

SLS

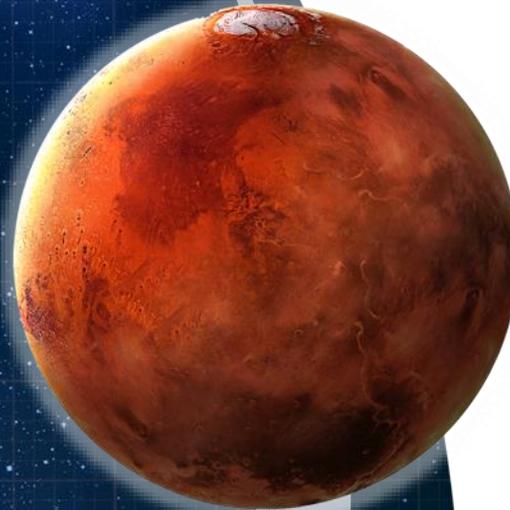
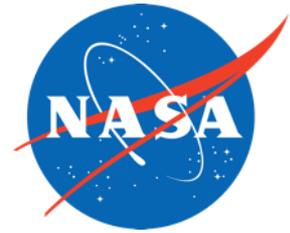
Secondary Payloads

Jody Singer
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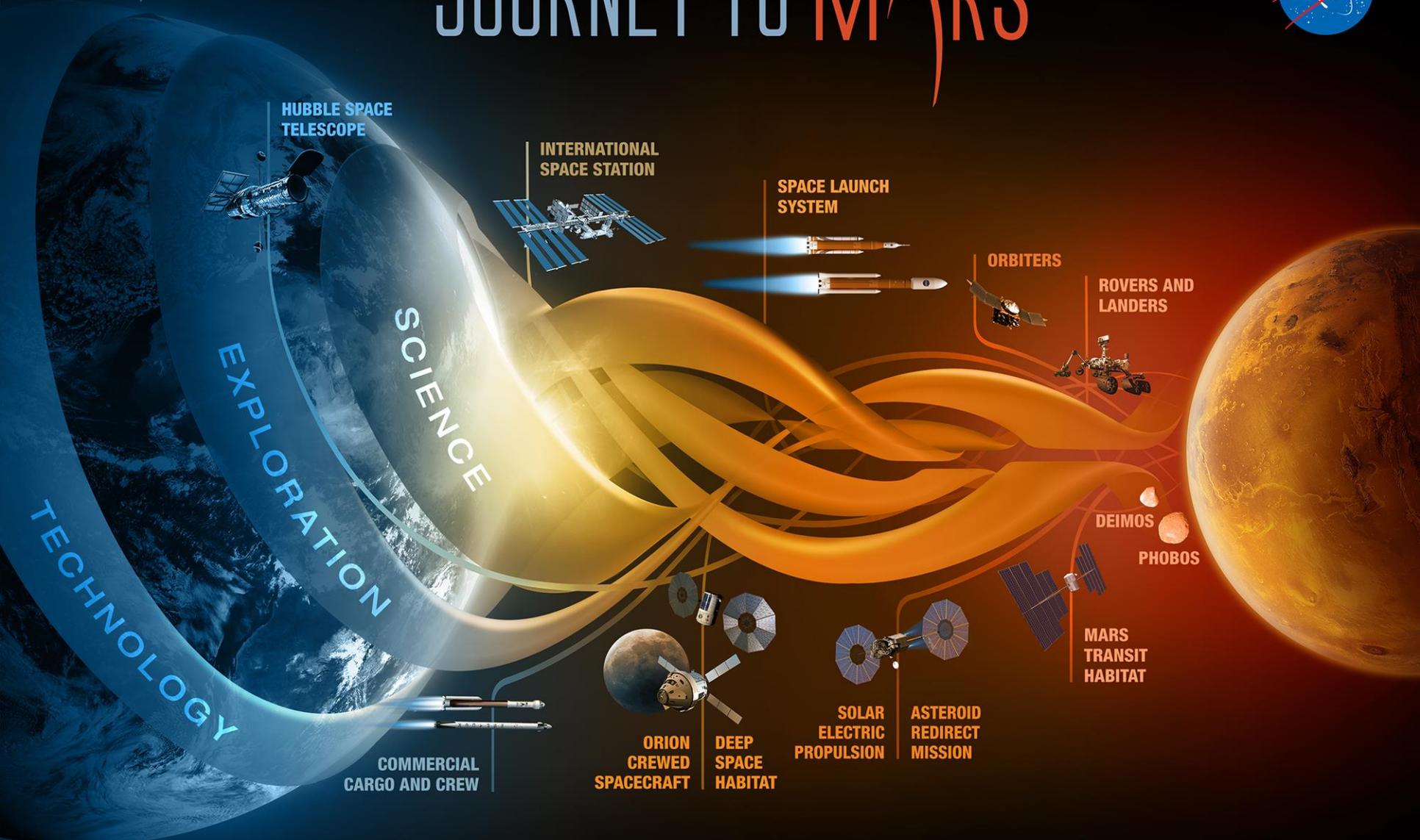
SpaceOps 2016
Daejeon, Republic of Korea

