How Plates Affect Our Planet: Hot Spots

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Some volcanoes pop up in random places, often far from the edge of a tectonic plate. These volcanoes are found over "hot spots."

A hot spot is an intensely hot area in the mantle below the earth's crust. The heat that fuels the hot spot comes from very deep in the earth. This heat causes the mantle in that region to melt. The molten magma rises up and breaks through the crust to form a volcano.

While the hot spot stays in one place, rooted to its deep source of heat, the tectonic plate is slowly moving above it. As the plate moves, so does the volcano, and another one forms in its place. The volcano that moved is no longer active. This is why a chain of extinct volcanoes is often found extending from a hot spot.

Hot spots are found around the globe, on land and in the ocean. The Hawaiian Islands are the youngest volcanic mountains in a long chain of volcanoes that formed over a hotspot. They are still forming today. Another hot spot is under Yellowstone National Park, where the heat causes boiling mud pools and geysers like Old Faithful.

The Hawaiian Islands are still forming above a hot spot.
Photo Credit: USGS

Old Faithful geyser in Yellowstone National Park