

A passive plate margin

FIGURE 4.4

Continental margins are not necessarily plate margins!

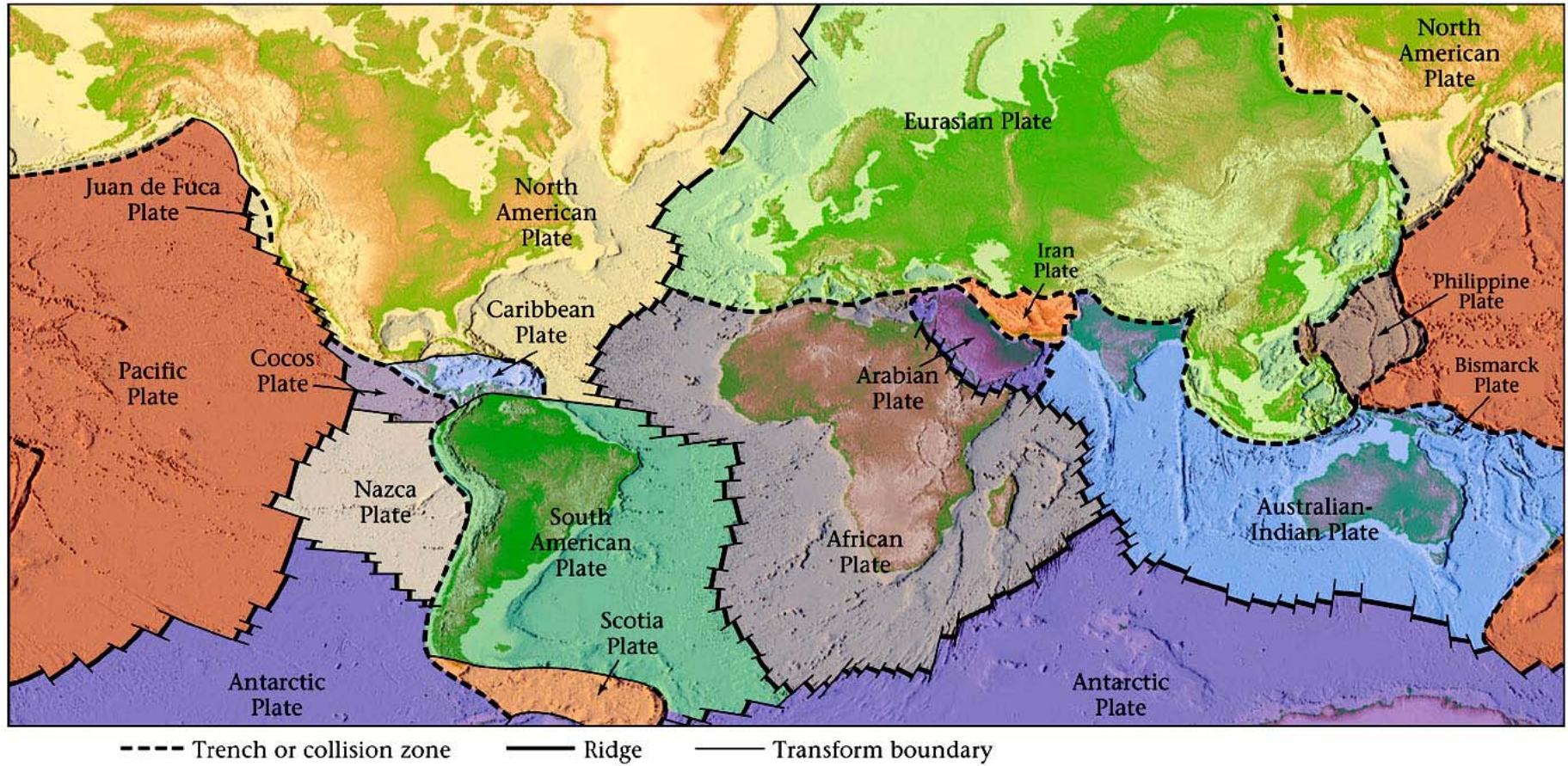
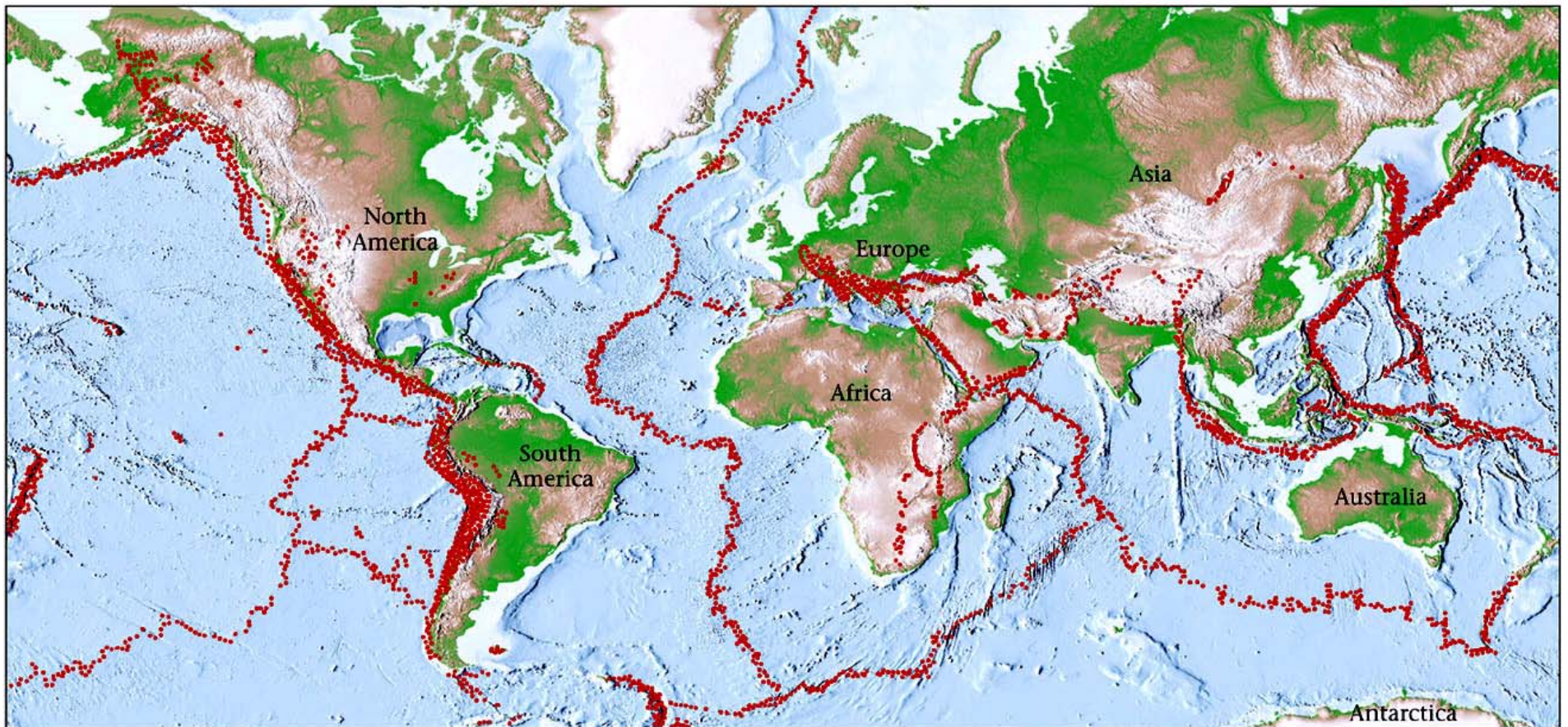


FIGURE 4.3



Earthquake Locations

FIGURE 4.5

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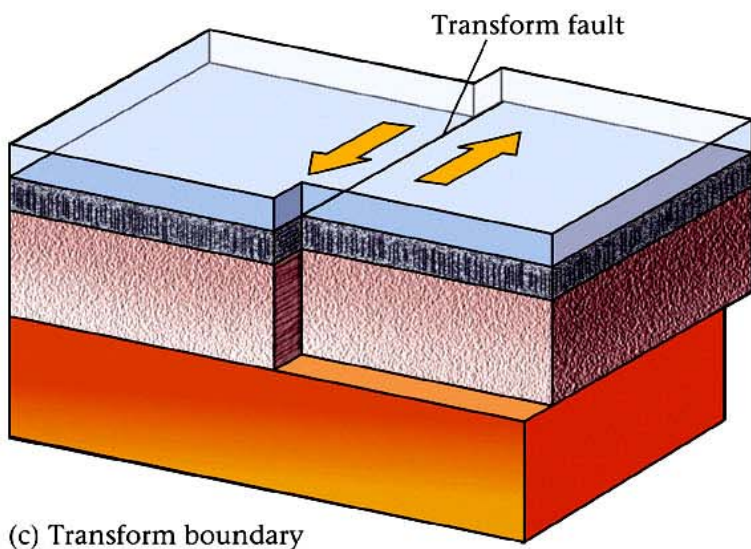
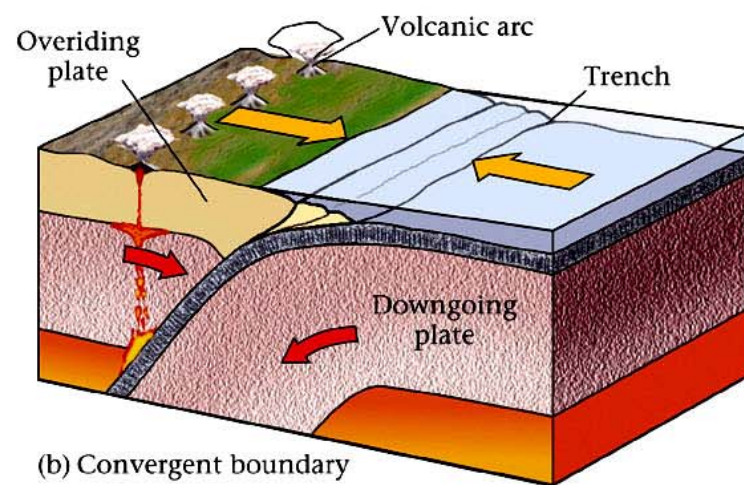
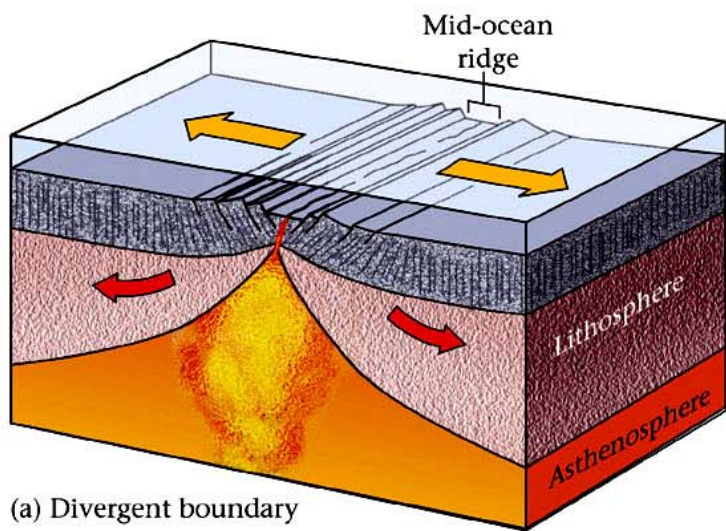
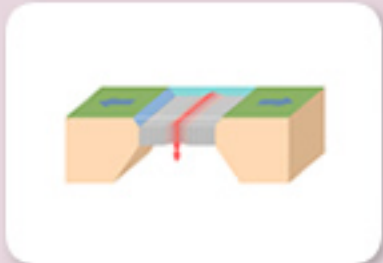


FIGURE 4.6



Basic Plate Boundaries

Animation

Geologists define three types of plate boundary, based simply on the relative motions of the plates on either side of the boundary. These basic types—*divergent*, *convergent*, and *transform plate* boundaries—are shown in this three-part animation.

