

A reassessment of Last Interglacial deposits at Mary Ann Bay, Tasmania

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Abstract

Sandy deposits containing shells occur at c. 20 m above present high water mark at Mary Ann Bay in southern Tasmania, Australia. Shells in the deposits have previously been dated to the Last Interglacial by amino acid racemisation analysis and on this basis the deposits have been interpreted to be marine, indicating rapid uplift of about 0.15 m/ka in the area. The sandy deposits, interlayered with sandy loam and sandy clay layers in the lower part of the section, overlie weathered dolerite. The section was redescribed and the sands were dated by thermoluminescence methods. Ages of 30.7 ± 1.9 ka and 30.3 ± 3.7 ka indicate deposition of the sands during the Last Glacial, and are incompatible with a marine origin. The presence of layers interpreted to be palaeosols, lag deposits and cross bedding support aeolian transport of sands by winds from the southwest. We interpret the sands to be a remnant of an extensive aeolian deposit that accumulated east of the lower Derwent floodplain in the Last Glacial. The sands were probably once continuous with other dated Last Glacial aeolian sands at Pipe Clay Lagoon and Llanherne near Seven Mile Beach and sandy deposits now below sea level in Ralphs Bay. The age of the shells in the Mary Ann Bay sands is not disputed, but can be explained by reworking and transport of a nearby accumulation of Last Interglacial shells by strong westerly winds.