

## **G212 Lab 1, Spring 2010**

### **Geologic Remote Imaging**

#### **Synthetic Stereograms**

Using the small, folding stereoscopes look over the following three synthetic stereograms to make sure your brain functions “in stereo”

\_\_\_Figure 2-13 from Sabins, 1997, p.45

\_\_\_xerox copy of p.43 from Avery and Berlin, 1985.

\_\_\_color copy of house and trees from [www.angelfire.com](http://www.angelfire.com)

\_\_\_synthetic stereoviews of topographic maps from Hamblin(xxxx)

#### **Anaglyph Image**

A stereogram can also be viewed using an anaglyph image. This is a double exposure projected in two different colors or polarizations. The image is viewed in 3D using a special pair of filtering glasses that allow the right eye to see one exposure and the left eye to see the other exposure.

Look at the anaglyph from:

[http://tec.army.mil/research/products/desert\\_guide/lpisheet/lp276.htm](http://tec.army.mil/research/products/desert_guide/lpisheet/lp276.htm)

The advantage of these images is that there is a very simple viewing apparatus (the filtered glasses). Do a web search to answer the question, What are the disadvantages of an anaglyph versus regular stereo images?

#### **Sutter Buttes, CA (dome complex)**

Color IR aerial photos.

Scale of Air photos ? Based on the one-mile-square section lines visible north of the Buttes, calculate the approximate scale of the photos (give your answer as a unitless ratio).

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For photographs, in a general way, how does the scale vary from the center to the edge of any photo?

Observe the vegetation pattern of the Sutter Buttes and surroundings.

What are the strange "spaghetti-like" lines some of the agricultural fields NW of the Buttes?

Why are some of these fields dark, nearly black?

Much of the spotty red vegetation in the Buttes is oak woodland. Some areas have oaks others do not. What areas (microclimates) are most and least vegetated with oaks and why?

**Glass Mountain, Medicine Lake Highland in NE California**

Black and White photos, "Calif. 4-B, 4-C, 4-D"

How is the line of explosion pits associated with the summit of Glass Mountain? What significance does the summit (highest point) of Glass Mountain have to the eruption of the rhyolite lava surrounding the summit? Speculate...!

**Glaciers, Southern Alaska**

Black and White photos

Why does one glacier have a terminal moraine and the other does not? Can you think of a scenario to explain this?

**Carrizo Plains, California**

Black and White photos from 7-22-1957

List and make a small sketch of the different morphologic features that indicate the presence of the San Andreas fault through this area.

**Mount St. Helens volcano, southern Washington**

True color air photos GS-MSH 1-15, 1-16, 1-17,  
also larger scale true color photos 184-852, 184-853,  
and portion of 7.5minute topo quad

Why does the map not show the proper size of the lava dome in the crater? Note that this dome grew from 1980 to 1986. Carefully draw in on your paper topo map the outline of the 1986 lava dome.

In the older “Worm Flows” on the SE flank of the volcano, what morphologic feature of the lavas indicate the flow direction? Draw a diagram to illustrate your point.

A new lava dome began growing in the crater in October, 2004.

What is the current status of the dome activity at MSH? See url:  
[http://volcano.wr.usgs.gov/cvo/current\\_updates.php](http://volcano.wr.usgs.gov/cvo/current_updates.php)

Go to the Photo Gallery of MSH at the Cascades Volcanoes Observatory web site and look at the current configuration of the new dome. It is at:  
<http://vulcan.wr.usgs.gov/Volcanoes/MSH/Eruption04/framework.html>

Specifically look at poster:

<http://vulcan.wr.usgs.gov/Volcanoes/MSH/Publications/SIM2928/framework.html>  
Draw in the outline of the new dome on your paper topo map.