



EXPLORESPACE TECH
TECHNOLOGY DRIVES EXPLORATION

Lunar Auger Dryer ISRU (LADI)

Space Resources Roundtable

June 7, 2022

Koorosh Araghi – Johnson Space Center (JSC) ISRU Lead

Mechanical Testing

-

Supporting Models

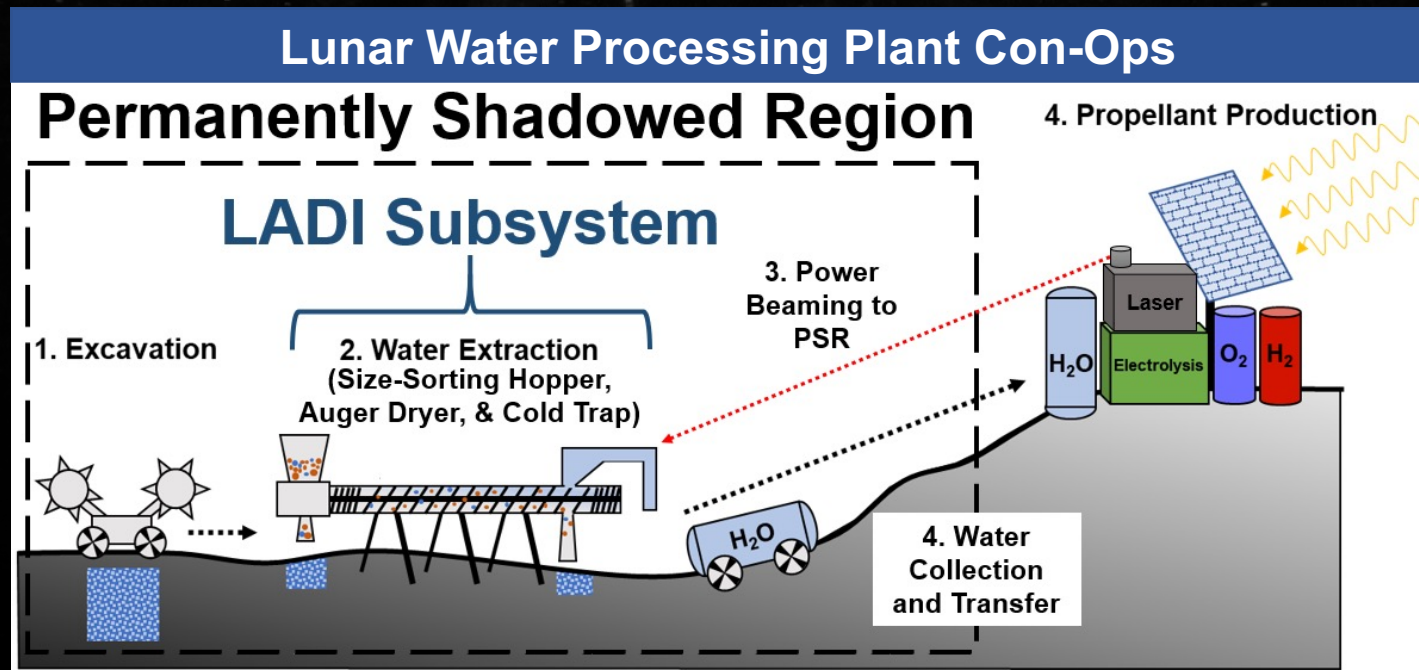
-

Future Opportunities

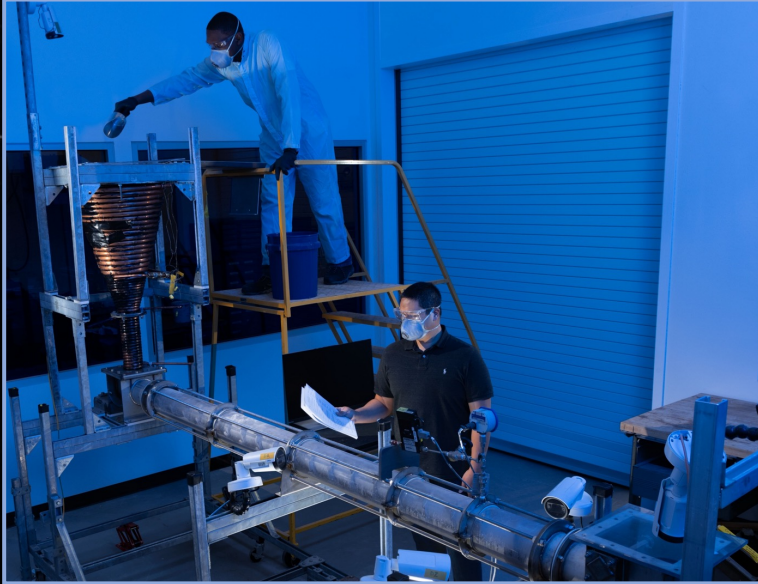
LADI Mission



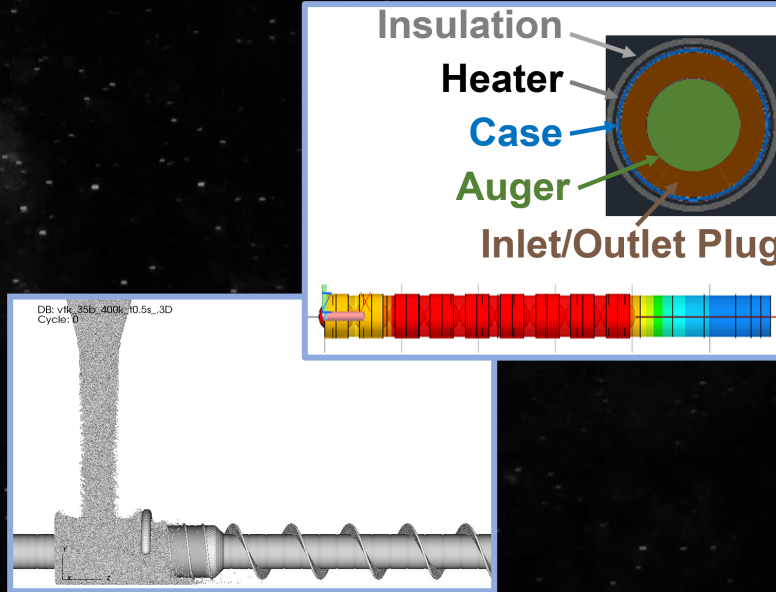
Develop a lunar water processing subsystem capable of operating inside a permanently shadowed region to continuously process water and other volatiles for breathable air and propellant, in support of NASA's 2028 lunar sustainability goals.



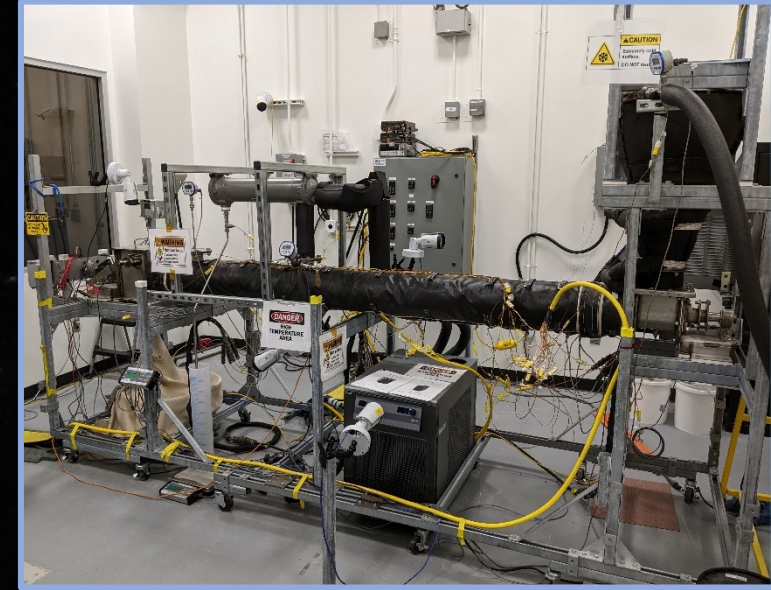
Project Testing and Modelling Milestones



- 19 mechanical test runs complete on breadboard auger
- Validated regolith plug seals hold pressure beyond water's triple point

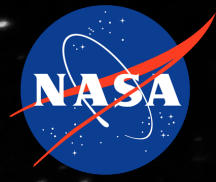


- Thermal Desktop auger casing and hopper models
- Discrete Element Method (DEM) lunar gravity solids flow model
- Auger sizing tool and MATLAB parametric system analysis



- Breadboard modifications for thermal testing at JSC complete

LADI Enables Success on the Moon and Mars



Lunar Auger Dryer Flight Demos

- LADI models adaptable to full-scale or subscale auger dryers in lunar environment
- Breadboard test data is a springboard for future auger dryer development

Mars Water Processing

- Data and design work from LADI extensible to Mars water processing
- Designing to the extreme lunar environment will ensure success on Mars

