



Thursday, Sept 13, 2018

Pick up: Plate boundaries chart pg 36

Today you will:

- [Convection video clip](#)
- Notes on Divergent, Convergent & Transform boundaries

HOMEWORK:

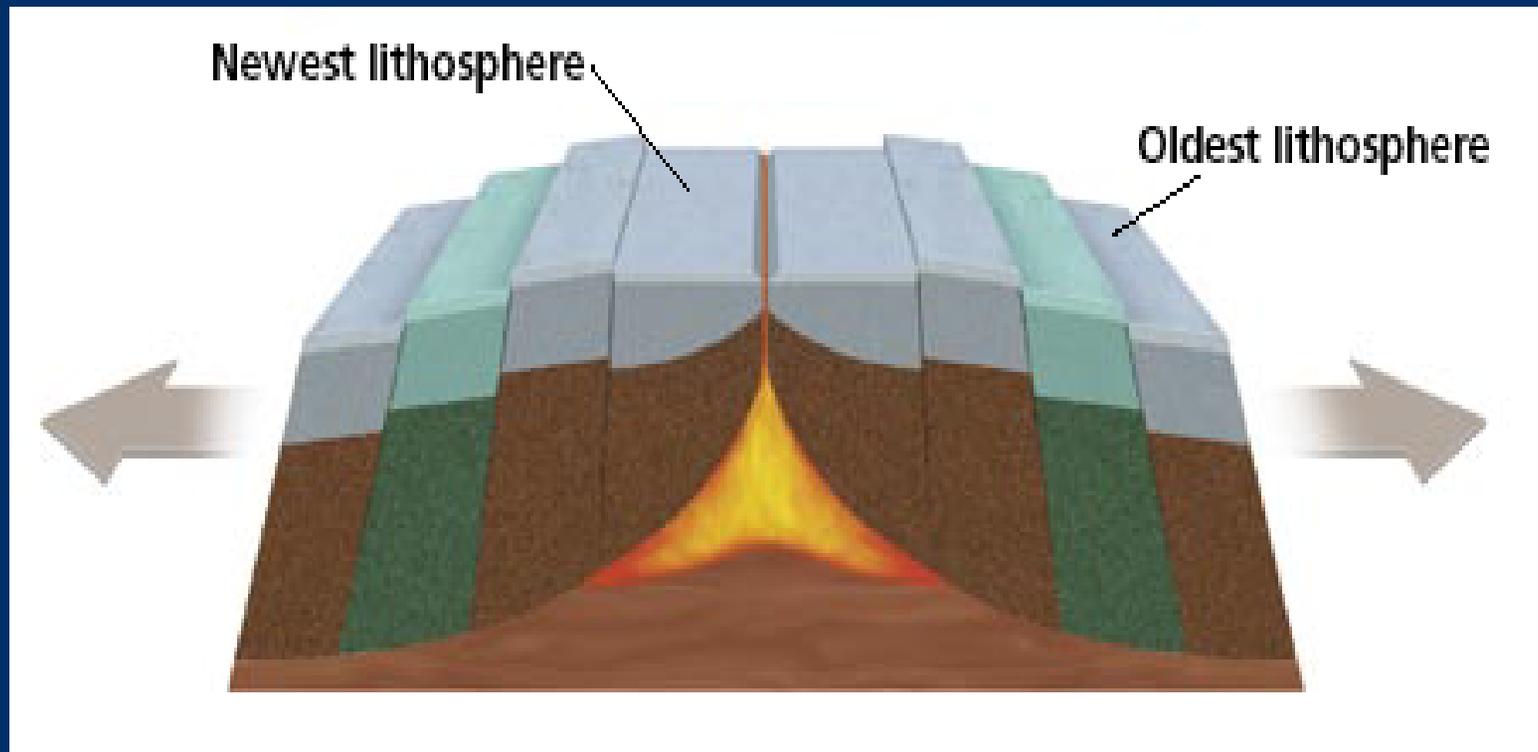
LearnSmart TB Reading due Tues, Sept 18

Quiz-Plate Tectonics Wed, Sept 19, DIA Fri, 9/21

Tips for the School Year: **STAY POSITIVE**



Sea-Floor Spreading, *continued*



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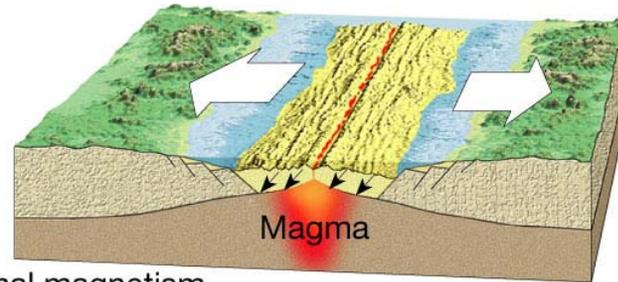
[Resources](#)

9.4 Testing Plate Tectonics

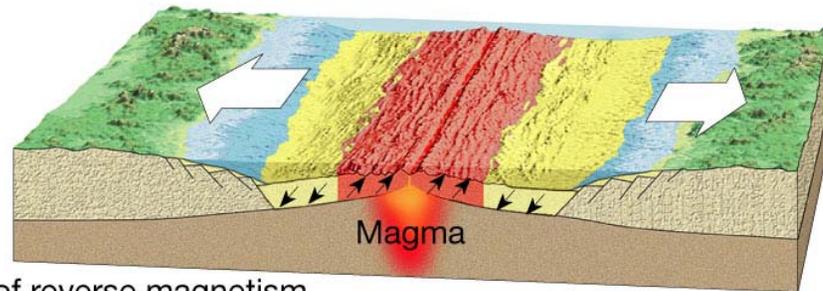
Evidence for Plate Tectonics

- ◆ **Paleomagnetism** is the natural remnant magnetism in rock bodies; this permanent magnetization acquired by rock can be used to determine the location of the magnetic poles at the time the rock became magnetized.
- **Normal polarity**—when rocks show the same magnetism as the present magnetism field
- **Reverse polarity**—when rocks show the opposite magnetism as the present magnetism field

