

Erosion Forces



Erosion & Deposition



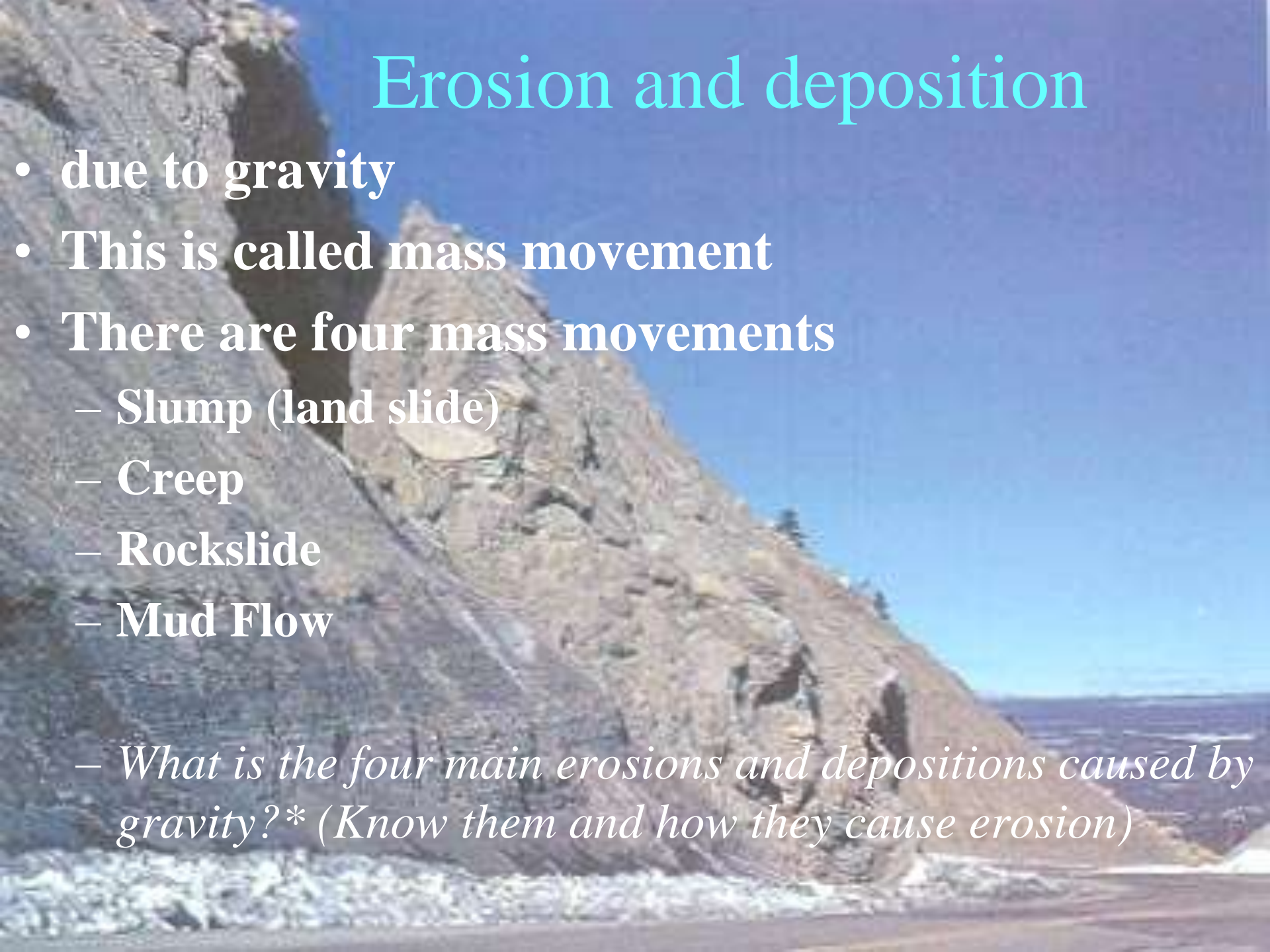
What is the difference between erosion and deposition*

- **Erosion is the process of picking up and moving particles from one place**
- **Deposition is the process of the particles being dropped in certain areas**

Talus

Erosion and deposition

- due to gravity
- This is called mass movement
- There are four mass movements
 - Slump (land slide)
 - Creep
 - Rockslide
 - Mud Flow
- *What is the four main erosions and depositions caused by gravity?** (Know them and how they cause erosion)

