

VALLEY WEATHER WIND



Fall 2004

**National Weather Service
Omaha/Valley, Nebraska**

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A Newsletter for Emergency Managers, Core Storm Spotters, Media, and Public Officials in Eastern Nebraska and Southwest Iowa

Comments and suggestions are always welcome. Your feedback is very important to us!

Please contact us by telephone, e-mail, or regular mail.

**National Weather Service
6707 N. 288th Street
Valley, Nebraska 68064**

This publication also is available on-line at <http://www.crh.noaa.gov/oax/news/newsletter.pdf>

Chief Editors For This Issue:
Van DeWald / Cathy Zapotocny



Maybe the Central Plains Isn't So Bad...

by Steve Schurr, Meteorologist-In-Charge

Most of us have relatives or friends from other areas that wonder how we can possibly live with the tornadoes and other weather hazards here on the plains. We may have even considered moving to someplace known for its tropical climate. Florida may have been scratched off many of our lists this fall, though.

The rapid fire strikes of hurricanes Charley, Frances, Ivan and Jeanne might have resulted in a change in Florida's nickname from the "Sunshine State" to the "Hurricane State" for a good share of us. For those still interested, real estate values may have fallen at least temporarily. I think I'll stay here, myself! Nebraska and Iowa got a potent dose of severe weather this season, and both states set records for the number of tornadoes in a year. The [Hallam, NE tornado](#) on May 22nd was certainly among the largest to occur anywhere. It was on the ground for a 54 mile long path from near Daykin to Palmyra, and it was more than 2 miles wide around Hallam. Tragically, one person perished in Hallam, but most found protective shelter thanks to effective warnings. The Southwest Iowa tornadoes on August 26th were not as large or as devastating, but they were still quite dangerous.

The winter season will soon arrive and present another set of challenges. Winter weather is often an inconvenience in Nebraska and Iowa, but a full-fledged blizzard hits on occasion. A blizzard is defined as significant snowfall with winds of at least 35 miles an hour and visibility less than ¼ mile. Heavy snow requires us to alter our

schedules, but it is fool-hardy and dangerous to attempt travel in a blizzard. So, stay on the safe side during the winter by watching the forecast and carrying a winter safety kit in your car.

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Set Your Clocks Back

Daylight savings time ends October 31st. Fall back by setting your clock back one hour Sunday morning.



Winter Weather Awareness Day

by Brian Smith, Warning Coordination Meteorologist



Two days have been set aside for Winter Weather Awareness Day. In Nebraska, Winter Weather Awareness Day is set for October 27th. In Iowa, Winter Weather Awareness Day is set for November 10th. Listen to NOAA Weather Radio for further information regarding winter safety tips, winter weather terminology and live NOAA Weather Radio broadcasts.

