



BLOG

Paul Douglas on Weather[\(http://www.startribune.com/blogs/Paul_Douglas_on_Weather/\)](http://www.startribune.com/blogs/Paul_Douglas_on_Weather/)

From Postcard-Perfect to a Hot, Wet Mess: 2-3" Rain by Memorial Day?

By Paul Douglas | MAY 22, 2016 — 11:25PM

**By Any Measure Its Been an Extraordinary Spring**

The MGE (Meteorological Goldilocks Effect) is elusive. It's hard getting the weather just right - for everyone. But somehow we just threaded the eye of the needle. A meager 36 inches of winter snow. A mere 5.9 inches of slush since March 1. No river flooding. An early ice-out. No severe storm warnings across most of Minnesota (the quietest spring, to date, since 1997). And adequate moisture for farmers with spring planting AND an abundance of lukewarm, sunny days.

Even the the dour, negative people in my life have been seen grinning.

The high pressure honeymoon is over. This week will be a puddle-pockmarked reality check with (numerous) showers and T-storms. The best chance of rain: later today, Wednesday, again Saturday. ECMWF guidance hints at a clearing trend Sunday with sticky sun much of Memorial Day and highs near 80F; probably the best day of the holiday weekend.

Over the next week I could see some 1-3 inch rainfall amounts as hot, humid air approaches.

But what a spell of weather. "Paul, this is why we stay..." someone mentioned Sunday. A reminder of how good it can be.

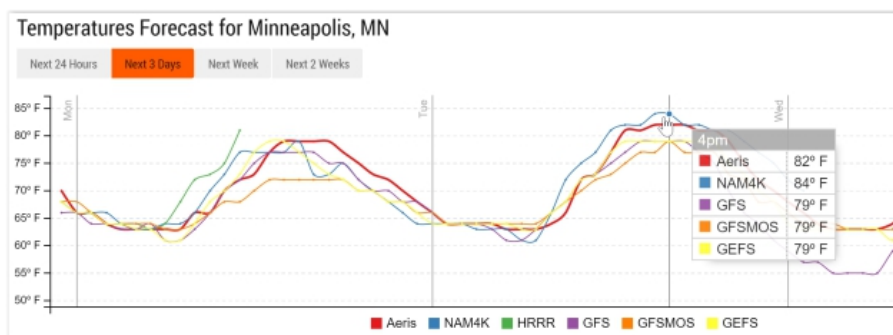
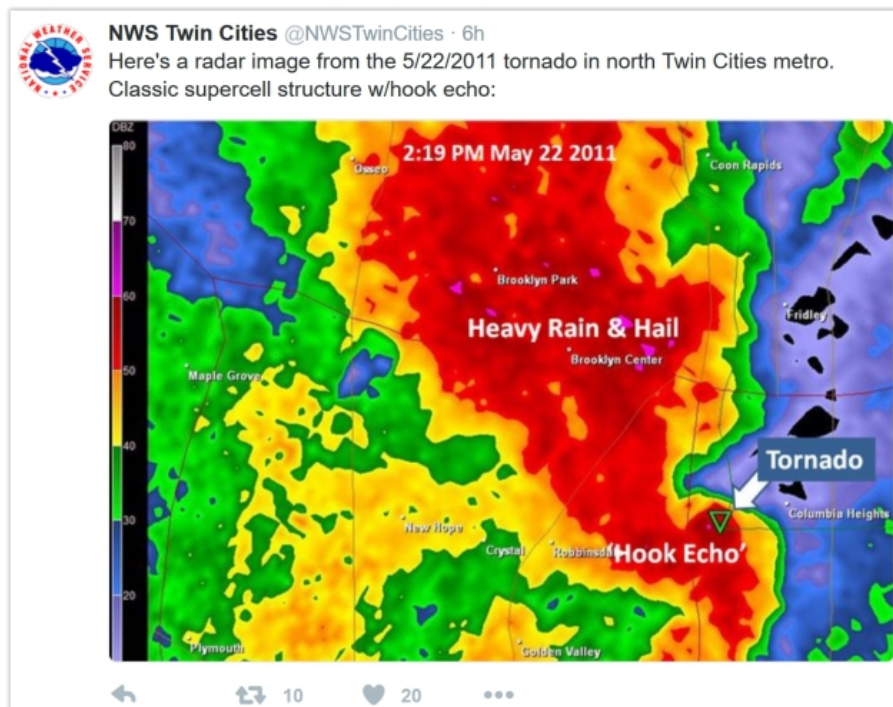
5th Anniversary

