



Topeka News

Volume 3, Issue 2

May, 2009

Special points of interest:

- Recent upgrades to system that tracks daily weather balloon flights.
- Heat Safety this Summer—an important guide to review.
- Spotlight on Northeast Kansas Fire Weather

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Mid February—Mid May Weather Summary...

February: The lone convective event of the month occurred during the morning of the 9th. Low topped supercells developed ahead of a cold front. Wind gusts up to 70mph were observed with the stronger storms, and minor damage to road signs, power lines, and out-buildings was noted. Once the convection and front had pushed through

March: The first bout of severe weather to affect the area in March arrived

during the afternoon hours of the 7th. Several supercell thunderstorms developed along a nearly stationary cold front draped across northeast Kansas. Hail was the primary hazard associated with these thunderstorms, and stones up to the size of a golf ball (1.75" in diameter) were reported to the National Weather

Service in Topeka. The 23rd of the month, a strong upper level storm system tracked across the central plains states. Strong pressure gradient winds again picked up across the region, and managed to rustle around traffic signals, billboards, and tree branches. Few unsecured garbage cans and pieces of lawn

ported to have been damaged—especially those that still showed signs of damage from significant ice storms that have occurred the past few years. Otherwise, weather in Topeka for the month was warmer and drier than normal, most notable during the first half



Low-level storm structure, several minutes after the second of two May 15, 2009 Coffey County tornadoes touched down. Photo by meteorologist Scott Blair, used with permission.

of the month when the region sat beneath an upper level ridge of high pressure.

furniture made it through the day undisturbed. Near 3:30pm, a surface

cold front began to lift through northeast Kansas, and robust thunderstorm development overspread the region. Strong thunderstorm winds—up to a whopping 97mph measured on the Kansas State University campus in Manhattan!—were measured at

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Updated Upper Air Technology at WFO-TOP! by Shawn Byrne, Meteorologist

NWS-WFO Topeka officially said good-bye to the Automatic Radio Theodolite (MicroARTs) instrument tracking system at the end of March, 2009. The last balloon flight using the MicroARTs system was launched on March 26, 2009 at 6 a.m. The MicroARTs system had a long history at Topeka as the site was chosen as an early test bed in mid 1980's with nationwide deployment not occurring to the late 1980's. The first flight using MicroArts (see photo) was



Meteorologist Shawn Byrne prepares for the balloon launch using the new system.

launched on April 6, 1984 at Billard Airport. Time and wear required the MicroARTs system to be replaced. In fact, the system was still using an old IBM XT computer with 5 ¼" floppy discs until decommission.

Advancements in GPS satellite technology lead to the development of the Radiosonde Replacement System (RRS). Instead of using radio signals to triangulate a position in order to determine wind speed and direction in the upper atmosphere as Mi-

croARTs had, the RRS uses GPS satellite technology to determine its exact location and height in the atmosphere. This results in higher resolution of wind information since the GPS receiver keeps constant track of the radiosonde's position and height at all times.

Some things may never change however as the RRS still transmits



April 4, 1984 inaugural official release of the weather balloon tracked by the MicroART system. The release shelter (at right in the above photograph) is still used today to prepare the weather balloon two (00 and 12 UTC) or potentially more times each day

pressure, temperature and humidity information via radio signal, but data resolution has increased nearly 3 times over that of MicroArts! The increased resolution greatly enhances weather prediction model output used to prepare forecasts, identifying aviation hazards with greater accuracy such as low level wind shear, and helps in identifying

mesoscale features to better anticipate where and when severe weather may threaten.

Installation of the RRS began at the Topeka WFO in late March. The first official flight was April 6, 2009 which was exactly 25 years after the first official MicroARTs flight.

Weather Review Continued...

