

Sasha Leidman

- szl9@scarletmail.rutgers.edu • (415)385-5999 • <https://sashaleidman.wordpress.com/>
Department of Geography-Rutgers University, Lucy Stone Hall, 54 Joyce Kilmer Ave.,
Piscataway, NJ 08854-8045
-

Education

Rutgers University

PhD Candidate in Geography, Expected May 2021
Certificate program in Earth System Sciences
Certificate in Geographical Information Systems

University of California at Davis

BS Geology, June 2014
Geographic Information Systems Minor and Watershed Science Minor
Completed Davis Honors Challenge

Research Experience

Rutgers University

PhD Student with Dr. Åsa Rennermalm
2016-present

Glaciology research on hydrologic processes and the albedo of the Greenland Ice Sheet

- Investigate evidence for meltwater refreezing within firn in Greenland's accumulation zone through ice coring, snow pits, and ground penetrating radar.
- Examine seasonal variability of discharge and the morphology of supraglacial streams in SW Greenland.
- Map changes in albedo and ablation rates related to ice topography, sediment content, and supraglacial stream networks via Structure-from-Motion of UAV images and RTK GPS measurements.
- Long-term monitoring of proglacial discharge in SW Greenland.

University of California Davis

2013-2016

Junior Specialist with Dr. Sarah Yarnell

- Investigate instances of extreme hysteresis of sediment transport in Caspar Creek, Fort Bragg, CA during storm events
- Comparative analysis of PIT-tagged rock tracking, total station DEM surface subtractions, Helley-Smith measurements, and sediment traps against modeled outputs for sediment transport rates

University of California Davis

2015-2016

Junior Specialist with Dr. Nicholas Pinter

- GIS analysis of instances of full-town relocations due to repeated flooding events
- Development of model parameters to determine future relocation sites for town planners

University of California Davis

2013-2015

Junior Specialist with Dr. Dawn Sumner

- Fieldwork at Lake Joyce, McMurdo Dry Valleys, Antarctica to collect samples of subice microbial mats and profile chemical gradients in the lake.
- Development of a bathymetric model of Lake Joyce and Lake Vanda based on historic aerial photography, drill hole measurements, and LIDAR surveys.
- 3D modeling of microbial mats using Structure-from-Motion of drill hole imagery.
- Analysis of the water budget and historical lake levels of Lake Vanda.

Denali National Park and Preserve

Jun-Aug 2014

Glacier Monitoring Specialist with Rob Burrows

- RTK GPS measurements of glacier surface height change and speed, satellite remote sensing of glacier extent changes, and GIS analysis to determine the mass balance of Denali NP glaciers.

Juneau Icefield Research Program

July-Sep 2018

Faculty Researcher

- RTK GPS survey, SFM imagery, and water discharge measurements of a supraglacial stream on the Llewellyn Glacier, AK.

Jun-Aug 2012

Student Researcher

- Snow pit surveys, GPR transects, RTK GPS points, and supraglacial stream discharge measurements of the Juneau Icefield to determine the mass balance, thickness, speed, and diurnal flow regime.

Teaching Experience

Rutgers University

Guest lecturer, First-Year Interest Group Seminar on Hydrology Methods, Fall 2018

Guest lecturer, Spatial Data Analysis, Fall 2017

Guest lecturer, Earth Systems, Fall 2016

Juneau Icefield Research Program

Faculty member teaching glacial geomorphology, snow physics, remote sensing, fluid mechanics, and supraglacial hydrology, Summer 2018

University of California Davis

Teaching Assistant, Ecogeomorphology, Spring 2015

Peer Reviewed Publications

Rennermalm, Å. K., Smith, L. C., Hamman, A. C., As, D. V., **Leidman, S. Z.**, Cooper, M. G., Cooley, S. W., Pitcher, L. H. & Hubbard, L. (Submitted 2017). Greenland ice sheet outflow from a small ice margin drainage basin, 2008-2016. *Annals of Glaciology*.

Mackey, T., Sumner, D. Y., Hawes, I., **Leidman, S. Z.**, Andersen, D., Jungblut, A. (Submitted 2017). Stromatolite records of changing primary productivity in perennially icecovered Lake Joyce, McMurdo Dry Valleys, Antarctica. *Biogeochemistry*.

Castendyk, D. N., Obryk, M. K., **Leidman, S. Z.**, Gooseff, M., & Hawes, I. (2016). Lake Vanda: A sentinel for climate change in the McMurdo Sound Region of Antarctica. *Global and Planetary Change*, 144, pp.213-227.

Mackey, T.J., Sumner, D.Y., Hawes, I., Jungblut, A.D., Lawrence, J., **Leidman, S.Z.** and Allen, B., 2017. Increased mud deposition reduces stromatolite complexity. *Geology*, 45(7), pp.663-666.

Other Publications

Leidman, S. Z. and Burrows, R. (2014) Updated Condition of Denali National Park Glaciers: A Detailed Look at Changes in Glacier Extent and Ice Loss on the Kahiltna and East Fork Toklat Glaciers. NPS Natural Resources Technical Report.

