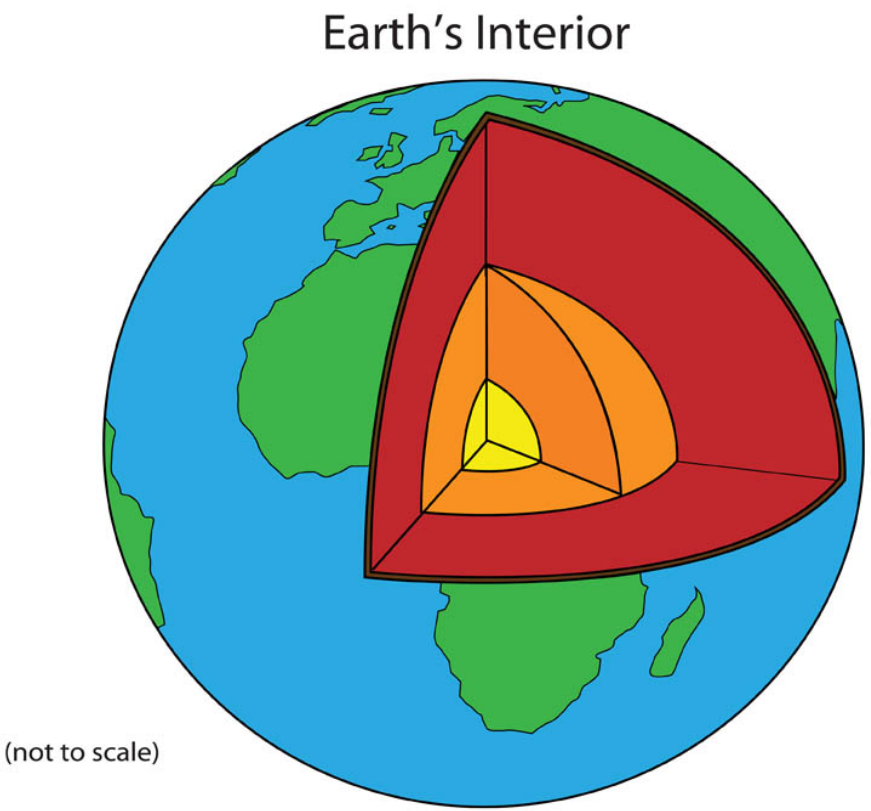
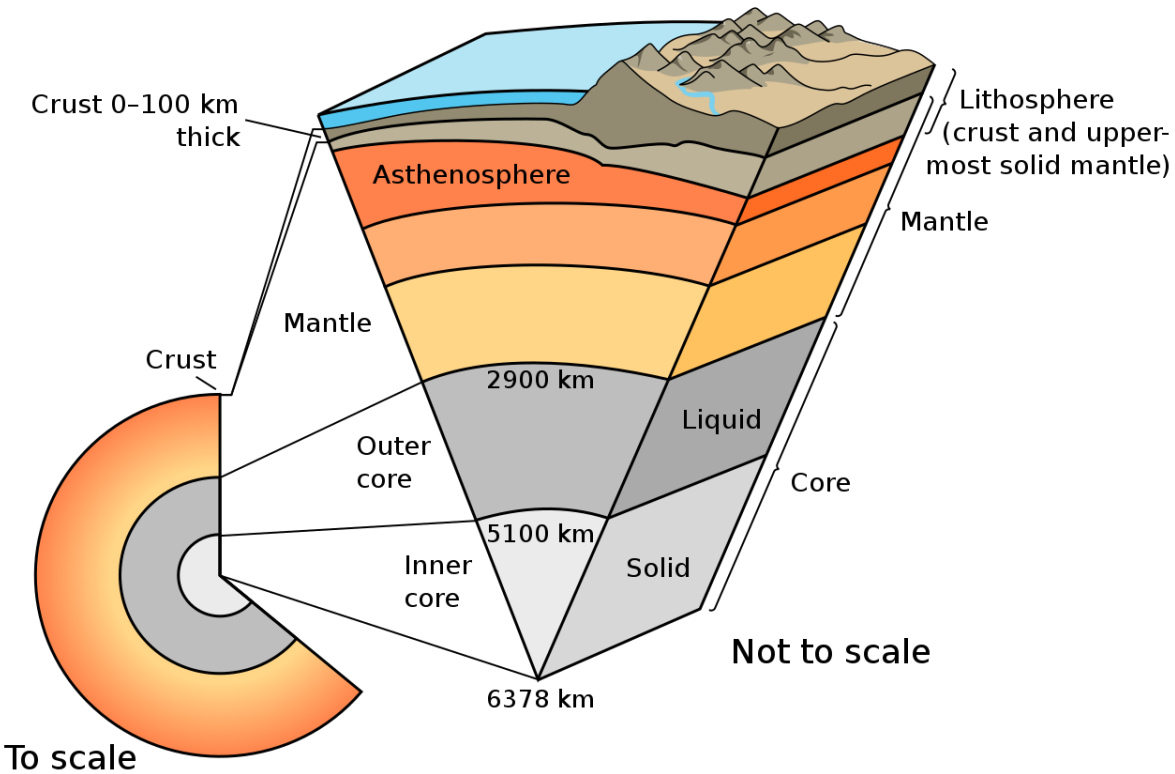
The techtonic stress field

