

GEO 427/EVS 527

Exercise 10: Object-Based Imagery Analysis IV

Now that you have done both segmentation and classification on both a relatively simple image (flags) and a more realistic image (Chagrin River), it's time for you to continue with the application of object-based imagery analysis to the environmental sciences. There is a directory on your S: drive entitled WestCreek. Copy it in its entirety onto your X: drive. It contains several files, all projected to UTM Zone 17:

1. A 1-M-pixel CIR aerial photograph from OGRIP (i.e. leaf-off) of a portion of the west side (layers 1-3 of the composite image)
2. A 1-M-pixel RGB aerial photograph from NAIP (i.e. leaf-on) of the same portion of the west side (layers 4-6 of the composite image)
3. A shapefile from the Cuyahoga County Regional Planning Office of the footprint of all buildings in this area as of 1982.
4. A DEM and NSDM of the West Creek watershed area.
5. You will also find images of a larger area of the west side of Cuyahoga County that includes part of the West Creek watershed. You should feel free to use whatever of these files you wish.

You will use these files to do an object-based classification of this area using eCognition (you don't have to use all of them, but you probably will, and you may find it useful to find others. You may find it helpful to define a particular goal for your classification, but you don't need to. You may also find it helpful to combine the two 3-band aerial photographs into a single 6-band image, but again, you don't need to. You will probably find it helpful to use the building-footprint file as a thematic layer, but again you do not need to.

Your first step is to develop a process tree and a class hierarchy that will meet your needs. Bear in mind that "your needs" will depend on the goal for your classification, if you've made one. It is possible that your goal is fairly general, in which case you don't need to say very much about it, but you may have some more specific objectives in mind, in which case you should describe them.

You should experiment with several different scale parameters. It is entirely possible that you will come up with a single parameter that will do what you want; it is also entirely possible that you will want to derive a hierarchical segmentation that produces different types of objects at different scales. You may have a simple process tree; you may have a complex one.

You are fairly free to complete the exercise as you see fit. However, you will need to submit at least two items for your portfolio.

Portfolio

- 10-1 At least one classified image of the area. If you choose to do a more complex primitive-derivative classification, you should include an image of each step in your analysis. All classified images should include a legend so that they can be understood.
- 10-2 A screen shot of the process tree you used to develop your classified image(s).
- 10-3 A writeup explaining what you did, including:
 - a. Why you chose the parameters you did when developing your process tree.
 - b. Why you chose the classes you chose and how you defined them.
 - c. Your first-cut assessment of how accurate your classification is (i.e. to what degree does it reflect what you actually suspect exists in the area)
 - d. What additional imagery would you want to add, if you had the opportunity
 - e. What additional work you would have done, if you had the time