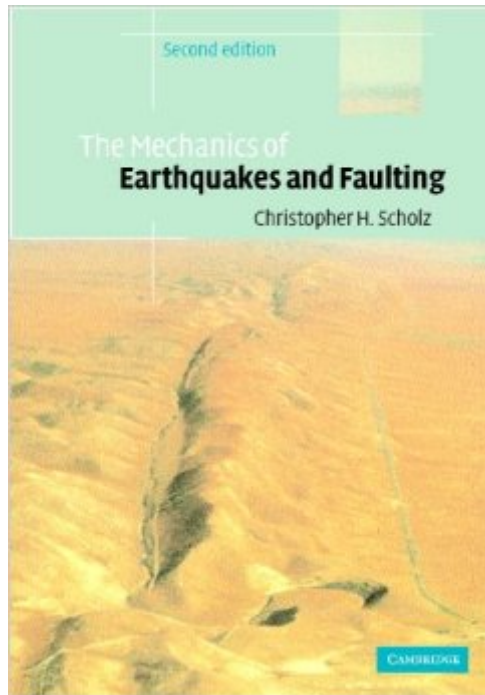


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# The Mechanics Of Earthquakes And Faulting



## Synopsis

Our understanding of earthquakes and faulting processes has developed significantly since publication of the successful first edition of this book in 1990. This revised edition, first published in 2002, was therefore thoroughly up-dated whilst maintaining and developing the two major themes of the first edition. The first of these themes is the connection between fault and earthquake mechanics, including fault scaling laws, the nature of fault populations, and how these result from the processes of fault growth and interaction. The second major theme is the central role of the rate-state friction laws in earthquake mechanics, which provide a unifying framework within which a wide range of faulting phenomena can be interpreted. With the inclusion of two chapters explaining brittle fracture and rock friction from first principles, this book is written at a level which will appeal to graduate students and research scientists in the fields of seismology, physics, geology, geodesy and rock mechanics.

## Book Information

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## Customer Reviews

Christopher Scholz has written a welcome update to the classic 1990 edition of his book, and if you

thought that Crustal Deformation was a field where nothing exciting happens, think again! Substantial chunks of the book have been re-written and re-organized to bring the text bang up-to-date with the cutting edge of tectonics and rock mechanics research. The beauty of this book is that Scholz, along with his students and research associates, basically has been the cutting edge of research in this field for the past 30 years. The book therefore reads as a guide to the evolution of ideas and a personal memoir of scientific exploration, while allowing the reader to follow the same thought processes, and more fully understand what we currently think regarding these subjects. The text is a monograph, quite different from the usual condescending tone found in textbooks, and can be understood and appreciated by readers of widely differing abilities, from interested laymen to fellow researchers. Thorough explanations are given for each topic, with examples taken from actual scientific papers, putting the reader in touch with the original papers, a glaring omission in many other textbooks. The language is never more complicated than it needs to be, and Scholz's straight-forward explanations and no-nonsense style make comprehension almost too easy, leaving the reader a real feeling that one has learned something at the end, which will come as a breath of fresh air to any student that has suffered through a horribly dull and irrelevant lecture, only to remain scratching their head at the end. The book is a tribute to the intellect and longevity of the man's career, blessed as he is with a happy knack for being proven "right" by the passing of time, and continuing accumulation of research results. A classic text, and again, a must-read for anyone with a desire to know more about the planet we live on.

Prof. Scholz of Columbia summarizes the science of rock mechanics. This book is the easiest way to gain a first foothold in the physics of how faults behave. In fact, as far as I know, it may be the only way, short of attempting a PhD in geophysics. I've read it (and hope I remember at least a fraction of its contents), used it in class, and even given away a copy or two to students. If only more scientists could write as well. As a side light, Chris has also written a book for the general reader on the excitement of discovering the tectonics of Africa, *Fieldwork: A Geologist's Memoir of the Kalahari*, which I highly recommend.

From the point of view of content, the book is as good as the previous edition. The criticism below (and the missing two stars) are entirely the fault of the publisher. The print quality and the layout of the paperback edition (7th printing, 2012) are well below average, considering the price of the book. Most black and white figures look like bad photocopies of old ones (the photos especially are virtually unusable) and the "new" color figures (including the cover itself) are very pixelated. In fact, all

figures appears to be enlargement of previous ones without any redrawing. The printed text is closer to medium gray than to black and the chosen font type and size make it more difficult to read than the old edition (even though the latter had a smaller font size). It also has the peculiarity of not having any blank pages in front, and plenty of blank pages in the back instead, for no obvious reason whatsoever. The pages are cut so that they appear shifted upwards, with a very small margin at the top and a wider one at the bottom, which gives the book a very cheap feeling and adds further distraction when trying to read it. Finally, the number of pages in the old and new edition are about the same, the amount of content is about the same, but the new edition is significantly thicker, taller and wider than the old one (which was a very convenient size to carry around instead). From the print quality, the book is worth at best \$30, not \$90.

As a physicist that is working hard on the mechanics of earthquake initiation, I have read and studied the book with a strong interest, and I found it extremely important from the scientific point of view. Although I particularly have concerns and criticisms referring to some topics in sections 1.1.2 (Griffith theory) and 1.1.3 (Fracture mechanics), I understand that Prof. Scholz followed the traditional approach on these topics, and I think the book as a whole is very good. I think those working on this subject should read and study carefully this book. Francisco G. Emmerich  
Federal University of Espirito Santo Brazil

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