



# The Quarterly Hail



National Weather Service - Hastings, Nebraska

Volume 5, Issue 3

## Notes From the Meteorologist In Charge

Whew, it has been an active summer across our warning and forecast area. In several places, there has been record flooding, coincident with the normal sporadic reports of large hail and damaging winds. Not only has it been busy outside, inside the walls of the office, people are extremely active not only with weather, but with the dozens of extra projects and activities we do (more details of a few of those are in other articles in this publication).

Our college students, Jake and Clint, will be back at school by the time you get to read this. We have enjoyed their energy and ideas through the summer. We have put them to work and they have been there through it all to help the staff provide the best products and services we can in the active weather pattern we have experienced. In a time when society wonders if this generation of kids that seem tied to their electronic devices will amount to anything, I and my staff can attest that these two young men are worthy to stand with anyone from previous generations!

Other recent or expected changes in the office include that we have hired our new Information Technology Officer (ITO). He is our very own Scott Bryant, who was a Lead Forecaster at our office. Scott's vacated position is currently in the process of being filled. In the next newsletter we hope to be telling you about our newest Lead Forecaster on staff.

We are gearing up for a potentially continued active weather pattern into the fall. It is wise to remember that when you look at statistics over long periods of time (30 to 50 years, otherwise referred to as climatology), there is a second "peak" time of the year for high impact weather including tornadoes. You guessed it, the fall. September and October have been active tornado times in the past due to the increased power of storms as the seasons change. Although we can't say for sure that our particular area will see increased activity, climatology shows that the spring and fall present increased threats for tornadic weather conditions. While fall is noticeably less notorious for producing tornadoes, they do occur more than in summer. So please be aware and ready to take action if threatening storms approach, especially if this active pattern continues for a few more months.

I, and the staff, want to extend a hearty thank you for your service and assistance to our office. We hope for your safety and well being you remain cognizant of hazardous conditions as you provide your valuable weather reports!

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### Special Points of Interest:

- *Are you coming to the State Fair? Come see us!*
- *Can strong tornadoes occur in the fall?*
- *What will this year's El Nino mean for our area?*
- *Does a 100-year event only happen once every 100 years?*

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## Decision Support Services At Nebraska Fly-In - *Jeff Halblaub, General Forecaster*

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There is a major push within the NWS to provide support to decision-makers for specific events and venues. The goal is to provide weather expertise for enhancing the safety where there are large numbers of people gathered. Officials need to be prepared to take action and move people to adequate shelter in a timely manner. This decision-support can take several different forms, including different types of weather briefings either remotely from our office or on-site.



This year the Nebraska State Fly-In was held at the Hebron Airport on Saturday, June 6<sup>th</sup>. This is an event where pilots fly-in from all over the State and an air show is held for the public. NWS Hastings provided daily briefings with event organizers during the days leading up to the event. This took the form of conference calls which discussed potential weather hazards that could affect flight conditions and the event in general. We informed the organizers that several inches of rain could fall at the airport in the days prior to the Fly-In. That is indeed what happened; over 4" fell. The organizers had originally planned to have the public park on-site. However, knowing that heavy rain could fall in advance, they were able to implement alternate plans for off-site parking, as the ground was saturated and not conducive to much vehicle traffic. Meteorologists from NWS Hastings participated in the pre-air show pilot briefing and provided information on wind speed and direction from the runway up to 6,000 ft., as well as cloud coverage and the height of the cloud bases.



The Fly-In and air show were a success and no adverse weather occurred, allowing for everyone to have a safe and enjoyable experience. Next year the Nebraska State Fly-In will be at Cozad and NWS Hastings will be working behind the scenes and on-site, providing the weather support.

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## Can Strong Tornadoes Occur In The Fall? - *Julia Berg, General Forecaster*

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Most tornadoes occur during the spring and summer, but tornadoes can, and do, occur in every month of the year. The most violent tornadoes, of course are normally associated with the spring months, but that is not always the case.



October 9, 1913, is such an example. During the afternoon hours of October 9th, thunderstorms developed in both Nebraska and Kansas.

