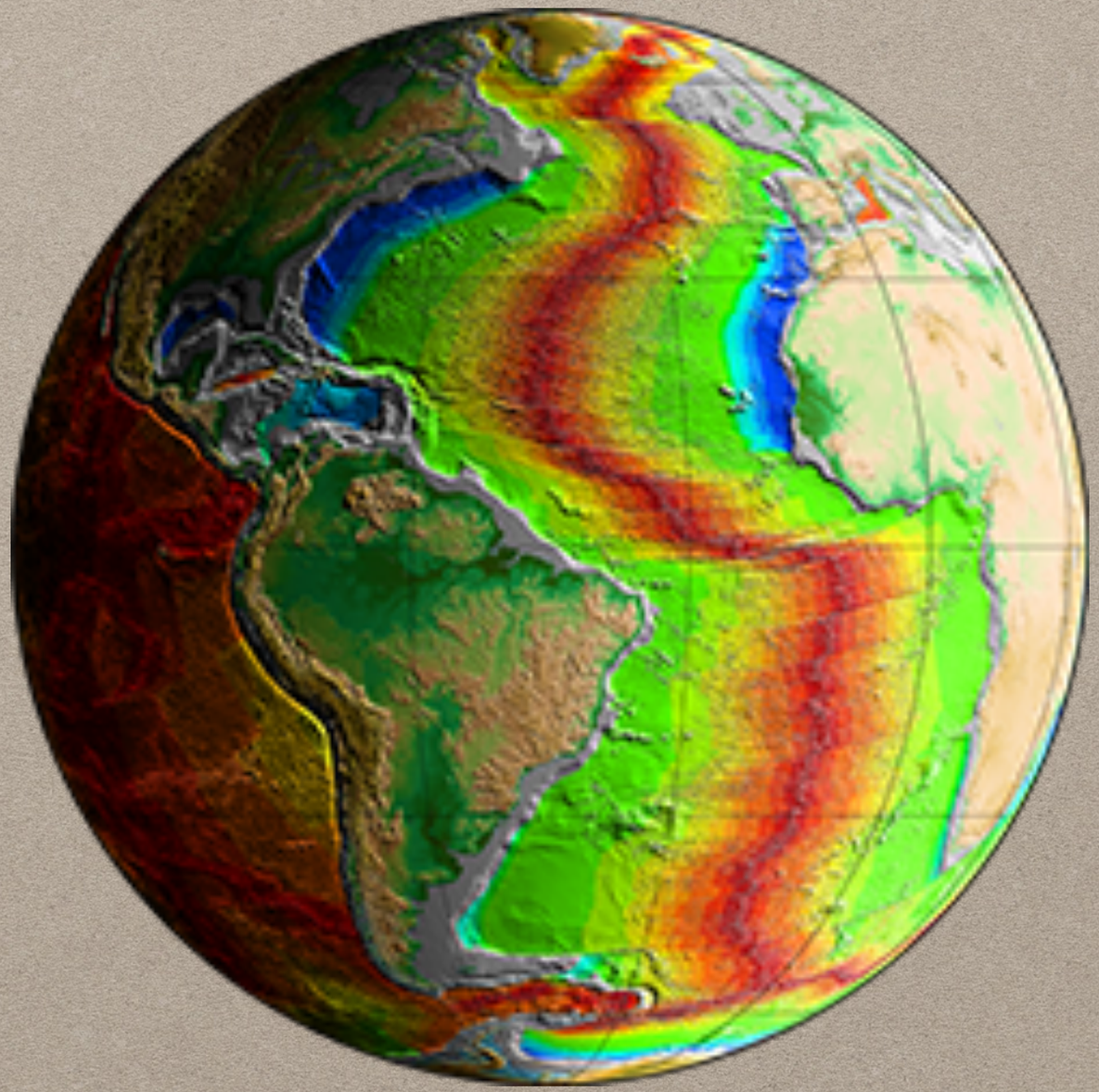
