeology into the University of Missouri's geology field camp. *Journal of Geoscience Education*, 55(3): 197-202.
4. **Lautz, LK**, DI Siegel. 2007. The effect of transient storage on nitrate uptake lengths in streams: an inter-site comparison. *Hydrological Processes*, 21(26): 3533-3548. doi: 10.1002/hyp.6569
3. **Lautz, LK**, DI Siegel. 2006. Modeling Surface and Ground Water Mixing in the Hyporheic Zone Using MODFLOW and MT3D. *Advances in Water Resources*, 29: 1618-1633. doi: 10.1016/j.advwatres.2005.12.003
2. **Lautz, LK**, DI Siegel, RL Bauer. 2006. Impact of Debris Dams on Hyporheic Interaction Along a Semi-arid Stream. *Hydrological Processes*, 20(1):183-196. doi: 10.1002/hyp.5910
1. **Heberlig, LK**, I Valiela, BJ Roberts, and LA Soucy. 1997. Field Verification of Predictions of the Waquoit Bay Nitrogen Loading Model. *Biological Bulletin*, 193: 294-295.

TEACHING

Courses Currently Offered:

EAR 401/601 (formerly 541) – Hydrogeology, 3 credits, offered every fall (2010 – present): This course provides an introduction to groundwater hydrology for upper-level undergraduates and graduate students. Topics include the hydrologic cycle, properties of aquifers, principles of groundwater flow, flow to wells, water chemistry and groundwater contamination. Typical enrollment is about 15 students.

EAR 665 – Groundwater Modeling, 3 credits, offered alternating spring semesters (2006 – present): This is a graduate course covering the fundamentals of water movement in the subsurface, including properties of aquifers and governing equations of groundwater flow. We then examine how MODFLOW, a widely-used USGS groundwater flow model, applies these concepts to simulate the movement of water and solutes in the subsurface. Typical enrollment is about 10 students.

EAR 612 – Water-Energy Seminar, 1 credit, offered every semester (2013 – present): This is a graduate reading seminar that is integrated with a seminar series featuring research in science and engineering at the interface of water and energy. The course is part of the EMPOWER NRT program, and the University Provost’s Water Initiative. Typical enrollment is about 15 students.

Previous Course Offerings:

EAR 106 – Geohazards & Natural Disasters, 3 credits (2010 – 2014): This course is a large, introductory survey course emphasizing Earth processes that create geohazards, such as earthquakes, volcanic eruptions, floods, climate change, and environmental contamination. Typical enrollment is 160-180 students.

EAR 660 – Advanced Hydrological Field Methods, 3 credits (2007 – 2011): This course provides hands-on experience using current instrumentation and measurement techniques in hydrology. Emphasis is on fundamental theory governing application, demonstrations of application from the literature, and in-depth field experiments. Typical enrollment is 5-10 students.

EAR 483/683 – Department Colloquium, 1 credit (Spring and Fall of 2009): This is a course linked to the Earth Sciences departmental seminar series. Enrollment is typically 2-5 students.

EAR 440/640 and FOR 340/540 – Watershed Hydrology, 3 credits (2004 – 2009): This course is a physical hydrology course offered for undergraduate majors in multiple degree programs and graduate students. Typical enrollment is 50-65 students.

FOR 443/643 – Forest Hydrology, 3 credits (2005 – 2008): This is an advanced course in physical hydrology for undergraduates and graduate students. Typical enrollment is 15-25 students.

FOR 797 – Seminar on Hydrology and Biogeochemical Processes, 1 credit (2008): This is a course linked to an interdisciplinary seminar series cross-listed by multiple departments at SUNY ESF. Typical enrollment is 5-8 students.

FOR 496/797 – Seminar on Environmental Career Strategies for Women, 1 credit (2007 – 2008): This is a seminar-style course for discussion of issues relevant for women in academia and other professional arenas. Typical enrollment is 10-15 students.

GEOL 4992 – Geology Field Course (Univ of Missouri-Columbia), 6 credits, offered every summer (2003 – 2010): I was an instructor for the 2-week hydrogeology component of this geology field camp, which provides instruction on field methods in surface water and groundwater hydrology. Typical enrollment is 35-45 students.

STUDENT AND POST-DOCTORAL RESEARCH ASSOCIATE ADVISING

Current Graduate Students:

Emily Baker, **PhD**, degree expected Spring 2019 (Research Topic: Stream-Groundwater Interaction in Glaciated Catchments)

Nathaniel Chien, **MS**, degree expected Spring 2018 (Research Topic: Fingerprinting Sources of Salinity in Groundwater Using Multivariate Statistical Modeling)

Robin Glas, **PhD**, degree expected Spring 2018 (Research Topic: Stream-Groundwater Interaction in Glaciated Catchments)

Amanda Schulz, **PhD**, degree expected Spring 2020 (Research Topic: Methane Occurrence in Shallow Groundwater of the Marcellus Shale Region)

Previous Post-Doctoral Research Associates:

Ryan Gordon, **2014-2015**, Stream-Groundwater Interaction in Glaciated Catchments (now a Senior Hydrogeologist with the Maine Geological Survey)

Dylan Irvine, **2013-2014**, Heat Tracing of Surface Water-Groundwater Interaction (now a Lecturer at Flinders University in Australia.)

