Table of Contents

Objectives

- Describe
- Compare
- Explain
- Explain

How and Where Earthquakes Happen

earthquake

elastic rebound

Why Earthquakes Happen

Elastic Rebound

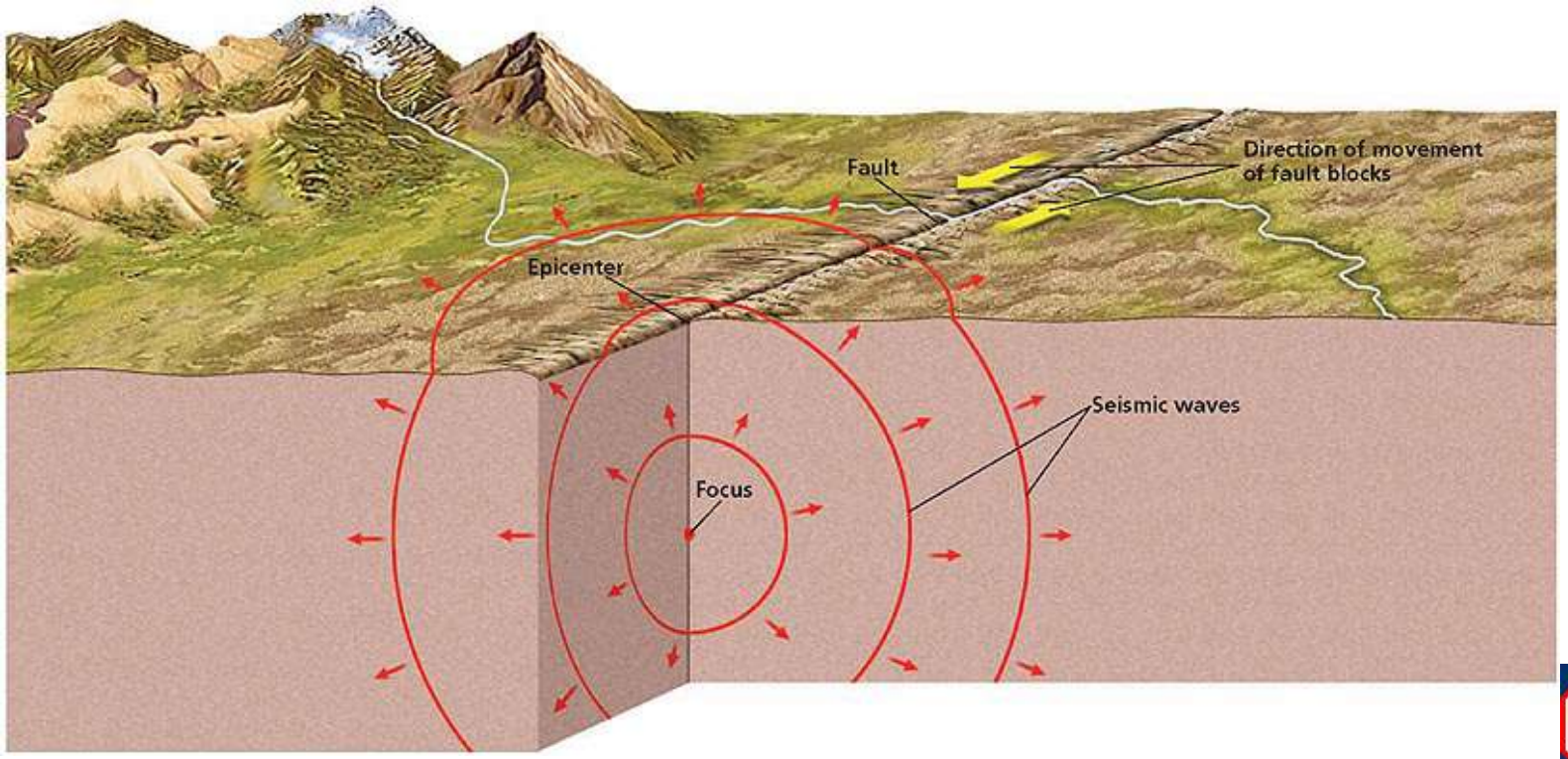
Why Earthquakes Happen, *continued*

Anatomy of an Earthquake

focus

epicenter

Why Earthquakes Happen, *continued*



End Of Slide

Seismic Waves

body wave

surface wave

Seismic Waves, *continued*

Body Waves

P wave

Seismic Waves, *continued*

Body Waves

S wave

Seismic Waves, *continued*

Surface Waves