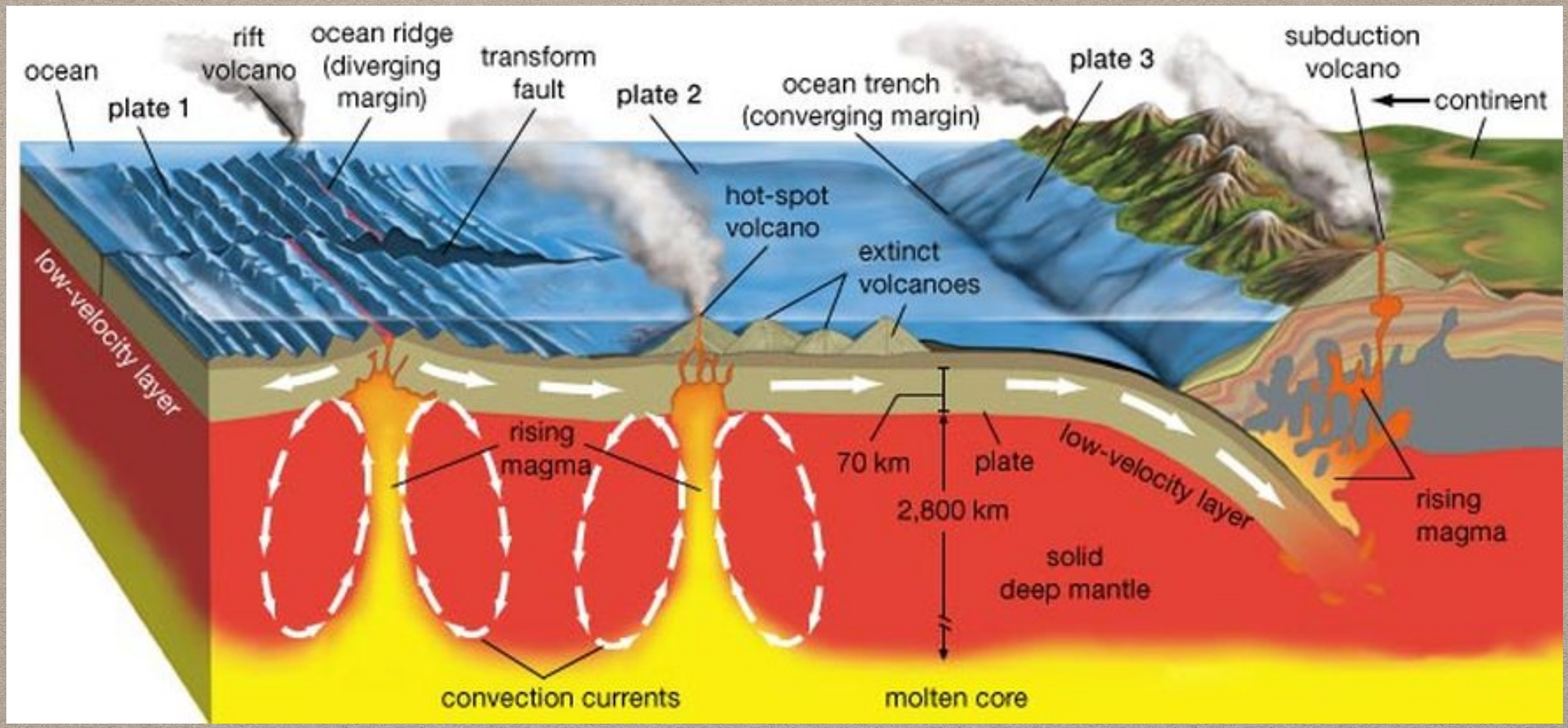
TYPES OF PLATE BOUNDARIES