The 2003/2004 Winter Season in Retrospect

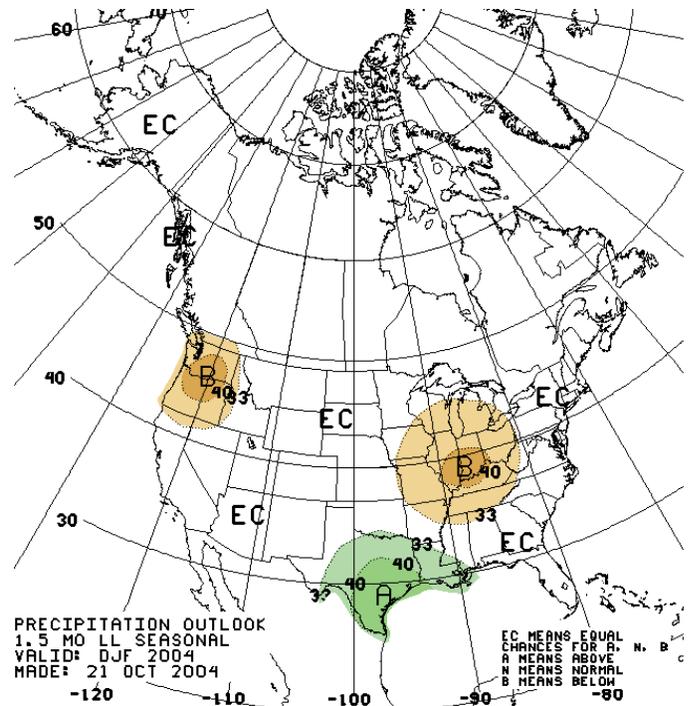
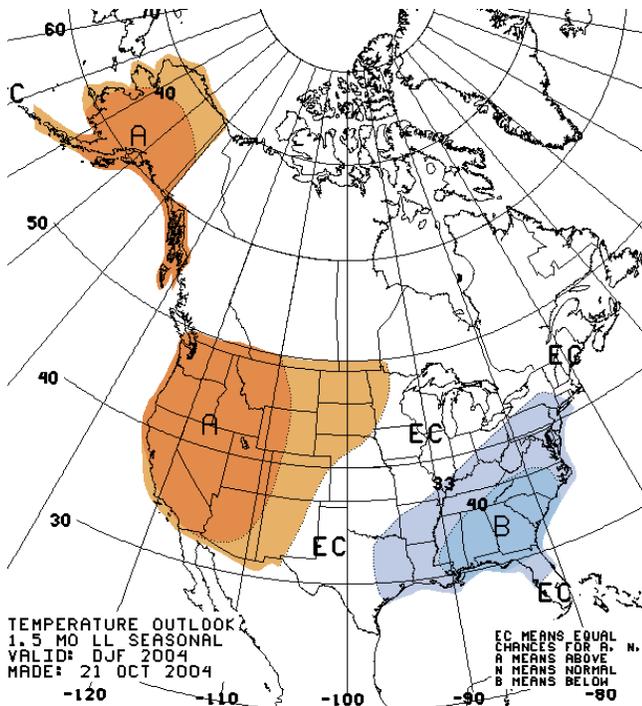
by Rick Chermok, Lead Meteorologist

Above normal snowfall was reported over much of eastern Nebraska and southwest Iowa during the 2003 and 2004 winter season (defined from July 1 through June 30). The heavy snow culminated in early February after the last of 3 storms within a 2 week period left 26 inches of snow on the ground at Omaha Eppley Airfield. The 26 inches was just 1 inch shy of the record snow depth in Omaha, and records in Omaha date back into the early 1870s. The heaviest snow from those storms fell from east central Nebraska into western Iowa. For the season 47.8 inches of snow was recorded in Omaha, Valley reported 46.3 inches, Lincoln 35.9 and Norfolk recorded 31.1 inches. On average 30.2 inches of snow falls in the Omaha area.

The Valley NWS office issued 212 county Winter Storm Warnings during the 2003/2004 season, 166 of which verified. That gave our office a Winter Storm Probability of Detection (POD) of 81 percent. The average lead time for the warnings was 13 hours.

The 90-Day Forecast: December-February 2005

The 90-day forecast for eastern Nebraska and southwest Iowa issued October 21st calls for near normal temperatures and near normal precipitation. For updates see: <http://www.cpc.ncep.noaa.gov/products/predictions/>



Why Do Leaves Change Color???

by Cathy Zapotocny, Meteorologist

For some, autumn may be your favorite time of the year. It's a time of transition; the days are becoming shorter, the leaves are changing color, the crops are being harvested, and we experience our first freeze of the season. Did you ever wonder why and how the leaves change color?

Throughout the spring and summer, trees are taking in water through their roots. Carbon dioxide is being taken in from the air and sunlight is used to convert the water and carbon dioxide into glucose. Glucose is the plant's source of energy. The process by which the plant turns the water and carbon dioxide into sugar is called photosynthesis. Chlorophyll is a chemical that is part of this photosynthesis process and is what gives plants their green color.



With the shortening day length and change in temperatures, the trees take in less sunlight and water and as a result reduce their production of glucose, and chlorophyll disappears from the leaves. What will be the resultant color...orange, red, yellow, purple, or brown??? Certain tree varieties have a propensity for certain colors. Vibrant red colors are a result of glucose being trapped in the leaves after photosynthesis stops. This is especially noticeable with maple trees that experience sunlight during the day and chilly nights.

