
ALYSSA R. ATWOOD

Assistant Professor

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EDUCATION

- 2015 Ph.D. School of Oceanography, University of Washington, Seattle, WA. Thesis: *Mechanisms of Tropical Pacific Climate Change During the Holocene*. Advisors: Julian Sachs and David Battisti.
- 2010 M.S. University of Washington, Oceanography.
- 2010 Certificate in Climate Sciences, University of Washington, Program on Climate Change.
- 2006 B.A. University of California, Berkeley, Atmospheric Science.
- 2006 B.A. University of California, Berkeley, Physics.

PRIMARY APPOINTMENTS

- 2019–present Assistant Professor, Florida State Univ., Earth, Ocean, and Atmospheric Sciences.
- 2015–2019 Postdoctoral Researcher, UC Berkeley, Geography Dept. & Georgia Institute of Technology, School of Earth and Atm. Sciences. Hosts: *Kim Cobb* and *John Chiang*.
- 2007–2015 Graduate Research Assistant. University of Washington, School of Oceanography. Research Advisors: *Julian Sachs* and *David Battisti*.
- 2006–2007 Postgraduate Research Assistant. University of California Berkeley, Geography Department. Research Advisor: *Robert Rhew*.

FELLOWSHIPS AND AWARDS

- 2018 Finalist for University of California President's Postdoctoral Fellowship
- 2015–2017 NOAA Climate and Global Change Postdoctoral Fellow
- 2015–2017 NSF Ocean Sciences Postdoctoral Research Fellowship (*declined*)
- 2015–2017 NSF Atmospheric and Geospace Sciences Postdoctoral Fellowship (*declined*)
- 2009–2014 NSF Graduate Research Fellow
- 2010–2012 DOE Graduate Research Environmental Fellow
- 2008–2009 Egtvedt Endowment in the School of Oceanography Recipient
- 2007–2008 University of Washington Program on Climate Change Fellow
- 2007–2008 UW Graduate School Fund for Excellence and Innovation recipient
- 2006–2007 Charles H. Ramsden Endowed Fund Research Fellow

RESEARCH INTERESTS: Paleoclimatology, stable isotope and trace element geochemistry of coral and lacustrine sediments, tropical climate change and variability, ocean-atmosphere interactions, data-model intercomparison

PUBLICATIONS

Submitted or in review:

1. **Atwood, A. R.**, D. S. Battisti, E. Wu, D. M.W. Frierson, J. P. Sachs (in rev., *Paleoceanography and Paleoclimatology*). “Data-Model Comparisons of Tropical Hydroclimate Changes Over the Common Era.”
2. Baldwin, J. W., **Atwood, A. R.**, Vecchi, G. A., Battisti, D. S. (in rev., *AGU Advances*). “Outsize Influence of Central American Orography on Global Climate.” Preprint: <https://www.essoar.org/doi/abs/10.1002/essoar.10505166.1>
3. Hitt, N. T., Sayani, H. R., **Atwood, A. R.**, Grothe, P. R., Maupin, C., Lu, Y., Cheng, H. Edwards, R. L., Deocampo, D. M., Cobb, K. M. (in rev., *Geophysical Research Letters*). “Central equatorial Pacific warming and freshening in the 20th century: New insights from a coral ensemble approach.”

Published:

1. **Atwood, A. R.**, Donohoe, A., Battisti, D. S., Liu, X., & Pausata, F. S. R. (2020). “Robust longitudinally variable responses of the ITCZ to a myriad of climate forcings.” *Geophysical Research Letters*, 47, e2020GL088833. <https://doi.org/10.1029/2020GL088833>
2. Konecky, B. L., McKay, N. P., Churakova (Sidorova), O. V., Comas-Bru, L., Dassié, E. P., DeLong, K. L., Falster, G. M., Fischer, M. J., Jones, M. D., Jonkers, L., Kaufman, D. S., Leduc, G., Managave, S. R., Martrat, B., Opel, T., Orsi, A. J., Partin, J. W., Sayani, H. R., Thomas, E. K., Thompson, D. M., Tyler, J. J., Abram, N. J., **Atwood, A. R.**, Conroy, J. L., Kern, Z., Porter, T. J., Stevenson, S. L., von Gunten, L., and the Iso2k Project Members (2020). “The Iso2k Database: A global compilation of paleo- $\delta^{18}\text{O}$ and $\delta^2\text{H}$ records to aid understanding of Common Era climate.” *Earth System Science Data*. <https://doi.org/10.5194/essd-12-2261-2020>
3. Donohoe, A., **Atwood, A. R.**, Byrne, M. P. (2019). “Controls on the width of tropical precipitation and its contraction under global warming.” *Geophysical Research Letters*. <https://doi.org/10.1029/2019GL082969>
4. H. Zhang, M. L. Griffiths, J. C.H. Chiang, W. Kong, Sh. Wu, **A. R. Atwood**, J. Huang, H. Cheng, Y. Ning, S. Xie (2018). “East Asian hydroclimate modulated by the position of the westerlies during Termination I.” *Science* 362, 580-583. <https://doi.org/10.1126/science.aat9393>
5. *PAGES Hydro2k Consortium*: J. E. Smerdon, J. Luterbacher, S. J. Phipps, K. J. Anchukaitis, T. Ault, S. Coats, K. M. Cobb, B. I. Cook, C. Colose, T. Felis, A. Gallant, J. H. Jungclauss, B. Konecky, A. LeGrande, S. Lewis, A. S. Lopatka, W. Man, J. S. Mankin, J. T. Maxwell, B. L. Otto-Bliesner, J. W. Partin, D. Singh, N. Steiger, S. Stevenson, J. E. Tierney, D. Zanchettin, H. Zhang, **A. R. Atwood**, L. Andreu-Hayles, S. H. Baek, B. Buckley, E. R. Cook, R. D'Arrigo, S. Dee, M. Griffiths, C. Kulkarni, Y. Kushnir, F.

Lehner, C. Leland, H. W. Linderholm, A. Okazaki, J. Palmer, E. Piovano, C. C. Raible, M. P. Rao, J. Scheff, G. Schmidt, R. Seager, M. Widmann, A. P. Williams, E. Xoplaki (2017). “Comparing proxy and model estimates of hydroclimate variability and change over the Common Era.” *Climate of the Past* 13, 1851-1900. <https://doi.org/10.5194/cp-13-1851-2017>

6. **Atwood, A. R.**, D. S. Battisti, A. T. Wittenberg, W. H. G. Roberts, D. J. Vimont (2017). “Characterizing unforced multi-decadal variability of ENSO: A case study with the GFDL CM2.1 coupled GCM.” *Climate Dynamics* 49, 2845-2862. <https://doi.org/10.1007/s00382-016-3477-9>
7. **Atwood, A. R.**, E. Wu, D. M. W. Frierson, J. P. Sachs, D. S. Battisti (2016). “Quantifying climate forcings and feedbacks over the last millennium in CMIP5-PMIP3 models.” *Journal of Climate* 29, 1161-1178. <https://doi.org/10.1175/JCLI-D-15-0063.1>
8. **Atwood, A. R.** and J. P. Sachs (2014). “Separating ITCZ- and ENSO-related rainfall changes in the Galápagos over the last 3 kyr using D/H ratios of multiple lipid biomarkers.” *Earth and Planetary Science Letters* 404, 408-419. <https://doi.org/10.1016/j.epsl.2014.07.038>
9. **Atwood, A. R.**, J. K. Volkman, J. P. Sachs (2014). “Characterization of unusual sterols and long chain diols, triols, keto-ols and *n*-alkenols in El Junco Lake, Galápagos.” *Organic Geochemistry* 66, 80-89. <https://doi.org/10.1016/j.orggeochem.2013.11.004>
10. Myhrvold, C. L., F. Janny, D. Nelson, S. N. Ladd, **A. R. Atwood**, J. P. Sachs (2014). “Holocene Closure of Lib Pond, Marshall Islands.” *PLoS ONE* 9, e90939. <https://doi.org/10.1371/journal.pone.0090939>
11. **Atwood, A. R.** and J. P. Sachs (2012). “Purification of dinosterol from complex mixtures of sedimentary lipids for hydrogen isotope analysis.” *Organic Geochemistry* 48, 37-46. <https://doi.org/10.1016/j.orggeochem.2012.04.006>
12. Teh, Y. A., O. Mazeas, **A. R. Atwood**, T. Abel, R. C. Rhew (2009). “Hydrologic regulation of gross methyl chloride and methyl bromide uptake from Alaskan Arctic tundra.” *Global Change Biology* 15, 330-345. <https://doi.org/10.1111/j.1365-2486.2008.01749.x>
13. Teh, Y. A., R. C. Rhew, **A. Atwood**, T. Abel (2008). “Water, temperature, and vegetation regulation of methyl chloride and methyl bromide fluxes from a shortgrass steppe ecosystem.” *Global Change Biology* 14, 77-91. <https://doi.org/10.1111/j.1365-2486.2007.01480.x>
14. Rhew, R. C., Y. A. Teh, T. Abel, **A. Atwood**, O. Mazeas (2008). “Chloroform emissions from the Alaskan Arctic tundra.” *Geophysical Research Letters* 35, L21811. <https://doi.org/10.1029/2008GL035762>

