Leadership Lessons from Mission Control

Stories of Innovation, Collaboration, and Communication in Human Space Flight

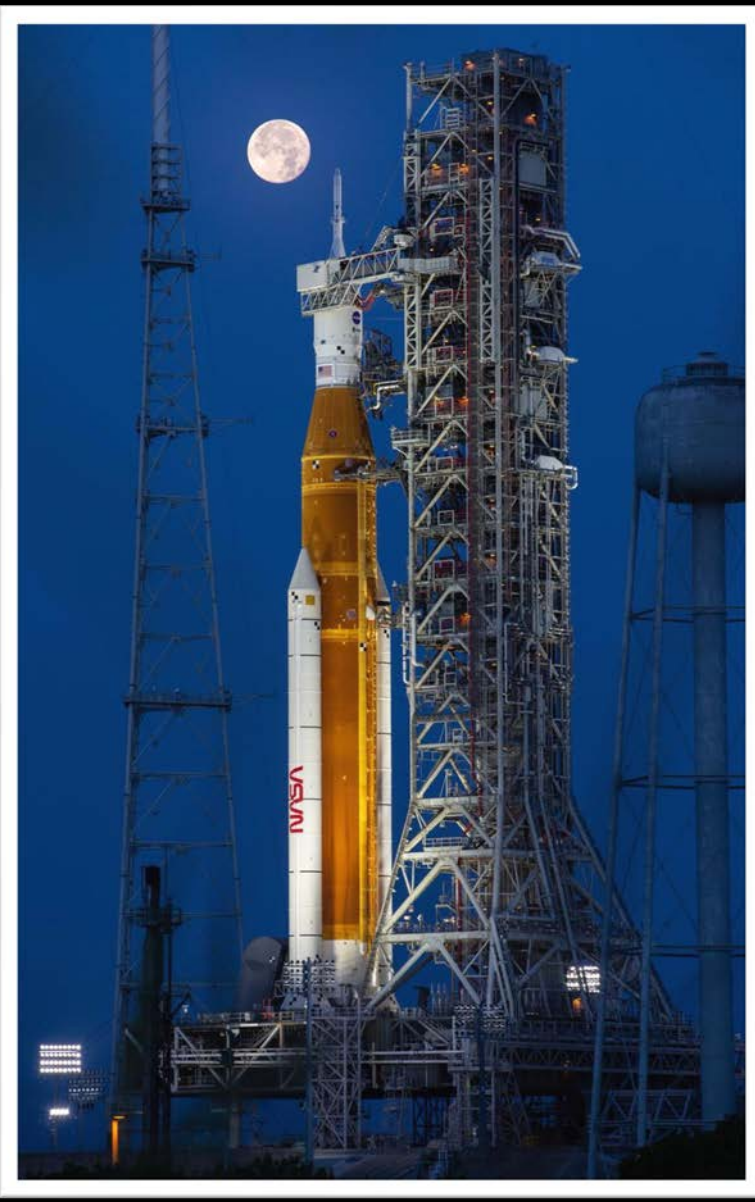
Ginger Kerrick Davis
Chief Strategy Officer, Barrios Technology
30-Year NASA Veteran

STORIES FROM HUMAN SPACEFLIGHT

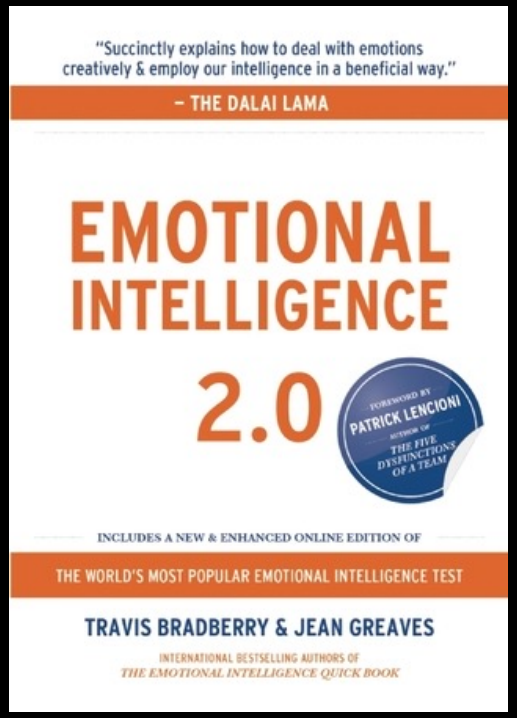
- Since NASA was formed, we have been Leaders in Human Spaceflight, doing things no one has ever done before
- Happy to share my 30 years of leadership lessons with you today!

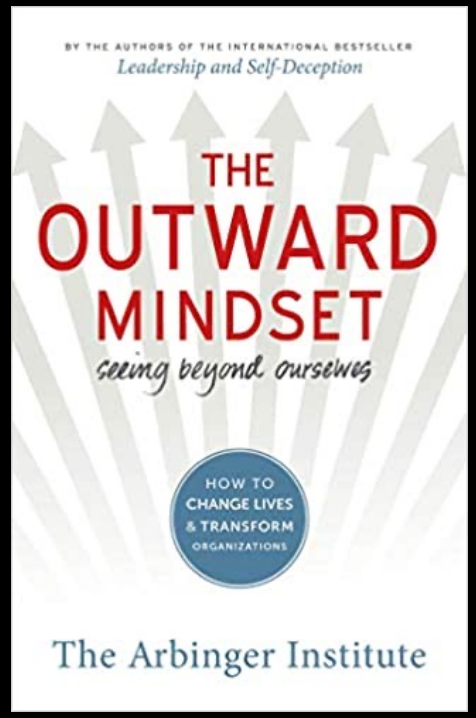
OUTLINE

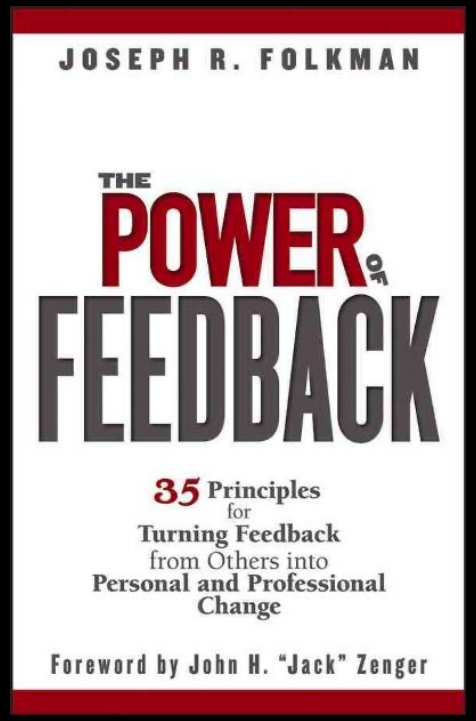
- [ ] Outward Mindset
- [ ] Emotional Intelligence
- [ ] Enable Innovation
- [ ] Build Coalitions
- [ ] Influence Leadership

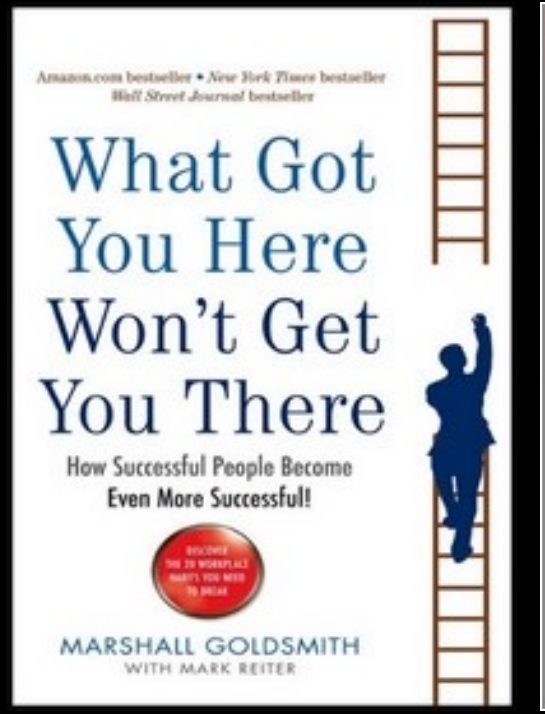


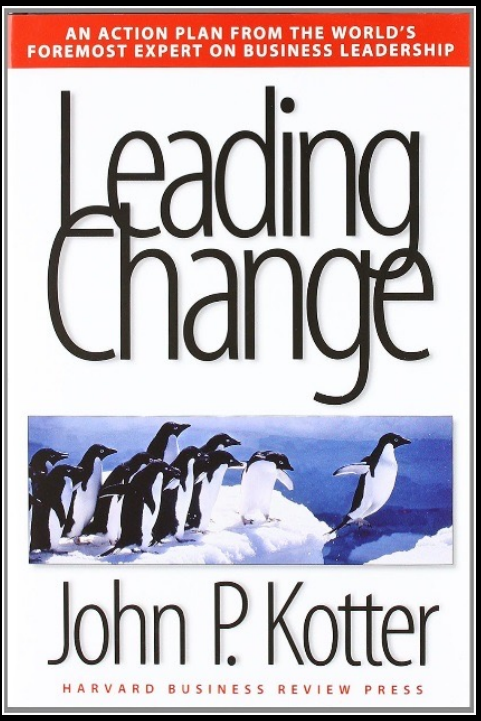
LEADERSHIP BOOKS











ARBINGER INSTITUTE'S OUTWARD MINDSET

Inward Mindset

Arbinger Institute

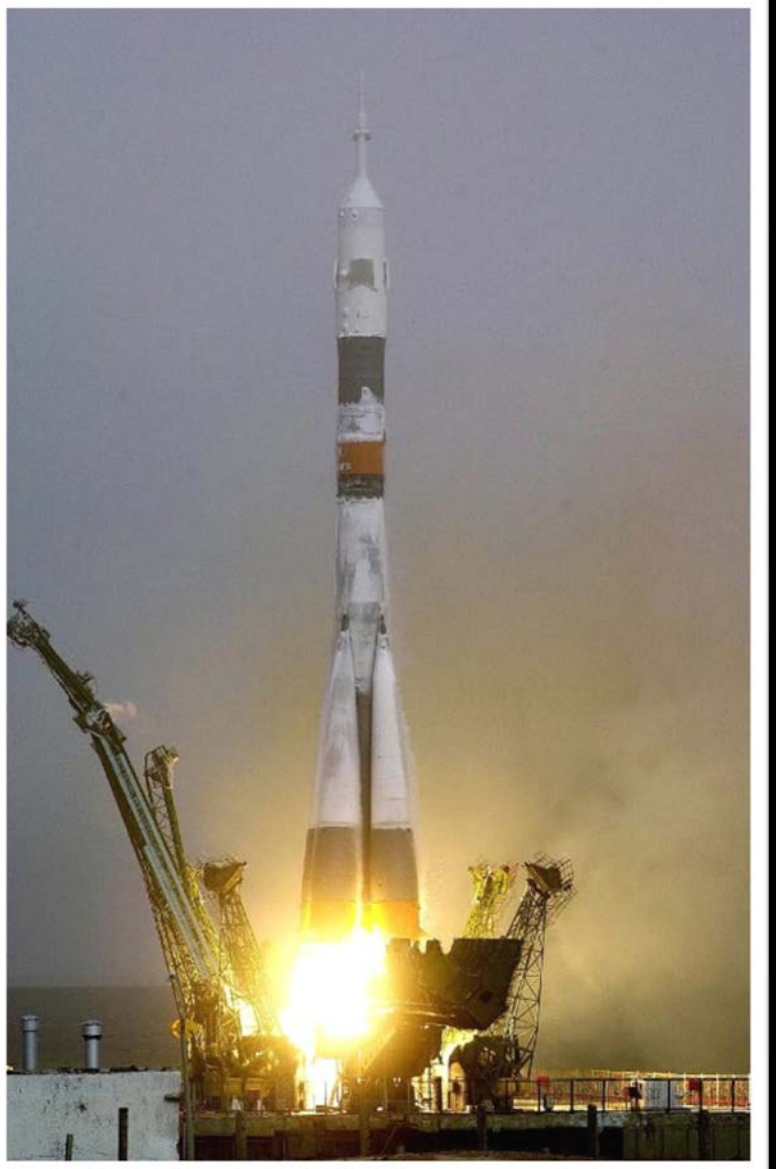
Outward Mindset

Arbinger Institute

TRAINING 1ST INTERNATIONAL SPACE STATION CREW (1997 – 2000)

