

## U.S. Lightning Strikes May Increase 50% Due to Global Warming

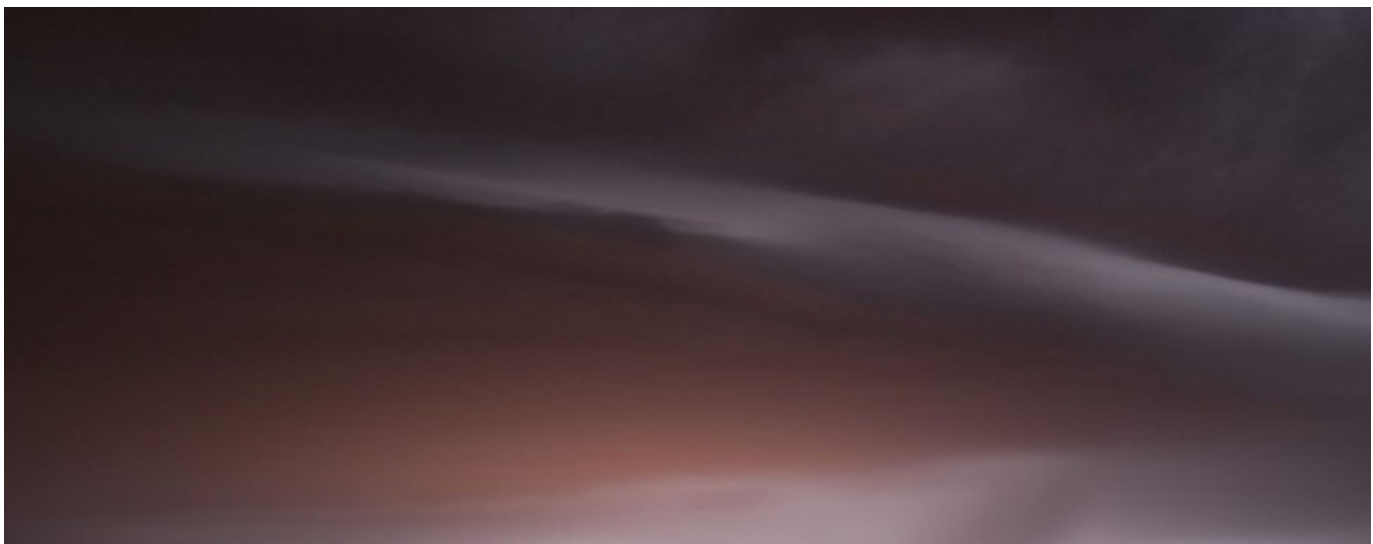
By: Dr. Jeff Masters [</blog/JeffMasters/show.html>] , 4:04 PM GMT on November 14, 2014

33

+

A warmer world will have much more dangerous cloud-to-ground lightning capable of igniting more forest fires, according to a study published Thursday in the Journal Science [<http://www.sciencemag.org/content/346/6211/851>]. The research found that for each degree Centigrade [1.8°F] of global warming, lightning in the U.S. is expected to increase by 12%. This would result in about a 50% increase in lightning by the year 2100, assuming business-as-usual emissions result in a world that is 4°C [7°F] warmer. Main author David Romps of the University of California-Berkeley said in a press release [<http://newscenter.berkeley.edu/2014/11/13/lightning-expected-to-increase-by-50-percent-with-global-warming/>], *“This has to do with water vapor, which is the fuel for explosive deep convection in the atmosphere. Warming causes there to be more water vapor in the atmosphere, and if you have more fuel lying around, when you get ignition, it can go big time...the faster the updrafts, the more lightning, and the more precipitation, the more lightning.”* The study looked at U.S. lightning statistics for the year 2011, and discovered that a simple measure of atmospheric heat and moisture--the precipitation rate multiplied by the stability of the atmosphere [expressed as the Convective Available Potential Energy, or CAPE]--could describe 77% of the variation in lightning. By applying this simple measure to predicted levels of heat and moisture in a future warmer world, the scientists came up with their predictions for more lightning. The study makes sense from basic principles, and brings up three major concerns about the impacts of a future world with more lightning:

- 1) More lightning-caused fires
- 2) More lightning-caused ozone pollution and thus global warming
- 3) More lightning direct strike deaths and damages





**Figure 1.** Lightning sparks a grass fire near Granite, Oklahoma on June 8, 2008. Image credit: wunderphotographer Glenn Patterson.

[[http://www.wunderground.com/wximage/viewsingleimage.html?](http://www.wunderground.com/wximage/viewsingleimage.html?mode=singleimage&orig_handle=gmp1993&orig_number=3&handle=gmp1993&number=3&album_id=0#)

[mode=singleimage&orig\\_handle=gmp1993&orig\\_number=3&handle=gmp1993&number=3&album\\_id=0#](http://www.wunderground.com/wximage/viewsingleimage.html?mode=singleimage&orig_handle=gmp1993&orig_number=3&handle=gmp1993&number=3&album_id=0#)

## **The costs and death toll from lightning-caused fires in the U.S. and Canada**

Over the ten years from 2003 - 2012, 42 U.S. firefighters were killed as a result of lightning-caused fires.

An additional 19 firefighters were killed by the lightning-caused Yarnell Hill Fire

[[http://en.wikipedia.org/wiki/Yarnell\\_Hill\\_Fire](http://en.wikipedia.org/wiki/Yarnell_Hill_Fire)] in Arizona in 2013. U.S. wildfire fighting costs averaged \$1.8 billion annually during 2009 - 2013, according to Headwaters Economics

[<http://headwaterseconomics.org/wildfire/fire-research-summary>]. Although only 15% of U.S. wildfires were ignited by lightning between 2001 - 2010, these accounted for approximately 60% of the acres burned, and much of the annual costs of firefighting, according to the National Interagency Fire Center

[[http://www.nifc.gov/fireInfo/fireInfo\\_stats\\_lightng.html](http://www.nifc.gov/fireInfo/fireInfo_stats_lightng.html)]. For example, in 2012,

[<http://www.wunderground.com/blog/JeffMasters/comment.html?entrynum=2320>] the Whitewater-Baldy Complex Fire, the largest fire in New Mexico history, and the Rush Fire, the 2nd largest in California history, were both triggered by lightning strikes. Lightning also causes building fires through direct strikes. The National Fire Protection Association [<http://www.nfpa.org/research/reports-and-statistics/fire-causes/lightning-fires-and-lightning-strikes>] says that lightning-caused fires that are responded to by local fire departments in the U.S. killed an average of nine people per year and did \$451 million in direct property damage per year between 2007 - 2012.

Environment Canada [<https://www.ec.gc.ca/foudre-lightning/default.asp?lang=En&n=48337EAE-1>] estimates that lightning strikes are responsible for 45% of all wildfires in Canada and 81% of the total area burned. The cost of lightning-related damage and disruption to the Canadian economy was estimated to be between \$600 million and \$1 billion each year [Mills et al. 2009].





**Figure 2.** Smoke rises from the uncontrolled northern front of the lightning-ignited Gap fire on July 5, 2008 near Goleta, California. President Bush declared a state of emergency for all of California in July 2008 in response to more than 1,400 fires that were mostly started by dry lightning storms on June 20, 2008. More than 19,000 firefighters from 42 states battled the California wildfires. [Photo by David McNew/Getty Images]

### **Death and damages due to direct lightning strikes**

In addition to killing people in lightning-caused fires, lightning kills people with direct strikes. In 2006 - 2013, an average of 33 people per year died as a result of lightning strikes, according to NOAA ([http://www.nws.noaa.gov/om/hazstats/resources/weather\\_fatalities.pdf](http://www.nws.noaa.gov/om/hazstats/resources/weather_fatalities.pdf)). So far in 2014, 25 people have been killed. (<http://www.lightningsafety.noaa.gov/fatalities.htm>) Fishing, camping and boating were the three highest risk activities for people dying from lightning strikes, according to a 2013 NWS study. (<http://www.lightningsafety.noaa.gov/resources/RecentLightningDeaths.pdf>) The insured costs of direct lightning strikes have been rising in recent years, due to an increase in valuable home electronics that get fried in a strike. These damages were approximately \$1 billion per year in 2010 -

2011, according to the Insurance Information Institute. (<http://www.iii.org/press-release/lightning-claim-costs-continue-to-rise-surg-ing-electronics-prices-product-shortages-partly-to-blame-062112>)

### **Lightning-caused forest fires may increase at a lesser rate**

Climate models show that the increase in instability (higher CAPE) due to global warming is not expected to be uniform over the U.S., with strong increases over the Southeast U.S., and little increase over the Western U.S., where the majority of lightning-caused fires originate. The 12% increase in lightning per °C of global warming the study found is averaged over the entire U.S., and the increase in lightning is likely to be much lower over the Western United States--perhaps a factor of six less. A 2007 study by Del Genio *et al.* (<http://www.agu.org/pubs/crossref/2007/2007GL030525.shtml>) found that increasing the global temperature by 2.7°C would cause drying over the Western U.S. that would lead to fewer thunderstorms overall. However, the strongest thunderstorms increased in number by 26%, leading to a 6% increase in the total amount of lightning hitting the ground each year, or about a 2% increase per °C of global warming.

### **Increased lightning will create more ozone pollution and more global warming**

Lightning creates nitrogen oxides, which in turn react to make significant amounts of ozone in the lower atmosphere--a dangerous pollutant that seriously impacts human health and crop growth. Ozone is also a greenhouse gas, so global warming-caused increases in lightning could potentially cause additional global warming of a few percent. How much is uncertain, as estimates ([http://www.nasa.gov/topics/earth/features/nox\\_lightning.html](http://www.nasa.gov/topics/earth/features/nox_lightning.html)) of lightning-produced nitrogen oxides vary by up to a factor of four. Lower-atmosphere ozone was responsible for about 12% of human-caused global warming due to greenhouse gases in 2011, according to the 2013 IPCC report. ([http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5\\_Chapter08\\_FINAL.pdf](http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf)) However, increased ozone due to lightning could be offset somewhat by the fact that lightning-created nitrogen oxides trigger chemical reactions that help destroy methane, another potent greenhouse gas.



**Video 1.** Every Lightning Strike in America in 2011, In One Minute. Data from the National Lightning Detection Network, UAlbany; animation by David Romps, UC Berkeley, and Phil Ebner, UC Berkeley Public Affairs. Thursday's study in *Science* studied lightning over the U.S. in 2011 to come up with a simple way to represent lightning frequency based on how much heat and moisture is in the atmosphere.

Jeff Masters

A Tucson sunset [ChandlerMike (/wximage/ChandlerMike)]

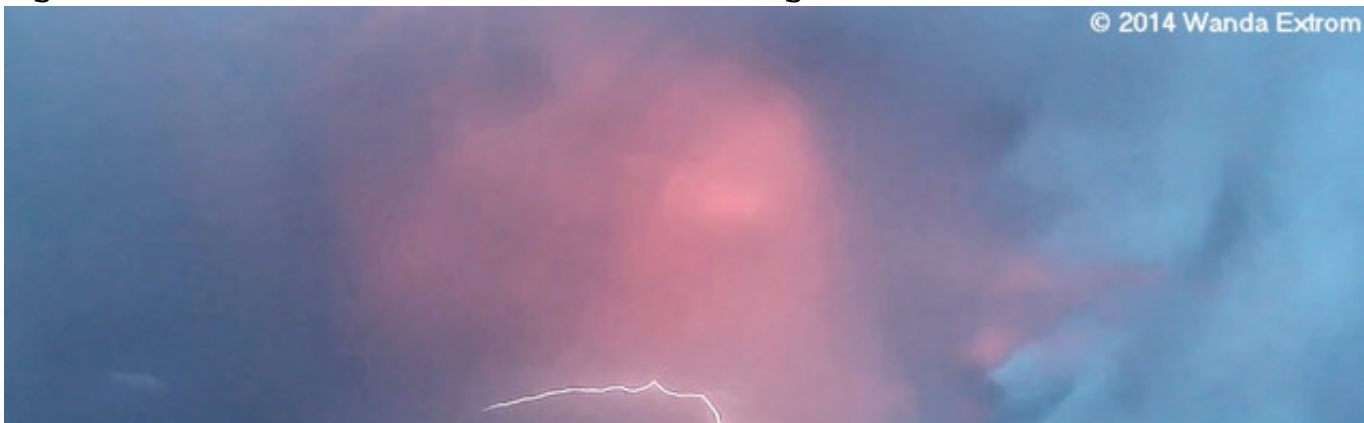
Amazing sky last night in Tucson...one of my best lightning captures to-date. There is a rainbow in there too on the edge of the right bolt, hard to see with the orange color from the sunset :)



[/wximage/viewsingleimage.html?mode=singleimage&handle=ChandlerMike&number=595]

Pink Lightning [oneshotww (/wximage/oneshotww)]

Lightnin show was better than the sunset this night.





[\[/wximage/viewsingleimage.html?mode=singleimage&handle=oneshotww&number=2775\]](#)

Bahama Blast! [AsylumRat [\[/wximage/AsylumRat\]](#)]

My last night here in Freeport-and I am delighted to actually have a moment to document one of the ubiquitous evening thunderstorms rolling over the island. In splendid fashion, this one did not disappoint. Positive stroke lightning over the Atlantic-it originated from the storm's anvil.



[\[/wximage/viewsingleimage.html?mode=singleimage&handle=AsylumRat&number=447\]](#)

Somewhere over the rainbow [fultonsphotos [\[/wximage/fultonsphotos\]](#)]

It took me a few hundred shots but I finally captured the rainbow and the lightning.





[\[/wximage/viewsingleimage.html?](#)

mode=singleimage&handle=fultonsphotos&number=32]  
Tampa Bay Lightning [shaKAsha [\[/wximage/shaKAsha\]](#)]  
This shot was taken from Gulfport, Florida on May 28, 2014.





[\[/wximage/viewsingleimage.html?mode=singleimage&handle=shaKAsha&number=321\]](#)

Cape San Blas Florida Storm [\[vbob /wximage/vbob\]](#)

Lightning near Cape San Blas Florida



[\[/wximage/viewsingleimage.html?mode=singleimage&handle=vbob&number=0\]](#)

Birthday Candles [\[russsmith /wximage/russsmith\]](#)

Taken July 3rd by my wife on her birthday.



[\[/wximage/viewsingleimage.html?\]](#)





[mode=singleimage&handle=russmith&number=0](#)

Triple Threat [mcgino ([/wximage/mcgino](#))]

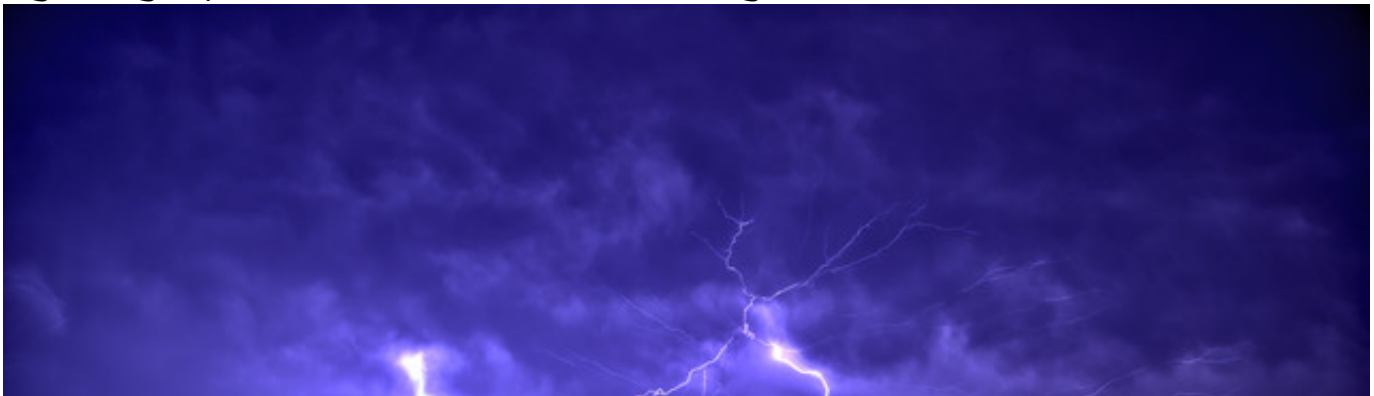
I have hundreds of images of lightning, and a couple of cameras are still shooting...the most amazing night ever!



