

Session 5 Summary

Technical Value of ARM, Panel Discussion

Panel

- Gentry Lee (JPL)
- Doug Cooke (NASA AA ESMD, Retired)
- Tom Jones (FIHMC, former astronaut)
- Jim Bell (ASU)

Session chairs: Dan Mazanek (LaRC) and Faith Vilas (PSI)

Session 5 Summary

Key points from remarks

- Many benefits, but lack of mission definition is a significant risk
 - Define range of acceptable target characteristics and mission parameters
 - Schedule is too aggressive when coupled with technology development, mission complexity, multi-center implementation and funding uncertainties
- ARM has the potential to be a unifying, cohesive endeavor across NASA directorates
- Possibly the only near-term “planetary surface” destination
 - Use experience gained to reduce design uncertainties for future human missions and gain more crew autonomy
 - Progresses human skills and experience in deep space
 - Opportunity to demonstrate NASA competence and risk management within tight budget times
- Space resources
 - Breaks the paradigm of relying completely on resources brought from Earth
 - Promotes commercial and international partnerships

Session 5 Summary (cont'd)

Additional issues from Q&A/Discussion

- ARM is exciting, but in these austere times, what is our opportunity threshold cost? Depends in part on where the money is coming from – needs to come from HEOMD.
- Cost compared to OSIRIS-REx (60 grams vs. many, many tons). Need to have a reasonable schedule or costs of mission will become excessive (2019 earliest with proper funding).
- Science value of asteroidal materials goes beyond just planetary science (potential value extraterrestrial materials)
- Public perception is that this mission is much more than technology demonstration mission
 - NASA needs to set bold goals for itself and reasonable success criteria
 - Relevant also for general public especially in terms Mars exploration
- Is the ARM concept worth the risk to astronauts? Consensus of panelists was “yes.”
- Duration of crewed visit to returned asteroid is not on the same order as a Mars mission, but stretches Orion capability and Deep Space Habitat shake out and advances fault protection for this mission given that no quick return is available. ISS missions significantly helps with the long duration.