

*Stochastics of Hydroclimatic Extremes* is a real monument in stochastics! It is a summary of the lifetime dedication by Demetris Koutsoyiannis to the science of environmental extremes, it is a demonstration of the value of stochastics itself to gain a better understanding of why and how extremes happen. The perspective adopted in the book is that of a scientist who is able to cross and transform disciplines by proposing an innovative synthesis of knowledge. This book is indeed presenting new concepts, new theoretical interpretations and new opportunities for engineering design, for the sake of mitigating the impact of extremes and adapting modern society to environmental variability.

It is fascinating that the book is self-produced and openly available to readers. Like any self-produced creation of the humankind, this book has a unique and independent history that is rooted in the intimate personality of the author. It is a creation that does not require to adhere to any format other than those suggested by the author's vision and creativity. For this reason, its value is incommensurably high, it is a real *Cool Look at Risk* as Demetris says.

I believe time will highlight *Stochastics of Hydroclimatic Extremes* as a transforming masterpiece which will bring illuminating ideas to the reader.

Alberto Montanari  
Head of the Dept. of Civil, Chemical, Environmental, and Materials Engineering, University of Bologna  
President of the European Geosciences Union

This is a book that could not only transform your career, but also the entire fields of environmental statistics and stochastic hydrology. This seminal contribution is not like other books you have read which tend to summarize existing knowledge. Rather, it condenses existing knowledge in short order and spends nearly all its time on new knowledge, much of it never before published, communicating effectively both the theoretical and practical aspects of analysis of a wide range of hydroclimatic extremes. The style of presentation itself is novel and compelling, so that I could not resist reading it from cover to cover.

If you think you understand how to apply probability and statistics to predict future extreme events, think again, because very quickly you will be convinced that extremes arise from spatial and temporal stochastic processes, and are neither independent nor identically distributed (iid) events, nor do most of our common probability distributions used for flood and drought frequency analysis capture the type of thick tails which are so convincingly documented in this book.

I predict that many of the novel concepts, examples and techniques introduced here, many for the first time, will find their way into widespread acceptance in hydroclimatology, over time. Foremost, the reader will appreciate the value of viewing extreme events as realizations of stochastic processes rather than a series of iid annual maxima/minima. The climacogram provides a new window into the structure of stochastic processes and may be more fundamental than the correlogram. I can't wait to test out the so-called Pareto-Burr-Feller distribution and the novel knowable moments (K-moments) which appear to have clear advantages over ordinary moments for describing distribution tails.

It is remarkable that after a long career in hydrology, after reading this book, I gained many new insights into common statistical methods as well as new methods documented here for the first time. How I wish my career were just beginning, and thus could have applied all the wonderful ideas and methods in this book during my career. This is literally a treasure for young scholars interested in the probabilistic behaviour of hydroclimatic extremes.

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ISBN: 978-618-85370-0-2



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## A Cool Look at Risk

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5<sup>th</sup> Edition

Kallipos  
Open Academic Editions  
Athens 2025

