Monthly variability of Chlorophyll-a distribution in the Gulf of Thailand

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The Gulf of Thailand (GoT) is semi-enclosed sea located in the western part of the South China Sea. This area is important to fisheries production in this region. The satellite data can reveal the primary production through chlorophyll-a (Chl-a) which is basic for the food chain. The objectives of this study are to investigate the variation and spatial distribution patterns of Chl-a in the GoT by using long-term satellite data from SeaWiFS (1997-2010), MERIS (2002-2012), MODIS AQUA (2002-2018), and VIIRS (2012-2018) level 3 compared with oceanographic conditions from previous study and circulation model name Princeton Ocean Model (POM). Tide and climatological data of wind, salinity, temperature and river discharge are forcing in the model. The results from averaged monthly Chl-a concentration in the central GoT illustrate low Chl-a concentration occurred in transition periods (April-May, and October) by lowest in May when the water column was stratified. High Chl-a concentration occurred during the northeast monsoon (November to February) with the highest in December when the water column was well mixed, and a small peak was found during June to August. Hight Chl-a was found along the coast, especially near the northern coast in the southwest monsoon (June to October). During the northeast monsoon Chl-a near cape CaMau spread offshore, due to strong surface currents flew into GoT from the southern part of cape CaMau to the middle of GoT mouth.

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