



The Southern Plains Cyclone

A weather newsletter from your Norman Forecast Office for the residents of western and central Oklahoma and western north Texas



We Make the Difference When it Matters Most!

Volume 6

Fall 2008

Issue 4

Powerful Late Summer Floods

Wichita County, TX
Jefferson County, OK
August 19

By Patrick Burke, General Forecaster

For the second year running, August 19 was marred by excessive rains which brought widespread, and in some cases major flooding to parts of the NWS Norman forecast area. In 2008, the deluge affected pockets of terrain throughout central and southwest Oklahoma down into western north Texas. Flooding was particularly intense in Wichita County, Texas, and Jefferson County, Oklahoma, where some of the rain and damage tallies were astounding. Damages from Wichita County, alone, were estimated close to 25 million dollars, and Waurika, Oklahoma, measured (in 23 hours) 10.50 inches of rain.

During summer, the southern plains are prone to slow moving thunderstorms and flash flooding, but these are more often isolated events affecting smaller areas. The August 19, 2008, floods were organized on a larger scale by an unseasonably strong upper level low pressure system (Figure 1). At a slow pace, the low tracked along and north of a stalled cold front, producing rain from early on Monday, August 18, through midday on Tuesday, August 19. Widespread cloud cover kept temperatures relatively cool, with highs in the 70s and low 80s across the

See **August Flood** on page 4



Flooding in Wichita County, TX, on August 19, 2008. Photos courtesy Lee Bourgojn, Wichita County Emergency Management Coordinator, via an aerial survey performed by a Department of Public Safety helicopter.

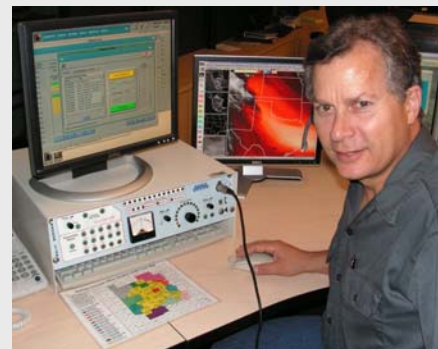
Fairview/
Northern Oklahoma
September 12

By Patrick Burke, General Forecaster

Weather dominated news headlines both locally and nationally during the second week of September. Large hurricane Ike churned through the Gulf of Mexico, and forecast models projected its remnants to bring flooding anywhere from western north Texas to eastern Oklahoma. Simultaneously, a cold front dropped into northern and western Oklahoma where it stalled, and served as a more immediate focus for heavy rain. In anticipation of both weather systems, flood watches were issued for nearly every county in Oklahoma and western north

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Meet Your Weatherman:
Forrest Mitchell



Hello, I'm Forrest Mitchell. I serve as the Observations Program Leader (OPL) for the National Weather Service Forecast Office in Norman. One may ask, "Just what is an OPL?" I still occasionally ask myself that same question. I have de-

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NWS Operations: Hurricane Ike

By Scott Curl, General Forecaster

The Norman office is one of 31 Forecast Offices that make up the National Weather Service's Southern Region. The Southern Region stretches from New Mexico east to Georgia and Florida, including all of the Gulf Coast and Puerto Rico. When a hurricane threatens the Gulf Coast or the east coast of Georgia and Florida, the Southern Region Headquarters (SRH) in Fort Worth, Texas, goes into a higher state of readiness and 24-hour operations. Sometimes SRH will leverage resources from inland offices to help staff these high-impact operations. Let's ride along with Norman forecaster, Scott Curl, who traveled to Fort Worth to support hurricane operations this past August, when hurricane Ike entered the Gulf of Mexico heading for the Texas coast.

Wednesday, September 10

This morning I am traveling from Norman, Oklahoma south into Texas. I arrive in downtown Fort Worth, to the Federal Building, where the regional office is located. I ride the elevator up to the 10th floor and check in with Jud Ladd and Mark Fox, my main supervisors while I am at the Regional Operations Center or ROC. They fill me in on the current state of affairs and thank me for coming down to help on short notice. I tell them it's not a problem; I enjoy keeping in touch with them and what is going on here at our regional headquarters. I spent a month at SRH back in the winter of 2005, as the ROC Duty Officer (a position that allows a rotating selection of forecasters to contribute to regional operations year round) and another few days in late summer of 2005, during Hurricane Katrina. In walks Victor Murphy, the Climate Services Program Manager, and he takes me to get the necessary credentials to have access to different rooms while I am stationed here at SRH.

The ROC is the nerve center within SRH where information is funneled for evaluation and distribution during significant weather events. At this point Ike has entered the south-east Gulf of Mexico as a category 1 hurricane after raking Cuba at category 3. Mark tells me again how much he appreciates my willingness to help and tells me to go have a good evening and to report back in the morning, when I will help gather information, answer phones, and handle interviews and whatever else might arise.

Thursday, September 11

At 7:30 a.m. I gather my things, eat some breakfast and make the short drive across downtown Fort Worth. This day is spent keeping up with the latest information on Hurricane Ike from local news, participating in conference calls, and keeping abreast of the latest forecast. We continuously monitor local and national news outlets, which provide valuable information about what residents as well as local, state, and federal governments are doing to prepare for the approaching storm.

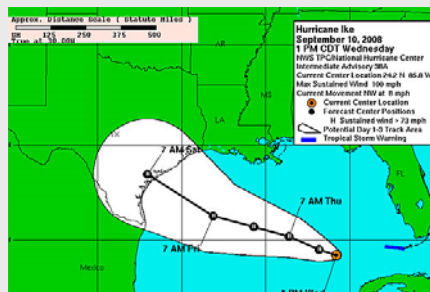
At 9:00 a.m. a conference call is held with the National Hurricane Center. They currently forecast the center of Ike to progress north-west over the next two days, likely hitting the middle to lower Texas coast sometime early Saturday as a category 3 storm. Although the winds

will be a major concern, the main topic of discussion is the large size of the hurricane and its associated storm surge. Our concern in the ROC is the possible impacts this will have to the NWS Forecast Offices near the coast. Although back-up plans exist for each forecast office, additional plans are developed to account for extenuating circumstances. These plans call for other offices farther inland to provide support, as all the offices near the coast will have their hands full when Ike comes ashore. In addition to work, family is another concern facing each of the NWS employees.

