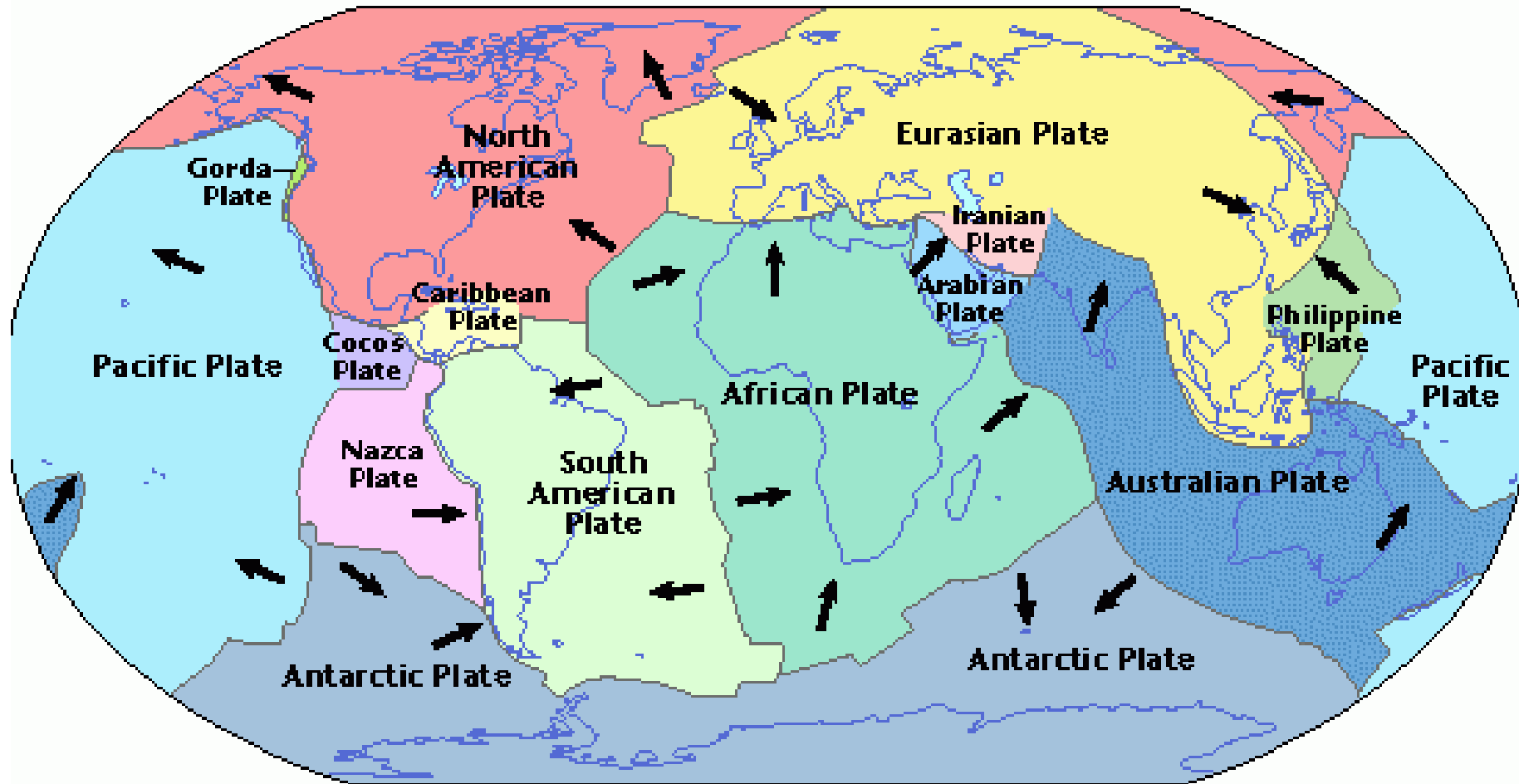


SEPTEMBER 7, 2017

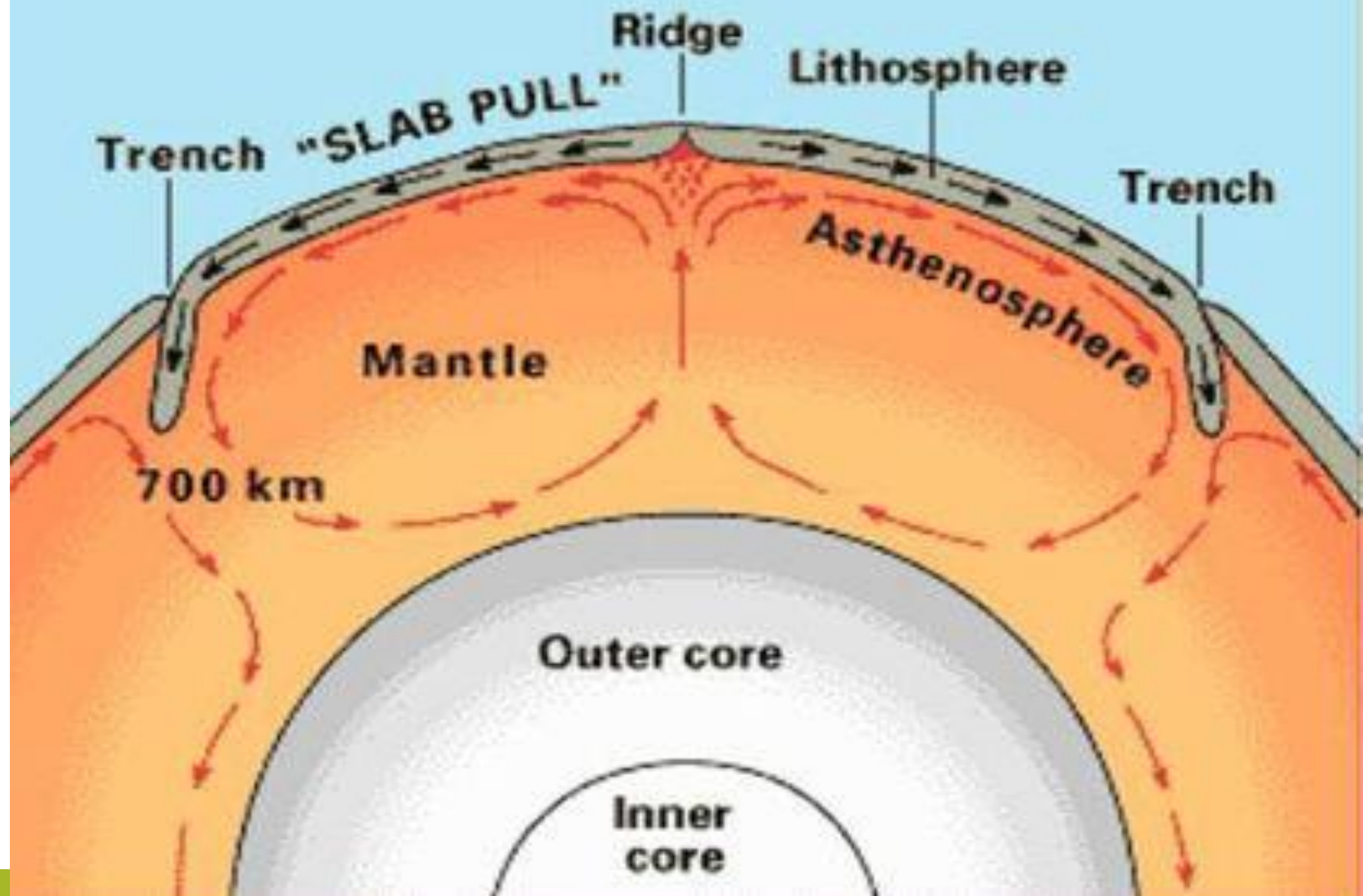
- Get out ESPN Highlighters, pencil
- Plate Tectonics and Ring of Fire Notes
- HW: South America Map due Monday, Sept. 11
- Map Quiz Sept. 11

