



GST 105: Introduction to Remote Sensing Lab Series

Lab 3.1b: Image Subset

Document Version: **2013-09-24 (Beta)**

Organization: American River College
Author: Nathan Jennings

Copyright © National Information Security, Geospatial Technologies Consortium (NISGTC)

The development of this document is funded by the Department of Labor (DOL) Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant No. TC-22525-11-60-A-48; The National Information Security, Geospatial Technologies Consortium (NISGTC) is an entity of Collin College of Texas, Bellevue College of Washington, Bunker Hill Community College of Massachusetts, Del Mar College of Texas, Moraine Valley Community College of Illinois, Rio Salado College of Arizona, and Salt Lake Community College of Utah. This work is licensed under the Creative Commons Attribution 3.0 Unported License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/3.0/> or send a letter to Creative Commons, 444 Castro Street, Suite 900, Mountain View, California, 94041, USA.



The Center for Systems Security and Information Assurance (CSSIA), in partnership with the Network Development Group (NDG) is given a perpetual worldwide waiver to distribute per US Law this lab and future derivatives of these works.

Contents

Introduction	3
Objective: Explore Different Image Subset Options	3
Lab Settings	3
1 Subset Image using a Geographical Area	4
2 Subset Image using a Graphic.....	6
3 Subset Image using the Map Viewer Extent.....	8
Conclusion.....	9
Review Exercises	10

Introduction

This lab will walk you through the steps to generate an image subset using several methods. The ability to *clip* or subset an image to a smaller area such as a project location or another region of interest can help focus subsequent image processing efforts, since pixels that don't need to be analyzed can be ignored. Image subsets also help speed up image processing because the entire dataset is not processed. In addition, intermediate and output image file sizes are smaller.

Your instructor may require that you provide screen captures, exported files and/or responses to review exercises. The review exercises included throughout the lab can also be found in the Review Exercises section. Please check with your instructor for the requirements specific to your class.

Objective: Explore Different Image Subset Options

An image subset is often performed through the Image Analyst window. This lab will explore three different methods for performing an image subset.

This lab includes the following tasks:

1. Subset a Landsat image using a geographical area
2. Subset a Landsat image using a graphic
3. Subset a Landsat image using the map viewer extent

Students will become familiar with changing image band combinations and saving new image datasets to an image file.

Lab Settings

Required Virtual Machines and Applications

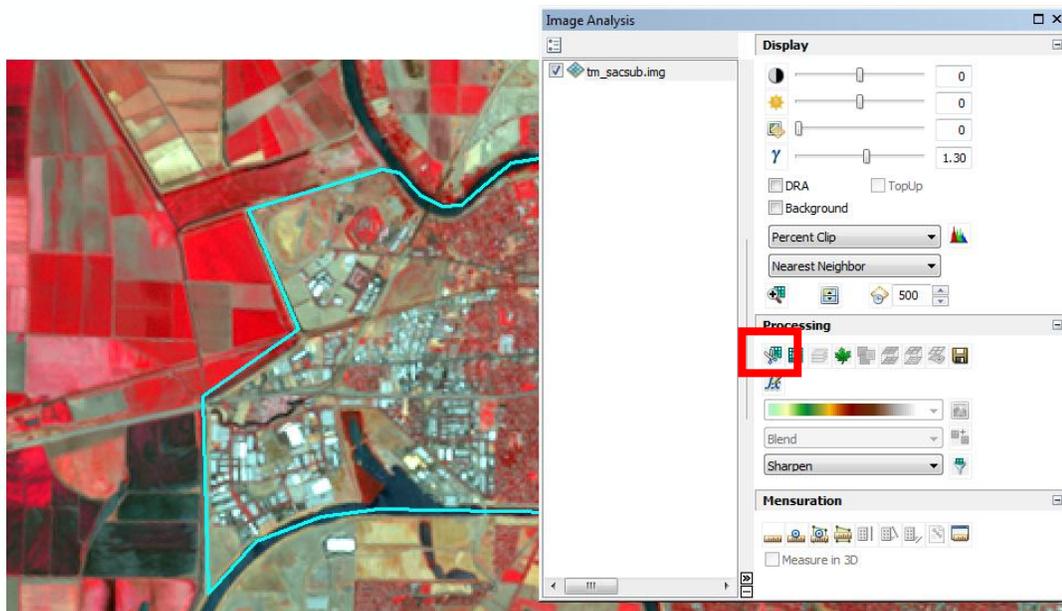
Windows Machine User Account	Train
Windows Machine User Password	Train1ng\$

1 Subset Image using a Geographical Area

1. Log into the computer, using the information provided in the Lab Settings section.
2. From the *Shared Drive\GST 105\Lab3\Data* folder, add the **tm_sacsub.img** into a new blank map in ArcMap.
3. Following the procedure detailed in *GST: 105: Introduction to Remote Sensing Lab Series, Lab 3.1.a: Image Composite*, change the band combination as indicated in the table below:

Channel	Band
Red	Band 4
Green	Band 3
Blue	Band 2

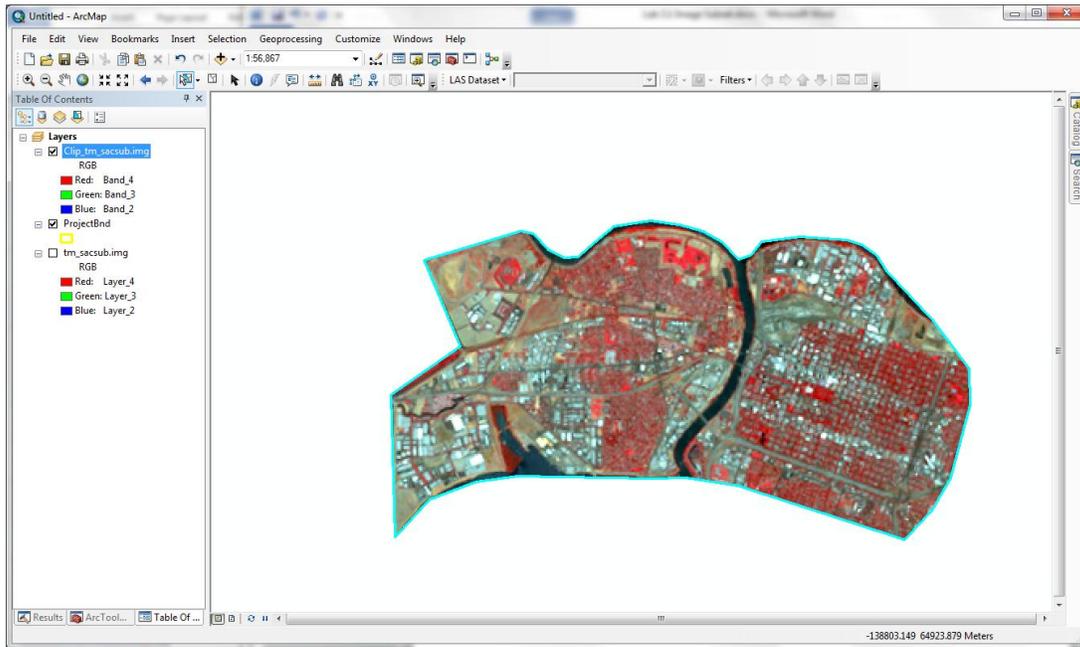
4. Add the **ProjectBnd** layer from the **\Data\ImageBasics.gdb** file geodatabase.
5. Change the properties of the layer to an outline if desired.
6. Open the Image Analysis Window from **Windows ->Image Analysis**.
7. Use the Select Features  tool to select the **ProjectBnd** within the map viewer. The project boundary should change to a bright cyan color.
8. Click the **Clip** tool found in the Image Analysis window and outlined in the image below.



9. Turn off the **tm_sacsub.img** file.

Lab 3.1b: Image Subset

The viewer should now look similar to the screenshot below.

