



## 7. Short News

### NOR'WESTER (KALBAISAKHI STORMS)

Context- Severe Nor 'wester storms caused deaths and damage in Odisha, highlighting their destructive pre-monsoon impact in eastern India.

#### About Nor 'wester

1. Nor'westers are severe pre-monsoon thunderstorms occurring during March–May in eastern India and Bangladesh, locally called Kalbaisakhi and Bordoisila (Assam).
2. Formation- They form due to the interaction of warm, moist winds from the Bay of Bengal and cool, dry north-westerly upper-level winds, creating atmospheric instability.
3. Impact on Weather
  1. Extreme Weather Events- They bring strong winds, heavy rainfall, lightning, and hailstorms, often causing sudden weather changes.
  2. Destruction and Hazards- High wind speeds can uproot trees, damage houses, disrupt power supply, and cause casualties.
  3. Local Cooling Effect- They provide temporary relief from intense summer heat in eastern India.

#### Significance

1. Agriculture- Pre-monsoon showers help jute, rice, and tea cultivation, but excessive intensity can damage crops.
2. Cultural Reference- Known as Kalbaisakhi, they are deeply embedded in regional folklore and seasonal identity of Bengal and Assam.
3. Climatic Importance- They indicate transition from dry summer to monsoon, playing a role in regional weather dynamics.

#### Major Local Winds in India

1. Loo (North India & Pakistan)- Extremely hot, dry winds blowing during May–June across the Indo-Gangetic plains, often causing heatstroke and dehydration.
2. Mango Showers (Karnataka & Kerala)- Pre-monsoon rains that aid early ripening of mangoes.
3. Bordoisila (Assam)- Intense, fast-moving pre-monsoon storms causing damage.
4. Andhi / Kali Aandhi (Northwest India)- Dust storms in Rajasthan, Punjab, and Haryana, leading to sudden cooling and reduced visibility.
5. Tea Showers (Assam, Odisha)- Pre-monsoon rainfall crucial for tea plantations.
6. Sea & Land Breezes (Coastal India)- Daily wind cycles regulating coastal temperatures—sea breeze cools land by day, land breeze flows seaward at night.

#### Quantum Labs

Context- The Government of India has approved 23 institutions to set up quantum labs under the National Quantum Mission (NQM).

#### Quantum Labs

1. Quantum labs are specialised facilities for teaching, training, and research in quantum technologies under the National Quantum Mission.
2. Capacity Building- They aim to develop a skilled workforce in areas like quantum computing, communication, and sensing.



3. Research & Innovation- Promote indigenous R&D and innovation in advanced technologies such as quantum cryptography and materials.

## National Quantum Mission

1. NQM is India's comprehensive programme launched in 2023 to develop cutting-edge quantum technologies for strategic, scientific, and economic advancement.
2. Implementing Body- The Department of Science & Technology (DST).
3. Funding and Duration- Total cost of Rs. 6003.65 crore from 2023-24 to 2030-31.
4. Objective- It aims to build capabilities in quantum computing, quantum communication, quantum sensing, and quantum materials including developing 50-1,000 qubit quantum computers.
5. Global Context- India becomes the seventh country to launch a dedicated quantum mission after the US, Austria, Finland, France, Canada, and China.

## 8.2 KA COOLING EVENT

Context- Scientists have found that a sudden cooling event in Greenland around 8,200 years ago led to a weakening of the Indian Summer Monsoon, highlighting global climate linkages.

1. Researchers collected sediment cores from Tuman Lake in Korba, Chhattisgarh, and examined fossil pollen preserved in it.
2. By analysing pollen grains, they reconstructed past vegetation patterns, which helped them infer ancient climate conditions.

### What is the 8.2 ka Cooling Event?

1. The 8.2 ka Cooling Event was a sudden and short-lived global cooling phase that occurred around 8,200 years ago during the Holocene epoch.
  1. The Holocene Epoch is the current geological epoch, spanning approximately the last 11,700 years since the end of the last major ice age.
2. Temperature Decline- During this event, Greenland temperatures dropped by about 3°C within a relatively short period.
3. Cause- The primary trigger was the sudden release of massive freshwater from Lake Agassiz into the North Atlantic via Hudson Bay.
4. This influx disrupted the Atlantic Meridional Overturning Circulation (AMOC), which regulates global heat distribution.
  1. AMOC is a massive system of ocean currents acting as a global conveyor belt, transporting warm surface water from the tropics to Europe and returning cold, dense water south.
  2. It is critical for regulating global climate, particularly keeping Northern Europe temperate.

### Global Climate Impacts of the 8.2 ka Cooling Event

1. Weakening of Monsoon- Global cooling led to a decline in monsoon intensity, including the Indian Summer Monsoon, reducing rainfall in tropical regions.
2. Changes in Hydrological Cycle- Altered rainfall patterns, causing some regions to become drier while others experienced climatic instability.
3. Decline in Atmospheric Methane- Methane levels dropped significantly, indicating reduced wetland activity and changes in ecosystem productivity.
4. Teleconnection- Demonstrates Teleconnection, linking high-latitude climate changes with tropical regions.