

Statistical Analysis in Climate Research

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Today, the topic of climate change is present in all media and in many minds - for many good reasons. The most difficult aspect in the discussion - for non-scientists in general, and for most non-climatologists, too - is the fact that everybody is exposed to weather, and thus meteorology, and assumes that he or she should be an expert in the field. At least this is the impression one might easily get when following large parts of the public debate. Climate, as we know, is the long-term integration of meteorological phenomena to a given geographical position. And climate research deals with the climate system - as complex and interactive as our geosphere in general. From this very simple line of thought alone, it should become obvious that we humans also have no access to data sets that reach back long enough to directly access processes and scenarios that prevailed some 100 thousand or even many millions of years ago. At the same time, however, we are well aware that major climatic fluctuations have taken place from the early Tertiary period to the present time. We are now at a state where the understanding of atmospheric chemistry and physics allows us to link this knowledge with the experience of both real meteorological measurements from all climate zones, including remote sensing information, plus the paleoclimatological evidence brought forth by the earth sciences. All of this information can only be sensibly assessed and processed through the extensive and intelligent application of appropriate statistical tools. And this is why this book is of such relevance - to introduce the interested reader to the tools of statistical analysis in climate research. The authors carefully point out that, *'even the simplest of statistical tools has limita-*

tions and pitfalls that may cause the climatologist to draw false conclusions from valid data if the tools are used inappropriately and without a proper understanding of their conceptual foundations'.

Hans von Storch (Director of the Institute of Hydrophysics of the GKSS Research Centre in Geesthacht, Germany, and a Professor at the Meteorological Institute at the University of Hamburg) together with Francis W. Zwiers (Chief of the Canadian Centre for Climate Modelling and Analysis, Atmospheric Environment Service, Victoria, Canada, and Adjunct Professor of the Department of Mathematics and Statistics of the University of Victoria) demonstrate the wide and effective applications of mathematical statistics in climatological research using real-world examples. Although this book deals with neither Bayesian statistics nor with geostatistics, it may prove to be very helpful even to geoscientists who are not directly working with modelling. *Statistical Analysis in Climate Research* encompasses not only introductory material, but also advanced and very specialised techniques, making it a constructive reference source for researchers and graduate students particularly in climatology, meteorology, atmospheric science, and oceanography. The extensive book is organised into eight sections with 18 chapters. The sections are Fundamentals, Confirmation and Analysis, Fitting Statistical Models, Time Series, Eigen Techniques, Other Topics, and a large and very practical Appendix. Although quite expensive, this book may well serve as a wonderful reference to better understand the state of the art of climatological modelling.

Book Announcement

Our Changing Planet - The FY 2002 US Global Change Research Program

An annual report by the Subcommittee on Global Change Research, Committee on Environment and Natural Resources of the National Science and Technology Council. Our Changing Planet describes the US Global Change Research Program for FY 2002. Federal Agency activities and funding levels are presented. A printed copy of this publication can be obtained without charge by mail from: GCRIO User Services, PO Box 1000, 61 Route 9W, Palisades, New York 10964 (USA); by e-mail: gcriodox@gcrio.org; or by using our on-line document request form (<http://www.gcrio.org>)

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