

# Glossary

(from **USGS Visual Glossary** and **Photo Glossary of Volcanic words**)

**Accretionary wedge**—Sediments, the top layer of material on a tectonic plate, that accumulate and deform where oceanic and continental plates collide. These sediments are scraped off the top of the down-going oceanic crustal plate and are appended to the edge of the continental plate.

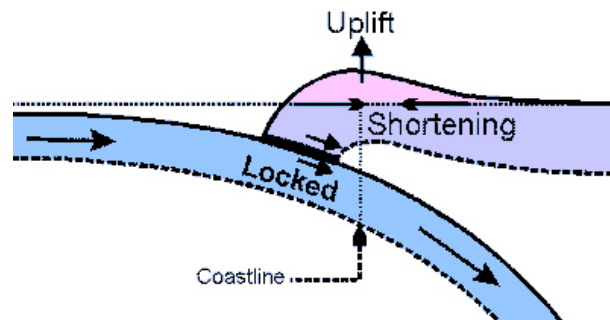
**Asthenosphere**—the ductile part of the earth just below the lithosphere, including the lower mantle. The asthenosphere is about 180 km thick.

**Basalt**— a hard, black volcanic rock with *less than* about 52 weight percent silica (SiO<sub>2</sub>) and high amounts of heavy elements like iron and magnesium and low sodium and potassium (see **Rhyolite** below). This magma has a high temperature and low viscosity and tend to Erupted at spreading ridges.

**Crust**—the outermost major layer of the earth, ranging from about 10 to 65 km in thickness worldwide. The uppermost 15-35 km of crust is brittle enough to produce earthquakes. Oceanic crust is thinnest; continental crust is thickest.

**Lithosphere**—the outer solid part of the earth, including the crust and uppermost mantle. The lithosphere is about 100 km thick, although its thickness is age dependent (older lithosphere is thicker).The lithosphere below the crust is brittle enough at some locations to produce earthquakes by faulting, such as within a subducted oceanic plate.

**Locked fault**—a fault that is not slipping because frictional resistance on the fault is greater than the shear stress across the fault (it is stuck). Such faults may store strain for extended periods that is eventually released in an earthquake when frictional resistance is overcome.



**Mantle**—the part of the earth's interior between the metallic outer core and the crust.

**Mid ocean ridge**—the fracture zone along the ocean bottom where molten mantle material comes to the surface, thus creating new crust. This fracture can be seen beneath the ocean as a line of ridges that form as molten rock reaches the ocean bottom and solidifies.

**Plate Tectonics**—the theory supported by a wide range of evidence that considers the earth's crust and upper mantle to be composed of several large, thin, relatively rigid plates that move relative to one another. Slip on faults that define the plate boundaries commonly results in earthquakes. Several styles of faults bound the plates, including thrust faults along which plate material is subducted or consumed in the mantle, oceanic spreading ridges along which new crustal material is produced, and transform faults that accommodate horizontal slip (strike slip) between adjoining plates.

**Subduction**— the process of the oceanic lithosphere colliding with and descending beneath the continental lithosphere.

**Subduction zone**—the place where two lithospheric plates come together, one riding over the other. Most volcanoes on land occur parallel to and inland from the boundary between the two plates.

**Tectonic plates**— the large, thin, relatively rigid plates that move relative to one another on the outer surface of the Earth.