North Minneapolis Tornado – May 22, 2011

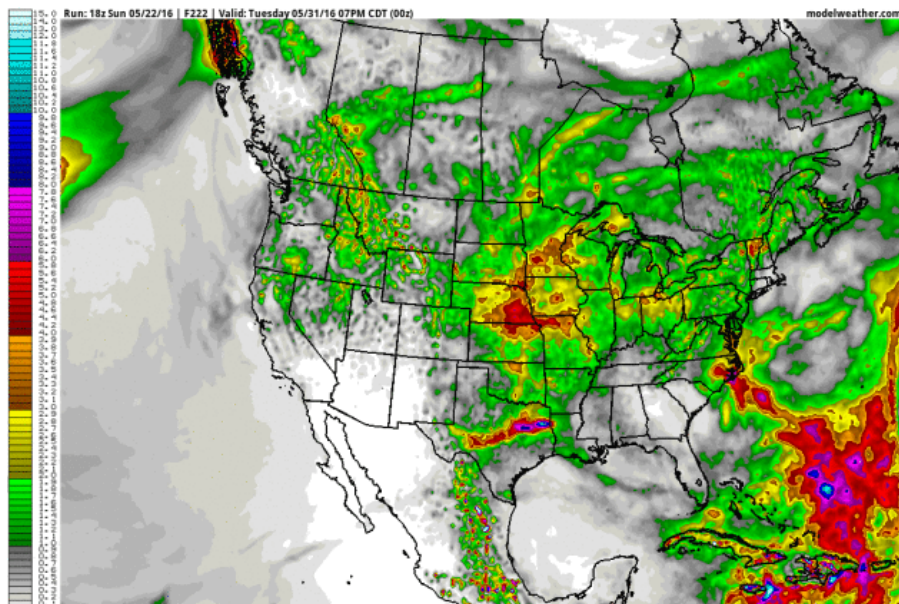
Quick Facts

The tornado touched down in Saint Louis Park near I-394 and HWY 100, moved through Golden Valley, North Minneapolis, Fridley, Mounds View and Blaine.

Strength: EF1 (winds = 110 mph)	Path length: 14 miles	Width: ½ mile
Damage: \$166 Million	48 injuries	1 fatality

80s Return Tuesday. Clouds and showers keep us a few degrees cooler today, but the sun peeks out Tuesday with highs in the low to mid 80s (and summerlike levels of humidity).



Southern Firehose of Moisture. Today is just the soggy appetizer; heavier rain is likely Wednesday, again late Friday into Saturday night as a storm spins up close to home. GFS guidance suggests 2-3" rainfall amounts for much of Minnesota over the next 10 days. Loop: NOAA and AerisWeather.

My Account

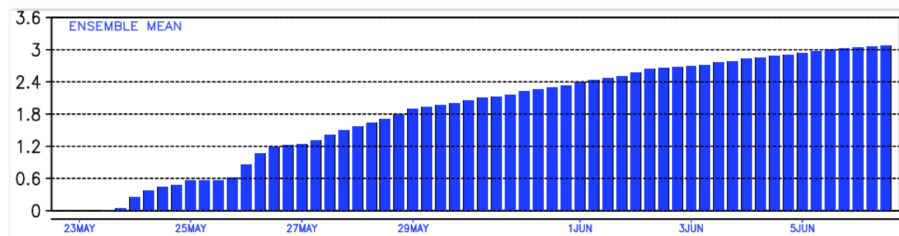
High Precipitation for Minneapolis, MN

A **High Precipitation** alert is active for Minneapolis, MN.

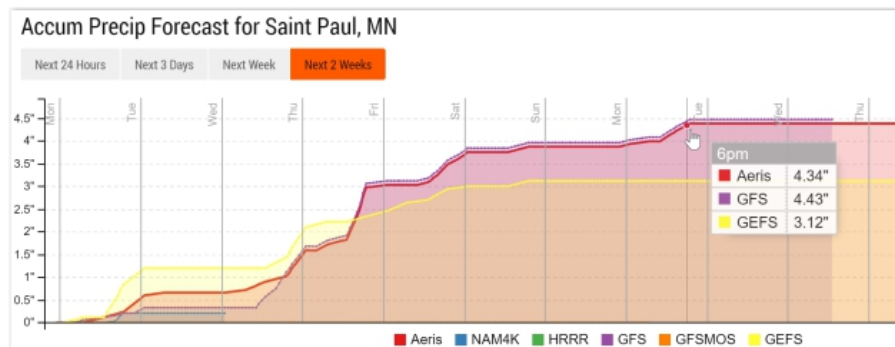
The Precipitation is forecast to be greater than 1in on Wed, May 25th at 7:00pm and is forecast to reach 1in on Wed, May 25th at 7:00pm.

