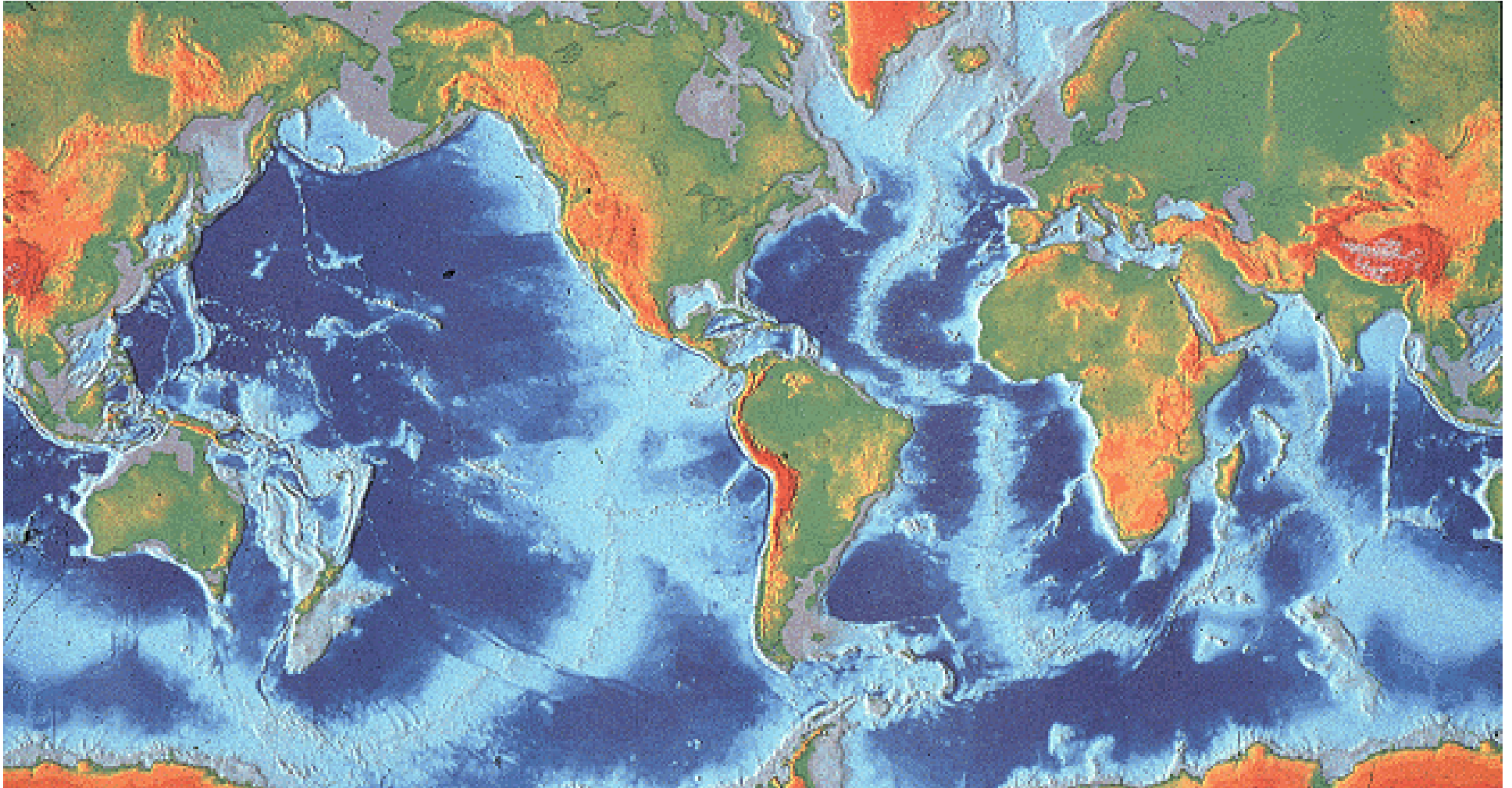
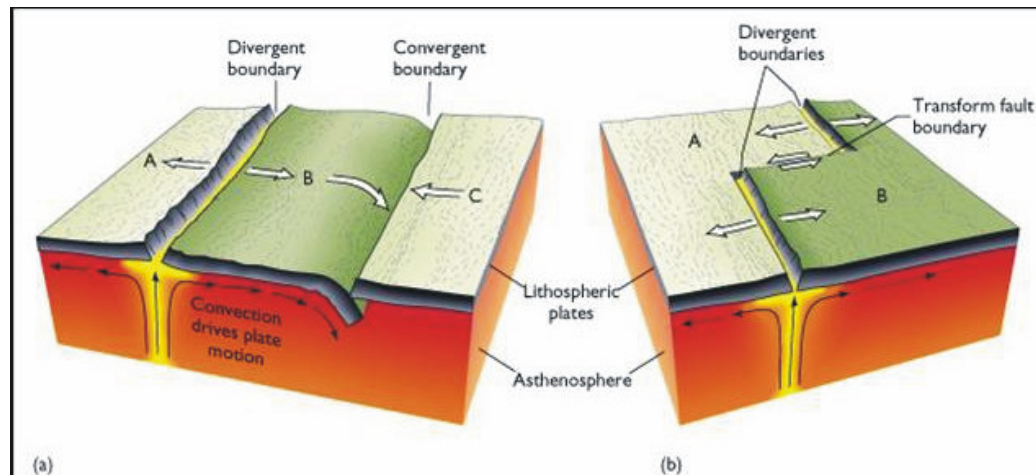


