

# Goals for today

- Three main types of plate boundaries
- Two main types of crust
- Each type of plate boundary has different subcategories based on what kind of plates are colliding
- Each type of plate boundary will create different kinds of faults
- Three main types of faults.

# *Objective 3 – Plate Motion*

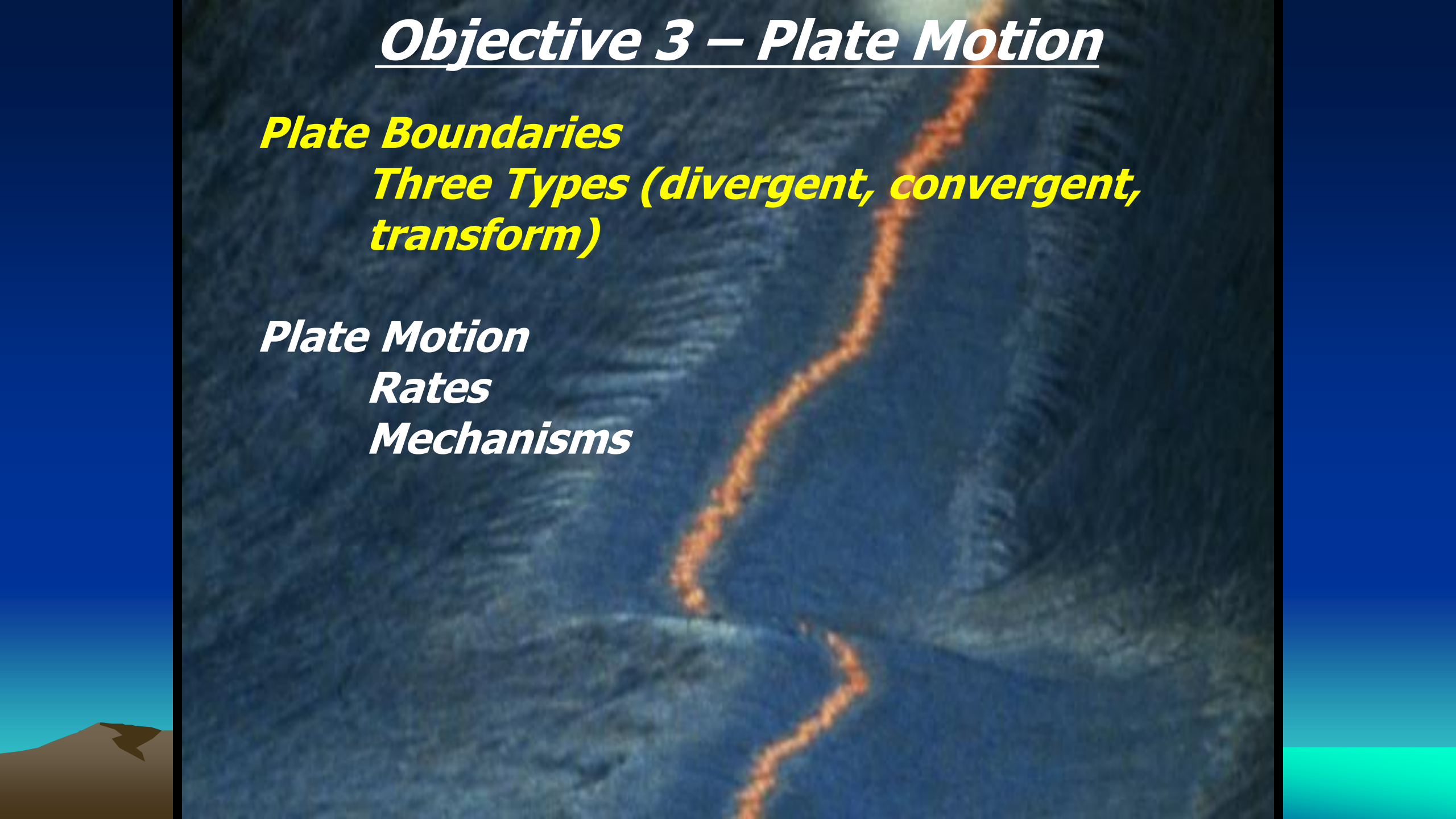
## *Plate Boundaries*

*Three Types (divergent, convergent, transform)*

## *Plate Motion*

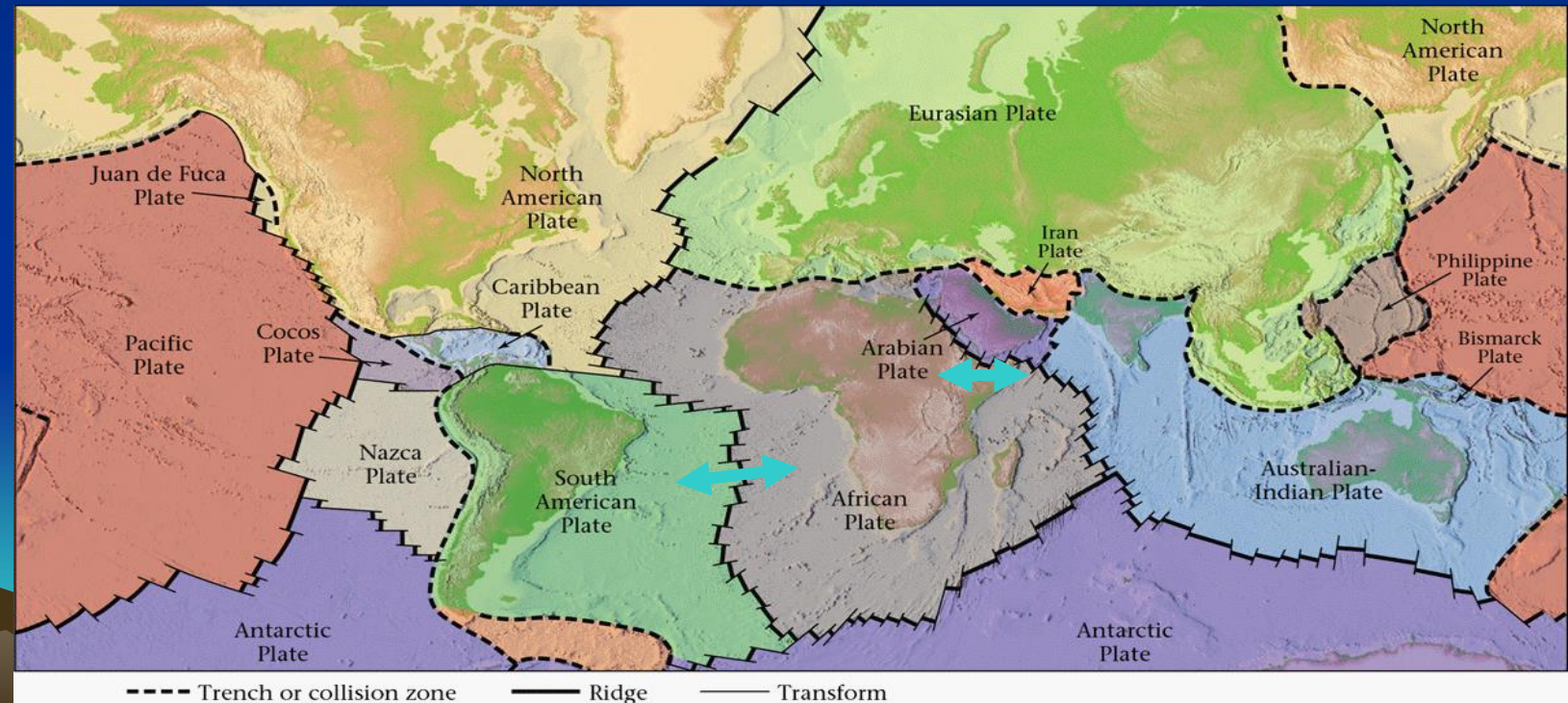
*Rates*

*Mechanisms*



# Plate Margins

- Lithosphere is divided into plates
  - Structural features, not land and ocean
  - Ridges, trenches and mountains
  - Not permanent