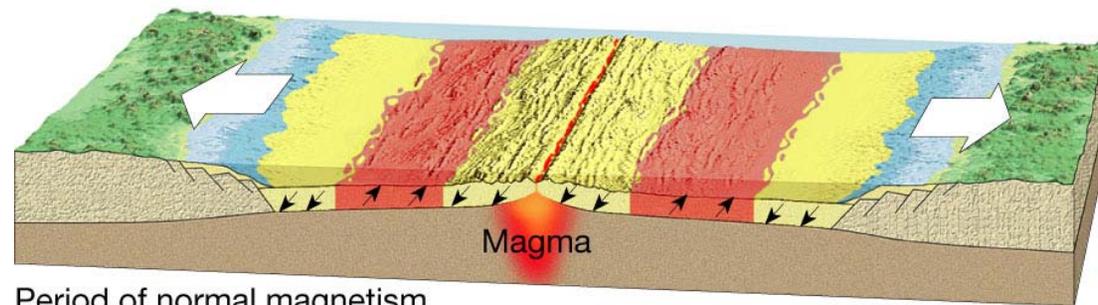
Polarity of the Ocean Crust



Period of normal magnetism



Period of reverse magnetism

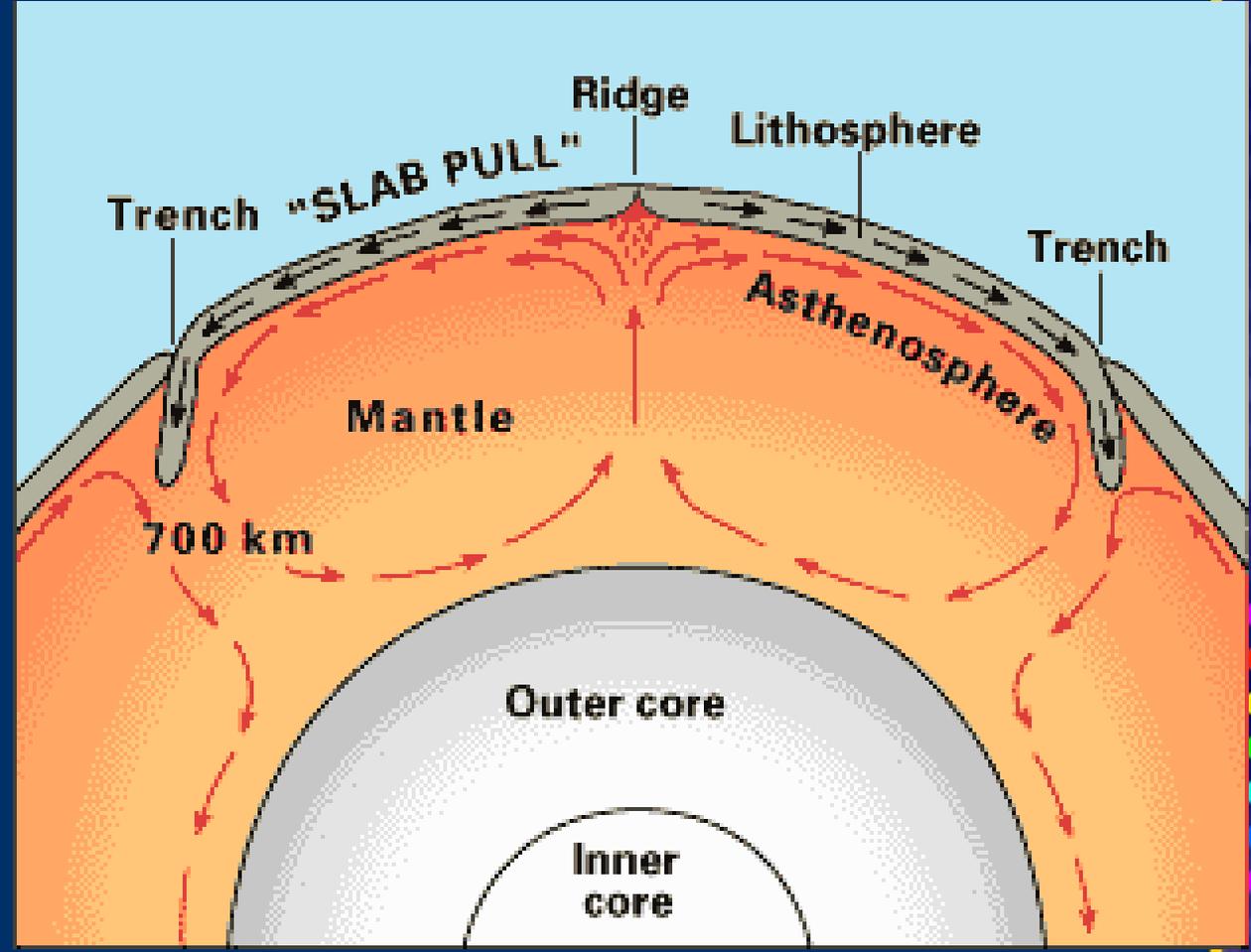


Period of normal magnetism

Causes of Plate Motion

1. **Convection** Warm fluids in the mantle are less dense and rise to the surface. Cooler fluids sink away from the surface. This drags the plates with the currents.
2. **Density** the plate with the higher density will sink below the less dense plate. Oceanic crust is thinner, but more dense than continental crust, so oceanic crust will sink below continental crust. This is called subduction.





