August, 2016 Floods in Louisiana NOAA claims they were CO2-Enhanced

Bob Endlich

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11 September 2017

Weather Climate and Climate Change—What the Data Say

Outline

Background information on Louisiana

Floods and Flood History

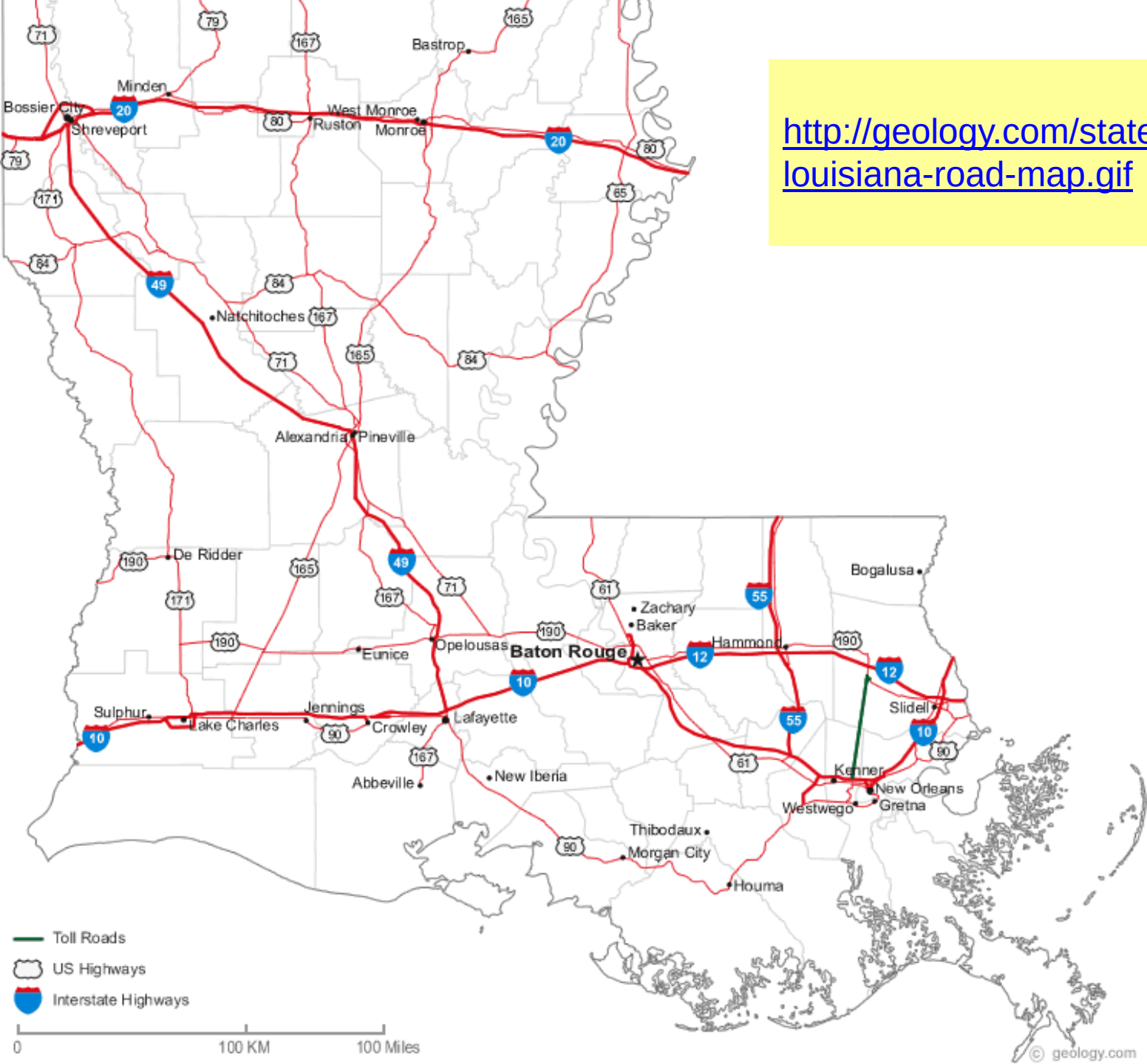
- **News Stories on Aug 2016 “Historic” Louisiana floods**
- **1927 Mississippi Flood in Louisiana**
- **Floods of April-June 1953 in Louisiana and nearby states**

Rapid attribution of the August 2016 flood-inducing extreme precipitation in south Louisiana to climate change

Rainfall Records: from Burt’s book, NOAA data, Oxford, England

Flood Records: 500 years of flood marks from Germany and Austria since Little Ice Age

Background Information on Louisiana



http://geology.com/state-map/maps/louisiana-road-map.gif

http://www.lgs.lsu.edu/deploy/uploads/gengeotext.pdf

Generalized Geology of Louisiana

Louisiana Geological Survey staff

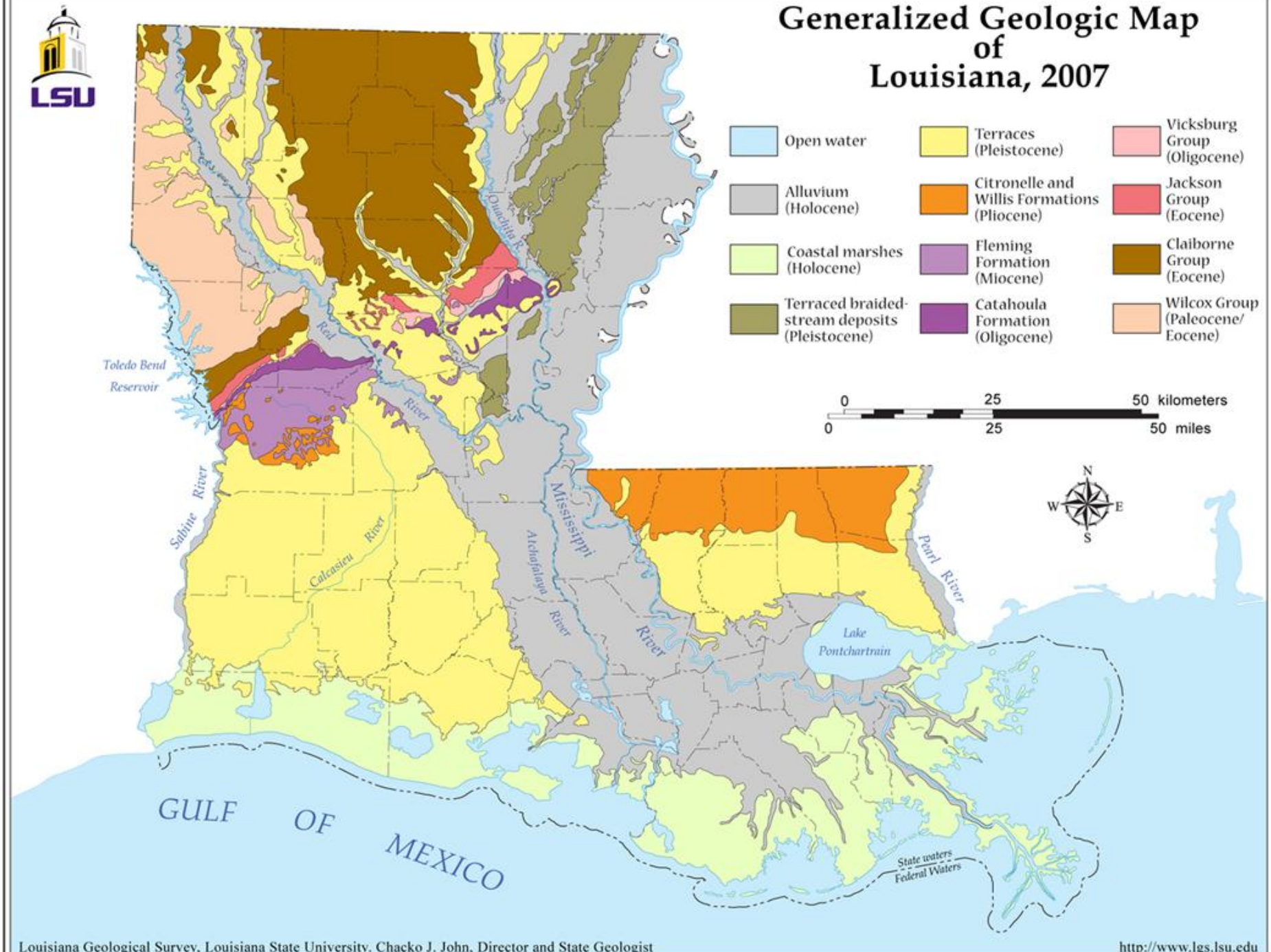
Louisiana is underlain by geologically young sedimentary sequences deposited in /adjacent to rivers and deltas in a coastal-plain setting.

A major river system corresponding to the Mississippi has persisted at least since the Gulf of Mexico began to form by the separation of North America from South America. (Jurassic-- 200 million years ago)

Exposures in Louisiana consist of Quaternary (Pleistocene and Holocene) sediment.

Holocene (Last 10K years) deposits-- alluvium of the Mississippi, Red, Ouachita, and other rivers/tributaries, and coastal marsh deposits, occupy about 55% of the surface.

Generalized Geologic Map of Louisiana, 2007



Louisiana Geological Survey, Louisiana State University. Chacko J. John, Director and State Geologist

http://www.lgs.lsu.edu

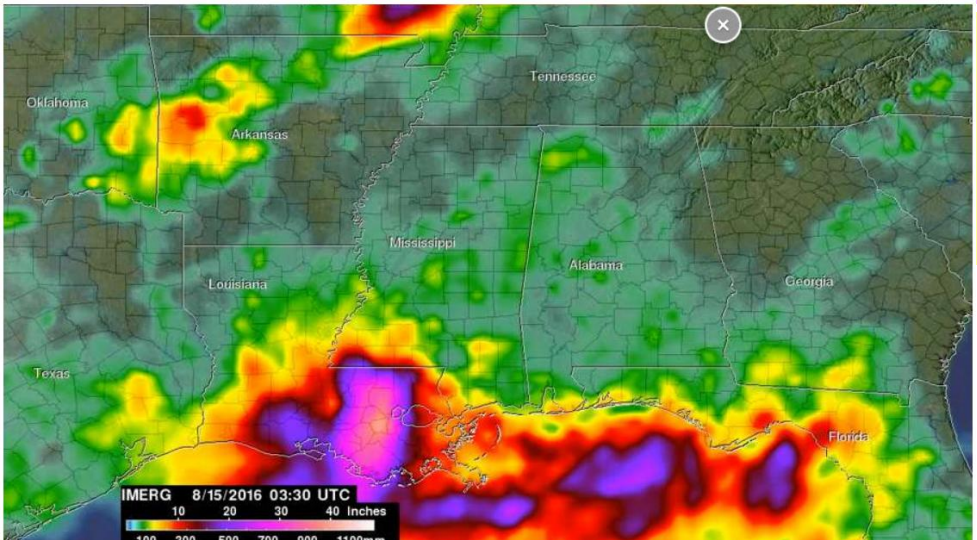
http://geology.com/lakes-rivers-water/louisiana.shtml

Louisiana Lakes, Rivers and Water Resources

http://www.usatoday.com/pages/interactives/la-floods-august-2016/

HISTORIC RAINFALL

"Over the course of Aug. 8-15 storms in south central Louisiana and southern Mississippi, many towns received more than 20 inches of rain."

