CLIMATE OF SHREVEPORT, LOUISIANA

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1. INTRODUCTION

Shreveport, Louisiana is located just west of the Red River, opposite Bossier City in northwestern Louisiana, approximately 30 miles south of the Arkansas border and 15 miles east of the Texas border. The city's terrain runs from the Red River bottom lands westward to the gently rolling hills that begin about one mile west of the river. Elevations in Shreveport range from about 170 to 280 feet above mean sea level (NCDC, 2006). The National Weather Service Office is located at the Shreveport Regional Airport, which is eight miles southwest of the downtown area.

2. OVERVIEW OF MODERN SHREVEPORT

Shreveport is the third largest city and the third largest metropolitan area in Louisiana. It is located in Caddo Parish, the northwesternmost parish in the state, whose borders include the Texas and Arkansas state lines. The area is intersected by Interstate Highways I-20 (which connects Louisiana with Texas) and I-49 (which when completed will connect Louisiana with Arkansas). Shreveport is also the proposed hub for I-69 (the so-called NAFTA Highway) which will connect eastern Texas and southern Arkansas to northwest Louisiana. Thus Shreveport is considered the commercial and cultural center of the Ark-La-Tex. As of 2004, the U. S. Census Bureau listed the city's population as 198,675, and the Shreveport-Bossier City Metropolitan Area population as exceeding 375,000. Many people in the community refer to the two cities of Shreveport and Bossier City, which are separated only by the Red River, as "Shreveport-Bossier".

The city of Shreveport has a total area of 117.8 mi², consisting of 103.1 mi² of land and 14.6 mi² of water.

According to the 2000 census, the racial makeup of the city was 50.80% African American, 46.66% White, 0.79% Asian, 0.31% Native American, 0.03% Pacific Islander, 0.45% from other races, and 0.95% from two or more races. Hispanics or Latinos of any race comprised 1.55% of the population (Wikipedia, 2007).

3. HISTORICAL HIGHLIGHTS ABOUT SHREVEPORT

Shreveport was founded in 1836 by the Shreve Town Company, a development corporation established to build a town at the meeting point of the Red River and the Texas Trail (Brock, 2006).

Prior to that, the Red River was impassable due to a logjam over 100 miles long called "The Great Raft." The Great Raft grew at the upper end faster than it decayed or washed out at the lower end (Mussulman, 1998). In 1828 the Great Raft extended from Loggy Bayou, 65 miles below Shreveport, to Hurricane Bluffs, 27 miles above Shreveport. Congress decided to fund the removal of the Raft, although there were doubts that such a feat was possible. Henry Miller Shreve, a steamboat builder and river captain, had invented a "snag boat" for the purpose of removing river debris. He achieved success clearing other waterways, and was convinced he could clear the Great Raft. After gaining Congressional approval, Shreve began systematically removing the Raft, beginning near Natchitoches, Louisiana on April 10, 1833. On June 23, work stopped for the summer upon reaching a trading post known as Bennett and Cane's. Seventy miles of the Great Raft had been removed in under three months (McCall, 1988).

The Caddo Indians had agreed to sell their lands, and a group of developers bought the land near Bennett and Cane's with the idea of building a town now that the Red River was open that far north. Shreve himself soon became involved with the investors who were planning to build the town, and it was decided the name of the new development would be Shreve Town (McCall, 1988). In 1838 Caddo Parish was established and Shreve Town became the parish seat. However, once steamboats from New Orleans began arriving regularly, the town name was changed to and incorporated as Shreveport on March 20, 1839 (Brock, 2006).

The battle against the Red River was ongoing. Due to spotty maintenance, the Raft periodically reformed in areas, as the photo from 1873 shows below (Figure 1). Also, the rise of the railroads caused traffic on the river to wane, and by 1914 silt made the waterway un-navigable. These problems were eventually resolved, and today the port of Shreveport-Bossier City is being developed as a shipping center (Brock, 2006).

Figure 1. The above photograph of Raft No. 19, at the head of Dooley's Bayou, was taken by R. B. Talfour in 1873. Taken from Mussulman, 1998. (Reprinted with permission.)

During the Civil War, Shreveport was a Confederate stronghold and the headquarters of the Trans-Mississippi Department of the Confederate Army. Shreveport briefly became Louisiana's Confederate capital when Baton Rouge was captured by Union forces (Wikipedia, 2007).

Shreveport became a major energy center when oil was discovered just north of the city in 1905. Standard Oil moved its headquarters here in the early 20th century, but the industry suffered a major downturn in the 1980s causing many related companies to close or cutback. As a result Shreveport suffered the loss of many residents and a decline in property value. It wasn't until the legalization of riverboat gambling in the mid 1990s that a revitalization of the downtown and riverfront areas began, and the metro area has continued to experience growth to the present day (Wikipedia, 2007).

Shreveport is also home of the "Independence Bowl," a post-season college football bowl game. The first game was played on December 13, 1976. The name was chosen because of the bicentennial, and the strong military presence in the Shreveport-Bossier City area.

Although Hurricane Katrina moved onshore in southeast Louisiana and southwest Mississippi in August, 2005 Shreveport was largely unaffected by the hurricane. However, many evacuees from southern Louisiana did come to the area. Since Shreveport is approximately 180 miles (290 km) inland, some New Orleans residents and businesses relocated to the Shreveport area to avoid the inconvenience of possible hurricanes in the future.

4. LOCATIONS OF THE SHREVEPORT WEATHER OFFICE

The National Weather Service in Shreveport is presently located on Hollywood Avenue. It is believed to be the 14th location in 136 years of Shreveport weather observation history (see Table 2 for the official listing of weather office sites). However, due to inconsistencies between the accepted Station History forms and the actual Signal Service annual reports, inspections, and station log books, there is some question regarding exactly how many locations housed the local weather office (Grice, 2006). The office locations in question are the earliest, found in the Station Location sections of the Local Climatological Data reports as shown in Table 1 below.

Location	Dates
Brooks House	September 2, 1871 to October 3, 1871
Southern Hotel	October 3, 1871 to December 16, 1871
National Hotel	December 16, 1871 to October 4, 1874

Table 1: First three locations of Shreveport weather observations, as received.

As shown by Grice, the first entry in the station log book on September 2, 1871 stated: "Rented room No. 84 Brooks House on the 29th of August 1871, for the purpose of taking meteorological observations." It appears that the office moved October 3, 1871 to the third floor of a building called the Southern Hotel, as an inspection report on November 2, 1871 stated the station was located in the front room on the third floor of the Southern Hotel on Milam Street. Interestingly, the individual listed to receive the $18 monthly rent was "W.J. Brooks." With the Brooks House being large enough to have a "room No. 84," and W.J. Brooks receiving rent payments to the Southern Hotel, are they perhaps the same building? A little later, the station log book on December 16, 1871 stated the office moved to the National Hotel. However, the inspection reports and annual reports both continued to state the office was in the Southern Hotel on Milam Street, not at National Hotel. Apparently there was a Southern Hotel located at the intersection of Texas and Spring Streets, not on Milam. Furthermore, there is no historical record of a National Hotel in Shreveport. However, all Signal Service documents (inspection reports, annual reports, and log books) stated the buildings containing the weather station were on Milam Street between Spring and Market Streets from September 2, 1871 through October 4, 1874.

According to Grice, another clue is provided in a letter written by the Signal Service observer on January 3, 1875 which stated: "The office of observations located in the International Hotel or Brooks House until the 4th of October 1874 then was moved to the Odd Fellow Building corner of Market and Texas Streets." This seems to mean that the hotel known as the National Hotel was also known as the International Hotel, and moreover that this International (National) Hotel was perhaps synonymous with the Brooks House.

Thus it appears the Signal Service office was located only on Milam Street between Spring and Market Streets from September 2, 1871 to October 4, 1874, and whatever its relationship was to "Southern Hotel," the observation office was not at Texas and Spring Streets during the first three years. Whether the office was in one or two separate buildings on Milam Street is not entirely clear. Even so, several other moves occurred over the ensuing decades which are not in doubt. These are plotted on the downtown map found in Figure 15.

5. GENERAL CLIMATOLOGY OF SHREVEPORT

The climatology of Shreveport is transitional, between the subtropical humid regime prevalent in the south to the continental climates of the Great Plains and Midwest to the north. During winter, cold Canadian air masses periodically move through the area. Spring and fall are usually mild and pleasant, but occasionally stormy. Summer is consistently hot and humid, dominated by high pressure and a moist, southerly surface flow (NCDC, 2006). See Tables 3 through 24 for temperature climatology data.

Shreveport's Prevailing Winds and their Influences on Climatology

As is the case with many locations near the Gulf Coast, prevailing surface winds in Shreveport are generally from the south throughout much of the year, although strong cold fronts, common from November through March, generate periods of northwest to north winds across the city. These north winds quickly veer back around to the south after a few days, causing the influence of cold, arctic air masses to be relatively short-lived. Sustained wind speeds are also strongest during the late fall/winter/springtime months (November through May), again associated with the passing of these cold frontal systems. During this period, speeds average from 9 to 10 mph. Wind speeds are generally lightest during the summer months. High pressure both at the surface and aloft dominates much of the south during the summer, preventing upper level troughs associated with cold fronts from reaching the area. Figures 16 through 27 provide wind roses showing Shreveport's prevailing wind climatology on a monthly basis, based on the 1961-1990 climate period. A wind rose provides a concise but informative graphical depiction of wind climatology (direction and speed) at a particular location, on a polar coordinate chart, by showing the percentage of time the wind blows from a certain direction. The wind roses provided in Figures 16 through 27 also show the percentage of time a particular range of wind speed occurred from each direction. Using a 16 point compass, the length of each "spoke" along a radial is related to the frequency of time that the wind blows from that particular direction.

Shreveport's prevailing south winds influence local climatology in a variety of ways. Drawn northward from the Gulf of Mexico, they provide a steady supply of warm, moist air to the city, which is partly responsible for enabling afternoon shower and thunderstorm development, especially during the summer months. The influx of gulf moisture from these winds is responsible for severe thunderstorm outbreaks when this moisture collides with incoming cold fronts across northwest Louisiana, southwest Arkansas, and northeast Texas during the fall, winter, and springtime months. Warm air transported northward from the Gulf of Mexico can also inhibit temperature minimums at night, especially if winds do not subside, or if cloud cover develops. In most situations during the year and in the absence of strong surface and synoptic systems, Shreveport's prevailing winds will maintain enough of a moisture balance to stabilize afternoon temperatures, and maintain a general persistence and consistency in maximum/minimum temperatures and relative humidities from one day to the next.

6. RELATIVE HUMIDITY

Average relative humidity in and around Shreveport is relatively high year round. Highest humidity values typically occur during the early morning hours, usually 90 percent or higher for several hours before sunrise. During most of the afternoon, values are often less than 50 percent (NCDC, 2006). Table 25 provides monthly normal values of relative humidity at synoptic hours, which are 00 UTC, 06 UTC, 12 UTC, and 18 UTC, which in local standard time are 6 p.m., midnight, 6 a.m., and noon respectively.

Fog Climatology of the Four State Area

Fog can develop in Shreveport during any time of the year, but is most prevalent from late fall through early spring. Dense fog events pick up in October, peak in December, and taper off after January. The fewest fog events typically occur in August. See Table 26 for a Shreveport climatology of dense fog occurrences. Favored diurnal times of development are around sunrise, and the fog usually persists 2-3 hours before heating and mixing leads to dissipation.

Most fog events in Shreveport develop after recent rainfall, when saturated soils yield a steady supply of moisture to the boundary layer. Radiation fog and advection fog are the dominant types. For radiation fog, a nocturnal inversion will aid fog development, decoupling boundary layer winds to prevent dry air from mixing down from above the surface. Surface winds will usually be light, out of the south or southeast. A light south or southeast wind typically advects Gulf moisture into the area providing weak warm air advection, and promoting and sustaining fog development. Little or no cloud cover is also preferred for radiation fog formation, allowing surface temperatures to cool to saturation during the overnight hours. Advection fog occurs when prevailing winds are strongest, during the November through May months. Often, a southerly low level jet will mix winds down to the surface overnight, advecting a marine layer of fog north from the southeast Texas/southern Louisiana coast, mainly along and behind well-defined warm fronts, with warm air overrunning the cool ground surface.

7. THE LOW LEVEL JET

The low level jet, a primarily nocturnal river of southerly wind commonly found in the lowest 6000 feet of the atmosphere, plays several important roles in governing the weather and climate for all of the Ark-La-Tex. This jet is most common during the fall and spring months, contributing to the two peak severe weather seasons common to the area. It is formed in response to cyclogenesis in the lee of the Rockies, ahead of a deepening upper level trough of low pressure. The jet will be strongest when strong pressure gradients exist between low pressure to the west and high pressure to the east, resulting in a south/southwest flow over the region, as shown in Figure 2 below.

The southerly low level jet is largely responsible for the development/sustainment of (severe) thunderstorms that affect Shreveport, mainly during the overnight and early morning hours in the fall and spring. Because of the close proximity (180 miles) to the Gulf of Mexico, a warm supply of moisture is often readily available for rapid transport northward, enhancing this convective development. This can aid locally heavy rainfall production in some of the thunderstorms, which can result in flooding. The low level jet also plays a significant role in the rapid formation and advection of low stratiform clouds during the fall, winter, and spring, which can moderate surface temperatures. In addition, a strong low level jet can actually mix winds and warmer temperatures down to the surface, maintaining warm surface temperatures overnight.

The low level jet also plays a role in winter weather, which will be discussed later.

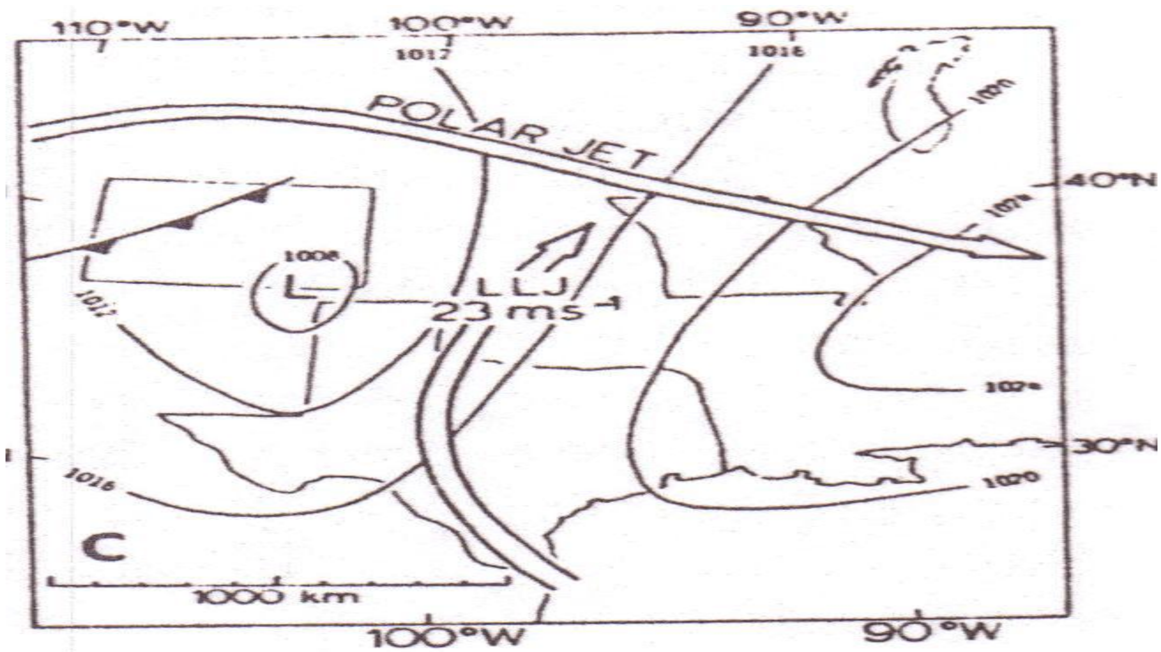

Figure 2. Schematic of Low Level Jet (LLJ), taken from Dusan Djuric, 1992.

8. NORTHWEST FLOW ALOFT

Northwest flow aloft over the Ark-La-Tex is most pronounced in the fall and spring as the subtropical jet migrates south (fall) or north (spring) over the region. This is almost always accompanied by a broad, upper level blocking ridge over the desert southwest. During these transitions, strong upper level steering flow directs shortwave troughs (and consequently, associated cold fronts) toward the Gulf Coast. Often, as the subtropical jet crosses the Rocky Mountains, a phenomenon occurs whereby a surface trough is induced in the lee of the Colorado/New Mexico Front Range, commonly known as lee-side troughing. A low level jet forms, and when the dynamics of the incoming shortwave trough/front work upon the increased moisture and instability, severe weather outbreaks are often the result. These may take the form of mesoscale convective systems, which will be discussed in more detail in section 13.

In summer, an upper level ridge of high pressure often builds over the southeastern U.S. and Gulf of Mexico. This provides a blocking pattern that eliminates northwest flow aloft over the region. Abundant low-level moisture is present, while seabreezes, tropical Easterlies, and cyclones provide rainfall, but the triggering mechanisms and instability associated with northwest flow aloft are rarely present to provide the severe convection associated with fall and spring.

In winter, the northern branch of subtropical jet frequently competes with the southern branch of the polar jet over the Ark-La-Tex, but the results of northwest flow aloft are the same with either scenario: little or no resistance to incoming shortwave troughs and cold fronts. This results in frequent cold frontal passages. The amount of low level moisture present in the region at the arrival of a trough/front and the strength of the disturbance will determine events which range from mere winter chills to ice storms.

9. SHREVEPORT PRECIPITATION

Rainfall is abundant, with the 1971-2000 normal precipitation being just over 51 inches. Monthly averages range from under 3 inches in August to more than 5 inches in May and June. See Tables 27 through 45 for precipitation climatology data. The majority of rainfall in Shreveport is of the convective and air mass types, except during winter when nearly continuous frontal rains may persist for days at a time. The months with the fewest days of rain are August and October, with August being the driest (NCDC, 2006).

Precipitation Extremes

Precipitation extremes occur in all seasons in Shreveport. Heavy rainfall events of note include 12.44 inches in a 24-hour period on July 24-25, 1933, and 19.08 inches over a three-day period from July 23-25, 1933. The July 1933 total of 25.45 inches is the greatest monthly total on record. The greatest annual rainfall was observed in 1991, at 81.99 inches, while the driest year of record was 1899 with only 23.10 inches (NCDC, 2006).

The longest period without measurable rainfall on record for Shreveport is 39 days, from October 8-November 15, 1874. Set only two years after recordkeeping began, the record still stands 130+ years later, despite the significant droughts that have affected the city since. The second longest dry period was 34 days, which occurred from September 28-October 31, 1963. Incidentally, October 1963 was also the driest October on record, with no rainfall recorded. During this time, Shreveport was also plagued with temperatures five to ten degrees above normal.

An interesting note is that the aforementioned longest period without rainfall occurred only a month before the longest period of consecutive days with rainfall was recorded. Measurable rainfall was recorded for 14 consecutive days from December 26, 1874-January 8, 1875. These amounts were not excessive by any means—on nine days, 0.11 inches of rain or less was measured. The general weather pattern that produced this consecutive rain day record was post-frontal isentropic upglide, when high amounts of moisture ride over the top of cold surface air.

There is a tie for the second longest consecutive day stretch of measurable precipitation, each being 12 days in length. The first took place from April 20-May 1, 1957. This was a significant flood event across much of Texas, Oklahoma, Arkansas, and Louisiana, as a longwave trough of low pressure stalled across the northern Rockies and Southwestern states, and a quasi-stationary frontal boundary extended from southern Oklahoma into eastern Texas and western Louisiana, and out into the northern Gulf of Mexico. April 1957 was the third wettest April on record, with 11.19 inches of rain recorded, of which 9.44 inches fell during the final 10 days of the month. The second 12-day period from June 8-19, 1961 witnessed 11.35 inches of rainfall. Amounts exceeding an inch were observed on five of these days, four of which ran consecutively from the 16^{th} through 19^{th}. This event was associated with an unusually strong cold front, which passed through the city on the 15^{th}, and contributed to the excessive rainfall through the 19^{th}, after which warmer, more seasonable air returned to the region.

10. WINTER WEATHER

Winter months are normally mild, and cold spells are generally short. A typical scenario is one cold day following a cold front, a lowest temperature reached on the second day, and a warming trend beginning on the third day. The coldest temperature ever recorded in Shreveport is -5 degrees F, set on February 12, 1899. Freezing or below-freezing temperatures occur an average of 39 days each winter. Temperatures drop below 15 degrees F only about every other winter. The average date of the first freeze is November 15, while the last is March 10. Thus the growing season for northwest Louisiana ranges between 230 and 240 days a year. However, freezing temperatures have been recorded as early as October 19 and as late as April 11 (NCDC, 2006). Temperatures recorded at the Shreveport NWS Office on clear, calm nights are normally 2 to 5 degrees warmer than those in the low-lying river bottom lands of the area.

Shreveport's pressure records (corrected to Mean Sea Level) were set in winter, reflective of the transient nature of strong synoptic low and high pressure systems that time of year. The record highest pressure ever recorded was 30.95 inches of mercury set on January 5, 1924 and again on January 10, 1962. The lowest pressure ever recorded was 29.04 inches of mercury on February 27, 1902. Table 46 provides atmospheric pressure climate data for Shreveport (station pressure in hundredths of an inch).

Extreme Cold

Extreme cold is rare in the Shreveport area, but not unprecedented. A persistent and strongly amplified northern jet stream which plunges southward over the central U.S. can usher in a nearly unbroken series of frigid Canadian surface highs during winter. Such long-lived cold snaps have occurred, once producing subfreezing temperatures for 168 consecutive hours from January 7-13, 1895, and another time for 138 consecutive hours from December 21-27, 1983. This more recent cold snap followed a snow event on the 16th and an ice storm on the 21st, and record-breaking lows in the single digits were observed on Christmas morning. During each of these extreme cold snaps, the Red River in Shreveport froze from bank to bank. A photo of the 1983 Red River freeze is found below in Figure 3.

Figure 3. Frozen Red River in Shreveport, 1983. Photo appears courtesy of Mr. Billy Andrews.

Wintry Precipitation
Measurable snow occurs an average of only once every other winter; many consecutive years pass with no measurable snowfall at all. The greatest snowfall of record for the Shreveport area was 11.0 inches, from December 21-22, 1929. By Christmas Day, a half-inch still remained on the ground, establishing the only white Christmas on record. In 1948, 13.0 inches of snow fell in January, the highest monthly snowfall on record (NCDC, 2006).

One of the most notable snow events in Shreveport occurred after sunset on December 31, 2000. The Shreveport Regional Airport measured 2.2 inches of snowfall, and the snow made an impact on the nationally televised Independence Bowl game that evening. This was the highest daily total since February 1, 1985, when 4.4 inches of snowfall was measured. See Figures 28 through 32 for Shreveport winter weather climatology data.

The low level jet also influences wintertime precipitation in Shreveport. Often this southerly jet will pick up moisture from the Gulf of Mexico and overrun a shallow cold front over the area. If the surface air is cold enough to support frozen precipitation, the warmer jet overrunning the shallow cold air dome can melt ice crystals/pellets aloft, which then re-freeze in the cold air below. This is the primary reason why freezing rain and sleet are a more frequent occurrence in the winter than snow. On average, ice storms occur every other year in Shreveport. Freezing rain events can wreak considerable havoc on trees, power lines, and telephone lines, and make travel hazardous.

11. SUMMER WEATHER

Summer months in Shreveport are quite warm, with daily high temperatures exceeding 100 degrees F an average of six days a year, 95 degrees F an average of 32 days a year, and 90 degrees F an average of 87 days a year. The highest temperature on record is 110 degrees F, which occurred on August 18, 1909. Any given location in and around Shreveport averages measurable rainfall eight days a month during the summer. Daily totals are usually less than one-half inch except on two or three days, when heavier amounts are recorded (NCDC, 2006).

Heat Waves
Long periods of strong stagnant summer high pressure areas in the middle and upper atmosphere are possible in Shreveport, producing occasional heat waves marked by temperatures exceeding 100 degrees and heat index values exceeding 110 degrees. The summer of 1998 serves as one notable example. That summer marked a transition from an abnormally strong 1997-1998 El Nino to a strong La Nina. La Nina typically results in warmer than average temperatures for the Southeastern United States, and the summer of 1998 was no exception.

Overall, the average temperature for Shreveport in 1998 was 68.0 degrees F, the seventh warmest year on record. The average summer temperature was 86.0 degrees F, the second warmest summer on record, eclipsed only in 1881, when the summer average was 86.3 degrees F. Temperatures in excess of 100 degrees F were recorded on 22 days during the 1998 summer, and there were 76 days of 95 degrees F or higher. The highest recorded temperature was 107 degrees F on August 1. Daily low temperatures were 75 degrees F or above on 55 days, and remained in the 80s on five days. June 1998 was the third warmest June on record, and July 1998 was the warmest July in history for Shreveport.

12. THUNDERSTORM CLIMATOLOGY

Thunderstorms may occur any month of the year, but are most frequent in the spring and summer. See Table 47 for Shreveport thunderstorm climatology. Those occurring during the spring and autumn months are most often produced by squall lines and fronts, and are generally heavier than the air-mass showers which occur in the summer months.

Local thunderstorms can be classified by four triggering mechanisms. First, there are those associated with mid-latitude storm systems. These systems invade the region during spring and fall, as the subtropical jet migrates south (spring) or north (fall) through the Gulf Coast region. Cold fronts often accompany these disturbances, serving as a focus for thunderstorm development. Storms associated with these systems are typically the most violent for this area, well organized, and can produce tornadoes, damaging winds, and destructive hail.

Second are diurnal thunderstorms. These thunderstorms develop during the summer months when an abundance of low level moisture is present. Initiation occurs mainly during the late afternoon and early evening hours, when diurnal heating increases instability. Storms may initiate along mesoscale features such as weak fronts, convergent boundaries, differential heating along cloud boundaries, and boundaries produced by previous convection. Storms that develop in this regime are seldom organized, and diminish within a few hours of sunset.

Third are seabreeze thunderstorms. These thunderstorms develop during the summer months as a result of a diurnal seabreeze that develops a zone of convergence after sunrise from the upper Texas coast to the Mississippi coast. If synoptic scale flow is onshore due to a prevailing southerly wind, such as on the west side of the Bermuda High, these sea breeze-induced thunderstorms will propagate northward, assisted by their own outflow, and reach Shreveport by late afternoon or early evening. Storms with northward moving bow-like structures occasionally intrude inland as far north as southern Arkansas. Seabreeze thunderstorms diminish shortly after sunset.

Fourth are thunderstorms associated with land-falling tropical systems. This is the rarest type of thunderstorm that occurs along the Gulf Coast. From roughly June through November, tropical systems may migrate westward and northward toward the Shreveport area. While heavier rainstorms accompany the main core of the tropical systems, thunderstorms are generally located in spiral bands on the periphery of the storm.

13. SEVERE LOCAL STORMS

Severe local storms, including hailstorms, tornadoes, and local windstorms, occur over small areas in all seasons, but are most frequent during the spring months, with a secondary peak around November, shown by the monthly tornado climatology in Figure 5 below.

Although large, destructive hail is somewhat infrequent in Shreveport, it is not unprecedented. Hail as large as grapefruit fell in March 1961, while softball sized hail fell across south sections of Shreveport on April 23, 2000. In addition, baseball-sized hail fell in May 1974 and April 1995. However, most of the severe hail reported in Shreveport ranges from penny to quarter sized (NCDC, 2006).

13a. Damaging Wind Climatology

Damaging winds associated with thunderstorms are largely dependent on the time of day, and are most often reported during the late afternoon through early morning hours. The top two wind gusts recorded at Shreveport Regional Airport were 83 mph on May 3, 1991, and 81 mph on April 12, 1991 and again on May 27, 2000.

As shown in Figure 4, the majority of reports occur from 1500-2100 CST. A little better than 50% of reports occur during this quarter of the day. Only 6% occur between 0600 and 1100 CST, and 14% occur between midnight and 0400 CST (Burkman, et al, 1999).

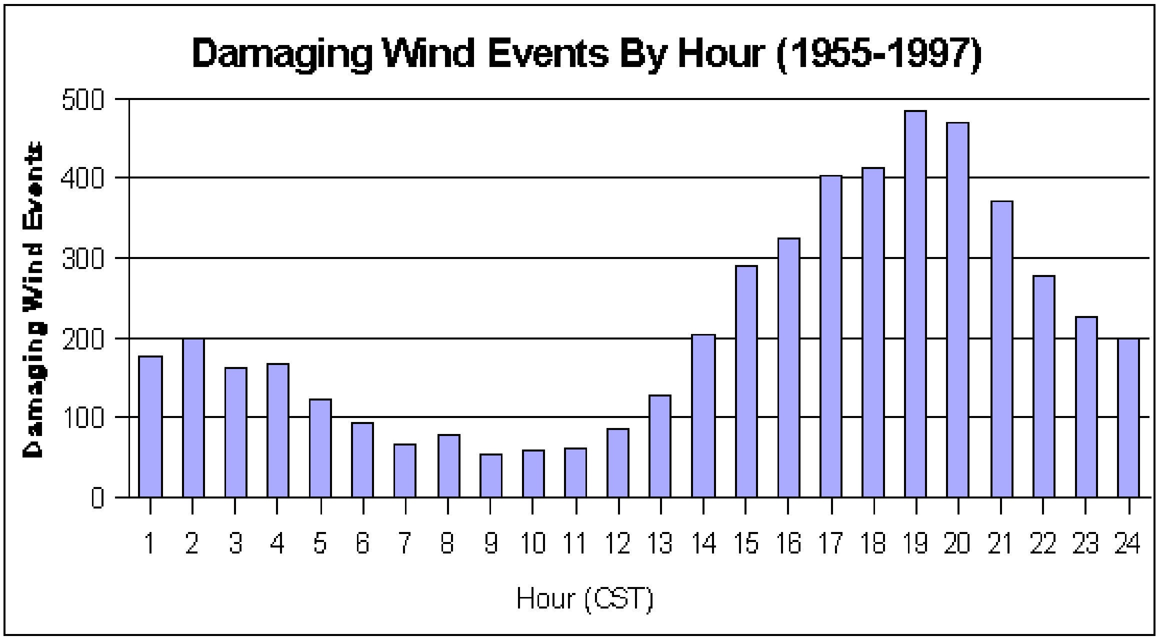

Figure 4. Damaging wind events by hour for the WFO Shreveport CWA. Taken from Burkman, et al, 1999.

13b. Mesoscale Convective Systems

Northwest flow is known for producing severe weather in Shreveport from late spring into early summer. Thunderstorm complexes develop in the Plains, aided by a nocturnal low level jet and its interaction with mid-level disturbances and/or frontal boundaries. These thunderstorms then propagate southeast toward Shreveport into a very moist and unstable environment. Locally, these events tend to occur during the morning hours, when these mesoscale convective systems (MCSs) begin to weaken or dissipate due to the diurnal weakening of the low-level jet and stabilization of the atmosphere. Residual boundaries left over from these complexes often linger after the MCS dissipates, and may serve as a focus for additional thunderstorm development later in the day (Murrell, 2006).

However, not all such systems arrive as they are weakening in the morning. Some are a little delayed, arriving in the early afternoon, when surface heating and destabilization provide fresh fuel for the weakened system to restrengthen. Still other such systems occasionally arrive in the evening hours at full strength. The most recent peak-strength MCS occurred on June 2, 2004, producing widespread tree and structural damage in and around Shreveport, with estimated winds over 85 mph.

13c. Tornadoes

Tornadoes are most commonly associated with mid-latitude systems which induce warm air advection from the moist Gulf of Mexico, increased low level helicity (veering of the winds in the lowest one to three kilometers of the atmosphere), and increased instability. This is commonly the case with an upper air pattern featuring an amplified mid level trough over the southern Rockies or the High Plains, an upper level jet axis to the southeast of the trough producing divergence over the Ark-La-Tex, and a strong southwesterly low-level jet. As mentioned earlier, Figure 5 shows Shreveport has two tornado seasons, the primary one in the spring and a secondary one in the late fall.

