

## CONTENTS

Foreword .....	ix
Preface .....	xi
Color Plates Following page 162	
Turbulent thermal convection .....	1
<i>S. Balachandar</i>	
Spherical symmetry-breaking bifurcations and thermal convection in the earth's mantle .....	11
<i>Pascal Chossat and Cheryl A. Stewart</i>	
Convection and chaos .....	43
<i>A.C. Fowler</i>	
Strongly chaotic Newtonian and non-Newtonian mantle convection .....	71
<i>David A. Yuen and Andrei V. Malevsky</i>	
Routes to chaos in the solid earth .....	89
<i>Donald L. Turcotte, Cheryl A. Stewart and Jie Huang</i>	
Mantle phase transitions, layered chaotic convection and the viscosity of the deep mantle .....	111
<i>W.R. Peltier and L.P. Solheim</i>	
Vigorous motions in magma chambers and lava lakes .....	141
<i>Herbert E. Huppert and M. Grae Worster</i>	
The eruption and spreading of lava .....	175
<i>Claude Jaupart</i>	
Modeling transport processes in nonlinear systems: The example of solidification and convection .....	205
<i>Curtis M. Oldenburg and Frank J. Spera</i>	
Convection in porous media with thermal and chemical buoyancy: A comparison of two models for solute dispersion .....	225
<i>N.D. Rosenberg and F.J. Spera</i>	
Dynamo theory .....	237
<i>Paul H. Roberts</i>	
Theory of the geodynamo and core-mantle coupling .....	281
<i>F.H. Busse</i>	
Nonlinear dynamical models for earthquakes and frictional sliding .....	293
<i>John B. Rundle</i>	
The spatial structure of isotropic turbulence and the related three-dimensional graphics problems .....	305
<i>A. Vincent, M. Meneguzzi and J.D. Villasenor</i>	
Other titles and abstracts .....	313