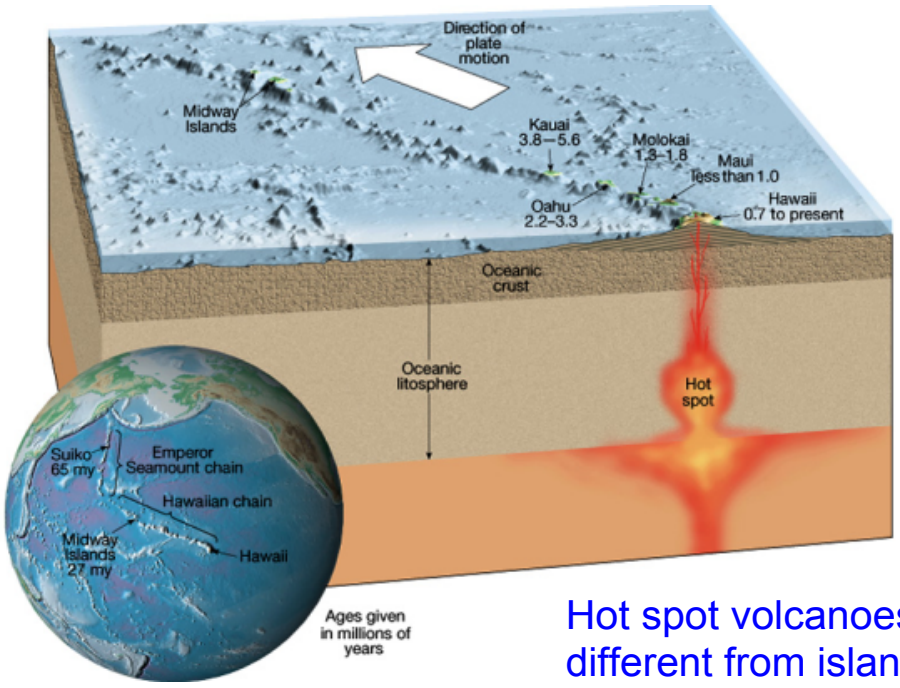
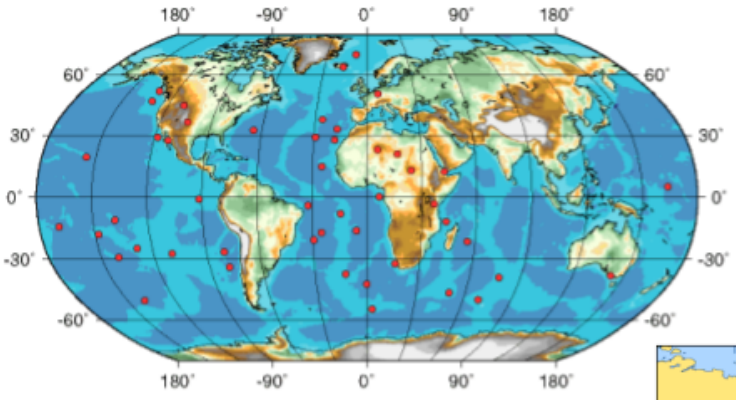
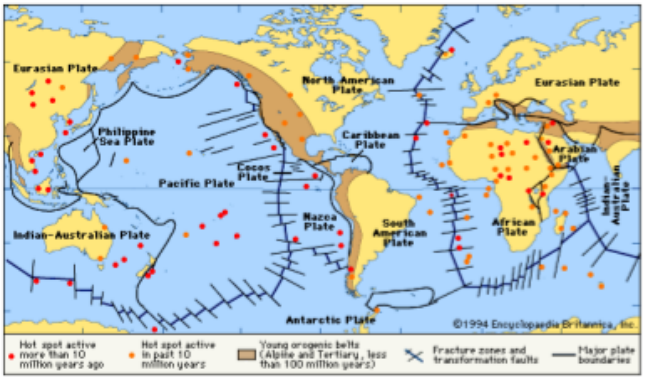


