

Very Cold Periods in the Eastern US

December 1831

From November to early January 1832 New York City had a very cold period. December's mean temperature was 22 °F. This was 3 °F colder than the previous lowest average set in December 1790 and was their third coldest for any month. Early American Winters, I 1604-1820 by David M. Ludlum p. 16

January 4 and 5th of 1835

Bangor Maine -40°F, Burlington Vermont -26°F, Hartford Connecticut -27°F
Albany New York -32°F, Lancaster Pennsylvania -22 °F, Washington DC -16°F
Alexandria Virginia -15°F On December 17, 1835 there were two stations in the Adirondack Mountains of New York that the Mercury congealed at a reading of 40 below zero Fahrenheit. Poughkeepsie, New York had 22 °F below zero. Early American Winters, I 1604-1820 by David M. Ludlum pp. 18-24

January 1852 the Coldest Early Winter

Only the unusual late winter months of 1843 could match the cold of 1852. January 1852 gave continuous cold rather than great extremes of cold temperatures. Delaware reported -25°F in Oxford and -22 at Cortland. William Whitehead at Newark New Jersey had a thermometer that registered -7.5°F on the morning of December 27. Early American Winters, I 1604-1820 by David M. Ludlum pp. 46-47

February 6, 1855

On the morning of February 6, 1855 Fairmont, New York recorded a minimum of 30 below zero Fahrenheit. At Gouverneur, NY in the northwestern corner of NY State, the temperature was so low it couldn't be read by a mercury thermometer as the mercury congealed in the bulb. Early American Winters, I 1604-1820 by David M. Ludlum pp. 49-51

January 6, 1857

The coldest January occurred in 1857 in the early records of the Northeast. Not only was the general average lower than any other winter month but it featured two cold waves of extreme severity during which large parts of the region experienced their all-

time absolute minimums. In many locations on one or more days the mercury stood below zero at noon. Also sandwiched between these two cold periods was a major coastal snowstorm of the century to compound and emphasize the winter regime. Amherst Massachusetts had a January average that was the coldest in a 70 year record span and February 1857 reversed the scale to become the warmest February month in 70 years. Albany had an average January temperature of 11.8°F and New York City had an average of 19.6° a deficit of 11°F below the average. January 18, 1857 will be long remembered over vast stretches of the country from the Mid-West to the Atlantic seaboard for the coldest morning. The mercury drop at Copenhagen in Northern Lewis County, New York dropped to a negative 42°F on the 18th.

This commentary was sent out by Dartmouth College – 1857

The mercury did not quite congeal in our thermometer on the morning of 24 January 1857 but would doubtlessly have done so at the Hanover bridge in the Valley, 140 feet lower than our village, had not the owner of the instrument, on perceiving the rapid descent of the mercury on the evening of the 23rd taken it in, to prevent its freezing and bursting. He was not aware that mercury unlike water, contracts, not on congealing, instead of expanding. In low ground surrounded by precipitous hills the temperature, when the air is still, is generally some degrees lower than in elevated localities. Thus at White River Junction (which is about 180 feet lower than our village), the mercury is reported to have frozen. The lowest readings from press releases from Maine were: -52 at Bath, Maine; -51 at Franconia New Hampshire; and 50 below at both Montpelier and St. John's., Vermont. The present day excepted low-temperature for Maine by the National Climate Data Center is 50 below zero. Early American Winters, I 1604-1820 by David M. Ludlum pp. 54-61

February 1861 from February 6th - 10th

A spectacular temperature wave in February 1861 from February 6th - 10th covering four days or 96 hours the mercury dropped abruptly from 70° to congeal at -40. Then the full flood thawing soared 95° to a maximum of 55 Fahrenheit thus a change of 165 °F had taken place in this short period of time. This amazing gyration of mercury occurred in Northwestern New York State and Gouverneur, and Jefferson County, New York. Changes in temperature slightly less extreme took place all over the Middle Atlantic and New England states between February 6 and 10th of 1861. Early American Winters II 1821-1870 David M. Ludlum p 65

January 1866

In the first days of January 1866 it not only set records in the Smithsonian for the highest pressure ever obtained from Iowa to New York but also established precedents by producing the longest continuance of sustained below zero temperatures over northern New York and Northern New England. (Official records start for New York City in 1869) On January 8, 1866 New York reported two readings of -15° °F, one Manhattan and the other in Harlem; these temperatures have been rivaled only twice since. This happened on December 30, 1917 with a -13° below zero and February 9, 1934 with a -14.3°F. Early American Winters, I 1604-1820 by David M. Ludlum p. 69-71

January 1893

January 1893's average temperature in Richmond, Virginia was 28.9 °F which was the coldest of any month on record from 1880 until January 1918 in Richmond. January of 1893 was the second coldest month recorded at Norfolk, Washington and Charlottesville and the third at Baltimore to this present day (2013). January of 1893 received 24 inches of snow in Richmond and on six days the temperature was zero or lower. Though not official the lowest temperature recorded in Richmond on January 16th was -13 °F. The Richmond Times reported that ice was 8 inches thick on the Shenandoah River in Page County.

