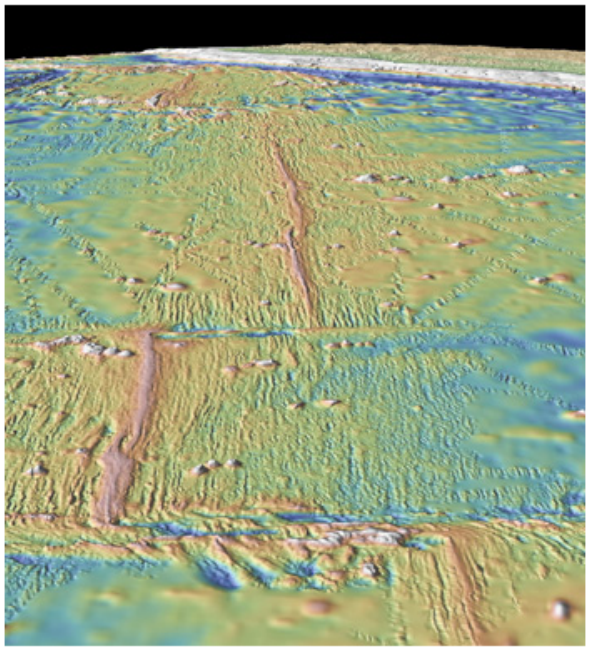
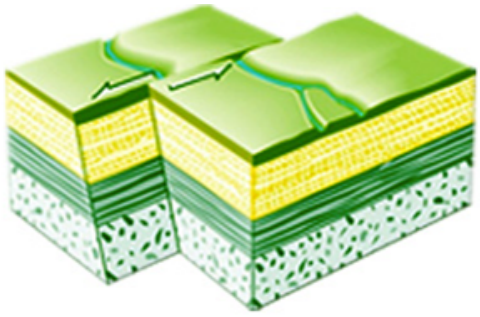
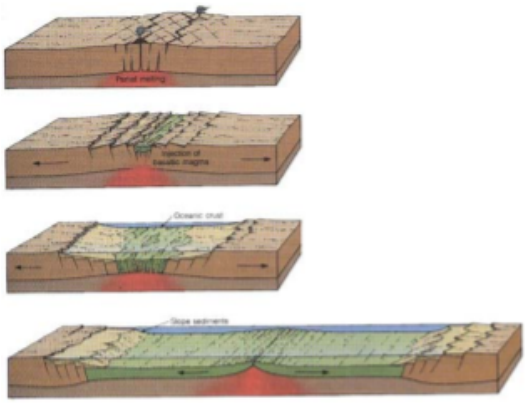
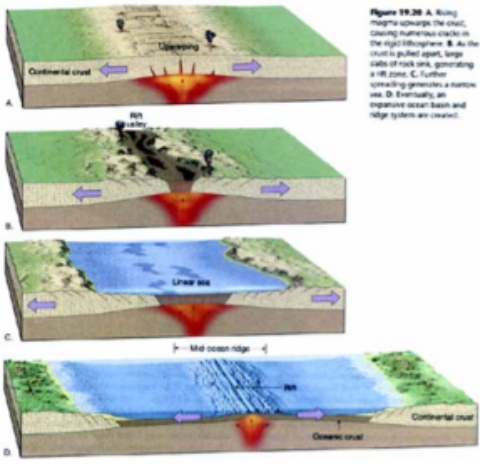
Transform boundaries