SKYWARN AMATEUR RADIO ASSOCIATION - SARA - W0NWS

by Ken Noel, AJ0A, Trustee, Skywarn ARA W0NWS

You may have noticed the old "wind" tower is sporting some new hardware ... not to measure wind speeds and other weather data ... but a directional HF (high frequency) and VHF (very high frequency) antenna. *This is part of the amateur radio Skywarn station that many of you are familiar with.*

HIGH FREQUENCY STATION – 1.6 MHz to 30 MHz

The directional HF antenna, a KLM KT34A, was donated by Jim Sanford, NØAIH. An existing HF wire antenna is mounted to the 100' tower on the east side of the building. Both antennas will be interfaced to an Icom 746 HF transceiver that's on loan from the [Ak-Sar-Ben Amateur Radio Club](#). With this particular installation it should be possible to communicate anywhere in the world (depending on propagation), but more importantly, with other HF equipped stations throughout the country, such as other NWS offices (Skywarn Appreciation Day!), Emergency Management Agencies, Red Cross and amateur radio stations in general.

VHF/UHF STATION – 50 MHz to 450 MHz

The directional VHF antenna, a Cushcraft Boomer, along with a Hy-Gain Ham IV rotor, was donated by Mitch Gagne, NØAZF. Existing non-directional VHF and UHF antennas are mounted to the 100' tower referred to above. These antennas are interfaced with several VHF/UHF transceivers that, with the new antenna, should expand the range of radio communications (to be tested) in the NWS Valley CWA.



SARA Con't .

This installation also features an APRS (Automated Position Reporting System) station that can monitor remote reporting weather stations and GPS equipped Skywarn spotters. A related packet radio station automatically transmits selected weather data from NWS; both transmit data on the amateur radio bands.

HOMELAND SECURITY

In communities like ours, amateur radio is taking an active role in Homeland Security. The NWS Valley amateur radio installation along with similar installations at the [Douglas County Emergency Management Agency](#), Red Cross, OMMRS (Omaha Metro Medical Response System), etc. are part of this.

THANK YOU!

Besides those who donated and/or loaned equipment for the ARES Skywarn station, a great big THANK YOU to NWS for supporting this function, to Geri Norris (N5RIG) for planning, coordinating and doing a great job on the installation (including work ON the towers), and to a team of ham radio operators from the [Ak-Sar-Ben Amateur Radio Club](#) and ARES who assisted Geri.

A Brief Review of the 2004 Convective Season

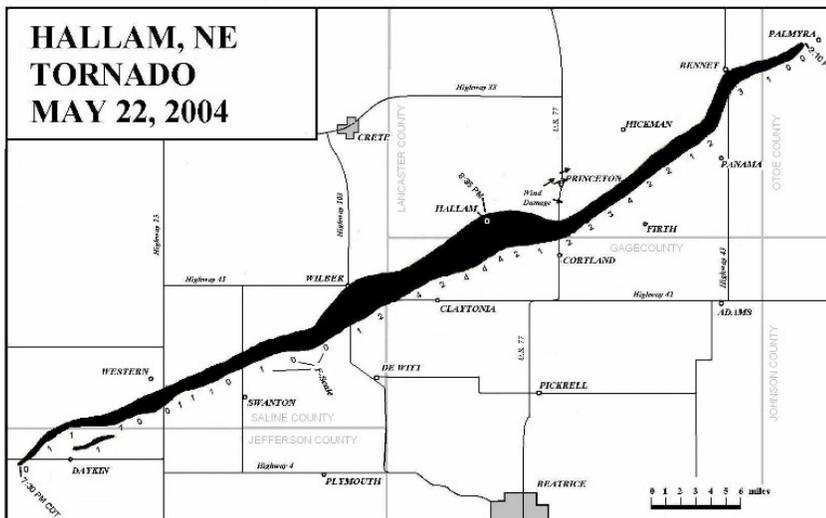
by Rick Chermok, Lead Meteorologist

As we switch gears and begin to make the transition to winter weather and winter storms, let's take a look back at the 2004 convective weather season across the Omaha/Valley's County Warning Area (CWA), which consists of 30 counties in eastern Nebraska and 8 in southwest Iowa.