National Aeronautics and
Space Administration



MARSHALL
SPACE FLIGHT CENTER

JOURNEY TO MARS













SLS

Capability

>70 metric tons

Height

98.2 meters

Weight

2.6 million kilograms

Thrust

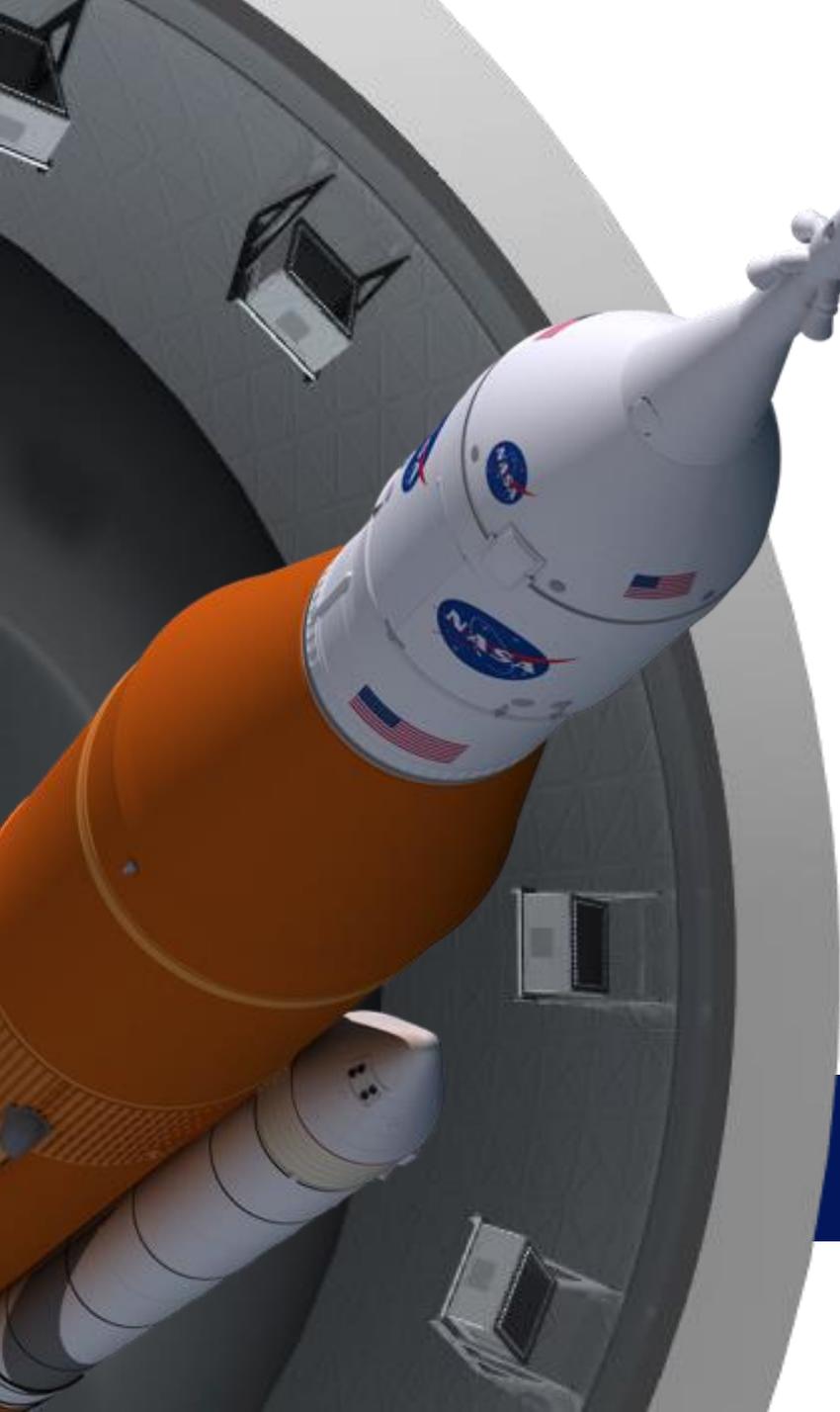
