Blizzards in SW Michigan

The Great Blizzard of January 26-27 1978

Storm Data Summary of the 1978 event

The Great Blizzard of 1978 was a historic winter storm that struck the Ohio Valley and Great Lakes from Wednesday, January 25 through Friday, January 27, 1978. The 28.28 inches (958 millibars) barometric pressure measurement recorded in Cleveland, Ohio was the lowest non-tropical atmospheric pressure ever recorded in the mainland United States until the Upper Midwest Storm of October 26, 2010 (28.20" measured at 5:13PM CDT at Bigfork Municipal Airport, Bigfork, MN). The lowest central pressure for the 1978 blizzard was 28.05" (953 mb) measured in southern Ontario a few hours after the aforementioned record in Cleveland. On rare occasions, extra-tropical cyclones with central pressures below 28 inches of mercury or about 95 kPa (950 mb) have been recorded in Wiscasset, Maine (27.9") and Newfoundland (27.76").
A few Pictures from the Blizzard
Blizzards in SW Michigan

1978

The most extensive and very nearly the most severe blizzard in Michigan history raged January 26, 1978 and into part of Friday January 27. About 20 people died as a direct or indirect result of the storm, most due to heart attacks or traffic accidents. At least one person died of exposure in a stranded automobile. Many were hospitalized for exposure, mostly from homes that lost power and heat. About 100,000 cars were abandoned on Michigan highways, most of them in the southeast part of the state.\(^{[31]}\)

C.R. Snider, National Weather Service Meteorologist in Ann Arbor, Michigan, said on January 30, 1978:
"A GREAT STORM IS UPON MICHIGAN"
THE GREAT BLIZZARD OF 1978!

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  National Weather Service Detroit/Pontiac, MI
  Updated January 4th, 2008

- As with the huge snowstorm of December 1974 another even more powerful (in terms of intensity/extent) storm is of strong interest to all meteorologists who have studied winter storms in the Great Lakes. This storm is also of interest and remembrance to many longtime residents of the Great Lakes, the Upper Ohio Valley and Ontario, Canada who had to deal with winter's full fury late in January of 1978. In addition, the storm certainly casts many memories for those of us who were on duty and worked during the storm...while being in awe of the development and subsequent immense strength of this great monster. With the 30th anniversary of this Great Blizzard at hand, it is worth taking a step back in time to re-live this monumental example of nature's fury.

- While there are several contenders for the worst blizzard ever to hit the Great Lakes in relatively modern times (since 1870 when records began in Detroit), the immense and intense Blizzard of January 26-27th 1978 must rank at or near the top along with the Great White Hurricane of 1913 with its similar track and powerfulness.

- The incredible Blizzard of January 26-27th, 1978 evolved out of a winter that was infamous for cold and storms. The Winter of 1977-78 thus far had been one the coldest, since records began, in many areas from the Rockies eastward to the Appalachians. Mammoth blizzards occurred late in January and early February from the Midwest to the East Coast as strong Arctic plunges dove south into the country and met up with the warmer winds from the deep south. The winter of 1977-78 was similar to its predecessor (1976-77) in terms of cold. The main difference between the two winters, however, came in February. In 1977, temperatures moderated rapidly during February, while in 1978, the cold actually worsened - with several locations reporting their coldest recorded February to date. The Winter of 1977-78 is written down in the record books as Detroit's seventh coldest winter, Flint's fifth coldest and Saginaw's sixth. West of the Rockies, it was a different story as a dominant upper ridge of high pressure provided a relatively mild winter, with some stations even reporting one of their warmest winters on record.
"A GREAT STORM IS UPON MICHIGAN"
THE GREAT BLIZZARD OF 1978!

• The Great Storm

• Since there were some forecasted variances of the intensity and track of the storm, and considering the primitive model of the day (LFM - Limited Fine Mesh), forecasters did an admirable job in forecasting one of the most severe winter storms ever to hit the Great Lakes Region.

• A Winter Storm Watch was posted as early as Tuesday night, the 24th, for the southern half of the Lower Peninsula for Wednesday Night into Thursday. Gale Warnings for the Great Lakes were hoisted the following Wednesday morning, along with the Watch. A weaker system had moved through the region earlier during the day on Tuesday and already dropped some snow on the region (a Winter Storm Watch had been issued for this system as well, earlier on Monday, the 23rd). After Tuesday's snow, the headline on the Special Weather Statement that was issued by the NWS Tuesday evening read as follows: "Another Winter Storm Threatens Lower Michigan" and thus, a second Winter Storm Watch was officially posted.

• Meanwhile, the ingredients of what would later prove to be a truly fascinating yet vicious winter storm were coming together from different parts of the country. As with the "White Hurricane of 1913," the massive storm actually began as two smaller but distinct storms. A strong low pressure with an attending arctic airmass was entering the Northern Plains by way of Northern Minnesota on Tuesday evening (24th). At the same time, another developing low pressure system was taking shape over the eastern Texas/Louisiana area.
THE GREAT BLIZZARD OF 1978
Forecast from NWS

• Blizzard Warnings were hoisted across much of the Great Lakes and Upper Ohio Valley Region by daybreak Thursday. The center of the huge storm (surface | 500mb) continued to trek north northwest across Southwest Ontario (roughly between Chatham and London) while Detroit measured its lowest pressure reading at 28.34 inches at 650 AM EST. The incredibly deep center made its way north along the St. Clair River with Sarnia ON reporting the lowest pressure on land at 28.21 inches. Not only was the depth of this mammoth storm's center very impressive, so too was the extent of low pressure from its center. Even locations that were far removed from the storm's center also reported record low pressures. Stations such as Cincinnati OH, Rochester NY and Toronto ON and even as far east as Wilmington N.C., all recorded record low pressure readings from this monster. In fact, at Toronto, where records go back as far back as 1840, the lowest pressure reading of 28.40 inches broke the old record of 28.57 inches by 0.17 inches. In addition, dozens of other cities, with records going back a century, also recorded their lowest pressure reading of all time or, for at least the month of January. This massively intense storm was responsible for strong wind gusts as far away from the center as Boston /72 MPH/ and Chesapeake Bay Bridge /90 MPH/ with even damaging winds reported as far south as Tallahassee FL.
THE GREAT BLIZZARD OF 1978
Forecast from NWS

As the Arctic air circulated throughout the storm while it made its way over Lake Huron, the lowest pressure was reached around 950 millibars or a hurricane-like 28.05 inches! “A Great Storm is Upon Michigan” read the headline of the 800 AM EST Special Weather Statement issued by the National Weather Service Forecast Office in Ann Arbor that Thursday /26th/ morning. Heavy snow and blizzard conditions were extensive as wind gusts in excess of 35 mph whipped the snow into huge drifts across much of Southeast Lower Michigan. Other areas of Eastern Michigan, Indiana and Ohio reported near hurricane-force winds, heavy snow and temperatures hovering between zero and 10 above, resulting in extreme blizzard conditions. These conditions later expanded further east into Pennsylvania and West Virginia and prevailed into the night (26-27th) across much of the Eastern Great Lakes, Southern Ontario and the Upper Ohio Valley. With the storm generating copious amounts of snow and very strong winds, whiteout conditions were widespread. All land and air traffic came to a stand still in the affected regions. Several major roads were closed for at least two to three days, if not longer, while clean up got underway. Numerous NWS employees were stranded at work, home, or on the road somewhere between the two. Several employees worked double shifts into at least Friday (some longer) because of the impassable roads with others simply unable to get to work.

The Blizzard Warnings were allowed to die across Michigan during the forenoon hours of Friday, the 27th. Record 24 hour snowfall totals from the storm included, 16.1 inches at Grand Rapids, 15.4 inches at Houghton Lake and 12.2 at Dayton, OH. Snowfalls for the entire storm (25-27th) included a whopping 30.0 inches at Muskegon (some of which was Lake Michigan enhanced), 19.3 inches at Lansing and 19.2 at Grand Rapids. Snowfalls were less over Southeast Lower Michigan (mainly because of the rain that fell for a period) and included 9.9 inches at Flint and 8.2 inches at Detroit.
THE GREAT BLIZZARD OF 1978
Forecast from NWS

• The employees of the National Weather Service Forecast Office in Ann Arbor had just set up shop at the new quarters at the Ann Arbor Federal Building a WEEK before the storm hit. The forecast staff had transferred from the Detroit Metropolitan Airport Office while the observing and radar staff remained at the airport. The majority of employees still lived in and around the metro Detroit area and all major roads between Detroit and Ann Arbor were blocked for approximately 18 hours due to the storm. Several employees put forth efforts beyond the call of duty, stated Mr. Snider in his storm report.
All roads in Allegan, Ottawa and Kent counties were closed by the Michigan State Police. The Holland Armory and the Municipal Center in Zeeland hosted stranded travelers, according to The Holland Sentinel. Power was out in northwest Allegan County and crews had to literally inch their way to the scene.

Zeeland Civil Defense snowmobilers made more than 80 emergency runs to bring food, fuel and medications to residents, The Sentinel reported.

Holland received about 20.5 inches of snow in the storm. Strong winds made huge drifts and people abandoned their vehicles in the streets.
The Blizzard of 1978
500 mb and surface maps
Surface Weather Maps
from Jan 25 1978 through Jan 27\textsuperscript{th} 1978

By Mark Torregrossa, mtorregr@mlive.com
Surface map on the morning of January 26, 1978.
Snowfall Maps for the Blizzard of January 26, 1978 from the MWC.
Snowfall Map for the Blizzard of 1978.

The Great Blizzard of 1978 shut down all roads in Allegan and Ottawa counties. Contributed/NOAA.
Storm Total Snowfall from xmACIS
Storm Total Precipitation from xmACIS2
Total Snowfall/Precipitation from Observations
Note the ratio of precipitation to snow is close to 10/1
Grand Rapids Surface Observation during the storm

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<th>Temp (°F)</th>
<th>RH (%)</th>
<th>Wind Spd (mph)</th>
<th>Wind Dir</th>
<th>Wind Gust (mph)</th>
<th>Low Cloud</th>
<th>Med Cloud</th>
<th>High Cloud</th>
<th>Visibility (mi)</th>
<th>Atm Press (sea level)</th>
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Muskegon Surface Observation during the storm
BLIZZARD JANUARY 26-27 1978  KGRR
BLIZZARD JANUARY 26-27 1978 KGRR

Sub-Daily Data for GRAND RAPIDS INTL AP MI
Midwestern Regional Climate Center

Wind Speed (mph)
Wind Direction (degrees)

Thursday, Jan 26, 06:00
Wind Speed: 21
Wind Direction: 330
BLIZZARD JANUARY 26-27 1978 KMKG
BLIZZARD JANUARY 26-27 1978 KAZO
BLIZZARD JANUARY 26-27 1978 KGRR
BLIZZARD JANUARY 26-27 1978 KMKG
BLIZZARD JANUARY 26-27 1978 KGRR

Sub-Daily Data for GRAND RAPIDS INTL AP MI
Midwestern Regional Climate Center

Cloud Heights (ft)

Visibility (mi)

Cloud Height-Lower
Cloud Height-Middle
Cloud Height-Highest
Visibility
BLIZZARD JANUARY 26-27 1978 KMKG