

## Storm Data and Unusual Weather Phenomena - January 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### WISCONSIN, Southeast

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA	01/01/12 07:00 CST		27K	Strong Wind (MAX 45 kt)
	01/01/12 20:30 CST		0	

The New Year started off with strong winds that developed in the wake of deepening low pressure as it crossed east-northeast over far southern Wisconsin and northern Illinois to Lake Huron by the afternoon of January 1st. Three-hourly pressure rises of 6-8mb, along with the tight pressure gradient and steepening lapse rates behind the departing low produced sustained northwest to west winds of 30 to 35 mph, and wind gusts of 45 to 50 mph over all of South Central and Southeast Wisconsin during the morning into the early afternoon hours. Scattered power outages were noted by the media due to broken tree branches impacting power-lines.

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA	01/12/12 06:00 CST		0	Winter Weather
	01/13/12 03:00 CST		0	

A long-duration light snow event affected South-central and Southeast Wisconsin from Jan 12 into early Jan 13th. It began in the late morning west of Madison, and in the mid to late afternoon toward Lake Michigan. Snow to liquid ratios of 13:1 acted on 0.3 to 0.4 inch of liquid to produce widespread 4 to 6 inch snow totals. The snow was generated by a closed 500 mb low that strengthened as it moved over Illinois and became negatively tilted as it crossed Indiana into Ohio and interacted with an open short-wave trough that dropped southeast into Wisconsin during the day on January 12th. Moisture wrapping into the southern closed low was pulled up over southern Wisconsin ahead of the short wave trough and into an inverted trough of surface low pressure that extended back to the northwest from the main surface low on the Indiana/Ohio border. The development of a secondary area of surface low pressure over Lower Michigan produced an area of low-level convergence across eastern sections of Southeast Wisconsin that kept the snow going from the late evening until after midnight. This added to snow totals in portions of Sheboygan...Fond Du Lac...Washington and Dodge counties, as well as Waukesha...Milwaukee...Racine and Kenosha counties, bringing total accumulations of 6.5 inches to 8 inches in these counties. The greatest total was 8.1 inches in the city of Kenosha. There were some spin-outs and vehicle accidents with a few minor injuries reported across southern Wisconsin. Because of the long-duration of snowfall, road crews were able to keep roads clear and minimize the impact on society. Therefore, this event was not classified as a winter storm event.

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA	01/17/12 04:00 CST		0	Winter Weather
	01/17/12 14:00 CST		0	

Moderate snow over all of South-central and Southeast Wisconsin during the morning rush hour. Snowfall rates of 1/2 inch to 1 inch per hour combined with north winds that increased to 15 to 20 mph...with gusts between 30 and 35 mph. This combination reduced visibilities to 1/2 to 1/4 mile due to blowing and drifting snow. A coop observer in Beaver Dam in Dodge County reported 2.7 inches of snow fell in the 2.5 hours from 710 am to 940 am. Total snow accumulations of 2 to 4 inches were reported across the area with most of it falling during the morning rush hour, slowing and snarling traffic. The snow was generated by a surface low pressure which rapidly developed under the left front quadrant of a 100-knot upper jet-streak and ahead of an associated short wave trough. The low deepened as it moved from Illinois into Lower Michigan during the morning hours of January 17th...reaching eastern Ontario Canada by mid-afternoon. Strong surface to 850-mb frontogenetic forcing along with lift from the aforementioned upper level dynamics aided in the snow production.

(WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA	01/20/12 11:00 CST		0	Winter Weather
	01/20/12 21:00 CST		0	

Strong frontogenetic forcing associated with mid-level warm-air advection ahead of a short-wave trough produced a shield of steady light...to at times moderate...snow that spread over southern Wisconsin during the late morning hours of January 20th...which continued into the evening hours. Cold temperatures that remained in the single digits above zero during the majority of the snowfall reduced the effectiveness of melting chemicals on area roads, resulting in slippery conditions. Numerous reports of spin-outs and crashes were received from law enforcement agencies across the region. Snowfall totals ranged from around 3 inches from Sauk County to Ozaukee County...generally along a Wisconsin Dells...Portage to Mequon line...rising to 5 to 6 inches from Lafayette County east into southern

## Storm Data and Unusual Weather Phenomena - January 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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Rock County. The strip of counties from Marquette east to Sheboygan received 2 inches or less.

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK

01/22/12 10:00 CST	0	Winter Weather
01/23/12 09:00 CST	0	

A surge of moisture and isentropic lift ahead of a negatively-tilted short wave trough spread freezing drizzle and areas of freezing fog across all of South Central and Southeast Wisconsin during the morning hours of January 22nd. The freezing precipitation put down a glaze between 1/8 inch to just under 1/4 inch thick on surfaces across southern Wisconsin. Warm air at the surface moved into most of Southeast and South Central Wisconsin during the evening hours...changing the freezing drizzle over to drizzle. Locations in the counties of Iowa...Sauk...Columbia..and Marquette continued to get freezing drizzle and freezing fog during the overnight...with light snow falling on top of the glazed surfaces as the precipitation came to the end during the early morning hours of the 23rd. The icy surfaces created hazardous travel conditions that produced numerous spin-outs and accidents, including an accident on westbound I-94 at County Highway F in Waukesha County that involved a semi-trailer truck and a county snowplow.

(WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK

01/23/12 02:30 CST	0	Dense Fog
01/23/12 09:00 CST	0	

Abundant low-level moisture...light winds and a cool air mass accompanying a low pressure led to the formation of dense fog over far southern sections of South-central Wisconsin. The dense fog reduced visibilities to 1/4 mile or less. Aloft, a negatively-tilted mid-level short-wave trough crossed southern Wisconsin during the overnight and early daylight hours of January 23rd.

(WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK

01/26/12 03:00 CST	0	Dense Fog
01/26/12 14:00 CST	0	

A light southerly flow ahead of a weak trough of low pressure brought increasing low-level moisture into southern Wisconsin during the overnight hours...with dense fog developing in the southwest third of the Milwaukee/Sullivan forecast area. Visibilities fell to between 1/4 and 1/8 of a mile.

## Storm Data and Unusual Weather Phenomena - February 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### WISCONSIN, Southeast

(WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH

02/01/12 22:30 CST	0	Dense Fog
02/02/12 15:00 CST	0	

Calm winds, clear skies and abundant low-level moisture trapped under an inversion allowed the formation of dense fog with visibilities of 1/4 mile or less over a good portion of South-Central and Southeast Wisconsin west of a line from Waupun to Burlington. The dense fog developed during the late evening hours of February 1st over South-Central Wisconsin, but was delayed over the Southeast until the early morning hours of February 2nd.

(WI-Z062) IOWA, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN

02/02/12 19:00 CST	0	Dense Fog
02/03/12 13:00 CST	0	

Light winds, initially clear skies and abundant low-level moisture led to good radiational cooling conditions and the development of dense fog with visibilities of 1/4 mile or less over southwest portions of South-Central Wisconsin. The dense fog developed during the late evening hours of February 2nd and lingered into the late morning to early afternoon hours of February 3rd. Drier air to the north and east, as well as increased mixing just above a low-level inversion prevented a more widespread expansion of the dense fog.

(WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z069) ROCK, (WI-Z070) WALWORTH

02/15/12 22:00 CST	0	Dense Fog
02/16/12 02:00 CST	0	

Light winds and abundant low-level moisture led to the development of dense fog with visibilities of 1/4 mile or less over portions of Southeast Wisconsin east of a line from Ripon to Beaver Dam to Lake Mills, to Janesville. The dense fog developed during the late evening hours of February 15th and lasted until the early overnight hours of the 16th. Weak low-level warm air advection strengthened an inversion that trapped the low-level moisture.

(WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

02/23/12 18:00 CST	0	Winter Weather
02/24/12 08:00 CST	0	

Heavy, wet snow accumulated to 3 to 6 inches over much of southern Wisconsin as surface low pressure tracked across Illinois. Strong warm-air advection led to strong frontogenetic forcing over the region, with lift enhanced by differential positive vorticity advection associated with a 500-mb short-wave trough that crossed the region. These features produced a steady, long-term snowfall that began in the early evening of the 23rd and lasted until the early morning hours of the 24th. A few locations (West Bend to Mt. Mary College in Milwaukee and from Burlington to the city of Racine) received between 7 to 8 inches of accumulation, but these higher amounts were isolated and had a low impact on travel. Therefore, this event was not documented as a winter storm.

(WI-Z052) SHEBOYGAN

02/26/12 12:00 CST	1K	Strong Wind (MAX 39 kt)
02/26/12 14:00 CST	0	

Gusty south to southeast winds affected the eastern counties of Southeast Wisconsin around the mid-day hours of February 26th. The gusty winds were produced in a tightening pressure gradient ahead of strong low pressure that tracked across central Minnesota to the Upper Peninsula of Michigan. The strong winds would have occurred over a longer period of time, but the start was delayed until a low-level inversion over a snow cover across the area mixed out with daytime heating. The Sheboygan C-MAN recorded sustained winds of 32 to 39 mph (28 knots to 32 knots), with a peak gust of 45 mph (39 knots), while the Sheboygan airport reported a peak gust of 43 mph. Wind gusts over the remainder of southeast Wisconsin were in the 35 to 43 mph range, which was below strong wind criteria.

## Storm Data and Unusual Weather Phenomena - March 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### LAKE MICHIGAN

<b>SHEBOYGAN TO PT WASHINGTON WI COUNTY --- 0.9 NNE PORT WASHINGTON [43.39, -87.86]</b>				
	03/10/12 10:30 CST	1	0	Marine Strong Wind (EG 34 kt)
	03/10/12 10:30 CST		0	Source: C-MAN Station

See episode narrative.

Direct Fatalities: M??IW

An experienced kayaker battered by buffeting winds and high waves was thrown from his kayak and drowned on Lake Michigan (directly-related fatality), just northeast of the Port Washington marina. Strong low pressure moving across southern Canada created a tight pressure gradient over Lake Michigan. This tight pressure gradient helped cause strong, gusty south winds over the near shore waters of Lake Michigan. Sustained winds at the Port Washington GLOS observing station were 10 to 20 knots with frequent gusts of 20 to 30 knots. This Port Washington observing station is partially shielded by nearby terrain so does not always reflect actual wind speed velocities. Farther north, the Sheboygan C-MAN station maintained by GLOS recorded much stronger winds at the time of the incident, with gusts of 35 to 40 knots.

### WISCONSIN, Southeast

<b>(WI-Z046) MARQUETTE, (WI-Z056) SAUK, (WI-Z062) IOWA, (WI-Z067) LAFAYETTE</b>				
	03/02/12 11:00 CST		0	Winter Weather
	03/02/12 20:00 CST		0	

Deepening surface low pressure produced a swath of wet snow accumulations of 3 to 6 inches along with gusty northerly winds over parts of southcentral Wisconsin during the afternoon and evening of March 2nd. The low pressure responsible for this event deepened rapidly in response to a vigorous upper level short wave that crossed the western Great Lakes region. The surface low tracked from Missouri, across northern Illinois, to Lower Michigan during the afternoon and evening hours. Western sections of South Central Wisconsin were on the edge of the heaviest snowfall...but instability aloft was sufficient to produce elevated convection and thunder-snow. Brief snowfall rates between 1.5 and 2 inches per hour were common at the height of the event during the evening rush hour. The tight pressure gradient around the deep surface low produced gusty northeast to north winds up to 40 mph which occasionally reduced visibilities to near zero in the heavy snow. The heavy, wet snow collected on power lines and tree limbs, causing them to snap. There were numerous crashes and spin-outs during the storm. Refer to associated March 2nd Winter Storm event over the remainder of southcentral and southeast Wisconsin.

<b>(WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z066) MILWAUKEE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA</b>				
	03/02/12 12:00 CST		0	Winter Storm
	03/02/12 22:23 CST		0	

Deepening surface low pressure produced a swath of heavy, wet snow along with gusty northerly winds over much of southcentral and southeast Wisconsin during the afternoon and evening of March 2nd. The low deepened rapidly in response to a vigorous upper-level short-wave that crossed the western Great Lakes region. The surface low tracked from Missouri, across northern Illinois, to Lower Michigan during the afternoon and evening hours. A warm vertical temperature profile allowed the precipitation to begin as rain in far Southeast Wisconsin...with snow elsewhere across the southern portion of the state. The rain quickly changed over to snow late in the afternoon...with instability aloft sufficient to produce elevated convection and thunder-snow over southeast Wisconsin. Snowfall rates between 1.5 and 2 inches per hour were common at the height of the event during the evening rush hour. Snowfall totals were between 5 and 7 inches...with a few 8 and 9 inch reports in western Sheboygan County. The tight pressure gradient around the deep surface low produced gusty northeast to north winds up to 40 mph (35 knots) which occasionally reduced visibilities to near zero in the heavy snow. The heavy, wet snow collected on power lines and tree limbs, causing some to snap. At one point, We Energies utility estimated 15,000 customers lost electrical power in southeastern Wisconsin. There were numerous vehicle crashes and spin-outs during this event. A few minor injuries were reported, including a school bus crash in Walworth County that sent a high-school student to the hospital with a head injury.

<b>(WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z066) MILWAUKEE, (WI-Z068) GREEN, (WI-Z072) KENOSHA</b>				
	03/10/12 13:30 CST		16K	Strong Wind (MAX 41 kt)
	03/10/12 17:00 CST		0	

## Storm Data and Unusual Weather Phenomena - March 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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A tight pressure gradient around strong low pressure tracking across southern Canada produced gusty southwest winds over southern Wisconsin during the day on March 10th. The surface gradient winds were enhanced by a 40-knot low level jet that mixed down to the surface during maximum daytime heating. Sustained wind speeds were between 30 mph and 35 mph (26 to 30 knots), with gusts of 40 to 47 mph (35 to 41 knots). There were scattered reports of snapped power-lines due to the impact of fallen tree branches.

**RACINE COUNTY --- KANSASVILLE [42.68, -88.12]**

03/12/12 11:38 CST			0	Hail (1.00 in)
03/12/12 11:38 CST			0	Source: Trained Spotter

**RACINE COUNTY --- UNION GROVE [42.68, -88.05]**

03/12/12 11:42 CST			0	Hail (1.00 in)
03/12/12 11:42 CST			0	Source: Public

**RACINE COUNTY --- CALEDONIA [42.80, -87.93]**

03/12/12 12:01 CST			0	Hail (1.75 in)
03/12/12 12:01 CST			0	Source: Law Enforcement

Isolated, out-of-season severe weather occurred over Racine County in southeast Wisconsin on March 12, 2012. One of the cells in a line of storms pulsed up and produced large hail...up to golf ball size (1.75 inches) in diameter near Caledonia... over northern portions of Racine County. As the storm moved northeast in Milwaukee County it weakened and produced smaller hail. The smaller hail reportedly covered the ground in Oak Creek in southern Milwaukee County. A relatively warm and moist air mass for mid-March...with temperatures in the mid to upper 50s and dew points in the lower 50s...spread into far Southeast Wisconsin ahead of a surface trough during the late morning hours of March 12th. The resulting instability produced storms over the southeast corner of Wisconsin back to the southwest into northeast Illinois. Mean layer CAPE values were only between 200 and 500 J/kg, but surface-based Lifted Index values ranged between 0C and -1C. A narrow zone of forcing for ascent on the southern edge of a closed upper low combined with low-level convergence along the surface trough to produce the line of showers and thunderstorms. There was strong wind shear with 0 to 3km shear of 40 to 50 knots, sufficient to produce rotating updrafts.

**ROCK COUNTY --- 1.0 NE ORFORDVILLE [42.64, -89.24]**

03/17/12 05:35 CST			0	Hail (0.75 in)
03/17/12 05:35 CST			0	Source: Trained Spotter

Convergence and moisture advection along the leading edge of an 850-mb wind maximum ahead of a short-wave trough combined with an unstable atmosphere in place over the region due to record-breaking warmth to produce pulse thunderstorms over southern Wisconsin during the early morning hours of March 17th. The strongest storms produced small hail up to 3/4 inch in diameter, and brief heavy downpours of rain in Rock County.

**(WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA**

03/23/12 17:00 CST			0	Dense Fog
03/24/12 10:15 CST			0	

Light winds and abundant low-level moisture from earlier rains aided in producing widespread dense fog over much of southern Wisconsin during the overnight hours of March 23rd. A light northeasterly wind flow around an upper level low to the south brought air cooled by the waters of Lake Michigan into the moist air mass over the region. This produced dense fog, with visibilities of 1/4 mile or less, generally along and southeast of a Sheboygan to Wisconsin Dells line.

## Storm Data and Unusual Weather Phenomena - April 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### WISCONSIN, Southeast

(WI-Z046) MARQUETTE, (WI-Z058) DODGE, (WI-Z059) WASHINGTON

04/08/12 16:05 CST	4K	Strong Wind (MAX 48 kt)
04/08/12 16:30 CST	0	

Widespread wind gusts up to 40 mph...with a few peak gusts of 45 to 55 mph...affected portions of Southcentral and Southeast Wisconsin during the late afternoon of April 8th. These strong winds were due to the tight pressure gradient between high pressure centered over the Plains and low pressure accompanying a short wave trough into southern Canada. A dry air mass over southern Wisconsin produced deep mixing up to strong winds aloft, with steep lapse rates allowing these winds to translate down to the surface. The strongest wind gusts were associated with very light showers and sprinkles that evaporated as they fell into the drier air. The evaporative cooling of the air moving downward with the showers increased the momentum of the air, producing the stronger gusts.

(WI-Z052) SHEBOYGAN, (WI-Z060) OZAUKEE

04/12/12 23:43 CST	0	Dense Fog
04/13/12 05:33 CST	0	

Dense fog, with visibilities of 1/4 mile or less, formed over all of Sheboygan County and northern sections of Ozaukee County during the early morning hours of April 13th. Clearing skies and light southeast winds allowed air temperatures to cool rapidly to the dew point. The light southeast flow off of Lake Michigan added moisture that aided the development of the dense fog.

(WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z066) MILWAUKEE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z071) RACINE, (WI-Z072) KENOSHA

04/15/12 19:52 CST	28K	Strong Wind (MAX 47 kt)
04/16/12 12:15 CST	0	

Two periods of strong winds affected Southcentral and Southeast Wisconsin as a deep surface low tracked from southern Minnesota into northern Wisconsin during the overnight hours of April 15th to 16th. Southerly winds gusting to between 45 mph and 54 mph (39 knots to 47 knots) affected South Central Wisconsin on the night of the 15th with the tightening pressure gradient ahead of the low. The winds were enhanced with strong low-level jet winds mixing down to the surface. Cold-air advection, behind a cold front trailing the low, crossed the region during the day on the 16th and brought sustained winds between 20 mph and 30 mph (17 knots to 26 knots) and gusts up to 49 mph (43 knots) to much of South Central and Southeast Wisconsin. There were multiple reports of downed power lines, trees and tree branches.

