National Weather Service Quad Cities IA/IL

Weather Home Companion

Volume 7 Issue 1

Spring/Summer 2010

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Weather Home Companion is a semiannual publication of the National Weather Service office in the Quad Cities.

If you have an idea for an article or a question you would like to see answered, please write to us.

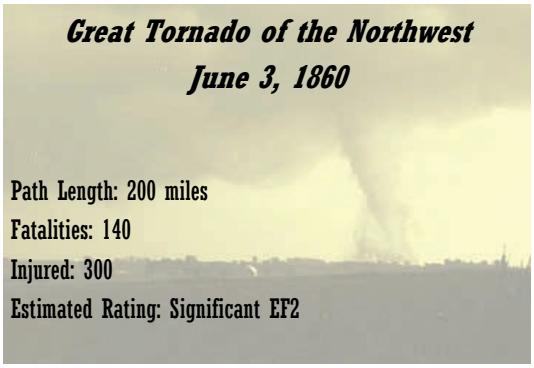
Contact information can be found on page 10.

150th Anniversary of the Camanche Tornado

David Sheets
Chris Legro

By many accounts, June 3, 1860 began as a particularly sultry day in eastern Iowa and northern Illinois. The oppressive heat and humidity set the stage for severe thunderstorms and tornadoes that ripped across the countryside that afternoon. By day's end, tornadoes devastated or destroyed numerous towns in Iowa and Illinois, claimed around 140 lives, and left 300 or more residents injured in the storm's path.

The storms began in the afternoon in Fort Dodge and Webster City in central Iowa, where large hail broke out windows. Damage continued as storms progressed southeast through Hardin, Marshall, Tama, Benton, and Linn Counties. In Cedar Rapids, tornadoes were said to have passed to the north and south of the city. Tornadoes continued east-southeast through Jones, Cedar and Clinton Counties, where the storms evolved into a single, destructive tornado 3 miles southwest of DeWitt.



Camanche Iowa, was particularly hard hit with 25 fatalities as the tornado devastated the town. The tornadoes took 20 lives in nearby farms across Clinton County, and 23 were killed in a passing raft on the nearby Mississippi River.

After crossing the river, the tornado ripped through Albany Illinois, then continued east, devastating farms, and communities including Morrison, Como,

(Continued on page 2)

The Winter of 2009-10 in Review

John Haase

The winter of 2009-10 can best be described as having normal to above normal snowfall along with below normal temperatures. The winter was not as active as the past 4 seasons, with only 15 events, compared to the 2008-09 season which had 21 events. A moderate to strong El Niño phase of the ENSO (El Niño Southern Oscillation) was in place, which would usually bring mild and dry weather to the region. However, the Arctic Oscillation became strongly negative for several weeks, which allowed arctic air to plunge into the Midwest, resulting in below normal temperatures. The following is a list of the more significant events that impacted the region.

December 8-9, 2009

A very intense storm system tracked from the Oklahoma Panhandle, through western Illinois, to Lake Huron. This storm had the lowest barometric pressure (975 millibars or 28.79 inches) in the Midwest

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150th Anniversary of the Camanche Tornado

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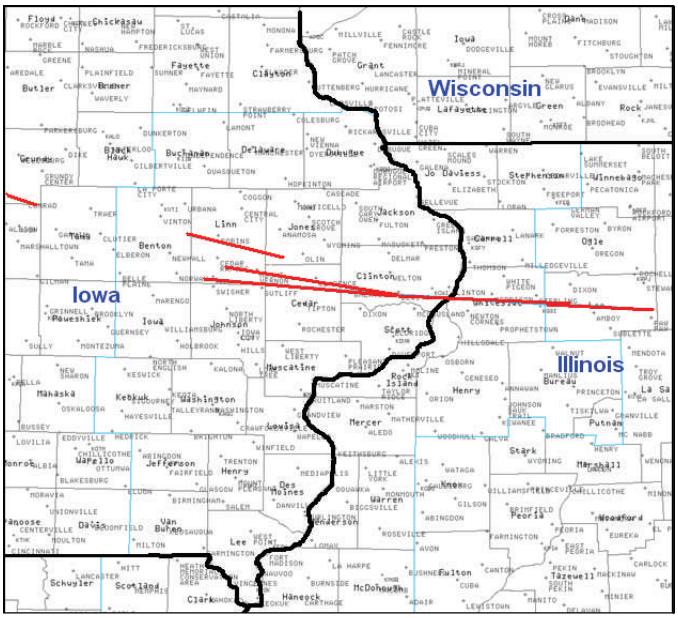
Great Tornado of the Northwest, June 3, 1860

