**Geography (GEOG) 403/704 Spring 2022**

**Lab Five**

**Image Processing with TerrSet/IDRISI**

**30 points**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Goal: The purpose of this exercise is to introduce you to image processing with TerrSet/IDRISI.

# Use the TerrSet/IDRISI tutorial exercises listed. ALWAYS READ THROUGH THE

**ENTIRE LAB HANDOUT BEFORE BEGINNING YOUR COMPUTER SESSION!**

**Materials Needed:** Calculator with scientific notation

**Note:** For this Lab you are not asked to answer *all* of the questions posed in the TerrSet/IDRISI tutorials. It is advisable, however, to consider and understand what is being asked and how you would answer all the questions.

**Requirements:** You will be answering several questions below, and also turning your memory stick with several files that you will create as you work through the tutorials. Label your memory stick with your name and put the Lab 5 files in an appropriately named folder.

1. Image Exploration (3-2)–work through this tutorial found on pages 220 to 227.

Question 1: Fill in the following table...

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **image name** | **location (including state name)** | **date** | **TM band #** | **corresponding**  **wavelength bands** |
| HOW87TM1 |  |  |  |  |
| HOW87TM2 |  |  |  |  |
| HOW87TM3 |  |  |  |  |
| HOW87TM4 |  |  |  |  |

Question 2 (#6 in the tutorial): Now that you have seen how different image bands (or electromagnetic wavelengths) interact with different land cover types, what do you think is the land cover type that is causing the small peak of pixels with low values in the near infrared band?

Question 3: What are the three wavelength bands that correspond with RGB image bands (RESPECTIVELY) in a false color composite?

Turn in the following files along with your answers to questions 1, 2, and 3 (in a WORD document).

# TM4HE.RST, TM4HE.RDC

# TM1HE.RST, TM1HE.RDC

2. Supervised Classification (3-6)–work through this tutorial found on pages 244 to 251. **Note:** Use the following SIX numerical designations, land cover types, and signature names in developing your supervised classification training sites and signature files:

|  |  |  |
| --- | --- | --- |
| **number** | **land cover type** | **signature name** |
| 1 | shallow water | shallowater |
| 2 | deep water | deepwater |
| 3 | agriculture | agriculture |
| 4 | urban | urban |
| 5 | deciduous forest | deciduous |
| 6 | coniferous forest | conifer |

Use the palette file **EXER5** to view and compare the classification results (be sure to click to display the legend for each file).

Copy the following files onto the same memory stick used for part 1 of this lab. Be sure to label the memory stick with your name and put these files in the same folder used previously.

# MAXLIKE.RST

# MAXLIKE.RDC

3. Principal Components Analysis for Multi-Spectral Imagery (3-5)–work through this tutorial found on pages 241 to 243.

**ANSWER THE SEVEN SPECIFIC QUESTIONS POSED IN THE TUTORIAL.**

Turn in the following files along with the answers to the questions (in the same WORD file used for parts 1 & 2 of this lab.)

# H87CMP2.RST

# H87CMP2.RDC

4. Unsupervised Classification (3-7)–work through this tutorial found on pages 252 to 254.

Turn in the following files:

# FINE10.RST FINE10.RDC

# LANDCOVER.RST LANDCOVER.RDC