Fall 2013

The Quarterly Hail

National Weather Service - Hastings, Nebraska

Volume 3, Issue 3

Notes From the Meteorologist In Charge

It seems the weather for the last few months has been anything but normal. We have lived a tale of two patterns, either hot and dry or cool and wet. Through it all, the staff has remained on top of the changes and done a wonderful job of giving us a heads up several days to a week in advance. This is a living testament to their dedication and to the advances in technology and the science of Meteorology over the last few decades.

We continue to teeter on the edge of extreme to severe drought for much of our area. The latest rounds of beneficial rain and cooler temperatures are keeping most areas from falling into extreme drought, thank goodness. Still, we need a lot of moisture to replenish the deep soil moisture, so most continue to hope for the wetter conditions to continue into the fall months.

From the world of budgets, political deals were struck in early June that funded our agency through the end of September. We are worried about the first few months of the next fiscal year, October through January, because law makers so far have not reached agreement over the budget. We are making contingency plans for as many scenarios as we can. Rest assured we will be here providing warnings and forecasts, but we may be limited in providing other services such as newsletters, site visits, talks, training, etc. The hope is that Congress will arrive at a budget by the end of the calendar year and then we can return to "normal" operations.

I wanted to take a second and let you all know our office is making a concerted effort to be more visible in social media. The staff regularly posts information on our Facebook and Twitter accounts. I encourage you to take a look at them and follow them. Also, I encourage you to send info, pictures, etc. so we can share them with others that follow us.

I wish to extend a thank you to all our volunteers! Many timely reports of weather information have led to life saving warnings and to forecasts that have saved people time and money. Without those timely severe weather reports, real time spotter information and daily rainfall and temperatures we would not have been as effective in delivery of our life and property saving services! In short, no matter how sophisticated our technology becomes, we will always need information from our volunteers!

As we move into the fall months, please be safe and stay aware of the weather conditions. Harvest time is always a more dangerous time with the threat of farm and other manmade accidents. Please try to not let those be accentuated by those provided by Mother Nature, including the threats of lightning, damaging winds, hail, fog and even slippery conditions from rain.

Steve Eddy
Meteorologist In Charge, National Weather Service Hastings, Nebraska
Steven.eddy@noaa.gov
402-462-2127 x642

Inside this issue:

Special Points of Interest:

- *Want to hear a weather riddle?*
- *Check out our latest student volunteers!*
- *Are you ready for winter weather?*
- *What's the hottest high temperature during the fall for Grand Island?*
- *Check us out through Facebook and Twitter!*

Your Weather History - Summer in the 1930s - *Julia Berg, General Forecaster*

As we wrap up the summer of 2013, let's take a look at a couple of years that are known for some of the warmest temperatures. During the years of 1934 and 1936, the central part of the country was in the grip of the "Dust Bowl". Between hot temperatures and dry conditions, crops were nearly non-existent and dust was blown about by the wind.

July of 1934 and July of 1936 were notorious in this part of the country for very warm temperatures. Many record high temperatures were set in these two years and remain to this day. Just how hot was it during this time?

In July 1934, the highest temperature recorded across the area during the month was 118 degrees in Geneva, Nebraska. There were 28 stations that were taking temperatures and 27 of those had high temperatures during the month of 110 degrees or more. Temperatures were warm for the entire month with all of the 28 stations having 15 days or more of temperatures over 100 degrees and 19 of the 28 had 20 days or more of over 100 degrees. About half of the locations that reported precipitation during this time had an inch or less of precipitation for the month.

July of 1936 had many similarities to 1934. The highest temperature recorded across the area was 121 degrees in Alton, Kansas. There were 31 stations reporting at this time and 30 of them reported highs of 110 degrees or higher. Of these 31 stations, 28 of them had 15 or more days of 100 degrees or more, and 14 of the 31 stations had 20 or more days of high temperatures at 100 degrees or more. Once again, it was dry and 38 of the 46 reporting stations had an inch or less of precipitation.

When it gets hot now days, we go inside the air conditioned buildings or enjoy a fan blowing. In the mid 1930s, many locations in the Central Plains were without electricity. Roughly 70 percent of the United States had electricity and only about 15 percent of farms had electricity.

Is A Hurricane Headed For Nebraska In 2013? - *Shawn Rossi, Lead Forecaster*

On average, just over 12 tropical storms form in the Atlantic basin each year, with September 10th marking the peak of the Atlantic tropical season. A few of these storms cross the Gulf of Mexico – some of which end up steering deep tropical moisture into the plains. Late last August, Tropical Storm Isaac brought some much needed moisture to the southern and central plains after moving inland across the Louisiana coast. With 2013 forecast to be another active tropical season, will another storm like Isaac bring some beneficial moisture to the plains?

Above is the track of Tropical Storm Isaac, which formed on August 21, 2012

NOAA 2013 Tropical Forecast (Released May 23, 2013)

For the six-month hurricane season, NOAA's Atlantic Hurricane Season Outlook predicts there is a 70 percent likelihood of 13 to 20 named storms (winds of 39 mph or higher), of which 7 to 11 could become hurricanes (winds of 74 mph or higher), including 3 to 6 major hurricanes (Category 3, 4 or 5; winds of 111 mph or higher).