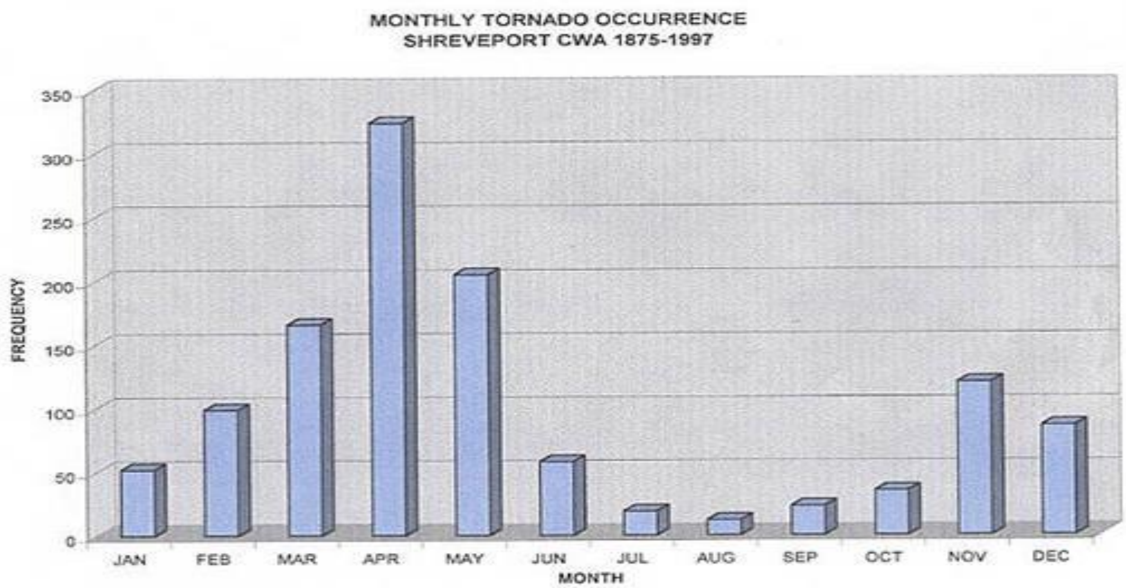

Figure 5. Monthly tornado occurrence in the Shreveport depicting two tornado seasons. Taken from Burkman, et al, 1999.

There is also a definite signature for preferred hours of tornado occurrence within the WFO Shreveport CWA, falling primarily between the hours of 3 pm and 9 pm, as shown in Figure 6. Although the hourly tornado climatology chart and the hourly damaging wind climatology chart follow the same pattern of a late afternoon to mid-evening peak period, it is notable the late evening decline is more gradual for damaging winds than for tornadoes, likely due to the impact of late night, non-tornado producing MCS events.

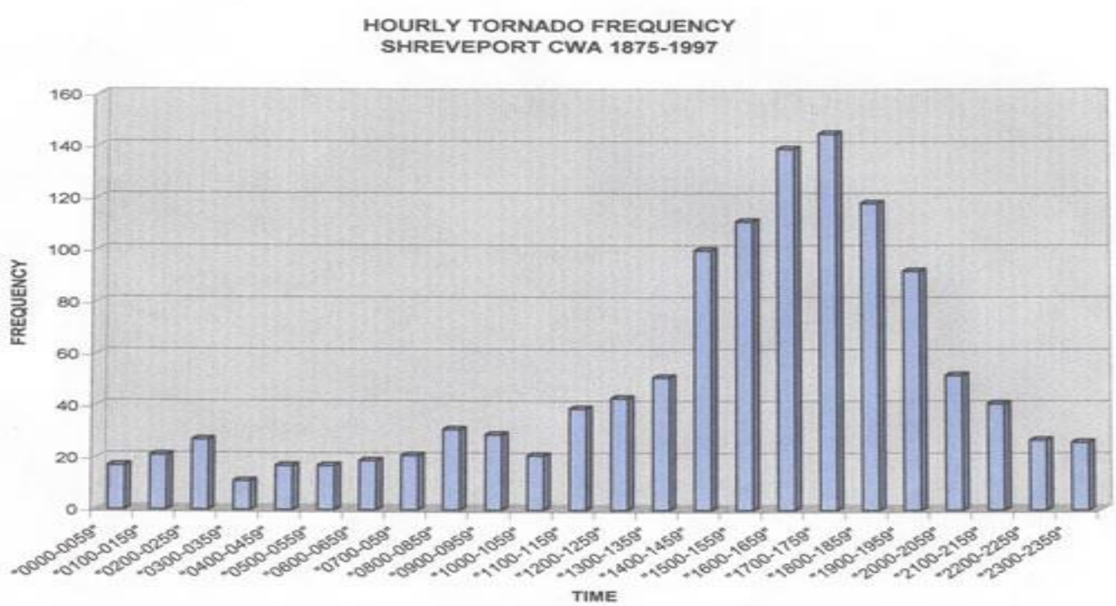

Figure 6. Hourly tornado frequency for the Shreveport CWA, in local time. Taken from Burkman, et al, 1999.

13d. Notable Tornado Events

One of the more notable tornado events in the greater Shreveport-Bossier metro area was the Bossier City tornado of December 3, 1978, which was rated as an F4 according to the Fujita tornado classification scale. Two people were killed and 200 others were injured. The tornado occurred around 1:50 am CST, and was one of the most violent storms to have occurred so early in the morning anywhere in the United States. The only two deaths to occur in Bossier City were two young girls who were killed when a car was thrown through their bedroom wall. The death toll may have been so low due to the fact that most of the hardest hit places were businesses and schools which were empty at that time of night.

Figures 7 and 8 show the track of the tornado and a picture of some of the destruction.

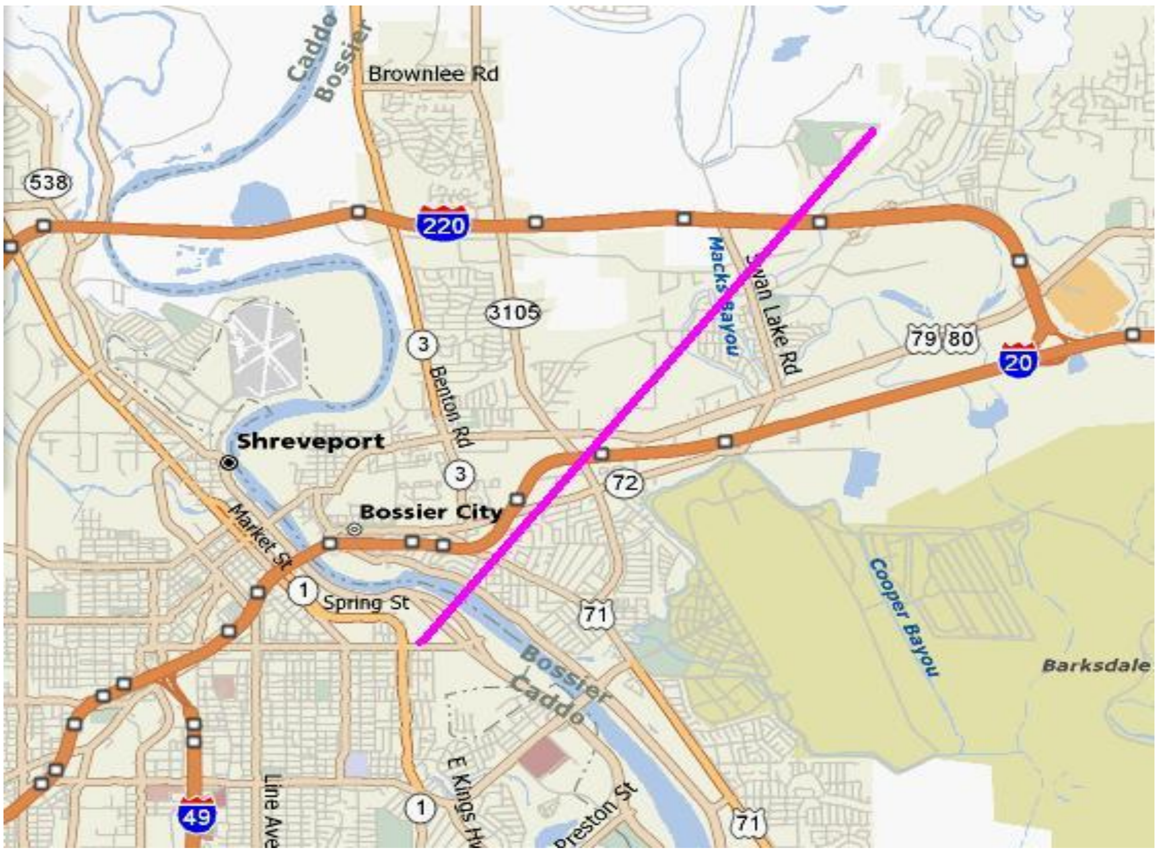

Figure 7. Path of the 1978 Bossier City tornado shown on a current city map.

Figure 8. Damage at Hwy 80 and Airline Drive just north of I-20. Photo by Jack Barham. Reprinted with permission.

Shreveport / Benton, Louisiana tornado of April 3, 1999

Consecutive Easter weekend tornado events occurred in 1999 and 2000. The April 3, 1999 tornado first touched down approximately 6 miles north of the Shreveport Regional Airport at 2152 UTC and moved northeast 6.7 miles before crossing the Red River and entering Bossier Parish. Ground surveys concluded that the tornado was an F3 with a 200 yard path width while in Caddo Parish. This tornado proved to be deadly as it crossed into Bossier Parish at 2201 UTC. The storm produced catastrophic damage as it moved across the Hay Meadow Mobile Home Park and the Palmetto-Cypress Bayou areas of the parish before finally lifting at 2220 UTC. Aerial and ground surveys were conducted by state and federal officials, who rated this tornado an F4 due to damage in Bossier Parish, with wind speeds in excess of 166 mph, and a 200 yard path width. Seven fatalities resulted, and 93 were injured. Hundreds of homes were damaged or destroyed throughout the 19 mile track across Caddo and Bossier Parishes. Damage estimates exceeded $20 million (Berry, 2001). Figures 9 and 10 show the track of the tornado and a picture of some of the destruction.

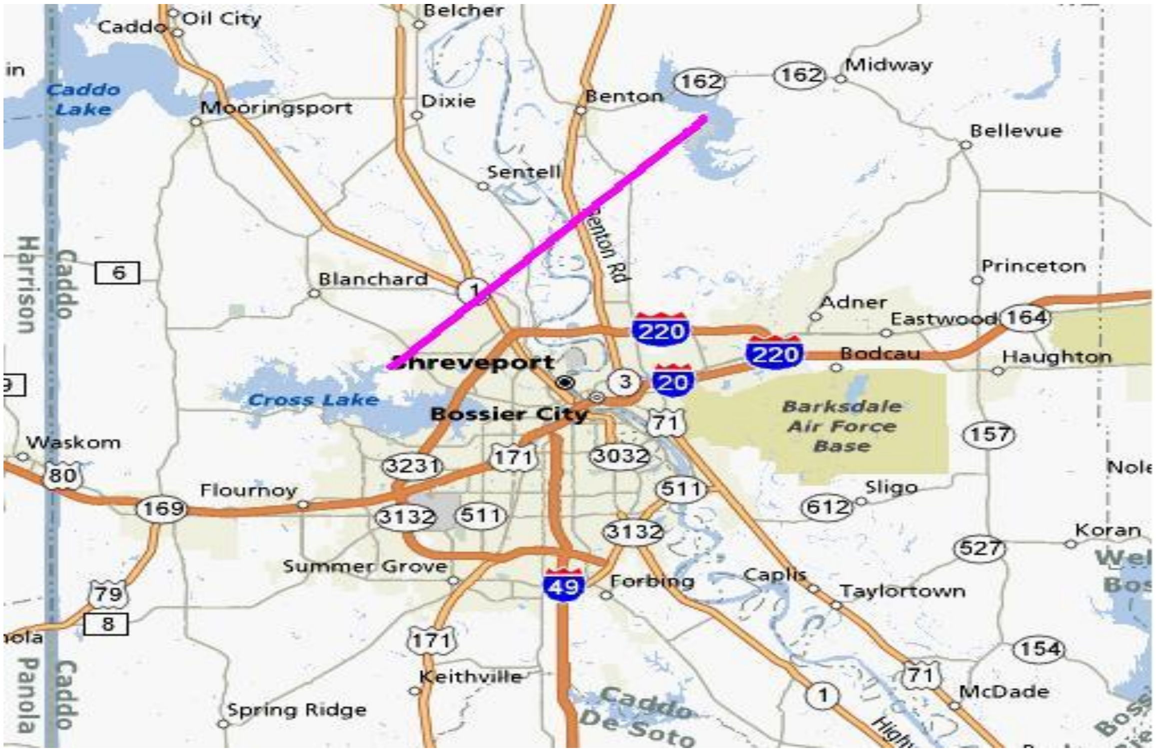

Figure 9. Track of the April 3, 1999 tornado.

Figure 10. Damage south of Benton LA from April 3, 1999 tornado. Photo by Jason Hansford. Reprinted with permission/

Easter Sunday 2000 Tornado Outbreak

On Easter Sunday, April 23, 2000, a tornado outbreak across the WFO Shreveport warning area included two tornadoes in Shreveport. The first moved across southwest and south Shreveport, while the second developed over Cross Lake and moved into downtown Shreveport. Both tornadoes produced minor structural damage. On this day there were 28 tornadoes in the WFO Shreveport county warning area, making this the largest outbreak of tornadoes in recorded history for this area. Figure 11 shows the tracks of the tornadoes, and Figure 12 shows a picture of the second tornado as it formed over the lake.

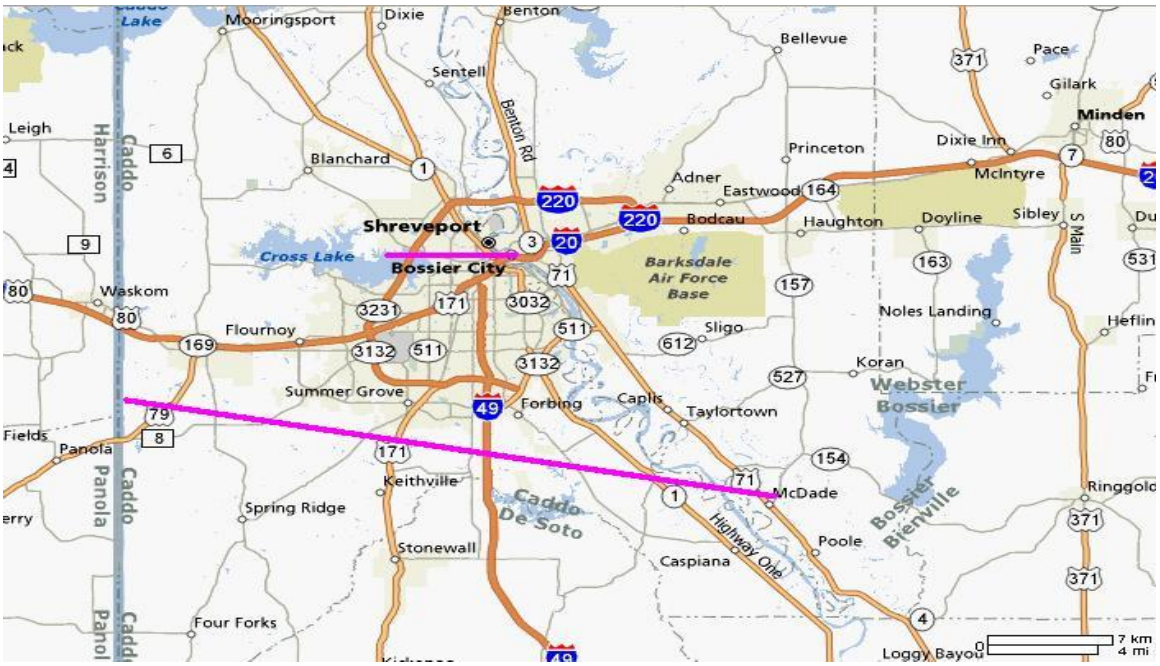

Figure 11. Tracks of the two tornadoes to hit Shreveport on Easter Sunday, April 23, 2000.

Figure 12. The second tornado to strike Shreveport on April 23, 2000 formed over Cross Lake before hitting the downtown area. Reprinted with permission of KSLA-TV.

14. TROPICAL CYCLONES

Tropical cyclones are in the dissipating stages by the time they reach the northwest portion of the Louisiana, and winds from them are usually not a destructive factor. These tropical systems can produce copious rainfall, leading to significant flooding in and around Shreveport (NCDC, 2006). Data analysis from 1886 to 1997 indicates that on average, tropical cyclones having a center of at least depression strength enter the Shreveport Weather Service Forecast Office's forecast area (roughly within 120 miles of Shreveport) every 3.4 years, but the majority of these do not come within 50 miles of the city (Burkman, et al, 1999).

Of the tropical systems that have come within 50 nautical miles of Shreveport, none have done so during the months of June and November, going back to 1851. Figures 33 through 36 show map plots of all tropical systems that have come within 50 nm of Shreveport, by month, for July through October, from 1851 to 2006.

One of the most significant rainfalls in the Shreveport warning area was 29.52 inches near Winnfield, Louisiana, during tropical storm Allison, from June 26-July 2, 1989. Shreveport recorded a total of 10.15 inches of rain during that time. Figure 37 shows the storm track. The worst flooding on record associated with tropical storms affecting the city of Shreveport occurred July 23-25, 1933, when 19.08 inches of rain was recorded in downtown Shreveport from a slow moving tropical storm, which weakened to a synoptic low before it passed just north of the city (Burkman, et al, 1999). Figure 38 shows the storm track.

Other notable tropical cyclone rainfalls in Shreveport were 7.86 inches from October 3-6, 1949 as recorded in downtown Shreveport (see Figure 39); and 7.06 inches from tropical storm Bonnie from June 25-28, 1986 (see Figure 40).

Hurricane Rita

On September 24, 2005, after making landfall along the Texas and Louisiana border near Sabine Pass with sustained winds of 120 mph, Hurricane Rita moved northward toward the Shreveport forecast warning area. With high pressure to the north, strong pressure gradients resulted in east winds at Shreveport which ranged from 30 to 40 mph with higher gusts for much of the day. These winds caused minor damage to trees and high profile items such as billboards and signs. Otherwise, Shreveport was spared further damage. The center of Rita passed directly over the Shreveport office around 6 pm, and Shreveport observed the second lowest pressure on record, 29.05 inches (983.7 mb). This was only .01 inch higher than the all-time record of 29.04 inches set on February 27, 1902.

The track of Hurricane Rita is shown in Figure 13, and the forecast graphic of Advisory 29 is shown in Figure 14 below. The text for Advisory 29 of Rita is available in Figure 41. The text for Intermediate Advisory 29a, when the center of Rita's circulation was located over Shreveport, is available in Figure 42.

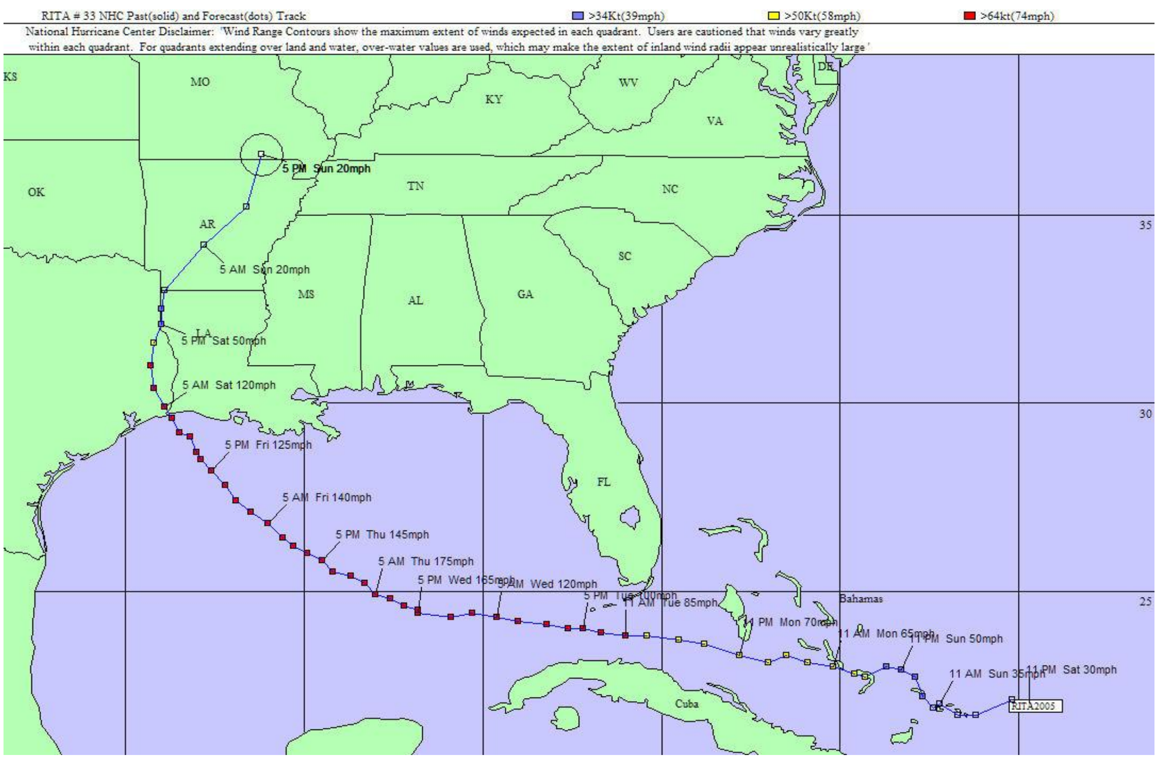

Figure 13. Track of Hurricane Rita, 2005. From National Hurricane Center website.

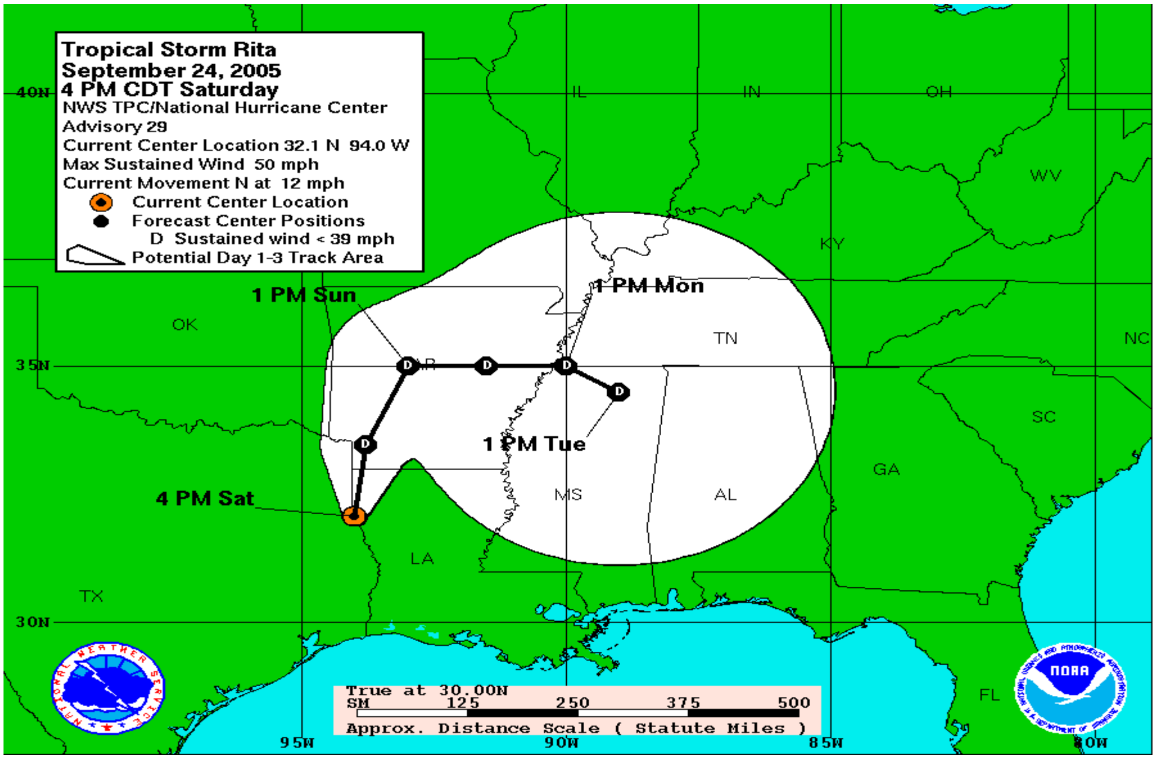

Figure 14. Initial position (25 miles SSW of Shreveport) and forecast track of Rita from the National Hurricane Center, Advisory 29, on September 24, 2005. From National Hurricane Center website.

15. VARIABLES INFLUENCING CLIMATE

Heat waves. Cold snaps. Drought. Floods. There are plenty of influences on a climate that affect year-to-year jumps, as well as long term trends. Some of these influences include urbanization, greenhouse gases, and sea surface temperature (SST) oscillations. For example, a recent study into the impact of SST oscillations on Shreveport climate (Carrin, 2007) revealed that an El Niño in the 3.4 sector of the tropical Pacific corresponds with cooler and wetter conditions at Shreveport, while a La Niña has the opposite impact. Further, a warm anomaly of the Pacific Decadal Oscillation (PDO) correlates with cooler and wetter conditions in Shreveport, while a cool anomaly tends to have the opposite impact. And again, a warm anomaly of the Atlantic Multidecadal Oscillation is correlated with a warmer and wetter climatology in Shreveport, while a cool anomaly has an opposite relationship.

When one considers that these oscillations and their influences are concurrent with each other and with other climatological influences as well, climate study and analysis takes on a new dynamic and importance.

16. ACKNOWLEDGEMENTS

We would like to thank Armando Garza and Ken Falk for their local review of this paper, and David Billingsley for his helpful suggestions. We would like to thank everyone found in the references for their independent work and research, which was of direct relevance to the producing of this climate paper.

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Murrell, B., cited 2006: Widespread Wind Damage from 2 June 2004 Derecho in the ArkLaTex. [Available online at http://www.srh.noaa.gov/shv/June_2_2004_DerechoPaper.htm.]

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NATIONAL WEATHER OFFICE LOCATIONS FROM 1871 TO 1941

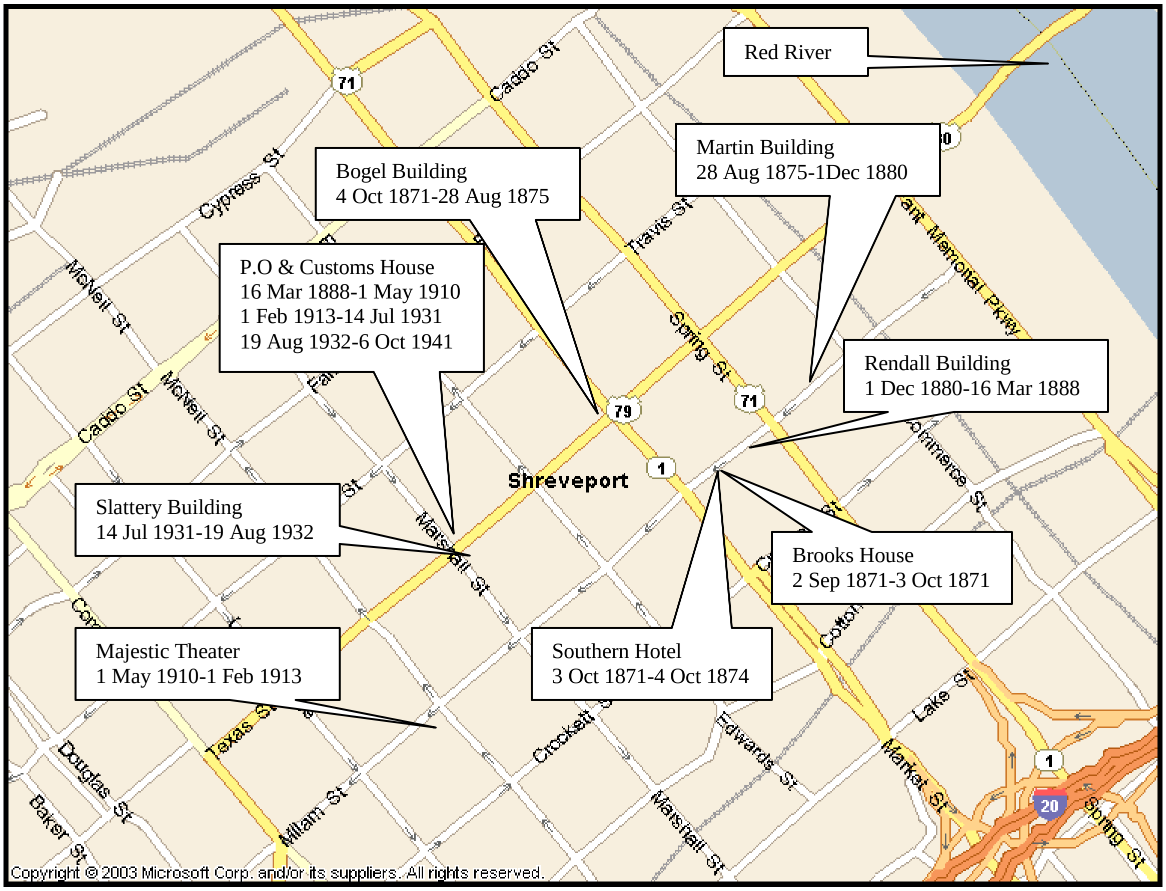

Figure 15. Signal Service and Weather Bureau office locations and dates in Shreveport from 1871 to 1941, prior to the move to the airport. North is at the top of the page. Distance across the map is approximately three-quarters of a mile. Taken from Grice, 2006.