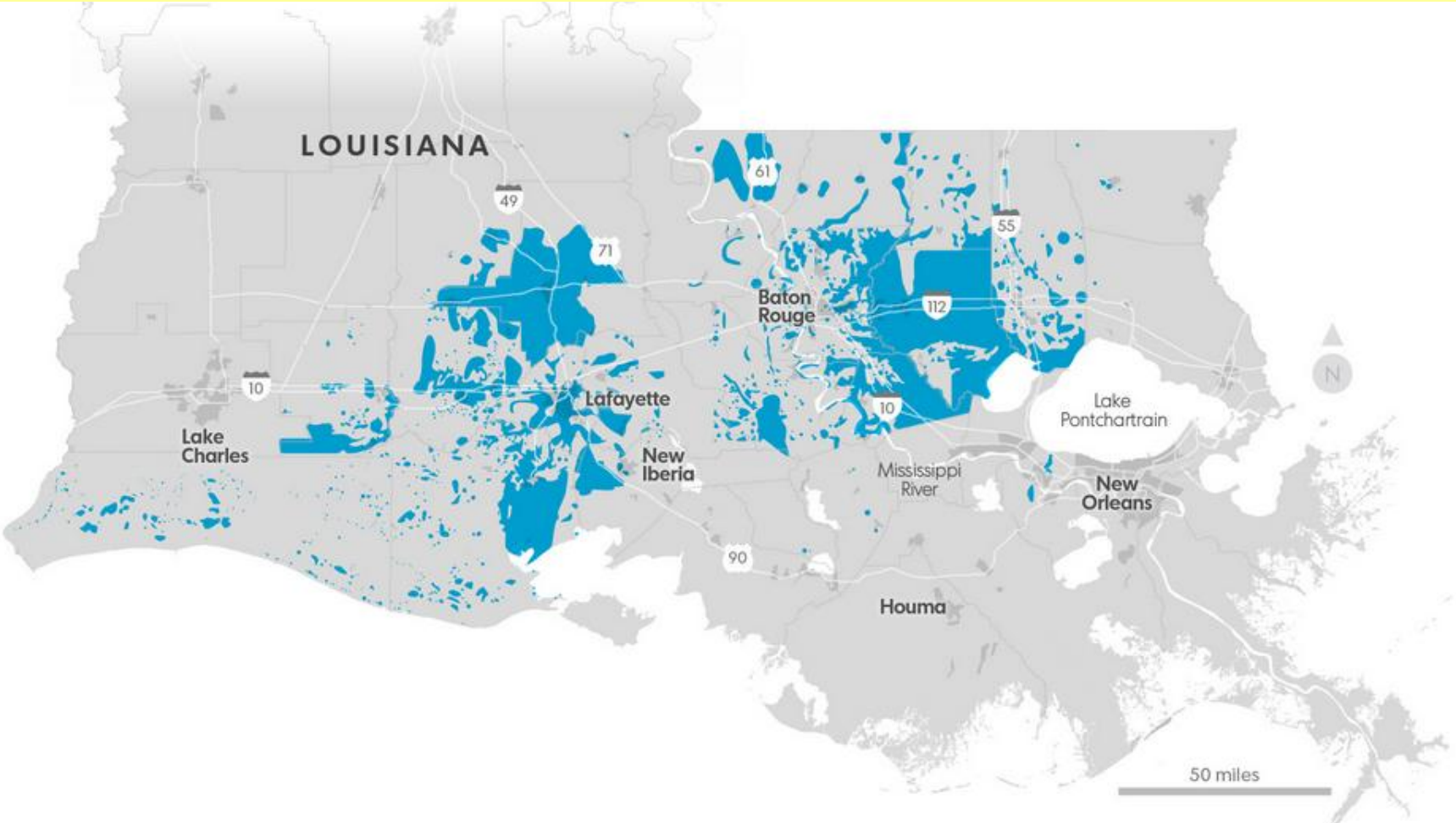


"In fact, more rain fell during the storm than in recent hurricanes."

http://www.usatoday.com/pages/interactives/la-floods-august-2016/

Large areas of flooding

Widespread flooding has occurred across the state of Louisiana,
as seen in this map compiled by geographers at Louisiana State University



USA Today, flagship paper for Ganett and Las Cruces Sun-News wants us to believe that the August, 2016, rainfall and flooding in Louisiana is "historic."

This implies that it is somehow a rare event.

Lets look at historic floods in this part of the country.

Do they occur in summer with hurricanes?

Or do they occur with winter or cold-core storms?

What do the data say?

https://www.britannica.com/event/Mississippi-River-flood-of-1927

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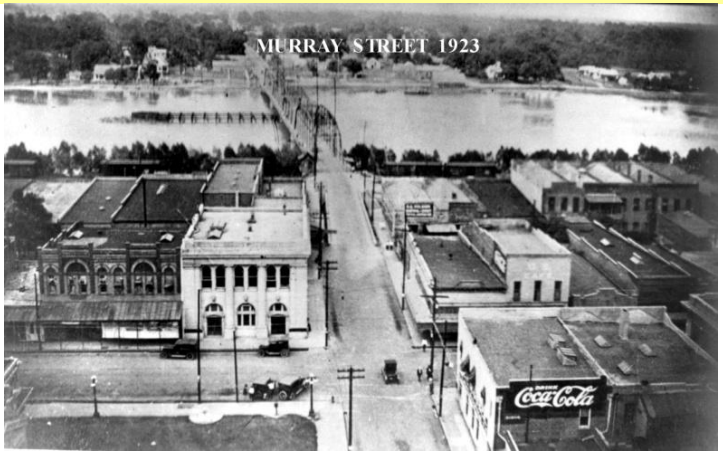
Mississippi River flood of 1927

AMERICAN HISTORY

Mississippi River flood of 1927, also called Great Flood of 1927, flooding of the lower Mississippi River valley in April 1927, one of the worst natural disasters in the history of the United States.

More than 23,000 square miles (60,000 square km) of land was submerged, hundreds of thousands of people were displaced, and around 250 people died.



http://www.pbs.org/wgbh/americanexperience/features/map/flood-maps/

Receiving water from a famp kitchen area in Baton Rouge, 1927

Louisiana State University

https://en.wikipedia.org/wiki/Great_Mississippi_Flood_of_1927

Great Mississippi Flood of 1927

From Wikipedia, the free encyclopedia

The **Great Mississippi Flood of 1927** was the most destructive river flood in the history of the United States,[1] with 27,000 square miles inundated up to a depth of 30 feet.

To try to prevent future floods, the federal government built the world's longest system of levees and floodways.

Ninety-four percent of the more than 630,000 people affected by the flood lived in the states of Arkansas, Mississippi, and Louisiana, most in the Mississippi Delta.

Photographs are used with the permission of the Louisiana History Museum.

https://en.wikipedia.org/wiki/Great_Mississippi_Flood_of_1927

Events[edit]

The flood began with extremely heavy rains in the central basin of the Mississippi in the summer of 1926.

By September, the Mississippi's tributaries in Kansas and Iowa were swollen to capacity.

On Christmas Day of 1926,[3] the Cumberland River at Nashville, Tennessee exceeded 56 ft 2 in (17.1 m), a level that remains a record to this day, higher than the devastating 2010 floods.

Flooding overtopped the levees, causing Mounds Landing to break with more than double the water volume of Niagara Falls.

The Mississippi River broke out of its levee system in 145 places and flooded 27,000 square miles (70,000 km^2).

This water flooded an area 50 mi (80 km) wide and more than 100 mi (160 km) long.

The area was inundated up to a depth of 30 ft (9 m).

The flood caused over US$400 million in damages and killed 246 people in seven states.

The Great Mississippi River Flood, worst on record, was caused by "extratropical" storms, cold core storms, the storms that cause rain and snow in the USA: fall, winter spring, and into early summer.

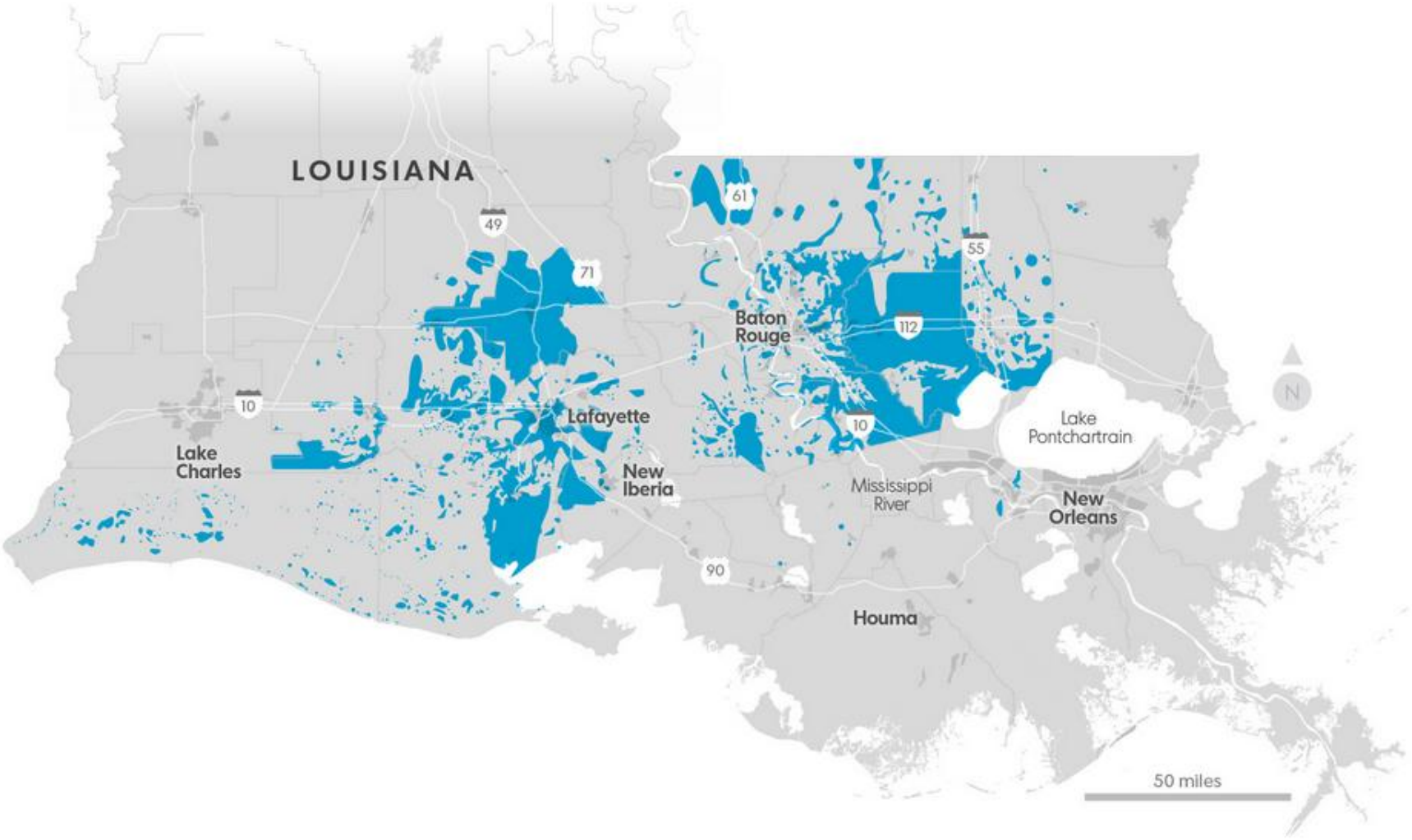
http://www.nola.com/175years/index.ssf/2012/01/the_1927_flood_the_times-picay.html

