

The continent of Europe has a complex geological history of successive tectonic events. Over several thousand million years these have formed the present day configuration of major tectonic provinces. *A Continent Revealed* unravels this history by presenting and interpreting the results of the European Geotraverse (EGT) – a unique study of the continent of Europe and the first comprehensive cross section of continental lithosphere. This illustrated book has been put together by key workers in the EGT project. It uses the wealth of information yielded by the ten years of experiments, study centres and workshops to provide a concise and thought provoking account of the geological processes that created the European continent. It provides a summary of the European Geotraverse, and at the same time a starting point for further work.

This book, along with a comprehensive database from the EGT project – in the form of 25 maps, a descriptive booklet and a CD-ROM – is available in a boxed set (ISBN 0 521 41923 9).

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052142948X - A Continent Revealed: The European Geotraverse - Edited by Derek Blundell, Roy Freeman and Stephan Mueller

Frontmatter/Prelims

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A Continent Revealed

The European Geotraverse

A CONTINENT REVEALED

The European Geotraverse

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Preface

The European Geotraverse (EGT) project has been a scientific undertaking on an unprecedented scale in the Earth Sciences. Its whole ethos has been founded on the idea that the scale of trying to understand the workings of a continent and its evolution through geological time demanded the combined efforts of a very large number of people with expertise from a wide range of disciplines. Not only would they have to understand each other's point of view and work together in a series of integrated experiments, they would have to produce their findings in such a way that could be understood by all. EGT completed its experimental work in 1990, the culmination of nearly ten years effort. But the work of EGT could not end there. The concluding paragraph of the EGT Final Report to its prime supporter and benefactor, the European Science Foundation (ESF), made clear that 'In many ways, EGT has only just begun'. The wealth of data collected during the EGT experimental programme, together with geological and geophysical data obtained over many years, were reduced to a common reference frame and mapped on to a common scale and projection in order to compare them directly so that the connections between them might become clear. The result of this compilation is the sequence of maps and plates, together with explanatory text and comprehensive reference lists, that form the EGT Atlas which is the complement and companion to this book. To enhance the use of this database, much of the Atlas data is contained on a CD-ROM.

The concept of this book has been to draw all this work together into a coherent account of the tectonic evolution of Europe and the geodynamic processes that have fashioned it. It is, in a sense, the epitome of EGT, having been written in the belief that the whole is greater than the sum of its individual parts. It has also been written with a view to the future, in the knowledge that there is much more still to be gained from further analysis and interpretation of the information gathered during EGT and the hope that the book can serve as a springboard for new research advances. The book is very much a team effort, involving fifteen authors. Whilst each has been identified with particular sections of the book, it might have been added after their names 'with a little help from their friends' because the writing and the ideas have been shared and have benefited from joint efforts. We have attempted to present the book in a unified way. As a vital ingredient, all the diagrams have been computer draughted to a consistently high standard by Sue Button at the University of Leicester, to whom we are immensely grateful.

The EGT project involved too many people for us to mention here and we apologise for the injustice in our not recognising their individual efforts. The length of the list of references

at the end of this book is testimony to the great number who have contributed.

EGT was made possible because of the recognition and support that was given so generously by the ESF throughout the eight years formal existence of the project and, indeed, both before and since. There are no words to express adequately the gratitude we owe to ESF. We would like to thank, in particular, Eugen Seibold, the ESF President for much of the period of EGT, and the two officers of ESF who, in turn, gave practical expression to the help that we received, Bernard Munsch and Michele Fratta. Peter Fricker deserves our special thanks. As chairman of the European Science Research Councils Working Group for the European Geotraverse he gave unstinting support and did much to secure the funding for the coordination of EGT from the Research Councils. The management of EGT came through the Scientific Coordinating Committee, chaired by Stephan Mueller, including E. Banda, A. Berthelsen, D. Blundell, P. Giese, A. Hirn, C. Morelli and H. Zwart, whose deliberations were put into practice by the Scientific Secretary, E. Banda, and the Adjunct Secretary, first D. Galson and then R. Freeman. To them fell the major part of the hard work involved in the whole project. For practical purposes the EGT swathe was divided into three segments. Responsibility for the northern segment fell to A. Berthelsen as chairman with first N. Springer and then M. Marker as scientific assistant; for the central segment to P. Giese as chairman with M. Huch as scientific assistant, and for the southern segment to C. Morelli as chairman and D. Polizzi as scientific assistant. Much of the coordination of EGT was devolved to the three segments, particularly the organisation of workshops and study centres. These proved to be especially fruitful in bringing people and ideas together and were greatly enhanced by the willingness of ESF to enable rapid publication of extended abstracts and to disseminate them widely. Financial support and encouragement for this from the Commission of the European Communities was especially valued, through the good offices and continuing interest of K. Louwrier and E. Staroste.

Amongst the 13 experiments making up the Joint Programme of EGT, some involved field campaigns to obtain new observational data whilst others required coordinated efforts to recompile existing data into uniform formats. All required substantial organisational effort. Five major seismic experiments were executed specifically for EGT. EUGENO-S was undertaken by a working group chaired by A. Berthelsen and owed much to the efforts of E. Flüh, S. Gregersen and C.-E. Lund. EUGEMI was coordinated by C. Prodehl and B. Aichroth, EGT-S83 and EGT-S85 were directed by J. Ansorge and C. Morelli and ILIHA was organised through a working group led by A. Udías, A. Lopez-Arroyo and L. Mendes-Victor. Data compilation has been effected primarily by A. Berthelsen, P. Burollet, D. Dal Piaz, W. Franke and R. Trümpy (tectonics), J. Ansorge (seismics), A. Hahn, T. Wonik, A. Galdéano and P. Mouge (magnetics), V. Haak and S.-E. Hjelt (electromagnetics), N. Pavoni, T. Ahjos, S. Gregersen, H. Langer, G. Leydecker, P. Suhadolc and M. Uski (seismicity, focal mechanisms), V. Cermák, N. Balling, R. Schulz and B. Della Vedova (geothermics), E. Klingelé (gravity), D. Lelgeman (geoid), P. Giese (Moho depths), L. Pesonen and M. Westphal (palaeomagnetism), E. Gubler, S. Arca, J. Kakkuri, K. Mälzer and K. Zippelt (recent crustal movements) and D. Gebauer (geochronology).

Primary publication of many of the scientific results from EGT experiments benefited greatly from the agreement by Elsevier Science Publishers BV to publish special issues of *Tectonophysics* devoted to EGT. In all, eight special issues have appeared between 1986 and 1992, identified by the EGT logo. The main editorial effort by D. Galson (Parts 1–2) and R. Freeman (Parts 3–8) was supported by A. Berthelsen, P. Giese, M. Huch, M. von Knorring, H. Korhonen, C.-E. Lund and St. Mueller.

In all such publications, the generosity of time and effort and the judgement of reviewers

is critical. This has been particularly so for this book. We are especially grateful to C. Drake, S. Gregersen, R. Hatcher, C. Morelli, G. Panza, R. Trümpy, P. Ziegler and H. Zwart who carefully reviewed an early draft of the complete book and from their detailed suggestions we have been able to make significant improvements. All are very busy and we have greatly appreciated the time and attention that they gave to our work. Individual chapters have also benefited enormously from detailed comments by V. Cermák, C. Doglioni, H. Downes, E. Flüh, A. Hahn, M. Helman, H. Henkel, S.-E. Hjelt, H. Kern, P. Matte, C. Prodehl, S. Schamel, G. Serri and P. Suhadolc. With so much effort by others having gone into this book we hope that it has done them justice.

D. B., R. F. and St. M.

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