

CURRICULUM VITAE

JESSIE K. PEARL

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POSITIONS THE NATURE CONSERVANCY Tucson, AZ
2021 – Freshwater Scientist
The Nature Conservancy, Arizona Chapter

UNITED STATES GEOLOGICAL SURVEY Seattle, WA
2019 – **2021** Mendenhall Postdoctoral Research Fellow
Earthquake Science Center

UNIVERSITY OF WASHINGTON COLLEGE OF THE ENVIRONMENT Tucson, AZ
2019 Future Park Leader of Emerging Change
Saguaro National Park

UNIVERSITY OF ARIZONA Tucson, AZ
2015 – **2019** Graduate Research Assistant
Department of Geosciences
Laboratory of Tree Ring Research

UNIVERSITY OF ARIZONA SKY SCHOOL Tucson, AZ
2017 – **2019** Science Instructor for K-12 students

SAGUARO NATIONAL PARK Tucson, AZ
2018 Guest Scientist
Geoscientists-in-the-Park program
Geological Society of America

WOODS HOLE OCEANOGRAPHIC INSTITUTION Woods Hole, MA
2014 – **2019** Affiliated Joint Program Student

EDUCATION UNIVERSITY OF ARIZONA Tucson, AZ
2019 Ph.D., Geosciences (Paleoclimatology, Dendrochronology)
PhD Minor Area: Global Change
Primary Advisor: Kevin J. Anchukaitis
Dissertation: *Reconstructing Late Holocene Climate and Coastal Evolution for the Northeastern United States*

TUFTS UNIVERSITY Somerville, MA
2013 B.S., (*cum Laude*) Geology & Environmental Science
Foreign study at University of Canterbury (Christchurch, NZ), 2011-2012

