GEOG 357: Fall 2021

Lab 0: General Introduction

Learning Outcomes:

- Overview of the labs in this semester
- Login to the GIS lab computers and get access to the window desktop and get to know the GIS filesystem

Submission instructions:

- No lab needs to be submitted this week

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1. Overview of the labs

People in this lab

Teaching assistant: Sunny Tseng, stseng@unbc.ca
Senior lab instructor: Matt McLean, matt.mclean@unbc.ca

Submission of assignments

Label your assignment as lastname_firstname_labXYZ, using .doc as your file format. Send to stseng@unbc.ca with subject title as "GEOG357_lastname_firstname_labXYZ". Due date is the Friday midnight of the lab week (e.g., lab on Sep.21 Tue. will be due on Sep.24 Fri.) Submission during the lab time is highly encouraged.

Marking

It's 35% of your total grade (5% for lab2, 4, 6, 7, 8 and 10% for lab5). Sunny will deduct mark for late assignments. One day late will cause the 10% off of the total grade.

Date	Lecture Topics	Lab
September		
8 - 10	Introduction	
13 - 17	Electro-Magnetic Spectrum || Image data-display	Lab 0: Introduction and Access to Lab Resources
20 - 24	Sensors/platforms || Unsupervised Classification	Lab 1: Image display and DNs
27 - Oct 1	Supervised Classification || National Day for Truth and Reconciliation	Lab 2: Unsupervised Classification
October		
4 - 8	Band Ratios || Indices	Lab 3: Supervised Classification
11 - 15	Transforms || Image interpretation	Lab 4: Ratios and Indices
18 - 22	**Midterm Exam** || Feature extraction	Lab 5: Environmental Change
25 - 29	Env. Change demos || Change detection	Lab 6: Feature Extraction
November		
1 - 5	Glaciers || Thermal RS	Lab 7: Glaciers / Change
8 - 12	DEMs || Remembrance Day	Lab 8: DEMs
15 - 19	New Millennium Sensors || Project review	Lab 9: Project time
22 - 26	Microwave – RADAR || LiDAR	Lab 10: Project time
29 - Dec 3	**Final exam** || Project demos Dec 2	Lab 11: Project time
		Projects due Dec 6th

2. GIS lab access

For how to log in the Ostomar, the virtual windows environment for the computers in the GIS lab, see instructions here: https://gis.unbc.ca/support/access-windows-desktop/

For how to manage/save your files while working in the GIS lab, please see instructions here: https://gis.unbc.ca/support/gis-filesystem/

3. Catalyst tool bar exploration

Loading satellite imagery

file → open → pg14sept2011.pix.

The filename is self-explanatory – the date the image was captured. The scene has been clipped to reduce size and the need to pan a lot. The pixels are 30 x 30 metres in size – standard for most Landsat imagery.

Resize

To get best display, you should be able to see most of the whole dataset without panning; resize by extending the corners, but I recommend you don't maximise the window.

Enhancement

> right-click filename → enhance → root or linear (usually works best)
> tool bar icon → root or linear
> See which gives best contrast. The enhancements will be based on what is displayed onscreen. No any DNs will be changed by doing enhancement, which is just how the imagery look like on your screen.

Zoom and Pan

> Use + and – to zoom in and out, but more useful, use the box symbol to the left of + to outline an area of interest (same as in ArcMap); check out the campus and your house areas; zoom enough to see the pixels

View coordinates

> Note the UTM coordinates (displayed at the bottom) as you move – scenes are downloaded in the local UTM zone; see Lat/long as well for a point by clicking the +x,y button – what is the lat/long of UNBC ? The coordinates are given below the image frame – they should be familiar numbers …

Measure distance

> Measure the approximate E-W and N-S extents using the measuring tool, or use basic math from the UTM coordinates; how big is it across in kilometres?

DN values

> Note below also the DN values (0-255) at the cursor position for the bands displayed (in R-G-B)

Maps and files tabs

> On the top part of the left panel you can see two tabs: maps and files. The default is maps, which enables display options, while files shows database information. (For GIS geeks, you could think of them as parallel to ArcMap and Catalog.)

> Switch to files tab → right-click filename → properties

> General – file size etc.

> History and metadata – none given

> Projection – UTM and 30m (pixel size)

> Check raster → it will list the bands / channels available (7)

That's it for now. Next week, we'll use Catalyst for image manipulation and exploring DNs. Exit Catalyst and log out – nothing to save and don't turn off workstations!