I make phone calls to several offices along the Texas coast over the next hour to make sure they will have a representative on the upcoming conference call with the Texas Department of Emergency Management (DEM). At 10:30 a.m. Texas DEM holds their call and all the forecast offices that were contacted are present on the call. State officials want to make sure that if specific weather information is requested from the local forecast office, they can address the request and provide local expertise and a more personal feel to the collaboration.

It's early afternoon and the information gathered throughout the morning are packaged into an Impact Statement. This statement is created to inform National Weather Service Headquarters and others within the federal government of the status of the storm and expected impacts to local communities and National Weather Service infrastructure.

An update from the Hurricane Center at 4:00 p.m. shows a more northward turn in the hurricane, taking it closer to the Galveston and Houston areas sometime early Saturday morning. This information forces us to reevaluate which offices are going to be impacted and to review back-up procedures for those offices.



Official track map of Hurricane Ike issued by the National Hurricane Center at 1 PM CDT Wednesday, September 10, 2008.

In Weather History

The October 4, 1998, Tornado Outbreak

by Erin Maxwell, General Forecaster

The ten year anniversary of the October 4, 1998, severe weather outbreak occurred this fall. This was a major severe weather outbreak in the NWS Norman, OK, county warning area, with 19 tornadoes and numerous reports of straight-line wind damage, large hail, and significant flooding. The storms began in the afternoon of October 4 and ended in the early morning hours of October 5. This outbreak was also the first time I saw a tornado in person. As a meteorology student attending the University of Oklahoma, I had been storm chasing and storm spotting all year with my friends, and we had seen some amazing things, but two of us had yet to see a tornado to that point in our lives.

The day began with our catching a storm that moved through Kingfisher, OK, producing some hail but no tornadoes. We were too late to reach a northern Oklahoma storm that produced the first tornadoes of the outbreak. Instead, we followed the Kingfisher storm to a few miles northeast of town before heading east to Interstate 35. We went south on I-35 and stopped in Guthrie to fill-up the gas tank and get some snacks. While in Guthrie we heard radio reports of a tornado in Blaine County near Watonga, so we headed west on highway 33. The tornado lifted before entering our view, but then came a report of another tornado from the same storm. Continuing west, we eventually saw this tornado in the distance and stopped to take a look. Since the tornado was several miles away, it appeared as a small, thin cone in contact with the ground. Fortunately for us, it remained unobstructed by precipitation or debris, and we observed the tornado until it lifted a few miles southeast of the town of Dover. Up to this point, I had

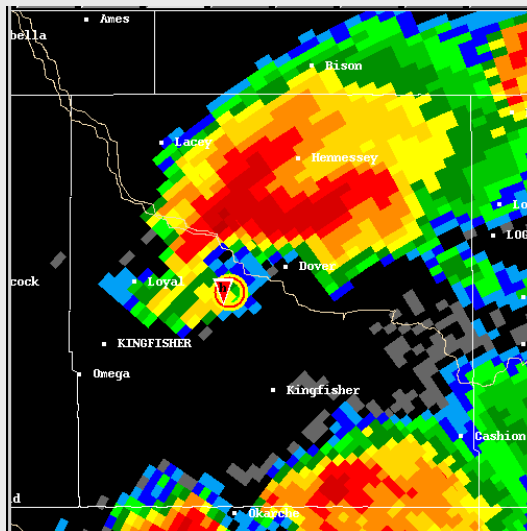
only seen tornadoes in pictures and videos, but to finally see a tornado with my own eyes was exciting and a bit unbelievable. I had spent so much time thinking about and then trying to see a tornado that finally catching one was hard to fully appreciate at the time. The Dover tornado was the 7th of the outbreak, and was eventually rated F1 on the Fujita damage scale (1998 preceded the enhanced Fujita scale that is used today). This tornado did occur in a rural area, but it still destroyed a hay-barn and damaged one home and five other barns along its 7 mile path. Numerous trees and power lines were also downed.

Meanwhile, another storm in

were driving south through southern Oklahoma City and Moore, we heard a report that the storm which produced a tornado in northern Comanche County was continuing to produce tornadoes as it headed toward Moore. We continued to head south as fast as possible in an attempt to get out of the storm's path before it reached the city. Interstate traffic was heavy, and we had to slow down due to the heavy rain from the storm, but eventually we made it to north Norman where we exited the interstate. We were able to find a place to stop and look back to the northwest where we saw, due to the frequent lightning, our second tornado of the day (and the 13th of the outbreak) moving through western portions of Moore. This F2 tornado was on the ground for 3 miles in Moore and was a third of a mile wide. The tornado lifted just west of Interstate 35. Ten homes were destroyed or severely damaged. Eight multi-family buildings were also severely damaged, along with hundreds of other homes and businesses sustaining minor damage. In all, approximately \$2 million worth of damage occurred in Moore. The tornado in Moore, OK on October 4, 1998, became the first of three tornadoes to hit the same area in four and a half years; the second was about 7 months later on May 3, 1999, and the third occurred on May 8, 2003.

Our storm chase ended there, but the storm that struck Moore continued to move northeast and produced three more tornadoes. Yet another storm developed and also produced three tornadoes that evening in parts of Pottawatomie and Seminole counties. These storms also produced widespread straight-line wind damage around Shawnee and Prague.