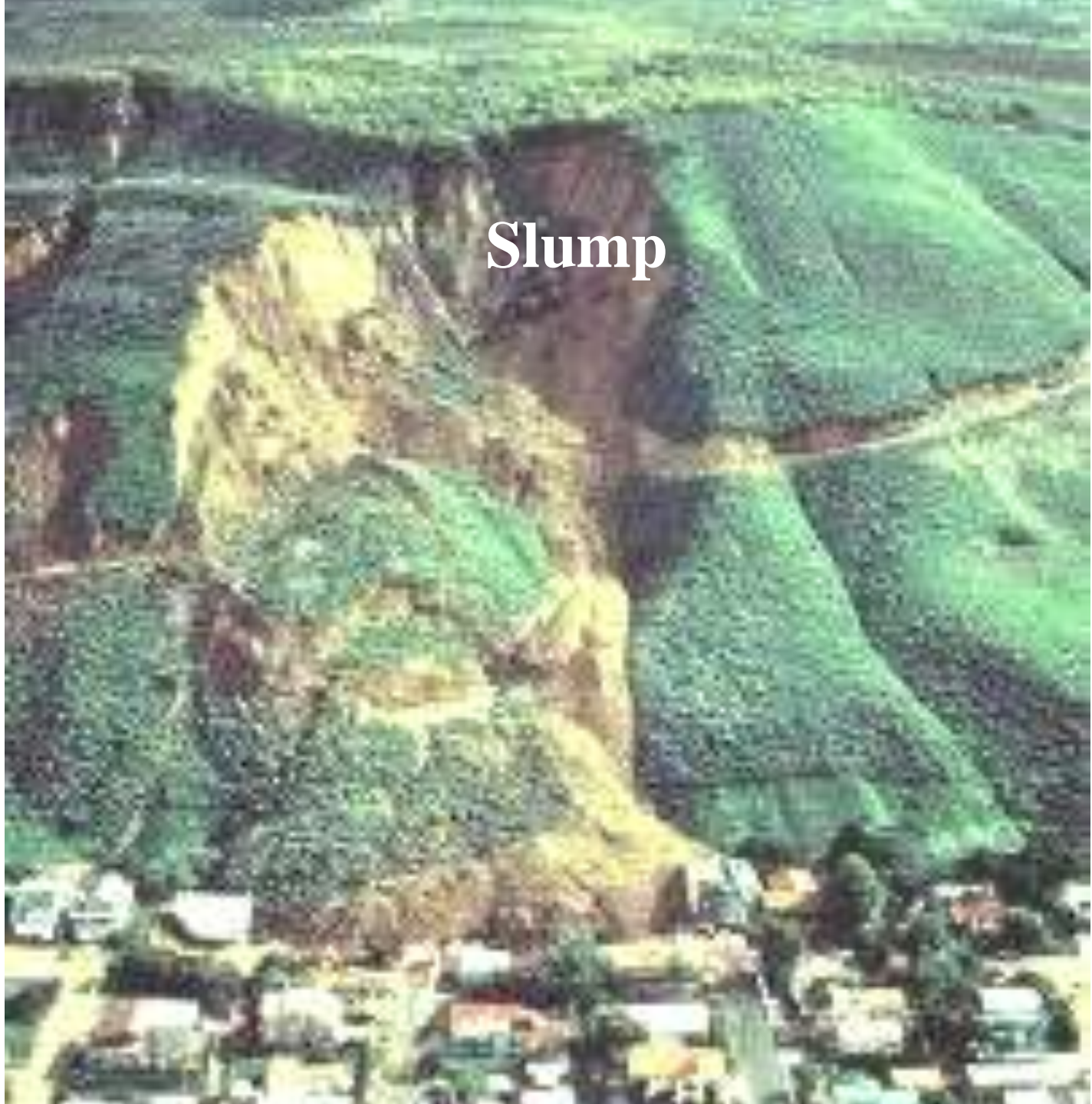


Mass Movement (Slump)

