



Mark Mulqueen

Boeing International Space Station Program Manager

United Nations Workshop Technical Session:

The Future of Space Commercialization

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Deep Space Human Exploration Incremental Approach

Now
Demonstrate technologies and
conduct research to support
exploration
Deep Space Technologies
Human Health



Phase 1
Test critical systems
near the moon.
Orion
Space Launch System
Exploration Habitat Prototype
Asteroid Redirect Mission



Phase 2
Return to moon proximity and
prepare to go beyond
Lunar Science
Lunar Landing – International
Simulated Mars mission



Precursor Science/Robotic Missions

**Journey to the
Mars System**
[2030+]



Earth Reliant

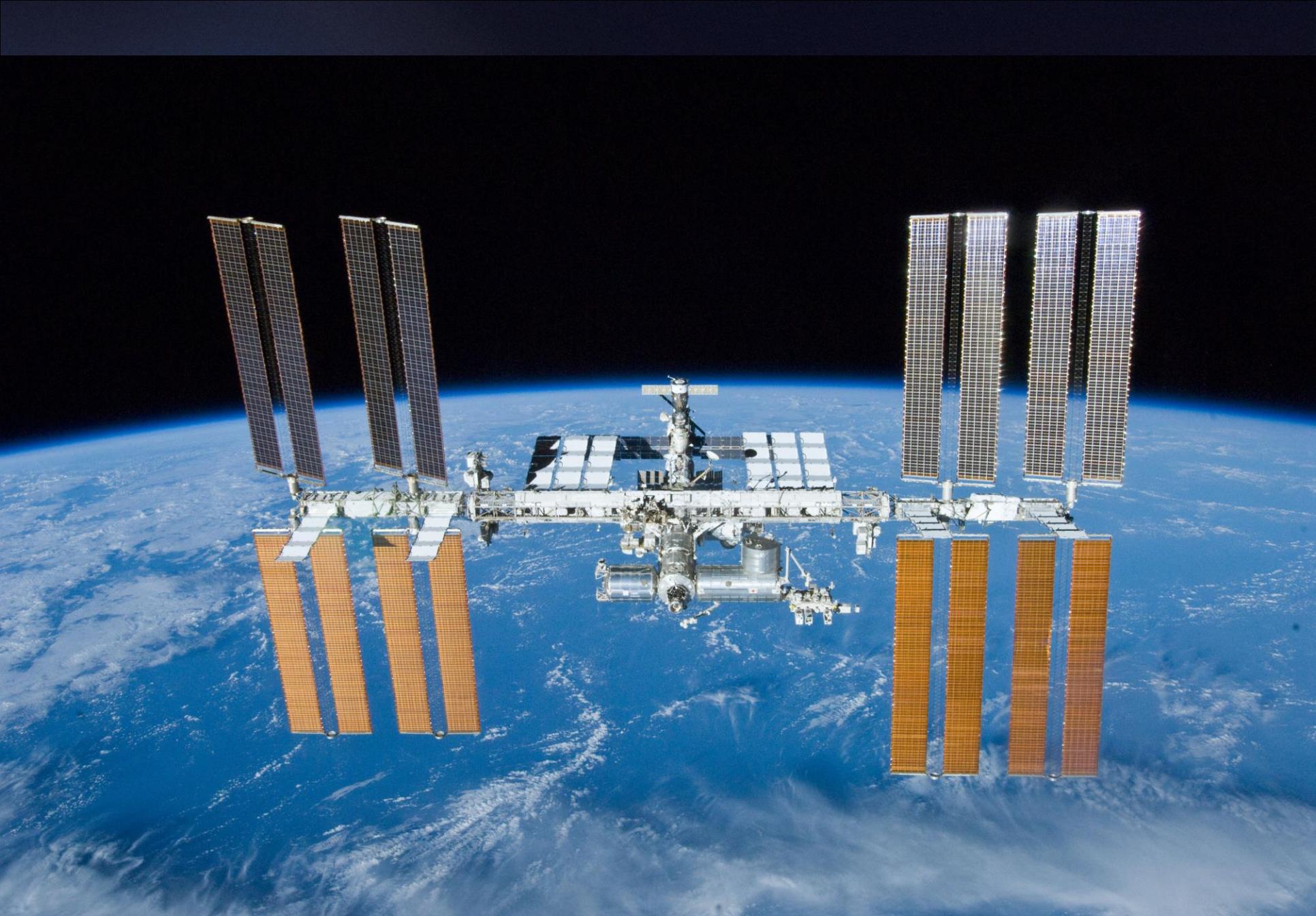
Missions: 6-12 months
Return: Hours
~250 miles

