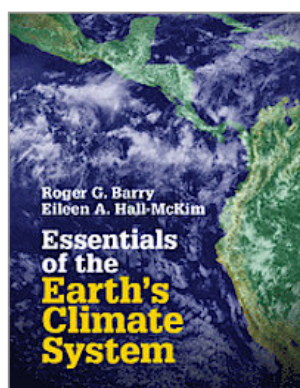


rarity of great volcanic eruptions near the poles has posed great problems to scientists, trying to develop climate models fitting the particular atmospheric patterns found there. So it is still controversial whether the exceptional hot and dry summer of 1783 was a direct consequence of the Laki eruption (as the ash adsorbed and scattered both sunlight and moisture) and only later atmospheric circulation dispersed the ash in such a way that the cooling effect, as seen following modern eruptions, prevailed. This is also explored in the book.

In the end one thing is certain – the title of the book could easily be Planet on Fire, rather than Island on Fire, as the two authors take the reader, starting from Iceland, on a great journey around the globe, showing how different civilizations through centuries were, and still are, influenced by volcanoes. I can only recommend this book to geology- and history-enthusiasts alike.

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## Book review: Essentials of the Earth's Climate System



By Roger G. Barry and  
Eileen A. Hall-McKim

CAMBRIDGE UNIVERSITY  
PRESS

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Understanding the Earth's climate system is a fundamental part of any atmospheric or Earth science curriculum. When talking about climate, it is important to remember that climate science incorporates the description of key variables and concepts, climatic zones as well as climate change and its implications to society.

[Essentials of the Earth's Climate System](#), by Roger G. Barry and Eileen A. Hall-McKim, is a comprehensive introductory textbook that covers all aspects of the climate system. It is specifically written for a one-semester course in climate science and does not assume prior knowledge beyond a basic understanding of scientific principles. Mathematical equations are mostly omitted in favour of a combination of descriptive texts and colour figures that illustrate most concepts.

Designed for coursework, each chapter starts with an outline of the key concepts and finishes with a brief summary as well as review questions. While most questions require the student to explain a specific process or highlight important aspects, there are also questions that encourage students to work with freely available climate data and to explore climate phenomena. The text itself is divided into short sections, each covering one concept, variable or aspect of climate. These paragraphs are densely packed with facts, scientific theory and applications, but remain easy to read due to the accessible language. Even experienced scientists will find new and relevant information in this book, so that it might serve as a short reference. Throughout the book there are a multitude of text boxes

that provide additional information about important scientists or interesting climate features and events such as the Tibetan Plateau or the Dust Bowl. This encourages students to do further reading.

The book contains 12 chapters that can be grouped into four sections. After a brief introduction, chapters two and three introduce climate variables such as energy, moisture and wind. Chapters four to eight, introduce the reader to processes and elements of the climate system, such as microclimates, general circulation, teleconnections, synoptic climatology and land-sea interactions. Chapter nine gives an overview over different climate types and gives examples of the differences within each climatic zone. The last three chapters deal with past and future climates, as well as current applications and implications of climate science. The book also contains an extensive glossary of terms used in the book and links to climate and weather data. There is also an additional information on topics such as monsoons or teleconnections.

To give the reader an impression of the general style of this book, I provide two examples of how topics are covered. The concept of evaporation is addressed on four and a half pages. After a brief introduction to the concept and latent heat, the book provides some history on the work of Penman and modifications of the equations named in his honour, without actually providing the equations, and introduces direct measurement methods, linking them to the [FLUXNET network](#). Then evapotranspiration is introduced and linked to climate classification. The authors provide global maps of evaporation and introduce the concepts of water balance, drought and moisture indices.

The section on monsoons as a climate type establishes the seasonal nature of monsoonal climates and extensively links the upper air circulation over Eastern Asia to rainfall characteristics in the region. Similarly monsoon systems in West Africa, Australia and even North and South America are described.

Compared to other climatology textbooks, the authors present a lot of information that goes beyond the explanation of basic scientific concepts, such as historic overviews and current applications. Additionally, climate classification is treated more extensively than in many other books. It is my impression that the focus of the book is

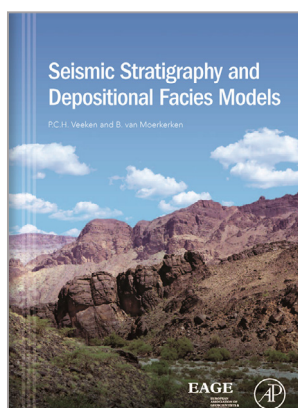
on the description of climate elements, given the amount of information and the focus on classification. As a consequence, sometimes the climate's nature as a complex system of physical processes does not get transported as well as it could.

Overall, the content of Essentials of the Earth's Climate System is very extensive and well researched. It serves well both as a reference and a basis for an introductory class in climatology.

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## Book review: Seismic Stratigraphy and Depositional Facies Models



By P.C.H. Veeken and B. van Moerkerken

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The interpretation of sedimentary deposits from seismic data provides crucial information for a correct evaluation of hydrocarbon reservoirs. During the last few decades, seismic stratigraphy has improved the recognition and reconstruction of the depositional history of basins, saving time and economical resources by optimising the accuracy of subsurface predictions. This improvement in hydrocarbon exploration has led to a significant increase in oil production and estimation of recoverable reserves.

The [Seismic Stratigraphy and Depositional Facies Models](#) textbook by Paul C.H. Veeken and Bruno van Moerkerken, provides a systematic approach for the description and evaluation of subsurface reservoirs. The authors have an extended career as geoscience consultants, having spent over 25 years working in the oil and gas industry. Their experience has contributed to provide a clear and detailed description of the 'hot topics' relating to seismic interpretation and modelling techniques, supplying advanced tools for the recognition of sedimentary facies.

The book represents a reference guide for geologists, geophysicists and engineers working on hydrocarbon exploration. It is subdivided into four main sections full of clarifying figures, diagrams and field examples, following step by step the recipe for a correct and accurate interpretation of depositional sequences and sedimentary

environments from seismic profile data. The textbook provides an introduction to seismic methods, focusing on the basic principles of seismic reflection and the behaviour of seismic waves as they travel through the Earth's interior. It pays particular attention to seismic stratigraphic techniques and the expression of sedimentary units through seismic profiles. To familiarise the reader with the geophysical background, the authors often use visual examples and real-world case studies to describe complex concepts and clarify jargon. The nature of sedimentary units, for instance, is described using case examples and field photographs, including basic rules for the interpretation of potential reservoirs within the different units.

Aiming to reconcile the formation of hydrocarbon reservoirs with major events occurred in our planet, the authors also present parallel issues related to interesting aspects about the origin of life and major events in the geologic history of Earth. These final notes aim to help the reader understand the importance of facies recognition on the evolution and characterisation of oil and gas reservoirs.

The textbook strengths lie in the easy way the authors present key concepts and explanatory notes, establishing useful links between cause- and- effect relationships in seismic interpretation. However, the book lacks a more detailed description of the reservoir characterisation modelling techniques. It limits itself to offering a general overview of the processing techniques and the analysis of seismic markers that may help junior professionals with seismic interpretation.

All in all, the book successfully integrates seismic interpretation techniques and stratigraphic criteria aiming to evaluate, from a practical point of view, the characterisation of potential reservoirs. It includes a large amount of data that is successfully condensed into a useful and easy-to-read book.

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