Plate Tectonics

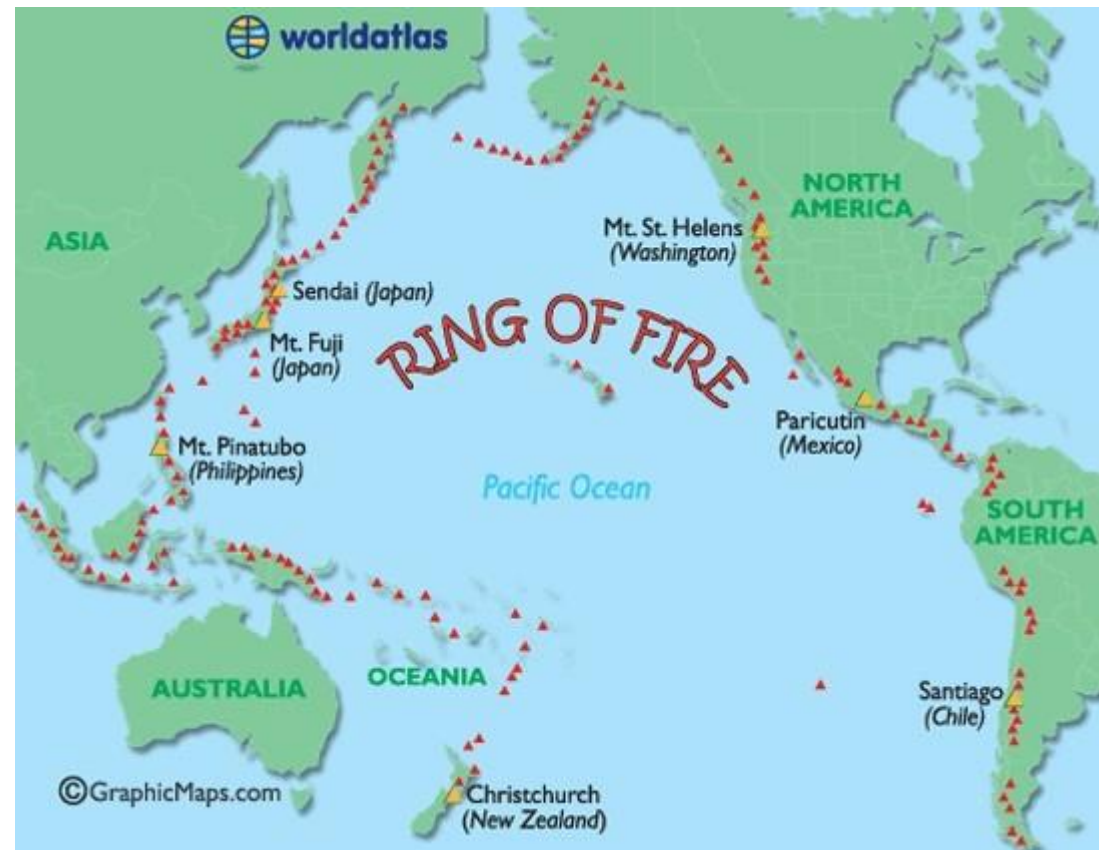


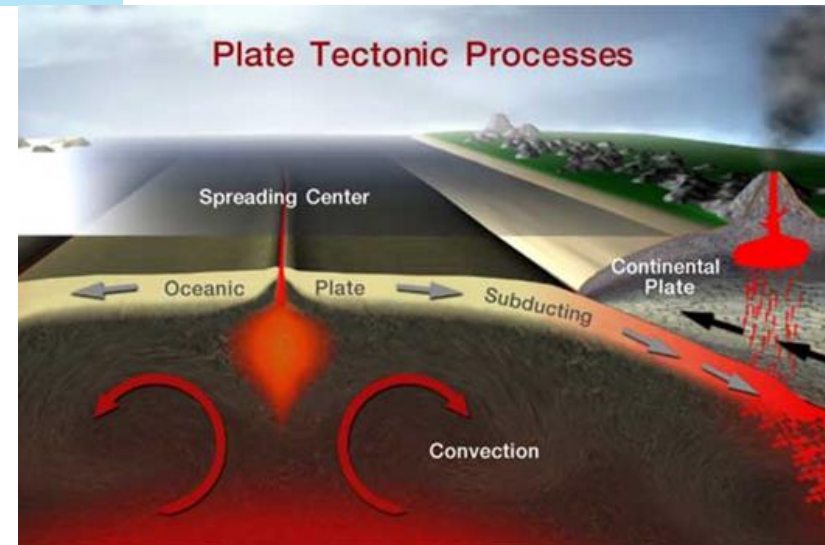
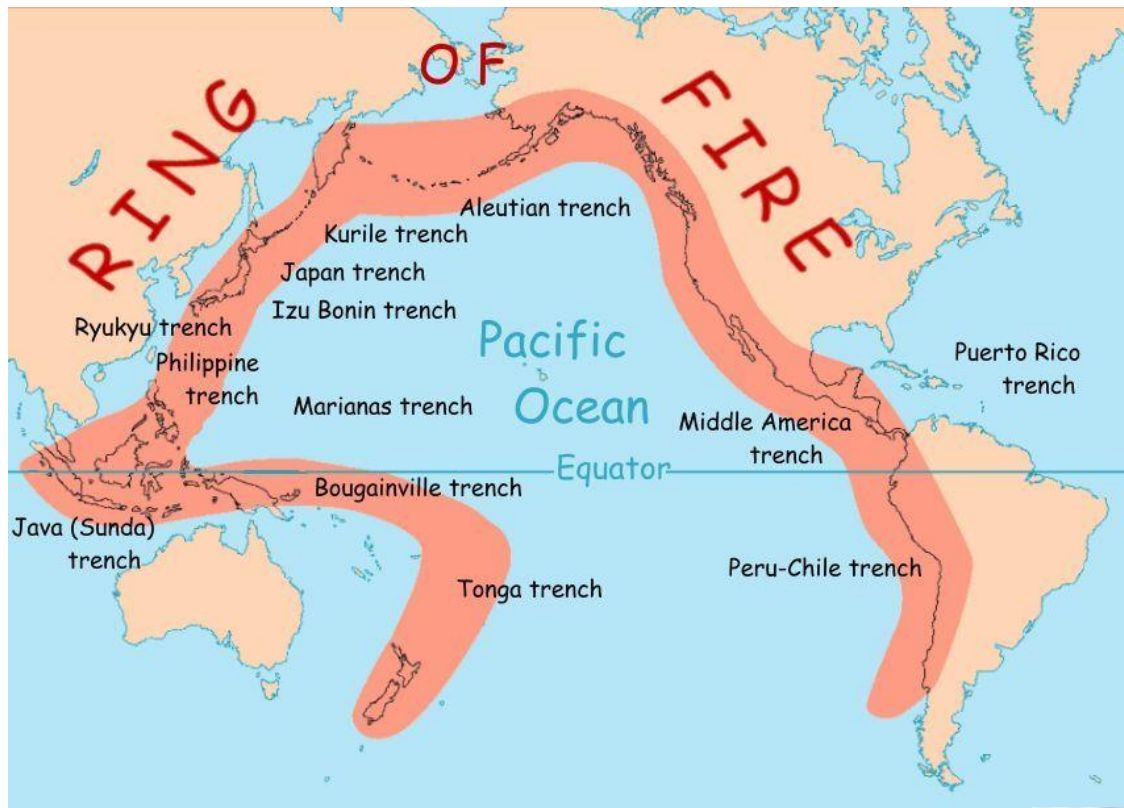
The Forces That Cause Plate Tectonics

Image source: <http://pubs.usgs.gov/publications/text/dynamic.html>



Ring of Fire: A zone around the rim of the Pacific Ocean with the majority of active volcanoes and earthquakes in the world