Proving Ground

Missions: 1-12 months
Return: Days
~240,000 miles

Earth Independent

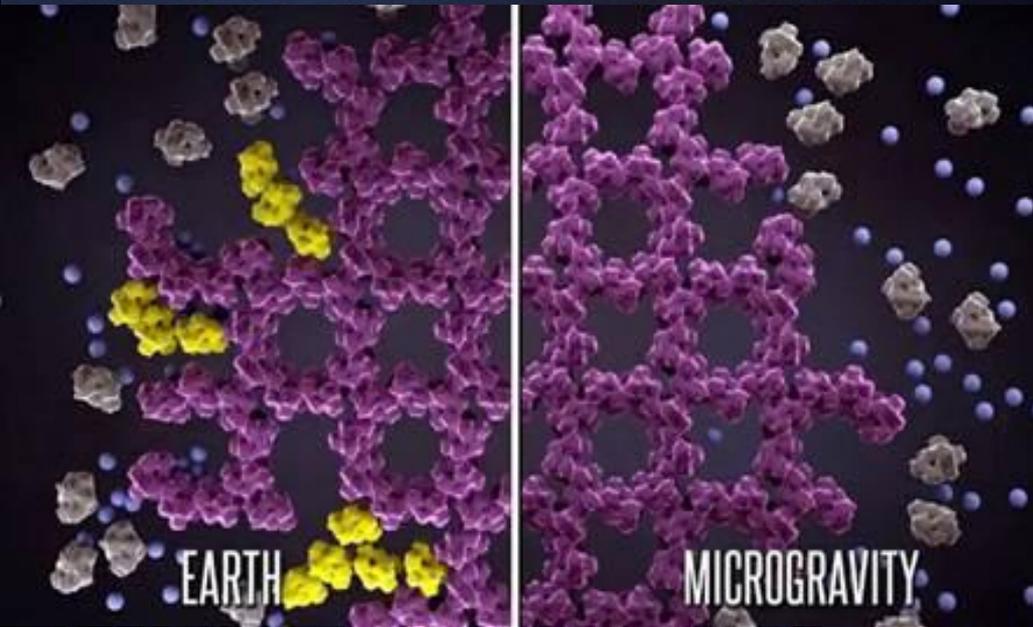
Missions: 2-3 years
Return: Months
~140 million miles



