

NATIONAL
WEATHER SERVICE

ALBUQUERQUE,
NEW MEXICO

AWARDS

- **September 2007**
Grady Bright
Melrose, NM
50 Years of Service
- **September 2007**
Rogene/Sandra Alford
Corona, NM
15 Years of Service
- **September 2007**
Charlie McMahan
Carrizozo, NM
20 Years of Service
- **December 2007**
Katheren Sink
Grenville, NM
30 Years of Service
- **December 2007**
Amy and Greg Lewis
Santa Fe, NM
10 Years of Service
- **December 2007**
Elma Cain
Amistad, NM
15 Years of Service
- **March 2008**
Ronald Merritt
Ramon, NM
25 Years of Service

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New Mexico

Skywatcher

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Near Average Monsoon...Why?

Welcome to the Fall 2007 Edition of the New Mexico Skywatcher. Since our last publication in the spring, several changes have taken place at the National Weather Service office in Albuquerque. Charlie Liles, Meteorologist-in-Charge (MIC), and Keith Hayes, Warning Coordination Meteorologist, (WCM) retired in spring and summer respectively. Since then, two new members of the management staff, Shawn Bennett (MIC) and Jesse Haro (WCM), have arrived. In this issue, you can learn about the new members of our team!

As you already may know, New Mexico experienced a near or slightly below normal monsoon season. This edition of the Skywatcher will talk about the Albuquerque metro summer rainfall statistics. How did the numbers shake out compared to the

summer of 2006? Did you know there is a correlation between winter snowpack and the summer monsoon? See page 5 for more details. You will also find summer photos, including the Santo Domingo Pueblo tornado (a few miles southwest of Santa Fe) on June 9, 2007. There are also some helpful winter safety rules in the story below and continues on page 4. We introduce two more observers and show how your observations help the aviation industry.

We appreciate everyone's timely and accurate weather reports during the spring and summer seasons. Your data and severe weather reports were extremely useful, especially for the protection of life and property. Keep up the great work and we look forward to your snow reports throughout the upcoming

winter months.

Congratulations to those receiving awards this fall and winter (shown in the left column). Your long history of weather observations, some reaching 50 years, are vital in developing climatological databases, improving weather forecasting and supporting research.

We appreciate the hard work our observers provide for the National Weather Service. We wish you the best during the cool season, and happy holidays to everyone!

Author: Daniel Porter



Winter Safety Rules



January 21, 2007

Taos Ski Valley, NM

Photo Courtesy of Seth Bullington

Last winter's snowstorms illustrated that adverse winter weather can be life threatening and that New Mexicans need to be ready for anything Mother Nature can dish out. Everyone needs to be prepared for winter weather both at home and when driving. Additionally, it is important to know the meaning of different statements issued by the NWS. At home you should have enough supplies for everyone in your household for at least three days and be prepared for a power outage. Continued on page 4.

Joe's Place



Joe Alfieri
Observing Program
Leader

Colder temperatures and snow are on the horizon as daylight becomes shorter each day. Please remember, when taking snow measurements, there are three values you are recording: snowfall accumulation, snow melt (or liquid equivalent), and snow depth (if snow is present at observation time). Liquid precipitation is rounded to the nearest hundredth of an inch (e.g. 0.66), snowfall is rounded to the nearest tenth (e.g. 7.5), and snow depth is recorded in whole inches (e.g. 7). If you miss an observation, don't panic, just leave those boxes blank. If you would like to view a 22-minute video on how to measure this data, please give us a call at 1-888-386-7637 and we will gladly mail you a copy.

Please complete all three precipitation columns, even if it was a precipitation-free day. Entering zeros in these columns (when necessary) will save significant time and allow our office to send in your observations to the National Climatic Data Center (NCDC) in a timely fashion.

Please ensure when filling out your B91 or other forms, enter the station, month, year, state, and county information. In addition, enter the observation times of the temperature and/or precipitation readings, and record the Mountain (M) or Daylight Mountain (DM) indicator. Fill out the river information only if you take river observations.

