Deep Space Systems
Commercial Lunar Payload Services

Lunar ISRU Workshop
USRA HQ in Columbia, Maryland

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The DSS Mid Size Lander Accommodates Cubesat Deployment from Orbit and Features a Rotary Percussive Drill and Sample Acquisition System as Standard Equipment.

Both systems include sample acquisition and delivery of:
- Fine Particles (Rasp and suction)
- BB sized rocklets (Sift and suction)

Rotary Percussive drill produces cone of tailings:
- Compatible with LIBS or other remote sensing
- Down hole sampling as an option
Deep Space Systems Midsize Lander

**Payload Summary**
- **Mass**: up to 100 kg
- **Volume**: 3.36 m³
- **Power**: 400 W (all mission phases)
- **Comm**: 1-10 Mbps downlink
- **Destination**: High Latitude Sites
- **Landing**: DSS Midsize Lander

**Payload Volumes**
- Upper Cargo: 0.9 m³
- 2X Cargo Overflow: 0.26 m³
- 2X Cargo: 0.85 m³
- 4X Lower Cargo: 0.06 m³

**Standard Payload Features**:
- Multiple Data Interfaces
  - < 1 Mbps: UART serial over RS-422, RS-485, LVDS
  - >= 1 Mbps: 10/100/1000 Ethernet, SPI over LVDS
  - Available: SPI, I2C, USB, Spacewire, MIPI CSI, Quad-SPI, I2S, 1553, Wi-Fi, CAN, low-voltage discretes, high-voltage discretes, and RS-422 differential discretes, heater control
- Multiple Power Interfaces:
  - Preferred: 28V
  - Available: 12V, 5V, or selectable voltage above/below 28V
  - Data Storage: 1000 GB (1 TB)
  - Payload Survival Heaters (two wire system)
  - HiRes Camera Package (6 VisCams)
  - Orbital/Surface Cubesat Deployment (1U up to 27U)

**Special Lunar Science Features**:
- Surface Roving Operations (up to 3 km/hr)
- 1 m Rotary Percussive Drill
  - Sample Delivery to Payloads
- Propulsive Hop Mobility (up to 4 km)
- Lunar Night Survivability
- Easy Access to Surface

**More Options and Services**:
- 6 DOF Robotic Arm and Appendages
- Mast Mounted Payloads
- Auxiliary Solar Panels
- High Capacity Battery (60 Ahr)
- Up to 6 TB of Data Storage
- UHF Data Relay to Orbit (>128 Kbps 2 way)
- Payload Dedicated i5 Computer
- WiFi and/or WiGig Surface Radio Systems
- Custom Camera System
- Complete Payload Design, Development, Test and Integration Service
- Surface Cubesat Deployment (1U to 16U)