

Chesaning

29

0200EST

National Weather Service Storm Data and Unusual Weather Phenomena



Thunderstorm Wind (G52)

May 1998 Time Local Path Length Path Width Number of Estimated Persons Damage MICHIGAN, East **Saginaw County** 1 NE Chapin 2018EST 0 0 01 Flash Flood A slow moving thunderstorm dumped heavy rain in far southwest Saginaw County. Isolated locations may have seen as much as six inches of rain during the evening hours. A cooperative observer reported high water across Steel Road, between Chapin and state highway 57. **Tuscola County** 4 N Caro 05 1915EST Hail (0.75) A small area of thunderstorms developed in the Saginaw Valley and western Thumb areas during the evening hours. One storm produced marginally severe hail in northern Tuscola County **Livingston County** Hartland 1315EST 06 0 Hail (0.75) **Huron County** 1630EST Sebewaing 06 Hail (0.88) A broken line of thunderstorms developed in the afternoon from Brighton north to the western Thumb. These storms occurred along a boundary left over from convection the previous evening. The strongest of these pulse-type storms again produced marginally severe hail. The Sebewaing storm was likely enhanced by an interaction with a lake breeze off of Lake Huron. **Sanilac County** 19 Sandusky 1612EST 0 Hail (1.00) **Huron County** 19 1615EST 1624EST 0 0 Sebewaing Hail (1.25) **Sanilac County** Sandusky 19 1620EST 0 Hail (0.75) **Tuscola County** 4.5 NW Cass City 19 1630EST 0 0 Hail (1.75) **Tuscola County** Unionville to Colling 19 1630EST 0 0 Hail (1.75) **Tuscola County** 19 1645EST **Cass City** Hail (1.75) **Huron County** 19 1650EST 0 0 **Bay Port** Hail (0.75) **Sanilac County** 1715EST 0 3 NE Marlette 19 0 Hail (1.00) **Huron County Harbor Beach** 19 1735EST 0 Hail (1.50) St. Clair County **5 W Port Huron** 1804EST 19 Hail (0.75) Thunderstorms developed in northern lower Michigan on the afternoon of the 19th, just ahead of a slow-moving cold front. These storms moved southeast across Saginaw Bay and into the Thumb region, where they produced large quantities of hail. Golfball sized hail fell over a large part of northern Tuscola County, thanks to two separate thunderstorms. In Sebewaing, a ten minute hailfall covered the ground. **Saginaw County**





Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Numb Pers Killed		Estimated Damage Property Crops	May 1998 Character of Storm
MICHIGAN, East								
Saginaw County Birch Run	29	0215EST			0	0		Thunderstorm Wind (G52)
Genesee County Flushing to 2 S Mt Morris	29	0225EST 0235EST			0	0		Thunderstorm Wind (G52)
Saginaw County Saginaw	29	0230EST			0	0		Thunderstorm Wind (G52)
Bay County 5 E Bay City	29	0237EST			0	0		Thunderstorm Wind (G52)
Genesee County Otisville	29	0245EST			0	0		Thunderstorm Wind (G52)
Tuscola County 2 NW Fairgrove to Akron	29	0245EST			0	0	5K	Thunderstorm Wind (G69)
Lapeer County North Branch to Clifford	29	0252EST			0	0		Thunderstorm Wind (G52)
Tuscola County 4 SE Kingston	29	0308EST			0	0		Hail (0.75)
Sanilac County Marlette	upper early r areas. Most of northwing generating the north that m	Mississippi Valle morning hours of of the wind dama vest Tuscola Cougusts of 80 mph. ext most potent s	ge was compounty. This storm of the number o	n, and stayed ockets of wir osed of downer destroyed morning structure of the truck	just south of damage of trees and la large back southeast	of the from were associ power line rn just no	at as it crossed lower ciated with these stor es. The most notable rthwest of Fairgrove.	Thunderstorm Wind (G61) convective system developed over the Michigan from west to east during the rms in the Saginaw Valley and Thumb exception to this was a thunderstorm in A spotter in nearby Akron estimated Sanilac County. The only severe hail er Service employee estimated 70 mph
Tuscola County Unionville	30	2330EST			0	0		Hail (1.00)
Huron County Ruth								Hail (0.75) broken line of thunderstorms developed vere, producing large hail.
Midland County 2 E Coleman to 2 NW Sanford	31	0450EST 0500EST			0	0	75K	Thunderstorm Wind (G65)
Midland County 3 SW Edenville to 2 NE Hope	31	0454EST 0458EST			0	0	50K	Thunderstorm Wind (G65)





Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Numb Pers Killed		Estimated Damage Property Crops	May 1998 Character of Storm
MICHIGAN, East								
Midland County 12 SW Midland	31	0500EST			0	0	100K	Thunderstorm Wind (G70)
Midland County Sanford to Midland	31	0500EST			0	0	150K	Thunderstorm Wind (G65)
Bay County 4 W Auburn to 3 N Auburn	31	0505EST 0515EST			0	0	200K	Thunderstorm Wind (G70)
Saginaw County .5 S Oakley	31	0505EST			0	0	10K	Thunderstorm Wind (G59)
Shiawassee County 2.5 NE Henderson to Owosso	31	0505EST 0510EST			0	0	630K	Thunderstorm Wind (G70)
Saginaw County Merrill to 1 N Hemlock	31	0510EST 0515EST			0	0	80K	Thunderstorm Wind (G75)
Bay County Linwood to Pinconning	31 F30PH	0512EST 0520EST			1	0	100K	Thunderstorm Wind (G70)
Shiawassee County 8 N Laingsburg to 2 NW Carland	31	0512EST 0515EST			0	0	120K	Thunderstorm Wind (G77)
Shiawassee County 3 S Laingsburg to 2 N Morrice	31	0516EST 0530EST			0	0	100K	Thunderstorm Wind (G70)
Saginaw County 3 S Freeland to 3 NE Saginaw	31	0519EST 0527EST			0	0	1M	Thunderstorm Wind (G75)
Bay County Bentley to Mt Forest	31	0520EST			0	0	50K	Thunderstorm Wind (G65)
Shiawassee County Owosso	31	0520EST			0	0		Hail (0.75)
Shiawassee County New Lothrop to 9 E Corunna	31	0522EST 0525EST			0	0	60K	Thunderstorm Wind (G65)
Genesee County 3.5 W Flushing	31	0525EST	0.1	20	0	0	10K	Tornado (F0)
Genesee County 3 W Flushing to 3 SW Mt Morris	31	0525EST			0	0	5K	Thunderstorm Wind (G55)
Genesee County Gaines to 4 E Swartz Creek	31	0525EST 0532EST			0	0	5K	Thunderstorm Wind (G55)
Saginaw County Birch Run	31	0525EST			0	0	125K	Thunderstorm Wind (G65)
Shiawassee County Corunna to Durand	31	0525EST 0535EST			0	0	60K	Thunderstorm Wind (G65)
Saginaw County Bridgeport to 6 E Saginaw	31	0526EST 0527EST			0	0	300K	Thunderstorm Wind (G70)





Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Numb Pers Killed		Estimated Damage Property Crops	May 1998 Character of Storm
MICHIGAN, East								
Bay County Bay City to 7.5 SE Bay City	31	0527EST 0529EST			0	0	1M	Thunderstorm Wind (G70)
Genesee County 3 NW Argentine to Fenton	31	0528EST 0535EST			0	0	25K	Thunderstorm Wind (G65)
Genesee County Flint to Davison	31	0530EST 0545EST			0	0	25K	Thunderstorm Wind (G60)
Genesee County Montrose to Clio	31	0530EST 0535EST			0	0	5K	Thunderstorm Wind (G55)
Shiawassee County 4 S Bancroft to Byron	31	0530EST 0535EST			0	0	30K	Thunderstorm Wind (G60)
Tuscola County 5 NW Akron	31	0530EST			0	0	6K	Thunderstorm Wind (G55)
Tuscola County 2 N Vassar	31	0530EST			0	0	5K	Thunderstorm Wind (G55)
Genesee County 2 NW Genesee to 2 S Otisville	31	0533EST 0542EST			0	0	5K	Thunderstorm Wind (G55)
Genesee County Grand Blanc to Goodrich	31	0535EST 0540EST			0	0	10K	Thunderstorm Wind (G55)
Huron County 2 S Sebewaing	31	0535EST			0	0	2K	Thunderstorm Wind (G52)
Tuscola County Caro	31	0535EST			0	0	100K	Thunderstorm Wind (G65)
Tuscola County Millington to 6 S Mayville	31	0535EST			0	0	10K	Thunderstorm Wind (G59)
Tuscola County 5 NW Cass City to Cass City	31	0538EST 0540EST			0	0	5K	Thunderstorm Wind (G52)
Lapeer County Columbiaville	31	0541EST			0	0		Thunderstorm Wind (G52)
Huron County Pigeon to Elkton	31	0542EST 0544EST			0	0	20K	Thunderstorm Wind (G55)
Huron County 5 NE Caseville to 5 SW Port Austin	31 M31C	0545EST 0552EST			1	0	35K	Thunderstorm Wind (G60)
Livingston County 4 W Pinckney	31	0545EST			0	0	2K	Thunderstorm Wind (G52)
Livingston County Fowlerville to Cohoctah	31	0547EST			0	0	5K	Thunderstorm Wind (G52)
Lapeer County 1 W Clifford to Burnside	31	0548EST 0555EST			0	0		Thunderstorm Wind (G52)
Huron County Bad Axe	31	0550EST			0	0	5K	Thunderstorm Wind (G52)





Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Numb Pers Killed		Estimated Damage Property Crops	May 1998 Character of Storm
MICHIGAN, East								
Lapeer County 2 NW Lapeer to Metamora	31	0550EST 0602EST			0	0	25K	Thunderstorm Wind (G55)
Livingston County 8 N Hartland to Hartland	31	0550EST			0	0	5K	Thunderstorm Wind (G52)
Livingston County Howell	31	0550EST			0	0	5K	Thunderstorm Wind (G52)
Oakland County Highland to Andersonville	31	0550EST 0555EST			0	0	15K	Thunderstorm Wind (G60)
Oakland County Holly to Ortonville	31	0550EST			0	2	40K	Thunderstorm Wind (G70)
Tuscola County Unionville	31	0550EST			0	0	25K	Thunderstorm Wind (G55)
Oakland County Clarkston to 2 SW Lake Orion	31	0552EST 0601EST			0	0	10K	Thunderstorm Wind (G55)
Tuscola County Kingston to 12 E Mayville	31	0552EST 0600EST			0	0	10K	Thunderstorm Wind (G60)
Sanilac County Marlette to Brown City	31	0555EST 0602EST			0	0	10K	Thunderstorm Wind (G55)
Sanilac County Minden City to Deckerville	31	0557EST 0558EST			0	0	30K	Thunderstorm Wind (G60)
Sanilac County Shabbona to 2 N Decker	31	0557EST 0558EST			0	0	20K	Thunderstorm Wind (G60)
Sanilac County New Greenleaf to Argyle	31	0558EST 0600EST			0	0	25K	Thunderstorm Wind (G60)
Huron County 5 S Harbor Beach	31	0600EST			0	0	5K	Thunderstorm Wind (G55)
Oakland County Oxford to 2 SW Leonard	31	0600EST 0603EST			0	0	27K	Thunderstorm Wind (G65)
Livingston County Brighton	31	0602EST			0	0	5K	Thunderstorm Wind (G52)
Lapeer County 1 S Attica to Almont	31	0603EST 0607EST			0	0	75K	Thunderstorm Wind (G55)
Lapeer County 1 W Lum	31	0603EST			0	0	2K	Thunderstorm Wind (G52)
Sanilac County Sandusky Sanilac County	31	0604EST			0	0	5K	Thunderstorm Wind (G52)
2 N Peck to 1.5 E Melvin	31	0605EST 0608EST			0	0	15K	Thunderstorm Wind (G60)
St. Clair County Capac	31	0605EST			0	0	25K	Thunderstorm Wind (G60)





Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Numb Pers Killed		Estimated Damage Property Crops	May 1998 Character of Storm
MICHIGAN, East								
Oakland County South Lyon to Novi	31	0610EST 0625EST			0	0	5K	Thunderstorm Wind (G52)
Sanilac County Croswell	31	0613EST			0	0	15K	Thunderstorm Wind (G55)
Oakland County Keego Harbor	31	0615EST			0	0		Thunderstorm Wind (G52)
Oakland County South Lyon	31	0615EST			0	0	10K	Lightning
St. Clair County Yale	31	0615EST			0	0	8K	Thunderstorm Wind (G55)
Macomb County Armada to 3 SW Romeo	31	0620EST 0625EST			0	0	405K	Thunderstorm Wind (G78)
Macomb County Memphis to Richmond	31	0620EST 0630EST			0	0	50K	Thunderstorm Wind (G70)
Washtenaw County Dexter	31	0620EST			0	0		Thunderstorm Wind (G52)
St. Clair County 5.5 S Emmett	31	0625EST			0	0	2K	Thunderstorm Wind (G52)
Wayne County Northville	31	0625EST			0	0	2K	Thunderstorm Wind (G52)
St. Clair County 5 W Marysville to Port Huron	31	0626EST 0630EST			0	0	125K	Thunderstorm Wind (G55)
Macomb County Fraser	31	0635EST			0	0	5K	Thunderstorm Wind (G52)
St. Clair County Marine City	31	0637EST			0	0	5K	Thunderstorm Wind (G52)
Oakland County Troy	31	0640EST			0	0		Thunderstorm Wind (G52)
Wayne County Dearborn	31	0644EST			0	0	5K	Lightning
Wayne County Dearborn	31	0644EST			0	0	20K	Thunderstorm Wind (G60)
Wayne County Livonia	31	0645EST			0	0	5K	Thunderstorm Wind (G52)
Washtenaw County Ypsilanti	31	0655EST			0	0	18K	Lightning
Macomb County St Clair Shrs	31	0703EST			0	0	2K	Thunderstorm Wind (G52)
Wayne County Rockwood	31	0755EST			0	0		Hail (1.00)
Monroe County South Rockwood	31	0803EST	Oth a strong 1	OW processrs	0	0	var the upper Mississ	Hail (0.75)

On the evening of the 30th, a strong low pressure system was located over the upper Mississippi Valley. The low moved rapidly east that night, reaching northern lower Michigan by daybreak on the 31st. The warm front associated with the low moved north across the Lower Peninsula overnight, ushering in an unstable air mass. A potent upper level disturbance also moved east across Michigan during the early morning hours of the 31st. Wind speeds were extremely high aloft, with 65 mph winds located less than a half mile





Time Path Path Number of Estimated Local/ Length Width Persons Damage

Location Date Standard (Miles) (Yards) Killed Injured Property Crops Character of Storm

MICHIGAN, East

above ground level.

Thunderstorms developed in the northern Plains during the afternoon of the 30th. The storms organized and accelerated as they headed east. The thunderstorm complex evolved into a serial derecho as it crossed eastern Wisconsin and Lake Michigan. The derecho affected most of lower Michigan during the early morning hours of the 31st, producing one of the most widespread wind damage events in state history. The derecho moved east across the state at about 70 mph.

