Geophysical Data Analysis: Discrete Inverse Theory, Volume 45, Third Edition: MATLAB Edition (International Geophysics)

By William Menke

Geophysical Data Analysis: Discrete Inverse Theory, Volume 45, Third Edition: MATLAB Edition (International Geophysics) By William Menke

Since 1984, Geophysical Data Analysis has filled the need for a short, concise reference on inverse theory for individuals who have an intermediate background in science and mathematics. The new edition maintains the accessible and succinct manner for which it is known, with the addition of:

- MATLAB examples and problem sets
- Advanced color graphics
- Coverage of new topics, including Adjoint Methods; Inversion by Steepest Descent, Monte Carlo and Simulated Annealing methods; and Bootstrap algorithm for determining empirical confidence intervals

- Additional material on probability, including Bayesian influence, probability density function, and metropolis algorithm
- Detailed discussion of application of inverse theory to tectonic, gravitational and geomagnetic studies
- Numerous examples and end-of-chapter homework problems help you explore and further understand the ideas presented
- Use as classroom text facilitated by a complete set of exemplary lectures in Microsoft PowerPoint format and homework problem solutions for instructors

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Editorial Review

Review

"This is a practical book on data analysis based on numerical Matlab procedures for solving inverse problems with a special application in seismology. The book is useful both as a textbook for graduate students in geophysics and as a numerical data processing reference book for researchers not only in geophysics but also those involved in acoustic tomography and X-ray imaging data processing."--Zentrallblatt MATH 1250 Praise for the second edition:

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"This book provides an excellent introductory account of inverse theory with geophysical applications....My experience in using this book, along with supplementary material in a course for the first year graduate students, has been very positive. I unhesitatingly recommend it to any student or researcher in the geophysical sciences."--PACEOPH

About the Author
William Menke is a Professor of Earth and Environmental Sciences at Columbia University, USA. His research focuses on the development of data analysis algorithms for time series analysis and imaging in the earth and environmental sciences and the application of these methods to volcanoes, earthquakes and other natural hazards.

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