- **Slump** – when loosened materials or rock layers slip down a slope



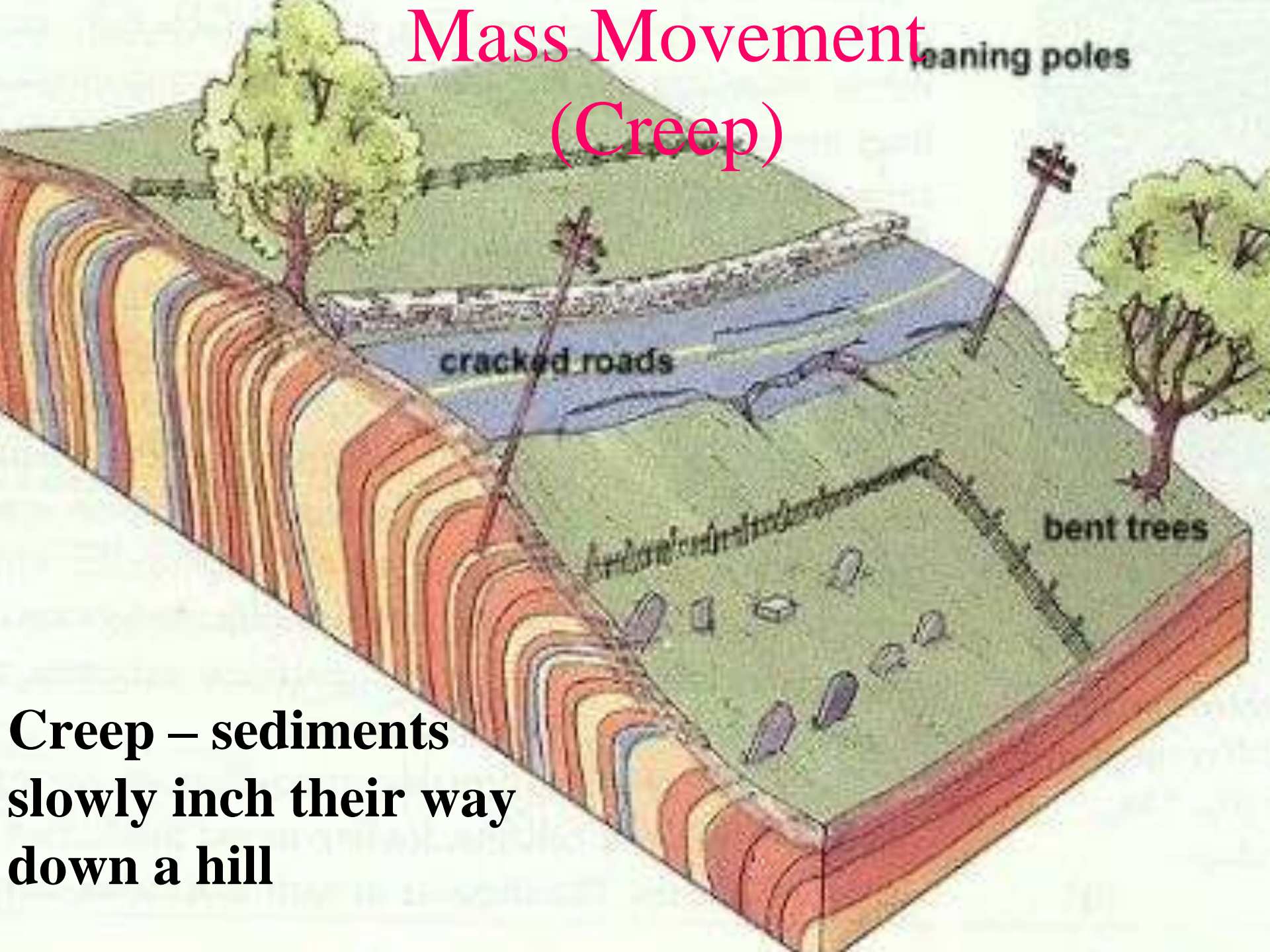
Slump





Land slide

Mass Movement (Creep)

