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GLACIAL LAKE VICTORIA: REEVALUATION OF PALAEOSHORELINE EVIDENCE OF ANTARCTIC MEGALAKES

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Extensive glacial lakes have been postulated for several valleys (eg. Wright, Taylor, Victoria) in the McMurdo Dry Valleys region of Antarctica. These postulations rely on both proposed conditions and mechanisms (cool, dry, sunny, snowless, high absorption of solar radiation, high meltwater production) and field evidence (algal mats, deltaic landforms, lacustrine sediments, palaeoshorelines). Glacial Lake Victoria is such a postulated lake of c. 100km^2 area, 200m depth which existed from c. 20000 – 8600 BP in the Victoria Valley. We reassess the palaeoshoreline evidence for the existence of this lake using field investigations of valley morphology, topographic survey, and analysis of LIDAR data.

Given the aridity of the Dry Valleys region, good preservation of palaeoshorelines would be expected. However, our observations indicate that postulated shorelines of the Lower Victoria Valley are not continuous but spatially restricted. Furthermore, they are not flat, not horizontal, and not sub-parallel. Rather, the postulated shorelines lie across the contours, are associated with a much larger geomorphic feature and do not occur on adjacent sections of valley walls. Their morphology is consistent with slump deposits from mass movement in the form of large-scale slump failure/s of the valley wall. Consequently, field evidence for postulated palaeoshorelines of the Lower Victoria Valley, and thus the evidence for Glacial Lake Victoria, appears weak. This suggests a need for a reassessment of the palaeoshoreline evidence for other glacial lakes reported for the region.