Volume 2, Issue 1

Fall/Winter 2009/10

Wild West Weather

National Weather Service Dodge City

Be Prepared for Winter Weather *by Jennifer Ritterling— Forecaster*

While Kansas is well known for the threat of tornadoes and other severe weather during the spring and summer, it is important to remember that weather dangers do not go away as the temperatures turn cold. In addition to ice and snow on roads that can cause vehicular fatalities, many Americans die each year from exposure to cold. A graph of winter storm deaths in Kansas since 1950 on page 2 shows that older people are particularly vulnerable. There is also an increased risk for fires and carbon monoxide poisoning during the cold season.

Here in the Plains States, blizzards are a particularly dangerous aspect of winter weather. Defined as winds of 35 mph or more with snow and blowing snow restricting visibilities to under 1/4 mile for three hours or more, blizzards can cause a person to become lost in whiteout conditions only feet from a building. The strong winds associated with a blizzard can also bring very cold wind chills and increase the risks of injury of death from exposure.

The wind chill mentioned in our forecasts is not an actual temperature, but rather an approximation of how the combination of wind and cold feel on the skin. If temperatures and wind chill are cold enough, they can cause frostbite or hypothermia. Frostbite occurs when the extreme cold causes tissue damage, mainly in the extremities. If fingers and toes lose feeling or become white, try and rewarm the area. However, hypothermia (when body temperature drops below 95 F) is more dangerous and should be treated first. Symptoms of hypo-

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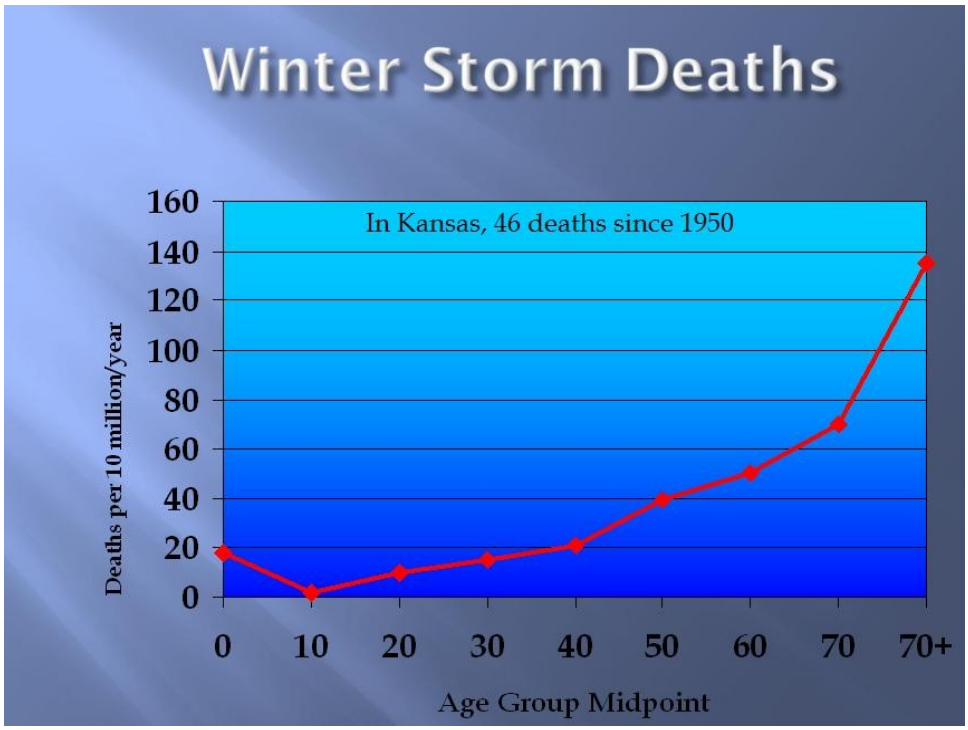


Winter Storm Deaths in Kansas sorted by age

thermia include uncontrollable shivering, disorientation, slurred speech, incoherence, and drowsiness. The person suffering from hypothermia needs to be warmed immediately, starting with the body core. Get the person in dry clothing and under a blanket, but do not give alcohol, drugs, or hot coffee. Warm broth would be the first food to offer.

