An earthquake is “a sudden movement of the Earth, caused by the abrupt release of strain that has accumulated over a long time” (Shedlock and Pakiser). Earthquakes occur far more often than most people think. However, few of these earthquakes are strong enough to be felt by humans. Even fewer have the strength to cause major damage to people or to property. In fact, many earthquakes happen in areas where no one lives, such as under the ocean floor.

Why do earthquakes occur? While it seems solid, Earth’s surface, or crust, is actually broken into huge slabs of flat, solid rock called tectonic plates. These plates slowly move around, pushing against, and even under, one another. The movement of these plates creates fault lines. A fault line is “a crack in Earth’s crust” (Puglisi 120). When too much stress builds up in the crust, fault lines move to try to relieve the stress. When this happens, earthquakes occur.

The larger tectonic plates are broken up roughly along the lines of the continents and oceans. For example, the North American plate meets the Pacific plate along the west coast of the United States. The fault line caused by this meeting is called the San Andreas Fault. The San Andreas Fault is one of the main fault lines that separate the North American plate from the Pacific plate. It runs from southern California east of Los Angeles up through San Francisco. It also extends to depths of at least ten miles below the surface of Earth.

Fault lines can be divided into categories depending on how they have been formed. There are four main types of faults: normal, reverse, left lateral, and right lateral. Along a normal fault, one plate slides downward against another. Along a reverse fault, one plate actually pushes the other down as it moves up and over it. Both of these faults involve up-and-down movement. The left lateral and right lateral faults involve plates sliding alongside each other. The San Andreas Fault is a right lateral fault. The Pacific plate is sliding to the north as the North American plate remains relatively still.

Earth’s surface is home to many fault lines. Scientists who study fault lines and their effects on our world are called seismologists. Seismologists attempt “to predict future earthquakes based on the pressures caused by movement of the tectonic plates, pressures on various fault lines, and many other factors” Seismologists use special equipment to measure the magnitude, or strength, of earthquakes. The magnitude of an earthquake is measured using the Richter scale. On this scale, earthquakes below 4.0 “usually do not cause damage,” while a “magnitude 6.0 earthquake is considered strong and a magnitude 7.0 is a major earthquake” (“Earthquakes”).

Earthquakes are the natural result of the stress caused by the movement of the tectonic plates that meet along fault lines. This movement slowly creates earthquakes, mountains, and volcanoes. It is responsible for how the world looks today. While earthquakes can be destructive, they are also a necessary part of nature. There are probably several earthquakes happening right now, somewhere in the world.

Works Cited

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