Monitoring Volcanoes & Communicating Risks Unit 2: Monitoring Kilauea Monday Morning Meeting – GPS Expert Group Exercise

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*Based on the reading provided, answer the following as you work with your group of fellow topic experts:*

# Monitoring Volcanoes with GPS:

1. How does Global Positioning System (GPS) work, for example, how do stations and satellites communicate to keep track of ground movement?
2. What are the three directions that GPS measures movement?
3. How do pairs of GPS stations help to enhance our understanding of ground movement?
4. What are some sources of non-volcanic movement that GPS might detect in addition to volcanic processes?
5. Refer to Figure 2b in the reading (graphs of Station A). What type of motion is recorded in the North, East and Vertical trends?
6. On the graph below draw your prediction for what the GPS graphs for Station B would look like during the inflation event, based on the map and cross-sectional view in Figure 2a of the GPS Background Reading.

1. How would these combined stations inform you that the region is inflating?
2. In general, what are the advantages and disadvantages of using GPS to monitor volcanoes?
3. In the space below, describe any questions that came up in your group discussion and the answers that your group determined based on those questions (or if you were unable to answer them).

# Examine the GPS data from Kilauea, and address the following:

1. Are there any changes in GPS levels over time in the data you have? What are those changes and when did they occur?
2. Over what time frame are GPS data collected and over what period of time would it take to establish a pattern?

12. What is your overall interpretation of the GPS data in terms of the potential for volcanic activity at Kilauea during this time period?