

Research-paper

Morphology and age of bouldery landslide deposits in forested dolerite terrain, Nicholas Range, Tasmania

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Abstract

Forested bouldery dolerite slope deposits of the Nicholas Range of northeast Tasmania are typical of those that have accumulated around moderate-altitude Tasmanian dolerite peaks. Many of these deposits, frequently referred to as having a periglacial origin, show evidence of mass movement. However, dating the deposits, elucidating their mode of formation and estimating risks of further movement has been difficult. An area around South Sister peak at the east end of the Nicholas Range was studied to address these issues. We conclude that here the aprons of colluvial boulders accumulated as slow moving debris flows rather than deep-seated bedrock slides. Three exposure ages in the range 80-90 ka, obtained from large dolerite boulders, indicate landslide movement during the last interglacial period; as the deposits show no evidence of movement since first accumulating the deposits must have formed under conditions different from those presently prevailing. We suggest that water-saturation at the contact of the dolerite slope deposits and the sedimentary rocks below, following seasonal snow melt in a period colder than at present, may have initiated instability. The risks associated with land use such as forest harvest on these and similar deposits elsewhere are considered to be low.

Keywords

[dolerite slope deposits](#) • [landslides](#) • [cosmogenic nuclides](#) • [exposure dating](#) • [Tasmania](#) • [periglacial](#)