Jarunetr "Nadia" Sae-Lim

University of Missouri-Columbia
Email: js3c@missouri.edu | jsaelim@utk.edu Website: www.njsaelim.com

PROFESSIONAL EXPERIENCE

Jan 2027–	Incoming Assistant Professor, Department of Earth, Environmental, and Planetary Sciences, University of Tennessee, Knoxville
Jan 2026 –	Postdoctoral Fellow, University of Missouri-Columbia
2024 – 2026	President's Postdoctoral Fellow, University of California, Irvine
2017 – 2018	VOSS Undergraduate Fellow, Institute at Brown for Environment and Society
2017	The Polaris Project Research Assistant, Woodwell Climate Research Center, MA
2015 – 2017	Undergraduate Teaching and Research Awards Researcher (UTRA), Brown University

EDUCATION

2023	Ph.D. Earth, Environmental, and Planetary Sciences, Washington University
2020	M.A. Earth and Planetary Sciences, Washington University
2018	B.S. Geological Sciences with Honors, Brown University

RESEARCH INTERESTS

Tropical climate variability and change; Organic geochemistry; Regional monsoon dynamics; Climate data-model intercomparison; Lake modeling; Wetland-climate interactions; Societal resilience

PUBLICATIONS

Peer-reviewed

1. Sharp, Z. Jordan, W., Gargano, A., Cerling, T., …, **Sae-Lim, J.,** … Ehleringer, J. Extreme triple oxygen isotope fractionation in equisetum. (2025) *Proceedings of the National Academy of Sciences of the United States of America. 122*(44), e2507455122. https://doi.org/10.1073/pnas.250745512

2. **Sae-Lim, J.***, Leknettip, S.*, Chawchai, S., Dubois, N., Lan, J., and Tan, L. The Thai-Malay Peninsula environmental changes around the 8.2-ka event based on multi-proxy analysis of a peat swamp core from southern Thailand. (2025) *Palaeogeography, Palaeoclimatology, Palaeoecology. 672,* 112987 https://doi.org/10.1016/j.palaeo.2025.112987 (*equal contribution)

3. **Sae-Lim, J**., Konecky, B.L., Hutchings, J.A., Michelutti, N., Grooms, C., Vuille, M., Castañeda, I., and Smol, J. Biomarker evidence for arid intervals during the past ~1,800 years in the central Andean highlands. (2025) *Earth and Planetary Science Letters*. *662*, 119407. https://doi.org/10.1016/j.epsl.2025.119407

4. **Sae-Lim, J.** Konecky, B.L., Morrill, C., Michelutti, N., Grooms, C., and Smol, J. (2025) Lake energy balance response to 21st century warming in the tropical Andes. *Global and Planetary Change. 248,* 104741. https://doi.org/10.1016/j.gloplacha.2025.104741

5. Vachula, R.S., Li, J., **Sae-Lim, J.**, and Xie, H. (2022) Ignition frequency and climate controlled Alaskan tundra fires during the Common Era. *Quaternary Science Reviews. 289*, 107418. https://doi.org/10.1016/j.quascirev.2022.107418

6. Vachula, R.S.*, **Sae-Lim, J.***, and Li, R. (2021) A Critical appraisal of charcoal morphometry as a paleofire fuel type proxy. *Quaternary Science Reviews. 262,* 106979. https://doi.org/10.1016/j.quascirev.2021.106979 (*equal contribution)
7. Vachula, R.S., **Sae-Lim, J.,** and Russell, J.M. (2020) Sedimentary charcoal proxy records of fire in Alaskan tundra ecosystems. *Palaeogeography, Palaeoclimatology, Palaeoecology. 541*(1), 109564. https://doi.org/10.1016/j.palaeo.2019.109564
8. **Sae-Lim, J.**, Russell, J.M., Vachula, R.S., Holmes, R.B., Mann, P.J., Schade, J.D., and Natali, S.M. (2019) Temperature-controlled tundra fire severity and frequency during the last millennium in the Yukon-Kuskokwim Delta, Alaska. *The Holocene. 29*(7), 1223–1233. https://doi.org/10.1177/0959683619838036

