Tuesday, Dec 4, 2018

Pick up: notes ISN pg 87

Today you will:

- Notes on Erosion

HOMEWORK:

Quiz on Erosion Thursday 12/6

Erosion

2

Agents of Erosion

- **Erosion** is the movement of sediment.

- Erosion occurs because gravity, ice, wind, and water sculpt Earth's surface.

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Gravity

- Gravity pulls everything on Earth toward its center.
- When gravity alone causes rock or sediment to move down a slope, the erosion is called **mass movement**. 
- Mass movements can occur anywhere there are hills or mountains.

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Creep

- The process in which sediments move slowly downhill, is called **creep**.
- Creep is common where freezing and thawing occur.

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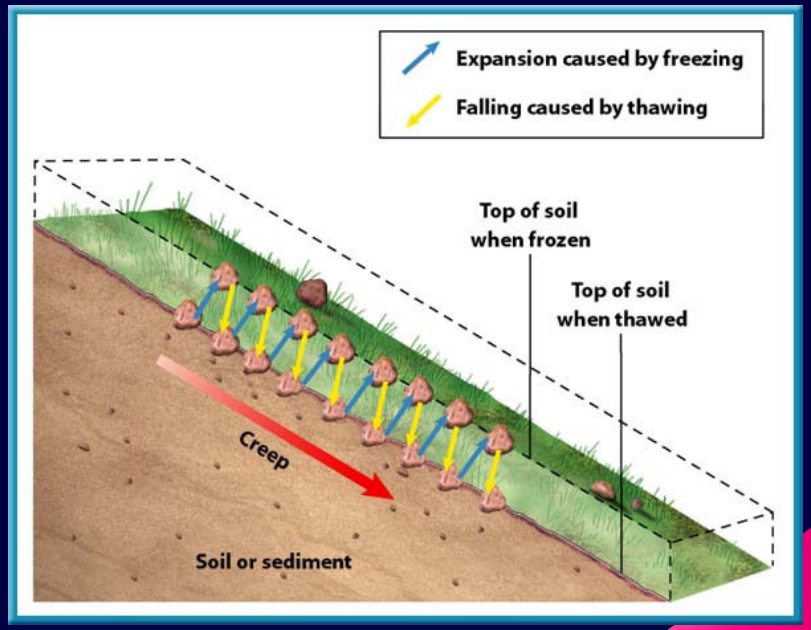
Creep

- When soil freezes, particles are lifted.
- When it thaws, the particles are pulled downhill by gravity.
- Eventually, large amounts of sediment are moved by this process.



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Slump

- A **slump** occurs when a mass of rock or sediment moves downhill, leaving a curved scar.

- Slumps frequently occur on slopes that have been undercut by erosion, such as those above the bases of cliffs that have been eroded by waves.

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Rock Slides

- During a rock slide layers of rock break loose from slopes and slide to the bottom.
- The rock layers often bounce and break apart during movement.
- This produces a huge, jumbled pile of rocks at the bottom of the slope.

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Mudflows

- A mudflow is a mass of wet sediment that flows downhill over the ground surface.
- Some mudflows can be thick and flow slowly downhill at rates of a few meters per day.

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Mudflows

- Other mudflows can be much more fluid and move down slope at speeds approaching 160km/h.

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Ice

- When the ice in a glacier becomes thick enough, its own weight causes it to flow downhill under the influence of gravity.

- A glaciers move over Earth's surface, they erode materials from some areas and deposit sediment in other areas.

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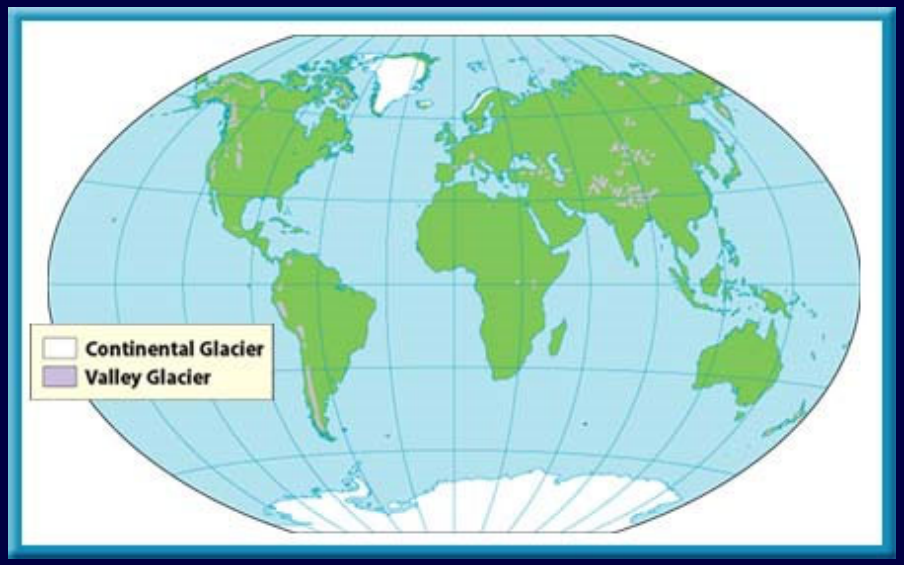
Ice

