

Topic X

DEPOSITION

- I. Deposition** - the *dropping* of sediments of either inorganic (never been living) or organic (once was living) origin by **precipitation** in sea water.
- A. Occurs whenever the wind or stream **SLOWS DOWN**, such as when the river or stream:
1. has **less gradient** (slope)
 - a) like when it enters a lake or an ocean
 2. has **less discharge** (volume of water)
 3. is on the **inside of a bend** (meander)
- II. Sediment sorting**
- A. Depositing sediments by **uniform** (the same) **size**, mostly by **water**.
 - 1.) The **largest, roundest, and most dense particles** will settle out **first**.
- B. **Horizontal sorting** - when a river enters a lake/ocean, the **heavier** sediments will sink **first**. (closest to shore)
- C. **Glacial deposits** - dropped when glacial ice melts... are **UNSORTED** (**mixed**)
- D. **Wind deposits** - sediments are frosted, and in wavy layers, like snow drifts
- E. **Mass movement** - angular rocks (unsorted) piled at the bottom of a cliff
- III. An erosional-depositional system**
- A. **Erosion** - occurs when **kinetic energy** (motion) is *increasing*, due to:
- 1.) steeper gradient (slope)
 - 2.) more discharge (volume of water)
 - 3.) outside of a bend
- B. **Deposition** - occurs when **kinetic energy** (motion) is *decreasing*, due to:
- 1.) becoming level (less gradient)
 - 2.) less discharge (water)
 - 3.) inside of bend
- C. **Potential energy** - is **greatest** at the stream's **source** (highest point), and **zero** at **sea level**. Sea level is the **base level** for **all** erosion... no river can erode below that level.
- D. If the erosion rate = the deposition rate, then the stream is in **dynamic equilibrium**.
- E. **Erosional/depositional interface** - the boundary between those two processes. Most easily observed in the **middle** of a stream **bend**.

IV. Depositional features

- A. Streams - form a **delta** at mouth (end) of stream
- B. Glaciers - result in:
 - 1. moraine - unsorted material dropped along front edge of glacier
 - 2. drumlins - tear-drop shaped hills... steep side points to direction ice advanced from
 - 3. kettle lakes - from block of slower melting ice (Loon Lake)
 - 4. outwash plain - broad delta deposited out in front of glacier by melt water
- C. Waves
 - 1. beach - sand/sediments deposited along the shore
 - 2. jetties - reach straight out into ocean. Sand builds up on the side that the waves/wind/currents **hit**.
 - 3. sand bars - deposits of sand deposited by waves/currents
 - 4. barrier islands - sand deposited parallel to the shore by currents, with a lagoon between it and the shore (see Long Island)
- D. Wind
 - 1. forms sand dunes