2013 Names determined by the WMO (World Meteorological Organization)

Andrea	Erin	Ingrid	Melissa	Rebekah
Barry	Fernand	Jerry	Nestor	Sebastien
Chantal	Gabrielle	Karen	Olga	Tanya
Dorian	Humberto	Lorenzo	Pablo	Van
				Wendy

Social Media and your NWS - *Briona Saltzman, Meteorologist Intern*

You can't go anywhere these days without hearing the words "Like Us On Facebook" or "Follow Us On Twitter." The latest in the technology craze, social media has overtaken the world like wildfire.

Here at NWS Hastings, we are no different. Since joining the Facebook and Twitter worlds, our office has strived to improve our presence on social media and have better interaction with our customers. We use social media in a variety of ways, from educating the public on different weather topics to weather related trivia. We share beautiful weather related photos and let you take a look into the day in the life of a meteorologist. During severe weather, we try to keep you up to date on the latest radar trends as well as reports we are receiving. On the other side of the spectrum, our customers share storm reports and photos directly onto our page, which lets us and others know what is occurring. They can also ask questions and provide feedback on the services we provide.

However, since these social media platforms are not maintained by NOAA, we do not want our customers to rely strictly on our social media pages for our warning information. Make sure you continue to monitor NOAA Weather Radio, local media and our webpage (www.weather.gov/hastings), for all of your warning information.

So please "Like Us On Facebook" and "Follow Us On Twitter." Join in on the latest craze and learn a little about weather as well.

US National Weather Service Hastings **@NWSHastings**

Employee Spotlight - Ryan Pfannkuch, General Forecaster

To say that I've taken a unique path to the NWS is an understatement. For example, how many people spend NINE years as a college *undergraduate*? Although I'm sure my lengthy stay at Iowa State University drove my parents crazy at times, let's just say it all worked out in the end, and for nearly seven years now I've been a proud member of the NWS Hastings team.

Although I've had an interest in weather since my days as a young boy growing up on the family farm near Manning, Iowa, unlike many weather folks, it was not my first career choice. When I arrived at Iowa State in 1996, my number one passion was sports journalism and I spent three years as a part-time sports writer, mostly for Cyclone Illustrated magazine. Although I covered several sports, Iowa State football and men's basketball were (and still are) my primary non-weather related interests. Husker fans might find it amusing that my first trip to Memorial Stadium as a reporter in 1997 resulted in a 77-14 drubbing at the hands of 3rd-ranked Nebraska. At any rate, I eventually decided the journalism life was not for me and talked myself into pursuing a meteorology degree, despite my long-time fear of calculus and physics. Somehow, I "survived" those classes and ended up graduating in May 2005 with a double major in meteorology and sociology and a minor in journalism. By that time, I had been zeroed in on an NWS career for quite some time. However, the NWS doors didn't open right away, and in the meantime I spent 18 months working in a giant plastic bottle factory in Ames, Iowa, that produced *5 million* pop and water bottles per day! Finally, in the fall of 2006 I was chosen for a meteorologist intern position here at Hastings and the rest, as they say, is history. Although I share different sports allegiances than the many Cornhusker, Wildcat and Jayhawk fans across our local area, I have certainly grown to love South Central Nebraska and North Central Kansas and the incredibly challenging-to-forecast weather found here.

In addition to being an avid Iowa State Cyclones and Kansas City Royals fan, during my last several years of college I also become a hobbyist storm chaser – not the type you see on TV driving crazily into tornadoes, but one who values seeing the "classroom science" come to life on the open plains and always passes on reports to local NWS offices. If I'm not on duty issuing warnings and forecasts during severe weather, you might see my black pickup truck with license plates "SVR WX" (severe weather) driving near a storm.

In addition to my job duties, another factor that hopefully keeps me in Hastings for a long time is my wonderful girlfriend of three years, Angela, who is not only from the local area but is also a fellow NWS Hastings meteorologist. Considering that she graduated from the University of Nebraska, it's probably in the best interest of our relationship that our alma maters are no longer in the same athletic conference. ☺

Terminal Aerodrome Forecasts - *Jeff Halblaub, General Forecaster*

There are several services the National Weather Service provides that are highly visible to the general public. However, did you know that the NWS also provides specialized forecasts to other government agencies and other user groups? This includes aviation forecasts for the Federal Aviation Administration, which are used by airports, pilots, air traffic controllers and airline dispatchers.

The Hastings NWS issues a Terminal Aerodrome Forecast (TAF) every six hours for Grand Island's Central Nebraska Regional Airport. A TAF includes coded information that is of interest to aviation, including surface wind, visibility, precipitation, cloud layers and wind shear. There are times when changes in these variables necessitate more frequent forecast updates. Each forecast is only 24 hours into the future.

There are specific criteria that determine when pilots fly by sight or fly by their instruments. These criteria begin once the visibility falls below 5 miles, and/or the cloud height decreases to less than 3,000 feet. Monitoring these variables is so important that, in days gone by, NWS offices were located at airports to support aviation. That is no longer necessary with today's technology.