▶▶ [PC version](#)

▶▶ [Mac version](#)

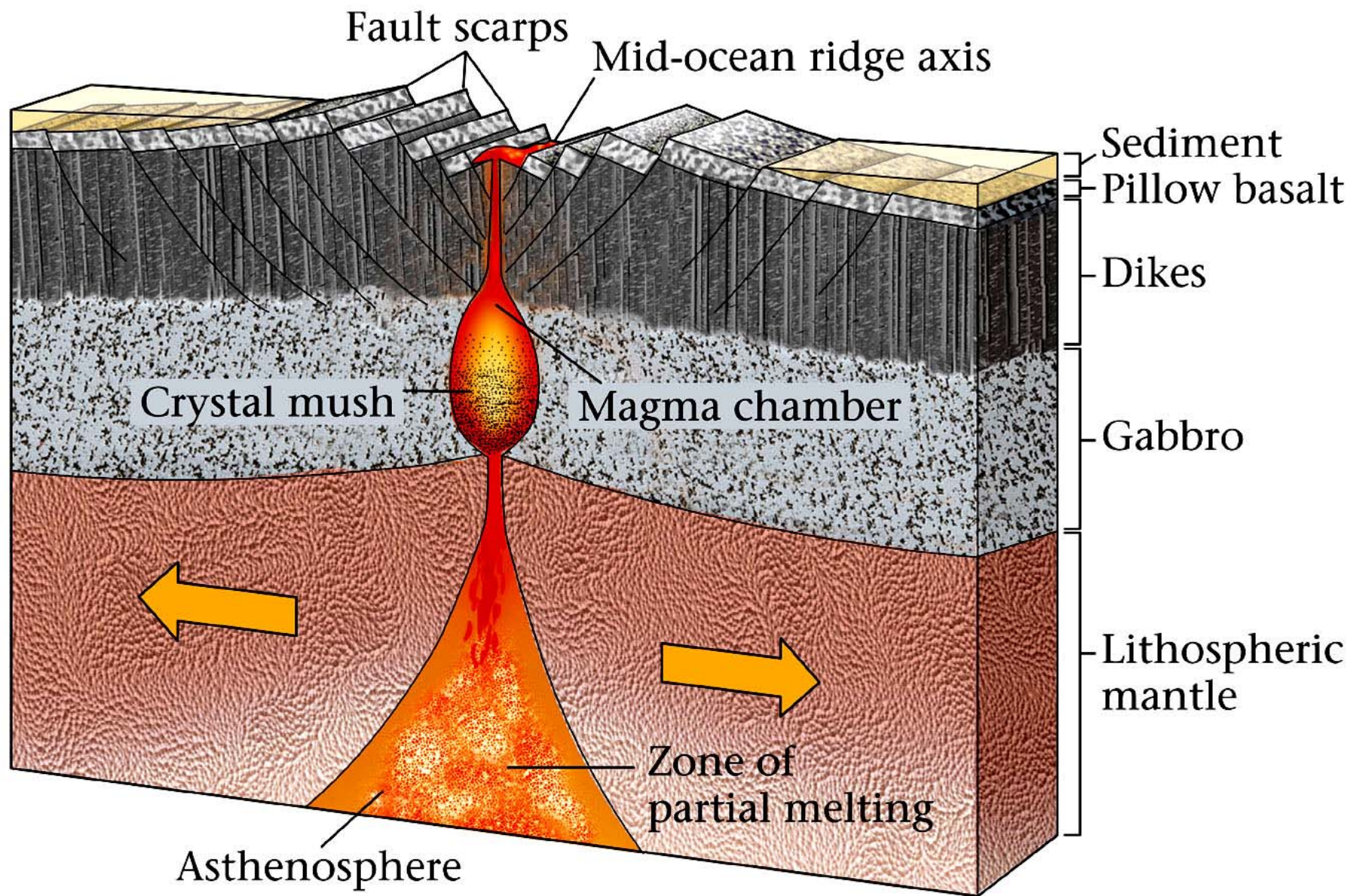


FIGURE 4.8

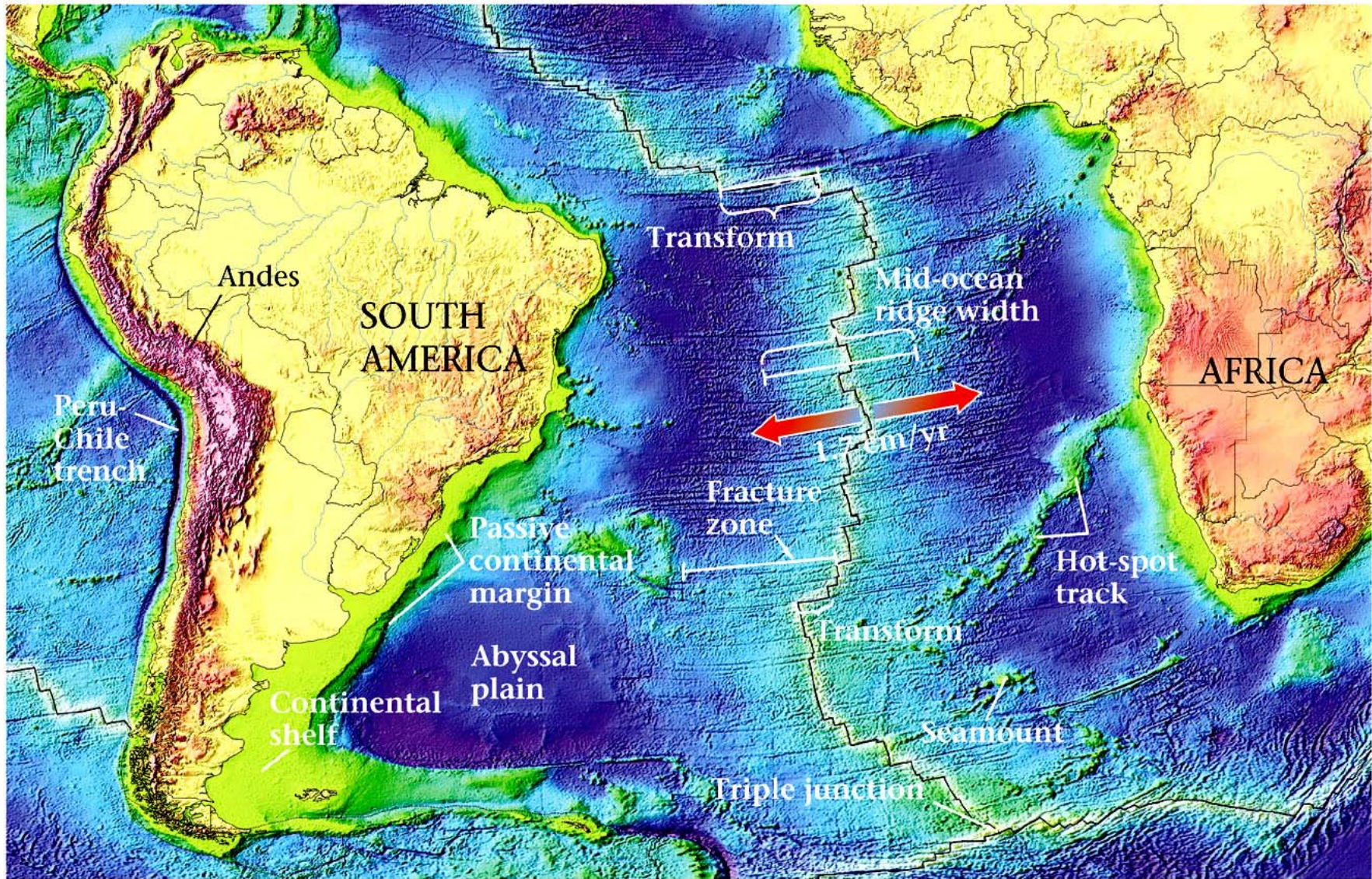


FIGURE 4.9

