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CHANDRAYAAN-2 ALL SET FOR 3.84 LAKH KM VOYAGE

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Chandrayaan-2, the first Indian moon landing mission, is all set to head on its 3.84 lakh km voyage to the moon in the wee hours of Monday, July 15.

The Indian Space Research Organisation (ISRO) has scheduled the launch of its lunar probe, by a GSLV MkIII rocket, from the country's Sriharikota spaceport for 2.51 a.m. And the countdown is set to begin at 6.51 a.m. on Sunday.

A sequel to Chandrayaan-1, which was launched in 2008 and only orbited the moon at a distance of 100 km, Chandrayaan-2 entails the first attempt by any nation to make a landing on the moon's mineral rich south pole.

Elite group

The mission is to put a lander and a robotic, solar-powered rover with six wheels on the lunar terrain on September 6 for a brief on-site exploration. If ISRO achieves the feat in its first attempt, it will make India only the fourth country to soft-land on the lunar surface. The erstwhile Soviet Union, the U.S. — which has done it multiple times — and China are the only countries to have achieved lunar landings.

Ever since the spacecraft left the U.R. Rao Satellite Centre in Bengaluru and was integrated with the GSLV MkIII launch vehicle around early July, the Satish Dhawan Space Centre (SDSC) at Sriharikota has been the hub of mission activities.

During the journey, the lander rides on the parent spacecraft and the smaller rover nestles inside the lander. The entire assembly weighs about 3,840 kg, according to ISRO.

The combined entity is programmed to function autonomously through the course of the mission. Post-launch, the spacecraft's orbit will be gradually raised six times over 17 days before it is catapulted out of the earth's orbit towards moon. The 3.84 lakh km journey will take five days, but the combined spacecraft must orbit the moon for about 28 days before the lander separates itself from the orbiter and descends on to the lunar terrain.

The exercise would take 52 days, with the lander-rover combine programmed to reach the lunar terrain on September 6, ISRO Chairman K.Sivan said at a briefing in June. The rover would be launched from the lander after about four hours and would roam the terrain for about 500 m over the next 14 earth days — or one day on the moon.

Imaging, sampling the soil for minerals and water are some of the mission's tasks and information will be conveyed to earth through the orbiter or lander, and via the Indian Deep Space Network at Byalalu near Bengaluru.

The solar-powered lander and rover are not expected to last beyond one lunar day but 100 km above the moon's surface, the orbiter will continue to scan, click and observe lunar features for at least a year.

ISRO's new 5,000-seater launch viewing gallery is expected to be packed with late-night

onlookers. President Ram Nath Kovind is scheduled to visit the centre to witness the launch.

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