The first reported tornado touched down in Kansas. The tornado moved northeast from just south of Bellaire, passing two miles northwest of Lebanon, missing Salem by a hair. Reports from this storm indicate that the tornado gave plenty of warning with an "intense" sound. A couple of barns were destroyed; eight horses and hundreds of chicks were killed. It was reported that an apple tree nearly a foot in diameter was torn out by its roots, but a bee hive only three feet away was undisturbed. This tornado was later rated as an F2.

About an hour later, there was tornado damage reported from Nebraska. This, as it turns out, was probably a "family of tornadoes" that moved northeast, stretching from 10 miles west of Oconto to northeast of Chambers. These tornadoes "wiped a dozen farm homes from the face of the earth" according to local accounts of the storms. Near Broken Bow, a sod house was destroyed. Water tanks were carried for five miles and about 200 head of cattle were killed. This storm caused 14 injuries and 3 deaths in its wake. In the end, the tornado was rated an F4 on the Fujita Scale.

Although it's not common to see such strong tornadoes during the Fall season, they remain a possibility; especially for locations across the Central Plains. It is for this reason, that we should continue to remain cognizant of weather forecasts and have safety plans in place, every single day of the year.

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## Cooperative Observer Spotlight - Roger Bodtke of Shelby, NE

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Mr. Roger Bodtke is currently retired, after faithfully serving our country, with 44 years of federal service. Roger first served as a U.S. Marine including service in Vietnam, as a jungle warfare specialist with the reconnaissance section. He later worked for the FAA Flight Services at various locations around the country, in various roles including Air Traffic Control operator, retiring as supervisor at the Columbus, Nebraska AFSS office. Roger was first certified for Pilot Weather Briefings on June 3, 1974, and still has the certificate. He completed many other schools and training with the FAA that involved weather, becoming radar certified on May 26, 1977. Roger was also a commercial pilot, as well as a flight instructor. One of his duties with the FAA was weather observation training and dissemination of weather data. Roger has taken weather observations as part of his job with the FAA, on his own and now as an observer for over 40 years.



His interest in weather started when he was only 5 years old and a tornado went through their farm near Gothenburg, destroying the house. His father was in the field, and his mother took Roger and his sister into a small cave and held onto them as the tornado passed. The family Bible was found in a neighbor's tree. Shortly after this experience, the Blizzard of 1949 hit and he remembers snow drifts that were as high as the barn. In 1953, dust storms brought red dirt from Oklahoma to their farm in Nebraska. Later, as a young Marine, he was amazed at the amount of rain the monsoon season brought to Vietnam. As a pilot, the weather was obviously very important to flying and any aviation endeavors.

Roger is happy to share his knowledge of weather, and shares data with family, neighbors, the public and local farmers. He provides information to the Shelby Fire Department and the Columbus radio station. He has called in additional reports to the National Weather Service office, providing real time data to the forecasters. His experience as a pilot, with his FAA experience to give insight on weather conditions he knows are important to the public and aviation customers.

Mr. Bodtke is very involved in his local community. Small rural towns often rely on volunteers to perform vital duties, and Roger has been a reliable volunteer for many activities. He is a member of the American Legion and the Veterans of Foreign Wars (VFW). He gives presentations at various schools about patriotism, and talks to school children on Veteran's Day. He also gives talks about aviation, and has been able to have National Guard helicopters fly in and land at the school football field. He volunteers his time and efforts at the Immanuel Lutheran Church, where he has served as Congregation President, as well as serving on the board of elders. He has also served on numerous committees and helped with planning and decision making for various projects. He and his wife, Joyce, have 4 children, 15 grandchildren, and 3 great grandsons, and enjoy spending time with family and attending activities.

A large part of Roger's life has been taking care of his wife, Joyce, who has dealt with Multiple Sclerosis (MS) for many years. He had been the primary care giver for her at their home, until October 2014, when she moved into assisted living. Roger has become educated in many medical areas in order to help her with many issues. He takes her to doctor appointments and ensures her care is the very best. He is involved at the center where she stays and is active in the MS Society chapter.

Roger is a naturally friendly person and always pleasant to visit with during our site inspections or when he calls the office. He has a quick smile and keen sense of humor, giving a sense of ease to those around him.

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## Nebraska State Fair: August 28<sup>th</sup> - September 7<sup>th</sup>

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We will again be staffing a booth at the 2015 Nebraska State Fair. Located in the same location as previous years, you can find us in the southwest corner of the Exhibition Building near the restrooms.

