

ANNA K. LILJEDAHL

Associate Scientist, Woodwell Climate Research Center, working remotely from Homer, Alaska.
149 Woods Hole Road, Falmouth, MA, 02540-1644

Email: aliljedahl@woodwellclimate.org

PROFESSIONAL PREPARATION

- May 2011 Ph.D. Hydrology, University of Alaska Fairbanks, USA. “*The hydrologic regime of sub-arctic and Arctic watersheds: Present and projected*”.
- Sep. 2005 B.Sc. Earth Science/Physical Geography, Umeå University, Sweden. “*Physical impacts and hydrological model simulations of a tundra watershed affected by fire, Seward Peninsula, Alaska*”.

APPOINTMENTS

- 2020-present Associate Scientist, Woodwell Climate Research Center
- 2020-present Affiliate Professor, University of Alaska Fairbanks
- 2018-2021 Affiliated Faculty, Purdue University, West Lafayette.
- 2016-2020 Research Associate Professor, Water and Environmental Research Center, University of Alaska Fairbanks.
- 2016-2020 Affiliated Faculty, International Arctic Research Center, University of Alaska, Fairbanks.
- 2016-2018 Research Director, Water and Environmental Research Center
- 2013-2015 Affiliated Faculty, Glaciers Group, Geophysical Institute, University of Alaska, Fairbanks.
- 2011-2017 Associated Faculty, College of Natural Science and Mathematics, Department of Geology and Geophysics, University of Alaska, Fairbanks.
- 2011-2016 Research Assistant Professor, Water and Environmental Research Center and International Arctic Research Center, University of Alaska Fairbanks.
- 2004-2011 Research Assistant, Institute of Northern Engineering and International Arctic Research Center, University of Alaska Fairbanks.

PEER-REVIEWED PUBLICATIONS**2023**

- Gatesman, T. A., Liljedahl, A. K., Douglas, T. A., Debolskiy, M. V., Trainor, T. P. & Gädeke, A. (2023), Glacier contribution to lowland streamflow: A multi-year, daily geochemical hydrograph separation study in subarctic Alaska. *Chemical Geology*, 621, 121368, doi:10.1016/j.chemgeo.2023.121368.
- Webb, E.E., and Liljedahl, A.K. (2023). Diminishing lake area across the northern permafrost zone, *Nature Geosciences*, doi:10.1038/s41561-023-01128-z.

2022

- Dai, C., Howat, I. M., Freymueller, J. T., Lu, Z., Vijay, S., Liljedahl, A. K., ... & Lev, E. (2022). Quantifying mass flows at Mt. Cleveland, Alaska between 2001 and 2020 using satellite photogrammetry. *Journal of Volcanology and Geothermal Research*, 429, 107614, doi:10.1016/j.jvolgeores.2022.107614.

- Gädeke, A., Arp, C. D., Liljedahl, A. K., Daanen, R. P., Cai, L., Alexeev, V. A., ... & Schulla, J. (2022). Modeled streamflow response to scenarios of tundra lake water withdrawal and seasonal climate extremes, Arctic Coastal Plain, Alaska. *Water Resources Research*, e2022WR032119, doi:10.1029/2022WR032119.
- Hasan, A., Udawalpola, M., Liljedahl, A., & Witharana, C. (2022). Use of commercial satellite imagery to monitor changing Arctic polygonal tundra. *Photogrammetric Engineering & Remote Sensing*, 88(4), 255-262, doi:10.14358/pers.21-00061r2.
- Hasan, A., & Witharana, C., Udawalpola, M., & Liljedahl, A., (2022). Detection of clouds in medium-resolution satellite imagery using deep convolutional neural nets, The International Archives of the Photogrammetry, The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences; Gottingen Vol. XLVI-M-2-2022, Gottingen: Copernicus GmbH:103-109. doi:10.5194/isprs-archives-XLVI-M-2-2022-103-2022.
- Jorgenson, M. T., Kanevskiy, M. Z., Jorgenson, J. C., Liljedahl, A. K., Shur, Y., Epstein, H. E., Kent, K., Griffin, C. G., Daanen, R., Boldenow, M. L., Orndahl, K. M., Witharana C., and Jones, B. M. (2022). Rapid transformation of tundra ecosystems from ice-wedge degradation. *Global and Planetary Change*, 216, 103921, 10.1016/j.gloplacha.2022.103921.
- Kanevskiy, M., Shur, Y., Walker, D. A., Jorgenson, T., Reynolds, M. K., Peirce, J. L., ... & Watson-Cook, E. (2022). The shifting mosaic of ice-wedge degradation and stabilization in response to infrastructure and climate change, Prudhoe Bay Oilfield, Alaska, USA. *Arctic Science*, 8(2), 498-530, doi:10.1139/as-2021-0024.
- Li, W., Hsu, C.Y., Wang, S., Witharana, C., and Liljedahl, A. (2022). Real-time GeoAI for high-resolution mapping and segmentation of arctic permafrost features: the case of ice-wedge polygons. In *Proceedings of the 5th ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery*, pp. 62-65, doi:10.1145/3557918.3565869.
- Manos, E., Witharana, C., Udawalpola, M. R., Hasan, A., & Liljedahl, A. K. (2022). Convolutional neural networks for automated built infrastructure detection in the arctic using sub-meter spatial resolution satellite imagery. *Remote Sensing*, 14(11), 2719, doi:10.3390/rs14112719.
- Udawalpola, M. R., Hasan, A., Liljedahl, A., Soliman, A., Terstriep, J., & Witharana, C. (2022). An optimal GeoAI workflow for pan-Arctic permafrost feature detection from high-resolution satellite imagery. *Photogrammetric Engineering & Remote Sensing*, 88(3), 181-188, doi:10.14358/PERS.21-00059R2.
- Udawalpola, M. R., Witharana, C., Hasan, A., Liljedahl, A., Ward Jones, M., & Jones, B. (2022). Automated recognition of permafrost disturbances using high-spatial resolution satellite imagery and deep learning models. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLVI-M-2-2022. ASPRS 2022 Annual Conference, 6–8 February & 21–25 March 2022, Denver, Colorado, USA & virtual, doi:10.5194/isprs-archives-xlvi-m-2-2022-203-2022.
- Walker, D. A., Reynolds, M. K., Kanevskiy, M. Z., Shur, Y. S., Romanovsky, V. E., Jones, B. M., ... & Peirce, J. L. (2022). Cumulative impacts of a gravel road and climate change in an ice-wedge polygon landscape, Prudhoe Bay, AK. *Arctic Science*, 8(4), doi:10.1139/as-2021-0014.
- Webb, E.E., Liljedahl, A.K., Cordeiro, J.A., Loranty, M.M., Witharana, C. & Lichstein, J.W., 2022. Permafrost thaw drives surface water decline across lake-rich regions of the Arctic. *Nature Climate Change*, 12(9), 841-846, doi: 10.1038/s41558-022-01455-w.
- Witharana, C., Udawalpola, M.R., Liljedahl, A.K., Jones, M.K.W., Jones, B.M., Hasan, A., Joshi, D. and Manos, E., 2022. Automated detection of retrogressive thaw slumps in the High Arctic using high-resolution satellite imagery. *Remote Sensing*, 14(17), p.4132, doi:10.3390/rs14174132.
- Zona, D., Lafleur, P. M., Hufkens, K., Bailey, B., Gioli, B., Burba, G., ... & Oechel, W. C. (2022). Earlier snowmelt may lead to late season declines in plant productivity and carbon

sequestration in Arctic tundra ecosystems. *Scientific Reports*, 12(1), 1-10, doi:10.1038/s41598-022-07561-1.