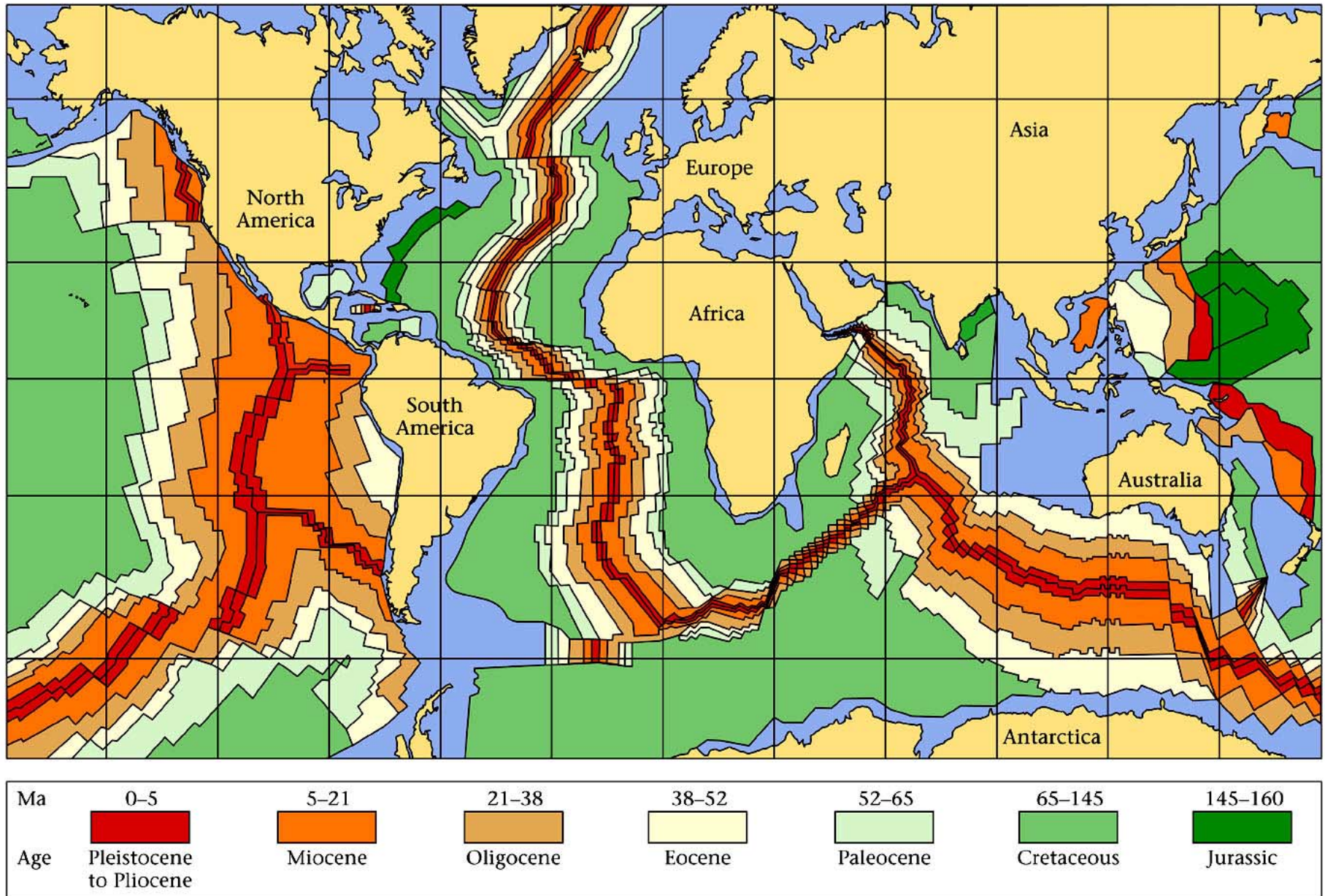


FIGURE 4.11

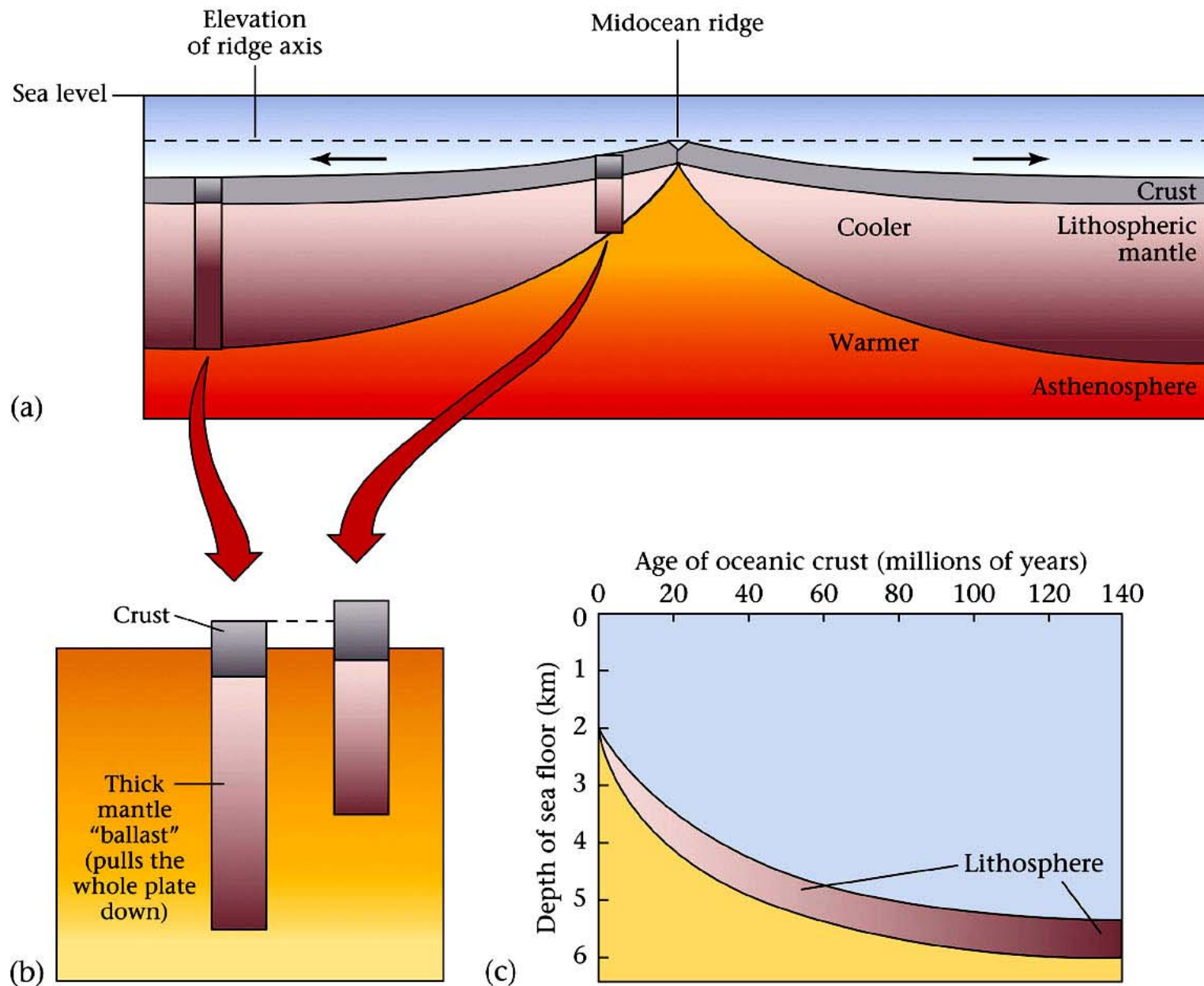
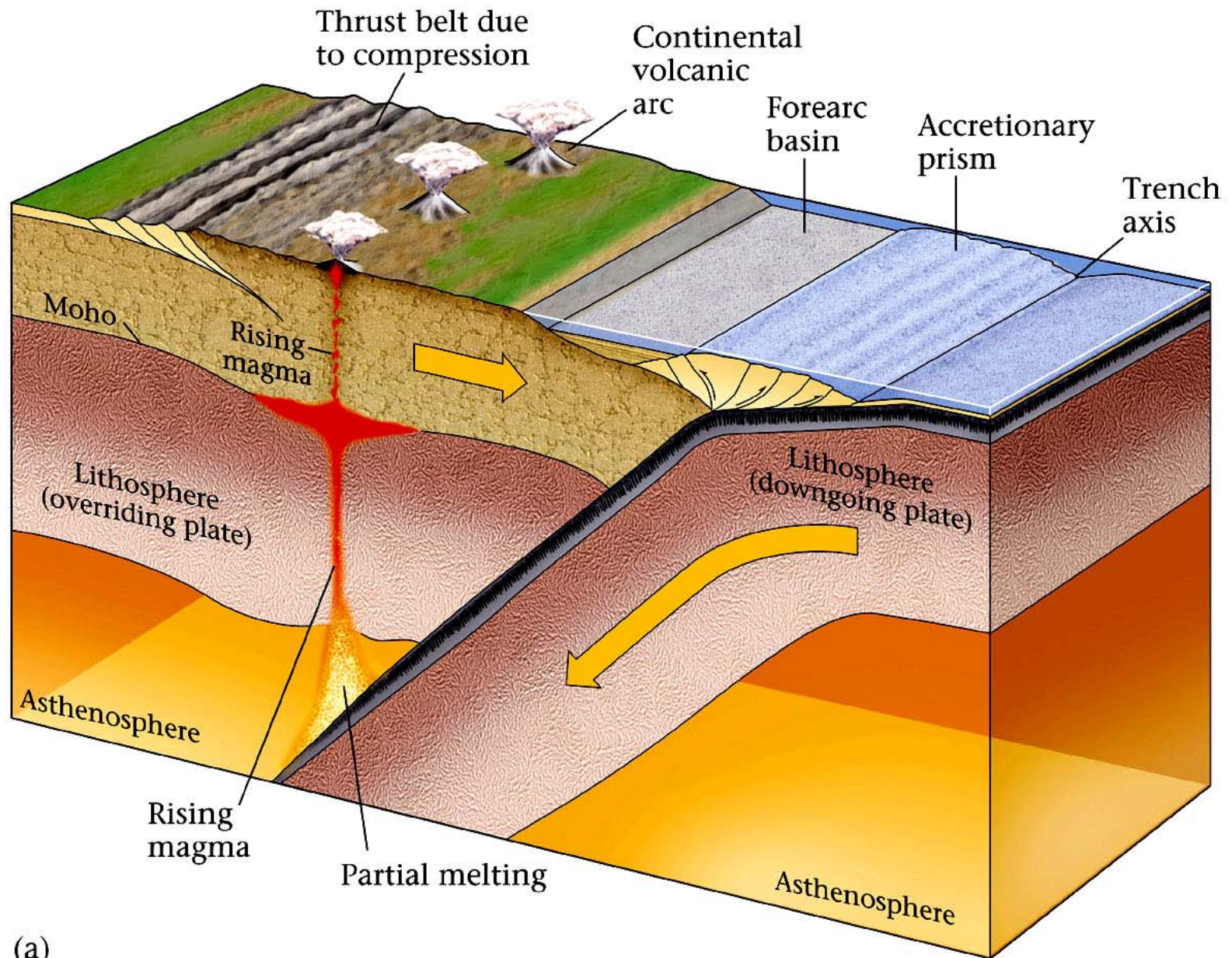
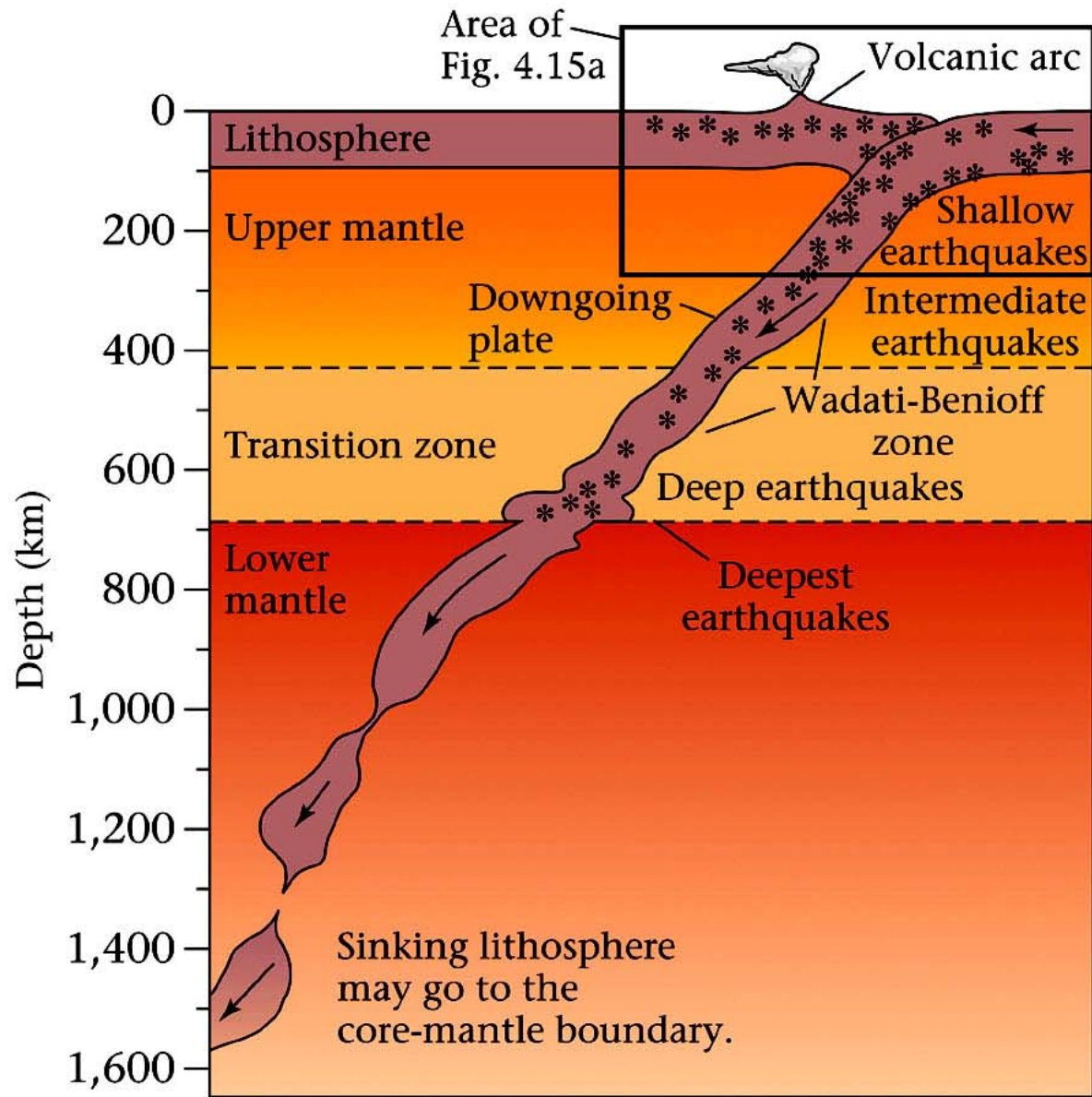