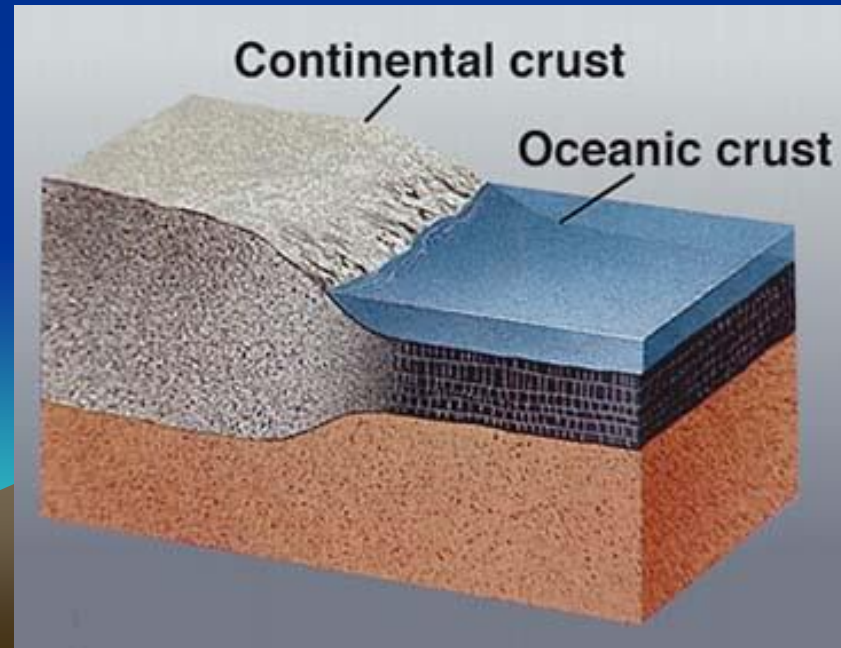
# Two types of crust

- Oceanic Crust

- Very metal rich, some rock.
- Dense
- Thin

- Continental Crust

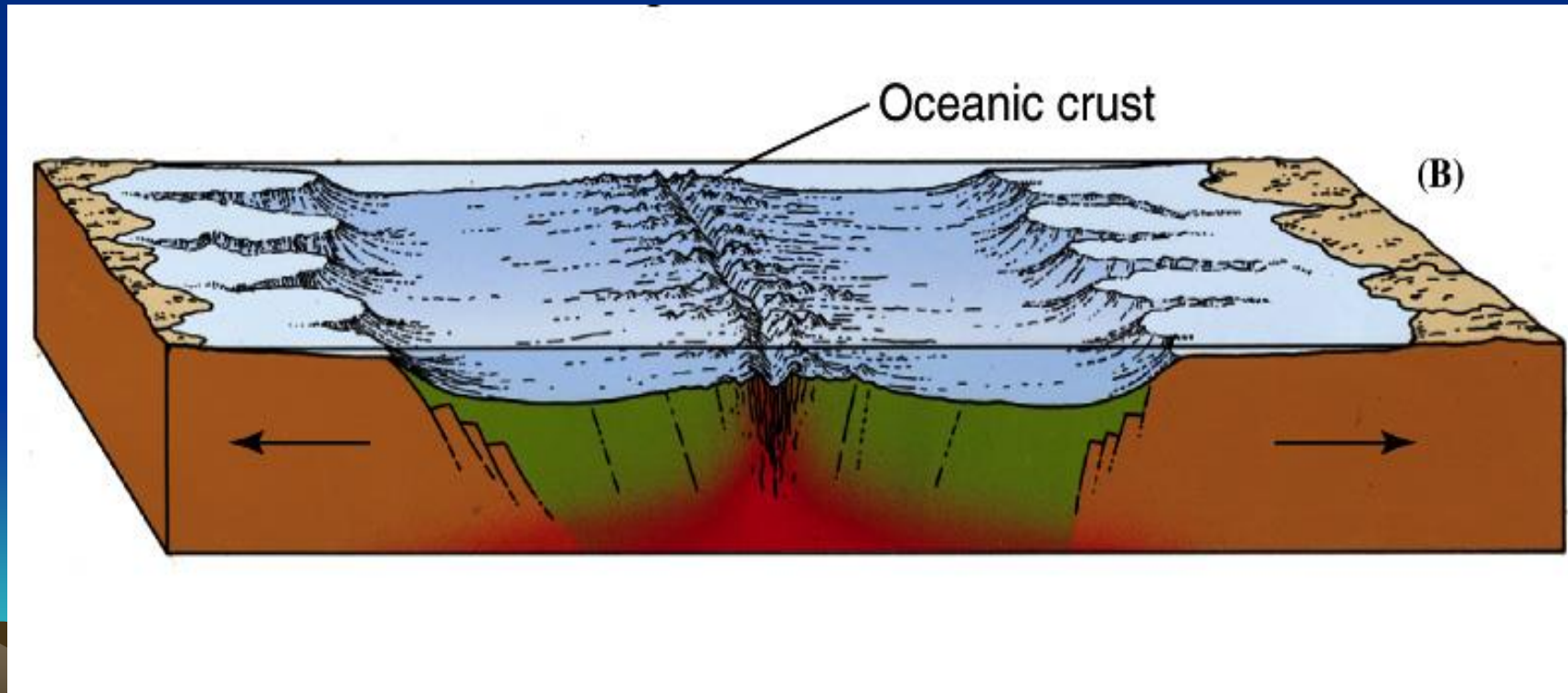
- Metal poor, rocky rich
- Not as dense
- Thicker

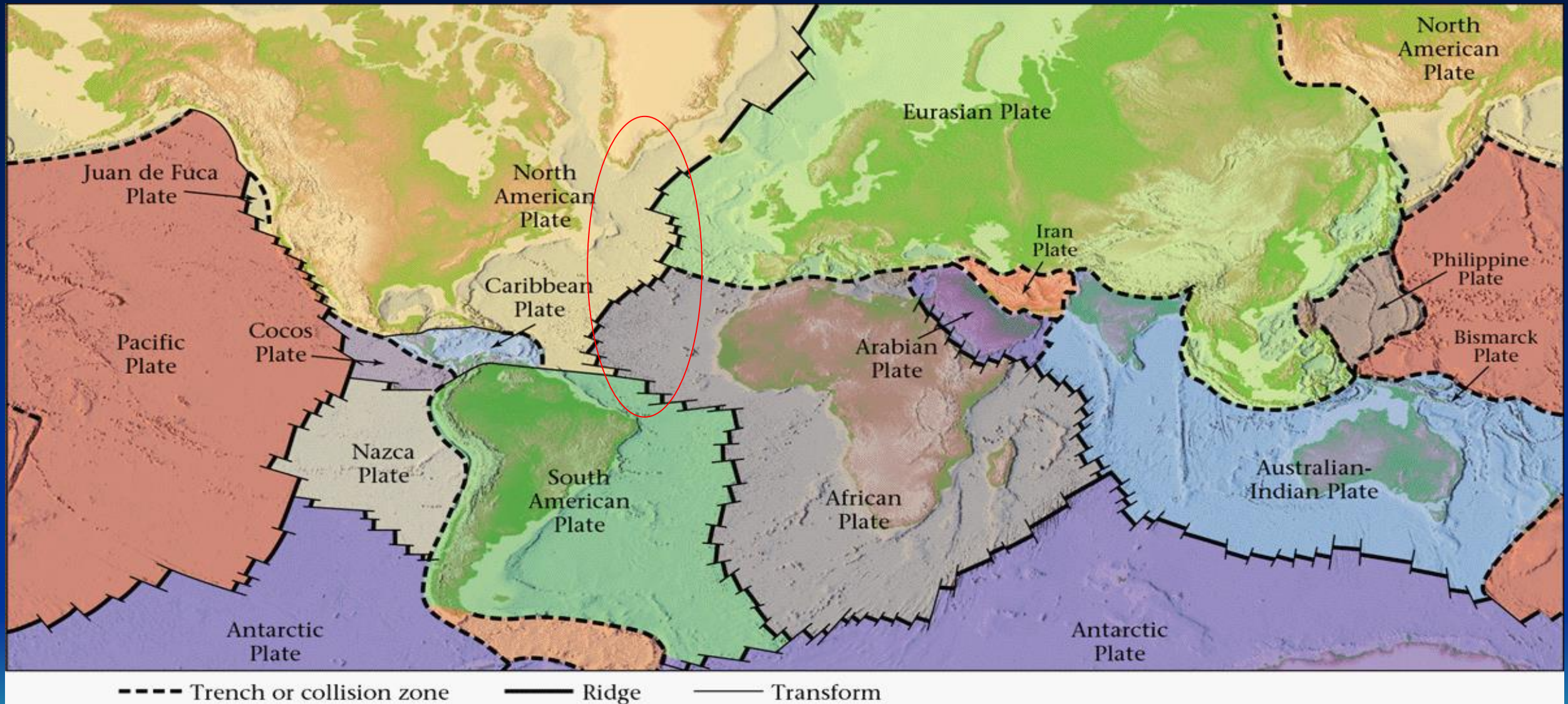




# Divergent Plate Margins

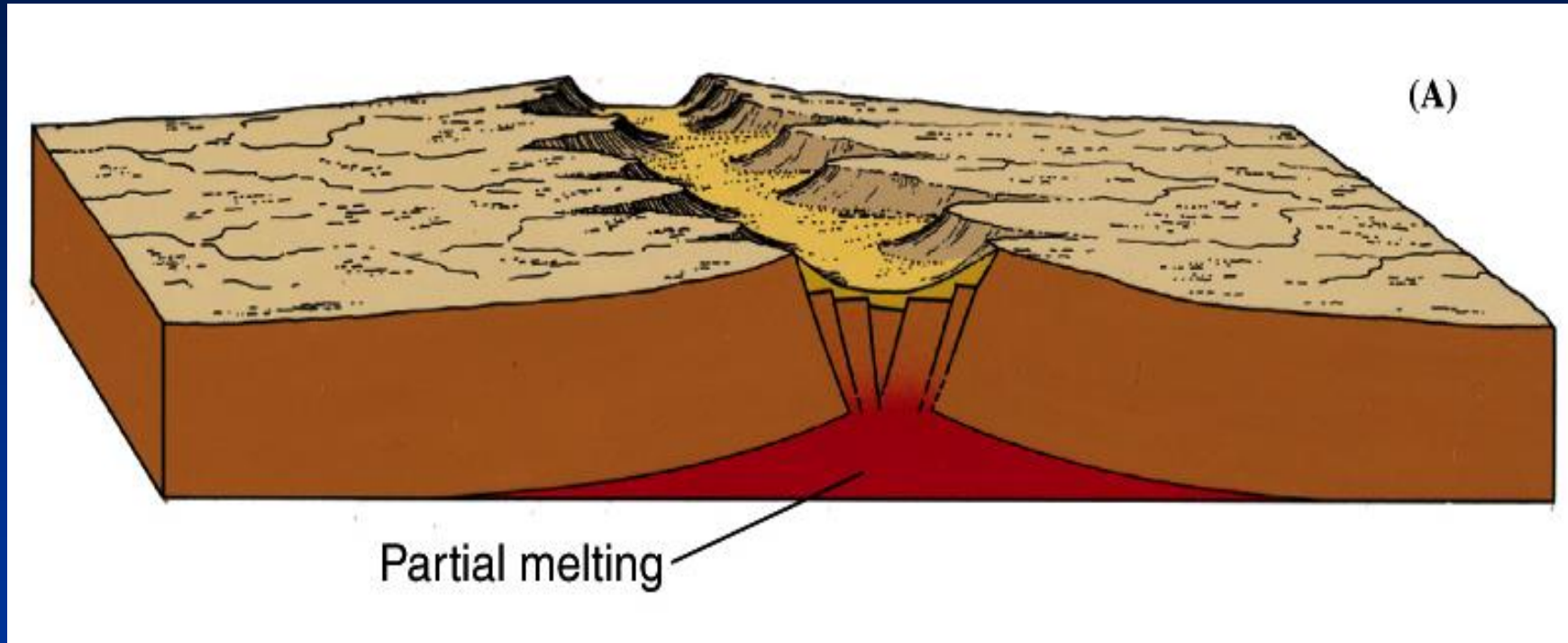
- Oceanic–Oceanic Crust
  - Mid–oceanic ridge with central rift valley



