Brian M. Henn, Ph.D., P.E.
Curriculum Vitae

Center for Western Weather and Water Extremes
Scripps Institution of Oceanography
University of California, San Diego
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La Jolla, CA 92093-0224

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Educational History

Ph.D., Civil and Environmental Engineering – Water Resources and Hydrology
University of Washington, 2015
Dissertation title: *Combining indirect observations and models to resolve spatiotemporal patterns of precipitation in complex terrain*

M.S., Civil and Environmental Engineering – Environmental Fluid Mechanics and Hydrology
Stanford University, 2006

B.S.E., Civil and Environmental Engineering, *cum laude*; Certificate, Woodrow Wilson School of Public and International Affairs
Princeton University, 2005

Employment History

Scripps Institution of Oceanography, UC San Diego, La Jolla, CA: Postdoctoral Scholar
August 2016 – present

University of Washington, Seattle, WA: Postdoctoral Research Associate
January 2016 – August 2016

University of Washington, Seattle, WA: Graduate Research Assistant
September 2010 – December 2015

Hazen and Sawyer, P.C., New York, NY: Engineer, Watershed Planning and Urban Stormwater Design
September 2006 – July 2010

Awards and Fellowships

Runner-up, best poster presentation, Western Snow Conference, "High-elevation evapotranspiration estimates during drought: Using streamflow and NASA Airborne Snow Observatory SWE observations to close the upper Tuolumne River basin water balance", 2017

Runner-up, Dr. J. E. Church Student Paper Award, Western Snow Conference, "Snow pillows, LiDAR, and streamgauges: Assimilating observations into basin water balance", 2015

Valle Scholarship, University of Washington, 2014

Sakrison Fellowship, American Water Resources Association, Washington Section, 2014

National Defense Science and Engineering Graduate Fellowship, 2010-2013

Donald Clive Stuart Memorial Award for student journalism, Princeton University, 2003

Research and Publications

Publications in Review:

Henn, B., T. H. Painter, K. J. Bormann, B. McGurk, A. L. Flint, L. Flint, V. White and J. D. Lundquist: High-elevation evapotranspiration estimates during drought: Using streamflow and NASA

Airborne Snow Observatory SWE observations to close the upper Tuolumne River basin water balance. Submitted to *Water Resources Research*, January 2017.

Lundquist, J. D., C. Chickadel, N. C. Cristea, W. R. Currier, J. Dozier, **B. Henn** and E. Keenan: Separating snow and forest temperatures with thermal infrared remote sensing. Submitted to *Remote Sensing of Environment*, September 2017.

Publications in Press:

Henn, B., A. J. Newman, B. Livneh, C. Daly and J. D. Lundquist, 2017: An assessment of differences in gridded precipitation datasets in complex terrain. *Journal of Hydrology*, dx.doi.org/10.1016/j.jhydrol.2017.03.008.

Hughes, M., J. D. Lundquist and **B. Henn**, 2017: Dynamical downscaling improves upon gridded precipitation products in the Sierra Nevada, California. *Climate Dynamics*, doi:10.1007/s00382-017-3631-z.

Henn, B., M. P. Clark, D. Kavetski, A. J. Newman, M. Hughes, B. McGurk and J. D. Lundquist, 2016: Spatiotemporal patterns of precipitation inferred from streamflow observations across the Sierra Nevada mountain range. *Journal of Hydrology*, dx.doi.org/10.1016/j.jhydrol.2016.08.009.

Publications in Peer-Reviewed Journals:

Henn, B., M. P. Clark, D. Kavetski, B. McGurk, T. H. Painter and J. D. Lundquist, 2016: Combining snow, streamflow and precipitation gauge observations to infer basin-mean precipitation. *Water Resources Research*, **52**, doi:10.1002/2015WR018564.

Lundquist, J. D., J. W. Roche, H. Forrester, C. Moore, E. Keenan, G. Perry, N. Cristea, **B. Henn**, K. Lapo, B. McGurk, D. R. Cayan and M. D. Dettinger, 2016: Yosemite Hydroclimate Network: Distributed stream and atmospheric data for the Tuolumne River watershed and surroundings. *Water Resources Research*, **52**, doi:10.1002/2016WR019261.

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**, 8012-8033, doi:10.1002/2014WR016736.

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 diagnose when and why gridded datasets succeed or fail across the Sierra Nevada, California. *Journal of Hydrometeorology,* **16**, 1773-1792, doi:10.1175/JHM-D-15-0019.1.

