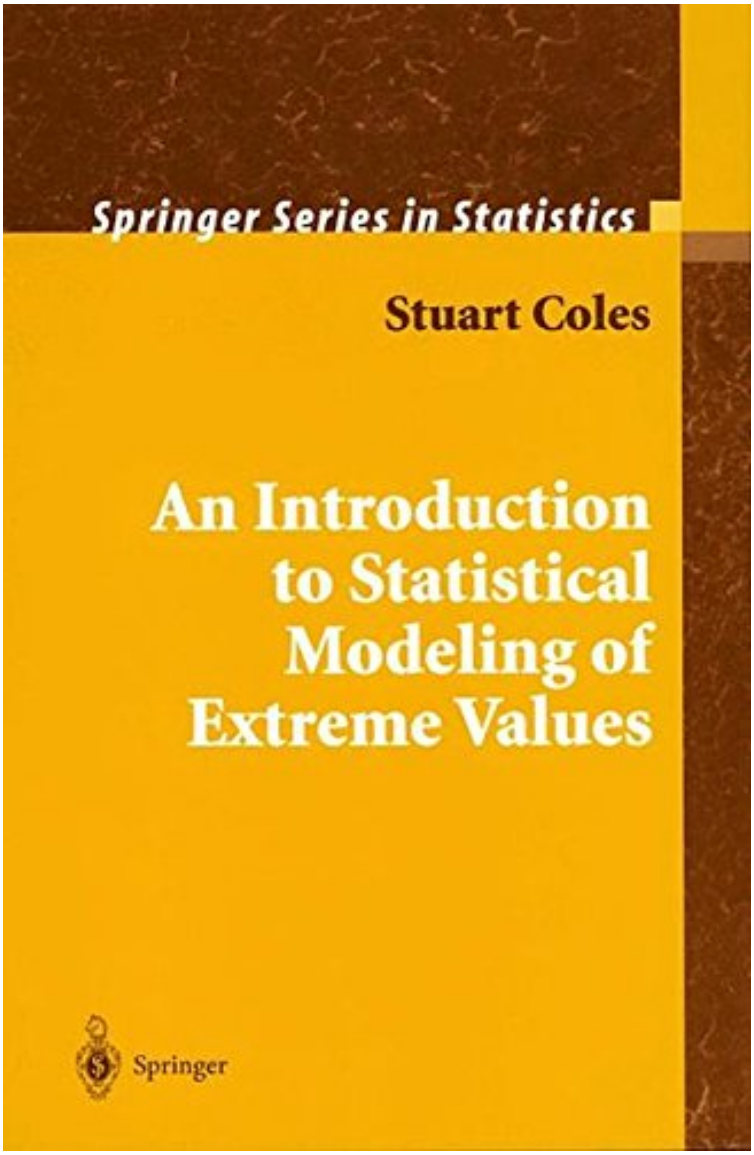
An Introduction to Statistical Modeling of Extreme Values

Stuart Coles
*ePub | *DOC | audiobook | ebooks | Download PDF*



#1289045 in Books Springer 2001-12-12Original language:EnglishPDF # 1 9.21 x .56 x 6.14l, 1.03 #File Name: 1852334592224 pages | File size: 71.Mb

Stuart Coles : An Introduction to Statistical Modeling of Extreme Values before purchasing it in order to gage whether or not it would be worth my time, and all praised An Introduction to Statistical Modeling of Extreme Values:

2 of 2 people found the following review helpful. A must for engineering applicationsBy John Talla WalleeThis book is a true gold mine when it comes to extremes. I use it regularly to conduct extreme wave/wind/storm/earthquake event analysis as part of my job (civil engineering).Basics are covered very efficiently; threshold methods and annual extremes are the subject of a chapter, each. I particularly appreciate the good coverage of time-dependent extreme

