Contents

MARIANI, E., MECKLENBURGH, J. & FAULKNER, D. R. Towards an improved understanding of the mechanical properties and rheology of the lithosphere: an introductory article to ‘Rock Deformation from Field, Experiments and Theory: A Volume in Honour of Ernie Rutter’ 1

FAULKNER, D. R., MARIANI, E., MECKLENBURGH, J. & COVEY-CRUMP, S. E. H. Rutter: a biography 19

Upper crustal deformation

Applied rock mechanics

HEFFER, K. Percolation of the interacting elastic stress fields of aligned cracks as an alternative explanation of critical crack densities 31

SIDDIQI, G. & EVANS, B. Permeability and thermal cracking at pressure in Sioux Quartzite 49

SINHA, B. K. & WENDT, A. S. Estimation of horizontal stress magnitudes using sonic data from vertical and deviated wellbores in a depleted reservoir 67

HARPER, T. R. & HAGAN, J. T. The nature of stress state: numerical and laboratory experiments and some field observations 93

Pressure solution

PLUYMAKERS, A. M. H. & SPIERS, C. J. Compaction creep of simulated anhydrite fault gouge by pressure solution: theory v. experiments and implications for fault sealing 107

BRUIJN, R. H. C. & ALMQVIST, B. S. G. The role of stress on chemical compaction of illite shale powder 125

LENA, G., BARCHI, M. R., ALVAREZ, W., FELICI, F. & MINELLI, G. Mesostructural analysis of S-C fabrics in a shallow shear zone of the Umbria–Marche Apennines (Central Italy) 149

GAPAIS, D. & LAOUAN BREMBONDI, A. Pegmatite mylonites: origin and significance 167

Analysis of microstructures and crystallographic preferred orientation


ZUCALE, M., BARBERINI, V., VOLTOLINI, M., OULADDIAF, B., CHATEIGNER, D., MANCINI, L. & LUTTEROTTI, L. Quantitative 3D microstructural analysis of naturally deformed amphibolite from the Southern Alps (Italy): microstructures, CPO and seismic anisotropy from a fossil extensional margin 201

MAINPRICE, D., BACHMANN, F., HIELSCHER, R., SCHAEBEN, H. & LLOYD, G. E. Calculating anisotropic piezoelectric properties from texture data using the MTEX open source package 223

MAINPRICE, D., BACHMANN, F., HIELSCHER, R. & SCHAEBEN, H. Descriptive tools for the analysis of texture projects with large datasets using MTEX: strength, symmetry and components 251

Index 273