National Aeronautics and Space Administration

Objectives for Human Missions to NEOs

Recap of Day 1

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Magnitude of Findings

Theme	Number of Objectives
Demonstrate Deep Space Capabilities	122
Scientific Research	88
Planetary Defense	81
Other	23

- A lot of overlapping objectives and activities

Objectives for Human NEO Missions

- Demonstrate sustainable operational deep space capabilities - including Radiation Shielding / Hazards, Closed Loop ECLSS, Power, ISRU, Microgravity Effects, Autonomous Operations, Communications, In-flight training
- Define the diversity of characteristics of the NEO population
- Characterize Physical and Chemical Properties of NEOs - mass, shape, density, porosity, spin, strength, mineralogy, composition
- Mitigate, identify and characterize threats to Earth

Human Activities approaching, on / at a NEO

- Sample Handling and Curation
- Test Hardware Systems - High Performance Propulsion, Deep Space Communication, Radiation Mitigation, ISRU
- Deploy Scientific Instruments for On-going Operations (Subsurface Drilling, Core Sampling)
- Test potential deflection techniques
- Characterize Physical and Chemical Properties of NEOs - mass, shape, density, porosity, spin, strength, mineralogy