

LOCAL CLIMATE

Fact Sheet

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

GETTING THE FACTS ABOUT CLIMATE

Care to find out what the weather was like on a special day in your life? Not sure what type of garden to plant in the new community to which you have moved? Have a weather-related insurance claim to resolve?

You can turn to the **Local Climatological Data (LCD)** to help settle such questions.

LCD's are published for each of approximately 290 National Weather Service Offices around the country. There is one for a place close to where you live. Lawyers, home owners, farmers, architects, and builders are a few of the kinds of people who turn to the **LCD's** to find vital climate and weather facts.

The two types of **LCD's**, annual and monthly, are summaries of weather observations for a certain year or month at a particular location. This information is offered in a concise, easy-to-use format.

The data found in the annual summaries are compiled over many years and are valid indicators of local climate. Climate can be thought of as the overall weather pattern for a given area over an extended period of time.

ANNUAL SUMMARY

The **LCD** annual issue summarizes monthly and annual data for the current year. The front page graphically displays the daily temperature ranges and precipitation for the entire year. Using brief tables and a short narrative, other pages provide listings of weather facts. These facts include average monthly temperature maximums and minimums, high and low temperature extremes, average sky cover, precipitation amounts, and snowfall.

Also included in the annual **LCD's** are monthly totals of heating and cooling degree days. Heating degree days (**HDD**) are calculated by subtracting the mean daily temperature from 65°F. Cooling degree days (**CDD**) are found by subtracting 65°F from the mean daily temperature. (The mean daily temperature is arrived at by averaging the maximum and minimum temperature for the day.) The greater the number of heating or cooling degree days calculated for a given date, the greater the amount of energy which was needed to maintain human comfort.



A significant portion of the **LCD** annual issue provides tables of normals, means, and extremes of weather conditions.

Normals are average values based on a thirty-year cycle (exceptions would be for weather stations having been established for less than 30 years). Normals are updated every ten years. Normals are provided for monthly temperature maximums and minimums, heating and cooling degree days, and precipitation.

Means or averages are given for such local climatic data as temperature, heating and cooling degree days, snowfall, precipitation, sky cover, and visibility. In addition to the monthly averages for the current year, monthly and annual averages are included for the last 30 years. Record values are for the entire period of record. Temperature and precipitation extremes also appear.

Each annual report includes a brief narrative climatological summary. This is a plain-language description of climate over the year at the location.

The following page contains a chart for Asheville, N.C. The annual **LCD**, is an example of one of several kinds of graphs presented in annual summaries. It describes air temperature over the year at the location. The upper solid curve represents daily maximum temperature normals while the lower solid curve represents minimum normals. The vertical lines represent actual daily temperature ranges, highs, and lows for the year being reported.

2003

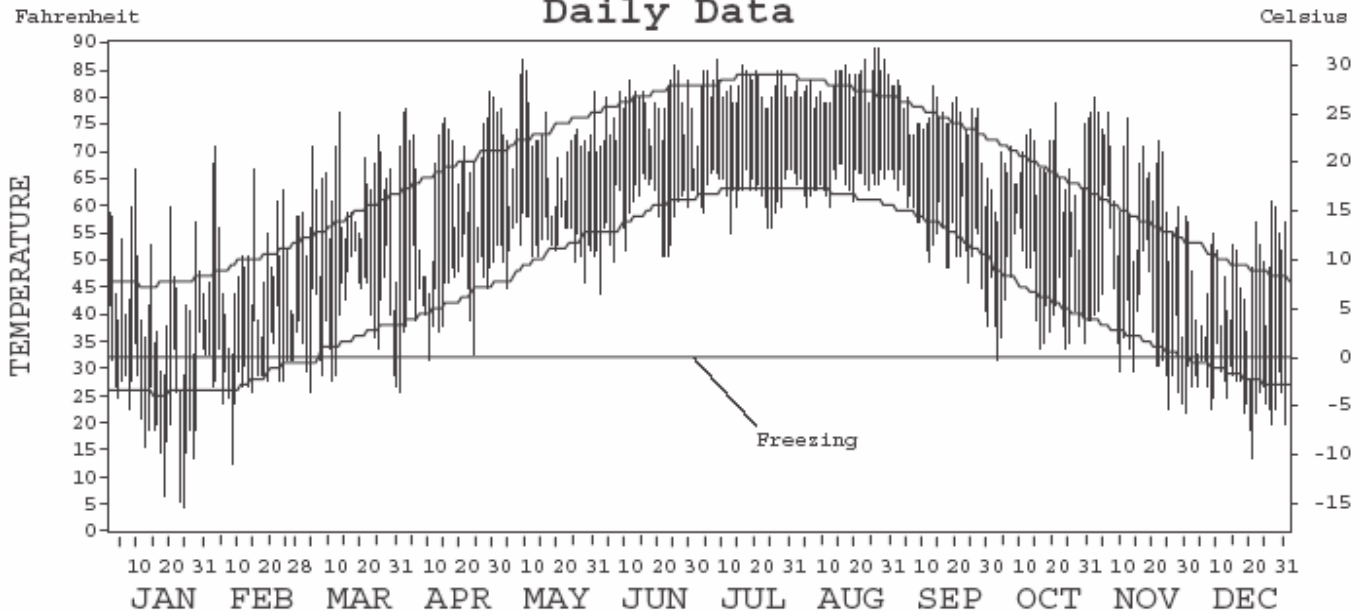
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISEN 0198-3695

ASHEVILLE,
NORTH CAROLINA (AVL)

Daily Data



By using this chart, can you determine when it would have been safe to set out potted plants? When would it have been necessary to bring them back indoors?