The convective season started off early, when on February 29th severe thunderstorms erupted from around Fairbury northeast into the Omaha area. The storms packed 60 to 70 mph winds and hail up to an inch in diameter.

Severe weather exploded across the CWA in May. A total of 337 county warnings were issued from our office during that month, culminating on a very destructive outbreak on May 22nd. Ten confirmed tornadoes were reported across the CWA that day, the strongest was the F4 tornado that ripped through southeast Nebraska, virtually destroying the community of Hallam and killing 1 person. A track of that storm is included below.

In total, 30 confirmed tornadoes were reported across the CWA in 2004, 23 in eastern Nebraska and 7 in southwest Iowa.

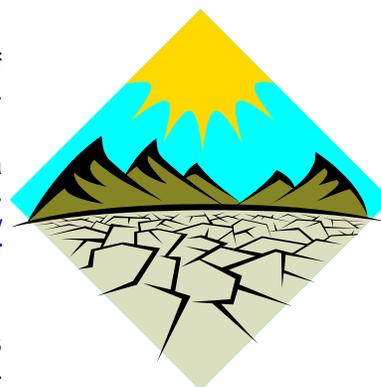


Besides producing tornadoes, damaging winds and large hail, the storms in May and June produced areas of very heavy rain and flash flooding. Especially hard hit was Boone county which experienced several flash flood events during that time. A separate flash flood event that struck the Omaha area during the early morning hours of July 22nd caused one death and indirectly caused the death of another individual later that day. In total 35 flash flood events were recorded in 2004 across the Omaha/Valley's CWA.

THE CURRENT DROUGHT PICTURE

by Jeff Reese, Hydrologist

Drought conditions continue to be a problem across the western half of Nebraska while the eastern half of the state is presently encountering normal conditions as the graphic indicates on the U.S. Drought Monitor site. More specifically...an abnormally dry pattern exists across southwest Iowa and extreme southeast Nebraska as of October 5. This site can be observed at the following web site: <http://www.drought.unl.edu/dm/monitor.html>



The table below basically indicates that you have above normal conditions north of the Platte River while south of the Platte River...conditions actually show a deficit...both on a monthly basis as well as a yearly basis with respect to precipitation. There were some areas where deficits were noted on a monthly basis but were actually on the plus side in relation to yearly precipitation normals.

The Omaha Hydrologic Service Area (HSA) falls under the umbrella of the Missouri River Basin which is currently under a drought scenario...especially as you work upstream of Nebraska into the Dakotas and Montana. Releases from all the reservoirs upstream of Nebraska within the Missouri River Basin have been reduced. Due to consistent rainfall...Gavins Point (located on the South Dakota/Nebraska border on the South Dakota side in Yankton County adjacent to Knox County on the Nebraska side) releases were re-

Station Name	Precipitation for the Month	Departure from Normal	Precipitation from Jan. 1st	Departure from Normal
Albion, NE	4.29"	1.78	30.44"	7.17
Auburn, NE	0.96"	-2.58	24.24"	-2.52
David City, NE	2.72"	-0.31	20.75"	-4.82
Fairbury, NE	2.89"	-0.10	27.28"	0.98
Fremont, NE	3.20"	0.10	19.66"	-5.33
Lincoln, NE	3.24"	0.32	20.01"	-3.98
Nebraska City, NE	1.03"	-2.35	26.46"	-1.64
Niobrara, NE	5.30"	3.13	20.54"	0.83
Norfolk, NE	3.27"	1.02	24.63"	1.78
Omaha, NE	1.66"	-1.51	31.17"	5.90
Raymond, NE	4.51"	1.67	22.50"	-2.95
Virginia, NE	2.20"	-1.17	25.81"	-1.48
West Point, NE	2.95"	0.34	26.02"	0.77
Clarinda, IA	1.14"	-2.75	31.42"	0.83
Harlan, IA	1.69"	-2.77	32.74"	4.85
Oakland, IA	0.81"	-2.83	32.31"	3.93
Red Oak, IA	1.57"	-2.54	30.15"	-0.43

duced from 27,500 cubic feet per second (cfs) to as low as 21,000 cfs during the month of September. Releases were reduced at a rate of 3,000 cfs a day, reaching 12,000 cfs around October 10. Releases are expected to remain at this rate for several days before dropping to 11,000 cfs. What this means is that the Missouri River is expected to drop about 3 feet in the Sioux City area and 5 feet in Omaha as the tributaries continue to fall.

Current trends do not look favorable for diminishing drought conditions across the

Drought Con't.

western half of the state. Currently there is a trend for a minor to moderate El Nino event to take place this winter but it is too early to tell what effect this will have on the state and especially in relation to precipitation. The table to the right gives the reader a general view on drought conditions during this past month of September across the Omaha HSA.

September Precipitation Data	Monthly Precipitation (inches)	Departure from Normal (inches)	Percent of Normal	Standardized Precipitation Index
NE Nebraska	4.00 to 6.00	1.00 to 2.00	150 to 170%	Moderately Wet
East-Central NE	3.00 to 4.00	0.00 to 1.00	90 to 110%	Near Normal
SE Nebraska	2.00 to 3.00	-2.00 to -1.00	50 to 70%	Near Normal
West-Central Iowa	3.00 to 4.00	0.00 to 1.00	90 to 110%	Near Normal
Southwest Iowa	1.50 to 2.00	-4.00 to -2.00	30 to 50%	Moderately Dry

Weeping Water Observer Receives Holm Award

by Terry Landsvork, Hydrometeorological Technician



Steve Schurr, the Meteorologist In Charge of the National Weather Service office in Omaha, presented Farley Amick with the 2004 John Campanius Holm Award. Mr. Amick received the award in recognition of his 27 years of outstanding service as the Weeping Water Cooperative Weather Observer and his many hours of volunteer service to his community. No more than 25 Holm awards are presented annually to cooperative observers around the country.

Science Corner—Snow, Sleet, Freezing Rain, or Rain ?

by Daniel Nietfeld, Science and Operations Officer

One of the most troubling forecast challenges meteorologists face during the autumn, winter, and spring is what type of precipitation will fall during a storm. Will it be cold enough for 10 inches of snow, or will we see one inch of rain? Or what if that one inch of rain lands on streets, sidewalks, and power lines that are colder than 32 degrees? That last scenario would be a real disaster, because it would result in one inch of ice accumulation, with numerous traffic accidents and downed power lines. The answer to the “precipitation type” question typically is found a few thousand feet up in the atmosphere. Almost all precipitation will begin as snowflakes several thousand feet up. The air temperature that those snowflakes will fall through determines whether it melts to rain, remains snow, or becomes sleet. If the snowflakes remain in sub-freezing air, they will remain snow. But if they fall through a thick layer of “warm” air (above freezing), they will likely melt into rain drops. Sleet is common when the layer of air is just barely above freezing, and the snowflakes partially melt. Sleet can also form when rain drops fall through a very cold layer near the ground, in which they re-freeze into small ice pellets.



The majority of Nebraska and Iowa winter storms involve more than one precipitation type, which makes forecasting winter storms challenging. Sometimes the separation between heavy snow and rain will only be 10 miles! It is difficult enough trying to pin the rain-snow line down a day or two ahead, but try getting it right one week ahead!

Introducing the New Interactive Voice-Remote Observation Collection System

by Cathy Zapotocny, Meteorologist



IV-ROCS is a new Cooperative Program data acquisition system. **IV-ROCS** replaces the ROSA reporting system (Regional Observation System Automation) which required observers to use a complex numerical code to enter data via a touch tone telephone. The **IV-ROCS** system was first developed by the National Weather Service’s Southern Region and observers began converting over to the new system in June of 2003. **IV-ROCS** became a national data collection system August 19, 2004. ROSA was developed by the National Weather Service’s Central Region in the 1980s.

How does **IV-ROCS** work?...

IV-ROCS is a simplified, telephone dial-in system that allows observers to report daily minimum, maximum, and observation-time temperature and precipitation readings. You simply dial a designated toll-free phone number and the **IV-ROCS** voice will direct you through the data entry process via a number of prompts.

