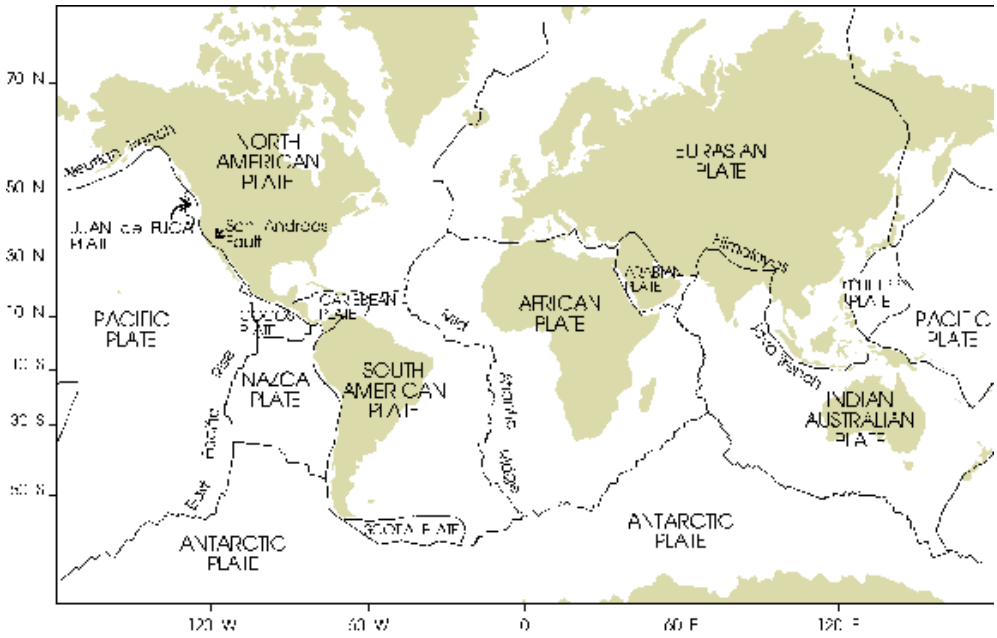
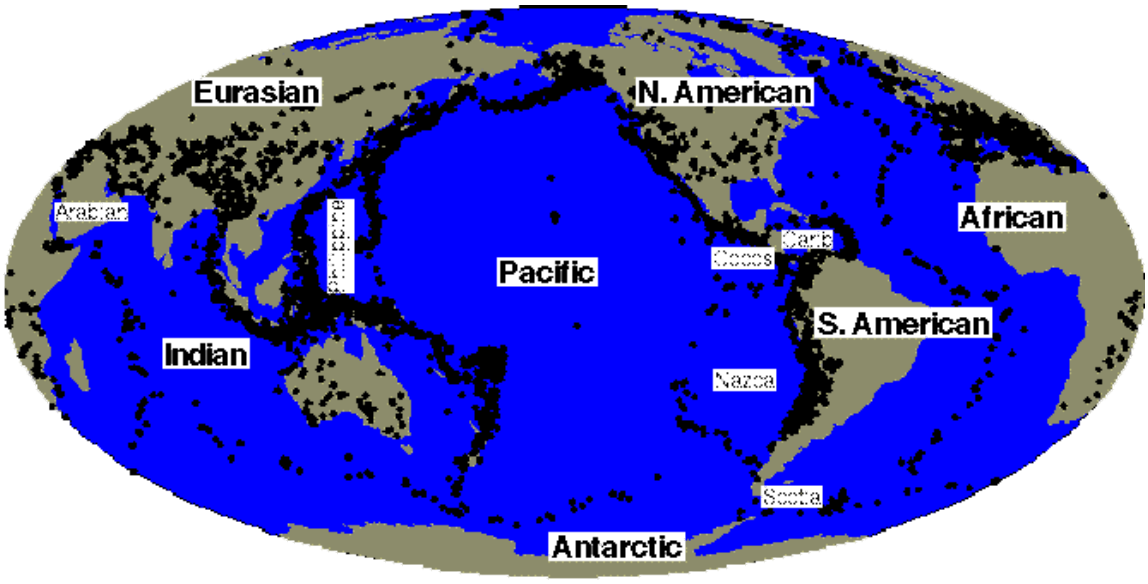
Plate Tectonics and Earthquakes

Most geoscientists use plate tectonics to explain the dynamics of the Earth system. The outermost layer of Earth, the lithosphere, is mobile. Plate tectonics involves the formation, movement, interaction and estruction of lithospheric plates. Such plates can slide over the uppermost layer of the mantle, the aesthenoshpere. Where the plates interact, geological processes take place, including earthquakes.



