

SECTION 2-4

SECTION SUMMARY

Monitoring Faults

Guide for Reading

- ◆ How do geologists monitor faults?
- ◆ How do geologists determine earthquake risk?

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Geologists have tried to predict when and where an earthquake will occur. They hypothesize that an approaching earthquake is signaled by changes in the elevation or tilt of the land. **To observe these changes, geologists put in place instruments that measure stress and deformation in the crust.**

Four instruments that are used to monitor faults are creep meters, laser-ranging devices, tiltmeters, and satellites. A creep meter uses a wire stretched across a fault to measure sideways movement of the ground. A laser-ranging device uses a laser beam bounced off a reflector to detect even slight fault movements. A tiltmeter measures how much the ground has tipped along a fault. Satellites bounce radio waves off the ground to measure changes in elevation.

Even with fault-monitoring devices, scientists cannot yet predict earthquakes accurately. However, they do know that earthquakes are likely wherever plate movement stores energy in rocks. **Geologists can determine earthquake risk by locating where faults are active and where past earthquakes have occurred.** In the United States, earthquake risk is highest on the west coast and Alaska. Other regions of the United States also have some risk of earthquakes. Scientists have created maps showing earthquake risk in different regions of the country.

SECTION 2-4 REVIEW AND REINFORCE

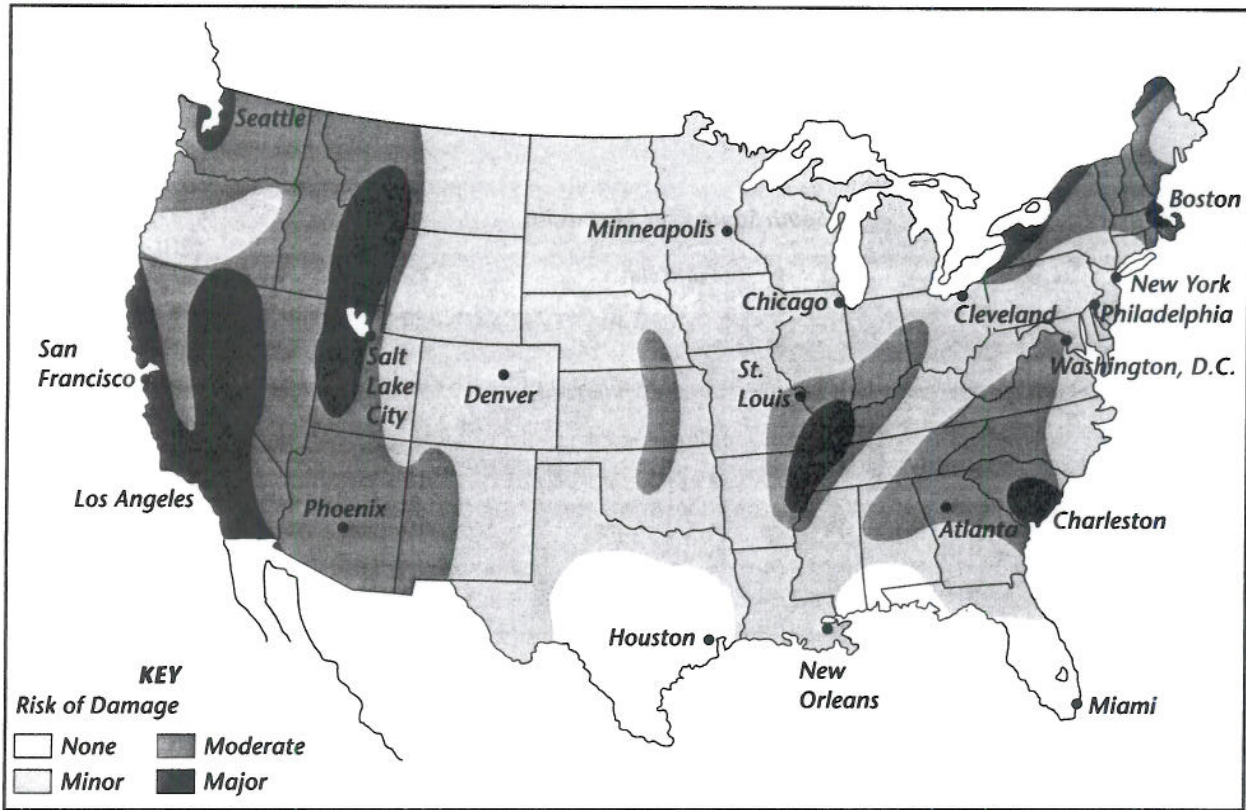
Monitoring Faults

◆ Understanding Main Ideas

Answer the following questions on a separate sheet ^{the back,} of paper.

1. How might monitoring faults help geologists predict an earthquake?
2. What two factors help geologists determine earthquake risk?

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3. a. Name three cities shown on the map above that have a *major* risk of earthquake damage.
- b. Name three cities that have a *moderate* risk of earthquake damage.
- c. Name three cities that have a *minor* risk of earthquake damage.

◆ Building Vocabulary

Answer each item below. Write your answers on a separate sheet of paper.

4. Name four instruments that are used to detect movement along faults.
5. Briefly describe how each instrument works.