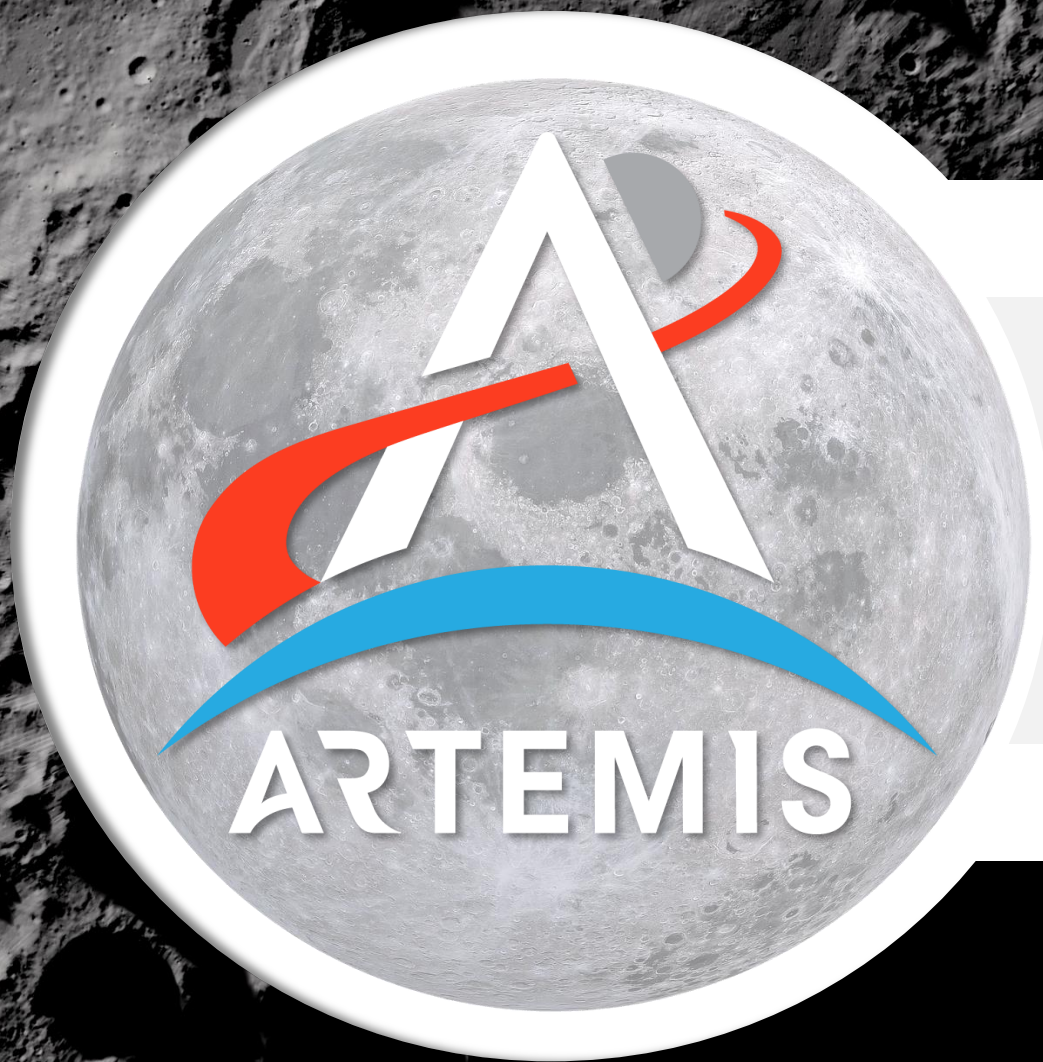


National Aeronautics and Space Administration



Preparing for Artemis Science Operations

Kelsey Young, Ph.D., Artemis Science Flight Operations
Lead

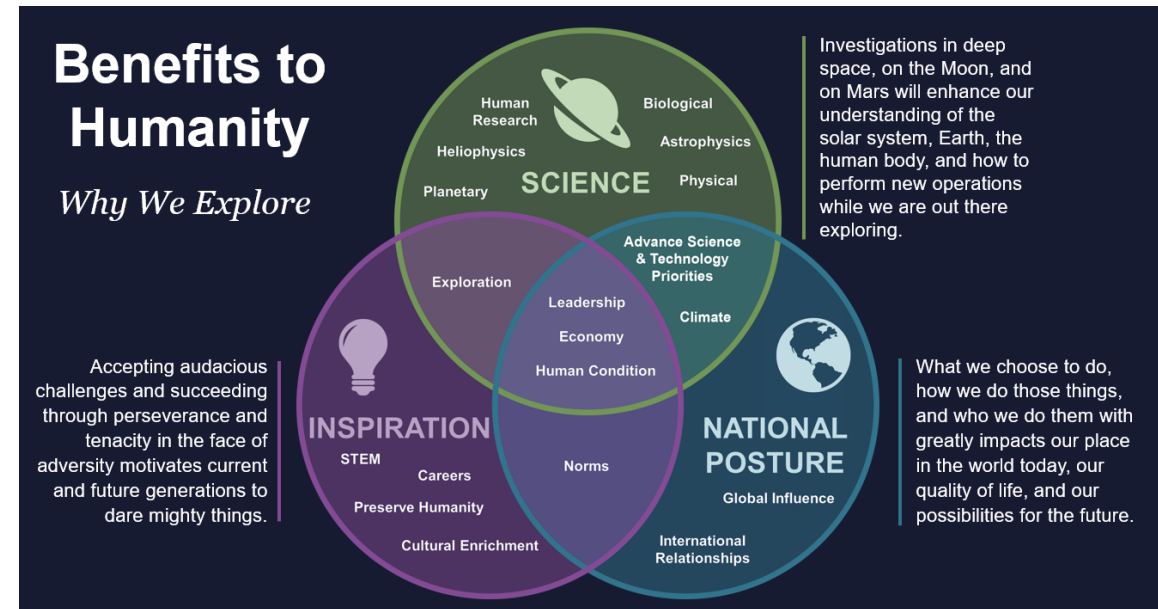
NASA Goddard Space Flight Center

May 7th, 2025

Lunar Surface Science Workshop

- Science & utilization operations in Artemis will be divided between JSC/FOD and MSFC/PMOD
 - See next talk for PMOD Overview
- JSC-based Flight Control Team responsible for EVA payload preparation & deployment, planetary observations, EVA-related lunar science & geology, and lunar sample management
- PMOD responsible for other IVA utilization, science preparation of EVA payloads, operations of payloads post-deployment
- New flight controller position for Artemis: Science Officer (starting with Artemis II)
- Science Evaluation Room (SER) is primary science backroom for lunar science and geology

