

Index

Page numbers in *italics* refer to Figures. Page numbers in **bold** refer to Tables.

- Aberdeen Ground Formation 334
- Acorn Field 220
- Alba Field 1, 3, 4, 5, 7, 9, 247
 - bypassed oil 370–373
 - drilling technology advances 367
 - exploration, appraisal and development 357–360
 - field development
 - evaluation 375–377
 - future 377–378
 - location 355, 356
 - maximizing recovery 367–368
 - production history 358
 - reservoir
 - compartmentalization 373–374
 - complexity 360–361
 - fluid movement 368–370
 - OBC imaging 362–367, 378
 - setting 355–357
 - stratigraphy 359
- Alba Formation 359
- Alba Sands 357, 358, 359
- amplitude v. offset (AVO) 9, 10, 55, 175, 219
 - Forties Field 336, 337
 - Fram Field 219, 226, 227, 233,
 - Lochranza Field 301, 302, 312, 313, 316, 318, 320, 325, 326, 327, 329
 - Volund Field 253
- Andrew Field 1, 43
- Andrew Sandstone Member 20, 21–23, 22, 37, 130
 - distribution 26
 - Gannet Field 384
 - Merganser Field 266, 273, 284
 - South Buchan Graben
 - sequence stratigraphy 102, 103, 104, 104, 106
 - discussion of results 119, 120
- anoxia 65
- Apectodinium augustum* 334
- Arbroath Field 1, 26, 64, 84, 89
- Arkwright Field 26, 89
- Arran Field 3, 5, 64, 85, 134
 - discovery 185–186
 - geological setting 187–188
 - location 186
 - Paleocene isochron map 189
 - petrophysical analysis 143–144
 - pinch-out characterization 142–143, 153
 - reservoir architecture 204
 - reservoir character 135
 - reservoir depositional model 202–203, 203
 - reservoir facies associations 191, 193, 194, 195
 - amalgamated thick-bedded submarine sandlobe (TBSSL) 195–197, 195, 196
 - lobe margin 199–200, 200
 - minor facies 201–202
 - non-amalgamated TBSSL 197–199, 198
 - seismic recognition 208–212
 - thin-bedded lobe fringe 200–201
 - reservoir model 212–213, 214, 215
 - summary 215
 - reservoir outcrop analogues 203, 205, 205, 206, 206, 207, 208
 - reservoir stratigraphy 189–191, 190
 - seismic section 144
 - well correlation 138, 146, 147
- Arran North Field 150, 186
- Arran South Field 150, 186
- Auk Horst 264
- Balder Field 247
- Balder Formation 35, 45, 102, 103, 135, 160, 190
 - Forties Field 334
 - Gannet Field 384
 - Merganser Field 266, 293
 - sequence stratigraphy 117, 123
- Balder mudstones 35
- Balder sandstone 29–30
 - distribution 30
- Balder Tuff 20, 21, 22, 45
- Balmoral Sandstone Member
 - Lochranza Field 303, 305, 306, 308
 - South Buchan Graben
 - sequence stratigraphy 102, 103, 104, 107, 108
 - discussion of results 119, 120, 130
- Balmoral Sandstones 20, 22, 24–25, 33, 37
 - distribution 27
- Banff Field 64, 220, 270
- Barbara Field 186
- basalt lavas 21
- Beaully Formation 22, 102, 103, 335
 - sequence stratigraphy 117, 118, 123
- Beaully Sandstone 20, 29–30
 - distribution 30
- Beechnut Field 220
- Beinisdvørð Formation 20, 21
- Beinisdvørð lavas 33
- Beryl Embayment 17, 18, 27, 29, 30, 37
 - cross-section 23
 - stratigraphy 25
- biostratigraphy
 - Forties Sandstone Member 136, 339–340
 - Lista Formation 104, 107
 - Lochranza Field 308
- bioturbation, Ormen Lange reservoir 166
- biozones, Ormen Lange Field 161
- Bittern fan system 188, 188
- Bittern Field 5, 64, 85
- Bittern Sandstone Member 63, 67, 85, 266
- Blane Field 64

- bright spots 10
 Brimmond Member 333, 334
 Britannia Field 358, 360
 Brushy Canyon Formation 208