CGC1D1-MR. A. WITTMANN-UNIT 2: NATURAL SYSTEMS



HOW CRUST IS CREATED & DESTROYED



- Land is built up by **FOLDING**, **FAULTING** and **VOLCANISM**

- Land is worn down by **EROSION** (i.e. water, wind, glaciers, vegetation, temperature) and **SUBDUCTION**

TECTONIC PLATES

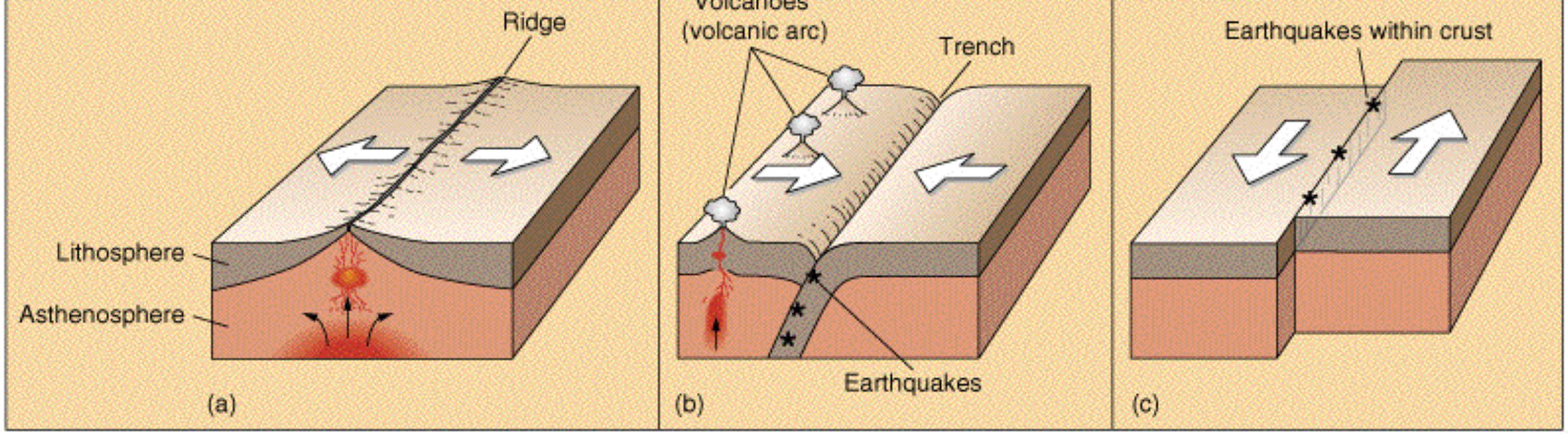
- Plate tectonics expanded the continental drift concept
- **LITHOSPHERE** is the rigid outermost shell of the Earth (the crust and upper mantle).
- Tectonic forces create, destroy , and move plates
- Plates come in various sizes
- **CONSTRUCTIVE** (spreading zones)
- **DESTRUCTIVE** (subduction zones)

TYPES OF PLATE BOUNDARIES

- Boundaries are where plates meet.
- Their motion relative to each other determines the type of boundary.

1. Divergent (spreading)
2. Convergent (subduction)
3. Transform (lateral sliding)

Type of Margin	Divergent	Convergent	Transform
Motion	Spreading	Subduction	Lateral sliding
Effect	Constructive (oceanic lithosphere created)	Destructive (oceanic lithosphere destroyed)	Conservative (lithosphere neither created or destroyed)
Topography	Ridge/Rift	Trench	No major effect
Volcanic activity?	Yes	Yes	No



