Contents

Referees vii

MALTMAN, A. J., HUBBARD, B. & HAMBREY, M. J. Deformation of Glacial Materials: introduction and overview 1

Ice Deformation

SOUCHEZ, R., VANDENSCHRICK, G., LORRAIN, R. & TISON, J.-L. Basal ice formation and deformation in central Greenland: a review of existing and new ice core data 13

TISON, J.-L. & HUBBARD, B. Ice crystallographic evolution at a temperate glacier: Glacier de Tsanfleuron, Switzerland 23

BAKER, I., TRICKETT, Y. L. & PRADHAN, P. M. S. The effect of H2SO4 on the stress exponent in ice single crystals 39

IRVING, D. H. B., REA, B. R. & HARRIS, C. Physical modelling of the rheology of clean and sediment-rich polycrystalline ice using a geotechnical centrifuge: potential applications 47

Glacier Flow and Structures

HAMBREY, M. J. & LAWSON, W. J. Structural styles and deformation fields in glaciers: a review 59

LAWSON, W. J., SHARP, M. J. & HAMBREY, M. J. Deformation histories and structural assemblages of glacier ice in a non-steady flow regime 85

WILSON, C. J. L. Experimental work on the effect of pre-existing anisotropy on fabric development in glaciers 97

MARMO, B. A. & WILSON, C. J. L. The stress distribution related to the boudinage of a visco-elastic material: examples from a polar outlet glacier 115

HUBBARD, A. & HUBBARD, B. The potential contribution of high-resolution glacier flow modelling to structural glaciology 135

XIMENIS, L., CALVET, J., GARCIA, D., CASAS, J. M. & SABAT, F. Folding in the Johnsons Glacier, Livingston Island, South Shetland Islands, Antarctica 147

HERBST, P. & NEUBAUER, P. The Pasterze Glacier, Austria: an analogue of an extensional allochthon 159

Sub-Glacial Deformation

ALLEY, R. B. Continuity comes first: recent progress in understanding subglacial deformation 171

FITZSIMONS, S. J., LORRAIN, R. D. & VANDERGOES, M. J. Behaviour of subglacial sediment and basal ice in a cold glacier 181

HINDMARSH, R. A. & RIJSDIJJK, K. F. Use of a viscous model of till rheology to describe gravitational loading instabilities in glacial sediments 191

FULLER, S. & MURRAY, T. Evidence against pervasive bed deformation during the surge of an Icelandic glacier 203

SIEGERT, M. J. Radar evidence of water-saturated sediments beneath the East Antarctic Ice Sheet 217
CONTENTS

HUBBARD, B. & MALTMAN, A. J. Laboratory investigations of the strength, static hydraulic conductivity and dynamic hydraulic conductivity of glacial sediments 231

Glaciotectonic Structures

MENZIES, J. Micromorphological analyses of microfabrics and microstructures indicative of deformation processes in glacial sediments 245

VAN DER WATEREN, F. M., KLUIVING, S. J. & BARTEK, L. R. Kinematic indicators of subglacial shearing 259

PHILLIPS, E. R. & AUTON, C. R. Micromorphological evidence for polyphase deformation of glaciolaucustrine sediments from Strathspey, Scotland 279

HUUSE, M. & LYKKE-ANDERSEN, H. Large-scale glaciotectonic thrust structures in the eastern Danish North Sea 293

FOWLER, A. C. An instability mechanism for drumlin formation 307

GRAHAM, D. J. & MIDGLEY, N. G. Moraine-mound formation by englacial thrusting: the Younger Dryas moraines of Cwm Idwal, North Wales 321

Index 337

It is recommended that reference to all or part of this book should be made in one of the following ways:
