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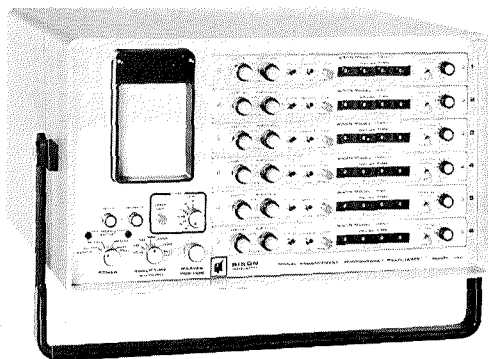
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## FOUNDATIONS OF GEOPHYSICS

by ADRIAN E. SCHEIDEGGER

1976. xiv+238 pages  
Price: US \$19.95/Dfl. 52.00 paperback  
ISBN 0-444-41389-8

Until now, no suitable text has existed which could introduce a wide spectrum of students whose interest in geophysics is only marginal (such as civil and geological engineers, geologists, future high school science teachers, etc.) to this ever-expanding field. It is the aim of this book to fill the gap.

CONTENTS: 1. Introduction. 2. Geography, geodesy and geology. 3. Seismology, gravity and the Earth's interior. 4. Magnetic and electrical properties of the Earth. 5. Thermicity of the Earth and related subjects. 6. Tectonophysics. 7. Geophysical exploration. 8. Geohydrology. 9. Physical oceanography. 10. Physical meteorology. 11. Engineering geophysics. Index.

## PHYSICAL ASPECTS OF NATURAL CATASTROPHES

by ADRIAN E. SCHEIDEGGER

1975. xiv+290 pages  
Price: US \$29.50/Dfl. 70.00  
ISBN 0-444-41216-6

Technological advances have induced man to undertake projects in regions where he may be subjected to the raw, and often violent, forces of nature. He is settling in more and more areas which are plagued by such periodic ravages as earthquakes, volcanic eruptions, landslides, snow and ice avalanches, floods, tornadoes and hurricanes. In order to undertake projects in these areas, man must be able to grasp the mechanics of the feared phenomena - but he is often hampered by his inadequate knowledge. This book attempts to fill this gap in man's knowledge by making a detailed study of the physical processes involved in natural catastrophes. For the pure scientist, it will be a study in natural science and for the engineer, it will be a useful reference work.

CONTENTS: 1. Introduction. The scope of the term "catastrophe". The basic physical problems. The basic statistical problems. Units. 2. Earthquakes. Introduction. The earthquake source. Effects on the ground. Geographic distribution of earthquakes. Temporal distribution of earthquakes. Seismic risk. 3. Volcanic Eruptions. Phenomenology of volcanic eruptions. Volcanicity of the

Earth. Mechanics of volcanic eruptions. Effects of volcanic eruptions. Statistics and prediction of volcanic eruptions. Other volcanic effects. 4. Accidents on Slopes. General remarks. The stability of slopes. Pure rock phenomena. Accidents on scree and talus accumulations. Surficial phenomena. Deep mass movements. Landslides. External flow phenomena. 5. Snow and Ice Catastrophes. Introduction. Physics of snow and ice. Snow. Glacier catastrophes. 6. Water Catastrophes. Introduction. Surface-water. Geomorphic effects of ground-water. Shorelines and coasts. Catastrophes on the ocean-bottom. 7. Air Catastrophes. Introduction. Thunderstorms. Tornadoes. Hurricanes. Other types of severe weather. References.

## GEOPHYSICAL METHODS IN GEOLOGY

by P.V. SHARMA

Methods in Geochemistry and Geophysics, 12

1975. x+430 pages  
Price: US \$42.50/Dfl. 110.00  
Paperback: US \$24.95/Dfl. 65.00  
ISBN 0-444-41235-2

The present volume provides the student with a concise, yet comprehensive, account of the different geophysical methods and their applications to a wide range of problems, including those related to global tectonics. The principal methods of geophysics, including gravimetry, magnetometry, earthquake and explosion seismology, geoelectric sounding, geothermics and geochronology are covered.

Major stress is laid on principles and applications of methods rather than on instrumental techniques. In order to make the text easily comprehensible, mathematical treatment has been kept to a minimum, and only indispensable formulas have been included. Système Internationale (SI) units are used throughout the text, and an extensive bibliography contains more than 400 references.

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# Methods in Geomathematics

Edited by R.A. REYMENT

In the last few years geology has become increasingly dependent on mathematical methods, with the ready availability of computers adding impetus to the general trend towards quantification. In order to best use the possibilities offered by the computer it is necessary for geologists to have a knowledge of computer programming. They should also have a thorough understanding of the principles of the mathematical methods most commonly used, and of the limitations in applying them to geological studies. The series aims at providing geologists with this information.

Volume 1:

## Geological Factor Analysis

by K.G. JÖRESKOG, Department of Statistics, University of Uppsala, Sweden, J.E. KLOVAN, Department of Geology, University of Calgary, Canada, and R.A. REYMENT, Department of Historical Geology and Paleontology, University of Uppsala, Sweden.

1976. xii+180 pages. Price: US \$23.25/  
Dfl. 60.00 Paperback. ISBN 0-444-41367-7.

In a science as heterogeneous as the earth sciences, it is to be expected that some fields will be more amenable to quantification than others, as reflected in this volume. Thus, most of the examples are drawn from geochemistry, sedimentology and palaeontology. Since many computer users are not really at home with the statistical reasoning underlying the methods they use, the most widely spread class of techniques, that of Factor Analysis, has been singled out for presentation in this book. The level at which the subject is introduced is elementary, although the presentation is as rigorous as possible at this level. The algebra of vectors and matrices necessary for understanding the text is introduced in detail and is amply illustrated.

CONTENTS: 1. Introduction. 2. Basic mathematical and statistical concepts. 3. Aims, ideas and models of factor analysis. 4. R-mode methods. 5. Q-mode methods. 6. Steps in the analysis. 7. Examples. References.

Volume 2:

## JCL and Advanced FORTRAN Programming

by HANS-ÅKE RAMDÉN, Assistant Head, System Analyst Group, Uppsala University Data Center.

1976. viii+168 pages. Price: US \$18.95/  
Dfl. 49.00 Paperback. ISBN 0-444-41415-0.

Presupposing a basic knowledge of a computer programming language such as FORTRAN, this book is intended for the student, scientist or researcher who wishes to use the computer as a tool rather than as a science. It pinpoints the most common problems encountered by the "non-professional" user and presents them in a more readily understandable form than that published in the reference manuals by the computer manufacturers. Although oriented towards FORTRAN, especially with regard to the IBM 360/370 System, it will be of considerable help in other cases, and is also suitable as a textbook in courses on data-processing in natural sciences, at advanced undergraduate level.

CONTENTS: 1. Use of control cards. 2. Job control language - JCL. 3. JCL - JOB-card. 4. JCL - EXEC-card. 5. JCL - DD-card. 6. Procedure library. 7. System catalog and VTOC. 8. Access methods in OS/360. 9. Job examples. 10. Installation dependencies. 11. Some FORTRAN details. 12. Editing and updating programs. 13. The plotter. 14. The most common types of errors. 15. Hardware. 16. Terminal systems. 17. Literature references. Appendix. Glossary. Subject Index.

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