

GEO 542: Introduction to Remote Sensing – Fall 2026

Lab1: Utilizing Remotely Sensed (RS) Satellite Data

(due – October 6, 2026 by 9:00pm via D2L) (worth 20% of your total course grade)

The purpose of this lab is to get you familiar with some of the basic image processing operations in ArcGIS Pro. You will use functions within the software to create more manageable images, and what you learn will be useful in later workshops and labs.

You will download two images from the <https://earthexplorer.usgs.gov/> website. One will be a Landsat 7 image for June 2001 from Path 14, Row 28. The other will be a Landsat 8 image from July 2020 from Path 42, Row 24. The images must be Collection 2, Level-2 (select less than 15% cloud cover). This will limit your choices from the search results (you should also visually assess the images for cloud cover).

After download and if you are working on your own computer, it is advisable to move the files to your **C:\temp** directory before proceeding.

You will need to make use of the ArcGIS Pro Help in order to determine which functions are necessary.

1) Determine as much information as possible about each image (the metadata). ArcGIS Pro has functionality for this purpose. Your task is to determine how to obtain the metadata information.

Answer these questions for both of the images:

- How many metres are represented by each pixel (what is the spatial resolution)?
- What georeferencing system (if any) is used?
- What part of the world is represented?

In total your answers will (collectively) not exceed one page (double spaced, 12-point Times New Roman font, with 1" margins all around). Use point form.

2) You will then use additional functionality to extract (clip) smaller images from the main images. The area that you choose within each image will be **your choice** but **must be cloud-free**. The resulting images must however be approximately **1600 x 1600 pixels** and cannot contain blank (or No Data) areas. It is then your responsibility to produce map output in “Natural Colour” (using functionality within the ArcGIS Pro software package) for these images. You must respect cartographic principles when designing your maps.

You must upload your lab assignment to D2L by 9:00pm on October 6

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