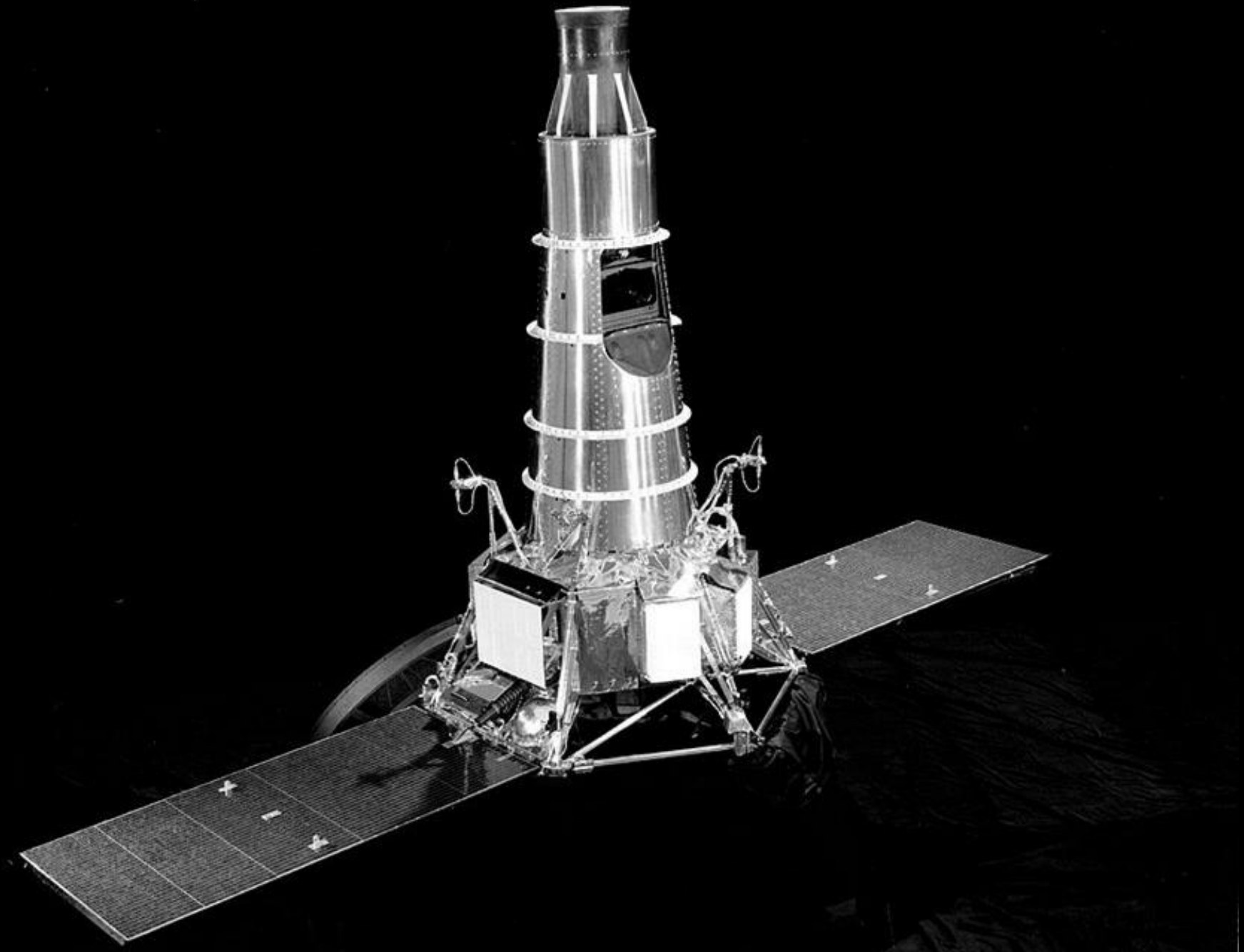
NASA

got robots?

How robots will prepare the way for humans to live and work long term on the moon!

Kurt Leucht
NASA Software Engineer
Kennedy Space Center, Florida

57
NASA



NASA

NASA

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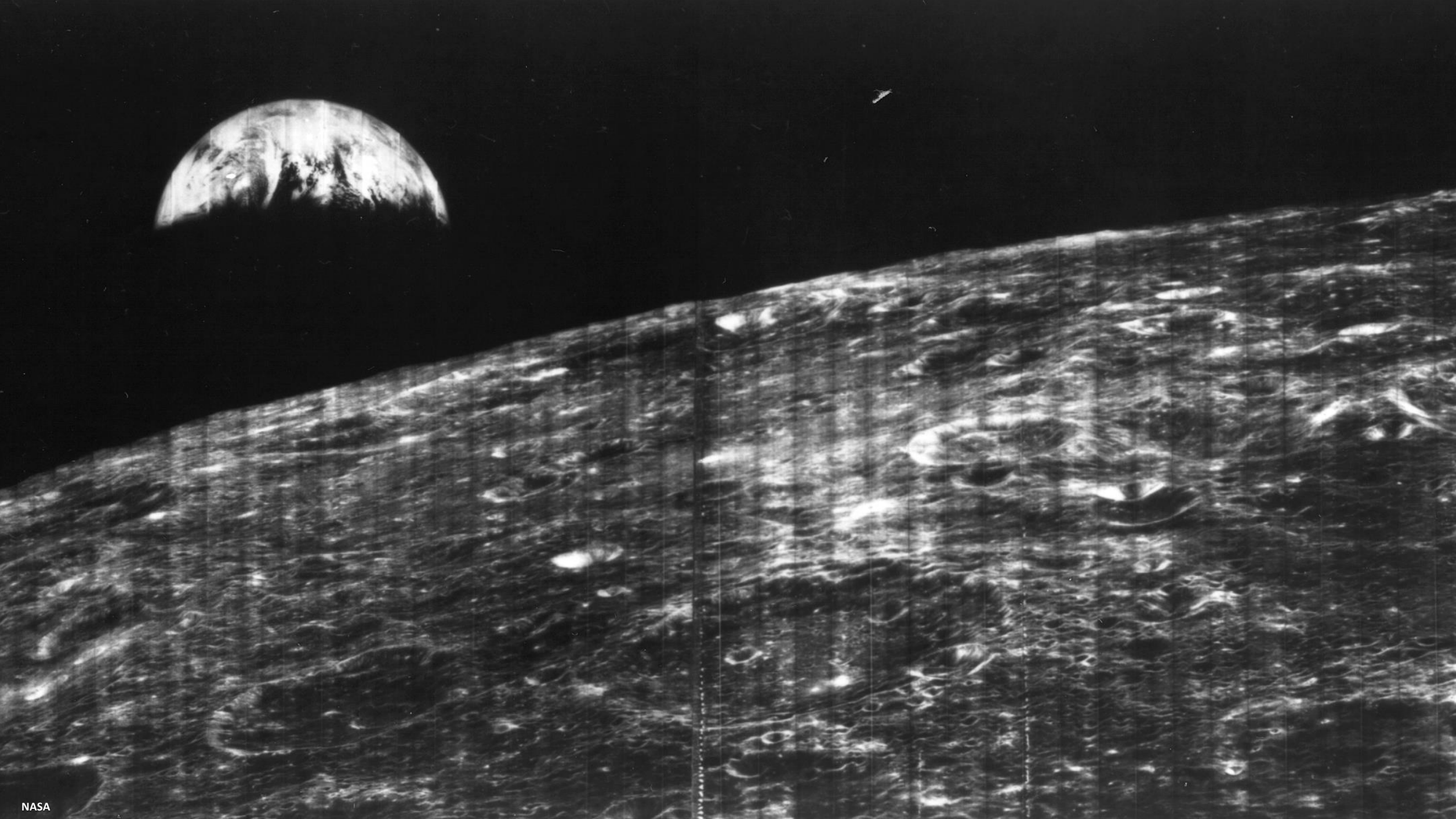
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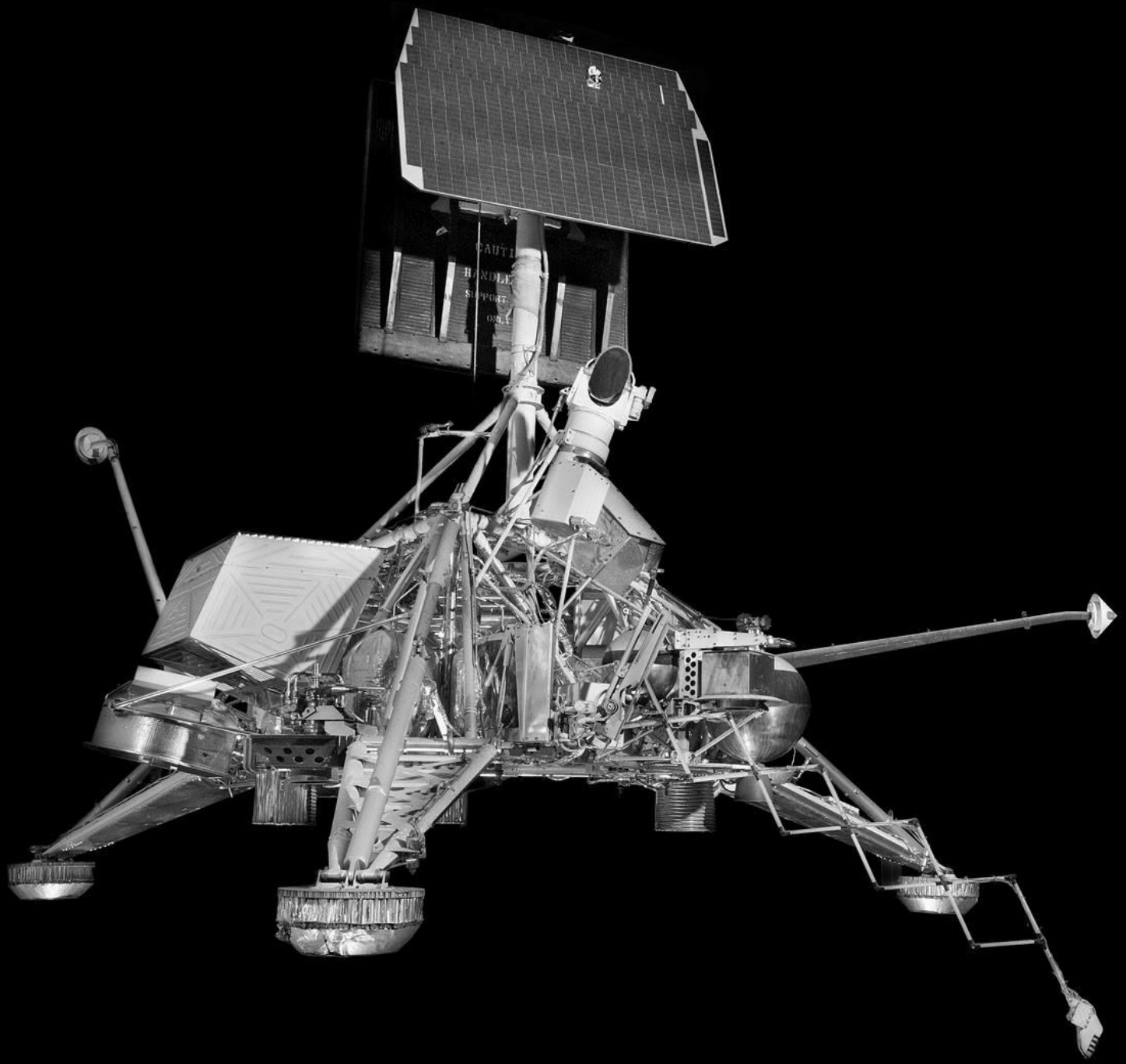

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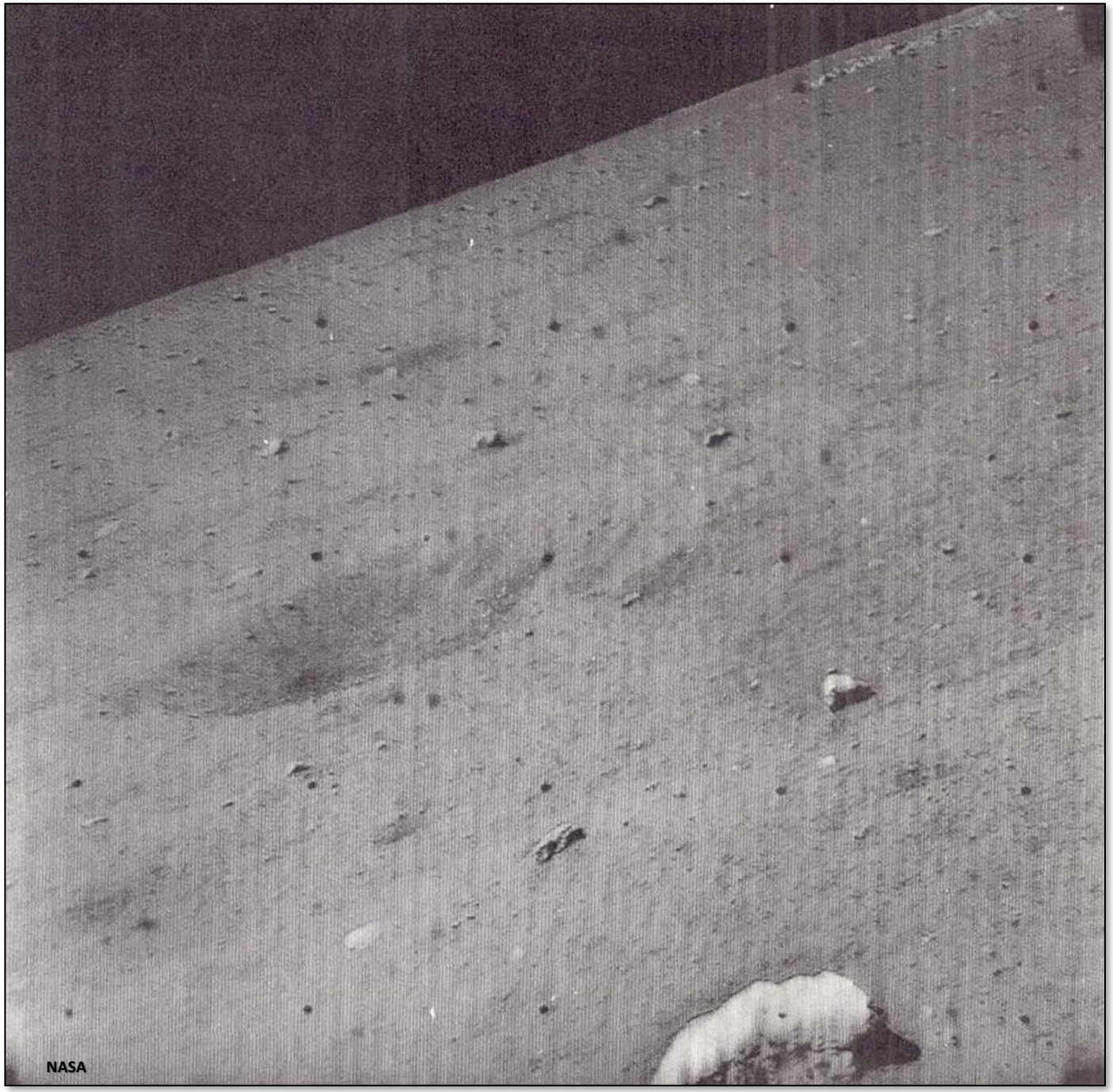
NASA

NASA

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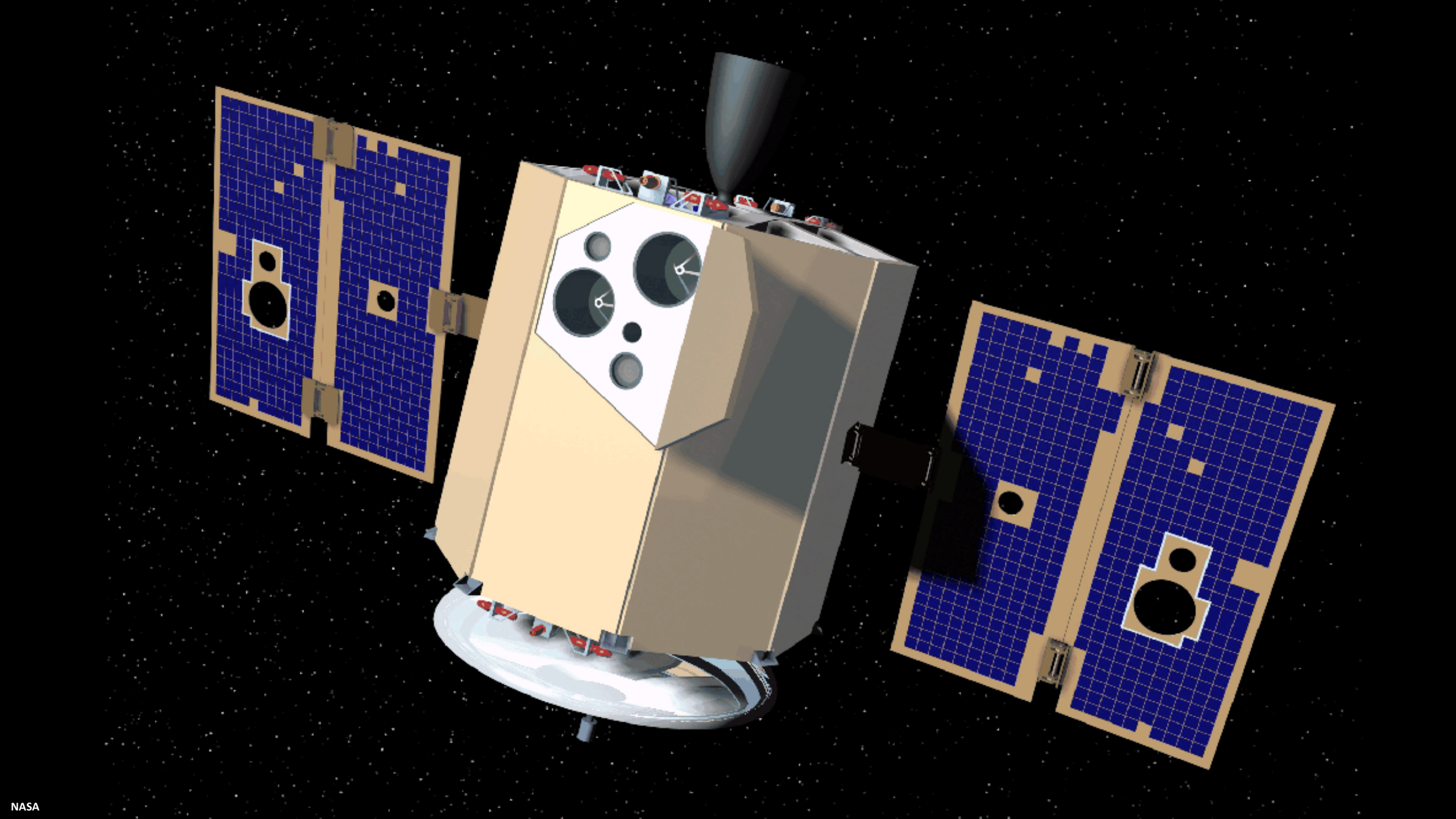

