

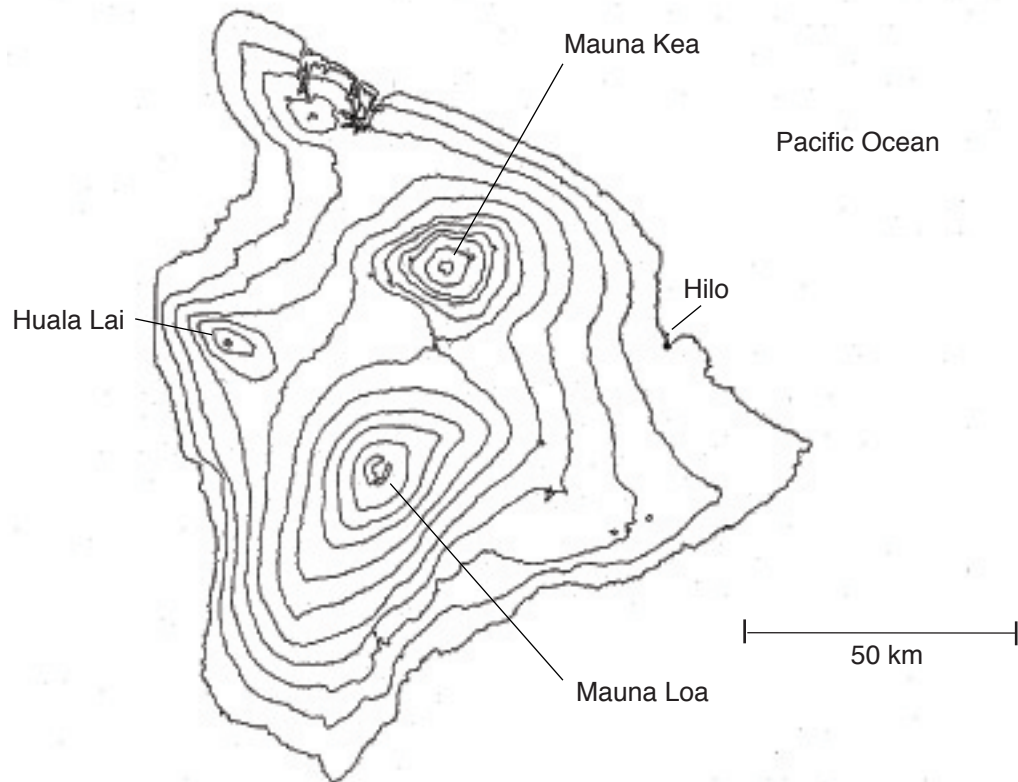
EE/GP140 - Homework Set No 8

Handout 37

Due: Friday, Mar. 7

In class or in TA's office or box outside my door

1. Here is a contour map of the Big Island of Hawaii:



The contour spacing is 400 m.

- (a) Approximately how high are Mauna Loa, Mauna Kea, and Hualalai?
- (b) Hilo is located on the coast at about 0 m altitude. Suppose in a remote sensing image the pixel locations of Hilo are (538 across, 421 down).

Suppose further the location of the Mauna Kea summit is (313 across, 344 down). If the pixel spacing in the image is 180 m, then how far is it in a two-dimensional sense (in the map plane) from Hilo to Mauna Kea?

How much is the three-dimensional distance?

2. (a) Sketch on the contour map the suggested location of a ridge line from the top of Hualalai to the coastline.
(b) Sketch a line denoting the bottom of the valley that separates Mauna Loa and Mauna Kea. Your line should extend from the east coast, through the saddle, down to the west coast. (Hint: it isn't a straight line!)
3. Which volcano, Mauna Loa or Mauna Kea, is steepest above 2000 m?
How do you know this?
4. Which of Mauna Kea or Mauna Loa is the largest in volume?
5. Estimate the above-sea-level volume of Mauna Loa and Mauna Kea, each, in cubic meters.
6. Sketch the ridge line starting at the peak of Mauna Loa, going towards the East, ending at the point on the furthest eastern extension of the island. Using a map from an atlas or book, locate Kilauea on the contour map given in problem 1. Kilauea is the center of current activity in Hawaii. Should residents of Hilo be concerned about this activity? Why or why not?