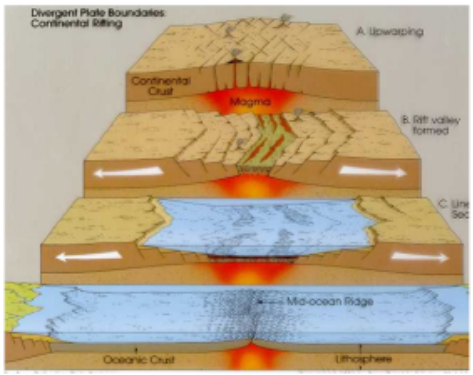


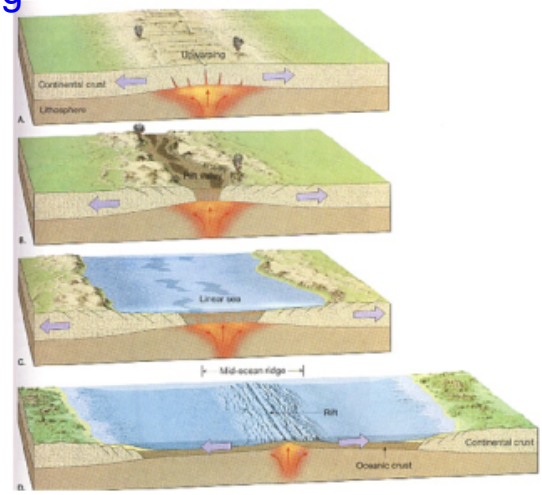




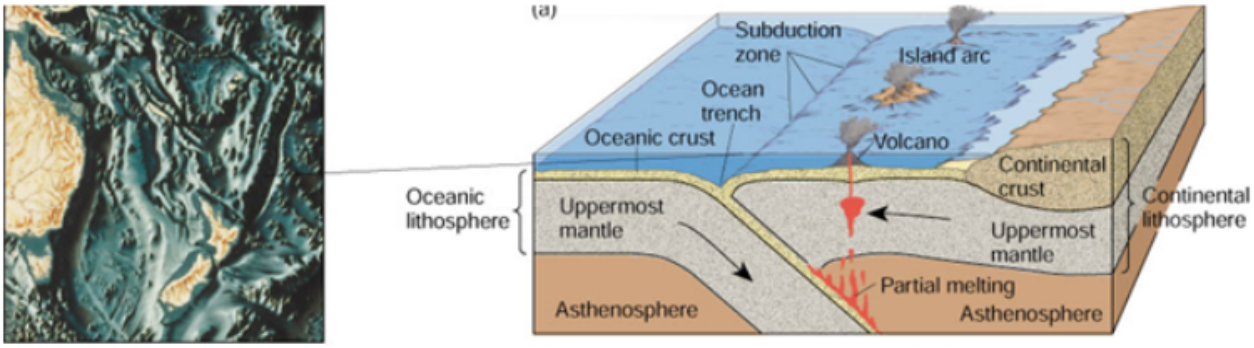


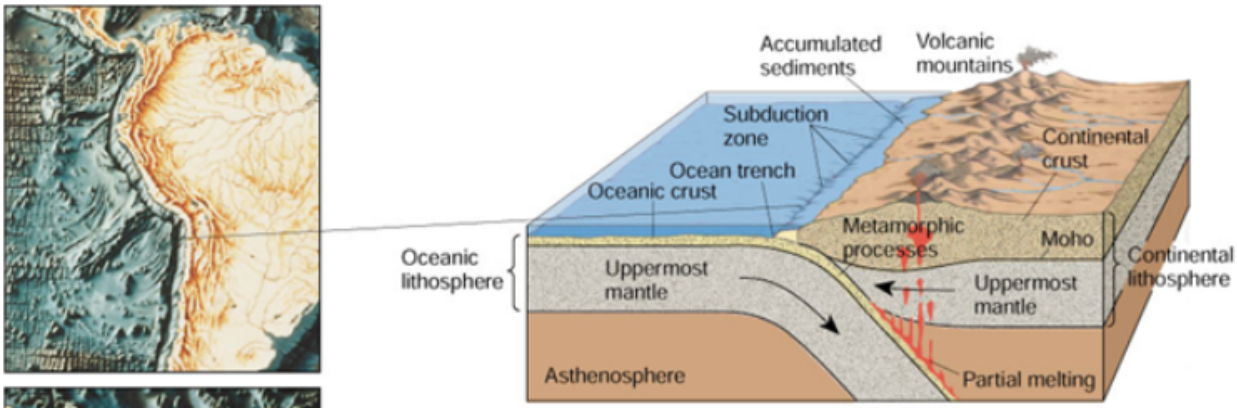
Rift valleys and sea floor spreading



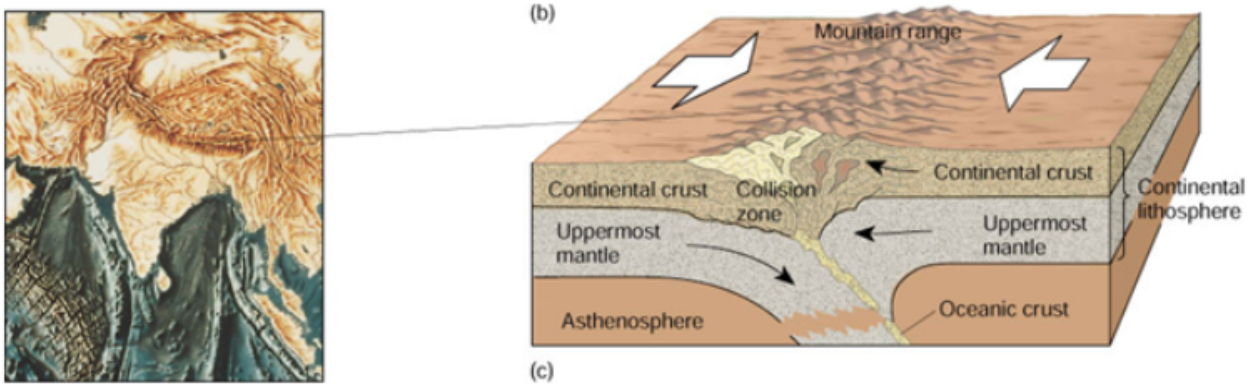


Subduction boundaries - island arc and continental





Convergent - collision

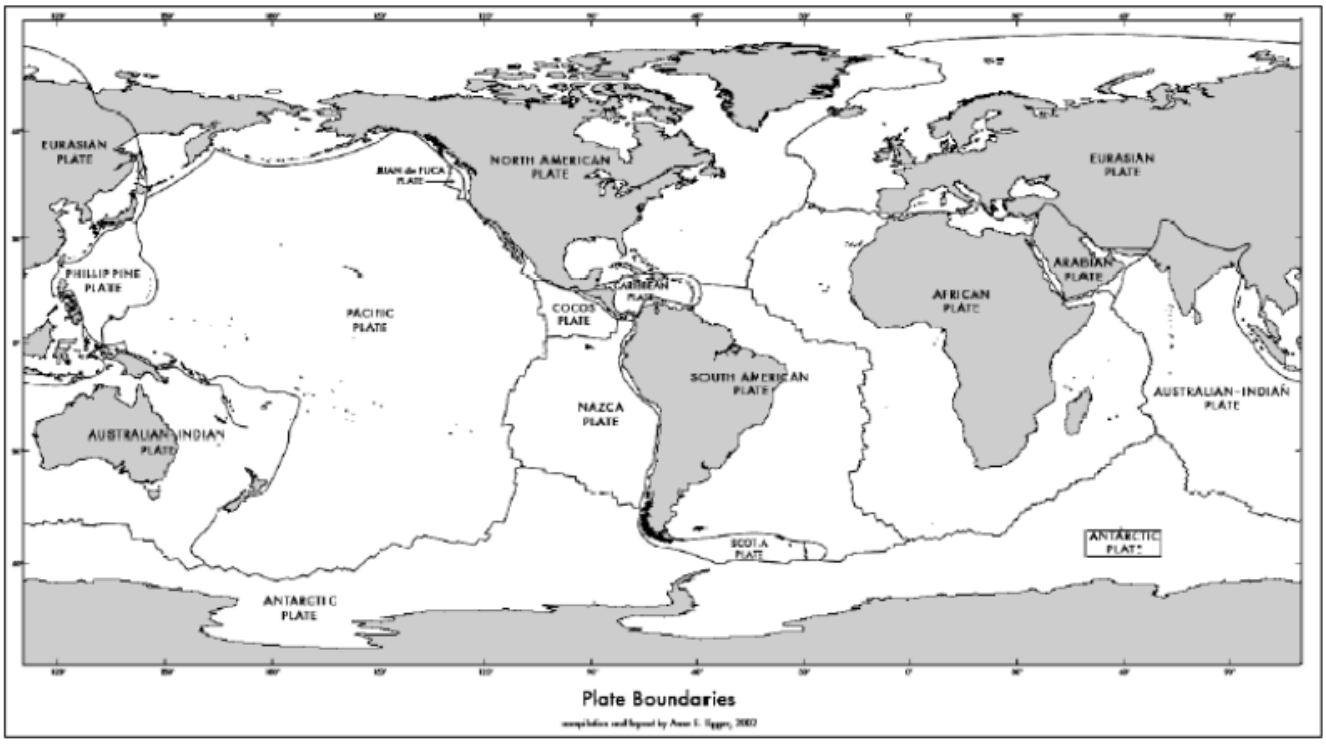


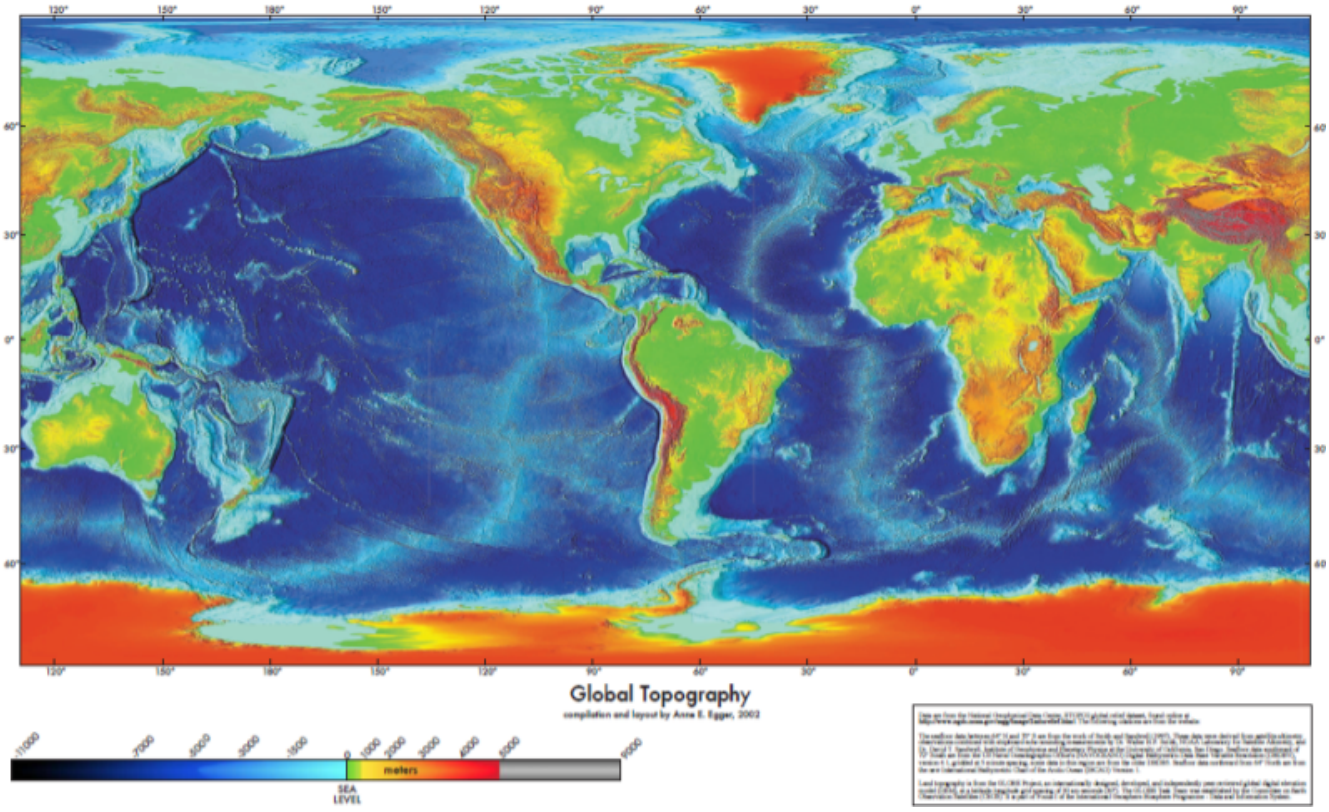
Type of Boundary	Movement of plates	Type of plate edges	Notable features of the boundary
Transform (purple)			
Rift Valley (green)			
Seafloor Spreading (blue)			
Island Arc Subduction (red)			
Continental Subduction (orange)			
Collision (brown)			

2. On the back side of this paper is a map of Earth's lithospheric plates. Your job is to determine which kind of boundary is happening along each section of each plate's edge.

   To do this look at information from the five maps: seismicity (earthquakes), age of sea floor, volcanoes, topography, and plate boundaries and movement. On the maps find the features that help distinguish one type of boundary from another. For example, the mid-ocean ridge tells us that sea floor spreading is occurring along these boundaries.