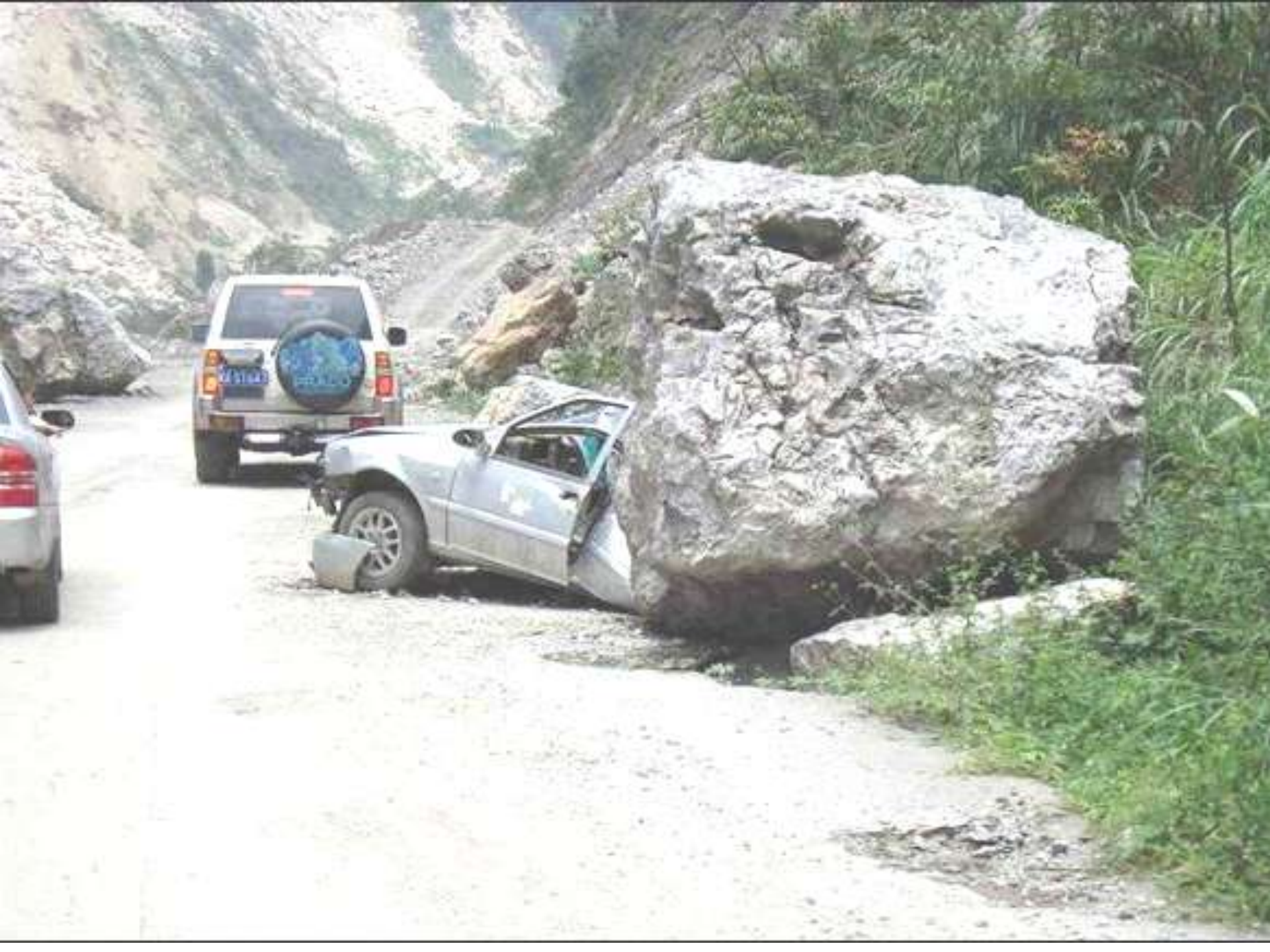


**Creep – sediments
slowly inch their way
down a hill**

Mass Movement

- **Rock slide –** when large blocks of rock break loose from a steep slope and start tumbling





