Gateway Utilization Capabilities and Status

Stephanie Buskirk Dudley[a], Diane Craig Davis, Ph.D[a], Kate Halloran[b], Christina Zaid[c]

[a] *National Aeronautics and Space Administration (NASA), Johnson Space Center, United States*
[b] *Abacus Technology Corporation, Johnson Space Center, United States*
c MORI Associates, Johnson Space Center, United States

Abstract

Gateway will be a space station orbiting the Moon that will enable long-term presence in deep space. As part of the National Aeronautics and Space Administration's (NASA) Artemis mission, Gateway will serve as a cornerstone of human deep space exploration and scientific discovery and a steppingstone to Mars. NASA leads the Gateway Program and serves as the integrator of spaceflight capabilities and contributions of U.S. commercial and international partners, European Space Agency (ESA), Japanese Aerospace Exploration Agency (JAXA) and the Canadian Space Agency (CSA), to develop and utilize Gateway. This paper provides an overview of the following utilization capabilities of Gateway: spacecraft overview, internal and external accommodations, resources for utilization, and vantage point for Earth, Sun, and Moon observations. Three utilization payloads have already been selected to fly on Gateway as part of the initial modules, Habitation and Logistics Outpost (HALO) and Power and Propulsion Element (PPE) modules: European Radiation Sensors Array (ERSA), Heliophysics Environmental and Radiation Measurement Experiment Suite (HERMES), and Internal Dosimeter Array (IDA). This paper will provide a short summary of each payload, the value behind conducting each payload, and share an overview of future utilization goals of Gateway.

Keywords: Gateway, Artemis, NRHO, Utilization