To become a COOP Observer, or if you are currently a COOP Observer and want to use **IV-ROCS** for primary use or as a back-up to WxCoder II, please contact us at:

E-mail: w-oax.webmaster@noaa.gov

Phone: 402 359-5166

Observers are asked to verify that they are set up for **IV-ROCS** prior to the start of using **IV-ROCS** for their observations.

Did you Know?? ...Names were given to full moons to keep track of time.

The Wolf Moon (Jan.), the Snow Moon (Feb.), the Worm Moon (March), the Pink Moon (April), the Flower Moon (May), the Strawberry Moon (June), the Buck Moon (July), the Sturgeon Moon (Aug.), the Harvest Moon (Sep.), the Hunter’s Moon (Oct.), the Beaver-Moon (Nov.), and the Cold Moon (Dec). **A Blue Moon is the name used for the second full moon in any month—**(Source: science.nasa.gov)



Climatological Calendar

Climatological Data for July, August, and September 2004 prepared by HMT Steve Klemm

Location	Month	Average	Departure	Rain	Departure	Highest	Lowest
Omaha	Jul	73.1°	-3.6°	6.83"	+2.97"	95° (20th)	52° (26th)
	Aug	70.0°	-4.5°	3.77"	+0.56"	94° (3rd)	47° (19th)
	Sep	70.4°	+5.0°	1.66"	-1.51"	94° (13th)	39° (29th)
Lincoln	Jul	73.6°	-4.2°	2.75"	-0.79"	99° (20th)	49° (26th)
	Aug	71.6°	-3.8°	2.16"	-1.19"	101° (3rd)	45° (14th)
	Sep	70.1°	+4.1°	3.24"	+0.32"	95° (13th)	34° (29th)
Norfolk	Jul	72.5°	-2.3°	4.08"	+0.34"	97° (19th)	50° (26th)
	Aug	69.6°	-3.1°	0.71"	-2.09"	92° (31st)	41° (19th)
	Sep	69.3°	+5.9°	3.27"	+1.02"	95° (13th)	39° (28th)

Normal High/Low Temperatures

December 2004 & January and February 2005 Outlook

Location	Oct 1	Nov 1	Dec 1	Jan 1
Omaha	72/47	56/34	40/22	32/12
Lincoln	74/47	57/33	41/21	33/12
Norfolk	71/44	54/31	38/18	31/10

The 90-day outlook issued October 21st for December, January, and February calls for near normal temperatures and near normal precipitation across Nebraska and Iowa. For additional details, please visit the Climate Prediction Center website at <http://www.cpc.ncep.noaa.gov/>

Astronomical Calendar

Sunrise/Sunset (http://aa.usno.navy.mil/data/docs/RS_OneYear.html)

Date	Omaha		Lincoln		Norfolk	
	Sunrise	Sunset	Sunrise	Sunset	Sunrise	Sunset
Oct 1	7:20 am cdt	7:06 pm cdt	7:23 am cdt	7:09 pm cdt	7:26 am cdt	7:12 pm cdt
Nov 1	6:55 am cst	5:19 pm cst	6:57 am cst	5:23 pm cst	7:02 am cst	5:24 pm cst
Dec 1	7:30 am cst	4:55 pm cst	7:31 am cst	5:00 pm cst	7:38 am cst	4:59 pm cst
Jan 1	7:50 am cst	5:05 pm cst	7:51 am cst	5:10 pm cst	7:58 am cst	5:09 pm cst

Times are given in Central Daylight Time (cdt) and Central Standard Time (cst).

Moon Phases

New Moon	First Quarter	Full Moon	Last Quarter
Oct 13	Oct 20	Oct 27	Oct 6
Nov 12	Nov 18	Nov 26	Nov 4
Dec 11	Dec 18	Dec 26	Dec 4
Jan 10	Jan 17	Jan 25	Jan 3

Winter Solstice (Start of Winter):

December 21 at 6:42 am cst

Daylight Savings Time Ends:

Sunday, October 31st at 2:00 am local time - turn clocks back one hour to 1:00 am.