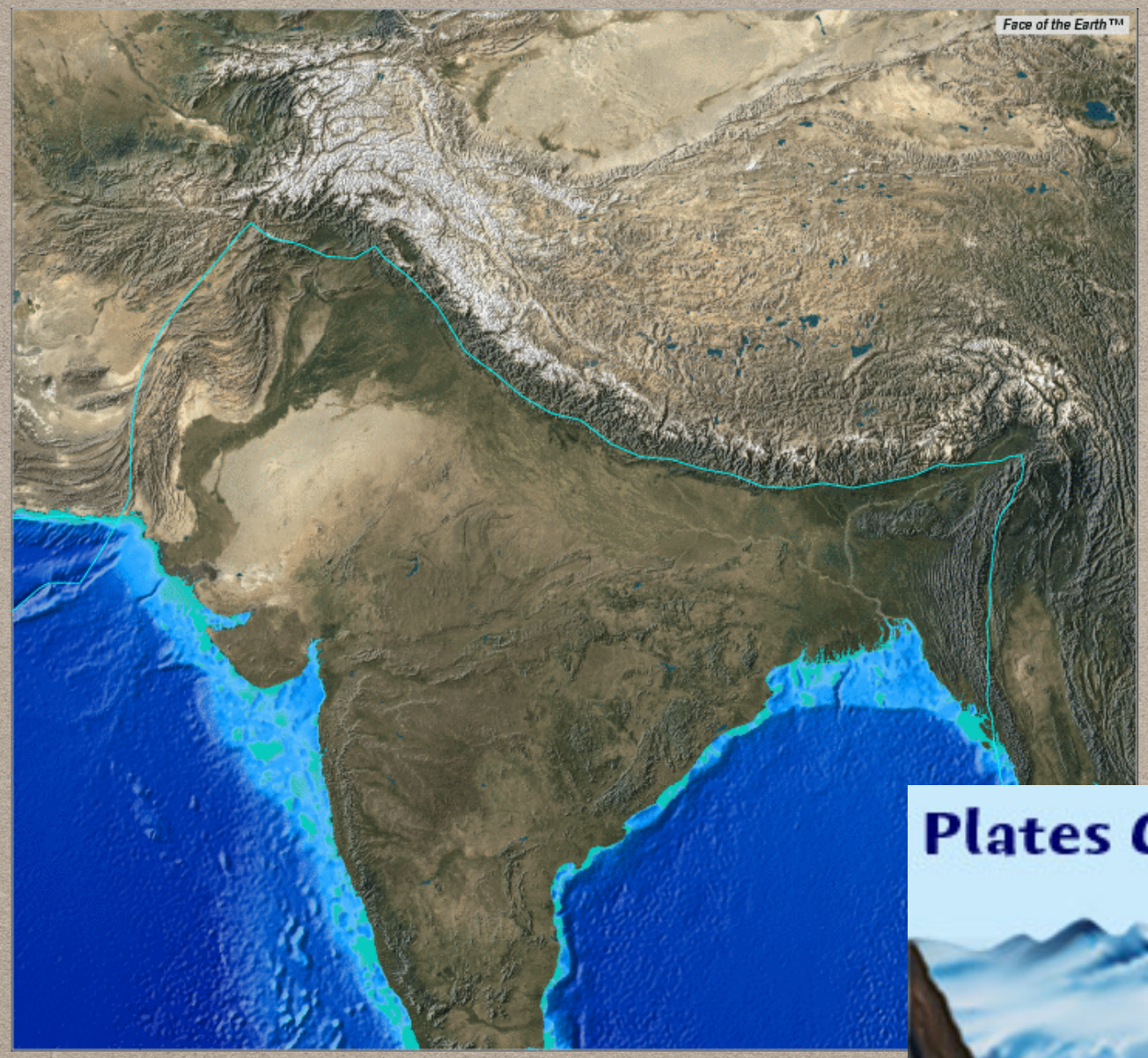
1. DIVERGENT BOUNDARY

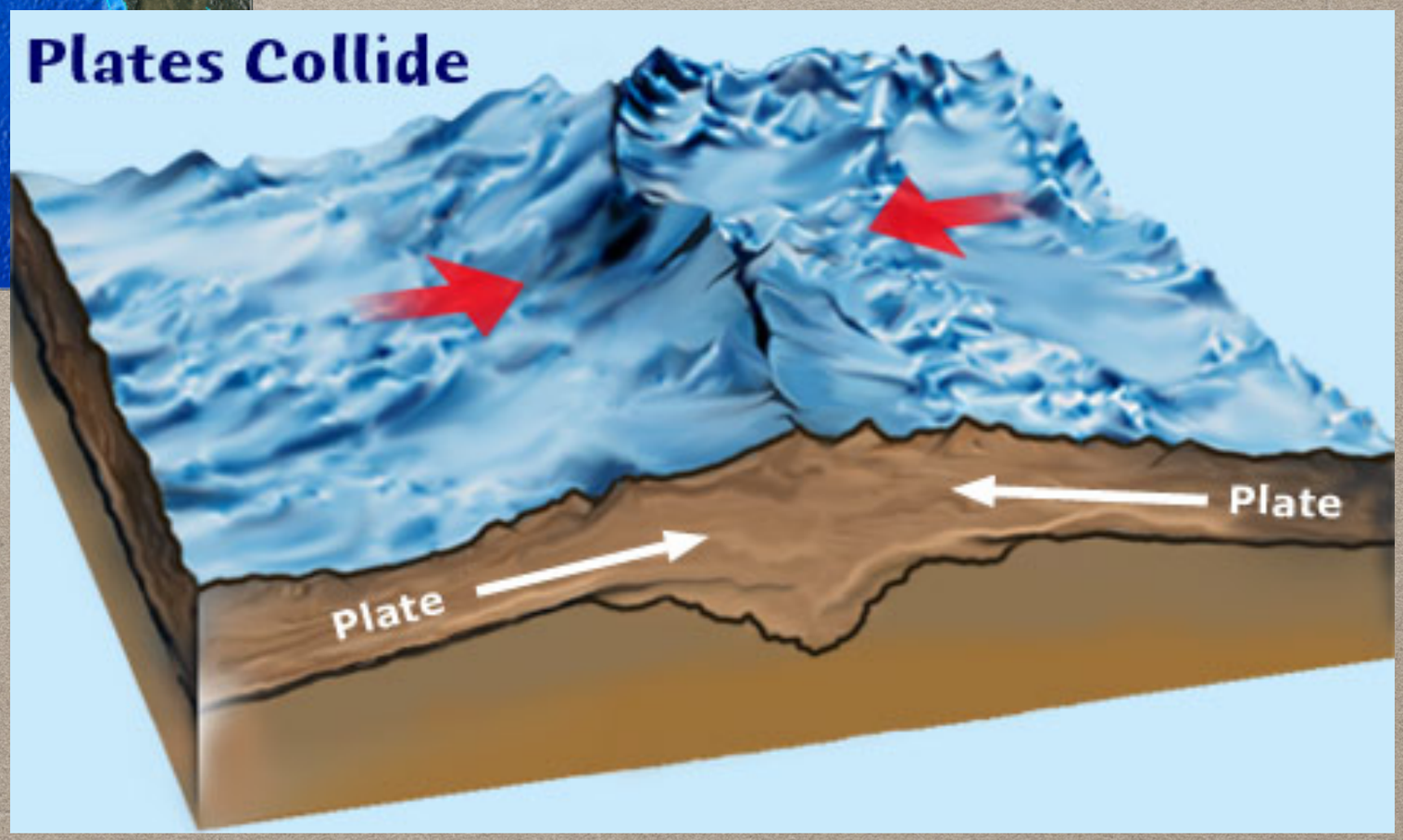
- Most of Earth's new crust forms at divergent boundaries, but most are deep under the oceans.
- These are zones where two plates move away from each other, allowing magma from the mantle to rise up and make a new crust (2-10cm per year)
- This seafloor spreading is a process in which the magma creates new land under water, over millions of years.
    - i.e. Mid-Atlantic Ridge


ERICA
Figure 7 Transform faults. These strike-slip faults cut across the oceanic ridge
OUTH AMERICA
AFRICA

2. CONVERGENT BOUNDARY

- Collision of two plates moving toward each other.
- When a denser continental plate collides with a less dense oceanic plate, the oceanic plate is forced under the continental plate.
- This produces a great deal of pressure which results in mountain formation, ocean floor destruction, and volcanic and earthquake activity.
    - i.e. Indian Plate and Eurasian Plate


Face of the Earth™


Plates Collide
Plate
Plate

3. TRANSFORM BOUNDARY

- 2 plates slide by one another along a large scale fault in opposite directions.
- Great deal of frictional occurs.
- Sometimes the plates get locked in some local region and great deal of energy is stored in that region.
- Eventually, the energy builds up to the point where the energy is suddenly released which creates a large scale earthquake
    - i.e. San Andreas Fault


