1. Introduction

In this lab you will begin interpreting aerial photos. Recall from lecture and your text the photo interpretation elements of identification (size, shape, tone/color, texture, association, and context) and use these words in your answers where possible. When answering each question, please answer each question fully and justify your answer. Answers without proper justification will receive half credit at best. It is equally important that you express your ideas in a clear and concise manner (i.e. do not write a paragraph when a sentence will do). A full credit answer need not provide more detail than necessary but will provide enough evidence to support your answer. Keep in mind that if you are asked to interpret photos in a professional setting, you will only be allotted a few lines or a few sentences to talk about what you see, so please use these labs as practice for the future. There are a lot of photos to interpret and questions to answer for this lab, so be efficient with your time. Feel free to work together but everyone must turn in his/her own work (paraphrase, don't plagiarize!).

Unless the instructions say otherwise, orient the photos with the label info (date and frame number) facing away from you and assume north is up (this is usually true but there are exceptions).

Deliverable. Answer the questions fully in a word processed document, clearly indicating which question and part of each question you are answering. Please paraphrase the question in your response (i.e. if the question was ‘what type of film is this’ – your answer should start ‘the film used was...’). Complete sentences are not required but complete ideas are. Hand drawn sketches will be accepted when required - either incorporate them into your typed lab or attach them as separate sheets and reference them in the text. No hand written labs will be accepted!

As a reminder, the small stereoscopes are capable of 2x and 4x magnification, to get 4x magnification fold the legs outward (the legs have a spring loaded locking hinge mechanism that slides) and flip the extra lenses underneath the other lenses so the two sets of optics are together, ask you TA for help if you need it. High magnification is required for some of the questions.

2. Problems

1) 102 Ranch 01003.01 Obl. North/ South/ East/ West (1/ 17/ 01)
   * there are four oblique mono prints available from different directions, you will need to look at all of them to gain a good perspective on this area.

   a. Look for the white dome and other large structures and features associated with it along the river, what is being produced here? are there many electrical power lines visible? sketch this facility, the dome and associated features you used to make your interpretations.

   b. To the north of the highway, away from the river and the main facility, there is a dirt lot that contains bright blue containers and other objects, what are these other objects?
c. Follow the train tracks to the east, away from the main industrial facility, there is another type of industrial facility located along train tracks. What is the purpose of this facility and the large structures that are laying next to the tracks? Sketch this facility and the associated features you used to make your interpretations.

d. Are these two facilities associated with each other? This is an interpretation question, support your reasoning with any evidence you see in the photos.

e. Which way is water flowing in this river? (W->E or E->W)

2) APS21006-C OR APS21006-B (1/23/01)
* There are two prints available, one oblique mono print and one vertical mono print

a. Where is this area most likely located? (What state) What type of industrial facility is visible in the central part of the photo?

b. How is the processed substance extracted and delivered to its destination? Is this facility in operation? How can you tell?

3) BR-BCS-3 OBL.2/6 AND BR-BCS-3 1-X/2-X (1/3/01)
* There are two oblique photos and two vertical mono prints, you may need to look at all of them to make an accurate interpretation.

a. Where is the water that is flowing in the river coming from and where is its final destination? (The source and destinations are visible in the oblique photos)

b. At one point along the river you can see large holding ponds, several large white rectangular structures and other features. What is this facility doing? (Note: this is not a hydroelectric power plant, it's too small to be cost effective)

c. Looking at BR-BCS-3 1-X you can see two square structures adjacent to the main river channel. The one on the left of the photo has a dam like structure in front that appears to partially traverse the river, what is its purpose? (Look in the immediate area of the structure) Upstream on the right side of the photo there is another white structure that appears to have a holding pond next to it but no dam, it has two large white pipes adjacent to it. What is the purpose of this structure? Where do the pipes go?

d. Above the river valley over the edge of the ridge is a large patch of brown that displays flow patterns, what caused this?

4) GS4576-1-1 (2-14-01)
* There are seven mono prints available

a. In the central portion of this photo adjacent to the newly paved parking lot there is a tall feature in an open yard with trucks and trailers in the vicinity, what is this structure used for? What is this industrial facility?

b. Immediately to the upper right of the tall structure and open yard are rows of colorful objects that have been stacked next to each other, what are these objects? Are they being delivered there or are they being shipped out? How can you tell?
c. In the upper right portion of this photo there is a relatively large industrial facility with numerous components, what is processed here? how can you tell? how is the product that is processed here transported? what is the power source of this industrial facility?

d. In the lower right of the photo there is another industrial facility, is this one related to the one in the upper right? what is your evidence?

e. Located in several different parts of the photo are lots full of parked cars. are these used car dealerships? is this valet parking? what are these areas? do you think these areas are releasing toxic chemicals into the ground?

5) Utility Group (4-17-01)
* there is one stereo set (B and C) and one high resolution mono print (2-2)

a. What is the bright pink material along side the freeway in the lower right of these photos? What kind of photography is this?

b. Is the urban area visible in the stereo pair part of an older downtown road network or a somewhat new development? how can you tell? what is your evidence?

c. In the lower right of the high resolution mono print (2-2) there is a large storage area with objects of various sizes arranged neatly in rows, there is a relatively large green roofed building in this area as well with several large vehicles parked in the vicinity. what industry occupies this space?

6) 98152 obl. 5 (9-1-98)
* there are two prints available

a. What infamous industrial facility is located on this peninsula?  What function does it serve and how do you know?

b. Is this a high or low angle oblique? Define the two.

