National Aeronautics and Space Administration

Space Operations Overview
Scientific Platforms for LEO, the Moon, and Mars

Space Science Week

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Last Week in Space Ops

NASA astronauts Kayla Barron and Raja Chari conducted a six-hour and 54-minute spacewalk to set up station for its next roll-out solar array

DSS-53 antenna groundbreaking
Madrid, Spain

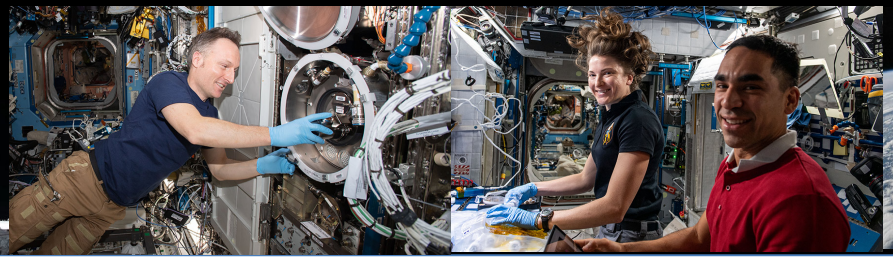
New members launched
to join Expedition 66 Crew –
total crew of 10 onboard

Last Week in Exploration Systems Development

Artemis I Vehicle Roll Out at NASA's Kennedy Space Center

Also This Year…

Ongoing commercial cargo resupply missions enabling scientific research and technology development



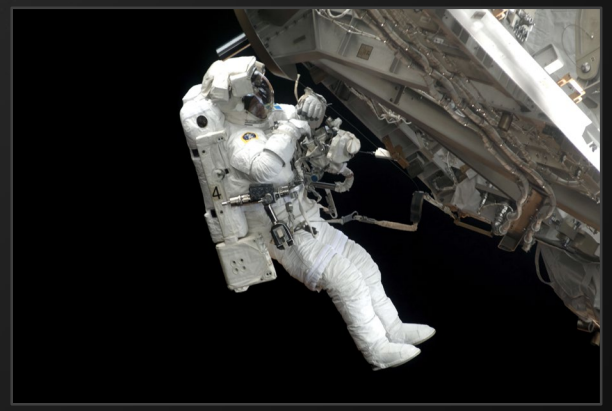
2030 INTERNATIONAL SPACE STATION

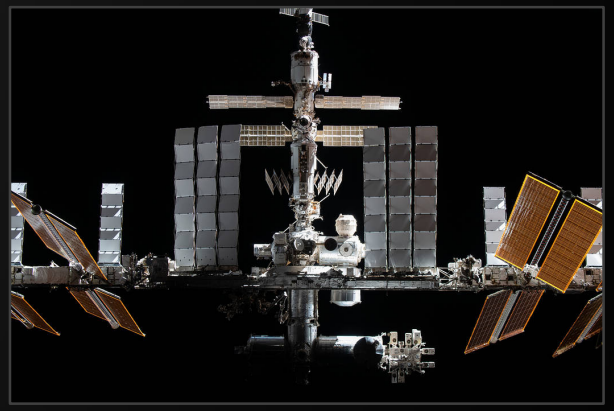
Extension of the International Space Station

GOES-T
Earth Observing Satellite

NASA Space Operations

Nurturing the capabilities needed to build a new future in space





INTERNATIONAL SPACE STATION - COMMERCIAL SPACE - SPACE COMMUNICATIONS and NAVIGATION
HUMAN SPACEFLIGHT CAPABILITIES - LAUNCH SERVICES - EXPLORATION OPERATIONS

A World of Science Onboard the International Space Station

Learning how to live for longer periods of time in microgravity

Observing Earth with remote sensing

Optimizing human health and performance

- ~250 individuals from 19 countries
- Involves 100,000+ people
- Over ~3,000 investigations
- ~4,400 investigators represented
- 278 current investigations on Expedition 66
- 3.5 million images of Earth captured
- 1.5 million student activities in 2020
- ~20 commercial facilities

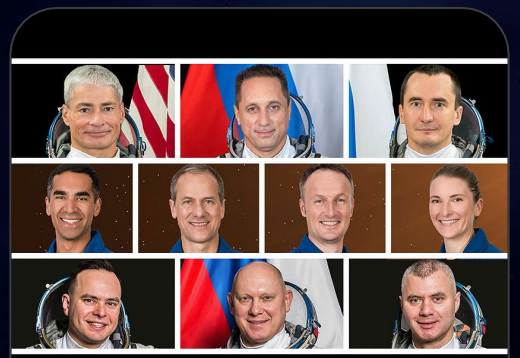
A Sample of International Collaboration and Important Research Aboard the Space Station

Bartolomeo External Payload Facility
European Space Agency (ESA)

CanadaArm2
Canadian Space Agency (CSA)

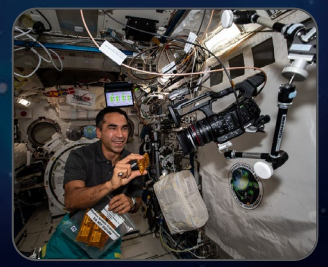
Kibo Laboratory Module
Japan Aerospace Exploration Agency (JAXA)

Nauka Multipurpose Laboratory
Roscosmos



TODAY ON STATION:
Expedition 66;
International Crew of 10

NASA astronaut Kayla Barron works on an orbital plumbing demonstration



NASA astronaut Raja Chari works on a biotechnology study

Expedition 66 Flight Engineers Pyotr Dubrov and Tom Marshburn check out photography gear