Monthly Summary

The **LCD** monthly issue provides tables which summarize the weather readings for each day of the month at a specific location. In addition, observational data are given in the monthly issue at 3-hour intervals.

Included in the monthly **LCD's** are daily temperature maximums, minimums, averages, and departures from normals. Also included are heating and cooling degree days, hourly and daily precipitation amounts, snow depths, record information, and sky cover.

Your nearest National Weather Service Office receives a limited quantity of **LCD's** for local distribution at a nominal fee.

Copies of **LCD's** from any of the reporting stations throughout the United States and other publications of related interest are available for purchase. For ordering information, contact:

National Climatic Data Center
151 Patton Avenue
Asheville, North Carolina 28801- 5001
Tel: 828- 271 - 4800
www.ncdc.noaa.gov

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For more educational activities go to
www.ncdc.noaa.gov/oa/edu.html

Classroom Activity Sheet

THIS CLASSROOM ACTIVITY SHEET ACCOMPANIES A FACT SHEET ON THE SAME WEATHER TOPIC. IT IS ONE OF A SERIES WHICH PROVIDE SUGGESTIONS FOR THE TEACHING OF SELECTED TOPICS IN METEOROLOGY. INFORMATION FOR THE TEACHER IS GIVEN BELOW. THE STUDENT ACTIVITY ON THE BACK OF THIS PAGE IS DESIGNED TO BE COPIED AND GIVEN TO EACH STUDENT.

FOR THE TEACHER: How to find information on local climate and how to use it in the classroom.

BACKGROUND: The publication entitled *Local Climatological Data* (commonly called the **LCD**) is a source of a wide variety of information on local climate. Its use in the classroom provides learning experiences about a climate while reinforcing basic graphing skills.

SUGGESTED APPROACH: Acquire a copy of the *LCD Annual Summary* from the National Climatic Data Center (NCDC). Be sure the copy is for 1984, or later, and for the location nearest you. Contact information for NCDC is the National Climatic Data Center, 151 Patton Avenue, Asheville, N.C. 28801, Tel: 828 - 271 - 4800 or go to www.ncdc.noaa.gov, for ordering information.

The **Student Activity** on the back of this sheet involves the graphing of Daily Maximum and Minimum Temperature Normals. These data are found near the top of Page 3 of your *LCD Annual Summary*. Duplicate and distribute Page 3 to your students. **NOTE:** The temperature graph on the front page of the *LCD Annual Summary* you are using will serve as your answer key for the graph students will draw.

Explain the following terms to your students: normals, means, extremes, maximum, minimum, and air temperatures. Refer to the accompanying **Local Climate Fact Sheet** and the *LCD Annual Summary* for definitions.

Distribute graph paper to your students. Give directions on setting up the graph so student's results will be similar to those found on the front page of the *LCD Annual Summary*.

Complete the **Student Activity** by distributing or displaying a complete copy of the *LCD Annual Summary* and discussing its contents.

MATERIALS: Copies of Page 3 of the *LCD Annual Summary*, graph paper, complete copies of the *LCD Annual Summary*.

MODIFICATIONS: 1. Have students compare *LCD Annual Summaries* from different locations. Look for differences and try to find possible causes of those differences. 2. Have students compare the *LCD Annual Summary* with the *LCD Monthly Summary*. 3. Present questions about climate and see if answers to them can be found by using the **LCD**.

N. C. STANDARD COURSE OF STUDY AND GRADE LEVEL COMPETENCIES:

Grade 7 - Competency Goal 3

The learner will make observations and build an understanding of weather concepts.

Objectives

3.06 Assess the use of technology in studying atmospheric phenomena and weather hazards:

- Satellites.
- Weather maps.
- Predicting.
- Recording.
- Communicating information about conditions.

Student Activity

INVESTIGATION: How do local temperature “normals” vary over a year?

OBJECTIVES: After completing this activity, you should be able to:

1. Describe what is meant by temperature “normals.”
2. Describe how daily high and low temperature “normals” for the National Weather Service Office near where you live vary over the period of a year.
3. Explain one aspect of your local climate through the interpretation of temperature normals.
4. Describe some of the contents of the publication *Local Climatological Data (LCD) Annual Summary*.

METHOD:

1. Examine the page of data given to you by your teacher. It is from a *LCD Annual Summary* for a location near you.
2. Your teacher will explain how to set up and label the graph you will construct in this activity.
3. Plot at mid-month the daily maximum temperature normal for each month. Connect adjacent plotted values with a line to produce the annual curve.
4. Plot at mid-month the daily minimum temperature normal for each month. Connect adjacent plotted values to produce the annual curve.
5. Refer to your completed graph when answering the questions below.

QUESTIONS:

1. In what month(s) does the highest daily maximum temperature normal occur over the period of a year? What is the highest daily maximum temperature normal for the year?
2. In what month(s) does the lowest daily minimum temperature normal occur over the period of a year? What is the lowest daily minimum temperature normal for the year?
3. For about how many days of the year are minimum daily temperature normals above freezing (32°F)?
4. Do you think the length of the actual growing season is usually longer or shorter than your answer to the previous questions? Explain.