WORKING IN RUSSIA – EMBRACING AN OUTWARD MINDSET

WORKING IN RUSSIA – LAUNCHING THE 1ST CREW



WORKING IN RUSSIA – LAUNCHING THE 1ST CREW

MASTERING THE "POWER" SKILLS

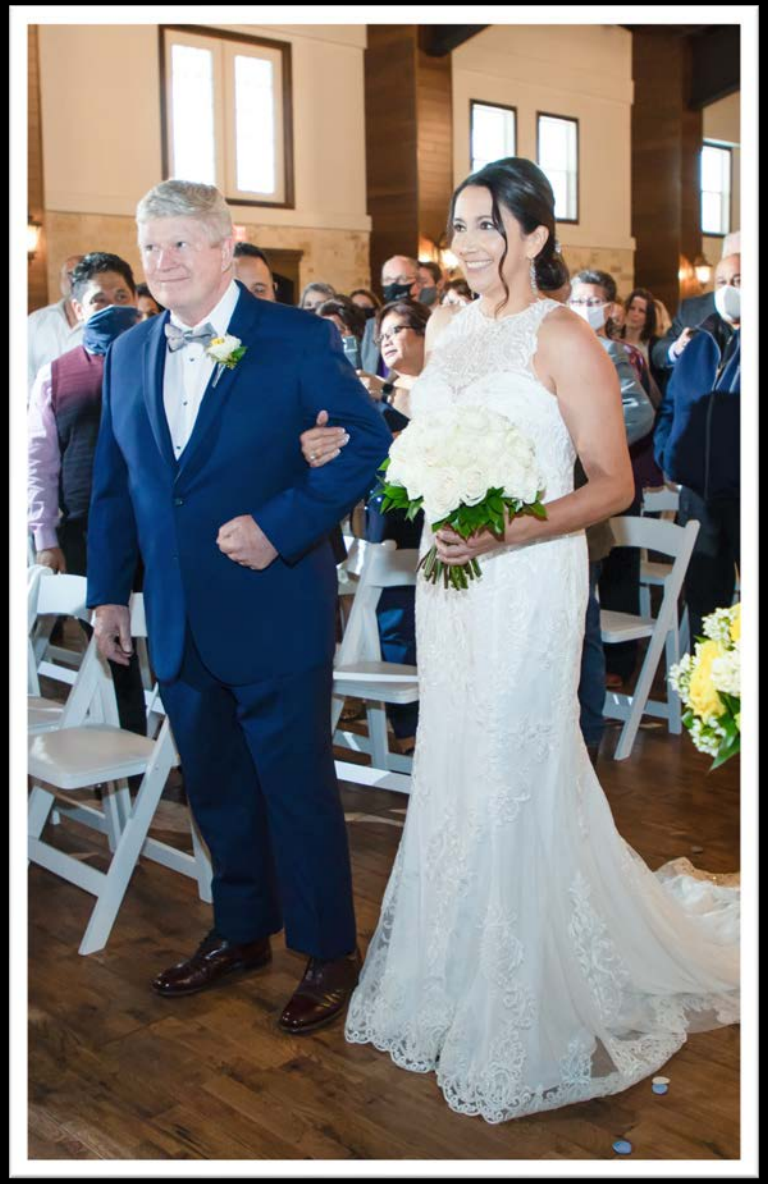
Inward Mindset

Arbinger Institute

Outward Mindset

Arbinger Institute

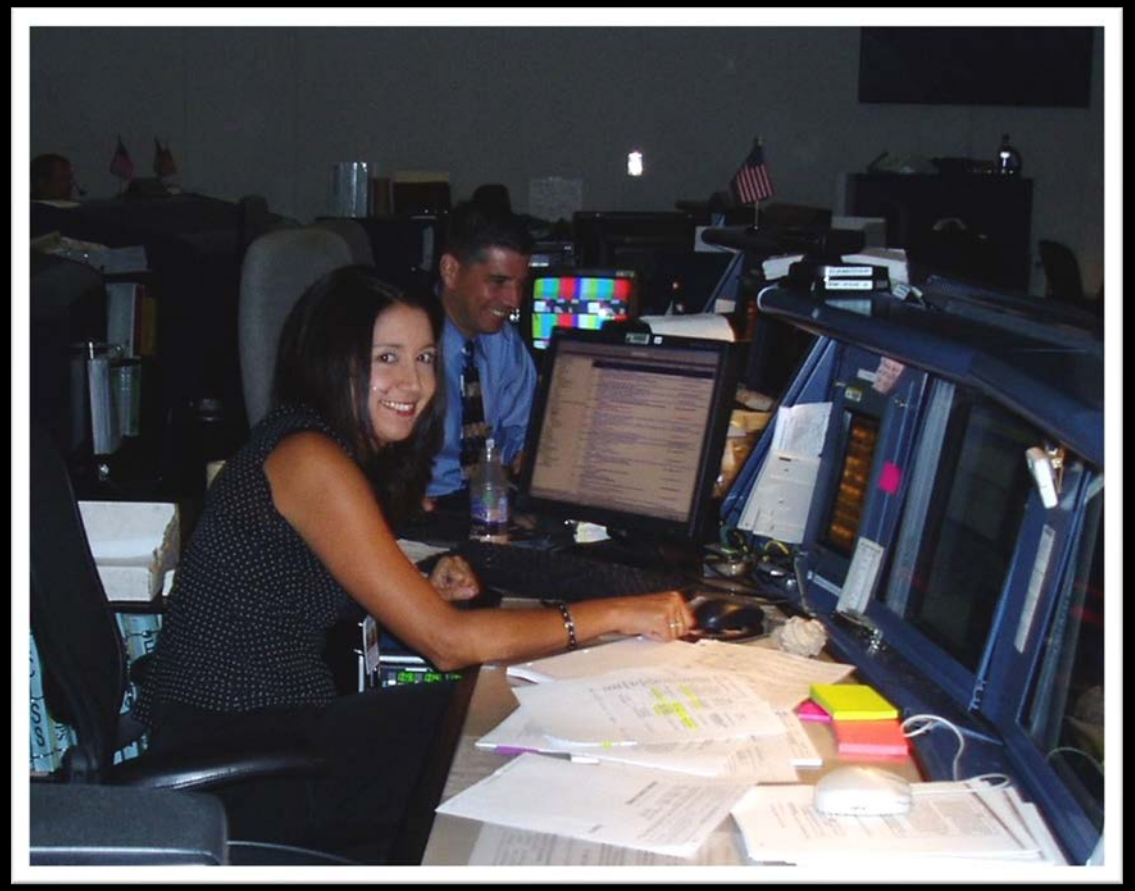
WORKING IN RUSSIA – ESTABLISHING LIFELONG RELATIONSHIPS

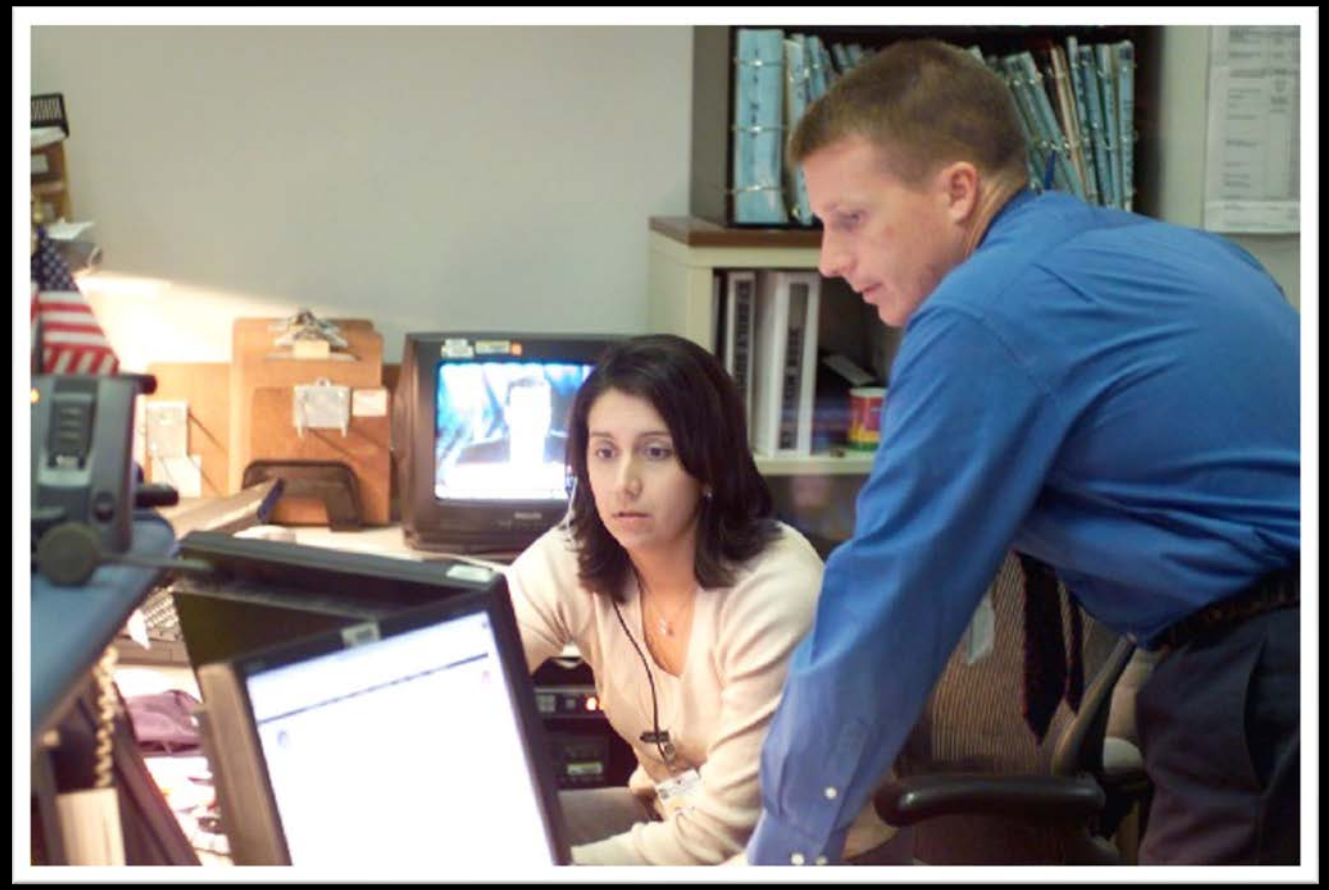


CRITICAL COMMUNICATIONS

CAPCOM

The Voice of Mission Control





COLUMBIA TRAGEDY (2003)

EMOTIONAL INTELLIGENCE – “POWER” SKILLS

PERSONAL COMPETENCE

YOUR RELATIONSHIP WITH YOURSELF

SELF AWARENESS

HOW IN TUNE YOU ARE WITH YOUR EMOTIONS

SELF MANAGEMENT

YOUR ABILITY TO REGULATE YOUR EMOTIONAL STATE

SOCIAL COMPETENCE

YOUR RELATIONSHIP WITH OTHERS

SOCIAL AWARENESS

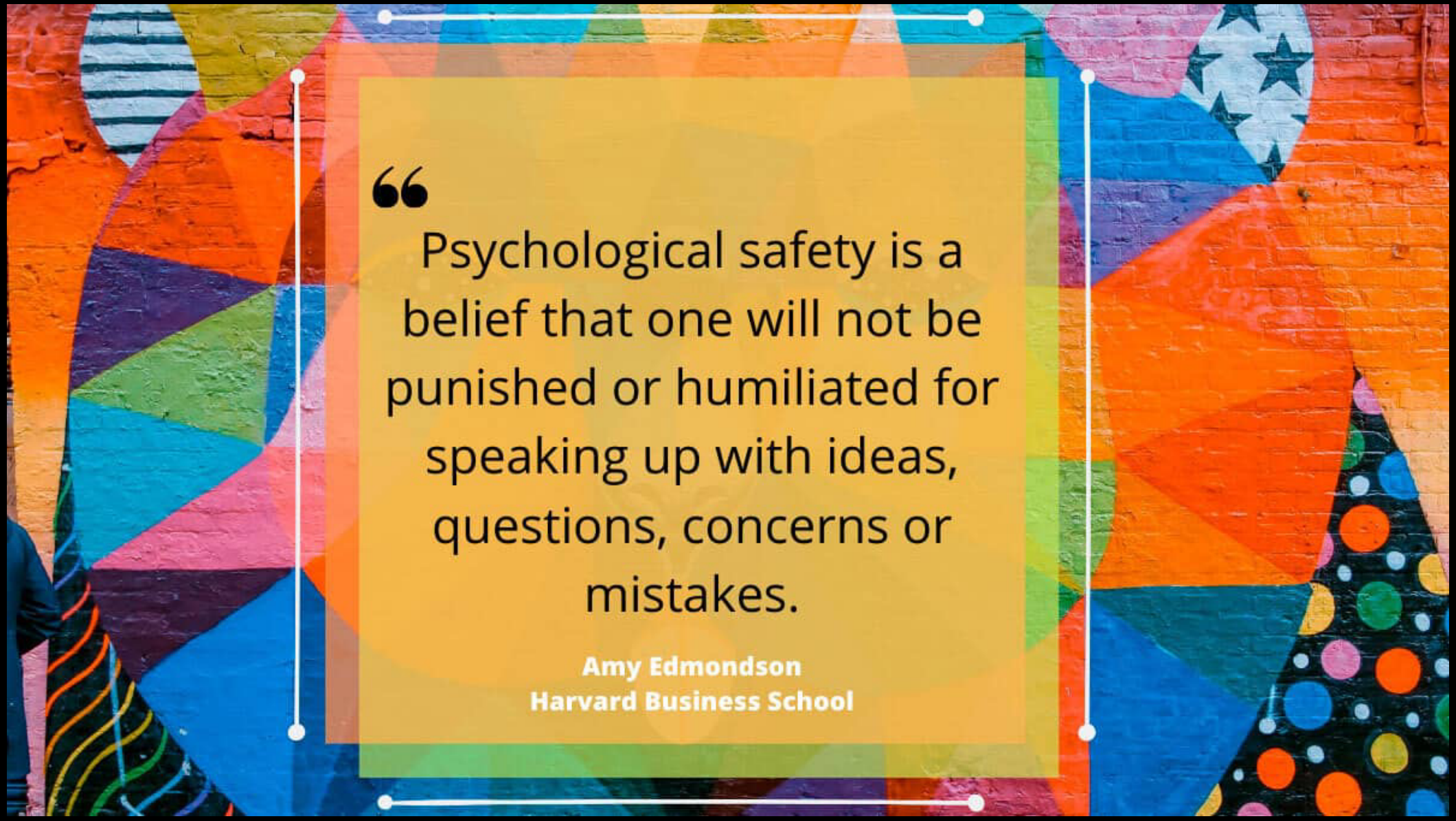
HOW IN TUNE YOU ARE WITH OTHERS’ EMOTIONS

RELATIONSHIP MANAGEMENT

YOUR ABILITY TO NAVIGATE EMOTIONS IN INTERACTIONS WITH OTHERS

CREATING SPACE FOR AN INNOVATIVE MINDSET

EMOTIONAL INTELLIGENCE ENABLES PSYCHOLOGICAL SAFETY



PSYCHOLOGICAL SAFETY = MORE IDEAS!

PSYCHOLOGICAL SAFETY = MORE IDEAS!