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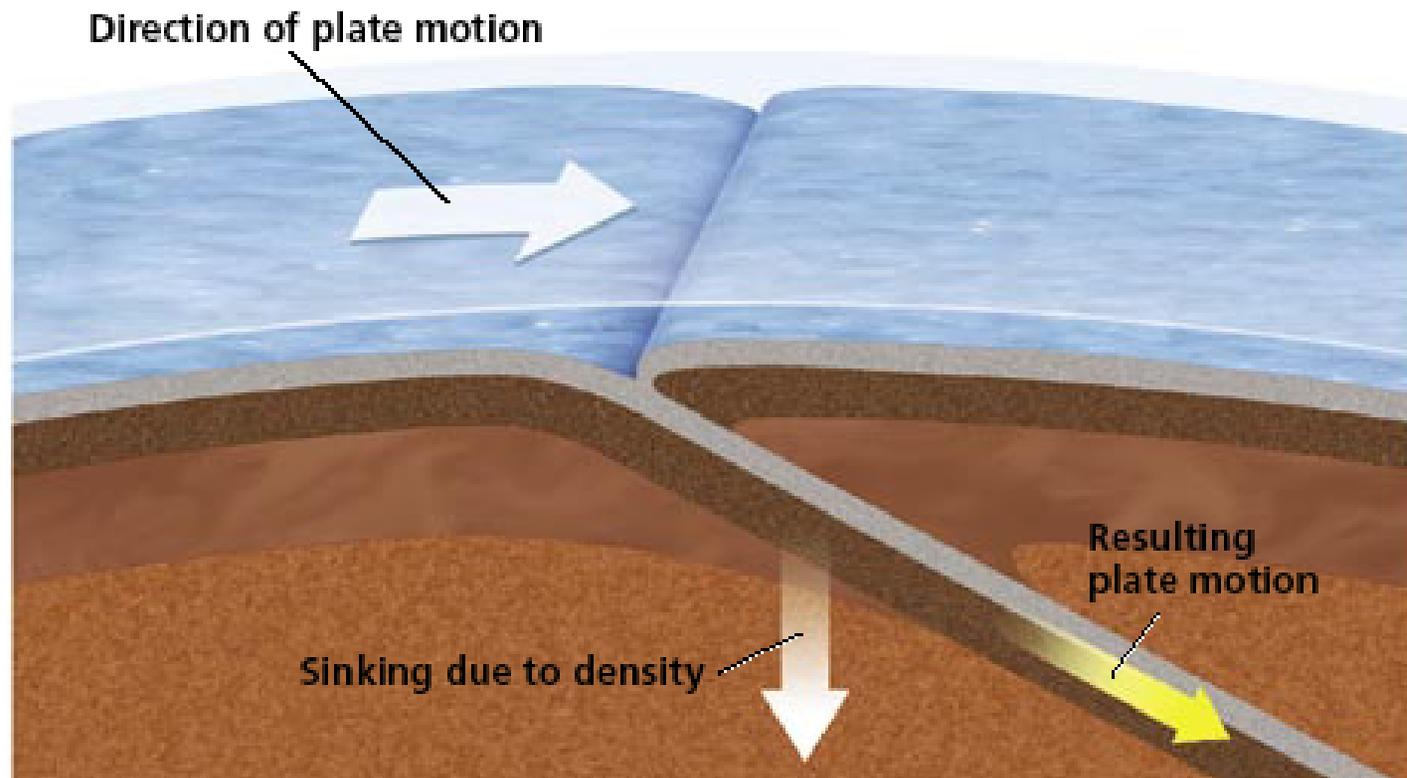


Chapter 10

Section 2 The Theory of Plate Tectonics

Causes of Plate Motion, *continued*

Slab Pull



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9.2 Plate Tectonics

Earth's Major Roles

◆ **Plate tectonics** – The theory that explains how large pieces of the lithosphere called plates move and change shape.

- A **plate** is one of numerous rigid sections of the lithosphere that move as a unit over the material of the asthenosphere.

9.2 Plate Tectonics

Types of Plate Boundaries

- ◆ **Divergent boundaries** (also called spreading centers) are the place where two plates move apart.
- ◆ **Convergent boundaries** form where two plates move together.
- ◆ **Transform fault boundaries** are where two plates grind past each other.

Divergent Boundaries:

Continental - Continental

- Place where continental plates are splitting. Landform created “rift valley”
- When spreading centers develop within a continent, the landmass may split into two or more smaller segments, forming a rift.
- Rift – where two plates are splitting apart

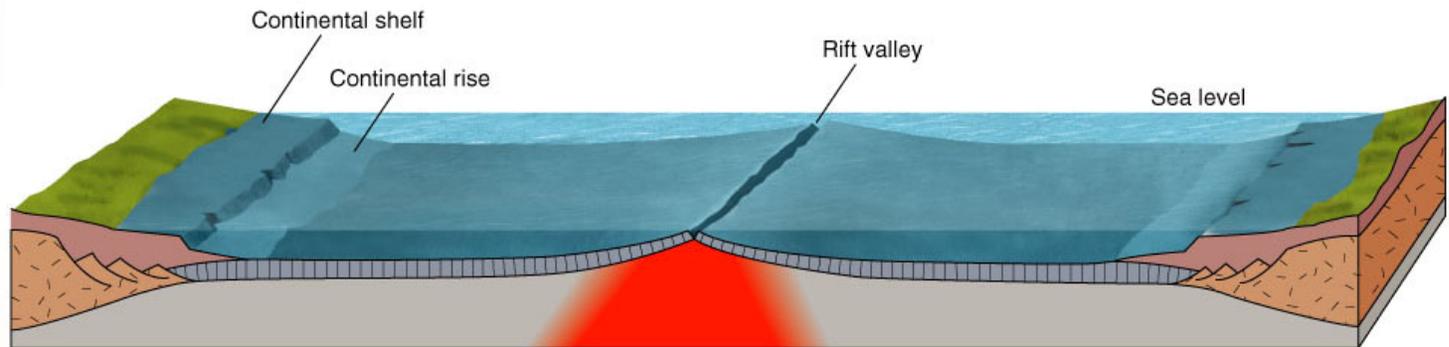
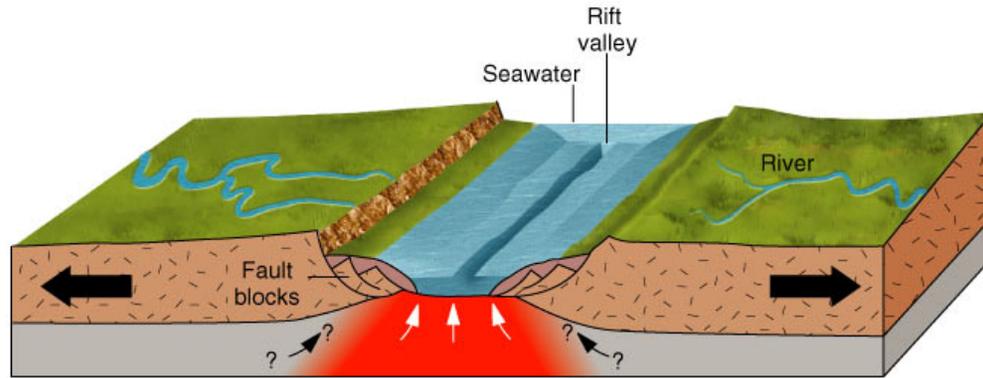
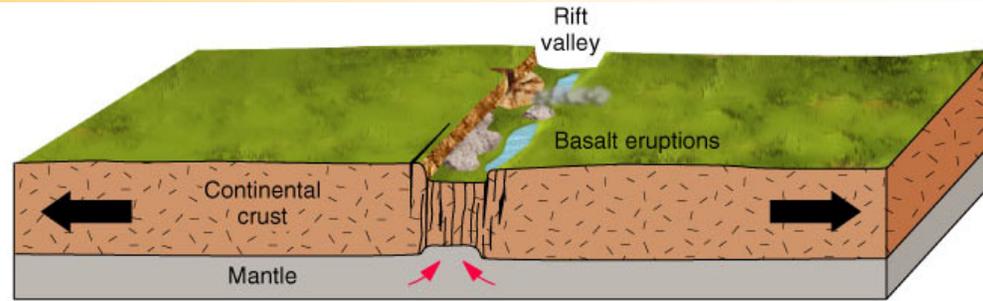
Real World Example: East African Rift Valley