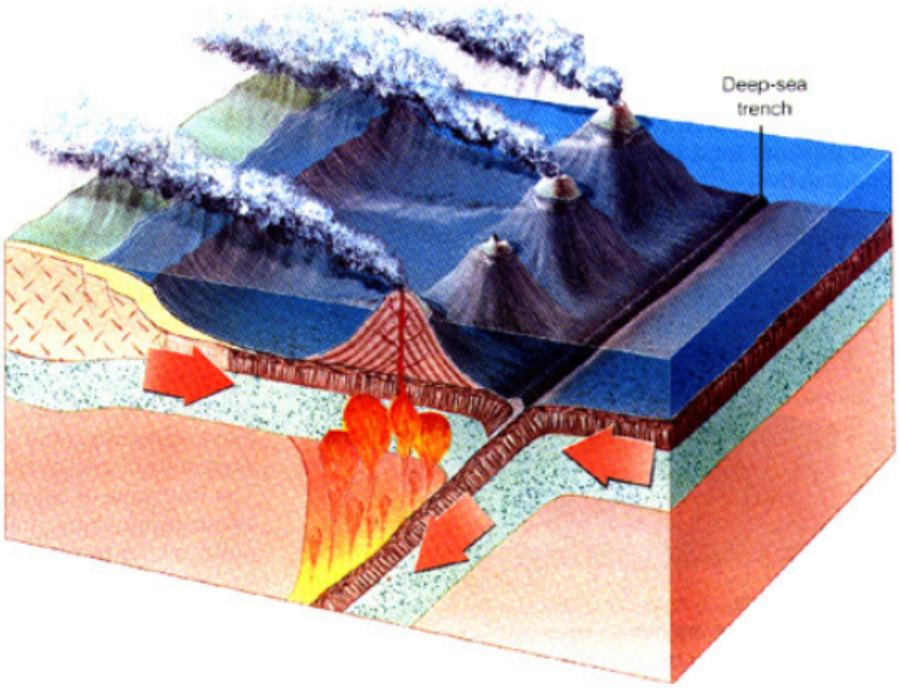
Hot spot volcanoes are different from island arc subduction volcanoes.

Hot spot volcanoes form a long line from the newest volcano, the active one, to the oldest far away from the hot spot. All the older volcanoes are no longer active and get worn down to sea mounts. The plate is moving over the hot spot.



Hot spots are not located on plate boundaries except for a few by chance.





Island arc subduction volcanoes are all active as they all result from the magma rising from the subducting plate which is melting.

Continental Subduction -
Converging plates with an oceanic and a continental plate

Review:

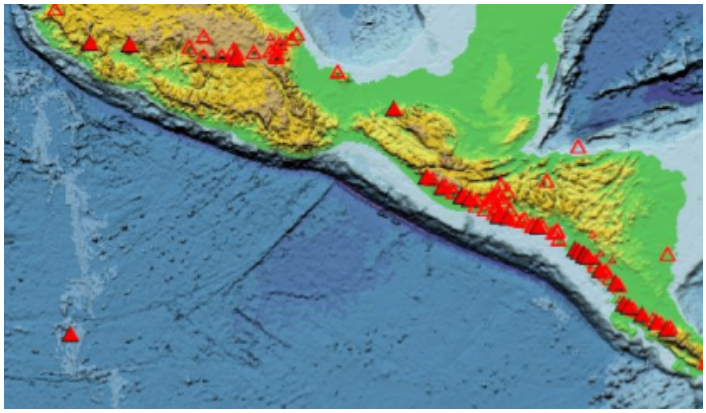
1. What is the difference in density between continental and oceanic lithosphere?

   Continental lithosphere is less dense than oceanic lithoshpere.

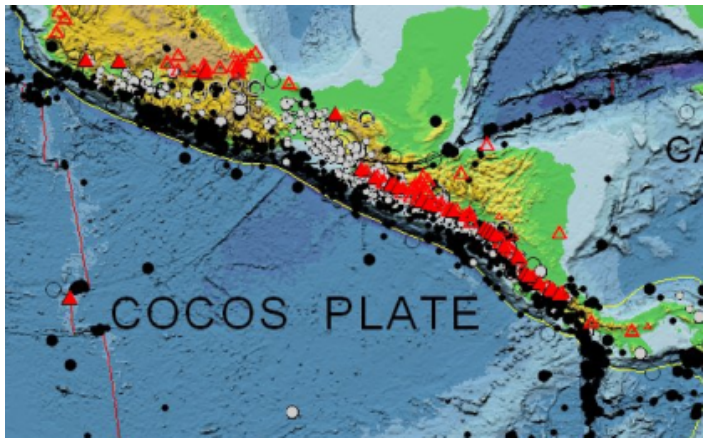
2. How might the asthenosphere being weak help make it possible for subduction to happen?