(WI-Z068) GREEN

04/30/12 02:35 CST	0	Dense Fog
04/30/12 08:55 CST	0	

Dense fog with visibilities of 1/4 mile or less formed over sections of Southwest Wisconsin during the early morning hours of April 30th. The fog formed with light winds and a very moist near-surface atmosphere following rain showers the previous afternoon and evening.

## Storm Data and Unusual Weather Phenomena - May 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<b>LAKE MICHIGAN</b>				
<b>NORTH PT LT TO WIND PT WI COUNTY --- 3.5 SE NORTH POINT LTHOUSE [43.05, -87.88]</b>				
	05/15/12 17:45 CST	0		Marine Thunderstorm Wind (MG 34 kt)
	05/15/12 17:45 CST	0		Source: C-MAN Station
Scattered thunderstorms developing during the late afternoon along a cold front which briefly affected portions of the near shore waters of Lake Michigan.				
<b>WIND PT LT WI TO WINTHROP HBR IL COUNTY --- 1.2 ENE KENOSHA [42.59, -87.81]</b>				
	05/20/12 16:10 CST	0		Marine Thunderstorm Wind (MG 38 kt)
	05/20/12 16:20 CST	0		Source: C-MAN Station
Strong thunderstorms caused measured wind gusts of 37-38 knots for a 10 minute period.				
<b>NORTH PT LT TO WIND PT WI COUNTY --- 3.5 SE NORTH POINT LTHOUSE [43.05, -87.88]</b>				
	05/20/12 16:30 CST	0		Marine Thunderstorm Wind (MG 37 kt)
	05/20/12 17:00 CST	0		Source: C-MAN Station
Strong thunderstorms caused measured wind gusts of 37 to 39 knots for a 30 minute period. Strongest measured gust of 39 knots occurred at 500 pm CST. During this 30 minute period, prevailing winds were 26 to 29 knots.				
A cluster of strong thunderstorms moved from northeast Illinois into the near shore waters of Lake Michigan during the late afternoon. The thunderstorms erupted along a cold front moving east across the region.				
<b>PT WASHINGTON TO NORTH PT LT WI COUNTY --- 0.6 N PORT WASHINGTON [43.39, -87.87]</b>				
	05/28/12 18:02 CST	0		Marine Thunderstorm Wind (MG 37 kt)
	05/28/12 18:10 CST	0		Source: C-MAN Station
Measured wind gusts from strong thunderstorms gusted to 37 to 38 knots for 8 minutes.				
<b>NORTH PT LT TO WIND PT WI COUNTY --- 3.5 SE NORTH POINT LTHOUSE [43.05, -87.88]</b>				
	05/28/12 18:30 CST	0		Marine Thunderstorm Wind (MG 37 kt)
	05/28/12 18:30 CST	0		Source: C-MAN Station
A cold front passing through southeast Wisconsin and the near shore waters of Lake Michigan caused scattered strong to severe thunderstorms during the evening of Monday, May 28th.				
<b>WISCONSIN, Southeast</b>				
<b>SAUK COUNTY --- WEST BARABOO [43.47, -89.78]</b>				
	05/01/12 09:00 CST	0		Hail (1.00 in)
	05/01/12 09:00 CST	0		Source: Public
<b>WAUKESHA COUNTY --- 2.0 SW OCONOMOWOC [43.10, -88.51]</b>				
	05/01/12 13:00 CST	0		Hail (0.75 in)
	05/01/12 13:00 CST	0		Source: NWS Employee
<b>WAUKESHA COUNTY --- 6.0 NE OCONOMOWOC [43.18, -88.40]</b>				
	05/01/12 13:00 CST	0		Hail (1.50 in)
	05/01/12 13:00 CST	0		Source: Law Enforcement
<b>WAUKESHA COUNTY --- 2.0 SW OCONOMOWOC [43.10, -88.51]</b>				
	05/01/12 13:14 CST	0		Hail (1.00 in)
	05/01/12 13:14 CST	0		Source: NWS Employee
<b>WASHINGTON COUNTY --- 2.0 E HOLY HILL [43.24, -88.29]</b>				

## Storm Data and Unusual Weather Phenomena - May 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
	05/01/12 13:15 CST		0	Hail (0.75 in)
	05/01/12 13:15 CST		0	Source: Trained Spotter
<hr/>				
<b>WASHINGTON COUNTY --- GERMANTOWN [43.23, -88.10]</b>				
	05/01/12 13:15 CST		3K	Thunderstorm Wind (MG 61 kt)
	05/01/12 13:16 CST		0	Source: Trained Spotter
<hr/>				
<b>WASHINGTON COUNTY --- GERMANTOWN [43.23, -88.10]</b>				
	05/01/12 13:23 CST		0	Hail (1.75 in)
	05/01/12 13:23 CST		0	Source: Trained Spotter
<hr/>				
<b>MILWAUKEE COUNTY --- RIVER HILLS [43.17, -87.93]</b>				
	05/01/12 13:28 CST		2K	Thunderstorm Wind (MG 57 kt)
	05/01/12 13:28 CST		0	Source: Broadcast Media
<hr/>				
<b>DODGE COUNTY --- JUNEAU [43.40, -88.70]</b>				
	05/01/12 15:04 CST		0	Hail (1.25 in)
	05/01/12 15:04 CST		0	Source: Trained Spotter
<hr/>				
<b>JEFFERSON COUNTY --- 1.0 NE FT ATKINSON [42.94, -88.84]</b>				
	05/01/12 15:27 CST		0	Hail (1.75 in)
	05/01/12 15:27 CST		0	Source: Public
<hr/>				
<b>JEFFERSON COUNTY --- WATERTOWN [43.20, -88.72]</b>				
	05/03/12 12:15 CST		0	Hail (1.25 in)
	05/03/12 12:25 CST		0	Source: Trained Spotter
<hr/>				
<b>JEFFERSON COUNTY --- 3.7 SE LAKE MILLS [43.04, -88.85]</b>				
	05/03/12 12:40 CST		0	Hail (1.25 in)
	05/03/12 12:40 CST		0	Source: Trained Spotter
<hr/>				
<b>JEFFERSON COUNTY --- LAKE MILLS [43.08, -88.90]</b>				
	05/03/12 12:41 CST		0	Hail (1.00 in)
	05/03/12 12:41 CST		0	Source: Fire Department/Rescue
<hr/>				
<b>JEFFERSON COUNTY --- JOHNSON CREEK [43.08, -88.77]</b>				
	05/03/12 12:48 CST		0	Hail (1.00 in)
	05/03/12 12:48 CST		0	Source: NWS Employee
<hr/>				
<b>JEFFERSON COUNTY --- 5.0 E JOHNSON CREEK [43.08, -88.67]</b>				
	05/03/12 12:55 CST		0	Hail (0.88 in)
	05/03/12 12:55 CST		0	Source: Public
<hr/>				
<b>JEFFERSON COUNTY --- 5.0 N SULLIVAN [43.09, -88.58]</b>				
	05/03/12 13:02 CST		0	Hail (1.00 in)
	05/03/12 13:02 CST		0	Source: Public
<hr/>				
<b>DODGE COUNTY --- LEBANON [43.25, -88.63]</b>				
	05/03/12 13:18 CST		0	Hail (1.00 in)
	05/03/12 13:18 CST		0	Source: Broadcast Media
<hr/>				
<b>JEFFERSON COUNTY --- 1.0 SE LAKE MILLS [43.07, -88.89]</b>				
	05/03/12 13:23 CST		0	Hail (1.25 in)
	05/03/12 13:23 CST		0	Source: Trained Spotter

Clusters of severe thunderstorms...producing large hail up to 1.75 inches in diameter and wind gusts up to 70 mph (61 knots) moved across much of Southeast Wisconsin and a portion of South-Central Wisconsin during the afternoon hours of May 3rd. The thunderstorms developed in the warm sector ahead of low pressure over southeast Minnesota and behind a warm front that extended

## Storm Data and Unusual Weather Phenomena - May 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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from the low across central Wisconsin. The unstable atmosphere, with mixed layer CAPE of 1500 to 2000 J/kg, and 0-6 km bulk shear around 40 knots was supportive of supercell thunderstorms. Wet conditions due to heavy rain associated with the thunderstorms led to a multi-vehicle accident on Interstate 94 near Lake Mills in Jefferson County, injuring (indirectly-related) two of the drivers.

**COLUMBIA COUNTY --- PARDEEVILLE [43.53, -89.28]**

	05/06/12 07:38 CST		0	Hail (0.75 in)
	05/06/12 07:38 CST		0	Source: Trained Spotter

**COLUMBIA COUNTY --- 1.0 N PARDEEVILLE [43.54, -89.28]**

	05/06/12 07:48 CST		0	Hail (1.00 in)
	05/06/12 07:48 CST		0	Source: Trained Spotter

**COLUMBIA COUNTY --- 2.0 E PARDEEVILLE [43.53, -89.24]**

	05/06/12 08:04 CST		1K	Thunderstorm Wind (EG 52 kt)
	05/06/12 08:04 CST		0	Source: Trained Spotter

A trained spotter reported a 10-inch diameter tree was downed by severe thunderstorm wind gusts.

**ROCK COUNTY --- EDGERTON [42.83, -89.07]**

	05/06/12 08:45 CST		0	Hail (1.00 in)
	05/06/12 08:45 CST		0	Source: Trained Spotter

**ROCK COUNTY --- 0.4 SW DOWNTOWN JANESVILLE [42.68, -89.03]**

	05/06/12 08:57 CST		0	Hail (1.00 in)
	05/06/12 08:57 CST		0	Source: Trained Spotter

Heavy rainfall accompanying the severe thunderstorm produced minor urban street flooding.

**WAUKESHA COUNTY --- 2.0 N MUKWONAGO [42.90, -88.33]**

	05/06/12 11:16 CST		2K	Thunderstorm Wind (EG 56 kt)
	05/06/12 11:16 CST		0	Source: Trained Spotter

A trained spotter reported an estimated thunderstorm wind gust of 65 mph (56 knots) two miles north of Mukwonago.

**Severe thunderstorms, part of a mesoscale convective system (MCS) that developed over Minnesota the night before on the nose of a low-level jet of 35 knots, brought hail up to 1 inch in diameter and damaging wind gusts estimated at up to 65 mph (57 knots) as they pushed into South Central Wisconsin during the morning hours of May 6th. Trees and power lines were brought down by the severe thunderstorm winds. In addition, there were several reports of minor street flooding with the heavy rains that accompanied the severe thunderstorm complex, as well as two reports of minor fires caused by lightning strikes.**

**WALWORTH COUNTY --- PELL LAKE [42.53, -88.37], LYONS [42.65, -88.35]**

	05/20/12 15:33 CST		10K	Thunderstorm Wind (EG 56 kt)
	05/20/12 15:40 CST		0	Source: Emergency Manager

The Walworth County Emergency Manager reported numerous trees and power lines downed by thunderstorm wind gusts estimated at 65 mph (56 knots) in a swath from Bloomington Township, near Pell Lake, to Lyons.

**Scattered thunderstorms developed ahead of a cold front, trailing from low pressure that moved from west central Wisconsin into western Ontario during the day on May 20th. One cluster of thunderstorms pulsed up to severe levels, producing damaging wind gusts over Walworth County that downed power lines and trees. Surface temperatures in the 80s and dew points around 60 degrees produced mixed-layer CAPE values around 1500 J/kg. Forcing with surface convergence along the front was aided by lift attributed to differential positive vorticity advection as an upper level shortwave lifted across western Wisconsin.**

**MARQUETTE COUNTY --- 6.0 N OXFORD [43.87, -89.57]**

	05/26/12 20:38 CST		0	Hail (0.88 in)
	05/26/12 20:38 CST		0	Source: Trained Spotter

**A thunderstorm complex (MCS), that formed in northern Iowa along the the leading edge of stronger low-level flow over a nearly-stationary mid-level baroclinic zone, produced nickel-sized hail (0.88 inch in diameter) in Marquette County as it crossed northern sections of South-Central and Southeast Wisconsin during the late evening hours of May 26th.**

**SAUK COUNTY --- REEDSBURG [43.53, -90.00]**

## Storm Data and Unusual Weather Phenomena - May 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
	05/28/12 14:44 CST		0	Hail (1.25 in)
	05/28/12 14:45 CST		0	Source: Trained Spotter
<hr/>				
<b>COLUMBIA COUNTY --- WISCONSIN DELLS [43.63, -89.77]</b>	05/28/12 15:00 CST		5K	Hail (1.25 in)
	05/28/12 15:10 CST		0	Source: Trained Spotter
<p>A ten-minute shower of large hail from a severe thunderstorm broke windows, with the damage totaling \$5,000.</p>				
<hr/>				
<b>COLUMBIA COUNTY --- WISCONSIN DELLS [43.63, -89.77]</b>	05/28/12 15:04 CST		30K	Thunderstorm Wind (EG 65 kt)
	05/28/12 15:10 CST		0	Source: Law Enforcement
<p>Law enforcement officials reported many trees and power lines downed by powerful thunderstorm wind gusts, estimated up to 75 mph (65 knots) in the Wisconsin Dells. Four cars were also damaged, with overall property damages estimated to be \$30,000 dollars.</p>				
<hr/>				
<b>MARQUETTE COUNTY --- BRIGGSVILLE [43.65, -89.58]</b>	05/28/12 15:15 CST		20K	Thunderstorm Wind (EG 74 kt)
	05/28/12 15:17 CST		0	Source: Fire Department/Rescue
<p>Fire department officials reported many trees and power lines downed by powerful thunderstorm wind gusts, estimated up to 85 mph (74 knots) in Briggsville. Tree debris damaged several cars, with roof damage to several homes.</p>				
<hr/>				
<b>MARQUETTE COUNTY --- BRIGGSVILLE [43.65, -89.58]</b>	05/28/12 15:20 CST		0	Hail (1.75 in)
	05/28/12 15:20 CST		0	Source: Amateur Radio
<hr/>				
<b>MARQUETTE COUNTY --- 2.0 S MONTELLO [43.77, -89.32]</b>	05/28/12 15:36 CST		0	Hail (1.75 in)
	05/28/12 15:36 CST		0	Source: Trained Spotter
<hr/>				
<b>MARQUETTE COUNTY --- MONTELLO [43.80, -89.32]</b>	05/28/12 15:36 CST		20K	Thunderstorm Wind (EG 65 kt)
	05/28/12 15:36 CST		0	Source: Trained Spotter
<p>A trained spotter reported many trees and power lines downed by powerful thunderstorm wind gusts, estimated up to 75 mph (65 knots) in Montello. Metal shingles were torn off of a barn roof.</p>				
<hr/>				
<b>GREEN LAKE COUNTY --- MARQUETTE [43.75, -89.14]</b>	05/28/12 15:50 CST		0	Hail (1.00 in)
	05/28/12 15:50 CST		0	Source: Trained Spotter
<hr/>				
<b>DANE COUNTY --- 3.0 N MIDDLETON [43.14, -89.50]</b>	05/28/12 16:09 CST		0	Hail (1.00 in)
	05/28/12 16:09 CST		0	Source: Trained Spotter
<hr/>				
<b>GREEN COUNTY --- NEW GLARUS [42.82, -89.63]</b>	05/28/12 16:10 CST		30K	Thunderstorm Wind (EG 74 kt)
	05/28/12 16:10 CST		0	Source: Trained Spotter
<p>A trained spotter reported trees and power lines downed by powerful thunderstorm wind gusts estimated at 80 mph (74 knots) in the town of New Glarus. One car was totally damaged when struck by a falling tree, with roof shingles blown off several homes.</p>				
<hr/>				
<b>DANE COUNTY --- MSN MOREY FLD ARPT [43.12, -89.53]</b>	05/28/12 16:15 CST		2K	Thunderstorm Wind (MG 50 kt)
	05/28/12 16:15 CST		0	Source: AWOS
<hr/>				
<b>GREEN COUNTY --- 2.0 N DAYTON [42.85, -89.50]</b>	05/28/12 16:15 CST		10K	Thunderstorm Wind (EG 70 kt)
	05/28/12 16:20 CST		0	Source: Emergency Manager

## Storm Data and Unusual Weather Phenomena - May 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
The Green County Emergency Manager reported shingles were blown off several homes by severe thunderstorm winds 2 miles north of Dayton.				
<b>GREEN COUNTY --- 3.0 N DAYTON [42.86, -89.50], DAYTON [42.82, -89.50]</b>				
	05/28/12 16:15 CST		30K	Thunderstorm Wind (EG 74 kt)
	05/28/12 16:20 CST		0	Source: Trained Spotter
A trained spotter reported trees and power lines downed by powerful thunderstorm wind gusts estimated at 80 mph (74 knots) in a swath from from 2 miles north of Dayton to Dayton. Roof shingles were blown off several homes.				
<b>DANE COUNTY --- 2.0 E OREGON [42.93, -89.34]</b>				
	05/28/12 16:27 CST		5K	Thunderstorm Wind (EG 56 kt)
	05/28/12 16:27 CST		0	Source: Public
The public reported trees were knocked down by severe thunderstorm winds 2 miles east of Oregon.				
<b>ROCK COUNTY --- COOKSVILLE [42.83, -89.23]</b>				
	05/28/12 16:35 CST		5K	Thunderstorm Wind (EG 65 kt)
	05/28/12 16:35 CST		0	Source: Emergency Manager
The Rock County Emergency Manager reported trees were downed by severe thunderstorm winds in the village of Cooksville.				
<b>DANE COUNTY --- 3.0 NNE STOUGHTON [42.96, -89.20]</b>				
	05/28/12 16:38 CST		0	Hail (0.75 in)
	05/28/12 16:38 CST		0	Source: Public
<b>ROCK COUNTY --- EVANSVILLE [42.78, -89.30]</b>				
	05/28/12 16:44 CST		5K	Thunderstorm Wind (EG 56 kt)
	05/28/12 16:44 CST		0	Source: Trained Spotter
A trained spotter reported trees were downed by severe thunderstorm winds in the town of Evansville.				
<b>GREEN LAKE COUNTY --- MARQUETTE [43.75, -89.14]</b>				
	05/28/12 16:50 CST		5K	Thunderstorm Wind (EG 56 kt)
	05/28/12 16:50 CST		0	Source: Trained Spotter
A trained spotter reported trees downed by powerful thunderstorm wind gusts estimated at 65 mph (56 knots) in the village of Marquette.				
<b>ROCK COUNTY --- EVANSVILLE [42.78, -89.30]</b>				
	05/28/12 16:50 CST		0	Hail (0.75 in)
	05/28/12 16:50 CST		0	Source: Public
<b>DANE COUNTY --- 0.5 N STOUGHTON [42.93, -89.22]</b>				
	05/28/12 16:54 CST		0	Hail (1.00 in)
	05/28/12 16:54 CST		0	Source: Public
<b>GREEN COUNTY --- 4.0 SW BROADHEAD [42.58, -89.43]</b>				
	05/28/12 17:08 CST		0.10M	Thunderstorm Wind (EG 65 kt)
	05/28/12 17:08 CST		0	Source: Emergency Manager
The Green County Emergency Manager reported \$100,000 of damage from severe thunderstorm winds 4 miles southwest of Broadhead. The damage included 2 barns/sheds with one losing it's roof to the powerful winds. The severe winds peeled siding off of one home, and broke windows and pushed in the door on another home.				
<b>WAUKESHA COUNTY --- 2.0 N STONEBANK [43.18, -88.42]</b>				
	05/28/12 17:35 CST		0	Hail (0.88 in)
	05/28/12 17:35 CST		0	Source: Public
<b>WAUKESHA COUNTY --- 2.0 N STONEBANK [43.18, -88.42]</b>				
	05/28/12 17:35 CST		5K	Thunderstorm Wind (EG 61 kt)
	05/28/12 17:35 CST		0	Source: Public

