

PHYSICAL GEOGRAPHY— General Information

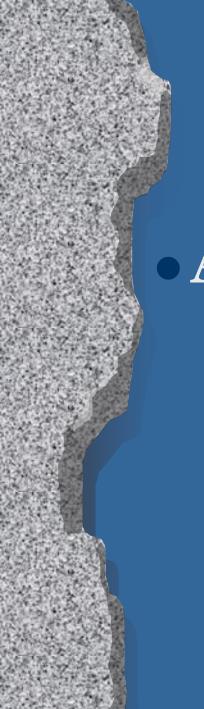
By understanding the environment we can understand why one place is different or the same as another.

See handout



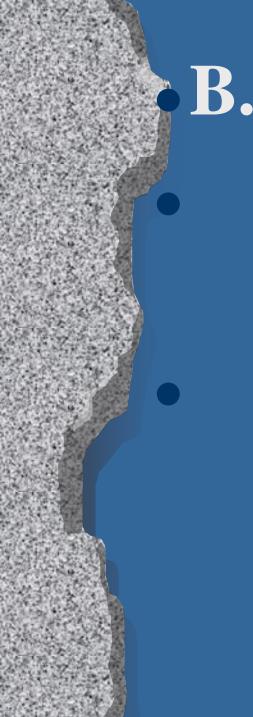
Geomorphology

"Geo"--Land
"morph"--Change
"ology"--Study of



I. Definition

• A. The study of the Earth's landforms and the changes to those forms.



B. Two parts:

- 1. Form--shape of the surface
- 2. Structure-materials the
 surface is made
 of.

C. Lithosphere

1. Made up of the Earth's crust and solid upper mantle.

Inner Core

Outer Core

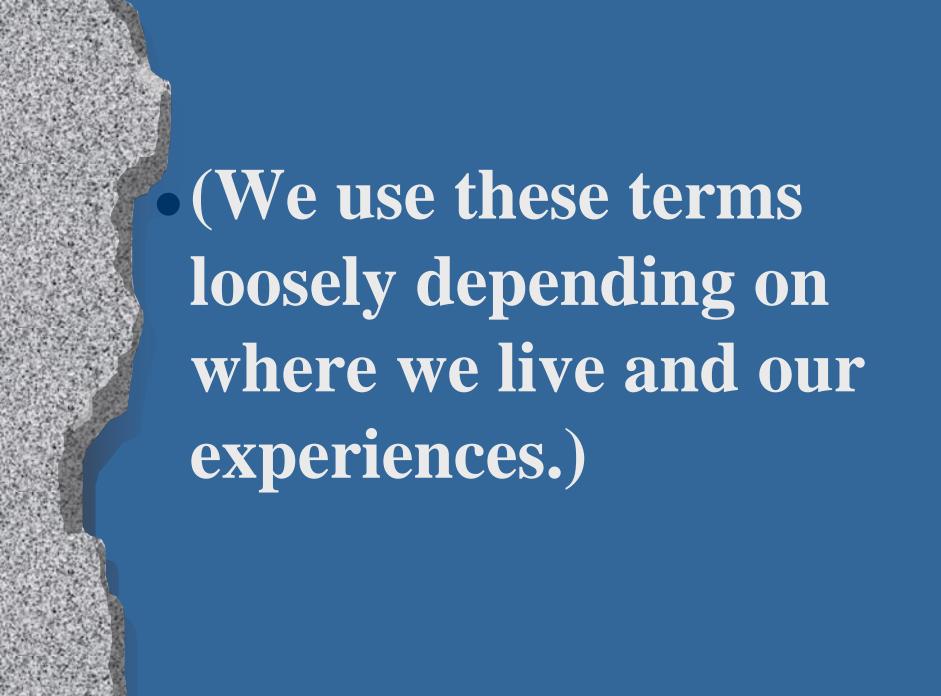
Mantle

Crust

2. Broken into a number of tectonic plates.





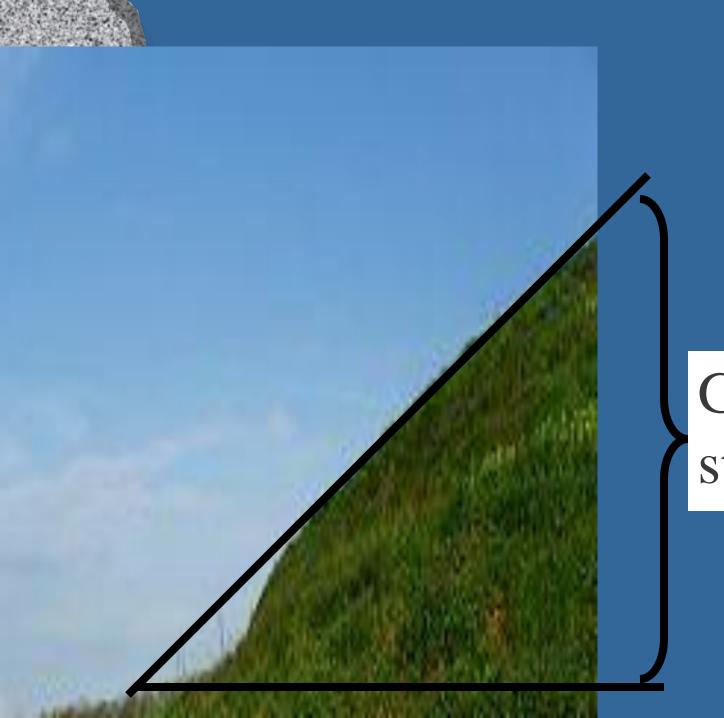


•A. Geographers use slope, relief and elevation to define landforms

1. Slope--degree of variation of a surface from the horizontal or slant of the land.

steep slope



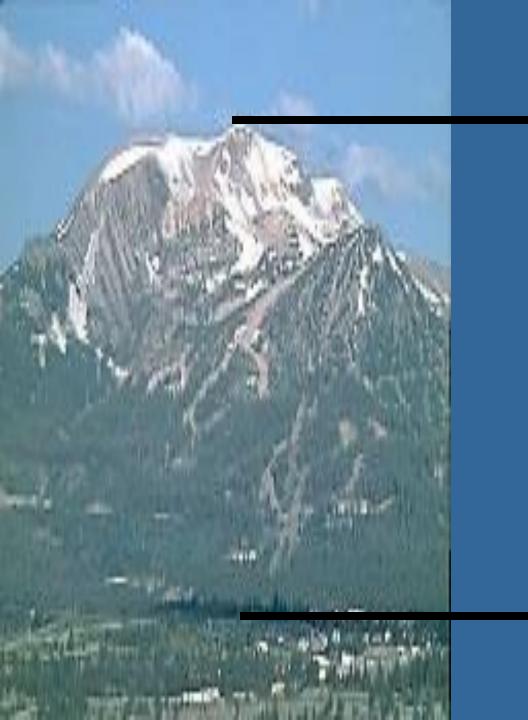


Gradient-steepness



2. Relief--difference between the highest and lowest points.

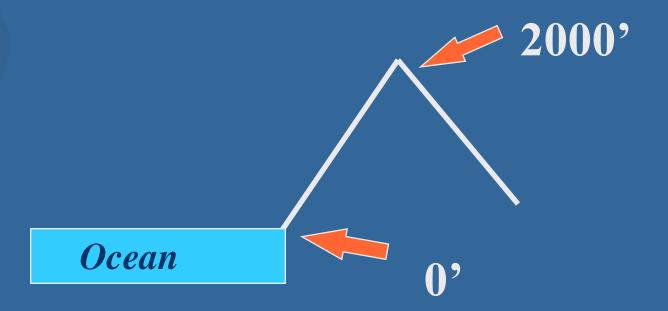




Highest point

Lowest point

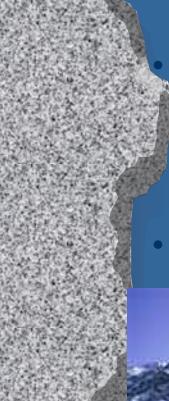
3. Elevation--height above or depth below sea level





Height above sea level

sea level



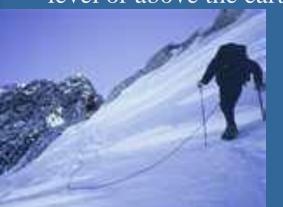
What is altitude sickness?

A collection of symptoms, including shortness of breath, headache, and nosebleed, brought on by decreased oxygen in the atmosphere, such as that encountered at high altitudes.

What is altitude?

The height of a thing above a reference level, especially above sea

level or above the earth's surface.



Approaching Denali Pass

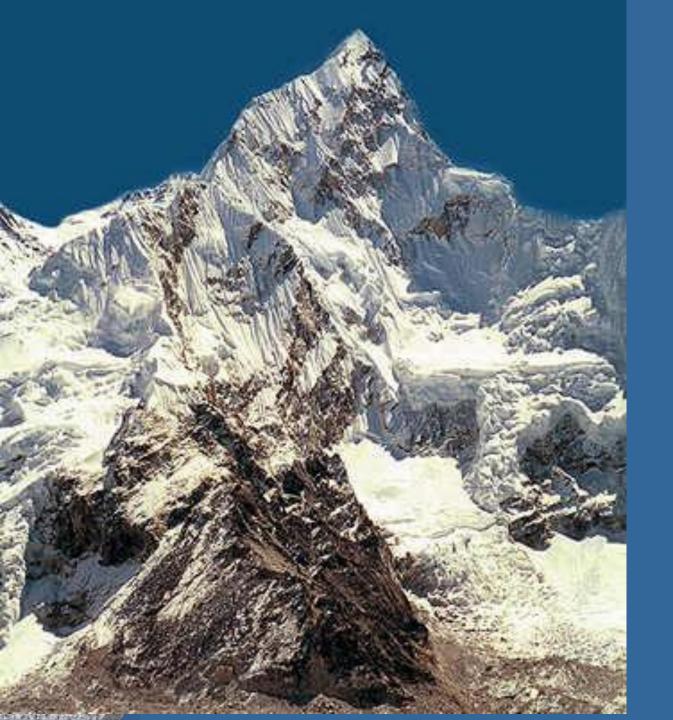


Why don't we call it elevation sickness?

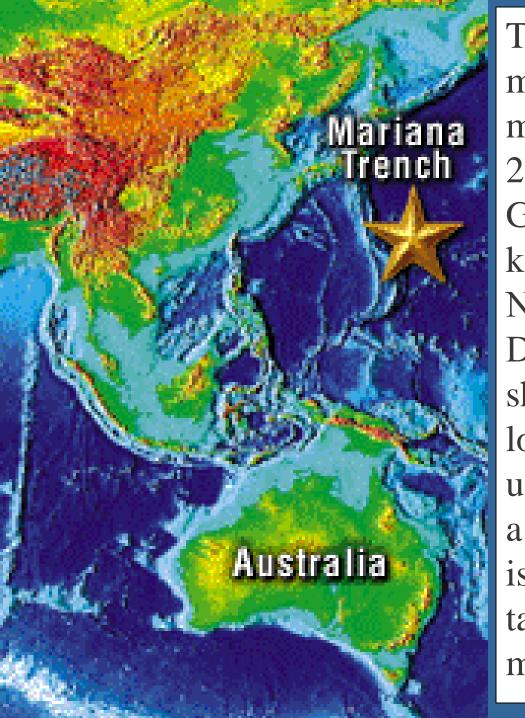
Relate this phenomena to the Spanish settlement of Peru.

Also, could you live in Tibet?

What about athletes in Colorado? Think about why the Olympic camps are in Colorado.

