Paper ID: 29257
oral

SPACE EXPLORATION SYMPOSIUM (A3)
Space Exploration Overview (1)

Author: Mr. Jason Hay
Bryce Space and Technology, United States

Ms. Nicole Herrmann
Valador, Inc., United States
Ms. Erin Mahoney
Valador, Inc., United States

NASA'S EVOLVING STRATEGY: FROM MOON-SHOTS TO PIONEERING

Abstract

The past decade has been one of continued transition for NASA, shifting from a mission to capability driven agency. The Columbia accident investigation represents a pivot point, however the transition began earlier with discussions on ISS utilization and the formation of an international space agency coalition.

NASA was established as a mission driven organization to "contribute materially" to specific national objectives. High profile missions dominated NASA's first 50 years: Mercury, Gemini, Apollo, Voyager, Viking, Mariner, and Hubble Space Telescope to name a few. This approach was very effective and continues to be a valuable tool for NASA, however the aerospace ecosystem has evolved tremendously since NASA was established. Objectives have increased in complexity, budgets are constrained, and NASA has been joined by a host of commercial and international partners with significant independent capabilities. In this environment isolated missions designed to meet individual goals are no longer sustainable. Instead, NASA has shifted focus to developing a set of broadly applicable capabilities that complement partner capabilities and enable a wide range of interrelated exploration activities.

NASA's transition can be traced through policy and exploration initiatives. Early efforts, like the Space Exploration Initiative, tested the waters and explored challenges associated with the transition. More recently the Vision for Space Exploration laid the groundwork for the Constellation Program and the Lunar Architecture studies. This vision evolved to incorporate commercial crew and cargo, near-term destinations in cis-lunar space, and the current Evolvable Mars Campaign (EMC) analysis and the Pioneering Space Strategy. The names and details of NASA's strategy will likely continue to evolve, but there is a clear, connected trend throughout these policies leading to pioneering of Mars through capability development.

This paper will briefly outline the history of NASA's pioneering strategy and trace the evolution from missions to capabilities. The authors will discuses Pioneering Space and the EMC in further detail within the context of overarching trends. We will also look at planned near-term activities and how these support the objectives of capability development to support future space pioneers. Finally, the paper will conclude with thoughts on continued evolution within NASA and the aerospace community and how current work and decisions today will provide a solid foundation for an uncertain, but exciting future for human spaceflight.