Lunar Surface Innovation CONSORTIUM

LSIC Newsletter Volume 1 Issue 1 - July 2020

The Lunar Surface Innovation Consortium is administered by the Johns Hopkins Applied Physics Laboratory, and operates in collaboration with the NASA Space Technology Mission Directorate under the Lunar Surface Innovation Initiative. Its purpose is to harness the creativity, energy, and resources of the nation to help NASA keep the United States at the forefront of lunar exploration. To find out more or to sign up, please visit lsic.jhuapl.edu.

Contents

Director's Update

It's been a pleasure hearing from many of you during our initial focus group telecons, and we're grateful for the suggestions about possible communication tools and other resources that LSIC could help make widely available in one place. We have just rolled out the initial changes to the LSIC website (lsic.jhuapl.edu) that provide the public-facing focus group pages where we will post slides from monthly telecons and other key information. We are also in the process of setting up an LSIC wiki for participants to use to share more detailed information and begin discussing priority technology needs for our return to the Moon. Among the suggestions that came up during focus group telecons are an opt-in member directory and a member facilities database. We will be reaching out in the near future to you for information if you would like to have your institution's information included.

Rachel Klima
Director, Lunar Surface Innovation Consortium
SES-LSIC-Director@jhuapl.edu

Watts on the Moon Challenge

The Centennial Challenges program, part of NASA's Space Technology Mission Directorate, bridges the innovation gap between NASA and the nation by catalyzing sources of innovation inside and outside of the traditional aerospace community. The program will launch the Watts on the Moon Challenge in September, 2020. This challenge will focus on distribution, storage and managing power on the Moon. The Request for Information (RFI) and the Watts on the Moon Challenge Draft rules are available here for the public's review and feedback.

Focus Area Monthly Telecon Schedule

Dust Mitigation
Third Thursdays at 12PM Eastern

Extreme Access
Second Thursdays at 3PM Eastern

Excavation and Construction
Last Friday at 3PM Eastern

Extreme Environments
Second Tuesdays at 3PM Eastern

In Situ Resource Utilization
Third Wednesdays at 3PM Eastern

Surface Power
Fourth Thursday at 11AM Eastern

If you'd like to participate in a focus area's monthly telecon, please sign up on the LSIC website here: lsic.jhuapl.edu/Events/survey.php

In the coming months we will be introducing you to LSIC's six focus groups. This month we are sharing information about the Dust Mitigation group and their facilitator, Jorge Núñez.

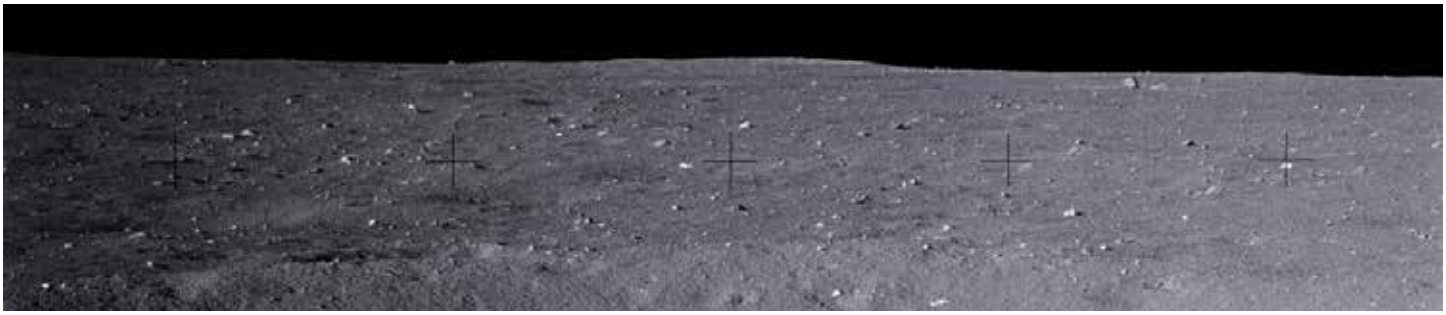
Focus Group Feature: Dust Mitigation

The Dust Mitigation focus area will work to develop dust mitigation technologies that protect lunar systems in use on the lunar surface from the threat of contamination and damage from local dust. Capability areas in need of dust mitigation include optical systems, thermal surfaces, fabrics, mechanisms, seals and soft goods, and gaseous filtration. High priority areas for investigation are surface stabilization, dust tolerant textiles, filtration, electromechanics and magnetics, as well as dust mitigation structures. The Focus Group will work to adapt terrestrial technology for the space environment, and to mature environmental testing technologies. The Focus Group held its kick-off meeting on June 18. The meeting recording, presentation, and notes are posted on the LSIC Dust Mitigation Focus Group page here.