2021

- Boike, J., Chadburn, S., Martin, J., Zwieback, S., Althuisen, I. H., Anselm, N., ... & Wilcox, E. J. (2021). Standardized monitoring of permafrost thaw: a user-friendly, multiparameter protocol. *Arctic Science*, 8(1), 153-182, doi:10.1139/as-2021-0007.
- Stuefer, S. L., Arp, C. D., Kane, D. L., & Liljedahl, A. K. (2017). Recent extreme runoff observations from coastal Arctic watersheds in Alaska. *Water Resources Research*, 53(11), 9145-9163, doi:10.1002/2017WR020567.
- Udawalpola, M., Hasan, A., Liljedahl, A. K., Soliman, A., & Witharana, C. (2021). Operational-scale geoai for pan-arctic permafrost feature detection from high-resolution satellite imagery. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 44, 175-180, doi:10.5194/isprs-archives-XLIV-M-3-2021-175-2021.
- Walter Anthony, K., Lindgren, P., Hanke, P., Engram, M., Anthony, P., Daanen, R. P., ... & Meyer, F. J. (2021). Decadal-scale hotspot methane ebullition within lakes following abrupt permafrost thaw. *Environmental Research Letters*, 16(3), 035010, doi:10.1088/1748-9326/abc848.
- Witharana, C., Bhuiyan, M. A. E., Liljedahl, A. K., Kanevskiy, M., Jorgenson, T., Jones, B. M., ... & Ward Jones, M. K. (2021). An object-based approach for mapping tundra ice-wedge polygon troughs from very high spatial resolution optical satellite imagery. *Remote Sensing*, 13(4), 558, doi:10.3390/rs13040558.

2020

- Bhuiyan, M. A. E., Witharana, C., & Liljedahl, A. K. (2020). Use of very high spatial resolution commercial satellite imagery and deep learning to automatically map ice-wedge polygons across tundra vegetation types. *Journal of Imaging*, 6(12), 137, doi:10.3390/jimaging6120137.
- Bhuiyan, M. A. E., Witharana, C., Liljedahl, A. K., Jones, B. M., Daanen, R., Epstein, H. E., ... & Agnew, A. (2020). Understanding the effects of optimal combination of spectral bands on deep learning model predictions: a case study based on permafrost Tundra landform mapping using high resolution multispectral satellite imagery. *Journal of Imaging*, 6(9), 97, doi:10.3390/jimaging6090097.
- Bliss, A., Hock, R., Wolken, G., Whorton, E., Aubry-Wake, C., Braun, J., ... & Zhang, J. (2020). Glaciers and climate of the Upper Susitna basin, Alaska. *Earth System Science Data*, 12(1), 403-427, doi: 10.5194/essd-12-403-2020.
- Dai, C., Higman, B., Lynett, P. J., Jacquemart, M., Howat, I. M., Liljedahl, A. K., ... & Haeussler, P. J. (2020). Detection and assessment of a large and potentially tsunamigenic periglacial landslide in Barry Arm, Alaska. *Geophysical Research Letters*, 47(22), e2020GL089800, doi:10.1029/2020GL089800.
- Jorgenson, M. T., Douglas, T. A., Liljedahl, A. K., Roth, J. E., Cater, T. C., Davis, W. A., ... & Racine, C. H. (2020). The roles of climate extremes, ecological succession, and hydrology in repeated permafrost aggradation and degradation in fens on the Tanana Flats, Alaska. *Journal of Geophysical Research: Biogeosciences*, 125(12), e2020JG005824, doi:10.1029/2020JG005824.
- Liljedahl, A. K., Timling, I., Frost, G. V., & Daanen, R. P. (2020). Arctic riparian shrub expansion indicates a shift from streams gaining water to those that lose flow. *Communications Earth & Environment*, 1(1), 1-9, doi: 10.1038/s43247-020-00050-1.
- Raynolds, M. K., Jorgenson, J. C., Jorgenson, M. T., Kanevskiy, M., Liljedahl, A. K., Nolan, M., ... & Walker, D. A. (2020). Landscape impacts of 3D-seismic surveys in the Arctic National Wildlife Refuge, Alaska. *Ecological Applications*, 30(7), e02143, doi:10.1002/eap.2143.

- Witharana, C., Bhuiyan, M. A. E., & Liljedahl, A. K. (2020). Big imagery and high performance computing as resources to understand changing arctic polygonal tundra. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, Volume XLIV-M-2-2020, ASPRS 2020 Annual Conference Virtual Technical Program, 22–26 June, doi:10.5194/isprs-archives-XLIV-M-2-2020-111-2020.
- Witharana, C., Bhuiyan, M. A. E., Liljedahl, A. K., Kanevskiy, M., Epstein, H. E., Jones, B. M., ... & Jones, M. K. W. (2020). Understanding the synergies of deep learning and data fusion of multispectral and panchromatic high resolution commercial satellite imagery for automated ice-wedge polygon detection. *ISPRS Journal of Photogrammetry and Remote Sensing*, 170, 174-191, doi: 10.1016/j.isprsjprs.2020.10.010.
- Zhang, W., Liljedahl, A. K., Kanevskiy, M., Epstein, H. E., Jones, B. M., Jorgenson, M. T., & Kent, K. (2020). Transferability of the deep learning mask R-CNN model for automated mapping of ice-wedge polygons in high-resolution satellite and UAV images. *Remote Sensing*, 12(7), 1085, doi:10.3390/rs12071085.

2019

- Arp, C. D., Whitman, M. S., Jones, B. M., Nigro, D. A., Alexeev, V. A., Gädeke, A., ... & Uher-Koch, H. R. (2019). Ice roads through lake-rich Arctic watersheds: Integrating climate uncertainty and freshwater habitat responses into adaptive management. *Arctic, Antarctic, and Alpine Research*, 51(1), 9-23, doi:10.1080/15230430.2018.1560839.
- Miner, K. R., Kreutz, K. J., Jain, S., Campbell, S., & Liljedahl, A. (2019). A screening-level approach to quantifying risk from glacial release of organochlorine pollutants in the Alaskan Arctic. *Journal of Exposure Science & Environmental Epidemiology*, 29(3), 293-301, doi: 10.1038/s41370-018-0100-7.

2018

- Cai, L., Alexeev, V. A., Arp, C. D., Jones, B. M., Liljedahl, A. K., & Gädeke, A. (2018). The polar WRF downscaled historical and projected twenty-first century climate for the coast and foothills of arctic Alaska. *Frontiers in Earth Science*, 5(111), doi: 10.3389/feart.2017.00111.
- Frost, G. V., Christopherson, T., Jorgenson, M. T., Liljedahl, A. K., Macander, M. J., Walker, D. A., & Wells, A. F. (2018). Regional patterns and asynchronous onset of ice-wedge degradation since the mid-20th century in Arctic Alaska. *Remote Sensing*, 10(8), 1312, doi: 10.3390/rs10081312.
- Miner, K. R., Campbell, S., Gerbi, C., Liljedahl, A., Anderson, T., Perkins, L. B., ... & Kreutz, K. J. (2018). Organochlorine pollutants within a polythermal glacier in the Interior Eastern Alaska Range. *Water*, 10(9), 1157, doi:10.3390/w10091157.
- Zhang, W., Witharana, C., Liljedahl, A. K., & Kanevskiy, M. (2018). Deep convolutional neural networks for automated characterization of arctic ice-wedge polygons in very high spatial resolution aerial imagery. *Remote Sensing*, 10(9), 1487, doi:10.3390/rs10091487.

2017

- Jones, B. M., Arp, C. D., Whitman, M. S., Nigro, D., Nitze, I., Beaver, J., ... & Grosse, G. (2017). A lake-centric geospatial database to guide research and inform management decisions in an Arctic watershed in northern Alaska experiencing climate and land-use changes. *Ambio*, 46(7), 769-786, doi:10.1007/s13280-017-0915-9.
- Liljedahl, A. K., Hinzman, L. D., Kane, D. L., Oechel, W. C., Tweedie, C. E., & Zona, D. (2017). Tundra water budget and implications of precipitation underestimation. *Water Resources Research*, 53(8), 6472-6486, doi:10.1002/2016WR020001.