Previous Graduate Students (in reverse chronological order):

- Sarah Ledford, **PhD**, Syracuse University, February **2016** (Dissertation Title: The impact of surface water-groundwater interactions on water quality in an urban stream) – now a postdoctoral research associate at Temple University
- Kayla Christian, **MS**, Syracuse University, May **2015** (Thesis Title: Methane occurrence in domestic wells overlying the Marcellus shale) – now a Hydrologist at the USGS Indiana Water Science Center.
- Ryan Gordon, **PhD**, Syracuse University, December **2013** (Dissertation Title: Quantifying groundwater-surface water interactions to improve the outcomes of human activities) – now a Senior Hydrogeologist with the Maine Geological Survey
- AnneMarie Glose, **MS**, Syracuse University, June **2013** (Thesis Title: Stream heat budget modeling with the HFLUX stream temperature solver: Model development, verification, and applications) – now working for Stantec environmental consulting firm in Thousand Oaks, CA
- Margaret Zimmer, **MS**, Syracuse University, May **2013** (Thesis Title: Effects of stream restoration and storm events on stream-groundwater interactions) – now an Assistant Professor at UC Santa Cruz
- Martin Briggs, **PhD**, Syracuse University, May **2012** (Dissertation Title: Using emerging methods to investigate stream and groundwater interaction at multiple spatial scales) – now in a permanent research position, USGS Office of Groundwater, Branch of Geophysics
- Timothy Daniluk, **MS**, Syracuse University, August **2011** (Thesis Title: Impacts of stream restoration on surface water-groundwater interaction) – now working for Environmental Resources Management consulting firm in Syracuse, NY
- Lisa Kurian, **MS**, SUNY ESF, June **2009** (Thesis Title: Winter Hydrology and Nitrogen Export from a Forested Watershed of the Adirondack Mountains) – now working for the US Forest Service in Willamette National Forest, Oregon
- Rachel Ribaud, **MS**, SUNY ESF, June **2009** (Thesis Title: Heat and Geochemical Tracing of Groundwater Discharge to Nine Mile Creek, New York) - now working for EA Engineering, Science and Technology in Syracuse, NY
- Ken Hubbard, **MS**, SUNY ESF, December **2008** (Thesis Title: Evaluating Nitrate Uptake and Geochemistry Patterns Using a ¹⁵N Tracer and Hyporheic Zone Pore Water Chemistry) - now working for Buckeye Partners in the corporate environmental department
- Rosemary Fanelli, **MS**, SUNY ESF, June **2007** (Thesis Title: Evaluating Morphology-Driven Hyporheic Exchange and Subsurface Biogeochemical Cycling in a Semi-arid Stream) – now a Research Hydrologist with the US Geological Survey
- Johanna Duffy, **MPS**, SUNY ESF, December **2009**
- Thomas Sesto, **MPS**, SUNY ESF, December **2008**

Awards Received by Advisees:

- Emily Baker (SU, MS): Central New York Association of Professional Geologist's Grant for Student Research; NE GSA Travel Grant; EMPOWER NRT Fellowship
- Martin Briggs (SU, PhD): Syracuse University Doctoral Dissertation Prize; Syracuse University Graduate Fellowship; National Science Foundation East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI) Grant; Newton E. Chute Award (Syracuse Earth Sciences most outstanding graduate student); Syracuse Earth Sciences Publication Award
- Nathaniel Chien (SU, MS): EMPOWER NRT Fellowship
- Kayla Christian (SU, MS): McNair Graduate Fellowship; Geological Society of America Research Grant

Robin Glas (SU, PhD): Syracuse University Water Fellowship; Geological Society of America Research Grant, EMPOWER NRT Fellowship; NSF GRIP Internship; KD Nelson Award (Syracuse Earth Sciences award for excellence in geophysical research)

AnneMarie Glose (SU, MS): Marjorie Hooker Award (Syracuse Earth Sciences award for best thesis proposal)

Ryan Gordon (SU, PhD): 2010 National Science Foundation Graduate Research Fellowship; CUAHSI Pathfinder Fellowship; Geological Society of America Research Grant (Rated in Top 3 in Hydrogeology); Marjorie Hooker Award (Syracuse Earth Sciences award for best thesis proposal); Newton E. Chute Award (Syracuse Earth Sciences most outstanding graduate student); Syracuse Earth Sciences Publication Award; Syracuse University Water Fellowship

Sarah Ledford (SU, PhD): Alec Waggoner Research Grant; Geological Society of America Research Grant; Syracuse Earth Sciences Publication Award; Syracuse University Water Fellowship; Chair's Award (Syracuse Earth Sciences award for outstanding service to the Department)

Amanda Schulz (SU, PhD): AAPG Grants-in-Aid Research Award; Geological Society of America Research Grant; EMPOWER NRT Fellowship, Syracuse University Water Fellowship

Margaret Zimmer (SU, MS): 2013 National Science Foundation Graduate Research Fellowship; Honorable Mention in 2012 National Science Foundation Graduate Fellowship Competition; Geological Society of America Research Grant; AGU Outstanding Student Paper Award; Newton E. Chute Award (Syracuse Earth Sciences most outstanding graduate student)

Danielle Hare (SU, BS): Norma Slepecky Award recognizing Undergraduate Research done by Women at Syracuse University (2nd place)

Undergraduate Student Research Supervised by Lautz (Independent Studies or Honors Theses)

Crystal Burgess (Alfred Univ, RESESS intern, 2016), Factors impacting changes in methane concentrations in domestic wells through time

Danea Dixon (SU-LSAMP, Ind. Study, 2014), Development of an online geospatial database to visualize water quality data for southern New York State pre-hydraulic fracturing

Michael Young (SUNY ESF, Ind. Study, 2013), Baseline monitoring of groundwater quality in Southern New York State pre-hydraulic fracturing

Zachary Neal (SU, Ind. Study, 2011), Long-term monitoring of stream water geochemistry in a snowmelt-dominated semi-arid watershed

Danielle Hare (SU, Ind. Study, 2010), The effect of beaver dams on geochemistry of the hyporheic zone at varied depth and location over a range of discharges during flood recession

Andrew Whitcomb (SUNY ESF, Honors Thesis, 2007), Effectiveness of a vegetation buffer strip and wetland in dairy wastewater filtering

Michael Holdsworth (SUNY ESF, Ind. Study, 2007), Chemical responses to road salt runoff in a small urban stream

Kevin Berler (SUNY ESF, Ind. Study, 2006), Does sulfate (SO_4^{2-}) removal during sample preparation for ion chromatography impact detection of nitrate (NO_3^-)?