- Continental glaciers in polar regions cover about ten percent of Earth.
- These glaciers are so large and thick that they can bury mountain ranges.



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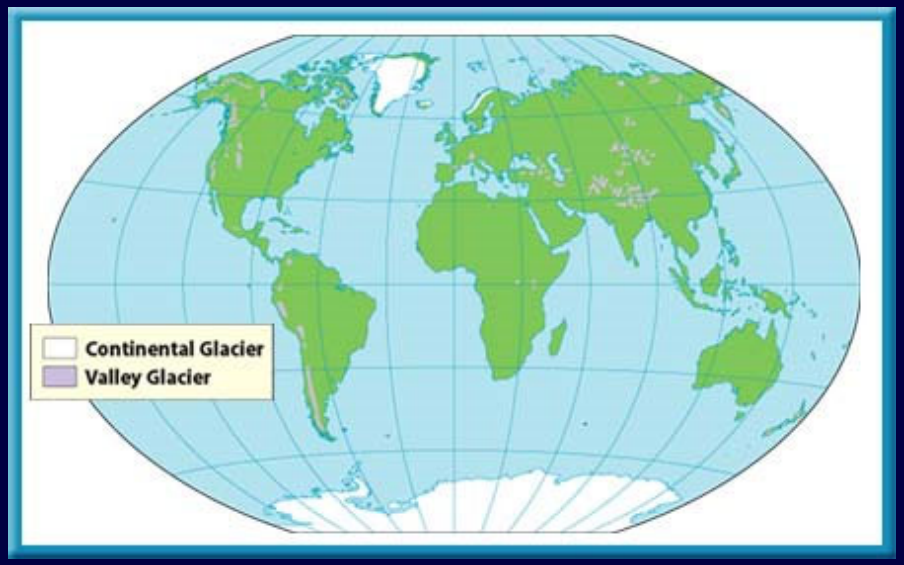
Ice

- Valley glaciers are much smaller and are located in high mountains where the average temperature isn't warm enough to melt the ice sheets.



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Glacial Erosion

- Glaciers can erode rock in two different ways.
- Ice can pull out pieces of rock.
- This causes the rock to erode slowly. Loose pieces of rock freeze into the bottom of the glacier and are dragged along as the glacier moves.

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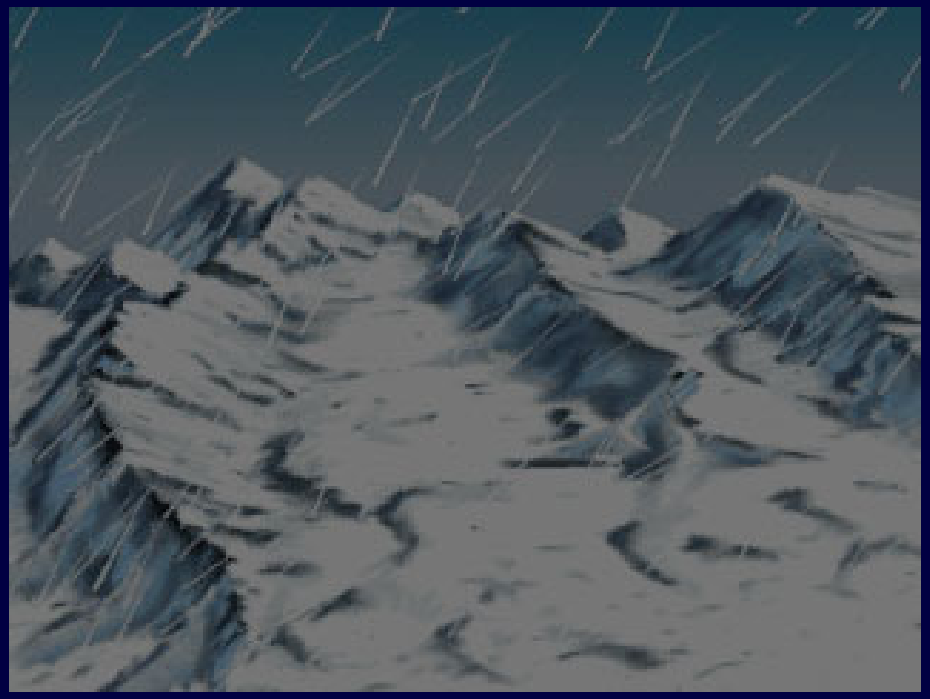
Glacial Erosion

- This scratching is the second way that glaciers can erode rock.
- Scratching produces large grooves or smaller striations in the rock underneath.



