

GEOL 106 Earthquake Country Mid Term II Study Guide

Geodesy: What is geodesy? What do geodesists measure? What are some of the geologic processes that geodesists measure? What are the parts of the earthquake cycle? What can GPS measurements tell us?

Paleoseismology and Crustal Earthquakes: How far into the past can we use Paleoseismology? What is a colluvial wedge? Why and what do colluvial wedges tell us about earthquakes? What can landforms tell us about earthquakes and where faults occur? How can we find the fault before we even dig a hole (what type of methods can we use)? What are two fundamental principles that we use to determine the number of earthquakes exposed in a trench (the principle of ____ and the principle of ____)? Can you use these principles to determine the number of earthquakes exposed in a fault trench?

Damage from Earthquakes: What is intensity and what is magnitude? Which one do people care about, which one do scientists care about, and why? What is MMI? What are some factors that control MMI? What are some examples of physical damage from earthquakes? What are some ways that these examples are controlled? What is one of the most destructive effects of an earthquake (that causes most damage; e.g. this happened following the 1906 San Francisco earthquake)? What are the physical types of damage from earthquakes? Can you list some of these and state the factors that control them? What is the Alquist-Priolo Act (law)? What is an AP zone? Why was this law created?

Focal Mechanisms: What are the three main types of focal mechanisms? Can you tell the difference between them? What is the difference between the nodal plane, the primary fault plane, and the auxiliary fault plane? How can we determine what the primary fault plane is?

Tsunami! What can cause a tsunami? What is the geological evidence for tsunami? What geological evidence is also found associated with tsunami deposits (e.g. along the Cascadia subduction zone)? What is the best way to avoid becoming a casualty during a tsunami (remember when I was talking about the mass of a cubic foot of water; how might this help you answer this question)? What are some factors that control the size of a tsunami wave height? About how fast can a tsunami travel across the ocean (knots)? What plate boundaries might we

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associate with tsunami? What are some historic earthquakes that generated tsunami? Could you use the shallow water equation if you were given the equation and some data (solve for depth or velocity)? What is the difference between a tsunami inundation map and a tsunami evacuation map?

Earthquake Recurrence: What are the four earthquake recurrence models (can you describe how they are different, especially the difference between time predictable and slip predictable)? Can you calculate the Recurrence Interval? What is the range in time for the Recurrence Interval for the different segments of the Cascadia subduction zone (the shortest one and the longest one)?

Earthquake Preparedness:

What are the three phases of earthquake preparedness? What are some things that people can do to prepare their homes/places of work to resist being damaged by earthquakes (what phase of preparedness is this)? What are some key parts of a disaster preparedness plan (what phase of preparedness is this)? What are some actions one may take during an earthquake (what phase of preparedness is this)?

Mendocino triple junction and regional tectonics:

What are the different sources of seismic hazard in California? What geographical regions are each of these seismic hazards (could you identify them on a map of the state of California, Oregon, and Washington)?

NOTE: The final will be comprehensive, with about 20-30% of the material devoted to volcanoes and floods.