



Miocene Epoch

Context: Recently, a research group in Japan has uncovered an exceptionally well-preserved fossil forest which belongs to the late Miocene epoch.

- The Miocene epoch was a lengthy period characterized by the Earth's climate rebounding from the Oligocene cooling.
- During this epoch, there was a significant increase in global temperatures.
- The total number of mammal species experienced a marked rise during this time.
- The Miocene epoch is commonly **divided into three stages**:
 - Early Miocene (23 million to 16 million years ago)
 - Middle Miocene (16 million to 11.6 million years ago)
 - Late Miocene (11.6 million to 5.3 million years ago)

Changes during that period

- India collided with Asia, uplifting the continent and forming the Himalayas and Tibetan plateau.
- The Tethys Sea disappeared as Africa moved northward to connect with Europe.
- The Miocene saw a cooling trend, causing arid climates and reduced mammalian diversity.
- Grasslands expanded, forcing herbivores to adapt to the changing habitats.
- Africa has abundant Miocene fossils.
- Sea levels dropped, exposing present-day Florida during the Miocene.
- Oceans experienced changing circulation patterns and nutrient distribution, impacting productivity.
- The Miocene spurred accelerated evolution in marine plankton and molluscs, increasing biological diversity.

EON/ERA	PERIOD	EPOCH	Ma	
Phanerozoic	Cenozoic	Quaternary	Holocene	0.011
			Pleistocene	Late 0.8 Early 2.4
		Tertiary	Pliocene	Late 3.6 Early 5.3
				Miocene
			Oligocene	
				Eocene
			Paleocene	
				Mesozoic
		Jurassic	Late 161 Middle 176 Early 200	
			Triassic	
	Paleozoic	Permian		
			Pennsylvanian	
		Mississippian		
			Devonian	Late 359 Middle 385 Early 397
		Silurian		Late 416 Early 419
			Ordovician	Late 423 Middle 428 Early 444
	Cambrian	Late 488 Middle 501 Early 513		
		Proterozoic	Neoproterozoic (Z)	Late 542
	Middle Mesoproterozoic (Y)			1000
	Early Paleoproterozoic (X)			1600
	Archean		Late	2500
Early		3200		
Hadaean	Late	4000		
	Early			

Constitution (Scheduled Tribes) Order (Fifth Amendment) Bill, 2022

Context: The Constitution (Scheduled Tribes) Order (Fifth Amendment) Bill, 2022, has been passed by Parliament.

- The Constitution (Scheduled Tribes) Order 1950 will be amended by the Constitution (Scheduled Tribes) Order (Fifth Amendment) Bill, 2022.
- The amendment adds the Dhanuwar, Dhanuwar, Kisan, Saunra, Saonra, and Binjhia communities to Chhattisgarh's Scheduled Tribes list.
- It includes Bhuinya, Bhuiyan, and Bhuyan communities as synonyms of the Bhardia Bhumia community.
- Three Devanagari versions of the Pando community's name will also be included.
- The bill benefits Chhattisgarh's tribal communities and contributes to the nation's progress, benefiting approximately 72,000 tribal people in the State.

How is a community added or removed from the list?

- The process starts at the State or Union Territory level, where the government seeks to add or remove a community from the SC or ST list.
- The final decision is made by the President's office through a notification, utilizing powers granted in **Articles 341 and 342**.

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- Inclusion or exclusion from the Scheduled Tribes or Scheduled Castes list becomes effective only after the President assents to a Bill amending the Constitution (Scheduled Castes) Order, 1950, and the Constitution (Scheduled Tribes) Order, 1950, after its approval by both the Lok Sabha and Rajya Sabha.
- **Process:**
 - State government recommends communities for addition or removal from SCs/STs list.
 - Union Ministry of Tribal Affairs receives the proposal from the State government.
 - Ministry of Tribal Affairs examines the proposal and sends it to the Registrar General of India (RGI).
 - RGI uses criteria from the Lokur Committee to define a new community as a Scheduled Tribe.
 - Once approved by RGI, the proposal goes to the National Commission for Scheduled Castes or National Commission for Scheduled Tribes.
 - The proposal then returns to the Union government for inter-ministerial deliberations and final approval in the Cabinet.

US's re-entry into UNESCO

Context: Jill Biden attended UNESCO flag-raising ceremony in Paris, marking USA's return to the organization.

