

Understanding Earthquake Information and How It Can Help You

Date: Friday, February 29, 2008

Notes

9:00-9:15 AM	Registration <ul style="list-style-type: none"> • Pre-test Survey
9:15-10:00 AM	<p>Background Geology of Earthquakes in SC Erin Beutel</p> <ul style="list-style-type: none"> • Why are there earthquakes in South Carolina and what causes them? <ul style="list-style-type: none"> ○ General Geology of South Carolina ○ Location of Historic Earthquakes ○ Causes of Historic South Carolina Earthquakes and Recurrence Rates (400-500 yrs for magnitude 7 but magnitude 6 and less can occur) <p>QUESTIONS:</p> <p>Are we seeing more activity around Marion/Moultrie? Most activity is around Monticello, Jocassee Is more activity due to geologic differences? May be due to infiltration Marion/ Moultrie more sedimentary (mud/silt) Tsunami potential? Off coast of Africa – Canary Island, tsunami would be here in 9 hours – has to have volcanic activity associated with movement Lake Murray – was dam there in 1924? No, Probably fault reactivation What is \$23 million in today's terms ~6-23 billion – direct and indirect impact (loss of tourism, job loss) Aftershocks after 1886? ~300, some of an intensity of 6+ Is there some number that says if the aftershocks are farther apart is it becoming safe? Looking at decrease in energy, intensity and time. No we do not know how long that is after eq. Each eq has its own decay period. Summerville and its aftershocks? Possibly weeks, reoccupy within 2 weeks into some of wood frame buildings – so probably 2+ weeks But building inspection is ongoing and may take longer than that time period</p>
10:00-10:15 AM	Break
10:15-11:15 AM	<p>Interpreting USGS Information Steve Jaumé</p> <ul style="list-style-type: none"> • Review available online scientific earthquake hazard information (USGS Earthquake Notification System, Seismic Hazard Maps, etc.) • Explain uses and interpretation of real-time seismic information (i.e., things that may aid response in the aftermath of an earthquake event) <p>QUESTIONS:</p> <p>How soon after the event are the maps available? Depends on map; many depend on people's reactions (did you feel it). What is available to do assessment?</p>

	<p>Shake maps are provided within 30 minutes-1 hour</p> <p>Shake map – is one possible for SC</p> <p>Can do a rough one because far fewer seismic measurements but will be based on more guesstimation</p> <p>More robust seismic network, better potential shake map</p> <p>Is the geology of NC coastline that much different than SC?</p> <p>Probably not but we know that we have region in SC that has EQs but faults have to be oriented in such a way that they take advantage of the pushing of MAOR. So NC probably has faults and maybe potential to produce magnitude 7.</p> <p>Period of vibration of soil (local condition) do not want to match the period of vibration of building as they will add up producing more damage.</p>
11:15-12:30 PM	Lunch/Reflection > On Your Own
12:30-1:00 PM	<p>Understanding Earthquake Generated Hazard Potential Briget Doyle</p> <ul style="list-style-type: none"> • Explain common ground failures associated with earthquakes, including liquefaction, subsidence, and landsliding • Provide examples and identifications of ground failure and earthquake damage to structures <p>QUESTIONS:</p> <p>Are periods of oscillation predictable or measurable?</p> <p>Yes – but it takes a geologist and engineer to assess. It is part of the international building codes.</p> <p>Is there a way to retrofit an existing building?</p> <p>There are ways to put in braces, can excavate and put supports underneath. It is possible but depends on how much money want to spend and how critical building is. Means building is survivable, stable enough for folks to get outside of building after EQ but does not mean it will be immediately functioning. Hospitals however are built to higher standards.</p> <p>Does hurricane codes dominate or seismic code?</p> <p>Hurricane codes dominate because we have more and it is cheaper. Seismic design buildings may not hold up in hurricanes and vice versa. Does this apply to inlands as well?</p> <p>Yes – it matters if the structures on filled land. Happens in anywhere you are building on filled wetlands, near rivers, etc. So if doing assessment, can expect more damage, all other things equal, in those type areas.</p> <p>Charleston EQ more similar to Kobe Japan?</p> <p>Substantial part of Kobe is on fill, especially the port. Charleston is much the same way. Expect a lot of failure in those areas.</p> <p>If we have an EQ in Lowcountry, assistance will have to come from some distance away?</p> <p>Assistance will have to be local response teams because people will not be able to get in. Long-term assistance will have to come in from distances. FEMA has in its plan (as well as in state plan) helicopters come in.</p>
1:00-1:15 PM	Break
1:15-2:30 PM	<p>Understanding HAZUS Data and Outputs for Emergency Response and Management Norm Levine</p> <ul style="list-style-type: none"> • Provide an overview of HAZUS-MH earthquake • Display the type of output you can get from HAZUS • Explain the uses and limitations of the outputs for Emergency

	<p>response and management SCEMD and how it uses HAZUS SCEMD</p> <p>QUESTIONS: Is HAZUS just for natural hazards? HAZUS-MH is floods, EQs and hurricanes but there are add ons for anthropogenic impact. For example there are some add-ons for terrorist activities, epidemic issues, etc. How complete are the GIS Layers? Base layers are estimates based on census data > population, economic, agricultural, and so on. Was there consideration on the bridge structure? Main new bridge is earthquake proof but approaches are old. No one gives a straight answer. Explain percentages on the slides. When are HAZUS classes available? Within next 6-8 months; negotiations with FEMA to sponsor. Provide information on this. Looking to get 5 sites across state where it will be taught. Norm teaching as a component in GIS class. 3-day short course through FEMA. Is the hurricane model as complete? The hurricane model is more Wind model – looks at how winds are, not at storm surge > should run coastal flood model along with the hurricane model. That is be worked on though.</p> <p>TAMMIE: How did you determine boundaries of areas (portions of smaller counties)? Based largely on census data; county input > geographical boundaries. Grouped tracks into functional areas based on municipalities controlling it.</p>
2:30-3:00	<p>Wrap-Up</p> <ul style="list-style-type: none"> • Summary • Post-test Survey • Evaluation <p>QUESTIONS: A lot of places (isolated) might be a week instead of 72 hours. Hazard Mitigation Workshop</p>