



Location-Based Risk From Natural Catastrophes

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A reference guide to help you understand how location affects risk.

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INTRODUCTION

Contemporary history has seen an ever increasing incidence in natural disasters worldwide. In just about every place on Earth, humans are impacted by natural disasters at some point in their lives. In fact, over a recent 20-year period, in excess of 8,500 natural disasters occurred, affecting more than 2.6 billion people.¹

Clearly it is paramount to effectively prepare for natural disasters and their impacts. But where do you start? The key to preparedness is a comprehensive understanding of location-based risk — i.e., the relationship between your location and the effects of potential perils

To gauge how well you understand location-based risk, ask yourself the following questions:

- What does location-based risk from natural catastrophe mean?
- Why is location-based risk from natural catastrophe important to understand?
- Which natural perils can be dependably measured on a location basis?

The more that is known about a location and its associated risk factors, the greater the chance of success in planning, mitigating, and recovering from a natural disaster event, as well as in guarding against significant recovery costs.

The following information can help you plan for natural disasters and their potential impact to your location.



“Floods are the most widespread natural disaster aside from wildfires. Ninety percent of all U.S. natural disasters involve some sort of flooding.”

11 Facts About Disasters
DoSomething.org



What is location-based risk?

A Basic Meaning

Location-based risk is the ability to understand the likelihood of something bad — like a natural catastrophe — happening at a given location. Location-based risk can be identified to varying levels, depending on the quality of the risk models used in the risk analysis and if geographic coordinates, or geo-coding, are known. Location-based risk is not limited to just one risk component — it can include multiple natural perils.

A Deeper Understanding

Risk models vary from about 10-foot resolution to thousands of feet in resolution, depending on the natural peril being modeled. Geo-coding, which is essentially the conversion of street addresses to geographic coordinates, can also vary from house level to postal code level, depending on where the location is in the world. The more refined the risk models and the geo-coding, the better understanding of location-based risk you can achieve.

Why is location-based risk important?

Better Decision Making

Risk from natural catastrophes is closely associated with location-based characteristics such as elevation, terrain features, and local infrastructure. A solid understanding of these factors leads to educated decisions about how to prepare for — and recover from — an unexpected event.

Save Money and Lives

Since the year 2000, economic losses from natural disasters are estimated at \$2.5 trillion globally — 50 percent more in damage than what was expected.² When working with risk, uncertainty is expensive — and potentially dangerous. Better location-based risk information enables fast, informed decisions that can reduce monetary and human casualties.

What can location-based risk information be used for?

Insurance Industry

For insurance agencies, premiums can be calibrated to the risk without the need to increase coverage to account for unknown disasters. This benefits both the property owner (fewer premiums to pay) and the insurer (better understanding of the risk leads to better application of pricing rules). Existing buildings can be fortified to reduce repair costs after a disaster, and new ones can be built or protected in the least risky places.



Real Estate Industry

Location-based risk holds a valuable importance to the real estate industry. Consider the millions of buyers each year looking to find new property to purchase or land to build upon. Understanding the risk of a location can become a deciding factor in which to choose. If you own many properties and need to scale back, risk elimination is an excellent way to choose which one to sell.

Hazardous Material Management

Working with hazardous materials can be a very serious and dangerous business. It's important to thoroughly establish and model the potential risk of a catastrophic event impacting your infrastructure at any given location. This will allow you to prioritize preventative maintenance, build mitigation, and plan emergency responses.

Insurance Validation

When you need to purchase insurance, it's advantageous to shop with your own accurate risk information rather than rely on insurance brokers or carriers.



“When working with risk,
uncertainty is expensive.
Better location-based risk information saves money.”

Which natural perils can be measured?

Perils That Model Well

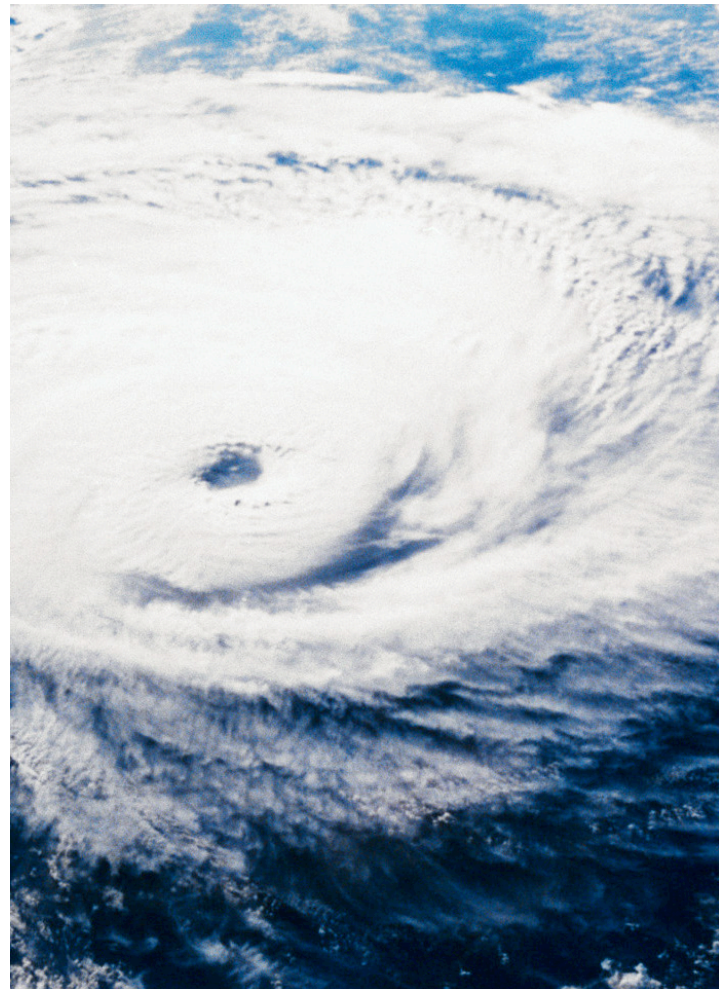
Certain perils model well for location-based risk. These models are dependent on the physical characteristics of the Earth at the given location. Common attributes include proximity to water bodies, fault lines, and vegetation, to name a few. The perils that can be dependably modeled include:

- Flood
 - Fluvial
 - Pluvial
 - Flash
 - Storm Surge / Tsunami
- Wind / Hurricane / Typhoon
- Earthquake
- Wildfire

Perils That Do Not Model Well

Other perils can't be well modeled for location-based risk because they are not dependent upon the surface of the Earth. Perils in this category include:

- Hail
- Tornado
- Lightning
- Locusts



Summary

Climate models are projecting an increase in extreme weather events over the next 30 to 50 years³ and this means risk mitigation is growing in importance every day. Understanding location-based risk and its relationship to natural disasters is the first step in designing, developing, and executing a successful risk strategy.

About The Author

Ivan Maddox is the InsitePro Product Manager at Intermap Technologies™ and has over 20 years of experience in the Product Management and Operations fields, specializing in the delivery of SaaS solutions and platforms.

About Intermap

WWW.INTERMAP.COM

Intermap Technologies® is a global geospatial solutions leader focused on improving the ways in which people, businesses, and governments use location-based information.

Through the creation of the Orion Platform™, the industry's first software-driven spatial data platform, Intermap provides products, services, and solutions that help business and governments solve their geospatial challenges.

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¹ World Bank (2005). *Hazards of Nature, Risks to Development*.

² www.unisdr.org

³ www.reliefweb.int, Centre for Research on the Epidemiology of Disasters (Aug 31, 2013)