In addition to the tornadoes and straight-line wind damage, many of the storms that day produced



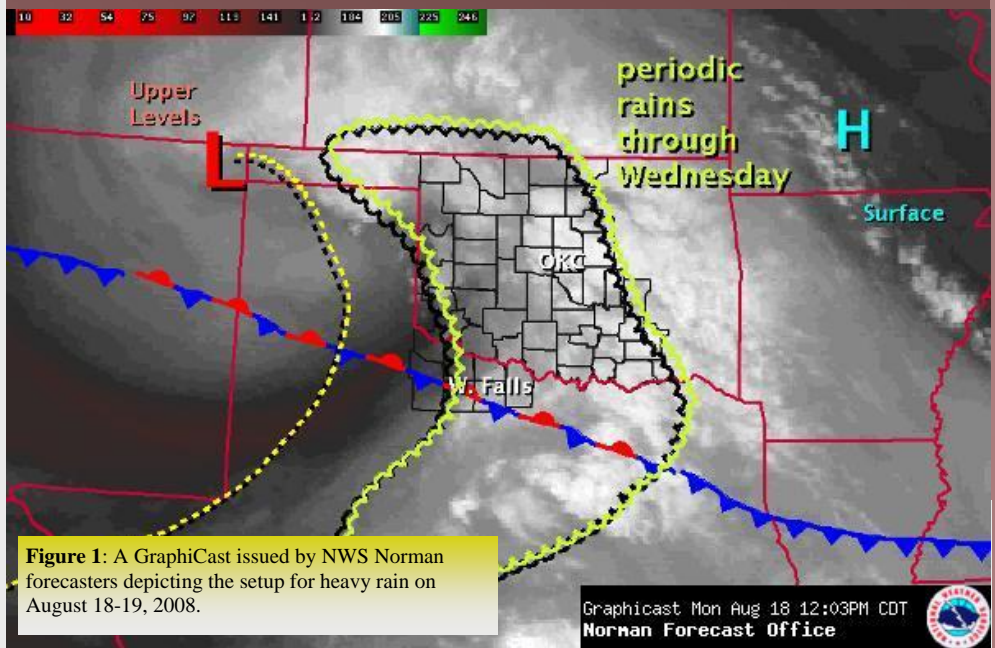
Radar reflectivity at 6:28 p.m. CDT on October 4, 1998, from the NWS Doppler radar located in central Oklahoma (KTLX). The image reveals a classic supercell producing a tornado (implied by radar signatures and confirmed by spotters) near Dover, OK.

northern Comanche county was beginning to produce tornadoes. This storm continued to move northeast and eventually produced another tornado along the border between northwest Payne and southern Noble County. We, however, did not follow the storm east of I-35. Since we were losing daylight, we headed back south to Norman on I-35. As we

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region, and prevented development of the type of instability that is typically associated with severe thunderstorms. The upper low and frontal boundary compensated, however, by producing deep and sustained lift. This can result in weak instability that is sufficient to form thunderstorms embedded within a larger area of rain. Given the time of year, the upper atmosphere was warmer and more humid than average, resulting in very little ice or hail within the clouds, yielding more opportunity for raindrops to grow by colliding with each other. This phenomenon, called "warm" or "tropical" rain, is very efficient at bringing water to the ground over a short time. Tropical rain can be deceiving to an observer on the ground because there is often little thunder, and the rain does not appear exceptionally heavy – but it will quickly fill up your rain gauge!

Flooding began the morning of August 18; with the upper low still located well back over the western Oklahoma panhandle, a band of persistent rain formed within the frontal zone over southwest Oklahoma. Three to six inches of rain closed numerous roads in Cotton County. This rain weakened and moved up into central Oklahoma, while the Red River Valley warmed up closer to 80 degrees. With the upper low drawing closer, a cluster of thunderstorms reformed from Faxon to Burkburnett. This was the beginning of the main event, which would drench the region over the next 18 to 20 hours.



At 6:15 pm CDT the NWS in Norman issued a flash flood warning for parts of Comanche, Cotton, and Tillman counties. Wichita County first came under a flash flood warning at 8:15 pm, and remained so for the next 10 hours. This is an unusual duration for a flash flood event. While the upper low provided a broad source of lift, the presence of thunderstorms generated a smaller area of low pressure which kept precipitation anchored over Cotton, Wichita, and eventually Jefferson and Clay Counties (Figure 2). For several hours, thunderstorms formed to the east, and then moved west to

merge with the persistent low pressure area located near Burkburnett.

The resulting rainfall was devastating. Furthermore, the worst of the flooding occurred in the middle of the night, when people are slower to recognize the danger and respond. The cities of Burkburnett and Iowa Park were completely isolated by submerged roads for a few hours. Sugden Bridge on Oklahoma highway 81 was under water much of the night, and even Interstate 44 was closed from Burkburnett up to the Red River.

Fortunately, despite the time of night, there was a constant flow of information between emergency crews and the NWS in Norman. A number of amateur radio operators provided updates to the NWS, and local emergency managers communicated directly with the forecast office via cell phone. This type of interaction is invaluable when there are multiple decisions to be made (both at the forecast office and in the field) in a short time. Reports from the field



Ben Cooper, 6, wades through flood waters at his grandmother's house on Wellington Lane. Photo: Jason Palmer/Times Record News.



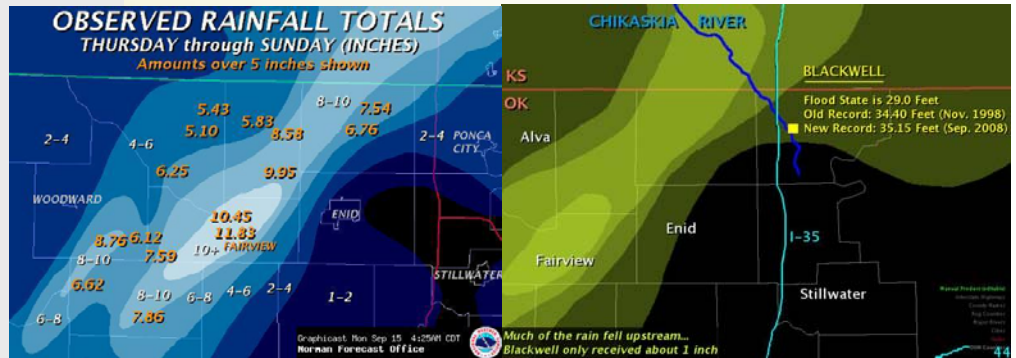
Water rushes from surrounding fields into the West Fork of Pond Creek near FM 367 on Wellington Lane. Photo: Jason Palmer/Times Record

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Texas.