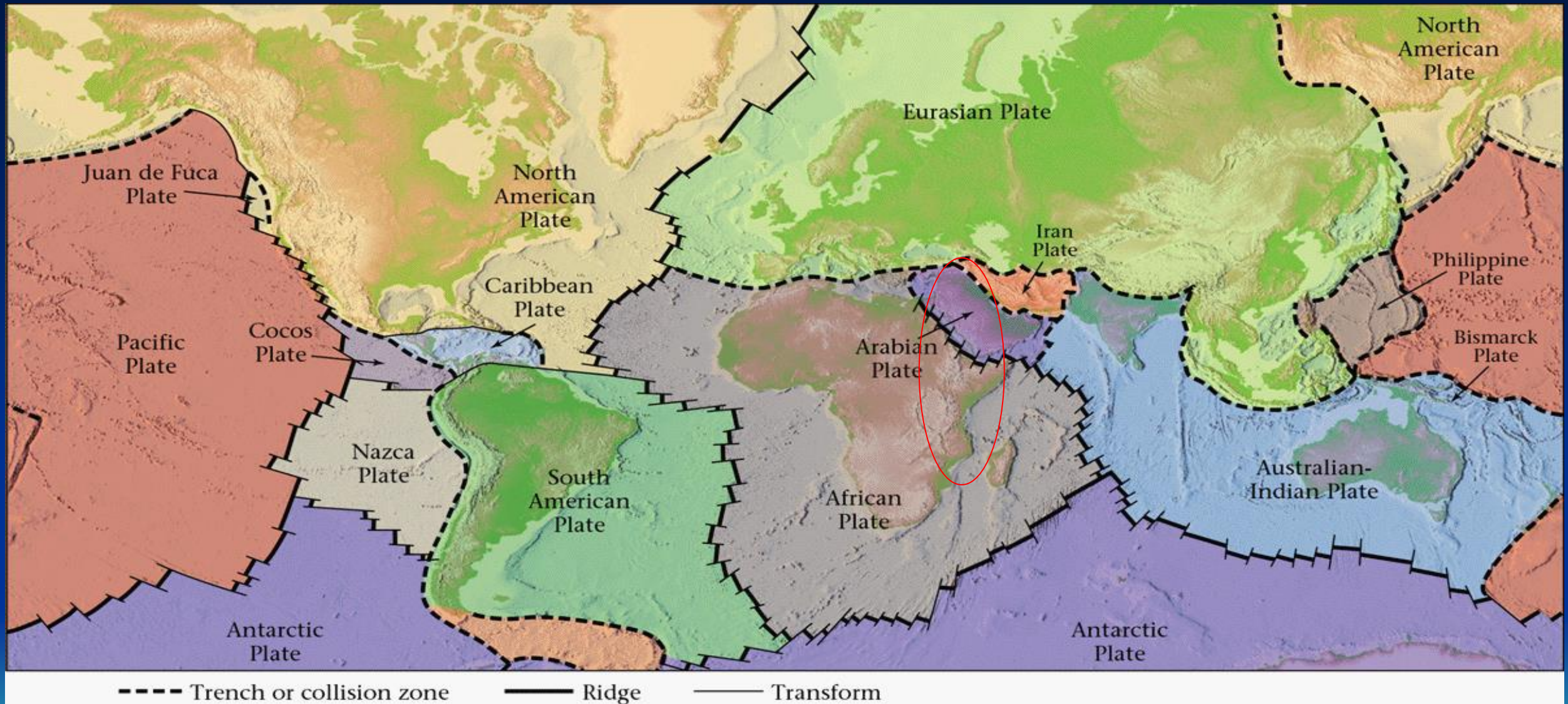




# *Divergent Plate Margins*

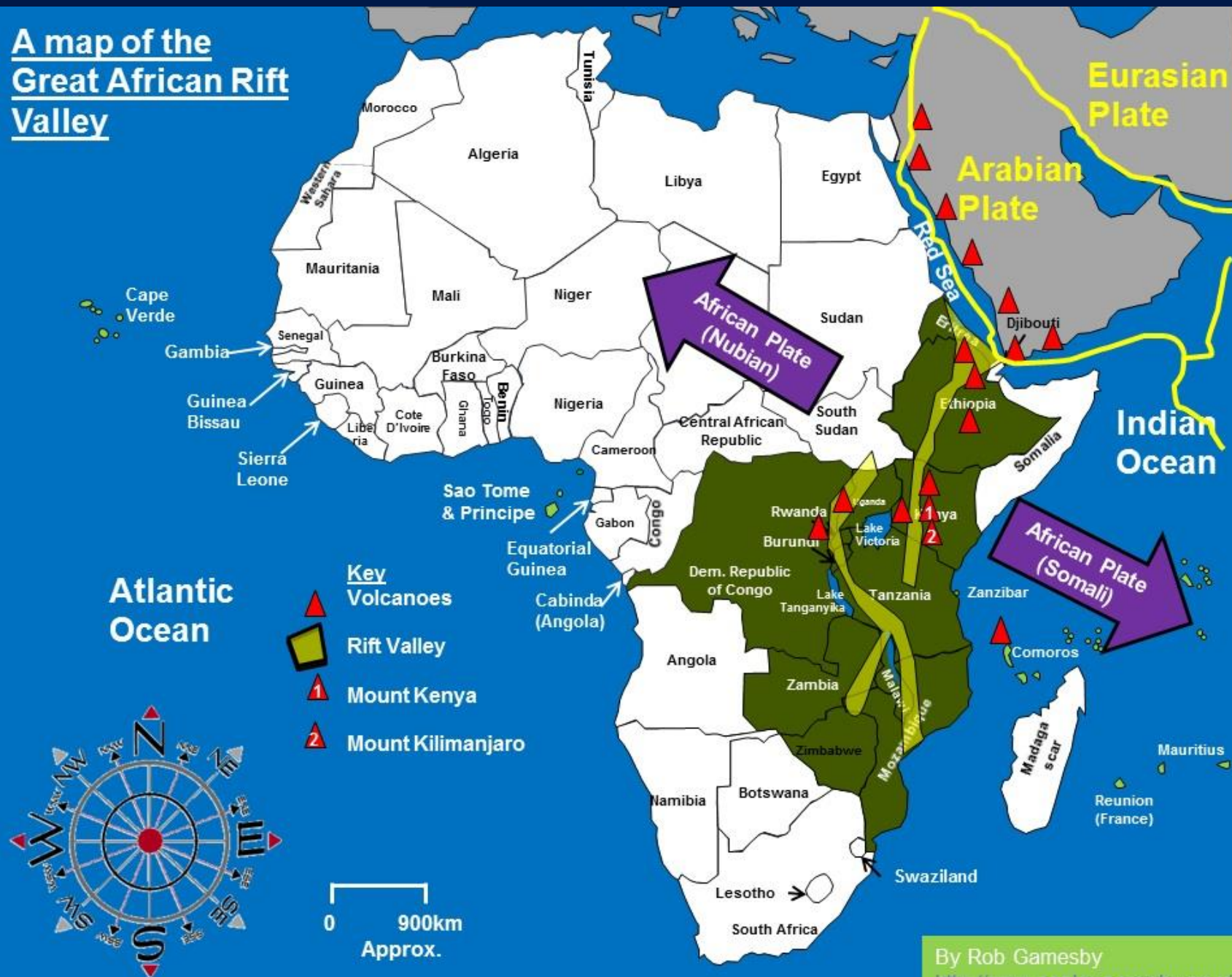


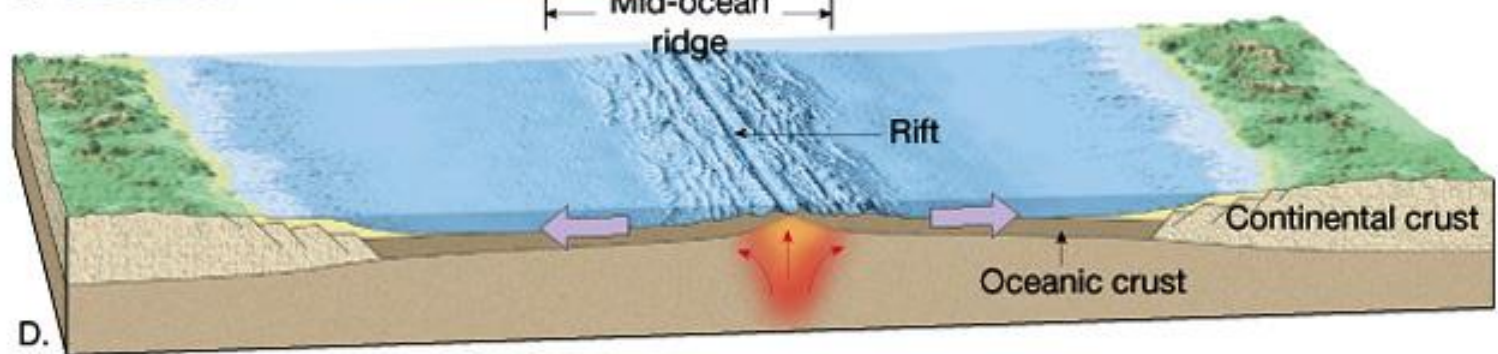
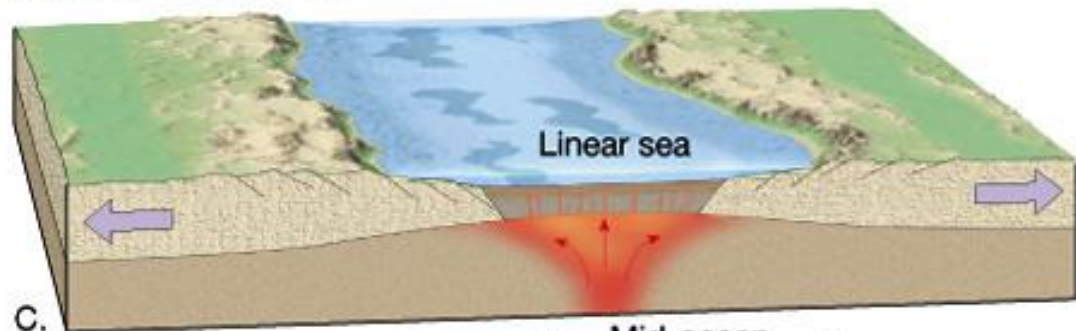
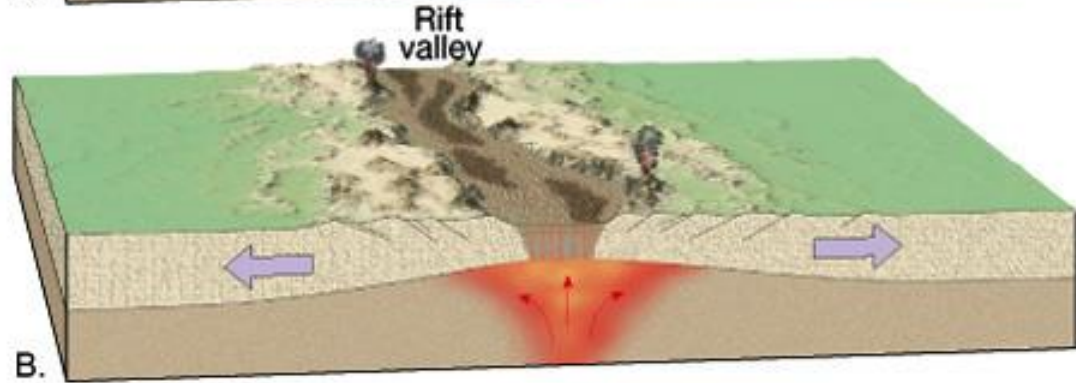
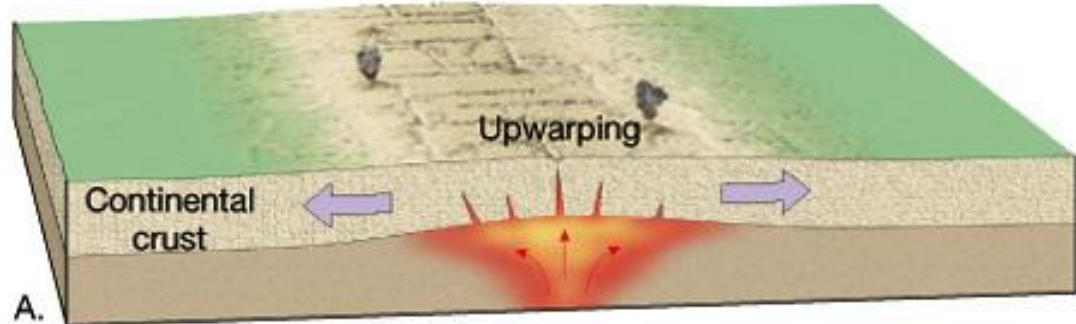
- *Continental-Continental Crust*  
– *Rift Valley*





