



Evidence for minimal Pleistocene ice sheet elevation changes from the Shackleton Range, Weddell Sea Embayment, Antarctica

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Studies using cosmogenic nuclide analysis in Antarctica have the potential to provide unique insights into Pleistocene ice sheet fluctuations. Here we report combined geomorphological evidence and integrated cosmogenic isotope analysis (^{21}Ne , ^{10}Be and ^{26}Al) from the Shackleton Range, part of the Transantarctic Mountains overlooking the Weddell Sea. The Shackleton Range bounded to the north by the Slessor Glacier and to the south by the Recovery Glacier, provides the ideal locality to record the trajectory of long term ice sheet changes in this sector of Antarctica. These major outlet glaciers drain large areas of East Antarctica and occupy deep troughs extending well below current sea level. Which combine to contribute approximately one third of the total inflow to the Ronne Filchner Ice Shelf.

Past estimates of ice elevation at the Last Glacial Maximum in the Shackleton Range vary from <340 m to over 1000 m. The results of recent geomorphological mapping combined with the concentrations of cosmogenic isotopes from bedrock summits suggests minimal (<350m) ice sheet thickening at the Last Glacial Maximum in this sector of Antarctica. These results are important as they have direct implications for ice shelf / grounding line dynamics in the Weddell Sea Embayment.