

CURRICULUM VITAE
JASPER OSHUN
RESEARCH SCIENTIST
CENTER FOR GLOBAL DISCOVERY AND CONSERVATION SCIENCE
ARIZONA STATE UNIVERSITY, HILO, HI
joshun@asu.edu

EDUCATION

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| 2016 | Ph.D. Earth and Planetary Science , UC Berkeley. Focus in geomorphology and eco-hydrology. Title: ' <i>The isotopic evolution of a raindrop through the critical zone.</i> '
Advisors: William E. Dietrich, Todd E. Dawson, Inez Y. Fung |
| 2005 | B.A. Geology and International Relations (double B.A. degree), Brown University, 2005 |

PROFESSIONAL EXPERIENCE

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| 2024 - | Research Scientist, Center for Global Discovery and Conservation Science, Arizona State University, Hilo, HI. |
| 2023 - 2024 | Research Associate, Department of Earth and Environmental Sciences, Rutgers University, Newark |
| 2023 - | Adjunct Researcher, Universidad de Ingeniería y Tecnología (UTEC), Lima, Perú |
| 2022 | Fulbright Scholar and Visiting Professor, Universidad de Ingeniería y Tecnología, Lima, Perú |
| 2015 – 2022 | Assistant Professor of Geology at Cal Poly Humboldt |
| 2009 – 2015 | Graduate Student Instructor, UC Berkeley, Berkeley, CA |

PUBLICATIONS

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| 2023 | Wunderlich, W., Keating, K., Lang, M., Bandera Perez, W., Oshun, J. The role of peat-forming bofedales in sustaining baseflow in the humid puna, <i>Journal of Hydrology: Regional Studies</i> , Volume 47, 2023, 101394, ISSN 2214-5818, https://doi.org/10.1016/j.ejrh.2023.101394 |
| 2022 | Santos, E. A., Haro-Carrión, X., Oshun, J. , Age-specific and species-specific tree response to seasonal drought in tropical dry forests, <i>Science of the Total Environment</i> 2022, https://doi.org/10.1016/j.scitotenv.2022.157908 |
| 2021 | Oshun, J. , Keating, K., Lang, M., Miraya Oscco, Y. Interdisciplinary Water Development in the Peruvian Highlands: The Case for Including the Coproduction of Knowledge in Socio-Hydrology. <i>Hydrology</i> 2021, 8, 112. https://doi.org/10.3390/hydrology8030112 |
| 2016 | Oshun, J. , Dietrich WE, Dawson TE, Fung I, Dynamic, structured heterogeneity of water isotopes inside hillslopes, <i>Water Res. Research</i> 2016. https://doi.org/10.1002/2015WR017485 |
| 2014 | Link P, Simonin KA, Maness H, Oshun, J. , Dawson TE, Fung I, Species differences in the seasonality of evergreen tree transpiration in a Mediterranean climate: Analysis of multiyear, half-hourly sap flow observations. <i>Water Resources Research</i> 50: 1869-1894. https://doi.org/10.1002/2013WR014023 |
| 2013 | Simonin, K. A., Link, P., Rempe, D., Miller, S., Oshun, J. , Bode, C., Dietrich, W.E., Fung, I., Dawson T.E. Vegetation induced changes in the stable isotope composition of near surface humidity, <i>Ecohydrology</i> , https://doi.org/10.1002/eco.1420 |

Forthcoming **Oshun, J.**, Rempe, DR, Hahm, WJ, Dietrich WE, Dawson TE (*in prep*) “Where do trees get their water? A critical zone perspective.” *To be submitted to WRR, 2023*

