

CivilTech Engineering, Inc.

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Success Story:

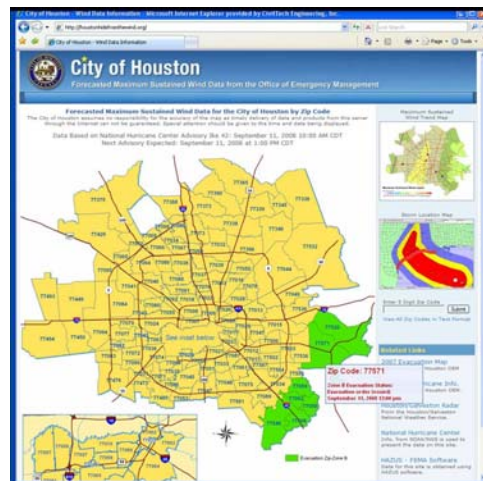
Use of HAZUS-MH to Support Preparedness for Hurricane Ike

In September, 2008, three years after Hurricane Rita, CivilTech Engineering, Inc. provided economic loss predictions from Hurricane Ike using HAZUS-MH.

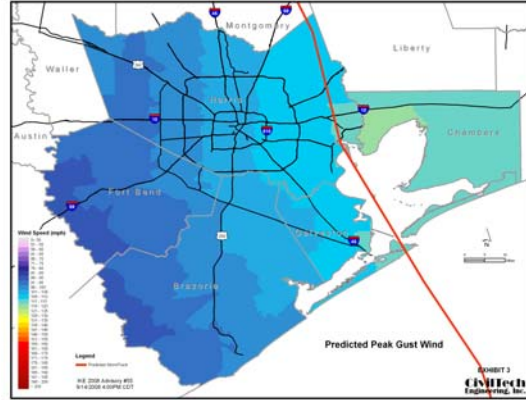


Hurricane Ike approached on a path similar to Rita, first threatening landfall far to the west, then changing course so that its track was through Harris County. Compared with Rita, the evacuation for Ike was more coordinated and controlled, Thanks to improved evacuation plans and an enhanced public education plan.

In particular, the City of Houston provided continuous updates to its residents regarding Hurricane Ike with “Houston Hide From the Wind” (HoustonHideFromTheWind.org), an official website of the City of Houston providing forecasted wind data from the Office of Emergency Management. Evacuation orders and forecast of wind speeds were clearly provided on a Houston area zip code map and were updated as new evacuation orders and updates from the National Hurricane Center (NHC) were available. The website was developed by CivilTech Engineering, a FEMA certified HAZUS-MH vendor. The wind data was based on the National Hurricane Center (NHC) advisory bulletins issued on the projected storm path and storm magnitude. HAZUS-MH modeled output was remapped by zip code for ease of public search. Users can see the predicted wind information for each zip code as well as historical wind information related to that zip code, current evacuation status and expected wind damage for the predicted condition. This website was developed to help the general public with more detailed wind related information for making better decisions on mandatory and volunteer evacuations.

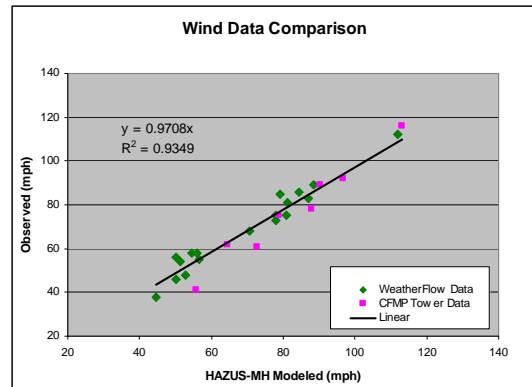


In order to help officials better prepare for Hurricane Ike, CivilTech Engineering also provided Economic Damage Advisories during Ike. The economic damage advisories were created based on simulation model runs using the HAZUS-MH for near real-time wind-induced damage assessments for hurricanes. Each economic damage advisory included predicted wind swath, wind distribution, building-related economic damage and debris. Advisories were released to county officials of Brazoria, Chambers, Fort Bend, Galveston, and Harris within an hour after NHC advisory bulletins were issued.



Ike made landfall on September 13, 2:10 am as a Category 2 hurricane with winds of 112 mph. After Ike had passed through the area, CivilTech Engineering had survey teams collecting actual data from the ground. Wind data from 15 stations was obtained. Tree debris data was surveyed for 49 census tracts spread throughout Harris County.

Comparison of wind data reveals that the HAZUS-MH calculated wind has significant linear correlation with observed wind data. Ike messed with Texas and left millions of cubic yards of debris. The City of Houston has already collected over 4 million of estimated 5.6 million cubic yards of debris. HAZUS-MH estimated the similar amount of debris, 4.5 million cubic yards, for the City of Houston, but over estimated for the County. The HAZUS-MH modeled debris was using default tree inventory and parameters.



CivilTech also conducted a preliminary Level 2 analysis for building damage. Assessment was conducted by updating building inventory with Harris County Appraisal District 2008 certified data. Harris County has near 1.2 million building structures and about \$258 billion structure value. The Level 2 analysis estimated \$5.3 billion wind-induced building damage for the entire County.