When we forecast the visibility and/or cloud height to fall below these criteria, air traffic controllers will anticipate the need to increase the separation between planes. This is due to the fact that planes will not be able to see each other as well, if at all. The wind direction forecasts also determine which runways will be used for takeoffs and landings. Each forecaster at our office has gone through specialized training, in writing TAFs and customizing them, to meet the needs of the users.

So the next time you fly into, or out of, Grand Island, or any one of the many airports across the country, remember that among the many people helping to guide that plane safely to its destination is a NWS forecaster.

Below is an example of what a TAF issued by the NWS may look like:

KGRI 071120Z 0712/0812 03007KT P6SM SCT060 BKN150

K – Continental United States

GRI – The 3-letter identifier for Grand Island/Central Nebraska Regional Airport

071120Z – The date and time the TAF was issued 07 – the day of the month, 1120Z is 11:20 Greenwich Mean Time, GMT (or 620 AM CDT)

0712/0812 – The dates and times the TAF is valid 12:00 GMT or 7:00 AM CDT on the 7th to 7:00 AM CDT on the 8th

03007KT – This is the wind group – wind is from 30 degrees or northeast at 7 knots or 8 mph

P6SM – This is the visibility group – P6SM means the visibility is greater than 6 statute miles

SCT060 – Scattered clouds at 6,000 feet (scattered means 50% coverage or less)

BKN150 – Broken clouds at 15,000 feet (broken means more than 50% but less than 100%)

Cooperative Observer Awards - *Mike Reed, Hydrometeorological Technician*

Student volunteer Aaron Mangels (left) presents Roger Powell with his award.

The National Weather Service proudly presented Roger Powell with the 15 Year Length of Service Award. Mr. Powell has been the official Cooperative Weather River Observer for the National Weather Service near Beaver City, Nebraska, since 1998. Mr. Powell is also the Emergency Manager for Furnas county.

Mr. Powell is the river observer for 2 streams south of Beaver City, the Beaver Creek, as well as the Sappa Creek. Roger keeps an eye on these streams, and takes measurements with the wire weight gauge on bridges over the creeks along highway 283. He takes readings when recent rains cause the creeks to rise, or upon requests from the staff at the National Weather Service office in Hastings, Nebraska.

The National Weather Service proudly presented Charlene Nott with the 30 Year Length of Service Award. Mrs. Nott has been the official Cooperative Weather Observer for the National Weather Service near Elwood, Nebraska, since 1982.

During her 30 years of data collection, Charlene has measured 716.2 inches of rain (almost 60 feet!) and 760.9 inches (over 63 feet) of snow. The highest rainfall measured in a single 24 hour period, since 1982, was 5.13 inches on June 25, 1989, and the highest snow fall measured in a 24 hour period during the same timeframe was 12.0 inches on December 28, 1982. The wettest year during this time frame was 1993, with 34.79 inches of rain. The winter with the heaviest snow was the winter of 1993-1994, with 50.7 inches of snow.

Student volunteer Aaron Mangels (left) presents Charlene Nott with her award.

Student volunteer Aaron Mangels (left) presents the award to Veronica Schoenfish.

The National Weather Service proudly presented Veronica Schoenfish with the 10 Year Length of Service Award. Mrs. Schoenfish has been the official Cooperative Weather Observer for the National Weather Service near Cambridge, Nebraska, since 2003.

During her 10 years of data collection, Veronica has measured 236.17 inches of rain (almost 20 feet) and 224.3 inches (almost 19 feet) of snow. The highest rainfall measured in a single 24 hour period, since 2003, was 3.45 inches on April 24, 2007, and the highest snow fall measured in a 24 hour period during the same timeframe was 8.5 inches on February 21, 2013. The wettest year during this time frame was 2007, with 28.94 inches of rain. The winter with the heaviest snowfall was the winter of 2006-2007, with 33.7 inches of snow.

Tom Johnson, temperature and precipitation observer for Osceola, Nebraska, was presented with a 10 year Length of Service Award. Tom's official length of service is 10 years, however, he has been involved in taking or backing up observations off and on since 1972. The Johnson family has been recording the elements since June 1984. During that time they have measured over 800 inches of rain and over 800 inches of snow. Their temperature extremes have ranged from 105 degrees to 29 below zero.

Tom Johnson stands with his award.

Weather Riddles

All about, but cannot be seen,
Can be captured, cannot be held,
No Throat, but can be heard.
What is it?

Three large people try to crowd under one small umbrella, but nobody gets wet. How is this possible?

Answers on Page 9

Notes from MOM (Mind of Marla) - *Marla Doxey, Data Acquisition Program Manager*

EGADS!!!

It is hard to believe that snow could be flying in just a few months. Considering we had measureable snow in early May, it just seems way too soon. Our summer was not exceptionally hot either, with most locations just a bit above normal for temperatures. Rainfall was rather hit and miss; but definitely better than last summer.

