

Sierra Club Three Lakes Group

Spring 2017 Newsletter

Three Lakes Group Officers: Roger Blanchard; Chair and Secretary, Carol Ward; Vice Chair and Forestry Chair, Jim Page; Treasurer, Mikel Classen; Conservation Chair, Dave Aho; Communications and Internet Technology, Stephanie Aho; Communications, Angela Henley; Outings Chair, Kathy English; Group Representative

Spring Program Schedule

Programs will be held in Crawford Hall Room 204 at Lake Superior State University in Sault Ste. Marie, MI at 5:30 pm. We'll have free pizza and drinks available.

March 16: Dr. Ed Timm, How Safe is Line 5? An Engineering Analysis - Ed Timm, PhD, PE graduated from the University of Michigan Chemical Engineering program in 1974 and went on to a thirty year career with the Dow Chemical Company. He has extensive experience with process design, process development, process troubleshooting and process innovation. Over the course of this career he was named as an inventor on 26 US Patents and won numerous industry awards. He retired in 2001 and developed an interest in environmental issues as a continuation of his work with Dow's Environmental Operations Business. He is credited with being the key technical professional leading Dow's very successful trace pollutant elimination effort.

In his retirement he has provided technical advice to environmental organizations and regulators regarding issues ranging from mercury emissions from cement kiln dust waste to the conversion of sugarcane plantations on Maui to biofuel production. In 2014 he became interested in the Line 5 controversy. Since then he has published work on the Monte Carlo simulation of pipeline external corrosion and an extensive analysis of the effect of currents and bioaccumulation on the structural stability of the Line 5 Straits crossing. In this talk he will discuss the safety of Line 5 and other pipelines from an experienced engineer's perspective

April 6: Susan Reece (National Park Service)-Change, Change, and more Change for Pictured Rocks National Lakeshore - Pictured Rocks National Lakeshore is most widely known for the multicolored sandstone cliffs for which the park is named. These cliffs reach to a height of 200 feet above the lake and extend for 15 miles in the park. But the highest formations in the park are the Grand Sable Dunes, which rise more than 300 feet above Lake Superior. They comprise five square miles and are among the best examples of perched dune systems in the world. The scientific features of the park reach far beyond the visually spectacular: miles of unspoiled beaches are another prominent feature, then add the boreal and eastern deciduous forest ecosystems, wetlands, and the wildlife. All of these systems and features are feeling the pressure of change, whether it's the weathering of the geologic features, the impact of invasive species and climate change, or the influx of a high volume of visitors.

May 11: Bikes vs Cars - Bikes vs Cars is a documentary film about the bike and what an amazing tool for change it can be. The video highlights a conflict in city planning between bikes, cars and a growing reliance on fossil fuels.

What we are working on

A Bike Friendly Sault Ste. Marie –The Sierra Club Three Lakes Group, in conjunction with a subsidiary group called Bike Friendly Soo, is advocating for making Sault Ste. Marie a Bicycle Friendly Community based upon the guidelines of the League of American Bicyclists.

The League has 5 levels for Bicycle Friendly Community status. The levels from low to high are bronze, silver, gold, platinum and diamond. Our first goal is bronze.

We have a Facebook page for Bike Friendly Soo,

<https://www.facebook.com/bikefriendlysoo/>

Posts are placed on the Facebook page Monday through Friday so if you want the most up-to-date information about where we are at, go to the Facebook page.

If you are willing to help in this effort to make Sault Ste. Marie a Bicycle Friendly Community, that would be much appreciated. The more people we can get in this effort, the more influence we will have. If you have family or friends that are willing to help, let them know about our effort. From my perspective, this is an effort that needs to be sustained over an extended time period. It will take time to change the transportation infrastructure of Sault Ste. Marie.

I would like to ask you to contact representatives of the city of Sault Ste. Marie and MDOT and let them know how you feel about making Sault Ste. Marie a Bicycle Friendly Community (There is contact information below). I would only ask that you be respectful. Please don't be confrontational or antagonistic. We want these representatives to be on our side, not adversaries.