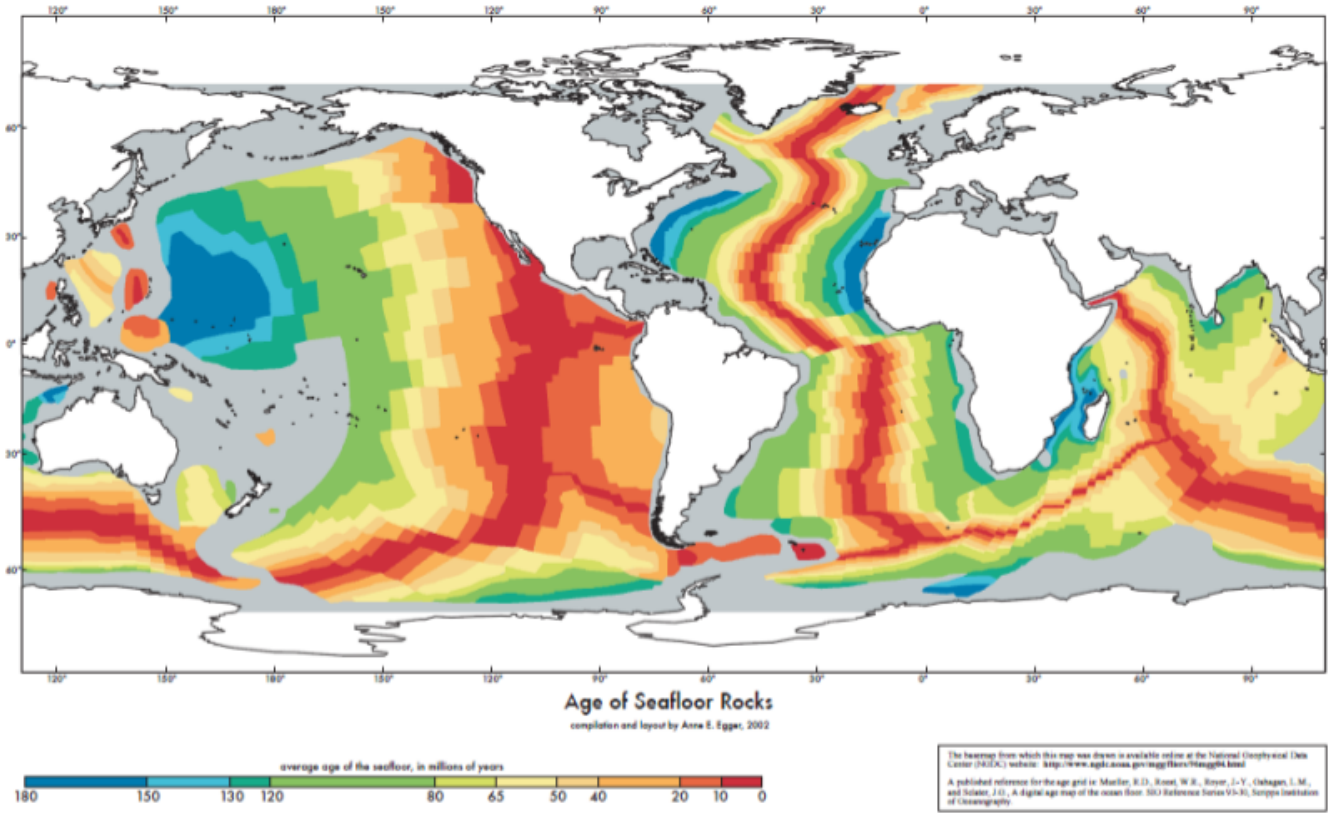
3. Use the colors for each type of boundary (below the boundary name in the chart above) to mark each section a plate's edge based on the evidence found in the five maps. As a suggestion, do the easy ones like sea floor spreading first!
   When you are done, every plate boundary should have color on it.
   Check before handing this in to be sure you have done all of them. (12 points)

