

wavelength for this is 645 nm representing the red channel of the satellite image. The value result of the model if it compares with the TSS insitu on correlation analysis shows that the cubic model has the big proportion, so in the coastal area of Ujung Pangkah Gresik the changes of the suspended solid concentration have a probability cubic model that can be applied in the area for the need of forecasting

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REFERENCES

- [1] D. Wang *et al.*, "Impact of sensor degradation on the MODIS NDVI time series," *Remote Sens. Environ.*, 2012.
- [2] C. B. Schaaf *et al.*, "First operational BRDF, albedo nadir reflectance products from MODIS," *Remote Sens. Environ.*, 2002.
- [3] Y. Wang *et al.*, "Assessment of biases in MODIS surface reflectance due to Lambertian approximation," *Remote Sens. Environ.*, 2010.
- [4] J. Guang, Y. Xue, L. Yang, L. Mei, and X. He, "A method for retrieving land surface reflectance using MODIS data," *IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens.*, 2013.
- [5] X. Che, M. Feng, H. Jiang, J. Song, and B. Jia, "Downscaling MODIS surface reflectance to improve water body extraction," *Adv. Meteorol.*, 2015.
- [6] V. Brando, A. Dekker, A. Marks, Y. Qin, and K. Oubelkheir, "Chlorophyll and suspended sediment assessment in a macrotidal tropical estuary adjacent to the Great Barrier Reef: Spatial and temporal assessment using remote sensing," *Coop. Res. Cent. Coast. Zo. Estuary Waterw. Manag. - Tech. Rep. 74*, pp. 1–128, 2006.
- [7] K. Nieto and F. Mélin, "Variability of chlorophyll-a concentration in the Gulf of Guinea and its relation to physical oceanographic variables," *Prog. Oceanogr.*, vol. 151, pp. 97–115, 2017.
- [8] T. Lacava *et al.*, "Evaluation of MODIS—Aqua Chlorophyll-a Algorithms in the Basilicata Ionian Coastal Waters," *Remote Sens.*, vol. 10, no. 7, p. 987, Jun. 2018.
- [9] M. A. Cane *et al.*, "Twentieth-century sea surface temperature trends," *Science (80-.)*, 1997.
- [10] C. Jian, Y. O. U. Xiaobao, X. Yiguo, Z. Ren, W. Gongjie, and B. A. O. Senliang, "A performance evaluation of remotely sensed sea surface salinity products in combination with other surface measurements in reconstructing three-dimensional salinity fields," vol. 36, no. 7, pp. 15–31, 2017.
- [11] H. Loisel *et al.*, "Variability of suspended particulate matter concentration in coastal waters under the Mekong's influence from ocean color (MERIS) remote sensing over the last decade," *Remote Sens. Environ.*, vol. 150, pp. 218–230, Jul. 2014.
- [12] H. Xi, Y. Zhang, H. Xi, and Y. Zhang, "Total suspended matter observation in the Pearl River estuary from in situ and MERIS data," *Env. Monit Assess.*, vol. 177, pp. 563–574, 2011.
- [13] D. Kyriliuk and S. Kratzer, "Total suspended matter derived from MERIS data as indicator for coastal processes in the Baltic Sea."
- [14] E. Kari, S. Kratzer, J. M. Beltrán-Abaunza, E. T. Harvey, and D. Vaičiūtė, "Retrieval of suspended particulate matter from turbidity – model development, validation, and application to MERIS data over the Baltic Sea," *Int. J. Remote Sens.*, vol. 38, no. 7, pp. 1983–2003, Apr. 2017.
- [15] T. Hariyanto, T. C. Krisna, C. B. Pribadi, A. Kurniawan, B. M. Sukojo, and M. Taufik, "Evaluation of Total Suspended Sediment (TSS) Distribution Using ASTER, ALOS, SPOT-4 Satellite Imagery in 2005-2012," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 98, no. 1, p. 012026, Dec. 2017.
- [16] S. Lehner, I. Anders, and G. Gayer, "High Resolution Maps Of Suspended Particulate Matter Concentration In The German Bight," *EARSeL eProceedings 3*, vol. 1, 2004.
- [17] J. J. Walker, K. M. De Beurs, R. H. Wynne, and F. Gao, "Evaluation of Landsat and MODIS data fusion products for analysis of dryland forest phenology," *Remote Sens. Environ.*, 2012.
- [18] M. Feng, C. Huang, S. Channan, E. F. Vermote, J. G. Masek, and J. R. Townshend, "Quality assessment of Landsat surface reflectance products using MODIS data," *Comput. Geosci.*, 2012.
- [19] Emiyati, A. K. S. Manoppo, and S. Budhiman, "Estimation on the concentration of total suspended matter in Lombok Coastal using Landsat 8 OLI, Indonesia," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 54, no. 1, p. 012073, Jan. 2017.
- [20] C. Petus, G. Chust, F. Gohin, D. Doxaran, J. M. Froidefond, and Y. Sagarminaga, "Estimating turbidity and total suspended matter in the Adour River plume (South Bay of Biscay) using MODIS 250-m imagery," *Cont. Shelf Res.*, vol. 30, no. 5, pp. 379–392, 2010.
- [21] E. Robert *et al.*, "Monitoring water turbidity and surface suspended sediment concentration of the Bagre Reservoir (Burkina Faso) using MODIS and field reflectance data," *Int. J. Appl. Earth Obs. Geoinf.*, 2016.
- [22] L. A. Karondia and L. M. Jaelani, "Validasi Algoritma Estimasi Total Suspended Solid dan Chl-A Pada Citra Satelit Aqua Modis dan Terra Modis dengan Data In Situ (Studi Kasus : Laut Utara Pulau Jawa)," *Geoid*, vol. 11, no. 1, pp. 46–51, 2015.
- [23] R. Asadpour, L. H. San, M. M. Alashloo, and S. Y. Moussavi, "A Statistical Model for Mapping Spatial Distribution of Total Suspended Solid from THEOS Satellite Imagery Over Penang Island, Malaysia," vol. 8, no. 1, pp. 271–276, 2012.
- [24] T. E. Baxter, "Standard Operating Procedure Total Dissolved Solids by Gravimetric Determination," 2017.