



Name _____

Geonarratives: Descriptive Case Studies of Land Surface Hazards

Purpose: This activity will give you details about a real land surface hazard scenario, including the environmental conditions leading to the hazard and downstream consequences. You will explore how land surface hazards you've learned about in generalities impacts a unique region.

Knowledge and Skills: You will identify environmental factors contributing to land surface hazards in the given region, and describe downstream impacts of land surface hazards, including modifying the likelihood or magnitude of additional hazards, environmental quality impacts, or social and economic impacts. You will synthesize information from the geonarrative to identify relationships between environmental variables, and develop a concept sketch to illustrate these relationships.

Task:

Read the assigned geonarrative, and answer questions below, including creating a concept sketch illustrating the relationship between the hazard(s) and environmental conditions.

Criteria for evaluation:

Answers will be graded based on good faith completion (3 pts).

Completion criteria

- 1 point = minimal answers provided
- 2 points = answers provided are incomplete or do not address the questions
- 3 points = answers are complete and are written in complete sentences

Required resources

Access to the assigned geonarrative website to answer the questions on the following page.

[Instructor may wish to add hyperlinks for assigned geonarrative pages here]

Questions

1. Define and describe the primary hazard(s) highlighted in this geonarrative.
2. Why is this hazard / are these hazards present in this location? Provide a rationale that includes a description of the setting (e.g., relevant tectonic or topographic details).
3. What environmental factors played a role in determining the magnitude of the hazard described? e.g., what initiated the hazard or led to conditions conducive to hazard initiation?
4. Often land surface hazards can increase the magnitude or likelihood of subsequent hazards. Were additional hazards initiated in this case? If so, describe how the primary hazard created conditions conducive to downstream hazards?
5. How do scientists in this region collect data to evaluate or predict the magnitude of disasters associated with the primary or downstream hazards?

6. Models can predict disaster magnitude or likelihood by relating predictive factors in an equation. These factors are used as variables in the models that can be manipulated to replicate conditions at a given site.
 - a. Illustrate how each factor you identified in #3 is related to identified hazards at this site using a concept sketch. (preferably a dynamic systems model)
 - b. One assumption in many models and equations is that the value of the (independent) variables are not dependent on the other variables. However, this assumption is not valid in many complex environmental systems. Add factors from #4 to your concept sketch, and identify any factors included in your concept sketch that may change temporally or with the value of other system factors.
7. Risks differ from hazards in that risks take social and/or economic vulnerability: Risks take into account human loss of life or damage to property. Describe social or economic vulnerabilities faced by this region.
8. What interventions could mitigate risks this community or region might face from a reoccurrence of this hazard?