You can watch live radar coverage, enter to win a NOAA weather radio, watch how lightning is generated and see how a tornado forms all from our booth! Best of all, you can come visit with a meteorologist. Who doesn't love chatting about the weather? So stop by and say "Hello!"



## The 2015/2016 El Niño and the Central Plains - Shawn Rossi, Lead Forecaster

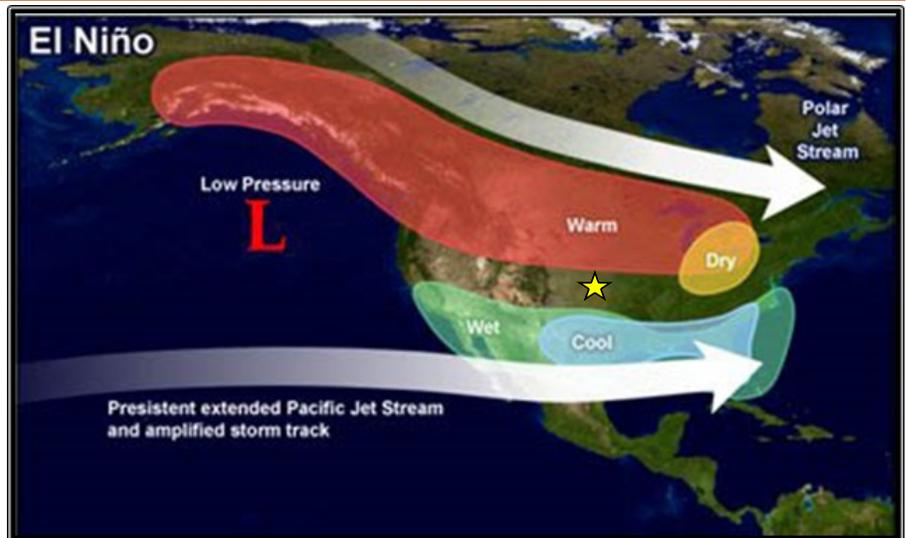
El Niño is a cyclical phenomenon that occurs in the tropical Pacific and is known to affect weather around the globe. Past El Niño events have been linked to floods, droughts, and wildfires. They have also given rise to some of the most severe famines in recorded history as well as led to numerous disease outbreaks. So what exactly is El Niño?

El Niño simply refers to the warming of the Tropical Pacific above its long term average. When this happens, the typical location of the jet stream becomes altered, which in turn alters

the steering of weather systems around the globe. While there are many things that impact both the strength and direction that a storm system eventually takes, numerous scientific studies have shown statistically significant regional impacts when compared with past ENSO (El Niño Southern Oscillation) events.

For the United States, these impacts tend to be most significant across the southern third of the country, generally resulting in above average precipitation and below normal temperatures during the winter months. Across the northern third of the country, generally above normal temperatures are observed with below normal precipitation falling across the Ohio Valley.

Presently, an **El Niño Advisory** is in effect and a greater than 90% chance has been given from the Climate Prediction Center (CPC) that these conditions will continue through the Northern Hemispheric winter months. Not surprisingly, the long term outlooks for this upcoming winter issued by the CPC are heavily influenced by historical El Niño events as reflected in the map above. Since El Niño events tend to have minimal impacts across the Central Plains, not surprisingly the latest forecast for this winter issued by the CPC indicates equal chances for below, near or above normal temperatures and precipitation locally.



## Student Volunteer Spotlight - Clint Aegerter

Clint Aegerter is a second year graduate student at the University of Nebraska-Lincoln, where he is a teaching assistant. He was born and raised in Seward, NE. He has always been interested in weather, but the event that got him hooked was a tornado that occurred just east of Seward in June of 2001.

Despite the strong interest in meteorology, he began his college education at UNL as a business management major. However, after taking two meteorology classes, he decided to switch to meteorology and eventually received a Bachelor of Science degree in Meteorology/Climatology from UNL in December 2013. As an undergraduate, Clint worked as a research assistant on a variety of projects including the detection of air pollution via satellite using city lights at night. His master's thesis research involves modeling and satellite remote sensing the meteorological impacts of irrigation, with a focus on the impacts during the 2012 drought in the Central Plains.