If the great flood of 1927 was the worst on record, and it happened in April,1927, then it was before “global warming,” and is a feature of winter and spring storms, and not CO2-enhanced.

https://en.wikipedia.org/wiki/Great_Mississippi_Flood_of_1927

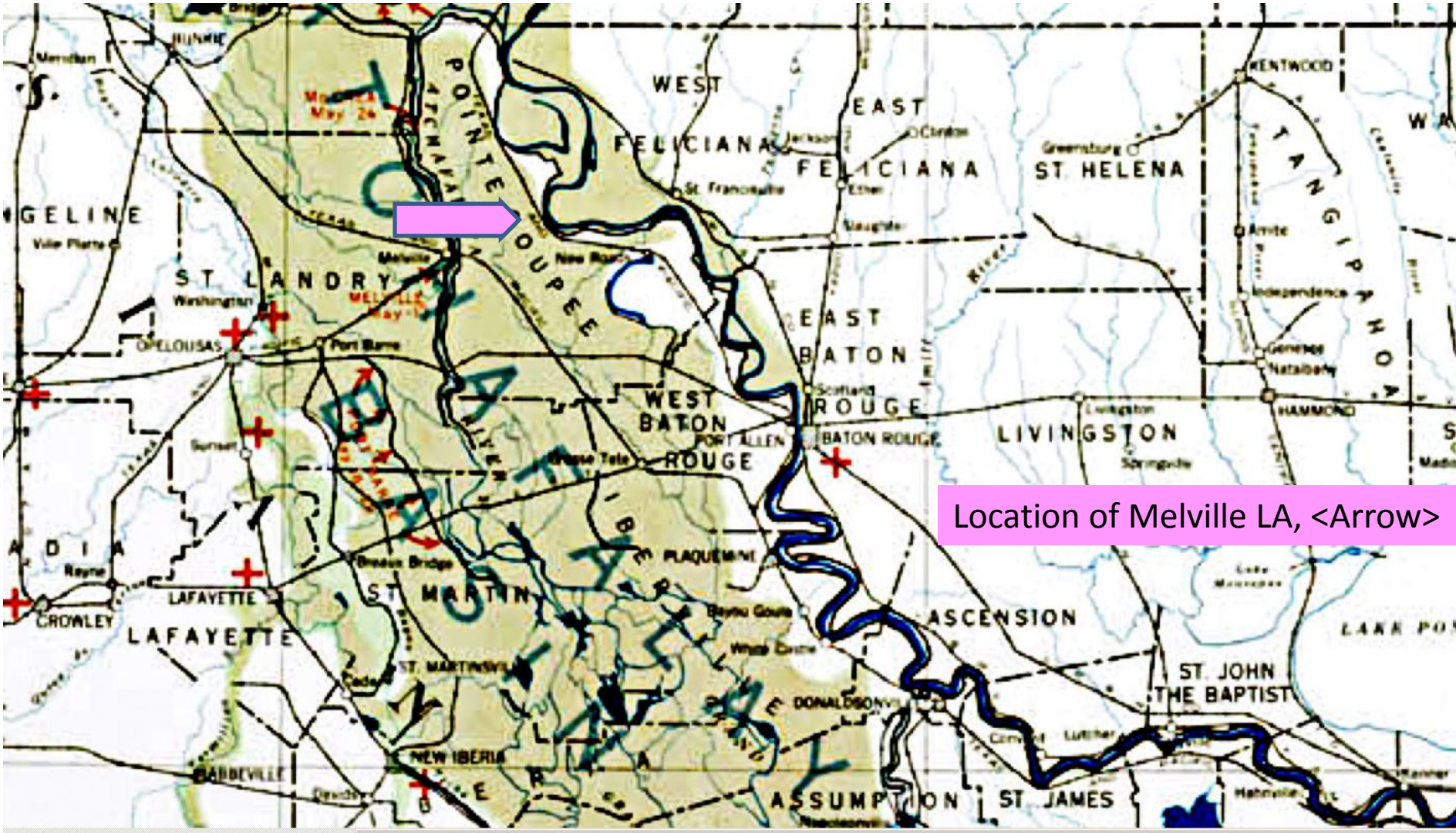
http://www.usatoday.com/pages/interactives/la-floods-august-2016/

Widespread flooding has occurred across the state of Louisiana, as seen in this map compiled by geographers at Louisiana State University.



Sources: Stephenson Disaster Management Institute, Louisiana State University; FEMA

https://en.wikipedia.org/wiki/Great_Mississippi_Flood_of_1927



Great Flood of 1927

Image Gallery

The following images are related to the topic discussed in this entry. We invite you to explore these images.

Click on an image to open in a slide show.







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Location of Melville in Louisiana

Melville, LA

http://www.knowla.org/entry/763/&view=image-gallery

1927 Flood - Photograph - Flooded home in Melville, Louisiana.
A photograph depicting flooding in Melville, Louisiana during the Great Flood of 1927.

Written on photo: One of Melville's finest homes; M-82.
It's the residence of the McNeils at Melville – It's a two-story house.

https://commons.wikimedia.org/wiki/File:Flooded_street_with_hotel_in_Melville_Louisiana_in_1927.jpg

http://pubs.usgs.gov/wsp/1320c/report.pdf

Floods of April-June 1953 In Louisiana and Adjacent States

FLOODS OF 1953

Prepared under the direction of J. V. B. WELLS, *Chief, Surface Water Branch*

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1320–C

http://pubs.usgs.gov/wsp/1320c/report.pdf

April – June 1953, another spring transition storm, and before “global warming.”

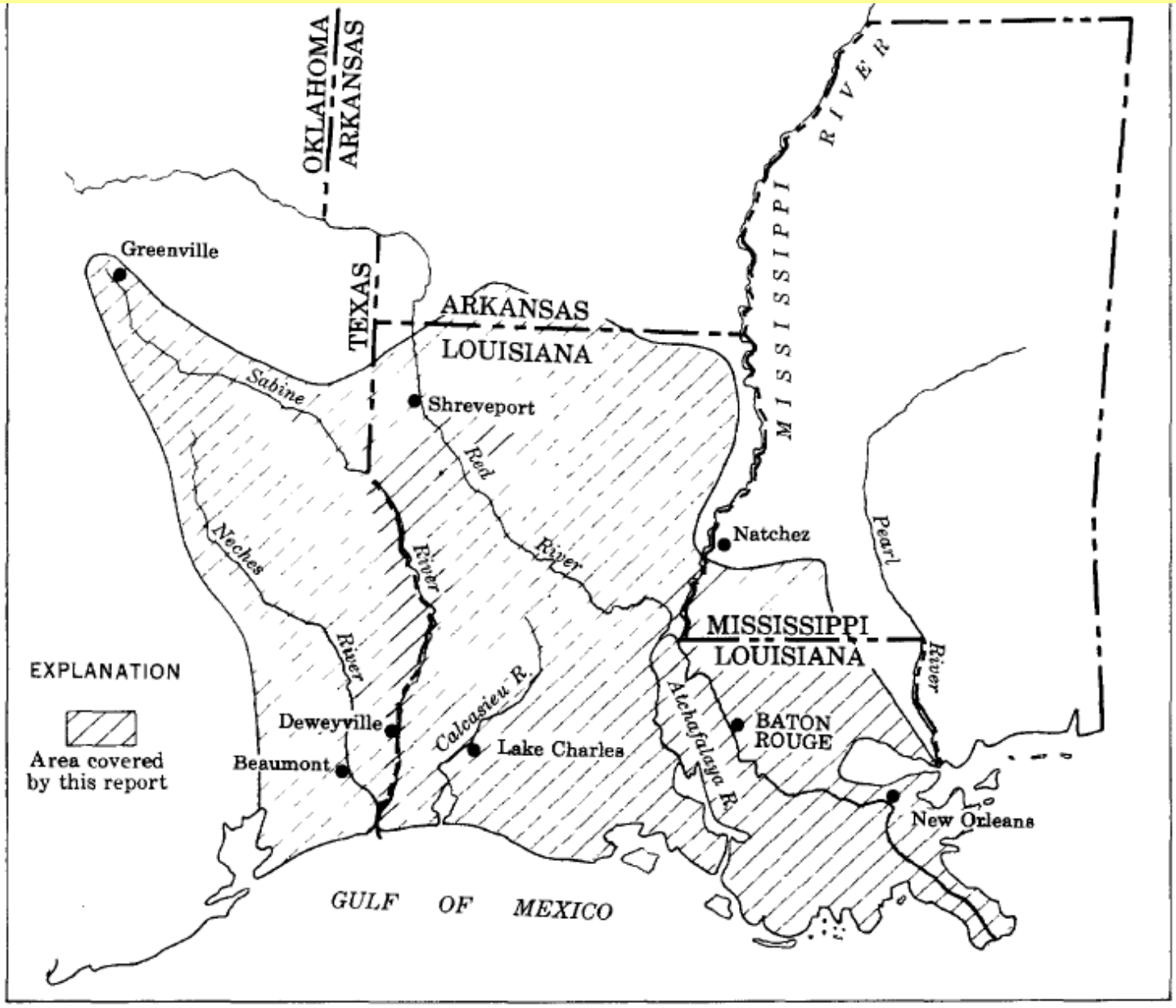


Figure 24.--Map of area covered by this report.

