PACIFIC INTERNATIONAL SPACE CENTER FOR EXPLORATION SYSTEMS (PISCES)

The "World Series" of LUNABOTICS

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PACIFIC INTERNATIONAL SPACE CENTER FOR EXPLORATION SYSTEMS (PISCES)

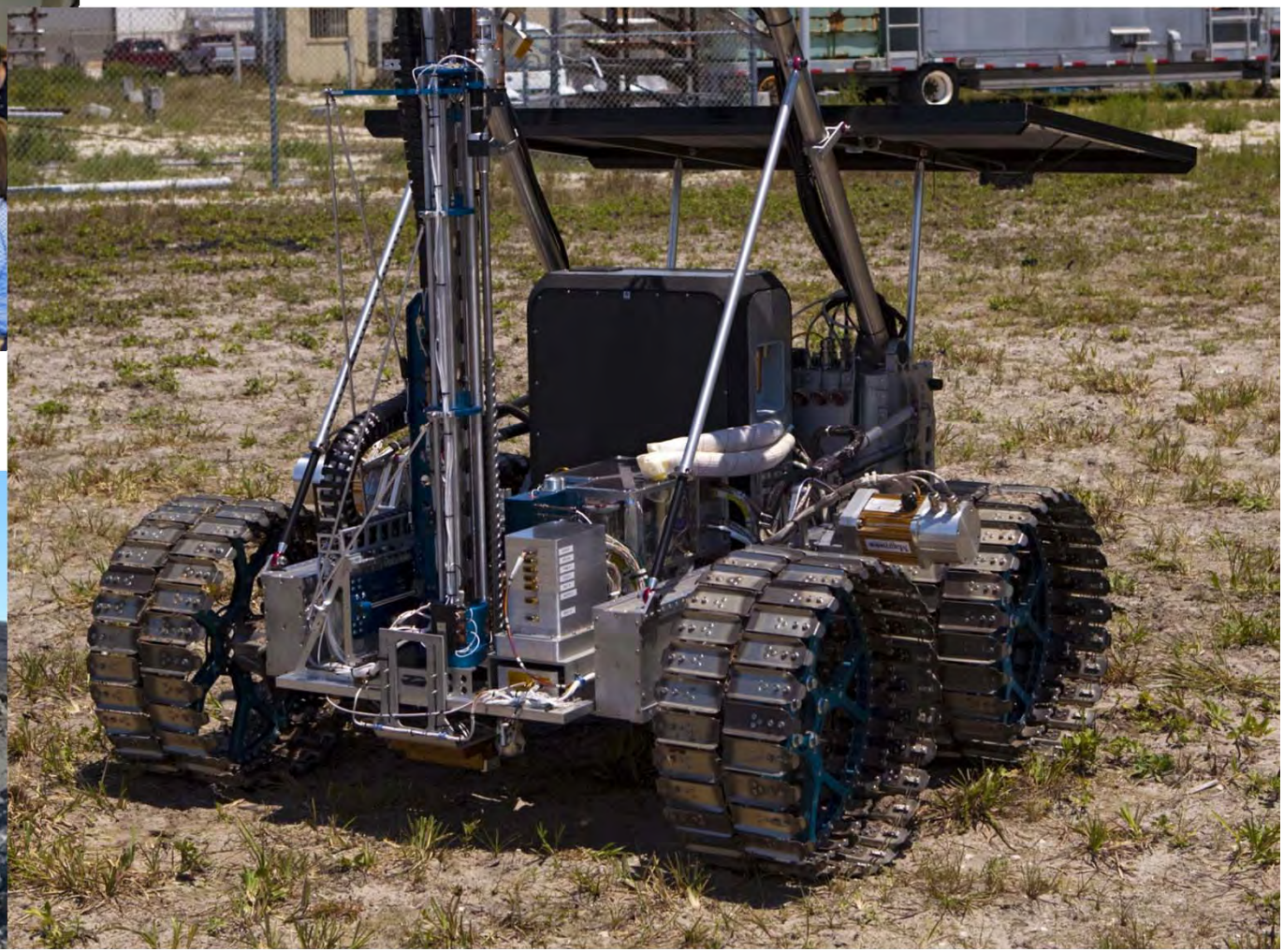
The PISCES Goals

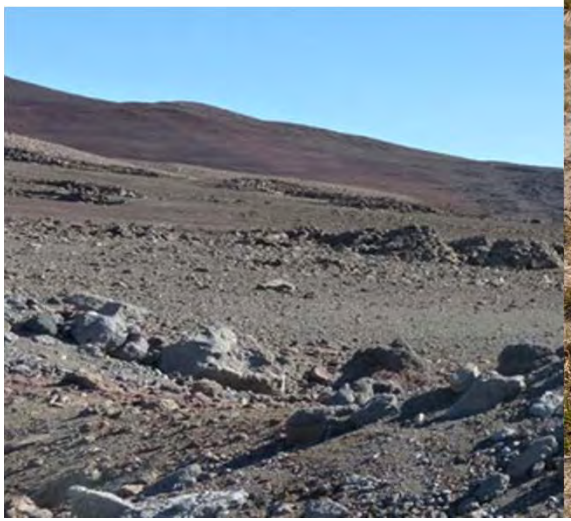
- To conduct research and develop programs to enable and promote planetary surface exploration
- To host international tests and technology demonstrations at the PISCES Test Site.
- To promote STEM education, inspiring students by connecting Hawaiian culture to space exploration and settlement.

  - economic and workforce development
- To involve the commercial sector, spinning off technologies to help the local Hawaiian economy.
- To develop a full-scale, technically valid, analog lunar/Martian outpost on Hawai`i Island.

2012 In-Situ Resource Utilization Analog Mission

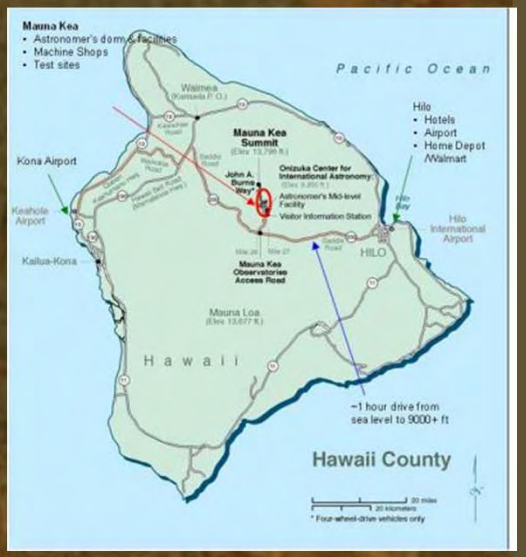
Hawai'i Island last week to take part in NASA's in situ resource utilization (ISRU) lunar rover field testing, facilitated by the Pacific International Space Center for Exploration Systems (PISCES) on the flank of Mauna Kea.





