



Using CH2018 Climate Scenarios to Predict Sediment Yield and Debris-Flow Activity in the Illgraben

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MOTIVATION

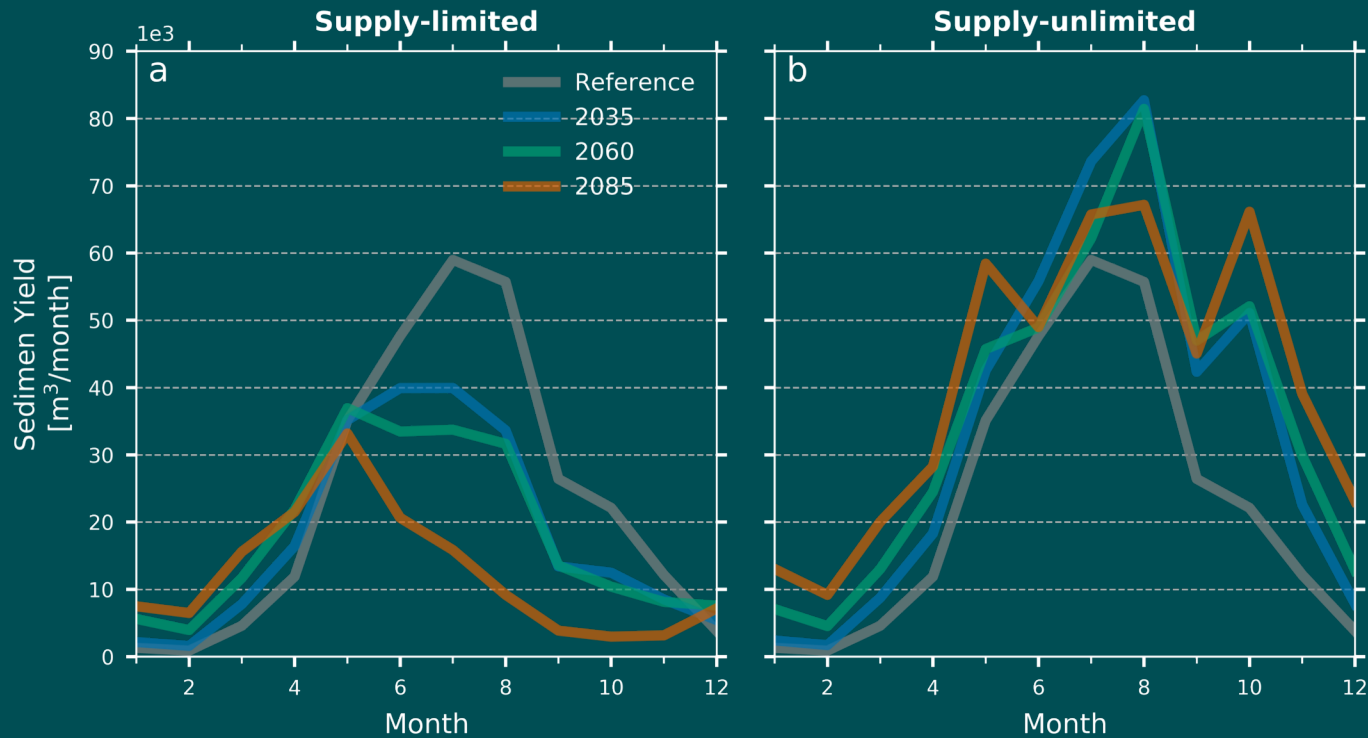
- Climatic factors drive **sediment production and transfer** processes
- **Increases** in magnitude and frequency of **Alpine mass movements** are expected due to **climate change** (e.g. IPCC, 2012)
- **Where, when and how much**, and which tools to use for assessment?

METHOD

- A **chain of climate-hydrology-geomorphology models** is used:
CH2018 → AWE-GEN (Fatichi et al., 2011) → SedCas (Bennett et al. 2014)

RESEARCH QUESTIONS

1. What are **possible climate change impacts on sediment yield** and debris flows?
2. How are changes reflected in geomorphic processes at different altitudes? Could source areas shift?
3. From climate model to internal climate variability, which are the main uncertainties?



(a) Sediment yield possibly decreases by ~50% due to reduced sediment supply from frost-weathering.

(b) If only hydrological changes were to be assessed, increases in sediment yield are predicted.

How do you quantify climate change impacts?

Answers to other research questions?

Feel free to contact me!

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*Hirschberg et al., under review in
JGR Earth Surface*