model, which is capital when dealing with sea-level rise and extremes (strong dependence of events on sea-level rise as covariate). The final chapter covers Bayesian approach for extremes, but unlike the others might not satisfy the true Bayes lover (expedited).I've read each of these chapters at least 3 times and I'm still impressed with the atmospheric style with which Coles writes: it is to the point, efficient, and directly applicable to the practitioner. I'm absolutely partial and will go to say that of all the books on extremes I've read (from Castillo, classic from Gumbel, countless others), this one is the clear winner.Of course, I would expect that true mathematicians will bemoan the use of "shortcuts" taken by the author (e.g. proofs left as exercise, assumption of normality, etc.). Nonetheless, I'm sure that even this population will join the rest of us in celebrating this book as a fantastic primer and reference.Highly recommended to any grad student, engineer or finance quant in need of a solid reference on extremes.27 of 27 people found the following review helpful. good on theory, excellent on applicationsBy Michael R. ChernickThis book is the most current text available on the theory of extreme values. The author eloquently provides us with an understanding of the theory and it vast applications. It is intended for researchers students and practitioners. So it provides an in-depth account of the theory with many real world examples. It contains an excellent up-to-date bibliography. Important theorems are presented with their implications but without mathematical proofs. Computations are done in SPlus. The author provides an appendix on computational aspects that tells the reader where to go to download examples and find the SPlus functions that are used.Topics include classical extreme value theory and models, threshold models, extremes in dependent stationary cases, extremes for some nonstationary stochastic processes, the point process approach, multivariate extremes and some special topics including extremes in spatial processes and the Bayesian approach to extremes (with examples employing MCMC methods). There has been a surge in publication of texts on extremes, some theoretical and some applied. This text and a few others are good at intrroducing the topic to the uninitiated and placing emphasis on applications for the practitioners.41 of 43 people found the following review helpful. A clearly written intro book on extremesBy Abstract SpaceI recently used the software accompanied to this book kindly made available by the author and was led to know more about this book and the author's other works. I like what I saw and think the author has done a supeb job in explaining the difficult theory in plain language and in the context of data analysis. Thus it is an "action" book instead of the "just theory" as with most other books. The book provides a balanced treatment of different approaches to extreme value analysis. Personally I prefer the generalized Pareto approach, though theoretically the point process approach may be very neat, if it can be realized.I think extreme value theory in general is an important statistical area, since in practice one may be forced to deal with analyzing extreme events, such as in financial engineering, environmental or climate analysis, or network design. I wholeheartedly recommend this book for anyone who want to learn this area from one of the leading researchers.

Directly oriented towards real practical application, this book develops both the basic theoretical framework of extreme value models and the statistical inferential techniques for using these models in practice. Intended for statisticians and non-statisticians alike, the theoretical treatment is elementary, with heuristics often replacing detailed mathematical proof. Most aspects of extreme modeling techniques are covered, including historical techniques (still widely used) and contemporary techniques based on point process models. A wide range of worked examples, using genuine datasets, illustrate the various modeling procedures and a concluding chapter provides a brief introduction to a number of more advanced topics, including Bayesian inference and spatial extremes. All the computations are carried out using S-PLUS, and the corresponding datasets and functions are available via the Internet for readers to recreate examples for themselves. An essential reference for students and researchers in statistics and disciplines such as engineering, finance and environmental science, this book will also appeal to practitioners looking for practical help in solving real problems. Stuart Coles is Reader in Statistics at the University of Bristol, UK, having previously lectured at the universities of Nottingham and Lancaster. In 1992 he was the first recipient of the Royal Statistical Society's research prize. He has published widely in the statistical literature, principally in the area of extreme value modeling.

From the reviews of the first edition:JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION"Coles is to be congratulated on having brought the whole breadth of statistical modeling extremes within one volume of about 200 pages. This is indeed a nontrivial featI am convinced that this book will find its rightful place on the extremal-event modelers bookshelf. The very readable style, the many examples, and the avoidance of too many technicalities will no doubt please numerous researchers and students who want to apply the theory in their own research environment.""This book is all about the theory and applications of extreme value models. Both statisticians and applied scientists in engineering, finance, traffic analysts, food scientists, earthquake engineers, and environmental scientists will like this book. I enjoyed reading it and recommend it highly." (Ramalingam Shanmugam, Journal of Statistical Computation and Stimulation, Vol. 74 (11), 2004) "In the given book, Stuart Coles presents his viewpoint of the methodology which is necessary for applying extreme value theory in the univariate and multivariate case. The author covers quite a lot of material on just 208 pages. The main ideas of extreme value theory are clearly elaborated. For the reviewer it was enjoyable to read this book." (Rolf-Dieter Reiss, Metrika, February, 2003)"Coles is to be congratulated on having brought the whole breadth of statistical modeling of extremes within one volume of about 200

pages. I am convinced that this book will find its rightful place on the extremal-event modelers bookshelf. The very readable style, the many examples, and the avoidance of too many technicalities will no doubt please numerous researchers and students who want to apply the theory in their own research environment." (Paul Embrechts, JASA, December, 2002)"The modeling of extreme values is important to scientists in such fields as hydrology, civil engineering, environmental science, oceanography and finance. Stuart Coless book on the modeling of extreme values provides an introductory text on the topic. The book is meant for individuals with moderate statistical background. Overall, this is a good text for someone getting started in extreme value methods." (Eric P. Smith, Technometrics, Vol. 44 (4), 2002)"This is a truly enjoyable introduction with a collection of 11 highly motivating data sets and an excellent, clear, discussion of the probabilistic framework and associated inferential techniques with minimal use of notations. In summary, this is a highly welcome monograph recommended for the personal collection of anyone who plans to interact with extreme value data." (H. N. Nagaraja, Zentralblatt MATH, Vol. 980, 2002)