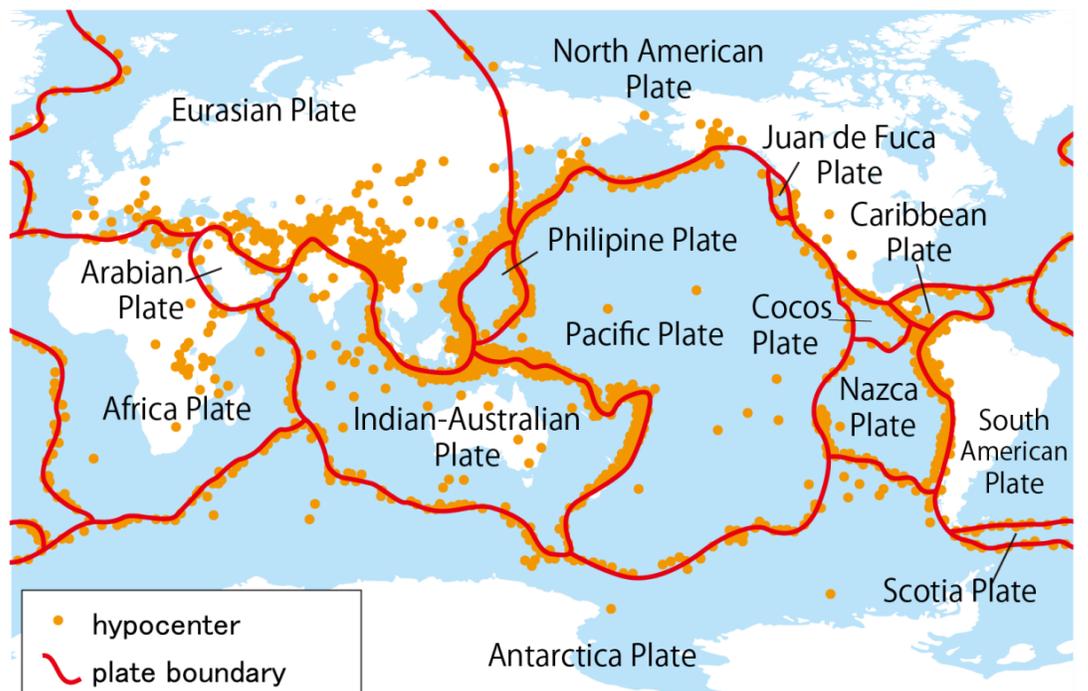


The Mechanism of earthquakes

The Earth moves constantly. Although sometimes crustal movements such as earthquakes bring about huge disasters, they play an important role in shaping the physical geography of our planet.

Where do earthquakes occur?

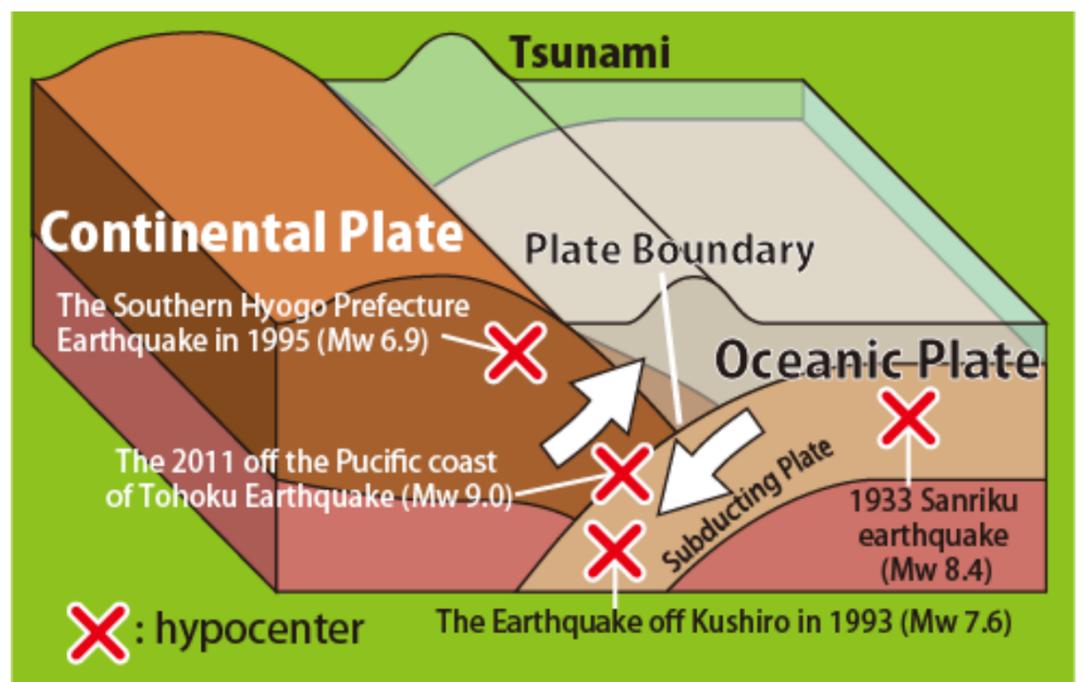
Just like a giant jigsaw puzzle, Earth's surface is made up of a series of large tectonic plates. The map shows that most earthquakes occur at or near the boundaries between these plates. Countries near these boundaries experience more earthquakes than others that are far from boundary.



