

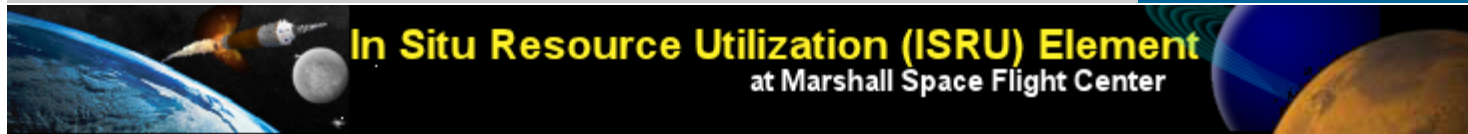


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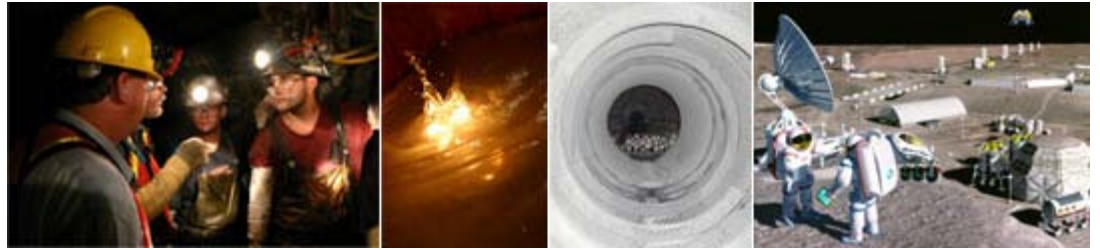


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## WELCOME to In Situ Resource Utilization (ISRU)



The In Situ Resource Utilization (ISRU) is a core component of the Vision for Space Exploration as implemented by the [Science & Mission Systems \(S&MS\)](#) Office. The ISRU works to establish, evaluate and assess the in situ resources available on the moon and Mars and the technologies needed to utilize and exploit these resources. These research and technology development areas will focus on technologies necessary to extract consumables (O<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, He, etc.) for human life-support system replenishment (ECLSS, EVA, etc.), source materials (feedstock) for In Situ Fabrication and Repair (ISFR) technologies, and source materials (composites, etc.) for radiation shielding and shelters from in situ resources (lunar regolith and Martian regolith & atmosphere). The transformation of in situ space resources into raw materials will be studied through fundamental and applied experimental research, theoretical modeling of processes, and technology development in the areas of extractive and reactive processing, materials purification, material transformation, materials shaping and handling, and characterization of these processes in low-gravity environments.

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### ISRU INFO & NEWS

2009 Lunar Regolith Simulant Workshop  
[Announcement Letter](#) | [Presentations available](#) | [List of Attendees](#)

Lunar Regolith & Simulant Users' Survey  
Working with NASA and need simulant? [Please fill out the survey](#)

09.9-11.2008 - Visit us at AIAA SPACE 08 in San Diego, Ca. NASA Booth #406.  
[www.aiaa.org/content.cfm?pageid=230&lumeetingid=1872](http://www.aiaa.org/content.cfm?pageid=230&lumeetingid=1872)

02.10-14.2008 - Visit us at STAIF-2008 in Albuquerque, New Mexico  
Space Technology & Application International Forum. Booth C-6.  
<http://www.unm.edu/~isnps/staifhome.html>

02.01.2008 - Huntsville Times article: Brainstorming Life on the Moon  
The Huntsville Times has a special insert dedicated to celebrating NASA's 50th anniversary. ['Brainstorming Life on the Moon', on page 46](#) features an article with several interviews from ISRU team members.

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11.2007 - Apollo Curation Lab Visit



Some members of our ISRU Team recently traveled to Johnson Space Center for several meetings. As part of the Apollo meeting, the group received an exclusive tour of the Apollo Curation Lab and were allowed to view actual moon rocks in the gloveboxes and visit the vault where most of the lunar samples are stored.

[Read more & see the photos](#)

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10.15.2007 - Workshop

The 2007 Lunar and Dust Regolith Simulant Workshop was held in Huntsville, AL. October 10-12. [Click here for more information including presentations.](#)

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05.15.2007 - Popular Mechanics Article: The Next Threat to Astronauts: Moon Dust

[Read it](#)

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08.16.2005 - Procurement of Lunar Regolith Simulant Material

MSFC has contracted with ORBITEC of Madison WI to produce and distribute 16 metric tons of a JSC-1 simulant material, referred to as JSC-1a, to fulfill Agency near-term needs until a new generation of Lunar Regolith Simulant Materials (LRSMs) can be developed. One ton of the 16 tons will represent a dust fraction material and 1-ton a coarse fraction material. This contracted portion of the JSC-1a effort has been funded by and is intended to support NASA's Human Systems Research and Technology (HSRT) Division projects/users. ORBITEC is also separately producing an equivalent amount of JSC-1a, which it will make available commercially to other users outside of HSRT (e.g. other non-NASA HSRT projects/users, other government agencies, commercial & academic institutions, etc.). Non-HSRT parties interested in obtaining JSC-1a should contact [ORBITEC](#) directly for pricing and distribution information. HSRT users should also contact ORBITEC for shipping and distribution information. ORBITEC will coordinate with MSFC on approval, funding and provision of JSC-1a to HSRT users. The JSC-1a material should be available for both types of users by January 2006 .

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08.24.2005 - Unique NASA Science Lab Tackles 'Sticky' Issue of Lunar Dust  
Dr. Mian Abbas, a space science researcher at NASA's Marshall Space Flight Center in Huntsville, Ala., watches as a single grain of lunar dust -- taken from the Moon during the Apollo missions of the late 1960s -- is isolated in a vacuum chamber.

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Curator: [Anthony Goodeill](#)  
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