Henn, B., Q. Cao, D. P. Lettenmaier, C. S. Magirl, C. Mass, J. B. Bower, M. St. Laurent, Y. Mao and S. Perica, 2015: Hydroclimatic conditions preceding the March 2014 Oso Landslide. *Journal of Hydrometeorology*, **16**, 1243-1249, doi:10.1175/JHM-D-15-0008.1.

Henn, B., J. D. Lundquist, M. S. Raleigh and A. Fisher, 2013: A comparison of methods for filling gaps in hourly near-surface air temperature data. *Journal of Hydrometeorology*, **14**, 929-945, doi:10.1175/JHM-D-12-027.1.

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 Environment*, **128**, 44-57, doi:10.1016/j.rse.2012.09.016.

Posters and Presentations:

Henn, B., T. H. Painter, B. McGurk, A. L. Flint, L. Flint, V. White and J. D. Lundquist: High-elevation evapotranspiration estimates during drought: Using streamflow and NASA Airborne Snow Observatory SWE snow observations to close the upper Tuolumne River basin water balance. Poster, *85th Western Snow Conference*, Boise, ID, Apr. 18, 2017.

Henn, B., T. H. Painter, B. McGurk, V. White, G. Stock, N. Cristea, and J. D. Lundquist: High-elevation evapotranspiration estimates during drought: Using streamflow and LiDAR snow observations to close the upper Tuolumne River basin water balance. *American Geophysical Union Fall Meeting*, San Francisco, CA, Dec. 15, 2016.

Henn, B., T. H. Painter, B. McGurk, V. White, G. Stock, N. Cristea, and J. D. Lundquist: High-elevation evapotranspiration estimates during drought: Using streamflow and LiDAR snow observations to close the upper Tuolumne River basin water balance. *UCLA Hydrology, Water Resources, and Environmental Engineering Seminar*, Los Angeles, CA, Oct. 27, 2016.

Henn, B.: High-elevation precipitation uncertainty and inference of Sierra Nevada precipitation patterns from streamflow. *Mountain Climate Conference,* Leavenworth, WA, Oct. 19, 2016.

Henn, B., T. H. Painter, B. McGurk, V. White, G. Stock, N. Cristea, and J. D. Lundquist: Comparison of high-elevation LiDAR snow and distributed streamflow observations. *2016 Eastern Snow Conference*, Columbus, OH, June 15, 2016.

Henn, B., A. J. Newman, M. P. Clark, D. Kavetski, B. McGurk and J. D. Lundquist: High-Elevation precipitation uncertainty and Sierra Nevada precipitation inferred from streamflow. Poster, *84rd Western Snow Conference*, Seattle, WA, Apr. 19, 2016.

Henn, B., A. J. Newman, M. Hughes, M. P. Clark, D. Kavetski, T. H. Painter, B. McGurk and J. D. Lundquist: Using indirect observations to infer patterns of precipitation in the Sierra Nevada. *University of Colorado Hydrology and Water Resources Seminar*, Boulder, CO, Feb. 17, 2016.

Henn, B., M. P. Clark, D. Kavetski, B. McGurk, T. H. Painter and J. D. Lundquist: Sierra Nevada precipitation patterns and trends inferred from streamflow observations. *American Geophysical Union Fall Meeting*, San Francisco, CA, Dec. 17, 2015.

Henn, B., M. P. Clark, D. Kavetski, B. McGurk, T. H. Painter and J. D. Lundquist: Snow pillows, LiDAR, satellites and streamgauges: Assimilating observations of snow and streamflow into basin water balance. Poster, *Oregon State University Water Research Symposium*, Corvallis, OR, Apr. 27, 2015.

Henn, B., M. P. Clark, D. Kavetski, B. McGurk, T. H. Painter and J. D. Lundquist: Snow pillows, LiDAR, and streamgages: Assimilating observations into basin water balance. Presentation, *83rd Western Snow Conference*, Grass Valley, CA, Apr. 22, 2015.

Henn, B., M. P. Clark, D. Kavetski and J. D. Lundquist: Inferring mountain basin precipitation from streamflow observations using Bayesian model calibration. Poster, *American Geophysical Union Fall Meeting*, San Francisco, CA, Dec. 15-19, 2014.

Henn, B., M. P. Clark, D. Kavetski and J. D. Lundquist: Using models and indirect observations to map precipitation across mountain basins. *University of Washington ESRM Seminar*, Seattle, WA, Oct. 28, 2014.