# A map of the Great African Rift Valley



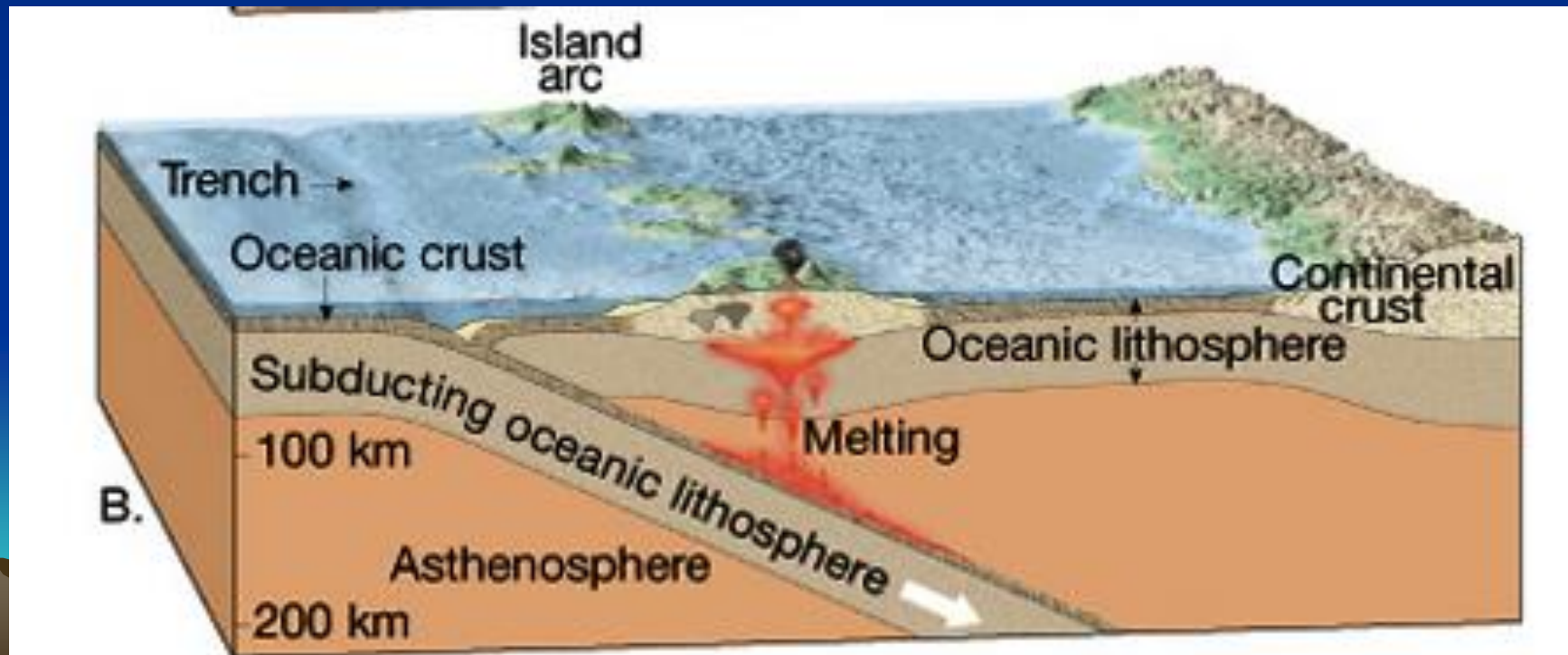


# *Sea-Floor Spreading*

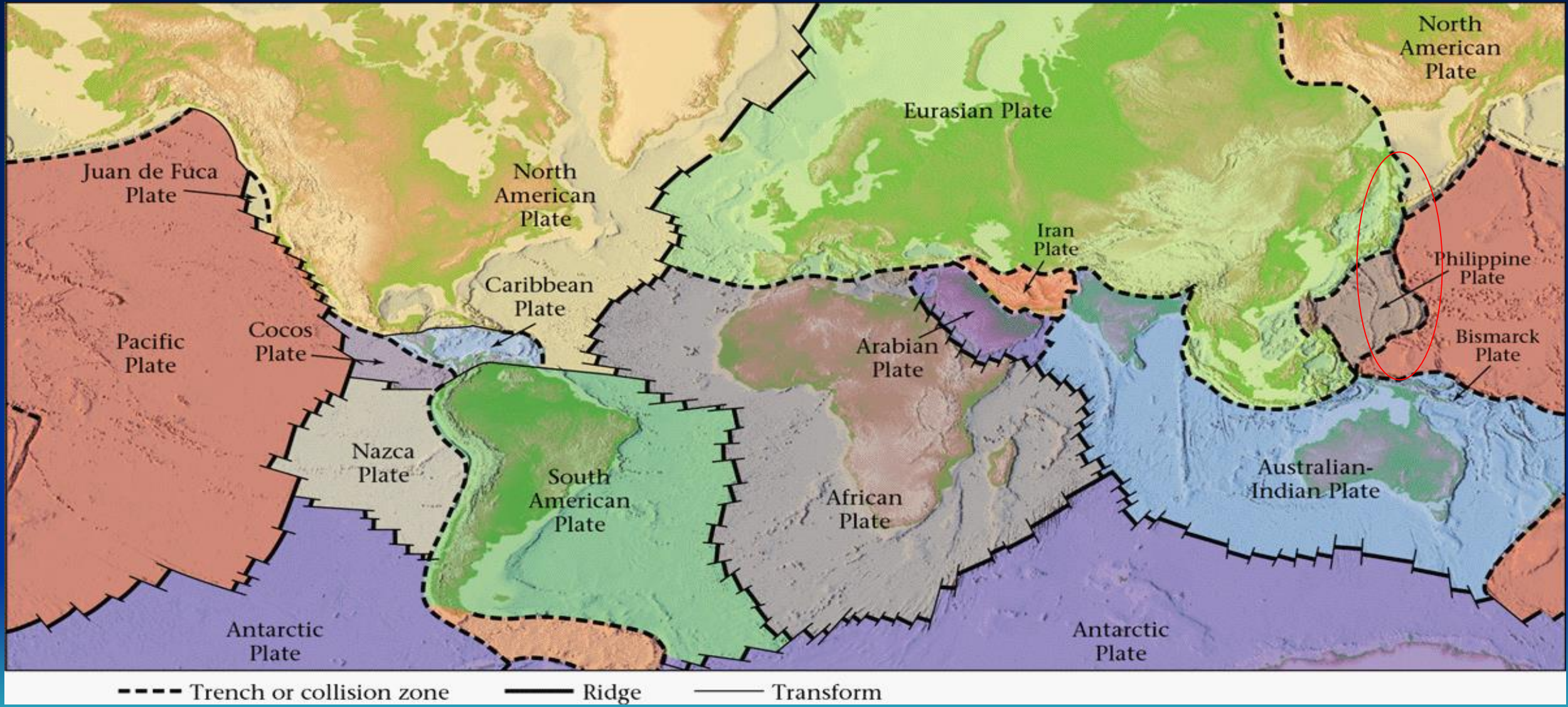


# Convergent Plate Margins

- Oceanic–Oceanic
  - Seafloor Trench
  - Volcanoes in an island arc