## Storm Data and Unusual Weather Phenomena - May 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
Large pine trees were reported to be blown down by powerful thunderstorm winds by the public in Stone Bank.				
<b>WASHINGTON COUNTY --- 3.0 W COLGATE [43.20, -88.28]</b>				
	05/28/12 17:37 CST		10K	Thunderstorm Wind (EG 61 kt)
	05/28/12 17:37 CST		0	Source: Public
Winds from a gustnado damaged the soffit on a home, felled trees and damaged fencing as reported by the public 3 miles west of Colgate.				
<b>WASHINGTON COUNTY --- GERMANTOWN [43.23, -88.10]</b>				
	05/28/12 17:45 CST		10K	Thunderstorm Wind (EG 56 kt)
	05/28/12 17:45 CST		0	Source: Public
Tress and power lines were reported to be blown down by powerful thunderstorm winds by the public in Germantown.				
<b>JEFFERSON COUNTY --- 1.7 S PALMYRA [42.86, -88.60]</b>				
	05/28/12 17:50 CST		3K	Thunderstorm Wind (EG 52 kt)
	05/28/12 17:50 CST		0	Source: NWS Employee
Large tree branches, up to 12 inches in diameter, were broken off and blown 50 feet by powerful thunderstorm wind gusts about 1.5 miles southwest of Palmyra on Blue Spring Lake.				
<b>OZAUKEE COUNTY --- CEDARBURG [43.28, -87.98]</b>				
	05/28/12 17:54 CST		5K	Thunderstorm Wind (EG 56 kt)
	05/28/12 17:54 CST		0	Source: Public
Tress and power lines were reported to be blown down by powerful thunderstorm winds by the public in Cedarburg.				
<b>OZAUKEE COUNTY --- CEDARBURG [43.28, -87.98]</b>				
	05/28/12 17:59 CST		0	Hail (1.25 in)
	05/28/12 17:59 CST		0	Source: Public
A report from the public via Twitter stated 1.25 inch diameter hail fell in Cedarburg.				
<b>WAUKESHA COUNTY --- 2.0 SW DOWNTOWN WAUKESHA [43.00, -88.25]</b>				
	05/28/12 18:13 CST		5K	Thunderstorm Wind (EG 56 kt)
	05/28/12 18:13 CST		0	Source: Public
The public reported trees downed by powerful thunderstorm winds 2 miles southwest of the city of Waukesha.				
<b>WAUKESHA COUNTY --- 2.0 SE NEW BERLIN [42.96, -88.09]</b>				
	05/28/12 18:22 CST		20K	Thunderstorm Wind (EG 52 kt)
	05/28/12 18:22 CST		0	Source: Public
The public reported trees downed by powerful thunderstorm winds 2 miles southeast of the city of New Berlin. A tree measuring 15 inches in diameter fell on a house.				
<b>ROCK COUNTY --- EDGERTON [42.83, -89.07]</b>				
	05/28/12 18:25 CST		75K	Lightning
	05/28/12 18:25 CST		0	Source: Fire Department/Rescue
Fire officials say lightning ignited a fire that damaged a 21-unit senior living facility in Edgerton, displacing 30 residents.				
<b>OZAUKEE COUNTY --- CEDARBURG [43.28, -87.98]</b>				
	05/28/12 18:50 CST		20K	Lightning
	05/28/12 18:50 CST		0	Source: Law Enforcement
The Ozaukee County Sheriff Department reported a fire ignited by a lightning strike in the 3200 block of Twin Creeks Road in the town of Cedarburg.				
<p><b>The Memorial Day holiday became turbulent during the late afternoon and evening hours as a line of severe thunderstorms ahead of a cold front crossed southern Wisconsin, producing damaging winds gusts and large hail up to 1.25 inches in diameter. An unstable air mass was in place, with high temperatures in the upper 80s to around 90, and dew points in the lower 60s, that produced mixed-layer CAPE values of 1000-1800 J/kg, with forcing along the front enhanced by weak upper level divergence and weak differential vorticity advection. While directional shear was minimal, with above-surface winds unidirectional from the west, there was sufficient speed</b></p>				

## Storm Data and Unusual Weather Phenomena - May 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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shear to support organized updrafts, and for the individual cells to merge into bowing line segments. Numerous reports of downed trees and power lines were received, as well as some minor structural damage. There were also many large hail reports, mainly along and south of a line from northern Sauk County, near Reedsburg and the Wisconsin Dells, to northern Ozaukee County near Port Washington. Fire officials in Edgerton, in northeast Rock County, and in the city of Jackson in Washington County reported structural fires caused by lightning strikes.

## Storm Data and Unusual Weather Phenomena - June 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### LAKE MICHIGAN

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#### SHEBOYGAN TO PT WASHINGTON WI COUNTY --- 1.4 E SHEBOYGAN [43.75, -87.69]

	06/02/12 14:00 CST	0		Marine Thunderstorm Wind (MG 35 kt)
	06/02/12 14:00 CST	0		Source: C-MAN Station

Light showers moving through the northern portion of the Lake Michigan near shore waters caused brief gusty winds to mix down to the lake surface.

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#### NORTH POINT LIGHT TO WIND POINT WI 5NM OFFSHORE TO MID LAKE COUNTY --- 4.0 ESE NORTH POINT LTHOUSE [43.06, -87.86]

	06/18/12 11:00 CST	0		Marine Strong Wind (MG 32 kt)
	06/18/12 20:00 CST	0		Source: ASOS

Frequent gusts of 28 to 32 knots (32 to 37 mph) from noon to 8 pm at Milwaukee International Airport.

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#### WIND PT LT WI TO WINTHROP HBR IL COUNTY --- 1.2 ENE KENOSHA [42.59, -87.81]

	06/18/12 13:20 CST	0.10K		Marine Strong Wind (MG 39 kt)
	06/18/12 13:20 CST	0		Source: C-MAN Station

Frequent gusts at KNSW3 C-Man station of 34 to 39 knots from 130 pm to 720 pm CDT.

Strong southwest winds due to a tight pressure gradient across southern Wisconsin and Lake Michigan gusted as high as 35 knots (41 mph). The strongest winds occurred during the afternoon and early evening. Frequent wind gusts were in the 28 to 32 knots (32 to 37 mph) range during this period. These strong winds caused six kayakers to capsize in Milwaukee Harbor during the late afternoon. The coast guard and local police and fire came to the rescue of the kayakers. There were in 60 degree water for about 30 minutes, but did not sustain any injuries.

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#### SHEBOYGAN TO PT WASHINGTON WI COUNTY --- 1.0 N HARRINGTON BCH ST PRK [43.48, -87.83]

	06/22/12 14:03 CST	0		Marine Hail (1.00 in)
	06/22/12 14:03 CST	0		Source: Trained Spotter

Trained spotter reported 1 inch hail 1 mile north of Harrington Beach State Park.

An isolated strong thunderstorm produced large hail on the shore areas of Lake Michigan.

### WISCONSIN, Southeast

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#### (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

	06/18/12 12:00 CST	0.13M		Strong Wind (MAX 39 kt)
	06/18/12 18:00 CST	0		

Strong gradient winds, ahead of a deep surface low tracking along the U.S./Canadian border, produced wind gusts up to 45 mph (39 knots) across southeast portions of South Central Wisconsin and most of Southeast Wisconsin. Numerous reports of tree branches being blown down as well as power lines downed by the strong winds were received from across the region. The downed power lines created scattered power outages across the area, with WE Energies reporting 7,000 customers without power, with 2,800 of those customers on the north side of the City of Milwaukee. The U.S. Coast Guard in Milwaukee rescued 6 kayakers within the Milwaukee Harbor breakwater after their kayaks capsized in the choppy waters produced by the gusty winds.

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#### (WI-Z066) MILWAUKEE

	06/18/12 13:00 CST	2	0	Heat
	06/20/12 16:00 CST	0		

Direct Fatalities: F66OU, M60PH

Gusty southwest winds of 20 to 35 mph brought a hot air-mass into southern Wisconsin, with maximum air temperatures reaching the lower to middle 90s, and daytime maximum heat index values of 95 or 96, beginning the afternoon of June 18th and lasting through the afternoon hours of June 20th. Overnight minimum heat index values were in the 75 to 80 range which added to any discomfort people

## Storm Data and Unusual Weather Phenomena - June 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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were experiencing. The Milwaukee County Medical Examiner's office concluded hyperthermia was the direct cause of the death of a 66-year-old female found in her home's backyard and a 60-year-old male within his home on June 21st; both in the city of Milwaukee. As was the case with the historical July 1995 heat wave, it is entirely possible for a person to die within a day or two of the end of a heat wave.

**OZAUKEE COUNTY --- 1.0 NE BELGIUM [43.51, -87.84]**

06/22/12 14:03 CST	0	Hail (1.00 in)
06/22/12 14:03 CST	0	Source: Trained Spotter

**SHEBOYGAN COUNTY --- 2.0 E ELKHART LAKE [43.83, -87.98]**

06/22/12 16:07 CST	0	Hail (1.25 in)
06/22/12 16:07 CST	0	Source: Law Enforcement

A Sheboygan County Sheriff Deputy reported large hail fell about 2 miles east of Elkhart Lake between STH 57 and STH 67. The hail measured 1.25 inches in diameter.

**SHEBOYGAN COUNTY --- ELKHART LAKE [43.83, -88.02]**

06/22/12 16:16 CST	0	Hail (0.88 in)
06/22/12 16:16 CST	0	Source: COOP Observer

An intensifying short-wave trough provided lift to an unstable air-mass over Wisconsin during the middle to late afternoon hours of June 22nd. Daytime heating in concert with cold air aloft associated with the short-wave produced steep low to mid-level lapse rates. Surface-based CAPE values of 800-1000J/kg and effective bulk shear around 30 knots were sufficient to develop organized clusters of thunderstorms that produced large hail over portions of Sheboygan and Ozaukee counties.

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

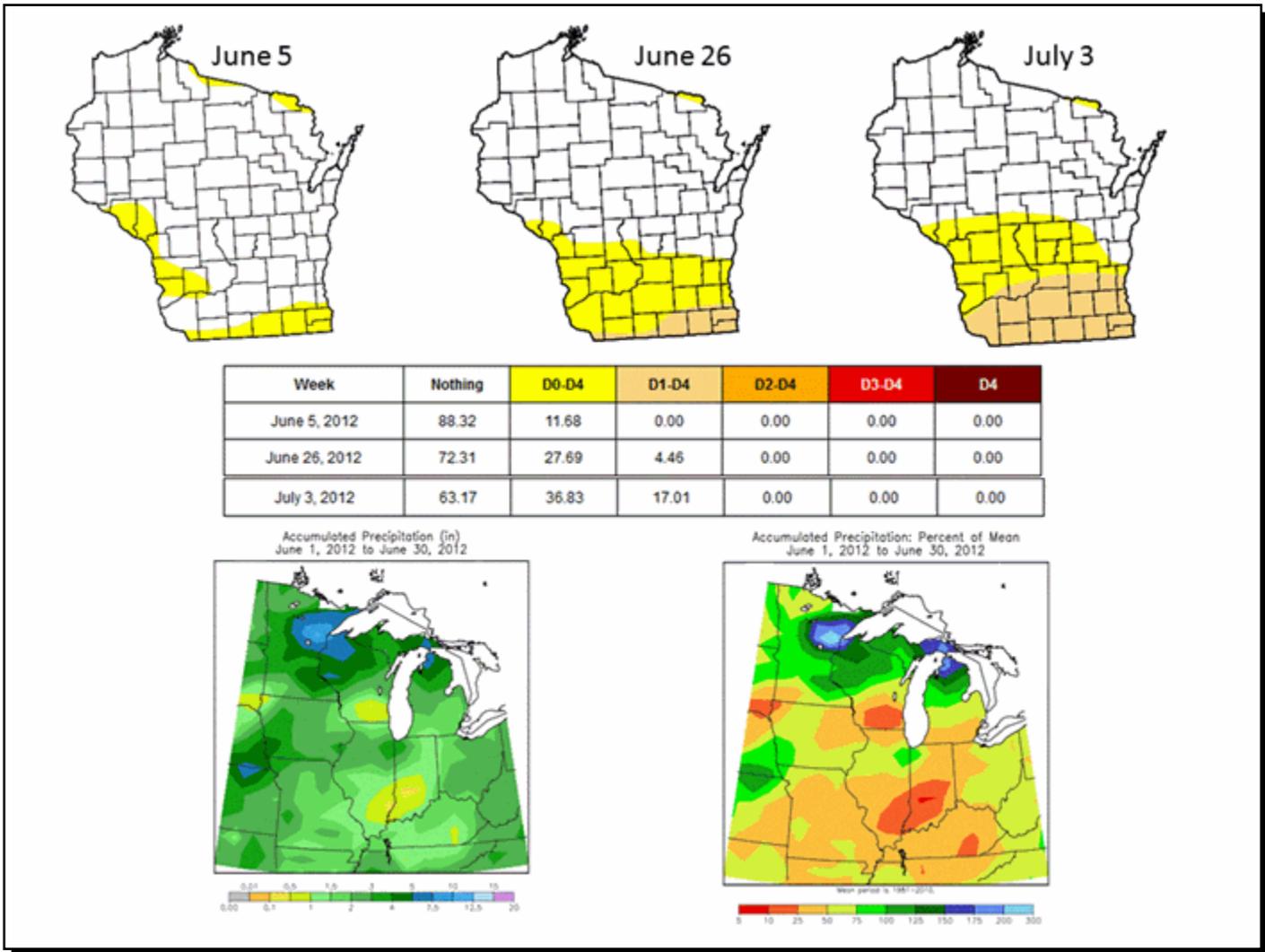
06/26/12 06:00 CST	0	Drought
06/30/12 23:59 CST	0	

A lack of rain over south-central and southeast Wisconsin during the month of June allowed a drought to slowly develop over the area by June 26th or so. Rainfall amounts ranged from around 3/10 inch in the south-central area to around 3 inches in the city of Sheboygan. This translated to monthly deficits ranging from around 4 inches to 1 inch. Sufficient soil moisture allowed for crops to grow normally, however, by the end of June it became apparent higher parts of farm fields were drying out and corn and soybean crops were showing signs of stress. Some locations in south-central and southeast Wisconsin actually started drying out toward the end of May. For example, the corridor from Madison-Janesville through Jefferson County into Washington County had monthly rainfall deficits of 1/10 to 1/3 inch for May, 2012.

The drought intensity and areal coverage increased rapidly from around June 26th to the end of the month. On June 26th, most of south-central and southeast Wisconsin were rated at least D0 on the U.S. Drought Monitor, and the area along and near State Highway 11 across the southern tier of counties had a D1 classification. This drought continued into July, 2012.

## Storm Data and Unusual Weather Phenomena - June 2012

Location Date/Time Deaths & Injuries Property & Crop Dmg Event Type and Details



*The three base maps of Wisconsin show the intensification of the drought around June 26th when the D0 area expanded and a D1 area appeared. This trend continued through the end of the month. The table provides the percentage areal coverage of Wisconsin for each drought classification. The bottom two images show rainfall totals and monthly deficits for Wisconsin and surrounding states.*

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

06/28/12 11:00 CST

0

Heat

06/28/12 18:00 CST

0

Heat and humidity built up over southern Wisconsin under a persistent ridge of high pressure during the day on June 28th. Actual air temperatures ranged between 91 at Sheboygan, and 100 degrees recorded at both Kenosha Airport and Paddock Lake in Kenosha County, with most locations in the middle to upper 90s for daytime highs. Madison tied a record high for the date with a maximum temperature of 97 degrees, equaling the mark set in 1931. These hot temperatures combined with dew points in the lower to middle 70s to produce maximum heat index values between 100 and 113. The heat broke later that evening as a cold front passed through southern Wisconsin.

## Storm Data and Unusual Weather Phenomena - July 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### LAKE MICHIGAN

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#### NORTH PT LT TO WIND PT WI COUNTY --- 3.5 SE NORTH POINT LTHOUSE [43.05, -87.88]

07/13/12 13:15 CST		0		Marine Thunderstorm Wind (MG 34 kt)
07/13/12 13:15 CST		0		Source: C-MAN Station

Thunderstorms formed along the Lake Breeze during the early afternoon and moved northeast over the near shore waters of Lake Michigan. The thunderstorms caused gusty winds of 40 to 50 mph inland, and gusts of 30 to 40 knots over portions of the near shore waters.

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#### NORTH PT LT TO WIND PT WI COUNTY --- 3.5 SE NORTH POINT LTHOUSE [43.05, -87.88]

07/17/12 17:00 CST		0		Marine Thunderstorm Wind (MG 34 kt)
07/17/12 17:15 CST		0		Source: C-MAN Station

Marine observation platform located on the breakwall in Milwaukee harbor recorded 15 minutes of wind gusts to 34 knots.

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#### WIND PT LT WI TO WINTHROP HBR IL COUNTY --- 1.2 ENE KENOSHA [42.59, -87.81]

07/17/12 17:50 CST		0		Marine Thunderstorm Wind (MG 37 kt)
07/17/12 18:00 CST		0		Source: C-MAN Station

Marine observation platform in Kenosha harbor recorded 15 minutes of wind gusts of 36-37 knots.

Strong thunderstorms over southeast Wisconsin produced a strong outflow gust front which affected the near shore waters of Lake Michigan.