We are still conducting site visits with our main emphasis on the recording rain gauge (FPR-D), temperature and precipitation (AB), and evaporation sites. While we will try to make stops at our rain gauge only sites (B), we may not make it around to all of them this year. Any stations we do not get to check on this year will be put at the top of the list for next year. If any of you at any time have problems with the equipment, please give us a call and we will be sure to take care of it. That goes for supplies also. For those of you still mailing in your forms, just stick in a note letting us know what you need or give us a call. We do not have any more of the postcards that were used in previous years. You can also email the group at cr.coop-hastings@noaa.gov.

Snow Measurement Refresher/PLEASE READ/Couple Changes

- At the beginning of the snow season, please remove the funnel and inner measuring tube from the gauge. Check the gauge for leaks by pouring several inches of water in and let it set for about an hour. Look for any moisture on the outside of the can, especially in the seams. Please let us know if it is leaking.

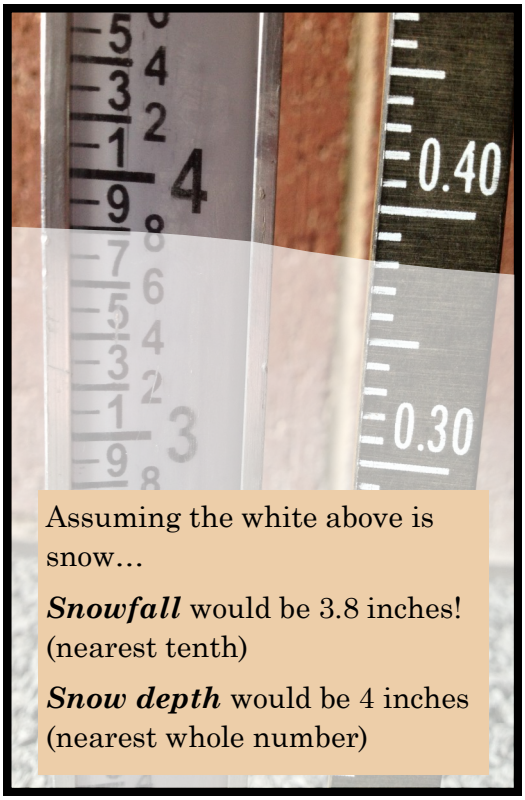
- If you use a snowboard, put it in a location near your gauge, in an area where snow accumulates relatively uniformly. Be sure to mark the location with a flag or some other indicator so you can find it after a heavy snow and do not step on it as they can be quite slick when covered with snow.

- After it snows, measure and record the greatest amount of **snowfall** that has accumulated on your snowboard or other level area. Do not use your deck or picnic table if it is close to a building as they will receive blow off from the roof.

  * IF snowfall occurred several times during the observation period, and each snowfall melted either completely or in part before the next snowfall, record the total of the greatest snow depths of each event and enter in Remarks "snowfall melted during the OBS period". For example, three separate snow events affect your station during your 24-hour reporting day, say 3.0, 2.2, and 1.5 inches. The snow from each event melts off before the next accumulation and no snow is on the ground at your scheduled time of observation. The total snowfall for the reporting 24-hour day would be 6.7 inches, even though the snow depth on your board at observation time was zero. Snow often melts as it lands.

  * IF you only get a few flakes of snow during the observation period, you would still report a trace of liquid (T) and a trace of snowfall (T).

  * It is essential to measure snowfall and snow depth in locations where the effects of blowing and drifting are minimized. In open areas where wind-blown snow cannot be avoided, several measurements may be necessary to obtain an average depth and should not include the largest drifts.



Assuming the white above is snow…

Snowfall would be 3.8 inches! (nearest tenth)

Snow depth would be 4 inches (nearest whole number)

- Snowfall measurements are to the nearest inch and tenths (1.8, 2.1, 4.9, etc), while the water equivalent is to the nearest hundredth (0.15, 0.22, etc) When reporting snowfall, please do not always report with 1.0, 2.0, 3.0, as snowfall is rarely that even.

