

Weathering, Erosion, and Deposition



Weathering, erosion, and deposition are processes continually at work on or near earth's surface. Over time, these processes result in the formation of sedimentary rocks. Weathering occurs when rocks are broken down into smaller particles but not moved. Mechanical weathering is the breaking of rocks by expansion and contraction. This can be as a result of heating and cooling, or from water entering a crack in a rock and expanding when it freezes. Plant roots can invade rocks causing mechanical weathering. Chemical weathering weakens or breaks down rock when the rock reacts with water including rain, dew, surface water, or seawater.

When natural forces begin to move weathered particles, called sediments, we say that they are being eroded, or undergoing erosion. Most of earth's erosion is done by flowing water in streams which carry tons of sediment to the oceans each day. Waves erode rock exposed at the shoreline. Wind is able to move particles causing them to bump and skip along the surface. Glaciers move slowly downslope like ice bulldozers pushing weathered fragments from powder sized particles to enormous boulders. Gravity erodes by causing landslides and mudslides.

Deposition occurs when movement slows or stops and suspended sediments are dropped. Streams can deposit particles as the velocity slows around a curve or when the slope changes or when they flow into the ocean. Glacier movement can stop at the bottom of a slope or when the glacier begins to melt or when reaching the sea. Chemical deposition can occur in mineral rich seas or lakes. Shells and skeletons of organisms dissolve in and react with water under certain conditions, later to precipitate - that is, to come out of solution and fall to the seafloor as limestone crystals. Streams and groundwater can dissolve rocks, especially limestone, which can form caves. Dissolved minerals may later form beautiful cave deposits as this mineral rich water drips through the caves and evaporates leaving new lime deposits. Rocks that eventually form from precipitated sediments or from sediments that become compacted and solidified are called sedimentary rocks.

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