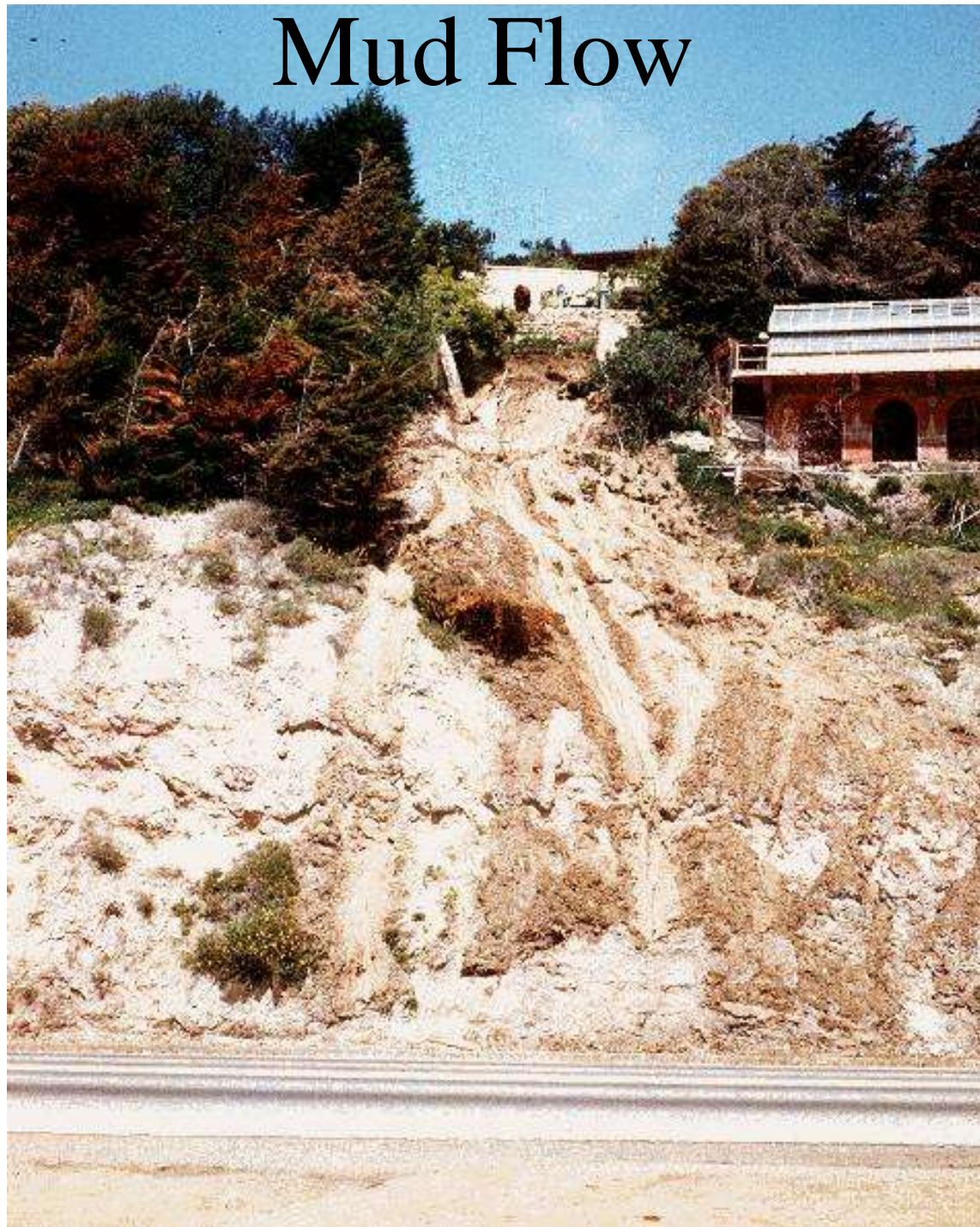


Mass Movement

- **Mudflows – a thick mixture of sediments and water flow down a slope**




Mud Flow



Land Slide



Avalanche



This is a picture of an avalanche. It is similar to a landslide with ice and snow instead of rock.