Outside of meteorology, Clint likes spending time at his family's cabin on a lake in central Nebraska, where he enjoys waterskiing. During the colder months, he enjoys watching sports, and cheering for the Huskers and Chicago Bears.



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## Cooperative Observer Awards

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Marlene Einspahr, precipitation observer for Arcadia, Nebraska, received her 15 year Length of Service Award. Marlene continues the climate history for the Arcadia area, which started in January of 1893. Her parents, Marjorie and Harold Elliott, took observations for 25 years (1975-2000) before Marlene took over, giving them a family service time of 40 years.

Marla Doxey, NWS Hastings Data Acquisition Program Manager, presented the award.

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## Decisions, Decisions, Decisions - *Michael Moritz, Warning Coordination Meteorologist*

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Making a decision is really hard sometimes. From buying a house to deciding what's for dinner, the process of "decision making" can be a long, arduous process. The National Weather Service (NWS) is trying to make that process a little easier for some of our partners.

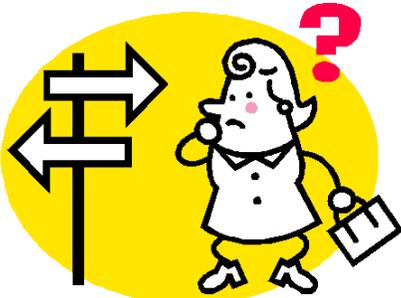
At NWS offices around the country, including NWS Hastings, we are focused on building a Weather-Ready Nation. To help in this endeavor, the local NWS offices are expanding our dissemination efforts to achieve far-reaching national preparedness. We call this Impact-based Decision Support Services (IDSS) for our core partners. A core partner (can be government or non-government), is an entity directly involved in the preparation and communication involving hazardous weather or other emergency information from the NWS. This includes emergency managers, government partners and the media.

Most importantly, there are no changes to the everyday weather, watch, advisory and warning information you receive from the NWS Hastings. Our mission remains the same: "the protection of life and property". In fact, we have been providing "decision support services" (DSS) to our core partners since our inception. What is slightly different is that each local NWS office will better identify with our core partners and events that are scheduled to occur in the area, at which public safety may be compromised by weather. For example, a person was killed at an outdoor festival near Chicago recently as severe weather rolled in. This summer, two people died at a circus in New Hampshire as a tent collapsed when severe thunderstorms impacted the area. We can't prevent all disasters, but we can mitigate their impacts.

The best example locally, though not the only one, is our enhanced service at the Nebraska State Fair in late August and early September. Working with local Emergency Management, NWS Hastings will provide a pre-event briefing and daily briefings which will be distributed to fair personnel and support staff for planning each day. Meteorologists from NWS Hastings will also be on-site working in a temporary Emergency Operations Center to provide weather support during two outdoor concerts on the first week-end of the fair. As many as 20,000-30,000 people may be on the fairgrounds at once, and safety of the fair

attendees and staff is paramount if threatening weather approaches. This type of enhanced focus on events in north central Kansas and south central Nebraska will expand over the next year. Basically if you are attending an event in your area, it will be likely NWS Hastings will provide site-specific forecast information to Emergency Management in support of the event.

Decisions...Decisions...Decisions. Hopefully, for some of our partners, decisions will become a bit easier in the future.



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## “Hey! Didn’t We Just Have A 100-Year Rain Last Year?”

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Referring to the title of this article, a lot of us at the NWS have heard those words many times. So, what is a 100-year rain event? Does it mean it will only happen once every 100 years? Is a 100-year rain event the same as a 100-year flood? The answers to those three questions are “let us explain”, “no” and “no”.



First, let us explain. When references are made to “100-year events”, such a reference is made because the event was an unusual event, a record-breaker, or out of character with normal weather conditions. In most cases, we reference rainfall. Here are some short points to make when describing such events:

**What does a 100-year rainfall event mean?** A 100-year rainfall event means there is a 1% probability of that event occurring at that location in any given year. In other words, this is a 1 in 100 or 1% chance that a storm will produce a certain amount of rain in any given year. Meteorologists and climatologists will sometimes call this “precipitation frequency”.

**What do you mean by “100-year rainfall” event?** This is the most common reference; “X.XX amount of rain in XX:XX time period”. We often look at 24-hour rainfall because observations are most common in 24-hour intervals and taken first thing in the morning. For example, in Stockton, KS, a rainfall of 6.35” in 24 hours is a 100-year rainfall event. That means for Stockton, there is a 1% probability in any given year of 6.35” of rain falling in a 24-hour period.

