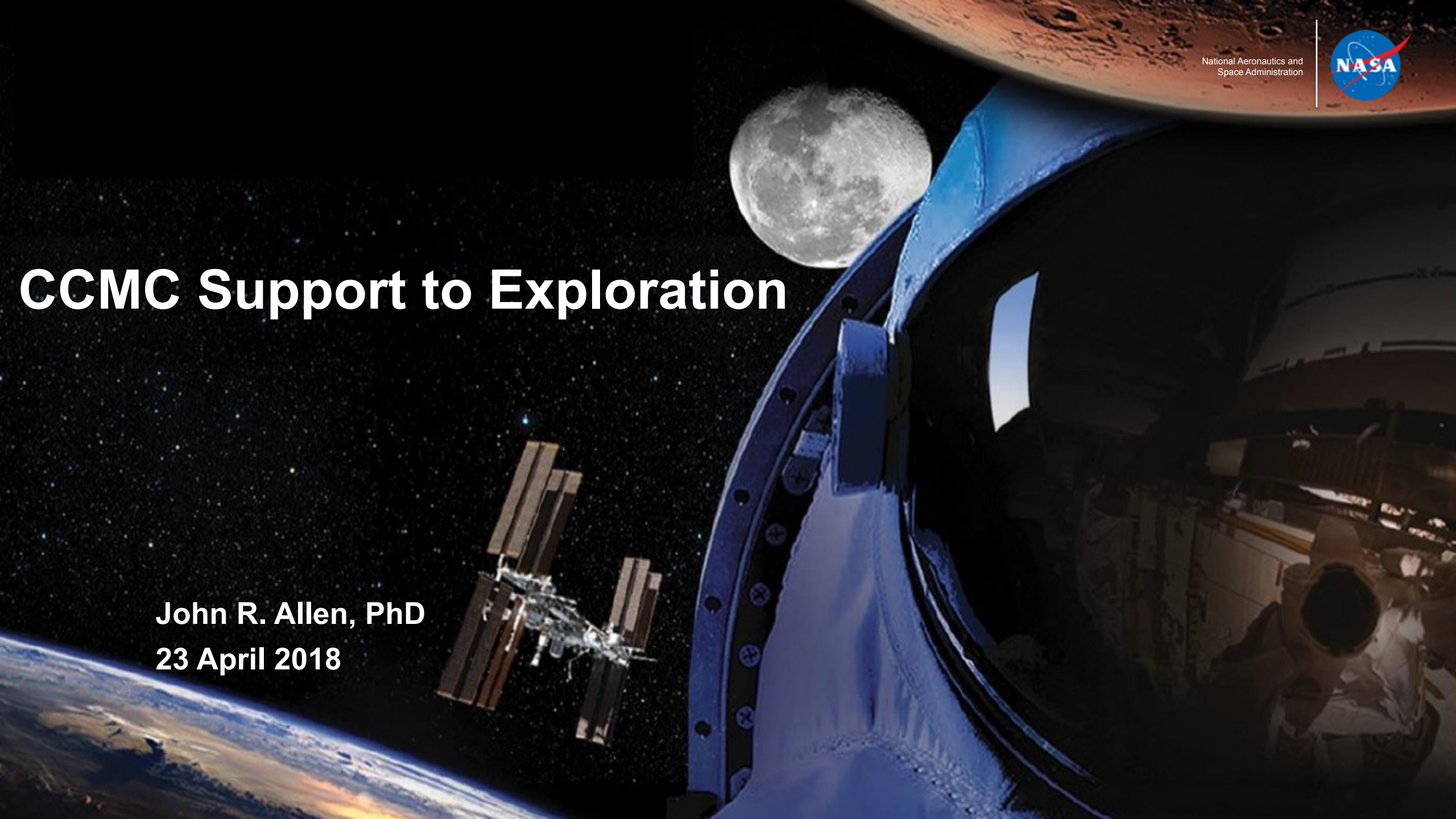




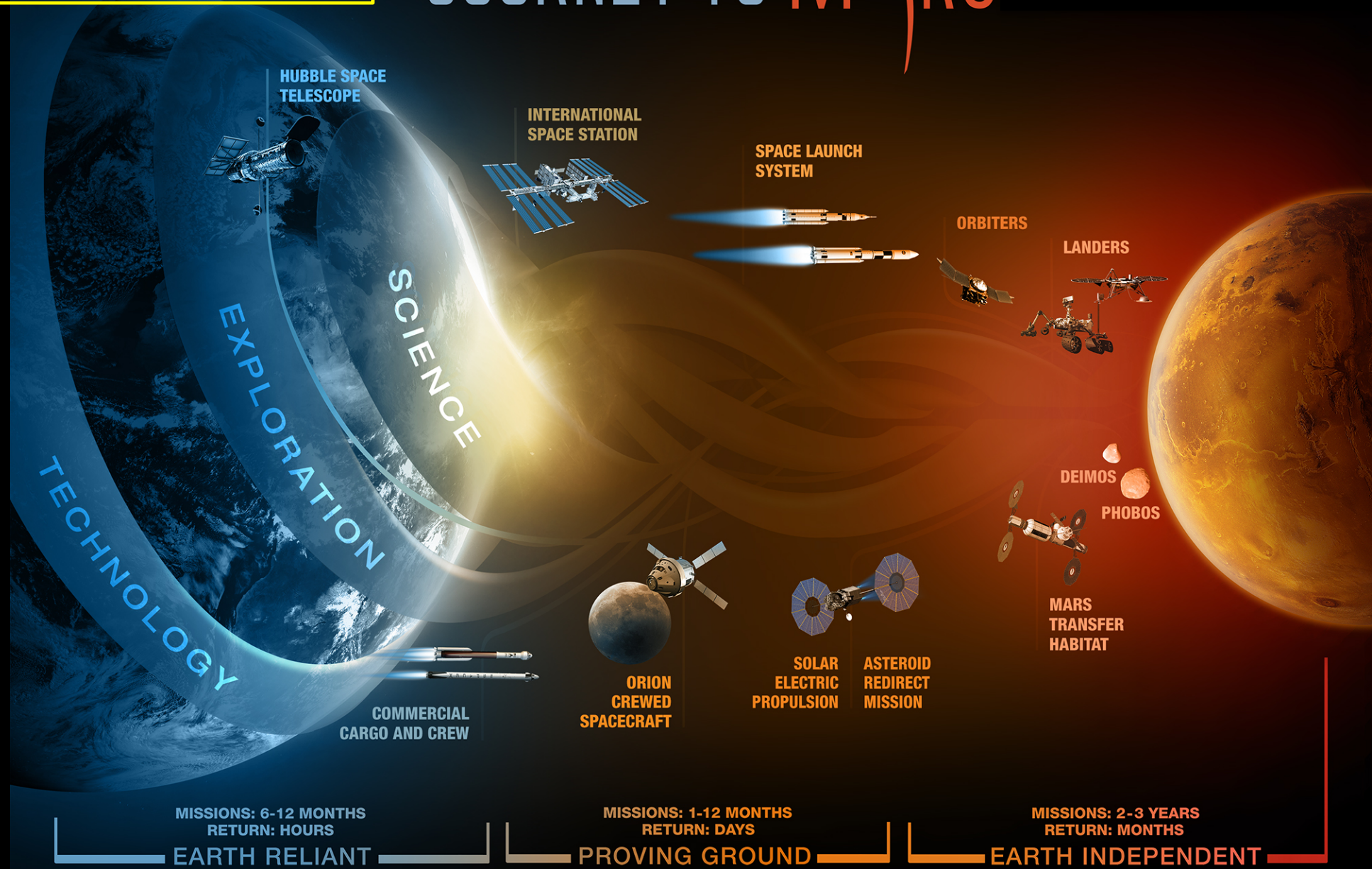
