

Interactive comment on “Glacier ice in rock glaciers: a case study in the Vanoise Massif, Northern French Alps” by S. Monnier et al.

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This manuscript has received three reviews that the authors have commented in detail and with great dedication. Based on the initial manuscript the reviews and the responses to those reviews, this editorial comment is intended as a basis for deciding about a possible resubmission of a revised manuscript.

The responses in the Discussion Stage are detailed, constructive, and acknowledge some necessary changes. In addition to the points raised by the reviews, a revised submission will need to demonstrate more clearly, how a contribution is made that goes beyond previous knowledge.

The conceptual model underlying the conclusion “The rock glacier formed during one,

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or several, alternating phases of glacier advance and permafrost development over the last few thousands of years.” (P3614L12) should be presented in more detail. What are the properties and the dimensions of the ice body envisaged and what processes govern accumulation and the genesis of the ice and the permafrost? The relationship of observations on “true glaciers” (P3614L9) with those that show the described behavior should be discussed. What properties of the ice would be expected, what dimensions, what expression of movement? Is thrusting movement realistic for the dimensions of this case study? The reference given (Murray and Booth, 2010) relates to a glacier of about 20km in length. Can dirty melt surfaces or accumulation layers that would be typical of such small ice bodies provide alternative explanations? Based on such a more detailed description of the conceptual model of genesis, what confidence can we have in the conclusions presented? Is the type of GPR survey presented a suitable method to characterize the dimensions and properties of ice cores and to constrain some aspects of their origins with confidence? Where would future investigations bring most clarification?

As stated by the reviewers, this is an interesting study. If the authors can provide a revised version that outlines its contribution more clearly, I am sure that this would become a great paper.

Interactive comment on The Cryosphere Discuss., 5, 3597, 2011.

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