In-revision

1. **Sae-Lim. J.,** Johnson, K., Griffith, M., Chawchai, S., and Stark, M. Decadal-scale hydroclimate variability in Mainland Southeast Asia over the last millennium. (*Proceedings of the National Academy of Sciences*)
2. **Sae-Lim, J.,** Konecky, B.L., Castañeda, I., Hutchings, J.A., Salacup, J., Michelutti, N., Grooms, C., and Smol, J. Temperature variability in the Central Andes during the past 2,700 years based on glycerol dialkyl glycerol tetraethers. *(Organic geochemistry)*

MEDIA COVERAGE & MENTIONS OF RESEARCH

- **ScienceDaily:** "A400-million-year-old plant creates water so weird it looks alien" (Online article, 2025)
- **SciTechDaily:** " "This is From a Meteorite": Scientist Stunned by Water Inside 400-Million-Year-Old Plant" (Online article, 2025)
- **National Geographic**: "Lost Temple of the Inca" (Film directed by Jim Aikman, 2020)
- **Washington University, Department of Earth and Planetary Sciences:** "Conference roundup: AGU 2020" (Online article, 2020)
- **Washington University, Department of Earth and Planetary Sciences:** "Conference roundup: AGU 2019" (Online article, 2019)
- **Woods Hole Research Center:** "The Polaris Project 2017" (Video by Jarunetr Sae-Lim, 2019)
- **Mountainfilm:** "Permafrost Now" (Documentary film directed by Stash Wislocki, 2018)
- **The New York Times:** "When Alaska's Permafrost isn't Permanent." (The Daily 360° video) and "Alaska's Permafrost is Thawing." (Online article) by Henry Fountain, 2017

AWARDS, HONORS, FELLOWSHIPS & SCHOLARSHIPS

2026	National Geographic Society Explorer
2024	UC President's Postdoctoral Fellowship **(funded proposal; $140,000)**
	Washington University Carl Tolman Prize (Teaching Award) **($1,000)**
2019	Washington University Outstanding Teaching Service Recognition
2018	Graduate Student Fellowship at Washington University (full tuition)
	Brown University Outstanding Senior Award in Academics and Research
2017	Polaris Project Fellowship **($4,000)**
	VOSS Undergraduate Fellowship **($6,000)**
2015	UTRA, Brown University **($4,500)**
2014	Royal Thai Undergraduate Student Scholarship in STEM (full tuition)
2013	Gold medal in Environmental Science at the International Conference of Young Scientists

INVITED SEMINARS

Apr 2026	University of California, Los Angeles, *Department of Earth, Planetary, and Space Sciences*
Feb 2026	University of Tennessee, Knoxville, *Department of Earth, Environmental, and Planetary Sciences*
Nov 2025	University of Hawaii at Manoa, *School of Ocean and Earth Science and Technology*
Oct 2025	University of California, Riverside, *Department of Earth and Planetary Sciences*
Oct 2025	Scripps Institute of Oceanography
Oct 2025	University of California, Irvine, *Department of Earth System Science*
Dec 2024	American Geophysical Union Fall Meeting, *Climate of Common Era Session*

FUNDING & GRANT APPLICATION HISTORY

Grant awarded

2026 — *A long-term perspective on wetland resilience and human adaptation in the lower Mekong Basin*. National Geographic Society. Grant number: NGS-169528SC-26 **PI: Jarunetr Sae-Lim. ($92,929)** Duration: 12/1/2027 – 11/30/2029

Fellowship awarded

2024 — *Understanding Southeast Asian monsoon dynamics through a multi-proxy system modeling approach*. University of California President's Postdoctoral Fellowship. **PI: Jarunetr Sae-Lim.** Mentor: Kathleen Johnson (UC Irvine). **($140,000)** Duration: 1/15/2024 – 1/14/2026