Seismic Waves and Earth's Interior

Earth's Internal Layers

Seismic Waves and Earth's Interior, *continued*

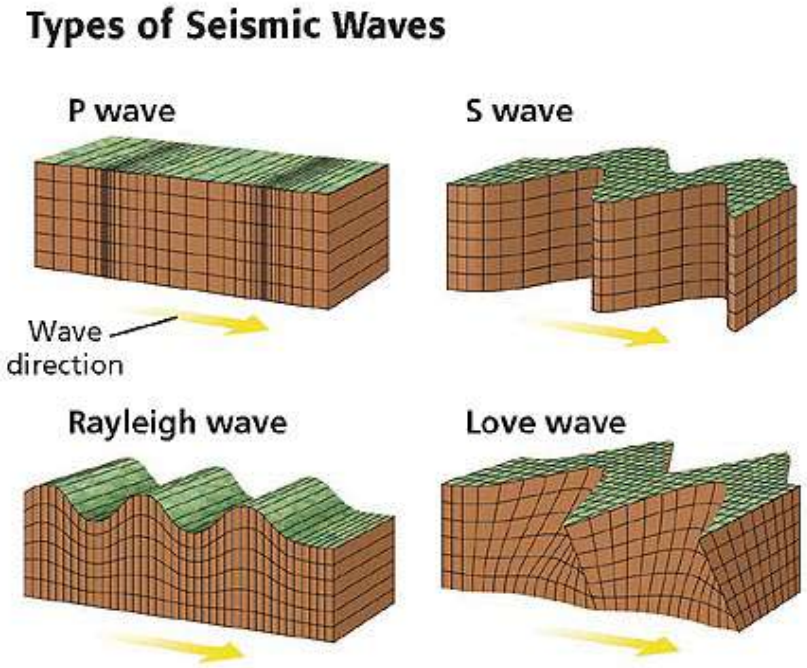
Shadow Zones

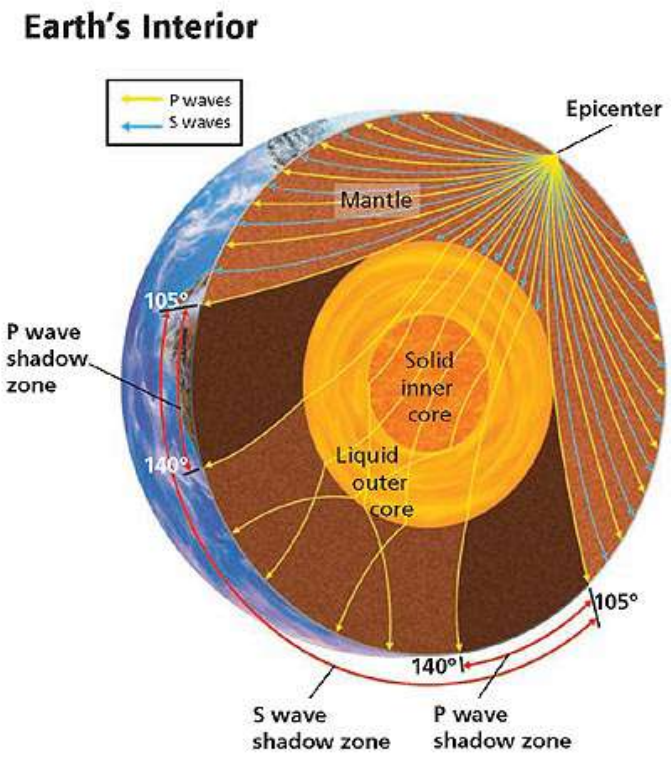
shadow zone

Seismic Waves and Earth's Interior, *continued*

Shadow Zones

Seismic Waves and Earth's Interior, *continued*





End Of Slide

Earthquakes and Plate Tectonics

Earthquakes and Plate Tectonics, *continued*

Convergent Oceanic Environments

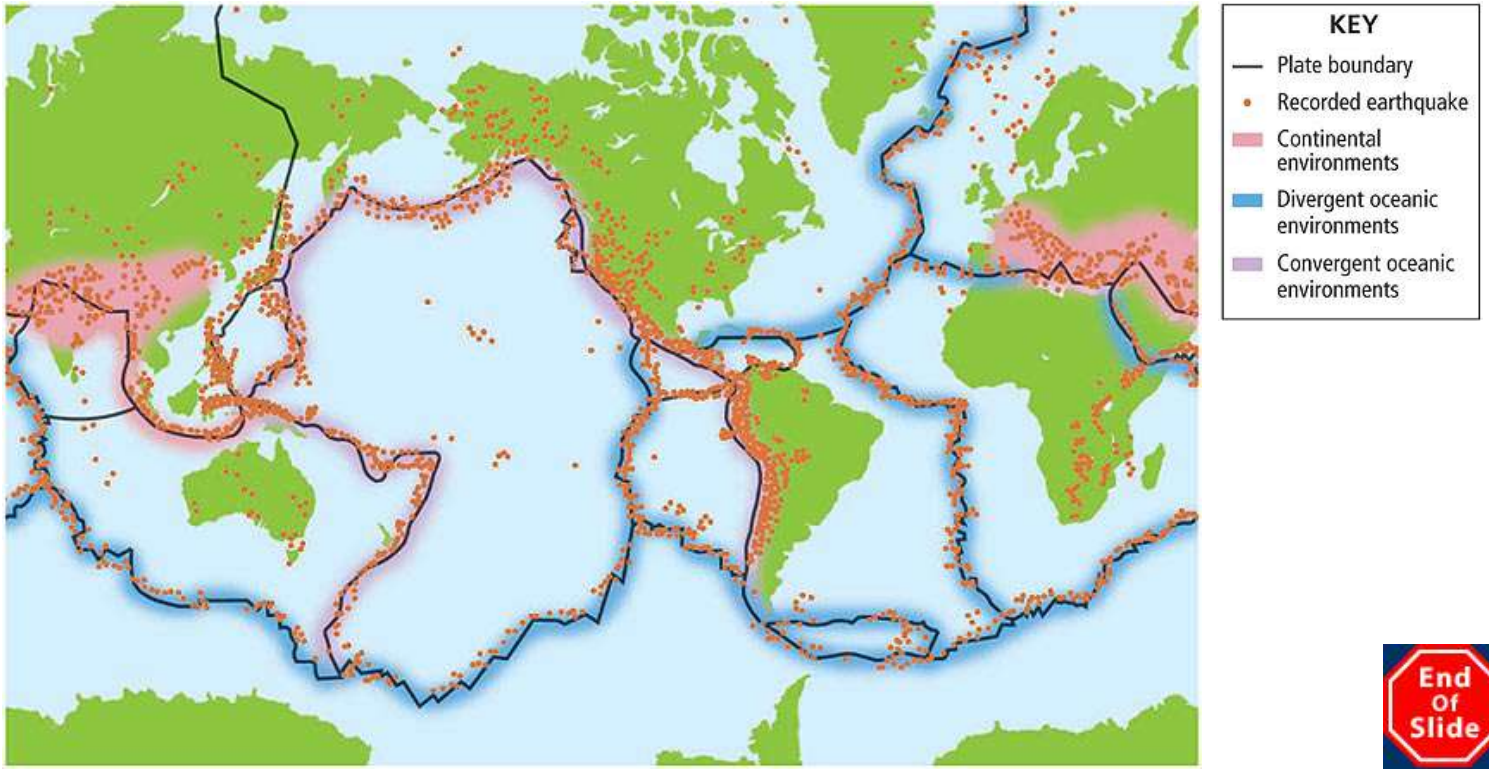
Earthquakes and Plate Tectonics, *continued*

