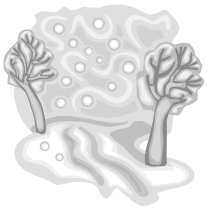
SKY SCOOP



Winter 2000-2001 Issue 7

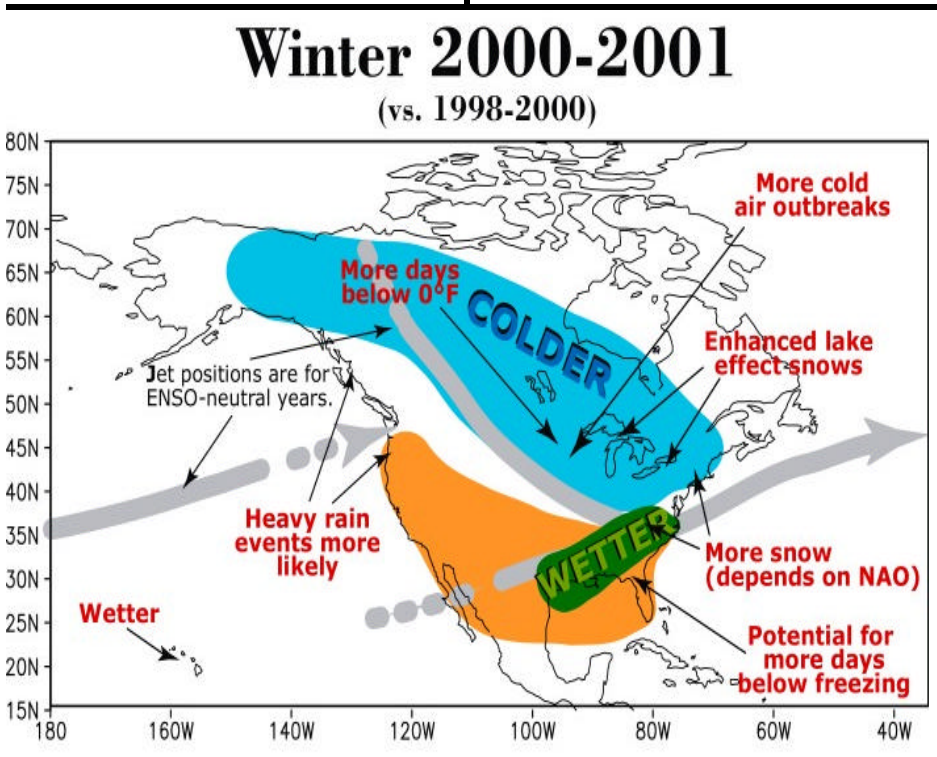
A WINTER WITHOUT EL NIÑO OR LA NIÑA?

What will the weather be like this winter? Well, for the first time in several years, it appears that we will not have El Niño or La Niña to blame. To refresh your memory, El Niño and La Niña are the two extremes of what is called the El Niño/ Southern Oscillation (ENSO) cycle. The cycle encompasses changes in the ocean surface and subsurface temperatures along the equatorial Pacific Ocean. Theses changes in ocean temperature have an effect on the jet stream. The jet stream, the strong river of winds in the upper parts of the atmosphere, is responsible for directing storm systems across the United States.

The Climate Prediction Center (CPC) has observed that the sea surface temperatures in the equatorial Pacific are returning to near normal conditions. This trend is expected to continue through the winter months. As a result, the extreme phases of ENSO will not be a major factor. The wintertime jet stream pattern should result in more cold outbreaks for the Midwest/Great Lakes region (see figure). In addition, the winter may be snowier than normal. Winters in the 1990's have been the warmest on record, with the last three among the warmest. Consequently, this winter may be perceived as much colder than usual even though it may reflect a more Anormal@ winter based on a 30 year climatological average (taken from 1961-1990).

For winter enthusiasts, the CPC forecast is great news. For those who dread the winter blues, a get-a-way trip to a warmer climate may be the only way to escape Old Man Winter=s grip.

By Scott Hickman



This graphic was taken from the Climate Prediction Center's homepage located at http://www.cpc.noaa.gov.

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STORM SPOTTER REPORTS MAY BE SUBMITTED VIA THE INTERNET!