February 1899: The Worst Cold Snap in North American History

Gregory McNamee

On the evening of February 11, 1899, few of the residents of Washington, D.C., were abroad. The streets of the busy capital city, normally crowded with horses and carriages and even a few of those newfangled gadgets called automobiles, were deadly silent. Curtains were drawn against the cold, coal and wood fires were banked high, and throughout the city, Washingtonians waited for the worst.



That afternoon, two Marine officers had reported to the Secretary of the Navy that their base in Quantico, Virginia, about 35 miles south of the capital city, had recorded temperatures of -30 (all temperatures here are degrees Fahrenheit), a low never before marked in the temperate South. The post would have wired the news, the officers reported, but the telegraph poles had snapped in the cold. Snow, they added, was on the way, and lots of it. Long relayed the word to the White House, staff of President William McKinley sent out a message to the Capitol, and in no time the town was shut up tight, as if besieged.

Not that anyone really needed the news, for by the time the officers reported in the temperature had already fallen to -15 , cold enough to upset horses, burst pipes, and send anyone whose job did not require being outdoors into the safety of a warm shelter. The snow did arrive, too—and lots of it. A strong nor'easter began to blow, quickly depositing 2 feet of snow on the streets of Washington. Nearly twice as much would fall on Philadelphia, New York, and Boston as the storm twisted and ground its way up the paralyzed East Coast before finally turning out to sea.

Strangely, though, five times as much snow fell just outside the capital, in the low-lying, warm coastal country surrounding the Chesapeake Bay. Just as strangely, the storm eventually tracked back south, bringing snow all the way to Miami, Florida, which seldom sees the white stuff, and which saw a record low temperature of 29 on Valentine's Day.

The East Coast storm was but one branch of what one National Weather Service meteorologist called, a century after the event, "the mother of all cold waves." It was indeed the worst cold snap in American history, and, over a period of about two weeks, it caused terrific damage over two-thirds of the country and much of Canada. Temperatures fell below freezing in every state and continental territory. Hundreds of people are thought to have died of the extreme cold temperatures, though, because reliable statistics from the period are hard to come by, the figure may even be in the low thousands. Certainly hundreds of thousands of livestock animals—poultry, sheep, pigs, and cattle—died that cold February, frozen where they stood.



That cold arrived on February 10, blowing down from Canada on what meteorologists today call an Alberta Clipper wind. In Saskatchewan, the barometer hit a high-pressure record of 31.42 inches, while to the southwest in Logan, Montana, the thermometer dropped to a staggering –61. Pittsburgh, Pennsylvania, saw a record of –20 on the first day of the cold snap, but then warmed up a flicker, reaching –5 a few days later and not hitting zero for another week to come.

