

Estimating the paleo-earthquake characteristics in a stabilized accretionary wedge based on the geological record- evidence of co-seismic landslide?

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Introduction and study area

Alpine–Carpathian orogenic system of Europe



Late Cretaceous to Paleogene Flysch Belt



Czech Geological Survey

Introduction and study area



Can we establish characteristic of earthquakes that triggered landslides? What are the typical feature of earthquake-induced and rainfall-triggered landslide, respectively?



Depleted landslides and associated fault?



Post-terrain of paleo-landslide



Bedding: Sandstone/Claystone

Depleted landslides and associated fault?



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Depleted landslides and associated fault?





dewatering structure



sediment

Landslide sediment





BH 2

BH 1

missing)

sediment (top

organodetritic

cleyey washout sediment

organodetritic sediment

0 cm

50 cm

subsequent landslide colluvium



Toppling relate to Earthquake?





Assumption toppling by Seismic acceleration



Hypothesis of toppling evolution



<u>Sampling</u>



Experiment-rotary shear test





Experiment-rotary shear test

Sandstone

Room humidity, $\sigma = 0.5$ MPa, V= 1m/s



 σ = 0.5MPa, V= 1m/s, wet condition



Experiment-rotary shear test

Claystone



Numerical modeling



Future work

- Do experiment rotary-shear testing
- Continuous using PFC3D for simulation
- Incorporation to other data to answer the characters of paleoearthquakes and co-seismic landslides.

Thank you for your attention Q&A