

Book Review

Hydrogeophysics

Hydrogeophysics, edited by Y. Rubin and S. S. Hubbard Springer, 523 pp. 2005 ISBN 1402031017, 89.95€

Ground water hydrologists dream of a 'Star Trek' style geophysical tri-corder that enables 'point and shoot' measurement of key hydrologic parameters. A quick read of *Hydrogeophysics* indicates that although we may have to wait until the 24th century for the geotricorder, rapid progress is being made in our century in incorporating geophysical measurements into subsurface hydrologic science.

The book is based on papers presented at an exciting NATO Advanced Study Institute held at Trest Castle, Czech Republic in 2002 (<http://www.nato.int/science-old/e/calasi2002.htm>). The editors and authors have done a remarkable job of creating a volume that is much more than a typical 'meeting proceeding.' Each 30–40 page chapter begins with the basics of a different subdiscipline related to application of geophysics in the shallow, low temperature hydrologic environment. Advanced topics are generally covered briefly, but with

plenty of complex equations and references to research papers and case studies for further reading. Given that the book is 523 pages long, it is understandable that the discussion is often limited. Many of the chapters could be expanded into textbooks.

As expected for a book with multiple authors (35 from nine countries!), the writing is uneven. The best sections offer personal and expert insight into advantages and problems of the various geophysical techniques, along with example data. This is refreshing and helpful; such information is not readily available in peer-reviewed journals! The chapters on ground penetrating radar, geophysical well logging, airborne hydrogeophysics, and shallow seismic methods are especially well written. Other chapters offer little more than a rapid-fire listing of results from published papers. Although not as edifying, this type of review can be useful in summarizing and filtering a vast literature.

The book is expensive, but at least it appears to be well made and has a high-quality feel. There are no color illustrations, but the black and white

photographs and contour plots are well done and have classic appeal. Purchasers of this book will acquire a valuable snapshot of the current state of the art of an important, rapidly changing scientific field. The book should be useful to anyone contemplating application of geophysical techniques in shallow subsurface hydrologic research or site characterization.

Relations between ground water hydrologists and geophysicists have a checkered history. In the past, some hydrologists may have been disappointed with geophysics products (often a mass of squiggly lines interpretable only by a higher intelligence – the geophysicist!). Although things are getting better (for example, we now have easily modified, colored, three-dimensional graphical representations!), old prejudices die hard. We can hope that this book heralds the dawn of a new era in which geophysical measurements are routinely integrated into hydrologic investigations.

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