GIS-based morphostratigraphic analysis of glaciofluvial terrace hypsometry in the North Alpine Foreland using R

Thomas Pollhammer[1] (recipient of a DOC Fellowship of the Austrian Academy of Sciences), Bernhard Salcher[1], Florian Kober[2], and Gaudenz Deplazes[2]

[1]University of Salzburg, Dept. of Environment and Biodiversity, Salzburg, Austria

[2]NAGRA Switzerland, Hardstrasse 73, 5430 Wettingen, Switzerland

Contact: **thomas.pollhammer@plus.ac.at**

EGU General Assembly 2022

Abstract ->

Sharing is encouraged

Coming up…

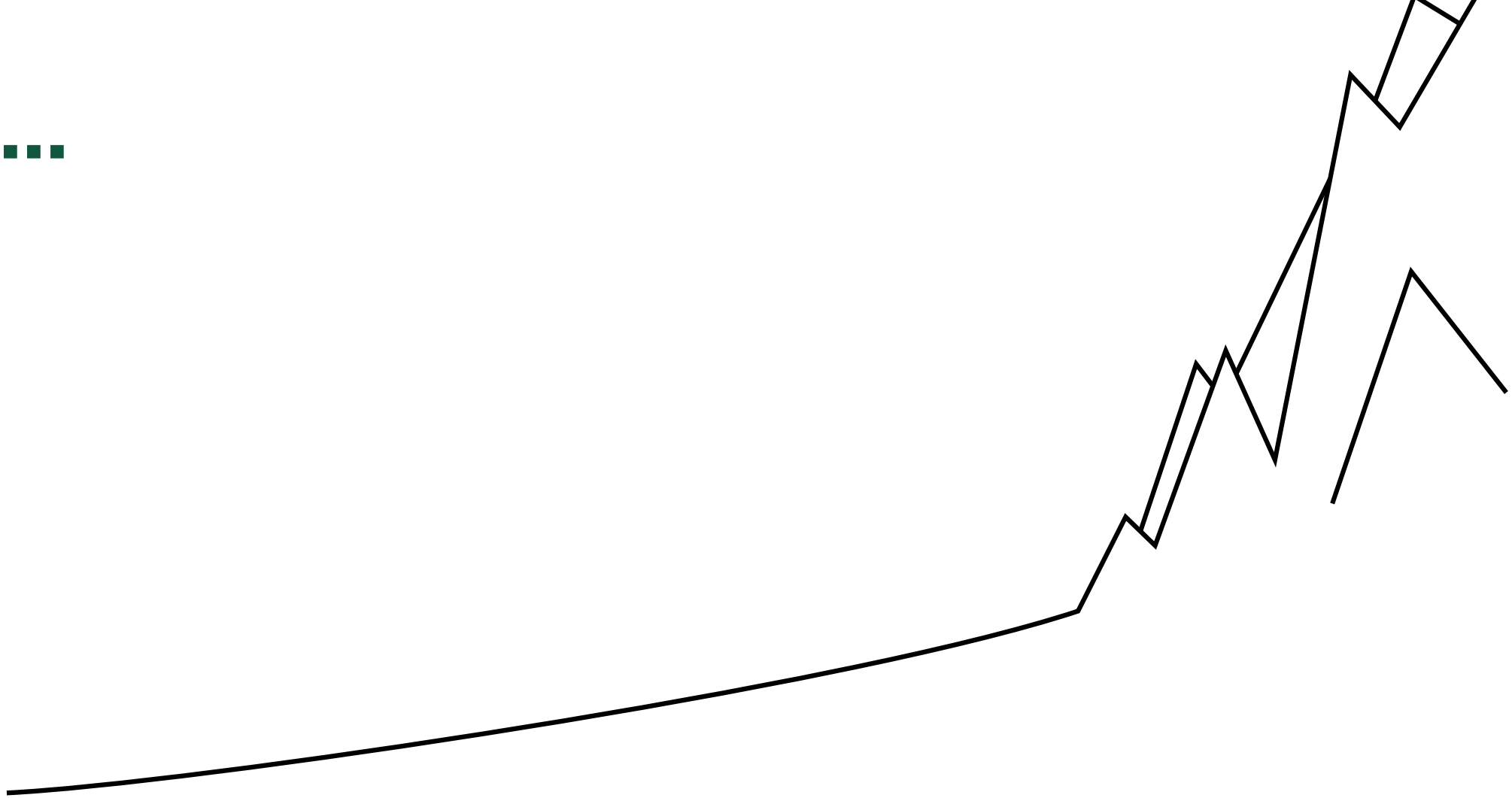
- **What & Why?** -> Use **glaciofluvial terraces** as…