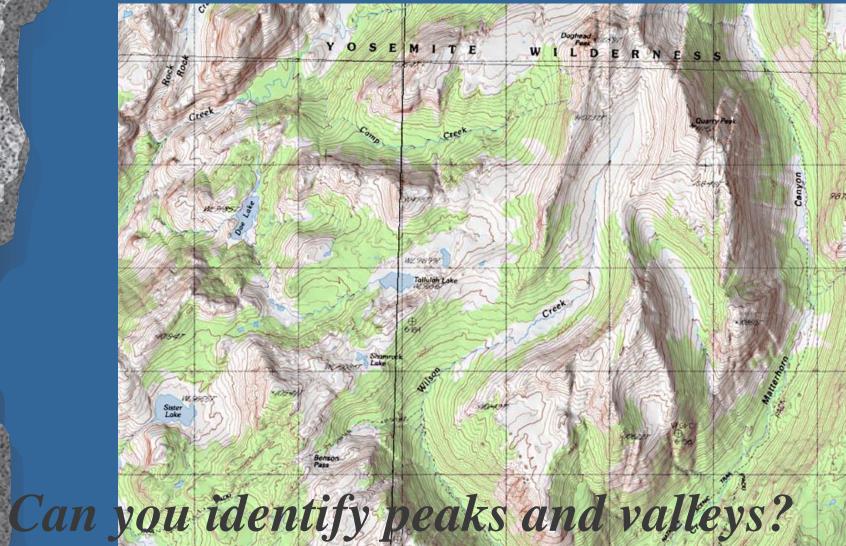


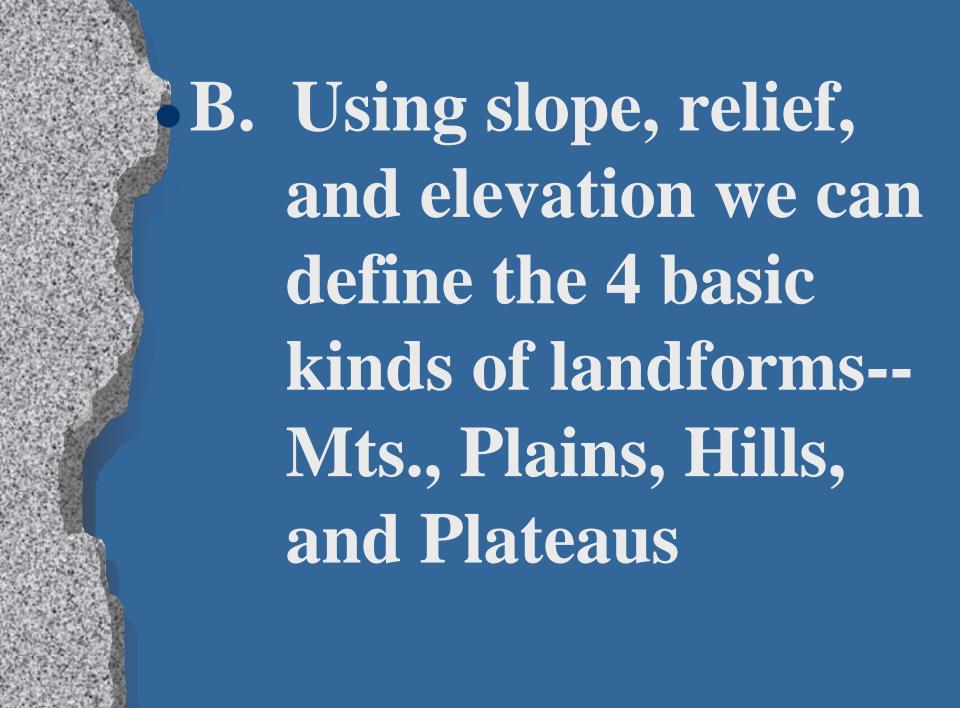
Mount **Everest** 8,848 meters (29,028 feet)



The Mariana Trench is 1,554 miles long and averages 44 miles wide. Within it, about 210 miles southwest of Guam, lies the deepest known point on Earth. Named the "Challenger Deep" for the British survey ship Challenger II that located it in 1951, this underwater gorge plunges to a depth of nearly 7 miles! It is deeper than Mt. Everest is tall. [29,035 feet—app. 5 ½ miles]

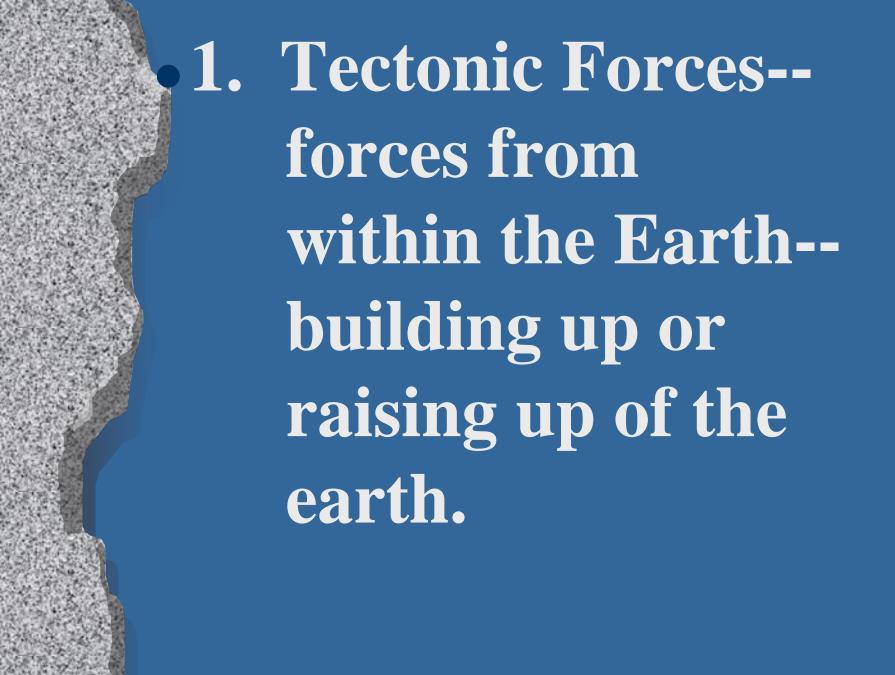
Topographic maps are a representation of the relief and elevation of an area