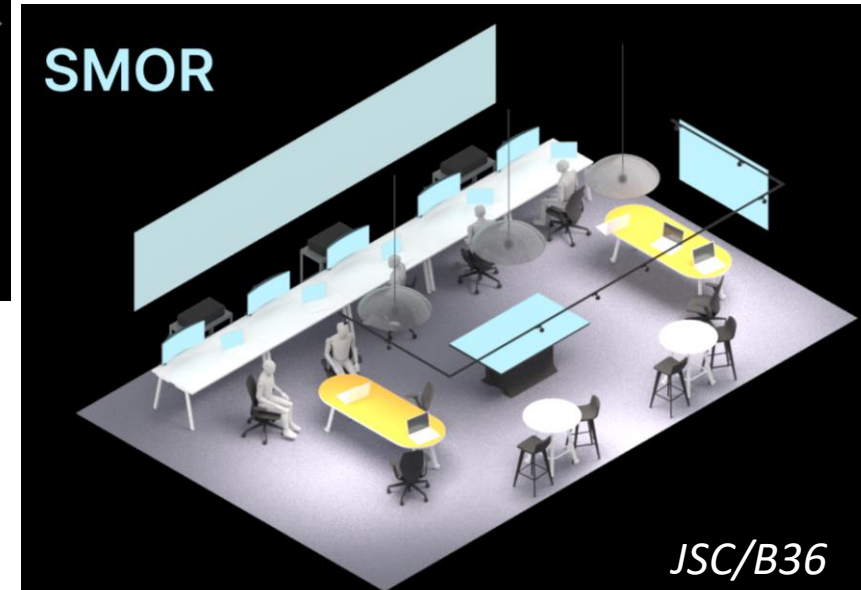
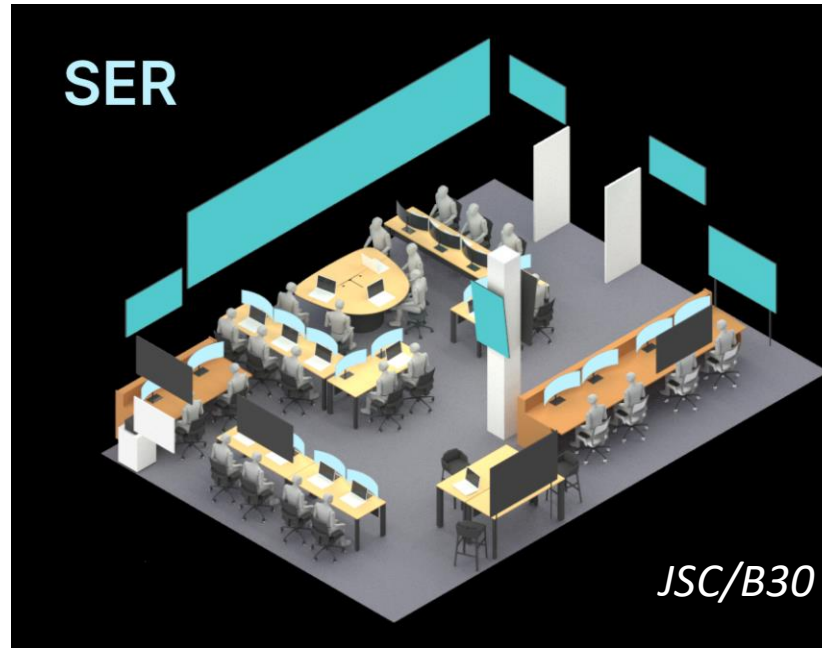
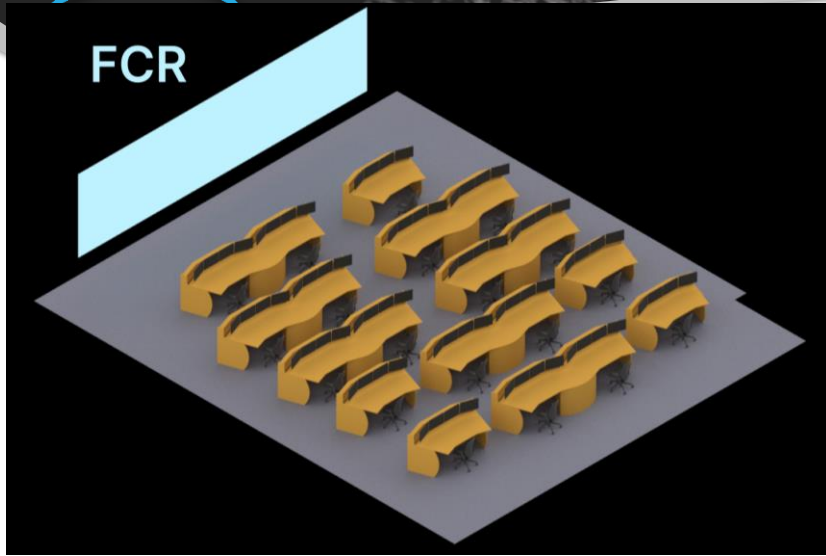
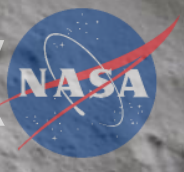
Science is an Artemis exploration pillar. As such, we are integrated across operations in multiple ways



JSC: Johnson Space Center
 FOD: Flight Operations Directorate
 MSFC: Marshall Space Flight Center
 PMOD: Payload & Mission Operations Division



Artemis II Lunar Science Operations Structure



FCR: Flight Control Room (Mission Control Houston 'Front Room')

