Oceanography GEOL-1550

Spring 2020

**Plate Tectonics**

In-class exercise

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Pre-Activity Questions – What do you already know?**

Everyone comes into this class with different levels of “geologic knowledge”. Maybe you have taken another geology class. Maybe you took an Earth Sciences class in high school. Maybe you just love rocks and oceans and have studied it on your own. Or, maybe this is your first time in a geology class in your whole life. Whatever your background, it’s fine!

Please answer the following questions based on what you already know. Do NOT use your phones, class notes, or other resource for these questions. If you don’t know anything about the topic in the question, you can write that.This portion is for informational purposes ONLY and is not scored for a grade.

1. Where do earthquakes occur?
2. Why do earthquakes occur?
3. Roughly, how many earthquakes occur around the world in a single day?
4. How are earthquakes categorized by scientists? Or, if you are unsure, how would YOU categorize earthquakes? Make clear in your answer which question you are answering!
5. Are earthquakes associated with any other geological occurrence? If yes, which? If no, write no.

**To be answered AFTER we complete each “Activity” together as a class:**

**Activity #1: Use earthquake data to see if there are any patterns between 2010-2017.**

1. Where are these data from? What continent? Onshore? Offshore? East coast? West Coast?
2. What is the range of earthquake size (magnitude) at this location?
3. Do you want to look at any features in more detail? If yes, which?
4. As you look at the map of earthquake epicenters, describe what you see –
   1. Are there any patterns in their distribution geographically (spatially)?
   2. Are there patterns in the magnitude of the earthquakes you see?
5. Based on your description of the patterns above, how many types of geologic features do you think we are looking at here?
6. What is the frequency of earthquake occurrence in this area? In other words, how many earthquakes tend to happen per month?
7. Based on the geographic range in this activity, and the number of earthquakes per month in #5, how many earthquakes do you think happen around the world in a day?

**Activity #2: A closer look at a specific feature – A seamount – Earthquake activity over 3 months**

1. What is the range of earthquake size (magnitude) at this location? Is this a larger or smaller geographic feature than the previous activity?
2. What changes or patterns do you observe in earthquake location or magnitude over this time period?
3. What do you hypothesize happened at this location during the week of April 29-April 26?