

1. Look around [this location](#) on Google maps. Rocks at this spot are less than 1 year old. This is Pu'u 'O'o, HI. How do you know these rocks & this area are geologically young? Try 3D view.

2. [Rocks at Hawi](#) have been dated to 700,000 years. Tell two ways the landscape here appears different, indicating that this area really is older.

a

b

A. In the bottom right of the map window, click the distance bar to switch from miles to km.

B. Zoom out so that the entire island is visible.

C. Control-click the spot we started at Pu'u 'O'o. Choose measure distance. Then click the location at Hawi. Record your distance in kilometers below.

D. Convert to the km to mm, by multiplying by 1,000,000 mm/km.

E. Record the difference in time between the two islands.

F. Divide mm by the years to get rate of motion in mm/yr.

G. Record the bearing or direction from site A to site B using the guide below.

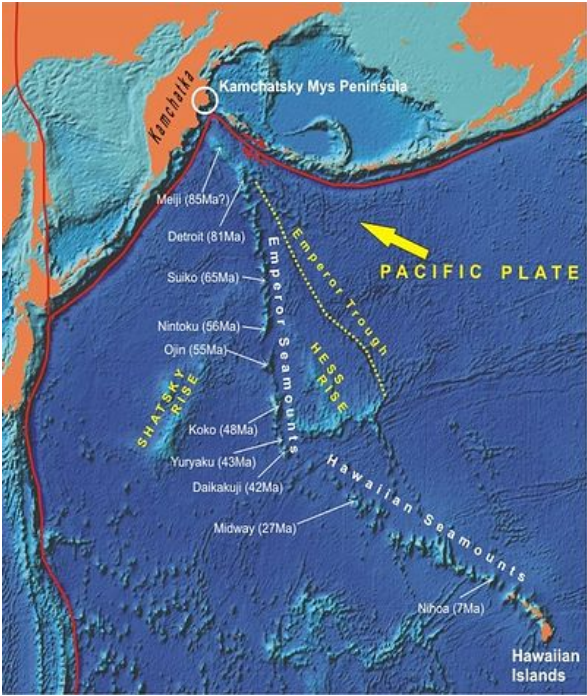
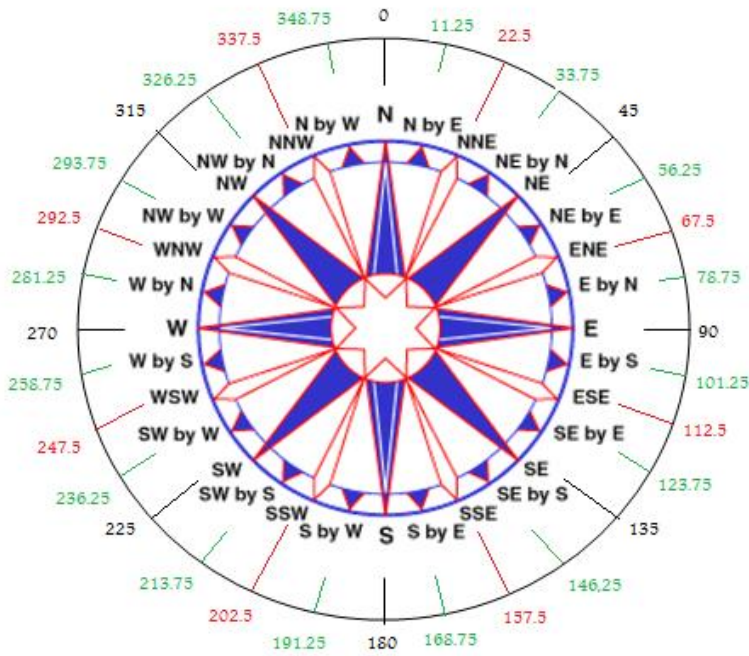
Site A	Site B	Distance (km)	Distance (mm)	Δ Time (yrs)	mm/year	Bearing	Age (millions)
3. Pu'u'O'o	- Hawi	_____	_____	_____	_____	_____	.7
4. Hawi	- Maui	_____	_____	_____	_____	_____	1.3
5. Maui	- Molokai	_____	_____	_____	_____	_____	1.83
6. Molokai	- Oahu	_____	_____	_____	_____	_____	2.35
7. Oahu	- Kauai	_____	_____	_____	_____	_____	5.1

8. The youngest of the islands is _____, The oldest is _____

9. On the map to the right, draw an X where you predict the next Hawaiian island will form.

10. Explain why you think this.





[Larger Image Link](#)

11. Draw and label a cross-section of what is happening geologically under Hawaii. Show the asthenosphere, lithosphere, hot spot and the five islands above.

The Hawaiian Islands are the end of a much older series of islands shown in the image/link above - right, the Emperor Seamounts. Measure the entire length of the entire chain. You'll figure this out.

12. Google maps shows this island chain Pu'u 'O'o to Meiji to be about _____ km long.

13. Hawaii is part of the _____ Plate.

14. What happened to the motion of the plate of which Hawaii is a part about 40,000,000 years ago. In your answer reference direction or bearing of motion as shown above.

15. At what rate did the Pacific plate move...

based on data from the Hawaiian Islands alone? _____ mm/yr

based on data from the Hawaii-Midway alone? _____ mm/yr

based on data from the Hawaii-Daikakuji alone? _____ mm/yr

based on data from the Daikakuji-Meiji alone? _____ mm/yr

16. Which data from question 15 are the best to use to estimating the Pacific plate's rate of motion over the full 85 million year history? Explain.

In Google maps, describe the trend going from [Hawaii](#) -> [Kauai'i](#) -> [Midway](#) -> [Meiji Seamount](#) in terms of EX) elevation, 17) size of island, 18) steepness 19) width of island margin - the shallow part that is just under the water. 20) Add your own observation. The 1st is done as an example.

EX) Hawaii is over 14,000' in elevation while Meiji is barely above sea level. Elevation is decreasing.

17

18

19

20

21. Has Meiji moved at a constant speed? Explain.

22. If current motion continues, explain in as much detail as you can what eventually will happen to Meiji.

Summarize two things you have learned, a question, or a suggestion.

23.

24.