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#### PT WASHINGTON TO NORTH PT LT WI COUNTY --- 2.5 ENE NORTH POINT LTHOUSE [43.09, -87.88]

07/26/12 01:00 CST		0		Marine Thunderstorm Wind (EG 36 kt)
07/26/12 01:00 CST		0		Source: Mesonet

St. Robert School in Shorewood reported a wind gust of 36 knots around 2 am CDT.

An upper level disturbance along with a cool front sagging across the region triggered scattered strong thunderstorms over the shore areas as well as over the near shore waters of Lake Michigan.

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#### NORTH PT LT TO WIND PT WI COUNTY --- 3.5 ESE NORTH POINT LTHOUSE [43.06, -87.87], 4.5 ESE NORTH POINT LTHOUSE [43.05, -87.85]

07/27/12 09:15 CST		0		Waterspout
07/27/12 09:40 CST		0		Source: Public

One waterspout observed by the public including a former NWS student volunteer. The waterspout was observed for about 25 minutes, moving slowly east to southeast away from shore.

An upper level trough of low pressure was located over eastern Wisconsin and Lake Michigan. The trough combined with instability in the lower atmosphere to spawn showers and thunderstorms. Conditions were favorable for waterspouts over Lake Michigan. One waterspout was observed just northeast of Milwaukee Harbor in the morning.

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#### SHEBOYGAN TO PT WASHINGTON WI COUNTY --- 1.4 E SHEBOYGAN [43.75, -87.69]

07/30/12 22:00 CST		0		Marine Thunderstorm Wind (MG 41 kt)
07/30/12 22:00 CST		0		Source: C-MAN Station

Sustained winds of 32 knots gusting to 41 knots measured at SGNW3 (Sheboygan) C-Man station.

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#### WIND PT LT WI TO WINTHROP HBR IL COUNTY --- 1.2 ENE KENOSHA [42.59, -87.81]

07/31/12 00:40 CST		0		Marine Thunderstorm Wind (MG 40 kt)
07/31/12 00:40 CST		0		Source: C-MAN Station

Kenosha C-Man station (KNSW3) recorded wind gust of 40 knots at 140 am CDT.

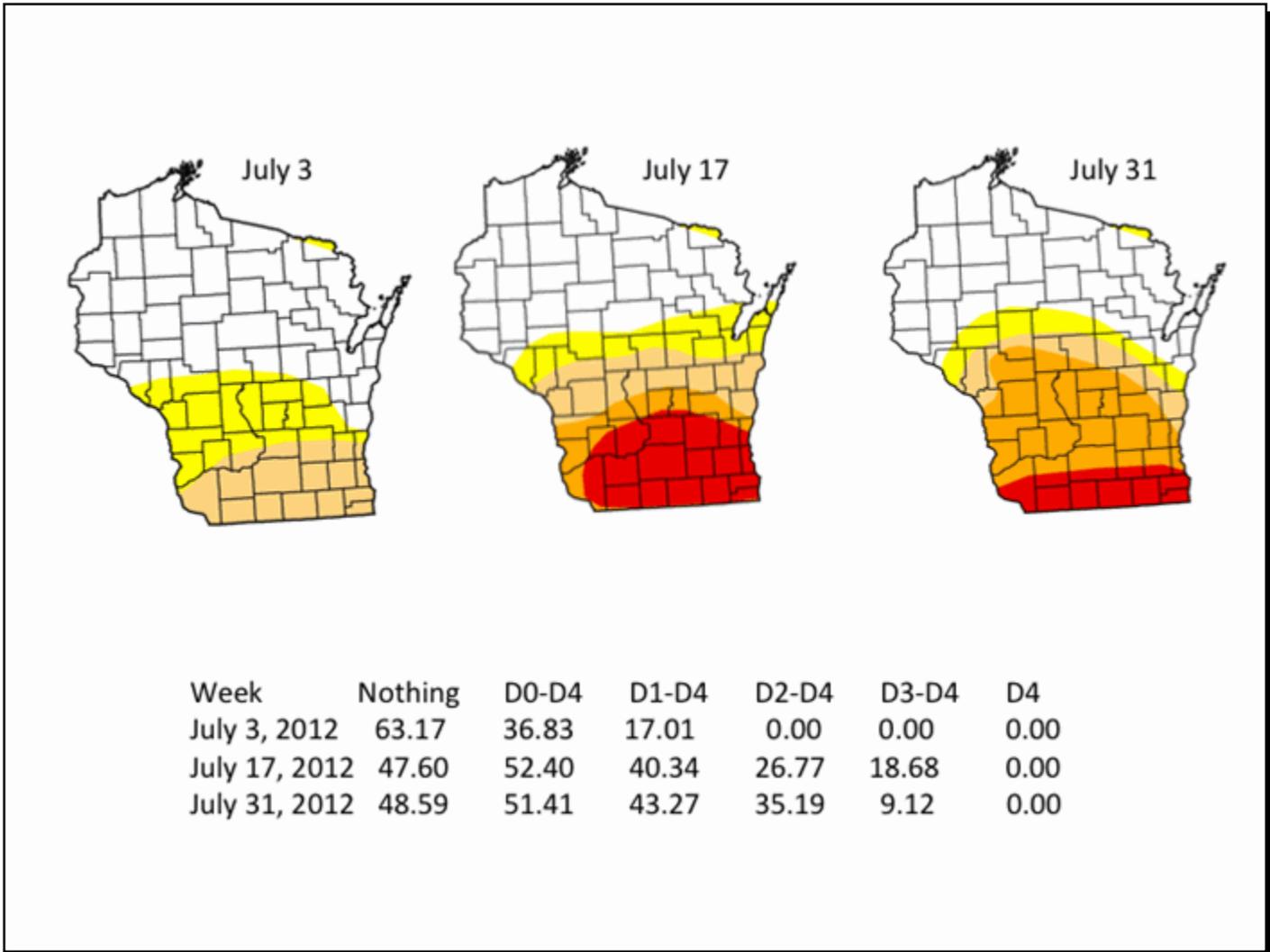
An upper level wave of low pressure and a passing cold front triggered scattered strong thunderstorms over the near shore waters of Lake Michigan.

### WISCONSIN, Southeast

## Storm Data and Unusual Weather Phenomena - July 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA	07/01/12 00:00 CST	0		Drought
	07/31/12 23:59 CST	0		

The extremely dry conditions that began in June continued in July across southern Wisconsin. Many locations did not see any precipitation until several rounds of thunderstorms moved through the region during the middle and end of the month. While these thunderstorm events held monthly precipitation deficits to between 0.10 and 0.20 of an inch below normal, the modest monthly deficits still increased the yearly precipitation deficits to between 3 and 5 inches. In addition to the continued below normal precipitation, there were several periods of extreme heat that increased the damaging effects on already stressed crops. The rain that did fall came too late for much of the corn crop, as it fell after the critical pollination stage.



*Progression of drought conditions across Wisconsin during July, 2012. Percentages of area covered by different drought ratings is provided in the table. For the month drought conditions peaked on July 17th since a few weather systems affected the state during the 2nd half of the month.*

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA	07/02/12 10:00 CST	4	0	Excessive Heat
	07/06/12 19:00 CST		0	

## Storm Data and Unusual Weather Phenomena - July 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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Direct Fatalities: F49PH, F83PH, M42PH, M73PH

A hot air mass settled over southern Wisconsin to start the month of July, bringing 100-degree heat to many locations for multiple days between July 2nd and July 6th. While humidity levels were relatively low considering the temperatures, maximum heat indices still climbed to between 100 and 115 during the hot spell. Milwaukee and Madison each recorded two of the top-ten hottest days on record on July 4th and July 5th. Direct heat-related deaths included: an elderly woman in Rock County, an elderly man in Dane County, a middle-aged woman in the city of Milwaukee and a middle-aged man in the city of Milwaukee. Additionally, an indirectly-related heat fatality (elderly woman) occurred in Rock County in which heat was a secondary cause of death. Based on news reports hundreds of people received medical treatment at hospitals or clinics due to heat-related illnesses, however, the exact number is unknown. These treated people were considered "injured" and a broad estimate of 300 was assigned to south-central and southeast Wisconsin.

The counties surrounding Dane had 4 days of 100 degrees or higher, while counties toward Lake Michigan had 2 or 3 days. The cities of Janesville, Kenosha, Middleton, Sullivan, and Paddock Lake topped out at 106 degrees, which was Wisconsin's highest temperature for the 2012 summer season. Numerous new daily record highs were set as well as record high minimums. The long duration of this excessive heat period makes this probably one of the four most dangerous heat waves to strike southern Wisconsin in recorded history.

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

07/16/12 11:00 CST	0	Heat
07/17/12 20:00 CST	0	

Another round of excessive heat hit southern Wisconsin mid-month, with high temperatures in the mid to upper 90s and dew points in the mid to upper 60s on both July 16th and July 17th. The heat and humidity combined to produce heat index values between 100 and 110. The 110 value was recorded at Black Earth in western Dane County.

FOND DU LAC COUNTY --- FOND DU LAC [43.78, -88.45]

07/17/12 15:30 CST	5K	Thunderstorm Wind (MG 54 kt)
07/17/12 15:40 CST	0	Source: ASOS

The ASOS at Fond Du Lac County Airport recorded a wind gust of 62 mph (54 knots).

An outflow boundary from a line of strong thunderstorms that dropped south with a cold front across Southeast Wisconsin and eastern portions of South Central Wisconsin produced gusty winds that briefly pulsed up to severe levels over Fond Du Lac County during the late afternoon hours of July 17th. Law enforcement officials reported trees and power lines were downed by the gusty winds in the City of Fond Du Lac even though no thunderstorm cells actually moved over the city.

(WI-Z056) SAUK, (WI-Z062) IOWA, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK

07/18/12 13:00 CST	0	Heat
07/18/12 16:00 CST	0	

The bubble of upper-level high pressure that kept much of the middle of the U.S. in extreme heat during July of 2012, pushed back into southwest sections of Wisconsin during the afternoon of July 18th. High temperatures of 98F to 100F combined with dew point temperatures of 65F to 70F to produce maximum heat index values ranging from 100 to 104 over Sauk, Iowa, Lafayette, Green and Rock counties.

SAUK COUNTY --- LONE ROCK AIRPORT [43.21, -90.19]

07/18/12 16:41 CST	0	Thunderstorm Wind (MG 52 kt)
07/18/12 16:41 CST	0	Source: ASOS

IOWA COUNTY --- 2.0 N HIGHLAND [43.08, -90.38]

07/18/12 16:42 CST	0	Thunderstorm Wind (EG 56 kt)
07/18/12 16:42 CST	0	Source: Law Enforcement

Law enforcement officials reported a hay wagon was blown over by severe thunderstorm wind gusts estimated at 65 mph (56 knots).

ROCK COUNTY --- EVANSVILLE [42.78, -89.30]

07/18/12 16:43 CST	0	Hail (1.00 in)
07/18/12 16:43 CST	0	Source: Law Enforcement

## Storm Data and Unusual Weather Phenomena - July 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<b>ROCK COUNTY --- 2.0 N ORFORDVILLE [42.66, -89.25]</b>				
	07/18/12 16:50 CST		0	Thunderstorm Wind (EG 50 kt)
	07/18/12 16:50 CST		0	Source: Trained Spotter
A trained spotter reported many large tree branches blown down by damaging thunderstorm winds estimated to be 58 mph (50 knots).				
<b>ROCK COUNTY --- 4.0 N ORFORDVILLE [42.69, -89.25]</b>				
	07/18/12 16:50 CST		6K	Hail (2.00 in)
	07/18/12 16:50 CST		0	Source: Trained Spotter
Hail up to 2 inches in diameter damaged the roof on a farm house 4 miles north of the town of Orfordville.				
<b>SAUK COUNTY --- SAUK CITY [43.27, -89.73]</b>				
	07/18/12 16:50 CST		0	Thunderstorm Wind (EG 70 kt)
	07/18/12 17:15 CST		0	Source: Law Enforcement
Law enforcement officials reported building damage in Sauk City caused by severe thunderstorm wind gusts estimated at 80 mph (70 knots).				
<b>IOWA COUNTY --- 7.0 NNW DODGEVILLE [43.06, -90.18]</b>				
	07/18/12 16:51 CST		0	Thunderstorm Wind (EG 56 kt)
	07/18/12 16:51 CST		0	Source: Law Enforcement
Law enforcement officials reported trees and power lines blown down by severe thunderstorm wind gusts estimated at 65 mph (56 knots).				
<b>ROCK COUNTY --- 1.0 ENE ORFORDVILLE [42.64, -89.23]</b>				
	07/18/12 16:54 CST		0	Thunderstorm Wind (EG 56 kt)
	07/18/12 16:54 CST		0	Source: Trained Spotter
A trained spotter reported trees and power lines blown down by severe thunderstorm wind gusts estimated at 65 mph (56 knots).				
<b>DANE COUNTY --- 1.0 E MT HOREB [43.00, -89.71]</b>				
	07/18/12 17:35 CST		0	Thunderstorm Wind (MG 62 kt)
	07/18/12 17:35 CST		0	Source: Trained Spotter
A trained spotter measured a severe thunderstorm wind gust of 71 mph (62 knots).				
<b>GREEN COUNTY --- 3.3 SW MONROE [42.57, -89.68]</b>				
	07/18/12 18:12 CST		0	Thunderstorm Wind (MG 53 kt)
	07/18/12 18:15 CST		0	Source: Amateur Radio
A ham radio operator measured a severe thunderstorm wind gust of 61 mph (53 knots).				
<b>ROCK COUNTY --- 3.0 NW ORFORDVILLE [42.66, -89.29]</b>				
	07/18/12 18:20 CST		3K	Lightning
	07/18/12 18:20 CST		0	Source: Law Enforcement
Law enforcement officials reported a telephone pole caught fire after being struck by lightning northwest of Orfordville.				
<b>JEFFERSON COUNTY --- 5.0 SW WATERTOWN [43.15, -88.79]</b>				
	07/18/12 18:25 CST		0	Thunderstorm Wind (EG 52 kt)
	07/18/12 18:25 CST		0	Source: Trained Spotter
A trained spotter reported a severe thunderstorm wind gust estimated at 60 mph (52 knots).				
<b>RACINE COUNTY --- 7.0 NW DOWNTOWN RACINE [42.79, -87.90]</b>				
	07/18/12 19:11 CST		0	Thunderstorm Wind (EG 56 kt)
	07/18/12 19:11 CST		0	Source: Amateur Radio
A ham radio operator reported a severe thunderstorm wind gust estimated at 65 mph (56 knots).				

A frontal boundary draped across central and southern Wisconsin was the focus for the development of thunderstorms during the day on July 18th. An upper-level wave moving out of the Plains towards the western Great Lakes provided extra dynamic lift and shear to

## Storm Data and Unusual Weather Phenomena - July 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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produce severe thunderstorms with large hail up to 2 inches in diameter and damaging wind gusts up to 71 mph during the late afternoon and evening hours. There were many reports of uprooted trees and broken large tree branches and scattered reports of power outages once tree debris fell on power-lines.

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

07/23/12 13:00 CST	0	Heat
07/23/12 19:00 CST	0	

The bubble of hot air over the central U.S. again surged back across southern Wisconsin on gusty west-southwest winds of 15 to 25 mph on July 23rd. Temperatures in the 90s combined with dew points in the 60s to lower 70s to produce heat index values between 100 and 109.

**IOWA COUNTY --- 8.0 E AVOCA [43.18, -90.36]**

07/24/12 02:45 CST	0	Thunderstorm Wind (EG 56 kt)
07/24/12 02:45 CST	0	Source: Law Enforcement

Law enforcement reported trees were blown down by severe thunderstorm wind gusts estimated at 56 knots (64 mph).

**IOWA COUNTY --- MINERAL PT [42.85, -90.18]**

07/24/12 03:05 CST	10K	Thunderstorm Wind (EG 56 kt)
07/24/12 03:05 CST	0	Source: Law Enforcement

Law enforcement reported trees and power lines were blown down by severe thunderstorm wind gusts estimated at 56 knots (64 mph).

**LAFAYETTE COUNTY --- DARLINGTON [42.68, -90.12]**

07/24/12 03:05 CST	10K	Thunderstorm Wind (EG 56 kt)
07/24/12 03:05 CST	0	Source: Law Enforcement

Law enforcement reported trees and power lines were blown down by severe thunderstorm wind gusts estimated at 56 knots (64 mph).

**GREEN COUNTY --- 5.0 SW NEW GLARUS [42.77, -89.70]**

07/24/12 03:16 CST	0	Thunderstorm Wind (EG 56 kt)
07/24/12 03:16 CST	0	Source: Emergency Manager

Emergency management officials reported trees and numerous power lines were blown down throughout the county by severe thunderstorm wind gusts estimated at 56 knots (64 mph). A window at a car dealership in Monroe was blown out by the damaging winds.

**LAFAYETTE COUNTY --- GRATIOT [42.58, -90.02], SOUTH WAYNE [42.57, -89.88]**

07/24/12 03:18 CST	0	Thunderstorm Wind (EG 56 kt)
07/24/12 03:25 CST	0	Source: Law Enforcement

Law enforcement officials reported trees and power lines were blown down in a swath from Gratiot to South Wayne by severe thunderstorm wind gusts estimated at 56 knots (64 mph).

**GREEN COUNTY --- MONROE [42.60, -89.63]**

07/24/12 03:20 CST	0	Thunderstorm Wind (EG 56 kt)
07/24/12 03:20 CST	0	Source: Trained Spotter

A trained spotter reported trees and power lines were blown down by severe thunderstorm wind gusts estimated at 56 knots (64 mph). Heavy rains also caused a rain gutter to back up with water covering State Highway 69 in Monroe.

**GREEN COUNTY --- 3.0 SW MONROE [42.57, -89.67]**

07/24/12 03:42 CST	0	Thunderstorm Wind (MG 52 kt)
07/24/12 03:42 CST	0	Source: Trained Spotter

A trained spotter measured a severe thunderstorm wind gust estimated at 52 knots (60 mph).

**ROCK COUNTY --- EVANSVILLE [42.78, -89.30], ORFORDVILLE [42.63, -89.25]**

07/24/12 03:45 CST	0	Thunderstorm Wind (EG 61 kt)
07/24/12 03:55 CST	0	Source: Law Enforcement

## Storm Data and Unusual Weather Phenomena - July 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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Law enforcement officials reported trees and power lines were blown down by severe thunderstorm wind gusts estimated at 61 knots (70 mph).