This winter, you will have the option of using the internet to send your storm reports to our office. For starters, we have decided to try this new feature with winter weather reports. If this method proves to be successful, we may expand this method to other storm-related reports (such as damage from severe thunderstorms). A phone call to our office is still the preferred way of passing along this vital information, and you are encouraged to do so (refer to your spotter packet for our unlisted number).

The web link for submitting winter weather reports will be located at our homepage. You can find it at http://www.nws.noaa.gov/er/iln.htm. A login name and password are required in order to assure that only ***trained spotters*** report weather information. Please call our office at **1-937-383-0031** and press "number" 6 to speak to an employee. Ask to speak with Mary Jo Parker or myself, so we can give you the login name and password. The link should be ready by mid January. Keep checking our web site!!!

Please report the following winter events:

1. Any report of freezing rain, freezing drizzle or sleet. Please provide ice/sleet accumulation and time duration if applicable.

2. Report thundersnow if observed. When thundersnow is occurring, heavy snow in a short period of time is likely

3. Reports of new snowfall when amounts reach two inches or more. Please provide the time duration in which the snow was received.

4. Report snowfall amounts of one inch or more per hour.

5. Report total snow accumulation for a winter storm event if possible.

Your storm reports are important to the NWS mission. We appreciate your efforts!

By Scott Hickman

TORNADO STRIKES XENIA, OHIO, AGAIN

September 20th, 2000 will be one day Xenia residents will not forget. On this day, a violent F4 (207 mph to 260 mph) tornado caused significant damage to the western parts of the city. A tornado is classified by the strongest part of its track. This tornado was an F2 to F3 along much of its track and briefly reached into the lower end of the F4 category. The following article will discuss some aspects of this tornado event such as the time of year that it occurred and the potential for severe weather that day.

Why was there a violent tornado late in the summer season?

This question is actually fairly simple to answer. From late summer into the early fall, our region tends to have a Asecond@ severe weather season. Although severe weather in the fall is usually not as frequent as severe weather in the springtime, it exhibits some of the same characteristics. In the late summer and early fall time frame, cold fronts become a little more vigorous, bringing cooler air in from Canada. Meanwhile, there is still plenty of daytime heating and warm, moist air from the Gulf of Mexico to create unstable conditions. Moreover, the jet stream becomes more active, providing wind energy for storm development. Finally, it can not be said enough: Tornadoes can occur **ANYTIME** of the year if the ingredients are right. We

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2000 GROWING SEASON CLOSER TO NORMAL

Disastrous situations occurred in the Middle Ohio Valley during 1999 due to the extreme summer temperatures and severe drought conditions. Many farmers lost entire crops and had to liquidate livestock, and some communities had to acquire their water supplies from other areas. Numerous people died, especially in city areas, due to the extreme temperatures.

During the spring of 2000, the NWS office in Wilmington was monitoring the long term outlooks carefully for any sign of a recurrence of drought conditions for 2000. The year 2000 brought above normal precipitation and below normal temperatures, which eliminated concern for continued drought.

For the year 2000, the Dayton Cox International Airport had a total precipitation of 34.33", which was 2.31" below the normal. In 1999, the total precipitation was 29.86". While the difference of over four inches between annual precipitation amounts helped normalize conditions for 2000, the relief in the drought was also attributed to much lower summer temperatures. Dayton did not reached 90°F even once last summer. In 1999, the mercury hit 90°F or higher a total of 28 days. For Dayton, the temperature normally reaches 90°F or higher on about 16 days in a given year.

At the Port Columbus International Airport during the year 2000, a total of 42.85" of precipitation had fallen. This was 4.76" above the 30 year normal, and over 15" above the 1999 precipitation. In 1999, the high temperature reached 90°F or higher a total of 40 days, compared to a normal occurrence of about 15 days a year. Only 2 days of 90°F or higher were observed in Columbus last year. So while central and south central Ohio were perhaps the hardest hit by the 1999 drought, even these areas have benefited from above normal rainfall and slightly below normal temperatures in 2000.

Finally, for the Cincinnati/ Northern Kentucky International Airport, a total of 45.81" of precipitation had fallen for the year 2000. This was 4.48" above the 30 year normal, and over 13" above the 1999 precipitation. There were a total of 33 days during 1999 in which the high temperature met or exceeded 90°F. In a normal year, Cincinnati can expect 21 days with a high temperature of 90°F or higher. Last year, there were only four 90°F days for Cincinnati.

