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Author: Dr. Michaela Musilova  
International MoonBase Alliance, United States, musilova@moonbasealliance.com

Prof. Bernard Foing  
ESA/ESTEC, ILEWG & VU Amsterdam, The Netherlands, Bernard.Foing@esa.int  
Mr. Henk Rogers  
International MoonBase Alliance, United States, henk@tetris.com

INTERNATIONAL MOONBASE ALLIANCE CAMPAIGNS AT HI-SEAS

**Abstract**

The Hawaii - Space Exploration Analog and Simulation (HI-SEAS) habitat is located at 2,500 meters in elevation on the active volcano Mauna Loa, on the Big Island of Hawai'i. As of 2018, the International MoonBase Alliance (IMA), has been organizing regular simulated missions to the Moon and Mars at the lunar and Martian analog research station HI-SEAS. The missions that take place at HI-SEAS can be of varied duration, from several days to several months, depending on the needs of the researchers. They are open to space agencies, organizations and companies worldwide to take part in, provided their research and technology testing will help contribute to the exploration of the Moon and Mars. The crews are supported by a Mission Control Center based on the Big Island of Hawaii as well. A series of EuroMoonMars IMA HI-SEAS (EMMIHS) missions have been taking place at HI-SEAS since 2019. These missions bring together researchers from the European Space Agency (ESA), IMA, the International Lunar Exploration Working Group (ILEWG), European Space Research and Technology Centre (ESTEC), VU Amsterdam and many other international organizations. Crews on these missions perform geological, astrobiological and architectural research; technological tests using drones, 3Dprinters and rovers; as well as performing outreach and educational projects. The EMMIHS missions typically last for two weeks each. During this time, the crew is isolated within the HI-SEAS habitat, which they cannot leave without performing EVAs (Extra-Vehicular Activities) in analog space-suits and with the permission of Mission Control. The EMMIHS campaigns aim to increase the awareness about the research and technology testing that can be performed in analogue environments, in order to help humans become multiplanetary species. Furthermore, the research and technological experiments conducted at HI-SEAS are going to be used to help build a Moon base in Hawaii, and ultimately to create an actual Moon base on the Moon, as part of IMA's major goals. Future missions at HI-SEAS include more EMMIHS campaigns, collaborative missions with ESA, NASA, University of Hawaii, University of South Florida and with companies, such as SIFT and Ketone Technologies.