

TSUNAMI AND PALEOTSUNAMI DEPOSITIONAL SIGNATURES AND THEIR POTENTIAL VALUE IN UNDERSTANDING THE LATE-HOLOCENE TSUNAMI RECORD

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ABSTRACT

In recent years, much research on modern and palaeotsunami deposits has been published. From these studies, a range of signature types have been identified. Identifying and dating such deposits is an important element in understanding late-Holocene tsunami hazard and risk. However, important questions such as, ‘do modern and palaeotsunami leave similar or dissimilar traces’; ‘do tsunami leave the same signatures all around the world or are there significant variations’ and, ‘what is the actual record of tsunami in different parts of the world’ still remain. Answering these questions is not an easy task but examining megatsunami flood deposits ought to shed some light on these questions because such high magnitude events should leave very clear and detailed traces within the coastal landscape. The coast of SE Australia is reported to have been affected by numerous palaeo-megatsunami in the late-Holocene. As such, the coast of New South Wales offers an important natural laboratory to examine in detail deposits associated with such events. I summarise the published characteristics of modern and palaeotsunami deposits globally and within Australia and briefly outline the tsunami risk to Australia before examining a site called Minnamurra Point on the coastline of SE Australia (south of Sydney) that has previously been described as containing evidence for a palaeo-megatsunami of an unknown age. Results of a detailed coastal survey, field stratigraphic investigation and various standard laboratory analyses are presented. Surprisingly, it is not possible to replicate the previously reported findings of tsunami deposits. Whilst I prefer the interpretation that the sequence is an *in situ* soil (the sediment sequence examined contains none of the usually reported lines of evidence to demonstrate tsunami provenance), I recognise and discuss the significance and difficulty of identifying tsunami deposits in the field and consider the implications of my findings to the wider debate about the preservation of tsunami deposited sediments.