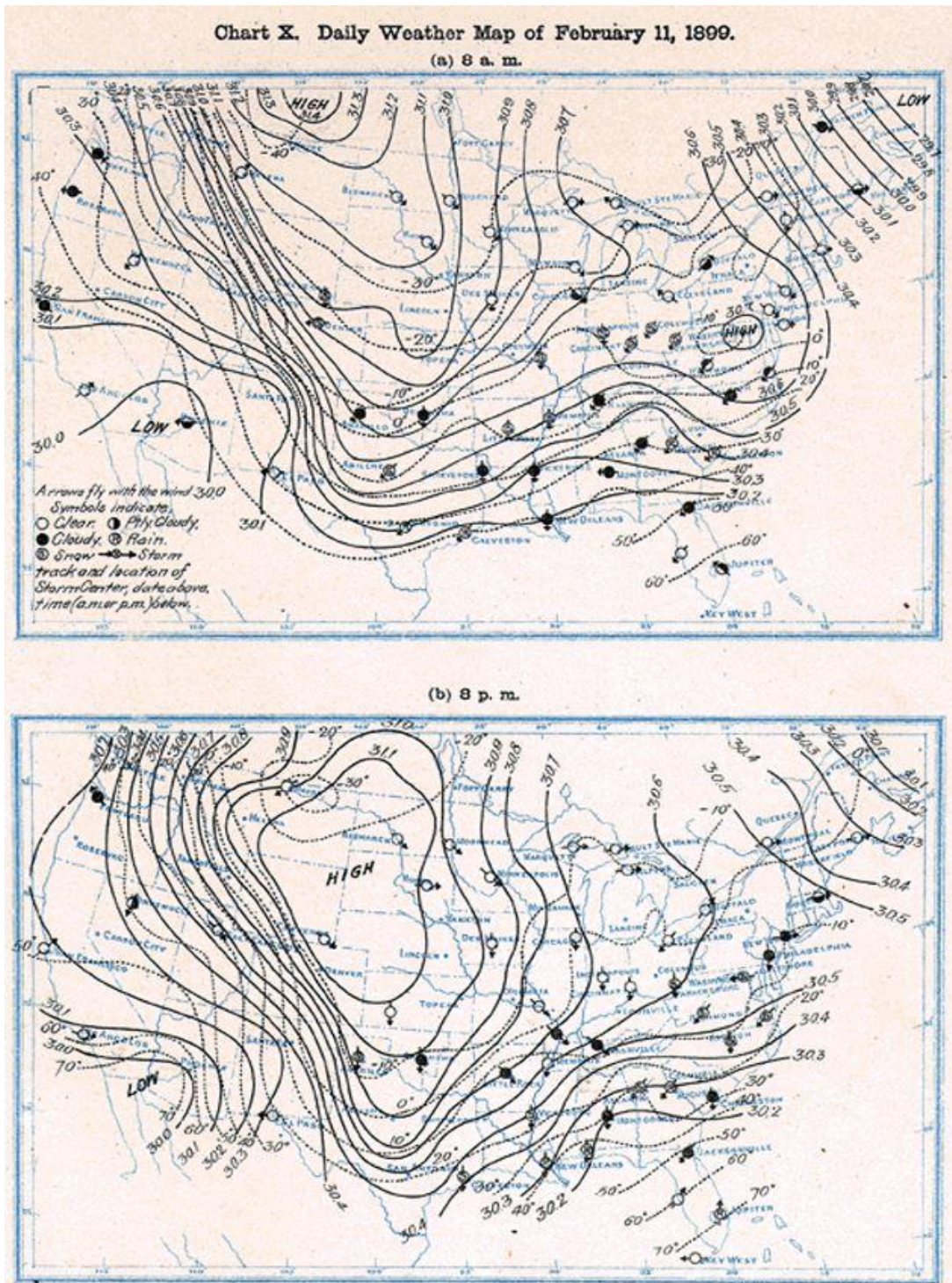
It plunged down into the northern Great Plains and Midwest, locking the Great Lakes in ice and blocking barge traffic for weeks to come. In Chicago, the cold was so intense that the ground froze a full 5 feet below the surface, snapping water, gas, and sewer pipes like twigs and causing damage to buildings throughout the city at a level not seen since the great fire falsely attributed to Catherine O’Leary’s cow twenty-eight years earlier. The cold swooped down the Mississippi River, choking its course with ice floes and freezing the river solid all the way south to Cairo, Illinois. The cold settled on New Orleans, and the ice reached its riverfront on February 17 even as the mercury plummeted to 7. The ice soon swept out into the Gulf of Mexico, damaging small fishing boats and local populations of shellfish.

There were a few positive notes in the cold and ensuing mayhem. For one thing, a minor epidemic of yellow fever was stopped in its tracks; the mosquitoes that spread the disease were frozen solid, and so, too, was the flu virus itself. It would be another four decades before an effective vaccine for the deadly disease was discovered, and the cold thus did North Americans an accidental kindness. Plumbers, roofers, and other skilled builders found their services in great demand, touching off a modest economic boom to mark the turn of the century. And the Thanksgiving of 1899 saw a record number of births across the United States and Canada, suggesting that those who stayed indoors and out of the cold found ways to occupy the time.

To this day, more than a century later, North America has never seen a winter cold wave so strong as that of 1899 since the beginning of the National Weather Service we know today started on February 9th, 1870, when President Ulysses S. Grant signed a joint resolution of Congress authorizing the Secretary of War to establish the National Weather Service.

