



# Flash Flood Risk Score

An innovative approach to evaluate flooding

## Flooding by the Numbers

Floods are the #1 natural disaster in the United States<sup>1</sup>. From 2005 to 2012 the National Weather Service (NWS) and National Climatic Data Center (NCDC) summarized flood damages incurred from riverine and flash flooding to be \$23.7 billion dollars<sup>2</sup>. During this time, flash flooding damage contributed to \$7.9 billion of the total damage, which is 33 percent of flood-related claims<sup>2</sup>.

Flash floods are short-term events occurring within six hours of the causative event (heavy rain, dam break, levee failure, rapid, snowmelt and ice jams) and often within two hours of the start of high intensity rainfall<sup>3</sup>. Due to the short amount of time needed for a flash flood to occur, there is little opportunity to prepare or mitigate against it, which results in a high risk for loss and extensive property damage. According to historical storm event data from the NCDC, 70 percent of flood events causing flood losses in the United States have a flash flooding component<sup>4</sup>. For this reason, flash flood risk assessment cannot be ignored.

To accurately assess flood risk, it is imperative to also incorporate a flash flood risk component into the equation. FEMA flood maps, which are referenced for CoreLogic<sup>®</sup> Flood Risk Score (FRS), are based on flood insurance studies that focus on visible surface water bodies such as rivers, ponds, lakes and oceans—not on dry land. This exclusion of dry land contributes to the reality that FEMA flood studies have not been conducted comprehensively for the entire U.S. In fact, roughly 40 percent of the U.S. does not have a FEMA flood map associated with its geography at all<sup>5</sup>. Additionally, many communities do not participate in the National Flood Insurance Program (NFIP), therefore, no flood studies have been conducted in these areas leaving the flood risk unknown. Essentially, FEMA 100-year flood zones do not comprehend flash flooding.

## New Insight with Flash Flood Risk Score

CoreLogic developed sophisticated methodology to provide insurers with CoreLogic Flash Flood Risk Score, an innovative flood scoring product that doesn't rely on FEMA flood maps, and takes an alternate approach to identify flood risk. FFRS provides flooding detail in areas where flooding resources are traditionally unavailable. More specifically, FFRS helps assess whether a flash flood component is identified, particularly in areas where CoreLogic Flood Risk Score is not available due to the flood zone not being mapped—in zones D and N. Essentially, FFRS fills in the flood risk assessment gaps where the previous focus was only on riverine and coastal flooding, and no initial flood insurance studies were ever conducted.

Utilizing a combination of hydrology, meteorological and environmental datasets, FFRS is calculated for the entire U.S. using a 10 meter grid. It generates a simple and easy to use 1-100 numeric risk score along with risk ratings from Very Low to Extreme. This risk score and risk rating can then be incorporated into the insurer's underwriting process to help set detailed guidelines for identifying flash flood risk exposure.

## Key Features:

- ▶ Offers a 10 meter granularity
- ▶ Utilizes hydrology, meteorological and environmental datasets
- ▶ Returned data layers include intense rainfall, soil types, ground elevation and flow accumulation

## Key Benefits:

- ▶ Provides a scoring component to assess a single property or entire portfolio for flash flood risk
- ▶ Allows insurers to mitigate the number of claims for flash flood risk
- ▶ Provides new insight and innovative models for flash flood risk



## Flash Flood Risk Score Methodology

The FFRS model uses watershed hydrology and then extracts hydrologic properties from land information datasets, incorporating probabilistic characteristics of meteorological factors to simulate precipitation impact. All aspects of flash flooding factors are finally integrated to form an overall projection of flash flood risk. The model can pinpoint granular locations with high risk potential for flash flooding anywhere in the United States.

### Watershed Hydrology:

Identifies land slope, flow direction and flow accumulation in watersheds.

### Land Surface Characteristics:

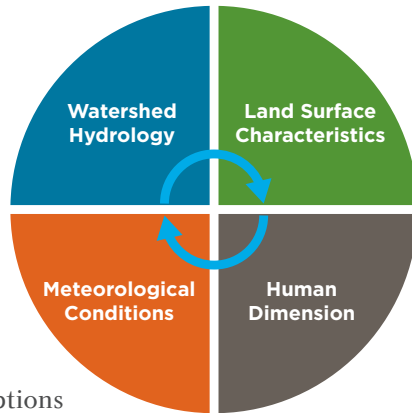
Catchment slope, hydro properties/infiltration of soils, imperviousness of land use and interceptions of forest coverage which determine surface runoff potential from rainfall.

**Meteorological Conditions:** Rain fall intensity, hail probability and geographic distribution patterns and its probability in geographic areas to represent flash flooding in space and time.

**Human Dimension:** Building design, waste and debris, automobiles and poorly designed infrastructure.

### Let Us Score Your Flood Risk

Flash flooding property damage makes up 33 percent of property damage resulting from inland flooding—flash flooding and riverine flooding combined<sup>2</sup>. That's why it's crucial to evaluate the complete flood risk for a property. Identifying and understanding flood risk can be daunting, so let us score the flash flood risk for you—for P&C, Inland Marine, E&S, Commercial Lines and Auto.



### Flash Flood Risk Score—One Size Fits All Insurers:

- ▶ **P&C:** Evaluate a single property or an entire book of business for flash flood risk exposure to improve your loss ratio.
- ▶ **E&S:** Account for a higher level of flash flood risk beyond riverine flooding.
- ▶ **Commercial Lines:** Be better prepared for flash flood loss, especially for policies with high hazards and low flood ratings.
- ▶ **Auto:** Understand commuter risk for the auto policy holder, including home to office, nearby flash flood areas and areas near home. Write sound auto policies and avoid auto claims due to flash flooding.

### Seamless Ordering & Delivery

We offer several options for insurers to access our industry-leading natural hazard risk scores and solutions which include:

**Shapefiles:** Available for loading into your existing infrastructure.

**RiskMeter Online™:** A web-based solution used to determine natural hazard risk exposure by simply typing in an address.

**RiskMeter Integrated:** An interface that delivers a set of services and tools that allow you to easily integrate natural hazard risk, tax jurisdiction, property characteristics (pre-fill), parcel and geocoding data directly into your applications.

### The Right Solution for Better Coverage

Insurers want to provide the best coverage for their clients, while only writing properties that are good risks for their books of business. Many also don't realize that they are covering losses that could be more clearly understood with the right flood risk model. Whether using an aggregated or by-peril rating approach, CoreLogic can help you understand flash flood risk at the most granular level possible.

<sup>1</sup> FloodSmart.gov, 2014.

<sup>2</sup> National Weather Service, Summary of Natural Hazard Statistics in the United States from 2005-2012.

<sup>3</sup> National Weather Service, 2014.

<sup>4</sup> National Climatic Data Center, 2014.

<sup>5</sup> National Weather Service Annual Reports 2005-2012

FOR MORE INFORMATION, PLEASE CALL 855-267-7027  
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