- Liljedahl, A. K., Gädeke, A., O'Neel, S., Gatesman, T. A., & Douglas, T. A. (2017). Glacierized headwater streams as aquifer recharge corridors, subarctic Alaska. *Geophysical Research Letters*, 44(13), 6876-6885, doi:10.1002/2017GL073834.
- Raz-Yaseef, N., Torn, M. S., Wu, Y., Billesbach, D. P., Liljedahl, A. K., Kneafsey, T. J., ... & Wulfschleger, S. D. (2017). Large CO₂ and CH₄ emissions from polygonal tundra during spring thaw in northern Alaska. *Geophysical Research Letters*, 44(1), 504-513, doi:10.1002/2016GL071220.
- Wainwright, H. M., Liljedahl, A. K., Dafflon, B., Ulrich, C., Peterson, J. E., Gusmeroli, A., & Hubbard, S. S. (2017). Mapping snow depth within a tundra ecosystem using multiscale observations and Bayesian methods. *The Cryosphere*, 11(2), 857-875, doi:10.5194/tc-11-857-2017.

2016

- Douglas, T. A., Jorgenson, M. T., Brown, D. R., Campbell, S. W., Hiemstra, C. A., Saari, S. P., ... & Liljedahl, A. K. (2016). Degrading permafrost mapped with electrical resistivity tomography, airborne imagery and LiDAR, and seasonal thaw measurements. *Geophysics*, 81(1), WA71-WA85, doi:10.1190/geo2015-0149.1.
- Liljedahl, A. K., Boike, J., Daanen, R. P., Fedorov, A. N., Frost, G. V., Grosse, G., ... & Zona, D. (2016). Pan-Arctic ice-wedge degradation in warming permafrost and its influence on tundra hydrology. *Nature Geoscience*, 9(4), 312-318, doi: 10.1038/ngeo2674.
- Zona, D., Gioli, B., Commane, R., Lindaas, J., Wofsy, S. C., Miller, C. E., ... & Oechel, W. C. (2016). Cold season emissions dominate the Arctic tundra methane budget. *Proceedings of the National Academy of Sciences*, 113(1), 40-45, doi:10.1073/pnas.151601711.

2015

- Arp, C. D., Jones, B. M., Liljedahl, A. K., Hinkel, K. M., & Welker, J. A. (2015). Depth, ice thickness, and ice-out timing cause divergent hydrologic responses among Arctic lakes. *Water Resources Research*, 51(12), 9379-9401, doi:10.1002/2015WR017362.
- Atchley, A. L., Painter, S. L., Harp, D. R., Coon, E. T., Wilson, C. J., Liljedahl, A. K., & Romanovsky, V. E. (2015). Using field observations to inform thermal hydrology models of permafrost dynamics with ATS (v0. 83). *Geoscientific Model Development*, 8(9), 2701-2722, doi:10.5194/gmd-8-2701-2015.

2014

- Floyd, A. L., Prakash, A., Meyer, F. J., Gens, R., & Liljedahl, A. (2014). Using synthetic aperture radar to define spring breakup on the Kuparuk river, Northern Alaska. *Arctic*, 462-471.
- Gangodagamage, C., Rowland, J. C., Hubbard, S. S., Brumby, S. P., Liljedahl, A. K., Wainwright, H., ... & Wulfschleger, S. D. (2014). Extrapolating active layer thickness measurements across Arctic polygonal terrain using LiDAR and NDVI data sets. *Water Resources Research*, 50(8), 6339-6357, doi:10.1002/2013WR014283.
- Skurikhin, A. N., Wilson, C. J., Liljedahl, A., & Rowland, J. C. (2014, April). Recursive active contours for hierarchical segmentation of wetlands in high-resolution satellite imagery of arctic landscapes. In *2014 Southwest Symposium on Image Analysis and Interpretation* (pp. 137-140). IEEE, doi: 10.1109/SSIAI.2014.6806048.
- Zona, D., Lipson, D. A., Richards, J. H., Phoenix, G. K., Liljedahl, A. K., Ueyama, M., ... & Oechel, W. C. (2014). Delayed responses of an Arctic ecosystem to an extreme summer: impacts on net ecosystem exchange and vegetation functioning. *Biogeosciences*, 11(20), 5877-5888, doi: 10.5194/bg-11-5877-2014.

2012

Liljedahl, A. K., Hinzman, L. D., & Schulla, J. (2012). Ice-wedge polygon type controls low-gradient watershed-scale hydrology. In *Proceedings of the Tenth International Conference on Permafrost* (Vol. 1, pp. 231-236). The Northern Publisher: Salekhard, Russia.

2011

Liljedahl, A. K., Hinzman, L. D., Harazono, Y., Zona, D., Tweedie, C. E., Hollister, R. D., ... & Oechel, W. C. (2011). Nonlinear controls on evapotranspiration in arctic coastal wetlands. *Biogeosciences*, 8(11), 3375-3389, doi:10.5194/bg-8-3375-2011.

Liljedahl, A. K. (2011). *The hydrologic regime at sub-arctic and arctic Watersheds: present and projected*. PhD Thesis, University of Alaska Fairbanks.

2009

Bonnaventure, P. P., Gärtner-Roer, I., Liljedahl, A., Hachem, S., & Abramov, A. (2009). Report from the International Permafrost Association: The Permafrost Young Researchers Network (PYRN). *Permafrost and Periglacial Processes*, 20(4), 417-419, doi:10.1002/ppp.668.

Yi, S., McGuire, A. D., Harden, J., Kasischke, E., Manies, K., Hinzman, L., ... & Kim, Y. (2009). Interactions between soil thermal and hydrological dynamics in the response of Alaska ecosystems to fire disturbance. *Journal of Geophysical Research: Biogeosciences*, 114(G2), doi:10.1029/2008JG000841.

2007

Liljedahl, A., Hinzman, L., Busey, R., & Yoshikawa, K. (2007). Physical short-term changes after a tussock tundra fire, Seward Peninsula, Alaska. *Journal of Geophysical Research: Earth Surface*, 112(F2), doi:10.1029/2006JF000554.

REPORTS

Division of geological & geophysical surveys, Alaska Department of Natural Resources and University of Alaska Fairbanks (2014), Glacier and runoff changes study, Study plan section 7.7, Initial study report – Literature review, Susitna-Watana Hydroelectric Project, Alaska Energy Authority, FERC No. 14241.

Division of geological & geophysical surveys, Alaska Department of Natural Resources and University of Alaska Fairbanks (2015), Glacier and runoff changes study, Study plan section 7.7, Final study report, Susitna-Watana Hydroelectric Project, Alaska Energy Authority, FERC No. 14241.

Emond, A.M., R.P. Daanen, G.R.C. Graham, K.W. Anthony, A.K. Liljedahl, B.J. Minsley, D.L. Barnes, V.E. Romanovsky, and CGG Canada Services Ltd. (2018), Airborne electromagnetic and magnetic survey, Goldstream Creek watershed, interior Alaska: Alaska Division of Geological & Geophysical Surveys Geophysical Report 2016-5, 14 p., doi.org/10.14509/29681

Liljedahl, A. et al. (2015), Estimating future flood frequency and magnitude in basins affected by glacier wastage, Alaska Department of Transportation and Public Facilities and Alaska University Transportation Center.

Lynch A.H., F.S. Chapin III, C. Ashjian, E. Barnes, C. Bitz, J. Briner, E. Hobbie, M. Holland, J.T. Johnson, A. Liljedahl, E. Marino, C. Norchi, J. Saros, M.C. Serreze, M. Steele, and R. Virginia (2019), Arctic Portfolio Review, Office of Polar Programs Advisory Committee and Arctic Sciences Section, National Science Foundation.

