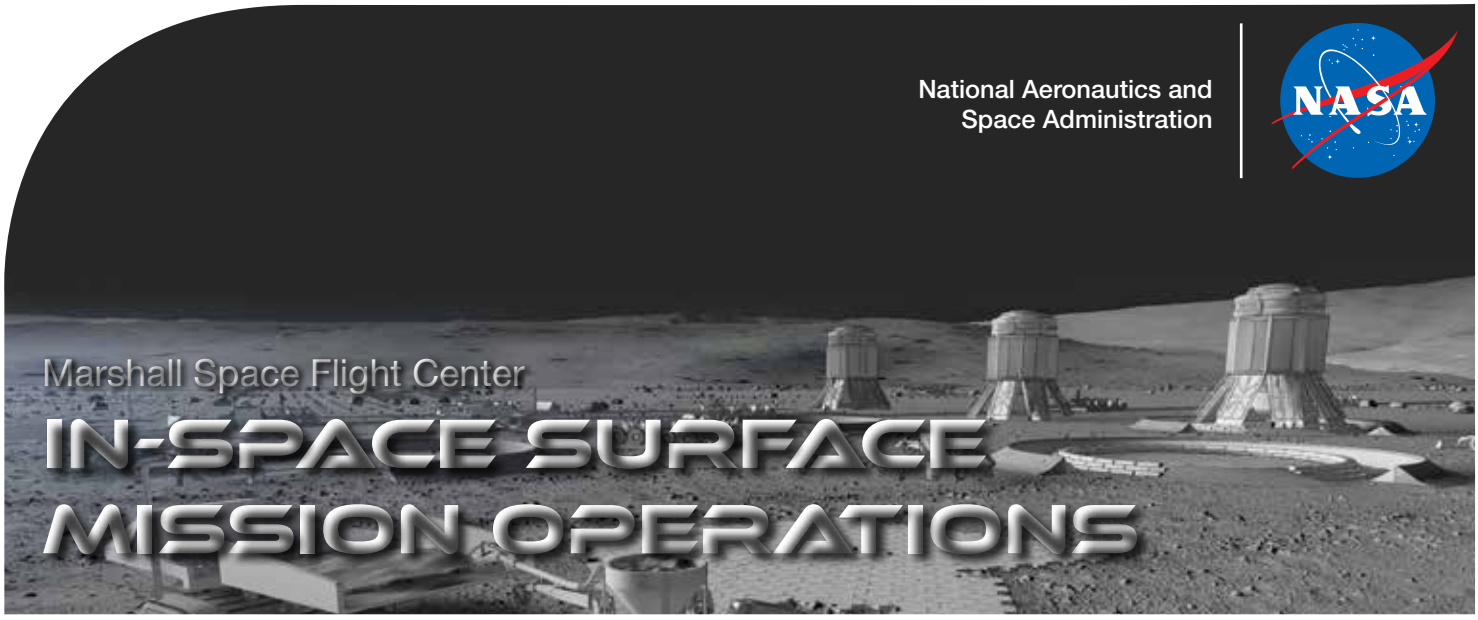
National Aeronautics and Space Administration



Marshall Space Flight Center

IN-SPACE SURFACE MISSION OPERATIONS

Marshall Space Flight Center is the leader in conducting end-to-end missionoperations for science payloads in low-Earth orbit, in cislunar space, on the lunar surface and beyond.

IN-SPACE AND SURFACE MISSION OPERATIONS

Marshall Space Flight Center is the leader in conducting end-to-end mission operations for science payloads in low-Earth orbit, in cislunar space, on the lunar surface and beyond.

Mission Operations Integration and Planning

Autonomous and crewed spacecraft science mission operations concept development

Expertise in integrating requirements for multiple experiments into a cohesive schedule of on-orbit activities

Developing safe and efficient on-orbit and ground command procedures

Logistics during all flight phases across various delivery schedules and vehicles

Use of automated tools in support of turnkey mission planning solutions

Creating individual experiment plans based on specific customers' needs

Mission Operations Training and Execution

Development of science operations curriculum and related instructional design

Flight and ground controller training and certification

Payload instructor assessment and training

Remote science user, ground systems interface, and NASA tools training

Critical thinking, situational awareness, and anomaly response training

XR (virtual and augmented) training assessment

Simulation Model Development

State-of-the-Art Distributed Ground Systems

Multiple configurable control rooms to meet the specific needs of any mission, including commercial and international partners

Turnkey operations areas, complete connectivity to offsite locations, and ability to host customers' systems onsite

State-of-the-art command and control, telemetry, voice, video services

Providing the communications solution and connectivity, utilizing established NASA communication assets (e.g., NSN, DSN) and capabilities to expand to commercial vendors

Cyber security to include in-house IT/security specialists

Lights-out automated services for routine command and control operational services

NASA's in-house imagery experts

Data Storage Data Management Facility

Telescience Resource Kit (TReK) that provides remote command and control services anywhere in the world with an internet connection

Exception monitoring and notification

Remote systems access

Distributed ground systems routing data to multiple remote sites

Autonomous Systems and Turnkey Science Utilization

Turnkey operations areas, connectivity to offsite locations, and ability to host customers' systems onsite

Access to NASA's secure and reliable spaceflight networks, with the capability to expand to commercial or Department of Defense facilities

24/7/365 monitoring from a secure and reliable facility, ensures effective interaction between ground ops, crew, and automated/autonomous systems, ensuring successful science mission execution

Centralized operations and integration capabilities to maximize return on science investment

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