Although the stalled front had no relation to hurricane Ike, there was a tropical connection to the flooding rains that occurred from September 11 to 12, over northwest Oklahoma. A tropical storm named Lowell, in the eastern Pacific Ocean, became swept up in a persistent jet stream that stretched from the Baja Peninsula of Mexico across New Mexico and west Texas, paralleling the frontal boundary over northwest Oklahoma. Lowell's circulation near the ground could not survive the trip inland all



GraphiCasts issued by NWS Norman forecasters depicting rain totals in northwest Oklahoma (left) and a record river stage at on the Chikaskia River near Blackwell, OK (right). The heavy rain event peaked early on September 12, 2008.

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The Houston and Lake Charles offices are our primary concern at this point. We make phone calls to arrange moving personnel from other offices to the primary backup offices for Houston and Lake Charles. These personnel will need to be in place if communications are lost with the coastal offices.

Friday, September 12

I arrive at the ROC around 8:00 a.m. Friday with hurricane Ike, now a Category 2 hurricane, moving through the northwest Gulf of Mexico toward the upper Texas coast. Ike is still forecast to make landfall during the early morning hours on Saturday as a strong category 2 or possibly lower end category 3 storm.

There is some electricity in the air this morning, figuratively speaking of course. Something occurred overnight that has become the focus in the ROC. Last evening a statement came from an office along the coast that read;

"ALL NEIGHBORHOODS...AND POSSIBLY ENTIRE COASTAL COMMUNITIES... WILL BE INUNDATED DURING HIGH TIDE. PERSONS NOT HEEDING EVACUATION ORDERS IN SINGLE FAMILY ONE OR TWO STORY HOMES WILL FACE CERTAIN DEATH."

PERSONS NOT HEEDING EVACUATION ORDERS...WILL FACE CERTAIN DEATH

Needless to say, this is causing quite a stir. Much of the conversation this morning is driven by this statement. The telephone calls pick up in frequency. The local and national media outlets are running with this statement as their main talking point. Media calls coming in want to discuss the meaning and possible impacts of saying, "face certain death". I participate in a live phone interview with a radio station in Birmingham, Alabama, wanting to get an official response to the "certain death" statement. I am somewhat nervous, but do my best to state the significance of what is about to occur along the Texas and Louisiana coast, and how important it is for people to evacuate and live to fight another day. In the end, although the statement is controversial, it will probably end up saving lives.

The morning National Hurricane Center conference call again points to landfall sometime during the very early morning hours of Saturday along the upper Texas coast near Galveston. Ike is still a category 2 hurricane and is expected to maintain this intensity through landfall. The Texas DEM call follows, and the "certain death" state-

ment is mentioned again. Officials will make pleas for people to heed this warning.

Houston and Lake Charles forecast offices are called to make sure everything is going well and to see if anything is needed, including food, since the personnel at the office may not be able to leave for some time depending on what Ike does.

At mid-afternoon, I am tasked with gathering forecast information for many of the levee systems along the Texas and Louisiana coastline for inclusion in the day's Impact Statement, issued by Southern Region Headquarters. We also determine the status of transportation systems such as evacuation routes, contra-flow routes, airlines and airports along the coast. Pictures coming in from Galveston at 2:00 p.m. are showing large waves crashing along the top of the seawall.

Landfall is forecast to occur overnight tonight and Jud and Mark want multiple personnel on duty through the night. Mark asks me to return at midnight and help overnight through the landfall of Hurricane Ike. I leave the ROC at 5:00 p.m. with Ike a little over 100 miles southeast of Galveston, Texas. I go to my hotel, grab some dinner and try to relax, knowing that the upcoming night will be a long one.

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helped forecasters understand the severity of the impacts that were occurring, particularly around Burkburnett and Waurika, where water was a foot deep in many homes, boat rescues were performed, and the number of road closures continued to climb.

The NWS, in turn, passed along short term forecasts to help crews plan their response and rescue. The bulk of the rain stayed just outside of the Wichita Falls city limits during the evening. But as the large scale and smaller scale low pressure centers drifted eastward, heavy rain eventually fell on the northern and western sides of Wichita Falls out to Iowa Park. Thunderstorms moving in toward the low pressure also trained across northern Clay County, and the entire system swung through Archer and southern

Clay Counties Tuesday morning, dumping three to seven inches of rain. Sheppard Air Force Based, which is the site of official weather observations for Wichita Falls, broke rainfall records for both August 18 (3.36 inches which occurred before midnight CST) and August 19 (3.27 inches which occurred after midnight CST).

Finally, between 3:00 and 5:00 a.m. CDT, thunderstorms straddling the Red River accelerated eastward. In the hardest hit areas, rain had ended by daybreak, and once rescue operations ceased, it was time to assess the damage. In Wichita County, 118 homes were flooded, and 19 were destroyed. Incredibly, and through the heroic efforts of emergency crews, there was no loss of life.

August 19 Floods Also Affected Central Oklahoma

While the most widespread flooding occurred around Wichita Falls and southwest Oklahoma, there was another concentration of rainfall that created serious water problems in central Oklahoma. The low level frontal zone contributed to flooding along the red river, and a mid level frontal zone likely contributed to the event in central Oklahoma (Figure 2). Steady rain began late in the evening on Monday the 18th, and persisted through noon to 2 pm on the 19th. The affected area included Norman up through the west side of Oklahoma City out through much of Canadian County.

Numerous city roads over the western half of Oklahoma City were closed with as much as four feet of water over the road. The greatest flooding may have been in eastern Canadian County, from Northwest 23rd Street and Richland Avenue to Highway 66 and Banner Road. Five people were rescued by boat - three of them from their homes, and two from their vehicles. Oklahoma City television footage also showed fire crews in Norman rescuing stranded motorists at the intersection of Franklin and Sooner Road.

Oklahoma City's Will Rogers World Airport recorded 2.95 inches of rain, but was hard pressed to match the daily record of 3.82 inches that was set during Tropical Storm Erin just a year before (See "Erin Intensifies Over Oklahoma," Fall 2007).