Compete story available on the web:

www.crh.noaa.gov/dvn/?n=camanchetornado

Amboy and Shabbona, in Whiteside and Lee Counties. Additional thunderstorms with tornadoes were also reported that day further east from Elgin through Glencoe, in northern Chicago.

This tornado outbreak, one of the country's worst, has become known as the "Great Tornado of the Northwest". A more complete account, entitled "The Great Tornado of the Northwest, June 3, 1860", written by National Weather Service Quad Cities Meteorologist Chris Legro, can be found on our website at www.crh.noaa.gov/dvn/?n=camanchetornado. It may also be found by going to our homepage, clicking on "past events" in the left margin, then "June 3, 1860 Camanche, IA", under "Thunderstorms and Tornadoes".



Approximate tracks of the tornadoes of June 3, 1860 in eastern Iowa and Northern Illinois.

The Winter of 2009-10 in Review

(continued from page 1)

...The winter was not as active as the past 4 seasons, with only 15 events, compared to the 2008-09 season which had 21 events...

since the November 10, 1998 storm that also moved through the upper Midwest.

This powerful winter storm produced very heavy snowfall, blizzard conditions, and bitterly cold temperatures. Snow amounts of at least 10 to 15 inches were common north of a line from Fairfield, Iowa to Sterling, Illinois. The largest amount was an incredible 17.7 inches at Orangeville, Illinois, which is in Stephenson County. Other amounts included 15 inches measured at Brighton and Mt. Vernon in Iowa, as well as Freeport, Illinois. Snowfall was much lighter in southeast Iowa, extreme northeast Missouri and west central Illinois, where rain and sleet combined with the snow and combined amounts were in the range of 1 to 4 inches.

A band of freezing rain occurred from Burlington, Iowa to Sterling, Illinois. The resulting ice coated trees and power lines with up to 3 tenths of an inch accumulations. A few locations also reported thundersnow with snowfall rates of nearly 2 inches per hour. There were scattered power outages and some tree branches down.

There were numerous reports of accidents and vehicles sliding into ditches across the region. Many schools and businesses were also closed.

As the storm exited the region on the 9th, winds gusted over 50 mph, producing widespread blizzard conditions across much of eastern Iowa and extreme northeast Missouri. Visibilities were reduced to near zero at times and there were reports of power outages and downed tree branches.

December 23, 2009

An ice storm occurred December 23, 2009 in portions of eastern Iowa and northwest Illinois. Ice accumulations of 1/4 to 1/2 inch were common, which coated trees and power lines, while temperatures in the lower 30s kept most roads wet. Scattered power out-

(Continued on page 3)

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ages and some broken tree branches were reported as winds gusted to 35 mph.

December 25-27, 2009

A slow moving upper level low pressure system produced a prolonged period of light to moderate snow over the region during the weekend of December 25-27, 2009. Over the 3-day period, widespread snow accumulations of 3 to 8 inches were noted. The greatest amount was 9 inches, measured in Good Hope, Illinois.

January 6-7, 2010

A strong Alberta clipper dropping out of the northern plains spread snow across much of the region on January 6-7, 2010. Snow began across eastern Iowa during the afternoon of the 6th, then spread east through the evening. Snowfall amounts of 6 to 9 inches were common across much of east central Iowa and northwest Illinois. However, in southeast Iowa, western Illinois, and northeast Missouri, accumulations were much lighter in the range of only 2 to 5 inches. The highest total reported was 9.8 inches in Bertram, just southeast of Cedar Rapids.

January 20, 2010

A strong upper level disturbance moved from Kansas to central Illinois on January 20, 2010. This was combined with a weak surface wave moving along a stationary front that extended from southern Missouri to Kentucky, resulting in freezing rain and ice accumulations.

