

**Dr. Christiane Heinicke**

Date: Wednesday, April 26<sup>th</sup> 2017 at 15:00

Location: ZARM, Room 1730

## **LIFE AND SCIENCE UNDER MARS-LIKE CONDITIONS**



The idea to send humans to Mars or the Moon has recently gained new momentum. While ESA hopes to reach the Moon in 15 years, NASA currently aims for Mars in about 20 years. Important technologies still have to be developed and improved before humans can face the risks and difficulties of interplanetary travel. However, astronaut scientists will have to overcome additional challenges, such as the psychological effects of isolated, confined, and extreme (ICE) environments and the resource limitations once they have reached their destination.

The University of Hawaii in collaboration with NASA has conducted a series of long duration missions on the barren slopes of the Mauna Loa volcano in Hawaii. Most recently, six scientists and engineers have lived in the HI-SEAS (Hawaii Space Exploration Analog and Simulation) habitat for twelve months under Mars-like conditions: The crew was confined to the 110 sqm habitat the entire time except for specifically scheduled extravehicular activities (EVAs) during which the crew was to wear mock space suits; communications were delayed by 20 minutes in each direction.

With these constraints, the HI-SEAS 4 crew worked on a number of projects in the fields of geology, biology, and human factors. Dr. Heinicke, chief scientist of the crew, will provide insights into selected research projects as well as the research process "on Mars" itself. Moreover, she will discuss some of the expected and unexpected challenges of life in the habitat to the astronaut scientist, and suggest improvements to the current state of art in habitat design.