

Need Himalayas the Why **Tailored Solutions?**

- Himalayas face ~15% of global Moisture-Driven
- Landslides (MDLs), severely impacting lives and economy.
- Global models inaccurate due to complex terrain and coarse rainfall data.
- Critical factors (terrain variability, AMC) often ignored.

Research Objectives

- Tailored rainfall thresholds (NEH vs. NWH).
- Investigate spatial and temporal variability of rainfall thresholds (weekly/sub-weekly).
- Assess influence of environmental controls (beyond rainfall) on MDLs.



• Highlights correlations of APIs values and triggering rainfall; with optimal lags (ovals) showing snowmelt-driven responses in NWH and **monsoonal saturation** in NEH.



• Landslide frequency vs. API shows optimal lags (dashed lines) where normalized daily rainfall at failure is lower than normalized APIn, suggesting stronger control of antecedent rainfall in triggering MDLs

Developing Site-Specific Rainfall Thresholds for Landslide Prediction in the Himalayas: A Comparative Assessment between Northwestern and Northeastern Himalayas EGU25-7120



Himalayas





Environmental Controls on Rainfall Threshold Variability for MDLs in the Himalayas



Regional Variability and Scaling of Rainfall Thresholds in the



Contact: davinder.fdk@kgpian.iitkgp.ac.in