Celebrating 30 years of integrated climate impact research at the Potsdam Institute.

Relationship between atmospheric rivers and landslides in western North America

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Are ARs and landslides related?

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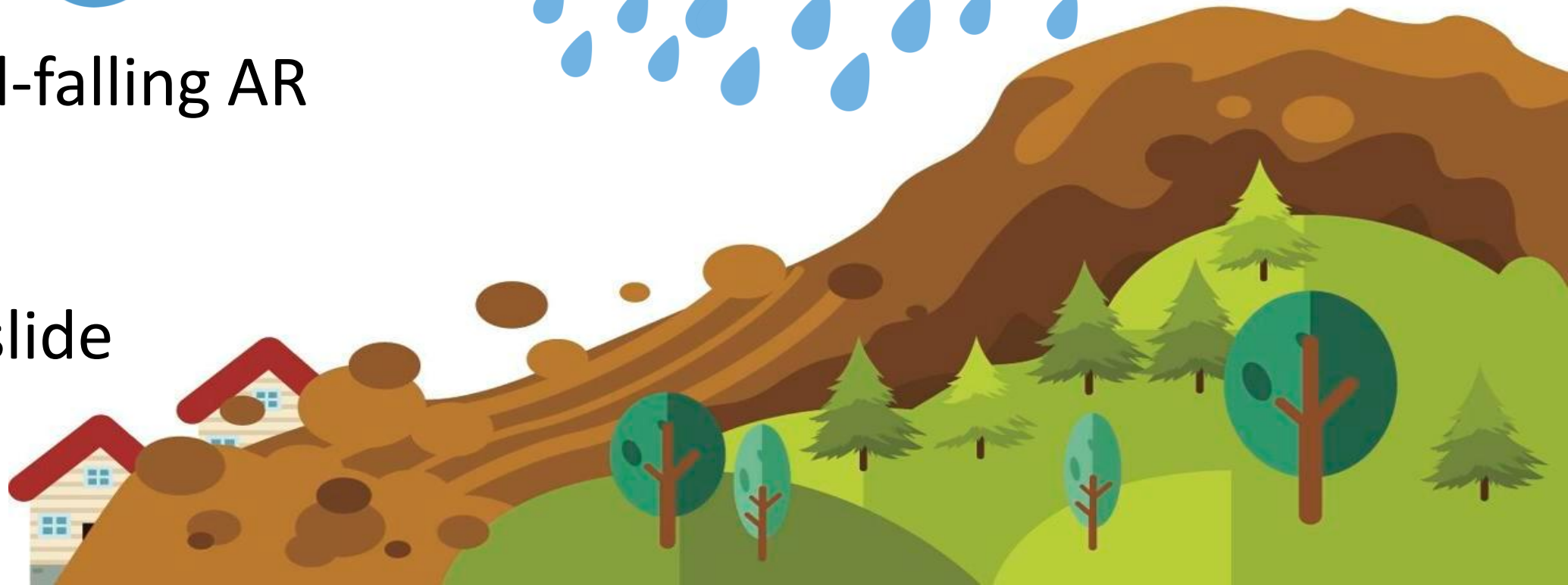
1. Land-falling AR