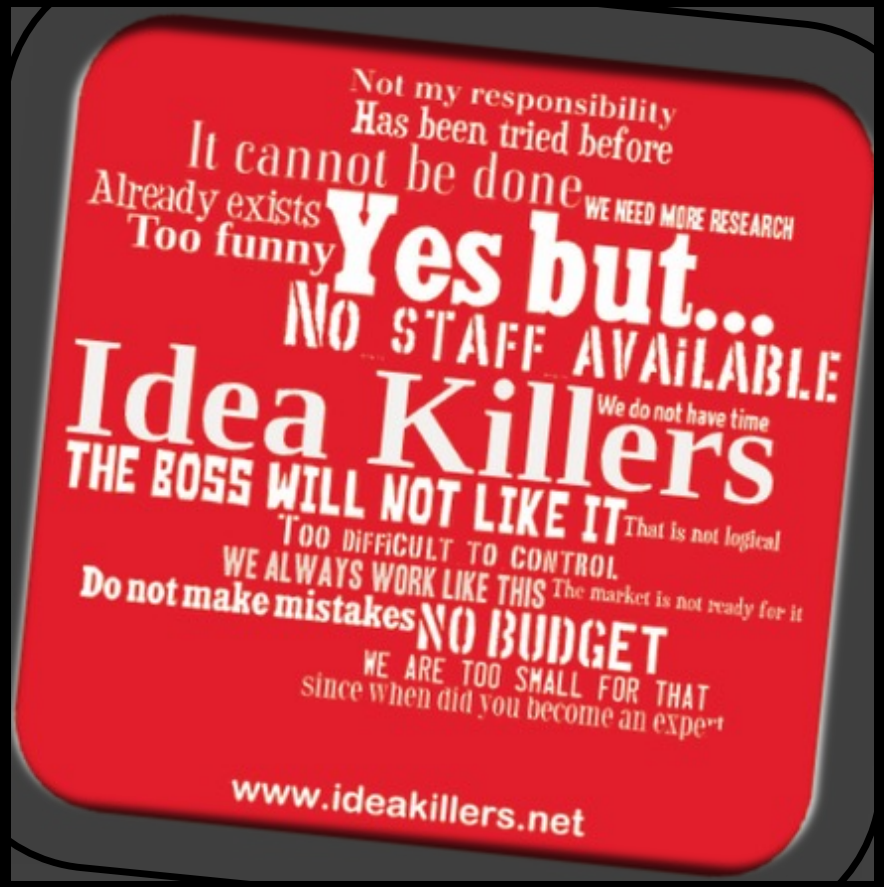
Shuttle return to flight: Testing puncture repair kits

SPACE 11 July 2005

By **Kelly Young**

A goo gun for repairing damaged heat-resistant tiles has been tested in aircraft and will fly on Discovery.
(Image: NASA)

A TOOL FOR ENABLING NEW IDEAS



SHUTTLE RETURN TO FLIGHT (2005)

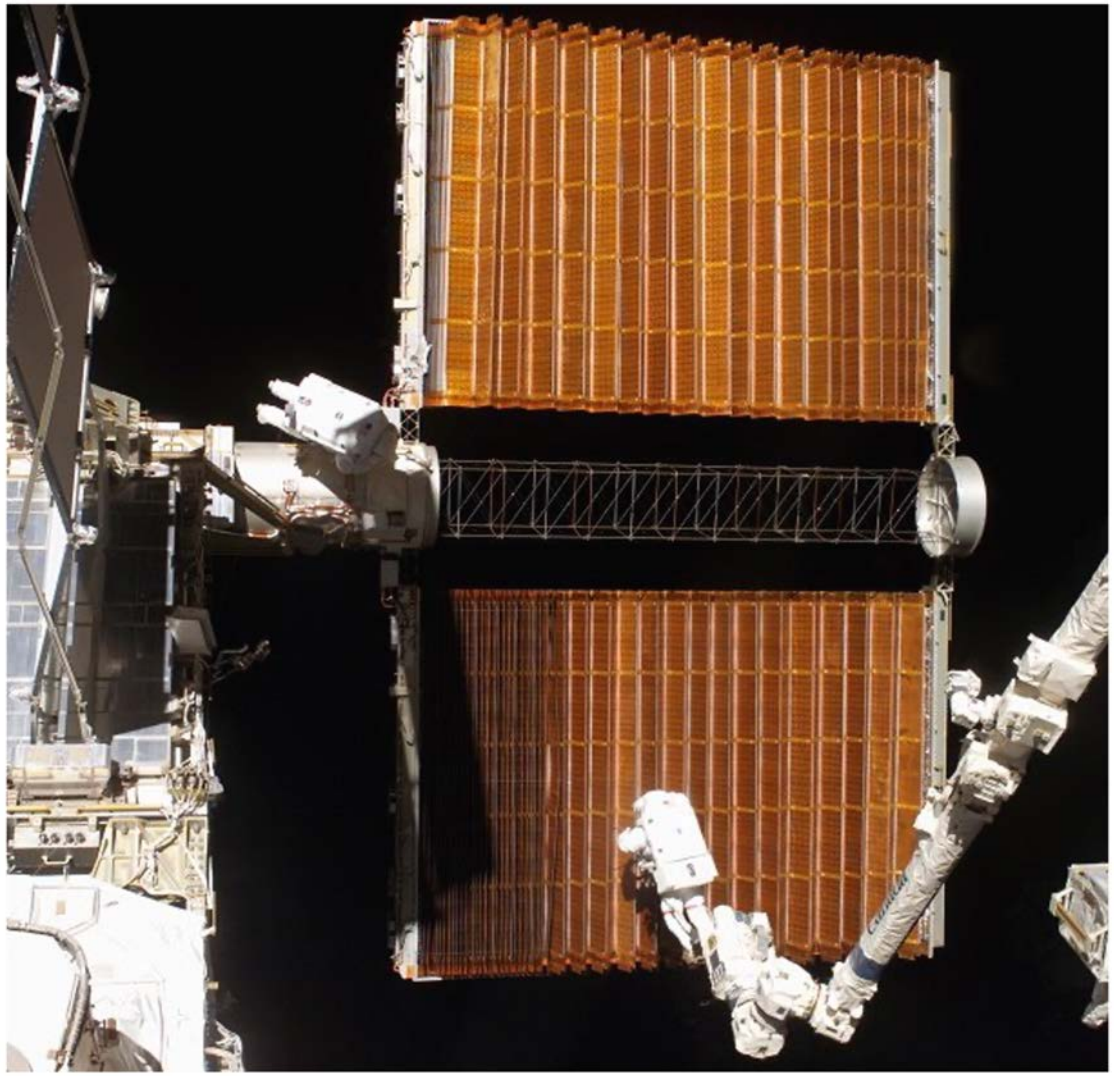
NASA LEADERSHIP IN MISSION CONTROL

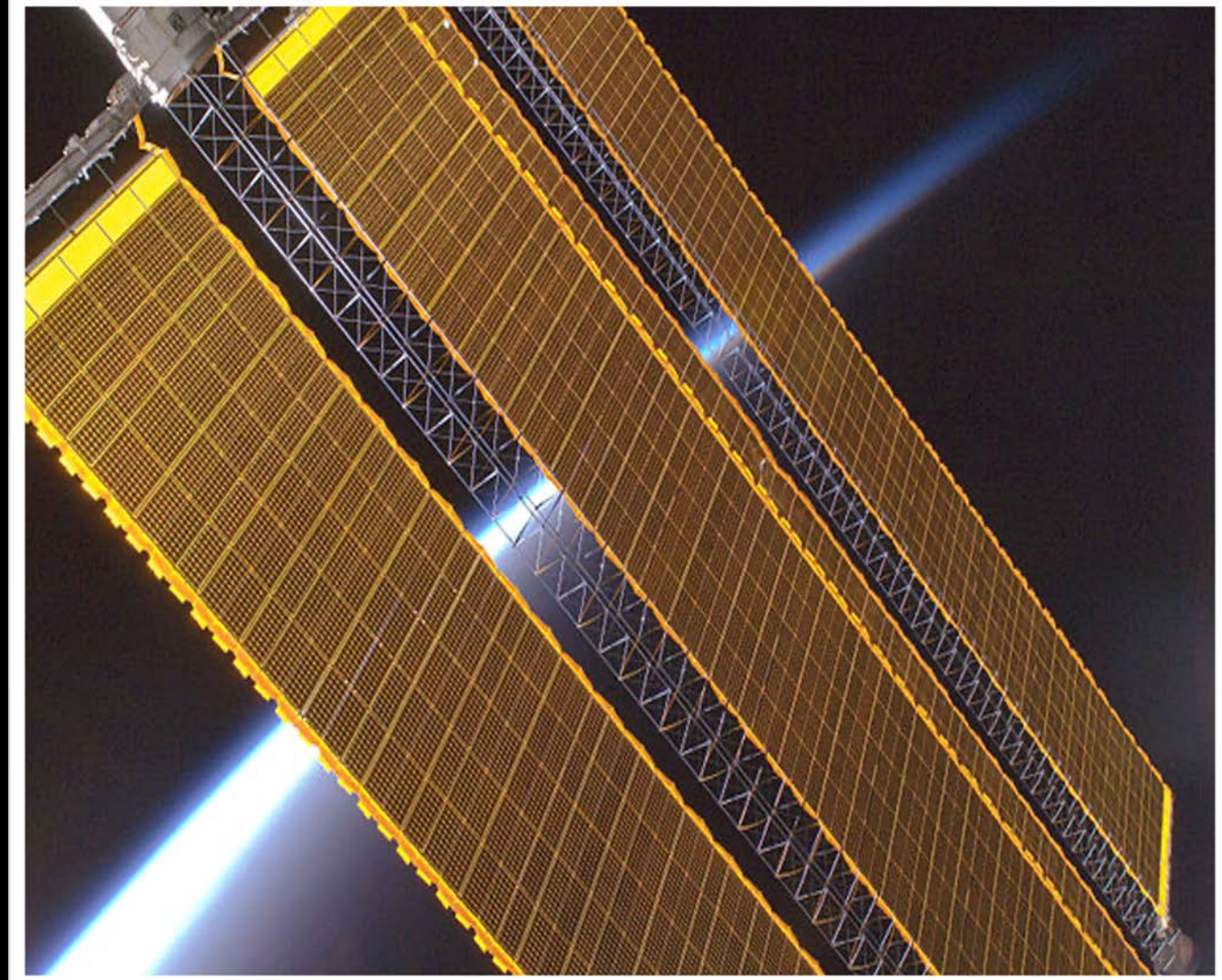
Flight Director

The Leader of Mission Control

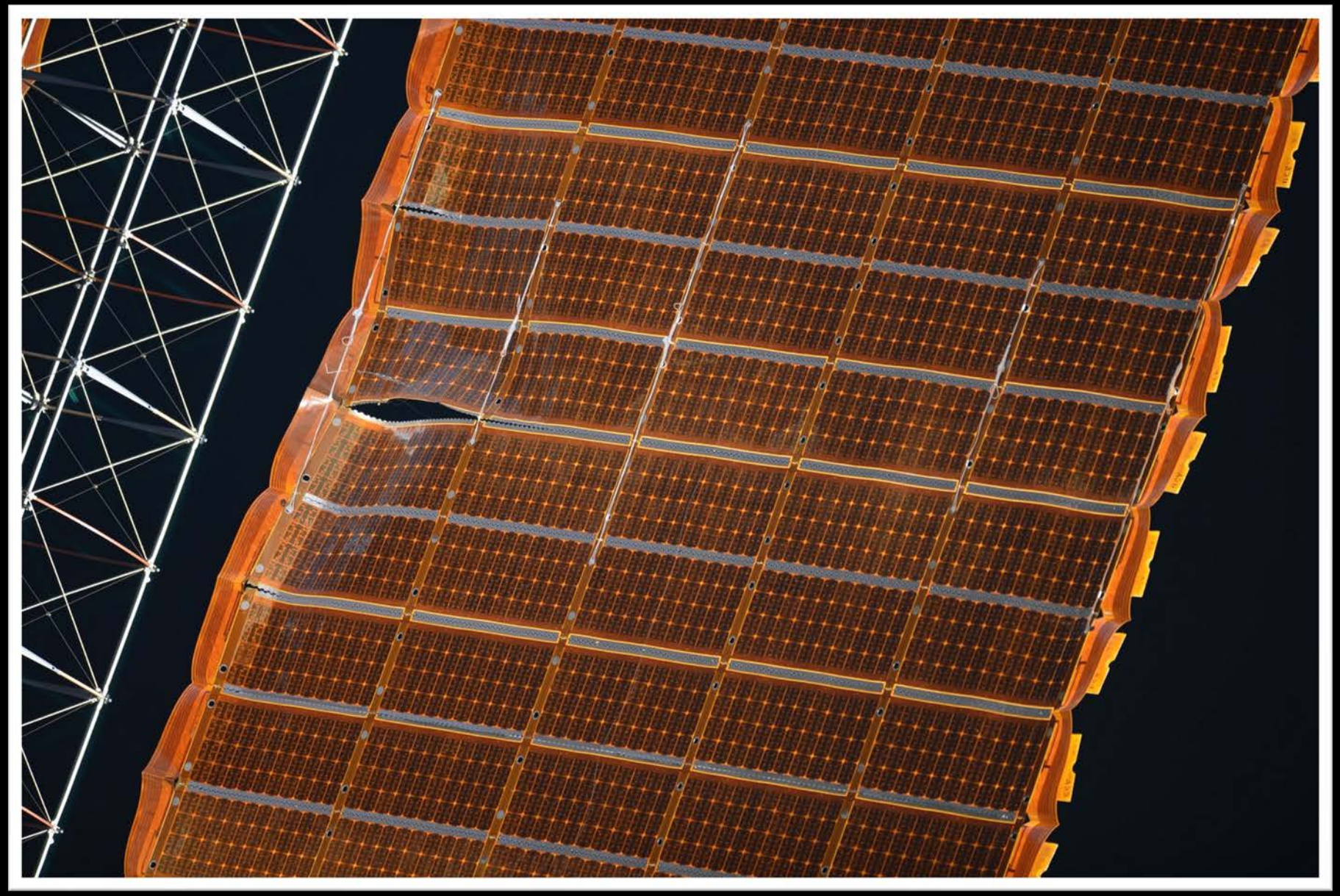
INTERNATIONAL SPACE STATION CONSTRUCTION RESUMES

STS-120 SOLAR ARRAY DEPLOY (2007)