Rachel Kaminski (SUNY ESF, Ind. Study, 2006), Shoreline development effects on large woody debris distribution along Lake Crescent, Olympic National Park

Current Committee Member for:

Ph.D. Committees: Kristina Gutchess (SU), Kyotaek Hwang (SU), Zeno Levy (SU), Tamir Puntsag (SUNY ESF), Molly Welsh (SUNY ESF)

M.S. Committees: Sam Caldwell, (SU), Anthony Fiorentino (SU), JR Slosson (SU)

Past Committee Member for:

Ph.D. Committees (n=10): Rosemary Fanelli (Univ. of Maryland), Rachel Fleishman (SU), Colin Fuss (SU), Heather Golden (SUNY ESF), Bangshuai Han (SUNY ESF), Li Jin (SU), Karen Murray (SUNY ESF), Molly Ramsey (SUNY ESF), Soumitri Sarkar (SU), Tian Zhou (SUNY ESF)

M.S. Committees (n=34): Daniel Brown (SUNY ESF), Doreen Bwalya (SUNY ESF), Alvin Chan (SUNY ESF), Xi Chen (SU), Virginia Collins (SUNY ESF), Jill Crispell (SUNY ESF), Matthew Domser (SUNY ESF), Mark Fabian (SUNY ESF), Michael Fay (SUNY ESF), Max Gade (SU), Kacie Gehl (SUNY ESF), Maria Laura Gonzalez (SUNY ESF), Jason Hamidi (SUNY ESF), Kyle Hodgson (SUNY ESF), Sunshyne Hummel (SU), Asa Kline (SUNY ESF), Ouro Koumai (SUNY ESF), Nathan Kranes (SU), Arthur Lilienthal (SUNY ESF), Donna Lowe (SUNY ESF), Jessica Martin (SUNY ESF), Adao Matonse (SUNY ESF), Kimberly McEathron (SUNY ESF), Emilio Menvielle (SUNY ESF), Gretchen Miles (SUNY ESF), Xiangyu Mu (SU), Nicole Ng (SUNY ESF), Deborah Ofori (SUNY ESF), Karl Oetjen (SU), Tracey O'Malley (SUNY ESF), Jesse Robinson (SUNY ESF), Jeff Spradlin (SU), Horace Shaw (SUNY ESF), Alison Taroli (SUNY ESF)

UNIVERSITY SERVICE AND PROFESSIONAL ACTIVITIES

Service to the Profession

- Associate Editor for Hydrological Processes (HP), January 2017-present: I am expected to serve as the AE for ~6 manuscripts per year in this role.
- Associate Editor for Water Resources Research (WRR), October 2012-January 2017: I served as the AE for 67 manuscripts in 4.2 years, for an average of **>15 manuscripts per year**.
- Manuscript Peer Reviewer, November 2008-present: I have reviewed 70 manuscripts in the past 8.5 years, for an average of **~8 manuscripts per year**. These numbers do not include papers handled as AE for WRR or HP. I have reviewed for the following journals: Advances in Water Resources, Canadian Water Resources Journal, Ecological Engineering, Environmental Science & Technology, Freshwater Science, Groundwater, Hydrology & Earth Systems Sciences, Hydrogeology Journal, Hydrological Processes, JGR, JGR-Biogeosciences, JGR-Solid Earth, Journal of Hydrologic Engineering, Journal of Hydrology, Journal of Hydrology-Regional Studies, Limnology & Oceanography, Water Resources Research, WIREs Water
- National Conference Session Convener:
 - 2016 GSA Fall Meeting Session entitled, "Can't Take the Heat? Temperature as an Indicator and Tracer of Environmental Change"
 - 2016 NE GSA Spring Meeting Session entitled, "Geophysical Methods in the Hydrogeologist's Toolbox"
 - 2015 AGU/CGU Joint Assembly Meeting Session entitled, "Some do not like it hot: Climate change impacts on the thermal and flow regimes of hydrologic systems"
 - 2014 GSA Annual Meeting Session entitled "Dynamics of Groundwater Temperature: From Recharge to Discharge Zones"
 - 2012 AGU Annual Meeting Session entitled "Groundwater-Surface Water Interactions: Dynamics across spatial and temporal scales"
 - 2011 GSA Annual Meeting Session entitled "Identification and quantification of groundwater flow using heat as a tracer"
 - 2009 GSA Annual Meeting Session entitled "Stream-Groundwater Interaction: New Understanding, Innovations and Applications at Bedform, Reach and River Network Scales"
 - 2007 GSA Annual Meeting Session entitled "Innovations and New Technologies for Measuring Surface-Ground Water Interaction"
 - 2006 GSA Annual Meeting Session entitled "Heat as a Natural Tracer in Hydrologic Systems: Current Understanding, Innovation and Application"
- Panelist, National Science Foundation