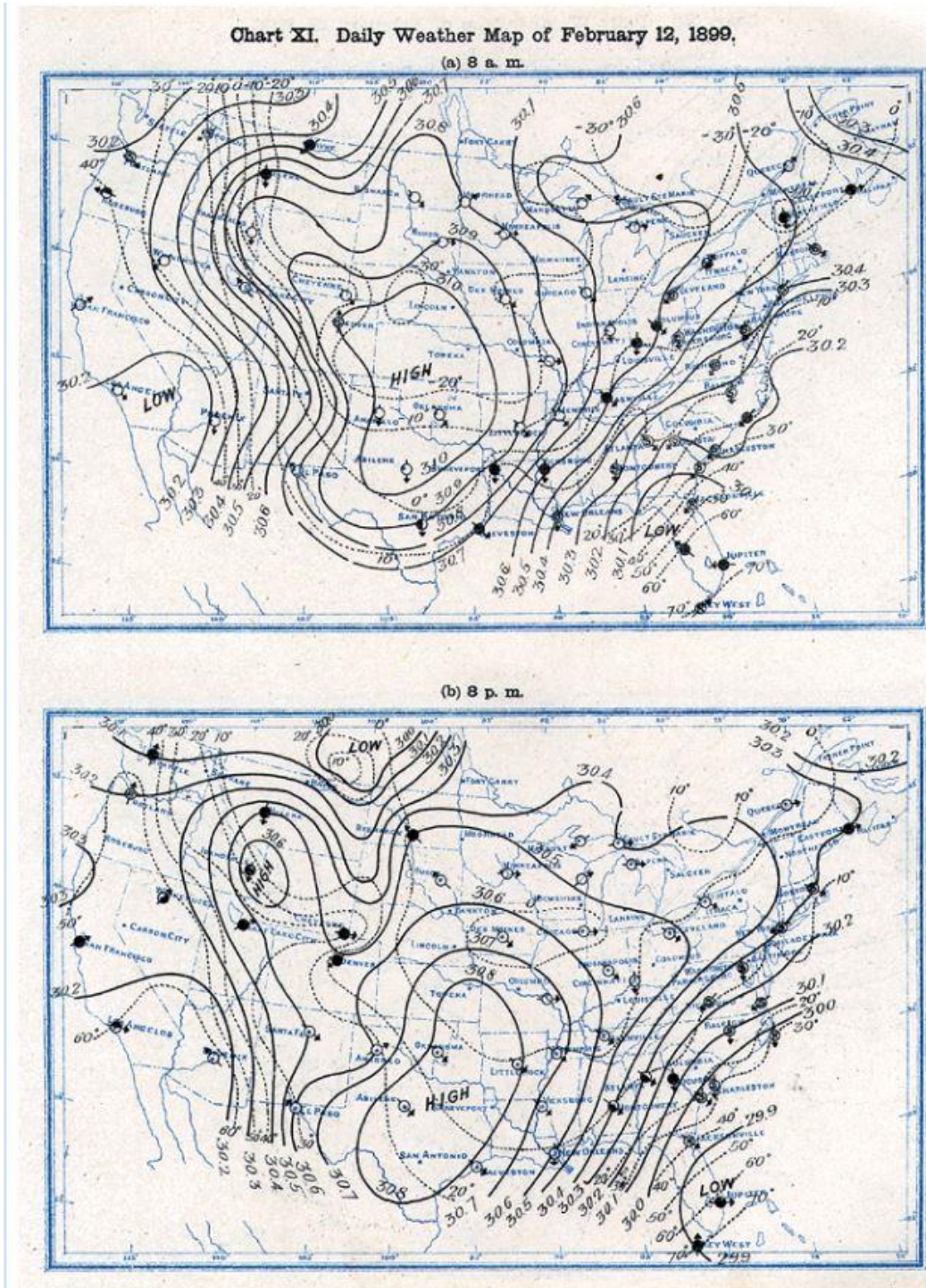
Feb 11, 1899

Figure 1 shows the surface maps at 8 am and 8 pm on Feb 11th, 1899. Note the large area of high pressure centered north of Montana during the morning and see the position of the Arctic High in the evening over western South Dakota. The zero degree F. isotherm stretched from Maine, across portions of the Great Lakes, into Central Texas, then back northwestward across the Rocky Mountain states into Montana.



