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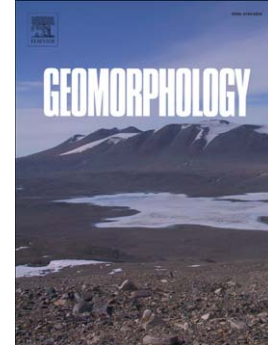
Mineralogy maketh mountains: Granitic landscapes shaped by dissolution

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**Mineralogy maketh mountains: granitic landscapes shaped by dissolution**

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**ABSTRACT**

In tectonically quiet regions, the shape of the landscape is controlled by the erosion resistance of the rocks. Erosion largely depends on the release of particles from the weathering rock, which in turn requires a degree of dissolution of the more soluble grains. The rate of dissolution of the common rock forming minerals allows the construction of a numerical Rock Weatherability Scale (RWS) based on the rock's modal mineralogical analysis.

Applied regionally to three granitic landscape regions of the Bega Valley of southern New South Wales, the Tate Batholith and Featherbed Volcanics of north Queensland, and granitoids in the Beaufort region of Victoria, the mean elevation of the larger plutons in each region correlates highly ( $r = 0.83-0.93$ ) with their RWS. Variation in composition within a pluton also shows there is a clear connection between changes in RWS and relief within the pluton. From these results it is apparent that the landscape of such granitic terrains is determined very largely by mineral dissolution rates, with plagioclase composition and content being a major factor.

**KEY WORDS:** dissolution; erosion; granite; landscape**1. INTRODUCTION**

In regions where there is little active tectonism, probably the most obvious and well-known relation between geology and landscape is that hard rocks make up

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