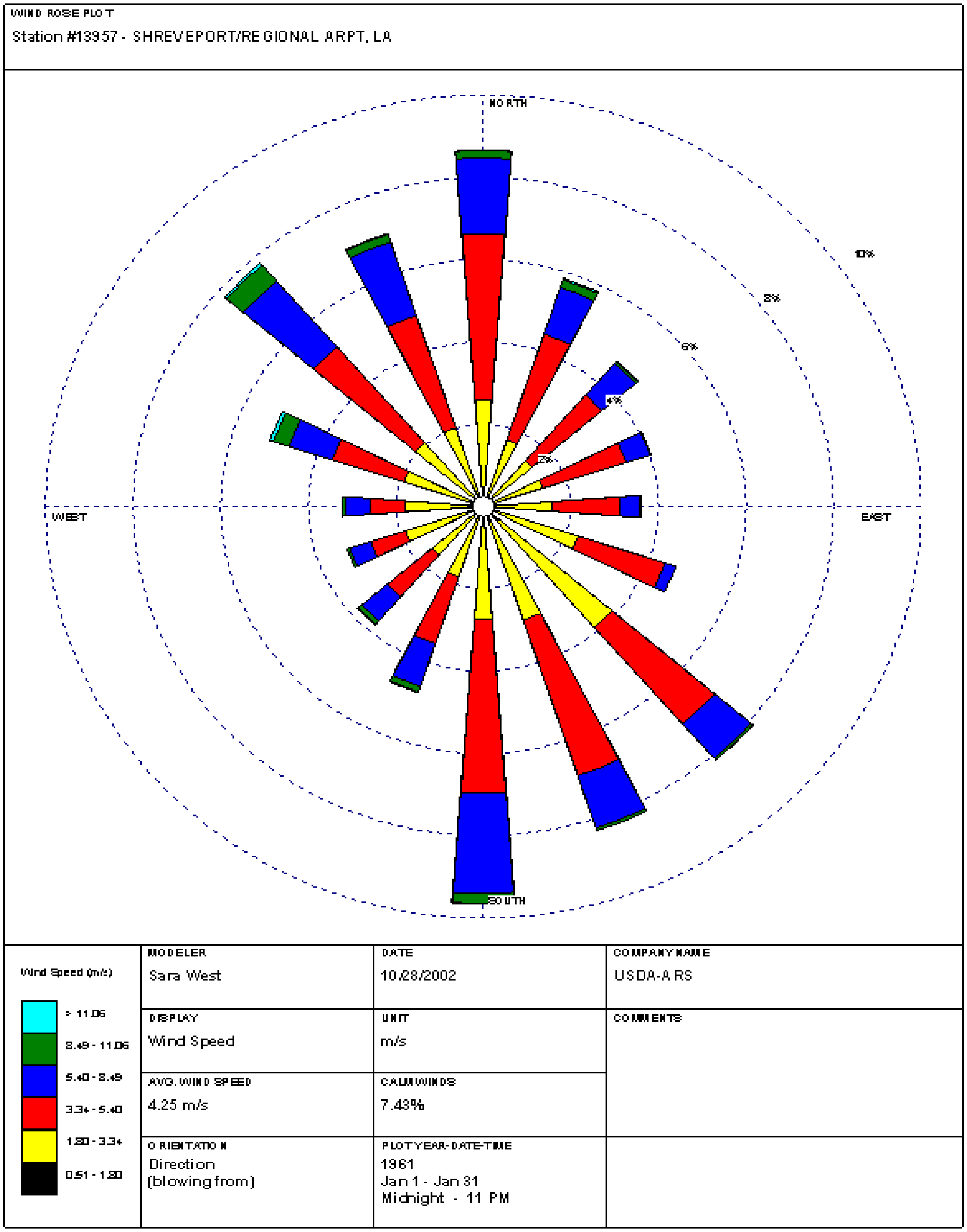

Figure 16. January Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

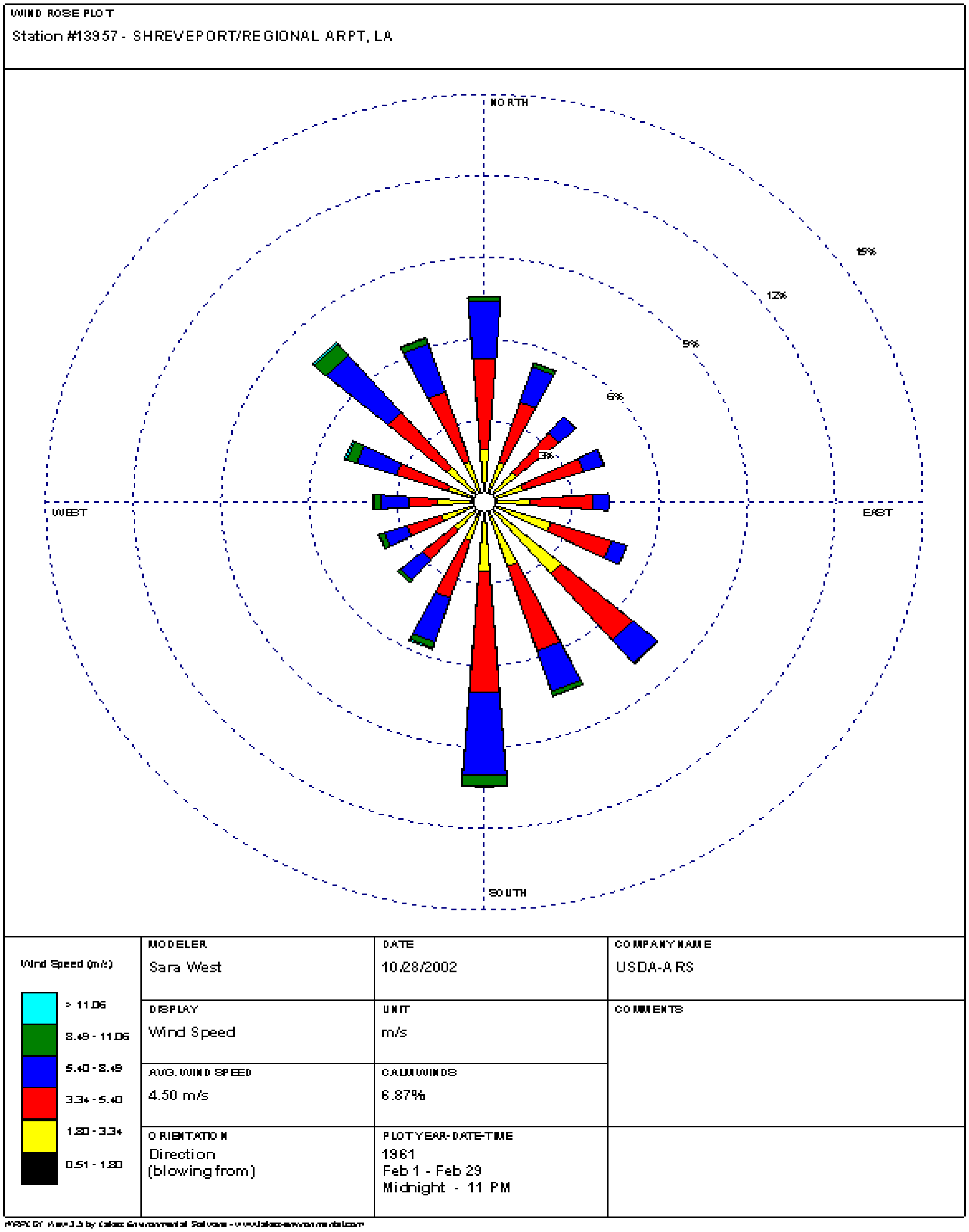

Figure 17. February Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

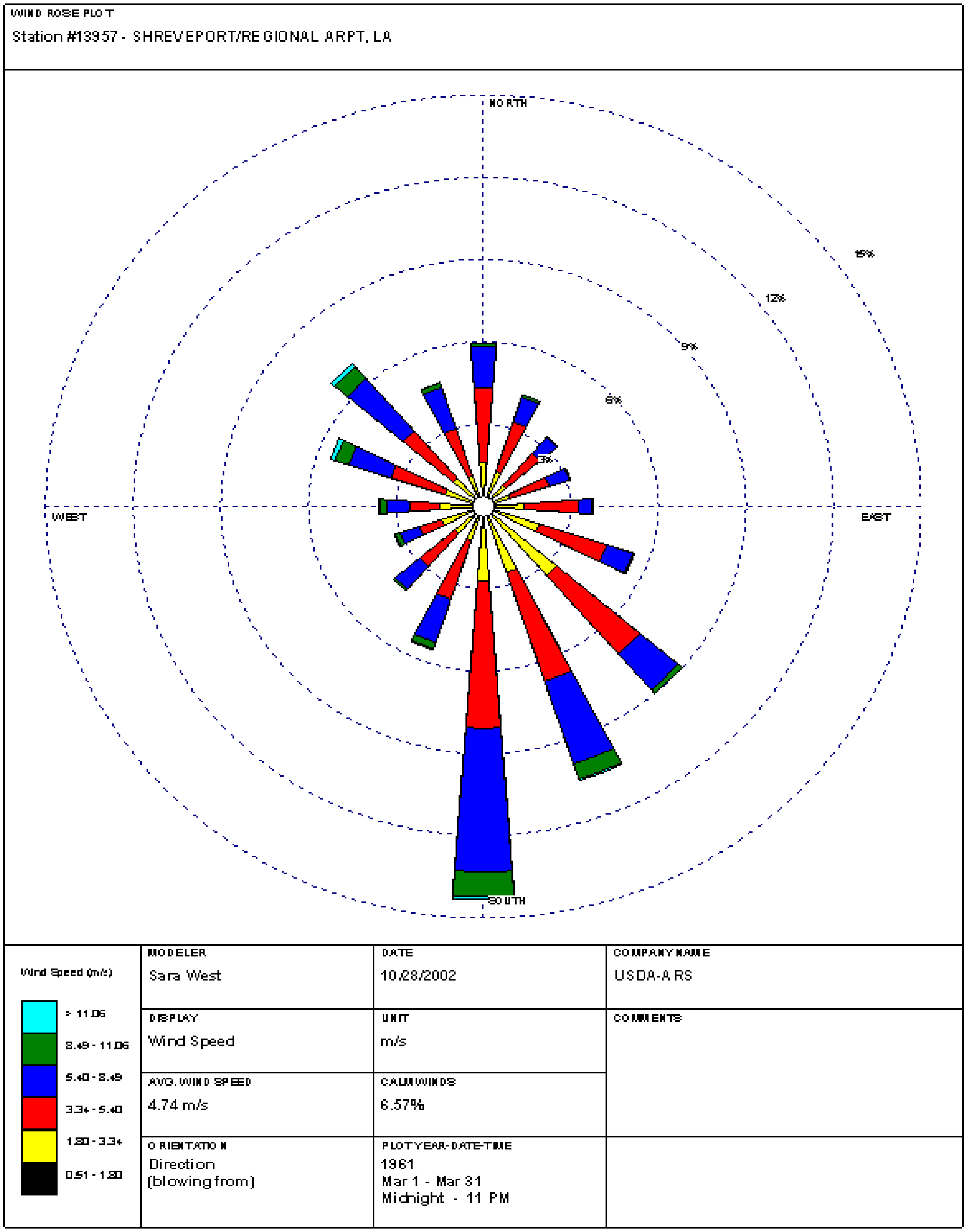

Figure 18. March Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

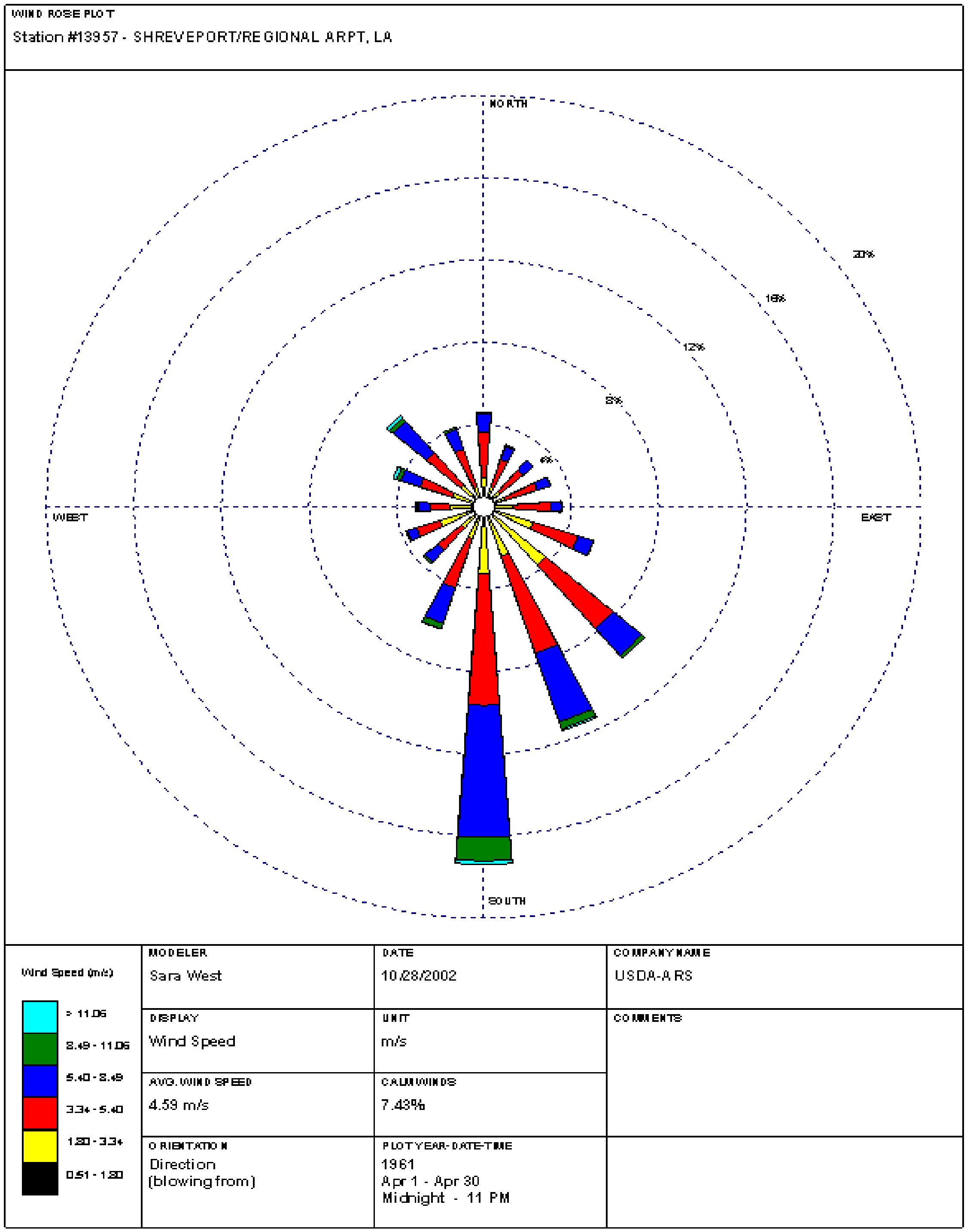

Figure 19. April Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

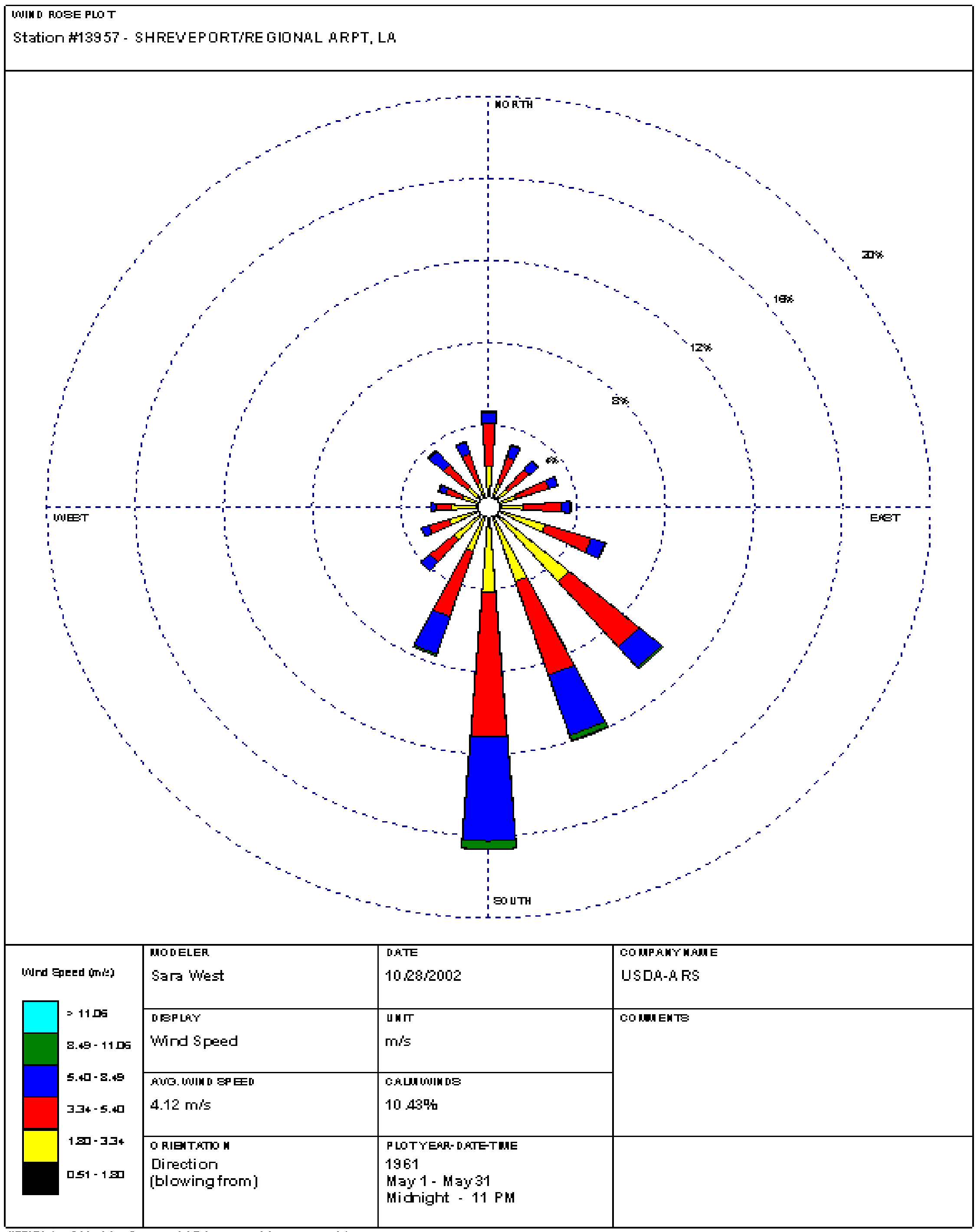

Figure 20. May Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

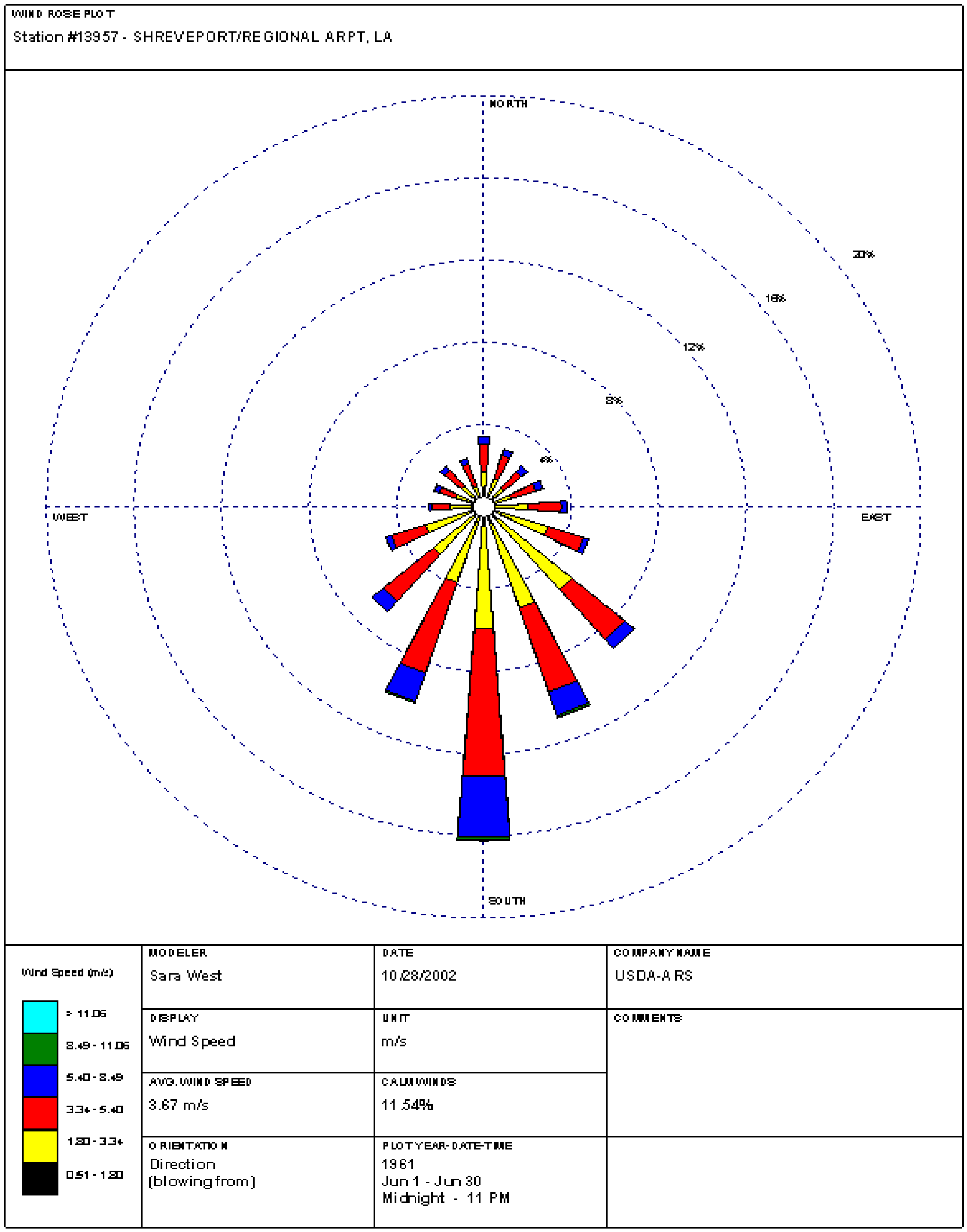

Figure 21. June Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

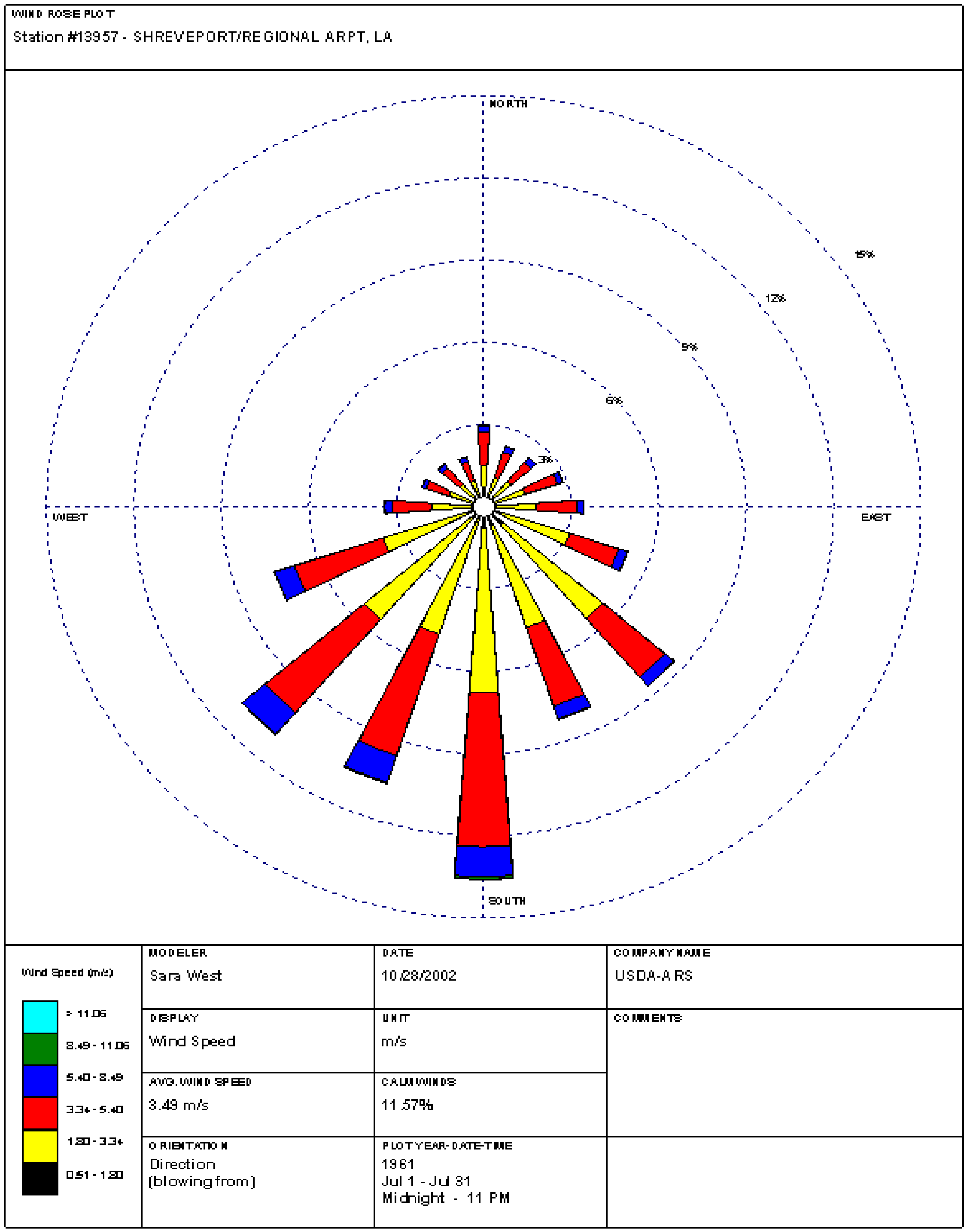

Figure 22. July Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

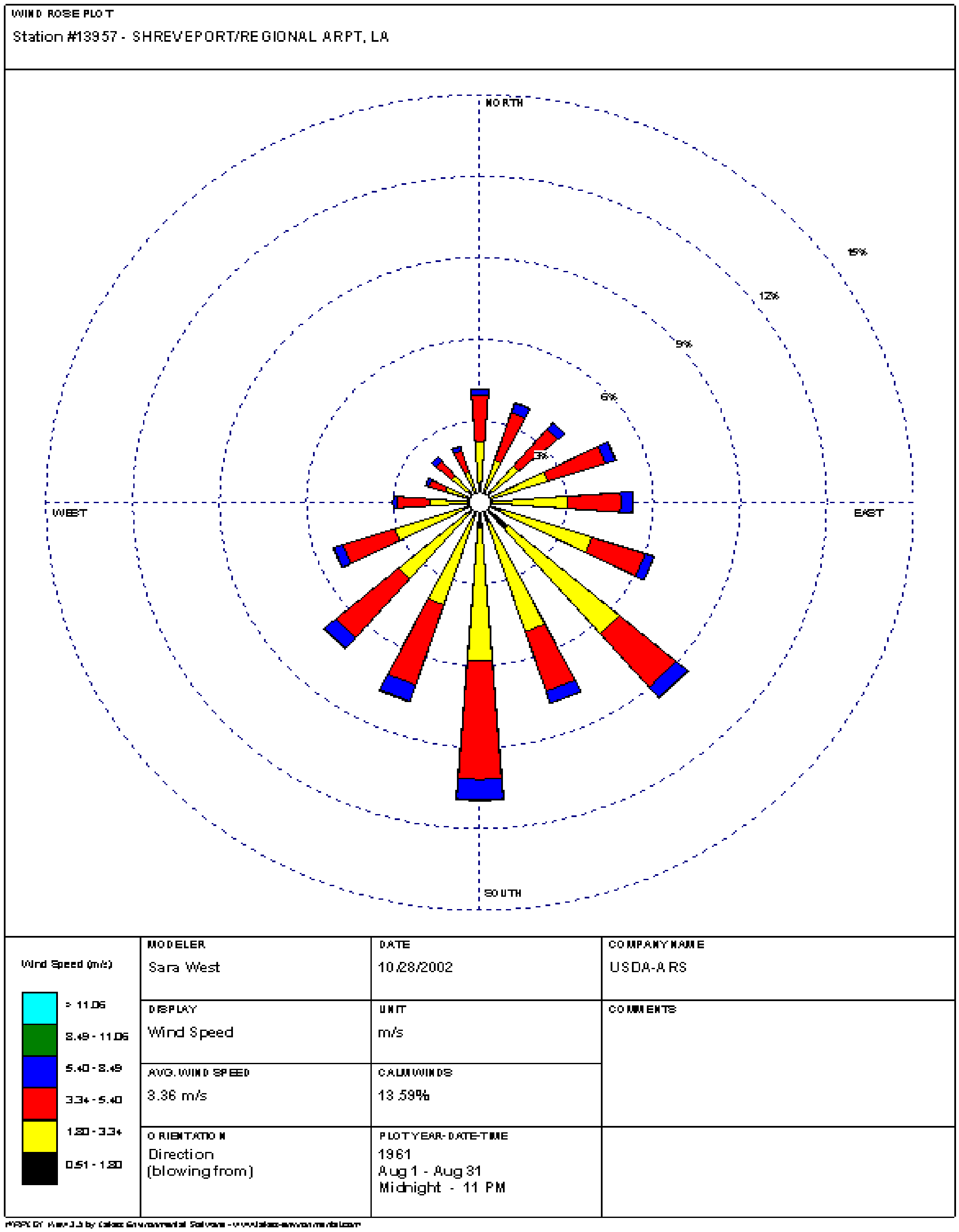

Figure 23. August Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

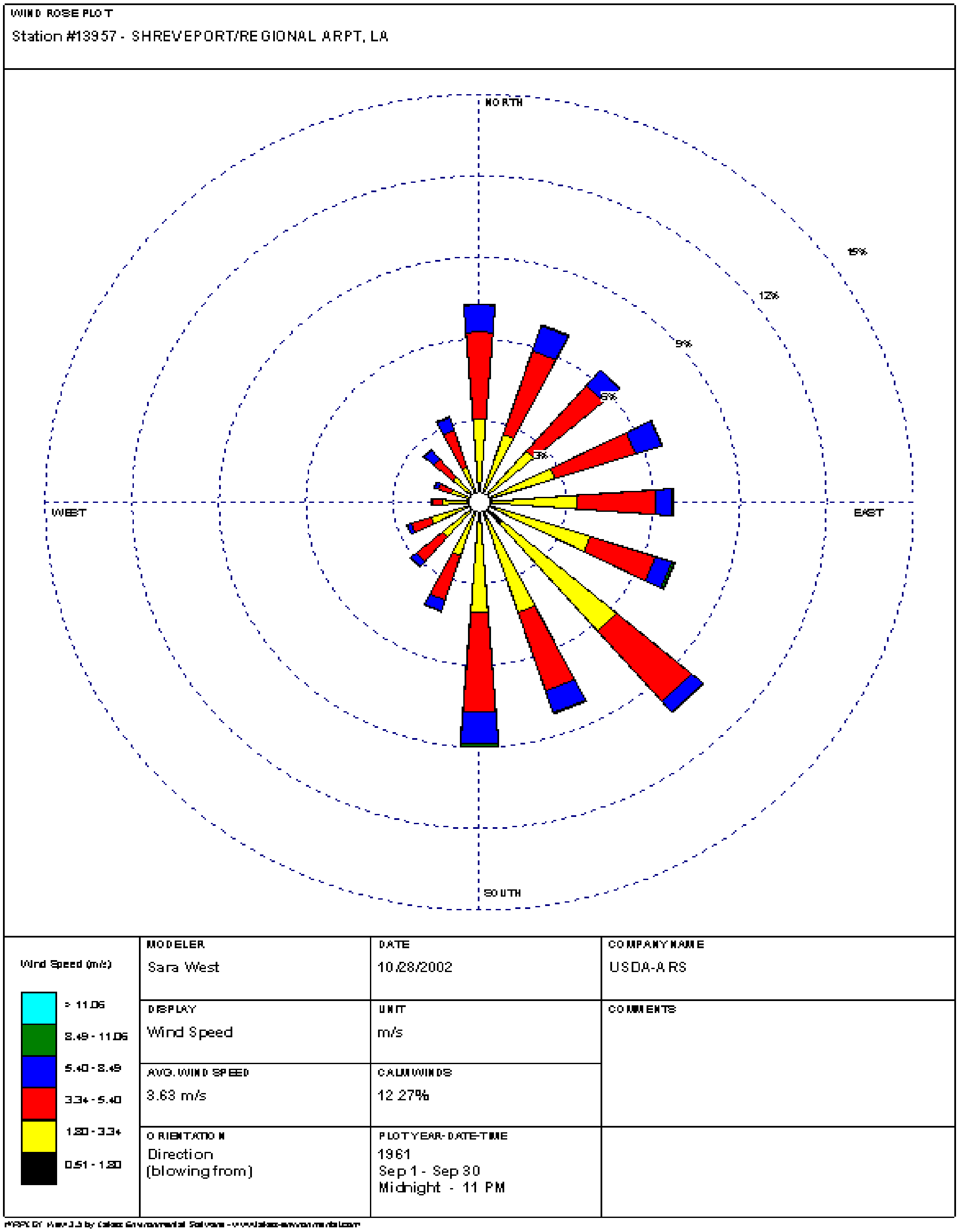

Figure 24. September Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

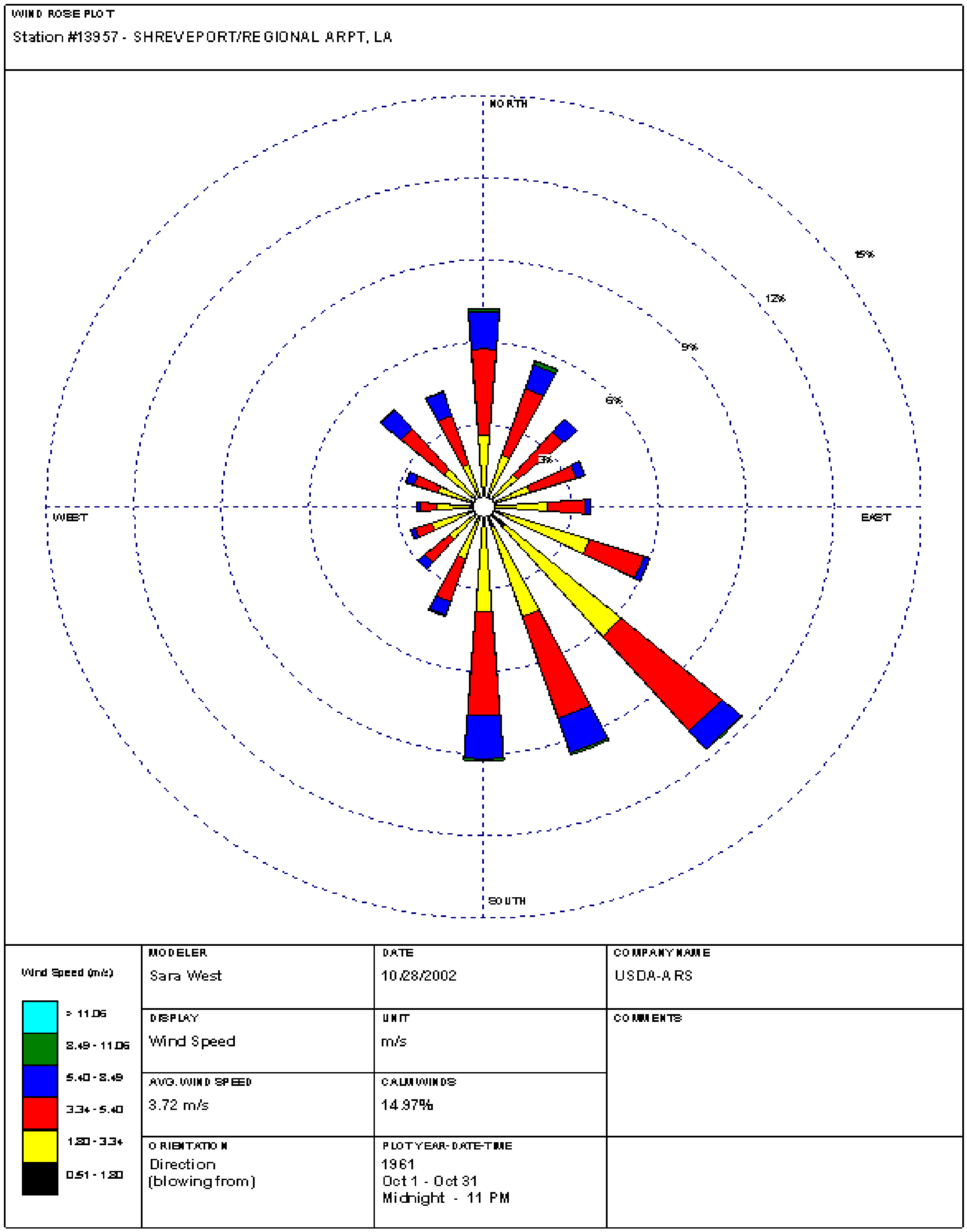

Figure 25. October Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

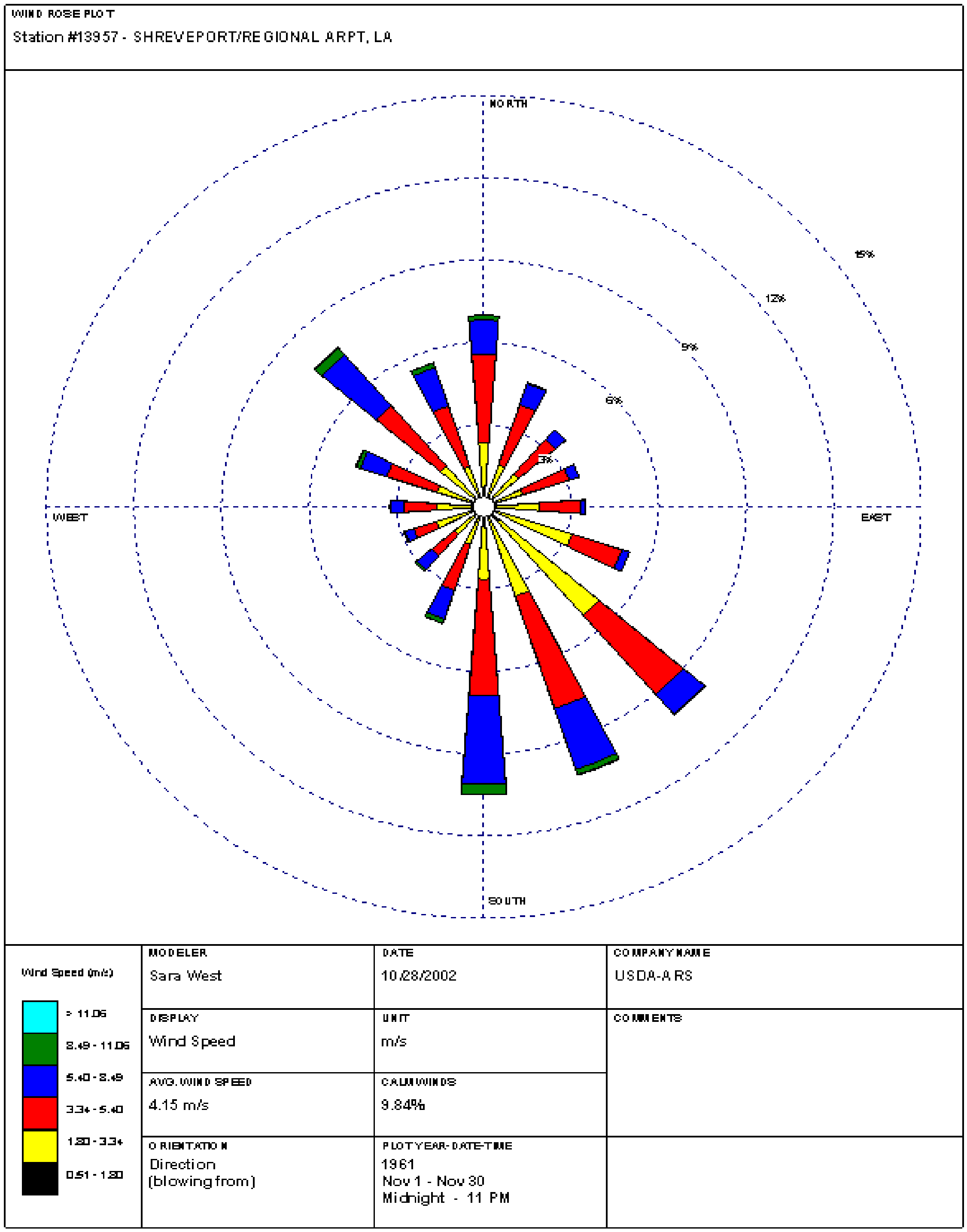

Figure 26. November Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

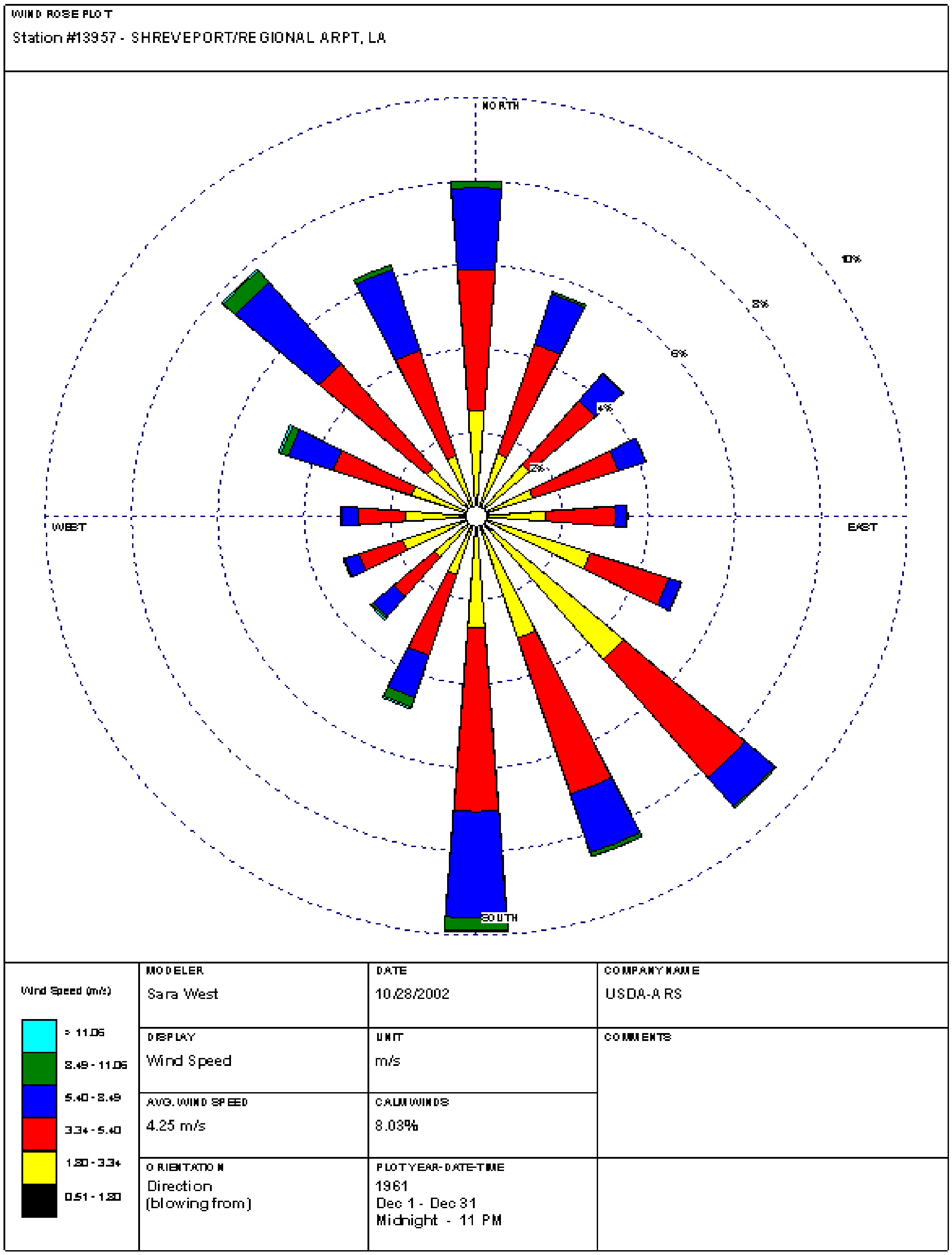

Figure 27. December Shreveport wind rose, 1961-1990. Taken from National Resources Conservation Service, 2003.

WINTER WEATHER EVENTS BY DECADE
1960-2006

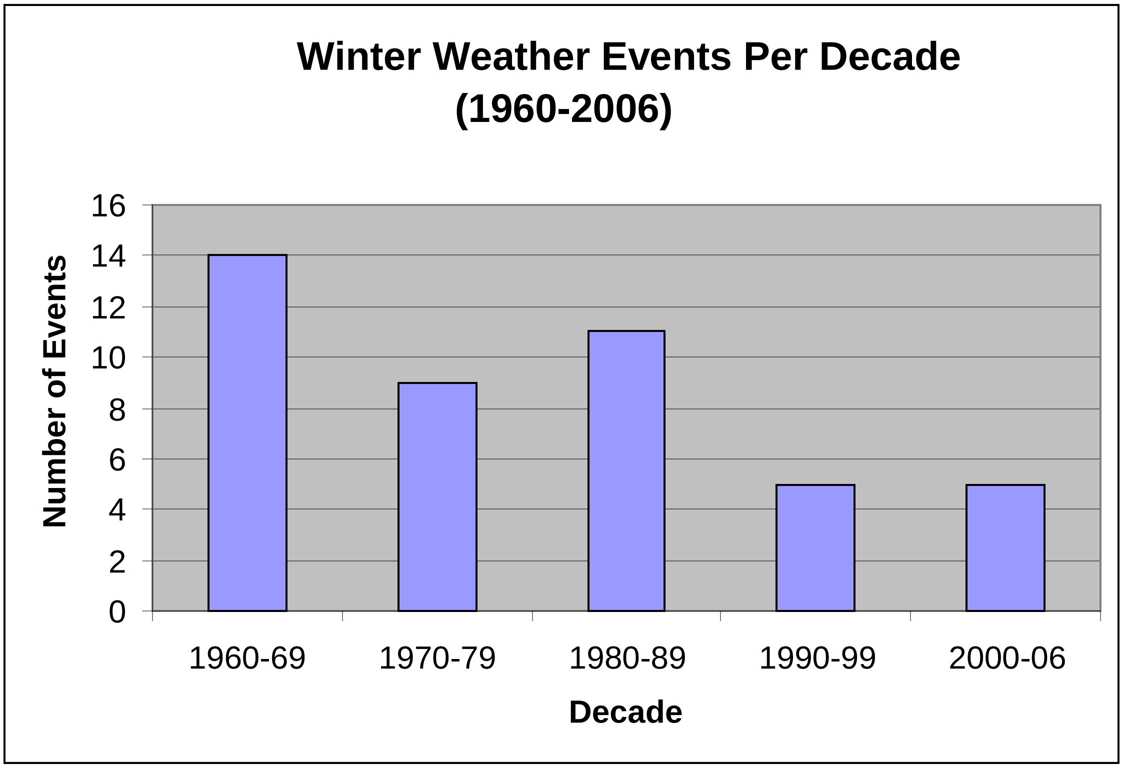

Figure 28. Winter weather events by decade. Forty-four total events. Includes all measurable snow, sleet, and freezing rain events since 1960, although the vast majority of these events were ice storms.

WINTER WEATHER EVENTS BY MONTH
1960-2006

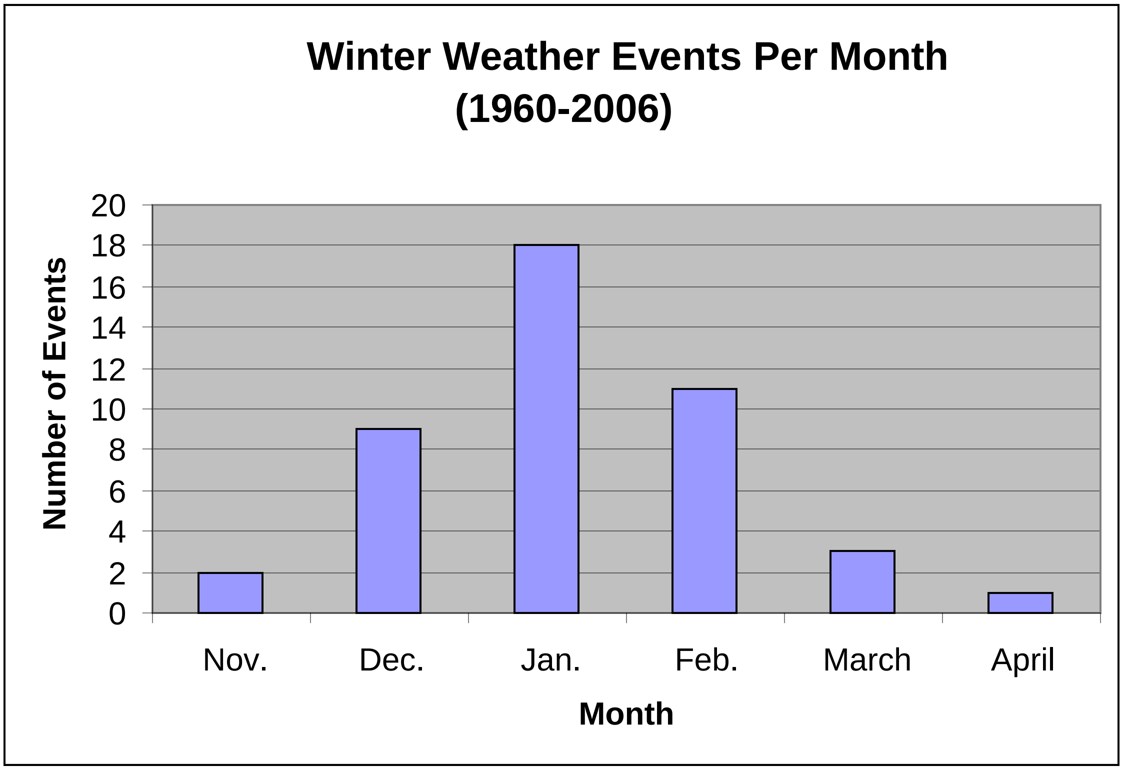

Figure 29. Winter weather events by month. Forty-four total events. Includes all measurable snow, sleet, and freezing rain events since 1960, although the vast majority of these events were ice storms.

SNOW CLIMATOLOGY GRAPHICS, 1960-2006

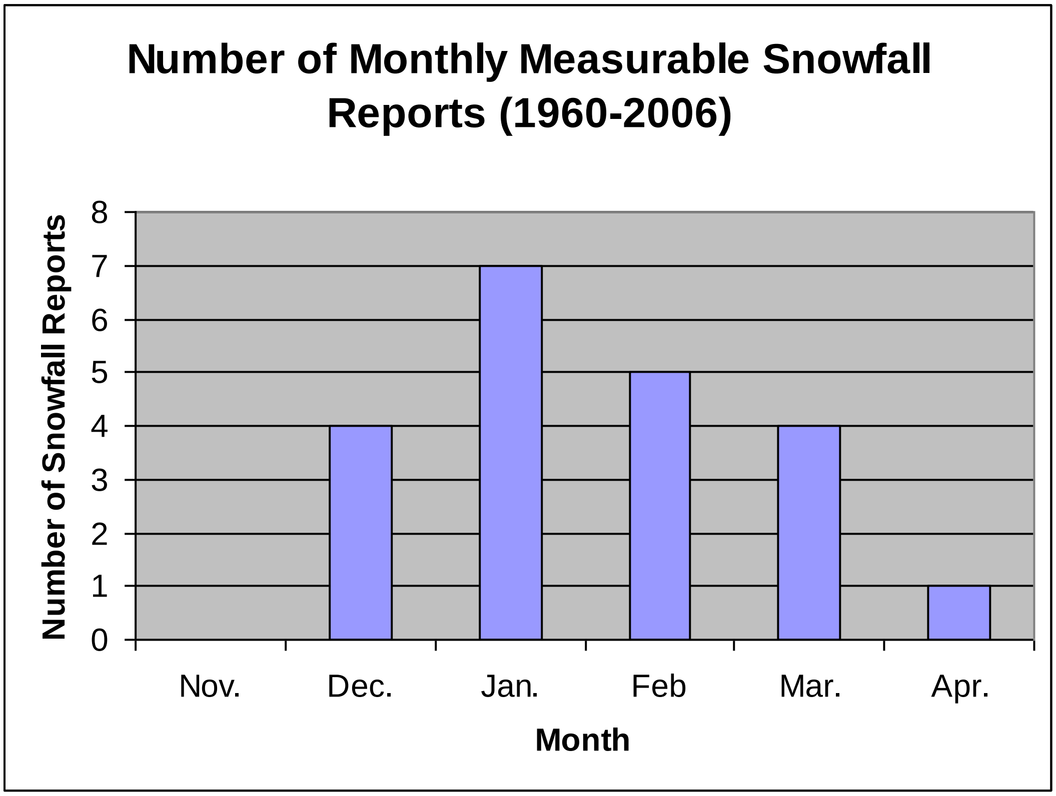

Figure 30. Number of Measurable snowfall by month, 1960-2006. Twenty-one events.

SNOW CLIMATOLOGY GRAPHICS, 1960-2006

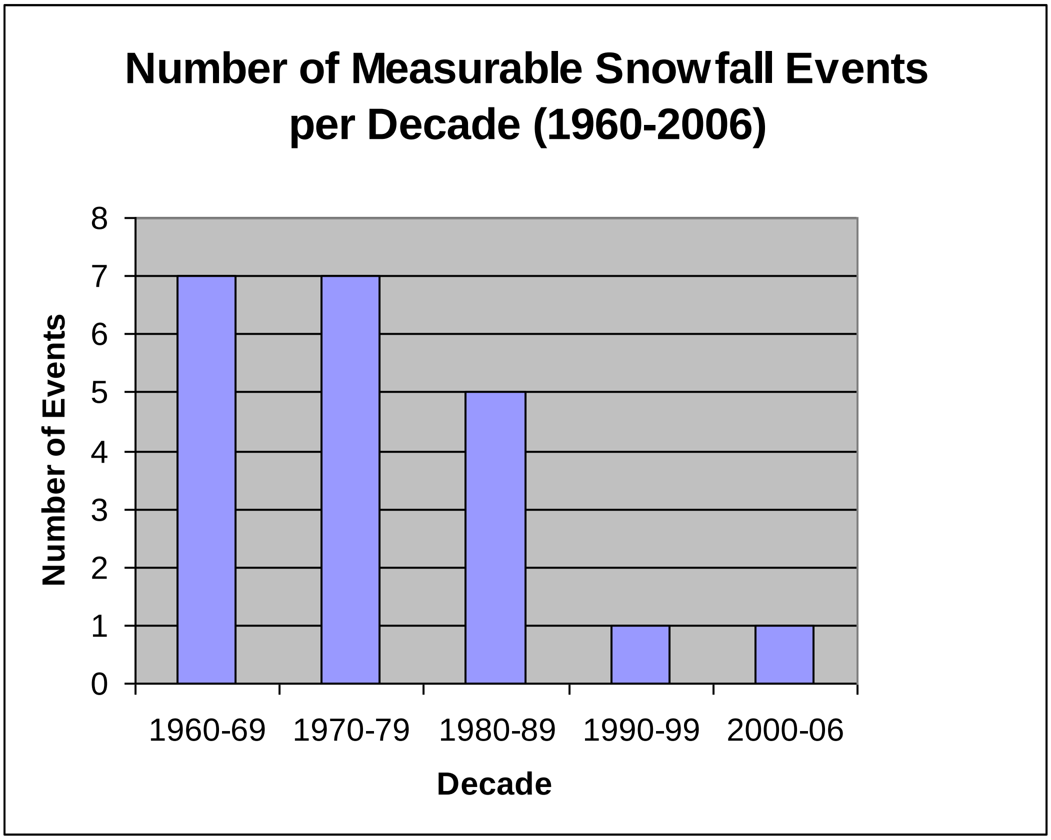

Figure 31. Measurable snowfall by decade, 1960-2006. Twenty-one events.

SNOW CLIMATOLOGY GRAPHICS, 1960-2006

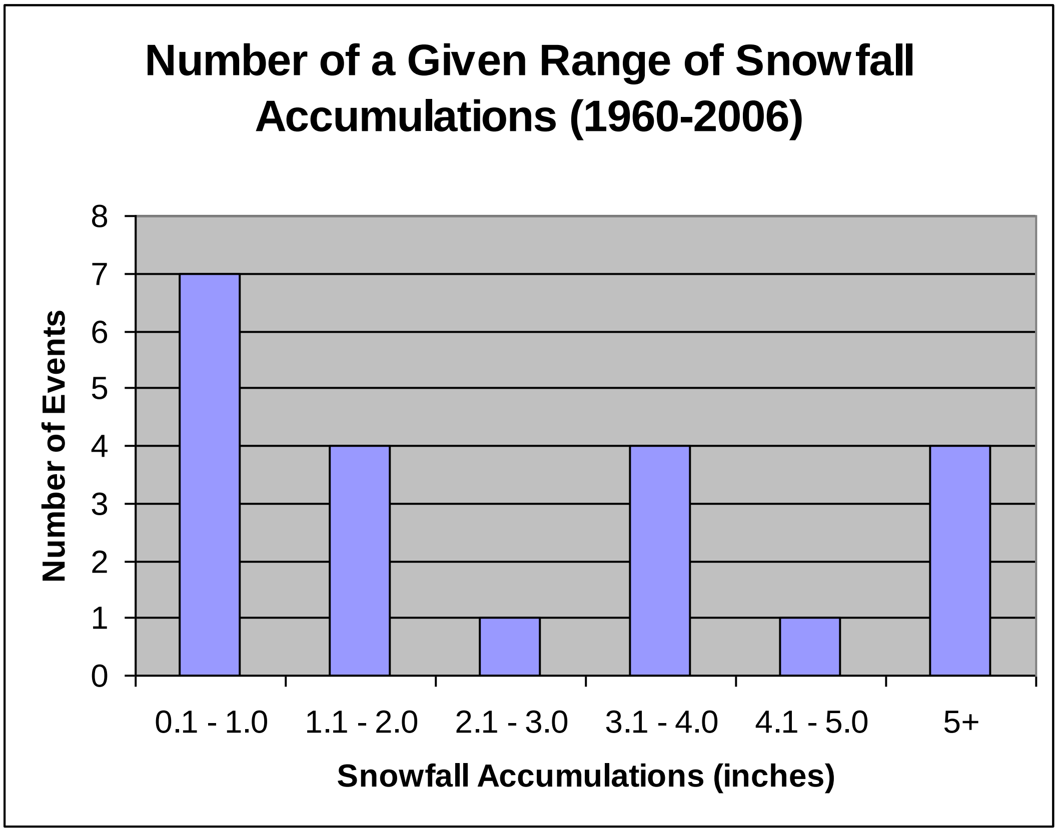

Figure 32. Distribution of Event Snowfall Accumulation, 1960-2006. Twenty-one events.

TROPICAL SYSTEMS COMING WITHIN 50 NM OF SHREVEPORT, 1851-2006

