Jarunetr "Nadia" Sae-Lim

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PROFESSIONAL APPOINTMENTS

Jan 2026 – Postdoctoral Fellow, University of Missouri-Columbia, MO
PIs: Rebecca North and Sven Teurlincx (Netherlands Institute of Ecology)

- Building digital twin water quality models of Missouri lakes and running scenarios to inform lake management options

2024 – 2026 President's Postdoctoral Fellow, University of California, Irvine, CA
Mentors: Kathleen Johnson and Sakonvan Chawchai (Chulalongkorn University)

- Developed and applied data assimilation frameworks to integrate paleoclimate proxies with isotope-enabled climate model ensembles for rainfall reconstructions in Southeast Asia

EDUCATION

2018 – 2023 Ph.D. Earth, Environmental, and Planetary Sciences, Washington University, St. Louis, MO
Advisor: Bronwen Konecky
Thesis: Paleoclimate of the Peruvian Andean Highlands during the Late Holocene

2018 – 2020 M.A. Earth and Planetary Sciences, Washington University, St. Louis, MO
Advisor: Bronwen Konecky

2014 – 2018 B.S. Geological Sciences with Honors, Brown University, Providence, RI
Advisors: James Russell and Jan Tullis
Thesis: Tundra Fires, Climate, and Ecological Changes over the Last Millennium: A Multi-Proxy Record from the Yukon-Kuskokwim Delta, Alaska

ADDITIONAL RESEARCH EXPERIENCE

2017 – 2018 VOSS Undergraduate Fellow, Institute at Brown for Environment and Society
Advisor: James Russell and Richard Vachula (Auburn University)

- Analyzed tundra fire history using biomarkers (Alaska)

2017 The Polaris Project Research Assistant, Woodwell Climate Research Center, MA
PIs: Paul Mann (Northumbria University, UK), Sue Natali, John Schade, Max Holmes

- Collected samples and survey data in fire-affected tundra (Alaska)

2015 – 2017 Undergraduate Teaching and Research Awards Researcher (UTRA), Brown University
PI: Yongsong Huang

- Co-developed black carbon protocols for lacustrine sediments

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. **Sae-Lim, J.***, Vachula, R.S.* 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-review

1. **Sae-Lim. J.,** Johnson, K., Griffith, M., Chawchai, S., 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. *(Geochimica et Cosmochimica Ecta)*

FELLOWSHIPS & GRANTS

2025	PAGES 2025 5th Young Science Meeting travel grant **($2,485)**
2024	UC President's Postdoctoral Fellowship **(funded proposal; $140,000)**
	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)**
2018	Graduate Student Fellowship at Washington University
2017	American Geophysical Union Student Travel Grant **($500)**
	Research at Brown Grant **($350)**
	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)

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 Lecture

2026 Limnology, *Washington University (scheduled for April)*
- Topics: Paleolimnology and methods of reconstructing lake modeling

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

2025 Climate model data exploration in Python workshop, *UC Irvine* (7 participants)
- Designed a tutorial (Google Colab) and led a workshop

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

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

Students' testimonials (Course Evaluations & Teaching Portfolio available)

"I thoroughly enjoyed the workshop. The slides were engaging and informative, and catered well to the diversity of prior knowledge/experience on the topic among the group. Completing the self-paced tutorial allowed me to apply some of the knowledge and coding skills gained from the workshop, and I enjoyed how it challenged me to think through how to write the code at certain times while also providing support for more complicated sections of code. Thank you, Nadia, for a great workshop- I learned a lot and I will continue to refer to the materials as a resource."

Climate model data exploration in Python workshop, 2025

AWARDS & HONORS

2021	Washington University Carl Tolman Prize (Teaching Award) **($1,000)**
2019	Washington University Outstanding Teaching Service Recognition
2018	Brown University Outstanding Senior Award in Academics and Research

INVITED TALKS

2026	Unraveling Tropical Monsoon Variability: Case Studies from the Andes and Southeast Asia, *University of California, Los Angeles* From Monsoons to Future Resilience in the Indo-Pacific and Beyond, *University of Tennessee, Knoxville*
2025	From Monsoons to Future Resilience in the Indo-Pacific and Beyond, *University of Hawaii at Manoa* Unraveling Tropical Monsoon Variability: Case Studies from the Andes and Southeast Asia • *University of California, Riverside's Hewett Club seminar series* • *Scripps Institute of Oceanography's Geoscience/Marine Chemistry and Geochemistry seminar series* • *University of California, Irvine ESS seminar*
2024	Little Ice Age aridity in the central Andean highlands despite enhanced South American summer monsoon, *American Geophysical Union Fall Meeting (AGU)*

SERVICE

Research Community

2025 –	Past Global Change (PAGES) • Speleothem Isotope Synthesis and AnaLysis working group (SISAL), *regional coordinator* • Hydroclimate2k Lake working group, *member*
2019 – 2025	AGU Fall meeting, *Session convener, chair, and OSPA judge* • Historical and Paleo Perspectives on Fire in the Earth System (2019 – 2024) • Southeast Asia and the Indo-Pacific (2022, 2024 – 2025)
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

Reviewer for *Earth and Planetary Science Letters, Quaternary Research, Global and Planetary Change, Arctic Science, Geophysical Research Letters, Mediterranean Geoscience Reviews, Catena*

Ad-Hoc reviewer for NSF Postdoctoral Fellowship proposals

CONFERENCES

AGU 2025 (talk), 2024 (1 talk, 1 poster), 2022 (poster), 2021 (talk), 2020 (poster), 2019 (talk)
3rd INQUA-PAGES ECR workshop: TROPQUA 2024 (talk)
Washington University Climate Change Program Seminar 2022 (talk)
Annual Midwest Geobiology Symposium 2021 (poster), 2019 (talk)

SKILLS

Field

- Cave monitoring and stalagmite sampling
- Lake sediment, soil, and peat coring
- Plant and water survey and sampling
- Bathymetric and geological field mapping

Laboratory

- GC-FID, GC-C-IRMS, GC-MS, EA-IRMS
- Accelerated Solvent Extractor (ASE)
- XRF
- Picarro water isotope analyzer
- Drilling stalagmite samples using a micromill
- Microscopes for collecting C-14 materials and macrocharcoal analysis

Computational

- **Programming & Scripting:** Python, R, SQL; working knowledge of Fortran and Linux
- **Server & Cloud Computing:** Experience with remote Linux servers (SSH, Conda environment, storage management) for climate-model data processing
- **Modeling & Simulation:** One-dimensional lake water- and energy-balance modeling (Hostetler-Bartlein-Morrill framework, GLM, GTOM, FLake, SimStrat); offline data assimilation (EnSRF, Monte Carlo methods)
- **Database & Query:** MySQL Workbench for structured data management and querying
- **Spatial & Data Analysis:** ENVI, ArcGIS, Google Earth Engine, Python-based geospatial libraries (e.g., Geopandas)
- **Visualization & Communication:** MS Office, Adobe Suite, Tableau
- **Certification:** Google Data Analytics