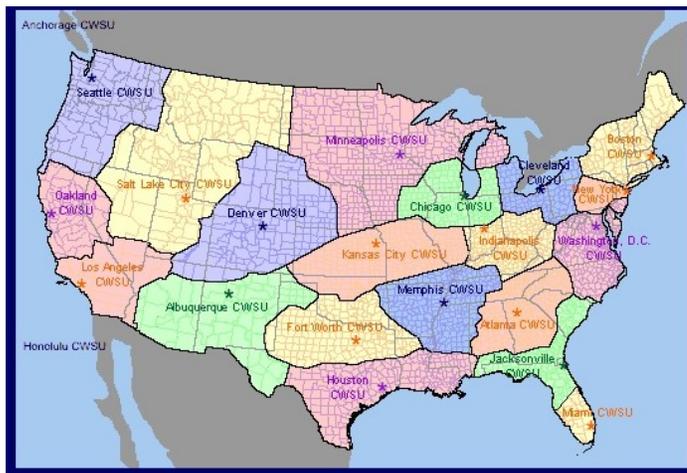
If you have a standard 8-inch rain gauge, it is approaching the time to remove the inner measuring tube and the funnel. This will help with melted snow measurements and prevent an overflow of snow in the funnel.

Contact our office if you need supplies, such as a replacement rain gauge stick, additional forms, or envelopes.

Thanks to those who send in their forms on time. The data you report is recorded and made available to the public. Your accurate reports are the backbone of our nation's climatological history.

Did You Know?

Roughly 25% of the National Weather Service's resources are employed to support aviation customers. In addition to the hundreds of Terminal Aviation Forecasts constructed at all forecast offices from Maine to Guam, the NWS also staffs Center Weather Service Units (CWSUs) at each Air Route Traffic Control Center across the country (see image below). The Albuquerque CWSU covers the majority of central and eastern Arizona, nearly all of New Mexico, and portions of west Texas. The CWSU meteorologists provide face-to-face weather briefings to Federal Aviation Administration (FAA) controllers located at each of the individual Centers, as well as telephone briefings and forecast products to airport tower, Flight Service Station, commercial airlines, and general aviation pilots. Your observations are incorporated into NWS forecast models, improving their accuracy, which in turn helps NWS CWSU forecasters keep our national airspace safe!



Author: Matt Lorentson



**Photo Courtesy of
DOC/NOAA**

New Leadership at NWS Albuquerque

On April 2, 2007, Charlie Liles retired as Meteorologist-in-Charge (MIC) of National Weather Service Albuquerque. Charlie was the eleventh MIC of the Albuquerque NWS office, and held the position for 17 years. Two months later, in early June 2007, Keith Hayes retired as Warning Coordination Meteorologist (WCM). While WCM at NWS Albuquerque, Keith developed numerous applications to support warning operations and verification. He also developed a National Weather Service Amateur Radio Club and established ties with the statewide repeater network. This past summer, our office welcomed two new senior staff members to replace Mr. Liles and Mr. Hayes.

Shawn Bennett was selected as Meteorologist-in-Charge and arrived on station in early July. Mr. Bennett started his career with the government in 1987 at NOAA's Office of Oceanic and Atmospheric Research. In 1994, Mr. Bennett joined the National Weather Service in San Juan Puerto Rico, before transferring to Brownsville in 1999 where he eventually became MIC there. Most recently, in April 2004, he was selected as Meteorologist-in-Charge at NWS Tampa, Florida. While much of Mr. Bennett's focus at the Tampa office was on hurricanes, he was previously a principal investigator for the Southwest Area Monsoon Project in Phoenix, Arizona, in 1991.



Mr. Jesse Haro (WCM) on left and Mr. Shawn Bennett (MIC) on right.

Jesus (Jesse) Haro, our new Warning Coordination Meteorologist, came from the NWS Brownsville office where he also held the position of WCM. Mr. Haro received a Bachelor of Science degree in Geography from Arizona State University in 1992, with an emphasis and graduate work in Meteorology and Climatology. He began his NWS career in Phoenix, Arizona and eventual tours of duty took him through Reno and Las Vegas, Nevada as well as Brownsville, Texas. While in Brownsville, Mr. Haro specialized in raising public awareness about the dangers of tropical cyclones. He has represented the National Oceanic and Atmospheric Administration (NOAA) internationally in support of research projects relating to the North American Monsoon. Mr. Haro has been with the National Weather Service for 17 years, and has much experience in severe weather forecasting and warnings.

If you are ever in the area, please stop by and welcome our new management staff to Albuquerque.

Summer Photos Across New Mexico



June 9, 2007

Santo Domingo Pueblo, NM

Photo Courtesy of Don Shoemaker



June 27, 2007

Taos, NM

Photo Courtesy of Aleksandra Roebuck



July 7, 2007

Belen, NM

Photo Courtesy of Matthew Gustke

'Blizzards usually entail whiteout conditions and can be the most dangerous of all winter weather events...'