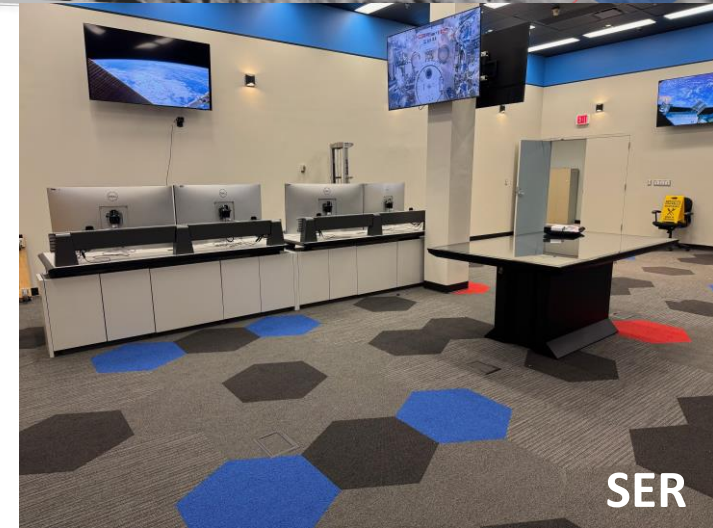
SER: Science Evaluation Room

SMOR: Science Mission Operations Room

- Science Officer (JSC/Mission Control Center)
 - New ‘front room’ position that will migrate to EVA backroom during EVAs
 - Responsible for planetary observations, EVA-related surface science, and lunar sample management
 - SMD Position staffed by lunar scientists/geologists
- SER: Science Evaluation Room (JSC/B30 MCC)
 - Primary science backroom for lunar science/geology objectives
 - Newly constructed facility in MCC
- SMOR: Science Mission Operations Room (JSC/B36)
 - Operated by JSC/ARES
 - Newly constructed facility

*Artemis II Science Officers:
Kelsey Young, Angela Garcia,
Trevor Graff*

*Artemis III Science Officers:
Kelsey Young, Angela Garcia,
Trevor Graff, Cherie Achilles,
Marie Henderson*



SER



SMOR

*SER: Science Evaluation Room
SMOR: Science Mission Operations Room*

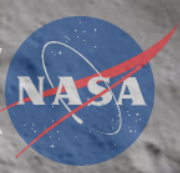
- Room where Science Team will operate during Artemis missions to support lunar science/geology objectives
- Responsible for providing **real-time, tactical science feedback** as well as **strategic scientific oversight over the lunar science/geology portion of the mission**

*Upper: JETT5 SER
Lower: Apollo 17
Geology Backroom
(Image mosaic from
Noah Petro)*





SER Status



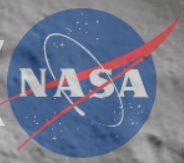
SER (above) and SMOR (below) on track for completing summer 2025

- Artemis SER located in old Apollo computer room
- Will be ready for Artemis II operations
- The Artemis SER will be 'open concept' surrounded by more traditional consoles
- SER will be supported by a JSC/Bldg 36 SMOR (image processing, sample support, etc.)
- SER will have connectivity to image analysis and other mission support teams





Science Evaluation Room (SER)



- JSC-based science operations will focus on planetary observations, EVA-related surface science, deployment of EVA payloads, and lunar sample management
- MSFC-based utilization operations will focus on other IVA payloads, operations of payloads post EVA deployment, and operations of untended HLS-mounted payloads
 - See next talk for MSFC operations structure
- Science Officer: new Artemis flight controller position, staffed by SMD lunar scientists/geologists
 - Artemis II Science Officers: Kelsey Young, Angela Garcia, Trevor Graff
 - Artemis III Science Officers, Kelsey Young, Angela Garcia, Trevor Graff, Cherie Achilles, Marie Henderson
- Science Evaluation Room: lunar science/geology backroom, reports through Science Officer
- Science Mission Operations Room: SER backroom
- This structure has been tested in a variety of simulations (JETT3, JETT5, October 2024 sim – see Miller talk later today) and many more simulations are planned to train and certify all personnel and rooms for operations
- Science is a fundamental pillar of Artemis – as such, we are integrated across the operations structure