Facilitator: Jorge Núñez (Facilitator_DustMitigation@jhuapl.edu)
Dr. Jorge Núñez is a senior planetary scientist and astrobiologist in the Space Exploration Sector at the Johns Hopkins University Applied Physics Laboratory. His primary research focuses on studying the geology and composition of planetary surfaces from the micro- to the macro-scale using a variety of remote sensing and in situ techniques, as well as the development of instruments and technologies for extreme environments such as the Moon, Mars, and beyond. He is a team member on multiple planetary missions and instruments. He has expertise in microscopy, visible/near-infrared spectroscopy, and instrument development. Dr. Núñez also coordinates the Planetary Exploration Research Lab (PERL) at APL. Over the years, he has participated in several analog field tests simulating robotic and human missions to the Moon, including NASA ISRU and Desert RATS field tests, and worked with lunar samples collected during the Apollo missions.

Call for Member Profiles

Is your organization making an impact developing technologies useful to enable sustained lunar surface activities? If so, we'd love to feature you in an upcoming edition of the LSIC monthly newsletter. We are looking for stories specifically highlighting technologies that are advancing the state of the art, processes that are opening pathways to innovation, facilities that could be leveraged for readying technologies, and team members who are championing new ideas for the lunar frontier. Please reach out to us via email to be included.



AS11-40-5881 (20 July 1969) --- This 70mm handheld camera's image on the Sea of Tranquility's lunar surface is the first of a multi-framed panorama photographed from a point some 30 or 40 feet west of the plus-Z (west) footpad of the Lunar Module "Eagle." The view is looking toward the southwest showing part of the horizon crater rim that was pointed out as being visible from the Eagle's window.

Kickoff Meeting Recap

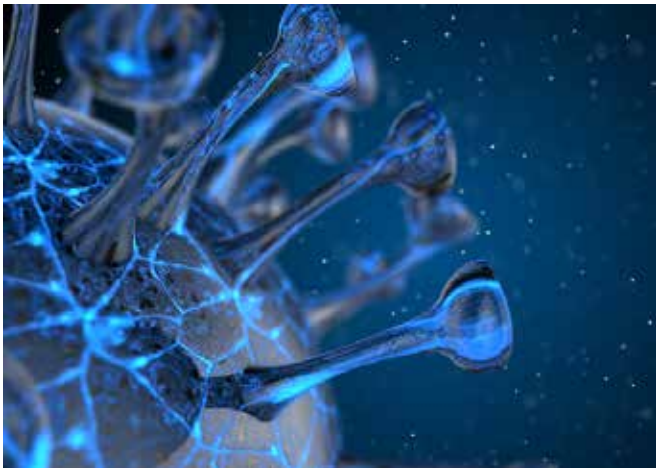
On 28 February 2020, the Lunar Surface Innovation Consortium (LSIC) Kickoff Meeting was held at the Johns Hopkins University Applied Physics Laboratory in Laurel, MD. Over 250 attendees participated, including representatives from NASA, industry, universities, non-profit organizations, and other governmental departments. It featured a series of presentations and networking opportunities enabling community members and leaders to help shape the beginning of LSIC's contributions to the lunar community.

The keynote address about NASA's Artemis program and subsequent "Moon to Mars" strategies was given by Steve Jurczyk, NASA Associate Administrator. Jim Reuter, Associate Administrator of NASA's Space Technology Mission Directorate (STMD) also gave a summary of the organization and additionally highlighted the Lunar Surface Technology Research (LuSTR) initiative targeting universities for collaboration. A presentation introducing NASA's Lunar Surface Innovation Initiative (LSII) was given by Niki Werkheiser, NASA STMD's Lead for LSII. Rachel Klima, LSIC Director, also provided an overview of the Consortium's plans and focus going forward. A full list of talks given, as well as presentation files and links to video recordings, is available on LSIC's website here.

A wide range of topics were discussed by both presenters and attendees, all furthering LSIC's goal of harnessing the creativity, energy, and resources of the nation to help NASA keep the United States at the forefront of lunar exploration. Current and new funding opportunities through NASA's STMD were discussed, as well as the need to centralize information about relevant resources from the Space Mission Directorate (SMD) and Human Exploration and Operations Mission Directorate (HEOMD) as assets for the community at large. This would be an important step towards identifying and bridging technology gaps at the frontier of lunar exploration, rather than duplicating ongoing efforts in or between SMD and HEOMD and others. Another subject of note was the need for developing standards for terrestrial and space construction, and the role LSIC would fill as a nexus for this information as well as collaboration.

The key takeaways from the Kickoff Meeting were identified as:

- Highlighting the Consortium's charter, prioritizing the creation of communication pathways between NASA and the community;
- Maintaining a focus on providing value to all stakeholders, soliciting frequent feedback and adjusting course as necessary;
- Effectively and accessibly centralizing information, resources, mentoring, and training opportunities for current and future members.



Member COVID-19 Notes

Is your organization or industry dealing with COVID-19 related effects that may not be in the mainstream news? Or do you see a domino effect and a challenge yet to manifest? Does NASA and/or the technology development community need to know about these challenges sooner rather than later given the ambitious timeline to return to the Moon in a sustained manner? LSIC would like to make these notes available to the community so that we might collaboratively resolve them. If you have thoughts on this topic please contact us via email.