Twelve lives were lost in the floods of 1953. More than 4 million acres of land was inundated, and many homes were flooded. Highway and railroad bridges and roadbeds were destroyed (fig. 30).

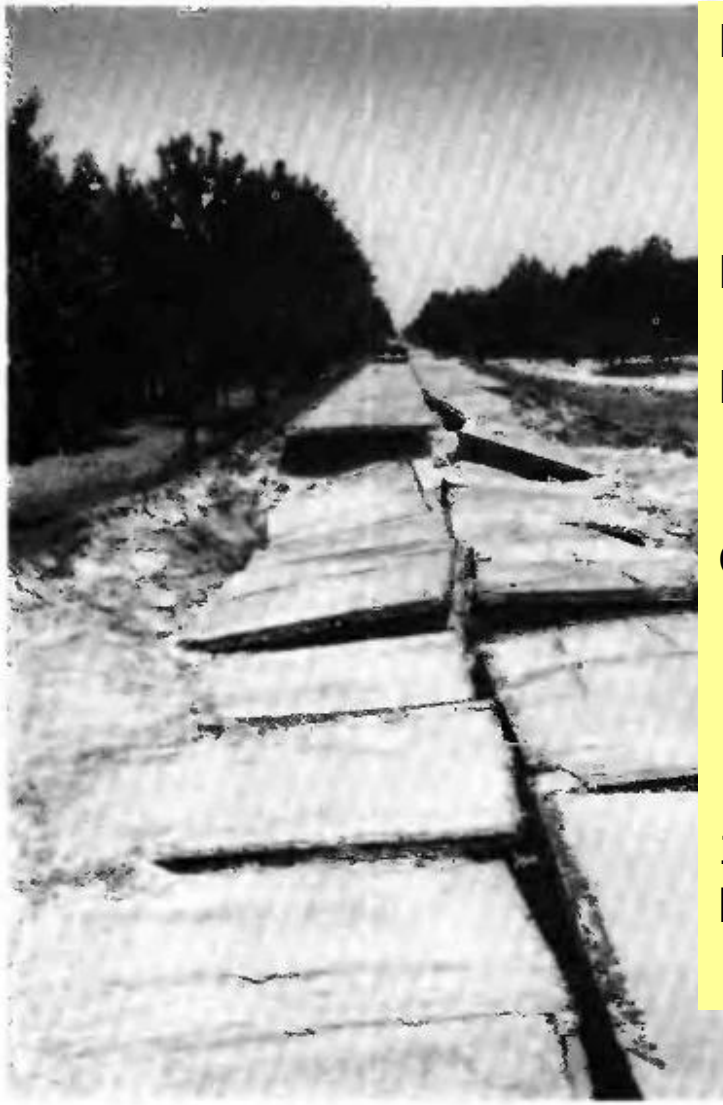


Figure 30.--U. S. 190 near Kinder, La., damaged by flood on Calcasieu River. Crest of flood covered road about 2 feet.

During the crest of the flood, all major highways in central and southern Louisiana were closed at some point.

Direct damages to State roads and bridges were estimated by the Louisiana Highway Department to be $2, 889, 000.

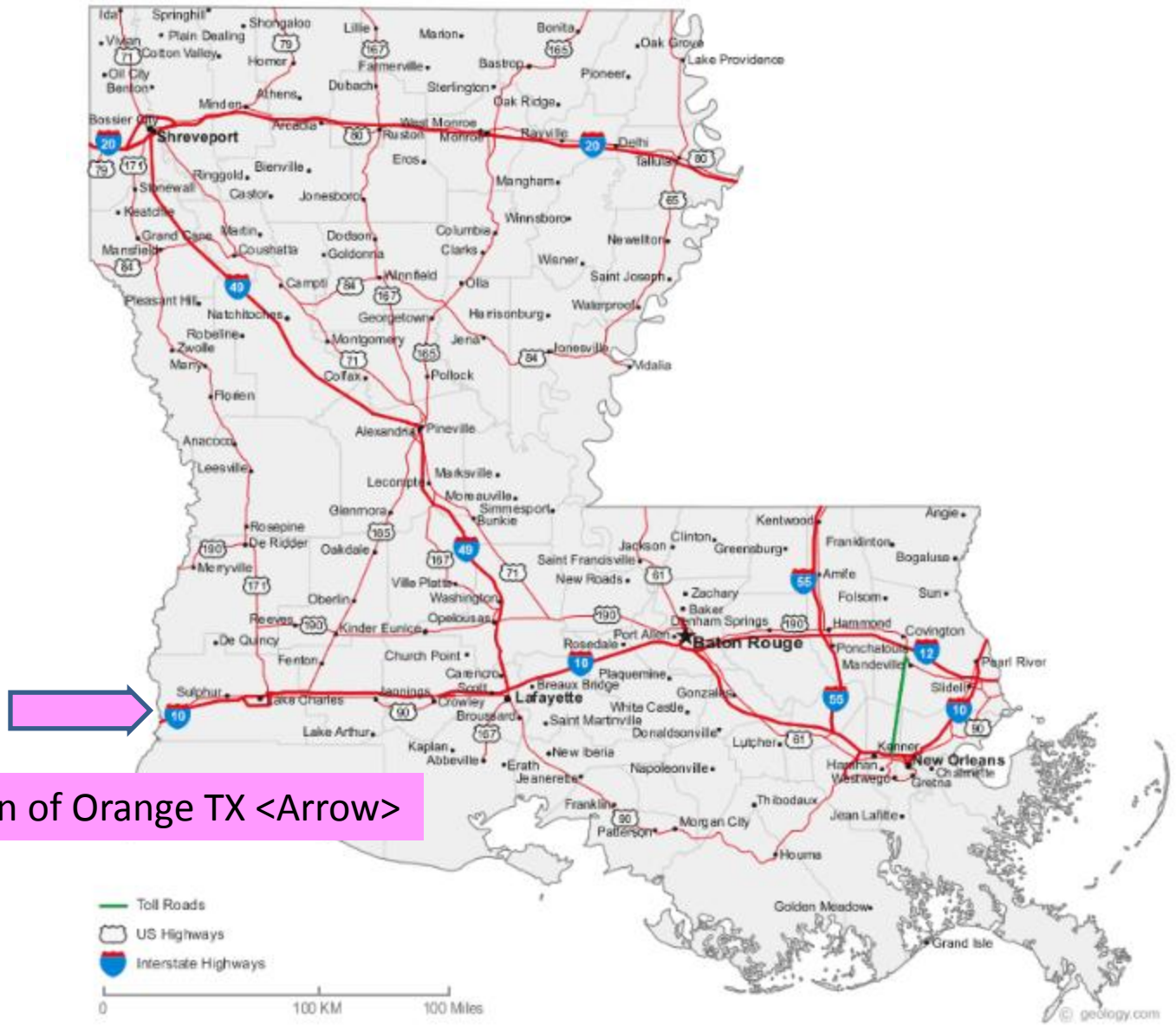
Of the larger cities in Louisiana, Lake Charles was the hardest hit.

At the crest of the flood, 60 percent of the area of the city was under water, 15,000 people were homeless, and 2,000 homes were flooded.

Figure 31. --U. S. 90 at Orange, Tex., flooded by Sabine River. Photo by Corps of Engineers on May 24, near crest of flood.

http://geology.com/cities-map/louisiana.shtml

Map of Louisiana Cities and Roads



Location of Orange TX <Arrow>

http://bigstory.ap.org/ /noaa-global-warming-increased-odds-louisiana-downpour

NOAA: Global warming increased odds for Louisiana downpour

By SETH BORENSTEIN Sep. 7, 2016 12:24 PM EDT

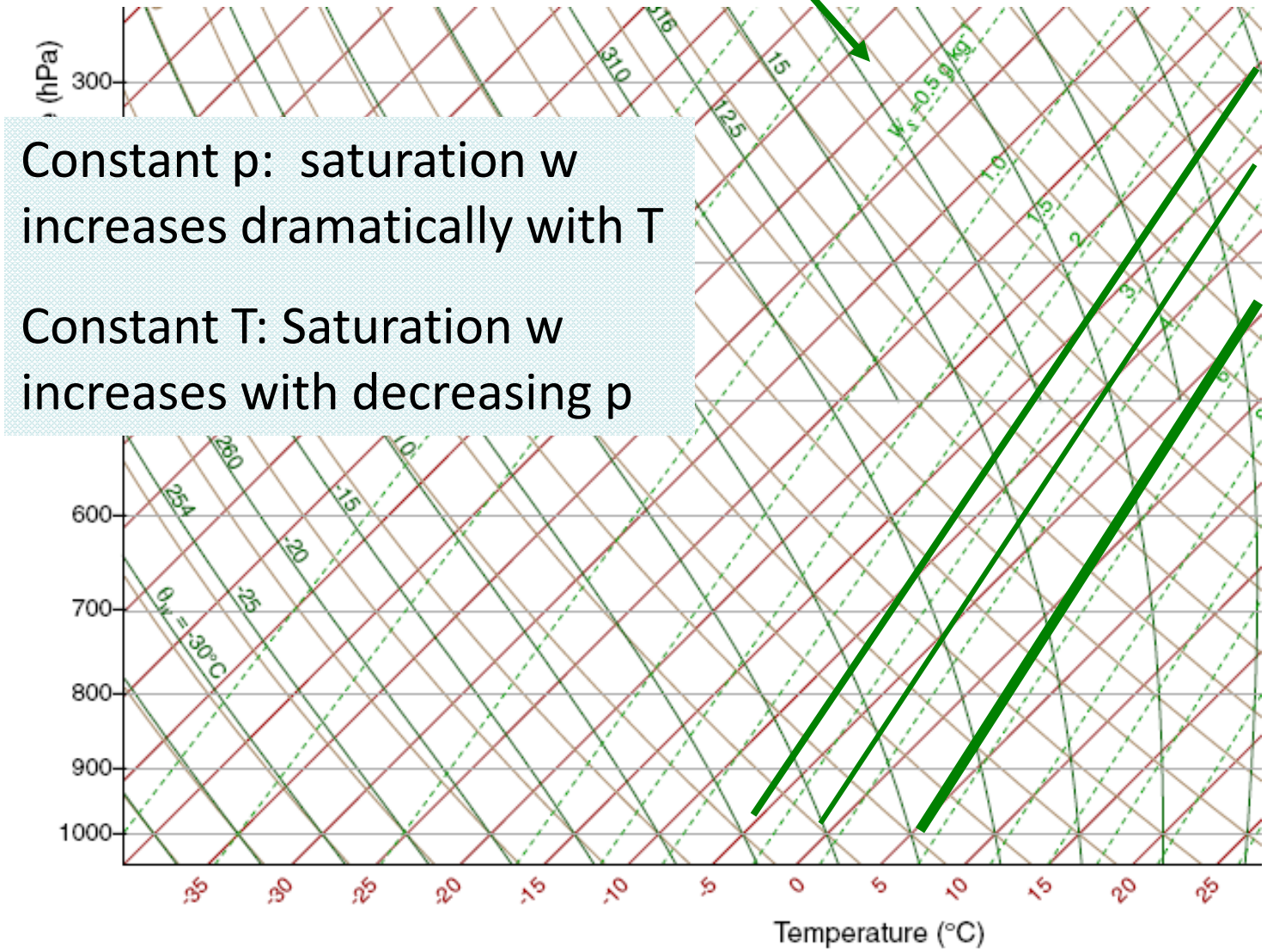
FILE - In this Aug. 14, 2016 file photo, Danielle Blount kisses her three-month-old baby, Ember, as she feeds her and wait to be rescued from floodwaters by members of the Louisiana Army National Guard near Walker, La.