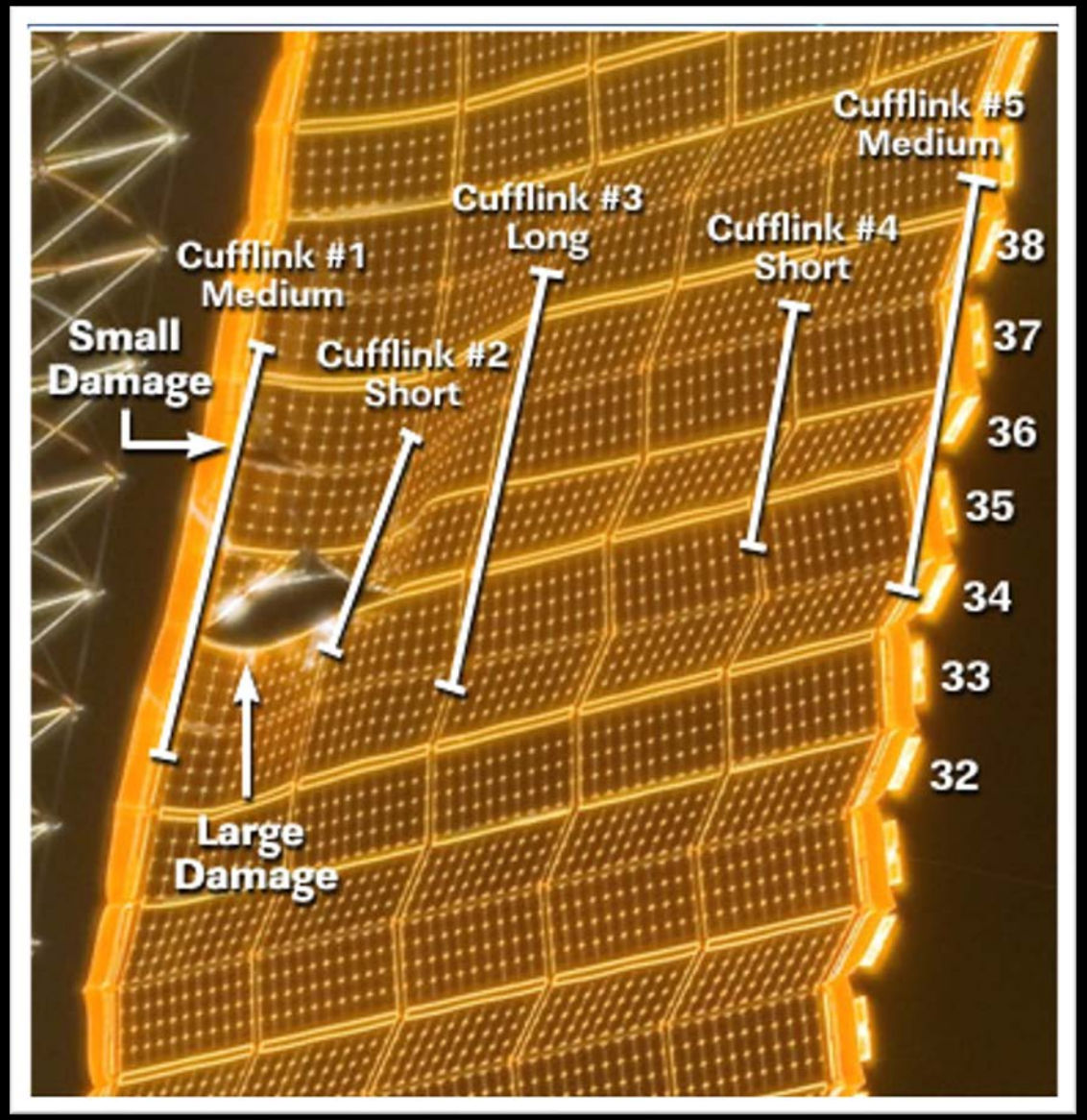




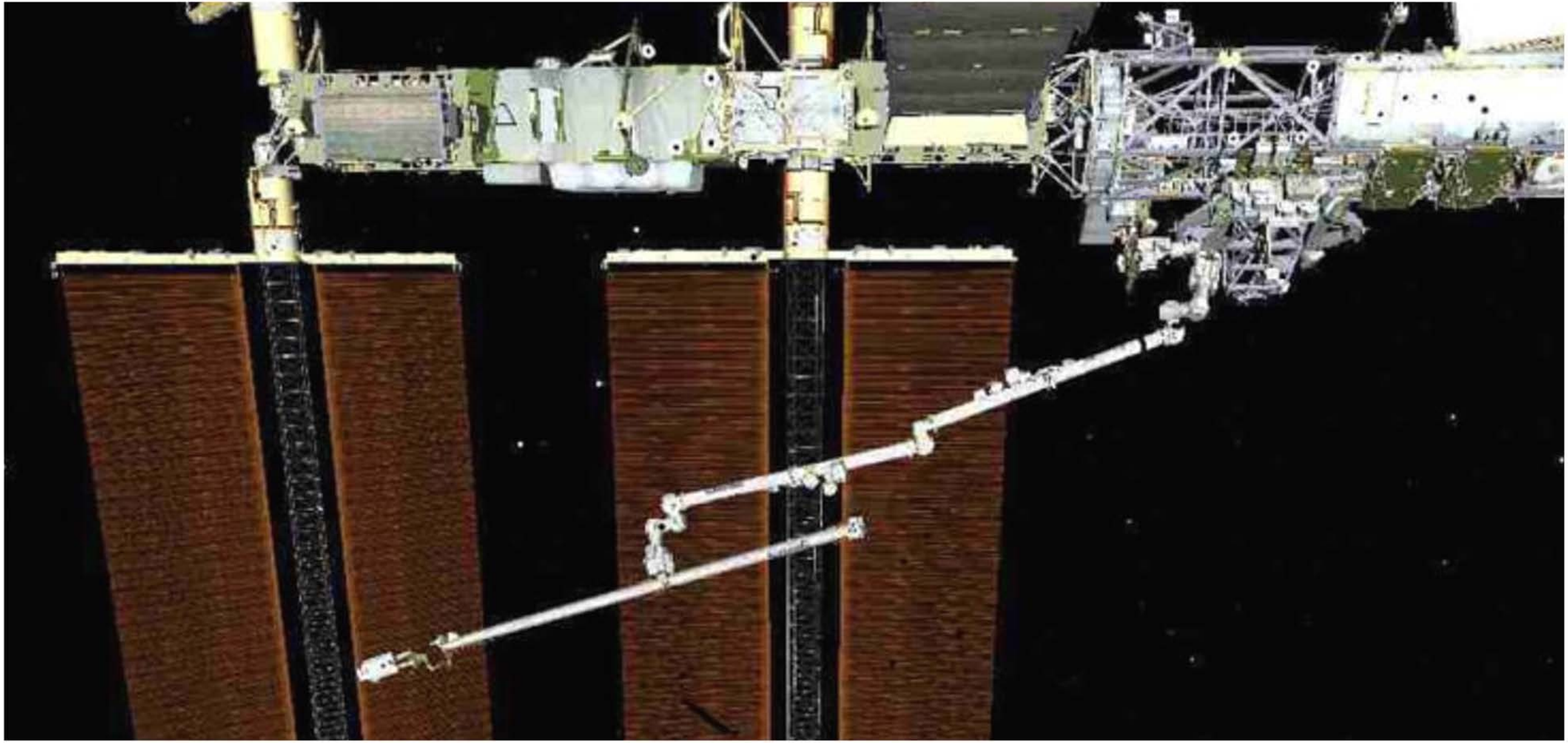
SOLAR ARRAY DEPLOY GOES HORRIBLY WRONG (2007)



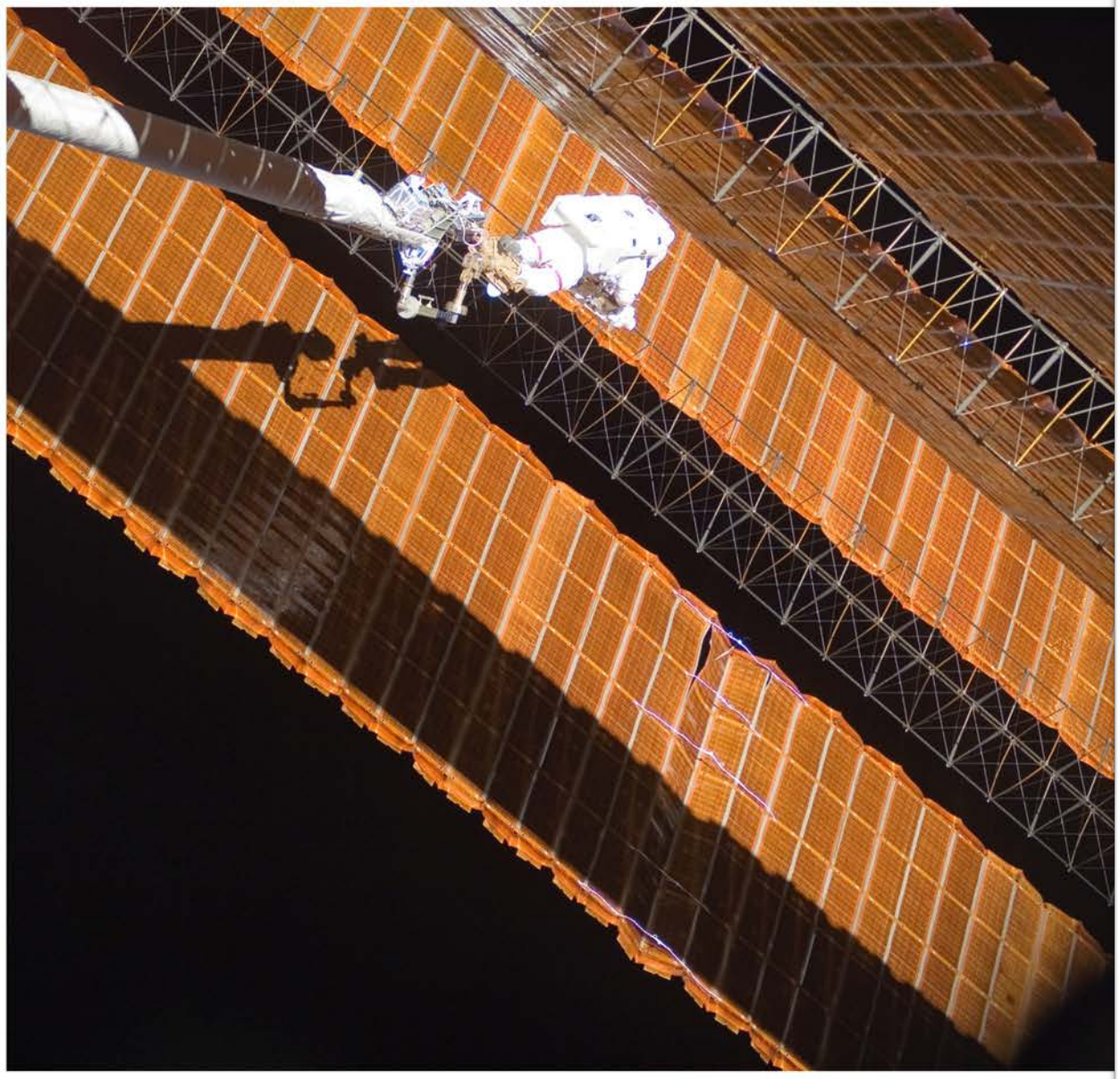
SOLAR ARRAY DEPLOY – ASSESSING SOLUTIONS

