

^{10}Be and ^{26}Al exposure and burial histories for ancient granite tors in arctic Finland

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The ice-divide zone of northern Finland experienced low erosion beneath successive cold-based Fennoscandian ice sheets (Hall et al., 2015). One indicator of this are the many tors that occur on hill tops and flanks. Published ^{10}Be and ^{26}Al inventories for two tor summit surfaces near Vuotso indicate ~ 0.8 Myr of exposure and burial (Darmody et al., 2008). These samples came from tabular tors that may have lost granite sheets to glacial erosion. Schmidt Hammer values are high, indicating limited weathering of these rock surfaces despite apparently long exposure. Hence published data may relate to one or more phases of glacial erosion rather than to tor surface erosion. In contrast, nearby tors retain delicate superstructures and give low rock hardness values, features consistent with little or no glacial modification, more advanced weathering and longer exposure of the tor summit surfaces. We will present new ^{10}Be and ^{26}Al isotope results for these surfaces and use Monte Carlo simulations to derive Pleistocene exposure and burial histories. We expect bedrock erosion rates to be amongst the lowest reported for the northern Fennoscandian shield.

References

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