# Plate Tectonics

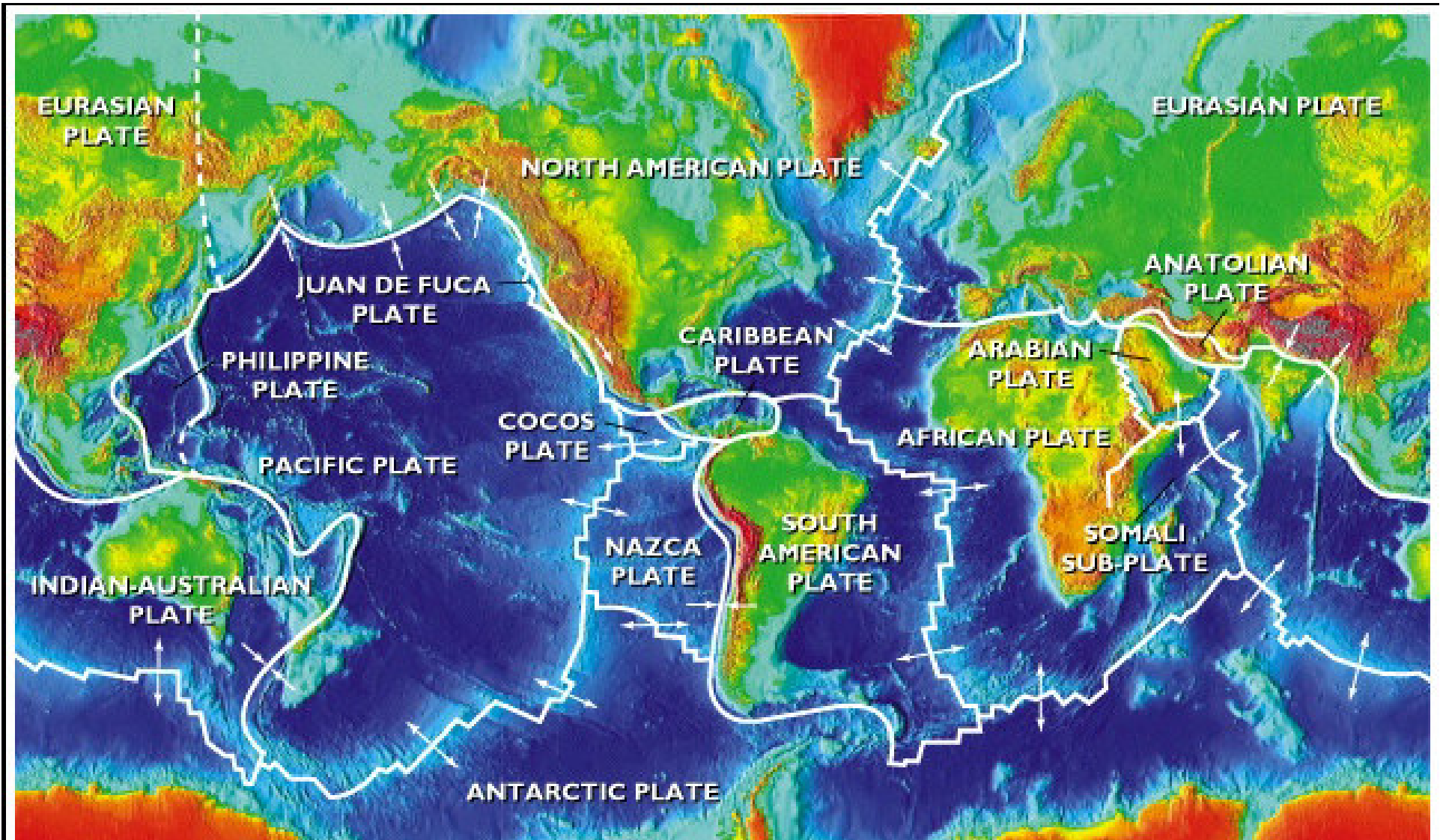


# Plate Tectonics

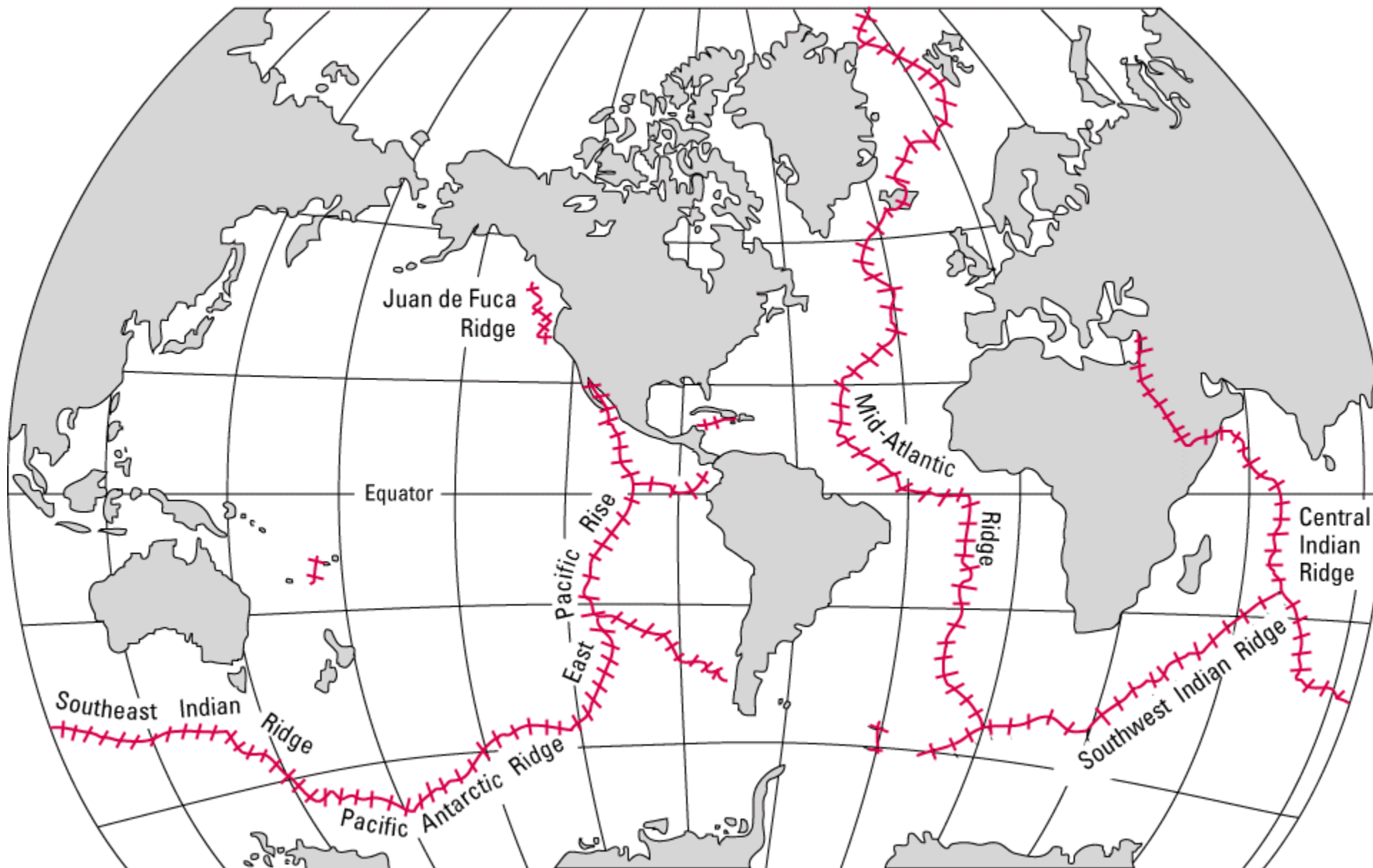
- **Lithosphere**
  - strong, rigid outer mechanical layer
    - ~100 km oceanic lithosphere; ~150 km continental lithosphere
  - overlies weaker asthenosphere that flows
- 8 large lithospheric plates and 6 smaller ones
  - separated by divergent, convergent, transform boundaries
  - travel 1 to 11 cm/yr relative to one another



