

SAV Mapping Experience

Several of SpecTIR's personnel have experience in the planning, collection, processing and classification of hyperspectral data in support of submerged aquatic vegetation and coral reef mapping. They participated in USN and the private sector work to locate, identify and map SAV and reefs. These projects included:

Determination of Possible Underwater Cable Locations.

The remote sensing scientists participated in a program to collect high-resolution hyperspectral imagery using the AISA sensor. The imagery was used to delineate the submerged aquatic vegetation (SAV) beds from the surrounding water for the purpose of siting a proposed underwater cable. The existing beds of SAV were identified, mapped and verified with ground-truthing of the area.

The resulting classified image shows the location of the underwater vegetation which was used in the permitting process for the underwater cable. The data was presented to NJ DEP and NOAA to show the locations of existing SAV beds. The client estimated that over \$100,000 in field work was saved through the use of the hyperspectral imagery.

The identification and location of the SAV is possible through the use of an AISA hyperspectral sensor, differential airborne GPS, and an INS system. Each pixel was very precisely located, and spectral analysis determined the presence or absence of chlorophyll in the water. Ground truthing provided verification of the survey results. The resulting map was then used to verify the locations of the SAV without having to survey the entire area.

SAV and Reef Mapping in the Caribbean

The scientists participated in a program to fly hyperspectral imagery in support of a U. S. Navy program to establish a terrestrial and aquatic environmental base line for a Caribbean island. There were multiple data sets which included IFSAR and SHOALS LIDAR data and AISA hyperspectral imagery, which were used as layers in a GIS system.

The 3 m airborne hyperspectral data was collected to assist in the determination of the location of the reefs and submerged aquatic vegetation (SAV) to a depth of 30 m. In addition, data from the terrestrial portions of the island were collected and analyzed. It contained 34 spectral bands in two different configurations; one for the reefs and SAV, and the other for the island's terrestrial vegetation. The hyperspectral data was processed to provide radiometrically calibrated, geometrically-corrected, navigated and mosaiced images. Ground truth data was applied to the imagery to assist in the spectral classifications, and GIS ready products were generated for Navy use.