**Are there other periods besides “100-year” or “24-hours”?** Yes. In fact, statistics have been produced for several durations of rainfall, ranging from 5 minutes to 60 days. While 100 years is most common, frequency of occurrence (the probability part) ranges from 1 year to 1000 years. Referencing Stockton again, probability of receiving 3” of rain in 1-hour is actually 2% in any given year. This would be classified as a 50-year event.

**Does a 100-year event only happen once every 100 years?** No. A rain event of such proportion could happen in two straight years, or 10 years from now, or 500 years from now. Remember, it means there is a 1% probably of the event happening in any given location. If it happens two or three years in a row, the probably of occurrence will actually increase, possibly to 2% or 3% depending upon how frequently it occurred.

**If I have a 100-year rain, does that mean I will have a 100-year flood?** No. The rainfall frequency/probability is not directly linked to the flooding probability. Flooding is influenced by many things, including soil moisture, ongoing stream and river flow, land use and urbanization. You might have a flood, but no two floods will be exactly alike or triggered by the same amount of rain.

**Why is “100-year” the most common reference?** It’s hard to say for sure, but probably because it a “round” number and easy to reference. Another reason might be because is roughly mimics human life-expectancy. Though most of won’t make it until we are 100 years old, some of us will get close. The 100-year reference allows us to review and roughly compare to a person’s lifetime for historical perspective.

## “Hey! Didn’t We Just Have A 100-Year Rain Last Year?” continued...

**This is confusing, how does this affect my life?** Each person is a little different, but one way this may affect you is flood insurance. The Federal Government uses a “100-year flood plain” to determine which locations (homes/businesses) are required to carry flood insurance. This isn’t without controversy, but the point is a “100-year flood” has a 1% probability of occurring in any given year. That ties back to this discussion of frequency of occurrence, amount of rainfall and duration of the event.

**Have there been recent 100-year rainfall events in our area?** Yes. In fact, there have probably been several this past spring. The most notable event was on May 6 in Thayer and Jewell Counties. As much as 10.91” of rain fell in a 24-hour period, probably in a 12-hour period, in northern Jewell and Thayer counties. Widespread flooding ensued with millions of dollars in damage (on top of tornado damage). Using Hebron as our location, a rainfall of 10.91” was a 1000-year year rain event statically speaking. This event had a 0.1% of occurrence during any given year in that area. It’s no wonder the flooding was widespread and so significant in that area.

**How can I find my location’s “100-year rainfall” amount?** NOAA and the NWS have produced this type of data for decades. It is now easily available on line for a couple hundred stations in Nebraska and Kansas. The website is: <http://hdsc.nws.noaa.gov/hdsc/pfds/> . From this site, you can choose the state of interest, and then “select a station”. The data will appear in a table on the screen. An example of the table for Stockton, KS is below.

