

Seasonal and Inter-annual variability of chlorophyll-a in the Gulf of Thailand

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The Gulf of Thailand (GoT) is a semi-enclosed shallow sea located in the southwest of the South China Sea. This area is important for fisheries and aquacultures for many countries. The seasonal variations of the GoT are determined by monsoon systems, while the large inter-annual variability GoT is affected by El Niño Southern Oscillation (ENSO). The ecosystems and abundance of fishery resources may be altered due to ENSO from the results of dry and wet weather during El Niño and La Niña, respectively. However, there are little information to assess how lower-trophic level ecosystem responds to ENSO. In this study, monthly satellite ocean color data from July 2002 to December 2018 was analyzed to compare with sea surface temperature, wind magnitude and direction, and river discharge data to understand the variability. The results showed that chl-a was positively and negatively correlate with wind magnitude and SST, respectively, in the GoT. However, chl-a near coastal area, including the upper GoT, responded to the increase of river discharge. To investigate the interannual variations, the Empirical Orthogonal Function (EOF) analysis have performed to evaluate the spatial and temporal variations of chl-a in the GoT.

Keywords: Gulf of Thailand, Chlorophyll-a, Variability