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Spatial patterns of glacial erosion in Southwest Greenland

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Fifty new *in-situ* ^{10}Be and ^{26}Al pairs in bedrock and boulder erratics from Southwest Greenland demonstrate a clear gradient in nuclide inheritance in bedrock with elevation. Sites <800 m a.s.l. generally show limited or no nuclide inheritance. In contrast, the nuclide inheritance in samples from sites at higher elevations varies from being negligible to >90 kyr of pre-last glaciation exposure, depending on the topographic setting. Our results show that steering of ice into troughs led to substantial erosion, even at elevations above 1500 m a.s.l., while bedrock on summit sites at similar elevations were eroding much slower. Considerable subglacial erosion is generally thought to require basal sliding and subglacial cavity formation. Our results can thus be used to gauge the subglacial conditions of the South Greenland Ice Sheet during the last glacial period. Furthermore, erosion rates arising from inverse modelling of the cosmogenic nuclide results constrain the relief development at the Southwest Greenland ice-sheet margin during recent glacial periods.