

Hawaiian Hot Spots

Purpose: The purpose of this activity is to investigate how the Hawaiian Island-Emperor Seamount Chain formed. You will be analyzing the distribution, or locations, of the islands and seamounts to formulate a hypothesis that would describe this phenomenon.

You will be analyzing the data on the Map of Hawaii to help you answer the following questions.

1. What is a "seamount?"
2. What is a "hot spot?"
3. The Hawaiian Island-Emperor Seamount Chain is located on what plate?
4. Do the islands and seamounts lie along a plate boundary?
5. Which island is the youngest?
6. Which seamount is the youngest?
7. Which island or seamount is the oldest?
8. How did the islands and seamounts form?
9. Based on the ages shown on the map, under which island or seamount is the hot spot currently located?
10. What does the distribution of islands and seamounts suggest about the direction of plate motion over the past 65 million years?

To Do:

- Start with Hawaii, the closest island to the current hot spot (Loihi)
- Measure the distance of each labeled island (or seamount) from the hot spot
- Do NOT measure the distances in a straight line - follow the "natural bend" from one island to the next to determine the distance from the hot spot.
- Record the name of the island or seamount and its distance in the table below.
- You will need a ruler and a calculator for this!

Hawaiian Island-Emperor Seamount Chain Data

Island Name	Distance from Hot Spot (km)	Age (million years)	Rate of plate movement (km/million years)
Average:			

- Convert your average from km/million years to cm/year.

- A fingernail grows about 3.5 cm/year. How does the rate of plate motion compare to the growth of a fingernail?

- Is the rate of plate movement constant? If not, how has the rate of plate movement changed over time?