

GES4090 - Image Processing - In-Class Exercise

1. IDRISI to .kml
2. ArcGIS to .kml (.kmz)

Introduction:

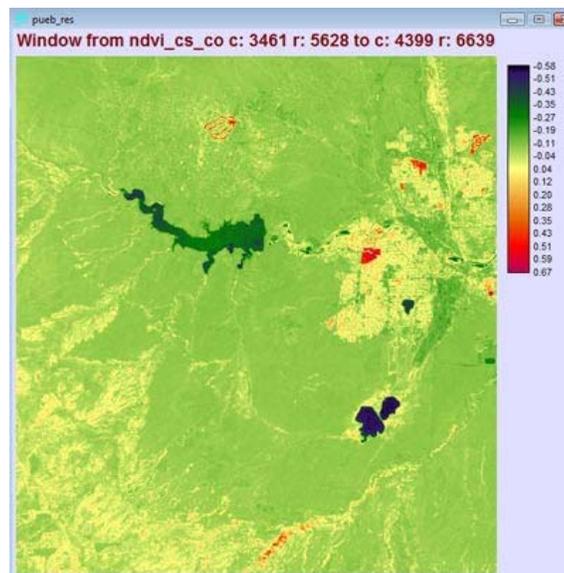
This tutorial describes how to convert IDRISI imagery (*.rst) and ArcGIS layers to file types readable in Google Earth: .kml and kmz. Note: A .kmz is simply a compressed ('zipped') version of a .kml. Viewing, manipulating, interacting with, and presenting resulting imagery in Google Earth is helpful for displaying results in perspectives other than 2D (plan view). *If you are interested in preserving colors well (as with histogram stretches and/or NDVI, etc.), I recommend using IDRISI to output to .kml files rather than ArcGIS.*

Task #1: IDRISI to .kml

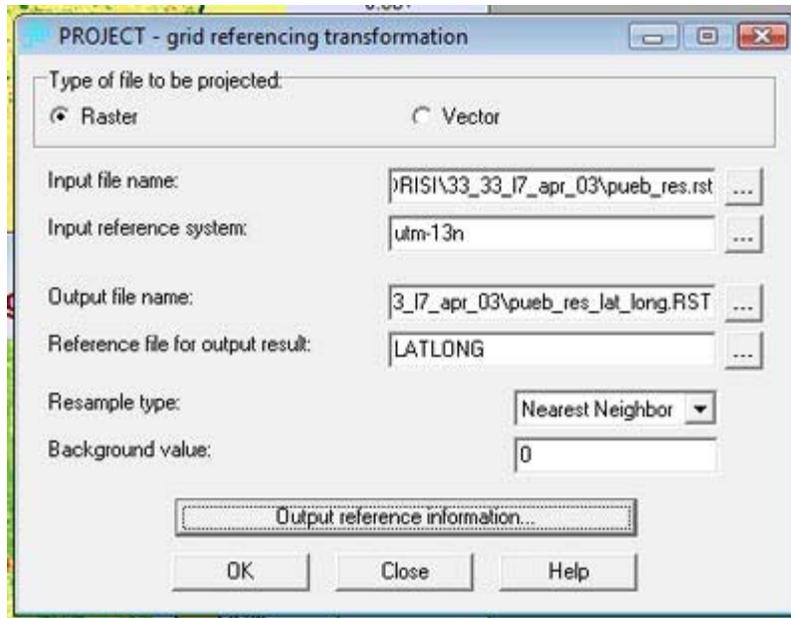
Exporting IDRISI imagery to .kml is fairly straightforward HOWEVER there are a couple of steps that can make the task difficult-to-impossible if not addressed:

- 1) images must be projected to 'LatLong' before outputting to .kmz
- 2) images should be larger than 256 x 256 pixels (most imagery used in GES4090 is much larger than this)