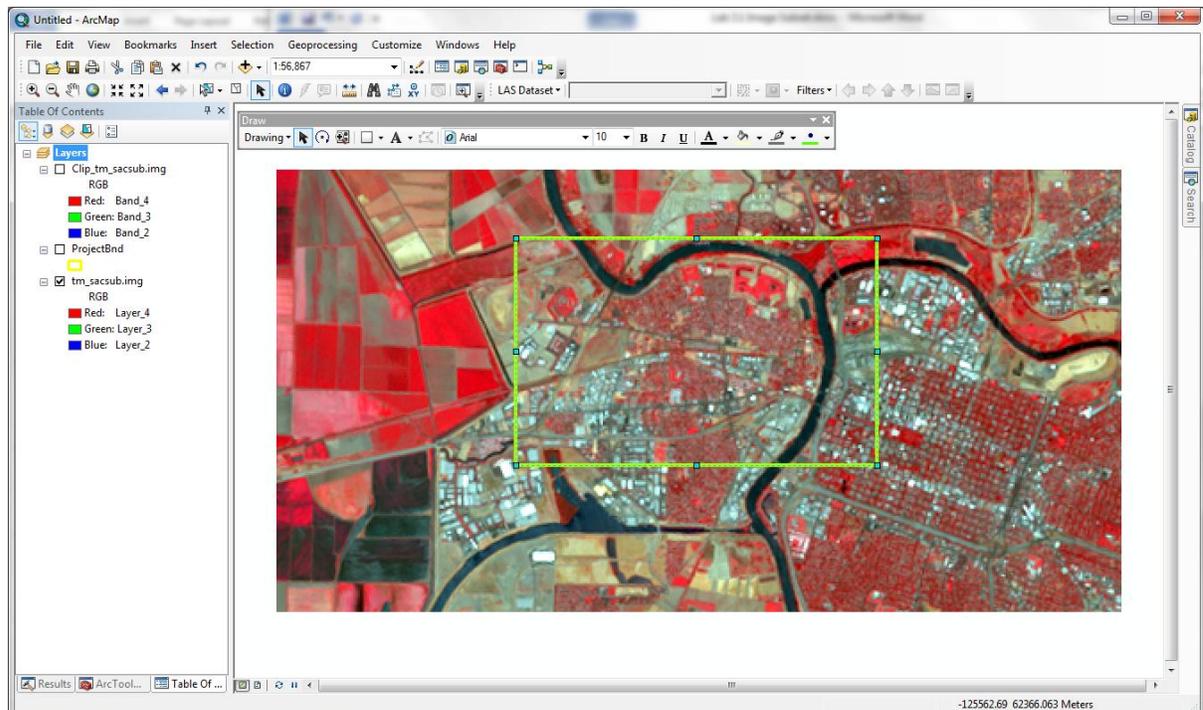


Exercise A: What is the number of bands, rows and columns of the image?

Exercise B: Is the image a temporary or permanent image?

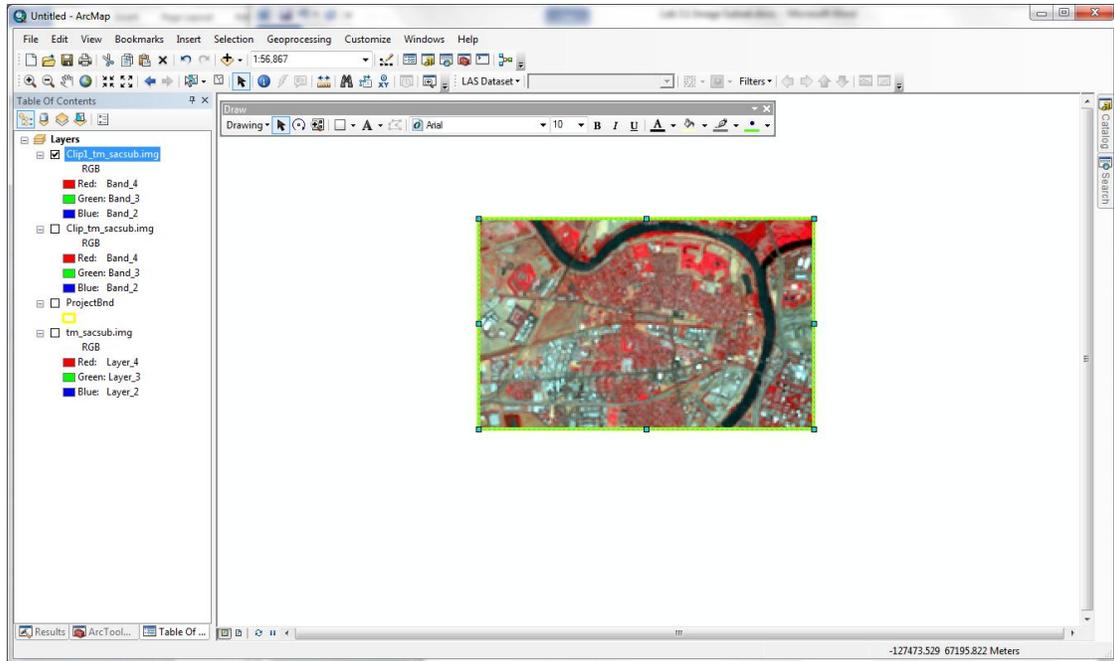
2 Subset Image using a Graphic

1. Turn off the **subset image** just created.
2. Turn off the **ProjectBnd** polygon feature class.
3. Turn on the **tm_sacsub.img** file.
4. Load the **Draw** toolbar (right-click in the toolbar area and choose **Draw**).
5. Click on the **Rectangle** tool and draw a rectangle over a portion of the image.
6. Change the rectangle properties to make it an outline.



7. With the rectangle selected (i.e. the dotted line appears) and the Image Analysis window activated, click on the **Clip** tool.
8. Turn off the **tm_sacsub.img** file. The map display should look similar to the image below.

