

OPTIONAL GIS INSTRUCTIONS

Georeferencing Images in ArcMap

NOTE: You will need at least two layers:

- 1) your layer that needs to be georeferenced, and
- 2) a layer that is already georeferenced, which you will use as a basemap.

****For Fountain Creek, I recommend using the USGS Topographic Map provided in the GIS files for the assignment. The coordinate system for the topo map is Geographic (Decimal Degrees, etc.) in the North American Datum of 1927 (NAD 1927).**

Open ArcMap & Turn on the Georeferencing Toolbar

1. Open ArcMap
2. Click the View menu, Toolbars, and Georeferencing Toolbar
3. You will see this toolbar appear. You may ‘dock’ it within ArcMap so that it will always be in the same place.

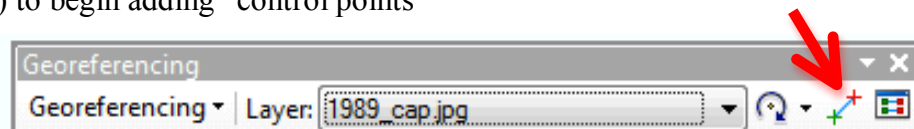


Add and georeference the images (air photos) that will be georeferenced

4. Click Add data button and browse to the images to be Georeferenced.
5. In the Georeferencing Toolbar, make sure the layer dropdown choice is pointing to the layer you want to georeference.
6. If you're not already looking at the scanned image, right click its name in the table of contents and click Zoom to Layer.
7. Examine the air photo and try to identify key features to go between the topo map and air photo, such obvious road intersections.
8. Now zoom to the general vicinity of the basemap, where the image you want to georeference belongs.
9. Now that you're zoomed into the general area, Click Georeferencing, and Fit to Display to bring the scanned image to the same general area as the basemap.
10. Save your map so you don't lose work if anything crashes.

Georeferencing the image

11. On the Georeferencing Toolbar, click the Control Points tool (note red arrow below) to begin adding “control points”



Teaching Assignment: Changes along Fountain Creek, Colorado (1989-2006)

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12. Then, to add a link,

- i. find and click on a known location on your image (green check mark will appear).
- ii. then find and click on the same location in the basemap (red check mark will appear).

13. Perform Step 12 three more times so that you have four “control points”. Try to have at least 4 control points total, one in each corner. More Tips:

- ***Ideally, you will be able to add links near each corner of the area and maybe one or more near the center. Also, it would be a good idea to use the same control points for each air photo.***
- You could look for road intersections, land features, building corners, or other objects that you can identify and match in both your image and the basemap.
- If you mess up when adding your control points, you can delete an unwanted link from the Link Table dialog box. Access the Link Table Dialog box from the Georeferencing Toolbar, farthest icon on the right. Simply choose the link to delete and hit the delete key.
- Also, you can remove a link while you’re in the middle of creating it by pressing the Esc key.
- You may find it useful to use a Magnification window to add in your links. Access this by going to Window” in the main menu, then selecting Magnifier.
- When working with these images, you may want to adjust the transparency or turn layers on and off in the table of contents to view each image as you add your links.

Save the georeferenced image:

14. In the Georeferencing Toolbar, click Georeferencing and click Update Georeferencing to save the transformation information with the image.

Save out a copy of the georeferenced file with projection information:

15. On the Georeferencing Toolbar, click Georeferencing, and Rectify...

16. In the dialog box that appears, accept the default for cell size and resample type (should be nearest neighbor); then ensure the path to save the new file is correct and click Save.

17. This does two things: 1), it saves the file out with all the projection information and 2) it creates a backup of the georeferenced map image.