The ice storm affected much of eastern Iowa, western Illinois, and extreme northeast Missouri with widespread ice accumulations of 1/4 to 1/2 inch.

Isolated thunderstorms also roamed across far northeast Missouri and locations south of Highway 34 in southeast Iowa. The ice knocked down some 1 to 2 inch diameter tree branches, as winds gusted to 35 mph. There were also scattered power outages that lasted for up to 2 days. Numerous accidents and vehicles sliding off the roads were reported in some areas.

January 25-26, 2010

A large upper trough was situated over eastern Canada into the Ohio Valley January 25-26, 2010. Strong upper level disturbances rotating through the base of the larger trough produced periods of light snow. In addition, strong low pressure in southern Ontario produced strong winds across the Midwest.

Snowfall was only in the 1 to 3 inch range in eastern Iowa, western Illinois and extreme northeast Missouri. However, northwest winds gusting to 45 to 50 mph caused brief near-blizzard conditions with local whiteouts in rural and open areas. Trained spotters reported visibilities less than 1/4 mile to near zero at times. The worst conditions occurred during the

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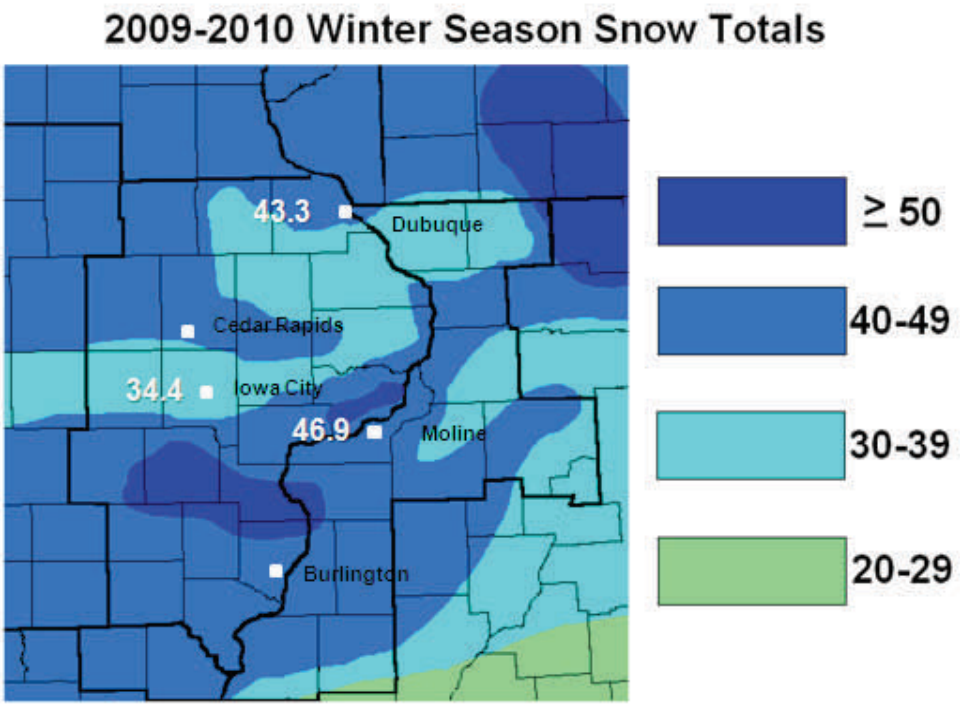

Snowfall was near to above normal across the region.

The highest totals included:

Brighton: 56.8
Wapello: 56
NWS Quad Cities: 50.1

Totals for Cedar Rapids and Burlington were not available.

Tornado Safety Guidelines Altered

Donna Dubberke

In recent months, you may have heard discussion about the recommended course of action if you are in your vehicle when a tornado approaches. In late 2009, the American Red Cross and the National Weather Service slightly adjusted the recommendation for people in this dire circumstance.

Dimmitt TX tornado. Courtesy of NSSL/NOAA Photo Library.

....The American Red Cross and NWS have made changes to tornado safety rules for those caught in automobiles...

The updated guidance is as follows:

- Immediately get into a vehicle, buckle your seat belt and try to drive to the closest sturdy shelter.
- If flying debris occurs while you are driving, pull over and park. Now you have the following options as a last resort:
- Stay in the car with the seat belt on. Put your head down below the windows, covering with your hands and a blanket if possible.
- If you can safely get noticeably lower than the level of the roadway, exit your car and lie in that area, covering your head with your hands.
- Your choice should be driven by your specific circumstances.