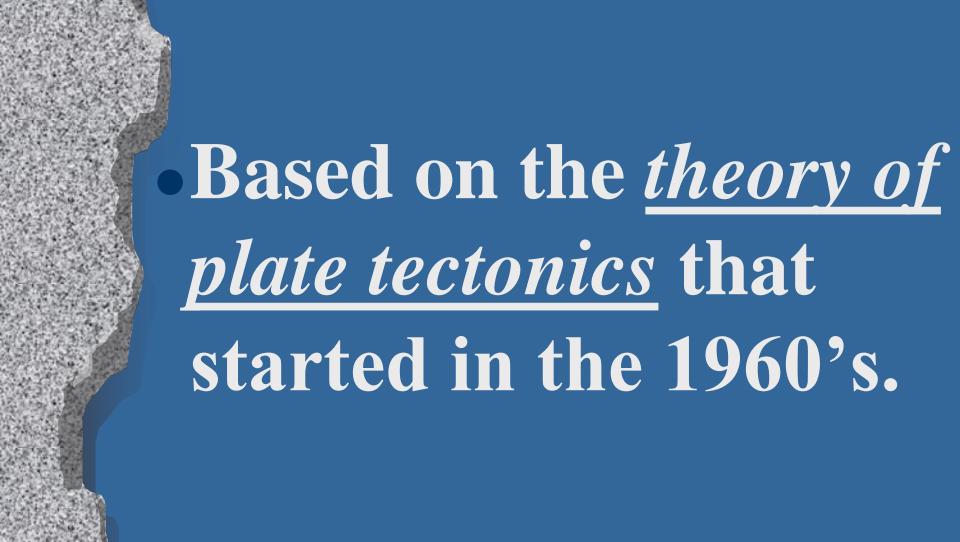


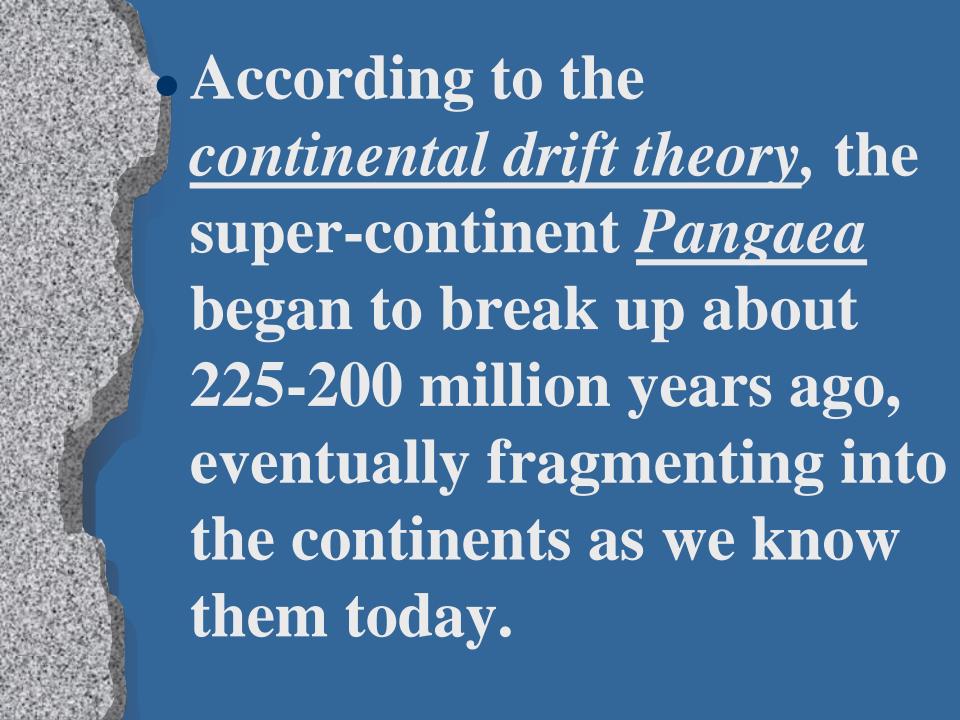


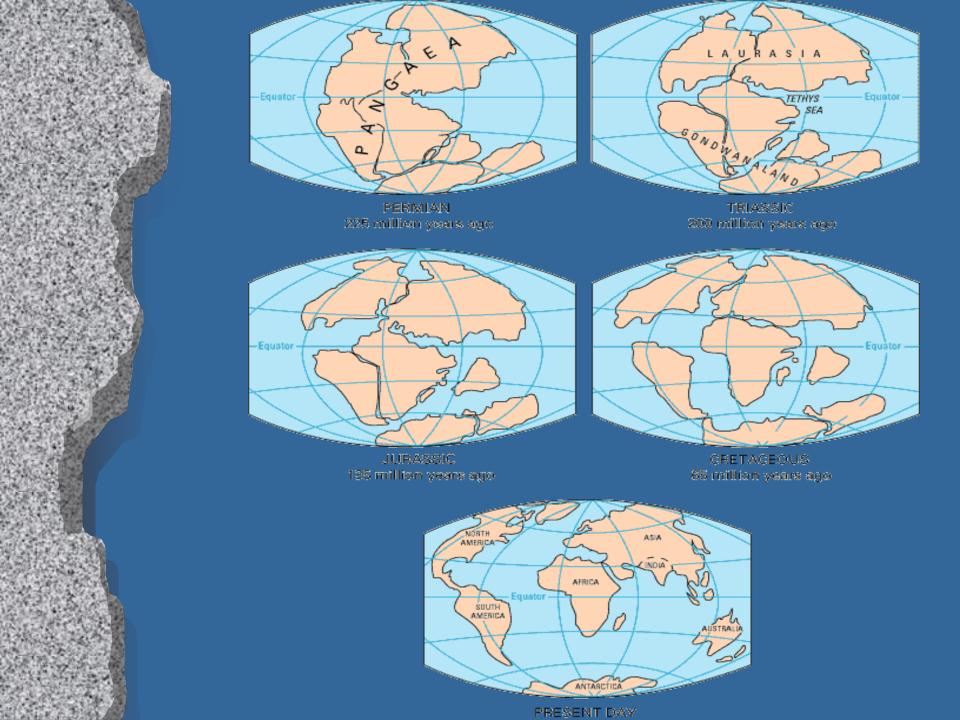
III. Formation of Landforms

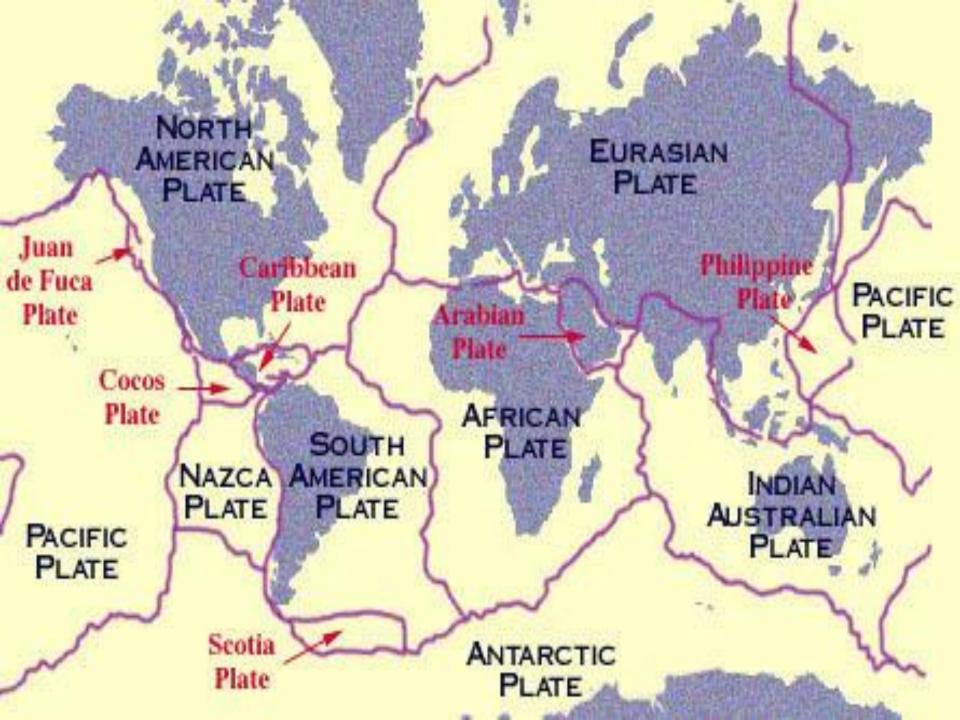
• A. Two Forces

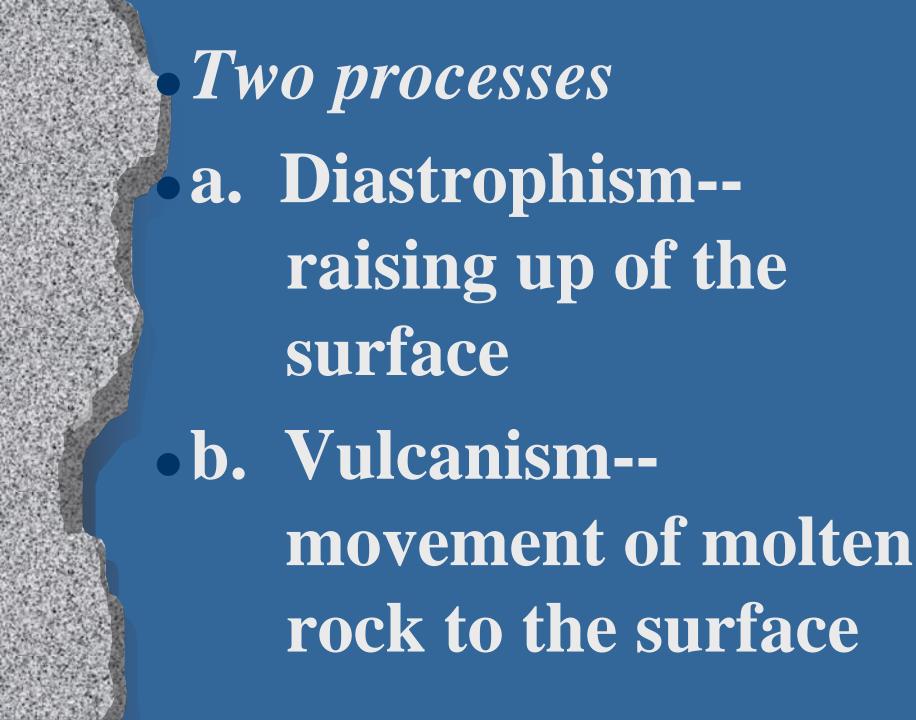


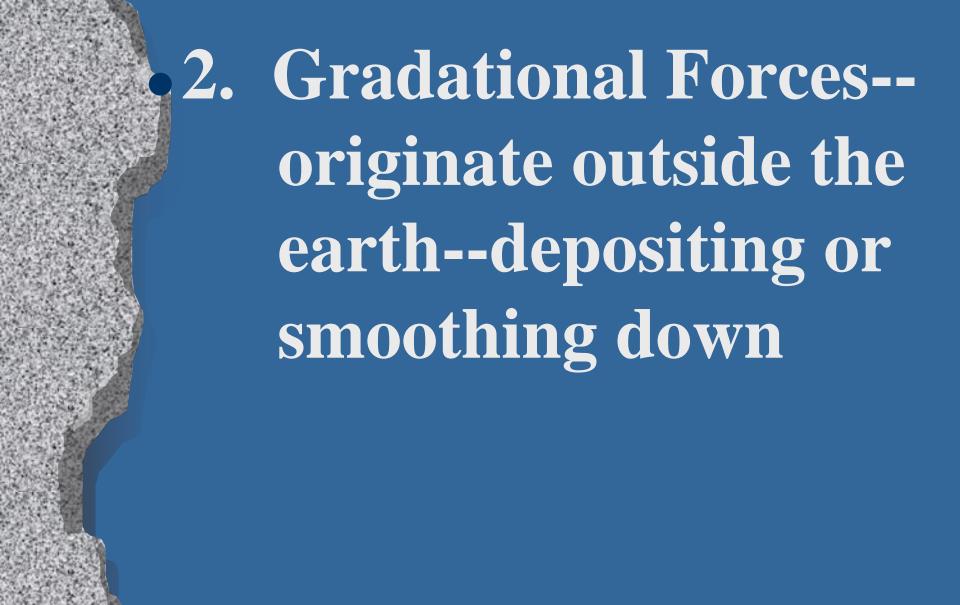












Two processes

a. Erosion

b. Deposition





- 1) Running Water
- 2) Wind



• 4) Waves/Currents of the Sea

IV. Landforms

A. Tectonic

Landforms

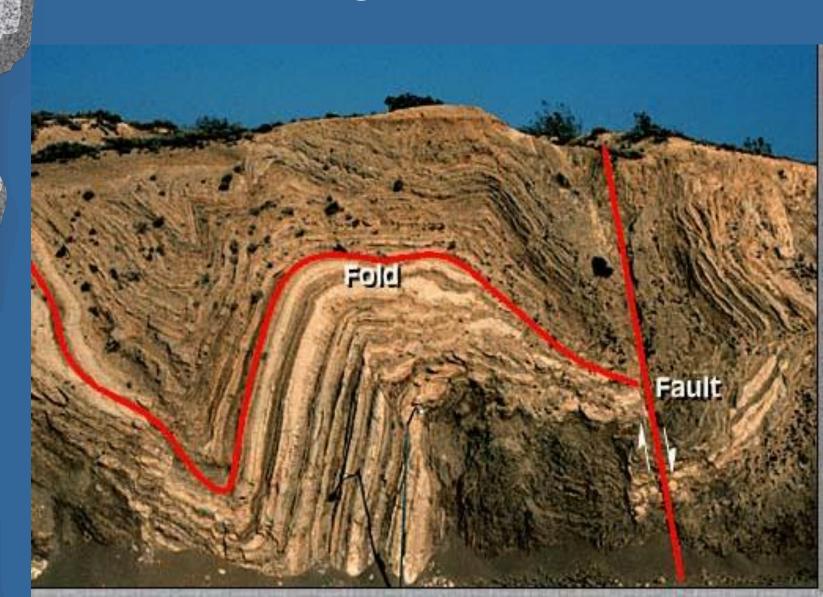
1. Three basic movements

a. Compressional

•1) folding



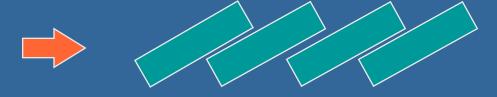
Folding of the Earth



•2) thickening



•3) thrust faulting



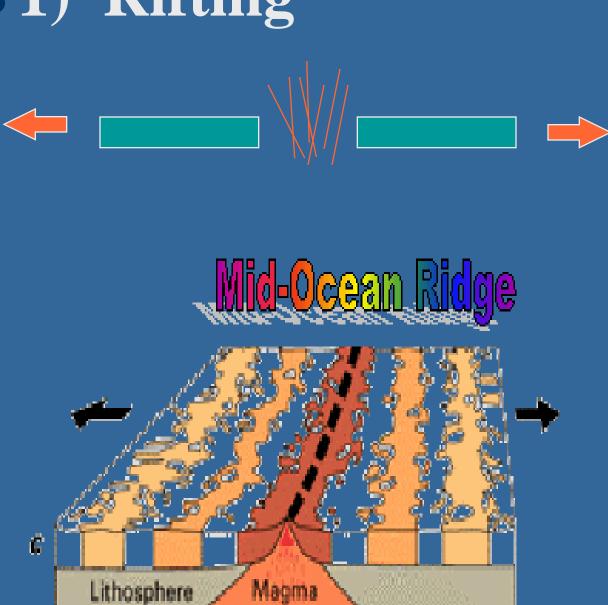


•b. Tensional





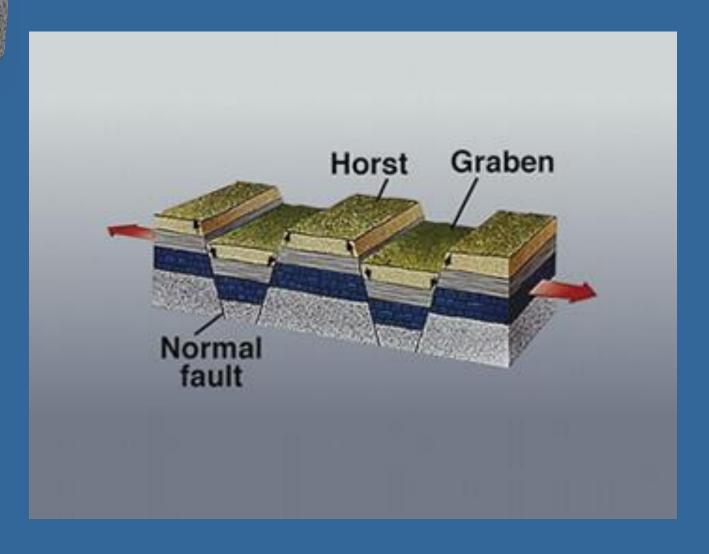
1) Rifting



•2) Thinning

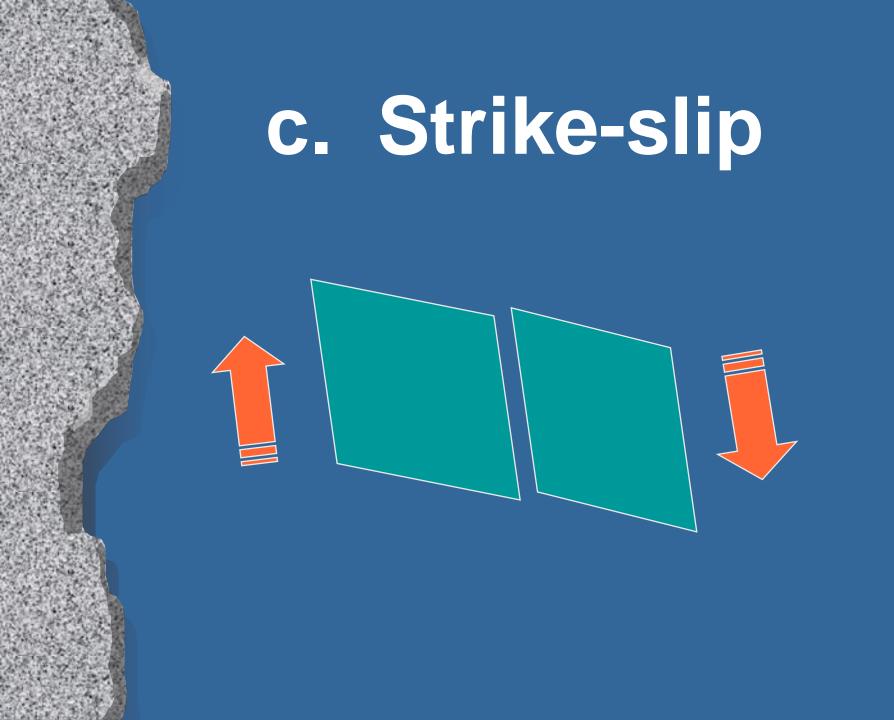
3) Down Dropping (Horst/Graben)

