ES202 Lab 9 - Dryland Landforms / Processes

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Work on the following questions from the lab manual, plus the additional questions below.

PART 1. MODELS AND PHOTOS

The following questions refer to the stations set up in the lab room.

Station 9-1. Raised Relief Map of Las Vegas.

Identify the arid landforms at points A and B (Compare to Figure 14.7 on p. 365 of your lab manual). (Note: landform B refers to the broad erosional surface that lies adjacent to, and southeast of the Mormon Mountains)

What surface processes are associated with landform A?

How does landform B form? (think of erosional and depositional processes)

Note the normal faults that lie along the mountain fronts of the Pintwater and Desert ranges.

Has area C dropped down or moved up, relative to the faults?

Has area D dropped down or moved up, relative to the faults?

What is the German name applied to the range marked D?

What is the German name applied to the area marked C?

Station 9-2. Raised Relief Map of Death Valley, CA

Note all of the labeled arid landforms marked on the map. (Compare to Figure 14.7 on p. 365 of your lab manual).

Name / identify the arid region landforms located at points A, B, and C. What processes are predominantly responsible for the formation of each landform?

Examine Devils Golf Course (the valley) at the south-central portion of the map area. Look closely at the landforms on the east side of the valley, vs. the west side. Describe the differences that you observe at the base of each of the mountain fronts.

Each of these mountains are bounded by normal faults. Which mountain front do you think is "newer" (relative to the faulting) and which is "older" (relative to the faulting). Refer to the mountain fronts as "east" and "west" in your answer. Explain how you arrived at your answer.

Station 9-3. Air Photos of Death Valley, CA (Crystal photos 12A and 12 B)

Identify the landforms at points A and B.

Compare the landforms at points A and B, which one appears more active (recent deposition), and which is more inactive. List two pieces of evidence to support your answer.

Station 9-4. Air Photos of Great Sand Dunes Natn'l Monument (Crystal photos 18A and 18B)

Identify the dune types located at points A and B.

Based on observations of dune morphology, what is the dominant wind direction that is recorded by the dune morphology on the air photos?

Identify the landforms located at point C on the photos.

Are the landforms at pt. C erosional or depositional in nature?

What are the landforms at pt. C likely composed of (what types of Earth materials)?

Note the vegetation line on the landforms at C, where is vegetation located on the upper elevation slopes or lower?

What is the general climate like in this area?

Given the climate and the vegetation distribution on landforms at C, provide a process-related interpretation explaining the distribution of vegetation.

Station 9-5. Geologic Map of Nevada (take field trip to room NS218)

Locate the geologic map of NV on the back wall of the geology lab. Note the pink and yellow color patterns across the lower 1/2 of the map.

What is the general trend / orientation of the pink-yellow patterns displayed on the map?

What types of Earth materials are represented by the pink map colors? Are they associated with basins or ranges?

What types of Earth materials are represented by the yellow map colors? Are they associated with basins or ranges?

Locate unit Qp on the map. Is it associated with basins or ranges?

Explain the processes that are responsible for the development of map unit Qp.

Explain the processes that are responsible for the development of map unit Qa.

PART 2. LAB MANUAL PROBLEMS

Using your lab manual, complete the following exercises:

Activity 14.1, Parts A, B, C, D (p. 367)

Activity 14.2 Parts A, C, D (p. 369)

Activity 14.3, Parts A, B, C, D, E (p. 371)