In the last two years, city commissioners have voted unanimously twice to make Sault Ste. Marie bike friendly. They are on-board. The city manager is clearly on-board. It would be nice if you could thank them for their support in making SSM bike friendly. If you want to express concerns about the transportation infrastructure with respect to bicycling or walking, just do it in a respectful way.

If you want to contact the city engineer, you can let her know that you support making SSM bike friendly. You may also want to express concerns about the transportation infrastructure. Again do it in a respectful way.

MDOT controls only the I-75 Spur, Ashmun from the I-75 Spur through downtown and Portage east to the Sugar Island Ferry. If you would like, you can express your concerns to MDOT about those transportation segments but again do it in a respectful way. We would like to get MDOT on our side.

Contacts for Bicycle Issues

MDOT for this region

[Newberry TSC - Map](#)

Dawn Gustafson, Manager

gustafsond@michigan.gov

14113 M-28

Newberry, MI 49868
Phone: 906-293-5168
Toll Free: 866-740-6368
Fax: 906-293-3331

Sault Ste. Marie Representatives

City manager

Oliver Turner

oturner@saultcity.com

Phone: (906) 632-5705

FAX: (906) 635-5606

City engineer

Linda Basista, City Engineer

lbasista@saultcity.com

(906) 632-5733

Mayor

Anthony Bosbous

300 Golf Court

Sault Ste. Marie, MI 49783

Phone: (906) 632-8212

myrbosbous@saultcity.com

City Council

Ray Bauer

212 Brady Street

Sault Ste. Marie, MI 49783

PHONE: (906) 632-6104

commissionerbauer@sbcglobal.net

Jay Gage

Cell: (906) 440-0524 – Call/Text

Email: jgage@saultcity.com

Don Gerrie

801 Ryan Street

Sault Ste. Marie, MI 49783

HOME: (906) 635-5309

CELL: (906) 322-0868

gerriejr@gmail.com

Bill Lynn

603 Lincoln Way

Sault Ste. Marie, MI 49783

HOME: (906) 632-2972
WORK: (906) 632-6381
CmrLynn@saultcity.com

Brent Osterhout
bosterhout@saultcity.com

Kathleen Twardy
305 Armory Place
Sault Ste. Marie, MI 49783
WORK: (906) 632-4077
k.twardy@yahoo.com

Line 5 Oil Pipeline in the Mackinac Straits - We've been active on the Line 5 oil pipeline issue. Line 5 is an oil pipeline that's goes through the U.P. traverses the Straits of Mackinac and then goes down through the L.P.

23 million gallons of oil pass through this old line every day. The Sierra Club objects to the line saying the risk and consequences of any spill are simply too great to justify the continued use of the line (the line is ~63 years old). Beside, with climate change underway, all countries must immediately engage herculean transitions away from fossil fuel use.

Graymont Limestone Mine - Graymont has been logging off the Wilwin property all summer, 8-10 logging trucks/day. In the past couple of weeks, the drilling people have been working on test samples. The interesting thing is that the drilling company is from Lake City and the logging people are from the Raber area. Also, the drilling company is using water from a quarry versus clean water. So, once again, Graymont's promises of using local people was all a lie! In addition, the County Road Commission refuses to impose a load restriction on the Wilwin Road and the logging trucks are already tearing up the road. A point of interest is that there is a load restriction on the Strongs cutoff road, where no one lives, but the road commission won't impose restrictions on Wilwin where a number of people live.

