Optimizing Science & Exploration Working Group (OSEWG)

OSEWG leadership reports to ESMD and SMD Deputy AAs.

**SMD Co-Chair:** Jennifer Heldmann  
**ESMD Co-Chair:** Ruthan Lewis

**Charter Statement:**

OSEWG is the managing entity for collaboration and communication between and among the ESMD, SMD, Space Operations Mission Directorate (SOMD), the NASA science community, and associated partners, to achieve NASA's science and exploration goals.
Optimizing Science & Exploration Working Group


Development of Planning & Coordination Plans for OSEWG:

✔ • New OSEWG Charter
✔ • New OSEWG Implementation Plan
✔ • Integrated OSEWG Schedule

• OSEWG Support Task Plan (April 2009)
Optimizing Science & Exploration Working Group

Major Change: INCREASED COMMUNITY INVOLVEMENT

LEAG Task (accepted by LEAG):
- Added to OSEWG Implementation Plan
- Analyze and develop surface science scenarios for lunar exploration with traceability to NAC, LEAG science objectives; work with Support Task
- F2F meeting with Support Task @ GSFC May 27-29, 2009.

The default OSEWG approach is to engage the community through LEAG, by tasking LEAG to implement specific actions and provide findings and analysis to OSEWG. At every opportunity, OSEWG will identify the earliest date OSEWG can engage the community, and engage them as quickly as possible.

Support Task (increased specificity):
- Multi-Center (GSFC, MSFC, LaRC, JPL, ARC, JSC), funded @ 6 FTE (SMD & ESMD)
- Conduct inherently governmental activities (e.g. requirements development and analysis, metrics analysis, etc).
- Face-to-face meeting held for Support Task members in March 2009.
Optimizing Science & Exploration Working Group

Goals & Objectives
- Define Investigations & Measurements
  - Product: Minimum Achievement Thresholds
- Define Metrics
- Develop & Assess Representative Plans & Scenarios
  - Products:
    - Design Reference Payloads
    - DR Single Mission Scenarios
    - DR Multi Mission Scenarios
    - Operations Concepts
    - Trade Study Results
- Evaluate
  - Product: Progress Reports

Science Community Input
NAC, LEAG, MEPAG, NLSI

Candidate Requirements

OSEWG, Cx LSS

NAC
NRC
LEAG
OSEWG Schedule

- **February**: OSEWG Co-Chairs, in coordination with the LEAG Chair and LEAG Executive Secretariat will craft the Surface Science Scenario and Metrics Analysis task for LEAG. LEAG will be tasked to study design reference missions with traceability to lunar Themes, Objectives, and Priorities. The LEAG team will ultimately provide findings and analysis on specific metrics for evaluating mission architectures and necessary capabilities for carrying out those missions.

- **March**: Support Task meeting @ GSFC. LEAG Surface Scenario Analysis kickoff coinciding with 40\textsuperscript{th} Lunar and Planetary Science Conference (LPSC), Houston TX, March 23-27, 2009.

- **April**: Lunar Surface Systems (LSS) Face-to-Face meeting in Houston, TX. Updates and refinements of the LSS scenarios are provided to both the LEAG team and the Support Task Team. ESMD DIO Analysis meeting (Heldmann, Lewis, Craig to present talks). Finalizing OSEWG/LEAG Workshop call.

- **April, May, June**: LEAG delivers interim reports of Surface Scenario and Metrics Analysis task. Support Task Team is working in parallel to synthesize candidate science requirements for EARD/CARD using interim reports.

- **July**: LEAG Surface Scenario Analysis study outbrief at 2\textsuperscript{nd} Lunar Science Forum, Mountain View CA, July 20\textsuperscript{th}. Community feedback solicited.

- **August**: Support Task Team synthesizes candidate requirements from LEAG study and delivers to Constellation; OSEWG/LEAG Workshop (Robotics Enhancing Human Science/Exploration Activities).

- **August**: Constellation deadline for requirements submission prior to ESMD review.
OSEWG Reporting

- The OSEWG Co-Chairs coordinate daily to provide status updates regarding current ESMD and SMD activities, needs, and requests for action.

- The OSEWG Co-Chairs brief ESMD and SMD management of OSEWG accomplishments, concerns, and upcoming activities once per month.

- Both the LEAG team and the Support Task Team will brief the OSEWG Co-Chairs and each other at least once per month.

- OSEWG Plenary to be held once per month for HQ members.

- The OSEWG Co-Chairs can provide additional briefings to other parties upon request.
Activities In Development

• **OSEWG responses to NAC recommendations**
  OSEWG will review status & complete responses to open issues

• **Analogs**
  Coordination of SMD & ESMD analogs activity with surface science scenario development

• **Workshops**
  OSEWG will organize NLT 1 workshop in CY09 addressing timely issue pertinent to ESMD requirement development (Topic ideas: Robotics Enhancing Human Science Activities; Non-human exploration science; Orbital Science)

• **Website**
  Launch of NASA OSEWG website, content updated, forum to solicit community input

• **Outreach**
  Will coordinate with ESMD & SMD EPO

• **International partners**
  Discussions with international liasions for long-term plan
Backup
OSEWG Support Task Meeting (March 2009)

Meeting Agenda

• Day 1 – Overview and Requirements
  – OSEWG and Support Task Overview and Implementation Plans: Key Goals for the Year
  – Integrated Milestone Schedule
  – Requirements Development
    - NASA Requirements Documentation Overview
    - What is a requirement?
    - Gap analysis
  – Human Research Program requirements development

• Day 2 – Objectives, Scenarios, Metrics
  – Science Objectives Traceability and Prioritization
  – Architecture 101: Enabling Science through the Exploration Architecture and Strategic Analysis
  – Science Scenarios/Design Reference Missions Development Group Coordination (e.g. LEAG, Analogs, LSOS/LMMP/ILIADS, etc.)
  – Science Metrics Framework and Figures of Merit

• Day 3 – Metrics (continued), Assignments, Forward Work
  – Science Metrics Framework and Figures of Merit (continued)
  – Mars-Forward Considerations
  – Integrated Action Plans and Assignments
OSEWG Support Task

Support Task will conduct inherently governmental activities.

• Preliminary development of science scenarios for different mission types and sites
  ✓ “Sortie” missions with “Apollo-like” mobility
    – Longer traverse missions at multiple sites including pole

• Develop overarching approach for metrics for evaluating likely scientific return from lunar missions and campaigns

• Translate key scenario findings into candidate science-driven requirements for consideration to the CARD or EARD.