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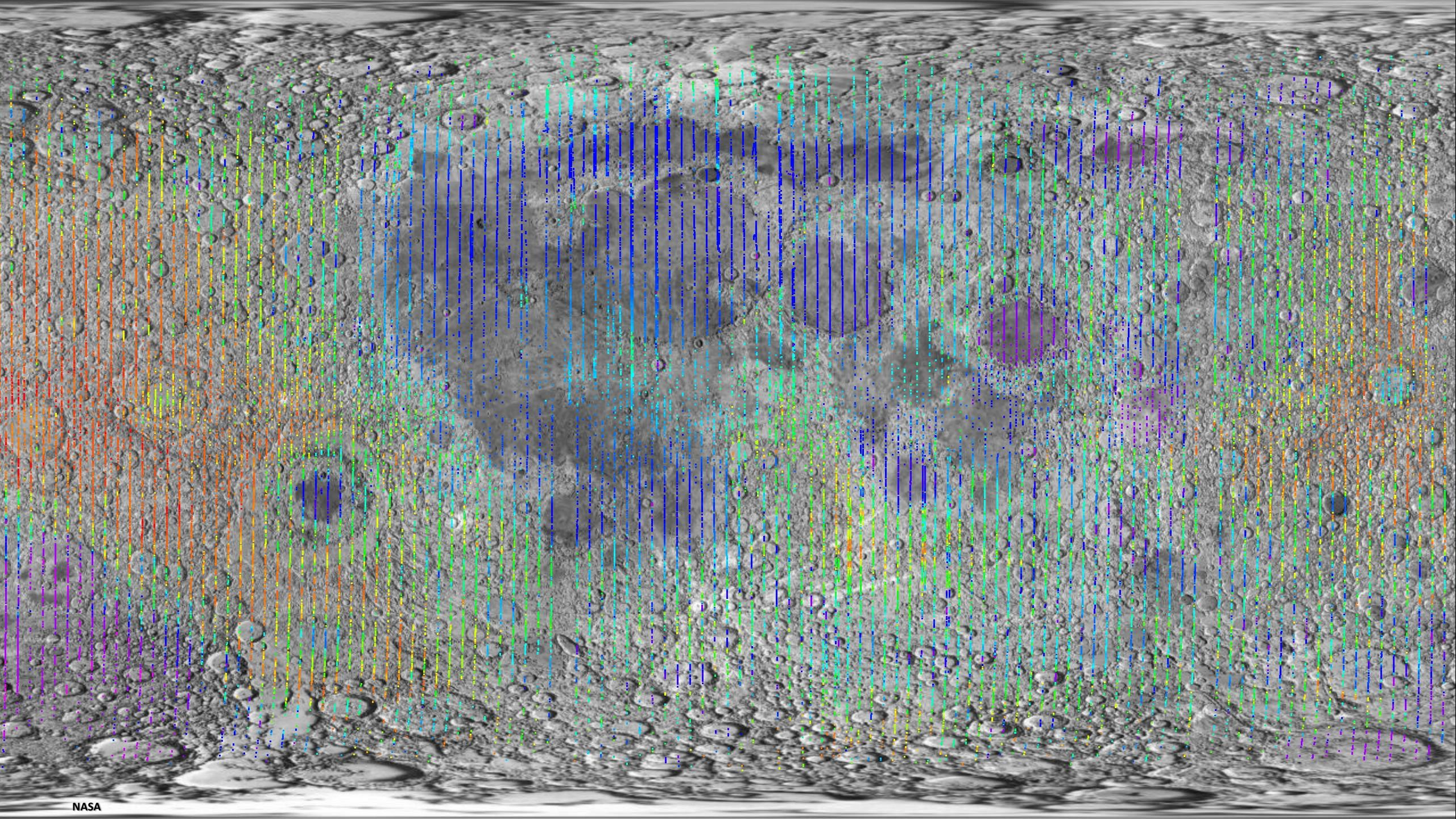
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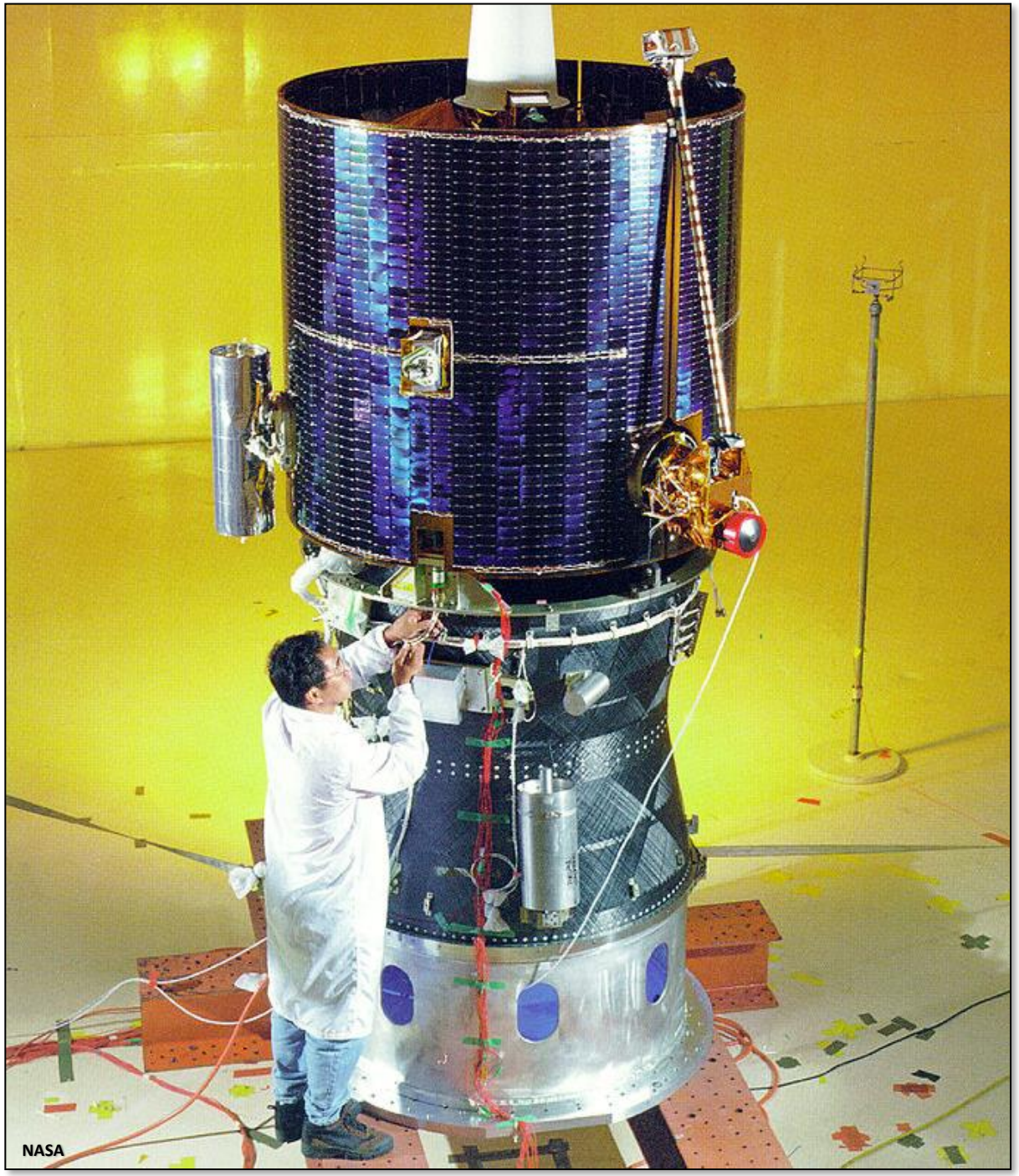
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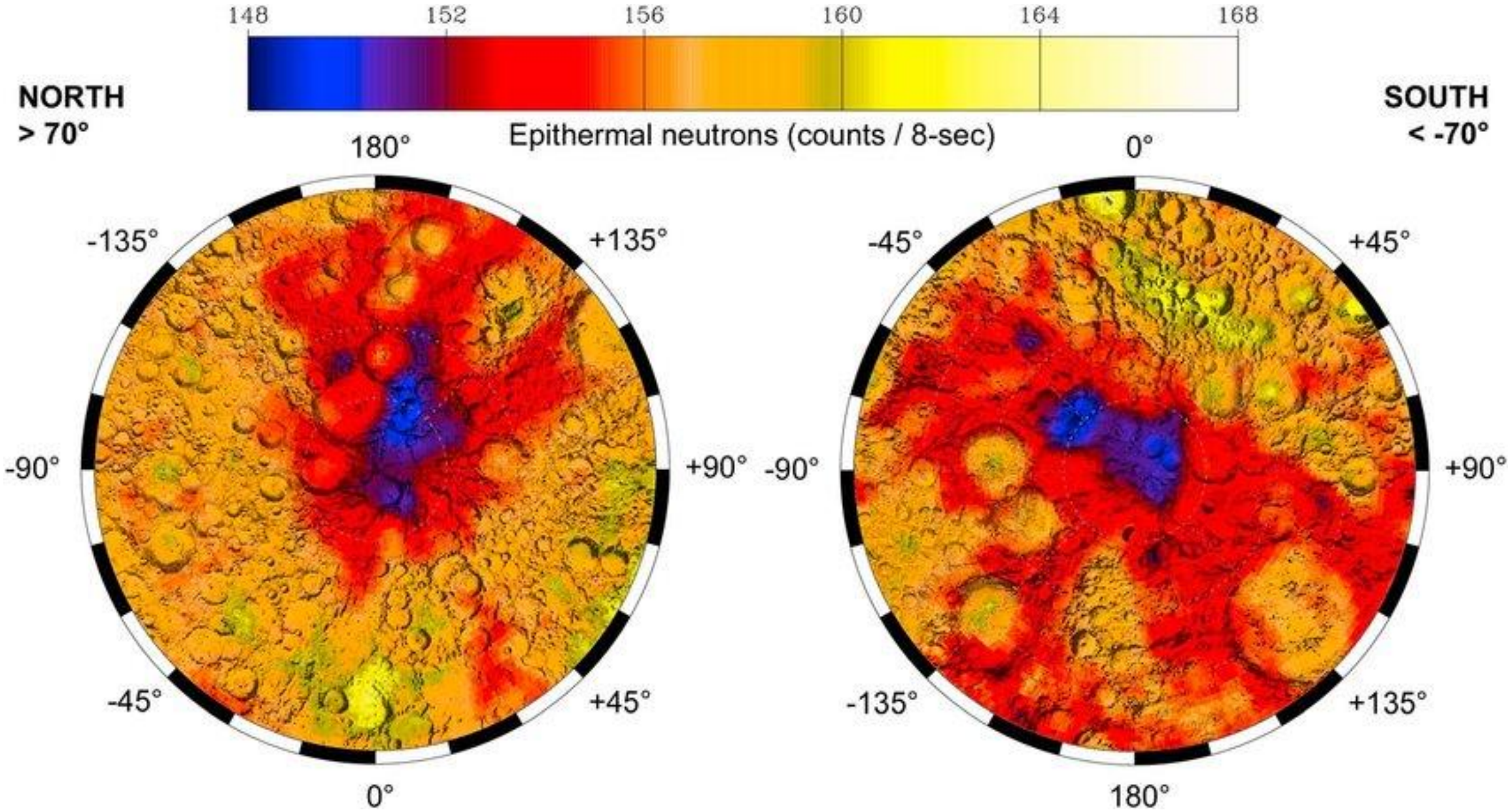
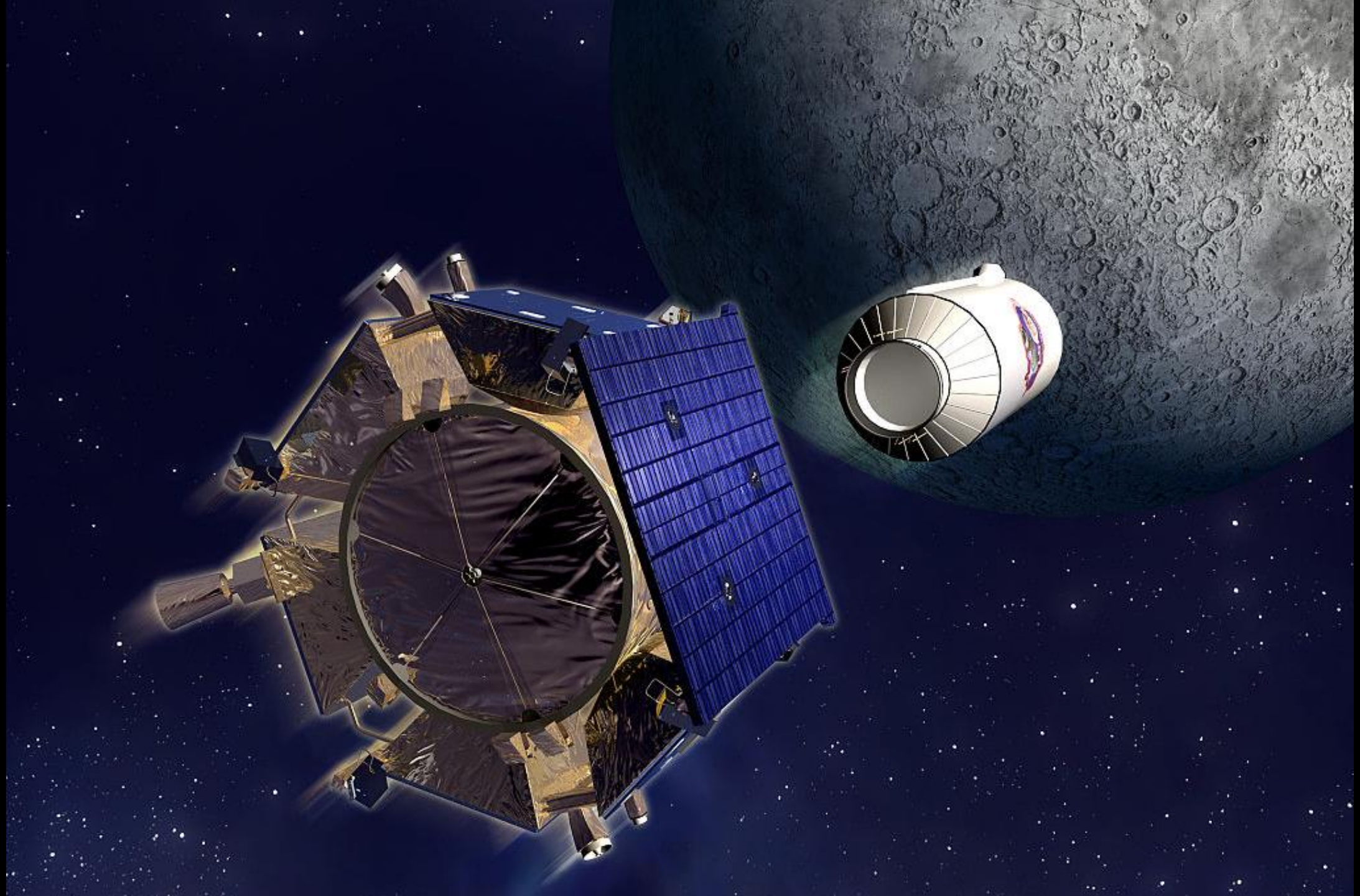

148
152
156
160
164
168
Epithermal neutrons (counts / 8-sec)
NORTH
> 70°
SOUTH
< -70°
180°
-135°
+135°
-90°
+90°
-45°
+45°
0°
0°
-45°
+45°
-90°
+90°
-135°
+135°
180°

NASA



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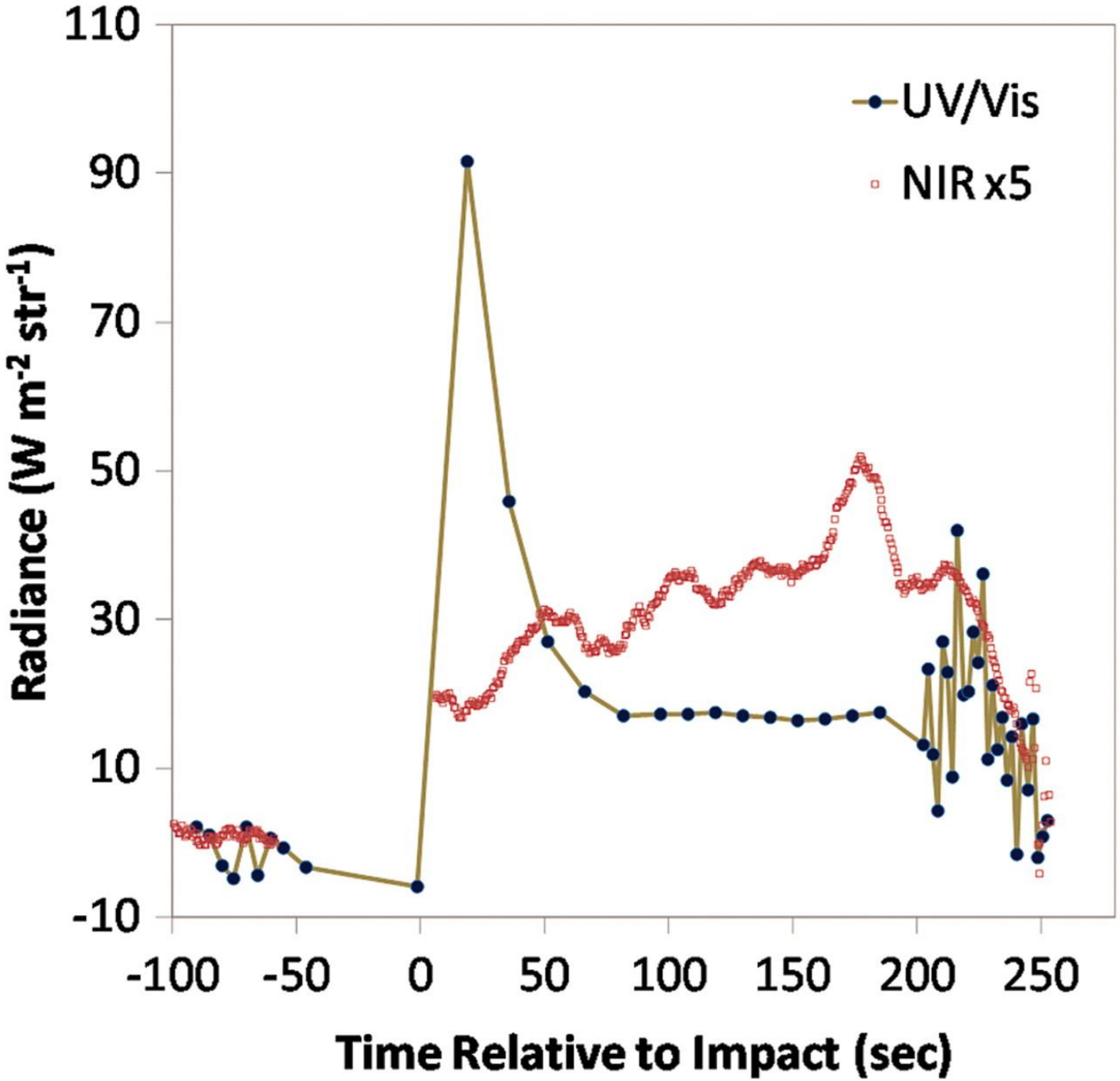
UV/Vis
NIR x5
Radiance (W m-2 str-1)
110
90
70
50
30
10
-10
-100
-50
0
50
100
150
200
250
Time Relative to Impact (sec)