**Albuquerque, NM
Sandias obscured in
the background.
December 20, 2006
(Photo Courtesy of
Ed Bystrom)**

Winter Safety Rules

It is recommended to have many of these items on hand at all times as natural and manmade disasters can strike when least expected.

While at home:

- One gallon of water per person per day.
- Non-perishable food items.
- Extra medicine.
- Flashlight with extra batteries.
- A lantern or candles and matches.
- Battery powered radio.
- A portable heater or fuel for the fireplace.

When dressing for cold weather:

- Wear several layers of loose fitting, lightweight clothing.
- Wear mittens instead of gloves.
- Wear a hat as most body heat escapes through your head.

In your vehicle:

- Have it winterized before the first storm hits. This includes checking the battery, antifreeze, tires, heater, defroster and wiper blades.
- Keep the fuel tank at least half full.
- Jumper cables and flashlight with spare batteries.
- Sand or kitty litter to provide traction and a shovel.
- An ice scraper.
- Blankets.
- Non-perishable food items.

Before traveling:

- Check the latest forecast from NOAA Weather Radio, <http://www.srh.noaa.gov/abq> or your favorite media source.
- Check the latest road conditions at <http://www.nmroads.com>.

It is always important to monitor the latest weather conditions and be sure to let someone know where you are going and when you think you will reach your destination.

A Winter Storm Watch is issued when there is a potential for life threatening winter weather in the next 12-48 hours. In general, a watch is issued when snow accumulations of at least four inches are expected below 7500 feet, or at least eight inches above 7500 feet. Watches may also be issued for lesser amounts of snow when combined with significant mixed precipitation in the form of sleet or freezing rain, or when strong winds are expected to create areas of blowing and drifting snow and dangerous reductions in visibility. This is the time to double check to make sure you have all the safety items listed above as well as any perishable food items that you may need should roads become impassible. During the winter season, you may need to consider altering your travel plans or adjusting schedules so that travel can be minimized or eliminated in the event that severe winter weather conditions develop.

A Winter Storm Warning is issued when the potential for life threatening winter weather is imminent or confidence is high that it will begin within the next 24 hours. The expected dangerous winter weather conditions are the same as for a watch. At this time, you should have all the supplies necessary at home in case you become stranded for a number of days.

A Blizzard Warning is issued when sustained winds of 35 mph or higher combine with snow to create visibilities of a quarter mile or less. Blizzards usually entail whiteout conditions and can be the most dangerous of all winter weather events since stranded motorists often wrongly make the decision to abandon their vehicle then quickly become lost or disoriented, eventually falling prey to hypothermia and sometimes losing their life.

Author: Ken Drozd

Winter Snowpack vs. Summer Rainfall

Much of New Mexico relies on a deep winter snowpack in the mountains to supply the spring runoff that normally fills our lakes and reservoirs. However, our year to year variability in winter snowfall often results in below normal spring runoff and a need for timely rainfall to satisfy water demands from late spring into summer. But, when the winter snowfall is lacking, how likely is it that the summer rainfall will be greater than normal?

Starting in 1960, there have been fourteen years in which the statewide snowpack was less than 50 percent of average as of March 1st. Those years were 1963, 1964, 1967, 1970, 1971, 1972, 1977, 1981, 1986, 1996, 1999, 2000, 2002 and 2006, which are highlighted with pink bars in the snowpack graphic below. Looking at summer rainfall by climate division from June through August for these fourteen low snowpack years, we find that on average, more rain falls than would otherwise be expected. Summer rainfall following a low snowpack ranges from 107 percent of normal in the northern mountains to 121 percent of normal in the southern desert. The statewide average for summer precipitation following a low March 1st snowpack is 113 percent of normal.

Statewide, wetter than normal summers (more than 25 percent of the long term average) exceeded drier than normal summers (less than 25 percent of the long term average) following a low snowpack by a factor of 3.5 to 1. The highest percent of normal for statewide summer precipitation was 2006 with 161 percent of normal, while 1964 was the driest at 66 percent of normal.

2006 was the year with the record lowest March 1st snowpack (since 1950) while the next most recent low snowpack year (and one of the five driest on record) was 2002 when summer rainfall averaged only 74 percent of normal. Seven of the 14 years in the study showed summer rainfall of at least 126 percent of normal.

