

AUDIO SCRIPT

[M1: Lecturer; M2: Student; F1: Student]

M1: Okay, so last week, we talked about predicting earthquakes. Today, we'll discuss the relationship between earthquakes and volcanoes. So, earthquakes sometimes occur at the same time as volcanic eruptions. This is called a *causative relationship*. In other words, one event causes another event to occur. Does anyone know why this might happen? Paul?

M2: Because they are both located where two tectonic plates meet?

M1: That's right. Volcanoes are situated at the site where two tectonic plates meet. This is known as a *fault line*. Cities that experience frequent earthquakes, such as San Francisco, are located on top of a fault line. Now, volcanoes and earthquakes don't often occur at the same time, but it has happened. For example, an earthquake in Hawaii in 1975 probably triggered a small eruption of the Kilauea volcano. The earthquake occurred directly underneath the volcano. Kilauea is one of the most active volcanoes in the world and it often erupts. So, the causative relationship is uncertain, but likely. Yes, Katie?

F1: What does "triggered" mean?

M1: "Trigger" means to cause an event or a series of events. Triggering is the first step in a causative relationship. Another case of triggering occurred in Chile in 1960. About 38 hours after the main earthquake, a volcano in central Chile violently erupted. That volcano had been inactive, or what we call *dormant*, for more than 25 years. Similar to the Kilauea eruption, the earthquake probably occurred underneath the volcano. So, the movement of the tectonic plates during an earthquake can cause hot, liquid rock beneath the Earth's surface to move up. This liquid rock is known as *magma*. When the magma is underneath a volcano, an eruption occurs. Paul?

M2: Do you mean that the movement caused by an earthquake pushes the magma up?

M1: Exactly.

M2: So, earthquakes can trigger volcanoes. But can volcanoes trigger earthquakes?

M1: Good question, Paul. The answer is, yes. Volcanic eruptions *can* play a role in earthquakes. The force of the upward movement of the magma can trigger small earthquakes. However, most earthquakes are caused by the interaction of the tectonic plates, not the movement of magma. Katie, you have another question?

F1: I'm sorry. I still don't understand how magma can cause an earthquake.

M1: Well, the upward movement of the magma puts pressure on the rocks until it cracks the rock. Then the magma gets into the crack and pressure starts to build. Every time the rock cracks, there's an earthquake. However, these earthquakes are so small, we usually don't feel them.