

## **ENSO PHENOMENON AND SHORELINE CHANGE IN SOUTH TARAWA, REPUBLIC OF KIRIBATI**

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El Nino Southern Oscillation Index (ENSO) cause significant changes in sea state and weather parameters, especially increase in frequency of westerly winds and wave heights. In the Pacific Small Island Developing States (SIDS) like Kiribati, these changes cause larger waves to enter coastal areas, and cause significant erosion of carbonate sediments, cause alteration of coastlines and hydrodynamics processes. For SIDS this represents real concerns for coastal communities, in countries where land is scarce, expensive and valuable. Tarawa, the capital of Republic of Kiribati, is a triangular low-lying atoll in the western Pacific at 1°30' N and 173°00' E. There is a series of islets on the east and south sides of the Tarawa Lagoon, which are mostly linked by artificial causeways. The capital has a high population density and is threatened by waste disposal and coastal pollution, poorly planned coastal development and the possible threat of sea level rise. Many coastal areas show signs of degradation of reef communities, change of sediment pattern, coastal erosion and damage to coastal ecosystems. Recent and historical beach profile data together with historical aerial photographs show that the thickness of beach sediments eroded varies between 0.10-2.0m during and after the ENSO events in the south Tarawa. The timing of maximum shoreline erosion and accretion coincides with the passage of ENSO events and provide evidence that ENSO driven changes in prevailing winds cause cyclic variations in the sand volume on the beaches of south Tarawa.