  …morphologic archive of **glacio- and geodynamic processes**

- **Where & How?** -> An  **- code** & application example

contact: thomas.pollhammer@plus.ac.at

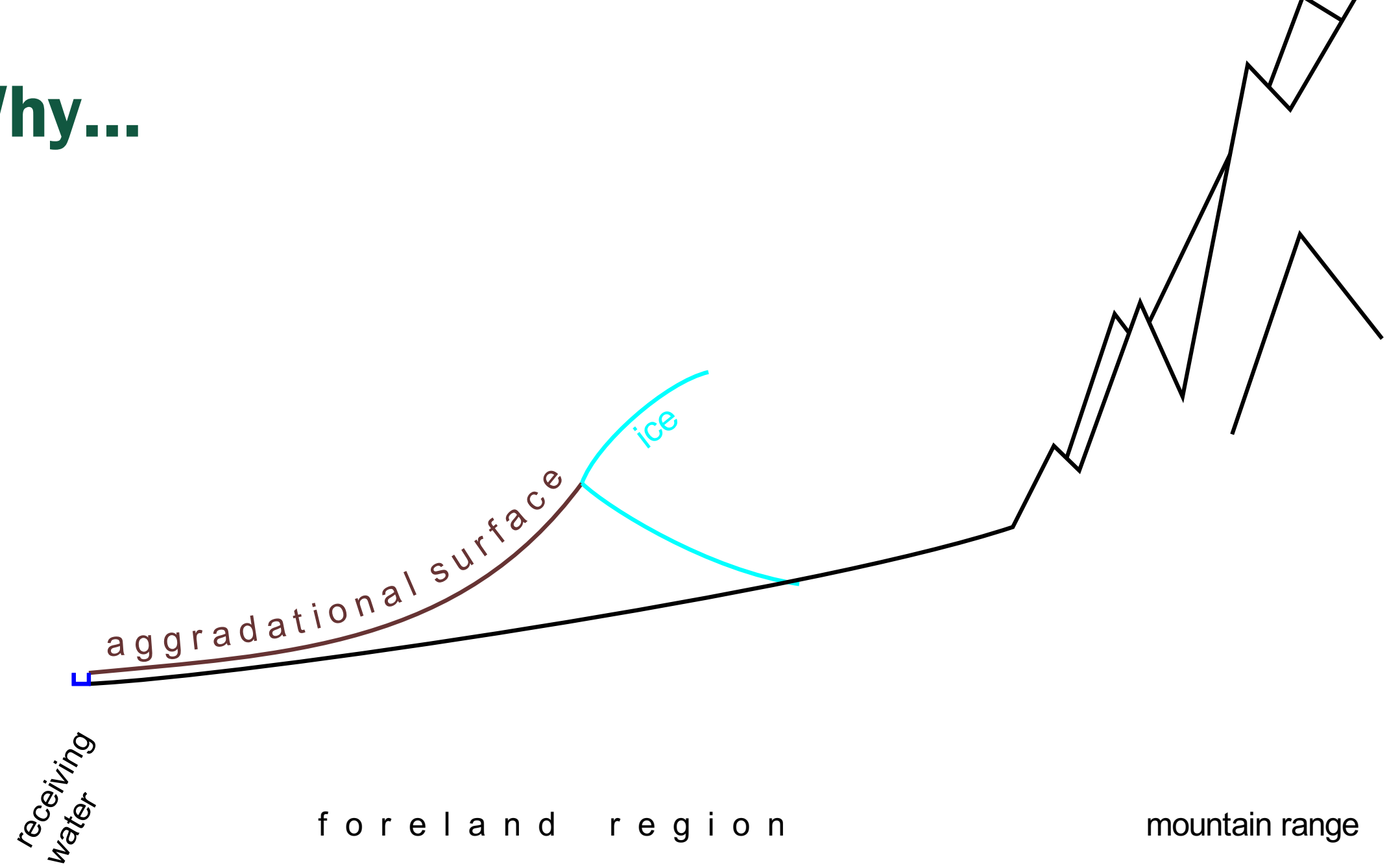
Why…



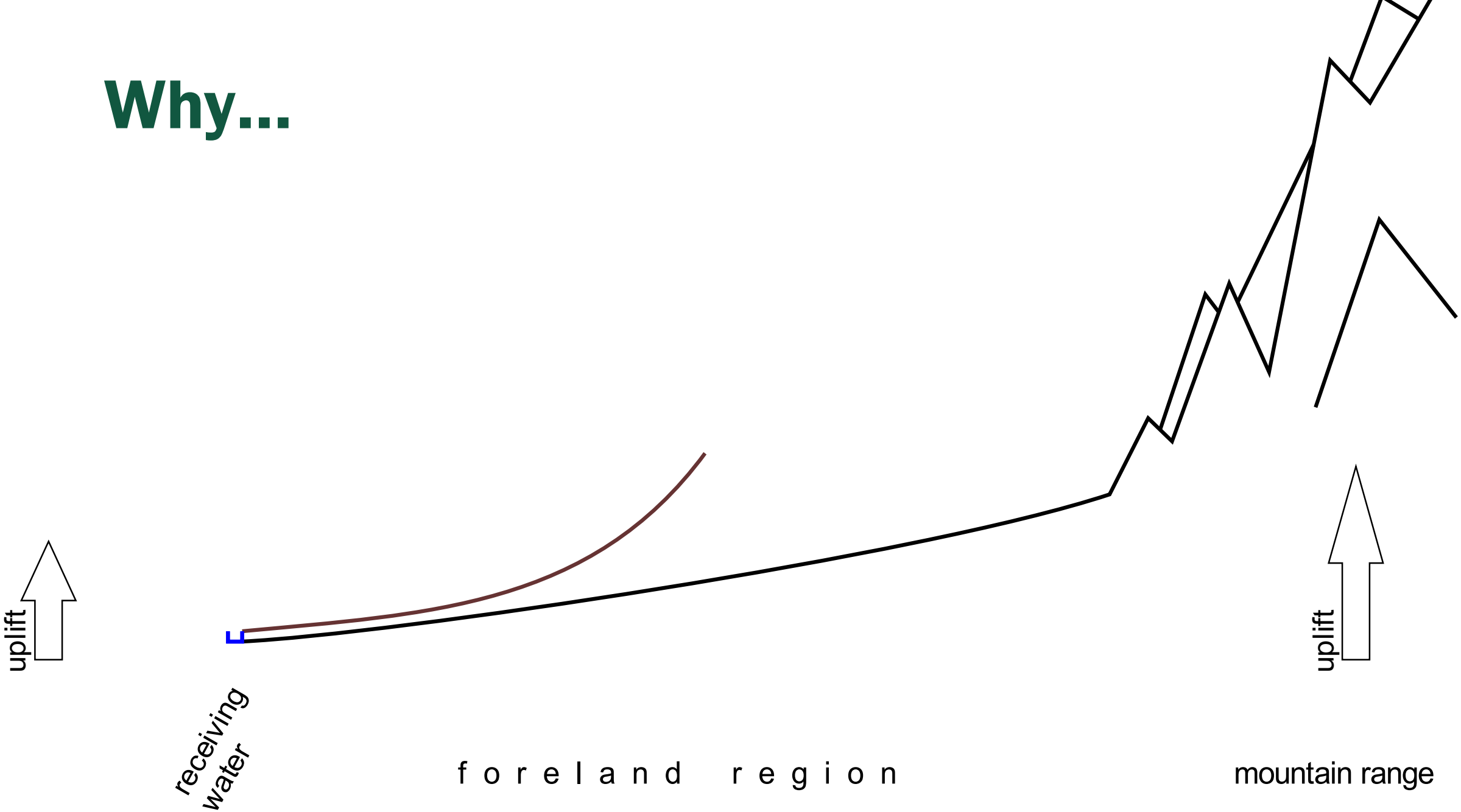
f o r e l a n d r e g i o n

mountain range

Why…


aggradational surface
ice