Small grant awarded

2025	PAGES 2025 5th Young Science Meeting travel grant **($2,485)**
2024	3rd INQUA-PAGES ECR TROPQUA workshop travel grant in Goa, India **($1,200)**
2021	IsoCamp course travel grant at the University of New Mexico, Albuquerque **($2,700)**
2017	American Geophysical Union Student Travel Grant **($500)**
2017	Research at Brown Grant **($350)**

TEACHING & MENTORING

Instructor

2019 — Earth and Environment, *Washington University* (Lab section: 27 students)
- Developed laboratory curriculum and materials; led lab sessions (3 hours/week)

2014 – 2016 — K-12 volunteer teacher during semester breaks, *Thailand*

Guest Lecturer

2026 — Lake Ecology, *University of Missouri* (scheduled for September 4, 2026)
Limnology, *Washington University* (~15 students)
- Topics: Lake modeling and case studies from Peru and Missouri

A Series of Unfortunate Events in Global Water Issues, *University of Missouri* (25 students)
- Topics: Flooding in Southeast Asia

2021 — Natural Disasters, *Washington University* (73 students, 2 lectures)
- Topics: Climate change, variability, mitigation, and adaptation

Teaching Assistant

2021 Natural Disasters, *Washington University* (73 students)
- Head TA: Managed class logistics, trained undergrad TAs & ran office hours

2019 Earth and Environment, *Washington University* (66 students)
- Managed class logistics, trained TAs, ran office hours, & organized field trip

2016 Environmental Geochemistry (29 students)
- Directed a weekly session and organized field trips

Workshop Leader

2025 Climate model data exploration in Python workshop, *UC Irvine* (7 participants)

Pedagogical Training

2018 – 2023 The Center for the Integration of Research, Teaching, and Learning (CIRTL), *Washington University*
- Completed 10 pedagogical training courses

2019 EPIC program, *Washington University*
- Pedagogical training in evidence-based teaching practices

Mentoring

2026 Meghan McLaughlin (Georgia Tech) – Research undergraduate project mentor
2025 Miranda E. Botello (UC Irvine graduate student)
2021 – 2022 Aida Zyba (Washington University) – Research assistant mentor
2020 – 2021 Allie Sheets (Washington University) – Research undergraduate project mentor
2019 – 2020 Department First-Year Graduate Student Peer Mentor

SERVICE

Research Community

2025 – Past Global Change (PAGES)
- Hydroclimate2k Lake working group, *member*

2025 – Speleothem Isotope Synthesis and AnaLysis working group (SISAL), *regional coordinator*

2019 – AGU Fall meeting, *Session convener and chair*
- Climate of the Common Era (scheduled for 2027)
- Southeast Asia and the Indo-Pacific (2022, 2024 – 2025)
- Historical and Paleo Perspectives on Fire in the Earth System (2019 – 2024)

2019 Annual Midwest Geobiology Symposium, *Student Organizer*

University & Department

2021 – 2022 Graduate Student Vice President (department)
2021 Washington University Strategic Planning: Environmental, Climate Change, and Sustainability Working Group, *Committee member*
2021 Perspective Graduate Student Weekend (department), *Student Organizer*
2020 Diversity, Equity, and Inclusion Committee (department)
2019, 2021 Washington University Graduate Student Orientation, *Graduate Student Leader*
2019 – 2021 Graduate Student Advisory Council, *Department Representative & Public Relations*
2018 – 2022 Departmental Colloquium Student Organizer

Peer Review

Journals

Arctic Science (1)
Climate Dynamics (2)
Earth and Planetary Science Letters (2)
Geophysical Research Letters (2)
Global and Planetary Change (2)
Mediterranean Geoscience Reviews (2)
Quaternary Research (1)
Quaternary Science Review (1)
Paleoceanography and Paleoclimatology (1)

Funding Agencies

National Science Foundation, NSF *Postdoctoral Fellowship (Ad-Hoc reviewer)*

CONFERENCE & PRESENTATION

Talks

Sae-Lim, J., Johnson, K. R., Griffiths, M. L. (2025) Reconstructing summer monsoon hydroclimate variability over mainland Southeast Asia using proxy-constrained isotope data assimilation during the last millennium. *American Geophysical Union Annual Meeting*. New Orleans, LA, USA.

