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22 March 2024

National and International News

Study Finds Spring Season 'Disappearing' in Many Indian States

Meteorological Factors:

- Meteorologists attribute warming in southern India and reduced rainfall in the north during winter to changes in Western Disturbances and the jet stream pattern.

Implications:

- Northern India may experience abrupt transitions from cool winter-like temperatures to warmer conditions in March.
- Rajasthan showed the largest jump in warming rates from January to February (2.6°C higher).
- Nine States and territories, including Delhi and Uttar Pradesh, showed a significant January-February temperature difference, contributing to the disappearance of spring-like conditions.

Context:

- Climate Trends agency analyzed meteorological records from 1970 to present for 33 Indian States and Union Territories.

Key observations:

Warming Trends:

- **All regions experienced net warming during winter.**
- **Manipur had the largest change in temperature since 1970 (2.3°C), while Delhi had the smallest (0.2°C).**
- Winter is the fastest warming season for 12 out of 34 regions analyzed.

Regional Variations:

- **Southern regions experienced strong warming in December and January.**
- Northern regions had weaker warming and even cooling during December and January.
- **All regions warmed in February, with Jammu and Kashmir experiencing the highest warming (3.1°C) and Telangana the lowest (0.4°C).**

About Jet Streams:

- **Definition:** Western disturbances refer to extratropical storm systems that originate in the Mediterranean region and move eastwards across the Middle East and into the Indian subcontinent.
- **Impact on Weather:** These disturbances bring precipitation, primarily in the form of rain or snow, to various parts of the Indian subcontinent, especially the northern and western regions, during the winter months.
- **Winter Precipitation:** In India, western disturbances are crucial for bringing winter rainfall to regions like northwest India, including Punjab, Haryana, Rajasthan, and parts of Uttar Pradesh and Jammu and Kashmir.
- **Temperature Regulation:** They often lead to a decrease in temperature, bringing relief from winter dryness and contributing to agricultural activities by replenishing soil moisture.
- **Jet Stream Connection:** Western disturbances are closely associated with changes in the polar jet stream, influencing their intensity and trajectory across the Indian subcontinent.



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Ramgarh Crater as Geo-Heritage Sites



Context:

Situated in Baran district, Rajasthan, Ramgarh Crater is designated as a geo-heritage site by the Rajasthan government.

Key points:

- Formed approximately 165 million years ago due to a meteor impact, it is a 3-kilometer diameter crater contributing significantly to the region's ecological balance and biodiversity.
- Recognized as the Ramgarh Conservation Reserve, it is safeguarded under the **Wildlife (Protection) Act, 1972**, to preserve its unique ecological and cultural heritage.
- The presence of the Pushkar Talab complex within the crater is acknowledged as wetlands under the Wetland (Conservation & Management) Rules, 2017.

Geo-Heritage Site/National Geological Monuments:

- **Geoheritage sites have significant scientific, educational, cultural, or aesthetic value due to their geological features.**
- They often showcase unique rock formations, fossils, or landscapes crucial for education, research, cultural significance, or visual appeal.
- The Geological Survey of India (GSI) and State governments safeguard these sites, declaring them as geo-heritage sites/national geological monuments.
- **Established in 1851, GSI operates under the Ministry of Mines, headquartered in Kolkata, focusing on national geoscientific information creation and mineral resource assessment.**



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Lianas



Context:

- Lianas, woody vines that climb trees, restrict tree growth by competing for sunlight in the canopy.
- They have lower carbon sequestering capacity compared to trees, which increases the threat to carbon storage.
- Lianas can accelerate global warming by reducing forests' efficacy as carbon sinks and disrupting carbon cycles.

Challenges:

- Lianas grow in disturbed forests and at higher temperatures, often outcompeting trees for sunshine and resources.
- Their resilience to climatic stress gives them a competitive advantage, especially in areas with more extreme conditions due to global warming.
- Increased lianas can harm tree growth, reduce regeneration, and disrupt nutrient cycles, making forests less resilient to future disturbances.

International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE)



International Partnership
for Hydrogen and Fuel Cells
in the Economy

Context:

India hosts 41st IPHE meeting, focusing on accelerating the hydrogen economy.

Key points:

- Established in 2003, the IPHE is an inter-governmental alliance currently comprising 23 member countries and the European Commission.
- Its primary objective is to facilitate and expedite the transition to clean and efficient energy and mobility systems utilizing hydrogen and fuel cell technologies.
- The IPHE serves as a platform for organizing and executing international research, development, demonstration, and commercial utilization activities related to hydrogen and fuel cells.
- Moreover, the IPHE informs various stakeholders, such as policymakers and the public, about the benefits and challenges associated with establishing widespread commercial hydrogen and fuel cell technologies.
- Members: Australia, Canada, European Commission, India, Netherlands, Switzerland, Austria, Chile, France, Italy, Norway, UAE, Belgium, China, Germany, Japan, South Africa, United Kingdom, Brazil, Costa Rica, Iceland, South Korea, Singapore, and the United States.

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