The important thing to understand is that if you find yourself outside or in a car with a tornado approaching and you are unable to get to a safe shelter, you are at risk from a number of things outside your control, such as the strength and path of the tornado and debris from your surroundings. This is the case whether you stay in your car or seek shelter in a depression or ditch, both of which are considered last resort options that provide little protection. The safest place to be is in an underground shelter, basement or safe room.

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afternoon and evening of January 25, but significant blowing and drifting was still being reported in some areas during the early morning hours of January 26.

...Snow accumulations of 1 to 3 inches were common on the first day of spring...

February 21-22, 2010

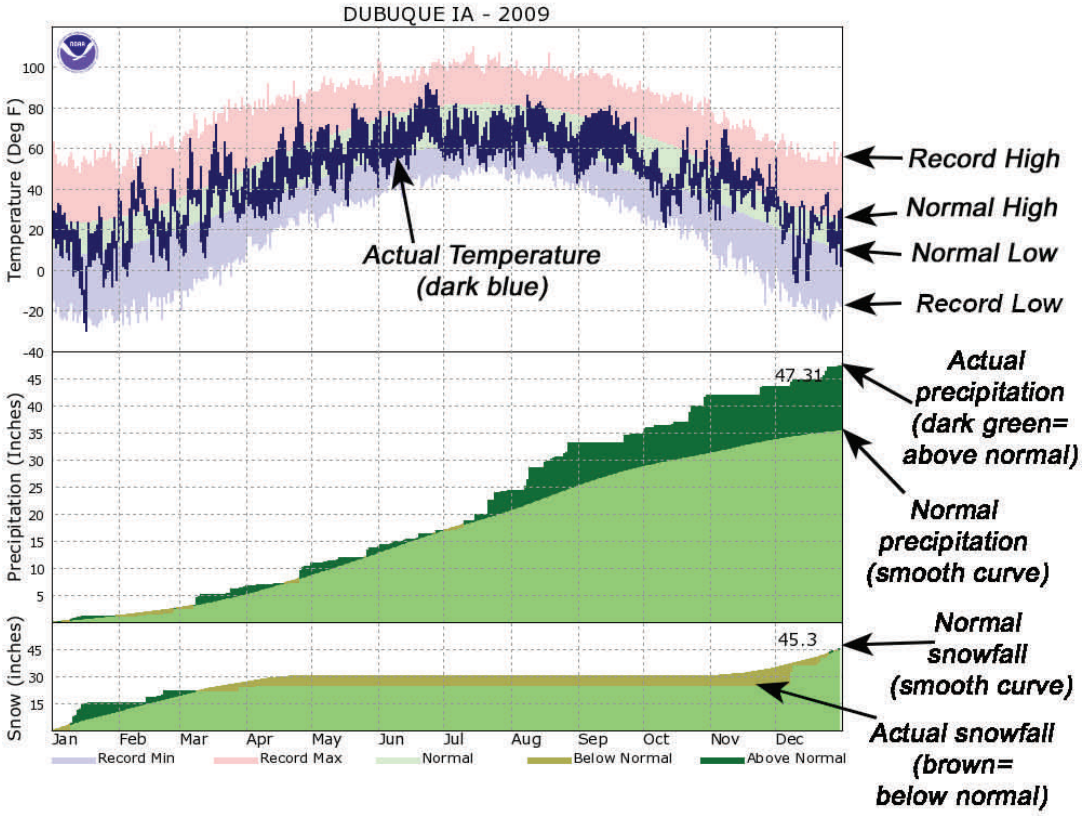
A strong winter storm moved from northeast Texas, across southern Indiana to Lake Erie on February 21-22, 2010. This system produced light to moderate snow across the region mainly along and south of Highway 30. The highest amounts, in the range of 6 to 8 inches, were reported in extreme southeast Iowa, extreme northeast Missouri and west central Illinois. Elsewhere, 2 to 5 inches of snow fell between Highway 34 and Highway 30, with lighter amounts to the north. The highest snowfall total was 8.5 inches near Macomb, Illinois. Memphis, Missouri was close, with a total of 8.0 inches.