Research and Technology Advances



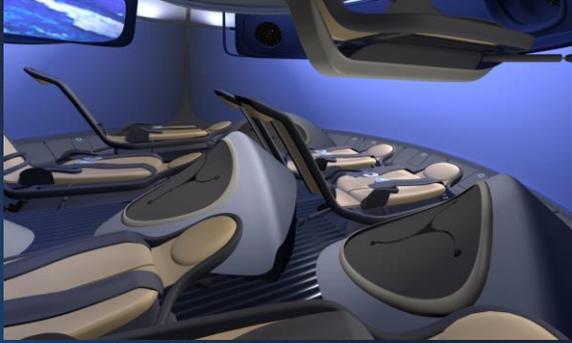
Space Station Commercialization



Space Station Commercialization



Commercial Crew Transportation



Private Space Station



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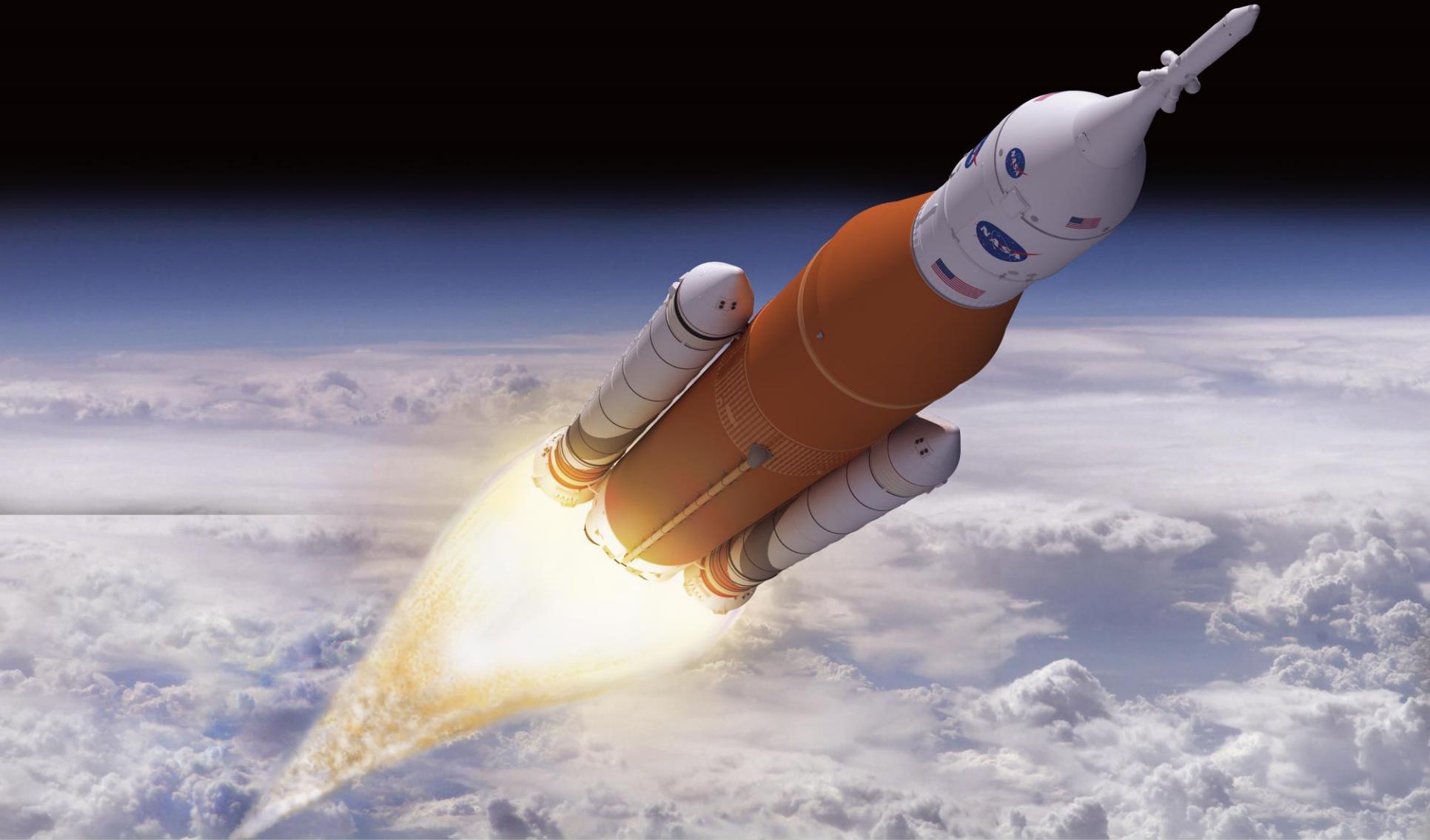
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Space Launch System



