WEATHERING RATES

The type of weathering that dominates in an area depends on the climate in that area. Specifically, the major factors that control climate, and thus weathering, are *precipitation* and *temperature*. The graph below indicates the general relationship between precipitation, temperature and the type and rate of weathering.

Directions: In the graph below to the right, lightly shade (using colored pencils) each weathering type. Next, answer ALL of the questions that follow.

I. Orientation

1. The range of temperatures on this graph is:

_____

2. The range in precipitation (yearly) on this graph is:

_____

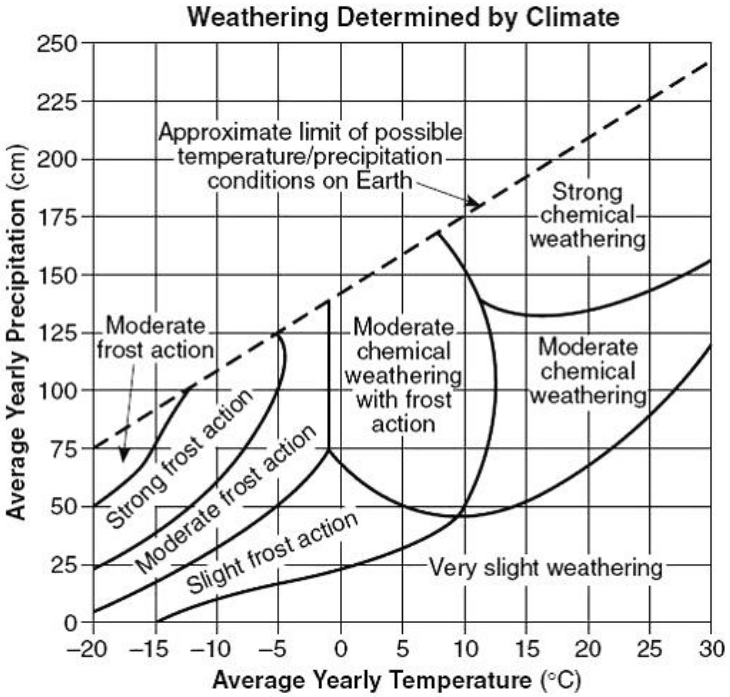
3. Weathering **rates** are described as (4 ways):

a. _____

b. _____

c. _____

d. _____



II. Interpretations

1. Determine the major type of weathering that occurs in Washington, D.C. if the average yearly temperature (**AYT**) is **13°C** and the average yearly precipitation (**AYP**) is **111 cm**.

_____

Plot and label this point on the graph.

2. The AYT in Albany, N.Y. is **9°C** and the AYP is **98 cm**. What is the major type of weathering that occurs in Albany?

_____

Plot and label this point on the graph.

Key

● = Washington, D.C.

■ = Albany, NY

+ = Phoenix, AZ

3. What is the major difference, in terms of weathering type, between Washington, D.C. and Albany, N.Y.? What might explain this difference?

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4. Phoenix, Arizona has an AYT of **20 °C** and an AYP of **22 cm**. Plot and label this point on the graph. How would the climate of Phoenix have to change for moderate chemical weathering to become dominant?

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5. According to the graph, no frost action occurs at an AYT above **13 °C**. What is a possible reason for this?

6. In terms of climate, how does a region that experiences strong chemical weathering differ for a region that experiences strong mechanical weathering?

7. Cleopatra's Needle is a large granite monument, which stood in Egypt form 1450 B.C. unitl 1880 when it was moved to New York City. The sides of the monument were carved with hieroglyphics, the writing of the ancient Egyptians. However, shortly after it was moved to a NYC park, the hieroglyphics began to fade. Explain what process is taking place and why.

8. Describe how you think rocks outcrops and exposures in the Southwest would look in comparison with rocks in our area.