Current Affairs 31st July 2025 by Right IAS

NASA-ISRO Synthetic Aperture Radar (NISAR) satellite

Launch Details Date & Time: Launched on a Wednesday at 5:40 p.m. Launch Site: Satish Dhawan Space Centre, Sriharikota, Andhra Pradesh. Launch Vehicle: GSLV-F16 Orbit Achieved: Successfully placed in sun-synchronous orbit about 18 minutes post-lift-off. Satellite Weight: 2,392 kg

Synthetic Aperture Radar (SAR) is a form of radar that uses the motion of a radar antenna to create high-resolution images of the Earth's surface. It achieves this by transmitting microwave pulses and analysing the returning echoes, effectively simulating a much larger antenna than the physical one on the moving platform.

Joint Mission: NASA and ISRO First-ever satellite jointly developed by: NASA (U.S.) ISRO (India) Mission Name: NISAR NASA-ISRO Synthetic Aperture Radar Mission Life: 5 years

Technological Highlights First satellite to use dual-frequency Synthetic Aperture Radar (SAR): L-band (NASA) S-band (ISRO) Uses NASA's 12-metre unfurlable mesh reflector antenna Integrates with ISRO's modified I3K satellite bus

Radar & Observation Capabilities Technology Used: Sweep SAR Swathe Width: 242 km High Spatial Resolution All-weather, day-and-night imaging capability Revisits same area every 12 days

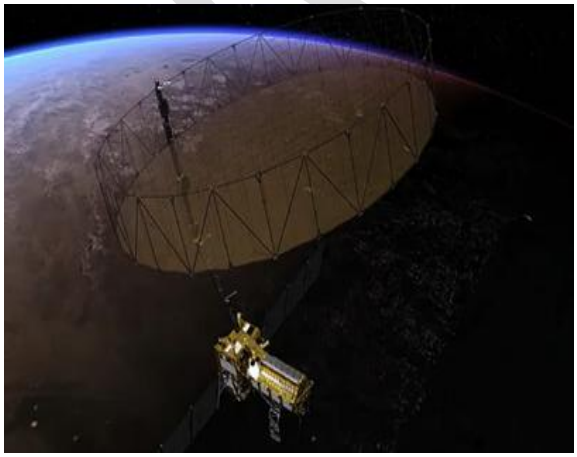
Applications of NISAR Detects minute changes on Earth's surface: Ground deformation Ice sheet movement Vegetation dynamics

Other Applications: Sea ice classification Ship detection Shoreline monitoring Storm and disaster characterisation Soil moisture changes Mapping of surface water Monitoring agricultural lands

Development Responsibilities NASA's Jet Propulsion Lab (JPL): Radar antenna reflector Boom structure L-band SAR Engineering payload ISRO: Spacecraft bus S-band SAR Solar arrays Launch vehicle (GSLV-F16)

Mission Phases

Launch Phase: Completed successfully with GSLV-F16. Deployment Phase: Begins on Day 10 post-launch 12-metre reflector antenna deployed via 9-metre boom Commissioning Phase: Testing and calibration. Science Phase: Begins post commissioning and continues till the end of the 5-year mission.



COP30 COP30 is the 30th annual meeting of the United Nations Framework Convention on Climate Change (UNFCCC).

Where and When will COP30 happen?

Location: Belém, in the Amazon region of Brazil Date: November 2025 Main Goals of COP30: 1. 2. 3. 4. 5. Fight climate change and try to keep global warming below 1.5°C Reduce carbon emissions (move towards Net-Zero) Ensure climate finance from rich to poor countries Focus on climate adaptation (how to adjust to climate impacts) Include local and tribal communities in decision-making What will be discussed at COP30? Brazil will play a big role as it protects the Amazon How to actually implement the "Loss and Damage" Fund created at COP28 (2023) Rich countries will be asked to give more money and support for climate action Focus on promoting clean and renewable energy.

The Hindu

Legal Services Authorities and Free Legal Aid in India

Mandate and Coverage Legal Services Authorities Act, 1987 mandates free legal aid to ~80% of India's population. Only 15.50 lakh

people received legal aid services between April 2023 and March 2024. This is a 28% increase from the previous year (12.14 lakh), but still far below the required scale.

Structure of Legal Aid Services Legal aid front offices are attached to local courts, prisons, and juvenile justice boards. Legal aid clinics function in rural and remote areas 1 clinic for every 163 villages (India Justice Report 2025). Services depend heavily on financial and human resources available at the local level.