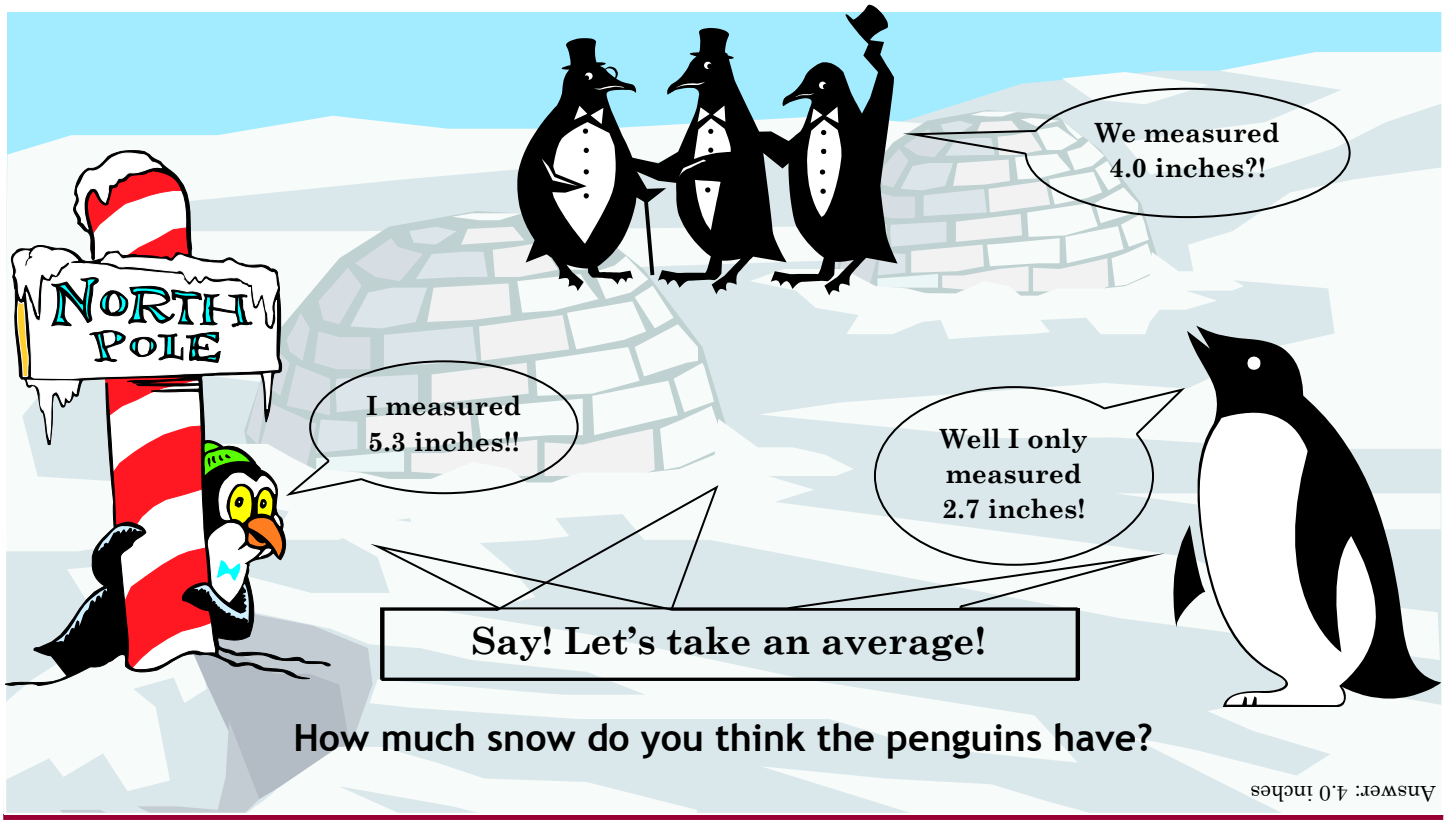
Notes from MOM (Mind of Marla) Continued...

- Look inside your measuring can to see if it has caught close to the same amount of snow that you measured on your board or area that you used for snowfall. If it does not appear to be representative, turn it upside down and cut a snow core from the snow on your board or other area. This way you will have the proper water equivalent. Once you have measured your snowfall, clear the board off and place it on top of the snow, and push it down a little so the top of the board is level with the top of the snow.

- **Total snow depth** includes snow, ice pellets, sleet or ice on the ground. This measurement is taken once-a-day at observation time. When measuring, make sure the stick is pushed vertically into the snow until the bottom of the stick rests on the ground. Do not mistake an ice layer or crusted snow as "ground". The measurement should reflect the average depth. Make sure you are just measuring the depth of the snow and not the height of the grass. See below.

- **Snow depth** is reported to the nearest whole inch (1, 2, 5, etc).
  * If half the ground is bare and half is covered with six inches of snow, the snow depth should be entered as an average of the two readings, or 3 inches.
  * When in your judgment, less than 50 percent of the exposed ground is covered by snow, even though the covered areas have a significant depth, the snow depth should be recorded as a trace (T).
  * When no snow or ice is on the ground in exposed areas (snow may be present in surrounding trees, north side of buildings, ditches), record a "0"
  * When strong winds have blown the snow, take several measurements where the snow was least affected by drifting and average them. If most exposed areas are either blown free of snow while others have drifts, try to combine visual averaging with measurements to make your estimate.

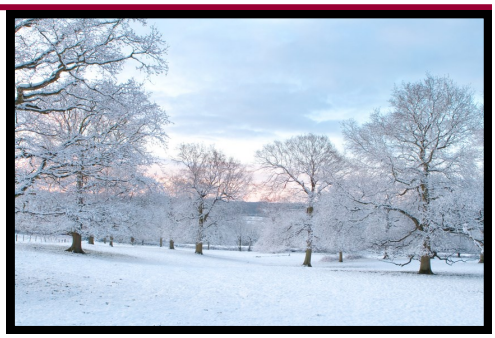
- **Snow measurements will never be exact. Just do the best you can and always be safe**.



Welcome Aboard!!

The newest addition to our cooperative observer family is **Scott Reilly** of Spalding, Nebraska. Scott has taken over the recording rain gauge from Mark Buettner.

