Hyperspectral Remote Sensing of Coastal Environments

Miguel Velez-Reyes, Director

Laboratory for Applied Remote Sensing and Image Processing
Center for Subsurface Sensing and Imaging Systems
UPR-Mayaguez
E-mail: mvelez@ece.uprm.edu

Benthic habitats are the different bottom environments as defined by distinct physical, geochemical, and biological characteristics. Hyperspectral remote sensing has great potential to map and monitor the complex dynamics associated with estuarine and nearshore benthic habitats. A key problem with existing and proposed satellite hyperspectral remote sensors is their low spatial resolution (20-30m). This paper looks at subpixel benthic habitat mapping using hyperspectral unmixing methods. However, using hyperspectral unmixing to map underwater areas requires compensating for variable bathymetry and optical properties of the water column. In this presentation, we present software tools developed at UPRM LARSIP to unmix hyperspectral imagery collected over estuarine and nearshore benthic habitats. Sample results using AVIRIS and AISA data are presented.