

## **Sub tidal sea level oscillation in Sri Lankan Waters**

**E.M.S. Wijeratne**

*Oceanography Division, National Aquatic Resources Research and Development Agency,  
Crow Island, Colombo-15, Sri Lanka*

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### **Abstract**

This paper presents the analysis of one year continuous high frequency (01 min) sea level measurements from west, south and east coast of Sri Lanka. High frequency records exhibit short-period oscillations with periodicity of 0.4–2.0 h, which are attributed due to shelf oscillation seiches. The amplitude of seiches varies with monsoon pattern, in the west coast exhibits relative large amplitude during south west monsoon while in the east coast seiches amplitudes are large during north east monsoon. In the south, Kirinda station shows relatively larger seiches amplitudes through out the year.

Low pass filtered residual sea level shows that the oscillation is mainly annual in character, but significant variations take place over a period of about 05 days and inter-seasonal time scales which are possibly due to the variation of air pressure and wind.

The seasonal sea level range is 0.25-0.35 m, the range is relative large in the east coast with highest sea level in December. The highest sea level in the west coast is in January. Approximately, half of this seasonal range (15 cm) in Sri Lanka Waters is explained by the steric height variations, assuming a well-mixed surface layer of 100 m and seasonal salinity variations of 2 psu around the Island. Anyhow, it is obvious that shifting winds and current systems off the coast (Schott et al., 1994) may contribute to the seasonal variability as well.

Based on bench mark leveled data show that the mean sea level is high in the east coast about 10 cm compared to west coast. However, during June east coast sea level is some what lower to west coast probably due to the strong SW monsoon wind setup.

*Correspondence :*     *emsw@nara.ac.lk*