The Earth





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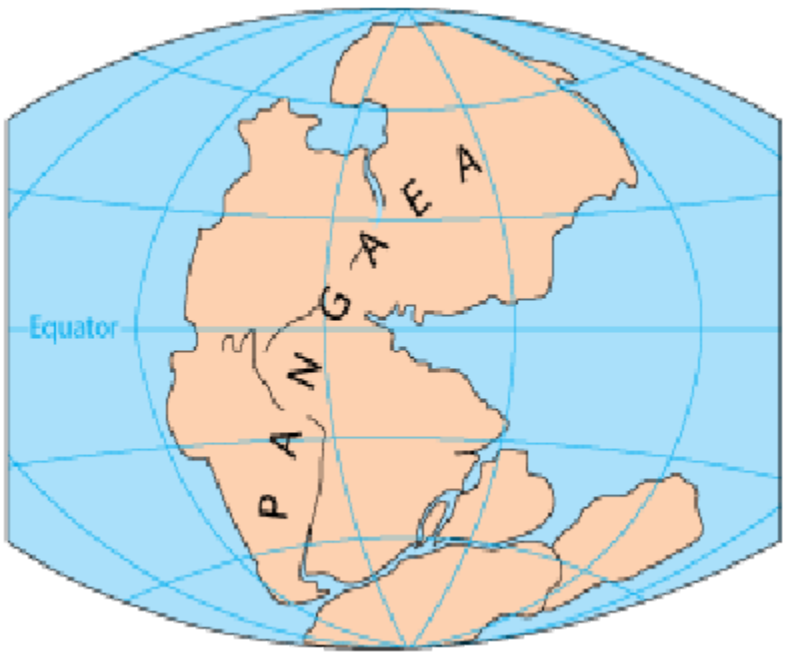
Continental Drift



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Permian -- 250 Million Years Ago

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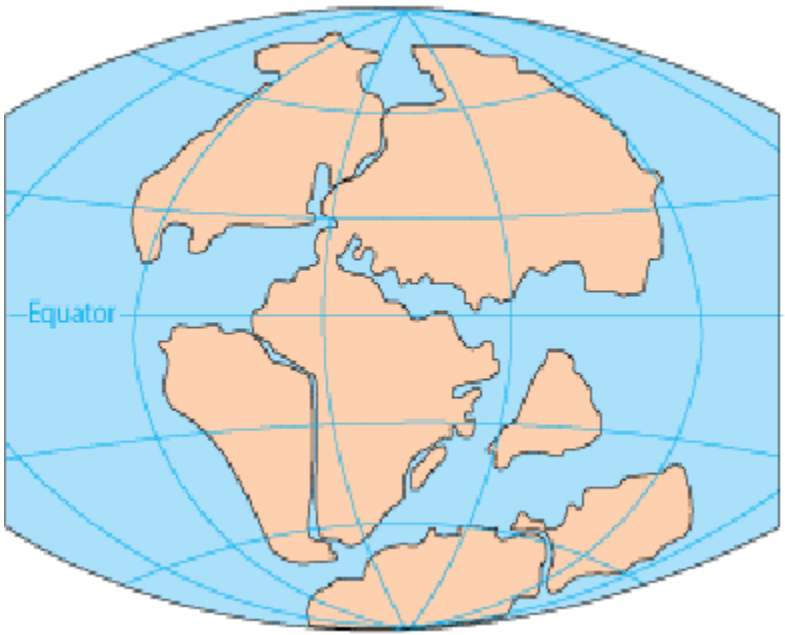
Triassic -- 200 Million Years Ago



