

In the Vortex of Climate Change

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Credit: Curt Meine

Over eleven days in late August, four major storms raked across central and southern Wisconsin, each dumping multiple inches of rain. Late in the afternoon of August 20, a record-breaking deluge of more than eleven inches in just four hours hit western Dane County.¹ On August 26-27, parts of Ozaukee and Washington Counties north of Milwaukee received nearly nine inches of rain.² On the evening of August 27, portions of La Crosse, Vernon, Monroe, and Juneau Counties were struck by between five and twelve inches of rain.³ Flooding has inundated communities across the state, from the Mississippi River in the west to the Madison lakes to Lake Michigan in the east.

Such extreme precipitation events have occurred with increasing frequency over the last decade. In August 2007, up to twelve inches flooded over the coulees of western Wisconsin. In June 2008, twelve inches of rain—with some localities reporting sixteen inches—fell in Sauk County, where I live. Seven inches in June 2009 in Milwaukee County. Seven more there again in July 2010. Historic rainfalls across the state in June 2013.⁴ Up in Douglas and Bayfield Counties, extreme rainfall events have recurred: June

2012, July 2016, June 2018. After the last of these, when fifteen inches of rain fell in three days, Minnesota Public Radio's headline read: "Our latest significant flash flood event tore up roads and bridges in northeastern Minnesota and northwestern Wisconsin."⁵ Wisconsin Public Radio countered with: "Once-In-A-Lifetime Rains Falling Frequently on Northern Wisconsin."⁶ The Minnesota Department of Natural Resources State Climatology Office reported that, over the years 2000-17, nearly three times as many "mega-rain" events in that area occurred compared to the years 1973-99.⁷ The most recent (2014) National Climate Assessment reported a comparable and significant 37% percent increase in the amount of precipitation falling in very heavy events in the Midwest between 1958 and 2012.⁸

Ever conservative in linking specific events to long-term climate patterns, scientists are cautious in assessing the statistical significance of even such increasingly compelling data points. They are more willing, however, to make broad statements of concurrence along the lines of: "These trends are consistent with the probability that our region will receive more precipitation, and experience more frequent extreme precipitation events, in response to rising global temperatures and the increasing moisture-holding capacity of the atmosphere." Increasingly scientists find themselves in the position that NASA's James Hansen found himself in when he famously testified on climate change before the U.S. Senate in the summer of 1988. They are deeply aware of scientific uncertainty, yet equally conscious of probabilities involving the future we face, based on the most sophisticated scientific methods and advanced climate models.

These days, in Wisconsin, no one in any position of authority in state government is able or willing to speak of the impacts—real or potential—of climate change. However, dedicated scientists and other citizens may still compile information, weigh evidence, analyze patterns, and consider likely futures. The Wisconsin Initiative on Climate Change Impacts, a consortium of state and university scientists, concluded, long before these most recent events, that the region will likely experience wetter conditions and more intense rainfall episodes. (Along with other trends, including significant increase in heat waves, warmer nighttime and winter temperatures, and increased rain during the winter.⁹

Steve Vavrus, an atmospheric scientist at the University of Wisconsin-Madison, addresses the constant and difficult matter of attributing cause. "It's so difficult to give a 'yes' or 'no' answer to the question I frequently get: Can we attribute extreme events to global warming? The answer is usually yes and no. We can never prove that a certain event occurred because the climate is changing, but hopefully, we can determine how much climate change has loaded the dice for these events to occur."¹⁰ Episodes like those that we are witnessing now—and that we experience with increasing frequency—bring the message home. We find ourselves at the outer edge of the intensifying global storm of climate change. Human awareness and understanding of long-term change is now drawn increasingly into the vortex of daily events and personal experience. As summer's intense rains give way to the fall, the question is: what must we in Wisconsin do, now, to respond to the change that is upon us.

Contributed by Curt Meine. Curt is a member of Wisconsin's Green Fire's Climate Change Work Group. He lives and works in Sauk County.

¹ "[Dane Co. breaks state record for heaviest rainfall in 24 hours](#)," WMTV/NBC15, 21 August 2018,

² James B. Nelson and Jeff Ramage, "[Storm drops nearly 9 inches of rain and more – maybe much more – is on the way](#)," *Milwaukee Journal Sentinel*, 27 August 2018.

³ Dorothy Robson, "[Flash flooding devastates Coon Valley](#)," *La Crosse Tribune*, 27 August 2018.

⁴ See the National Weather Service's webpage "[Historical Events Across Southern Wisconsin](#)."

⁵ Paul Huttner, "[Another 1 in 1,000-year rainfall event](#)," *MPR News*, 19 June 2018.

⁶ Danielle Kaeding, "[Once-In-A-Lifetime Rains Falling Frequently on Northern Wisconsin](#)," *WPR News*, 20 June 2018.

⁷ Minnesota Department of Natural Resources, "[Historic Mega-Rain Events in Minnesota](#)," accessed 29 August 2018.

⁸ Melillo, J.M., Richmond, T.C. and Yohe, G.W. 2014. *Climate Change Impacts in the United States: The Third National Climate Assessment* (Washington, DC: U.S. Global Change Research Program). See Ch. 2 discussion "[Heavy Downpours Increasing](#)."

⁹ See the WICCI website at <https://www.wicci.wisc.edu/climate-change.php>.

¹⁰ Quoted in Carolyn Rumery Betz, "Coping with Extremes," WICCI website at <https://www.wicci.wisc.edu/Extremes.php>