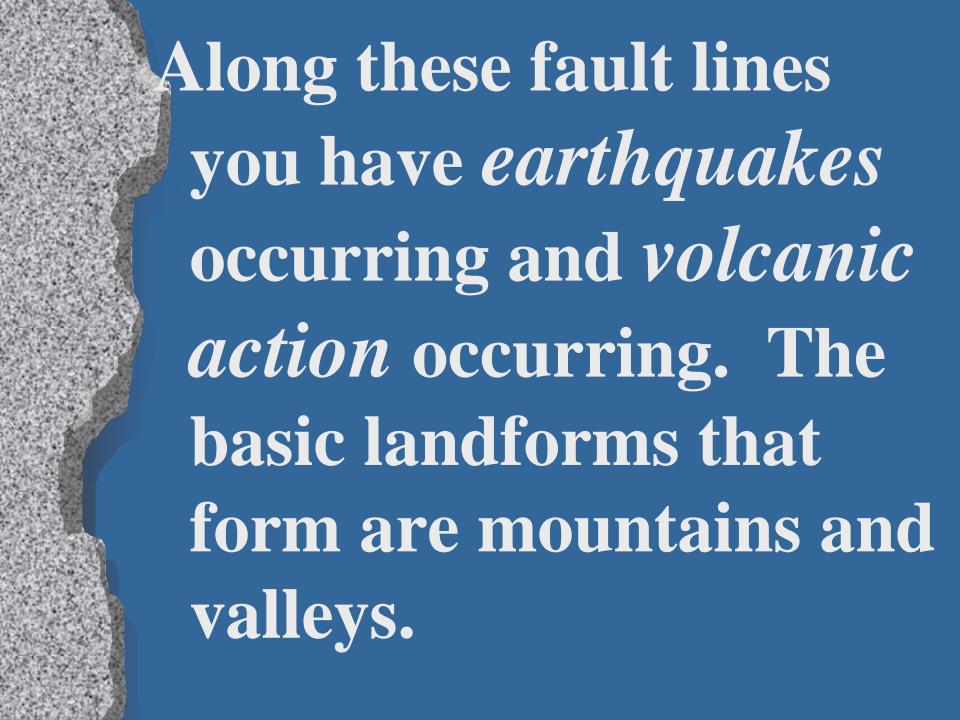


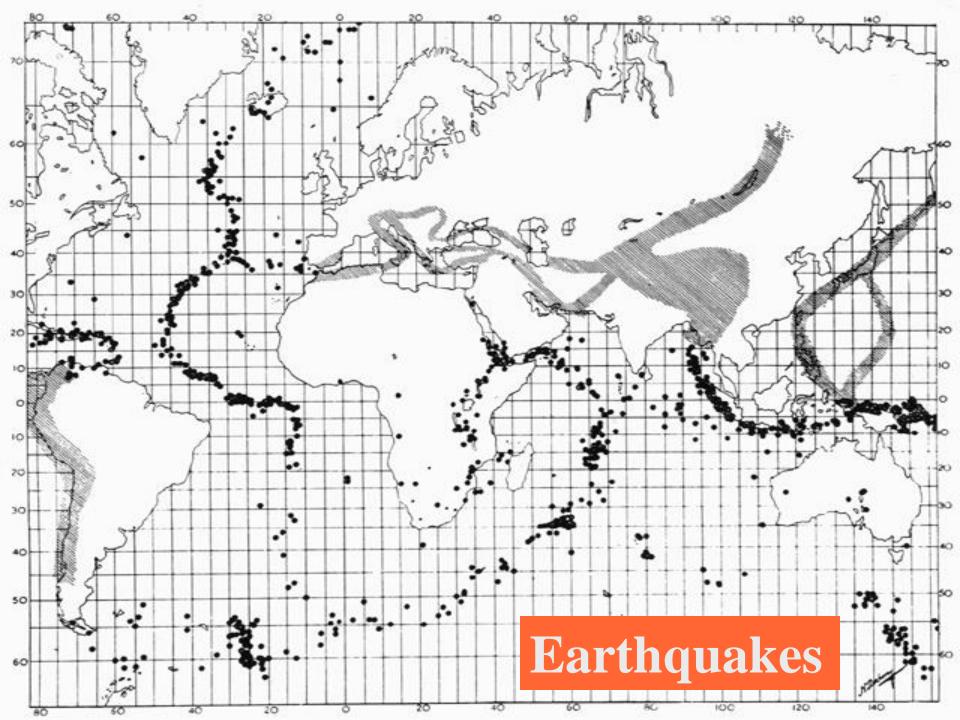


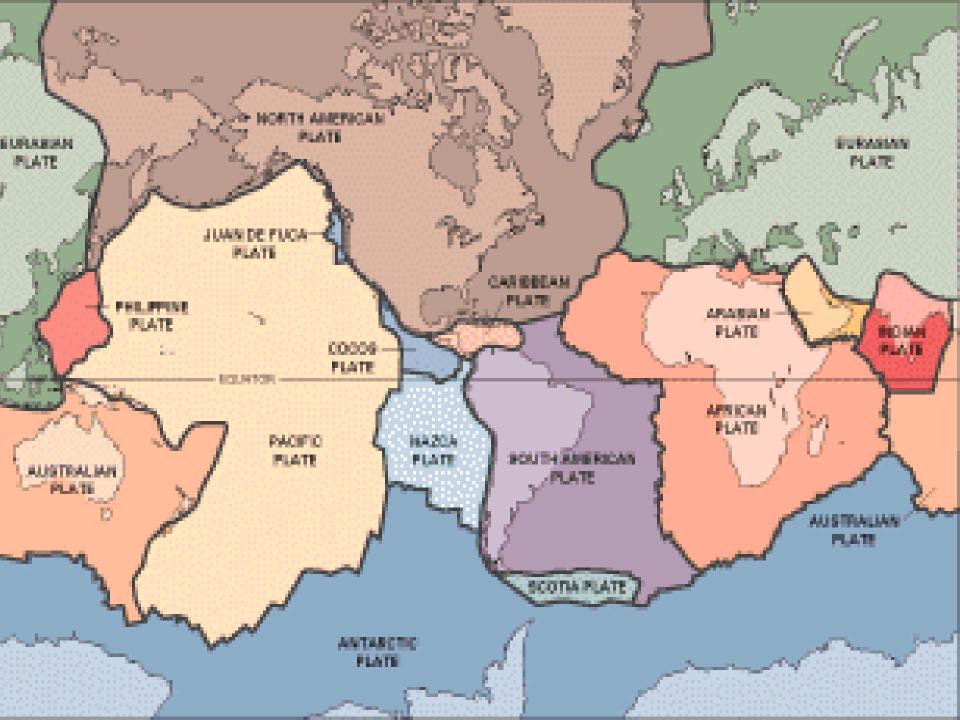
Horst/Graben along the Wasatch Fault in central Utah







