Topic : Data processing

Subtopic : Automatic feature attraction

Effect of Water Column Correction to Seagrass Classification Substrate

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Abstract:

A seagrass feature is an important indicator to measure the healthiness of the surrounding ecosystem. However, anthropogenic activities from natural and human causes have caused its populations to decline worldwide. A proposed technique to identify and monitor is remote sensing which can cover large area in a time effective manner and inaccessible areas frequently. Moderate coastal water type remains a challenge to classify the seagrass feature compared to clear water. In order to classify the remote sensing imagery, the deep water radiance had been applied to remove atmospheric effects using Lyzenga’s technique. In this study, three visible bands were used to access the detection of seagrass in moderate coastal water clarity using high spatial resolution satellite image, Worldview-2. Eight classifier techniques were tested: Maximum Likelihood, Mahalanobis Distance, Artificial Neural Networks, Support Vector Machine and Decision tree. The results were compared and the qualitative and quantitative assessment utilizing sea truth was undertaken. Three classes of sea bottom type were obtained from the classifications which are seagrass, mud and sand. The classification applied demonstrates that maximum likelihood classifier produces the best result when comparing with sea truth data and it show high overall accuracy and kappa coefficient.

Keywords: classification, seagrass, Worldview-2, remote sensing