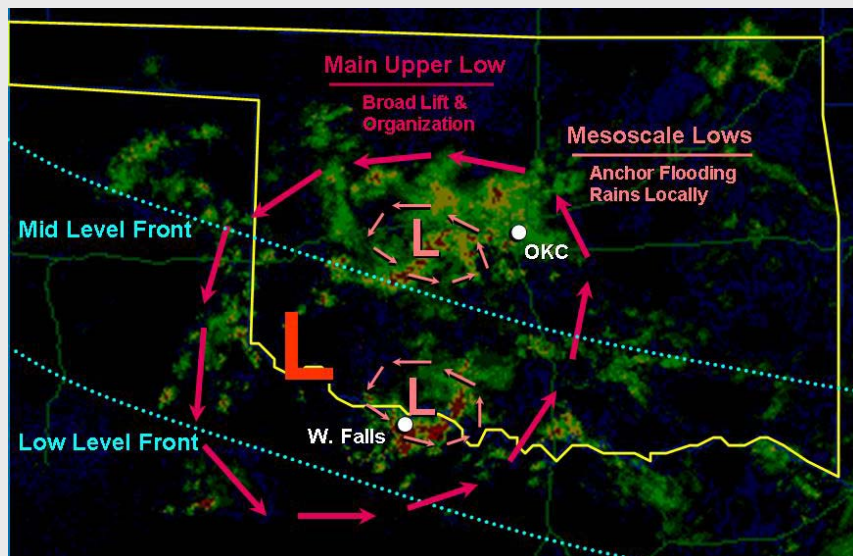
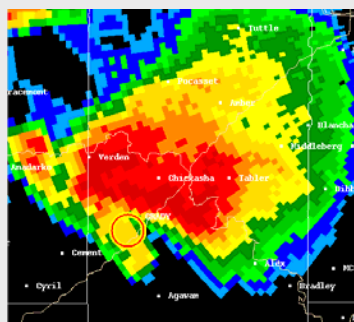


Figure 2: Regional radar reflectivity showing precipitation at 2:00 a.m. CDT on August 19, 2008. Graphical overlays depict the frontal zones and upper level features which led to persistent heavy rain along the Red River and in central Oklahoma.

2008 Was the Wettest August Ever at Oklahoma City & 4th Wettest at Wichita Falls

OKC August Rain			August Rain		
	Year			Year	
1.	9.95	2008	1.	11.05	1914
2.	8.34	1906	2.	7.61	1971
3.	7.44	1934	3.	7.42	2005
4.	6.77	1966	4.	7.38	2008
5.	5.84	1996	5.	6.51	1950
...
10.	5.39	2007	10.	5.05	1966



Radar reflectivity at 7:07 pm CDT on October 4, 2008, from the NWS Doppler radar located in central Oklahoma (KTLX). The image reveals a classic supercell thunderstorm approaching Chickasha, and on its way toward producing a tornado at Moore, OK.

October 4, 1998... from page 3

large hail, with several reports of baseball size hail. Heavy rain also caused major flooding in Noble, Lincoln, and Payne counties, damaging some bridges and washing out some roads.

When the sun rose on October 5, 1998, nineteen tornadoes had occurred in the NWS Norman county warning area, with an additional 8 tornadoes occurring in east-

ern Oklahoma (within the NWS Tulsa, OK, county warning area). The total of 27 Oklahoma tornadoes still stands today as the greatest outbreak of October tornadoes ever to affect a single state. Large hail and straight-line winds had also pounded the region, and flooding continued to cause problems for parts of central Oklahoma. Witnessing these events, and my first tornado, began to shape my experience with severe weather. I now use that experience to provide warning to the public as a meteorologist at NWS Norman.

Saturday, September 13

I arrive back at the ROC at midnight. Hurricane Ike remains a strong category 2 hurricane and is approximately 45 miles southeast of Galveston, Texas.

I monitor the height of the water along the levees as Ike approaches and continue to do this for the next couple of hours. This will give us some idea on how bad some of the flooding may get along the coast. I pass this information on to Jud, who is also working tonight in the ROC, and who is composing the latest Impact Statement.

At 3:00 a.m. hurricane Ike is approaching Galveston, while I make phone calls to the Houston and Lake Charles Forecast Offices to check in. I try to get a feeling on how they are doing both physically and emotionally, and to make sure their equipment is still functioning properly. The Houston staff does not seem too concerned, which makes sense, as they are located in a reinforced building they share with local emergency management. This building can withstand winds up to 175 mph. There is, however, some concern for the Lake Charles office where the water level is rising and getting closer to the office. The radar is also located nearby, and could be lost if the water rises much more than what is forecast to occur.

Hurricane Ike makes landfall shortly before 4:00 a.m. near Galveston with wind gusts of 80 to 100 mph, a storm surge of around 20 feet, and

flooding rainfall. Although I am expecting numerous phone calls and requests for information, the ROC remains rather quiet as we watch the events unfold along the coast of southeast Texas.

As sunrise approaches it is apparent that the local offices have survived intact and back-up operations will not be needed. But the upper Texas coast has taken a pounding. Pictures from the media show



many of the buildings in downtown Houston have lost much of the glass that makes up the outside part of the buildings. Reports are also coming in of severe flooding and individuals and families who are trapped.

Between 6:00 a.m. and 8:00 a.m. others begin to arrive at the ROC to relieve those of us who have worked through the night. I brief the incoming shift with what occurred overnight and what is forecast to happen during the day today. I take my leave after a very interesting shift.

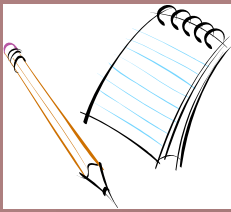
After a few hours of sleep back at the hotel, I awake during the early afternoon to find rain and gusty winds in the Fort Worth area. I call the ROC to see how things are going,

Hurricane Ike... from page 5

and what they want me to do later today and tomorrow. Mark tells me the remnants of Hurricane Ike are moving quickly through east Texas and should be lifting northeast into the central Mississippi River Valley overnight. Mark tells me to plan to return to the ROC Sunday morning around 7:30 a.m..

Later that evening, however, the phone rings, and it's Mark telling me that the ROC is standing down, and I am released from duty. He says that he is sorry word had not come earlier so I could get home today, but tells me how much he appreciates me coming down to help. I call home and let my family know I will be returning home tomorrow morning.