Two fatalities were directly attributed to the storms in southeast Michigan. In Pinconning in Bay County, a woman was killed when a tree fell on her home as she slept. In Port Crescent State Park, just southwest of Port Austin in Huron County, a tent occupied by two people was struck by a falling tree, killing one of the occupants (the other was unhurt). Two injuries occurred at the Holly State Recreation Area in Oakland County. Both were campers who were hurt in separate incidents by falling trees. One suffered a possible broken leg, while the other may have suffered broken ribs

In southeast Michigan, wind damage generally increased as you went north. Most of Metro Detroit saw only patchy wind damage. Widespread damage began in the far northern suburbs of Detroit, and continued north into Flint, the Tri Cities, and the Thumb. Most of the damage done to structures was caused by falling trees.

Midland County was the first southeast Michigan county to experience the derecho. Structural damage was reported in Porter, Warren, Edenville, Hope, and Jerome Townships. Outbuildings were the most vulnerable to the wind, with many barns, sheds, and garages damaged or destroyed. Trees and power lines down were a common sight countywide. Consumers Power reported that thirteen thousand customers in the Midland area lost power due to the thunderstorms.

Damage was widespread in Bay County. Bay City was especially hard hit, with many trees down and a gas main broken. The city clock tower had one of its faces torn off, and the drawbridge across the Saginaw River had all four gates snapped off. The Coast Guard Station in nearby Essexville recorded an 81 mph wind gust. Eleven thousand Bay City area residents were without power at the height of the storm. Again, trees and power lines down were a common problem countywide. Crews were still cleaning up debris almost two months after the storms went through. Public damage alone was estimated at \$610,000. President Clinton declared Bay County a Federal Disaster Area.

Saginaw County also received a Federal Disaster Declaration. Damage was most widespread in the northern and eastern parts of the county. Townships hardest hit were Jonesfield, Richland, Bridgeport, Thomas, Birch Run, Carlton, Kochville, and Tittabawassee. Also hard hit were the cities of Saginaw and Zilwaukee. The Tri Cities International Airport recorded an 86 mph wind gust, while a spotter near Oakley estimated 70 mph winds. Several homes suffered structural damage, with most of the damage again caused by fallen trees. Public damage alone was estimated at \$750,000. Fifty-eight thousand Consumers Power customers in the Saginaw area lost power at the height of the storm, and it took over a week to get power restored in some places

The other county in southeast Michigan to receive a Federal Disaster Declaration was Shiawassee. A spotter north of Laingsburg estimated 89 mph winds, while another spotter just northeast of Henderson reported 70 mph winds. The hardest hit areas in the county included Owosso, Durand, and Fairfield Township. In Owosso, over half a million dollars in damage was done to the high school alone. About 25,000 Owosso area residents lost power during the storm. All told, fifty homes and twenty-six businesses in Shiawassee County were damaged, along with about fifty agricultural outbuildings. The derecho felled about five thousand trees in the county.

The Thumb counties of Huron, Tuscola, and Sanilac also experienced damaging winds. Numerous barns were deroofed in the west half of Huron County, and a pair of utility plants were damaged. A gazebo in Wagener Park, between Harbor Beach and White Rock, was destroyed. In Tuscola County, the wind was estimated in the 70 to 85 mph range by the Michigan State Police at their Caro post. Property damage was extensive in the Caro area, including a tree that fell through the roof of the county building. Unionville was also hit hard, with several homes struck by falling trees. County officials estimated 70 mph winds in the Millington area. Windows were blown out a home in the extreme southeast corner of the county, just west of Marlette. Across the county line in Sanilac County, plate glass windows were blown out of downtown businesses in Brown City. Several mobile homes in the northwest part of the county suffered extensive damage. Numerous outbuildings were destroyed in Sanilac County, mainly in the western half. The steeple was torn off of a church in Melvin. Other communities that saw damage included New Greenleaf, Marlette, Peck, Deckerville, Shabonna, and Minden.

