

ESS 110: Introduction to Geology Dr. Woltemade Earthquakes in the U.S.	Name: _____ Section (circle): 8:00 AM 9:30 AM 11:00 AM
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Instructions: Answer the following questions using the USGS earthquakes internet site (earthquake.usgs.gov) and your text (see maps of the global distribution of earthquakes and general plate tectonics - Chapters 2 and 9). Consider the hypothesis that earthquakes occur due to the movement of rock at faults, many of which are also major plate boundaries.

1. California. On the USGS website , zoom in to California and plot 7 Days, All Magnitudes, using the Settings controls (Gear icon in upper right).	
How many earthquakes are plotted on your map?	
Note that the red lines indicate major plate boundaries. In Southern California, what is the name of the fault line that is also the plate boundary?	
While there are many earthquakes immediately along that fault, how can you explain the additional earthquakes not on that fault?	

2. Pacific Northwest. Pan further north to examine the coastal regions of Washington and Oregon, noting the many earthquakes located in a generally North-South line east of the plate boundary.	
What is the name of the small plate offshore of Washington State?	
What type of plate tectonic boundary exists between that plate and the North American plate?	
Why are many Oregon and Washington earthquakes located well east of the plate boundary shown on the map? (Consider a 3-D perspective as shown on p.243 in your text.)	

3. Alaska. Zoom to Alaska and note the earthquakes on the mainland and along the Aleutian Islands that extend southwest off the coast of Alaska.	
What type of plate boundary is there?	
What are the two plates involved?	

4. Hawaii. Zoom to Hawaii and then pan out to see the regional setting within the Pacific plate.	
Why are there several earthquakes in Hawaii even though it is far from plate boundaries?	

5. Apply your observations to scientific hypothesis testing. Consider the hypothesis that earthquakes occur due to the movement of rock at faults, many of which are also major plate boundaries.

Do the data that you examined (locations of recent earthquakes) support the hypothesis?

Describe how the data do or do not support the hypothesis.

What data did you observe that are perhaps not completely explained by this hypothesis and would require an alternate explanation of what caused the earthquake?