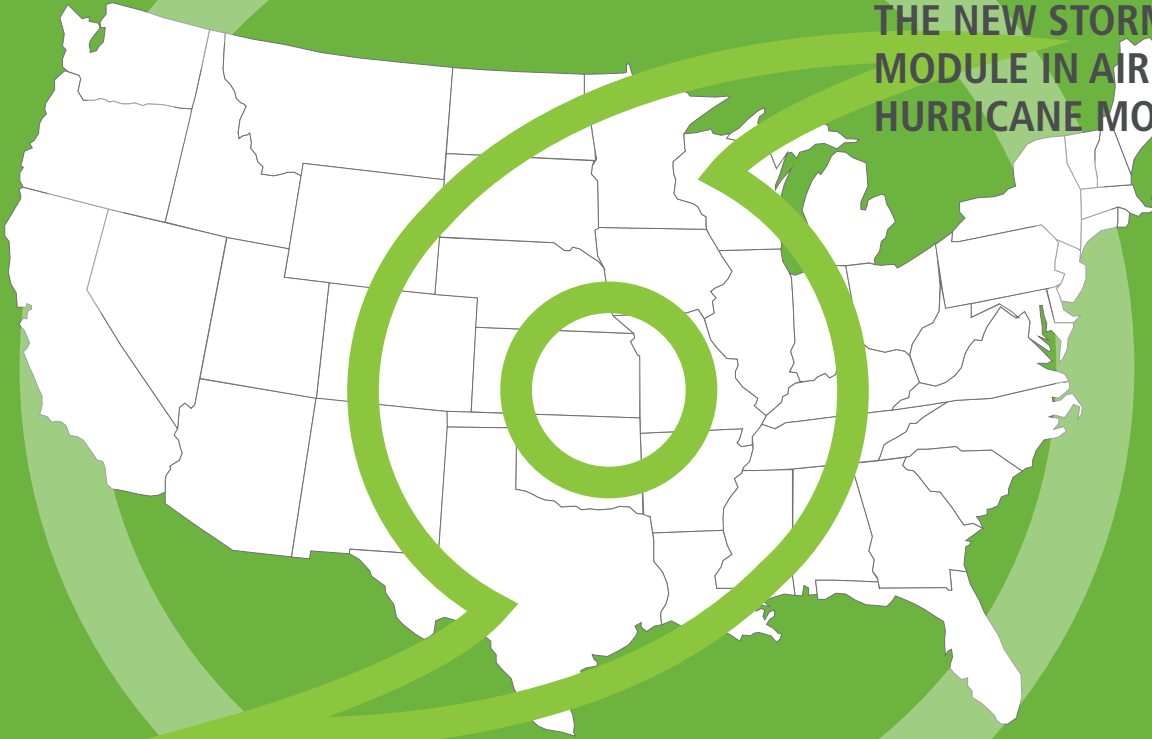


**THE NEW STORM SURGE
MODULE IN AIR'S U.S.
HURRICANE MODEL**

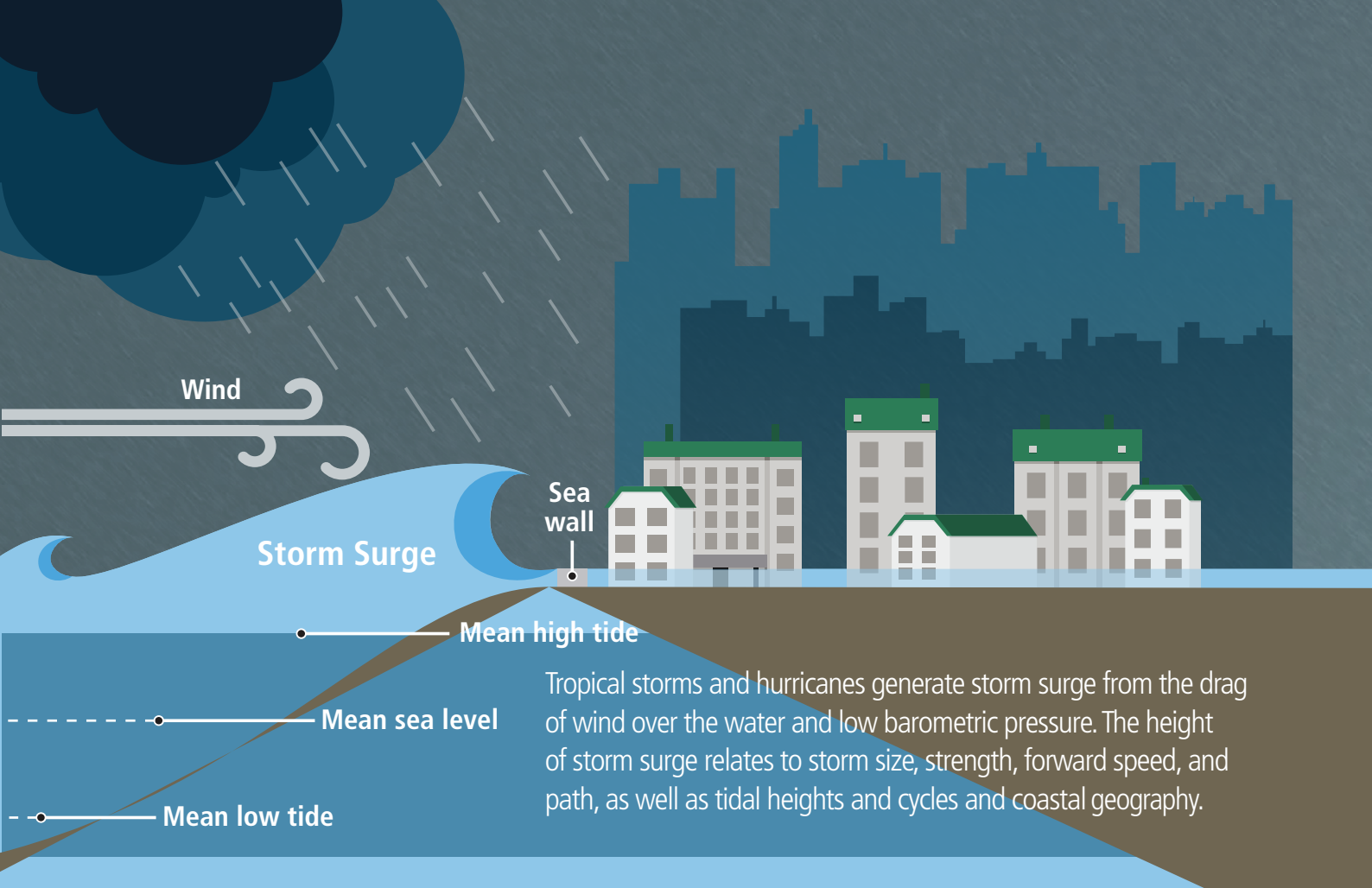




Hurricane Ike storm surge devastation of Bolivar Peninsula near Galveston, Texas. (Source: Chuck Davis, flickr)

When a hurricane comes onshore, the damage caused by storm surge can be devastating. With coastal property steadily growing in value and density, storm surge is an increasingly important driver of hurricane losses. In fact, the sum of storm surge losses for all events in the AIR U.S. hurricane historical catalog—when modeled with today’s exposures and sea levels—equals approximately one-third of the total losses, wind and surge combined.

The new, hydrodynamic storm surge component of AIR’s hurricane model accounts for spatial and temporal meteorological information, localized topographical details, exposure location and construction data, and policy specifics to produce robust and highly granular insured loss estimates.



Tropical storms and hurricanes generate storm surge from the drag of wind over the water and low barometric pressure. The height of storm surge relates to storm size, strength, forward speed, and path, as well as tidal heights and cycles and coastal geography.

