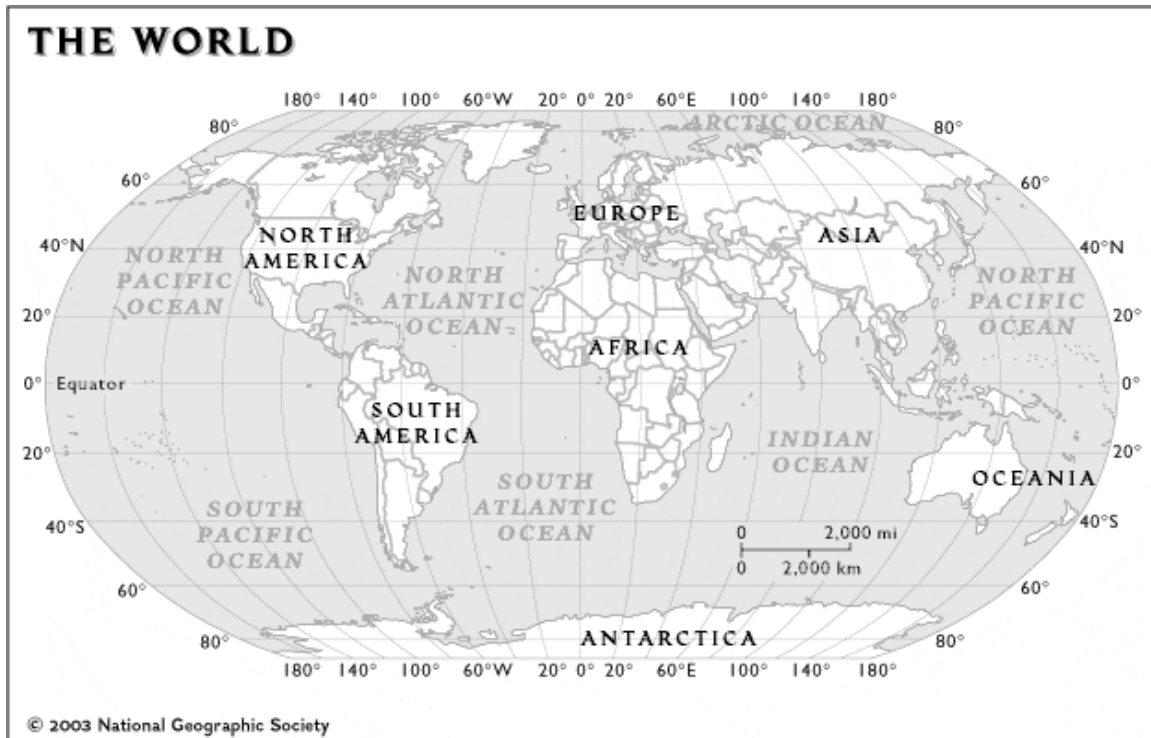


# Mapping Geologic Hazards

Name \_\_\_\_\_

Section \_\_\_\_\_



Latitude is distance north or south of the Equator, and longitude is distance east or west of the prime meridian. Both are measured in terms of the 360 degrees (symbolized by  $^{\circ}$ ) of a circle. Imaginary lines of latitude and longitude intersect each other, forming a grid that covers the Earth and helps us locate points on it.

The Equator is the line of  $0^{\circ}$  latitude, the starting point for measuring latitude. The latitude of the North Pole is  $90^{\circ}$  N, and that of the South Pole is  $90^{\circ}$  S. The latitude of every point in between must be some degree north or south, from  $0^{\circ}$  to  $90^{\circ}$ . One degree of latitude covers about 69 miles (111 kilometers).

Each line of latitude forms an imaginary circle around the Earth. Because these circles are parallel to the Equator, they are called parallels of latitude. The farther the circles are from the Equator, the smaller they are; at the Poles they are simply points.

Lines of longitude, which meet at the Poles, are known as meridians. The one that runs through Greenwich, England, is internationally accepted as the line of  $0^{\circ}$  longitude, or the Prime Meridian.

Longitude is measured in degrees east or west of the prime meridian. This means one half of the world is measured in degrees of east longitude up to 180°, and the other half in degrees of west longitude up to 180°.

For greater precision, degrees of latitude and longitude are divided into 60 minutes (symbolized by '), and minutes are divided into 60 seconds (symbolized by ").

Maps are often marked with parallels and meridians. The latitude and longitude of a point are called its coordinates. If you know the coordinates, you can use a map to locate any point on Earth.

1. What is the name given to the line of 0° longitude? Label it on the map of the world above.
2. If you begin your journey from the Prime Meridian (0° longitude) and 20° S and travel 60° W, what continent would you be on? What if you had traveled 20° E?
3. Everyday about 10-30 earthquakes occur around the world. During the past few weeks, several earthquakes have occurred in Mexico. Plot the coordinates on the map of Mexico to find out where these earthquakes occurred. Hint: not all earthquakes happen on land.



1. 16°13'N and 96°47'W (Jan. 13, 2004 Magnitude 5.5)
2. 24°02'N and 108°58'W (Jan. 14, 2004 Magnitude 4.4)
3. 17°49'N and 95°24'W (Jan. 17, 2004 Magnitude 5.2)
4. 32°09'N and 115°27'W (Jan. 20, 2004 Magnitude 2.6)



4. The eruption of Mount Saint Helens in 1980 was the first volcanic eruption in the United States outside of Alaska and Hawaii since 1914. Find the latitude and longitude of Mt St. Helen's on the map of Washington.
  
5. Geologists use knowledge about the distribution and size of earthquakes and faults to assess earthquake hazards. The city at 32°61'N and 114°64'W has had several large earthquakes in the past century and is considered by the Arizona Geological Survey to be at high risk for more earthquakes. Which city is it? Use the map of Arizona below.
  
6. Using the scale bar on the map, determine how far this city is from Tucson.



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