

PREFACE

The information age is evolving before our eyes aided by the ever expanding connectivity and resources of the Internet. Success in our information-based age requires effective reading, writing and computing skills. Computing is no longer a tool that we apply to our work. Computing is more than a knowledge of computer languages and software. Today, computing is an environment within which we conduct our daily work, study and leisure time activities. Computing is a way to facilitate the conceptualization and framing of problems. Computing is a way of locating and accessing information. Computing involves the management and communication of information. The vast amount of information we are exposed to each day requires computer tools to archive, retrieve and display information in ways that are suitable for a variety of users with different needs and computer skills. The complexity of earth systems science requires earth scientists in particular to have well-developed computer skills to be a productive element in today's research and education communities. The development of the global communication network called the Internet has placed a new set of tools at the hands of earth scientists to study the earth. As your companion and guide, *Earth Online* helps you gain access to earth science resources on the Internet.

The investigation of earth systems demands a framework whereby students and professionals can successfully integrate information from a variety of disciplines and perspectives into a unified whole. The earth scientist rarely investigates a problem within the confines of that particular discipline. Information from allied disciplines are required to grasp the complexity of earth systems. The vast resources and connectivity of the Internet give earth scientists an "information framework" to conduct their work. Like the earth system, the Internet is a system of interconnected resources (documents, data, images) that are transported between the system components (servers and clients) along information pathways. The Internet is more than that. The Internet is

... a sort of power loom, providing the framework and resources from which is being woven an enormously complex tapestry of new information, relationships, services, and—potentially—ways of working and interacting within a global society. (Watson, 1995)

Earth Online is for students, educators and professional earth scientists wishing to become active participants in the Internet earth science community. This book is intended for the novice, or casual Internet user. *Earth Online* cuts through the technical details of networking common to many Internet user guides. *Earth Online's* goal is to make you familiar with earth science resources on the Internet and how to effectively use them. To this end, I have minimized the amount of information dealing with the creation and growth of the Internet, the technical details of networking, and the various systems and services

offered over the Internet. Instead, you find valuable information about how to use the Internet for earth science education and research. Numerous real-world examples demonstrate the effectiveness of the Internet in getting our jobs done.

Audience

I wrote this book specifically for students of earth science, whether in the classroom or in the professional world. For the professional earth scientist, *Earth Online* serves as an introduction to, and a resource for, earth science information on the Internet. In *Earth Online* you'll find a variety of examples of how professional earth scientists are using the Internet to conduct their work. For students enrolled in earth science classes and programs, you'll find ways to use the Internet to locate information for class projects and research papers. *Earth Online* might even help you find a job! Educators will find *Earth Online* to be an effective tool to enrich earth science classes, and even if you are not a student or professional earth scientist, you'll probably find something of use because *Earth Online* is a "tool-oriented" book. As a tool, *Earth Online* helps you get your job done, whether this is studying the eruptive history of North American volcanoes, writing a research paper about the environmental effects of ozone depletion, publishing your work in electronic form or simply keeping in touch with your instructor or colleagues.

I assume that you have an elementary knowledge of computers. That is, you know what a mouse is, what a prompt on a computer screen means, and what a file directory looks like. If not, don't worry because the illustrations and examples provided in the book will probably give you enough information to figure this out on your own. *Earth Online* assumes that you've had a limited exposure to the Internet or possibly none at all. Your familiarity with the Internet is not really important. Actually *Earth Online* has value to all levels of Internet users, or "Internauts" as we are sometimes called. Even the most experienced Internet user will find something of value. What is important is a willingness to learn new things and "boldly go where you have not gone before." The problem for most Internet neophytes is navigating the vast and largely uncharted "space" that is the Internet.

Approaching the Internet for the first time can be an exasperating experience. Ed Krol described the Internet very well:

. . . the Internet is a lot like grabbing a handful of Jell-O—the more firm you think your grasp is, the more oozes down your arm. You don't need to deal with the Internet in this manner to eat it, you just need the right tool: a spoon. And you need to dig in and start eating. The same is true of the Internet. You don't need to be an expert . . . for it to be useful. You just need to know how to use some tools, and to start working with them. (Krol, E., 1994)

Earth Online will get you into earth science Internet resources from the very first chapter.

Earth Online will be your tool, and several places have been provided in the book for you to start digging into the Internet. Each chapter is profusely illustrated with examples of exemplary resources available on the Internet. I give you a chance to work hands-on with the Internet in the “Try It Out!” sections that accompany each chapter. But you need to start working with it!

What’s Required to Use *Earth Online*

You will glean many new ideas and techniques by reading through the text of *Earth Online*. However, to get the most out of *Earth Online* you will want to equip yourself with a few tools. First would be to establish an Internet connection. Several choices are available these days, and Chapter 1, “Getting to Know the Internet,” explains some of those choices.

To try out the services discussed in *Earth Online* you’ll also need access to a variety of different Internet client software, the software used to connect to the various services over the Internet like electronic mail, file transfer and the World Wide Web. Internet software is usually provided by the organization providing your Internet connection. Your computer operating system may have come bundled with Internet software, such as WARP OS/2 or Microsoft Windows 95. The *Earth Online* Web site is <http://ritter.wadsworth.com>.

It is impossible to provide examples of how different computer operating systems and their client software interact with the Internet. The PC-Windows client software and UNIX examples are used throughout *Earth Online*. Though other operating system software may look and feel somewhat different, they perform the same basic functions as those used in *Earth Online*. The Netscape Navigator is used throughout *Earth Online* for exploring the Internet. Practically all services offered over the Internet can be accessed with this one piece of software, or “helper” applications connected to it. *Earth Online* uses Netscape Navigator to demonstrate how to use a particular Internet service or activity in each chapter.

