

**ANNA K. LILJEDAHL**

P.O. Box 753851, Fairbanks, AK 99775

Ph.: (+1) 907-799-9780; E-mail: akliljedahl@alaska.edu

**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 M.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**

- 2016-present *Research Associate Professor*, Water and Environmental Research Center, University of Alaska Fairbanks.
- 2018-present *Affiliated Faculty*, Purdue University, West Lafayette.
- 2016-present *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** (\*Published in 2017-2018 FY)

- Arp, C.D, B.M. Jones, A.K. **Liljedahl**, K.M. Hinkel and J.A. Welker (2015), Depth, ice thickness, and ice-out timing cause divergent hydrologic responses among Arctic lakes, *Water Resources Res.*, 51(12), 9379-9401, doi:10.1002/2015WR017362.
- Atchley, A.L., S.L. Painter, D.R. Harp, E.T. Coon, C.J. Wilson, A.K. **Liljedahl** and V.E. Romanovsky (2015), Using field observations to inform thermal hydrology models of permafrost dynamics with ATS (v0.83), *Geosci. Model Dev.* 8(9), 2701-2722.
- Cai, L., Alexeev, V., Arp, C., Jones, B., **Liljedahl**, A., and Gädeke, A. (2017), The polar WRF downscaled historical and projected 21st century climate for the coast and foothills of Arctic Alaska, *Frontiers in Earth Science*, 5(111), doi:10.3389/feart.2017.00111.
- Douglas, T., T. Jorgenson, D. Brown, S. Campbell, C. Hiemstra, S. Saari, K. Bjella and A. **Liljedahl** (2016), Degrading permafrost mapped with electrical resistivity tomography, airborne imagery and LiDAR, and seasonal thaw measurements, *Geophysics*, 81(1), WA71-WA85.
- Floyd, A., A. Prakash, R. Gens, F. Meyer and A. **Liljedahl** (2014), Applicability of synthetic aperture radar to define river breakup on the Kuparuk River, Northern Alaska, *Arctic*, 67(4), 462-471.

- \*Frost, G., T. Christopherson, M. Jorgenson, A. **Liljedahl**, M. Macander, D. Walker and A. Wells (2018), Regional patterns and asynchronous onset of ice-wedge degradation since the mid-20th century in Arctic Alaska, *Remote Sensing*, 10(8), 1312, doi.org/10.3390/rs10081312.
- Gangodagamage, C., J. Rowland, S. Hubbard, S. Brumby, A. **Liljedahl**, H. Wainwright, C. Wilson, G. Altmann, B. Dafflon, J. Peterson, C. Ulrich, C. Tweedie and S. Wulschleger (2014), Extrapolating active layer thickness measurements across Arctic polygonal terrain using LiDAR and NDVI datasets, *Water Resources Res.*, 50(8), 6339-6357, doi:10.1002/2013WR014283.
- Jones, B.M., C.D. Arp, M. S. Whitman, D. Nigro, I. Nitze, J. Beaver, A. Gädeke, C. Zuck, A. **Liljedahl**, R. Daanen and E. Torvinen (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*, 1-18.
- Liljedahl**, A.K., L.D. Hinzman, D.L. Kane, W.C. Oechel, C.E. Tweedie and D. Zona (2017), Tundra water budget and implications of precipitation underestimation, *Water Resources Res.*, 53(8), pp 6472-6486, doi:10.1002/2016WR020001.
- Liljedahl**, A.K., A. Gädeke, S. O'Neel, T.A. Gatesman and T.A. Douglas (2017), Glacierized headwater streams as aquifer recharge corridors, subarctic Alaska, *Geophys. Res. Lett.*, 44(13), 6876-6885, doi:10.1002/2017GL073834.
- Liljedahl**, A.K., J. Boike, R.P. Daanen, A.N. Fedorov, G.V. Frost, G. Grosse, L.D. Hinzman, Y. Iijma, J.C. Jorgenson, N. Matveyeva, M. Necsoiu, M.K. Reynolds, V. Romanovsky, J. Schulla, K.D. Tape, D.A. Walker, C. Wilson, H. Yabuki and D. Zona (2016), Pan-Arctic ice-wedge degradation in warming permafrost and its influence on tundra hydrology, *Nature Geoscience*, 9, 312-318, doi:10.1038/ngeo2674.
- Liljedahl**, A.K., L.D. Hinzman and J. Schulla (2012), Ice-wedge polygon type controls low-gradient watershed-scale hydrology. In Tenth International Conference on Permafrost Vol. 1: International Contributions, Hinkel K. M. (Ed.), The Northern Publisher, Salekhard, Russia, pp 231-236.
- Liljedahl**, A.K., L.D. Hinzman, Y. Harazono, D. Zona, C. Tweedie, R.D. Hollister, R. Engstrom, and W.C. Oechel (2011), Nonlinear controls on evapotranspiration in Arctic coastal wetlands, *Biogeosciences*, 8, 3375-3389, doi:10.5194/bg-8-3375-2011.
- Liljedahl**, A., L. Hinzman, R. Busey, and K. Yoshikawa (2007), Physical short-term changes after a tussock tundra fire, Seward Peninsula, Alaska. *J. Geophys. Res.*, 112(F2), doi:10.1029/2006JF000554.
- \*Miner, K., S. Campbell, C. Gerbi, A. **Liljedahl**, T. Anderson, L. Perkins, S. Bernsen, T. Gatesman and K. Kreutz (2018), Organochlorine pollutants within a polythermal glacier in the Interior Eastern Alaska Range, *Water*, 10(9), 1157, doi.org/10.3390/w10091157.
- Raz-Yaseef, N., M.S. Torn, Y. Wu, D.P. Billesbach, A.K. **Liljedahl**, T.J. Kneafsey, V.E. Romanovsky, D.R. Cook, and S.D. Wulschleger (2017), Large CO<sub>2</sub> and CH<sub>4</sub> emissions from polygonal tundra during spring thaw in northern Alaska, *Geophys. Res. Lett.*, 44(1), 504-513.
- Skurikhin, A.N., A. **Liljedahl**, C. Wilson and J. Rowland (2014), Recursive active contours for hierarchical segmentation of wetlands in high-resolution satellite imagery of Arctic landscapes, In *Southwest Symposium of Image Analysis and Interpretations*, pp. 137-140.
- Stuefer, S., D. Kane, C. Arp, and A.K. **Liljedahl** (2017), Recent extreme runoff observations from coastal Arctic watersheds in Alaska, *Water Resources Res.*, 53(11), 9145-9163 doi:10.1002/2017WR020567.
- Wainwright, H.M., A.K. **Liljedahl**, B. Dafflon, C. Ulrich, J.E. Peterson, A. Gusmeroli, and S.S. Hubbard (2017), Mapping snow depth within a tundra ecosystem using multiscale observations and Bayesian methods, *The Cryosphere*, 11, 857-875, doi:10.5194/tc-11-857-2017.
- Yi, S., A.D. McGuire, J. Harden, E. Kasischke, K. Manies, L. Hinzman, A. **Liljedahl**, J. Randerson, H. Liu, V. Romanovsky, S. Marchenko, and Y. Kim (2009), Interactions between soil thermal