East African Rift Valley



Draw:

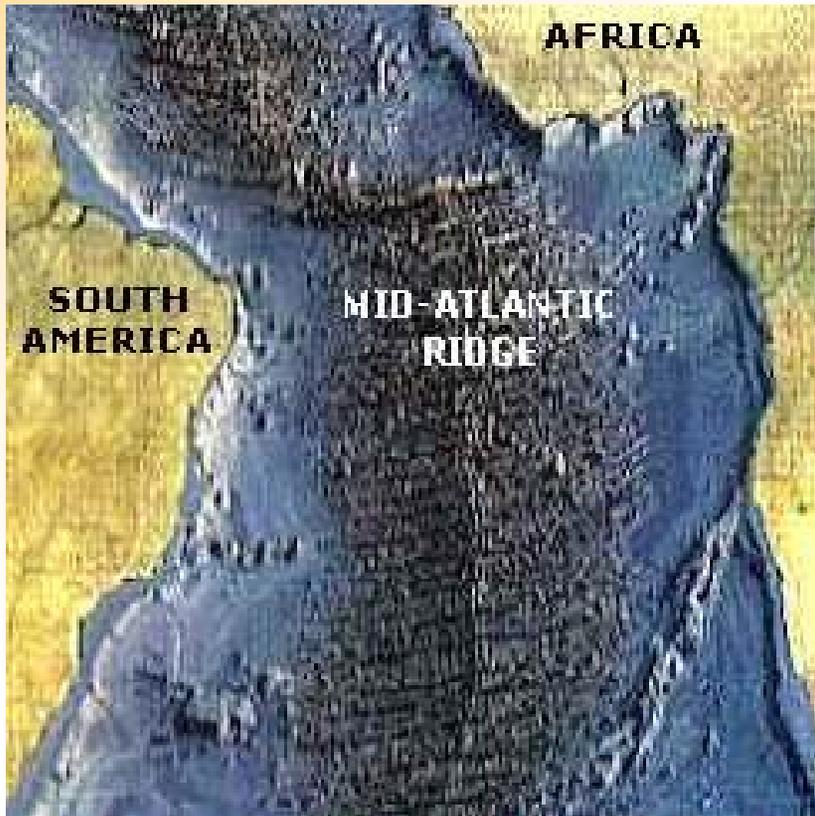


Divergent Boundary Oceanic – Oceanic

Location where oceanic crusts move away from each other.

Landform created is mid-ocean ridge.

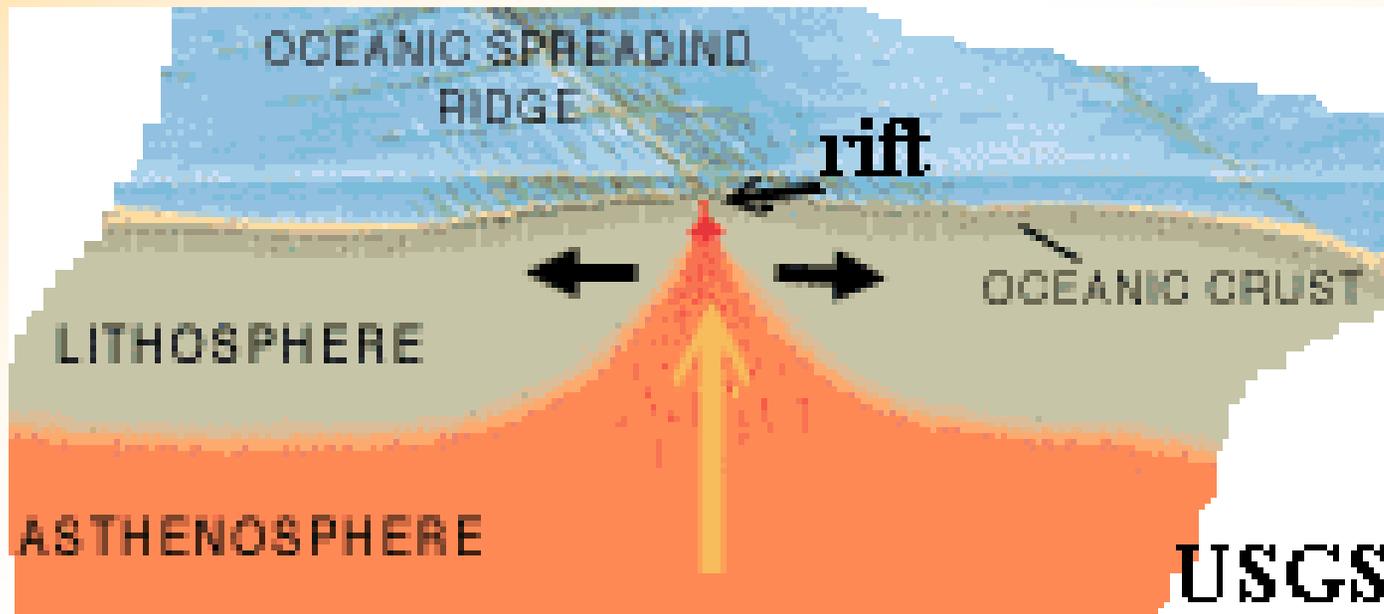
Real World Example: Mid-Atlantic Ridge



ICELAND IS SPLITTING due to Mid-Atlantic Ridge



Draw:



9.3 Actions at Plate Boundaries

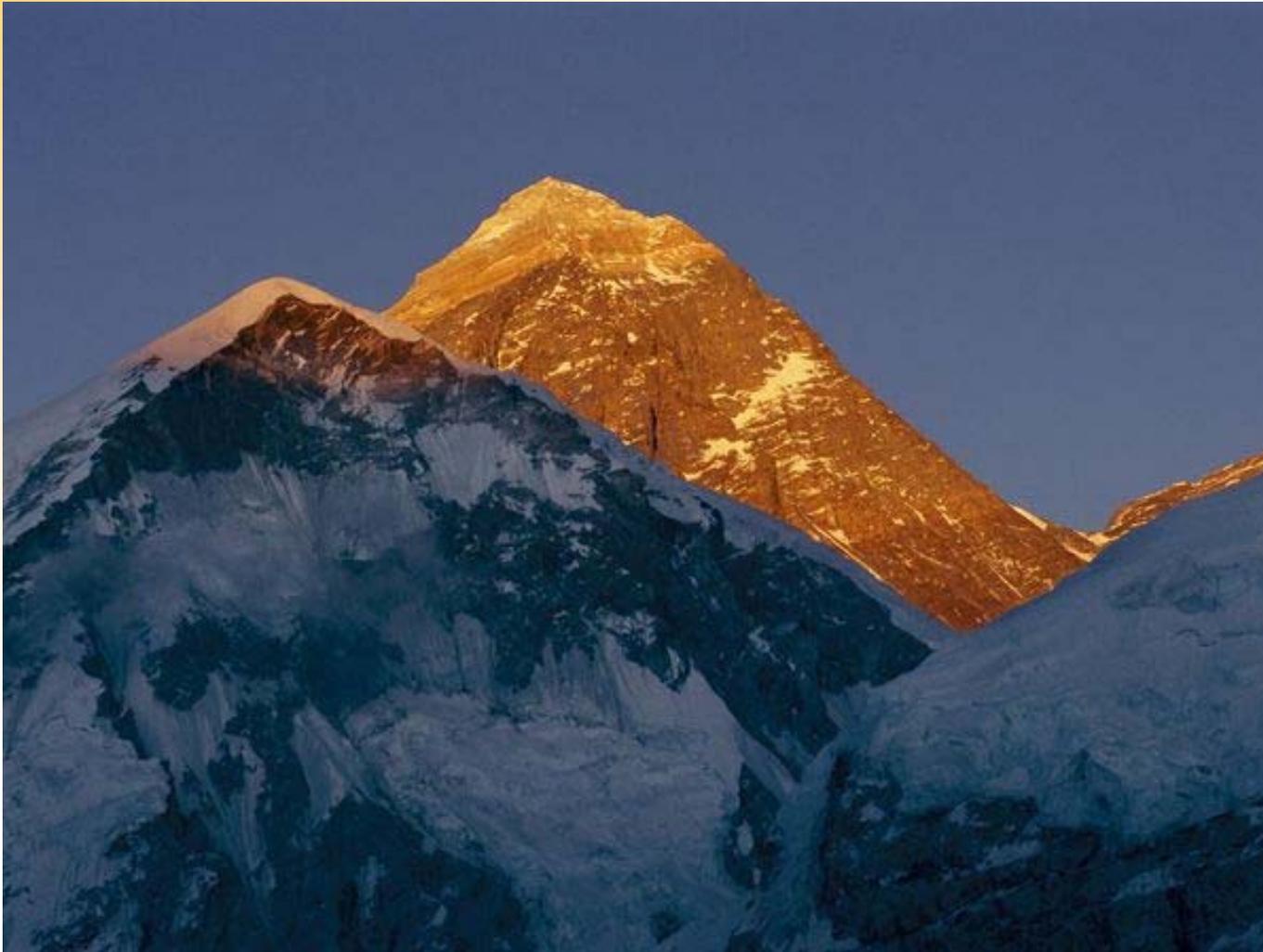
Convergent Boundaries

◆ Continental-Continental

- When subducting plates contain continental material, two continents collide.
- Landform created: mountain ranges

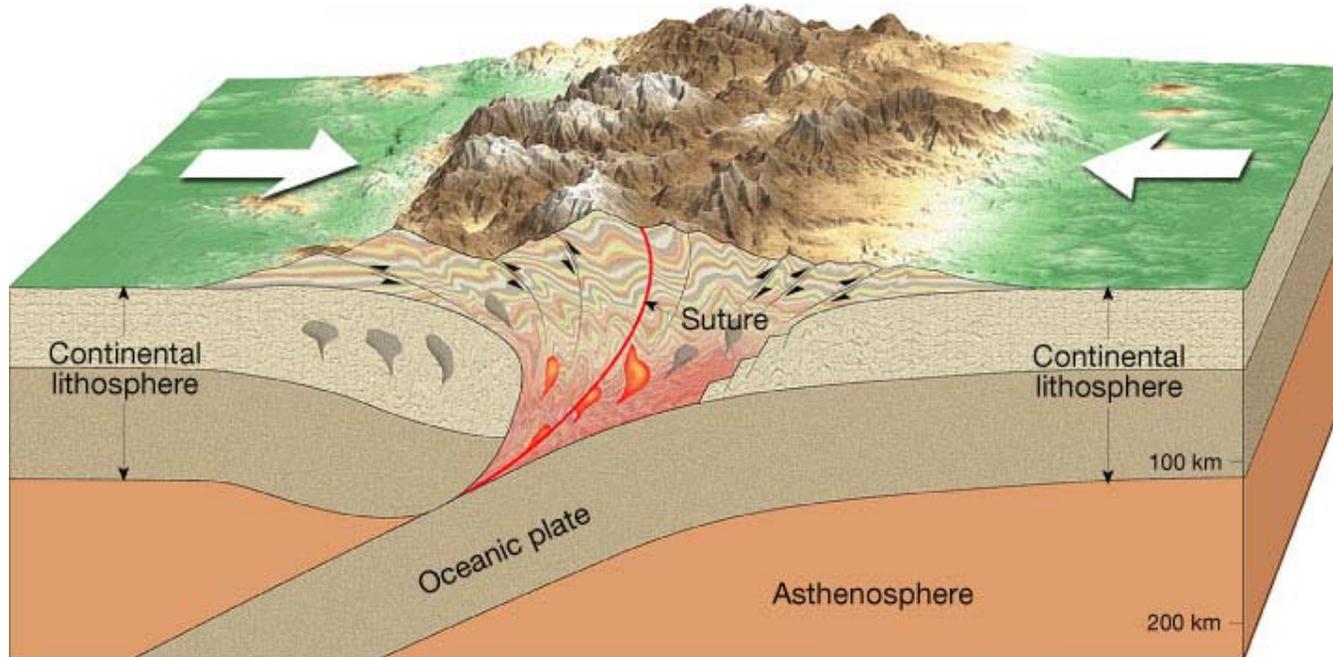
Real world example: Himalayas.

