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Chapter 13 - Deserts and Winds

1. Fill in the following table:

global area	**pressure**	**temperature**	**rainfall**
equatorial low			
subtropical high			
mid latitudes			

2. How are **rainshadow** deserts formed?

3. What is an **ephemeral stream**?

What are some other names for ephemeral streams?

4. Describe these typical features of the Basin and Range province:
a. **interior drainage**:

b. **playa**:

c. **alluvial fan**:

d. **bajada**:

e. **inselberg**:

5. What is the process of **saltation**?

6. How does **desert pavement** form?

7. What are **cross beds**?

How are they formed?

How can you tell wind direction?

8. What are **loess** deposits and how are they formed?

9. Use the diagrams in your textbook and the stereo aerial photographs to answer the lab questions below.

Lab on Eolian (Wind and Dunes) Processes

1. Cactus area, California, just west of Yuma, Arizona.

a. What type of dunes are most common in this area?

(1) Barchan
(2) Longitudinal
(3) Parabolic
(4) Star
(5) Transverse

b. Describe the interdune features - their slope and characteristics.

c. If north is to the left of the topography, which direction do the prevailing winds come from?

2. Moses Lake, Washington, located in an abandoned channel of a large glacial outwash stream entering the ancestral Columbia River.

a. What type of dunes are at A and C?

b. What type of dunes are at B?

c. Which direction did the prevailing winds come from when the dune field was active (North is marked on the photos) ?

d. What is a likely cause of the cliffs (bluffs) at D before the dunes migrated into the area?

e. What is the approximate elevation of the water table? What is the evidence for this?

3. Sands Dunes - California

a. What type of dune is common in this area?

(1) Barchan
(2) Longitudinal
(3) Parabolic
(4) Star
(5) Transverse

b. What factors influence this type of dune?

c. If the supply of sand were greatly increased, what type of dune would most likely evolve in this area?

(1) Barchan
(2) Longitudinal
(3) Parabolic
(4) Star
(5) Transverse

d. What is the prevailing wind direction (the direction from which the wind is blowing) in this area?

e. What is the most probable source of sand in a desert area such as this?

(1) wind abrasion of the general surface
(2) mass movement and slope retreat of local valley walls, or
(3) sediment transported by a drainage system?

4. Coastal Dunes - Oregon

a. What type of dune is most common in this area?

(1) Barchan
(2) Longitudinal
(3) Parabolic
(4) Star
(5) Transverse

b. What is the evidence for several generations of dune systems?

c. Explain the origin of the elongate ridges and furrows just inland from the beach.

d. Sediment is being transported by three systems: eolian (wind - dunes), beach, and stream. Describe (towards, parallel to and left or right, or away from the beach) the direction of sediment transport in each of these systems.

e. Which system of sediment transport dominates in this area: fluvial or beach?

5. Sand Dunes of the Namib Desert - Namibia

a. What is the dominant type of dune in this area? What is the secondary type?

(1) Barchan
(2) Longitudinal
(3) Parabolic
(4) Star
(5) Transverse

b. Is the prevailing wind constant or variable?

c. What is the dominant wind direction?

d. Why does the dune field terminate abruptly at the Kuiseb River?