† = student author

- [18] Black, B., **J. K. Pearl**, C. Pearson, P. Pringle, D. Frank, M.T. Page, B.M. Buckley, E.R. Cook, G.L. Harley, K.J. Heeter, J. F. Hughes, D.J. Reynolds and B.L. Sherrod, Mass tree mortality reveals a multi-fault earthquake threat for the Seattle metropolitan region, *Science Advances*, [10.1126/sciadv.adh4973](https://doi.org/10.1126/sciadv.adh4973)
- [17] Atwater, Brian F., D. Yamaguchi, **J.K. Pearl**, Earthquake effects surveyed during the nineteenth century as ecological features of Chinookan tidelands, in press at *Northwest Science*
- [16] Dwivedi, R., J. A. Biederman, P. D. Broxton, K. Lee, W. J.D. van Leeuwen and **J.K. Pearl**, Forest density regulates root zone water stress and percolation at sites with contrasting ephemeral or stable seasonal snowpacks, 2023, *Journal of Hydrology*, [10.1016/j.jhydrol.2023.129915](https://doi.org/10.1016/j.jhydrol.2023.129915)
- [15] Tucker, Clay., **J. K. Pearl**, E. A. Elliott, J. C. Bregy, J. M. Friedman, M. D. Therrell, Baldcypress false ring formation linked to summer hydroclimatic extremes in the southeastern United States, 2022, *Environmental Research Letters*, [10.1088/1748-9326/ac9745](https://doi.org/10.1088/1748-9326/ac9745)
- [14] †Dye, Laura, **J.K. Pearl**, L. Smith, B. Coulthard, C. Butkiewicz, Z. Cooper, J. Degrand, J. Friedman, I. Homfeld, H. Howard, L. Ironcloud, S. Wray, Co-occurring Wyoming conifers have distinct climate-growth relationships, 2022, *Tree Ring Research*, doi: [10.3959/TRR2021-5](https://doi.org/10.3959/TRR2021-5)
- [13] Angster, S. J., B. L. Sherrod, W. Johns, and **J.K. Pearl**, Field and Laboratory Data from a Trench Exposure across the West Blakely fault, South Bainbridge Island, Washington, 2020, *USGS Scientific Investigations Map*
- [12] **Pearl, J. K.**, and L. Staisch (2021), Swipe left on the “big one”: Better dates for Cascadia quakes, *Eos*, 102, doi:[10.1029/2021EO162183](https://doi.org/10.1029/2021EO162183), 2021.
- [11] Tucker, C. & **Pearl, J.K.**, Coastal tree-ring records for paleoclimate and paleoenvironmental applications in North America, *Quaternary Science Reviews*, 261, 107044, doi: [10.1016/j.quascirev.2021.107044](https://doi.org/10.1016/j.quascirev.2021.107044), 2021.
- [10] Walton, M & Staisch, L, T. Dura, **J.K. Pearl**, B. Sherrod, J. Gomberg , S. Engelhart, A. Trehu, J. Watt, J. Perkins, N. Bartlow, C. Goldfinger, H. Kelsey, A. Morey, V. Sahakian, H. Tobin, R. Wells, E. Wirth, R. Witter, Towards an integrative geological and geophysical view of Cascadia subduction zone earthquakes, *Annual Review of Earth and Planetary Sciences*, 41, 1 doi:[10.1146/annurev-earth-071620-065605](https://doi.org/10.1146/annurev-earth-071620-065605), 2021.
- [9] Pederson, N., C. Leland, D. A. Bishop, **J. K. Pearl**, K. J. Anchukaitis, T. Mandral, M. Hopton-Ahmed, D. Martin-Benito, A framework for determining population-level vulnerability to climate: evidence for growth hysteresis in *Chamaecyparis thyoides* along its contiguous latitudinal distribution, 3, 39 *Frontiers In Forests And Global Change*, doi:[10.3389/ffgc.2020.00039](https://doi.org/10.3389/ffgc.2020.00039), 2020.
- [8] **Pearl, J.K.**, J.R. Keck, W. Tintor, L. Siekacz, H. M. Herrick, Matthew D. Meko, C.L. Pearson, New frontiers in tree-ring research, *The Holocene*, doi: [10.1177/0959683620902230](https://doi.org/10.1177/0959683620902230), 2020.
- [7] **Pearl, J.K.**, K.J. Anchukaitis, J. Donnelly, C. Pearson, A. McNichol, N. Pederson, A.P. McNichol, M. L. Gaylord, E.R. Cook, G.L. Zimmerman, A late Holocene subfossil Atlantic white cedar tree ring record from the northeastern United States, *Quaternary Science Reviews*, 228, 106104, doi: [10.1016/j.quascirev.2019.106104](https://doi.org/10.1016/j.quascirev.2019.106104), 2020.
- [6] **Pearl, J.K.**, K.J. Anchukaitis, N. Pederson, J. Donnelly, Multivariate climate field reconstructions using tree-rings for the northeastern United States, *Journal of Geophysical Research – Atmospheres*, 125, e2019JD031619 doi:[10.1029/2019JD031619](https://doi.org/10.1029/2019JD031619), 2019.
- [5] Anchukaitis, K.J., E.R. Cook, B.I. Cook, R. D’Arrigo, R., **J.K. Pearl**, R. Wilson, Coupled Modes of North Atlantic Ocean-Atmosphere Variability and the origin of the Little Ice Age, *Geophysical Research Letters*, doi:[10.1029/2019GL084350](https://doi.org/10.1029/2019GL084350), 2019.
- [4] Minor, J., **J.K. Pearl**, M.L. Barnes, T.R. Colella, P. Murphy, S. Mann, G.A. Barron-Gafford, Critical Zone Science in the Anthropocene: Opportunities for Biogeographic and Ecological Theory and Praxis to Drive Earth Science Integration, *Progress in Physical Geography*, 0309133319864268, doi:[10.1177/0309133319864268](https://doi.org/10.1177/0309133319864268), 2019.

- [3] Alexander, M. R., **J.K. Pearl**, D. A. Bishop, E.R Cook, K.J. Anchukaitis, N. Pederson, The potential to strengthen temperature reconstructions in ecoregions with limited tree line using a multispecies approach, *Quaternary Research*, 1-15, doi: [10.1017/qua.2019.33](https://doi.org/10.1017/qua.2019.33), 2019.
- [2] Amoroso, M., Speer, J. Daniels, L. D., Villalba, R., Cook, E.R., Stahle, D., Srur, A., Tardif, J., Conciatori, F., Aciar, E., Arco, J., Bonada, A., Coulthard, B., Haney, J., Isaac-Rentron, M., Magalhães, J., Marcotti, E., Meglioli, P., Sol Montepeluso, M., Oelkers, R., **Pearl, J.**, Pompa Garcia, M., Robson, J., Rodriguez Catón, M., Soto, P., Young, A., South American Dendroecological Fieldweek 2016: Exploring Dendrochronological Research In Northern Patagonia, *Tree-Ring Research*, 74(1), doi:[10.3959/1536-1098-74.1.120](https://doi.org/10.3959/1536-1098-74.1.120), 2018.
- [1] **Pearl, J.K.**, K. Anchukaitis, N. Pederson, J. Donnelly, Reconstructing Northeastern United States temperature using Atlantic white cedar tree-ring width, *Environmental Research Letters*, 12, 114012, doi: [10.1088/1748-9326/aa8f1b](https://doi.org/10.1088/1748-9326/aa8f1b), 2017.