receiving water
foreland region
mountain range

Why…



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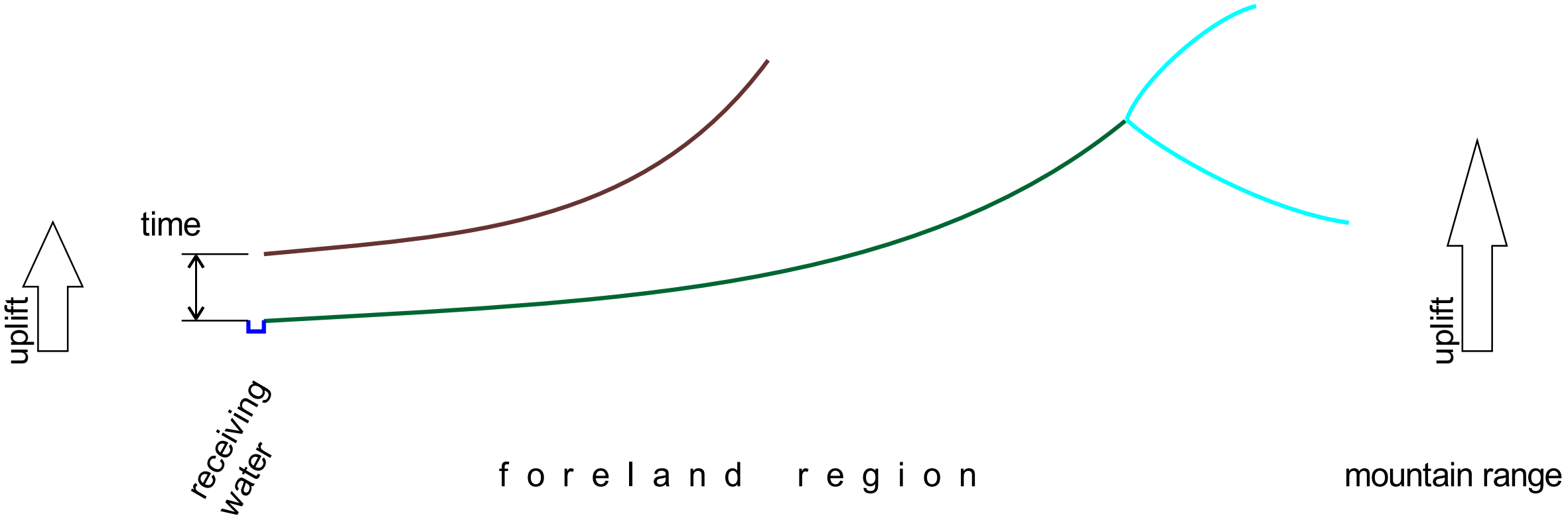
Why…


time
uplift
uplift
receiving water
foreland region
mountain range

Why…



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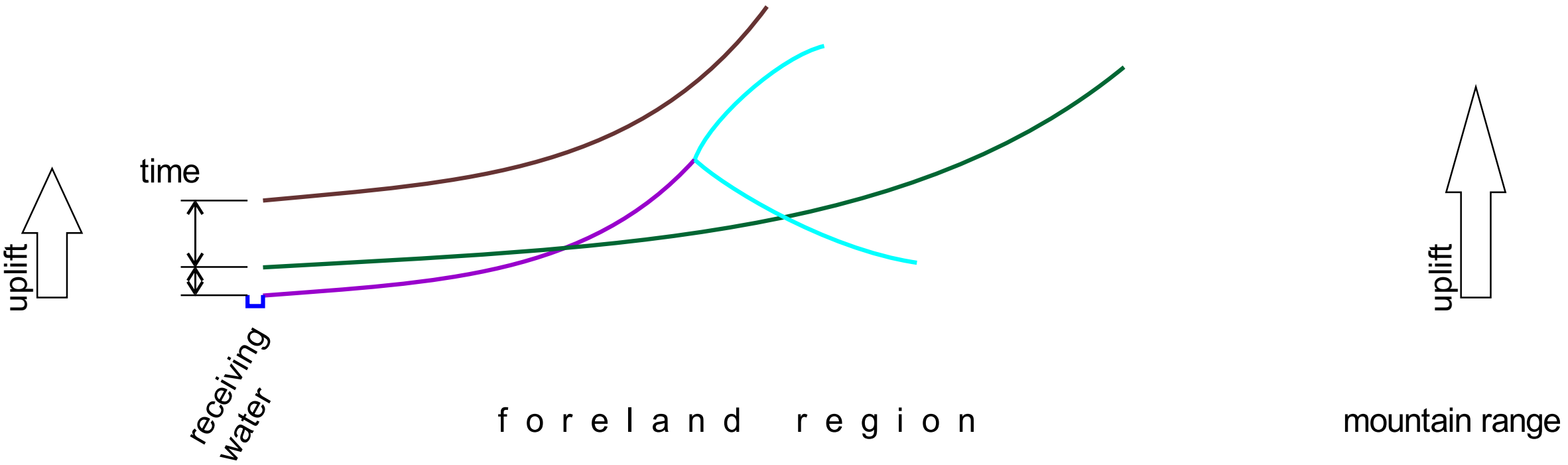
Why…