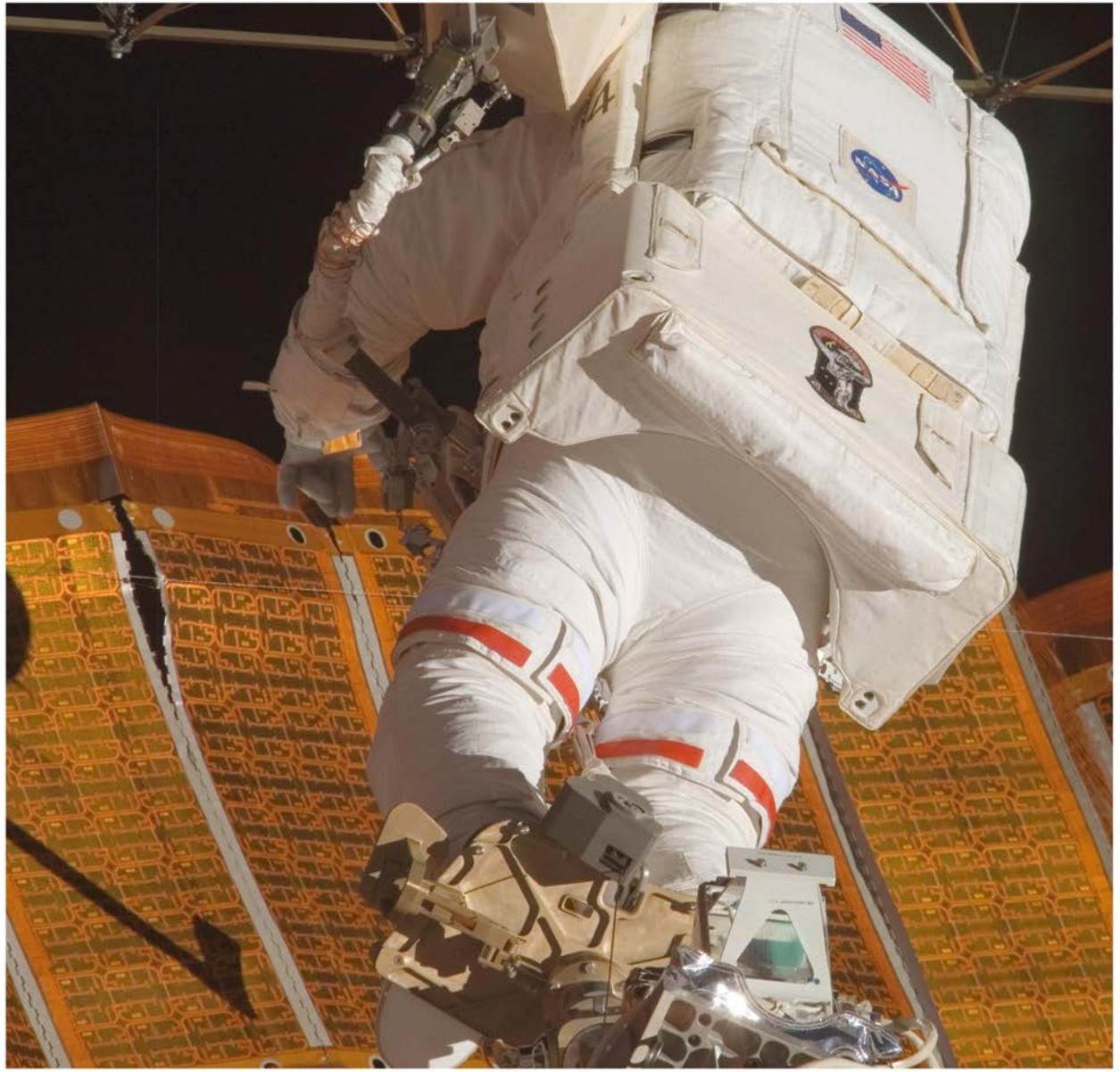


SOLAR ARRAY DEPLOY – ASSESSING SOLUTIONS

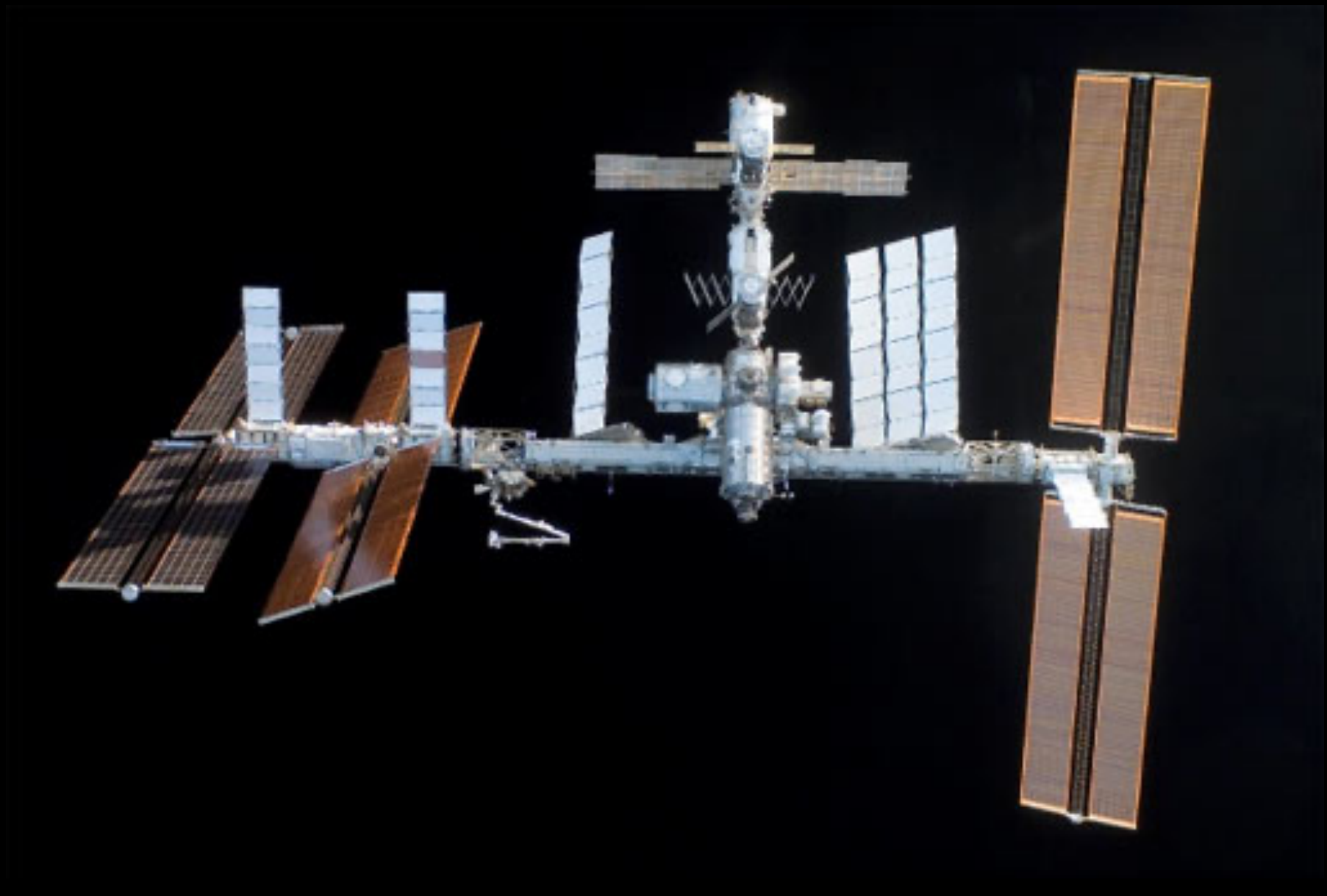


SOLAR ARRAY DEPLOY – EXECUTING THE PLAN

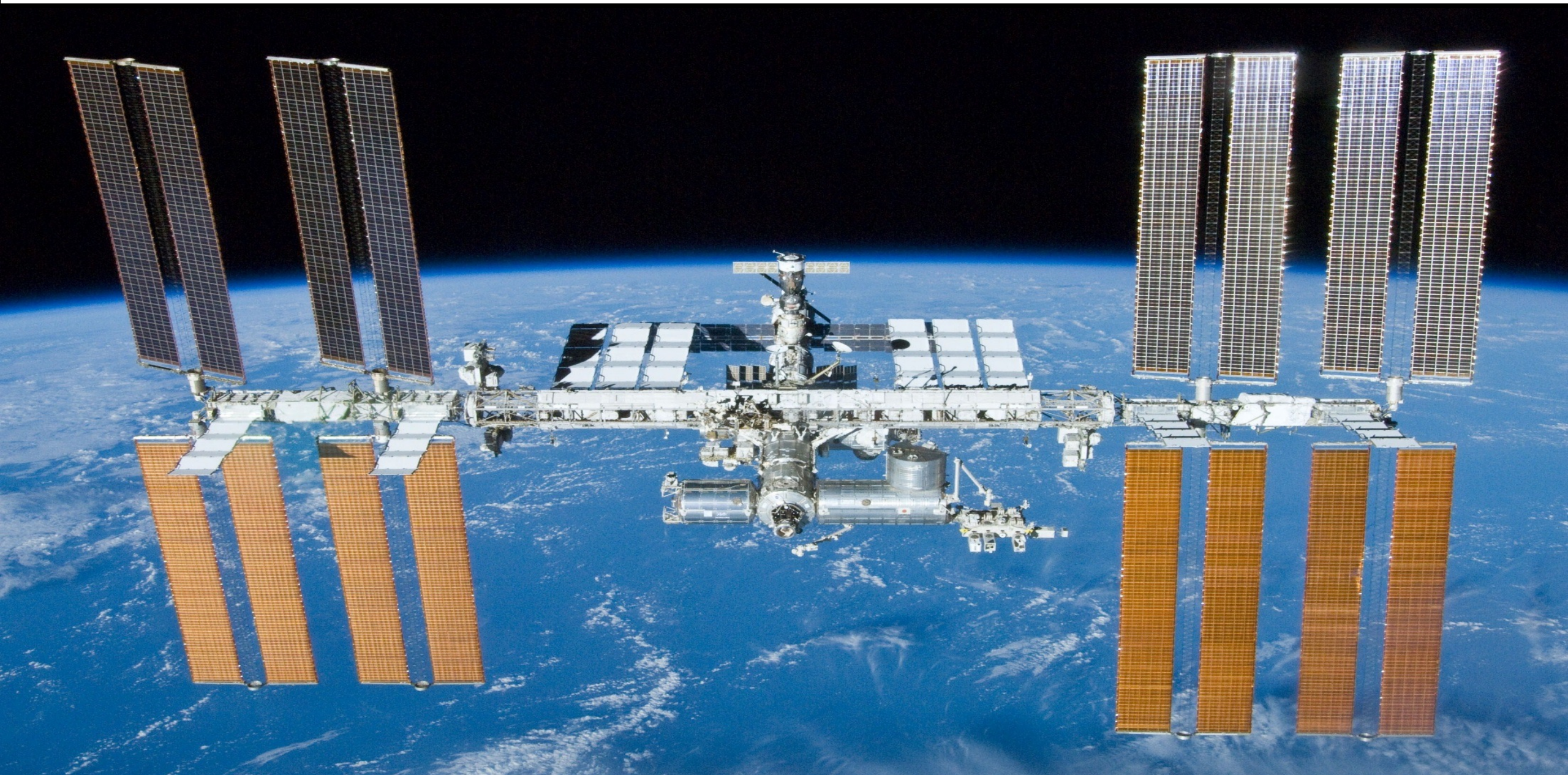




SUCCESS!

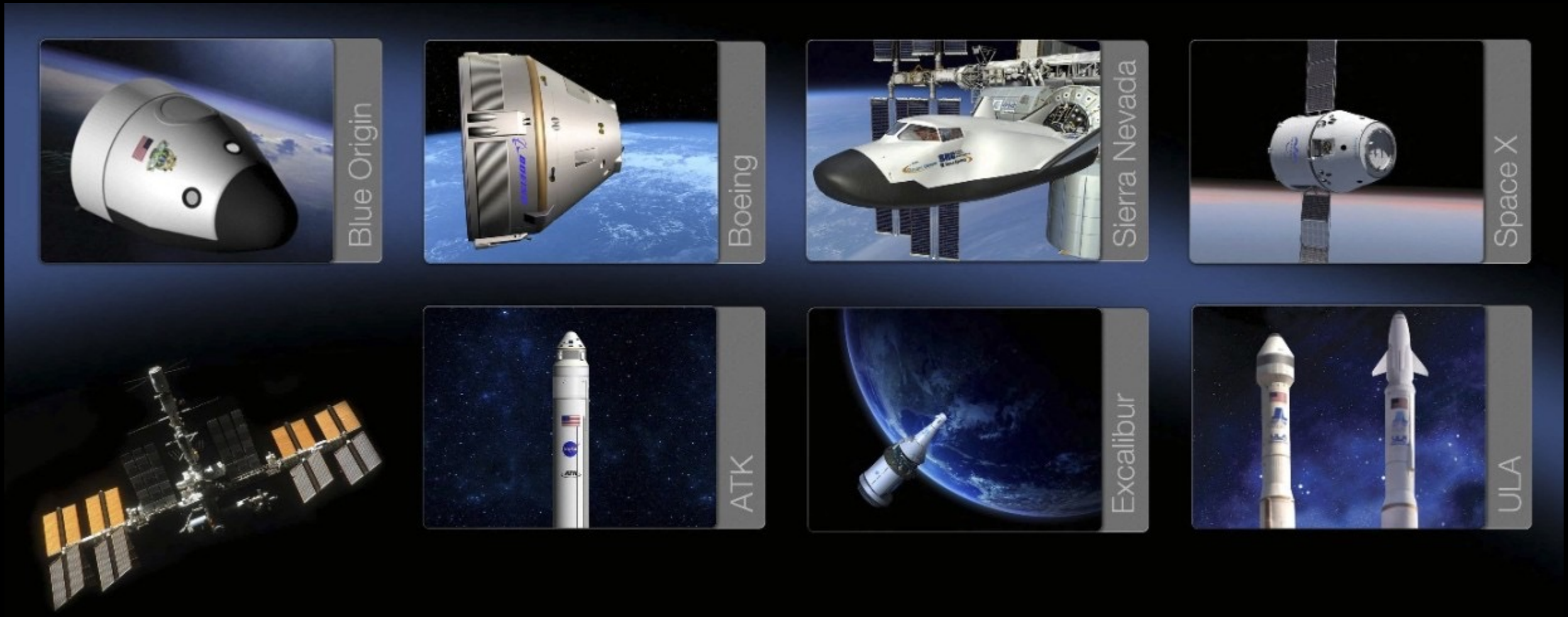


INTERNATIONAL SPACE STATION CONSTRUCTION COMPLETE (2011)



