

NPS Remote Sensing Research (PH)

2010

Predicting Soil Strength With Remote Sensing Data

Jon T. Wende

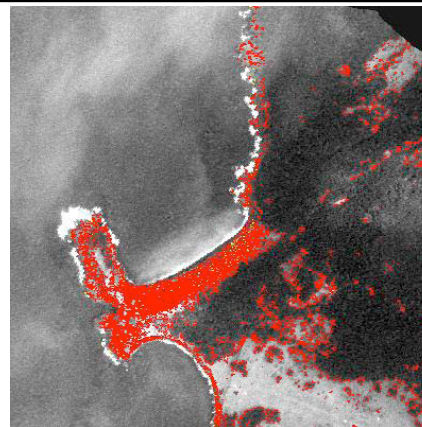
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Advisor: Richard C. Olsen

Second Reader: C. Bachmann

Predicting soil strength from hyperspectral imagery enables amphibious planners to determine trafficability in the littorals. Trafficability maps can then be generated and used during the intelligence preparation of the battlespace allowing amphibious planners to select a suitable landing zone. In February and March 2010, the Naval Research Laboratory sponsored a multi-sensor remote sensing and field calibration and field validation campaign (CNMI'10).

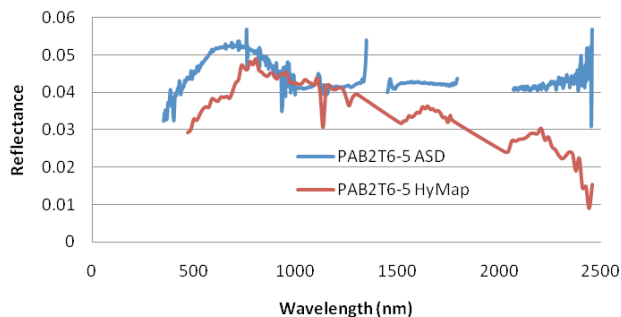
The team traveled to the islands of Pagan, Tinian, and Guam located in the Marianas archipelago. Airborne hyperspectral imagery along with ground truth data was collected from shallow water lagoons, beachfronts, vegetation, and anomalies such as World War II relics.



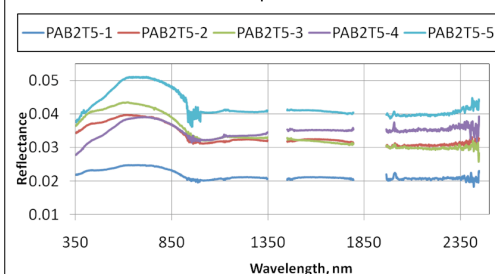
Beachfront hyperspectral data obtained on site was used as a reference library for evaluation against airborne hyperspectral data and ground truth data in order to determine soil strength for creating trafficability maps. Evaluation of the airborne hyperspectral images was accomplished by comparing the reference library spectra to the airborne images. The spectral angle between the reference library and airborne images was calculated producing the trafficability maps amphibious planners can use during the intelligence preparation of the battlespace.



Reflectance Comparison



1-March-2010. Pagan Beach 2 PAB2T5 Series Reflectance Spectra



Contact Information:
Prof. RC Olsen
831-656-2019
olsen@nps.edu