Man-made climate change about doubled the chances for the type of heavy downpours that caused devastating Louisiana floods in August 2016, a new quick federal study finds.

"We are now actually able to objectively and quantifiably say, 'yes, climate change contributed to this event'," Climate Central Chief Scientist Heidi Cullen said of last month's Louisiana downpours. "It's unequivocal."

As air temperatures increase, so does the amount of water that air can contain; this is the **saturation mixing ratio w** and is described by the Clausius-Clapeyron Equation.

Saturation Mixing Ratio



Constant p: saturation w increases dramatically with T

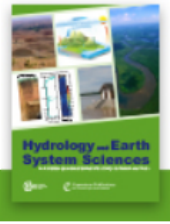
Constant T: Saturation w increases with decreasing p

Derived

Using ideal gas law, and def. of saturation water vapor pressure

(Clausius-Clapeyron)

http://www.hydrol-earth-syst-sci-discuss.net/hess-2016-448/



Hydrology and Earth System Sciences
An interactive open-access journal of the European Geosciences Union

doi:10.5194/hess-2016-448

Research article

06 Sep 2016

Rapid attribution of the August 2016 flood-inducing extreme precipitation in south Louisiana to climate change

Karin van der Wiel[2,1], Sarah B. Kapnick[2], Geert Jan van Oldenborgh[3], Kirien Whan[3], Sjoukje Philip[3], Gabriel A. Vecchi[2], Roop K. Singh[4], Julie Arrighi[4], and Heidi Cullen[5]

[1]Program in Atmospheric and Oceanic Sciences, Princeton University, Princeton, U.S.
[2]Geophysical Fluid Dynamics Laboratory (GFDL), National Oceanic and Atmospheric Administration, Princeton, U.S.
[3]Royal Netherlands Meteorological In stitute (KNMI), De Bilt, Netherlands
[4]Red Cross Red Crescent Climate Centre, The Hague, Netherlands
[5]Climate Central, Princeton, U.S.

Review status

This discussion paper is under review for the journal Hydrology and Earth System Sciences (HESS).

Received: 31 Aug 2016 – Accepted: 05 Sep 2016 – Published: 06 Sep 2016

http://www.hydrol-earth-syst- sci-discuss.net/hess-2016-448/

Attribution of the August 2016 flood-inducing extreme precipitation in south Louisiana to climate change

Objective of this study is to show the possibility of performing rapid attribution studies when both observational and model data, and analysis methods are readily available upon the start.

Using observational data, we find that the observed local return time of the 12–14 August precipitation event in 2016 is about 550 years (95 % confidence interval (C.I.): 450–1450).

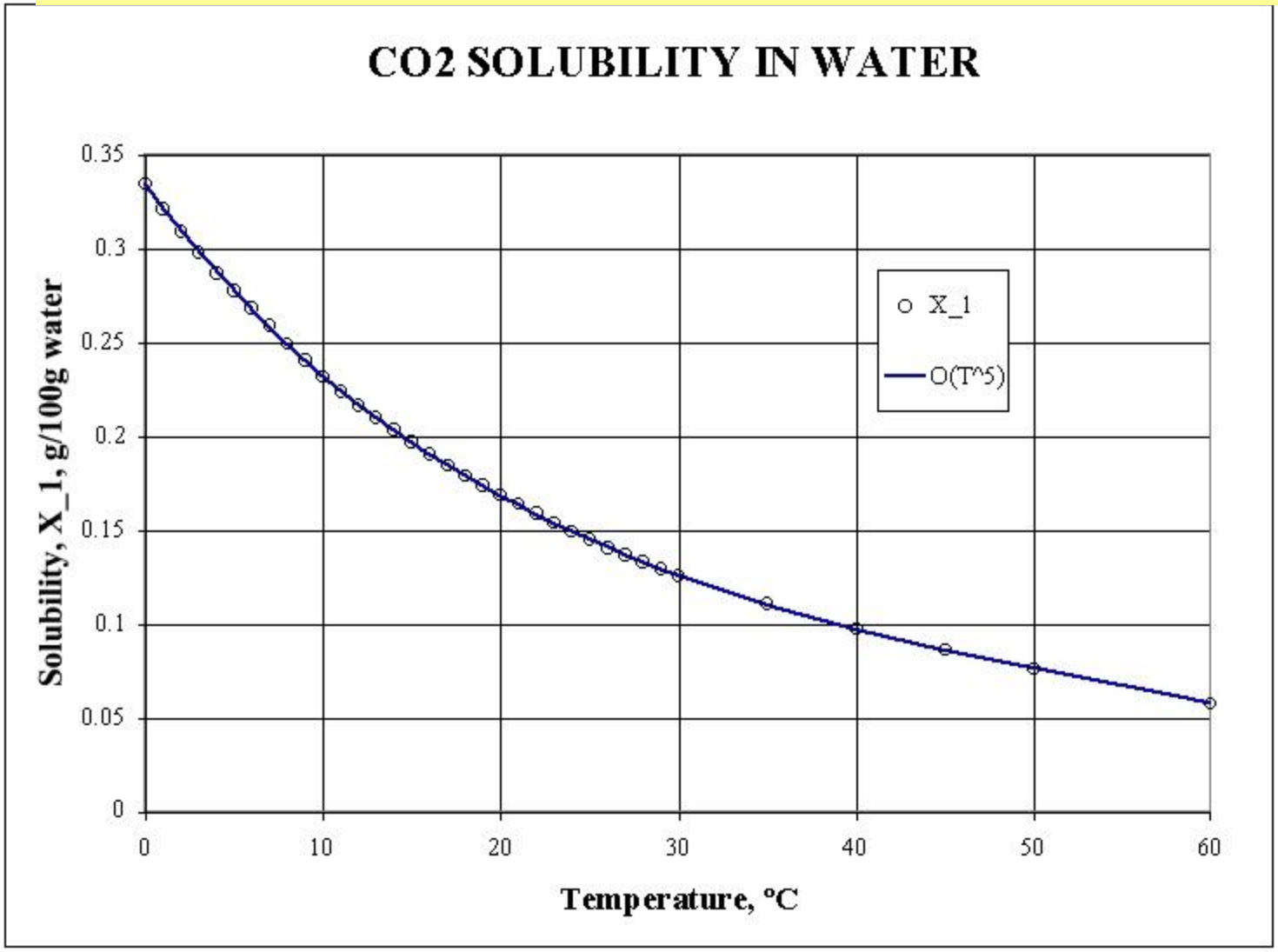
The probability for an event like this to happen anywhere in the region is presently 1 in 30 years (C.I. 11–110).

We estimate that these probabilities and the intensity of extreme precipitation events of this return time have increased since 1900.

Briefly, why the Alarmists and their Models are wrong

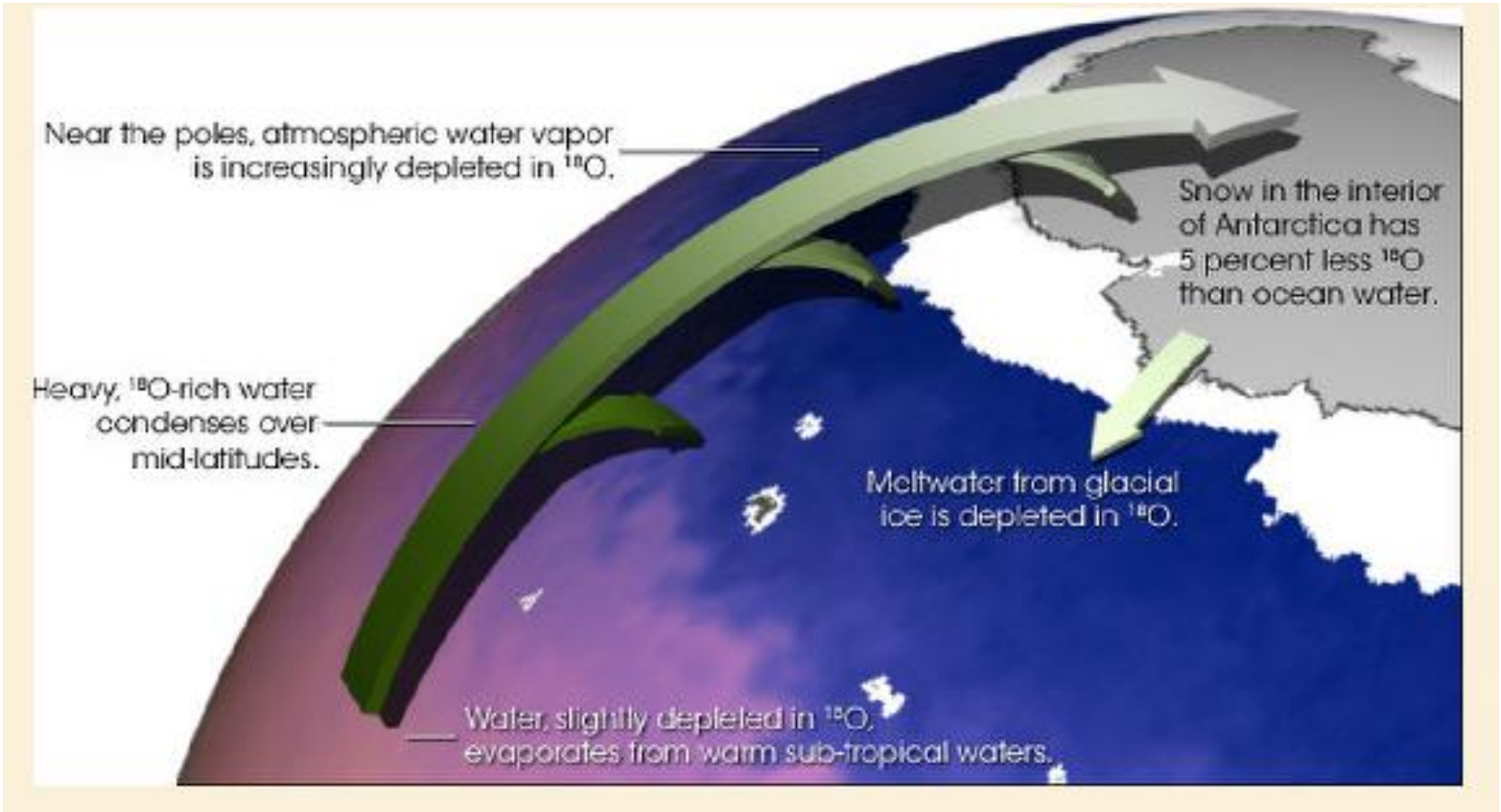
Henry's Law applied to CO2 and Water:
As the temperature of the water increases, the ability of water to hold CO2 in solution decreases, and the CO2 is given off into the atmosphere.