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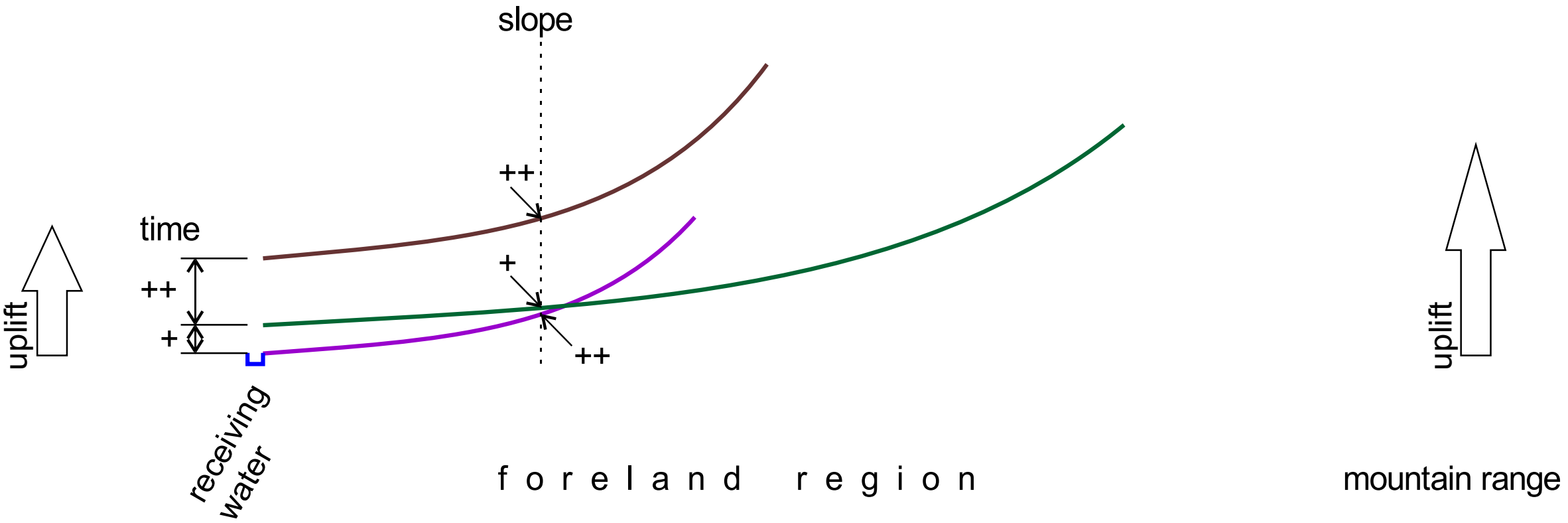
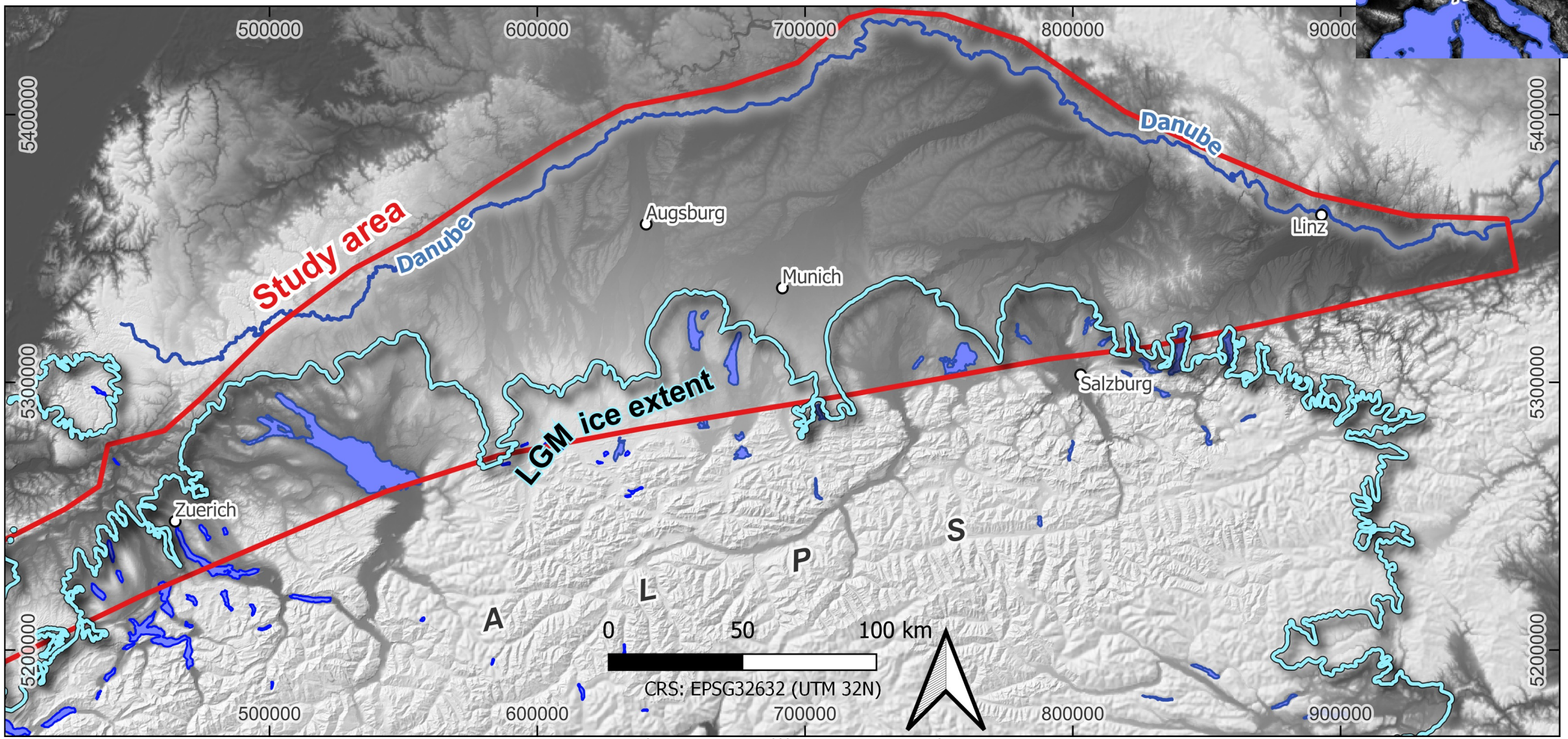
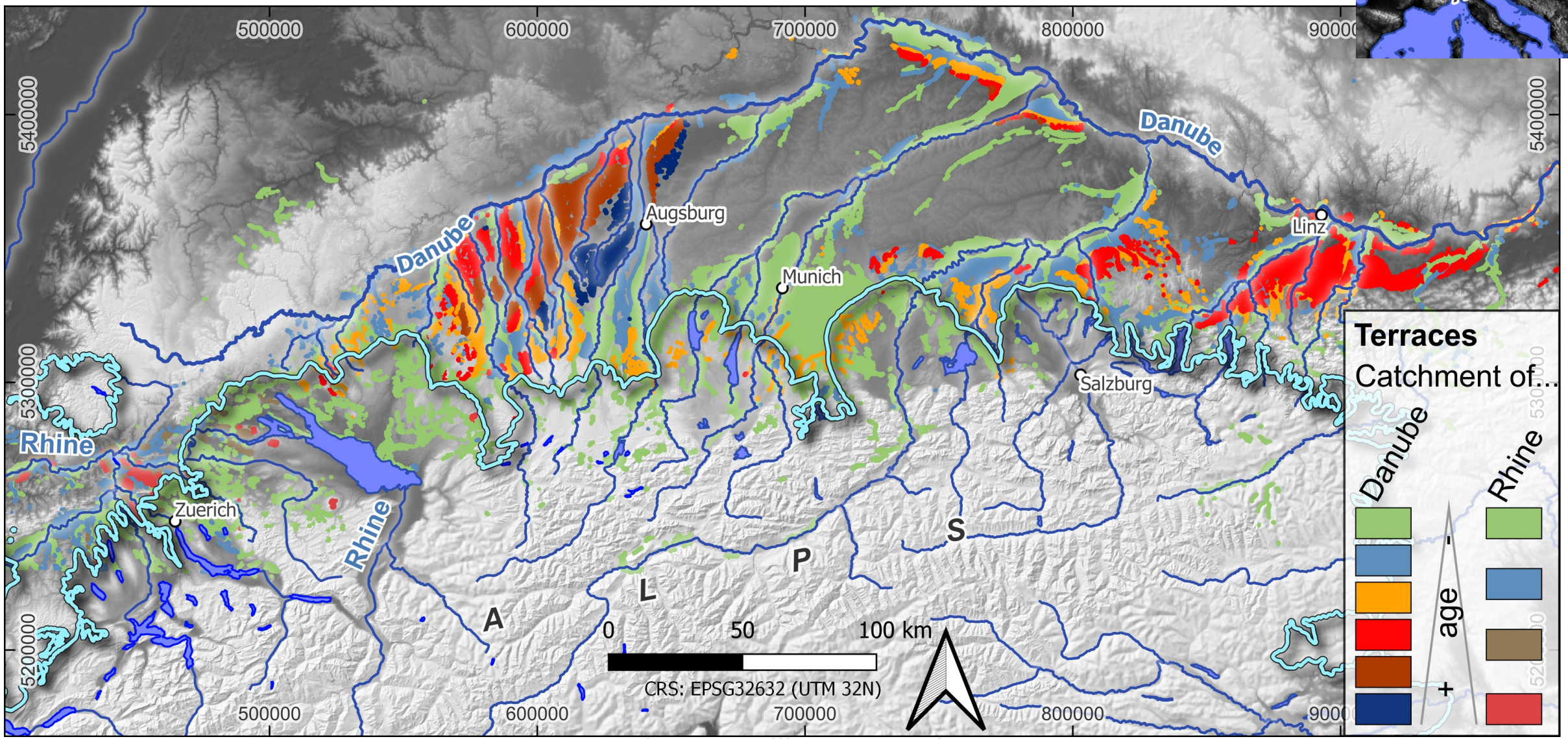
Why...


