

Monitoring Sea Level Trends in the South West Pacific

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SUMMARY

The South Pacific Sea Level and Climate Monitoring Project was established in the early 1990s in response to concerns raised by members of the South Pacific Forum over the potential impacts of an enhanced Greenhouse Effect on climate and sea levels. Global rates of sea level change of 1 to 2 mm per year have been observed over the 20th century and some effort has been made in determining the geographical distribution of the rates of rise but little is known about the effects in the South West Pacific. This is partly due to lack of attention to the datums of the preexisting tide gauges and the continuity of the network. The current network employs acoustic sea level sensors with high vertical accuracy coupled with regular near first order surveying to networks of tide gauge benchmarks. In turn these are connected to continuous GPS receivers to monitor the effects of vertical land motion with similar high accuracy. The results of the monitoring will be presented, showing relatively large rates of sea level rise have occurred since the early nineties, but our conclusions are tempered by the comparatively short length of the timeseries, compared to longer scale oceanographic changes. An example of this is the large signal observed as a result of the El Nino in 1996/97 that has been only observed once during the lifetime of the project. It is certain that this is still biasing the estimates of the secular rates.

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