Divergent Oceanic Environments

Earthquakes and Plate Tectonics, *continued*

Continental Environments

Earthquakes and Plate Tectonics, *continued*



End Of Slide
Chapter menu
Resources

Fault Zones

fault zone

Fault Zones, *continued*

Earthquakes Away from Plate Boundaries

Objectives

- Describe
- Summarize
- Describe

Studying Earthquakes

Recording Earthquakes

seismograph

seismogram

Locating an Earthquake

Earthquake Measurement

Magnitude

magnitude

Earthquake Measurement

Intensity

intensity

Objectives

- Discuss
- Describe
- List
- Identify

Earthquakes and Society

Tsunamis

tsunami

Destruction to Buildings and Property

Earthquake Safety

Before an Earthquake

Earthquake Safety, *continued*

During an Earthquake

Earthquake Safety, *continued*

After an Earthquake

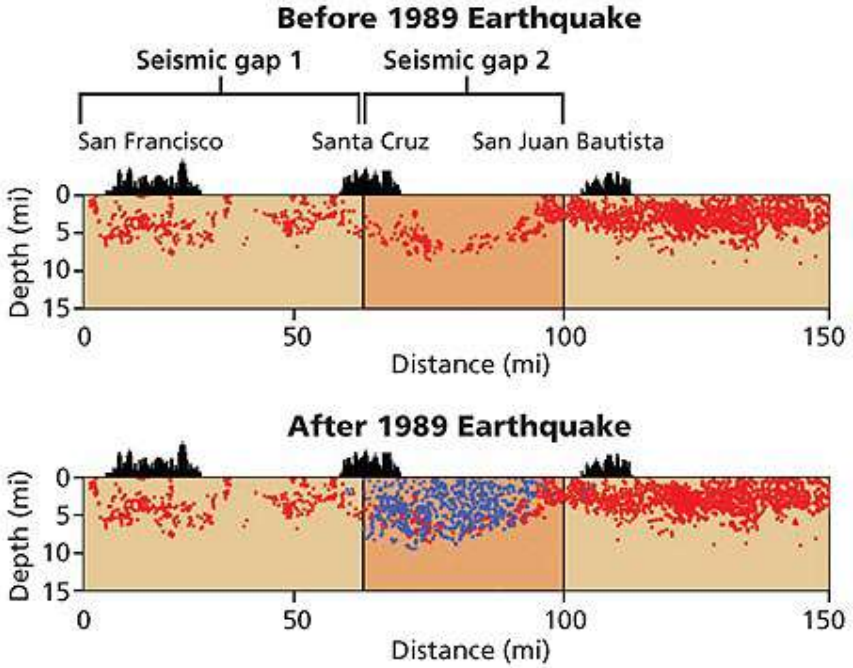
Earthquake Warnings and Forecasts

Earthquake Warnings and Forecasts, *continued*

Seismic Gaps

Seismic gap

Earthquake Warnings and Forecasts, *continued*



End Of Slide

Earthquake Warnings and Forecasts, *continued*

Foreshocks

Earthquake Warnings and Forecasts, *continued*

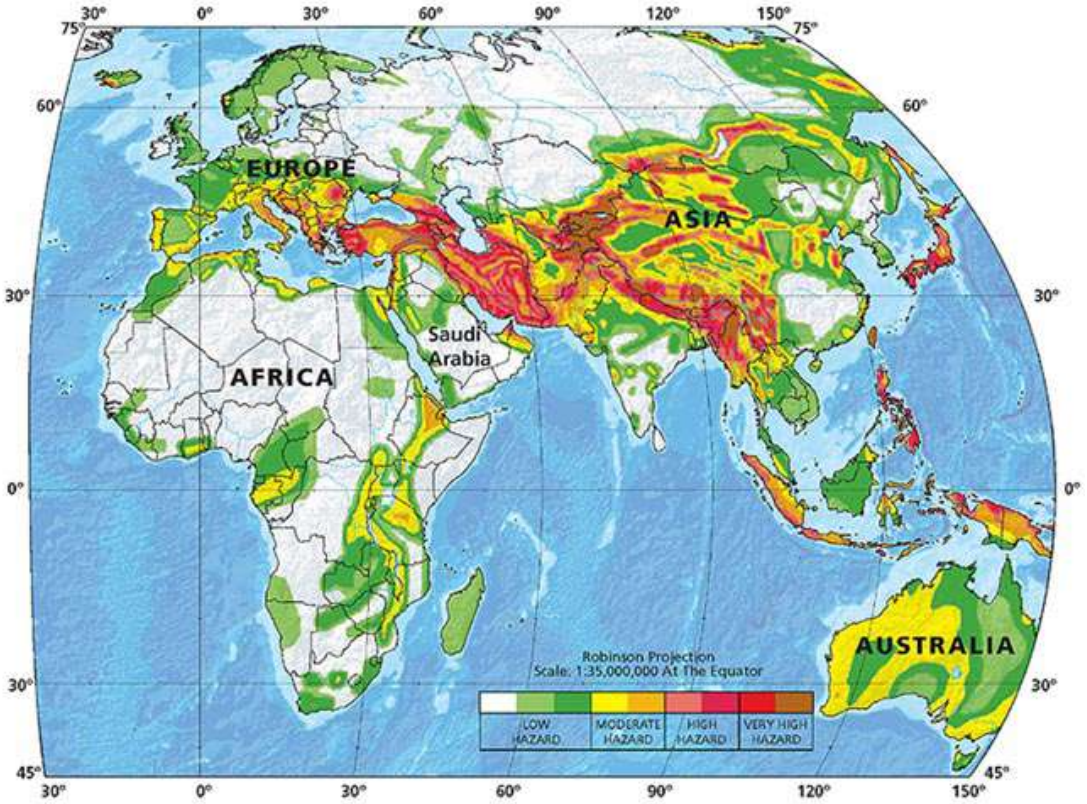
Changes in Rocks

Earthquake Warnings and Forecasts, *continued*

Reliability of Earthquake Forecasts

Brain Food Video Quiz

Maps in Action



End Of Slide

Multiple Choice

1. Energy waves that produce an earthquake begin at what location on or within Earth?

Multiple Choice

1. Energy waves that produce an earthquake begin at what location on or within Earth?

C. the focus

Multiple Choice, *continued*

2. The fastest moving seismic waves produced by an earthquake are called

Multiple Choice, *continued*

2. The fastest moving seismic waves produced by an earthquake are called

F. P waves

Multiple Choice, *continued*

3. The magnitude of an earthquake can be expressed numerically by using

Multiple Choice, *continued*

3. The magnitude of an earthquake can be expressed numerically by using