GRANTS & AWARDS

2025	Contract with ‘Ouli Farms (~\$90,000) for two years of streamflow and sediment monitoring on Wai’ula’ula Stream in South Kohala, Hawai’i
2024 – 2026	NSF International Research Experiences for Students (IRES) \$449,842 between Arizona State and Rutgers University, Newark – Empowering students to be interdisciplinary and community-minded water scientists in Andean Peru
2022	U.S. Fulbright Scholar: Universidad de Ingeniería y Tecnología, Lima Perú. Research focus: water resources and sustainable water development in Andean Perú
2022 – 2024	NSF International Research Experiences for Students (IRES) \$266,034 between Cal Poly Humboldt and Rutgers University-Newark, 2022-2024 – Empowering students to bridge the gap between hydrologic science and community resilience: A case study in post-glacial Perú
2022 – 2024	NSF Geopaths \$314,325 between Cal Poly Humboldt, CSUS, and SDSU, 2022-2024 - Developing a diverse hydrology workforce through an undergraduate hydrological research experience in a coastal California watershed
2022	Sponsored Programs Foundation Humboldt State University, \$40,000. “AMISTAD: Addressing Minoritized Involvement In STEM-field Training in Apurímac for sustainable Development”
2020	COAST Grant Development Award, \$18,000. Collaboration to write NSF Geopaths proposal focused on water literacy with Sacramento State and San Diego State
2019	Emeritus and Retired Faculty Association Award, \$1000
2018 – 2020	Geoscientists Without Borders, \$100,000, “ Bonanza en los Andes, Sustainable Water Development in, Zurite, Perú ”
2016	CSUPERB. \$15,000, “Exploration of Water Sources of Douglas-fir”
2018	Award for service to Andean Community of Zurite, Despertar Latino, NGO La Plata, Argentina
2006	NAGT-USGS Researcher <i>Effect of climate change on the phenology of Shenandoah National Park</i> Summer

PRESENTATIONS

Invited

2023	‘ <i>Bofedales y recursos hídricos en la puna</i> ’ Seminario en el ‘Impacto en sistemas de cabecera de cuenca y estrategias de adaptación a lo largo de las Americas, PUCP, Lima, Perú
2023	‘El papel de los humedales en sostener el flujo base en la puna húmeda’ Seminario en Gestión y Ciencias del Agua, Universidad Autónoma de Baja California Sur, México
2022	‘Investigaciones interdisciplinarias de agua en la puna: desde la infraestructura natural de bofedales a la infraestructura construida de canales de riego’ Charla de investigación, plan de formación de docente, UTEC, Lima, Perú.
2022	“Ciencia, Estudiantes y la Sociedad. La aplicación de hidrogeología y la coproducción de conocimiento en la region de Cusco.” Ciclo de Conferencias virtuales, Especialidad de Geografía y medio ambiente, PUCP, Lima, Perú.

- 2020 'Bonanza en los Andes' Sponsored Programs Foundation 'TED' Talk at Annual PI Celebration.
- 2020 'Bonanza en los Andes: Estudio de los recursos de agua y desarrollo en colaboración con la comunidad de Zurite, Anta.' First international congress of geography of Apurimac and Southern Perú. With, W. Wunderlich, M. Lang, and K. Keating
- 2019 **Oshun, J.**, Lang, M., Keating, K., Wunderlich, W. 'Student-led water development in the Andean Puna.' Society for Exploration Geophysicists Annual Meeting, San Antonio.

Conference Presentations

- 2023 **Oshun, J.**, Lang, M., Keating, K. The role of peat-forming bofedales in enhancing water security in the Central Andes AGU Fall Meeting, San Francisco
- 2022 'Science, students and society: applied hydrogeology and the coproduction of knowledge in Andean Perú.' Fulbright Commission Conference, Lima, Perú.
- 2021 'Interdisciplinary water development in the Peruvian highlands: The case for including education in socio-hydrology.' Delft International Conference on Sociohydrology, The Netherlands.
- 2019 **Oshun, J.**, Lang, M., Keating, K., Wunderlich, W., Schmidt, L., Murray, H., ... & Smith, L.. 'Identification, explanation and quantification of the hydrologically important components of an Andean Watershed.' AGU Fall Meeting.
- 2018 **Oshun, J.**, Rempe, D.M., Hahm, W.J., Donaldson, A.M., Dawson, T.E., Fung, I.Y., Dietrich, W.E. "Trees use deep rock moisture, yet the xylem of their stable isotopes do not fully record this moisture source" AGU Fall Conference, Washington, D.C.
- 2018 **Oshun, J.**, Lang, M., Keating, K. 'Applied interdisciplinary Critical Zone research and water development in the Andean Puna' AGU Fall Conference, Washington, D.C.:
<https://agu2018fallmeeting-agu.ipostersessions.com/default.aspx?s=DC-68-D4-BD-E5-EC-9E-DE-D9-2C-AF-45-66-20-44-68>
- 2015 **Oshun, J.**, Dietrich, W.E., Dawson, T.E., Rempe, D.M., Fung, I. 'The isotopic evolution of a raindrop through the critical zone.' AGU Fall Conference, San Francisco.