Ice is an often invisible danger during the winter season. It is formed by an elevated layer of warm air and a layer of cold air near the ground. Snow melts as it moves through the warm layer, then refreezes as it hits the ground. If the cold layer is thick enough, the precipitation falls as ice pellets known as sleet. However, if the cold layer at the ground is shallow, the normal appearing rain is really freezing rain, forming a dangerous film of black ice on the road and other surfaces. While 70% of injuries due to ice and snow occur in vehicle accidents, even walking can become hazardous. Males over 40 years old are the most likely to become injured.

With winter weather, it is better to be prepared in case you are snowed in and/or the electricity is lost. Keep a battery powered radio and flashlight on hand, along with extra batteries. Extra food that requires no refrigeration or cooking should also be kept on hand. Make sure that farm animals and pets have food, water, and shelter available. Keep heating fuel stocked up, especially for an alternative source such as fireplaces or wood stoves. When using an alternative heat source, make sure it is well ventilated, and DO NOT use generators in attached garages, open or closed. If heat is lost, close off unneeded rooms, stuff towels in door cracks, and add layers of clothing. About 20% of cold related injuries occur in the home, so be prepared.

While venturing out in vehicles during the winter, it is best to carry an emergency kit with items such as those listed in the box below. Be sure to check your vehicle and keep the gas tank at least a half of a tank full. If you are stranded in the snow while driving, stay in your vehicle. This prevents you from becoming disoriented and lost and makes you easier to find. Run the motor about 10 minutes each hour for heat, but keep the window cracked and the exhaust pipe clear to prevent carbon monoxide poisoning. To be more visible to rescuers, tie a colored cloth to the antenna or door, and turn on the dome light when running the engine at night.

If the worst case happens and you are caught outside during a winter storm, try and find whatever shelter you can, even if it is an old shed. If there is no shelter available, building a lean-to or snow cave can be better than being in the open. If it is at all possible to build a fire, do so. Rather than eating snow, it is better to melt it into drinking water, because eating snow could lower body temperature and increase the risk of hypothermia.

Winter Emergency Kit

- Bottled Water
- High Energy Snacks
- Extra hat, gloves and socks
- Road salt, sand, or kitty litter
- Shovel
- Ice scraper with a broom
- Battery powered radio with extra batteries
- Emergency cell phone charger
- Booster cables
- First aid kit and pocket knife or box cutter
- Flashlight
- Brightly colored cloth or flag
- Blankets or sleeping bag
- Rope or Chains
- Duct Tape

Winter 2009-2010 Outlook *by Tom Wright— Forecaster*

What should we expect during the upcoming winter? This is a question being asked increasingly often as daylight dwindles and temperatures cool off. Unfortunately, it is a question with no easy answer.

Many folks across western Kansas expect a "bad winter." The first week in August was warmer than normal, some tall milkweed had been observed, and even the caterpillars agree as many woolly worms with more black than brown have been seen across Kansas. These are all folk lore indications of a severe winter ahead. While there is little scientific validity to these sorts of predictions, they are not necessarily at odds with the science this year.

Winter weather across the United States is expected to be dominated by El Nino. El Nino is characterized by a pronounced warming of the waters of the eastern equatorial Pacific Ocean and results in a more active subtropical jet stream across the southern United States. While the effects of El Nino are complicated, this active jet stream generally results in winter storms being displaced further south than normal.

El Nino has a documented, significant effect on the character of winter weather across the northern plains and the southern part of the United States, but its effects on winter weather are less obvious in the central plains. Statistically, there is a small chance of seeing above normal temperatures over the central plains and the signal gets stronger and more significant the further north you go. However, warmer temperatures *on average* over an entire season do not suggest the absence of cold weather. Imagine a season where the temperature is 35 F the whole time and one in which it is 70 F half the time and 0 F the other half. Both seasons average to 35 F, but the difference in the weather is huge! Furthermore, local research has shown an increase in snow and ice storms over western Kansas during El Nino years. This makes sense conceptually as an active southern jet stream should result in more moisture and more active storms across the southern United States. Cold air can and will still be drawn south into these storms, and when you put moisture and cold air together, winter storms can be the result.