slope
time
++
+
++
+
++
uplift
receiving water
f o r e l a n d r e g i o n
uplift
mountain range

Where...


Study area
Vienna
Alps
500000
600000
700000
800000
900000
5400000
5300000
5200000
Study area
Danube
Danube
Augsburg
Munich
Linz
Salzburg
LGM ice extent
Zuerich
A
L
P
S
0
50
100 km
CRS: EPSG32632 (UTM 32N)

Where...


500000
600000
700000
800000
5400000
5300000
5200000
Danube
Augsburg
Munich
Linz
Salzburg
Rhine
Zuerich
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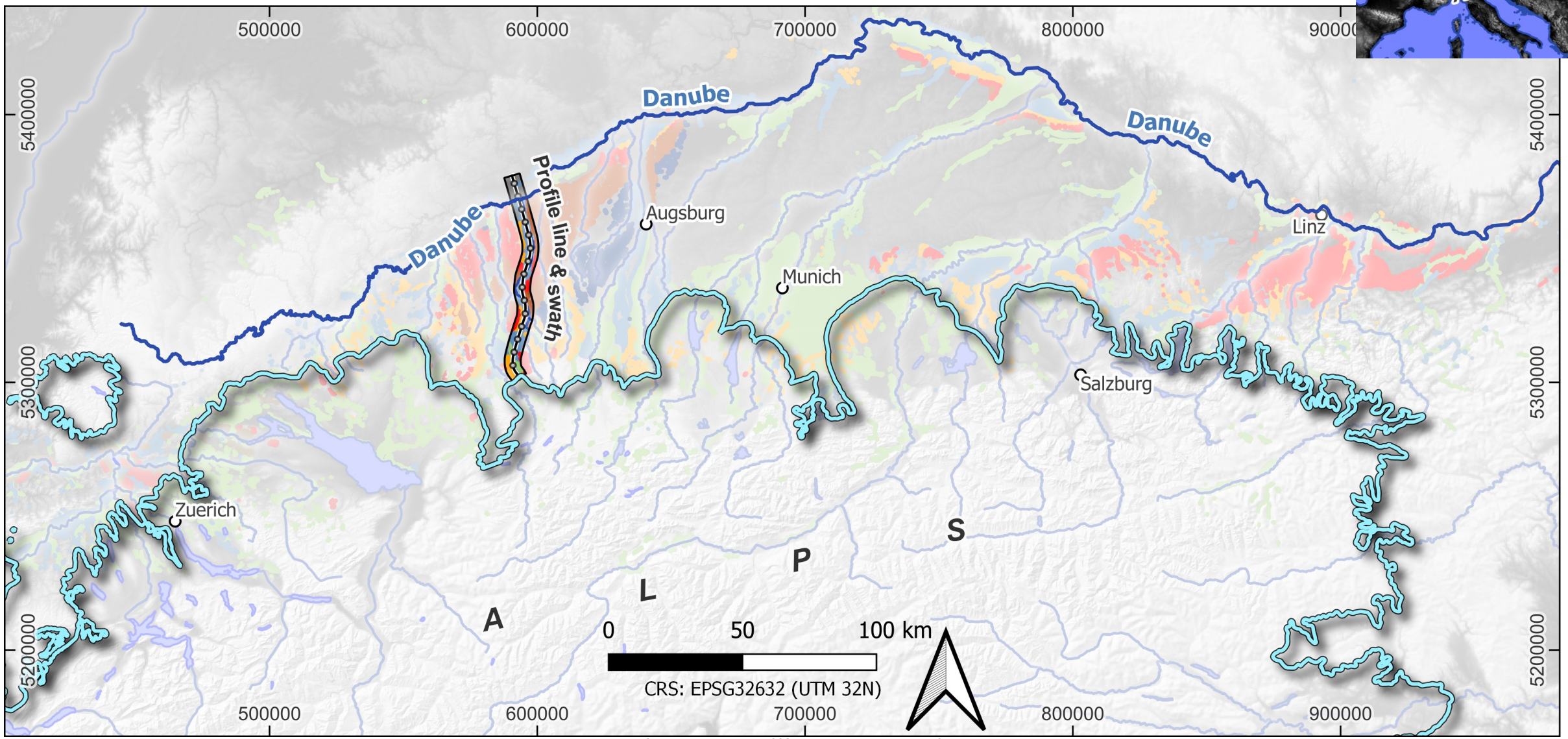
0
50
100 km
CRS: EPSG32632 (UTM 32N)
Terraces
Catchment of...
Danube
Rhine
age
-
+


Study area
Vienna
Alps

Where...