2. Rainfall

3. Landslide



Data

Daily precipitation estimates

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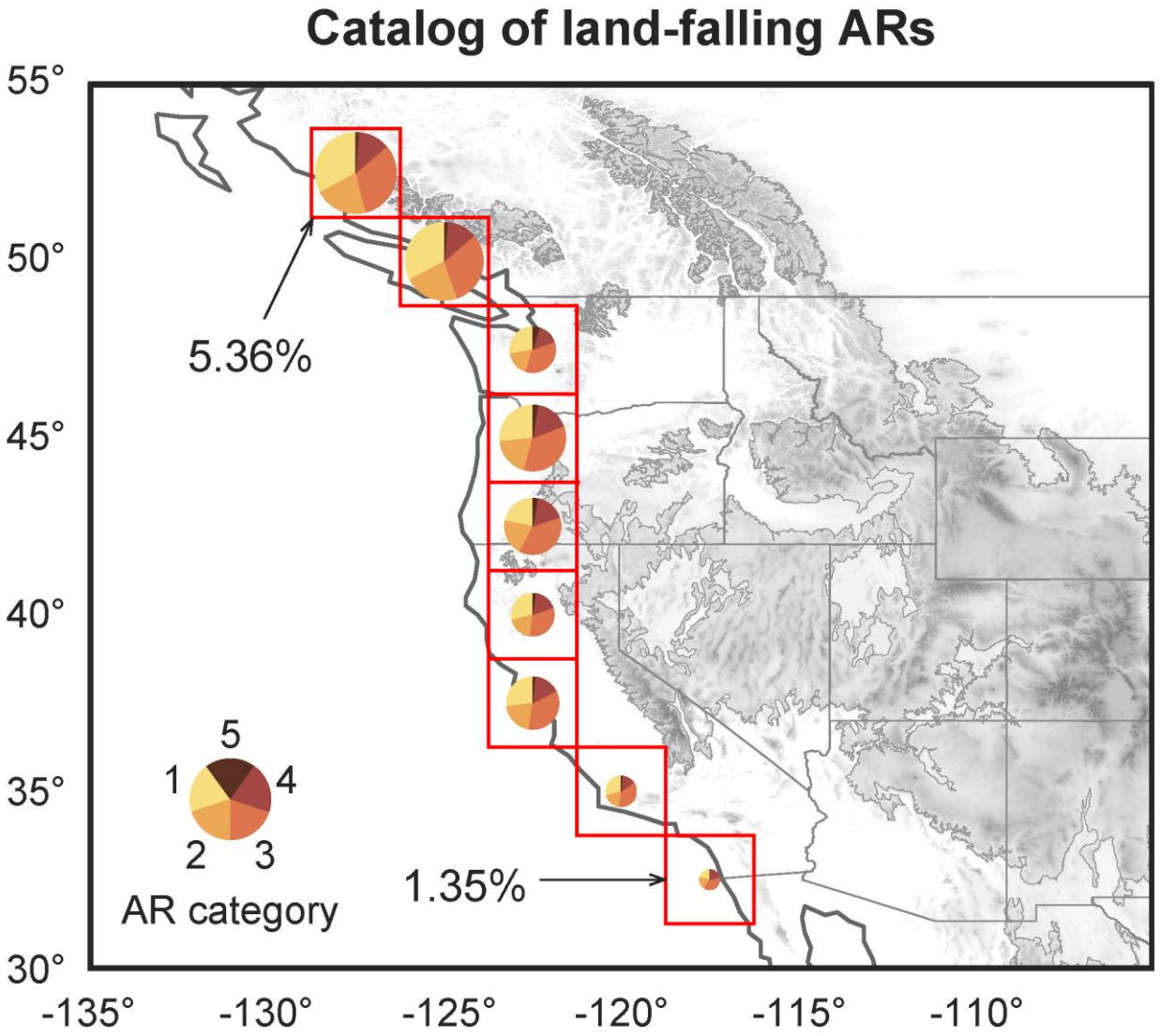