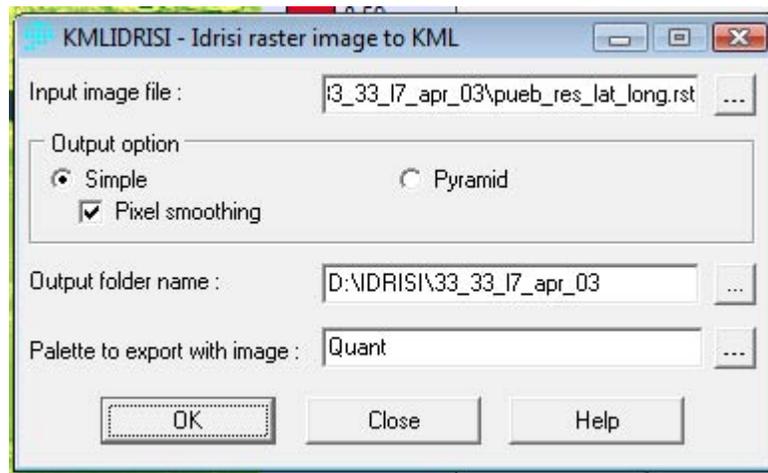
As a sample, consider a NDVI image of the Lake Pueblo State Park area (below). We want to export this .rst to a .kmz so we can utilize the wonderful set of visualizations in Google Earth.



- 1) First, we need to project this image to a 'LatLong' reference system in IDRISI.
- 2) In IDRISI, go Reformat > PROJECT. Pick any .rst image to project. Set up the window like this (see below).



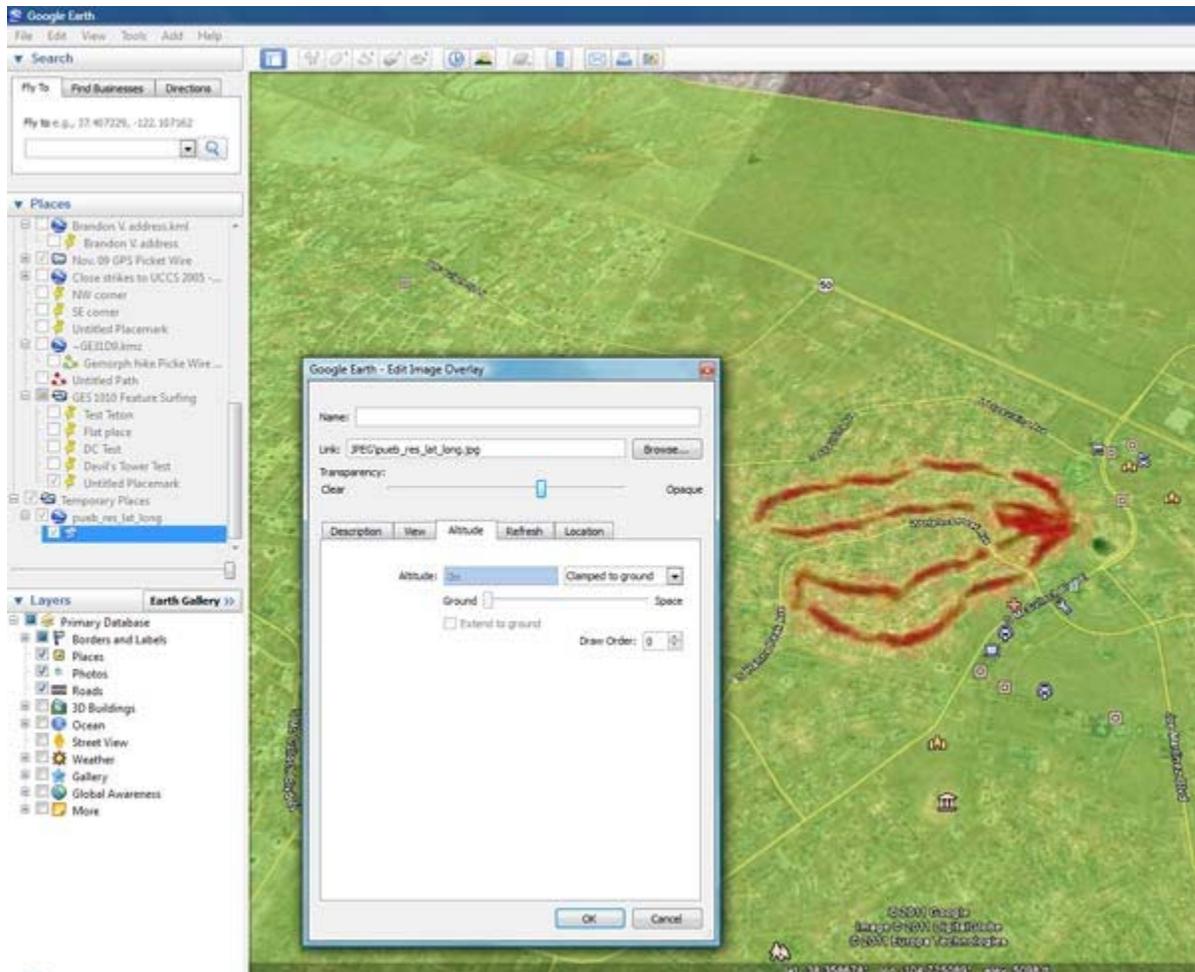
- 3) The 'Input reference system' will likely be UTM 13n (or something similar / close if your sites are in Colorado)
- 4) Give the output image a name with 'lat_long' at the end.
- 5) If the 'ok' box is not 'clickable', click "Output reference information" once, and then close the window. Your 'ok' box should now be clickable (this is a strange nuance that is unexplainable)!
- 6) Click 'ok'. After a moment, you should now have a new .rst that is in the 'latlong' projection. This image is now ready for export to a .kml!
- 7) Go File > Export > Desktop Publishing Formats > KMLIDRISI (see image below)