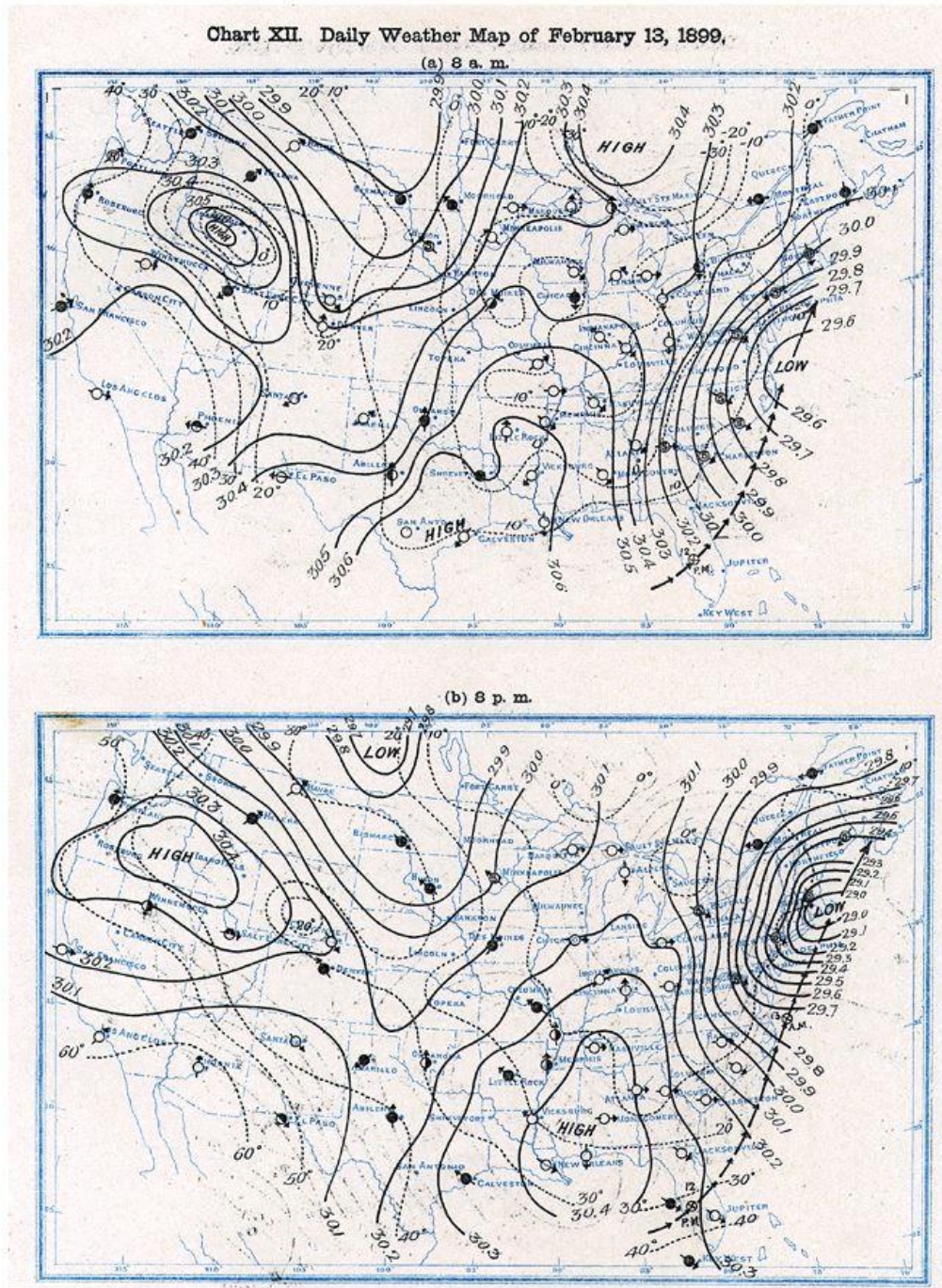
Feb 12, 1899

Figure 2 shows the surface maps 24 hours later at 8 am and 8 pm on Feb 12, 1899. The Arctic High moves from the lower plains into north central Texas. Biting cold with zero degree temperatures reached from coastal Maine, through Pennsylvania, into the southern plains back northwestward into the Rocky Mountain States. Extremely cold temperatures pushed into the southeastern states with readings in the 20's in the panhandle of Florida, while southeast Florida was still mild as an area of low pressure forms and tracks northeastward. The following state record low was set on February 12th: Nebraska with -47 degrees F at Camp Clark.



Feb 13, 1899

Figure 3 shows another sequence of surface charts again at 8 am and 8 pm on Feb 13th, 1899. The Arctic high is in the western Gulf States and an area of low pressure moves northward along the Carolina Coast into southern New England. This storm was one of several storms that brought abundant snowfall to parts of the country. The "Great Eastern Blizzard," brought 25-30 inches of snow to the Washington D.C. area. A deep snow cover over portions of the country helped insulate plant and vegetation root systems and keep them from freezing during the month lessening the overall damage. The following state record low temperatures were set on February 13th: Florida with -2 degrees F at Tallahassee and Louisiana with -16 at Minden.