and hydrological dynamics in the response of Alaska ecosystems to fire disturbance. *J. Geophys. Res.*, 114(G2), doi:10.1029/2008JG000841.

- \*Zhang W, C. Witharana, A.K. **Liljedahl** and M. Kanevskiy (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.org/10.3390/rs10091487.
- Zona, D., B. Gioli, R. Commane, J.O. Lindaas, S.C. Wofsy, C.E. Miller, S.J. Dinardo, S. Dengel, C. Sweeney, A. Karion, R. Y.-W. Chang, J.M. Henderson, P. Murphy, V. Moreaux, A. **Liljedahl**, J.D. Watts, J.S. Kimball, D.A. Lipson and W.C. Oechel (2016), Cold season emission dominate the Arctic tundra methane budget, *Proceedings of the National Academy of Sciences*, 113(1), 40-45.
- Zona, D., D. A. Lipson, J. H. Richards, G.K. Phoenix, A.K. **Liljedahl**, M. Ueyama, C. S. Sturtevant and W.C. Oechel (2014), Delayed responses of an Arctic ecosystem to an extremely dry summer: impacts on net ecosystem exchange and vegetation functioning, *Biogeosciences*, 11(20), 5877-5888, doi:10.5194/bg-11-5877-2014.

#### **REPORTS** (\*Published in 2017-2018 FY)

- 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.
- 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.

#### **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. 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.
- 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. Nossov, 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.
- Downer, C.W., N.R. Pradhan, M.L. Follum, S. Marchenko, A. Liljedahl, A.R. Byrd and T. Douglas (2012), Development of a coupled framework for interactive effects of soil thermal and hydrological dynamics in permafrost modeling, American Water Resources Association Alaska Section Annual Conference, March 4-7, Juneau, Alaska.
- Floyd, A., R. Gens, A. Prakash, F. Meyer and A. Liljedahl (2012), Using synthetic aperture radar to study river ice break-up on the Kuparuk River, Northern Alaska, American Water Resources Association Alaska Section Annual Conference, March 4-7, Juneau, Alaska.
- Floyd, A., A.K. Liljedahl, R. Gens, A. Prakash and D.H. Mann (2011), Remote sensing, modeling, and in-situ measurements to study the spring and summer thermal regime of the Kuparuk River, Northern Alaska, American Geophysical Union Fall Meeting, POSTER C41C-0422, December 9-5, San Francisco, California.
- Frost, G., T.C. Christopherson, A.K. Liljedahl, M.J. Macander, D. Walker and A.F. Wells (2016), Regional patterns and asynchronous onset of ice-wedge degradation in Arctic Alaska, Eleventh International Conference on Permafrost, 20-24 June, Potsdam, Germany.
- Frost, G., M.J. Macander, A. Liljedahl and D. Walker (2015), Regional patterns of ice-wedge degradation across Northern Alaska: What does asynchronous timing of onset tell us regarding triggering mechanisms, thresholds, and impacts? POSTER C21C-0750, American Geophysical Union Fall Meeting, December 14-18, San Francisco, California.