**ROCK COUNTY --- BELOIT [42.52, -89.03]**

	07/24/12 04:00 CST	0		Thunderstorm Wind (EG 65 kt)
	07/24/12 04:00 CST	0		Source: Newspaper

A local newspaper reported trees and power lines were blown down all over the county by severe thunderstorm wind gusts estimated at 65 knots (75 mph). The fallen trees blocked roads in residential neighborhoods on the west side of Beloit, as well as on State Highway 213 between Luther Valley Road and Yahara Road. Homes and vehicles were damaged by storm debris. It was estimated 7,000 people were without power. A residential fire on Lincoln Avenue in Beloit was possibly started by lightning.

**WALWORTH COUNTY --- SHARON [42.50, -88.73]**

	07/24/12 04:16 CST	0		Thunderstorm Wind (EG 56 kt)
	07/24/12 04:16 CST	0		Source: Law Enforcement

Law enforcement officials reported trees were blown down by severe thunderstorm wind gusts estimated at 56 knots (65 mph).

**WALWORTH COUNTY --- 3.0 SW LAKE GENEVA [42.57, -88.47], LAKE GENEVA [42.60, -88.43]**

	07/24/12 04:23 CST	0		Thunderstorm Wind (EG 56 kt)
	07/24/12 04:30 CST	0		Source: Law Enforcement

Law enforcement officials reported scattered trees and a power pole were blown down by severe thunderstorm wind gusts estimated at 56 knots (65 mph) in a swath from 3 miles southwest of Lake Geneva to Lake Geneva.

**A strengthening low-level jet pushed over a stalled frontal boundary over southern Wisconsin with a very warm, moist and unstable air mass under very steep lapse rates provided the focus for strong to severe thunderstorms during the pre-dawn hours of July 24th. The severe thunderstorms produced a discontinuous swath of damaging wind gusts that downed trees and power lines from near Darlington in Lafayette County, eastward across Green and Rock counties to Lake Geneva in Walworth County.**

**(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA**

	07/25/12 13:00 CST	0		Heat
	07/25/12 20:00 CST	0		

Another round of dangerous heat affected southern Wisconsin on July 25th. High temperatures topped out between 98 and 101 degrees, with dew points near 70 combining with the hot temperatures to produce heat index values between 100 and 108 across all of South Central and Southeast Wisconsin. This heat wave resulted in the 6th day in 2012 with maximum temperatures reaching 100 degrees in the counties of Rock, Walworth, Jefferson, and Waukesha. Ultimately, the average temperature for the month of July 2012 of 79.4 degrees was the 2nd warmest on record (79.8 in 1901). Milwaukee's 78.6 tied for 1st place with July of 1921.

**IOWA COUNTY --- 5.0 WSW AVOCA [43.15, -90.61], AVOCA [43.18, -90.52]**

	07/25/12 22:40 CST	0		Thunderstorm Wind (EG 65 kt)
	07/25/12 22:40 CST	0		Source: Law Enforcement

Law enforcement officials reported trees and power lines blown down along a swath from 5 miles west southwest of Avoca to Avoca by damaging thunderstorm wind gusts estimated up to 65 knots (70 mph).

**LAFAYETTE COUNTY --- SHULLSBURG [42.57, -90.23]**

	07/25/12 22:51 CST	0		Thunderstorm Wind (EG 56 kt)
	07/25/12 22:51 CST	0		Source: Law Enforcement

Law enforcement officials reported trees and power lines blown down in Shullsburg by damaging thunderstorm wind gusts estimated up to 56 knots (65 mph).

**SAUK COUNTY --- LONE ROCK AIRPORT [43.21, -90.19]**

	07/25/12 22:56 CST	0		Thunderstorm Wind (MG 55 kt)
	07/25/12 22:56 CST	0		Source: ASOS

The ASOS at Lone Rock Airport measured a thunderstorm wind gust of 56 knots (55 mph).

**LAFAYETTE COUNTY --- DARLINGTON [42.68, -90.12]**

## Storm Data and Unusual Weather Phenomena - July 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
	07/25/12 23:03 CST		0	Thunderstorm Wind (EG 56 kt)
	07/25/12 23:03 CST		0	Source: Law Enforcement
Law enforcement officials reported trees and power lines blown down in Darlington by damaging thunderstorm wind gusts estimated up to 56 knots (65 mph).				
<b>DODGE COUNTY --- FOX LAKE [43.57, -88.90]</b>				
	07/25/12 23:08 CST		0	Thunderstorm Wind (EG 56 kt)
	07/25/12 23:08 CST		0	Source: Law Enforcement
Law enforcement officials reported trees and a power pole were blown down in Fox Lake by damaging thunderstorm wind gusts estimated up to 56 knots (65 mph).				
<b>LAFAYETTE COUNTY --- SOUTH WAYNE [42.57, -89.88]</b>				
	07/25/12 23:11 CST		0	Thunderstorm Wind (EG 56 kt)
	07/25/12 23:11 CST		0	Source: Law Enforcement
Law enforcement officials reported trees and power lines blown down in South Wayne by damaging thunderstorm wind gusts estimated up to 56 knots (65 mph).				
<b>LAFAYETTE COUNTY --- ARGYLE [42.70, -89.87]</b>				
	07/25/12 23:13 CST		0	Thunderstorm Wind (EG 56 kt)
	07/25/12 23:13 CST		0	Source: Law Enforcement
Law enforcement officials reported trees and a power pole were blown down in Argyle by damaging thunderstorm wind gusts estimated up to 56 knots (65 mph).				
<b>GREEN COUNTY --- MONROE AIRPORT [42.62, -89.59]</b>				
	07/25/12 23:33 CST		0	Thunderstorm Wind (MG 56 kt)
	07/25/12 23:33 CST		0	Source: AWOS
The AWOS at Monroe Airport measured a thunderstorm wind gust of 57 knots (64 mph).				
<b>FOND DU LAC COUNTY --- FOND DU LAC AIRPORT [43.77, -88.49]</b>				
	07/25/12 23:38 CST		0	Thunderstorm Wind (MG 62 kt)
	07/25/12 23:38 CST		0	Source: ASOS
The ASOS at Fond Du Lac Airport measured a thunderstorm wind gust of 62 knots (71 mph).				
<b>FOND DU LAC COUNTY --- FOND DU LAC [43.78, -88.45]</b>				
	07/26/12 00:15 CST		0	Thunderstorm Wind (EG 56 kt)
	07/26/12 00:15 CST		0	Source: Trained Spotter
A trained spotter reported trees blown down by severe thunderstorm wind gusts estimated at 65 mph (56 knots).				
<b>JEFFERSON COUNTY --- FT ATKINSON [42.93, -88.85]</b>				
	07/26/12 00:16 CST		0	Thunderstorm Wind (EG 57 kt)
	07/26/12 00:16 CST		0	Source: NWS Employee
An NWS employee reported trees, large branches and power lines blown down in Fort Atkinson by damaging thunderstorm wind gusts estimated at 57 knots (65 mph).				
<b>JEFFERSON COUNTY --- 2.0 S PALMYRA [42.85, -88.60], 2.0 N PALMYRA [42.91, -88.60]</b>				
	07/26/12 00:30 CST		0	Thunderstorm Wind (MG 55 kt)
	07/26/12 00:39 CST		0	Source: Mesonet
Numerous trees were blown down along a path from 2 miles south of Palmyra to 2 miles north of Palmyra by damaging thunderstorm wind gusts measured at a mesonet site at 55 knots (63 mph).				
<b>WAUKESHA COUNTY --- 3.5 SW OCONOMOWOC [43.08, -88.53]</b>				
	07/26/12 00:30 CST		0	Thunderstorm Wind (EG 61 kt)
	07/26/12 00:30 CST		0	Source: NWS Employee

## Storm Data and Unusual Weather Phenomena - July 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
An NWS employee reported a trampoline was blown into a house window by damaging wind gusts estimated at 70 mph (61 knots).				
<b>JEFFERSON COUNTY --- 3.0 NNE SULLIVAN [43.06, -88.56]</b>				
	07/26/12 00:40 CST		0	Thunderstorm Wind (EG 56 kt)
	07/26/12 00:40 CST		0	Source: NWS Employee
An NWS employee reported a severe thunderstorm wind gust estimated at 65 mph (56 knots).				
<b>WAUKESHA COUNTY --- DELAFIELD [43.07, -88.40], PEWAUKEE [43.08, -88.27]</b>				
	07/26/12 00:40 CST		25K	Thunderstorm Wind (EG 61 kt)
	07/26/12 00:40 CST		0	Source: Newspaper
A local newspaper reported trees and power lines were downed and a few homes damaged by severe thunderstorm wind gusts estimated at 70 mph (61 knots).				
<b>WASHINGTON COUNTY --- 1.0 N RICHFIELD [43.26, -88.20]</b>				
	07/26/12 00:53 CST		0	Thunderstorm Wind (EG 52 kt)
	07/26/12 00:53 CST		0	Source: Storm Chaser
A storm chaser reported a large road sign was blown down by severe thunderstorm wind gusts estimated at 60 mph (52 knots).				
<b>WAUKESHA COUNTY --- 3.0 NW BIG BEND [42.91, -88.24]</b>				
	07/26/12 00:53 CST		0	Thunderstorm Wind (EG 56 kt)
	07/26/12 00:53 CST		0	Source: Public
The public reported an anchored gazebo was blown over by severe thunderstorm wind gusts estimated at 65 mph (56 knots).				
<b>WAUKESHA COUNTY --- WAUKESHA CO ARPT [43.04, -88.23]</b>				
	07/26/12 00:54 CST		0	Thunderstorm Wind (MG 51 kt)
	07/26/12 00:54 CST		0	Source: AWOS
The AWOS at Waukesha County Airport (Crites Field) measured a severe thunderstorm wind gust of 59 mph (53 knots).				
<b>A line of scattered to broken supercell thunderstorms formed along a cold front that was slicing into a very warm, unstable air mass over the Upper Midwest. The combination of wind shear and CAPE provided ideal conditions for the supercells to congeal into a bowing mesoscale convective system that roared west to east across southern Wisconsin during the late evening hours of July 25th and early overnight hours of July 26th. Damaging wind gusts from the severe thunderstorm complex produced numerous reports of downed trees, power lines and some property damage to homes and businesses.</b>				
<b>FOND DU LAC COUNTY --- 2.0 SE FOND DU LAC [43.76, -88.42]</b>				
	07/30/12 21:40 CST		0	Hail (1.50 in)
	07/30/12 21:40 CST		0	Source: Emergency Manager
The Fond Du Lac Emergency Manager reported large hail, estimated to be 1.50 inches in diameter, fell 2 miles southeast of the city of Fond Du Lac.				
<b>DANE COUNTY --- SUN PRAIRIE [43.18, -89.20]</b>				
	07/30/12 22:39 CST		0	Hail (1.00 in)
	07/30/12 22:39 CST		0	Source: Law Enforcement
Law enforcement officers reported large hail, estimated to be 1 inch in diameter, fell in Sun Prairie.				
<b>DANE COUNTY --- 1.0 NW SUN PRAIRIE [43.19, -89.21]</b>				
	07/30/12 22:40 CST		0	Hail (1.00 in)
	07/30/12 22:40 CST		0	Source: Trained Spotter
A trained spotter reported large hail, measured to be 1 inch in diameter, that fell 1 mile northwest of Sun Prairie.				
<b>DANE COUNTY --- 3.0 SE MARSHALL [43.14, -89.01]</b>				
	07/30/12 23:00 CST		0	Hail (1.00 in)
	07/30/12 23:00 CST		0	Source: Public
The public reported large hail, measured to be 1 inch in diameter, that fell 3 miles southeast of Marshall.				

## Storm Data and Unusual Weather Phenomena - July 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<b>JEFFERSON COUNTY --- PALMYRA [42.88, -88.60]</b>				
	07/30/12 23:37 CST		0	Thunderstorm Wind (EG 52 kt)
	07/30/12 23:37 CST		0	Source: Trained Spotter
A trained spotter in Palmyra reported thunderstorm wind gusts estimated to be 60 mph (52 knots).				
<b>WALWORTH COUNTY --- 3.0 ENE LA GRANGE [42.82, -88.55], 5.0 ENE LA GRANGE [42.83, -88.51]</b>				
	07/30/12 23:50 CST		0	Thunderstorm Wind (EG 56 kt)
	07/30/12 23:55 CST		0	Source: 911 Call Center
The Walworth 911 Call Center received numerous reports of trees blown down by thunderstorm wind gusts estimated to be 65 mph (56 knots). A road was blocked by a fallen tree.				
<b>WAUKESHA COUNTY --- 2.0 E NORTH PRAIRIE [42.93, -88.36]</b>				
	07/30/12 23:50 CST		0	Hail (1.00 in)
	07/30/12 23:50 CST		0	Source: Trained Spotter
A trained spotter reported large hail, measured to be 1 inch in diameter, that fell 2 miles east of North Prairie.				
<b>WAUKESHA COUNTY --- 6.0 SW MUSKEGO [42.84, -88.21]</b>				
	07/30/12 23:57 CST		0	Thunderstorm Wind (EG 52 kt)
	07/30/12 23:57 CST		0	Source: Law Enforcement
Law enforcement officials reported a tree blown down by thunderstorm wind gusts estimated to be 60 mph (52 knots) near the intersection of Big Bend Road and North Lake Drive.				
<b>RACINE COUNTY --- 5.0 NNW WATERFORD [42.84, -88.26]</b>				
	07/31/12 00:05 CST		0	Thunderstorm Wind (EG 56 kt)
	07/31/12 00:10 CST		0	Source: 911 Call Center
The Racine 911 Call Center received reports of large trees blown down by thunderstorm wind gusts estimated to be 65 mph (56 knots) in the Caldwell area and in the Tichigan area west and north of Tichigan Lake. There were also reports of power lines arcing from damage due to the severe wind gusts.				
<b>RACINE COUNTY --- 2.0 N DOWNTOWN RACINE [42.75, -87.80]</b>				
	07/31/12 00:30 CST		25K	Hail (1.00 in)
	07/31/12 00:30 CST		0	Source: Trained Spotter
A trained spotter reported large hail, estimated to be 1 inch in diameter, that fell 2 miles north of Racine. The hail damaged roofs and windows to several homes.				
<p><b>The month ended with several lines of strong and severe thunderstorms crossing Southeast Wisconsin during the late evening hours of July 30th into the early morning hours of July 31st. Hail up to 1.50 inch in diameter and damaging wind gusts up to 65 mph affected Fond Du Lac County with the first line, with a second line hitting locations along and south of the Interstate 94 corridor from Dane County east to Lake Michigan. WE Energies reported 15,000 customers were without power.</b></p>				

## Storm Data and Unusual Weather Phenomena - August 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### LAKE MICHIGAN

<b>PT WASHINGTON TO NORTH PT LT WI COUNTY --- 7.6 ESE NORTH POINT LTHOUSE [43.06, -87.78], 7.5 ESE NORTH POINT LTHOUSE [43.05, -87.79]</b>				
	08/09/12 15:45 CST		0	Waterspout
	08/09/12 15:50 CST		0	Source: Trained Spotter

National Weather Service volunteer observed brief waterspout just east of Bradford Beach, located just north of downtown Milwaukee.

**Unstable conditions over Lake Michigan combined with nearby weak showers produced a water spout over Lake Michigan, visible from downtown Milwaukee. The waterspout was brief and only lasted an estimated 5 minutes.**

<b>SHEBOYGAN TO PT WASHINGTON WI COUNTY --- 1.3 E SHEBOYGAN [43.75, -87.69]</b>				
	08/10/12 11:00 CST	2	0	Marine Strong Wind (MG 36 kt)
	08/10/12 12:00 CST		0	Source: C-MAN Station

Sustained winds of 32 knots gusting to 34-36 knots caused high waves on the Sheboygan harbor break wall.

Direct Fatalities: M37IW, M21IW

**A tight pressure gradient over Lake Michigan due to strengthening low pressure moving through the Ohio Valley and central Great Lakes was responsible for gusty northeast winds and resultant high waves at Sheboygan Harbor. Wave heights reached as high as 14 feet at the southern Lake Michigan buoy. Winds gusted as high as 36 knots at the Sheboygan C-Man station in the early afternoon on August 10th. The two victims were swept into Lake Michigan by high waves crashing onto the Sheboygan harbor north break wall. The two were trying to recover fishing equipment which had fallen into the lake the day before. A third person was also washed into the lake by the high waves, but survived due to holding onto a nearby ladder. The first victim's body was located the next day, Saturday, August 11th. The second victim was found the following day, on Sunday, August 12th.**

<b>PT WASHINGTON TO NORTH PT LT WI COUNTY --- 1.0 SW PORT WASHINGTON [43.37, -87.88]</b>				
	08/19/12 15:32 CST		0	Marine Hail (0.88 in)
	08/19/12 15:32 CST		0	Source: Trained Spotter

Nickel size hail observed by trained spotter just southwest of downtown Port Washington.

<b>PT WASHINGTON TO NORTH PT LT WI COUNTY --- 2.9 E MEQUON [43.22, -87.92]</b>				
	08/19/12 16:36 CST		0	Marine Thunderstorm Wind (EG 39 kt)
	08/19/12 16:36 CST		0	Source: Trained Spotter

Trained spotter observed estimated 39 knot winds and one half inch hail at the intersection of Mequon Road and Interstate 43.