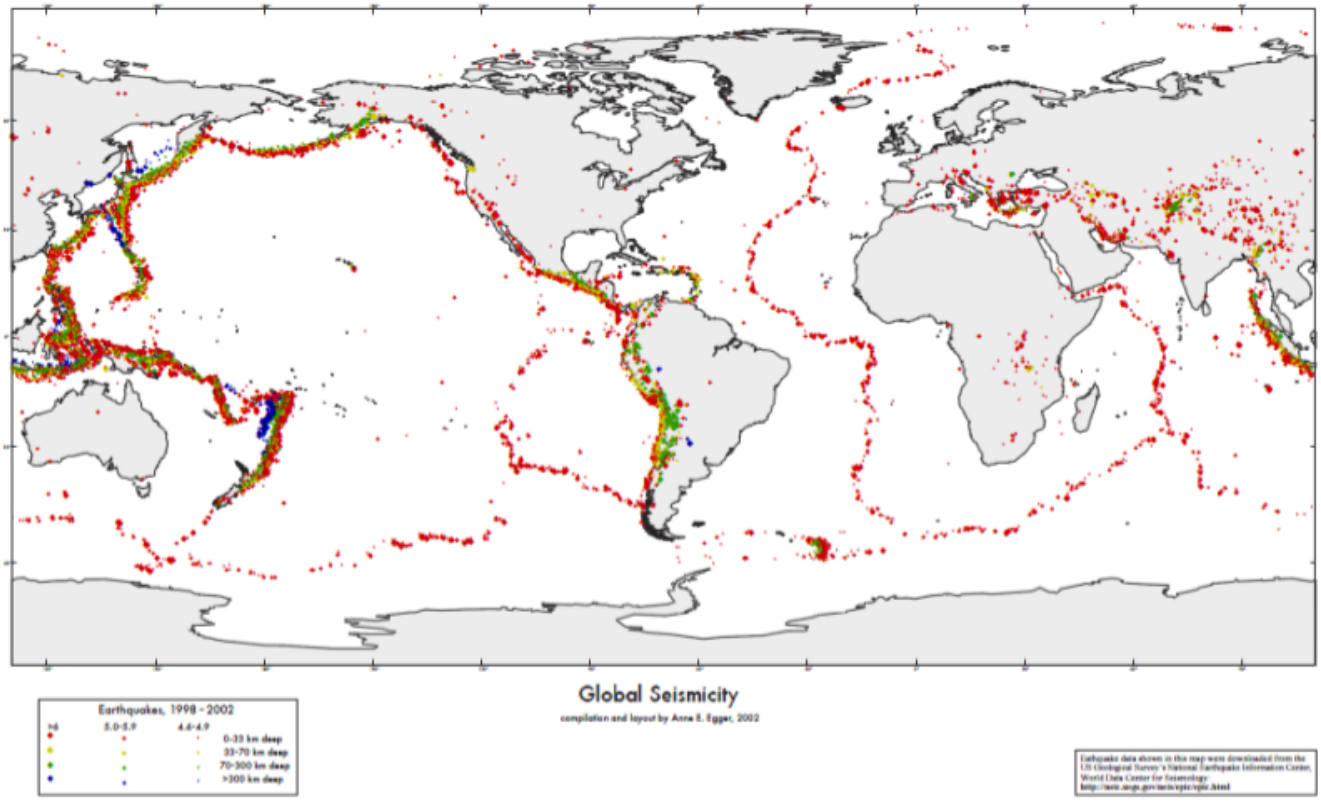

EURASIAN PLATE
JUAN de FUCA PLATE
NORTH AMERICAN PLATE
EURASIAN PLATE
PHILLIP PINE PLATE
PACIFIC PLATE
COCOS PLATE
CARIBBEAN PLATE
ARABIAN PLATE
AFRICAN PLATE
SOUTH AMERICAN PLATE
NAZCA PLATE
AUSTRALIAN-INDIAN PLATE
AUSTRALIAN-INDIAN PLATE
SCOTIA PLATE
ANTARCTIC PLATE
ANTARCTIC PLATE
Plate Boundaries

