

# The Pacific Ring of Fire, home to 452 volcanoes

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Image 1. Steam rising as lava from Kilauea flows into the Pacific Ocean in Hawaii, September 2016. Lava levels of one of the world's most active volcanoes rose quickly and showed no signs of slowing down. Kilauea volcano in Hawaii had seen a rise in its magma chamber in recent months with its lava lake visible to all visitors to the Hawaii Volcanoes National Park. Photo by Marc Szeglat / Barcroft Media via Getty Images

The Ring of Fire is a string of volcanoes and earthquake sites all along the edges of the Pacific Ocean. About 9 out of 10 earthquakes happen on the Ring of Fire. Three-fourths of all active volcanoes on Earth are along the ring.

The Ring of Fire is shaped like a 25,000-mile horseshoe. It contains 452 volcanoes. The ring stretches from the southern tip of South America, up along the coast of North America, over to eastern Russia, down through Japan and into New Zealand. A group of volcanoes in Antarctica close the ring.

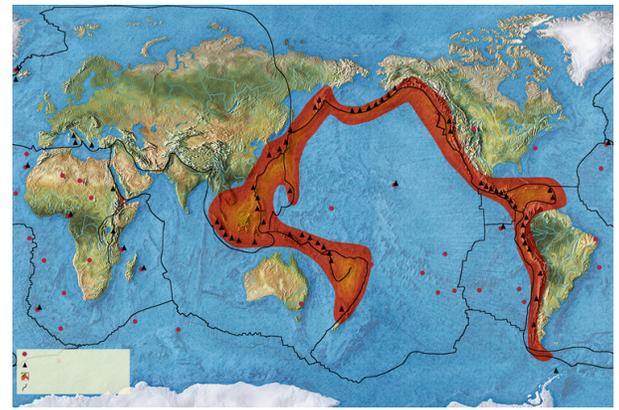
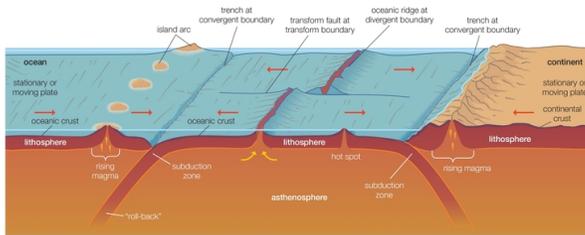


**Plate Boundaries?**

The top layer of Earth is called the crust. The crust is split into huge slabs called tectonic plates, which are as large as continents. The plates are always moving, but they move very slowly. Sometimes they crash together, move apart or slide next to each other. The boundaries, or edges, of these plates form the Ring of Fire.

## Convergent Boundaries

There are three types of plate



boundaries. A convergent boundary is formed by tectonic plates crashing into each other. At these boundaries, the heavier plate can slip under the lighter plate. The rock underneath gets so hot that it melts. The liquid rock is called magma. The liquid rock rises through gaps in the crust over millions of years. When it reaches Earth's surface, the magma creates volcanoes.

## Divergent Boundaries

A divergent boundary is formed when tectonic plates pull apart from each other. The old crust pulls itself in opposite directions and liquid rock comes up from below. Then, cold seawater cools the rock. The new solid rock forms new crust.

## Transform Boundaries

A transform boundary is formed when tectonic plates slide past each other. Parts of these plates break or slip as they rub against each other. The plates push forward and cause earthquakes. The gaps between these plates are called faults. Most of Earth's faults can be found along transform boundaries in the Ring of Fire.

The San Andreas Fault is one of the busiest faults on the Ring of Fire. It lies on the transform boundary between the North American Plate and the Pacific Plate. Measuring about 800 miles long and 10 miles deep, the fault cuts through California.

## Hot Spots

The Ring of Fire is also home to hot spots. These are areas deep inside Earth. As heat rises from a hot spot, it melts the rock above it. The melted rock, or magma, often pushes through cracks in the crust to form volcanoes.

## Active Volcanoes In The Ring Of Fire

Most of the active volcanoes on the Ring of Fire are found on its western edge. Krakatoa is an island volcano in Indonesia. The country of Indonesia is a group of islands between South Asia and Australia. Under Krakatoa, the denser Australian Plate is slipping beneath the Eurasian Plate.

Mount Fuji is Japan's tallest and most famous mountain. It is also a volcano. Mount Fuji sits at a "triple junction," where three tectonic plates come together.

The Ring of Fire's eastern half also has active volcanoes. Mount St. Helens is in the U.S. state of Washington. It lies on a weak section of crust. That makes it more likely to erupt.

Popocatepetl is one of the most dangerous volcanoes in the Ring of Fire. The mountain is one of Mexico's busiest volcanoes. It has erupted 15 times since 1519.

### **Fast Facts:**

#### **Jolting Japan**

Japan lies along the western edge of the Ring of Fire. Out of all the eruptions in the world, 1 out of 10 happen in Japan. This makes it one of the busiest places on Earth for volcanoes.

#### **Cooling Ring**

The Pacific Plate causes much of the action in the Ring of Fire. Scientists have found that the youngest parts of the plate, which are about 2 million years old, are cooling off. These parts are getting smaller faster than the old parts of the plate, which are 100 million years old. The younger parts of the plate are the busiest parts of the Ring of Fire.

## Quiz

1 Read the introduction [paragraphs 1-2].

Which sentence from the introduction shows that almost all the world's volcanic activity happens in the Ring of Fire?

- (A) About 9 out of 10 earthquakes happen on the Ring of Fire.
- (B) Three-fourths of all active volcanoes on Earth are along the ring.
- (C) The Ring of Fire is shaped like a 25,000-mile horseshoe.
- (D) A group of volcanoes in Antarctica close the ring.

2 Read the paragraph below from the section "Transform Boundaries."

*A transform boundary is formed when tectonic plates slide past each other. Parts of these plates break or slip as they rub against each other. The plates push forward and cause earthquakes. The gaps between these plates are called faults. Most of Earth's faults can be found along transform boundaries in the Ring of Fire.*

Which answer choice is an accurate explanation of this paragraph?

- (A) Earthquakes can only happen along the transform boundaries that are located inside of the Ring of Fire.
- (B) Earth's faults are only found in the Ring of Fire because they are caused by earthquakes.
- (C) The movement of tectonic plates makes the Ring of Fire one of the busiest places for earthquakes.
- (D) The gaps between tectonic plates along transform boundaries close as the plates move past each other.

3 Read the following sentence from the section "Divergent Boundaries."

*The new solid rock forms new crust.*

Which answer choice uses the word "forms" in the SAME way as the sentence above?

- (A) The artist forms beautiful statues out of materials such as marble or clay.
- (B) To go to college, students must fill out many forms.
- (C) The pastry chef uses special cookie cutter forms to create delicious treats.
- (D) From the top of the mountain, the hikers could barely see the forms of people below.

4 The word "boundaries" is essential to understanding the Ring of Fire.

Which sentence from the article BEST explains what "boundaries" means?

- (A) The boundaries, or edges, of these plates form the Ring of Fire.
- (B) There are three types of plate boundaries.
- (C) A convergent boundary is formed by tectonic plates crashing into each other.
- (D) At these boundaries, the heavier plate can slip under the lighter plate.