*There are various types of plate boundaries.

Why do earthquakes occur?

★The tectonic plates in Earth's crust are in constant motion. A plate subducts under the neighboring plate, i.e., it slides under it, and then they are separated from each other. An earthquake occurs because of a large frictional force caused by the separation between the plates and plate destruction. Cracks caused by earthquakes are called faults.



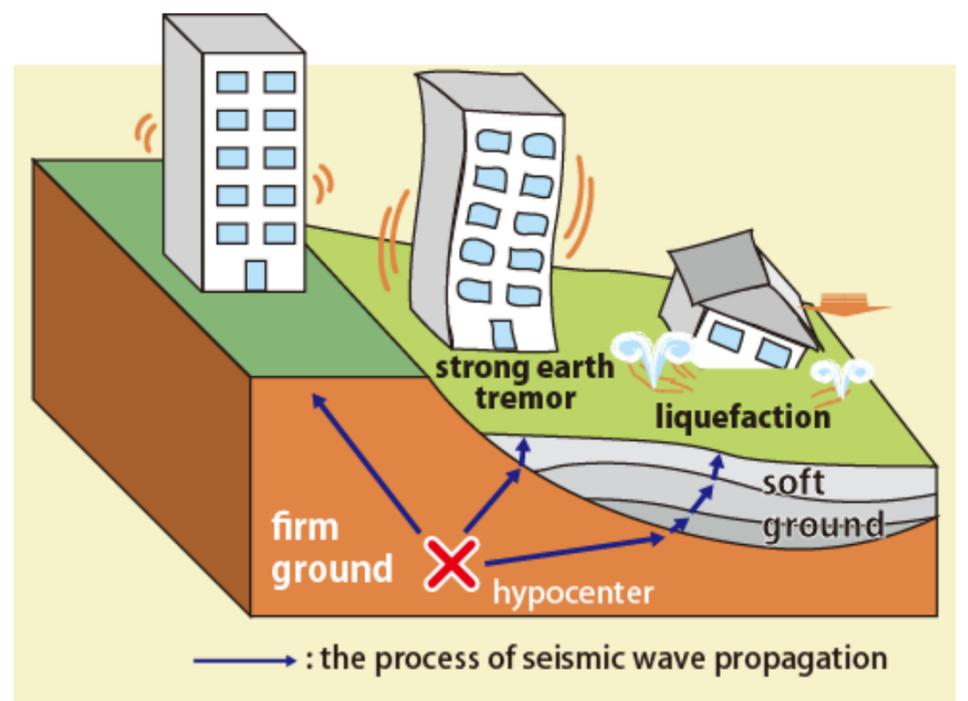
Model of Plate dynamics and Earthquakes in Japan

★Some earthquakes are large enough for us to feel, whereas others are not.

