

Image Interpretation

Identifying Landscape Features in Aerial and Satellite Imagery

In this activity, you will gain experience:

- **Interpreting true and false color satellite images**
- **Recognizing various land cover types and features**
- **Identifying landscape change**



NSF DUE-1205110; 0903270



Beth Stein
Geospatial Instructor
Virginia Geospatial
Extension Program
bstein2@vt.edu

John McGee
Coordinator
Virginia Geospatial
Extension Program &
Virginia View
jmcg@vt.edu

Jim Campbell
Professor, VT
jayhawk@vt.edu

Image Interpretation

Exercise: Identifying Landscape Features in Aerial and Satellite Imagery

Beth Stein bstein2@vt.edu

John McGee jmcg@vt.edu

Summary of skills covered:

- Introduction to Remote Sensing
- The Use of Contextual Clues for Feature Identification to support Remote Sensing Image interpretation
- Documentation of hypothesis

Data needed:

True Color and False Color Images (available for download online at <http://www.geoted.org/geospatial>)

Equipment and Software needed:

Hardware: None

Software: ArcMap (and other geographical viewers such as ArcGIS Explorer can be substituted)

Related book exercise (if applicable):

No text necessary.

Optional readings might include:

- Introduction to Remote Sensing Powerpoint: Provides an overview of image interpretation principles
- Introduction to Remote Sensing for ArcGIS 10.1 (ESRI Press, currently under development).

Data Source:

- 8 Landsat images from the USGS "Earth As Art" Collection (<http://eros.usgs.gov/imagegallery/>)
- WIRED's Collection of Favorite Landsat image (<http://www.wired.com/wiredscience/2013/02/landsat-favorites/>)

Objectives

The goal of this lab is to practice interpreting satellite images. Features on the ground appear very different when viewed from above, particularly all the way from space. The new perspective and lower resolution can be confusing, as are the unusual colors often used to display satellite reflectance. This lab is designed to help you recognize these natural and human-made features using characteristics such as their size, shape, texture, and landscape context. You will also gain experience working with true and false color images.

Materials & Resources

- 8 Landsat images from the USGS “Earth As Art” Collection (<http://eros.usgs.gov/imagegallery/>) and WIRED’s Collection of Favorite Landsat images (<http://www.wired.com/wiredscience/2013/02/landsat-favorites/>)
- The Powerpoint: Provides an overview of image interpretation principles

Procedure

1. Form groups of 2-4
2. Each group chooses a famous Landsat scene from the “Earth As Art” Collection (<http://eros.usgs.gov/imagegallery/>) and/or WIRED’s Collection of Favorite Landsat images (<http://www.wired.com/wiredscience/2013/02/landsat-favorites/>). Within the group, discuss what the image is portraying. Identify key features and land cover classes. Are the wavelengths all in the visible spectrum? Why or why not? Record your answers on the handout below.
3. After finishing with each image, pass it to the next group and collect the next image.

Students' Answers

Image	Description What does the image show? If the image depicts change over time, what is happening?	Which Land Cover Classes Do you See? (Circle)		True or False Color?
1		Urban Agriculture Water	Forest Barren Other	
2		Urban Agriculture Water	Forest Barren Other	
3		Urban Agriculture Water	Forest Barren Other	
4		Urban Agriculture Water	Forest Barren Other	
5		Urban Agriculture Water	Forest Barren Other	
6		Urban Agriculture Water	Forest Barren Other	
7		Urban Agriculture Water	Forest Barren Other	
8		Urban Agriculture Water	Forest Barren Other	