Storm surge, an often substantial increase in sea level that sometimes accompanies hurricanes, results from a combination of variables, including storm size, strength, speed, and path, as well as tidal heights and cycles, coastal topography, bathymetry, and geology.

The new storm surge module—a key feature of the 2015 update to the AIR Hurricane Model for the United States—integrates storm parameters with high-resolution elevation data to numerically simulate location-specific storm surge inundation depth and extent.



Hurricane Sandy storm surge damage to bank branch in Coney Island, New York. (Source: AIR)

In extreme cases, storm surge can sweep structures off their foundations. It can inundate basements and lower floors, render residences uninhabitable and businesses inoperable, leave flooded automobiles unsalvageable, and destroy boats.

To refine loss estimates, model users can input building-specific information, such as foundation type, number of basement levels, first floor elevation, and floor of interest. The AIR storm surge module estimates physical damage and time element losses using damage functions that reflect local building codes and regional design practices, as well as damage survey findings, claims analyses, and engineering research.



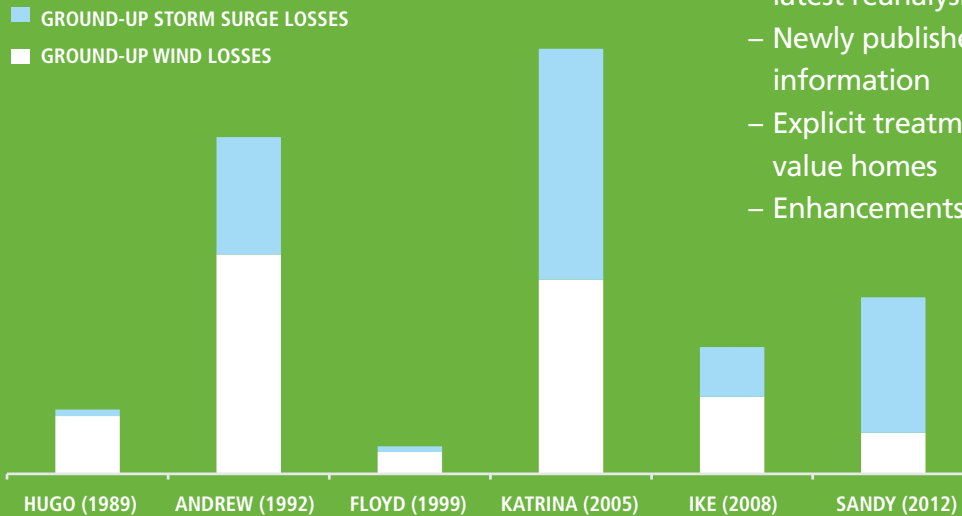
The Seabrook Floodgate Complex in New Orleans works in tandem with the Inner Harbor Navigation Canal Surge Barrier to reduce flood risks associated with a 100-year storm surge. (Source: U.S. Army Corps of Engineers)

MANAGING THE RISK

The new hydrodynamic storm surge component of the 2015 update to the AIR Hurricane Model for the United States provides a greatly refined and extensively validated view of storm surge risk.

Other key updates to the U.S. hurricane model include:

- A new catalog based on HURDAT2 and the latest reanalysis data
- Newly published land use/land cover information
- Explicit treatment of square footage for high-value homes
- Enhancements to mobile home vulnerability



ABOUT AIR WORLDWIDE

AIR Worldwide (AIR) is the scientific leader and most respected provider of risk modeling software and consulting services.

AIR founded the catastrophe modeling industry in 1987 and today models the risk from natural catastrophes and terrorism in more than 90 countries. More than 400 insurance, reinsurance, financial, corporate, and government clients rely on AIR software and services for catastrophe risk management, insurance-linked securities, detailed site-specific wind and seismic engineering analyses, and agricultural risk management. AIR, a Verisk Analytics (Nasdaq:VRSK) business, is headquartered in Boston with additional offices in North America, Europe, and Asia. Visit us at www.air-worldwide.com.

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