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11/30/2020

GSP Lab 11

Results/Discussion

The objective of this lab was to familiarize ourselves with the way supervised and unsupervised classifications work using the ENVI software. We were provided with a multiband image that we then performed supervised and unsupervised analysis on, resulting in two maps representing the classifications, as well as two excel tables calculating the total represented area.

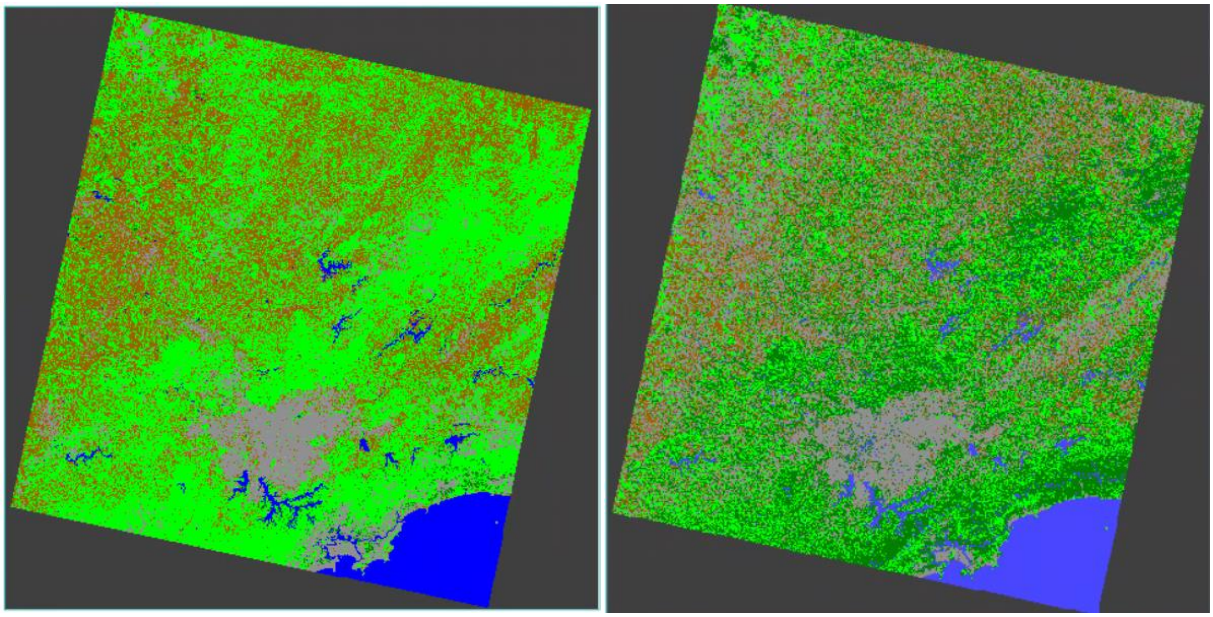

Figure 1: Supervised Classification on right, unsupervised classification on left

As we can see in the above images, the two different classification processes resulted in two similar, but noticeably different images. The largest discrepancy comes from the fact that the unsupervised classification seemed to classify far less area as the Veg 2 classification that is more abundant in the unsupervised classification. This discrepancy is most likely a result as slightly less than perfect ROI selection for classifying wavelengths for the supervised classification process.

Unsupervised					
Class	Pixel	%		M Squared	Hectares
Water	2922424	4.960075		2630181600	263018.16
Veg 1	11916646	20.22549		10724981400	1072498.14
Veg 2	8954264	15.1976		8058837600	805883.76
Urban	11047122	18.74969		9942409800	994240.98
Dirt	5917397	10.04328		5325657300	532565.73
					Total Area
					795583.89
Supervised					
Water	2388333			2149499700	214949.97
Veg3	18573588			16716229200	1671622.92
Veg2	3602513			3242261700	324226.17
Urban	4053647			3648282300	364828.23
Dirt	12139772			10925794800	1092579.48
					Total Area
					1307529.45

Figure 2: Calculations/Results of classifications

However, for the calculation of area in the second part of the lab, more sources of error are seen that are less simple to determine the cause of. The total measured area is drastically larger for the supervised classification, which does not seem to make much sense considering that equal area classification was the objective for the lab. It is likely that I made some sort of mistake during the creation of the multiple ROI's that were to be used as trainers for the ENVI software's supervised classification process.

It seems that water was the most reliably classified land feature, with vegetation coming in a close second. Although the classifications resulted in skewed proportions of land measurements, the total vegetation for both classifications are also relatively close in range. The unsupervised classification method allows for large amounts of data to be analyzed with minimal user input, but can contain fundamental errors that dilute the usefulness of the final product. Supervised classification allows for far more nuanced and specialized classifications by allowing a user to create multiple custom parameters tailored to their project, with the trade off being the vastly increased amount of time each analysis would require.