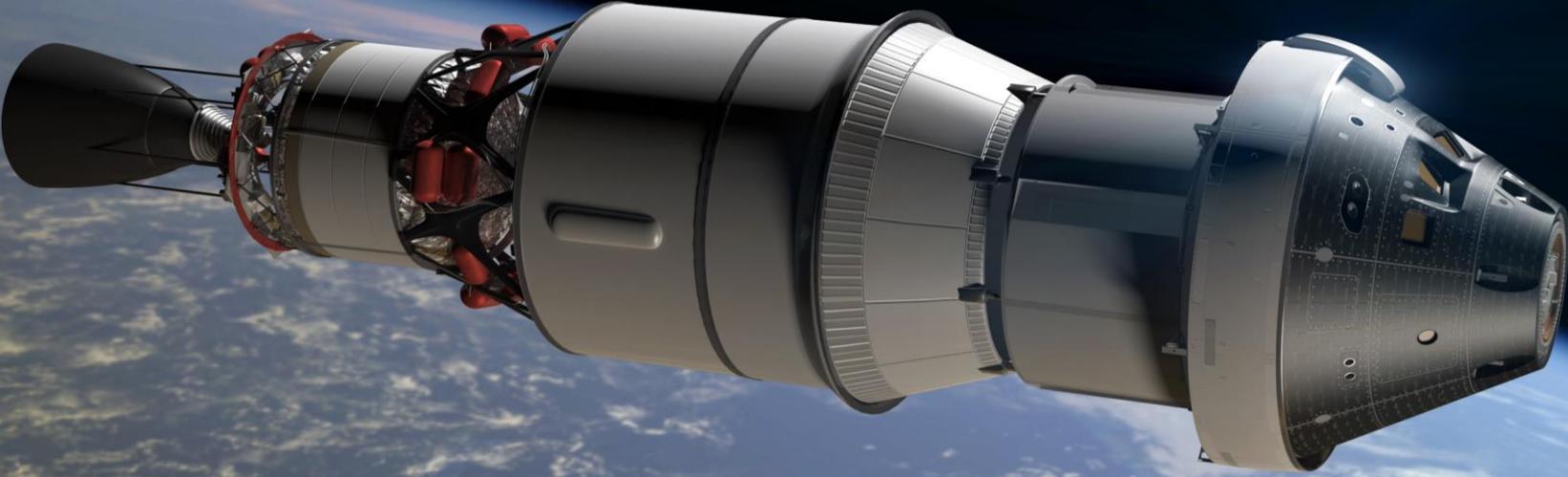
Space Launch System



Orion



Orion



Proving Ground Campaign

SLS/Orion to Lunar Orbits

30 Day Mission

- 4 crew
- Telescience operations
- Solar Electric Propulsion

60 Day Mission

- 4 Crew
- Advanced Life Support

90 Day Mission

- 4 Crew
- Lunar
- Tele-science

Lunar Surface Demonstration

- SLS Cargo Capability

90 Day Mission

- Habitation module
- Solar Electric Propulsion
- Lunar Surface Landers and Exploration

