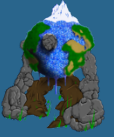


Assessing the Impact of Climate Change on Hillslope Stability Through Remote Sensing and Lab Experiments

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Problem

- Climate change is accelerating hill slope instability in permafrost regions.
- Thawing permafrost destabilizes terrain by increasing water saturation, leading to erosion and slope failure.
- My Ph.D. research examines how thawing permafrost affects landscape evolution and erosion.

Research Focus

- Utilizing remote sensing and laboratory experiments to assess soil-permafrost interactions.
- Predicting future landscape shifts in response to climate change and permafrost thaw.



Impact on Arctic Communities

- Northern communities, especially in the Arctic Circle, rely on stable terrain for infrastructure and daily life.
- Erosion poses a significant risk to infrastructure, potentially forcing relocations without proper mitigation.

Financial Implications

- FEMA projects a 55% increase in natural disaster costs due to climate change.
- Permafrost regions, particularly in Alaska, lack comprehensive national assessments.
- Insufficient data hinders the ability to predict and manage hill slope failure risks.



Solution:

- Federal agencies and legislators should fund research on permafrost thaw and hill slope erosion, especially in Arctic regions.
- Risk assessments must incorporate comprehensive data from permafrost areas to better inform national disaster planning.
- Infrastructure adaptation in northern communities should be prioritized to mitigate increased erosion risks.