Legal Aid Budget Trends Legal aid gets less than 1% of the total justice budget (includes police, prisons, judiciary, legal aid). Budget Sources: States Centre via NALSA (National Legal Services Authority)

Total budget increased from ₹601 crore (2017–18) to ₹1,086 crore (2022–23). State share rose from ₹394 crore to ₹866 crore. NALSA's share fell from ₹207 crore to ₹169 crore. Utilisation of NALSA funds also dropped (from 75% to 59%).

Spending Restrictions As per NALSA 2023 Manual, SLSAs need prior approval to: Hire project/front office staff Buy vehicles or equipment Hire outsourced workers Spend on victim compensation or food distribution Funds usage restricted to: 50% for legal aid/advice 25% for awareness/outreach 25% for mediation/ADR

Per Capita Spending National per capita legal aid spending rose from ₹3 (2019) to ₹7 (2022–23). State-wise per capita spending: Highest: Haryana (₹16) Lowest: West Bengal (₹2), Bihar (₹3), UP (₹4) all below national average of ₹6.

Decline in Para-Legal Volunteers 38% drop in para-legal volunteers from 2019 to 2024. From 5.7/lakh population to 3.1/lakh UP and West Bengal had only 1 volunteer/lakh In 2023–24: 53,000 trained, only 14,000 deployed Compared to 2019–20: 63,000 trained, 22,000 deployed

Honorarium issues: Most States pay below minimum wage Only Kerala pays ₹750/day 22 States pay ₹500, 3 pay ₹400, and 3 (Gujarat, Meghalaya, Mizoram) pay ₹250/day

Legal Aid Defence Counsel (LADC) Scheme Started in 2022 by NALSA to provide legal aid to accused persons only (modelled on public defender system). Currently active in 610 out of 670 districts. In 2023–24: ₹200 crore allocated and fully utilized In 2024–25: Allocation reduced to ₹147.9 crore Still in early stages but has potential to reduce lawyer workload and improve legal access.

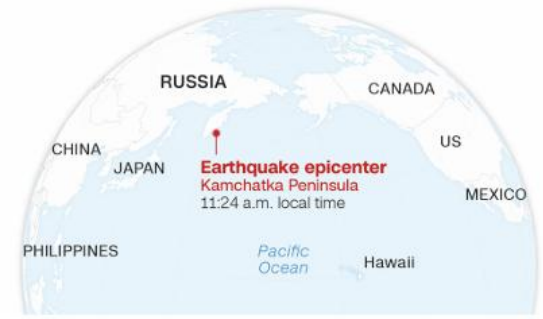
Challenges in the System Low budgets, poor fund utilisation, and understaffing Falling trust, quality inconsistencies, and weak accountability Inadequate honorariums and deployment of para-legal volunteers Legal aid is constitutionally guaranteed, but present capacity falls short.

Way Forward: Increase budget allocations Improve utilisation of existing funds Recruit and retain more para legal volunteers Strengthen quality assurance and monitoring Build public trust and awareness of legal rights.

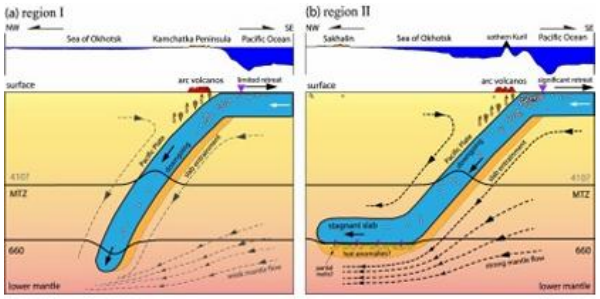
The Hindu

Massive earthquake occurred in Russia

On July 30, 2025, a powerful magnitude 8.8 earthquake struck off the Kamchatka Peninsula in Russia's far east It was the strongest quake in Kamchatka since 1952, and one of the largest recorded globally Where Did It Occur? In the Kuril-Kamchatka subduction zone, a highly active tectonic boundary where the Pacific Plate moves beneath the Okhotsk/North American Plate at ~77 mm/yea



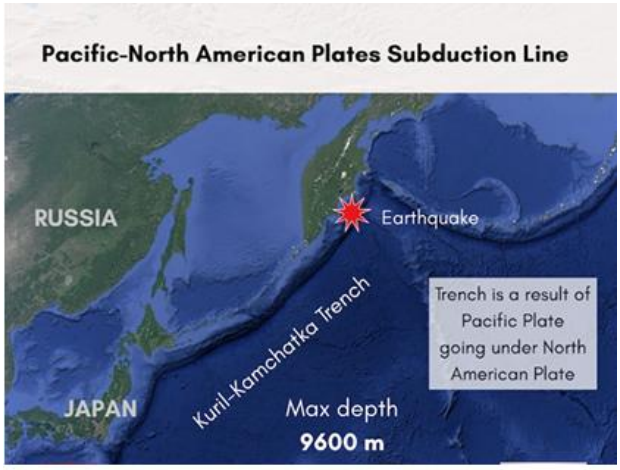
The rupture zone was shallow, just about 19–21 km deep, and spread over a large area (~390 km long and 140 km wide

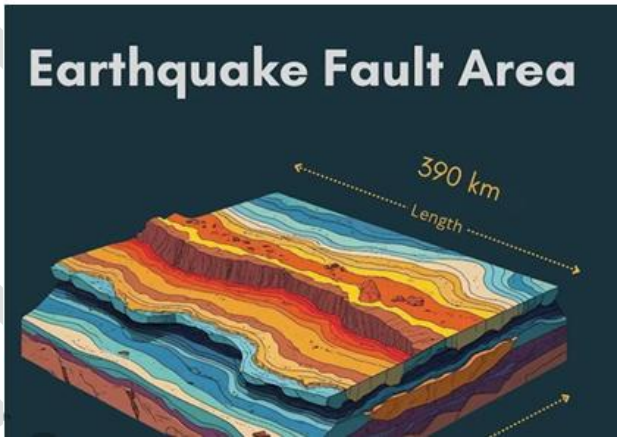


Why Did It Happen?

Caused by shallow reverse faulting that is, one crustal block thrusting over another due to compressional forces in the subduction zone Such megathrust earthquakes release huge amounts of energy because they are shallow and have a wide fault area, making them especially destructive Why Kamchatka is Seismically Active

Located on the Pacific Ring of Fire, one of Earth's most active seismic and volcanic zones





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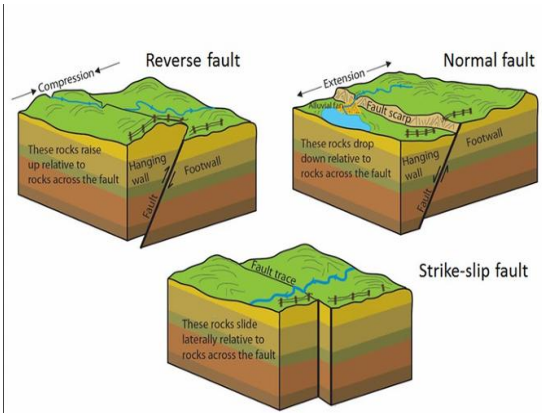
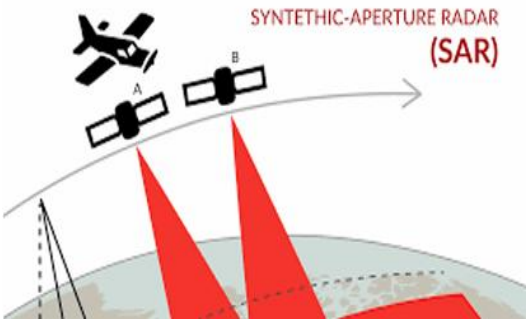


Dual-Frequency Synthetic Aperture Radar (SAR)

Dual-Frequency Synthetic Aperture Radar (SAR) is an advanced remote sensing technology that uses two different radar frequencies to capture high-resolution images of the Earth's surface, even in cloudy or dark conditions.

What is Synthetic Aperture Radar (SAR)?

SAR is a radar system mounted on satellites or aircraft that uses microwave signals to create detailed 2D or 3D images of the Earth's surface. Unlike optical cameras, SAR can penetrate clouds, operate day and night, and detect surface and structural changes over time.



What Does "Dual-Frequency" Mean?

It means the SAR system uses two different frequency bands (wavelengths), such as: L-band (longer wavelength ~23 cm) S-band (shorter wavelength ~9 cm) Each band interacts differently with the Earth's surface and vegetation, allowing for more comprehensive and accurate analysis.

🧠 Why Use Dual-Frequency SAR?

Benefit	Explanation
🌱 Vegetation vs. Soil Detection	L-band can penetrate vegetation better, while S-band captures surface features more clearly.
🌍 Better Surface Mapping	Combined data provides more accurate **topography, land cover, and structural change** monitoring.
🌧️ All-Weather, Day-Night Imaging	Works regardless of weather or lighting — useful during floods, disasters, and cloudy seasons.
🏚️ Disaster Monitoring	Tracks **landslides, earthquakes, floods, and glacier movements** with high precision.
🚜 Agriculture & Forestry	Monitors **crop growth, forest biomass**, and deforestation more effectively.