Background

- In 2017, the U.S. exited UNESCO, citing an alleged anti-Israel bias.
- The decision was triggered by UNESCO's inclusion of Palestine as a member state in 2011, leading to the U.S. and Israel ceasing funding for the agency.
- The U.S. rejoined UNESCO in 2018, marking the second return after a previous exit in 1984.
- The U.S. requested \$150 million for the 2024 budget to cover UNESCO dues and arrears, with plans for similar requests in subsequent years until the full debt of \$619 million is paid off.
- Before its withdrawal, the U.S. was the biggest funder of UNESCO, contributing 22% of the agency's total funding, which amounts to a significant portion of UNESCO's annual operating budget of \$534 million.

Reasons for re-entry

- The U.S. returned to UNESCO due to China's growing leadership role after the U.S. withdrawal.
- China gained influence in shaping AI and technological rules during the U.S.'s absence.
- The move is a major boost to UNESCO, known for its World Heritage program and initiatives on climate change and girls' education.

United Nations Educational, Scientific and Cultural Organization (UNESCO)

- UNESCO was established in 1945 as a specialized agency of the United Nations (UN).
- It has 195 Members and 8 Associate Members, with India being a founding member.
- The organization is headed by a Director-General and has over 50 field offices worldwide, with its headquarters in Paris.
- UNESCO's objectives include promoting quality education, sustainable development through science and knowledge, addressing social and ethical challenges, fostering cultural diversity and dialogue, and building inclusive knowledge societies.
- Regarding World Heritage Sites, UNESCO encourages the identification, protection, and preservation of cultural and natural heritage of outstanding value to humanity.
- The 1972 World Heritage Convention, adopted by UNESCO, connects nature conservation with the preservation of cultural properties, recognizing the interaction between people and nature and the need to maintain a balance between them.

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India-Australia Defence Ties

Context: The 8th India-Australia Defence Policy Talks took place in Canberra.

- The discussions reviewed bilateral defence cooperation and explored new initiatives to strengthen engagements.
- Both sides emphasized co-development and co-production of defence equipment.
- They reaffirmed their commitment to the Comprehensive Strategic Partnership based on mutual trust and shared values.
- Defence is a key pillar of the Comprehensive Strategic Partnership since June 2020.
- Both nations share a vision of a free, open, inclusive, and prosperous Indo-Pacific region.
- They have a 2+2 mechanism at the Ministerial level.
- They agreed to finalize a hydrography agreement and exchanged views on geopolitical, regional, and global issues.

Strategic Ties

- In 2020, the India-Australia bilateral relationship was elevated to a Comprehensive Strategic Partnership during the Leaders' Virtual Summit.
- In 2021, the prime ministers of both countries met during COP26 at Glasgow.
- High-level engagements and ministerial visits continued in 2022 and 2023, with the India-Australia virtual summit and Foreign Ministers' meet.
- The 2nd India-Australia Virtual Summit featured key announcements, including a Letter of Intent on Migration and Mobility Partnership Arrangement for skill exchange.

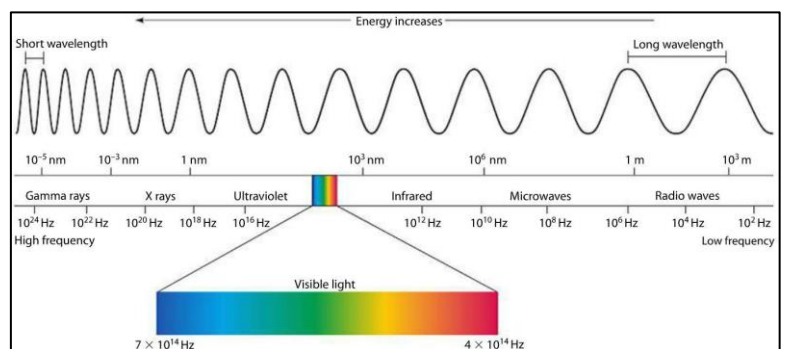
Defence and Security Ties

- The Comprehensive Strategic Partnership between India and Australia was elevated in 2020 during the Leaders' Virtual Summit.
- Defence cooperation includes the 2+2 Ministerial Dialogue and the Mutual Logistics Support Agreement (MLSA) signed in 2020.
- Joint military exercises, such as "Malabar" and "Talisman Sabre," promote collaboration between India, Australia, Japan, and the US, along with QUAD grouping.
- Strained Australia-China ties resulted from various issues, including 5G network decisions and criticism of human rights violations.
- India faces Chinese aggression along the border, highlighting the importance of regional stability and rules-based international order.
- Both nations support inclusive regional institutions in the Indo-Pacific to foster economic integration.
- Their participation in the QUAD reflects shared interests and concerns.