D. both the Richter scale and the moment magnitude scale

Multiple Choice, *continued*

4. Most earthquake-related injuries are caused by

Multiple Choice, *continued*

4. Most earthquake-related injuries are caused by

G. collapsing buildings

Multiple Choice, *continued*

5. Which of the following is least likely to cause deaths during an earthquake?

Multiple Choice, *continued*

5. Which of the following is least likely to cause deaths during an earthquake?

C. actual ground movement

Short Response

6. What is the name of the instrument used to detect and record seismic waves?

Short Response

6. What is the name of the instrument used to detect and record seismic waves?

Short Response, *continued*

7. What is the term for waves that move through a medium instead of along its surface?

Short Response, *continued*

7. What is the term for waves that move through a medium instead of along its surface?

Short Response, *continued*

8.Where is the Ring of Fire located?

Short Response, *continued*

8.Where is the Ring of Fire located?

Reading Skills

Read the passage below. Then, answer questions 9–11.

The Loma Prieta Earthquake

At 5:04 P.M. on October 17, 1989, life in California's San Francisco Bay area seemed relatively normal. While more that 62,000 excited fans filled Candlestick Park to watch the third game of baseball's World Series, other people were still rushing home from a long day's work or picking their children up from extracurricular activities. By 5:05 P.M., the situation had changed drastically. The area was rocked by the 6.9 Loma Prieta earthquake. The earthquake lasted 20 seconds and caused 62 deaths, 3,757 injuries, and the destruction of more than 1,000 homes and businesses. By midnight, the city was fighting more than 20 large structural fires resulting from the earthquake. Considering that the earthquake was of such a high magnitude and that it happened during the busy rush hour, it is amazing that more people were not injured or killed.

