



## Launch of Chandrayaan-II postponed

The launch of India's second mission to the moon has been delayed till January 2019, which was earlier set for a launch in October, 2018.

- Two recent setbacks are being cited as the reason for this delay:
  - Earlier this year, the ISRO lost communication with GSAT-6A, a military communication satellite, because of power failure.
  - In September, 2018 failure of the PSLV- C39 mission, which was carrying the IRNSS-1H navigation satellite. It couldn't be placed in orbit because the heat shield refused to open in the fourth stage.

### Chandrayaan-II

- It will be 1st attempt by India to land a rover on any celestial body. The rover will land on south-pole of the Moon.
  - It is India's second mission to the Moon and is totally indigenous.
  - Launch Vehicle: GSLV F-10
  - Purpose: Collect data on lunar topography, mineralogy, elemental abundance, lunar exosphere and signatures of hydroxyl and water ice.
  - Unlike the Chandrayaan-I, where Moon Impact Probe (MIP) crash-landed on the surface of the Moon, the Chandrayaan-II will soft-land its Lander with Rover on the Moon.
  - After approaching the 100 km lunar orbit, the Lander covering the Rover will depart from the Orbiter.
  - After a controlled fall, the Lander will soft land on the lunar surface at a particular site and dispose of the Rover.
- An **orbiter** is a space probe that orbits a planet or other astronomical object
  - A **lander** is a spacecraft which descends toward and comes to rest on the surface of an astronomical body. By contrast with an impact probe, which makes a hard landing and is damaged or destroyed so ceases to function after reaching the surface, a lander makes a soft landing after which the probe remains functional.
  - A **rover** (or sometimes planetary rover) is a space exploration vehicle designed to move across the surface of a planet or other celestial body.
- The six-wheeled Rover will function solely on solar power and the instruments on the rover will perform a chemical investigation which includes collecting various rock and soil samples.
  - After observing the lunar surface, the Orbiter will transmit back data, which will be useful for analysis.

### Chandrayan-I

- Chandrayan-I was India's first mission to Moon launched in 2008 using the PSLV- C11 and discovered some "magmatic water" and hydroxyl (OH) on a Moon crater.

## Note:

### Magmatic Water

- Also called juvenile water.
  - It is the water derived from or existing in molten igneous rock (magma) and comes out with volcanic eruption.
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- The spacecraft was orbiting around the Moon at a height of 100 km from the lunar surface for chemical, mineralogical and photogeologic mapping of the Moon.
  - After the successful completion of all the major mission objectives, the orbit has been raised to 200 km during May 2009.
  - The satellite made more than 3400 orbits around the Moon and the mission was concluded when the communication with the spacecraft was lost on 29 August 2009.
  - Recently, by the help of new technological application of interplanetary radar, NASA scientists have found that India's first lunar mission, Chandrayaan-1 spacecraft, which was considered lost is still orbiting the Moon.

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