

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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Author: Dr. Kristen Miller
American Public University System, United States

THE AMERICAN PUBLIC UNIVERSITY SYSTEM'S ANALOG RESEARCH GROUP: SUPPORTING
STUDENT EDUCATION THROUGH SPACE ANALOG EXPERIENCES.

Abstract

To learn how humans can safely and effectively live on the surface of the Moon or Mars, missions are conducted on Earth which simulate operations on the surface of other planetary bodies. These missions, called space analog missions, require substantial mission planning and organizational management to ensure safe and effective research and operations. The American Public University System (APUS)'s Analog Research Group (AARG) has developed and tested management structures and philosophies that enable scalable, replicable, and safe analog missions with full research support for students. AARG is a student-run and faculty-advised organization operating within the fully asynchronous, online learning environment of its parent organization, APUS. AARG creates opportunities for online graduate and undergraduate students to conduct hands-on research and gain leadership and management experience using space analog research facilities, directly enhancing the students' classroom experience in space sciences. AARG faculty advisors and student program staff members build relationships with the managing organizations of space analog research facilities. Students serving as mission planning staff then work to safely prepare for and execute missions inside habitats that simulate living conditions on the Moon and/or Mars. The student mission crew members, called "analog explorers," are required to conduct their own research projects while in the habitat as well as support the research projects of other APUS students/outside collaborators. AARG's unique virtual model has been developed and tested over the past four years and has a proven track record of success. The program has executed eight analog missions at three different analog facilities, performed research studies in over thirty areas of interest relating to space exploration, and published dozens of both peer-reviewed and professional papers. This fully online research endeavor's management and internal organization offer a model that academic institutions and private industry can implement to successfully conduct impactful space exploration research in an educational setting.