

Jessica Lundquist

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I have taught at the University of Washington since 2006. My research interests are in the fields of snow hydrology, mountain meteorology, land-air interactions, remote sensing, and spatial sciences. I have led interdisciplinary studies in two areas: one addresses interactions between atmospheric science and hydrologic science in complex terrain; the other is in the integration of data collection and physical modeling at multiple spatial scales.

EMPLOYMENT

University of Washington

2006–present: Assistant Professor through Associate Professor of Civil and Environmental Engineering.

Other Assignments

2013-2014: National Center for Atmospheric Research Visiting Faculty Fellow.

2004-2006: Postdoctoral Fellow, CIRES-NOAA Climate Diagnostics Center.

EDUCATION

B.S.	1999	Atmospheric Sciences, University of California, Davis
M.Sc.	2000	Oceanography, emphasis Coastal Fog University of California, San Diego
Ph.D.	2004	Oceanography, emphasis Hydrology University of California, San Diego

AWARDS AND HONORS

2013: *Water Resources Research* Editor's Choice Award, giving to top 1% of publications for Lundquist et al. 2013.

2013: *Journal of Hydrometeorology* Editor's Award, for exceptional paper reviews.

2013: Chair's Award for excellence in mentoring doctoral students, Civil and Env. Eng., U. Washington.

2009: NOAA Outstanding Scientific Paper Award for improving forecasters' understanding of atmospheric rivers

2008: Cryosphere Young Investigator Award, American Geophysical Union.

2008: Climate Science Paper Award for most interesting and useful publication, California Dept of Water Resources.

2004: Frank Church Award for best student paper, Western Snow Conference.

2003: Wagner Memorial Award for best paper written by a woman in atmospheric sciences, Lundquist et al. 2004.

SELECTED PUBLICATIONS (57+ TOTAL, h-INDEX=24)

Ten Recent

Lundquist, J. D., M. Hughes, B. Henn, E. Gutmann, B. Livneh, J. Dozier, and P. Neiman, 2015. High-elevation precipitation patterns: Using snow measurements to assess gridded datasets across the Sierra Nevada, California, *J. Hydromet.*, 16, 1773–1792. doi: <http://dx.doi.org/10.1175/JHM-D-15-0019.1>.

Lundquist, J. D., N. E. Wayand¹, A. Massmann¹, M. P. Clark, F. Lott¹, N. C. Cristea, 2015. Diagnosis of insidious data disasters, *Water Resources Research*, 51, 3815–3827, doi: [10.1002/2014WR016585](https://doi.org/10.1002/2014WR016585).

Lundquist, J. D., S. E. Dickerson-Lange¹, J. A. Lutz, and N. C. Cristea¹, 2013. Lower forest density enhances snow retention in regions with warmer winters: a global framework developed from plot-scale observations and modeling, *Water Resources Research*, 49, doi: 10.1002/wrcr.20504. *Featured as AGU Highlight Paper; Recipient of 2013 WRR Editor's Choice Award.

Lundquist, J. D., J. Minder¹, P. J. Neiman, and E. Sukovich, 2010. Relationships between Barrier Jet Heights, Orographic Precipitation Gradients, and Streamflow in the Northern Sierra Nevada, *J. Hydrometeorology*, 11, 1141–1156. DOI: 10.1175/2010JHM1264.1

Raleigh, M. S., B. Livneh, K. Lapo¹, J. D. Lundquist, 2016. How does availability of meteorological forcing data impact physically-based snowpack simulations in different climates?, *J. Hydromet.*, 17, 99-120, doi: 10.1175/JHM-D-14-0235.1.

- Henn, B., M. P. Clark, D. Kavetski, and J. D. Lundquist, 2015. Estimating mountain basin-mean precipitation from streamflow using Bayesian inference, *Water Resources Research*, 51, doi: 10.1002/ 2014WR016736.
- Lapo, K. E., L. M. Hinkelman, M. S. Raleigh, and J. D. Lundquist, 2015. Impact of errors in the surface radiation balance on simulations of snow water equivalent and snow surface temperature, *Water Resources Research*, 51, doi:10.1002/2014WR016259.
- Raleigh, M. S., C. C. Landry, M. Hayashi, W. L. Quinton, and J. D. Lundquist, 2013. Standard air temperature and humidity approximate snow surface temperature: new possibilities for snow model calibration, *Water Resources Research*, 49, doi:10.1002/2013WR013958.
- Raleigh, M. S., K. Rittger, C. E. Moore, B. Henn, J. A. Lutz, and J. D. Lundquist, 2013. Ground-based testing of MODIS fractional snow cover in subalpine meadows and forests of the Sierra Nevada, *Remote Sensing of the Environment*, 128, 44-57. doi: <http://dx.doi.org/10.1016/j.rse.2012.09.016>
- Wayand, N. E., A. F. Hamlet, M. Hughes, S. Feld, and J. D. Lundquist, 2013. Intercomparison of meteorological forcing data from empirical and mesoscale model sources in the N.F. American River Basin in northern California, *Journal of Hydrometeorology*, 14, 677-699. doi: <http://dx.doi.org/10.1175/JHM-D-12-0102.1>