Pradhan, N.R., C.W. Downer, S. Marchenko, A. Liljedahl, T.A. Douglas and A. Byrd (2013), Development of a coupled framework for simulating interactive effects of frozen soil

hydrological dynamics in permafrost regions, U.S. Army Corps of Engineers, ERDC TR-13-15.

Vorosmarty, C., M. Rawlins, L. Hinzman, J. Francis, M. Serreze, A. Liljedahl, K. McDonald, M. Piasecki and R. Rich, (2018), Opportunities and challenges in Arctic system synthesis: A consensus report from the Arctic research community. New York, NY. City University of New York.

Walker, D.A, M.T. Jorgenson, M. Kanevskiy, A.K. Liljedahl, M. Nolan, M.K. Raynolds, and M. Sturm (2019), Likely impacts of proposed 3D-seismic surveys to the terrain, permafrost, hydrology, and vegetation in the 1002 Area, Arctic National Wildlife Refuge, Alaska. Alaska Geobotany Center Publication 19-01. University of Alaska Fairbanks, Fairbanks, Alaska, USA.

SYNERGISTIC ACTIVITIES

Co-Lead IARPC Risk Management & Hazard Mitigation and liaison to IARPC Data Management team, 2023-present.

External Advisory Board Member, NSF HDR Institute for Harnessing Data and Model Revolution in the Polar Regions (iHARP), University of Maryland, Baltimore, 2022-2024.

International Scientific Committee Member, International Conference on Permafrost, Yellowknife, 2022-2024.

Clowder Steering Committee Member, National Center for Supercomputing Applications, 2020-present

Science Advisory Committee Member, Arctic Data Center, 2020-present.

Science Advisory Committee Member, Polar Geospatial Center, 2019-present.

Woodwell Field Safety Committee Chair, 2021-present.

Technical Chair, 2021 Regional Conference on Permafrost, Boulder, 2019-2021.

Kachemak Bay Conservation Society Secretary, 2020-2021.

Alaska Institute for Climate & Energy Board Member, 2020-2021.

Portfolio Review Committee Member, Arctic Sciences Section, National Science Foundation, to advise NSF on how to reform ARC's programs to accelerate the understanding of the Arctic. 2018-2019.

President, US Permafrost Association 2018.

Hiring Committee Member, UAF Centennial Postdoctoral Initiative, 2017-2018.

Search Committee Member, CEM Dean, 2018.

Chair, Research Advisory Committee, UAF Faculty Senate, 2017-2018.

Faculty Senator, UAF Faculty Senate, 2016-2018.

Research Director, Water and Environmental Research Center, 2016-2018 (term limited position).

Editorial Board Member, Scientific Reports, Nature, 2014-present.

Field Safety Committee Member, UAF, 2016-2018.

President-Elect, US Permafrost Association, 2017.

Search Committee Member, INE Director, 2015-2016.

Barrow-Atkasuk Science Advisors Committee, Primary Representative for Hydrology, 2014-2017.

President's Committee of Research Administration Review (declined), 2016.

Committee Chair, Unit Merit Criteria development for INE Research Faculty, 2015.

Committee Member, Vice Chancellor of Research's revision of Field Travel Plans, 2015.

Committee Member, Provost working group on annual faculty activity reporting (Faculty180), 2013-2014.

Past-President, American Water Resources Association – Alaska Section, 2013-2014.

President, American Water Resources Association – Alaska Section, 2012.

Secretary, United States Permafrost Association, 2011-2012.

President-Elect, American Water Resources Association – Alaska Section, 2011.

Co-Chair, Arctic Landscape Conservation Cooperative, Hydrology Working Group, 2011.
Board Member, Board of Directors, United States Permafrost Association, 2009-2010.
Executive Committee Member, Permafrost Young Researchers Network, 2009-2010.
Sub-committee Member, Barrow Environmental Observatory, 2009-2011.
Student representative in a committee organized by the National Agency for Higher Education, Stockholm, Sweden, to evaluate geoscience education. *National Agency for Higher Education evaluation report of B. S., M.S. and Ph.D. programs in geosciences at Swedish Universities*. National Agency for Higher Education Report 2004:13R, Stockholm, Sweden

POST-DOCTORAL MENTORING

Melissa Ward-Jones, 2020-2021.

Anne Gädeke, 2015-2017.

GRADUATE STUDENT ADVISING

Roxanne Frappier, Ph.D. Geography, University of Ottawa, Thesis Evaluation 2023

Macall Hock, Ph.D. Earth Sciences, San Diego State University, 2022-Present.

Elizabeth Webb, Ph.D. Earth Sciences, University of Florida, 2020-2022.

Amit Hasan, Ph.D. Earth Sciences, Univ. of Connecticut, 2021-2022.

Jordyn Miller, Ph.D. Earth Sciences, Purdue Univ., 2018-2021.

Johnse Ostman, M.Sc. Env. Sci., Alaska Pacific Univ., 2013-2018.

Bridget Eckardt, M.Sc. Civil Engineering, Univ. of Alaska Fairbanks, 2015-2020

Tiffany Gatesman, M.Sc. Env. Chem., Univ. of Alaska Fairbanks, Co-Chair, 2014-2017.

Angelica Floyd, M.Sc. Geology, Univ. of Alaska Fairbanks, Co-Chair, 2011-2012.

Lei Cai, PhD Atmospheric Sci., Univ. of Alaska Fairbanks, 2015-2018.

Jennifer Davis, M.Sc. Geophys., Univ. of Alaska Fairbanks, 2011-2015.

Maria Kaiser, M.Sc. Env. Engineering, Munich Technical Univ., Germany, Co-Chair, 2014-2015.

UNDERGRADUATE STUDENT ADVISING

Aaron Orr, B.S. Civil and Env. Engineering, 2016-2017.

Patrick Terhune, B.S. Geology, 2016-2017.

Niki Jacobs, B.S. Chemistry, 2015.

Tristan Weiss, Post-B.S. Interdisciplinary, 2014.

Andrew Chamberlain, B.S. Civil and Env. Engineering, 2013.

Salome Scott, B.S. Physics, 2012-2013.

Elliot Clausen, B.S. Civil and Env. Engineering, 2013.

HONORS AND AWARDS

Faculty Senator of the year, UAF Faculty Senate, 2018.

Nominated by the INE Director for the AGU Cryosphere Early Career Award in 2017 and 2018.

Nominated by the Provost for the Blavatnik National Awards for Young Scientists in 2018.

Editor's Choice Awards (Arp et al. 2015), Water Resources Research 2016.

Academic Leadership Institute UAF, participant, 2015-2016

UNAC Merit Bonus Award 2014, Grantsmanship.

The 2012 International Permafrost Association Troy L. Péwé Award for Outstanding Oral Presentation, Tenth International Conference on Permafrost, June 29th, Salekhard, Yamal-Nenets Autonomous District Russia.

UAF Faculty Development Travel Award/Grant, 2012.
CEM travel awards, 2013, 2018.

FUNDED RESEARCH PROJECTS

PRINCIPAL INVESTIGATOR OR COLLABORATIVE PRINCIPAL INVESTIGATOR

Total: >\$9,000,000

Collaborative Research: The role of capillaries in the Arctic hydrological system (overall PI)

Funding agency: National Science Foundation, Arctic Systems Science Research

Amount: \$302,382 (Project total: \$1,357,596)

Duration: 2023-2026

Collaborative Principal Investigators: Mikhail Kanevskiy, University of Alaska Fairbanks, Michael Rawlins, University of Massachusetts Amherst, Claire Griffin, Southern Oregon University, and Chandi Witharana, University of Connecticut.