[/wximage/viewsingleimage.html?mode=singleimage&handle=mcgino&number=797](#)

Double Trouble [wolfpawstudios ([/wximage/wolfpawstudios](#))]

Lightning captured over Navarre Beach 24 August





[\[/wximage/viewsingleimage.html?](#)

[mode=singleimage&handle=wolfpawstudios&number=94\]](#)

[Severe Weather \[ /blog/JeffMasters/category.html#Severe+Weather\]](#)

[\[ /blog/JeffMasters/category.html#Climate+Change\]](#)

[Climate Change](#)

---

[Top of Page](#)

---

#### Reader Comments

Comments will take a few seconds to appear.

#### Post Your Comments

Please sign in to post comments.

[Sign In \(https://www.wunderground.com/login.asp?mode=&return=\)](https://www.wunderground.com/login.asp?mode=&return=) or

[Join \(https://www.wunderground.com/members/signup.asp?mode=blog&return=\)](https://www.wunderground.com/members/signup.asp?mode=blog&return=)

Not only will you be able to leave comments on this blog, but you'll also have the ability to upload and share your photos in our Wunder Photos [\[/wximage/viewimages.html\]](#) section.

---

**Display:** 0 [\[/cgi-bin/findweather/getForecast?](#)

[setpref=BLOGCOMMENTS&value=0&referer=%2fblog%2fjeffmasters%2fcomment%2html%3fentrynum%3d2860\]](#), 50,

[100 \[ /cgi-bin/findweather/getForecast?](#)

[setpref=BLOGCOMMENTS&value=100&referer=%2fblog%2fjeffmasters%2fcomment%2html%3fentrynum%3d2860\]](#),

[200 \[ /cgi-bin/findweather/getForecast?](#)

[setpref=BLOGCOMMENTS&value=200&referer=%2fblog%2fjeffmasters%2fcomment%2html%3fentrynum%3d2860\]](#)

**Sort:** Newest First - Order Posted [\[/cgi-bin/findweather/getForecast?](#)

---

**Viewing:** 337 - 287

**Page:** 1 | 2 [comment.html?entrynum=2860&page=2#commenttop] | 3 [comment.html?entrynum=2860&page=3#commenttop] | 4 [comment.html?entrynum=2860&page=4#commenttop] | 5 [comment.html?entrynum=2860&page=5#commenttop] | 6 [comment.html?entrynum=2860&page=6#commenttop] | 7 [comment.html?entrynum=2860&page=7#commenttop] – Blog Index [/blog/]

---



### **337. TimTheWxMan** [/blog/TimTheWxMan/archive.html]

5:43 AM GMT on November 15, 2014

#### **Quoting 334. help4u:**

*Now we count lighting bolts.lol Next raindrops?Maybe more or less snowflakes.Nothing new under the sun.*

I think there probably could be possibly more or less rain, snow, sleet, hail, clouds or sunshine... maybe.  
XP

**Member Since:** September 14, 2014 **Posts:** 2 **Comments:** 305

---



[/wximage/viewsingleimage.html?

mode=singleimage&handle=rayduray2013&number=1]

### **336. rayduray2013** [/blog/rayduray2013/archive.html]

5:42 AM GMT on November 15, 2014

#### **Quoting Naga5000:**

*Wikipedia is essentially our version of the Hitchhiker's Guide to the Galaxy. At least it is just about as accurate. :]*

Funnily enough, I never thought to use the Hitchhiker's Guide for anything. Why, I had to look it up on Wikipedia to see what it is. A BBC radio show that went viral is what I come up with.

For my generation, the similar yet different radio show that caught our attention was the Firesign Theater. Just as an earlier generation had been mesmerized by Lord Buckley

just as an earlier generation had been mesmerized by Lord Dunsany.

But I digress....

**Member Since:** June 30, 2013 **Posts:** 0 **Comments:** 404



[/wximage/viewsingleimage.html?

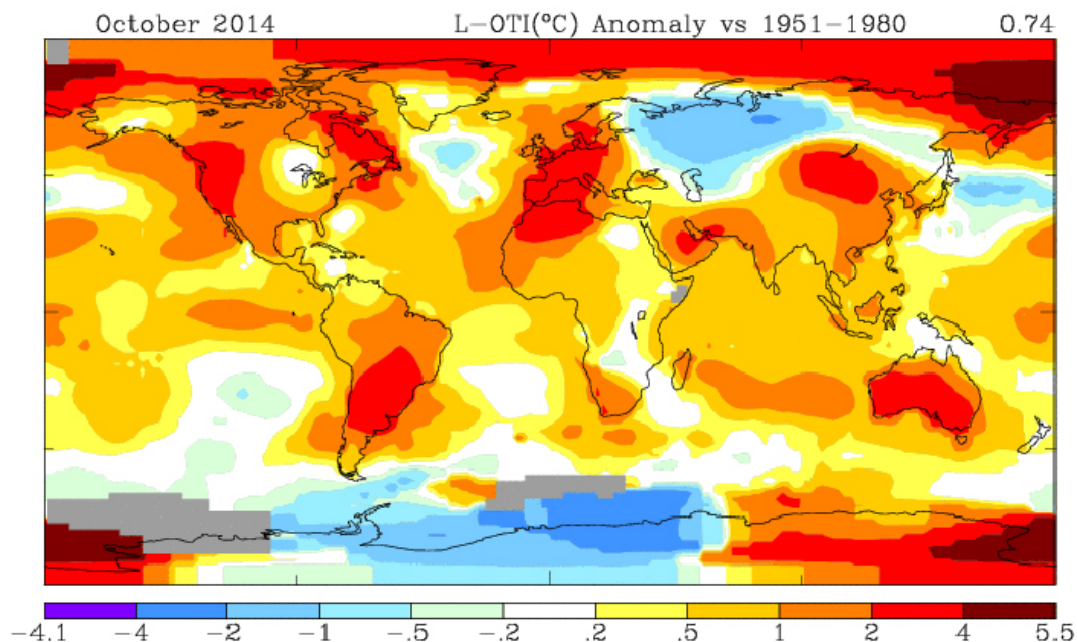
mode=singleimage&handle=VAbeachhurricanes&number=4]

### 335. VAbeachhurricanes [/blog/VAbeachhurricanes/archive.html]

5:42 AM GMT on November 15, 2014

#### ***NASA, Other Data Show Globe Had Warmest October***

For the third month in a row, global temperatures reached record territory according to newly available data from NASA. And if one global temperature record isn't enough, the Japanese Meteorological Agency also provided new data on Friday that showed the warmest October on record.



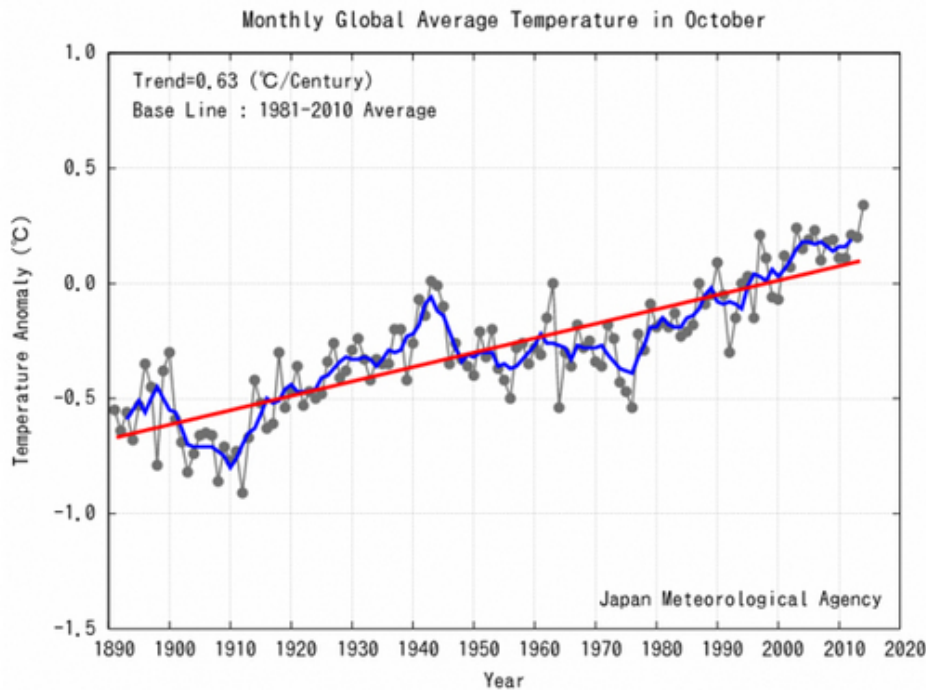
Data from NASA Goddard Institute for Space Studies (GISS) show this October was 1.4°F above the 1951-1980 average they use as their baseline. That didn't set a monthly mark, as did August and September, but rather tied 2005 as the warmest October since 1880. That keeps 2014 on track to be the hottest year on record.

While individual hot years or months don't necessarily stand out, it's notable that all 10 of the warmest years on record have all come since 1998, one of the clearest signs that the climate is warming due in large part to greenhouse gas emissions.

NASA data reveal that far eastern Siberia was an eye-popping 10°F above normal for October, but western Europe, northern Africa and western North America also saw temperatures up to 7°F hotter than average. The data also comes a day after the National Climatic Data Center (NCDC) released its October

numbers for the U.S. that showed the lower 48 had its fourth-warmest October on record.

If you're a fan of corroborating data, the Japanese Meteorological Agency (JMA) also released data on Friday (with a hat tip to Joe Romm). JMA uses a slightly different base period and averaging technique than NASA, but its numbers still show that this October was the hottest on record. Specifically, the data show that October was 0.6°F above the 1981-2010 average with similar hot spots compared to NASA.



And if you're a fan of triple redundancy, a third set of global numbers will be released next week by NCDC. Its data through September show that record warmth in the oceans has in large part driven global temperatures upward for the year to-date. This despite the lack of El Niño, which generally provides a boost to overall ocean and even global temperatures.

The hot October bolsters the likelihood that 2014 will become the warmest year on record. Though El Niño is still muddling around in the tropical Pacific, if it does form by year's end, it would likely only help crank up the heat.

Source: Livescience

**Member Since:** September 6, 2007 **Posts:** 0 **Comments:** 6685



### **334. help4u (/blog/help4u/archive.html)**

5:41 AM GMT on November 15, 2014

Now we count lighting bolts.lol Next raindrops?Maybe more or less snowflakes.Nothing new under the sun.

**Member Since:** September 18, 2006 **Posts:** 0 **Comments:** 1300



### 333. help4u [/blog/help4u/archive.html]

5:38 AM GMT on November 15, 2014

You guys on here are being Grubered by Obamawith nasa changing temps all the time and climate gate and now Grubercare it looks like people would wake up to the reality that we are being played for our money and our very freedoms.Maybe "THE ONE",OBAMA is right were too stupid to know hoax when we see one.

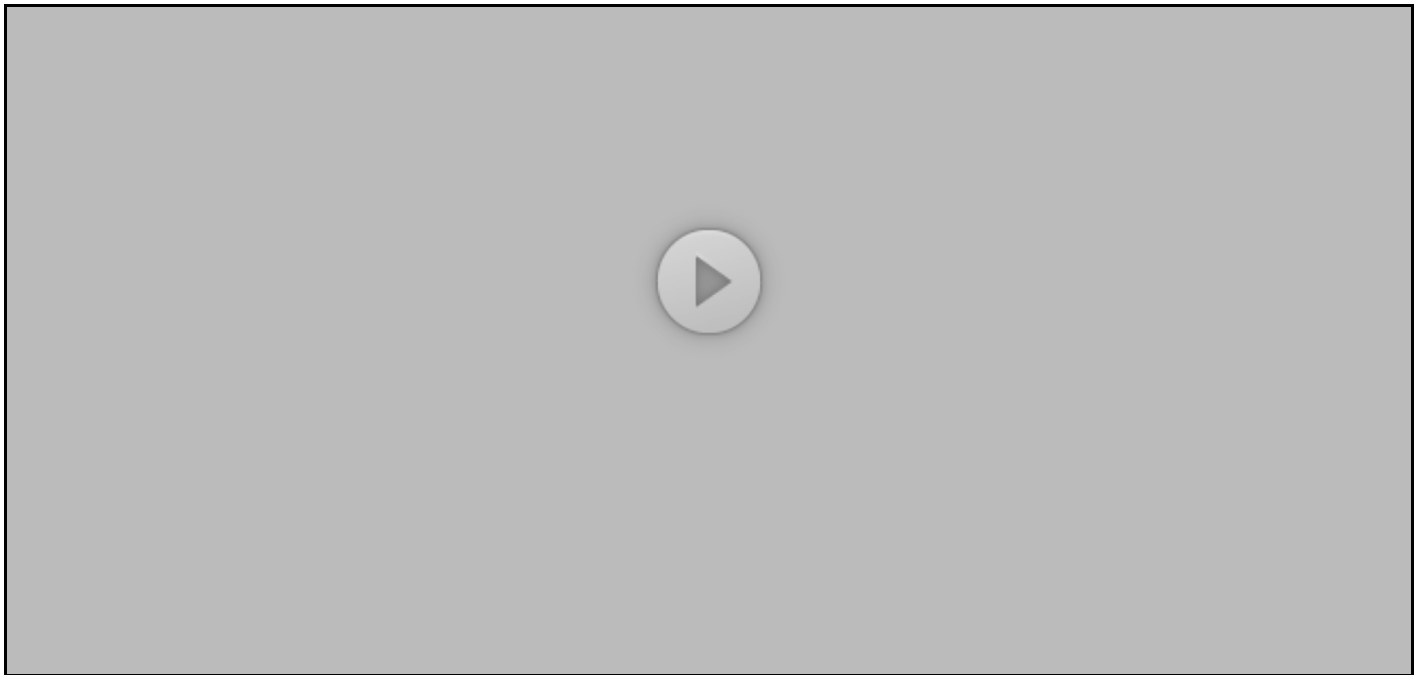
**Member Since:** September 18, 2006 **Posts:** 0 **Comments:** 1300



### 332. TimTheWxMan [/blog/TimTheWxMan/archive.html]

5:35 AM GMT on November 15, 2014

**Quoting 319. KEEPEROFTHEGATE:**



Nice shot! Ever see upward lightning before?

**Member Since:** September 14, 2014 **Posts:** 2 **Comments:** 305



---

### 331. Dakster (/blog/Dakster/archive.html)

5:35 AM GMT on November 15, 2014

Finally got back into the 20's here in Alaska after a week of darn near record warmth.

Starting to think we may not have white xmas this year up here... But I have been told that is foolish talk. [Of course now after that remark we'll get 10 feet in one day next week]

**Member Since:** March 10, 2006 **Posts:** 0 **Comments:** 10603

---



### 330. TimTheWxMan (/blog/TimTheWxMan/archive.html)

5:33 AM GMT on November 15, 2014

This blog is going off topic again? This is about lightning for crying out loud!