Ten Most Cited

- Neiman, P. J., F. M. Ralph, G. A. Wick, J. D. Lundquist, and M. D. Dettinger, 2008. Meteorological characteristics and overland precipitation impacts of atmospheric rivers affecting the west coast of North America based on eight years of SSM/I satellite observations. *J. Hydrometeorology*, 9, 22-47. DOI: 10.1175/2007JHM855.1 *Selected to receive NOAA 2009 Outstanding Scientific Paper Award.
- Pepin, N. C., and J. D. Lundquist, 2008. Temperature trends at high elevations: Patterns across the globe, *Geophysical Research Letters*, 35, L14701, doi:10.1029/2008GL034026. *Featured in AGU Journal Highlights, 12 August, 2008.
- Minder, J. R., P. W. Mote, and J. D. Lundquist, 2010. Surface temperature lapse rates over complex terrain: Lessons from the Cascade Mountains, *J. Geophys. Res.*, 115, D14122, doi:10.1029/2009JD013493.
- Lundquist, J. D. and D. R. Cayan, 2007. Surface temperature patterns in complex terrain: daily variations and long-term change in the central Sierra Nevada, California. *J. Geophys. Res.*, 112, D11124, doi:10.1029/2006JD007561.
- Lundquist, J. D. and D. Cayan, 2002. Seasonal and spatial patterns in diurnal cycles in streamflow in the Western United States. *J. Hydromet.*, 3, 591-603. doi: 10.1175/1525-7541(2002)003<0591:SASPID>2.0.CO;2 * Featured as Paper of Note in *Bulletin of the American Meteorological Society*, January 2003.
- Lundquist, J.D., D.R. Cayan and M.D. Dettinger, 2003. Meteorology and hydrology in Yosemite National Park: A sensor network application. In *Information Processing in Sensor Networks*, F. Zhao and L. Guibas (eds.): IPSN 2003, LNCS 2634, 518-528.
- Lundquist, J. D., N. Pepin, and C. Rochford¹, 2008. Automated algorithm for mapping regions of cold-air pooling in complex terrain, *J. Geophys. Res.*, 113, D22107, doi:10.1029/2008JD009879.
- Lundquist, J. D., P. J. Neiman, B. Martner, A. B. White, D. J. Gottas, and F. M. Ralph, 2008. Rain versus Snow in the Sierra Nevada, California: Comparing radar and surface observations of melting level. *J. Hydrometeorology*, 9, 194-211. DOI: 10.1175/2007JHM853.1 *Selected to receive California Department of Water Resources Climate Science Paper Award for most interesting, useful and relevant recent publication.
- Lundquist, J. D., and F. Lott¹, 2008. Using inexpensive temperature sensors to monitor the duration and heterogeneity of snow-covered areas, *Water Resour. Res.*, 44, W00D16, doi:10.1029/2008WR007035.
- Lundquist, J. D., D. Cayan, and M. Dettinger, 2004. Spring onset in the Sierra Nevada: When is snowmelt independent of elevation? *J. Hydromet.*, 5, 325-340. doi: 10.1175/1525-7541(2004)005<0327:SOITSN>2.0.CO;2 *Paper selected to receive Wagner Memorial Award for Women in Atmospheric Science, 2003.

SYNERGISTIC ACTIVITIES

Co-Chair of NASA's International Snow Working Group on Remote Sensing, 2015-present, helping to coordinate SnowEx activities.

University professor since 2006, currently teaching graduate-level courses in statistics and data analysis, snow hydrology, and water resources management.

Principal advisor, 5 PhD theses and 7 Masters theses. Committee member for 15 more theses.