FIGURE 4.12



(a)

FIGURE 4.15



(a)

FIGURE 4.14

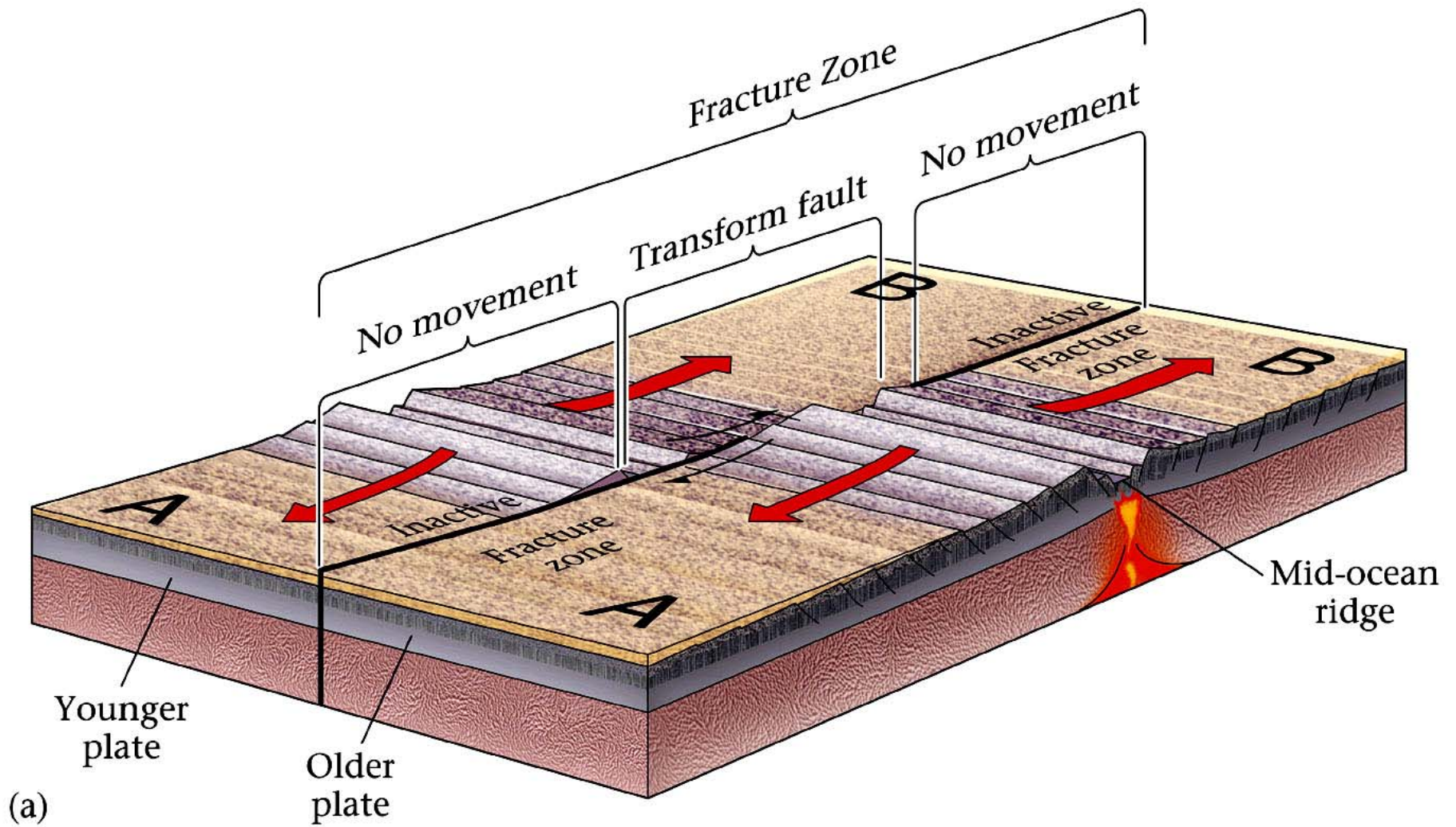
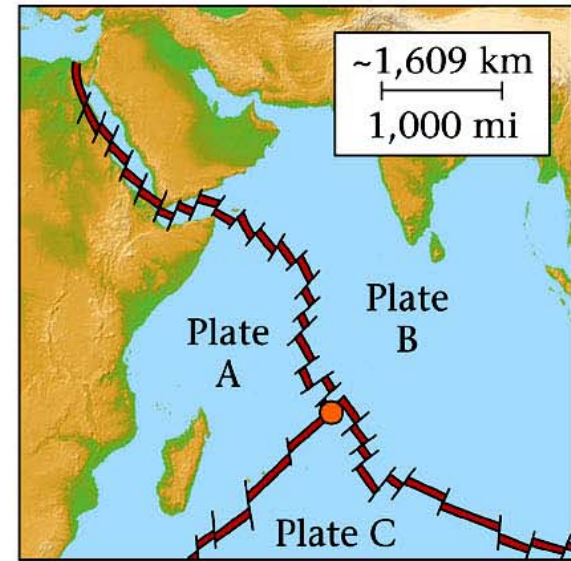


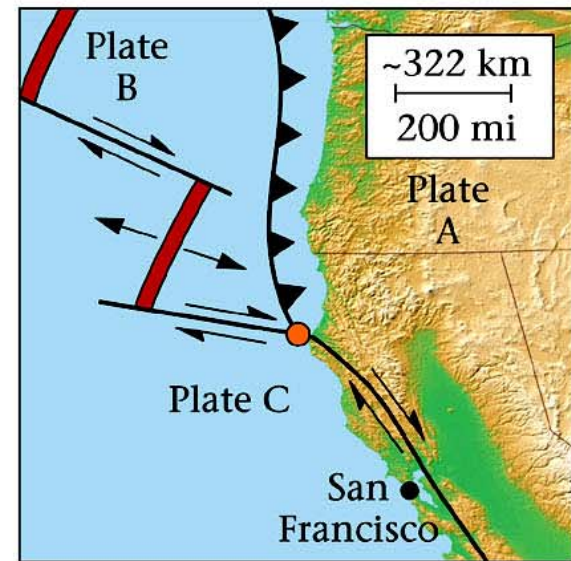
FIGURE 4.17



(a)



(a)



(b)

