Coastal hazards - a long-term view of the safety of small island coastal communities in the South Pacific

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ABSTRACT

The most recent analysis of Mean Sea Level (MSL) change in New Zealand, using long-term tide gauge records, indicates a mean rate of sea level rise of 1.7 mm/yr. This rate has remained unchanged since an initial determination undertaken in 1990. In addition, separate, but extensive analyses of long term tide gauge records in both New Zealand and Australia have failed to find any evidence of acceleration in this rise in sea level. However, satellite altimetry data collected since 1993 infer a rise in global sea levels of 3.3 ± 0.2 mm/yr, a rate that is almost double the long term average as derived from tide gauge data. Furthermore, global oceanographic models, suggest that the sea level changes that occur as a result of global climate warming will show distinctly different regional patterns. This paper discusses these seemingly disparate results drawing together a specific sea level rise scenario for the South Pacific region out to 2100. It then seeks to place this risk to small island coastal communities within the context of the broader risks that arise from other physical phenomena such as storm surge and tsunamis.

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