

Handout 2 (salmon) Plate Tectonics

Standard 2.3

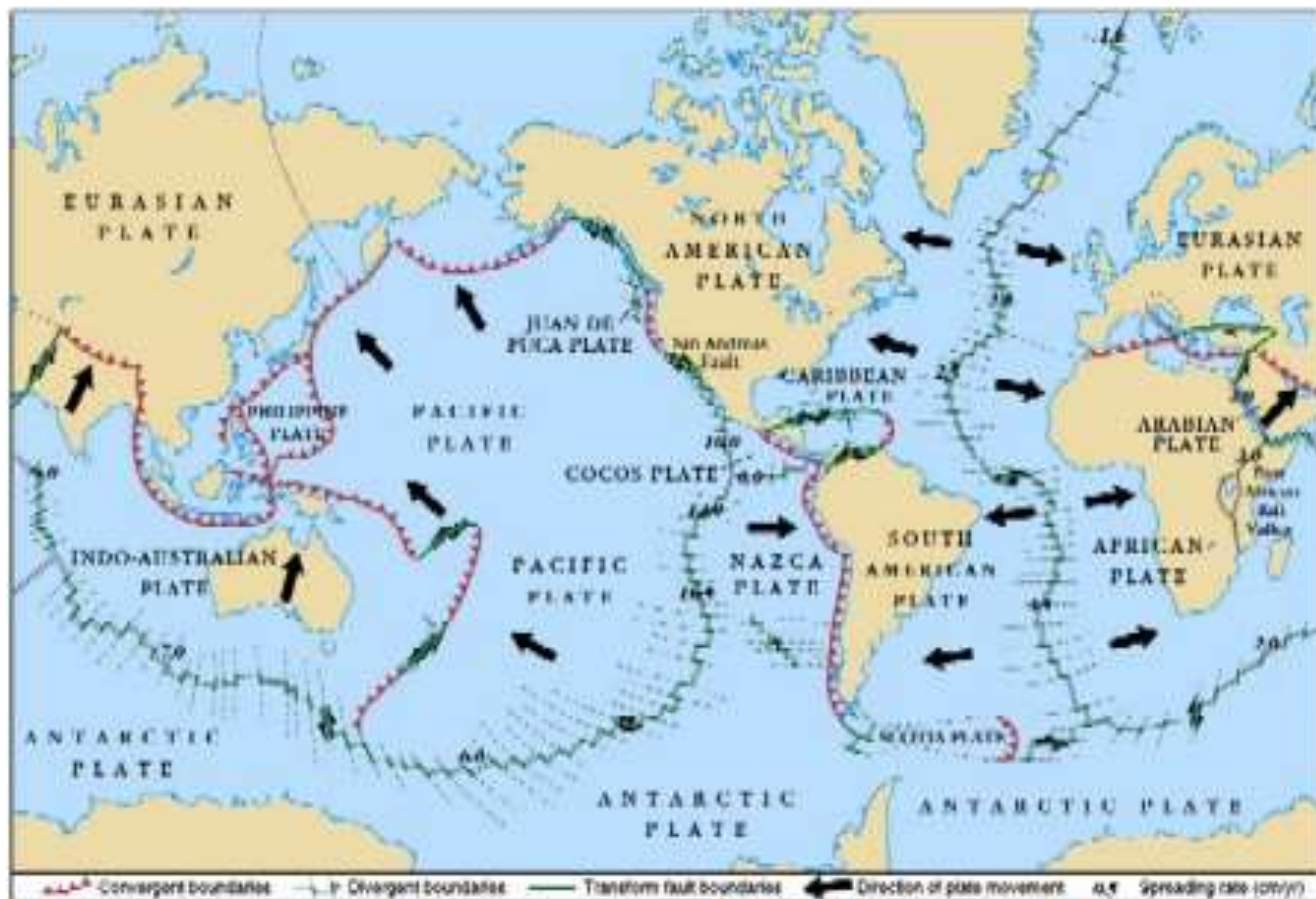
Plate Tectonics

Chapter 10 Section 2

The Theory of Plate Tectonics

1. The theory that explains why and how continents move is called

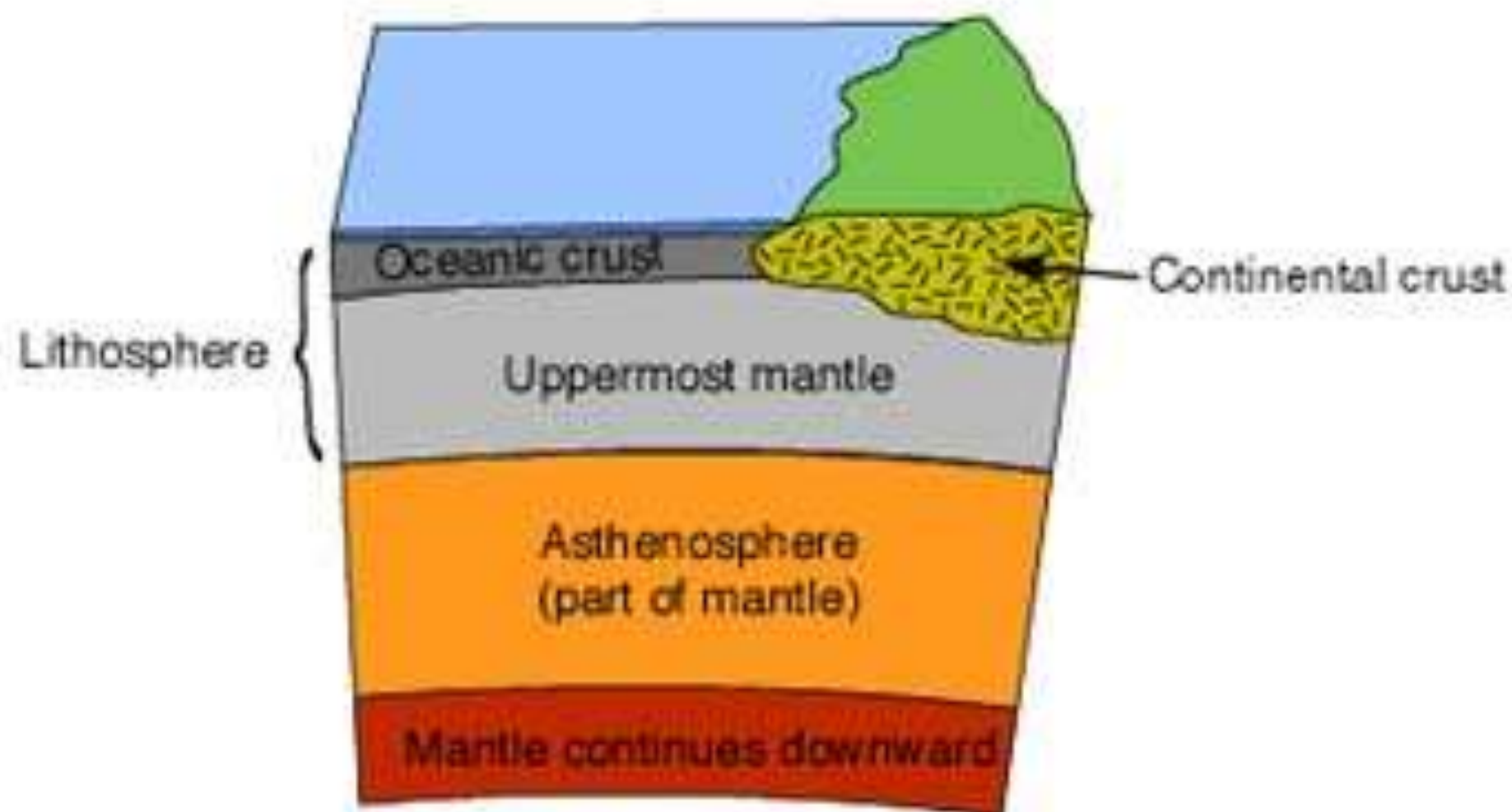
- plate tectonics



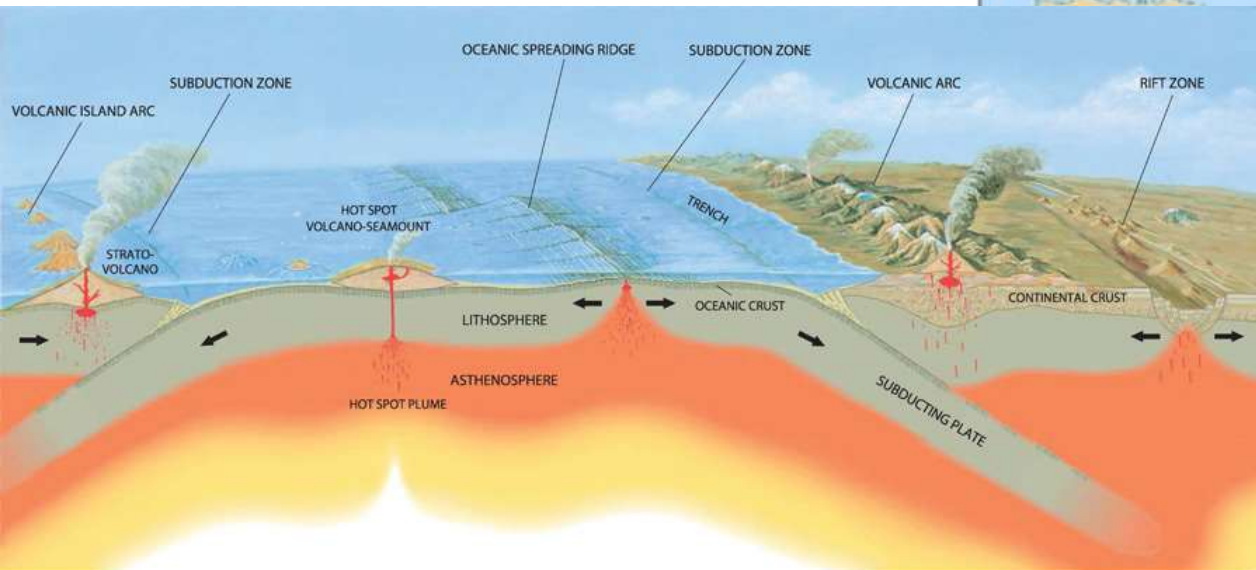
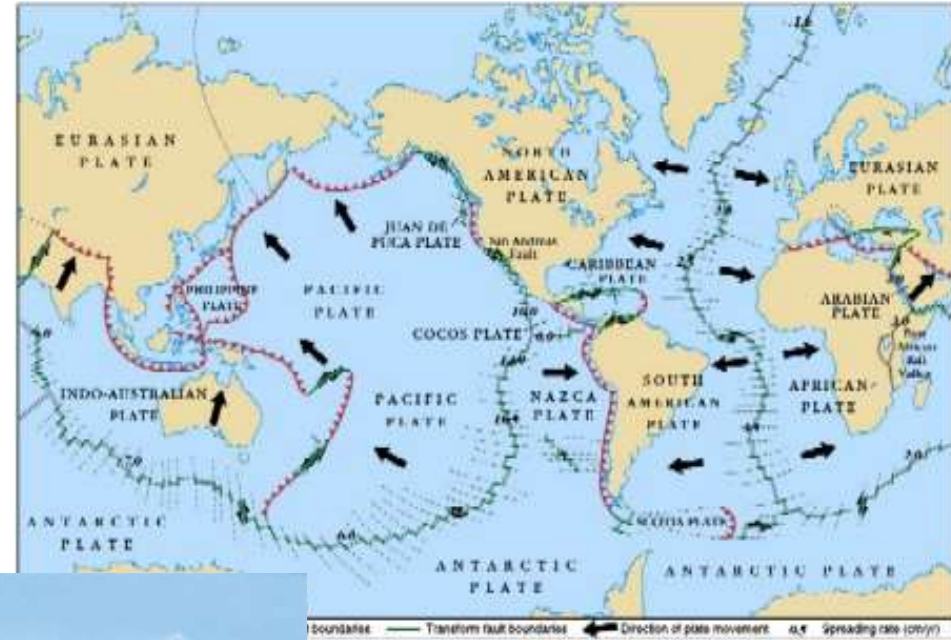
HOW CONTINENTS MOVE