**Member Since:** September 14, 2014 **Posts:** 2 **Comments:** 305

---



[/wximage/viewsingleimage.html?

mode=singleimage&handle=rayduray2013&number=1]

### 329. rayduray2013 (/blog/rayduray2013/archive.html)

5:29 AM GMT on November 15, 2014

#### Quoting sar2401:

*.although we really should know who the VP is, just because the thought of him being one heartbeat away from the presidency is so scary. :-]*

SAR,

Let me put your mind at ease. If he moved up, the VP would be no more actually in charge of steering the ship of state than any of the other figureheads we've ensconced in the White House in the last few years.

Joe Biden will not be much of any change on science policy, climate change, energy policy or the weather. What you will be able to count on though is more sweet deals for his kids, like the Ukrainian gas deal for Hunter Biden that briefly was in the news this past spring.

**Member Since:** June 30, 2013 **Posts:** 0 **Comments:** 404

---



[/wximage/viewsingleimage.html?

mode=singleimage&handle=Naga5000&number=3]

### 328. Naga5000 [/blog/Naga5000/archive.html]

5:25 AM GMT on November 15, 2014

#### Quoting 327. rayduray2013:

1) Yeah, well, no. The TV networks are masters at creating distractions. Hollywood is masterful at creating distraction. The paparazzi are very talented at creating distractions out of celebrities' lives.

The average American? Pretty much only good at self-distraction unless this person is a really popular Facebook magnet type.

2) Time will tell. If Las Vegas exists a century from now I'll be more inclined to agree with you.

3) Your use of "all knowing" comes across as a disparagement. I prefer to think of Wikipedia as a wonderful short-cut to the world of knowledge. In my youth, the Encyclopedia Britannica was the standard reference work [across the USA as well as the UK]. Wikipedia is incomparably quicker, easier to access and astonishingly up-to-date. Sure, it is a bit dimmed down from peer-reviewed scientific sources, but it's an excellent tool overall. :]

Wikipedia is essentially our version of the Hitchhiker's Guide to the Galaxy. At least it is just about as accurate. :]

**Member Since:** June 1, 2010 **Posts:** 4 **Comments:** 3828



[/wximage/viewsingleimage.html?

mode=singleimage&handle=rayduray2013&number=1]

### 327. rayduray2013 [/blog/rayduray2013/archive.html]

5:11 AM GMT on November 15, 2014

#### Quoting bappit:

1) I agree that **we** generate distractions.

2) Those distractions can enrich our lives if chosen wisely.

3) [the all knowing Wikipedia]

1) Yeah, well, no. The TV networks are masters at creating distractions. Hollywood is masterful at creating distraction. The paparazzi are very talented at creating distractions out of celebrities' lives.



distraction. The paparazzi are very talented at creating distractions out of celebrities' lives.

The average American? Pretty much only good at self-distraction unless this person is a really popular Facebook magnet type.

2) Time will tell. If Las Vegas exists a century from now I'll be more inclined to agree with you.

3) Your use of "all knowing" comes across as a disparagement. I prefer to think of Wikipedia as a wonderful short-cut to the world of knowledge. In my youth, the Encyclopedia Britannica was the standard reference work [across the USA as well as the UK]. Wikipedia is incomparably quicker, easier to access and astonishingly up-to-date. Sure, it is a bit dimmed down from peer-reviewed scientific sources, but it's an excellent tool overall. :]

**Member Since:** June 30, 2013 **Posts:** 0 **Comments:** 404



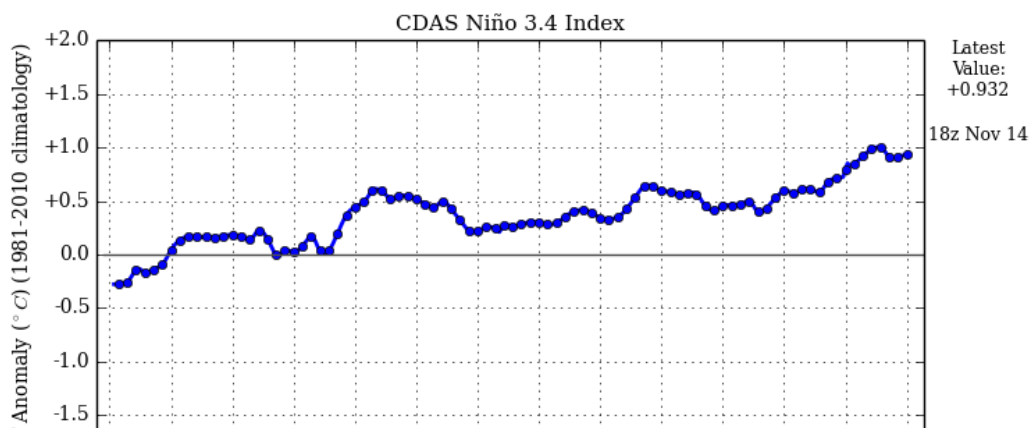
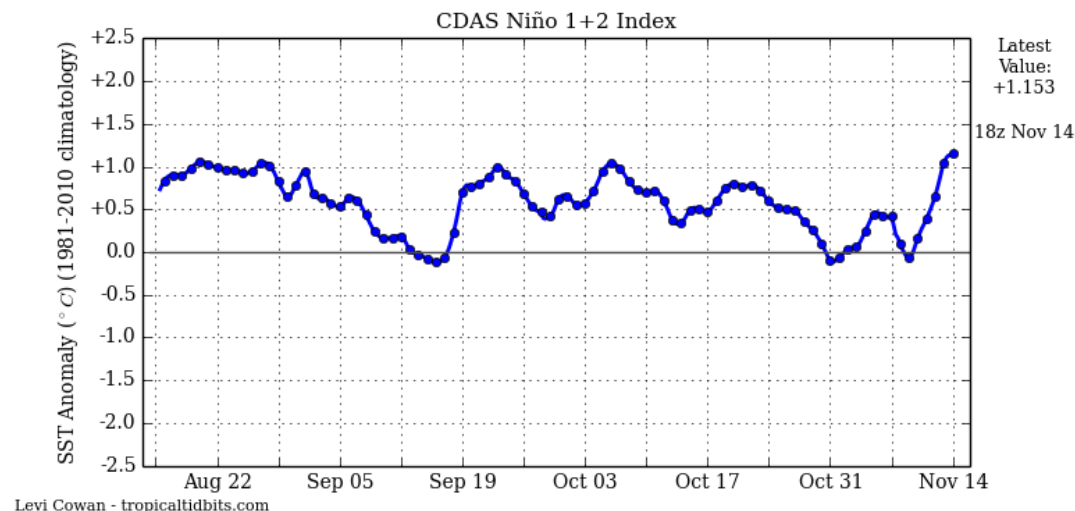
[/wximage/viewsingleimage.html?mode=singleimage&handle=sar2401&number=2]

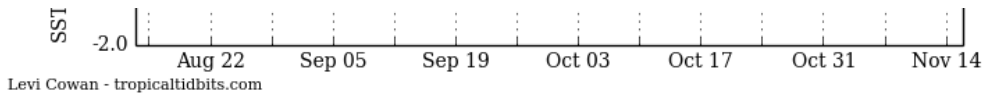
### 326. sar2401 [/blog/sar2401/archive.html]

4:21 AM GMT on November 15, 2014

#### Quoting MAweatherboy1:

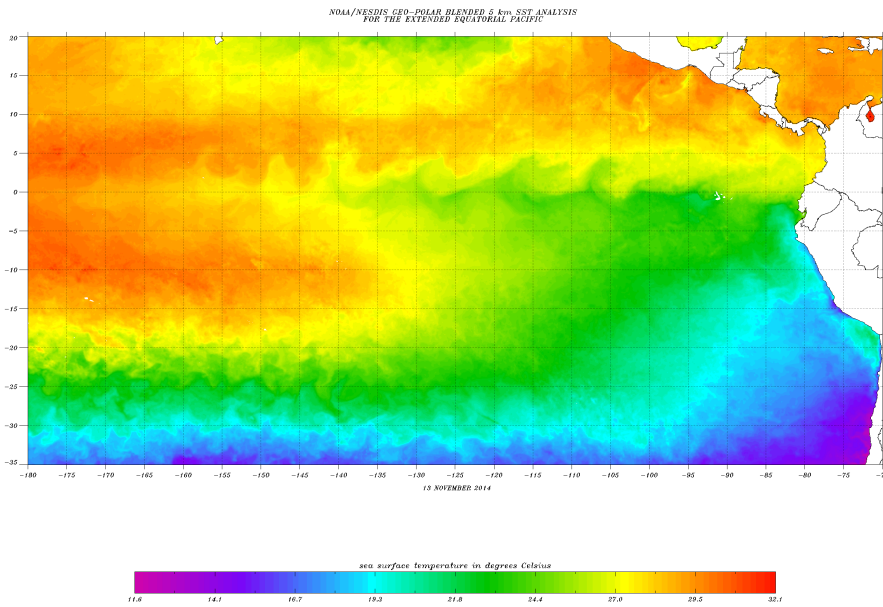
*There's no doubt, El Nino is here.*





*It doesn't matter whether it's official or not, as others have said, if you have SST anomalies like these, the atmosphere will behave like El Nino. The exact values will continue to fluctuate up and down of course, that's the nature of these daily charts, but between observed conditions and model projections, warm ENSO should be the rule for the next several months at least. I won't even speculate on how strong it could peak at, but it appears very likely this will become the first official El Nino since the 2009-2010 event.*

Yeah, but why isn't the water off South America warmer? Why aren't the trade winds behaving right? It may be that we have some El Nino like conditions but I still don't see an imminent El Nino.



**Member Since:** October 2, 2004 **Posts:** 0 **Comments:** 16818



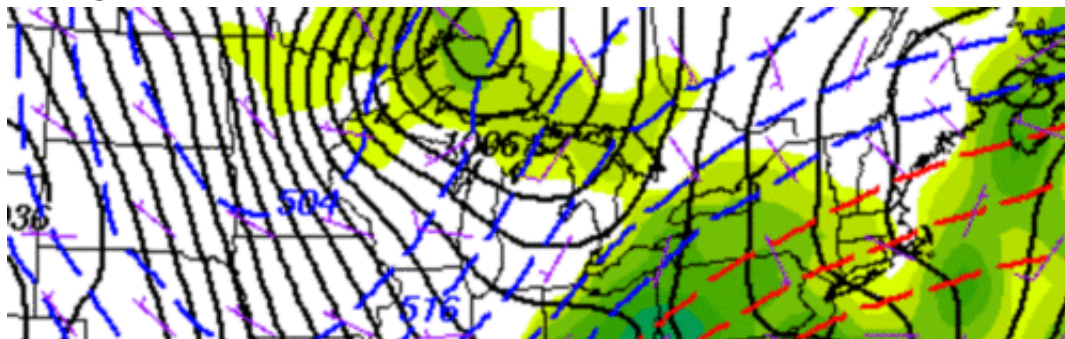
[\[/wximage/viewsingleimage.html?](#)

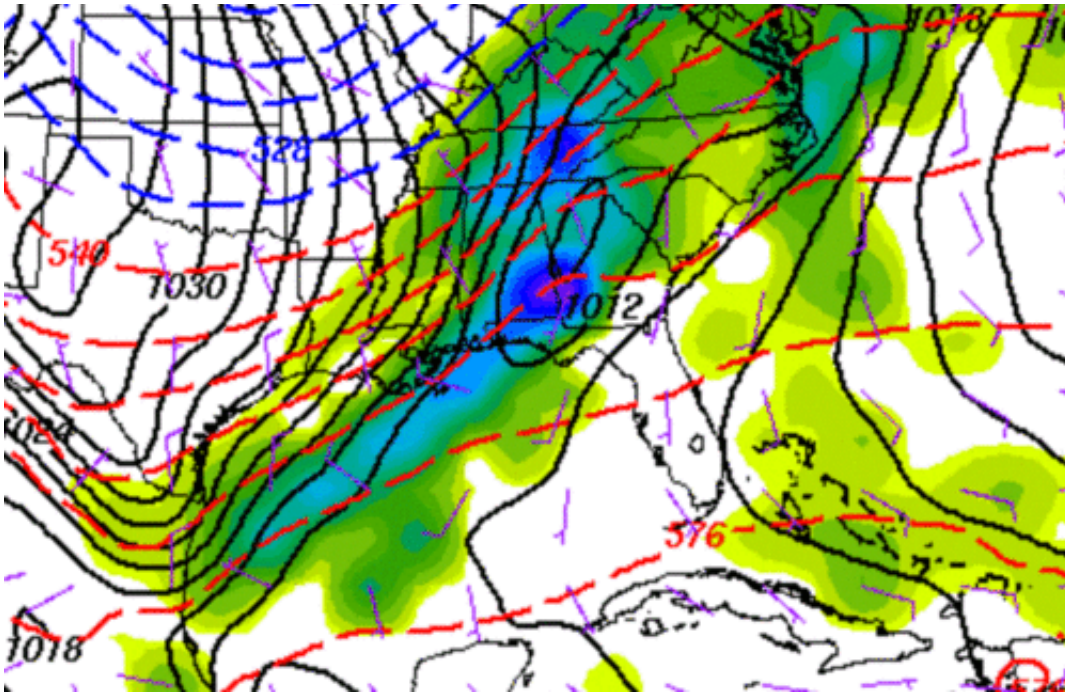
[mode=singleimage&handle=KEEPEROFTHEGATE&number=3602\]](#)

**325. KEEPEROFTHEGATE** [\[/blog/KEEPEROFTHEGATE/archive.html\]](#) **(Mod)**

4:14 AM GMT on November 15, 2014

hr 60 gfs 00z





**Member Since:** July 15, 2006 **Posts:** 176 **Comments:** 55239



[/wximage/viewsingleimage.html?mode=singleimage&handle=ncstorm&number=3]

### 323. ncstorm [/blog/ncstorm/archive.html]

4:11 AM GMT on November 15, 2014

bimbos?..

so much disrespect towards women..and engaged?..

