



Habitation And Logistics Outpost (HALO) The Humans to Mars Summit 2021



Chad Davis

Human Spaceflight Integration & Operations Manager

Northrop Grumman

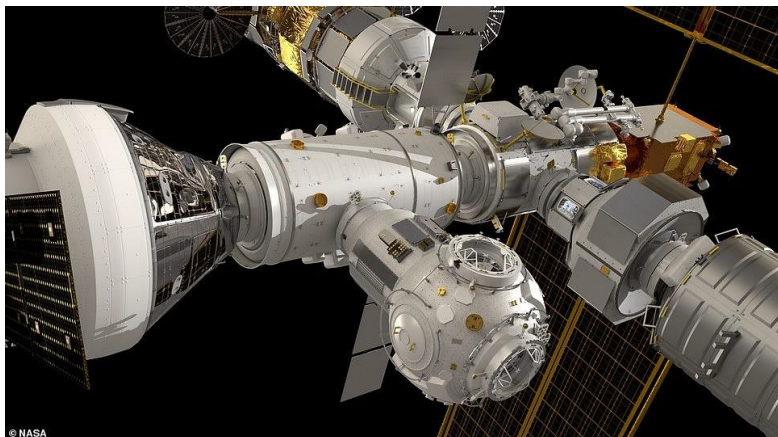
Chad.Davis@ngc.com

September 14, 2021



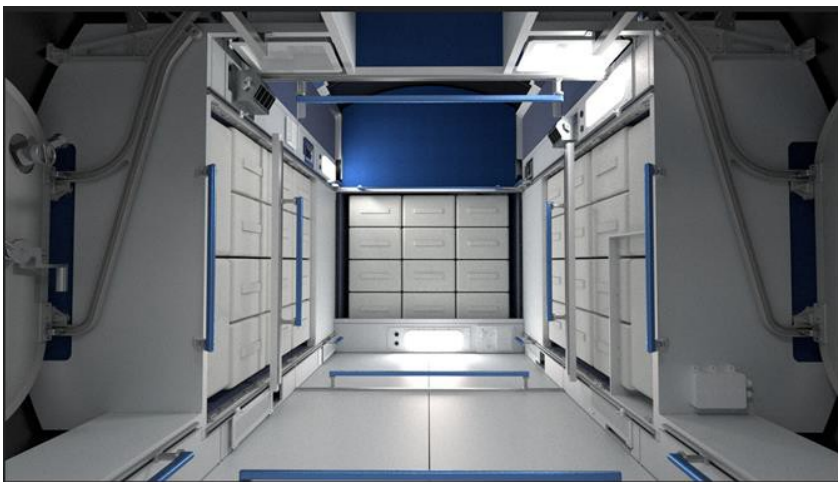
Habitation and Logistics Outpost (HALO) Overview

- HALO, in conjunction with the International Habitation Module (I-HAB) provides temporary living quarters for four astronauts to work in cis-lunar space and prepare for lunar surface missions
- HALO provides payload accommodations, external robotic interfaces, high voltage 2-way power and thermal control, oxygen/nitrogen supply and air circulation, and logistics storage for crew consumables for 30 days.
- HALO has three visiting vehicle docking ports, hosts ESAs Lunar Communication System, and facilitates Power and Propulsion Element (PPE) refueling
- PPE and HALO (i.e. the Co-manifested Vehicle CMV) will be launched together on a SpaceX rocket and transported to a Near-Rectilinear Halo Orbit (NRHO) using PPE's Electric Propulsion



Summary

- We are designing HALO life support, avionics, and thermal control for a 15-year life, with the capability to extend that life with future maintenance and parts replacement
- We are partnering with NASA to work the technical challenges of operating HALO in the harsh radiation and thermal environment in cis-lunar space
- We continue to focus on ensuring crew safety and comfort during their Gateway stay



We are proud to be part of the Artemis Program and to serve as the Gateway Hub!