



Cloudy with a chance of mishap

How weather insights can help insurers manage risk and drive client value

In association with 
IBM Institute for Business Value

Harnessing weather data

Weather has evolved from a three-minute segment on the evening news to an emerging information source enterprises can harness to improve business outcomes. As availability and predictive capabilities of weather forecasting continue to grow, so do the opportunities for insurance companies to apply weather data to improve customer engagement, operations and risk management. Until now, most businesses have treated weather as an event outside their control, something inherently unpredictable to which they can only react. Leading companies take a different approach: they combine weather information with other data sources to anticipate future events and incorporate insights into daily operations.

Executive summary

Weather plays an important role in shaping consumer and commercial decisions to protect their assets and for insurers looking to provide tailored solutions to consumer needs. Major events, including hurricanes, floods and snowstorms, radically impact both individuals and businesses. And localized incidents, such as hailstorms, tornadoes and lightning, pose immediate threats to life, property and other assets. In 2014, the five most destructive weather events caused damages of USD 17.4 billion worldwide¹ (see Figure 1).

Figure 1

Top five natural catastrophes of 2014 by losses, in USD millions

Date	Country/ Region	Event	Fatalities	Overall losses US\$ m
Feb 7-16	Japan	Winter damage	37	5,900
May 18-23	United States	Severe storms	-	3,900
Jun 7-10*	France, Belgium, Germany	Severe storms	6	3,500
Jan 5-8	United States, Canada	Winter damage	-	2,500
Jun 3-5	United States	Severe storms	-	1,600

**Time period for several severe events.*

Source: X2015 Munich Re, Geo Risks Research, NatCatSERVOCE. As of January 2015. <http://www.iii.org/fact-statistic/catastrophes-global>

2.3 billion

the cost, in U.S. dollars, of weather-related damage in the United States in 2014

3%

the percentage of claim filers whose insurance companies contacted them proactively after a weather event

18%

the increase in customer satisfaction among individuals who received claim payments within a week of a weather event

A significant percentage of the planet is vulnerable to weather events. In many coastal areas, risk has grown steadily with increased property development. The inability to manage weather-related risk can also limit economic development, especially in high-growth areas around the globe.

Insurance companies understand the importance of weather data; for years, the industry has incorporated historical weather patterns into its underwriting and pricing models. However, advances in weather science, analytics, geolocation and cloud computing now enable insurance companies to apply weather-related insights in new, innovative ways. Weather data can help insurance companies work more effectively with customers to mitigate weather-related losses, allocate internal resources to better assist customers with post-event support and more effectively manage cash reserves. These advances not only improve operational effectiveness, but also build tighter bonds among customers, agents, brokers and organizations.

This executive report identifies opportunities for insurance companies to use weather data as an important asset in both managing operational and financial risks, as well as improving customer relationships. It also explores how companies can start using weather data in their day-to-day operations and considers future directions in the use of weather-related information for insurers.

Covering the map: Opportunities for applying weather data

A great strength of weather data insight is that it can create opportunities across a number of different functions within traditional insurance firms. Several major areas of opportunity exist (see Table 1).

Table 1

Opportunities for using weather data across insurance organizations

Capability	Opportunities
Customer engagement (sales, marketing and customer service)	<ul style="list-style-type: none"> • Alert and counsel individuals about impending events so that they can take action to mitigate potential damage • Proactively contact individuals affected by an event to determine needs, reinforce brand promise and provide personal touch points • Incorporate insights gathered from weather events into larger marketing and product development efforts.
Claims	<ul style="list-style-type: none"> • Mitigate weather-related claims • Move resources into place to address customer needs before major events • Anticipate customer needs and start adjustment processes to reduce time to payment • Reduce associated costs, such as storage.
Risk management	<ul style="list-style-type: none"> • Predict claims reserves allocations in preparation for a major event • Flag suspicious claims by merging weather observations with claims data.



Customer engagement

For insurance companies, the least costly event is the one that never occurs. Insurers can use weather data to identify the potential for a significant weather-related event and notify customers to take action to protect life and property.

If weather data predicts a hailstorm, for example, an insurance company could send a text message to warn policyholders in the storm's path of potential damage. That warning would detail the precise location and timing of the expected hailstorm and strongly urge customers to take action, such as moving their cars to covered locations. Similarly, an insurer could recommend that customers move to higher ground or prepare defensive barriers in advance of a storm surge. Companies can personalize and tailor these alerts to:

- Different methods of notifications based on demographics and preferences, such as text messaging, landline phone or in-house monitoring system
- Actions customers should take, such as removing potential debris hazards before a wind storm, clearing gutters before severe rain events or insulating pipes before rapid freezes
- The location of critical assets, whether at home or at work

After an event, weather data can also assist customer-service professionals by helping them identify customers who need to be contacted. By knowing which policyholders in an affected area may have sustained damages and reaching out to them directly, representatives can quickly ascertain whether individuals have sustained losses and initiate processing. This interaction can assist victims who aren't able to easily access their policy information and, more important, can help to rapidly identify those in need of medical attention or immediate repair services.