Click image to view movie.

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Effects of Glacial Erosion

- In mountains, valley glaciers can remove rock from the mountaintops to form large bowls, called cirques (SURKS), and steep peaks.

- When a glacier moves into a stream valley, it erodes rock along the valley sides, producing a wider, U-shaped valley.

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Glacial Deposition

- When stagnant glacier ice melts or when ice melts at the bottom of a flowing glacier or along its edges, the sediment the ice was carrying gets left behind on Earth's surface.

- This sediment, deposited directly from glacier ice, is called till.

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Glacial Deposition

- A lot of melting occurs around glaciers.
- So much water can be produced that streams often flow away from the glacier.
- These steams carry and deposit sediment.
- Sand and gravel deposits laid down by these streams are called outwash.

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Wind

- When wind blows across loose sediments like silt and sand, it lifts and carries it.
- Wind often leaves behind particles too heavy to move.
- This erosion of the land by wind is called **deflation**.

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Wind

- **Abrasion** is a form of erosion that can make pits in rocks and produce smooth, polished surfaces.

- Abrasion is common in some deserts and in some cold regions with strong winds.

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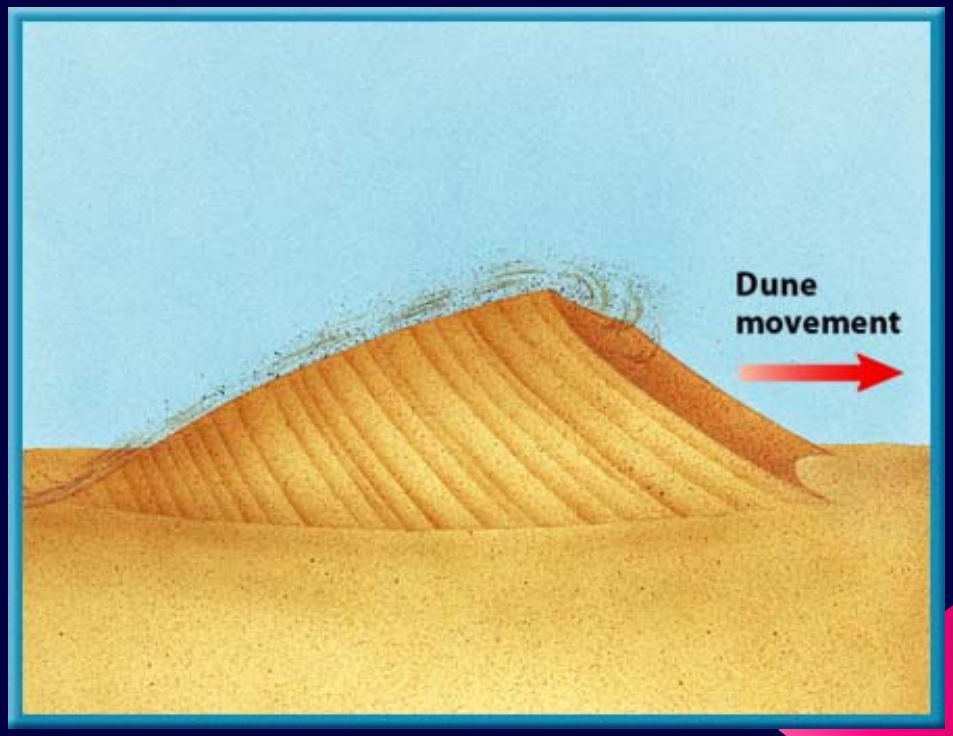
Wind

- If sand deposit continues to grow, a sand dune might form.
- Sand dunes move when wind carries sand up one side of the dune and it avalanches down the other.



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Wind

- Sometimes, wind carries only fine sediment called silt.
- When this sediment is deposited, an accumulation of silt called loess (LOOS) can blanket Earth's surface.
- Loess often is deposited downwind of large deserts and deflated glacial outwash deposits.