

Chapter 10 - Running Water, Rivers, Floods

1. What is the **hydrologic (water) cycle**? Describe its various processes.

a. **infiltration**:

b. **runoff**:

c. **transpiration**:

d. **evaporation**:

e. **evapotranspiration**:

2. What is **sheet flow**?

3. What controls **infiltration capacity**?

4. What is **gradient**?

5. What is **discharge**?

Within the U.S., which river has the largest discharge and the largest drainage area?

6. What is **base level**?

What is ultimate base level?

Give some examples of local or temporary base levels.

7. Describe the types of transportation of sediment by streams:

a. **dissolved load:**

b. **suspended load:**

c. **bed load:**

8. Describe deposits of streams:

a. **point bars:**

b. **braided streams:**

c. **floodplain:**

d. **natural levees:**

e. **deltas:**

f. **meanders:**

g. **oxbow lake:**

h. **stream terraces:**

9. Describe and draw these **drainage patterns:**

a. **dendritic:**

b. **radial:**

c. **rectangular:**

d. **trellis:**

10. What are **flash floods** and where do they occur?

11. Describe these methods of flood 'control':

a. **artificial levees:**

b. **flood-control dams:**

c. **channelization:**

d. **floodplain management:**

Lab on Rivers

Use the stereo photographs and stereo viewers and your textbook to answer these questions:

12. (14 on photo). **Alluvial fans - Death Valley, California**

a. What evidence do you find in these photographs that the streams cut the valleys through which they flow? (Hint: look for cross-cutting relationships among the tributaries in the mountainous areas).

b. Sediment of different ages can be recognized on the fans by differences in tone, texture, and relative elevation. Describe the features of the

b.1. **oldest:**

b.2. **next younger:**

b.3. youngest:

c. Why do the drainage channels on the fan split into numerous distributaries?

13 (15 on photo). **Stream terraces - Montana.**

a. What processes were involved in the deposition of the sediment on which the terraces were cut?

b. Which terraces are oldest - highest or lowest?

c. What geologic events do the terraces record?

d. Draw an idealized cross section across the stream valley and show the morphology of the terraces.

14 (16 on following page). **Death Valley - California.** (See p. 372 in your text).

Death Valley is part of the Basin and Range province, which is characterized by fault-block mountains and down-dropped basins partly filled with sediment derived from erosion of the adjacent mountains. It is an arid region (summer temperatures commonly rise above 120°F) of internal drainage.

a. How many fans (large or small) can you see?

b. How do these factors govern the size of an alluvial fan (mountain height, climate, size of the drainage system)?

c. Draw a line showing the location of the fault along which the mountain was uplifted. Is there any evidence that recent movement has displaced some of the fans? If so, what is it?

d. How would erosion and deposition in this area change if the climate became more humid?