Matching 2-6

-
2. oceanic crust
3. continental crust
4. tectonic plates
5. lithosphere
6. asthenosphere
- a. the solid outer layer of Earth, that consists of the crust and the rigid upper part of the mantle
- b. dense crust made of rock that is rich in iron and magnesium
- c. blocks of Earth's shell that ride on a deformable layer of the mantle
- d. solid, plastic layer of the mantle beneath the lithosphere
- e. low-density crust made of rock that is rich in silica



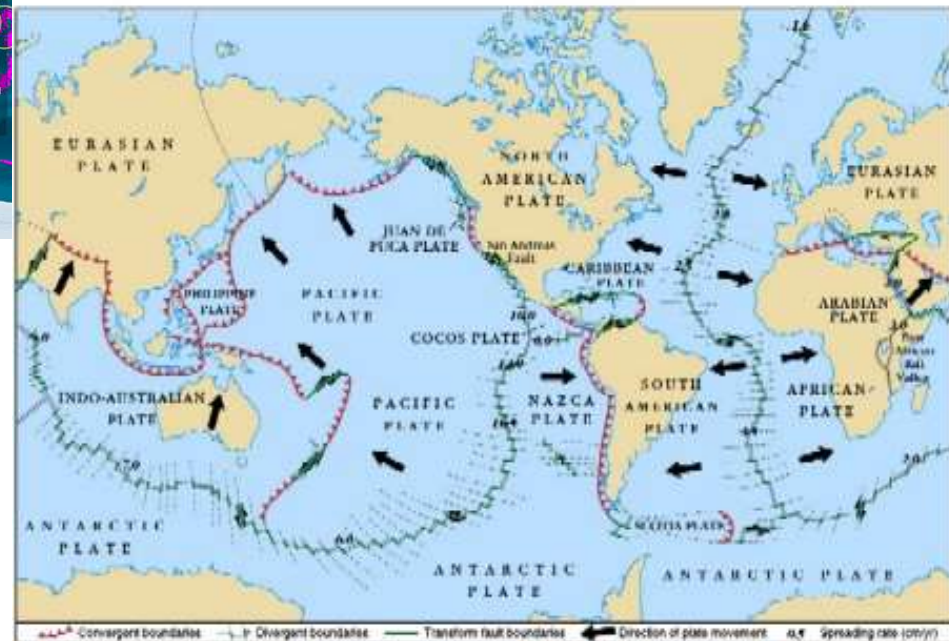
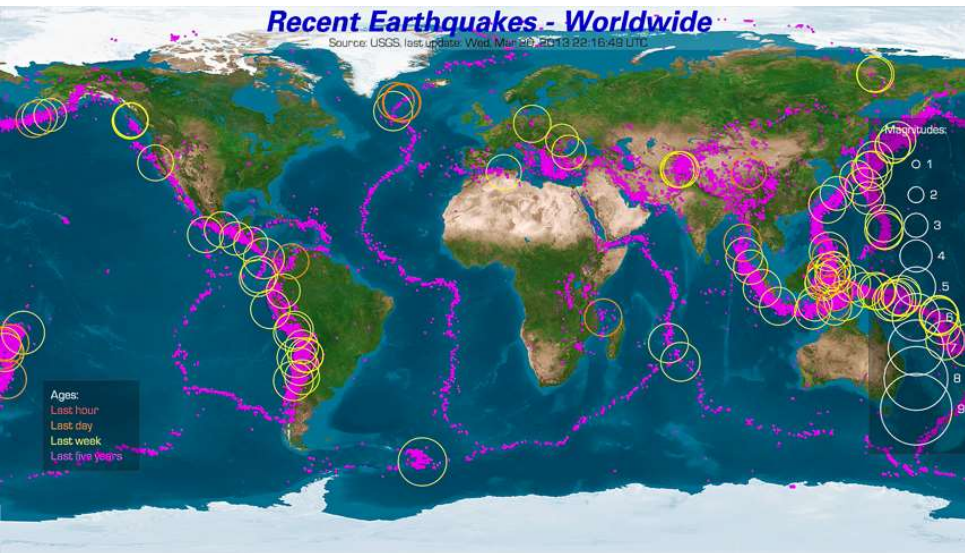
7. Tectonic plates can include continental crust, oceanic crust or both .



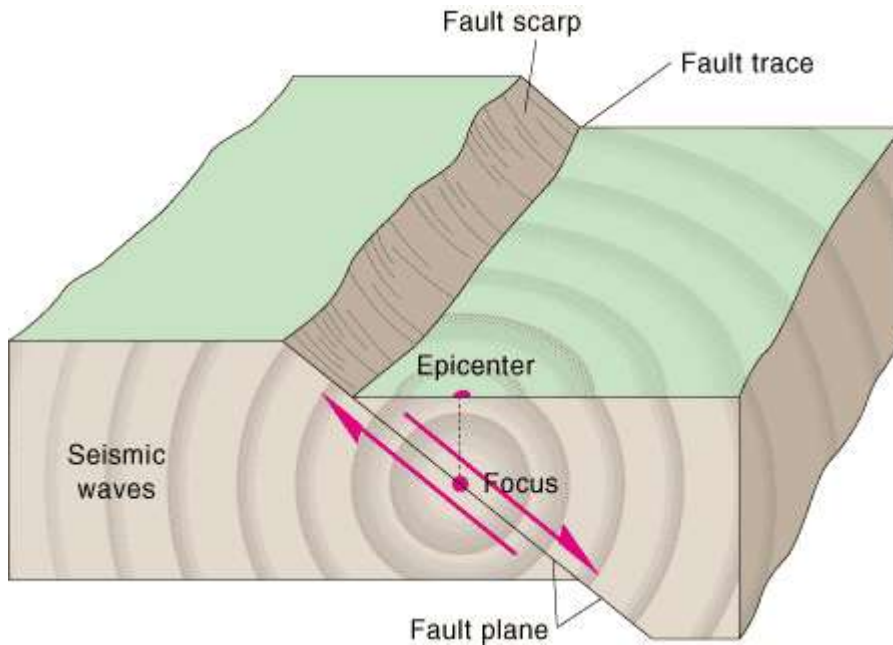
TECTONIC PLATES

8. How do scientists identify plate boundaries?

- By studying data from earthquakes

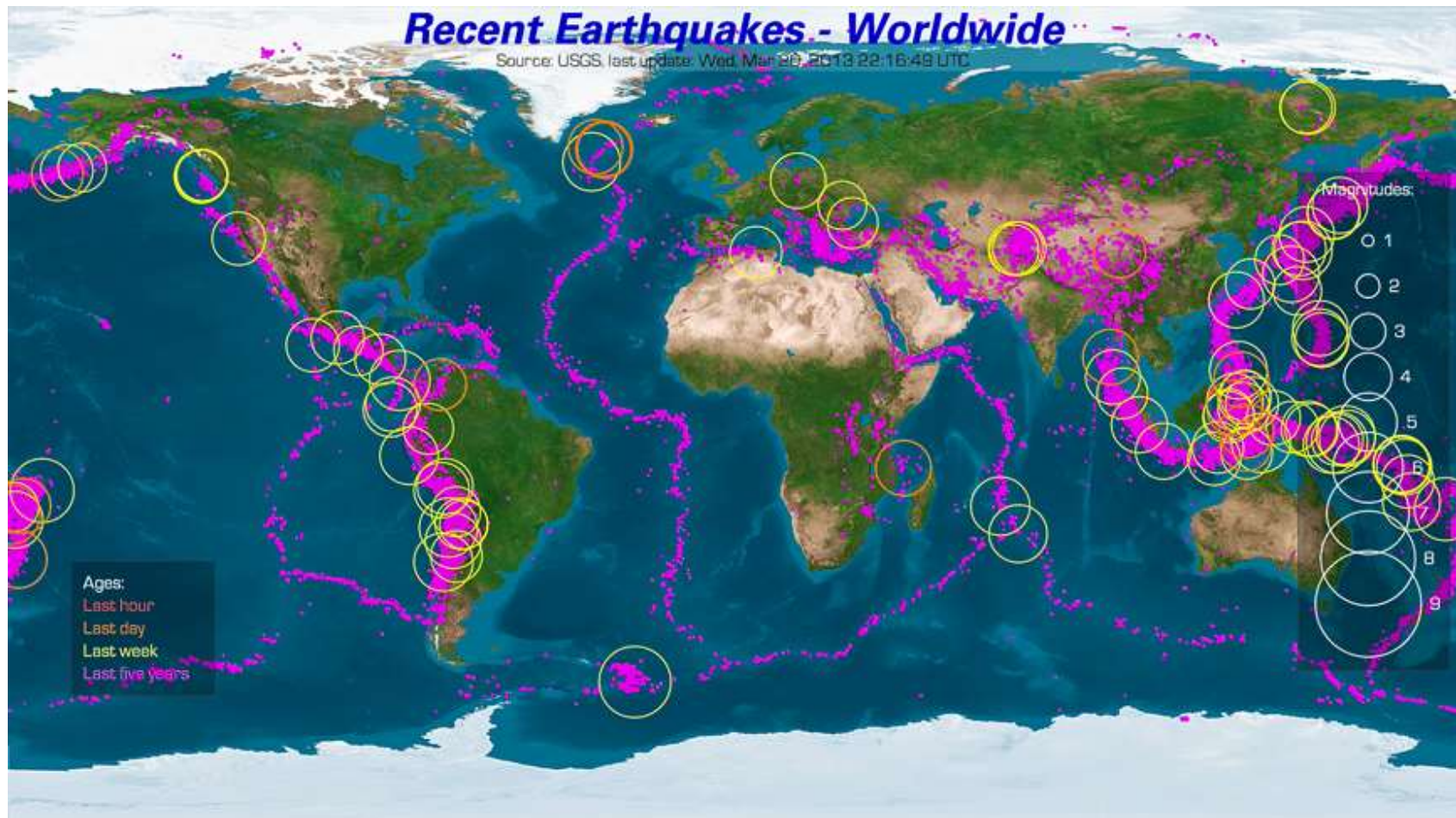


9. A sudden movement along the boundary of a tectonic plate is a(n) earthquake.



10. Frequent earthquakes in a given zone are evidence that

- Two or more plates may meet in the area.



