Shaping Earth's Surface

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These slides provide you with an introduction to some key questions we will explore in our unit on “Shaping the Earth’s Surface.” They are illustrated by images I have taken in various places I’ve had the privilege to visit.

Look at them and other images in your textbook and elsewhere to learn more about the diversity on our planet’s surface and the processes that have created them.

What is “weathering?”

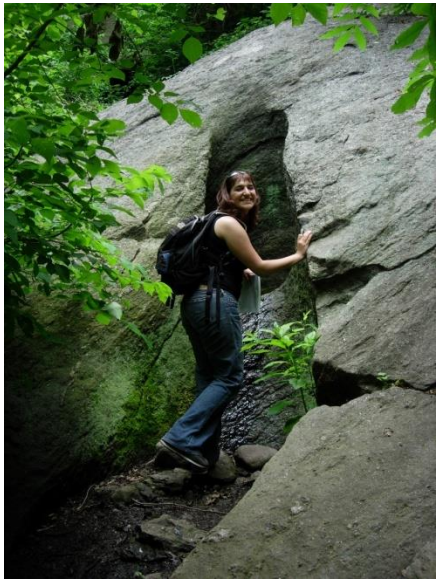
- “**Weathering**” refers to the **physical, chemical,** or **biological breaking-down of rocks**
- The **rate of weathering** can vary greatly, depending on differences in **temperature** and **moisture**

Weathered rocks and sand dunes in Natal, Brazil →

Rock slide down the Palisades near Alpine

What is “erosion”?

- “**Erosion**” refers to the processes that move rock fragments from where they weathered
- **Running water** is the most important **agent of erosion** over most of Earth’s surface
- **Glaciers, wind**, and waves are other important agents



Top—Niagara Falls; Bottom— “Glacial pothole” left from the last Ice Age, found in Inwood Park (northern Manhattan)

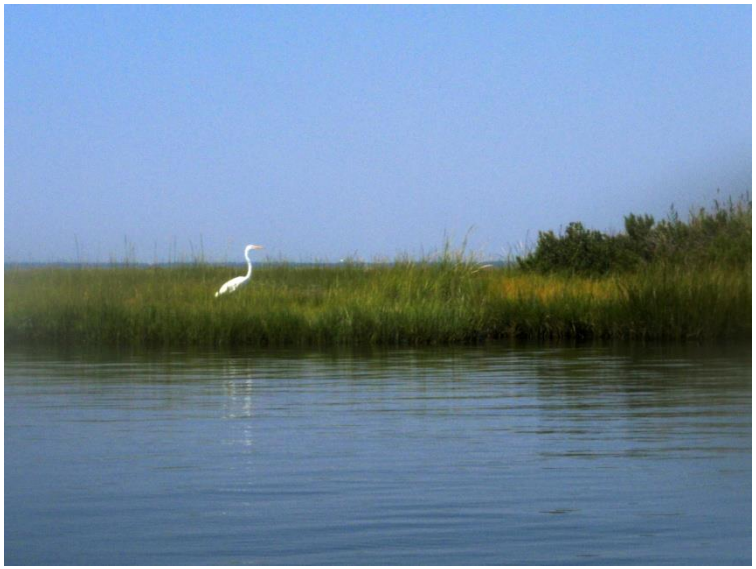
Giant sand dunes near Natal, Brazil

About to go down 30 m (90 ft)

Rocky Mountains west of Denver,
on the Continental Divide

What is “deposition”?

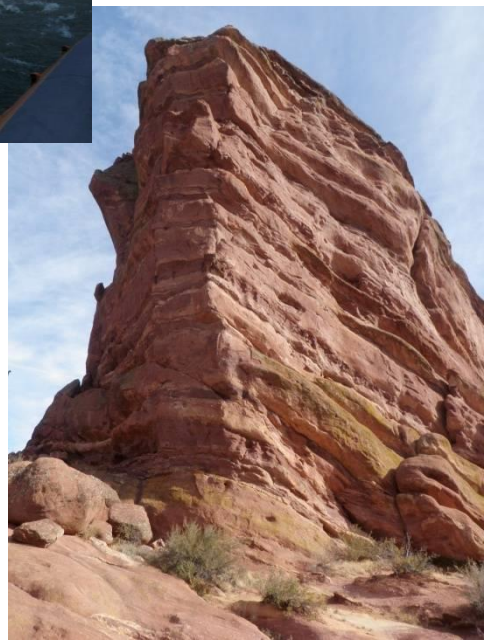
- **Deposition** refers to the processes by which eroded fragments **settle out** and remain in a location for some time
- Important locations for deposition include near-shore oceans, lakes, and desert basins

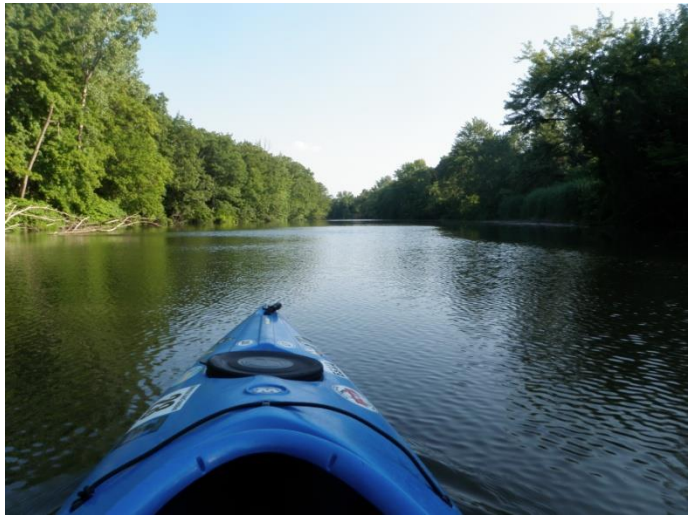


← Sometimes deposition occurs in inconvenient places

Lakes eventually fill up from the sediments deposited by their feeder streams. Beavers can build structures that can create lakes →

Why do we have different landscapes in different areas?





What is “soil”?

- “Soil” is a complex mixture of rock fragments, air spaces, water, small and microscopic animals, fungi, bacteria, and decomposing plants and animals (humus)
- Good soils take centuries to form above the solid rock, but can be destroyed in very short times by erosion or human activities