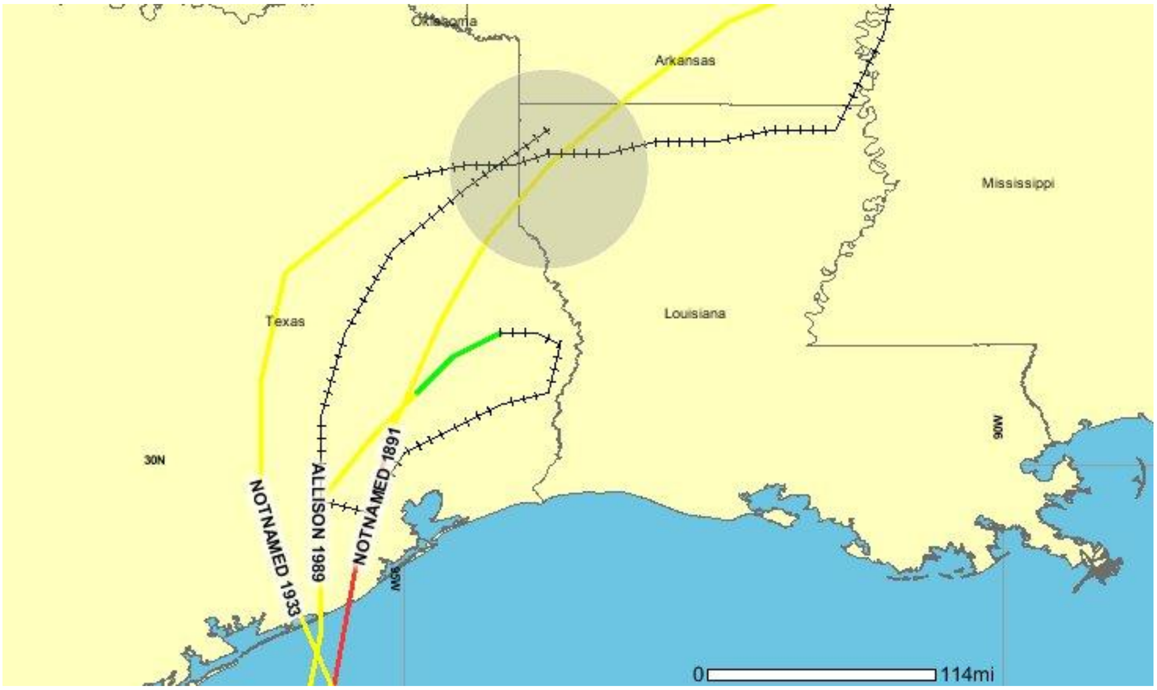

Figure 33. Tropical systems (3) coming within 50 nm of Shreveport during July. Created from the NOAA Coastal Services Center Historical Hurricane Tracks website.

Figure 34. Tropical systems (5) coming within 50 nm of Shreveport during August. Created from the NOAA Coastal Services Center Historical Hurricane Tracks website.

TROPICAL SYSTEMS COMING WITHIN 50 NM OF SHREVEPORT, 1851-2006

Figure 35. Tropical systems (7) coming within 50 nm of Shreveport during September. Created from the NOAA Coastal Services Center Historical Hurricane Tracks website.

Figure 36. Tropical systems (3) coming within 50 nm of Shreveport during October. Created from the NOAA Coastal Services Center Historical Hurricane Tracks website.

TRACKS OF TROPICAL SYSTEMS THAT PRODUCED NOTABLE HEAVY RAIN EVENTS

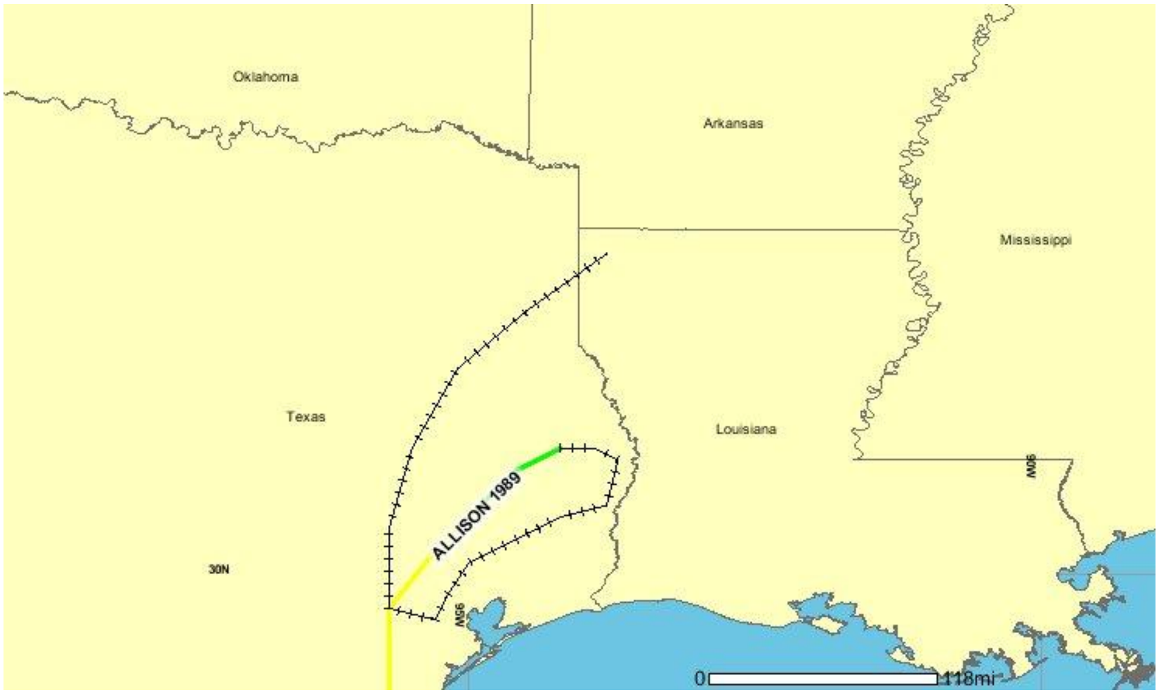

Figure 37. Path of Allison, 1989. Created from the NOAA Coastal Services Center Historical Hurricane Tracks website.

Figure 38. Path of unnamed storm, 1933. Created from the NOAA Coastal Services Center Historical Hurricane Tracks website.

TRACKS OF TROPICAL SYSTEMS THAT PRODUCED NOTABLE HEAVY RAIN EVENTS

Figure 39. Path of unnamed storm, 1949. Created from the NOAA Coastal Services Center Historical Hurricane Tracks website.

Figure 40. Path of Bonnie, 1986. Created from the NOAA Coastal Services Center Historical Hurricane Tracks website.

ZCZC MIATCPAT3 ALL
TTAA00 KNHC DDHHMM
BULLETIN
TROPICAL STORM RITA ADVISORY NUMBER 29
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
4 PM CDT SAT SEP 24 2005

...RITA EXPECTED TO BECOME A RAIN MAKER IN THE NEXT DAY OR TWO...

A TROPICAL STORM WARNING REMAINS IN EFFECT FROM HIGH ISLAND TEXAS TO MORGAN CITY LOUISIANA.

FOR STORM INFORMATION SPECIFIC TO YOUR AREA...INCLUDING POSSIBLE INLAND WATCHES AND WARNINGS...PLEASE MONITOR PRODUCTS ISSUED BY YOUR LOCAL WEATHER OFFICE.

AT 4 PM CDT...2100Z...THE CENTER OF TROPICAL STORM RITA WAS LOCATED NEAR LATITUDE 32.1 NORTH...LONGITUDE 94.0 WEST OR ABOUT 25 MILES SOUTH-SOUTHWEST OF SHREVEPORT LOUISIANA.

RITA IS MOVING TOWARD THE NORTH NEAR 12 MPH. A GRADUAL TURN TO THE NORTHEAST AND EAST WITH A DECREASE IN FORWARD SPEED IS EXPECTED DURING THE NEXT DAY OR TWO.

MAXIMUM SUSTAINED WINDS ARE NEAR 50 MPH WITH HIGHER GUSTS. RITA IS EXPECTED TO BECOME A TROPICAL DEPRESSION DURING THE NEXT 12 HOURS OR SO.

TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 160 MILES TO THE SOUTH OF THE CENTER.

ESTIMATED MINIMUM CENTRAL PRESSURE IS 980 MB...28.94 INCHES.

