

June 2011



# RiskOnline<sup>®</sup> Internet Services

## RMS Cat Response

---

## REAL-TIME HURRICANE RISK MANAGEMENT

Track hurricane loss estimates in real-time as storms approach the U.S. with RMS RiskOnline® Internet services. Often the first loss assessment tool available following storm formation, RiskOnline is a fully automated service and activates when a storm is named by the National Hurricane Center (NHC) and the storm's central pressure falls below 995mb.

As an independent, accurate and timely source of risk information, RiskOnline supports critical risk management decisions for the insurance, reinsurance, and risk transfer markets.

The RiskOnline website, [www.riskonline.com](http://www.riskonline.com), offers secure, around-the-clock access to the latest loss projections for the industry or your own portfolio, including breakdowns by state, region, line of business, or business unit.

### Decision Support for Risk Transfer and Trading

RiskOnline's full probabilistic loss distribution provides the information required to monitor existing risk transfer programs. From the loss distribution, for example, subscribers can assess the probability of triggering or exceeding the limit of a specific catastrophe excess-of-loss reinsurance program and decide on the placement of additional coverage. RiskOnline also provides an objective and independent basis for pricing real-time transactions, including:

- Reinsurance Coverage Placements
- Swaps and Options
- Industry Loss Warranties
- Catastrophe Bond Trading

Counterparties can agree in advance on transaction structures and pricing mechanisms, utilizing RiskOnline's real-time metrics to execute transactions within a limited time window as a storm approaches.

### Claims and Underwriting Applications

By calculating probability-weighted expected losses by county, RiskOnline generates the geographic distribution of risk for each portfolio. This information is critical for claims and underwriting decisions such as:

- Isolation of potential loss concentrations for claims resource planning and deployment
- Short-term underwriting guidelines for quoting and issuing coverage in potentially affected areas

### Key RiskOnline Benefits

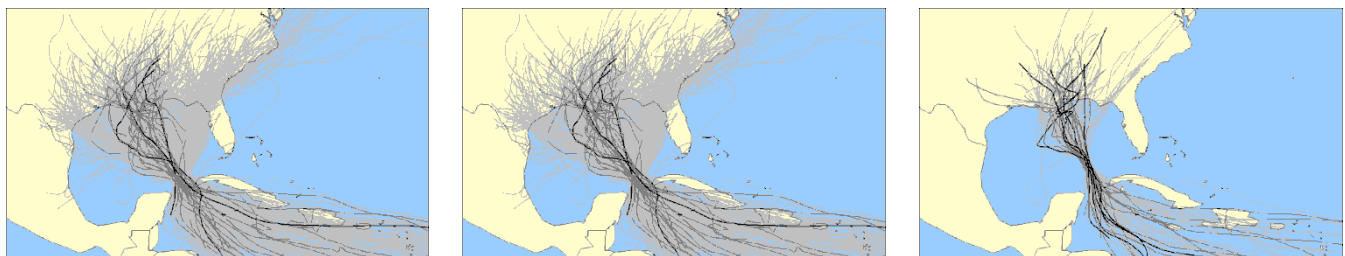
- Save time and increase reliability with automated, updated portfolio loss modeling
- Securely access results online, 24 hours a day, 7 days a week
- Facilitate market transactions for real-time hurricane cover (pricing, negotiation, purchase)
- Benchmark portfolio performance against industry results

---

## UP-TO-DATE PROBABILISTIC LOSS ESTIMATES

RiskOnline is fully automated—from the collection of hurricane parameters, to stochastic track selection, to the calculation of probabilistic loss estimates—for reliable, accurate, and up-to-date information. The system activates when a storm is named by the National Hurricane Center (NHC), and the storm's central pressure falls below 995 mb. RiskOnline then begins selecting stochastic tracks from the RMS® U.S. Hurricane Model event set and generates probabilistic loss estimates based on the track selections. The tracks are selected based on their similarity to the projected landfall storm parameters, notably the landfall location, bearing, and maximum sustained winds.

Every six hours, the system automatically updates probability distributions for U.S. insurance industry losses (based on the RMS® Industry Loss Curves or ILCs) and for individual client portfolios. Typically, the number of tracks selected reduces as the storm gets closer to landfall and the uncertainty associated with the forecast reduces.



Ivan Advisory 46  
September 13 - 17:00 EDT

Ivan Advisory 50  
September 14 - 16:00 EDT

Ivan Advisory 55  
September 15 - 22:00 EDT

Figure 1: As a hurricane approaches land, the uncertainty in the storm strength and landfall location decreases, and the distribution of estimated losses converge

An integral part of RMS Cat Response, RiskOnline track selections are synchronized with the RMS manual track selections issued in Cat Updates when a storm is 48 hours from expected landfall, at which time, the automatic track selections in RiskOnline are replaced with the manually selected tracks.