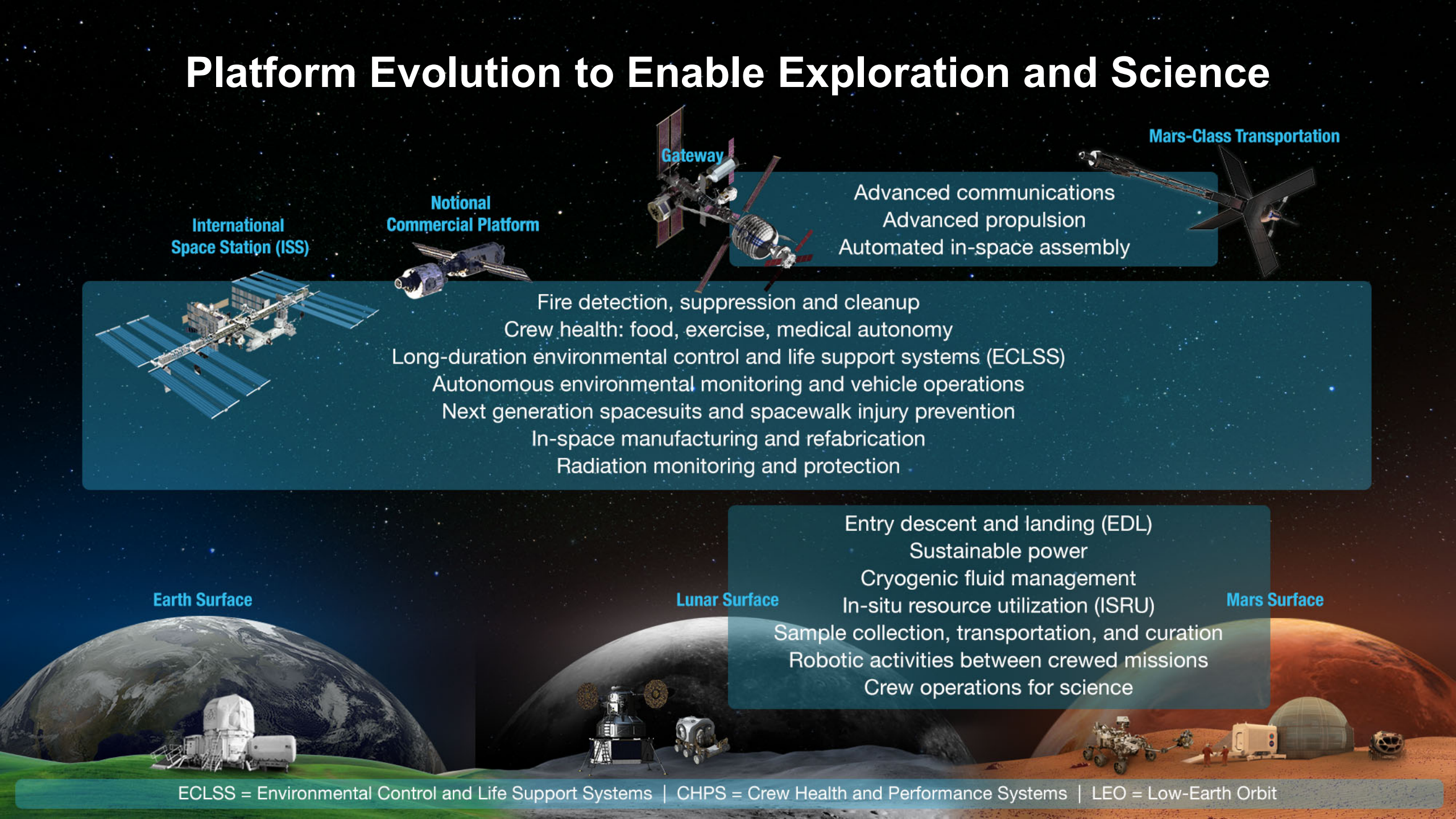
NASA astronaut Mark Vande Hei harvests plants growing for the Veggie PONDS experiment

ESA astronaut Matthias Maurer works on the Concrete Hardening experiment

Expedition 66 Flight Engineers Kayla Barron and Matthias Maurer participate in a Canadarm2 robotic arm training session

Groundbreaking Science, Research, and Tech Demos Aboard the ISS National Lab

Platform Evolution to Enable Exploration and Science



ECLSS = Environmental Control and Life Support Systems | CHPS = Crew Health and Performance Systems | LEO = Low-Earth Orbit

Where We Need to Work Together

Continued Utilization of Low-Earth Orbit (LEO)

- Gaining operational knowledge on station to explore beyond
- Widening private access to LEO and new commercial destinations

Developing Technology to Further Exploration

- Addressing the toughest challenges of sending humans to the Moon and Mars for long periods of time

Enabling Science and Exploration on the Moon

- Validating systems to learn about the Moon and push onward to Mars
- Creating a new infrastructure in the lunar environment to facilitate science, innovation, exploration, and benefit

Making Mars Within Reach

- Using bots and then boots to reach Mars, helping us to understand our home planet and ourselves

We are all space people.

International, industry, private sector, and academic partners are critical to what we're achieving now and moving forward.

National Aeronautics and Space Administration

QUESTIONS

www.nasa.gov