Lunar Exploration Analysis Group
Updates and Action Requests
March 2024 Lightning Edition
Dr. Benjamin Greenhagen, LEAG Chair

Presented to NASA Planetary Advisory Committee
5 March 2024
Sample priority within the Architecture Definition Document (ADD) in collection, transport, and analysis in situ and on Earth

- The Lunar community continues to express concern over sample mass, sample transit conditions, and curation. LEAG and ExMAG have responded to NASA's request for a Sample Specific Action Team (SAT) to examine curation and data infrastructure, but it may not address all needs.
  - The LEAG ExMAG Joint SAT does not explicitly examine funding needs.
  - Technology development may be needed to enable curation and promote analyses described in the ADD. Will ESDMD include this as a necessary item in the ADD? Or does this fall to SMD working with STMD?
  - To fully address some goals/objectives, the community needs to do more than identify, collect, document, and return samples. Where does the analysis on Earth fit in to complete addressing these goals/objectives?
  - ADD guides architecting from the right, but sample mass allotted in Orion appears to contradict this, especially for transporting cold-conditioned samples, whose freezer is a significant mass. Is the allotted sample mass enough to address the goals?
  - LEAG supports a trade study to examine the use of uncrewed sample return vehicles to increase the mass of samples returned by the Artemis missions.

- LEAG requests action to ensure SMD and ESDMD are coordinating to ensure support through to the completion of the goals and objectives.
LEAG Activities and Updates

• **Annual Meeting Findings (presented to PAC in November 2023) are online now**
• LEAG thanks NASA for facilitating the development of rubrics for inclusion plans, which closes a finding from our 2023 Annual Meeting.
• **Draft Implementation Plan for a NASA Integrated Lunar Science Strategy in the Artemis Era**
  • Detailed LEAG feedback provided in December 2023
• **LEAG Lunar Science Goals**
  • Activity is underway, all subcommittees are filled, meeting regularly, aiming for summer release
• **LSSW 22: Science Enabled by the Artemis Base Camp (April 3, 2024)**
  • LEAG is supporting the workshop and will organize community white papers
• **LEAG ExComm Community Meetings**
  • January 2024 – MEPAG Mars human science objectives
  • February 2024 – Lunar Exploration and Science Orbiter (LExSO)
• **LEAG values continued planetary science community support for the Decadal Survey science priorities, including (but not limited to) those attributed to LDEP**
Additional LEAG Slides for the PAC

- Updated LEAG Executive Committee
- Supporting International Lunar Year
- Coordination with other AGs: Joint LEAG-ExMAG SAT & Working with MEPAG on M2M
Updated LEAG Executive Committee (March 2024)

Chair
Benjamin Greenhagen, JHU APL

Emeritus Chair
Amy Fagan, Western Carolina Univ.

Science
Timothy Glotch, Stony Brook Univ.

Human Exploration
Jacob Richardson, NASA GSFC

Technology
Jose Hurtado, Univ. of Texas, El Paso

Astrophysics Liaison
Nivedita Mahesh, California Institute of Technology

Equity, Diversity, & Inclusion
Alexandra Matiella Novak, JHU APL

Operations
Lauren Jozwiak, JHU APL

Strategic Roadmap
< vacant for FY24 >

Workforce Development
Tabb Prissel, NASA JSC

At-Large Member
Kerri Donaldson Hanna, Univ. Central Florida

At-Large Member
Erica Jawin, Smithsonian Institute

At-Large Member
Sarah Valencia, NASA GSFC

Chair, CAB
Stephen Indyk, Honeybee Robotics

Ex Officio Members
Sarah Noble, NASA SMD
Jacob Bleacher, NASA ESDMD
< vacant >, NASA STMD
Gregory Schmidt, SSERVI
LEAG is Helping the Community Organize an International Lunar Year Towards the End of this Decade

- **LEAG has formed a community coordination group (30+ institutions) to help communicate and align activities**
  - Meeting at LPSC (March 23th, 5pm CT)
- **An ILY during the timeframe 2027-2030 could:**
  - Prompt new multilateral coordination relevant to enduring human and robotic presence at the Moon
  - Promote long-term safety and sustainability in exploration and utilization activities at the Moon
  - Foster coordination between scientific, educational, and commercial space communities
  - Promote communication and coordination between operators in Cislunar space
- **ILY requires a concerted, grassroots effort from the lunar science and exploration communities to get off the ground**

For more info contact either:
- LEAG ILY Lead, Erica Jawin (JawinE@si.edu)
- LEAG Chair, Ben Greenhagen (Benjamin.Greenhagen@jhuapl.edu)

Dr. Ben Greenhagen, on behalf of the Lunar Exploration Analysis Group

Given to the NASA Planetary Science Advisory Committee

March 5, 2024

Intent is to model after successful past Science Years, such as the IGY 1957-58

Community Sign-up Form
LEAG is Coordinating with other AGs: Joint LEAG-ExMAG SAT & Working with MEPAG on M2M

- Joint LEAG-ExMAG SAT will examine three main topics: (1) Volatile Samples and Cold Curation, (2) Nominal Samples, and (3) Sample Data Infrastructure
  - Three LEAG ExComm Members are Supporting: Sarah Valencia (Nominal Samples, Vice Chair), Tim Glotch (Sample Data Infrastructure, Vice-Chair), Amy Fagan (Ex Officio)
  - Vice Chairs are supported in their topics by four members of the community and a graduate student executive summary
- LEAG and MEPAG are investigating ways improve coordination given the alignment of our communities through the Moon to Mars Architecture
  - MEPAG provided the LEAG ExComm with a briefing of their recent Mars science objectives for human exploration tiger team (January 2024)
  - Lessons-learned from the well-established Mars Science Goals process are feeding into a lunar science goals process to be kicked off in December 2023
  - MEPAG and LEAG both attended the M2M workshop and are exploring opportunities to coordinate feedback to the annual M2M ADD review cycle