Collaborative Research: CyberTraining: Implementation: Medium: Cyber2A: CyberTraining on AI-driven Analytics for Next Generation Arctic Scientists

Funding agency: National Science Foundation, Office of Advanced Cyberinfrastructure, #2230035

Amount: \$319,434 (Project total: \$1,000,000)

Duration: 2023-2026

Collaborative Principal Investigators: Wenwen Li (overall PI), Arizona State University; Kenton McHenry, University of Illinois Urbana-Champaign, and Matthew B. Jones, University of California Santa Barbara.

Quantifying Arctic Mass Wasting Using ArcticDEM

Funding agency: NASA ROSES

Amount: \$135,000 (Project total: ~\$500,000)

Duration: 2020-2023

Collaborative Principal Investigators: Chunli Dai (overall PI) and Ian Howat, Ohio State University

NNA Track 1: Collaborative Research: The Permafrost Discovery Gateway: Navigating the new Arctic tundra through Big Data, artificial intelligence, and cyberinfrastructure (overall PI)

Funding agency: National Science Foundation, Integrative and Collaborative Education and Research, #1927872, 2052107

Amount: \$881,431 (Project total: \$3,000,000)

Duration: 2019-2023

Collaborative Principal Investigators: Matthew Jones and Amber Budden, University of California Santa Barbara (#1927720), Kenton McHenry and Aiman Soliman, University of Illinois (#1927729), Jason Cervenec and Aaron Wilson, Ohio State University (#1927920), Chandi Witharana, University of Connecticut (#1927723).

Collaborative research: Patterns, dynamics, and vulnerability of Arctic polygonal ecosystems: From ice-wedge polygon to pan-Arctic landscapes (overall PI)

Funding agency: National Science Foundation, Arctic Systems Science Research, #1722572, 2051888

Amount: \$737,388 (Project total: \$1,317,630)

Duration: 2018-2022

Collaborators: M. Kanevskiy and T. Jorgenson, Univ. of Alaska Fairbanks; R. Daanen, Division of Geophysical and Geological Surveys, AK Dept. Natural Resources; C. Witharana, Univ. of Connecticut (#1720875), H. Epstein, University of Virginia (#1721030).

Description: The goal is to understand the complex and interlinked processes responsible for the evolution of the pan-Arctic ice-wedge polygon tundra landscape by combining field measurements from nine Canadian, Russian, and Alaskan field sites, numerical modeling, and very high spatial resolution optical imagery that has recently become available for the entire Arctic tundra domain.

Riparian shrub expansion: Linkages to permafrost, hydrology and soil microbes (overall PI)

Funding agency: National Science Foundation, Arctic Systems Science Research, #1630360

Amount: \$61,913

Duration: 2016-2017

Collaborators: I. Timling Univ. of Alaska Fairbanks; R. Daanen, Division of Geophysical and Geological Surveys, AK Dept. Natural Resources; Gerald Frost, ABR Inc.

Description: The project is evaluating the linkage between shrubs and hydrology.

Methane release from thermokarst lakes: Thresholds and feedbacks in the lake to watershed hydrology-permafrost system (overall PI)

Funding agency: National Science Foundation, Arctic Systems Science Research, #1500931

Amount: \$2,086,836

Duration: 2015-2018

Collaborators: K. Walter Anthony, V. Romanovsky and D. Barnes, Univ. of Alaska Fairbanks; R. Daanen, Division of Geophysical and Geological Surveys, AK Dept. Natural Resources.

Description: The project is analyzing the role of watershed-hydrology and permafrost dynamics on thermokarst lake methane emissions.

Collaborative research: Developing a system model of Arctic glacial-lacustrine sedimentation for investigating past and future climate change

Funding agency: National Science Foundation, Arctic System Science, #1418274

Amount: \$247,008

Duration: 2015-2018

Collaborators: Nicholas McKay, Darrell Kaufman, Erik Schiefer, David Fortin, Northern Arizona Univ.; Michael Loso, Alaska Pacific Univ.; Matt Nolan, Univ. of Alaska Fairbanks.

Description: The UAF study is part of a larger project lead by Northern Arizona Univ. Total budget, incl. UAF, is \$1,160,000. The project will develop a system model that encodes the major processes that govern the amount and grain size of sediment that accumulates in Arctic lakes in glaciated catchments.

Collaborative research: What role do glaciers play in terrestrial sub-arctic hydrology? (overall PI)

Funding agency: National Science Foundation, Arctic Systems Science Research, #1304905

Amount: \$844,653

Duration: 2013-2016

Collaborators: J. Zhang, North Carolina Agricultural and Technical State University; Seth Campbell, Univ. of Maine, R. Hock, A. Gusmeroli, Univ. of Alaska Fairbanks; T. Douglas, Cold Regions Research and Engineering Laboratory.

Description: The project aims to develop a comprehensive understanding of glacier-permafrost-hydrology relationships using field measurements and modeling in light of anticipated increases in glacier wastage and permafrost degradation within the discontinuous permafrost region.

Cryosphere-hydrology measurements/modeling and tundra food resources and diet of shorebirds: UAF Participation in “Climate change effects on wetland habitats, invertebrates and shorebirds (CEWISH)” (overall PI)

Funding agency: Arctic Landscape Cooperative

Amount: \$193,000

Duration: 2014-2015

Collaborators: M. Sturm, A. Lopez, K. Tape, Univ. of Alaska Fairbanks; R. Daanen, Division of Geophysical and Geological Surveys, AK Dept. Natural Resources; R. Lanctot and S. Saalfeld, US Fish and Wildlife Service; D. Kesler, Univ. of Missouri.

Description: The overall objective is to describe the spatiotemporal variability in tundra wetland ice wedge polygon pond snow and ice melt. The UAF study is part of a larger project managed by the U.S. Fish and Wildlife Service (R. Lanctot) that focuses on evaluating how climate change may affect the invertebrate community in shallow surface waters and whether the change in climate could induce a trophic mismatch that might alter the growth and survival of shorebird young.

Estimating future flood frequency and magnitude in basins affected by glacier wastage (overall PI)

Funding agency: AK DOT&PF, PACTRANS and AK University Transportation Center

Amount: \$100,000

Duration: 2012-2014

Collaborators: A. Arendt and R. Hock, Univ. of Alaska Fairbanks; G. Wolken, Division of Geological and Geophysical Surveys, AK Dept. of Natural Resources.

Description: The project estimated future peak flow frequency and magnitude of glacially fed streams and provided partial support to graduate student Jenny Davis’s MSc research.

Modeling the impacts of climate change on US Army permafrost and hydrology

Funding agency: Cold Region Research and Engineering Laboratory (CRREL)

Amount: \$329,000

Duration: 2011-2014

Collaborators: T. Douglas, Cold Regions Research and Engineering Laboratory (overall Principal Investigator); T. Jorgenson, Alaska Ecoscience; S. Marchenko, Univ. of Alaska Fairbanks; and C. Downer and N. Pradhan, Coastal Hydraulics Laboratory (CHL).

Description: The UAF team works closely with CHL to link existing hydrologic (GSSHA) and thermal (GIPL) models. The effort is part of the larger project entitled “Addressing the impacts of climate change on U.S. Army Alaska with decision support tools developed through field work and modeling”, which is funded by an award from SERDP-DOD (total budget \$1,790,000).

Improving scientific understanding of the changing hydrologic system of the Jarvis Creek watershed and its impact on the ecosystem (overall PI)

Funding agency: Alaska Center for Climate and Assessment and Policy

Amount: \$14,091

Duration: 2015

Collaborator: J. Durham, Salcha-Delta Soil and Water Conservation District.

Description: The project supports MSc student Tiffany Gatesman in her work to assess the role of glacier melt on Interior Alaska lowland hydrology.