Johnson, K. R., Patterson, E. W., Elizarraras Botello, M., Yang, H., Leon, R., Griffiths, M. L., McGee, D., Henderson, G. M., Jost, A. B., Wolf, A., **Sae-Lim, J.**, Bolger, T., Do-Trong, Q., Bui, T., Xuan, M., White, J. (2025) Speleothem constraints on Mainland Southeast Asia hydroclimate dynamics. *American Geophysical Union Annual Meeting*. New Orleans, LA, USA.

Konecky, B. L., Mauceri, A., **Sae-Lim, J.**, Bird, B., Castaneda, I, Correa-Metrio, A., Escobar, J., Grooms, C., Hutchings, J., Michelutti, N., Rodiguez-Abaunza, G., Smol, J., Steinman, B., Vuille, M. (2024) Local to regional hydroclimate changes in the tropical Andes since the Mid-Holocene. *American Geophysical Union Annual Meeting*. Washington, DC, USA.

Sae-Lim, J., Konecky, B. L., Michelutti, N., Hutchings, J., Grooms, C., Smol, P., Vuille, M., Castaneda, I. (2024) Little Ice Age aridity in the central Andes despite enhanced South American summer monsoon. *American Geophysical Union Annual Meeting*. Washington, DC, USA.

Sae-Lim, J., Konecky, B. L., Castaneda, I., Michelutti, N., Hutchings, J., Salacup, J., Grooms, C., Smol, P., Vuille, M. (2024) Common Era temperature and hydroclimate in the Peruvian Andes from lake sediment biomarkers. *The 3rd INQUA-PAGES ECR workshop: TROPQUA 2024*. Goa, India.

Sae-Lim, J., Konecky, B. L., Morrill, C., Michelutti, N., Grooms, C., and Smol, J. (2023) Late 20th and 21st century lake energy balance response to warming in the tropical high Andes. WUSTL EPS Brown Bag. St. Louis, MO, USA.

Sae-Lim, J. (2022) Radiocarbon dating of Lake Sibinacocha sediment core. WUSTL Climate Change Program monthly seminar. St. Louis, MO, USA.

Sae-Lim, J., Konecky, B. L., Hutchings, J., Castaneda, I., Vuille, M., Michelutti, N., Hutchings, J., Salacup, J., Grooms, C., Smol, P. (2021) Investigation of hydroclimate shifts around 1000 CE in the high Peruvian Andes. *American Geophysical Union Fall Meeting*. New Orleans, LA, USA.

Sae-Lim, J., Konecky, B. L., Michelutti, N., Grooms, C., Hutchings, J., Castaneda, I., Salacup, J., Grooms, C., Smol, P. (2019) Investigation of climate, terrestrial ecosystems, and aquatic productivity during the past 1,500 years from the Lake Sibinacocha watershed, Peruvian Andes. *American Geophysical Union Fall Meeting*. San Francisco, CA, USA.

Sae-Lim, J., Konecky, B. L., Michelutti, N., Grooms, C., Hutchings, J. A., Castañeda, I., Salacup, J., Smol, J. (2019) Investigation of climate, terrestrial ecosystem and aquatic productivity over the last millennium from the Lake Sibinacocha Watershed, Peruvian Andes. *8th Annual Midwest Geobiology Symposium.* St. Louis, MO, USA.

Vachula, R. S., Russell, J. M., Huang, Y., **Sae-Lim, J.**, and Richter, N. (2019) Constraining charcoal source area to better inform paleofire interpretations. *20th Congress of the International Union for Quaternary Research.* Dublin.

Posters

Sae-Lim, J., Johnson, K. R., Griffiths, M., Chawchai, S. (2024) Assessing proxy system impacts on Southeast Asian hydroclimate records over the last millennium. *American Geophysical Union Annual Meeting.* Washington, DC, USA.

