

# Index

Page numbers in **bold** refer to tables and page numbers in *italics* refer to figures

- <sup>40</sup>Ar/<sup>39</sup>Ar dating 915, 923  
access technologies *see* drilling  
accommodation space development 215,  
275, 454, 518, 791, 848, 964, 1126,  
1147–1164, 1259, 1543–1554  
intra-slope 1112  
Acorn discovery, UK 261  
Aegir Ridge 747–748, 935–936, 942–943,  
998, 1070, 1104  
aeolian facies 959–961, 1614  
Agat Field, Norway 188, 192–193, 195,  
1112, 1112, **1149**, 1150, 1161, 1162  
Akhen Field, Egypt 610, 611, 618, 622  
Al Safir Diapir, Yemen 1646–1647  
Alba Field, UK 92, 135, 137, **138**, 138,  
142–143, 341, 346, 363–364, 519,  
1112, 1381, 1577–1594  
Alun shale source rock 96  
Alveim discovery, Norway 123–131  
Alwyn North Field, UK 172, **362**, 362  
analogues 597, 1116, 1543–1555  
Abu Dhabi carbonate coast 299  
Annot Sandstone, SE France 109, 469  
Black Hawk Formation, USA 498  
Cape Lopez, Gabon 437, 438  
Central Tertiary Basin, Spitsbergen  
1121, **1126**, 1131–1132, 1135, 1139,  
**1140**  
Columbia River, USA 1629  
Delaware Basin, USA 1121, **1126**,  
1135–1139, **1140**  
Ebro Basin, Spain 589  
Ethiopian Rift 1623  
Green River Formation, USA 588  
Greenland 1605  
Karoo Basin, South Africa 838, 841  
Lake Eyre, Australia 291, 397–398, 399  
Mesopotamian marshes 293  
Okavango inland deltas 293  
Potoco Formation, Bolivia 602  
Santa Cruz Mudstone, USA 138  
scaled models 1543–1555, 1631–1648  
SE Utah 1583  
St Bee's Sandstone, UK 1043  
Svarlbad 1605  
Tanqua Karoo Basin, South Africa 1121,  
**1126**, 1133–1135, 1139, **1140**  
Tordillo Formation, Argentina 602  
Windermere Supergroup, Canada 454  
Andrew Field, UK 195, 364  
Anerveen Field, Netherlands 603  
Anglo-Dutch Basin 25–33  
Angola 116–117  
deepwater exploration 1199–1216  
NE Kwanza Basin 1263  
Plutino development 1425–1433  
Angus Field, UK 259  
Anton Dohrn Igneous Complex 1621, 1629  
Anton Dohrn Lineament Complex 939,  
941–943, 1001, 1003  
apatite fission track analysis 344–345,  
1088, 1095–1107  
Appleton Field, UK 263, 1238–1241  
aquifer 1587  
chemistry variations 1301–1314  
drive 390  
heterogeneity 145–158  
mobility 671–672  
performance 679  
pressure 330, 1306–1307  
support 285  
Arbroath Field, UK 146, 148, 154, 155,  
255, 362, 451  
Ardmore Field (previously Argyll Field),  
UK 365–388  
Argyll Field, UK 253–256, 346, **362**, 367  
Armada Complex, UK 258, 569, 675–686  
Artemis Field, UK 1284–1288  
ash beds 513  
Askeladden Field, Norway 232  
aspect ratios 699  
Atlantic Field, UK 187, 192, 195, 204, 220,  
**222**, 223  
Atlantic Ocean *see* N Atlantic-Arctic link;  
N Atlantic Margins; N Atlantic  
opening; NE Atlantic; North Atlantic  
Deep Water  
attic reserves 390  
Auk Field, UK 172, 253, 254, 257, 346,  
**362**, 367, 370, 1238, 1243  
baffles, reservoir 105, 270, 330, 618–620,  
669, 672, 1371, 1524, 1529  
Balder Field, Norway 99–101, 109, 124,  
135, 137, **138**, 142–143, 172, 1112,  
1317–1329  
Balder Formation 111–113, 764, 877, 900,  
977, 978, 980, 987, 1333, 1520, 1580  
Balmoral Field, UK 172, **362**, 362, 1518  
Barra Volcanic Ridge System 1010,  
1017–1018, 1092  
Barremian maximum flood 190–191  
barriers, reservoir 105, 181, 270, 469  
Barrow Island Field, Australia 861  
basement  
extension with salt withdrawal 254, 256,  
261, 265  
reactivation 861–871  
terrane 735, 883  
basin-centred gas 576  
basin geometry 735  
basin modelling 665, 682–685, 842, 1235,  
1237, 1243–1244, 1253–1264,  
1275–1299, 1361–1365  
Beatrice Field, UK 172, 342, 345, **362**  
Beechnut discovery, UK 262  
before stack depth migration (BSDM)  
324–325  
Beryl Field, UK 172, 389–403  
biodegradation 346, 395, 633–639, 1113,  
1212, 1228, 1252, 1272–1273  
impact of shale diagenesis on  
1267–1274  
biogenic gas 567, 577–578, 610, 708, 1229  
biomarker analysis 395, 1235, 1317–1329  
biostratigraphy 265, 326, 418, 426–429,  
453–455, 480, 513, 514, 587, 678, 845,  
923, 1060, 1089, 1347, 1505 *see also*  
micropalaeontology; palynology  
Bittern Field, UK 450–451  
bitumen 272, 665, 667  
Bivrost Fracture Zone/Lineament 793, 796,  
805–811, 846, 850, 855, 890, 939,  
1149  
Bivrost transfer system 786, 787, 791, 797  
Blake Field, UK 187, 192, 195, 200, 220,  
**222**, 223  
Blane Field, Norway 146, 148, 154, 155  
Bohai Wan basin, offshore China 25–33  
Boje Field, Norway 1337  
bolide impact 1587 *see also* Chicxulub  
impact; Silverpit Meteorite Impact  
Crater  
borehole  
breakouts 552, 553, 560, 561  
calibration of amplitude anomalies  
1581–1582  
gravity gradient sensors 1458  
imaging 363, 477–494, 1118,  
1488–1505  
real time 1493  
seismic 1375, 1471–1479  
stability 559–563, 580, 663–673  
*see also* vertical seismic profile  
bottom simulating reflectors (BSRs)  
724–726  
Boulton Field, UK *see* Caister–Murdoch  
System  
Brage Field, Norway 172, 1252  
breached relay ramp system 1487,  
1543–1555  
break-out analysis 1379  
breccias, collapse 372, 384  
Brendan Igneous Centre 1010, 1018, 1049  
Brent Field, UK, 38, 172, 253, 256–257,  
568  
Brent Group 477  
Bressay Field, UK 346  
bright spots 192, 569, 579, 1229,  
1381–1382, 1535  
Britannia Field, UK 146, 148, 152,  
156–157, 187, 191–192, 195, 196,  
200–201, 364, 511–525, 1507–1516,  
1578, 1579, 1591  
British Volcanic Province 742–743, 745,  
750, 1153  
Brodgar Field, UK 217–218, 220, 223  
Buchan Field, UK 172, 201, 346, **362**, 559  
Buckland Field, UK 389  
Buzzard Field, North Sea 41–45, 241–252,  
1112, 1370  
Caister–Murdoch System, UK 317–326  
Cambay/Bombay Basin, India 25–33  
canyon system 203, 205, 616, 621, 622,  
1224