For more information, please visit [Aeris Alerts](#).

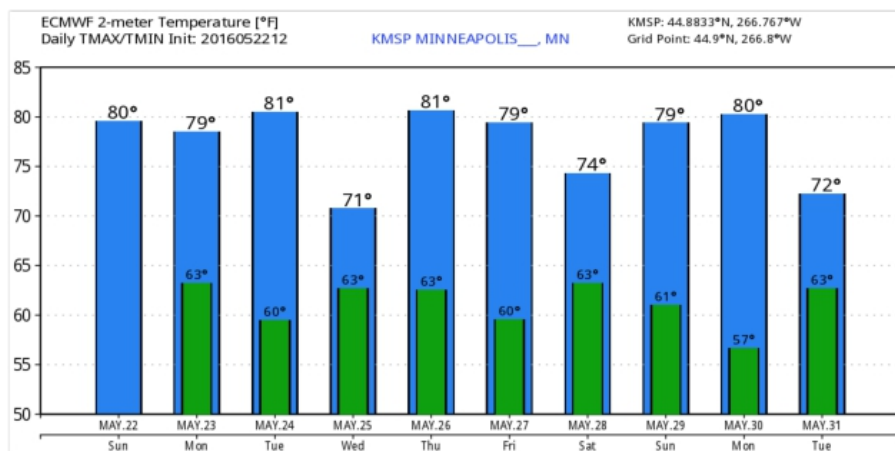
Character-Building Commutes This Week. We will pay a price for 1 week of nearly perfect weather. Our internal model ensemble prints out 1" of rain by Wednesday at 7 pm.



ECMWF: 3" Rains Next 2 Weeks. European and NOAA guidance is in close alignment, showing significant rains the next 1-2 weeks as Minnesota teeter-totter on the edge of very warm (sticky) air just to our south, sparking frequent outbreaks of showers and T-storms. Source: WeatherBell.



Like Flipping on a Light Switch. No rain for a week, now the flood gates open. NDFD and GFS data suggest more than 4" of rain in the Twin Cities by Memorial Day. Mother Nature's way of celebrating a major holiday weekend. Model data: NOAA and Aeris Enterprise.



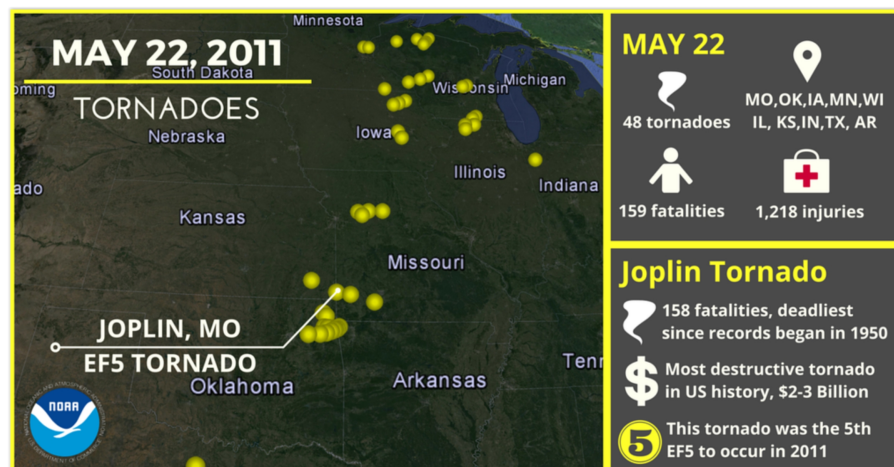
My Kind of Cold Front. No sign of any primal-scream-inducing cold fronts; Wednesday forecast to be the coolest day with steadier, heavier rain possible. 80F on Memorial Day? If the sun comes out for a few hours it's a distinct possibility. ECMWF temperature forecast for KMSP: WeatherBell.



