A NEW GEOMORPHOLOGY TEXTBOOK, CREATED IN A NEW WAY

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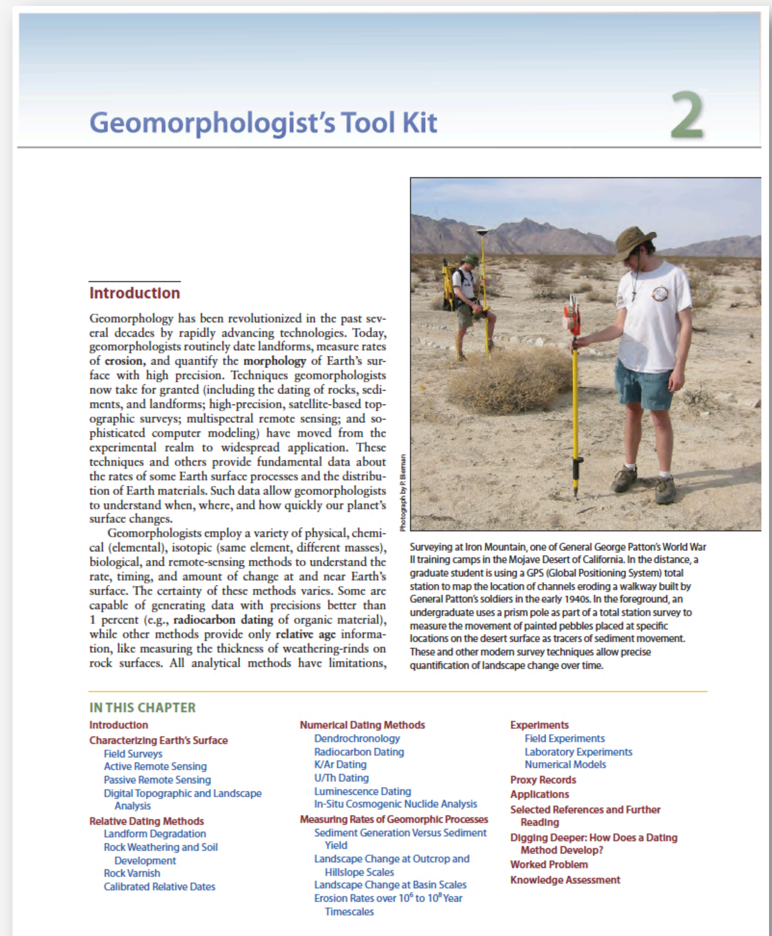
Abstract

We have completed a new textbook, *Key Concepts in Geomorphology*, applying a model of extensive community involvement at all stages from initial outlining through chapter development and revision to final review. The textbook is designed to serve undergraduate students in first year courses about Earth Surface Processes, Physical Geography, and Quaternary Geology. It differs from existing textbooks because it is shorter and focuses on the key concepts of the discipline rather than on esoteric details or place-based examples. Such details are covered in a series of >250 electronic resources developed by community members as part of this project (see abstract by C. Massey and visit http://serc.carleton.edu/vignettes).

The US National Science Foundation provided support for review of each chapter by two experts well-versed in the chapter's content as well as review of the entire textbook by two senior geomorphologists and a technical editor with expertise in Surface Processes and Quaternary History. Each chapter was vetted by 8 to 10 generalist reviewers before extensive copyediting.

The textbook has 14 chapters organized into four sections. Each chapter includes between 10 and 14 newly drafted, full-color figures designed specifically for novice learners. Between 20 and 30 annotated color photographs fill the chapters along with a worked problem and a series of questions that allow students to test their mastery of the material. At the end of each chapter, the Digging Deeper section presents an in depth look at the development of scientific thought on a problem relevant to the chapter.