On August 6th, 2013, the Minneapolis, MN, area experienced a severe weather event involving large hail, damaging winds and heavy rain. The Weather Company, in conjunction with Patinkin Research Strategies, surveyed 355 individuals who filed claims after the storm. The survey sought respondents' opinions about the services and capabilities provided by their insurance companies. Only 3 percent of respondents who had filed claims were contacted by their insurance carriers after the event. Given the advent of both mobile technology and more advanced analytics, proactive outreach can serve as a powerful customer retention tool for insurers.

Pre- and post-event touchpoints with customers provide important information about customer behavior and offer insights into contact preferences, product and service needs and brand image. An insurer can link information, including the number of alerts it sends to a specific device or location or the customer response to the alerts, to other sources of marketing data to obtain a more comprehensive view of the customer. The company can then use this information to develop new products, create cross-selling campaigns and even tailor collateral design and development to unique customer segments.

Proactive alerts about impending storms can provide significant savings for customers and insurance carriers.



Claims

In the past, weather-related events often left organizations in a catch-up mode, facing significant increases in call volumes and claims. Further, these unforeseen situations made it difficult to predict exactly where to align field resources, such as adjusters, to rapidly evaluate claims and provide short-term support to those impacted. Incorporating weather data into operational processes, such as workforce scheduling, third-party contracting and vehicle optimization, can help to decrease the delays associated with managing peak activity and provide assistance to those facing individual losses or business continuity disruptions.

At the same time, insurers can integrate weather and social media data, such as Twitter feeds, to assess the reputational risks of inadequate response times. Monitoring the social chatter of weather event victims can identify potential customer concerns and issues, enabling the organization to adjust its resources accordingly.

In addressing these claims-related issues, insurers can realize both tangible and intangible value. Reducing the time it takes to compensate individuals for their losses is more than a source of relief to those affected; it is, in fact, a source of direct revenue and customer retention (see Figure 2). The 2013 Minneapolis study demonstrated that when policyholders received compensation within one week of filing a claim, customer satisfaction rose 18 percent (from 75 percent to 93 percent) and referrals climbed 12 percent (from 84 percent to 96 percent). In addition, the likelihood of contacting legal assistance increases the longer it takes to begin payment. Further, ancillary costs, such as furniture storage, could be reduced if claims are handled sooner.

Figure 2

For insurers, the benefits of compensating customers quickly

Customer Satisfaction

Customers compensated within one week



Customers compensated after one week

Referrals

Customers compensated within one week



Customers compensated after one week

Source: IBM Institute for Business Value, based on information from The Weather Company and the Patinkin Research Strategies.

The ability to better understand and predict the impact of impending storms helps insurers adjust staffing and supply chain strategies to service policyholders quickly and efficiently.

Using weather data, insurers can apply advanced analytics to help them make better financial decisions and mitigate risk.



More importantly, when compensation took longer than one week, policyholders were three times more likely to shop around or switch insurance carriers (climbing to 15 percent from 5 percent). These responses highlight how important it is for insurers to be able to accurately forecast the impact of weather events and, more critically, tie those forecasts to operational activities that directly benefit the customer.

Risk management

Weather data can be used with advanced analytics to help insurers better manage financial assets. Traditionally, firms have used long-range forecasts to develop actuarial models that drive more effective product profitability and reinsurance placements, but weather data can also influence short-term financial decisions. The liquidity necessary to support rapid, on-site payments to claimants can also lead to significant cash flow needs for large events. As a result, firms must decide how much cash to set aside to pay claims. Too much in reserve increases the amount of cash on hand, which likely reduces investment income; too little, and the company may need to seek short-term financing or liquidate longer-term investment assets and incur higher-than-expected costs of funds. Advanced weather data can help an insurance company better manage its cash positions and determine optimal reserve amounts in advance of a storm.

In addition, weather data can play a role in preventing fraudulent claims. Knowing the road conditions at a given time and location, an insurer can improve the accuracy of accident reporting and confirm the presence of hazardous conditions.

On the road (again) – Telematics and the use of weather data

One of the most exciting applications of weather-related data is in the field of telematics. Increasingly, insurers are incorporating devices that can monitor driving behavior, and weather data can help further refine the results and offer additional context. For example, knowing that a customer is driving the legal speed limit under clear conditions is very different from realizing that the same driver is moving at that pace through a blizzard. Weather data plays an important role in refining the risk-scoring algorithms that evaluate driver behavior, as well as providing a record of actual conditions for claims investigations.

