

7. Short News

1. Aleppo, Syria

Fresh clashes erupted in Aleppo between Syrian government forces and the Kurdish-led Syrian Democratic Forces (SDF) after civilian evacuations, underscoring stalled military integration efforts and rising humanitarian concerns.

About Aleppo City

Location- Aleppo is located in northern Syria, close to the Turkish border.

Status- It is Syria's most populous city and its former commercial and industrial hub.

Strategic Importance- Aleppo lies at the crossroads of trade routes linking Anatolia, Mesopotamia, and the Mediterranean.

Conflict History- The city was a major battleground during the Syrian civil war and has witnessed recurrent clashes between government forces and non-state armed groups.

Recent Flashpoints- The Sheikh Maqsoud and Achrafieh neighbourhoods are predominantly Kurdish areas and current centres of violence.

About Syria

Location- Syria is a West Asian country situated in the Northern and Eastern Hemispheres. It lies along the eastern coast of the Mediterranean Sea.

Capital- Damascus

Borders

1. Turkey – North
2. Iraq – East and Southeast
3. Jordan – South
4. Israel and Lebanon – Southwest

Physical Geography-

1. Anti-Lebanon Mountains along the western frontier.
2. Mount Hermon (2,814 m) is the highest peak.
3. Euphrates River and its tributary Khabur River are major river systems.
4. Lake al-Assad is a major man-made reservoir.
5. The Syrian Desert occupies much of eastern Syria.

Climate

1. Mediterranean climate in western regions with mild, wet winters and hot, dry summers.
2. Arid desert climate in the east.

Significant Features- Historically rich Levant region. The Levant is a historical-geographical region in Eastern Mediterranean West Asia, that includes Syria, Lebanon, Israel, Palestine, Jordan, and parts of southern Turkey. An important zone of Shia-Sunni conflicts and a core region affected by the Arab Spring movements.

2. Olive Ridley Turtle (*Lepidochelys Olivacea*)

Recently, Olive Ridley turtle nests found on Chennai beaches were relocated to Forest Department hatcheries amid rising carcass sightings and intensified coastal patrolling.

Olive Ridley Turtle (*Lepidochelys olivacea*)- The Olive Ridley turtle is the smallest and most abundant sea turtle species, named after the olive-green colour of its carapace.

Habitat- It inhabits warm tropical and subtropical marine waters, preferring coastal areas near estuaries and bays for nesting.

Distribution- Olive Ridley turtles are found in the Indian, Pacific, and Atlantic Oceans. In India, major nesting occurs along the Odisha coast, Andaman Islands, Tamil Nadu, and Karnataka (the only western-coast rookery).

Diet- They are omnivorous, feeding on algae, jellyfish, crabs, lobsters, molluscs, and tunicates.

Nesting Practice- A unique feature is arribada, a mass nesting phenomenon where thousands of females lay eggs simultaneously on the same beach. In India, major arribada sites include Gahirmatha, Devi River mouth, and Rushikulya in Odisha. Each female lays about 100–140 eggs, mostly at night, between January and April.

Conservation Status

1. IUCN Red List- Vulnerable
2. Wildlife (Protection) Act, 1972- Schedule I
3. CITES- Appendix I

Threats- Major threats include bycatch in fishing nets, coastal development, climate change, marine pollution, illegal harvesting of eggs

Conservation Efforts in India - Operation Olivia by the Indian Coast Guard to protect nesting turtles along Odisha's coast. Seasonal fishing bans and use of Turtle Excluder Devices (TEDs) to avoid bycatch. Protected nesting beaches like Gahirmatha Marine Sanctuary. Ex-situ conservation, including hatcheries in Chennai and Odisha. NGOs such as Students' Sea Turtle Conservation Network (SSTCN) works alongside the Forest Department in managing the hatcheries. Scientific monitoring through flipper tagging and radio telemetry by Wildlife Institute of India.

3. Bio-Bitumen

In 2026, India became the world's first country to commercially produce bio-bitumen for road construction, marking a major milestone in green infrastructure.

Key Highlights on Bio-Bitumen status in India

Developed by- Indigenous bio-bitumen technology jointly developed by CSIR-Central Road Research Institute (CRRI), New Delhi and CSIR-Indian Institute of Petroleum (IIP), Dehradun.

