



ENGINEERING

Category 3 = catastrophe

Past discussions of hurricane-protection options for the Houston-Galveston region have focused on constructing a floodgate at the mouth of either Galveston Bay or the Houston Ship Channel. In its latest analysis of options that federal, state and local officials might consider, Rice experts offer a third alternative: a midbay gate halfway between the previously discussed sites.

Rice’s Severe Storm Prediction, Education and Evacuation from Disasters (SSPEED) Center’s latest report describes how the new alternative could provide storm-surge protection for the heavily populated communities on the west side of Galveston Bay as well as for the industrial complex along the Houston Ship Channel.

“The midbay gate strategy is designed to reduce storm surge in the ship channel’s industrial complex as well as in west bay communities like Clear Lake, Kemah, Bayview and Seabrook,” said **Phil Bedient**, SSPEED director and Rice’s Herman Brown Professor of Civil Engineering. “The former represents the most significant economic and environmental threat from a hurricane and the latter represents the most significant threat to human life.”

Of the many scenarios studied, the one that most closely resembles the Federal Emergency Management Agency’s (FEMA) benchmark 100-year storm-surge flooding event for Galveston Island is a storm with wind speeds 15 percent stronger than Ike’s that makes landfall southwest of Galveston near Freeport. Such a storm would be

MORE THAN 100 CATEGORY 3 HURRICANES HAVE MADE LANDFALL ON THE COASTLINES OF THE GULF OF MEXICO SINCE 1900

a Category 3 hurricane, and SSPEED’s simulations show the storm’s surge would go over the Galveston Seawall, inundate the Houston Ship Channel with about 25 feet of seawater and flood hundreds of square miles of densely populated suburbs along west Galveston Bay.

“More than 100 Category 3 hurricanes have made landfall on the coastlines of the Gulf of Mexico since 1900,” said **Jim Blackburn**, SSPEED co-director and professor in the practice of environmental law at Rice.

SSPEED first began studying regional hurricane protection in the wake of Hurricane Ike in 2008. The sprawling 600-mile wide Category 2 storm struck Bolivar Peninsula northeast of Galveston Sept. 13, causing \$29.5 billion in damages, most of it due to surge flooding.

Watch a video: ricemagazine.info/302

—JADE BOYD

RESEARCH

Rice gets \$150 million boost

Rice is preparing to invest more than \$150 million in strategic initiatives aimed at increasing research competitiveness, creating a world-renowned data sciences program and strengthening its celebrated molecular nanotechnology research.

The plans call for a \$49 million reinvestment in molecular nanotechnology, a traditional area of strength for Rice, as well as a \$43 million investment to establish a program in data sciences. These two initiatives build on existing strengths and include funding for 21 new faculty positions, as well as technical staff positions, start-up funds and associated support.

The third initiative will promote research competitiveness broadly across the university and includes \$58 million for an enhanced postdoctoral program; a “research venture capital” fund for high-risk, high-return initiatives; strengthened support services for grant writing and grant management; improved faculty networking for interdisciplinary team building; and investment in information technology for grant and data management.

“We must do everything possible to ensure that our faculty are positioned to succeed in an increasingly competitive research environment,” said President **David Leebron**. “We sought areas where we could make important contributions both to knowledge and to the betterment of our world. The ability to secure external funding was another key, as was the ability to leverage interdisciplinary and interinstitutional support,” he added.

“The most valuable resources of any research university are the time, ideas, initiative and leadership of its faculty and students,” said Provost **Marie Lynn Miranda**. “These initiatives are designed to support the extraordinary faculty who are already here in each department across our campus and to fill critical gaps that will allow us to achieve our aspirational goals.”

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