Photo Taken October 10, 2005 along the Colorado Front Range

By Mike Umsheid, Senior Forecaster—http://www.underthemeso.com

Official forecasts are for El Nino to continue through the winter of 2009-2010 and perhaps weaken late in the winter or early in the spring of 2010. Based on this expectation, the outlook for southwest Kansas is for near normal temperatures and normal to above normal precipitation – on average. Extreme winter weather events are not only still possible this winter, but we may be more likely to see winter storms than normal – especially late fall through early winter (Nov 2009 – Jan 2010). In fact, one suggestion is that an early season heavy snowstorm is possible before Christmas with the snow remaining on the ground in some areas well into the winter. It is rare, but persistent snow cover can result in a feedback that keeps things cool and increases the chance for snow and ice later on.

While we cannot be sure about any specifics for an upcoming season, many things are pointing to a more severe winter than normal, including the science!

Fall 2009 Cooperative Observer News

by Jesse Lee, Observing Program Leader

STATION VISITS

Station visits were completed this summer to all the cooperative sites. The outside temperature units were cleaned and the rain gauges were leveled. The automated rain gauges were winterized during the first week in October. If you need any supplies or need equipment moved or worked on give us a call at 1-800-824-9943. Ask for Jesse Lee or Duane Wolfe. If neither one of us are here you can leave a message and we will get back to you. My e-mail address is jesse.lee@noaa.gov and Duane's is duane.wolfe@noaa.gov.

AWARDS

A 65 year length of service award (General Albert J. Myer Award) was presented to Ella Mae Julian of rural Big Bow. Ella Mae's husband, Ted, took over the station in 1944 from Caspar Barlup. Ella Mae became the primary observer in 1999 when Ted was killed in an accident. Congratulations to Ella Mae for her dedication and long service.

Brett Carlson of rural Bison was presented with a 10 year length of service award in September.

Brad Hinkle of Liberal was presented with a 15 year length of service award in September. His wife Paula was also presented with the award posthumously. She passed away this past summer. Our condolences go out to Brad and his family.

Patsy Austin of Bucklin was presented with a 10 year length of service award in November. Her husband Keith was also presented with the award posthumously. He passed away earlier this year. Our condolences also go out to Patsy and her family.

Upcoming length of service awards:

60 Years: Joy Cudney in December

50 Years: J. Hayes Baldwin in December

10 Years: Mary Cunningham in December

Jerry & Judy Bernbeck in December

Taken in Dodge City on December 15, 2007 by Mike Umscheid, Senior Forecaster

NEW OBSERVERS

Brad Baxter took over the Larned station from the Sheriff's Office in April.

Ray Stegman took over the Greensburg station from Chance Little in June.

Sue Claassen took over the Richfield station from Helen Esther Johns in June.

Randy Evans took over the rural Kalvesta station from Matt Doll in October.

We welcome all the new observers into the Cooperative Weather Observer Program.

8 INCH STANDARD RAIN GAUGES

Since we are coming up on the winter season, you can go ahead and remove the top and inner tube from the rain gauges.

WXCODER

For those who do not already use the weather coder program, there is a way to report your data every day if you have a computer with internet. This is a website where you can enter your data and it would allow us to incorporate your station data in our daily report. If you are interested in using this program please give me a call and I will set you up with an account. For those who routinely use the program and still mail in their weather forms, you do not have to mail in the form. We can download the form here at the office. At the end of the month when you are done, check over your data to see if you have any missing temperature, precipitation or snow data entries. Please enter those if you have the data that is missing. If it is missing, please enter a M.

ENVELOPES

For those who still mail their forms, I will mail out envelopes in December for 2010.

