

NAME: _____

In-class Multispectral Image Lab

Using the poster from Eosat, look at the individual band (B & W) Landsat 5 Thematic Mapper (TM) images of Charlestown, SC to answer the following questions.

1) Use the “true-color” image of the poster for reference. Of the seven single-band images, which one appears best for:

Viewing details in wetlands?

Seeing contrast in urban areas so roads are most visible?

Seeing contrast between urban and vegetated areas?

Viewing details under water?

Viewing the bridges near the center of the image?

The plume of smoke in the upper right quarter of the image?

2) Look at the area in the lower-left corner of the image. Describe how the reflectance characteristics change over the 7 bands:

Which band is MOST reflective?

What part of the spectrum is this band in?

Based on this evidence, what might the surface be covered with in this area?

3) Look at the urban area near the center of the image. Describe how the reflectance characteristics change over the 7 bands:

Which band is LEAST reflective?

What part of the spectrum is this band in?

What might the surface be covered with in this area?

4) Find the small island that's shaped like a bent hot dog in the center-north part of the image (I'll show you if you can't find it). What material(s) might cause the drop-off in reflectance in the IR bands? (Hint: note similar characteristics in the SE corner of the image?)

5) Explain why the urban areas are so bright in band 6 compared with other areas. (Hint: The sun is shining)

Now use the RGB 3-band combinations to answer the following:

6) The 321 (RGB) combination is called a "true-color" image. Why?

7) Would it still be true color if it was a 123 combination?

8) The smoke plume is easily visible in the 321, but not the 453 combination below it. Why?

9) In the 453 combination, what types of features are “blue”? What color is dominant in these features in reality?

10) Is there much vegetation in the “blue” areas in the 453 combination? Why or why not?

11) Why does the 432 combination have so much red stuff?

12) Which band combination shown is best for telling different vegetation TYPES? Why is this?

13) Why is the water-land boundary best observed in the 453 combination?

14) If you could, would you decorate your dream house with the colors seen in the 742 combination?