- Frost, G., M.J. Macander, A. Liljedahl and D. Walker (2014), Regional patterns of ice-wedge degradation since the mid-20th century across northern Alaska, 13<sup>th</sup> International Circumpolar Remote Sensing Symposium, September 8-12, Reykjavík, Iceland.
- Gangodagamage, C., J.C. Rowland, S.S. Hubbard, S.P. Brumby, A.K. Liljedahl, H.M. Wainwright, V. Sloan, G. Altmann, A. Skurikhin, E. Shelef, C.J. Wilson, B. Dafflon, J. Peterson, C. Ulrich, A. Gibbs, C. Tweedie, S. Painter and S.D. Wulschleger (2014), Predicting/extrapolating active layer thickness using statistical learning from remotely-sensed high-resolution data in Arctic permafrost landscapes: Improved parameterization of ice-wedge polygons from LiDAR/WorldView-2 derived metrics, American Geophysical Union Fall Meeting, Invited, EP31A-3517, December 15-19, San Francisco, California.
- Gangodagamage, C., J.C. Rowland, A.N. Skurikhin, C.J. Wilson, S.P. Brumby, S.L. Painter, C.W., Gable, Q. Bui, L.S. Short, A.K. Liljedahl, S.S. Hubbard, H.M. Wainwright, B. Dafflon, C.E. Tweedie, J. Kumar and S.D. Wulschleger (2013), Spatial and spectral characterization, mapping, and 3D reconstructing of ice-wedge polygons using high resolution LiDAR data, American Geophysical Union Fall Meeting, POSTER B51H-0402, December 9-13, San Francisco, California.
- Gatesman, T., T. Douglas, A. Liljedahl and T. Trainor (2015), Hydrograph separation of a sub-arctic glacial watershed, Interior Alaska, POSTER C33E-0876, American Geophysical Union Fall Meeting, December 14-18, San Francisco, California.
- Gatesman, T., T. Douglas, A. Liljedahl and T. Trainor (2015), Hydrograph partitioning of sub-arctic glacial watershed, interior Alaska: A geochemical analysis, American Water Resources Association Alaska Section Annual Conference, POSTER, March 13-15, Fairbanks, Alaska.
- Gusmeroli, A., A.K. Liljedahl, J.E. Peterson, S.S. Hubbard and L.D. Hinzman (2012), Effects of spatially variable snow cover on thermal regime and hydrology of an Arctic ice wedge polygon landscape identified using ground penetrating radar and LIDAR datasets, POSTER C33C-0668, American Geophysical Union Fall Meeting, December 13-17, San Francisco, California.
- Gaedeke, A., A.K. Liljedahl, T. Gatesman, J. Zhang, S. O'Neel, R. Daanen, T. Douglas and S. Campbell (2017), Simulated impact of climate change on glaciers, hydrology and permafrost in subarctic Interior Alaska, POSTER, Second Asian Conference on Permafrost, July 2-6, Sapporo, Japan.
- Gaedeke, A., R. Daanen, C. Arp, A. Liljedahl and L. Cai (2017), Processed based water balance modeling on the Arctic Coastal Plain to assess the linkages between hydrology and aquatic habitat, Alaska Annual Meeting American Fisheries Society, Alaska Chapter, and American Water resources Association, Alaska Section, March 19-23, Fairbanks, Alaska.
- Gaedeke, A., A.K. Liljedahl, S. O'Neal, T.A. Douglas, T.A. Gatesman, and R.P. Daanen (2016), Modeled and measured linkages between glaciers, permafrost and hydrology in a subarctic watershed, Interior Alaska, POSTER GC43E-1205, American Geophysical Union Fall Meeting, December 12-16, San Francisco, California.
- Gädeke, A., A.K. Liljedahl, T.A. Gatesman, T. Douglas and J. Zhang (2016), Assessing watershed-scale linkages between glaciers, permafrost and hydrology in sub-arctic Interior Alaska using field observations and a process-based hydrological model, Eleventh International Conference on Permafrost, 20-24 June, Potsdam, Germany.
- Gädeke, A., A. Liljedahl, C. Arp, R. Daanen, B. Jones, V. Alexeev and L. Cai (2016), Processed-based hydrological modeling of a continuous permafrost catchment on the Arctic Coastal Plain, Alaska to evaluate how climate change will affect surface water runoff and connectivity, POSTER, Eleventh International Conference on Permafrost, 20-24 June, Potsdam, Germany
- Gädeke, A., A.K. Liljedahl, T.A. Gatesman, S.W. Campbell, R. Hock and S. O'Neel (2015), Long-term linkages between glaciers, permafrost and hydrology at two glacierized watersheds in Alaska, C32C-02, American Geophysical Union Fall Meeting, December 14-18, San Francisco, California.