CCMC Support to Exploration

John R. Allen, PhD
23 April 2018



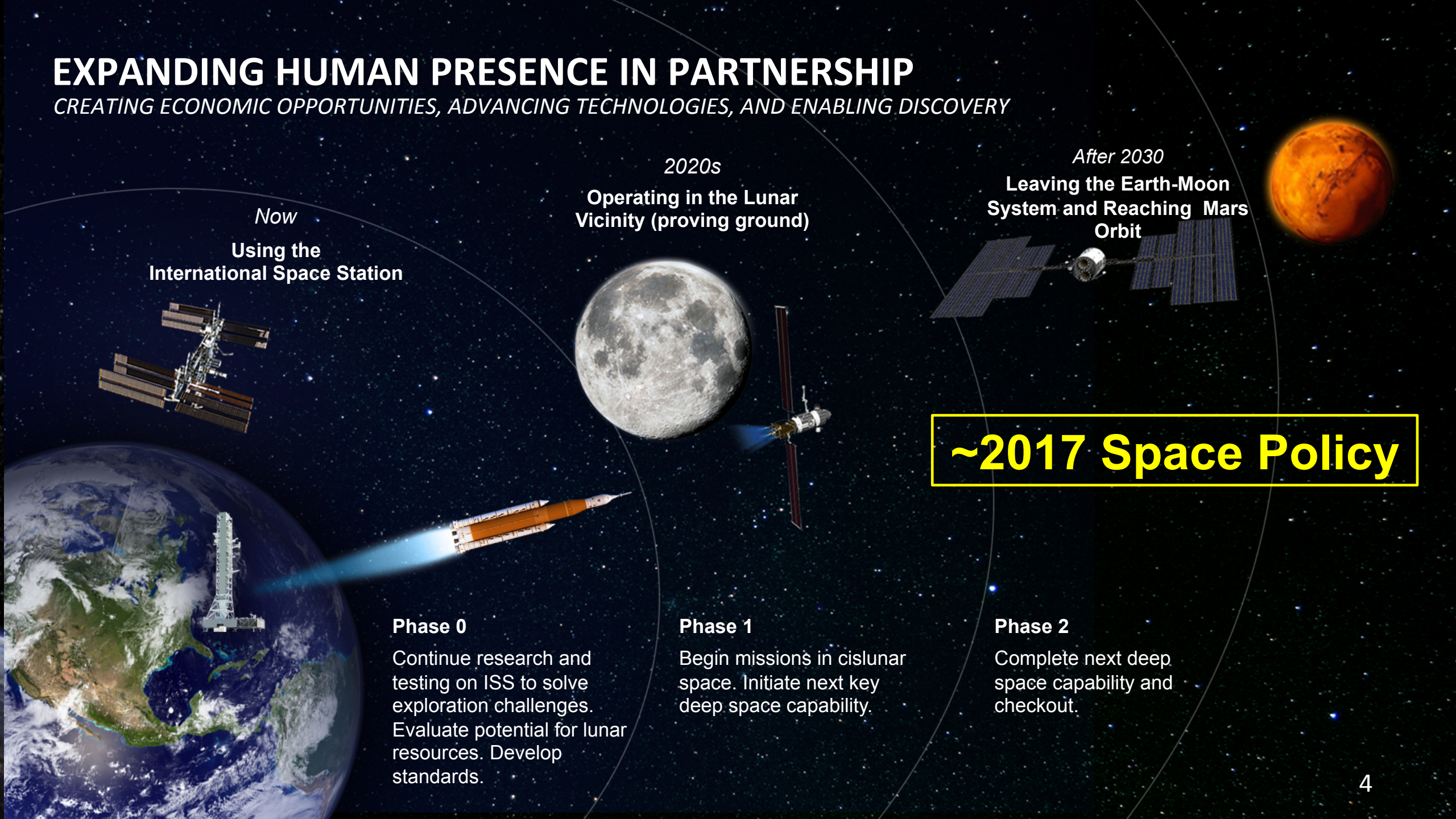
'Old' Space Policy:

JOURNEY TO MARS



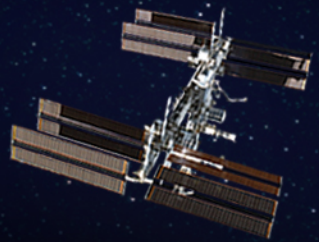
EXPANDING HUMAN PRESENCE IN PARTNERSHIP

CREATING ECONOMIC OPPORTUNITIES, ADVANCING TECHNOLOGIES, AND ENABLING DISCOVERY



Now

Using the
International Space Station



Phase 0

Continue research and testing on ISS to solve exploration challenges. Evaluate potential for lunar resources. Develop standards.

2020s

Operating in the Lunar
Vicinity (proving ground)



Phase 1

Begin missions in cislunar space. Initiate next key deep space capability.

After 2030

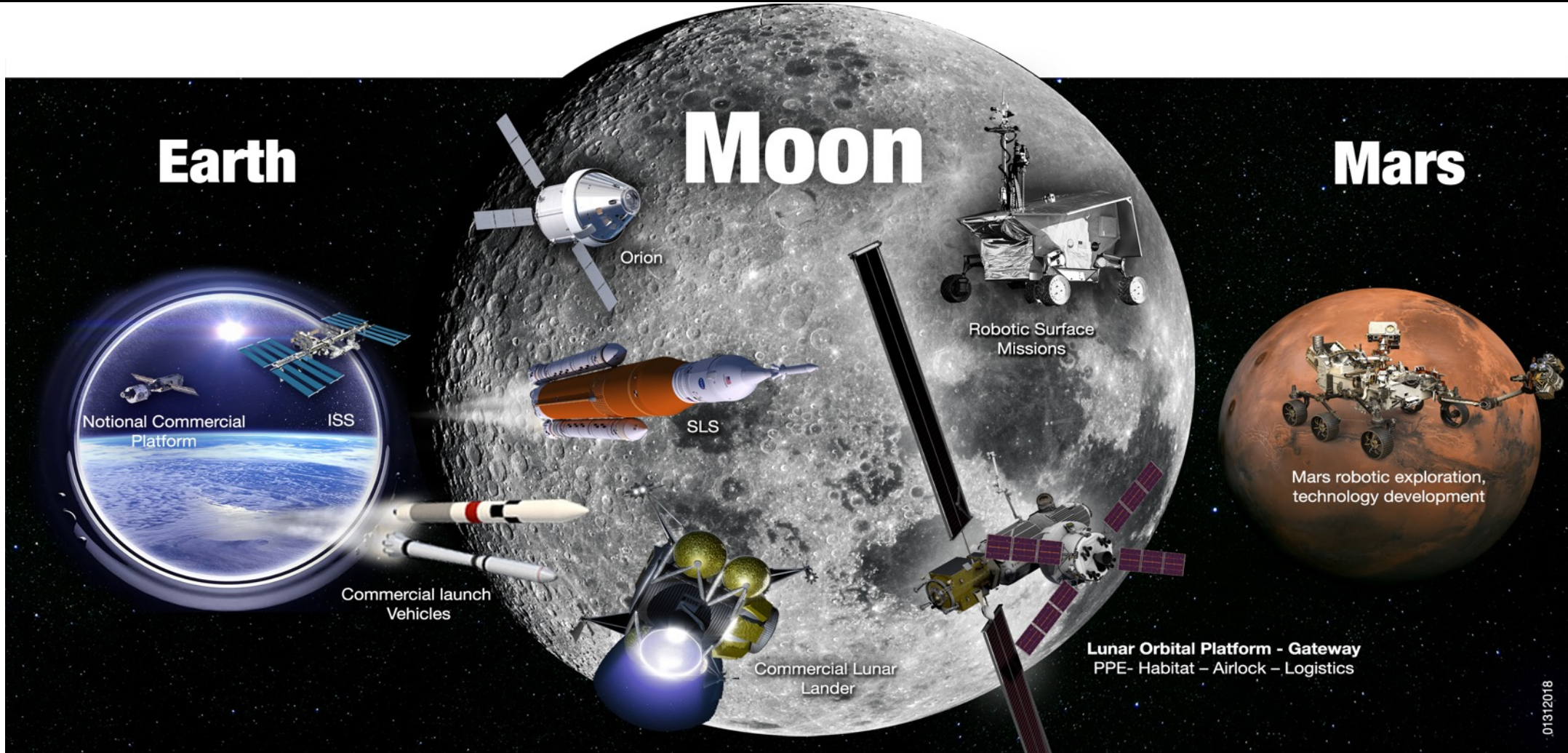
Leaving the Earth-Moon
System and Reaching Mars
Orbit