Erosion due to glaciers



- (moving mass of ice and snow)
 - Continental

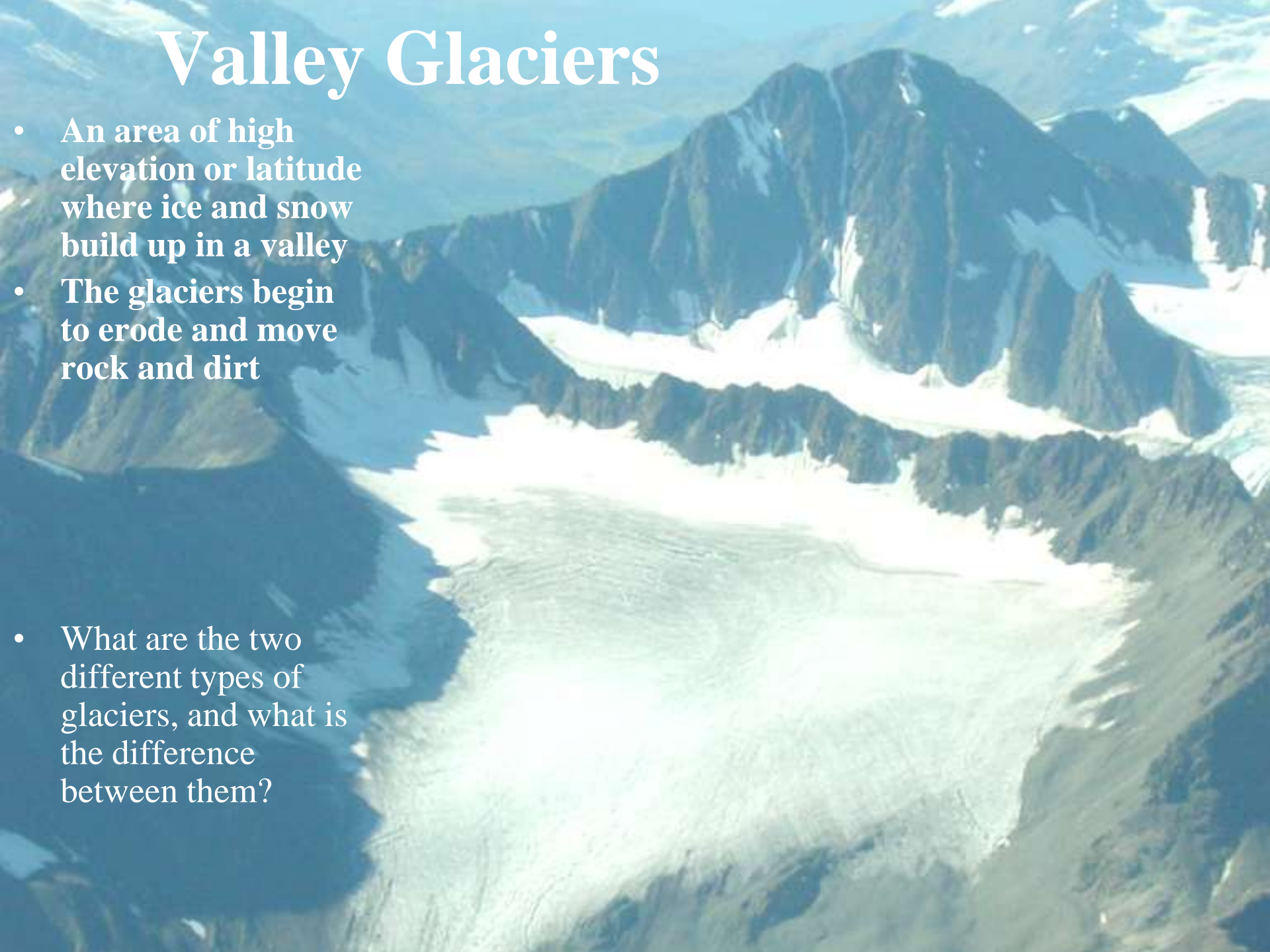
Continental Glaciers



- **a huge amount of ice or snow covering large portions of land**
- **There were ice ages in the past when covered much of North America**

Valley Glaciers

- An area of high elevation or latitude where ice and snow build up in a valley
- The glaciers begin to erode and move rock and dirt
- What are the two different types of glaciers, and what is the difference between them?



Glacial Erosion

- **Plucking** –rock pieces broken free by ice wedging are lifted out by the glacial ice sheet
- **Grooves** – the result of the rocks picked up by the glacier and slid along other rock leaving deep gouges
 - **These gouges are deep long parallel scars**

What is the name of the process that boulders and rocks are added to the bottom and sides of a glacier?

What is the name of very large striations caused by glaciers?

Evidence of a valley glacier

- **Cirque – bowl shaped basins eroded away by the glacier**
Arête, ridges or mountain horns- when glaciers erode a mountain from two or more directions a ridge is the result
Glaciers cause the valleys to be U shaped