RESEARCH GRANTS

Current and recent:

2020-2023 “Collaborative Research: Response of the Tropical Pacific to the Abrupt Climate Change Event 8,200 Years Ago”, NSF P2C2, PI: Julian Sachs (UW), co-PI: Alyssa Atwood (FSU). \$173,502 (FSU portion).

- 2019-2022 “The tropical Pacific mean state, annual cycle and ENSO in Holocene corals: a multi-proxy approach”, NSF MG&G-1903640, PI: Alyssa Atwood (FSU), co-PI: Kim Cobb (GT). \$609,869 (FSU portion).
- 2020 “Constraining Tropical Rainfall Changes from Sparse Networks of Paleoclimate Data”, FSU First Year Asst. Professor Summer Award, Alyssa Atwood (FSU). \$20,000.
- 2017-2020 “Collaborative Research: The expansion/contraction of the intertropical convergence zone; an emerging mechanism of tropical precipitation changes for reinterpreting paleoclimate records”, NSF AGS-GEO/ATM-1702776, PI: Aaron Donohoe (UW), co-PI: Alyssa Atwood (UCB). \$105,561 (UCB portion).
- 2015-2016 RAPID: Galápagos lake chemistry & plankton assemblage during the 2015-16 El Niño, NSF-EAR-1608241, PI: Julian Sachs (UW). Project Role: Equal participant with PI Sachs in planning, writing, budgeting, and project execution. \$74,986.

ORAL PRESENTATIONS

- 12/2020 “Data-Model Comparisons of Tropical Hydroclimate Changes Over the Common Era,” PP034-02, AGU Fall Meeting.
- 10/2020 “Robust longitudinally variable responses of the ITCZ to a myriad of climate forcings,” Univ. of Virginia Department of Environmental Sciences seminar. **Invited.**
- 05/2020 “Robust longitudinally variable responses of the ITCZ to a myriad of climate forcings,” Univ. of Hawaii Oceanography Department seminar. **Invited.**
- 12/2019 “Is the concept of a zonally-averaged tropical precipitation change useful?” AGU Fall Meeting.
- 12/2018 “Tropical Pacific climate over the last 6,500 years – insights from a coral ensemble approach and an isotope enabled GCM,” AGU Fall Meeting.
- 08/2018 “A coral ensemble approach to reconstructing mean climate and seasonality in the central Pacific,” Goldschmidt Conference, Boston, MA.
- 07/2018 “Characterizing zonal variations in the shift of tropical precipitation to climate forcing,” 2nd WCRP Grand Challenge Meeting on Monsoons and Tropical Rain Belts, International Centre for Theoretical Physics, Trieste, Italy.
- 02/2018 “The Influence of Mean State Changes on ENSO During the Mid-Holocene: Insights from Coral Records and an Isotope-Enabled GCM,” Ocean Sciences Meeting, Portland, OR.
- 09/2017 “A Coral Ensemble Approach to Reconstructing Central Pacific Climate Change During the mid-Holocene,” GeoBremen, Bremen, Germany.
- 08/2017 “High latitude teleconnections to tropical mean climate: paleoclimate data and models,” US CLIVAR Summit, Baltimore, MD. **Invited.**
- 03/2017 “Proxy and modeling evidence of the 8.2 kyr event in the eastern equatorial Pacific”, 28th Pacific Climate Workshop, Pacific Grove, CA.
- 12/2016 “A Coral Ensemble Approach to Reconstructing Central Pacific Climate Change During the Holocene”, 185396, AGU Fall Meeting.