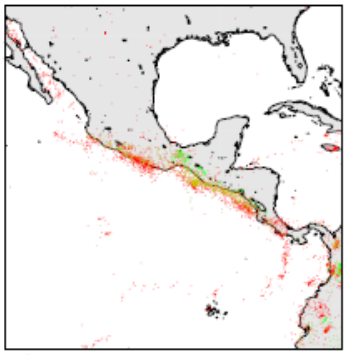
   The weak asthenosphere allows the subducting plate to enter the asthenosphere. If the asthenosphere were not weak and ductal, the oceanic plate wouldn't be able to move down.

Central America



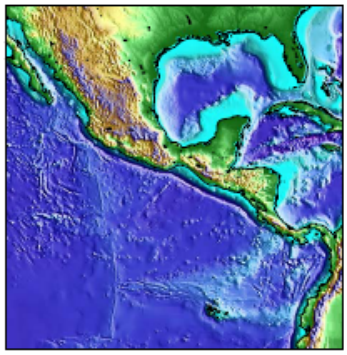
Central America has a trench off the western coast and a line of volcanoes along the western edge of the continental lithosphere.



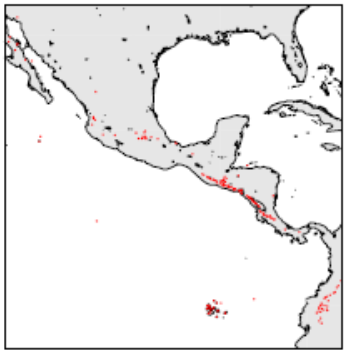


Earthquakes

Plate Boundaries



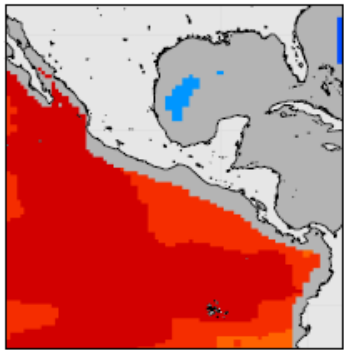
Topography



Volcanoes

Convergent Plate Boundary
Central America

Divergent Plate Boundary
Western Pacific



Seafloor Age

South America showing deeper earthquakes, plate boundaries, the trench and location of volcanoes.