14 Chapters each begin with an outline and image.



1. Earth's Dynamic Surface
2. Geomorphologist's Tool Kit

Part 1

3. Weathering and Soils
4. Geomorphic Hydrology
5. Hillslopes
6. Channels
7. Drainage Basins
8. Coastal and Submarine Geomorphology

Part 2

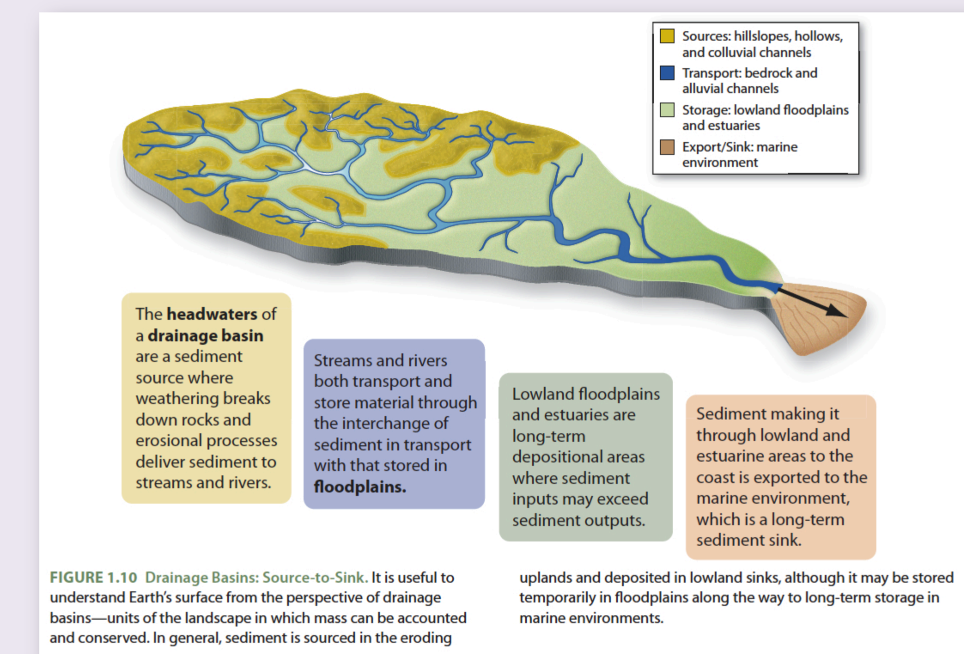
9. Glacial and Periglacial Geomorphology
10. Wind as a Geomorphic Agent
11. Volcanic Geomorphology