**Strong thunderstorms formed along the lake breeze and affected the coastal and near shore areas of Lake Michigan, producing gusty winds and large hail.**

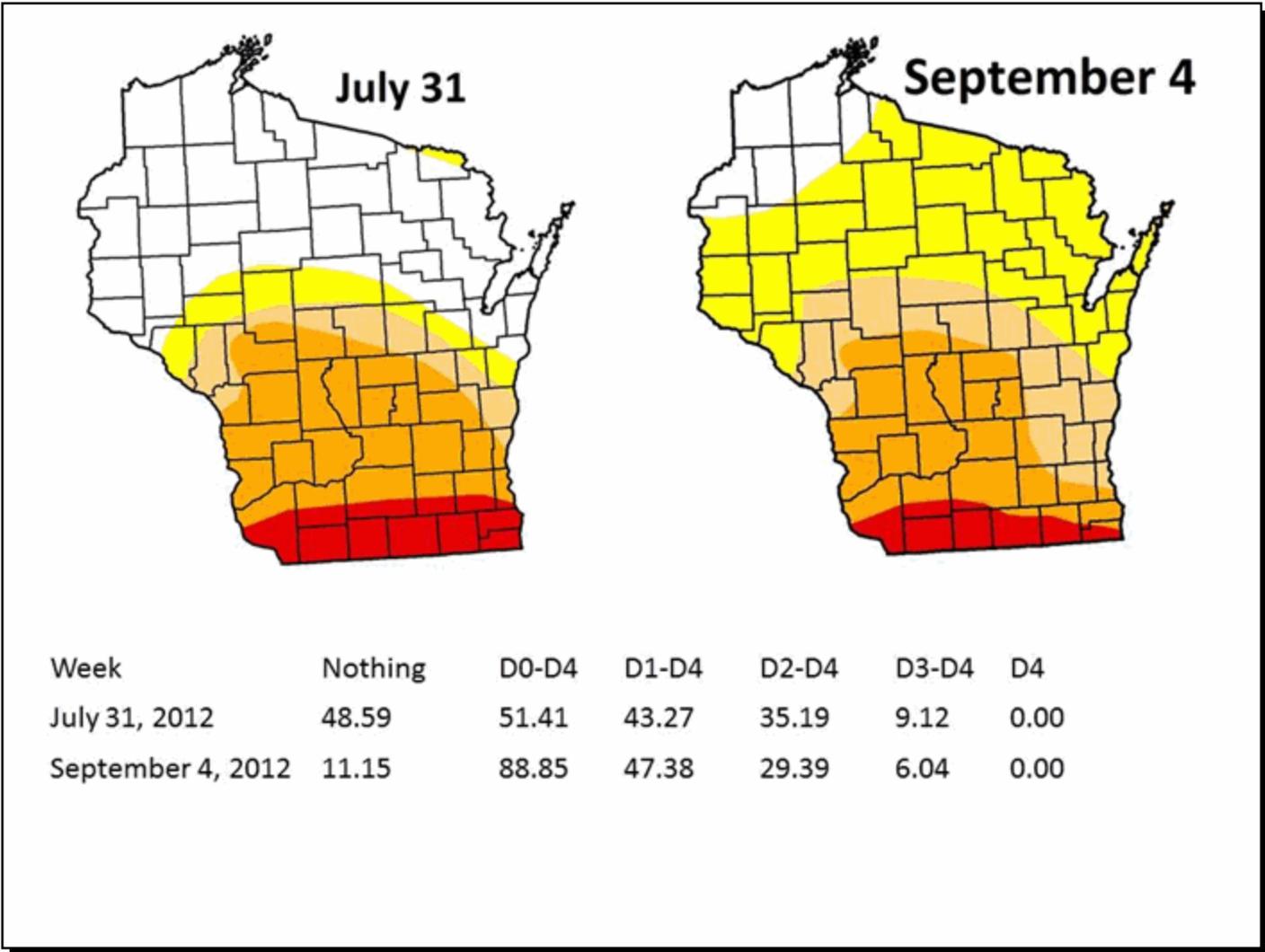
### WISCONSIN, Southeast

<b>(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA</b>				
	08/01/12 00:00 CST		0	Drought
	08/31/12 23:59 CST		0	

The extremely dry conditions continued through August across southern Wisconsin. Several widely-spaced rounds of showers and thunderstorms brought between 1.5 and 3 inches of rain to southern Wisconsin for the month, but monthly deficits ranged from 1.2 inch to 2.7 inches. This increased the yearly precipitation deficits to between 4 and 8 inches. The extreme heat of the summer of 2012 was tempered a bit mid-month, with at, or slightly below normal temperatures between the 10th and the 20th. But the month ended with above normal temperatures that included 90-degree highs for a few days, increasing the damaging effects on already stressed crops and putting additional pressure on water supplies.

## Storm Data and Unusual Weather Phenomena - August 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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*Progression of drought conditions across Wisconsin during August, 2012. Percentages of area covered by the different drought ratings are provided in the table. There was improvement over southern Wisconsin for the month, but drought conditions worsened over northern Wisconsin.*

**WASHINGTON COUNTY --- KEWASKUM [43.52, -88.22]**

08/07/12 15:00 CST	2M	Hail (1.75 in)
08/07/12 15:05 CST	0	Source: Trained Spotter

A trained spotter reported large hail, between 1 1/4 inch and 1 1/2 inch in diameter that fell in Kewaskum. The 5-8 minute hail storm was the worst to hit Kewaskum in many years. Roughly 200 vehicles suffered damage from the hail, as well as many homes, condos, apartments and outdoor equipment. Hail damage to vehicles was about \$250,000, and about \$1.75 M to buildings and equipment. This information was supplied by local auto-body shops and insurance companies and is a broad estimate.

A cold front...moving into a hot, unstable air mass over southeastern Wisconsin produced scattered strong to severe thunderstorms during the late afternoon hours of August 7th. High temperatures rose to around 90 degrees, with dew point rising to the lower to middle 60s in eastern sections due to a lake breeze bringing in moisture off Lake Michigan. The lake breeze also enhanced low level convergence, aiding the overall forcing along the front for thunderstorm development. Surface-based CAPE values were between 2,000 and 3,000 J/kg, with steep mid-level lapse rates and sufficient bulk shear to support the sustained updrafts needed to produce large hail. The thunderstorms produced large hail up to 1.50 inch in diameter that damaged trees, vehicles, homes and outdoor equipment in Kewaskum in Washington County, with reports of smaller hail between 1/4 inch and 3/4 inch in Fond Du Lac and Dodge counties.

## Storm Data and Unusual Weather Phenomena - August 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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*Pictures of large hail stones that pelted the Kewaskum, WI area on August 7, 2012. The size of the largest hail stones reached 1.25 to 1.50 inches, however the duration of the hail ranged from 5 to 8 minutes. This hail storm was easily the the worst in many decades, and resulted in about \$2 Million in property damage. As of late October, 2012, local body shops were still repairing vehicle damage.*

**MARQUETTE COUNTY --- WESTFIELD [43.88, -89.48]**

08/16/12 02:12 CST	0	Thunderstorm Wind (EG 50 kt)
08/16/12 03:15 CST	0	Source: Law Enforcement

Law enforcement officials reported a tree down across a road in Westfield Township, blown down by thunderstorm wind gusts estimated up to 50 knots (58 mph). There were other nearby reports of large broken tree branches or knocked-over trees.

**WAUKESHA COUNTY --- 3.0 SW BROOKFIELD [43.04, -88.19]**

08/16/12 05:27 CST	0	Hail (0.88 in)
08/16/12 05:27 CST	0	Source: Trained Spotter

A trained spotter reported nickel-sized hail (0.88 inch in diameter) near the intersection of Interstate 94 and Moorland Road in Brookfield.

Thunderstorms developed over western Wisconsin ahead of a cold front, with isolated thunderstorms becoming severe as they moved into South Central Wisconsin. The storms strengthened as they moved into a region of increased instability, with most-unstable CAPE up to 1000 J/kg and moderate effective shear. The severe thunderstorms produced wind gusts up to 50 knots (58 mph) that downed trees in Marquette County, with strong thunderstorms producing nickel-sized hail near Brookfield in Waukesha County during the early morning hours of August 16th.

**(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z072) KENOSHA**

08/26/12 22:00 CST	0	Dense Fog
08/27/12 05:00 CST	0	

## Storm Data and Unusual Weather Phenomena - August 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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An upper level trough of low pressure brought rain showers to southern Wisconsin during the morning and early afternoon hours of August 26th. The rain-moistened boundary layer cooled with the clearing of mid and high-level clouds associated with the upper-trough as it exited to the east of the region during the evening. Dense fog developed across southern Wisconsin during the late evening hours of August 26th, with widespread visibilities at or below 1/4 mile lingering through daybreak on August 27th.

## Storm Data and Unusual Weather Phenomena - September 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### LAKE MICHIGAN

#### WIND PT LT WI TO WINTHROP HBR IL COUNTY --- 1.2 ENE KENOSHA [42.59, -87.81]

09/04/12 21:10 CST	0	Marine Thunderstorm Wind (MG 38 kt)
09/04/12 21:20 CST	0	Source: C-MAN Station

The C-Man station at the Kenosha Harbor (KNSW3) reported 10 minutes of wind gusts to 38-39 knots as the thunderstorms moved across the shore areas.

#### PT WASHINGTON TO NORTH PT LT WI COUNTY --- 0.6 N PORT WASHINGTON [43.39, -87.87]

09/04/12 23:10 CST	0	Marine Thunderstorm Wind (MG 40 kt)
09/04/12 23:20 CST	0	Source: C-MAN Station

The C-Man station at the Port Washington harbor (PWAW3) reported 10 minutes of wind gusts of 35 to 40 knots. Sustained winds at the time were 25 to 32 knots. The main line of thunderstorms had already pushed through the area. These strong winds were caused by lingering gusty winds associated with a Wake Low event.

**A broken line of thunderstorms with a few embedded strong thunderstorms moved across the near shore waters of Lake Michigan off southeast Wisconsin. These thunderstorms caused several wind gusts exceeding 33 knots. Gusty winds lingering behind the line of the thunderstorms also caused a few high wind gusts.**

### WISCONSIN, Southeast

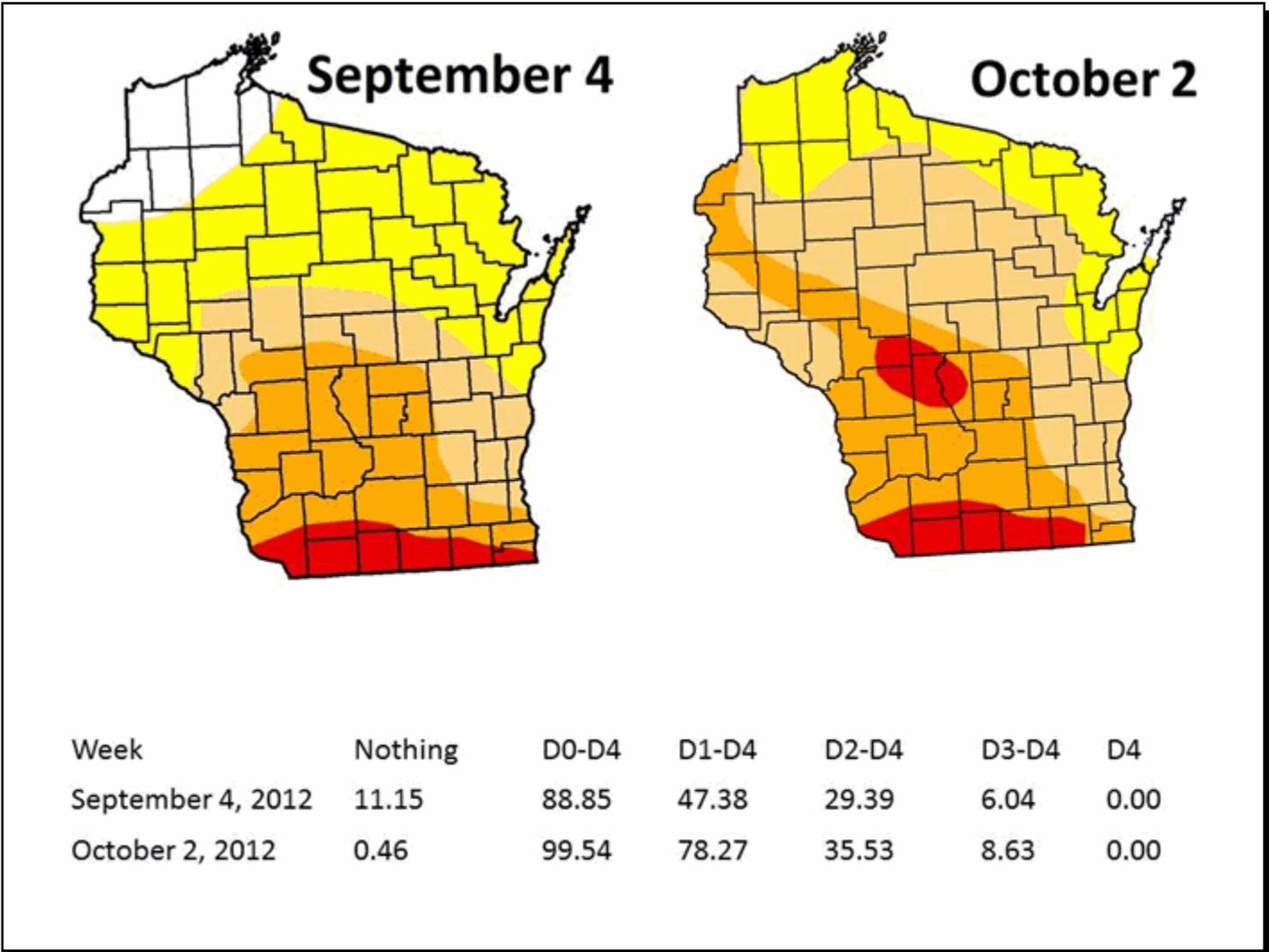
#### (WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

09/01/12 00:00 CST	0	Drought
09/30/12 23:59 CST	0	

Below normal precipitation in September helped to continue the drought across southern Wisconsin. Several rounds of showers and thunderstorms, mainly during the early part of the month, brought between 0.5 inch and 3 inches of rain to southern Wisconsin for the month, but monthly deficits ranged from around 0.5 inch to between 2 and 3 inches. This increased the yearly precipitation deficits to between 5 and 9 inches. By the end of September a slight improvement in the drought was observed over the southeastern counties which went from D2 (severe) down to D1 (moderate), or from D3 (extreme) down to D2 (severe). This trend is reflected in the attached image. The extreme heat from earlier in the summer did not continue into September, with monthly average temperatures at or a bit below normal. Agricultural experts indicated that crop yields would be reduced.

## Storm Data and Unusual Weather Phenomena - September 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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*Progression of drought conditions across Wisconsin during September, 2012. Percentages of area covered by the different drought ratings are provided in the table. There was slight improvement over southern Wisconsin for the month, but drought conditions worsened over the remainder of Wisconsin.*

**(WI-Z046) MARQUETTE, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z062) IOWA, (WI-Z063) DANE**

09/04/12 01:30 CST	0	Dense Fog
09/04/12 07:00 CST	0	

Residual moisture from rain showers the evening before, combined with cooling due to clear skies and light winds, to produce dense fog over a good portion of South Central Wisconsin during the overnight and early daylight hours of September 4th. Many locations saw visibilities reduced to 1/4 mile or less.

**SAUK COUNTY --- 3.0 S ROCK SPGS [43.44, -89.92], 5.0 SSW BARABOO [43.40, -89.77]**

09/04/12 18:40 CST	12K	Thunderstorm Wind (EG 56 kt)
09/04/12 18:45 CST	0	Source: 911 Call Center

Sauk County 911 Call Center personnel reported trees and power lines were blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) along a path from 3 miles south of Rock Springs to 5 miles south-southwest of Baraboo.

**SAUK COUNTY --- 5.0 SE BARABOO [43.42, -89.66], MERRIMAC [43.37, -89.62]**

09/04/12 18:46 CST	12K	Thunderstorm Wind (EG 56 kt)
09/04/12 18:49 CST	0	Source: 911 Call Center

Sauk County 911 Call Center personnel reported trees and power lines were blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) along a path from 5 miles southeast of Baraboo to Merrimac.

## Storm Data and Unusual Weather Phenomena - September 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<b>IOWA COUNTY --- 4.0 SSW AVOCA [43.13, -90.55]</b>				
	09/04/12 18:55 CST		4K	Thunderstorm Wind (EG 56 kt)
	09/04/12 18:55 CST		0	Source: Law Enforcement
Law enforcement officials reported trees were blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) 4 miles south-southwest of Avoca.				
<b>COLUMBIA COUNTY --- 4.1 NE OKEE [43.39, -89.52], 5.0 ESE ARLINGTON [43.30, -89.28]</b>				
	09/04/12 19:00 CST		20K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:20 CST		0	Source: Law Enforcement
Law enforcement officials reported trees and power lines were blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) in an 8-mile wide swath from Harmony Grove to 5 miles east-southeast of Arlington.				
<b>COLUMBIA COUNTY --- PORTAGE [43.55, -89.45], PARDEEVILLE [43.53, -89.28]</b>				
	09/04/12 19:05 CST		15K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:15 CST		0	Source: Law Enforcement
Law enforcement officials reported trees were blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) in a 5-mile wide swath from Portage to Pardeeville.				
<b>IOWA COUNTY --- EDMUND [42.97, -90.25], DODGEVILLE [42.97, -90.13]</b>				
	09/04/12 19:05 CST		10K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:12 CST		0	Source: Law Enforcement
Law enforcement officials reported trees and power lines were blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) along a path from Edmund to Dodgeville.				
<b>DANE COUNTY --- 2.0 W SUN PRAIRIE [43.18, -89.24]</b>				
	09/04/12 19:10 CST		5K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:10 CST		0	Source: Public
The public reported trees were blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) 2 miles west of Sun Prairie.				
<b>IOWA COUNTY --- MINERAL POINT AIRPORT [42.89, -90.23]</b>				
	09/04/12 19:11 CST		0	Thunderstorm Wind (MG 51 kt)
	09/04/12 19:11 CST		0	Source: AWOS
<b>DANE COUNTY --- 1.0 NE CAMP RANDALL STADIUM [43.08, -89.40]</b>				
	09/04/12 19:12 CST		5K	Thunderstorm Wind (EG 52 kt)
	09/04/12 19:12 CST		0	Source: Public
The public reported large tree branches were blown down by damaging thunderstorm wind gusts estimated at 50 knots (60 mph) 1 mile northeast of Camp Randall Stadium in Madison.				
<b>DANE COUNTY --- (MSN)TRUAX FLD MADIS [43.13, -89.33]</b>				
	09/04/12 19:14 CST		0	Thunderstorm Wind (MG 50 kt)
	09/04/12 19:14 CST		0	Source: ASOS
<b>GREEN COUNTY --- NEW GLARUS [42.82, -89.63], 7.0 E DAYTON [42.82, -89.36]</b>				
	09/04/12 19:20 CST		5K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:30 CST		0	Source: Law Enforcement
Law enforcement officials reported trees were blown down by damaging thunderstorm wind gusts estimated to be 56 knots (65 mph) along a path from New Glarus to 7 miles east of Dayton.				
<b>DANE COUNTY --- 2.0 SSW STOUGHTON [42.89, -89.24]</b>				
	09/04/12 19:24 CST		2K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:24 CST		0	Source: Amateur Radio
A HAM radio operator reported trees and large branches were blown down by damaging thunderstorm wind gusts estimated to be 56 knots (65 mph) 2 miles south-southwest of Stoughton.				

