

Principles of Environmental Physics, Fourth Edition: Plants, Animals, and the Atmosphere

By John Monteith, Mike Unsworth

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Principles of Environmental Physics: Plants, Animals, and the Atmosphere, 4e, provides a basis for understanding the complex physical interactions of plants and animals with their natural environment. It is the essential reference to provide environmental and ecological scientists and researchers with the physical principles, analytic tools, and data analysis methods they need to solve problems. This book describes the principles by which radiative energy reaches the earth's surface and reviews the latest knowledge concerning the surface radiation budget. The processes of radiation, convection, conduction, evaporation, and carbon dioxide exchange are analyzed. Many applications of environmental physics principles are reviewed, including the roles of surface albedo and atmospheric aerosols in modifying microclimate and climate, remote sensing of vegetation properties, wind forces on trees and crops, dispersion of pathogens and aerosols, controls of evaporation from vegetation and soil (including implications of changing weather and climate), and interpretation of micrometeorological measurements of carbon dioxide and other trace gas fluxes.

- Presents a unique synthesis of micrometeorology and ecology in its widest sense
- Deals quantitatively with the impact of weather on living systems but also with the interactions between organisms and the atmosphere that are a central feature of life on earth
- Offers numerous worked examples and problems with solutions
- Provides many examples of laboratory and field measurements and their interpretation
- Includes an up-to-date bibliography and review of recent micrometeorological applications in forestry, ecology, hydrology, and agriculture

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Editorial Review

Review

*"This compact overview of environmental physics…serves as an excellent introduction to the subject. Its pioneering approach to the application of physics to the study and analysis of biological processes is still unsurpassed...The range of subjects covered is wide…and the new edition reorganizes and updates core material and improves on presentation...Rigorous but accessible, this is a wonderful text, and contains an extensive bibliography and a list of references."--**ProtoView.com,** **January 2014***

From the Back Cover

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Key features:

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New to this edition:

- More material on causes of global warming, applications of remote sensing, and the carbon and water cycles of crops and forests
- Details models and applications to help solve the problems environmental scientists, ecologists, and hydrologists face today
- Additional examples from plant and animal research
- Expanded derivations of critical physical principles, providing more clarity for readers from non-physics backgrounds

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