  - Japan



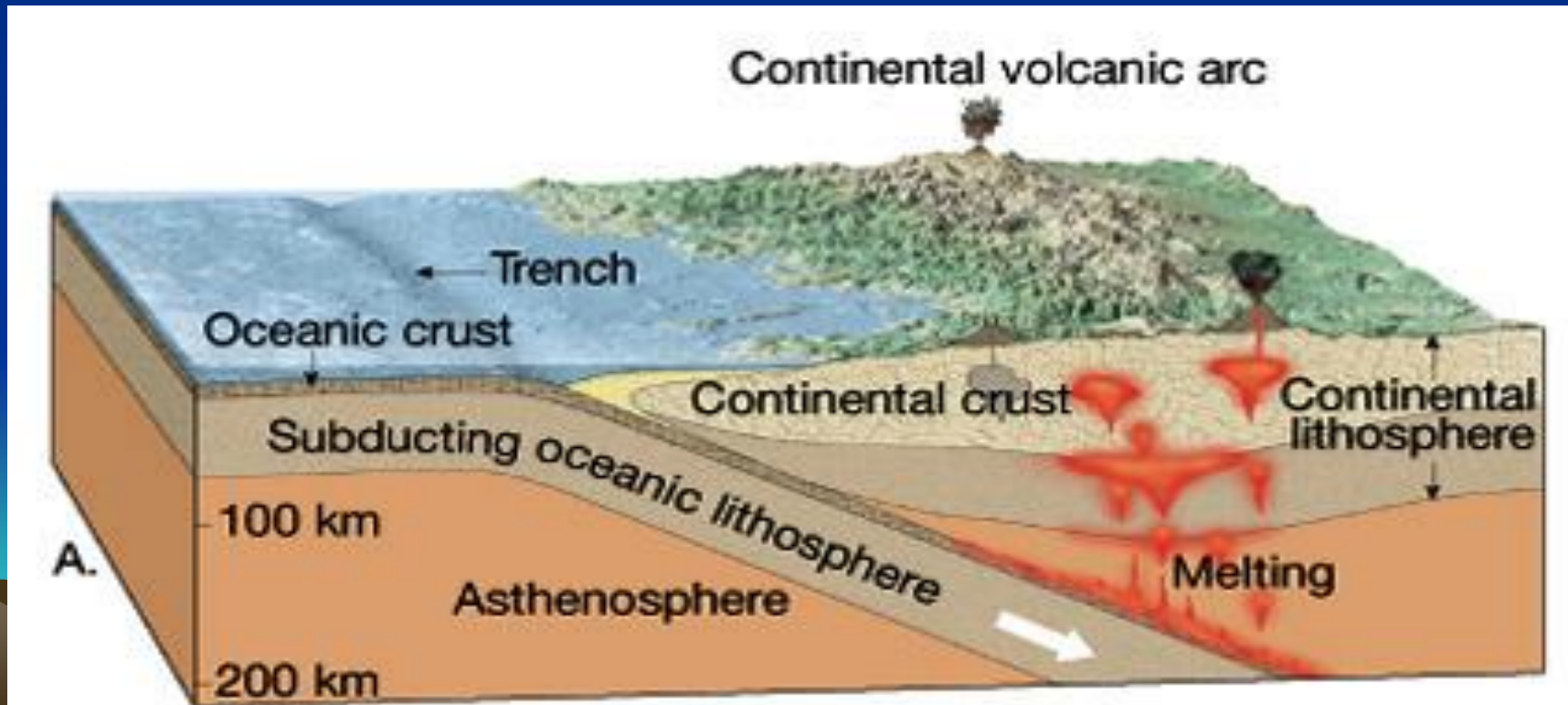




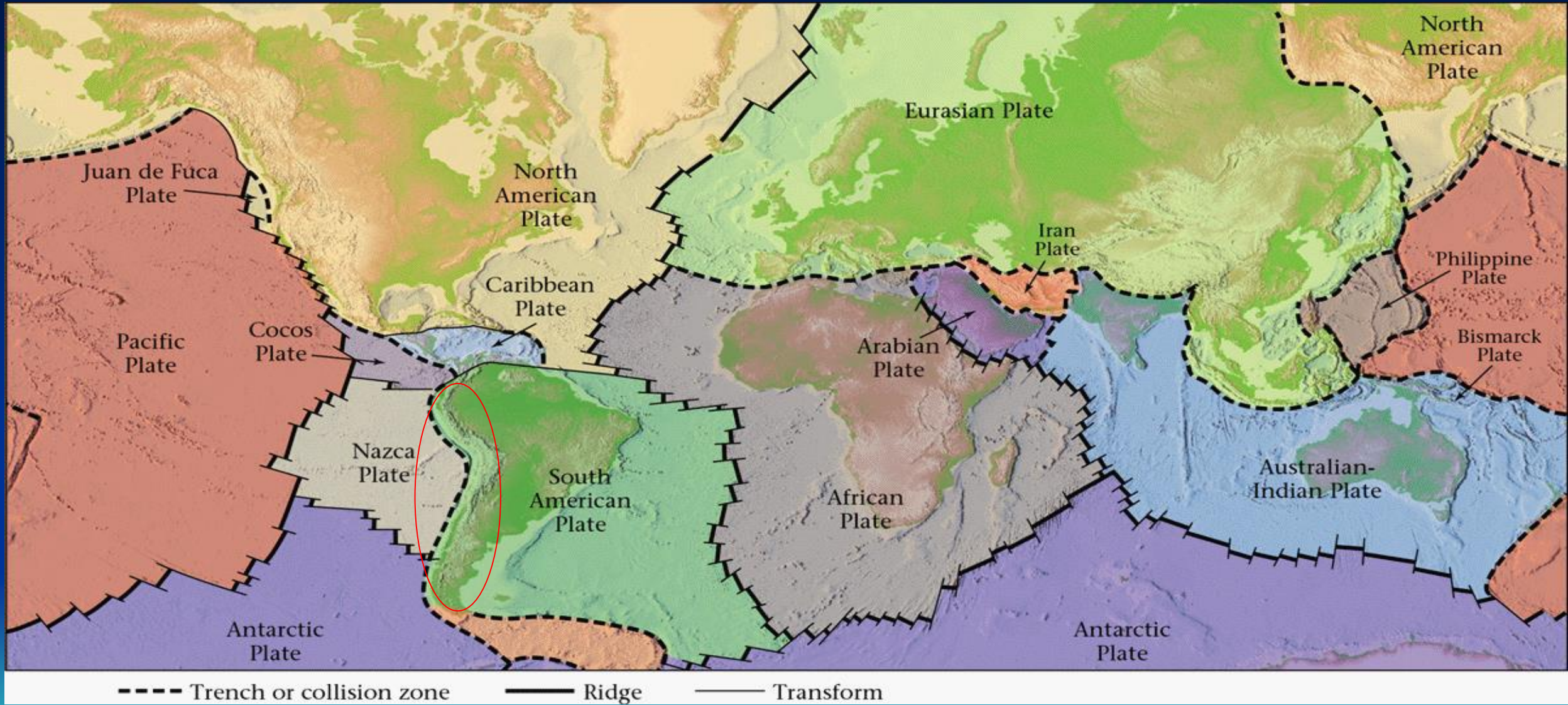


# Convergent Plate Margins

- Oceanic–Continental
  - Subduction Zone
  - Volcanoes in a continental arc
  - South America



