



A 30-Year Global Wave Hindcast

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Many Pacific Islands are vulnerable to impacts of waves through coastal inundation, coastal and beach erosion, wave driven lagoon circulation, disturbances to reef habitats etc. On steep continental shelves like Pacific island coral atolls, surface waves are the dominant contributor to coastal sea-level extremes via wave set-up.

A recent review of the availability of modelled and observed wave data in the Pacific region noted the need for a high-quality multi-decadal wave climate data set. The absence of high temporal resolution spectral wave data was noted, with existing hindcast products assessed as being of inadequate spatial and temporal resolution in general. Wave hindcast resolution has historically been limited by the resolution of available winds. The recently completed National Centers for Environmental Prediction's (NCEP) Climate Forecast System Reanalysis (CFSR) surface winds now provide a consistent product at 0.3°, hourly resolution over the past 30 years, providing a valuable source of forcing for wave hindcasting.

As part of the Pacific-Australia Climate Change Science and Adaptation Program (PACCSAP), work is being carried out examining recent, existing and projected future ocean wave conditions with a focus on the Pacific region. As part of this work, a 30-year (1979-2009) global wave hindcast has been produced, using CFSR wind forcing. Details of this hindcast will be presented including an assessment of the quality of the data set using in-situ buoy and satellite altimeter data.