

29th IAA SYMPOSIUM ON SPACE AND SOCIETY (E5)
Interactive Presentations - 29th IAA SYMPOSIUM ON SPACE AND SOCIETY (IP)

Author: Ms. Germaine van der Sanden
ESA - European Space Agency, The Netherlands, germaine.sanden@gmail.com

Prof. Bernard Foing
ESA/ESTEC, ILEWG & VU Amsterdam, The Netherlands, Bernard.Foing@esa.int

Mr. Alexander Zaklynsky
ESA - European Space Agency, The Netherlands, azaklynsky@gmail.com

Mrs. Anna Sitnikova
ESA - European Space Agency, The Netherlands, annasitnikova@gmail.com

Ms. Anastasia Izotova
ESA - European Space Agency, The Netherlands, madamtapka@gmail.com

ANALOGUE HABITATION EXPERIMENT AND EUROMOONMARS2018 CAMPAIGN

Abstract

ESA's Director General Johann-Dietrich Wörner promoted the concept of the MoonVillage. A sustainable habitable base on the Lunar surface is the next step for moving humankind out of the Earth cradle. The core idea of a lunar habitat deals with people working and living together at the same place. Simultaneously, it is a metaphor for international collaboration, a global community, which brings multiple actors together in our endeavours for future space exploration.

Space Architecture is a critical component in the development of the lunar habitat. It draws from a variety of fields such as aerospace, engineering, architecture and design, human factor design, space sciences, medicine, psychology and the arts. It deals with the design process from the -big picture- down to very detailed components that constitute this bigger picture. Analogue habitats on Earth are an important extension of the field of Space Architecture, despite taking microgravity or partial gravity (e.g. for Moon and Mars) out of the equation. These missions are designed in extreme environments on Earth, in order to simulate the physical similarities of a space environment.

ILEWG EuroMoonMars 2018 programme is running with a first phase mostly at ESTEC, Noordwijk from January to June, and is concerned with the development of analogue base modules at ESTEC. It functions simultaneously as a preparation component for a series of integrated analogue campaigns held in Lunares, Poland and planned in period June-September. We will present a design research on analogue habitats with functional as well as architectural elements. The base functions as a habitable platform to conduct scientific research, e.g. photo-astronomy, experimentation, geology, ISRU, and EVAs. The design consists of an exo-habitat, exo-laboratory, airlock and deployable structure.