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Satellite Statistical Data Approach for Upwelling Identification and Prediction in South of East Java and Bali Sea

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Abstract : Sea fishery's potential to become one of the nation's assets which very contributed to Indonesia's economy. This fishery potential not in spite of the availability of the chlorophyll in the territorial waters of Indonesia. The research was conducted using three methods, namely: statistics, comparative and analytical. The data used include MODIS sea temperature data imaging results in Aqua satellite with a resolution of 4 km in 2002-2015, MODIS data of chlorophyll-a imaging results in Aqua satellite with a resolution of 4 km in 2002-2015, and Imaging results data ASCAT on MetOp and NOAA satellites with 27 km resolution in 2002-2015. The results of the processing of the data show that the incidence of upwelling in the south of East Java Sea began to happen in June identified with sea surface temperature anomaly below normal, the mass of the air that moves from the East to the West, and chlorophyll-a concentrations are high. In July the region upwelling events are increasingly expanding towards the West and reached its peak in August. Chlorophyll-a concentration prediction using multiple linear regression equations demonstrate excellent results to chlorophyll-a concentrations prediction in 2002 until 2015 with the correlation of predicted chlorophyll-a concentration indicate a value of 0.8 and 0.3 with RMSE value. On the chlorophyll-a concentration prediction in 2016 indicate good results despite a decline in the value of the correlation, where the correlation of predicted chlorophyll-a concentration in the year 2016 indicate a value 0.6, but showed improvement in RMSE values with 0.2.

Keywords : satellite, sea surface temperature, upwelling, wind stress
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