

Re-evaluation of the moraines in the Kromer Valley (Silvretta Mountains, Austria)

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A prominent moraine system in the Kromer Valley (Silvretta Mountains, W-Austria) constituting the type locality of the “Kromer stadial” has been subject to numerous investigations in the past. Located between a series of Egesen moraines (Younger Dryas) and “Little Ice Age” positions of modern times, it was originally correlated with the nearby “Kartell stadial” (Verwall Mountains, Fraedrich 1979), which was allocated to the earliest Holocene climatic downturn of the Preboreal Oscillation (Ivy-Ochs et al. 2006). Initial ¹⁰Be dating of five boulders on the terminal moraines rendered surprising ages that implicated a glacial advance in connection with the 8.2 ka event (Kerschner et al. 2006). Since then however, no other proof of glacier activity comparable in size could be found for this time period within the Alps, and furthermore new ¹⁰Be production rates were recently introduced. Therefore we were prompted to re-evaluate the locality by recalculating the original ages and amending them with 10 new exposure dates. The additional sample locations were spread broadly among the whole moraine system including the lateral moraines. The new results yield ages ranging around 10.0 ka. Consequently, the allotment of the Kromer stadial to the 8.2 ka event must be retracted. Likewise, the ages are too young to be associated with the Kartell stadial. Thus this study points to a significant glacier advance in the eastern Alps during the Boreal time period, which is in agreement with another recent investigation in the western Alps (Schimmelpfennig et al. 2014). However, our findings need to be further discussed and placed within the broader climate context of the Alpine region.

References

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