Analogue Test Locations on Mauna Kea

Apollo Valley



Pu'u haiwahini

Communication to Allow Remote Operation

Observatory Infrastructure & Housing for Test Support

Sites for 3rd Int'l ISRU Field Testing

Pu'u haiwahini
(9000 ft)

Perform Polar Ice/Volatile Mission Simulation
- Site has terrain, rock distribution, and soil of interest to lunar/Mars resource processing, site preparation, and infrastructure integration.
- Site allows for tests involving modification to the landscape: drilling, excavation, etc.
- Tests to be performed with support from Hale Pohaku and remote centers

'Apollo Valley'
(11,500 ft)

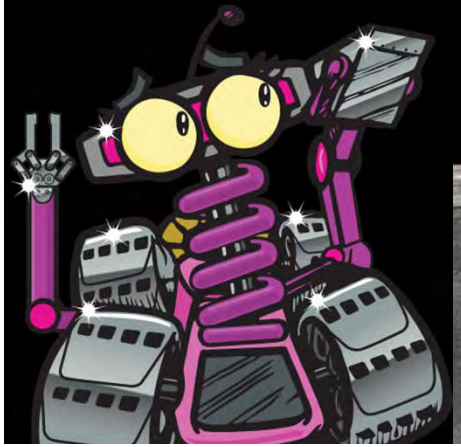
Perform Science/Resource Instrument Operation
- Site has terrain, rock distribution, and soil of interest to polar exploration and has geological diversity of potential interest to science instrument investigators
- Minimal test disturbance required at site
- Tests to be performed with minimum personnel and infrastructure at site; support from Hale Pohaku and Pu'u haiwahini site and remote centers

Test Site on Hawaii Very Much Like the Moon!

