

CHANDRAYAAN-2 DATA



Issue

ISRO has unveiled a wealth of new information collected from Chandrayaan-2 mission that was launched 2 years ago.

Background

The Orbiter part of the mission has been functioning normally, after the lander failed to make a soft landing.

Details

- The Orbiter is carrying eight instruments. These instruments will carry out a few broad tasks to assess the presence of different minerals, and do a detailed mapping of the lunar terrain.
- The instruments have collected large amount of data which can be used for gaining new insights about exploration of moon.

Significant discoveries

- Chandrayaan-2 is using Imaging Infra-Red Spectrometer (IIRS) to confirm the presence of water molecules on the Moon's surface.
- This was necessitated after the instruments on board Chandrayaan-1 failed to distinguish whether signals came from the hydroxyl radical (OH) or the water molecule (H₂O, which too has OH).
- The new discovery is the most precise information about H₂O molecules on the Moon till date.

- Earlier water molecules were found to exist in only polar caps but now the latest discovery says that water is present at all latitudes, although its abundance varies from place to place.
- The Large Area Soft X-Ray Spectrometer (CLASS) has detected the minor elements chromium and manganese for the first time through remote sensing.
- It will help in understanding magmatic evolution on the Moon and also deeper insights into planetary evolution.
- The Solar X-ray Monitor (XSM) has collected information about solar flares by collecting radiation coming from Sun.
- This will help in understanding the mechanism behind heating of the solar corona and also offer greater insights into microflares.

Significance

- The most significant outcome of the study has been the exploration of the permanently shadowed regions as well as craters and boulders underneath the regolith.
- The data will be used for future Japan Aerospace Exploration Agency (JAXA)-ISRO collaboration Lunar Polar Exploration (LUPEX) mission scheduled for launch in 2023/2024.

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