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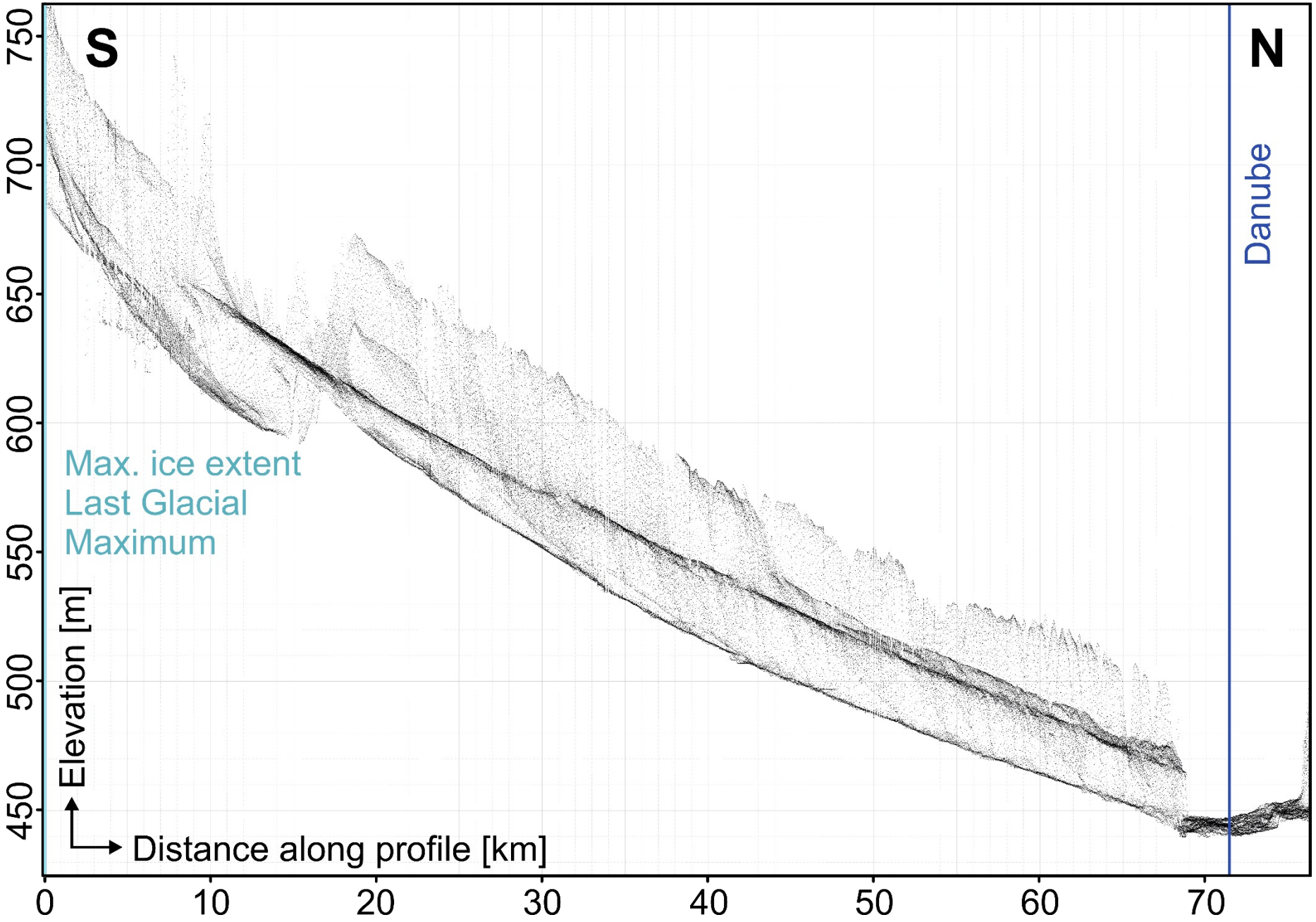
How...

- DEM pixels



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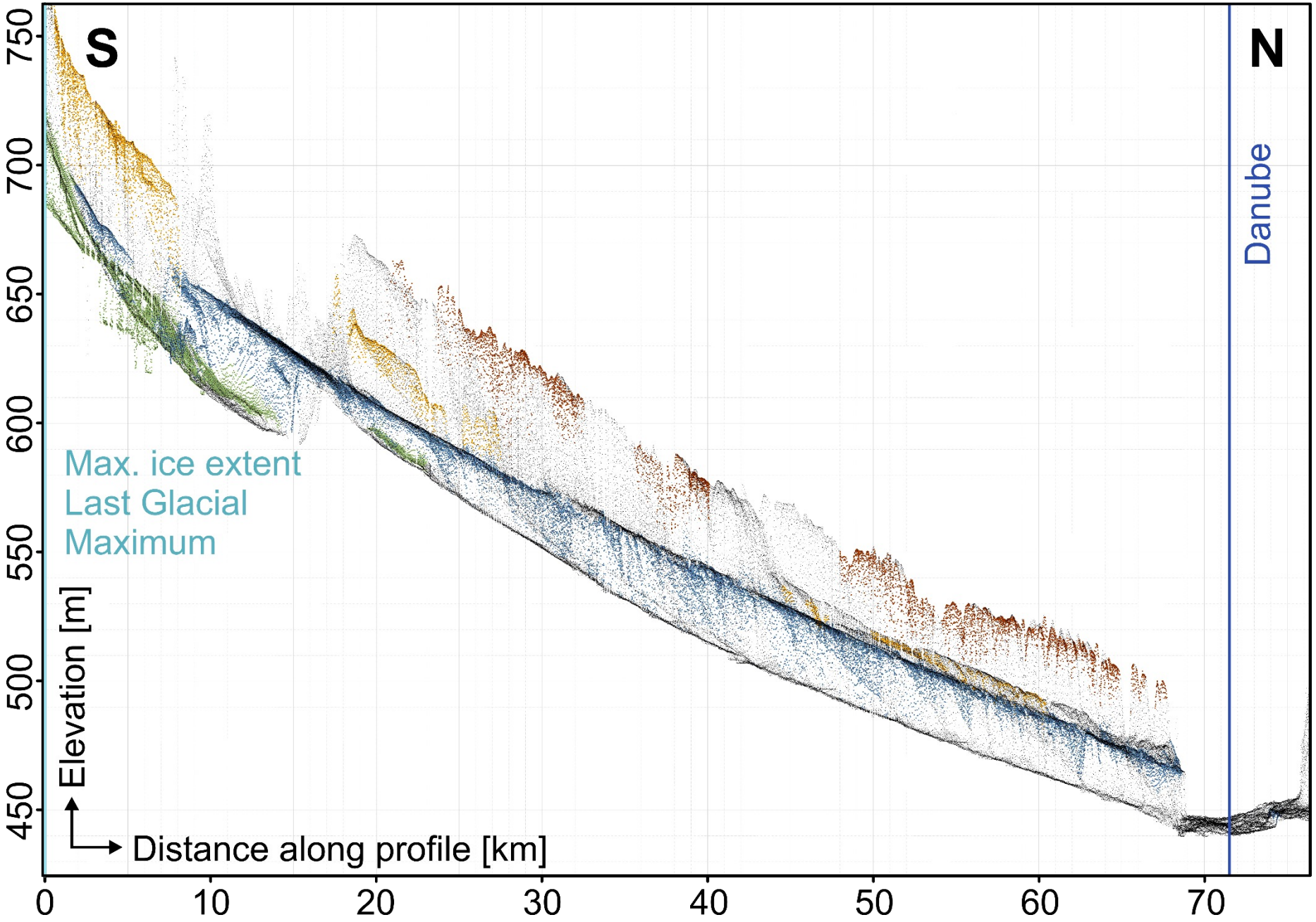
How…