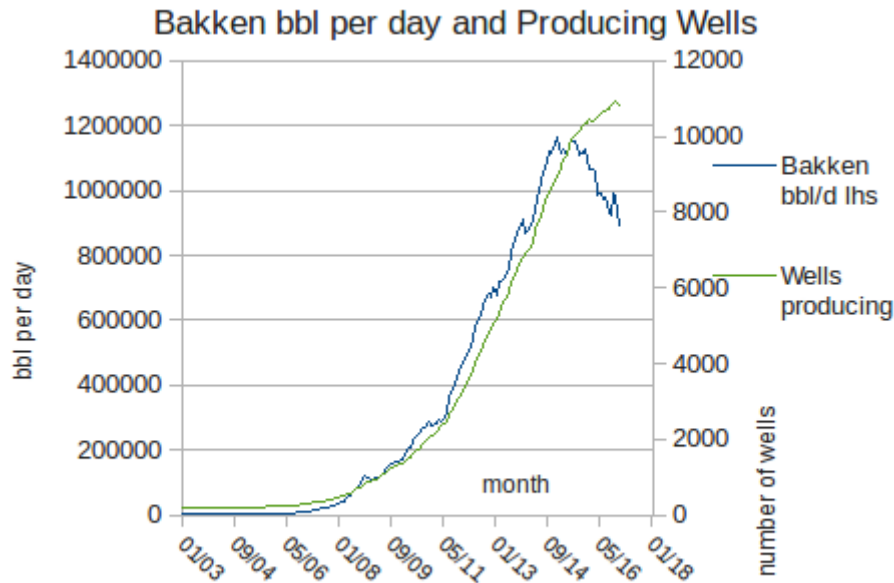
U.P. Environmental Coalition – UPEC 8th Annual Celebrate the UP event is being held in Marquette on Friday March 24th and Saturday the 25th. This event will include a general membership meeting and a Sing The Wild UP song writing competition as well as the celebration. Several of our members have committed to attending. More information can be found on the UPEC website at:
<http://upenvironment.org>.

UPEC and TLG are planning a Celebrate the UP event in Sault Sainte Marie for September 16th 2017, which is going to be held on Lake Superior State University's campus. So mark your calendars, more details will be posted on our website when they are available. <http://tlgsierraclub.org>.

What's going on with Oil

Most of the light-tight oil produced from fracking that led to the increase in U.S. oil production from ~2008 to 2015 came from 4 shale locations: Bakken (North Dakota), Eagle Ford (Texas), Permian Basin (Texas/New Mexico) and Niobrara (Colorado/Wyoming). It appears that 3 of those 4, not including Permian Basin, probably will never again reach the production level they achieved in late 2014 or early 2015. It appears the Permian Basin will peak a little beyond 2020.

The following graph of North Dakota Bakken oil production illustrates the problem that oil producers will have going forward. In spite of an increasing number of producing wells, production has in general declined in the last few years. In Nov. 2016, there were 10,927 producing wells in the Bakken region of North Dakota. In December 2014, when production reached its highest level, there were 8,950 producing wells, nearly 2,000 fewer wells than in Nov. 2016. The industry is high grading their production, meaning the wells developed in the last few years are located in the top 4 producing counties where ~90% of the oil production comes from.



Here is some interesting information about Bakken oil wells:

In December, 2014 there were 2,277 wells with first flow in 2014 that produced 594,635 barrels of oil per day. 261.15 barrels of oil per day per well.

In December, 2016, those 2,277 wells produced 157,309 bopd or 69.09 bopd per well (That's a 73.5% decline in ~2 years).

In December, 2016, there were 736 wells with first flow in 2016 and those produced 244,953 bopd or 332.82 bopd per well.

If those wells decline by 73.5% in 12/18, like the 2014 wells did in 12/16, the total bopd would be 64,913.

Oil production from Eagle Ford is off about 50% from what it was in early 2015. The problem that Bakken and Eagle Ford have is that most of the sweet spots in those regions have been drilled extensively. What largely

remains are locations outside of the sweet spots. In the sweet spot of the Bakken, initial well production is frequently >1,000 b/d. Outside of the sweet spot, initial production is frequently <100 b/d. At <100 b/d, the economics aren't good at \$100/barrel and probably not even at \$200/barrel.

I don't hear it from media sources but U.S. oil production now is off about 700,000 b/d relative to early 2015.

Make Your Life Less Oily in 2017: Part I, Taking Stock

by [Karen Lynn Allen](#), originally published by [Musings blog](#) | Dec 19, 2016



The United States is the oiliest country on the planet. We Americans consume more oil by far than any other country. Next is China, but even with 1.4 billion people they're a distant second. Americans, in fact, consume 20% of the world's oil each year, over 19 million barrels a day. Last year US oil consumption worked out to 923 gallons per man, woman and child. Oil is a worldwide commodity.

