ILEWG group on International Lunar Bases

- Coordination information
- Workshops and symposia
- International Lunar Architecture
- EXOHAB Pilot project
- Concepts and Field Studies
- Publications
ExoHab Mobile Lab Simulation
EVAs, human-rover cooperation
Eurobot results Nov09

Visit of lunar architecture WG

- Test under difficult light conditions (shadows and reflections)
- Collision avoidance model in bad light (L) and good light (R)

Control with master-slave arm

- Joystick with force feedback

CONTROL METHODS

TECHNOLOGY

- Shadow hand mounted on Eurobot arm
- Automatic mode

APPLICATIONS

- Deployment of solar array
- Cleaning dust off window
- Removal of thermal insulation
- Off-loading of lander
Call for Ideas: Lunar cargo Lander (194 proposals, April 2009)

**Autonomous Lunar Exploration**
- Research of the Moon: Supported by mobility, deep & very deep drilling (= 10 - 100 m), sample return
- Radio-astronomy from the Moon: Low frequency radio telescope deployment on lunar far side
- Technology demonstration: E.g. ISRU, Life Support Systems

**Lunar Outpost Support**
- Delivery of logistics and small infrastructure elements
  - Robotic rover for in-situ analysis
  - Power supply/distribution
  - Deep drill system
  - Logistics/maintenance elements
  - Waste management
  - Crane or payload
  - Communication assets
  - Navigation aids
  - Crew aids
  - Airlocks

**Lunar Sortie Mission Support**
- Pre-deployment of logistics/cargo to landing site of human-rated lander or along the path of a pressurised rover

**Capability Demonstration**
- Soft/precision landing (500m)
- Survival of lunar night
- Payload deployment
- Hazard Avoidance
- Global Access

*Lunar Lander Mission Scenario*
Conceptual International Lunar Outpost (NASA-ESA study)
ILEWG Analogue Field tests 2009-2010

- **EuroGeoMoonMars**, Feb 2009 Utah, 6 crew x (1+2+2 weeks), ILEWG/ESTEC/Ames + Univ. (Amsterdam, Berlin, ENSAM, Bristol, GWU)
- **ILEWG Eifel**, Sept 2009, 1wk, ESTEC/OWF/NL-NPP/EdA/AOES
- **DOMMEX EuroMoonMars** Nov 2009-April 2010, Utah (6 crew x 5x 2 wks: EU/US, B, XX), NASA Ames, ILEWG, ESTEC, JPL, JSC, Ecole de l’Air + Universities (Louvain, Sydney, Amsterdam, Berlin, Florida Tech, Copenhagen, GWU)

- Instruments preparation at ESTEC & Ames
- ILEWG/ESTEC technology workshop
- Sept 2009, Rio Tinto, 5d, CAREX EU (field instruments workshop)
- Campaigns remote support (total 18 field weeks)
- Post-sample analysis (>12 institutes)