November 2012 – GLXP White Label Space

LUNABOTICS

- a university-level competition designed to engage and retain students in (STEM)
- competition by encouraging the development of innovative lunar excavation concepts from universities
- mine and deposit a minimum of 10 kilograms of lunar simulant within 10 minutes.
- the ability to tele-robotically or autonomously control the Lunabot from a remote mission control center.



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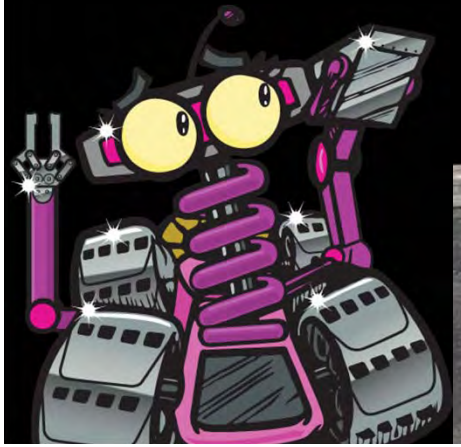
Who is eligible to compete?

- Undergraduate and graduate student teams enrolled in a U.S. or international college or university
- Design teams must include: at least one faculty with a college or university and at least two undergraduate or graduate students.
- Registration is limited to the first 50 approved teams.
- Registration is limited to one team per university campus. Internationally, registration is limited to 5 teams per country



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November 2012
University of Alabama

November 2012
University of Alabama

- Bucket wheel excavator mounted on multipurpose base
- 125kg onboard regolith storage
- On- and Off-loading conveyors
- Evolved successful design components while reengineering remainder

PACIFIC INTERNATIONAL SPACE CENTER FOR EXPLORATION SYSTEMS (PISCES)

November 2012
University of Alabama

LUNABOTICS

PISCES LUNABOTICS VIDEO

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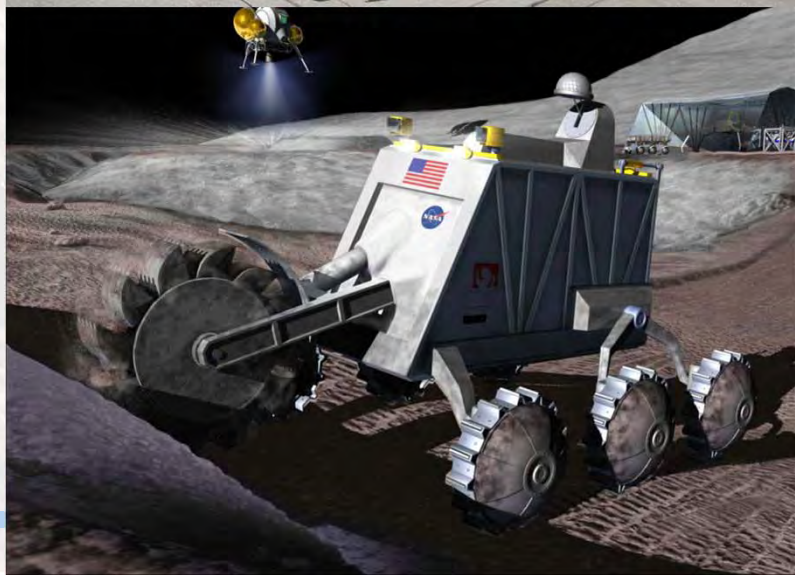
FOR EXPLORATION SYSTEMS (PISCES)