In Revision, Submitted, or In Preparation

- Pearl, J.K.**, S. Angster, H. Kelsey, D. Caldwell, I. Pryor, B. L. Sherrod, Seismic Triggering Of Prehistoric Large Landslides: A Case Study of Two Debris Avalanches in the Northern California Coast Range, in prep for submission to BSSA
- Angster, S, B.L. Sherrod, **J.K. Pearl**, L. Staisch, W. Johns, Paleoseismic Evidence for late Pleistocene and near Historic ruptures within the Seattle fault zone: Implications for complex hanging wall deformation, in prep for submission to BSSA
- Dwivedi, R., J. Biederman, P. Broxton, **J. K. Pearl**, K. Lee, B. M. Svoma, W. J.D. van Leeuwen, M. Robles, Impacts of climate, forest structure, and forest disturbance on snowpack and net water input to soil at sites located along a snowpack stability gradient in Arizona, USA, in prep
- Pearl, J.K.**, K.J. Anchukaitis, J. Donnelly, N. Pederson, Coastal forest demise caused by third century New England Hurricanes, in prep

Technical Reports

- [3] **Pearl, J.K.**, D. Swann, C. Filippone, K. O'Brien, Contextualizing recent snowpack trends of a southern Arizona Mountain Range, 2019, *Internal Report, National Park Service*
- [2] **Pearl, J.K.**, C. King, D. Swann, C. Filippone, C. Eastoe, G. Davis, Geohydrology of perennial low elevation tinajas in the Saguaro National Park, 2018, *Internal Report, National Park Service*
- [1] King, C., **J.K. Pearl**, D. Swann, G. Davis, Structural and lithological controls on the hydrology at low elevation in the Rincon Mountain District of Saguaro National Park, Tucson, AZ, 2018, *Internal Report, National Park Service*

TEACHING AND MENTORING

- UNIVERSITY OF ARIZONA Tucson, AZ
Arizona Institute for Resilient Environments and Societies
Mentor
 Liverman Scholars Program (Fall 2021, Spring 2022, Fall 2022, Spring 2023)
- NORTH AMERICAN DENDROECOLOGICAL FIELD WEEK Cody, WY
Instructor
Introduction to Dendrochronology (Summer 2019)
- UNIVERSITY OF ARIZONA Tucson, AZ
School of Geography and Development

Lecturer

GEOG 170A1 *Introduction to Physical Geography* (Fall 2018)

UNIVERSITY OF ARIZONA

Tucson, AZ

Laboratory of Tree Ring Research

Co-Facilitator

'PRO-grad' *Scientific and Professional Training* (Fall 2018)

UNIVERSITY OF ARIZONA SKY SCHOOL

Tucson, AZ

Geology and Dendrochronology

K-12 inquiry based projects in the Catalina Sky Islands (Fall 2017, Spring 2018, Fall 2018, Spring 2019)

NATUREBRIDGE

Thousand Oaks, CA

Science Educator

K-12 inquiry based projects in Santa Monica Mountains National Recreation Area and Channel Islands National Park (Winter 2014, Spring 2014, Summer 2014)

HONORS

Frontiers in Hydrology Meeting Early Career Researcher Travel Grant winner, 2022

The Association for Tree-Ring Research Best Doctoral Thesis, 2020

University of Arizona Laboratory of Tree Ring Research A.E. Douglass Award, 2019

P.E.O. Scholar Award Recipient, 2018

University of Arizona Department of Geosciences Wilson Thompson Graduate Scholarship, 2018

University of Arizona College of Science, Laboratory of Tree Ring Research Scholarship Award, 2018

University of Arizona, Herbert E. Carter Travel Award, 2018

University of Arizona Graduate & Professional Student Council Travel Grant, 2017 & 2018

