



OSEWGW 2009

Workshop on Robots Supporting
Human Science and Exploration

August 5th-6th, 2009

OSEWG Workshop

Co-sponsors:

- OSEWG – Optimizing Science and Exploration Working Group
- LEAG – Lunar Exploration Analysis Group
- SARTC – Space Automation and Robotics Technical Committee (AIAA)
- LPI – Lunar and Planetary Institute

Stakeholders:

- OSEWG – Science requirements definition (ESMD/SMD)
- SMD Programs – MMAMA, LASER, FSAT, ASTEP, ASTID
- ESMD Programs – DIO Analogs Program, ETDP
- Constellation Program
- Space Science and Space Robotics communities

OSEWG Workshop

Questions:

- Robotics capabilities to support crew for surface science
- Benefits to science and exploration

Scope:

- Near term Lunar, surface science objectives
- Mars-forward thinking
- Mechanisms, mobility, manipulators
- (Orbital and in-space will be in a later workshop)

OSEWG Workshop

Outcomes:

- Help OSEWG draft requirements with rationale and support
- Help SMD/ESMD **analog programs** with NRAs and selections
- Identify concepts/topics to study and **test in the field**
- Find overlaps of **science needs** and **robotics capabilities**
- More specific than *"needs further study"*
 - There were several of these from 2007 Sampling workshop
 - What kind of study? What answer is needed?
 - Analog programs can then conduct those studies

Plenaries

WEDNESDAY, AUGUST 5, 2009

Context

- 8:00a OSEWG Overview
Jennifer Heldmann, NASA HQ
- 8:15a Purpose of the workshop
Matthew Deans, NASA HQ
- 8:30a LEAG Overview, Lunar Exploration Roadmap, and Science Priorities
Chip Shearer, University of New Mexico
- 8:50a Outstanding Questions of Lunar Science
Jeff Plescia, Johns Hopkins University
- 9:10a Experience from Apollo and Challenges to Geology
Gary Lofgren, NASA Johnson Space Center
- 9:30a Human-Robotic Partnerships in Apollo and Lessons for the Future
Jim Head, Brown University
- 9:50a Break (10 min)

Plenaries

Looking Forward

- 10:00a OSEWG Support Task Science Scenarios
Jacob Bleacher, NASA Goddard Space Flight Center
- 10:20a Integrating Robotics with Field Geology
Dean Eppler, SAIC
- 10:40a Field Geology from an Engineer's Perspective
Ruthan Lewis, NASA Goddard Space Flight Center
- 11:00a Lunar Architecture: Scenario Options
Chris Culbert, NASA Johnson Space Center
- 11:20a Crew Time Analysis
Chel Stromgren, SAIC

Plenaries

Planetary Robotics

11:40a ETDP-12 Human-Robotic Systems
Rob Ambrose, NASA Johnson Space Center

12:00p Lunch catered on-site (\$12 per person)

1:00p Robotics Mission Experience from Mars
Brian Wilcox, Jet Propulsion Laboratory

1:20p SARTC Overview of Space Robotics
David Akin, University of Maryland

1:40p Exploration Robotics
David Wettergreen, Carnegie Mellon University

2:00p Overview of the breakout sessions
Matthew Deans, NASA HQ

2:30p to 6:00p Breakouts