Snowstorm Climatology for Central and Southwestern Kansas

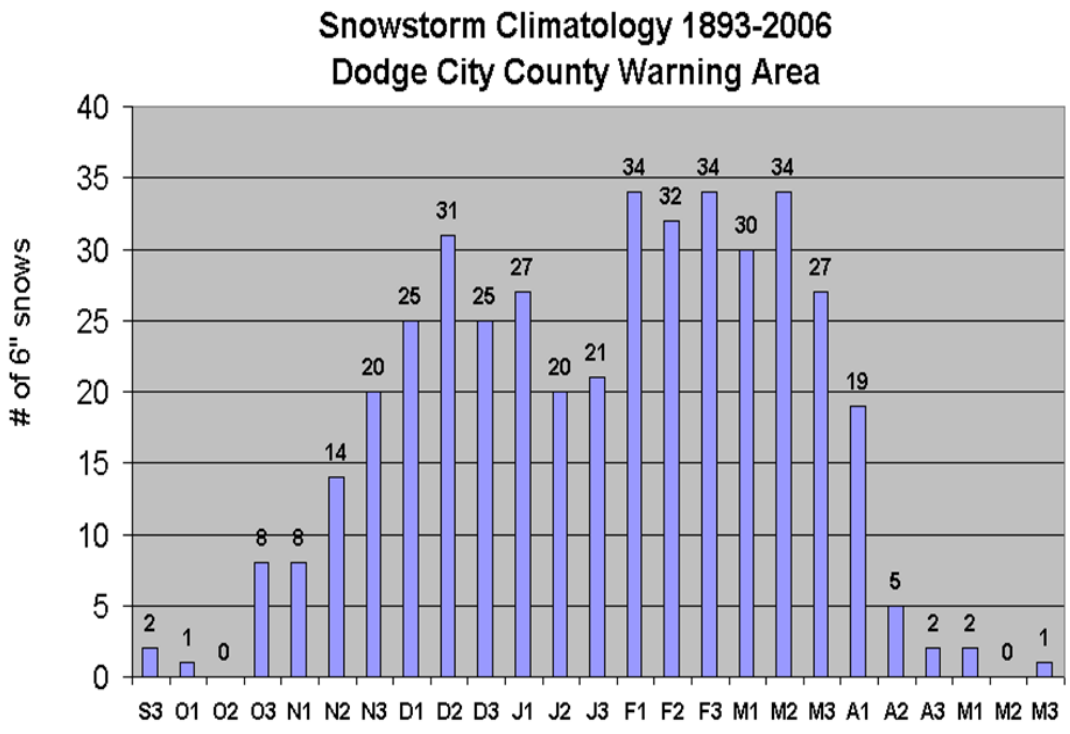
by Jonathan Finch, Forecaster

A snowstorm climatology was developed for the entire NWS Dodge City county warning area (27 counties in central and southwest Kansas). The number of 6" or greater snow events were counted for each of the long-term cooperative observer sites. These numbers were then divided into approximately 1/3 month periods from September to May. Stations with the longest period of record included Coldwater, Ashland, Wakeeney, Trousdale, Syracuse, Scott City, Pratt 5W, Richfield, Larned, Kinsley, Hudson, Hugoton, Healy, Hays, Greensburg, Elkhart, Collyer 10S, Cimarron, Bison, Liberal, Utica and Ulysses. In addition to the cooperative observer sites, records for the Dodge City Weather Service were also utilized. The goal by using all of these sites was to document all the 6" or greater snowstorms that have occurred in our forecast area and then combine all of these into one climatology. Of course, only a few of the sites go back to 1900 or earlier so the snowstorm count after 1950 was more accurate.

The graph below shows that three 6" or greater snowstorms occurred in our forecast area in early-fall, with two occurring in late-September (September 21-30) and one in early-October (October 1-10). A thunderstorm on September 21-22, 1995 dumped 6-7" of snow from parts of Lane County into northern Ness and far southern Trego Counties. Virtually all of this snow occurred in a 1 to 2 hour period around midnight. The coolest overnight low temperature leading up to this snow event was around 50 degrees and soil temperatures were still around 70 degrees. So this snow event occurred as the 1st strong cold front of the season passed through Kansas. On October 8, 1970, an intense storm system produced 8 to 11" of snow from Liberal eastward through Meade, Trousdale and Greensburg.

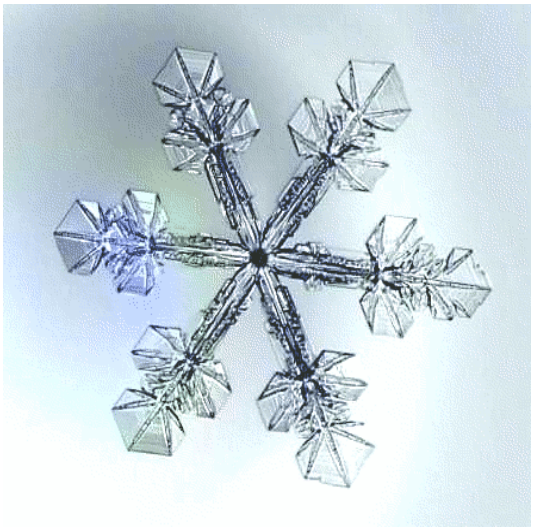
Eight storms occurred in late-October (October 21-31) as well as in early-November (November 1-10). Many residents of southwest Kansas can remember the major blizzard of October 25, 1997 that dumped 10 to 20 inches of snow with 15 to 20 foot drifts.

