Lab 2

**Question 1:** What is a “raw” image? What are the possible reasons for geocoding and coregistering a raw image?

**Question 2:** What are ground control points (GCPs)? Why does the polynomial geocoding method need GCPs? What are favorable locations for GCPs?

**Question 3:** Why does the geocoding process involve image resampling? What are the three commonly used resampling methods?

**Question 4**: Insert your GCP file as a table in the report. Discuss why these locations were selected as GCP points.

**Question 5**: What is the meaning of RMS error? With the linear polynomial transform, which GCP has the largest RMS? If you turn off or delete the GCP with the maximum RMS error, how would this affect the RMS values for other GCPs? Explain why.

**Question 6**: Describe what happened when you rectified the raw image with the linear polynomial geocoding method. Was it enlarged, translated, rotated, or what? In what direction?

**Question 7**: Describe the differences between the geocoding results from the first (linear) and second (quadratic) order polynomial transformations with the nearest neighbor resampling method. Does the higher-order polynomial transformation give you a better geocoding result? Include the images from the first and second order polynomial transforms overlain by the vector data in cnsblock.evf (in yellow) to illustrate your points.

**Question 8**: What are the geocoding differences caused by different resampling methods (nearest neighbor, bilinear, and cubic convolution with the linear polynomial transform)? Include images to illustrate your points.

**Question 9**: What changes do you observe when you overlay or compare the georeferenced aerial photography, which was acquired in 1988, with the NAIP image BCS16, which was acquired in 2016, what changes in landscape can you observe? Include a color image map to illustrate your brief description.

**Question 10:** Show an image of the aerial88 image warped using a 1st order polynomial displayed as a red band with the BCS16 G Layer in green and the BCS16 B Layer in blue (note: 7 this requires the images to be layer stacked). Use the default UTM (NAD83, zone 14) projection and show the entire image (be “inclusive”).