Homework #12
SOLUTIONS
Geology 4113 (Remote Sensing)
Assigned April 20, 2018
Due Friday April 27, 2018

1. Vegetation (10 points) After the Tasseled Cap transformation has been applied to multispectral data, the following diagram represents the scatter plot which would be obtained for a typical scene.

Part A. (5 points) What property is plotted on the X axis, and what property is plotted in the Y axis? <u>Label those two axes.</u> (Note – I don't care as much about the specific name of the axis as I do about what it really represents. If you can't remember the precise name, give a phrase or sentence which conveys the same information as the precise name.

As shown in the modified diagram below, the horizontal (X) axis is often called "brightness" and indicates soil moisture, with moist (and dark) soil on the left and dry (and bright) soil on the right. The vertical (Y) axis is Greenness, with more vegetation at the top.

Part B) (5 points) Sketch on the figure the path which a vegetated area would trace out if you followed it throughout the full growing season. Be sure to add an arrow to your path to show which way it moves.

During the growing season the field usually starts out as bare but moist soil, then greenness increases. At the end of the season the field is again bare, but the soil is dry.
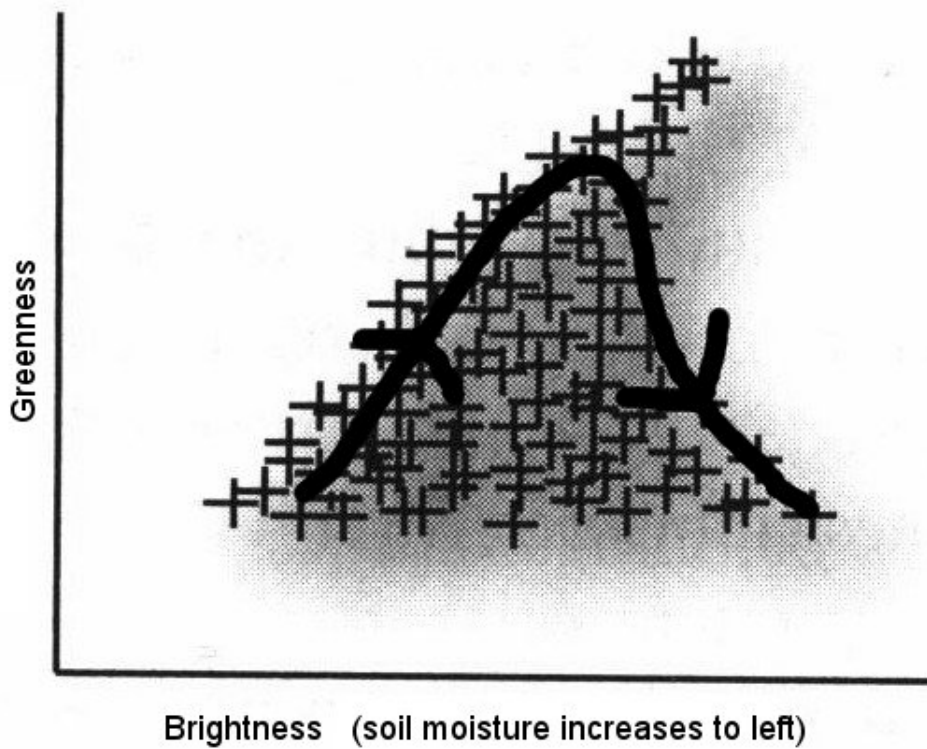
Fig. 1 Tasseled Cap vegetation data. (From Jenson)

2. Multi-level Classification (5 points)

Using the multi-level land use classification scheme a sagebrush prairie would be classified as type "321". For each of the three digits, circle what the digit signifies:

Correct answer is underlined:

3: <u>Rangeland</u> or (shrub and brushland) or Sagebrush

2: Rangeland or <u>(shrub and brushland)</u> or Sagebrush

1: Rangeland or (shrub and brushland) or <u>Sagebrush</u>

The first digit (the 3) is the broadest, level I category (rangeland) then the next digits make finer (level II) and still finer (level III) distinctions, as shown in Sabins Table 12-2 on pg. 390.