The only tornado of the morning in southeast Michigan occurred in far western Genesee County. The weak tornado only touched down for a few moments, but was observed by a spotter downing trees and damaging buildings. Elsewhere across Genesee County, tree damage was widespread. The Fenton area saw the most extensive damage, but Grand Blanc and Flint also had significant problems. Over a hundred thousand Consumers Power customers in the Flint area lost power at the height of the storm. The widespread wind damage continued east into Lapeer County, with hundreds of trees downed. Imlay City, Lapeer, and Almont were among the hardest hit communities in Lapeer County.

Still more damage occurred in the next county over, St Clair County. Trees and power lines were down across much of the county.





Time Path Path Number of Estimated Local/ Length Width Persons Damage
Location Date Standard (Miles) (Yards) Killed Injured Property Crops Character of Storm

MICHIGAN, East

Damage was most extensive in Capac, Yale, Port Huron, and Marysville. In Port Huron, an historic elm tree - believed to be the oldest in the county - fell onto a church. This was just one of dozens of trees to be felled in Port Huron. All told, one home in St Clair County was destroyed, and thirty were damaged.

Livingston County was yet another county that saw widespread damage to trees and power lines, although the damage was not quite as extensive. A National Weather Service employee estimated 60 mph winds near Brighton. Fowlerville, Howell, and Hartland also experienced severe winds. In Oakland County, damage was heavy and extensive in the northern part of the county. A gust of 67 mph was measured at the National Weather Service office in White Lake, while a Weather Service employee measured 61 mph winds in Oxford. Several homes in the Oxford area suffered roof damage, two large signs were downed, and a trampoline simply disappeared. Holly, Ortonville, Clarkston, and Orion Township also saw substantial damage to trees. Further south, damage became patchy. A swath of damaging winds downed trees from South Lyon east to Novi. A lightning strike in South Lyon started a house fire. Gusts estimated at 70 mph knocked boats off of hoists on Cass Lake.

In Macomb County, extensive damage occurred in the village of Armada. Winds estimated at 90 mph downed dozens of trees in the village. The Governor of Michigan declared Armada a state disaster area. This swath of damage started southwest of Armada in Romeo, where trees and lines were downed. The swath continued east of Armada to Richmond - where a barn was destroyed - and Memphis - where two homes were damaged by fallen trees. Damage was only patchy in the southern part of Macomb County, with tree damage reported in Fraser and St Clair Shores. Twenty homes and ten businesses were damaged in Macomb County.

Only the trailing edge of the derecho crossed Washtenaw and Wayne Counties, and the thunderstorms there moved much more slowly. Wind damage was therefore nowhere near as extensive. Power lines were downed in the Dexter area in Washtenaw County. Lightning triggered a house fire in Ypsilanti. In Wayne County, trees and power lines were downed in Northville and Livonia. A pocket of damage also occurred in Dearborn, where a church steeple was damaged, a garage was hit by a falling utility pole, and a house was struck by lightning. All told, 215,000 Detroit Edison customers lost power at some point in the storm

To wind up the event, an isolated severe thunderstorm developed on the southern edge of the derecho as it was moving east into Ontario. This cell produced large hail in Rockwood and South Rockwooc.

Wayne County Taylor	31	1148EST	0	0	Hail (0.75)
Lenawee County Jasper	31	1305EST	0	0	Hail (0.75)
Monroe County 5 SE Petersburg	31	1325EST	0	0	Hail (0.75)
Monroe County 2 W Monroe to Monroe	31	1326EST 1338EST	0	0	Hail (1.75)

A strong low pressure system continued to move east across the northern Great Lakes during the daylight hours of the 31st. The thunderstorm complex of the early morning hours had raced out ahead of the cold front associated with the low. This front crossed southeast Michigan during the afternoon. Plentiful sunshine during the mid to late morning hours allowed the atmosphere to become unstable yet again. This resulted in the third distinct severe weather episode in the past 12 hours for southeast Michigan.

This time, severe weather was confined to the far southeast corner of the state. Scattered thunderstorms developed just ahead of the cold front, and some produced large hail. The most potent thunderstorm produced golfball sized hail as it moved slowly east across the west side of the city of Monroe.