No Place for Complacency. Here's an excerpt of an e-mail Dr. Kenny Blumenfeld sent me late last week, outlining a supernaturally quiet severe weather season, to date, in and around the Twin Cities - and the potential peril of letting our guard down: *"The other night I stumbled upon something that may interest you: the MPX CWA has had one severe thunderstorm warning so far this year, which makes it the second latest we've been with so few severe thunderstorm warnings (note: not tornado warnings) since 1986. The first one in 1997 wasn't issued until June! Lest we make too much of this, it's worth noting that despite*

its lateness, 1997 produced an exceptionally destructive severe weather and rainfall event on July from central MN into the Metro on July 1. That system produced over a dozen tornadoes, many of which were significant, and extreme straight-line winds, along with 100-year/1-hour rainfalls. It stayed pretty active for the rest of the summer, and we had a killer tornado near Onamia on Sep 18th. But, perhaps this is an interesting stat nonetheless..."

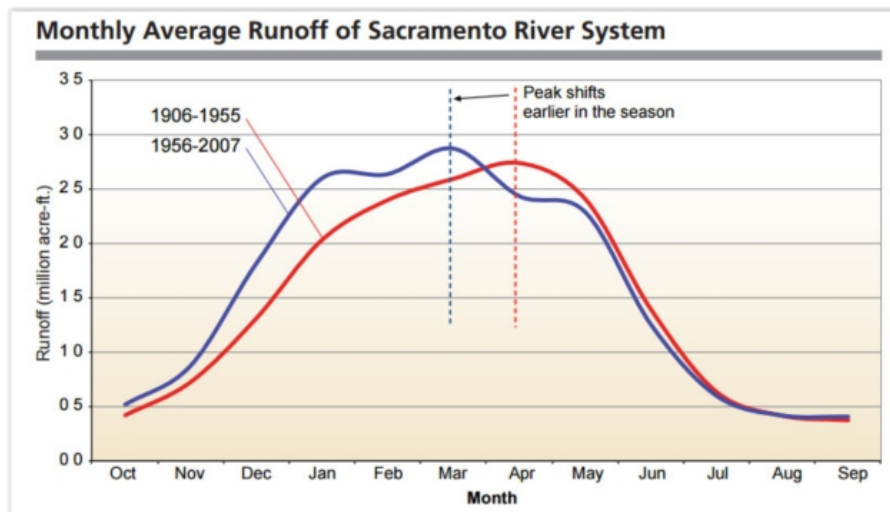
- Dr. Kenny Blumenfeld, Senior Climatologist, State Climatology Office, Minnesota DNR.



Hotter heat waves: How much of the world is at risk?					
		Percent of global land surface			
		2050		2075	
Future heat waves compared to today's	3°C hotter	With mitigation	No mitigation	With mitigation	No mitigation
	4°C hotter	25%	60%	92%	95%
	5°C hotter	6%	30%	55%	81%
	6°C hotter	1%	10%	24%	54%
	6°C hotter	0%	3%	8%	34%

Searing Heat Waves Detailed in Study of Future Climate. Here's a clip from a story at the [University Corporation for Atmospheric Research](https://www2.ucar.edu/atmosnews/news/19559/searing-heat-waves-detailed-study-future-climate) (https://www2.ucar.edu/atmosnews/news/19559/searing-heat-waves-detailed-study-future-climate) (UCAR): "...Besides finding that today's 20-year heat waves could become annual occurrences across more than half of the world's land areas by 2075, the study also concluded that heat waves with a 1-in-20 chance of occurring during a future year will be much more extreme than heat waves with the same probability of occurring today. For example, if emissions remain unabated, a heat wave with a 1-in-20 chance of occurring in 2050 would be at least 3 degrees Celsius (5.4 degrees Fahrenheit) hotter for 60 percent of the world's land areas. For 10 percent of land areas, a 20-year heat wave in 2050 would be at least 5 degrees C (9 degrees F) hotter. A few degrees may not seem like much on a mild day, but during extreme heat events, they can mean the difference between life and death for vulnerable populations, Wehner said..."

Graphic credit: "For large portions of the world's land surface, future heat waves with a 1-in-20 chance of occurring in any given year are projected to become more extreme than heat waves with the same chance of occurring today. Stringent efforts to mitigate human-produced carbon emissions would reduce the amount of land area at risk for these intense heat waves—defined as three days of exceptionally hot temperature."



Sierra Nevada Snowpack Is Melting Earlier. Here's the intro to a story by Sacramento TV meteorologist Monica Woods at [WXshift](http://wxshift.com/news/blog/sierra-snowmelt-peaking-earlier?utm_content=buffer8c19e&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer) (http://wxshift.com/news/blog/sierra-snowmelt-peaking-earlier?utm_content=buffer8c19e&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer): "Sierra Nevada snowpack is melting quickly, sending water flowing into nearby rivers and reservoirs. This is the normal cycle for snowmelt, but research by the California Department of Water Resources has found that it's now happening sooner in the season. This means there's a larger gap between peak runoff and peak demand..."