39.1 million newtons

Available in 2018



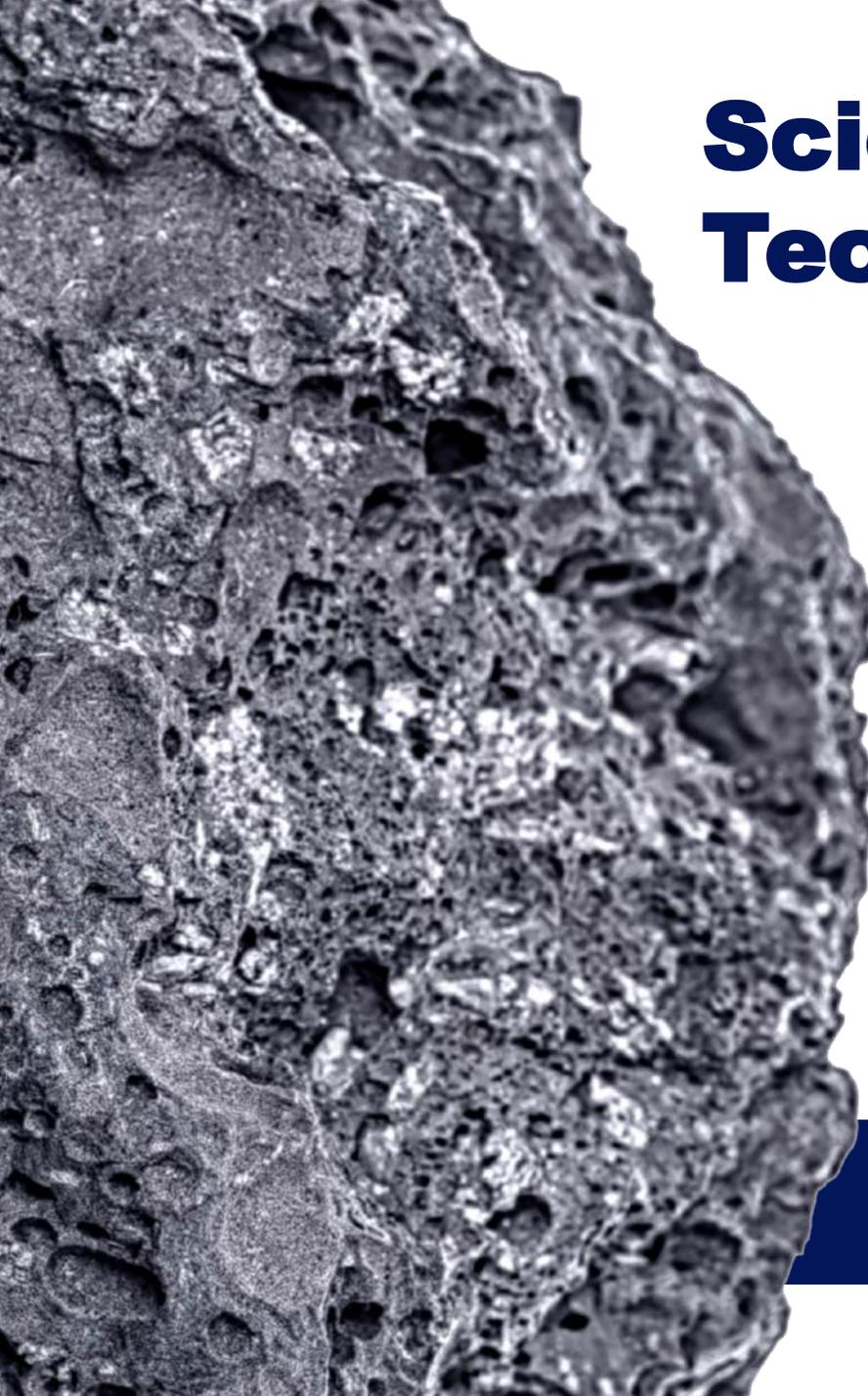
- Initial demonstration of SLS and Orion capabilities
- Launch uncrewed Orion into distant retrograde orbit around the moon