## Storm Data and Unusual Weather Phenomena - September 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<b>JEFFERSON COUNTY --- LAKE MILLS [43.08, -88.90]</b>				
	09/04/12 19:31 CST		8K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:31 CST		0	Source: 911 Call Center
The Jefferson County 911 Call Center reported trees and power lines were blown down by damaging thunderstorm wind gusts estimated to be 56 knots (64 mph) in Lake Mills.				
<b>DODGE COUNTY --- LOWELL [43.33, -88.80]</b>				
	09/04/12 19:35 CST		10K	Thunderstorm Wind (EG 52 kt)
	09/04/12 19:35 CST		0	Source: Trained Spotter
A trained spotter reported trees and power lines blown down by damaging thunderstorm wind gusts estimated at 52 knots (60 mph) in Lowell.				
<b>ROCK COUNTY --- EVANSVILLE [42.78, -89.30], 5.0 ENE MILTON [42.80, -88.86]</b>				
	09/04/12 19:35 CST		4K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:35 CST		0	Source: Trained Spotter
A trained spotter reported trees were blown down by damaging thunderstorm wind gusts estimated to be 56 knots (64 mph) along a path from Evansville to 5 miles east-northeast of Milton.				
<b>DANE COUNTY --- 1.0 NE STOUGHTON [42.93, -89.21]</b>				
	09/04/12 19:39 CST		2K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:39 CST		0	Source: Trained Spotter
A trained spotter reported trees were blown down by damaging thunderstorm wind gusts estimated to be 56 knots (65 mph) 1 mile northeast of Stoughton.				
<b>LAFAYETTE COUNTY --- 7.0 NE DARLINGTON [42.75, -90.02]</b>				
	09/04/12 19:50 CST		2K	Thunderstorm Wind (EG 56 kt)
	09/04/12 19:50 CST		0	Source: Law Enforcement
Law enforcement officials reported trees were blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) 7 miles northeast of Darlington.				
<b>JEFFERSON COUNTY --- 1.0 E FT ATKINSON [42.93, -88.83]</b>				
	09/04/12 19:53 CST		2K	Thunderstorm Wind (EG 52 kt)
	09/04/12 19:53 CST		0	Source: Trained Spotter
A trained spotter reported trees were blown down by damaging thunderstorm wind gusts estimated to be 52 knots (60 mph) 1 mile east of Fort Atkinson.				
<b>WAUKESHA COUNTY --- 5.0 NW EAGLE [42.93, -88.54], EAGLE [42.88, -88.47]</b>				
	09/04/12 20:05 CST		3K	Thunderstorm Wind (EG 56 kt)
	09/04/12 20:10 CST		0	Source: 911 Call Center
The Waukesha County 911 Center received reports of trees blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) from 5 miles northwest of Eagle to Eagle.				
<b>LAFAYETTE COUNTY --- NEW DIGGING [42.53, -90.33]</b>				
	09/04/12 20:10 CST		2K	Thunderstorm Wind (EG 56 kt)
	09/04/12 20:10 CST		0	Source: Law Enforcement
Law enforcement officials reported trees were blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) in New Digging.				
<b>WALWORTH COUNTY --- LA GRANGE [42.80, -88.60], DELAVAN [42.63, -88.63]</b>				
	09/04/12 20:10 CST		4K	Thunderstorm Wind (EG 56 kt)
	09/04/12 20:25 CST		0	Source: 911 Call Center
The Walworth County 911 Center received reports of trees blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) from La Grange to Delavan.				
<b>RACINE COUNTY --- TICHIGAN [42.83, -88.22], BURLINGTON [42.67, -88.27]</b>				
	09/04/12 20:29 CST		10K	Thunderstorm Wind (EG 56 kt)
	09/04/12 20:40 CST		0	Source: 911 Call Center

## Storm Data and Unusual Weather Phenomena - September 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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The Racine County 911 Call Center reported trees and power lines blown down by damaging thunderstorm wind gusts estimated at 56 knots (65 mph) from Tichigan to Burlington.

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**RACINE COUNTY --- 3.0 SE WIND LAKE [42.80, -88.11]**

	09/04/12 20:35 CST		5K	Thunderstorm Wind (EG 52 kt)
	09/04/12 20:35 CST		0	Source: Trained Spotter

A trained spotter reported trees and power lines blown down by damaging thunderstorm wind gusts estimated at 52 knots (60 mph) in Wind Lake.

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**KENOSHA COUNTY --- WHEATLAND [42.60, -88.20], PARIS [42.63, -88.05]**

	09/04/12 20:40 CST		5K	Thunderstorm Wind (EG 52 kt)
	09/04/12 20:50 CST		0	Source: Law Enforcement

Law enforcement officials reported trees were blown down by damaging thunderstorm wind gusts estimated at 52 knots (60 mph) along a Wheatland to Paris line.

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**OZAUKEE COUNTY --- FREDONIA [43.47, -87.95]**

	09/04/12 20:42 CST		3K	Thunderstorm Wind (EG 50 kt)
	09/04/12 20:42 CST		0	Source: Law Enforcement

Law enforcement officials reported trees were blown down by damaging thunderstorm wind gusts estimated at 50 knots (58 mph) in Fredonia.

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**KENOSHA COUNTY --- 1.5 NE BENET LAKE [42.52, -88.01]**

	09/04/12 20:52 CST		5K	Thunderstorm Wind (EG 52 kt)
	09/04/12 20:52 CST		0	Source: Law Enforcement

Law enforcement officials reported were trees blown down by damaging thunderstorm wind gusts estimated at 60 mph (52 knots) 1.5 miles northeast of Benet Lake.

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**LAFAYETTE COUNTY --- BELMONT [42.73, -90.33]**

	09/05/12 01:55 CST		0	Hail (0.75 in)
	09/05/12 01:55 CST		0	Source: Trained Spotter

Thunderstorms developed in the early evening of September 4th in an unstable air mass over the region with lift from an upper-level disturbance that moved across the western Great Lakes region ahead of a stronger wave in the Northern Plains. CAPE values of 2000 J/kg to 2500 J/kg and 0-6 km bulk shear around 30 knots was sufficient to produce favorable conditions for sustained updrafts. These factors produced clusters of severe thunderstorms that developed along a weak convergent boundary that extended from northeast Minnesota through western Wisconsin. The clusters of supercell thunderstorms produced damaging wind gusts over a good portion of South-Central and Southeast Wisconsin.

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**ROCK COUNTY --- 1.5 W BELOIT [42.52, -89.06], 1.0 E BELOIT [42.52, -89.01]**

	09/17/12 14:10 CST		0	Thunderstorm Wind (EG 55 kt)
	09/17/12 14:20 CST		0	Source: Newspaper

Scattered trees and large branches were reported to have been blown down along a path from 1 mile west of Beloit to 1 mile east of Beloit.

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**MILWAUKEE COUNTY --- HALES CORNERS [42.93, -88.05]**

	09/17/12 14:32 CST		0	Hail (0.75 in)
	09/17/12 14:32 CST		0	Source: Amateur Radio

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**MILWAUKEE COUNTY --- 3.0 NNW (MKE)MITCHELL APT MI [42.99, -87.92]**

	09/17/12 14:40 CST		0	Hail (1.25 in)
	09/17/12 14:40 CST		0	Source: Public

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**MILWAUKEE COUNTY --- 0.5 N GREENFIELD [42.96, -88.00]**

	09/17/12 14:42 CST		0	Hail (0.75 in)
	09/17/12 14:42 CST		0	Source: Amateur Radio

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**MILWAUKEE COUNTY --- 0.5 N GREENFIELD [42.96, -88.00]**

	09/17/12 14:42 CST		2K	Thunderstorm Wind (EG 52 kt)
	09/17/12 14:42 CST		0	Source: Amateur Radio

## Storm Data and Unusual Weather Phenomena - September 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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An amateur radio operator reported small trees blown down by thunderstorm wind gusts estimated at 60 mph (52 knots).

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**WALWORTH COUNTY --- 1.0 N COMO [42.61, -88.50]**

	09/17/12 15:00 CST		0	Hail (0.88 in)
	09/17/12 15:00 CST		0	Source: Amateur Radio

Forcing for ascent associated with a short-wave trough crossing southern Wisconsin during the afternoon of September 17th enhanced lift along a surface cold front passing through the region. Upper-level divergence associated with the right entrance region of an upper-level jet coincided with the passage of the cold front over Southeast Wisconsin...enhancing thunderstorms that had developed along the front. A few of the storms became severe, producing damaging winds and large hail.

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**(WI-Z068) GREEN, (WI-Z069) ROCK**

	09/19/12 15:00 CST		4K	Strong Wind (MAX 39 kt)
	09/19/12 17:00 CST		0	

A strong surface pressure-gradient developed between high pressure over the Ohio River Valley and low pressure crossing southern Ontario. This resulted in strong gradient winds from the southwest of 25 to 30 mph (22 to 26 knots)....with gusts estimated up to 45 mph (39 knots) in far southern portions of South-Central Wisconsin during the afternoon of September 19th. Wind gusts between 35 and 40 mph (30 to 35 knots) were reported at many locations across southern Wisconsin. Scattered power outages were reported due to broken tree branches impacting power-lines.

## Storm Data and Unusual Weather Phenomena - October 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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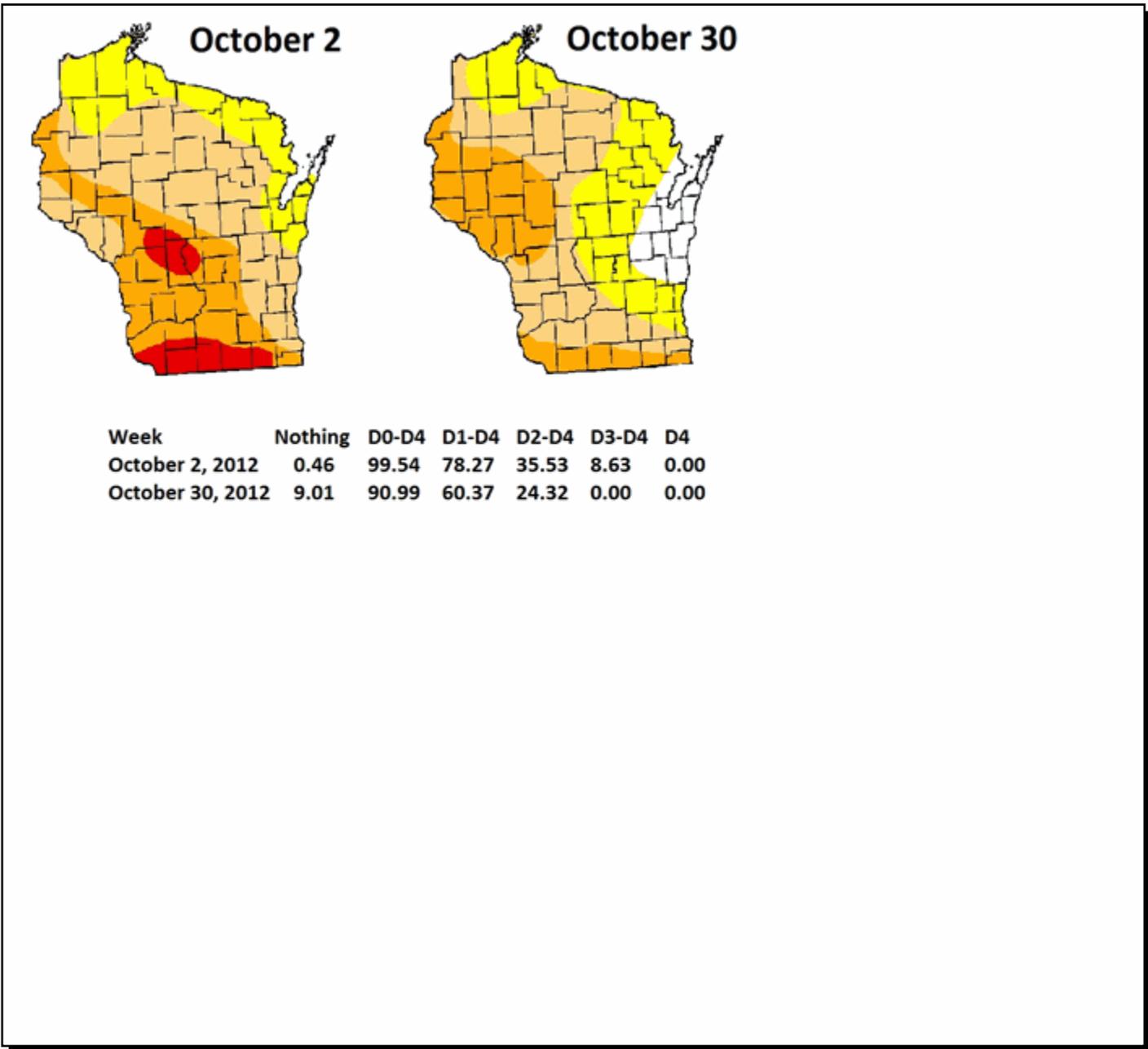
**WISCONSIN, Southeast**

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA	10/01/12 00:00 CST	0	0	Drought
	10/31/12 23:59 CST		0	

Above normal precipitation at many locations in October helped to ease the drought across southern Wisconsin. Several rounds of steady rain, as well as showers and a few thunderstorms, brought between 2.3 inches and 5.5 inches of rain to southern Wisconsin for the month. Monthly surpluses ranged from around 0.25 inch to nearly 2.5 inches above normal, though locations in far southern Wisconsin still saw deficits between 0.02 of an inch and 0.43 of an inch. The yearly precipitation deficits were still running between 4 and 8 inches below normal. By the end of October improvement in the drought was observed over all of southern Wisconsin. The far southern counties went from D3 (Extreme) down to D2 (Severe), with much of the South-central Wisconsin going from D2 (Severe) down to D1 (Moderate). Much of Southeast Wisconsin, which generally saw the highest amounts of precipitation for the month, went from D1 (Moderate) to either D0 (Abnormally Dry) or out of a drought category all together. This trend is reflected in the attached image which addresses all of Wisconsin. Monthly average temperatures for October were 1 to 2 degrees below normal. Agricultural experts indicated that crop yields would be reduced.

## Storm Data and Unusual Weather Phenomena - October 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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*Maps showing the change of drought conditions across Wisconsin during October, 2012. Percentages of area covered by the different drought ratings are provided in the table. There was some improvement over most of Wisconsin for the month, but drought conditions worsened over portions of West Central and far North Central Wisconsin.*

(WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z065) WAUKESHA, (WI-Z069) ROCK

10/02/12 22:00 CST	0	Dense Fog
10/03/12 08:00 CST	0	

Light winds and abundant low-level moisture resulted in areas of dense fog developing over over portions of Southeast Wisconsin, and extreme southeast South Central Wisconsin, during the early morning hours of October 3rd. Visibilities fell to 1/4 mile or less in the dense fog.

(WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

## Storm Data and Unusual Weather Phenomena - October 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
	10/22/12 18:00 CST		0	Dense Fog
	10/23/12 08:00 CST		0	

Abundant low-level moisture converging along a stalled frontal boundary, in combination with light winds, led to the development of dense fog over all but the northern-most counties of South Central and Southeast Wisconsin during the evening hours of October 22nd. The dense fog continued into the morning hours of October 23rd. Visibilities fell to between 1/8 and 1/4 mile in the dense fog, creating difficult driving conditions.

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z071) RACINE, (WI-Z072) KENOSHA

10/23/12 17:00 CST	0	Dense Fog
10/24/12 09:00 CST	0	

Warm, moist air pooling along the stationary boundary that was the focus for dense fog the night before, spread northward behind the boundary as it slowly lifted north as a warm front. Visibilities fell to 1/4 mile or less with the dense fog as it developed over northeast sections of southern Wisconsin, roughly along and northeast of a Wisconsin Dells, Lake Mills to Twin Lakes line.

(WI-Z052) SHEBOYGAN, (WI-Z072) KENOSHA

10/30/12 05:00 CST	8K	Strong Wind (MAX 41 kt)
10/30/12 18:00 CST	0	

Deep surface low pressure associated with the remains of Hurricane Sandy, and Canadian high pressure building into the Northern Plains, created a tight surface pressure gradient over southern Wisconsin. With the resulting north winds accelerating over the waters of Lake Michigan, shoreline locations from Sheboygan to Kenosha experienced sustained winds of 25 to 30 mph, with gusts of 40 to 45 mph. Some minor beach erosion was reported in Kenosha County due to the high waves that were the result of the strong winds. Estimated waves heights along the Kenosha County shoreline ranged up to 8 to 10 feet. Wave heights diminished to 4 to 7 feet as one went north.

## Storm Data and Unusual Weather Phenomena - November 2012

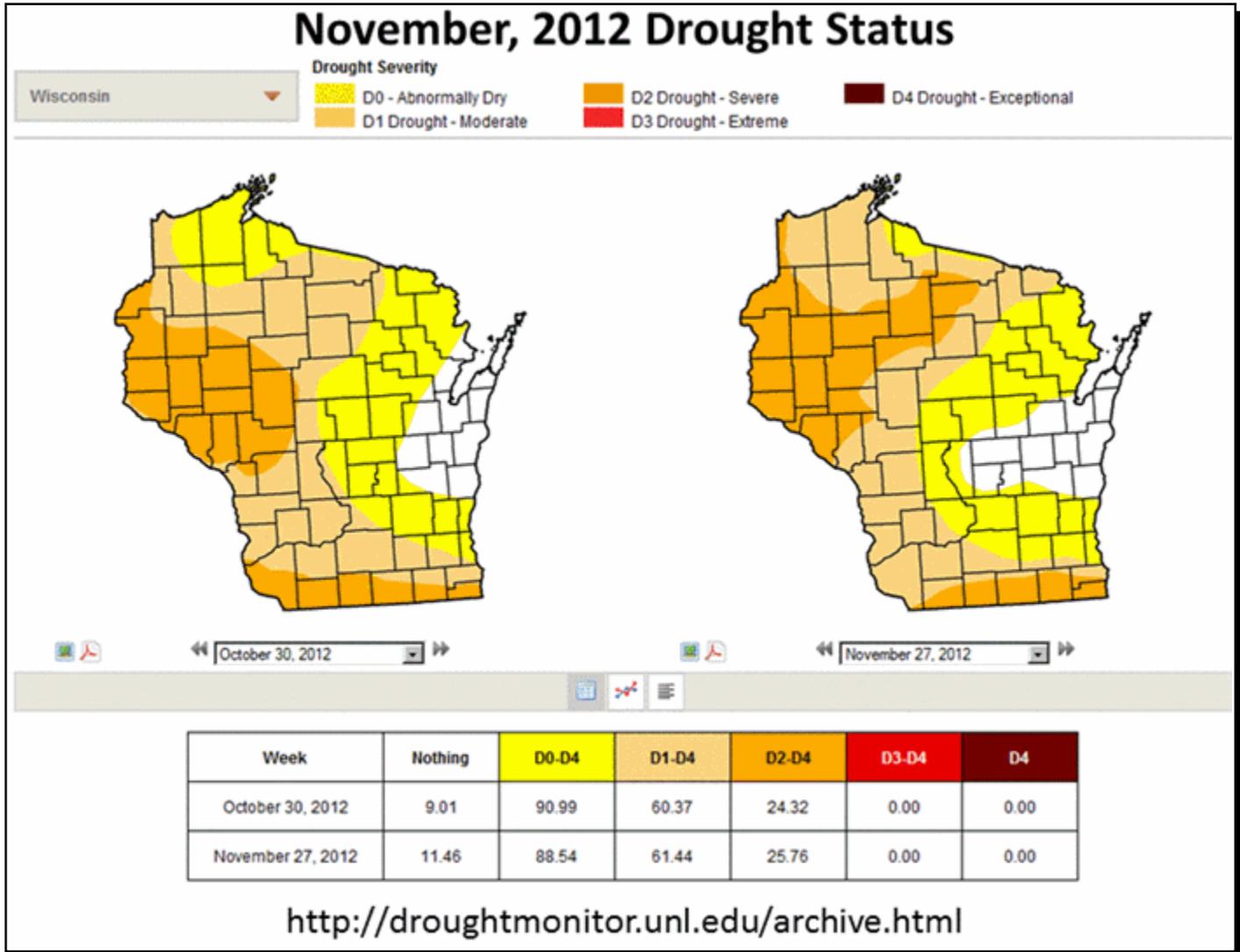
Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### WISCONSIN, Southeast

(WI-Z056) SAUK, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

11/01/12 00:00 CST	0	Drought
11/30/12 23:59 CST	0	

Moderate (D1) to severe (D2) drought conditions persisted through all of November across the southern two tiers of Wisconsin's counties. The areal extent of D2 conditions showed remained nearly steady while the D1 area decreased slightly.