Graphic credit: "Changes in peak snowmelt runoff in the Sacramento River." Credit: California Department of Water Resources.

NOAA Satellites @NOAASatellites · 2h
How many images have GOES satellites taken over the past 40-plus years? A lot.

3,000,000

The GOES program formally began on October 16, 1975, with the launch of GOES-1. Although the satellite was spin-stabilized, only viewing Earth about 10 percent of the time and providing data in only two dimensions, it gave forecasters their first near-real time look at atmospheric conditions from a fixed location.

The following generations of GOES satellites and their instruments continued to improve, experiencing significant enhancements over the years. Since 1975, GOES satellites have taken well over 3 million images! GOES-R, the first of the next generation GOES satellites series, will continue this tradition when it launches this fall.

GOES-1 (1975)

GOES-R (2016)

19 20



5 Surprising Ways Natural Disasters Can Hurt Your Finances. The old Boy Scout motto applies: "Be Prepared". Here's an excerpt of a story with some very good advice from U.S. News (<http://money.usnews.com/money/personal-finance/articles/2016-05-20/5-surprising-ways-natural-disasters-can-hurt-your-finances>): "...If you've lost – or can't easily access – vital paperwork, from social security cards and birth certificates to insurance information, you could experience delays in getting your insurance claims processed, government financial assistance and more. That's why it's important to know where your documents are (<http://money.usnews.com/money/personal-finance/articles/2014/07/23/4-ways-to-better-organize-your-bills>). If you live in an area prone to natural disasters, consider making copies of your most important documents and storing them electronically, says Chloe Demrovsky, executive director at Disaster Recovery Institute International, a nonprofit specializing in business continuity and health and disaster emergency management..."

File photo credit: Reuters, TPX Images.



The New York Times of the Future is Beginning to Take Shape. How can legacy media continue to add value, carve out differentiated content that can be sustainable over time? Poynter (<http://www.poynter.org/2016/the-new-york-times-of-the-future-is-beginning-to-take-shape/413097/>) takes a look: "An ambitious effort to overhaul The New York Times is beginning to come into focus. In a memo sent to staffers Friday, New York Times Executive Editor Dean Baquet outlined several steps in a project, announced in February (http://www.huffingtonpost.com/entry/new-york-times-overhaul_us_56ae5e36e4b00b033aaf88d5), to remake the newsroom in a bid for "journalistic dominance." Among them:

A shift away from commodity coverage. "The digital news marketplace nudges us away from covering incremental developments — readers can find those anywhere in a seemingly endless online landscape. Instead, it favors hard-hitting 'only-in-The New York Times' coverage: authoritative journalism and information readers can use to navigate their lives..."

Photo credit: Wilson Rivera via Flickr.



Weathering the Storm of Change. These are especially unsettling, disruptive times due to a convergence of factors. I had a chance to talk about my personal experiences with 4 weather-technology companies and offered up a little advice to the Alexandria Area Economic Development Commission's Small Business Appreciation Lunch at the Alexandria Technical and Community College last Tuesday. Here's an excerpt from the [Alexandria Echo Press \(http://www.echopress.com/news/4036367-weathering-storm-change\)](http://www.echopress.com/news/4036367-weathering-storm-change): "During his presentation, Douglas shared tips for businesses and entrepreneurs:

- Ask yourself: Is your business storm proof? Try to anticipate change and plan for it.
- Timing is everything. Being too early is just as bad as being too late.
- Embrace mistakes. Learn from them. One of his favorite quotes: "Be wrong as fast as you can."
- Don't be afraid to explore new ideas, daydream and re-imagine..."



A Sherpa Woman Who Works at a Connecticut 7-Eleven Just Climbed Everest for a Record 7th Time. An inspiring story, courtesy of [The Washington Post \(https://www.washingtonpost.com/news/worldviews/wp/2016/05/20/a-sherpa-woman-who-works-at-a-connecticut-7-11-just-climbed-everest-for-a-record-seventh-time/?wpisrc=nl_optimist&wpm=1\)](https://www.washingtonpost.com/news/worldviews/wp/2016/05/20/a-sherpa-woman-who-works-at-a-connecticut-7-11-just-climbed-everest-for-a-record-seventh-time/?wpisrc=nl_optimist&wpm=1): "...Her harrowing life story was recently recounted in a profile (<http://www.outsideonline.com/2078361/most-successful-female-everest-climber-all-time-housekeeper-hartford-connecticut>) in Outside Magazine. She first met her future husband, George Djmarescu, when he was on one of his many trips to the Himalayas. A year later, they met again in America, when George paid for her to fly to Hartford, Conn.,

where she had family, and where he ran a home-renovation contracting company, which she began to work for. In no time, the two were back in Nepal, climbing Everest for what would be the first of five times they did it together, bringing Djimarescu's total of Everest ascents to nine..."