Castaneda, I. S., Daniels, W., Konecky, B., **Sae-Lim, J.**, Salacup, J., Schneider, T., Sun, H., Wilk, A., Zhao, B. (2024) Investigating OH-GDGTs and GMGTs in lacustrine sediments and potential relationships to environmental conditions. *American Geophysical Union Annual Meeting*. Washington, DC, USA.

Sae-Lim, J., Konecky, B. L., Castaneda, I., Michelutti, N., Hutchings, J., Salacup, J., Grooms, C., Vuille, M., Smol, P. (2022) A 1,800-year air temperature record from the tropical Andean highlands based on Branched GDGTs from Lake Chacacocha, Peru. *American Geophysical Union Fall Meeting.* Chicago, IL, USA.

Sae-Lim, J., Konecky, B. L., Morrill, C., Hutchings, J., Castaneda, I., Salacup, J., Michelutti, N., Grooms, C., Smol, P. (2020) Assessment of 19th and 20th century lake and air temperature history in the Peruvian high Andes using biomarkers and lake energy balance modeling. *American Geophysical Union Fall Meeting.* Online.

Sae-Lim, J., Mann, P. J., Russell, J. M., Natali, S., Vachula, R. S., Schade, J. D., Holmes, R. M. (2017) Reconstruction of fire history of the Yukon-Kuskokwim Delta, Alaska. *American Geophysical Union Fall Meeting.* New Orleans, LA, USA

Mann, P. J., Bristol, E. M., Dabrowski, J. S., Jimmie, J. A., Melton, S., Navarro-Perez, E., Peter, D. L., **Sae-Lim, J.**, Holmes, R. M., Natali, S. M., Schade, J. D. (2017) Fire increases carbon fluxes from inland waters of the Yukon-Kuskokwim delta, Alaska. *American Geophysical Union Fall Meeting.* New Orleans, LA.

Fiske, G., Natali, S., Schade, J. D., Mann, P. J., Holmes, R. M., Ludwig, S., Melton, S., **Sae-Lim. J.**, Jardine, L. E., Navarro-Perez, E. (2017) Mapping soil carbon in the Yukon Kuskokwim River Delta Alaska. *American Geophysical Union Fall Meeting*

SKILLS

Field

- Lake sediment, soil, and peat coring
- Plant, soil, sediment, and water sampling
- Bathymetric and geological field mapping

Field Experience

- Lake Indian Hills, Cuba, MO – Lake sediment coring and tributary and lake water sampling (2026)
- Hoa Huong Cave, central Vietnam – Speleothem sampling and cave monitoring (2025)
- Rio Grande in Albuquerque, NM – Plant and soil sampling (2021)
- Lake Sibinacocha, Peru – Plant, soil, and water sampling (2019)

- Yukon-Kuskokwim Delta, AK – Lake coring, wetland vegetation survey, and carbon and nitrogen cycling sampling (2017)
- Huerfano, CO, and San Ysidro, NM – Geologic field mapping (2017)

Laboratory

- Organic geochemistry sample preparation and extraction via Accelerated Solvent Extractor (ASE)
- Biomarker analysis using GC-FID and GC-MS
- Compound-specific isotope analysis using GC-C-IRMS
- EA-IRMS analysis of bulk carbon and nitrogen cycling applications
- Water isotope analysis using Picarro water isotope analyzer
- X-ray Fluorescence (XRF) core scanning and geochemical analysis
- Microscope-based sample selection for radiocarbon dating
- Macrocharcoal analysis for reconstructing past fire activity

Data Analysis and Modeling

- Paleoclimate proxy interpretation and age-depth model development
- Lake and wetland modeling (energy-water balance, ecological, and cyanotoxin models)
- Climate data-model intercomparison
- Paleoclimate data assimilation
- Machine-learning-based isoscape modeling
- Statistical analysis and visualization in Python and R

MEMBERSHIP

Brown University Chapter of Sigma Xi
American Geophysical Union
Past Global Changes (PAGES)
Graduate Women in Science
Earth Science Women Network
National Geographic Society Explorer