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## Life & Research at Moonbase: ILEWG EuroMoonMars campaigns results 2018-2020

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We give an update on ILEWG EuroMoonMars Results, with emphasis on activities and field campaigns that took place in 2019-2020 including lunar astronautics events during 2020 pandemics. We present life and research at Moonbase from EuroMoonMars campaigns EMMIHS HISEAs, EMMPOL Poland that simulated science and operations at future Moonbases. EuroMoonMars is an ILEWG programme following up ICEUM declarations as a collaboration between ILEWG, space agencies, academia, universities and research institutions and industries .

**EMMIHS campaigns (EuroMoonMars-IMA International Moonbase Alliance-HiSEAS):** EuroMoonMars 2018-20 supported field campaigns at IMA HI-SEAS base on Mauna Loa volcano in Hawaii. The International Moonbase Alliance (IMA), an organization dedicated to building sustainable settlements on the Moon, has been organising regular simulated missions to the Moon or 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 .

**EuroMoonMars during 2020 Pandemics** We had to replan and adapt EuroMoonMars workshops and fields events. A number of hybrid and virtual events could be organized 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, in order to conduct a number of research investigations, human factors studies, with 5 crew supported by a remote support team.

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