Because its consumption is so enormous, US demand drives both the price of oil and the profits it produces. And for all the talk of the US being energy independent, the US also imports the most oil of any country in the world. (China, again, is a distant second.) Americans are literally and figuratively in the driver's seat of world oil consumption. (Canadians actually use more oil per person, but because their population is so much smaller, they have much less of an impact.)

Now if funneling profits and power to multinational oil corporations and Saudi Arabia doesn't bother you, read no further. If you're fine with indirectly funding terrorism, or if having a future Secretary of State who is the head of ExxonMobil doesn't freak you out a bit, this article is not for you.

But if you stand with Standing Rock, read on. If the stonings and beheadings in Saudi Arabia trouble you, if you're not fond of crude oil spills every other day in the US, if you're not a fan of tar sands and fracking, or if you understand that the only way to prevent climate catastrophe is to leave much of what's left of fossil fuels in the ground for at least the next couple centuries, then you might find this two-part article useful.

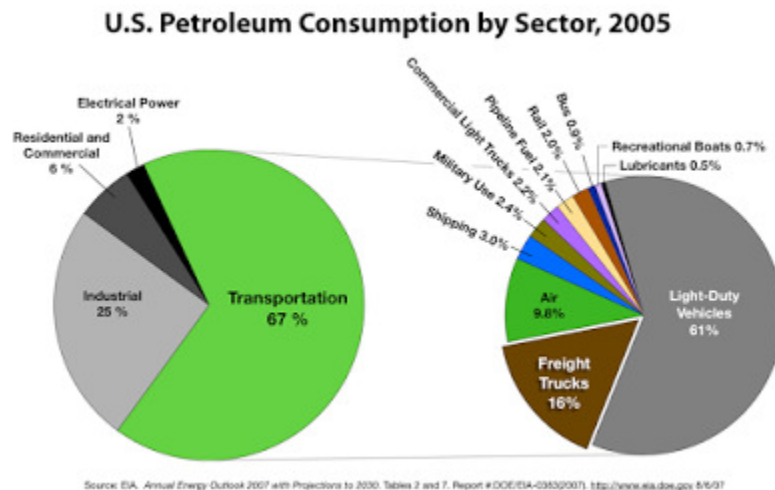


Pinguid living

Let's face it, America, our lives are saturated in oil, and reducing that pinguidity (there's a word for you!) is not an easy task. We've got oily transport, oily heating, oily beverages, oily food, we drive on oily roads, and our homes are full of oily stuff. How do we get some or all of that oil out of our lives?

Most of our consumption of oil is so deeply embedded in our way of life that we're unconscious of it or believe there's no alternative. The antidote is to first make that consumption conscious and then get creative with alternatives, tailoring them to our specific situations. Here's the good news: most of the steps you can take to purge oil from your life will make you healthier, happier, and your household more resilient! If you have kids, many of the steps will make them healthier, happier and perform better in school! Many of the steps will also make your community healthier, more prosperous, and more resilient. And if your prosperity is linked to your community's prosperity, it will make you more prosperous as well.

So let's bring the unconscious to the light of day. Just how oily is your life?



How we move ourselves around this planet matters. A lot. And our driving is the big kahuna. Two-thirds of American oil consumption is from transportation; close to two-thirds of that we do in cars. We can freak out about freight and air travel, but it's the daily moving about in private cars powered by internal combustion engines that is the single biggest oil slurper in our lives. To examine your oil consumption, including [how oily your travel is](#), I've created this nifty calculator to help put a number to it. You fill in the orange boxes (replacing values if applicable), and the green boxes will calculate your oil gallons consumed. In some of the orange boxes I've put average American values. You can decide how appropriate they are for you. Be sure to scroll to the bottom of the frame to see your total. Remember,

we're not looking at all energy consumed, nor are we looking at our carbon footprint. Our laser-like focus here is concentrated solely on oil and its products.

A few words about oily home heat. Only 8% of US households use heating oil. If yours is one of them, you probably have records of how much you use, but, for example, the average Massachusetts heating oil home uses 987 gallons per year. Only 5% of homes use propane, and only 31% of all propane comes from oil refineries. (The rest is from natural gas.) Put in total propane you use and the calculator will take 31% of it. An average Massachusetts propane-heat house uses 886 gallons a year.

