

# The Impact of Locally-tuned Chlorophyll-a Algorithm in Malacca Straits

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**Abstract:** Study of biological production such as Chlorophyll-a concentration (Chl-a) is essential for sustaining ocean biodiversity and this can be undertaken by remote sensing that has advantages of synoptic area coverage, durable and continuous observation cycle and less man power required. Space-borne optical sensor offers the application of ocean color to estimate the Chl-a. The sought-after ocean color algorithm designed for Moderate Resolution Imaging Spectroradiometer (MODIS) called OC3M has encountered an overestimation Chl-a issue particularly to derive the Chl-a estimate in the shallow ocean depth. This is a case for Malacca Straits and yet from the previous study [1], we have devised the locally tuned OC3M to minimize the overestimated Chl-a. This paper discusses about the impact of the locally-tuned Chl-a algorithm and the contributing factors to the accuracy of the satellite derived Chl-a estimation. This study also presents the locally-tuned OC3M application on the latest reprocessed MODIS data that was launched in early 2013. We found that the Chl-a estimates are likely to be influenced by the South East and the North West monsoons and the second version of MODIS reprocessed data finally conveys promising and better Chl-a estimation over Malacca Straits area. Besides, the high total suspended matter (TSM) found in this area is determined as one of the influencing factor to Chl-a accuracy. The study anticipates the locally-tuned Chl-a variant as an alternative to the standard OC3M and it requires long-term validation with massive testing points.

[1] Zafirah et al., 2013, Regionally-tuned of MODIS Standard Chlorophyll-a Algorithm for Malacca Strait, RSL, in press, TRES-LET-2013-0184.

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