Reading Skills, *continued*

9. What type of waves are the most likely to have caused the damage described during the Loma Prieta earthquake?

Reading Skills, *continued*

9. What type of waves are the most likely to have caused the damage described during the Loma Prieta earthquake?

D. surface waves

Reading Skills, *continued*

10. Which of the following statements can be inferred from the information in the passage?

Reading Skills, *continued*

10. Which of the following statements can be inferred from the information in the passage?

G. The damage caused by the earthquake continued even after the waves had passed.

Reading Skills, *continued*

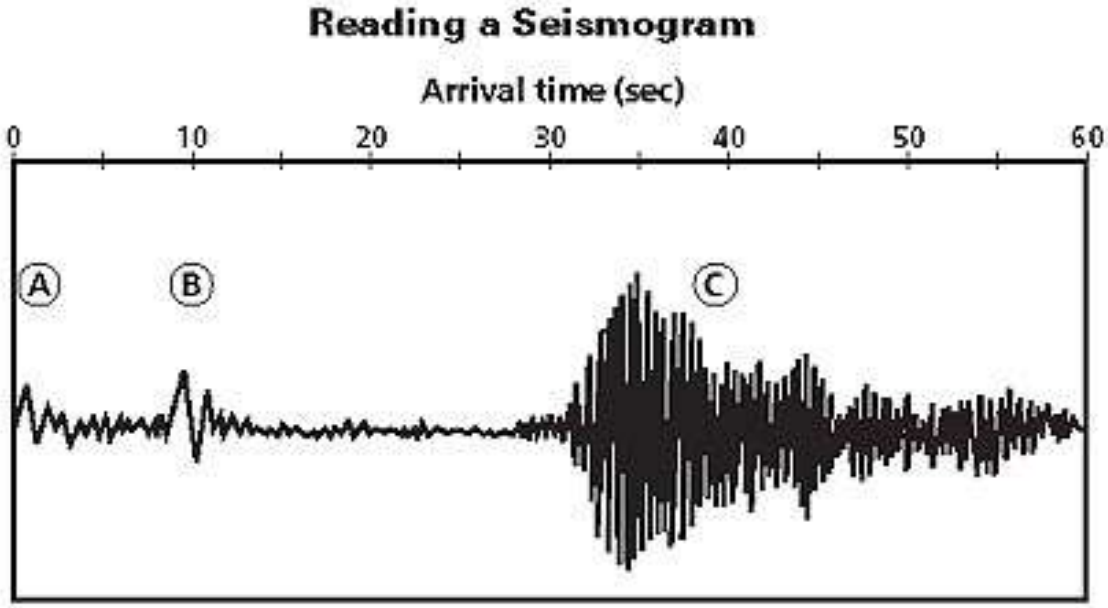
11. The 6.9 rating of the Loma Prieta earthquake is a rating on what measurement scale?

Reading Skills, *continued*

11. The 6.9 rating of the Loma Prieta earthquake is a rating on what measurement scale?

Interpreting Graphics

Use the figure below to answer questions 12-13. The diagram shows a recording of data by a seismograph.



Interpreting Graphics, *continued*

12. What types of seismic waves are indicated by the points on the seismogram marked by the letter A?

Interpreting Graphics, *continued*

12. What types of seismic waves are indicated by the points on the seismogram marked by the letter A?

C. P waves

Interpreting Graphics, *continued*

13. What type of seismic waves by the point on the seismogram marked by the letter C? How are these waves connected to the smaller waves that precede them?

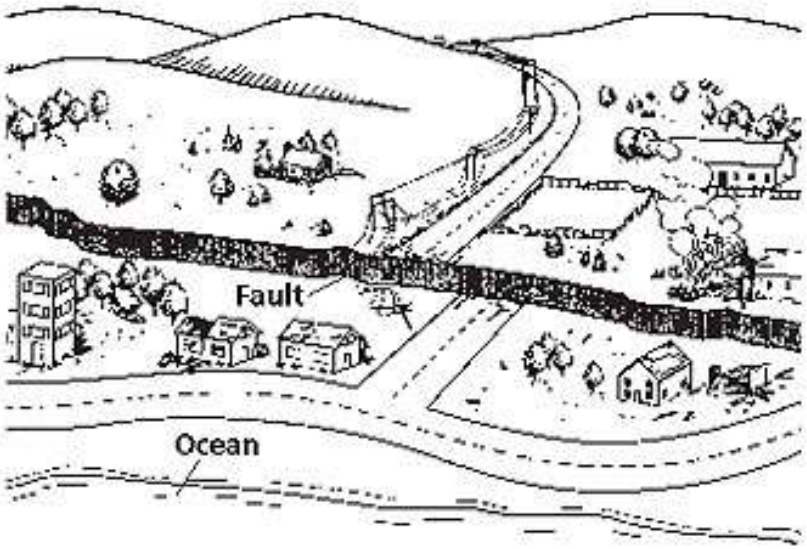
Interpreting Graphics, *continued*

13. What type of seismic waves by the point on the seismogram marked by the letter C? How are these waves connected to the smaller waves that precede them?