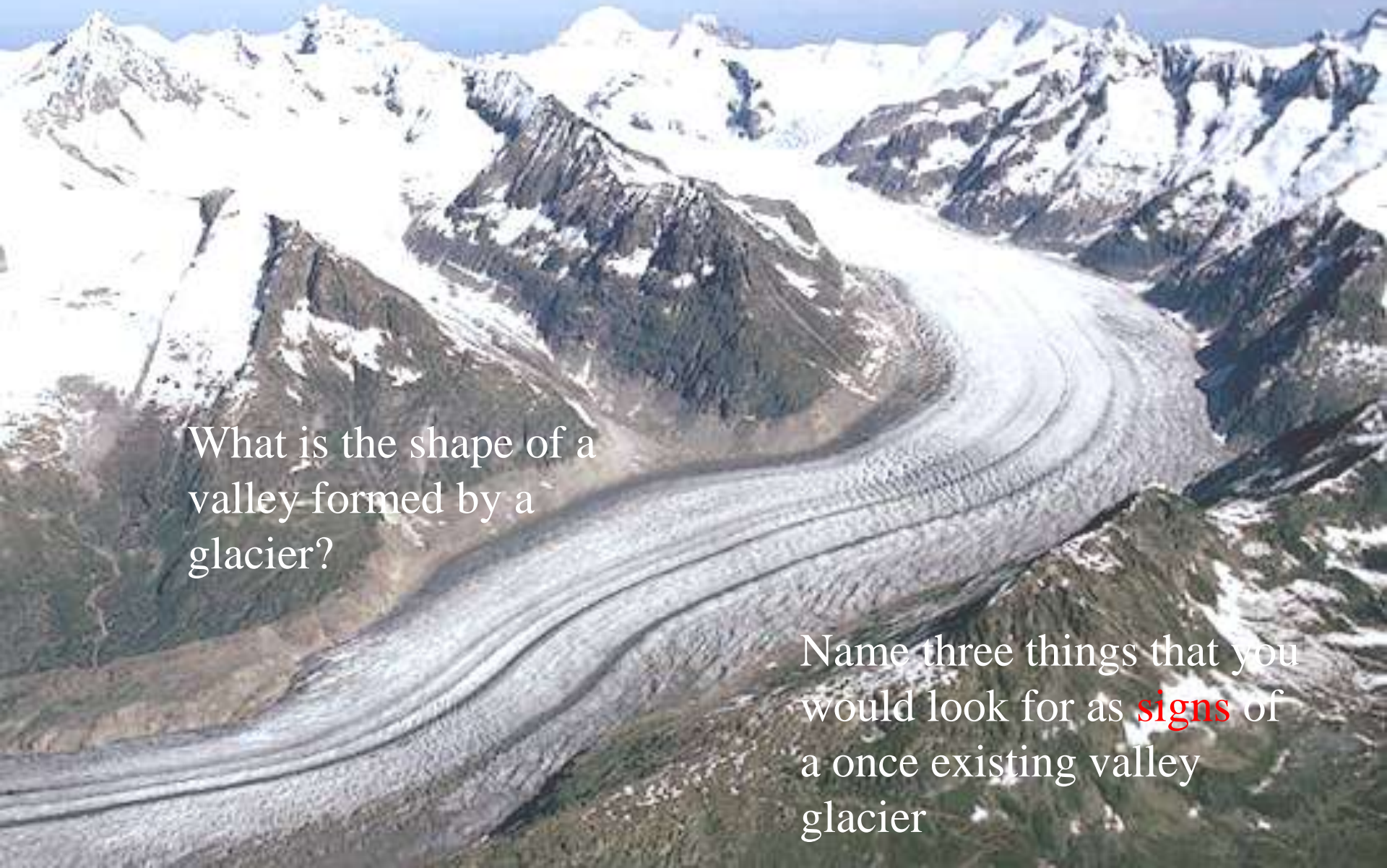
Mountain horn

cirque

- This is a picture of a glacier which carves out a U-shaped valley where it flows dragging rocks and boulders along the way.

What is the shape of a valley formed by a glacier?

Name three things that you would look for as **signs** of a once existing valley glacier



Glacial deposition

- the result of the bulldozing of earth and then melting
 - Till – when the glacier slows down, a jumble of boulders, sand clay and silt drop from its base.
 - Moraine – is when the till is shoved up into a ridge in front of the glacier
 - Many times there is a lake as the result of a moraine
 - Outwash- material deposited by the melt-water from a glacier

