Fossil Leaves from Nagaland

Prelims: *Current events of national and international importance*

Why in News?

Recently founded fossil leaves from Nagaland reveals how Antarctica shaped the Indian Monsoons.

- **Study focus** – Connection between Antarctic formation and Indian monsoon evolution.
- **Organizations involved** – Research led by the Birbal Sahni Institute of Palaeosciences (Lucknow) and Wadia Institute of Himalayan Geology (Dehradun).

Birbal Sahni Institute of Palaeosciences and Wadia Institute of Himalayan Geology, both are *autonomous institutes of the* ***Department of Science and Technology (DST)****.*

Fossil leaves collected from the Nagaland belonging to ~34 Million-year age used in the study

- **Fossil discovery location** – Laisong formation, Nagaland.
- **Age of fossils** – Approximately 34 million years old.
- **Methodology used** – CLAMP (Climate Leaf Analysis Multivariate Program) to analyze fossilized leaves.
- **Significance** – Indicates that the region once thrived in a warm and wet climate.
- **Climate Reconstruction Findings**
- **Past conditions** – Evidence of very high rainfall and temperatures in ancient Nagaland.
- **Study results** – Suggested a much wetter and warmer environment compared to present-day conditions in Nagaland matched the global timing of Antarctic glaciation
- This links ice growth at the South Pole with tropical rainfall in India.
- **Link to Antarctic Glaciation**
- **Timing** – Fossil age correlates with the onset of massive ice sheet formation in Antarctica.
- **Global Connection** – Growth of Antarctic ice likely shifted wind and rainfall patterns.
- **Impact on India** – This shift brought intense monsoonal rains to Northeast India.
- **Implications for future climate**
- **Warning sign** – Modern climate change and Antarctic ice melt could lead to a shift in the Intertropical Convergence Zone (ITCZ).
- **Potential consequences** – Disruption of monsoon patterns, which are crucial for agriculture and water supply in India and surrounding regions.
- **Importance of understanding climate changes** – Events in one part of the world

impact conditions elsewhere.
- Insights from ancient shifts can inform future preparedness for climatic challenges.

Reference

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