

# CONFERENCE SUMMARY | APRIL 10-11, 2012

## BRC Auditorium | 6500 Main Street, Houston, Texas



In April, SSPEED hosted nearly 140 attendees at a two-day conference: Gulf Coast Hurricanes, Mitigation & Response. The conference showcased speakers from various universities and international organizations, including Rice University, the University of Houston, University of Texas at Austin, Texas A&M University, Louisiana State University, the U.S. Army Corps of Engineers, the British Meteorology Office, and many others. During the conference, researchers, engineers and emergency responders informed the audience of the threat posed by severe storms to the Gulf Coast region and SSPEED researchers presented the structural and nonstructural mitigation concepts developed to reduce the impact of severe storms on the Houston-Galveston region.

### KEYNOTE SPEAKERS

The keynote speakers included Paul Davies, from the British Meteorology Office, Colonel Chris Sallese, from the U.S. Army Corps of Engineers, and John Nau, a prominent Houston business man and the chair of the Lone Star National Recreation Area steering committee.

**Paul Davies** provided insight to the restructuring of the British disaster response system, including the development of a common vocabulary to communicate the prediction of and response to disaster events among scientists, engineers, emergency responders, and the affected population.

**Colonel Chris Sallese** emphasized the need for a Texas Coastal Study, the on-going Sabine Pass to Galveston Bay study and the Galveston District Corps' goals with respect to a comprehensive hurricane surge abatement and coastal protection approach. He emphasized the Corps desire to work with the SSPEED Center to complete these goals.

**John Nau** discussed the development of the Lone Star National Recreation Area Concept and the steps that are being taken to make this concept a reality. He specifically highlighted the economic, recreational and educational assets that a Recreation Area could provide to the Houston-Galveston region.

### CONFERENCE SESSIONS

**Session I** focused on the severe vulnerability present in the Houston Ship Channel. Facilities in the Channel are protected on a case-by-case basis and there is no comprehensive or integrated approach to protecting the Channel industries or surrounding areas from economic and environmental damage of catastrophic proportions. Advanced Circulation Model (ADCIRC) modeling, conducted by researchers at the University of Texas, and hydrologic and hydraulic modeling, conducted by researchers at Rice University and the University of Houston, show that water levels could easily inundate the current protective structures. Figure 1 displays the percent inundation of some facilities within the industrial corridor. Researchers at the University of Houston are currently creating a model that could predict the environmental and economic damage that could occur from a modeled ADCIRC storm. The results of these studies have led the SSPEED Center to propose a comprehensive structural mitigation solution to protect the Channel. Researchers from Rice University and engineers at Walter P. Moore and Fugro have developed a preliminary design for the construction and operation of this gate and levee structure under hurricane conditions.

Figure 1: Percent Inundation of Facilities within the Industrial Corridor (Courtesy of Dr. Hanadi Rifai, University of Houston)



Ike+30% at San Luis Pass (approx. 25 ft surge)

The Session I speakers included Dr. Jenifer Proft, University of Texas at Austin, Dr. Hanadi Rifai, University of Houston, Marcus Woodring, Port of Houston Authority, Dr. Philip Bedient, Rice University, and Dr. Joe Cibor and Charlie Penland, Fugro and Walter P. Moore, respectively.

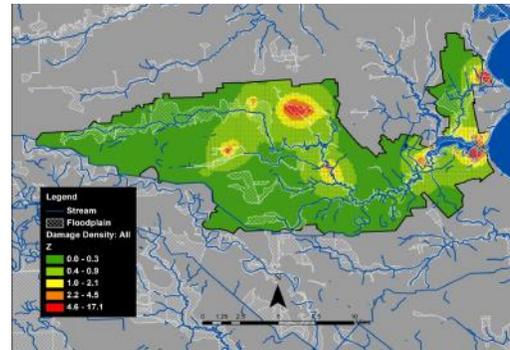
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## CONFERENCE SESSIONS CONTINUED

**Session II** aimed to present the risks and vulnerabilities present in the communities along the Upper West Side of Galveston Bay. The presenters specifically identified the risks associated with current floodplain management strategies, the impending evacuation issues in the face of ever-increasing population, and the need for better disaster communication between emergency managers and vulnerable populations. Furthermore, researchers discussed various non-structural strategies for reducing vulnerability in this area, including a bridge and infrastructure damage model and the implementation of a Flood Alert System for Clear Creek. In addition, various structural mitigation strategies for this area were presented, including an existing concept for levee structures in this area.

*Figure 2: The density distribution of FEMA flood claims in the Clear Lake watershed, 1989-2001 (Courtesy of Dr. Sam Brody, Texas A&M University at Galveston)*



The Session II speakers included Dr. Sam Brody, Texas A&M University at Galveston, Dr. Jamie Padgett, Rice University, Bill Wheeler, Harris County Office of Emergency Management, Dr. Nick Fang, Rice University and Tom Colbert, University of Houston.

**Session III** highlighted the SSPEED Center proposal for the Lone Star Coastal National Recreation Area. The National Recreation Area designation would increase visitation to the upper Texas coast, boosting the economy and the value of low-lying coastal areas, while still preserving the natural environment of the coastal wetlands. Furthermore, the proposal has been identified as a non-structural mitigation strategy that would protect much of the coast from unsustainable development, reducing property damage and increasing the quality of life for coastal residents. The speakers gave an overview of policies, planning and innovative steps needed to develop further develop and bring the concept to Congress through public outreach and organization.

The Session III speakers included Jim Blackburn, Rice University, Suzanne Dixon, National Parks Conservation Association, Lynn Scarlett, Resources for the Future, Dr. Ron Sass, Rice University, Bob Stokes, Galveston Bay Foundation, and Victoria Herrin, Houston Wilderness.

**Session IV** covered general issues associated with hurricanes that make impact along the Gulf Coast. The presenters shared lessons learned in Louisiana from Hurricane Katrina, including the structural systems that have been put in place over the past seven years and the non-structural strategies, such as evacuation policies, that have been implemented to prevent future disasters. Furthermore, researchers presented their evaluations of hurricane impacts in other areas of the Gulf Coast.

Session IV speakers included Dale Berner & Michael Gebman, Ben C. Gerwich, Inc, Dr. John Pardue, Dr. Brian Wolshon and Hal Needham, Louisiana State University, Dr. Jude Benavides, University of Texas at Brownsville, and William Kiene and John Machol, Galveston Island.

## UPPER WEST SIDE OF GALVESTON BAY WORKSHOP

In addition to the presentations, the SSPEED Conference included a workshop focused towards stakeholders in communities along the Upper West Side of Galveston Bay, such as Clear Lake, Kemah, Seabrook, and LaPorte. This provided a platform for discussion among local stakeholders about the mitigation strategies presented at the conference. The feedback from this discussion is being incorporated into the further development of protection strategies for the Upper West Side of Galveston Bay.