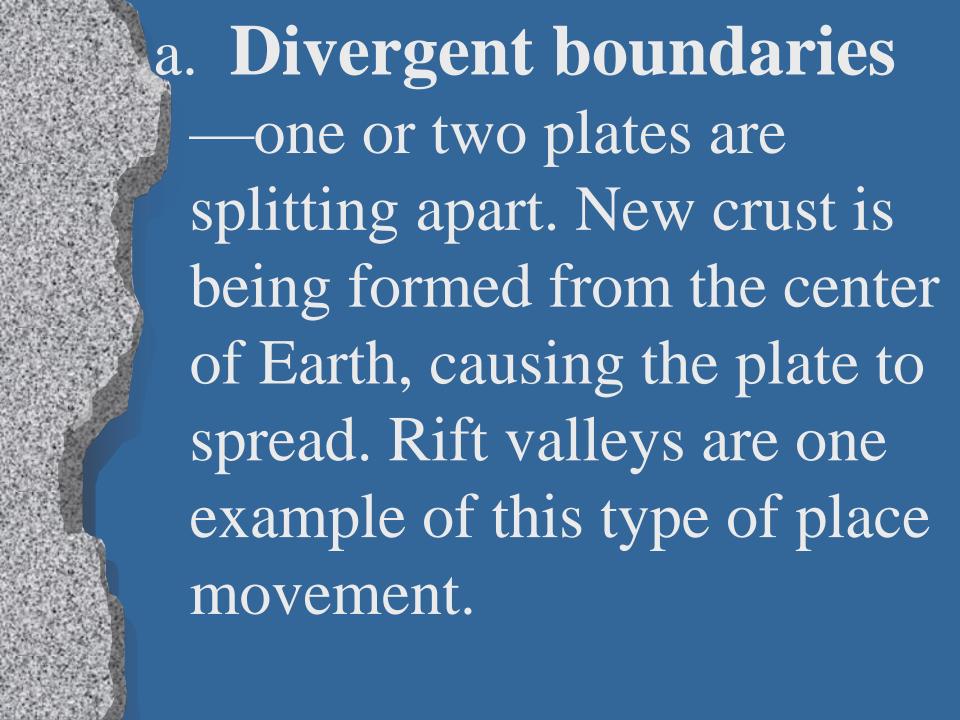


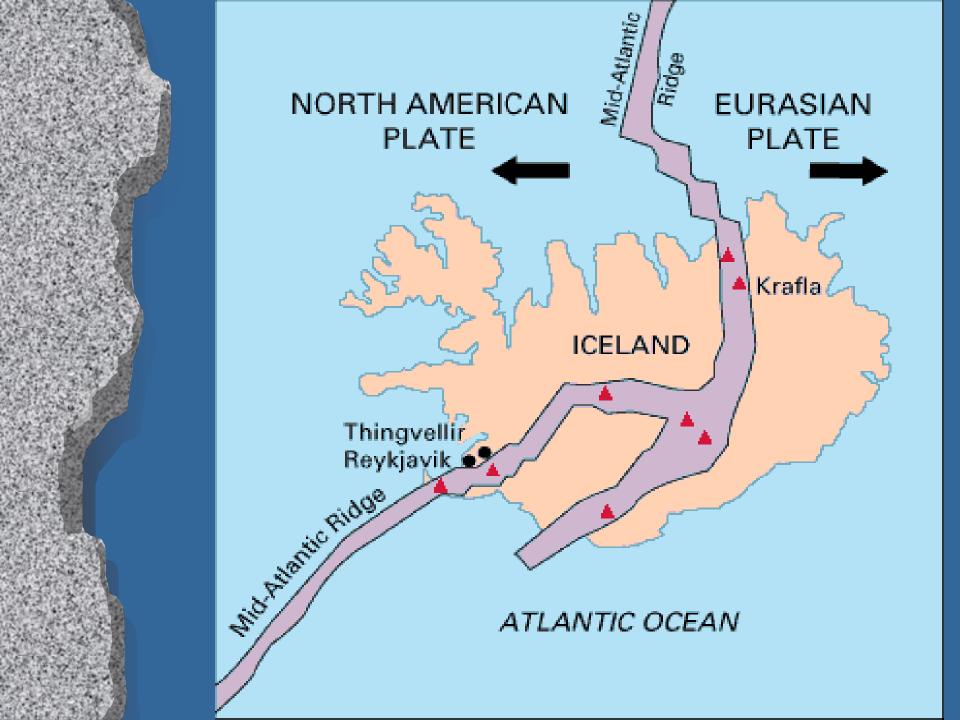


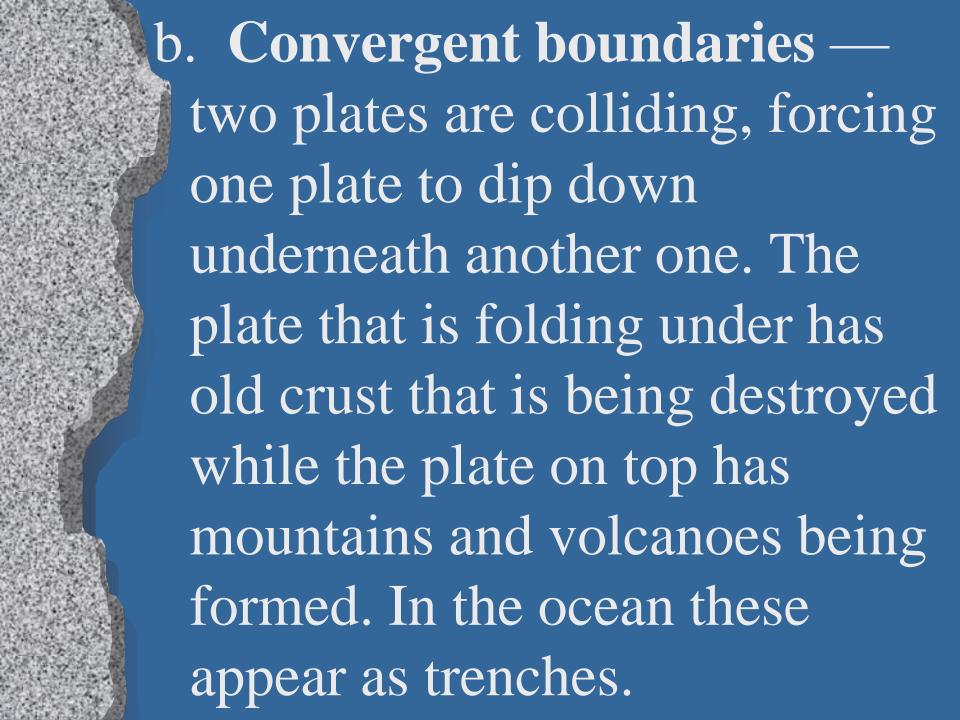


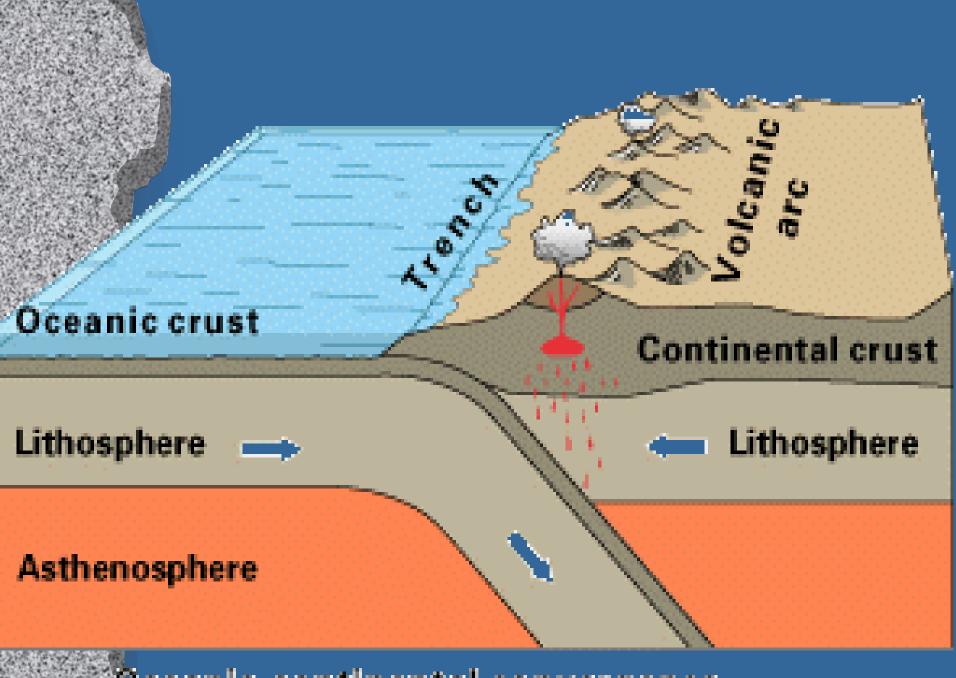
2. Types of Tectonic Boundaries

There are **four basic types** of plate boundaries that result from the movement of the plates.

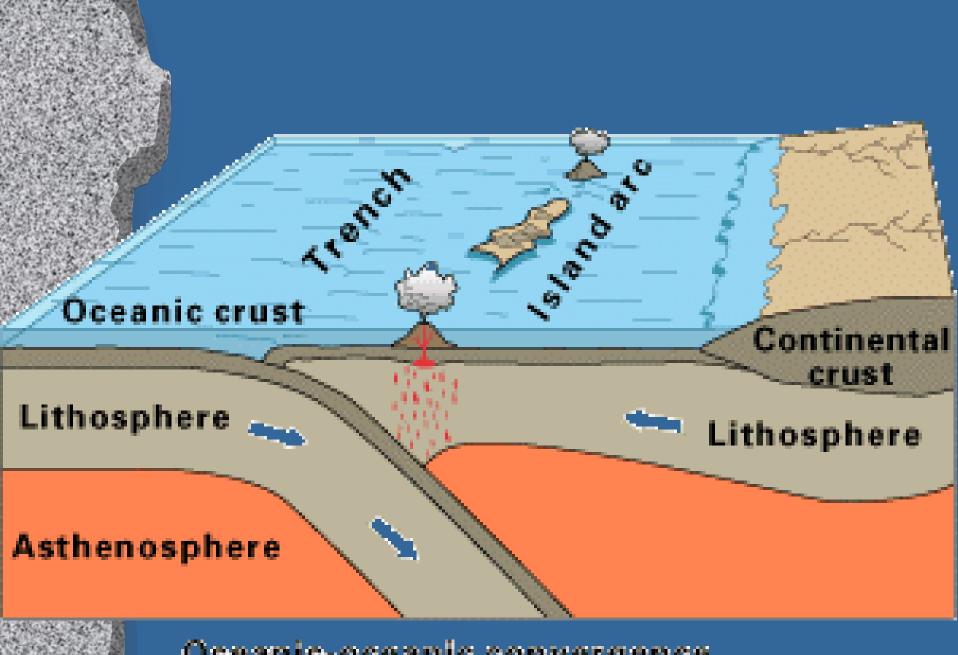




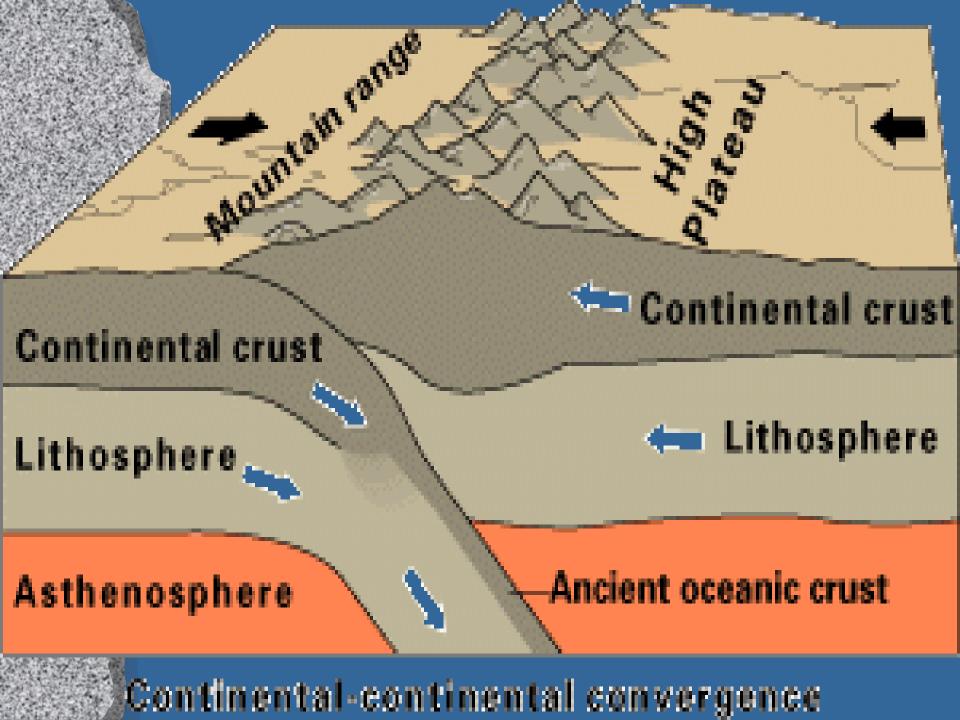




Oceanic-continental convergence

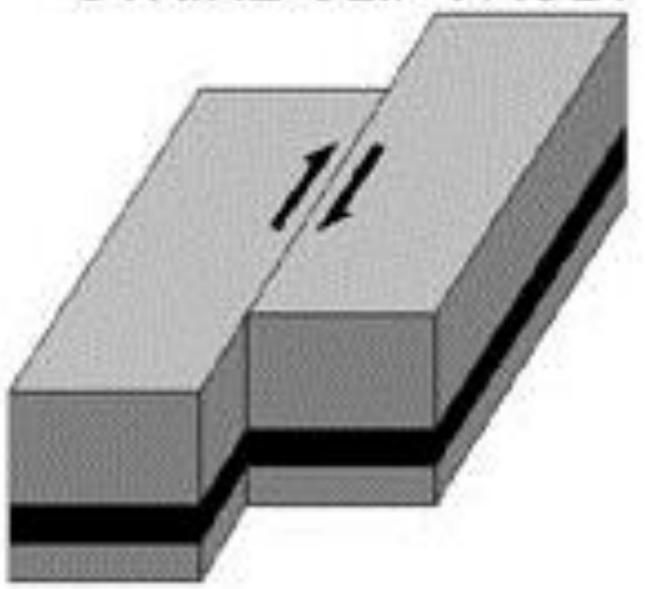


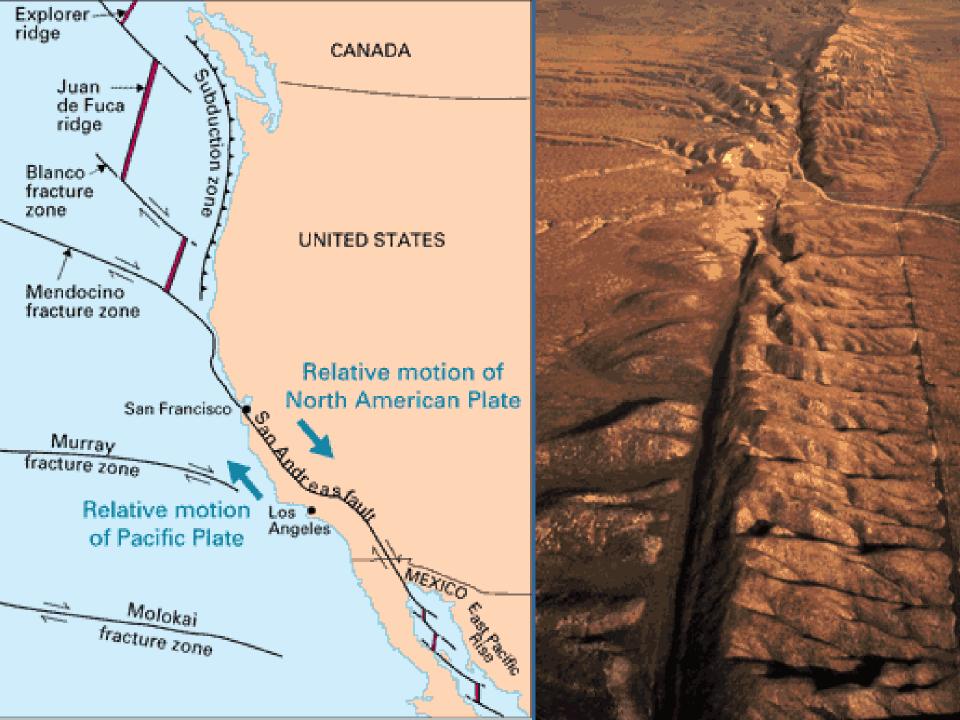
Oceanie-oceanic convergence



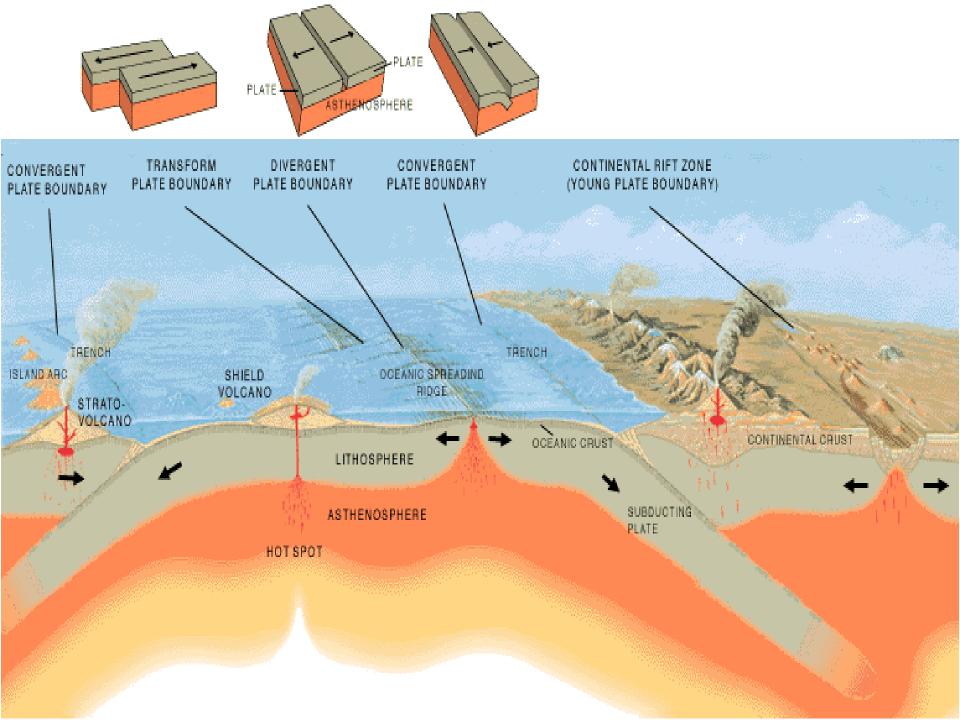


STRIKE-SLIP FAULT





d. Plate boundary zones —plate boundaries appear zigzagged. Scientists believe there are actually microplates in these areas but it is unclear what effect these zones have on the physical environment.