Expanding Lunabotics to GLOBAL Competition

NASA's 4th Annual Lunabotics Mining Competition

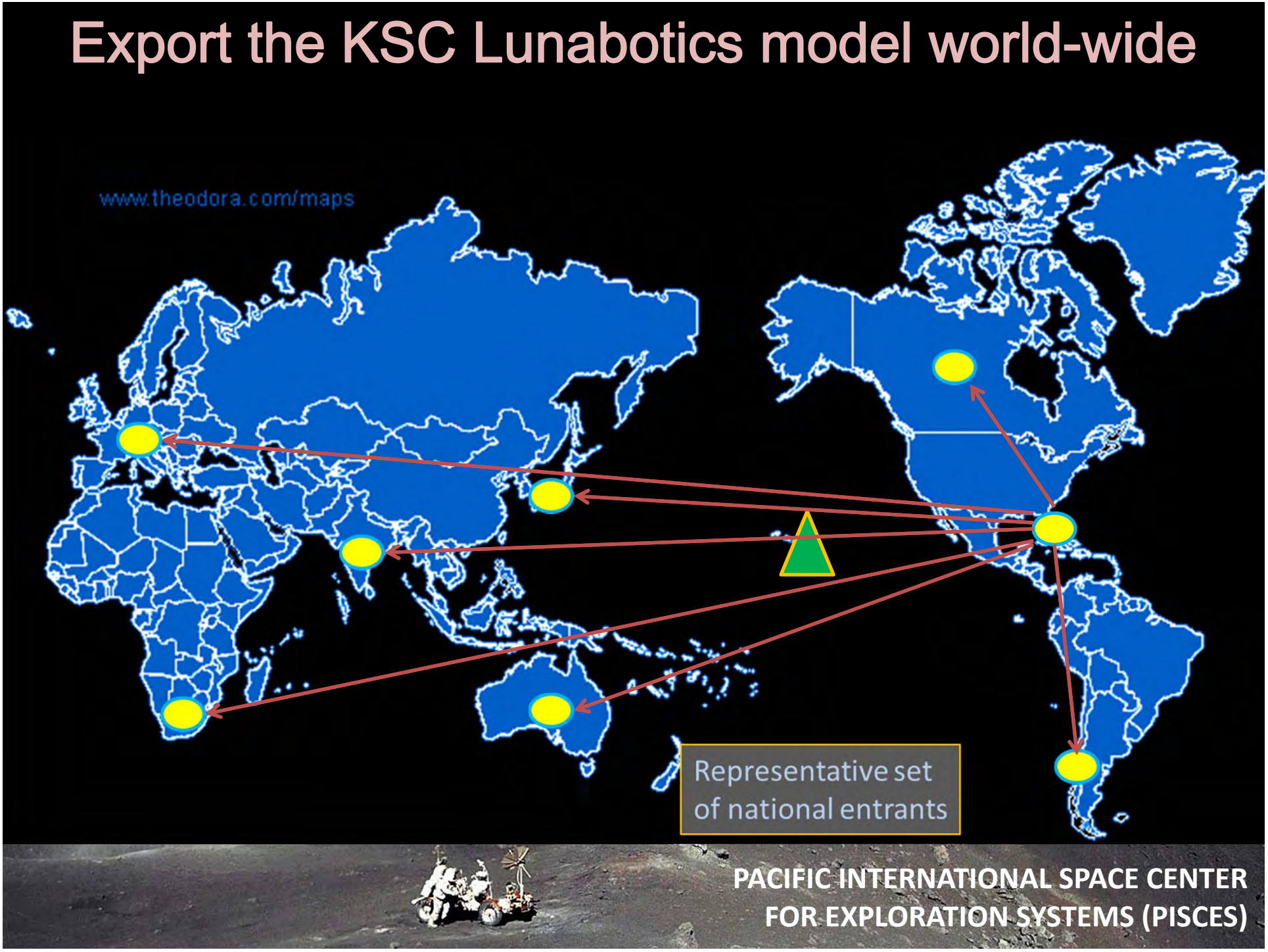
Kennedy Space Center Visitor Complex

- NASA has expressed interest in PISCES / Hawai`i Island becoming the location and host of a "WORLD FINALS" in the Lunabotics Competition



PISCES
Pacific International Space Center for Exploration Systems

Export the KSC Lunabotics model world-wide



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Regional finalists come to Hawaii for “World-Finals”

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