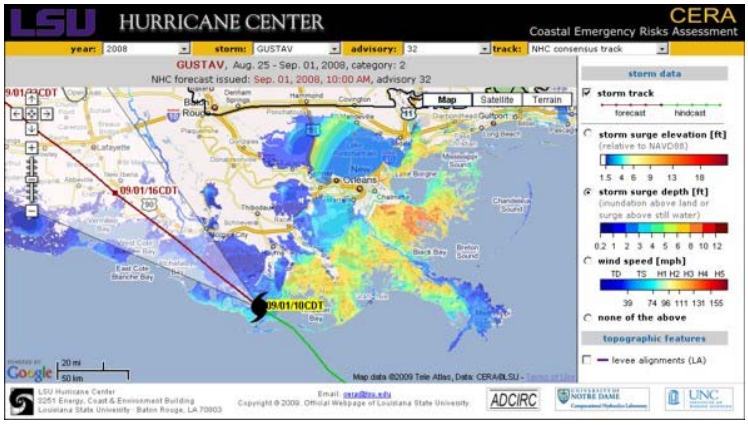
Louisiana Coastal Emergency Risks Assessment (CERA), Near Real-Time Storm Surge Guidance

Project Characteristics:

- *Near Real-Time Hurricane Storm Surge Guidance*
- *Numerical Modeling*
- *High Performance Computing*
- *Emergency Preparedness*
- *Operational Advisory*
- *Web-Based GIS*



The Louisiana Coastal Emergency Risks Assessment (CERA) group is a coastal modeling research and development effort providing operational advisory services related to impending hurricane events and other coastal hazards. CERA works closely with various local, state, and federal emergency response teams, including the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP).

The CERA effort is a component of the LSU Coastal Sustainability Agenda. Primary Collaborators include the LSU Hurricane Center, the Southern Regional Climate Center, The University of North Carolina - Chapel Hill, The University of Notre Dame, and the Louisiana Geological Survey. The real-time emergency effort is also made possible by participation from other LSU groups that provide critical services and advice in the event of coastal emergencies. These include but are not limited to, LSU WAVCIS, the LSU Earth Scan Laboratory, the LSU Center for Computation and Technology (CCT), and the Louisiana Optical Network Initiative (LONI).

During the 2009 and 2010 hurricane seasons, Woods Hole Group was contracted to provide operational support for the ADCIRC Surge Guidance System (ASGS). The ASGS is the automated high performance computing software system that provides CERA with near real-time predictions of storm surge during impending hurricanes. The ASGS utilizes storm track advisories issued by the National Hurricane Center at the National Oceanic and Atmospheric Administration's National Weather Service (NOAA-NWS) to initiate storm surge simulations using the ADCIRC finite element hydrodynamic circulation model. Simulation are completed in a matter of minutes after the issuance of each hurricane forecast advisory using hundreds of CPUs on the LSU CCT and LONI computational resources. Upon completion of each simulation results are automatically processed by the LSU CCT and guidance is provided to critical decision makers and emergency responders in the form a web based GIS application.

Whenever a hurricane is forecast to pass within 275 miles of the Louisiana shoreline, team members from Woods Hole Group access the high performance computing resources and initiate the ASGS, then monitor the progress of the automated system. If ever needed, Woods Hole Group will troubleshoot the operation of the ASGS. Upon completion of each simulation, Woods Hole Group assists CERA in verification of model results prior to release to the appointed officials. The time sensitive results are held in strict confidence and only discussed within CERA team.

In addition to operational assistance during impending storms, Woods Hole Group has also provided CERA with assistance developing the ASGS for Louisiana, setting up the system at LSU-CCT and LONI, conducting hindcasts for validation, and training other ASGS operators.

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