• 3. Fault Landforms [a fault is a break in the Earth's surface.]

You get different landforms depending on how fast, how long, how much tension, etc.; but basically you get mountains and valleys.]

4. Volcanic Landforms a. Volcanoes





b. Calderas

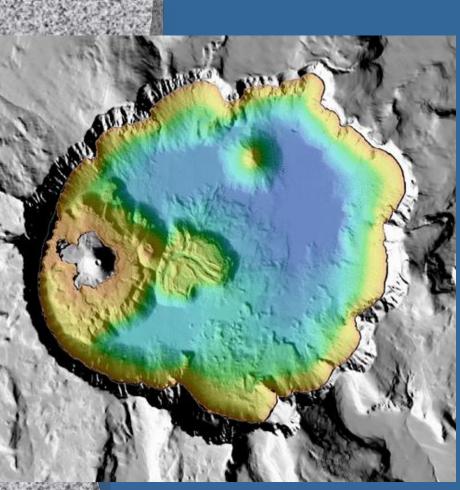




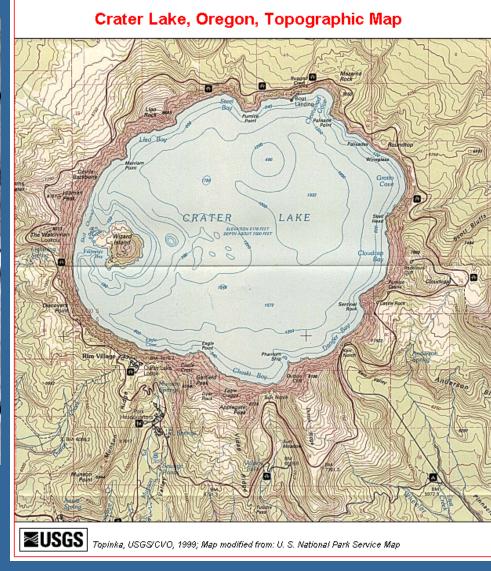
c. Cinder Cones

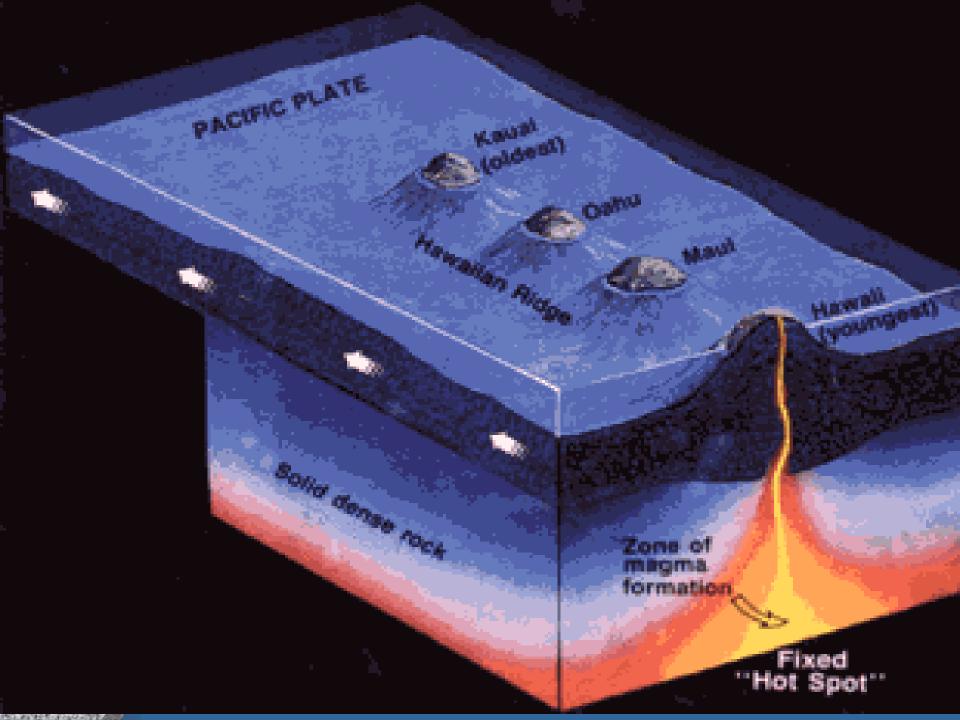


Topography of Crater Lake



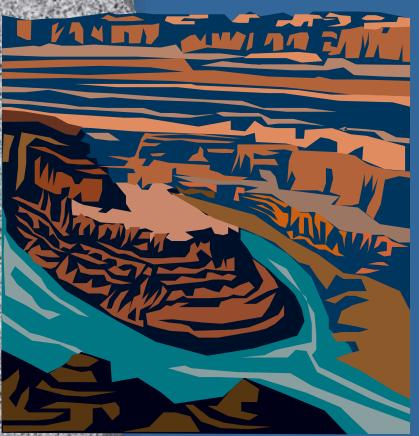
Computer Image of depth: Blue is the deepest and orange is the shallowest





B. Gradational Landforms

1. Made by Running Water



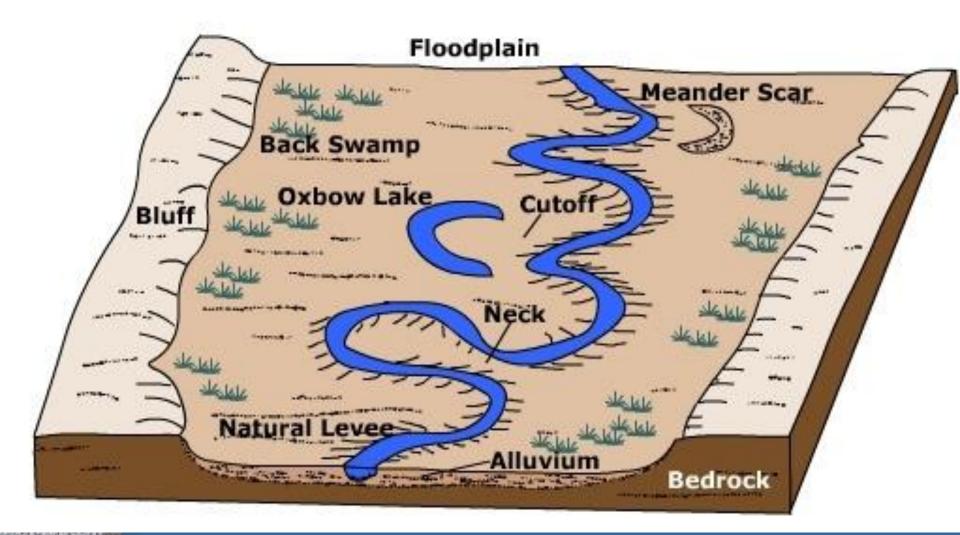


a. Valleysb. Canyons

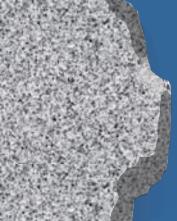
c. Badlands



d. Floodplain







e. Oxbow Lakes

on the Kinabatangan River in Malaysia



f. Levees

(a) Before flood

Flood-stage water level

(b) During flood

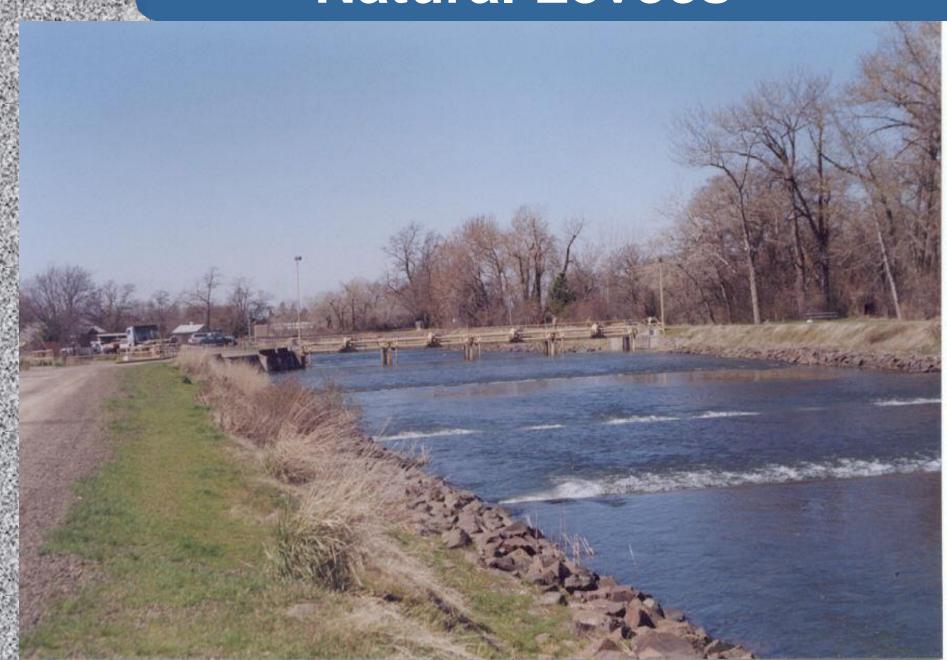
Thickest and coarsest sediments deposited at channel edges

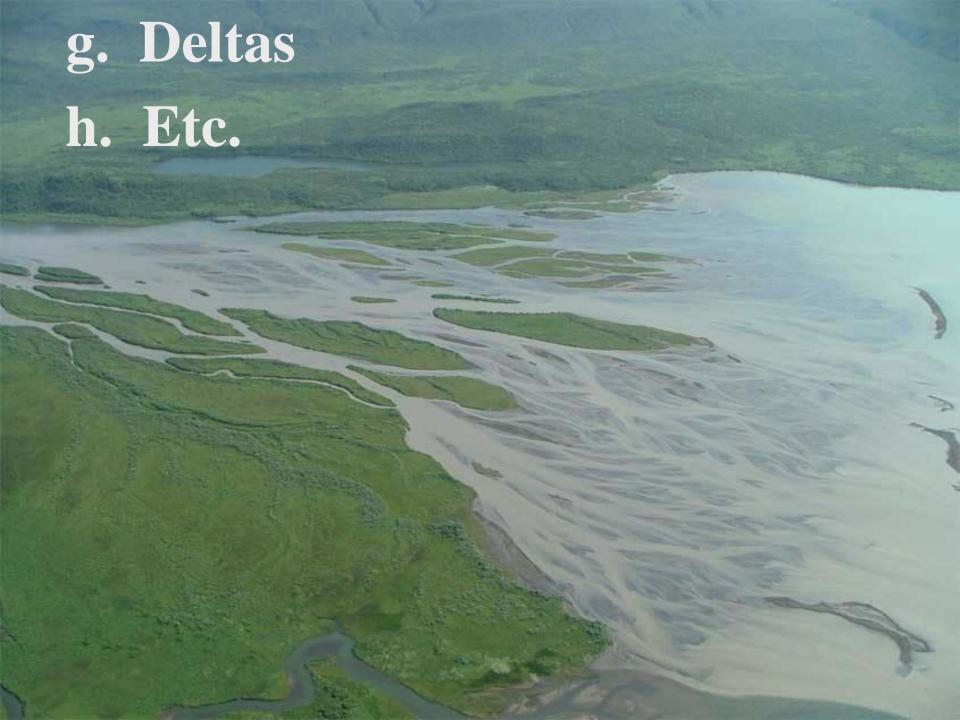
Thin and fine sediments deposited over outer parts of floodplain