Continental – Continental Himalayas (Mount Everest

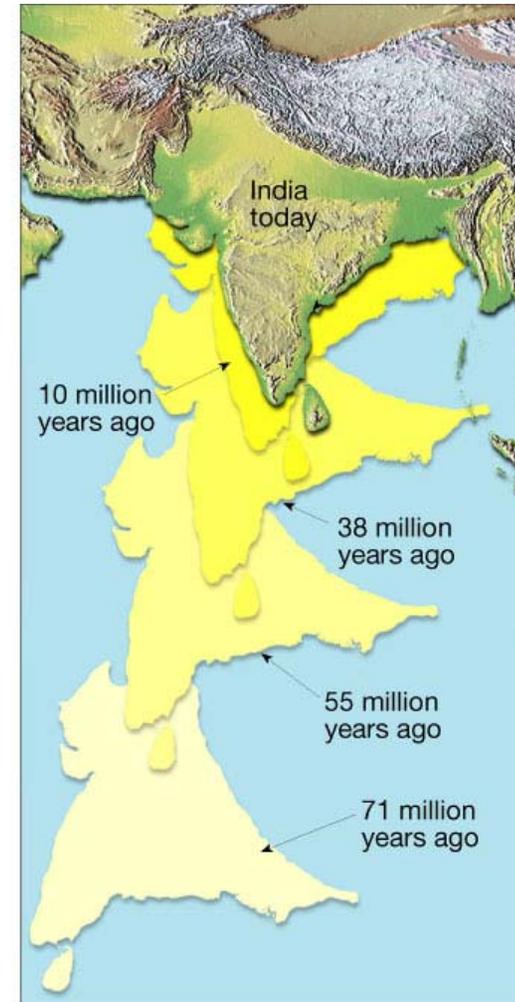
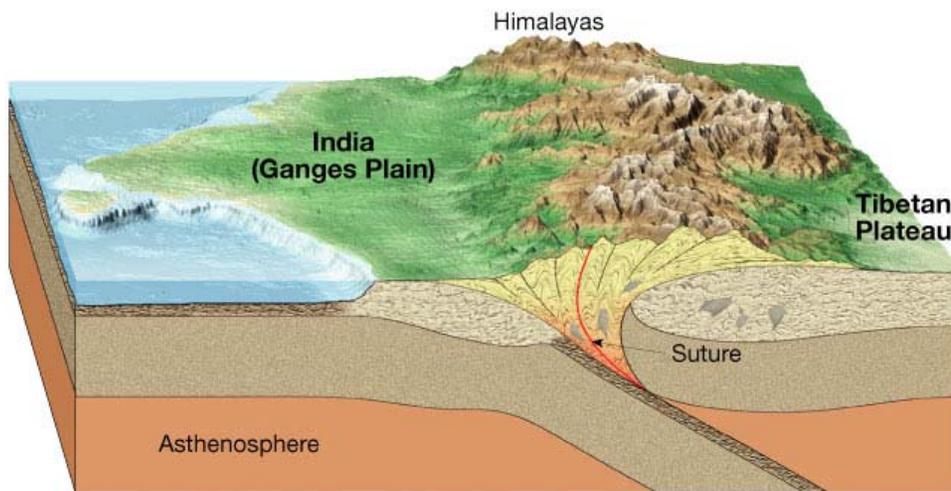
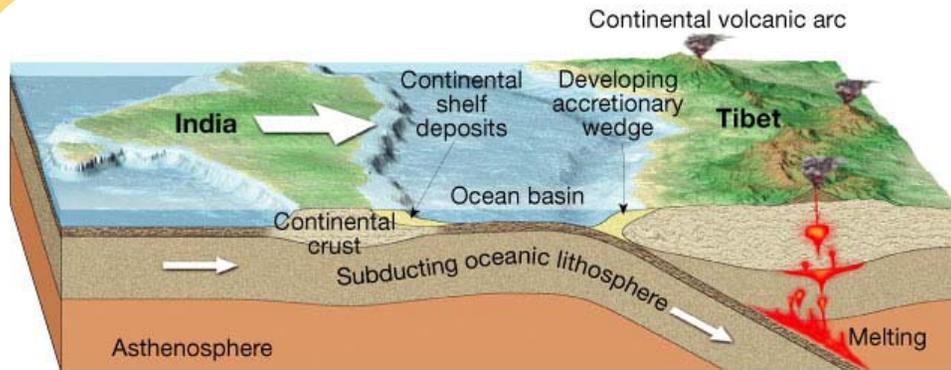


Continental-Continental Convergent Boundary

Draw:



Collision of India and Asia



9.3 Actions at Plate Boundaries

Convergent Boundaries

◆ Oceanic-Oceanic

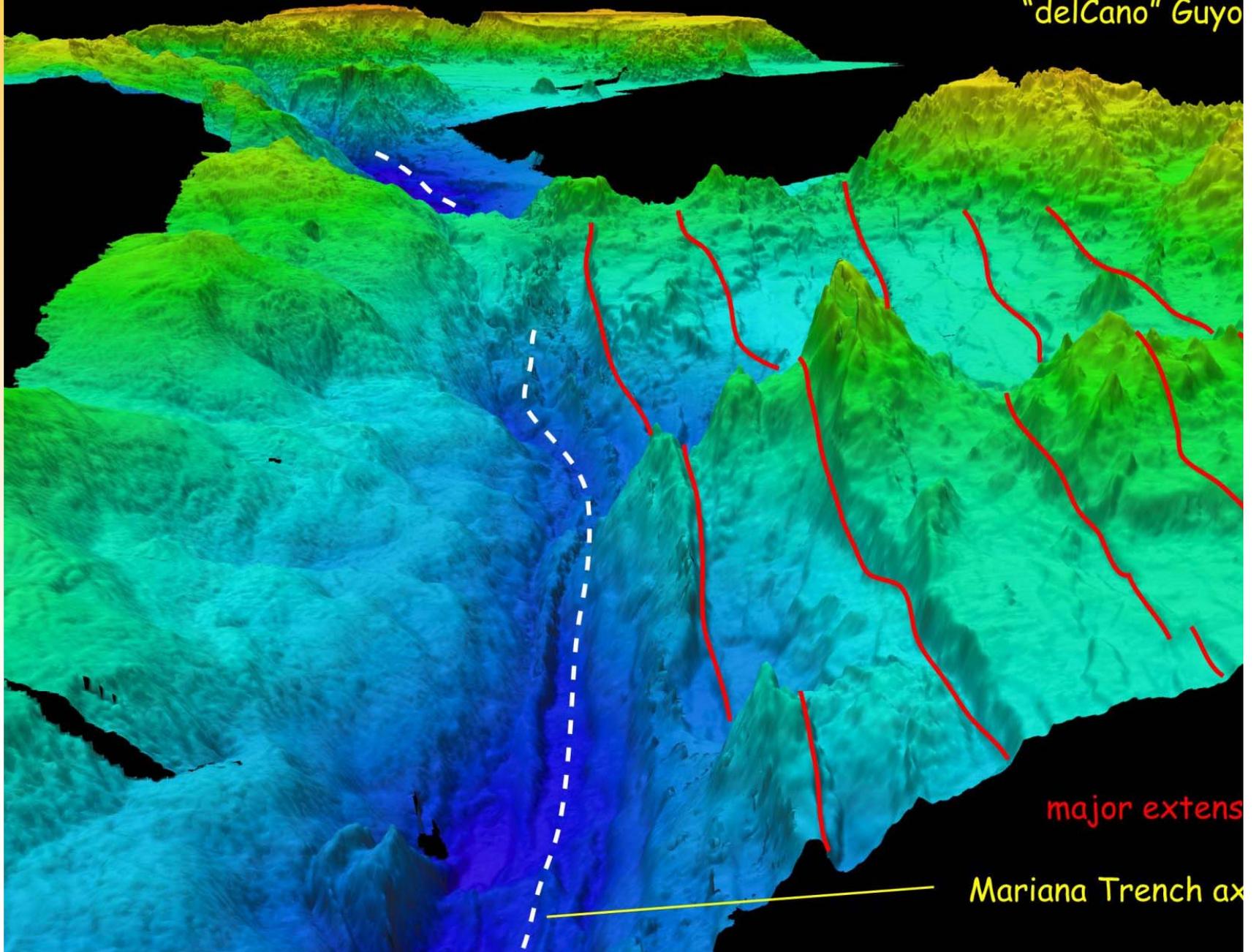
- Two oceanic slabs converge and the more dense one descends beneath the other.