**Member Since:** August 19, 2006 **Posts:** 13 **Comments:** 16146



[/wximage/viewsingleimage.html?mode=singleimage&handle=sar2401&number=2]

### 322. sar2401 [/blog/sar2401/archive.html]

4:08 AM GMT on November 15, 2014

#### Quoting DCSwithunderscores:

*It seems that you've been tricked. What is your source?*

He would have been better off watching "Jersey Shore". :-]

**Member Since:** October 2, 2004 **Posts:** 0 **Comments:** 16818



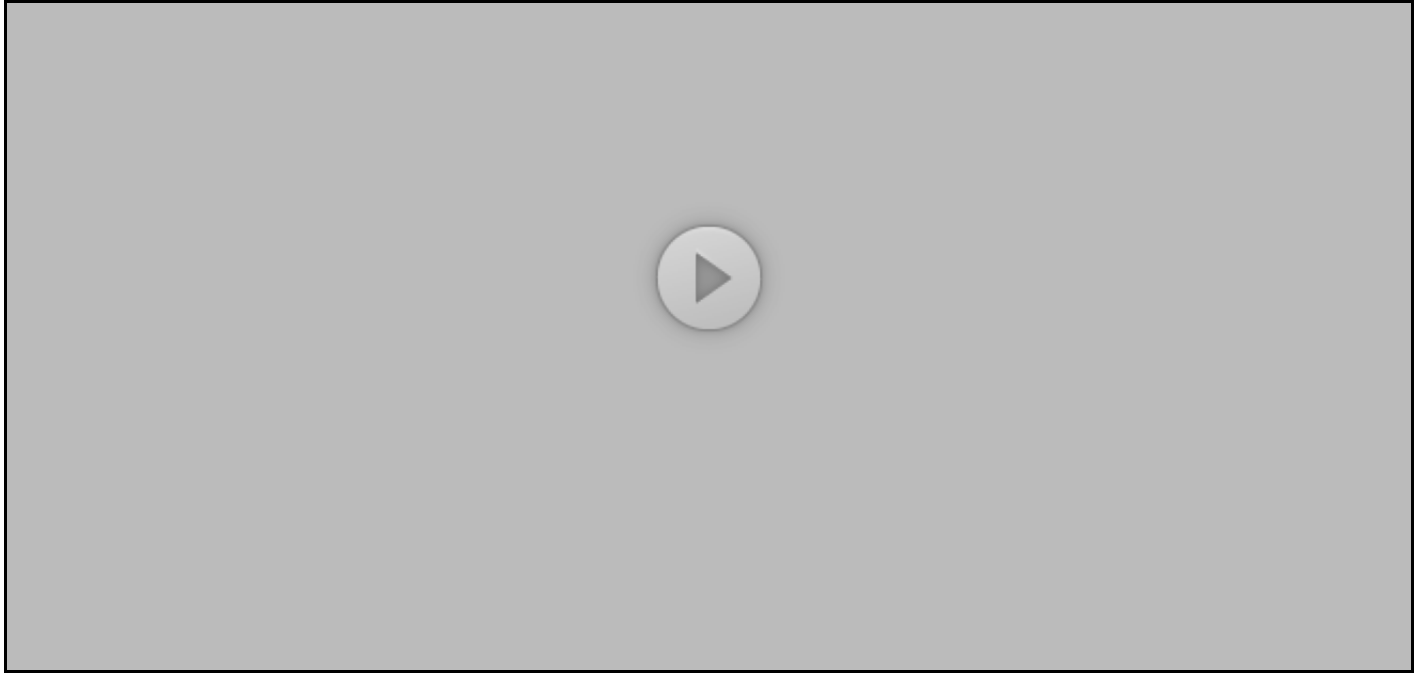
[/wximage/viewsingleimage.html?]

mode=singleimage&handle=StormTrackerScott&number=0]

### 321. StormTrackerScott [/blog/StormTrackerScott/archive.html]

4:05 AM GMT on November 15, 2014

#### Quoting 319. KEEPEROFTHEGATE:



Couple of those pics were taken right here in Altamonte Springs.

**Member Since:** February 28, 2013 **Posts:** 7 **Comments:** 4206



[/wximage/viewsingleimage.html?mode=singleimage&handle=sar2401&number=2]

### 320. sar2401 [/blog/sar2401/archive.html]

4:05 AM GMT on November 15, 2014

#### Quoting MAweatherboy1:

*7.3 magnitude earthquake in Indonesia. Big quake, but probably not a huge deal. That's pretty marginal for generating a tsunami, and per the USGS shake map it doesn't look like the shaking was too bad. An unexpected Saturday morning wake-up for some though.*



That area of what used to be part of the Dutch East Indies is not known for generating tsunamis, but they do have lots of earthquakes. My dad was stationed at Halmahera and Morotai when he was on PT Boats in WWII. He arrived at Halmahera in early 1943, and there was an earthquake large enough to wreck most of the admittedly not well-constructed buildings at his base. Since he was 19 year old kid from Cleveland, that scared him a lot. In mid-1944, their forward base was transferred to Morotai, the next big island north. About a week after he got there, there was another large earthquake that tossed him out of his

bunk and wrecked the barracks he was in. After that, he'd only sleep on the boat. For some reason, he never had an urge to visit that part of the world again.

**Member Since:** October 2, 2004 **Posts:** 0 **Comments:** 16818

---

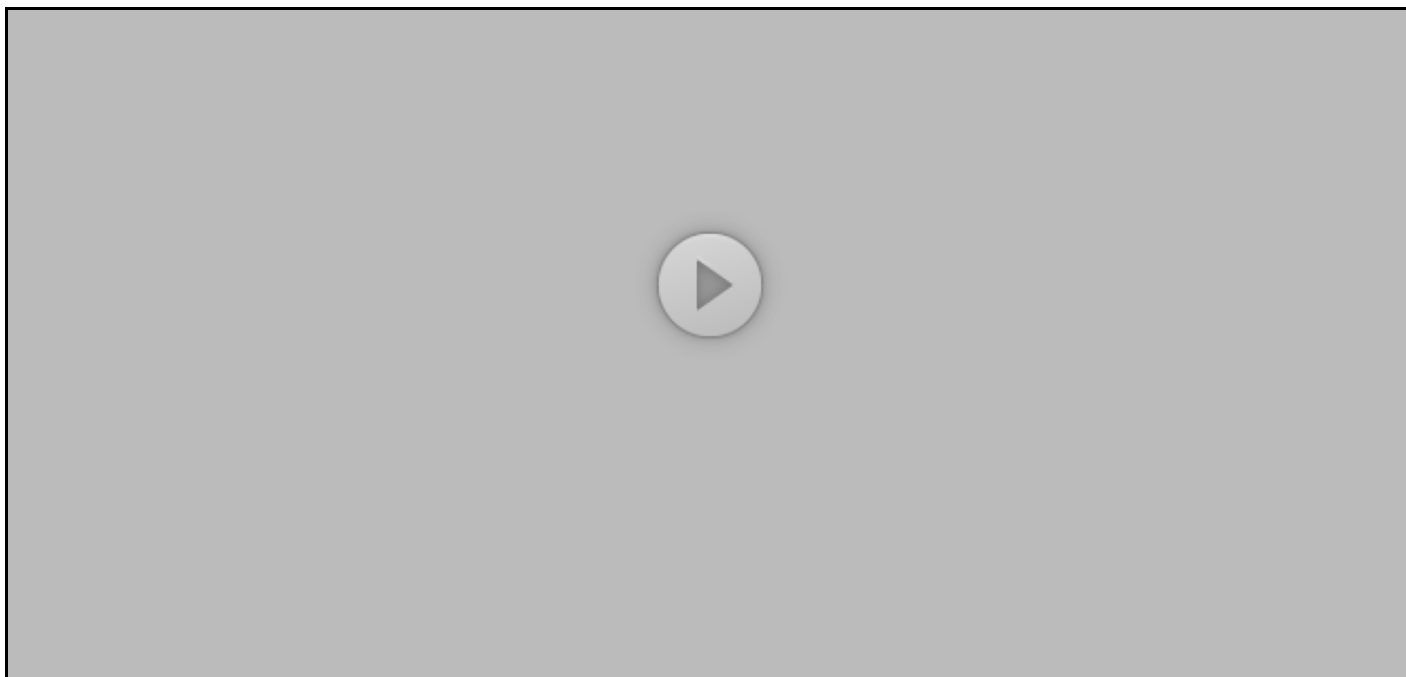


[\[/wximage/viewsingleimage.html?](#)

[mode=singleimage&handle=KEEPEROFTHEGATE&number=3602\]](#)

### 319. KEEPEROFTHEGATE [\[/blog/KEEPEROFTHEGATE/archive.html\]](#) **[Mod]**

4:02 AM GMT on November 15, 2014



**Member Since:** July 15, 2006 **Posts:** 176 **Comments:** 55239

---



[\[/wximage/viewsingleimage.html?mode=singleimage&handle=sar2401&number=2\]](#)

### 318. sar2401 [\[/blog/sar2401/archive.html\]](#)

3:46 AM GMT on November 15, 2014

#### **Quoting rayduray2013:**

*Hi bappit,*

*I tend to agree with sar2401 on this matter. America generates distractions (comparable to the Roman bread and circuses) at an astonishing rate.*

*I'm proud of the fact that I know hardly anything about Snookie and Jersey Shore. I've never watched more than a one minute clip to convince me of the worthlessness of that show. I'm proud that I know next to nothing about Kim Kardashian, Paris Hilton and some drunk named Lohan.*

*There's only so much time in one's life. Better to spend it focused on what's real and what is*

important. For example, I've made quite a study of the relationship between Eric Holder and Jamie Dimon. People who care about the future of this nation might want to do the same. Here's a good story, courtesy of Matt Taibbi.

**"The \$9 Billion Witness: Meet JPMorgan-Chase's Worst Nightmare":**

Read more: <http://www.rollingstone.com/politics/news/the-9-billion-witness-20141106#ixzz3J6AgsKGo>

\*\*\*

*I suggest this article as one of hundreds I've read about tropical cyclones, meteorology, the IPCC, U.S. imperial policy vis-a-vis the petroleum states of the Middle East, Russia's energy reserves, finance and others too numerous to mention. Not much of what I read though has anything to do with being entertained by the temporarily famous.*

*And, as always, YMMV :]*

Geez, someone else I have on ignore takes a shot at me. This is getting to be a pattern today. Anyway, yes indeed, I'm proudly ignorant to know almost nothing about "Jersey Shore" or a shark movies made about such a place. I'm proud not to be one of 800,000 followers on Twitter of a perfectly ordinary 16 year old boy who happened to get his picture posted for reasons that escape me. Now, if I didn't know what NWS or CAPE stood for, I wouldn't be proud of that. I wouldn't be proud of the fact I didn't know who the vice-president is or who won the Civil War. All knowledge is not created equal. Knowing the names of some vacuous bimbos on a TV show that has no redeeming value to me and the show will soon be forgotten, so it just clutters up what remaining free space I still have in my brain. If other people want to watch it and know all about it, that's perfectly OK with me. I wouldn't expect them to know anything about the Byzantine Wars either. It wouldn't make either of us ignorant, just different, with different interests...although we really should know who the VP is, just because the thought of him being one heartbeat away from the presidency is so scary. :-]

**Member Since:** October 2, 2004 **Posts:** 0 **Comments:** 16818



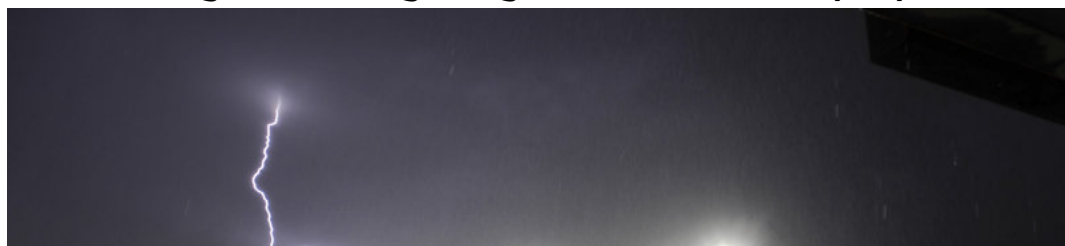
[\[/wximage/viewsingleimage.html?](#)

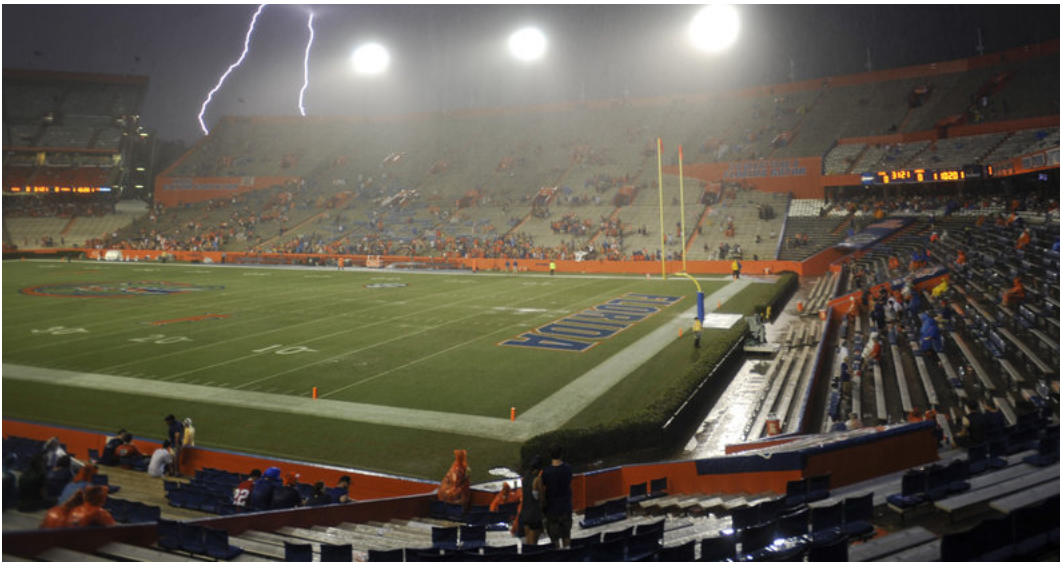
[mode=singleimage&handle=StormTrackerScott&number=0\]](#)

**317. StormTrackerScott** [\[/blog/StormTrackerScott/archive.html\]](#)

3:43 AM GMT on November 15, 2014

**Climate Change To Make Lightning More Common, Study Says**





The likelihood of getting struck by lightning has long been a metaphor for something with an exceedingly remote probability.

But that could be changing.

A new study in the journal *Science* says that temperature increases due to climate change are ushering in a new era that could mean by the end of the century lightning strikes will be about half again as common as they were at the start of this century.

That's because lightning occurs more frequently when it's hotter. To wit, Florida leads in lightning fatalities, with 32 since 2006, according to The Weather Channel [followed by Louisiana, Mississippi, Alabama and Arkansas].

There's a more detailed analysis of lightning fatalities for the period 1990-2003 from the National Lightning Safety Institute [here](#). (To be sure, there are clearly other factors, such as population density, when it comes to fatalities, as the website makes clear.)

In the new study, a team of researchers led by David M. Roms predicts that the frequency of lightning strikes will increase about 12 percent for every degree of rise in the average global temperature. If current trends in warming continue unchecked, it could result in a 50 percent increase in lightning strikes by 2100, the authors of the study say.

"For every two lightning strikes in 2000, there will be three lightning strikes in 2100," David Roms, at the University of California, Berkeley, is quoted by the BBC as saying.

Roms says temperature fuels lightning and that his team's conclusions are based on the fact that there will be more heat energy to fuel storm clouds.

"As the planet warms, there will be more of this fuel around, so when thunderstorms get triggered, they will be more energetic," Roms says, according to the BBC.

Mother Jones magazine points out: "lightning strikes are the [principal] cause of wildfires, which are

already predicted to become more severe due to global warming. In one 24-hour period in August, lightning in Northern California started 34 wildfires. The study doesn't make any specific predictions about wildfire activity, but knowing about future lightning conditions is an important part of that equation."

**Source:**

[http://www.npr.org/blogs/thetwo-way/2014/11/14/364062144/climate-change-to-make-lightning-more-comm on-study-says](http://www.npr.org/blogs/thetwo-way/2014/11/14/364062144/climate-change-to-make-lightning-more-common-study-says)

**Member Since:** February 28, 2013 **Posts:** 7 **Comments:** 4206

---



**316. DCSwithunderscores [/blog/DCSwithunderscores/archive.html]**

3:42 AM GMT on November 15, 2014

**Quoting 309. tennesseebound:**

*There has been no global warming for 18 years.*

It seems that you've been tricked. What is your source?