Photo credit: "Mountaineers from Myanmar along with Sherpas approach the summit of Mount Everest from the Nepal side on May 1." (Technical Climbing Club of Myanmar).

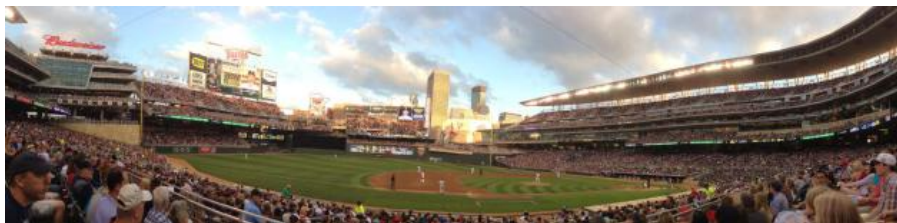


84 F. high in the Twin Cities Sunday.

71 F. average high on May 22.

75 F. high on May 22, 2015.

May 23, 1914: An early heat wave hits the state, with a high of 103 at Tracy.



TODAY: Showers and T-storms move in. Winds: S 10-20. High: 78

MONDAY NIGHT: Showers linger. Low: 62

TUESDAY: Sunnier, drier. Sticky sunshine. Winds: NW 3-8. High: 82

WEDNESDAY: More showers and T-storms likely. Winds: E 10-15. Wake-up: 63. High: 76

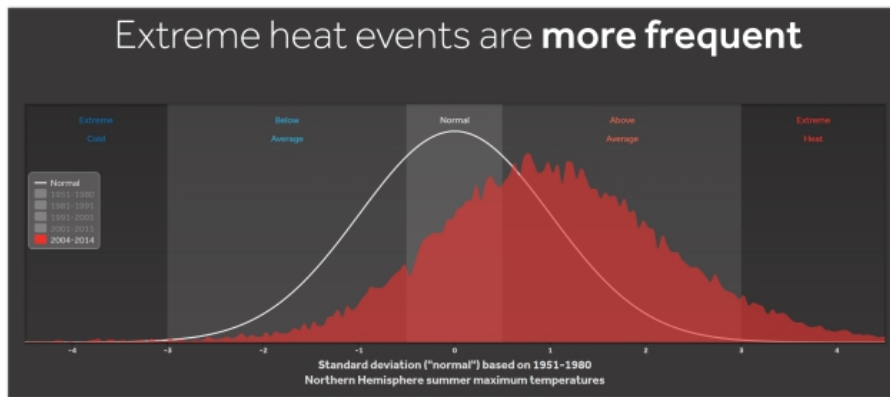
THURSDAY: Partly sunny, temporarily drying out. Winds: SW 10-20. Wake-up: 63. High: 83

FRIDAY: Some early sun, PM T-storms develop. Winds: SE 7-12. Wake-up: 62. High: near 80

SATURDAY: Rain likely, possibly heavy. Winds: NE 10-15. Wake-up: 63. High: 74

SUNDAY: Damp start, then partial clearing. Winds: W 7-12. Wake-up: 61. High: 79

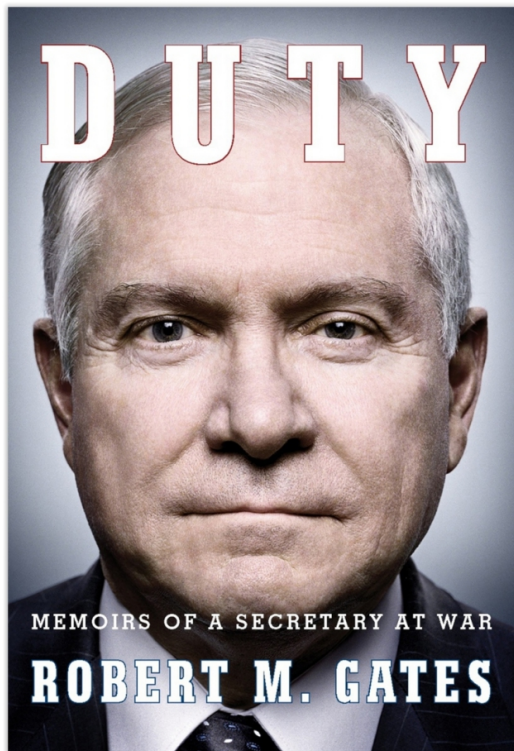
Climate Stories...