300 Day Mission

- 4 Crew
- Long duration transits
- Long Duration Transit Capability
- Large SEP

Earth Independent Operations

Lunar Surface Exploration

2021

2022

2023

2024

2025

2026

2027

2028

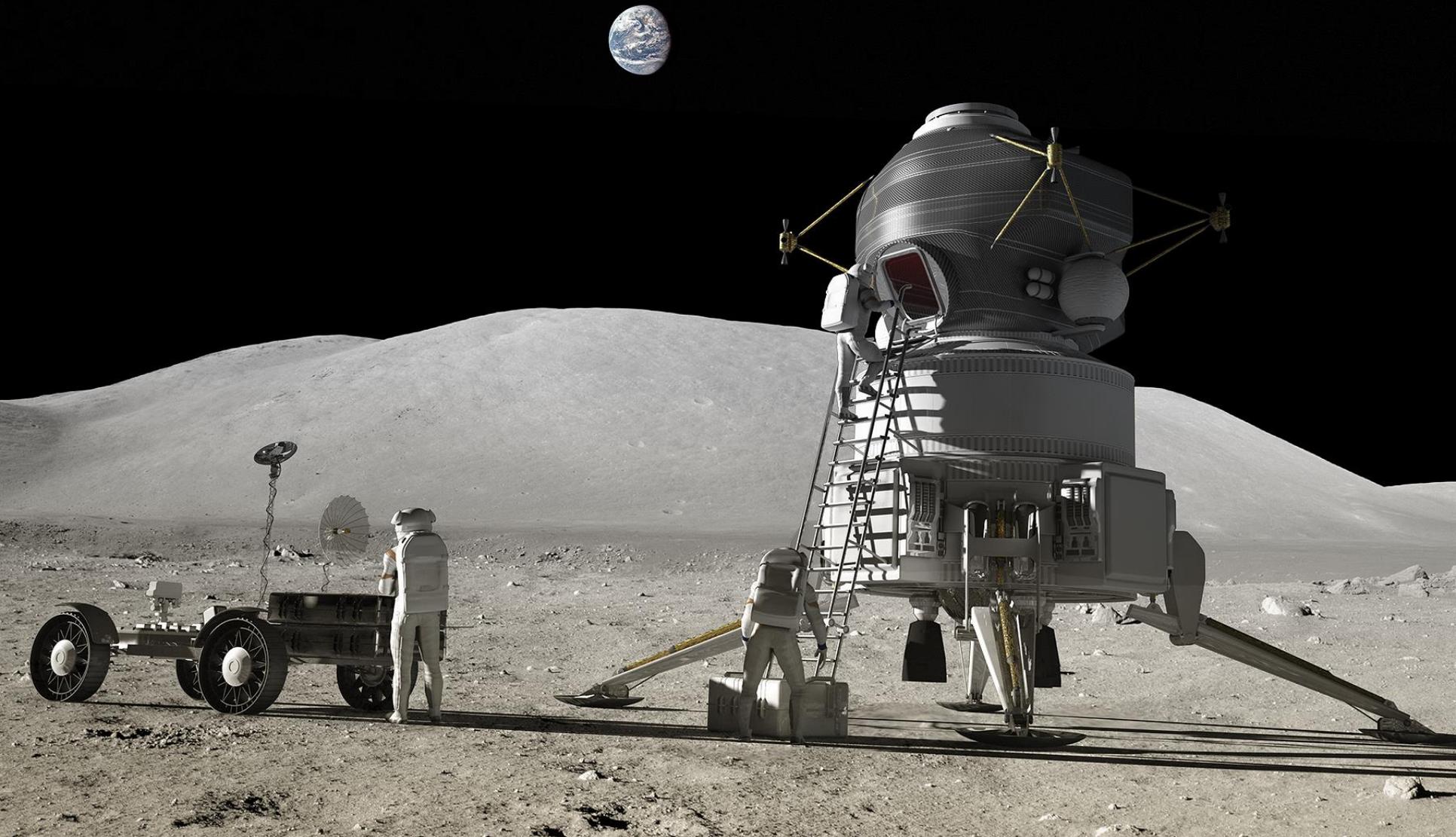
2029

2030

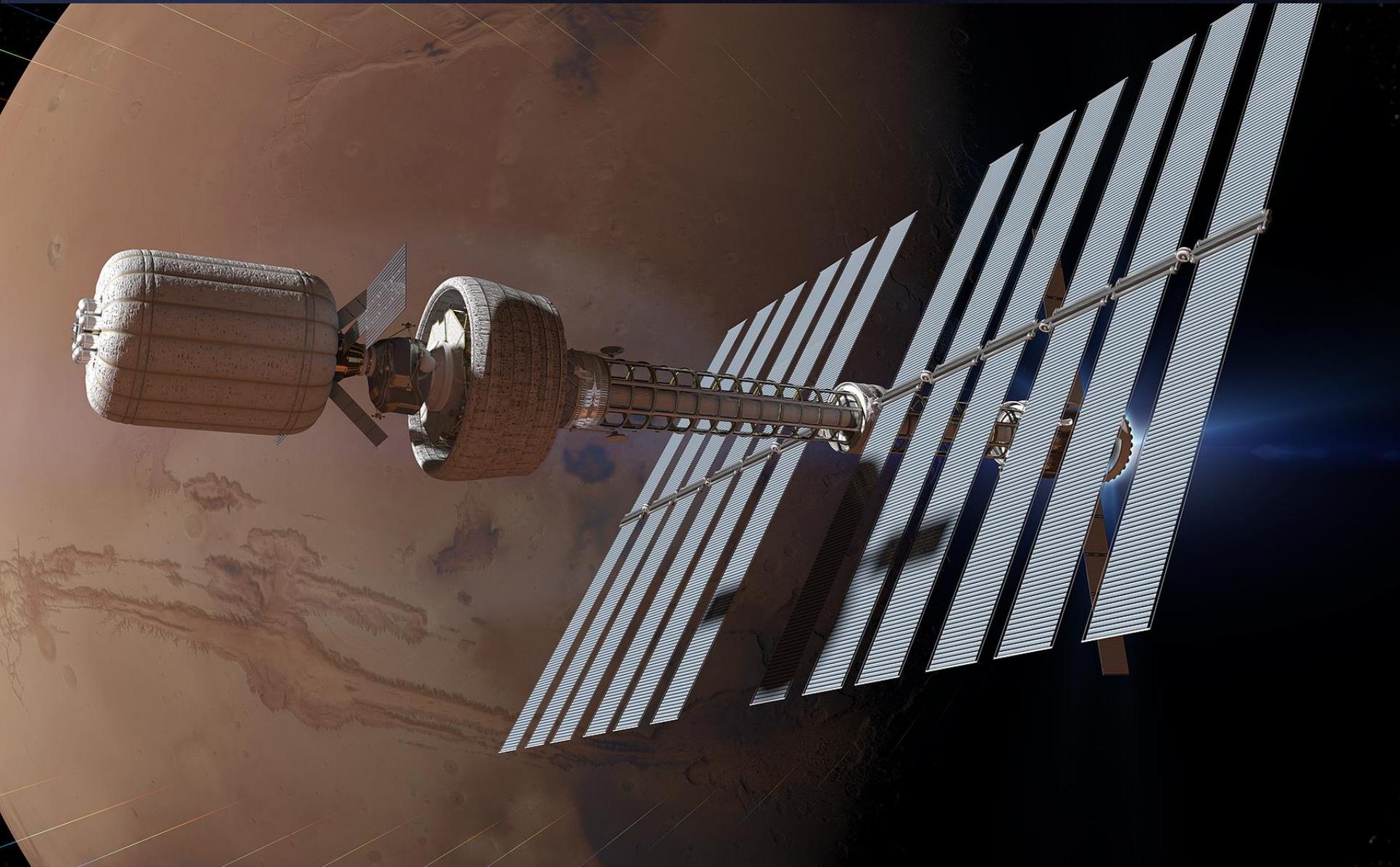
Phase 1

Phase 2

Lunar Mission



Journey to the Mars System



Journey to the Mars System