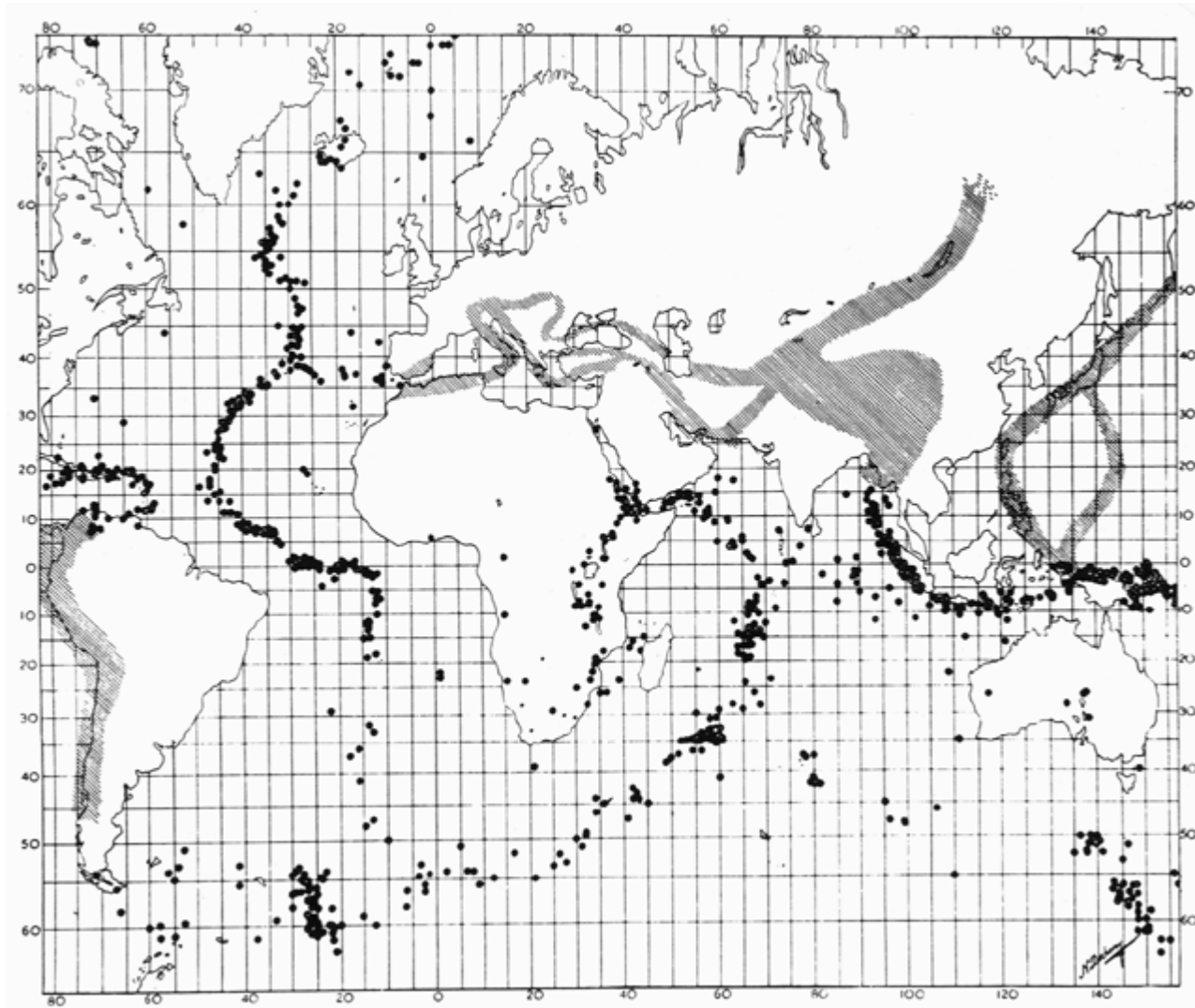
# 14 tectonic plates today



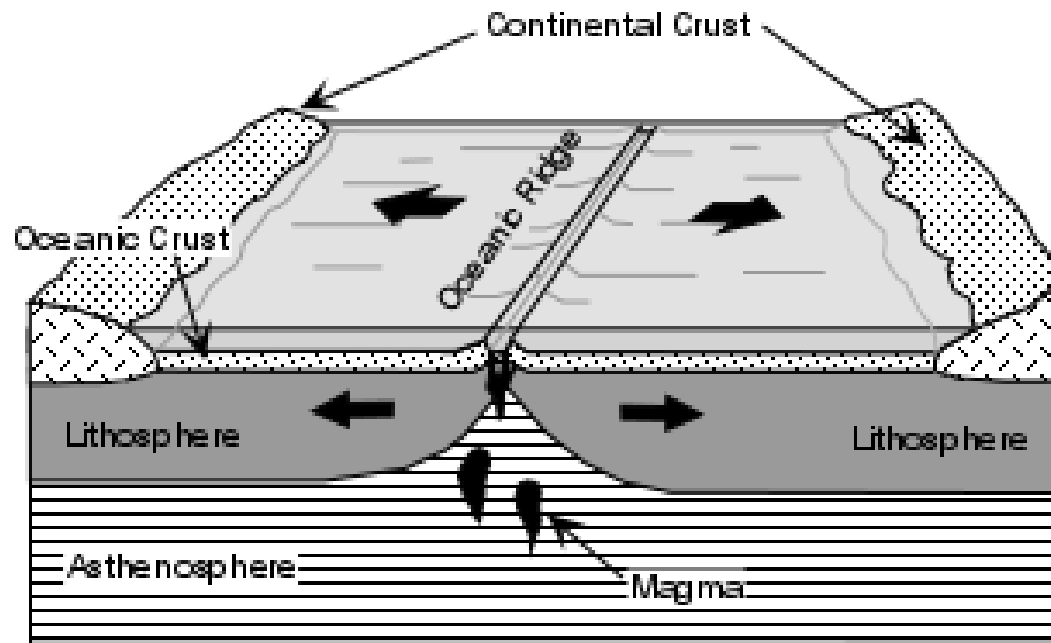
# Mid-ocean ridge systems