THE COASTAL STORM SURGE FLOODING SHOULD CONTINUE TO SLOWLY SUBSIDE TODAY. HOWEVER... TIDES ALONG THE SOUTHEAST LOUISIANA AND MISSISSIPPI COASTS IN AREAS AFFECTED BY KATRINA COULD BE 4 TO 6 FEET ABOVE NORMAL AND BE ACCOMPANIED BY LARGE WAVES... AND RESIDENTS THERE ARE EXPERIENCING COASTAL FLOODING. LARGE SWELLS GENERATED BY RITA WILL LIKELY CONTINUE TO AFFECT MOST PORTIONS OF THE GULF COAST.

RITA IS EXPECTED TO PRODUCE ADDITIONAL RAINFALL AMOUNTS OF 3 TO 6 INCHES ALONG THE PATH OF THE STORM FROM NORTHEAST TEXAS NORTHWARD INTO WESTERN PORTIONS OF THE LOWER MISSISSIPPI VALLEY. ISOLATED MAXIMUM STORM TOTAL AMOUNTS OF UP TO 15 INCHES ARE POSSIBLE.

ISOLATED TORNADOES ARE POSSIBLE TONIGHT AND EARLY SUNDAY TO THE EAST OF THE TRACK OF RITA... OVER LOUISIANA... MISSISSIPPI... AND ARKANSAS.

REPEATING THE 4 PM CDT POSITION...32.1 N... 94.0 W. MOVEMENT TOWARD...NORTH NEAR 12 MPH. MAXIMUM SUSTAINED WINDS... 50 MPH. MINIMUM CENTRAL PRESSURE... 980 MB.

AN INTERMEDIATE ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 7 PM CDT FOLLOWED BY THE NEXT COMPLETE ADVISORY AT 10 PM CDT.

FORECASTER AVILA

Figure 41. Rita Advisory 29. Taken from National Hurricane Center website.

```
ZCZC MIATCPAT3 ALL
TTAA00 KNHC DDHHMM
BULLETIN
TROPICAL STORM RITA INTERMEDIATE ADVISORY NUMBER  29A
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
7 PM CDT SAT SEP 24 2005

...RITA PRODUCING HEAVY RAINS AS IT GRADUALLY WEAKENS...

AT 7 PM CDT...0000Z...THE TROPICAL STORM WARNING FROM HIGH ISLAND
TEXAS TO MORGAN CITY LOUISIANA IS DISCONTINUED.

FOR STORM INFORMATION SPECIFIC TO YOUR AREA...INCLUDING POSSIBLE
INLAND WATCHES AND WARNINGS...PLEASE MONITOR PRODUCTS ISSUED
BY YOUR LOCAL WEATHER OFFICE.

AT 7 PM CDT...0000Z...THE CENTER OF TROPICAL STORM RITA WAS LOCATED
NEAR LATITUDE 32.5 NORTH...LONGITUDE 94.0 WEST OR VERY NEAR
SHREVEPORT LOUISIANA.

RITA IS MOVING TOWARD THE NORTH NEAR 11 MPH.  A GRADUAL TURN TO THE
NORTHEAST AND EAST WITH A DECREASE IN FORWARD SPEED IS EXPECTED
DURING THE NEXT DAY OR TWO.

MAXIMUM SUSTAINED WINDS HAVE DECREASED AND ARE NOW NEAR 40 MPH...
WITH HIGHER GUSTS.  RITA IS EXPECTED TO BECOME A TROPICAL
DEPRESSION LATER TONIGHT OR EARLY SUNDAY MORNING.

TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO ABOUT 60 MILES FROM
THE CENTER.

ESTIMATED MINIMUM CENTRAL PRESSURE IS 983 MB...29.03 INCHES.

THE COASTAL STORM SURGE FLOODING SHOULD CONTINUE TO SLOWLY SUBSIDE
TONIGHT.  HOWEVER... TIDES ALONG THE SOUTHEAST LOUISIANA AND
MISSISSIPPI COASTS IN AREAS AFFECTED BY KATRINA COULD BE 4 TO 6
FEET ABOVE NORMAL AND BE ACCOMPANIED BY LARGE WAVES... AND
RESIDENTS THERE ARE EXPERIENCING COASTAL FLOODING.  LARGE SWELLS
GENERATED BY RITA WILL LIKELY CONTINUE TO AFFECT MOST PORTIONS OF
THE GULF COAST.

RITA IS EXPECTED TO PRODUCE ADDITIONAL RAINFALL AMOUNTS OF 3 TO 6
INCHES ALONG THE PATH OF THE STORM FROM NORTHEAST TEXAS NORTHWARD
INTO WESTERN PORTIONS OF THE LOWER MISSISSIPPI VALLEY.  ISOLATED
MAXIMUM STORM TOTAL AMOUNTS OF UP TO 15 INCHES ARE POSSIBLE.

ISOLATED TORNADOES ARE POSSIBLE TONIGHT AND EARLY SUNDAY TO THE EAST
OF THE TRACK OF RITA... OVER LOUISIANA... MISSISSIPPI... AND
ARKANSAS.

REPEATING THE 7 PM CDT POSITION...32.5 N... 94.0 W.  MOVEMENT
TOWARD...NORTH NEAR 11 MPH.  MAXIMUM SUSTAINED WINDS... 40 MPH.
MINIMUM CENTRAL PRESSURE... 983 MB.

THE NEXT ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT
10 PM CDT.

FORECASTER KNABB
```

Figure 42. Rita Intermediate Advisory 29A. Taken from National Hurricane Center website.

HISTORY OF SHREVEPORT WEATHER OFFICE

DATES	LOCATION
Sep 2, 1871 to Oct 3, 1871	Brooks House Milam St.
Oct 3, 1871 to Dec 16, 1871	Southern Hotel[1] Milam St.
Dec 16, 1871 to Oct 4, 1874	National Hotel[2] Milam St.
Oct 4, 1874 to Aug 28, 1875	Bogel's Building (Odd Fellows Bldg.)[3] Texas and Marshall Streets
Aug 28, 1875 to Dec 1, 1880	Martin Building Milam Street and Martin's Alley
Dec 1, 1880 to Mar 16, 1888[4]	Rendall's Building 207 Milam St.
Mar 16, 1888 to May 1, 1910[5]	Post Office & Customs House, Texas and Marshall Streets
May 1, 1910 to Feb 1, 1913	Majestic Theater Building Milam and McNeil Streets
Feb 1, 1913 to Jul 14, 1931	Post Office Building Texas and Marshall Streets
Jul 14, 1931 to Aug 19, 1932	Slattery Building Texas and Marshall Streets
Aug 19, 1932 to Oct 6, 1941	Federal Building Texas and Marshall Streets
Oct 6, 1941 to Jul 6, 1952	Airport Administration Building Downtown Airport
Jul 6, 1952 to Feb 2, 1995	Great Shreveport Municipal Airport (renamed Shreveport Regional Airport in 1971)
Feb 2, 1995 to present	WFO Shreveport 5655 Hollywood Avenue[6]

1. Third floor of hotel (Grice, 2006).
2. Fourth floor of hotel (same hotel?) (Grice, 2006).
3. Odd Fellows club met in the Bogel's building. LCD misspells "Bogel's" as "Begel's" (Grice, 2006)
4. LCD lists April 17, 1888 as last day. Station logs show March 16 (Grice, 2006).
5. LCD lists April 17, 1888 as first day. Station logs show March 16 (Grice, 2006).
6. ASOS observing equipment remains on Shreveport Regional Airport air field.

Table 2. Dates and locations of the Shreveport weather office.

JANUARY TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	56	80	1952	20	1928	36	66	1966	11	1928
2	56	78	1965	29	1979	36	66	2000	12	1979
3	56	78	1949	24	1911	36	67	1950	12	1911
4	56	82	1997	25	1879	36	66	2005	13	1911
5	56	77	1927	30	1972	36	66	1895	15	1887
6	56	80	1956	28	1879	36	66	1895	6	1879
7	55	79	1965	28	1988	36	65	1937	14	1886
8	55	78	1969	17	1886	36	64	1880	1	1886
9	55	81	1957	22	1886	36	65	1957	3	1886
10	55	79	1935	15	1962	36	64	1898	6	1962
11	55	80	1995	20	1962	36	69	1898	5	1982
12	55	78	2000	20	1918	36	65	1907	2	1918
13	56	78	1976	28	1892	36	65	1960	11	1918
14	56	80	1971	30	1917	36	66	1907	5	1982
15	56	80	1952	31	1917	36	63	1907	15	1888
16	56	81	1943	26	1888	36	64	1935	17	1992
17	56	79	1999	28	1885	36	65	1928	11	1930
18	56	78	2000	20	1930	36	64	1933	-2	1930
19	56	80	1982	26	1940	37	64	1933	3	1940
20	56	81	1954	26	1963	37	65	1906	12	1985
21	56	81	1911	25	1883	37	68	1999	10	1985
22	56	80	1943	24	1930	37	64	1887	8	1930
23	57	84	1943	33	1960	37	66	2002	14	1963
24	57	84	1972	26	1894	37	69	1950	9	1963
25	57	85	1950	26	1940	37	70	1950	14	1894
26	57	82	1952	25	1897	37	65	1952	13	1904
27	57	82	1975	27	1897	37	64	1876	13	1897
28	57	81	1975	26	1948	37	64	1970	15	1963
29	58	82	1975	28	1966	37	66	1969	17	1900
30	58	84	1971	22	1951	38	64	2002	13	1966
31	58	83	1911	23	1951	38	63	1890	8	1949

Table 3. January temperature normals and extremes.

FEBRUARY TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	58	82	1989	21	1951	38	63	1923	10	1951
2	59	83	1995	27	1996	38	64	1887	2	1951
3	59	79	1911	27	1905	38	63	1943	14	1951
4	59	81	1957	26	1989	38	66	1884	14	1996
5	59	78	1957	26	1989	38	64	1884	15	1996
6	60	82	1911	24	1989	39	65	1911	20	1988
7	60	82	1950	16	1895	39	65	1911	4	1895
8	60	83	1994	21	1933	39	69	1994	6	1895
9	61	84	1932	30	1899	39	67	1999	13	1933
10	61	83	1954	29	1899	39	67	1999	15	1885
11	61	81	1999	26	1899	39	63	1880	13	1899
12	61	82	1962	13	1899	40	63	1880	-5	1899
13	62	82	1962	21	1905	40	64	1926	-3	1899
14	62	83	1945	30	1895	40	65	1938	11	1905
15	62	83	1990	26	1909	40	65	1945	21	1905
16	62	84	1927	37	1900	40	65	1889	20	1903
17	63	84	1986	29	1900	41	64	1938	13	1900
18	63	87	1986	31	1978	41	63	1911	12	1910
19	63	84	1986	32	2006	41	64	1890	15	1978
20	63	89	1986	33	1904	41	67	1897	22	1978
21	64	87	1996	35	1968	41	68	1897	19	1978
22	64	86	1996	35	1968	42	65	1985	12	1978
23	64	85	1996	37	1966	42	63	1930	21	1901
24	65	85	1918	32	1894	42	67	1930	21	1965
25	65	89	1977	34	1960	43	65	1936	21	1965
26	65	87	1986	35	1982	43	64	1904	22	1960
27	65	85	1918	39	1937	43	63	1995	20	2002
28	66	85	1932	35	1890	43	64	1904	20	2002
29	66	84	1932	41	1920	43	64	1904	27	1984

Table 4. February temperature normals and extremes.

MARCH TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	66	85	1972	36	1922	44	67	1908	22	1890
2	66	85	1983	35	1960	44	66	1976	20	1980
3	66	82	1976	32	1943	44	66	1976	15	1943
4	67	86	1938	38	1954	44	68	1976	17	2002
5	67	87	1918	36	1989	45	68	1880	21	1978
6	67	86	1991	32	1989	45	70	1880	24	1989
7	67	88	1992	39	1920	45	67	1911	21	1943
8	68	87	1911	36	1932	45	67	1964	25	1996
9	68	90	1911	34	1932	46	67	1897	20	1932
10	68	87	1911	37	1932	46	70	1876	23	1996
11	69	90	1911	34	1948	46	71	2006	23	1948
12	69	88	1955	41	1932	46	70	2006	20	1948
13	69	88	1918	43	1956	47	69	1933	25	1948
14	69	87	1971	45	1960	47	68	1938	22	1993
15	70	87	1936	41	1880	47	67	1982	26	1988
16	70	86	1908	35	1892	47	69	1892	29	1913
17	70	88	1908	35	1892	48	67	1921	27	1892
18	70	90	1882	39	1892	48	70	1882	22	1892
19	71	89	1882	39	1965	48	71	1948	21	1923
20	71	87	1982	36	1876	48	68	1982	22	1965
21	71	89	1916	42	1970	48	70	1904	26	1876
22	71	90	1995	42	1912	49	68	1935	29	1986
23	71	91	1929	47	1912	49	69	1995	30	1968
24	72	90	1929	40	1974	49	69	1913	32	2006
25	72	89	1928	41	1965	49	71	1904	29	1940
26	72	86	1928	37	1955	49	70	1950	25	1955
27	72	89	1935	42	1955	50	69	1890	27	1955
28	73	88	1879	49	1899	50	69	1985	31	1955
29	73	89	1875	44	1937	50	71	1985	32	1994
30	73	91	1946	47	1886	50	71	1938	30	1961
31	73	92	1974	52	1931	50	69	1904	24	1987

Table 5. March temperature normals and extremes.

APRIL TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	73	88	1882	53	1915	50	68	2006	35	1987
2	74	88	1918	49	1915	51	69	1888	32	1881
3	74	88	1989	56	1877	51	72	1940	31	1987
4	74	92	1880	53	1891	51	70	1940	31	1987
5	74	93	1880	52	1899	51	70	1893	31	1987
6	75	89	1960	50	1899	51	69	1929	37	1971
7	75	93	1930	51	1983	52	72	1882	34	1996
8	75	89	1882	40	1938	52	70	1882	36	1938
9	75	93	1882	42	1928	52	70	1999	34	1916
10	75	90	1963	50	1956	52	70	1927	34	2003
11	76	88	1948	53	1988	52	70	1965	31	1989
12	76	92	1883	52	2004	53	71	1948	36	1940
13	76	92	1936	47	1957	53	72	1922	35	1940
14	76	88	1936	59	2000	53	70	1878	35	1928
15	77	90	1925	46	1933	53	72	1880	35	1928
16	77	92	1920	60	1950	54	74	1982	34	1961
17	77	91	2006	52	1907	54	72	1967	35	1921
18	77	93	2006	56	1998	54	73	1880	37	1999
19	77	93	1987	57	1983	55	72	1878	38	1953
20	78	94	1987	52	1983	55	72	1973	39	1978
21	78	91	1925	50	1907	55	70	1973	40	1918
22	78	89	1925	50	1884	55	72	1878	38	1931
23	78	89	1988	59	1995	56	72	1999	40	1884
24	78	89	1999	57	1982	56	71	1999	39	1910
25	79	88	1925	60	1910	56	70	1975	34	1910
26	79	92	1882	58	1997	57	73	1994	41	1910
27	79	92	1987	60	1997	57	74	1970	40	1978
28	79	92	1887	61	1997	57	74	1970	43	1973
29	79	96	1887	61	1979	58	75	1970	45	1997
30	80	94	1887	62	1958	58	74	2002	39	1996

Table 6. April temperature normals and extremes.

MAY TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	80	95	1887	61	1970	58	73	2002	42	1903
2	80	94	1943	60	1970	59	73	1948	45	1976
3	80	92	1943	56	1978	59	72	1949	47	1911
4	81	94	1947	61	1887	59	74	1950	44	1954
5	81	93	1952	61	1917	59	77	2003	44	1978
6	81	96	1875	58	1917	60	75	2003	47	1957
7	81	94	1875	62	1917	60	75	2003	44	1992
8	81	94	1875	67	1917	60	74	1927	44	1917
9	82	93	1887	66	1919	61	75	1933	46	1923
10	82	95	1887	62	1954	61	76	1933	48	1961
11	82	95	1886	62	1954	61	76	1933	45	1981
12	82	96	1886	63	1954	62	75	1933	42	1960
13	82	94	1886	66	1903	62	75	1995	45	1997
14	83	98	1875	63	1953	62	75	1995	46	1971
15	83	94	1881	65	1920	63	75	1995	46	1907
16	83	94	1881	63	1945	63	73	1968	46	1973
17	83	93	1881	67	1895	63	75	1966	47	1945
18	84	94	1883	65	1916	63	76	1883	48	1976
19	84	94	1875	65	1952	64	75	1960	48	1976
20	84	94	2005	66	1892	64	77	1902	49	2002
21	84	94	1990	61	1892	64	75	1957	49	1981
22	85	96	1875	64	1895	64	75	1957	46	1892
23	85	97	1886	65	1895	65	76	1938	48	1963
24	85	101	1875	67	1895	65	74	1989	54	1963
25	85	98	1875	68	1924	65	77	2000	50	1971
26	85	99	1887	67	1948	66	75	2000	50	1979
27	86	97	1886	67	1976	66	79	1996	47	1961
28	86	97	1886	65	1992	66	77	1996	46	1961
29	86	100	1886	66	1992	66	75	1927	53	1976
30	86	100	1886	70	1924	67	75	1953	49	1984
31	87	102	1998	67	1983	67	76	1985	47	1984

Table 7. May temperature normals and extremes.

JUNE TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	87	102	1998	61	1903	67	76	1927	53	1903
2	87	99	1998	63	1903	67	77	1943	53	1984
3	87	103	1875	72	1919	68	79	1943	54	1970
4	88	97	1977	73	1969	68	78	1874	56	1970
5	88	100	1875	72	1959	68	75	1943	55	1969
6	88	98	1977	73	1894	68	76	1980	57	1970
7	88	99	1911	74	1916	68	78	1980	57	1894
8	89	99	1932	64	1890	69	78	1881	52	1977
9	89	100	1911	74	1913	69	79	1981	55	1977
10	89	101	1875	69	1913	69	77	1964	55	1877
11	89	101	1911	76	1913	69	79	1911	55	1955
12	89	100	1881	72	1889	69	78	1963	53	1988
13	89	100	1998	66	1903	70	79	1970	58	1985
14	90	102	1998	74	1989	70	78	1963	58	1903
15	90	102	1875	73	1927	70	78	1958	58	1978
16	90	103	1875	68	1961	70	77	1924	56	1989
17	90	102	1881	64	1961	70	80	1881	57	1917
18	90	103	1918	67	1961	71	80	1998	60	1917
19	91	102	1918	72	1920	71	80	1998	61	1945
20	91	104	1936	69	1876	71	78	1990	59	1985
21	91	103	1936	77	1927	71	82	1936	56	1976
22	91	104	1875	76	1905	71	80	1937	60	1902
23	91	102	1875	80	1912	71	81	1969	58	1902
24	91	101	1882	75	1961	71	80	1969	62	1974
25	91	104	1875	72	1961	72	81	1969	59	1974
26	92	101	1875	75	1928	72	81	1969	60	1974
27	92	102	1875	76	1989	72	80	1937	57	1974
28	92	101	1988	79	1989	72	79	1980	58	1974
29	92	101	1988	77	1989	72	80	1914	62	1974
30	92	102	1917	78	1989	72	79	1983	61	1923

Table 8. June temperature normals and extremes.

JULY TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	92	102	1998	76	1976	72	80	1931	60	1950
2	92	102	1988	78	1913	72	79	1992	61	1924
3	92	103	1969	79	1922	72	79	1933	61	1924
4	92	102	1875	74	1915	73	80	1995	61	1924
5	92	101	1938	80	1995	73	79	1938	62	1968
6	93	104	1939	78	1891	73	79	1938	59	1972
7	93	104	1998	80	1911	73	79	1935	58	1972
8	93	104	1884	79	1891	73	80	1935	65	1983
9	93	104	1884	71	1894	73	82	1935	64	1891
10	93	105	1998	78	1921	73	81	1884	63	1947
11	93	105	1998	78	1945	73	82	1933	62	1899
12	93	105	1998	81	1941	73	80	1933	65	1894
13	93	107	1901	76	1953	73	80	1932	63	1973
14	93	104	1875	80	1967	73	80	1969	64	1990
15	93	106	1939	82	1967	73	80	1932	60	1990
16	93	107	1875	76	1891	73	81	1878	61	1967
17	93	107	1875	81	1952	74	81	1954	64	1961
18	94	106	1875	77	1911	74	81	1934	66	1991
19	94	104	1875	79	1967	74	79	1943	65	1977
20	94	101	2000	81	1894	74	80	1943	65	1910
21	94	103	1963	72	1970	74	79	1951	64	1984
22	94	105	1881	78	1933	74	79	1881	62	1947
23	94	102	1998	78	1933	74	81	1881	62	1947
24	94	106	1954	75	1927	74	81	1924	63	1947
25	94	103	1954	74	1933	74	82	1879	63	1911
26	94	103	1925	77	2004	74	81	1925	63	1911
27	94	103	1934	76	1962	74	80	1944	65	1911
28	94	103	1998	75	1880	74	80	1998	64	1994
29	94	105	1930	80	1925	74	80	1930	63	1994
30	94	105	1998	76	1971	74	80	1932	66	1923
31	94	107	1998	78	1925	74	79	1935	63	1971

Table 9. July temperature normals and extremes.

AUGUST TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	94	107	1998	70	1925	74	80	1932	64	1936
2	94	108	1998	80	1971	74	79	1997	63	1925
3	94	101	1998	78	1955	74	81	1930	63	1973
4	94	105	1897	74	1894	73	79	1980	62	1976
5	94	105	1964	75	1894	73	81	1964	58	1880
6	94	106	1896	81	1912	73	80	1877	63	1948
7	94	106	1947	77	1997	73	80	1951	62	1957
8	94	106	1947	75	1940	73	80	1934	60	1990
9	94	106	1947	74	1940	73	81	1943	58	1989
10	94	109	1936	77	1917	73	80	1970	59	1989
11	94	103	1954	77	1917	73	80	1936	61	1989
12	94	107	1962	78	1966	73	80	1874	61	1967
13	94	105	1948	75	1964	73	79	1934	59	2004
14	94	104	1948	76	1991	73	80	1948	56	2004
15	94	105	1881	78	2002	73	80	1881	60	2004
16	94	104	1951	78	1914	72	79	1927	59	1992
17	94	106	1951	79	1915	72	80	1951	53	1992
18	94	110	1909	77	1917	72	82	1909	57	1992
19	94	105	1999	79	1915	72	79	1934	61	1879
20	93	104	1995	79	1940	72	80	1925	62	1940
21	93	105	1881	78	1977	72	79	2005	59	1940
22	93	104	2005	82	1941	72	79	2005	57	1949
23	93	103	2005	75	1923	72	78	1995	58	1949
24	93	103	1899	75	1961	71	78	1924	54	1891
25	93	103	1881	80	1946	71	78	1938	56	1891
26	92	104	1999	78	1946	71	79	2004	57	1891
27	92	103	1963	77	1946	71	79	1963	60	1891
28	92	103	1995	76	1996	71	80	1963	60	1906
29	92	104	1884	75	1978	71	78	1998	56	1986
30	92	107	2000	74	1915	71	78	1983	54	1986
31	91	109	2000	74	1950	70	79	1951	59	1915

Table 10. August temperature normals and extremes.

SEPTEMBER TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	91	107	2000	72	1996	70	78	1877	57	1915
2	91	107	2000	80	1888	70	78	1964	57	1967
3	91	109	2000	71	1974	70	78	1932	57	1974
4	90	108	2000	74	1974	70	79	1970	54	1974
5	90	102	1990	72	1918	69	79	1936	54	1891
6	90	102	1947	73	1967	69	78	1970	56	1974
7	90	105	1925	73	1957	69	80	1925	55	1988
8	90	102	1925	73	1974	69	77	1964	51	1988
9	89	102	1925	71	1880	69	78	1925	54	1880
10	89	102	1980	71	1966	68	76	1984	53	1880
11	89	100	1980	72	1894	68	76	1919	49	1976
12	89	102	1980	72	1898	68	78	1911	52	1940
13	88	101	1980	69	1913	67	77	1993	50	1902
14	88	101	1980	66	1881	67	77	1930	50	1902
15	88	103	1980	64	1993	67	79	1939	52	1902
16	88	103	1980	70	1966	67	77	1933	47	1881
17	87	98	2004	72	1946	66	77	1933	49	1903
18	87	101	2005	67	1943	66	78	1942	50	1981
19	87	103	1956	66	1991	66	77	2005	43	1981
20	86	102	2005	65	1971	65	78	1924	48	1981
21	86	103	2005	61	1875	65	77	1957	46	1918
22	86	101	2005	66	1995	65	78	2006	43	1983
23	86	99	2000	67	1989	64	77	2000	45	1994
24	85	98	1931	70	1989	64	77	1931	46	1990
25	85	98	1931	62	1974	63	76	1931	46	1994
26	85	101	2005	61	1912	63	76	2005	46	1975
27	85	100	1953	64	1918	63	78	2005	43	1942
28	84	103	1953	63	1964	62	76	1998	44	1909
29	84	101	1953	62	1890	62	75	1998	42	1967
30	84	99	1953	61	1985	61	74	1893	42	1984

Table 11. September temperature normals and extremes.

OCTOBER TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	83	99	1938	65	1958	61	76	1977	40	1984
2	83	96	1989	68	1961	60	75	1883	41	1984
3	83	94	1954	59	1958	60	74	2002	43	1975
4	82	97	2002	65	1902	60	75	1941	41	1987
5	82	95	2006	61	1965	59	76	1941	42	1979
6	82	97	1954	63	1952	59	74	1941	39	1985
7	82	93	1925	58	2000	58	76	1962	41	1891
8	81	93	1963	54	2000	58	74	1941	35	1952
9	81	94	1931	58	2000	58	75	1939	36	1917
10	81	93	1975	59	1993	57	73	1969	38	2000
11	80	94	1975	59	1994	57	76	1969	40	2000
12	80	93	1963	59	1982	56	74	1969	39	1977
13	80	92	1963	54	1986	56	74	1962	34	1977
14	79	92	1881	60	1914	56	71	1881	37	1977
15	79	91	1947	60	1876	55	71	1962	38	1937
16	78	90	1984	62	1906	55	70	1962	37	1977
17	78	93	1972	59	1898	54	72	1993	34	1977
18	78	91	2006	58	1989	54	76	2004	37	1978
19	77	94	1921	53	1989	54	71	1883	32	1989
20	77	91	1941	56	1916	53	72	1949	29	1989
21	77	91	1941	52	1982	53	74	1935	31	1976
22	76	94	1939	56	1890	53	73	2004	38	1911
23	76	92	1939	53	1936	52	70	2001	35	1952
24	75	89	1893	54	1892	52	69	1975	35	1917
25	75	90	1931	50	1887	52	73	1919	33	1980
26	75	89	1934	49	1972	51	72	1939	35	1898
27	74	89	1939	50	1918	51	73	1919	33	1957
28	74	87	1991	46	1878	51	70	2004	31	1957
29	73	90	1937	41	1925	50	69	2004	31	1952
30	73	90	1937	37	1925	50	70	1961	29	1917
31	73	88	1972	44	1925	50	73	1972	28	1993

Table 12. October temperature normals and extremes.

NOVEMBER TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	72	88	1984	45	1923	49	70	1945	27	1993
2	72	86	1936	43	1951	49	74	1936	26	1951
3	71	85	1994	38	1966	49	69	1994	22	1951
4	71	86	1948	46	1991	49	70	1994	23	1991
5	71	85	1891	50	1995	48	66	1942	24	1991
6	70	86	1989	43	1959	48	69	1989	29	1959
7	70	84	2005	47	1953	48	70	1989	24	1993
8	69	87	1989	44	1991	47	68	1927	28	1959
9	69	85	1994	45	1892	47	68	1879	23	1991
10	69	86	2006	46	1950	47	68	1879	28	1991
11	68	86	1896	44	1898	47	68	1896	25	1950
12	68	88	1955	42	1911	46	68	2003	27	1907
13	68	87	1955	42	1986	46	70	1993	24	1907
14	67	85	1989	37	1920	46	72	1955	24	1940
15	67	85	1921	40	1959	45	72	1955	23	1940
16	66	87	1921	42	1920	45	73	1921	24	1932
17	66	84	1958	38	1932	45	74	1921	25	1880
18	66	83	1985	30	1880	45	69	1985	18	1880
19	65	83	1985	41	1937	44	66	1950	20	1903
20	65	84	1875	39	1937	44	68	1900	24	1937
21	65	83	1967	40	1937	44	70	1900	26	1937
22	64	83	1900	35	1929	43	69	1900	25	1898
23	64	84	1973	42	1929	43	69	1973	24	1975
24	64	84	1973	42	1881	43	64	1985	26	1970
25	64	83	1967	42	1898	43	64	1985	23	1950
26	63	85	1965	38	1980	42	68	1990	26	1975
27	63	82	1994	38	1992	42	66	1892	22	1993
28	63	85	1949	37	1976	42	71	1905	23	1992
29	62	80	1949	37	1911	42	66	2006	16	1976
30	62	80	1950	33	1877	41	62	1970	19	1877

Table 13. November temperature normals and extremes.

DECEMBER TEMPERATURE NORMALS AND EXTREMES

DAY	NORMAL MAX	HIGH MAX	YEAR	LOW MAX	YEAR	NORMAL MIN	HIGH MIN	YEAR	LOW MIN	YEAR
1	62	80	1950	36	1876	41	64	1922	22	1877
2	62	79	1950	37	1929	41	70	1982	25	1960
3	61	84	2005	38	1966	41	66	1922	21	1929
4	61	80	1977	36	1897	40	66	1922	19	1897
5	61	82	1956	36	1964	40	67	1956	20	1886
6	60	81	1998	31	1950	40	66	2001	17	1950
7	60	83	1939	39	1950	40	68	1966	14	1950
8	60	83	1922	31	1917	39	65	1994	19	1927
9	60	80	1971	34	1937	39	65	1879	18	1917
10	60	78	1939	32	1919	39	64	1889	17	1978
11	59	79	1949	29	1917	39	68	1996	20	1898
12	59	80	1973	26	1917	39	67	1991	17	1962
13	59	82	1948	34	1932	39	66	1948	16	1962
14	59	81	1975	32	1914	38	68	1948	18	1985
15	58	78	1984	28	1901	38	66	1948	16	1901
16	58	81	1924	28	1932	38	67	1924	15	1989
17	58	79	1984	31	1932	38	66	1984	19	1901
18	58	80	1980	32	1932	38	65	2002	16	1979
19	58	80	1977	27	1909	38	63	1978	15	1929
20	58	80	1967	29	1924	37	63	1967	14	1901
21	57	78	1889	30	1963	37	61	1889	18	1973
22	57	79	1981	22	1989	37	67	1879	10	1989
23	57	80	1964	23	1989	37	66	1921	5	1989
24	57	84	1955	20	1983	37	67	1982	8	1989
25	57	83	1964	20	1983	37	63	1904	6	1983
26	57	79	1942	28	1983	37	59	1889	14	1983
27	57	77	2005	31	1892	37	65	1923	18	1892
28	56	78	1907	28	1925	37	65	1946	11	1894
29	56	80	1984	23	1880	37	66	1984	10	1880
30	56	83	1951	24	1880	36	66	1923	10	1983
31	56	81	1964	28	1990	36	68	1875	12	1983

Table 14. December temperature normals and extremes.

