

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
The Apollo program and the rockets that took humanity to the moon (9-D6.2)

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HERITAGE CAPABILITIES ENABLING DEEP SPACE HUMAN EXPLORATION MISSIONS

Abstract

NASA's deep space exploration system is a capability comprised of the Orion deep space spacecraft, the Space Launch System (SLS) rocket and the Exploration Ground Systems (EGS) used to assemble, launch, fly and recover the Orion capsule, astronaut crews and cargo to the vicinity of the Moon in the 2020s. Together they will enable safe and sustainable human exploration and transformational science of the Earth-Moon system and beyond. To accomplish this ambitious goal, NASA and its domestic and international partners will deliver and operate the heavy-lift rocket, spacecraft and mission systems that leverage numerous heritage capabilities.

This paper will build on the theme of the 70th International Astronautical Congress, titled "The Power of the Past, The Promise of the Future" to overview the Deep Space Exploration System and highlight select areas where heritage flight and ground systems will be used to enable the uncrewed Exploration Mission One (EM-1) and the crewed Exploration Mission Two (EM-2).

Heritage systems highlighted in the paper will overview prior applications, demonstrated reliability, pending Exploration Mission application and known challenges associated with the planned use. The paper will conclude with a discussion on the value proposition of using heritage systems. An open dialogue of questions and answers with the audience will follow the presentation.