NASA

Davide Restivo, “Water drop impact on a water surface”, Wikimedia Commons, cropped from original
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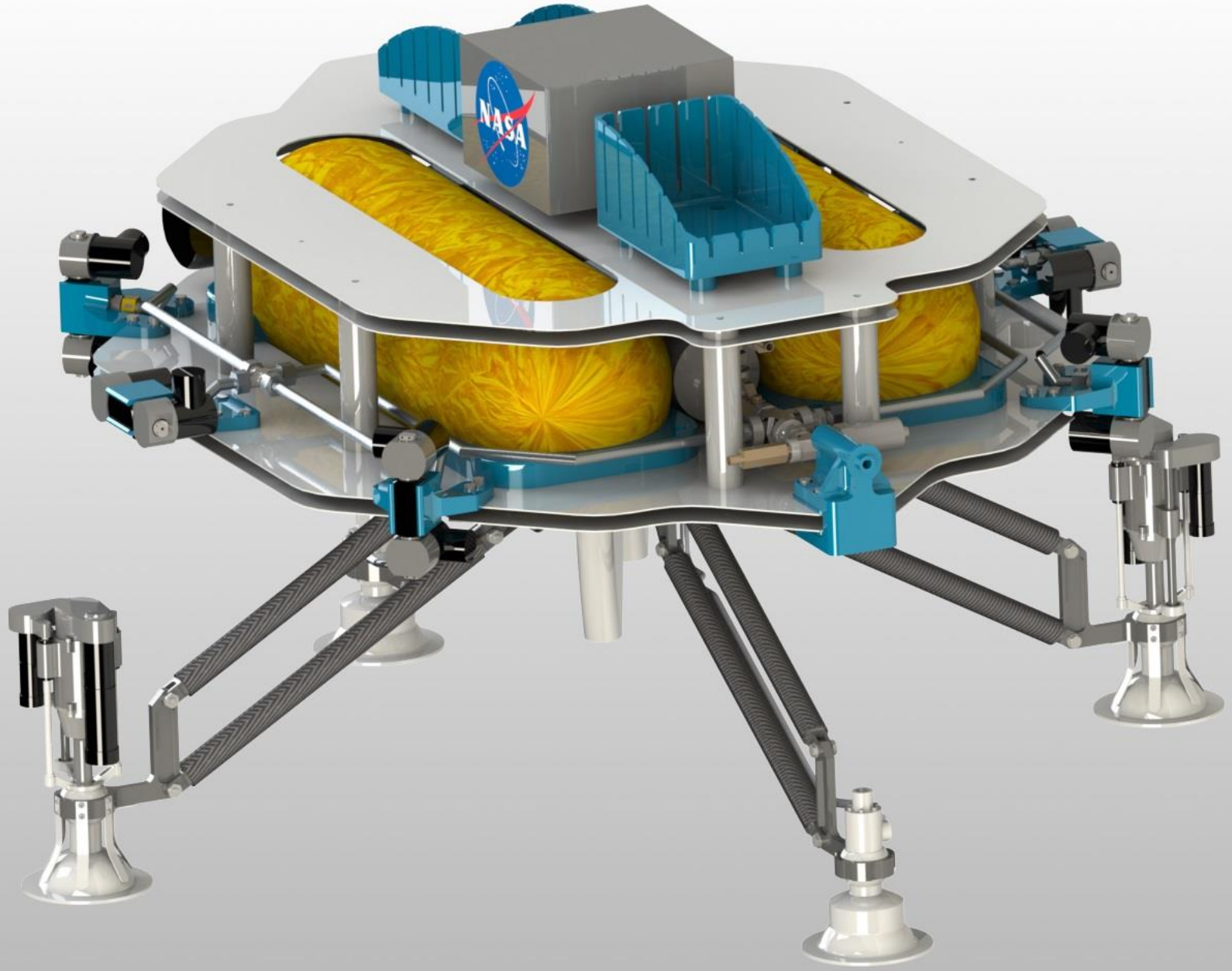
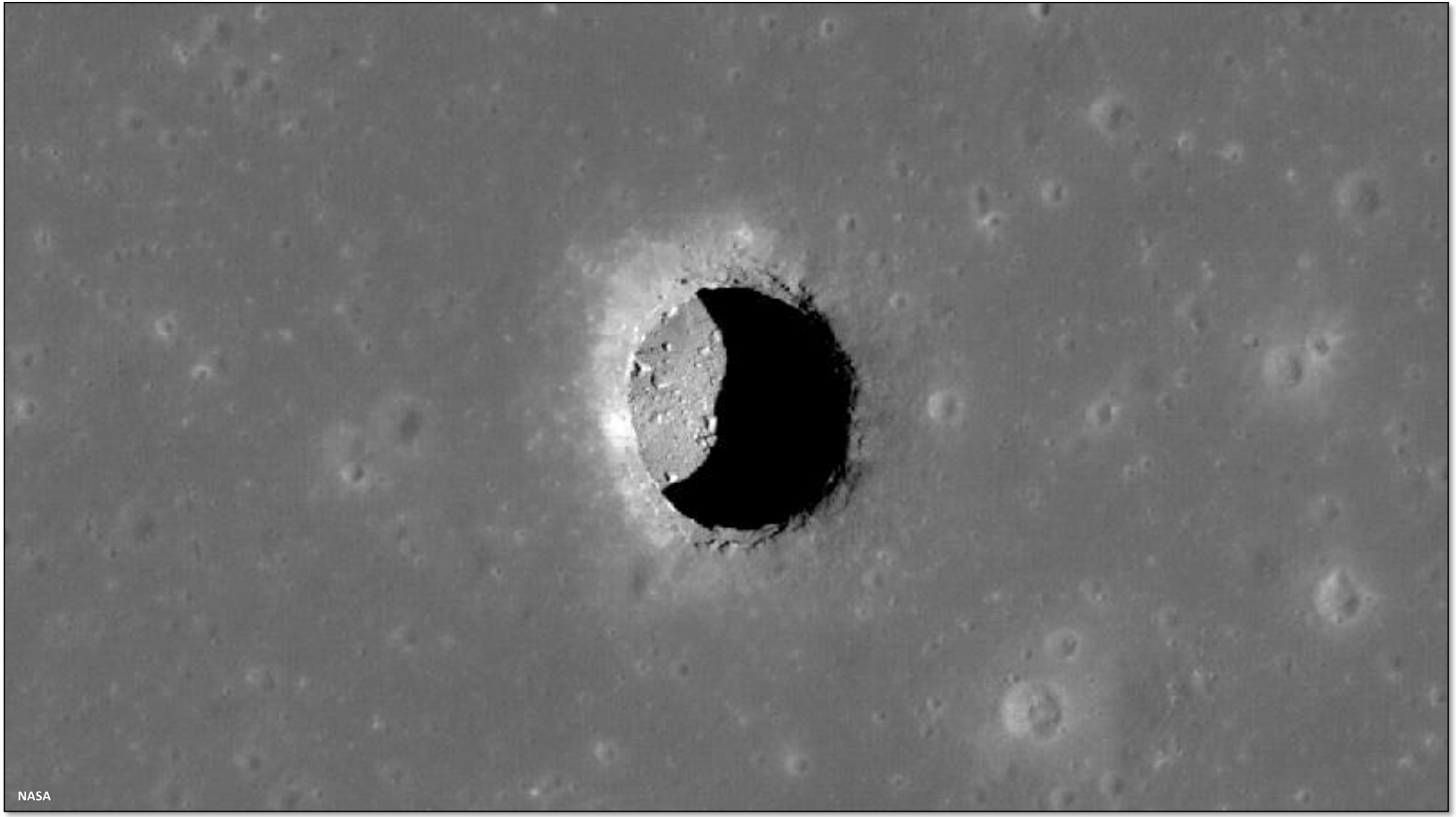
Locating Resources

NASA

NASA



NASA KSC Swamp Works


NASA

NASA KSC Swamp Works

Jacob Enos, “Allegheny mound ant colony at Fort Custer”, Wikimedia Commons
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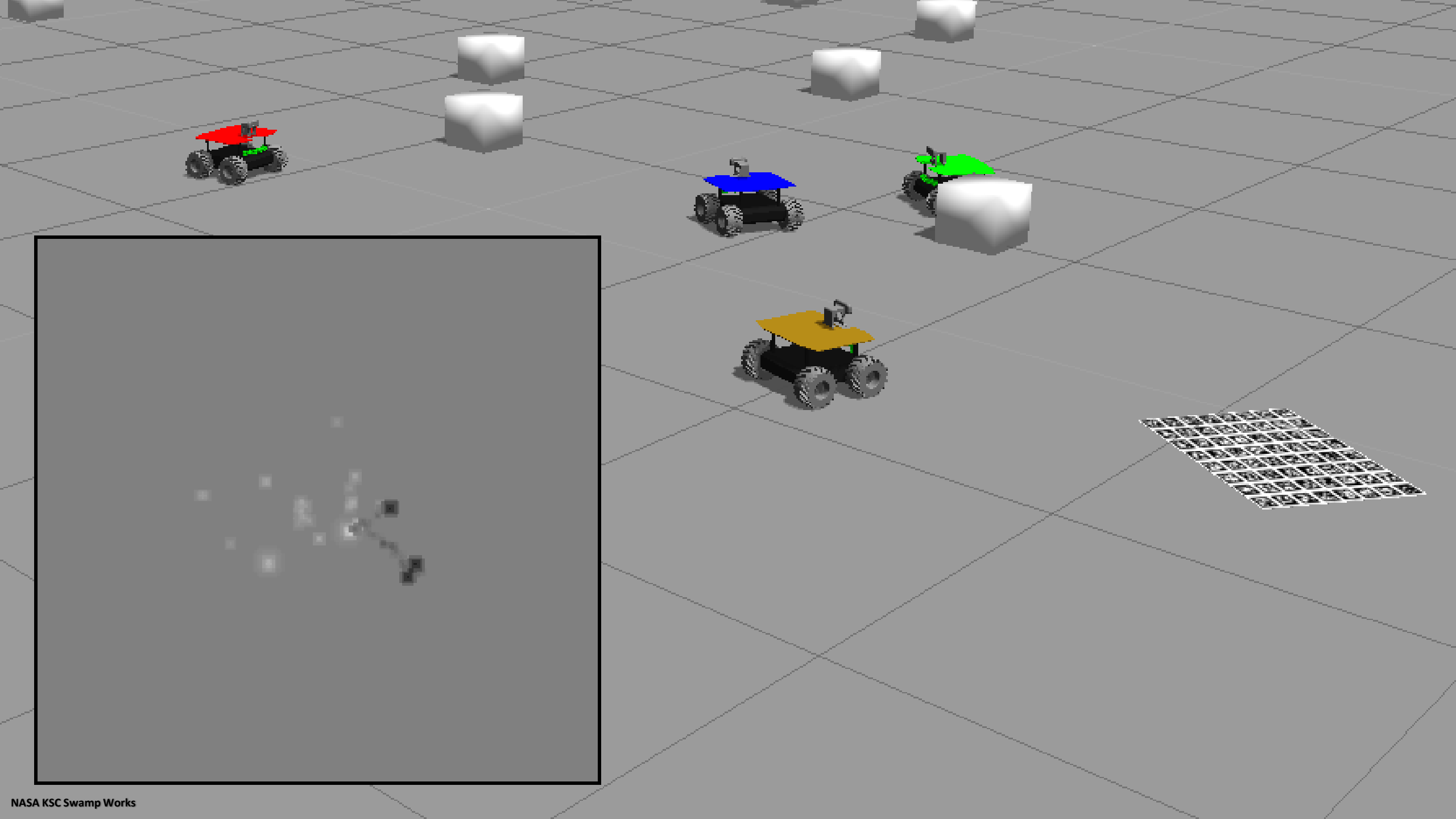
NASA KSC Swamp Works



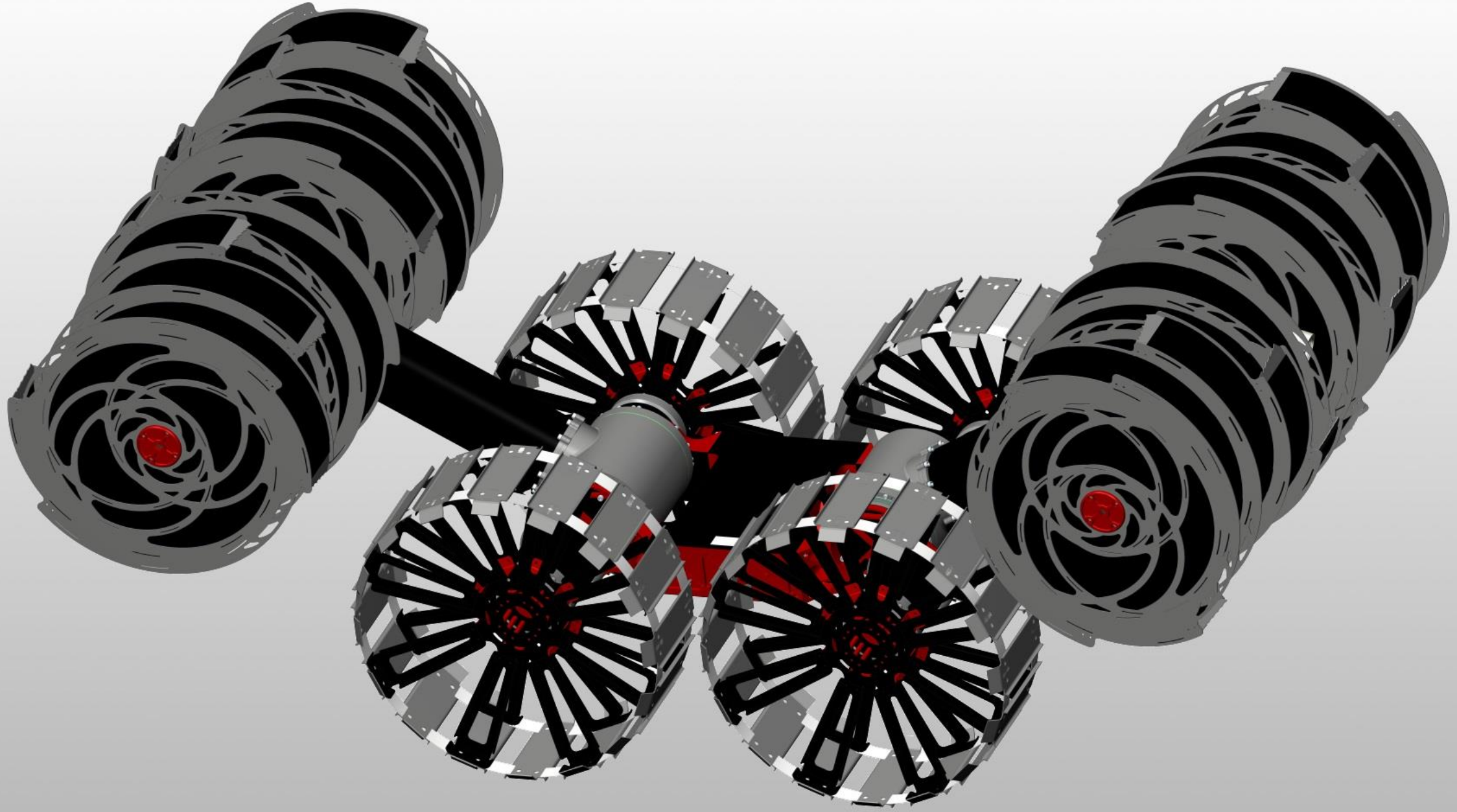
NASA KSC Swamp Works

NASA KSC Swamp Works

Locating… Gathering Resources

NASA

Nicole A. LaVine, U.S. Marine Corps, "Caterpillar front loader", Wikimedia Commons, Public Domain, cropped from original