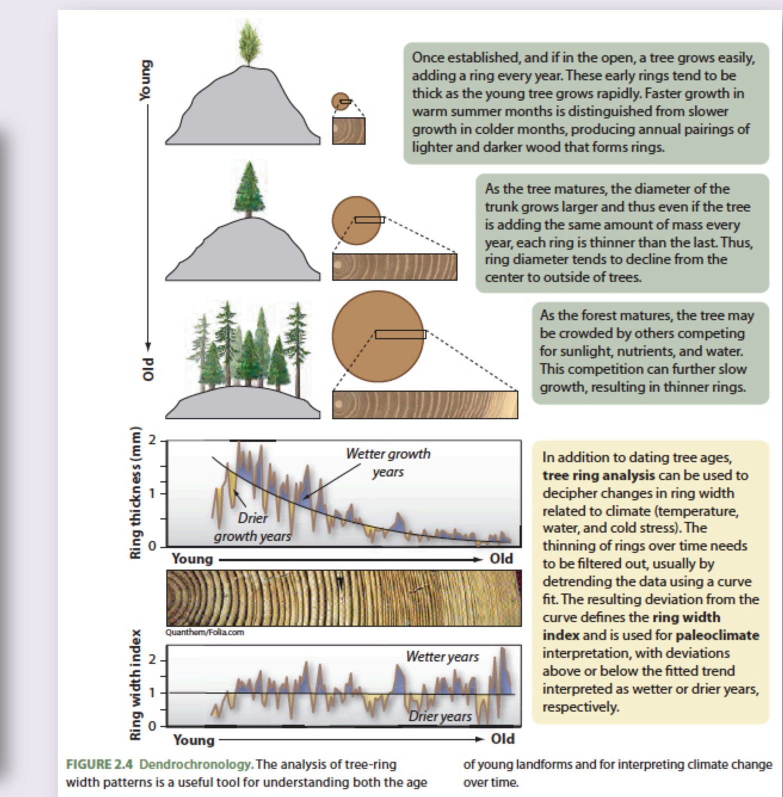
Part 3

12. Tectonic Geomorphology
13. Geomorphology and Climate
14. Landscape Evolution

Part 4

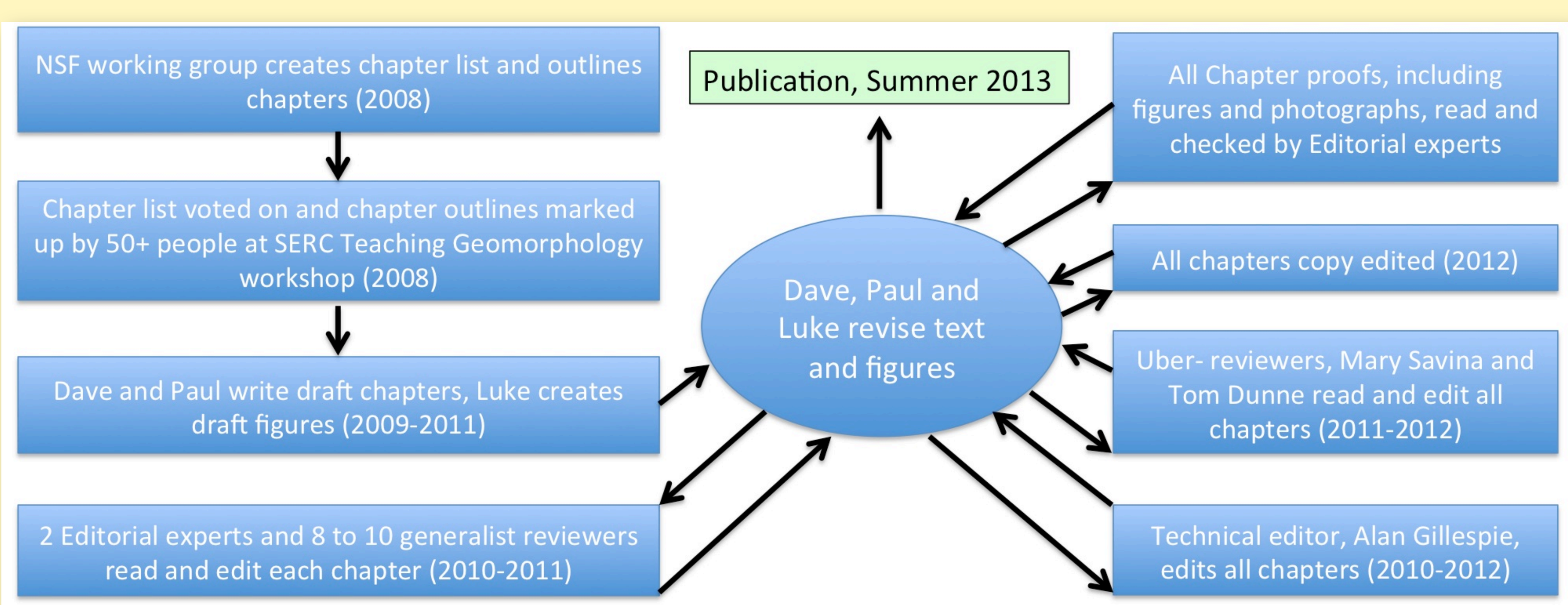
All new, full color art, 10 to 14 figures per chapter, uses explanatory text boxes and images to make learning new concepts easier for students.



