

J. MICHELLE HU

More Hall, Room 201, Box 352700
University of Washington, Seattle, WA 98195-2700

EDUCATION

University of Washington

PhD Civil and Environmental Engineering | GPA 3.91 2018 – pres.

Oregon State University

MS Water Resources Science | GPA 3.93 2016 – 2018

University of Wisconsin-Madison

GIS Professional Development Certificate | GPA 4.00 2014 – 2015

BS Biology, International Studies, Environmental Studies | GPA 3.68 2007 – 2011

Tropical Conservation Semester Abroad, Ecuador 2011

AWARDS AND HONORS

- 2018 **Allison/Knudson Fellowship**, University of Washington
- 2017 **Watershed Community Scholarship**, Oregon State University
- 2016 **Best Graduate Oral Presentation**, AWRA Wisconsin Section
- 2015 **Honorable Mention**, National Geographic Student Map Award
- 2015 **Best Student Map, Best in Category**, Wisconsin Land Information Association
- 2011 **David H. Durra Scholarship Award**, University of Wisconsin-Madison
- 2010 **I. H. Carpenter Outstanding Student Award**, University of Wisconsin-Madison
- 2009 **Wisconsin Undergraduate Idea Fellow**, University of Wisconsin-Madison

RESEARCH EXPERIENCE

Graduate Research Assistant, University of Washington 2018 – present

- Develop automated workflow for processing very-high-resolution (VHR) satellite imagery and land cover classification using machine learning (Python)
- Expand and develop snow depth and SWE mapping workflow using high resolution imagery
- Validate moderate resolution snow cover products with VHR snow cover products

Graduate Research Assistant, Oregon State University 2016 – 2018

- Investigated historic climatologic variables to support National Climate Assessment
- Developed snowstorm dataset for the western US, derived from SNOTEL network
- Assessed large-scale spatiotemporal trends of historic winter snowfall (MATLAB)

Water Resources Management Specialist, WI Dept. of Natural Resources 2015 – 2016

- Performed GIS analyses to identify agricultural land vulnerable to erosion
- Wrote *LANDSAT* image processing procedure for tillage analysis (R)
- Presented EVAAL model and results to Marathon county land conservation officials

Conservation Intern, Ceiba Foundation for Tropical Conservation 2011

- Established permanent sampling sites and rewrote stream monitoring protocols

- Collected, analyzed baseline stream data from source to sink in rural Ecuador
- Designed macroinvertebrate identification cards for local watersheds

Wisconsin Undergraduate Idea Fellow, Morgridge Center for Public Service 2009

- Implemented community-based research project on gender gap in athletics
- Wrote grant proposal and secured project funding
- Compiled, transcribed and analyzed focus group data

Undergraduate Lab Researcher, UW-Madison School of Medicine 2007 – 2009

- Investigated transcriptional regulation of cardiac hypertrophy
- Designed and implemented DNA cleansing project using real-time PCR
- Instructed techniques in histology, electrophoresis, restriction digests, PCR

PUBLICATIONS

Hu, J. M. and Nolin, A. W. (2020). Widespread Warming Trends in Storm Temperatures and Snowpack Fate across the Western United States. *Environmental Research Letters*.
<https://doi.org/10.1088/1748-9326/ab763f>

Hu, J. M. and Nolin, A. W. (2019). Snowpack Contributions and Temperature Characterization of Landfalling Atmospheric Rivers in the Western Cordillera of the United States. *Geophysical Research Letters*, 46(12), 6663–6672. <https://doi.org/10.1029/2019FL083564>

Hill, D. F., Burakowski, E. A. Crumley, R. L., Keon, J., **Hu, J., M.**, Arendt, A. A., ... Wolken, G. J. (2019). Converting snow depth to snow water equivalent using climatological variables. *The Cryosphere*, 13(7), 1767–1784. <https://doi.org/10.5194/tc-13-1767-2019>

CONFERENCE PRESENTATIONS

**Oral presentation*

Hu, J. M. and Shean, D. E. *Machine Learning Classification and Derived Snow Metrics from High-Resolution Multispectral Satellite Imagery in Complex Terrain*. December 11, 2019. American Geophysical Union Fall Meeting. San Francisco, CA.

Shean, D. E., Bhushan, S., **Hu, J. M.**, Alexandrov, O., Henderson, S. T., Hiemstra, C. A., and Lundquist, J. *Stereo2SWE: Snow depth time series from very-high-resolution stereo satellite imagery*. December 12, 2019. American Geophysical Union Fall Meeting. San Francisco, CA.

***Hu, J. M.** *Winter storms in the western US*. April 23, 2018. Pacific Northwest Water Research Symposium, 8th. Corvallis, OR

***Hu, J. M.**, Nolin, A.W., *Warming snowfall in the western United States*. December 13, 2017. American Geophysical Union Fall Meeting. New Orleans, LA.

Hu, J. M., Nolin, A. W., *Winter storm temperatures in the Western United States*. November 6, 2017. American Water Resources Association Annual Conference. Portland, OR.

Hu, J. M., Nolin, A. W., *Winter storms and climate change in the Oregon Cascades*. June 13, 2017. Universities Council on Water Resources/The National Institutes for Water Resources Annual Conference, 8th. Fort Collins, CO.

Hu, J. M., Nolin, A. W., *Winter storms and climate change in the Oregon Cascades*. March 6, 2017.

Pacific Northwest Water Research Symposium, 7th. Corvallis, OR

***Hu, J. M.**, Nelson, T., Ruesch, A., (Oral) *Determining the feasibility of using satellite-derived tillage practices to improve statewide erosion vulnerability estimates.* March 10, 2016. American Water Resources Association – Wisconsin Section Annual Meeting, 40th. Wisconsin Dells, WI.

OUTREACH, LEADERSHIP, AND SERVICE

Climate Change Expo Volunteer , Pacific Science Center, Seattle, WA	2020
Vice President , OSU Hydrophiles, AWRA student chapter	2017 – 2018
Crew Leader & AmeriCorps Member , American Conservation Experience	2011 – 2012
Volunteer Soccer Coach , Millennium Soccer Club	2008 – 2010
Badger Volunteer Team Leader , Morgridge Center for Public Service	2009
Children’s Room Attendant , American Family Children’s Hospital	2008
Burn Unit Volunteer , UW Hospitals and Clinics	2007

SOFTWARE AND PROGRAMMING

Proficient in Python and MATLAB, working proficiency in R
Proficient in ArcGIS, QGIS, ENVI, Adobe Illustrator