Extreme Heat Events Are More Frequent. Here's an explainer from [WXshift](http://wxshift.com/climate-change/climate-indicators/extreme-heat?utm_content=buffer38a67&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer) (http://wxshift.com/climate-change/climate-indicators/extreme-heat?utm_content=buffer38a67&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer): "As global temperatures rise, the hottest temperatures and the number of areas affected by extreme heat are also on the rise. Extreme temperatures that only occurred once every 20 years in the 1960s now occur every 10 to 15 years and record highs are outpacing record lows by ever-greater margins. Even in recent years, during which global temperatures have not increased significantly, the total land area affected by extreme heat has increased. The length and frequency of heat waves are both expected to continue increasing through 2100."

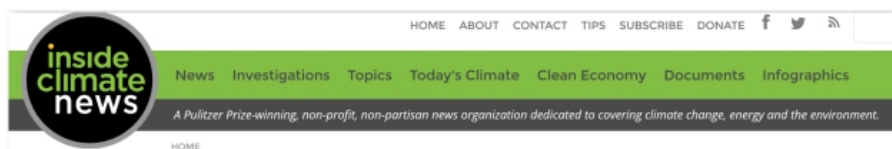


This Retired Military Leader is now Helping Prep the Business World for Climate Change. Admiral David Titley is a friend, colleague and inspiration. He points out what many in the military now acknowledge: climate volatility represents a force-multiplier. Here's an excerpt from [ThinkProgress](http://thinkprogress.org/climate/2016/05/20/3780421/weather-risk-david-titley/) (<http://thinkprogress.org/climate/2016/05/20/3780421/weather-risk-david-titley/>): "...Titley explained in an interview that climate change will soon become a regular intrusion into the economy, dispensing heat waves, drought, and coastal floods — and not just front-page disasters, but nuisance-level disruptions to business and commerce. Companies will need to plan for climate risks, tweaking output and retooling supply chains based on the latest projections. "How do you do business and weather? Risk and weather? Climate and risk?" asked Titley. "I could go to a business school and say, 'Hey, you guys are really going to have to start understanding not only the statistics of weather, but the changing statistics of climate to be effective.'" Rising temperatures are set to put a dent in corporate profits, creating a need for business-savvy weather experts to advise executives..."



Secretary Gates: National Security Implications of Climate Change "Very Real". The Center for Climate and Security

(<https://climateandsecurity.org/2016/05/19/secretary-gates-national-security-implications-of-climate-change-very-real/>) has highlights of the interview with Secretary Gates; here's the intro: "Former Secretary of Defense Robert Gates (serving as Secretary of Defense under both George W. Bush and Barack Obama) recently sat down for an interview (<http://www.cbsnews.com/news/sec-robert-gates-discusses-global-warming-and-long-term-national-security-issues/>) with CBS's Face the Nation. Host John Dickerson asked Secretary Gates about his views on the national security implications of climate change. The interview is transcribed below, but in short, Secretary Gates noted that climate change does have serious consequences for national security. Gates also noted that ranking risks is not an appropriate way to look at the security landscape..."



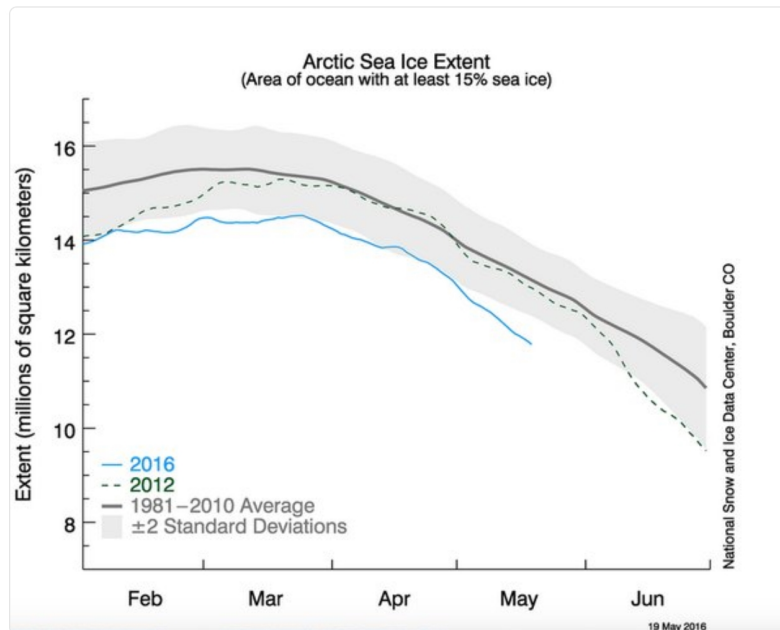
Group of House Republicans Assail Climate Fraud Investigations. No company has a First Amendment right to deceive or defraud their investors - that is what is under investigation. InsideClimate News