 Buchan Graben 333
 Buchan Horst 101
 Buzzard Field 133
 bypassed pay
 Alba Field 370–373
 defined 333
 Forties Field 348–349
 Charlie channel development 349–350, 351–352
 NE flank 350–351
- Caledonian fault system 38
 carbonate facies analysis, Maureen Formation 48–49
 Carron Member 359
 Catcher Field 1
 Central Graben 17, 18, 26, 35, 37, 44, 47, 65
 cross-section 22
 depositional systems 63, 65
 fairway 27
 Forties Sandstone Member 65–67
 isochron map 268
 Maureen Formation 43, 44, 45
 basin floor fan significance 55, 58–59
 facies analysis
 carbonate 48–49
 clastic 49–51
 lithologies 55, 58
 lithostratigraphy 45, 46
 petrophysical characterization 53–55
 sandstone characterization 46–47
 seismic characterization 51–53
 well correlations 56, 57
 palaeogeography 269
 reservoirs 267
 seismic section 265
 stratigraphy 25
 structures 263, 264
 see also East Central Graben; West Central Graben
 Centurion Field 220
 Chalk Group 2, 43, 45
 channel complexes, reservoir properties 4, 6,
 89–90, 90
 channel fairways, Sele Formation 77–79
 clastic facies analysis, Maureen Formation 49–51
 Cod Field 64
 Cod Terrace 264
 Colsay sandstones 20, 24, 28
 compactional drape 3, 5
 compressional inversion 3–4
 Corona High 18, 24, 33
 Cromarty Sandstone Member 20, 28, 29, 63, 64,
 67–68, 190, 266
 South Buchan Graben 129
 sequence stratigraphy 102, 103, 115, 116, 117
 significance of 121, 123
 Cromer Knoll Group 43, 45, 101
 Curlew Fields 64, 220
 Curlew Platform 264
- Danian Stage
 depositional environment 30–31, 31
 stratigraphy 45
 Darwin Platform 32, 33
 debris flows, Central Graben 58
 diapirs, salt 3, 46, 65, 80, 90, 92–93, 189
 East Central Graben 266–267
 Fram Field 222, 222, 223
 Merganser Field 261, 270, 271, 272–273
 diatoms 34
 dim spots 10
 dinocysts 31, 34, 334
 direct hydrocarbon indicators (DHI) 9, 10, 157–158,
 159, 175, 176, 178, 226, 339, 349,
 351–352
 Donan Field 299, 300, 301, 302, 305
 petrophysical log 311
 Dornoch Formation 27, 67, 333, 335
 South Buchan Graben 127
 sequence stratigraphy 102, 103, 114–115
 significance of 119, 120
 T-sequences 69–70, 84–86
 Dornoch sandstones 20, 22, 27–29
 distribution 29
 drilling technology development 10–11
 Dumbarton Project 299, 301, 302
 development 312–313
 seismic survey 314
 Dutch Bank Basin 263
 dyke injection 249–250, 303
- East Central Graben 134, 263, 264
 Arran Field 3, 5, 64, 85, 134
 discovery 185–186
 geological setting 187–188
 location 186
 Paleocene isochron map 189
 petrophysical analysis 143–144
 pinch-out characterization 142–143, 153
 reservoir architecture 204
 reservoir character 135
 reservoir depositional model 202–203, 203
 reservoir facies associations 191, 193, 194, 195
 amalgamated thick-bedded submarine sand-
 lobe (TBSSL) 195–197, 195, 196
 lobe margin 199–200, 200
 minor facies 201–202
 non-amalgamated TBSSL 197–199, 198
 seismic recognition 208–212
 thin-bedded lobe fringe 200–201
 reservoir model 212–213, 214, 215
 summary 215
 reservoir outcrop analogues 203, 205, 205,
 206, 206, 207, 208
 reservoir stratigraphy 189–191, 190
 seismic section 144
 well correlation 138, 146, 147
 Forties Sandstone Member
 isochron map 141–142
 petrophysical analysis 143–145
 pinch-out characterization 142–143, 150–153

- reservoir properties 147–149
 - discussed 149–153