- 06/2016 “Hydroclimate changes in the tropical Pacific over the last millennium: data model comparisons and possible mechanisms”, PAGES2k-PMIP3 Workshop: Comparing Data and Model Estimates of Hydroclimate Variability and Change over the Common Era, Lamont-Doherty Earth Observatory. **Invited.**
- 07/2016 “Tropical Pacific climate change and ENSO evolution during the Holocene”, NOAA Climate and Global Change Summer Institute, Steamboat Springs, CO.
- 12/2015 “Possible mechanisms of a southward shift in tropical precipitation during the Little Ice Age”, PP44B-06 AGU Fall Meeting. **Invited.**
- 10/2015 “Why was there a Little Ice Age?”, Lawrence Berkeley National Laboratory seminar. **Invited.**
- 09/2015 “Spatial variations of the ITCZ response to North Atlantic freshwater forcing”, Workshop on Monsoons & ITCZ: the annual cycle in the Holocene and the future, Columbia University. **Invited.**
- 09/2015 “Why was there a Little Ice Age?”, U.C. Berkeley Atmospheric Science Center seminar. **Invited.**
- 11/2014 “Possible mechanisms of a southward shifted ITCZ during the Little Ice Age”, Univ. of Washington Chemical Oceanography seminar.
- 09/2014 “The influence of a weakened AMOC on the El Niño-Southern Oscillation”, U.S. AMOC Science Team Meeting, Seattle, WA.
- 12/2013 “Last millennium climate change in CMIP5 models”, PP41B-07 AGU Fall Meeting.
- 09/2013 “The Little Ice Age in CMIP5”, University of Edinburgh School of Geosciences seminar.
- 12/2012 “Holocene climate changes in the eastern equatorial Pacific from hydrogen isotopes of multiple biomarkers from a Galápagos lake”, PP24B-04 AGU Fall Meeting.
- 10/2012 “Initial investigations on the interactions between ENSO and the mean state of the tropical Pacific”, Univ. of Washington Chemical Oceanography seminar.
- 08/2011 “Mean state changes in the tropical Pacific and El Niño-Southern Oscillation Variability: Paleoclimate evidence and climate modeling investigations”, DOE Global Change Education Program Workshop, Knoxville, TN.
- 10/2010 “Holocene rainfall variations from hydrogen isotope ratios of algal biomarkers in a Galápagos Island lake sediment,” Univ. of Washington Graduate Climate Conference.
- 11/2008 “What can Christmas Island tell us about rainfall in the tropical Pacific over the last millennium? Univ. of Washington Chemical Oceanography seminar.

SELECTED POSTER PRESENTATIONS

- 12/2017 **Atwood, A.R., Battisti, D. S., Bitz, C. M., Sachs, J. P.** “Response of the tropical Pacific to abrupt climate change 8,200 years ago.” PP33A-1314 AGU Fall Meeting.
- 10/2017 **Atwood, A.R., Frierson, D.M.W., Wu, E., Battisti, D.S., Sachs, J.P.** “Hydroclimate changes in the tropical Pacific over the last millennium.” Last Millennium Reanalysis Workshop, Boulder, CO.

- 12/2014 **Atwood, A.R.**, Battisti, D.S., Bitz, C.M. (2014). “The influence of a weakened AMOC on the El Niño-Southern Oscillation in CESM,” A33E-3238 AGU Fall Meeting.
- 03/2012 **Atwood, A.R.**, Sachs, J. P. “Holocene rainfall in the eastern equatorial Pacific from hydrogen isotopes in lipid biomarkers from a Galápagos lake,” CLIVAR/PAGES Workshop: Using paleo-climate model/data comparisons to constrain future projections, University of Hawaii.
- 10/2012 **Atwood, A.R.**, Battisti, D.S. “Interactions between ENSO and the mean state of the tropical Pacific in a GCM,” Univ. of Washington Graduate Climate Conference.
- 10/2011 **Atwood, A.R.**, Sachs, J. “Holocene climate variability in the eastern equatorial Pacific from lake biomarker records,” Graduate Climate Conference, Woods Hole Oceanographic Institution.