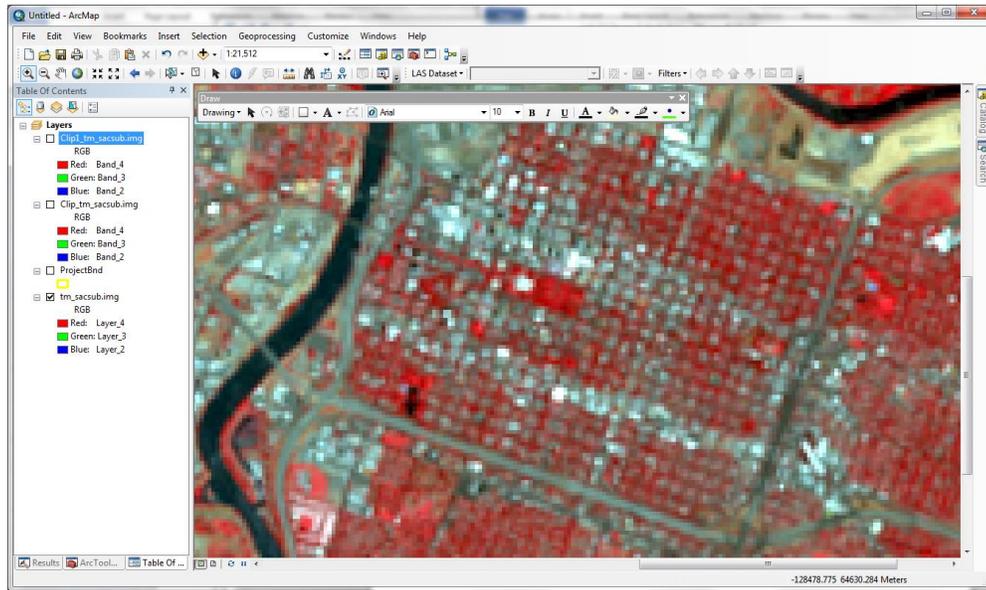
Lab 3.1b: Image Subset



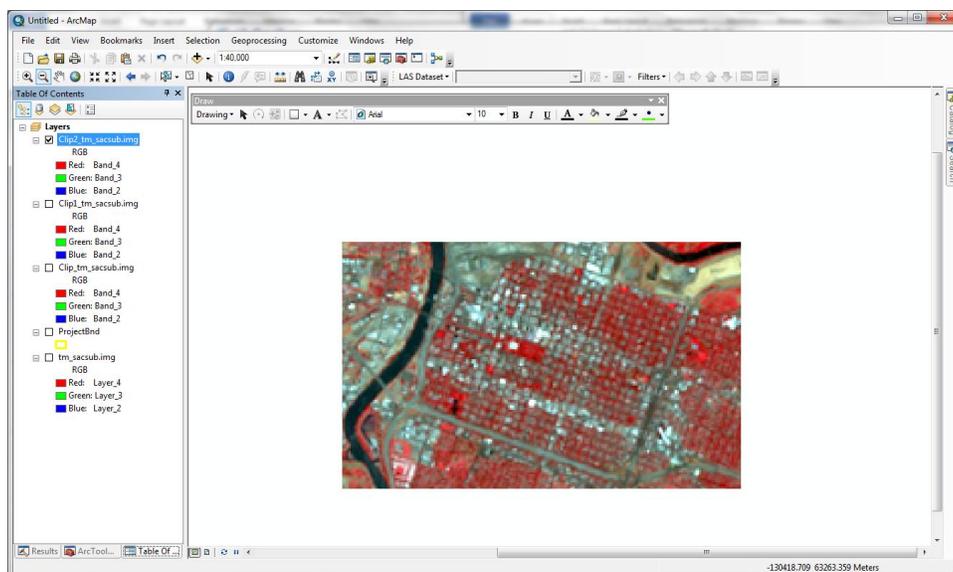
Exercise C: What is the number of bands, rows, and columns in the image subset? Are they the same as the original image?

3 Subset Image using the Map Viewer Extent

1. Turn off the subset created in the previous task. Turn on **tm_sacsub.img**.
2. Delete the rectangle graphic.
3. Zoom in to a small section of the image. The image below provides an example.



4. Bring up the **Image Analysis** window and use the **Clip** tool.
5. Turn off the **tm_sacsub.img** file.
6. Turn off the **Image Analysis** window and zoom out a little from the current extent. The image should look similar to the image below.



Exercise D: What is the number of bands, rows, and columns in the image subset? Are they the same as the original image?

Conclusion

In this lab, you have been introduced to several image subset routines found on the Image Analyst window that are common to ArcGIS and can be used to limit the extent of the image for subsequent processes. This can reduce the file size to process as well as create smaller intermediate and final image files.

Review Exercises

The review exercises included throughout the lab are listed in this section. You may click the name of each exercise to link to the exercise's location within the lab.

[Exercise A](#): What is the number of bands, rows and columns of the image?

[Exercise B](#): Is the image a temporary or permanent image?

[Exercise C](#): What is the number of bands, rows, and columns in the image subset? Are they the same as the original image?

[Exercise D](#): What is the number of bands, rows, and columns in the image subset? Are they the same as the original image?