Geology 199, Fall 2017
Blackwell, UO Main Campus

Summer Reading Articles for Geology 199 - Oregon Outside

The University of Oregon in Eugene is located along the active continental margin of North America. As such it is subject to a variety of geologic activity such as volcanism and earthquakes. These are topics you will discuss in your Geology 101 course in the Fall; and they are part of the reason for the breath taking scenery of the Pacific Northwest. In our FIG we will investigate formation of this scenery.

To give you a jump start on these topics you are provided with two reading articles for the summer: Cascadia-Living on Fire (National Geographic, 1988) and The Really Big One (The New Yorker, 2015). The National Geographic article should be read first as it will provide you with the background about our active continental margin and why volcanoes and earthquakes are so common in the PNW. The article is over 25 years old and although the information is still correct, geologists have learned a great deal more about Cascadia subduction zone. This is especially true about our knowledge of great earthquakes (magnitude 8+) along the subduction zone. The 2015 New Yorker article is updated scenario of the impacts on society in the PNW following a megathrust great earthquake in the PNW.

Below is a series of questions to think about while you read the articles. Read the questions before reading the articles and take notes on the questions as you read. The questions are ordered such that they are sequential to the reading. Several in the Cascadia article are derived from reading the maps and diagrams within the article. We will discuss many of these topics during our FIG meetings.

Have a good summer and we look forward to meeting you in the Fall.

Questions for the summer reading: Cascadia – Living on Fire

1. What is Cascadia?

2. What are the main topics (themes) of this article?

3. What plates interact along the Pacific Northwest and how do they interact?

4. What are the three common locations of earthquakes in Cascadia and what impact do each of these locations of earthquakes have on the region?

5. What are the three source of the energy (stress) on the rocks in the Cascadia region?

6. What happens during the build-up of energy (stress) in the shallow subduction zone earthquakes?

7. What happens after the built-up stress is released in a shallow subduction zone earthquake?

8. What magnitude of earthquake can be expected from a shallow subduction zone earthquake, how often do they occur, and when was the last event?

9. How do geoscientists know when the last event occurred on the Cascadia subduction zone?

10. What are some of the volcanic hazards associated with Cascadia?

Summer Reading Questions for "The Really Big One"

1. Is Eugene in the area that will be "toast"?

2. What is the FEMA death projection for the "Big One"?

3. Geologists discuss the "Big One" and the "Really Big One". What is the difference between the two events and what are the odds of each occurring in the next 50 years?

4. Why did it take so long to realize the potential of the "Big One" and the "Really Big One"?

5. What are some of the evidence of the past occurrences of the "Big One" and the "Really Big One"?

6. What is an earthquake early warning system based upon?

7. Besides the initial damage from the shaking of the ground and the tsunami, what secondary problems will arise?

8. How big will the tsunami be and why is it not just water?

9. What are some of the estimates for the time for recovery of the region following the "Big One" and the "Really Big One"?