Thursday, March 21, 2013

Workshop Session 2

Time of Session: 10:45-11:45AM

Session Title: Time: The Fourth Dimension of Hazard Mitigation Planning

Speakers: **Pat Skinner** and **Maurice Walcott**, Louisiana State University AgCenter

Joshua Kent, LSU Center for Geoinformatics

Room: 256

Head Count: 26

Note Taker: Mallikharjuna Reddy Avula

Notes: This presentation is predominantly graphical with the mix of plenty of photographs, pictures and graphs containing over 125 power point slides

- Louisiana Coast is a Landscape of Contradiction and a vanishing Landscape
- First & Second Dimension
    - Location- Latitude and Longitude
    - Flood Zone
- Third Dimension
    - Elevation- elevation levels are collected from national elevation data set
- Fourth Dimension
    - Time: How these three dimensions changed over time
    - Increasing sea level rise and decreasing surface elevation made this entire landscape unique
- Fourth Dimension of Mitigation Planning
    - Rates of subsidence- this region has varying and significant rates of subsidence
- Dynamic Landscape
    - Elevation is deceptive for example elevation on US 90 at many places is lower than average elevation (US 90 Biloxi to Gulfport). Source: Water level observation network
- Sea level rise
    - Data from NOAA/Laboratory for Satellite Altimetry puts relative sea level change of Louisiana at 3 ft. in excess.
- Eustatic Sea level Rise contributes to the global sea level changes due to changes in either the volume of water in the world oceans or net changes in the volume of the ocean basins.
    - Thermal expansion
    - Melting glaciers
    - Sea level change at Grand Isle is 3 ft./ 100 year and consistently increasing.
- Impact of Subsidence
    - Definition
    - Process
        - Natural
        - Anthropogenic
    - Rates
    - Impacts on urban settings
        - Breakage of foundation in New Orleans East houses is a classic example of subsidence
- Understanding subsidence
    - Geological history of LA is very complex
    - NOAA Tech Report 50 suggests that subsidence in LA is very high

    - Natural process is obstructed by building levees
- To measure subsidence we need to know the processes
    - Shallow processes
        - Natural consolidation and compaction
        - Anthropogenic
        - Building levees increases compaction rate subsequently the subsidence
        - Many real world monitoring stations with GPS rods are established in LA to measure the shallow subsidence
    - Deep Processes
        - Load Induced Flexure
        - Glacial Isostatic Adjustment
        - Faulting
        - Salt Evacuation
        - Water Pumping
        - Oil & Gas Extraction
    - The LSU CORS (Continuously Operating Reference Station) Network monitors the subsidence levels in Louisiana using GPS rods.
- Science and Engineering
    - Outreach for science and engineering community on
        - Taking necessary measures while planning, surveying, designing and constructing the homes
        - Flood Insurance Mapping
        - Risk Avoidance Strategies
        - CORS Best Practices
- Conclusions
    - Sea level rise, subsidence continue to happen
    - How we change the landscape is important
    - Forced drainage causing both shallow and deep subsidence
- Q & A
    - Q: Is it necessary to take FEMA's endorsement for changes in survey and engineering practices?
    - A: Surveying lobby is strong, they are happy with the existing practices though they are not perfect.
    - Q: Is it a political issue to accept that particular community as vulnerable community for subsidence?
    - A: Yes, it is because, once the community is accepted as vulnerable community it significantly impact the economic opportunity for that particular community. Hence, they are not willing brand a particular community as a vulnerable community in their proactive measures.