March 20, 2010

Low pressure moving along a stationary front from east Texas into the Ohio Valley produced a widespread light snow event on March 20, 2010, the first day of spring. Snow accumulations of 1 to 3 inches were common, but a band of 3 to 5 inches fell across east central and northeast Iowa, from near Belle Plaine to Dubuque. The bulk of the accumulations occurred on grassy surfaces and less traveled roads. The highest amount was 5 inches in Belle Plaine.

Climate Graphics

Donna Dubberke



You can find graphs of monthly and yearly climate records for Dubuque, Burlington, Cedar Rapids, and Moline on our website:

www.crh.noaa.gov/dvn/?n=climategraphics

They say that a picture is worth a thousand words. In the case of climate data, that's definitely true. It can be difficult to weed through pages and pages of temperatures and rainfall amounts and extract any truly useful information.

That's where climate graphs come in! On our web site, you can find graphs of monthly and yearly climate records like the one shown above for Dubuque.

For example, in the graph of 2009 for Dubuque, you can quickly see that in mid January there was a period of record cold, then several periods of near record warmth in February, March, and April. A glance at July shows the entire month had below normal temperatures (remember how cool it was last summer?) The precipitation graph shows that rainfall was near normal through the year, but then surged upward, ending well above normal after a very wet late summer and fall.

If you want to delve into the details, you can also view a similar graph by month, which includes the daily observations. An example of a monthly temperature graph and table of daily climate information can be found on page 7.

Climate graphs are available for Dubuque, Burlington, Cedar Rapids, and Moline, going back to 2002. These are updated daily with the latest observations.

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COOP NEWS

COOP Appreciation Day

April 17, 2010

...Cooperative Observers and their families enjoyed food, fellowship, and office tours at the COOP Appreciation Day 2010...

Games for the kids—Warning Coordination Meteorologist, Donna Dubberke spins the Wheel of Weather for Hank Hynek, while Mike Hynek, Swisher IA coop observer watches.

Jackie Oberg and Coop Observer Bill Oberg, Kewanee, IL; Jim Angel, Illinois State Climatologist; and Steve Hilberg, Director of the Midwestern Regional Climate Center discuss the coop observer program.

The Cooks—Matt Lemon, Electronics Technician; Mike McClure, Senior Forecaster; and Chris Legro, Meteorologist Intern.

Bill Elliott, Hydrometerological Technician, and Mike McClure, Senior Forecaster enjoying the food at Coop Appreciation Day 2010.

Water, Water, Everywhere… Or at Least So It Seems…

Terry Simmons

The first half of June has seemed abnormally wet for parts of our 36 county area. For example: as of June 15 there have been 11 days with rain at Burlington and Moline; and 12 rainy days at Cedar Rapids, Iowa City, Davenport, and Dubuque.

According to climatologists from the Midwest Climate Research Center one would usually expect precipitation only 1/3 of the time in this part of the country. This means that in a normal year, a cooperative observation form should have more zeros in the precipitation column than it has days with recorded precipitation.

At the weather office we have appreciated all the reports cooperative observers have provided thus far, but ask that you please don't forget us when the sun is shining. Your zeros are just as valuable to climatologists, those with agricultural and construction interests, and event planners.

Seasonal Climate Summary
3/1/2010 to 5/31/2010

Airport Location	Observed Precipitation	Normal Precipitation	Departure from Normal
Burlington	17.94	10.97	+ 6.97
Cedar Rapids	8.30	9.30	-1.00 *
Dubuque	11.62	10.18	+1.44
Iowa City	11.38	10.63	+.75
Moline	12.01	10.99	+1.02

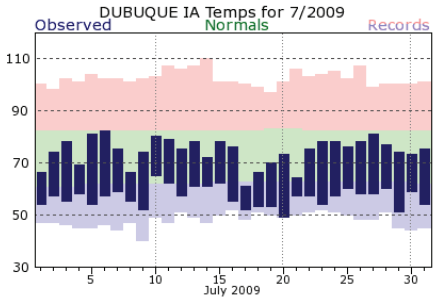
* Several days with missing observations

...According to climatologists, one would usually expect precipitation only 1/3rd of the time...