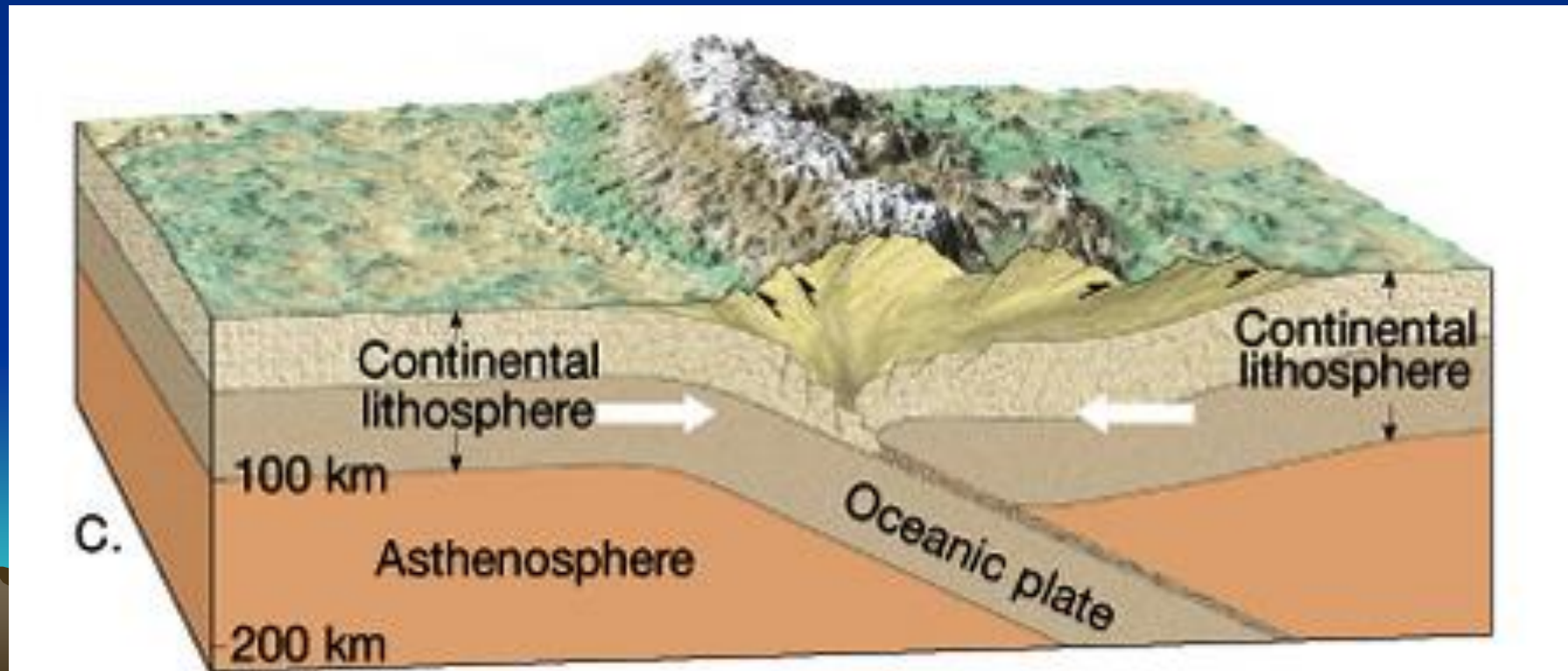




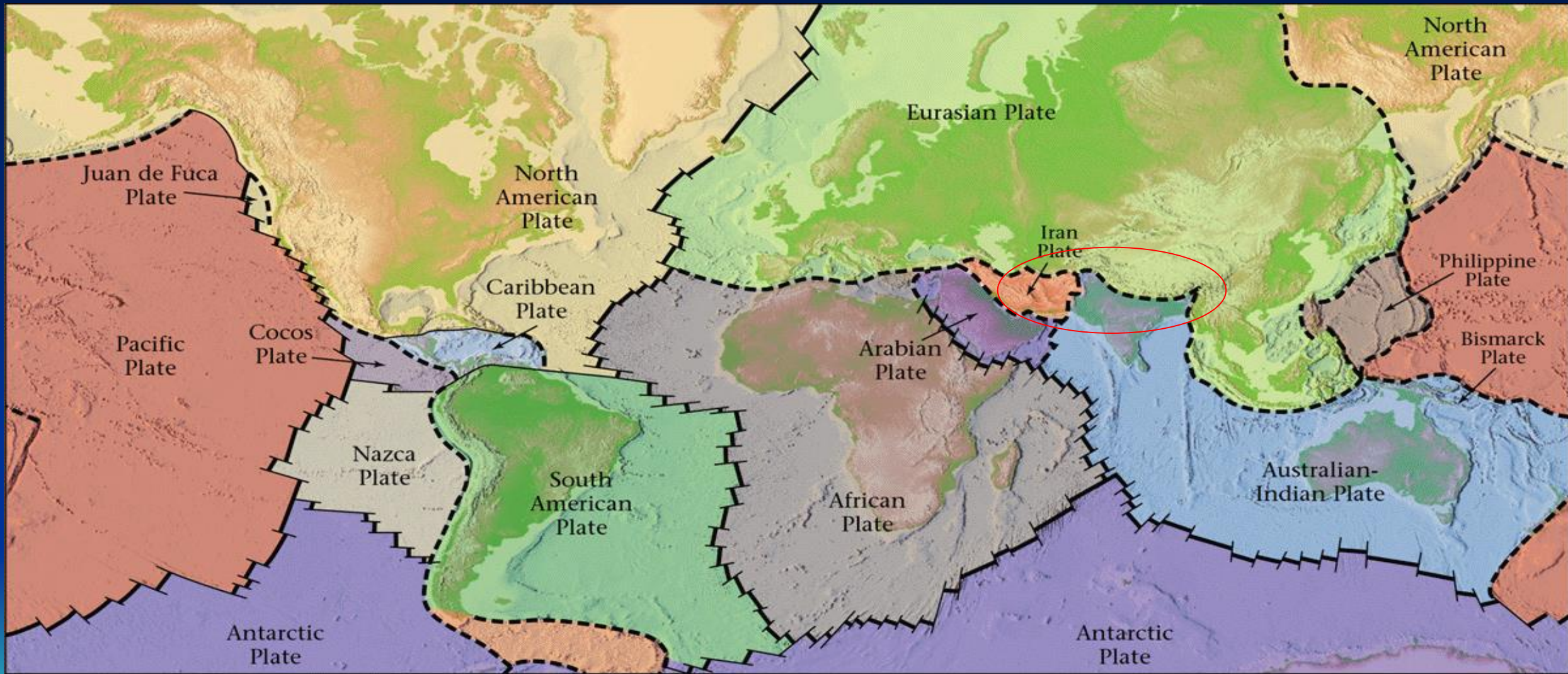


# Convergent Plate Margins

- Continental–Continental
  - Intensely folded/faulted mountain belts
  - Metamorphic rocks dominate
  - Igneous rocks included





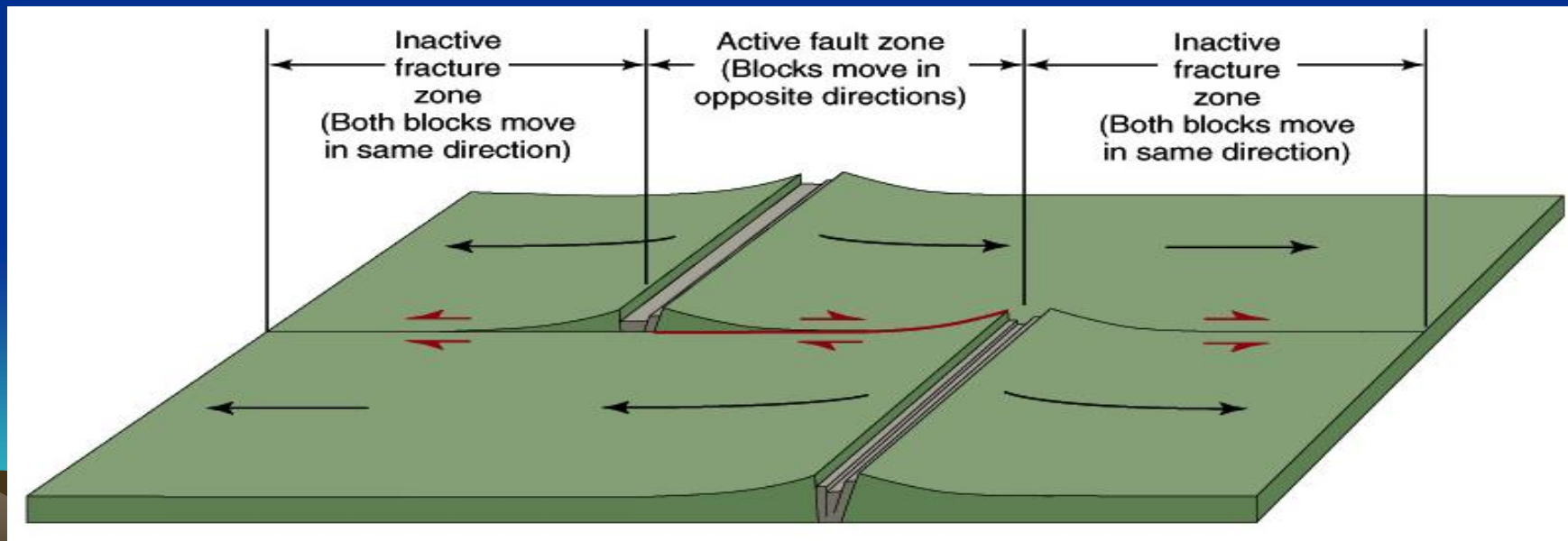


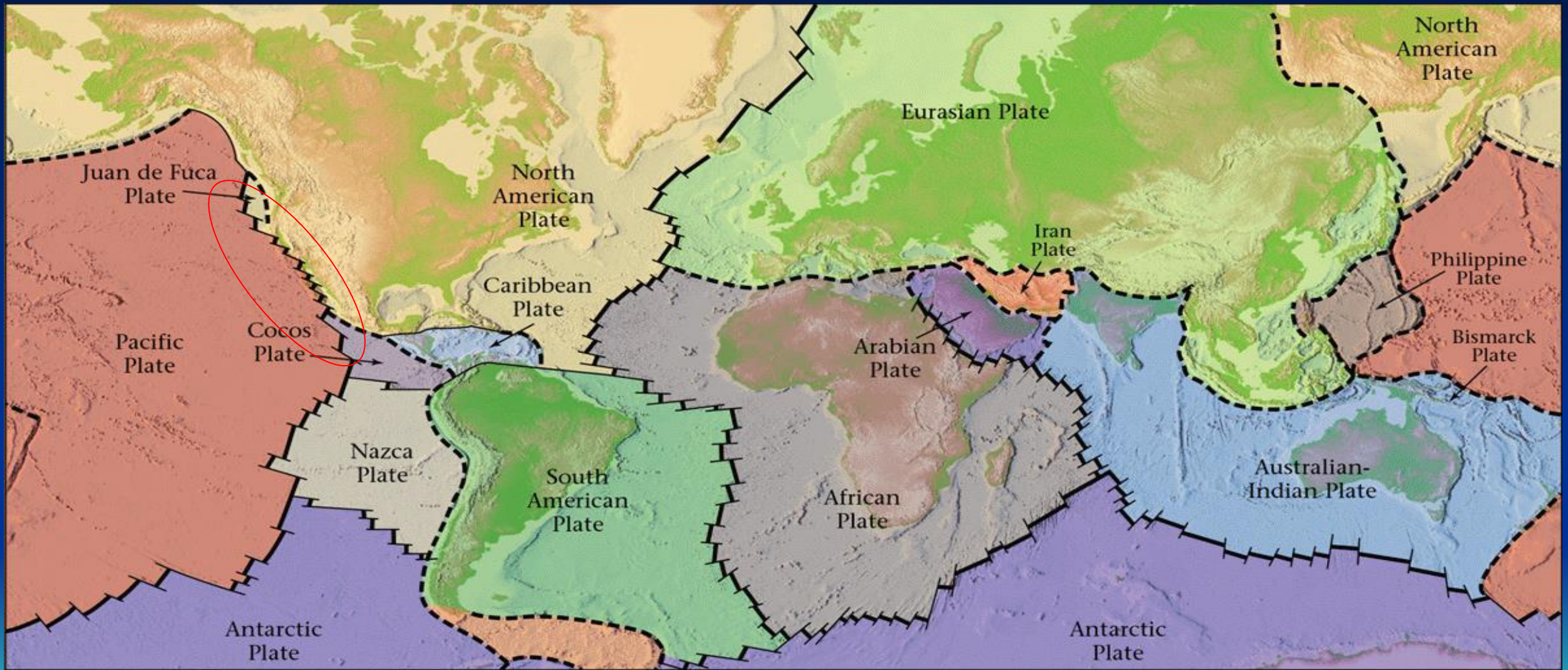
--- Trench or collision zone    — Ridge    — Transform