TYPES OF PLATE BOUNDARIES

Matching 11-

11. divergent

a. boundary between tectonic plates that are sliding past each other horizontally

12. convergent

b. region where one plate moves under another

13. transform

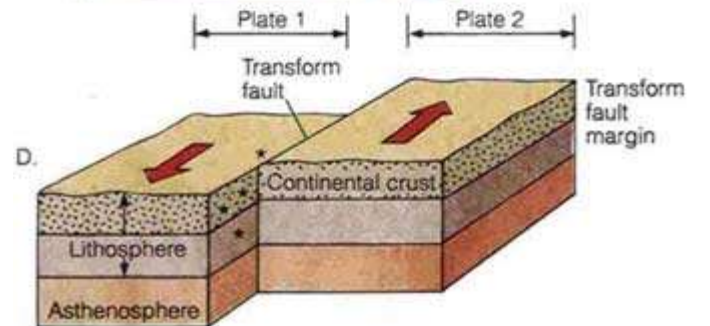
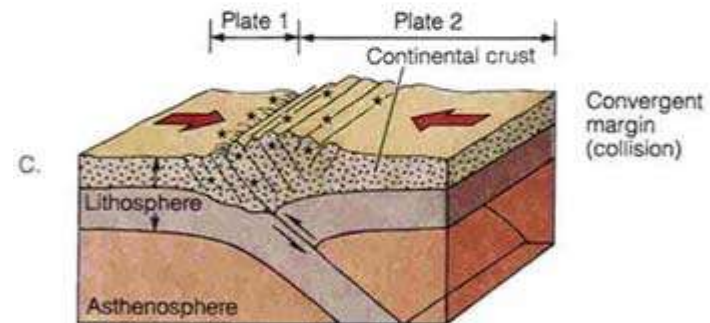
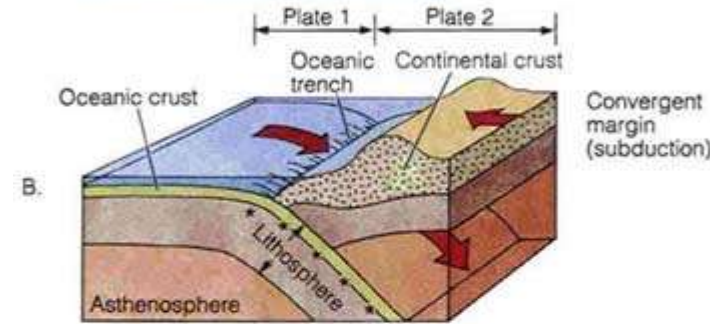
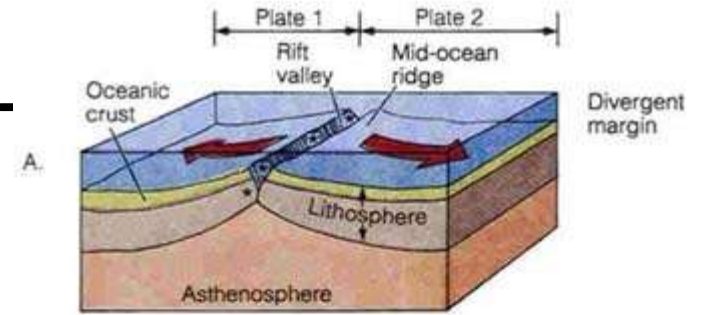
c. boundary between tectonic plates that are moving away from each other

14. mid-ocean ridge

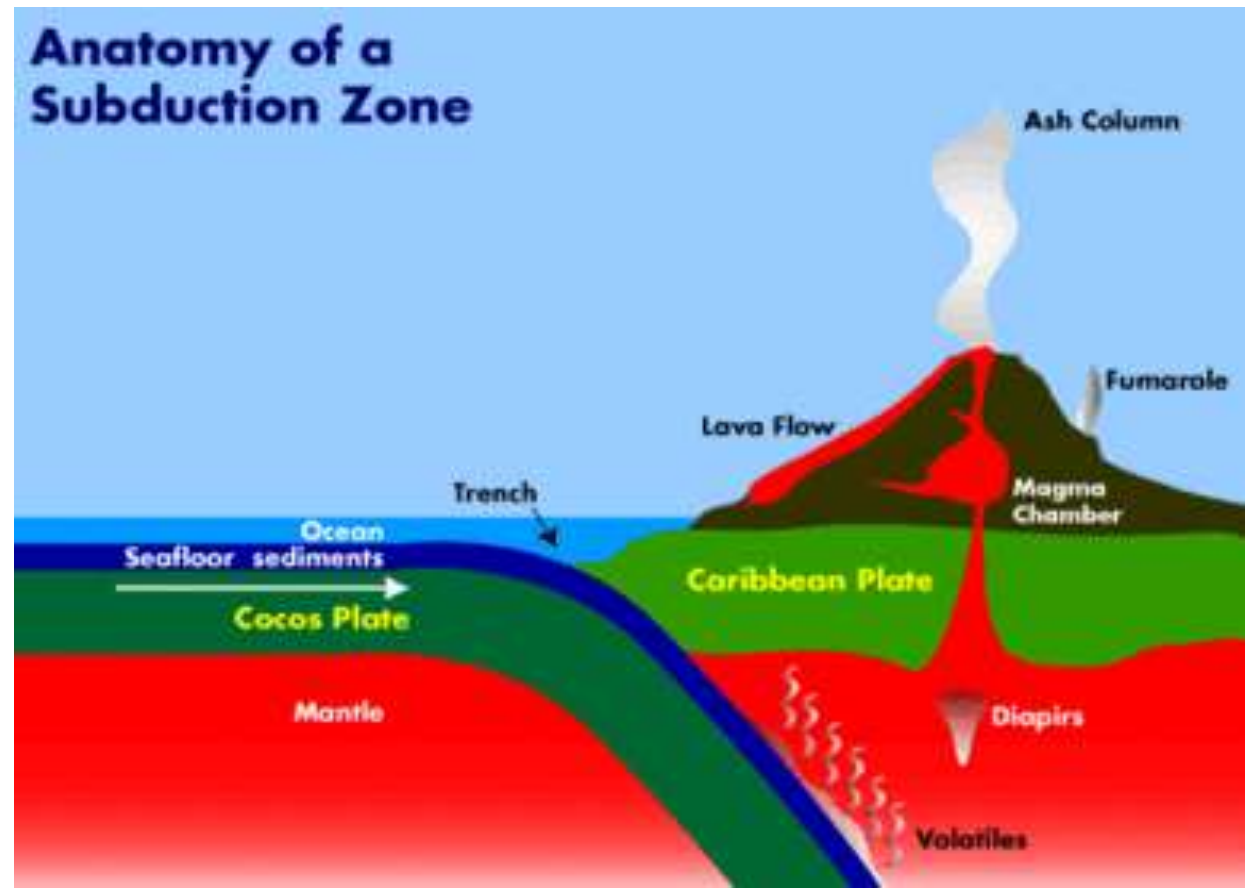
d. undersea mountain range

15. subduction zone

e. the boundary between tectonic plates that are colliding

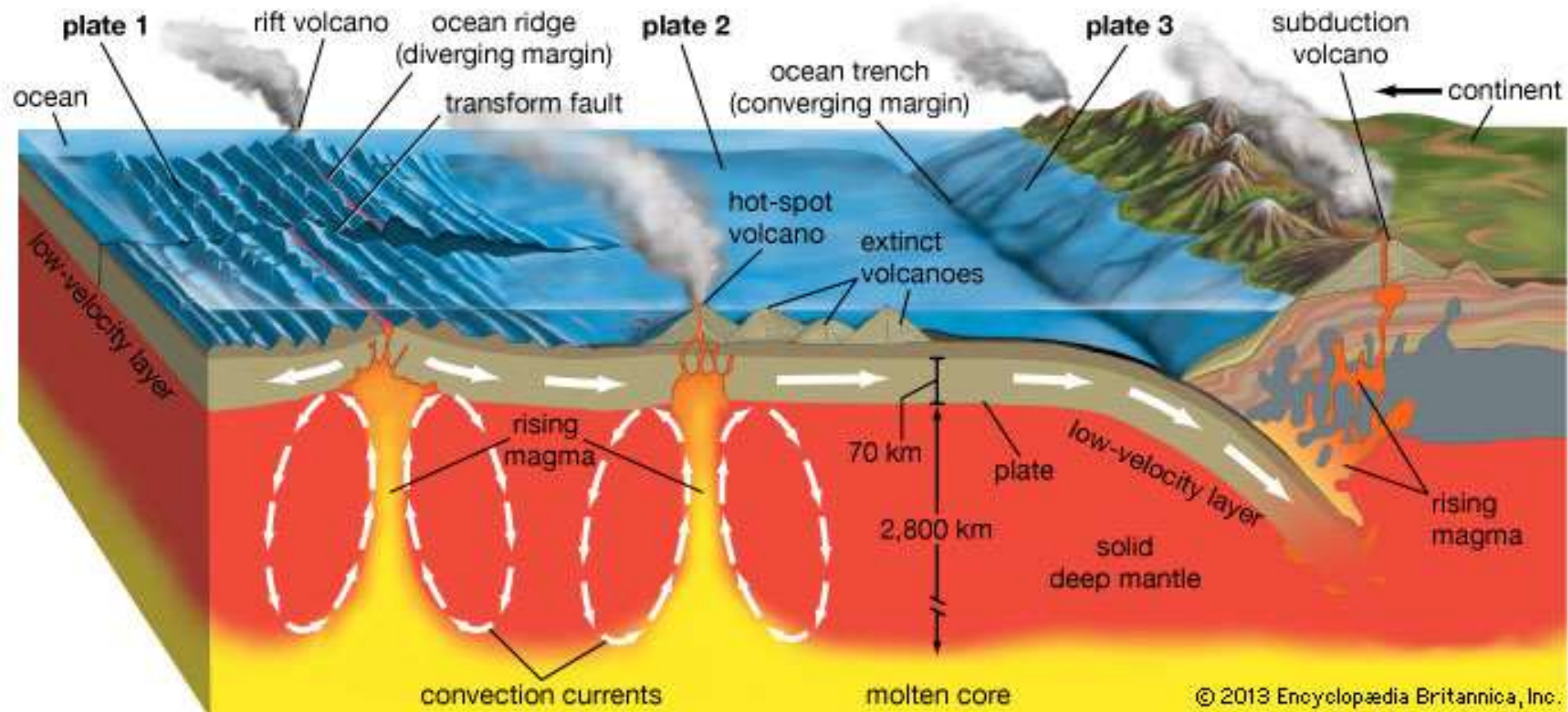


16. When oceanic lithosphere collides with continental lithosphere, the oceanic lithosphere is denser than the continental lithosphere, so it sinks, or subducts.