In all regions of the NWS Wilmington area of responsibility, cooler spring and summer temperatures combined with near or above normal rainfall brought an end to drought concerns.

By Julie Dian-Reed

TIPS FOR MEASURING SNOW

Measuring snow may seem like a simple task at a first glance. However, undesired errors may occur in snow measurements if care is not exercised. The following tips should be followed when measuring snow:

1. Avoid grassy surfaces. Grassy surfaces are usually uneven, and this may lead to inaccurate amounts.

2. Measure snow on flat surfaces. A flat piece of wood painted white is ideal as this method helps to reflect the sun=s rays.

3. In relation to number 2, choose a location in the shade

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Continued Xenia Tornado

(Continued from page 2)

must always be prepared when severe weather strikes.

The severe weather potential on September 20, 2000.

Actually, the National Weather Service in Wilmington was aware of the potential for severe weather the day before (Tuesday, September 19th, 2000). A cold front was forecast to move into the western parts of Ohio by early Wednesday evening. Warm, moist air ahead of the front would destabilize the airmass. Moreover, the approach of the front would provide the necessary lift for thunderstorm activity. The one ingredient that caught the attention of our forecasters was the strong winds expected aloft. Forecast weather models were generating wind speeds near 90 mph between 5,000 and 10,000 feet. If thunderstorms developed as forecast, these strong winds would be transported to the surface, causing severe wind damage. By Wednesday morning, forecast weather models were consistent: severe weather was likely. Our office issued a special weather statement that morning to alert people to the threat of severe weather that day. This statement was updated before noon, emphasizing the possibility of a few tornadoes. Consequently, the Storm Prediction Center (responsible for severe weather outlooks and watches) placed our region under a moderate risk of severe weather. Although a few tornadoes could be possible, the main severe weather threat expected was straight line damaging winds. The Storm Prediction Center placed the Wilmington county warning area under a severe thunderstorm watch effective from 5 pm EDT until 11 pm EDT.

The severe weather events of September 20th, 2000.

A line of severe thunderstorms (also known as a squall line) began to move into eastern Indiana and western Ohio between 530 pm EDT and 630 pm EDT. Many of these storms produced damaging winds. During this time frame, we received no reports of funnel clouds or tornadoes. One storm in particular produced damaging winds near or in excess of 70 mph across northern Butler, southern Preble, extreme northwest Warren and southern Montgomery Counties between 615 pm EDT and 645 pm EDT. As the storm approached Greene County, a severe thunderstorm warning was issued at 707 pm EDT, providing residents time to take cover from the storm. Attention was drawn to the storm as it continued its journey into the heart of Greene County. Doppler radar indicated some rotation, but intensities fluctuated. Many of the storms on September 20th were observed to have rotation but did not produce tornadoes. In fact there were 43 severe weather events (by county) on September 20th , but only two tornadoes occurred. The tornado struck residents from Bellbrook to the western and northern parts of Xenia from approximately 716 pm EDT to 726 EDT pm. The storm created a nine mile long path of destruction. The tornado damaged or destroyed around 250 homes, 40 businesses and six churches. A strip mall was nearly destroyed, cars were thrown from highways into ditches, four semi-trailers were thrown 400 yards and most of the buildings were damaged or destroyed at the Greene County fairgrounds. Preliminary estimates place the cost of the damage at around 15 million dollars. About one hundred people were injured, and one person was killed. Given the extent of the damage, it was fortunate that more lives were not lost.

This was not the first time Xenia had been struck by a tornado. Xenia received devastating damage during the April 3rd, 1974 Super Outbreak. This tornado was responsible for 34 deaths. Tornadoes have also hit the town in 1933 and 1989. The main lesson that can be learned from this incident is preparedness. Be prepared when severe weather is expected. Severe thunderstorms are deadly too, and they can produce tornadoes with little or no warning. With further

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Continue Snow Tips

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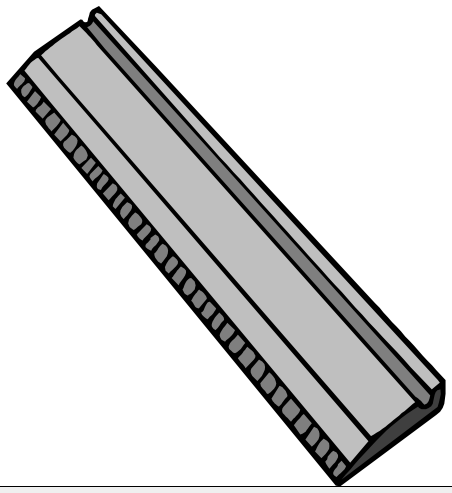
and away from buildings. This will reduce the amount of melting that may occur otherwise.