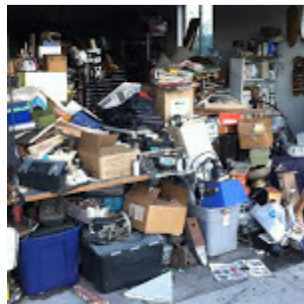
For oily beverages, how many [PET plastic bottles](#) of water or soda do you consume a week, on average? Your fellow citizens consume 4.5, using up 9.1 gallons of oil a year.

[Plastic bags](#). The average American throws away 10 a week. That's another 2.2 gallons of oil per year. If you throw away more or less, adjust accordingly.



1 week of food in Bhutan (photo: Peter Menzel, Hungry Planet)

How about food oiliness? The average American consumes one ton of food a year. No, I'm not kidding. Each pound travels an average of [1500 miles](#) to get to you. No, I'm not kidding. The oil it takes to truck this ton of food to a store near you comes out to 44 gallons a year. You eat local, you say? If you got 100% of your food from an average distance of 150 miles, that would come to 4.4 gallons of oil a year. Remember, this in no way includes all the fossil fuels embedded in your food since natural gas is the number one energy source used by fertilizer and grain drying, and food processing and refrigeration largely use electricity.



Stuff and more stuff

How about all the rest of the bejeebus amount of stuff we buy in a year? It weighs roughly another ton per person. No way, you say! Remember, this ton includes 125 lbs for your half of one car (3500 lbs

divided by 14 years of car life), and your share of household appliances divided by their useful life. What's worse is that to make this 2000 lbs of stuff for you, industry in the US and other parts of the world moves, mines, extracts, shovels, burns, waste, pumps and disposes of [one million pounds of material](#). All this material manipulation and far-flung worldwide supply chain of raw materials, feedstocks, and components uses a lot of oil. (Also a lot of natural gas and a fair amount of electricity.

But let's just consider oil.) A low estimate is [1/2 gallon per ton](#). That makes 250 gallons of oil embedded in your yearly non-food stuff consumption. This number includes all the rest of the plastic and any polyester or nylon you consume in a year and the ridiculous amount of packaging that your stuff comes in, but it doesn't include shipping the final product to you. Let's figure half the stuff is made in the US and comes by truck; the other half is made in Asia and comes by ship, then rail, and then truck. (You can change these percentages.) If you think you consume more or less stuff than the average American, adjust accordingly.

I'm getting tired, and no doubt you are too, of slogging through all this oil, but we'll go just a bit further. Your on-line shopping deliveries. Now the United States Postal Service comes to your house and puts junkmail in your box whether you get anything else or not, so your share of USPS oil (average 500 stops a day, 18 miles, 9 mpg) is a flat 1.25 gallons per year if you live in suburbia regardless of how many packages you get. If you live ex-urban, double that. If you live urban, cut it in half.



Future Electric Delivery?

For Fed-Ex and UPS deliveries, enter the average number of times each one visits you a week, not packages per week. Count all package deliveries you order, including ones you send as gifts, but not ones you receive as gifts. If a large percentage of deliveries are for your household in general, only attribute to yourself your share.



Spa treatment

And now you have a final total. Admittedly, this calculator isn't perfect, but I think you'll find it's not bad. It doesn't include asphalt for roads or oil consumed on your behalf by various government entities (roughly another 30 gallons covers both, depending on how many wars we are actively involved in) and numerous other small items like asphalt roofs, detergents, antifreeze and antihistamines, but it does include most of what you're likely to personally impact. Your yearly oil consumption may not fill a swimming pool, but it would probably overflow ten to twelve bathtubs or even a good-sized jacuzzi. So would the oil consumption of everyone else in your household, every one of your neighbors, every one

of your friends. For comparison, your average Brit consumes 372 gallons of oil per year (~**1,200 gallons per year for the average U.S. citizen based upon the ratio of per capita oil consumption between the U.S. and the U.K. Related to this, CO₂ emissions from energy consumption was 36,250 pounds in 2015 for each U.S. citizen**), your average Chinese 134 gallons, and your average Bangladeshi 10 gallons.