All results can be viewed online at [www.riskonline.com](http://www.riskonline.com), for secure, around-the-clock access to the overall distribution of potential expected losses.

---

## INNOVATIVE LOSS FORECAST MODELING

RiskOnline uses a probabilistic loss forecasting approach that is based on an innovative blend of meteorological forecasts and statistical storm behavior inferred from historical activity. The model reflects current meteorological conditions affecting storm behavior to generate a comprehensive loss forecast by using pre-compiled probabilistic simulations of possible storm paths and intensities. This blended approach leads to timely, consistent, accurate, and stable results.

The methodology is also consistent with other core RMS modeling components, ensuring a common baseline for understanding and communicating RiskOnline loss metrics in the market.

---

## REAL-TIME PROBABILISTIC LOSS DISTRIBUTIONS

RiskOnline real-time forecasting uses storm tracks from the RMS 'basin-wide' model, comprising of over 1,000,000 stochastic hurricane tracks. Forecasts are combined with loss modeling from the RMS U.S. Hurricane Model, which leverages scientific advancements in wind and storm surge modeling, and incorporates a wealth of industry claims data from recent landfalls, building code compliance expertise, and advanced re-sampling of historical observations to provide an up to date view of hurricane-related risk.

In RiskOnline's probabilistic forecasts, losses are modeled for each possible outcome along with its conditional probability of occurrence. This not only provides the expected loss and the corresponding standard deviation, but also the probabilistic loss distribution on which these estimates are based. As a result, subscribers are given a transparent measure of confidence around the expected loss to the industry or their own portfolio.

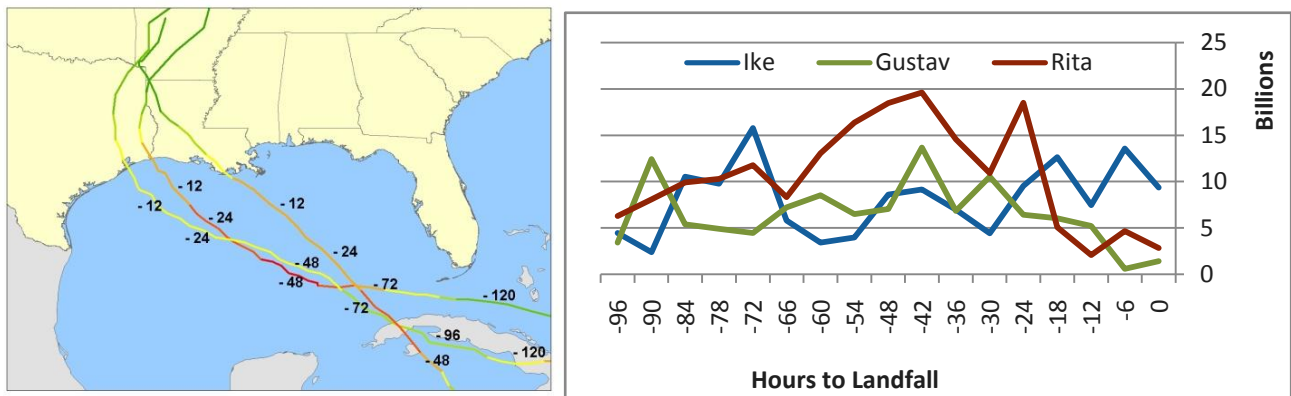


Figure 2: Tracking the expected loss over time and the evolution of hurricane intensity for hurricanes Rita, Gustav, and Ike

---

## RISK ONLINE PRODUCT SPECS

### Key Features

- Monitors risk on a 24-hour, 7 days a week basis, with around-the-clock updates every 6 hours
- Incorporating the most current storm event parameters from NWS/NHC/TPC starting several days before landfall
- Effectively blends real-time meteorological forecasting and RMS probabilistic modeling techniques
- Transparent probabilistic loss forecasting
- Multiple perspectives on real-time risk
- Provides company-specific portfolio results as well as industry benchmarks
- Quantifies portfolio expected loss, county-level loss, and various aggregations of loss (region, LOB, etc.)

### Geographic Coverage

- All hurricane-exposed states along the U.S. Atlantic and Gulf coasts
- All named North Atlantic and Gulf storms as soon as sufficient data is available to form a loss forecast (generally 3 to 4 days before landfall)