RECORD-BREAKING HEAT IN KASHMIR - ENVIRONMENT

NEWS: **Srinagar** recorded a maximum temperature of **37.8°C on June 29, 1978**; **July 10, 1946** remains the **hottest ever at 38.3°C**.

- Pahalgam saw its highest temperature ever recorded on July 6, 2025 at 31.6°C.
- June 2025 was the hottest in Kashmir in **almost five decades.**

WHAT'S IN THE NEWS?

Traditional Climate Profile of Kashmir

- Kashmir typically experiences a **temperate climate** with **four distinct seasons**: spring, summer, autumn, and winter.
- **Summer (June–August)** was historically **mild**, primarily due to the moderating influence of **western disturbances**, which brought timely rains and cooler weather.
- **Winter (December–February)** has been characterised by **heavy snowfall in the mountainous areas** and **cold rains in the plains**, ensuring snow-fed rivers in spring and summer.

Emerging Climate Trends

- **Increasing dry spells** and **erratic rainfall patterns** have been observed over the past decade.
- **Summer temperatures** have risen by about **3°C above normal**, indicating a clear warming trend.
- In **2023**, Kashmir recorded a **maximum summer temperature of 37.4°C**, marking the **third-highest ever recorded temperature**.
- The number of days with **temperatures above 35°C** has increased, with such conditions **lasting longer and occurring more frequently**.

Hydrological Impact on Water Resources

- The **Jhelum River**, a lifeline for Kashmir's drinking water and irrigation, is **reportedly drying up in places**, a troubling development.
- Two main factors contributing to water stress include:
    - **Low winter snowfall**, reducing water stored in the form of snowpack.
    - **Early snowmelt in March**, which diminishes water availability during peak summer demand.

- The region's **snow-fed hydrology is destabilising**, which may affect downstream agriculture and urban supply.

Urbanisation as a Driver of Rising Temperatures

- **Urban Heat Islands (UHIs)** have emerged in cities like **Jammu and Srinagar**, where temperatures are **significantly higher** than surrounding rural areas.
- Causes of UHIs include:
    - **Loss of natural vegetation and tree cover**, reducing shade and cooling.
    - **Rapid concretisation** of surfaces, which absorb and retain heat.
    - **Increased vehicular and industrial activity**, adding heat and pollution.
    - **Shrinking green belts, wetlands, and water bodies**, which once helped regulate microclimates.

Feedback Loop of Warming

- **Higher temperatures lead to increased evaporation**, which in turn **dries the soil faster**, reducing the land's cooling capacity.
- This initiates a **self-reinforcing warming loop**, where drier conditions further elevate daytime and nighttime temperatures.
- Both **maximum and minimum temperatures** are consistently registering higher-than-normal values.

Historical Heat Records in Srinagar (IMD Data)

- **June:**
    - 37.8°C on June 29, 1978
    - 37.6°C on June 27, 1978
- **July:**
    - 38.3°C on July 10, 1946
    - 37.7°C on July 23, 1978
    - 37.4°C on July 5, 2005

- These records show that **extreme heat days have historically occurred**, but **current trends point to greater frequency and intensity**.

Key Factors Behind the Abnormal Heat Surge

- **Global climate change** is raising **baseline temperatures**, pushing regions like Kashmir beyond their historical temperature thresholds.
- **Urban sprawl** and poor city planning contribute to **trapped heat, reduced moisture**, and **altered local microclimates**.
- **Declining snowfall** and **early snowmelt** reduce both **natural water storage and ambient cooling** during summer months.
- **Reduced incidence of western disturbances** leads to **less rainfall**, allowing **heat to accumulate unchecked** during peak summer.

Expert Views

- **Faizan Arif (Weather Forecaster)** and **Mukhtar Ahmad (IMD Kashmir)** confirm that:
    - This is **not an isolated anomaly**, but a **recurring pattern** of unusually high temperatures.
    - The **early disappearance of snow** from mountain slopes is visible as early as **March**, leaving higher altitudes bare.
    - **Urban areas lack green infrastructure** and **thermal regulation capacity**, making cities vulnerable to heat stress.

Concerns and Implications

a. Water Stress

- **Earlier snowmelt and decreased winter snowfall** are resulting in **water scarcity during summer**, when demand is highest.

b. Agricultural Impact

- Prolonged dry spells and rising temperatures may **reduce crop yields**, damage sensitive crops, and **disturb sowing/harvesting cycles**.

c. Public Health Risks

- Higher temperatures contribute to an **increase in heat-related illnesses**, including **heatstroke, dehydration**, and **respiratory disorders**.

d. Ecosystem Disruption

- **Shifting temperature and rainfall patterns** are affecting the distribution of flora and fauna, leading to **biodiversity loss** and ecosystem imbalance.

e. Tourism Setback

- Kashmir's reputation as a **cool retreat in summer** is at risk, as **extreme heat deters tourists**, affecting local livelihoods.

Policy Takeaways and Recommendations

a. Urban Redesign and Planning

- Promote **green buildings**, **cool roofs**, and **heat-reflective materials** in construction.
- **Increase vegetation**, rooftop gardens, and tree-lined streets to counter urban heat island effects.

b. Water Conservation Strategies

- Establish **snow-capture systems** and **rainwater harvesting infrastructure** to retain winter and monsoon water.
- Protect and restore **wetlands** and **glacial lakes** as natural water storage systems.

c. Climate-Resilient Agriculture

- Introduce **drought-resistant crops**, **crop diversification**, and **climate-resilient farming techniques**.
- Provide **weather advisories and subsidies** for farmers affected by climate shocks.

d. Enhanced Monitoring and Early Warning

- Install **real-time climate sensors**, weather stations, and **AI-based forecasting tools** to monitor temperature and precipitation trends.
- Develop **community-level early warning systems** for heatwaves and water stress events.

e. Stronger Legal Zoning and Land Use Controls

- Enforce strict **zoning laws** to prevent unregulated construction in **ecologically fragile zones**.
- Integrate **climate adaptation plans** into **urban master plans** and rural development strategies.

Source: https://indianexpress.com/article/explained/explained-climate/what-is-behind-the-record-breaking-heat-in-kashmir-10110398/