Japan's Geographic Challenge

- <https://www.youtube.com/watch?v=BhSeQxdJw1w&list=PLD985DC24042D71ED&index=18>

Japan and the United States

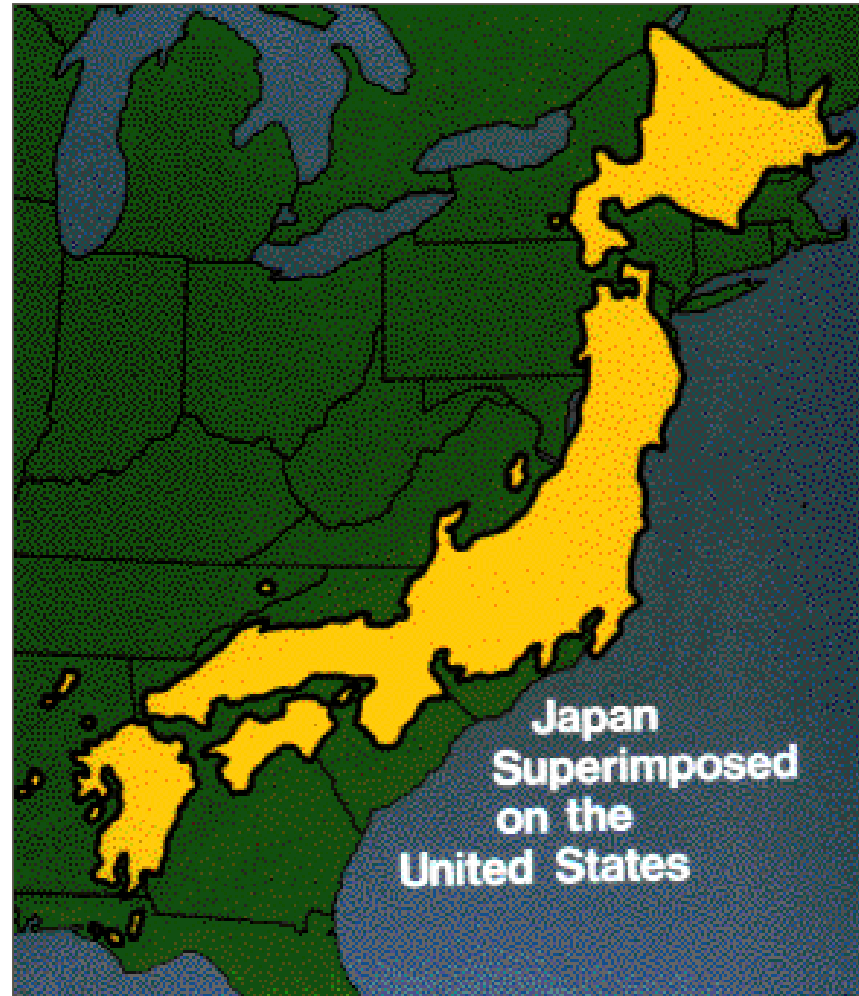
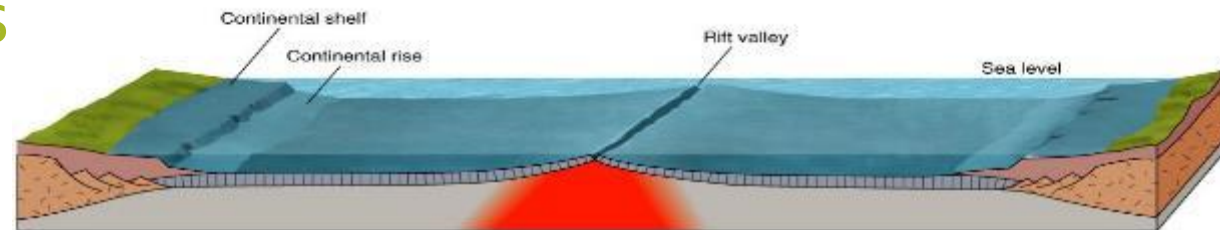
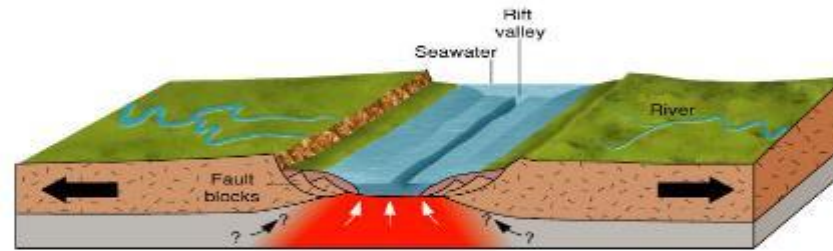
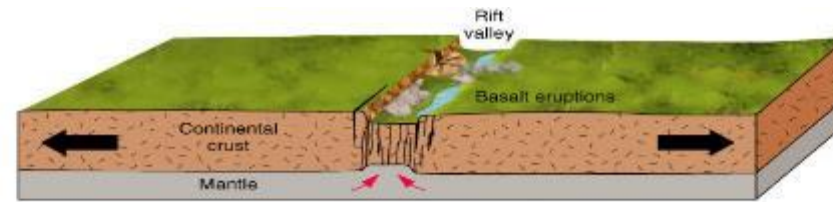