http://chemistry.stackexchange.com/questions/47519/non-linear-solubility-trend



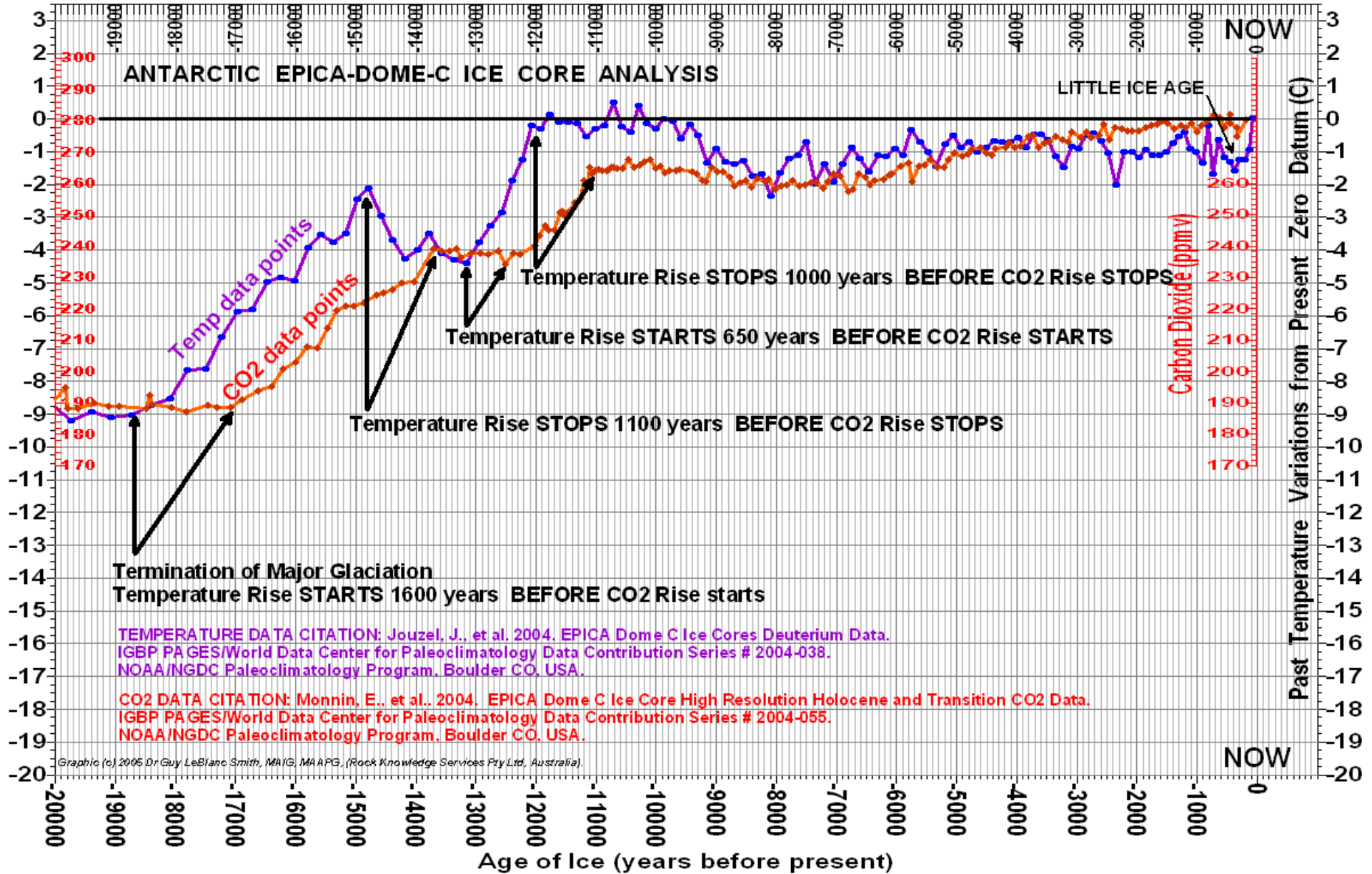
"Water that is made of the light oxygen evaporates more easily.
Water made of the heavy oxygen condenses more easily.
This means that the warmer the oceans are near the location of the glaciers or ice sheets, the more heavy oxygen there is in the ice core.

Kehr, John (2011-10-23). The Inconvenient Skeptic:
The Comprehensive Guide to the Earth's Climate (p. 66). John Kehr. Kindle Edition.



http://carbon-sense.com/wp-content/uploads/2013/11/antarctic-temp-co2.png

Henry's Law shows us that temperature changes first, then <CO2> changes.
Data show us that Temperature controls <CO2>; alarmist modelers have it backwards.



Rainfall Records

https://stevengoddard.wordpress.com/2015/10/18/national-weather-service-lying-about-1000-year-rainfalls-a

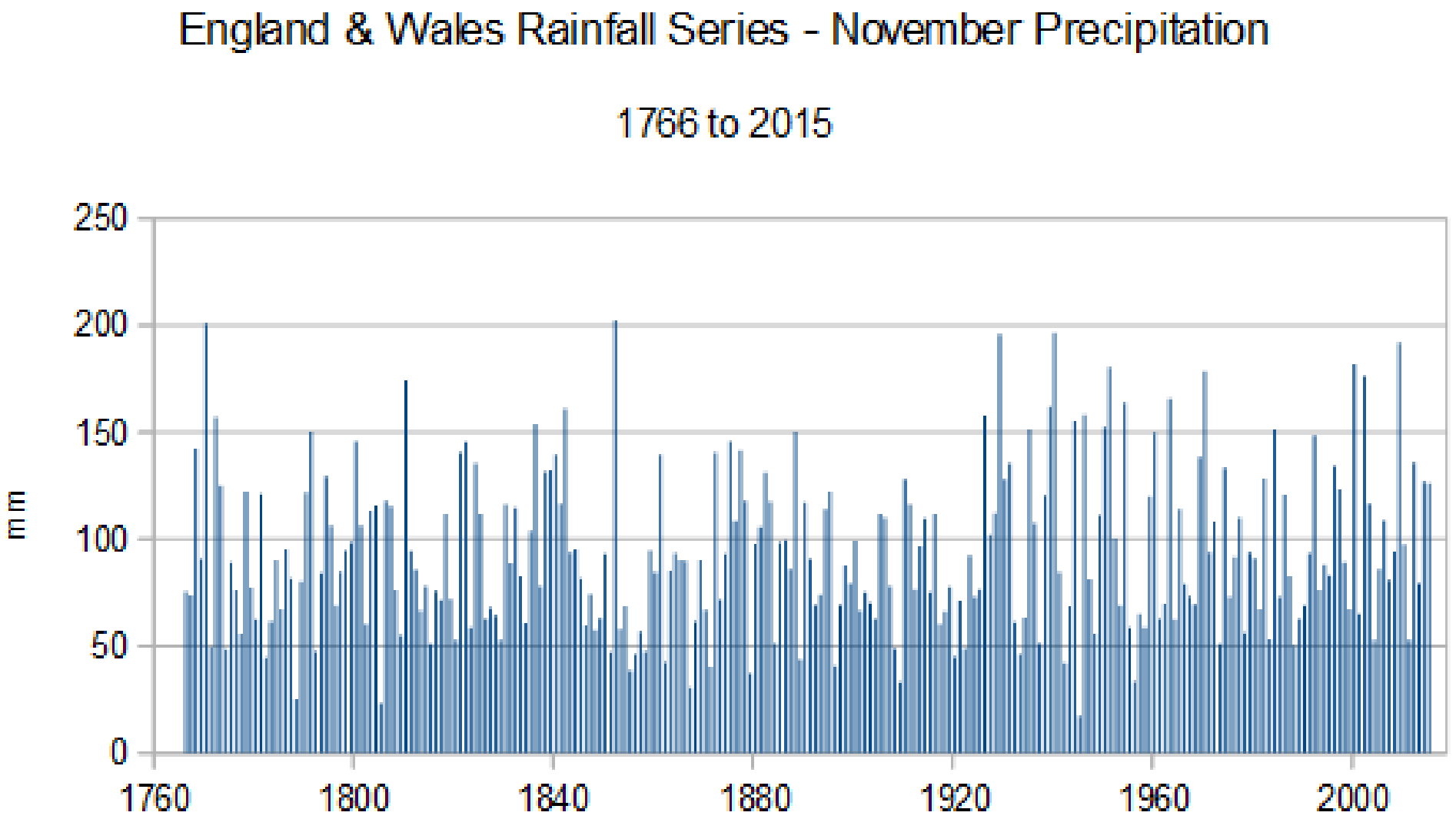
Extreme Weather: A Guide & Record Book – Christopher C. Burt – Google Books

