Exploration Architecture Options - ECLSS, EVA, TCS Implications

Joe Chambliss¹ and Don Henninger²

NASA JSC; Houston, Texas 77058 USA

Carl Lawrence³

Jacobs ESCG, Houston, Texas 77058 USA

Many options for exploration of space have been identified and evaluated since the Vision for Space Exploration (VSE) was announced in 2004. Lunar architectures have been identified and addressed in the Lunar Surface Systems team to establish options for how to get to and then inhabit and explore the moon. The Augustine Commission evaluated human space flight for the Obama administration and identified many options for how to conduct human spaceflight in the future. This paper will evaluate the options for exploration of space for the implications of architectures on the Environmental Control and Life Support (ECLSS), ExtraVehicular Activity (EVA) and Thermal Control System (TCS) Systems. The advantages and disadvantages of each architecture and options are presented.

¹ Deputy Division System Manager for Exploration, Crew and Thermal Systems Division, 2101 NASA Parkway, Houston Texas 77062 EC1 and AIAA Associate Fellow
² Division System Manager for Exploration, Crew and Thermal Systems Division, 2101 NASA Parkway, Houston Texas 77062 EC1
³ Project Engineer, Exploration Systems, 2224 Bay Area Boulevard, Mail Code JE77, AIAA Lifetime Member.

American Institute of Aeronautics and Astronautics