

عنوان مقاله:

Relationship between chlorophyll-a, sea surface temperature, and sea surface salinity

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نویسندگان:

M. Hidayat - Graduate School of Mathematics and Applied Sciences, Universitas Syiah Kuala, Banda Aceh ۲۳۱۱۱, Indonesia

R. Wafdan - Department of Marine Sciences, Faculty of Marine and Fisheries, Universitas Syiah Kuala, Banda Aceh, ۲۳۱۱۱, Indonesia

M. Ramli - Department of Mathematics, Universitas Syiah Kuala, Banda Aceh ۲۳۱۱۱, Indonesia

Z. Muchlisin - Graduate School of Mathematics and Applied Sciences, Universitas Syiah Kuala, Banda Aceh ۲۳۱۱۱, Indonesia

S. Rizal - Graduate School of Mathematics and Applied Sciences, Universitas Syiah Kuala, Banda Aceh ۲۳۱۱۱, Indonesia

خلاصه مقاله:

**BACKGROUND AND OBJECTIVES:** This study aimed to investigate the long-term relationship between chlorophyll-a, sea surface temperature, and sea surface salinity monthly from January ۲۰۱۵ to December ۲۰۲۱. It was carried out in the Northern Bay of Bengal, which experiences extreme monsoons, in the southwest monsoon and northeast monsoon from June to September and November to February, respectively. Monsoon is the main cause of changes in chlorophyll-a, sea surface temperature and sea surface salinity. **METHODS:** The seasonal model was used to examine the relationship between these three parameters, which were obtained using the Copernicus Marine Environment Monitoring Service data. The seasonal model was used to observe periodic patterns and predict parameters based on their regularity. Meanwhile, Pearson's correlation analysis was conducted to determine the relationship between chlorophyll-a, sea surface temperature and sea surface salinity. **FINDINGS:** This study found that the three parameters, namely chlorophyll-a, sea surface temperature, and sea surface salinity, follow the monsoon pattern, as shown in the seasonal model. The minimum value of chlorophyll-a occurred in February, March and April, while the maximum value of approximately ۲ milligram per cubic meter occurred at stations ۱, ۲, ۳, ۴, ۵ and ۷, but at ۹ and ۱۰, it increased to ۱۲ - ۱۴ mg/m<sup>۳</sup>. This indicates that station positions are very sensitive to changes in chlorophyll-a values. When the southwest monsoon occurred, it reached the maximum. Furthermore, the minimum sea surface temperature values occurred in January and at almost every station in the year. It was shown to be associated with the northeast monsoon, which causes winter. On the sea surface temperature graph, several peaks were observed in positive local extremes yearly at almost all stations. The maximum sea surface temperature occurred in May, June, and July, according to the shape of the graph, which peaked in the middle of the year. The sea surface salinity graph formed a peak and valley which occurred yearly in May or April, as well as September and October, respectively. **CONCLUSION:** Chlorophyll-a had \ trough and \ peak, with the sea surface temperature graph possessing only \ peak, while the sea surface salinity graph had \ peak and \ trough, respectively. These graph patterns implied that chlorophyll-a first achieved a minimum value before reaching the maximum. The sea surface temperature graph had a maximum value in the middle of the year, while the minimum occurred at the ... beginning or end. Moreover, the sea surface salinity g

کلمات کلیدی:

Coefficient of correlation, Copernicus Marine Environment Monitoring Service (CMEMS Data), Northern Bay of Bengal, Northeast monsoon, Seasonal model, Southwest monsoon

لینک ثابت مقاله در پایگاه سیویلیکا:

