ENV202/502 – INTRODUCTORY REMOTE SENSING

Practical Assessment 3

Due: Monday week 11, 11.59pm

Contribution to unit grade: 20%

Format: Short Answer

Length: As required

Late penalty: 10% per day

# Pre-Week

1. Participation in pre-class questions – weeks 7,8,9 (15 points)

# Weeks 8 and 9

1. How is the NDVI calculated? (1 point)
2. Using a true colour display of the original image, and your knowledge on the biophysical controls of spectral signatures, provide an explanation of which environmental features the NDVI image appears sensitive to. To answer this question, you should inspect the areas of high, medium and low NDVI values and determine the type of land-cover feature present. You should also consider the image bands used for the index with respect to relation to their placement in relation to absorption features associated with chlorophyll and cellular structure (8 points)
3. What is the pixel size of the multispectral and panchromatic WV2 images? (1 point)
4. What is the smallest feature that you can identify on each of the WV2 images? (1 point)
5. Why can panchromatic sensors on the same satellite system have a higher spatial resolution than their multiband counterparts? (3 points)
6. What are the pros and cons of performing pansharpening? (4 points)
7. Include a screen grab of your image classification and Interactive Class Tool window after you have assigned names and colours to each of your classes (2 points).
8. Evaluate your classification map and identify areas that you believe have been classified well, versus those where there is some confusion. Suggest reasons why this might be the case (5 points).
9. Evaluate the average spectral profiles for each of your categories. Which bands show good separability between your categories? Which bands are potentially adding to confusion? (4 points).
10. Discuss the class histograms in each band with respect to areas that have been well classified in your map, compared to other areas of confusion (4 points).
11. Provide a synthesis of your findings in terms of map classification and accuracy. To answer this question you should consider the different methods presented above to assess your classification – qualitative observation of classification patterns, spectral profiles, and histograms. Consider also those classes that you think are mostly correctly classified compared to those that are commonly confused. Remember to critically evaluate the reasons for this (10 points).
12. Suggest ways in which you could improve on this classification result (3 points).