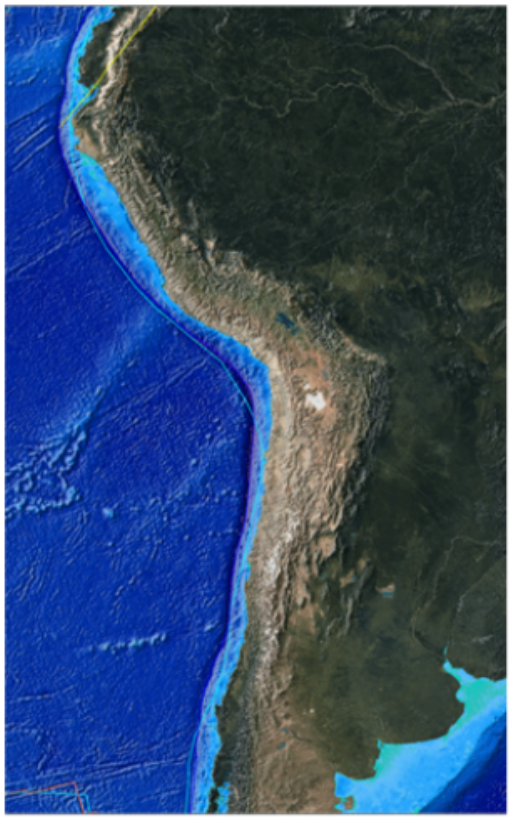
El Salvador

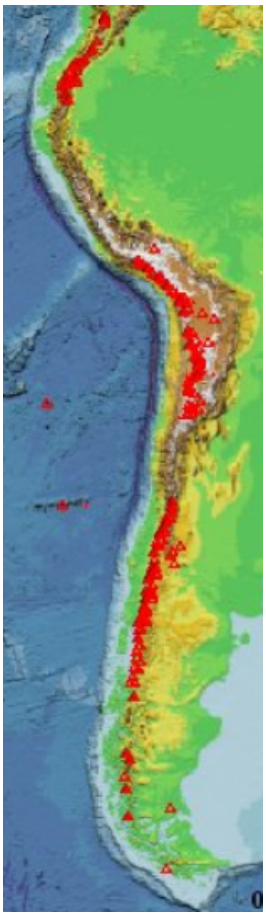
Arenal Volcano, Costa Rica

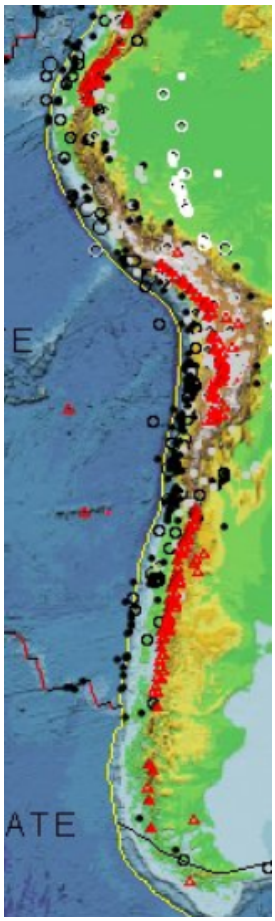
Costa Rica

Some Central American volcanoes

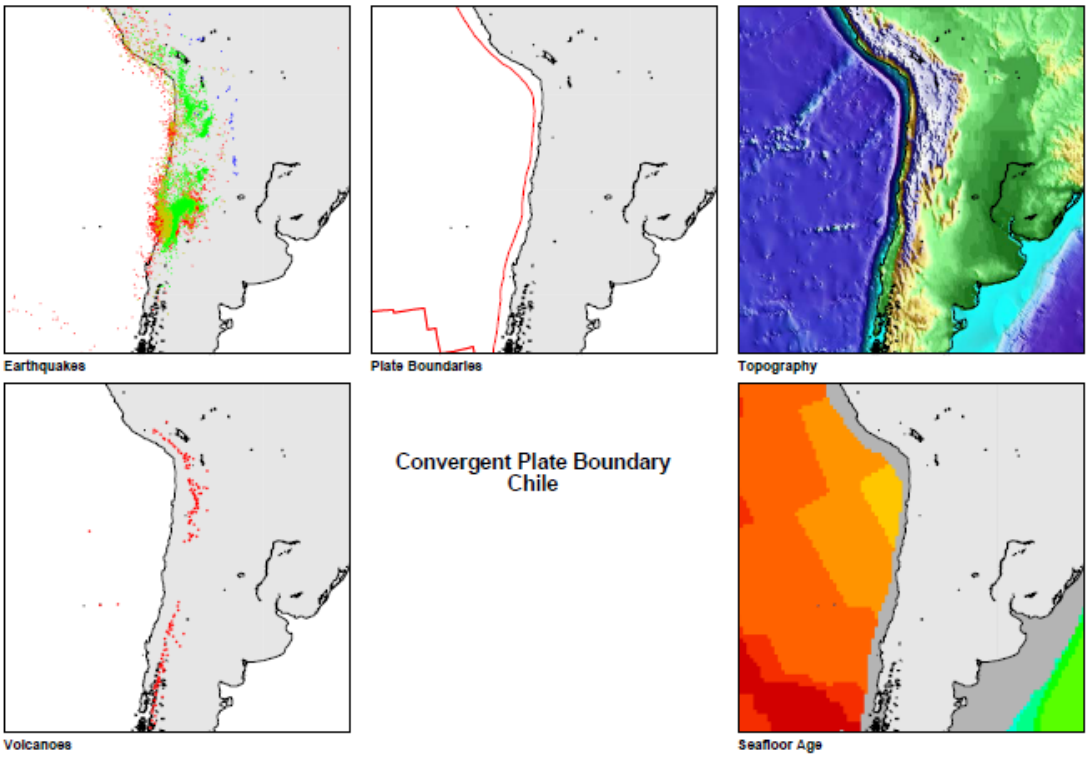
South America





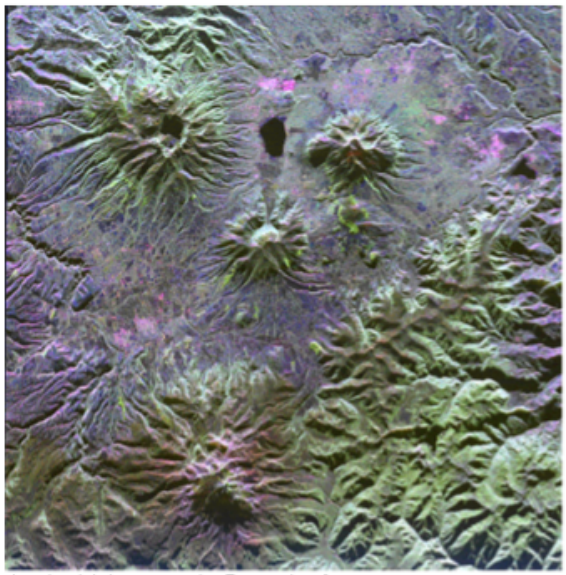


The western coast of South America also has a trench on the ocean floor and a line of volcanoes on the land.