Further, an insurance company can gather a combination of weather, speed and location data from an individual vehicle or others in a connected network. The company can then use that information to alert drivers safely, using a voice prompt or similar technology, when they are approaching poor weather or road conditions. The technology could then help drivers decide whether to modify their speed, change their route or even locate food and lodging alternatives up ahead. Even if drivers choose not to opt-in for real-time traffic alerts, they could still use the information to evaluate options and plan future trips.

All of these capabilities will grow increasingly relevant as connected, and even driverless, cars become more prevalent. Freed from the mechanics of operating a vehicle, “drivers” will be available to select from an array of potential options during a journey.

Using weather data, insurance companies can alert drivers of conditions that may impact safety, avoiding accidents and increasing customer satisfaction.

More than the five-day forecast – What insurers should be looking for in weather data

What characteristics are necessary for weather data to power some of these new and emerging capabilities? Our experience indicates that the data needs to be:

- *Precise and location-specific.* Many organizations and individuals have access to weather data from various national weather services. While this data may be useful for general predictions, often it doesn't include the level of precision necessary to pinpoint areas where weather is likely to have specific impact. A lack of specificity in forecasting can lead to "false-positive" alerts that can actually discourage people from taking action. Weather can differ within a square quarter-kilometer, and these variations can change how a particular location experiences a weather event.
- *Timely.* Not only does weather data need to be location-sensitive, it also needs to be refreshed frequently to foster accurate prediction models and insights that are meaningful to users. Small shifts in wind direction, temperature and precipitation can have a significant bearing on where potential damage will occur, so it is critical to refresh the data frequently – every five minutes, for example – to adjust forecasting models and more accurately predict areas of impact.
- *Integrated.* Integration of weather data with other data streams creates a rich picture of the environment. The true value of weather data lies not in the data itself, but in its ability to combine with other sources of data to deliver new services and capabilities. Geospatial data together with weather data can provide real-time information about road conditions and potential hazards, as well as route alternatives. Weather and social media data together can provide unique insights into how effectively an insurer is meeting the needs of its customers during a weather event. Insurers can also combine weather data with operational data to help determine if it can muster the resources necessary to service large numbers of claims quickly.

-
- *Customizable.* Weather data is most valuable when users can access and apply it flexibly. Customers must be able to easily provide the locations for which they would like to receive weather-related data, as they may be interested in protecting both stationary assets such as a home or a place of business as well as cars, boats and other mobile assets. They may also want to select the type of weather data, customize alert levels and specify family members they would like to be notified. Further, customers may also want to specify how they receive weather data – whether it is through a landline, mobile phone, app, text message alert or even on a television. This level of personalization and customization can determine the extent to which individuals will react to weather notifications, influence subsequent behavior and reinforce their relationship with the insurance company.

Getting started: How insurance companies can take advantage of weather data

Insurers have multiple opportunities to apply weather data to attract and retain customers, improve operational effectiveness and more effectively manage risk. To prioritize these opportunities, insurance companies should consider taking the following steps:

- *Focus on the key pain points.* Insurers should examine potential opportunities for reducing costs, improving customer retention and developing new opportunities for engagement. Even companies that are adept at managing claims and customer-service operations may benefit from using weather data to more rapidly address client needs and allocate resources during high-volume events. Prioritizing these areas of concern and improvement can be the first important step in gaining sponsorship and prioritizing initiatives.
- *Prepare internal systems to use weather and other forms of data from the Internet of Things (IoT).* As weather and other forms of external data become less expensive and more available, organizations need to prepare their internal systems to be able to make the most of these new data sources, including data from weather sensors, automobiles, home sensors, appliances, mobile phones or even personal health devices. Organizations need to consider the current state of their overall IT infrastructure and determine whether existing platforms can rapidly process the data, analyze results and integrate with existing operations systems and processes.
- *Create a buzz – with your customers as well as your employees.* Like many natural phenomena, weather engenders visceral enthusiasm among some individuals. Identify those with a particular interest in weather, both inside and outside your organization, to participate in pilots and learn from experiments. Leverage their social media connections to amplify their positive experiences and portray your organization as a leader in this field.

Mitigating the chance of mishap

As insurers increasingly build similar products that compete against one another in the public marketplace, they will be looking for ways to differentiate their offerings. The ability to take advantage of advances in weather forecasting and advanced analytics and incorporate weather into decision-making processes can provide unique value to insurers and customers alike. Effectively incorporating weather data into a variety of insurance activities can mean the difference between remediation and prevention, and can help to mitigate the impact of events that are truly unpredictable and unavoidable. In short, the effective application of weather data can enable the insurer to offer unique value that centers on risk but improves customer retention and well-being.

