

Kishtwar Flash Floods: Climate Change and Extreme Weather in Jammu & Kashmir

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KISHTWAR FLASH FLOODS



Kishtwar Flash Floods Latest News

- At least 65 people died and over 50 remain missing after a flash flood triggered by torrential rain hit Chasoti village in Kishtwar, Jammu & Kashmir. The disaster struck near the route to the Machail Mata temple.
- While scientists caution against linking any single extreme event directly to climate change, they note that rising global temperatures and shifting weather patterns have made such incidents — including flash floods and wildfires — more frequent and severe.
- In Jammu & Kashmir, as elsewhere in India, the increasing frequency of extreme weather events driven by climate change has already caused the deaths of thousands in recent years.

Extreme Weather Events in Jammu & Kashmir (2010-2022)

- Between 2010 and 2022, Jammu & Kashmir experienced 2,863 extreme weather events that claimed 552 lives, according to a 2024 study published in Mausam by IMD scientists.

- The most frequent occurrences were **thunderstorms** (1,942 incidents) and **heavy rain** (409 incidents), while **flash floods** (168 incidents) and **landslides** (186 incidents) also posed significant threats.
- Although heavy snow was less frequent (42 incidents), it caused the highest fatalities — 182 deaths — making it the deadliest weather phenomenon during this period.
- The study also highlighted that **Kishtwar, Anantnag, Ganderbal, and Doda districts** recorded the highest number of deaths from flash floods.
- Overall, the research concluded that while heavy rain and heavy snow remain the primary weather-related killers, other hazards such as flash floods, thunderstorms, and windstorms are increasingly emerging as major threats in Jammu & Kashmir.

Key Drivers of Extreme Weather Events in J&K

- Although several factors contribute to the occurrence of extreme weather events in J&K, the three significant drivers behind these events are rising temperatures, the changing pattern of Western Disturbances, and the region's topography.

Rising Temperatures and Their Impact on J&K

- The western Himalayas, where Jammu & Kashmir lies, have warmed at twice the rate of the Indian subcontinent since 2000.
- This sharp rise in temperature has intensified both mean and extreme precipitation.
- **A warmer atmosphere can hold more moisture** — about 7% extra water vapour for every 1°C rise — resulting in heavier and more frequent rainfall events that often trigger severe flooding.
- Higher temperatures have also **accelerated glacial shrinkage**, increasing the number of **unstable glacial lakes**.
 - These lakes, being relatively young, have fragile edges prone to erosion, melting, and sudden breaches.
 - When heavy rainfall occurs, they overflow, releasing slush and sediment that cause catastrophic downstream floods.
- As per climate experts, these unstable lakes make the region particularly vulnerable.
- Intense rain not only swells rivers but also destabilises glacial lakes, compounding the risk of flash floods and large-scale destruction.

Changing Nature of Western Disturbances

- Western Disturbances (WDs) are east-moving rain-bearing wind systems that originate beyond Afghanistan and Iran, gathering moisture from the Mediterranean, Black, Caspian, and Arabian Seas.
- Traditionally active in winter months (December–March), they are now increasingly affecting weather outside the winter season.
- This increases the risk of floods and heavy rainfall in India's Himalayan states, including Jammu & Kashmir.
- Climate change has altered their behaviour. The rapid warming of the Arabian Sea releases more moisture into these systems.

- When WDs extend into the North Arabian Sea, they absorb this excess moisture, intensifying rainfall over the hills.
- This shift means that **global warming is strengthening and prolonging the influence of WDs**, making extreme rainfall and flash floods more frequent in the region.

Topography and Vulnerability of J&K

- Jammu & Kashmir's hilly and mountainous terrain amplifies its exposure to extreme weather events.
- The Himalayas consist of diverse ranges that significantly influence local weather systems.
- One of the key processes is **orographic rainfall**.
 - As moist air is forced to ascend over the mountains, it cools and condenses, resulting in heavy precipitation.
 - This process makes the region more prone to sudden and intense rain, often triggering flash floods, landslides, and cloudbursts.
- The unique Himalayan topography acts as a natural trigger for extreme events, meaning that **climate change impacts** — like warming temperatures and shifting Western Disturbances — **are magnified by the terrain**.

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