

Exobiology, space medicine and astrochemistry in the first in Poland analog research station Lunares

Habitat Lunares is a simulated space base and chronobiological laboratory to perform advanced studies on humans and other living organisms in controlled conditions. Lunares became the first in Poland laboratory of extreme medicine, life support systems, and bioreactors. People living in this base are constantly monitored by tele-medical devices. Additionally, the base is monitored regarding O₂ levels, temperature, humidity, radiation and light intensity. The habitat is equipped with automated lighting systems controlled by Mission Control Centre: hydroponic system, LED RGB lighting system and physiological system, where specific ranges of solar spectrum can be administrated selectively. It's the only facility of its kind in Europe, where conditions of the future base both on the Moon and Mars can be simulated. The habitat is located at the former military airport in Piła, north of Poland. Four analog missions were performed in 2017. During two weeks of isolation, analog astronauts were completely cut off from UTC time and sunlight. Several multidisciplinary experiments were performed during their missions. This presentation shows preliminary results and future plans and perspectives for scientific collaboration with Universities and Research institutions considering life sciences.