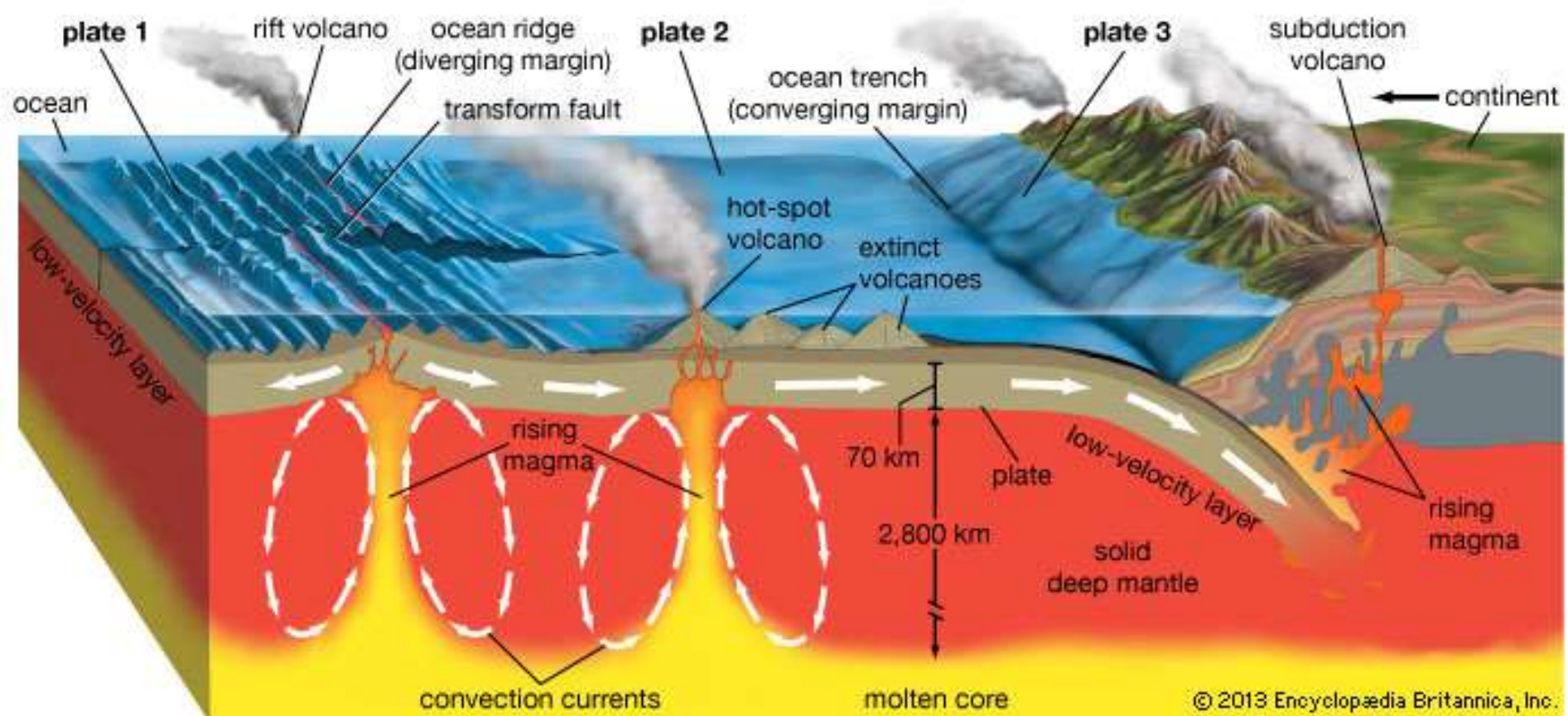


17. What deep-ocean feature forms at subduction zones?

- deep-ocean trench



18. As the oceanic plate subducts, it releases fluids into the mantle, causing magma to form and rise to the surface, forming volcanic mountains.

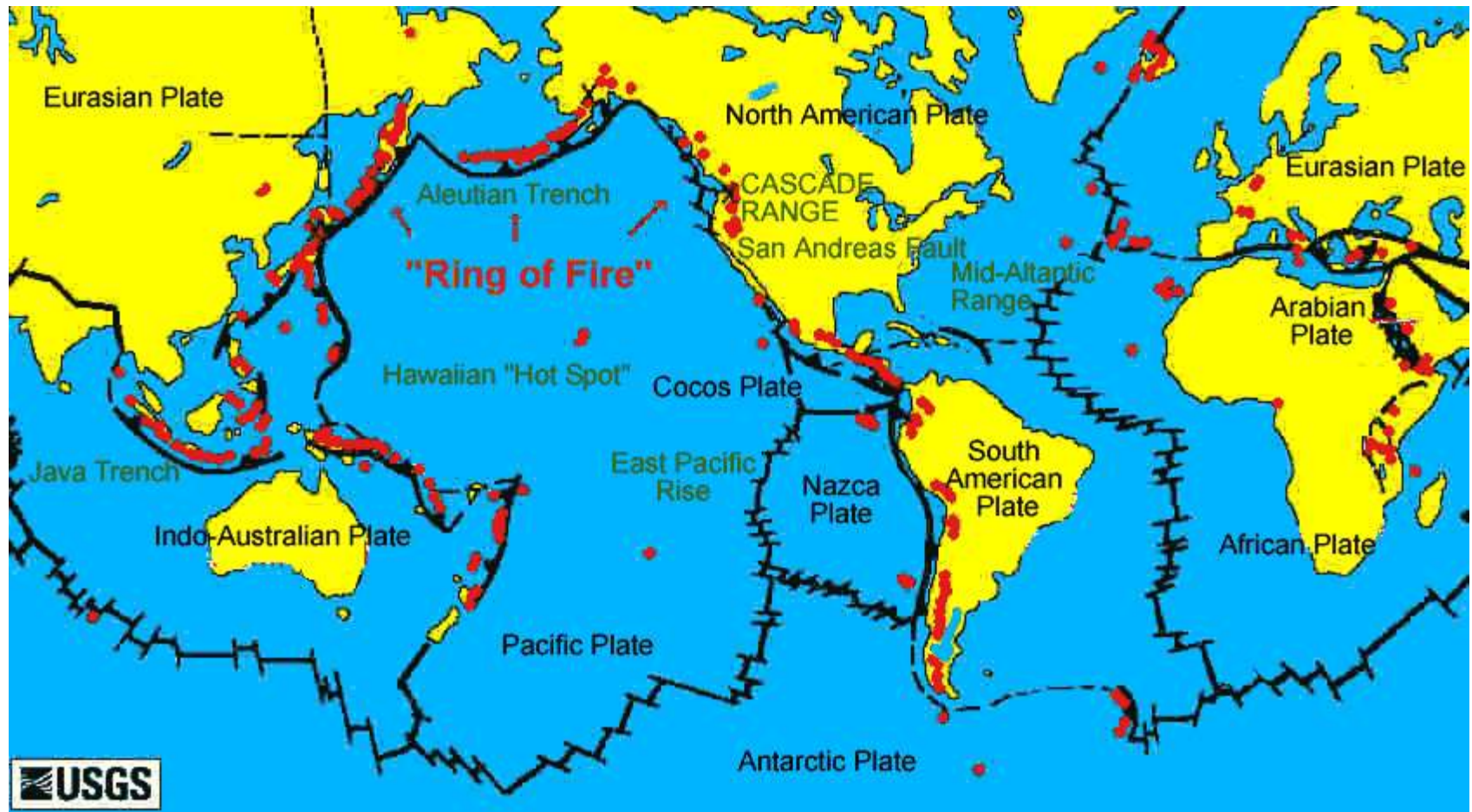


Chapter 13 Section 1

FORMATION OF MAGMA

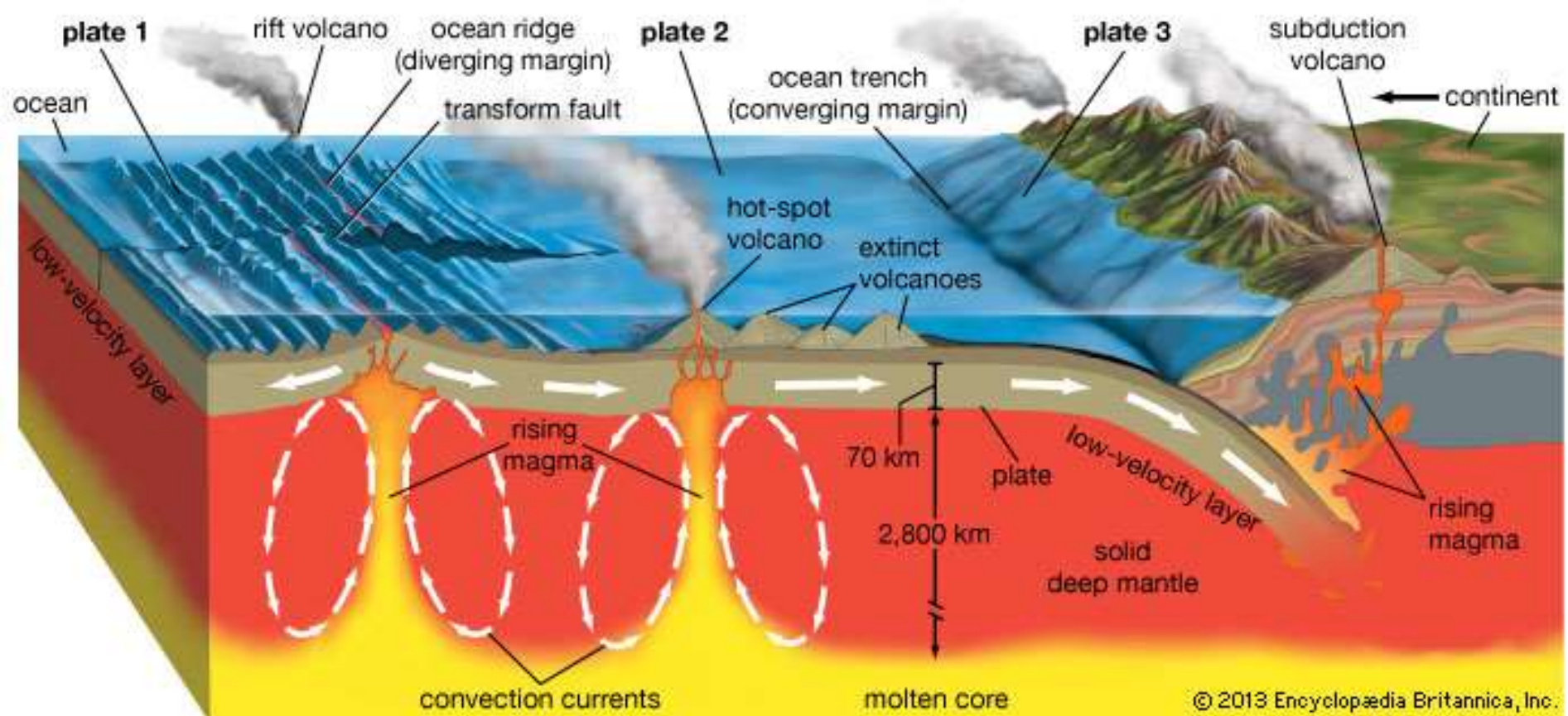
19. The cause of many volcanic eruptions is the movement of

- c. Earth's tectonic plates.