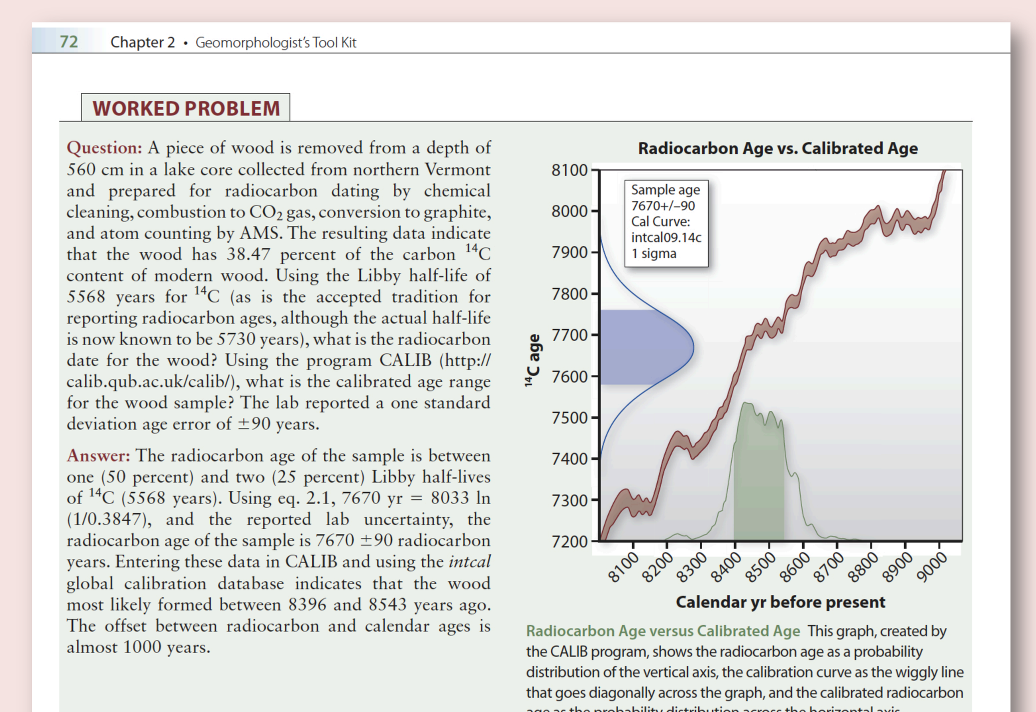


Community involvement and extensive peer review determined content and ensured accuracy.

