



Innsbruck, October 18, 2023

**Revised manuscript for publication in Solid Earth**

Dear Professor Schreurs,

We would like to thank you for your comments and for giving us the opportunity to improve our article **“Fold localisation at pre-existing normal faults: Field observations and analogue modelling of the Achenal structure, Northern Calcareous Alps, Austria”** by Willemijn S. M. T. van Kooten, Hugo Ortner, Ernst Willingshofer, Dimitrios Sokoutis, Alfred Gruber and Thomas Sausgruber. We have incorporated all suggestions that had not been incorporated yet in the last round of revisions and are glad to present a revised version of the manuscript.

Below we respond to all the suggestions and reference the edits in the revised manuscript.

On behalf of the authors,

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**Topic Editor:**

Modify the caption of Fig. 1a as it is a map showing the main tectonic units of W-Austria, with the location of the study area shown in Fig. 1c.

Done.

Line 113: “Fig. 2” should be “Fig. 3”

Fig. 2 refers to the figure in Spötl (1989). We have changed the text to “their Fig. 2”.

Line 118: “Fig 1” should be “Fig. 1a,b”

Done.

Line 159: use “Their Fig. 15” if this figure refers to the publication of Brander & Gruber, 2011).

Done.

Add to caption of Fig. 3 what the thicknesses on the right-hand side mean (these are not the thicknesses used in the models), and why the “Raibl beds can be considered either as “competent” or “incompetent”. Make the link to the analogue models in the caption.

The thicknesses on the right-hand side of Fig. 3 correspond to the thicknesses in Fig. 6 (see revised manuscript). We have referred to the layers 1–4 that are depicted in both Fig. 3 and 6 and have altered the caption of Fig. 3 to:

“Figure 3: Stratigraphic overview of the Permian–Cretaceous sedimentary succession of the Karwendel thrust sheet in the Achensee area, modified after Kilian et al. (2021). Various sedimentary strata have been assigned to different incompetent and competent layers (1–4) in the analogue model set-up (see also Fig. 6). The Raibl beds were modelled as incompetent or competent, depending on the specific model. Kilian et al. (2021) discuss the rheological behaviour of the Raibl beds in more detail.”

Caption of Fig. 6. Leave out “inversional”

Done.

Line 333: place the table caption below Table 1.

Done.

Line 375: place the table caption below Table 2.

Done.

Fig. 11. I would interchange (b) and (c), such that the cumulative strain results are directly below the corresponding surface photographs. But also in this figure, I would show increasing shortening from left to right.

Done.

Throughout the manuscript text use “Fig.” instead of “Figure”, except at the start of each figure caption

Done.

When printed the bluish colors in Fig 1a and Fig 1b all merge into one single “blue”, and the different tectonic units are not distinguishable. Please add a pattern (e.g. dots, triangles, etc.) to distinguish the various units.

Figure 2. Please label the three panels, (a), (b) and (c), and refer to them accordingly in the figure caption when describing the tectonic evolution. Right now, there is a (d).

Throughout the manuscript, when referring to the uppermost stage of the Triassic Period, it should be “Rhaetian” instead of “Rhätian”. Also change in Fig. 3 and 5.

In the experimental figures, I would place the panels from one single experiment in a row, (as for example is done in Fig. 11), and showing increasing shortening from left to right.

In fig. 8, turn the cross-section clockwise by 90° and place it below the four panels (place the four panels in one row, as suggested above) with increasing shortening from left to right.

[These comments have been addressed in the previous round of revisions.](#)