Weathering and Erosion

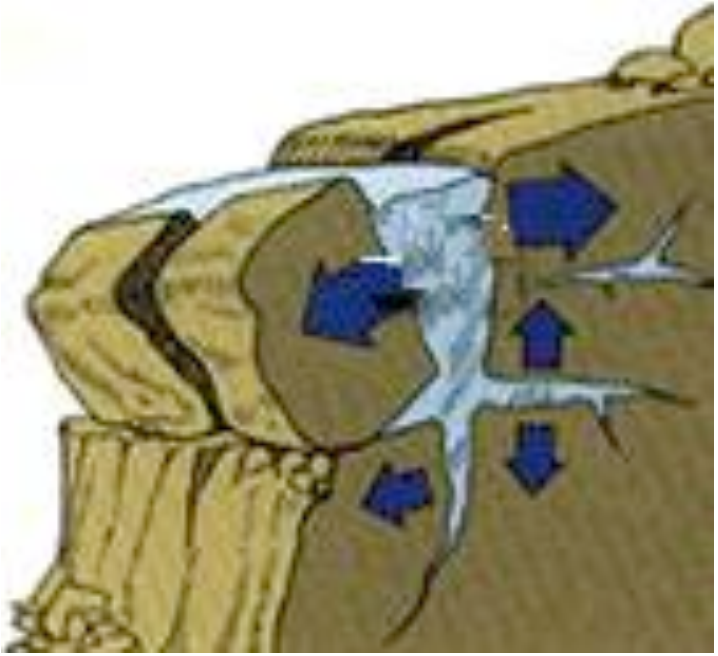
Weathering

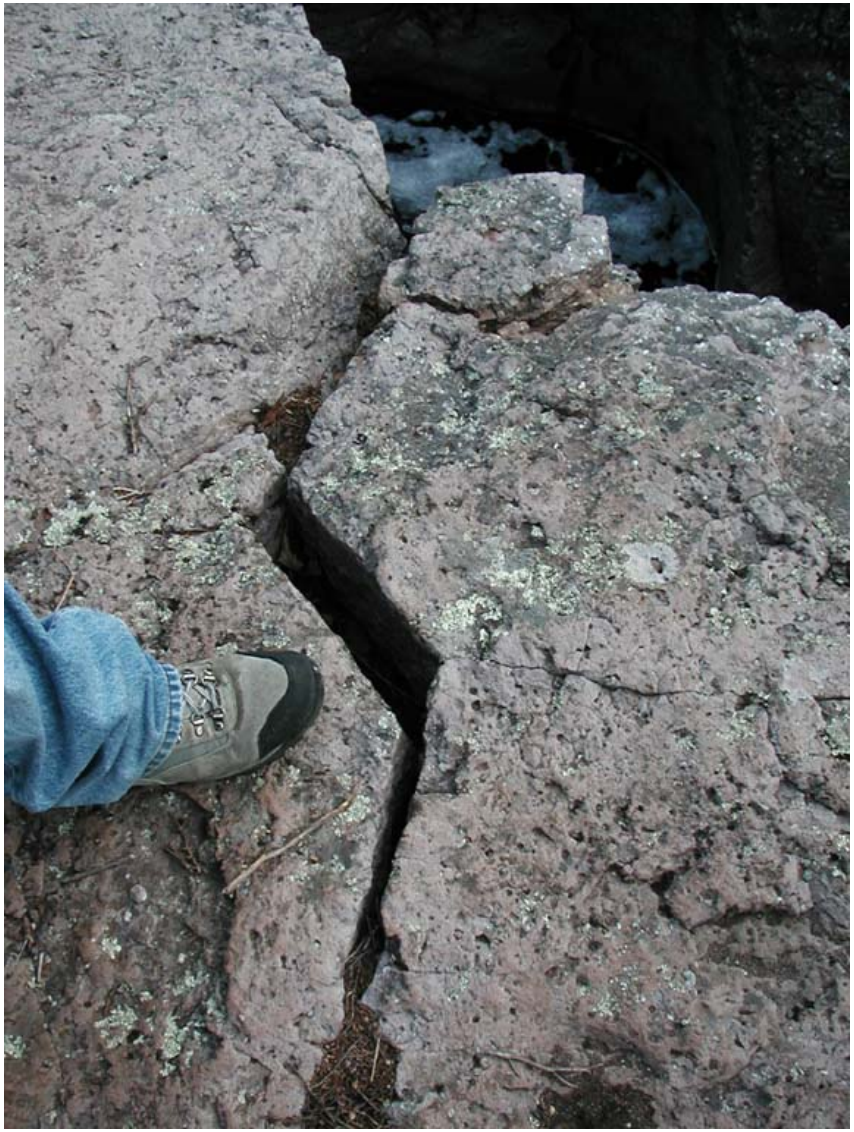
- The breakdown do the materials of Earth's crust into smaller pieces.