Natural levees
/ built up by
many floods

(c) After many floods

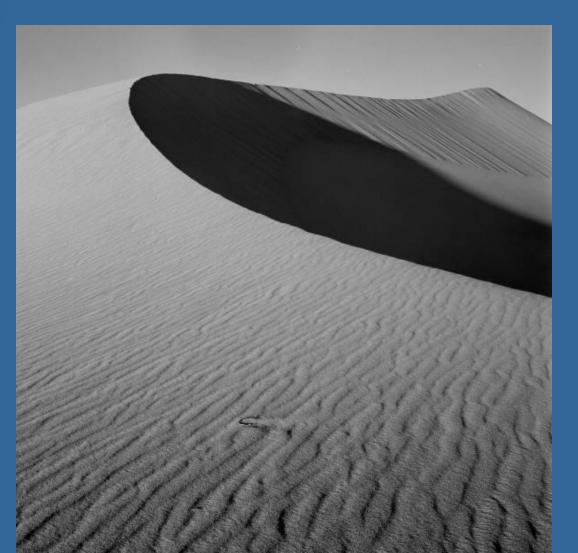
Natural Levees



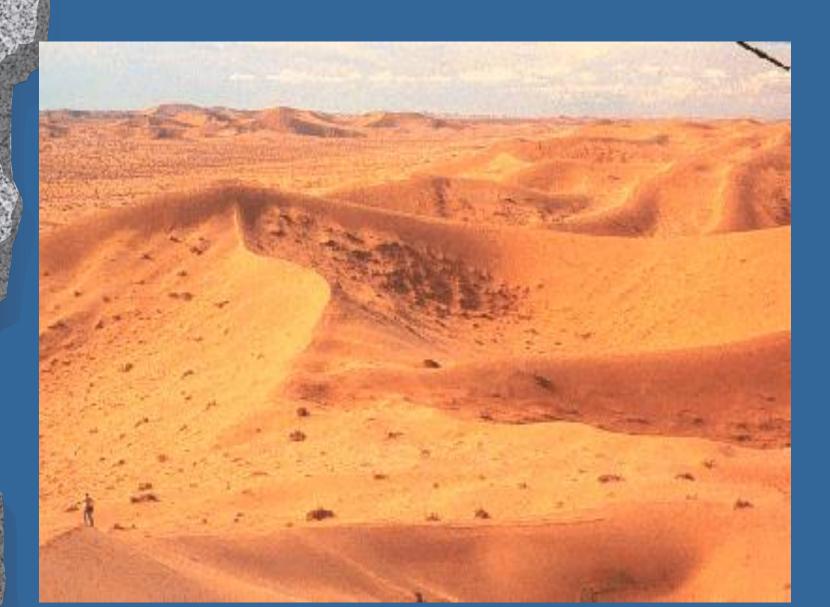




2. Made by Wind a. Dunes



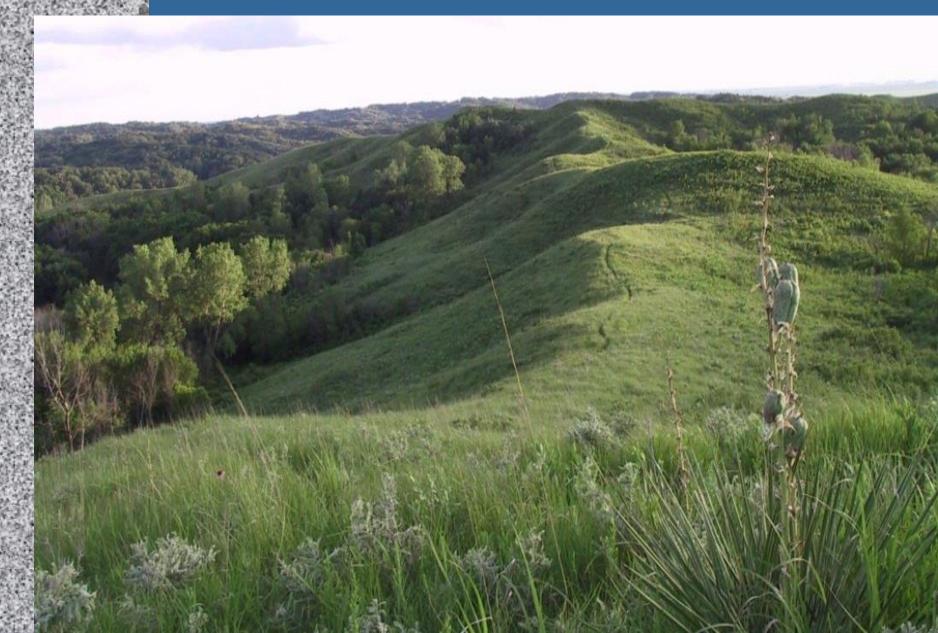
Star Dune in Morocco

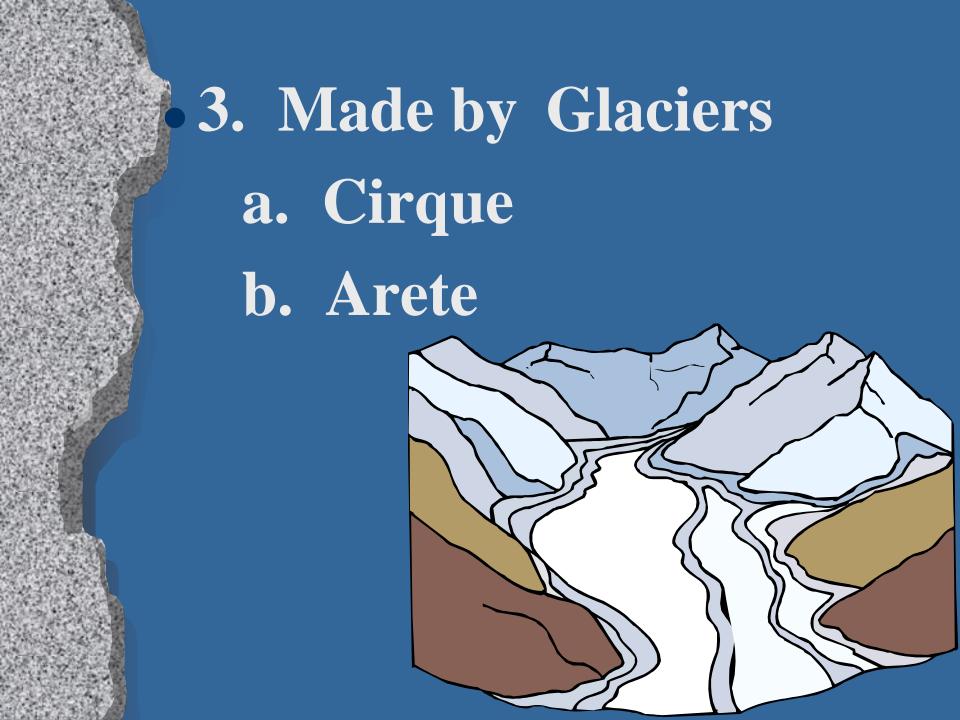


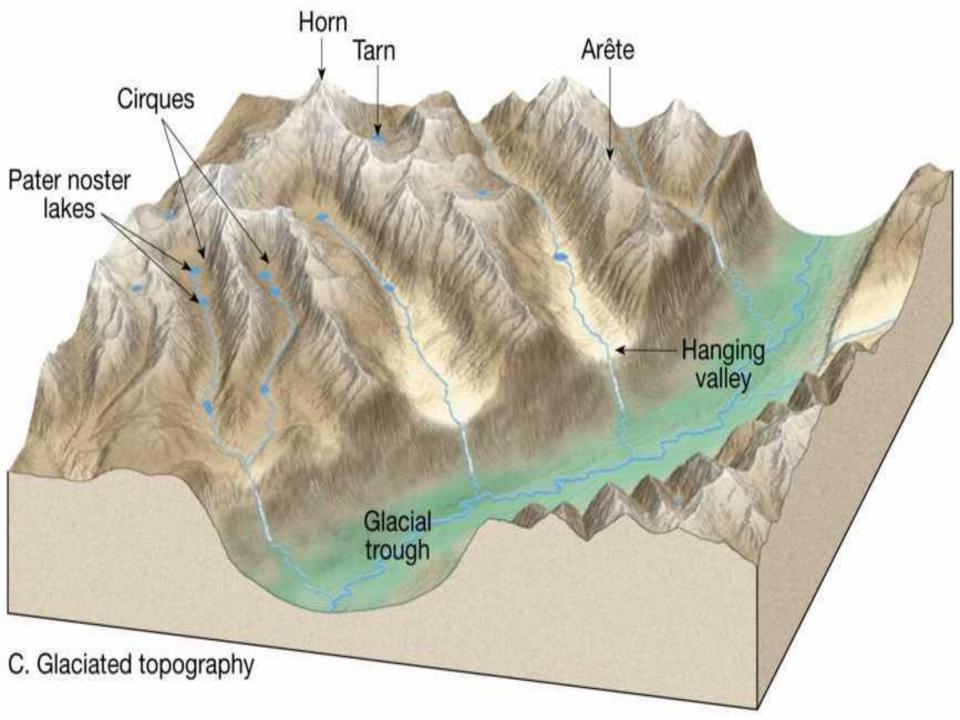
Linear Dunes



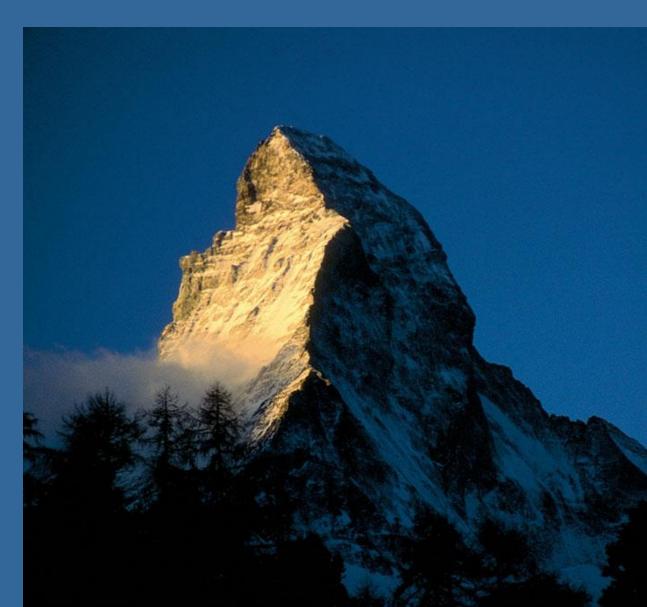


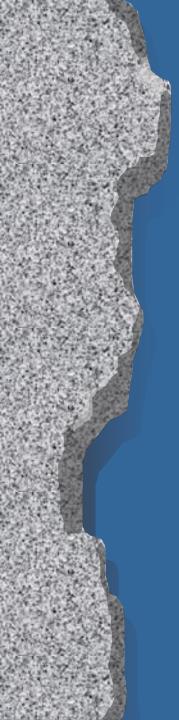




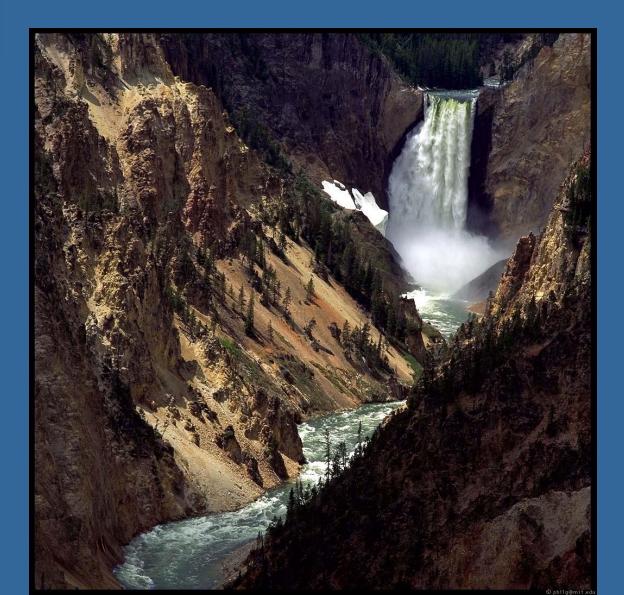








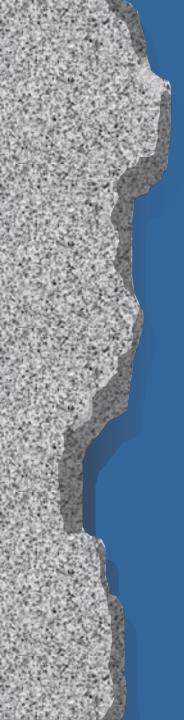
d. Glacial troughs



e. Lakes

- 1) Tarns
- 2) Finger Lake
- 3) Pater Noster Lakes





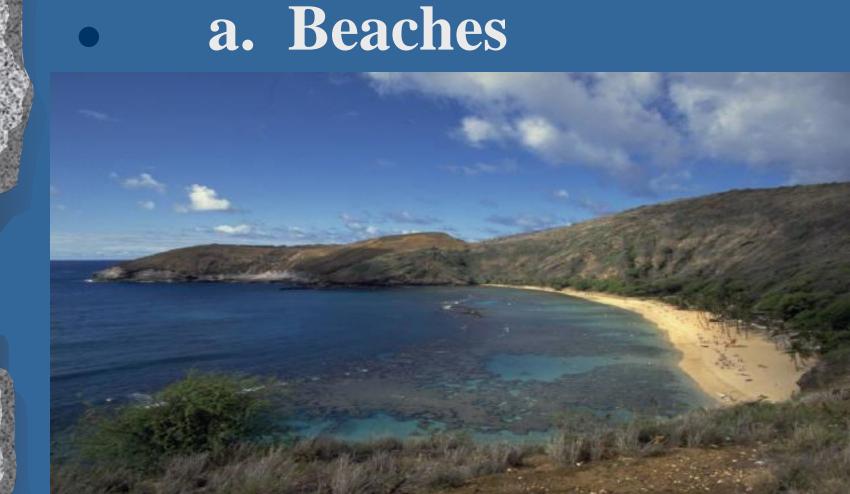
f. Lateral Moraine g. End Moraine





h. Fjord i. etc.

