

# RMS North Atlantic Hurricane Models

## Geographic Coverage:

U.S., Canada, Mexico, Bermuda, Central America, Caribbean, and offshore platforms in the Gulf of Mexico (40 countries total)

## Perils Modeled:

Wind, storm surge (U.S., Bahamas, Cayman Islands, and Turks and Caicos only)

## Lines of Business:

All key lines of business, including residential, commercial, industrial, agricultural and automobile

## Risk Types:

Over 600 distinct risk types are represented, including large and complex industrial facilities

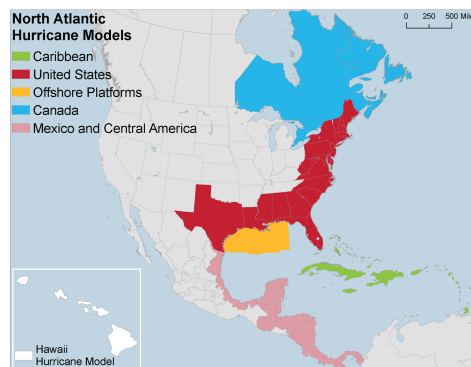
Version 15.0 of the RMS North Atlantic Hurricane Models reflects the latest science, research, and data on hurricane frequency, hazard, and vulnerability.

With new insights to support wind-related underwriting, increased capability and definition to better represent local flood risk, improved assessment of regional variations in building codes and practices, and the latest science and data on hurricane event rates, the models support more effective risk differentiation and underwriting at the local level, through to portfolio management, reinsurance purchase and capital management decisions.

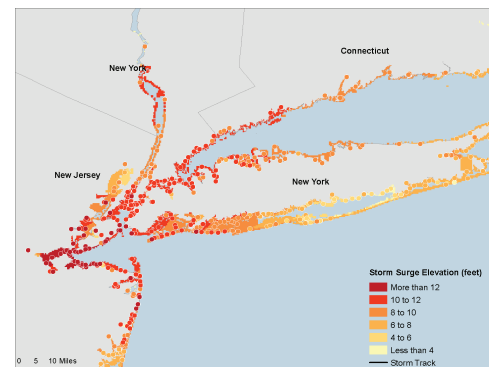
## OVER \$240 BILLION IN INDUSTRY LOSS DATA SPANNING MORE THAN 20 YEARS

The models have been well-validated by over 20,000 wind speed observations, more than \$20 billion of location-level claims and exposure data (including Hurricanes Katrina, Ike, and Sandy), and more than \$240 billion in industry loss data spanning more than 20 years. In addition, the assumptions and methodologies of the model have been extensively reviewed by third-party experts.

RMS also ensures that the vulnerability model reflects the latest market practices and building codes in each region.



RMS North Atlantic Hurricane Model regions



Hurricane Sandy (2012): Modeled storm surge elevation vs. observation points in the New York Metropolitan Area

## GRANULAR RISK DIFFERENTIATION

The North Atlantic Hurricane Models support more effective risk differentiation and selection decisions at the local level. The models' hazard component incorporates high-resolution (as high as 15 m) and high-quality satellite data, reflecting the most up-to-date land use and land cover information. This provides an accurate representation of local variations in wind hazard due to frictional impacts (i.e., surface roughness), particularly important in urban areas with high concentrations of buildings.

With over 500 unique vulnerability functions across a variety of primary building characteristics, regions, and lines of business, the version 15.0 models reflect the latest market practices, enabling deeper and more accurate insights into vulnerability risk differentiation for underwriting and managing hurricane risk.

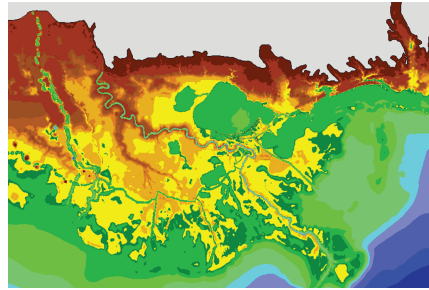
## SEAMLESS COASTAL TO INLAND TRANSITIONS

Underwrite inland risk with more confidence based on a thorough and accurate understanding of inland hurricane risk, including the risk associated with transitioning storms. The version 15.0 North Atlantic Hurricane Models capture storm characteristics through the full storm lifecycle to reflect the reality of how storms weaken as they lose energy over water, or weaken post-landfall.

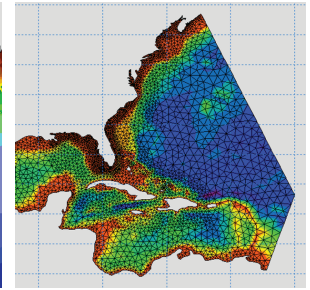
## HIGH-RESOLUTION COASTAL FLOOD RISK ASSESSMENT

Model the impacts of coastal flooding with more granularity than ever before using new capabilities available only in version 15.0. RMS is the only modeling company that integrates a hydrodynamic, time-stepping storm surge model solution into its hurricane models to represent the complex interactions between wind and waves throughout a hurricane's life cycle. The model simulates surge build up at sea, accounting for changes in a storm's size and intensity prior to landfall, and the dynamic flow of water around complex coastlines.

This accurate, high-resolution coastal data supports superior risk selection. Manage and underwrite risk with more confidence down to the street level, and better understand portfolio-wide tail risk with a comprehensive view of coastal flood risk.



Detailed bathymetry and coastal topography: Southern Louisiana



Regional grid within the RMS storm surge model domain

## UNDERSTAND THE SENSITIVITY OF HURRICANE RISK TO CLIMATE TRENDS

Understand model sensitivities to hurricane frequency by comparing long-term rates to the medium-term view. RMS is the only modeling company in the world to offer a medium-term view of basin-wide hurricane risk, which is a five-year forward looking view of annual hurricane landfall rates. By taking into consideration both current and projected climate trends, this approach offers a more realistic view of near-term hurricane risk across the Atlantic Basin.

## TRANSPARENCY AND DETAIL TO UNDERSTAND MODEL ASSUMPTIONS

With specific documentation to support Solvency II validation, in addition to thousands of pages of detailed model documentation, RMS provides unprecedented transparency into various aspects of the models, including methodologies, validation, and change management.

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## ABOUT RMS

RMS models and software help insurers, financial markets, and public agencies evaluate and manage catastrophe risks throughout the world, promoting resilient societies and a sustainable global economy. Our scientific and objective measurement of risk facilitates the efficient flow of capital needed to insure, manage, and mitigate risks to reduce the consequences of disasters.

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