

# UTSA Geological Sciences

And

## Institute of Water Research, Sustainability and Policy (IWRSP)

*Seminar Presentation  
By*

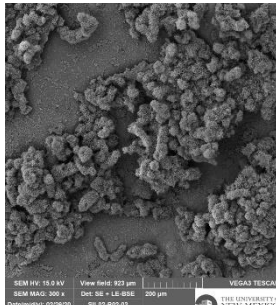
*Diana Northup, Ph.D.  
Biology Department  
University of New Mexico, Albuquerque, New Mexico*

*On  
Friday, April 9, 2021  
4:00 P.M.*

*“The Hidden Microbial Life Within Secondary Minerals in Earth’s Lava Caves:  
Enhancing Life Detection on Extraterrestrial Bodies”*

**Diana Northup  
Biology Department,  
University of New Mexico, Albuquerque, New Mexico**

### Abstract



comparison to microbial mats. Our research will shed light on the best targets for robotic missions to extraterrestrial bodies.

Earth’s caves provide valuable analogues for exploring best targets for life detection on extraterrestrial bodies. Microorganisms in Earth’s lava caves create a variety of visible features that range from secondary mineral deposits to microbial mats that line cave surfaces. We are investigating whether secondary mineral shape, texture, and vertical heterogeneity would be predictive of the extent of potential microbial content and microbial diversity. Our goal is to assess the microbial content of lava cave secondary mineral deposits in



**Dr. Diana Northup** has been studying things that live in caves since 1984. She has a Ph.D. in Biology from the University of New Mexico, USA. She and her colleagues on the SLIME (Subsurface Life In Mineral Environments) Team are investigating lava caves in the Azores, Iceland, and Hawai'i, New Mexico, and California (USA); how microbes help form the colorful ferromanganese deposits that coat the walls of Lechuguilla and Spider Caves in Carlsbad Caverns National Park, USA; how microbes participate in the precipitation of calcium carbonate formations called pool fingers; and the microbial diversity located in the hydrogen sulfide cave, Cueva de las Sardinias in Tabasco, Mexico. Across these study environments, she also investigates "microbes that masquerade as minerals," to help better detect life on extraterrestrial bodies. Her research also has expanded to characterizing the external microbiota of bats in New Mexico and Arizona to investigate native microbial defenses bats possess. She has mentored numerous and diverse high school, undergraduate, and graduate students and delivered a TEDxABQ talk about her mentoring philosophy. Diana has been honored by having her work featured on NOVA, BBC, CNN, Discovery Channel, National Geographic, and by being named a Fellow of the AAAS. In 2013, she was awarded the Science Award by the National Speleological Society for her achievements in Biospeleology and in 2015

she gave an NSS Luminary talk at the annual convention. Currently, she is Professor Emerita in the College of University Libraries & Learning Sciences and a Visiting Associate Professor in the Department of Biology at the University of New Mexico, USA.