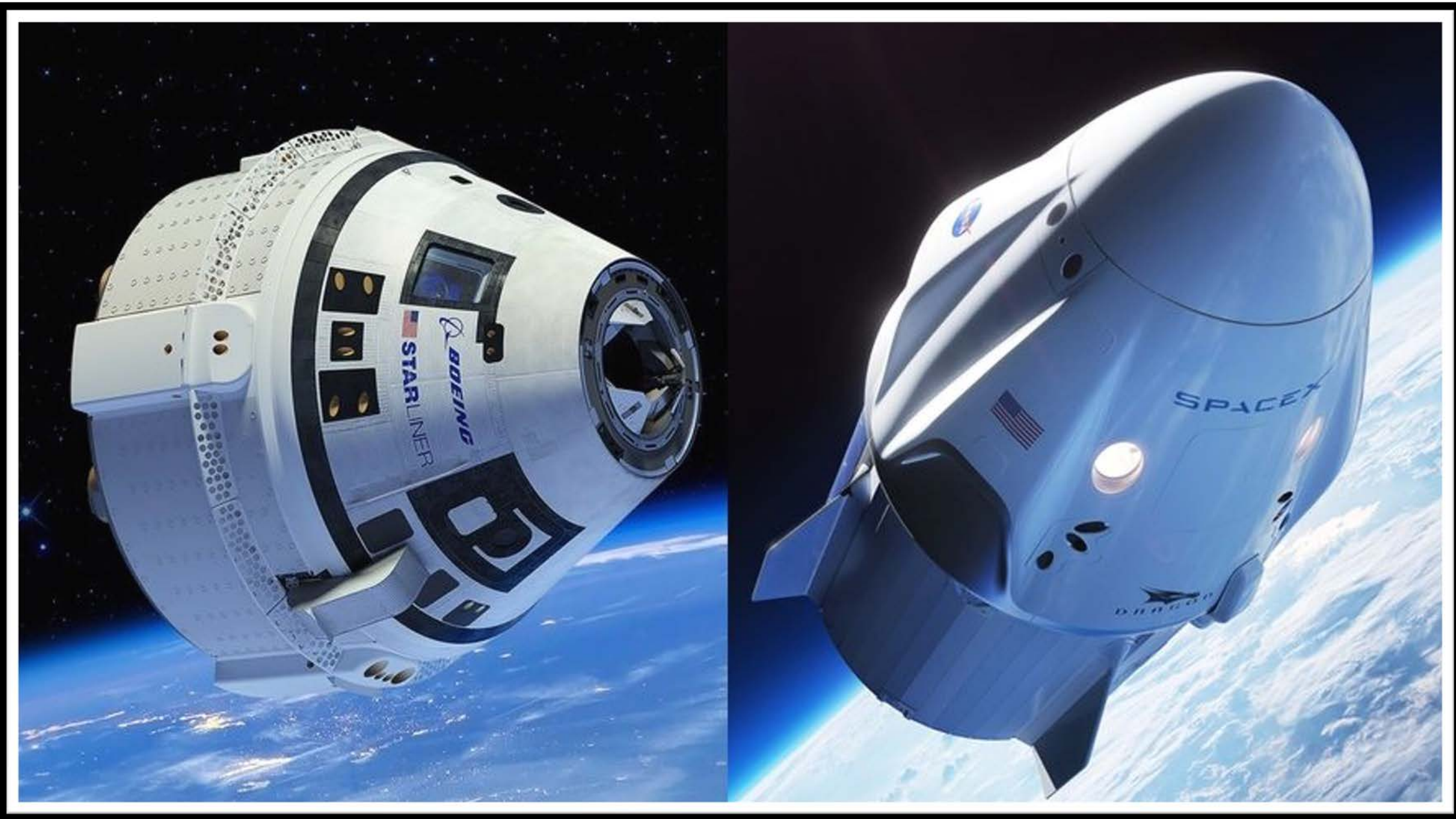
SPACE SHUTTLE PROGRAM ENDS (2011)

COMMERCIAL CREW PROGRAM BEGINS (2011)

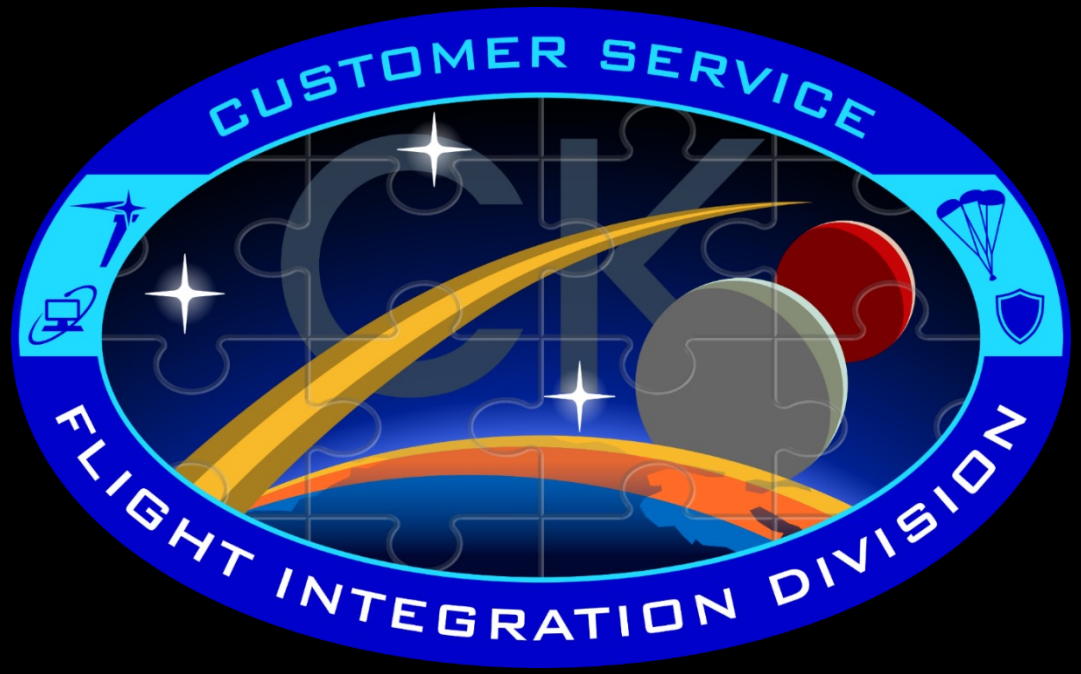


COMMERCIAL CREW DELAYED – ALTERNATIVE ACCESS TO ISS (2011-2019)

COMMERCIAL CREW PROGRAM AWARDS CONTRACTS (2014)



INFLUENCE LEADERSHIP



Flight Integration Division Chief (2016-2020)

Responsible for crew and vehicle safety, training, payload operations, vehicle hardware and software, vehicle testing, and launch, landing, and recovery operations

FIRST UNCREWED TEST FLIGHT – SPACEX DEMO-1 (2019)

Demo-1 Launch Ushers in ‘New Era in Spaceflight’

Anna Heiney

March 2, 2019

CCtCap, Commercial Spaceflight, International Space Station, Kennedy Space Center, NASA, SpaceX

The Demo-1 uncrewed flight test to the International Space Station, SpaceX’s inaugural flight with NASA’s Commercial Crew Program, is underway following the successful launch Saturday morning of the company’s Falcon 9 rocket and Crew Dragon spacecraft. The first-of-its-kind mission, planned to be a full demonstration of the spacecraft and its systems, launched on time at 2:49 a.m. EST from Launch Complex 39A at the agency’s Kennedy Space Center in Florida.

A two-stage SpaceX Falcon 9 rocket lifts off from Launch Complex 39A at NASA’s Kennedy Space Center in Florida for Demo-1, the first uncrewed mission of the agency’s Commercial Crew Program. The on-time liftoff occurred at 2:49 a.m., Saturday, March 2, 2019. Photo credit: NASA

Demo-1 is the first flight test of a space system designed for humans built and operated by a commercial company through a public-private partnership. The mission also marks a significant step toward returning to the nation the capability to launch astronauts on a U.S.-built spacecraft from U.S. soil.

MEANWHILE … BOEING CST-100 UNCREWED TEST FLIGHT (2019)

BOEING'S STARLINER FAILS TO REACH SPACE STATION

by: Tom Nardi

89 Comments

December 20, 2019

After a decade in development, the Boeing CST-100 "Starliner" lifted off from pad SLC-41 at the Cape Canaveral Air Force Station a little before dawn this morning on its first ever flight. Officially referred to as the Boeing Orbital Flight Test (Boe-OFT), this uncrewed mission was intended to verify the spacecraft's ability to navigate in orbit and safely return to Earth. It was also planned to be a rehearsal of the autonomous rendezvous and docking procedures that will ultimately be used to deliver astronauts to the International Space Station; a capability NASA has lacked since the 2011 retirement of the Space Shuttle.

NASA completes investigation on flawed Boeing Starliner capsule test flight

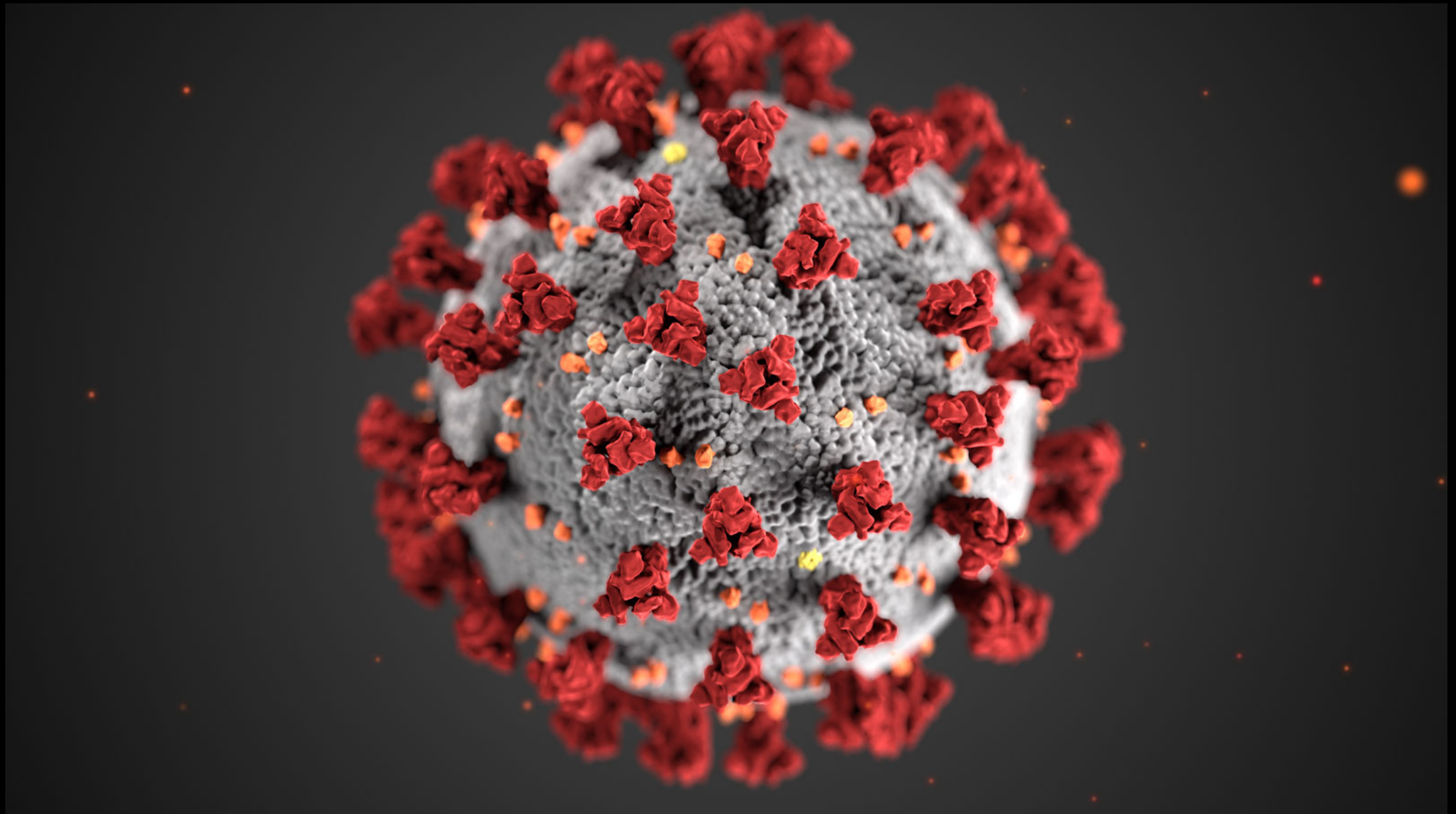
By Hanneke Weitering published July 08, 2020

But we still don't know when Starliner will fly again.

Comments (8)

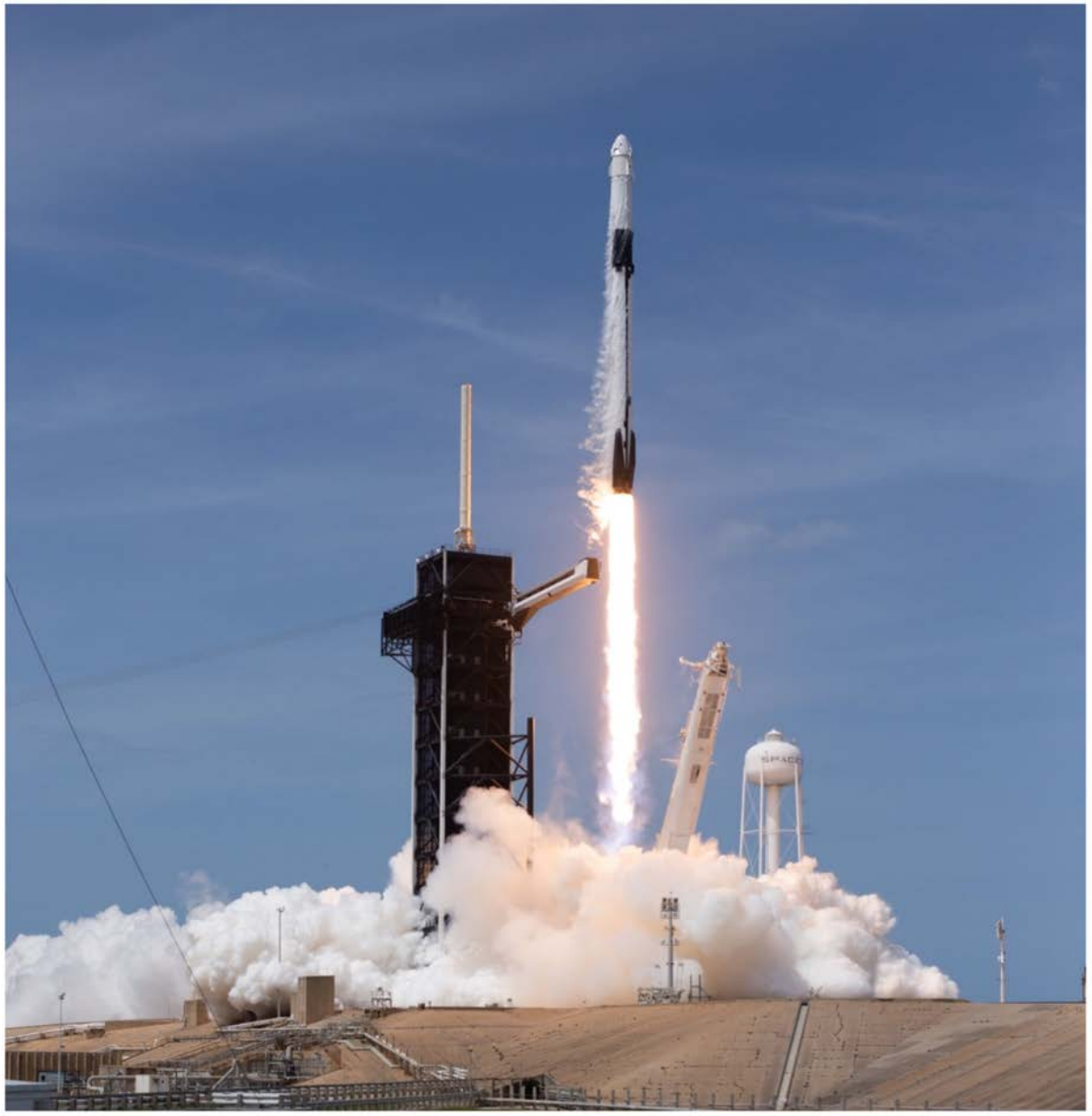
Boeing's first CST-100 Starliner spacecraft on the ground at White Sands Missile Range in New Mexico, shortly after landing on Dec. 22, 2019. (Image credit: Bill Ingalls/NASA)