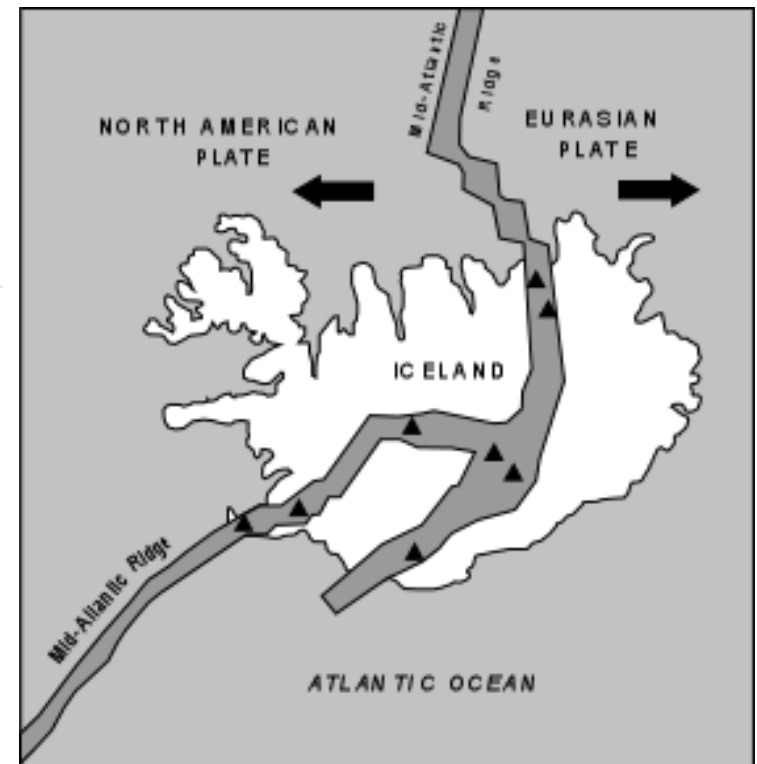
# Concentration of earthquakes



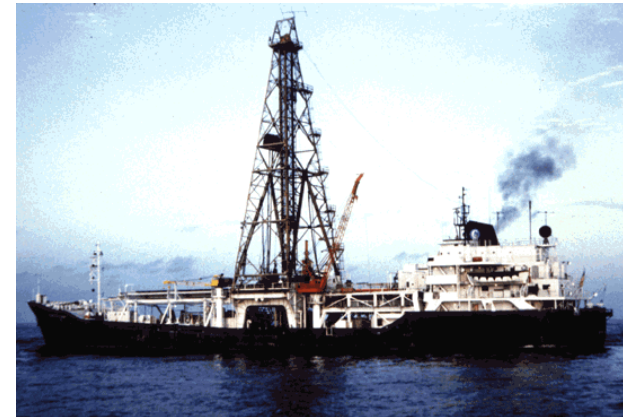
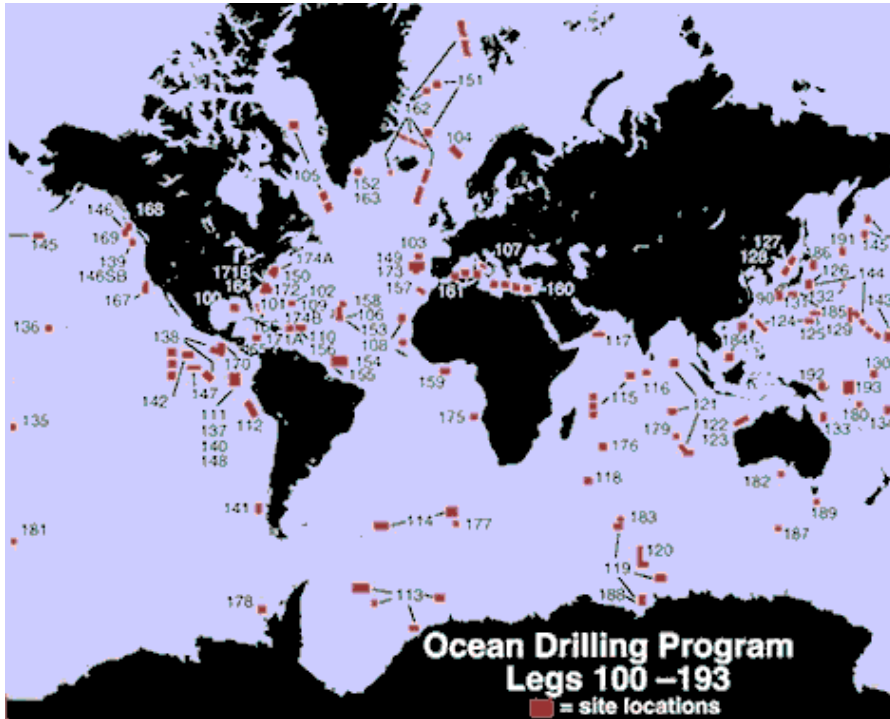