 - seismic reflection character 139–140, *139, 140*
 - stratigraphic setting 135–136
 - time structure map 140–141
- palaeotopography 142–143
- reservoirs 135–136
 - petrophysical analysis 143–145
 - seismic reflection character 139, *139*
 - stratigraphy 266
- East Orkney Basin 263
- East Orkney High 263
- East Shetland Basin 17, 18, 28
- East Shetland Platform 27
- Egersund High 263, 264
- Egga fan 163, *163*, 164
- Egga Member 160, *161*
- Egret Field 262
- Ekofisk Formation 20, 22, 249
- Elgin Field 220, 262
- Enni Formation 20, 21
- Eocene
 - fan character 17
 - geomagnetic polarity 66
 - palynology 190
 - sea-level curve 45, 66, 103, 308, 384
 - sequence stratigraphy 19, 66
 - Balder Formation 117, 123
 - Sele Formation 107, 109, 110, 111–112, *112, 113*, 114–115, *116*, 117
 - significance of 119, 120, 121, *122*, 123
 - stratigraphy 20, 25, 66, 102, *103*
- Erlend High 35
- Erskine Field 262
- Erskine Ridge 261, 264, 270, 272–273
- Everest Field 1, 3, 5, 64, 85, 92, *134*
 - petrophysical analysis 143–144
 - pinch-out characterization 142–143, 153
 - reservoir character 135
 - seismic reflection character 139, *139, 140, 143*
 - well correlation *137, 146, 147*
- Faroe–Islands Basalt Group 21
- Faroe–Shetland Basin 18, 18, 31, 32, 34, 37
 - cross-section 24
 - stratigraphy 25
- Fergie sandstones 20, 22, 24
- Fisher Bank Basin 263
- Fiskebank Formation 64
- Fiskebank sandstones 28
- Fladen Ground Spur 23, 24, 263
- flat spots 10, 129
- Flett Basin 24
- Flett Formation 20, 24, 35
- Flett lavas 20, 21, 24, 34, 35
- Flugga Sandstone Member 28, 29, 64
- fluidization 247
- foraminifera 31, 34
- Forth Approaches Basin 263
- Forties Fan 187–188, 381, 383
 - Everest Field 188–189
 - Forties Field 1, 3, 4, 5, 11, 26, 64, 89, 333
 - bypassed pay 348–349
 - Charlie channel development 349–350, 351–352
 - NE flank development 350–351
 - database 336–337
 - biostratigraphy 339–340
 - petrophysics 337
 - seismic and fluid response 337, 338, 339
 - location 334
 - reservoir properties
 - architecture 340–342
 - Charlie channel complex 341–342, 343–346, *347, 348*
 - facies 342–343, 343–346
 - stratigraphy 333–334, 335
 - trap 334–336
 - well correlations 341
- Forties Sandstone Member 4, 6, 7, 20, 22, 26–27, 28, 63, 64, 65, 66, 67, 78, 333
- Arran Field 3, 5, 64, 85, *134*, 187, *190*
 - discovery 185–186
 - geological setting 187–188
 - location 186
 - Paleocene isochron map 189
 - petrophysical analysis 143–144
 - pinch-out characterization 142–143, 153
 - reservoir architecture 204
 - reservoir character 135
 - reservoir depositional model 202–203, 203
 - reservoir facies associations 191, *193, 194, 195*
 - amalgamated thick-bedded submarine sand-lobe (TBSSL) 195–197, *195, 196*
 - lobe margin 199–200, 200
 - minor facies 201–202
 - non-amalgamated TBSSL 197–199, *198*
 - seismic recognition 208–212
 - thin-bedded lobe fringe 200–201
 - reservoir model 212–213, *214, 215*
 - summary 215
 - reservoir outcrop analogues 203, 205, *205, 206, 206, 207, 208*
 - reservoir stratigraphy 189–191, *190*
 - seismic section *144*
 - well correlation *138, 146, 147, 191*
- East Central Graben
 - isochron map 141–142
 - petrophysical analysis 143–145
 - pinch-out characterization 142–143, 150–153
 - reservoir properties 147–149
 - discussed 149–153
 - seismic reflection character 139–140, *139, 140*