Plate Movements

- Divergent Boundary:
Plates spread away from each other. Creates a rift where magma from the core spreads up
- Divergent = Divide



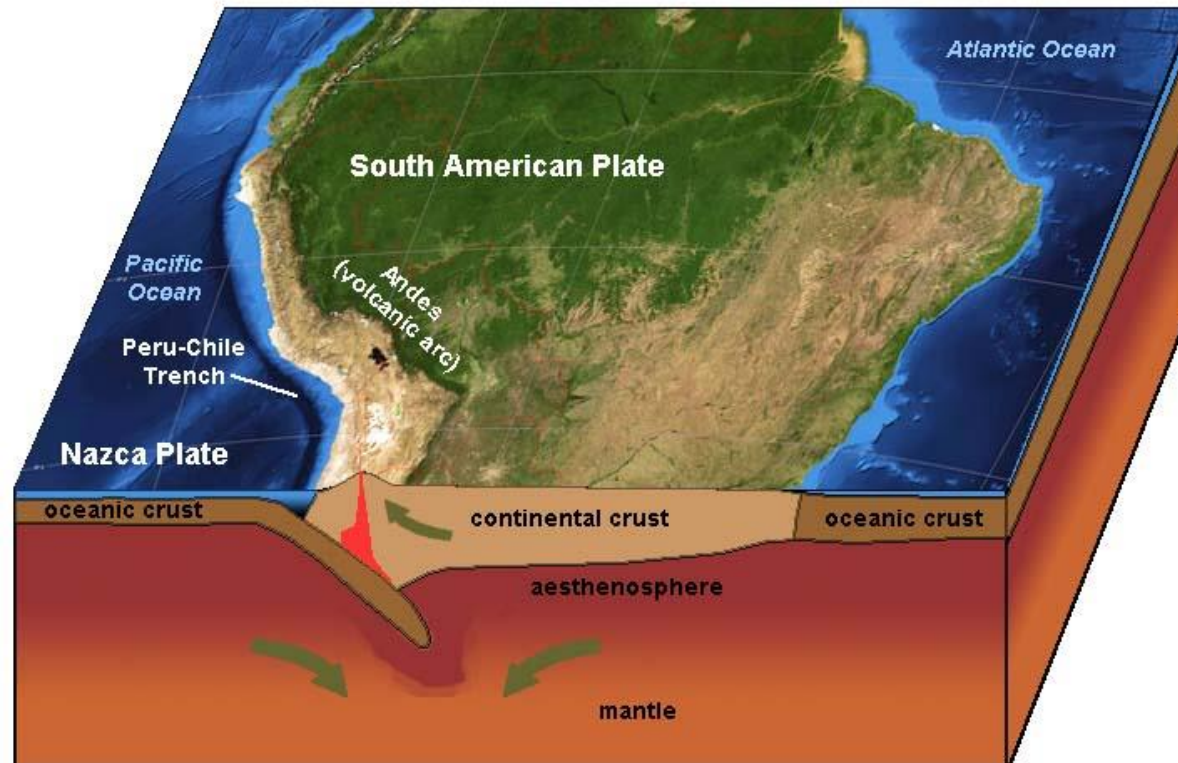
Divergent Boundary





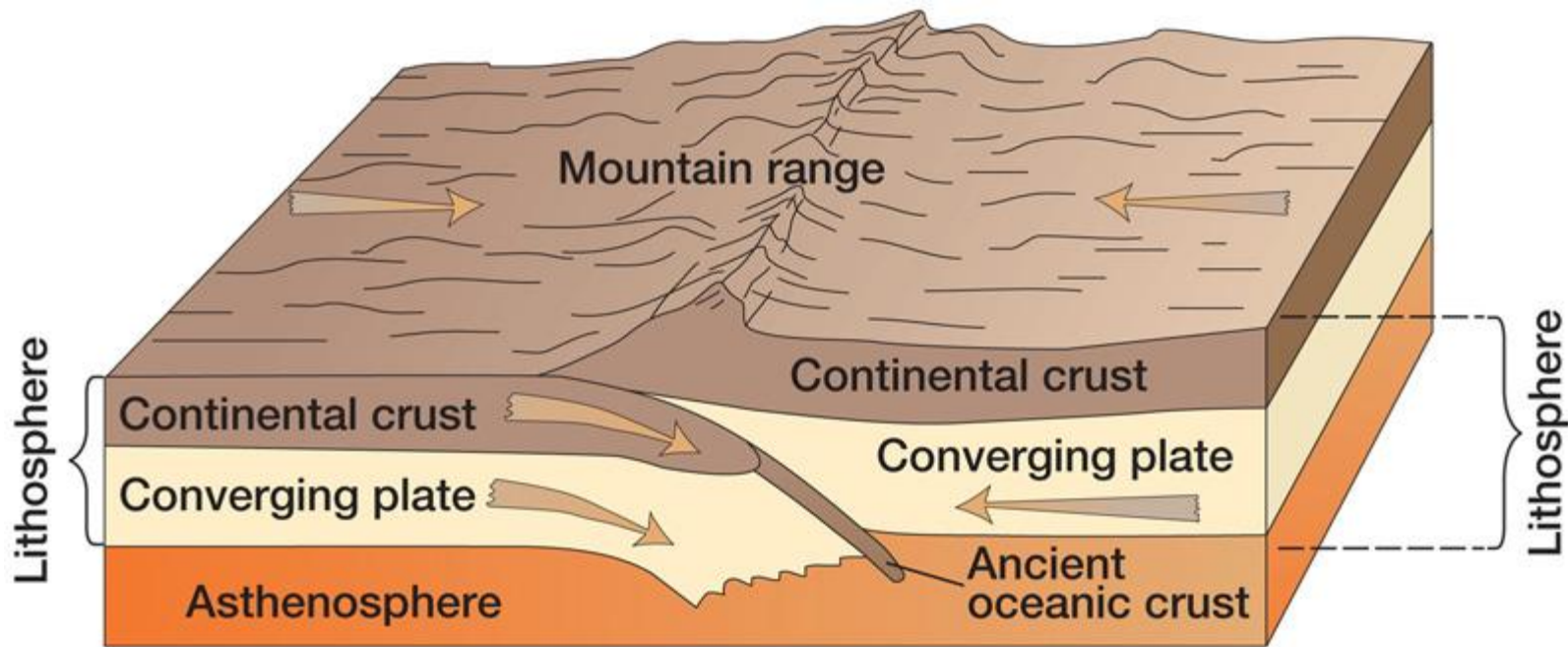
Convergent Boundary: When plates collide