# Transform Fault Margins

- Transform faults are large vertical fractures or faults in the crust
  - Movement is side to side
  - May extend for long distances
  - In oceanic crust, deep valleys are formed
  - May extend onto continents





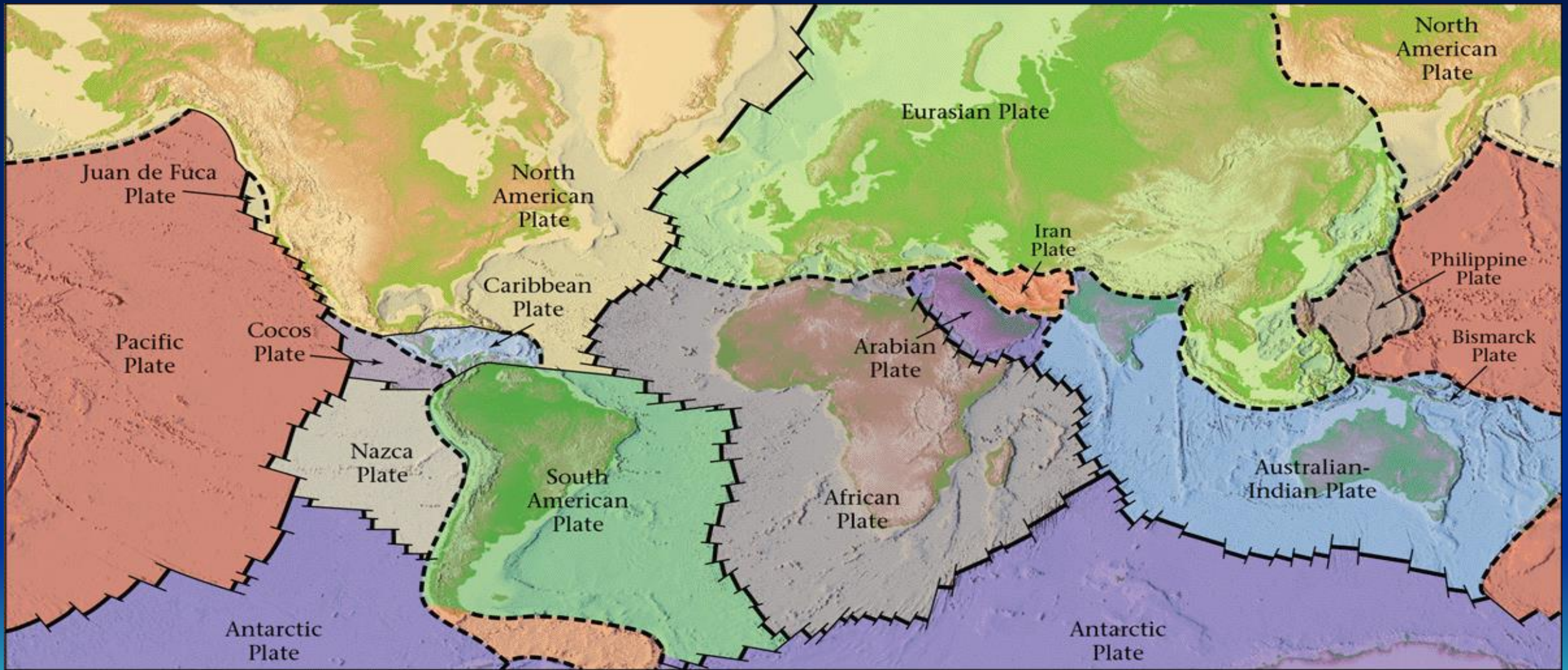
--- Trench or collision zone    — Ridge    — Transform



# Bell Ringer

1. What are the three main types of plate boundaries?
2. What are the two main types of crust?
3. What is formed when a continental crust and an oceanic crust converge?





--- Trench or collision zone    — Ridge    — Transform



# Bill Nye and Plate Tectonics

- <https://www.youtube.com/watch?v=0KNqUwgqbZw>



# Faults

- Normal fault
- Reverse fault / Thrust fault
- Strike-Slip





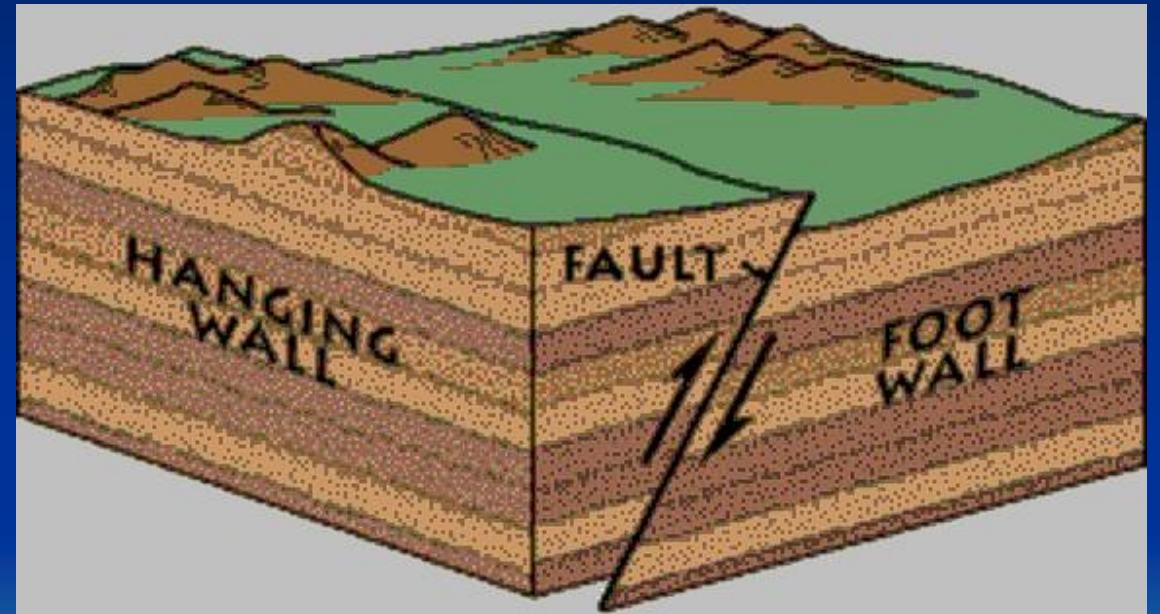
# Fault

- Fault: A fracture in Earth's crust where one block of crust moves relative to another block of crust.



# Hanging Wall vs. Foot Wall

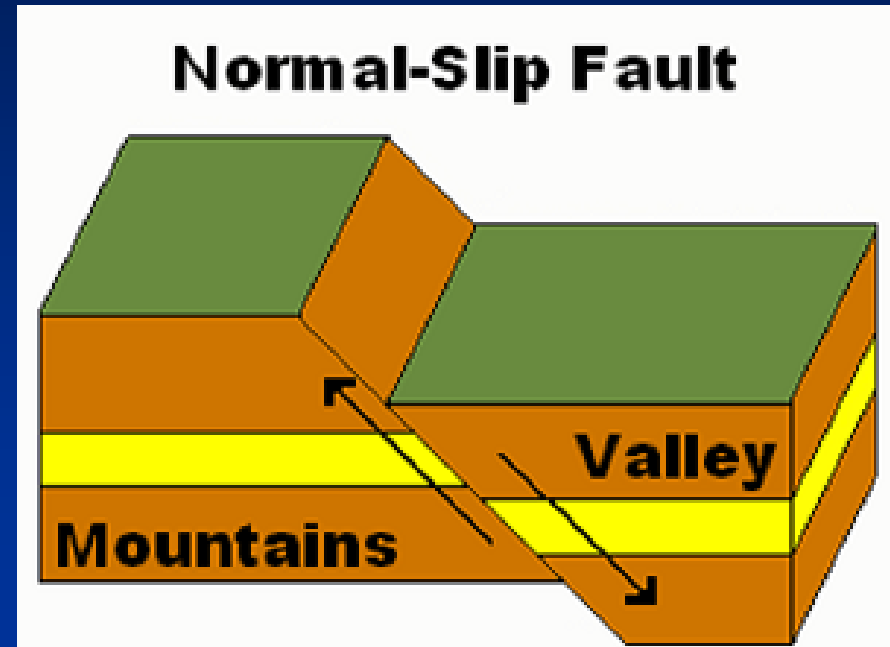
- Hanging wall: The block of crust that hangs above the fault.
- Foot wall: The block of crust that rests beneath the fault.





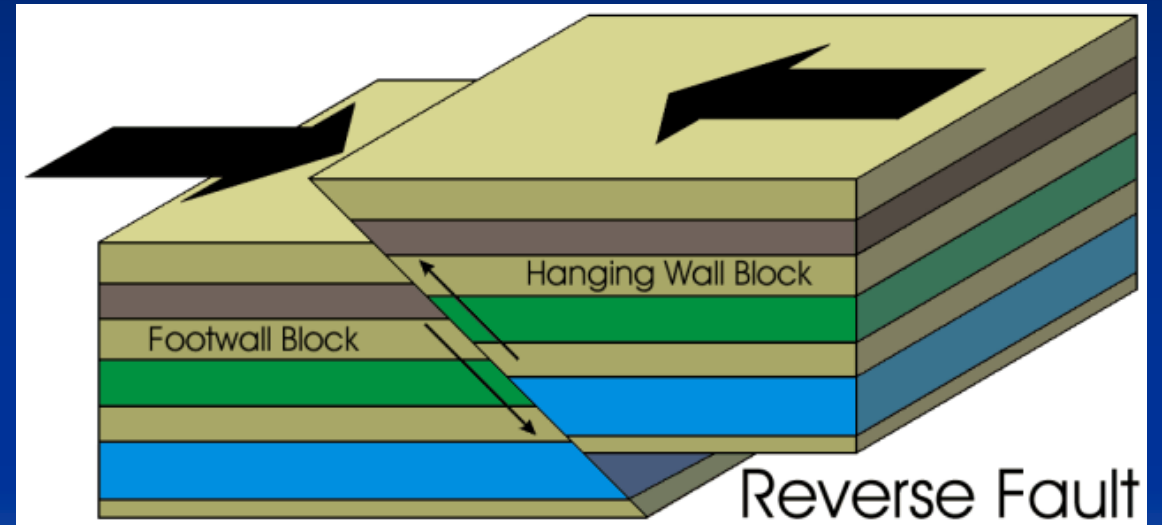
# Normal Fault

- Example: Wasatch fault.
- Typically from extensional forces. (Pulling apart)
- Hanging wall is below the foot wall.