Hydrograph partitioning of a glacierized watershed, Interior Alaska (overall PI)

Funding agency: National Institutes of Water Resources

Amount: \$18,700

Duration: 2014-2015

Collaborator: T. Trainor, Univ. of Alaska Fairbanks

Description: The project supports M.Sc. Tiffany Gatesman who will assess the hydrologic pathways of glacier wastage within a watershed underlain by discontinuous permafrost and quantify the contribution of glacier melt, snow melt and rainfall to stream runoff.

Monitoring runoff in glaciated watersheds to assess groundwater recharge and flooding risks (overall PI)

Funding agency: National Institute for Water Resources

Amount: \$20,500

Duration: 2012-2013

Collaborators: A. Arendt, Univ. of Alaska Fairbanks

Description: The project supported discharge monitoring at two glaciated watersheds located in continental and maritime Alaska climates and partially financed graduate student Jennifer Davis' M.Sc. research.

Assessing variations in summer river temperature and spring break-up between the foothills and coastal plain through remote sensing, hydrologic modeling, and field measurements, Kuparuk River, Alaska (overall PI)

Funding agency: Alaska NASA EPSCoR

Amount: \$27,000

Duration: 2011-2012

Collaborators: A. Prakash, Univ. of Alaska Fairbanks

Description: The study tested the applicability of remote sensing techniques (SAR) on detecting river break-up. The project supported Angelica Floyd's MSc thesis research, which was completed in December 2012.

COLLABORATIVE INVESTIGATOR

Total: >\$7,100,000

NNA Track 1: Landscape evolution and adapting to change in ice-rich permafrost systems

Funding agency: National Science Foundation, Integrative and Collaborative Education and Research, #1928237

Amount: \$3,000,000

Duration: 2019-2024

Principal Investigator: D. "Skip" Walker, Univ. of Alaska Fairbanks

Collaborators: Y. Shur, V. Romanovsky, G. Kofinas, Univ. of Alaska Fairbanks.

Collaborative Research: Ice regime shifts of Arctic lakes drive interactions and feedbacks with permafrost and climate

Funding agency: National Science Foundation, Arctic System Science, #1417300

Amount: \$1,226,000

Duration: 2014-2017

Principal Investigator: C. Arp, Univ. of Alaska Fairbanks

Collaborators: B. Jones, U.S. Geological Survey; V. Alexeev Univ. of Alaska Fairbanks; A. Parsekian, Univ. of Wyoming; R. Daanen, Division of Geophysical and Geological Surveys, AK Dept. Natural Resources.

Description: The project examines the extent and dynamics of bedfast ice and floating ice lakes in relation to how they function in and interact with Arctic landscape and climate systems.

Response of an Arctic freshwater ecosystem to climate and land-use change

Funding agency: Arctic Landscape Conservation Cooperative

Amount: \$531,000

Principal Investigator: C. Arp, UAF.

Collaborators: M. Whitman and D. Nigro, Bureau of Land Management; B. Jones, U.S. Geological Survey; M. Wipfli, U.S. Geological Survey and Univ. of Alaska Fairbanks; V. Alexeev and B. Gaglioti, Univ. of Alaska Fairbanks; C. Hiemstra, Cold Regions Research and Engineering Laboratory; J. Adams, US Fish and Wildlife Service; B. Morris AK Dept. Fish and Game; G. Liston, Colorado State Univ.; R. Daanen, Division of Geophysical and Geological Surveys, AK Dept. Natural Resources.

Description: Assess freshwater habitat change in the Arctic Coastal Plain landscape in order to help federal and state agencies in their long-term wildlife management.

Future glacier and runoff changes in the Susitna drainage basin

Funding agency: Alaska Energy Authority (via AK Dept. Natural Resources)

Amount: \$488,546

Duration: 2012-2015

Principal Investigator at UAF: R. Hock

Collaborators: G. Wolken (overall Principal Investigator), Div. of Geological and Geophysical Surveys, AK Dept. of Natural Resources.

Description: We are conducting hydrologic modeling of the Upper Susitna drainage basin with particular focus on the effect of glacier wastage and permafrost degradation on streamflow into the proposed Susitna-Watana hydroelectric dam.

Next Generation Ecosystem Experiments – Arctic

Funding agency: Department of Energy

Amount: ~\$1,500,000

Duration: 2012-2015

Principal Investigator at UAF: L.D. Hinzman,

Collaborators: S.D. Wulfschleger (overall NGEE Principal Investigator), D.E. Graham, L. Lian, R.J. Norby and P.E. Thornton, ORNL; S.S. Hubbard, W.J. Riley and M.S. Torn, LBNL; A. Rogers, BNL; J.C. Rowland and C.J. Wilson, LANL.

Description: NGEE combines field measurements and develops new models to quantify the response of Arctic physical, ecological, and biogeochemical processes to climatic change from the molecular to landscape scale. (<http://ngee.ornl.gov/>)

Predicting climate impacts and feedbacks in the terrestrial Arctic

Funding agency: Los Alamos National Laboratory

Amount: ~\$400,000

Duration: 2012-2014

Principal Investigator at UAF: L.D. Hinzman

Collaborators: S. Painter (overall Principal Investigator) and C. Wilson, LANL.

Description: UAF supports the parameterization of the Arctic Terrestrial Simulator (ATS), which aim to simulate complex interactions among thermal, mechanical, biogeochemical, ecological and hydrologic permafrost processes. The effort is part of a larger award funded to LANL by the Department of Energy.

INVITED CONFERENCE & WORKSHOP PRESENTATIONS

- Speaker*, National Academy of Sciences, Kavli Frontiers of Science Symposium 2023 (declined)
- Speaker*, International Day of Permafrost 2023, NSERC PermafrostNet, Ottawa (declined)
- Speaker*, Arctic Research Seminar Series, Arctic Research Consortium of the United States, October 28, 2019.
- Speaker*, Alfred Wegener Institute, Permafrost Research Unit Seminar Series, October 11, 2019, Potsdam, Germany.
- Speaker*, University of Connecticut, Natural Resources and the Environment Fall Seminar Series, 27 September, Storrs, CT.
- Speaker*, “Bridging Science, Art, and Community in the New Arctic”, Sept. 23-25, 2019, University of Virginia, Charlottesville.
- Speaker*, Session C53A “Advancing understanding of cold climate hydrologic and geomorphic systems in a warming climate”, American Geophysical Fall Meeting 2018, Washington DC.
- Plenary Speaker*, Arctic streams – The veins and capillaries in a changing cryosphere (Invited Plenary), Second Asian Conference on Permafrost, 2-6 July 2017, Sapporo, Japan.
- Speaker*, Session “Understanding the extent and impacts of land-use/land-cover and climate change on ecohydrology”, American Geophysical Fall Meeting 2016, San Francisco.
- Speaker*, Session “Permafrost degradation and its interrelations with physical, socio-ecological, and socio-economical processes”, American Geophysical Fall Meeting 2016, San Francisco.
- Speaker*, Session “The Arctic freshwater system: past, present, and future”, American Geophysical Fall Meeting 2016, San Francisco. Declined as AGU limits to two invited abstracts.
- Speaker*, Session 8782 “Where when and why will Arctic landscapes get wetter or drier?”, American Geophysical Fall Meeting 2015, San Francisco.
- Speaker*, Alaska Department of Transportation and Public Facilities Annual Hydraulic Engineer Meeting, 14-15 April, 2015, Fairbanks, Alaska.
- Speaker and participant*, “High-Performance & Distributed Computing for Polar Sciences: Workshop on Applications, Cyberinfrastructure Requirements and Opportunities”, National Science Foundation, 4-5 December, 2014, Rutgers University, New Jersey.
- Speaker*, “Ice wedge degradation at multiple Arctic lowland sites“, One-day workshop to develop a strategy for an annual summary of long-term monitoring on Alaska’s North Slope, Wildlife Conservation Society and British Petroleum Exploration, 11 June 2014, University of Alaska, Fairbanks, Alaska.
- Speaker*, “Permafrost hydrology in Alaska”, Workshop to develop joint future permafrost hydrology research in Svalbard, HYDRO-PERM, 24-26 October 2012, Longyearbyen, Svalbard.
- Speaker*, “Water management in Alaska – the Susitna hydropower dam”, SMAP/ICESat-2 Joint Mission Tutorial Workshop, NASA, 18-20 September 2012, Fairbanks, Alaska.
- Speaker*, “The hydrology of Arctic wetlands, its controls and future implications”. Terrestrial Water Cycle Seminar, 24 May 2012, Goddard Space Flight Center, NASA, Greenbelt, Maryland.
- Participant*, U.S. Arctic Observing Coordination Workshop, National Science Foundation, 20-22 March 2012, Anchorage, Alaska.
- Participant in the Hydrology Panel*, Wildlife Response to Environmental Arctic Change (WildREACH): Predicting Future Habitats of Arctic Alaska Workshop. U.S. Fish and Wildlife Service, 17–18 November 2008, Fairbanks, Alaska.
- Speaker*, “The role of meteorological variables on coastal Arctic wetland evapotranspiration”. American Water Resources Association Alaska Section Brown Bag Lunch Meeting, 12 March 2008, Fairbanks, Alaska.