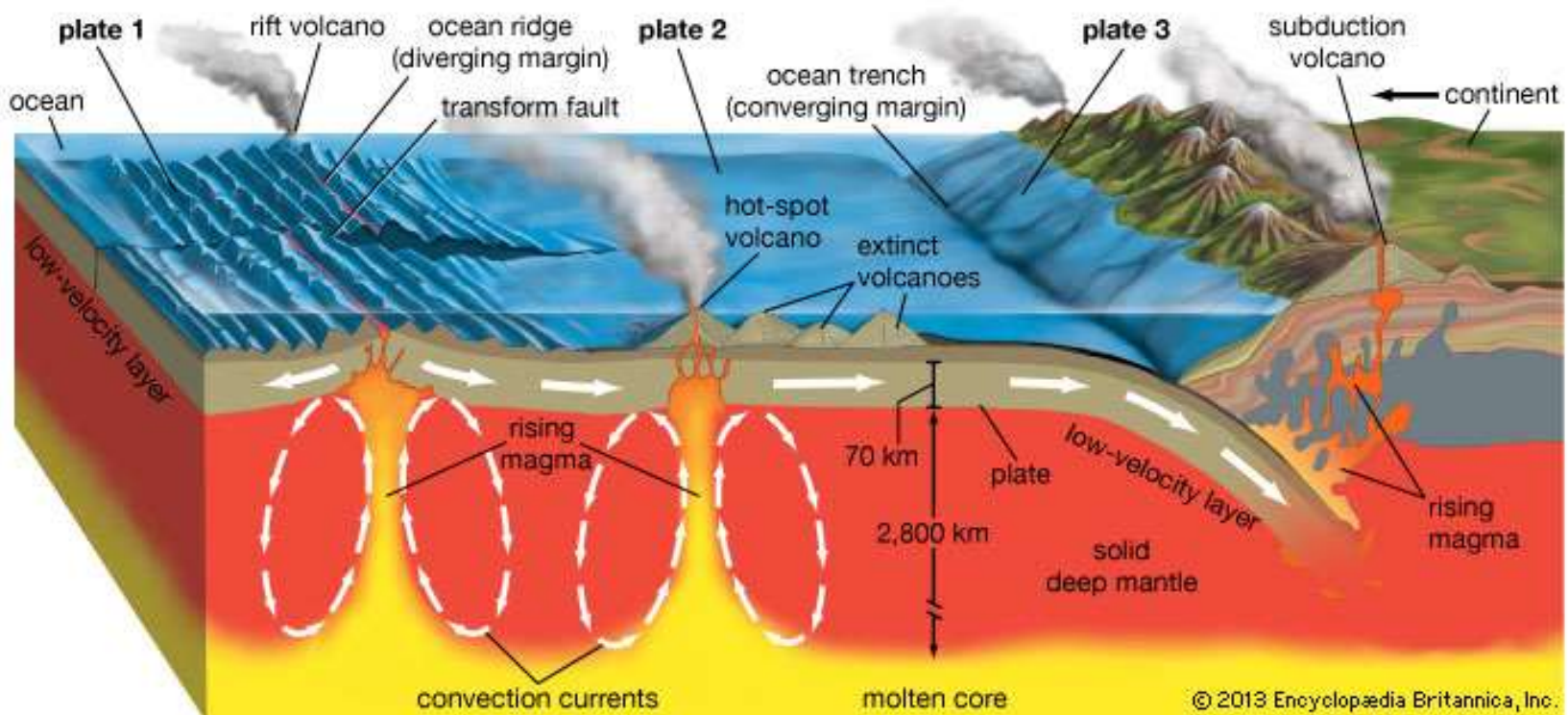
20. Sometimes Earth's solid mantle and crust melt to form

- a. magma.



21. Which of the following is NOT a way magma can form?

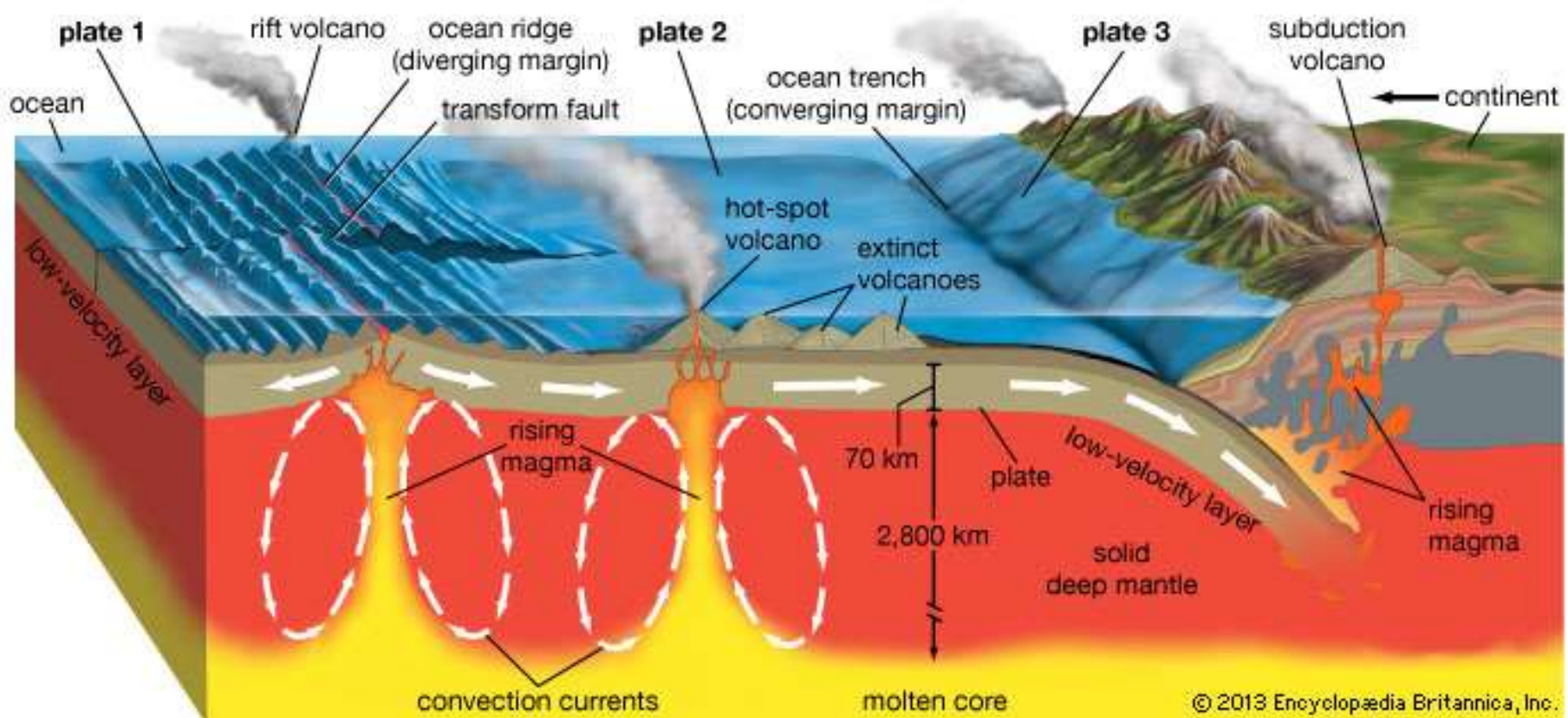
- c. Addition of fluids, such as water, increase the melting point of some minerals in the rock.



VOLCANISM

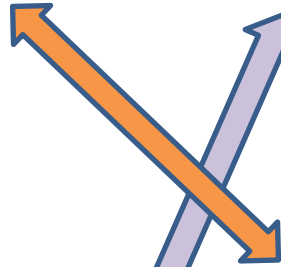
22. Magma rises upward through the crust because

- a. the magma is less dense than surrounding rock.



Matching 23-26

23. volcanism



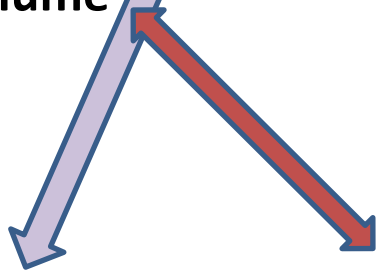
a. a vent or fissure in Earth's surface through which magma and gases are expelled

24. lava



b. any activity that includes the movement of magma toward or onto Earth's surface

25. mantle plume



c. magma that flows onto Earth's surface; the rock that forms when lava cools and solidifies