Physical Weathering

- Process by which rocks are broken down into smaller pieces by external conditions.
- Types of Physical weathering
  - Frost heaving and Frost wedging
  - Plant roots
  - Friction and impact
  - Burrowing of animals
  - Temperature changes

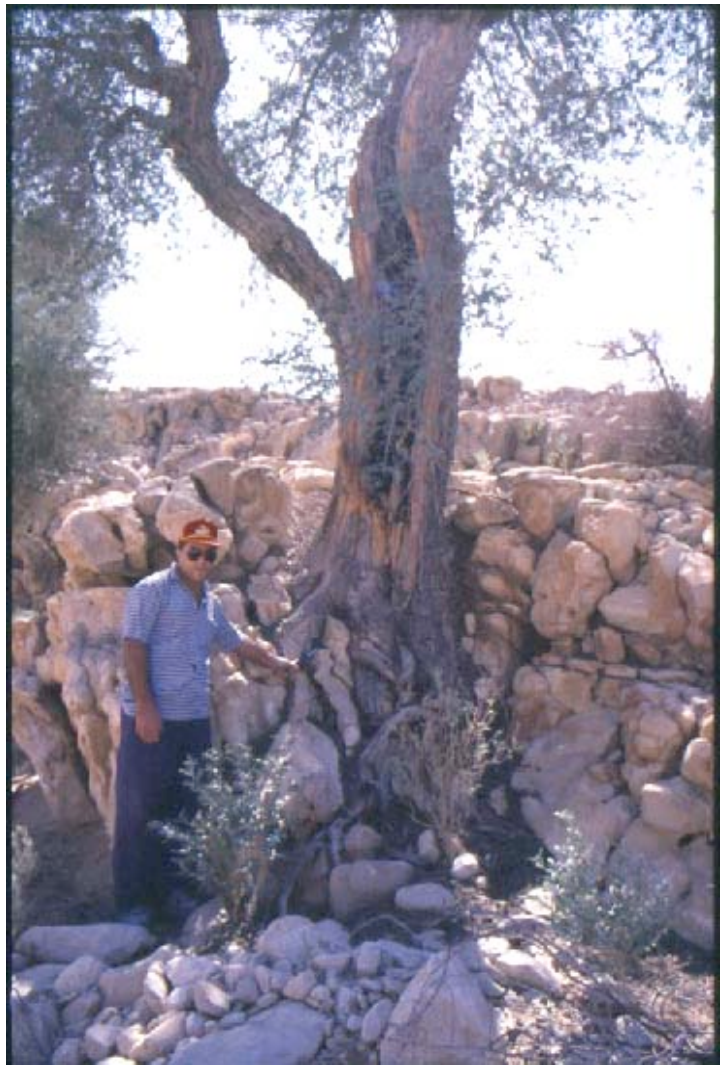
Frost Wedging





Frost Heaving

Plant Roots



Friction and Repeated Impact

Burrowing of Animals

Temperature Changes

Courtesy Canadian Fire Research

Chemical Weathering

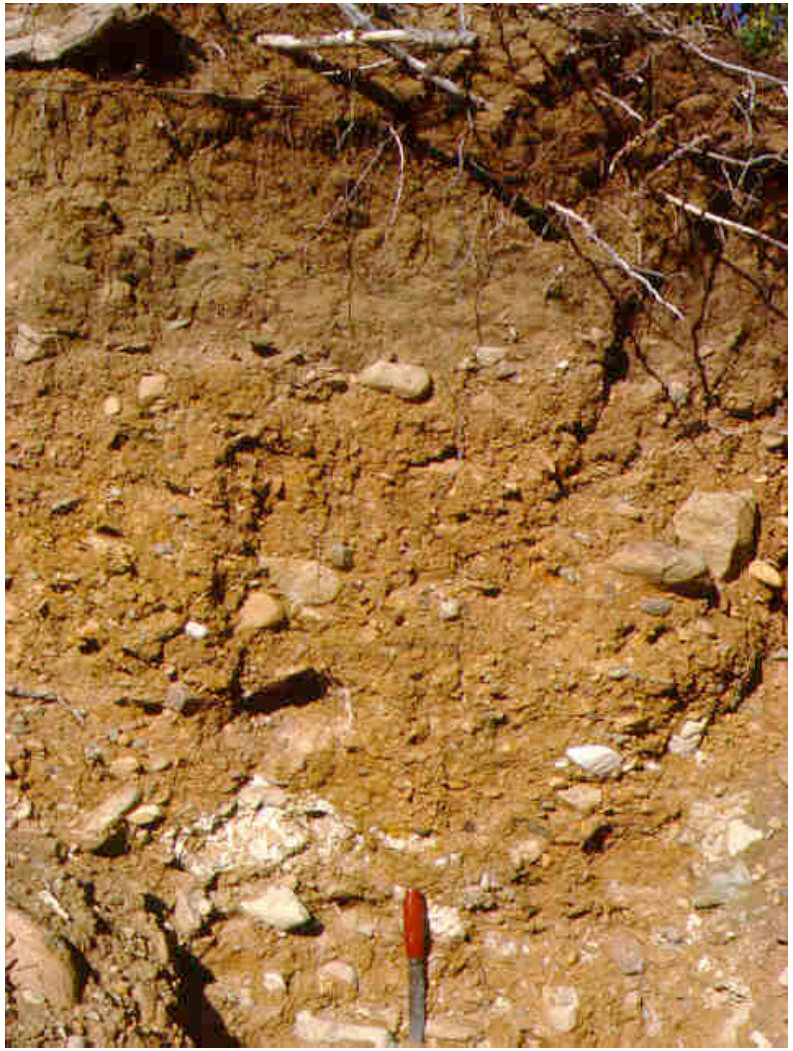