- DGE: National Science Foundation Research Traineeship (NRT) – initial panel, 2017
- DGE: National Science Foundation Research Traineeship (NRT) – final panel, 2016
- DGE: National Science Foundation Research Traineeship (NRT) – initial panel, 2016
- EAR: Hydrologic Sciences, 2015 (2 panels, Spring and Fall)
- EAR: Hydrologic Sciences, 2012
- EAR: Hydrologic Sciences, 2008
- Proposal Peer Reviewer, National Science Foundation, 2009-present: I have provided reviews for 18 NSF proposals in the past 8 years, averaging ~2 **proposals per year**. These numbers do not include service on NSF panels.
- Service to National Professional Societies and Organizations
 - Member, Walter Langbein Lecturer Committee, American Geophysical Union Hydrology Section, January 2014-present
 - Chair, Distinguished Service Award Committee, Hydrogeology Division, Geological Society of America, 2013
 - Member, Distinguished Service Award Committee, Hydrogeology Division, Geological Society of America, 2011-2013
 - Panelist, CUAHSI (Consortium of Universities for the Advancement of Hydrologic Sciences, Inc) Pathfinder Fellowship, 2010-2012
 - Advisory Board for Education and Public Outreach, CUAHSI (Consortium of Universities for the Advancement of Hydrologic Sciences, Inc), 2009
- Board Member, Upstate Freshwater Institute, 2013-present
- Member, External Review Committee, Montclair State University Geology Department, 2014
- Member, Syracuse Center of Excellence Symposium Planning Committee, 2013
- Treasurer, Central New York Association of Professional Geologists, 2006-2009
- Secretary, Sigma Xi – Syracuse Chapter, 2006-2009
- Member, Syracuse Center of Excellence in Energy and Environmental Systems Research and Development Agenda Subcommittee for Water, 2008
- Board Member, Central New York Association of Professional Geologists, 2006-2008
- Member of: Geological Society of America, American Geophysical Union

Service at the University and College Level

- Program Director, EMPOWER NRT Program, Syracuse University, 2015-present
- Faculty Advisor, WiSE-FPP program (Women in Science and Engineering, Future Professionals Program), Syracuse University, 2011-present
- Member, Search Committee for Science Communication Faculty Position, Newhouse School, Syracuse University, 2016
- First-year Forum Leader, Syracuse University, Fall 2016
- Advisory Board Member, Provost's Water Initiative, Syracuse University, 2012-present
- Faculty Advisory Board Member, Louis Stokes Alliance for Minority Participation (LSAMP), Syracuse University, 2014-present
- Member, Dean Search Committee, Engineering & Computer Science, Syracuse University, 2014-2015
- Scholarship and Fellowship Advisor, Earth Sciences, Syracuse University, 2012-2015
- Primary Faculty Liaison for Earth Sciences, Future Professoriate Program (FPP), Syracuse University, 2012-2015
- Member, Search Committee for Senior Joint Hire in Water Sustainability, College of Arts and Sciences and College of Engineering and Computer Science, Syracuse University, 2011
- Lower Division Undergraduate Student Advisor, College of Arts and Sciences, Syracuse University (15 advisees), 2010-2012

- Panelist, Norma Slepecky Award (for Outstanding Research by Undergraduate Women in STEM), Syracuse University, 2009
- Secretary of the Faculty, Faculty Governance, SUNY ESF, 2007-2008
- Member, Committee on Instruction, Faculty Governance, SUNY ESF, 2006-2007

Service at the Department Level

- Chair, Department of Earth Sciences, Syracuse University, 2017-present
- Associate Chair, Department of Earth Sciences, Syracuse University, 2016-2017
- Strategic Planning in Department of Earth Sciences, Syracuse University, 2016 (led development and writing of Department Strategic Plan for 2017-2022)
- Chair, Mentoring Committee for Christa Kelleher, Department of Earth Sciences, Syracuse University, 2016-present
- Chair, 3-year Review Committee for Department Chair, Department of Earth Sciences, Syracuse University, 2016
- Chair, Hydrogeology/Hydrology Joint Faculty Position Search Committee, Earth Sciences & Civil/Environmental Engineering, Syracuse University, 2014-2015
- Director of Graduate Studies, Department of Earth Sciences, Syracuse University, 2011-2015
- Member, Curriculum Committee, Department of Earth Sciences, Syracuse University, 2011-2015
- Member, Ad Hoc Committee on Building Space, Earth Sciences, Syracuse University, 2015
- Member, Mentoring Committee for Zunli Lu, Department of Earth Sciences, Syracuse University, 2013-2014
- Chair, Department Chair Search Committee, Department of Earth Sciences, Syracuse University, 2013
- Member, Aqueous Geochemistry Faculty Search Committee, Earth Sciences, Syracuse University, 2010
- Member, Department Chair Search Committee, Earth Sciences, Syracuse University, 2010
- Seminar Coordinator, K. Douglas Nelson Lecture Series, Department of Earth Sciences, Syracuse University, 2009-2010
- Member, Graduate Education Committee, Department of Forest and Natural Resources Management at SUNY ESF, 2006-2008
- Chair, Farnsworth Award Committee, Department of Forest and Natural Resources Management, SUNY ESF, 2007
- Member, Ad Hoc Committee to revise summer program in field forestry, Department of Forest and Natural Resources Management, SUNY ESF, 2007
- Member, Watershed Management Faculty Search Committee, Department of Forest and Natural Resources Management, SUNY ESF, 2006

INVITED LECTURES

Duke University, Division of Earth & Ocean Sciences, Durham, North Carolina, March 31st, 2017

University of North Carolina – Chapel Hill, Department of Geological Sciences, Chapel Hill, North Carolina, March 30th, 2017

Lafayette College, Department of Geology and Environmental Sciences, Easton, Pennsylvania, November 4th, 2016

USGS National Groundwater Workshop, Reno, Nevada, September 1st, 2016 (Plenary session speaker)