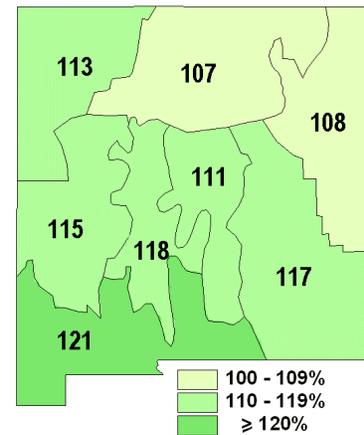
One of the prevailing theories of why New Mexico might be receiving greater than normal summer rainfall following a low snowpack is that the higher elevations of the southwest U.S. (and Great Basin) may be heating up earlier than usual as more of the sun's energy is available to heat the land surface rather than melt the snowpack. The early warm up allows for an increased thermal contrast between the land and ocean surfaces, which en-

hances the summer monsoon circulation.

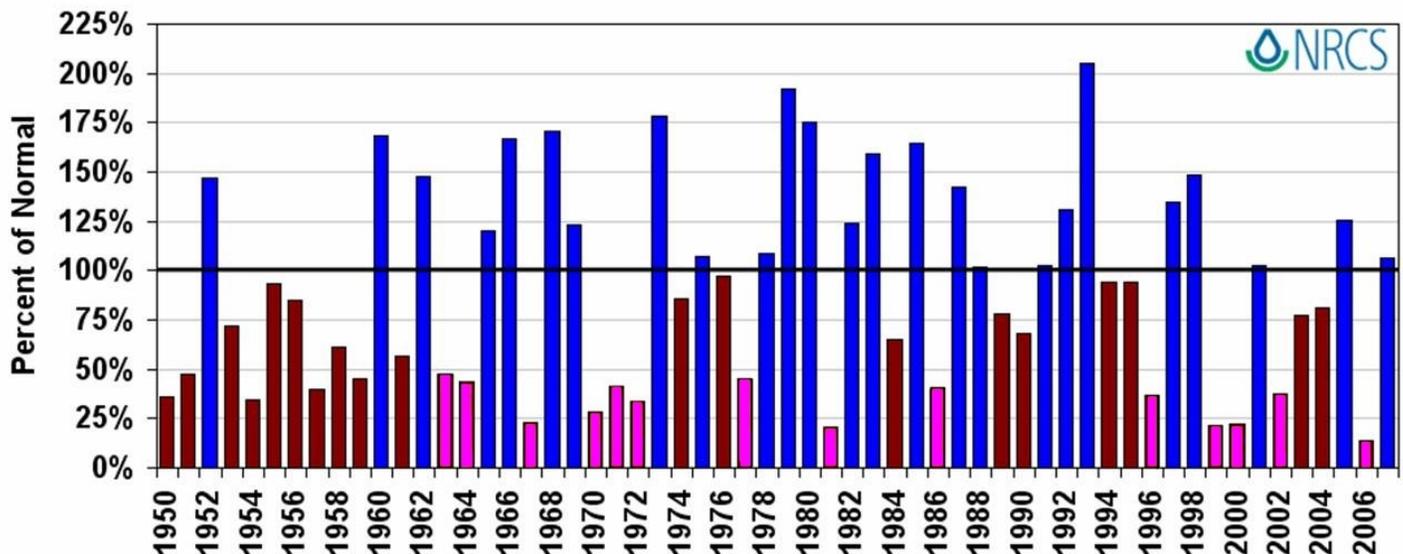
This meteorological theory may hold the keys to this curious phenomena, but then again it just may be that Mother Nature is trying her best to even things out during those summers that follow a drier than normal winter.

Author: Ed Polasko

Summer (June - August) Precipitation After Lean Snow Pack Seasons (% Normal)



New Mexico Statewide Snowpack: March 1st 1950-2007



Meet Your Observers



A tour by Joe Alfieri of the NWS observing equipment.

Within each issue of your New Mexico Skywatcher, the National Weather Service in Albuquerque will highlight cooperative observers from across our forecast area (which includes the northern two-thirds of New Mexico). This section was designed to allow observers across the state to meet fellow hard-working volunteers in the region. We are proud of the service you provide our nation, and we want to acknowledge your hard work.