*U.S. Drought Monitor images showing trend near the start and end of November, 2012.*

(WI-Z052) SHEBOYGAN, (WI-Z066) MILWAUKEE, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

11/11/12 15:00 CST	17K	Strong Wind (MAX 43 kt)
11/11/12 18:00 CST	0	

Strong low-level winds gusting to 46 to 49 mph (40 to 43 knots) affected south-central and southeast Wisconsin on November 11th. Widely scattered power outages were reported due to wind-broken tree limbs impacting power-lines. These winds were associated with a deep mid-upper level trough, with 850 mb winds of 60 to 80 knots. Some of this high-momentum wind mixed down to the surface ahead of a strong cold front during the mid-morning to early evening hours.

## Storm Data and Unusual Weather Phenomena - November 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<hr/>				
(WI-Z052) SHEBOYGAN, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA	11/16/12 23:00 CST		0	Dense Fog
	11/17/12 08:00 CST		0	

A large ridge of high pressure over the region brought clear skies and light winds, that when combined with abundant low-level moisture, produced dense fog over most of Southeast Wisconsin and far southern sections of South-Central Wisconsin. Visibilities were reduced to 1/4 mile or less roughly along and southeast of a Monroe, Madison, to Elkhart Lake line from late in the evening of November 16th into the early morning hours of November 17th. Several airplane flight departures and arrivals were delayed. Locations to the northwest saw drier air work in overnight that prevented the development of dense fog.

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(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA	11/20/12 17:00 CST		0	Dense Fog
	11/21/12 10:00 CST		0	

The axis of a ridge of high pressure crossed southern Wisconsin during the evening of November 20th and the early morning hours of November 21st. Clearing skies and abundant low-level moisture combined to produce widespread dense fog. The moist conditions had kept fog over southwest sections of South Central Wisconsin through most of the day, as well as over Sheboygan County. Visibilities at these locations went back down to 1/4 mile or less shortly after sunset on the 20th. The remainder of southern Wisconsin saw dense fog develop by mid-evening, with the fog lasting well into the daylight hours of November 21st. Several airplane flight departures and arrivals were delayed.

## Storm Data and Unusual Weather Phenomena - December 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### WISCONSIN, Southeast

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(WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z072) KENOSHA

12/01/12 00:00 CST	0	Dense Fog
12/01/12 09:00 CST	0	

Dense fog developed late in the overnight and last into the early morning hours of December 1st, reducing visibilities to 1/4 mile or less over parts of extreme southern Wisconsin. A stationary front over northern Illinois allowed boundary layer moisture to pool along and just north of the boundary, extending into far southern Wisconsin. The moisture was enhanced by an easterly flow off of Lake Michigan that spread west. Cooling overnight temperatures saturated the low layers, allowing for the dense fog formation.

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(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK, (WI-Z070) WALWORTH, (WI-Z071) RACINE, (WI-Z072) KENOSHA

12/02/12 21:00 CST	0	Dense Fog
12/03/12 10:00 CST	0	

An increasingly moist southeast flow into southern Wisconsin saturated the near-surface layer, which combined with cooling temperatures, brought dense fog to most of South Central Wisconsin during the late evening of December 2nd. The dense fog expanded to cover the remainder of southern Wisconsin during the overnight hours, with the low visibilities lasting until around 12 noon on December 3rd. Visibilities were reduced to 1/4 mile or less and some airplane flights were delayed at some airports.

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(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z052) SHEBOYGAN, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z059) WASHINGTON, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z064) JEFFERSON, (WI-Z068) GREEN

12/09/12 06:00 CST	0	Winter Weather
12/09/12 17:00 CST	0	

A complex low pressure system brought the first significant snow of the 2012/2013 winter season to much of southern Wisconsin. A surface trough axis between two low pressure centers pivoted over southern Wisconsin...with the one low center to the west passing through southern Wisconsin along this trough and combining with the other low center east of the state. This pivoting trough axis became the focus of low level convergence beneath deeper vertical motions due to strong warm air advection and isentropic upglide. Locations along and northwest of a Sheboygan...West Bend...Fort Atkinson to Monroe line saw 3 to 4 inches of snow beginning early in the morning of December 9th and ending in the late afternoon.

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(WI-Z046) MARQUETTE, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE

12/16/12 05:00 CST	0	Dense Fog
12/16/12 10:00 CST	0	

Light winds and abundant low level moisture led to the development of dense fog over northern sections of South Central Wisconsin and a small portion of Southeast Wisconsin during the overnight hours of December 16th. Increasing winds and drier air moving in with a cold front dissipated the fog before sunrise.

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(WI-Z052) SHEBOYGAN, (WI-Z059) WASHINGTON, (WI-Z060) OZAUKEE, (WI-Z064) JEFFERSON, (WI-Z065) WAUKESHA, (WI-Z066) MILWAUKEE, (WI-Z070) WALWORTH

12/20/12 02:00 CST	0	Winter Storm
12/21/12 00:39 CST	0	

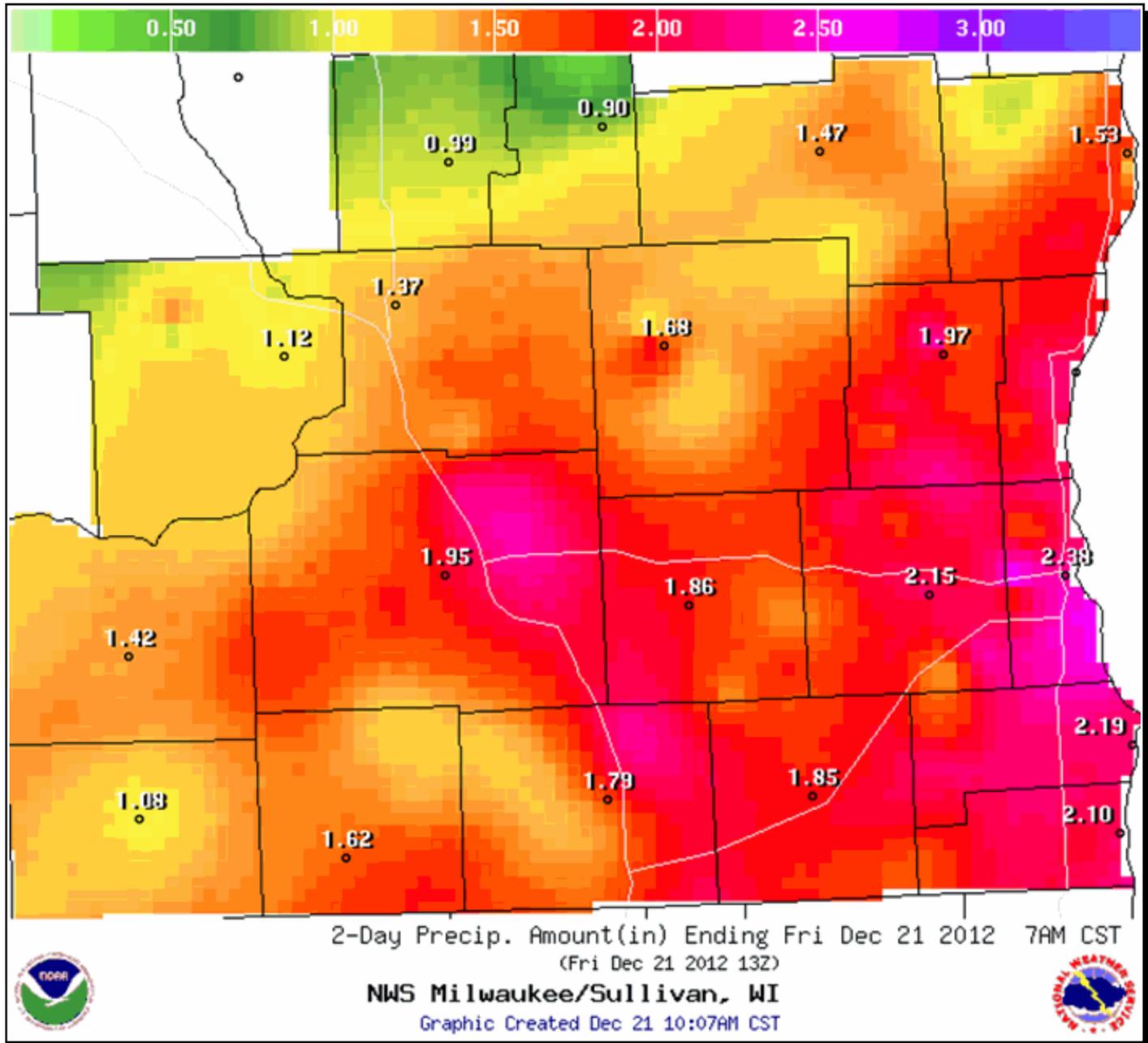
A major winter storm brought impressive double-digit snowfall amounts to parts of Southeast Wisconsin. Winds gusted to between 40 and 45 mph during the peak of the storm, reducing visibilities to 1/4 mile on occasions...even in those areas that picked up only 2 to 4 inches of snow. Moderate drifting was reported with drifts of 2 to 4 feet in height. A number of side roads had difficult travel conditions as snow plows struggled with the drifting. A number of power-outages were reported due to the heavy wet snow and winds bringing down branches onto power lines. Maximum 2-Day snow totals in each county include 17" in Lake Mills (Jefferson Co.), 15" in Wayne (Washington Co.), an estimated 13" in extreme northwest Rock County, an estimated 12" in extreme southwest Sheboygan County, an estimated 10" in extreme northwest corners of both Ozaukee and Waukesha Counties, an estimated 8 inches in extreme north-central Walworth County, and an estimated 4 inches in extreme northwest Milwaukee County. This winter storm was triggered by a strong low pressure which tracked from southeast Kansas to near Chicago the evening of December 20th...reaching the southern tip of Lake Huron by the morning of December 21st. Warm air wrapping into the system initially brought rain into Southeast Wisconsin before changing over to all snow.

A new daily rainfall record was set at Milwaukee ahead of the change-over to snow. Milwaukee recorded 2.16 inches of rain and liquid equivalent precipitation on Thursday, December 20th, which broke the previous record of 1.48 inches, set in 1977. In general, rain amounts of 1.50 to over 2.00 inches were reported southeast of a line from Ozaukee County to Walworth County, caused water levels in

## Storm Data and Unusual Weather Phenomena - December 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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most rivers and streams to rise to near bank-full or bank-full. However, flood stages were not reached, due to the snow and colder temperatures halting runoff.



*2-Day precipitation totals across South-central and Southeast Wisconsin.*

(WI-Z046) MARQUETTE, (WI-Z047) GREEN LAKE, (WI-Z051) FOND DU LAC, (WI-Z056) SAUK, (WI-Z057) COLUMBIA, (WI-Z058) DODGE, (WI-Z062) IOWA, (WI-Z063) DANE, (WI-Z067) LAFAYETTE, (WI-Z068) GREEN, (WI-Z069) ROCK		
	12/20/12 10:00 CST	0      Blizzard
	12/21/12 00:39 CST	0

A blizzard brought record double-digit snowfall to much of South-Central and a portion of Southeast Wisconsin. Winds gusted to between 40 and 48 mph during the peak of the storm...bringing near-zero visibilities and severe drifting across the region. Major highways as well as a majority of side roads became nearly impassible as plowing operations were greatly limited, or completely suspended as plows became stuck in the heavy, wet, drifting snow. Area airports suspended all flight operations. A maximum wind gust of 48 mph (42 knots) was measured at the Monroe Airport in Green County. A new daily snowfall record was set at Madison Truax Field with 13.3" on calendar day December 20th (old record was 4.6" in 2000). This is the 2nd highest total for any single calendar day.

## Storm Data and Unusual Weather Phenomena - December 2012

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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The greatest calendar day snowfall in Madison was 17.3 inches on December 3, 1990. The UW-Arlington Experimental Farm in Columbia County measured 14.0 inches for the 24-hour period ending 700 AM CST December 21st, which tied the 1-Day snowfall record for that county. The 2-day (19") and 3-Day (21") at this location were new records. The 2-day (21.5") and 3-Day (21.8") snowfall totals in Mt. Horeb established new records for Dane County. The 2-day (20.5") and 3-Day (21.2") snowfall totals in Dodgeville established new records for Iowa County. The 2-day (20.1") and 3-Day (24.1") snowfall totals in the Town of Westford established new records for Dodge County. The 2-day (16.6") and 3-Day (18.2") snowfall totals in New Glarus established new records for Green County. Elsewhere in south-central and parts of Southeast Wisconsin several other sites were within 10% of their county's 1-Day, 2-Day and 3-day records. In addition to the heavy snow and near-zero visibilities, the strong gusty winds downed tree limbs and power lines, with utility companies reporting 34,500 customers without power at the height of the storm. This blizzard was triggered by a strong low pressure which tracked from southeast Kansas to near Chicago the evening of December 20th...reaching the southern tip of Lake Huron by the morning of December 21st. Warm air wrapping into the system initially brought rain into parts of south-central and southeast Wisconsin before changing over to all snow. A new daily precipitation record was set in Madison...1.16 inches of liquid equivalent precipitation on Thursday, December 20th, which broke the previous record of 0.80 inches, set in 1882.

Storm Data and Unusual Weather Phenomena - December 2012

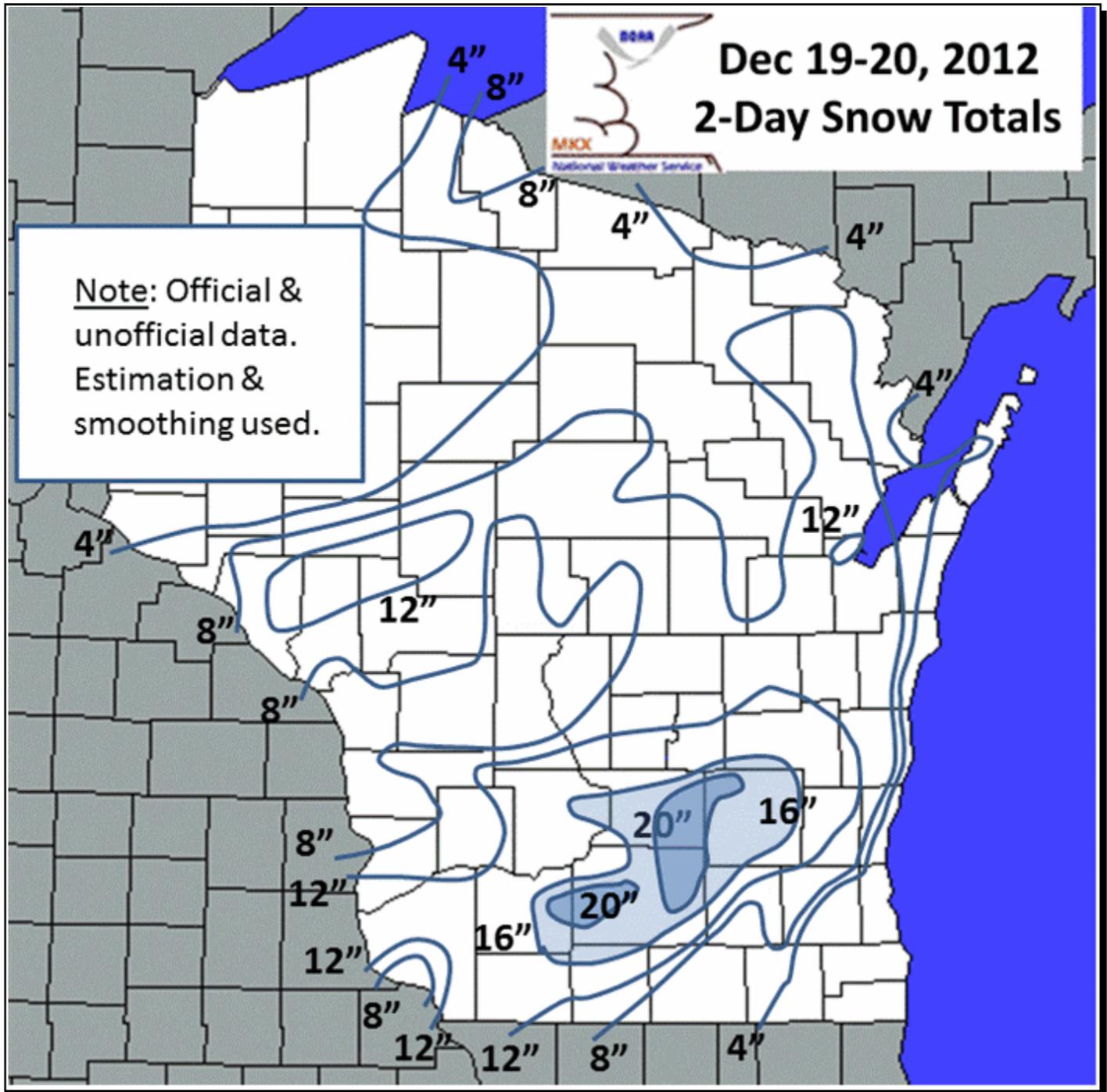
Location

Date/Time

Deaths &  
Injuries

Property &  
Crop Dmg

Event Type and Details



2-Day snowfall totals for December 19-20, 2012.