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The pulse of Holocene glaciations in New Zealand's Southern Alps

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Despite of the direct societal relevance, the understanding of the regional, hemispheric and inter-hemispheric nature of Holocene climate remains controversial, the driving mechanisms unclear and the natural variability unknown. Holocene climate swings were large enough to impact humans but small enough to get lost in the 'noise' of natural variability in most geological climate records. Glaciers, however, have responded sensitively and quickly to Holocene climate changes and have produced distinctive landforms (moraines). Due to recent progress in the field of cosmogenic dating, we have now the tools in hand to create accurate and reliable chronologies of Holocene moraines, including the period referred to as the 'Little Ice Age'.

Here we present more than fifty new ^{10}Be surface exposure ages from seven different moraine sequences in New Zealand's Southern Alps, yielding a precise chronology of Holocene glaciations in southern mid-latitudes. Our data identifies several glacier events during the last millennium and allows to compare those to the classic 'Little Ice Age' records from the Northern Hemisphere.