

This book is the proceedings of a symposium on solid earth geophysics and geotechnolgy sponsored by the Applied Mechanics Division of ASME held at the Winter Annual Meeting in Chicago, Illinois, November 16-21, 1980.

Recognizing that research in theoretical and applied mechanics can and should make more contributions to the understanding of mechanical processes involved in various aspects of geophysical phenomena, the Executive Committee of the Applied Mechanics Division of ASME established a Committee on Solid Earth Geophysics and Geotechnolgy in 1977, with the specific task of initiating a symposium on some of the timely scientific questions in this area. The Committee members of the following members:

- 1. T. Kato (Kyoto University)
- 2. R. S. Stein (Cornell University)
- 3. R. M. Cooke (University of Cambridge)
- 4. R. G. Anderson (University of California, San Diego)
- 5. J. P. Rice (Brown University)
- 6. M. S. Tompkins (University of Illinois, Urbana)
- 7. J. W. Nunn (Northwestern University)

# Solid Earth Geophysics and Geotechnolgy

To limit the scope of the symposium, the Committee decided to focus attention on those subjects most closely related to mechanical properties at shallow depths and processes involving the failure of materials with stresses less than 100 MPa (14,500 psi), and to exclude such topics as the behavior of materials under high pressure and other problems.

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*edited by*

S. NEMAT-NASSER  
NORTHWESTERN UNIVERSITY



The selection of the topics for this symposium, the format of the proceedings, the format of the papers, the spreading of oceanic plates, the spreading of plates in subduction zones, are just a few of a long list of problems in geophysics and geotechnolgy. Perhaps two distinctive features of the mechanical modeling of the earth are the behavior relevant to the earth, where both must bear the essential impact of observed facts and be tested by comparison with experimental and observational data. It is therefore hoped that this book will stimulate some discussion and the way for long-term cooperation and research commitment for the exploration and understanding of mechanical processes involved in solid earth geophysics.

I wish to thank the members of this Committee for their suggestions and contributions. In particular, I wish to express my gratitude to Professors Bernard Bullen, James Rice, and Johannes Wamboldt for continual support and helpful discussions.

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