- Gädeke, A., A. Liljedahl, C. Arp, R. Daanen and B. Jones (2015), Moving towards physically-based hydrological modeling in Arctic catchments for refined hydrological change assessment, American Water Resources Association Alaska Section Annual Conference, POSTER, March 13-15, Fairbanks, Alaska.
- Harp, D., A. Atchley, E. Coon, S. Painter, C. Wilson, V. Romanovsky and A. Liljedahl (2014), Effects of soil property uncertainty on projected active layer thickness, American Geophysical Union Fall Meeting POSTER C11C- 0382, December 15-19, San Francisco, California.
- Hinzman, L.D., R. Bryan, R. Bolton, R. Busey, and A. Liljedahl (2010), Modeling the impacts of degrading permafrost on hydrologic processes in Alaska, IPY Oslo Science Conference, June 8-12, Oslo, Norway.
- Hoffman, A., R. Hock, C. Aubrey-Wake, A. Bliss, A. Gusmeroli, A. Liljedahl, L. Gillispie and G. Wolken (2014), Mass and energy balance modeling of glaciers in the Upper Susitna basin, Alaska, American Geophysical Union Fall Meeting POSTER C51B- 0268, December 15-19, San Francisco, California.
- Hubbard, S.S., D.E. Graham, L.D. Hinzman, L. Liang, A.K. Liljedahl, R.J. Norby, A. Rogers, J.C. Rowland, P.E. Thornton, M.S. Torn, W.J. Riley, C.J. Wilson and S.D. Wullschleger (2013), Improved climate prediction through a system level understanding of Arctic terrestrial ecosystems: Next Generation Ecosystem Experiments (NGEE-Arctic), American Geophysical Union Fall Meeting, C33C-07, December 9-13, San Francisco, California.
- Kaiser, M., A. Liljedahl, R. Daanen, A. Gaedeke and W. Rieger (2016), Hydrological and thermal modeling of Imnavait Cr. basin, Alaska, using WaSiM, Eleventh International Conference on Permafrost, 20-24 June, Potsdam, Germany.
- Kholodov, A., A.K. Liljedahl, A.J. Chamberlain, V.E. Romanovsky and W. Cable (2015), Impact of shallow water bodies on the permafrost temperature and estimation of risk of thermokarst development at the Barrow Environmental Observatory area, POSTER C21C-0755, American Geophysical Union Fall Meeting, December 14-18, San Francisco, California.
- Kholodov, A., A.K. Liljedahl, V.E. Romanovsky and W. Cable (2014), Cryostratigraphy and main physical properties of active layer soils and upper horizon of permafrost at the Barrow Environmental Observatory research site, American Geophysical Union Fall Meeting POSTER C11C- 0380, December 15-19, San Francisco, California.
- Klein, D.R., N. Bigelow, M. Booth, B. Gaglioti, C. Gelvin-Reymiller, C.E. Holmes, K. Hundertmark, A. Liljedahl, B.A. Potter, J.D. Reuther and M. Wooller (2009), Tracking ecological change from earliest human arrival in eastern Beringia to the present: The Quartz Lake-Shaw Creek Flats multidisciplinary project, POSTER, 39th International Arctic Workshop, April 21-24, Bates College, Maine
- Kumar, J.G., G. Bisht, A.K. Liljedahl, R.T. Mills, S. Karra, S.L. Painter and P.E. Thornton (2013), Modeling active layer and permafrost dynamics of ice wedge polygon dominated Arctic ecosystems, American Geophysical Union Fall Meeting, POSTER C53A-0535, December 9-13, San Francisco, California.
- Kumar, J.G. Bisht, S. Karra, A.K. Liljedahl, F.M. Hoffman, R.T. Mills, S. Painter and P.E. Thornton (2012), Active layer and permafrost thermal regimes in ice wedge polygon dominated regions of Alaska, POSTER B53E-0713, American Geophysical Union Fall Meeting, December 13-17, San Francisco, California.
- Liljedahl, A.K., A. Gaedeke, T. Gatesman, R. Dannen, S. Campbell, S. O'Neel and J. Zhang (2018), Mountain glacier contribution to subarctic river discharge, Northwest Glaciologist Meeting, Sep. 7-8, Fairbanks, Alaska.
- Liljedahl, A.K., R.P. Daanen, G. Frost, and I. Timling (2018), Arctic riparian shrub expansion indicates a shift from gaining to losing streams, European Geophysical Union, EGU2018-18326, April 8-13, Vienna, Austria.

- Liljedahl, A.K., M. Baraer, A. Chesnokova, A. Gaedeke, L. Lebedeva, O. Makarieva, S. O'Neel and N. Nesterova (2017), Mountain glacier contribution to Arctic and subarctic river discharge, 21st Northern Research Basin Symposium, Aug 4-12, Yakutsk, Russia.
- Liljedahl, A.K., M. Baraer, A. Chesnokova, R. Daanen, G. Frost, A. Gaedeke, L. Lebedeva, O. Makarieva, S. O'Neel, N. Nesterova and I. Timling (2017), Arctic streams – The veins and capillaries in a changing cryosphere (Invited Plenary), Second Asian Conference on Permafrost, July 2-6, Sapporo, Japan.
- Liljedahl, A.K., A. Gaedeke, T. Gatesman, S. O'Neel and T. Douglas (2017), Glacierized streams in Interior Alaska recharge aquifers, Annual Meeting American Fisheries Society, Alaska Chapter, and American Water Resources Association, Alaska Section, March 19-23, Fairbanks, Alaska.
- Liljedahl, A.K., A. Gaedeke, M. Baraer, A. Chesnokova, L. Lebedeva, O. Makarieva and S. O'Neel (2016), Decrease in glacier coverage contributes to increased winter baseflow of Arctic rivers (Invited) H33R-02, American Geophysical Union Fall Meeting, December 12-16, San Francisco, California.
- Liljedahl, A.K., Liljedahl A.K., J. Boike, R.P. Daanen, A.N. Fedorov, G.V. Frost, G. Grosse, L.D. Hinzman, Y. Iijma, J.C. Jorgenson, N. Matveyeva, M. Necsoiu, M.K. Reynolds, V. Romanovsky, J. Schulla, K.D. Tape, D.A. Walker, C. Wilson, H. Yabuki and D. Zona (2016), Recent circum-Arctic ice-wedge degradation and its hydrological impacts (Invited), GC33G-08, American Geophysical Union Fall Meeting, December 12-16, San Francisco, California.
- Liljedahl A.K., J. Boike, R.P. Daanen, A.N. Fedorov, G.V. Frost, G. Grosse, L.D. Hinzman, Y. Iijma, J.C. Jorgenson, N. Matveyeva, M. Necsoiu, M.K. Reynolds, V. Romanovsky, J. Schulla, K.D. Tape, D.A. Walker, C. Wilson and H. Yabuki (2016), Recent circum-Arctic ice-wedge degradation and its hydrological impacts, Eleventh International Conference on Permafrost, 20-24 June, Potsdam, Germany.
- Liljedahl A.K., J. Boike, R.P. Daanen, A.N. Fedorov, G.V. Frost, G. Grosse, L.D. Hinzman, Y. Iijma, J.C. Jorgenson, N. Matveyeva, M. Necsoiu, M.K. Reynolds, V. Romanovsky, J. Schulla, K.D. Tape, D.A. Walker, C. Wilson and H. Yabuki (2015), Ice wedge degradation: Why Arctic lowlands are becoming wetter and drier (Invited), C21C-0749, American Geophysical Union Fall Meeting, December 14-18, San Francisco, California.
- Liljedahl A., U. Bhatt, R. Hock, C. Johnson, D. Kane, S. Stuefer, J. Zhang (2014), Climate data needs for Alaska's hydrologic studies, American Water Resources Association, Alaska Section, 2014 annual conference, October 22-24, 2014, Juneau, Alaska.
- Liljedahl, A.K., J. Boike, R.P. Daanen, G.V. Frost, N. Matveyeva, M. Necsoiu, , M.K. Reynolds, V.E. Romanovsky, J. Schulla and D.A. Walker (2014), Pan-arctic ice wedge degradation in continuous permafrost and hydrological implications, Department of Energy's Terrestrial Ecosystem Science and Subsurface Biogeochemical Research programs 2<sup>nd</sup> Joint Principal Investigators Meeting, 6-7 May, Potomac, Maryland.
- Liljedahl, A.K., J. Boike, R.P. Daanen, G.V. Frost, N. Matveyeva, M. Necsoiu, M.K. Reynolds, V.E. Romanovsky, J. Schulla and D.A. Walker (2014), Observed pan-Arctic ice wedge degradation in continuous permafrost and modeled effects on watershed-scale hydrology, WaSiM User Conference, February 20-21, Munich, Germany.
- Liljedahl, A.K., R.P. Daanen, G.V. Frost, N. Matveyeva, M. Necsoiu, M.K. Reynolds, V.E. Romanovsky and D.A. Walker (2013), Observed ice wedge degradation at multiple continuous permafrost locations and their simulated effects on watershed scale hydrology, American Geophysical Union Fall Meeting, C52A-04, December 9-13, San Francisco, California.
- Liljedahl, A.K., J. Braun, R. Daanen, A. Gusmeroli, R. Hock, J. Schulla and G. Wolken (2013), Susitna-Watana Hydroelectric Project: Hydrologic modeling and field measurements of the upper Susitna basin, American Water Resources Association Alaska Section Annual Conference, March 5-7, Anchorage, Alaska.