**Member Since:** March 29, 2014 **Posts:** 0 **Comments:** 168

---



[\[/wximage/viewsingleimage.html?mode=singleimage&handle=Patrap&number=456\]](/wximage/viewsingleimage.html?mode=singleimage&handle=Patrap&number=456)

**315. Patrap [/blog/Patrap/archive.html]**

3:30 AM GMT on November 15, 2014

*However, their strength and degree of inland penetration vary daily depending on the direction and speed of the prevailing wind*

Raised eyebrow'

**Member Since:** July 3, 2005 **Posts:** 426 **Comments:** 129198

---



[\[/wximage/viewsingleimage.html?](/wximage/viewsingleimage.html?mode=singleimage&handle=StormTrackerScott&number=0)

[mode=singleimage&handle=StormTrackerScott&number=0\]](mode=singleimage&handle=StormTrackerScott&number=0)

**314. StormTrackerScott [/blog/StormTrackerScott/archive.html]**

3:29 AM GMT on November 15, 2014



3:30 AM GMT on November 15, 2014

This photo is from Storm Visuals back in August. This guy caught a lightning strike hitting a building in Downtown Miami.



**Member Since:** February 28, 2013 **Posts:** 7 **Comments:** 4206



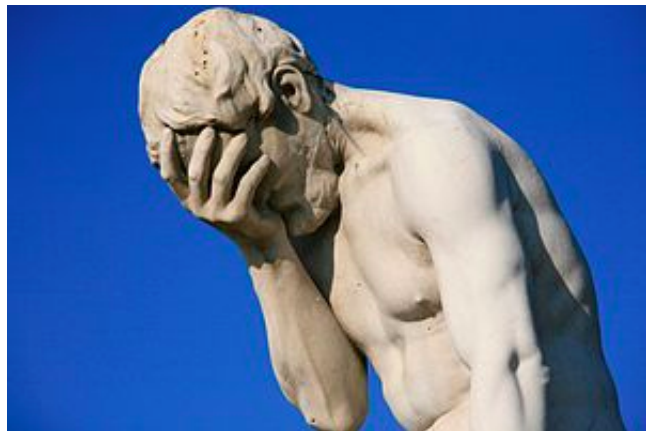
[\[/wximage/viewsingleimage.html?mode=singleimage&handle=aquak9&number=381\]](#)

### 313. aquak9 [/blog/aquak9/archive.html]

3:23 AM GMT on November 15, 2014

**Quoting 309. tennesseebound:**

*There has been no global warming for 18 years.*



**Member Since:** August 13, 2005 **Posts:** 174 **Comments:** 26385



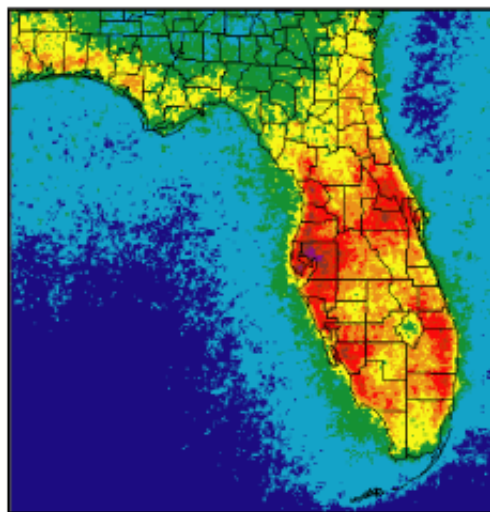
[/wximage/viewsingleimage.html?

mode=singleimage&handle=StormTrackerScott&number=0]

### 312. StormTrackerScott [/blog/StormTrackerScott/archive.html]

3:22 AM GMT on November 15, 2014

Here is a pic below illustrating the areas of FL that are more prone to lightning and notice the Tampa Bay area and Orlando areas are the hot spots in FL.



0.0 1.5 3.0 4.5 6.0 7.5 9.0 10.5 12.0 >12.0

Composite view of warm season lightning over the entire Florida peninsula.

Warm season lighting over the Florida Peninsula mostly is due to the inland penetrating sea breeze front. Sea breezes are an almost daily occurrence during the summer. However, their strength and degree of inland penetration vary daily depending on the direction and speed of the prevailing wind (as determined from radiosondes). The location and amount of lightning associated with the sea breeze also varies due to these atmospheric conditions.

**Member Since:** February 28, 2013 **Posts:** 7 **Comments:** 4206

---



[\[/wximage/viewsingleimage.html?](#)

[mode=singleimage&handle=StormTrackerScott&number=0\]](#)

### **311. StormTrackerScott (/blog/StormTrackerScott/archive.html)**

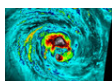
3:18 AM GMT on November 15, 2014

Since this blog is about lightning. Here is a pic from Fellsmere not far from me back in August 2010.



**Member Since:** February 28, 2013 **Posts:** 7 **Comments:** 4206

---



[\[/wximage/viewsingleimage.html?](#)

[mode=singleimage&handle=MAweatherboy1&number=6\]](#)

### **310. MAweatherboy1 (/blog/MAweatherboy1/archive.html)**

3:16 AM GMT on November 15, 2014

7.3 magnitude earthquake in Indonesia. Big quake, but probably not a huge deal. That's pretty marginal for generating a tsunami, and per the USGS shake map it doesn't look like the shaking was too bad. An unexpected Saturday morning wake-up for some though.



**Member Since:** February 11, 2012 **Posts:** 84 **Comments:** 7985

---





[/wximage/viewsingleimage.html?

mode=singleimage&handle=aquak9&number=381]

### 308. aquak9 [/blog/aquak9/archive.html]

3:13 AM GMT on November 15, 2014

PUBLIC TSUNAMI INFORMATION STATEMENT NUMBER 1  
NWS NATIONAL TSUNAMI WARNING CENTER PALMER AK  
644 PM PST FRI NOV 14 2014

...THIS IS A TSUNAMI INFORMATION STATEMENT FOR **ALASKA/ BRITISH COLUMBIA/ WASHINGTON/ OREGON AND CALIFORNIA...**EVALUATION

-----

**\* THERE IS NO TSUNAMI DANGER FOR THE AREAS LISTED ABOVE.**

**Member Since:** August 13, 2005 **Posts:** 174 **Comments:** 26385

---



[/wximage/viewsingleimage.html?mode=singleimage&handle=Patrap&number=456]

### 307. Patrap [/blog/Patrap/archive.html]

3:10 AM GMT on November 15, 2014

A strong earthquake with a magnitude of 7.3 was recorded off the Moluccas in Indonesia on Saturday, the U.S. Geological Survey said, and a tsunami warning was issued for the area near the quake.

The Pacific Tsunami Warning Center in Hawaii said hazardous tsunamis were possible within 300 km [185 miles] of the quake's epicentre. The centre said there was no danger of a Pacific-wide tsunami.

The quake was measured at a depth of 47 km [34 miles], with the epicentre 134 km [83 miles] northwest of Ternate.

Follow us on Twitter: @globeandmail

**Member Since:** July 3, 2005 **Posts:** 426 **Comments:** 129198

---



[/wximage/viewsingleimage.html?

mode=singleimage&handle=aquak9&number=381]

### 306. aquak9 [/blog/aquak9/archive.html]

3:09 AM GMT on November 15, 2014

hey keeper-

will you please go back to Pcroton's blog and tell me what post 360 is?

TIA

**Member Since:** August 13, 2005 **Posts:** 174 **Comments:** 26385

---



[/wximage/viewsingleimage.html?

mode=singleimage&handle=VAbeachhurricanes&number=4]

### **305. VAbeachhurricanes [/blog/VAbeachhurricanes/archive.html]**

3:05 AM GMT on November 15, 2014

Parameter Value Uncertainty

Magnitude 7.3 mwp  $\pm$  0.03

Location 1.885°N, 126.509°E Not Specified

Depth 47.0 km  $\pm$  6.2 km

Number of Stations Used Not Specified

Number of Phases Used 116

Minimum Distance 155.7 km [1.40°]

Travel Time Residual 1.13 sec

Azimuthal Gap 20°

Review Status MANUAL

Event ID usc000sxh8

000

WEPA40 PHEB 150242

TSUPAC

TSUNAMI MESSAGE NUMBER 1

NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI

0242 UTC SAT NOV 15 2014

...PTWC TSUNAMI THREAT MESSAGE...

\*\*\*\* NOTICE \*\*\*\* NOTICE \*\*\*\* NOTICE \*\*\*\* NOTICE \*\*\*\* NOTICE \*\*\*\*\*

THIS MESSAGE IS ISSUED FOR INFORMATION ONLY IN SUPPORT OF THE  
UNESCO/IOC PACIFIC TSUNAMI WARNING AND MITIGATION SYSTEM AND IS  
MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT SYSTEM.

NATIONAL AUTHORITIES WILL DETERMINE THE APPROPRIATE LEVEL OF  
ALERT FOR EACH COUNTRY AND MAY ISSUE ADDITIONAL OR MORE REFINED  
INFORMATION.

\*\*\*\* NOTICE \*\*\*\* NOTICE \*\*\*\* NOTICE \*\*\*\* NOTICE \*\*\*\* NOTICE \*\*\*\*\*

PRELIMINARY EARTHQUAKE PARAMETERS

-----  
\* MAGNITUDE 7.3

- PARAMETERS
- \* ORIGIN TIME 0232 UTC NOV 15 2014
  - \* COORDINATES 1.9 NORTH 126.7 EAST
  - \* DEPTH 10 KM / 6 MILES
  - \* LOCATION HALMAHERA INDONESIA

#### EVALUATION

-----

- \* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.3 OCCURRED IN HALMAHERA, INDONESIA AT 0232 UTC ON SATURDAY NOVEMBER 15 2014.

- \* BASED ON THE PRELIMINARY EARTHQUAKE PARAMETERS... HAZARDOUS TSUNAMI WAVES ARE POSSIBLE FOR COASTS LOCATED WITHIN 300 KM OF THE EARTHQUAKE EPICENTER.

#### TSUNAMI THREAT FORECAST...UPDATED

-----

- \* HAZARDOUS TSUNAMI WAVES FROM THIS EARTHQUAKE ARE POSSIBLE WITHIN 300 KM OF THE EPICENTER ALONG THE COASTS OF

INDONESIA

#### RECOMMENDED ACTIONS

-----

- \* GOVERNMENT AGENCIES RESPONSIBLE FOR THREATENED COASTAL AREAS SHOULD TAKE ACTION TO INFORM AND INSTRUCT ANY COASTAL POPULATIONS AT RISK IN ACCORDANCE WITH THEIR OWN EVALUATION... PROCEDURES AND THE LEVEL OF THREAT.

- \* PERSONS LOCATED IN THREATENED COASTAL AREAS SHOULD STAY ALERT FOR INFORMATION AND FOLLOW INSTRUCTIONS FROM NATIONAL AND LOCAL AUTHORITIES.

#### ESTIMATED TIMES OF ARRIVAL

-----

- \* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE

FOR PLACES WITH AN ETA WITHIN THE NEXT SIX HOURS. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION REGION COORDINATES ETA[UTC]

-----  
TABUKAN TENGAH INDONESIA 3.6N 125.6E 0304 11/15  
BEREBERE INDONESIA 2.5N 128.7E 0309 11/15  
GEME INDONESIA 4.6N 126.8E 0315 11/15  
DAVAO PHILIPPINES 6.8N 125.7E 0334 11/15  
PATANI INDONESIA 0.4N 128.8E 0339 11/15  
SORONG INDONESIA 0.8S 131.1E 0358 11/15  
MANOKWARI INDONESIA 0.8S 134.2E 0405 11/15  
WARSA INDONESIA 0.6S 135.8E 0417 11/15  
MALAKAL PALAU 7.3N 134.5E 0431 11/15  
LEGASPI PHILIPPINES 13.2N 123.8E 0433 11/15  
YAP ISLAND YAP 9.5N 138.1E 0441 11/15  
PALANAN PHILIPPINES 17.1N 122.6E 0449 11/15  
JAYAPURA INDONESIA 2.4S 140.8E 0503 11/15  
VANIMO PAPUA NEW GUINEA 2.6S 141.3E 0510 11/15  
TAITUNG TAIWAN 22.7N 121.2E 0541 11/15  
GUAM GUAM 13.4N 144.7E 0542 11/15  
WEWAK PAPUA NEW GUINEA 3.5S 143.6E 0543 11/15  
HUALIEN TAIWAN 24.0N 121.7E 0547 11/15  
SAIPAN NORTHERN MARIANA 15.3N 145.8E 0601 11/15  
CHILUNG TAIWAN 25.2N 121.8E 0619 11/15  
MANUS ISLAND PAPUA NEW GUINEA 2.0S 147.5E 0620 11/15  
MADANG PAPUA NEW GUINEA 5.2S 145.8E 0634 11/15  
OKINAWA JAPAN 26.2N 127.8E 0645 11/15  
KAVIENG PAPUA NEW GUINEA 2.5S 150.7E 0652 11/15  
CHICHI JIMA JAPAN 27.0N 142.3E 0653 11/15  
CHUUK ISLAND CHUUK 7.4N 151.8E 0705 11/15  
NOBEOKA JAPAN 32.5N 131.8E 0710 11/15  
SHIMIZU JAPAN 32.8N 133.0E 0719 11/15  
ULAMONA PAPUA NEW GUINEA 5.0S 151.3E 0720 11/15  
LAE PAPUA NEW GUINEA 6.8S 147.0E 0722 11/15  
MINAMITORISHIMA JAPAN 24.3N 154.0E 0724 11/15  
RABAU PAPUA NEW GUINEA 4.2S 152.3E 0725 11/15  
POHNPEI ISLAND POHNPEI 7.0N 158.2E 0726 11/15  
HACHIJO JIMA JAPAN 33.1N 139.8E 0732 11/15  
KIETA PAPUA NEW GUINEA 6.1S 155.6E 0743 11/15  
WOODLARK ISLAND PAPUA NEW GUINEA 9.0S 152.9E 0745 11/15  
KATSUURA JAPAN 35.1N 140.3E 0746 11/15  
AMUN PAPUA NEW GUINEA 6.0S 154.7E 0746 11/15  
FAI AMAE SOI OMON ISI ANDS 7 4S 155 6E 0753 11/15

PANGGOE SOLOMON ISLANDS 6.9S 157.2E 0757 11/15  
ENIWETOK MARSHALL ISLANDS 11.4N 162.3E 0804 11/15  
KOSRAE ISLAND KOSRAE 5.5N 163.0E 0804 11/15  
NAGASAKI JAPAN 32.7N 129.7E 0809 11/15  
WAKE ISLAND WAKE ISLAND 19.3N 166.6E 0821 11/15  
MUNDA SOLOMON ISLANDS 8.4S 157.2E 0824 11/15  
GHATERE SOLOMON ISLANDS 7.8S 159.2E 0829 11/15  
KWAJALEIN MARSHALL ISLANDS 8.7N 167.7E 0835 11/15

#### POTENTIAL IMPACTS

-----

\* A TSUNAMI IS A SERIES OF WAVES. THE TIME BETWEEN WAVE CRESTS CAN VARY FROM 5 MINUTES TO AN HOUR. THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE INITIAL WAVE.

\* IMPACTS CAN VARY SIGNIFICANTLY FROM ONE SECTION OF COAST TO THE NEXT DUE TO LOCAL BATHYMETRY AND THE SHAPE AND ELEVATION OF THE SHORELINE.

\* IMPACTS CAN ALSO VARY DEPENDING UPON THE STATE OF THE TIDE AT THE TIME OF THE MAXIMUM TSUNAMI WAVES.

\* PERSONS CAUGHT IN THE WATER OF A TSUNAMI MAY DROWN... BE CRUSHED BY DEBRIS IN THE WATER... OR BE SWEEPED OUT TO SEA.