There was a peak in snowstorms from mid-December through early-January, with 31 in mid-December, 25 in late-December and 27 in early-January. There was a lull in major snowstorms in mid-winter, with only 20 and 21 snowstorms occurring in mid-January (January 11-20) and late-January (January 21-31) respectively. Late-winter and early-spring is the most favored time of the year for major snowstorms as each 1/3 month period from early-February to mid-March received between 30 and 34 major snowstorms. Meteorological winter (the coldest ~90 day period on average) runs from December 1 through the end of February while meteorological spring starts on March 1 and continues through the end of May. Keep in mind that some of the 1/3 month periods have fewer days than others. For example, late-February only has 8 or 9 days. So the fact that



34 storms occurred in late-February is very significant and one could argue that late-February has the highest concentration of major snows.

Major snowstorms can occur in late-March (March 21-31) and early-April (April 1-10) which featured 27 and 19 storms respectively. Long-time residents of southwest Kansas may remember the major blizzard of March 23-25, 1957. Other memorable events occurred on March 23, 1987, March 29, 1987 and March 23, 1980. Of course, western Kansas had a blizzard just this year on March 27th, where 30 inches fell at Pratt and set a new 24 hour state snowfall record. A major snowstorm with thunder and lightning occurred on April 8, 1938 when 17" of snow fell at Ashland.



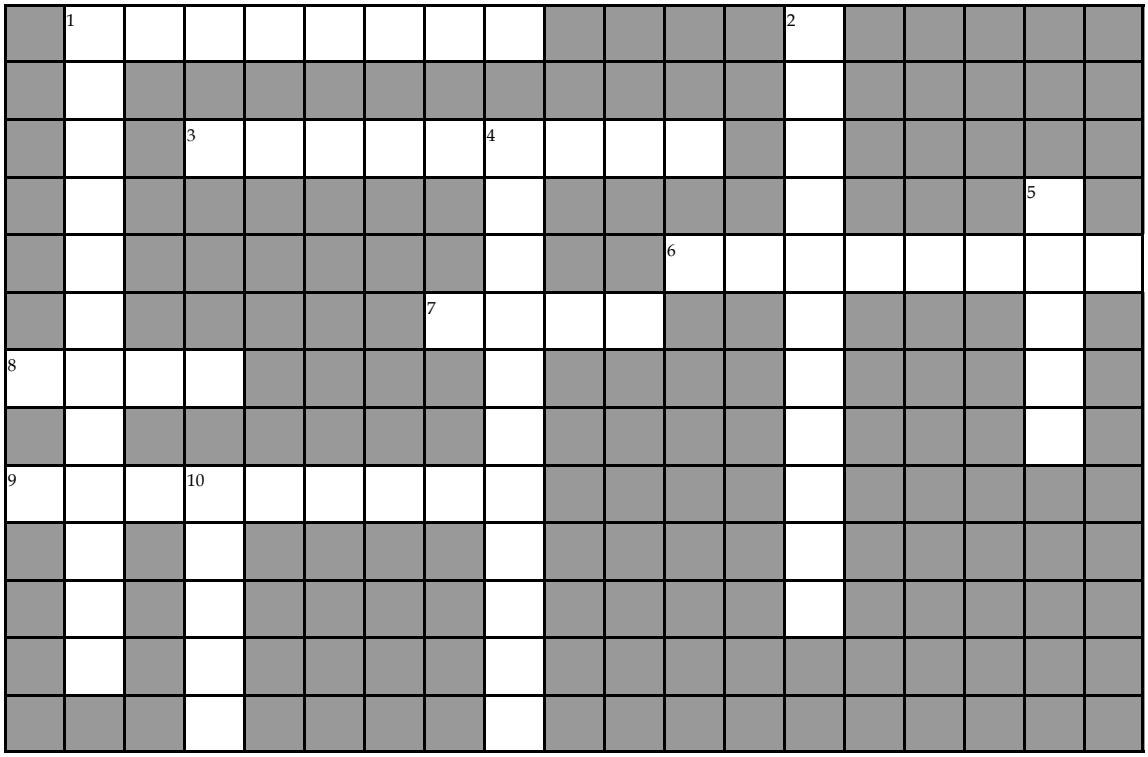
Snowstorms can also occur in mid-spring and even late-spring. For example, five major snowstorms have occurred in mid-April, two in late-April, two in early-May and one in late-May. This late-May storm on May 21, 1931 was very unusual. The Syracuse cooperative observer in Hamilton County reported a snow depth of 8 inches. Temperatures from May 15-17 of that year in neighboring Tribune, KS were in the 90s (94 on the 15th). A short period of heavy snowfall also occurred in Dodge City on that same day with no accumulation.