ADVISING

Primary advisor for Luis Rodriguez (FSU PhD student), Andrea Moore (FSU MS student)

Thesis committee member for Catherine Stauffer and Heather Forrer (FSU PhD students), Michael Secor, Lindsay Hooper, Carly Narotsky, Adihan Yulanda Widyaningsih (FSU MS students)

Supervisor for postgraduate Aaron Jones and undergraduates Melat Hagos and Gemma O’Connor, Kayla Townsend (Georgia Institute of Tech.), Elynn Wu and Kyle Thomas (University of Washington)

TEACHING & COURSE DEVELOPMENT

Fundamentals of Climate and Global Dynamics (MET 6155/OCP 5930, FSU, Fall 2020)

Climate Change Science (MET 3013, FSU, Spring 2020)

Paleoclimatology: Data, Models, & Theory (MET 6155/OCC 5930/GLY 5297, FSU, Fall 2019)

Field course: Exploration seminar in the Marshall Island (Graduate Teaching Assistant, University of Washington, 2009)

Course development for Global Climate Change (Washington State University Extension Carbon Masters Program, 2008 – 2009)

SERVICE

2020 – present *Co-leader* of the PAGES CoralHydro2k Project - Tropical ocean hydroclimate and temperature from coral archives

2018 – present *Member* of the US CLIVAR Working Group on Water Isotopes in the Climate

2018 – present *Member* of the PAGES Iso2k Project - A global synthesis of Common Era hydroclimate using water isotopes

2018 – present *Proposal reviewer* for the US National Science Foundation.

2013 – present *Peer reviewer* for scientific journals: *Geophysical Research Letters*, *Journal of Climate*, *Quaternary Science Reviews*, *Earth and Planetary Science Letters*, *Organic Geochemistry*, *Geology*, *Journal of Geophysical Research–Atmospheres*.

- 12/2019 *Chair* of session “Using observations and paleoclimate data to constrain El Niño-Southern Oscillation dynamics” at AGU Fall Meeting
- 10/2019 *Co-organizer*, US CLIVAR Water Isotopes and Climate Workshop
- 12/2018 *Chair* of session “The global expression of the 8.2 ka event” at AGU Fall Meeting
- 08/2018 *Co-chair* of session “Applications of high-resolution geochemical proxies: seasonality and past climate variability” at Goldschmidt Conference
- 2016 – 2018 *Co-organizer*, Science Leadership and Management, UC Berkeley; Organize yearly seminar series and end-of-year workshop for graduate students and postdocs to promote leadership development in early career scientists.
- 2013 – 2018 *Volunteer*, Educurious; Develop teacher-training resources and serve as a science expert for high school science teachers.
- 2010 – 2014 *Co-organizer/co-chair*, Graduate Climate Conference, University of Washington and Massachusetts Institute of Technology.
- 04/2014 *Speaker*, “Climate change impacts in the Pacific Northwest”, Everett Public Library.
- 04/2012 *Speaker*, “Our changing oceans”, Highland Community College Environmental Chemistry class, Des Moines, WA.
- 02/2012 *Speaker*, “Current and future ocean change”, Interlake High School AP Environmental Science class, Bellevue, WA.
- 2009 – 2010 *Volunteer*, Washington State University Extension; Developed pilot program and curricular materials for the community education programs Carbon Masters and Carbon Coaches.
- 01/2010 *Speaker*, “Climate change 101”, WSU Extension Carbon Masters Program, Cascadia Community College, Bothell, WA.
- 10/2009 *Speaker*, “Climate change 101”, WSU Extension Carbon Coaches Program, Cascadia Community College, Bothell, WA.
- 07/2009 *Co-organizer*, Climate Change Symposium, Majuro, Republic of the Marshall Islands
- 2008 *Co-organizer*, US Congressional Delegation-House Science and Technology Committee to the Galápagos Islands.
- 02/2008 *Volunteer*, Technical Advisory Panel member and Science Judge for Washington Regional Ocean Sciences Bowl.