Volume 2, Issue 2 Spring/Summer 2010





Severe Weather Safety by Ray Burgert, Senior Forecaster

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Vild West Weather

Spring is here, and with it warmer temperatures, outdoor fun, and thunderstorms. Thunderstorms are typically 15 miles in diameter and last an average of 30 minutes, affecting a relatively small area. However, all thunderstorms can be dangerous. The following are a few helpful hints to help you prepare for the upcoming thunderstorm season, along with some safety tips for dealing with lightning, flooding, and tornadoes.

Before the storm:

1. Assemble a severe weather supply kit which should contain:

• First aid kit, including prescription medicines.

Canned food and can

opener (not electric).

• Bottle water (a 3-day supply--include one gallon per person per day).

• One change of clothing and footwear per person.

• One Blanket and sleeping bag per person.

• Rubber Boots and rubber gloves

• Emergency tools, including a NOAA Weather Radio, battery-powered radio, flashlight, and extra batteries.

• An extra set of car keys and credit card or cash.

• Any special items for infants, the elderly, or disabled family members

2. Know the county that you are in, or will be traveling in, along with the names of nearby cities. When severe weather warnings are issued, these locations are used to help identify where the storms are located.

3. Always check the weather forecast and postpone outdoor activities if storms are imminent.

4. If boating, always stay tuned to the latest weather reports and return to safe harbor before strong winds arrive.

If any thunderstorms do develop in your area and you are outdoors:

• Always attempt to get into a building or a hardtop car and keep the windows

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closed.

• Avoid tall structures, such as towers, tall trees, fences, telephone lines, or power lines.

• Stay away from natural lightning rods, such as golf clubs, open tractors, fishing rods, bicycles, or camping equipment.

• Stay away from rivers, lakes or other bodies of water.

• If you are

boating or swimming, get to land and find shelter immediately.

ALWAYS REMEMBER that if you can hear thunder, then you are close enough to be struck by lightning. Seek shelter immediately and postpone all outdoor activity.

If any thunderstorms do develop in your area and you are in a vehicle:

• Pull safely onto the shoulder of the road, away from any trees that could fall on the vehicle.

• If flash flooding is possible, go to higher ground.

• Leave areas that are subject to flooding, such as dips, low spots and underpasses.

• Never drive through flooded roadways.

If your vehicle is suddenly caught in rising water, leave the vehicle immediately and seek higher ground.

If any thunderstorms do develop in your area and you are Indoors:

• Stay away from windows and go to the safest location on the lowest level of your home.



Photo by Mike Umscheid, Senior Forecaster

• Unplug unnecessary appliances and only use the phone for emergencies.

• Mobile homes are especially vulnerable to the high winds of a thunderstorm and are subject to overturning and rolling if not properly anchored to the ground. At a minimum, the frame should be secured with heavy steel straps. Heavy straps should also go over the top of the home with both frame and over the top ties secured in concrete footings.

• Do not take a bath or shower. Metal pipes can transmit electricity.

If at home and time permits...Secure outdoor objects, such as lawn furniture, that could blow away or cause damage or injury.

If any TORNADO warning is issued and you are at Home or in a small building:

• Go to the basement (if available) or to an interior room on the lowest floor, such as a closet or bathroom.

• If possible, get under a sturdy table or workbench.

• Wrap yourself in overcoats or blankets to protect yourself from flying debris.

Mobile homes provide no shelter in a tornado regardless of how well tied down they are, and should be abandoned for a storm shelter.

If you live in a mobile home, be sure you have a plan of safe action should the weather become threatening.

If no shelter is available, lie flat in a ditch or depression in the ground and use your hands to cover your head.

Do not seek shelter under an overpass! Overpasses may be one of the worst places to seek shelter from a tornado. They heighten the risk of serious injury, due to flying debris from the powerful tornadic winds.

If any TORNADO warning is issued and you are at a SCHOOL, HOSPITAL, OR SHOPPING CENTER:

Go to interior rooms and halls on the lowest floor. Stay away from glass enclosed places or areas with wide-span roofs such as auditoriums and warehouses.

Be sure to stay clear of any threat of flying glass.

If any TORNADO warning is issued and you are in a MOBILE HOME, AUTOMOBILE, OR RV:

ABANDON THEM IMMEDIATELY!!

Most deaths occur in cars and mobile homes. If you are in either of those locations, leave them and go to а substantial structure or designated tornado shelter.

Spring 2010 Cooperative Observer News by Jesse Lee, Observing Program Leader



Joy Cudney's Landsburg Award

L to R: Backup Observer Ken Hottovy , MIC Larry Ruthi, Joy Cudney

STATION VISITS

We will be making station visits the rest of the spring to clean outside temperature units and level rain gauges. The automated rain gauges will also be summarized. 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 60 year length of service award (Helmut E. Landsberg Award) was presented to Joy Cudney of rural Trousdale on December 14th 2009. Joy and her husband Ray took over the station in 1949 from Ray's father. The station has been in the family since 1916 when it first started. Joy became the primary observer when Ray passed away in 1995.

