

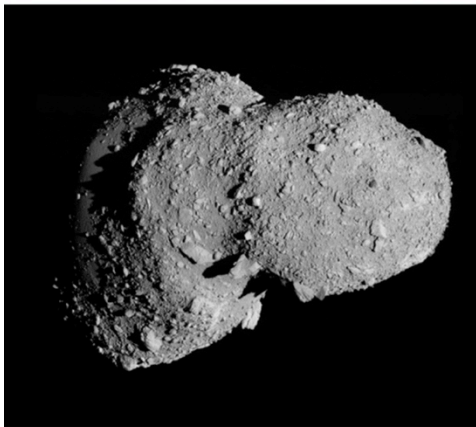
National Aeronautics and Space Administration



Asteroid Initiative Idea Synthesis

Partnerships & Participatory Engagement

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Join the discussion and send questions to: [#NASAasteroid](https://twitter.com/NASAasteroid)

Purpose of Partnership and Participatory Engagement Session



- **A shared understanding of how partnership and participatory engagement can benefit both the Mission and the Grand Challenge**
- **Rich discussion and dialog generated from the 12 ideas presented this morning**
- **Clear ideas that can be considered for Mission planning purposes and Grand Challenge implementation planning**
- **Identification of relationships between presented ideas that can help mission/concept integration**
- **Identification of overlap and synergy between presented ideas**
- **Identification of further studies needed and prioritization of next steps/actions**

Selecting RFIs for Presentation



- **Center-wide team reviewed all 55 proposals**
- **Review team made up of people with partnership experience**
- **At least three people reviewed each proposal**
- **Each proposal rated on a 1-5 scale for relevance, impact, maturity, and affordability (when appropriate) in relation to the Partnership & Participatory Engagement section of the RFI**
- **Those proposals receiving an average of 4 or 5 were invited to present**

Session Agenda



- **Asteroid Initiative Unique Opportunities, Michael O'Hara, Aerojet Rocketdyne**
 - Participation means: 1-broad and diverse participation; 2-sustained multi-mission engagement; 3-doing business differently
- **Restore Satellite Servicing Mission, Bo Naasz, GSFC**
 - Procurement approach using a CRADA with a Standard FAR
- **Sunjammer Technology Demonstration Mission, Charlie Chafer, Space Services Holdings, Inc**
 - Business model- real compelling mission, global awareness, diverse revenue streams
- **Robotic Precursor Partnership, Chris Lewicki, Planetary Resources**
 - Asteroid observation data-buy and sponsored access to solar orbit

Session Agenda



- **Comprehensive Demonstration Plan, Scott Sevcik, Prospect Dynamics**
 - Two models for NASA help: 1-Funding; 2-Visibility; Coordinated public demo plan
- **Commercial Asteroid Development Initiative, David Gump, Deep Space Industries**
 - COTS model; fixed and below cost approach paid on milestones basis
- **Robotic Mission Support, Erik Mumm, Honeybee Robotics**
 - Experience with robotic mission support
- **Expert and Citizen Assessment of Science and Technology (ECAST), David Guston, Arizona State University**
 - Anticipatory governance: foresight, engagement, and integration
- **Learning from Natural Hazards and Communication Research, Margaret Race, SETI Institute**
 - Proactive approach to address perceived and real risk

Session Agenda



- **Partnership to Develop and Asteroid Deflection Capability, Joe Lepore, Spacedesign Corporation**
 - Solar radiation pressure and market drivers
- **A Program Based on This Initiative, Tony Freeman, JPL**
 - NASA succeeds with Program
- **Canadian Space Agency, Jean-Claude Piedboeuf, CSA**
 - Summary of CSA asteroid related activities

Key Topics Discussed



- **Examples of successful partnerships**
- **Ideas of partnership models for the Asteroid Initiative and financial incentives for success**
- **Challenges smaller companies can have when trying to work with NASA**
- **Engagement examples**

Findings Relevant to Asteroid Redirect Mission



• Findings Relevant to the Mission

- CRADAs can be a very effective means for industry partnerships and need to be considered
- Look to COTS and ILDD as models for a fixed and below cost contracting approach paying when milestones are met
- Consider data buys or incentive prizes for acquisition of asteroid information
- Learn what motivates our industry partners and understand the different phases of the mining business, to inform mission design and architecture
- Get clear Mission objectives, stick to them, and define what roles participants will play so industry can organize properly.
- State that Mars missions will require in-space resource utilization
- Develop specific technology maps so industry and universities can determine where the gaps are and focus their energy on them
- An industry day in the Spring is too far away. Don't wait for perfection get moving
- Simplify access/paperwork requirements for new partners (3 page NIAC proposal requires over 157 pages of review and multiple website submissions)

Findings Relevant to Grand Challenge



• Findings Relevant to the Grand Challenge

- Explore conversations about risk and learn from the natural disaster response community, think 2004 Tsunami
- Consider forums for engaging the public in two-way policy conversations
- Consider building momentum through the use of smaller demos that can culminate into demo days to leverage the shared progress
- Can there be a NASA process to enable industry retweets through NASA social media?
- Design future forums to enable easier communication and conversations
- Asteroid Grand Challenge Virtual Seminar Series to begin next year
- <http://agcnotes.wikispaces.com>