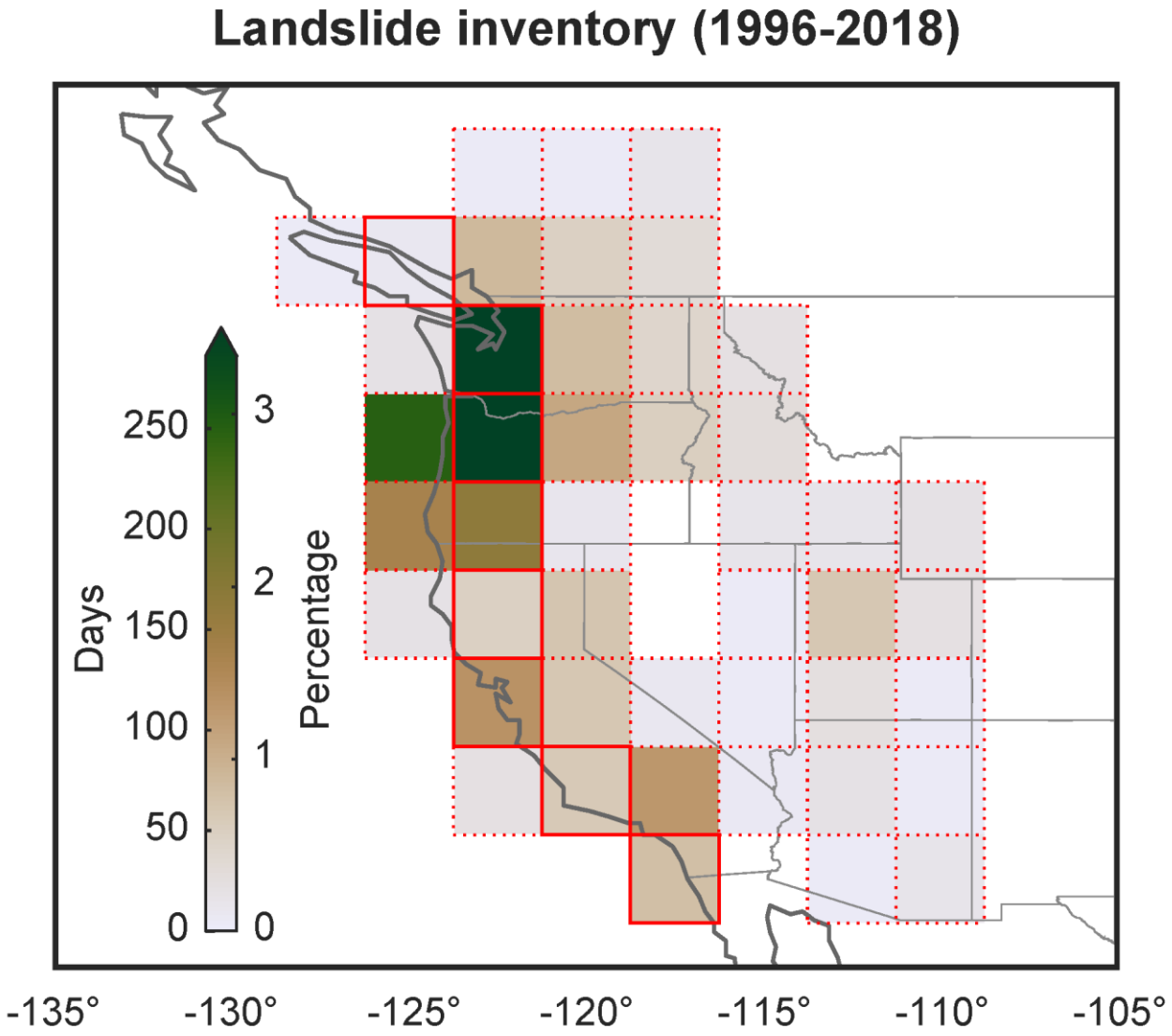

Attributing rainfall to ARs

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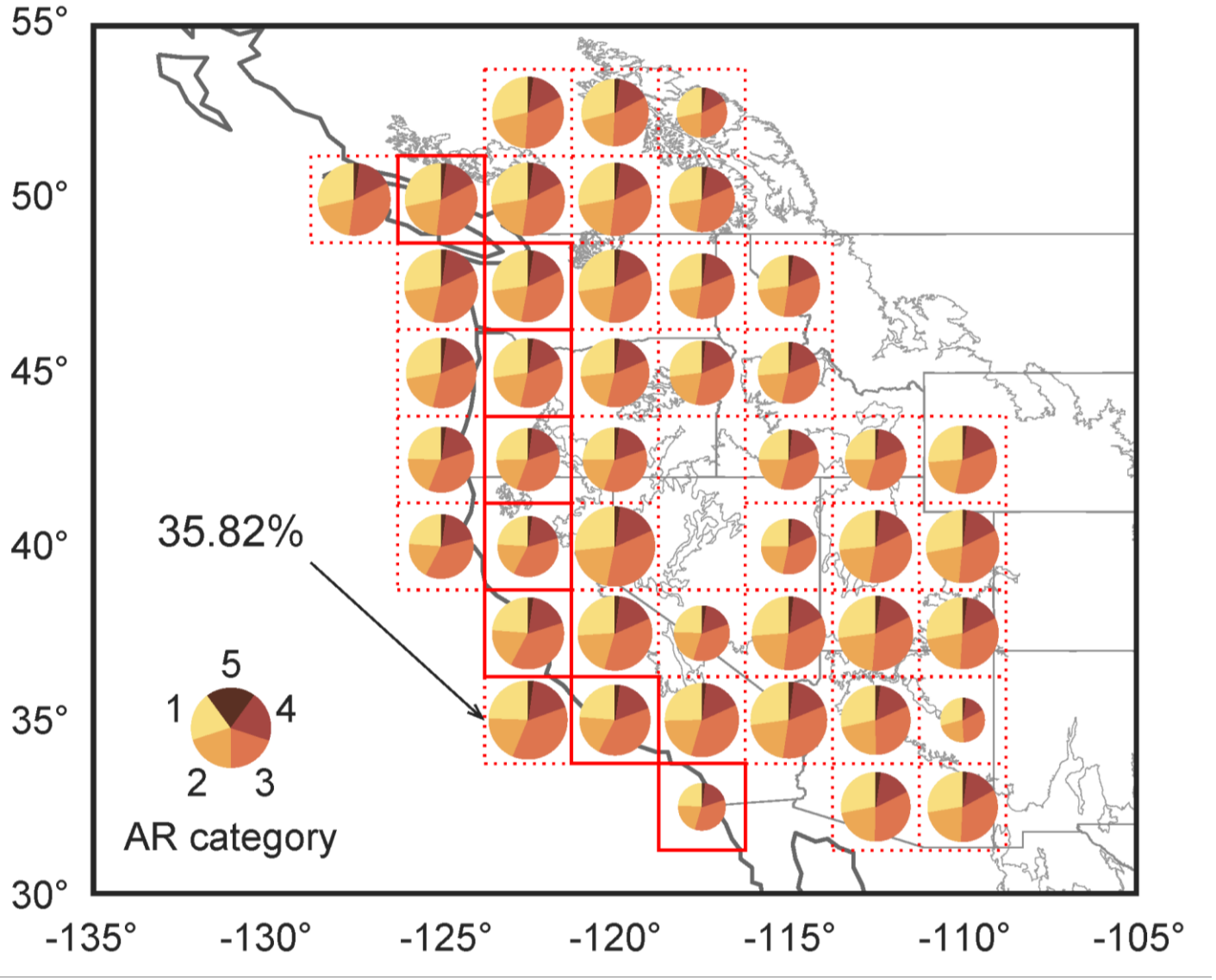

- Probabilistic attribution model
- Diameter: fraction of wet days attributed to a land-falling AR
- Slice size: contribution of each AR category