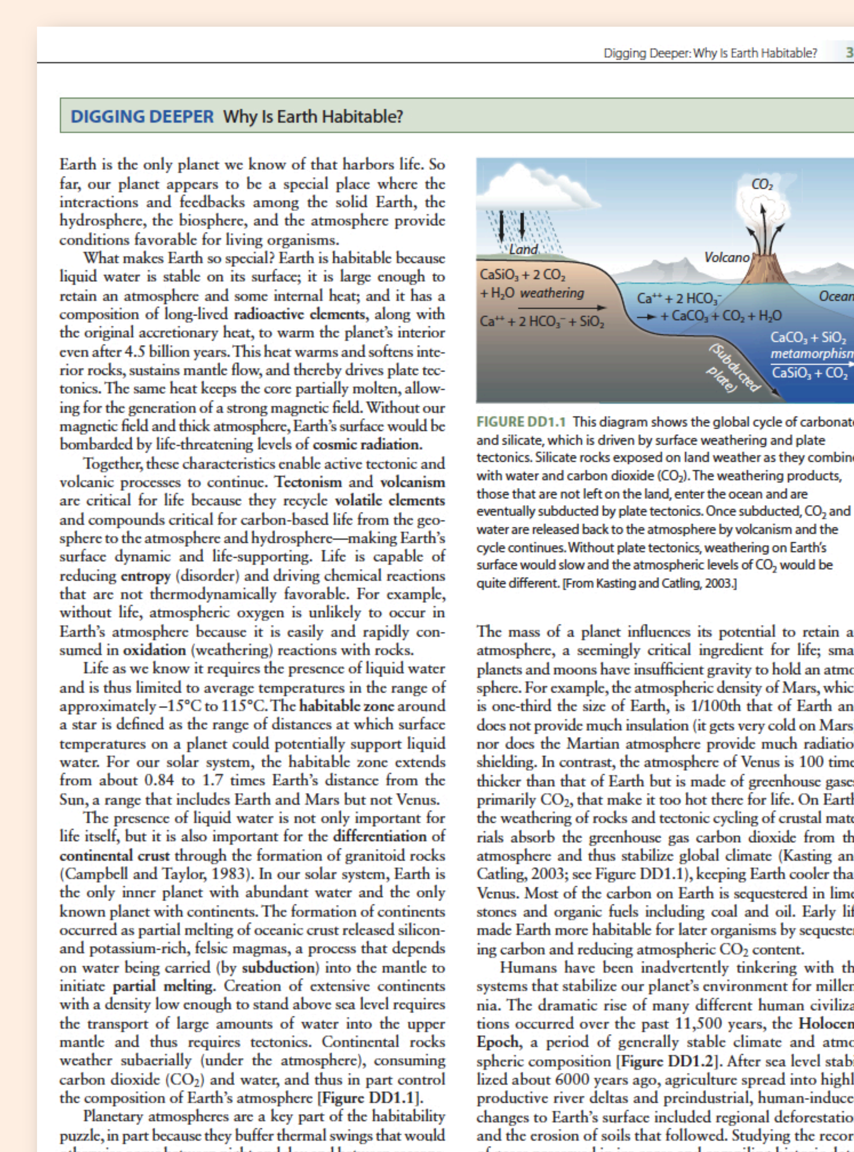
We thank Editorial experts Ari Matmon, Arjun Heimsath, Beverley Wemple, Cam Wobus, Chuck Nittrouer, David Dethier, Derek Booth, Dorothy Merritts, Doug Clark, Ellen Wohl, Eric Leonard, Eric Steig, Frank Magilligan, Frank Pazzaglia, Gordon Grant, Grant Meyer, Kathy Cashman, Leslie McFadden, Lisa Ely, Milan Pavich, Missy Eppes, Nick Lancaster, Paul Bishop, Ray Torres, Sara Mitchell, Scott Burns, and Scott Linneman.



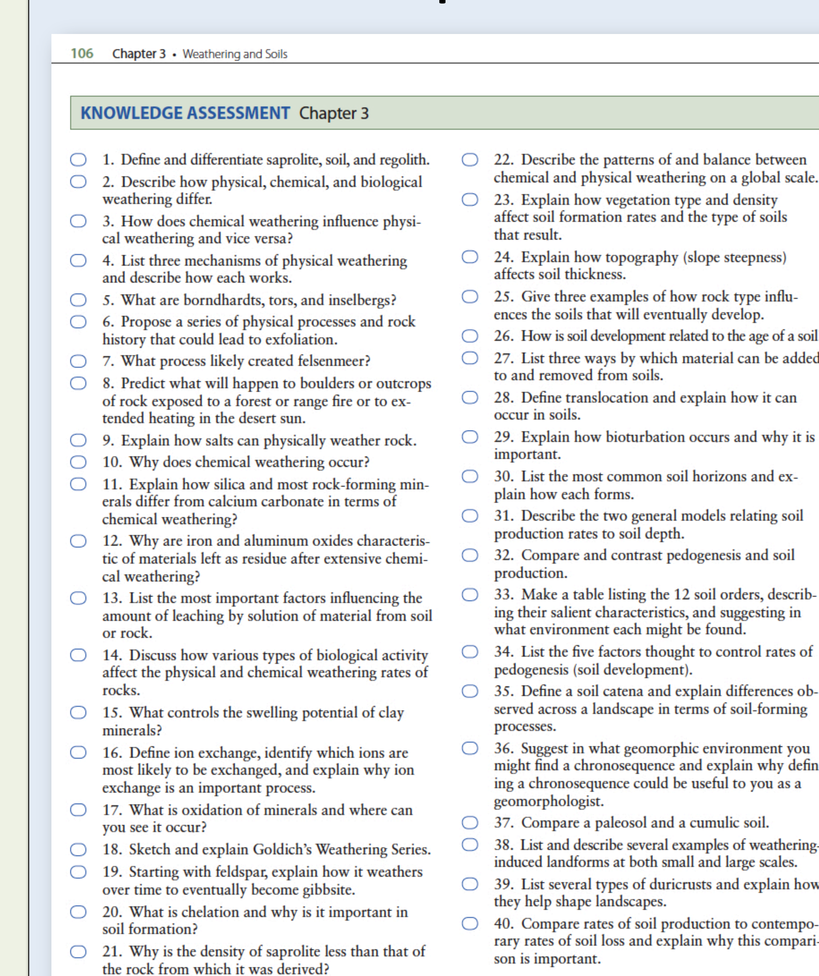
Worked problems at the end of each chapter provide written and numeric examples to aid student learning.



