



After a sexual harassment case, Haryana sports minister Sandeep Singh, a former India hockey captain, says he has handed over the responsibility of his dept to the CM until the investigation report is released, **P 9**

The leaders of Ukraine and Russia vow to push for victory in their New Year speeches. While Zelensky speaks of gratitude and pain, Putin urges duty to Russia, casting the war as a near-existential fight

Thousands of Chinese took to the streets to mark the New Year as authorities and state media sought to reassure the public that the Covid outbreak sweeping across the country was under control and nearing its peak, **P 11**

Days after his election, Nepal PM Pushpa Kamal Dahal 'Prachanda' inaugurates an int'l airport built with China's help in Pokhara. The airport is a flagship project of Nepal-China BRI cooperation, **P 11**



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From sun to moon: 2023 promises to be Isro's big-ticket year



AIMING FOR THE SKY: The Chandrayaan 2 during its 2019 launch. Since 2014 to December 2022, Isro has launched 44 spacecraft missions, 42 launch vehicle missions and five technology demonstrators

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New Delhi: In 2023, Isro will kick-off big-ticket inter-planetary missions like Aditya L1 Sun and Chandrayaan-3 and also launch the first uncrewed mission of the long-awaited Gaganyaan mission. The space agency also has plans to conduct the first runway landing experiment of the reusable launch vehicle early this year from the aeronautical test range in Karnataka's Chitradurga.

The year 2022 was equally significant for India's space sector as Isro not only launched five crucial missions, including a launch dedicated to a foreign customer (OneWeb), but also helped the launch of India's first privately-produced rocket built by a Hyderabad-based startup, Skyroot Aerospace. The year also witnessed the establishment of the country's first private launchpad set up by another startup Agnikul Cosmos at the Isro launch centre complex in Sriharikota.

Since 2014 to December 2022, Isro has launched 44 spacecraft missions, 42 launch vehicle missions and five technology demonstrators. Isro is planning to launch the Aditya Sun mission in early months of 2023. The spacecraft will be placed in a halo orbit around the Lagrange point 1 (L1) of

the Sun-Earth system, which is about 1.5 million km from our planet. A satellite placed around the L1 point has the advantage of continuously viewing the Sun without any occultation or eclipses. The mission will include the study of Sun's corona, chromosphere and photosphere and particle flux emanated from the Sun, and variation in magnetic field strength.

The agency is also scheduled to launch its third lunar mission, Chandrayaan-3, in June, which is essential for India's future in inter-planetary explorations. The lander mission will rely on the Chandrayaan-2 orbiter, which is already circling the Moon. The agency has made several changes to the lander system in order to fix the glitch that led to the crashlanding of the Chandrayaan-2 lander on Moon on September 7, 2019. A successful soft-landing on the Moon will make India the fourth country to do so and first to do so near the lunar South Pole.

The first uncrewed mission of Gaganyaan expected in the last quarter of 2023 aimed at validating the performance of the human-rated launch vehicle, orbital module propulsion system and recovery operations. It will be followed by another unmanned mission and finally the three-crew manned mission.