Modeling Seagrass Community Using Remote Sensing and Real-Time Instrument Packages

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Goals

To evaluate the effects of using NASA science data as input to the seagrass model developed by Fong and Harwell to investigate the changes in seagrass communities in the Gulf of Mexico.

Project Overview

The purpose of this Rapid Prototyping Capability (RPC) experiment is to determine the capability of the Moderate Resolution Imaging Spectroradiometer (MODIS) to assist biologists by providing necessary information to accurately model the growth of particular species of seagrass. The current method of obtaining the necessary information for these models involves collecting the data manually at the site location. This experiment will compare results between the model using data collected in the field and the model that uses information provided by MODIS. The MODIS sensor and all products derived from it are provided by NASA Goddard Space Flight Center

Figure 1. Picture of one of the Seagrass Species in Question

Approach

The model for predicting seagrass communities is based upon the relationships between the seagrass, nutrients, light, and other factors. The model will predict the amount of growth and size of different seagrass communities. The MODIS sensor can provide most of the factors required for this model. The three main variables that MODIS sensor will provide information for are temperature, light and nutrients. Data retrieved from the sensor will directly provide information regarding temperature and light and will indirectly provide information regarding nutrients. The nutrient information will be determined based on the abundance of Chlorophyll detected by the sensor.

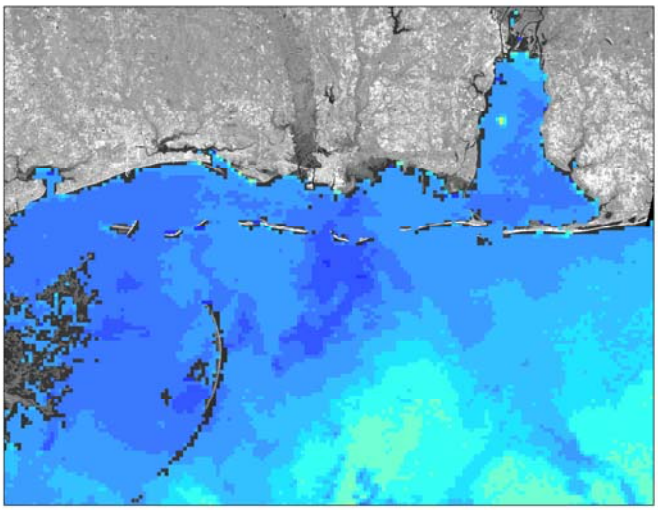

Figure 2. Sample Sea Surface Temperature Image Combined with Landsat Image

Expected Impacts

An evaluation of the capabilities of MODIS data for use in investigating the changes in seagrass communities will provide researchers a more extensive dataset as the MODIS sensor collects information for a target location daily. Current methods for collecting data involve traveling to the sample site and manually collecting data. Knowing the effectiveness of data collected by the MODIS sensor will allow for researchers to have access to data without having to visit the sample site.

Contact Information

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