

IAF SPACE EXPLORATION SYMPOSIUM (A3)  
Moon Exploration – Part 2 (2B)

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## EUROMOONMARS PROGRAMME AND RESULTS 2019-2021

### Abstract

EuroMoonMars is an ILEWG programme following up ICEUM declarations as a collaboration between ILEWG, space agencies, academia, universities and research institutions and industries. The ILEWG EuroMoonMars programme includes research activities for data analysis, instruments tests and development, field tests in MoonMars analogue, pilot projects, training and hands-on workshops, and outreach activities. EuroMoonMars includes a programme of grants for Young Professional Researchers. EuroMoonMars field campaigns have been organised in specific locations of technical, scientific and exploration interest. Field tests have been conducted in ESTEC, EAC, at Utah MDRS station, Eifel, Rio Tinto, Iceland, La Reunion, LunAres base at Pila Poland, HiSEas base in Hawaii., AATC Poland. These were organised by ILEWG in partnership with ESTEC, VU Amsterdam, NASA Ames, GWU in Utah MDRS (EuroGeoMars 2009, and then yearly for EuroMoonMars 2010-2013). Other EuroMoonMars analogue field campaigns using selected instruments from ExoGeoLab suite were conducted in other MoonMars

ex-treme analogues such as Eifel volcano, Rio Tinto, Iceland, La Reunion, Hawaii. EMMIHS campaigns (EuroMoonMars-IMA International Moonbase Alliance- HiSEAS): EuroMoonMars 2018-20 supported field campaigns at IMA HISEs base on Mauna Loa volcano in Hawaii. The International Moon-base Alliance (IMA), an organization dedicated to building sustainable settlements on the Moon, has been organising regular simulated missions to the Moon, Mars at HI-SEAS. In 2019, the EuroMoonMars campaigns were launched at HI-SEAS, bringing together researchers from the European Space Agency, VU Amsterdam, ILEWG and IMA. Six scientists, engineers, explorers, journalists spent two weeks at the HI-SEAS station performing research relevant to both the Moon and Mars there. Research and technological experiments conducted at HI-SEAS will be used to help build a Moonbase in Hawai'i, and ultimately to create an actual Moonbase on the Moon, as part of IMA ILEWG major goals. EuroMoonMars during 2020 Pandemics We had to re-plan and adapt EuroMoonMars workshops and fields events. A number of hybrid and virtual events could be organised following safety distancing instructions. We conducted 35 weekly plenary EMM teleconferences (Fridays 17h CET) and many EMM splinter groups meetings. 2020/06 EMM Iceland CHILL-ICE Scouting. A small team explored locations and collaborations for installing a deployable research habitat in lavatube for May 2021. 2020/10 EMMPOL EuroMoonMars Poland. We were able to organise in controlled safety conditions 2 one-week Moonbase isolation simulations, to conduct a number of research investigations, human factors studies, with 5 crew supported by a remote support team. We have also expanded the goals of EuroMoonMars, with a group at Amsterdam performing data analysis and AI, applied to Earth, MoonMars and space data. We also built an overall programme for an EarthMoonMars Astronautics Training Academy (EMMATA).

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