Meet The Forecaster – Tim Burke

Tim has been a Lead Forecaster at the Dodge City NWS since February, 1996. Prior to that, he came from the Operational Support Facility in Norman, OK, where he served as an Operational Radar Expert on the WSR-88D Hotline. Tim was a Journeyman Forecaster in Des Moines, IA from 1991 to 1994, and served as the NWS Liaison at the Emergency Operations Center during the traumatic Flood of 1993 (when Des Moines lost their water supply). Tim started his NWS career in 1987 at the Wichita NWS office, where he was a Met Intern. He also served in the Air Force as an officer, from 1979 to 1986, leaving due to a medical discharge. While in the Air Force, Tim served at Ft. Riley, KS, Schwaebisch Gmuend and Hanau, Germany, and at Sheppard Air Force Base in Wichita Falls, TX.

Tim met his beautiful wife, Dee, in Wichita in 1986 and got married in 1987. Dee had 3 grown children, and they now have 9 grandchildren and 5 great-grandchildren. Two granddaughters are currently (Fall, 2009) serving overseas in the Army, one in Kuwait and the other in Afghanistan.

Tim grew up as a military brat, the son of an enlisted career Marine. Tim has 4 sisters and 1 brother, who now live all across the country. Tim's family moved every 3 years or so, but Tim calls Kansas (his Dad is from Wichita) and North Carolina both "home", as Tim graduated from Jacksonville Sr High (NC), and attended North Carolina State University on a ROTC scholarship, obtaining a BS in Forestry. He then attended St. Louis University, earning a BS in Meteorology. Tim enjoys bowling, cooking, and following sports (Chiefs, boxing).



ACROSS

1. Light, intermittant snow with little or no accumulation
3. Wind's effect on how we feel temperature
6. Winds of 35 mph, snow and blowing snow reduce visibilities
7. How temperatures get in the winter
8. Needs to be shoveled
9. Damage to tissue caused by extreme cold

DOWN

1. Brings black ice to roads
2. Reduces visibilities, happens often in western Kansas
4. Body temperature drops below 95 F
5. Have to scrape off of cars
10. Ice pellets

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Answers for the puzzle in the Spring/ Summer Newsletter!

National Weather Service
Dodge City

104 Airport Rd.
Dodge City, KS 67801

Phone: 620-225-6514
Recorded Forecast 620-227-3311
Fax: 620-227-2288
http://www.weather.gov/ddc

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Severe Weather Reporting Only:

1-800-824-9943

Winter Warning/Advisory Criteria

WARNING & ADVISORY CRITERIA			
WFO (DDC)			
Warning Type	Warning Criteria	Advisory Type	Advisory Criteria
Blizzard	Sustained wind or frequent gusts greater than or equal to 35 mph and visibility of a quarter mile or less in snow and/or blowing snow for at least three hours.	Winter Weather Advisory for Blowing Snow	Widespread Blowing Snow reducing visibility locally to a quarter mile or less.
		Freezing Fog	Light ice deposition from freezing fog.
Winter Storm Warning for Heavy Snow	6 inches or more in 12 hrs or 8 inches or more in 24 hours.	Winter Weather Advisory for Snow	Two to five inches of snowfall in 12 to 24 hours.
Ice Storm	Ice accumulation of a quarter inch or more.	Freezing Rain	Ice accumulation from freezing rain or freezing drizzle of less than a quarter of an inch.
Winter Storm Warning for Sleet	Sleet accumulation of one half inch or more.	Winter Weather Advisory for Sleet	Sleet accumulation of less than half an inch.
		Winter Weather Advisory for Snow and Blowing Snow	Widespread snowfall and blowing snow restricting visibilities to locally a quarter of a mile or less.
Wind Chill	Wind chill index of -25 or less for three or more hours accompanied by a sustained wind of at least 10 miles per hour.	Wind Chill	Wind chill index of -15 or lower for three or more hours accompanied by a sustained wind of at least 10 miles per hour.