Michigan State University, Department of Geological Sciences, September 25th, 2015

University of Rochester, Department of Earth and Environmental Sciences Seminar, November 7th, 2014

Hudson Valley-Mohawk Professional Geologists Association, May 21st, 2014

Expanding Your Horizons (EYH) Keynote Speaker (an annual one-day conference for 7th-9th grade girls), Cornell University, April 12th, 2014

University of Massachusetts-Amherst, Department of Geosciences Seminar, October 26th, 2012
 Central New York Association of Professional Geologists Lecture Series, November 15th, 2012
 McGill University Lecture Series in Department of Geology, Montreal, Quebec, Canada, November 4th, 2011
 University at Buffalo, Department of Geology Pegrum Lecture Series, Buffalo, NY, September 22nd, 2011
 Cornell University, Soil and Water Lab Speaker Series, Ithaca, NY, March 11th, 2011
 Desert Research Institute, Spring 2010 Colloquium Series, Reno, Nevada, March 26th, 2010
 Lehigh University, Department of Earth and Environmental Sciences, Bethlehem, PA, January 29th, 2010
 Lafayette College, Geology Department Seminar Series, Easton, PA, February 15th, 2008
 NSF-sponsored workshop entitled "Generalizing Riparian Zone Function at the Landscape Scale: New Tools, New Approaches, Gaps in Knowledge and Future Research Directions," Indianapolis, IN, January 28th, 2008
 American Water Resources Association, Student Symposium, April 19th, 2007
 Alfred University, Environmental Studies Department Seminar Series, Alfred, NY, March 16th, 2007
 Central New York Association of Professional Geologists Lecture Series, October 19th, 2006

INVITED CONFERENCE PRESENTATIONS (n=16)

(*graduate/postdoc or **undergraduate student author directly supervised by Lautz)

- Briggs, MA, FD Day-Lewis, **LK Lautz**, JW Lane. 2016. Spatiotemporal sensing of groundwater/surface-water exchange and chemical dynamics in rivers from the pore to the reach scale (**INVITED**). Materials Research Society Fall Meeting, November 27-December 2, 2016: Boston, Massachusetts.
- Lautz, LK**, *SH Ledford. 2015. Surface water-groundwater interactions buffer seasonal changes in urban stream water quality (**INVITED**). Proceedings of the Joint Assembly of the American Geophysical Union Meeting, May 3-7, 2015: Montreal, Canada.
- McKenzie, JM, *RP Gordon, D Cairns, **LK Lautz**, JM Byrne, BG Mark. 2015. Groundwater – Surface Water Interactions in Mountain Environments: Comprehending Heterogeneity (**INVITED**). Proceedings of the Joint Assembly of the American Geophysical Union Meeting, May 3-7, 2015: Montreal, Canada.
- Lautz, LK**, *RP Gordon, *TL Daniluk, *MA Zimmer, TE Endreny, K McGrath. 2014. Restoring hydrological and biogeochemical ecosystem services in streams: how can science inform practice? (**INVITED**). Proceedings of the American Geophysical Union Annual Meeting, December 15-19, 2014: San Francisco, California.
- Lautz, LK**, *MA Briggs, *RP Gordon, *DJ Irvine, JM McKenzie, *R Ribaud, **DK Hare. 2014. Heat tracing as a tool for locating and quantifying hydrological hot spots and hot moments that impact surface and groundwater quality (**INVITED**). Proceedings of the American Geophysical Union Annual Meeting, December 15-19, 2014: San Francisco, California.
- McKenzie, JM, *RP Gordon, M Baraer, **LK Lautz**, BG Mark, O Wigmore, D Chavez, C Aubry-Wake. 2014. Water resources and groundwater in a glaciated Andean watershed (Cordillera Blanca, Peru) (**INVITED**). Proceedings of the American Geophysical Union Annual Meeting, December 15-19, 2014: San Francisco, California.
- Briggs, MA, **LK Lautz**, SF Buckley, JW Lane. 2014. Practical limitations on the use of diurnal temperature signals to quantify groundwater upwelling (**INVITED**). Proceedings of the Geological Society of America Annual Meeting, October 19-22, 2014: Vancouver, British Columbia, Canada.
- Lautz, LK**, *RP Gordon, *M Zimmer, *TL Daniluk. 2014. Impacts of stream restoration on surface water-groundwater interactions, streambed redox conditions, and nutrient dynamics (**INVITED**). Proceedings of the Geological Society of America Annual Meeting, October 19-22, 2014: Vancouver, British Columbia, Canada.
- Lautz, LK**, GD Hoke, Z Lu, DI Siegel, *K Christian. 2014. Fingerprinting sources of salinity in shallow groundwater prior to hydraulic fracturing: statistical model development and application