U.S. Record Point Rainfalls

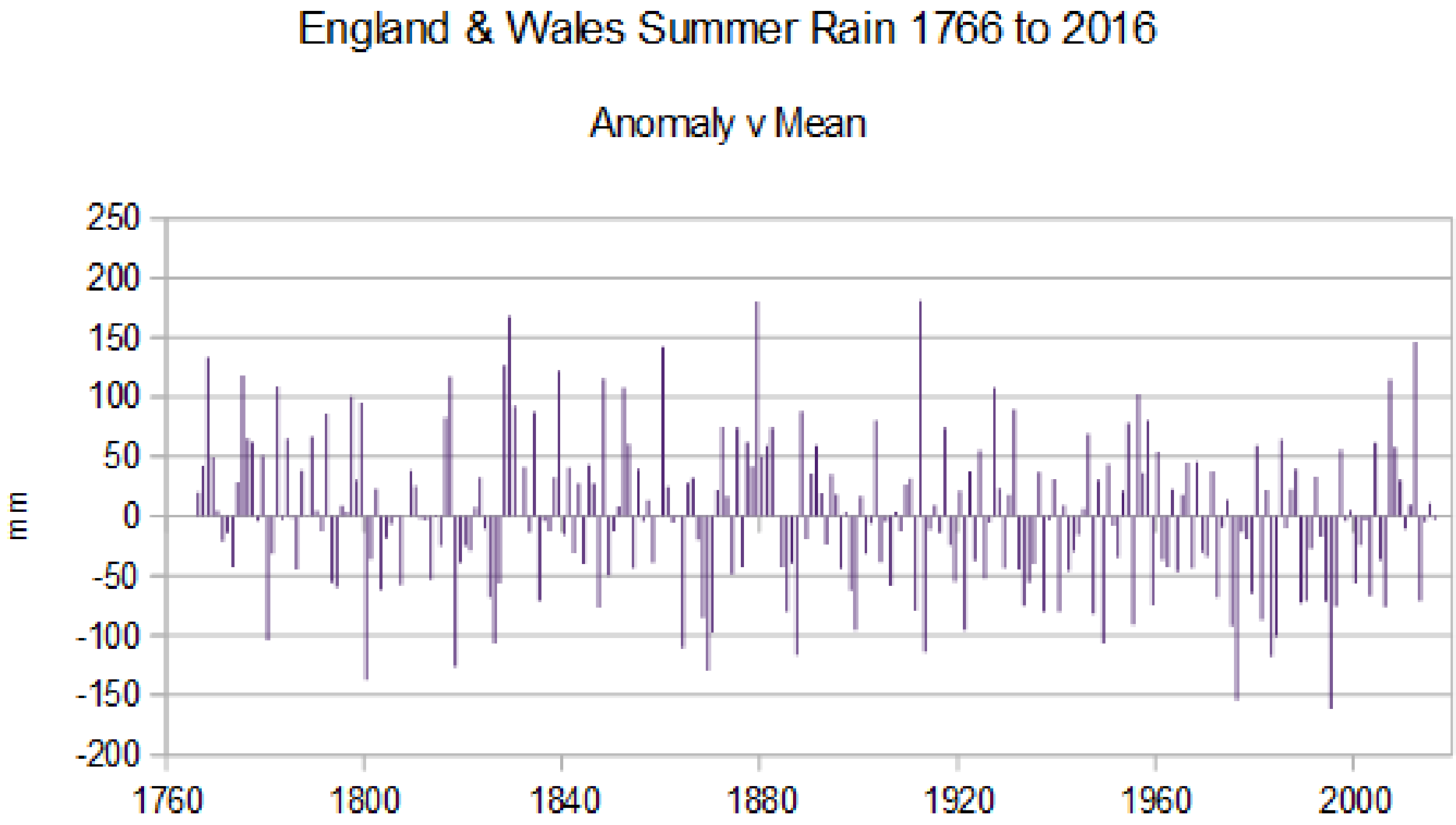
Time	Rainfall	Location	Date
1 minute	1.23"	Unionville, MD	7/4/1956
5 minutes	2.03"	Alamogordo Creek, NM	6/5/1960
12 minutes	2.30"	Embarrass, WI	5/28/1881
15 minutes	3.95"	Galveston, TX	6/4/1871
30 minutes	7.00"	Cambridge, OH	7/16/1914
40 minutes	9.25"	Guinea, VA	8/24/1906
42 minutes	12.00"	Holt, MO	6/22/1947*
1 hour	13.80"	Central WV	5/4-5/1943
1 hour 30 minutes	14.60"	Central WV	5/4-5/1943
2 hours	15.00"	Woodward Ranch, (D'Hanis) TX	5/31/1935
2 hours 30 minutes	19.00"	Rockport, WV	7/18/1889
2 hours 45 minutes	22.00"	Woodward Ranch, (D'Hanis) TX	5/31/1935*
3 hours	28.50"est.	Smethport, PA	7/18/42*
4 hours 30 minutes	30.70"	Smethport, PA	7/18/42*
12 hours	34.30"	Smethport, PA	7/17-18/1942
18 hours	36.40"	Thrall, TX	9/9/1921
24 hours	43.00"	Alvin, TX	7/25-26/1979
4 days	62.00"	Kukaiau, Hamakua, HI	2/27-3/2/1902
8 days	82.00"	Kukaiau, Hamakua, HI	2/27-3/6/1902
1 month	148.83"	Mt. Waialeale, Kauai, HI	3/1982
1 month (mainland)	71.54"	Helen Mine, CA	1/1909
1 year	704.83"	Kukui, Kauai, HI	1982
1 year	332.29"	MacLeeod Harbor, AK	1976
1 year (mainland)	204.12"	Laurel Mountain, OR	1996

*constitutes a world record

https://notalotofpeopleknowthat.wordpress.com/2015/12/05/november-rainfall/



https://notalotofpeopleknowthat.wordpress.com/2016/09/10/is-english-summer-rain-getting-more-extreme/



Other Louisiana Flood Records

We use New Orleans: longest history

http://www.pbs.org/wgbh/nova/orleans/struggle.html

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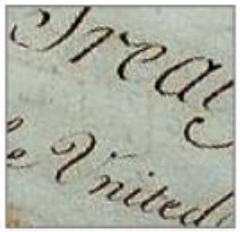
A FRENCH FOOTHOLD


LOUISIANA PURCHASE


LEVEES–ONLY POLICY


SPILLWAYS & SPRAWL


HURRICANE SEASON


MODERN TIMES

The French explorer Jean-Baptiste Le Moyne, Sieur de Bienville made a fateful decision in 1717 when he chose the site for New Orleans along a sharp bend in the Mississippi River. Bienville selected the site against the objections of his chief engineer, who realized that the area suffered from periodic floods. New Orleanians have been paying the price of Bienville's insistence ever since, from the first major flood shortly after the town's founding to the merciless juggernaut that was Hurricane Katrina. Here, follow the historical trajectory of New Orleans' ever-worsening struggle to keep out water.
—*Peter Tyson*

A FRENCH FOOTHOLD

1708

A Frenchman visiting the Mississippi River near what would become New Orleans writes, "This last summer I examined better than I had yet done all the lands in the vicinity of this river. I did not find any at all that are not flooded in the spring. I do not see how settlers can be placed on this river."

1717

The French establish "Nouvelle-Orleans" on the site of an erstwhile Quinnipissas Indian village. (Indians first occupied sites in eastern New Orleans around 500 B.C.) Like the Quinnipissas, the French select the site because it's the highest and driest spot for several miles around. Within a few years slaves are put to work clearing land on the natural levee the French have selected for the town.

1816
After a nearly month-long flood this year drives many poorer New Orleanians from their homes, Edward Fenner, a noted New Orleans medical authority, writes, "should not those in affluent circumstances come to the aid of their less fortunate fellow citizens, great indeed, we fear, will be the distress of the latter, from poverty, famine, and perhaps pestilence."

1828
Another flood in New Orleans produces the highest water recorded up to the time. The deluge sparks a renewed bulwark-building campaign. Laws are now in place both regulating the dimensions and maintenance of levees and mandating a tax to pay for their construction.

1846
Louisiana State engineer P. O. Hebert warns that New Orleans is in "imminent danger of indundation" annually: "Every day, levees are extended higher and higher up the river—natural outlets closed—and every day the danger to the city of New Orleans and to all the lower country is increased. Who can calculate the loss by an overflow to the city of New Orleans alone?"

1849

Two topographic engineers describe the flood of 1849 as the most destructive flood known. A breach in the levee on the east bank of the Mississippi 18 miles above New Orleans does an "immense amount of damage," they write, inundating the city for 48 days. Another flood the following year convinces the federal government to grant monies to build a continuous levee system.

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A 300-Year Struggle

Storm That Drowned a City homepage


A FRENCH FOOTHOLD


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SPILLWAYS & SPRAWL


HURRICANE SEASON


MODERN TIMES

The NOVA list continues…

From 1850-2016 there are 20 separate paragraph entries, or more than one significant flood event every 10 years.

…Louisiana Floods are not rare events.

Flood High Water Mark Records

EUROPE

What might European History tell us about floods?

Some European History is preserved in the buildings and monuments commemorating significant events which may have not found their way into the history texts or literature.

“High Water Mark” indicates the peak achievement of an individual, institution, or group.

However, the term originated from the High Water Marks left by floods on buildings along rivers– usually a horizontal mark with the date – certainly it is the case in Europe.

Following: High Water Marks, “Hochwasser,” I found in my travels in Middle Europe, and the Internet

High water marks for Bernkastel, Boppard, Frankfurt/Main, Miltenberg, Passau, Mell

High Water mark
Bernkastel, Germany
on the Mosel River

There are three sets of High Water Marks here.

at <Red Arrow> it says,
“28 2 1784 mit Eisgang”

Translation for Americans:

Feb 28, 1784, was the date.

The water was full of ice when the Mosel flooded here.

http://floodlist.com/dealing-with-floods/flood-high-water-marks#

Flood level markers from River Rhine floods in Boppard, Germany.

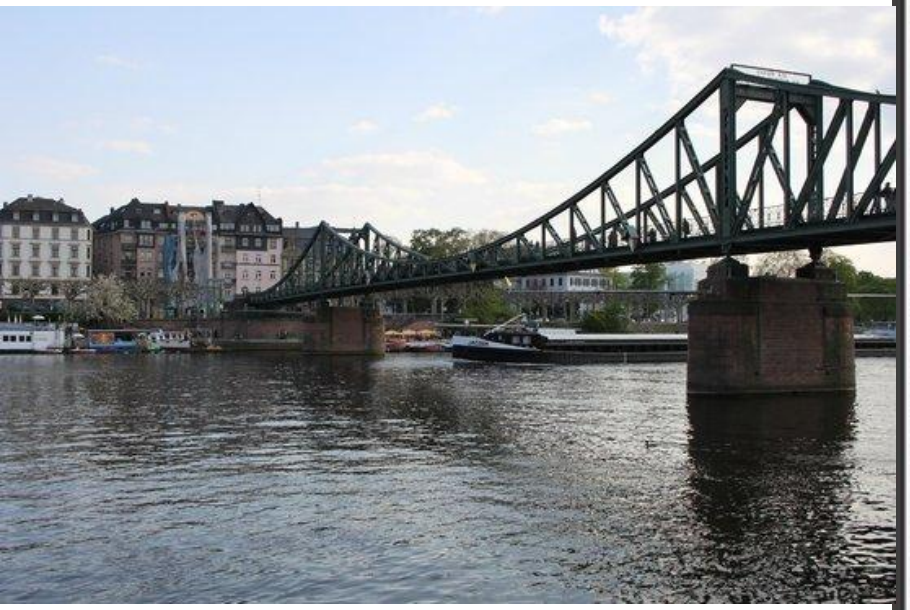
Photo from 2013 by Dr Stephen Yeo, used with permission.

