

Development of A Simple Method for Detecting Mangrove Using Free Open Source Software

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Abstract	<p>Mangrove forests are becoming attractive natural charms and make everyone to take advantage of the existence of these coastal ecosystems both directly and indirectly. However, the condition of mangrove forests is threatened by their presence due to environmental factors around them. Sustainable mangrove monitoring efforts must always be increased to support the preservation of the mangrove ecosystem. The purpose of this study is to develop a fast and easy mangrove forest identification method based on remote sensing satellite imagery data. The research location chosen was the mangrove area in Segara Anakan, Cilacap. The data image used is Landsat 8 image acquisition on December 3, 2017 with path/row 121/065 obtained from the LAPAN Pustekdata Landsat catalog. The methods used include the Optimum Index Factor (OIF) method for selecting the best channels and the supervised classification method using the Semi-Automatic Classification Plugin (SCP) contained in open source software and provides three algorithm choices for the classification process including Minimum Distance, Maximum Likelihood and Spectral Angle Mapping. The results show the combination of RGB 564 (NIR+SWIR+RED) was the best in the identification of mangrove forests and the Maximum Likelihood classification algorithm was the most optimal in distinguishing mangrove and mangrove classes from both Macro Class and Class levels. The results of the calculation of the area show the mangrove area of 7,037.16 ha. The developed method can produce information on the distribution of mangroves at research sites more quickly, easily, effectively, and efficiently.</p>
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