

# CHAPTER 1

## INTRODUCTION

### CHAPTER OVERVIEW

This chapter describes the main features of the Contours plotting software for contours as you use it on the Macintosh line of computers. The chapter also explains how to use the manual and gives general procedures for using Contours.

### ABOUT CONTOURS

Contours is a visualization tool that provides you with an alternative to viewing a data set of points as mere numbers. Without the use of color, it uses the graphic capabilities of any of the Macintosh computers to present data in an easy-to-understand manner. This is done by displaying the data as a contour plot, a three-dimensional (3D) plot, or as shaded data of differing intensities.

From the dimensions of the data matrix you supply, Contours reads in a stream of data points from your file. It then displays the contour plot of these data points.

From here you can zoom in to display a more detailed graphic for the plot or zoom out for a macroscopic view. You can also switch between the three different plotting methods the program offers: linear, 3D, and shaded. At any time, you can respecify the number of contour levels to plot, the magnification of the required plot, and which part of the whole image is to be plotted.

This program follows the Macintosh user interface completely. It supports desk accessories, cut, copy, and paste features, and prints and saves of the contour plot.

### RECOMMENDED HARDWARE

Any Macintosh computer with a minimum of 512k memory will run Contours. Adding memory and a hard disk to your hardware will speed program execution and make Contours easier to use.

## LEARNING WITH CONTOURS

### Organization of this Manual

The Contours manual is organized into three chapters. The pages of each chapter are given a unique page number that consists of the chapter number, a period, and the number of each individual page (with sequence beginning on the first page of the chapter). For instance, page 2.3 is the third page of the second chapter. Each chapter is divided into sections; and most sections into subsections.

### Manual Contents

This manual is organized into the following chapters:

Chapter 1, "Introduction," provides a summary of Contours.

Chapter 2, "Learning to Use Contours," describes the functions of the Contours software in a tutorial format.

Chapter 3, "Reference Guide to Contours," describes each of the Contours menu commands in alphabetical order.

This manual also includes a glossary of key terms used in the manual.

### How to Use This Manual

This manual assumes you are familiar with the Macintosh user interface. Thus, it assumes that you know how to use menu bars and resize windows. If you have not used the Macintosh before, refer to *Macintosh*, the owner's guide that came with your Macintosh, before starting to use this package. Then read the remainder of this chapter before beginning the tutorial. If you are familiar with the Macintosh but are new to visualization tools, read Chapter 2, "Learning Contours," to get started creating a graphic representation of your data file.

If you are an experienced visualization tool user, the "How to Use Contours" section later in this chapter contains sufficient information to get you started.

If you are experienced both with the Macintosh and visualization software you may want to merely refer to Chapter 3, "Reference Guide to Contours". This provides a more detailed description of each feature in the program. This chapter should provide reminders about command functions once you already know how to use the program.

### Standard Chapter Sections

Different users of the Macintosh have different levels of computer experience. Because of these differences, this manual has information in each chapter presented so that novice and experienced users can easily find what they need to know. There are standard sections in each chapter that provide this type of information to users. These sections are:

## CHAPTER OVERVIEW

This section of the chapter gives a brief summary of what is contained in the chapter. Information in this section can be used by experienced users who need only to skim over the contents of the chapter and find the location of the information they need.

## CHAPTER SUMMARY

This section contains the information that was introduced in that chapter. Each of the key points is listed to reinforce new concepts for novices and encapsulate the facts for experienced users.

## Form of Presentation

The material in this chapter is presented in text or screen display notation.

### TEXT

In explaining various features and command, this manual often presents a word within a paragraph in italics to indicate that the word is defined within the paragraph.

Portions of this manual will also refer to other portions of the manual where related topics are covered. These cross references enclose the title within quotation marks.

### SCREEN REPRESENTATION

Throughout this manual many explanations of software behavior include a description of buttons or commands that you need to press or select from the screen. These parts of the screen that you need to select appear in a specific typestyle. For instance,

To save your entire image in PICT format, choose the *Save As* command on the File menu.

## HOW TO USE CONTOURS

### Creating a Plot

First, create and store a raster file. After starting up Contours, you can display a contour plot by choosing the *Open* command on the File menu. You are asked to choose the raster file to be displayed. Then, Contour prompts you to enter some information about your raster file: its dimensions, the magnification level of your display, the number of contour levels to be used in plotting, the origin of the image to be displayed, and the maximum and minimum data values of your raster file.

After you have entered the required information, click the **OK** button. Your plot, in a linear contour, is displayed. You can switch between plotting modes by choosing the **Shade** or **3D** command from the **Plot** menu.

### Select Controls

To zoom in and out, to enter the 3D plotting modes and to copy and print a selected region, simply click and drag a rectangle on the contour plot and choose the required command from the menu bar. If you choose the **Save As** command from the **File** menu, you save a new PICT file of the image displayed. This file can then be opened by other commercial object-oriented graphics packages.

In 3D plotting mode, you can hold down the mouse and rotate the Sun77 cube shown on the left of the screen by dragging the mouse. Rotate the cube to the desired orientation to display your 3D surface plot in that orientation. The two scroll bars scroll through data points, so you can view neighboring 3D surfaces.

## CHAPTER SUMMARY

This manual includes three chapters. Each chapter begins with an overview and ends with a summary. Chapter 2 is a tutorial for new users; it contains information organized by function. Chapter 3 is a reference for Contours; it lists information by menu.

To use Contours, first create a raster file. Then start Contours and open the file. After you enter information about the file and the contour you want to generate, click **OK** to create a linear contour plot. Then you can change the image to be a shaded or 3D plot. You can also zoom in or out of parts of the image, copy or print it, save it, or transfer it to a file for use with other software.

The key points of this chapter are:

- You must have stored a raster file before you run Contours.
- The first plot created is always a linear contour.
- You can rotate the cube to alter the image's perspective.
- Your image is saved as a PICT file when you select **Save As** from the **File** menu.