As you can see, oil seeps through the fabric of our existence even if we never actually see it, its viscous liquor oozing through our daily lives whether we like it or not. So what do we do with all this oil? How do we squeeze the oiliness out of our lives?

Stay tuned for part two!

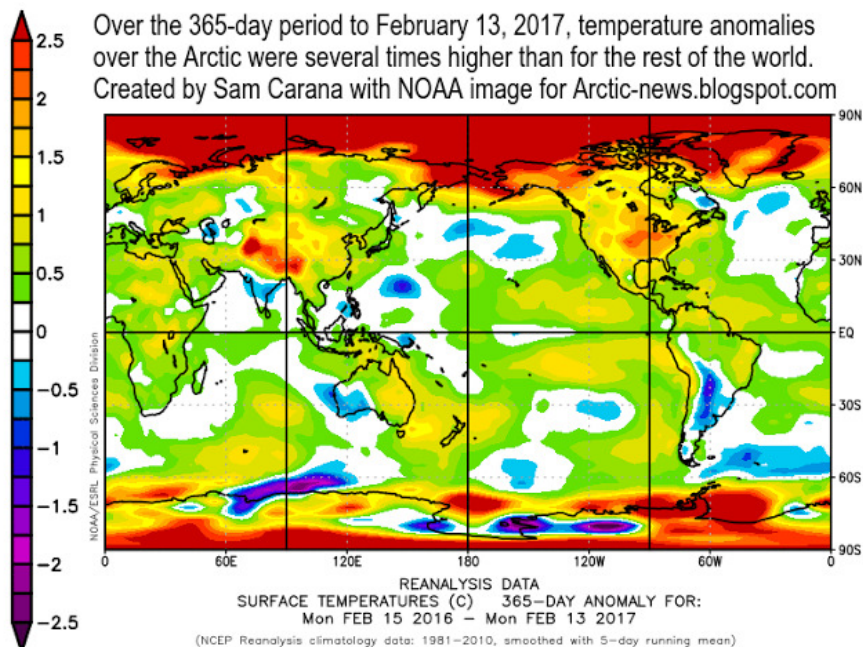
Note: Gallons. I know, I know, when discussing anything to do with energy, joules or even BTU's would be better, but most people have little intrinsic understanding of either, while nearly everyone knows what a gallon is. Plus the lion's share of transportation data uses gallons. So I went with it.

Part 2 is interesting in that it talks about what people can do to reduce oil consumption. The problem is that it flies in the face of the American lifestyle. Americans don't want to bike or walk, they want motor vehicles that don't require effort to get somewhere. None-the-less, here is the webpage for Part 2:

<http://www.resilience.org/stories/2017-01-10/squeezing-oil-out-of-your-travel-make-your-life-less-oily-in-2017-part-2/>

What's Happening in Global Warming

It hasn't made the news but temperatures in the arctic this winter have been not slightly above average but dramatically above average. At times portions of the arctic have been as much as 50°F warmer than the 1971-2000 average. Here is a map showing temperature deviations of the globe over the last year ending Feb. 13, 2017::



Here is a statement from Mark Serreze, director of the National Snow and Ice Center about the unusual warmth in the arctic this winter:

“I’ve been looking at Arctic weather and climate for 35 years and I’ve never seen anything like the warming conditions we’ve been seeing this winter.”

I suppose that isn’t as important as what’s going on in the life of Kim Kardashian but it still has some importance. It will be interesting to see how low the ice extent gets next summer/fall. It would not be surprising to see a record low that smashes the previous record low.

Speaking of temperature data, here are some data for Sault Ste. Marie through 2016:

Decade	Average Temperature (°F)
1890-1899	39.47
1900-1909	39.86
1910-1919	39.40
1920-1929	39.56
1930-1939	40.84
1940-1949	40.23
1950-1959	39.23
1960-1969	39.86
1970-1979	39.77
1980-1989	40.18
1990-1999	40.85
2000-2009	42.14
2010-2016	42.94

In 2016, Sault Ste. Marie had the 3rd warmest year on record at 44.91°F. The two warmest years were 2012 and 1998.