- Stratigraphic information



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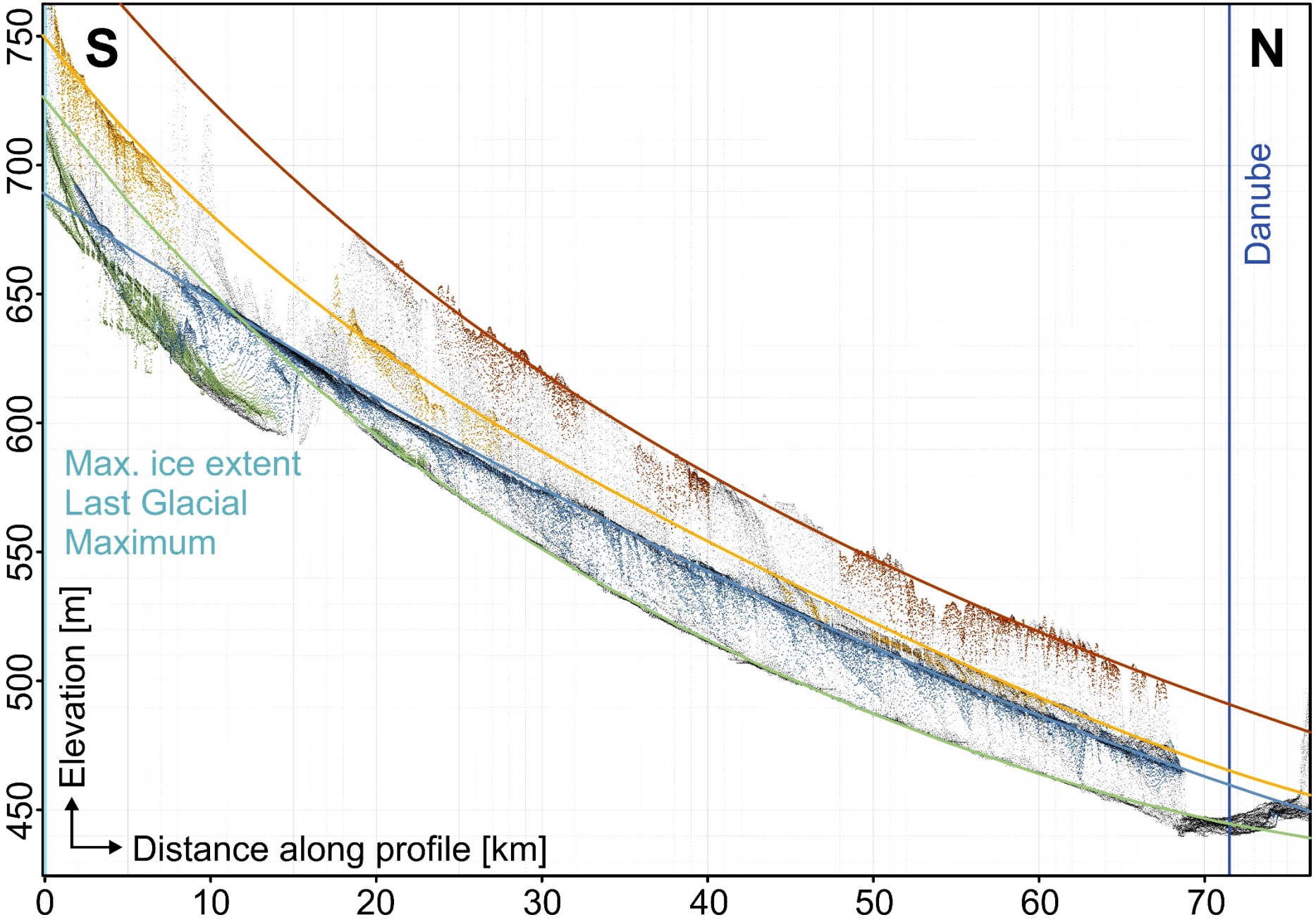
How...

