

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Life Support and EVA Systems (6)

Author: Dr. Elke Rabbow

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, Elke.Rabbow@dlr.de

Prof. Bernhard Koch

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Institute of Aerospace Medicine, Germany,
bernhard.koch@dlr.de

Prof. Rupert Gerzer

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, rupert.gerzer@dlr.de

ENVIHAB – A NEW, ANALOGUE RESEARCH FACILITY AT THE GERMAN AEROSPACE
CENTER DLR**Abstract**

:envihab is a new modularly designed analogue research facility for medical studies. It is currently under construction as part of the Institute of Aerospace Medicine and in close proximity to the EAC, ESA, on the DLR campus in Cologne. While on one side the architecture supports the study of the effects of different environmental conditions on humans and possible countermeasures, it provides on the other side a public information, exhibition and conference area with a special focus on public outreach in general and on inspiring the next generation of scientists in particular. At the same time :envihab is a highly sophisticated research platform for international and interdisciplinary cooperations of scientists of a wide field of research disciplines. The facility measures some 3500 square meter in size. Up to 12 test subjects can be housed simultaneously under defined conditions for a broad variety of studies. :envihab is designed according to the house-in-house-principle. Eight separate modules in the one-story building are specialized on human centrifuge and flight simulation, physio-lab studies with e.g. oxygen reduction and pressure decrease in a hypobaric area, accommodation and monitoring of test subjects, MRT analysis, psycho-lab stress simulation and rehabilitation, microbiological and molecular biological research and the complex facility control and supervision itself. The environment of the main medical research modules can be defined, e.g., with regard to temperature, humidity, natural and artificial light and sound. The modules can be individually combined according to the requirements of a specific study protocol and if needed, they can be hermetically sealed from the surrounding :envihab environment and the natural environment. A huge flat roof accommodates the technical equipment for building services and home automation needed for the operation of the building. :envihab offers a wide range of new and trend-setting research opportunities on future challenges of human spaceflight as well as for terrestrial applications. It will be in operation in 2013.