

Preston Hudlow

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GEOG 404

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Assignment 1

1a: What are the pixel sizes in the X and Y directions? Be sure to include units in the answer.

30 x 30 meters

1b: What is the image georeferenced to (projection, spheroid, and datum)?

Projection is UTM, Zone 18, the datum, and spheroid is WGS 84

1c: What is the maximum brightness value indicated in the Statistics Info for the Green band (Hint: Not the band shown in green color in the View window. Please refer to the content in the table with technical details of the images.)?

Band 2 shows a maximum value of 255

1d: What is the minimum brightness value indicated in the Statistics Info for the Red band (Hint: Not the band shown in red color in the View window. Please refer to the content in the table with technical details of the images.)

Band 3 shows a minimum brightness of 4.

2a: What would be some advantages of having multiple Views open when working with a large research project?

It will allow for easier comparison when trying to understand the different spatial features.

2b: Compare each of the three grayscale bands (Red, Green, and Blue) and briefly describe how they differ in their spectral responses to terrestrial features.

They appear darker or lighter in certain areas when compared to each other.

3a: Which of the coordinates would you use to describe a pixel location to someone working on a different georeference? Why? (Hint: Click Help bottom on the panel and use ERDAS help document to help you better understand different coordinate systems.)

You would use the map coordinate system.

3b: Position the crosshairs on representative pixels and record the actual data values (file pixel values) in each band for the following features: urban (buildings, highways, or other impervious surfaces), water, forests, and grass. Use the following table format in your answer

Features	Band 1	Band 2	Band 3	Band 4	Band 5	Band 7
Urban	137	70	84	70	122	72
Water	60	22	16	11	6	4
Forest	62	26	19	125	74	21
Grass	69	30	30	66	99	40

3c: How do these data values compare with your knowledge of the spectral signatures for urban, water, forest, and grass? (Hint: Use the lecture and textbook as references if needed)

They match up with the color pigments of refraction letting certain waves pass through while others get reflected.

4a: What are the (approximate) perimeter and total area of Washington-Dulles International Airport located about 20 miles west of Falls Church? Hint: Use the Measurement tool (Home > Measure). Note: Include any vegetation inside the airport in your measurement. Units must be included in the answer.

The rectangular perimeter around the airport measures 27365.25 meters, and the area is 4650.5157 hectares.

4b: Briefly discuss how the following functions could be useful for an image analyst: Swipe, Blend, Flicker (Home > View > Swipe > ...).

It can be helpful when comparing two images of the same location. It allows you to see differences over time that help data analysis.

5: Briefly explain the spectral curve difference of each point (pixel) as it relates to the electromagnetic spectrum. You may want to zoom in on the individual points for a more detailed analysis.

As you increase the pixel value the band # stays the same. For example, you can have a band # of 6 but still have the same pixel value as band 1.

6: How this utility could be useful for an image analyst?

This could be useful in finding specific areas of interest. If you know which layer and band you are looking for then being able to select specific bands will filter out any un-needed data.