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Annual and Seasonal Variability of Chlorophyll-a Concentration in the Upper Gulf of Thailand

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The annual and seasonal variability in chlorophyll-a concentration was evaluated using ocean color satellite data from 1998 to 2006 for the Upper Gulf of Thailand. Satellite-derived chlorophyll-a concentration was validated using three in-water algorithms. The regional algorithm has better performance. Its correlation coefficient was 0.935 and root mean square error was 0.252 on the log scale. Chlorophyll-a concentration was estimated by using the regional algorithm, and annual was calculated. The annual average chlorophyll-a concentration increased year on year in the northwest corner and along the western coast of the Gulf, while the average was unchanged in the eastern and middle part. Seasonal variability of chlorophyll-a concentration was clear in the eastern region of the Gulf. This difference shows the difference of the exchanging water quality. In eastern region, clear water flows into from Gulf of Thailand in dry season and water is flushed. On the other hand, in western region the sea water also flows into from the Gulf along the east coast of Malay Peninsula in rainy season, but it includes eutrophic water supplied from coast region then the water is not flushed and chlorophyll-a concentration is kept higher level. Therefore marine environment in western region of Upper Gulf of Thailand become worse year by year.