

Preface to the First Edition

This text is intended as an introduction to the application of statistical methods to atmospheric data. The structure of the book is based on a course that I teach at Cornell University. The course primarily serves upper-division undergraduates and beginning graduate students, and the level of the presentation here is targeted to that audience. It is an introduction in the sense that many topics relevant to the use of statistical methods with atmospheric data are presented, but nearly all of them could have been treated at greater length and in more detail. The text will provide a working knowledge of some basic statistical tools sufficient to make accessible the more complete and advanced treatments available elsewhere.

This book assumes that you have completed a first course in statistics, but basic statistical concepts are reviewed before being used. The book might be regarded as a second course in statistics for those interested in atmospheric or other geophysical data. For the most part, a mathematical background beyond first-year calculus is not required. A background in atmospheric science is also not necessary, but it will help the reader appreciate the flavor of the presentation. Many of the approaches and methods are applicable to other geophysical disciplines as well.

In addition to serving as a textbook, I hope this will be a useful reference both for researchers and for more operationally oriented practitioners. Much has changed in this field since the 1958 publication of the classic *Some Applications of Statistics to Meteorology*, by Hans A. Panofsky and Glenn W. Brier, and no really suitable replacement has since appeared. For this audience, my explanations of statistical tools that are commonly used in atmospheric research will increase the accessibility of the literature and will improve your understanding of what your data sets mean.

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