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ISRO to Launch State-of-the-Art Satellites

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The Indian Space Research Organisation (ISRO) has planned to launch a number of state-of-the-art satellites to further enhance operational applications and cater to the needs of emerging applications. The details of the state of the art satellites approved for launch till 2019-20 are

Third generation Cartosat series satellite for very high resolution mapping

NOTE:

The Cartosat satellites are being launched to provide remote sensing services. Images sent by it will be useful for coastal land use and regulation, road network monitoring, distribution of water and creation of land use maps, among others.

Second generation stereo imaging satellite for Digital Elevation Model.

NOTE:

- Stereo Satellite imaging also called stereoscopy or 3D imaging is a photography technique originally developed for creating the illusion of depth in an image or set of images.
- In remote sensing applications photographs of the earth are taken and 3D topographic maps and computer models can be created using the stereo images.

Geostationary Imaging Satellite (GISAT) for Earth observation from Geostationary Orbit.

NOTE:

- GEO Imaging Satellite is an earth-observing satellite operating from geostationary orbit to facilitate continuous observation of Indian sub-continent, quick monitoring of natural hazards and disaster.

- A geosynchronous orbit is a high Earth orbit that allows satellites to match Earth's rotation. Located at 22,236 miles (35,786 kilometers) above Earth's equator, this position is a valuable spot for monitoring weather, communications and surveillance.
- Third generation Ocean imaging satellite for ocean colour, sea surface temperature mapping and ocean surface wind vector mapping
- Third generation ResourceSat series of satellite with improved spatial resolution and swath

NOTE:

- ResourceSat satellite is an advanced remote sensing satellite built by ISRO
- The Resourcesat-1 satellite was launched on October 17, 2003, followed by Resourcesat-2 on April 20, 2011, to ensure systematic and repetitive coverage of the earth's surface.
- The objective of these Indian Remote Sensing (IRS) satellites is to provide data for integrated land and water resource management.
- The satellite operates in a sun-synchronous orbit at an altitude of 817 km.
- The satellites take 101.35 minutes to complete one revolution around the earth and complete about 14 orbits per day.
- The constellation of high-resolution imaging satellites for a frequent revisit.
- Nanosatellite for Aerosol monitoring.

NOTE:

- The term "nanosatellite" or "nanosat" is usually applied to the name of an artificial satellite with a wet mass between 1 and 10 kg (2.2–22 lb). Again designs and proposed designs of these types usually have multiple nanosatellites working together or in formation (sometimes the term "swarm" is applied). Some designs require a larger "mother" satellite for communication with ground controllers or for launching and docking with nanosatellites.
- Satellite for monitoring chlorophyll fluorescence and radiation environment

NOTE:

Chlorophyll fluorescence is a non-invasive measurement of photosystem II (PSII) activity and is a commonly used technique in plant physiology. The sensitivity of PSII activity to abiotic and biotic factors has made this a key technique not only for understanding the photosynthetic mechanisms but also as a broader indicator of how plants respond to environmental change.