 - seismicity v. stratigraphy 145–147
 - stratigraphic setting 135–136
 - time structure map 140–141
 - facies distribution 73
- Forties Field, stratigraphy 333–334, 335, 335
- Fram Field 5, 6, 64, 85, 270
 - discovery 219
 - exploration history 225–227
 - appraisal wells 227–229
 - formation pressure plots 229

- Forties Sandstone Member (*Continued*)
 geological setting 220, 222–225
 isochron map 225
 location 220
 petrophysical properties 241
 porosity v. permeability 234
 reservoir properties 229–230
 architecture 240–242
 depositional environment 237–238, 240
 diagenesis and quality 236–237, 239
 key uncertainties 242–244
 sedimentology 235–236, 238, **240**
 lithofacies associations 235, 236, 237
 stratigraphy 231, 233, 235
 structure 230–231
 seismic sections 224, 227, 230, 231
 stratigraphy 221
 structure 223
 well correlations 232
- Gannet Field 384
 Jaeren High 192
 Merganser Field 266, 273, 281–284
 lithofacies associations 283
 South Buchan Graben 128, 129
 sequence stratigraphy 102, 103, 111–112
 significance of 119, 120
- Forties–Montrose High 67, 86, 263, 264, 334, 335
 four-way dip closure 3
- Fram Field 5, 6, 64, 85, 270
 discovery 219
 exploration history 225–227
 appraisal wells 227–229
 formation pressure plots 229
 geological setting 220, 222–225
 isochron map 225
 location 220
 petrophysical properties 241
 porosity v. permeability 234
 reservoir properties 229–230
 architecture 240–242
 depositional environment 237–238, 240
 diagenesis and quality 236–237, 239
 key uncertainties 242–244
 sedimentology 235–236, 238, **240**
 lithofacies associations 235, 236, 237
 stratigraphy 231, 233, 235
 structure 230–231
 seismic sections 224, 227, 230, 231
 stratigraphy 221
 structure 223
 well correlations 232
- Franklin Field 220, 262
 Frigg Field 1, 3, 5, 27
 Frigg Formation 249
 Fulmar Clyde Terrace 264
- Gannet A Field 5, 6
 development 384–385
 flow barrier modelling
 method 393
 results 393–394, 394, 395
 results discussed 394–397
 fluid contact tracking 389, 391
 modelling 389–391, 393
 gamma-ray log 386
 location 381, 382
 Tay Sandstone Member
 depositional environment 382–384
 facies types 384, **386**, 387
 well surveillance
 cased-hole 385
 oil geochemistry 387–388, 390
 time-lapse seismic 385–387
- Gannet fan system 188, 188
 Gannet Fields 1, 64, 84, 189
 Gannet G Field
 gamma-ray log 386
 oil geochemistry 387–388, 390
 Tay Sandstone Member, depositional environment
 382–384
- Gannet Sandstone Member 63, 68–69
 geochemistry of oil, Gannet A and G fields
 387–388, 390
- geomagnetic polarity, Palaeocene–Eocene 66
 Glamis Tuff Member 20, 21, 33
 South Buchan Graben 102, 103, 104, 107, 119, 130
 Glenelg Field 262
 Gossa Sub-basin 162
 Grampian Spur 263
 Great Glen Fault 17, 18, 38
 Grès d'Annot sand body 205, 205, 206, 207
 Grid Sandstone member 45, 249
 Grieg Discovery 251
 Gryphon Field 1, 30, 247
 Guillemot Field 84
- Halibut Horst 17, 18, 23, 263
 Halibut Horst mudstone 64
 Halibut Shelf 263
 halokinesis and salt diapirs 3, 46, 65, 80, 90,
 92–93, 189
 East Central Graben 266–267
 Fram Field 222, 222, 223
 Merganser Field 261, 270, 271, 272–273
- Hamsun Prospect 251
 Harding Field 1
 Harrier Basin 264
 Heimdal Formation 249, 249
 Heimdal Sandstones 20, 23, 24–25, 33, 37
 distribution 27
 Hermod Formation 7, 249, 249, 252