- The process that breaks down rock through chemical changes.
- The agents of chemical weathering
  - Water
  - Oxygen
  - Carbon dioxide
  - Living organisms
  - Acid rain

Water

- Water weathers rock by dissolving it

Oxygen

- Iron combines with oxygen in the presence of water in a processes called oxidation
- The product of oxidation is rust



Carbon Dioxide

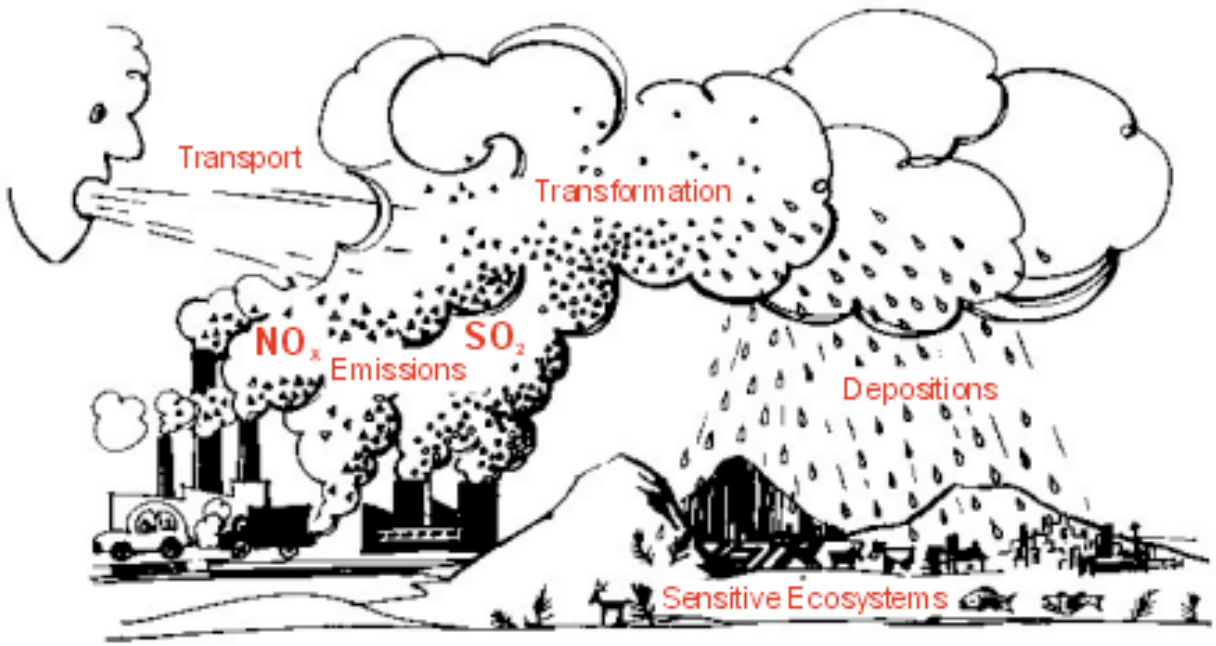
- CO_2 dissolves in rain water and creates carbonic acid
- Carbonic acid easily weathers limestone and marble

