

# Column: Why the extreme weather?

By Richard Alley

Updated 4/19/2012 11:30 AM

Comment



Did humans contribute to the record heat of March and the strength of April's tornadoes across much of the U.S.? Science still says, "Maybe, maybe not." But we're rolling the dice in a serious game where the "jackpot" means we lose.



By Mike Hutmacher, AP

Tornado survivors: Richard Keith helps sister-in-law Mitzi Keith on Monday in Wichita. There were at least 120 reports of Midwest tornadoes this weekend, primarily in Kansas.

### Sponsored Links

### USATODAY OPINION

#### Columns

In addition to its own editorials, USA TODAY publishes a variety of opinions from outside writers. On political and policy matters, we publish opinions from across the political spectrum.

Roughly half of our columns come from our Board of Contributors, a group whose interests range from education to religion to sports to the economy. Their charge is to chronicle American culture by telling the stories, large and small, that collectively make us what we are.

We also publish weekly columns by Al Neuharth, USA TODAY's founder, and DeWayne Wickham, who writes primarily on matters of race but on other subjects as well. That leaves plenty of room for other views from across the nation by well-known and lesser-known names alike.

#### Columnists

How to submit a column

There's very high scientific confidence that our fossil-fuel burning and other activities, which add carbon dioxide to the air, are turning up the planet's thermostat. In a warmer world, we expect more record highs and heat waves but fewer record lows, just as we're observing. Warmer air can carry more water vapor, so a warmer rainstorm can deliver more inches per hour. Hair dryers have a "hot" setting for good reasons, and warmer air between rainstorms can dry out the ground faster.

Thus, we expect rising CO2 to bring more floods in some places and more droughts in others, with some places getting more of both. That might seem contradictory, but it's not. And with more energy to drive hurricanes, the peak winds may increase, even if the number of storms drops.

But couldn't nature have caused the ongoing changes without our help? Imagine playing dice with a shady character. Suppose, after you lose, you discover that some of the corners are filed off and there are carefully positioned weights inside. In court, your lawyer could say, "The dice were loaded, double-sixes came up three times in a row, so the defendant owes restitution."

His lawyer, however, might counter, "My client doesn't recall where he got the dice, the modifications are really quite small, dice games do happen, so my client is innocent and should get to keep all the money plus the plaintiff's wallet."

#### Loaded odds

Out in the climate, the dice are being loaded to favor some unusual events. We can't prove that global warming caused any single new record, just as we can't prove that the weighted dice caused a run of double-

sixes. But for many extreme weather events such as record heat, it is much harder to prove that our CO2 is innocent, just as it is very hard to prove that loaded dice didn't affect the game.

Science doesn't have a good understanding of warming's impact on the occurrence and strength of small, fierce storms such as tornadoes, so it would be very difficult to show a human fingerprint in the severity of the recent outbreaks. But extra heat and water vapor are up there, so it could be harder to show that we haven't boosted the destructive power.

More important, if we continue to burn fossil fuels and release the CO2 to the air, we're loading the dice more and more. For any "business as usual" scenario, the coming changes are projected to be much bigger than those that have occurred so far. Today's youngsters might live to see so much warming that the hottest summer now on record becomes commonplace or even cool in many places.

But here's the difference between dice and climate, between Earth and Las Vegas. Even if gamblers avoid shady dice games and play at a state lottery or a licensed casino, many do lose money, but they can quit while they still have bus fare, and there's a slight chance of striking it rich. We expect the climate changes from our CO2 to be costly, but we can limit those costs by including the best science in our planning, leaving us with much more than bus fare, and pointing to a sustainable and prosperous future.

#### Race against time

Unfortunately, if three rotten cherries come up on the climate slot machine before we master sustainable energy, we could lose the jackpot. Science hasn't found a plausible way for rapidly rising CO2 to turn Earth into Eden, but there is at least a slight chance of a rapidly collapsing ice sheet flooding the coasts, or widespread droughts and heat stress risking famine, or other very large problems.

Much of my research, and that of many colleagues, has been devoted to replacing these worrisome "what ifs" with hard numbers. And in some cases, the worries have grown smaller as we learned more. But in other cases, the worries are still there and might even be bigger.

Even so, the best science is clear. We get many benefits from burning fossil fuels, but the CO2 is projected to change the climate in costly ways. As the easy fossil fuels are exhausted, more and more we will want sustainable alternatives.

Careful lottery players check the jackpot and their cash reserves before buying the next ticket. But though the scientific community is working to calculate the odds in the climate game, society is still rolling the increasingly loaded dice through accelerating fossil-fuel burning.

It could make you wonder who the real gamblers are.

*Richard Alley, a glaciologist at Penn State University, is a fellow of the American Academy of Arts and Sciences and a member of the National Academy of Sciences. He is also host of the PBS mini-series Earth: The Operators' Manual.*

For more information about reprints & permissions, visit our FAQ's. To report corrections and clarifications, contact Standards Editor Brent Jones. For publication consideration in the newspaper, send comments to letters@usatoday.com. Include name, phone number, city and state for verification. To view our corrections, go to corrections.usatoday.com.

Posted 4/18/2012 5:43 PM | Updated 4/19/2012 11:30 AM

### Sponsored Content

**Sean Payton files for divorce from wife of nearly 20 years** *USATODAY.COM in The Huddle*

**Analyst: Randy Moss gives Titans three-headed offensive monster** *USATODAY.COM in The Huddle*

**Vote: Will Cowboys regret cutting C Andre Gurode?** *USATODAY.COM in The Huddle*

**CBS analyst Phil Simms, Desmond Howard get into 'heated' dispute** *USATODAY.COM in The Huddle*

### Sponsored Content

**Dental Implants for Seniors Are Paid By Medicare in San Francisco (See How)** *Senior Dental Implants | Sponsored ads*

**Urologist: Try This If You Have An Enlarged Prostate (Watch)** *Prostate Ultra*

**Cable TV is Dying. Here's What We Think Is Next (and It's Not Netflix!)** *The Motley Fool*

**41 Old Toys That Are Worth More Than Your House** *BleacherBreaker*

**[Photos] This Is What Your Sitting Position Can Tell You** *HealthyGem*

**[Photos] 15 Celebs Who Are Gay That You Probably Didn't Know** *StarsBuster - the star life*



USA TODAY is now using Facebook Comments on our stories and blog posts to provide an enhanced user experience. To post a comment, log into Facebook and then "Add" your comment. To report spam or abuse, click the "X" in the upper right corner of the comment box. To find out more, read the FAQ and Conversation Guidelines.

### Sponsored Links

### USA TODAY Digital Services

Mobile | E-Newsletters | RSS | Twitter | Podcasts | Widgets | e-Edition | USA TODAY for iPad | Kindle Edition | Subscribe to Home Delivery  
Reprints & Permissions | USA TODAY Topics | Reporter Index | Corrections/Clarifications | Contact Us | Archives

### Videos you may be interested in

More videos

### Most Popular

#### Stories

■ HF Test

#### Videos

- Ed Baig reviews Kindle Paperwhite
- 'Pregnant man' struggles through nasty divorce
- Tennis Channel Court Report 9-30-2012

#### Photos

- Dramatic weight-loss success stories
- Unrest in Syria
- Editorial Cartoons

### Most Popular E-mail Newsletter

#### Sign up to get:

Top news stories, photo galleries and community posts of the day

#### Most popular right now:



Sign up for USA TODAY E-mail newsletters

