

Getting Ahead of the Weather

Reprinted from FORTUNE
February 7, 2005 Vol. 151 No. 3

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How companies are protecting themselves against the effects of extreme events and long-term changes.

AS TYPHOON NANMADOL SPUN ACROSS THE South Pacific last Thanksgiving, few people monitored it as closely as FedEx's meteorologists in Memphis. The company runs its Asian flights out of a single-runway airport nestled on a narrow strip between a mountainside and the Philippines' Subic Bay. When a bad storm rolls through, it can shut the place down. On Dec. 1, just 24 hours before the storm hit, managing director of global operations John Dunavant set his contingency plan in motion: Fourteen wide-body MD-11 airplanes and roughly 50 employees scrambled to Taipei, where FedEx could operate its hub without delays until the weather cleared. "Most of the time weather is forecasted," Dunavant says, calling weather the single greatest challenge in operating his 663 airplanes. "Since it is, we should always be able to proactively implement a solution." FedEx won't say what that flexibility means in dollars, but it has enabled the company to offer overnight Asian service, a core part of its international business. FedEx is far from the only company to employ meteorologists--UPS does, as do a smattering of agriculture and energy concerns. But it aims to respond more quickly than others. "This is the difference between us and a lot of other companies," Dunavant says. "They wait and see, and we move in advance."

Weather's effect on business is made painfully clear every time a catastrophe strikes. Not only do big storms cost billions in damages, but in addition, everyday events like snow squalls take their own toll on sales and profits. The National Oceanic and Atmospheric Administration estimates that a third of U.S. gross domestic product is affected by the weather--slowed transportation, inflated energy costs, interrupted sales, and so on. The word "unseasonable" turned up in more than 120 companies' regulatory filings in the past six months. And companies from Coke to Sears blamed slowed sales on the weather last year. Even Community Health Systems, one of the largest rural hospital groups in the country, explained lower admissions figures last summer with "weather." (The cooler summer meant fewer respiratory problems, evidently.)

Invoking a weather excuse generally earns a pass from Wall Street; after all, what can businesses do about the forces of nature? Well, it turns out that they can actually do a lot. Advances in technology are bringing a slew of solutions to weather risk--from better forecasting to complex investments that pay out when weather hurts business. Lots of executives may not know it yet, but these days it's possible to hedge against a rainy day. A storm's path can be charted with some precision. And a baneful force like El Niño can be predicted six months in advance.

At the same time that companies are finally starting to deal with their weather risk, though, the

weather is getting more volatile. The weather has, simply, been more intense lately. "We build our facilities for 100-year events," says Kenny Lang, vice president of Mexico deep-water production for BP, whose oil platforms weathered the eye of Hurricane Ivan. "This seemed more like a 500-year storm. We've never experienced anything like that before." According to Vice Admiral Conrad Lautenbacher, head of NOAA, we are entering a cyclical period of extreme weather in the Atlantic that could last another 30 years. "I don't look at that as the end of civilization or our ability to ensure the core of our economy," he says. "But we are in a period of higher risk right now." Six hurricanes made landfall in the U.S. in 2004--the most since 1985--and nine of the hottest years on recent record were in the past decade, according to insurance giant Swiss Re.

The economic toll is dramatic. Last season's hurricanes caused \$56 billion in damages. The European heat wave of 2003 cost economies there roughly \$20 billion. And 2004 was the most expensive year ever for the insurance industry; it will pay out roughly \$39 billion in claims related to natural disasters globally.

Swiss Re places at least part of the blame for the volatility on global warming: "Climate change is going to increase the variability of weather events," says Gerry Lemke, deputy head of catastrophe and perils for Swiss Re in the U.S. Lemke says events like Europe's 2003 heat wave could occur biannually by the end of the century. Global warming may also be to blame for the kind of precipitation that has been drowning California since Christmas. But whatever the cause, the wild weather vastly complicates the business of coping with weather risk. Says James Cameron, director of Climate Capital, a banking and advisory group specializing in climate- and energy-related issues: "It's difficult to adequately spread risk when they are working on historical data that's vulnerable to the very change they are concerned about."

The need to deal with these variables better has spawned a rapidly growing industry of weather consultant companies. There are roughly 80 weather-risk-associated businesses today, up from just a handful ten years ago, according to Lautenbacher. Planalytics, for example, builds intricate computer models that both predict the weather and tell companies what its impact will be on their operations. To use a simple example, Planalytics might alert a retailer that winter is likely to linger in the Northeast and advise the company to postpone markdowns on warm clothes. "Businesses are starting to realize that weather is in fact a reason for performance," says Frederic Fox, Planalytics' CEO. "It can be quantified, it can be forecast, and it can be utilized to do things differently." His clients include companies like Johnson & Johnson, Home Depot, and a small aluminum can sheeting manufacturer called Wise Metals Group.

