



Crew-2 Mission

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Why in News

Four astronauts were launched to the **International Space Station (ISS)** from Florida as part of a collaboration between NASA and SpaceX under the **Commercial Crew Program**. The mission is called **Crew-2**.

Key Points

About the Commercial Crew Program:

- NASA's Commercial Crew Program is **a partnership between NASA and private industry** to carry astronauts to and from the International Space Station.
- Unlike previous human spaceflight programs, NASA is a customer buying flights from commercial providers. The agency **does not own or operate the spacecraft**.
- The program is **helping to lower the cost of spaceflight** and potentially **create a new commercial market** for humans in space.
- By encouraging private companies to provide crew transportation services to and from low-Earth orbit, **NASA can focus on building spacecraft and rockets meant for deep space exploration missions**.
- **Boeing and SpaceX were selected by NASA in September 2014** to develop transportation systems meant to transfer crew from the US to the ISS.

Note

Recently, the Indian government had announced the opening up of the space sector to private players with the inception of **Indian National Space Promotion and Authorisation Centre (IN-SPACe)**.

- **NASA's Partnership with SpaceX:**

- In May 2020, **NASA's SpaceX Demo-2** test flight lifted off for the ISS carrying two astronauts.

The aim of this test flight was to see if SpaceX capsules could be used on a regular basis to ferry astronauts to and from the ISS.

- Demo-2 was followed by the **Crew-1 mission in November**, which was the first of six crewed missions between NASA and SpaceX marking the beginning of a new era for space travel.
- **Crew-1 was the first operational flight of the SpaceX Crew Dragon spacecraft** on a Falcon 9 rocket to the ISS.
- Crew-1 team members **joined members of Expedition 64** and conducted microgravity studies at the ISS.

- **About the Crew-2 Mission:**

- It is the second crew rotation of the **SpaceX Crew Dragon** and the first with international partners.
- Out of the four astronauts, two are from **NASA** and two are from the **Japan Aerospace Exploration Agency (JAXA)** and the **European Space Agency (ESA)**.
- Crew-2 astronauts **will join the members of Expedition 65** (65th long duration expedition to the International Space Station).

They will stay aboard the ISS for six months during which time they will conduct science experiments in **low-Earth orbit**.

- Their central focus during this time will be **to continue a series of Tissue Chips in Space studies**.

- **Tissue Chips:**

- Tissue Chips are **small models of human organs** that contain multiple cell types that behave similarly to the human body.
- According to NASA, these chips **can potentially speed up the process of identifying safe and effective drugs and vaccines**.
- Scientists can use these tissue chips in space **to study diseases that affect specific human organs**, which would take months or years to develop on Earth.

International Space Station

- ISS is **a habitable artificial satellite** - the single largest man-made structure in low earth orbit. Its **first component was launched into orbit in 1998**.
- It circles the Earth in roughly 92 minutes and completes 15.5 orbits per day.
- The ISS programme is **a joint project between five participating space agencies**: NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada) but its ownership and use has been established by intergovernmental treaties and agreements.

- It serves as a microgravity and space environment research laboratory in which crew members conduct experiments in biology, human biology, physics, astronomy, meteorology, and other fields.
- Continuous presence at ISS has resulted in the longest continuous human presence in the low earth orbit.
- It is **expected to operate until 2030.**

Source: IE