Poster Presentations

- 2023 'Geophysical Exploration of the Structure and Water Capacity of Andean Peatlands.' Lee, S., Avelar, A., Keating, K., Lang, M. M., & **Oshun, J.** (2023). *AGU23*.
- 2023 'Hydrological Model of a Headwater Catchment in the Andean Puna' Tunnicliff, A., Odell, E. G., Lang, M., Keating, K., & **Oshun, J.** (2023). *AGU23*.
- 2022 Gengo, M., Keating, K., Lang, M., Gribbin, T., & **Oshun, J.** 'Critical Zone Water Storage in Andean Bofedales.' AGU Fall Conference, Chicago, IL
- 2019 Davis, E., Murray, H., Schmidt, L., **Oshun, J.**, Keating, K., Lang, M. M., & Wunderlich, W. 'A Geophysical Investigation to Image the Critical Zone Architecture in a High Andean Puna Grassland.' AGU Fall Meeting, San Francisco.
- 2019 Wunderlich, W., **Oshun, J.**, Keating, K., Lang, M. M., Saloma, R. P., Schmidt, L., ... & Murray, H. 'Quantifying water storage capacity in, and dry season water yield from Bofedales, Andean Wetlands.' AGU Fall Meeting, A21U-2668, San Francisco.

- 2019 Santos, E., **Oshun, J.** ‘The consequences of land use on subsurface water storage and vegetative water source in a tropical dry forest’ (GSOP/205). Association for Tropical Biology Conference, in Madagascar.
- 2018 Helprin, O., Keating, K., **Oshun, J.**, Lang, M. ‘High Andean Geophysical Investigation of the Puna Grassland Critical Zone’ AGU Fall Conference, Washington, D.C.
- 2018 Santos, E., **Oshun, J.**, Castillo, K., Loor, B., Loor, R. ‘The Consequences of Land Use on Subsurface Water Storage and Vegetative Water Stress in a Tropical Dry Forest’ AGU Fall Conference, Washington, D.C.
- 2014 **Oshun, J.**, Dietrich, W.E., Dawson, T.E., Rempe, D.M., Fung, I. ‘Critical zone co-evolution: evidence that weathering and consequent seasonal rock moisture storage leads to a mixed forest canopy of conifer and evergreen broadleaf trees.’ AGU Fall Conference, San Francisco.
- 2014 Anttila, E., Wray, M.E., Knappe, E., Ogasawara, T., Tholt, A., Cliffe, B., **Oshun, J.** ‘Species type controls root strength and influences slope stability in coastal Ecuador.’ AGU Fall Conference, San Francisco.
- 2013 **Oshun, J.**, Dietrich, W.E., Dawson, T.E., Rempe, D.M., Fung, I. ‘An Isotopic Fingerprinting of Distinct Water Reservoirs in the Critical Zone and their Exploitation by Different Tree Species.’ AGU Fall Conference, San Francisco.
- 2012 **Oshun, J.**, Rempe, D.M., Link, P., Simonin, K.A., Dietrich, W.E., Dawson, T.E., Fung, I. ‘A look deep inside the hillslope reveals a structured heterogeneity of isotopic reservoirs and distinct water use strategies for adjacent trees.’ AGU Fall Conference, San Francisco.
- 2010 **Oshun, J.**, Salve, R., Rempe, D.M., Dietrich, W.E., Fung, I. ‘Fractured Bedrock Storm Flow: A New Pathway For Runoff Generation.’ AGU Fall Conference, San Francisco.

NON-PEER-REVIEWED PUBLICATIONS

- 2022 **Oshun, J.**, Wunderlich, W., Bandera Perez, W., Lang M., Keating, K. Informe - un análisis de recursos de agua en la parte alta Ramuschaka. Quantification of local water resources and recommendations for sustainable water management. Presented to the Community of Zurite, July, 2022.
- 2021 **Oshun, J.**, Lang, Margaret, Keating, K., Wunderlich, W. Ruiz López, T., Bandera Perez, W., Pumayalli Saloma, R. *[Bonanza en los Andes – Final Report](#)*. Geoscientists Without Borders, Society of Exploration Geophysicists.
https://data.seg.org/uploads/Peru_water_project_Final_Report_c5f3f6aa00.pdf
- 2021 **Oshun, J.**, Lang M., Keating, K. Student-led Water Development in the Andean Puna. American Association for Petroleum Geologists Explorer, February 2021.
<https://explorer.aapg.org/story/articleid/59310/student-led-water-development-in-the-andean-puna>.