Continued from page 1...

several locations. Large hail up to the size of a half dollar piece (1.25" in diameter) when measured was also observed at several locations. A lone tornado occurred in Nemaha—the first of the year within the National Weather Service in Topeka's County Warning Area. The tornado was

rated an EF-1 (winds speeds of 86-109mph). The first damage noted occurred three miles west of Oneida at 6:33pm, where a power pole was broken, and the roof was torn off a large hog confinement building. The tornado then damaged numerous homes and buildings along it's eight and a half mile path before

lifting at 6:45pm, five miles northeast of Bern, just before crossing into Nebraska. A final significant weather event capped off the month—but not in the form of thunderstorms. Instead, a winter storm walloped portions of the state. South central Kansas saw up to 18 inches of snow—while closer to home rain, freezing rain, sleet, and snow were observed. A challenging fore-

cast scenario took shape over northeast Kansas, where a midlevel wedge of warm air continually streamed northward through the event, which kept midlevel temperatures above freezing. This warm layer melted ice crystals/snowflakes as they fell, allowing for the mixy precipitation to fall. Nevertheless, ice accumulation on trees and road-

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Heat Wave: A Potentially Deadly Hazard by Matt Wolters, Lead Forecaster

You may be thinking, now that spring is on the down swing and summer is arriving, the risk for hazardous weather is not as serious. Thoughts are usually on the pool, going to the lake, and enjoying the outdoors rather than severe weather and tornados. Unfortunately, summer is not the time to let ones guard down. On average 170 people die from excessive heat

each summer across the country, which is more than any other hazard including tornados, floods, lightning and hurricanes (for more info, visit <http://www.nws.noaa.gov/om/hazstats.shtml>).

Heat related illnesses occur when the body is unable to cool itself down, often when the relative humidity is high with tem-

peratures in the mid 90s and into the triple digits. When the weather is "hot and humid" it is harder for perspiration to evaporate into the air which is the primary way the body cools itself. The table below shows heat indices and when dangerous conditions can exist.

However a single heat index reading may not fully

convey the dangers of the heat, especially when there are consecutive days of hot and humid conditions producing stress on the body. Three or four days in a row with heat indices around 100 degrees can present a hazard. Urban areas pose a special hazard as well where the air could become stagnant and trap pollutants in the city. Children and the elderly are

most sus-

ceptible to heat stress. Heat related illnesses include sunburns, heat cramps, heat exhaustion, and heat stroke that could lead to death.

signs of a heat disorder include

heavy sweating, feeling weak, and having cold, pale or clammy skin. If you begin experiencing these symptoms, get out of the sun and find some shade or air conditioning. Use a cool wet towel and a fan to help cool down. If there is persistent vomiting or someone becomes unconscious, seek immedi-

ate medical help.

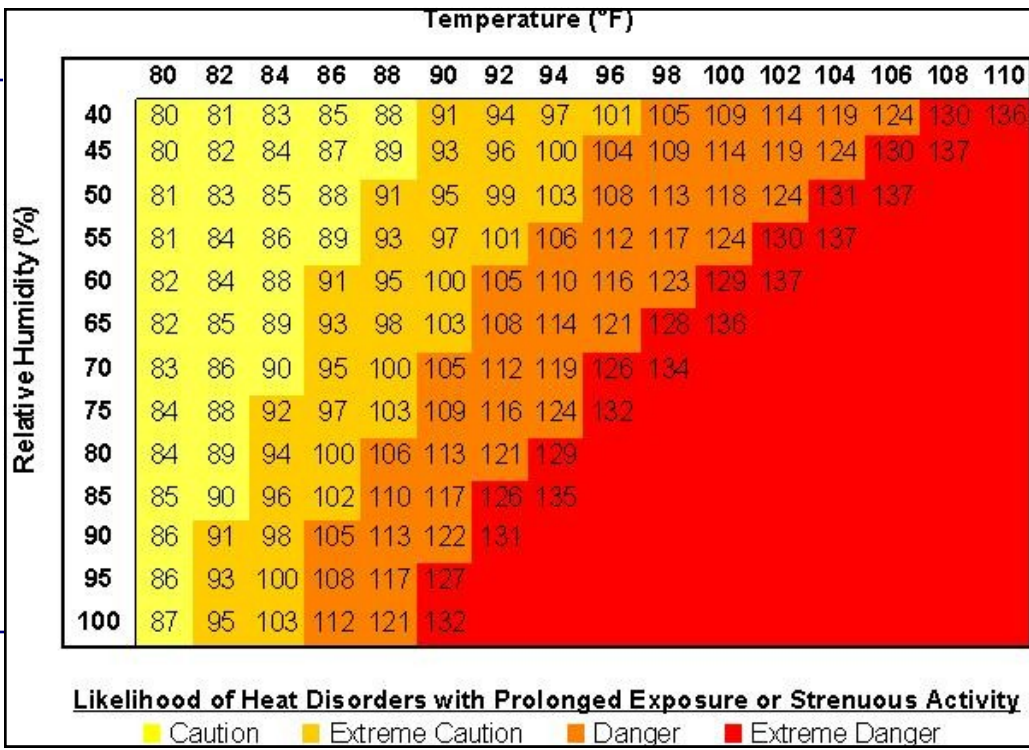
The National Weather Service in Topeka issues Heat Advisories when the heat index is expected to be around 105 degrees with actual air temperatures of 100 degrees or higher. An Excessive Heat Warning is issued if the heat index will be around 105 for 4 con-

