

REBECCA D. PRESCOTT, Ph.D.

Research Profile

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Rebecca D. Prescott is a microbial ecologist, NASA- and NSF-Biology postdoctoral fellowship recipient, and University of Hawai'i at Mānoa Ph.D graduate. Her work connects Hawai'i's volcanic natural history with microbial biodiversity, sustainability research, and astrobiology. She also emphasises place and culture in research and education. She is currently an Assistant Professor at the University of Mississippi where she is the Principal Investigator of the MISA Lab (misalab.org), and a Research Affiliate in the UH Mānoa School of Life Sciences.

WHY DR. PRESCOTT'S WORK MATTERS TO HAWAI'I

- Hawai'i is not simply a field site in her research. Its culture, volcanic landscapes, agricultural systems, communities, schools, and scientific institutions have shaped her career and remain central to her active research program.
- Her research focuses on bacterial 'talking' - microbial chemical signaling in volcanic ecosystems
- She uses microbial genomics, multi-omics, and ecological experiments to understand life in volcanic island ecosystems on Earth, and other volcanic planetary bodies (Mars, Moon, asteroids) in our solar system.
- Her research has relevance to Hawaiian biodiversity, volcanic-island agriculture and ecosystems, and sustainability science
- She is actively involved in STEM education in Hawai'i, in both K-12 and university, and focuses on the growing interface between sustainability and space exploration.

WHAT DR. PRESCOTT COULD BRING TO HAWAI'I

- An established, externally funded and internationally connected research program
- Active NASA FINESST award through 2029, national-laboratory collaborations, and experience leading multidisciplinary projects.
- Long-standing relationships with UH Mānoa scientists, Hawai'i schools, Native Hawaiian community organizations, farmers, and Hawai'i Volcanoes National Park.
- Ability to connect natural history collections with genomics, ecological theory, public education, and sustainability.
- Sixteen years of teaching and mentoring experience in a broad range of courses
- Agricultural microbiome work linking traditional fermented biofertilizers, volcanic soils, plant health, and community partners.
- Fundamental and applied research on microbial interactions with soils, meteorites, basalts, and lunar and Martian simulated regolith for sustainable agriculture on Earth and beyond.

EVIDENCE OF IMPACT

- Successful grant and fellowship awards from NSF, NASA, DOE, and private donors
- Working with and in culturally relevant sites and materials, with direct involvement of Native Hawaiian community in the scientific process
- History of successful undergraduate and graduate student training for more than a decade
- Published research in the fields of marine biology, microbial ecology, astrobiology, and place-based science education
- Research at forefront of microbial ecology with a focus on complex microbial communities from Hawaiian lava caves and fumaroles, including Volcanoes National Park, and the integration of large -omics datasets to better understand emergent properties of complex systems
- Design of place-based astrobiology and genomics training programs that have produced newly named bacterial species by the community and trained Hawai'i students and teachers.
- Peer-reviewed leadership across microbial ecology, astrobiology microbial systematics.