Demonstration Project- Successfully demonstrated through a 100-metre trial stretch on the Jorabat-Shillong Expressway (NH-40), Meghalaya.

Target- Transition India's road infrastructure toward clean, green, and circular economy-based highways, while reducing fossil fuel dependence and managing crop residue.

Economic Benefit- Potential to replace 20–30% of conventional bitumen and reduce imports worth ₹25,000–30,000 crore annually, supporting Atmanirbhar Bharat.

About Bio-Bitumen

Bio-bitumen is a sustainable alternative to conventional petroleum-based bitumen, developed using biomass and agricultural residues. Traditional bitumen is a black, viscous hydrocarbon mixture obtained from crude oil and acts as a binding material in road construction. Bio-bitumen partially or fully replaces fossil-based bitumen.

Key Features

1. Renewable source-based- Produced from crop residue and biomass waste.
2. Lower carbon footprint- Reduces dependence on crude oil and cuts greenhouse gas emissions.
3. Performance-compatible- Suitable for road construction with binding properties comparable to conventional bitumen.
4. Waste utilization- Converts agricultural waste into a value-added product.

Significance

Environmental benefits- Helps reduce air pollution by discouraging crop residue burning and lowering emissions from fossil fuels.

Clean infrastructure- Supports the development of green and sustainable highways.

Economic gains- Reduces crude oil imports and enhances resource efficiency.

Policy alignment- Advances national missions such as Waste to Wealth, Atma Nirbhar Bharat, and Viksit Bharat 2047.

Global leadership- Positions India as a pioneer in eco-friendly road construction technologies.

India's commercial adoption of bio-bitumen reflects a decisive shift toward low-carbon, circular, and self-reliant infrastructure development.

4. Dust Experiment (Dex)

Indian Space Research Organisation (ISRO) has reported the successful detection of interplanetary dust particles (IDPs) by India's first domestically developed dust detector instrument DEX.

About Dust EXperiment (DEX)

DEX (Dust EXperiment) is India's first indigenous instrument designed to detect high-speed interplanetary dust particles (IDPs).

Interplanetary Dust Particles (IDPs)- IDPs are microscopic fragments from comets and asteroids that constantly bombard Earth's atmosphere. When these particles enter Earth's atmosphere, they form the "meteor layer" and are visible from the ground as shooting stars.

Development- DEX is a three-kilogram instrument developed by ISRO's Physical Research Laboratory in Ahmedabad.

Launch- It was launched in January, 2024, aboard the PSLV Orbital Experimental Module (POEM-3) as part of the PSLV-C58/XPoSat mission.

Key Results- From January 1 to February 9, 2024, DEX successfully recorded multiple dust impact signals, detecting impacts roughly every 1,000 seconds. It measured a dust flux of approximately 6.5×10^{-3} particles per m² per second, confirming ongoing cosmic bombardment.

Future Applications- DEX serves as a prototype for similar instruments on upcoming missions, enabling dust measurements around the Moon, in Venus's thick atmosphere, or Mars's thin atmosphere.

5. PSLV-C62/EOS-N1 MISSION

The Indian Space Research Organisation (ISRO) is scheduled to launch the PSLV-C62/EOS-N1 Mission on January 12, 2026.

About the PSLV-C62 / EOS-N1 Mission

Launch Details- Scheduled for January 12, 2026 from the Satish Dhawan Space Centre (SDSC), Sriharikota, Andhra Pradesh. The PSLV-C62/EOS-N1 mission is the first launch for ISRO in 2026.

Launch Vehicle- Polar Satellite Launch Vehicle (PSLV). This is the 64th PSLV flight and a return-to-flight mission after the partial failure of PSLV-C61 in May 2025.

Primary Payload- EOS-N1 (also known as Anvesha).

Secondary Payloads- Approximately 18 co-passenger payloads, including commercial and experimental satellites from Indian startups and international partners.

EOS-N1 (Anvesha) Satellite - EOS-N1, codenamed Anvesha (meaning "exploration" in Sanskrit), is an advanced Earth observation satellite. It is developed by Defence Research and Development Organisation (DRDO) primarily for strategic and defence applications.

Key Features– Equipped with hyperspectral imaging sensors that capture data across hundreds of narrow spectral bands (beyond visible light, into infrared and other wavelengths). It also supports civilian applications like agriculture, urban mapping, environmental monitoring, and resource assessment.

