

## Data Analysis Methods in Physical Oceanography.

William J. Emery and Richard E. Thomson. Pergamon  
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This book provides a comprehensive and practical compilation of the essential information and analysis techniques required for the advanced processing and interpretation of digital spatio-temporal data in physical oceanography, as well as in other branches of the geophysical sciences.

The book assumes a fundamental understanding of calculus and is directed primarily towards scientists and engineers in the industry, government and universities, including graduate and advanced undergraduate students. Spanning five chapters and numerous appendices, the book provides valuable compendium of the fundamental data processing tools required by the marine scientist. The book begins with a detailed discussion of the instruments used to collect oceanographic data and the limitations of the resulting data. It addresses the basic sampling requirements, data acquisition and recording schemes. Data processing, calibration, interpolation, presentation and display methods are reviewed in chapter 2. The remaining three chapters describe detailed information on a broad range of statistical and deterministic data analysis methods ranging from established methods such as Analysis of Variance methods and Principal Component Analysis, to more recent data analysis techniques such as Wavelet Transformation and Fractals. Each technique is illustrated by a worked example and a large number of references are given for a reader who may want to dig deeper into the subject. The book includes six appendices which deal with units in physical oceanography, statistical terminology; means, variances and moment generating functions for common continuous variables; statistical tables; correlation coefficients and approximations and non-dimensional numbers in physical oceanography.

This is one of the unique books that brings together in one volume information on the measurement systems, data editing, data reduction/processing and analysis and interpretation. Presently, this information is scattered in various texts, reference books, primary publications, technical reports and other 'grey' literature such as data reports. This book brings this information into a single volume for the scientist. Hence, it is a guide as well as an encyclopedia to modern data processing methods in the geophysical sciences.

This is a good book for professional scientists and engineers in the university, government and industry providing information on modern data processing methods in the geophysical sciences.

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