Hyperspectral Data and Multispectral Images for Healthy Corals Detection on the Small Islands, Spermonde Archipelago, Indonesia

Nurjannah Nurdin [1,3] , Teruhisa Komatsu [2], Sumbangan Baja [3],

[1,3] Marine Science Department, Hasanuddin University, Jl.Perintis Kemerdekaan km.10, Makassar, 95245. Indonesia. E-mail; nurj_din@yahoo.com

[2] Atmosphere and Ocean Research Institute (AORI), The University of Tokyo, 1-15-1, Kashiwanoha, Kashiwa, 277-8564, Japan. E-mail; komatsu@aori.u-tokyo.ac.jp

[3] Center for Regional Development & Spatial Information (WITARIS), Hasanuddin University, Jl.Perintis Kemerdekaan km.10, Makassar, 95245. Indonesia. E-mail; sbja02@yahoo.com.au

Abstract: Remote sensing has been suggested as a powerfull tool for monitoring coral-reef ecosystems. However, before remote sensing can be viewed as a practical monitoring and diagnostic tool for entire coral communities, there is a need to understand the spectral responses from individual coral. The aim of this study is identifying the spectral reflectance of coral reefs using multispectral image and hyperspectral data, it is expected that they can be used as references in discriminating healthy coral. The study site was selected in Spermonde archipelago, South Sulawesi, Indonesia because this area is included in the highest diversity of corals in the world named as Coral Triangle, which is recognized as the global center of marine biodiversity and a global priority for conservation. Spectral reflectance data was collected by using a hyperspectral radiometer, ALOS AVNIR and ALOS PRISM. Correlation analysis and Cluster analysis support that distinct differences in reflectance spectra among categories existed. The analysis result of hyperspectral data shown that live corals, dead corals covered with alga and coral rubber are spectrally separable from each other. But It was difficult to discriminate of them using multispectral image.

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