

UAV's Remote Sensing for Observation of Micro Atolls in Shallow Waters of Small Islands, Spermode Archipelago, Indonesia

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ABSTRACT

Micro-atolls are massive corals on flat reefs with the colony dying in the center or there is a hole in the middle due to erosion by algae or other micro-borers. This study aims to measure the ability of UAV RGB imagery to identify micro atolls located on reef flats and objects associated with them on small islands. High resolution satellite images were also used to compare their accuracy in estimating the size of micro atolls. Some of the important steps carried out are field surveys, aerial and google earth photo acquisitions as well as mosaics, classification with segmentation based on, shape and color, texture, and shape of object proximity. RGB UAV is used to collect data and it is processed by object-based image analysis (OBIA) classification algorithm and supervised classification. This paper represents the result of UAV data analysis is more accurate and precise than high resolution satellite image data analysis. The diameter of the micro atoll can be calculated and the associated community around it. This technology allows it to be used for monitoring shallow water ecosystems bordering community activities on the mainland of small islands and producing a higher scale.

Keywords: UAV, micro-atolls, OBIA, reef flat, small island.