

**SSERVI Analogue Regolith Simulant Testbed.** J. A. Minafra<sup>1</sup>, G. Schmidt<sup>2</sup>, B. E. Bailey<sup>3</sup>, <sup>1</sup>NASA Solar System Exploration Research Virtual Institute, M/S 17-1, Moffett Field, CA USA, 94035 (joseph.a.minafra@nasa.gov)

**Introduction:** The Solar System Exploration Research Virtual Institute (SSERVI) at NASA Ames Research Center in California's Silicon Valley was founded in 2013 as a virtual institute that provides interdisciplinary research to its supporting directorates: the NASA Science Mission Directorate (SMD) and the Human Exploration & Operations Mission Directorate (HEOMD).

Primary research goals of the Institute integrate science and exploration to support future human space exploration beyond low Earth orbit. As one of the many services provided to the planetary community, SSERVI manages a regolith testbed facility with ~8 tons of JSC1A lunar regolith simulant, which provides the planetary exploration community with a readily available capability to test hardware and conduct research in a large simulant environment. This presentation will outline several opportunities for research scientists and engineers to study the effects of an analogue regolith testbed.

SSERVI's goals for this testbed include: supporting planetary researchers within NASA and other government agencies; private sector and hardware developers; competitors in focused prize design competitions; and researchers in the academic sector.

**Capabilities:** SSERVI provides opportunities for scientists and engineers to study the effects of a lunar regolith analog testbed for planetary exploration research. This capability is essential to help understand the basic effects of continued long-term exposure to a simulated analog test environment.

The current facility houses approximately eight tons of JSC-1A lunar regolith simulant in a 4 meter by 4 meter test chamber with dust mitigation equipment and safety oversight.

Facility hardware and environment testing scenarios include, but are not limited to:

- Lunar surface mobility
- Dust exposure and mitigation
- Regolith handling and excavation
- Solar-like illumination
- Lunar surface compaction profile
- Lofted dust

- Mechanical properties of lunar regolith
- Surface features (i.e. grades and rocks)

Opportunities available include easy access to a controlled analog regolith simulant testbed, planetary exploration activities at NASA Research Park, academia and expanded commercial opportunities in California's Silicon Valley, as well as public outreach and education opportunities.

**Summary:** SSERVI provides a bridge between several groups, including: 1) the scientific and exploration communities, 2) researchers from multiple disciplines across a wide range of planetary sciences, and 3) domestic and international communities and partnerships. This regolith testbed provides safe access to a lunar analog environment for NASA academic and commercial communities.