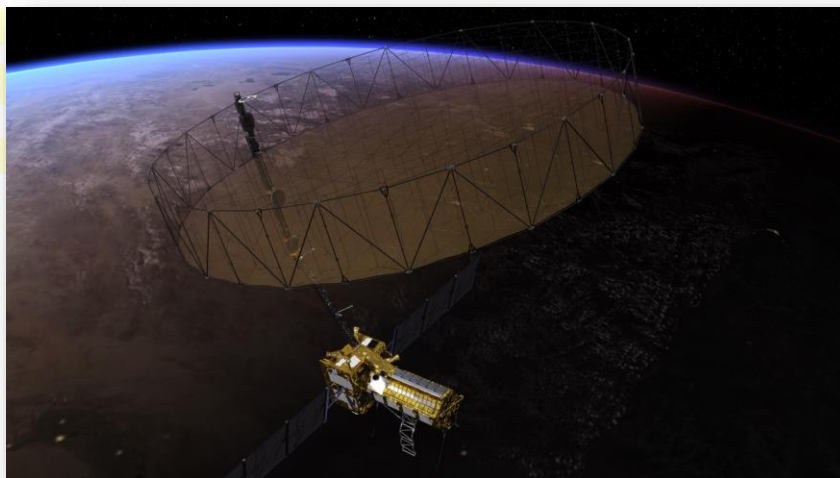


Nisar Launch: US-Indian Satellite Will Monitor Earth's Changing Frozen Regions

Why In The News?

- In A Groundbreaking Effort To Monitor The Earth's Changing Frozen Regions, Nasa And The Indian Space Research Organisation (ISRO) Are On The Brink Of Launching The **Nisar Satellite**.
- This Collaborative Mission Is Expected To Deliver Unprecedented Detail In The **Study Of Ice Sheets, Glaciers, And Sea Ice** As The Planet Grapples With The Effects Of Climate Change.



What Is Nisar?

- Nisar, An Acronym For **NASA-ISRO Synthetic Aperture Radar**, Is Designed To Capture The Most Comprehensive Picture Yet Of The Motion And Deformation Of **Earth's Cryosphere** The Parts Of The Earth's Surface Where Water Is In Solid Form.
- Slated For Launch Later This Month From India, Nisar Will Survey Nearly All Of The **Planet's Land And Ice Surfaces Bi-monthly**. The Radars Can Penetrate Snow To Track Underlying Ice Movement, Snow Moisture, Indicating Melt Areas.

These Radars Can See Through Clouds And Darkness, Enabling Continuous Observation Even During The Extended Polar Nights.

- One Of Nisar's Unique Features Is Its Orbit Orientation, Which Allows For **Data Collection From Deep Within Antarctica**, Close To The South Pole A Region Not Extensively Covered By Other Imaging Radar Satellites.
- This Capability Is Crucial For Studying The Flow Of Ice From Central Antarctica Toward The Ocean And Understanding **The Interactions Between Ice And Seawater** That Can Exacerbate Melting And Instability.
- Nisar Will Also **Monitor Mountain Glaciers**, Whose Meltwater Contributes Significantly To Sea Level Rise And Is Essential For The Water Supply Of Communities Downstream.
- In Regions Like The **Himalayas**, Nisar's All-weather Capabilities Will Allow For Consistent Monitoring Of Glacial Lakes And The Assessment Of Flood Risks, Overcoming The Challenges Posed By Persistent Cloud Cover.



Why Is Nisar Crucial?

- With **Arctic Sea Ice Diminishing** Over The Decades And **Antarctic Sea Ice Reaching A Record Low** In 2023, Nisar's Extensive Coverage Will Offer New Insights Into These Critical Trends.
- As The World Faces The Escalating Impacts Of Climate Change, The Nisar Mission Could Be A Leap Forward In Our Ability **To Observe And Understand** The Complex Natural Processes Affecting Earth's Frozen Frontiers.
- The Data Provided By This Satellite Will Not Only Advance Scientific Knowledge But Also Inform **Strategies For Managing Natural Resources And Mitigating Natural Hazards**.