How to Use *Earth Online*

The way you use this book depends on your level of Internet expertise and what you’re looking for. Here are a few suggestions for making the best use of this book.

If you are new to the Internet . . .

Start at the beginning with the first chapter and follow through until the end to get the most benefit out of the book. Work through the various “Try It Out!” sections. Take a look at how earth scientists are using the Internet in the “Focus on the Internet” feature in each chapter. Stop in at the *Earth Online* World Wide Web site (URL - <http://ritter.wadsworth.com>) to get easy access to Internet earth science resources.

If you have done some “surfing” and want to know more . . .

Check out the chapters about tools that you haven't used before. If you've been Internet surfing and can't seem to find what you want, turn to Chapter 8, “Putting the Internet to Work.” This chapter can cut down on your frustration level.

If you want to keep in contact with people . . .

Electronic mail is one of the best ways to keep in contact with people without playing “phone tag.” Check out Chapter 3, “Communicating over the Internet.” Here you'll find out how to send an electronic message and participate in online group “discussions.”

If you are working on a research project/paper . . .

The Internet is a vast, up-to-date resource for finding information for a research project or paper. Before jumping into your next project, take a look at Chapter 8, “Putting the Internet to Work.” This chapter will focus your efforts to make the most of Internet resources and tools. Then move to Chapter 6, “Searching the Internet.”

If you want to get started publishing on the Internet . . .

Chapter 8, “Putting the Internet to Work,” introduces you to HyperText Markup Language, the language of the World Wide Web. In this chapter you'll examine what goes into publishing a “home page” and how to design one. Step-by-step instructions show you how to create a personal Web resource page with links to earth science resources.

If you just want to browse . . .

Browsing the Internet can be one of the most exciting activities on the Net. There's nothing like coming upon a gold mine of information by chance. Several tools aid your browsing or “surfing” adventures. Chapter 2, “Browsing the Internet,” is your initial link to browsing on the Internet.

If you are an experienced “Internaut” . . .

Experienced users will certainly benefit from checking out the extensive list of resources in Chapter 10, “Internet Resources for Earth Science.” You might want to get right to the ***Earth Online*** World Wide Web site by connecting to **<http://ritter.wadsworth.com>**. The ***Earth Online*** site will keep you current with what's new in earth science Internet resources. At the Web site, experienced users are invited to share their experiences using the Internet.

Special Features

Earth Online helps you get online and using Internet earth science resources from the very first chapter. Chapters 1 through 8 have Apply It! sections. Here is where you take what you have learned in a particular chapter and apply it toward finding resources concerning the issue of climate change. You'll apply what you've learned using the Netscape Navigator World Wide Web browser in a step-by-step fashion. For instance, in Chapter 1 you'll learn how to navigate the Internet with Netscape and visit the Virtual Earth Web site. Chapter 3, "Communicating over the Internet," shows you how to send electronic mail with the Navigator Web browser. In Chapter 8, "Putting the Internet to Work," you'll learn how to publish the climate change resources you've found in each chapter on the World Wide Web. Additionally, each chapter has a "Try It Out!" section suggesting other activities utilizing the various Internet tools and services available.

Earth Online and Wadsworth Publishing will help you navigate the Internet with the *Earth Online* World Wide Web site (<http://ritter.wadsworth.com>). The *Earth Online* page is located on the Wadsworth World Wide Web server and is your link to the ever expanding universe of earth science information on the Internet. The *Earth Online* page contains all the examples used in the book. Educators can access the book examples as they instruct their students about the use of the Internet. All the "Try It Out!" exercises are also here. Links to the extensive catalog of earth science resources described in Chapter 10 are accessible from the *Earth Online* World Wide Web site. The *Earth Online* site is updated on a monthly basis, but we'll do it sooner if we find resources that you'll need right away. I would also like to hear from you, the *Earth Online* user. Let me know when you find online resources to add to the resource catalog. We would also like to hear about how you are using *Earth Online* or the Internet in your classes or work. We will post your ideas or links on the *Earth Online* site. One of the disadvantages of publishing a book about a fluid medium like the Internet is that the technology and online resources change rapidly. The *Earth Online* page will serve as a way of keeping the *Earth Online* book up-to-date so that you can keep abreast of the latest developments and any changes in the book's example sites.

Conventions

I have adopted a set of text formatting conventions that represent different operations that you would perform on your computer to interact with the Internet. Commands issued to start an application or perform some operation via your keyboard are in *boldface* type. (e.g., **gopher**, **get**, **exit**). Generic placeholders or "variables"—text that the user would replace with a specific value or word—are printed in *italic* between the greater-than and less-than characters. For example, in the command

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get <filename>
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the reader replaces *<filename>* with the actual name of the file he or she wants to get.

Internet addresses are in bold and use the Uniform Resource Locator (URL) format. For example:

A World Wide Web address: **URL - http://address here**

A Telnet address: **URL - telnet://address here**

A Gopher address: **URL - gopher://address here**

To use these addresses with a World Wide Web browser you use everything after the "URL - ." When using other Internet applications (e.g., Telnet, Gopher, FTP client programs) use everything after the double slashes "///." Electronic mail addresses are printed in bold. For example,

mritter@uwsp.edu

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Michael Ritter