J. Hayes Baldwin of Kalvesta was presented with a 50 year length of service award (Edward H. Stoll Award) on December 16th 2009. J. Hayes started the station back in 1959 and had been recording precipitation data since then. He retired his observing duties at the end of December. We wish him well in any future endeavors.

Mary Cunningham of Wakeeney was presented with a 10 year length of service award on December 15th. Mary took over the cooperative station from her mother, Rose Doxon, in 1999. The station has been in the family since 1975. Mary records daily maximum and minimum temperatures and precipitation. The station was established in 1889 by J.L. Martin and E.A. Lewis of the Union Pacific Railroad.



J. Hayes Baldwin's Stull Award

L to R: Cathy Baldwin, Bruce Baldwin, MIC Larry Ruthi, J. Hayes Baldwin

Jerry and Judy Bernbeck of Utica received a 10 year length of service award in January 2010. The Bernbecks took over the station in 1999 from S.W. Davis. The station was begun by B.A. Countryman in 1916.

Upcoming length of service awards:

50 Years: Ashland Municipal Light Plant in November

30 Years: Stephen & Lois Fenster of Healy in May

10 Years: Burke Goebel of Rural Jetmore in September

NEW OBSERVERS

Mark Aurand took over the Syracuse station from Eric and Sarah Koenig in March.

Darrell Woods took over the Kalvesta station from J. Hayes Baldwin in January.

We welcome Mark and Darrell into the Cooperative Weather Observer Program.

8 INCH STANDARD RAIN GAUGES

Since we are in the spring season, you can go ahead and put the top and inner tube back into the rain gauges if you have not already done so.

WXCODER

For those who do not use the weather coder program, you can use it if you have a computer with internet and want to report your weather data every day. 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.



Mary Cunningham with her 10 year service award

Let's Go Fly A Kite—For Weather Observations by Jennifer Ritterling, Forecaster

Kites and weather observations have been linked since Benjamin Franklin's famous lightning storm flight in 1752. Kites were used to carry meteorological instruments into the air for research well into the 19th century. In 1840, James Espy and members of the Franklin Kite Club flew kites underneath cumulus clouds. For the first time, updrafts were detected beneath the cloud bases and the kites were used to measure the height of the cloud base. These measurements were then used to relate the height of the cloud bases to the temperature and dewpoint at the surface.

Keeping the kites stable was often a problem. Researchers at Kew Gardens Observatory in England developed a six sided kite design in 1847 that could be held stationary with cords attached to the three lower corners. This allowed the kite to take weather instruments aloft and then safely back to the ground with a pulley system. Further progress was made in 1883 when E.D. Archibald used piano wire instead of a string for the kite's tether. The stronger tether helped the kites reach record heights of 1640 feet and even carry cameras up for aerial photographs.

Further kite flights with meteorological instruments continued into the 1890's. William Abner Eddy developed a train of five bowed kites to lift a thermograph (to record temperatures) up to 1400 feet in 1894. The Eddy kites were able to launch a recording anemometer in 1895 and a meteorograph in 1896 that recorded pressure, temperature, and humidity. However, the bowed kites were still not very stable, so Eddy borrowed a boxed kite design from Australian researcher Lawrence Hargrave. Hargrave



Launching of a Hargrave-Marvin Box Kite

Photo from NOAA Library

developed the cellular box kites in 1893 and 1894, and they had provided a great deal of stability and were ideal for carrying weather equipment. The box kite design became the primary platform for upper air observations both at Boston's Blue Hill Observatory and with the U.S. Weather Bureau.

Charles F. Marvin adapted the Hargrave design for the Weather Bureau, and in 1896 developed a meteorograph that recorded pressure, temperature, and humidity on a copper sheet during the flight. By 1898, he set up a network of simultaneous kite observations, mainly in the middle of the country. Sixteen observation sites were originally set up, with a seventeenth added later. Dodge City was one of the kite sites set up, and a photo can been seen on page 5 that shows the kites and observers in 1898.

The kite observations continued into the early 20th century. However, the kites were limited by several factors:

• Due to the tethers, the top altitude that the kites reached was less than 10,000 feet.

• The data was recorded on the meteorograph, and could not be looked at until the kite was reeled back to the ground

• The kites could only be flown in good weather, and the winds needed to be not too light and not too strong.

• If the kite broke its tether, it could endanger life and property.

By the early 1900's, the Weather Bureau began to use balloons to carry the meteorograph and take observations. The problem at the start of the balloon program was

finding the meteorograph after the balloon burst and fell to the ground, so tethers continued to be used. By 1909, the Weather Bureau began to use an optical theodolite to track small free balloons and calculate the winds aloft. However, the balloons could only be tracked during clear weather conditions.

