

SUPOT CHARULUKHANA : CHARACTERISTIC OF WAVE AND SHORELINE CHANGE AT
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The coastal areas in the Lower Gulf of Thailand have presently suffered from the problem of shoreline change. The causes are from natural phenomena, that is wave, tidal current, etc, and by the interference of sediment transport by man-made coastal structures such as breakwater, or land reclamation. The problem is now accelerated because of the need of land development for economic growth and more investment associated with the economic development of the country.

In this study, the wave characteristics and shoreline change at Songkhla breakwater are examined for both theoretical and field data investigation. Deep water waves are hindcasted using the historical wind record from Meteorological department with period of 7 years from 1981 to 1987. There are 3 theories used herein, i.e. theories of Sverndrup, Munk and Bretschneider (SMB), Peirson and Moscovitz (PM) and JONSWAP (SPM 1984). The result of wave hindcasting model is the significant input data for the mathematical N-line model in order to study the shoreline change in two dimension.

It was found that the JONSWAP method showed the lowest standard error among the three theories with the magnitude of 0.46 m. The time of wave which influence the shoreline change in a year was forty-eight percent with the average height of 1 to 1.5 meters and wave period of 5 to 6 seconds. The predominant wave directions were north-east and east-north-east with sixteen and twelve percent in a year respectively. The calibration from mathematical N-line model showed that coeff of Longshore Transport, K equals 0.25 and activity factor, C_{OFF} equals 3 m/year. The net longshore sediment transport direction is northward with average rate of 128,280 cubic meters per year. The deposition rate at Songkhla jetty was 6.6 m per year at the water level of 1 meter.