- (**INVITED**). Proceedings of the American Chemical Society Annual Meeting. August 10-14, 2014: San Francisco, California.
- Lautz, LK**. 2012. Heat tracing of temporal changes in vertical flux through streambed sediments (**INVITED**). Proceedings of the Geological Society of America Annual Meeting, November 4-7, 2012: Charlotte, North Carolina.
- *MA Briggs, **LK Lautz**, *RP Gordon, JK McKenzie, RA Gonzalez. 2011. Using multiple natural and injected tracers to evaluate spatial and temporal patterns of hyporheic flux and biogeochemistry (**INVITED**). Proceedings of the American Geophysical Union Annual Meeting, December 5-9, 2011: San Francisco, California.
- Lautz, LK**, *RM Fanelli, *KA Hubbard, NT Kranes, DI Siegel. 2010. Resolution versus relevance: challenges in field investigations of stream-groundwater interactions (**INVITED**). Proceedings of the American Geophysical Union Annual Meeting, December 13-17, 2010: San Francisco, California.
- Lautz, LK**, *MA Briggs, *RE Ribaud. 2010. Heat and geochemical tracing of contaminated groundwater discharge to streams at various spatial and temporal scales (**INVITED**). Proceedings of the American Geophysical Union Annual Meeting, December 13-17, 2010: San Francisco, California.
- Lautz, L**, *R Fanelli, *R Gordon, *T Daniluk. 2010. Spatial patterns of water, heat and solute fluxes through the hyporheic zone at stream restoration sites (**INVITED**). Proceedings of the European Geosciences Union General Assembly, May 3-7, 2010: Vienna, Austria.
- Lautz, LK**, *RM Fanelli. 2007. The influence of small dams on streambed morphology, sediment distribution and fluxes of water, heat and solutes between surface and ground water (**INVITED**). Proceedings of the American Geophysical Union Annual Meeting, December 10-14, 2007: San Francisco, California.
- Lautz, LK**, *RM Fanelli, NT Kranes, DI Siegel. 2007. Sediment distribution around debris dams: Impacts on streambed hydrology, biogeochemistry and temperature dynamics in small streams (**INVITED**). Proceedings of the Geological Society of America Annual Meeting, October 28-31, 2007: Denver, Colorado.

OTHER CONFERENCE PRESENTATIONS

(*graduate/postdoc or **undergraduate student author directly supervised by Lautz)

2017

- *Chien, NP, **LK Lautz**, GD Hoke, Z Lu. 2017. Validating a discriminant analysis model used to distinguish salinity contamination from deicers vs produced water. Proceedings of the National Groundwater Association conference on Groundwater Quality and Unconventional Oil and Gas Development: Current Understanding and Science Needs, April 25-26, 2017: Columbus, OH.
- *Glas, RL, **LK Lautz**, R Moucha, JM McKenzie, B Mark. Alpine groundwater storage in the tropics: using hydrogeophysics to constrain boundary conditions for future groundwater models in the Cordillera Blanca, Peru. Symposium on the Application of Geophysics to Engineering and Environmental Problems, March 19-23, 2017: Denver, CO.
- Gutchess, KM, S Garvin, L Jin, W Lu, Z Levy, **LK Lautz**, Z Lu. 2017. Evaluating the natural transport pathways of iodine in headwater catchments. Proceedings of the Northeastern Geological Society of America Meeting, March 19-21, 2017: Pittsburg, PA (submitted).

2016

- *Glas, RL, **LK Lautz**, JM McKenzie, C Aubry-Wake, *EA Baker, L Somers, B Mark, O Wigmore. 2016. Integrating multiple geophysical methods to quantify alpine groundwater- surface water interactions: Cordillera Blanca, Peru. Proceedings of the American Geophysical Union Annual meeting, December 12-16, 2016: San Francisco, CA.

- *Baker, EA, **LK Lautz**, JM McKenzie, *AM Glose, C Kelleher. 2016. The Effect of Channel Geometry and Diurnal Discharge Fluctuations on Modeled Stream Temperatures. Proceedings of the American Geophysical Union Annual meeting, December 12-16, 2016: San Francisco, CA.
- *Ledford, SH, **LK Lautz**, P Vidon, JC Stella. 2016. Impact of stream metabolism on nitrate concentrations in an urban stream. Proceedings of the American Geophysical Union Annual meeting, December 12-16, 2016: San Francisco, CA.
- Lautz, LK**, *K Christian, GD Hoke, Z Lu, DI Siegel, J Kessler. 2016. Development of empirical models of natural methane occurrence in shallow groundwater overlying the Marcellus shale using machine learning methods. Proceedings of the Geological Society of America's Annual Meeting, September 25-28, 2016: Denver, Colorado.
- **Burgess, CS, **LK Lautz**, *NP Chien, GD Hoke, M Leonte, J Kessler, *KM Christian, DI Siegel, Z Lu. 2016. Temporal pattern of naturally occurring methane levels in domestic water wells, overlying the Marcellus Shale in New York. Proceedings of the Geological Society of America's Annual Meeting, September 25-28, 2016: Denver, Colorado.
- *Glas, RL, **LK Lautz**, JM McKenzie, C Aubry-Wake, *EA Baker, L Somers, BG Mark, O Wigmore. 2016. Using multiple, integrated hydrogeophysical methods to understand groundwater/surface water interactions in glaciated, tropical catchments of the Cordillera Blanca, Peru. Proceedings of the Geological Society of America's Annual Meeting, September 25-28, 2016: Denver, Colorado.
- Irvine, DJ, MA Briggs, **LK Lautz**, JM McKenzie, RP Gordon, I Cartwright, C Scruggs. 2016. Advances in the automation of diurnal signal analysis for streambed properties and vertical water flux. Proceedings of the Geological Society of America's Annual Meeting, September 25-28, 2016: Denver, Colorado.
- *Baker, EA, **LK Lautz**, JM McKenzie, *AM Glose. 2016. How do amplitude and phase shift of diurnal discharge fluctuations affect stream temperature models? Proceedings of the Geological Society of America's Annual Meeting, September 25-28, 2016: Denver, Colorado.
- *Chien, NP, **LK Lautz**. 2016. Validating a multivariate statistical model used to assess if formation brines are the most probable source of high salinity in shallow groundwater. Proceedings of the Geological Society of America's Annual Meeting, September 25-28, 2016: Denver, Colorado.
- McCay, DH, **LK Lautz**, CT Driscoll, TF Kahan, CA Scholz, D Torrance, CE Johnson, CK Junium, DI Siegel, PJ Wilcoxon, P Fiorenza. 2016. Rethinking STEM graduate education for diverse career pathways at the water-energy nexus: Syracuse University's NSF Research Traineeship Program. Proceedings of the Geological Society of America's Annual Meeting, September 25-28, 2016: Denver, Colorado.
- McKenzie, JM, C Aubry-Wake, *E Baker, **LK Lautz**, O Wigmore, M Baraer, B Mark. 2016. Hot and Hotter: Temperature as an indicator of environmental change and a tracer of hydrologic processes. Proceedings of the Canadian Geophysical Union, May 29-June 2: Fredericton, New Brunswick.
- Gutchess, KM, L Jin, **LK Lautz**, X Zhou, Z Lu. 2016. Detection of Appalachian basin brines in the Tioughnioga River, Central New York. Proceedings of the Northeastern Section of the Geological Society of America, March 21-23, 2015: Albany, New York.
- *Glas, R, **LK Lautz**, JM McKenzie, *EA Baker, C Aubry-Wake, L Somers, O Wigmore. 2016. Constraining subsurface structure and composition using seismic refraction surveys of proglacial valleys in the Cordillera Blanca, Peru. Proceedings of the Northeastern Section of the Geological Society of America, March 21-23, 2015: Albany, New York.
- *Baker, EA, **LK Lautz**, JM McKenzie, C Aubry-Wake, L Somers, O Wigmore, *AM Glose, *R Glas, BG Mark. 2016. Infrared imaging and modeling of proglacial stream temperature in the Cordillera Blanca, Peru. Proceedings of the Northeastern Section of the Geological Society of America, March 21-23, 2015: Albany, New York.