- Convergent- Subduction Boundary: When plates collide and one plate is forced under the other. As the bottom plate melts, magma rises and forms volcanoes.



Convergent Boundary

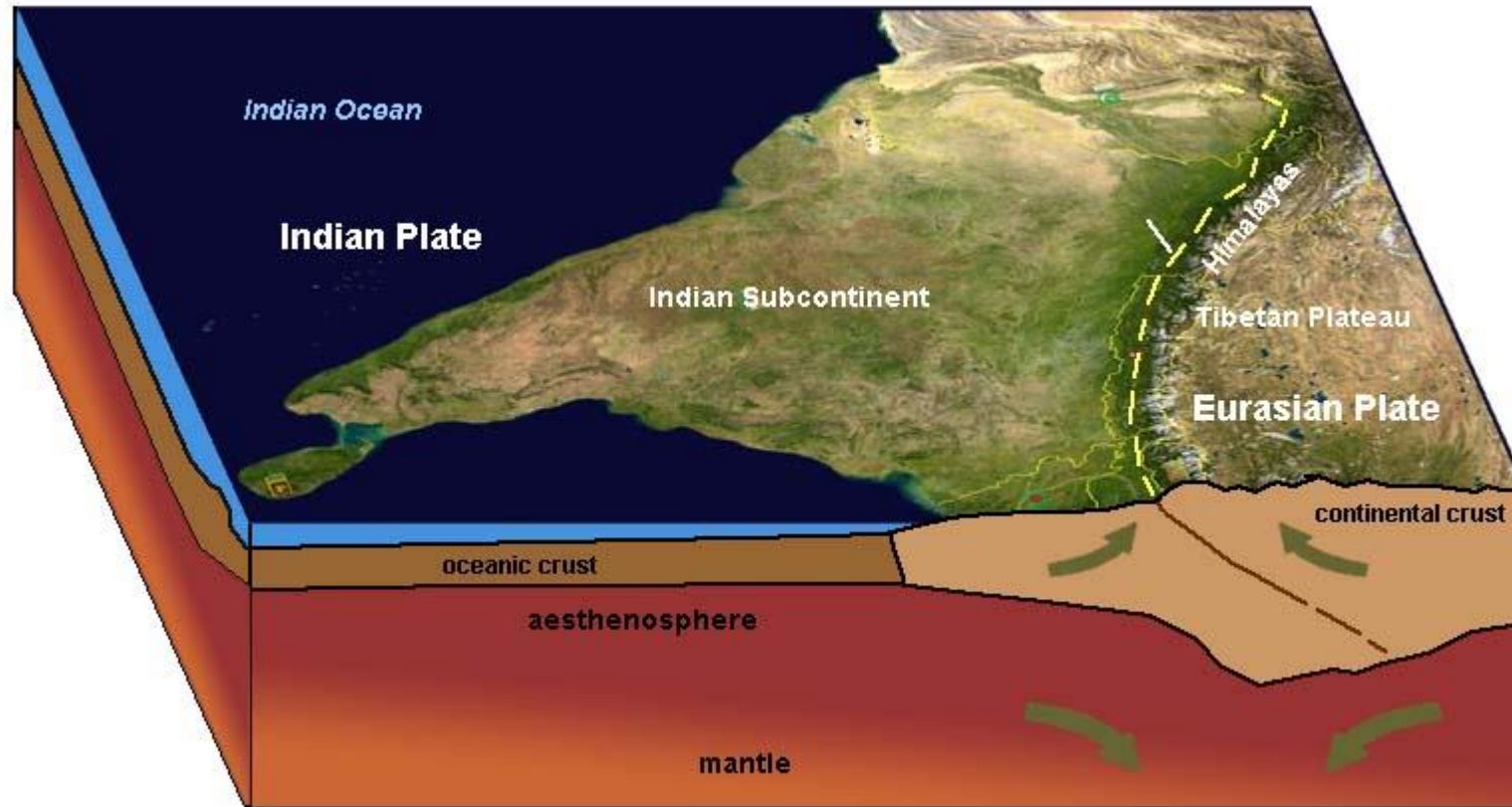
- Convergent-Collision Boundary: When plates collide and the plates buckle and fold
- creates mountain ridges



(c)