7) C6052 005 009 Mountain Home AFB
* there are two mono prints available

a. What types of planes can be seen on the left side of the photo? (Fighters, Bombers, Surveillance, Reconnaissance) what is their wing span?

8) 6087-01-01 AND 6087-02-02 (1-31-01)
* there is one stereo pair available

a. On the right hand side of these photos there are several absolutely enormous structures. The structure with the blue front you should be able to identify in one of these photos, what is it?

b. To the right of the taller draw bridge visible in 6087-01-02 there are two huge structures that are connected, one has a black roof and the other has a gray-tan roof. What type of industry is this? Approximately how much floor space is covered by these two structures?
9) Stereogram No. 15 (Moore’s Park)

a. Sketch a plan view of the power production facility at A.9,1.9 and identify the fuel boiler house, methods of fuel transportation, cooling water intake and outlet.

b. What is the main purpose of the dam in this photo? (note: this is not hydroelectric power)

c. This facility is huge, what is being produced here? (note the region, building size, parking lot size etc.)

10) Stereogram No. 16 (Spillway)

a. What type of facility is this? how is the raw material transported?

11) Stereogram No. 301 (Cities Service Refinery)

a. What are the two tall dark cylinders 1" from the right border and 2-5/8" from the bottom? Why do they appear to be different heights? (note: look for shadows and shape differences)

b. In the right-hand stereopair, what are the major modes of transportation?

12) Stereogram No. 312 (Spindle Top)

a. Why are there dikes (the circular depressions) around the tanks?

b. What is visible at A 1.5, 2.1? What are these features and what are they used for?

c. What mineral is being excavated in the vicinity of C.7, 2.4? (Hint: It is not oil, but it is associated with it some times.)
### Industrial Classification Key

*Extraction industries* are characterized by these features: excavations, mine headframes, ponds, and derricks; piles of waste; bulk materials stored in piles, ponds, or tanks; handling equipment, e.g., conveyors, pipelines, bulldozers, cranes, power shovels, or mine cars; buildings that are few and small.

*Processing industries* are characterized by these features: facilities for storage of large quantities of bulk materials in piles, ponds, silos, tanks, hoppers, and bunkers; facilities for handling of bulk materials, e.g., conveyors, pipelines, cranes, and mobile equipment; large outdoor processing equipment, e.g., blast furnaces, cooling towers, kilns, and chemical processing towers; provision for large quantities of heat or power as evidenced by boiler houses; oil tanks, coal piles, large chimneys or many smokestacks, or transformer yards; large or complex buildings; piles or ponds of waste. Three types of processing industries may be recognized:

1. Mechanical processing is typified by few pipelines or closed tanks, little fuel in evidence, few stacks, and no kilns.
2. Chemical processing is typified by many closed or tall tanks, gasholders, pipelines, and much large, outdoor processing equipment.
3. Heat processing is typified by few pipelines or tanks, large chimneys or many stacks, large quantities of fuel, and kilns.

*Fabrication industries* are characterized by these features: few facilities for storing or handling bulk materials; a minimum of outdoor equipment except for cranes; little or no waste; buildings may be large or small and of almost any structural design.

1. Heavy fabrication plants are typified by heavy steel-frame, one-story buildings, storage yards with heavy lifting equipment, and rail lines entering buildings.
2. Light fabrication plants are typified by light steel-frame or wood-frame buildings and wall-bearing, multistory structures, lack of heavy lifting equipment, and little open storage of raw materials.

KEY TO INDUSTRIAL LAND USE

Important:
In identifying an industry from its image components, the following procedure is recommended:

1. Decide whether it is an Extraction, Processing or Fabrication industry.
2. If it is a Processing industry, decide whether it is Chemical, Heat or Mechanical Processing, in that order.
3. If it is a Fabrication industry, decide whether it is Light or Heavy Fabrication.

I. Extraction Industries
   - Excavations, mine headframes, ponds and derricks;
   - Piles of waste;
   - Bulk materials stored in piles, ponds or tanks;
   - Handling equipment, e.g., conveyors, pipelines, bulldozers, cranes, power shovels or mine cars;
   - Buildings few and small.

II. Processing Industries
   - Facilities for storage of large quantities of bulk materials in piles, ponds, silos, tanks, hoppers and bunkers;
   - Facilities for handling bulk materials, e.g., conveyors, pipelines, cranes and mobile equipment;
   - Large outdoor processing equipment, e.g., blast furnaces, cooling towers, kilns and chemical processing towers;
   - Provision for large quantities of heat or power as evidenced by boiler houses; oil tanks, coal piles, large chimneys, many stacks or transformer yards;
   - Large or complex buildings;
   - Piles or ponds of waste.

A. Mechanical Processing Industries
   1. Few pipelines or closed tanks;
   2. Little fuel;
   3. Few stacks;
   4. No kilns.

B. Chemical Processing Industries
   1. Many closed or tall tanks, including gas holders;
   2. Many pipelines;
   3. Much large outdoor processing equipment.

C. Heat Processing Industries
   1. Few pipelines or tanks;
   2. Large chimney or many stacks;
   3. Large quantities of fuel;
   4. Kilns

III. Fabrication Industries
    - Rarely facilities for storing or handling bulk materials;
    - Little outdoor equipment other than cranes;
    - Little or no waste;
    - Large or small buildings.

A. Heavy Fabrication Industries
   1. Heavy steel-frame, one-story buildings;
   2. Storage yards with heavy lifting equipment;
   3. Rail lines entering buildings.

B. Light Fabrication Industries
   1. Light steel- and wood-frame buildings, and wall-bearing multistory buildings;
   2. Lack of heavy lifting equipment;
   3. Open storage rare.