


Hidden.Ice

Changing debris cover on
Eastern Alpine glaciers:
Quantification and
hydrological impacts

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FACTS

- ÖAW Earth System Science (ESS)
- Project start: 05/2019
- Study area: LTER site Jamtal | Austria

INTRO

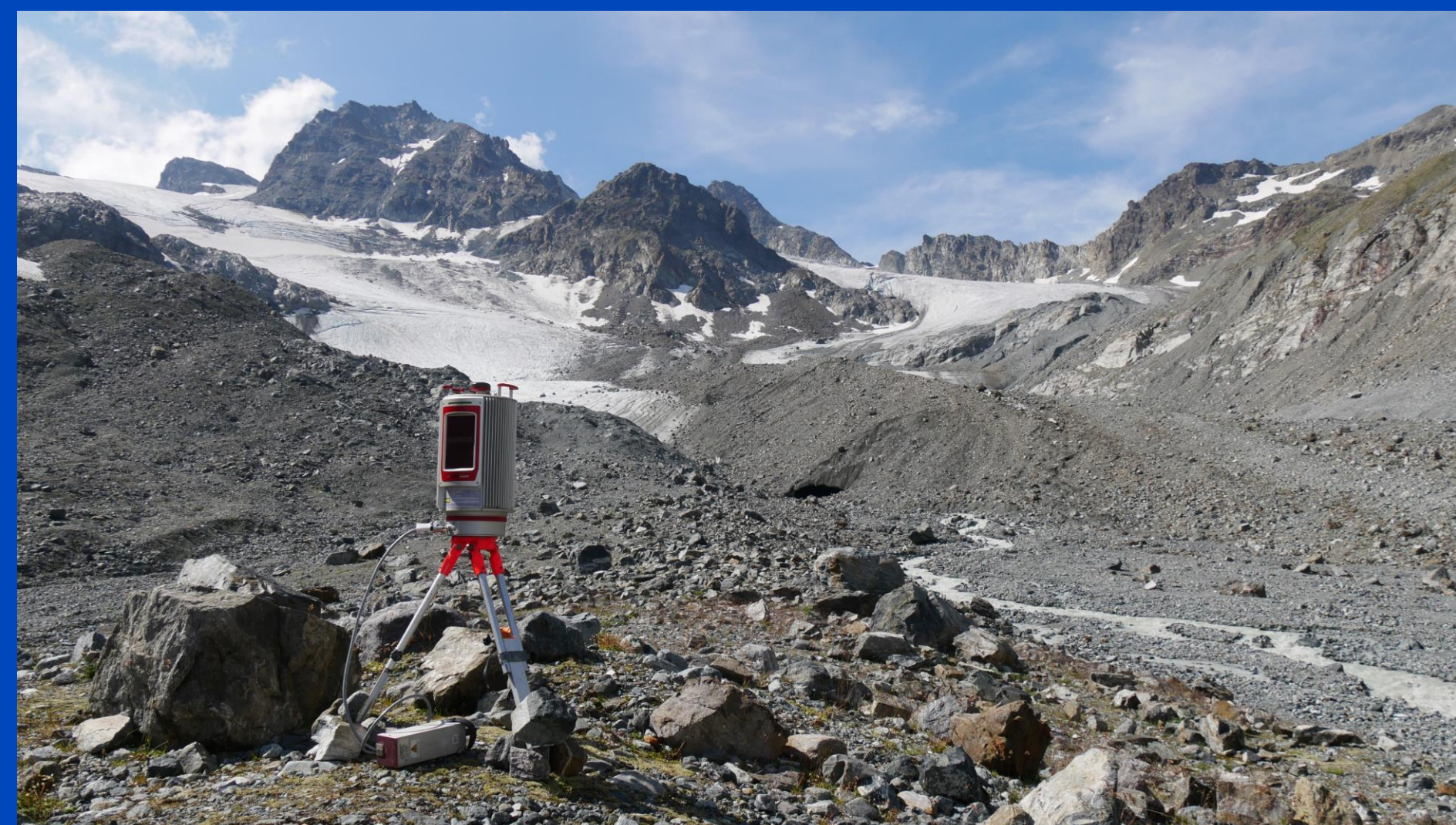
- With glacier downwasting and increasing rock fall activity, debris depositions accumulate at current glacier tongues.
- This debris, once deposited in the proglacial area, can be assumed to be closely connected to transport in the stream system.

