## D-17 : SEA-LEVEL FLUCTUATIONS IN THE KALPITIYA LAGOON

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Kalpitiya Lagoon is situated in the Puttalam district and is approximately 30 km in length and the width varies from 2 km to 8 km. It covers a surface area of about 250 $km^2$ and the average depth is 1.5 m.

Sea-level observations were made using tide pole (June 1990 and January 1992 twice a month) and pressure gauges (December 1991 and January 1992) at three stations (Kalpitiya, Etali, Puttalam) in the Kalpitiya Lagoon.

Maximum tidal difference observed during spring tide period. (Kalpitiya 0.65 m Etali 0.5 m and Puttalam 0.4 m). The phase difference from Kalpitiya to Etali is 2.5 h and Kalpitiya to Puttalam is 3 h.

Examination of the tidal oscillations of sea level shows that the dominant astronomical tides are semi-diurnal type.

It reveals that there were significant subtidal fluctuations in addition to the tidal oscillations. Harmonic analysis (least squares method) of the tidal oscillation of sea level indicates that M2 is the dominant tidal constituent.

The M2 amplitude, however, suffered more than 50% reduction in the interior of the lagoon largely to the narrow inlet. The subtidal sea level fluctuations within the lagoon were forced primarily by the low - frequency fluctuations of the adjacent shelf water.

The phase difference between Kalpitiya and Puttalam Lagoon may, mainly depend on the bottom friction and wind stress.