Arizona Geological Society M. Lee Allison Scholarship, 2017

Geologic Society of America Student Research Grant Award, 2017

University of Arizona, Department of Geosciences, Chernoff Family Scholarship, 2017

University of Arizona College of Science Galileo Circle Scholar, 2017

University of Arizona Global Change Travel Grant, 2017

American Geophysical Union fall meeting Student Travel Grant, 2016

Southern Arizona Environmental Management Society Scholarship, 2016

National Science Foundation Graduate Research Fellowship Honorable Mention, 2016

Achievement Rewards for College Scientists, University of Arizona Department of Geosciences Nominee, 2016

University of Arizona Institute for the Environment Travel Grant, 2016

FELLOWSHIPS

U.S. Geological Survey Mendenhall Postdoctoral Research Fellowship, 2019-2021

University of Arizona Carson Scholar Fellowship, 2016

M.I.T. Diversity Fellowship, 2014–2015

Climate Change Youth Initiative, George Melendez Wright Fellowship for Climate Change Research, 2013

GRANTS

“Leveraging tree-ring records to quantify causes, effects, and recurrence for Arizona’s megadrought”, E. Broadman, V. Trouet, L. Condon, D. Zamora-Reyes, **J.K. Pearl**, Arizona Institute for Resilient Environments and Societies (AIRES) Resilience Grant, FY2022-2023, \$88,942

“Conserving tree-ring clues to Northwest hazards and climates” coPIs: B. Atwater, **J.K. Pearl**, B. Black. U.S Geological Survey (USGS) National Geological and Geophysical Data Preservation Program (NGGDPP). FY 2022, \$25,525

“Integrating multiproxy records of Tropical Cyclone activity over the last millennia to contextualize 21st century events in the Northern Gulf of Mexico” coPIs/Advisors: E. Elliott, C. Tucker, **J.K. Pearl**, J. Bredgy. NSF FY21 P2C2 (2103115), 07/15/2021 – 6/30/2023, \$327,532

PRESENTATIONS *Invited, Student-Led, or Recent Presenting Author (2018 to present)* † = student author

Pearl, J.K., H. Kelsey, S. Angster, D. Caldwell, I. Pryor, B. Sherrod, Precise dating of pre-historic plate boundary earthquakes: Dendrochronologically based age estimates for time of failure of mega debris avalanches, USGS Subduction Zone Science Workshop, January 10-11, 2023, Seattle, WA

Pearl, J.K., Climate Change and the Verde, State of the Verde Watershed Conference, September 26-29, 2022, Camp Verde, AZ, ** *Invited Talk*

Pearl, J.K., S. J. Angster, W. Johns, B. L. Sherrod, B. Black, Using drought sensitive trees to understand landslides and flooding events in coastal Cascadia, Frontiers in Hydrology Meeting, June 19-24, 2022, San Juan, Puerto Rico

Pearl, J.K., Precision dating of Cascadia seismicity using multiproxy tree-ring records, Northern California Earthquake Hazards Workshop, January 25-27, 2022 ** *Invited Talk*

Pearl, J.K., Calibration of 14C Ages Curves & Software, IGCP 725 Radiocarbon Workshop, January 19, 2022 ** *Invited Talk*

Pearl, J.K. & Tucker, C.S., Opportunities in Coastal Dendrochronology, Harvard Forest Tree Ring Lab Discussion, January 10, 2022 ** *Invited Talk*

Pearl, J.K., Reconstructing late Holocene coastal climate and extreme events using multi-proxy records, Northern Arizona University School of Earth and Sustainability Seminar, December 1, 2021, Flagstaff, AZ ** *Invited Talk*

Pearl, J.K., B. Black, P. Pringle, B. Sherrod, S. Angster, W. Johns, Establishing precise ages for past Cascadia region seismicity using multiproxy tree-ring records, Geologic Society of America Annual Meeting, October 10-13, 2021 doi: [10.1130/abs/2021AM-366348](https://doi.org/10.1130/abs/2021AM-366348)** *Invited Talk*

Pearl, J.K., Multiproxy reconstructions of coastal climate and extreme events in North America, Central Washington University Department of Geology, May 7, 2021 ** *Invited Talk*

Pearl, J.K., Multiproxy reconstructions of late Holocene coastal climate and extreme events, University of Texas Institute for Geophysics, March 19, 2021 ** *Invited Talk*