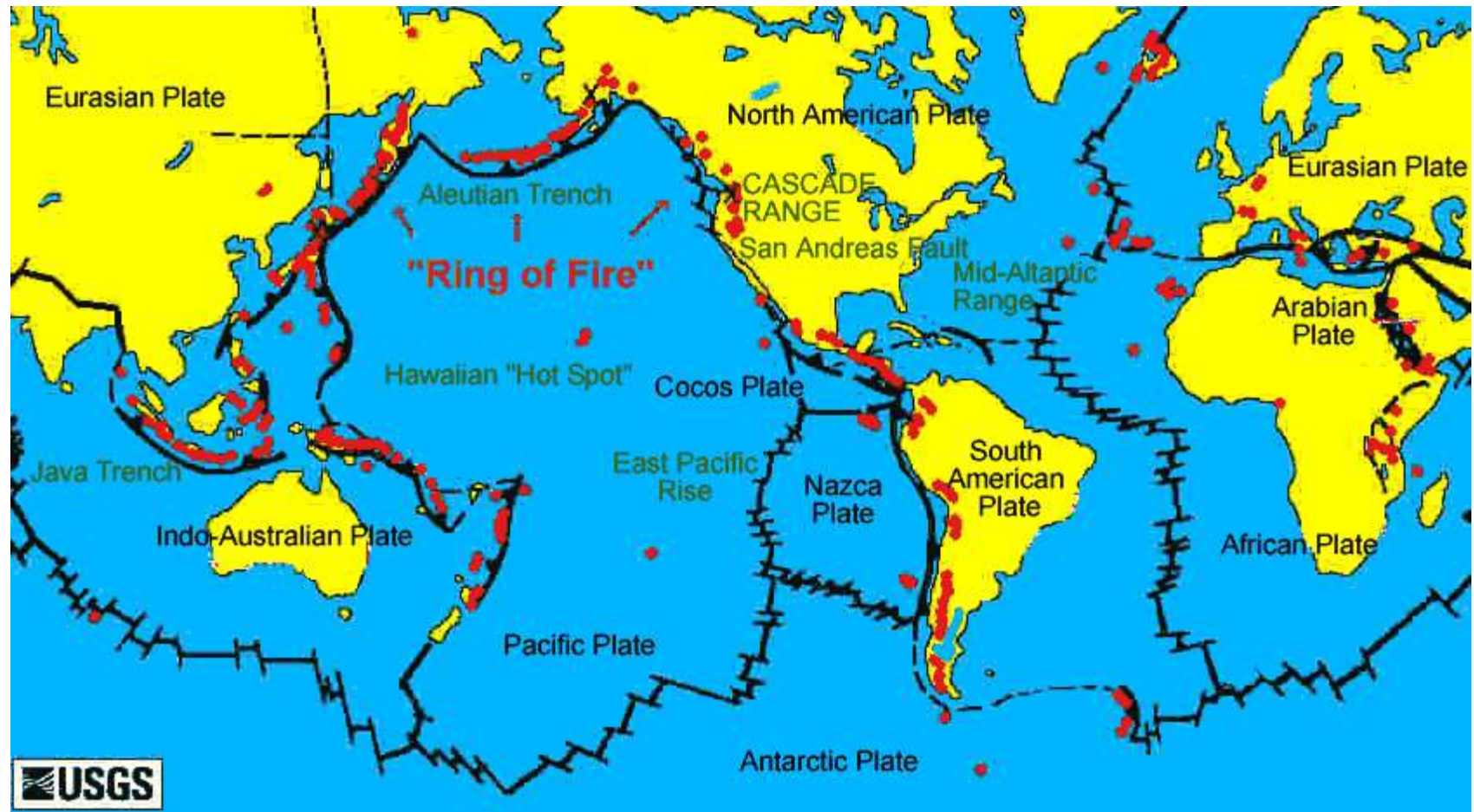
26. volcano

d. a column of solid, hot material from the deep mantle that rises and reaches the lithosphere

MAJOR VOLCANIC ZONES

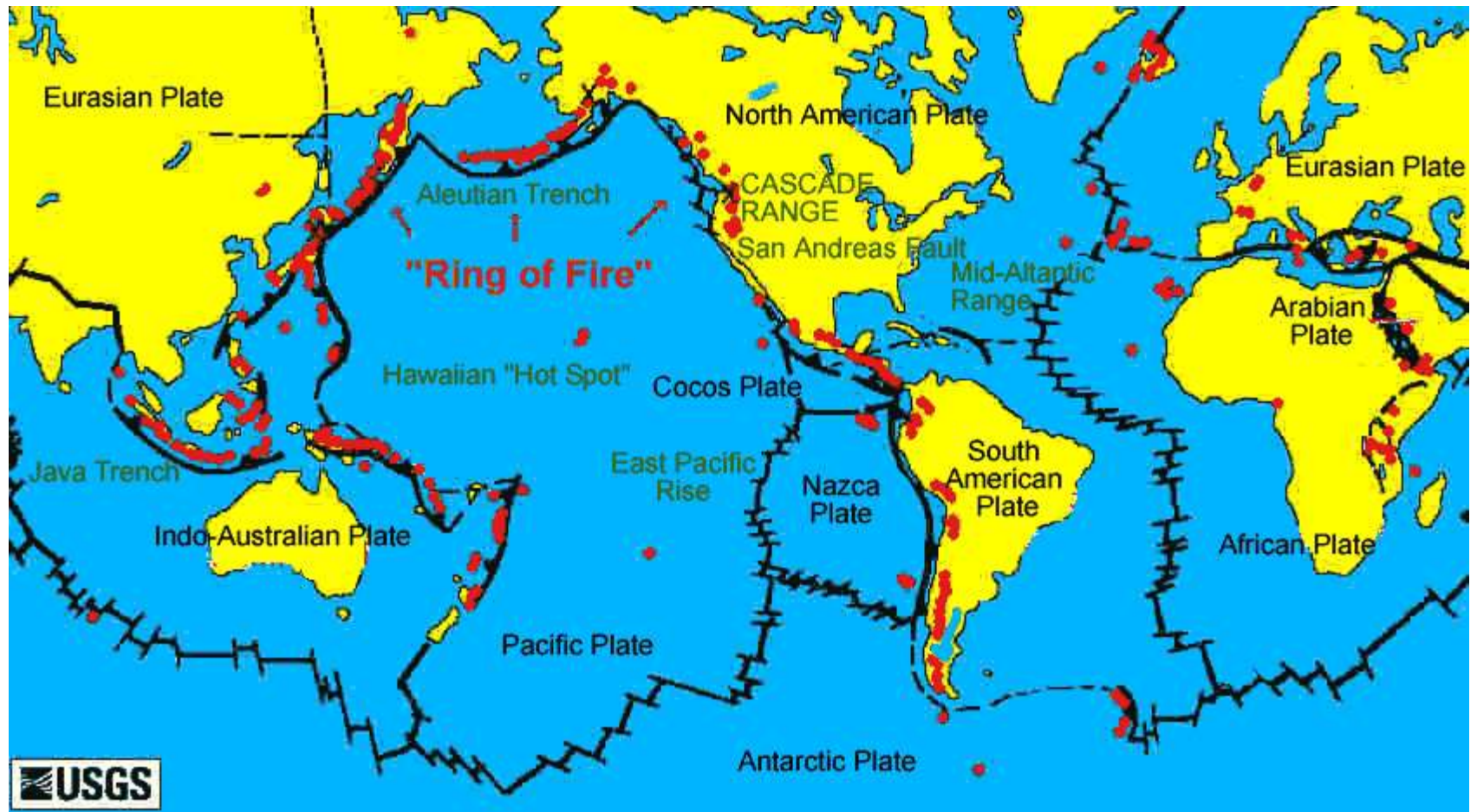
27. Volcanoes erupt on Earth's surface

- d. mostly near tectonic plate boundaries.



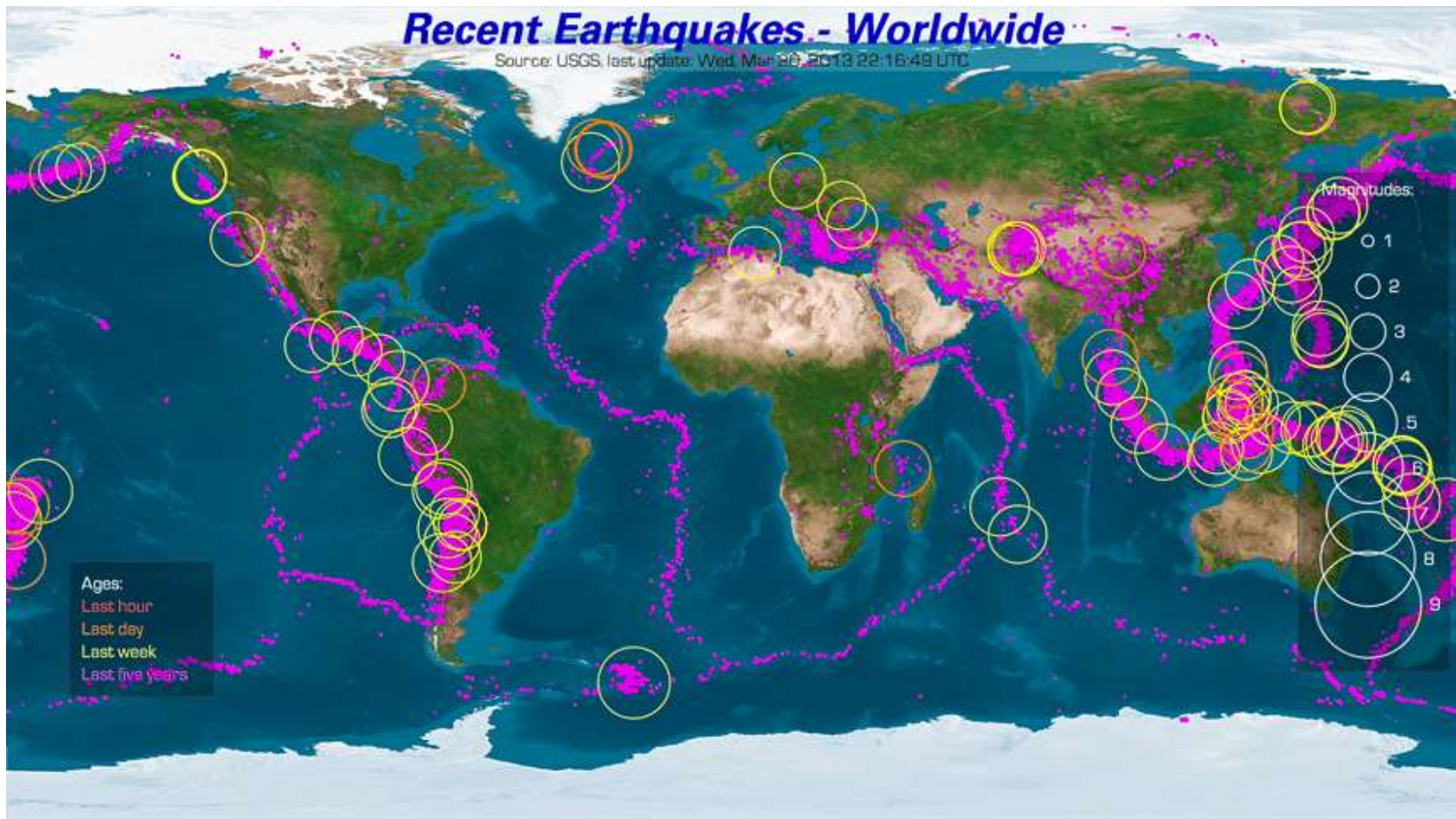
28. A major zone of active volcanoes encircling the Pacific Ocean is called

- c. the Pacific Ring of Fire.



