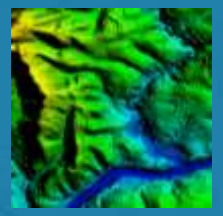
From Maps to Action: Geospatial Insights for Flood Preparedness & Volcano Hazard Monitoring

Empowering Communities Through Real-Time Satellite Data and Multi-Hazard Analysis

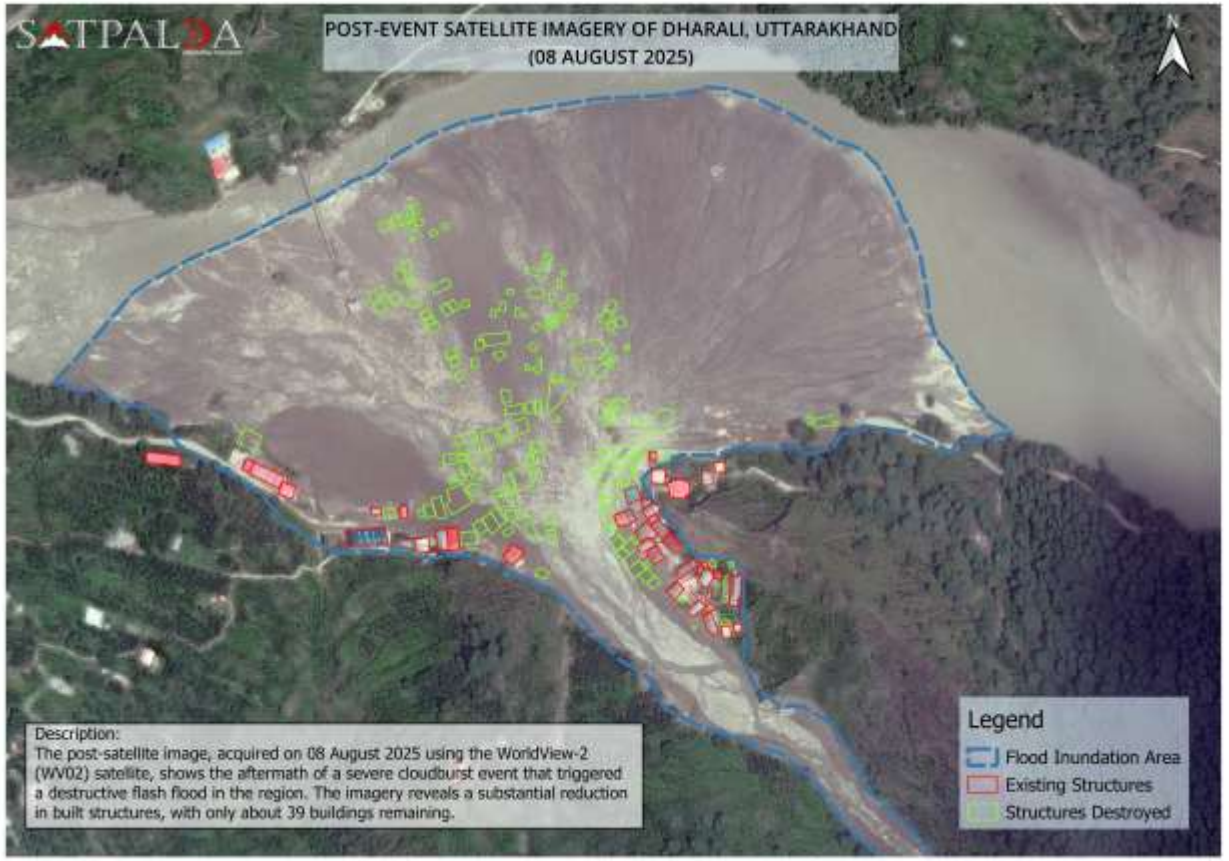






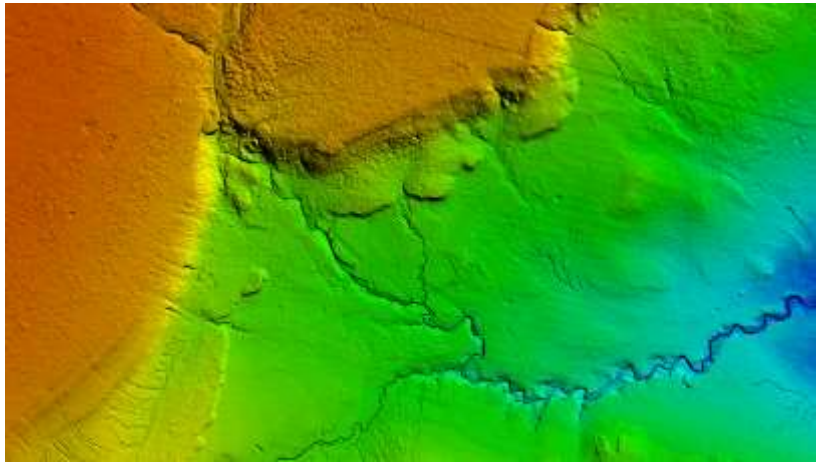


Geospatial and Flood



Flood Modeling

- Flood modeling is crucial for:
- **Disaster Preparedness:** It helps in preparing for and managing the devastating impact of flash floods, cloudbursts, and landslides that are common in the region's hilly terrain.
- **Risk Assessment:** It is used to identify and evaluate the vulnerability of critical infrastructure, such as dams, hydropower projects, and pilgrimage routes (like the Char Dham Yatra), to flood-related damage.
- **Urban and Infrastructure Resilience:** It guides the better planning of urban areas, roads, and buildings, particularly along riverbanks, to withstand flood events and debris flow.
- **Sustainable Planning and Mitigation:** It provides vital data for long-term planning and implementing mitigation strategies to reduce the loss of life and property in flood-prone areas.



Volcano Eruption

Ethiopia’s 2025 Volcano Eruption – A Rare and High-Impact Event

- Hayli Gubbi volcano in Ethiopia erupted in November 2025 — its first eruption in nearly 12,000 years, making it one of the most significant geological events in recent history.
- The eruption produced a massive ash plume reaching ~14 km, spreading across Ethiopia, the Red Sea, the Arabian Peninsula, and drifting toward South Asia.
- Satellite optical & SAR imagery captured the eruption in real time, enabling ash-cloud tracking, SO_2 detection, and hazard monitoring.
- The event disrupted aviation routes, affected local communities with ashfall, and highlighted the need for cross-border geospatial coordination.

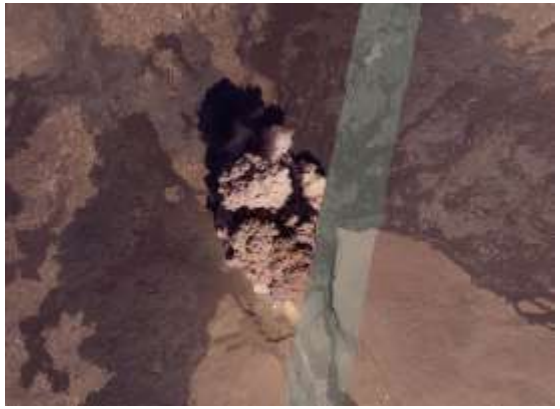


Image ref. : MODIS

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