#### NEXT UPDATE AND ADDITIONAL INFORMATION

-----

\* THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

\* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT [EARTHQUAKE.USGS.GOV/EARTHQUAKES](http://EARTHQUAKE.USGS.GOV/EARTHQUAKES) -ALL LOWER CASE-.

\* FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND AT [PTWC.WEATHER.GOV](http://PTWC.WEATHER.GOV) AND AT [WWW.TSUNAMI.GOV](http://WWW.TSUNAMI.GOV).

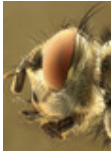
\* COASTAL REGIONS OF HAWAII... AMERICAN SAMOA... GUAM... AND CNMI SHOULD REFER TO PACIFIC TSUNAMI WARNING CENTER MESSAGES SPECIFICALLY FOR THOSE PLACES THAT CAN BE FOUND AT [PTWC.WEATHER.GOV](http://PTWC.WEATHER.GOV).



\* COASTAL REGIONS OF CALIFORNIA... OREGON... WASHINGTON...  
BRITISH COLUMBIA AND ALASKA SHOULD ONLY REFER TO U.S. NATIONAL  
TSUNAMI WARNING CENTER MESSAGES THAT CAN BE FOUND AT  
NTWC.ARH.NOAA.GOV.

\$\$

**Member Since:** September 6, 2007 **Posts:** 0 **Comments:** 6685



[/wximage/viewsingleimage.html?mode=singleimage&handle=bappit&number=4]

### **304. bappit [/blog/bappit/archive.html]**

3:05 AM GMT on November 15, 2014

#### **Quoting rayduray2013:**

*Hi bappit,*

*I tend to agree with sar2401 on this matter. America generates distractions [comparable to the Roman bread and circuses] at an astonishing rate.*

*I'm proud of the fact that I know hardly anything about Snookie and Jersey Shore. I've never watched more than a one minute clip to convince me of the worthlessness of that show. I'm proud that I know next to nothing about Kim Kardashian, Paris Hilton and some drunk named Lohan.*

*There's only so much time in one's life. Better to spend it focused on what's real and what is important. For example, I've made quite a study of the relationship between Eric Holder and Jamie Dimon. People who care about the future of this nation might want to do the same. Here's a good story, courtesy of Matt Taibbi.*

#### **"The \$9 Billion Witness: Meet JPMorgan-Chase's Worst Nightmare":**

*Read more: <http://www.rollingstone.com/politics/news/the-9-billion-witness-20141106#ixzz3J6AgsKGo>*

\*\*\*

*I suggest this article as one of hundreds I've read about tropical cyclones, meteorology, the IPCC, U.S. imperial policy vis-a-vis the petroleum states of the Middle East, Russia's energy reserves, finance and others too numerous to mention. Not much of what I read though has anything to do with being entertained by the temporarily famous.*

*And, as always, YMMV :]*

I agree that **we** generate distractions. Those distractions can enrich our lives if chosen wisely. Some broad knowledge about the world is needed to inform those choices. That is why I would prefer not to be smug about my ignorance. There also is the Dunning-Kruger effect: "a cognitive bias whereby unskilled individuals suffer from illusory superiority, mistakenly rating their ability much higher than is accurate." [the all knowing Wikipedia]

**Member Since:** May 18, 2006 **Posts:** 10 **Comments:** 6135

---



[/wximage/viewsingleimage.html?

mode=singleimage&handle=Jedkins01&number=20]

### **303. Jedkins01 (/blog/Jedkins01/archive.html)**

3:04 AM GMT on November 15, 2014

People say Florida doesn't get Fall? Forget that! We are getting winter in fall! Next week's cold event will be that much stronger though, with lows as cold as mid 20's expected!

Fair

37°F

3°C

Humidity65%

Wind SpeedNW 3 mph

Barometer30.25 in (1024.3 mb)

Dewpoint26°F [-3°C]

Visibility10.00 mi

Last Update on 14 Nov 9:53 pm EST

Current conditions at

Tallahassee Regional Airport (KTLH)

Lat: 30.4°N Lon: 84.35°W Elev: 69ft.

[More Local Wx](#) | [3 Day History](#) | [Mobile Weather](#)

**Member Since:** August 21, 2008 **Posts:** 0 **Comments:** 7893

---



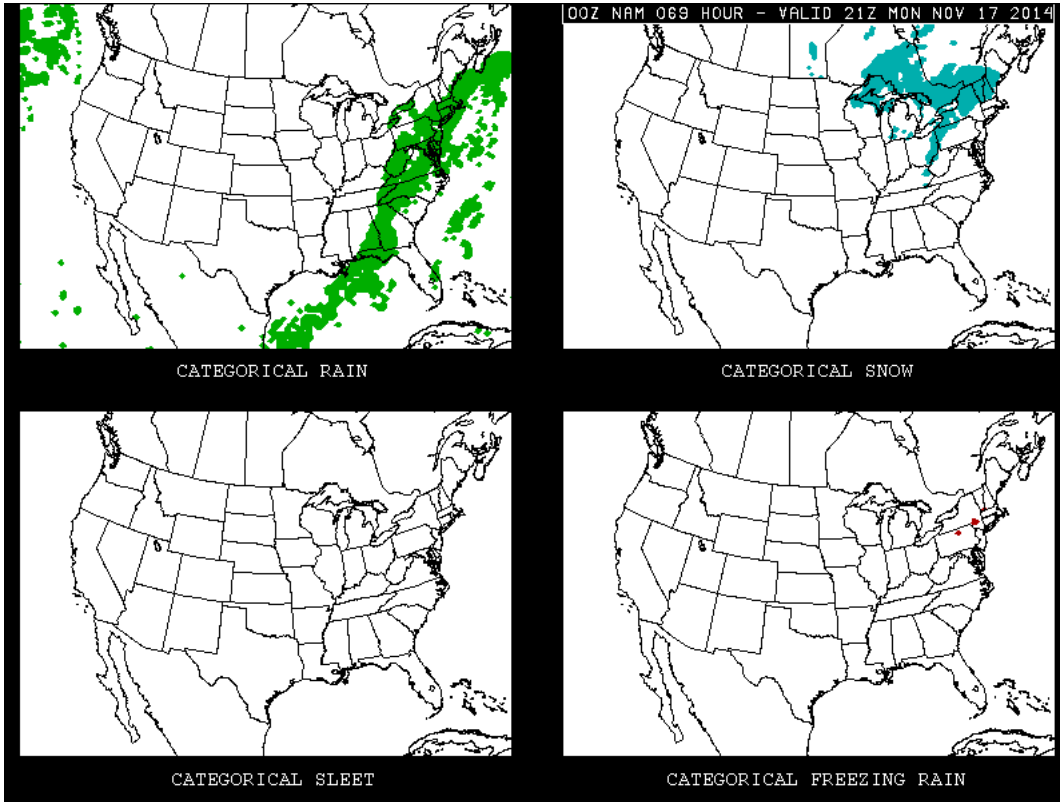
[/wximage/viewsingleimage.html?

mode=singleimage&handle=KEEPEROFTHEGATE&number=3602]

### **302 KEEPEROFTHEGATE (/blog/KEEPEROFTHEGATE/archive.html) (Mod)**

302. KEEPEROFTHEGATE (/blog/KEEPEROFTHEGATE/archive.html) (Mod)

3:01 AM GMT on November 15, 2014



Member Since: July 15, 2006 Posts: 176 Comments: 55239

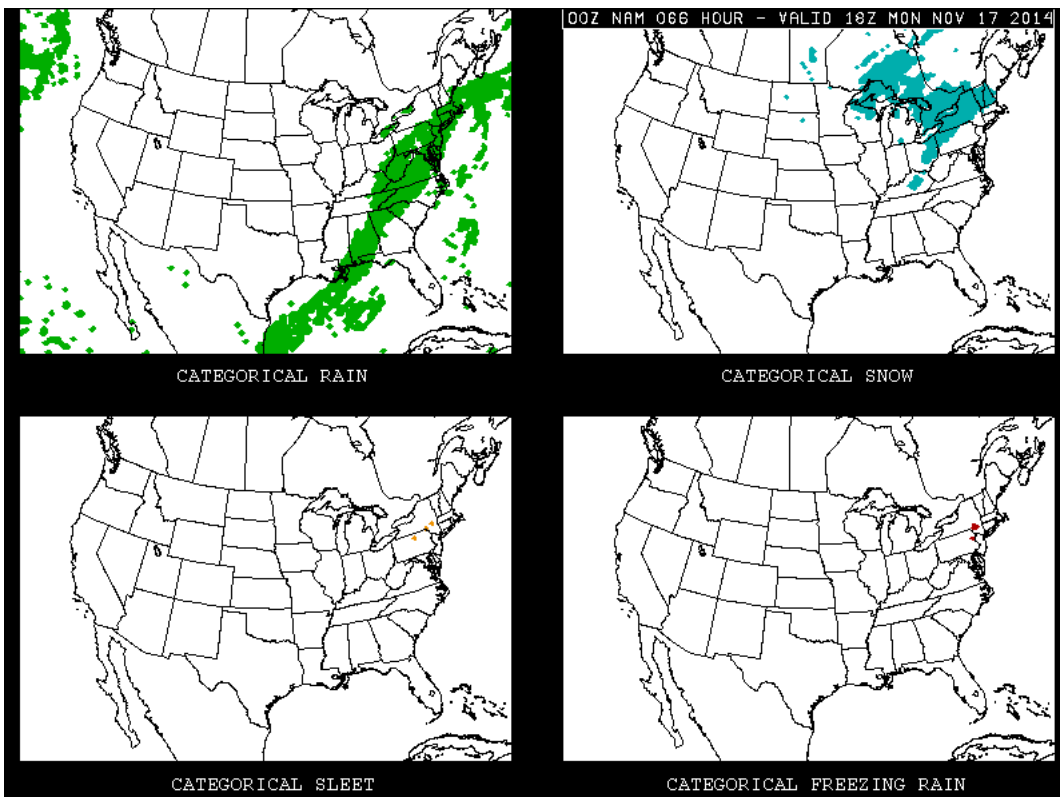


[/wximage/viewsingleimage.html?

mode=singleimage&handle=KEEPEROFTHEGATE&number=3602]

301. KEEPEROFTHEGATE (/blog/KEEPEROFTHEGATE/archive.html) (Mod)

3:00 AM GMT on November 15, 2014



Member Since: July 15, 2006 Posts: 176 Comments: 55239

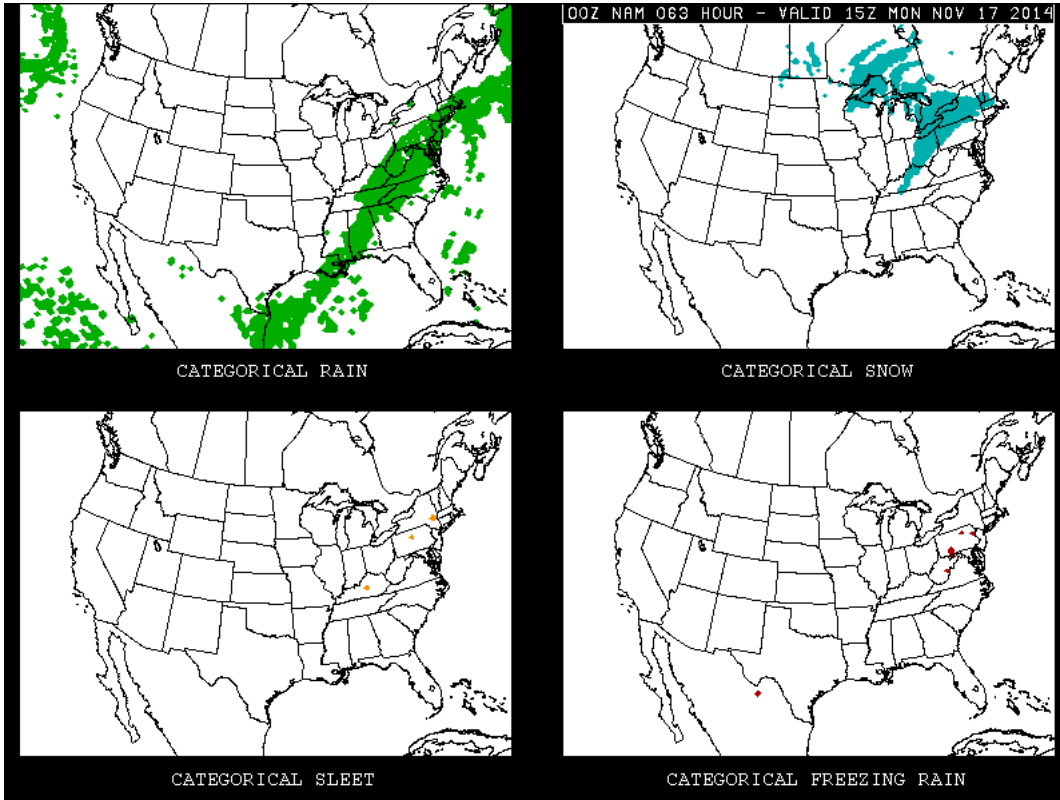


[\[/wximage/viewsingleimage.html?mode=singleimage&handle=KEEPEROFTHEGATE&number=3602\]](#)

[mode=singleimage&handle=KEEPEROFTHEGATE&number=3602\]](#)

### 300. KEEPEROFTHEGATE [\[/blog/KEEPEROFTHEGATE/archive.html\]](#) (Mod)

3:00 AM GMT on November 15, 2014



Member Since: July 15, 2006 Posts: 176 Comments: 55239

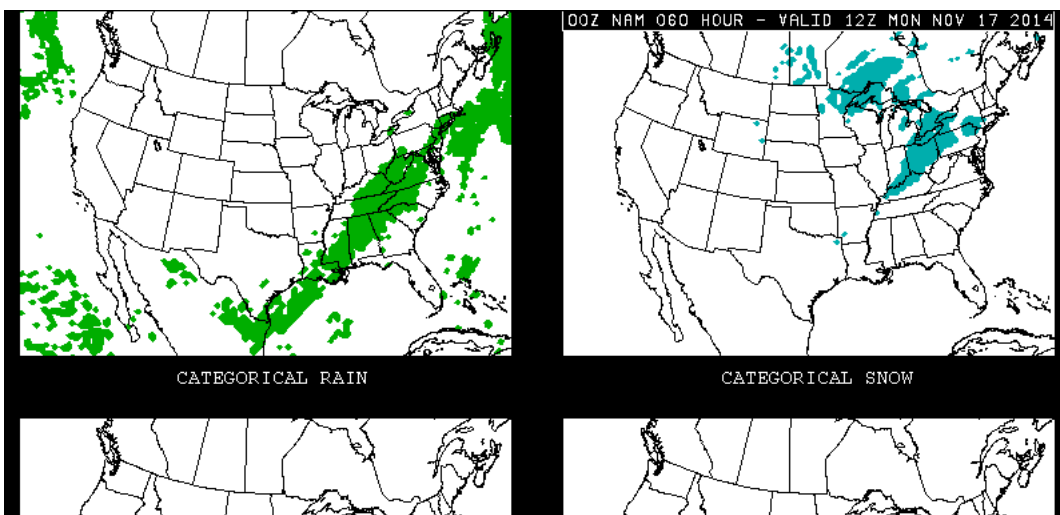


[\[/wximage/viewsingleimage.html?mode=singleimage&handle=KEEPEROFTHEGATE&number=3602\]](#)

[mode=singleimage&handle=KEEPEROFTHEGATE&number=3602\]](#)

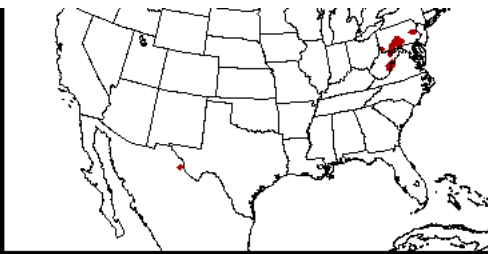
### 299. KEEPEROFTHEGATE [\[/blog/KEEPEROFTHEGATE/archive.html\]](#) (Mod)

2:59 AM GMT on November 15, 2014





CATEGORICAL SLEET



CATEGORICAL FREEZING RAIN

**Member Since:** July 15, 2006 **Posts:** 176 **Comments:** 55239



[/wximage/viewsingleimage.html?