★The effects of an earthquake are not felt until the force of the earthquake reaches Earth's surface. Further, when the torsional ground motion considerably influences the impact of the earthquake on the sea floor, a tsunami occurs.

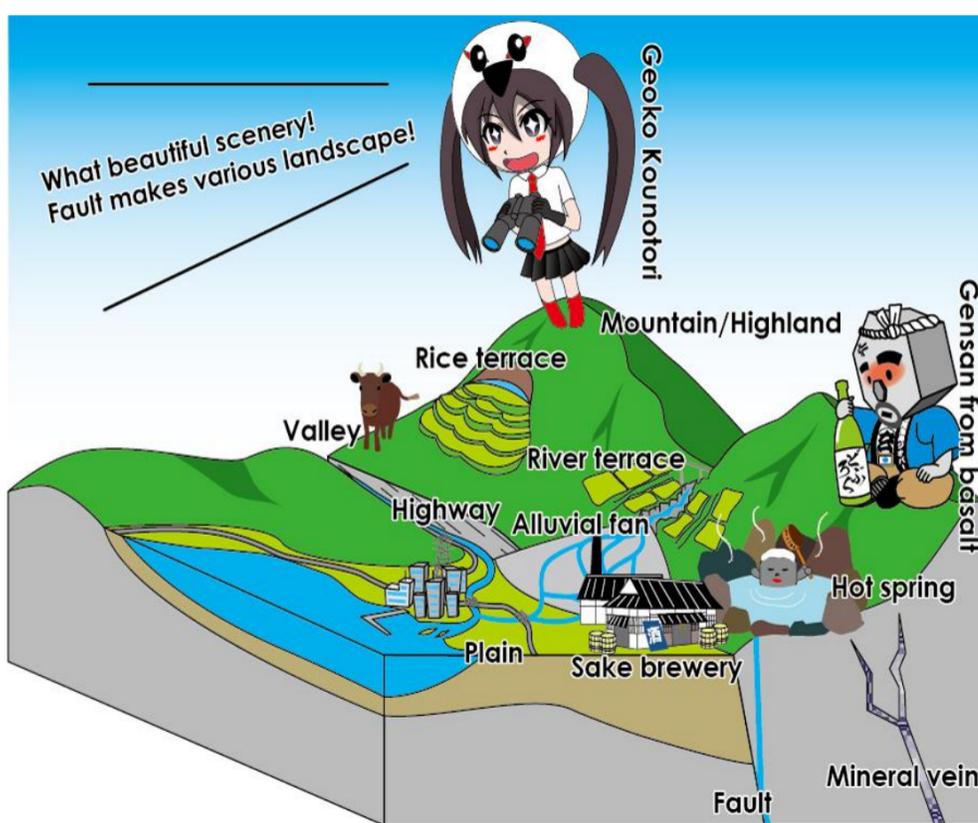
Do earthquake tremors vary from place to place?

It is generally believed that bigger shocks are felt on soft ground than in the areas surrounding these places, because it is easy for the shocks to travel under soft ground. If you are in a building, often, the level of intensity of the shocks depends on which floor of the building you are on and whether the building is earthquake-proof.



Earthquakes create geological features

Earthquakes cause serious damage, but they are not always very harmful to our lives. In fact, earthquakes have led to the formation of most of our natural environment, even the islands of Japan.



Beautiful mountains are created by tectonic movement, where people enjoy skiing. Rice can be grown on terraced paddy fields because landslides caused by earthquakes decrease the steepness of mountains.

Valleys and rivers have been formed around faults, and the earth and sand has moved downstream from mountains to create plains. Hot springs are also produced from faults. Some basins and plateaus are created by earthquakes.

■ Ask a geopark tour guide!!

Topographies and geological maps have been prepared for tourists at Japanese geoparks. Ask your geopark tour guide about the geological history of the area, its ground characteristics, the earthquakes that have already occurred, and details on how earthquakes have affected the Japanese way of life.



Earth Communication Group
Japanese Geoparks Network