

# Erosion and Deposition

## Erosion

The process by which wind, water, ice, or gravity transports soil and sediment from one location to another.

### The 5 Agents of Erosion and Deposition

1. Surface/running water
2. Ocean waves
3. Wind
4. Ice
5. Gravity

#### 1. Surface/Running Water

- We'll actually come back to this topic in the next unit.
  - For now, this is what I want you to know:
  - It's the major cause of erosion (think of rivers and streams).
  - When water moves, it carries particles called the load.

#### 2. Ocean Waves

- Waves: caused by wind  
Can break solid rock and throw broken pieces against shore.
- Rushing water enters cracks, breaks off large boulders, and washes away sand.
- Sand particles polish other rocks.
- Rocks continually break down until they become sand particles.
- **Sea stacks:** once connected to the mainland, which eroded and left an isolated column of rock.
- **Sea caves:** waves cut large holes in weak rock, common in the cliffs of limestone rock.

- **Sea arches:** Sea arches: when a cave erodes all the way through.

- **Headlands:** finger-shaped projections that erode slower than the surrounding rock.

- **Wave-cut terraces-**

when a sea cliff is worn back and makes nearly level platform beneath the water.

### 3. Wind

- Wind is caused by uneven heating of the Earth's surface by the sun.

- Some places are more vulnerable to wind erosion.

– Ex: Places without a lot of plants.

#### Processes of Wind Erosion:

- **Saltation:** skipping and bouncing of sand-sized particles

– Bump into each other and the ground.

- **Deflation:** removal of the sediments by wind

– Leaves heavy pieces behind.

- **Abrasion:** grinding and wearing of rock surface by other particles.

### 4. Ice

- **Glacier:** an enormous mass of moving ice.

– Form in places where snow stays on the ground year-round.

- **Alpine glacier:** in mountains/valleys.

– As it flows down, it broadens valleys into U-shapes.

#### Features Caused by Ice Erosion:

- **Horns:** sharp, pyramid-shaped peaks.

- **Cirques:** bowl-shaped depressions

- **Arêtes:** jagged ridges that form between two or more cirques in the same valley.

- **U-shaped valleys:** when a glacier erodes a river valley from its original V-shape to a U-shape.

- **Hanging valleys:** smaller glacial valleys that join the deeper main valley.

- Usually forms a waterfall when the ice goes away.

## 5. Gravity

- **Mass movement:** a movement of a section of land down a slope

- Can have rapid mass movement or slow mass movement.

### Rapid Mass Movement:

- **Rock fall:** loose rocks fall down a steep slope.

- **Landslides:** sudden movement of rock/soil down a slope.

- **Mudflow:** mud/rock and soil mixed with a large amount of water

- Lahar is a special kind with volcanic ash

### Slow Mass Movement:

- More frequent, less noticeable.

- More material is moved over time.

- **Creep-** extremely slow movement of material

down a slope

- Caused by water loosening soil, burrowing animals, etc.

## **Deposition**

**Deposition:**

- The process in which material is laid down.

**Surface/running water:**

- Water carries the particles, or load.
- The particles can then be deposited elsewhere.