About 30% of the wet days can be attributed to a land-falling atmospheric river

Attributing landslides to rainfall

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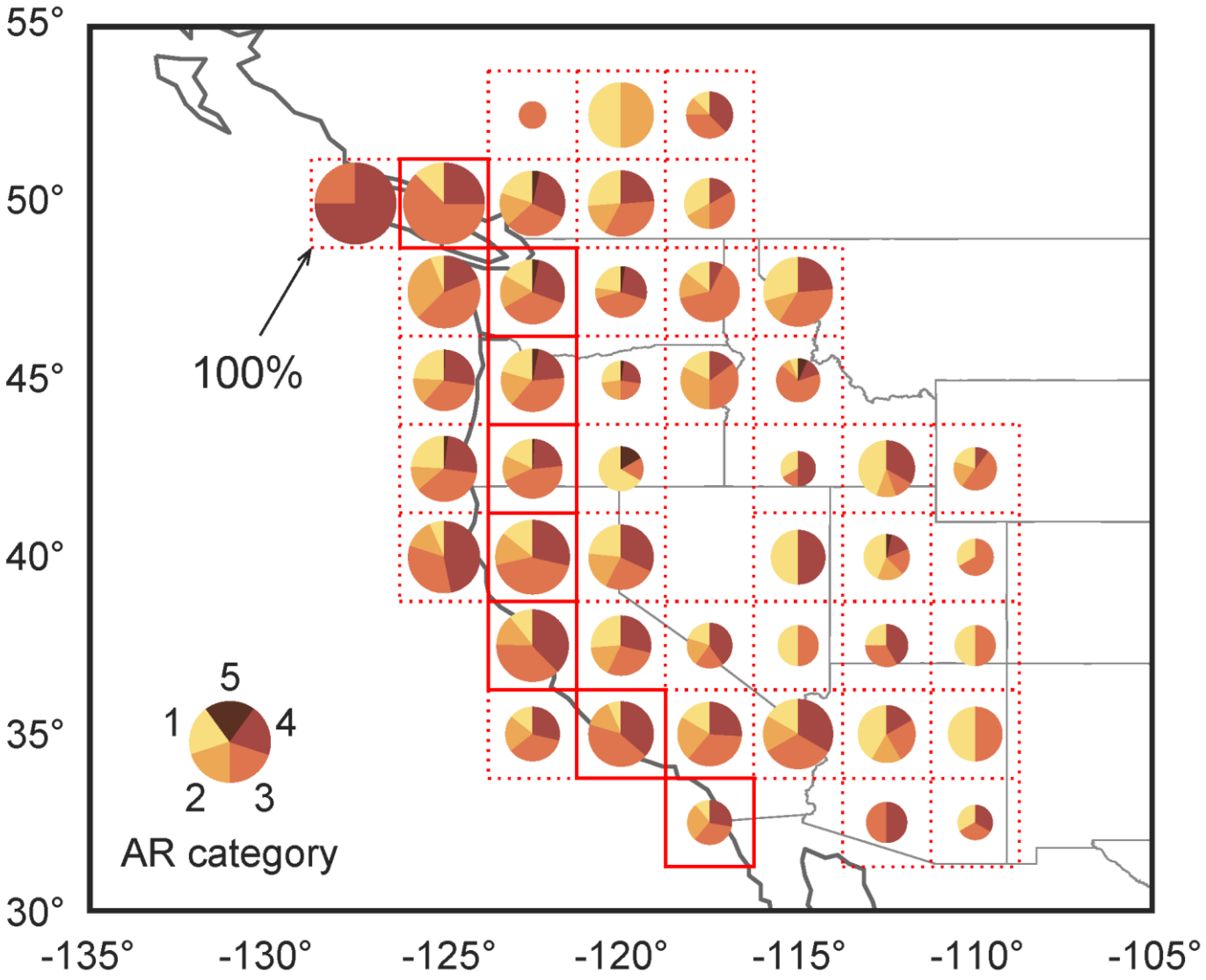

- Precedence relation
- Diameter: fraction of landslides preceded by AR-attributed rainfall
- Slice size: contribution of each AR category

Intense atmospheric rivers trigger the majority of landslides in western North America

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Can we use ARs to predict landslides?

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