Marks from bottom to top: May 1983, February 1970, January 1995, March 1968, 1882 (no month given)

…and at the very top, February, 1784

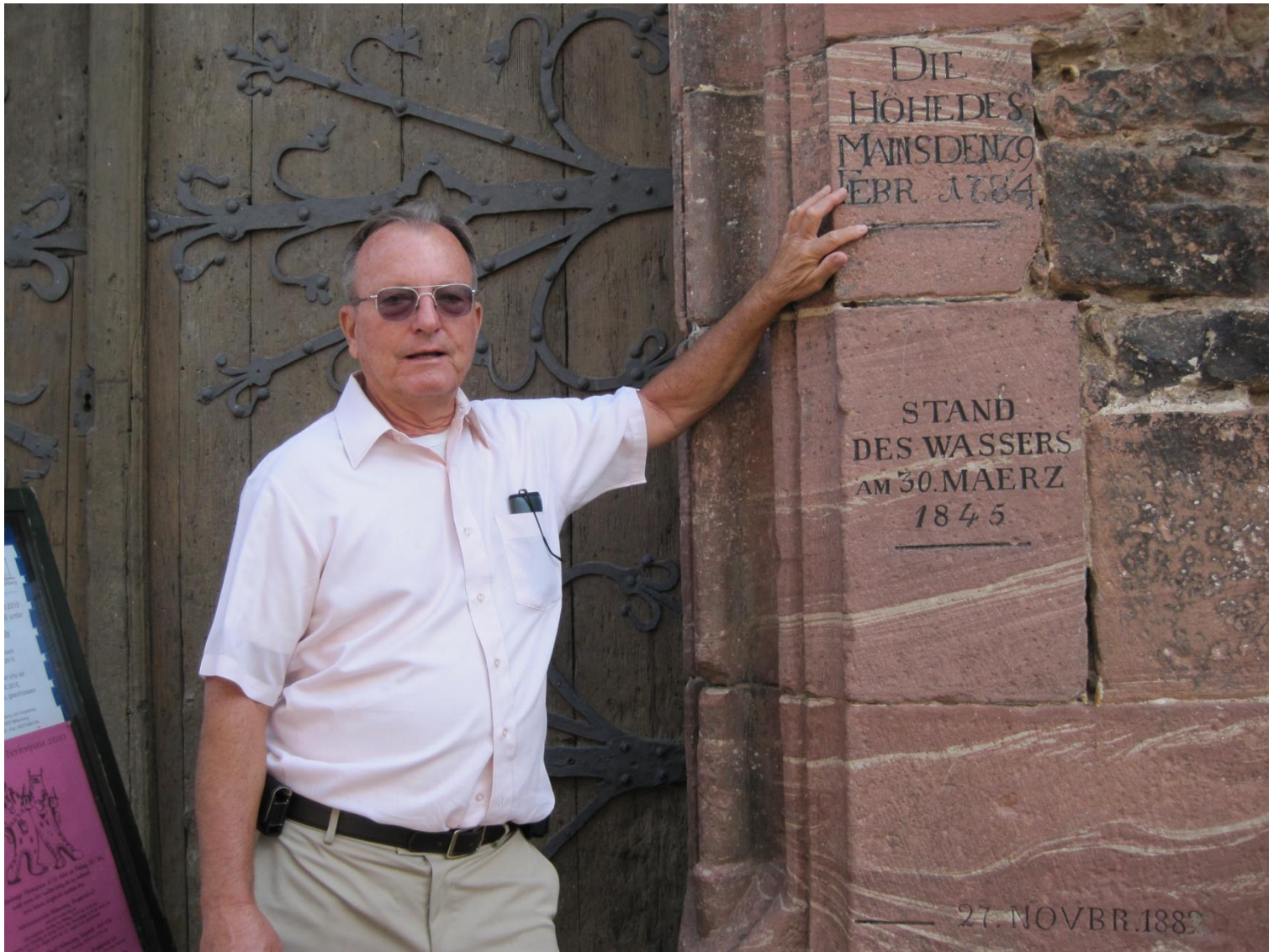
http://floodlist.com/dealing-with-floods/flood-high-water-marks

Eiserner Steg Bridge, Frankfurt/Main



High water marks on the Eiserner Steg bridge in Frankfurt. "Vom Eise befreit sind Strom und Bäche" is from Goethe. Photo from 2005. Photo credit: D Weekly @ flickr

Photo taken in front of Old Town Hall,
Miltenberg, Germany, on the Main River.
High Water mark carved in stone on the Town Hall entranceway.
Highest flood water was February, 1784.



http://floodlist.com/wp-content/uploads/2014/07/flood-marks-passau.jpg

High Water Marks

Passau, Germany, on the Danube.

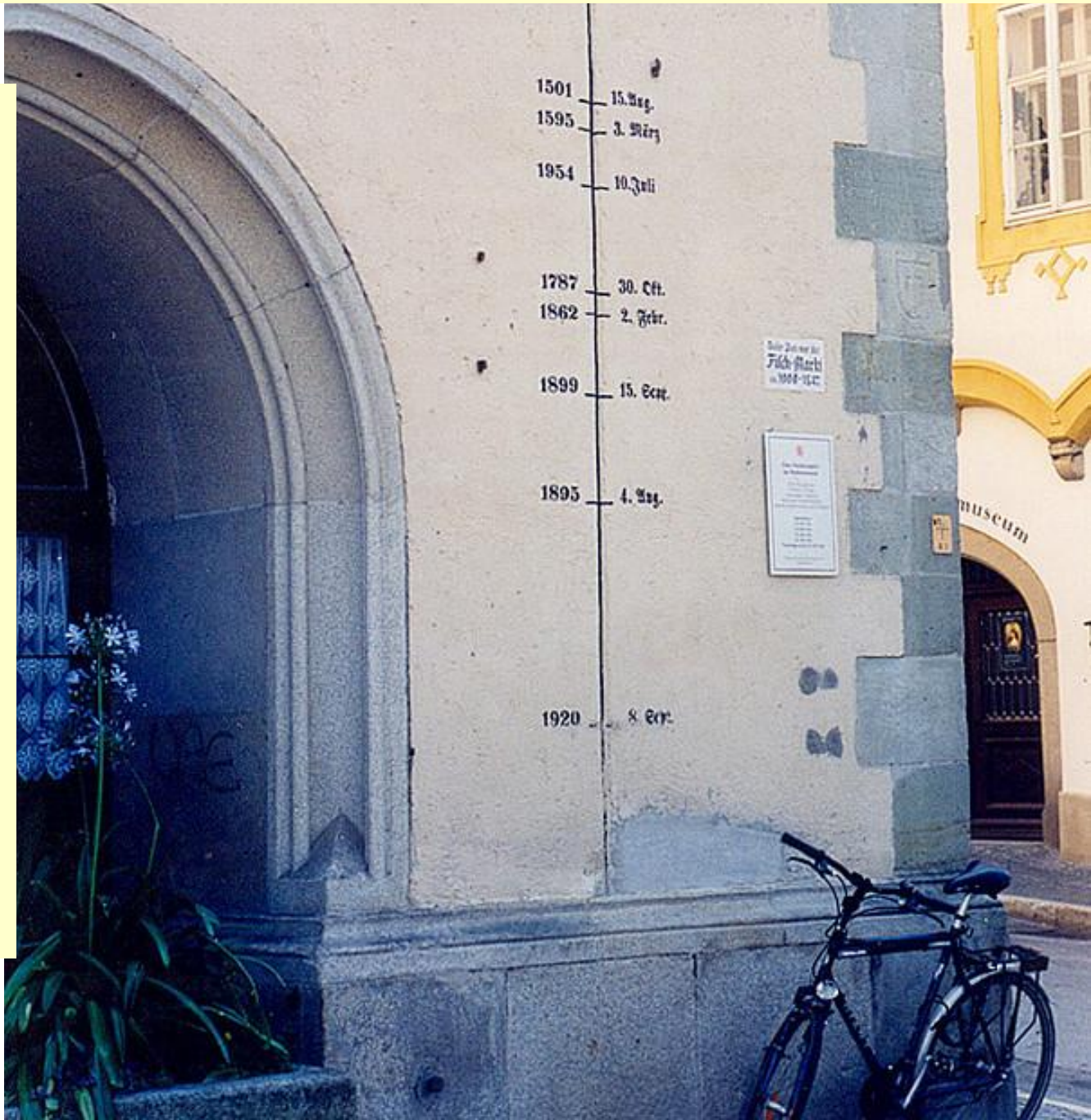
Three rivers come together at Passau:

From the South: INN

From the North: ILZ

Highest flood is in 1501

Second Highest 1595



Hochwasser in German, means high water.

This is a monument of high water marks measured at Melk, Austria.

This slide will mean a lot more after we get to the next slide.


HOCHWÄSSER


1501
1787

500 years of Flood Marks show the most severe floods occurred in the Little Ice Age

Bernkastel's 28 Feb 1784 flood mark is annotated "mit eisgang," meaning it was a cold year in the Little Ice Age

Highest flood in Frankfurt/Main is 18 Jan 1682

None of the highest flood marks were in the 20th or 21st Centuries.

Modern "Warming" shows no tendency for increased flooding, in fact the opposite seems the case

Rainfall records in England since 1766 show no modern increase in Heavy Rainfall events.

Little support for modern maxima in rainfall extremes shown in Burt's book, Extreme Weather

https://wattsupwiththat.com/2016/06/15/when-it-comes-to-blaming-modern-climate-change-for-the-recent-flooding-in-paris-this-picture-says-a-thousand-words/

What have we learned?

It rains and floods a lot in Louisiana and the US Gulf Coast

The August 2016 rainfall was nowhere near a record; not “Historic.”

The worst river floods in the USA have been associated with winter and spring storms

The worst river flooding in the US was in 1927 and 1953

2016 flood area is small in comparison with the 1927 and 1953 flood events

Over 500 years of flood history are easily found in Europe.

20th and 21st century floods are small in comparison with known floods during the Little Ice Age.

Modern warm season rainfall does not compare with cold season and LIA floods!

The stories from USA Today and the Associated Press reflect poor scholarship, poor reporting skills, and lack of critical thought in story preparation.

http://www.gallup.com/poll/185927/americans-trust-media-remains-historical-low.aspx
Maybe they are more interested in selling newspapers…..