

Intraplate Activity

Terrestrial Intraplate Activity

Intraplate activity is any sort of geological activity that takes place within a plate away from plate boundaries.

On Land:

- **Hotspots** are areas of high pressure on the surface of a plate that causes melting. Mantle plumes that rise through the mantle cause these high-pressure areas.
- Eruptions at hotspots create volcanoes.
- Hotspot magmas rarely penetrate through thick continental crust, so hotspot activity on continents is rare.

Study Tip

The Latin term “intra” means within, therefore you can remember that intraplate activity is geological action that takes place in plates rather than at their boundaries.

Intraplate Activity in the Oceans

- The Hawaiian Islands were a product of oceanic hotspot activity.
- The islands are progressively older toward the northwest because they are further from the hotspot.
- The Pacific Plate is moving northwest over the hotspot.
- Since hotspots are stationary in the mantle, geologists can use some hotspot chains to tell the direction and the speed a plate is moving

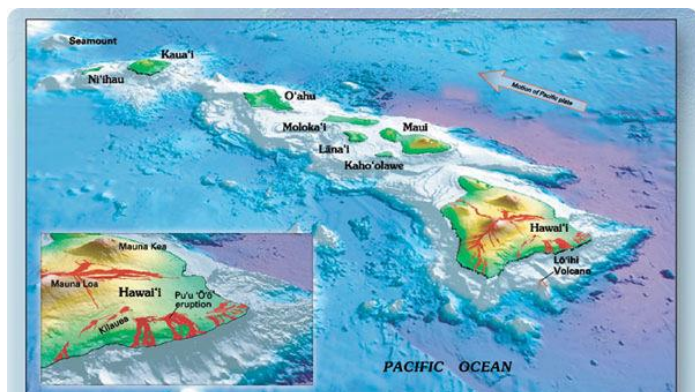
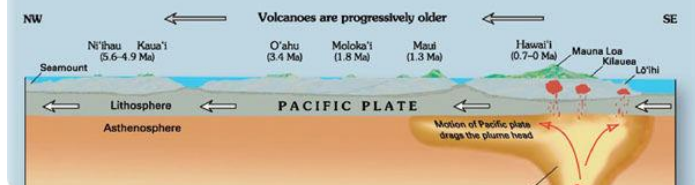


Figure 2.—Oblique view of the principal Hawaiian Islands and (the still submarine) Loihi Volcano. Inset gives a closer view of three of the five volcanoes that form the island of Hawaii'i (historical lava flows are shown in red). The longest duration historical eruption on Kilauea's east-rift zone at Pu'u 'O'o (inset), which began in January 1983, continues unabated (as of spring 2006). View prepared by Joel E. Robinson (USGS).



The Hawaiian Islands are products of intraplate activity in the oceans

speed

Concept Check

- What is intraplate activity?
- How were the Hawaiian Islands formed?
- How are hotspots formed?