4. Avoid locations susceptible to blowing and/or drifting of snow. Sometimes this is unavoidable, but do the best you can.

5. During snow events, clear off a portion of your measuring area so you can calculate the amount of snow that has fallen when you take a later measurement.

6. Finally, when calculating snow depth, take an average of several depths within your measuring area. Snow can melt, evaporate and settle, so an average of several readings will give the most accurate depth.

By Scott Hickman



One can clearly see that a tornado caused this damage in Xenia during the evening of September 20th, 2000. Note the twisted debris. This photograph was taken by NWS meteorologist Thomas Johnstone.

Continued Xenia Tornado

(Continued from page 4)

advancements in technology along with a strong spotter network, we will continue to see improvements of severe weather warnings.

Editor's note: A second tornado touched down in central Ohio during Wednesday evening. This tornado began in southeastern Delaware County, tracking northeast into Licking and Knox Counties. The tornado was declared an F2 (113 mph to 157 mph). It damaged homes and barns along its path. In fact, the Buckeye Egg Company, located in northwestern Licking County, had 12 buildings destroyed and many chickens were killed during the storm.

By Scott Hickman

NWS WILMINGTON SETS A RECORD FOR NUMBER OF WARNINGS ISSUED

History was made on Wednesday August 9th, 2000 at the NWS office in Wilmington. Since NWS Wilmington took over severe weather operations in 1994, August 9th, 2000 has been the most active severe weather day to date. This day saw two separate severe weather events that resulted in widespread damage across Wilmington=s area of responsibility. A more detailed description of the two weather events follows.

Atmospheric conditions were favorable on August 9th for widespread severe weather activity to occur. The first severe weather event originated over Iowa during the early morning hours. A cold front stretching from southern Wisconsin, northern Iowa, then southwest into central Kansas was a key ingredient for thunderstorm development. Also, strong winds at the low levels ahead of this front combined with a very moist and unstable airmass allowed the air to rapidly rise over Iowa. The result of these factors created a thunderstorm complex known as a derecho (a long-lived thunderstorm complex that produces damaging winds). The derecho raced well ahead of the cold front into Illinois and Indiana, reaching the western counties of east central Indiana by 830 am EDT. As the derecho continued its journey across western and central Ohio between the hours of 9 am EDT and noon EDT, it left widespread tree damage along with some structural damage in its wake. The thunderstorm complex held together long enough to reach the northern portions of North Carolina by Wednesday evening! Talk about storm longevity!!!

As the first severe weather event was winding down, another one was just in the infant stages.
The same cold front that produced the derecho moved to a western Michigan, northern Indiana and central Illinois position by Wednesday afternoon. The cold front's proximity, daytime heating and a favorable upper level jet stream destabilized the atmosphere once again. This triggered a line of thunderstorms across northeast Indiana and northwest Ohio by 2 pm EDT. This line became more active as it moved southeast into Wilmington=s area of responsibility and produced widespread tree damage along with some structural damage. Hail up to two inches in diameter also occurred. In addition, parts of northern Kentucky received four to five inches of rain. One tornado was reported in Scioto County near Wheelersburg. The tornado knocked two rail cars off their tracks, damaged a few homes and toppled over numerous trees. The thunderstorms did not move completely out of Wilmington=s area of responsibility until after midnight EDT on August 10th.

All in All, 107 warnings were issued on August 9th of which 98 verified (i.e. warnings were issued in a timely manner and damage occurred after the warnings were issued). Timeliness of storm damage reports and pertinent weather information received from you, our spotters, were greatly appreciated. Your efforts are important to our goal of protecting life and property. Keep up the excellent work!

By Scott Hickman