secutive days or if the heat index is expected to reach 110 on any day. If there is a Heat Advisory or Warning in effect, people should take steps to minimize time spent out doors, make sure they have plenty of non-alcoholic fluids, and find a cool place to spend the afternoon if there is no access to air conditioning.

screen and grabbing the beach towel this summer, don't forget to take precautions from the heat. Also be sure to plan any outdoor work for the morning or evening hours when it will be slightly cooler.

Since each person may react to the heat differently, it is important to pay attention to signs the body is giving due to heat stress. Some of the first

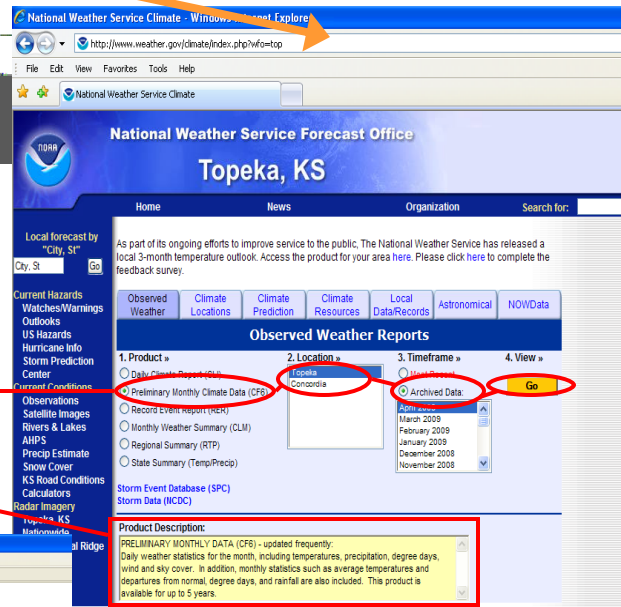
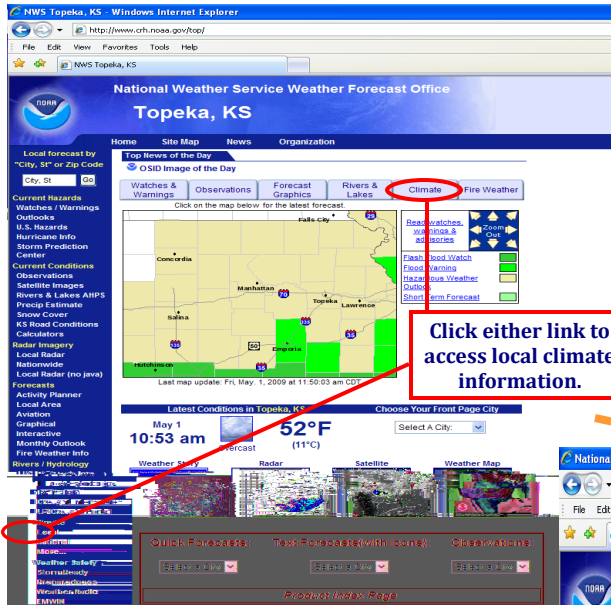
When you are putting on the sun



Climate Page Tour by Jared Leighton, Meteorologist

Archived climate data at www.weather.gov/topeka

National Weather Service archive data is useful for collecting weather information from previous years. By following these instructions anyone can access many useful weather measurements from home 24 hours a day.