 Hermod Sandstone Member 23, 28, 64
 Heron Field 262, 267
 Highland Boundary Fault 18
 highstand system 1–2
 South Buchan Graben **126**
 Hildasay Sandstone 20, 24, 29
 Horda Formation 45, 334, 381, 384
 Hordaland Group 101, 249
 Hordaland Supergroup 359
 hotspot, East Greenland 65
 Hyannahgi Formation 21

- Icelandic Plume 1, 99, 135, 267
 injectites and injection, sand 3, 9
 Lochranza Field 303, **305**, 309
 Merganser Field 283, 286
 Volund Field 247, 249–250, 252
 Inner Moray Firth 263
 interchannel features, reservoir properties 4, 6
 intrusive traps 247, 248
- Jaeren High 4, 17, 18, 23, 65, 86, 192, 263, 264
 Jorsalfare Eq Member 160, 161, 163
 Jorsalfare Formation 20, 249
 Josephine High 86
 Josephine Ridge 53, 85
 Jotun Field 1, 247
 Judd Fault Zone 31, 31
 Judd Lineament 18
 Judy Ridge 263, 264
- Kessog Field 220
 Kettle Tuff 20, 21
 Kyle Field 220, 270
 Kyle salt diapir 85
- Lamba Formation 20, 21
 Lamba sandstones 20, 24, 24, 33, 37
 Lamba Tuff 20
 Lark Formation 293, 334, 359
 Leadon Field 247
 lignite 29
 Lista Formation 20, 35, 43, 45, 46, 59, 67, 147, 160, 249, 266
 Arran Field 190, 191
 Forties Field 335
 Gannet Field 384
 Lochranza Field 303
 Merganser Field 284
 South Buchan Graben 102, 103, 104, 104, 107
 sequence stratigraphy 119, 120
 T-sequence 69
 lithofacies, Lochranza Field **305**
 lobe complexes
 reservoir character 90–92, 90
 Sele Formation 79–81
 Lochranza Field 7, 329–331
 development
 phase (1) 313
 challenges and mitigation 318, 320
 North 314, 315, 318, 319
 South 313–314, 316
 phase (2) 320
 modelling 323, 325–326
 North 320, 323, 326–327
 West 327, 329
 exploration wells 301–302
 history 299, 301
 location 299, 300
 petrophysical logs 322, 328
 production 302
 reservoir
 depositional environment 302–303
 facies and architecture 303–309, 304
 quality 309
 stratigraphy 302, 303, 304
 water saturation 309, 312
 seismic survey 301
 trap structure 302
 well logs 306, 324
 logging while drilling (LWD) 10
 Lomond Field 64, 85, 262
 Lopra Formation 20, 21
 Lothian Formation 359
 lowstand systems 2, 58–59, 99
 South Buchan Graben 119, **126**
- Machar Field 262
 Malinstindur Formation 20, 21
 Malinstindur lavas 34
 Mandal High 86
 Mariner Field 23
 Marnock Field 262
 mass-transport deposits 81
 Maureen Field 1, 3, 43
 Maureen Formation 2, 6, 43, 44, 45–46, 45, 46, 102, 103, 266
 Central Graben
 basin floor fan significance 55, 58–59
 facies analysis
 carbonate 48–49
 clastic 49–51
 lithologies 55, 58
 lithostratigraphy 45, 46
 petrophysical characterization 53–55
 sandstone characterization 46–47
 seismic characterization 51–53
 well correlations 56, 57
 East Central Graben 147
 Forties Field 335
 Merganser Field 284
 South Buchan Graben
 sequence stratigraphy 102, 104, 105
 discussion of results 119, 120
 Maureen Sandstone Member 20, 21–23, 22, 37, 46, 102, 103
 distribution 26
 facies distribution 47
 Merganser Field 266, 273, 284
 Maureen Terrace 264
 maximum flooding surface, South Buchan Graben 119, 121, 123
 measurement while drilling (MWD) 10
 Merganser Field 1, 3, 5, 6, 64, 189
 compartmentalization 272
 development
 drilling hazards 291–294
 modelling performance 288–291
 diapir evolution model 272–273
 exploration and development 267–270
 hydrocarbon distribution
 modelling 279, 280, 281
 pressure data 278–279, 279
 well observations 272, 276, 278