Stockton, Kansas  
Precipitation Frequency Table

Duration	Average recurrence interval(years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.362 (0.279-0.470)	0.427 (0.329-0.554)	0.535 (0.411-0.695)	0.626 (0.479-0.816)	0.755 (0.561-1.00)	0.857 (0.622-1.15)	0.958 (0.676-1.30)	1.07 (0.724-1.47)	1.21 (0.793-1.69)	1.32 (0.846-1.86)
10-min	0.530 (0.409-0.688)	0.625 (0.482-0.811)	0.783 (0.602-1.02)	0.917 (0.701-1.19)	1.11 (0.821-1.47)	1.25 (0.911-1.68)	1.41 (0.990-1.91)	1.56 (1.06-2.15)	1.78 (1.16-2.48)	1.94 (1.24-2.72)
15-min	0.647 (0.499-0.839)	0.762 (0.588-0.989)	0.955 (0.734-1.24)	1.12 (0.855-1.46)	1.35 (1.00-1.79)	1.53 (1.11-2.05)	1.72 (1.21-2.32)	1.91 (1.29-2.62)	2.17 (1.42-3.02)	2.37 (1.51-3.32)
30-min	0.921 (0.710-1.19)	1.09 (0.838-1.41)	1.37 (1.05-1.78)	1.60 (1.22-2.09)	1.93 (1.44-2.57)	2.20 (1.60-2.94)	2.46 (1.73-3.34)	2.74 (1.86-3.76)	3.11 (2.04-4.34)	3.40 (2.17-4.78)
60-min	1.17 (0.902-1.52)	1.38 (1.07-1.80)	1.75 (1.34-2.27)	2.07 (1.58-2.69)	2.53 (1.88-3.37)	2.90 (2.11-3.89)	3.28 (2.32-4.46)	3.69 (2.51-5.09)	4.25 (2.79-5.95)	4.70 (3.00-6.60)
2-hr	1.42 (1.11-1.81)	1.68 (1.31-2.15)	2.13 (1.66-2.73)	2.53 (1.96-3.26)	3.12 (2.36-4.12)	3.60 (2.66-4.78)	4.10 (2.94-5.52)	4.64 (3.20-6.33)	5.39 (3.59-7.45)	5.99 (3.88-8.31)
3-hr	1.54 (1.21-1.96)	1.83 (1.44-2.33)	2.34 (1.83-2.97)	2.79 (2.18-3.56)	3.46 (2.64-4.55)	4.02 (3.00-5.31)	4.61 (3.33-6.17)	5.25 (3.65-7.11)	6.14 (4.12-8.44)	6.86 (4.48-9.44)
6-hr	1.76 (1.41-2.21)	2.10 (1.68-2.64)	2.70 (2.15-3.39)	3.24 (2.56-4.07)	4.03 (3.12-5.23)	4.69 (3.54-6.11)	5.39 (3.95-7.11)	6.14 (4.33-8.22)	7.20 (4.90-9.77)	8.05 (5.33-10.9)
12-hr	2.01 (1.62-2.48)	2.41 (1.94-2.98)	3.10 (2.49-3.84)	3.69 (2.96-4.59)	4.56 (3.56-5.80)	5.25 (4.01-6.73)	5.98 (4.43-7.75)	6.74 (4.81-8.87)	7.79 (5.37-10.4)	8.62 (5.80-11.6)
24-hr	2.32 (1.90-2.84)	2.73 (2.23-3.33)	3.42 (2.79-4.18)	4.02 (3.26-4.93)	4.90 (3.88-6.16)	5.61 (4.34-7.09)	6.35 (4.77-8.13)	7.13 (5.17-9.27)	8.22 (5.75-10.8)	9.08 (6.19-12.0)

The number “100” in **BLUE** (upper right) is the reoccurrence interval in years. The 100 stands for “100-year” reoccurrence and means a 1% chance of the event occurring in any given year.

The “24-hr” in **PURPLE** (lower left) stands for the duration of the rainfall event. This is for rainfall which falls in a 24-hour period.

Finally, the number “6.35” in **RED** (bottom right), is the amount of rain in a 24-hour period which would be considered a “100-year” event OR which has a 1% chance of occurrence any given year, or a very small chance during any given year. For reference, a 25-year rain event (4.90” in Stockton), has a 4% chance of occurrence during any given year.

## This Table Reflects Various Historical Fall Extremes For The Local Area...

	Warmest September On Record (Average Temp)	Warmest October On Record (Average Temp)	Warmest November On Record (Average Temp)	Highest Daily Snowfall Amount (Sep-Nov)	Average First Hard Freeze (28° or colder)
Grand Island	75.4° / 1931	61.8° / 1947	46.8° / 2001	10.2" / 11-27-1983	Oct. 16
Hastings	74.3° / 1931	64.7° / 1938	46.8° / 2001	12.5" / 10-25-1997	Oct. 18
Kearney	72.5° / 1931	62.5° / 1963	46.2° / 1949	12.0" / 11-14-1909	Oct. 16
York	74.5° / 1931	63.8° / 1947	48.7° / 2001	12.0" / 11-27-1978	Oct. 20
Red Cloud	76.0° / 1931	64.5° / 1947	46.4° / 1913	14.0" / 10-26-1997	Oct. 11
Alton, KS	78.8° / 1931	66.6° / 1947	47.3° / 1913	12.0" / 11-6-1953	Oct. 15
Plainville, KS	76.4° / 1931	66.9° / 1947	49.8° / 1999	12.0" / 11-7-1953	Oct. 26