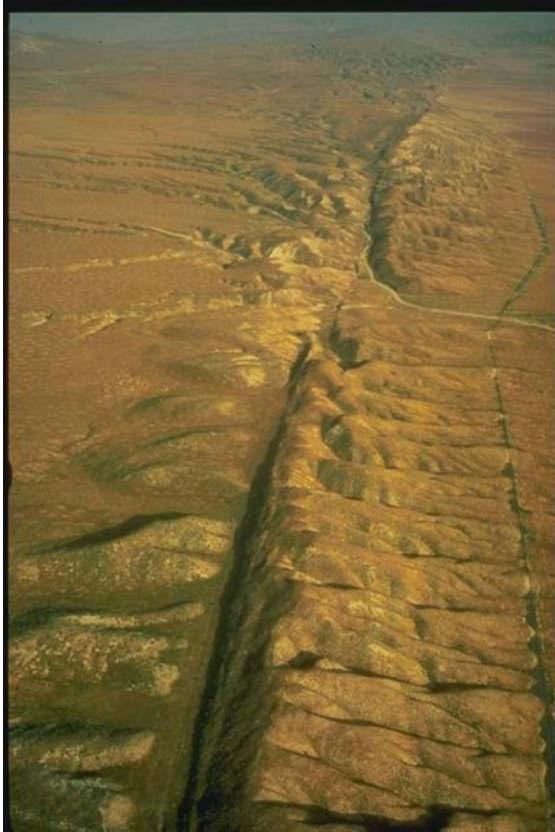
Convergent Collision



Transform Movement: When plates slide next to each other



Fault: fracture in the earth's crust

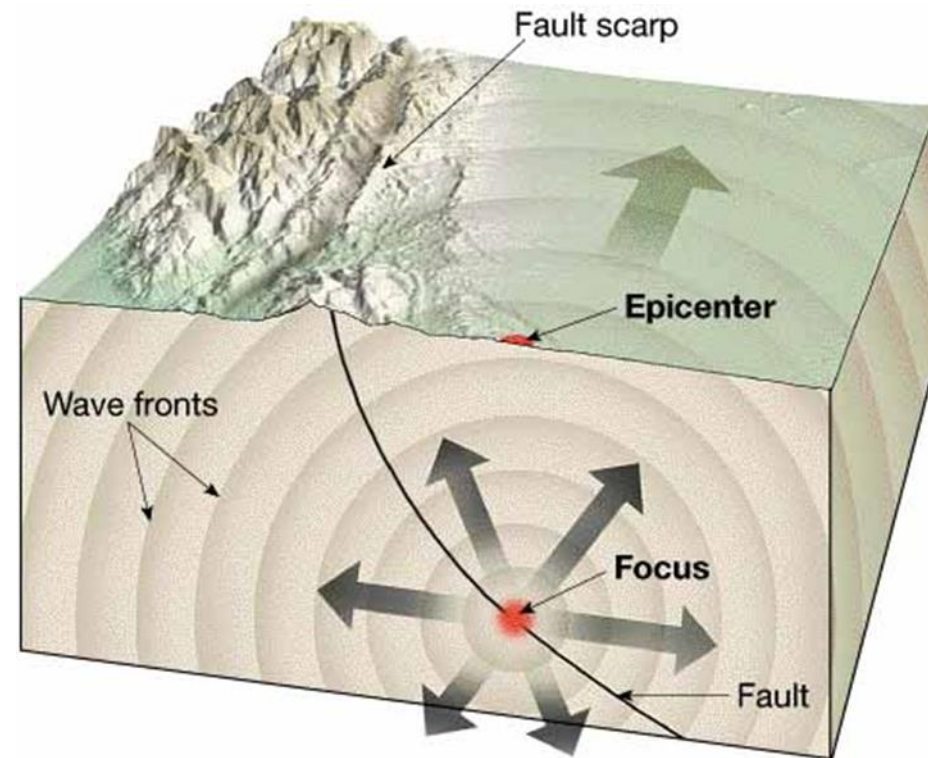
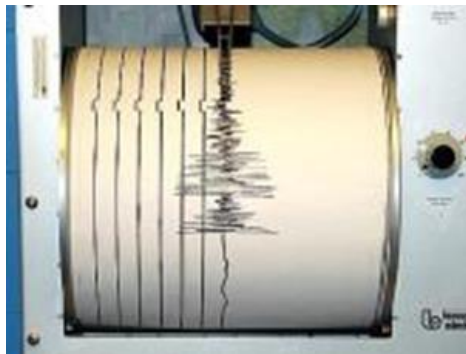


Earthquake

- Earthquake: Shaking caused by plates grinding against each other or colliding
- Epicenter: focus of earthquake
- Seismograph: device to detect earthquake
- Richter Scale: measures strength of earthquake