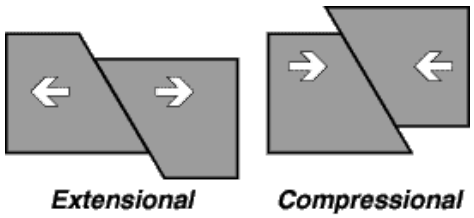
GLOBAL PLATE BOUNDARIES

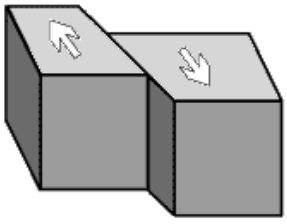


LOCATIONS OF EARTHQUAKES

[If you compare the two images above you can see a corrlelation between plate boundaries and earthquake location.]

There are 3 tectonic environments:**EXTENSIONAL, TRANSFORM and COMPRESSIONAL.**Each type produces a different kind of earthquake.

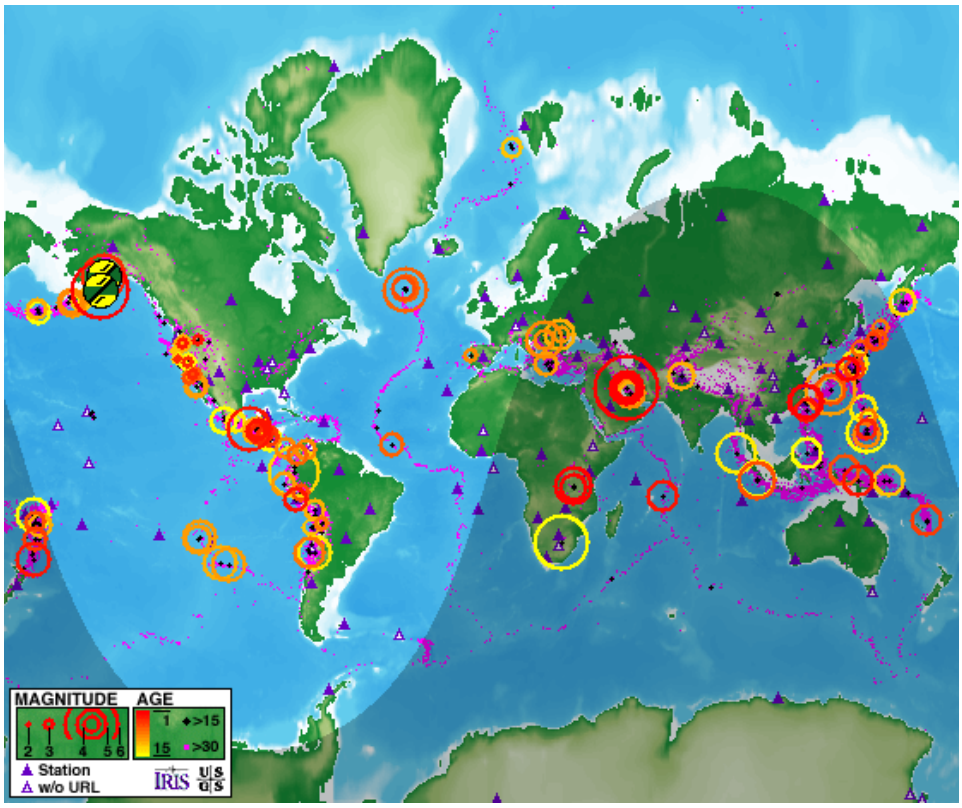




EXTENSIONAL	TRANSFORM	COMPRESSIONAL

***shallow ***aligned along axis of spreading ***usually smaller than magnitude 8	***shallow (as deep as 25km) ***indicate strike-slip motion ***usually smaller than magnitude 8.5	***found in many settings (near the Earth's surface to several hundred km deep ***Earth's largest quakes ***events have exceeded magnitude 9

Below is a map of blobal seismic activity. The image was made on April 7, 1999. Click on the image to go to a recent map that is updated every half hour. The page also includes an explanation of all symbols used and links to specific seismic stations.



The sudden fracture and movemet of rocks inside the Earth cause the release of stored elastic energy, an earthquake. Up to 10% of the energy released produces SEISMIC WAVES.

Seismic Waves
Seismographs and Seismograms
The Earth's Inside

HOME