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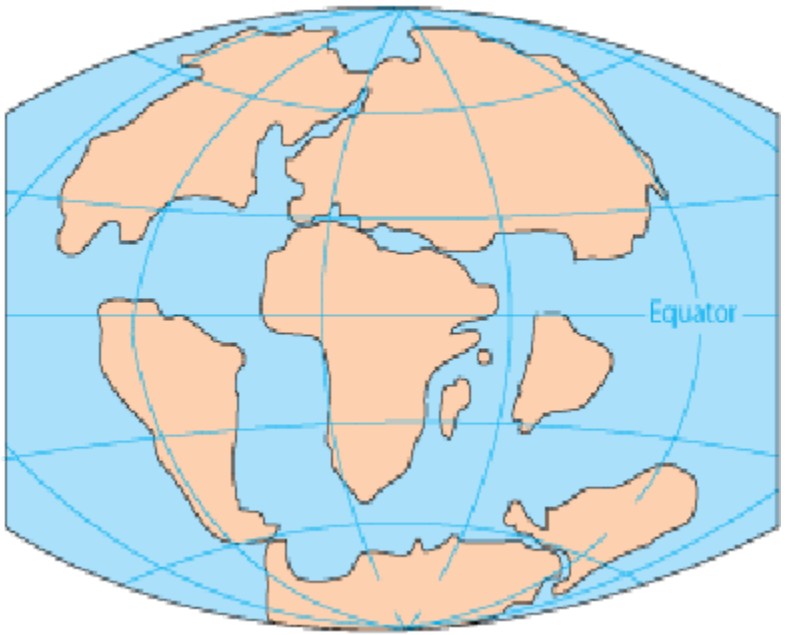
Jurassic -- 145 Million Years Ago



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Cretaceous -- 65 Million Years Ago