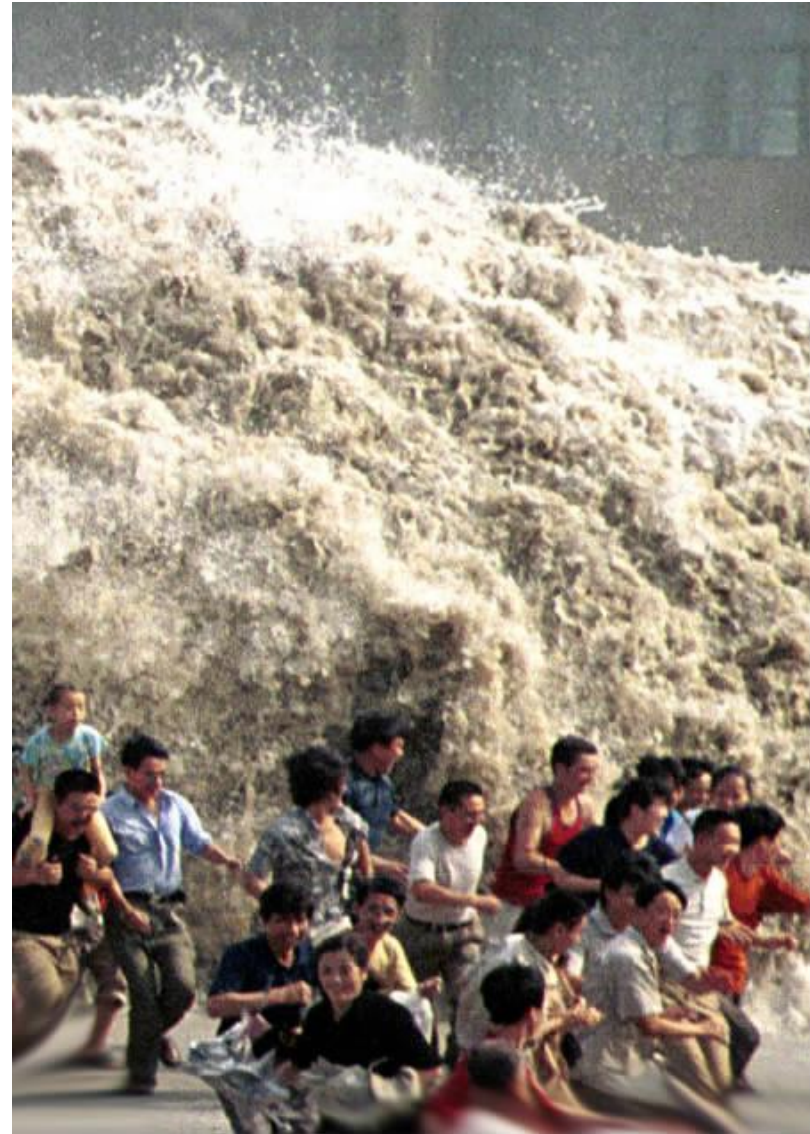
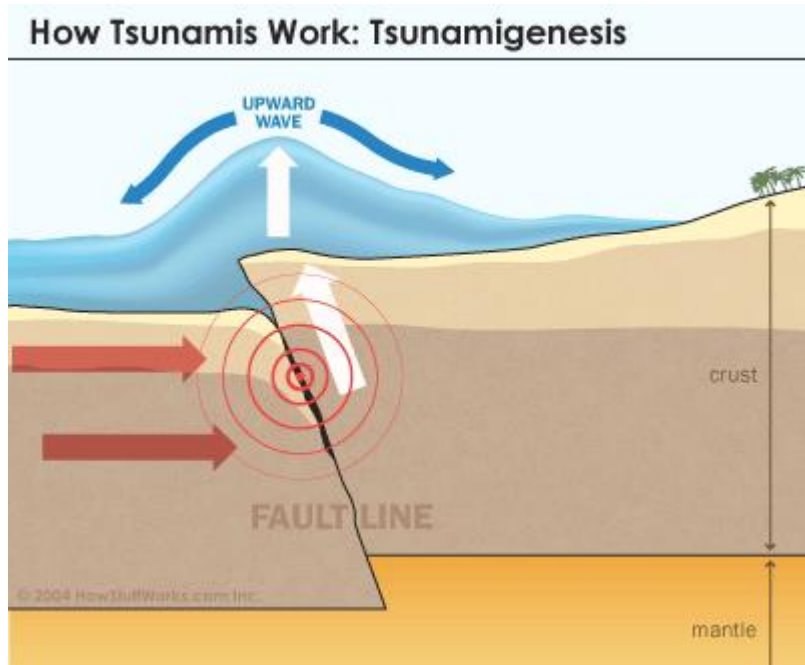
Description	Magnitude (Richter Scale)	Number Per Year	Approximate energy released (ergs)
Great Earthquake	over 8.0	1 to 2	$> 5.8 \times 10^{23}$
Major Earthquake	7.0 - 7.9	18	$2 - 42 \times 10^{22}$
Destructive Earthquake	6.0 - 6.9	120	$8 - 150 \times 10^{20}$
Damaging Earthquake	5.0 - 5.9	800	$3 - 55 \times 10^{19}$
Minor Earthquake	4.0 - 4.9	6,200	$1 - 20 \times 10^{18}$
Smallest Usually Felt	3.0 - 3.9	49,000	$4 - 72 \times 10^{16}$
Detected But Not Felt	2.0 - 2.9	300,000	$1 - 26 \times 10^{15}$

Table 4. Worldwide Earthquakes. (Data from Table 10.1, Carla W. Montgomery, "Fundamentals of Geology," Wm. C. Brown, 1993 -- original data taken from Gutenberg and Richter, "Seismicity of the Earth and Associated Phenomena," Princeton University Press, 1954.)