INVITED GUEST LECTURES

Guest Lecture, “What is a Pingo?”, Mystic Seaport Museum, February 2018, Mystic, Connecticut

Guest Lecture, FISH694/BIOL694 Physical Processes in Freshwater Ecosystems (Jeff Falke), September 2017, University of Alaska Fairbanks, Alaska.

Guest Lecture, CE601 Engineering Research Communication (William Schnabel), March 2017.

Guest Lecture, FISH492/692, BIOL 492/692 Climate Change Seminar Series (Mark Wipfli), Institute of Arctic Biology, November 2016, University of Alaska Fairbanks, Alaska.

Guest Lecture, FISH492/692, BIOL 492/692 Climate Change Seminar Series (Mark Wipfli), Institute of Arctic Biology, December 2015, University of Alaska Fairbanks, Alaska.

Guest Lecture, BIOL485 Global Change Biology (Richard Boone), Dep. of Biology and Wildlife, November 2015, University of Alaska Fairbanks, Alaska.

Guest Lecture and field excursion co-leader, “Arctic hydrology and modeling”, International Arctic Research Center Summer School on Arctic in a warming climate: Connection to vegetation, permafrost and hydrology (Vladimir Alexeev). 26 May–9 June 2015, International Arctic Research Center, University of Alaska Fairbanks, Fairbanks and Toolik, Alaska.

Guest Lecture, FISH492/692, BIOL 492/692 Climate Change Seminar Series (Mark Wipfli), Institute of Arctic Biology, October 2014, University of Alaska Fairbanks, Alaska.

Guest Lecture, FISH492/692, BIOL 492/692 Climate Change Seminar Series (Mark Wipfli), Institute of Arctic Biology, October 2013, University of Alaska Fairbanks, Alaska.

Guest Lecture, “An introduction to Arctic hydrology – variability and interactions”. International Arctic Research Center, Summer School on the Modeling of Arctic Climate (Vladimir Alexeev), 26 May - 7 June 2008, International Arctic Research Center, University of Alaska Fairbanks, Barrow, Alaska.

MEDIA INTERVIEWS & CONTRIBUTIONS (incomplete list)

Washington Post, New York Times, National Geographic, Anchorage Daily News, Arctic Today, Fairbanks NewsMiner, San Antonio Express, KUAC Radio Fairbanks, Channel 11, Anchorage, Tanana Valley TV, GlacierHub, American Geophysical Union, Sakha Government News Russia YSIA.RU Russia, CBC Radio Canada (Quirks and Quarks), National Public Radio Sweden, Profil Kommunikation Sweden, Allehanda Daily Newspaper Sweden, and Natursidan.se Sweden.

JOURNAL PEER-REVIEW (incomplete list)

Arctic, Advances in Meteorology, Agricultural and Forest Meteorology, Biogeosciences, Cold Regions Science and Engineering, Environmental Research Letters, Global Change Biology, Geophysical Research Letters, Hydrology, Hydrogeology, Hydrological Processes, Hydrology and Earth System Sciences, J. of Applied Meteorology, J. of Geophysical Research, Nature Communications, Nature Geoscience, Nature Climate Change, Permafrost and Periglacial Processes, Remote Sensing, Science, Scientific Reports, Tellus, The Cryosphere, and Water Resources Research.

PROPOSAL, REPORT, AND CONFERENCE PROCEEDINGS REVIEW

National Science Foundation (Hydrological Sciences, Arctic Sciences, Engineering), U.S. Geological Survey, U.S. Fish and Wildlife Service, International Permafrost Association, Natural Sciences and Engineering Research Council of Canada, German Research Foundation, and Canada Foundation for Innovation.

FIELDWORK EXPERIENCE

Hydrology (runoff, snow accumulation, ablation, water table, soil moisture, open water evaporation, glacier mass balance), meteorology, soil properties (thermal, hydrological, soil horizon descriptions, active layer depth) in Arctic and sub-arctic Alaska.

SOFTWARE

WaSiM (<http://www.wasim.ch/>), ArcGIS, Surfer, Adobe Illustrator, PowerPoint, Word, Excel.

ADDITIONAL COLLABORATORS

Graduate and Postdoctoral Advisors: Larry D. Hinzman, Douglas Kane, Terry Chapin, John Fox, Kenji Youshikawa, Sveta Stuefer, University of Alaska Fairbanks; Rolf Zale, Umeå University, Sweden

LANGUAGES

English, Swedish

CITIZENSHIP

United States of America (2013)

Sweden

ACHIEVEMENTS AS A GRADUATE STUDENT, M.Sc. and Ph.D.*Student Awards*

Outstanding student paper, American Geophysical Union Fall Meeting 2010, Hydrology Section, December 13-17, San Francisco, California.

Outstanding student hydrology poster presentation, 7th International Conference on Global Change: Connection to the Arctic (GCCA-7). 19-20 February 2007, Fairbanks, Alaska.

LAURUS award for outstanding oral presentation, 57th Arctic Science Conference, Arctic Division American Association for the Advancement of Science. 2-4 October 2006, Fairbanks, Alaska.

6th International NCCR climate summer school, Land surface-atmosphere interactions in a changing climate. 26-31 August 2007, Grindelwald, Switzerland.

CLASSIC Spring School, Atmosphere-biosphere interactions. 15-21 April 2007, Abisko, Sweden.

IMPETUS 2007-OSL-APECS-PYRN workshop on permafrost field methods. 29 November-3 December 2007, St. Petersburg, Russia.

The interdisciplinary science workshop for early career polar scientists. 7-9 May 2008, Stockholm, Sweden.

APECS career development workshop. 7 July 2008, St. Petersburg, Russia.