Present Day

Tectonic plates

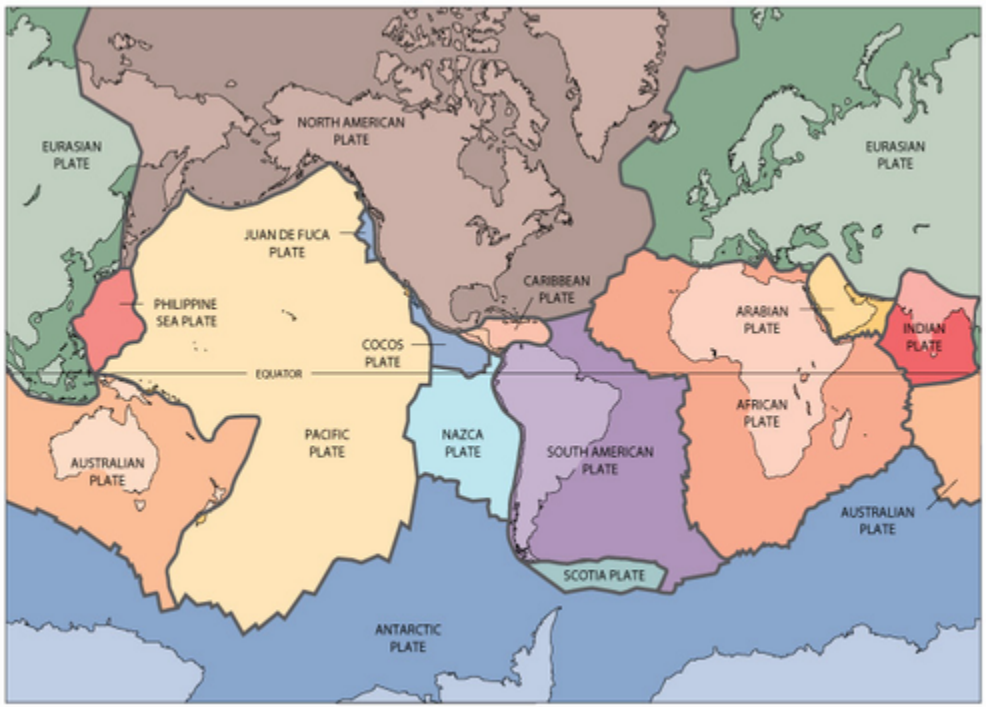

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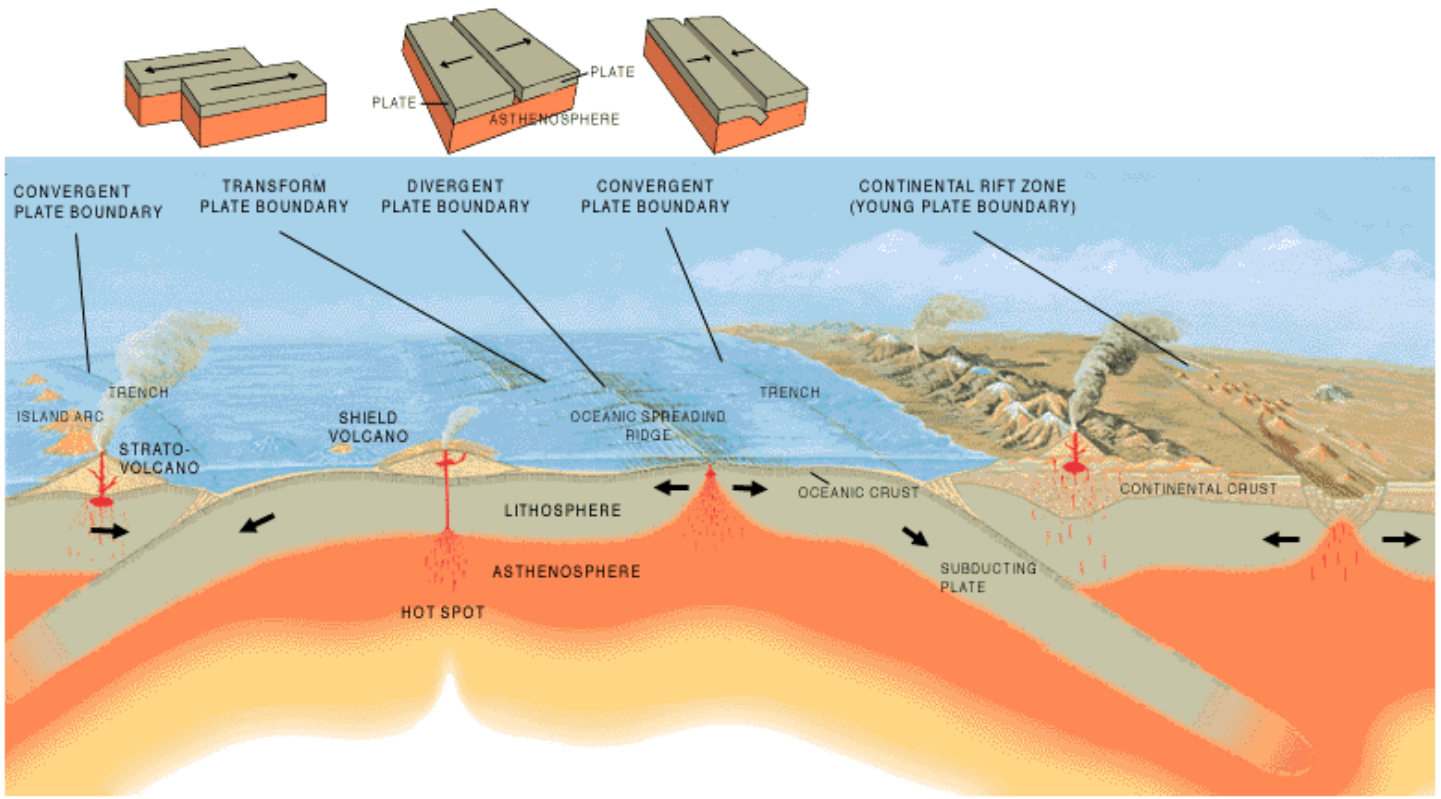
Plate Boundaries



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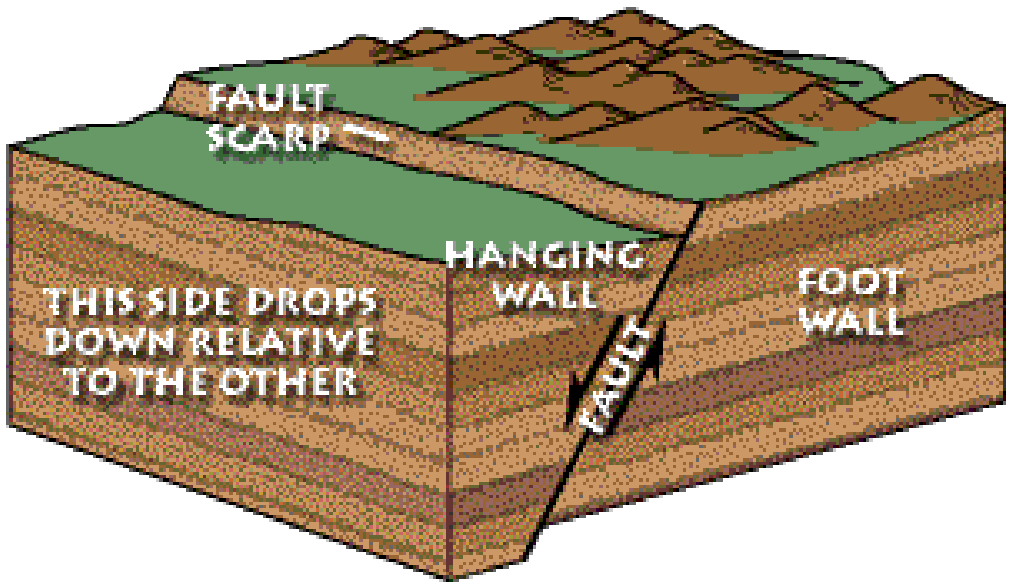
Fault types

