

Lunar Exploration (2)  
Lunar Exploration (1) (1)

Author: Prof. Bernard Foing  
ILEWG "EuroMoonMars", The Netherlands, foing@strw.leidenuniv.nl

GLEX 2021 REPORT FROM INTERNATIONAL LUNAR EXPLORATION WORKING GROUP:  
ILEWG TASK GROUPS, ROADMAP, HIGHLIGHTS AND RESULTS DURING 2020 PANDEMICS

**Abstract**

ILEWG has been organising ICEUM International Conferences on Exploration Utilisation of the Moon (ICEUM) where community declarations have been prepared and endorsed by community participants and co-organised lunar sessions at EGU, COSPAR, EPSC. ILEWG task groups include science, technology, human aspects, socio-economics, young explorers and outreach, programmatics, roadmaps and synergies with Mars exploration, MoonBase, MoonVillage, EuroMoonMars, Art-MoonMars, Young Lunar Explorers, ILEWG Young Professional Grantees. ILEWG has been organising International Conferences on Exploration and Utilisation of the Moon (ICEUM) since 1994, whose proceedings are published. It has also sponsored activities, workshops, tasks groups and publications in collaborations with COSPAR, space agencies, IAA, IAF, EGU, EPSC. Besides the discussion forums, ILEWG maintains a database about lunar exploration, forthcoming meetings, relevant reports and documents, summary descriptions of lunar exploration projects (such as SMART-1, Chang'E1-5, Selene Kaguya, Chandrayaan-1-2, LRO, LCROSS, GRAIL, CLPS and robotic village, ARTEMIS) funded by various space agencies, and basic data on the Moon itself. ILEWG proposed the open concept of MoonVillage with the goal of a sustainable human and robotic presence on the lunar surface as an ensemble where multiple users can carry out multiple activities. The ILEWG Forum also created the Lunar Explorer's Society with young professionals. ILEWG co-founded and has conducted since 2009 the EuroMoonMars programme for data analysis, instrumentation, field campaigns, analogue astronaut simulations, moonbase architecture, outreach and education, and cultural activities. EMMIHS campaigns (EuroMoonMars-IMA International Moonbase Alliance-HiSEAS): EuroMoonMars 2018-20 supported 5 field campaigns at IMA HI-SEAS base on Mauna Loa volcano in Hawaii. 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. EuroMoonMars during 2020 Pandemics: we had to re-plan and adapt EuroMoonMars workshops and field events. A number of hybrid and virtual events could be organized following safety distancing instructions. We conducted 35 weekly plenary EMM teleconferences and many EMM splinter groups meetings.

References: [1] <https://en.wikipedia.org/wiki/ILEWG> [2] ILEWG <https://moonbasealliance.com/ilewg> [3] ILEWG ICEUM declarations (International Conference on Exploration Utilisation of the Moon) : <https://ui.adsabs.harvard.edu/search/q=ilewg>

\*Co-authors: B.Foing<sup>1-10</sup>, H.Rogers<sup>2</sup>, M.Musilova<sup>2</sup>, A.Weert<sup>2-4</sup>, S. Mulder<sup>2-4</sup>, S.Kerber<sup>2,3</sup>, A.Castro<sup>2,3</sup>, C.Pouwels<sup>2,3</sup>, P.Das Rajkakati<sup>2,3</sup>, M.Heemskerk<sup>2,3</sup>, R.Heemskerk<sup>2,3</sup>, N.Sirikan<sup>2,3,6</sup>, H.Boross<sup>2,3,6</sup>, A.Kolodziejczyk<sup>3,7</sup>, I.R.Perrier<sup>3,7,9</sup>, R.Landolina<sup>3,7,11</sup>, A.Spilkin<sup>3,7</sup> EMMPOL teams<sup>1,3,7</sup>, J.Preusterink<sup>2,3</sup>, N.Vermeulen<sup>3,10</sup>, J.Villa-Massone<sup>3,10</sup>, I.Schlacht<sup>2,3</sup>, E.Glukhova<sup>8</sup>, A.Sitnikova<sup>8</sup>, M.Kuiper<sup>8</sup>, M. Waltemathe<sup>3,12</sup>, E.Hemminger<sup>3,12</sup>. 1ILEWG, 2EMMIHS EuroMoonMars-Intl MoonBase Alliance, HISEAs, 3ILEWG EuroMoonMars, 4VU Amsterdam, 5Leiden Observatory, 6ESA ESTEC, 7EMMPOL, 8Moon Gallery Foundation, 9IPSA, 10EMMATA, 11Politecnico Torino, 12Bochum U.