I spend the remainder of the evening reflecting on the events of the past few days. In these situations I also wonder what else I could have done to make a positive difference. I know that, although my time dealing with Hurricane Ike is nearly at an end, a lot of people along the Gulf coast will be dealing with the aftermath of Ike for some time to come. My latest experience at the ROC, though, has reminded me once again how lucky we are that we have some very bright, caring and hard-working individuals at Southern Region Headquarters and at local National Weather Service Forecast Offices throughout the nation.



Norman Office Forecast Notebook - A Complete Look at Events and Happenings

Spotter Training 2009

As winter settles in and the cold north wind comes sweeping down the plains, the last thing most of us are thinking about is severe weather. But for the National Weather Service and our partners in emergency management, this is the time to start getting ready severe weather season.

An important part of these preparations is storm spotter training. Storm spotters are part of the weather information team, relaying valuable ground truth information to emergency managers and



the National Weather Service to help us make the best possible warning decisions.

Beginning in January and continuing through the end of March, NWS meteorologists will travel to cities all across Oklahoma and north Texas to help spotters get ready for springtime storms. The two hour training sessions focus on safety, accurate identification of different weather elements, and timely reporting.

You can find a spotter class near you by visiting our SKYWARN website:

<http://weather.gov/norman/skywarn>

Day of Caring - Norman, OK

By Kevin Brown, Senior Forecaster

Each year in early September, staff from the Norman Forecast Office leave their workstations and laptops behind and pick up brushes, brooms, and hammers. Since 1997, numerous employees from the Norman Forecast Office have participated in the United Way Day of Caring, the nation's largest corporate volunteer event.

Volunteer teams from a large spectrum of businesses in each community help United Way agencies paint, perform needed construction and landscaping, refurbish playgrounds, deliver meals to those who are homebound, and even play bingo with the elderly. United Way agencies submit projects that need to be completed, then the United Way assigns these projects to the teams based on the number of volunteers and their ability to perform the needed task. The process is very simple, efficient, and rewarding. Not only is this a great opportunity to give back to the community and see first-hand how the United Way helps those in need, it also gives NWS employees a chance to directly interact with those that they serve.

This past September, four members of the Norman Forecast Office combined efforts with four employees from the Storm Prediction Center to paint offices and meeting rooms for a large Norman-based outreach center. As is the case every year, a great time was had by all.



New Employee: Christine Riley

Late in October, we welcomed the newest member of our team. Christine Riley hails from northern California. In spring of 2008, she graduated from the University of California at Davis with a Bachelor's Degree in Meteorology. As a student, Christine volunteered at the NWS office in Sacramento. She joins us in a full-time position as a Meteorologist Intern, a role in which she will help with our Public Service desk, Cooperative Observer Network, and Observations program, all while developing forecasting skills.

Although she is new to Oklahoma weather, Christine stepped right into warning operations when severe hail, winds, and flooding struck Norman, Moore, Piedmont, and other parts of Oklahoma on November 5th. Welcome Christine!

More News...Page 9

Croatian Visitors

In October, the Norman weather community received a visit from the Croatian Meteorological and Hydrological Service (abbreviated DHMZ in the Croatian language). The DHMZ selected a team from the University of Oklahoma, led by Dr. Ken Crawford at the Oklahoma Climatological Survey, to initiate a comprehensive modernization feasibility study.

This study has been organized through the Office of Weather Programs and Projects, part of the collaborative partnership known as the Weather Sphere (collaborative partnership) at OU. The modernization effort will examine a host of challenges including developing a greater network of observation sites and radars, 24 hour warning and forecasting capabilities, and improved numerical weather prediction.

The visit included DHMZ Director, Ivan Cacic, who spoke at a meeting of the Central Oklahoma Chapter of the American Meteorological Society and National Weather Association (COCAMS/NWA). Croatian meteorologists and hydrologists also sat with forecasters at NWS Norman to observe state-of-the-art forecast operations which they hope to implement back home in southeast Europe. The Croatians face challenging weather conditions, with strong winds along the coast of the Adriatic Sea, and the threat of flooding in mountainous terrain farther inland.



May 3rd Anniversary

In Oklahoma there is only one date that is routinely spoken without mentioning the year, and yet everyone knows exactly what you are talking about. It's hard to believe that it has been nearly ten years since May 3, 1999. May of 2009 will mark the 10 year anniversary of the most significant tornado outbreak in recent history. The May 3rd event saw a swarm of damaging tornadoes cut a swath of destruction through parts of Oklahoma and Kansas. For many people, that day changed their lives forever. But May 3rd also brought people together to get the warning out, and then to help communities recover.

To commemorate the historic event, the National Weather Service is planning an event in early May. It's still in the early planning stages, but watch our website for details as they become available.

National Severe Weather Workshop

If you've made it this far into the newsletter, that probably means you are interested in weather. And if you're interested in learning even more about weather from some of the nation's experts, then you'll want to mark your calendar for March 5-7. Those are the dates for the National Severe Weather Workshop.

The 2009 edition of the workshop will focus on the theme "Dangerous Weather Ahead: Understanding and Communicating the Threats" and will feature presentations on a wide variety of topics, from the latest radar technology to cutting-edge methods for sharing weather information. On Saturday, you can attend an afternoon of information geared specifically toward storm spotters.