Exploration Mission-1



- 13 payload locations on EM-1
- 6U volume
- 14 kg
- Developed in partnership with NASA, academia, international, and commercial organizations
- First time smallsats deployed in deep space

Capability for Secondary Payloads



Science and Technology

Reconnaissance and
characterization of an asteroid
using solar sail propulsion

- NEA Scout

Near-Earth Asteroid



Science and Technology

- Mapping the lunar surface
- Searching for resources such as water, hydrogen, and other resources
- Observing radiation and soil mechanics
 - Lunar Flashlight
 - Lunar IceCube
 - LunaH Map

Moon

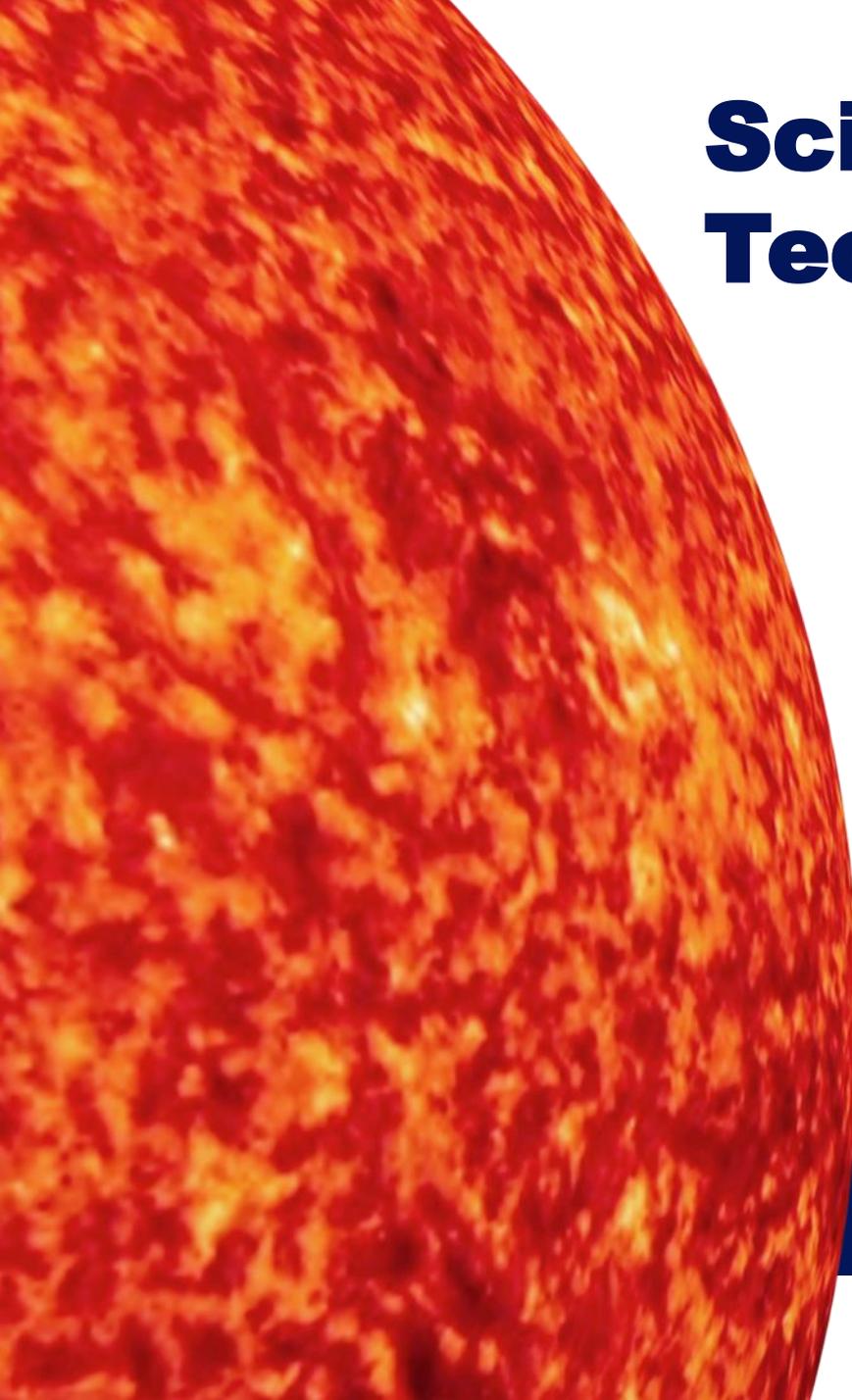


Science and Technology

Imaging Earth's plasmasphere to study radiation and sensor experimentation

- Skyfire

Earth



Science and Technology

Studying space weather events long before they reach Earth

- CubeSat Mission to Study Solar Particles (CuSP)

Heliophysics



Science and Technology

Measuring the biological response to space radiation outside low-Earth orbit using single-celled yeast