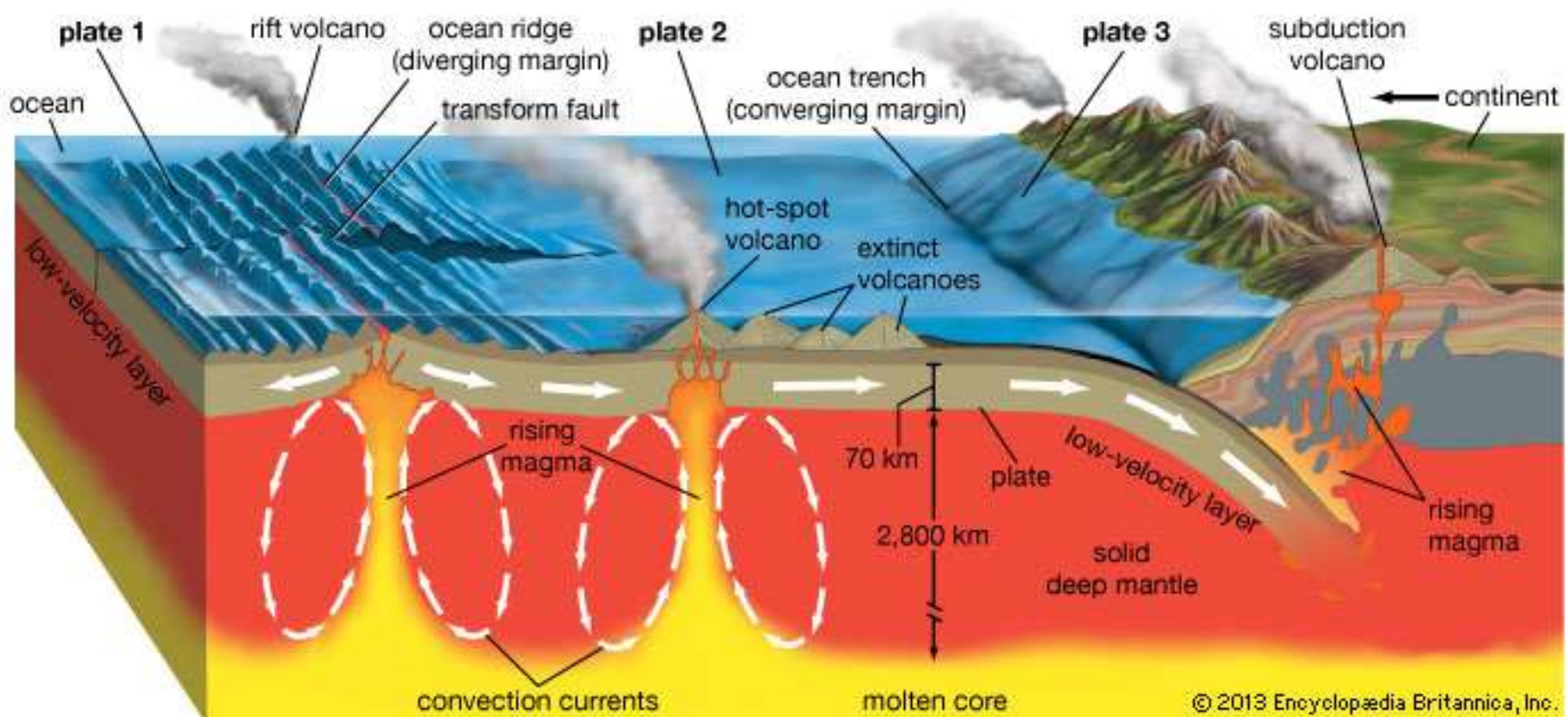
29. The Pacific Ring of Fire is also one of Earth's major

- d. earthquake zones.



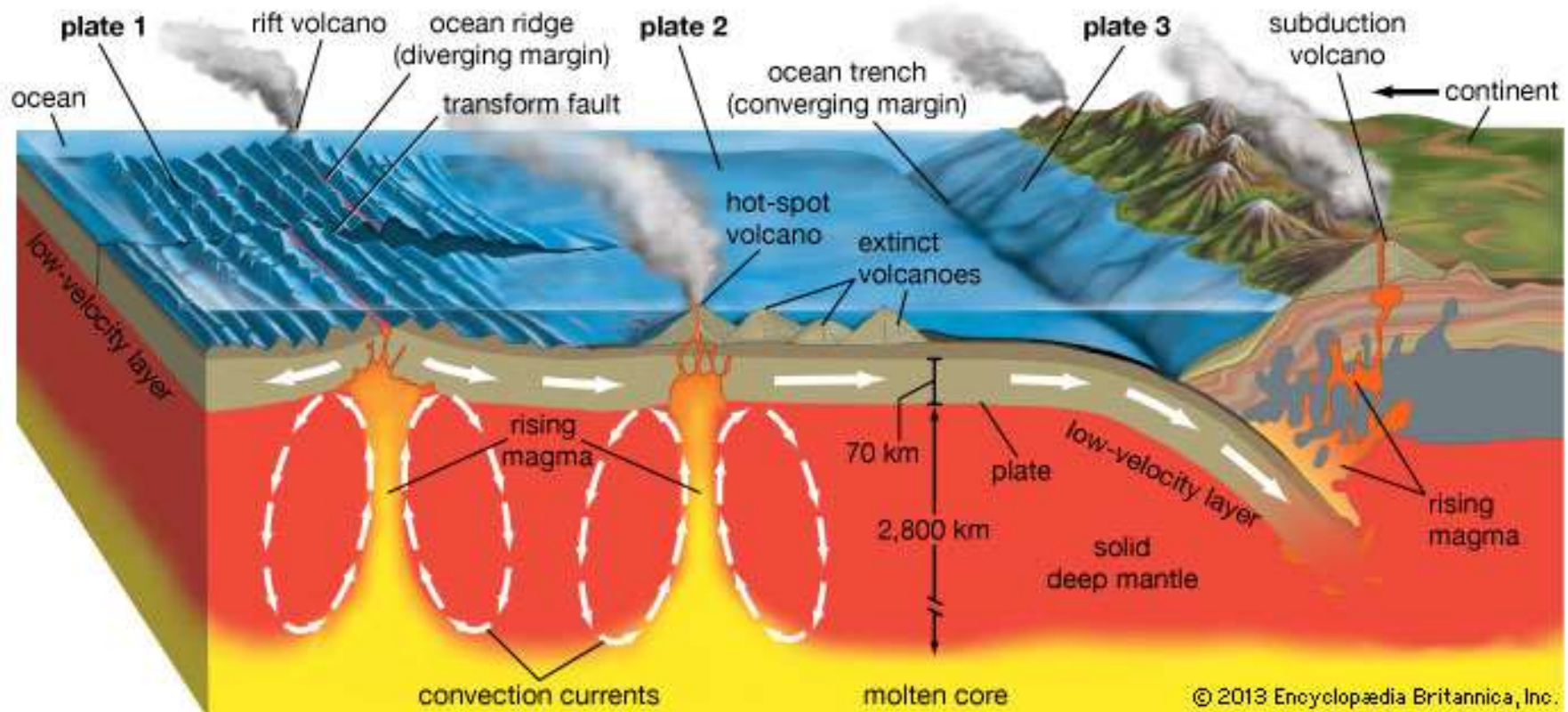
30. One tectonic plate moves under another along a(n)

- **b.** subduction zone.



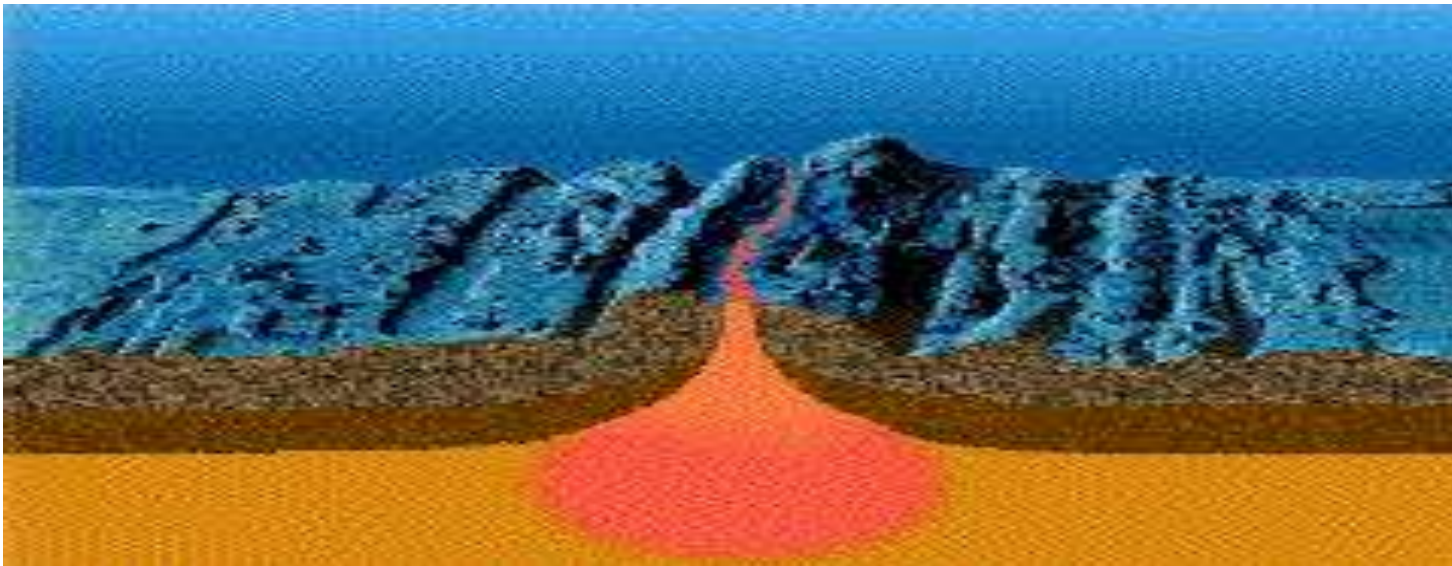
31. On the ocean floor, along the edge of the continent where the plate is subducted,

- **a.** a deep trench forms.



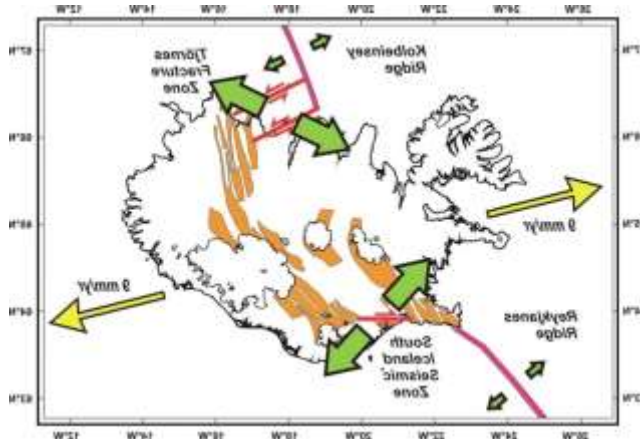
32. Explain what happens as magma comes to the surface where plates move apart at mid-ocean ridges.