# Mid-ocean ridge systems



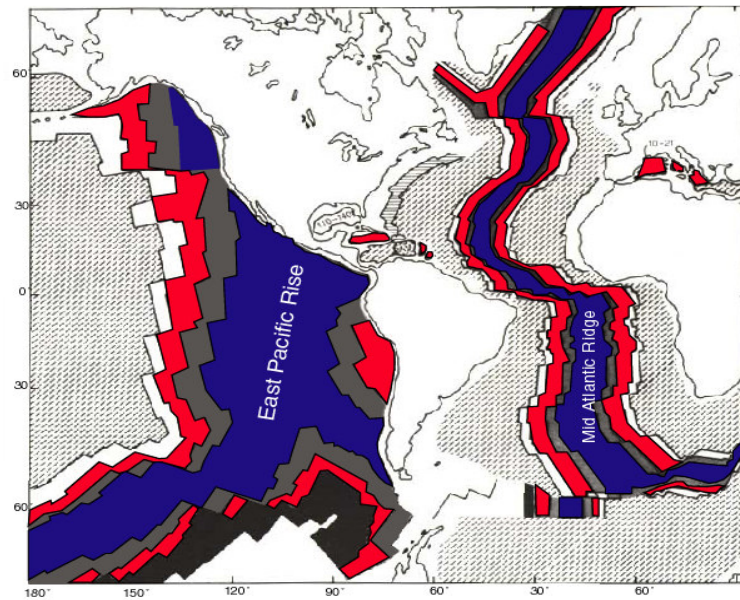
Diverging Plate Boundary  
Oceanic Ridge - Spreading Center



