

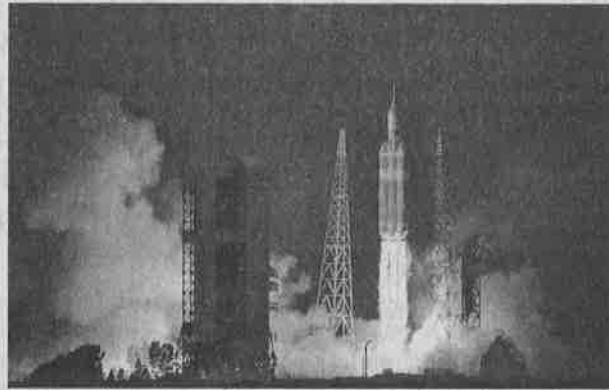
# Orion: a prelude to deep space travel

Alan Yuhas

A dense bloom of fire and smoke shrouded the launch pad in Cape Canaveral, Florida, as the unmanned Orion capsule rose into clear skies on the Delta IV heavy rocket on Friday.

NASA had to postpone an initial launch on Thursday after a boat entered the launch area, strong winds forced automatic aborts, and two valves failed to close properly. Friday's launch went smoothly, and cameras mounted on the rocket beamed back stunning pictures of the Earth as Orion blasted into the sky.

The mission could have huge implications, despite its brief four-and-a-half-hour duration. Orion will fly farther than any spacecraft made for astronauts has in decades, about 5,800 km above the Earth's surface, and is a test case for a capsule that NASA



*The Delta IV heavy rocket with the Orion spacecraft lifts off in Cape Canaveral, Florida, U.S.*

– PHOTO: REUTERS

hopes will one day land on Mars.

As its second orbit comes closer to the planet, the Orion capsule will separate and re-enter the atmosphere, eventually splashing down into the Pacific off the coast of southern California, from where it

will be recovered. The mission will test how Orion fares in the extreme conditions of space travel.

NASA has designed the capsule to take up to six astronauts into deep space, and its 16ft-wide heat shield and sophisticated service module

Mission will test how capsule fares in extreme conditions

are among the features whose durability will be inspected upon return.

The capsule must not only survive launch and orbit, but temperatures of about 2,200C as it returns through Earth's atmosphere. NASA will also test an emergency abort function developed to save astronauts in the event of a malfunction during launch.

NASA has planned a second unmanned flight for 2018, and a manned mission to travel around the moon for the 2020s. Eventually, the agency hopes to send astronauts on an Orion mission through deep space to an asteroid and Mars in the 2030s.

— © Guardian Newspapers Limited, 2014