TEACHING AND MENTORING EXPERIENCE

Instructor, Arizona State University

2024 – 2025 Water and People in the Peruvian Andes

Instructor, Rutgers University, Newark

2023 Water and People in the Peruvian Andes

2023-2024	Geopaths Introduction to Hydrology (SDSU, CSUS)
2023 (Spring)	Water and People in the Peruvian Andes
2023 (Spring)	Geopaths Introduction to Hydrology (SDSU, CSUS)
2022 (Fall)	Water and People in the Peruvian Andes
2022 (Spring)	Geopaths Introduction to Hydrology (Cal Poly Humboldt, SDSU, CSUS)

Instructor, Universidad de Ingeniería y Tecnología, Lima Perú

2022	Seminarios de ingeniería Ambiental – ‘Recursos hídricos en los Andes’ <i>en español</i>
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Instructor, California Polytechnic University, Humboldt

2022 (Spring)	General Geology (GEOL 109)
2022 (Spring)	Water and People in the Peruvian Andes (GEOG 472), co-taught with geographer, engineer and geophysicist Zoom course connecting Cal Poly and Rutgers Universities
2022 (Spring)	Introduction to hydrology research (FOR 499), co-taught with colleagues at SDSU and CSUS
2021 (Fall)	Hydrogeology (GEOL 380)
2021 (Fall)	General Geomorphology (GEOL 306) *online
2021 (Spring)	Fluvial Processes (GEOL 550) *hybrid
2021 (Spring)	Geology Colloquium (GEOL 455) *online
2020 (Fall)	General Geomorphology (GEOL 306) *online
2020 (Spring)	Field Methods II (GEOL 435) *online
2020 (Spring)	Field Camp (GEOL 475) *online
2019 (Fall)	General Geology (GEOL 109)
2019 (Fall)	Hydrogeology (GEOL 556)
2019 (Summer)	Andean Water Development Field Course (Perú)
2019 (Spring)	Fluvial Processes (GEOL 550)
2019 (Spring)	Andean Hydrological Modeling (GEOL 531)
2018 (Fall)	General Geomorphology (GEOL 306)
2018 (Fall)	Andean Hydrological Modeling (GEOL 531)
2018 (Summer)	Andean Water Development Field Course (Perú)
2018 (Spring)	The Water Planet (GEOL 103)
2018 (Spring)	Hillslope Processes (GEOL 551)
2018 (Spring)	Andean Hydrological Modeling (GEOL 531)
2017 (Fall)	General Geomorphology (GEOL 306)
2017 (Fall)	Hydrogeology (GEOL 556)
2017 (Spring)	General Geology (GEOL 109)
2017 (Spring)	Field Methods I (GEOL 235)
2017 (Spring)	Fluvial Processes (GEOL 550)
2016 (Fall)	Field Methods I (GEOL 235)
2016 (Fall)	General Geomorphology (GEOL 306)

2016 (Summer)	Geology Field Camp (GEOL 475)
2016 (Spring)	General Geology (GEOL 109)
2016 (Spring)	Natural Disasters (GEOL 308)
2015 (Fall)	General Geology (GEOL 109)

Co-instructor

2015	Graduate Lecturer at UC Berkeley <i>The Water Planet</i>
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Graduate Student Instructor

2011, 2013	Geomorphology, UC Berkeley
2011	The Water Planet, UC Berkeley

SERVICE & LEADERSHIP

Professional Service

2016 – Present	Paper reviewer for various journals including: Water Resources Research, Hydrology and Earth System Sciences, Journal of Hydrology, Journal of Hydrology Regional Studies, Frontiers in Forest and Global Change, and Earth Surface Dynamics
2016 – Present	Grant reviewer and panelist for NSF proposals.

Cal Poly Humboldt Service

University and Department Service

2017 – 2022	Graduate Student Coordinator, Environmental Systems – Geology Track
2019	Presentation on balancing research and teaching to new faculty, Center for Teaching and Learning
2018 – 2019	College of Natural Resources and Sciences Dean Search Committee
2017, 2018, 2019	Presentations at HSU's International Education Week
2017 – 2018	Geology Department Faculty Search Committee
2016 – 2017	Outstanding Student Award Committee
2015 – 2016	Departmental Review Committee
2015 – 2016	Departmental Curriculum Committee
2016 – 2017	Geology instructor for summer immersion, Klamath Connection