STARFIRE Algorithm

Context: Scientists at Raman Research Institute (RRI), an autonomous institute under the Department of Science and Technology, have recently created an algorithm named STARFIRE.

- STARFIRE, stands for **S**imulation of **T**errestri**A**I Radio **F**requency **I**nterference in **o**Rbits around **E**arth.
- Advantages and uses:
 - The STARFIRE algorithm estimates Radio Frequency Interference from various sources like FM radio, WiFi, mobile towers, radar, satellites, and communication devices.
 - It aids in designing and fine-tuning antennas for optimal operations.



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- It can map unwanted Radio Frequency Interference signals in space.
 - This technology enriches data from space-based Astronomy missions.
 - The algorithm is useful in orbit selection for future missions.
- Scientists utilized FM transmitter station data from six countries: Canada (8,443 stations), USA (28,072 stations), Japan (Tokyo - 21 stations), Australia (2,664 stations), Germany (2,500 stations), and South Africa (1,731 stations) for developing the model.

Radio Frequency Interference

- Radio frequency energy conduction or radiation can cause adjacent electronic or electrical devices to produce interference.
- Satellite operations and radio astronomy can also be disrupted by this interference.
- Limiting such interference is important to maintain the normal functioning of electronic and electrical devices.

NEWS IN BETWEEN THE LINES

No Confidence Motion



What is a No Confidence Motion?

No-confidence motion tests government's majority. Any Lok Sabha MP with 50 colleagues' support can introduce it. Lok Sabha can remove the ministry by passing this motion. Article 75 makes the council of ministers collectively responsible to Lok Sabha.

Current Situation:

- The No Confidence Motion is linked to the current issues in Manipur as the Opposition demands a statement from the Prime Minister on the situation.
- Though the motion is unlikely to affect the government's majority, it serves as a tool to force a discussion on the matter and hold the government accountable.

Instances of no confidence motions:

- Jawaharlal Nehru's government in 1963
- Morarji Desai's government became the first to be defeated by a no-confidence motion (1978)
- Atal Bihari Vajpayee's government in 1999
- Manmohan Singh's government in 2008
- Indira Gandhi faced the most no-confidence motions (15 times) during her tenure.
- Jyoti Basu faced 4 no-confidence motions as the CPI(M) leader.
- VP Singh's government dissolved in 1989 after the BJP withdrew its support.
- Narasimha Rao survived a no-confidence motion in 1993 but later resigned.
- I.K. Gujral's government resigned in 1998 due to a lack of majority.

Hindon River



Origin: Hindon River is a tributary of the Yamuna river, originating from the Shakumbhari devi range Upper Sivaliks in Saharanpur district, Uttar Pradesh.

Catchment Area: The river is rainfed and has an approximate catchment area of 7,083 square kilometers.

Flow: It flows for about 400 kilometers through Muzaffarnagar, Meerut, Baghpat, Ghaziabad and Gautam Buddha Nagar districts before joining the Yamuna river at Sector-150, Noida.

Tributary: The Kali river, originating in the Rajaji Range of Sivalik Hills, is a major tributary of the Hindon River, merging with it before joining the Yamuna River.

Mythological Significance: The ancient Mahadev Temple near Sardhana is believed to date back to the Mahabharata period and is associated with the confluence of the Hindon and Krishna rivers (Kali River).

Historical Importance: The Alamgirpur site along the Hindon River is associated with the Indus Valley Civilization.


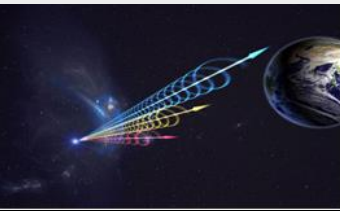
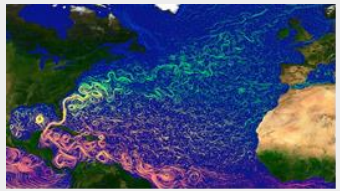

Pollution: The Hindon River faces severe pollution issues due to industrial effluents discharged without treatment, resulting in extremely low dissolved oxygen levels.

Rejuvenation Efforts: NGOs and local initiatives like Hindon Kali and Krishna Bachao Abhiyan are working to rejuvenate the river by raising awareness, removing solid waste and reducing chemical use in farming near the floodplains.