RESEARCH QUESTIONS

1. Where and to which extent are Austrian glaciers faced with increasing debris cover?
2. Which are the long-term effects of debris cover on glacier mass balance and on the existence of proglacial ice?
3. How is the supraglacial debris connected to fluvial transport?
4. How do renewed movements of sediment and the channel network evolve in the proglacial area of partly debris-covered glaciers over time?



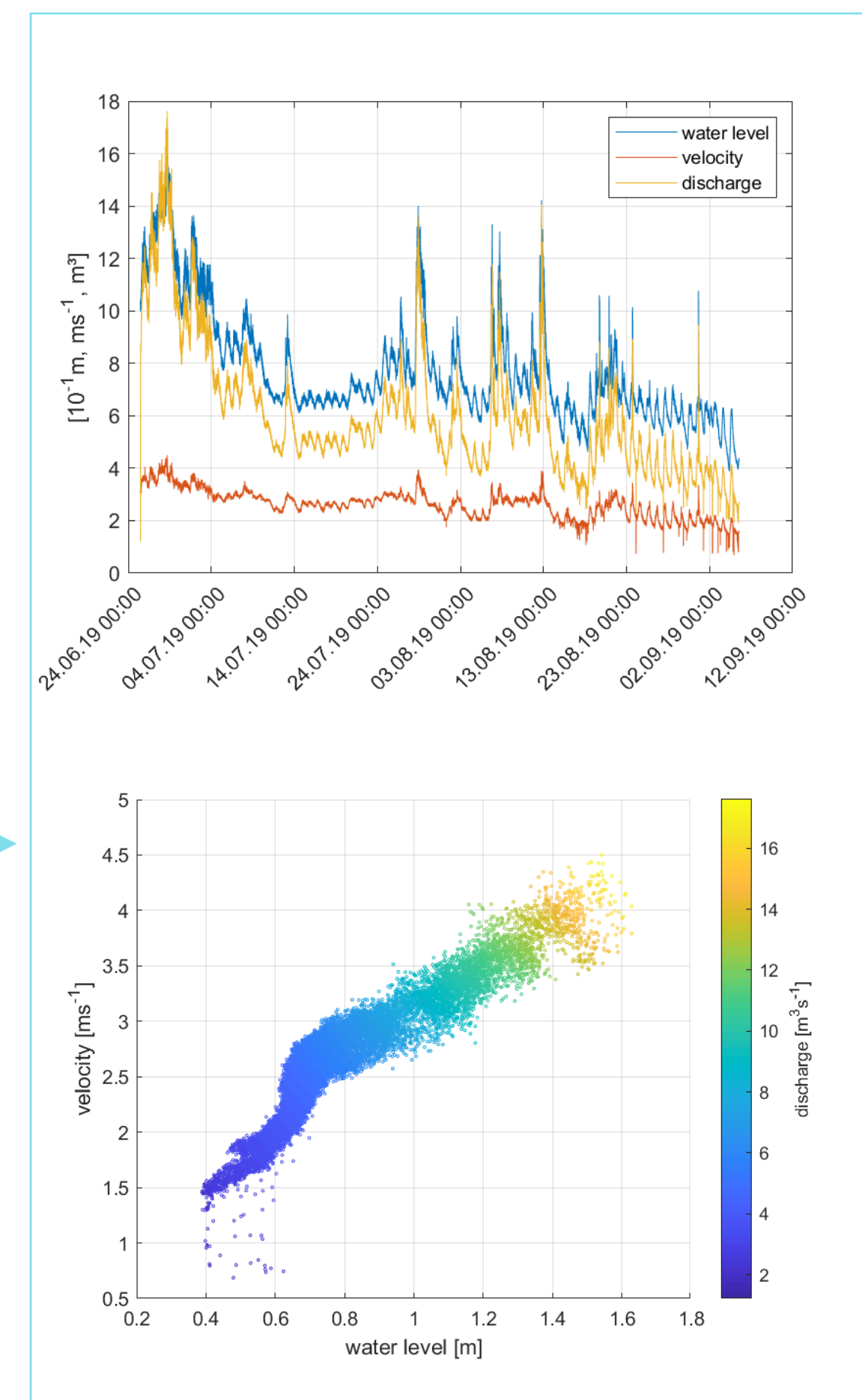
Link increasing
debris deposits
on glaciers and
in proglacial areas
to high bed load
in glacial streams




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METHODS

1. Hydrological modelling of the potential transport capacity
2. Analysis of the sediments grain size distribution
3. UAV based photogrammetry | ALS | TLS calculating actual sediment volume changes
4. Historical perspective on the evolution of the channel network
5. Hotspots of increasing debris cover from satellite remote sensing



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