The first extensive network of cooperative stations was set up as a result of an 1890 act of Congress that established the U.S. Weather Bureau. John Campanius Holm's weather records, taken without benefit of instruments in 1644 and 1645, were the earliest known recorded observations in the United States. Both Richard D. Hammer and Betty Dunlap, highlighted below, have received this award.

Authors: Joe Alfieri/Maxine Pacheco

Northeast New Mexico



Richard Hammer

For over 35 years, Richard D. Hammer, cooperative weather observer in Mosquero, NM has earned a reputation for providing detailed, accurate, and timely weather information to the National Weather Service (NWS). Richard, or "Dickie", as locals call him, was born and raised in Harding County. He has contributed greatly to the community and county by serving as Harding County Assessor, Harding County Commissioner, Mosquero Village Council Trustee, Harding County Fair Board member, and Mosquero School Board member. Mr. Hammer was also a rural mail carrier for the U.S. Postal Service for 44 years. The weather station at Mosquero 1NE was established August 1, 1926. Current records show that between February 1951 and March 1971, the station changed hands five times. It was March 1, 1971 when Richard took over the weather station from Ethel B. Solomon, and has kept it up to the present day. His daily observations are critically important to the NWS Office in Albuquerque, as well as his fellow farmers and ranchers throughout northeast NM. When Mr. Hammer is ill or out of town, his wife Carol, and son Charles, provide accurate and timely weather observations. In early 2007, the NWS presented Richard the 2006 John Campanius Holm Award, recognizing 35 years of dedicated service. His many years of dedicated support of the NWS and his community, makes Richard Hammer an outstanding representative of the cooperative observer network.

East Central New Mexico



Betty Dunlap

For over 31 years as a cooperative weather observer in Fort Sumner, New Mexico, Betty Dunlap has consistently provided accurate and timely weather observations to the National Weather Service Forecast Office in Albuquerque. Betty Dunlap began taking weather observations with her husband Dale, in 1975. Prior to his passing in 1996, Dale was a weather observer for the National Weather Service for two decades, as well as the regular weather reporter for the De Baca County News. Betty took over Dale's work in 1996 as a weather observer for De Baca County. During her many years of service, she has shown unusual effort to continuously provide weather observations, despite illnesses, emergency absences, or equipment failure. During the most hazardous and extreme weather conditions, she is always available to call for additional weather information. Betty's dedication is greatly appreciated by all. In 2005, the National Weather Service presented Betty Dunlap with the coveted John Campanius Holm Award, recognizing 29 years of dedicated service. Her long and continuous records provide an accurate picture of a locale's normal weather, and give climatologists a basis for predicting future trends.

Summer in the Duke City - 2006 vs. 2007

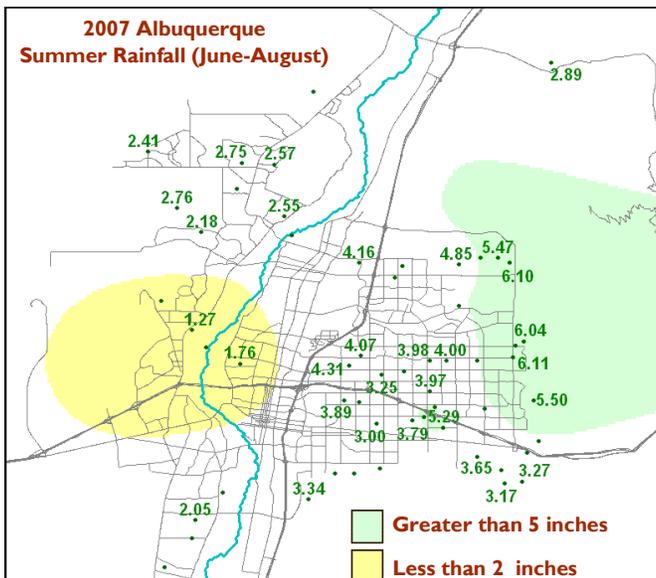
The summer of 2007 contrasted to the summer of 2006 illustrates just how variable precipitation can be in the southwest deserts. Even though New Mexico as a whole averaged below normal for the monsoon period of 2007, the Albuquerque metro area recorded a near normal season. But as many of you can remember, precipitation was dramatically less this summer (June through August) as compared to last year, which is easily observed with a quick glance at the map and chart below. For an image of the 2006 summer precipitation in Albuquerque, view page 7 of the [Fall 2006 issue of the New Mexico Skywatcher](#).