AVERAGE MONTHLY TEMPERATURES BY YEAR, 1872-2006

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	Dep
1872	40.7	50.6	54.4	66.5	73.5	80.4	84.4	84.5	78.6	66.6	48.1	41.8	**64.2**	**-1.6**
1873	42.0	51.9	58.8	64.7	72.3	79.3	81.9	81.0	75.5	62.1	56.1	49.8	**64.6**	**-1.1**
1874	50.4	51.6	60.7	60.8	74.9	81.7	82.0	85.6	76.3	67.8	60.0	53.6	**67.1**	**1.4**
1875	41.4	50.6	58.1	64.0	77.0	85.4	87.6	81.2	73.6	62.2	58.2	55.5	**66.2**	**0.5**
1876	54.3	55.2	53.6	67.3	72.8	78.6	84.2	83.4	75.5	64.5	53.6	41.2	**65.4**	**-0.4**
1877	47.2	52.4	58.6	64.6	72.8	80.4	82.4	82.6	75.8	65.6	52.1	51.5	**65.5**	**-0.2**
1878	46.9	50.6	64.4	69.4	73.8	79.8	84.6	84.2	75.4	66.6	56.9	43.6	**66.4**	**0.6**
1879	45.6	50.5	65.0	65.6	75.0	79.6	82.8	78.2	75.6	68.7	60.7	54.2	**66.8**	**1.1**
1880	60.6	53.5	58.5	69.0	76.2	79.4	80.7	80.6	72.8	63.2	45.6	46.4	**65.5**	**-0.2**
1881	40.0	43.4	55.1	67.0	76.7	85.8	85.9	87.3	79.0	71.8	53.2	52.0	**66.4**	**0.7**
1882	50.4	57.7	65.4	70.0	72.3	82.6	81.6	80.7	75.2	70.7	55.6	48.0	**67.5**	**1.8**
1883	43.8	48.6	57.6	67.9	74.8	82.4	85.6	83.1	75.9	72.0	58.2	52.2	**66.8**	**1.1**
1884	39.4	53.7	60.1	64.2	73.0	81.0	87.9	82.8	81.5	69.3	54.1	47.7	**66.2**	**0.5**
1885	41.8	45.8	55.6	69.2	72.7	82.6	84.9	83.0	76.8	62.0	56.1	48.8	**64.9**	**-0.8**
1886	38.6	49.2	55.6	66.5	77.5	81.1	83.3	84.6	78.9	66.2	55.5	48.0	**65.4**	**-0.3**
1887	45.8	57.0	62.2	68.8	74.7	82.1	84.2	83.6	78.6	65.2	56.7	46.4	**67.1**	**1.4**
1888	45.2	52.8	55.5	69.3	72.2	78.6	82.8	81.8	74.0	65.6	55.0	49.7	**65.2**	**-0.5**
1889	47.9	50.2	58.6	69.0	71.3	76.8	82.8	79.9	74.2	65.5	51.6	63.2	**65.9**	**0.2**
1890	56.6	57.4	57.0	66.5	73.2	79.5	83.0	80.6	73.8	64.6	58.1	52.2	**66.9**	**1.1**
1891	45.3	53.7	53.8	66.0	70.3	81.2	80.5	78.9	75.6	63.2	54.4	51.0	**64.5**	**-1.2**
1892	41.0	56.0	52.7	65.4	71.8	79.2	80.9	80.0	73.4	67.6	56.8	47.6	**64.4**	**-1.4**
1893	47.2	51.3	56.3	69.2	72.8	79.2	83.6	80.7	77.2	65.3	54.4	52.8	**65.8**	**0.1**
1894	50.8	47.4	59.8	68.4	73.9	77.8	79.9	78.8	76.3	67.3	55.6	51.2	**65.6**	**-0.1**
1895	44.4	39.6	58.0	65.6	70.2	78.6	81.4	82.2	79.2	62.4	54.5	49.3	**63.8**	**-1.9**
1896	46.0	50.9	56.6	69.3	77.2	80.8	84.6	84.8	78.0	65.5	58.7	51.4	**67.0**	**1.3**
1897	45.0	54.0	62.8	66.0	72.3	80.4	84.8	83.0	78.4	71.6	57.4	47.8	**67.0**	**1.2**
1898	52.5	53.0	60.0	63.0	74.8	79.9	81.7	81.4	77.0	64.6	52.0	44.7	**65.4**	**-0.3**
1899	46.4	39.8	58.6	64.2	77.3	80.2	83.2	86.4	76.0	69.9	58.6	48.8	**65.8**	**0.1**
1900	48.2	47.2	56.9	66.2	73.2	80.3	81.2	81.8	81.8	70.0	58.0	50.0	**66.2**	**0.5**
1901	51.4	47.1	57.1	62.2	71.7	81.8	84.2	82.8	74.7	67.2	55.7	45.2	**65.1**	**-0.6**
1902	44.2	45.4	58.1	67.6	75.8	81.7	80.8	85.2	73.0	66.2	61.3	47.9	**65.6**	**-0.1**
1903	46.8	48.5	59.5	65.0	69.8	74.3	81.2	82.0	74.8	64.8	53.8	47.3	**64.0**	**-1.7**
1904	45.2	53.8	63.2	63.2	71.8	79.0	80.8	80.6	79.4	68.8	56.6	48.9	**65.9**	**0.2**
1905	41.0	39.4	62.6	65.0	75.8	81.2	79.7	82.8	78.0	66.0	59.2	43.2	**64.5**	**-1.2**
1906	48.9	48.2	52.8	67.4	73.4	80.4	80.5	81.3	79.0	61.4	56.8	53.2	**65.3**	**-0.5**
1907	57.2	53.2	67.0	60.6	68.0	79.2	83.3	83.6	78.6	66.9	53.0	50.4	**66.8**	**1.0**
1908	48.4	49.8	64.9	69.0	73.0	80.2	81.6	81.6	76.0	63.2	59.2	51.8	**66.6**	**0.8**
1909	51.6	53.2	58.8	64.4	71.0	80.3	84.4	83.9	77.1	68.0	62.8	42.2	**66.5**	**0.7**
1910	49.4	45.8	64.7	64.5	70.8	77.6	81.8	82.0	80.0	67.4	57.8	48.8	**65.9**	**0.2**
1911	55.0	57.3	62.3	65.1	73.6	84.0	80.3	81.6	82.5	66.9	52.4	47.8	**67.4**	**1.7**
1912	42.2	45.3	51.6	66.0	72.8	76.2	83.0	80.2	77.4	67.6	54.9	46.6	**63.7**	**-2.1**
1913	50.5	47.4	54.2	64.2	72.0	79.0	83.3	82.4	73.4	63.6	62.7	47.8	**65.0**	**-0.7**
1914	52.6	46.4	55.0	64.7	72.5	83.9	85.3	80.5	77.2	66.8	56.8	41.5	**65.3**	**-0.5**
1915	45.2	51.4	47.2	67.3	74.6	80.7	81.4	78.4	77.6	67.9	59.3	50.4	**65.1**	**-0.6**
1916	51.6	50.6	60.6	63.5	73.8	79.4	83.4	83.2	76.2	67.4	56.4	49.8	**66.3**	**0.6**
1917	50.5	51.6	58.4	63.8	67.7	80.2	83.3	80.6	74.1	61.6	55.1	43.2	**64.2**	**-1.6**
1918	38.2	55.1	62.5	63.8	75.2	83.6	84.2	83.4	72.2	68.8	54.1	52.0	**66.1**	**0.4**
1919	46.0	49.6	58.2	65.2	70.1	77.0	82.6	82.6	76.4	71.4	57.8	48.8	**65.5**	**-0.3**
1920	46.2	51.8	56.9	64.4	75.2	78.5	81.5	79.8	78.6	66.9	52.2	48.6	**65.1**	**-0.7**
1921	53.4	53.6	65.7	63.1	73.6	80.4	82.8	84.0	81.7	66.8	62.6	54.6	**68.5**	**2.8**
1922	44.6	54.0	57.1	67.8	75.3	80.8	81.8	82.1	78.8	67.0	58.3	54.8	**66.9**	**1.1**
1923	55.9	48.4	55.0	66.0	71.4	79.7	82.4	83.0	75.6	64.5	55.6	54.9	**66.0**	**0.3**
1924	42.8	49.0	53.3	65.4	68.6	82.5	83.8	86.0	75.0	69.4	59.2	47.8	**65.2**	**-0.5**
1925	46.1	56.2	61.0	70.9	73.0	84.2	85.4	84.0	83.2	64.2	55.0	46.0	**67.4**	**1.7**

1926	46.5	55.4	54.0	62.4	72.8	80.1	81.3	83.5	80.7	71.0	53.6	51.2	**66.0**	**0.3**
1927	51.6	58.6	59.0	70.2	75.8	79.0	82.0	82.6	79.1	70.4	63.3	46.2	**68.2**	**2.4**
1928	49.1	50.8	59.2	61.4	73.8	78.2	83.4	84.9	75.4	70.4	55.2	49.4	**65.9**	**0.2**
1929	47.9	42.6	61.6	69.2	72.5	80.4	82.8	84.4	77.7	67.5	49.9	48.6	**65.4**	**-0.3**
1930	41.4	57.4	55.0	71.0	73.0	81.0	86.9	84.4	78.3	64.7	55.6	46.7	**66.3**	**0.6**
1931	49.1	53.8	52.2	63.2	69.0	81.6	84.2	80.3	82.1	72.3	62.0	53.0	**66.9**	**1.2**
1932	52.7	59.4	54.0	67.7	73.4	82.8	86.1	84.8	77.8	65.9	52.4	45.6	**66.9**	**1.2**
1933	55.7	49.1	59.0	65.9	77.8	81.8	82.4	83.0	82.8	68.2	59.8	58.2	**68.6**	**2.9**
1934	50.7	49.2	56.8	68.0	73.6	84.2	86.0	86.6	77.0	73.4	60.1	50.0	**68.0**	**2.2**
1935	50.8	52.2	64.4	65.8	71.6	80.0	84.8	84.8	75.8	70.4	56.0	45.5	**66.8**	**1.1**
1936	44.6	44.6	63.7	64.8	74.4	83.8	83.4	86.6	82.2	65.5	54.3	52.0	**66.7**	**0.9**
1937	50.2	57.9	66.3	65.5	74.8	80.6	83.6	85.0	79.4	72.0	55.8	50.2	**68.4**	**2.7**
1938	50.2	57.9	66.3	65.5	74.8	80.6	83.6	85.0	79.4	72.0	55.8	50.2	**68.4**	**2.7**
1939	52.2	51.2	62.0	65.0	74.7	82.4	86.0	85.3	82.4	69.2	54.5	54.4	**68.3**	**2.5**
1940	35.8	49.2	59.0	64.8	71.9	78.4	81.8	79.8	74.7	70.1	55.4	52.8	**64.5**	**-1.3**
1941	51.2	47.3	53.1	67.8	75.0	79.6	83.8	84.6	79.6	73.1	53.6	50.4	**66.6**	**0.9**
1942	44.9	47.4	57.2	67.2	72.6	81.3	83.9	82.6	74.8	66.8	60.6	48.4	**65.6**	**-0.1**
1943	48.2	53.4	53.4	68.0	76.4	83.6	85.0	86.8	75.2	65.6	53.2	47.0	**66.3**	**0.6**
1944	46.2	54.6	58.0	65.3	72.6	83.0	85.2	83.9	77.5	67.2	57.6	44.8	**66.3**	**0.6**
1945	45.7	52.6	64.0	66.8	71.4	80.6	81.3	81.8	79.0	65.0	59.8	44.4	**66.0**	**0.3**
1946	46.4	53.0	61.7	69.5	71.5	78.5	82.8	81.4	75.4	67.4	58.6	54.1	**66.7**	**1.0**
1947	47.4	43.4	51.2	67.1	71.8	81.0	82.4	85.6	78.9	72.2	53.0	49.7	**65.3**	**-0.4**
1948	39.1	48.4	57.2	70.4	73.8	82.6	85.3	84.6	76.9	65.7	55.7	52.2	**66.0**	**0.3**
1949	48.2	53.0	57.4	64.2	77.0	81.8	83.6	81.1	75.4	67.4	58.3	51.3	**66.6**	**0.8**
1950	56.2	55.0	55.9	62.9	75.7	79.9	81.4	81.0	74.6	69.8	54.2	45.9	**66.0**	**0.3**
1951	48.2	50.6	57.9	63.5	73.6	81.3	84.6	87.5	77.5	68.1	52.0	51.6	**66.4**	**0.6**
1952	55.6	54.1	55.5	62.0	72.7	83.6	83.8	84.1	76.8	60.6	54.6	48.1	**66.0**	**0.2**
1953	51.4	50.7	63.2	63.6	74.7	84.6	82.0	82.3	78.0	69.7	54.2	45.9	**66.7**	**1.0**
1954	49.3	56.7	56.7	70.2	68.8	81.7	87.0	86.9	80.7	69.3	55.3	50.8	**67.8**	**2.1**
1955	47.9	49.9	59.7	69.3	75.7	77.5	82.5	81.2	79.6	66.7	55.3	49.4	**66.2**	**0.5**
1956	46.6	54.5	57.3	63.5	76.2	79.3	84.8	84.1	78.3	69.6	54.1	54.6	**66.9**	**1.2**
1957	47.4	56.8	54.8	65.1	74.5	79.8	83.8	82.3	74.6	63.5	55.5	52.6	**65.9**	**0.2**
1958	44.9	44.6	52.2	63.8	73.4	80.8	82.9	82.1	77.3	65.2	57.0	44.7	**64.1**	**-1.7**
1959	45.2	50.5	55.8	62.6	75.5	78.4	81.6	81.9	78.2	67.3	50.2	50.4	**64.8**	**-0.9**
1960	45.9	44.0	48.5	67.3	71.3	80.0	82.9	82.1	77.5	68.4	57.1	44.6	**64.1**	**-1.6**
1961	43.4	52.7	61.2	62.7	71.7	75.5	79.5	79.0	76.5	66.7	54.7	48.1	**64.3**	**-1.4**
1962	42.4	57.2	53.3	64.0	75.4	78.6	84.0	84.8	77.5	70.7	55.2	48.5	**66.0**	**0.2**
1963	39.6	46.4	62.2	68.7	74.8	82.1	83.7	85.0	78.4	71.9	58.0	39.9	**65.9**	**0.2**
1964	46.5	45.6	56.8	68.7	75.1	81.0	84.2	84.0	78.5	64.2	59.3	50.1	**66.2**	**0.4**
1965	50.8	49.4	49.6	70.1	73.7	78.4	83.0	82.1	77.2	66.1	63.2	52.0	**66.3**	**0.6**
1966	42.3	47.5	58.1	66.2	72.7	79.0	85.0	81.0	75.3	64.0	60.4	46.9	**64.9**	**-0.9**
1967	47.6	46.5	63.5	71.0	71.1	80.9	79.8	80.0	73.2	66.5	57.1	48.9	**65.5**	**-0.2**
1968	45.4	43.6	55.9	66.5	72.7	80.1	81.0	82.0	73.6	66.6	53.7	46.6	**64.0**	**-1.8**
1969	49.3	49.2	50.1	65.1	72.4	80.5	86.6	84.3	78.2	67.8	54.7	48.3	**65.5**	**-0.2**
1970	42.0	49.4	53.8	67.4	72.7	78.8	81.7	84.3	81.1	65.1	54.7	54.3	**65.4**	**-0.3**
1971	50.6	50.6	55.4	64.3	70.8	81.7	83.3	80.6	78.1	70.7	56.4	55.4	**66.5**	**0.8**
1972	49.4	51.9	59.8	66.9	72.3	80.8	81.0	82.6	80.2	67.2	50.9	45.5	**65.7**	**-0.0**
1973	44.7	49.5	60.9	62.0	71.7	78.5	81.1	78.2	74.9	68.2	61.5	46.8	**64.8**	**-0.9**
1974	47.8	51.2	63.6	64.3	74.0	76.6	82.1	80.1	71.0	66.2	55.6	47.3	**65.0**	**-0.7**
1975	50.2	48.4	55.6	63.7	72.4	78.2	80.9	80.7	73.7	68.0	56.3	49.3	**64.8**	**-0.9**
1976	47.1	59.2	60.2	67.3	67.9	75.7	78.6	78.7	74.3	59.9	49.3	46.3	**63.7**	**-2.0**
1977	37.3	50.8	59.6	65.5	74.1	79.5	83.5	80.3	78.7	66.3	56.5	47.3	**65.0**	**-0.8**
1978	34.9	38.1	52.8	65.5	73.6	80.5	85.4	83.3	77.8	66.0	60.0	48.0	**63.8**	**-1.9**
1979	37.4	46.6	59.1	66.0	70.2	78.0	81.2	80.3	74.2	67.0	52.8	48.9	**63.5**	**-2.3**
1980	48.3	47.9	54.9	63.0	74.3	83.4	86.9	85.5	82.1	63.5	54.2	49.1	**66.1**	**0.4**
1981	44.7	49.8	56.0	70.0	69.2	80.2	82.8	81.3	73.9	65.0	56.8	46.9	**64.7**	**-1.0**
1982	46.1	45.6	61.5	63.3	74.4	78.6	83.3	83.2	75.6	64.6	55.4	51.2	**65.2**	**-0.5**
1983	44.6	48.8	55.0	59.7	70.0	77.4	82.3	84.0	75.7	66.7	55.9	37.5	**63.1**	**-2.6**
1984	40.6	50.4	58.0	64.9	72.1	79.3	81.1	82.1	75.0	70.6	56.4	60.0	**65.9**	**0.1**

1985	40.0	46.2	61.4	67.0	72.8	79.3	83.1	84.8	76.3	68.5	61.5	44.2	**65.4**	**-0.3**
1986	49.0	54.4	59.7	66.5	72.3	79.9	83.7	80.8	79.4	65.2	55.6	46.1	**66.1**	**0.3**
1987	44.8	51.7	55.7	64.2	75.3	79.1	82.3	85.3	76.7	64.1	56.1	50.2	**65.5**	**-0.3**
1988	42.2	49.3	56.3	65.2	71.8	79.8	83.3	83.7	77.8	64.1	58.6	49.2	**65.1**	**-0.6**
1989	51.5	45.8	56.8	65.6	73.8	76.7	81.2	81.0	73.7	66.5	58.6	40.8	**64.3**	**-1.4**
1990	52.5	56.4	59.4	65.6	72.6	82.7	82.2	83.3	79.7	65.0	58.9	48.5	**67.2**	**1.5**
1991	44.2	52.0	60.0	68.6	75.3	80.6	82.6	81.2	64.8	68.7	52.1	51.2	**65.1**	**-0.6**
1992	47.2	54.7	59.5	65.1	71.4	78.5	82.9	78.6	76.0	67.0	52.0	49.5	**65.2**	**-0.5**
1993	46.1	49.3	55.2	61.3	70.7	80.2	84.6	84.8	77.3	64.4	52.0	49.1	**64.6**	**-1.1**
1994	46.4	51.2	58.0	66.7	70.9	81.4	82.1	81.1	76.3	67.0	60.0	51.1	**66.0**	**0.3**
1995	48.1	53.1	59.4	64.6	73.9	79.0	84.2	86.6	77.3	66.2	54.9	49.0	**66.4**	**0.6**
1996	46.2	52.4	53.4	63.8	77.0	78.3	82.3	80.0	74.1	66.0	55.7	51.5	**65.1**	**-0.7**
1997	45.6	51.2	61.4	60.3	70.3	78.1	83.6	81.0	78.2	66.8	51.9	46.0	**64.5**	**-1.2**
1998	51.7	51.6	56.1	63.5	77.3	84.9	88.5	84.6	81.7	68.5	58.0	49.3	**68.0**	**2.2**
1999	51.6	57	56.4	69.4	72.0	79.8	82.9	85.9	75.3	65.5	58.8	49.6	**67.0**	**1.3**
2000	50.4	57.2	61.7	63.6	75.8	79.1	83.9	86.9	78.1	67.8	52.6	39.8	**66.4**	**0.7**
2001	43.4	53.2	53.4	69.2	74.6	79.0	84.5	82.3	74.6	63.3	59.6	51.1	**65.7**	**-0.0**
2002	48.9	47.0	55.4	69.2	72.9	79.7	83.1	83.6	79.7	66.6	53.0	48.2	**65.6**	**-0.1**
2003	45.4	47.5	56.4	66.4	75.6	78.9	82.5	83.6	75.5	67.9	59.7	48.1	**65.6**	**-0.1**
2004	48.4	46.7	62.5	65.4	74.5	79.0	82.3	80.2	78.4	73.3	58.6	48.9	**66.5**	**0.8**
2005	51.0	53.7	58.1	64.9	72.9	82.3	84.2	86.1	83.3	67.6	60.7	48.8	**67.8**	**2.1**
2006	55.0	48.7	61.1	70.9	75.4	81.0	85.4	86.4	77.1	67.1	57.7	51.3	**68.1**	**2.4**
Ave	47.1	50.7	58.0	65.9	73.2	80.3	83.1	82.8	77.1	67.0	56.2	49.0	**65.9**	**0.2**
Min	34.9	38.1	47.2	59.7	67.7	74.3	78.6	78.2	64.8	59.9	45.6	37.5	**63.1**	**-2.6**
Max	60.6	59.4	67.0	71.0	77.8	85.8	88.5	87.5	83.3	73.4	63.3	63.2	**68.6**	**2.9**
St Dev	4.64	4.28	3.91	2.52	2.14	2.04	1.81	2.19	2.74	2.75	3.17	3.83	**1.15**	**1.15**
71-00 norm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**Yearly**	
	46.4	51.2	58.5	65.2	73.0	79.9	83.4	82.9	77.0	66.7	56.1	48.4	**65.7**	

Table 15. Average monthly temperature, by year, with average annual temperature per year and the departure from the 1971-2000 climatological normal annual temperature.

NORMAL NUMBER OF DAYS FEATURING CERTAIN TEMPERATURES

	Normal number of days with:			
Month	**Maximum ≥ 90**	**Maximum ≤ 32**	**Minimum ≤ 32**	**Minimum ≤ 0**
January	0.0	0.9	12.7	0.0
February	0.0	0.5	7.2	0.0
March	0.1	*	2.4	0.0
April	0.2	0.0	0.2	0.0
May	3.9	0.0	0.0	0.0
June	17.7	0.0	0.0	0.0
July	25.7	0.0	0.0	0.0
August	25.5	0.0	0.0	0.0
September	14.4	0.0	0.0	0.0
October	1.8	0.0	0.2	0.0
November	0.0	0.0	3.0	0.0
December	0.0	0.5	10.8	0.0
Annual	89.3	1.9	36.5	0.0

Table 16. Normal number of days featuring certain temperature extremes.

TOP 10 WARMEST AND COOLEST YEARS ON RECORD

WARMEST				COOLEST		
Year	**Temperature**	**Departure**		**Year**	**Temperature**	**Departure**
1933	68.6	2.9		1983	63.1	-2.6
1921	68.5	2.8		1979	63.5	-2.3
1937	68.4	2.7		1912	63.7	-2.1
1938	68.4	2.7		1976	63.7	-2.0
1939	68.3	2.5		1895	63.8	-1.9
1927	68.2	2.4		1978	63.8	-1.9
2006	68.1	2.4		1968	64.0	-1.8
1998	68.0	2.2		1903	64.0	-1.7
1934	68.0	2.2		1958	64.1	-1.7
2005	67.8	2.1		1960	64.1	-1.6

Table 17. Top 10 warmest and coolest years.

TOP 10 WARMEST SEASONS ON RECORD

SPRING				SUMMER		
Year	**Temperature**	**Departure**		**Year**	**Temperature**	**Departure**
1882	69.2	3.7		1881	86.3	4.3
1878	69.2	3.6		1998	86.0	3.9
2006	69.1	3.6		1934	85.6	3.5
1908	69.0	3.4		1980	85.3	3.2
1937	68.9	3.3		1954	85.2	3.1
1938	68.9	3.3		1943	85.1	3.1
1887	68.6	3.0		1875	84.7	2.7
1963	68.6	3.0		1936	84.6	2.5
1879	68.5	3.0		1932	84.6	2.5
1967	68.5	3.0		1939	84.6	2.5

FALL				WINTER		
Year	**Temperature**	**Departure**		**Year**	**Temperature**	**Departure**
1931	72.1	5.5		1890	59.0	10.4
1927	70.9	4.3		1880	56.1	7.4
2005	70.5	3.9		1932	55.0	6.4
1921	70.4	3.8		1876	54.9	6.3
1933	70.3	3.7		1907	54.5	5.8
1934	70.2	3.6		1950	54.1	5.5
2004	70.1	3.5		1927	53.8	5.1
1900	69.9	3.3		1952	53.8	5.1
1963	69.4	2.8		1911	53.7	5.0
1998	69.4	2.8		1882	53.5	4.8

Table 18. Top 10 warmest seasons.

TOP TEN WARMEST MONTHS ON RECORD BY MONTH

JANUARY			FEBRUARY			MARCH		
Year	Temp.	Departure	Year	Temp.	Departure	Year	Temp.	Departure
1880	60.6	14.2	1932	59.4	8.2	1907	67.0	67.0
1907	57.2	10.8	1976	59.2	8.0	1938	66.3	66.3
1890	56.6	10.2	1927	58.6	7.4	1937	66.3	66.3
1950	56.2	9.8	1938	57.9	6.7	1921	65.7	65.7
1923	55.9	9.5	1937	57.9	6.7	1882	65.4	65.4
1933	55.7	9.3	1882	57.7	6.5	1879	65.0	65.0
1952	55.6	9.2	1930	57.4	6.2	1908	64.9	64.9
1911	55.0	8.6	1890	57.4	6.2	1910	64.7	64.7
2006	55.0	8.6	1911	57.3	6.1	1878	64.4	64.4
1876	54.3	7.9	1962	57.2	6.0	1935	64.4	64.4

APRIL			MAY			JUNE		
Year	Temp.	Departure	Year	Temp.	Departure	Year	Temp.	Departure
1967	71.0	71.0	1933	77.8	4.8	1881	85.8	5.9
1930	71.0	71.0	1886	77.5	4.5	1875	85.4	5.5
1925	70.9	70.9	1899	77.3	4.3	1998	84.9	5.0
2006	70.9	70.9	1998	77.3	4.3	1953	84.6	4.7
1948	70.4	70.4	1896	77.2	4.2	1925	84.2	4.3
1927	70.2	70.2	1949	77.0	4.0	1934	84.2	4.3
1954	70.2	70.2	1875	77.0	4.0	1911	84.0	4.1
1965	70.1	70.1	1996	77.0	4.0	1914	83.9	4.0
1981	70.0	70.0	1881	76.7	3.7	1936	83.8	3.9
1882	70.0	70.0	1943	76.4	3.4	1952	83.6	3.7

JULY			AUGUST			SEPTEMBER		
Year	Temp.	Departure	Year	Temp.	Departure	Year	Temp.	Departure
1998	88.5	5.1	1951	87.5	4.6	2005	83.3	6.3
1884	87.9	4.5	1881	87.3	4.4	1925	83.2	6.2
1875	87.6	4.2	1954	86.9	4.0	1933	82.8	5.8
1954	87.0	3.6	2000	86.9	4.0	1911	82.5	5.5
1980	86.9	3.5	1943	86.8	3.9	1939	82.4	5.4
1930	86.9	3.5	1934	86.6	3.7	1936	82.2	5.2
1969	86.6	3.2	1995	86.6	3.7	1931	82.1	5.1
1932	86.1	2.7	1936	86.6	3.7	1980	82.1	5.1
1934	86.0	2.6	1899	86.4	3.5	1900	81.8	4.8
1939	86.0	2.6	2006	86.4	3.5	1921	81.7	4.7

OCTOBER			NOVEMBER			DECEMBER		
Year	Temp.	Departure	Year	Temp.	Departure	Year	Temp.	Departure
1934	73.4	6.7	1927	63.3	7.2	1889	63.2	14.8
2004	73.3	6.6	1965	63.2	7.1	1984	60.0	11.6
1941	73.1	6.4	1909	62.8	6.7	1933	58.2	9.8
1931	72.3	5.6	1913	62.7	6.6	1875	55.5	7.1
1947	72.2	5.5	1921	62.6	6.5	1971	55.4	7.0
1883	72.0	5.3	1931	62.0	5.9	1923	54.9	6.5
1938	72.0	5.3	1973	61.5	5.4	1922	54.8	6.4
1937	72.0	5.3	1985	61.5	5.4	1956	54.6	6.2
1963	71.9	5.2	1902	61.3	5.2	1921	54.6	6.2
1881	71.8	5.1	1879	60.7	4.6	1939	54.4	6.0

Table 19. Top 10 warmest months.

TOP TEN COOLEST MONTHS ON RECORD BY MONTH

JANUARY				FEBRUARY				MARCH		
Year	Temp.	Departure		Year	Temp.	Departure		Year	Temp.	Departure
1978	34.9	-11.5		1978	38.1	-13.1		1915	47.2	-11.3
1940	35.8	-10.6		1905	39.4	-11.8		1960	48.5	-10.0
1977	37.3	-9.1		1895	39.6	-11.6		1965	49.6	-8.9
1979	37.4	-9.0		1899	39.8	-11.4		1969	50.1	-8.4
1918	38.2	-8.2		1929	42.6	-8.6		1947	51.2	-7.3
1886	38.6	-7.8		1947	43.4	-7.8		1912	51.6	-6.9
1948	39.1	-7.3		1881	43.4	-7.8		1931	52.2	-6.3
1884	39.4	-7.0		1968	43.6	-7.6		1958	52.2	-6.3
1963	39.6	-6.8		1960	44.0	-7.2		1892	52.7	-5.8
1881	40.0	-6.4		1936	44.6	-6.6		1978	52.8	-5.7
APRIL				MAY				JUNE		
Year	Temp.	Departure		Year	Temp.	Departure		Year	Temp.	Departure
1983	59.7	-5.5		1917	67.7	-5.3		1903	74.3	-5.6
1997	60.3	-4.9		1976	67.9	-5.1		1961	75.5	-4.4
1907	60.6	-4.6		1907	68.0	-5.0		1976	75.7	-4.2
1874	60.8	-4.4		1924	68.6	-4.4		1912	76.2	-3.7
1993	61.3	-3.9		1954	68.8	-4.2		1974	76.6	-3.3
1928	61.4	-3.8		1931	69.0	-4.0		1989	76.7	-3.2
1973	62.0	-3.2		1981	69.2	-3.8		1889	76.8	-3.1
1952	62.0	-3.2		1903	69.8	-3.2		1919	77.0	-2.9
1901	62.2	-3.0		1983	70.0	-3.0		1983	77.4	-2.5
1926	62.4	-2.8		1919	70.1	-2.9		1955	77.5	-2.4
JULY				AUGUST				SEPTEMBER		
Year	Temp.	Departure		Year	Temp.	Departure		Year	Temp.	Departure
1976	78.6	-4.8		1973	78.2	-4.7		1991	64.8	-12.2
1961	79.5	-3.9		1879	78.2	-4.7		1974	71.0	-6.0
1905	79.7	-3.7		1915	78.4	-4.5		1918	72.2	-4.8
1967	79.8	-3.6		1992	78.6	-4.3		1880	72.8	-4.2
1894	79.9	-3.5		1976	78.7	-4.2		1902	73.0	-4.0
1911	80.3	-3.1		1894	78.8	-4.1		1967	73.2	-3.8
1906	80.5	-2.9		1891	78.9	-4.0		1913	73.4	-3.6
1891	80.5	-2.9		1961	79.0	-3.9		1892	73.4	-3.6
1880	80.7	-2.7		1920	79.8	-3.1		1875	73.6	-3.4
1904	80.8	-2.6		1940	79.8	-3.1		1968	73.6	-3.4
OCTOBER				NOVEMBER				DECEMBER		
Year	Temp.	Departure		Year	Temp.	Departure		Year	Temp.	Departure
1976	59.9	-6.8		1880	45.6	-10.5		1983	37.5	-10.9
1952	60.6	-6.1		1872	48.1	-8.0		2000	39.8	-8.6
1906	61.4	-5.3		1976	49.3	-6.8		1963	39.9	-8.5
1917	61.6	-5.1		1929	49.9	-6.2		1989	40.8	-7.6
1885	62.0	-4.7		1959	50.2	-5.9		1876	41.2	-7.2
1873	62.1	-4.6		1972	50.9	-5.2		1914	41.5	-6.9
1875	62.2	-4.5		1889	51.6	-4.5		1872	41.8	-6.6
1895	62.4	-4.3		1997	51.9	-4.2		1909	42.2	-6.2
1891	63.2	-3.5		1992	52.0	-4.1		1917	43.2	-5.2
1880	63.2	-3.5		1951	52.0	-4.1		1905	43.2	-5.2

Table 20. Top 10 coolest months.

DAILY NORMALS OF HEATING AND COOLING DEGREE DAYS

DAY	JANUARY			FEBRUARY			MARCH	
	HDD	CDD		HDD	CDD		HDD	CDD
1	19	0		18	0		11	0
2	19	0		17	0		11	0
3	19	0		17	0		11	1
4	19	0		17	0		11	1
5	20	0		17	0		10	1
6	20	0		16	0		10	1
7	20	0		16	0		10	1
8	20	0		16	0		10	1
9	20	0		16	0		9	1
10	20	0		16	0		9	1
11	20	1		15	0		9	1
12	20	1		15	0		9	1
13	20	1		15	0		8	1
14	20	1		15	0		8	1
15	20	1		15	0		8	1
16	20	1		14	0		8	1
17	20	0		14	0		8	1
18	19	0		14	0		7	1
19	19	0		14	0		7	1
20	19	0		13	0		7	1
21	19	0		13	0		7	1
22	19	0		13	1		7	1
23	19	0		13	1		7	1
24	19	0		12	1		6	1
25	19	0		12	1		6	1
26	19	0		12	1		6	1
27	18	0		12	1		6	1
28	18	0		11	1		6	1
29	18	0		11	1		5	1
30	18	0					5	2
31	18	0					5	2

Table 21. January/February/March daily normals of heating and cooling degree days.