Interpreting Graphics, *continued*

Use the figure below to answer question 14. The diagram shows the damage caused by an earthquake.

Earthquake Damage



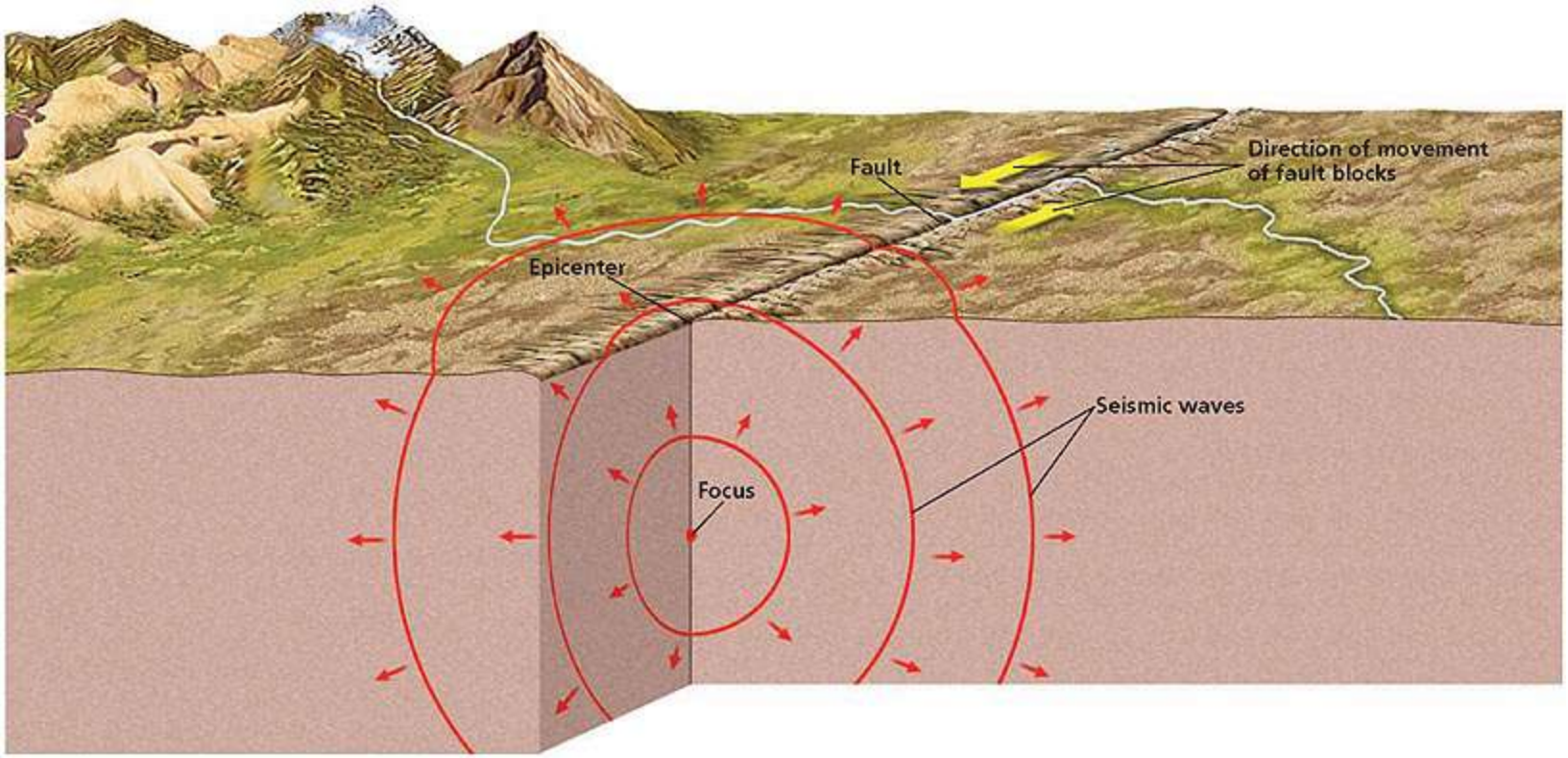
Interpreting Graphics, *continued*

14. What safety hazards can you identify in this scene? What advice would you give to someone approaching the scene above? How should people prepare for dealing with such post-earthquake safety hazards?