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FIGURES 4.19 and 4.20

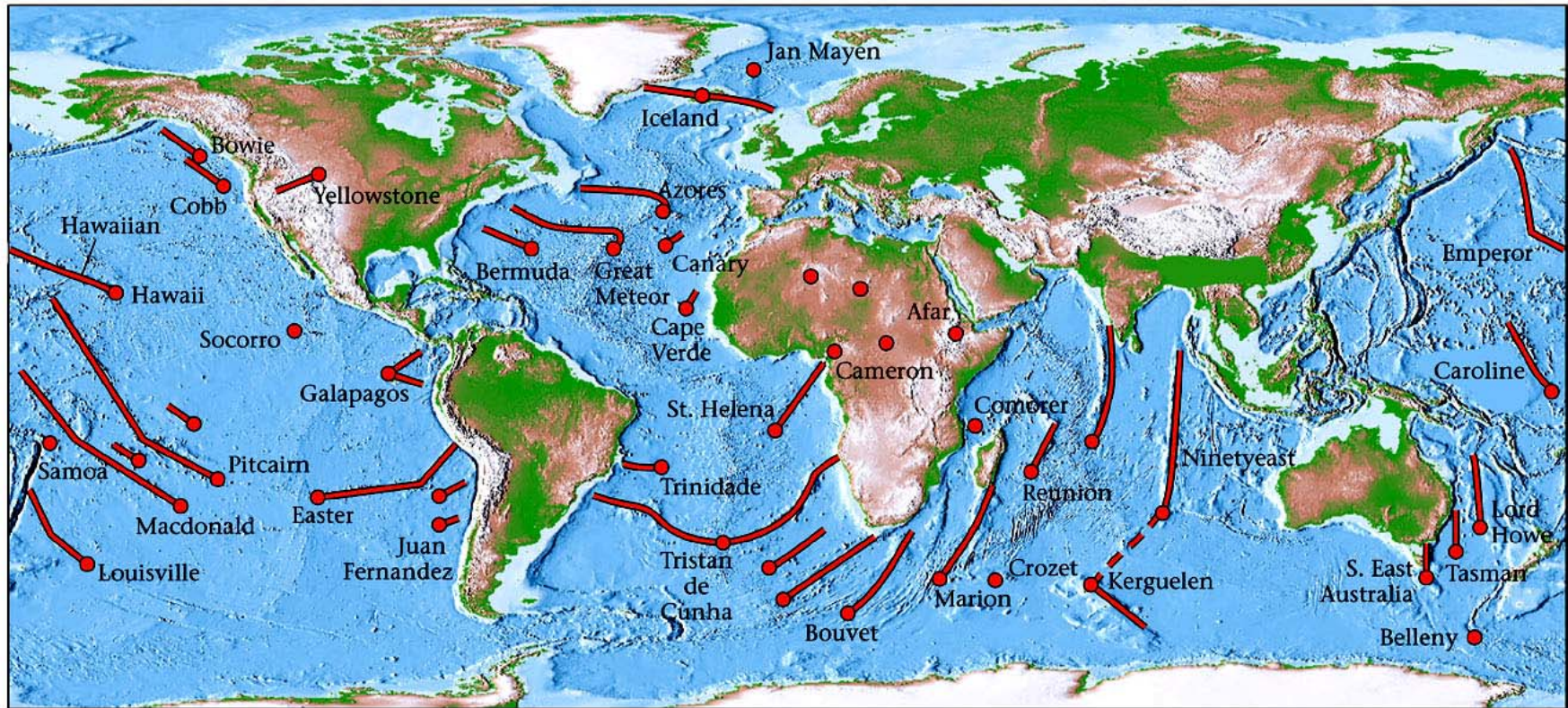


FIGURE 4.21

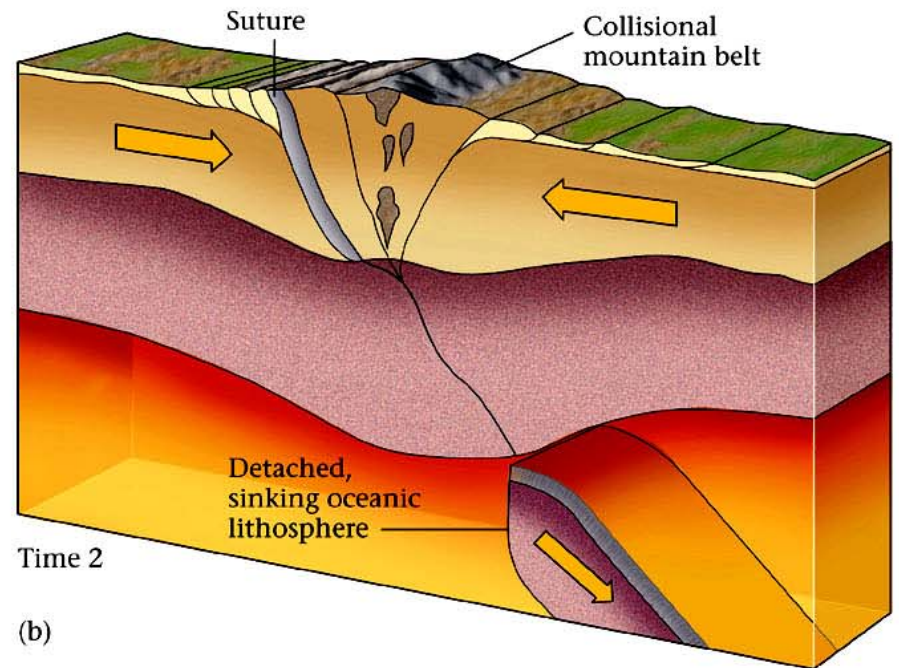
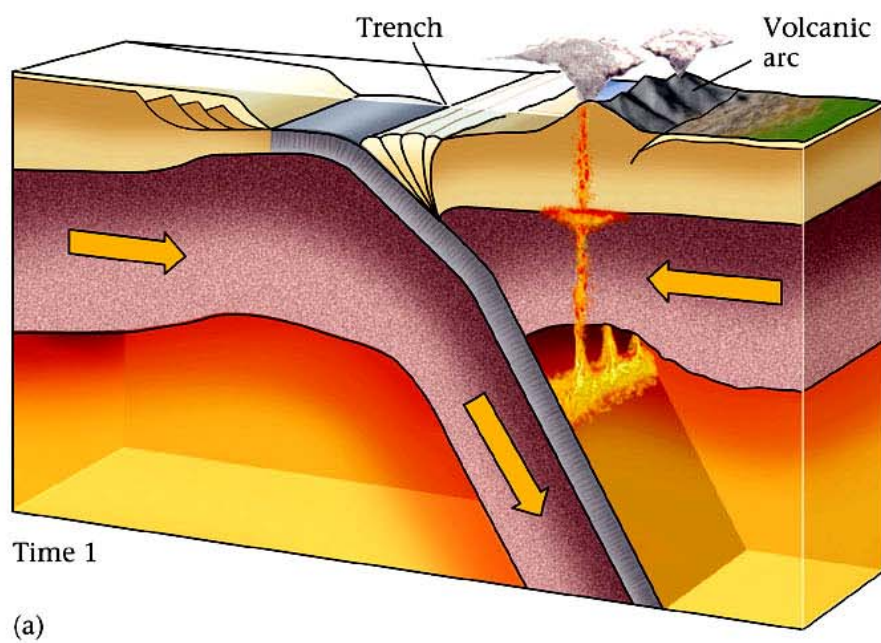
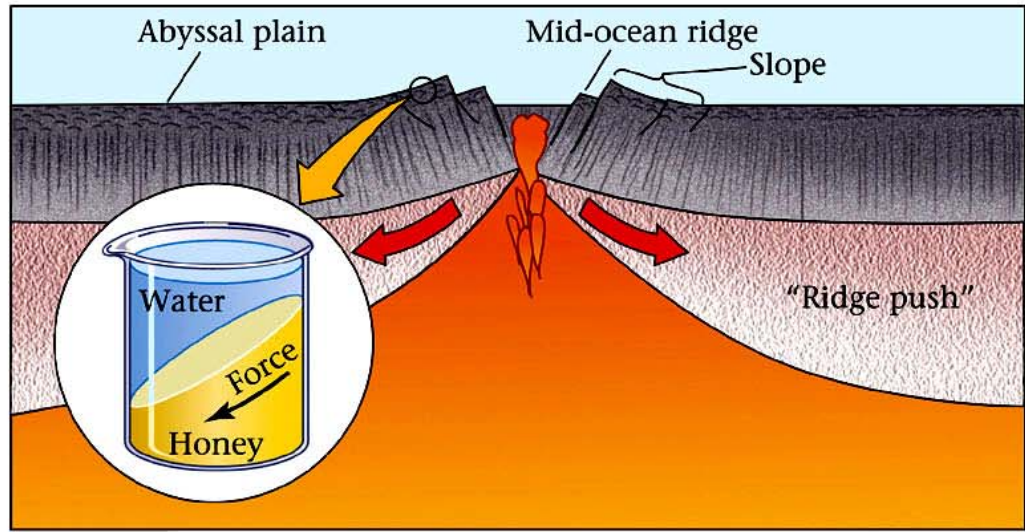
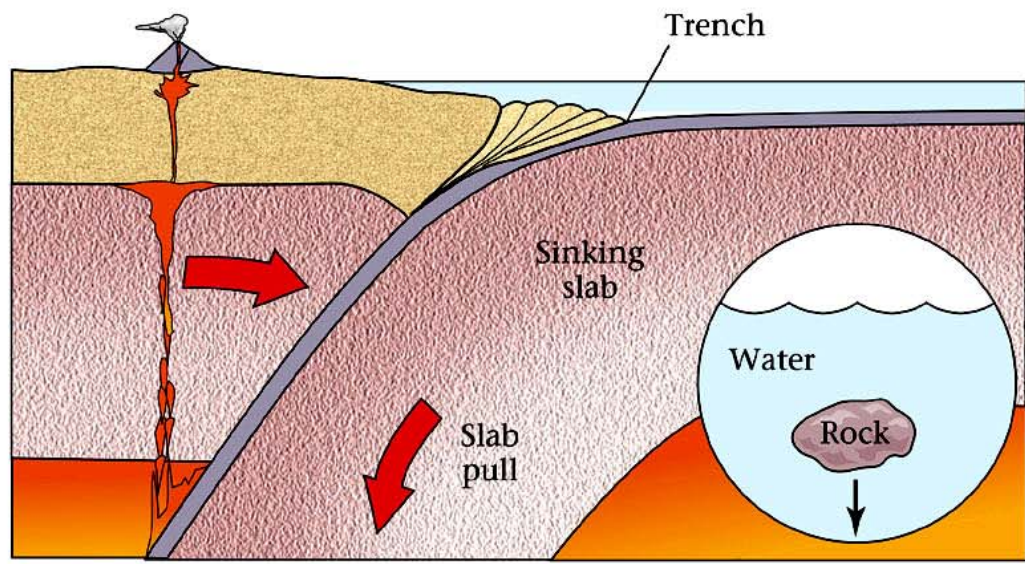


FIGURE 4.27

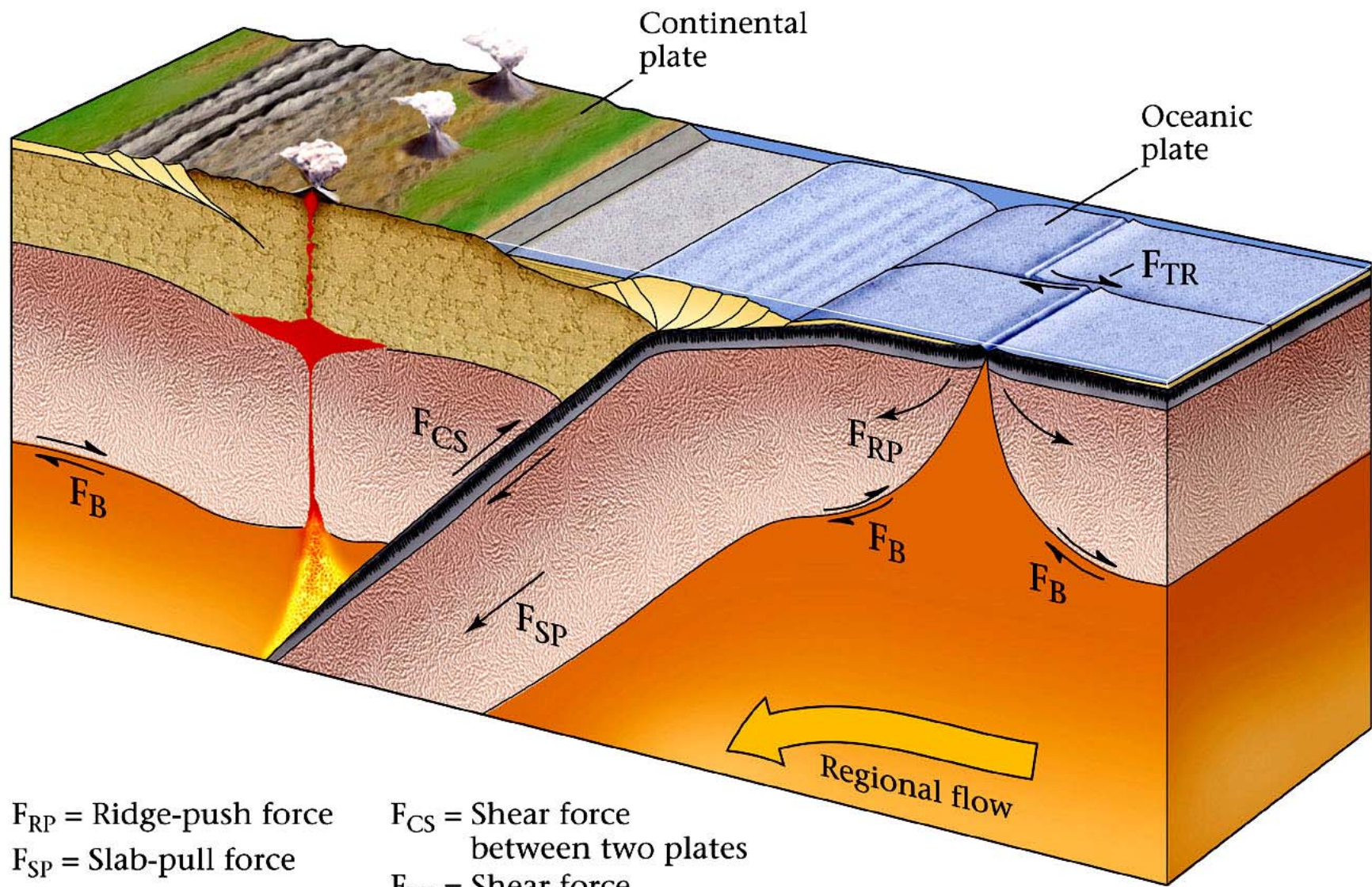


(a)



(b)

FIGURE 4.29



F_{RP} = Ridge-push force
 F_{SP} = Slab-pull force
 F_B = Shear force at the base of the plate

F_{CS} = Shear force between two plates
 F_{TR} = Shear force along a transform fault

(c)