- Modelling



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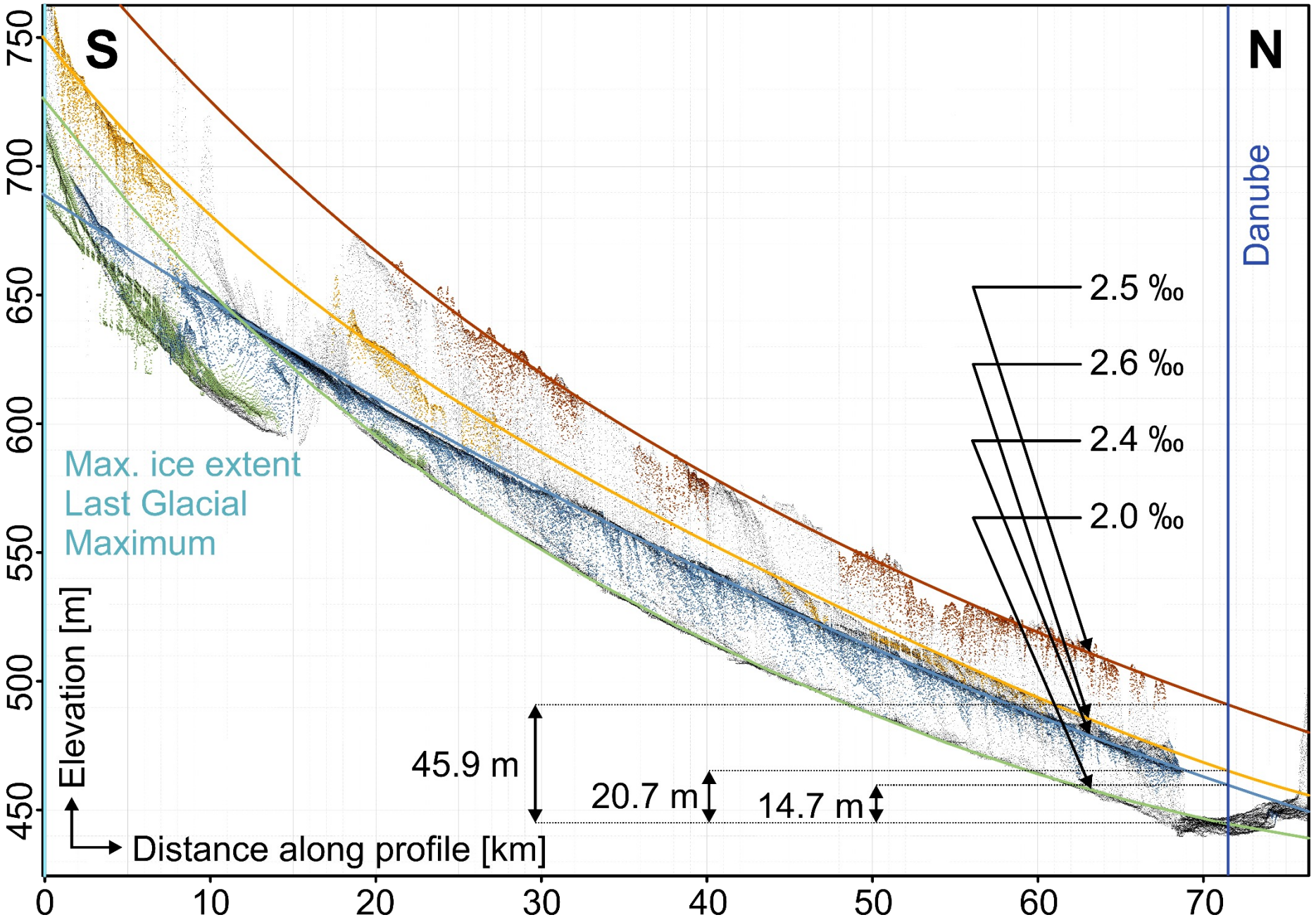
How...

- Measuring



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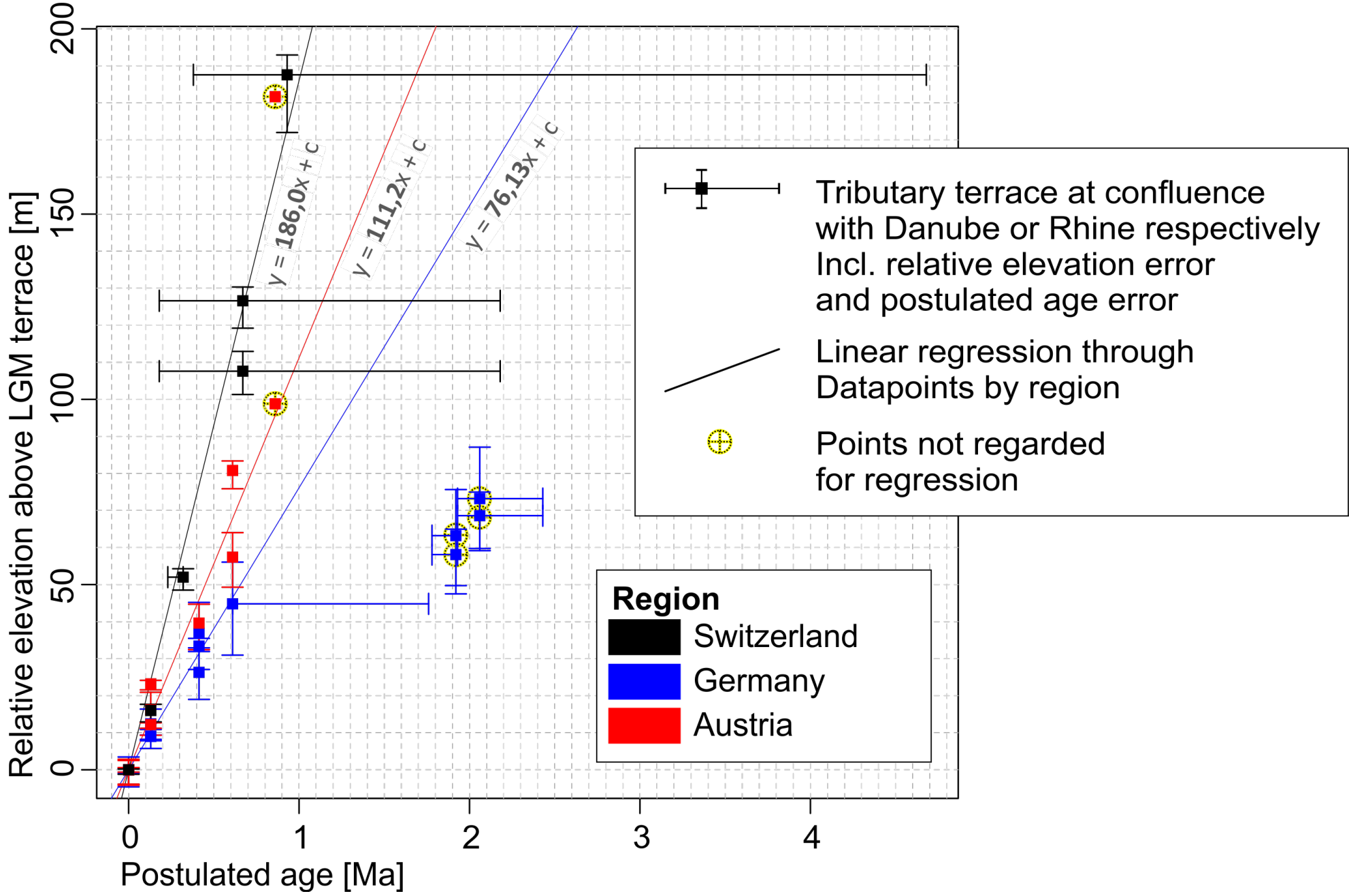
How...

- Evaluation



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Summary…

- 2D river-long-profiles
- Project full channel topography and other geodata
- Automated identification of terrace tops and modelling
- Mapping

Planned…

- Code publication (open source)
- Foreland wide terrace stratigraphic model
- Gain geodynamic data in other locations

Thank you

- Questions/ideas/remarks -> thomas.pollhammer@plus.ac.at

Abstract ->