



Meghalayan Age

Why in News?

- Geologists have decided to classify the **past 4,200 years** as the Meghalayan Age.
- It is the **most recent unit** of the **Geologic Time Scale** in the 4.6 billion-year history of the Earth.
- Following this, the International Chronostratigraphic Chart, which depicts the timeline for Earth's history will be updated.

What is Meghalayan Age?

- The “**Meghalayan Age**” began 4,200 years ago and experienced an **abrupt mega- drought and cooling around the globe**.
- The drought and the cooling lasted two centuries and severely impacted agricultural-based societies that developed in several regions after the end of the last Ice Age.
- It resulted in the **collapse of civilisations** in Egypt, Greece, Syria, Palestine, Mesopotamia, the Indus Valley, and the Yangtze River Valley.
- Evidence of the 4,200-year climatic event has been found on all seven continents.
- This age is considered unique as this was the **only age which began with a global cultural event** produced by a **global climatic event**.
- Geologists have also introduced **two other age classifications**:
 - **Greenlandian Age (11,700 - 8,326 years ago)** - began when the last ice age ended and the world began to warm up.
 - **Northgrippian Age (8,326 - 4,200 years ago)** - began after an abrupt global cooling started following the Greenlandian Age.
- Together, these three stages stretch across the **Holocene Epoch**, which is the current geological time unit - **having started 11,700 years ago**.

What is Holocene Epoch?

- The Holocene epoch falls under **Cenozoic Era** and is the time after **Ice Age**. Each subdivision of the Holocene Epoch is marked out by sediments accumulated on sea floors, lake bottoms, glacial ice and in stalactites and stalagmites across the world.
- Clues to the Greenlandian and Northgrippian stages were available at specific levels in Greenland's ice cores (snow turns into ice, and preserves a record of the climate each year). But this method did not work as well for the younger (newer) part of the Holocene as it did for the older (early) part.
- Therefore, the younger (newer) part of the **Holocene, i.e. Meghalayan Age division** was marked out by a **deviation in the types, or isotopes, of oxygen atoms** present in the layers of stalagmite rocks of **Mawmluh Cave in Meghalaya**.
- Both the **ice cores** and the **stalagmite** are now defined as “**international geostandards.**”
- The stalagmite has also been tagged a Global Boundary Stratotype Section and Points (GSSP), the first formally ratified marker of a geological time period change in India.
- Scientists used the geological age dating method to study the rock's age.

What is Geological Time Scale? //



- Geologists divide the **4.6-billion-year existence of Earth** into slices of time such as **Eon, Era, System/Period, Series/Epoch, and Stage/Age**.
- Eons are divided into Eras, Eras into Periods, Periods into Epochs, and Epochs into Ages.
- **Each slice corresponds to significant happenings** - such as the break-up of continents, dramatic shifts in climate, and even the emergence of particular types of animals and plant life.

International Commission on Stratigraphy (ICS)

- The **International Commission on Stratigraphy (ICS)** is the largest and oldest scientific body in the **International Union of Geological Sciences (IUGS)**.
- It is the official keeper of geologic time, i.e. it precisely defines units (periods, epochs, and age) of the Geologic Time Scale.

Mawmluh Cave, Meghalaya

- Located at an elevation of 1,290 metres, Mawmluh cave is one of the **longest and deepest caves in India**.
- The caves provide important record of Holocene palaeoclimate and palaeomonsoon since they are not subjected to diagenesis, erosion and terrestrial deposits.
- The conditions here were suitable for preserving chemical signs of oxygen transition in ages.

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[For Mind Map](#)

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