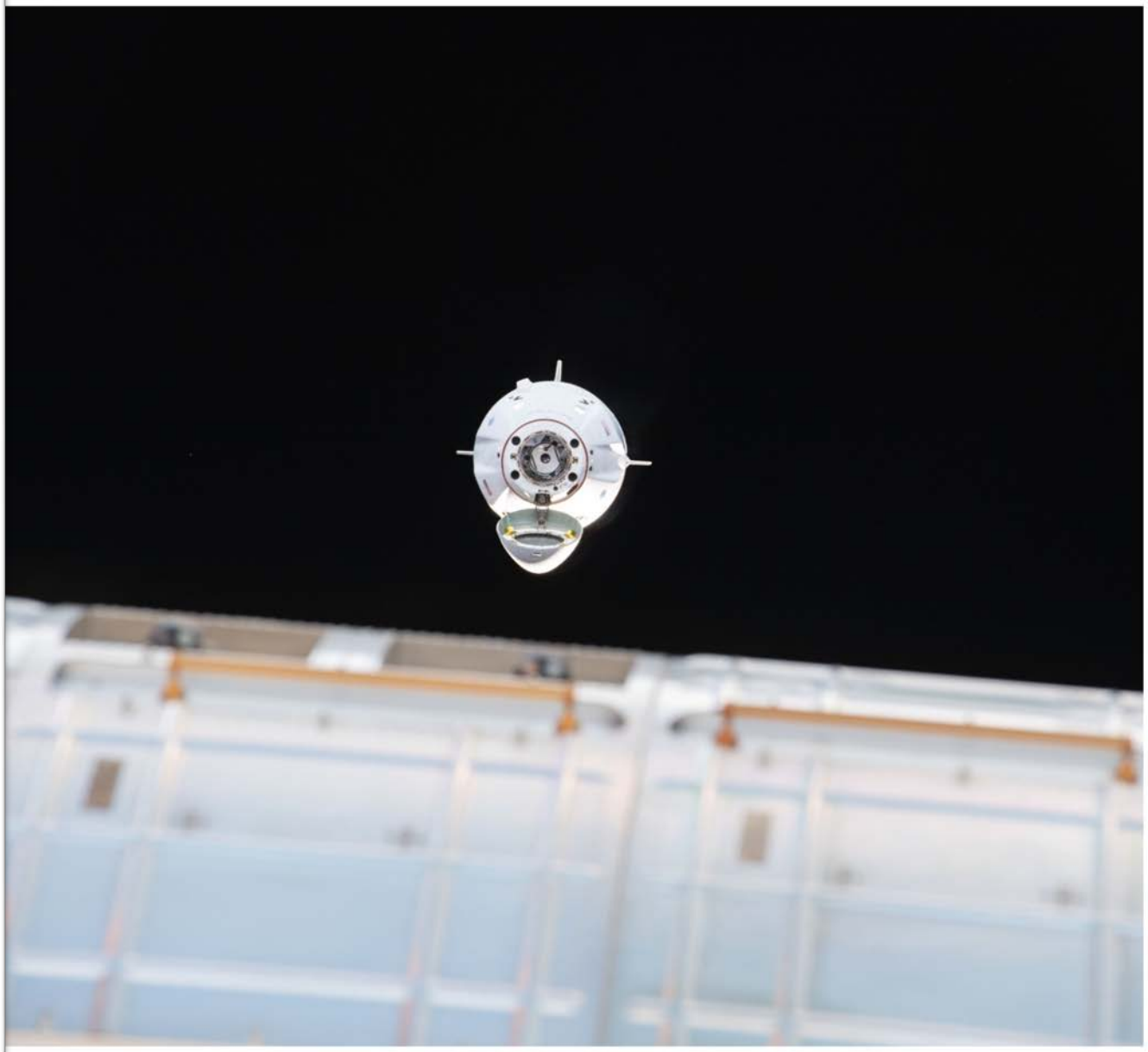
COVID!!!!!



FIRST CREWED TEST FLIGHT – SPACEX DEMO-2 (2020)

FIRST CREWED TEST FLIGHT – SPACEX DEMO-2 (2020)





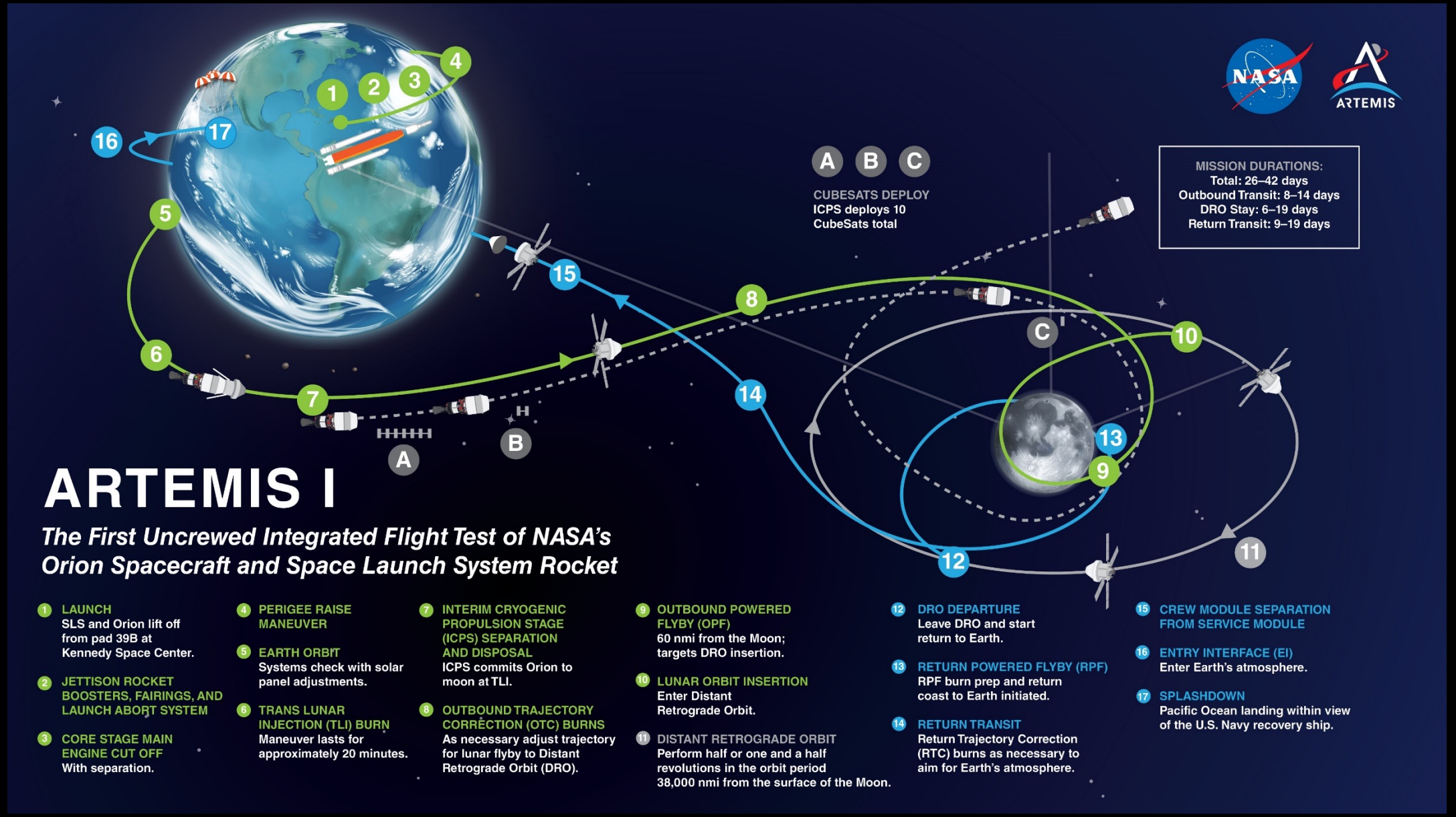
FIRST CREWED TEST FLIGHT – SPACEX DEMO-2 (2020)

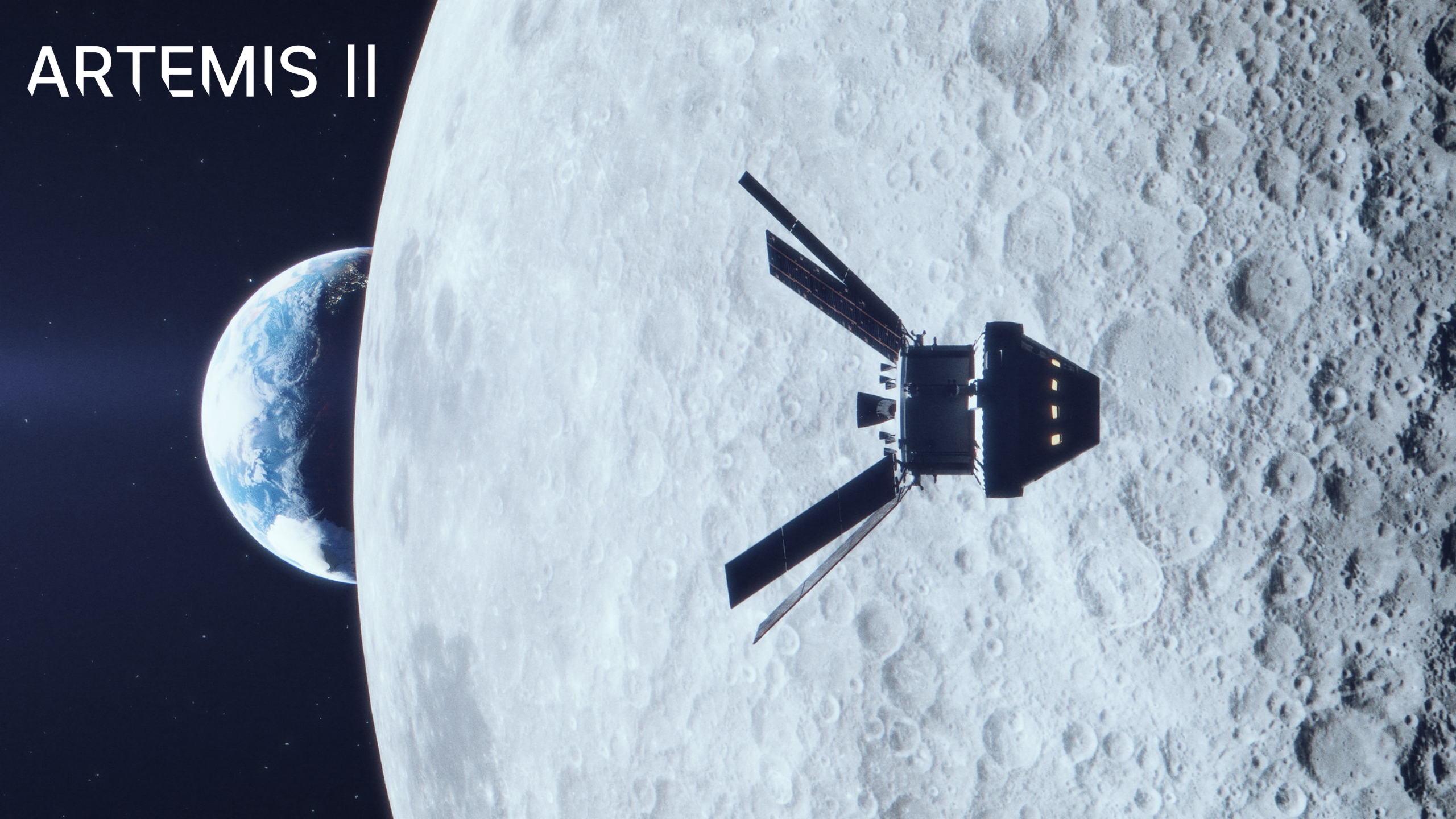
FIRST CREWED TEST FLIGHT – SPACEX DEMO-2 (2020)

ARTEMIS – NASA’S RETURN TO THE MOON

ARTEMIS I – “UNCREWED” TEST FLIGHT

ARTEMIS I


NASA
ARTEMIS
A B C
CUBESATS DEPLOY
ICPS deploys 10
CubeSats total
MISSION DURATIONS:
Total: 26–42 days
Outbound Transit: 8–14 days
DRO Stay: 6–19 days
Return Transit: 9–19 days
ARTEMIS I
The First Uncrewed Integrated Flight Test of NASA's Orion Spacecraft and Space Launch System Rocket
1 LAUNCH
SLS and Orion lift off from pad 39B at Kennedy Space Center.
2 JETTISON ROCKET BOOSTERS, FAIRINGS, AND LAUNCH ABORT SYSTEM
3 CORE STAGE MAIN ENGINE CUT OFF
With separation.
4 PERIGEE RAISE MANEUVER
5 EARTH ORBIT
Systems check with solar panel adjustments.
6 TRANS LUNAR INJECTION (TLI) BURN
Maneuver lasts for approximately 20 minutes.
7 INTERIM CRYOGENIC PROPULSION STAGE (ICPS) SEPARATION AND DISPOSAL
ICPS commits Orion to moon at TLI.
8 OUTBOUND TRAJECTORY CORRECTION (OTC) BURNS
As necessary adjust trajectory for lunar flyby to Distant Retrograde Orbit (DRO).
9 OUTBOUND POWERED FLYBY (OPF)
60 nmi from the Moon; targets DRO insertion.
10 LUNAR ORBIT INSERTION
Enter Distant Retrograde Orbit.
11 DISTANT RETROGRADE ORBIT
Perform half or one and a half revolutions in the orbit period 38,000 nmi from the surface of the Moon.
12 DRO DEPARTURE
Leave DRO and start return to Earth.
13 RETURN POWERED FLYBY (RPF)
RPF burn prep and return coast to Earth initiated.
14 RETURN TRANSIT
Return Trajectory Correction (RTC) burns as necessary to aim for Earth's atmosphere.
15 CREW MODULE SEPARATION FROM SERVICE MODULE
16 ENTRY INTERFACE (EI)
Enter Earth's atmosphere.
17 SPLASHDOWN
Pacific Ocean landing within view of the U.S. Navy recovery ship.