- BioSentinel

Deep Space



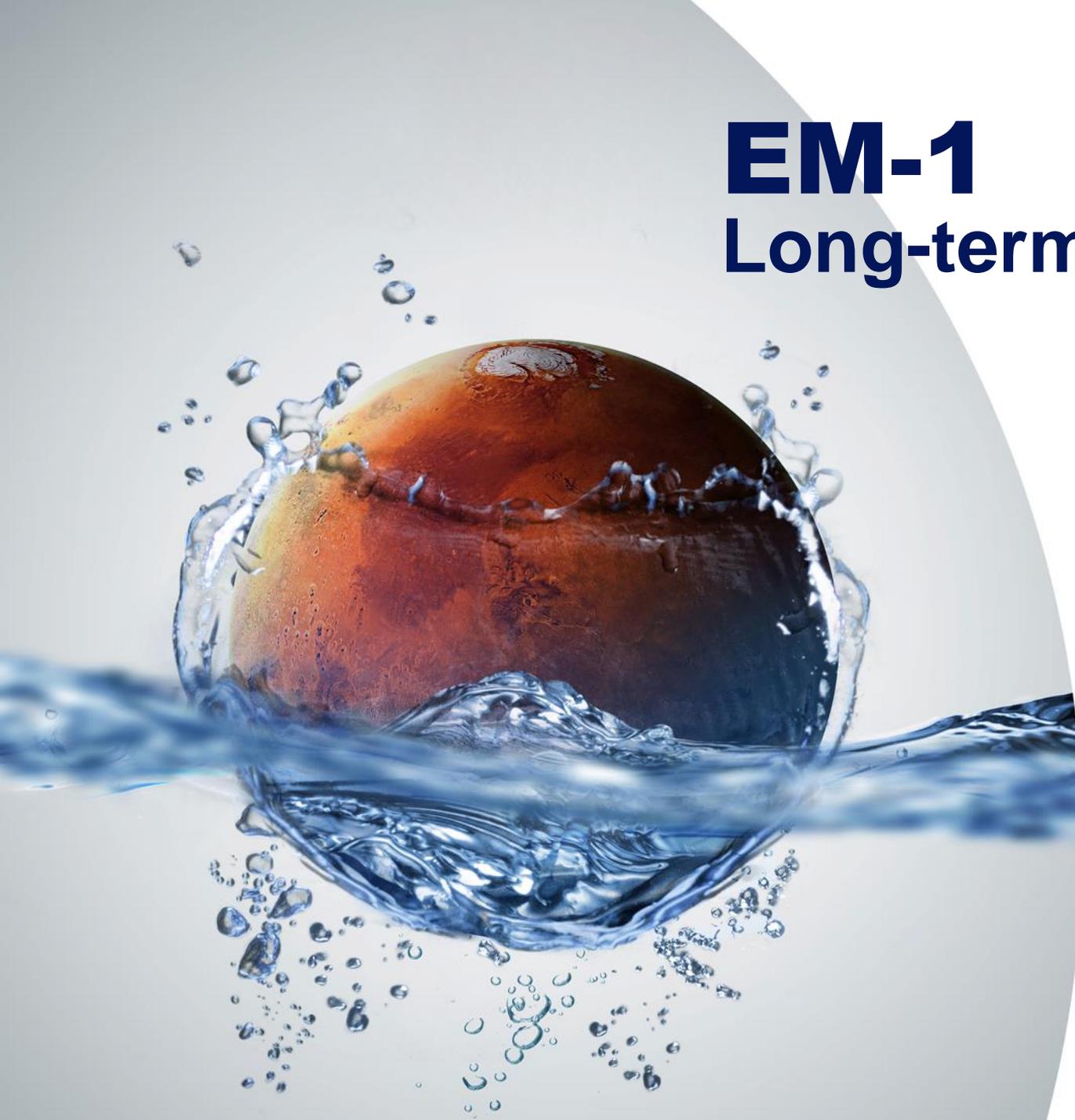
NASA's Centennial Challenges

Three slots on SLS's EM-1 are allocated for the winners of the CubeQuest Challenge.

