

ABSTRACT

System of Remote sensing produce images called multispectral remote sensing imagery. One use of these images are for identification of coral reefs. Identification of coral reefs is the detection of types of coral reefs based on geographic position, which is consist of three classifications, namely: fringing reefs, barrier reefs, and atoll. Identification of coral reefs conducted as a basis for mapping the distribution of coral reefs so can to enhance the ability of Geographic Information Systems (GIS) technology which is currently only able to map the natural results such as: sea grass, palm oil, petroleum, and the contour of the land. The image of coral reefs that captured by remote sensing are often exposed to problems due to the atmospheric cover which causes the image looks foggy, so that the identification process to be disrupted.

The method used to design system that can identify the coral reefs is by applying radiometric correction with "dark channel prior" to remove the atmospheric cover, the 2D Gabor Wavelet filter for feature extraction of coral reefs image where results of radiometric correction, and k-Nearest Neighbor algorithm for classification.

Based on research results obtained by the optimal size of the slide window for radiometric correction of the dark channel prior is 24 which is based on the correlation of PSNR values and the Quality Index. While on the main system, which produced the highest accuracy when the system is using 24 features by the method of measuring similarity with Euclidean Distance, $k = 5$, amounting to 88.33% and 11.67% for the lowest error. Average computing time is obtained for 9.378 seconds using 16 features and 9.750 seconds using 24 features.

Keywords: Remote Sensing, Multispectral, Coral Reefs, Radiometric, k-Nearest Neighbor, 2D Gabor Wavelet