- Liljedahl, A.K., C. Wilson, R. Daanen, J. Schulla and L. Hinzman (2013), Water balance of Arctic wetlands with differing ice wedge polygon type, Third International Symposium on the Arctic Research, January 14-17, Miraikan, Tokyo, Japan.
- Liljedahl, A.K., C. Wilson, R. Daanen, J. Schulla and L. Hinzman (2012), The hydrology of Arctic landscapes with differing ice wedge polygon type through field measurements and modeling, POSTER B53E-0711, American Geophysical Union Fall Meeting, December 13-17, San Francisco, California.
- Liljedahl, A.K., A. Arendt, C. Barnard, T. Douglas, J. Durham, S. Herreid, R. Hock, E. McNabb and W. Wright (2012), Glacier melt: A source for groundwater recharge and streamflow in semi-arid Interior Alaska, American Water Resources Association Alaska Section Annual Conference, March 4-7, Juneau, Alaska.
- Liljedahl, A.K., L.D. Hinzman, J. Schulla, C. E. Tweedie and D. Zona (2011), Micro-scale topographical controls on Arctic watershed-scale hydrologic fluxes and stocks, American Geophysical Union Fall Meeting, POSTER C41C-0426, December 9-5, San Francisco, California
- Liljedahl, A.K., L.D. Hinzman, J. Schulla, C.E. Tweedie, J. Zhang and D. Zona (2011), Will the Arctic Coastal Plain wetlands disappear? Fourth Interagency Conference on Research in the Watersheds, September 26-30, Fairbanks, Alaska
- Liljedahl, A.K., L.D. Hinzman and J. Schulla (2011), The role of low- and high centered polygons on arctic wetland water balance, American Water Resources Association – Alaska Section Annual Meeting, April 4-6, Chena Hot Springs, Alaska.
- Liljedahl, A.K. and J. Trawicki (2011), How can hydrologic studies better inform North Slope resource managers? Preliminary recommendations from the Arctic LCC hydrology working group, POSTER, North Slope Science Initiative Workshop, March 29-31, Barrow, Alaska
- Liljedahl, A.K., L.D. Hinzman, C.E. Tweedie and J. Schulla (2010), Hyper-resolution hydrological modeling of polygonal ground, POSTER H41B-1079, American Geophysical Union Fall Meeting, December 13-17, San Francisco, California.
- Liljedahl, A.K., L.D. Hinzman, C.E. Tweedie, and J. Schulla (2010), Hyper-resolution hydrological modeling of a desert arctic wetland, POSTER, International Symposium on Ecohydrology, October 17-20, Lausanne, Switzerland.
- Liljedahl, A.K., L.D. Hinzman, C.E. Tweedie, and J. Schulla (2010), Present and future water balance of an Arctic Coastal Plain wetland: Wetter or drier future soils? POSTER, American Water Resources Association Alaska Section 2010 Conference, March 31-April 2, Anchorage, Alaska.
- Liljedahl, A.K., J. Schulla and L.D. Hinzman, (2009), The first application and validation of the hydrologic model WaSiM-ETH at a watershed underlain by permafrost, American Geophysical Union Fall Meeting, December 14-18, San Francisco, California.
- Liljedahl, A.K., L.D. Hinzman, Y. Harazono, D. Zona, W.C. Oechel and P. Olivas (2009), Evapotranspiration at an arctic coastal desert wetland, Barrow, Alaska, POSTER, AGU Chapman Conference on Examining Ecohydrological Feedbacks of Landscape Change Along Elevation Gradients in Semiarid Regions, Oct. 5-8, Sun Valley, Idaho.
- Liljedahl, A.K., L.D. Hinzman, Y. Harazono, D. Zona and W. C. Oechel (2009), The importance of air mass condition on energy fluxes at a coastal arctic wetland, American Water Resources Association 2009 Spring Specialty Conference, May 4-6, Anchorage, Alaska.
- Liljedahl, A.K., L. D Hinzman, C. E Tweedie and R. C. Busey (2009), An empirical attempt of watershed mapping in micro-scale resolution, POSTER, Lessons from Continuity and Change in the Fourth International Polar Year Symposium, March 4-7, Fairbanks, Alaska.
- Liljedahl, A., L. Hinzman, Y. Harazono, D. Zona and W.C. Oechel (2008), Arctic summer surface energy balance at two coastal drained lake basins, Barrow, Alaska, POSTER, B13A-0420 American Geophysical Union Fall Meeting, December 15-19, San Francisco, California.

