

## OBSERVED SEASONAL AND TIDAL VARIABILITY OF SEA LEVEL AND CURRENT ON THE ANDAMAN SHELF

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**ABSTRACT:** The Andaman shelf is a broad continental shelf extending in a north-south direction along the eastern boundary of the Andaman Sea (AS). While the Andaman shelf has been investigated for a long time, the fundamental understanding on the shelf dynamics is still limited largely due to the scarcity of long-term oceanographic observation. Under a collaborative framework between Thailand and China, an Acoustic Doppler Current Profiler (ADCP) was deployed on the shelf for a year, providing year-round in situ observation. By analyzing the ADCP and tide-gauge observations, the sea level and current variations on seasonal and tidal timescales were investigated during the study period. Our analyses showed a clear seasonal pattern of sea level corresponding to monsoon winds. Current, in contrary, exhibited a weak seasonality and were likely influenced by remote forcings from the Equatorial Indian Ocean (EIO). Our observation highlights the connection between the AS and the EIO. In addition, tides are semi-diurnal with  $M_2$  and  $S_2$  being the most predominant tidal constituents, followed by  $N_2$  and  $K_1$ . Tidal currents for the two major constituents exhibited a clockwise rotation with major semi-axis lengths oriented toward north-eastward direction.

**Keywords:** Andaman Sea, Seasonal variation, Tide, current

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