- 8) For input image file, navigate to your 'lat_long' projected .rst file.
- 9) Select 'simple' and 'pixel smoothing'; leave 'Quant' for "Palette to export with image"
- 10) For "Output folder name, use the folder in which the 'lat_long' .rst file is located
- 11) Click 'ok'.
- 12) You now have a .kml file that you can open from Google Earth!!!!!!

13) Open Google Earth and surf on! SHOW THIS TO BRANDON!!!!

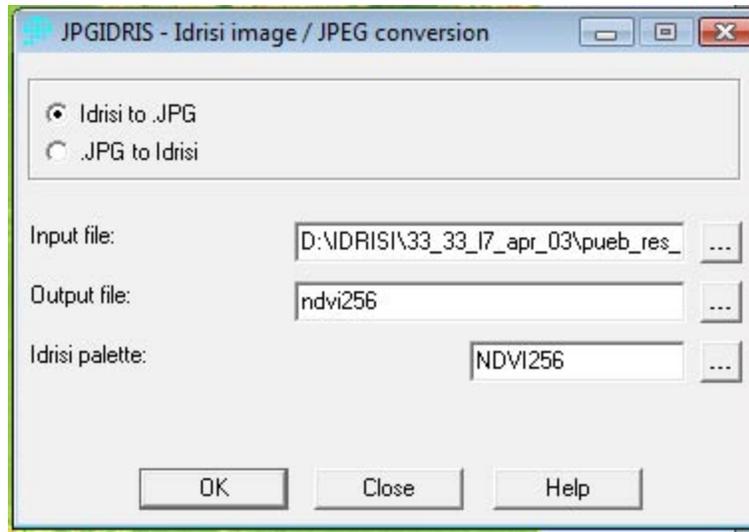
14) I suggest adjusting the transparency levels. Transparency is adjustable on-the-fly using the 'properties' of the .kml (right-clicking on the file in the Google Earth table of contents). For example, check out the golf course NDVI near the Pueblo Reservoir in the scene below. Sliding the transparency lets you see both the red-(false color veg.) and the Google Earth green of the course.



