The Solid Earth

Geophysics is a broad subject that encompasses not only the physics of the Earth but also that of the atmosphere and oceans. The heart of geophysics, however, is the theory of the solid Earth. This acclaimed textbook provides a general introduction to the study of modern physics of the solid Earth, including the workings of both the Earth's surface and its deep interior.

The book begins with a brief historical introduction to developments in geophysics. The next chapter discusses the important theory of plate tectonics and is followed logically by a chapter on geomagnetism and palaeomagnetism. Subsequent chapters deal with the subjects of seismology, gravity, radioactivity and the age of the Earth, and heat flow in the Earth. The book concludes with chapters on the mantle and core, and on the oceanic and continental lithospheres.

The emphasis throughout the discussion is on basic physical principles rather than instrumentation or data handling. Many helpful worked examples are given in the text and, in addition, there are exercises of various degrees of complexity at the end of each chapter. Solutions to many of the exercises are available to tutors by emailing solutions@cambridge.org. The book also contains an extensive glossary of geological and physical terms, as well as appendices that develop the more advanced mathematical aspects of seismology.

The Solid Earth is a textbook for undergraduate students enrolled in introductory geophysics courses who have a general background in the physical sciences, including introductory calculus. It can also be used as a reference book for graduate students and other researchers in the geological and geophysical sciences. This second edition has been revised to bring the content fully up to date and to reflect the most recent advances in geophysical research.

Praise for the first edition of *The Solid Earth*

'This fine new geophysics textbook will now be added to the top of my list of recommendations, as it promises to be excellent both for teachers and for those seeking a review of these processes from a geophysical point of view.'
Nature

'... deserves to be acclaimed. It is a carefully balanced introduction to the physics of the Earth, and is likely to become quickly the textbook used in most classrooms. The main asset of this book is the good balance between geological applications and geophysical methods.'
Geophysics

'... a superb, clearly laid out text. It covers a broad range of applied geophysics, from bulk Earth structure to the calculation of thermal histories in sedimentary basins.'
New Scientist

'... this book is an excellent text for a general introductory geophysics class focused on applications to the Earth rather than a rigorous presentation of techniques. I have enjoyed using this book in my beginning physics course with graduate and senior undergraduate students. It is also a useful reference book to have on the shelf.'
Eos

'... a first-rate, comprehensive text for teaching an audience of earth science students about the multidisciplinary approach that plate tectonics now demands.'
Episodes

Cover illustration: Indian Ocean Triple Junction, courtesy of N. J. Mitchell

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Contents

The colour plates are situated between pages 390 and 391.