

Analysis of Lapindo Mud Effect using TERRA-MODIS Satellite Images in Madura Strait

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Abstract: Lapindo mud disaster was occurred on 28th May 2006 and causing great loss and destruction in various aspects including environment. The disposal process of Lapindo mud is delivered into the sea, especially Madura Strait via Kali Porong. This process changes and increases the Total Suspended Solid concentration in the disposal route. Remote Sensing Techniques is now one of the trending methods to analyze and determine the Earth's property using one or more parameters and calculations. TERRA-MODIS satellite can be used to measure Total Suspended Solid concentration, especially using Band 1. The algorithm was taken from Miller and McKee and being used in the interpretation process. The algorithm change the Digital Number of Spectral in Band 1 according to reflectance of sea surface with different value of Total Suspended Solids. Thus we can make a map from modeling and grouping varies ranges of Total Suspended Solid value. The updated map condition of total suspended solid concentration in Madura Sea is resulted from this analysis and interpretation. The result shows that the total suspended solid value of Madura Strait is significant changed due to the existence of Lapindo Mud in Madura Strait area. The analysis of results show that the Total Suspended Solids concentration value of Madura Strait increased by 10% after Lapindo mud pollutes the area. That result confirms that there is a huge influence of Lapindo mud disaster to the environment condition of Madura Strait and Kali Porong's estuary.

Keywords: Lapindo mud, TERRA-MODIS, Total Suspended Solids, Madura Strait.