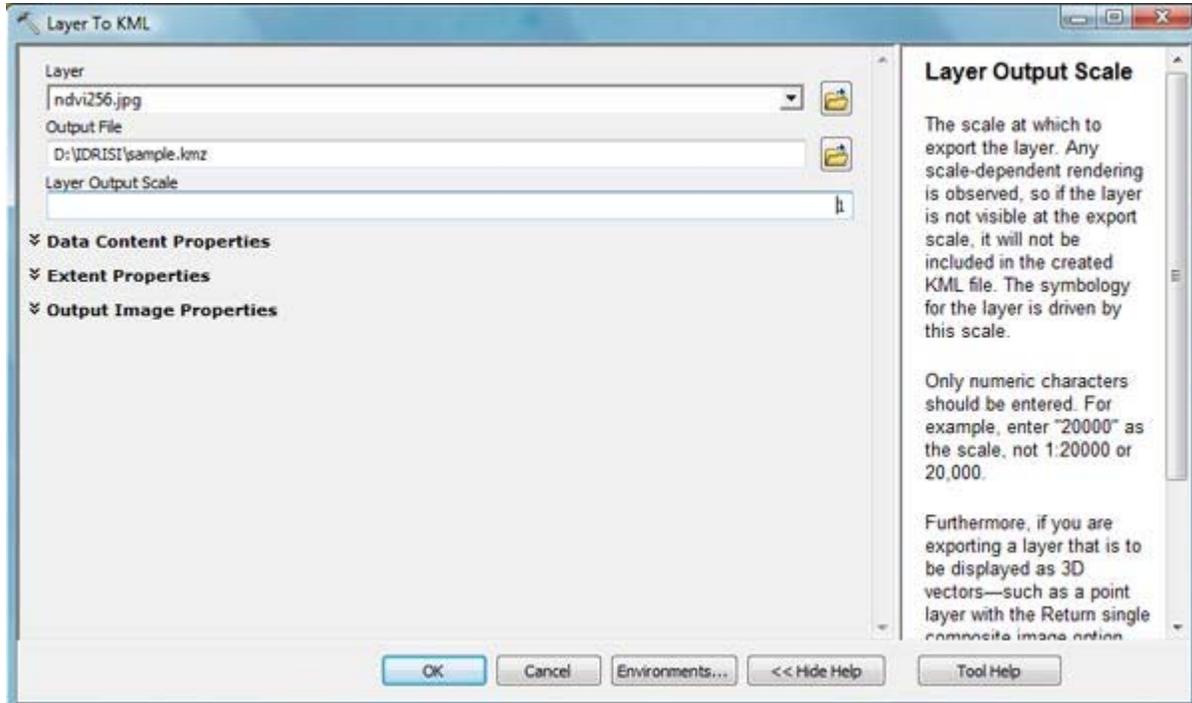
Task #2: ArcGIS to .kml (.kmz)

Many of you are using a lot of GIS for the GES4090 research project. Here's how you export your layers from ArcGIS to .kmz. I'll use an example where I want to preserve the NDVI colors that I adjusted in IDRISI. In IDRISI, export the .rst file from IDRISI using the "JPGIDRIS" conversion.

1) Go File > Export > DesktopPublishing Formats > JPGIDRIS. (see the image below)



- 2) Use the IDRISI palette "NDVI256". Click 'ok'.
- 3) Next, in ArcGIS, open up the .jpg.
- 4) REMEMBER: You can also directly open up ANY IDRISI .rst FILE IN ARCMAP (e.g., you don't need to export anything from IDRISI - you'll likely import .rst files directly into ArcMap if you have not done much image processing).
- 5) With a layer opened in ArcGIS, use ArcToolbox (Conversion Tools > To KML > Layer to KML) to export to a .kmz file. (see image below).



- 6) Set the 'Layer Output Scale' to 1.
- 7) Click 'ok'
- 8) Open Google Earth and navigate to your new .kmz file. Open and enjoy.