(<http://insideclimatenews.org/news/19052016/house-republicans-assail-climate-fraud-investigations-exxon-lamar-smith>) has the details; here's an excerpt: "...The irony of this letter is breathtaking, as its signatories appear to be part of a multi-pronged media campaign funded by the fossil fuel industry aimed at suppressing the free exchange of ideas among scientists, academics, and responsible law enforcement. New York will continue to work with and collaborate with its colleagues across the country, and those with expertise in this area, to protect its citizens from fraud," said Soufer. Ever since Smith gained control of the committee in 2013, its most conservative faction has aggressively questioned climate science and funding (http://www.slate.com/blogs/bad_astronomy/2016/03/07/lamar_smith_broadens_his_attacks_on_noaa_scientists.html), including charging the scientists (<http://thinkprogress.org/climate/2015/11/25/3725782/scientists-scold-science-committee-chair/>) at the National Oceanic and Atmospheric Administration of misrepresenting climate data..."



David Tittley @dwtitley · 2h

#Arctic sea ice melt ~6 weeks ahead of climo, and ~4 weeks ahead of 2012 season. New record min not a lock but...



1



Carbon Dioxide's 400 ppm Milestone Shows Humans are Rewriting the Planet's History.

Here's an excerpt of a post at [The Guardian](http://www.theguardian.com/environment/planet-oz/2016/may/20/carbon-dioxides-400ppm-milestone-shows-humans-are-re-writing-the-planets-history)

(<http://www.theguardian.com/environment/planet-oz/2016/may/20/carbon-dioxides-400ppm-milestone-shows-humans-are-re-writing-the-planets-history>): "...So when was the last time the planet had CO₂ levels like this, and what sort of a world was it? Dr David Etheridge, a principal research scientist at Australia's CSIRO, told me: "We know [levels of CO₂ in the atmosphere] from the air extracted directly from ice cores and we can go back to about 800,000 years ago. It is inconceivable that there would be any lasting concentration of CO₂ much above about 300 parts per million in that record." He says analysis of sea sediments can push our estimates of historic CO₂ levels back even further – to about two million years. Those records also show today's levels of CO₂ are higher..." (Graphic credit: NASA (http://climate.nasa.gov/climate_resources/24/)).

OLDER POST

([HTTP://WWW.STARTRIBUNE.COM/SLIDING-INTO-A-WETTER-WEEK-SECOND-QUIETEST-SEVERE-STORM-](http://www.startribune.com/sliding-into-a-wetter-week-second-quietest-severe-storm-)

SPRING-SINCE-1986/380384011/)

Sliding Into a Wetter Week - Second Quietest Severe Storm

Spring Since 1986 (<http://www.startribune.com/sliding-into-a-wetter-week-second-quietest-severe-storm-spring-since-1986/380384011/>)



(http://www.startribune.com/blogs/Paul_Douglas_on_Weather/)

Paul Douglas is a nationally respected meteorologist with 35 years of television and radio experience. A serial entrepreneur, Douglas is Senior Meteorologist and Founder of Media Logic Group (<http://www.medialogicgroup.com/>) . Douglas and a team of meteorologists, engineers and developers provide weather services for various media at Broadcast Weather, high-tech alerting and briefing services for companies via Alerts Broadcaster (<http://www.alertsbroadcaster.com/>) and weather data, apps and API's from Aeris Weather (<http://www.hamweather.com/>) . His speaking engagements (<http://pauldouglasweather.com/>) take him around the Midwest with a message of continuous experimentation and reinvention, no matter what business you're in. He is the public face of "SAVE" (<http://www.save.org/>) , Suicide Awareness, Voices of Education, based in Bloomington. **Send Paul a question.**