California's
San Andreas Fault
Crescent City
Eureka
Garberville
Point Delgada
Point Arena
Ukiah
Santa Rosa
Point Reyes
San Francisco
Daly City
San Jose
Santa Cruz
Hollister
San Juan Bautista
Monterey
Parkfield
San Luis Obispo
Simmler
Carrizo Plain
Soda Lake Rd
Frazier Park
Palmdale
Santa Barbara
San Bernardino
Desert Hot Springs
Los Angeles
Palm Springs
Brawley
San Diego
San Andreas Fault
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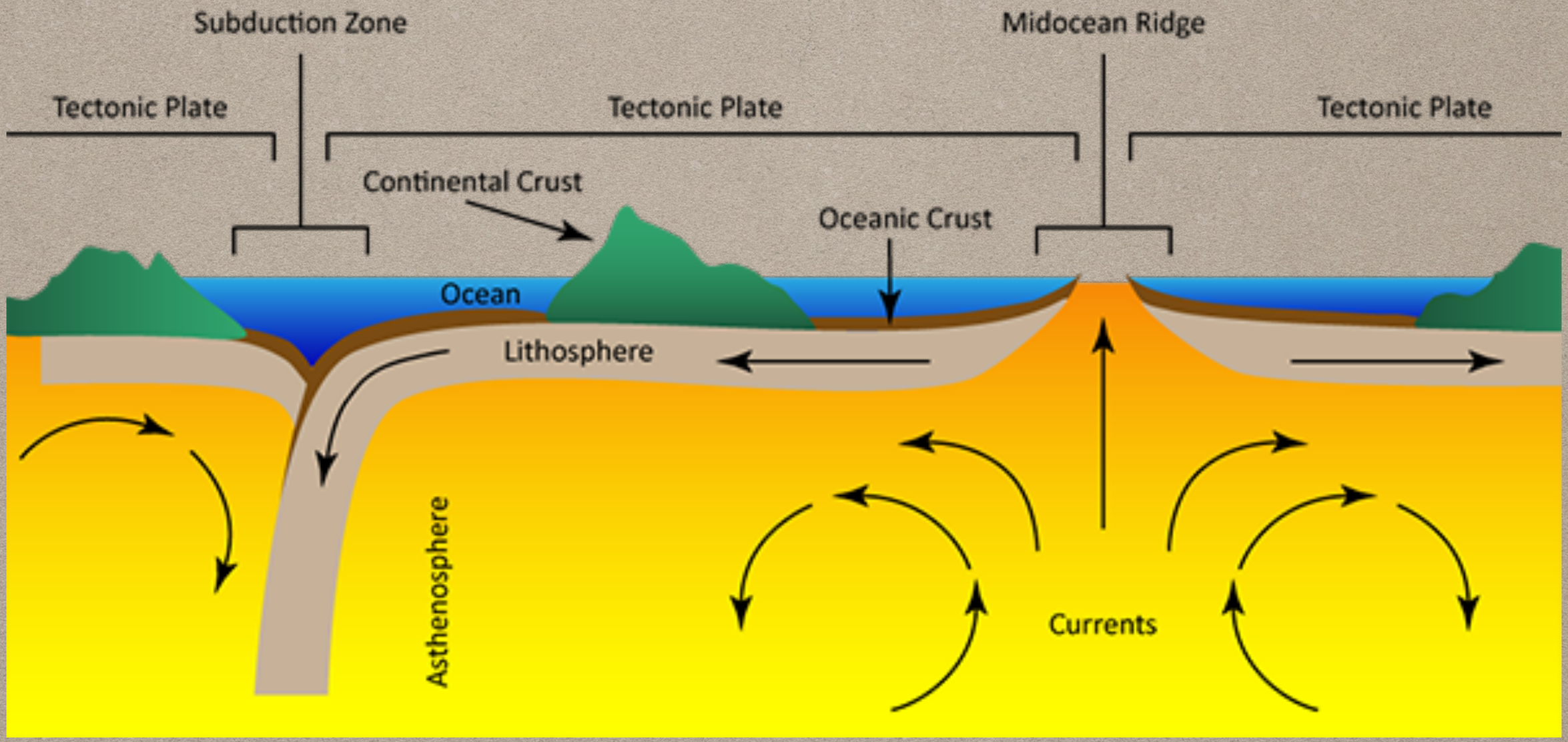
Subduction Zone
Midocean Ridge
Tectonic Plate
Tectonic Plate
Tectonic Plate
Continental Crust
Oceanic Crust
Ocean
Lithosphere
Asthenosphere
Currents

THE END