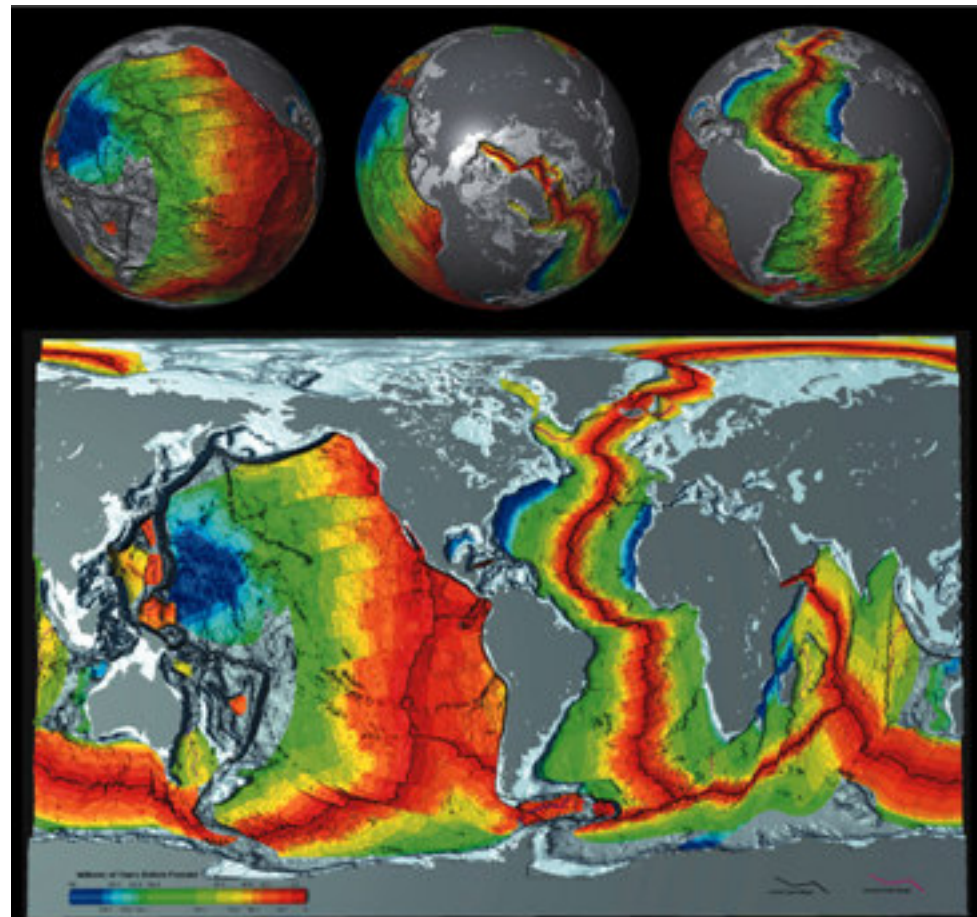
# Deep Sea Drilling Project



# Age of Ocean Basins

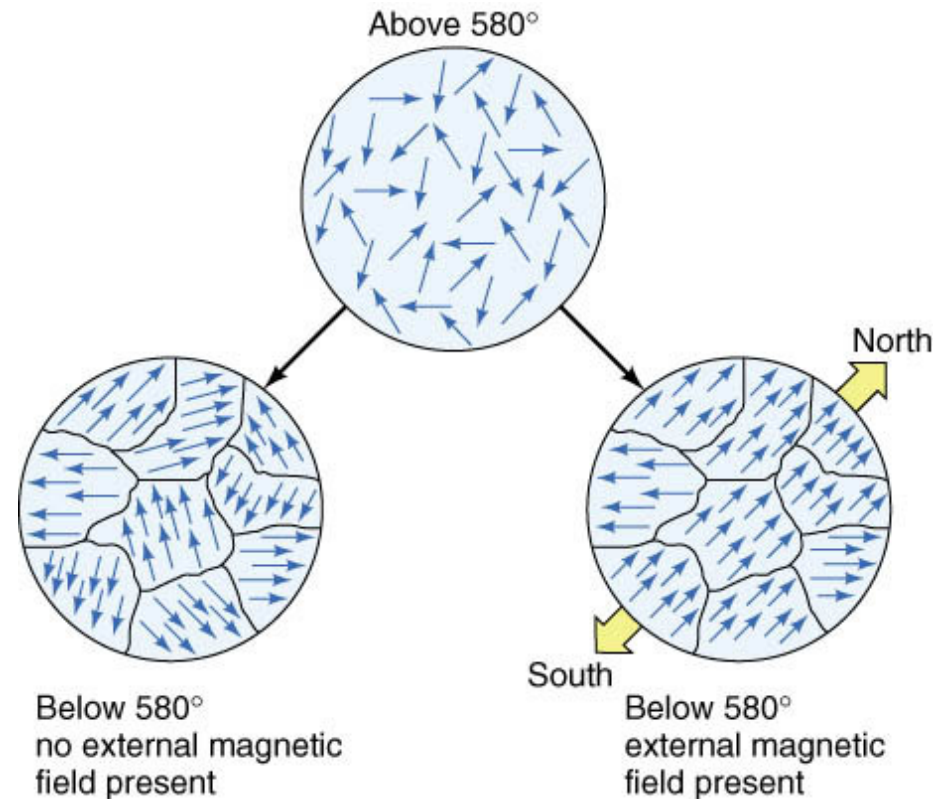
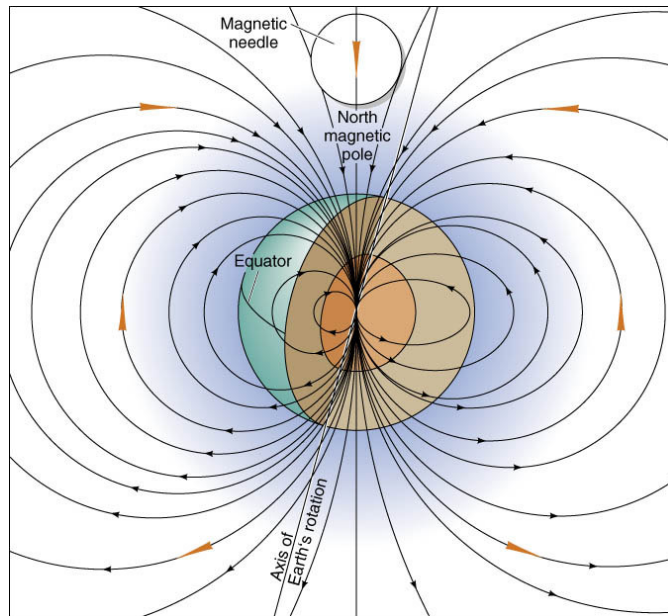