By 1925, the Weather Bureau instituted a system of 30 stations where aircraft carried meteorographs and took observations. This system gradually replaced the kite observation stations, and the last kite station at Ellendale, North Dakota closed in July 1933. However, the aircraft observations were still limited to flights in



Left to Right: George Todd, W.S. Beldere, and Clarence W. Canfield, Dodge City Kite Station, June 16, 1898 Photo courtesy of David Kushner, Michigan, who is Mr. Canfield's grandson.

good weather and no higher than about 16,000 feet.

The aircraft observations would continue for another decade, but were eventually phased out when advances in radio transmitters allowed a free balloon to carry a package with sensors for temperature, pressure, and humidity data that could be sent back to the ground. After World War II tracking capabilities had developed enough that winds could be derived from the balloon's travels These "rawindsondes" continue to be used through the present day. The National Weather Service is currently modernizing the upper air systems to use GPS instead of radio tracking. The Dodge City office is due to begin installing the new equipment for this upgrade in June 2010.

While meteorologists today have such technological advances such as satellite and radar, upper air observations still are vital tools in forecasting. From kites to aircraft to balloons, all have been important steps in helping us understand the atmosphere.

More information on weather kites and the history of upper air observations can be found at:

- The Weather Doctor's Weather Almanac for April 2006, written by Keith Heidorn

http://www.islandnet.com/~see/ weather/almanac/arc2006/ alm06apr2.htm - NOAA National Weather Service: A Brief History of Upper-air Observations

http://www.ua.nws.noaa.gov/ reqdahdr.htm



Have you ever wondered how we find out where severe weather happens? In rural areas, this can be quite a challenge. The Dodge City Forecast Office has a network of volunteer spotters called AGTAPS, but sometimes storms will go between them. Staff then tries to contact people listed in the Central Publishing Company's Rural Directories. Senior Forecaster Matt Gerard recently completed the task of entering the Rural Directory data into our systems so that locations of farms can be overlaid with radar data. Each green spot on the map to the right shows a Rural Directory listing as seen by our systems.

Meet the Observing Program Leader—Jesse Lee

Jesse was born in the small community of Spur, Texas, which is about 60 miles east-southeast of Lubbock. He completed his first five years of school in Spur and the last seven in Jayton. He signed up out of high school for the Navy in 1976 and went to boot camp in the summer of 1977 in San Diego. Following boot camp, Jesse went to the weather observing school at Chanute Air Force Base in Illinois and completed the four month course in December 1977. His first duty station was Chase Field in Beeville Texas as a weather observer. In June of 1979, Jesse was assigned to the aircraft carrier USS Coral Sea, which was home ported in Alameda California. His duties included taking weather observations, releasing weather balloons and being an assistant forecaster when the ship was at sea. The carrier went on a western Pacific cruise in November 1979 and returned to the states in June 1980. Some stops that were made on the trip were Hawaii, South Korea, the Philippine Islands and Thailand. The ship also spent three months near the Gulf of Oman during the Iranian hostage crisis

in 1980. Jesse left the USS Coral Sea in 1981 and went to weather forecasting school at Chanute Air Force Base. After completing the course, he went to the Eastern Pacific Mobile Environmental Team in San Diego as a forecaster. Some of the assignments included providing weather briefings to Commanders, Captains and Admirals on cruise exercises, training people to take weather observers and helping out with upper air observations. He left the Navy in August 1983 as a First Class Petty Officer.

Following a career in the Navy, Jesse went to college to try and earn a business degree in California and also worked part time sending up weather balloons. He started in San Diego and then moved to the Bay Area in 1986 and managed the upper air site at Oakland. His National Weather Service career began in May of 1990 at the San Francisco International Airport as a weather observer. In August 1992 he transferred to San Diego and worked as a weather observer and issued forecasts for the area. After spending 15 years in California, Jesse transferred to the Dodge City office in November 1994 as a weather and upper air observer. He became the Observing Program Leader in 2006.

Jesse's favorite thing to do at one time was to play a lot of tennis but a bad elbow put that to an end. Each semester in college he always took a tennis class. He loves to watch movies from any decade, and listen to most any type of music. He also is a heavy reader and mostly enjoys historical books.

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J	W	U	В	R	Ε	L	L	0	Q	С	Y	Ζ	Ζ	Ρ	Ζ	J	Ι	А	G

Find the Following Words in the Puzzle on the Left::											
CLOUD	DOPPLER										
DOWNBURST	FLOODING										
FUJITA	HAIL										
HUMIDITY	LIGHTNING										
SEVERE	SUPERCELL										
THUNDER	THUNDERSTORM										
TORNADO	UPDRAFT										
WALL	WARNING										
WATCH											

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Answers for the puzzle in the Fall/Winter 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

"NOAA's National Weather Service provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community."

> Severe Weather Reporting Only: 1-800-824-9943

Severe Weather Criteria

Watch: Conditions are favorable for severe weather. Pay attention to the National Weather Service and the media for possible warnings.

Warnings: Severe Weather is imminent. Take shelter immediately.

Severe Thunderstorm: A thunderstorm in which hail over one inch and winds 58 miles per hour and higher can be expected.

Tornado: A violently rotating column of air in contact with the ground.