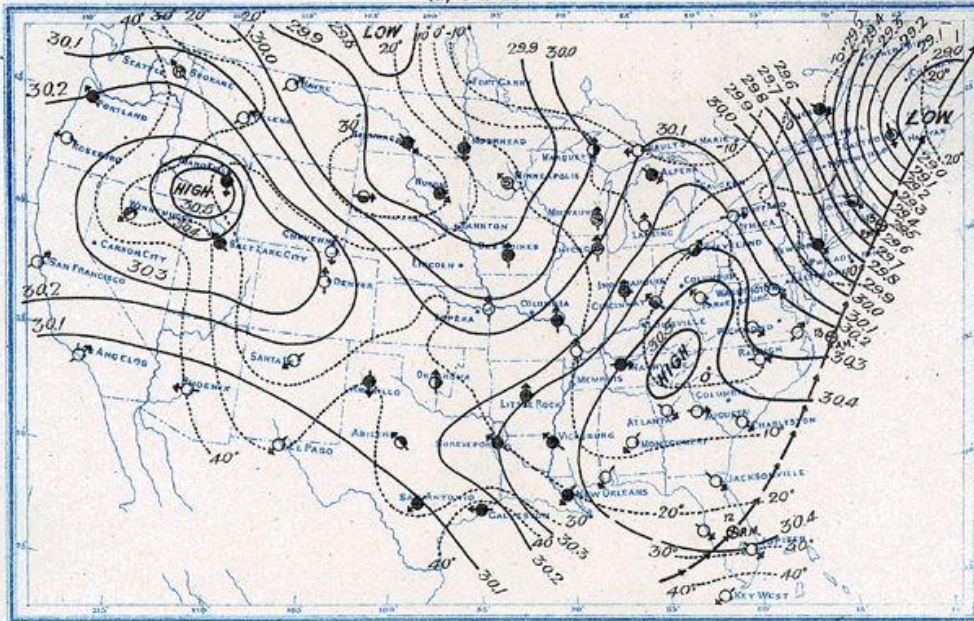


Feb 14, 1899

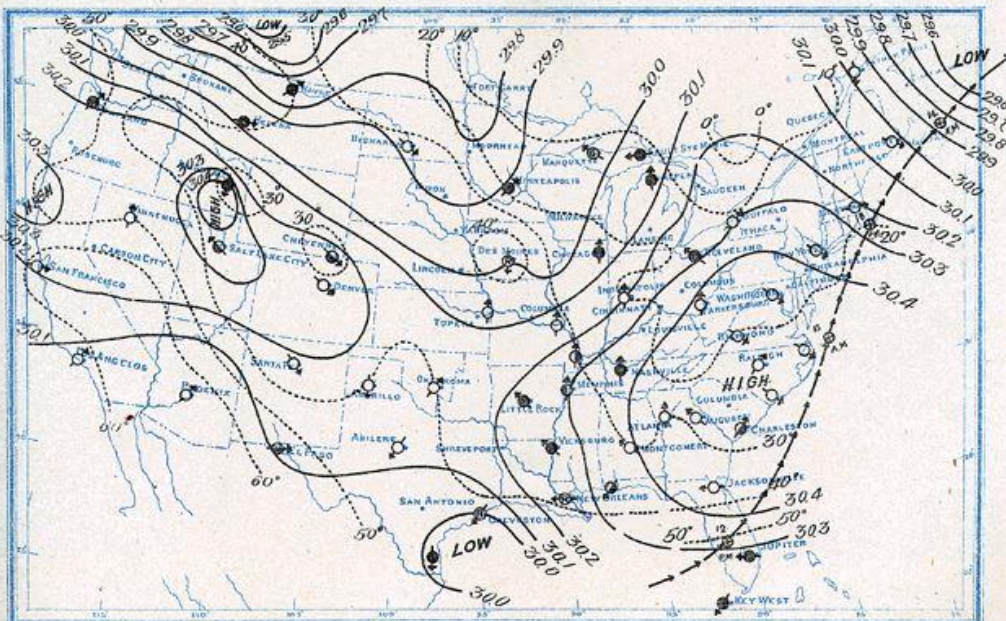
Figure 4 shows the last sequence of surface charts again at 8 am and 8 pm on Feb 14th, 1899. The east coast blizzard has pulled to northeast Canada and Arctic High pressure has moved eastward behind the storm to a position along the Carolina coast by 8 pm. Note temperatures on the 8 am chart were well below zero degree F in parts of the Carolinas. In contrast, temperatures in the evening hours were warmer across western Montana than in the panhandle of Florida.

Chart XIII. Daily Weather Map of February 14, 1899.

(a) 8 a. m.



(b) 8 p. m.



The Great Arctic Outbreak of 1899

Back to back snowstorms sandwiched an extreme cold wave. On February 5 to 8, a great blizzard struck the Mid-Atlantic Region. Baltimore received almost a foot of snow and Washington 14 inches. As the storm moved out, record cold settled in and on the morning of the 10th Laurel recorded a low of -18 °F and on the 11th, Washington, DC recorded a record -15 °F. A second blizzard struck on Valentine's Day dropping 20 inches in Washington and 21 in Baltimore. An amazing 34 inches fell on Cape May, NJ. Snow depths reached 34 inches in DC to 41 inches at Cape May! That would put about 3 feet of snow on the ground over central and eastern Maryland! Winds drove the snow into 10 foot drifts. These blocked transportation lines to the cities causing a major coal shortage that resulted in rationing. Food was also rationed, though not as severely as the coal. On February 16, an ice storm hit. Washington recorded its greatest monthly snow total with 35.2 inches and its greatest seasonal snowfall total with 54.4 inches. Baltimore had a record 33.9 inches for the month with a record 51.1 inches for the season (This record stood for nearly a century until 1996). Hagerstown also recorded its greatest February snow total with 31 inches for the month. The winter of 1898-1899 was so cold over a large part of the US that ice flowed from the Mississippi River into the Gulf of Mexico! This has only been recorded one other time. On February 13, 1784, ice flows blocked the Mississippi River at New Orleans and then passed into the Gulf of Mexico.

January 1912

The cold wave hit Virginia on January 5 and continued until February 16. It was one of the most severe and longest in duration on record. Records set during this period remain to the present. Washington reached -8 °F. On January the 14th, Washington, DC recorded a -13 °F. In western Maryland on January 13 Oakland (in Garrett County) recorded the state's all-time record low temperature of -40 °F. Deer Park was -33 °F and Gransville was -25 °F. In Allegany County, Westernport was -17 °F and Frostburg -14 °F. The next day, Hagerstown and Chewsville in Washington County reported -27 °F and Keedysville -26 °F. In Frederick County, Emmitsburg was -23 °F and Frederick -21 °F. In Carroll County, Taneytown reached -21 °F, In Montgomery County, Great Falls was -21 °F and Rockville was -10 °F. In Prince Georges County, College Park was -26 °F, Laurel -19 °F, Cheltenham -16 °F and Tacoma Park -8 °F. In Baltimore County, Towson was -14 °F. Baltimore City was -2 °F, Annapolis -3 °F, Leonardtown -6 °F, Cambridge -5 °F, Denton -11 °F, Salisbury and Princess Anne -4 °F. 1912 was the 5th coldest January in Richmond, Baltimore, Charlottesville and the 4th coldest January in Washington.

The Winter of 1917-1918

January of 1918 was the coldest on record at Washington DC (1871 to the present day 2013) and Dale Enterprise. This January was also the second coldest at Baltimore and the third coldest in Richmond, Virginia. The temperature departure for the period December 1 to January 31 is one of the coldest on record. On December 30th, temperatures around the region fell below zero. It was the coldest New Year's holiday since January 1, 1881. Baltimore reached -2 °F, Cheltenham -7 °F, College Park -12 °F, Rockville -11 °F, and Washington, DC -3 °F. The high temperature at Baltimore remains a record low for the month with it reaching only 10 °F. January recorded well above normal snowfall (22.6 inches for the month in Washington) and many areas had snow on the ground through the month. Ice formed in the rivers and harbors. By the close of January, heavy ice was down the Bay and the Potomac to mouth of the Potomac. Some temperatures:

January 1st, Rockville dropped to -12 °F

January 4th, Annapolis -4 °F and Baltimore was 0 °F.

February 5th, College Park was -10 °F, Rockville -10 °F, Great Falls -12 °F & DC -2 °F

Ice on the Upper Bay did not clear until February 20th. Even April that year saw two days with snow on the ground.

This was the coldest January in a hundred years according to Baltimore records. Only the January of 1977 would eventually have a colder average temperature. Even today, with 190 years of records, it had the coldest average high temperatures for any January. December 1917 had also been unusually cold. Snowfall for the month was about 3 times the normal in many areas and all but the southern most portion of the state remained under a white blanket. Western Maryland saw monthly snowfall of 30 to 45 inches, central Maryland and the Upper Shore saw around two feet of snow. Southern Maryland and the Lower Eastern Shore saw around 18 inches. By the end of the month, heavy ice covered the entire Chesapeake Bay and its tributaries south to the Potomac River. On the coast, Chincoteague Bay was also frozen with ice 10 inches thick across its mouth.

February 1934

This was the coldest February at Richmond, Virginia with an average temperature of 28.2 °F and was also the coldest February at Baltimore, Washington and the second coldest at Norfolk. February 1934 was also a snowy month with 26.1 inches at Baltimore, 22.4 inches at Dale Enterprise, 18.1 inches in Washington, DC and 13.4 inches in Richmond. The earliest date of occurrence of zero or below in Washington DC was December 30, 1880 and again in 1917, and the latest was February 28, 1934.

