Satellites, Weather and Climate Module 10:
Land interpretation – working with photochips
Elements (Clues)

**Tone** (aka hue or color) ...*water vs. vegetation*
relative brightness or color of elements

**Size** ...*pond vs. lake*
size must be considered relative to photo scale

**Shape** ...*airport, river*
general outline of objects
regular geometric shapes >> cultural features

**Texture** ...*forests vs. fields*
apparent smoothness or roughness of image features
caused by the frequency of change of tone in photos

**Pattern** ...*roads, fields*
spatial arrangement of features in photo

**Shadow** ...*buildings, clouds*
used to calculate heights of objects

**Site/Location** ...*dairy in town?*
topographic or geographic location
Color Vision Test
Test your Powers of Pattern Recognition

Can you identify the unifying theme?

Which one is missing?
Your Task

- Form small groups (2-3 students)
- Photointerpret 12 B & W photo chips and answer the associated questions (handout)
- Compare answers at the end of class
Photo #1: The first photo shows an orchard, a wooded area, several agricultural fields and what appears to be a divided highway. Are all the trees in the orchard the same age? How can you tell? What clues indicate that the areas on the left of the photo are agricultural fields?

Photo #2: What do these snaking patterns on the photo represent on the ground? Hint: this is a technique used to reduce soil erosion.

Photo #3: A water body is shown in a setting that appears rural. Is the water body natural or is it a reservoir? What evidence supports your answer?

Photo #4: This image contains some tanks. Some of the tanks hold flammable liquids and some do not. How can you differentiate these two types of tanks? What types of transportation serve this location? What is the evidence?

Photo #5: What is this feature? What evidence is there to substantiate your claim?

Photo #6: What is this complex? How do you know?

Photo #7: Check out this golf course. Can you identify putting greens, sand traps, fairways, and rough areas? What evidence supports your answer?

Photo #8: What is this feature? This type of use represents a feature that was common for several decades in the U.S., particularly the 50's and 60's. What photo characteristics identify the use?

Photo #9: What is this feature? Is this complex used by professionals or amateurs?

Photo #10: Were these houses built prior to or after WW II?

Photo #11: Is this a factory or a small shopping mall? What evidence is present to indicate this?

Photo #12: This is another unique signature of developed societies that may be identified even on satellite imagery. What is it?
Module Sequence and Suggested Alternatives

1. Remote sensing lecture (ppt file included)
2. Photointerpretation Quiz of generic photo chips (students working in small groups)

3. Suggestions for quiz alternatives
   a) Teacher collect local photo chips of your town/area from available imagery or Google Earth so the students will recognize features in the local area.
   b) Have students collect their own photo chips from Google Earth and then compile all student photo chips (and answers) into a grand quiz for the class.
      I. Photo chips based on the local area or a learning theme
         I. (e.g. development, global change, disasters, streams)
   c) Examine historical imagery of Vermont compared to recent imagery
      1. Instructor to provide a historical photo from the local area and compare to current imagery to identify changes on the land (Landscape Change Program and Google Earth)
         1. Based on a learning theme or historic event (e.g. flood)
      2. Have students locate a historical photo and a photo chip from recent imagery (Google Earth)
      3. Landscape Change Program (http://www.uvm.edu/landscape/)
Google Earth

2008

2004
Photo Archive

(Ground and Aerial Images)

Civil War
Streams
Geology
Disasters (historic floods)
Interpreting the landscape
Forestry
Mining
Landscape Change Program

Educational Resources

- **Thematic Photo Sets** includes educational modules ("Learning Landscape History & Signboards, Shelburne Landscape Change, Dating Photos of the topic (Floods, Mining, Trees), and student scrapbooks.

- **"Learning Landscapes" Rivers Curriculum** link to an on-line module on rivers and fluvial processes. Developed for UVM’s Geomorphology course.

- **Lesson Plans** includes individual lesson plans, a larger Unit Plan, and links to accompanying materials and other resources.

- **Vermont Landscape History** includes movies, podcasts, tutorials and handouts on geologic, landscape, and settlement history.

- **Bibliography** includes citations for a wide range of relevant journal articles, books, and other media.

- **Links** includes several categories of links, including, geology, cultural history, natural history, educational, and general.

Using Photos

- **Tutorials** includes units on 1) Introduction to the LCP Archive, 2) Vermont Geology and Landscapes, 3) How People and Geology Shape the Landscape, 4) Describing Images, and 5) Dating Images.

- **Photo Interpretation** offers some advice about what to look for and questions to ask about historic landscape images.

- **Reshooting Photos (handouts)**

- **Downloading Photos** describes how to download images from this site and the quality of the photos that can be printed or downloaded.
Imagery Provided for your Town
National Agricultural Imagery Program (NAIP)
What Now?

- Select photo chips (features) of your town
  - Digital imagery provided today
  - Google Earth

- Select photo chips pairs (historical images)
  - Google Earth and/or Landscape Change Program

- Check out Landscape Change Program
  - Select imagery themes, places
  - Check out lesson plans
    http://www.uvm.edu/landscape/
Landscape Interpretation with Aerial Imagery

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