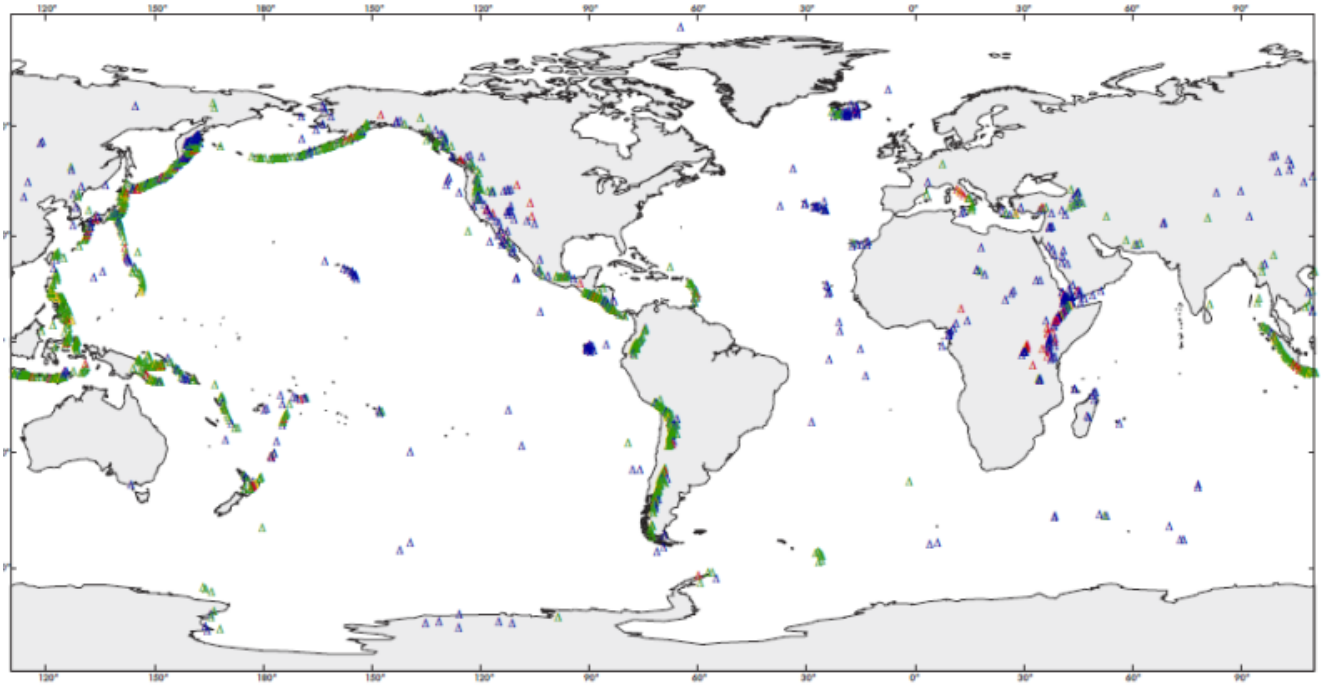


Global Topography

compilation and layout by Anne E. Egger, 2002


120° 150° 180° 150° 120° 90° 60° 30° 0° 30° 60° 90°
60°
30°
0°
30°
60°
Age of Seafloor Rocks
compilation and layout by Anne E. Egger, 2002
average age of the seafloor, in millions of years
180 150 130 120 80 65 50 40 20 10 0


Earthquakes, 1998 - 2002
≥6
5.0-5.9
4.0-4.9
0-33 km deep
33-70 km deep
70-300 km deep
>300 km deep
Global Seismicity
compilation and layout by Anne E. Egger, 2002
Earthquake data shown in this map were downloaded from the US Geological Survey's National Earthquake Information Center, World Data Center for Seismology:



Volcanic eruptions during the last 10,000 years:
- Volcanic rocks are mafic in composition *(basalt, scoria, cinder cones, etc.)*
- Volcanic rocks are intermediate composition *(andesite, pyroclastic flows, etc.)*
- Volcanic rocks are felsic in composition *(rhyolite, tuff, caldera deposits, etc.)*
- Hydrothermal vents, fumaroles, and hot springs

Global Volcanism

compilation and layout by Anne E. Egger, 2002

Data are from the Global Volcanism Program sponsored by the Smithsonian Institution, Museum of Natural History. The complete database and explanatory information can be found online at: http://www.volcano.si.edu/gvp/

Rock composition was inferred from the morphology of the volcano and in some cases, familiarity with the volcanic area, NOT geochemical data. Undoubtedly, many of these inferences were incorrect.

4. On your map which type of boundary is the most common? (1 point)

5. Which type of boundary is the next most common? (1 point)

6. Why are these two boundary types the most common ones? Think about what is happening at both of these boundaries with the lithospheric plates and how they might be related. (2 points)