

Lab 4 and 5

GEPL 4490/5490 Remote Sensing of the Environment

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Task:

Determine the loss of tree cover, surface water and the increase of parking lots on the campus from 1940-1997

There are several ways to accomplish this. You can do this with or without the computer. I would suggest this processing method.

1. Find the data. This is not as difficult as you might think. Dr. Czajkowski has placed on the Internet a time series of the campus with aerial photos.
2. Bring the data into a program that will geo-reference the images. ArcGIS has one of the easiest processing tools for this purpose. You could use ENVI or Imagine to do geo-processing as well. To geo-reference you will need ground control points (GCP). Imagine and ENVI allow you to enter points with the keyboard and locate those same points on a the image. ArcGIS uses an image to image, image to layer method for geo-referencing.
3. You will need to check the accuracy of your image geo-reference. Bring your GPS points into your image and measure and report on the accuracy of your gps points and the image. This can be done again in all 3 programs. ArcView allows that dbf4 tables may be brought to make an event theme. This allows you display your coordinates on your image or map. This is very important feature. You will need to re-project if you are using a projected coordinate system.
4. You can use several ways to measure the area of targets. Heads up Digitizing, Seed tool. Classification. What you need to do is to encode the target areas and measures those areas. All of the programs have ways of measuring the area of a geo—referenced image.
5. You will then need to report on the change in area of 3 features
 1. Trees, you could count them or measure the area where they exist
 2. Parking lots how much have the area of parking lots increase from 1940 to 1997.
 3. River, the river has been channelized how much has the surface water in the area been reduced, between the 2 images.
 4. What was the accuracy of your geo-reference using the GPS points. To measure.

5. Your deliverables for this project:

1. A report with the areas of the target features in both of the years. As well as a difference
2. A report on the accuracy of your accuracy with your GPS points.
3. A print out of your processing chain, images that you used. For instance if you chose to use ArcView then give me maps showing the progress.
4. A 1 page report on your general findings, and any problems you encountered along the way.

Don't put this off this is a very big assignment. Good luck

This project relies on your ability to approach the problem and solve those problems with the resources primarily at your disposal, The help functions. Some help features are better than others. Email me with questions.

Reading:

The help section of the programs you will be using.