

Contents

The Technical and Editorial Committee viii
Preface x

The Petroleum Geology of NW Europe: 50 years of learning – a platform for present value and future success.
An overview
B. Levell & M. Bowman 1

Plays and Fairways

Tectonostratigraphic framework and depositional history of the Cretaceous–Danian succession of the Danish Central Graben (North Sea) – new light on a mature area
F. S. P. van Buchem, F. W. H. Smit, G. J. A. Buijs, B. Trudgill & P.-H. Larsen 9

Multiple episodes of regional exhumation and inversion identified in the UK Southern North Sea based on integration of palaeothermal and palaeoburial indicators
P. F. Green, I. R. Duddy & P. Japsen 47

3D basin and petroleum system modelling of the NW German North Sea (Entenschnabel)
J. Arfai & R. Lutz 67

New insights into the unexploited reservoir potential of the Mid North Sea High (UKCS quadrants 35–38 and 41–43): a newly described intra-Zechstein sulphate–carbonate platform complex
S. Patruno, W. Reid, C. A.-L. Jackson & C. Davies 87

Regional study of controls on reservoir quality in the Triassic Skagerrak Formation of the Central North Sea
M. Akpokodje, A. Melvin, J. Churchill, S. Burns, J. Morris, S. Kape, M. Wakefield & R. Ameerli 125

Regional distribution and controls on the development of post-rift turbidite systems: insights from the Paleocene of the eastern North Viking Graben, offshore Norway
E. Dmitrieva, C. A.-L. Jackson, M. Huuse & I. A. Kane 147

Old challenges, new developments and new plays in Irish offshore exploration
P. M. Shannon 171

Petroleum systems and results of exploration on the Atlantic margins of the UK, Faroes & Ireland: what have we learnt?
I. C. Scotchman, A. G. Doré & A. M. Spencer 187

Deep structure of the Porcupine Basin from wide-angle seismic data
L. Watremez, M. Prada, T. Minshull, B. O'Reilly, C. Chen, T. Reston, P. Shannon, G. Wagner, V. Gaw, D. Klaeschen, R. Edwards & S. Lebedev 199

Challenges of future exploration within the UK Rockall Basin
N. Schofield, D. Jolley, S. Holford, S. Archer, D. Watson, A. Hartley, J. Howell, D. Muirhead, J. Underhill & P. Green 211

Exploration challenges along the North Atlantic volcanic margins: the intra-volcanic sandstone play in subsurface and outcrop
M. Larsen, B. Bell, P. Guarnieri, H. Vosgerau & R. Weibel 231

Controls on the reservoir quality of Late Cretaceous Springar Formation deep-water fan systems in the Vøring Basin
A. Finlayson, A. Melvin, A. Guise & J. Churchill 247

Play Assessment

The challenge of unbiased application of risk analysis towards future profitable exploration
G. P. Citron, P. Jeffrey Brown, J. MacKay, P. Carragher & D. Cook 259

Exploration well failures from the UK North Sea
C. J. H. Mathieu 267

The edges of the wedges: a systematic approach to trap definition and risking for stratigraphic, combination and sub-unconformity traps
E. J. Stirling, E. M. G. Fugelli & M. Thompson 273

Recent Successes and Learnings from Failures

New exploration discoveries in a mature basin: offshore Denmark
G. Goffey, M. Attree, P. Curtis, F. Goodfellow, J. Lynch, D. Mackertich, T. Orife & W. Tyrrell 287

Petroleum geology of the Cygnus gas field, UK North Sea: from discovery to development
R. Catto, S. Taggart & G. Poole 307

The Bacchus development: dealing with geological uncertainty in a small high-pressure–high-temperature development
P. Rose, G. Byerley & O. Vaughan 319

The 35/9-7 Skarfjell discovery: a genuine stratigraphic trap, NE North Sea, Norway
J.-O. Koch, A. Frischbutter, K. Øygard & J. Cater 339

Rhyl Field: developing a new structural model by integrating basic geological principles with advanced seismic imaging in the Irish Sea
G. Ward & D. Baker 355

The influence of volcanic rocks on the characterization of Rosebank Field – new insights from ocean-bottom seismic data and geological analogues integrated through interpretation and modelling
S. Poppitt, L. J. Duncan, B. Preu, F. Fazzari & J. Archer 373

The Lancaster Field: progress in opening the UK's fractured basement play
A. Belaidi, D. A. Bonter, C. Slightam & R. C. Trice 385

Infrastructure-led Exploration and Development

A hydrodynamic model and associated spill-point map for the Huntington Field, UK Central North Sea
S. Green, S. O'Connor, R. Swarbrick & K. Waters 399

Lateral accretion in a straight slope channel system: an example from the Forties Sandstone of the Huntington Field, UK Central North Sea
C. Edwards, S. McQuaid, S. Easton, D. Scott, A. Couch, R. Evans & S. Hart 413

The Shearwater Field – understanding the overburden above a geologically complex and pressure-depleted high-pressure and high-temperature field
D. W. Jones, B. J. Taylor, C. E. Gill, M. Bevaart, P. F. van Bergen, J. S. Watson, S. de Gennaro & M. Hodzic 429

The Knarr Field: a new development at the northern edge of the North Sea
S. S. Skarpeid, J. M. Churchill, J. P. J. Hilton, C. N. Izatt & M. T. Poole 445

Beyond Laggan–Tormore: maximizing economic recovery from gas infrastructure West of Shetland
P. Noel & N. Taylor 455

Late-life Fields, Redevelopment and the Next Life

Unlocking 4D seismic technology to maximize recovery from the pre-salt Rotliegend gas fields of the Southern North Sea

J. Brain, T. Lassaigne, M. Darnet & P. Van Loevezijn 465

Re-saturation targets identified from 4D seismic softening responses in the Forties Field

L. Singer, G. Byerley & P. Rose 473

Aviat: a Lower Pleistocene shallow gas hazard developed as a fuel gas supply for the Forties Field

P. Rose, G. Byerley, O. Vaughan, J. Cater, B. R. Rea, M. Spagnolo & S. Archer 485

The Beryl Field area: increasing production in a mature asset

J. Pyle, G. Farquharson, J. Gibson, D. Helgeson & J. Towart 507

Spectral decomposition: an aid in characterizing field architectures of the Laggan and Tormore fields, Faroe–Shetland Basin

K. A. Wright, R. Nice, M. Tazzi, K. Purnell & V. Penasse 525

Future directions in reservoir modelling: new tools and ‘fit-for-purpose’ workflows

M. Bentley & P. Ringrose 537

Goldeneye: Tomorrow Never Dies (or a field Only Lives Twice)

J. D. Marshall, O. D. Tucker, C. E. Lovelock, S. J. Darker, C. E. Annia & J. B. Hognestad 547

North Sea – next life: extending the commercial life of producing North Sea fields

J. Gluyas, S. Mathias & S. Goudarzi 561

Onshore Exploration and Development

Shale prospectivity onshore Britain

A. L. Harvey, I. J. Andrews & A. A. Monaghan 571

The application of elemental geochemistry to UK onshore unconventional plays

D. A. Riley, T. J. Pearce, E. Mathia, K. Ratcliffe & J. Martin 585

An assessment of the Upper Succession and the related secondary reservoirs in the Welton Field, onshore UK

J. Steventon & M. Bowman 595

The unconventional Carboniferous reservoirs of the Greater Kirby Misperton gas field and their potential: North Yorkshire’s sleeping giant

F. Hughes, D. Harrison, M. Haarhoff, P. Howlett, A. Pearson, D. Ware, C. Taylor, G. Emms & A. Mortimer 611

Index 627