ARTEMIS II


Mode Norm
RHC Pwr On
Pitch
Yaw
Roll
Switch 1 Auto
Switch 2
Switch 3
Switch 4
THC Pwr On
Survival Pyros
Main Deploy
Upright Deploy
Rear Cut
Drogue Deploy
CM/SM Sep
OM Prop Act
Pyro Master Arm
Survival RCS
Translate
CAUTION
PD 1
PD 2
Switch
NASA
ENGINEERING


NASA
Kayla BARRON
Matthew DOMINICK
Warren HOBURG
Christina H. KOCH
Joseph ACABA
Raja CHARI
Victor GLOVER
Jonny KIM
Kjell LINDGREN
Anne McCLAIN
Jasmin MOGHBELI
Frank RUBIO
Jessica WATKINS
Nicole A. MANN
Jessica MEIR
Kate RUBINS
Scott TINGLE
Stephanie D. WILSON


ARTEMIS III

HLS

Initial Human Landing System

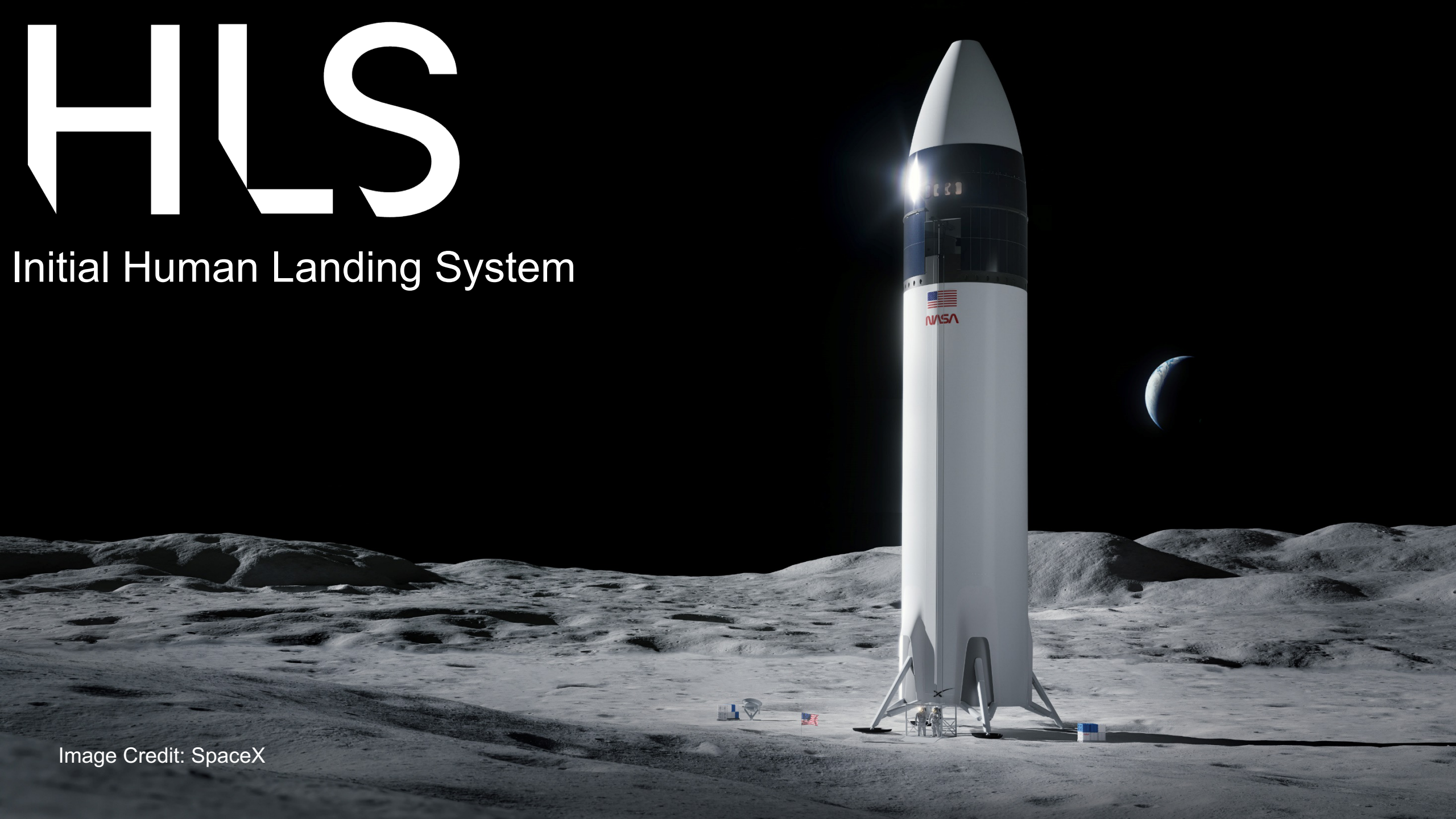


Image Credit: SpaceX


GATEWAY

LTV

Lunar Terrain Vehicle
Unpressurized Rover

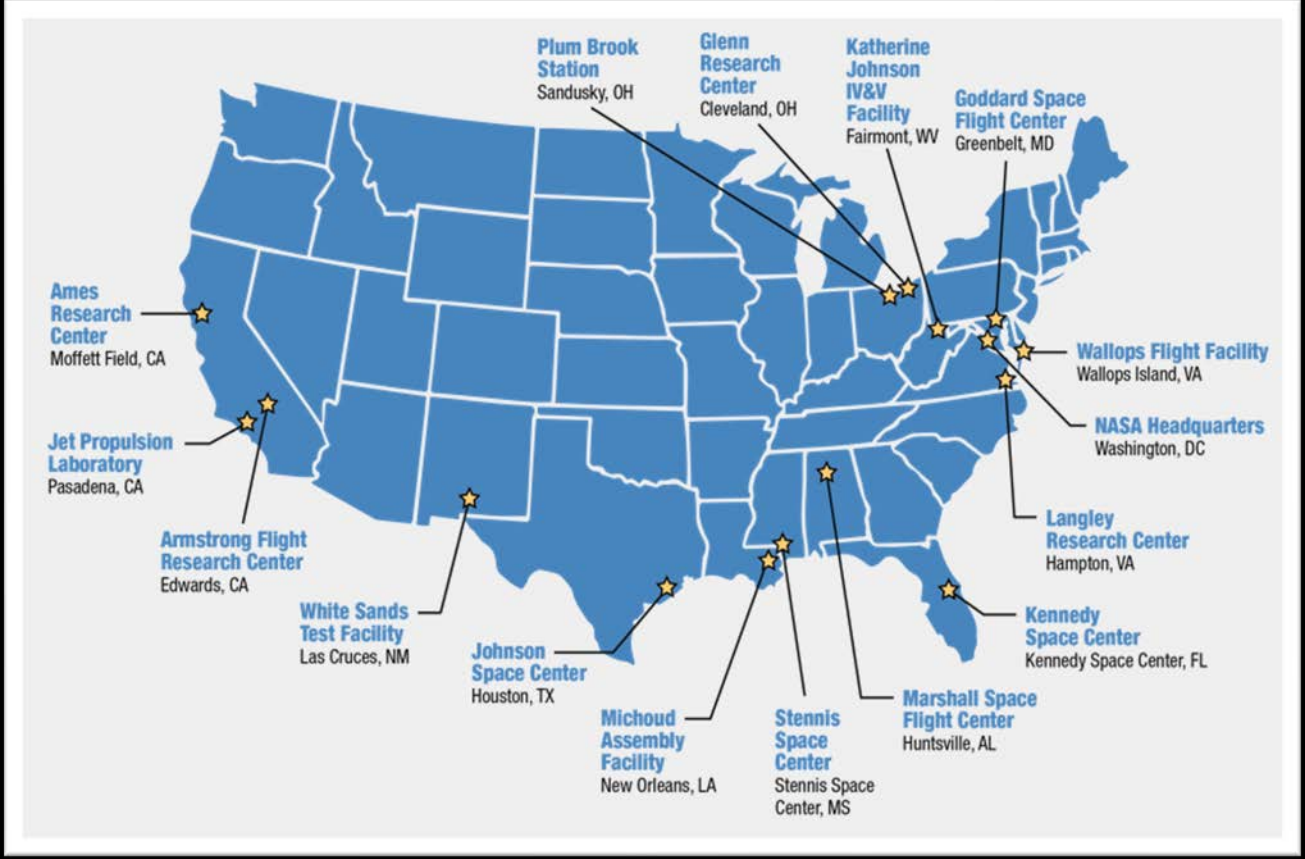
PRESSURIZED ROVER

ARTEMIS BASE CAMP

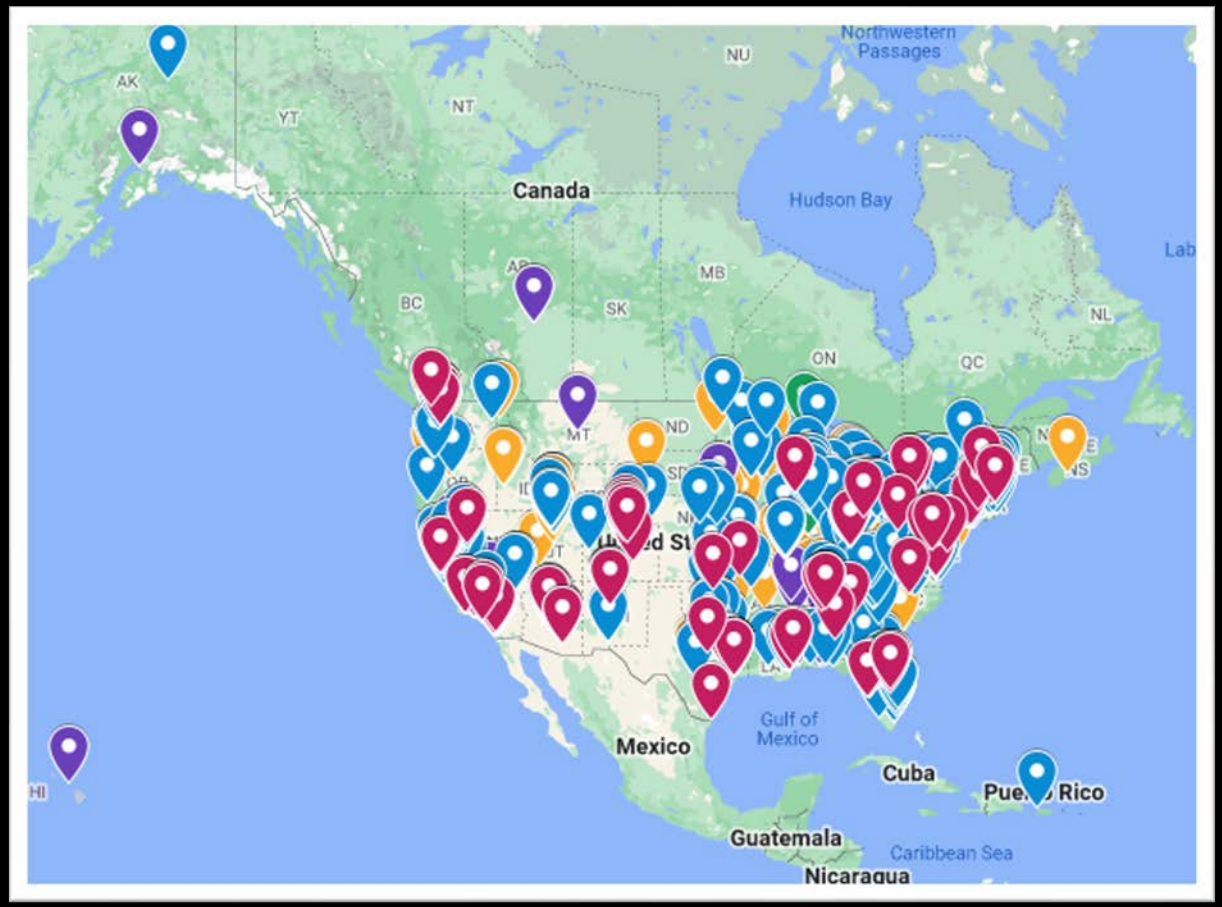
Artist's illustration of Artemis Base Camp

ARTEMIS COLLABORATION

NASA CENTERS



COMMERCIAL COMPANIES



LEADERSHIP LESSONS SUMMARY

- [x] Outward Mindset
- [x] Emotional Intelligence
- [x] Enable Innovation
- [x] Build Coalitions
- [x] Influence Leadership