

Dr. Adam N. Wlostowski
Postdoctoral Research Scientist
Institute of Arctic and Alpine Research
University of Colorado
Boulder, CO 80309-0450

Phone: (484) 515-4390
Email: adam.wlostowski@colorado.edu
web: wlostowskihydro.weebly.com
Twitter: @AWlostowski

RESEARCH INTERESTS

My interests lie at the intersection of hydrology, biogeochemistry, geology, and climatology. My research is broadly focused on understanding physical and biological controls on hydrologic partitioning and connectivity in the Earth's "critical zone". I am interested in understanding how critical zone structure influences hydrologic processes and function. By analyzing long-term hydrologic, geochemical, and meteorological data sets my research extracts quantitative signatures of the co-evolution of critical zone structure and function. Furthermore, I am interested in the interaction between hydrologic and ecological systems, in the context of surface water – groundwater interactions. I use a combination of in-situ data collection networks, time-series analysis, and physically based deterministic modeling to quantify interactions between physical and biological systems.

EDUCATION

University of Colorado, Boulder, CO

Doctorate of Philosophy in Civil Engineering, focus in Water Resources, 2017

Advisor: Michael N. Gooseff

The Pennsylvania State University, State College, PA

Masters of Science in Civil Engineering, focus in Water Resources, 2012

Advisor: Michael N. Gooseff

Bachelor of Civil Engineering, focus in Water Resources, 2010

EMPLOYMENT HISTORY

Institute of Arctic and Alpine Research

Postdoctoral Research Scientist, May 2017 - present

Institute of Arctic and Alpine Research

PhD Research Assistant, 2015 – May 2017

Department of Civil Engineering, Colorado State University

Research Assistant, 2013 – 2015

Department of Civil and Environmental Engineering, The Pennsylvania State University

Research Assistant, 2010 - 2013

AWARDS AND HONORS

*** American Geophysical Union Horton (Hydrology) Research Grant**

Awarded December 2015, \$10,000

University of Colorado, United Government of Graduate Students Travel Grant

Awarded October 2015, \$300

American Geophysical Union 2014 Fall Meeting Outstanding Student Paper Award

RESERCH EXPERIENCE

- Development, implementation, and maintenance of long-term hydrological observational networks
- Modeling reactive solute transport in streams and rivers with OTIS (USGS One-Dimensional Transport with Inflow and Transient Storage model).
- Land-surface moisture and energy balance modeling with NCAR Community Land Model
- Numerical modeling of permafrost thermodynamics with UAF Geophysical Institute Permafrost Laboratory (GIPL) Model
- Numerical model development with MATAB
- Four field seasons with the McMurdo Dry Valleys Long-Term Ecological Research Project.
 - (Nov. – Feb. 2012-13) Member of Stream Team, maintained a 19-site stream gauge network, frequently sampled stream chemistry and discharge

- (Jan. 2014) Designed and constructed a 5-site active layer monitoring network, completed January glacier mass balance measurements
- (Nov. 2014) Maintained 5-site active layer monitoring network, completed November glacier mass balance measurements
- (Jan – Feb. 2016) Designed and implemented a groundwater sampling network for Horton Research Grant Project, collected stream algae samples, completed January glacier mass balance measurements
- Three field seasons (Jun. – Sept. 2010-12) with NSF funded Changing Seasonality in Arctic Stream Networks Project
 - Designed and conducted nutrient enrichment injection experiments
 - Designed and implemented a 3-stream surface water and groundwater monitoring networks

TEACHING EXPERIENCE

- **Surface Water – Groundwater Interactions**, Colorado State University, 2015, Substitute Instructor
- **Groundwater Hydrology**, Colorado State University, 2014, Substitute Instructor
- **Open Channel Hydraulics**, The Pennsylvania State University, 2011 & 2012, Substitute Instructor
- **Hydrogeophysics Field Methods**, The Pennsylvania State University, 2011, field instructor

REFEREED JOURNAL ARTICLES

Wlostowski, A. N., M. N. Gooseff, and T. Wagener (2013), Influence of constant rate versus slug injection experiment type on parameter identifiability in a 1-D transient storage model for stream solute transport, *Water Resour. Res.*, 49, 1184–1188, doi:10.1002/wrcr.20103.

Wlostowski, A., M. N. Gooseff, D. M. McKnight, C. Jaros, and W. B. Lyons (2016), Patterns of hydrologic Connectivity in the McMurdo Dry Valleys, Antarctica: a synthesis of 20 years of hydrologic data, *J. Hydrol.*, *in press*, doi:10.1002/hyp.10818.

Wlostowski, A. N., M. N. Gooseff, W. B. Bowden, and W. M. Wollheim (2017), Stream tracer breakthrough curve decomposition into mass fractions: A simple framework to analyze and compare conservative solute transport processes, *Limnol. Oceanogr. Methods*, 15(2), doi:10.1002/lom3.10148.