Here are some temperature data for some widely disperse locations in northern North America:

Location	1971-2000 Average (°F)	2010-2016 average (°F)
Prudhoe Bay, Alaska	11.85	15.75
Moosonee, Ontario	30.02	32.88
Nome, Alaska	27.10	28.48
Churchill, Manitoba	19.58	22.80
Iqaluit, Nunuvut	14.36	17.16
Yellowknife, Northwest Terr	23.91	26.85
Goose Bay, Newfoundland	31.10	33.58

Here are some atmospheric carbon dioxide concentration increase data over time.

Carbon Dioxide Increases Over Time

Time Period	CO₂ Increase/year (ppm/year)
1959-1964	0.73
1965-1974	1.06
1975-1984	1.44
1985-1994	1.42
1995-2004	1.87
2005-2014	2.11
2014-2015	2.22
2015-2016	3.55

Because El Nino events cause an increase in CO₂ concentration above typical increases, it's worthwhile to compare the period around the 1998 El Nino event and the 2015 El Nino event.

Carbon Dioxide Increases Surrounding El Nino Events

Time Period	CO₂ Increase (ppm)
1995-2000	8.93
2011-2016	13.48

The increase during the 2011-2016 period was 51.0% greater than during the 1995-2000 period.

The atmospheric carbon dioxide increase over time is increasing.

"The changes we're seeing are really drastic," Oksana Tarasova, a scientist and chief of the WMO's Global Atmospheric Watch program told *The Washington Post*. "We are seeing the growth rate rising exponentially."

Ocean waters are becoming saturated with CO₂ making it harder for the oceans to absorb CO₂ added to the atmosphere. Also, warm water can hold less carbon dioxide than cold water so as the oceans warm, they absorb less CO₂.

2016 Officially Declared Hottest Year on Record



By [Andrea Thompson](#)

- *Published: January 18th, 2017*

2016 was the hottest year in 137 years of record keeping and the third year in a row to take the number one slot, a mark of how much the world has warmed over the last century because of human activities, U.S. government scientists announced Wednesday.

2016 is a “data point at the end of many data points that indicates” long-term warming, Deke Arndt, chief of the monitoring branch of the [National Centers for Environmental Information](#), said.

Weather stations in the U.S. that are having a warmer than normal, colder than normal and record hot year.

While the record was expected, the joint announcement by NASA and the National Oceanic and Atmospheric Administration came in the midst of Senate confirmation hearings for President-elect Trump’s [cabinet nominees](#), several of whom have expressed doubts about established climate science, as has Trump himself.

Many climate scientists, policy experts and environmentalists are concerned about the potential for the incoming administration to limit funding for climate science and roll back both national and [international progress](#) toward limiting the greenhouse gases that are warming the planet.

According to [NOAA data](#), the global average temperature for 2016 was 1.69°F (0.94°C) above the 20th century average and 0.07°F (0.04°C) above the previous record set last year.

In [NASA’s records](#), 2016 was 1.8°F (0.99°C) above the 1951-1980 average.

Each agency has slightly different methods of processing the data and different baseline periods they use for comparison, as do other groups around the world that monitor global temperatures, leading to slightly different year-to-year numbers.

But despite these differences, all of these records “are capturing the same long-term signal. It’s a pretty unmistakable signal,” Arndt said. Or as he likes to put it: “They’re singing the same song, even if they’re hitting different notes along the way.”

Several spots around the globe had record heat for 2016, including Alaska and a swath of the eastern U.S. The contiguous [U.S. had its second hottest year](#) on record, according to NOAA, but with the remarkable warmth experienced by Alaska factored in, [2016 would be the hottest](#) for the country as a whole.

The first eight months of the year were all record hot globally; in NOAA’s data, they were part of an unprecedented streak of 16 record hot months in a row.

Of the 17 hottest years on record, 16 have occurred in the 21st century (the exception being the strong El Niño year of 1998).

