



Faculty Directory

The College

AS News

Laura Lautz

Director of
Graduate Studies,
Associate Professor
of Earth Sciences



Email: lklautz@syr.edu

Earth Sciences

317 Heroy Geology Laboratory
Phone: 315-443-1196

[Lautz CV](#)

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Research and Teaching Interests

I am a hydrologist, with a geological training, whose research goal is to further understand how physical hydrologic processes influence water quality and movement through watersheds. I am particularly interested at this time in understanding how water moves through paired surface water and groundwater systems, and how nutrients and other solutes are processes and transported by watershed streams.

My broad interest in the exchange of water between surface and subsurface environments has led me to do several specific interdisciplinary research projects. Generally, my research involves field experiments coupled with computer modeling experiments.

For a list of current projects, please visit:
<http://hydrology.syr.edu/>

Courses

Environmental Geology (EAR 106)

Hydrology (EAR 541)

Advanced Field Methods in Hydrology (EAR 660)

Groundwater Modeling (EAR 665)

Students

Sarah Ledford (PhD Candidate)
Kayla Christian (MS Student)

Facilities

Watershed Hydrology Lab: The Watershed Hydrology lab contains instrumentation for laboratory analysis of the chemistry of natural waters and for collecting field measurements. The lab is well equipped with several refrigerators for sample storage, fume hoods, drying ovens, mass balances, adjustable pipettes, and volumetric glassware.

Major laboratory instrumentation includes:

- Two-Column Dionex Reagent Free Ion Chromatography System, ICS-2000, with autosampler (for simultaneously measuring anion and cation concentrations, such as calcium, magnesium, chloride, sulfate, and nitrate, among others)
- Barnstead NANApure Diamond Ultrapure Water System (for water deionization)

Field instrumentation includes:

- Optical Time Domain Reflectometer for measuring light loss in fiber optic cables
- Fusion slicer for splicing two fiber optic cables together
- Nikon Reflectorless Total Station (and accessories)
- Portable WTW pH/specific conductance/dissolved oxygen probes
- Geopump Peristaltic Pumps and an FMI piston pump for well sampling
- Flow-through field fluorometer
- ADV velocity meter
- Marsh-McBirney flow meters
- Handheld GPS units
- iButton temperature data loggers
- Waterproof camera
- Two-way radios

Selected Publications

Publications from the past two years are listed below. For more,

see: http://hydrology.syr.edu/Lautz_Group/Publications.html

Endreny, TE, 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.

Endreny, TE, 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.

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.

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.

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

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.

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