Ready or not? Ask yourself these questions:

- What types of weather-related events are mostly likely to affect your customers?
- To what extent are you using weather-related data to connect directly with your policyholders?
- How could weather-related data have an impact on your ability to allocate resources during catastrophic events?
- To what extent are your existing processes and systems able to incorporate real-time weather-related data to improve decision making?

About the authors

Mark McLaughlin is IBM's Global Insurance Director. Mark leads IBM's Global Insurance team in predicting industry business and technology trends, leveraging those insights for the world's largest insurers and developing IBM solutions in the insurance vertical. Mark directs IBM strategic collaborations with senior industry leaders, bringing IBM's experience and innovation together to build sustainable competitive advantage for insurers. Mark also presents insurance industry research frequently to insurance conference audiences worldwide. Mark previously has led business units in insurance distribution and analytics, technology infrastructure, CRM and insurance business process. Mark has personally led implementations in strategy, program management, analytics, data warehousing, expert systems, commercial claims and underwriting for multiple top 20 U.S. insurers. He is a 20+ year veteran of the insurance industry. He can be contacted at mmclau@us.ibm.com.

Andy Rice is the Vice President, Products and Analytics for The Weather Company. He joined The Weather Company in 2012 with the acquisition of Weather Central, where he served as the Chief Product Officer. As Vice President of Products and Analytics, Andy is responsible for product management, technological innovation, brand strategy and strategic partnerships. His main focus is weather business intelligence products aimed at global energy trading, insurance and electric utilities. In his 15 years as a meteorologist, Andy held a wide variety of roles in the weather solutions industry, including sales, customer development and data science. Prior to joining Weather Central, he was a weather producer at CBS3 Television in Philadelphia, PA. He can be contacted at andy.rice@weather.com.

Eric Lesser is the Research Director and North American Leader for the IBM Institute for Business Value. He leads a global team of more than 50 professionals responsible for driving IBM's research and thought leadership across a range of industry and cross-industry topics. In addition to setting direction and providing oversight across the Institute for Business Value research portfolio, his most recent publications have focused on the impact of analytics, workforce and human capital issues, social business and enterprise mobility. Previously, he led IBM Global Business Services research and thought leadership in the area of human capital management. Eric can be contacted at elesser@us.ibm.com.

For more information

To learn more about this IBM Institute for Business Value study, please contact us at iibv@us.ibm.com. Follow @IBMIBV on Twitter and for a full catalog of our research or to subscribe to our monthly newsletter, visit: ibm.com/iibv

Access IBM Institute for Business Value executive reports on your phone or tablet by downloading the free "IBM IBV" app for iOS or Android from your app store.

The right partner for a changing world

At IBM, we collaborate with our clients, bringing together business insight, advanced research and technology to give them a distinct advantage in today's rapidly changing environment.

IBM Institute for Business Value

The IBM Institute for Business Value, part of IBM Global Business Services, develops fact-based strategic insights for senior business executives around critical public and private sector issues.

Contributors

IBM:

Christian Bieck, IBM Institute for Business Value Insurance Leader

Michael Dziekan, Program Director – Strategy & Market Development, Insight Services

Kim Minor, Global Insurance Marketing Manager, IBM Analytics

David Notestein, Executive Consultant, IBM Global Business Services

Sandip Patel, Global Industry Leader, Insurance, Health Care & Life Sciences, IBM Global Business Services

Rob Carson, Writer/Editor, IBM Sales and Distribution Marketing

The Weather Company:

Michelle Boockoff-Bajdek, Vice President, Global Marketing

Marty Denning, Director, Partner Marketing

Chip Mobley, Managing Director, Strategic Alliances

Reference

- 1 <http://www.iii.org/fact-statistic/catastrophes-global>; 2015 Munich Re, Geo Risks Research, NatCatSERVICE. As of June 2015.

© Copyright IBM Corporation 2015

IBM Global Business Services
Route 100
Somers, NY 10589

Produced in the United States of America
October 2015

IBM, the IBM logo and [ibm.com](http://www.ibm.com) are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml.

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

The information in this document is provided "as is" without any warranty, express or implied, including without any warranties of merchantability, fitness for a particular purpose and any warranty or condition of non-infringement. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.

This report is intended for general guidance only. It is not intended to be a substitute for detailed research or the exercise of professional judgment. IBM shall not be responsible for any loss whatsoever sustained by any organization or person who relies on this publication.

The data used in this report may be derived from third-party sources and IBM does not independently verify, validate or audit such data. The results from the use of such data are provided on an "as is" basis and IBM makes no representations or warranties, express or implied.

IBM