- Lautz, LK**, *K Christian, GD Hoke, Z Lu, DI Siegel, J Kessler. 2015. Natural methane occurrence in domestic wells is common in sodium-rich shallow groundwater in valley settings overlying the Marcellus Shale. Proceedings of the American Geophysical Union Annual Meeting, December 14-18, 2015: San Francisco, California.
- Mark, BG, JM McKenzie, M Baraer, **LK Lautz**. 2015. Glacier loss and emerging hydrologic vulnerabilities in the Peruvian Andes. Proceedings of the American Geophysical Union Annual Meeting, December 14-18, 2015: San Francisco, California.
- Aubry-Wake, C, JM McKenzie, O Wigmore, M Baraer, BG Mark, **LK Lautz**. 2015. Estimating Heat Transfer at Glacier Margins using Ground-Based Infrared Imagery. Proceedings of the American Geophysical Union Annual Meeting, December 14-18, 2015: San Francisco, California.
- McKenzie, JM, C Aubry-Wake, O Wigmore, M Baraer, BG Mark, R Hellstrom, **LK Lautz**. 2015. Time-lapse and UAV Thermal Imaging of Glacial and Periglacial Environments in the Peruvian Andes (Cordillera Blanca, Peru). Proceedings of the American Geophysical Union Annual Meeting, December 14-18, 2015: San Francisco, California.
- Somers, LD, *RP Gordon, JM McKenzie, **LK Lautz**, O Wigmore, *RL Glas, BG Mark. 2015. Quantifying groundwater-surface water interactions using a stream energy balance model and dye tracing in a proglacial valley of the Cordillera Blanca, Peru. Proceedings of the American Geophysical Union Annual Meeting, December 14-18, 2015: San Francisco, California.
- *Glas, RL, **LK Lautz**, JM McKenzie, *EA Baker, C Aubry-Wake, L Somers. 2015. Constraining Subsurface Structure and Composition Using Seismic Refraction Surveys of Proglacial Valleys in the Cordillera Blanca, Peru. Proceedings of the American Geophysical Union Annual Meeting, December 14-18, 2015: San Francisco, California.
- *Baker, EA, **LK Lautz**, C Aubry-Wake, JM McKenzie, RL Glas, BG Mark. 2015. Infrared Imaging and Modeling of Proglacial Stream Temperature in the Cordillera Blanca, Peru. Proceedings of the American Geophysical Union Annual Meeting, December 14-18, 2015: San Francisco, California.
- *Ledford, SH, **LK Lautz**. 2015. Modeling Fate and Transport of Chloride from Deicers in Urban Floodplains: Implications for Urban Planning. Proceedings of the American Geophysical Union Annual Meeting, December 14-18, 2015: San Francisco, California.
- *Ledford, SH, **LK Lautz**. 2015. Modeling the transport and fate of road salt in urban floodplains. Proceedings of the Geological Society of America Annual Meeting, November 1-4, 2015: Baltimore, Maryland.
- Gutchess, KM, L Jin, **LK Lautz**, X Zhou, Z Lu. 2015. Using halogens and discriminant analysis to distinguish among sources of salinity in the Tioughnioga River, central New York. Proceedings of the Geological Society of America Annual Meeting, November 1-4, 2015: Baltimore, Maryland.
- Rayne, TW, MM Garner, **LK Lautz**. 2015. Using multiple methods to evaluate groundwater-surface water interaction in a stream. Proceedings of the Geological Society of America Annual Meeting, November 1-4, 2015: Baltimore, Maryland.
- Somers, L, J McKenzie, **L Lautz**, *R Gordon, O Wigmore and BG Mark. 2015. Quantifying groundwater-surface water interactions with a stream energy balance, Cordillera Blanca, Peru. Proceedings of the Joint Assembly of the American Geophysical Union Meeting, May 3-7, 2015: Montreal, Canada.
- *Christian, K, **LK Lautz**, GD Hoke, DI Siegel, Z Lu, J Kessler. 2015. Salinity and dissolved methane concentrations in homeowner wells prior to hydraulic fracturing. Proceedings of the Northeastern Section of the Geological Society of America, March 23-25, 2015: Bretton Woods, New Hampshire.