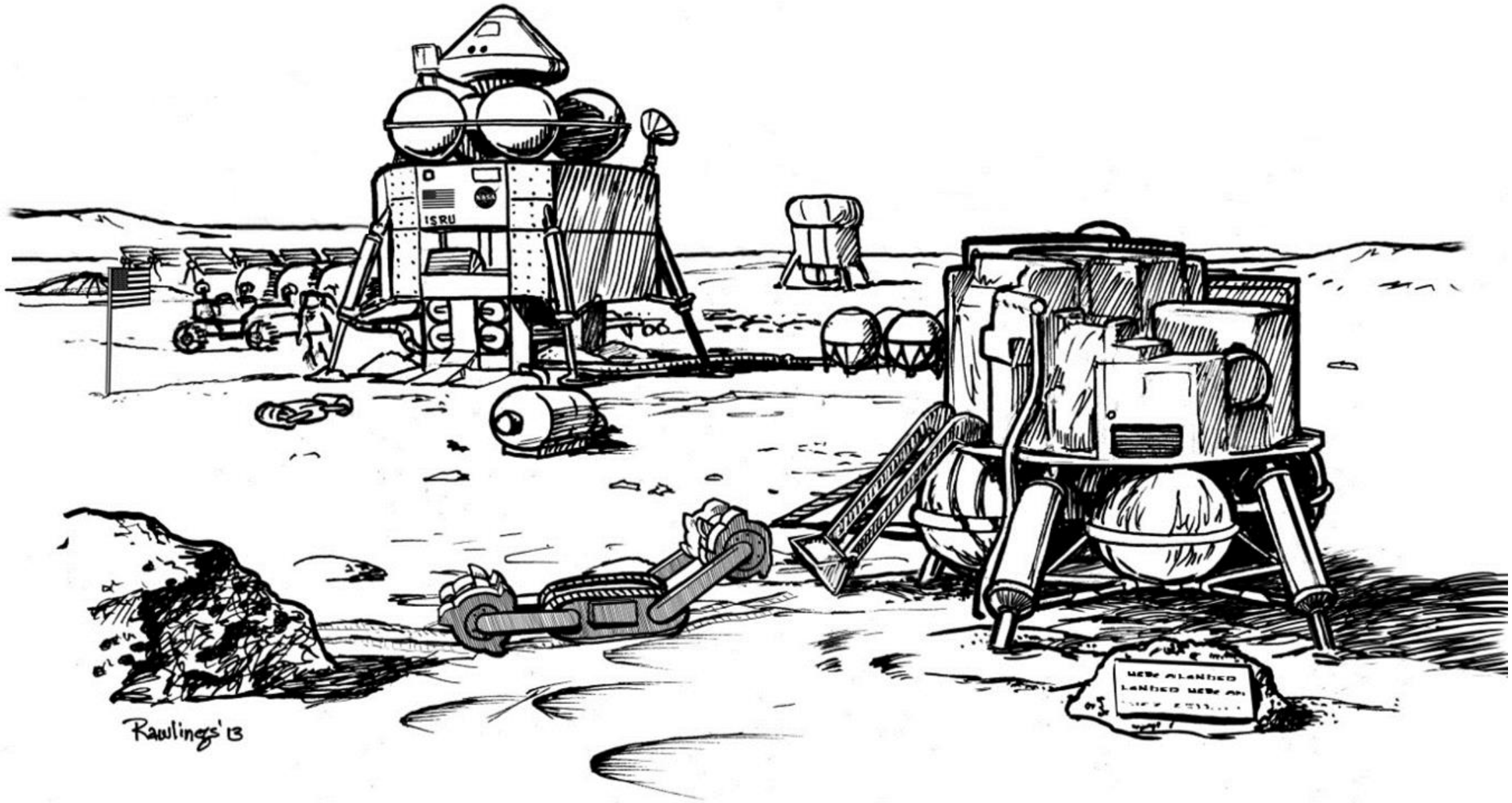


NASA KSC Swamp Works

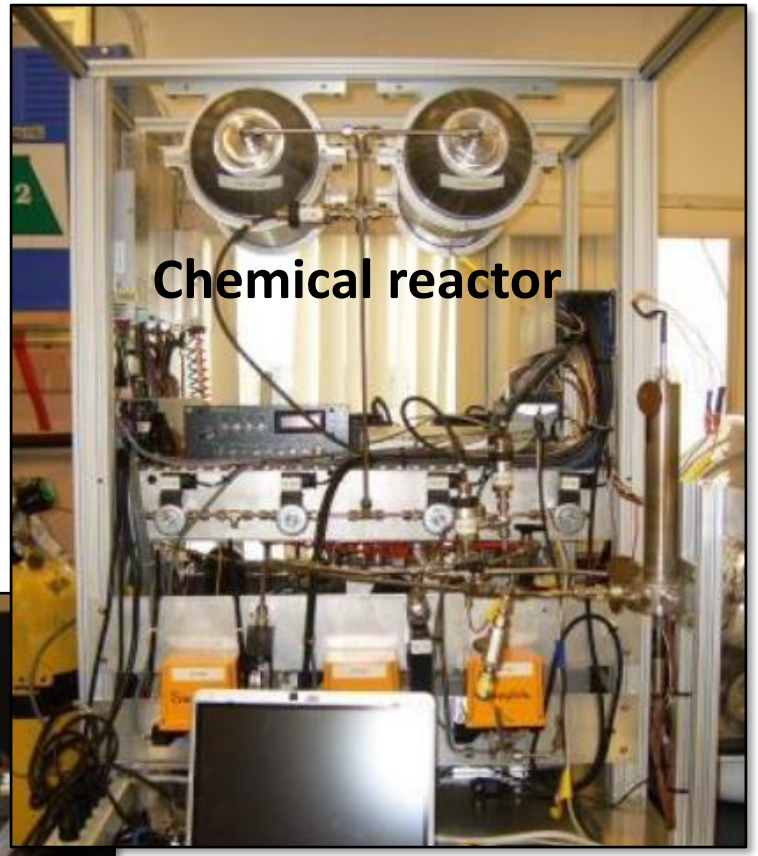
NASA KSC Swamp Works

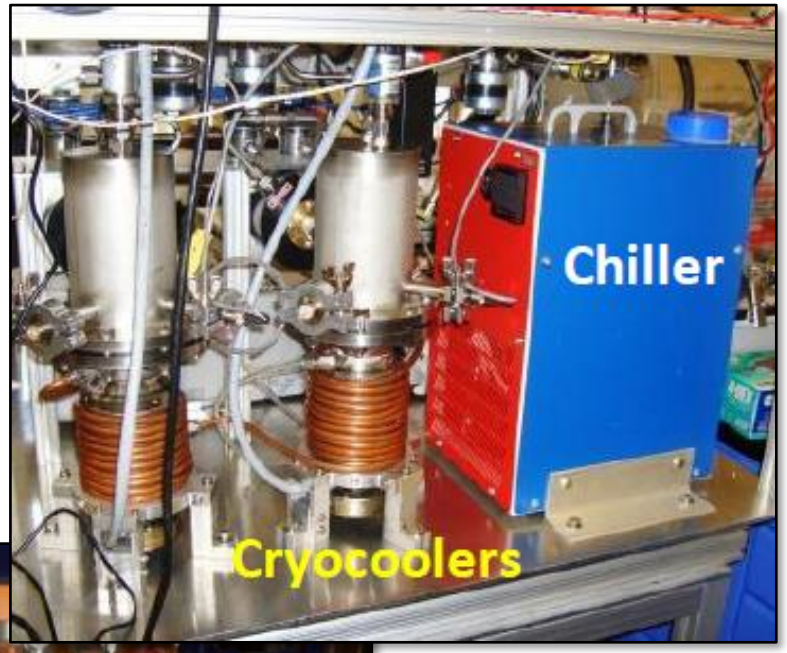
Locating…
Gathering…
Extracting
Resources