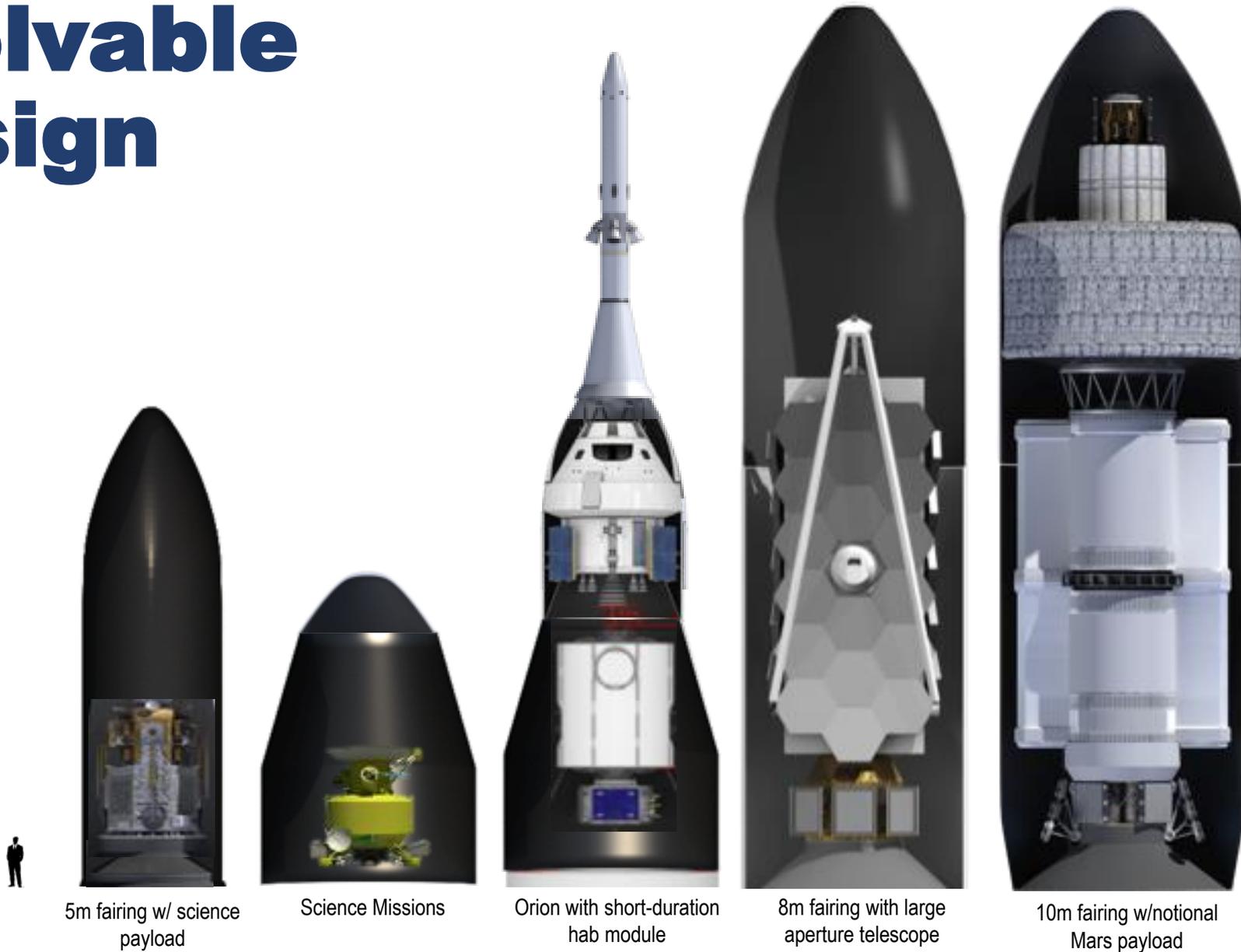
CubeQuest Challenge

EM-1

Long-term Benefits



Evolvable Design