2014

- *Ledford, SH, **LK Lautz**. 2014. Modeling stream-groundwater interactions and associated groundwater salinization in an urban floodplain. Proceedings of the American Geophysical Union Annual Meeting, December 15-19, 2014: San Francisco, California.

- *Ledford, SH, **LK Lautz**. 2014. Stream-groundwater interaction mechanisms that promote storage of deicing chemicals in urban floodplains. Proceedings of the Geological Society of America Annual Meeting, October 19-22, 2014: Vancouver, British Columbia, Canada.
- *Irvine, DJ, **LK Lautz**, *RP Gordon. 2014. Comparison of the Hatch, Keery, McCallum and Luce methods under non-ideal conditions: which model should I use, and when?. Proceedings of the Geological Society of America Annual Meeting, October 19-22, 2014: Vancouver, British Columbia, Canada.
- *Christian, K, **LK Lautz**, GD Hoke, Z Lu, DI Siegel, J Kessler. 2014. Spatial parameters controlling salinity and dissolved methane concentrations in private wells prior to hydraulic fracturing. Proceedings of the Geological Society of America Annual Meeting, October 19-22, 2014: Vancouver, British Columbia, Canada.
- Lautz, LK**, GD Hoke, Z Lu, DI Siegel, *K Christian, J Kessler. 2014. Fingerprinting sources of salinity to aquifers overlying shale plays using publically-available background water quality data and multivariate statistical methods. Proceedings of the Geological Society of America Annual Meeting, October 19-22, 2014: Vancouver, British Columbia, Canada.
- *Gordon, RP, **LK Lautz**, JM McKenzie, BG Mark, D Chavez, M Baraer. 2014. Groundwater contributions to streamflow in a glacierized catchment of the Cordillera Blanca, Peru. Proceedings of the Geological Society of America Annual Meeting, October 19-22, 2014: Vancouver, British Columbia, Canada.
- McKenzie, JM, *RP Gordon, M Baraer, **LK Lautz**, BG Mark, D Chavez, C Aubry-Wake. 2014. Hydrogeology in glaciated high-elevation Andean watersheds – results from the Cordillera Blanca, Peru. Proceedings of the Geological Society of America Annual Meeting, October 19-22, 2014: Vancouver, British Columbia, Canada.
- Briggs, MA, **LK Lautz**, SF Buckley, JW Lane. 2014. Practical limitations on quantifying groundwater upwelling using vertical temperature profiles. Joint Aquatic Sciences Meeting. May 18-23: Portland, Oregon.

2013

- Lautz, LK**, GD Hoke, Z Lu, DI Siegel. 2013. Determining sources of elevated salinity in pre-hydraulic fracturing water quality data using a multivariate discriminant analysis model. Proceedings of the American Geophysical Union Annual Meeting, December 9-13, 2013: San Francisco, California.
- McKenzie, JM, *RP Gordon, D Chavez, L Maharaj, M Baraer, BG Mark, **LK Lautz**. The Downstream Fate of Glacial Runoff and Groundwater in the Cordillera Blanca, Peru. Proceedings of the American Geophysical Union Annual Meeting, December 9-13, 2013: San Francisco, California.
- *Gordon, RP, **LK Lautz**, JM McKenzie, BG Mark, D Chavez. 2013. Groundwater, springs, and stream flow generation in an alpine meadow of a tropical glacierized catchment. Proceedings of the American Geophysical Union Annual Meeting, December 9-13, 2013: San Francisco, California.
- *Ledford, SH, **LK Lautz**. 2013. Stream-Groundwater Interaction Buffers Seasonal Changes in Urban Stream Water Quality. Proceedings of the American Geophysical Union Annual Meeting, December 9-13, 2013: San Francisco, California.
- *Christian, K, **LK Lautz**. 2013. Extant or absent: Formation water in New York State drinking water wells. Proceedings of the American Geophysical Union Annual Meeting, December 9-13, 2013: San Francisco, California.
- *Zimmer, MA, **LK Lautz**. 2013. Pre- and post- restoration assessment of hyporheic exchange rates and streambed geochemistry. Proceedings of the American Geophysical Union Annual Meeting, December 9-13, 2013: San Francisco, California.
- Lautz, LK**, GD Hoke, Z Lu, DI Siegel. 2013. Determining sources of salinity in pre-hydraulic fracturing baseline water quality data using multivariate statistical methods. Proceedings of the Geological Society of America Annual Meeting, October 27-30, 2013: Denver, Colorado.

- Hummel, ST, **Lautz, LK**, GD Hoke, Z Lu, J Leone, X Zhou, DI Siegel. 2013. Iodine as a sensitive tracer for detecting influence of organic-rich shale in shallow groundwater. Proceedings of the Geological Society of America Annual Meeting, October 27-30, 2013: Denver, Colorado.
- Smidt, SJ, AS Ward, JA Cullin, J Robinson, TA Endreny, **LK Lautz**, *MA Zimmer. 2013. Do stream restoration structures create hyporheic zones comparable to those at natural features? Proceedings of the Society of Freshwater Science Meeting, May 19–23, 2013: Jacksonville, Florida.
- Lautz, LK**, GD Hoke, Z Lu, DI Siegel. 2013. Characterizing water quality in southern New York State before hydraulic fracturing: Project SWIFT (Shale-Water Interaction Forensic Tools). Proceedings of the Northeastern Section Geological Society of America Meeting, March 18-20, 2013: Bretton Woods, New Hampshire.
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