Student Grants

Dixelius Foundation, 2004/2005

The Swedish Institute, 2004/2005

American Water Resources Association, 2007/2008

Global Change Student Research Competition (\$10,000), 2007-2009

Bolick Foreign Student Scholarship, 2007/2008

Gålö/Gemzeus Foundation, 2007/2008

Sweden-America Foundation (\$20,000), 2008/2009

SCAR/IASC travel grant, 2008

UAF Graduate School travel grant, 2008

CONFERENCE ABSTRACTS (*incomplete list*)

- Ajadi, O.A., Meyer, F.J. and A.K. Liljedahl (2016), Detection of flooded areas in a time series of high resolution synthetic aperture radar images using curvelet transform and unsupervised classification, POSTER NH53A-1984, American Geophysical Union Fall Meeting, December 12-16, San Francisco, California.
- Arp, C., A. Gaedeke, A.K. Liljedahl, R.P. Daanen and M.S. Whitman (2016), Assessment of climate and land use change impacts on surface water runoff and connectivity in a continuous permafrost catchment on the Arctic Coastal Plain, Alaska, POSTER GC43E-1207, American Geophysical Union Fall Meeting, December 12-16, San Francisco, California.
- Arp, C., B.M. Jones, K.M. Hinkel, J.M. Welker and A. Bondurant (2015), Ice regime and melt-out timing cause divergent hydrologic responses among Arctic lakes, POSTER C21C-0754, American Geophysical Union Fall Meeting, December 14-18, San Francisco, California.
- Arp, C., V. Alexeev, C. Hiemstra, B. Jones, A. Liljedahl, D. Nigro, M. Whitman, and M. Wipfli (2013), Response of an Arctic freshwater ecosystem to climate and land-use change: New, interdisciplinary research in the Fish Creek Watershed Observatory, American Fisheries Society, Alaska Chapter Meeting, October 7-10, Fairbanks, Alaska.
- Atchley, A., D. Harp, S. Painter, E. Coon, C. Wilson, V. Romanovsky and A. Liljedahl (2014), Using observational data to inform physically based models of subsurface thermal hydrology properties and active layer thickness at the Barrow Environmental Observatory, Alaska, American Geophysical Union Fall Meeting POSTER C11C-0381, December 15-19, San Francisco, California.
- Aubrey-Wake, C., R. Hock, J.L. Braun, J. Zhang, G.J. Wolken and A.K. Liljedahl (2013), Response of glacier mass balance and discharge to future climate change, upper Susitna basin, Alaska, American Geophysical Union Fall Meeting, POSTER C33B-0734, December 9-13, San Francisco, California.
- Bisht, G., J. Kumar, A.K. Liljedahl, W.J. Riley and P.E. Thornton (2012), Scaling of hydrologic flows due to polygonal ground features in Arctic ecosystem, POSTER B53E-0712, December 13-17, San Francisco, California.
- Bliss, A., R. Hock, G. Wolken, E. Whorton, J. Zhang, A. Gusmeroli, J. Braun, A.K. Liljedahl and J. Schulla (2015), Changes to glacier runoff and downstream effects on the Susitna Basin, Alaska over the twenty-first century, C32C-06, American Geophysical Union Fall Meeting, December 14-18, San Francisco, California.
- Bliss, A., R. Hock, G. Wolken, J. Zhang, E. Whorton, J. Braun, A. Gusmeroli, A. Liljedahl and J. Schulla (2014), Twenty-first century changes in the hydrology, glaciers, and permafrost of the Susitna Basin, Alaska American Geophysical Union Fall Meeting POSTER H43J-1092, December 15-19, San Francisco, California.
- Bliss, A., J.L. Braun, R.P. Daanen A.K. Liljedahl, G.J. Wolken and J. Zhang (2013), Twenty-first century changes in the hydrology, glaciers, and permafrost of the Susitna Basin, Alaska,

- American Geophysical Union Fall Meeting, POSTER GC23D-0960, December 9-13, San Francisco, California.
- Braun, J., A.K. Liljedahl, R.M. Hock and G.J. Wolken (2012), Future glacier and runoff changes in the Upper Susitna basin, Alaska, POSTER GC11A-0957, December 13-17, San Francisco, California.
- Campbell, S.W., A.K. Liljedahl, T.A. Douglas, S. Bernsen, T. Gatesman and C.C. Gerbi (2017), Contributions to Jarvis Creek watershed, Alaska, from winter accumulation and glacier melt inferred through airborne and ground-penetrating radar, POSTER C33A-1544, December 11-15, San Francisco, California.
- Chamberlain, A., A. Liljedahl, C. Wilson, W. Cable and V. Romanovsky (2014), Measured hydrologic storage characteristics of three major ice-wedge polygon types, Barrow, Alaska, American Geophysical Union Fall Meeting POSTER C11C-0383, December 15-19, San Francisco, California.
- Coon, E., A. Atchley, S. Painter, S. Karra, J. Moulton, C. Wilson and A. Liljedahl (2014), Effects of spatial and temporal resolution on simulated feedbacks from polygonal tundra, American Geophysical Union Fall Meeting POSTER C14A-06, December 15-19, San Francisco, California.
- Daanen, R.P., A.K. Liljedahl and J. Schulla (2018), Modeling surface water and soil freezing processes using WaSiM, C51C-1052, American Geophysical Union Fall Meeting, December 10-14, Washington DC.
- Daanen, R.P., A. Gaedeke, A.K. Liljedahl, C.D. Arp, M.S. Whitman, B.M. Jones, L. Cai and V.A. Alexeev (2017), Simulating low-flow conditions in an arctic watershed using WaSiM, POSTER GC34C-06, December 11-15, San Francisco, California.
- Dannen, R.P. and A.K. Liljedahl (2017), Thermal regime of an ice-wedge polygon landscape near Barrow, Alaska, POSTER GC53D-1871, American Geophysical Union Fall Meeting POSTER C11A-0247, December 11-15, San Francisco, California.
- Daanen, R.P., A. Emond, A.K. Liljedahl, K.M. Walter Anthony, D.L. Barnes, V.E. Romanovsky and G. Graham (2016), Use of airborne electromagnetic geophysical survey to map discontinuous permafrost in Goldstream Valley, Interior Alaska, POSTER NS21A-1886, American Geophysical Union Fall Meeting, December 12-16, San Francisco, California.
- Daanen, R., J. Schulla and A. Liljedahl (2016), Thermal algorithms in the water balance simulation model, Eleventh International Conference on Permafrost, 20-24 June, Potsdam, Germany.
- Dai, C., Jones, M., Howat, I., Liljedahl, A., Lewkowicz, A. and Freymueller, J., (2020), Using ArcticDEM to identify and quantify pan-Arctic retrogressive thaw slump activity. In *EGU General Assembly Conference Abstracts* (p. 12142).
- Davis, J., A. Arendt, A.K. Liljedahl and G. Wolken (2013), Assessment of flood hazard potential in the Valdez Glacier watershed in future climate, American Water Resources Association Alaska Section Annual Conference, March 5-7, Anchorage, Alaska.
- Debolskiy, M. A. Liljedahl and R. Hock (2014), Assessing the role of glaciers and permafrost on northern hydrology, WaSiM User Conference, February 20-21, Munich, Germany.
- Douglas, T.A., M.T. Jorgenson, C.A. Hiemstra, S. Campbell, K. Bjella, S. Newman, J. Anderson, D. Nossow, A. Liljedahl (2014), Permafrost-vegetation-soil interactions in boreal landscapes of Interior Alaska inferred from field measurements and remote sensing, Cumulative Impact and Landscape Initiatives, A Sustainability Check During Climate Change 2014 Annual Symposium (US-IALE), May 18-22, Anchorage, Alaska.
- Douglas, T.A., A. Liljedahl, M.T. Jorgenson, C. Bagley, C. Downer, N. Pradhan and K. Burks-Copes (2012), Effects of a changing permafrost regime on hydrology and ecosystems in Interior Alaska, Tenth International Conference on Permafrost, Salekhard, Russia, Extended Abstracts, Volume 4, p. 150-153.

- Douglas, T., A.K. Liljedahl, B.N. Astley, C.W. Downer, T.T. Jorgenson, C. Bagle and K. Burks-Copes (2011), Anticipated impacts of climate warming on ecosystems in Interior Alaska, American Geophysical Union Fall Meeting, POSTER C41B-0393, December 5-9, San Francisco, California.
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