- Liljedahl, A., L. Hinzman, S. Marchenko, S. Berezovskaya and R. Busey (2008), Measurements and modeling of soil water distributions in time and space, Barrow, Alaska. POSTER, Wildlife Response to Environmental Arctic Change (WildREACH): Predicting Future Habitats of Arctic Alaska Workshop, November 17–18, Fairbanks, Alaska.
- Liljedahl, A. and L. Hinzman (2008), Modeling and measurements of soil water distributions across time and space at Barrow Environmental Observatory, POSTER, 16<sup>th</sup> Arctic Science Conference, October 2-4, Barrow, Alaska.
- Liljedahl, A., L. Hinzman, S. Berezovskaya, S. Marchenko, G. E. Liston and M. Sturm (2008), Distribution of active layer temperatures and snow cover across a polygon, Barrow, Alaska, 59<sup>th</sup> Arctic Science Conference, Arctic Division American Association for the Advancement of Science, September 15-17, Fairbanks, Alaska.
- Liljedahl, A., L. Hinzman and Y. Harazono (2008), The role of meteorological variables on arctic wetland evapotranspiration in different timescales, POSTER, SCAR/IASC 2008 IPY Conference, July 8-11, St. Petersburg, Russia.
- Liljedahl, A., L. Hinzman, S. Marchenko and S. Berezovskaya (2008), The effect of spatially distributed snow cover on soil temperatures: A field and modeling study, POSTER, 9<sup>th</sup> International Conference on permafrost, June 29-July 3, Fairbanks, Alaska.
- Liljedahl, A. and L. Hinzman (2008), TopoFlow soil moisture simulations and validation, American Water Resources Association Alaska Section Annual Meeting, January 28-31, Juneau, Alaska.
- Liljedahl, A., L. Hinzman, Y. Harazono and D. Zona (2007), Dependence of evapotranspiration on meteorological variables, Barrow, Northern Alaska, POSTER U41C-0622 American Geophysical Union Fall Meeting, December 10-14, San Francisco, California.
- Liljedahl, A. and L. Hinzman (2007), Active layer spatial distribution of thermal properties, soil type and moisture, Barrow, Alaska, POSTER, IMPETUS 2007-OSL-APECS-PYRN workshop on permafrost field methods, November 29-December 3, St. Petersburg, Russia.
- Liljedahl, A. and L. Hinzman (2007), Modeling soil moisture distribution in Northern Alaska: Today  $\pm$ 100 yrs, POSTER, ARCUS 19<sup>th</sup> Annual Meeting and Arctic Forum, May 23–24, Washington, D.C.
- Liljedahl, A. and L. Hinzman (2007), Barrow region soil moisture distribution: A modeling study of a warming Arctic, American Water Resources Association Alaska Section Annual Meeting, April 3-4, Fairbanks, Alaska.
- Liljedahl, A. and L. Hinzman (2007), Arctic coastal hydrology over time: Timing, magnitude and direction, POSTER, 7th International Conference on Global Change: Connection to the Arctic (GCCA-7), February 19-20, Fairbanks, Alaska.
- Liljedahl, A. and L. Hinzman (2006), Historic and future spatial hydrologic variations at a coastal Arctic watershed, Alaska, POSTER C51B-0416, American Geophysical Union Fall Meeting, December 11-15, San Francisco, California.
- Liljedahl, A., L. Hinzman, K. Yoshikawa and R. Busey (2006), Physical short-term changes following fire at a tussock tundra site, Seward Peninsula, Alaska, 57<sup>th</sup> Arctic Science Conference, Arctic Division American Association for the Advancement of Science, October 2-4, Fairbanks, Alaska.
- Liljedahl, A., L. Hinzman, K. Yoshikawa and R. Busey (2006), The role of fire on the surface energy balance at a sub-Arctic tussock tundra site. Workshop on monitoring the influence of 2004 Alaskan forest fire on terrestrial environment IARC/JAXA, February 22, Fairbanks, Alaska.
- Liljedahl, A., L. Hinzman, R. Busey and K. Yoshikawa (2005), Physical impacts and hydrological model simulations of a tundra watershed affected by fire, Seward Peninsula, Alaska, POSTER C31A-1109, American Geophysical Union Fall Meeting, December 5-9, San Francisco, California.