Service to Local and Global Community

2025	Water resources consultant, Phinaya, Perú + service learning for Peruvian and U.S. students
2017 – Present	Water resources consultant, Zurite, Perú + service learning for Peruvian and U.S. students
2018 – 2021	Hydrologic Consultant, Sanctuary Forest, Baker Creek
2020 – 2022	Hydrologic Consultant, Scott River Watershed Council
2017	Service learning in Bahía de Caráquez, Ecuador
2016	Disaster Relief, Bahía de Caráquez, Ecuador

2008 – 2015	Board Member, <i>Global Student Embassy</i> , Sebastopol-Oakland
2013 – 2014	Reforestation Trip Leader, Bahía de Caráquez, Ecuador
2011 – 2012	Reforestation Trip Leader, Bahía de Caráquez, Ecuador
2008 – 2010	Co-Founder, <i>Global Student Embassy</i> , grassroots international relations program, Sebastopol, CA, with branches in Perú, Argentina, Tanzania, Ecuador, and Nicaragua, 2008-2010

STUDENT ADVISING

PhD Thesis Advisees

2023 - present Jack Cambeiro – *structure and water holding capacity of peat forming wetlands in Perú*

Master's Thesis Advisees

2023 – present Wilner Bandera Perez – *seasonal dynamics in water availability and water use in an adolescent Polylepis forest, Perú*

2021 Wyeth Wunderlich – [*Spatiotemporal patterns in water yield from the humid puna: a case study in the agrarian district of Zurite, Perú*](#)

2020 Emily Santos– [*Age-specific and species-specific tree response to seasonal drought in tropical dry forests*](#)

2020 Ariel Weisgrau (Reader) – [*Alternative water sources in wester conifers via foliar uptake and hydraulic redistribution*](#)

2020 Katrina Nystrom (Reader) – [*Quantifying Pacific Lamprey \(Entosphenous Tridentus\) Ammocoete Habitat Availability and the Risk Associated with the Summer Hydrograph Recession Limb in Coastal Northern California Streams*](#)

2015 – 2017 Mindi Curran (Reader) – [*Sediment Transport on the Oak Grove Fork of the Clackamas River, Oregon*](#)

2020 - 2022 Miles Munding-Becker – *Hydrologic role of beaver dam analogs on the Scott River*

2021 - 2022 Sarah Leidinger – *Spatial extent of bofedales and their vital importance as natural infrastructures in Perú*

Undergraduate Senior Theses/Independent Study Advisees

2021 Anna Cottrell – *Rates of accumulation of peat in bofedales using C¹⁴ analyses*

2020 Nolan Marshall – *Dynamic water storage in bofedales, Andean peatlands*

2018 Amanda Donaldson – *An Investigation of Two Undocumented Isotopic Effects to Address an Anomalous Isotopic Composition of Douglas-fir Xylem*, *Awarded Best Undergraduate Thesis

2017 Travis Esquivel – *Nutrient Analysis South Fork Eel River*, *Awarded Best Undergraduate Thesis

Professional Development

2021 ESCALA – Teaching at Hispanic Serving Institutions

2020 Pivot to Online Teaching

2020 CSUPERB Workshop How to be an Anti-Racist

2016 SERC/NAGT Early Career Geoscience Faculty Workshop, *University of Maryland*

Other Experience

- 2007 Exploration Geologist, extensive field mapping in Seward Peninsula, Southwestern Alaska, and Bairds Mountains of Western Brooks Range for *NovaGold*
- 2007 Staff Geologist William Lettis and Associates, logging core and analyzing seismic risks for critical facilities, Walnut Creek, CA
- 2005-2006 Undergraduate Student Researcher, Brown University *The spatial correlation between socio-economic status and destruction from Hurricane Katrina along the Gulf Coast*

Language Skills

English (Native)

Spanish (Fluent)

MEDIA

- 2021 What does it mean to create a meaningful place-based learning experience for students? Center for Teaching and Learning, Cal Poly Humboldt:
<https://hsuctl.wordpress.com/2021/09/27/what-does-it-mean-to-create-a-meaningful-place-based-learning-experience-for-students/>
- 2020 Sponsored Programs Foundation promotional video on *Bonanza en los Andes* student international research opportunity: <https://www.youtube.com/watch?v=8Cz0rVMWDYE>
- 2019 Seismic Soundoff Podcast (Society of Exploration Geologists) Episode 57: Building canals - how science and friendship changed a town <https://seg.org/podcast/Post/7222/Episode-57-Building-canals-how-science-and-friendship-changed-a-town>