DAILY NORMALS OF HEATING AND COOLING DEGREE DAYS

DAY	APRIL			MAY			JUNE	
	HDD	CDD		HDD	CDD		HDD	CDD
1	5	2		1	5		0	12
2	5	2		1	5		0	12
3	5	2		1	5		0	12
4	5	2		1	5		0	12
5	4	2		1	6		0	13
6	4	2		1	6		0	13
7	4	2		1	6		0	13
8	4	2		1	6		0	13
9	4	2		0	6		0	13
10	4	2		0	6		0	14
11	3	2		0	7		0	14
12	3	2		0	7		0	14
13	3	2		0	7		0	14
14	3	3		0	7		0	14
15	3	3		0	7		0	15
16	3	3		0	8		0	15
17	3	3		0	8		0	15
18	3	3		0	8		0	15
19	2	3		0	8		0	15
20	2	3		0	9		0	15
21	2	3		0	9		0	16
22	2	3		0	9		0	16
23	2	4		0	9		0	16
24	2	4		0	10		0	16
25	2	4		0	10		0	16
26	2	4		0	10		0	16
27	2	4		0	10		0	16
28	1	4		0	10		0	17
29	1	5		0	11		0	17
30	1	5		0	11		0	17
31				0	11			

Table 22. April/May/June daily normals of heating and cooling degree days.

DAILY NORMALS OF HEATING AND COOLING DEGREE DAYS

DAY	JULY			AUGUST			SEPTEMBER	
	HDD	CDD		HDD	CDD		HDD	CDD
1	0	17		0	18		0	15
2	0	17		0	18		0	15
3	0	17		0	18		0	15
4	0	17		0	18		0	15
5	0	17		0	18		0	14
6	0	17		0	18		0	14
7	0	18		0	18		0	14
8	0	18		0	18		0	14
9	0	18		0	18		0	14
10	0	18		0	18		0	13
11	0	18		0	18		0	13
12	0	18		0	18		0	13
13	0	18		0	18		0	13
14	0	18		0	18		0	12
15	0	18		0	18		0	12
16	0	18		0	18		0	12
17	0	18		0	18		0	11
18	0	18		0	18		0	11
19	0	18		0	17		0	11
20	0	18		0	17		0	11
21	0	18		0	17		0	10
22	0	18		0	17		0	10
23	0	18		0	17		0	10
24	0	18		0	17		0	10
25	0	18		0	17		1	9
26	0	18		0	16		1	9
27	0	18		0	16		1	9
28	0	18		0	16		1	8
29	0	18		0	16		1	8
30	0	19		0	16		1	8
31	0	19		0	16			

Table 23. July/August/September daily normals of heating and cooling degree days.

DAILY NORMALS OF HEATING AND COOLING DEGREE DAYS

DAY	OCTOBER			NOVEMBER			DECEMBER	
	HDD	CDD		HDD	CDD		HDD	CDD
1	1	7		6	1		14	1
2	1	7		6	1		14	1
3	1	7		6	1		14	1
4	1	6		7	1		15	1
5	1	6		7	1		15	1
6	1	6		7	1		15	1
7	1	6		8	1		15	1
8	1	5		8	1		15	0
9	1	5		8	1		16	0
10	1	5		8	1		16	0
11	1	5		9	1		16	0
12	2	4		9	1		16	0
13	2	4		9	1		16	0
14	2	4		10	1		17	0
15	2	4		10	1		17	0
16	2	3		10	1		17	0
17	2	3		10	1		17	0
18	2	3		11	1		17	0
19	3	3		11	1		18	0
20	3	3		11	1		18	0
21	3	3		11	1		18	0
22	3	2		12	1		18	0
23	4	2		12	1		18	0
24	4	2		12	1		18	0
25	4	2		12	0		18	0
26	4	2		13	0		19	0
27	4	2		13	0		19	0
28	5	2		13	0		19	0
29	5	2		13	0		19	0
30	5	2		14	0		19	0
31	6	2					19	0

Table 24. October/November/December daily normals of heating and cooling degree days.

RELATIVE HUMIDITY NORMALS, 1971-2000

Month	00 LST	06 LST	12 LST	18 LST	Normal
January	79	84	63	66	73
February	77	84	59	58	70
March	76	84	56	55	68
April	80	88	56	55	70
May	85	92	61	62	75
June	86	92	60	61	75
July	85	92	58	59	73
August	84	92	56	58	72
September	84	91	57	61	72
October	84	91	56	64	74
November	83	88	61	70	76
December	81	86	63	69	75
Annual	82	89	59	62	73

Table 25. Relative humidity normals, 1971-2000.

OCCURRENCES OF DENSE FOG BY MONTH AND YEAR, 1949-2006

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
1949	6	5	4	3	0	0	0	0	1	2	2	3	**26**
1950	1	3	3	1	2	0	0	1	2	7	2	3	**25**
1951	2	1	2	0	1	0	2	0	0	1	4	2	**15**
1952	2	3	2	0	0	0	0	0	0	0	0	1	**8**
1953	4	4	4	2	1	0	0	1	0	0	1	2	**19**
1954	4	0	2	0	0	0	0	0	0	2	2	2	**12**
1955	2	2	2	1	0	0	2	0	1	0	1	6	**17**
1956	3	2	0	2	3	0	0	0	0	3	0	6	**19**
1957	5	4	2	1	0	1	1	0	1	1	2	1	**19**
1958	3	1	2	0	1	0	1	0	1	3	4	5	**21**
1959	0	4	1	1	2	3	0	0	0	3	1	1	**16**
1960	3	4	5	0	2	0	0	2	0	4	3	3	**26**
1961	2	2	1	0	0	0	0	1	2	4	4	6	**22**
1962	5	5	1	3	1	0	2	0	1	0	1	8	**27**
1963	7	3	2	3	0	0	1	0	1	0	2	1	**20**
1964	5	2	2	1	2	0	0	1	1	4	4	6	**28**
1965	3	3	2	1	1	0	0	1	1	0	7	2	**21**
1966	0	2	4	2	0	0	0	0	4	2	6	5	**25**
1967	6	1	0	1	0	0	0	2	1	1	2	6	**20**
1968	3	0	0	1	1	0	0	1	2	3	1	1	**13**
1969	2	1	0	0	2	0	0	0	2	2	3	5	**17**
1970	2	0	1	1	0	1	0	0	0	3	2	3	**13**
1971	6	1	0	1	1	0	0	2	2	8	1	6	**28**
1972	4	1	1	0	1	3	0	0	1	1	1	8	**21**
1973	4	2	3	2	1	2	1	0	0	3	5	1	**24**
1974	12	3	1	1	3	0	0	1	2	3	2	3	**31**
1975	2	1	1	0	2	2	0	0	0	5	4	2	**19**
1976	1	0	0	2	0	0	0	0	1	0	2	1	**7**
1977	3	1	0	3	0	0	0	1	4	0	2	1	**15**
1978	2	1	1	0	0	0	0	0	3	0	3	4	**14**
1979	2	4	0	1	3	0	0	1	0	2	1	0	**14**
1980	6	1	5	1	1	0	0	0	0	2	3	1	**20**
1981	2	6	1	0	0	1	0	0	2	3	7	0	**22**
1982	5	3	2	4	0	1	0	0	0	3	4	1	**23**
1983	6	2	0	0	1	1	0	1	1	5	3	2	**22**
1984	3	3	2	2	0	0	1	2	0	10	0	1	**24**
1985	1	2	1	1	0	0	0	0	1	2	3	1	**12**
1986	1	3	0	1	1	0	0	0	2	1	8	2	**19**
1987	5	4	2	2	1	2	0	0	1	1	1	2	**21**
1988	2	2	0	2	0	0	0	0	0	1	3	3	**13**
1989	4	2	1	1	2	0	2	0	1	1	2	1	**17**
1990	0	0	1	1	2	0	0	0	0	3	1	2	**10**
1991	4	2	0	4	3	2	0	0	1	1	0	4	**21**
1992	3	1	0	1	3	0	1	0	0	1	2	5	**17**
1993	1	2	3	1	2	1	0	0	0	2	3	2	**17**
1994	0	6	0	0	0	1	0	0	0	1	3	3	**14**
1995	3	3	3	0	2	0	0	0	0	1	1	4	**17**

1996	5	1	1	1	0	1	1	0	1	2	4	6	**23**
1997	2	2	2	1	1	0	0	0	0	1	6	2	**17**
1998	4	3	0	2	0	0	0	0	1	1	7	4	**22**
1999	3	1	0	2	1	0	1	0	1	0	2	5	**16**
2000	5	2	0	4	3	0	0	0	1	3	1	3	**22**
2001	2	1	1	2	1	0	1	0	2	2	3	4	**19**
2002	2	1	1	2	0	1	0	1	2	3	2	3	**18**
2003	0	3	4	2	0	1	1	0	0	2	3	0	**16**
2004	4	0	3	1	1	0	0	1	0	1	1	1	**13**
2005	1	3	1	1	1	0	0	0	1	0	0	3	**11**
2006	1	2	2	2	0	0	0	0	0	3	2	6	**18**
Avg	**3.12**	**2.19**	**1.47**	**1.29**	**0.97**	**0.41**	**0.31**	**0.34**	**0.9**	**2.12**	**2.59**	**3.02**	**18.72**

Table 26. Occurrences of dense fog by month, 1949-2006.

JANUARY PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.14	2.36	1937
2	0.14	2.59	1890
3	0.14	2.29	1934
4	0.14	4.20	1946
5	0.14	2.17	1872
6	0.15	2.46	1998
7	0.15	1.73	1922
8	0.15	2.08	1930
9	0.15	2.84	1968
10	0.15	1.92	1901
11	0.15	1.92	1879
12	0.15	2.58	1939
13	0.15	1.15	1921
14	0.15	5.71	1885
15	0.15	4.27	1885
16	0.15	1.86	1949
17	0.15	3.05	1990
18	0.15	2.63	1945
19	0.15	1.78	1974
20	0.15	3.15	1935
21	0.15	2.71	1906
22	0.15	2.82	2006
23	0.15	4.00	1920
24	0.15	2.56	2004
25	0.15	1.68	1932
26	0.15	2.04	1930
27	0.15	1.76	1949
28	0.15	4.34	1999
29	0.15	3.49	1999
30	0.15	1.23	1896
31	0.15	4.12	1896

Table 27. January precipitation normals and extremes.

FEBRUARY PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.15	1.65	1990
2	0.15	2.99	1939
3	0.15	2.97	1882
4	0.15	2.22	1955
5	0.15	2.95	1983
6	0.15	3.25	1881
7	0.15	2.11	1884
8	0.15	1.97	1935
9	0.15	1.91	1983
10	0.15	2.19	1998
11	0.15	3.08	1977
12	0.15	2.97	1984
13	0.15	1.45	1915
14	0.15	2.29	1959
15	0.15	3.20	1993
16	0.15	1.56	1883
17	0.15	1.29	1960
18	0.15	2.43	1988
19	0.15	2.34	1947
20	0.15	1.92	1932
21	0.15	2.74	1983
22	0.15	2.16	1874
23	0.15	1.47	1885
24	0.15	1.82	1949
25	0.15	2.04	1992
26	0.15	1.92	1984
27	0.15	1.71	1933
28	0.14	1.66	2001
29	0.14	1.95	1880

Table 28. February precipitation normals and extremes.

MARCH PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.14	1.79	1934
2	0.14	3.10	1934
3	0.14	4.35	1945
4	0.14	2.06	1936
5	0.14	1.27	1912
6	0.14	2.12	1941
7	0.14	1.35	1995
8	0.14	2.15	1905
9	0.14	4.14	1878
10	0.14	2.03	1952
11	0.14	2.81	1876
12	0.13	2.35	1947
13	0.13	1.68	1924
14	0.13	1.13	2004
15	0.13	2.36	2000
16	0.13	2.06	1998
17	0.13	1.87	1884
18	0.13	1.69	1910
19	0.13	4.37	1876
20	0.13	2.22	1985
21	0.13	1.96	1955
22	0.13	1.29	1894
23	0.13	1.92	1874
24	0.13	2.37	1883
25	0.13	2.44	1943
26	0.13	2.65	1886
27	0.13	1.53	1938
28	0.14	4.37	1944
29	0.14	3.78	1922
30	0.14	3.72	1932
31	0.14	2.67	1914

Table 29. March precipitation normals and extremes.

APRIL PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.14	2.29	1916
2	0.14	1.46	1905
3	0.14	3.53	1911
4	0.14	5.15	1999
5	0.14	2.94	1927
6	0.14	3.04	1940
7	0.14	2.62	1947
8	0.14	2.41	1942
9	0.14	2.06	1913
10	0.14	2.34	1995
11	0.14	4.00	2005
12	0.14	10.44	1991
13	0.14	2.95	1991
14	0.15	2.29	1927
15	0.15	4.23	1879
16	0.15	1.48	1969
17	0.15	3.70	1991
18	0.15	1.49	1882
19	0.15	2.11	1986
20	0.15	2.98	1892
21	0.15	3.14	1926
22	0.15	4.08	1995
23	0.15	1.92	1879
24	0.15	2.40	1964
25	0.15	5.25	1942
26	0.16	2.80	1915
27	0.16	2.94	1957
28	0.16	5.52	1953
29	0.16	2.71	1950
30	0.16	2.15	1970

Table 30. April precipitation normal and extremes.

MAY PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.16	2.40	1956
2	0.16	2.46	1944
3	0.16	4.31	1991
4	0.16	4.43	1935
5	0.16	4.39	1941
6	0.16	4.65	1978
7	0.17	6.47	1876
8	0.17	2.70	1881
9	0.17	5.23	1981
10	0.17	2.27	1912
11	0.17	1.96	1954
12	0.17	3.91	1990
13	0.17	8.12	1908
14	0.17	1.48	1953
15	0.17	2.99	1945
16	0.17	2.35	1989
17	0.17	1.82	1938
18	0.17	3.42	1942
19	0.17	2.52	2000
20	0.17	2.19	1955
21	0.17	2.19	1983
22	0.17	5.79	1884
23	0.17	4.65	1955
24	0.17	3.21	1872
25	0.17	2.20	1948
26	0.17	2.15	1970
27	0.17	2.38	2000
28	0.18	2.42	1952
29	0.18	2.09	1941
30	0.18	3.30	1990
31	0.18	4.41	1967

Table 31. May precipitation normals and extremes.

JUNE PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.18	3.63	1996
2	0.18	2.34	1920
3	0.18	3.62	1893
4	0.18	3.20	1989
5	0.18	4.02	1983
6	0.17	2.56	2001
7	0.17	4.08	1974
8	0.17	3.01	1946
9	0.17	5.00	1986
10	0.17	2.31	1985
11	0.17	1.63	2000
12	0.17	3.57	1957
13	0.17	1.97	1966
14	0.17	1.26	1989
15	0.17	1.85	1898
16	0.17	2.05	1873
17	0.17	1.67	1920
18	0.17	2.04	1895
19	0.17	3.70	1961
20	0.17	2.28	1993
21	0.17	7.27	1993
22	0.16	1.54	1999
23	0.16	1.93	1900
24	0.16	3.05	1999
25	0.16	2.79	1960
26	0.16	4.04	1958
27	0.16	6.91	1986
28	0.16	6.61	1902
29	0.16	0.98	1898
30	0.15	2.67	1989

Table 32. June precipitation normals and extremes.

JULY PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.15	1.39	1951
2	0.15	2.31	1922
3	0.15	3.26	1985
4	0.15	2.10	1915
5	0.15	4.40	1995
6	0.15	3.36	1950
7	0.14	3.46	1973
8	0.14	1.83	1905
9	0.14	1.71	1979
10	0.14	3.36	1874
11	0.14	1.16	1945
12	0.14	3.50	1994
13	0.13	3.74	1926
14	0.13	2.35	1994
15	0.13	3.27	1933
16	0.13	2.70	1917
17	0.13	0.95	1882
18	0.13	2.83	1882
19	0.12	1.67	1940
20	0.12	4.94	1917
21	0.12	2.72	1972
22	0.12	3.54	1955
23	0.12	8.00	1905
24	0.12	12.05	1933
25	0.11	1.92	1933
26	0.11	0.79	1979
27	0.11	3.21	2006
28	0.11	4.52	1880
29	0.11	4.30	1972
30	0.10	1.74	1952
31	0.10	2.44	1912

Table 33. July precipitation normals and extemes.

AUGUST PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.10	1.07	1979
2	0.10	1.94	1955
3	0.10	2.97	1955
4	0.10	1.42	1971
5	0.09	2.41	1998
6	0.09	1.32	1990
7	0.09	2.41	1993
8	0.09	1.21	1997
9	0.09	5.11	1912
10	0.09	2.52	1912
11	0.09	2.03	1988
12	0.09	2.60	2003
13	0.09	1.26	1915
14	0.09	1.98	1991
15	0.08	1.77	1935
16	0.08	1.55	1964
17	0.08	2.44	1939
18	0.08	2.76	1915
19	0.08	1.32	1915
20	0.08	1.56	1994
21	0.08	1.51	1967
22	0.08	1.95	1997
23	0.08	3.47	1879
24	0.08	1.58	1937
25	0.08	1.80	1886
26	0.08	2.75	1960
27	0.09	1.76	1940
28	0.09	3.41	1940
29	0.09	3.67	1911
30	0.09	3.30	1991
31	0.09	2.45	1950

Table 34. August precipitation normals and extremes.

SEPTEMBER PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.09	2.67	1981
2	0.09	1.95	1931
3	0.09	3.56	1923
4	0.09	6.87	1877
5	0.09	2.86	1885
6	0.10	1.95	1923
7	0.10	2.11	1880
8	0.10	2.04	1974
9	0.10	1.63	2001
10	0.10	1.87	1966
11	0.10	2.42	1998
12	0.10	2.90	1961
13	0.10	4.02	1929
14	0.10	4.06	1881
15	0.11	4.91	1968
16	0.11	1.15	1949
17	0.11	6.16	1875
18	0.11	1.43	1875
19	0.11	1.65	1958
20	0.11	2.24	1979
21	0.11	2.45	1900
22	0.12	2.47	1965
23	0.12	2.11	1997
24	0.12	5.52	2005
25	0.12	4.16	1913
26	0.12	3.58	1913
27	0.12	1.86	1896
28	0.12	4.01	1891
29	0.12	1.25	1985
30	0.13	0.86	1911

Table 35. September precipitation normals and extremes.

OCTOBER PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.13	2.42	1961
2	0.13	1.04	1927
3	0.13	3.03	1902
4	0.13	6.81	1949
5	0.13	2.75	1945
6	0.13	2.16	1984
7	0.14	2.17	1919
8	0.14	2.71	2004
9	0.14	1.40	1981
10	0.14	1.30	2004
11	0.14	1.37	1970
12	0.14	1.90	1986
13	0.14	1.98	2001
14	0.14	3.01	1985
15	0.14	1.29	1941
16	0.15	2.95	1994
17	0.15	2.82	1937
18	0.15	4.17	1882
19	0.15	0.95	2002
20	0.15	2.62	1984
21	0.15	2.68	1949
22	0.15	3.87	1957
23	0.15	3.48	1986
24	0.15	3.09	1905
25	0.15	2.73	1885
26	0.15	2.72	1972
27	0.15	3.80	1881
28	0.15	2.41	1974
29	0.15	2.80	1992
30	0.15	4.26	1941
31	0.16	2.24	1897

Table 36. October precipitation normals and extremes.

NOVEMBER PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.15	1.88	2004
2	0.15	1.77	1892
3	0.15	2.79	1954
4	0.16	2.98	1925
5	0.16	1.85	1879
6	0.16	2.37	1938
7	0.16	2.00	1957
8	0.16	2.50	1881
9	0.16	3.28	1990
10	0.16	3.51	1883
11	0.16	2.28	1939
12	0.16	2.34	1889
13	0.16	1.47	1957
14	0.16	2.67	1993
15	0.16	3.84	1937
16	0.16	3.01	1987
17	0.16	4.64	1969
18	0.16	3.10	1971
19	0.16	2.70	1907
20	0.16	3.10	1934
21	0.16	3.80	1979
22	0.15	3.30	1940
23	0.15	3.85	1873
24	0.15	2.50	1887
25	0.15	2.54	1987
26	0.15	2.31	1988
27	0.15	2.10	1990
28	0.15	1.59	2001
29	0.15	2.40	1930
30	0.15	1.80	1939

Table 37. November precipitation normals and extremes.

DECEMBER PRECIPITATION NORMALS AND EXTREMES

DATE	DAILY NORMAL	DAILY RECORD	YEAR
1	0.15	1.77	1991
2	0.15	2.50	1953
3	0.15	3.16	1973
4	0.15	1.81	1930
5	0.15	3.17	1944
6	0.15	2.60	1935
7	0.15	1.56	1887
8	0.15	2.30	1951
9	0.15	2.30	1961
10	0.15	2.52	1983
11	0.15	3.35	1965
12	0.15	2.80	1931
13	0.15	2.20	2000
14	0.15	2.83	1982
15	0.15	2.02	1872
16	0.14	2.14	1929
17	0.14	1.32	1934
18	0.14	2.22	1995
19	0.14	2.33	1872
20	0.14	2.81	1970
21	0.14	4.66	1875
22	0.14	3.51	1939
23	0.14	4.64	1891
24	0.14	2.18	1904
25	0.14	1.54	1930
26	0.14	6.87	1904
27	0.14	2.64	1884
28	0.14	3.57	1884
29	0.14	2.44	1884
30	0.14	2.76	1884
31	0.15	2.46	1949

Table 38. December precipitation normals and extremes.

MONTHLY PRECIPITATION BY YEAR, 1872-2006

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Dep
1872	4.94	5.89	4.11	7.18	9.10	2.70	1.62	0.40	2.91	3.41	1.39	7.07	**50.72**	**-0.58**
1873	3.22	7.47	2.67	1.94	4.58	7.94	3.31	1.59	2.31	4.15	8.25	4.93	**52.36**	**1.06**
1874	3.51	7.58	9.27	10.64	1.17	1.35	5.59	0.19	6.32	0.10	2.10	6.95	**54.77**	**3.47**
1875	3.93	2.68	4.94	3.46	0.91	1.79	2.16	6.17	8.02	4.40	2.99	9.54	**50.99**	**-0.31**
1876	7.26	2.68	11.67	5.83	9.47	2.08	1.87	2.22	0.62	5.42	2.99	2.38	**54.49**	**3.19**
1877	2.84	2.48	3.87	5.51	1.24	2.55	2.37	0.20	9.93	9.30	3.76	3.75	**47.80**	**-3.50**
1878	5.29	2.67	5.70	5.64	7.04	7.65	6.11	2.28	1.66	1.66	3.36	6.69	**55.75**	**4.45**
1879	7.41	2.08	1.26	10.23	2.13	2.09	2.41	4.75	0.95	0.52	4.57	3.21	**41.61**	**-9.69**
1880	3.68	6.19	6.17	8.43	3.21	2.74	10.97	1.21	11.61	2.72	7.43	2.24	**66.60**	**15.30**
1881	2.24	6.52	1.80	2.81	8.63	0.38	3.17	0.45	5.90	8.28	5.96	7.59	**53.73**	**2.43**
1882	9.08	8.71	3.16	5.44	4.59	0.65	11.38	3.97	1.11	6.72	8.62	1.68	**65.11**	**13.81**
1883	3.54	7.24	5.85	4.45	1.40	5.70	0.22	0.72	1.29	0.97	8.66	3.07	**43.11**	**-8.19**
1884	4.55	5.49	4.78	6.60	14.47	4.22	0.06	1.99	2.10	0.54	5.73	15.55	**66.08**	**14.78**
1885	12.11	3.31	1.79	7.07	3.66	5.79	4.89	0.92	6.70	4.32	3.93	4.11	**58.60**	**7.30**
1886	3.87	4.77	6.32	5.14	0.08	4.16	2.58	3.69	4.98	3.50	3.61	1.52	**44.22**	**-7.08**
1887	3.26	3.31	1.28	0.44	5.15	4.00	3.85	2.07	3.64	3.05	5.45	6.72	**42.22**	**-9.08**
1888	3.75	2.01	9.00	4.49	3.44	3.24	2.97	3.76	0.91	2.73	3.48	4.98	**44.76**	**-6.54**
1889	4.02	2.03	3.05	6.91	2.70	7.97	3.43	1.75	3.51	1.06	9.10	0.64	**46.17**	**-5.13**
1890	5.15	4.63	3.60	3.22	1.95	3.12	2.09	0.62	7.23	3.53	3.07	2.33	**40.54**	**-10.76**
1891	5.10	2.73	3.11	2.95	0.88	1.34	2.57	2.14	4.35	0.22	3.76	6.85	**36.00**	**-15.30**
1892	3.83	3.63	2.57	9.07	2.35	4.05	2.16	2.63	1.56	1.54	5.79	7.45	**46.63**	**-4.67**
1893	1.06	1.58	2.68	3.13	4.56	7.45	1.58	1.63	0.56	0.63	5.38	1.82	**32.06**	**-19.24**
1894	4.16	3.53	8.04	4.03	1.84	2.25	3.09	5.87	0.69	2.46	0.87	2.97	**39.80**	**-11.50**
1895	2.26	0.76	4.66	0.24	5.97	5.70	4.33	1.48	0.72	2.50	6.06	1.87	**36.55**	**-14.75**
1896	8.11	4.76	3.37	4.90	3.94	1.78	0.78	0.78	3.59	5.64	1.08	0.75	**39.48**	**-11.82**
1897	5.84	0.43	6.95	1.71	3.29	3.03	1.45	1.86	1.11	3.67	2.16	5.22	**36.72**	**-14.58**
1898	5.79	2.41	2.24	2.28	1.24	7.25	1.48	2.91	5.42	3.44	4.28	3.07	**41.81**	**-9.49**
1899	4.02	1.63	2.99	2.16	2.61	1.13	0.98	0.61	0.50	1.53	1.42	3.52	**23.10**	**-28.20**
1900	3.87	3.41	5.55	4.77	3.46	6.80	5.86	3.02	2.87	4.66	2.83	1.48	**48.58**	**-2.72**
1901	2.89	2.91	2.25	3.41	4.30	0.60	4.00	3.73	3.08	2.75	2.57	4.16	**36.65**	**-14.65**
1902	1.34	2.27	7.88	2.93	3.10	8.34	8.02	0.02	4.33	3.40	5.48	2.77	**49.88**	**-1.42**
1903	2.95	5.79	2.89	1.41	1.65	1.55	3.32	3.06	0.35	2.33	0.04	3.92	**29.26**	**-22.04**
1904	1.59	1.99	2.42	3.45	3.54	4.86	2.89	1.94	1.93	0.13	0.93	9.62	**35.29**	**-16.01**
1905	4.13	4.12	5.03	10.97	8.65	2.64	13.16	1.52	0.96	3.91	2.93	5.10	**63.12**	**11.82**
1906	2.80	1.09	3.04	0.97	3.51	4.45	4.50	2.29	2.89	2.78	2.51	3.52	**34.35**	**-16.95**
1907	2.02	2.00	2.66	6.70	7.34	0.92	1.47	2.43	0.09	3.19	6.41	3.82	**39.05**	**-12.25**
1908	2.20	4.78	2.64	3.91	14.11	1.61	3.93	3.07	5.01	0.00	3.80	2.13	**47.19**	**-4.11**
1909	0.63	3.90	2.59	3.39	5.30	2.03	1.42	2.99	1.46	1.27	0.77	6.38	**32.13**	**-19.17**
1910	2.67	4.53	2.84	1.61	6.62	4.84	1.44	3.19	0.69	2.40	2.94	3.74	**37.51**	**-13.79**
1911	0.68	1.79	2.32	9.90	0.89	1.23	3.66	9.75	0.93	0.73	2.66	10.44	**44.98**	**-6.32**
1912	1.76	2.38	9.93	7.49	5.74	3.79	3.73	10.89	1.15	0.90	0.50	4.77	**53.03**	**1.73**
1913	4.21	3.95	4.81	4.17	3.11	3.23	0.70	1.89	16.46	2.95	2.22	4.28	**51.98**	**0.68**
1914	0.73	4.85	6.55	3.35	4.49	2.29	0.84	4.00	0.15	0.32	3.61	7.16	**38.34**	**-12.96**
1915	4.22	4.15	1.92	6.42	1.81	3.10	2.44	8.60	1.75	1.95	4.14	3.05	**43.55**	**-7.75**
1916	6.29	0.01	1.88	4.61	5.01	3.08	3.09	0.55	1.46	2.17	2.54	1.65	**32.34**	**-18.96**
1917	3.29	2.10	2.12	3.34	1.66	0.49	9.30	5.55	2.56	2.13	1.14	1.02	**34.70**	**-16.60**
1918	2.07	0.16	1.14	5.28	1.49	2.13	0.00	2.23	0.36	4.25	4.13	3.09	**26.33**	**-24.97**
1919	3.28	3.46	3.14	3.93	5.78	5.53	0.70	3.85	2.16	11.75	4.68	2.08	**50.34**	**-0.96**
1920	7.06	1.43	5.08	4.01	5.18	5.23	4.02	2.82	1.10	2.89	2.15	6.37	**47.34**	**-3.96**
1921	4.18	1.91	3.87	6.24	3.66	3.34	4.29	0.64	0.56	0.03	1.52	1.92	**32.16**	**-19.14**
1922	5.73	5.40	9.31	6.97	4.04	3.77	4.09	2.04	1.36	0.45	2.01	2.59	**47.76**	**-3.54**
1923	4.32	6.21	3.63	4.40	4.68	2.48	3.40	2.03	9.03	2.43	3.19	7.82	**53.62**	**2.32**
1924	4.24	3.83	4.32	2.87	7.04	1.04	0.00	1.66	1.06	0.00	0.33	2.26	**28.65**	**-22.65**
1925	4.65	0.83	4.19	0.76	1.45	1.24	1.71	0.23	2.40	5.80	9.49	2.87	**35.62**	**-15.68**