Climate Graphics

(Continued from page 5)

July 2009 Temperature Data for Dubuque



July 2009

Date	Observed High (F)	Observed Low (F)	Normal High (F)	Normal Low (F)	Record High (F)	Year	Record Low (F)	Year
1	66	54	82	61	100	1931	47	1995
2	74	57	82	61	98	1911	47	2001
3	78	55	82	61	102	1911	46	1968
4	69	58	82	61	101	1911	45	1967
5	81	54	82	62	104	1911	45	1972
6	82	57	82	62	102	1936	46	1967
7	75	59	82	62	102	1936	44	1984
8	66	55	82	62	101	1936	47	2004
9	74	52	82	62	102	1901	50	1952
10	80	65	82	62	103	1936	49	1997
11	79	62	82	62	107	1936	47	1975
12	75	57	82	62	106	1936	51	1975
13	78	61	82	62	107	1936	49	2007
14	72	61	82	62	110	1936	47	1975
15	78	62	82	63	101	1936	50	1967
16	76	55	82	63	101	1901	52	1912
17	61	52	82	63	100	1936	48	1976
18	66	53	82	63	98	1935	51	1979
19	70	53	83	63	97	1940	50	2003
20	73	49	83	63	101	1901	49	2009
21	64	57	83	63	106	1901	51	1970
22	75	57	82	63	103	1934	51	1947
23	78	54	82	63	104	1901	52	1990
24	78	57	82	63	105	1901	51	2003
25	76	60	82	63	102	1940	50	2004
26	78	58	82	63	107	1936	48	1962
27	81	58	82	63	99	1916	48	1971
28	77	60	82	63	100	1916	51	2005

Examples of monthly climate data available from our website. Above is a chart of temperatures for Dubuque from July 2009. To the right is part of a table showing actual temperatures, normal temperatures, and record temperatures by date. This is the same information as the chart, but presented in numerical format with dates of record data.

Climate Graphics are available on our website:

www.crh.noaa.gov/dvn/?n=climategraphics

Warning Systems

Donna Dubberke

Outdoor Warning Systems

The Risk

Sleeping. Working. Playing baseball. Enjoying a graduation party.

The people most at risk in any severe weather situation are those who are not aware of the threat. Simply put: you must know in order to act!

Once aware of an impending threat, you can take action to protect yourself, your family and friends, and sometimes even your property if time allows.

Numerous types of warning systems exist, each with its own strengths and weaknesses.

...Outdoor warnings quickly notify people outdoors that a life-threatening situation is occurring...

Benefits:

- **Quickly notifies people outdoors that a life-threatening situation is occurring.**
- **Many people may be notified at once.**

Limitations:

- **Not designed to wake you up when you are indoors.**
- **Backup power capabilities vary by community.**
- **Can be expensive to install and maintain.**

There are many variations and misconceptions in the use of outdoor warning sirens.

Ask local officials in your area about outdoor warning sirens. Does your community have them? When are they sounded? Do they have backup power? When are they tested?

(Continued on page 9)

Warning Systems

(Continued from page 8)

Indoor Warning Systems

The primary indoor warning tool is NOAA Weather Radio All-Hazards. Like a smoke detector, NOAA Weather Radio waits in a standby mode until a warning is issued. When the National Weather Service issues a warning, NOAA Weather Radios in businesses and households throughout the threat area automatically alarm and broadcast the warning, allowing people to take the appropriate action.

Benefits:

- **Alert function wakes you up so you can take action!**
- **Battery backup.**
- **Programmable for the area of interest.**
- **Details about the threat at the touch of a button.**

Limitations:

- **People must choose to purchase and use it.**
- **Not everyone has one.**

...When the NWS issues a warning, NOAA Weather Radios automatically alarm and broadcast the warning...

Find out if a NOAA Weather Radio All-Hazards station serves your area (95% of the US population has coverage!).

Purchase a NOAA Weather Radio for your home and business.

You may also want to consider a portable model for use outdoors or when traveling

The Bottom Line

Living in the most severe weather prone country in the world, your best defense is to be both prepared and informed.
Know the local warning systems; Invest in a NOAA Weather Radio; Stay informed; Take action – indoors or out!

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