FIGURE 4.29

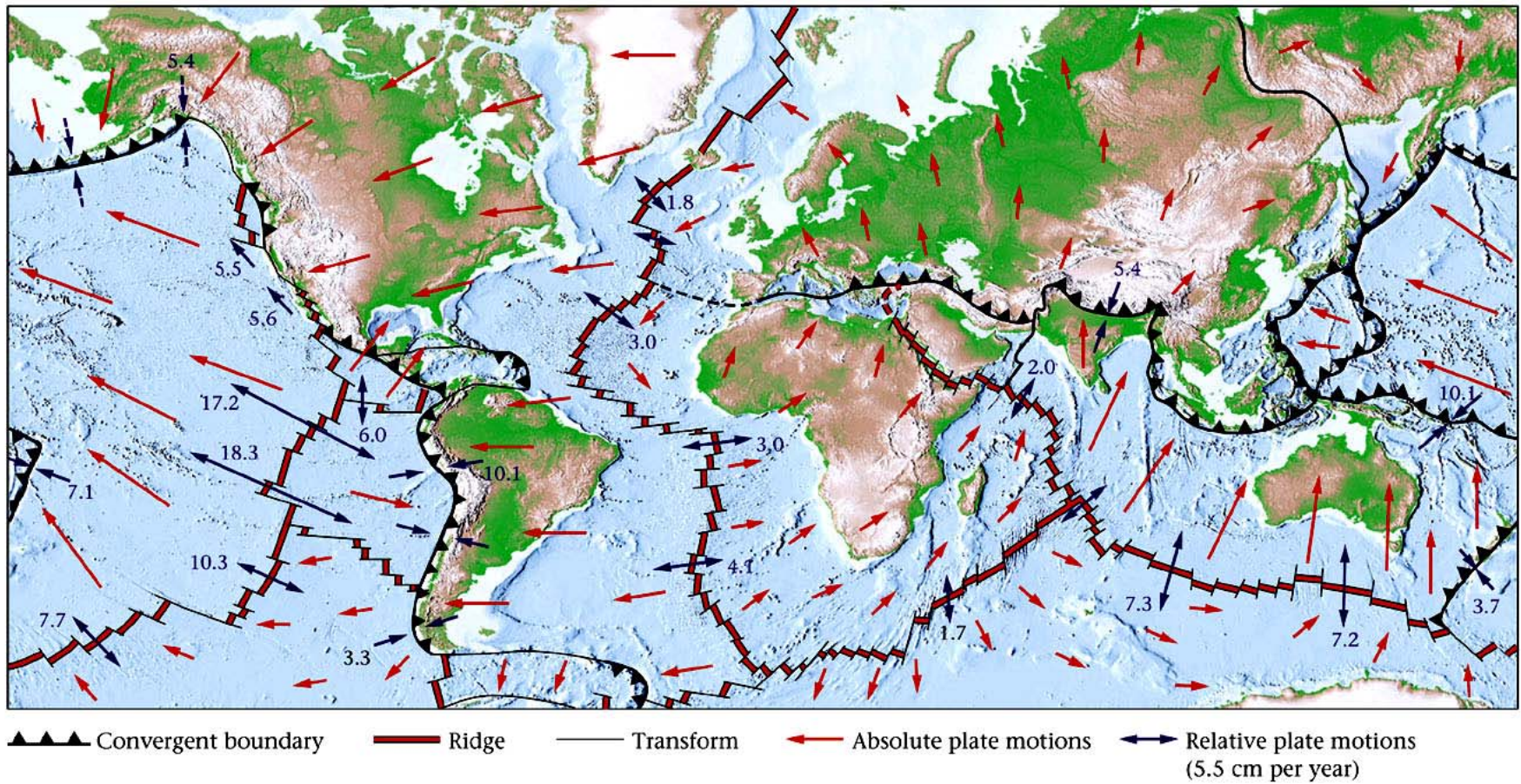


FIGURE 4.30

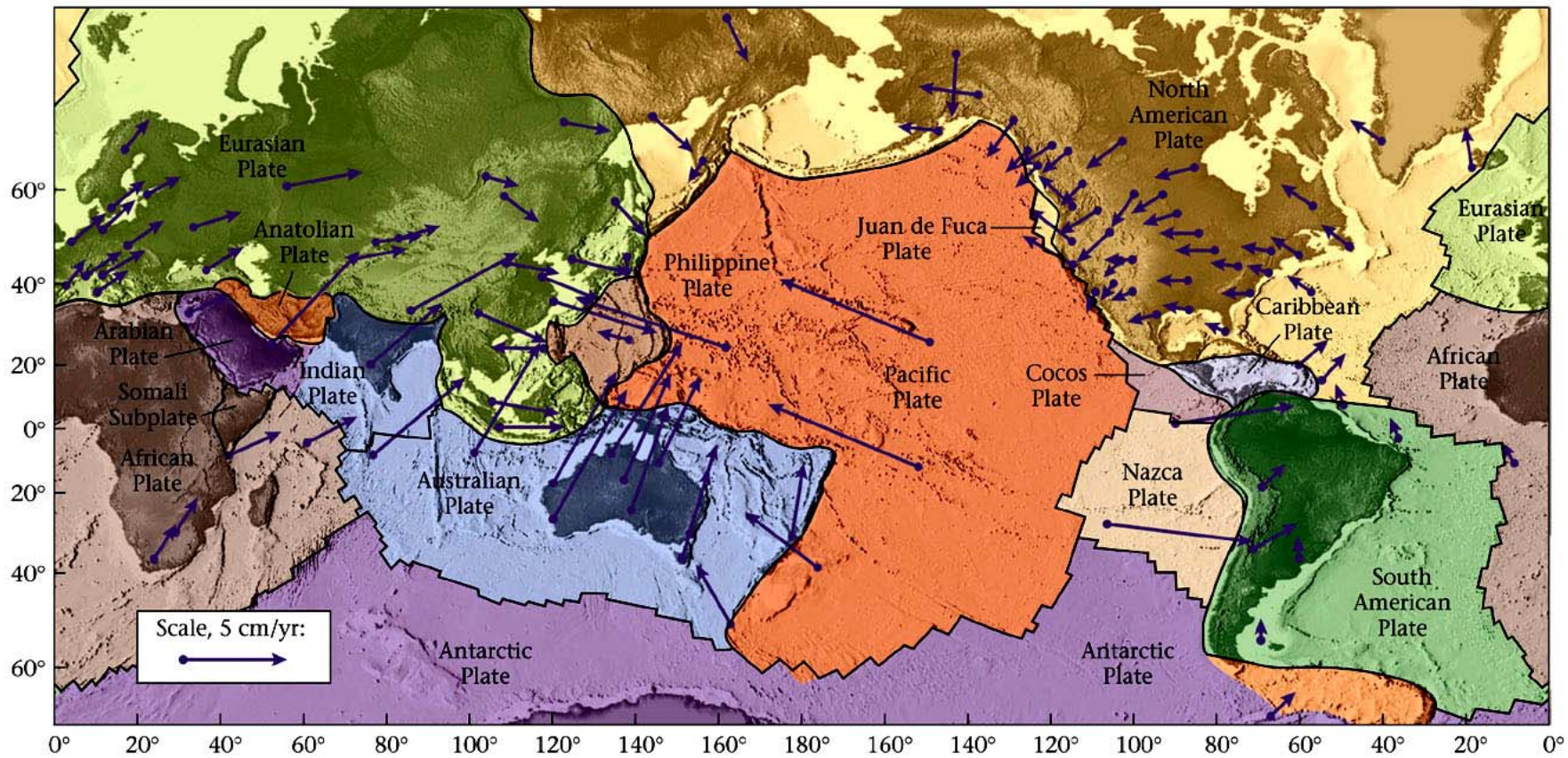


FIGURE 4.31



(a)

FIGURE 4.18

Cascades volcanic arc (NW US)

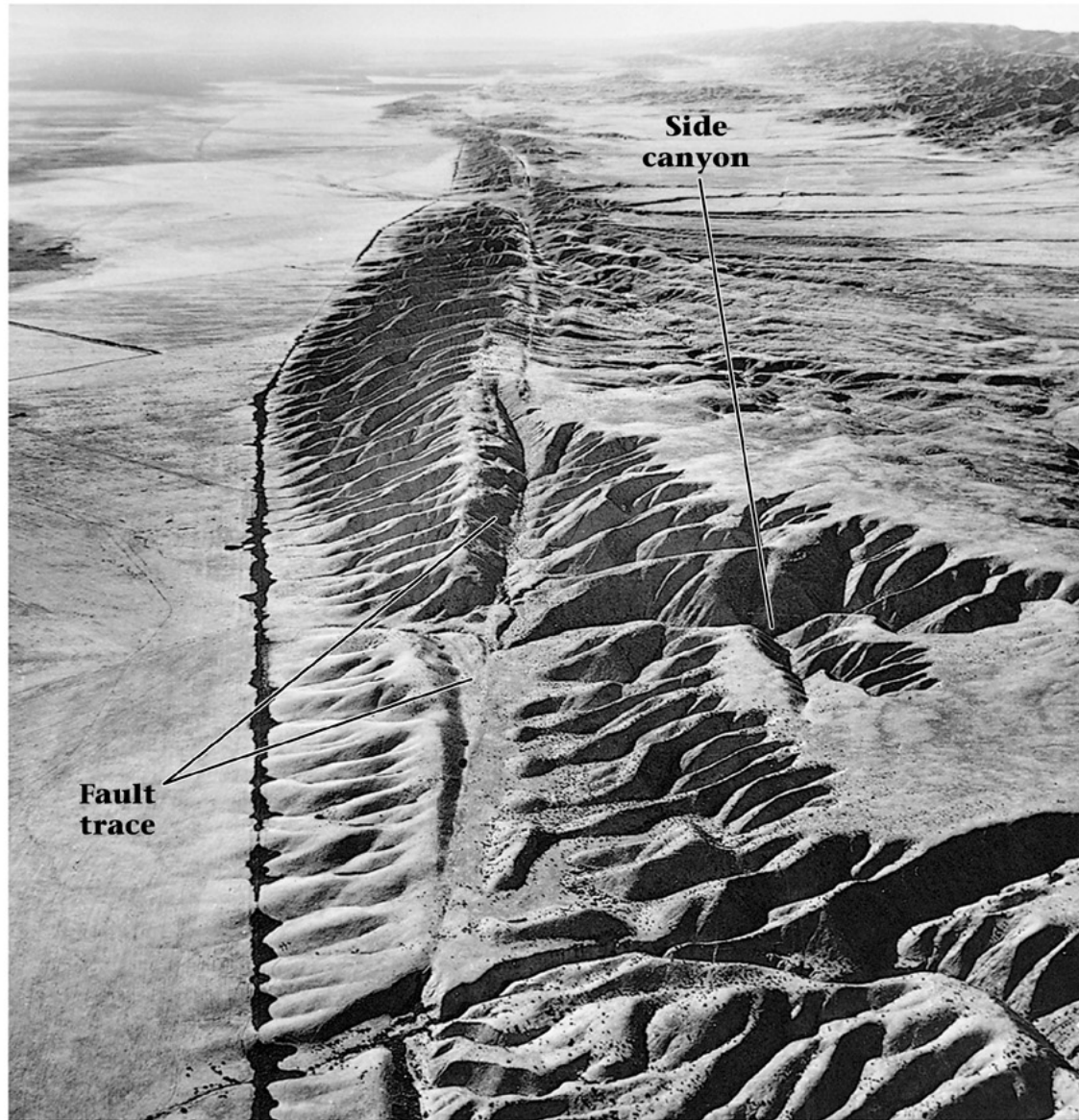
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Mid-Atlantic Ridge
as seen in Iceland

(b)