Henn, B., M. P. Clark, D. Kavetski and J. D. Lundquist: Doing hydrology backward to estimate mountain precipitation patterns from streamflow. *16th AMS Conference on Mountain Meteorology*, San Diego, CA, Aug. 17, 2014.

Henn, B., M. P. Clark, D. Kavetski and J. D. Lundquist: Doing hydrology backward: Estimating mountain precipitation patterns from streamflow. Presentation, *Oregon State University Water Research Symposium*, Corvallis, OR, May 12, 2014.

Henn, B., M. P. Clark, D. Kavetski and J. D. Lundquist: Doing hydrology backward: Estimating mountain precipitation patterns from streamflow. Presentation, *82nd Western Snow Conference*, Durango, CO, Apr. 16, 2014.

Henn, B., M. P. Clark, D. Kavetski and J. D. Lundquist: Better precipitation estimation in mountain watersheds using streamflow observations. Presentation, *University of Washington Land Surface Hydrology Seminar*, Seattle, WA, Feb. 12, 2014.

Henn, B., M. P. Clark, D. Kavetski and J. D. Lundquist: Better precipitation estimation in mountain watersheds using streamflow and snowpack observations. Presentation, *2013 American Water Resources Association Annual Conference*, Portland, OR, Nov. 4, 2013.

Henn, B., M.S. Raleigh and J.D. Lundquist: To what extent does snow cover influence near-surface air temperature in complex terrain? Poster, *American Geophysical Union Fall Meeting*, San Francisco, CA, Dec. 3-7, 2012.

Henn, B.: Evaluation of different modes of Sierra Nevada snow observation. Presentation, *California Cooperative Snow Surveys Meeting*, Sequoia National Park, CA, Nov. 8, 2012.

Henn, B., J. D. Lundquist, M. S. Raleigh and A. Fisher: Estimation of hourly near-surface air temperature in complex terrain: Influence of elevation, cold air pools and snow cover. Poster, *Graduate Climate Conference*, Pack Forest, WA, Oct. 26-28, 2012.

Henn, B., J. D. Lundquist, M. S. Raleigh and A. Fisher: Estimation of hourly near-surface air temperature in complex terrain: Influence of elevation, cold air pools and snow cover. Poster, *American Meteorological Society 15th Conference on Mountain Meteorology*, Steamboat Springs, CO, Aug. 20-24, 2012.

Henn, B., J. D. Lundquist, M. S. Raleigh and A. Fisher, 2011: Filling missing temperature data in complex terrain: a comparison of EOF-based and traditional techniques. Poster, *American Geophysical Union Fall Meeting*, San Francisco, CA, Dec. 5-9, 2011.

Other Publications:

Henn, B., 2005: The Harry's Brook Environmental Laboratory: Initial hydrologic studies. Princeton University Senior Thesis.

Reviewer for Research Journals:

Environmental Research Letters

Journal of Applied Meteorology and Climatology

Journal of Climate

Journal of Geophysical Research – Atmospheres

Journal of Hydrology

Journal of Hydrometeorology

The Cryosphere

Remote Sensing of Environment

Conference Organization:

Primary Convener: Hydrometeorological forecasting of atmospheric rivers and their impacts: Models, methods and observations. Hydrology Section, 2017 *AGU Fall Meeting*, New Orleans, LA.

Teaching Experience

Instructor, CEE 491: Deterministic Systems, University of Washington, Fall 2013

Writing Tutor, Center for Learning and Undergraduate Enrichment, University of Washington
September 2012 – June 2015

Hydrology Instructor, Civil Engineering P.E. Review Course, University of Washington
September 2012 – present

Grader, CEE 491: Deterministic Systems, University of Washington, Fall 2012

Professional Certifications and Memberships

Professional Engineer (Civil), Calif., 2009 – present

Member, American Geophysical Union, 2011 – present

Member, American Water Resources Association, 2012 – present

Member, American Meteorological Society, 2012 – present

Leadership and Service

Officer, UW Chapter of the American Water Resources Association, 2011 – 2016

Outreach Volunteer, UW Engineering Discovery Days, 2011-2016

Guatemala Monitoring Team Member, Water for People, 2008: Documented and evaluated more than 20 existing Water for People drinking water and sanitation projects.

Eagle Scout, Troop 11, Piedmont, Calif., 2001