

GEOG432: Remote Sensing, Fall 2015
Environmental Change assignment (10%)
Due: Friday 30 October

Procedure

1. Viewing Landsat scenes

Go to the Earth Explorer website: <http://earthexplorer.usgs.gov>

EARTHEXPLORER:

Search criteria: Enter placename or Click on desired location or input lat/long
Change data range to summer months if needed

For Landsat 8 : 2013-15

Data sets: Landsat Archive -> Landsat 8 OLI

Additional criteria: cloud cover : Less than 10%

Click results – brings up the search results – click on scene images for zoom view twice
Click on icon with green arrow (download) – when you have the best choice (see below)

For Landsat 5: 1982-2011

Data sets: Landsat Archive -> Landsat TM 4/5
for the rest, same as above

2. Scene download

After selecting the scene download option (with green arrow):

Select 'download' button for Landsat look Images with geographic references (~ 10mb) – usually the 4th button down

You should then be prompted to save (and pick your geog432 folder *) – it is a .zip file
It will unzip to a jpg (georeferenced)

* Or it automatically downloads into your download folder - if you want to change this, go to tools-> options in your browser and click 'always ask me where to save'

Before you unzip the file, you will see its contents – up to 10 files and two jpg files – you will need the first listed jpg (that is not identified with TIR – thermal IR) along with the matching filenames that have .aux and .wld extensions - 3 files total.

The .wld file is for georeferencing, but PCI software does not recognize this, so you must rename/copy the .wld extension to .jpgw (conversely ArcMap reads the .wld format)
Do this before you open Geomatica / load any files

3. Viewing/subsetting in Geomatica

Start a new project in geomatica and open the two jpg files you downloaded/ unzipped:
The two should perfectly align – if the georeferencing files have been renamed properly
Change your display to be ~ 3 x 2 ratio 'landscape' image

Zoom into an area of interest that should fit on a screen without having to pan
Select an image subset ... and when satisfied (see notes under 'required output'):
Choose: tools -> clipping/subsetting; TM bands 543, format jpg and 'definition method'
-> Use Current View
.. for the second one do the same, or 'select a file' (the first clip)
Make sure to do both in sequence so you get exactly the same area

The two clips will be jpg and probably with the bands reversed for optimum colour
Flip the bands and enhance if needed so they match
When ready, use file-> export to save each image in JPG format
Select JPG format, and screen display resolution is 96dpi

ArcGIS notes:

ArcGIS expects the .wld format, so there's no need to change the filename extension
The change product can also be done in arcmap, but its not as easy to enhance the images
However its not necessary to clip with arcmap as you can capture a subset map using
'print' while Geomatica 'prints' the whole image, not just what is displayed

The same process can be done in QGIS and other GIS software