FIGURE 4.18

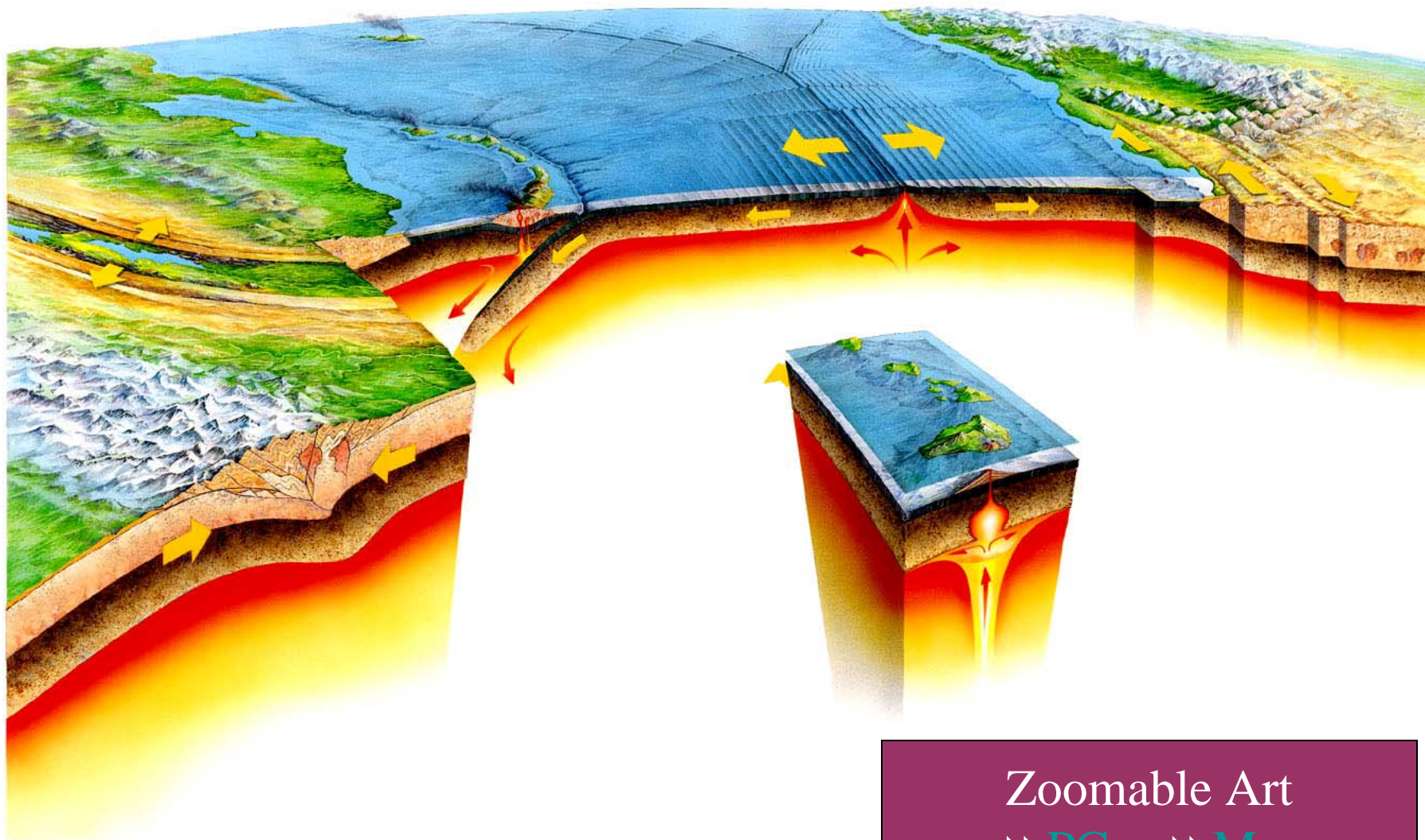


(b)

San Andreas fault

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FIGURE 4.19

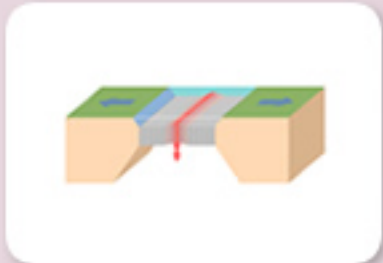


Zoomable Art

▶▶ [PC](#) ▶▶ [Mac](#)

FEATURED ART: The Theory of Plate Tectonics

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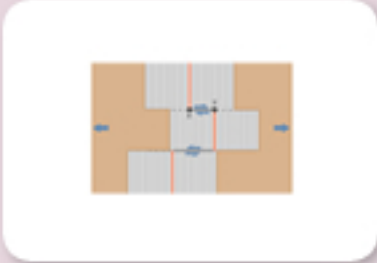
Basic Plate Boundaries

Animation

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▶▶ [PC version](#)

▶▶ [Mac version](#)



Transform Faulting

Animation

This animation shows the development of a transform fault along a divergent plate boundary. Plates slide past one another along a transform fault without the formation of new plate or the consumption of old plate. As this process occurs, new sea floor forms along the mid ocean ridge.

▶▶ [PC version](#)

▶▶ [Mac version](#)



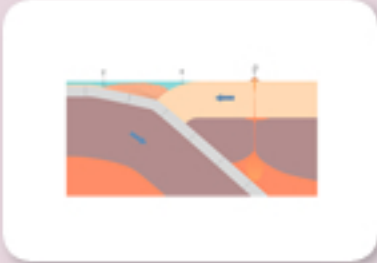
The Process of Rifting

■ Animation

Rifting is the process by which a continent splits and separates to form a new divergent boundary. This animation shows the progressive formation and evolution of a continental rift, and the formation of a mid-ocean ridge.

▶▶ [PC version](#)

▶▶ [Mac version](#)



The Process of Subduction

Animation

At convergent plate boundaries or convergent margins, two plates, at least one of which is oceanic, move toward each other. But rather than butting each other like angry rams, one oceanic plate bends and begins to sink down into the asthenosphere beneath the other plate. This sinking process, termed subduction, is shown in the following animation.

▶▶ [PC version](#)

▶▶ [Mac version](#)

