

1. Anthropocene Epoch

Topic: Geography

Quaternary Period with the Anthropocene Epoch

Eonothem/ Eon	Erathem/ Era	System/ Period	Series/ Epoch	Stage/ Age	millions of years ago
Phanerozoic	Cenozoic	Quaternary	Anthropocene ¹		1950 CE
			Holocene		0.0117
			Pleistocene	Upper	0.126
				Middle	0.781
				Calabrian	1.806
			Gelasian	2.588	

¹In August 2016 the Anthropocene Working Group (AWG), a special body created within the International Commission on Stratigraphy (ICS), recommended that the Anthropocene Epoch be made a formal interval within the International Chronostratigraphic Chart. The AWG recommended that the year 1950 be used as the starting point of the Anthropocene Epoch.

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In News: In a major development that could change the Earth’s official geological timeline, geologists have said sediments at Crawford Lake in Canada’s Ontario have provided evidence of the beginning of the Anthropocene epoch.

More on the Topic:

- The Anthropocene epoch is a proposed geological epoch that began when **human activity started to have a significant impact on the Earth.**
- Members of **the Anthropocene Working Group (AWG)**, which has been working since 2009 to make the Anthropocene part of the planet’s time scale, the 35 geologists have estimated that the new epoch started sometime between 1950 and 1954.
- They revealed the findings after analysing the lake’s bottom sediments, which have over the years captured the fallouts of large-scale burning of fossil fuels, explosion of nuclear weapons and dumping of plastic and fertilisers on land and in water bodies.
- The data show **a clear shift from the mid-20th century, taking Earth’s system beyond the normal bounds of the Holocene** (the epoch that started at the end of the last ice age 11,700 years ago).



- Notably, not every geologist agrees that the Anthropocene epoch is a reality as there are disagreements within the scientific community regarding when it began, or has it already begun, or if they have enough evidence to prove its advent.

What is the Anthropocene epoch?

- The Anthropocene epoch as a term was **first coined by Nobel Prize-winning chemist Paul Crutzen and biology professor Eugene Stoermer** in 2000 to denote the present geological time interval, in which the Earth's ecosystem has gone through radical changes due to human impact, especially since the onset of the Industrial Revolution.
- Numerous phenomena are associated with this epoch, such as global warming, sea-level rise, ocean acidification, mass-scale soil erosion, the advent of deadly heat waves, deterioration of the biosphere and other detrimental environmental changes.
- Many of these changes **will persist for millennia or longer and are altering the trajectory of the Earth System**, some with permanent effects.
- They are being reflected in a distinctive body of geological strata now accumulating, with the potential to be preserved into the far future.
- However, there are disagreements over enough evidence to prove its advent.

How is the Earth's geological time divided?

- The planet's geological time scale is divided into **five broad categories: eons, epochs, eras, periods, epochs and ages**.
- While eon is the broadest category of geological time, age is the smallest category.
- Each of these categories is further divided into sub-categories. For instance, **Earth's history is characterised by four eons, including Hadeon (oldest), Archean, Proterozoic, and Phanerozoic (youngest)**.

On what basis these categories are divided?

- According to the New York-based Paleontological Research Institution, "Most of the boundaries on the geological time scale correspond to the **origination or extinction of particular kinds of fossils**."
- This is also related to something called **the principle of faunal succession, which states that different kinds of fossils characterise different intervals of time**.
- At least now, we're officially in the **Phanerozoic eon, Cenozoic era, Quaternary period, Holocene epoch and the Meghalayan age**.

Source: Indian Express



2. 'SAGAR SAMPARK' Differential Global Navigation Satellite System to Strengthen Maritime Sector

Topic: Science and Technology



In News: The Union Minister of Ports, Shipping and Waterways has inaugurated an indigenous Differential Global Navigation Satellite System (DGNSS) called Sagar Sampark.

More on the Topic:

- It is an **enhancement system that corrects the errors and inaccuracies in the Global Navigation Satellite System (GNSS)** and provides more accurate positioning information.
- The launch of Sagar Sampark at six locations will assist **the Director General of Lighthouses and Lightships (DGLL)** to provide radio aids to ships for marine navigation.
- The navigation system **helps mariners to improve their positioning within 5 meters after recapitalisation with multiple satellite constellations** like the Global Positioning System (GPS) and the Global Navigation Satellite System (GLONASS).
- Sagar Sampark **significantly improves the accuracy of GPS positioning and reduces errors caused by atmospheric inferences, satellite clock drift, and other factors.**
- The error correction accuracy has been improved from 5 to 10 meters to less than 5 meters for 100 Nautical Miles (NM) from Indian coastlines.

Global Navigation Satellite Systems:



- Global Navigation Satellite Systems (GNSS) **include constellations of Earth-orbiting satellites that broadcast their locations in space and time, networks of ground control stations, and receivers that calculate ground positions by trilateration.**
- GNSS are used in all forms of transportation: space stations, aviation, maritime, rail, road and mass transit.
- Positioning, navigation and timing (PNT) play a critical role in telecommunications, land surveying, law enforcement, emergency response, precision agriculture, mining, finance, scientific research and so on.
- They are used to control computer networks, air traffic, power grids and more.
- **At present GNSS include two fully operational global systems, the United States Global Positioning System (GPS) and the Russian Federation's GLONASS, as well as the developing global and regional systems, namely Europe's European Satellite Navigation System (GALILEO) and China's COMPASS/Bei-Dou, India's Regional Navigation Satellite System (IRNSS) and Japan's Quasi-Zenith Satellite System (QZSS).**
- Once all these global and regional systems become fully operational, the user will have access to positioning, navigation and timing signals from more than 100 satellites.