## Fall Climate Outlook Detailed Below...

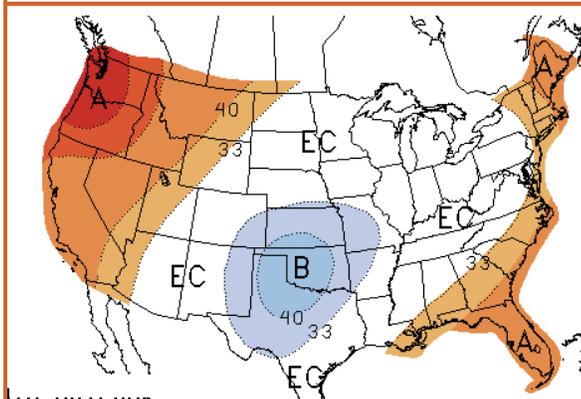
The latest Fall Outlook from the Climate Prediction Center (released on Aug. 20th) slightly favors above normal precipitation and normal to below normal temperatures across the local area of South Central Nebraska and North Central Kansas. These expectations in the longer term weather pattern are consistent with an intensifying El Niño this fall, as above-average sea surface temperatures prevail within the equatorial Pacific Ocean.

**Time Frame:** The NWS considers the “fall” season to be all of September, October and November. Although this is offset roughly three weeks from the astronomical fall season that runs from September 23-December 20, using these three full months is more convenient for analyzing meteorological data.

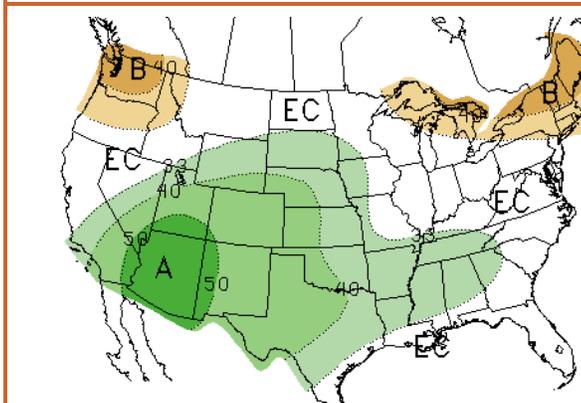
**Temperature:** The outlook on the right reflects a forecast for the 3-month period as a whole. We tend to view temperatures in the context of a daily or monthly average, but the 3-month outlook accounts for the entire season. **Red/orange** colors represent “warmer” than normal and **Blue** colors represent “cooler” than normal. The white area labeled “Equal Chances” 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 three outcomes over another. As the image shows, North Central Kansas and extreme southern Nebraska are *slightly favored* (33-40% chance) to observe below normal temperatures for the fall as a whole. However, this still means there is a 33% chance of observing near normal temperatures and a 27-33% chance of above normal temperatures. Equal chances of above, below or near normal temperatures are anticipated over the rest of South Central Nebraska, meaning there are no clear trends to favor any outcome over another.

**Precipitation:** Similar to temperatures, the precipitation outlook depicts the total precipitation trend for the entire 3-month period, and is independent of individual days or months. **Green** colors represent “wetter” than normal and **Orange/brown** colors represent “drier” than normal. The white area labeled “Equal Chances” designates regions with equal chances of having above, near or below normal precipitation. As depicted to the right, the entire local area is *reasonably favored* (33-49% chance) to observe above normal fall precipitation, especially within the southwest half of the area. However, this still means there is a 33% chance of observing near-normal rainfall and an 18-33% chance that rainfall could possibly average below normal. As is the case with the temperature outlook, the precipitation outlook does not forecast *how much* above or below normal precipitation might be.

**Temperature Outlook for Fall 2015  
(September-November)**



**Precipitation Outlook for Fall 2015  
(September-November)**



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

## National Weather Service

Weather Forecast Office  
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Hastings, NE 68901

Phone: 402-462-2127

Website: [www.weather.gov/hastings](http://www.weather.gov/hastings)

E-mail: [w-gid.webmaster@noaa.gov](mailto:w-gid.webmaster@noaa.gov)

Facebook: US National Weather Service Hastings

Twitter: @NWSHastings



## 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*

Scott Bryant

### *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 • Vacant

### *General Forecasters*

Julia Berg • Angela Pfannkuch

Ryan Pfannkuch • Jeff Halblaub