Access to Analogs for Future Research

Ronita L. Cromwell, PhD
HHC Deputy Element Scientist
Universities Space Research Association
Overview

- Analog access: new perspective
- Bed rest analog facilities
  - UTMB
  - :envihab
- Isolation and confinement analog sites
  - HERA
  - Russian Chambers
Analog Access: New Perspective

- Currently, individual studies requiring analog environments are selected and the appropriate analog for each individual study is determined.
  - If multiple studies can use the same analog, a complement of studies can be formed
- Solicit for campaigns
  - NRA solicitation for 30-day HERA campaign in 2016
  - Efficient use of analog site
  - Ensures access to analog site
Bed Rest Analog Facilities

  - UTMB plans to offer a “fee for service” structure so that studies can be completed at the ITS-CRC on an as needed basis
- HRP to utilize international sites for bed rest studies
  - envihab in Cologne, Germany
    - NASA bed rest campaigns
    - Collaborations with International Partners through joint solicitations (ILSRA)
:envihab

- :envihab - Located at DLR in Cologne, Germany
- Features
  - Bed rest facility
    - Air composition
  - Medical imaging (PET- MRT, bone CT, MRI)
  - Human centrifuge
  - Physiology laboratory
    - Air pressure
  - Nutritional support
  - Psychology laboratory
    - Virtual reality
envihab Module
M1: Humanzentrifuge
M2: Physiologielabor
M3: Schlauftrakt
M4: MRT, PET, CT
M5: Psychologielabor
M6: Biologie, med. Infrastruktur
M7: Infrastruktur/ Logistik
M8: Auditorium
Isolation and Confinement
Analog Sites

- HERA
  - 14-day missions in 2015
  - 30-day missions in 2016
    - NRA solicitation for complement studies
  - Plans for international collaboration
Isolation and Confinement Analog Sites

- Russian Chambers - Ground-based Experimental Facility (NEK)
  - Longer studies, up to 1 year (2017-2019)
    - NASA campaigns
    - Collaborations with International Partners through joint solicitations (ILSRA)
The general view of the medical-technical experimental facility

**EU-250**
- Gym
- Greenhouse
- Storage for resources
- Refrigerator
- Thermal Chamber
- Lavatory

**EU-100**
- Habitable Compartment
- Kitchen & Dining Room
- Working places with medical equipment
- Lavatory

**EU-150**
- 6 individual compartments
- Community Room
- Main Console
- Kitchen
- Lavatory

**EU-50**
- Simulator of the landing Martian ship
Questions?