January 1940

Farmville and New Canton, VA recorded 24 inches in 24 hours setting a new record in the state. The storm also set a number of records for Richmond. Official records in Richmond began in 1897. The storm dropped almost two feet of snow (21.6 inches) in 24 hours and helped set a record for the month of 28.5 inches. Lighter amounts fell to the north. Alexandria received close to 10 inches of snow. Richmond was shut down with drifts as deep as four feet. Businesses were closed for a couple of days and some schools for a week. There were 12 deaths attributed to the storm in Virginia with damages estimated at half a million dollars. With fresh snow on the ground, temperatures fell. On the six days following the storm, low temperatures dropped below zero with the coldest day setting a new all-time official record of -12 °F. This was also the coldest month of February on record for Richmond. January 1940 was Richmond's coldest for any month with an average temperature of 24.2 °F. This is still the coldest on record at Richmond (December 1879 to the present day 2013) and was the third coldest at Norfolk and Washington DC. This month was thought to be disproportionally colder at Richmond than other stations because of the heavy snow on the ground the last of the month with strong radiation cooling on the snow surface.

January 1977

The Bicentennial Winter was the coldest seen on the East Coast since before the founding of the republic. In Northern Virginia, the snow began on January 4, just as the Carter Administration was moving into town. New storms dropped a few more inches every few days to put a fresh coating on the streets that were just clearing from the previous storm and give a clean look to the piles of dirty snow that were accumulating along roadways and in parking lots. The Tidal Potomac (salt water) froze solid enough that people could skate across it near the Memorial Bridge. The average temperature for the month of January in Washington was 25.4 °F which was the coldest since 1856 when the temperature averaged 21.4 °F. The normal January average temperature for Washington is 34.6 °F (about 9 °F warmer). Roanoke averaged only 23.6 °F, Richmond 25.3 °F, and Norfolk 29.2 °F (all 12 °F below normal). The prolonged cold wave caused oil and natural gas shortages. The winter produced the greatest number of consecutive days on record with a low temperature below 32 °F. It lasted 48 days from December 27 through February 12. President Carter asked people to turn thermostats down to conserve energy. Washington did not see heavy snow like the Great Lake region did that winter. The cold winds blowing across the warm lakes brought 68 inches of snow to Buffalo, NY. Some Virginia snowfall reports are as follows: Washington recorded 10 inches of snow in January, Richmond 11 inches, and Roanoke only 9 inches. Little snow occurred during the rest of the winter ending it well below normal. The cold wave penetrated into the South and on January 19,

snowflakes were seen in Miami, Florida! We often hear about the terrible cold in winters past but for those old enough to remember January 1977 it was among the coldest in history. It was the coldest in recorded history for Norfolk, Baltimore, Charlottesville, and the second coldest here in Richmond and Dale Enterprise, the third oldest weather station in the nation.

February 1979

February 1979 was the second coldest in Richmond, Virginia with an average temperature of 28.6 °F. Baltimore, MD also had its second lowest February average of 25.6 °F. Charlottesville, Virginia also had the second lowest February temperature with an average of 28.1 °F. February 1979 was one of the coldest Februaries of this century and one of the coldest months ever recorded in the Baltimore-Washington area. It was also the snowiest February this century and one of the snowiest months in the Baltimore-Washington area since official records were first taken in the early 1800s. The greatest 24-hour snowfall for any February on record also occurred in February 1979.

FEBRUARY									
Year	Avg. Max Temp	Avg. Min Temp	High Max Temp	Low Min Temp	High Pres- sure	Low Pres- sure	Total Precip.	Total Snow	Max. 24-Hr. Precip
1899	34.9 ⁰ F	21.8 ⁰ F	60 ⁰ F	-7 ⁰ F	30.71 in	29.53 in	5.47 in	41 in	1.10 in
1979	33.3 ⁰ F	17.8 ⁰ F	52 ⁰ F	-3 ⁰ F	30.89 in	29.58 in	7.16 in	33 in	1.90 in

**The Extreme Weather of February 1979 in Baltimore & Washington area by
James I. Foster and Robert J. Leffler**

December 1989

This was the coldest December on record at Baltimore with an average temperature of 25.4 °F. This was the first known white Thanksgiving and Christmas in Washington. Most consecutive days with December snow cover in Washington (22 days with ≥0.1" and 20 days with ≥1.0" and 11 days with ≥3.0" and the most in December in Washington (9.0inches) since 1973 when 11.0 inches fell. It was also the first time with above normal November and December snowfall at DC since 1967. Temperatures were below 32 °F in Washington on all but 3 days. National Airport was completely below freezing on 12 days, including a stretch of 252 hours (11 pm on Dec. 15 to 11 am on Dec. 26). Several record low daily minimum and maximum temperatures at Dulles and Baltimore—Washington Airports, including the earliest sub—zero reading at IAD during the winter season (-2°F on Dec. 19). Presto, NWS December 1989