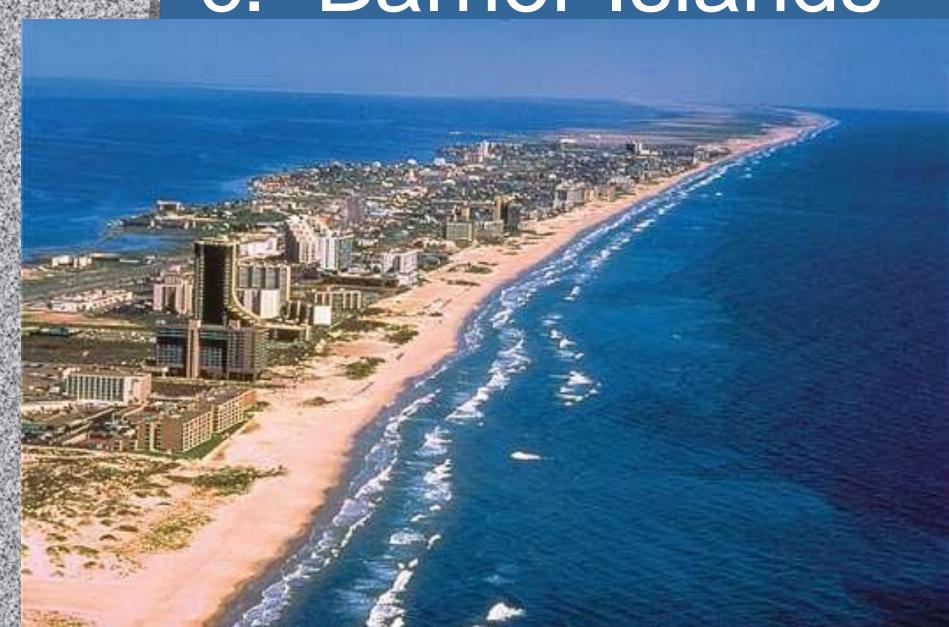
• 4. Made by Waves and Currents



b. Sea Caves & Crevices











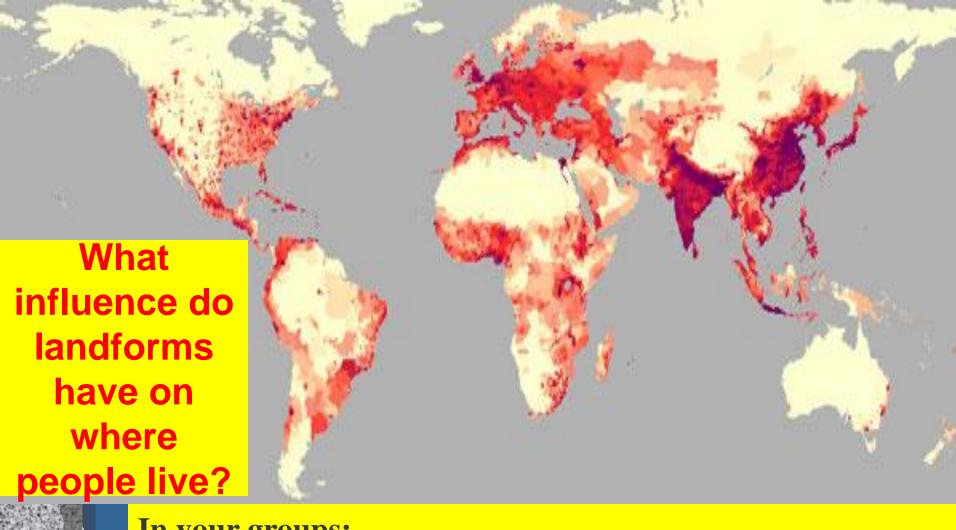
significance of landforms

mountains:

- Barrier to travel, communication, defense
- Rainmaker, scenery
- Reservoir, water source, minerals
- Poor accessibility
- Poor agriculture
- Source of destruction

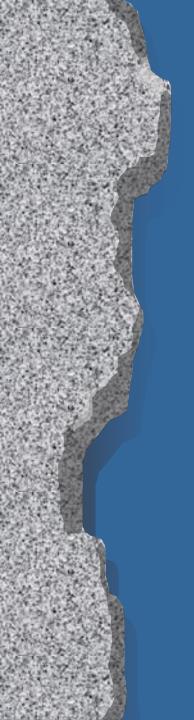
plains, river valleys:

- Fertile soils
- Irrigation water
- Mineral resources
- Source of destruction
- Easily accessible

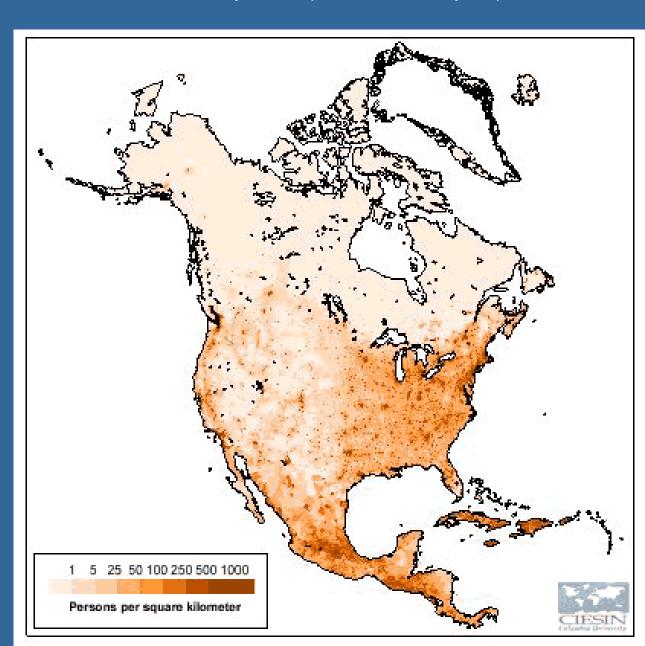


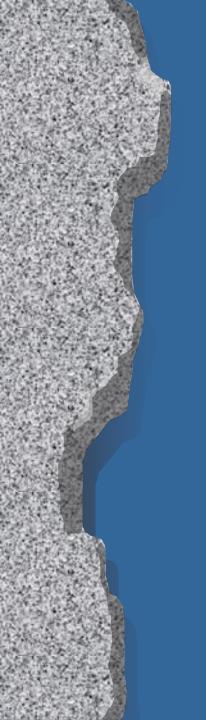
In your groups:

- Explain where people live and where they do not.
- **Explain what physical features (not climate) might** influence the distribution patterns for your assigned region.

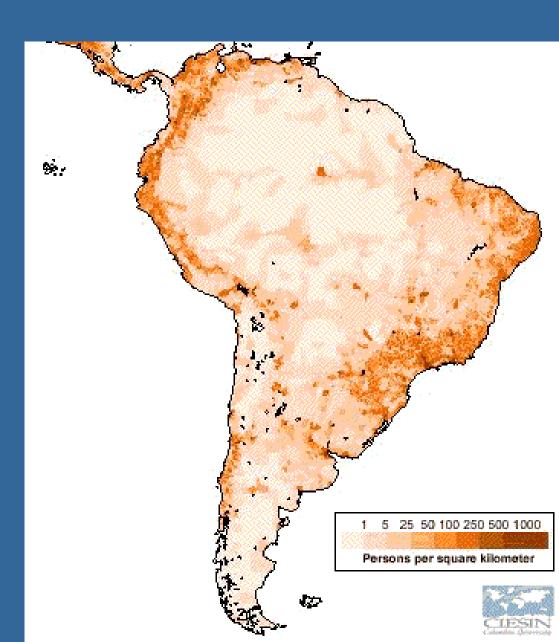


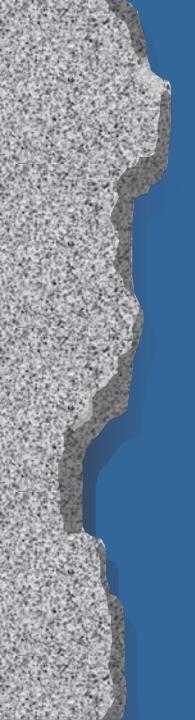
North America Population Density, 1995 UN adjusted data {Lambert Azimuthal Projection}



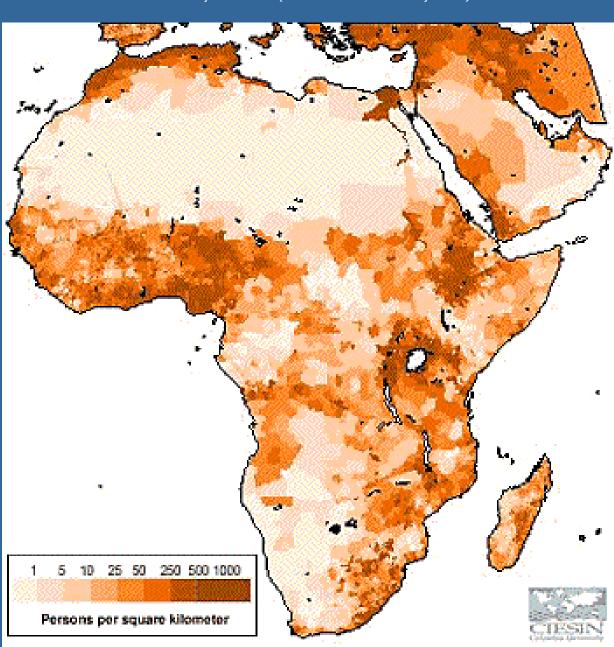


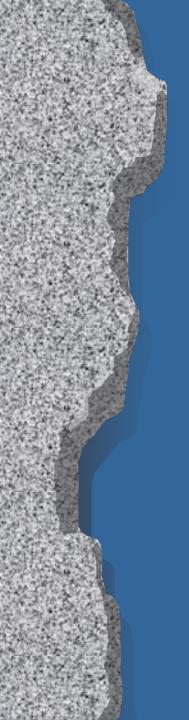
South America Population Density, 1995 UN adjusted data {Lambert Azimuthal Projection}



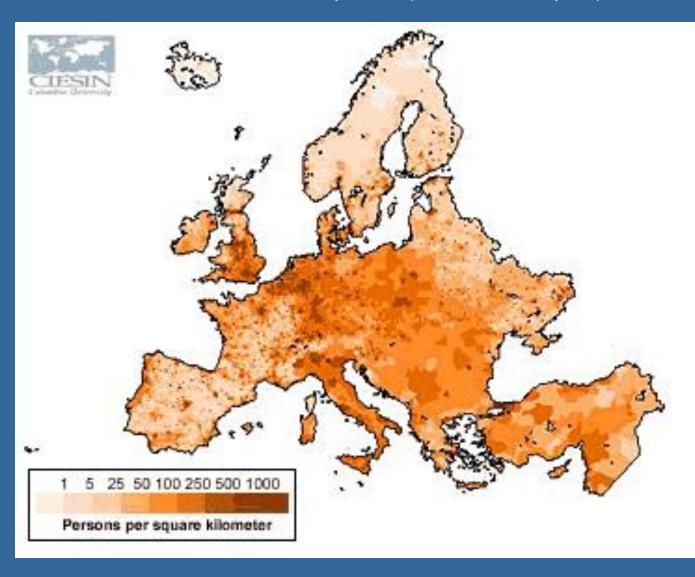


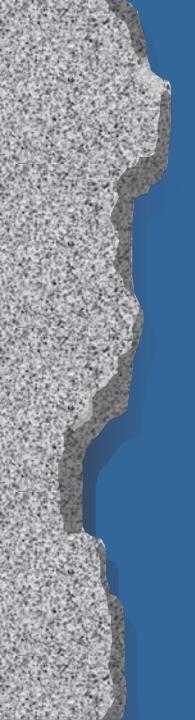
Africa Population Density, 1995 UN adjusted data {Lambert Azimuthal Projection}





Europe Population Density, 1995 UN adjusted data {Lambert Azimuthal Projection}





Asia Population Density, 1995 UN adjusted data {Lambert Azimuthal Projection}