Living Organisms

- Lichens that grow on rocks produce weak acids that chemically weather rock

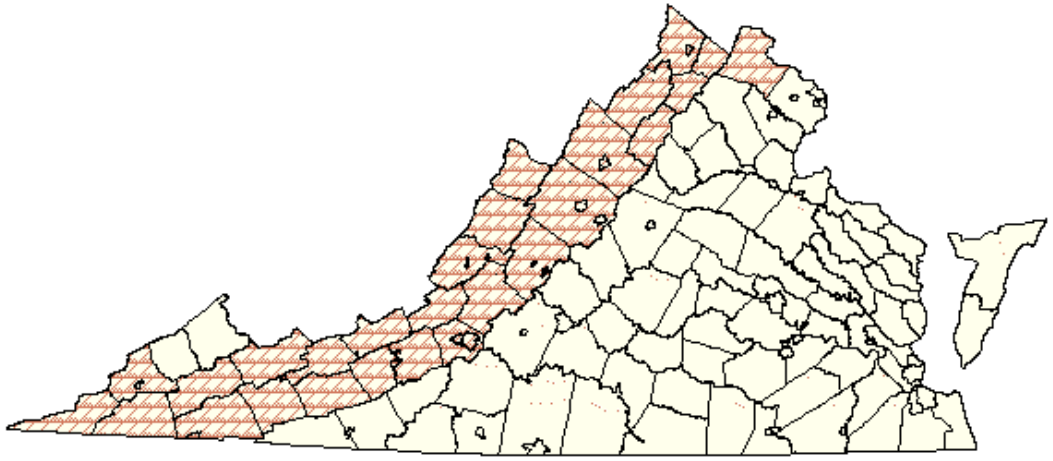
Acid Rain

- Compounds from burning coal, oil and gas react chemically with water forming acids.
- Acid rain causes very rapid chemical weathering



Karst Topography

- A type of landscape in rainy regions where there is limestone near the surface, characterized by caves, sinkholes, and disappearing streams.
- Created by chemical weathering of limestone



