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Project Sheet: Commercial Imagery

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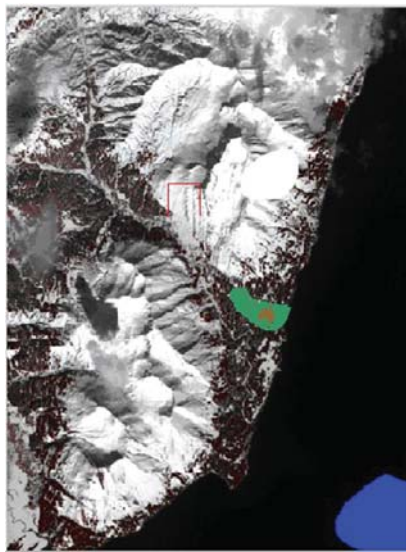
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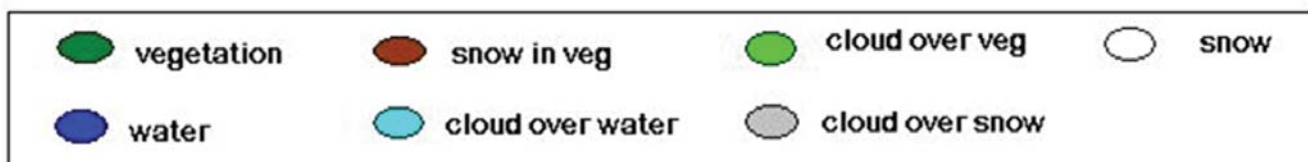
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Commercial Imagery Exploitation and Research Applications

MODIS AND ASTER SATELLITE IMAGERY: SNOW/ICE ANALYSIS



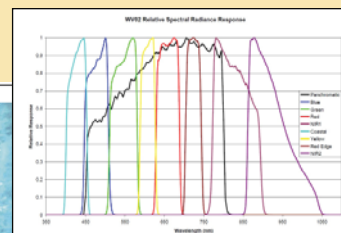
This is a joint effort with the University of California-Santa Barbara and Santa Cruz, as an extension of previous work with the NASA MODIS and ASTER sensors. NPS is working on the application of military systems to the problem of measuring the location and extent of snow and ice. The goal is to exploit the short revisit times of the military systems, compensating for relatively large pixel sizes by means of spectral analysis techniques. Initial thesis efforts at NPS have shown promise; we are currently investigating the next iteration in this research process.



WORLDVIEW-2 DATA SIMULATION AND ANALY-

DigitalGlobe's WorldView-2 sensor, launched in 2009, has 8 multispectral bands - 4 standard MSI spectral channels and an additional 4 non-traditional bands (Coastal, Yellow, Red Edge, and NIR-2). Before the actual launch of WV-2, hyperspectral data from the AURORA sensor (from the former Advanced Power Technologies, Inc. (APT)) was used to simulate the spectral response of the WorldView-2 Sensor and DigitalGlobe's 4-band QuickBird system. A bandpass filter method was used to simulate the spectral response of the sensors. The resulting simulated images were analyzed to determine possible uses of the additional bands available with the WorldView-2 sensor. Particular attention was given to littoral (shallow water) applications. The overall classification accuracy for the simulated QuickBird scene was 89%, and 94% for the simulated WorldView-2 scene.

Class	Mapping Accuracy Change
Mountain 3	27.10%
Cultivated Field	23.01%
Road	22.77%
Beach	21.74%
Shadow	13.06%
Dirt Road	12.62%
Mountain 2	11.43%
Buildings	10.55%
Mixed Shallow Water	9.25%
Grass	8.76%
Mountain	8.31%
Unclassified	8.01%
Muddy Shallow Water	7.99%
Mid-Range Water	7.20%
Clear Shallow Water	6.78%
Deep Water	1.16%
Cultivated Field 2	-0.57%
Shrubbery	-1.47%



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