~2017 Space Policy

Phase 2

Complete next deep space capability and checkout.



In LEO
Commercial & International partnerships

In Cislunar Space
A return to the moon for long-term exploration

On Mars
Research to inform future crewed missions

Space Policy Directive-1



“Lead an innovative and sustainable program of exploration with commercial and international partners to enable human expansion across the solar system and to bring back to Earth new knowledge and opportunities.

Beginning with missions beyond low-Earth orbit, **the United States will lead the return of humans to the Moon for long-term exploration and utilization**, followed by human missions to Mars and other destinations.”

CCMC and International Space Station/Low Earth Orbit



- Continue model development and advancement
- Collaborations with SRAG



CCMC and Cis-Lunar Space

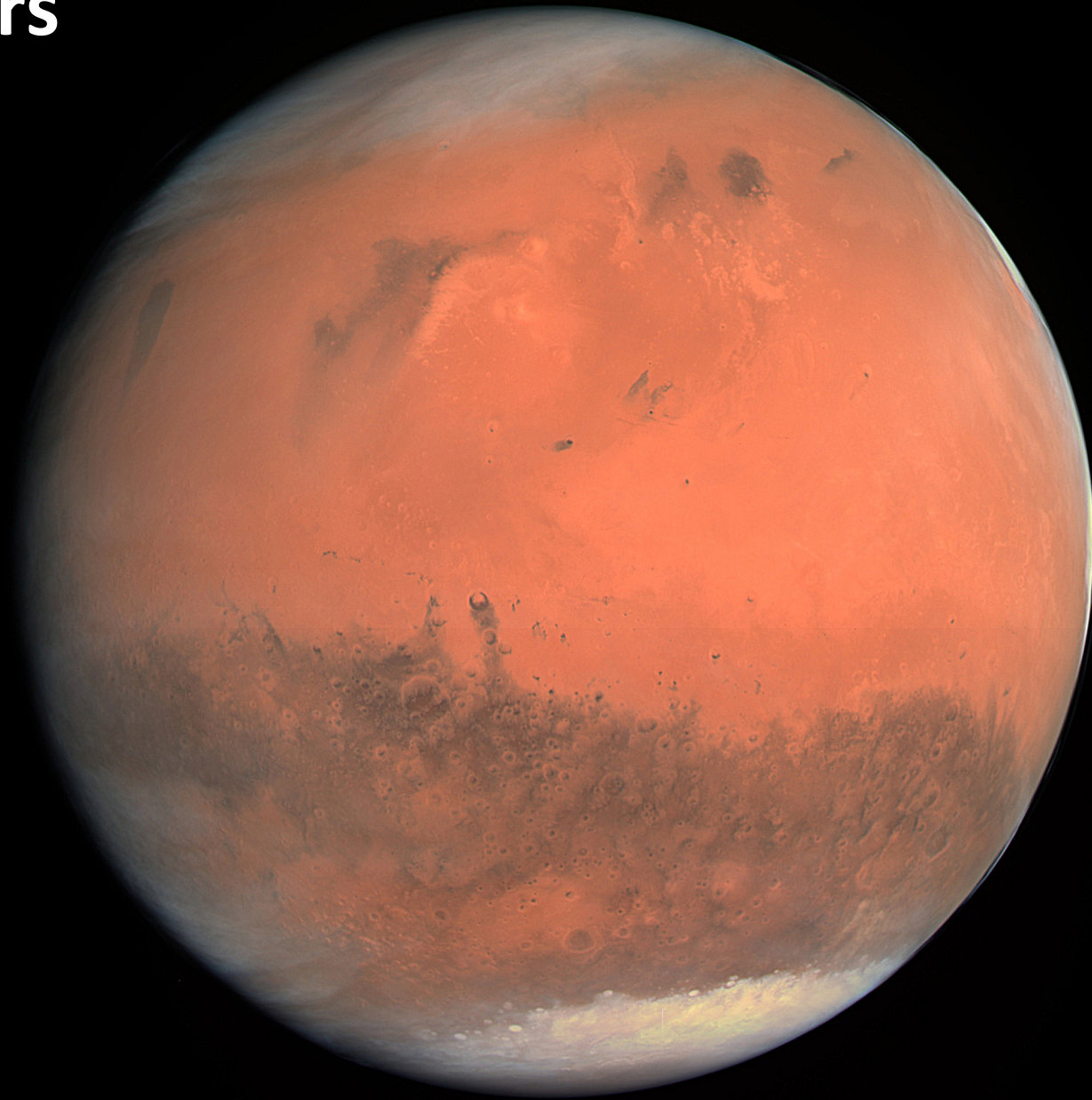


CCMC and Surface Expeditions

- Small rovers
- Increasingly larger rovers
- Human operated rovers
- Other systems
- Human presence