- Liljedahl, A. and L. Hinzman (2005), Hydrological model simulations and physical impacts of a tundra watershed affected by wildfire, Seward Peninsula, Alaska, Technical Session, World Water and Environmental Resources Congress, May 15-19, Anchorage, Alaska.
- Meyer, F. J., O. Ajadi, A. K. Liljedahl, & D. Broderson (2015), Remote sensing support of Sag River flooding disaster event to Fairweather, Apr – May.
- Newman, B.D., J.M. Heikoop, C.J. Wilson, M. Gard, G. Altmann, A.K. Liljedahl (2012), Geochemical characterization of lateral distribution of water and carbon in Arctic landscapes, POSTER B21D-0395, American Geophysical Union Fall Meeting, December 13-17, San Francisco, California.
- Orr, A.J., A.K. Liljedahl, T.A. Gatesman and A. Gaedeke (2017), Meteorological field measurements transitioning from lowlands to mountains, Jarvis Creek, Interior Alaska, Alaska Annual Meeting American Fisheries Society, Alaska Chapter, and American Water resources Association, Alaska Section, March 19-23, Fairbanks, Alaska.
- Ostman, J.S., M. Loso, A.K. Liljedahl, A. Gaedeke and J.E. Geck (2017), Runoff generation from neighboring headwater basins with differing glacier coverage using the distributed hydrological model WaSiM, Eklutna, Alaska, American Geophysical Union Fall Meeting POSTER C11A-0247, December 11-15, San Francisco, California.
- Ostman, J.S., M.G. Loso, A.K. Liljedahl, J. Geck and A. Gaedeke (2017), Runoff generation from neighboring headwater basins with differing glacier coverage using a distributed hydrological model, Eklutna, Alaska Annual Meeting American Fisheries Society, Alaska Chapter, and American Water resources Association, Alaska Section, March 19-23, Fairbanks, Alaska.
- Pradhan, N.R., C. Downer, M. Wahl, S. Marchenko and A. Liljedahl (2014), Simulating interactive effects of frozen soil hydrological dynamics in the Caribou-Poker Creek Research Watershed, Alaska, American Geophysical Union Fall Meeting POSTER C11C- 0387, December 15-19, San Francisco, California.
- Pradhan, N.R., C.W. Downer, A.K. Liljedahl, S.S. Marchenko, T.A. Douglas and M. Wahl (2012), Development of a coupled framework for simulating interactive effects of soil thermal and hydrological dynamics in landscapes underlain by permafrost, POSTER EP41F-0851, American Geophysical Union Fall Meeting, December 13-17, San Francisco, California.
- Scott, S., A. K. Liljedahl and M. Sturm (2012), Five years of variability in snow depth and active layer hydrologic and thermal regime across an ice wedge polygon, Barrow, Alaska, POSTER GC21A-0937, American Geophysical Union Fall Meeting, December 4-8, San Francisco, California.
- Vorosmarty, C.J., L.D. Hinzman, M.A. Rawlins, M.C. Serreze, J.A. Francis, A.K. Liljedahl, K.C. McDonald, M. Piasecki, R.H. Rich and M.M. Holland (2017), Arctic System Science: Meeting Earth System and Social Impact Challenges through Integrative Approaches and Synthesis, C13H-08, American Geophysical Union Fall Meeting POSTER C11A-0247, December 11-15, San Francisco, California.
- Wainwright, H.M., A.K. Liljedahl, J.E. Peterson, B. Dafflon, C. Ulrich, A. Gusmeroli and S.S. Hubbard (2015), Multiscale observational platforms and Bayesian data integration to estimate snow depth and snow-water-equivalent over the ice-wedge polygonal tundra, C33C-0825, American Geophysical Union Fall Meeting, December 14-18, San Francisco, California.
- Wainwright, H.M., S.S. Hubbard, B. Dafflon, C. Ulrich, J.E. Peterson, Y., Wu, M.S. Hahn, M.S. Torn, C. Gangodagamage, J.C. Rowland, C.J. Wilson, A.K. Liljedahl, A. Gusmeroli and S.D. Wullschleger (2013), Characterizing subsurface controls on the Arctic ecosystem carbon cycling across scales using geophysical, in-situ and remote sensing datasets, American Geophysical Union Fall Meeting, C53C-06, December 9-13, San Francisco, California.
- Wainwright, H.M., S.S. Hubbard, C. Gangodagamage, J.C. Rowland, A. Liljedahl, A. Gusmeroli, B. Dafflon, C. Ulrich, Y. Wu, C. Wilson, C. Tweedie and S. Wullschleger (2012), High resolution characterization of heterogeneous Arctic tundra subsurface properties using a