Interpreting Graphics, *continued*

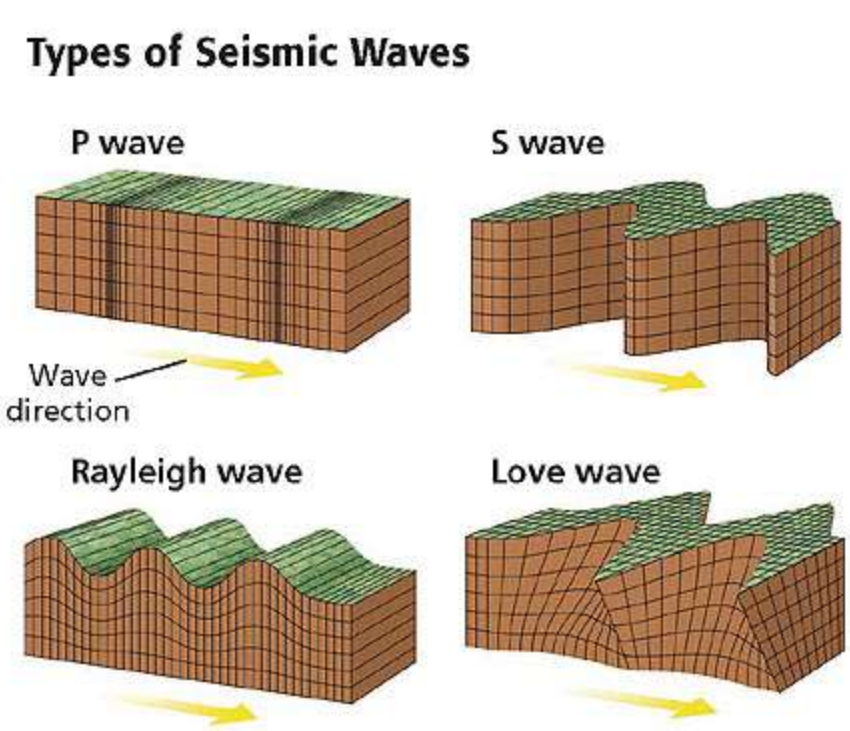
14. What safety hazards can you identify in this scene? What advice would you give to someone approaching the scene above? How should people prepare for dealing with such post-earthquake safety hazards?