- Merganser Field (*Continued*)
 location 261, 262
 production performance 294–296, 295
 reservoir
 connectivity 288
 depositional model 286–288
 facies associations 284–286
 geometry 273, 276
 soft-sediment deformation 286
 stratigraphy 281–284
 stratigraphy 267
 structure 263–264, 266–267
 surface metrics **289**
 trap structure 270–272
 well correlations 277
- Mey Sandstone Member 43, 45
 Lochranza Field 302, 303, 308
- Mirren Field 64, 189, 262, 267
- Monan Field 262, 270
- Montrose Field 1, 26, 64, 84, 89
- Montrose Group 43, 45, 101, 102, 103, 266, 303, 384
- Moray Firth 17, 18, 24, 26, 28, 29, 37
 cross-section 22
 stratigraphy 25
- Moray Group 101, 102, 103, 190, 266, 384
- Møre Basin 17, 18, 34, 158, 162
- Møre–Trøndelag Fault Zone 17, 18
- Mungo Field 262
- Munkagrunnur Ridge 18, 32, 33
- Munkagrunnur Volcanic Province 32
- Nauchlan Member 357, 359
- Nelson Field 1, 5, 9, 10, 26, 64, 79, 84, 89
- Nordland Group 101, 249, 359
- North Buchan Graben 101
- North Viking Graben 29
- ocean bottom cable (OBC) technology 9, 357, 358, 362–367, 378
- Ockran Sandstone Formation 31, 31
- Odin Sandstone 20, 23, 30, 30
- Okran Sandstone 20
- Orkney Formation 359
- Ormen Lange Field 4, 7, 157, 181–182
 fan geometry 169–171
 fluid distribution 175–178
 hydrocarbon–water contacts 178–179
 lithofacies 167, 169
 lithostratigraphy 160, 161, 162
 location 158, 159
 marginal gas development 179–181
 porosity and permeability 168
 reservoir architecture 164–165
 reservoir connectivity 172–175
 reservoir facies 165–167
 reservoir quality 158–159, 171–172
 structure 157
 turbidite system
 depositional environment 162–164
 lobe axes 167–168
 well correlations 165
- Outer Moray Firth
 Alba Field 360
 Buzzard Field 133
- Outer Moray Firth Basin 99, 100, 101
- South Buchan Graben 101
 reservoirs 123, **126**, 129
 seals 123, **126**
 sequence stratigraphy
 significance in exploration 123, 124, 125, **126**, 127, 128, 129–130
 summary 130
 stratigraphy 102, 103
 traps **126**
- overpressure, effects of 247
- Palaeogene *see* Eocene; Paleocene
- Paleocene
 fan character 17
 palynology 190
 sea-level curve 66, 103
 sequence stratigraphy 19, 45, 45, 66
 Lista Formation 102, 103, 104, 104, 107, 119, 120
 Maureen Formation 102, 104, 105
 significance of 119, 120
 stratigraphy 20, 25, 43, 45–47, 45, 66, 102, 103
- palynology, 161, 190
- Panoche Giant Injection Complex 249–250, 250
- permeability v. porosity
 Forties Sandstone Member 145
 Fram Field 234
 Lochranza Field 310
 Maureen Formation 50, 51
 Merganser Field 290
 Ormen Lange Field 168
- petrophysical characterization
 Donan Field 311
 Forties Field 337
 Forties Sandstone Member 143–145
 Fram Field 241
 Lochranza Field 322, 328
 Maureen Formation 53–55
- Phyllis Field 185, 186
- Pierce Field 1, 5, 27, 64, 78, 85, 92, 93, 189, 262
- pin-striped mudstone 160
- pinch out 3, 4
 Forties Sandstone Member 150–153
- porosity
 Forties Sandstone Member 145
 Maureen Formation 53, 54
- porosity v. permeability
 Fram Field 234
 Lochranza Field 310
 Maureen Formation 50, 51
 Merganser Field 290
 Ormen Lange Field 168
- Prestfjall Formation 21
- production history 3

- Puffin Field 220
Puffin Horst 264
- reservoirs
 overview 4, 6–8
 see also named fields
- Rockall basins 18, 18, 34
Rockall lavas 20, 21
Rogaland Group 160, 249