Conference Presentations

Leidman, S. Z., Rennermalm, Å. K., Muthyala, R. (2018) Does Sediment Impact the Hydraulic Properties of Supraglacial Streams? American Association of Geographers Middle States Division Poster*.

Leidman, S. Z. (2018) Spatial Heterogeneity of Bed Processes in Supraglacial Streams and Their Effect on Albedo. Antarctic Surface Hydrology Workshop Poster.

Leidman, S. Z. (2018) Spatial Heterogeneity of Bed Processes in Supraglacial Streams. PARCA Poster.

Leidman, S. Z., Rennermalm, Å. K., & Santos, N. (2017) Shadows Over Greenland: The Effect of Topographic Shadowing by Ice on Solar Irradiance. AAG Cyrosphere Group RS Tarr Poster Presentation (Abstract 1629)*.

Leidman, S. Z., Rennermalm, Å. K., Ryan, J., & Acosta, D. (2017) The Contribution of Topographic Shadowing by Ice on Albedo Variability. Arctic Workshop Buffalo Presentation.

Leidman, S. Z. (2016) Modeling Supraglacial Streams with In-Situ Measurements. AGU Flash Freeze Presentation*.

Mackey, T. J., Sumner, D. Y., Hawes, I., Jungblut, A. D., **Leidman, S. Z.**, Andersen, D. T. (2016) Stromatolites Record Changing Primary Productivity in Perennially Ice-Covered Lake Joyce, McMurdo Dry Valleys, Antarctica. AGU Presentation (Abstract B43D-06).

Cooper, M. G., Smith, L. C., Rennermalm, A. K., Pitcher, L. H., Miede, C., **Leidman, S. Z.**, Cooley, S., Kershner, C. M., Overstreet, B. T., Muthyala, R., Ryan, J., Yang, K. (2016) Characterizing Weathering Crust Hydrology in the Southwest Greenland Ablation Zone. AGU Poster (Abstract C41E-0720).

Leidman, S. Z., Rennermalm, Å. K., Broccoli, A. J., As, D. V., Broeke, V. D., Smeets, P., & Steffen, K. (2016) Low Probability of Safe Fieldwork Conditions in Southwest Greenland due to Weather Conditions. PARCA Poster.

Leidman, S. Z. and Yarnell, S. M. (2015) Tracking Sediment Movement with Pittag Surveys during Storm Events in the North Fork of Caspar Creek, California. AGU Poster (Abstract EP33A1058).

Mackey, T. J., **Leidman, S. Z.**, Allen, B., Hawes, I., Lawrence, J., Jungblut, A. D., Krusor, M., Coleman, L., Sumner, D. Y. (2015) Characterizing microbial mat morphology with Structure from Motion techniques in ice-covered Lake Joyce, McMurdo Dry Valleys, Antarctica. AGU Poster (Abstract C41D-0726).

Kim, T. W., Yarnell, S. M., Yager, E., **Leidman, S. Z.** (2015) Comparison between Measured and Calculated Sediment Transport Rates in North Fork Caspar Creek, California. AGU Poster (Abstract H51N-1596).

Mackey, T. J., **Leidman, S. Z.**, Sumner D. Y., Hawes, I., Jungblut, A. D., Castendyk, D. N. (2014) Benthic Microbial Mat Expansion and Nutrient Uptake During Lake Level Rise in IceCovered Lake Vanda, McMurdo Dry Valleys, Antarctica. Ecological Society of America Poster.

Leidman, S. Z. (2014) GIS Analysis of the Water Balance of Lake Vanda, Antarctica. UC Davis Undergraduate Research Conference Poster

Leidman, S. Z. (2013) Supraglacial Stream Dynamics: Determining Bed Roughness and Channel Geometries. UC Davis Undergraduate Research Conference Poster

* = Award Winning

Leadership Experience

- Association of Polar Early Career Scientists (APECS) International Council Member and Founder/Project Group Leader of the APECS Harassment in Polar Sciences Project Group (2017-2018)
- American Association of Geographers (AAG) Cryosphere Group Board Member (2017-2018)
- Rutgers Geography Graduate Project President (2017-2018)
- UC Davis Geology Club President (2013-2014)
- UC Davis Wilderness Medicine Club President (2010-2014)

Awards

- Winner of the NSF Graduate Research Fellowship Program (GRFP) Award (2018)
- Winner of the CUAHSI Pathfinder Fellowship (2018)
- Nominee for the AAG National Geography Bowl (2018)
- Second Prize in the AAG Middle States Student Poster Competition (2018)

- Recipient of the RS Tarr AAG Cryosphere Group Award (2017)
- Recipient of the UC Davis Provost Undergraduate Fellowship (2014)
- Finalist for the Mars Arctic 365 Program (2014)
- Recipient of the Thomas W. Todd Scholarship (2013)

Activities and Skills

- Pacific Crest Trail Thru-Hiker Class of 2011 and 2013
- Wilderness First Responder Certified
- Software: ESRI (ArcMap 10.5, ArcGIS Pro, ArcScene, Model Builder, Network Analysis), Trimble Business Center, Python, Agisoft Photoscan Pro, ERDAS, and ENVI.
- Member of AAG, APECS, and AGU