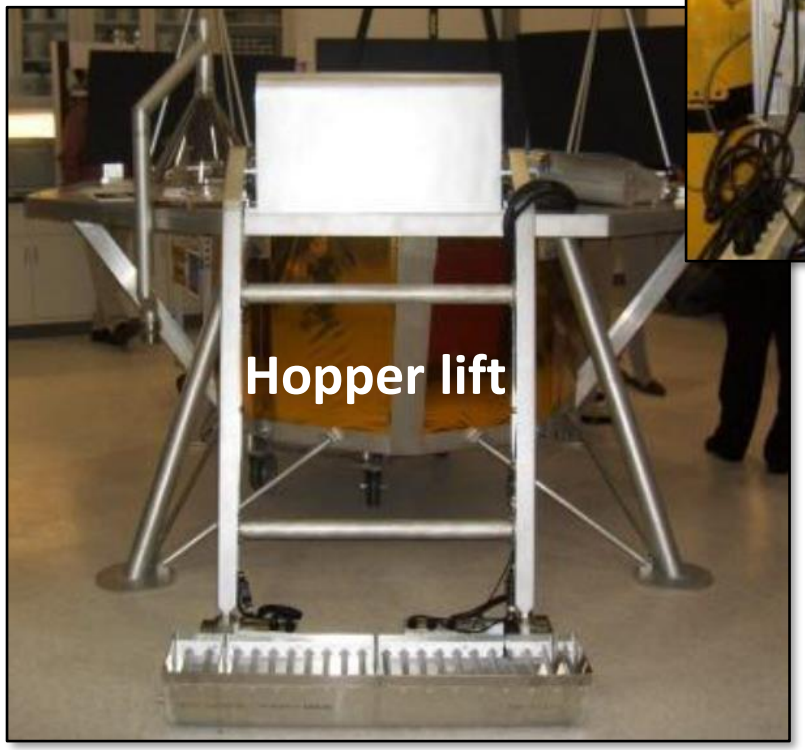
NASA



Pat Rawlings, “Marco Polo”, commissioned by NASA


Chemical reactor

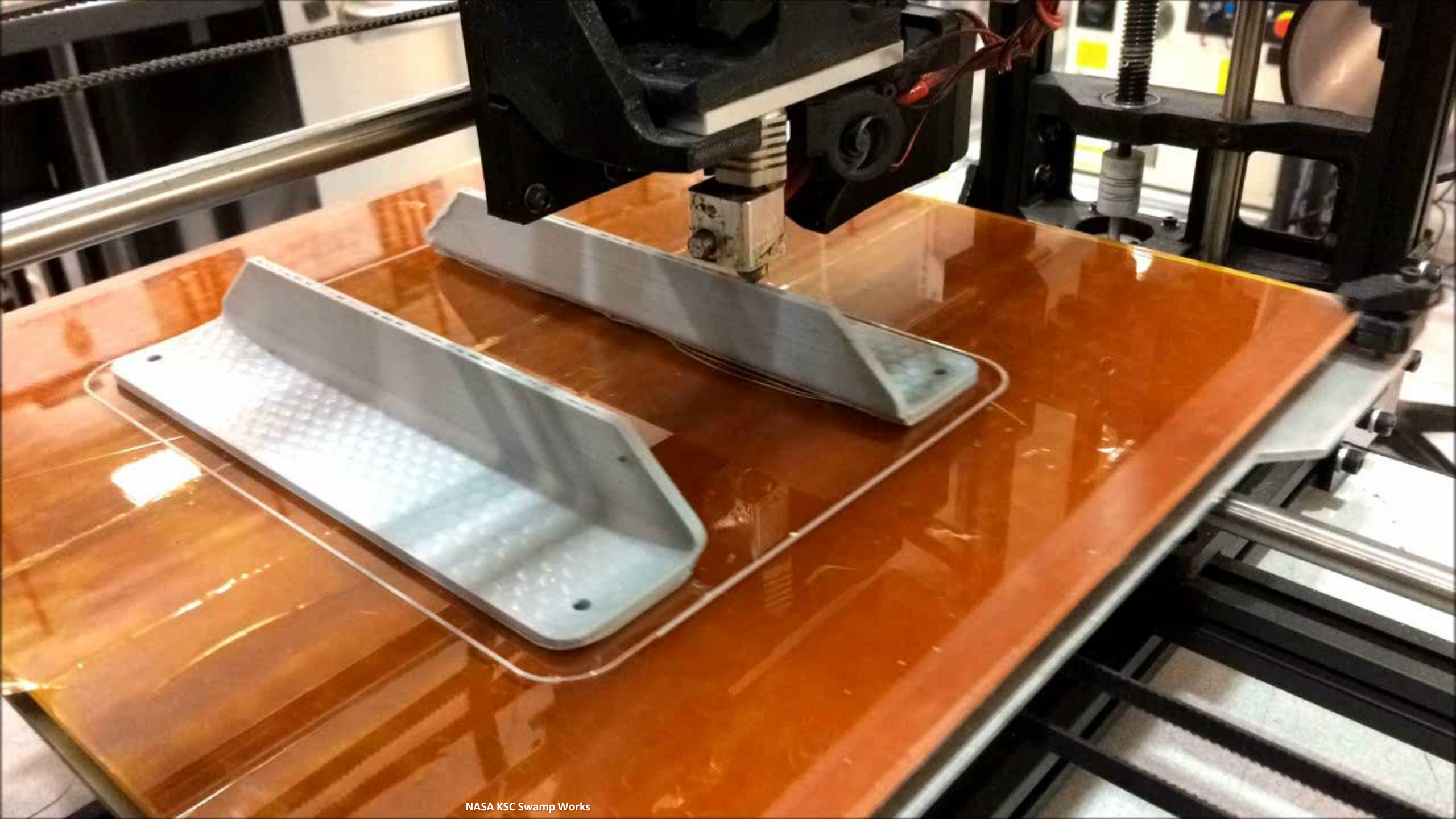

Chiller
Cryocoolers


Hopper lift

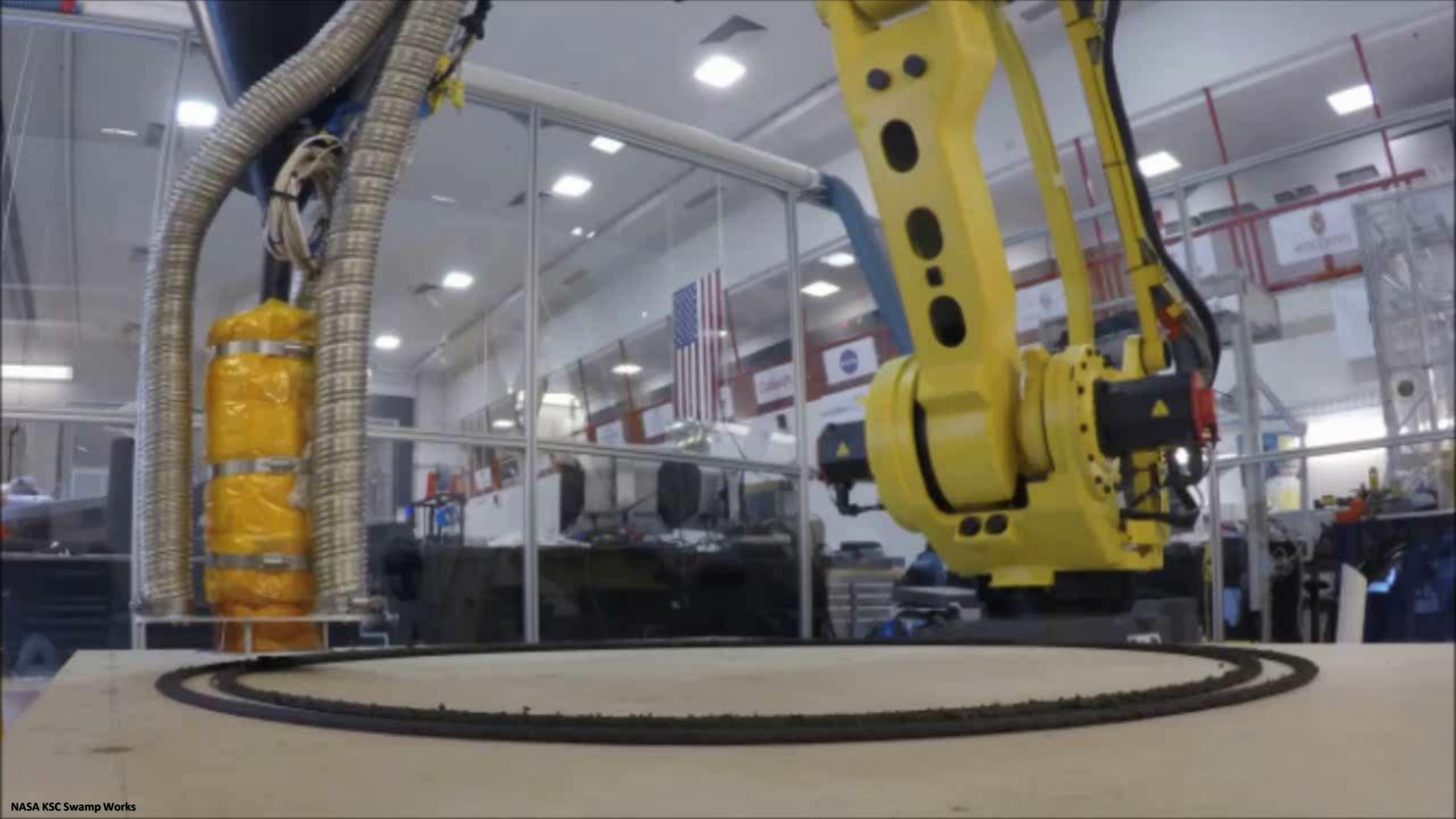
Water cleanup

Construction In-Situ

NASA



NASA KSC Swamp Works



NASA KSC Swamp Works

NASA

PISCES/NASA

ARTEMIS

HUMANITY'S RETURN TO THE MOON

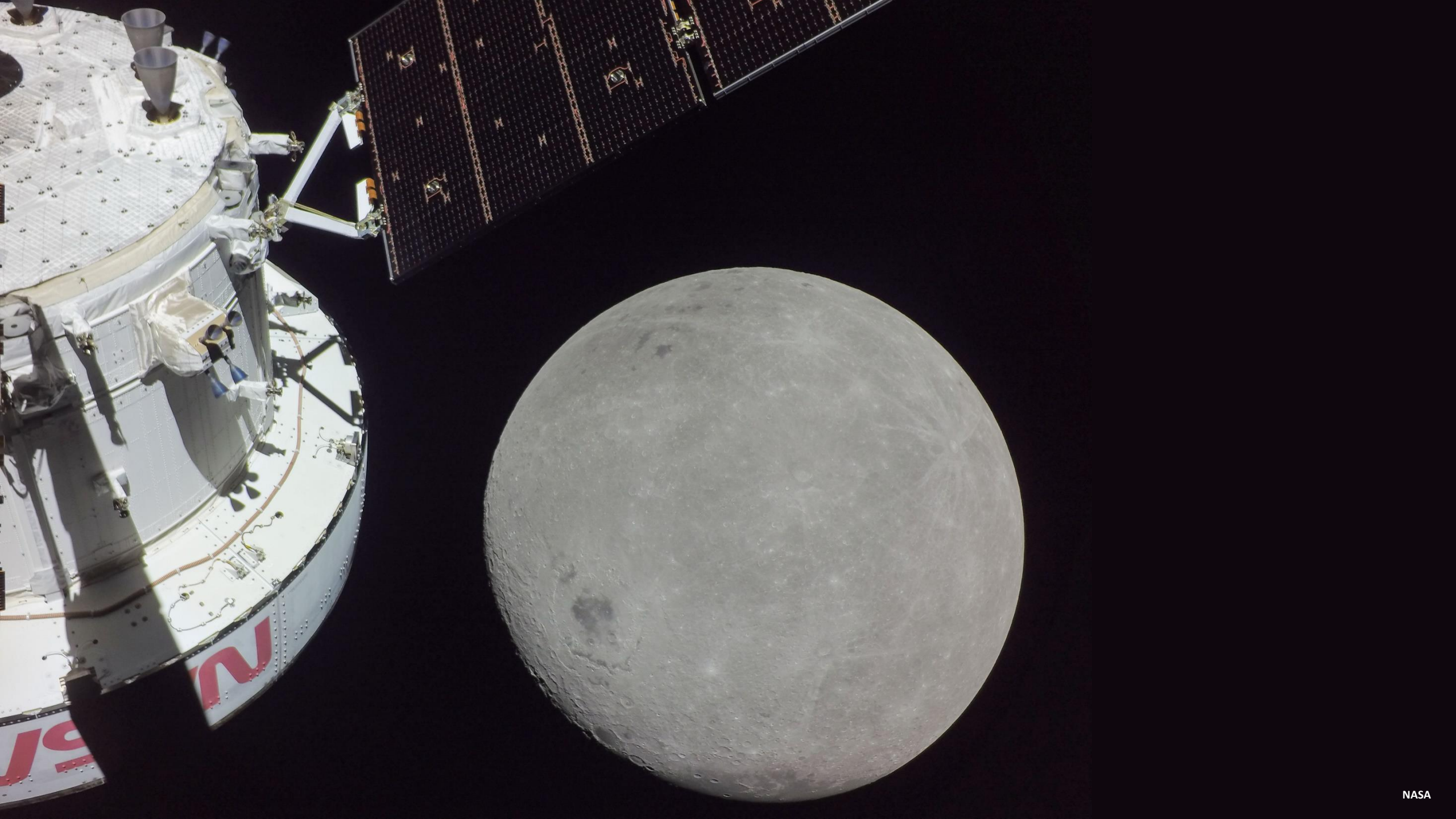
NASA

470 BC Vase Painting, “Apollo and Artemis”, Louvre Museum Paris France, Public Domain.

Kurt Leucht

NASA

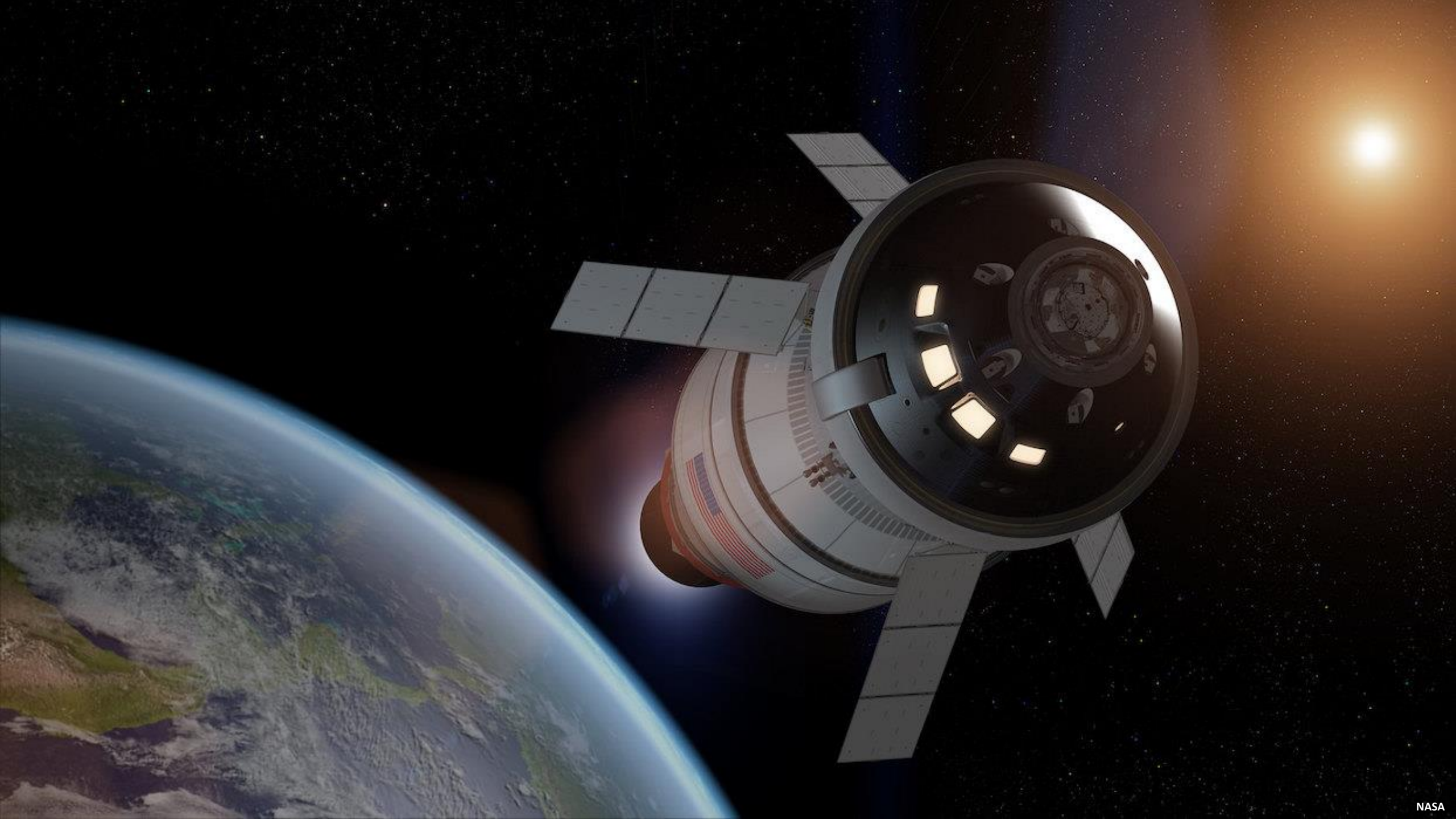
NASA



NASA

NASA

NASA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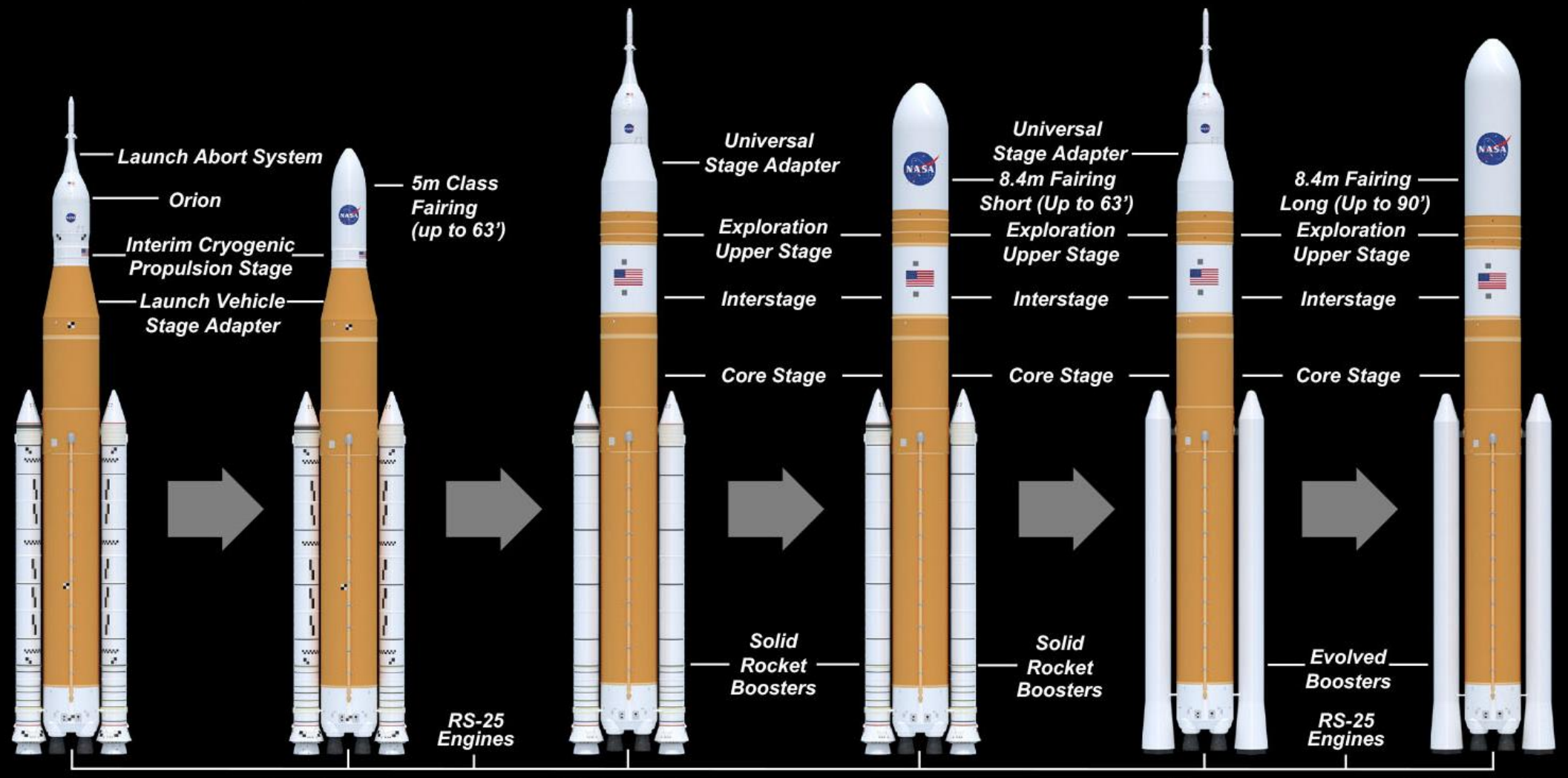
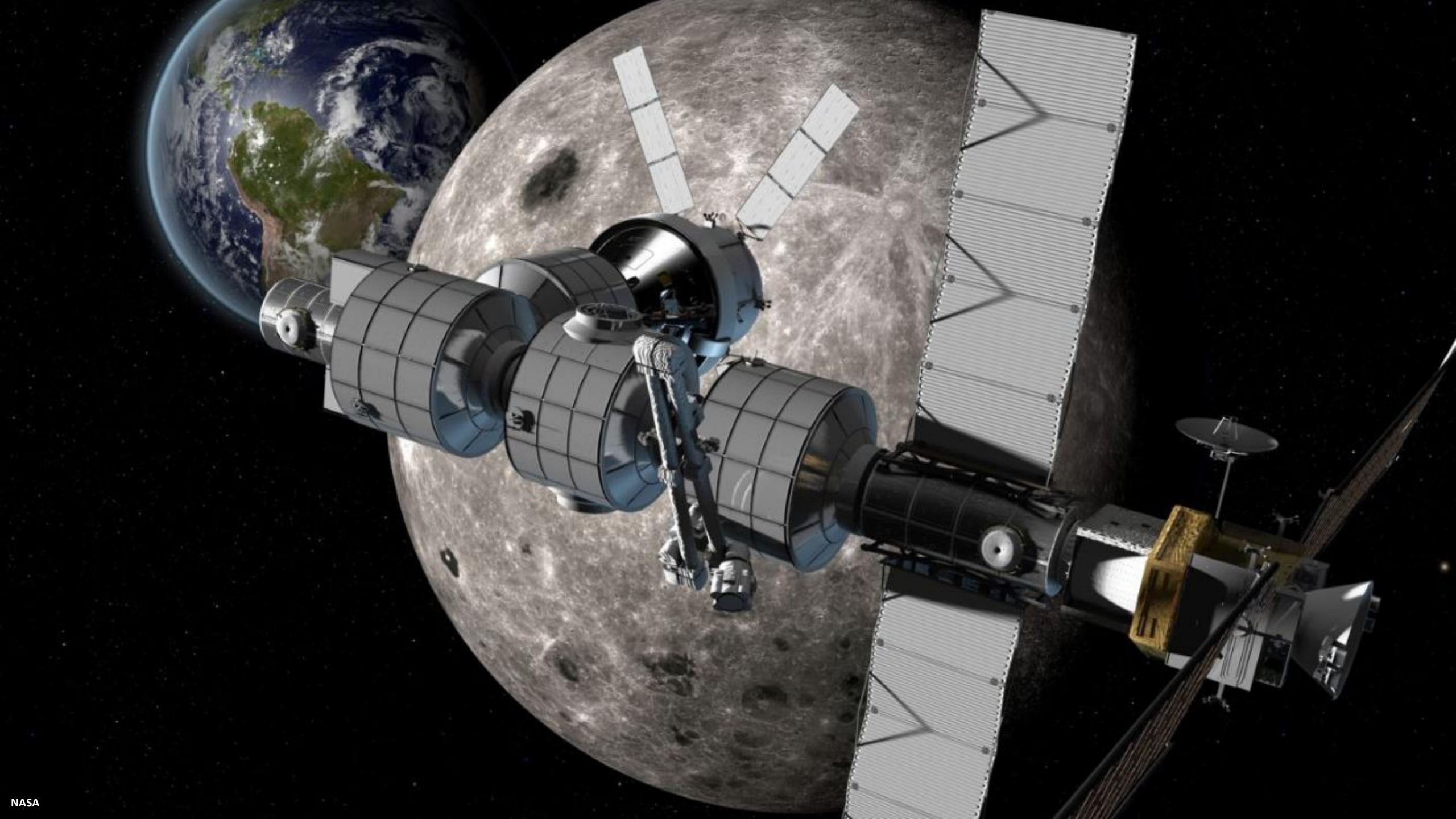

Launch Abort System
Orion
Interim Cryogenic Propulsion Stage
Launch Vehicle Stage Adapter
5m Class Fairing (up to 63')
RS-25 Engines
Universal Stage Adapter
Exploration Upper Stage
Interstage
Core Stage
Solid Rocket Boosters
Universal Stage Adapter
8.4m Fairing Short (Up to 63')
Exploration Upper Stage
Interstage
Core Stage
Solid Rocket Boosters
8.4m Fairing Long (Up to 90')
Exploration Upper Stage
Interstage
Core Stage
Evolved Boosters
RS-25 Engines

NASA



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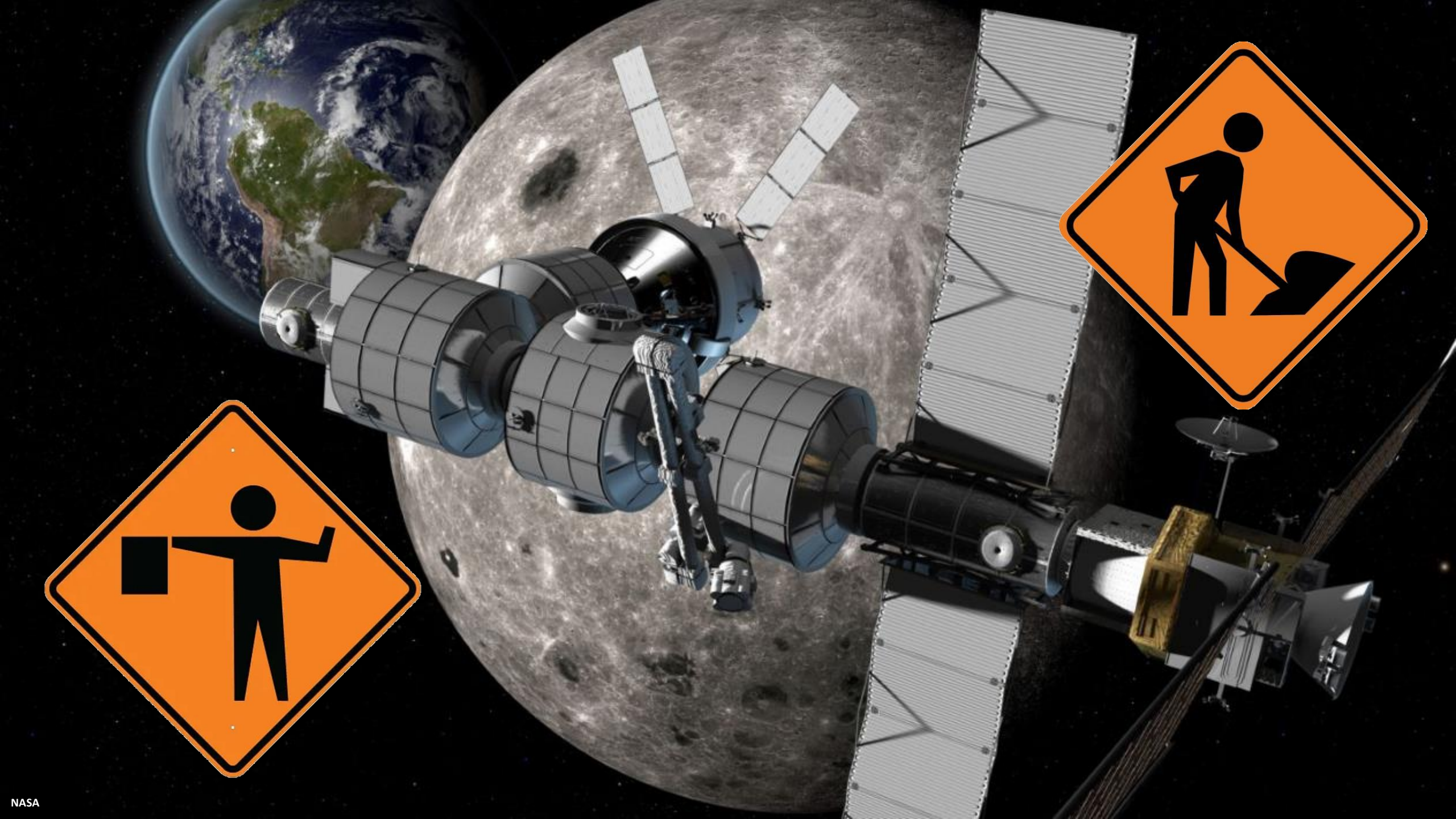

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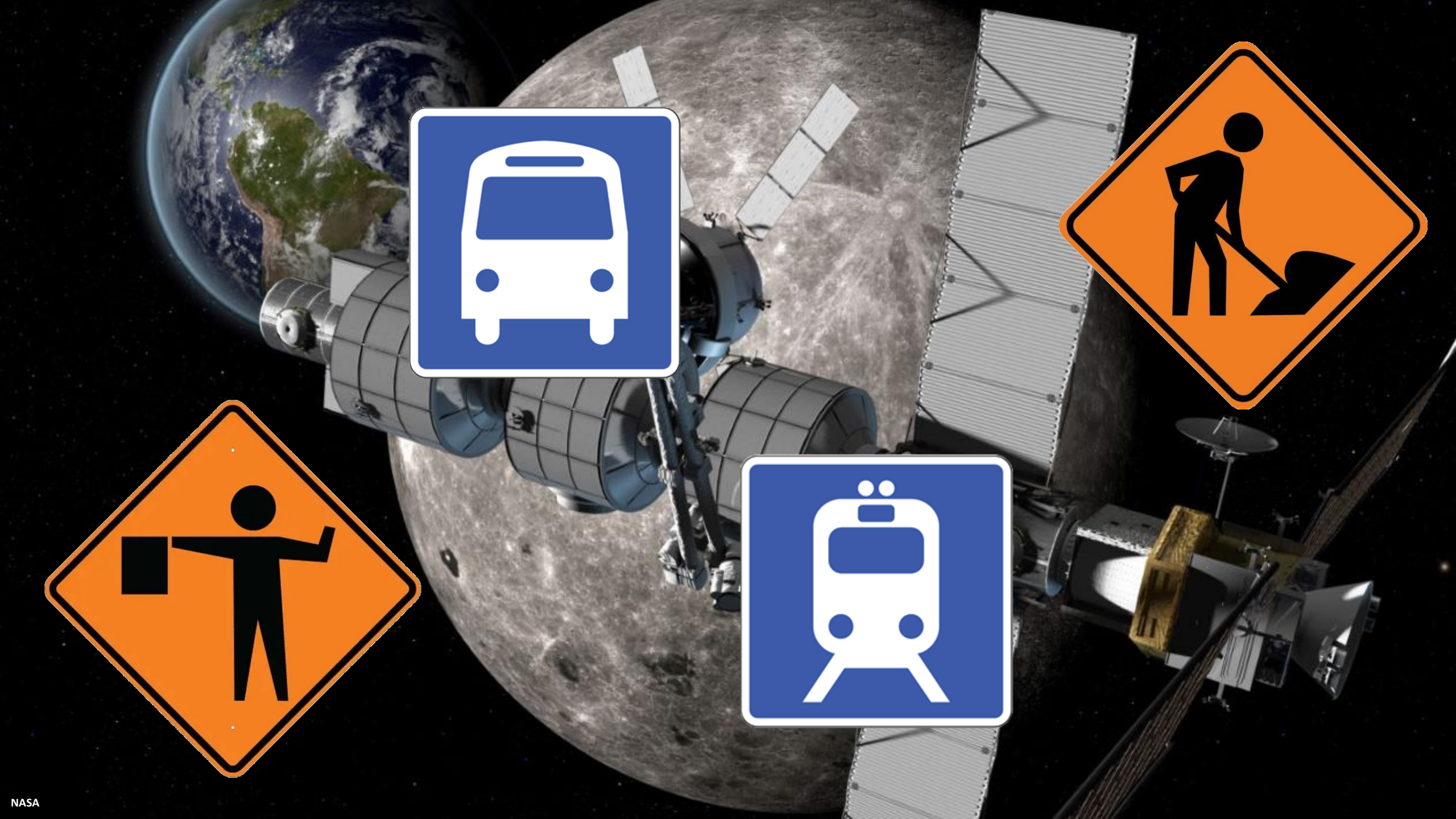