Ross Formation 206
Rotliegendes Group 101
- salt diapirs 3, 46, 65, 80, 90, 92–93, 189
 East Central Graben 266–267
 Fram Field 222, 222, 223
 Merganser Field 261, 270, 271, 272–273
- salt piercement 3, 5
- sand injection and injectites 3, 9
 Lochranza Field 303, **305**, 309
 Merganser Field 283, 286
 Volund Field 247, 249–250, 252
- Scoter Field 5, 64, 189, 262, 269, 273
- sea-level change
 controls on fan systems 99, 384
 impact on Sele Sandstone members 87–89
- sea-level curve, Paleocene–Eocene 45, 66, 103, 308, 384
- seal
 development of 123, 130
 failure of 247
- seismic characterization, Maureen Formation 51–53
- seismic survey techniques, evolution 9–10
- Selandian Stage
 depositional environment 32–33, 33
 stratigraphy 45
- Sele Formation 3, 20, 45, 46, 59, 102, 103, 160, 266, 333
 depositional extent 64
 facies and genetic elements
 channel fairways 77–79
 lobe complexes 79–81
 mass-transport deposits 81
 fan evolution 81–89
 fan systems 188
 Forties Field 334
 Gannet Field 384
 gravity flows 65
 lithostratigraphy
 Cromarty and Bittern Sandstone Members 67–68
 Forties Sandstone Member 65–67
 Gannet Sandstone Member 68–69
 Merganser Field 281–284
 reservoir character 89–93
 sandstone members 63, 190
 sedimentology 91
 amalgamated sandstone facies 72
 argillaceous sandstones 71–72
 clean sandstones 70–71, 73
 deformed facies 75, 75, 76
 hemipelagic mudstone facies 74–75, 75
 heterolithic sandstone facies 72, 74, 74
 injected sandstone facies 75–77
 mudstones 72
 sequence stratigraphy 107, 109, 110, 111–112, 112, 113, 114–115, 116, 117
 significance of 119, 120, 121, 122, 123
 South Buchan Graben
 sequence stratigraphy 107, 108, 111–117
 discussion of results 119–123
 T-sequences 68, 69–70, 84–86
 see also Forties Sandstone Member
- Sele Sandstone members 27–29
 bathymetric controls on 86–87
 distribution 29
 sea-level impact 87–89
- sequence stratigraphy
 Paleocene–Eocene 19, 45, 45, 66
 South Buchan Graben
 significance in exploration 123, 124, 125, **126**, 127, 128, 129–130
 summary 130
- shale bodies, impact of 8
- Shearwater Field 220, 262, 267, 269
- Shetland Group 161, 249
- sill intrusion 18
 sandstone 249–250
- Siri fairway 25, 64
- Siri Field 1
- Skadan sandstones 27, 28
- Skade Formation 249
- Skoorsteenbergt Formation 206
- Skua Field 262
- Slørebotn Sub-basin 160, 162
- slurry flow deposits 303, **305**
- Sørvestlandet High 17, 18
- South Buchan Graben 101
 reservoirs 123, **126**, 129
 seals 123, **126**
 sequence stratigraphy 107, 108, 111–117
 discussion of results 119–123
 significance in exploration 123, 124, 125, **126**, 127, 128, 129–130
 summary 130
 stratigraphy 102, 103
 traps **126**
- South Halibut Basin 263
- South Viking Graben 17, 18, 24, 26, 27, 29, 30, 37, 247, 263
- cross-section 23
- Volund Field 5
 geological setting 247–249
 history 250–251
 injection complex 252
 location 248
 production history 256, 258, 258
 reservoir 248
 sand injection system 249–250
 seismic characterization 252–255, 254, 255
 seismic geobodies 255–256, 257
 stratigraphy 249
 well correlation 253
 well distribution 251

- Springar Formation 160, 161
 Starling Field 5, 64, 220
 Stella Field 220
 Sticky Shales 293
 stratigraphic traps 2, 46, 89, 90, 92
 analysis 134
 defined 133
 see also Forties Sandstone Member,
 East Central Graben