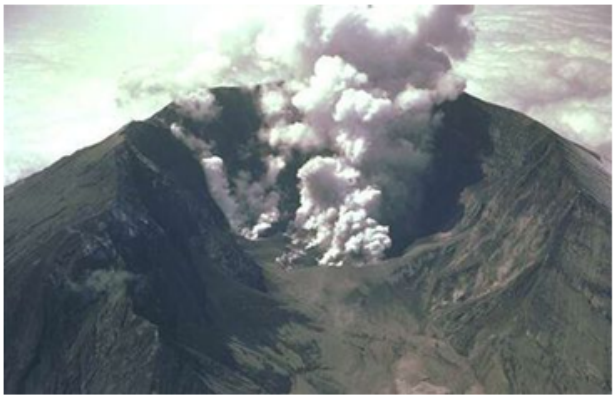


These diagrams show the deeper earthquake foci, the plate boundary, the trench and the volcanoes for South America.

Volcanoes in the Andes Mountains



Andes Volcanoes in Ecuador from space

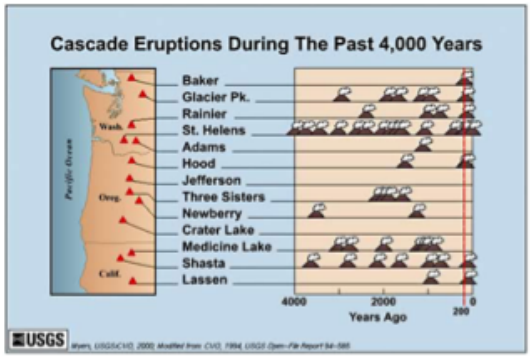


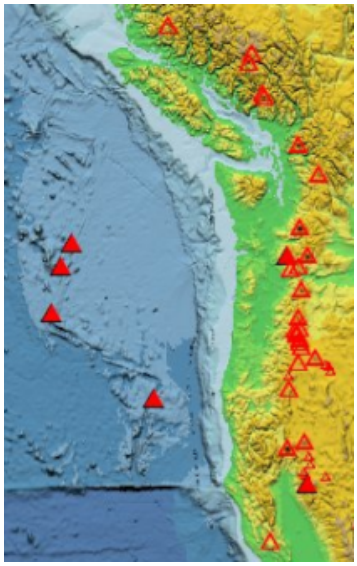
Erupting volcanoes in the Andes Mountains

South American volcanoes in the Andes Mountains

Volcanoes in the Cascades in Oregon and Washington

Northern North America





Off the coast of North America next to northern California, Oregon and Washington there is a small plate subducting under the continent.