Wlostowski, A. N., M. N. Gooseff, D. McKnight, and B. Lyons (2017), Continuous modeling of hyporheic exchange explains chemostasis in glacial meltwater streams, Antarctica, *In-Preparation*.

Singley, J. G., **A. N. Wlostowski**, A. J. Bergstrom, E. R. Sokol, C. L. Torrens, C. Jaros, C. E. Wilson, P. J. Hendrickson, and M. N. Gooseff (2017), Characterizing hyporheic exchange processes using high frequency electrical conductivity-discharge relationships on sub-hourly to interannual timescales, *Water Resour. Res.*, In-review.

González-Pinzón, R., A. S. Ward, C. E. Hatch, A. N. **Wlostowski**, K. Singha, M. N. Gooseff, R. Haggerty, J. W. Harvey, O. A. Cirpka, and J. T. Brock (2015), A field comparison of multiple techniques to quantify groundwater – surface-water interactions, *Freshw. Sci.*, 34(August 2014), 139–160, doi:10.1086/679738.

McKnight, D. M., K. Cozzetto, J. D. S. Cullis, M. N. Gooseff, C. Jaros, J. C. Koch, W. B. Lyons, R. Neupauer, and A. **Wlostowski** (2015), Potential for real-time understanding of coupled hydrologic and biogeochemical processes in stream ecosystems: Future integration of telemetered data with process models for glacial meltwater streams, *Water Resour. Res.*, 51, 1–28, doi:10.1002/2015WR017198.A.

Gooseff, M. N., A. N. **Wlostowski**, D. M. McKnight, and C. Jaros (2016), Hydrologic connectivity and implications for ecosystem processes - Lessons from naked watersheds, *Geomorphology*.

Wlostowski, A. N., E. M. Smull, and J. Quebbeman (2016), Water resources in a changing climate, *Eos (Washington, DC)*, 97, doi:10.1029/2016E0043385.

CONFERENCE PRESENTATIONS (first author only)

Wlostowski, A. N., M. N. Gooseff, W. B. Bowden, W. M. Wollheim, C. Treat, and B. L. McGlynn (2010), Channel water balances in Arctic tundra streams, in *American Geophysical Union Fall Meeting*, San Francisco, CA. Poster presentation.

Wlostowski, A. N., M. N. Gooseff, W. B. Bowden, and W. M. Wollheim (2011), What are the controls on surface and hyporheic transient storage in Alaskan tundra streams?, in *American Geophysical Union Fall Meeting*, San Francisco, CA. Oral presentation.

Wlostowski, A. N., M. N. Gooseff, and E. M. Smull (2012), Spatial and temporal controls on streamflow generation in a high arctic catchment: how does water accumulate along the valley floor?, in *LTER All Scientist Meeting*, Estes Park, CO. Poster presentation.

Wlostowski, A. N., E. M. Smull, M. N. Gooseff, W. B. Bowden, W. M. Wollheim, and K. A. Whittinghill (2013c), Spatial and temporal controls on streamflow generation in a high arctic catchment: How does water accumulate along the valley floor?, in *European Geophysical Union Spring Meeting*, Vienna, Austria. Oral presentation.

Wlostowski, A. N., M. N. Gooseff, D. M. McKnight, C. Jaros, and W. B. Lyons (2013a), Hydrologic connectivity in the McMurdo Dry Valleys of Antarctica: System function and changes over two decades, in *American Geophysical Union Fall Meeting*, San Francisco, CA. Oral presentation.

Wlostowski, A. N., M. N. Gooseff, and D. M. McKnight (2014), How do hyporheic zones mediate stream solute loads? Using Antarctic glacial melt streams to simplify the problem, in *American Geophysical Union Fall Meeting*, San Francisco, CA. Oral presentation.

Wlostowski, A. N., and M. N. Gooseff (2015), Climate sensitivity of the abiotic soil environment in the McMurdo Dry Valleys, Antarctica, in *American Geophysical Union Fall Meeting*, San Francisco, CA. Poster presentation.

Wlostowski, A. N., M. N. Gooseff, D. M. McKnight, W. B. Lyons, E. Saelens (2016), Unsteady flows control hydrologic turnover rates in Antarctic Hyporheic Zones, in *American Geophysical Union Fall Meeting*, San Francisco, CA. Oral presentation.

Wlostowski, A. N., M. N. Gooseff, D. M. McKnight, W. B. Lyons, E. Saelens (2016), Unsteady flows control hydrologic turnover rates in Antarctic Hyporheic Zones, in *AWRA Specialty Conference, Connecting the Dots: The Emerging Science of Aquatic System Connectivity*, Snowbird, UT, Oral presentation.

Professional Service

- American Geophysical Union Hydrology Student Subcommittee (H3S) student member (2015 – 2017). Co-organized two Pop-Up sessions and the Student and Early Career Conference at the 2015 AGU Fall Meeting.

Professional Society Membership

- American Geophysical Union
- Geological Society of America