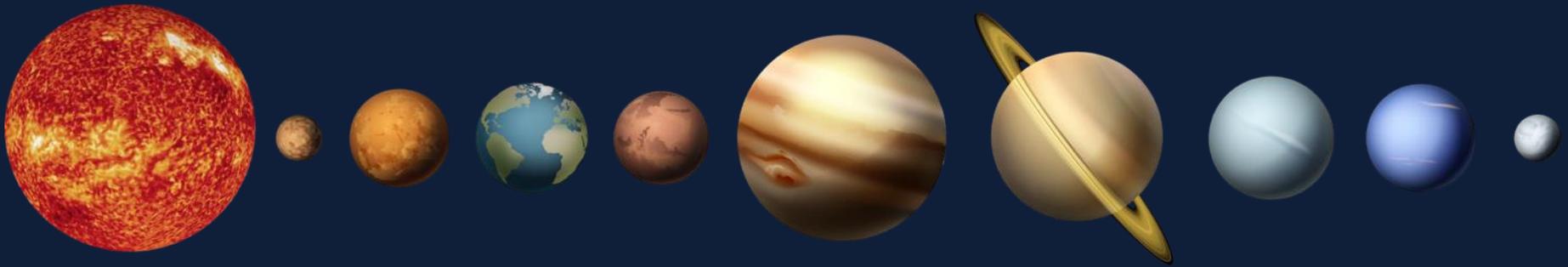
total mission volume = ~ 250m³

400m³

400m³

1200m³

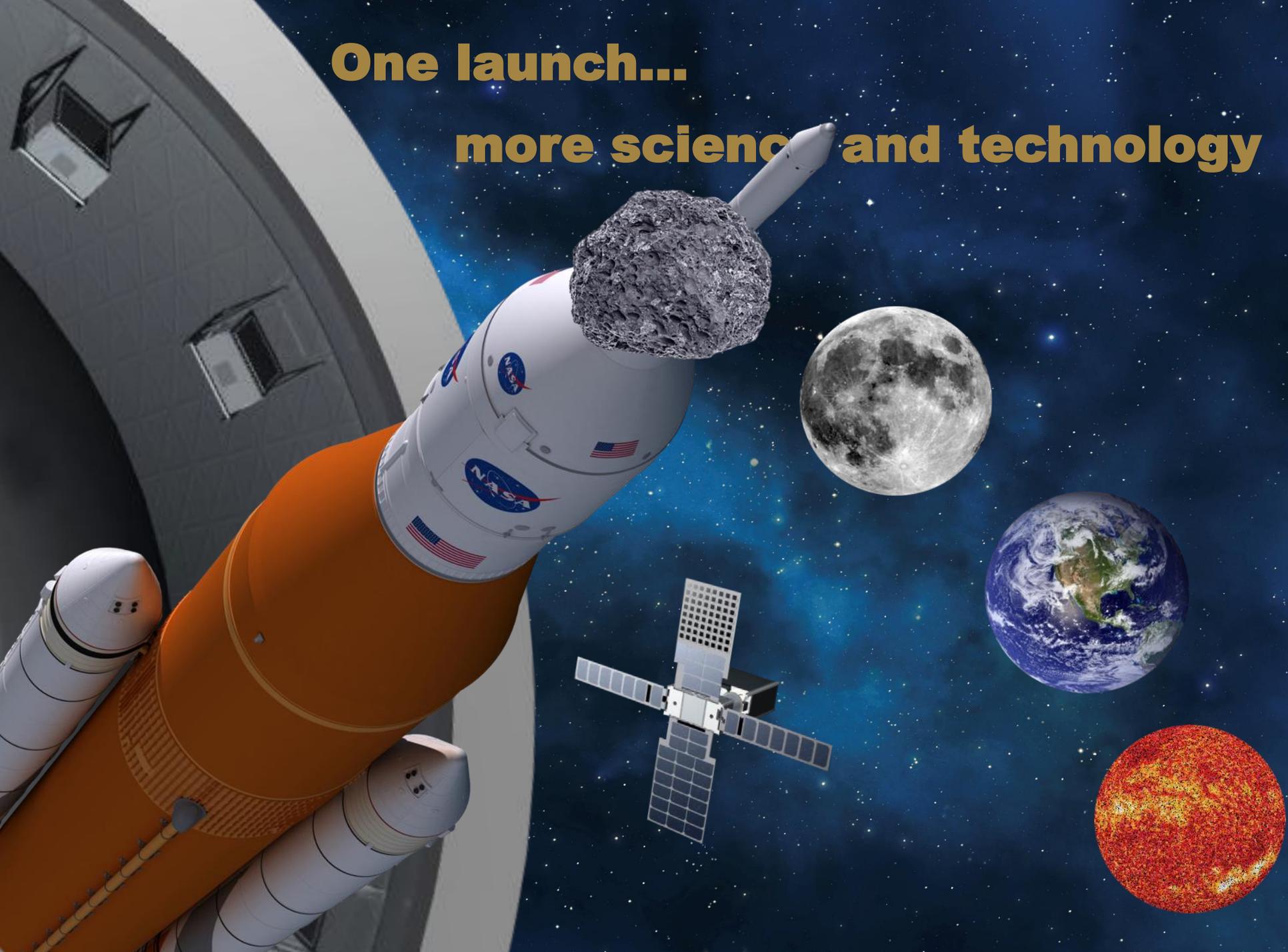
1800m³



Future Destinations

One launch...

more science and technology





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