Are You Winter Weather Aware?



Yeah, yeah, it's only August, but with each passing day we get closer to the season of cold, flying snow and other winter precipitation. It's always good to think ahead to winter and the dangers it can pose to life and property. Each year, dozens of Americans die due to exposure to the cold. Other hazards, such as hypothermia and frostbite, can lead to the loss of fingers and toes or cause permanent internal injuries and even death. The very young and the elderly are among those most vulnerable to the potentially harsh winter conditions. Recognizing the threats and knowing what to do when they occur could prevent the loss of extremities or save a life.

A winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall and cold temperatures. People can be trapped at home or in a car with no utilities or assistance, and those who attempt to walk for help could find themselves in a deadly situation. The aftermath of a winter storm can have an impact on a community or region for days, weeks, or possibly months.

Are you prepared?

When preparing your home or workplace for the upcoming winter season, keep in mind that the primary concerns deal with the loss of heat, power and telephone service, along with a shortage of supplies if a winter storm continues for an extended period of time. Along with your home and workplace, vehicles also need to be prepared for the upcoming winter season. It is very important to fully check your vehicle, which includes having a mechanic check things like your battery, antifreeze, ignition system, thermostat, lights, exhaust system, heater, brakes, and oil levels. If you must travel during winter conditions, it is best not to travel alone. Try to plan your travel during the day, and make sure to let others know your destination, route, and when you expect to arrive. Make sure to keep your gas tank near full to avoid ice in the tank and fuel lines.

Check out our webpage, Facebook and Twitter as we approach winter for more tips about how to prepare and stay safe!

In your car...

- Mobile phone, charger and batteries
- Flashlight with extra batteries
- First-aid kit
- Knife
- Shovel
- Tool kit
- Tow rope
- Battery booster cables
- Compass and road maps
- A windshield scraper and brush for ice/snow removal
- Blankets and sleeping bags
- Rain gear, extra sets of dry clothes, socks, mittens, and stocking caps
- Large empty can to use as emergency toilet. Tissues, paper towels, and plastic bags for sanitary purposes
- Small can and waterproof matches to melt snow for drinking water
- Cards, games, and puzzles

In your home...

- Flashlight and extra batteries
- Battery-powered NOAA Weather Radio and portable radio to receive emergency information
- Extra food and water. Have high energy food, such as dried fruit, nuts and granola bars, and food which requires no cooking or refrigeration.
- Extra medicine and baby items
- First-aid supplies
- Heating fuel. Fuel carriers may not reach you for days after a winter storm.
- Emergency heat source: fireplace, wood stove, space heater. Use properly to prevent a fire, and remember to ventilate properly.
- Fire extinguisher and smoke alarm. Test smoke alarms once a month to ensure they work properly.

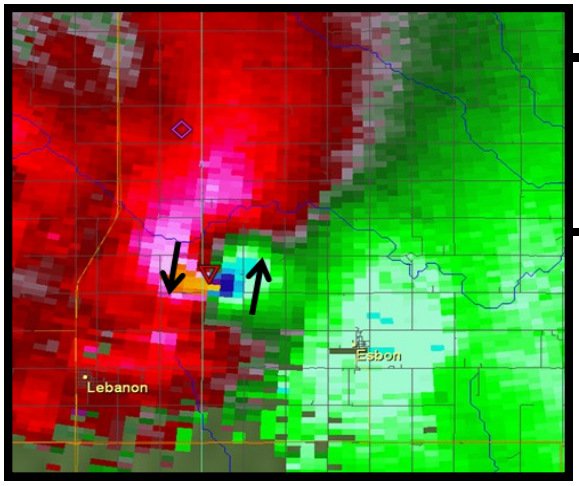
On the farm and for pets:

- Move animals into sheltered areas.
- Shelter belts, properly laid out and oriented, are better protection for cattle than confining shelters.
- Haul extra feed to nearby feeding areas.
- Have plenty of water available. Most animals die from dehydration in winter storms.
- Make sure your pets have plenty of food, water and shelter.

May 27th North Central Kansas Tornado - *Mike Moritz, WCM*

Early in the evening on May 27, 2013, the strongest tornado of the season struck north central Kansas. The tornado was shrouded in rain, which resulted in very few pictures or video of the tornado itself, despite dozens of tornado "chasers" in the area that evening. In the end, the tornado was rated an EF-3 on the Enhanced Fujita Scale with estimated winds of 140 mph based upon the damage observed.

Thankfully, the tornado did not have a long path, but it was a destructive one. The tornado formed within a large, high precipitation supercell which had exhibited tornadic characteristics as it moved across Phillips and Smith Counties earlier in the evening. The tornado began just east of U.S. Highway 281 about 4 miles north of Lebanon and traveled east-southeast for 5.8 miles before lifting about a mile northwest of Esbon. It was estimated the tornado was on the ground from 7:04 pm to 7:20 pm. An initial tornado warning was issued by NWS Hastings for the area at 6:27 pm and then reissued at 6:57 pm. Probably the most dramatic statistic from the tornado was its width of 1,580 yards, which is just shy of a mile wide. The tornado tore apart one farmstead, heavily damaged another and caused minor damage to a third farmstead. Trees and crops in the path were mangled by the grinding rotational winds. Property loss estimates were likely well in excess of one million dollars.



This radar image of the wind within the storm shows the tight circulation of the tornado as viewed from the NWS Hastings Doppler radar in Blue Hill, NE. The arrows represent which direction the wind is blowing and the small upside-down triangle is the approximate location of the tornado as it crossed into Jewell County.

Dramatic damage was done by the tornado at a farm northeast of Lebanon. The pick-up is parked in what was a recent finished garage. The home in the background was a 2-story home, but was reduced to one story by the twister.

EF Rating	Wind Speeds	
EF-0	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.
EF-1	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.
EF-2	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.
EF-3	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.
EF-4	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.
EF-5	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.

Tornado wind speeds are estimated based upon the damage observed in correlation with the Enhanced Fujita Scale.

Answers to Weather Riddle: The wind; The sun is shining, there's no rain

A New Generation: Student Volunteers At NWS Hastings – *Briona Saltzman, Meteorologist Intern*

The student volunteer program has been very strong in the National Weather Service for a number of years. Occasionally, college students pursuing a degree in meteorology will "volunteer" their time to a National Weather Service office in order to gain skills and hands on experience that will get them a foot in the door to the rest of their career. They spend a portion of their summer shadowing forecasters, working on the computer systems, and learning all facets of weather service duties. Volunteers are also asked to work on a summer project, usually related to weather research.

This year we had the pleasure of having two student volunteers from the University of Nebraska - Lincoln. We thought we would take the opportunity to introduce you to two students who could easily be the future of the National Weather Service.

Joseph is a senior meteorology student at the University of Nebraska - Lincoln. Before attending school, he spent six years in the Navy. It was during that time he got to experience weather that his home state of California did not offer. Weather came in all forms during this time, from afternoon thunderstorms in South Carolina and Florida to Nor'easters in New York to feeling the power of a Hurricane while on a submarine out to sea. These experiences led to his passion for weather and pursing a degree. Once he finishes school, Joseph hopes to find a job forecasting and also do outreach events to spread his passion for weather to the public. When he is not studying or volunteering at NWS Hastings, Joseph and his wife love to attend Husker sporting events and to travel. Their goal is to visit all 50 states and their capitals.

Aaron is a senior meteorology major at the University of Nebraska – Lincoln. He grew up on a family farm in northeast Nebraska near the small town of Winside, where he attended high school. At the time Aaron thought of weather as more of a hobby than something that he should pursue as a career, so he spent a year in engineering. After that year, he decided to follow his interests and study meteorology instead. He certainly hasn't regretted it and has gained a whole new appreciation for atmospheric science along the way.

Like many others, Aaron gained a fascination with weather by growing up in Nebraska where we experience such a wide variety of weather phenomena. This was amplified by growing up in an agricultural setting that is so dependent on the weather. Aaron's father also helped spark interest in weather by enrolling him in the NeRain project and making it his responsibility to check and report the rainfall every day.

In his free time, Aaron enjoys watching or playing sports of any kind and is a huge Nebraska Cornhuskers fan. He also enjoys working and tinkering with electronics and computers. Recently he began using his electronics skills to build his own scratch-built weather observing station.

Come See Us At The Nebraska State Fair!

The Hastings National Weather Service Office will once again be hosting a booth at the 2013 Nebraska State Fair in Grand Island, Nebraska, from ***August 23rd - September 2nd***!

Our booth will feature a Van de Graff generator ("lightning ball"), live radar, giveaways, drawings and information about weather safety. You can probably pick up a piece of candy or two. The booth will be located on the southwest corner of the Exhibition Building on site Q112, or in the same spot as last year.

We look forward to seeing you and saying "hello".

This Table Reflects Various Historical Fall Extremes Across The Local Area...

	Hottest Fall *High* Temp (Sep-Nov)	Coldest Fall *High* Temp (Sep-Nov)	Driest Fall (Sep-Nov)	Wettest Fall (Sep-Nov)	Earliest *Hard* Freeze (28˚or less)
Grand Island	109˚ on 9/6/1931	8˚ on 11/28/1919 8˚ on 11/27/1896	0.22" in 1939	12.27" in 1973	Sep. 12, 1902
Hastings	105˚ on 9/4/1945	11˚ on 11/25/1975	0.55" in 1939	17.02" in 1973	Sep. 21, 1995
Kearney	108˚ on 9/2/1929	8˚ on 11/30/1985	0.31" in 1939	16.63" in 1946	Sep. 16, 1903
Osceola	105˚ on 9/6/1939	10˚ on 11/30/1985 10˚ on 11/28/1976	0.57" in 1939	12.47" in 1983	Sep. 19, 1991
Holdrege	105˚ on 9/3/1947 105˚ on 9/5/1931	11˚ on 11/30/1985 11˚ on 11/28/1976	0.19" in 1939	17.26" in 1946	Sep. 21, 1918
Alton, KS	112˚ on 9/3/1947	15˚ on 11/30/1985 15˚ on 11/26/1975	1.12" in 1956	13.61" in 1973	Sep. 20, 1918
Plainville, KS	112˚ on 9/3/1947	11˚ on 11/27/1919	0.72" in 1939	12.95" in 1973	Sep. 20, 1918

Fall Climate Outlook Detailed Below...