Tsunami

- Large wave caused by an earthquake



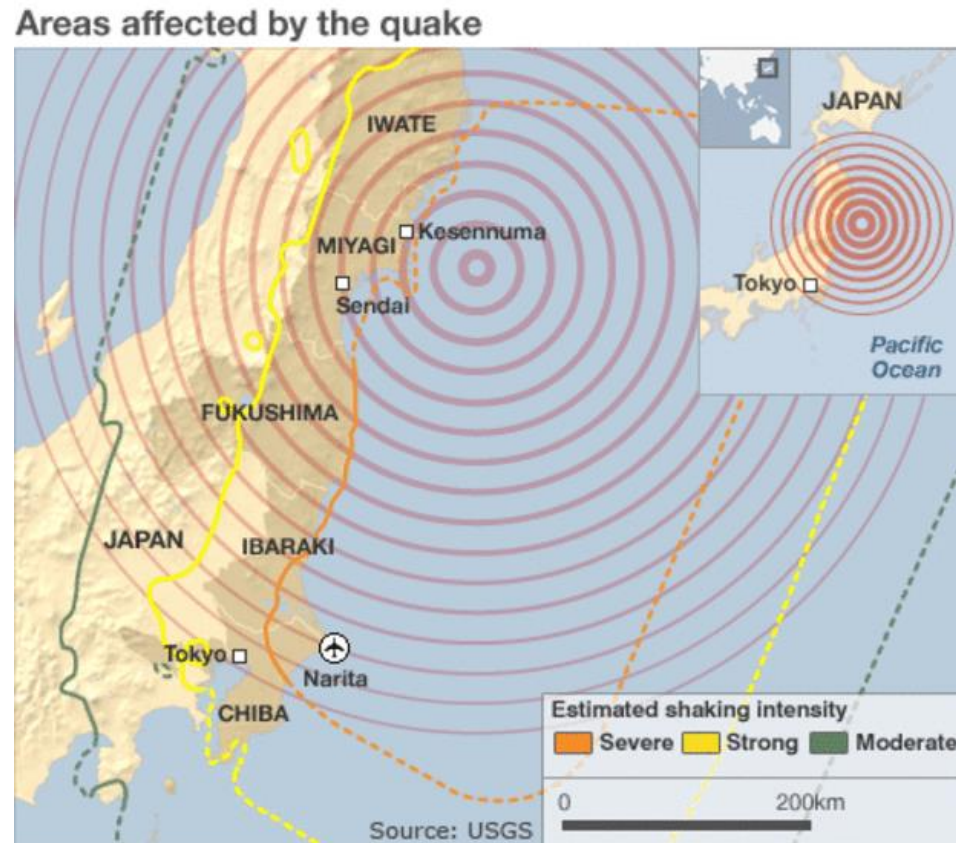
Japanese Tohoku Tsunami March 11, 2011

- 9.0 Earthquake off coast of Japan



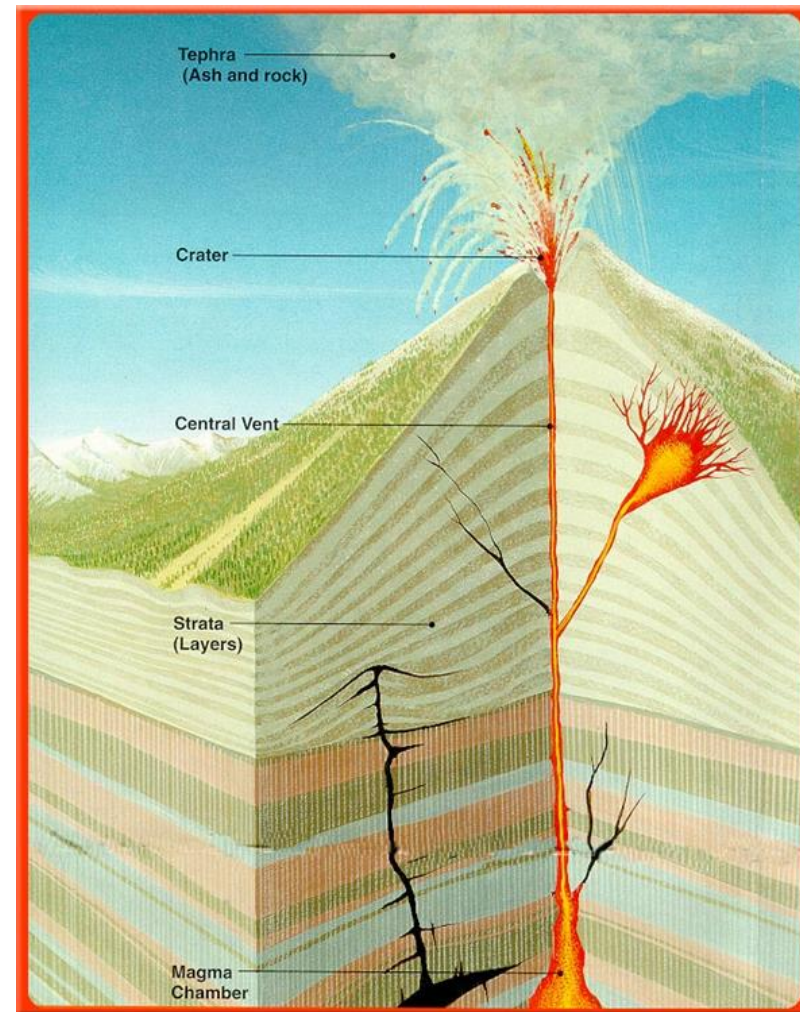
Japanese Tohoku Tsunami

March 11, 2011

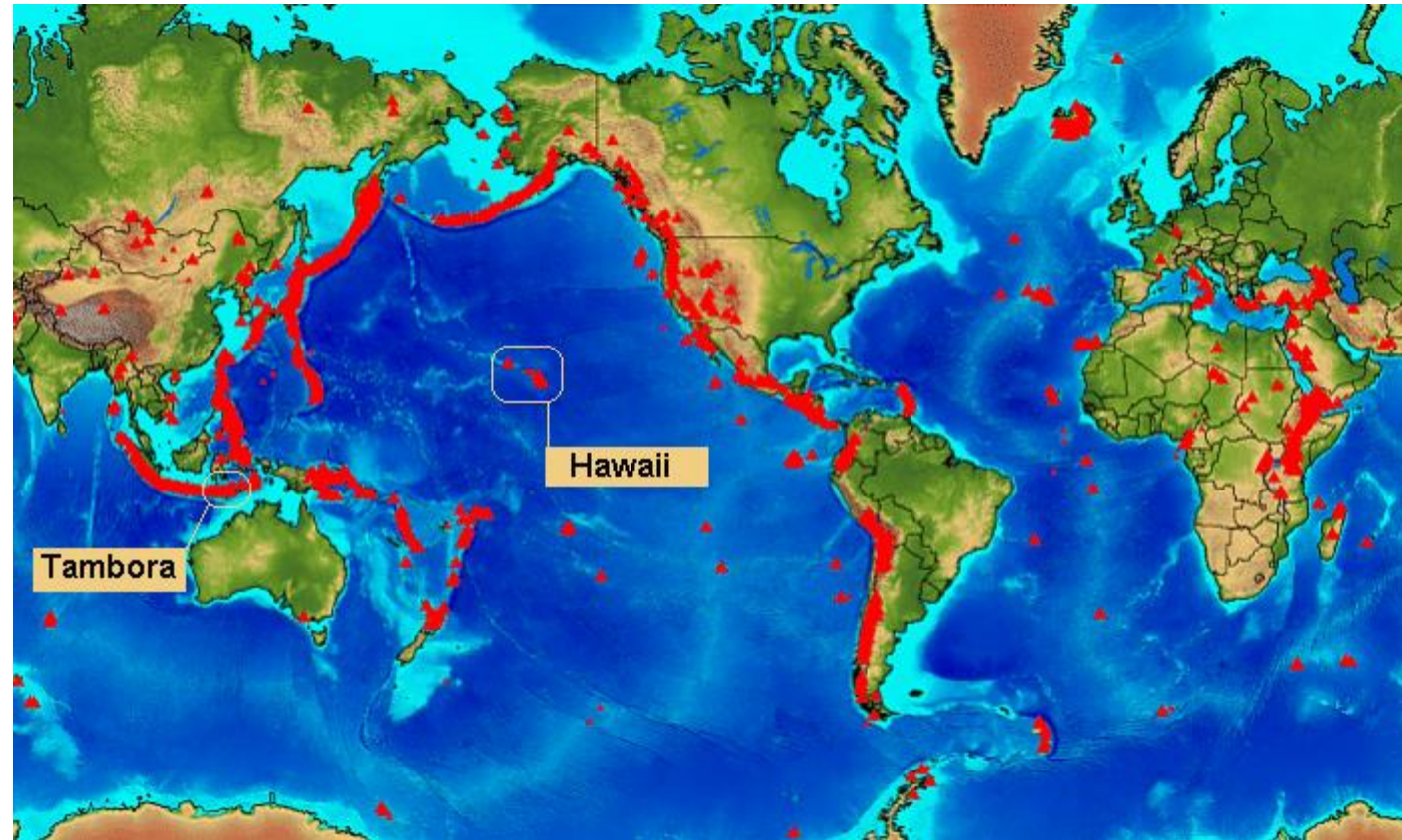


Volcanoes

- Magma seeps up through cracks in the surface
- Found along plate boundaries



Active Volcanoes in the World



Volcanic Eruption

- Hawaii: <https://www.youtube.com/watch?v=21bZxovBl9s>
- Iceland Eruption: <https://www.youtube.com/watch?v=k2wdy6hogQM>