

Åsa K. Rennermalm

Rutgers, The State University of New Jersey
New Brunswick, New Jersey, USA

History of Employment

2015-ongoing Associate Professor. Department of Geography, Rutgers, The State University of New Jersey
2009-2015 Assistant Professor. Department of Geography, Rutgers, The State University of New Jersey
2007-2009 Postdoctoral Scholar. Department of Geography, University of California Los Angeles

Degrees

Ph.D., Department of Civil and Environmental Engineering, Princeton University. 2008
M.Sc. Department of Geography, University of Copenhagen, Copenhagen, Denmark, 2001
B.Sc. Department of Geography, University of Copenhagen, Copenhagen, Denmark, 1997

Narrative of Research Experience

I study contemporary climate change and hydrology in the Arctic with emphasis on the Greenland ice sheet. I use various methods, including field data collection, geographic information science, remote sensing, and analysis of existing model output and meteorological and geoscience data. My first expeditions to Greenland occurred in the mid-1990s when I was an undergraduate student. Since then, I have led and participated in numerous field expeditions to Greenland. In my current research, I am examining the fate of Greenland ice sheet surface meltwater, including meltwater infiltration and refreezing in firn, and transport through supraglacial and proglacial hydrological systems. As part of my Ph.D. and master theses, I explored other aspects of Arctic hydrology, including pan-Arctic river discharge and peatland hydrology. Finally, I have also participated in several interdisciplinary research projects investigating linkages between sea ice loss and ice sheet mass balance, and the influence of ice sheet freshwater outflow on marine environments and physical oceanography.

Key Publications

2021 **Rennermalm, Å. K.**, Hock, R., Covi, F., Xiao, J., Corti, G., Kingslake, J., Leidman, S. Z., Miège, C., Macferrin, M., Machguth, H., Osterberg, E., Kameda, T., and McConnell, J. R.: Shallow firn cores 1989–2019 in southwest Greenland’s percolation zone reveal decreasing density and ice layer thickness after 2012, *J. Glaciol.*, 1–12.

2021 Leidman, S. Z., **Rennermalm, Å. K.**, Muthyala, R., Guo, Q., Overeem, I. The Presence and Widespread Distribution of Dark Sediment in Greenland Ice Sheet Supraglacial Streams Implies Substantial Impact of Microbial Communities on Sediment Deposition and Albedo. *Geophysical Research Letters*, 48, e2020GL088444.

2020 Leidman, S. Z., **Rennermalm, Å. K.**, Broccoli, A. J., van As, D., van den Broeke, M. R., Steffen, K., & Hubbard, A. (2020). Methods for Predicting the Likelihood of Safe Fieldwork Conditions in Harsh Environments. *Frontiers in Earth Science*, 8, 260.

2018 Berdahl, M., **A. K. Rennermalm**, A. Hammann, J. Mioduszewski, S. Hameed, M. Tedesco, J. Stroeve, T. Mote, T. Koyama, and J. R. McConnell. Southeast Greenland Winter Precipitation Strongly Linked to the Icelandic Low Position, *J. Climatology*, 31, 4483–4500, doi:10.1175/JCLI-D-17-0622.1, 2018.

2016 Mioduszewski, J. R., **A. K. Rennermalm**, A. Hammann, M. Tedesco, E. U. Noble, J. C. Stroeve, T. L. Mote. Atmospheric Drivers of Greenland Surface Melt Revealed by Self Organizing Maps. *Journal of Geophysical Research - Atmospheres*, 121, 5095–5114, doi:10.1002/2015JD024550, 2016.

2016 Luo, H., R. M. Castelao, **A. K. Rennermalm**, M. Tedesco, A. Bracco, P. L. Yager, T. L. Mote. Oceanic Transport of Surface Meltwater from the Southern Greenland Ice Sheet. *Nature Geoscience*, 9, 528–532, doi:10.1038/ngeo2708, 2016.

2015 Smith, L.C., V. W. Chu, Y. Kang, C. J. Gleeson, L. H. Pitcher, **A. K. Rennermalm**, C. J. Legleiter, A. E. Behar, B. T. Overstreet, S. E. Moustafa, M. Tedesco, R. R. Forster, A. L. LeWinter, D. C. Finnegan, Y. Sheng, J. Balog. Efficient Meltwater Drainage through Supraglacial Streams and Rivers on the Southwest Greenland Ice Sheet. *Proceedings of the National Academies of Sciences*, 112(4), 1001-1006, doi: 10.1073/pnas.1413024112, 2015

2015 Moustafa, S. E., **A. K. Rennermalm**, L. C. Smith, J. R. Mioduszewski, M. Miller, L. S. Koenig, M. G. Hom, C. A. Shuman. Multi-modal Albedo Distributions in the Ablation area of the Southwestern Greenland Ice Sheet, *The Cryosphere*, 9, 905-923, doi:10.5194/tc-9-905-2015, 2015.

2013 **Rennermalm, A. K.**, S. E. Moustafa, J. R. Mioduszewski, V. W. Chu, R. R. Forster, B. Hagedorn, J. T. Harper, T. L. Mote, D. A. Robinson, C. A. Shuman, L. C. Smith, M. Tedesco. Understanding Greenland Ice Sheet Hydrology Using an Integrated Multi-scale Approach. *Environmental Research Letters* 8(1), 015017, 14pp, doi:10.1088/1748-9326/8/1, 2013.

2013 **Rennermalm, A. K.**, L. C. Smith, V. W. Chu, J. E. Box, R. R. Forster, M. van den Broeke, D. van As, S. E. Moustafa. Evidence of Meltwater Retention within the Greenland Ice Sheet. *The Cryosphere* 7(5), 1433-1445, doi:10.5194/tc-7-1433-2013, 2013.

2012 **Rennermalm, A. K.**, A. Bring, T. L. Mote. Spatial and Scale Dependent Controls on North American Pan-arctic Minimum River Discharge. *Geographical Analysis* 44(3), 202-218, doi:10.1111/j.1538-4632.2012.00849.x.

2010 **Rennermalm, A. K.**, J. M. Nordbotten, E. F. Wood. Hydrologic Variability and its Influence on Long-term Peat Dynamics. *Water Resources Research* 46, W12546, 18pp, doi:10.1029/2009WR008242, 2010.

2009 **Rennermalm, A. K.**, L. C. Smith, J. C. Stroeve, V. W. Chu. Does Sea Ice Influence Greenland Ice Sheet Surface-melt? *Environmental Research Letters* 4(2), 024011, 6pp, doi: 10.1088/1748-9326/4/2/024011, 2009.

Honors

2019 Kavli Fellow

2019 Excellence in Teaching & Mentoring Award (Faculty) from the School of Graduate Studies, Rutgers, The State University of New Jersey

2018 First-Year Interest Group Seminars (FIGS) Mentors award, Rutgers, The State University of New Jersey

Professional Society Memberships

American Geophysical Union, International Glaciological Society, Association of American Geographers