Wise CEO David D'Addario hired Planalytics last year to help the company manage its natural gas purchases. Wise's gas bill runs \$3 million a month, and prices fluctuate sharply with the weather. Planalytics provides software that helps Wise plan gas buys in advance of changing temperatures. But weather can affect just about every aspect of Wise's operations. For example, Wise's Alabama plant supplies one in every five soda cans used in the U.S. When last year's cool summer in the Southeast led to a slump in beverage sales (Coca-Cola Bottling's sales dropped 1.3%, and the company cited the weather, in part), Wise took a 7% to 10% revenue hit. Meanwhile a cold front can ruin D'Addario's aluminum stock by causing condensation. And when a bay in northern Russia freezes, boats carrying Wise's primary aluminum can't get out.

Now Planalytics helps Wise counter many of these risks with advance forecasting and analysis of related industries like shipping and retail. How much the company has saved remains private, but "let's just say it's paid for their subscription in one shot," says Planalytics vice president William Bagnell, who adds that his services cost from \$135,000 to \$1 million a year.

While companies like Wise or FedEx alter their operations to adapt to weather risk, others use financial tools like catastrophe bonds and derivatives to protect themselves. Insurers will sell cat bonds, as they are called, to offset the potential claims from a specific occurrence. The buyers of cat bonds--typically hedge funds and institutional investors--receive hefty interest of up to 15% a year. If the event--say, a category-four storm striking downtown New Orleans--takes place, the insurer keeps the principal, which generally ranges from \$50 million to \$600 million. If the disaster does not happen during the life of the bond, the money goes back to the buyer. Consulting firms like Boston-based AIR Worldwide help design catastrophe bonds based on the likelihood of the event and the damage it might cause.

Companies outside the insurance industry are starting to use catastrophe bonds as well. Vivendi, for example, used a cat bond in 2002 to protect its Los Angeles studios against a major earthquake and the business interruption that would follow, and FIFA, the soccer world's governing body, is using a \$260 million cat bond to insure against disruption of the 2006 World Cup tournament in Germany.

But by far the fastest-growing market for hedging weather risk is weather derivatives. The instruments are headachingly complicated, but the idea is simple: If you could be harmed by, say, a long dry spell because you sell umbrellas, then you buy a contract that pays out after a number of sunny days. Weather derivatives were invented by Enron to hedge its gas risk during the 1997 El Niño, and they are still most commonly used in the energy and agriculture industries, where the correlation between weather trends and profits is fairly direct. But contracts are getting more intricate and more creative. In Europe last year a builder's union bought a \$100 million contract to protect against work stoppages resulting from frigid weather. And in Norway a salmon fishery is developing a contract for a single degree of warming in sea temperatures--a difference that can affect fish body weight, according to Steve Jewson, director of weather risk at Risk Management Solutions, who designed the contract. Most weather contracts are private, and because companies don't like discussing their soft spots, details are scarce. But according to the Weather Risk Management Association, the market has grown fourfold over the past six years, to roughly \$4.5 billion last year. Simple contracts for what's called heating and cooling degree days--or the days above and below an average temperature--are sold on the Chicago Mercantile Exchange. Trading volume in such contracts has risen 229% in the past year. Now, with investments of just a few thousand dollars, small businesses or even individuals can afford to hedge with weather derivatives.

Despite the growing availability of these tools, comparatively few executives seem to be taking advantage of them. On the one hand, weather hedging requires intense meteorological analysis and a high level of investment sophistication. And at the same time the idea prevails that weather is beyond management's reach; the weather excuse continues to be used with seeming impunity. Morgan Stanley retail analyst Gregory Fowlkes says at least half the department stores he covers regularly flash the weather card to explain poor earnings.

But the days of getting a pass on the weather may be coming to an end. "When companies point to weather it is in the hope that Wall Street will look at it as something beyond their control," says A.G. Edwards transportation analyst Donald Broughton. "Poor operators use it as a crutch--a reason for why they can't put numbers on the board." Since shareholders routinely demand that management understand other sorts of complicating factors--commodity fluctuations, currency changes, and even demographic spending habits--will the weather excuse stop working? AIR CEO Karen Clark says executives are obliged to look at all the risks that affect them. "If there is a way to manage it, it should be managed."

Looking at it another way, dealing with weather head-on presents an opportunity for a company to gain a competitive advantage. According to Matthew Kiernan, CEO of the New York City--based investment firm Innovest and an expert on the finances behind climate risk, the companies that soften their weather-related volatility first will open a gap between themselves and rivals. "Climate change is a monster risk issue, but the flip side of risk is always opportunity," he says. "Like the advent of the railroads and the Internet, climate and weather risk are the harbingers of a worldwide industrial restructuring, and that presents opportunities for those alert enough to seize them."

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