

Contents

	<i>Preface</i>	Page ix
	<i>The authors</i>	xii
1 WHY A TRAVERSE THROUGH EUROPE?		1
<i>D. Blundell and R. Freeman</i>		
1.1 Tectonic evolution of a continent		1
1.2 The European Geotraverse		3
1.3 Coordinating the European Geotraverse		4
1.4 Achievements of the European Geotraverse		8
2 MOBILE EUROPE		11
<i>A. Berthelsen</i>		
2.1 How far back does plate tectonics go?		11
2.2 A palaeomagnetic kinematic perspective		12
2.3 Decline and fall of an orogen		15
2.4 How Europe's crust evolved		17
3 EUROPE'S LITHOSPHERE – SEISMIC STRUCTURE		33
<i>J. Ansorge, D. Blundell and St. Mueller</i>		
3.1 Seismic methods for exploring the crust and upper mantle of Europe		33
3.2 Seismic exploration of the crust along EGT		35
3.3 Seismic exploration of the upper mantle along EGT		60
4 EUROPE'S LITHOSPHERE – PHYSICAL PROPERTIES		71
4.1 Physical properties of the lithosphere		71
<i>E. Banda and S. Cloetingh</i>		
4.2 Mechanical structure		80
<i>S. Cloetingh and E. Banda</i>		
4.3 Evidence from xenoliths for the composition of the lithosphere		91
<i>K. Mengel</i>		
4.4 Integrated lithospheric cross section		102
<i>D. Blundell</i>		

5 EUROPE'S LITHOSPHERE – RECENT ACTIVITY	111
<i>E. Banda and N. Balling</i>	
5.1 Seismicity	111
5.2 State of stress	120
5.3 Recent crustal movements	124
5.4 Recent volcanism	132
5.5 Transient heat flow	135
6 TECTONIC EVOLUTION OF EUROPE	139
<i>6.1 Precambrian Europe</i>	139
<i>B. Windley</i>	
6.2 From Precambrian to Variscan Europe	153
<i>A. Berthelsen</i>	
6.3 Phanerozoic structures and events in central Europe	164
<i>W. Franke</i>	
6.4 Alpine orogeny	180
<i>A. Pfiffner</i>	
6.5 The fragmented Adriatic microplate: evolution of the Southern Alps, the Po basin and the northern Apennines	190
<i>P. Giese, D. Roeder and P. Scandone</i>	
6.6 Sardinia Channel and Atlas in Tunisia: extension and compression	199
<i>D. Roeder</i>	
6.7 Recent tectonics of the Mediterranean	202
<i>D. Roeder and P. Scandone</i>	
7 GEODYNAMICS OF EUROPE	215
<i>D. Blundell, St. Mueller and K. Mengel</i>	
7.1 How does geology work?	215
7.2 What drives tectonic processes?	215
7.3 Geodynamic processes in the past?	228
7.4 EGT – the future?	231
<i>References</i>	233
<i>Index</i>	263