# Reverse fault – (Thrust fault)

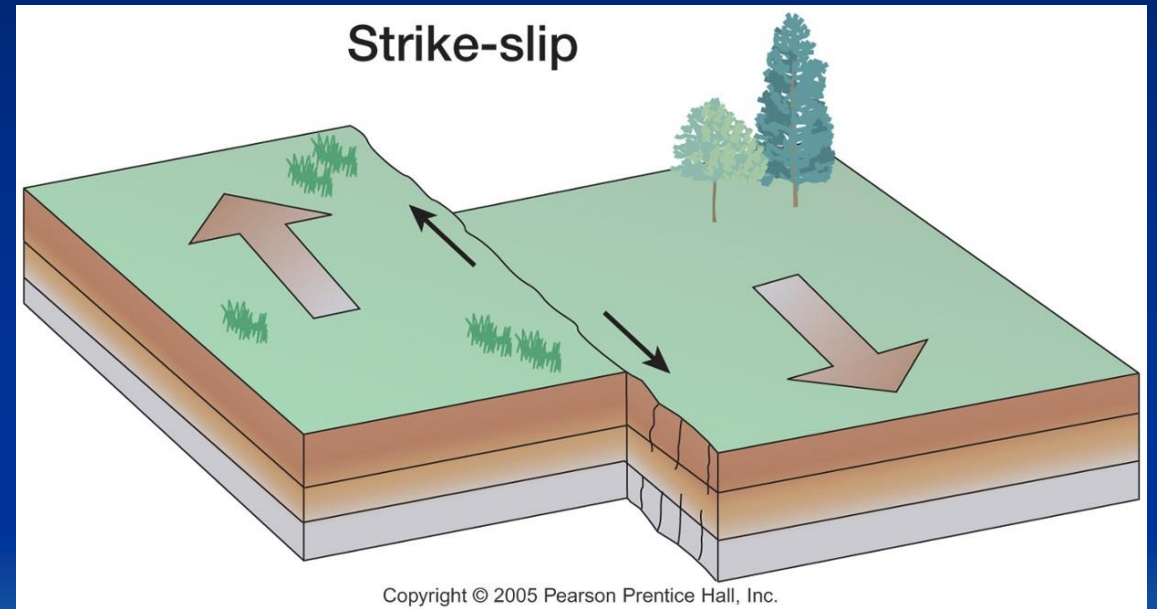
- The reverse of a normal fault.
- Hanging wall is pushed up above the foot wall.
- Typically from compressional forces (pushing together)





# Strike-Slip Fault

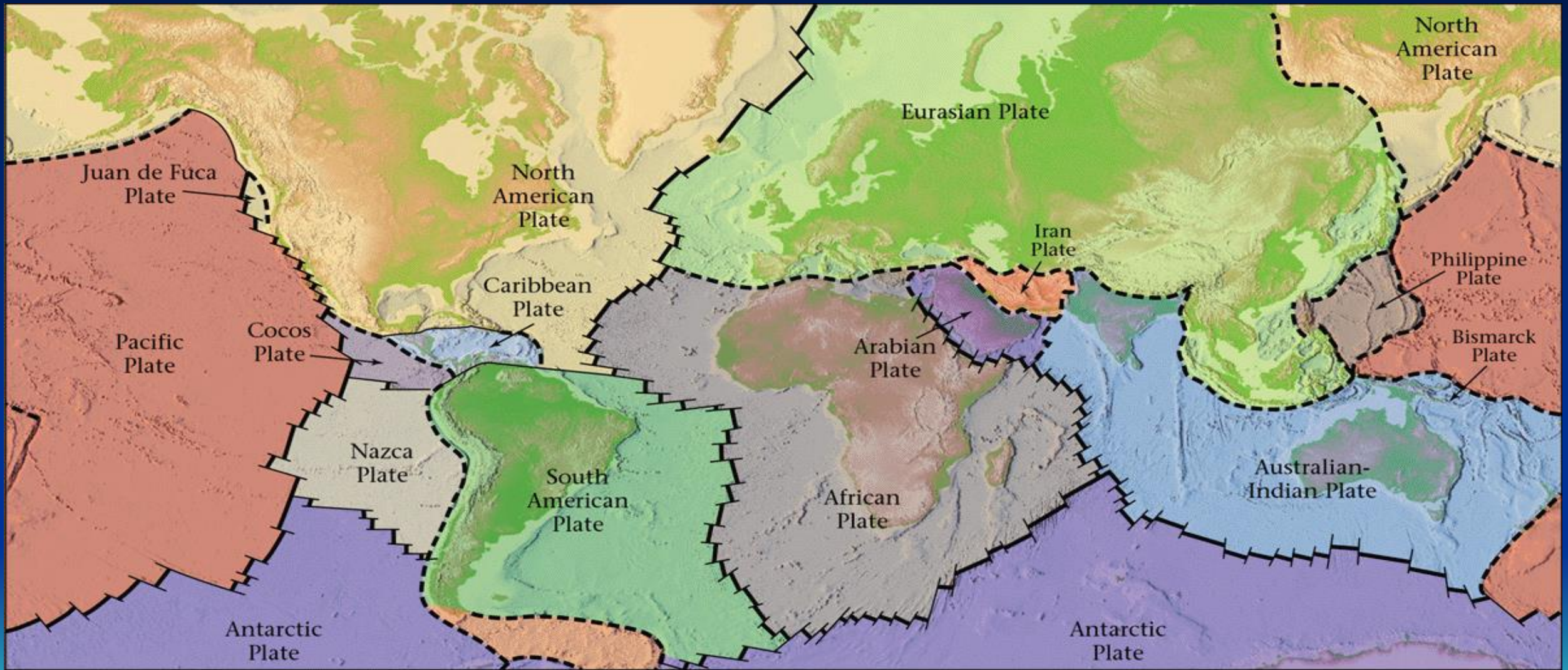
- Example: California
- Movement is from side to side



Where would you find these kinds of faults?





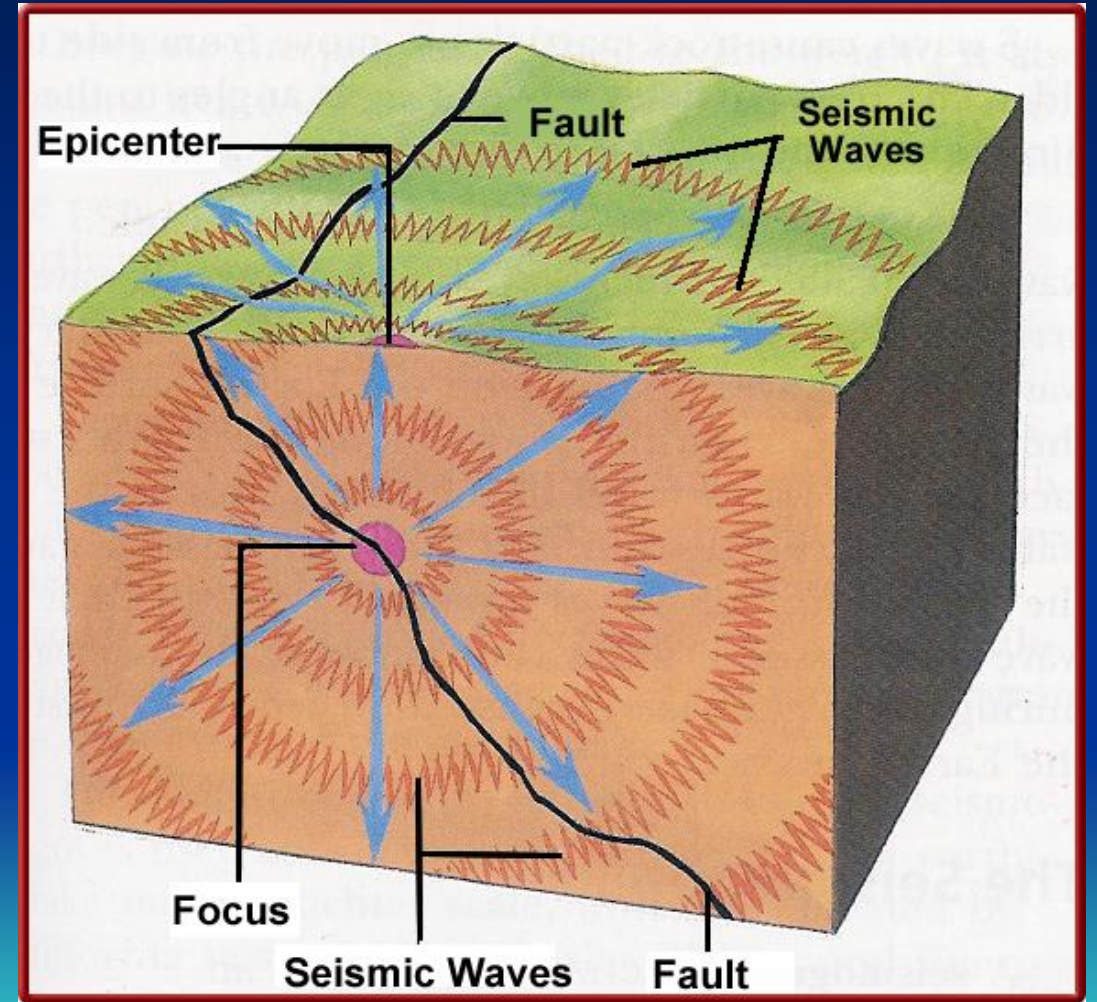


--- Trench or collision zone    —|— Ridge    —/— Transform



# Earthquakes

- Earthquakes occur when these faults slip or rub against each other.
- Epicenter: The point on the surface where the Earthquake occurs.
- Focus: The exact point in the Earth where the Earthquake occurs.





Make your own faults

