



Deposits in Haut Val Ferret (Mont Blanc Massif, Italy): rock avalanches on a glacier and morainic complex

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In upper Val Ferret (Mont Blanc Massif, Italy), important granitic deposits have been successively attributed to glacier advances, and later to a rock avalanche of 12 September AD 1717. Here, we review the evidence used in earlier work of both mode of emplacement and deposit age. In particular, multiparameter dating allows differentiation between dating techniques which are age-indicative (other possible explanations cannot be discounted) and those which are age-diagnostic. Based on a combination of detailed geomorphology and relative and absolute dating, a revised interpretation for the emplacement of these deposits is proposed in which debris from the AD 1717 event was deflected along one side of the valley floor, preserving older slope and morainic sediments along the other side. At least two large rock avalanches have crossed the Triolet Glacier, one before AD 1000 and one in AD 1717; they have partly covered an older moraine complex several kilometres downstream from the present front, and have controlled the glacier's dynamics and the depositional conditions of later moraines. This study, which confirms the major geomorphological impact of rock avalanches in the glacierized high mountains, underlines the importance of having at one's disposal indicators which allow the distinction to be made between morphologically-similar forms of different genesis.