



Demo-2 Mission

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Why in News

National Aeronautics and Space Administration (NASA) and **SpaceX** are all set for the **Demo-2 mission** which is scheduled for 27th May, 2020 from the **Kennedy Space Center** in Cape Canaveral, Florida, USA.

Demo-2 Mission will send astronauts to the **International Space Station** (ISS).

Key Points

- Under the Mission, astronauts **Robert Behnken** and **Douglas Hurley** will dock with ISS and then remain there for between one to four months, depending on the time of next mission.
- It is a part of NASA's **Commercial Crew Program**, which is a partnership to develop and fly human space transportation systems.
- **SpaceX spacecraft** named **Crew Dragon** will be used to take them into space.
It will be only the **fifth class of US spacecraft** to take human beings into orbit, after the **Mercury, Gemini, Apollo** and **Space Shuttle** programs.
- It is a **high priority mission** for the US which is clear by the fact that the mission is being carried out amidst **Covid-19** pandemic.
- The mission is a **major milestone for SpaceX**, which is a private company founded by **Elon Musk**, who is the founder of **Tesla**.
It has established itself as the leader in the private space sector mainly due to its **reusable rocket**, the **Falcon 9**.

- NASA classifies the **impact of space flight on humans** in 5 broad criteria known as **5 Hazards**. These are:
 - Radiation
 - Isolation and confinement
 - Distance from Earth
 - Gravity
 - Hostile/closed environments
- **Health Specific Impacts:**
 - Weightlessness and osteoporosis
 - Telomeres get longer during spaceflight
 - Decreased body mass and increased folate in orbit
 - Spaceflight can Trigger Gene Mutations

Project Mercury (1958-63)

- It was the **first US man-in-space program**.
- The **objectives** of the program, which made **six manned flights** from 1961 to 1963, were specific:
 - To orbit a manned spacecraft around Earth.
 - To investigate man's ability to function in space.
 - To recover both man and spacecraft safely.

Gemini Program (1962-66)

- Designed as a **bridge between the Mercury and Apollo** programs, it primarily tested equipment and mission procedures and trained astronauts and ground crews for future Apollo missions.
- **Four main goals:**
 - To test an astronaut's ability to fly long-duration missions (up to two weeks in space).
 - To understand how spacecraft could meet and dock in orbit around the Earth and the moon.
 - To perfect re-entry and landing methods.
 - To further understand the effects of longer space flights on astronauts.

Apollo Program (1963-72)

- It was **designed to land humans on the Moon** and bring them safely back to Earth.
 - Six of the missions (**Apollos 11, 12, 14, 15, 16, and 17**) achieved this goal.
 - These missions returned with **scientific data** and almost 400 kilograms of **lunar samples**.
- **Apollo 8** was the **first manned mission** to go to the **moon**. This mission **did not land on the moon**. It **orbited** the moon, then came back to Earth.

- **Apollo 11** was the **first moon landing mission**. It landed on **20th July, 1969**. The crew of Apollo 11 was **Neil Armstrong, Michael Collins and Buzz Aldrin**.

Space Shuttle Program (1981-2011)

- NASA's **space shuttle fleet**, Columbia, Challenger, Discovery, Atlantis and Endeavour, flew 135 missions and **helped construct the ISS**.
- The spacecraft carried people into orbit repeatedly, launched, recovered and repaired satellites, conducted cutting-edge research and built the largest structure in space.
- The **final space shuttle mission, STS-135**, ended on **21st July, 2011**.
- As **humanity's first reusable spacecraft**, the space shuttle pushed the boundaries of discovery ever farther, requiring not only advanced technologies but the tremendous effort of a vast workforce.

Source: HT