

Annual Progress Report 2025-2026

Ryoko Araki

Ph.D., the Joint Doctoral Program between
the University of California, Santa Barbara and San Diego State University

This report outlines my research progress and updates during the academic year 2025–2026, made possible through the generous support of the Shida Scholarship.

Research

I am happy to report that I graduated and received my degree from the doctoral program in May 2026. Over seven years of graduate study, two years of Master's and five years of Doctoral work, I was able to fully explore what academic freedom can offer. I took on multiple side projects and collaborations within SDSU and UCSB, and beyond through the National Water Center and the USGS Powell Center. I also completed several internships, including at the Scripps Institution of Oceanography, and at a consulting firm outside academia. Assimilating to U.S. culture and life was daunting at first but became more intriguing as time went on. I feel blessed by the many lifelong friends and welcoming communities I met along the way. I owe a lot to the strong support of the Shida Scholarship. My SDSU stipend alone would not have been able to support the high cost of living in San Diego, nor the many reimbursements and purchasing of professional attire throughout my job search process, without the Shida Scholarship's support.



Photo: In graduation gown with my SDSU advisor.

Job Search

The 2025–2026 academic year was my final year of my Ph.D., and it was, to say the least, chaotic and hectic: applying for postdoctoral fellowships, teaching a class, applying for academic jobs, rushing to finish my third Ph.D. chapter, while getting sick every month (catching either a cold or food poisoning!) due to the high stress. I am happy to be done.

Many of my peers asked me to give an overview of the academic job search, so I'd like to jot down my experience and timeline here for reference, for the case of someone graduating in May/June 2026. [The UCSB Career Services website](#) was quite useful as well.

(a) Postdoc Fellowship

This is a fellowship where you submit a proposal and, if selected, get to work on your own project for, typically, 1–3 years. Many institutions (NSF, NASA, NOAA, etc.) or universities (mainly Ivy League or top schools) host one. Institutional fellowships tend to have longer proposals requirements (~15 pages), so people often write a practice proposal two summers before they graduate with their advisor. University fellowships tend to have shorter proposals (~2 pages), which I mostly focused on. Having strong support from your future mentor is extremely important. When applying for a university-wide fellowship, write your proposal to be understandable to a general audience.

General Timeline

[Spring 2025] Start making a list of proposal opportunities
[Summer 2025] Develop proposal, contact future mentor(PI)s
[September 2025–January 2026] Submission deadlines
[December 2025–February 2026] Interviews (if applicable)
[Spring 2026] Results come out

(b) Tenure-Track Faculty Job

This refers to an “Assistant Professor” or “Associate Professor” position at a university, which is the entry point on the track toward becoming a tenured professor. The process is fairly straightforward and standardized across schools.

General Timeline

[Summer–Fall 2025] Apply, paper screening (100–300 applicants?)
[September 2025–February 2026] Online Zoom interview (~20 applicants)
[January–May 2026] On-site interview (~5 applicants) (research presentation, teaching demo, meetings and interviews)

Application Materials at the Paper Screening Stage

- Research statement
- Teaching statement
- Other statements (DEI, impact, etc.)
- CV
- Reference letters (only contact information is needed at the first paper screening stage)

Common Questions Asked During the Online Interview

- **Research:** vision, past achievements, program you want to build at the school, resources you want to leverage at the school, collaboration experience & opportunities, stakeholder engagement experience & opportunities
- **Teaching:** experience, philosophy, what classes you want to teach
- **Other questions:** read the job description closely and make practice questions out of it

Tips: You want to limit each answer to 2–3 minutes (not 5 minutes). Practice with your advisor and friends. Put both past experience & future plans into one answer to make it convincing. The interview committee members often don't ask follow-up questions (probably to be fair across candidates?), so you want to be comprehensive in your answers.

(c) Project-based postdoc

This section covers postdoc positions funded by a PI's project (typically 1–2 years), which is the most popular and common way of getting an academic job right after a Ph.D.

General Timeline

[September–December 2025] Some people secure a postdoc through internal connections. This is a good option/offers peace of mind if you can secure one early.

[March–August 2026] This might feel like last-minute timing, but PIs are usually looking for people who can start within 1–2 months, or 4 months at most. So if you are graduating in May/June, this would be a good time to start searching. This means you can start looking after the fellowship and tenure-track application season.

Life in San Diego and San Luis Obispo

I am grateful that California Polytechnic State University, San Luis Obispo (in short, “Cal Poly SLO”) offered me a tenure-track assistant professor position, which I will start in Fall 2026. Located on the Central Coast, Cal Poly SLO emphasizes hands-on education with its motto “Learn by Doing.” I’m excited to become a faculty member in watershed management and hydrology, and to advance education and science for secure and sustainable water in California.



Publication (2025-2026)

Araki, R., Morgan, B. E., McMillan, H. K., & Caylor, K. K. (2025). Nonlinear soil moisture loss function reveals vegetation responses to water availability. Geophysical Research Letters, 52(11). <https://doi.org/10.1029/2024gl111403>

– This is the second chapter of my Ph.D. thesis. Typically, hydrologic models used to predict water, energy, and carbon cycles assume a linear relationship between available soil moisture and evapotranspiration (evaporation to the atmosphere + transpiration by vegetation). We showed that introducing nonlinearity into this relationship reveals nuanced vegetation functional responses to water stress, as well as its sensitivity to the drying speed of observed soil moisture.

Morgan, B., Araki, R., Trugman, A., & Caylor, K. (2025). Ecological and hydroclimatic determinants of vegetation water-use strategies. Nature Ecology & Evolution. <https://doi.org/10.1038/s41559-025-02810-8>

– This publication emerged from a collaboration with UCSB Ph.D. student Bryn Morgan, and she applied the nonlinear model described above (Araki et al., 2025) to global in-situ soil moisture data. The analysis showed that plant water-stress responses are governed by the competitive environment for water.

Araki, R., Holt, A., Hammond, J. C., Husic, A., Coxon, G., and McMillan, H. K.: Continental-scale prediction of hydrologic signatures and processes, Hydrol. Earth Syst. Sci., 30, 3647–3673, <https://doi.org/10.5194/hess-30-3647-2026>, 2026.

– This collaborative work with my advisor, a former lab master's student, and several U.S. university and federal researchers, provides a continental-scale overview of hydrologic processes inferred from streamflow patterns. The results support large-scale water management decisions and inform model structure selections in flood predictions.

Nimmo, J. R., Wiekenkamp, I., Araki, R., Groh, J., Singh, N. K., Crompton, O., et al. (2025). Identifying preferential flow from soil moisture time series: Review of methodologies. *Vadose Zone Journal: VZJ*, 24(2). <https://doi.org/10.1002/vzj2.70017>

Li, B., Sprenger, M., Wyatt, B. M., Giménez, D., Hirmas, D. R., Ajami, H., Wiekenkamp, I., Groh, J., Nimmo, J. R., Amato, M. T., Singh, N. K., Crompton, O., Araki, R., Xu, T., & Sullivan, P. L. (2025). Ubiquity and Causes of Soil Water Preferential Flow Across 17 Ecoregions. *Geophysical Research Letters*, 52(19), e2025GL118045. <https://doi.org/10.1029/2025GL118045>

– These two papers resulted from a collaboration through the USGS John Wesley Powell Center for Analysis and Synthesis with researchers from international universities and federal research institutes. We first reviewed existing methods for detecting preferential flow, bulk water movement through soil, from soil moisture time series. We then applied these methods to the U.S. national-scale NEON network to characterize the frequency and drivers of preferential flow, revealing generalizable patterns at continental-scale that had not previously known.

Other academic contributions

AGU Horton Research Grant

- This is a prestigious research grant for Ph.D. students from my professional society, the American Geophysical Union. The award is named after Robert E. Horton, a father of modern hydrology. The grant supported additional fieldwork for the final chapter of my thesis.

AGU conference convener

- I co-convended a conference session at AGU: Nanda, A., Singh, N., McGuire, K.J., Stewart, B., Araki, R. Runoff Generation Processes: Exploring Thresholds, Sources, and Pathways from Plot to Continental Scales (H128), New Orleans, LA, United States. December 2025.

Closing & Acknowledgment

I would like to express my deepest gratitude to the Shida Family, the Shida Scholarship, and Kyodai Collaborative for their generous financial support of my doctoral studies. This funding has been instrumental in allowing me to focus fully on my academic work and job search during this final year of my Ph.D. With this support, I was able to write up my Ph.D. dissertation, receive my diploma, and secure a tenure-track position at a prestigious university in the U.S.. I would like to thank Ms. Rika Okayama and Ms. Nanako Tojo at Kyodai Collaborative for their administrative support. I would also like to extend my sincere appreciation to the Kyodai alumni and the Kyodai Collaborative board members and staff, who have always supported my career development and have been willing to chat and provide mentorship whenever I felt lost. I am especially grateful to my Kyodai mentor, Taka Sayama at Disaster Prevention Research Institute,

who mentored my undergraduate thesis, was willing to send me off to pursue my Ph.D. abroad, and who kept in touch and checked in with me throughout this journey.

Navigating such a harsh job market this year made me realize just how precious it is to have people who support you, friends, mentors, and family who believe in you even when the path ahead is uncertain. As I close this chapter of my Ph.D., I am deeply grateful for the community Kyodai Collaborative has built around me. I look forward to staying connected—continuing to seek mentorship as I navigate this new stage of my career, and offering mentorship in return to any Kyodai students or alumni who find their way to Central Coast California, or beyond.