- multiscale bayesian fusion approach with geophysical datasets, American Geophysical Union Fall Meeting, December 13-17, San Francisco, California.
- Wilson, C., L. Hinzman, G. Iwahana, M. Lara, A. Liljedahl, S. Painter, V. Romanovsky and S. Wulschleger (2014), Linking inundation patterns and dynamics in a permafrost landscape to hydrologic, thermal, biogeochemical and ecosystem processes, American Geophysical Union Fall Meeting POSTER GC23GF-08, December 15-19, San Francisco, California.
- Wulschleger S.D., D.E. Graham, L.D. Hinzman, S.S. Hubbard, L. Liang, A.K. Liljedahl, R.J. Norby, A. Rogers, J.C. Rowland, P.E. Thornton, M.S. Torn, W.J. Riley and C.J. Wilson (2012), Improved climate prediction through a system level understanding of Arctic terrestrial ecosystems, U51B-05, American Geophysical Union Fall Meeting, December 10-14, San Francisco, California.
- Yi, S., A.D. McGuire, J. Harden, E. Kasischke, K. Manies, L. Hinzman, A. Liljedahl, V. Romanovsky and S. Marchenko (2007), A dynamic soil layer model for assessing the effects of wildfire on high latitude terrestrial ecosystem dynamics, POSTER B11D-0763, American Geophysical Union Fall Meeting, December 10-14, San Francisco, California.
- Zona, D., V. Moreaux, A. Liljedahl, S. Losacco, P. Murphy and W. C. Oechel (2004), Fall season atypical warm weather events lead to substantial CH<sub>4</sub> loss in Arctic ecosystems, EGU-2014-1314, European Geophysical Union General Assembly, April 27 – May 2, Vienna, Austria.
- Zona, D., W. C. Oechel, S. F. Oberbauer, P. C. Olivas, C. Tweedie, L. Hinzman, A. Liljedahl and D. A. Lipson (2009), The consequence of the change in hydrology in the Arctic: Results from the first large-scale water table manipulation experiment in the Alaskan Arctic tundra, 94<sup>th</sup> Ecological Society of America Annual Meeting, August 2-7, Albuquerque, New Mexico.

## **SYNERGISTIC ACTIVITIES**

- President*, US Permafrost Association 2018.
- Committee Member*, Review of NSF's Arctic Sciences Section's programs, 2018.
- Hiring Committee*, 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 Member*, 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**

Anne Gädeke, 2015-2017.

#### **GRADUATE STUDENT ADVISING**

Jordyn Miller, PhD Earth Sciences, Purdue Univ., 2018-present.

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

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 29<sup>th</sup>, Salekhard, Yamal-Nenets Autonomous District Russia.

UAF Faculty Development Travel Award/Grant, 2012.

CEM travel awards, 2013, 2018.

**FUNDED RESEARCH PROJECTS****PRINCIPAL INVESTIGATOR****Total: \$4,532,589*****Collaborative research: Patterns, dynamics, and vulnerability of Arctic polygonal ecosystems: From ice-wedge polygon to pan-Arctic landscapes***

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

Amount: \$737,388

Duration: 2018-2020

Principal Investigator: A.K. **Liljedahl**

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, H. Epstein, University of Virginia (+\$300,000).

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***

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

Amount: \$61,913

Duration: 2016-2017

Principal Investigator: A.K. **Liljedahl**

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***

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

Amount: \$2,086,836

Duration: 2015-2018

Principal Investigator: A.K. **Liljedahl**

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

Principal Investigator at UAF: A.K. **Liljedahl**

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?***

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

Amount: \$844,653

Duration: 2013-2016

Principal Investigator: A.K. **Liljedahl**

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)”***

Funding agency: Arctic Landscape Cooperative

Amount: \$193,000

Duration: 2014-2015

Principal Investigator: A.K. **Liljedahl**

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***

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

Amount: \$100,000

Duration: 2012-2014

Principal Investigator: A.K. **Liljedahl**

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

Principal Investigator at UAF: A.K. **Liljedahl**

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.***

Funding agency: Alaska Center for Climate and Assessment and Policy

Amount: \$14,091

Duration: 2015

Principal Investigator: A.K. **Liljedahl**

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***

Funding agency: National Institutes of Water Resources

Amount: \$18,700

Duration: 2014-2015

Principal Investigator: A.K. **Liljedahl**

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***

Funding agency: National Institute for Water Resources

Amount: \$20,500

Duration: 2012-2013

Principal Investigator: A.K. **Liljedahl**

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***

Funding agency: Alaska NASA EPSCoR

Amount: \$27,000

Duration: 2011-2012

Principal Investigator: A.K. **Liljedahl**

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.



**FUNDED RESEARCH PROJECTS  
COLLABORATIVE INVESTIGATOR****Total: >\$4,145,546*****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. Wullschleger (overall NGEA 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: NGEЕ 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 PRESENTATIONS**

*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*, 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**

National Public Radio, Sweden

KUAC Radio Fairbanks, Alaska

CBC Radio Canada (Quirks and Quarks), Canada

Tanana Valley TV

Allehanda Daily Newspaper, Sweden

Washington Post

San Antonio Express

Anchorage Daily News

Fairbanks NewsMiner

GlacierHub

American Geophysical Union

Sakha Government News, Russia

YSIA.RU, Russia

Profil Kommunikation, Sweden

National Geographic

### **JOURNAL PEER-REVIEW (incomplete)**

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, Permafrost and Periglacial Processes, Remote Sensing, Scientific Reports, Tellus, The Cryosphere, and Water Resources Research.

### **PROPOSAL, REPORT AND CONFERENCE PROCEEDINGS REVIEW**

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

### **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, 7<sup>th</sup> International Conference on Global Change: Connection to the Arctic (GCCA-7). 19-20 February 2007, Fairbanks, Alaska.

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

6<sup>th</sup> 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, 2007-2009

Bolick Foreign Student Scholarship, 2007/2008

Gålö/Gemzeus Foundation, 2007/2008

Sweden-America Foundation, 2008/2009

SCAR/IASC travel grant, 2008

UAF Graduate School travel grant, 2008