Ma	Age	Ma	Age
0-21	Pleistocene to Miocene	52-65	Paleocene
21-38	Oligocene	65-140	Cretaceous
38-52	Eocene	140-160	Early Jurassic





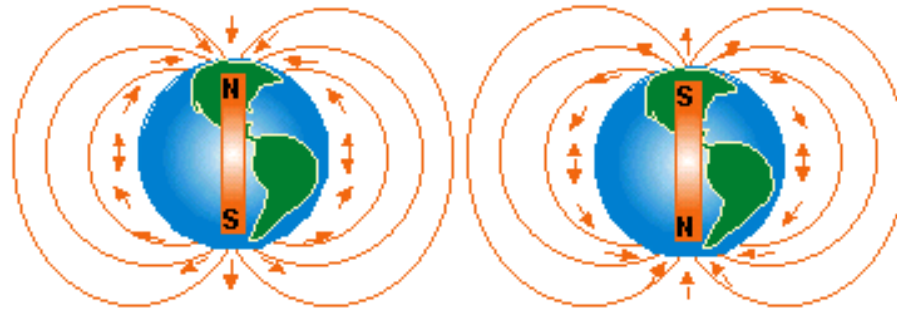
# The Earth's magnetic polarity



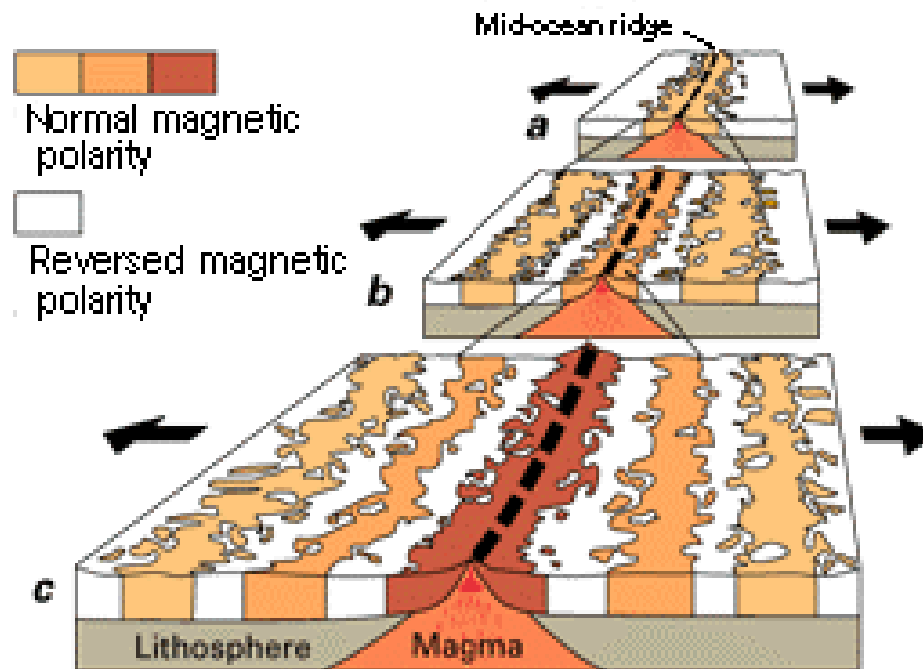
As lava cools, the temperature will drop below 580 °C, the Curie point for magnetite.

If  $T < 580^{\circ}\text{C}$ , all magnetite grains in the rock become tiny permanent magnets with the same polarity as Earth's field. All lava formed at the same time records the same magnetic polarity information.

# The Earth's magnetic polarity



The Earth's polarity has shifted in the past



# The Earth's magnetic polarity

