

## High School / Undergraduate Summer Research Project Topic: Mapping and Characterizing Chesapeake Bay Wetlands Using Landsat Imagery

Abstract: Wetlands are highly dynamic from a biogeochemical standpoint and have some of the highest rates of carbon sequestration and carbon transform relative to other ecosystems. Unique vegetation species that are adapted to thrive in seasonally or permanently inundated conditions are key drivers of this carbon sequestration through photosynthesis and successive assimilation of carbon-rich plant material into soil when plants die. In order to better understand wetland carbon dynamics, it is key to understand wetland vegetation characteristics. Wetlands exhibit high levels of heterogeneity on even small spatial scales, thus it is important to study wetlands using high spatial resolution observations. High spatial resolution satellite imagery provides an extremely useful tool in the study of wetlands. Landsat satellite imagery is particularly useful for the study of wetland vegetation with a 30 meter resolution and a 16 day revisit time. This makes Landsat ideal for resolving small scale changes in extent of wetland vegetation and vegetation wetland type on seasonal time scales. We will be seeking to answer questions about whether changes in wetland characteristics in the Chesapeake Bay can be observed through assessment of Landsat imagery and if there are linkages between these observed changes and carbon dynamics.