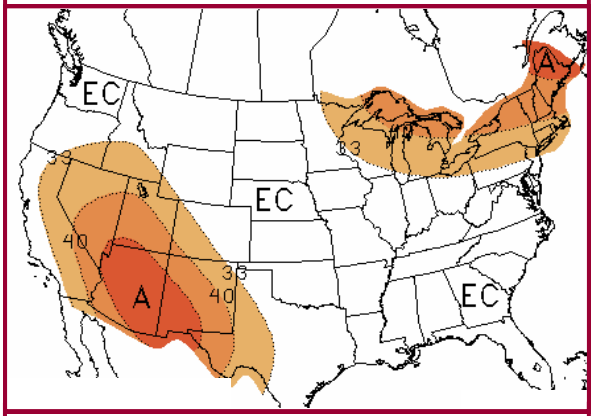
The latest Fall Outlook from the Climate Prediction Center calls for equal chances of below, above or near normal temperatures, and near to slightly above normal precipitation over a portion of south central Nebraska and north central Kansas.

Time Frame: The NWS considers the "fall" season to be all of September, October and November. Although this differs somewhat from the astronomical summer season, using these three full calendar months is convenient for calculating meteorological data.

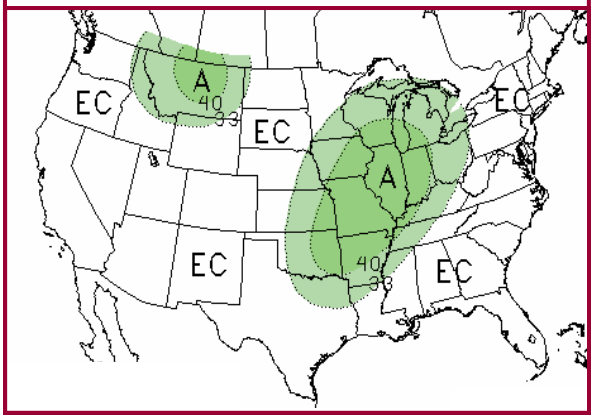
Temperature: The outlook on the right reflects a forecast for the *3-month period as a whole*. We tend to view temperatures in the context of a daily or monthly average, but the 3-month outlook accounts for the entire season. **Red/Orange** colors represent "**warmer**" than normal and **Blue** colors represent "**cooler**" than normal. The white area labeled "EC" designates regions with Equal Chances of having above, near or below normal temperatures. This means there is no clear trend in the forecast analysis to support one of these outcomes over another. As the image shows, Nebraska and Kansas are entirely in the "equal chances" section of the outlook. Currently, there is no strong indicator in the forecast models or trends which provide enough confidence to warrant either above or below normal temperature expectations.

Precipitation: Similar to temperatures, the precipitation outlook depicts the total precipitation for the entire 3-month period, and is independent of individual days or months. **Green** colors represent "**wetter**" than normal and **brown** colors represent "**drier**" than normal. The white area labeled "EC" designates regions with Equal Chances of having above, near or below normal precipitation. This means there is no clear trend in the forecast analysis to support one of these outcomes over another. As the image shows, the area roughly east of U.S. Highway 281 is in the 33-40% category for above normal precipitation. This means it's a bit more likely this area will be wetter than normal than drier than normal for the 3-month period as a whole. The remainder of the area has equal changes of below, above or near normal precipitation.

Temperature Outlook for Fall 2013 (September-November)



Precipitation Outlook for Fall 2013 (September-November)



To view these and other Climate Prediction Center outlooks visit ***http://www.cpc.ncep.noaa.gov/***

National Weather Service

Weather Forecast Office
6365 Osborne Drive West
Hastings, NE 68901

Phone: 402-462-2127
Website: www.weather.gov/hastings
E-mail: w-gid.webmaster@noaa.gov
Facebook: US National Weather Service Hastings
Twitter: @NWS Hastings

Meet the Rest of the Staff at WFO Hastings

Meteorologist-In-Charge

Steve Eddy

Warning Coordination Meteorologist

Mike Moritz

Science and Operations Officer

Rick Ewald

Data Acquisition Program Manager

Marla Doxey

Electronic Systems Analyst

Mark Fairchild

Information Technology Officer

Carol Cartier

Administrative Assistant

Victor Schoenhals

Electronics Technician

Mike Bergmann

Meteorological Intern / Hydrometeorological Technicians

Briona Saltzman ● Joe Guerrero / Mike Reed ● Phil Beda

Lead Forecasters

Merl Heinlein ● Jeremy Wesely ● Cindy Fay

Shawn Rossi ● Scott Bryant

General Forecasters

Julia Berg ● Angela Oder

Ryan Pfannkuch ● Jeff Halblaub