 stratigraphy, Paleocene–Eocene 19, 20, 21, 25
 see under names fields
 Stronsay Group 384
 Sula Sgeir High 32, 33
 Sula Sgeir volcanic province 32
 Sullom Formation 31
 Sullom Mudstone 20
 Sullom Sandstone 20
- T-sequences
 Dornoch Formation 69–70, 84–86
 East Central Graben 266
 Lista Formation 69
 Maureen Formation 55
 Paleocene–Eocene 45, 46, 66, 68,
 190, 266
 Sele Formation 68, 69–70, 84, 221, 223
 Tang Formation 160, 161
 Tare Formation 160
 Tay fan system 381, 383
 Tay Sandstone Member 6, 10, 45
 depositional environment 382–384
 facies types 384, **386**, 387
 Gannet A Field 381, 382
 evolution 385
 isochore 386
 stratigraphy 384
- Teal Field 85
 Teal Sandstone member 27, 28
 terminal lobe deposits, reservoir
 properties 4, 6, 8–9
 Tertiary deep marine plays
 overview 1–2
 production record 3
 Thanetian Stage, depositional environment
 33–34, 34
 thermal doming 65
 time-lapse seismic monitoring (4D) 10
 transgressive surface, South Buchan Graben
 119, 121, 123, **126**
- traps 3–4, 5, 133, 334, 335
 intrusive 247, 248
 stratigraphic 2, 46, 89, 90, 92
- uplift
 East Shetland Platform 187
 Paleocene 333
 Tertiary causes 1, 17, 65, 69, 135
 thermal 267
 Ypresian 35, 39
- Utsira Formation 249
 Utsira High 17, 18, 23, 23
- Vaila Formation 20, 21
 Vaila sandstones 20, 24, 32, 37
 Vaila volcanoclastics 20
 Vale Eq Member 161
 Våle Formation 160, 249
 volcanism
 Paleocene–Eocene 18
 Ypresian 35, 39
- Volund Field 5
 geological setting 247–249
 history 250–251
 injection complex 252
 location 248
 production history 256, 258, 258
 reservoir 248
 sand injection system 249–250
 seismic characterization 252–255,
 254, 255
 seismic geobodies 255–256, 257
 stratigraphy 249
 well correlation 253
 well distribution 251
- Walls Boundary Fault 17, 18, 38
 well technology development 11
 West Central Graben 134, 139, 263, 264
 Fram Field 5, 6, 64, 85, 270
 discovery 219
 exploration history 225–227
 appraisal wells 227–229
 formation pressure plots 229
 geological setting 220, 222–225
 isochron map 225
 location 220
 petrophysical properties 241
 porosity v. permeability 234
 reservoir properties 229–230
 architecture 240–242
 depositional environment
 237–238, 240
 diagenesis and quality 236–237, 239
 key uncertainties 242–244
 sedimentology 235–236, 238, **240**
 lithofacies associations 235,
 236, 237
 stratigraphy 231, 233, 235
 structure 230–231
 seismic sections 224, 227, 230, 231
 stratigraphy 221
 structure 223
 well correlations 232
- West Shetland Spine Fault 18
 Western Platform 263, 264
 Westray Group 359
 wings 252, 253
 Witch Ground Graben 263, 333
 Lochranza Field 7, 329–331
 development
 phase (1) 313
 challenges and mitigation 318, 320
 North 314, 315, 318, 319

- South 313–314, *316*
- phase (2) 320
- modelling 323, 325–326
- North 320, 323, 326–327
- West 327, 329
- exploration wells 301–302
- history 299, 301
- location 299, *300*
- petrophysical logs 322, 328
- production 302
- reservoir
 - depositional environment 302–303
 - facies and architecture 303–309, *304*
 - quality 309
 - stratigraphy 302, *303, 304*
 - water saturation 309, 312
- seismic survey 301
- trap structure 302
- well logs *306, 324*
- Wyville–Thomson Lineament *18*
- Ypresian Stage, depositional environment 34–36,
34, 35, 36
- Zechstein Group 43, *45, 101*
- Zechstein halite 3, 65, 222