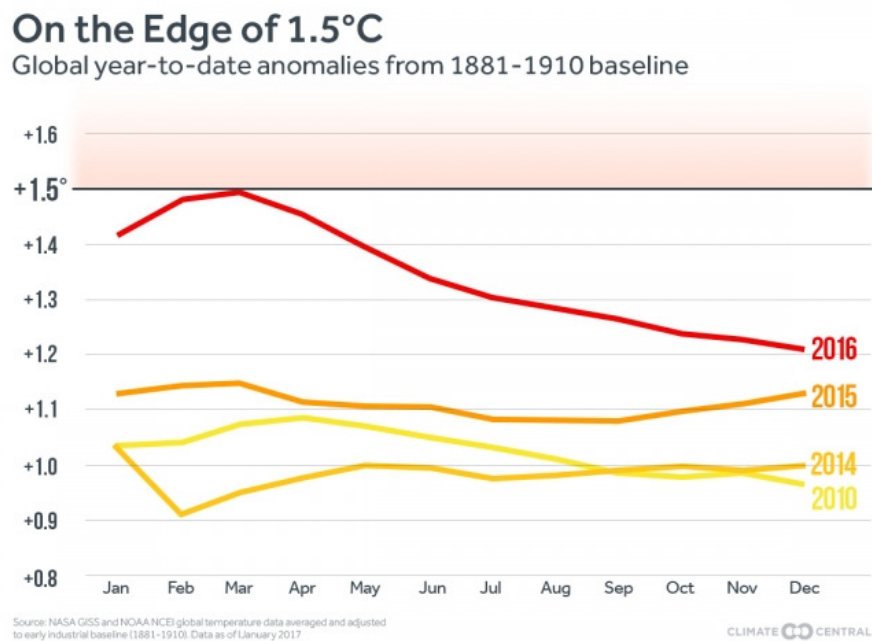
While El Niño played a role in bumping up global temperatures during 2015 and 2016, the bulk of the warmth was due to the excess heat trapped by greenhouse gases emitted by humans over the past century, particularly carbon dioxide.

In 2016, CO2 concentrations also permanently passed the 400 parts per million mark for the first time in human history; during preindustrial times, that concentration was 280 ppm.

As example of how greenhouse gases have affected global temperatures, 2016 was almost 0.5°F (0.9°C) warmer than 1998, both years that experienced comparably strong El Niños. Even 2014, before the most recent El Niño emerged, was warmer than 1998.

Nearly 120 nations, including the U.S., have ratified the 2015 Paris climate agreement and committed to keeping the worst impacts of warming from materializing by reducing greenhouse gas emissions. The agreement cites a goal of keeping global temperature rise “well below” 2°C (3.6°F) above preindustrial levels by the end of this century, with a [limit of 1.5°C](#) as a more aggressive goal.

To show how close the world already is to surpassing those limits, Climate Central has been [reanalyzing the global temperature data](#) by averaging the NASA and NOAA numbers and comparing them to a baseline closer to preindustrial times. That analysis shows that 2016 was 1.2°C (2.16°F) above the average from 1881-1910.



The running average of global temperatures throughout 2016 compared to recent years.

“We have clearly passed 1 degree above preindustrial temperatures,” and likely won’t go below it without a major volcanic eruption (which tends to cool global temperatures), Gavin Schmidt, director of NASA’s Goddard Institute for Space Studies, said.

When we might actually reach 1.5°C isn't clear, Schmidt said, and depends both on how quickly greenhouse gases are emitted — which depends on how quickly countries act to limit their emissions — and just how much additional carbon dioxide can be emitted before the 1.5°C goal is breached, which is still somewhat uncertain.

"We're closer than we would like to be," he said.

With El Niño gone, and a weak La Niña to start off 2017, this year isn't likely to continue the streak and best 2016, climate scientists say. But even if 2017 is cooler than 2016, it will only be a very slight dip compared to the long-term warming trend — in fact, the U.K. Met Office expects that [2017 will still rank](#) among the hottest years on record.

"It's still going to be a top 5 year in our analysis. I'm pretty confident about that," Schmidt said.

Web Page and Facebook

We're on the Web and Facebook. The addresses are:

<http://tlgsierraclub.org/>

<https://www.facebook.com/ThreeLakesGroupOfSierraClub?ref=bookmarks>

Please take a look at what we have online. We'll try to supply material regularly to these sites. Feel free to contact us with questions, concerns and suggestions.