

Mapping the Sediment Deposition of Hurricane Ike's Storm Surge

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Hurricane Ike struck the Texas-Louisiana coast on September 13, 2008, the third most destructive hurricane to strike the United States (after Andrew and Katrina). Fortunately, before the center made landfall at the eastern end of Galveston Island, the storm had degraded from Category 5 (on the Saffir-Simpson Hurricane Scale) to Category 3. The storm moved quickly into southwest Louisiana and southeast Texas causing over 30 G\$ in damage and taking several lives. When Ike reached the coast he was pushing a four-meter high storm surge topped by large and chaotic waves. The counter-clockwise rotation of such storms brings the greatest impact to the coast to the east of the hurricane's center. Ike's surge was significant as far east as New Orleans. It carried inland sand and silt from the sea bottom and the coastal margin. Though the storms are horrifically damaging, they are also the main source of mineral sediments that build these coastal marsh lands. The work reported here is part of an effort to quantify the surge depositions.

To the east of the storm's center we have established transects perpendicular to the Gulf shore. One is located in the eastern end of Rockefeller Wildlife Refuge where we have good historic data including that taken after Hurricane Rita (2005). We have taken duplicate 0.5-meter deep cores at several locations along this transect. Each 10-cm diameter core was segmented into 2-cm thick slices and the specific activity of ¹³⁷Cs in each segment determined by gamma ray spectroscopy. The resulting depth profiles of ¹³⁷Cs allow us to establish the location of the 1963 fallout horizon. The current data along with our pre-storm references allow us to quantify the deposition by the surge along the transect. These and other data will be presented.

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