1. Select the product of interest
 2. Select the city of interest
 3. Select "Archive Data" and select the timeframe of interest
 4. Click "Go"
- Provides a description of each product and the amount of archive data available to the user

WFO Monthly Daily Climate Data

STATION: Topeka KS
 MONTH: APRIL
 YEAR: 2009
 LATITUDE: 39 4 N
 LONGITUDE: 95 38 W

TEMPERATURE IN F:		PRECIPN:		SNOW:		WIND:		SUNSHINE:		SKY:		PK WND:							
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18	
DT	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR		
1	58	28	43	-7	22	0	T	0	0	0	7.6	17	80	376	50	1	20	110	
2	50	31	41	-9	24	0	0	0	0	0	11.8	28	20	380	50	6	1	37	20
3	60	27	44	-6	21	0	0	0	0	0	7.8	21	190	719	94	0	1	26	130
4	73	47	60	9	5	0	0	0	0	0	17.3	33	150	571	74	1	3	44	160
5	49	32	41	-6	24	0	0	0	0	0	19.8	38	320	119	15	9	4	45	320
6	45	28	37	-14	20	0	0	0	0	0	16.0	26	320	701	91	4	3	30	310
7	61	26	44	-8	21	0	0	0	0	0	7.5	10	260	725	94	0	2	26	260
8	60	36	61	-1	14	0	0	0	0	0	4.3	14	310	777	100	0	1	17	310
9	60	41	51	-1	14	0	0	0	0	0	18.2	33	80	439	56	6	13	43	90
10	60	38	49	-4	16	0	0	0	0	0	12.7	29	10	644	85	5	1	37	360
11	64	32	48	-5	17	0	0	0	0	0	5.2	17	130	795	99	0	1	21	130
12	51	41	46	-7	19	0	0	0	0	0	13.1	24	70	0	0	0	1	31	80
13	49	35	42	-12	23	0	0	0	0	0	9.5	20	350	356	45	8	1	28	350
14	63	31	47	-7	16	0	0	0	0	0	3.9	13	20	792	100	0	12	16	30
15	67	43	55	1	10	0	0	0	0	0	10.4	20	130	702	88	2	2	29	150
16	71	53	62	7	3	0	0	0	0	0	10.9	22	110	607	76	0	0	26	110
17	72	50	61	6	4	0	0	0	0	0	8.1	16	140	641	80	2	1	21	140
18	66	55	61	6	4	0	0	0	0	0	4.0	15	20	M	M	8	18	17	240
19	69	47	56	0	9	0	0	0	0	0	14.2	29	330	M	M	5	13	38	320
20	69	42	55	-1	10	0	0	0	0	0	10.7	28	320	707	88	1	8	39	350
21	71	45	58	2	7	0	0	0	0	0	6.7	15	270	763	94	0	8	22	60
22	62	50	66	9	0	1	T	0	0	0	4.9	14	150	672	63	2	2	17	150
23	62	60	71	14	0	6	0	0	0	0	5.9	20	60	774	92	2	3	23	190
24	65	49	77	20	0	12	0	0	0	0	16.5	38	170	699	82	0	0	39	180
25	73	56	65	7	0	0	0	0	0	0	8.0	20	190	267	33	7	3	29	170
26	77	54	66	8	0	1	2	53	0	0	13.5	30	170	396	48	6	13	43	180
27	60	46	53	-5	12	0	0	0	0	0	10.9	20	360	0	0	10	13	26	350
28	68	41	55	-4	10	0	0	0	0	0	6.7	13	100	766	93	3	1	16	110
29	67	57	62	3	3	0	0	0	0	0	6.0	15	110	81	10	6	13	20	110
30	75	59	67	8	0	2	0	50	0	0	5.7	16	10	175	21	8	13	23	10
SM	1257	1300			338	22	7.09	T		297.8			14604	108					

Weather Conditions

Daily Values

Monthly Totals

Fire Weather—Did You Know? by Kris Craven, Lead Forecaster



Did you know that the National Weather Service in Topeka also produces forecasts specialized for the fire community? The NWS works with partner agencies such as the Bureau of Indian Affairs, the Forest Service, area National Wildlife Refuges, as well as state and federal officials, to assist with their fire weather needs. Every day of the year, NWS Topeka issues a Fire Weather Planning forecast that can be used to determine how weather conditions will impact fire behavior on any given day for the up-

coming week. These forecasts include information such as relative humidity, wind speed and direction, high temperatures and smoke dispersal to name a few. Often, these partner agencies need forecasts for planned burns (also known as prescribed burning), and can also request these 'spot' forecasts for wildfires.

Spot requests are frequent in the spring and fall, when prescribed burning is at its peak. These are the times of the year when the grasses are typically dead

and cured, and burn more readily than when green. The weather conditions at these times of year are also more suitable to burning, with enough wind to push fires, yet not as much wind and heat as to make fires unmanageable.

