

Contents

Foreword	vii
Preface	x
SHEPLEY, M. G., WHITEMAN, M. I., HULME, P. J. & GROUT, M. W. Introduction: groundwater resources modelling: a case study from the UK	1
RUSHTON, K. R. & SKINNER, A. C. A national approach to groundwater modelling: developing a programme and establishing technical standards	7
WHITEMAN, M. I., SEYMOUR, K. J., VAN WONDEREN, J. J., MAGINNESS, C. H., HULME, P. J., GROUT, M. W. & FARRELL, R. P. Start, development and status of the regulator-led national groundwater resources modelling programme in England and Wales	19
HUGHES, A. G., VAN WONDEREN, J. J., REES, J. G., SEYMOUR, K. J., MANFUL, D. & KARL, H. How to get your model results used: a guide to stakeholder engagement	39
WHITEMAN, M. I., MAGINNESS, C. H., FARRELL, R. P., GJUSBERS, P. J. A. & VERVERS, M. The National Groundwater Modelling System: providing wider access to groundwater models	49
QUINN, S. A., LISS, D., JOHNSON, D., VAN WONDEREN, J. J. & POWER, T. Recharge estimation methodologies employed by the Environment Agency of England and Wales for the purposes of regional groundwater resource modelling	65
MANSOUR, M. M., HUGHES, A. G., ROBINS, N. S., BALL, D. & OKORONKWO, C. The role of numerical modelling in understanding groundwater flow in Scottish alluvial aquifers	85
JONES, M. A., HUGHES, A. G., JACKSON, C. R. & VAN WONDEREN, J. Groundwater resource modelling for public water supply management in London	99
BUTLER, A. P., HUGHES, A. G., JACKSON, C. R., IRESON, A. M., PARKER, S. J., WHEATER, H. S. & PEACH, D. W. Advances in modelling groundwater behaviour in Chalk catchments	113
SOLEY, R. W. N., POWER, T., MORTIMORE, R. N., SHAW, P., DOTTRIDGE, J., BRYAN, G. & COLLEY, I. Modelling the hydrogeology and managed aquifer system of the Chalk across southern England	129
BLACK, A. D., LEWIS, R. T., GROUT, M. W. & WITTERICK, W. R. Crossing boundaries, the influence of groundwater model boundaries and a method to join and split MODFLOW models	155
HUTCHINSON, M. J., INGRAM, R. G. S., GROUT, M. W. & HAYES, P. J. A successful model: 30 years of the Lincolnshire Chalk model	173
TAYLOR, A. B., MARTIN, N. A., EVERARD, E. & KELLY, T. J. Modelling the Vale of St Albans: parameter estimation and dual storage	193
COOK, S. J., FITZPATRICK, C. M., BURGESS, W. G., LYTTON, L., BISHOP, P. & SAGE, R. Modelling the influence of solution-enhanced conduits on catchment-scale contaminant transport in the Hertfordshire Chalk aquifer	205
WATSON, S. J., BURGESS, W. G. & BARKER, J. A. Re-evaluating dual-porosity effects at the site of a seminal groundwater modelling study: Tilmanstone, southern England	227

INGRAM, R. G. S., STONE, N., CAREY, M. & SMART, P. L. Catchment-scale water balance modelling in a Carboniferous Limestone aquifer	249
SOLEY, R. W. N., MATTHEWS, A., ROSS, D., MAGINNESS, C. H., PACKMAN, M. & HULME, P. J. Groundwater abstraction impacts on river flows: predictions from regional groundwater models	269
HULME, P. J., JACKSON, C. R., ATKINS, J. K., HUGHES, A. G., MANSOUR, M. M., SEYMOUR, K. J. & WILSON, K. A rapid model for estimating the depletion in river flows due to groundwater abstraction	289
SHEPLEY, M. G. & SOLEY, R. W. N. The use of groundwater levels and numerical models for the management of a layered, moderate-diffusivity aquifer	303
DAILY, P. J. J., RILEY, J. J., SHEPLEY, M. G. & BUSS, S. R. Simulation of a water transfer tunnel at catchment scale in the Permo-Triassic Sandstone aquifer, UK	319
GELLATLY, S. C., RAYNOR, M. E., GREEN, C. J. E. & NEVE, P. S. Using and refining an existing regional groundwater model to assess the impacts of an abstraction on a nearby wetland	333
BLACK, G. E. & BLACK, A. D. PEST controlled: responsible application of inverse techniques on UK groundwater models	353
Index	375