- Landforms created: **Volcanic island arcs and ocean trenches**

Fryer Guyot

Vogt Guyot

"delCano" Guyot

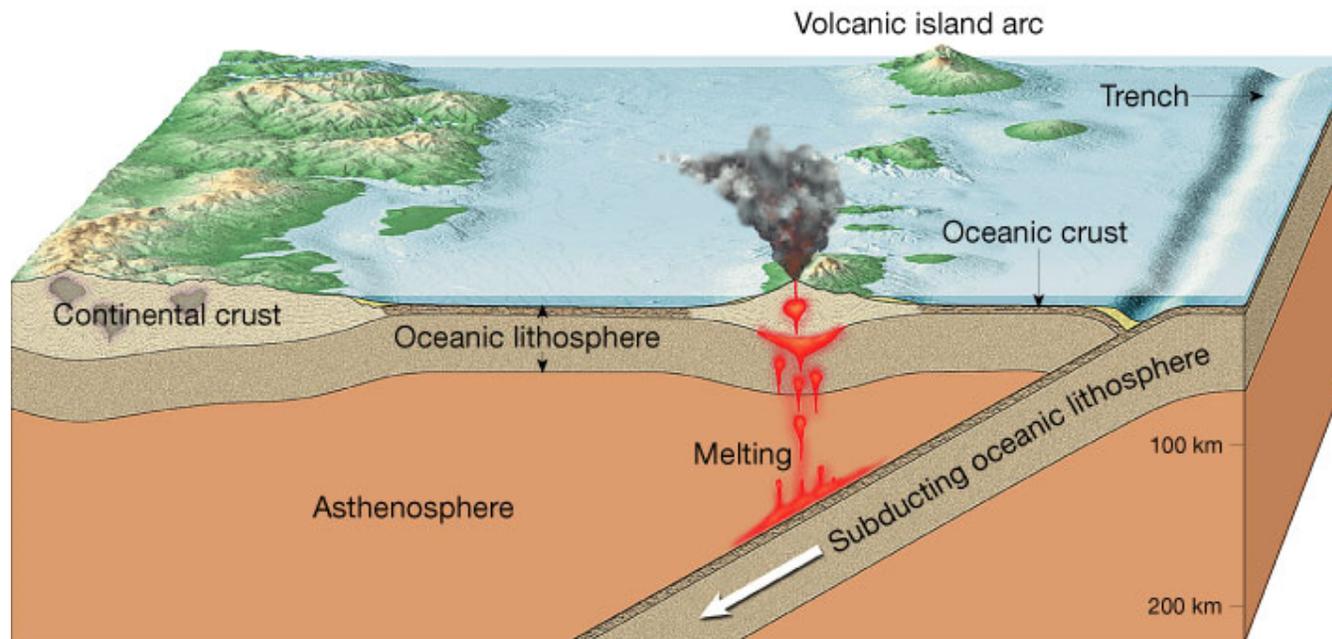


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Mariana Trench ax

Oceanic-Oceanic Convergent Boundary

Draw:



9.3 Actions at Plate Boundaries

Convergent Boundaries

- ◆ Oceanic-Continental
 - Denser oceanic slab sinks into the asthenosphere.
 - Pockets of magma develop and rise.
 - Landforms created: Coastal Mountain Volcanoes
Continental volcanic arcs
 - Examples include the Andes, Cascades, and the Sierra Nevadas.

