PERFORMANCE OF MODIS STANDARD (OC3) CHLOROPHYLL-A ALGORITHM IN INDONESIA CASE-1 WATERS

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Abstract

MODIS sensor board on Aqua EOS Satellite was starting to be operational since 2002. Some algorithm for MODIS data application was developed and validated included algorithm for estimated the chlorophyll-a concentration both in Case-1 and Case-2 waters. The MODIS-estimated chlorophyll-a information was widely used in some operational application in Indonesia. However, until 2011, there is no information about the performance of MODIS chlorophyll-a in Indonesia seawaters and there is no data used in development of algorithm was taken in Indonesia seawaters. Even the algorithm was validated in other area, it is important to know the performance of the algorithm work in Indonesia seawaters. The in-situ chlorophyll-a concentration data was collected during MOMSEI (*Monsoon Offset Monitoring and Its Social and Ecosystem Impact)* 2012 Cruise 25th April – 12th May 2012 and also from archived data of the Research and Development Agency of Marine and Fisheries Affairs Ministry. The in-situ data used in this research is located in Indian Ocean the west of Sumatera part and Pacific Ocean the north of Papua Province part. Satellite data which is used is Ocean Color MODIS Level-2 Product that downloaded from NASA and MODIS L-0 from LAPAN Ground Station. MODIS Level 0 from LAPAN then processed to Level-2 using latest SeaDAS Software. Match-up process between field chlorophyll-a and satellite-estimated chlorophyll-a done by WIM Match that is one of module in WIM Software. The match-up resulted the MNB(%) is -4.8% that means satellite-estimated was underestimated in 4.8 % and RMSE is 0.058. However, between field and satellite-estimated did not show good correlation and trendline equation. This result seems due to the different source of field data that might used different method to measured the field chlorophyll-a. After the data was separated following to the data source, the correlation and trendline equation became better. From MOMSEI Cruise data, correlation equation is is y= 0.971x – 0.018, R^2 0.6, MNB(%) is -18.8% and RMSE 0.05. From Pacific Ocean Data, correlation equation y= 0.316x – 0.024, R^2 0.3 MNB(%) is -27 % and RMSE 0.049. From SONNE Cruise, correlation equation y= 0.316x – 0.024, R^2 0.33, MNB(%) is -27 % and RMSE 0.049. MODIS standard algorithm is works well in Indonesia case-1 seawaters.

Keywords : MODIS, Chlorophyll-a, Indonesia.