Geophysical data, by the nature of their underlying phenomenae and processes, are amenable to statistical analysis for testing and interpretation. Though still developing, mathematical statistics is by no means a young subject. The application of statistical concepts to descriptive and to inference problems inherent in and associated with hydrologic and other data used in water resources engineering is much younger. The last few decades have witnessed, however, the publication of an uncountable number of papers which amply demonstrate the usefulness of statistical techniques in analyzing a wide range of hydrologic problems of practical interest. This state of affairs does not eliminate the fact that only a few text books on this topic are available, a situation that makes learning and teaching the methods of statistical analysis in water resources engineering far from being an easy task. In an attempt to fill in a certain depth of the existing gap, the authors, in view of their long-standing experience in teaching this subject, have undertaken the responsibility of producing this text book. The book covers to a certain extent the topics of: hydrologic variables, presentation of data, statistical moments, elementary theory of probability, probability distributions, estimation of parameters, testing hypothesis, frequency analysis, applications, regression and correlation, some aspects of time series analysis and (simple) stochastic models in hydrology, all written in hydrological language. Each chapter is supported by solved examples, case studies, and exercises with hints to solution. With this coverage, it is hoped that the book will help serve the interests of the students, graduates, and the professionals in the field of water resources engineering.

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