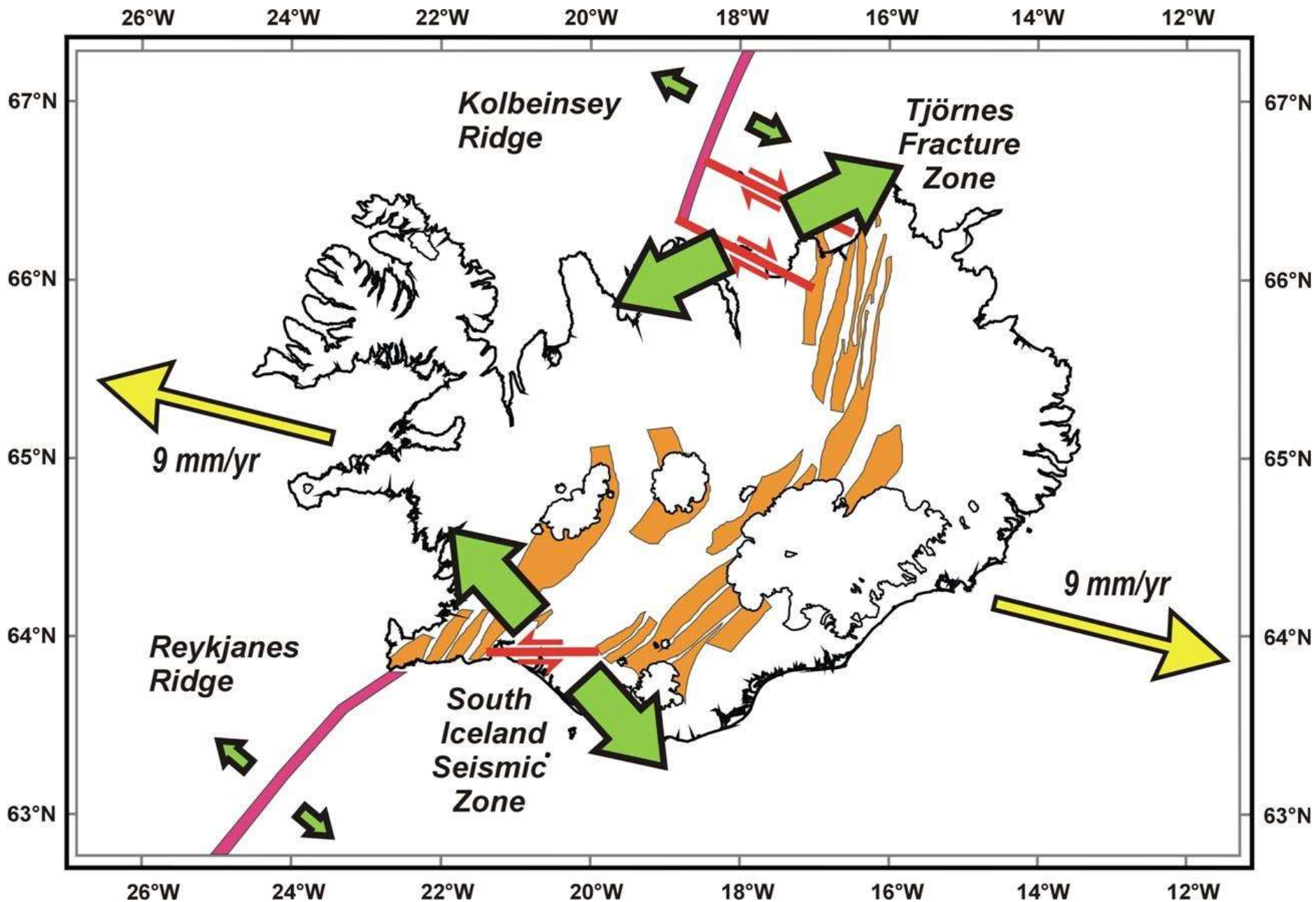
- As plates pull apart, magma flows upward, adding material to the mid-ocean ridge and creating new lithosphere. The magma erupts to form underwater volcanoes.



33. What is happening in Iceland, where volcanic eruptions happen along mid-ocean ridges?

- Iceland is divided by the North American plate and the Eurasian plate. One half of Iceland is moving east, and the other half is moving west. Magma flows to Earth's surface through large fissures in the middle of Iceland.





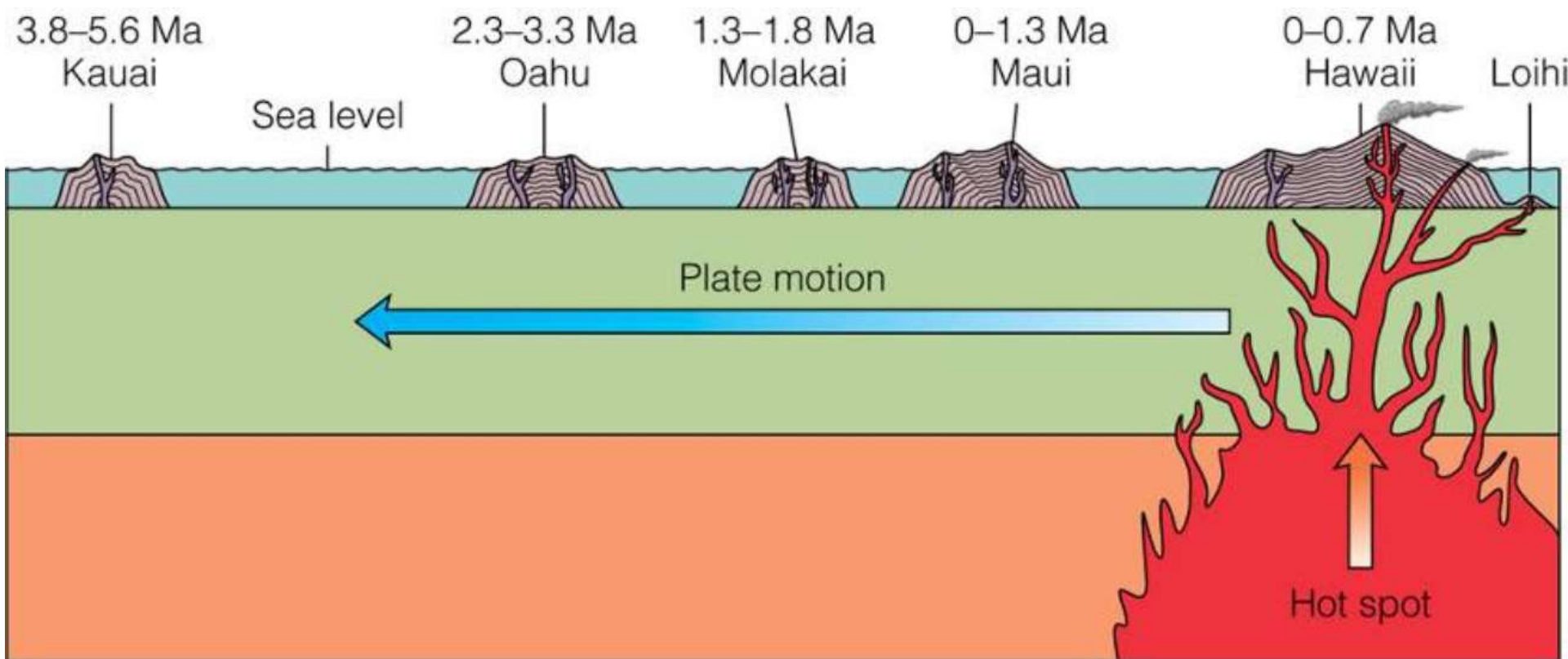
For 34-37 Use the #'s 1-4 to show the sequence of volcano development in a hot spot.

4 34. Volcanoes form in the interior of a tectonic plate.

1 35. Columns of solid, hot material called mantle plumes rise and reach the lithosphere.

3 36. Magma rises to the surface and breaks through the overlying crust.

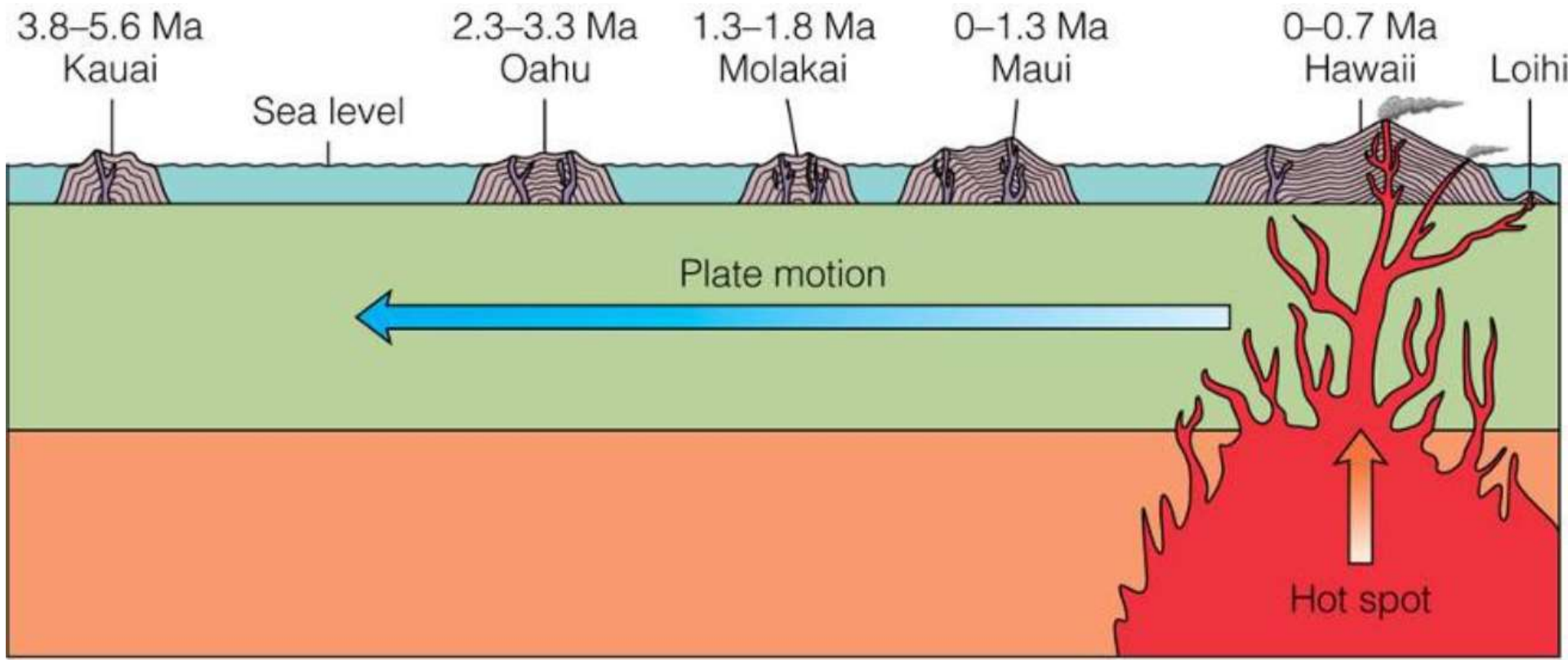
2 37. A mantle plume reaches the lithosphere, and spreads out.



(a)

38. Describe what happens to volcanic activity when the lithospheric plate above a mantle plume continues to drift.

- When the lithospheric plate above the mantle plume begins to drift, the volcano on the surface drifts too, and the volcano is carried away from the mantle plume. The activity of the old volcano stops, and a new volcano forms over the mantle plume.



(a)

The End



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