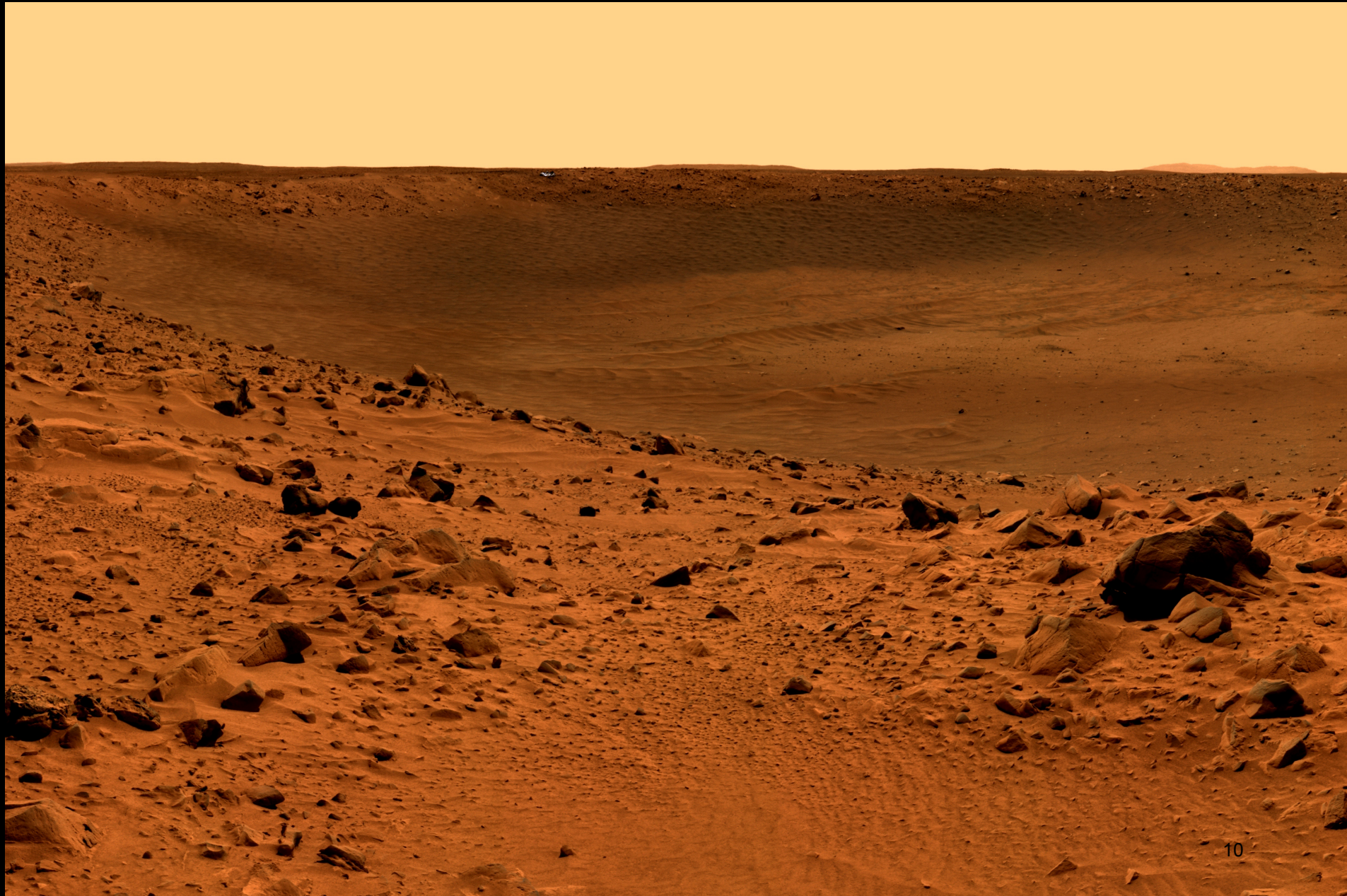
CCMC and Mars



CCMC and Mars Surface

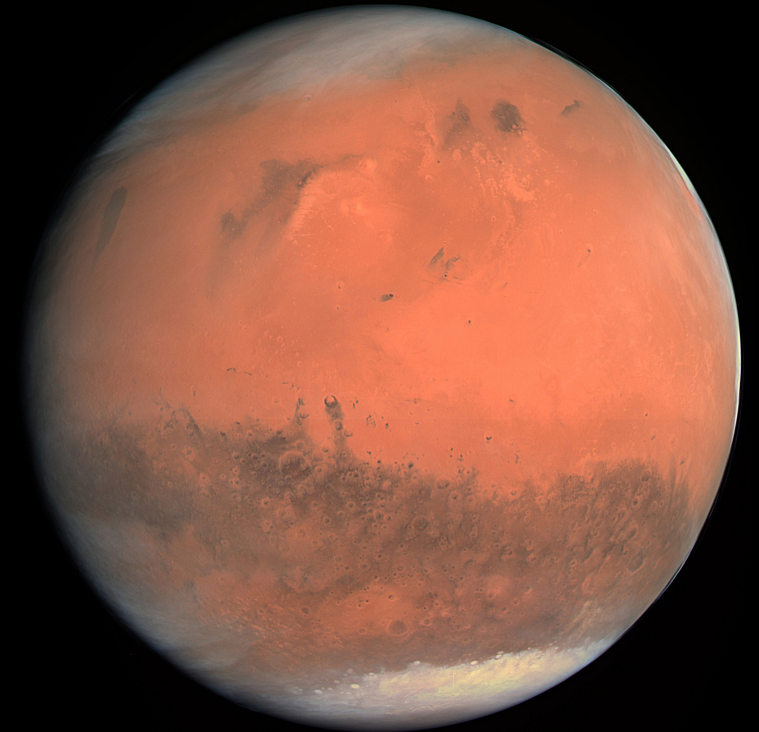


Robotic
missions...in
advance of
human
presence





- Space Weather Architecture
- Many years in between for “adjustments”



CCMC and