NASA

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2022

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2024

NASA

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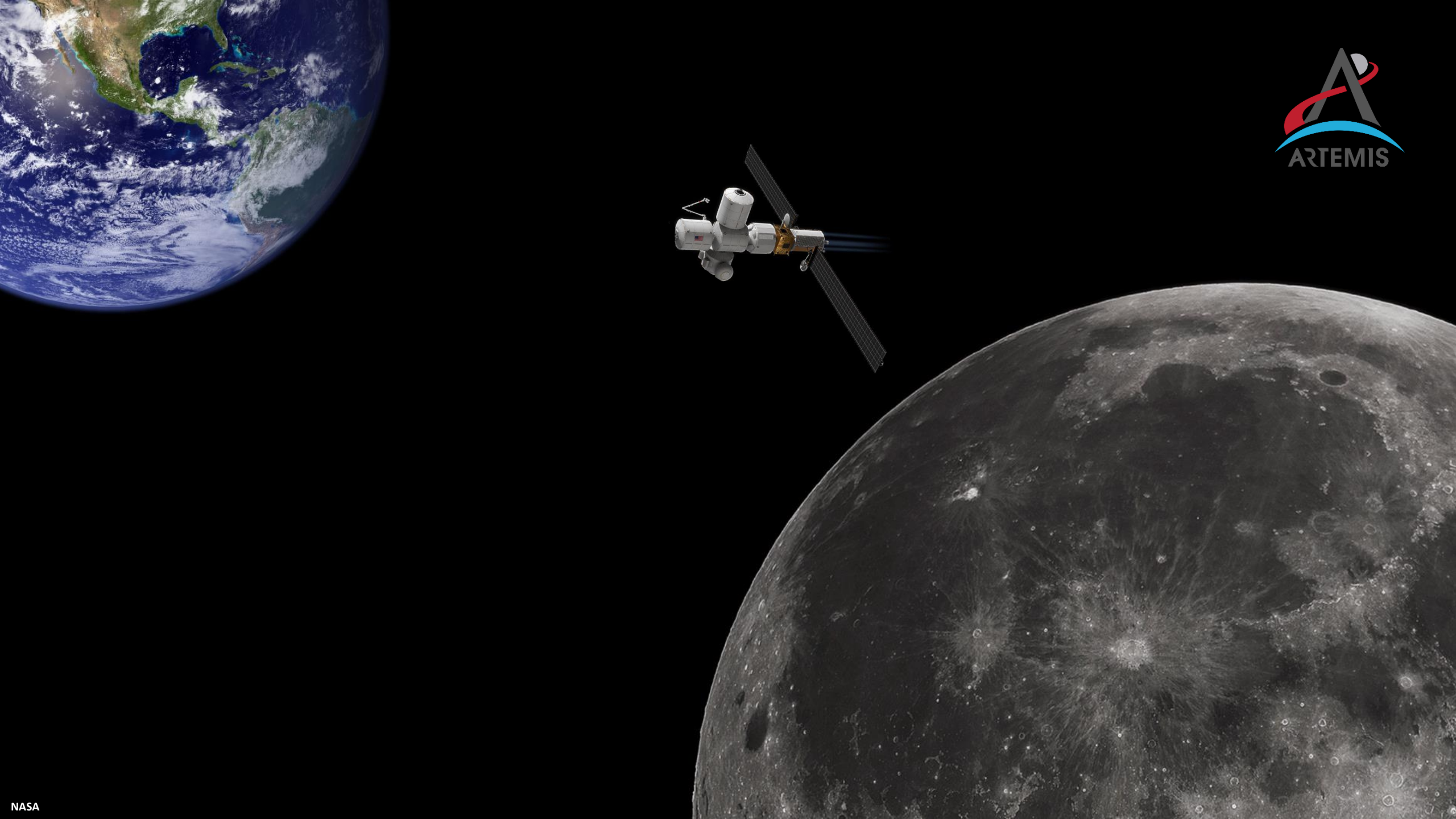

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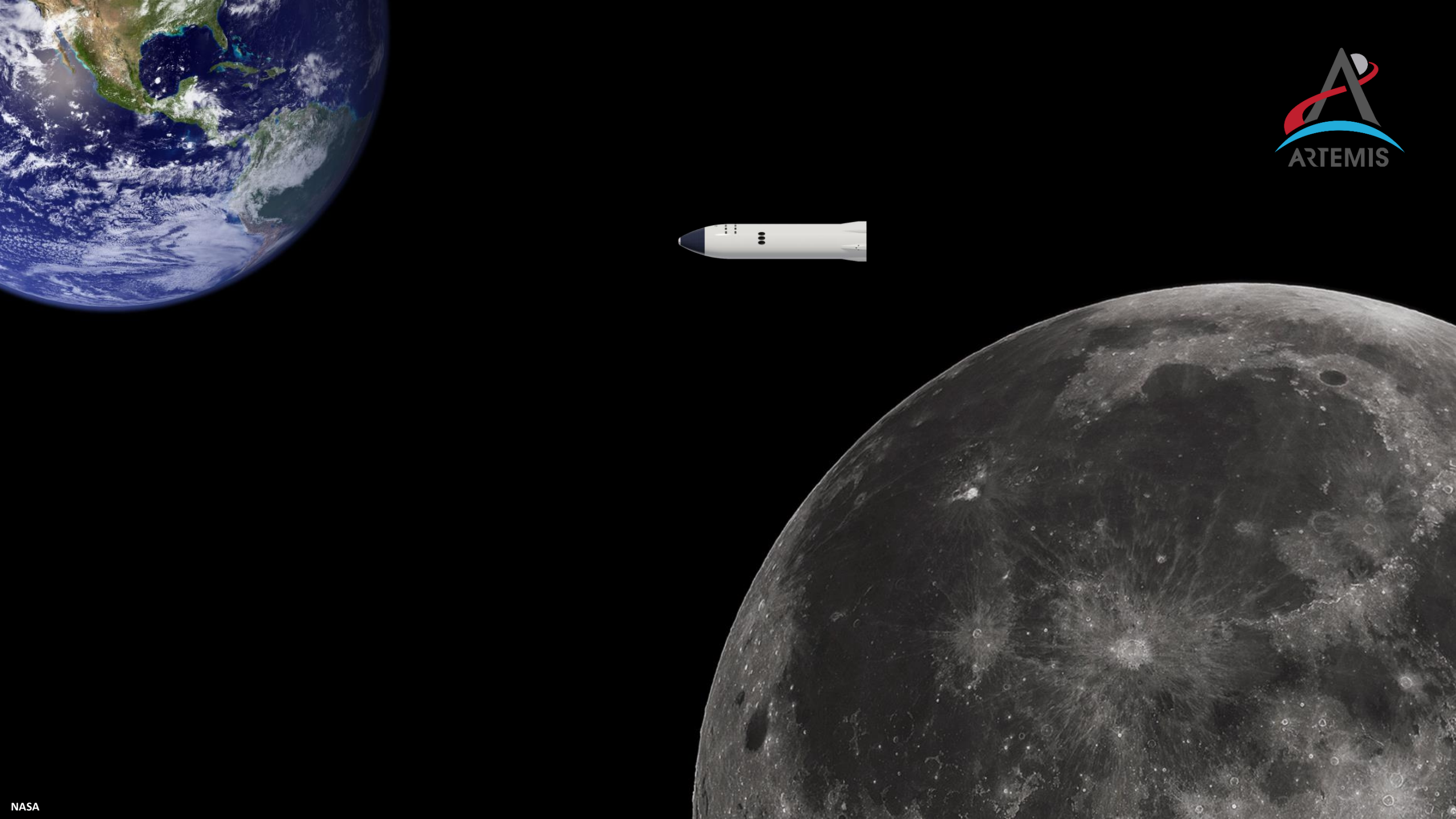

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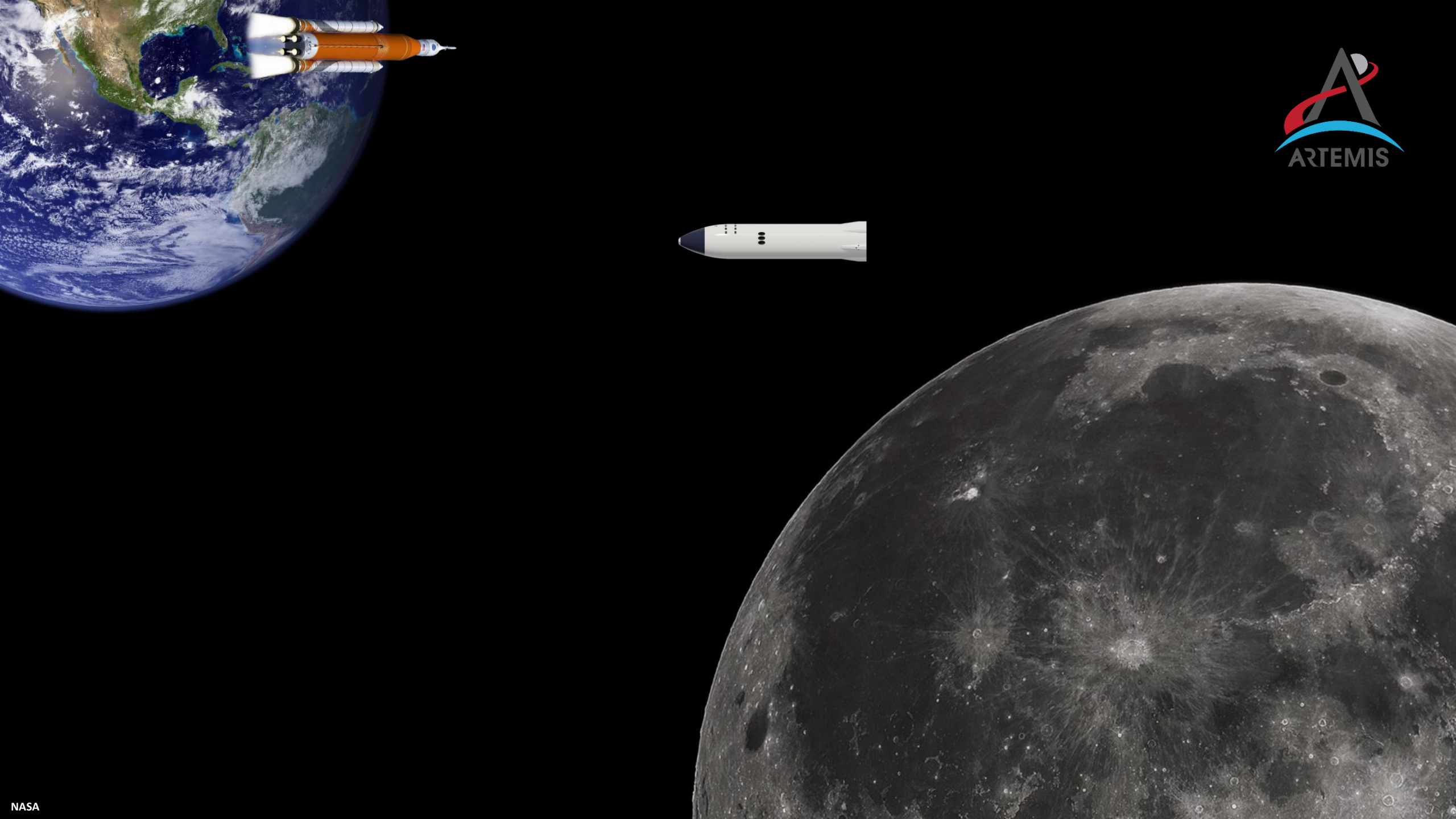

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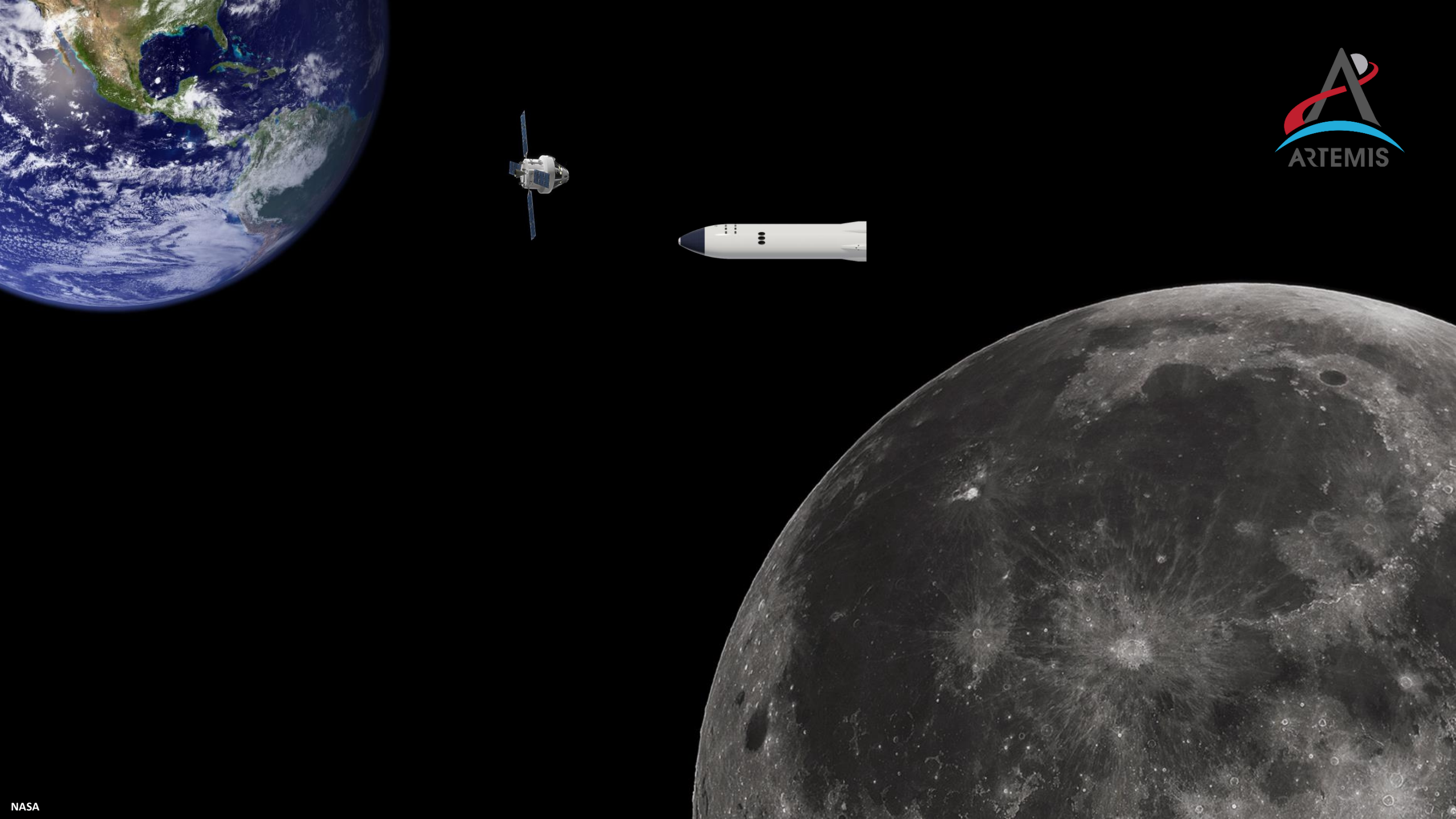

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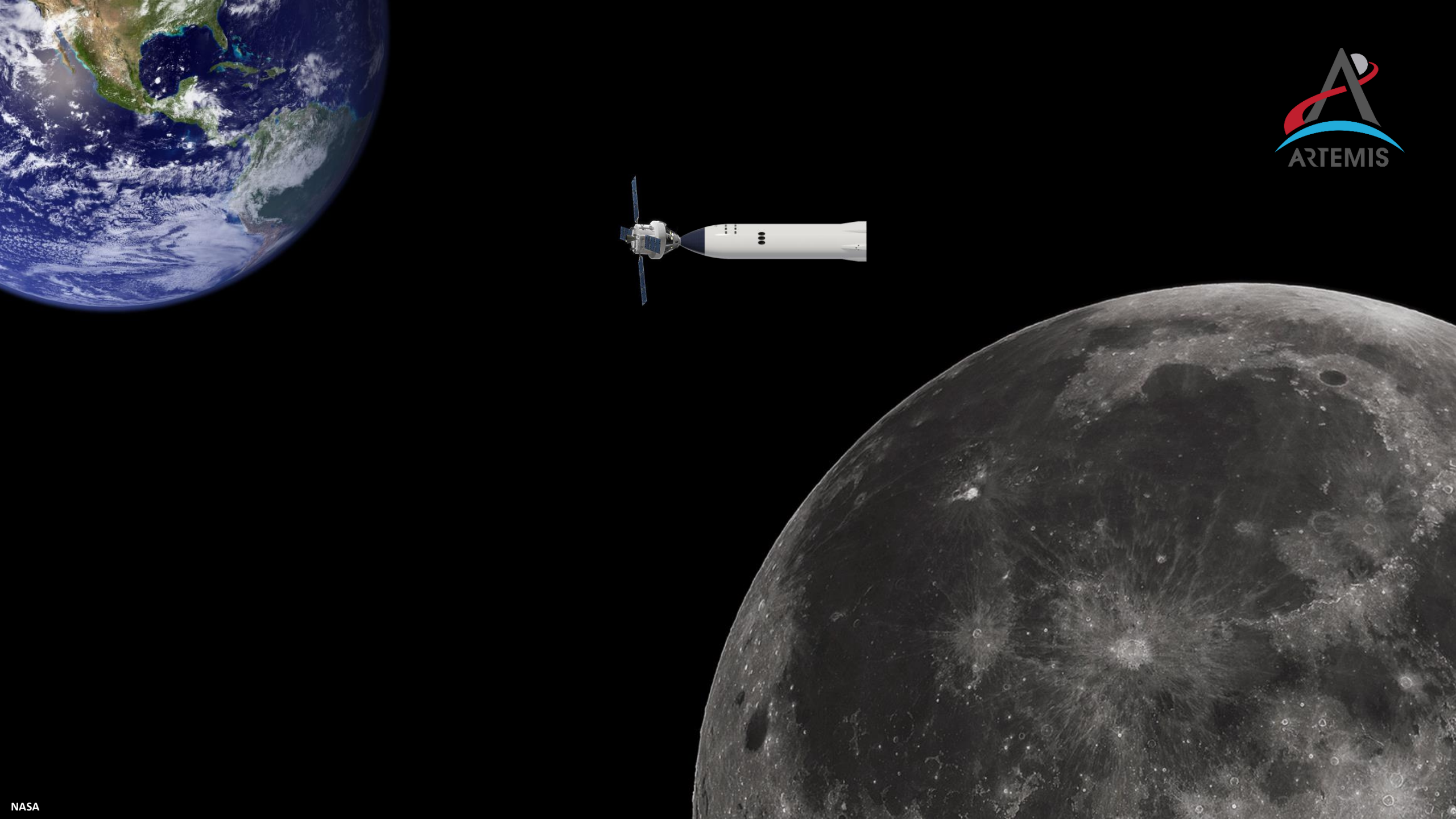