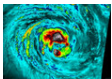
mode=singleimage&handle=StormHype&number=2]

**298. StormHype [/blog/StormHype/archive.html]**

2:58 AM GMT on November 15, 2014

Great news since I love lightning. It frees nitrogen from the air to help plant life flourish as well as cleaning the air of particulates. My worry is this prognostication of increased lightning is a big bust as much as the call for increased hurricanes was several years back. What a bust that was, and it hurt the credibility of NOAA and other orgs. I think the science community should stick to measuring and studying, and making only forecast within the range of their actual skill and credibility, and less of these doomster prognostication articles. They really don't know [they know it's a guess ] but they do it anyway as an attempt to influence politics in favor of funneling money their way. All kinds of industries and organizations do this kind of crap as well. The internet has become a propaganda machine for everyone now, even climate scientists.

**Member Since:** May 31, 2007 **Posts:** 0 **Comments:** 1210



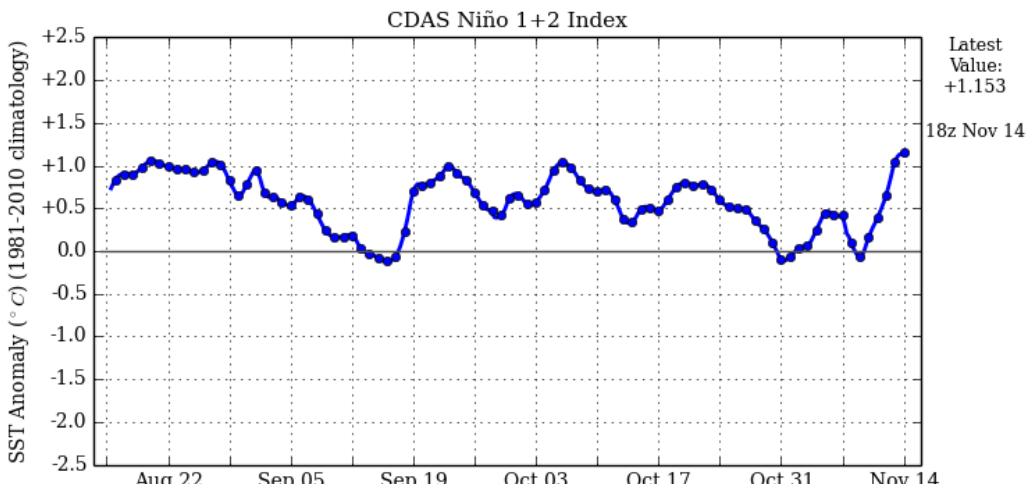
[/wximage/viewsingleimage.html?

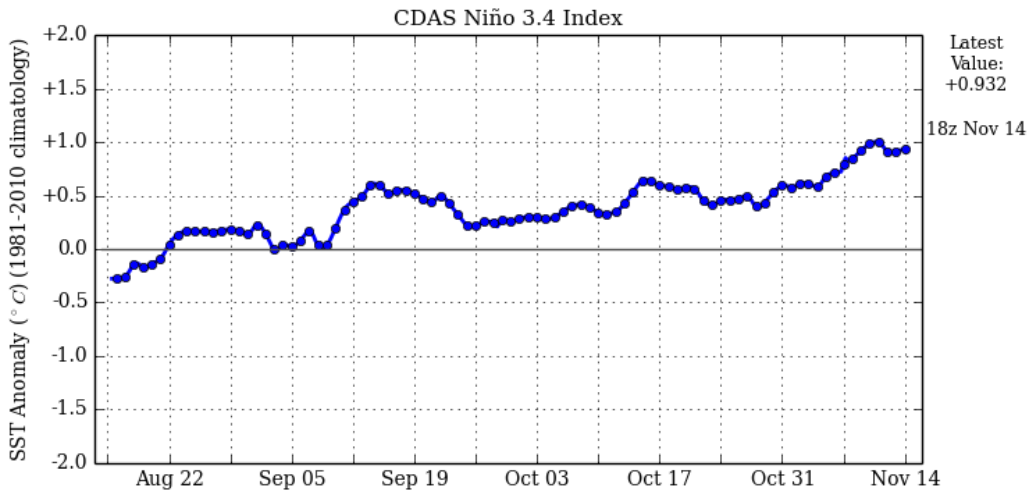
mode=singleimage&handle=MAweatherboy1&number=6]

**297. MAweatherboy1 [/blog/MAweatherboy1/archive.html]**

2:57 AM GMT on November 15, 2014

There's no doubt, El Nino is here.





It doesn't matter whether it's official or not, as others have said, if you have SST anomalies like these, the atmosphere will behave like El Nino. The exact values will continue to fluctuate up and down of course, that's the nature of these daily charts, but between observed conditions and model projections, warm ENSO should be the rule for the next several months at least. I won't even speculate on how strong it could peak at, but it appears very likely this will become the first official El Nino since the 2009-2010 event.

**Member Since:** February 11, 2012 **Posts:** 84 **Comments:** 7985

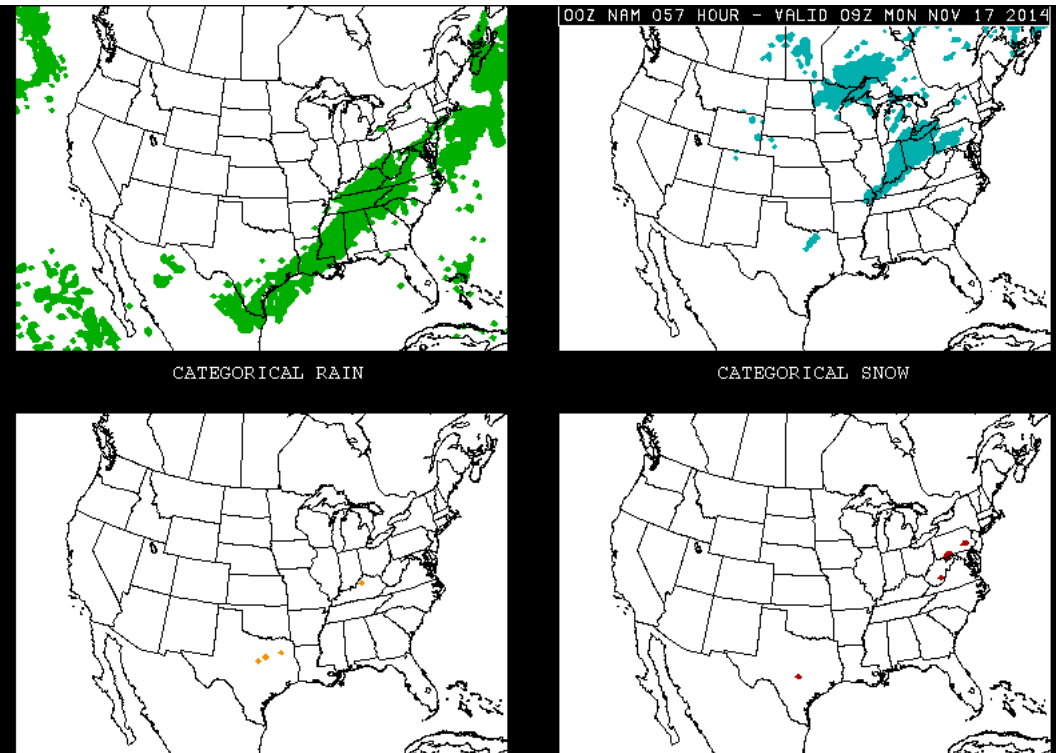


[/wximage/viewsingleimage.html?

mode=singleimage&handle=KEEPEROFTHEGATE&number=3602]

**296. KEEPEROFTHEGATE (/blog/KEEPEROFTHEGATE/archive.html) (Mod)**

2:56 AM GMT on November 15, 2014



**Member Since:** July 15, 2006 **Posts:** 176 **Comments:** 55239

---



[/wximage/viewsingleimage.html?

mode=singleimage&handle=rayduray2013&number=1]

### **295. rayduray2013 [/blog/rayduray2013/archive.html]**

2:54 AM GMT on November 15, 2014

#### **Quoting aquak9:**

*[jumps for joy at finding intelligent life on the blog]*

I'll second that emotion. [<https://www.youtube.com/watch?v=xJXi5QhTIHc>]

**Member Since:** June 30, 2013 **Posts:** 0 **Comments:** 404

---



[/wximage/viewsingleimage.html?mode=singleimage&handle=Patrap&number=456]

### **294. Patrap [/blog/Patrap/archive.html]**

2:53 AM GMT on November 15, 2014

In Climate Deal With China, Obama May Set 2016 Theme

By CORAL DAVENPORTNOV. 12, 2014 [[http://http://www.nytimes.com/2014/11/13/world/asia/in-climate-deal-with-china-obama-may-set-theme-for-2016.html?\\_r=0](http://http://www.nytimes.com/2014/11/13/world/asia/in-climate-deal-with-china-obama-may-set-theme-for-2016.html?_r=0)]

Since the deal Mr. Obama made with China calls for the United States to cut its planet-warming carbon pollution by as much as 28 percent from 2005 levels by 2025, he has effectively placed the obligation on his successor to meet that goal.

That dynamic sets up climate change as a potentially explosive issue on the 2016 campaign trail, which may pit Mrs. Clinton against a field of Republican candidates who question and deny the science that human activity causes global warming. A number of prospective Republican presidential candidates have already attacked what they say is Mr. Obama's "war on coal."

Mr. Obama has muscled through his climate change agenda almost entirely with executive authority, bypassing a Congress that has repeatedly refused to enact sweeping new climate change laws. In addition to the agreement with China announced Wednesday in Beijing, Mr. Obama has used the 1970 Clean Air Act to issue ambitious Environmental Protection Agency regulations intended to cut pollution from vehicle tailpipes and power-plant smokestacks.

Continue reading the main storyVideo

**Member Since:** July 3, 2005 **Posts:** 426 **Comments:** 129198



[/wximage/viewsingleimage.html?

mode=singleimage&handle=rayduray2013&number=1]

### 293. rayduray2013 [/blog/rayduray2013/archive.html]

2:47 AM GMT on November 15, 2014

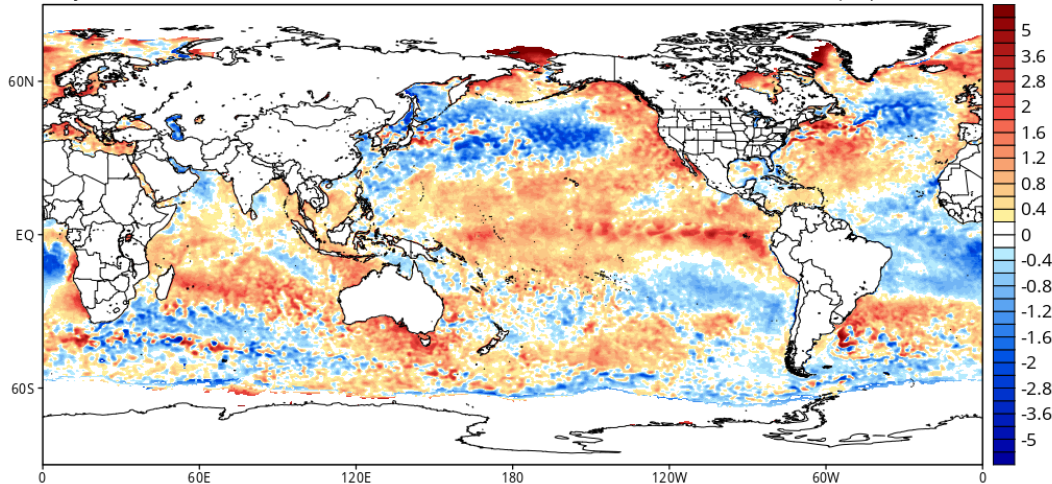
#### Quoting StormTrackerScott:

*Oh the El-Nino that is already here. This could be leading up to and intense El-Nino. Never seen anything like this before as the first record warm pool fizzles only to be replace by another one just as strong in a few months.*

CDAS Sea Surface Temperature Anomaly (°C) (based on CFSR 1981-2010 Climatology)

Analysis Time: 18z Nov 14 2014

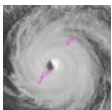
Levi Cowan | tropicaltidbits.com



Scott,

What is your interpretation of the trade winds? [http://www.bom.gov.au/climate/enso/#tabs=Trade-winds] Quite simply put, you cannot develop an El Nino event with the trade winds as they are presently configured.

**Member Since:** June 30, 2013 **Posts:** 0 **Comments:** 404



[/wximage/viewsingleimage.html?

mode=singleimage&handle=Envoirement&number=3]

### 292. Envoirement [/blog/Envoirement/archive.html]

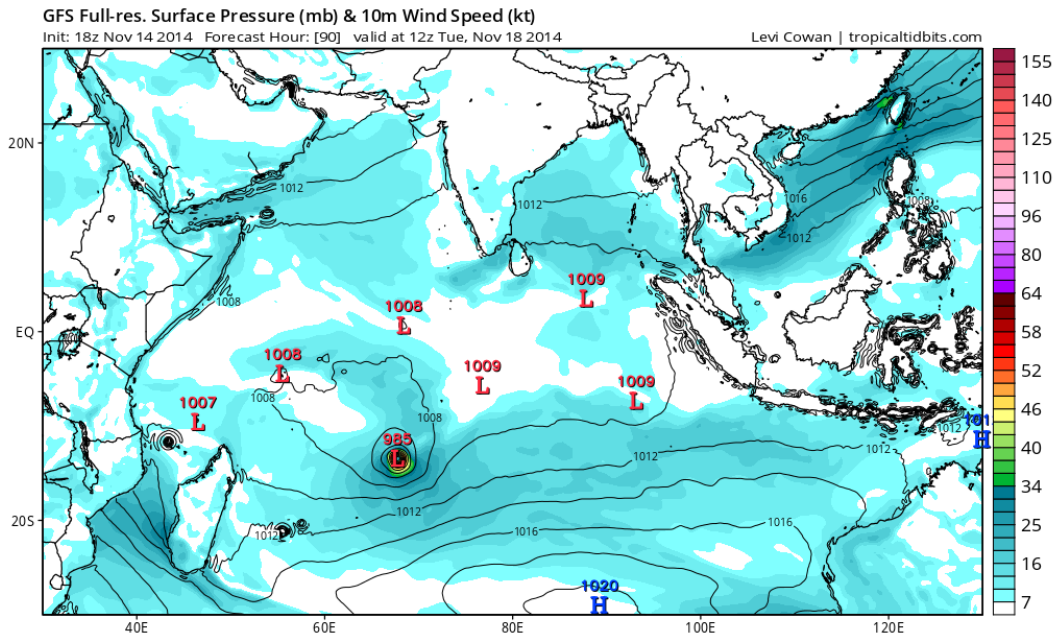
2:42 AM GMT on November 15, 2014



**Quoting 284. pablosyn:**

*send me the link of this GFS? please.*

Click to enlarge:



[[http://www.tropicaltidbits.com/analysis/models/gfs/2014111418/gfs\\_pres\\_wind\\_ind\\_16.png](http://www.tropicaltidbits.com/analysis/models/gfs/2014111418/gfs_pres_wind_ind_16.png)]

18z Link [<http://www.tropicaltidbits.com/analysis/models/gfs/>]

**Member Since:** June 16, 2013 **Posts:** 0 **Comments:** 1016



[</wximage/viewsingleimage.html?>

<mode=singleimage&handle=rayduray2013&number=1>]

**291. rayduray2013** [</blog/rayduray2013/archive.html>]

2:41 AM GMT on November 15, 2014

**Quoting hydrus:**

*I agree. Things will only accelerate unless something cataclysmic occurs. One thing that has grabbed my the Gulf Steam, which has been behaving in an abnormal fashion the past few years, and ultimately will*

Hi Hydrus,

I like you. I keep an eye on thermohaline circulation. The science seems quite uncertain to me. Here's the h

Like you, I keep an eye on thermohaline circulation. The science seems quite uncertain to me. Here's the one I've come up with a quick Google search.