Burning is also conducted by local land owners, sometimes as required by some CRP (conservation reserve program) lands, or simply to maintain their own pastures. Burning is often done to rid lands or invasive species such as the eastern red cedar, and

brings new green growth to rangelands for grazing. The fire weather forecasts issued by the NWS in Topeka are available for all of north central, northeast and east central Kansas, and can be used by anyone with an interest in fire weather. There are also many publications available about the prescribed burning process, available through your county extension office or through the state climatology office.

New Staff Members at WFO-TOP by Ken Harding, Meteorologist in Charge



File photo of the National Weather Service office in Topeka, Kansas

The past few months, several members of the NWS-Topeka staff have moved onto bigger opportunities.

Jennifer Stark, former Warning Coordination Meteorologist, was promoted to Meteorologist in Charge at the National Weather Service in Pueblo, Colorado. **Chad Omitt** has been hired to fill her position. Chad has spent the

past 3 years at the National Weather Service in Indianapolis as a senior forecaster. The previous 5 years he worked as a general forecaster at the National Weather Service in Wichita, Kansas. Chad and his family should arrive in the Topeka area after the 4th of July holiday.

The staff also said goodbye to **Josh Boustead**. He was hired as a senior forecaster at the National Weather Service office in Omaha, Nebraska. In his place, **Sally Pavlow** has been selected at a new senior forecaster in Topeka. Sally also hails from Indianapolis where she worked a general forecaster for nearly 10 years. Sally will

arrive in Topeka early in June.

Dennis Cavanaugh, who worked as both an intern and general forecaster in Topeka, was promoted to a senior forecaster position in Dallas/Fort Worth, Texas. We hope to have a replacement named for the general forecaster position the first week of June.

Jesse Lundquist, our student intern, recently received his degree in meteorology from the University of Kansas. He will be moving to an intern meteorologist position at the National Weather Service in Cheyenne, Wyoming this July.

Although the faces change, our dedication to science and service remains. We look forward to the arrival of our new hires and the opportunity to continue to serve you.





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Phone:
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@noaa.gov

Topeka News



Weather Review Continued...

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ways did become problematic across portions of Osage County and at several other location. The month was otherwise characterized by slightly above normal temperatures, and much higher than normal precipitation at Topeka. Portions of north central

Kansas fared a bit differently, with below normal precipitation.

April: A relatively active weather pattern through the month brought

the state, which provided a focus for a somewhat prolonged period of

wet weather as the pieces of upper level energy moved through. Hail was the primary severe weather event these few days, but the copious amount of rain led to both flash flooding and some river flooding across the area. Temperature-wise, Topeka averaged close to the climatological normal. But, precipitation at Topeka was the sixth highest April total in the 1887 to 2009 period—with a monthly total of 7.09" recorded. Concordia on the other hand, received only 3.83" of precipitation—but

several rounds of severe weather to the region, but the most widespread event was confined to the period between the 25th and 27th of the month. Leading up to the event, a good amount of moisture from the Gulf of Mexico streamed northward, and into the central plains states. An upper

level trough moved through the western U.S., and into the plains. The northern stream portion of the trough remained progressive, and continued a push eastward. Some of the southern stream energy hung up over the southwestern U.S., before being kicked through by

another piece of energy early the 27th. A cold front coincidentally dropped into the region, and stalled along an east/west axis over



A piece of debris impaled the roof of a house as a result of strong winds associated with a weak tornado in Nemaha County the evening of March 23rd. Photo by Ken Harding, used with permission.

Topeka's County Warning Area to three. The 15th was character-

ized heavy rain and large hail as a warm front lifted through the region. Reports of hailstones up to the size of baseballs were received at the National Weather Service! Relatively quiet weather settled in for the remainder of the month as a strong upper level ridge took hold of the weather pattern over the central plains states. Warm temperatures with little more than a handful of afternoon showers were noted to have occurred—very atypical for the month of May.

still an above normal about of liquid.
May: Heavy rain fell on the 8th across portions of east central Kansas. Large hail and heavy rain associated with severe thunderstorms struck during the late afternoon and evening of the 13th as a strong cold front moved through the region. Two brief tornadoes (each rated EF-0) were also reported on this day, both of which occurred in Coffey County—bringing the yearly total for the National Weather Service in

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