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Study of MODIS-AQUA data for TSS (Total Suspended Solid) Distribution Mapping

BAMBANG TRISAKTI[1] and PARWATI[1]

[1]*Researcher of Natural Resources Monitoring in National Institute of Aeronautic and Space of Indonesia*

MODIS-AQUA data (spatial resolution: 250 m, 500 m and 1000 m) was studied to generate TSS distribution in coastal water of Java Island. TSS algorithms for different spatial resolution of MODIS data were developed by correlating spectral value of MODIS with TSM value of Landsat-7 ETM generated using reported algorithm. Samples of both data were done randomly in many locations. In each sample location, spectral value of MODIS was taken from value of 1 pixel size, on other hand, TSS value of Landsat-7 ETM was taken by calculating mean TSS value from several pixels represented same area as 1 pixel size of MODIS. The new TSS algorithms were used to generate TSS distribution for each spatial resolution of MODIS, and then, all the TSS distributions patterns generated from MODIS and Landsat-7 ETM were compared. The correlations show that exponential model (X^a) has higher coefficient correlation comparing to other models (where R^2= 0.73 for 250 m, R^2=0.75 for 500 m and R^2=0.80 for 1000 m). Comparison of TSS distribution pattern generated from Landsat-7 ETM and those generated from MODIS for all spatial resolutions shows that spatial resolution 250 m and 500 m of MODIS has ability to be used for identifying TSS distribution in coastal water.

Keywords: TSS distribution, MODIS-AQUA, Landsat-7 ETM, spatial resolution