

The 2nd UNISEC-GLOBAL MEETING

KIT, Kitakyushu, Japan

18-20 November 2014

SPACE MINING using Nano-micro satellites

Discussion Group 3

SPACE MINING using Nano-micro satellites

- MAIN QUESTIONS TO DISCUSS
- What capabilities/technologies should they develop/have to space mining (power, onboard propulsion, adcs, thermal,...)
- How they can help space mining activities (can be primary or always secondary, e.g. just observation, just remote or onsite examination)

MISSION PLANING

- WHY?
- Select target
 - Astronomical Surveys
 - Catalogues
 - Orbital Dynamics
 - Pick a subset of easiest targets
 - What raw materials we needed?
 - Where do we need to use materials?
 - Consider Intermediate Lunar Demonstration Site

PRIORITIES (TECHNOLOGY)

- Sensors (first)
- Communications (2nd / Link Budget)
- Power (equal 2nd/ Research on the ground)
- Propulsion (3rd)
- Autonomous Operation
- System Budget Model (in parallel with 1,2,3)

Space Mining Activities

- 3D Printing Regolith (Silicates etc.)
- Develop Fabrication Concepts
- Resource Material Capture (Grind down asteroid to powder)
- Raw Material/Finite Product Transportation