Till



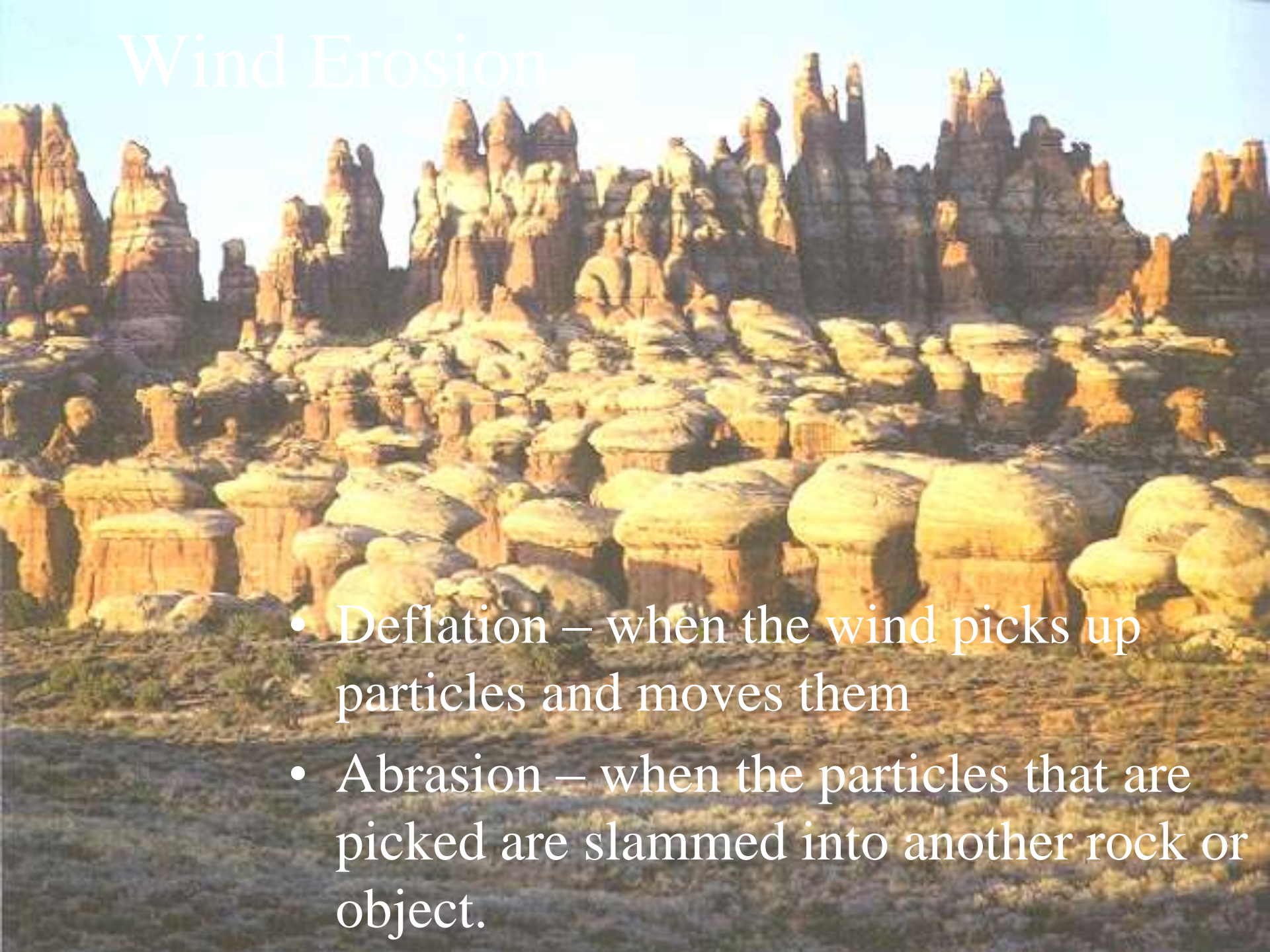
moraine



Outwash



Wind Erosion

- 
- Deflation – when the wind picks up particles and moves them
 - Abrasion – when the particles that are picked are slammed into another rock or object.

Erosion Storms

- **Sand Storms – when the wind picks up particles larger than dust and blows them**
- **Dust storms – When fine particles are picked up by the wind and carried.**



Reducing wind erosion



- Wind Breaks – plants planted in such a way to break the wind
- Roots – roots of plants help hold soil and sand in place



Wind Break in Nebraska

Deposition By Wind

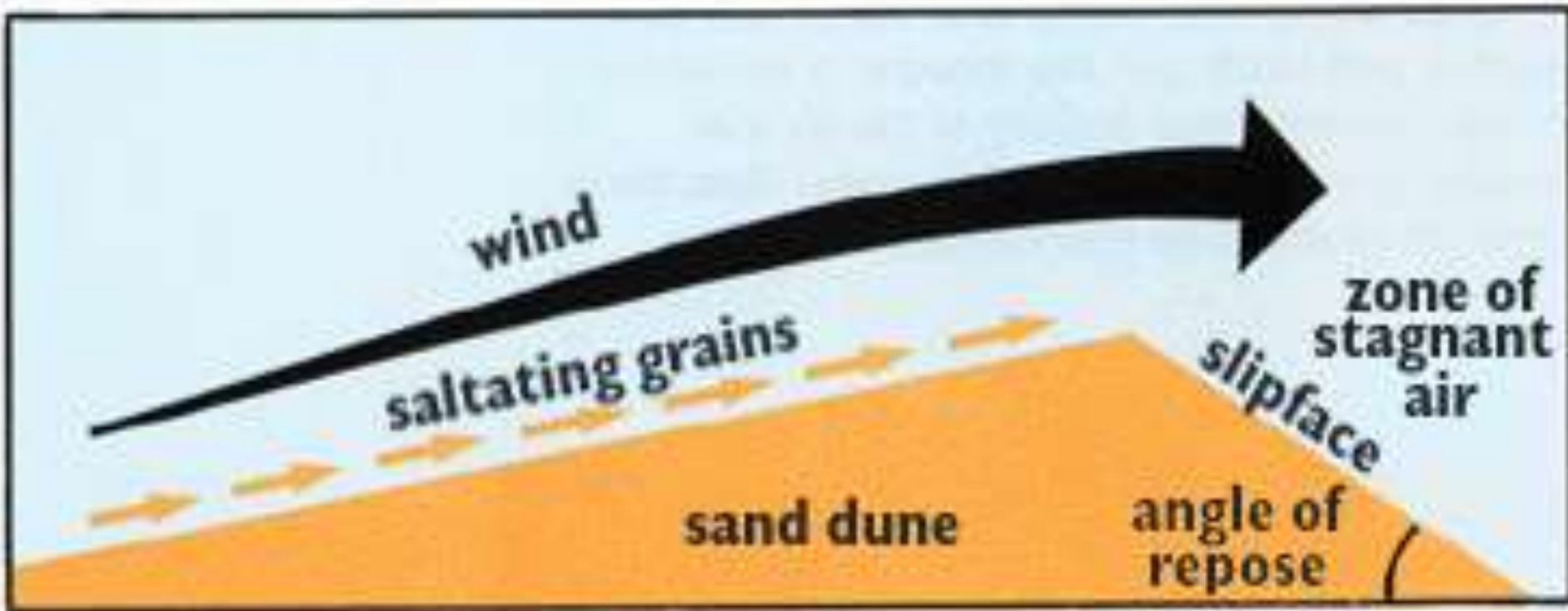
- Loess – fine grained sediment deposits from glacial outwash that were moved there by winds after the glaciers retreated in north America
- Dunes – Are sand moved by the wind and piled
 - Dune Migration



Sand Dunes in Death Valley



Sand Dune Formation



questions

- What are the four main agents of erosion mentioned in this chapter?

Quiz

1. What are the four agents of erosion?
2. What are the four types of erosions by gravity?
3. What is the difference between deflation and abrasion?
4. What is a wind deposit of dust called?