Features of Karst: Sinkholes

Features of Karst: Caves

Features of Karst: Disappearing Streams

Erosion

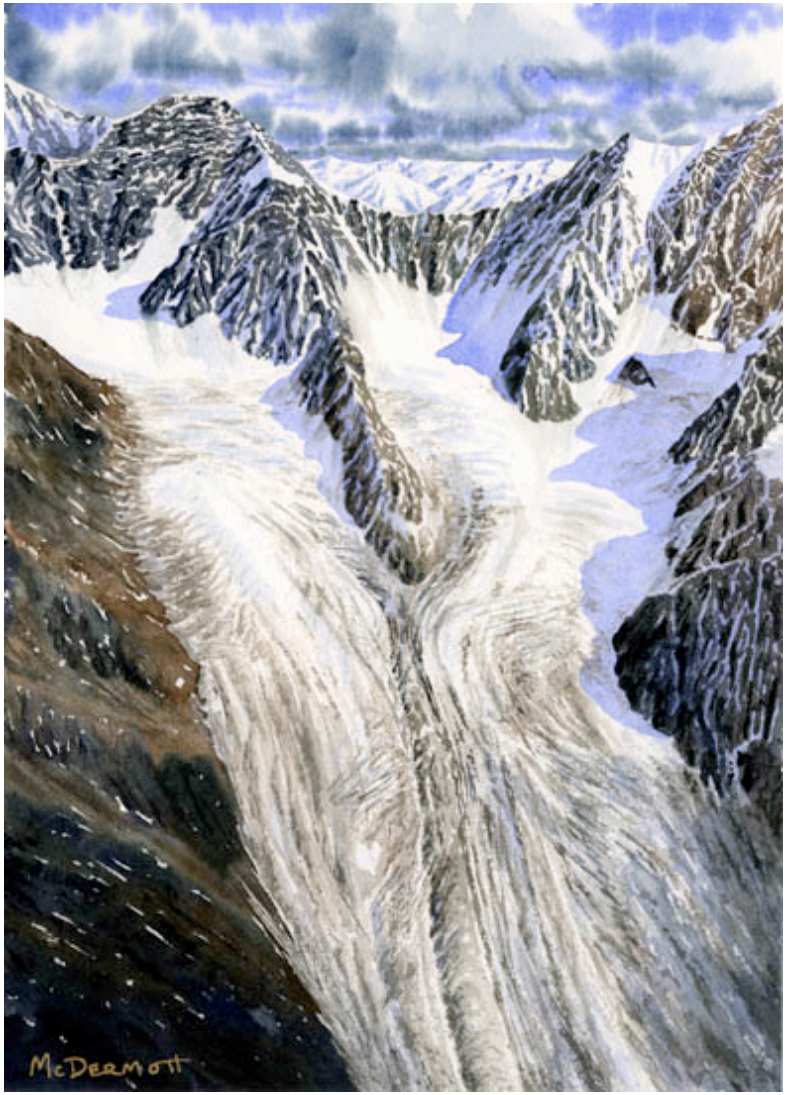
- The process by which water, ice, wind or gravity moves fragments of rock and soil.

Water Erosion

- Rivers, streams, and runoff

Ice Erosion

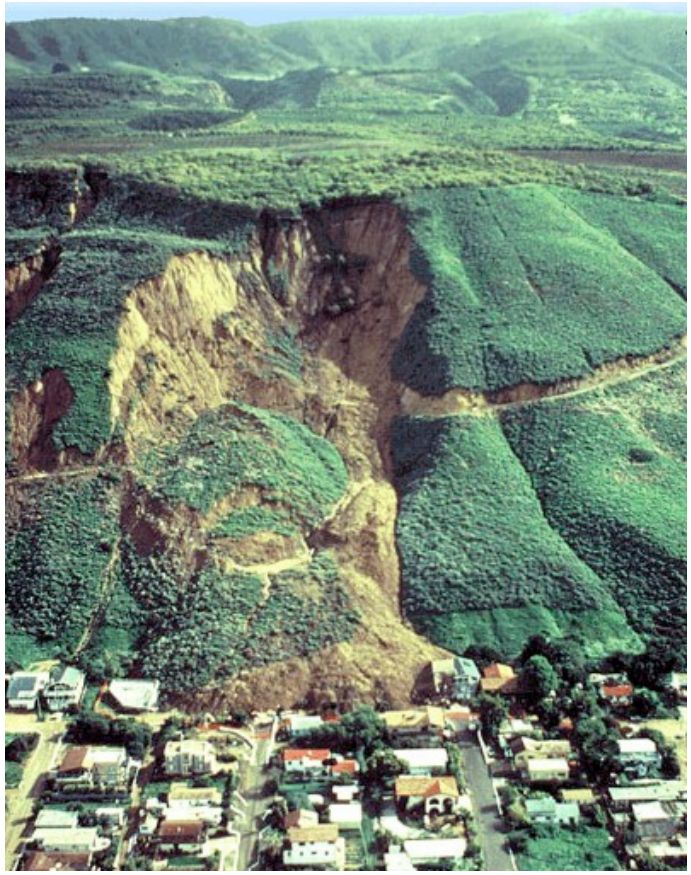
- Glaciers



Wind Erosion

Mass Movements

- Landslides, mudslides, slump and creep



landslide clip.mpeg