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<p>Mangrove Cell</p> 	<p>West Bengal announced the establishment of a 'mangrove cell' in the state on the occasion of the International Day for the Conservation of the Mangrove Ecosystem.</p> <p>Mangrove Cell is a specialized unit established by the Government of India under the Ministry of Environment, Forest and Climate Change (MoEFCC).</p> <p>Purpose: The mangrove cell aims to bring continuity to the state government's efforts in mangrove management.</p> <p>Action Plan: The cell will have an action plan for the plantation of mangroves and will focus on maintenance and coordination with NGOs.</p> <p>Mangroves' Importance for Ecosystem:</p> <p>Biodiversity: Crucial habitats for diverse plant and animal species, including rare and endangered ones.</p> <p>Coastal Protection: Natural buffers against erosion, storms and tsunamis, safeguarding coastal areas.</p> <p>Carbon Sequestration: Effective at capturing and storing carbon dioxide, mitigating climate change.</p> <p>Nursery Grounds: Vital nursery grounds for marine species, supporting fisheries and biodiversity.</p> <p>Water Purification: Filter and purify water, maintaining water quality.</p> <p>Ecological Balance: Provide nesting and breeding sites for birds and wildlife, promoting balance in the ecosystem.</p>
<p>Fast Radio Burst</p> 	<ul style="list-style-type: none"> ➤ Fast Radio Bursts (FRBs) are mysterious emissions of radio light from distant galaxies. ➤ FRBs emit as much energy in a millisecond as the sun does over weeks. ➤ They are transient and fleeting radio waves, challenging to study using large radio telescopes. ➤ Origins are believed to come from the embers of dying stars. ➤ Recent study of repeating FRB 20190520B revealed highly variable magnetic field strength, suggesting a binary star system. ➤ Radio telescopes play a crucial role in studying FRBs and exploring cosmic mysteries. ➤ First FRB discovered in 2007, with 140 more found until June 2021, but their origins remain unknown.
<p>Gulf Stream Alert</p> 	<ul style="list-style-type: none"> ➤ Gulf Stream system is a warm ocean current influencing Atlantic currents and European weather. ➤ Scientific study warns Amoc could collapse by 2025 due to increasing global temperatures and freshwater inflow. ➤ Collapse may lead to lower temperatures in Europe by 10-15 degrees and rising sea levels in the eastern US. ➤ Uncertainty remains; exact timing and certainty of collapse are not well-established. ➤ Possibility of abrupt changes in North Atlantic climate system is significant and should not be dismissed.
<p>PM Kisan Samruddhi Kendra</p> 	<p>About PM Kisan Samruddhi Kendra:</p> <ul style="list-style-type: none"> ➤ PM Kisan Samruddhi Kendra (PMKSK) is a farmer-centric initiative by the Government of India under the Ministry of Chemicals and Fertilisers. ➤ It aims to convert retail fertilizer shops into farmer service centers across the country. ➤ PMKSK provides various agricultural services, including agri-inputs distribution, soil and seed testing facilities, and information about government schemes. ➤ The government plans to establish 1.25 lakh PMKSKs across the country. ➤ Capacity building of retailers at block/district level outlets is a key focus. ➤ PMKSK supports farmers' financial needs through Direct Benefit Transfer (DBT). ➤ It promotes sustainable farming practices and soil health management.

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Sea Grasses



- Seagrasses act as natural sinks, storing more carbon per square mile than forests on land and helping combat climate change.
- Seagrass areas in Europe reduced by one-third between the 1860s and 2016, contributing to increased carbon emissions and global warming.
- The SeaStore Seagrass Restoration Project in Kiel, Germany, led by GEOMAR Helmholtz Centre, involves training local citizens to restore seagrass meadows autonomously.
- Seagrasses support fisheries, protect coastlines from erosion, and contribute to marine biodiversity.
- Restoration efforts use hand-planted shoots instead of seeds, making the process more efficient.
- The initiative aims to scale up seagrass restoration efforts to re-green the Baltic Sea and preserve its ecological balance.

Place in News

New Mexico Desert

On July 16, 1945, the first-ever atomic bomb test, known as the Trinity test, took place in the New Mexico desert as part of the Manhattan Project.

Location: The New Mexico Desert is located in the southwestern United States, primarily in the state of New Mexico, and is a part of the larger Chihuahuan Desert, which extends into Mexico.

Biodiversity: Supports diverse plant and animal species adapted to the arid environment.

Tourist Attractions: Attracts visitors with stunning landscapes, national parks like White Sands National Park, and outdoor activities.

White Sands Missile Range: The region is home to the White Sands Missile Range, a major military testing facility.

Economic Activities: Economy driven by agriculture, mining and tourism.

Ecological Concerns: Desertification and water scarcity are pressing environmental issues.



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