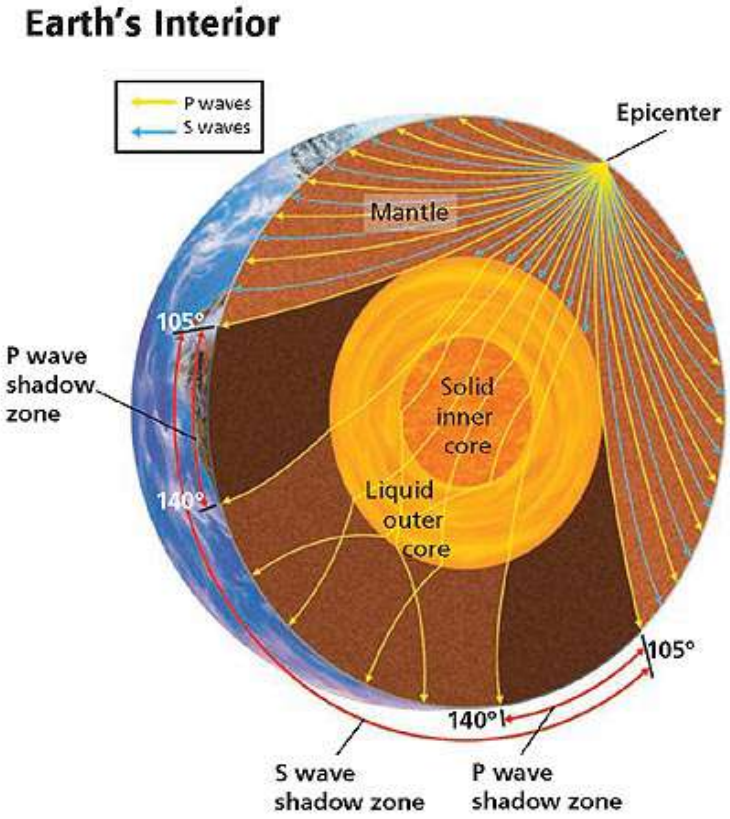
Anatomy of an Earthquake



Chapter 12

Seismic Waves and Earth's Interior

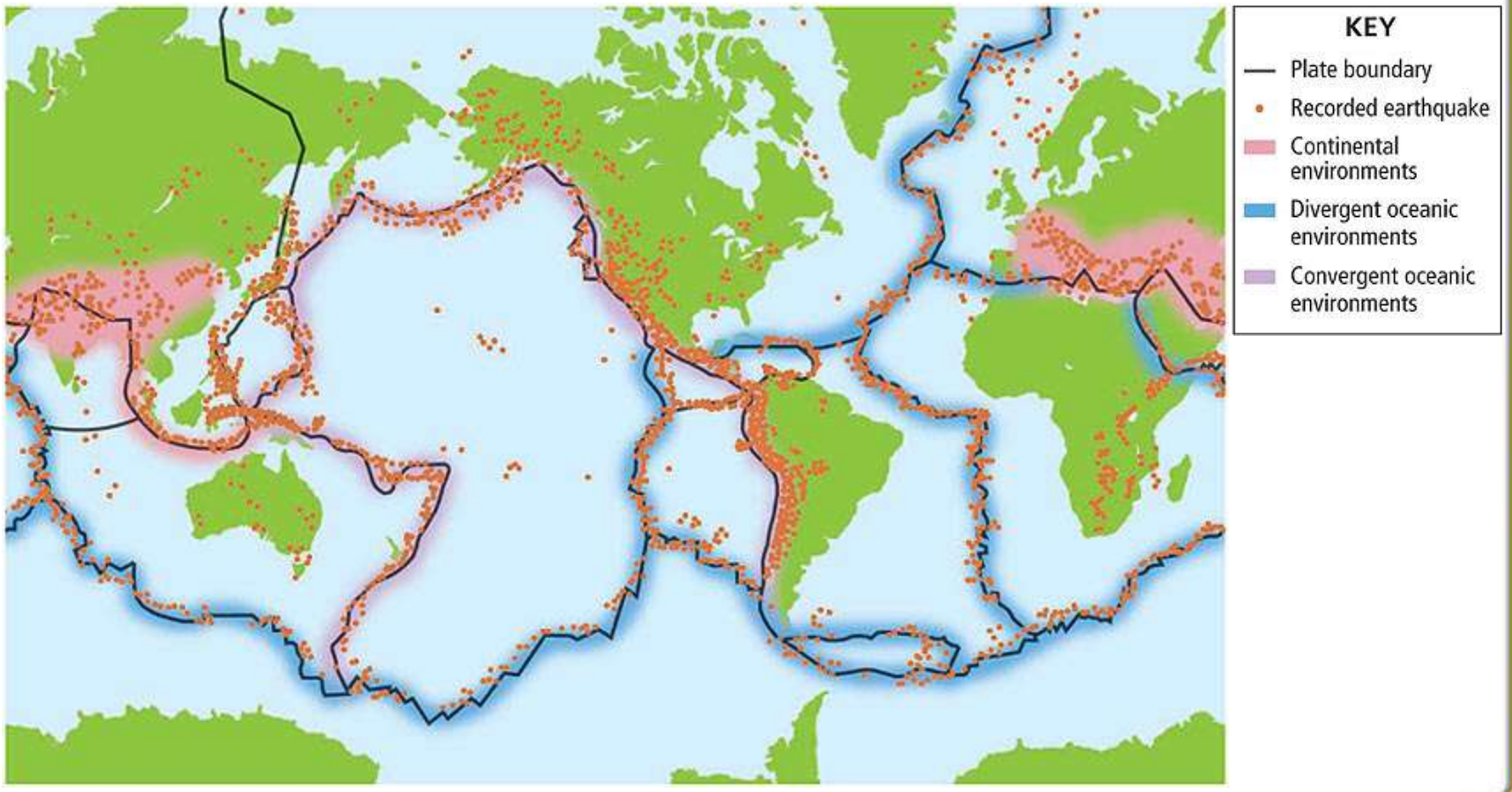




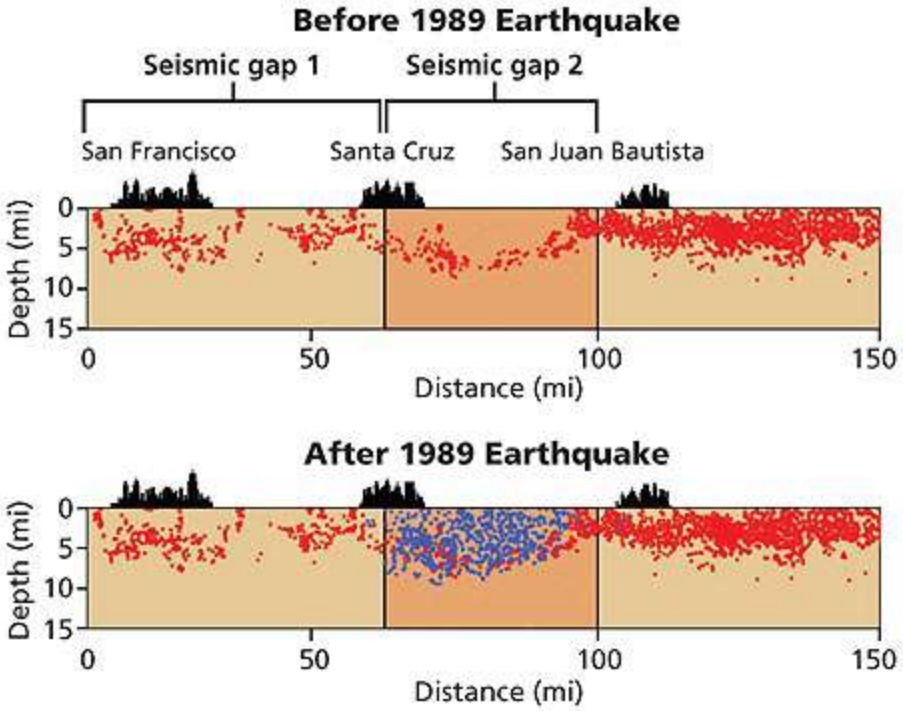
Chapter menu | Resources

Chapter 12

Earthquakes and Plate Tectonics



Seismic Gaps



Earthquake Hazard Map