Pearl, J.K., Multiproxy reconstructions of Late Holocene coastal climate and extreme events in the United States, University of Tennessee, Knoxville Department of Geography Seminar, February 25, 2021 ** *Invited Talk*

Pearl, J.K., Late Holocene coastal evolution and climate variability in the United States, Lamont-Doherty Earth Observatory Biology and Paleo-environment Seminar, February 8, 2021 ** *Invited Talk*

Pearl, J.K., Multiproxy reconstructions of coastal climate and extreme events in the United States, University of Washington Earth and Space Sciences Seminar, January 14, 2021 ** *Invited Talk*

Pearl, J.K., Black, B. A., Pringle, P., Sherrod, B. L., Multiproxy dendrochronological dating of coseismic land-level changes in the Puget lowlands, American Geophysical Union fall meeting, December 1–18, 2020

† Dye, L., C. Butkiewicz, Z. Cooper, J. DeGrand, J. Friedman, I. Homfeld, H. Howard, L. Ironcloud, **J. K. Pearl**, L. Smith, S. Wray, Climate sensitivity and growth response of two conifers on high elevation ridge at Wolf Knob, Shoshone Forest, WY, Geological Society of America Annual Meeting 2020

Pearl, J.K., High Resolution Dating of Paleoseismic Events, presented at the Pacific Northwest Earthquake Science Workshop, November 4-6, 2019, Seattle, WA ** *Invited Talk*

Pearl, J.K., From Pixels to Pines: Contextualizing Recent Snowpack Trends of Saguaro National Park, presented at the Future Park Leaders Annual Symposium, August 6-8, 2019, Fort Collins, CO

Pearl, J.K., Late Holocene coastal evolution and climate variability in the northeastern United States, Rice University Earth, Environmental and Planetary Sciences Seminar, January 22, 2019, Houston, TX** *Invited Talk*

Pearl, J.K., K. Anchukaitis, N. Pederson, and J. Donnelly, Multivariate climate field reconstructions for the Northeastern United States, presented at American Geophysical Union fall meeting, December 10–16, 2018, Washington D.C. ** *Outstanding Student Presenter Award*

King, C., **J.K. Pearl**, D.E. Swann, C. Eastoe, C. Filippone, G. Davis, Determining source water of critical springs and tinajas in Saguaro National Park, presented at American Geophysical Union fall meeting, December 10–16, 2018, Washington D.C. **Presenting Author*

Pearl, J.K., K. Anchukaitis, N. Pederson, and J. Donnelly, High-resolution gridded paleoclimate reconstructions of the northeastern United States from tree-rings, presented at the Graduate Climate Conference, November 2–4, 2018, Pack Forest, WA

Pearl, J.K., K. Anchukaitis, N. Pederson, J. Donnelly, Paleoclimate reconstructions of the northeastern United States using Atlantic white cedar tree-rings, presented at the World Dendrochronology Conference, June 9–15, 2018, Thimphu, Bhutan

Pearl, J.K., K. Anchukaitis, N. Pederson, J. Donnelly, Paleoclimate reconstructions of the northeastern United States using Atlantic white cedar tree-rings, presented at the University of Arizona “GeoDaze” Geosciences Symposium. April 12–13, 2018, Tucson, AZ***Winner: Best Overall Graduate Student oral presentation*

Pearl, J.K., K. Anchukaitis, J. Donnelly, N. Pederson., Ghost Forest Stories: how ancient coastal trees tell us about shoreline change and past hurricanes, presented at University of Arizona School of Earth and Environmental Sciences “EarthWeek”, April 10–13, 2018, Tucson, AZ ** *Invited Speaker*

