



Cloudburst in Uttarakhand

Why in News?

A [cloudburst](#) in Uttarkashi, Uttarakhand caused [landslides](#), disrupted key pilgrimage routes, and left several workers missing.

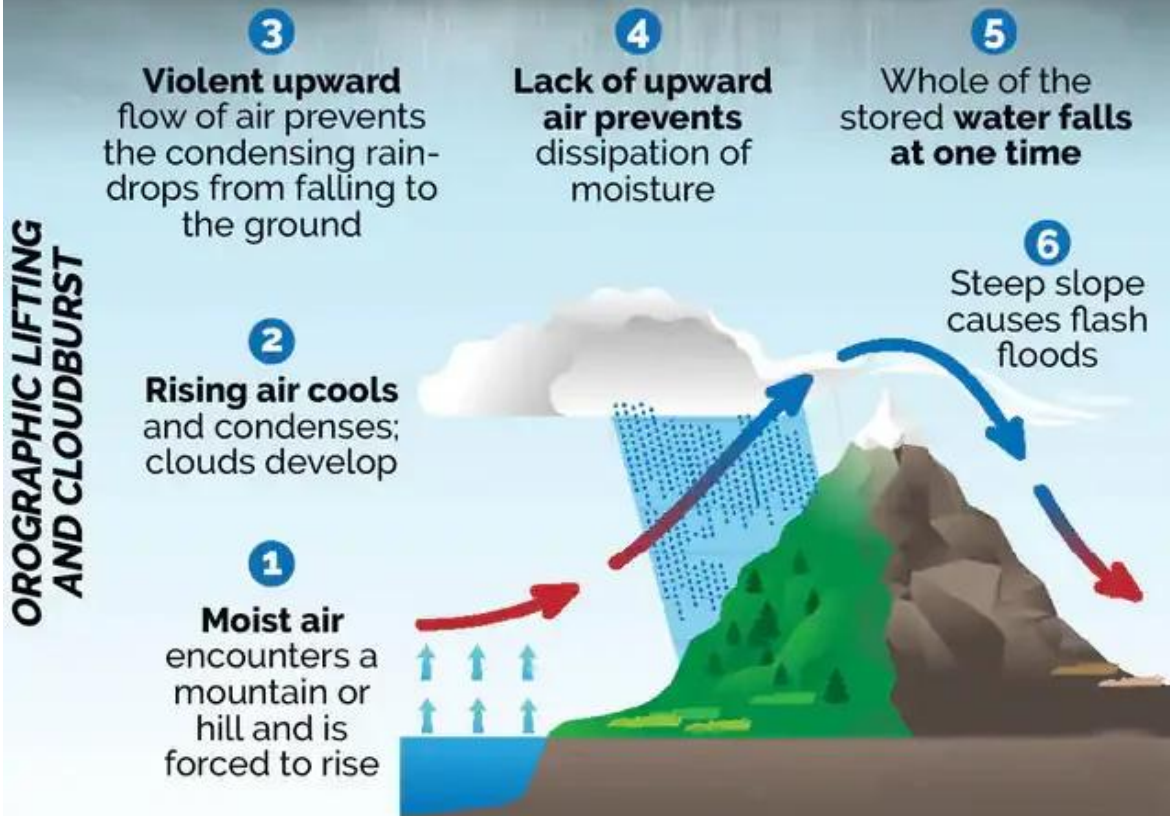
- Districts prone to [flash floods](#) and **landslides have been placed on high alert.**

Key Points

- **About Cloudburst:**
 - A cloudburst is a sudden, intense rainstorm that results in more **than 10 cm of rain** in less than an hour over a small area (approximately 10 km²).
 - It can also be accompanied by **hail and thunder**. Cloudbursts are common in **mountainous areas**, especially in the [Himalayas](#).
 - Due to their localised nature, cloudbursts are **hard to predict or detect** but can unleash sudden, devastating rainfall, leading to [flash floods](#) and landslides.

WHAT CAUSES CLOUDBURSTS?

Cloudbursts occur only via orographic lift i.e. a situation when a warm air parcel mixes with cooler air, resulting in sudden condensation.



▪ **Landslide:**

- **Definition:** A landslide is the downward movement of rock, soil, or debris on a **slope due to gravity**.
 - It is a form of **mass wasting**, where earth materials move down a slope under the influence of gravity.
- **Causes:** Natural factors like **heavy rainfall, earthquakes, and water seepage** weaken slopes, while human activities such as **deforestation and construction** increase risks. Geological factors, such as **soil composition and terrain**, also affect slope stability and can lead to landslides.

▪ **Flash Floods:**

- **Definition:** Flash floods are sudden increases in water levels during or immediately after intense rainfall.
 - They are **highly localized and short-lived events**, typically occurring within **6 hours of rainfall**.
- **Causes:** Flash floods are primarily caused by intense rainfall that overwhelms the **soil's absorption capacity and drainage systems**.
 - Apart from heavy rain, flash floods can also result from **rapid snowmelt due to sudden temperature rise**, dam or levee breaches, ice or debris jams, and sudden glacial lake outbursts.
 - Additionally, urbanisation with impervious surfaces like roads and buildings increase runoff, reducing **water absorption and intensifying flood risks**.

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