

2016 Space Days Abstract

Title

Our Human Journey to Mars – The Next Steps

Summary

By the end of the decade, NASA is taking the next steps to launch humans to deep space on the journey to Mars for the benefit of all humankind.

Abstract

The United States National Aeronautics and Space Administration (NASA) will be launching the super-heavy-lift Space Launch System (SLS) by the end of the decade. This launch marks the next steps of human exploration of Mars and continues the journey that began over 50 years ago with Mariner and most recently ExoMars. SLS is the only rocket with the power capable of sending humans to deep space and the large systems necessary for human exploration all the way to Mars. Exploration Mission (EM)-1 will be the first integrated flight of the SLS rocket and Orion spacecraft – journeying farther into space than Apollo. NASA will also expand the science and exploration capability of SLS by deploying thirteen small satellites into deep space for the first time. These small satellites, created through partnerships with small businesses, Universities and international partners, will carry out various scientific missions to better understand our universe and the challenges of living and working in deep space. SLS EM-1 will provide the framework and serve as a test flight, not only for vehicle systems, but also for payload accommodations, ground processing and on-orbit operations. The results of this mission will validate capabilities for sending explorers to Mars and create the opportunity to pioneer solutions to challenges to deep space exploration. SLS's versatile design will evolve for future exploration needs and accommodate bigger payloads, such as large aperture telescopes for scientific research or manned human deep space exploration missions to Mars. The achievement of EM-1 will demonstrate NASA's commitment and capability to extend human existence to deep space and inspire the world to pursue greatness in the exploration of our universe.