

FOURTEENTH EDITION

Earth Science



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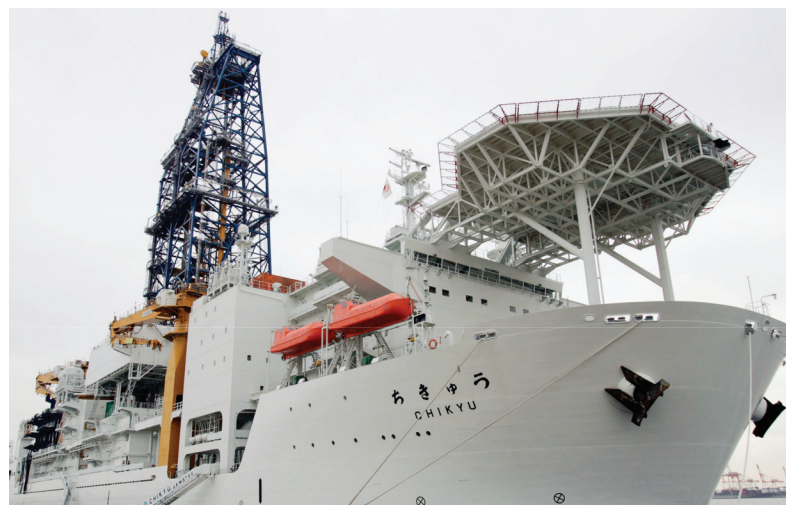
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PREFACE

Earth Science, 14th edition, is a text designed for an introductory course in Earth science. It consists of seven units that emphasize broad and up-to-date coverage of basic topics and principles in geology, oceanography, meteorology, and astronomy. The textbook is intended to be a meaningful, nontechnical survey for students who have little background in science.

In addition to being informative and up-to-date, *Earth Science*, 14th edition, strives to meet the need of beginning students for a readable and user-friendly text and a highly usable tool for learning basic Earth science principles and concepts.

NEW TO THIS EDITION

- **SmartFigures—art that teaches.** Inside every chapter are several *SmartFigures*. *Earth Science*, 14th edition, has more than 100 of these figures. Just use your mobile device to scan the Quick Response (QR) code next to a SmartFigure, and the art comes alive. Each 3- to 5-minute feature, prepared and narrated by Professor Callan Bentley, is a mini-lesson that examines and explains the concepts illustrated by the figure. It is truly *art that teaches*.
- **Mobile Field Trips.** Scattered through this new edition of *Earth Science* are thirteen Mobile Field Trips. On each trip, you will accompany geologist–pilot–photographer Michael Collier in the air and on the ground to see and learn about landscapes that relate to discussions in the chapter. These extraordinary field trips are accessed in the same way as SmartFigures. You will scan a QR code that accompanies a figure in the chapter—usually one of Michael’s outstanding photos.
- **New and expanded active learning path.** *Earth Science*, 14th edition, is designed for learning. Every chapter begins with *Focus on Concepts*. Each numbered learning objective corresponds to a major section in the chapter. The statements identify the knowledge and skills students should master by the end of the chapter, helping students prioritize key concepts. Within the chapter, each major section concludes with *Concept Checks* that allow students to check their understanding and comprehension of important ideas and terms before moving on to the next section. Chapters conclude with sections called *Give It Some Thought* and *Examining the Earth System*. The questions and problems in these sections challenge learners by involving them in activities that require higher-order thinking skills such as application, analysis, and synthesis of material in the chapter. The questions and problems in *Examining the Earth System* are intended to develop an awareness of and appreciation for some of the Earth system’s many interrelationships.
- **Concepts in Review.** This all-new end-of-chapter feature is an important part of the text’s revised active learning path. Each review is coordinated with the *Focus on Concepts* at the beginning of the chapter and with the numbered sections within the chapter. It is a readable and concise overview of key ideas, which makes it a valuable review tool for students. Photos, diagrams, and questions also help students focus on important ideas and test their understanding.
- **Eye on Earth.** Within every chapter are two or three images, often aerial or satellite views, that challenge students to apply their understanding of basic facts and principles. A brief explanation of each image is followed by questions that help focus students on visual analysis and critical thinking.
- **GEOgraphics.** As you turn the pages of each chapter, you will encounter striking visual features that we call GEOgraphics. They are engaging magazine-style “geo-essays” that explore topics that promote greater understanding and add interest to the story each chapter is telling.
- **An unparalleled visual program.** In addition to more than 200 new, high-quality photos and satellite images, dozens of figures are new or have been redrawn by renowned geoscience illustrator Dennis Tasa. Maps and diagrams are frequently paired with photographs for greater effectiveness. Further, many new and revised figures have additional labels that narrate the process being illustrated and guide students as they examine the figures. The result is a visual program that is clear and easy to understand.
- **MasteringGeology™.** MasteringGeology delivers engaging, dynamic learning opportunities—focused on course objectives and responsive to each student’s progress—that are proven to help students absorb course material and understand difficult concepts. Assignable activities in MasteringGeology include Encounter Earth activities using Google Earth™, SmartFigure activities, GeoTutor activities, GigaPan® activities, Geoscience Animation activities, GEODE tutorial activities, and more. MasteringGeology also includes all instructor resources and a robust Study Area with resources for students.
- **Significant updating and revision of content.** A basic function of a science text book is to provide clear, understandable presentations that are accurate, engaging, and up-to-date. Our number-one goal is to keep *Earth Science* current, relevant, and highly readable for students. Every part of this text has been examined carefully with this goal in mind. Many discussions, case studies, and examples have been revised. This 14th edition represents perhaps the *most extensive and thorough revision* in the long history of this textbook.