Generally, recent tidbits I've gotten indicate that uncertainty about the future of the Gulf Stream have more to do with a lack of understanding on our part about natural variance than to do with a catastrophic change in the circulation. There's no evidence.

As I reviewed the topic, the name Dr. Peter Wadhams came up as someone who raised the alarm about the possibility of a shutdown of the Gulf Stream where Gulf Stream water usually sinks off the east coast of Greenland. His claim was an absence of these chimneys [see Wikipedia entry above for more detail]. Lately, Wadhams has presented a lot of evidence about methane seeps in the ESAS. I'm detecting a pattern of excitability on the part of Dr. Wadhams.

Countering Dr. Wadhams have been Drs. Kevin Trenberth [NCAR] and Gavin Schmidt [the new head of NASA]. They are finding much less to get alarmed about. It's an interesting discussion.

**Member Since:** June 30, 2013 **Posts:** 0 **Comments:** 404

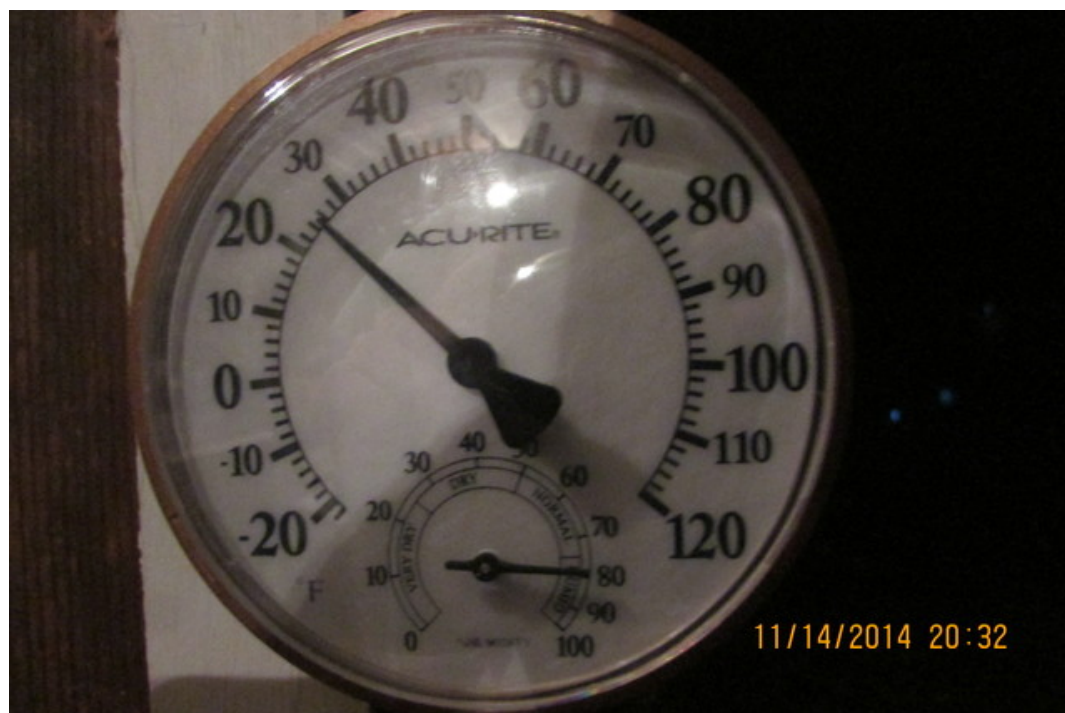


[/wximage/viewsingleimage.html?

mode=singleimage&handle=hurricanes2018&number=2668]

### **290. hurricanes2018 [/blog/hurricanes2018/archive.html]**

2:37 AM GMT on November 15, 2014



cold!!

**Member Since:** March 12, 2013 **Posts:** 71 **Comments:** 95127



[/wximage/viewsingleimage.html?mode=singleimage&handle=Grothar&number=76]

## 289. Grothar [/blog/Grothar/archive.html]

2:34 AM GMT on November 15, 2014

How sad.

Member Since: July 17, 2009 Posts: 71 Comments: 27038



[/wximage/viewsingleimage.html?

mode=singleimage&handle=Jedkins01&number=20]

## 288. Jedkins01 [/blog/Jedkins01/archive.html]

2:33 AM GMT on November 15, 2014

### Quoting 279. hydrus:

*Another explanation on how water vapor affects lightening and Lightning generation...*

*Water vapor plays a key role in lightning production in the atmosphere. From cloud physics, usually, clouds are the real generators of static charge as found in Earth's atmosphere. But the ability, or capability of clouds to hold massive amounts of electrical energy is directly related to the amount of water vapor present in the local system.*

*The amount of water vapor directly controls the permittivity of the air. During times of low humidity, static discharge is quick and easy. During times of higher humidity, fewer static discharges occur. Permittivity and capacitance work hand in hand to produce the megawatt outputs of lightning.*

***After a cloud, for instance, has started its way to becoming a lightning generator, atmospheric water vapor acts as a substance (or insulator) that decreases the ability of the cloud to discharge its electrical energy. Over a certain amount of time, if the cloud continues to generate and store more static electricity, the barrier that was created by the atmospheric water vapor will ultimately break down from the stored electrical potential energy. This energy will be released to a locally, oppositely charged region in the form of lightning. The strength of each discharge is directly related to the atmospheric permittivity, capacitance, and the source's charge generating ability. Wiki***

This is true for typical convective processes, but not entirely true for all situations. Tropical cyclones for example, have moist airmasses that literally approach the upper limit of how much water vapor can exist in the air, yet they lack significantly in lightning. Also growing up in Florida, while we average the most amount of thunderstorms, we also get tropical heavy rain events where little lightning is present but precip is extremely heavy.

The reason for this, is as the atmosphere approaches a barotropic state, temperature becomes constant over a pressure surface. Also, as the air becomes extremely moist, the convective temperature drops and it becomes that much easier to form convective rains. Also, the total lapse rate tends to not be as impressive in saturated to near saturated airmasses, being that the environmental lapse rate approaches or reaches the saturated adiabatic lapse rate.

Given that, an airmass can become so moist, to where lightning activity tends to decrease because of lower CAPE, too much competing convective cells due to lower convective temperature.

Of course, the tricky thing here is, near saturation, or saturation doesn't necessarily imply a lot of moisture. This is because relative humidity is just that, relative. If you have saturated air at 40 degrees, and heat that air to 85 without removing any water vapor, the relative humidity will fall in the 30% range. This is since warm air can hold a lot more water vapor than cold air. This is one of the most important facts in meteorology, otherwise we wouldn't get rain.

With that said, most near or at barotropic states tend to be very warm, because to reach that state, you generally need to be in the tropics, so it does become harder to reach saturation due to the excessive moisture needed to do so, which is favorable for lightning.

Because of that, a hot airmass is just as needed for a lot of lightning. Given this, I think that an even better relationship for lightning then would be an airmass that is dry aloft but very moist at the surface. Since unsaturated air cools faster as the air is lifted, this produces much stronger instability, and thus more lightning.

This is why tropical, and subtropical areas like Florida on average see a lot of lightning. Lightning is very much a good analog for how unstable the airmass is, or how much CAPE is available. Florida and many other tropical areas have more lightning, because on average, the air is very moist and hot near the surface but becomes drier aloft, allowing for a lot of instability, and thus a lot of strong updrafts, and of course a lot of lightning.

This is why I don't like when some meteorologists take the shot cut of explaining that large hail is the result simply of strong updrafts. While its true that they need strong updrafts, what is even more important is will those updrafts remain sustained, and how cold the air is at different layers, and what the RH is a at different layers.

What is needed most is strong wind shear to support sustained updrafts, along with strong forcing to keep large scale sustenance of updrafts. Also, steeper lapse rates in the low to mid levels along with drier air above the surface also is crucial to large hail growth and development.

**Member Since:** August 21, 2008 **Posts:** 0 **Comments:** 7893



**287. georgevandenbergh** (</blog/georgevandenbergh/archive.html>)

2:33 AM GMT on November 15, 2014

## Quoting 278. KEEPEROFTHEGATE:

*now u will have me looking up the winters of 75 and 40 for clues to 2014*

Winter 1975-76 had a cold but not extreme January in the Northeast. I don't remember the rest of the country but it wasn't remarkable until February. February 1976 produced a long duration extreme heat event comparable to March 2012 but three weeks earlier so not as warm but with similar departures from the seasonal normal.

I don't know what winter 1940-41 was like.

**Member Since:** February 1, 2012 **Posts:** 19 **Comments:** 2009

---

**Viewing:** 337 - 287

**Page:** 1 | 2 [comment.html?entrynum=2860&page=2#commenttop] | 3 [comment.html?entrynum=2860&page=3#commenttop] | 4 [comment.html?entrynum=2860&page=4#commenttop] | 5 [comment.html?entrynum=2860&page=5#commenttop] | 6 [comment.html?entrynum=2860&page=6#commenttop] | 7 [comment.html?entrynum=2860&page=7#commenttop] – Blog Index [/blog/]

[Top of Page](#)

---

About Jeff Masters [<https://plus.google.com/104837638563382907786>]



[\[/wximage/JeffMasters/139/\]](#)

Jeff co-founded the Weather Underground in 1995 while working on his Ph.D. He flew with the NOAA Hurricane Hunters from 1986-1990.

**Contact This Author** [[/help/?topic=4&question=98#answer](#)]

## Featured Blogs

- [Dr. Jeff Masters' WunderBlog](#) [/blog/JeffMasters/show.html]
- [Christopher C. Burt's Weather Extremes](#) [/blog/weatherhistorian/show.html]
- [Dr. Rood's Climate Blog](#) [/blog/RickyRood/show.html]
- [Steve Gregory's Blog](#) [/blog/SteveGregory/show.html]
- [Shaun Tanner's Weather Blog](#) [/blog/shauntanner/show.html]
- [Portlight Disaster Relief Blog](#) [/blog/Portlight/show.html]

## Local Weather

---



Ann Arbor, Michigan [/cgi-bin/findweather/getForecast?query=zmw:48103.1.99999]

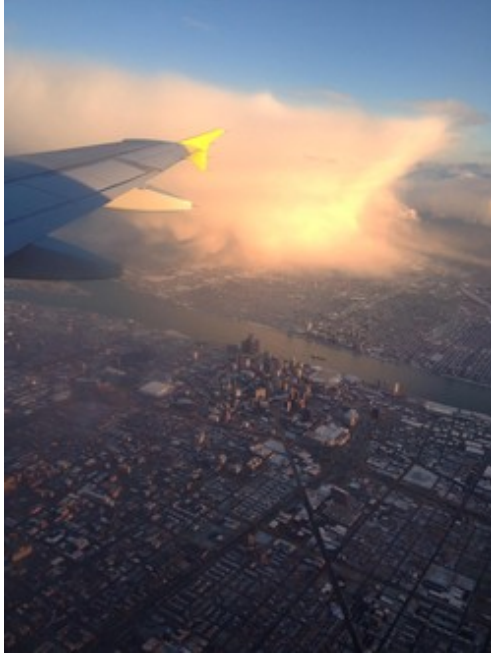
28 °F

Overcast

## Detailed Conditions & Forecast [/cgi-bin/findweather/getForecast?query=zmw:48103.1.99999]

### JeffMasters's Recent Photos

---



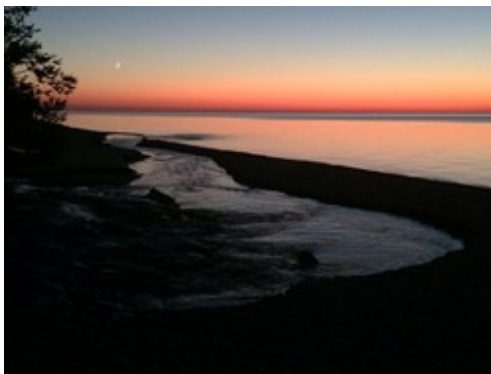
[/wximage/viewsingleimage.html?]

mode=singleimage&handle=JeffMasters&number=144]



[/wximage/viewsingleimage.html?]

mode=singleimage&handle=JeffMasters&number=143]



[/wximage/viewsingleimage.html?]

mode=singleimage&handle=JeffMasters&number=141]





[\[/wximage/viewsingleimage.html?\]](#)

[mode=singleimage&handle=JeffMasters&number=140\]](#)  
[JeffMasters's Wunder Photos \[/wximage/JeffMasters\]](#)

## Previous Entries for 2014

---

- [November \[archive.html?year=2014&month=11\]](#)
- [October \[archive.html?year=2014&month=10\]](#)
- [September \[archive.html?year=2014&month=09\]](#)
- [August \[archive.html?year=2014&month=08\]](#)
- [July \[archive.html?year=2014&month=07\]](#)
- [June \[archive.html?year=2014&month=06\]](#)
- [May \[archive.html?year=2014&month=05\]](#)
- [April \[archive.html?year=2014&month=04\]](#)
- [March \[archive.html?year=2014&month=03\]](#)
- [February \[archive.html?year=2014&month=02\]](#)
- [January \[archive.html?year=2014&month=01\]](#)
- [Complete Archive by Date \[archive.html\]](#)
- [Complete Archive by Category \[/blog/JeffMasters/category.html\]](#)

## Recommended Links

---

- [About Dr. Jeff Masters \[http://www.wunderground.com/about/jmasters.asp\]](http://www.wunderground.com/about/jmasters.asp)
- [Flying into Hurricane Hugo \[http://www.wunderground.com/education/hugo1.asp\]](http://www.wunderground.com/education/hugo1.asp)
- [Support hurricane relief to underserved communities \[http://www.portlight.org\]](http://www.portlight.org)
- [How to start your own blog, and add blog images and links \[http://wiki.wunderground.com/index.php/WunderBlogs\]](http://wiki.wunderground.com/index.php/WunderBlogs)
- [Description of computer models \[http://www.wunderground.com/hurricane/models.asp\]](http://www.wunderground.com/hurricane/models.asp)
- [Buy Weather Underground shirts and mugs \[http://store.wunderground.com\]](http://store.wunderground.com)
- [Dr. Masters on Google Plus \[http://plus.google.com/104837638563382907786/\]](http://plus.google.com/104837638563382907786/)