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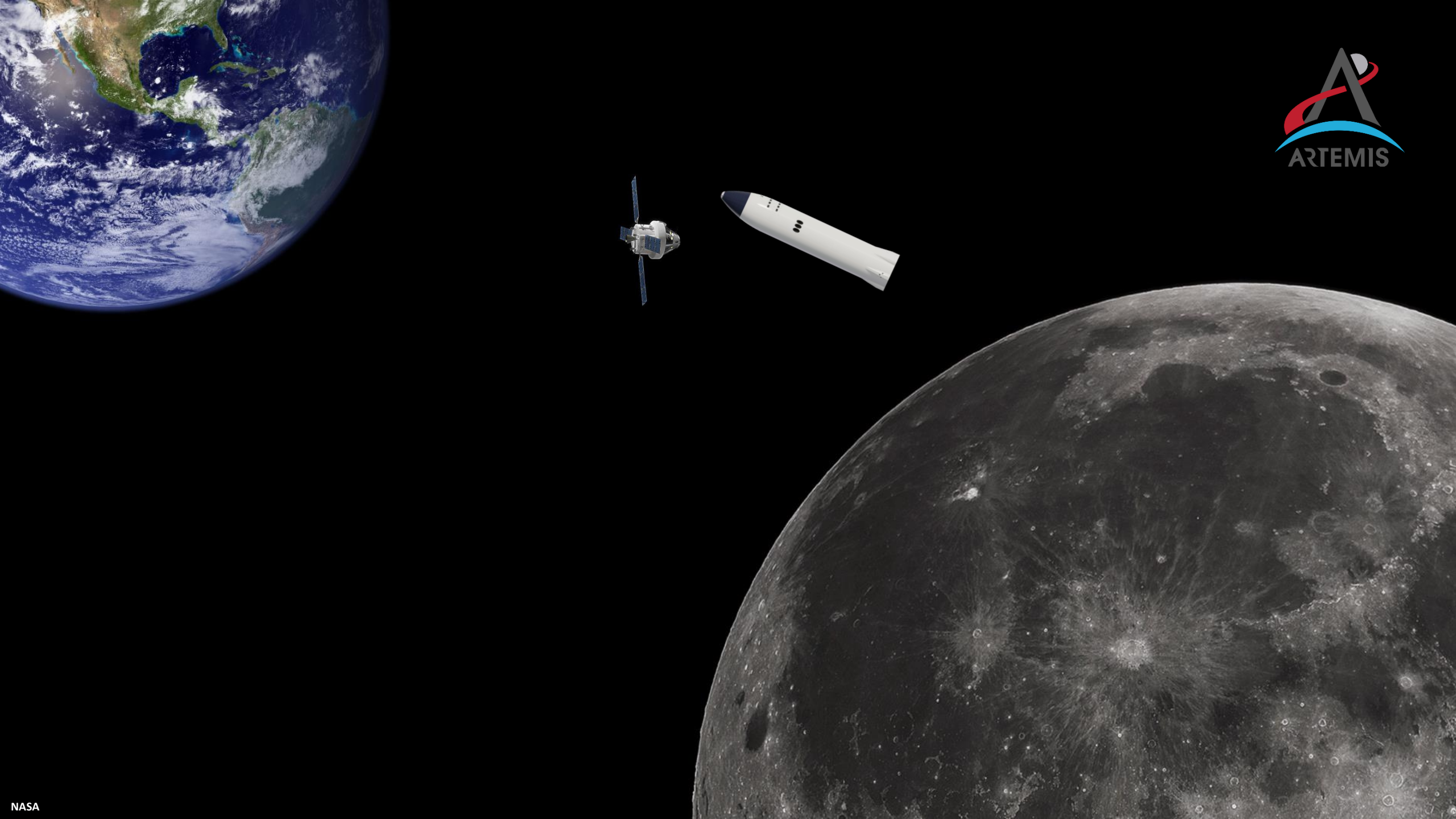

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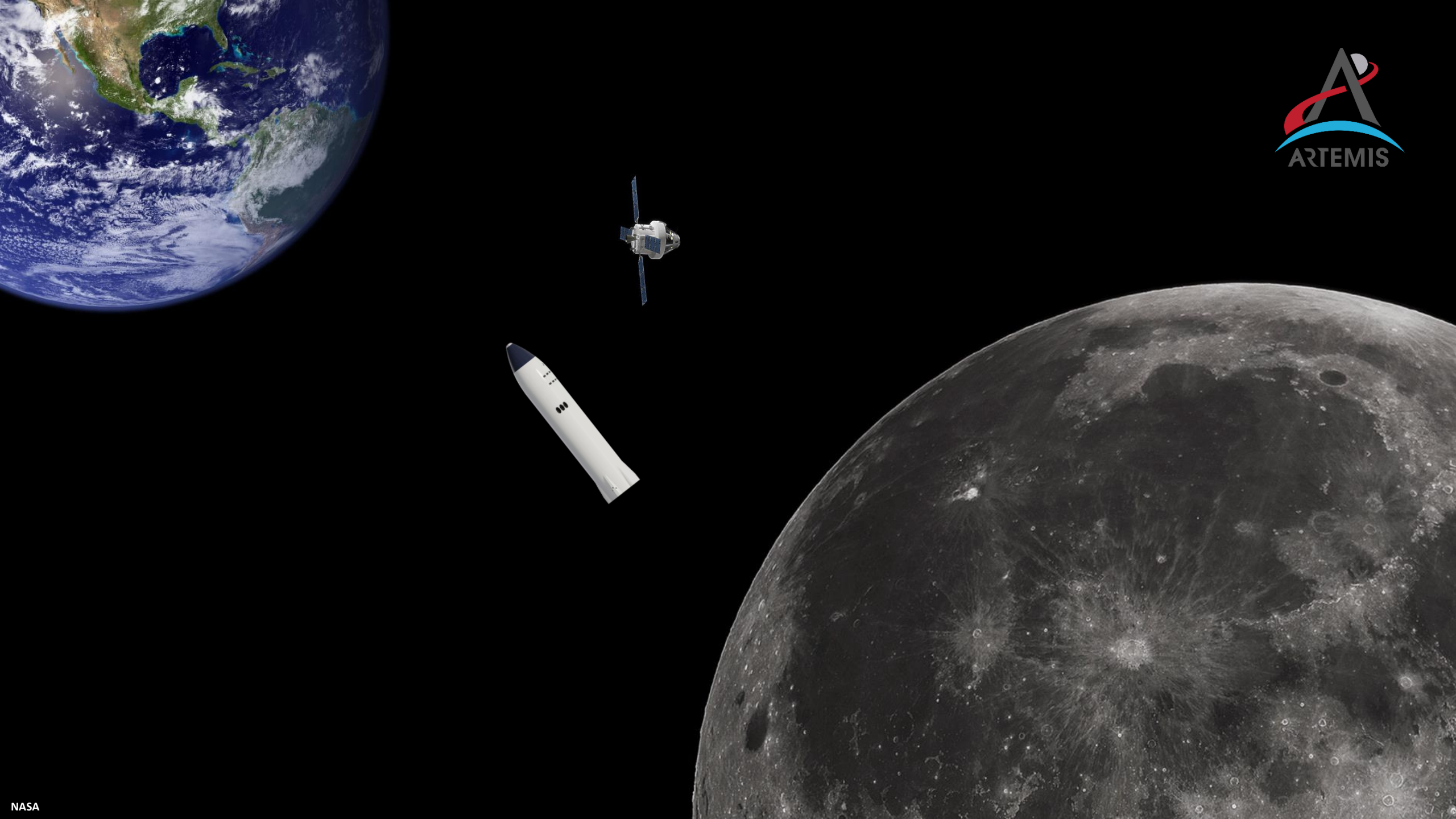

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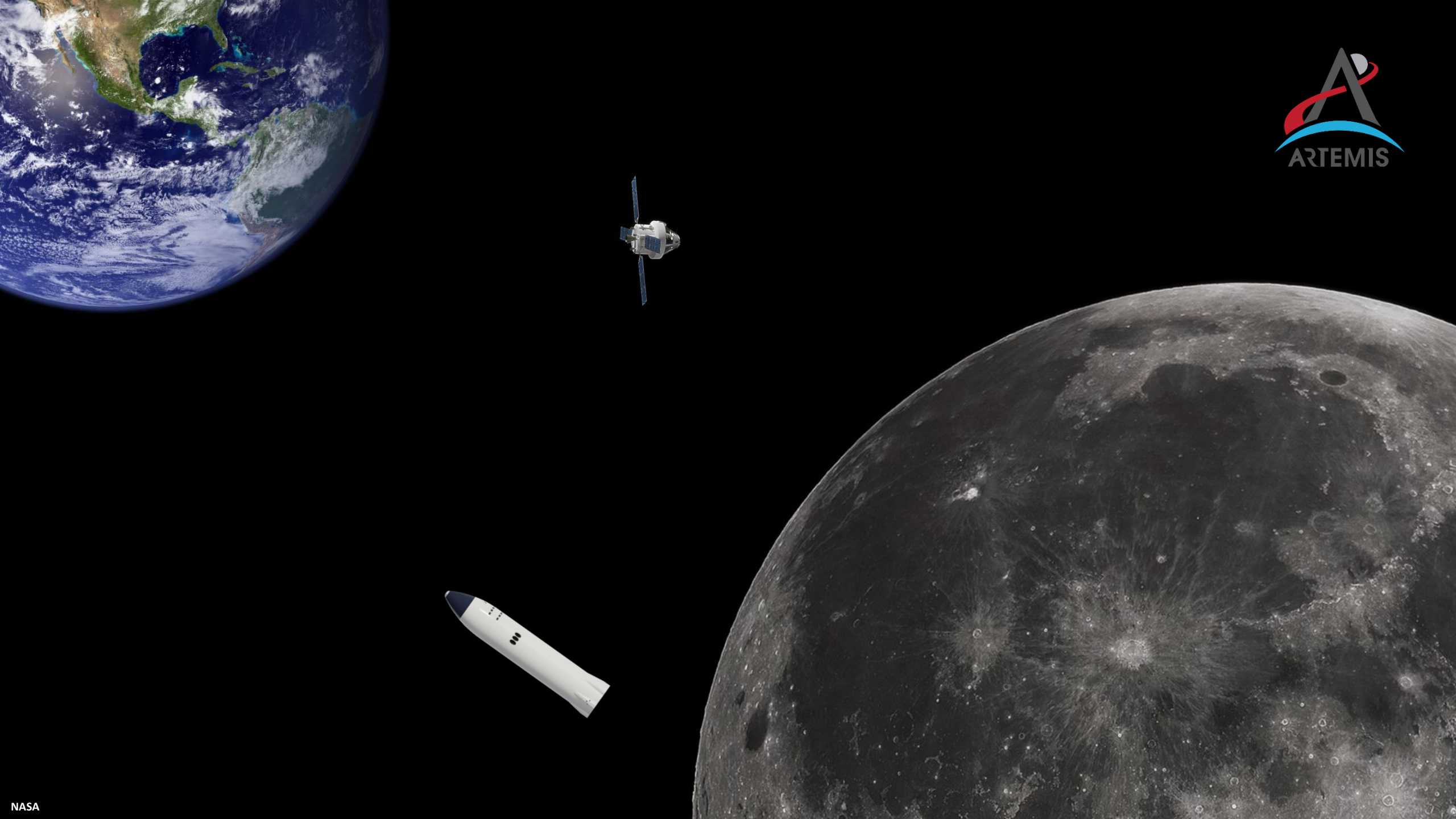

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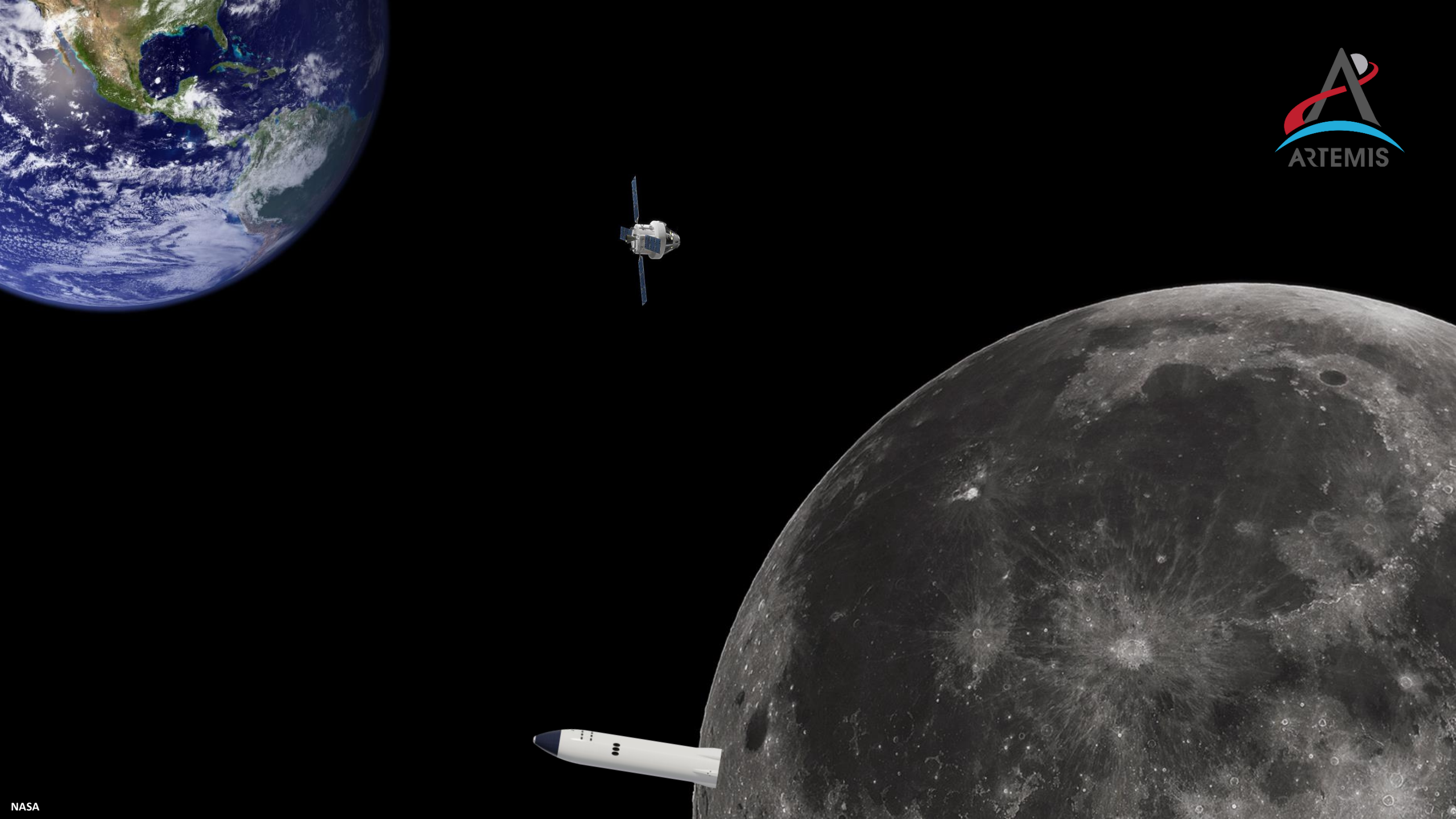

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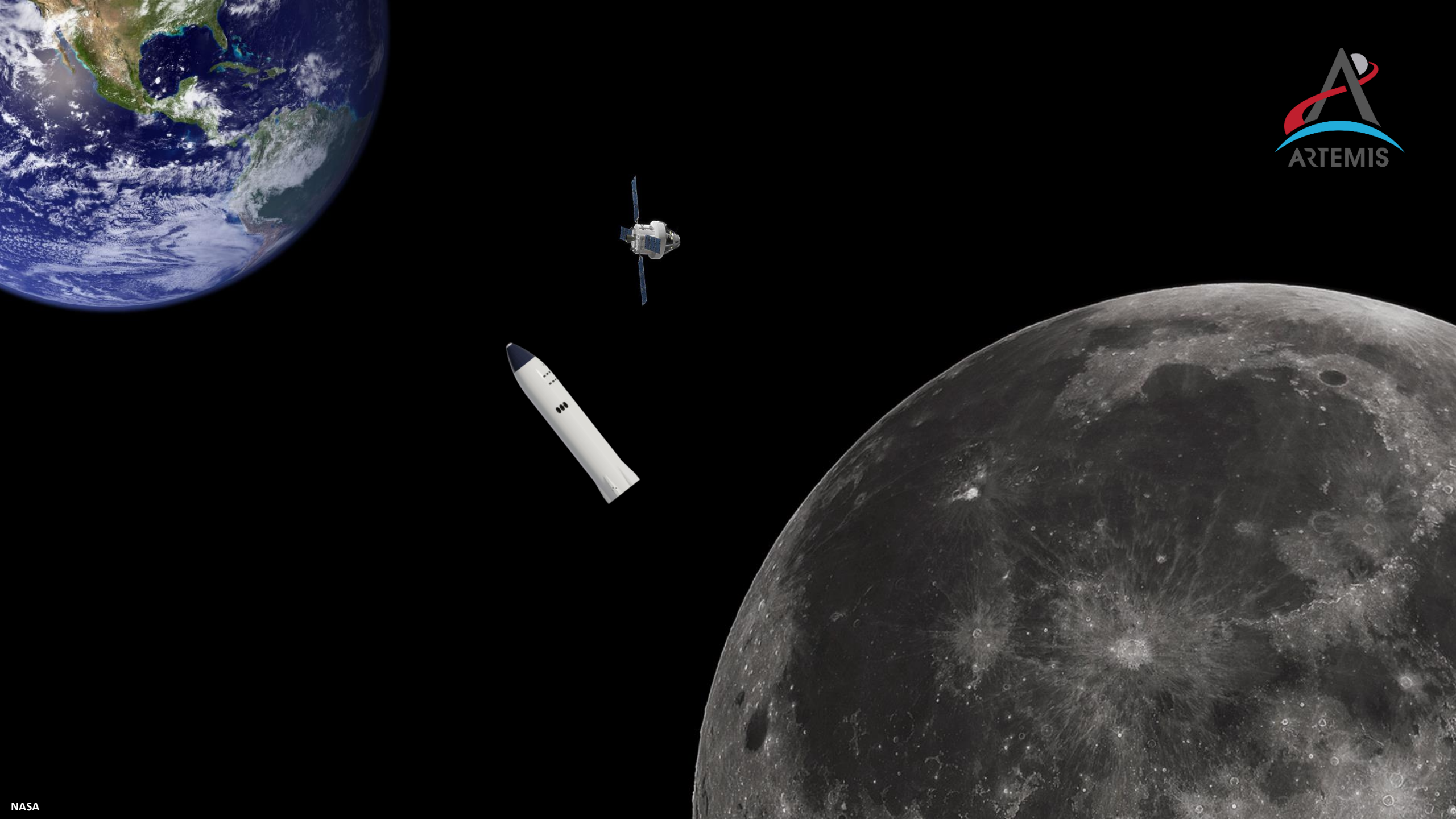