<http://www.norman.noaa.gov/nsww2009>

Editor's Note

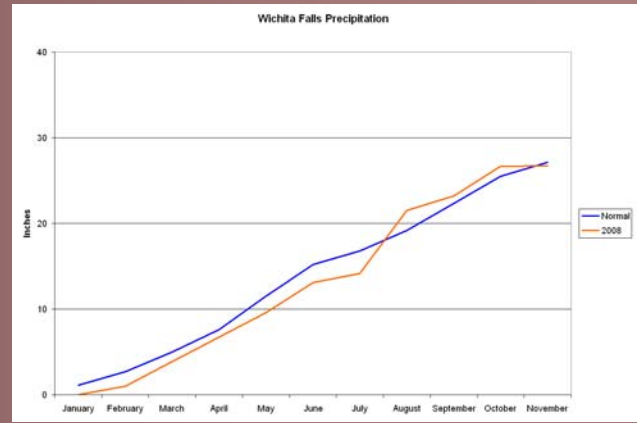
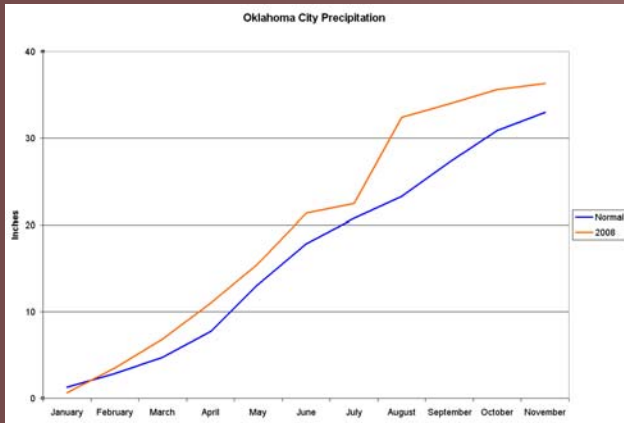
Well, this is my fourth issue, marking one full year as editor of the Southern Plains Cyclone. Composing the newsletter gives me a great opportunity to look back at recent events and inform you about some of the great things people are doing in the National Weather Service and at the National Weather Center. I also appreciate the help I receive from the various budding authors we have here at NWS Norman. As always, please send feedback, comments, suggestions: Patrick.Burke@noaa.gov

Severe Weather Awareness Week

Each year the National Weather Service teams with our media and emergency management partners to focus attention on severe weather preparedness. In 2009, the annual Severe Weather Awareness Week for both Oklahoma and Texas will be February 22-28. During that week, NWS offices serving both states will provide information on weather safety and focus on ways you and your family can be ready when those springtime storms rumble across the area. You can always find severe weather safety information on our website:

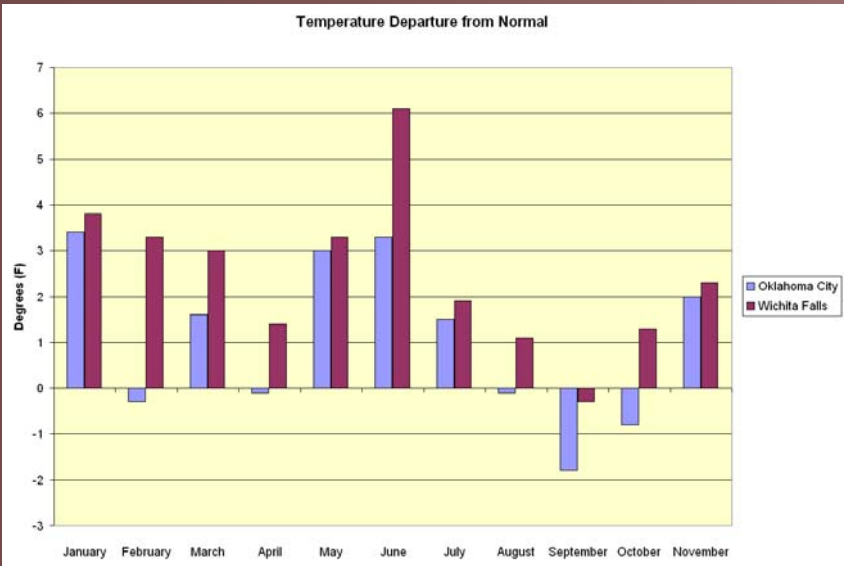
<http://www.srh.noaa.gov/oun/wxsafety/severewx/>

By the Numbers



As a whole, 2008 has seen precipitation within a couple inches of normal throughout the region. Oklahoma city has stayed just above normal, while Wichita Falls has been a little below except from August to October. In fact, the most notable feature on the precipitation line graphs (above) for both sites is the spike in rainfall that occurred during August. Both regions experienced flooding during the month, and Oklahoma city had its wettest August in 117 years of records.

The bar chart (left) shows how the average temperature for each month during 2008 differed from the 30-year normal for that month. The first 8 months of the year were consistently close to or warmer than normal, and in some cases significantly warmer. In June, Wichita Falls was six degrees above normal, or nearly 8 percent warmer than a typical June (which is 79.7 degrees). September brought cooler weather, however, partly aided by the cloud cover and north winds in the wake of tropical cyclones Gustav and Ike which tracked close to the region. Temperatures rebounded to above normal levels at both sites by November.



September Flood... from Page 5

the way to Oklahoma, but the system did remain well defined as a trough at middle and upper levels of the atmosphere. Lowell enhanced lift and placed copious moisture into the rain and storm clouds from west Texas up through southern Kansas. The warm and moist air aloft preconditioned the environment for heavy rain (see the discussion on "Warm Rain" in the Wichita/Jefferson Counties article on page 1).

Rain began to pile up early Thursday morning, September 11, well ahead of Lowell. Flash flood warnings were issued that afternoon in far western Oklahoma, and the event wasn't even halfway over. Overnight going

into Friday, September 12, as the remnants of Lowell arrived in concert with a moderate low level jet, the rainfall coverage and intensity was maximized. It was, in some sense, a perfect storm. And the results for many Oklahoma communities were overwhelming.

Rain tallied 5 to 10 inches over a broad area, and locations around Fairview, OK, received nearly 12 more inches of rain. Dozens of roads were closed by high water, and hundreds of homes and businesses were flooded anywhere from Fairview to Woodward and east to Medford and Pond Creek. Furthermore, all of that water piled into the river networks, and created further havoc downstream. In Blackwell

an estimated 800 residents may have been displaced due to flooding in eastern and northern areas of the city. About 250 homes were flooded after the Chikaskia River exceeded its banks early Saturday morning, September 13. The river set a new record stage at an unofficial 35.15 feet (the official number following surveys may end up as high as 35.3 feet). This is more than 6 feet above flood stage.

The damage

wasn't even limited to flooding. A few embedded thunderstorms produced damaging winds, and a couple of weak tornadoes, which blew over a propane tank near Clinton, OK, and destroyed a carport and uprooted trees near Tonkawa, OK. Fortunately, hurricane Ike took an easterly track, sparing the region from any further flooding; the remnants of Tropical Storm Lowell had done quite enough.

