



Continental Transpressional and Transtensional Tectonics

EDITED BY

R. E. HOLDSWORTH

University of Durham, UK

R. A. STRACHAN

Oxford Brookes University, UK

AND

J. F. DEWEY

University of Oxford, UK

1998
Published by
The Geological Society
London

Contents

| | |
|--|------|
| Preface | xii |
| Acknowledgements | xiii |
| DEWEY, J. F., HOLDSWORTH, R. E. & STRACHAN, R. A. Transpression and transtension zones | 1 |
| Modelling Transpression and Transtension | |
| FOSSEN, H. & TIKOFF, B. Extended models of transpression and transtension, and application to tectonic settings | 15 |
| JONES, R. R. & HOLDSWORTH, R. E. Oblique simple shear in transpression zones | 35 |
| LIN, S., JIANG, D. & WILLIAMS, P. F. Transpression (or transtension) zones of triclinic symmetry: natural example and theoretical modelling | 41 |
| SCHREURS, G. & COLLETTA, B. Analogue modelling of faulting in zones of continental transpression and transtension | 59 |
| Continental Transform Zones | |
| BUTLER, R. W. H., SPENCER, S. & GRIFFITHS, H. M. The structural response to evolving plate kinematics during transpression: evolution of the Lebanese restraining bend of the Dead Sea Transform | 81 |
| TAVARNELLI, E. Tectonic evolution of the Northern Salinian Block, California, USA: Paleogene to Recent shortening in a transform fault-bounded continental fragment | 107 |
| RUST, D. Contractional and extensional structures in the transpressive 'Big Bend' of the San Andreas fault, southern California | 119 |
| REIJS, J. & MCCLAY, K. Salar Grande pull-apart basin, Atacama Fault System, northern Chile | 127 |
| TEYSSIER, C. & TIKOFF, B. Strike-slip partitioned transpression of the San Andreas fault system: a lithospheric-scale approach | 143 |
| Oblique Divergence Zones | |
| KRABBENDAM, M. & DEWEY, J. F. Exhumation of UHP rocks by transtension in the Western Gneiss Region, Scandinavian Caledonides | 159 |
| DOKKA, R. K., ROSS, T. M. & LU, G. The Trans Mojave–Sierran shear zone and its role in Early Miocene collapse of southwestern North America | 183 |
| WATKEYS, M. K. & SOKOUTIS, D. Transtension in southeastern Africa associated with Gondwana break-up | 203 |
| ALLEN, M. B., MACDONALD, D. I. M., ZHAO XUN., VINCENT, S. J. & BROUET-MENZIES, C. Transtensional deformation in the evolution of the Bohai Basin, northern China | 215 |
| Oblique Convergence Zones | |
| EBERT, H. D. & HASUI, Y. Transpressional tectonics and strain partitioning during oblique collision between three plates in the Precambrian of southeast Brazil | 231 |

| | |
|--|-----|
| GAYER, R., HATHAWAY, T. & NEMCOK, M. Transpressionally driven rotation in the external orogenic zones of the Western Carpathians and the SW British Variscides | 253 |
| GLEIZES, G., LEBLANC, D. & BOUCHEZ, J. L. The main phase of the Hercynian Orogeny in the Pyrenees is a dextral transpression | 267 |
| TANNER, D. C., BEHRMANN, J. H., ONCKEN, O. & WEBER, K. Three-dimensional retro-modelling of transpression on a linked fault system: the Upper Cretaceous deformation on the western border of the Bohemian Massif, Germany | 275 |
| CURTIS, M. L. Development of kinematic partitioning within a pure-shear dominated dextral transpression zone: the southern Ellsworth Mountains, Antarctica | 289 |
| SEARLE, M. P., WEINBERG, R. F. & DUNLAP, W. J. Transpressional tectonics along the Karakoram Fault Zone, northern Ladakh: constraints on Tibetan extrusion | 307 |
| SAINT BLANQUAT, M., TIKOFF, B., TEYSSIER, C. & VIGNERESSE, J. L. Transpressional kinematics and magmatic arcs | 327 |
| SCHIATTARELLA, M. Quaternary tectonics of the Pollino Ridge, Calabria–Lucania boundary, southern Italy | 341 |
| Index | 355 |