1926	3.05	1.89	6.17	5.14	3.61	2.97	6.57	2.21	1.01	4.76	2.42	9.20	**49.00**	**-2.30**
1927	1.46	2.94	5.02	7.70	4.59	5.76	6.67	0.81	2.80	2.66	0.59	3.62	**44.62**	**-6.68**
1928	1.19	2.93	4.08	5.81	2.57	3.30	3.46	1.44	0.38	4.08	2.87	4.68	**36.79**	**-14.51**
1929	3.21	2.54	3.08	3.09	3.48	0.88	3.99	0.50	5.62	1.30	1.99	6.25	**35.93**	**-15.37**
1930	9.13	4.72	1.24	0.75	6.42	0.76	0.21	2.40	4.88	4.72	4.29	3.89	**43.41**	**-7.89**
1931	3.58	3.32	3.34	5.26	1.17	1.28	1.66	3.96	0.74	2.66	5.01	10.43	**42.41**	**-8.89**
1932	10.51	5.90	5.95	2.61	1.34	3.27	1.04	1.58	0.61	1.17	1.98	7.01	**42.97**	**-8.33**
1933	2.85	6.72	6.25	5.19	3.86	0.15	25.45	2.19	1.07	4.55	0.79	4.64	**63.71**	**12.41**
1934	5.91	2.75	9.30	4.13	4.46	0.95	0.41	0.73	1.51	0.00	9.12	4.06	**43.33**	**-7.97**
1935	5.50	3.33	2.99	5.16	10.47	2.95	1.02	2.70	1.88	3.88	6.07	3.39	**49.34**	**-1.96**
1936	1.77	1.40	2.65	2.18	2.69	0.39	3.27	0.39	0.84	4.09	2.34	4.43	**26.44**	**-24.86**
1937	8.39	2.28	5.26	2.43	0.98	3.47	1.42	3.02	3.34	4.96	7.41	7.63	**50.59**	**-0.71**
1938	2.25	2.38	4.95	6.51	3.31	4.04	4.00	2.05	1.33	0.37	5.82	3.15	**40.16**	**-11.14**
1939	6.79	8.96	0.85	1.11	3.06	2.58	1.82	2.66	0.69	0.70	6.10	4.91	**40.23**	**-11.07**
1940	2.24	4.77	2.22	8.58	4.46	5.53	5.06	8.61	0.36	2.33	10.09	7.91	**62.16**	**10.86**
1941	3.57	3.84	3.69	2.49	8.52	4.26	4.00	1.90	2.77	8.83	4.10	3.23	**51.20**	**-0.10**
1942	1.12	1.34	3.02	10.34	8.00	6.04	0.56	7.99	2.80	1.34	0.62	2.06	**45.23**	**-6.07**
1943	2.57	1.54	5.94	2.63	2.41	0.87	0.99	0.53	2.57	2.07	2.83	5.69	**30.64**	**-20.66**
1944	6.35	5.57	7.37	5.52	9.21	0.94	1.35	5.05	1.22	0.03	4.47	8.98	**56.06**	**4.76**
1945	4.05	5.02	11.99	6.47	3.45	3.55	5.68	1.26	2.81	6.90	2.83	3.66	**57.67**	**6.37**
1946	11.53	5.39	5.55	5.32	9.47	5.18	4.58	3.44	1.54	2.47	6.37	3.69	**64.53**	**13.23**
1947	3.57	3.60	6.19	6.40	2.84	2.02	0.84	2.77	3.52	1.76	4.93	5.84	**44.28**	**-7.02**
1948	4.39	4.14	3.39	2.80	6.92	1.16	2.58	1.06	0.41	1.47	7.03	2.75	**38.10**	**-13.20**
1949	7.81	3.72	2.94	2.86	1.63	2.16	4.37	1.06	3.74	14.02	0.37	5.20	**49.88**	**-1.42**
1950	5.69	4.30	2.18	5.95	6.85	2.72	6.45	4.11	3.84	3.08	1.91	0.80	**47.88**	**-3.42**
1951	5.43	2.72	3.28	1.82	1.10	2.81	3.30	0.47	5.52	1.64	2.43	7.23	**37.75**	**-13.55**
1952	4.22	5.76	4.44	5.34	6.71	0.74	4.26	1.11	0.80	0.04	3.98	5.24	**42.64**	**-8.66**
1953	4.26	3.98	4.61	9.82	8.35	1.30	3.03	1.22	1.06	1.57	2.16	5.20	**46.56**	**-4.74**
1954	3.82	0.90	1.49	3.93	7.94	1.88	1.01	0.92	2.27	2.88	4.24	3.66	**34.94**	**-16.36**
1955	3.44	4.43	3.00	4.78	9.64	2.67	6.17	6.83	1.09	1.93	0.83	2.42	**47.23**	**-4.07**
1956	3.68	4.58	4.47	4.51	3.85	3.11	0.30	2.25	0.17	2.05	3.50	1.54	**34.01**	**-17.29**
1957	5.07	4.05	6.55	11.19	3.45	8.37	3.26	1.75	4.17	6.78	9.49	3.10	**67.23**	**15.93**
1958	4.18	1.98	3.15	7.78	2.89	6.86	4.13	2.22	8.58	0.55	3.75	0.68	**46.75**	**-4.55**
1959	1.17	4.79	2.82	3.58	3.23	3.35	3.29	2.13	1.64	3.90	2.94	6.18	**39.02**	**-12.28**
1960	3.08	4.49	4.04	1.39	1.88	7.35	2.88	4.99	4.98	2.34	2.99	8.10	**48.51**	**-2.79**
1961	3.79	3.88	6.15	1.70	1.46	12.39	3.95	2.26	5.75	3.51	5.16	7.50	**57.50**	**6.20**
1962	4.26	2.12	3.28	5.78	1.22	4.70	0.60	3.96	2.57	1.26	3.52	2.35	**35.62**	**-15.68**
1963	1.46	2.42	0.91	3.53	2.25	2.65	1.00	3.74	2.36	0.00	6.72	2.99	**30.03**	**-21.27**
1964	2.57	2.74	4.24	7.27	1.41	1.87	0.15	4.71	2.51	0.64	1.65	2.55	**32.31**	**-18.99**
1965	3.77	6.51	3.39	1.16	5.40	3.18	1.49	1.82	6.55	0.36	1.20	6.29	**41.12**	**-10.18**
1966	4.22	3.45	0.56	8.02	3.78	2.05	0.58	1.71	3.27	1.62	0.97	3.63	**33.86**	**-17.44**
1967	1.36	2.91	1.02	2.11	11.78	0.89	6.15	4.67	1.27	1.34	0.71	3.92	**38.13**	**-13.17**
1968	8.33	2.22	1.89	9.38	6.05	2.78	4.68	1.89	9.59	1.90	5.85	3.27	**57.83**	**6.53**
1969	1.14	4.32	7.23	6.63	5.18	1.16	1.06	0.50	0.97	3.16	7.50	3.95	**42.80**	**-8.50**
1970	1.23	4.70	4.30	5.12	4.36	1.14	3.94	2.04	1.64	7.44	2.09	3.80	**41.80**	**-9.50**
1971	0.27	4.13	2.11	1.06	5.26	0.97	6.15	2.99	1.30	3.86	3.75	3.65	**35.50**	**-15.80**
1972	5.97	0.94	2.45	2.06	4.13	2.76	9.46	1.27	2.10	6.32	5.32	4.18	**46.96**	**-4.34**
1973	5.65	1.52	5.01	6.44	2.00	5.84	7.63	0.77	6.39	5.38	5.16	6.37	**58.16**	**6.86**
1974	10.09	3.67	3.60	3.09	4.58	6.29	7.73	3.84	6.64	3.79	5.80	2.34	**61.46**	**10.16**
1975	4.55	4.51	5.84	3.91	5.31	3.48	3.45	1.65	0.98	3.87	4.44	1.88	**43.87**	**-7.43**
1976	2.07	2.45	6.67	1.75	5.95	4.42	3.47	2.96	6.28	2.08	1.63	3.77	**43.50**	**-7.80**
1977	3.00	3.68	4.94	2.05	2.40	2.41	3.89	4.28	0.53	0.31	2.11	2.58	**32.18**	**-19.12**
1978	4.89	1.90	2.66	2.79	7.92	1.21	1.74	3.90	2.40	2.74	4.18	5.13	**41.46**	**-9.84**
1979	9.22	4.98	5.74	7.42	7.99	3.04	7.50	1.86	4.33	3.96	4.76	3.12	**63.92**	**12.62**
1980	4.67	3.10	3.75	5.34	4.42	2.60	1.83	0.42	1.63	2.48	3.59	0.74	**34.57**	**-16.73**
1981	1.43	3.83	3.33	1.97	9.96	6.45	2.36	0.94	3.32	5.63	1.49	0.59	**41.30**	**-10.00**
1982	3.59	3.19	2.59	2.72	2.32	1.84	4.25	2.20	1.11	5.19	5.72	10.00	**44.72**	**-6.58**
1983	2.45	8.57	3.68	1.47	8.22	6.60	1.18	1.67	3.12	0.79	4.90	7.18	**49.83**	**-1.47**
1984	2.10	5.66	3.58	2.52	5.86	3.56	2.20	0.87	2.61	12.05	4.46	2.88	**48.35**	**-2.95**

1985	2.38	4.42	4.28	3.05	1.96	4.57	8.40	0.35	4.40	9.87	4.25	3.37	**51.30**	**0.00**
1986	0.49	3.48	0.75	3.50	6.60	14.67	2.92	1.68	3.51	6.63	9.19	4.69	**58.11**	**6.81**
1987	2.26	7.80	1.48	0.43	6.67	5.43	1.21	3.50	0.94	5.49	10.81	8.12	**54.14**	**2.84**
1988	2.06	3.59	3.89	3.45	0.42	0.13	3.12	3.52	1.61	4.44	5.44	4.71	**36.38**	**-14.92**
1989	7.20	4.06	3.41	2.41	10.07	17.11	4.46	3.94	1.08	1.50	2.32	3.34	**60.90**	**9.60**
1990	10.02	6.92	4.90	4.29	10.48	2.56	3.53	2.88	2.93	4.33	8.81	3.99	**65.64**	**14.34**
1991	7.70	5.13	2.89	21.84	10.71	2.53	3.47	9.23	3.45	3.59	3.94	7.51	**81.99**	**30.69**
1992	4.63	6.41	5.94	3.26	2.81	3.95	3.36	1.24	5.15	4.13	4.69	5.84	**51.41**	**0.11**
1993	4.63	4.80	5.97	4.19	3.30	15.73	0.27	4.09	3.51	4.43	4.85	1.44	**57.21**	**5.91**
1994	3.63	5.02	3.67	3.67	5.85	2.81	6.43	3.80	0.08	9.14	2.50	8.00	**54.60**	**3.30**
1995	5.44	3.75	4.05	7.80	3.26	1.09	5.68	0.83	3.36	1.65	1.94	5.11	**43.96**	**-7.34**
1996	2.12	0.64	2.33	3.86	0.93	6.50	5.70	5.78	7.17	1.66	5.87	2.24	**44.80**	**-6.50**
1997	4.47	8.09	8.72	11.93	3.19	6.14	1.73	5.48	2.41	7.50	3.44	6.10	**69.20**	**17.90**
1998	5.84	7.19	4.28	0.79	0.15	1.35	2.84	3.83	7.79	5.72	4.58	6.24	**50.60**	**-0.70**
1999	12.96	0.42	5.10	7.88	3.96	7.98	2.80	1.47	4.90	3.21	0.52	3.82	**55.02**	**3.72**
2000	2.60	2.31	7.90	5.67	10.76	7.32	1.05	0.00	1.13	1.65	9.93	7.56	**57.88**	**6.58**
2001	5.76	6.52	6.47	0.86	4.31	7.33	1.75	4.10	6.84	5.17	4.16	6.10	**59.37**	**8.07**
2002	2.40	3.03	5.47	2.66	2.47	2.31	3.38	1.50	1.37	6.56	3.53	8.36	**43.04**	**-8.26**
2003	0.44	7.66	2.19	2.12	2.04	4.61	3.07	3.19	2.93	1.93	2.81	3.61	**36.60**	**-14.70**
2004	4.39	7.91	5.29	5.17	4.55	12.42	0.72	2.98	3.83	5.94	7.17	2.78	**63.15**	**11.85**
2005	4.37	3.76	1.91	4.59	0.73	0.38	4.60	3.27	5.66	1.41	1.06	1.24	**32.98**	**-18.32**
2006	5.36	4.91	5.07	2.24	1.21	2.64	4.74	0.62	2.97	3.99	3.21	5.36	**42.32**	**-8.98**
Ave	4.21	3.83	4.22	4.63	4.52	3.73	3.50	2.63	3.00	3.27	3.98	4.53	**46.03**	**-5.27**
Min	0.27	0.01	0.56	0.24	0.08	0.13	0.00	0.00	0.08	0.00	0.04	0.59	**23.10**	**-28.20**
Max	12.96	8.96	11.99	21.84	14.47	17.11	25.45	10.89	16.46	14.02	10.81	15.55	**81.99**	**30.69**
StDev	2.47	1.96	2.21	2.97	2.97	2.98	3.08	2.03	2.62	2.61	2.42	2.51	**10.57**	**10.57**
71-00	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**Yearly**	
norm	4.60	4.21	4.18	4.42	5.25	5.05	3.99	2.71	3.21	4.45	4.68	4.55	**51.30**	

Table 39. Average monthly precipitation, by year, with average annual precipitation per year and the departure from the 1971-2000 climatological normal annual precipitation.

TOP 10 WETTEST AND DRIEST YEARS ON RECORD

WETTEST				DRIEST		
Year	Total	Departure		Year	Total	Departure
1991	81.99	30.69		1899	23.10	-28.20
1997	69.20	17.90		1918	26.33	-24.97
1957	67.23	15.93		1936	26.44	-24.86
1880	66.60	15.30		1924	28.65	-22.65
1884	66.08	14.78		1903	29.26	-22.04
1990	65.64	14.34		1963	30.03	-21.27
1882	65.11	13.81		1943	30.64	-20.66
1946	64.53	13.23		1893	32.06	-19.24
1979	63.92	12.62		1909	32.13	-19.17
1933	63.71	12.41		1921	32.16	-19.14

Table 40. Top 10 wettest and driest years on record.

TOP 10 WETTEST SEASONS ON RECORD

SPRING				SUMMER		
Year	**Total**	**Departure**		**Year**	**Total**	**Departure**
1991	35.44	21.59		1933	27.79	16.04
1876	26.97	13.12		1989	25.51	13.76
1884	25.85	12.00		1993	20.09	8.34
1905	24.65	10.80		1986	19.27	7.52
2000	24.33	10.48		1940	19.20	7.45
1997	23.84	9.99		1961	18.60	6.85
1912	23.16	9.31		1912	18.41	6.66
1953	22.78	8.93		1996	17.98	6.23
1944	22.10	8.25		1974	17.86	6.11
1945	21.91	8.06		1905	17.32	5.57

FALL				WINTER		
Year	**Total**	**Departure**		**Year**	**Total**	**Departure**
1877	22.99	10.65		1885	30.97	17.61
1880	21.76	9.42		1932	26.84	13.48
1913	21.63	9.29		1882	25.38	12.02
1957	20.44	8.10		1983	21.02	7.66
1881	20.14	7.80		1946	20.58	7.22
1986	19.33	6.99		1990	20.28	6.92
1984	19.12	6.78		1974	20.13	6.77
1919	18.59	6.25		1930	20.10	6.74
1985	18.52	6.18		2001	19.84	6.48
1949	18.13	5.79		1999	19.62	6.26

Table 41. Top 10 wettest seasons.

TOP 10 DRIEST SEASONS ON RECORD

SPRING				SUMMER		
Year	Total	Departure		Year	Total	Departure
1939	5.02	-8.83		1934	2.09	-9.66
1998	5.22	-8.63		1943	2.39	-9.36
1898	5.76	-8.09		1924	2.70	-9.05
1903	5.95	-7.90		1969	2.72	-9.03
1951	6.20	-7.65		1899	2.72	-9.03
2003	6.35	-7.50		1925	3.18	-8.57
1925	6.40	-7.45		1896	3.34	-8.41
1963	6.69	-7.16		1930	3.37	-8.38
1887	6.87	-6.98		1954	3.81	-7.94
1891	6.94	-6.91		1881	4.00	-7.75
FALL				**WINTER**		
Year	**Total**	**Departure**		**Year**	**Total**	**Departure**
1924	1.39	-10.95		1918	3.25	-10.11
1921	2.11	-10.23		1942	5.69	-7.67
1912	2.55	-9.79		1895	5.99	-7.37
1903	2.72	-9.62		1981	6.00	-7.36
1977	2.95	-9.39		1943	6.17	-7.19
1904	2.99	-9.35		1911	6.21	-7.15
1967	3.32	-9.02		1963	6.23	-7.13
1899	3.45	-8.89		1976	6.40	-6.96
1909	3.50	-8.84		1936	6.56	-6.80
1932	3.76	-8.58		1959	6.64	-6.72

Table 42. Top 10 driest seasons.

TOP TEN WETTEST MONTHS ON RECORD BY MONTH

JANUARY		
Year	Total	Departure
1999	12.96	8.36
1885	12.11	7.51
1946	11.53	6.93
1932	10.51	5.91
1974	10.09	5.49
1990	10.02	5.42
1979	9.22	4.62
1930	9.13	4.53
1882	9.08	4.48
1937	8.39	3.79

FEBRUARY		
Year	Total	Departure
1939	8.96	4.75
1882	8.71	4.50
1983	8.57	4.36
1997	8.09	3.88
2004	7.91	3.70
1987	7.80	3.59
2003	7.66	3.45
1874	7.58	3.37
1873	7.47	3.26
1883	7.24	3.03

MARCH		
Year	Total	Departure
1945	11.99	7.81
1876	11.67	7.49
1912	9.93	5.75
1922	9.31	5.13
1934	9.30	5.12
1874	9.27	5.09
1888	9.00	4.82
1997	8.72	4.54
1894	8.04	3.86
2000	7.90	3.72

APRIL		
Year	Total	Departure
1991	21.84	21.84
1997	11.93	11.93
1957	11.19	11.19
1905	10.97	10.97
1874	10.64	10.64
1942	10.34	10.34
1879	10.23	10.23
1911	9.90	9.90
1953	9.82	9.82
1968	9.38	9.38

MAY		
Year	Total	Departure
1884	14.47	9.22
1908	14.11	8.86
1967	11.78	6.53
2000	10.76	5.51
1991	10.71	5.46
1990	10.48	5.23
1935	10.47	5.22
1989	10.07	4.82
1981	9.96	4.71
1955	9.64	4.39

JUNE		
Year	Total	Departure
1989	17.11	12.06
1993	15.73	10.68
1986	14.67	9.62
2004	12.42	7.37
1961	12.39	7.34
1957	8.37	3.32
1902	8.34	3.29
1999	7.98	2.93
1889	7.97	2.92
1873	7.94	2.89

JULY		
Year	Total	Departure
1933	25.45	21.46
1905	13.16	9.17
1882	11.38	7.39
1880	10.97	6.98
1972	9.46	5.47
1917	9.30	5.31
1985	8.40	4.41
1902	8.02	4.03
1974	7.73	3.74
1973	7.63	3.64

AUGUST		
Year	Total	Departure
1912	10.89	8.18
1911	9.75	7.04
1991	9.23	6.52
1940	8.61	5.90
1915	8.60	5.89
1942	7.99	5.28
1955	6.83	4.12
1875	6.17	3.46
1894	5.87	3.16
1996	5.78	3.07

SEPTEMBER		
Year	Total	Departure
1913	16.46	13.25
1880	11.61	8.40
1877	9.93	6.72
1968	9.59	6.38
1923	9.03	5.82
1958	8.58	5.37
1875	8.02	4.81
1998	7.79	4.58
1890	7.23	4.02
1996	7.17	3.96

OCTOBER		
Year	Total	Departure
1949	14.02	9.57
1984	12.05	7.60
1919	11.75	7.30
1985	9.87	5.42
1877	9.30	4.85
1994	9.14	4.69
1941	8.83	4.38
1881	8.28	3.83
1997	7.50	3.05
1970	7.44	2.99

NOVEMBER		
Year	Total	Departure
1987	10.81	6.13
1940	10.09	5.41
2000	9.93	5.25
1957	9.49	4.81
1925	9.49	4.81
1986	9.19	4.51
1934	9.12	4.44
1889	9.10	4.42
1990	8.81	4.13
1883	8.66	3.98

DECEMBER		
Year	Total	Departure
1884	15.55	11.00
1911	10.44	5.89
1931	10.43	5.88
1982	10.00	5.45
1904	9.62	5.07
1875	9.54	4.99
1926	9.20	4.65
1944	8.98	4.43
2002	8.36	3.81
1987	8.12	3.57

Table 43. Top 10 wettest months.

TOP TEN DRIEST MONTHS ON RECORD BY MONTH

JANUARY			FEBRUARY			MARCH		
Year	Total	Departure	Year	Total	Departure	Year	Total	Departure
1971	0.27	-4.33	1916	0.01	-4.20	1966	0.56	-3.62
2003	0.44	-4.16	1918	0.16	-4.05	1986	0.75	-3.43
1986	0.49	-4.11	1999	0.42	-3.79	1939	0.85	-3.33
1909	0.63	-3.97	1897	0.43	-3.78	1963	0.91	-3.27
1911	0.68	-3.92	1996	0.64	-3.57	1967	1.02	-3.16
1914	0.73	-3.87	1895	0.76	-3.45	1918	1.14	-3.04
1893	1.06	-3.54	1925	0.83	-3.38	1930	1.24	-2.94
1942	1.12	-3.48	1954	0.90	-3.31	1879	1.26	-2.92
1969	1.14	-3.46	1972	0.94	-3.27	1887	1.28	-2.90
1959	1.17	-3.43	1906	1.09	-3.12	1987	1.48	-2.70

APRIL			MAY			JUNE		
Year	Total	Departure	Year	Total	Departure	Year	Total	Departure
1895	0.24	-4.18	1886	0.08	-5.17	1988	0.13	-4.92
1987	0.43	-3.99	1998	0.15	-5.10	1933	0.15	-4.90
1887	0.44	-3.98	1988	0.42	-4.83	1881	0.38	-4.67
1930	0.75	-3.67	2005	0.73	-4.52	2005	0.38	-4.67
1925	0.76	-3.66	1891	0.88	-4.37	1936	0.39	-4.66
1998	0.79	-3.63	1911	0.89	-4.36	1917	0.49	-4.56
2001	0.86	-3.56	1875	0.91	-4.34	1901	0.60	-4.45
1906	0.97	-3.45	1996	0.93	-4.32	1882	0.65	-4.40
1971	1.06	-3.36	1937	0.98	-4.27	1952	0.74	-4.31
1939	1.11	-3.31	1951	1.10	-4.15	1930	0.76	-4.29

JULY			AUGUST			SEPTEMBER		
Year	Total	Departure	Year	Total	Departure	Year	Total	Departure
1918	Trace	-3.99	2000	Trace	-2.71	1994	0.08	-3.13
1924	Trace	-3.99	1902	0.02	-2.69	1907	0.09	-3.12
1884	0.06	-3.93	1874	0.19	-2.52	1914	0.15	-3.06
1964	0.15	-3.84	1877	0.20	-2.51	1956	0.17	-3.04
1930	0.21	-3.78	1925	0.23	-2.48	1903	0.35	-2.86
1883	0.22	-3.77	1985	0.35	-2.36	1918	0.36	-2.85
1993	0.27	-3.72	1936	0.39	-2.32	1940	0.36	-2.85
1956	0.30	-3.69	1872	0.40	-2.31	1928	0.38	-2.83
1934	0.41	-3.58	1980	0.42	-2.29	1948	0.41	-2.80
1942	0.56	-3.43	1881	0.45	-2.26	1899	0.50	-2.71

OCTOBER			NOVEMBER			DECEMBER		
Year	Total	Departure	Year	Total	Departure	Year	Total	Departure
1963	0.00	-4.45	1903	0.04	-4.64	1981	0.59	-3.96
1924	Trace	-4.45	1924	0.33	-4.35	1889	0.64	-3.91
1908	Trace	-4.45	1949	0.37	-4.31	1958	0.68	-3.87
1934	Trace	-4.45	1912	0.50	-4.18	1980	0.74	-3.81
1944	0.03	-4.42	1999	0.52	-4.16	1896	0.75	-3.80
1921	0.03	-4.42	1927	0.59	-4.09	1950	0.80	-3.75
1952	0.04	-4.41	1942	0.62	-4.06	1917	1.02	-3.53
1874	0.10	-4.35	1967	0.71	-3.97	2005	1.24	-3.31
1904	0.13	-4.32	1909	0.77	-3.91	1993	1.44	-3.11
1891	0.22	-4.23	1933	0.79	-3.89	1900	1.48	-3.07

Table 44. Top 10 driest months.

HISTORICAL VARIATION OF RECENT PRECIPITATION NORMALS

Month	1931-1960	1941-1970	1951-1980	1961-1990	1971-2000
January	4.80	4.04	4.02	3.88	4.60
February	4.09	3.71	3.46	3.92	4.21
March	4.15	4.10	3.77	3.59	4.18
April	4.57	5.19	4.71	3.75	4.42
May	4.79	5.04	4.70	5.18	5.25
June	3.34	3.34	3.54	4.29	5.05
July	3.75	2.89	3.56	3.67	3.99
August	2.55	2.68	2.52	2.43	2.71
September	2.28	3.07	3.29	3.12	3.21
October	2.81	2.90	2.63	3.73	4.45
November	4.21	3.57	3.77	4.45	4.68
December	4.94	4.19	3.87	4.10	4.55
Annual	46.28	44.72	43.84	46.11	51.30

Table 45. Historical variation of recent precipitation climate normals.

AVERAGE STATION PRESSURE BY MONTH AND YEAR, 1974-2006

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
1974	29.82	29.77	29.7	29.74	29.62	29.66	29.75	29.73	29.74	29.91	29.85	29.81	**29.76**
1975	29.82	29.76	29.69	29.73	29.63	29.69	29.71	29.75	29.78	29.81	29.84	29.88	**29.76**
1976	29.92	29.83	29.74	29.75	29.68	29.71	29.78	29.78	29.75	29.81	29.92	29.86	**29.79**
1977	29.89	29.84	29.7	29.79	29.7	29.72	29.77	29.73	29.67	29.79	29.74	29.78	**29.76**
1978	29.93	29.87	29.77	29.68	29.62	29.73	29.69	29.73	29.73	29.83	29.81	29.82	**29.77**
1979	29.88	29.86	29.76	29.67	29.67	29.75	29.7	29.73	29.69	29.69	29.87	29.91	**29.77**
1980	29.81	29.85	29.71	29.68	29.63	29.7	29.7	29.7	29.72	29.8	29.85	29.93	**29.76**
1981	29.91	29.88	29.72	29.78	29.63	29.67	29.72	29.7	29.76	29.79	29.78	29.81	**29.76**
1982	29.81	29.89	29.73	29.72	29.67	29.64	29.73	29.74	29.74	29.81	29.83	29.8	**29.76**
1983	29.83	29.7	29.58	29.6	29.65	29.65	29.77	29.75	29.78	29.82	29.7	29.91	**29.73**
1984	29.96	29.75	29.7	29.57	29.71	29.71	29.73	29.72	29.78	29.76	29.85	29.85	**29.76**
1985	29.91	29.9	29.76	29.73	29.65	29.7	29.72	29.71	29.77	29.73	29.76	29.95	**29.77**
1986	29.93	29.72	29.8	29.73	29.67	29.69	29.77	29.74	29.77	29.82	29.81	29.91	**29.78**
1987	29.81	29.74	29.72	29.73	29.71	29.71	29.75	29.72	29.72	29.88	29.84	29.8	**29.76**
1988	29.98	29.89	29.79	29.65	29.7	29.71	29.75	29.67	29.7	29.84	29.72	29.93	**29.78**
1989	29.88	29.96	29.75	29.73	29.68	29.66	29.73	29.71	29.74	29.82	29.79	29.91	**29.78**
1990	29.82	29.83	29.83	29.75	29.65	29.71	29.75	29.75	29.74	29.8	29.85	29.87	**29.78**
1991	29.88	29.85	29.64	29.64	29.67	29.69	29.74	29.75	29.81	29.75	29.9	29.92	**29.77**
1992	29.85	29.75	29.73	29.72	29.75	29.58	29.74	29.77	29.76	29.78	29.79	29.86	**29.76**
1993	29.9	29.83	29.77	29.66	29.66	29.69	29.73	29.73	29.75	29.78	29.88	29.84	**29.77**
1994	29.91	29.86	29.75	29.74	29.72	29.67	29.73	29.75	29.75	29.72	29.82	29.87	**29.77**
1995	29.8	29.84	29.78	29.65	29.63	29.69	29.7	29.66	29.74	29.73	29.85	29.85	**29.74**
1996	29.79	29.81	29.79	29.71	29.68	29.7	29.72	29.76	29.66	29.76	29.84	29.82	**29.75**
1997	29.87	29.86	29.78	29.68	29.72	29.63	29.73	29.74	29.69	29.76	29.78	29.76	**29.75**
1998	29.73	29.62	29.72	29.67	29.61	29.63	29.69	29.71	29.61	29.82	29.81	29.9	**29.71**
1999	29.8	29.82	29.76	29.67	29.67	29.69	29.76	29.66	29.7	29.81	29.9	29.85	**29.76**
2000	29.89	29.86	29.72	29.73	29.65	29.73	29.69	29.72	29.68	29.87	29.78	29.96	**29.77**
2001	29.91	29.87	29.75	29.78	29.7	29.7	29.71	29.73	29.73	29.83	29.84	29.83	**29.78**
2002	29.84	29.94	29.79	29.76	29.72	29.69	29.75	29.72	29.65	29.73	29.85	29.81	**29.77**
2003	29.96	29.77	29.66	29.69	29.63	29.62	29.74	29.72	29.73	29.74	29.83	29.87	**29.75**
2004	29.87	29.86	29.87	29.73	29.72	29.72	29.7	29.73	29.72	29.67	29.81	29.9	**29.78**
2005	29.92	29.84	29.66	29.69	29.69	29.63	29.7	29.68	29.71	29.78	29.8	29.83	**29.74**
2006	29.78	29.84	29.78	29.66	29.66	29.71	29.74	29.69	29.69	29.72	29.8	29.91	**29.75**
Avg	**29.87**	**29.83**	**29.74**	**29.7**	**29.67**	**29.68**	**29.73**	**29.72**	**29.73**	**29.79**	**29.82**	**29.86**	**29.76**

Table 46. Monthly observed average station pressure in inches of mercury, 1974-2006.

THUNDERSTORM DAYS BY MONTH AND YEAR, 1949-2006

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
1949	4	2	6	5	5	10	12	7	3	2	1	3	**60**
1950	4	6	6	7	10	3	12	7	5	0	5	0	**65**
1951	6	1	5	4	5	9	10	5	10	2	1	4	**62**
1952	3	4	5	3	5	4	6	4	2	0	2	2	**40**
1953	5	5	6	10	10	5	9	6	1	2	4	4	**67**
1954	2	2	5	3	7	6	3	6	5	6	1	3	**49**
1955	1	2	5	5	9	6	12	6	2	3	0	1	**52**
1956	1	6	5	4	4	9	6	8	3	5	4	2	**57**
1957	4	2	8	13	9	10	6	5	4	3	7	1	**72**
1958	1	1	4	8	4	8	9	4	8	1	3	0	**51**
1959	2	2	8	5	8	7	9	11	6	3	1	3	**65**
1960	2	4	3	4	4	7	7	8	5	4	1	1	**50**
1961	1	3	11	3	3	7	11	5	3	3	4	4	**58**
1962	2	4	4	6	3	14	3	3	8	3	1	1	**52**
1963	0	1	6	7	4	8	9	9	4	0	5	0	**53**
1964	1	0	5	8	6	5	3	8	2	0	2	2	**42**
1965	1	5	8	4	8	12	3	5	5	1	0	1	**53**
1966	2	3	0	12	6	2	5	8	2	1	2	2	**45**
1967	1	1	0	4	8	1	10	5	0	1	1	3	**35**
1968	1	0	4	7	9	6	9	8	4	2	6	2	**58**
1969	2	3	1	7	7	1	5	3	4	2	5	2	**42**
1970	0	1	3	5	5	4	6	6	5	5	3	2	**45**
1971	0	7	4	2	10	4	7	6	3	3	2	3	**51**
1972	3	2	8	7	6	6	7	6	5	3	5	5	**63**
1973	2	1	8	5	7	8	12	4	5	1	6	3	**62**
1974	6	4	4	3	5	8	7	9	3	2	3	2	**56**
1975	4	5	7	8	11	15	10	7	3	1	1	1	**73**
1976	2	4	11	3	10	8	12	9	6	0	0	0	**65**
1977	2	2	4	4	4	5	13	9	1	0	3	2	**49**
1978	2	1	5	5	8	2	10	2	3	3	2	2	**45**
1979	4	2	5	6	8	4	14	7	1	3	2	1	**57**
1980	3	1	7	6	7	7	5	6	7	2	0	1	**52**
1981	0	3	5	5	12	10	6	6	2	4	2	0	**55**
1982	4	2	2	10	7	8	10	7	5	6	3	6	**70**
1983	2	3	3	4	11	8	5	9	7	3	4	6	**65**
1984	0	4	3	5	6	8	9	7	4	12	6	1	**65**
1985	1	1	3	7	4	5	12	6	5	3	5	1	**53**
1986	0	4	4	4	7	17	2	9	8	1	3	1	**60**
1987	2	5	4	1	16	12	10	7	6	3	5	6	**77**
1988	1	1	5	5	3	3	9	7	1	7	7	3	**52**
1989	2	3	5	4	7	9	15	9	4	1	2	2	**63**
1990	5	4	3	7	9	5	8	7	4	5	3	3	**63**
1991	1	3	3	12	8	6	10	6	9	3	3	3	**67**
1992	1	3	9	4	8	12	8	2	7	4	5	2	**65**

1993	3	3	4	4	8	10	3	8	4	6	4	0	**57**
1994	4	4	2	5	10	18	8	6	2	4	3	3	**69**
1995	5	6	6	5	9	4	10	5	7	3	4	4	**68**
1996	2	1	5	7	3	12	12	8	7	3	3	2	**65**
1997	4	5	8	7	5	11	7	3	3	6	2	1	**62**
1998	6	4	3	3	3	2	7	11	0	2	3	4	**48**
1999	6	2	9	4	11	7	12	4	6	1	1	4	**67**
2000	1	2	9	8	9	9	4	4	4	3	5	3	**61**
2001	2	5	3	0	5	9	7	11	9	4	2	4	**61**
2002	1	1	8	3	6	8	12	5	2	2	3	6	**57**
2003	0	4	3	5	4	6	10	9	2	1	3	3	**50**
2004	1	2	5	3	6	13	6	7	2	2	7	3	**57**
2005	2	3	5	5	2	6	12	11	2	1	2	1	**52**
2006	7	3	4	6	5	12	7	5	2	0	3	3	**57**
Avg	**2.36**	**2.9**	**5.07**	**5.45**	**6.88**	**7.6**	**8.33**	**6.57**	**4.17**	**2.71**	**3.03**	**2.38**	**57.45**

Table 47. Thunderstorm days by month and year.