Digging Deeper sections end each chapter and provide an in-depth, referenced narrative detailing the development of thinking on important geomorphic problems.



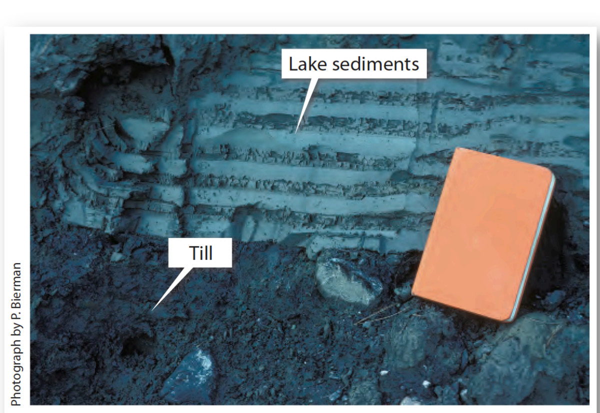
Knowledge assessments provide study guides for students and reflect the most important content of each chapter.



High quality photographs, 20 to 30 per chapter, illustrate key concepts, techniques, and landforms. Most are in color and taken by geoscientists. Annotations aid recognition.

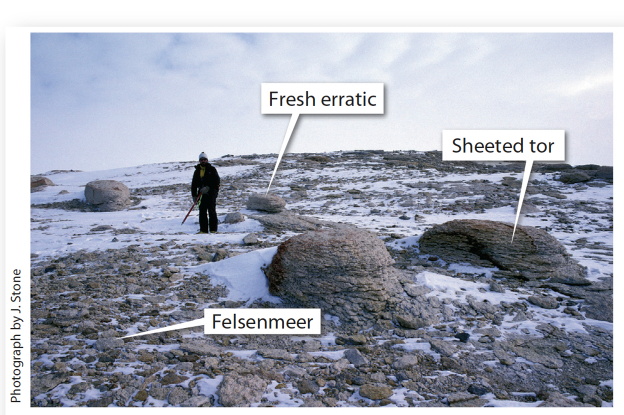
Photograph by P. Bierman

PHOTOGRAPH 2.16 Tracking Sediment Movement. Placing painted pebbles at General Patton's former Camp Iron Mountain in the Mojave Desert to trace sediment movement over time.



Photograph by P. Bierman

PHOTOGRAPH 2.1 Glacial Lake Sediment and Till. When a glacial lake formed next to a retreating ice margin in eastern New York State, rhythmically bedded fine-grain couplets of sand and silt were deposited over till. The underlying till is older than the overlying lake sediments. The fieldbook is about 20 cm long.



Photograph by J. Stone

PHOTOGRAPH 3.5 Felsenmeer. Felsenmeer, frost-shattered rock, and sheeted tors of bedrock on the summit of Mount Darling, Marie Byrd Land, Antarctica. The geologist in the image is between two much less weathered glacial erratics deposited on the surface by glacial ice frozen to its weathered bed.

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