Source: Hindu



3. State of Food Security and Nutrition in the World (SOFI) Report

Topic: Reports and Indices



In News: FAO, International Fund for Agriculture Development, UNICEF, UN world food Programme and WHO have jointly released SOFI 2023.

More on the Topic:

Highlights from the Report:

- Over **122 million more people have gone hungry in the world since 2019** due to the COVID-19 pandemic, repeated weather shocks and conflicts, including the Russia-Ukraine conflict.
- The **prevalence of moderate or severe food insecurity in 2022 was still far above pre-COVID-19-pandemic levels**, although it remained unchanged compared to 2021.



- If trends remain as they were, the **UN-mandated Sustainable Development Goal (SDG) of ending hunger by 2030 will not be reached.**
- About 29.6 per cent of the global population 2.4 billion people were moderately or severely food insecure in 2022, of which about 900 million (11.3 per cent of people in the world) were severely food insecure.
- Almost 600 million people will be chronically undernourished in 2030.

Important Trends/Projections from the Report:

- The analysis featured **increasing urbanisation as one of the megatrends that were driving changes in agrifood systems** and, as a consequence, their capacity to deliver affordable, healthy diets for all, across the rural-urban continuum.
- With **almost seven in ten people projected to live in cities by 2050**, the simple concept of a rural-urban divide was no longer useful to understand the growing links across urban, peri-urban and rural areas.
- This growing connectivity across the rural-urban continuum is a key aspect today to understanding the functioning of value chains.
- Only then can the challenges and the opportunities that urbanisation creates for agrifood systems be mapped onto appropriate policy, technology and investment solutions.

Recommendations:

- **Enhancing connectivity among urban, peri-urban, and rural areas** to expand the availability of affordable nutritious diets.
- **Enhancing accessibility to agricultural inputs and improving irrigation infrastructure** to support food production.
- **Scaling up public investment in research and development** to foster the creation of technologies and innovations that promote healthier food environments.

Source: Hindu



4. AuditOnline

Topic: e-Governance



In News: The Action Taken Report (ATR) Module of AuditOnline was launched by the Ministry of Panchayati Raj (MoPR).

More on the Topic:

- **To promote greater transparency and accountability in Panchayat audits**, the Ministry of Panchayati Raj launched the AuditOnline application in April 2020, enabling online audits of Panchayat accounts and further strengthening financial management and transparency.
- States have achieved significant progress, generating over 200,000 Audit Reports in the two last two audit periods 2020–21 and 2021–22.
- AuditOnline is **an open-source application, developed as a part of the Panchayat Enterprise Suite under the e-panchayat Mission Mode Project (MMP)**, initiated by the Ministry of Panchayati Raj (MoPR).

Source: HT

5. Phosphate Rock Deposit

Topic: Geography



In News: A massive underground deposit of high-grade phosphate rock has been discovered in Norway, containing enough minerals to meet global demand for those products for the next 50 years.

More on the Topic:

- Phosphate Rock is a **sedimentary rock** formed by the accumulation of organic matter on the ocean floor.
- Phosphate rock is used in the **production of phosphorus**, an essential component in the fertilizer industry.
- 90% of the world's mined phosphate rock goes toward **agriculture**.
- It's also used in **the production of lithium-iron-phosphate batteries for electric vehicles, solar panels, and in small quantities in semiconductors and chips**.
- All these products have been designated by the European Commission as "of strategic importance" in the production of key technologies for the green and digital transition.

Source: Hindu

6. Nature Restoration Law

Topic: Environment and Ecology



In News: European Union has passed the Nature Restoration Law recently.

More on the Topic:

- It aims to repair the damage done to Europe's nature by 2050.
- The nature restoration law will place recovery measures on 20% of the EU's land and sea by 2030, rising to cover all degraded ecosystems by 2050.

Source: IE

7. Executive Board of Association of World Election Bodies (A-WEB)

Topic: Polity and Governance



In News: The Chief Election Commissioner of India, Rajiv Kumar attended the 11th meeting of the (A-WEB) in Colombia to underscore the importance of international collaboration in safeguarding election integrity.

More on the Topic:

- A-WEB, which comprises **119** Electoral management bodies (EMBs) as members and **20** regional associations/organizations as associate members, provides a platform for EMBs to learn from one another and enhance their electoral management processes.
- By sharing expertise and strategies, **EMBs can effectively address common challenges and improve election integrity globally.**
- **The Election Commission of India served as the Chair of A-WEB** from 2019 to 2022 and currently holds a position on its Executive Board for the 2022-24 term.
- In New Delhi, an **India A-WEB Centre** has been established to facilitate the exchange of best practices, as well as provide training and capacity building for officials from A-WEB member organizations.

Source: Hindu