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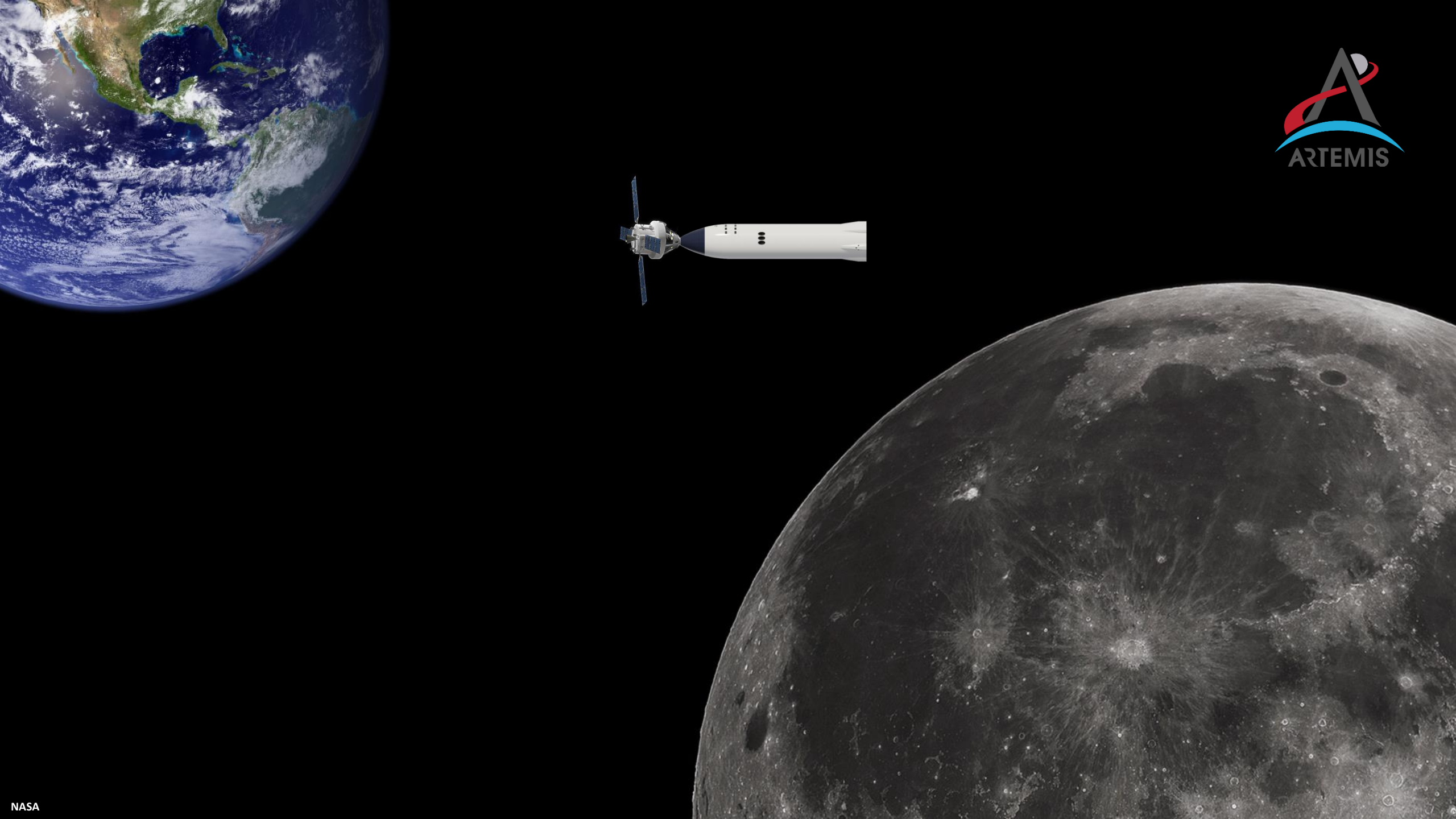

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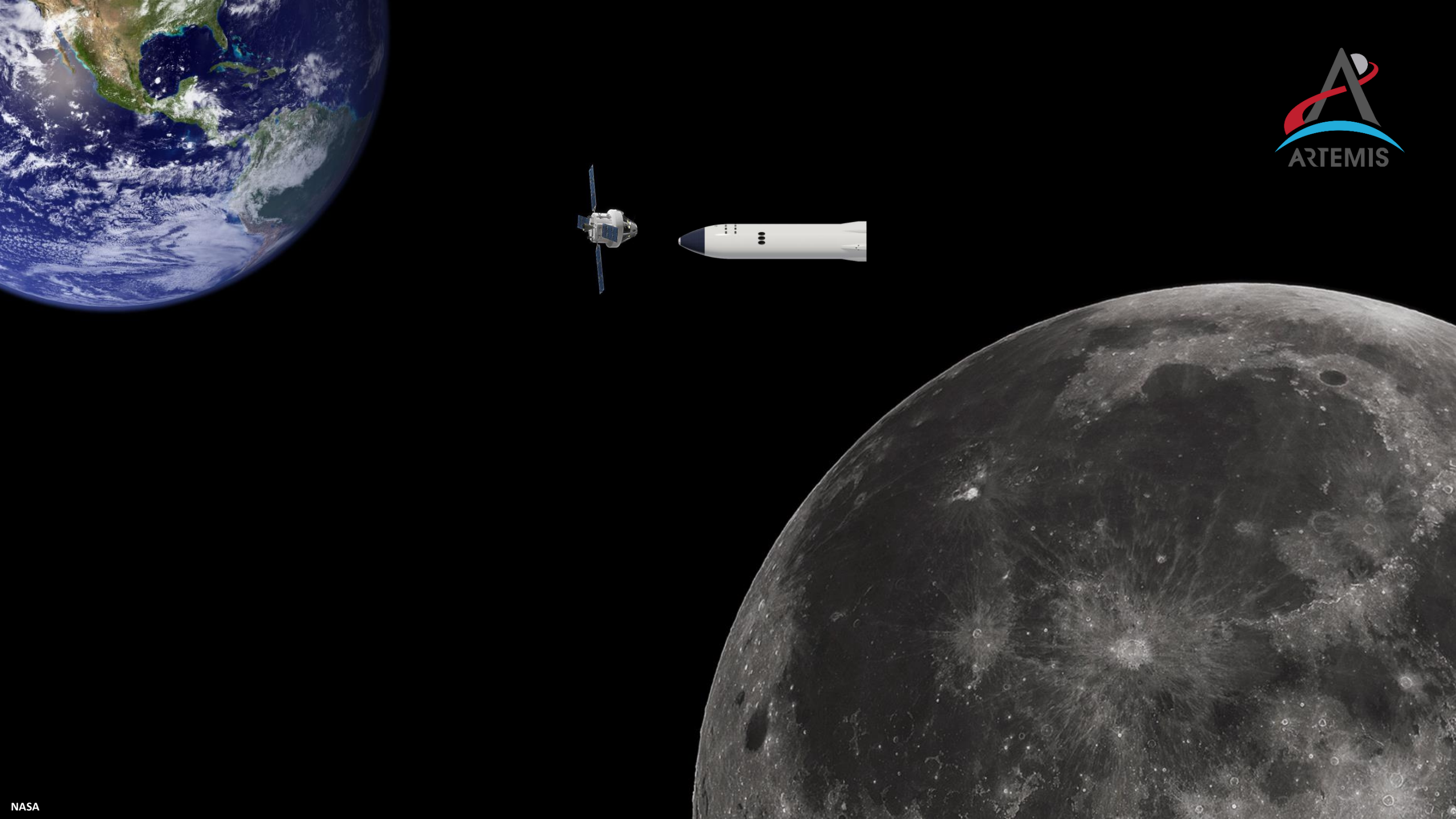

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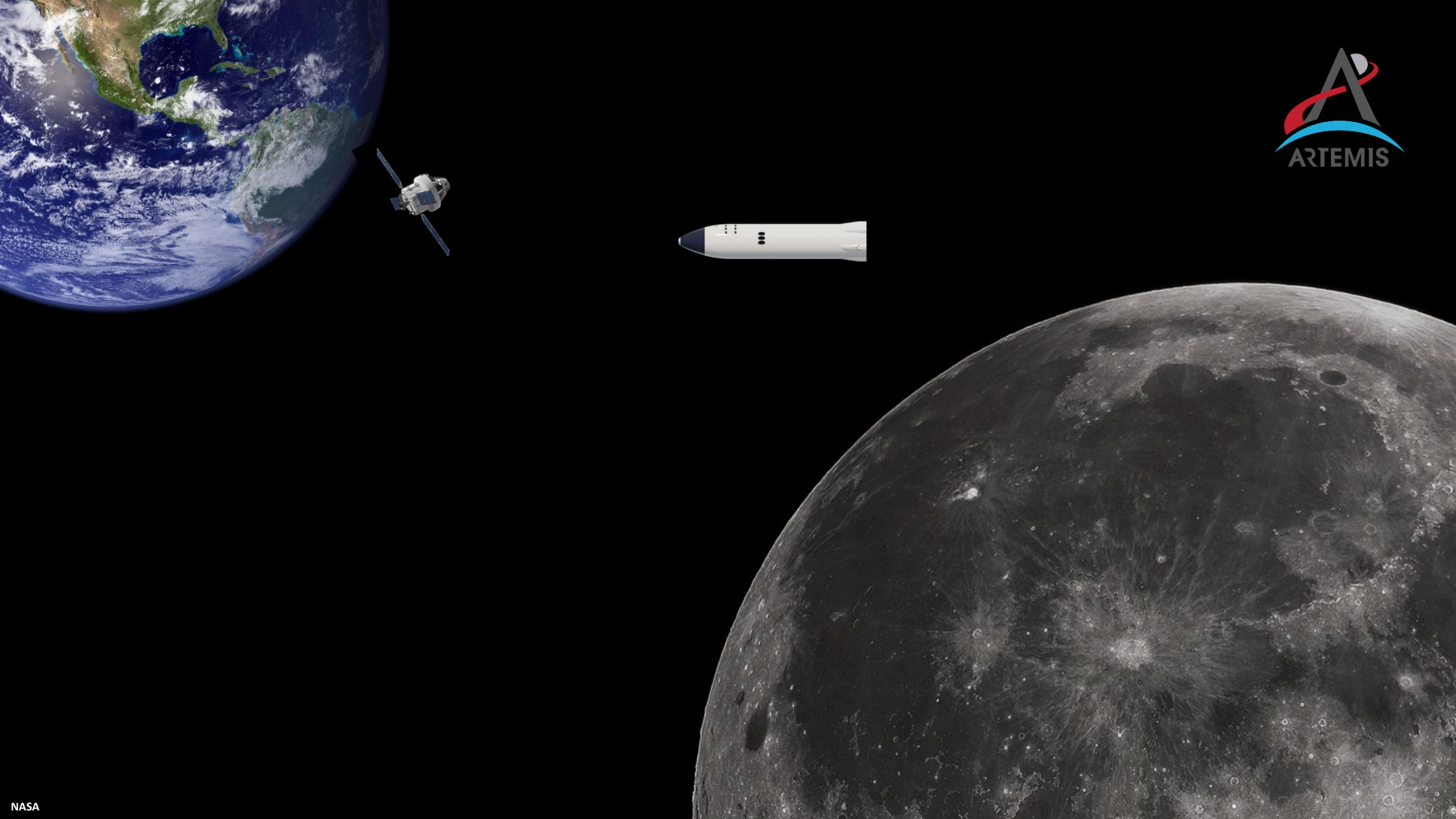

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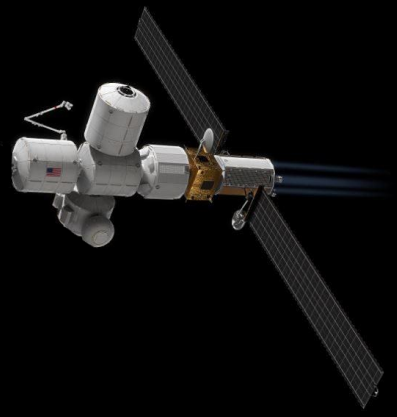
ARTEMIS

2025

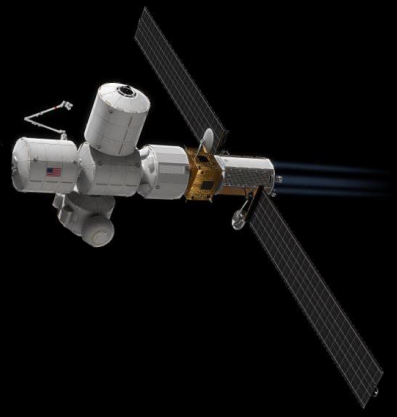
NASA



ARTEMIS

2028

NASA



2029

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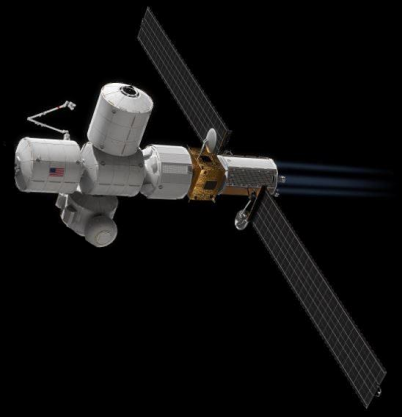

2031

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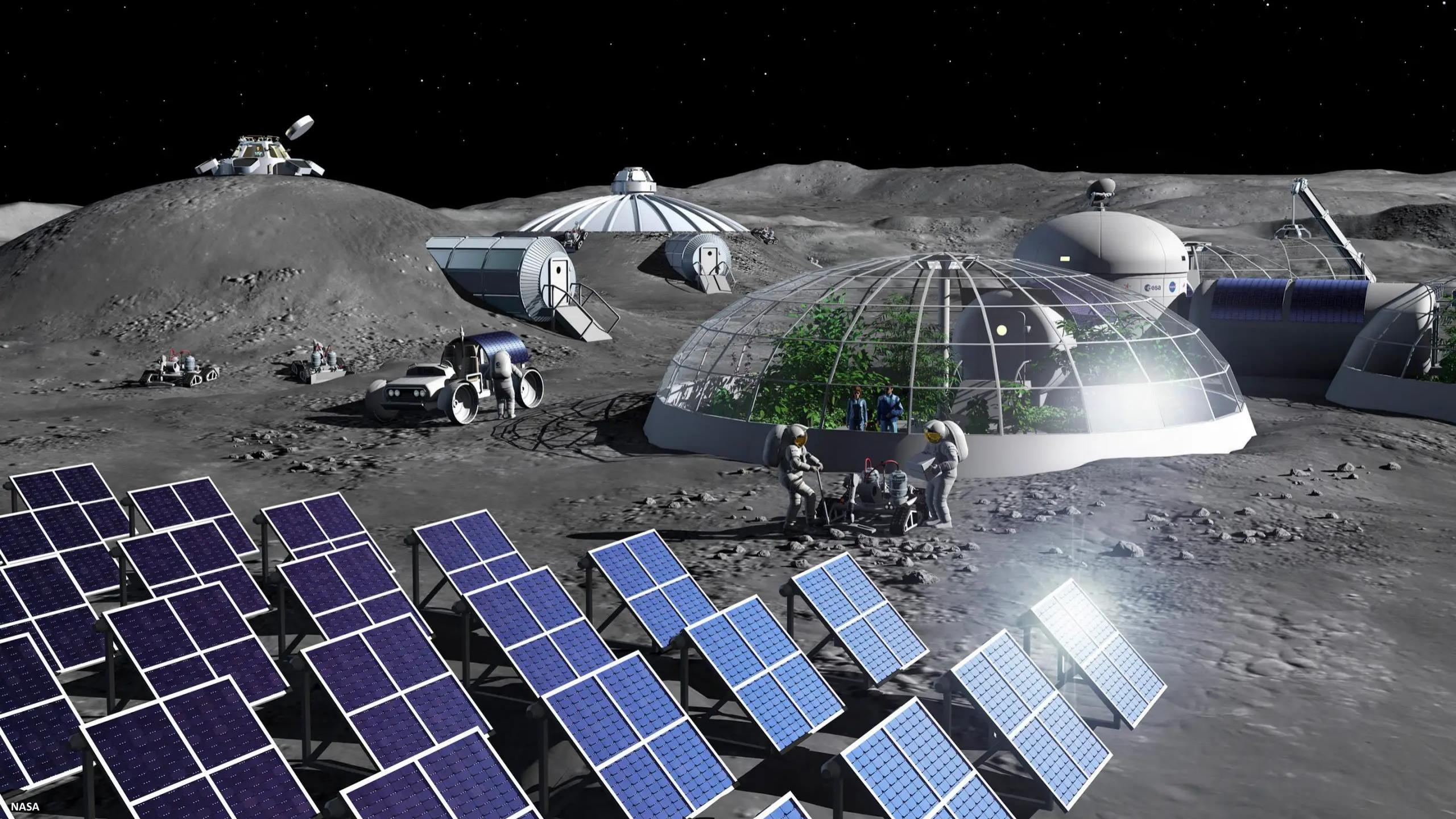
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James Vaughan, “Working on Mars”, commissioned by NASA

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LUNAR ARCHITECT

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User Amartiniouk, First Robotics Competition, “NYC FIRST Robotics Team – Hunter Robotics 3419”, Wikimedia Commons, cropped from original
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Kurt Leucht

got robots?

How robots will prepare the way for humans to live and work long term on the moon!

Kurt Leucht
NASA Software Engineer
Kennedy Space Center, Florida

NASA