

January 10, 2013

# Heat, Flood or Icy Cold, Extreme Weather Rages Worldwide

By SARAH LYALL

WORCESTER, England — Britons may remember 2012 as the year the weather spun off its rails in a chaotic concoction of drought, deluge and flooding, but the unpredictability of it all turns out to have been all too predictable: Around the world, extreme has become the new commonplace.

Especially lately. China is enduring its coldest winter in nearly 30 years. Brazil is in the grip of a dreadful heat spell. Eastern Russia is so freezing — minus 50 degrees Fahrenheit, and counting — that the traffic lights recently stopped working in the city of Yakutsk.

Bush fires are raging across Australia, fueled by a record-shattering heat wave. Pakistan was inundated by unexpected flooding in September. A vicious storm bringing rain, snow and floods just struck the Middle East. And in the United States, scientists confirmed this week what people could have figured out simply by going outside: last year was the hottest since records began.

“Each year we have extreme weather, but it’s unusual to have so many extreme events around the world at once,” said Omar Baddour, chief of the data management applications division at the World Meteorological Organization, in Geneva. “The heat wave in Australia; the flooding in the U.K., and most recently the flooding and extensive snowstorm in the Middle East — it’s already a big year in terms of extreme weather calamity.”

Such events are increasing in intensity as well as frequency, Mr. Baddour said, a sign that climate change is not just about rising temperatures, but also about intense, unpleasant, anomalous weather of all kinds.

Here in Britain, people are used to thinking of rain as the wallpaper on life’s computer screen — an omnipresent, almost comforting background presence. But even the hardest citizen was rattled by the near-biblical fierceness of the rains that bucketed down, and the floods that followed, three different times in 2012.

Rescuers plucked people by boat from their swamped homes in St. Asaph, North Wales. Other areas of the country were cut off when roads and train tracks were inundated.



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Mevagissey, Cornwall, a pub owner closed his business for good after it flooded 11 times in two months.

It was no anomaly: the floods of 2012 followed the floods of 2007 and also the floods of 2009, which all told have resulted in nearly \$6.5 billion in insurance payouts. The Met Office, Britain's weather service, declared 2012 the wettest year in England, and the second-wettest in Britain as a whole, since records began more than 100 years ago. Four of the five wettest years in the last century have come in the past decade (the fifth was in 1954).

The biggest change, said Charles Powell, a spokesman for the Met Office, is the frequency in Britain of "extreme weather events" — defined as rainfall reaching the top 1 percent of the average amount for that time of year. Fifty years ago, such episodes used to happen every 100 days; now they happen every 70 days, he said.

The same thing is true in Australia, where bush fires are raging across Tasmania and the current heat wave has come after two of the country's wettest years ever. On Tuesday, Sydney experienced its fifth-hottest day since records began in 1910, with the temperature climbing to 108.1 degrees. The first eight days of 2013 were among the 20 hottest on record.

Every decade since the 1950s has been hotter in Australia than the one before, said Mark Stafford Smith, science director of the Climate Adaptation Flagship at the Commonwealth Scientific and Industrial Research Organization.

To the north, the extremes have swung the other way, with a band of cold settling across Russia and Northern Europe, bringing thick snow and howling winds to Stockholm, Helsinki and Moscow. (Incongruously, there were also severe snowstorms in Sicily and southern Italy for the first time since [World War II](#); in December, tornadoes and waterspouts struck the Italian coast.)

In Siberia, thousands of people were left without heat when natural gas liquefied in its pipes and water mains burst. Officials canceled bus transportation between cities for fear that roadside breakdowns could lead to deaths from exposure, and motorists were advised not to venture far afield except in columns of two or three cars. In Altai, to the east, traffic officials warned drivers not to use poor-quality diesel, saying that it could become viscous in the cold and clog fuel lines.

Meanwhile, China is enduring its worst winter in recent memory, with frigid temperatures recorded in Harbin, in the northeast. In the western region of Xinjiang, more than 1,000 houses collapsed under a relentless onslaught of snow, while in Inner Mongolia, 180,000 livestock froze to death. The cold has wreaked havoc with crops, sending the price of vegetables soaring.

Way down in South America, energy analysts say that Brazil may face electricity rationing for the first time since 2002, as a heat wave and a lack of rain deplete the reservoirs for hydroelectric plants. The summer has been punishingly hot. The temperature in Rio de Janeiro climbed to 109.8 degrees on Dec. 26, the city's highest temperature since official records began in 1915.

At the same time, in the Middle East, Jordan is battling a storm packing torrential rain, snow, hail and floods that are cascading through tunnels, sweeping away cars and spreading misery in Syrian refugee camps. Amman has been virtually paralyzed, with cars abandoned, roads impassable and government offices closed.

Israel and the Palestinian territories are grappling with similar conditions, after a week of intense rain and cold winds ushered in a snowstorm that dumped eight inches in Jerusalem alone.

Amir Givati, head of the surface water department at the Israel Hydrological Service, said the storm was truly unusual because of its duration, its intensity and its breadth. Snow and hail fell not just in the north, but as far south as the desert city of Dimona, best known for its nuclear reactor.

In Beirut on Wednesday night, towering waves crashed against the Corniche, the seaside promenade downtown, flinging water and foam dozens of feet in the air as lightning flickered across the dark sea at multiple points along the horizon. Many roads were flooded as hail pounded the city.

Several people died, including a baby boy in a family of shepherds who was swept out of his mother's arms by floodwaters. The greatest concern was for the 160,000 Syrian refugees who have fled to Lebanon, taking shelter in schools, sheds and, where possible, with local families. Some refugees are living in farm outbuildings, which are particularly vulnerable to cold and rain.

Barry Lynn, who runs a forecasting business and is a lecturer at the Hebrew University's department of earth science, said a striking aspect of the whole thing was the severe and prolonged cold in the upper atmosphere, a big-picture shift that indicated the Atlantic Ocean was no longer having the moderating effect on weather in the Middle East and Europe that it has historically.

"The intensity of the cold is unusual," Mr. Lynn said. "It seems the weather is going to become more intense; there's going to be more extremes."

In Britain, where changes to the positioning of the jet stream — a ribbon of air high up in the atmosphere that helps steer weather systems — may be contributing to the topsy-turvy weather, people are still recovering from the December floods. In Worcester last week, the river Severn remained flooded after three weeks, with playing fields buried under water.

In the shop at the Worcester Cathedral, Julie Smith, 54, was struggling, she said, to adjust to the new uncertainty.

“For the past seven or eight years, there’s been a serious incident in a different part of the country,” Mrs. Smith said. “We don’t expect extremes. We don’t expect it to be like this.”

*Reporting was contributed by Jodi Rudoren from Jerusalem; Irit Pazner Garshowitz from Tzur Hadassah, Israel; Fares Akram from Gaza City, Gaza; Ellen Barry and Andrew Roth from Moscow; Ranya Kadri from Amman, Jordan; Dan Levin from Harbin, China; Jim Yardley from New Delhi; Anne Barnard from Beirut, Lebanon; Matt Siegel from Sydney, Australia; Scott Sayare from Paris; and Simon Romero from Rio de Janeiro.*

*This article has been revised to reflect the following correction:*

***Correction: January 11, 2013***

An earlier version of this article misstated part of the name of the organization for which Omar Baddour works. It is the World Meteorological Organization, not the World Meteorological Association. It also misspelled the name of a location in Cornwall, England. It is Mevagissey, not Megavissey.