DISTINGUISHING FEATURES

Readability

The language of this textbook is straightforward and *written to be understood*. Clear, readable discussions with a minimum of technical language are the rule. The frequent headings and subheadings help students follow discussions and identify the important ideas presented in each chapter. In this 14th edition, we have continued to improve readability by examining chapter organization and flow and by writing in a more personal style. Significant portions of several chapters have been substantially rewritten in an effort to make the material easier to understand.

Focus on Basic Principles and Teacher Flexibility

Although many topical issues are treated in this 14th edition of *Earth Science*, it should be emphasized that the main focus of this new edition remains the same as the focus of each of its predecessors: to promote student understanding of basic Earth science principles. As much as possible, we have attempted to provide the student with a sense of the observational techniques and reasoning processes that constitute the Earth sciences.

A Strong Visual Component

Earth science is highly visual, and art and photographs play a critical role in an introductory textbook. As in all previous editions, Dennis Tasa, a gifted artist and respected geoscience illustrator, has worked closely with the authors to plan and produce the diagrams, maps, graphs, and sketches that are so basic to student understanding. The result is art that is clearer and easier to understand than ever before.

Our aim is to get *maximum effectiveness* from the visual component of the text. Michael Collier, an award-winning geologist–photographer aided greatly in this quest. As you read through this text, you will see dozens of his extraordinary aerial photographs. His contribution truly helps bring geology alive for the student.

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- Pearson eText for *Earth Science*, 14th edition, which gives students access to the text whenever and wherever they can access the Internet and includes powerful interactive and customization functions
- **Geoscience Animation Library.** More than 100 animations illustrating many difficult to understand Earth science concepts.
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Some of the teacher supplements and resources for this text are available electronically to qualified adopters on the Instructor Resource Center (IRC). Upon adoption or to preview, please go to www.pearsonschool.com/access_request and select Instructor Resource Center. You will be required to complete a brief one-time registration subject to verification of educator status. Upon verification, access information and instructions will be sent to you via email. Once logged into the IRC, enter ISBN 978-0-13-348037-5 in the “Search our Catalog” box to locate resources. Electronic teacher supplements are also available within the Instructor’s tab of MasteringGeology.

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- Three PowerPoint® presentations for each chapter
- The Geoscience Animation Library
- All the line art, tables, and photos from the text, in .jpg files
- “Images of Earth” photo gallery
- Instructor’s Manual in Microsoft Word
- Test Bank in Microsoft Word
- TestGen test-generation and management software

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The IRC provides three PowerPoint files for each chapter to cut down on your preparation time, no matter what your class needs:

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- **Lecture outline.** This set averages 35 slides per chapter and includes customizable lecture outlines with supporting art.
- **Classroom Response System (CRS) questions.** These questions have been authored for use in conjunction with any classroom response system. You can electronically poll your class for responses to questions, pop quizzes, attendance, and more.

Animations and “Images of Earth”

The Pearson Prentice Hall Geoscience Animation Library includes more than 100 animations illustrating many difficult-to-visualize topics in Earth science. Created through a unique collaboration among five of Pearson Prentice Hall’s leading geoscience authors, these animations represent a significant step forward in lecture presentation aids. They are provided both as Flash files and, for your convenience, preloaded into PowerPoint slides.

“Images of Earth” allows you to supplement your personal and text-specific slides with an amazing collection of more than 300 geologic photos contributed by Marli Miller (University of Oregon) and other professionals in the field. The photos are available on the Instructor’s Resource DVD.

Instructor’s Manual with Test Bank

The *Instructor’s Manual* contains learning objectives, chapter outlines, answers to end-of-chapter questions, and suggested short demonstrations to spice up your lecture. The Test Bank incorporates art and averages 75 multiple-choice, true/false, short-answer, and critical thinking questions per chapter.

TestGen

Use this electronic version of the Test Bank to customize and manage your tests. Create multiple versions, add or edit questions, add illustrations, and so on. This powerful software easily addresses your customization needs.

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