Name _____

Hot Spots and Tectonic Plates: Where Earthquakes Commonly Occur

Short Answer Key

1. A hot spot is an area deep within the Earth where a plume of extremely hot material rises from the mantle to the crust. This heat creates melting and volcanic activity. As the hot material rises, it can also cause the Earth's crust to fracture and generate earthquakes.
2. The Pacific Ring of Fire is a horseshoe-shaped region encircling the Pacific Ocean known for its high geological activity. It is characterized by numerous volcanoes and earthquakes. This heightened activity is due to the complex interactions of multiple tectonic plates, including subduction zones and convergent boundaries, in the region.
3. Intraplate earthquakes are earthquakes that occur within the middle of tectonic plates, far away from plate boundaries. They are puzzling because they don't fit the typical pattern of earthquakes occurring at plate boundaries. These earthquakes happen due to reactivation of ancient faults within the plates, where accumulated stress from the plate's movement is suddenly released.
4. Tectonic plate boundaries contribute to earthquakes because the movement and interaction of these plates cause stress and pressure to build up. When this stress is released, it generates seismic waves and causes earthquakes. The three main types of plate boundaries where earthquakes commonly occur are:
    - Divergent boundaries (plates move away from each other)
    - Convergent boundaries (plates move towards each other)
    - Transform boundaries (plates slide past each other horizontally)
5. One example of a region with divergent plate boundaries is the Mid-Atlantic Ridge. Along this underwater mountain range in the Atlantic Ocean, tectonic plates are moving away from each other. As a result, new oceanic crust is constantly being formed. The geological features found at the Mid-Atlantic Ridge include volcanic eruptions, underwater mountains, and the creation of new oceanic crust.