In a broad sense, a monsoon is defined as a seasonal change of wind direction, generally through a deeper layer of the atmosphere. The best known example of a monsoon that radically changes the weather from very dry to very wet in a short period of time can be found in India. The southwest monsoon marginally qualifies as New Mexico's springtime westerlies relax in June, then generally shift to a light or moderate south to north deep layer flow from mid-July through mid-September.

The summer of 2006 saw a persistent mid and upper level high pressure system centered east of New Mexico, allowing for more significant monsoonal moisture surges than the norm, thus bringing record-breaking rainfall throughout the Albuquerque metro. The summer of 2007 was characterized by high pressure in the mid and upper levels positioned for long periods of time over or just west of the state. This led to a general east to west or northeast to southwest flow. While this pattern did import some moisture into the region, the amount was not as rich as would result from a more south to north regime during a typical monsoon episode. The result was a less widespread and less intense rainfall pattern as compared to last year.

Some specific rainfall comparisons between the summer of 2006 and 2007 will drive the aforementioned points home. Of the complete reports received from our CityNet observers, the highest June through August 2007 rainfall total was 6.11 inches near Tramway and Comanche. That amount paled in comparison to the drenching 14.37 inches recorded last summer (second only to the 15.03 inches recorded at Tramway and Montgomery). Of note, the highest Albuquerque metro summer rainfall amount for 2007 was less than the lowest recorded amount of 6.20 inches in the summer of 2006 near Isleta Blvd and Rio Bravo. The lowest summer of 2007 total was 1.27 inches near Coors and Montano (compared to 8.18 inches last summer). This summer's amount at the Coors and Montano location was just 15.5% of last summer's rainfall, making it the site with the largest percentage difference between the two summer seasons. The largest numerical difference (3.71 inches in 2007 vs. 13.93 inches in 2006) was noted on the north side of Edgewood. The lowest percentage difference and numerical difference between the two summers occurred near Eubank and Lomas (5.29 inches this summer vs. 9.56 inches in the summer of 2006), or nearly twice as much last summer. Overall, the rainfall distribution as shown in the image below illustrates that the three highest amounts this summer were in the far Northeast Heights, in the vicinity of Tramway Boulevard between Candelaria and the Sandia Heights area, just north of Paseo Del Norte. The three lowest summer totals were near the Rio Grande valley floor, between the Rio Bravo and Montano bridges.

Author: Mark Fettig



Percent Difference from Summer 2006 and 2007 (Jun-Aug)			
Location	2006 (inches)	2007 (inches)	% Diff
Coors/Montano	8.18	1.27	644%
Rio Grande/Candelaria	7.88	1.76	448%
Corrales	11.15	2.55	437%
Placitas	11.65	2.89	403%
Southern/Highway 528	10.83	2.75	394%

By The Numbers

Spring and summer of 2007 were certainly drier than spring and summer of 2006. Much of the state from April through September 2007 had below normal precipitation, especially over portions of the eastern plains and the northwest plateau. The table below lists the top five precipitation totals for April through September. There was quite a race for top honors, but Cloudcroft finished with the most precipitation.

Location	Rainfall (Apr-Sep)	Co-op Observer
Cloudcroft	20.90 inches	David Gilbreath
Ocate 1N	20.11 inches	Louis Mares
Red River	19.58 inches	Robert Prunty
Carlsbad Caverns	19.55 inches	National Park
Alto 1N	19.11 inches	Jim Kaveladge

As usual, there were several periods of hot weather this summer. Sizzling temperatures peaked during the June 25th through July 4th period, then again from August 19th through the 21st. The table below reveals the top five locations with the highest temperatures this summer.

Author: Chuck Jones

Location	Warmest Temperatures	Date	Co-op Observer
Bosque Del Apache	111 degrees	Jul 1	Wildlife Refuge
Bitter Lake NWR	108 degrees	Aug 21	Wildlife Refuge
Fort Sumner	108 degrees	Jul 2	Betty Dunlap
San Jon	107 degrees	Aug 19	Gerald White
Ute Dam	106 degrees	Aug 21	Kent Terry



Rio Rancho Lightning
August 14, 2006
(Photo Courtesy of
Chris Armijo)

National Weather Service
Albuquerque,
New Mexico

2341 Clark Carr Loop SE
Albuquerque, NM 87106-5633
Phone: 505-243-0702

E-mail: sr-abq.webmaster@noaa.gov



Working Together to Save Lives.

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