PRESS/POPULAR SCIENCE

- Research featured in* “A double earthquake threat? Study finds 2 Seattle-area faults ripped about the same time”, Seattle Times <https://www.seattletimes.com/seattle-news/a-double-earthquake-threat-study-finds-two-seattle-area-faults-ripped-about-the-same-time/>, September, 2023
- Research featured in* “Huge earthquake shook Seattle 1100 years ago and it could happen again”, NewScientist <https://www.newscientist.com/article/2394583-huge-earthquake-shook-seattle-1100-years-ago-and-it-could-happen-again/>, September, 2023
- Research featured in* “Dead Trees and a Mysterious Cosmic Explosion Reveal Bigger Quake Risk for Seattle”, Scientific American <https://www.scientificamerican.com/article/dead-trees-and-a-mysterious-cosmic-explosion-reveal-bigger-quake-risk-for-seattle/>, September, 2023
- Research featured in* “Brink of Disaster (Season 1 Episode 2): West Coast Superquakes” <https://go.discovery.com/show/b-of-disaster-discovery-atve-us>, streaming on Discovery Plus, January, 2023
- Research featured in* “Earthstorm: Earthquakes” <https://www.netflix.com/title/81346975>, Wall to Wall Entertainment, streaming on NETFLIX, October, 2022
- Research featured in* “Northwest scientists use ancient trees (and an underwater chainsaw) to uncover our seismic history” <https://www.opb.org/article/2021/10/15/northwest-scientists-use-ancient-trees-underwater-chainsaw-study-seismic-history/>, October, 2021
- Pearl, J. K., and L. Staisch (2021), Swipe left on the “big one”: Better dates for Cascadia quakes, *Eos*, 102, doi:10.1029/2021EO162183, Published on 20 August, 2021
- “Dendrochronological dating of co-seismic land-level changes along the Washington coast”, Association of Environmental & Engineering Geologists Nisqually Chapter, February, 2021
- “A suite of evidence for past earthquakes on Bainbridge Island”, Bainbridge Island Day of Preparedness community presentation, September, 2020
- Research featured in* “A Massive Earthquake Is Coming to Cascadia- And It Can’t Be Stopped”, Atlas Obscura, August, 2020
- DATA NUGGET, “A window into a tree’s world”, <http://datanuggets.org/tag/ecology/>, December, 2019
- “Why is there water in the desert? A look at low elevation pools in Saguaro National Park”, Friends of Saguaro National Park public lecture, September, 2018
- “Climate at the Core” Science Café: a Public Science Lecture Series, February, 2017
- Research featured in* “Climate at the Core: Reconstructing the past to understand the future”, The Nature Conservancy Magazine, New Hampshire edition, October, 2016
- Research featured in* “Ghostly Findings On the Shores of Montauk Garner Attention”, 27east.com, October 27, 2015

SERVICE AND PROFESSIONAL AFFILIATIONS

- Steering Committee Member** Past Global Changes (PAGES) Early Career Network Working Group (2020-present)
- Professional reviewer** of journal manuscripts for *Science*, *Nature*, *Scientific Reports*, *Climate of the Past*, *Global and Planetary Change*, *The Holocene*, *Dendrochronologia*, *Quaternary Science Reviews*, *Wetlands*, *Journal of Coastal Research*, *Natural Hazards and Earth System Sciences*, *PLOS One*, *Forests*.
- Professional reviewer** of National Science Foundation grant proposals.
- Affiliate Member** of the University of Washington Quaternary Research Center (2020-2021)
- Member** of USGS Earthquake Science Center Diversity, Equity, and Inclusion Task Force (2020-2021)

Outreach Volunteer for the University of Arizona *Laboratory of Tree Ring Research* and *Department of Geosciences*

Member of *American Geophysical Union* and *Geological Society of America* and *American Institute of Professional Geologists* and *Tree Ring Society and Association for Tree-Ring Research* and *Arizona Geological Society* and *Association for Women Geoscientists*

PARTICIPATION AND TRAINING

- Tribal Water Fluency Workshop, 2023
- Engaging Across Differences Workshop, 2022
- Unlearning Racism in Geoscience (URGE) course, 2021
- Invited Participant, World Dendro Field Week, Jakar, Bhutan, June 2018
- Invited Participant, Past Global Changes Youth Science Meeting, Zaragoza, Spain, May 2017
- Participant, MATLAB for Geosciences, formal training with Dr. M. Trauth, Tucson, Arizona, October 2016
- Invited Participant, Potsdam Summer School: 'Climate Change Impacts', Potsdam, Germany, September 2016
- Participant, N.C.A.R. CESM Tutorial, Boulder, CO, August 2016
- Participant, American Dendrochronology Field Week, El Bolson, Argentina, March 2016
- Participant, Wood Anatomy and Tree Ring Ecology course, Klösters, Switzerland, December 2015
- Invited Participant, Central American Dendroecology Field Week, Guatemala, March 2015
- Wilderness First Responder CPR Certified (Valid until May 2024)