Continental – oceanic Andes

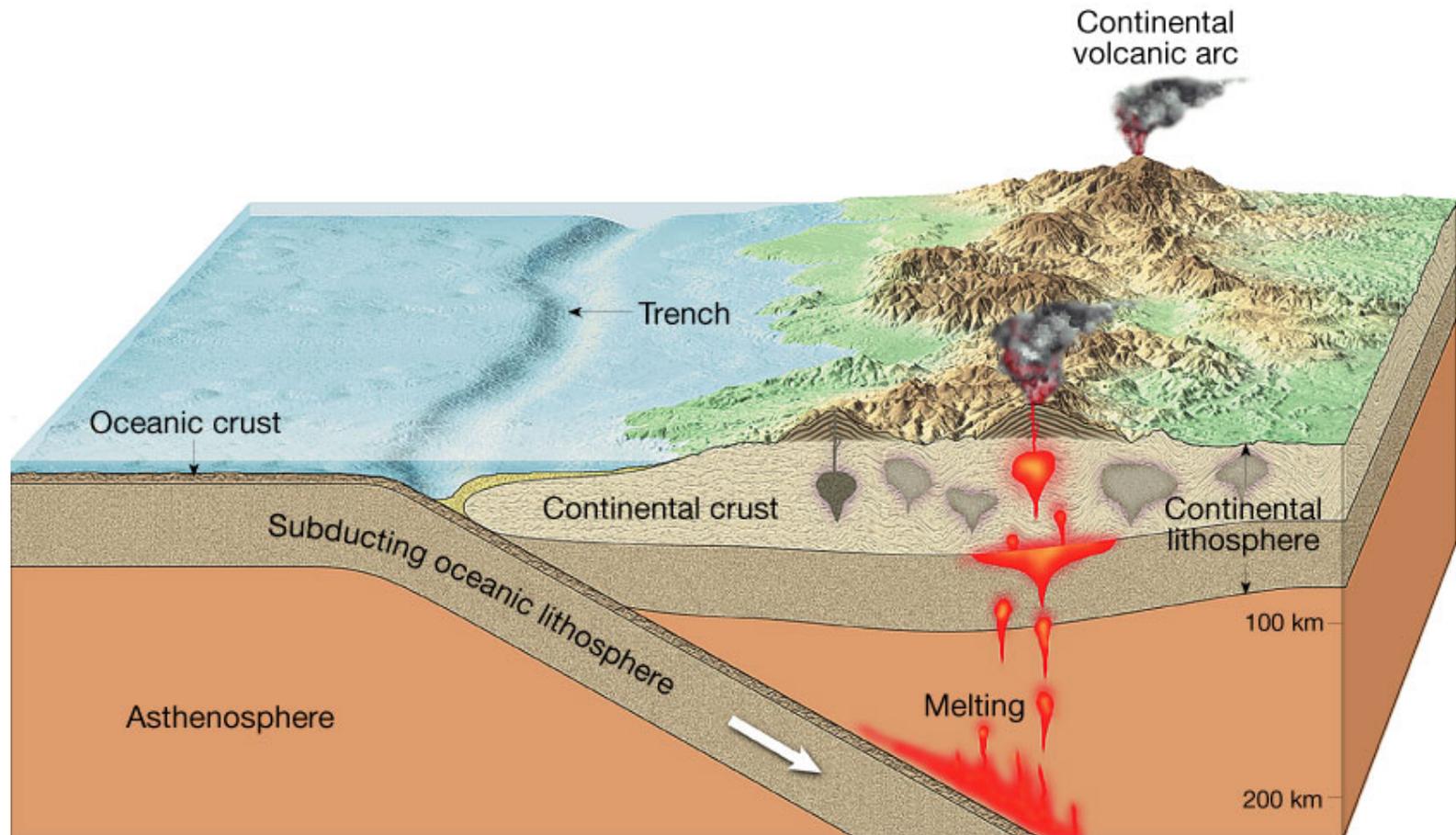


Continental – Oceanic Cascade Mountains (Mt. St. Helens)



Oceanic-Continental Convergent Boundary

Draw



9.3 Actions at Plate Boundaries

Transform Fault Boundaries

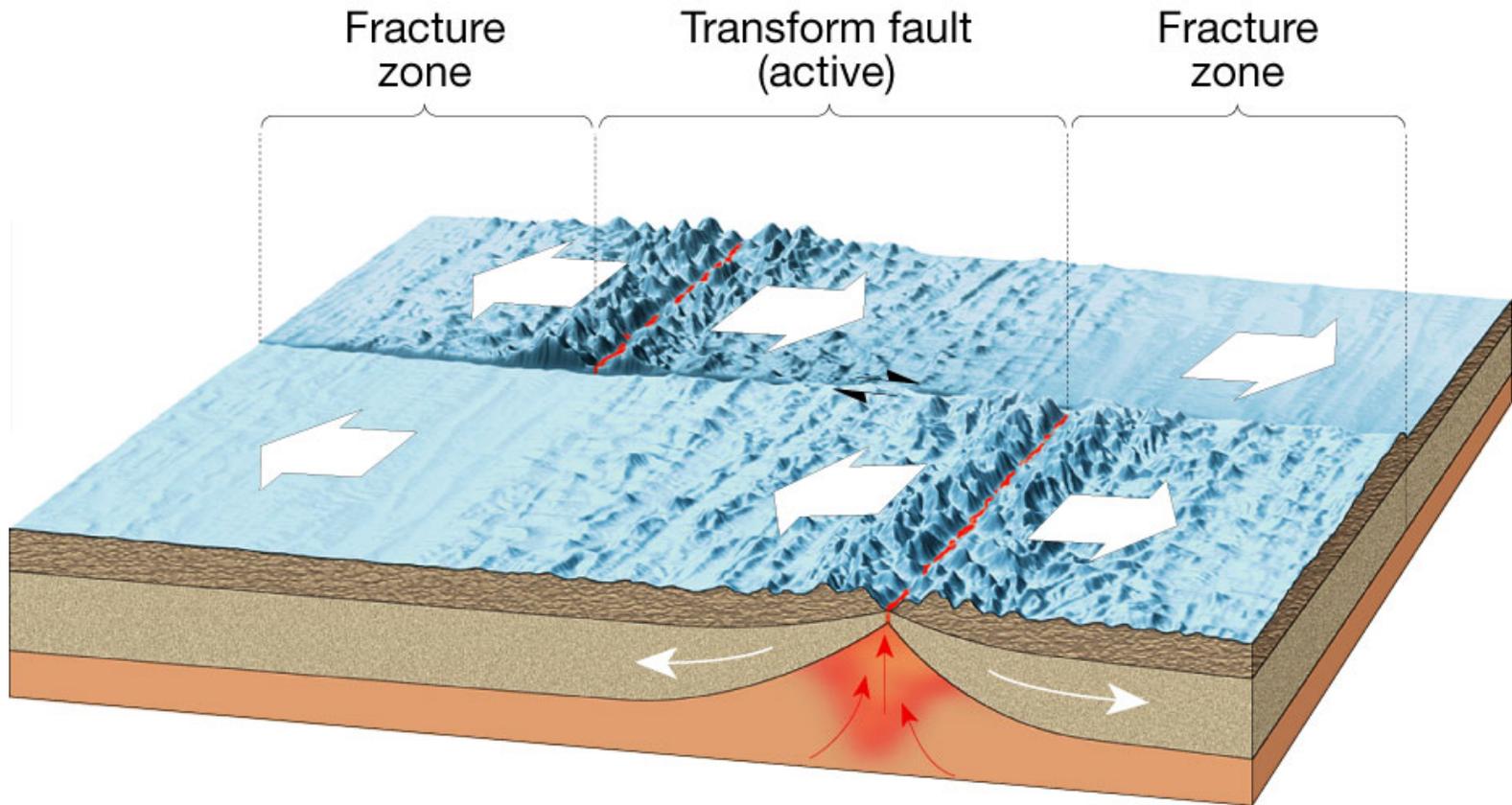
- ◆ At a transform fault boundary, plates grind past each other without destroying the lithosphere.
- ◆ Landform: Fault
- ◆ Real World Example: San Andreas Fault

San Andreas Fault



Transform Fault Boundary

Draw:



9.4 Testing Plate Tectonics

ON THE BACK: Evidence for Plate Tectonics

Earthquake Patterns

- Scientists found a close link between deep-focus earthquakes and ocean trenches.
- The absence of deep-focus earthquakes along the oceanic ridge system was shown to be consistent with the new theory.