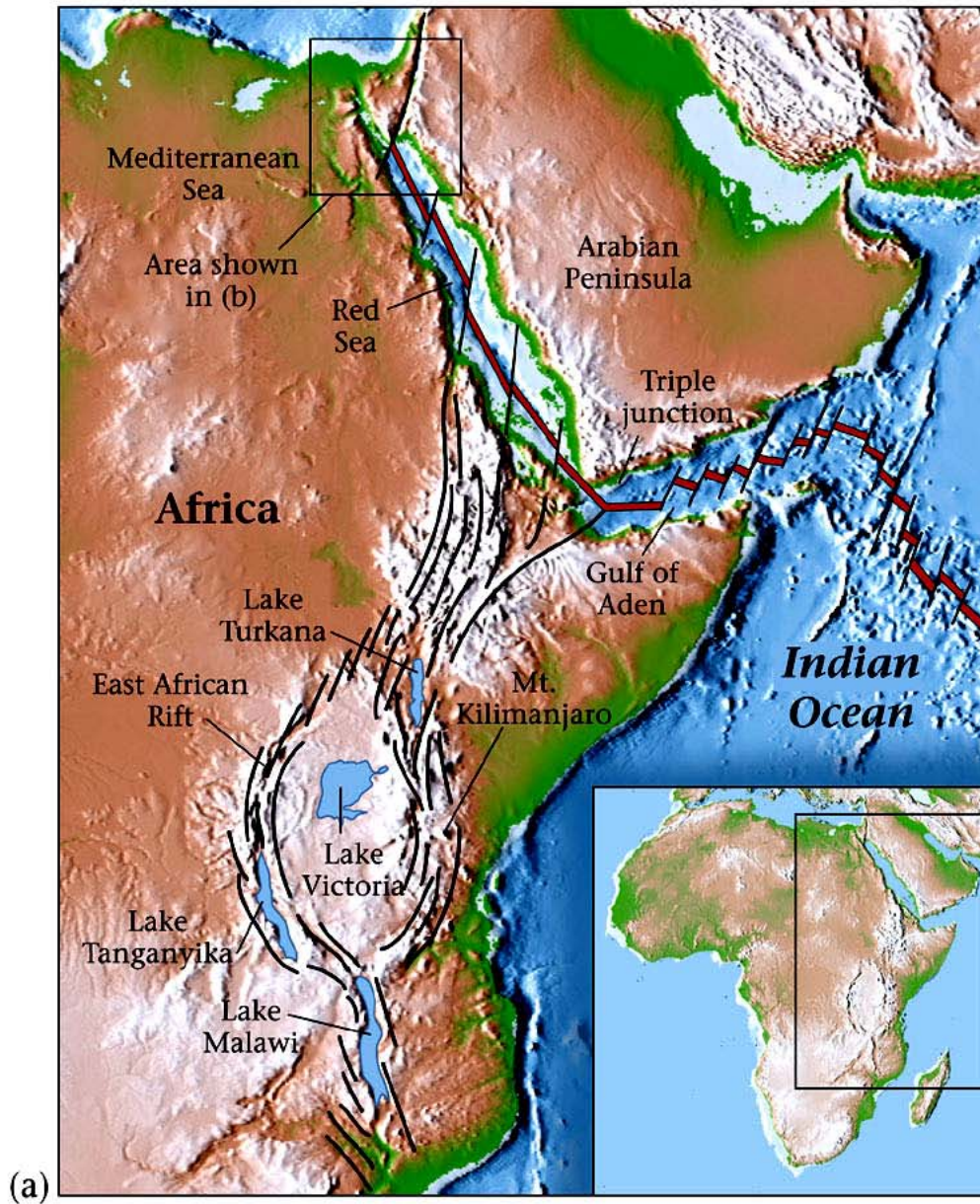


FIGURE 4.25

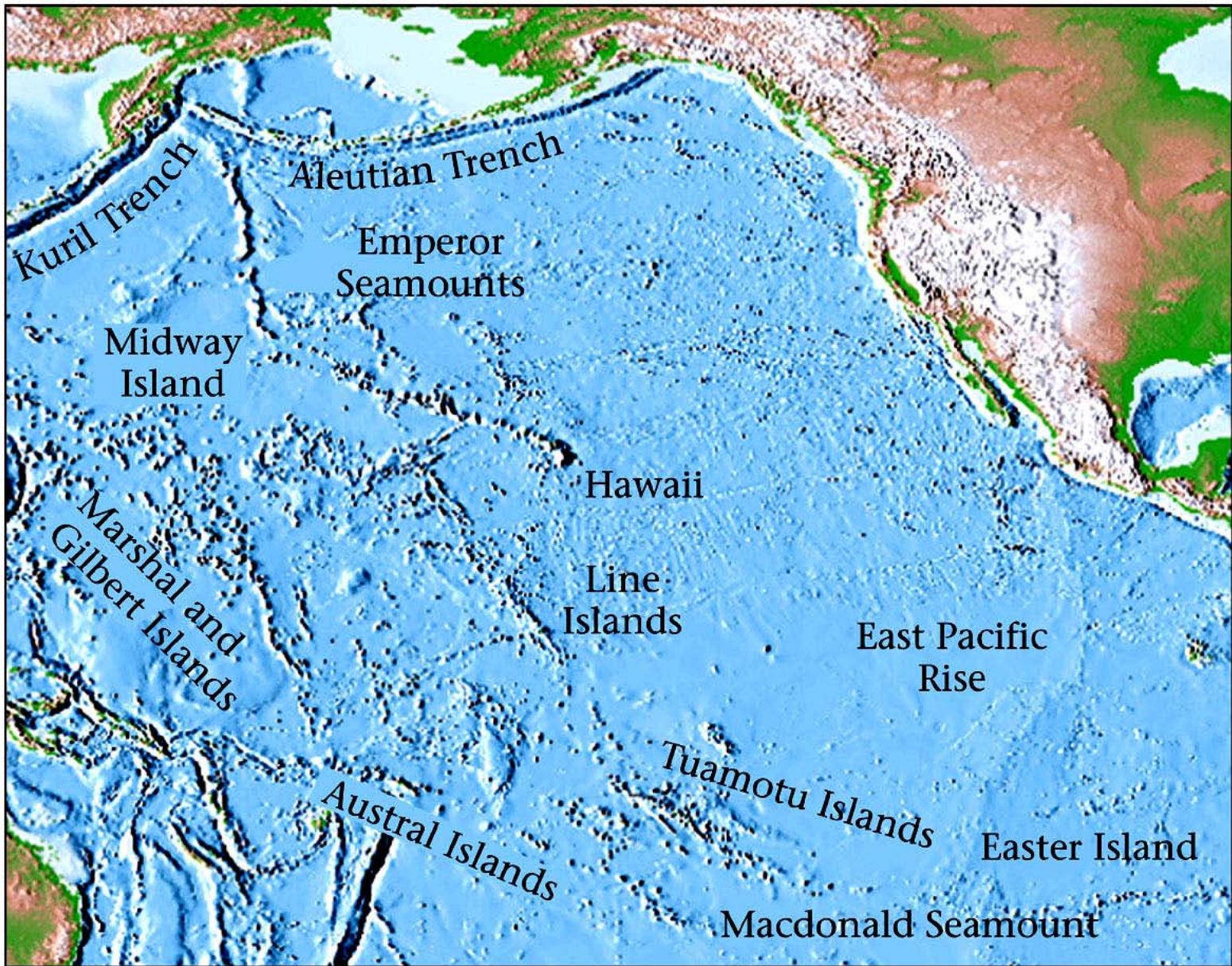


FIGURE 4.22

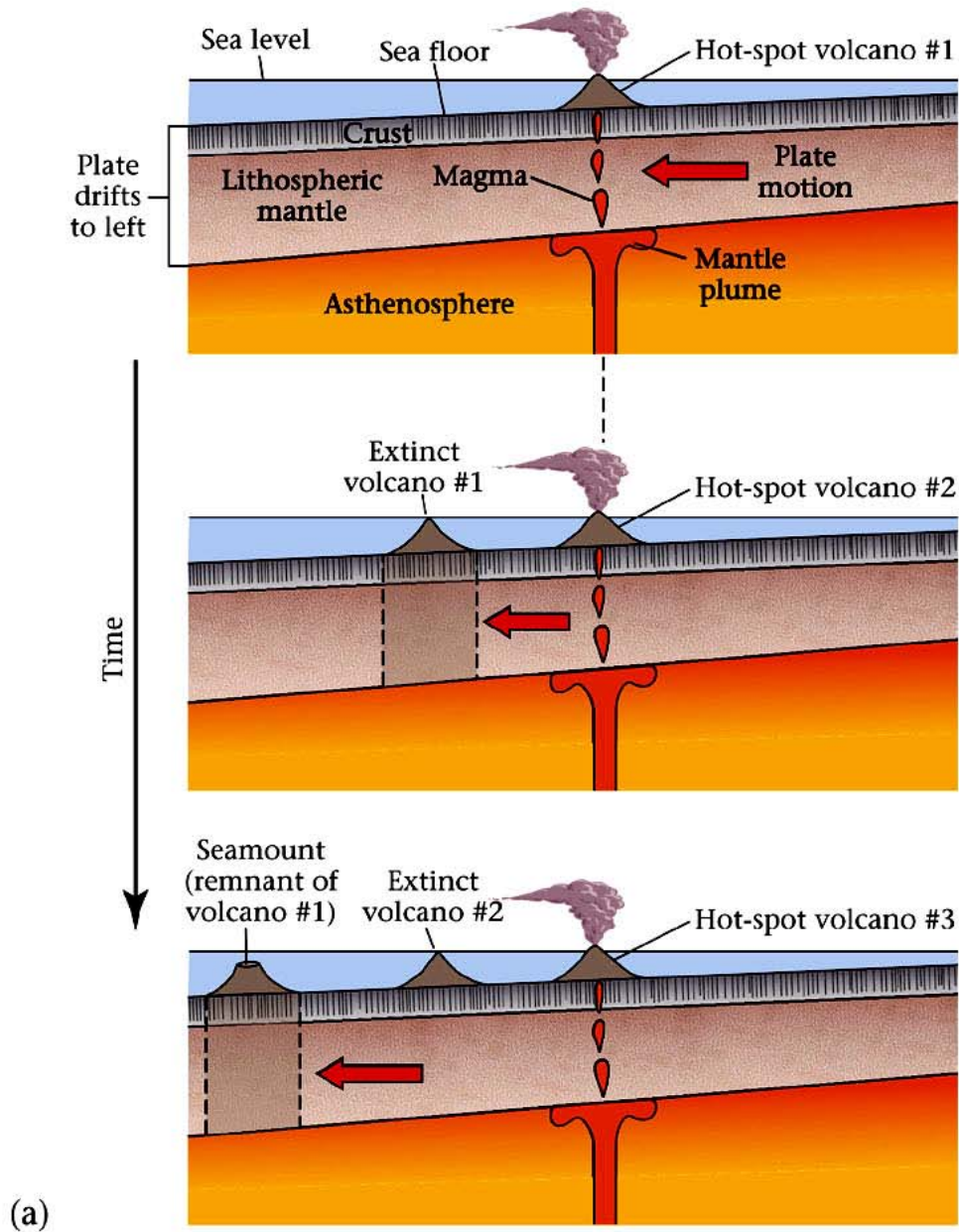


FIGURE 4.23

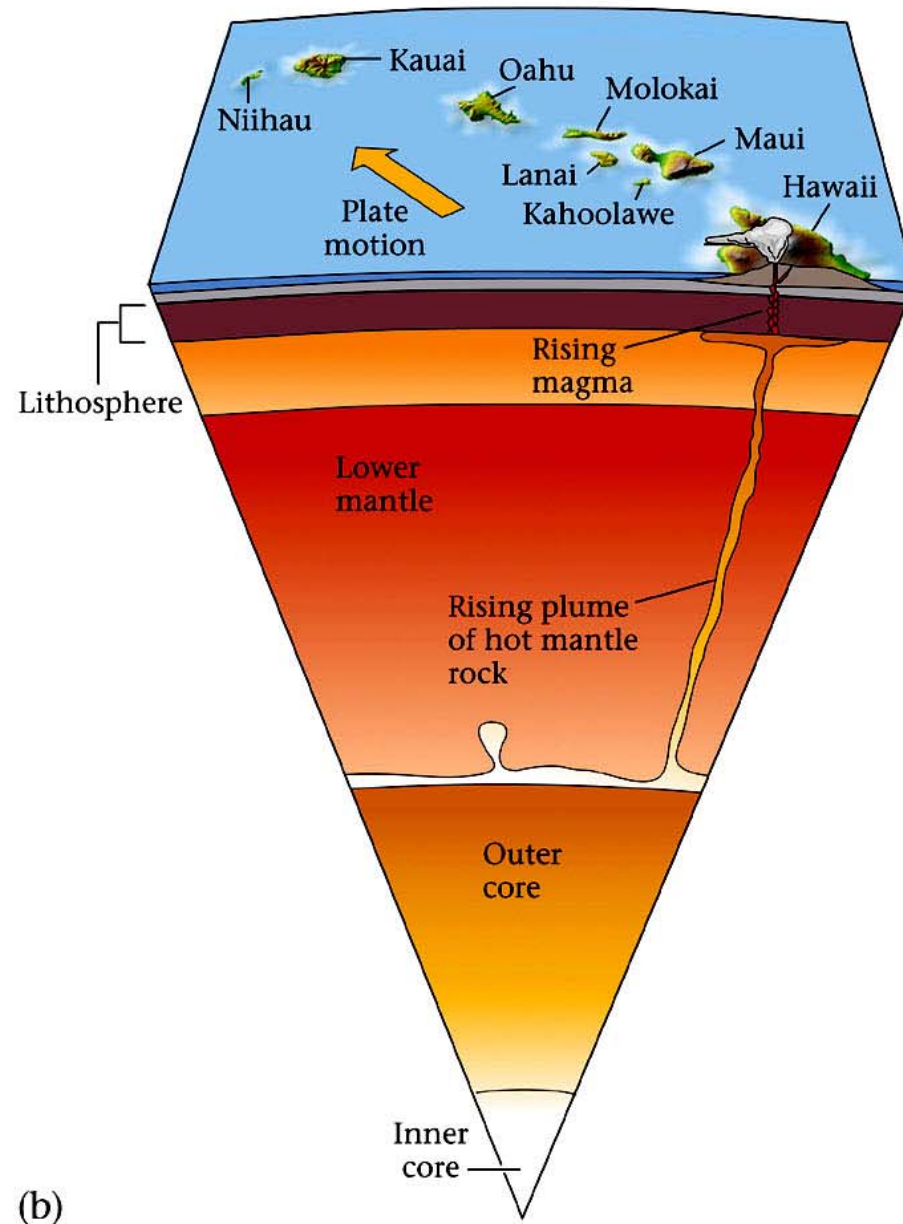


FIGURE 4.23

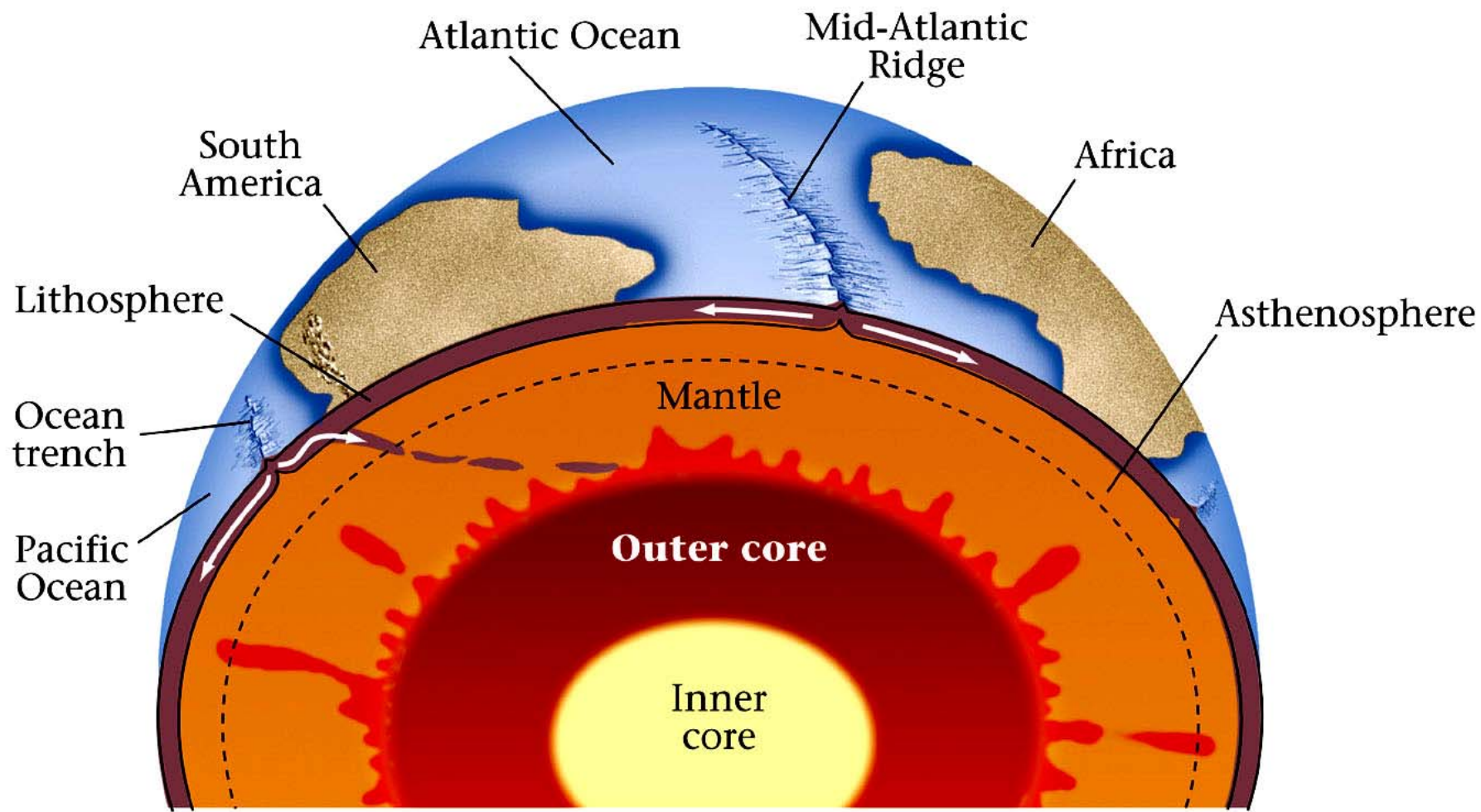


FIGURE 4.32