Book Review

“Exploration Geophysics: An Introduction”, by M. R. Gadallah and R. Fisher, Springer-Verlag Berlin Heidelberg, 2010; ISBN-10: 3642098894 (pb), 3540851593 (hc), ISBN-13: 978-3642098895 (pb), 978-3540851592 (hc), Paperback US\$110, Hardcover US\$140

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Exploration geophysics is both a science and an industry. Through all stages of oil, gas and mineral exploration and exploitation, seismologists, geologists and engineers have contributed to its development. The authors with their extensive experience in petroleum exploration have written a book “at a level that anyone can understand without difficulty”, as they say in the foreword, that primarily focuses on seismic reflection techniques integrating the physical meaning of terms used in the industry; given the relative shortness of this book (262 pages, including the three appendices, a glossary and an index), it contains less than four pages on magnetic and gravity methods and nothing on radiometric or electrical techniques.

The book is divided into eight chapters. The first three chapters are an introduction to the field; chapter one includes basic concepts of geology, chapter two gives a brief overview of the different geophysical techniques (gravimetric, magnetic and seismic methods) and chapter three introduces some bases on seismic wave propagation. The heart of the book is in chapters four to six (187 pages long), which describe data acquisition, data processing and seismic interpretation. It ends with a short chapter (four pages) on 4D (time lapse 3-D) seismic surveys and one on the future trends. After each chapter the authors include a well-written summary, some exercises and a bibliography.

The objective of the authors that is of simplifying the mathematical treatment of the seismic data processing to, instead, focus on the practical aspects of geophysical exploration is well accomplished. The potential reader will enjoy a book about science of exploration geophysics, e.g., how seismic data are acquired and how they are converted to seismic vertical and horizontal cross sections, but will also find, for example, a detailed planning of steps to do before beginning field experiments. That makes this book recommendable to late undergraduates who are about to use seismic data or are interested in economic geology, and all members of a petroleum/mineral exploration team (e.g., support staff and managers) who want to better understand the concepts, techniques and technologies involved. However, the good amount of figures and diagrams displayed in this book are of variable quality. Some are excellent, but some are really bad (e.g., the figures of the Pangea and sea-floor spreading mechanism in the Introduction chapter). Unfortunately, the bad quality of some seismic sections sometimes affects the strength of the message the authors want to convey. Despite these, for the most part this book meets its objectives, for a not exorbitant price.

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