Normal fault



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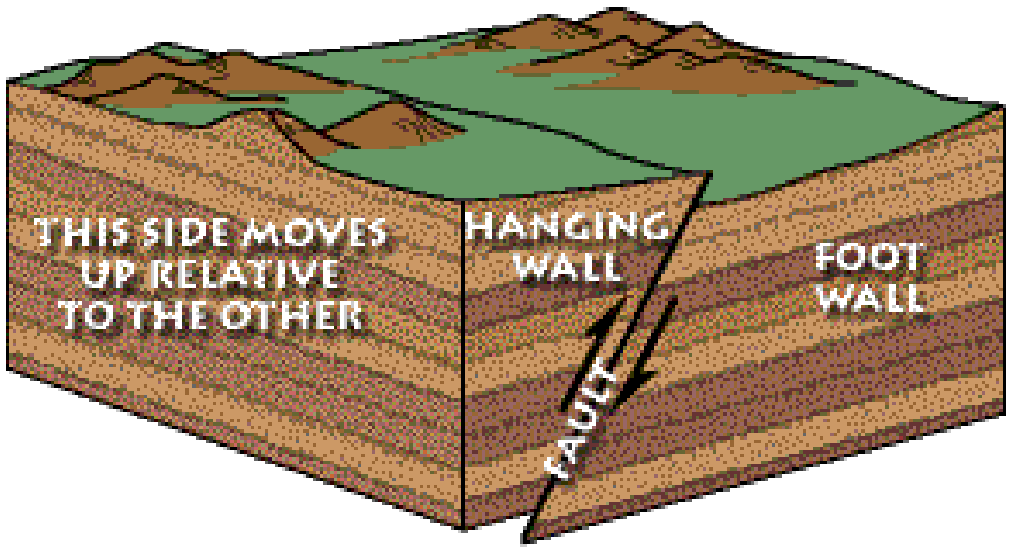
Reverse fault



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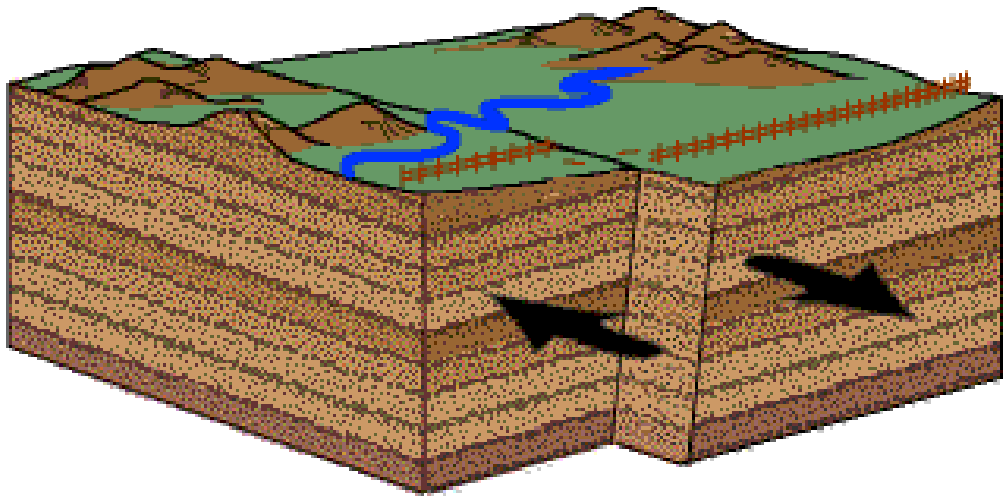
Strike-slip



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Reality

- Much more complicated!

Sources of techtonic stress

Plate driving stresses

- Tectonic plates are pushed by compressional forces from mid-ocean ridges
- Drag forces on the base of the plates
- Frictional resistance to subduction

Topography and buoyancy forces

- Density anomalies
- Plate thinning
  - extension
- Plate thickening
  - compression

Plate flexure

- Sediment loading on a techtonic plate
- Wavelength can be as long as 1000km