

GEOL 15 Mid-Term II Study Guide

Lectures 11-20

You have permission to use a single side of a letter sized piece of paper for note for during the exam.

Seismology: What is earthquake magnitude? How is M_w magnitude calculated? What is intensity? What affects intensity? What is an hypocenter; an epicenter? Why do earthquakes occur in the crust (look at the plots of hypocenters along the San Andreas fault)? What are the different seismic waves? What are their motions? Which is first, second, third, and why? How does a seismograph work (both the old and the modern ones)? What is refraction? What does the plot of the seismic wave velocity vs. depth into the earth tell us? What is the difference between earthquakes in California and Virginia? How can you locate an earthquake with seismologic data? How can you determine the magnitude of an earthquake using seismologic data?

Example Great Earthquakes: Subduction zone fault earthquakes generate what kinds of deformation during interseismic and coseismic periods? What other natural disasters that also occur during subduction zone earthquakes? Which are the example earthquakes, their magnitudes?

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? What is a geoid? What is an equipotential surface? What can we find using 2-dimensional profiles of GPS movement?

Slow Earthquakes: Where are slow earthquakes found? How does that compare with regular earthquakes? What is the "recurrence interval" of earthquakes? About what is the RI of Cascadia "regular" earthquakes; of Cascadia slow earthquakes?

Coastal Paleoseismology: What stratigraphic evidence exists that supports the hypothesis that the crust deforms vertically during a subduction zone earthquake? How would one test the hypothesis that sediment stratigraphy found in Hookton Slough was formed during an earthquake and tsunami? What else can we tell from the stratigraphy?

Subduction Zones: What does the thermal model look like (does the fault do something to the thermal model)?

Paleoseismology: 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?