Winter Weather Safety

By John Pike, Meteorologist Intern

Old man winter is on our doorstep. A loss of heat, electricity, water, and communications are the possible outcomes of winter weather, so be prepared before the storm arrives. According to Governor Brad Henry, the December 2007 ice storm across Oklahoma left more than 640,000 homes and businesses without power, and caused 29 deaths. Everyone should have a winter readiness kit in their homes and vehicles for the eventuality.

Home Readiness:

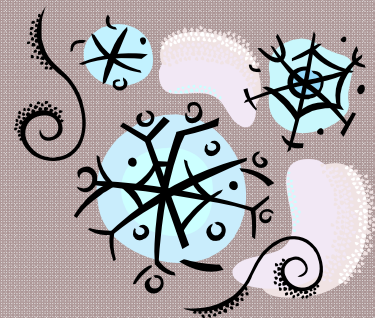
- A flashlight and extra non-rechargeable alkaline batteries. Rechargeable batteries are fine for some high drain applications, but can go flat very quickly. Good quality alkaline batteries will have a much longer life for flashlights, and are also best suited for weather radios, and smoke detectors.
- Battery-powered NOAA weather radio and commercial portable radios. A cellular phone. For landlines, you may not have electricity for your cordless phone, so have a corded telephone for backup, or as an extension.
- An emergency heating source such as blankets. A fireplace, wood burning stove, space heater, or electric generator may also be helpful, but should be used safely. Make sure you have proper ventilation, and have a smoke detector and fire extinguisher available.
- Extra water and high-energy food requiring no cooking or refrigeration, such as dried fruit or candy.
- First aid supplies. Extra medicine and baby items may also be applicable

For your vehicle, keep your gas tank near full to avoid ice accumulation in the tank and fuel lines. Use an ice scraper or chemical deicer to keep your windshield clear. If your vehicle gets stuck, have a snow shovel and a sack of sand or a short 2x4 board to give your tires traction. Vehicle batteries can drain faster during cold temperatures, so have battery booster cables available.

Be sure to let someone know your travel plans, timetable, and route. A cellular phone may also be helpful, but again, you could be stranded in an area without any service. If you become stranded, then the following items in your vehicle may save your life:

Travel:

- Blankets/sleeping bags, Flashlight with extra batteries.
- Extra clothing to keep dry, First aid kit
- Water container and high-calorie, non-perishable food.
- A can, candles, and water proof matches could also be used to melt snow for drinking water.
- Roadmaps, compass, or even a GPS receiver if stranded in unfamiliar locations. You need to know your location to get or find help.



Forrest... from page 1

terminated that my position is a combination of administrative and operational tasks that support the National Weather Service (NWS) mission of protecting life and property. I refer to it as a "Heinz 57" position because I literally perform around 57 different functions in the Weather Forecast Office. Of all the positions in the NWS, the work of the OPL may have the widest variety.

One of my primary responsibilities is training newly hired meteorologists as they begin their careers in the NWS. I help guide them in applying their academic knowledge in an operational setting. This includes monitoring numerous forms of "raw" weather data, including upper air flights, surface weather observations, and the daily observations taken by our volunteer cooperative observing network. We also monitor three Doppler radars (these radars are part of the Weather Surveillance Radar 1988-Doppler or WSR-88D network), and 13 weather radio transmitters. Our most important service, however, is answering calls and questions from our primary customer, the taxpayers who support our organization and mission.

I also train amateur radio storm spotter groups and Emergency Management personnel, traveling to numerous locations throughout our county warning area. I have been a licensed amateur radio operator (KB5FOL) for 20 years, and have been a storm spotter for over 30 years. During significant weather events, I am one of the voices known as WX5OUN, transmitting vital weather information to

the same spotter groups I help train.

In addition to my other functions, I conduct weather talks for public schools, civic organizations, and conduct interviews for the media. I also represent NWS Norman in various meetings with our partners in the National Weather Center. My position is constantly evolving as the needs of the office change, so I never have a slow workday.

I was born in Winfield, KS, and decided I wanted to be involved with weather when I was eight or nine years old. Among the primary catalysts behind my decision were the infamous Blackwell/Udall tornadoes that occurred on Wednesday, May 25, 1955. An uncle of mine lived in Blackwell at that time, and his home suffered extensive damage when an F5



tornado moved through the northern Oklahoma town. One of the few salvageable pieces of furniture was a china cabinet which later wound up in my house. For me it became a daily reminder of the event. About one hour after Blackwell was struck, another F5 tornado ripped through Udall, KS, which is 18 miles northwest of Winfield. My father was in the Kansas National Guard at that time, and was sent to Udall to perform search and

rescue efforts.

Throughout grade school and into my teens, I tracked severe storms by listening to radio station KFDI in Wichita, and watching Meteorologist Cecil Carrier on television. I would plot the storm reports and locations on state highway maps, and monitor the weather changes with a barometer that my parents gave me as a birthday present. I still use the same instrument today.

My first visit to NWS Norman was on Wednesday, May 25, 1977. At that time, the office was located at Will Rogers World Airport in Oklahoma City. After that initial visit I dropped by almost daily. I looked over weather charts and teletype data, and established relationships with the forecasters and technicians who were stationed there at that time, learning from their collective experience and insights. Two years later, I was hired as a NOAA Weather Radio Broadcaster, a job I performed until March of 1989. It was an opportunity for additional hands-on training in weather forecasting and warning operations. In June of 1990, I was selected for a career position in the NWS, and am now in my nineteenth year of service.

Of all the speaking engagements in which I have participated, one of the most special was on May 25, 2005. On that Wednesday evening, I had the distinct honor of speaking at a memorial dedication in Blackwell, commemorating the 50 year anniversary of the very event that led to my journey into meteorology.

Cooperative Observer Notes

Once again, thanks to all of our Cooperative Observers for reporting your weather observations each and every day. If you have questions or comments about a particular weather event, piece of equipment, or just want to chat with us, don't hesitate to write or call. You never know, you may inspire the content for this section of the next Newsletter. Keep up the great work!

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Please share this with friends, relatives, and colleagues. Comments and suggestions are always appreciated, by phone at 405-325-3816 or by e-mail at Patrick.Burke@noaa.gov.