

Biogeochemistry: An Analysis of Global Change, 3rd Edition

By W.H. Schlesinger, Emily S. Bernhardt





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Biogeochemistry? winner of a 2014 Textbook Excellence Award (Texty) from the Text and Academic Authors Association? considers how the basic chemical conditions of the Earth, from atmosphere to soil to seawater, have been and are being affected by the existence of life. Human activities in particular, from the rapid consumption of resources to the destruction of the rainforests and the expansion of smog-covered cities, are leading to rapid changes in the basic chemistry of the Earth.

This expansive text pulls together the numerous fields of study encompassed by biogeochemistry to analyze the increasing demands of the growing human population on limited resources and the resulting changes in the planet's chemical makeup.

The book helps students extrapolate small-scale examples to the global level, and also discusses the instrumentation being used by NASA and its role in studies of global change. With extensive cross-referencing of chapters, figures and tables, and an interdisciplinary coverage of the topic at hand, this updated edition provides an excellent framework for courses examining global change and environmental chemistry, and is also a useful self-study guide.

- Winner of a 2014 Texty Award from the Text and Academic Authors Association
- Calculates and compares the effects of industrial emissions, land clearing, agriculture, and rising population on Earth's chemistry
- Synthesizes the global cycles of carbon, nitrogen, phosphorous, and sulfur, and suggests the best current budgets for atmospheric gases such as ammonia, nitrous oxide, dimethyl sulfide, and carbonyl sulfide
- Includes an extensive review and up-to-date synthesis of the current literature on the Earth's biogeochemistry



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Sales Rank: #124315 in Books
Brand: Brand: Academic Press
Published on: 2013-01-28
Original language: English

• Number of items: 1

• Dimensions: 9.00" h x 7.50" w x 1.25" l, 3.30 pounds

• Binding: Paperback

• 688 pages

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Editorial Review

Review

"Biogeochemistry is a multidisciplinary field that studies the interactions, over both human and geological timescales, of living things and the earth's chemical cycles...Throughout the book there is a focus on the ways in which humans have intervened in these cycles in recent times."--Reference & Research Book News, October 2013 "[The third edition of] the now classic text by Bill Schlesinger not only updates, but expands upon the earlier editions. This is a must read, 'one stop shop' for a basic, yet detailed text on contemporary biogeochemical cycles, writ large. While the author does describe basic cycles in an historical context, the primary focus is on contemporary cycles, their interactions, and the effects of humans on them. A tour de force that will be referred to often, the book is a must-read for anyone working in the general area of biogeochemistry."--Paul Falkowski, Rutgers University "A comprehensive treatment of the field of Biogeochemistry, which is both expanding rapidly and becoming increasingly important for helping identify sustainability. We can't all be specialists on all of these topics, but this book will quickly bring you up to speed on a full range of biogeochemical processes and cycles. A read and reference for every serious Earth Systems scientist and student."--Eric Davidson, The Woods Hole Research Center "The new edition of William Schlesinger's Biogeochemistry offers a clearly written, well-documented introduction to what every person should know if we are to navigate successfully to a sustainable future for our planet."--Michael McElroy, Harvard University

From the Back Cover

Biogeochemistry: An Analysis of GlobalChange, Third Editionis the highly-anticipated update to one of Academic Press best-selling earth and environmental science textbooks. This book examines the effects of human activities on the chemistry of the Earth, including climate change, nitrogen pollution, and ocean acidification. It shows how current technology can help extrapolate the results of small-scale field studies to the global level. Key features:

- Easy readability, making a seemingly difficult subject fun and compelling
- Cohesive, comprehensive, and interdisciplinary approach
- Timely topics including the role of biogeochemistry in climate change research
- Synthesis of the current literature on the Earth's biogeochemistry

New to this edition:

- Revised content and new figures and tables reflect the vast growth of this scientific field over the past decade
- End-of-chapter problem sets reinforce learning
- Color figures include numerous maps of global biogeochemical phenomena
- Addition of a substantial number of citations of material published since the last edition (more than 4,500 total), including many added as the book was going to press
- Companion website includes web links, recommended reading, and images from the book

About the Author

Dr. Emily S. Bernhardt is Assistant Professor at Duke University in the Department of Biology. She currently teaches biogeochemistry. A graduate of University of North Carolina Chapel Hill (B.S) and Cornell University (PhD.) and her areas of interest include biogeochemistry, ecosystem ecology, stream and wetland ecology, urban ecology, and restoration ecology.

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Jacquelin Vasquez:

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Carl Melton:

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