Mt. Hood in Oregon

Mt. Shasta in northern California

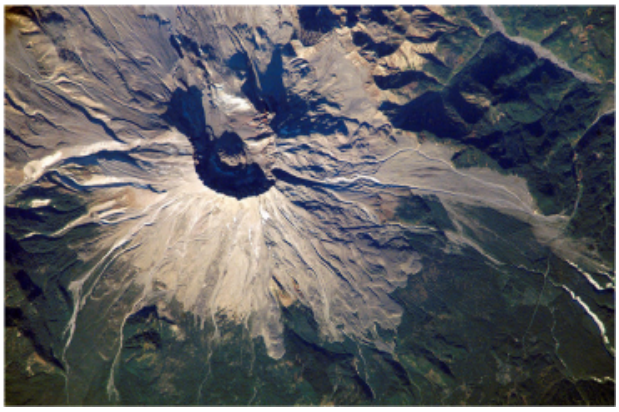
Mt. Ranier in Washington

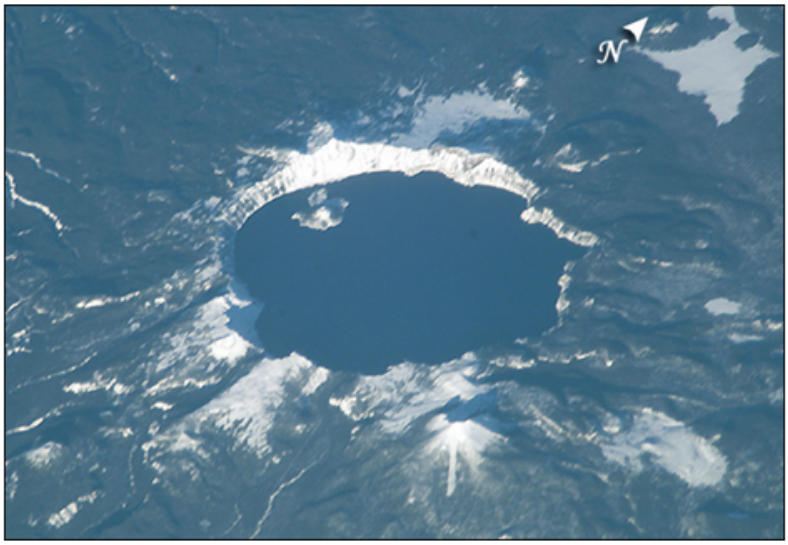
Mt. Lassen in northern California

Some of the volcanoes near the coast of western North America.

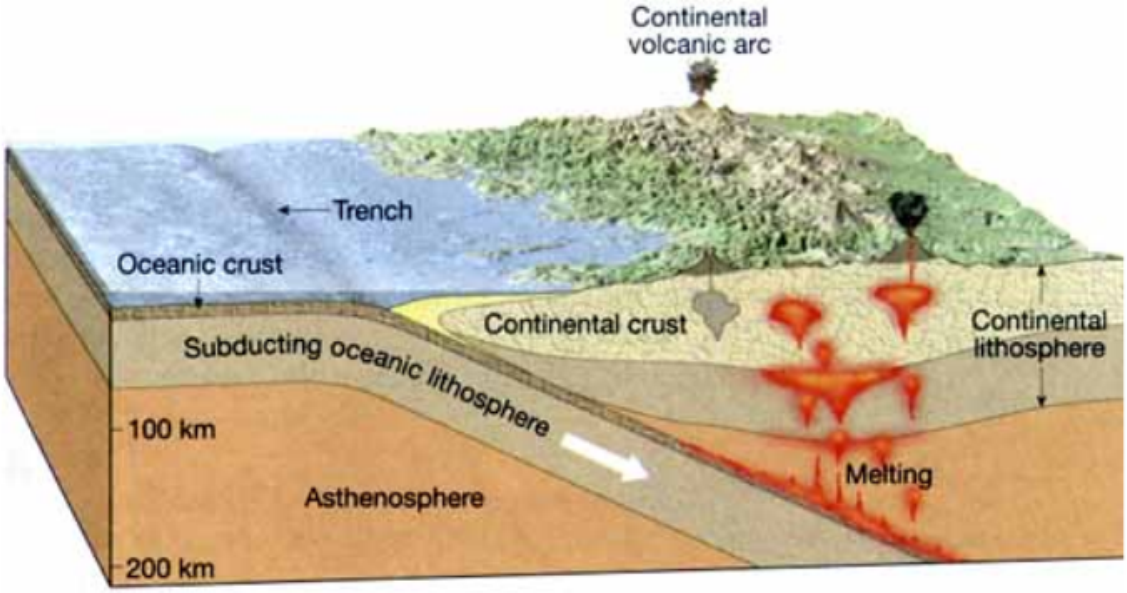
Before and after the eruption

Mt. St. Helens
1980 eruption





Crater Lake in Oregon
Mt. Mazama

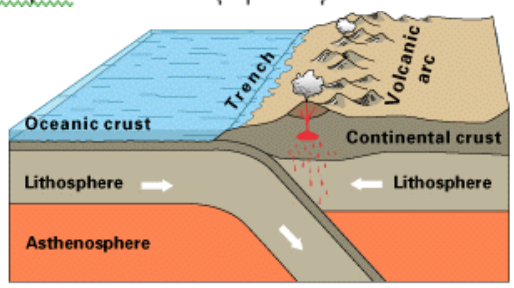


Continental subduction has the denser oceanic lithosphere subducting under the continental lithosphere as the two plates converge. The subducting plate gets hotter and hotter as it travels down into the asthenosphere where part of the plate begins to melt. The magma is less dense than the surrounding rock so it slowly rises and when it escapes through the continental lithosphere it forms volcanoes.

Procedure:

1. Use the photos to make 3 observations of the evidence for continental subduction. (3 points)

2. Describe what is happening with continental subduction. Use this diagram and the others on the paper for ideas. (4 points)



Oceanic-continental convergence

3. Where are two places on Earth where continental subduction is occurring. (1 point)