- cap rock  
 analysis 555–557  
 leakage mechanisms 625, 682
- capillary pressure 1334–1344
- capillary transition zone 149
- Captain Field, UK 187, 191, 195, 196, 199, 200–201, 217–218, 220, 223
- carbon dioxide  
 plume 1385–1399  
 sequestration 721, 1370, 1385–1399
- carbonate  
 build-ups 1595–1611  
 mounds 724  
   deep-water 1011  
 ramp system 302, 308, 308, 312, 314, 1135  
 reefs 1566, 1567  
 time-lapse saturation changes 1371
- carbonate-evaporite sediment sequences 299–315, 337–348
- Carboniferous gas fields, Southern North Sea 587–594
- cataclasis 351, 456, 670, 683, 689
- cataclastic rocks 296, 557, 692
- Cecilie Field, Denmark 87–88, 92, 95, 1187, 1195
- Céré-la-Rone gas storage, France 641
- Chalk  
 fields  
   filling history 1331–1345  
   reserve growth 169–175  
   maximum flooding event 196  
   overpressure 145, 148  
 seals 368  
 seismic response 1375, 1401–1413, 1456  
 underexplored play 159–168
- channel sands 271–272, 287–293, 654, 1118, 1161, 1567–1576
- charge modelling, hydrocarbon 167–168, 635–636, 654, 665, 1116, 1247–1264, 1299, 1307, 1309  
 integrated pressure, fluid and charge model 1301–1315  
 ‘motel’ charge storage model 987, 1250, 1254  
 ‘whoopie-cushion’ model 1250, 1254  
*see also* fill-spill
- Charlie Gibbs Fracture Zone 933–945, 1024, 1027, 1031, 1047, 1059
- chemostratigraphy 272–273, 326, 363, 480, 483–485, 488–489, 491, 493, 513
- Chestnut Field, UK 137, 138, 341, 346, 1112, 1577–1594
- Chicxulub impact, Gulf of Mexico 1176, 1181
- Chiswick Field, UK 319
- Christian discovery, UK 262
- Clair Field, UK 346, 957–967, 1250
- Clair Group 957–967
- Clair Lineament 935–936, 939, 941, 943, 996, 1003, 1047
- Clair Transfer Zone 972–973
- clathrate gun hypothesis 726
- Claymore Field, UK 172, 187, 191, 201, 213, 344
- climate change 19, 736, 1058, 1069, 1181
- climate control of sedimentation 964
- Clyde Field, UK 172, 258, 362, 1238, 1241–1243
- coal resources 715–722
- coalbed methane 17, 567, 569, 575–577, 715–720
- Cod Field, Norway 146, 152, 451, 861
- Coevorden Field, Netherlands 299–315
- coherency (semblance) volumes 503, 506
- coiled tubing 405
- collapse of block dip slope 212, 215
- combination traps, structural-stratigraphic 48, 50, 52, 218, 241–252, 977–991, 1225
- compaction  
 chemical model 1365  
 curves 816, 1239–1240  
 gradual pressure build up 1333, 1404  
 history 842  
 pressure preserving 1333, 1404  
 reducing effects of 247  
*see also* disequilibrium compaction
- compactional anticlines 138, 143, 255
- compaction/decompaction  
 effects of 1406–1411  
 modelling 1401–1413
- compartmentalization 105–106, 177–186, 272–273, 287, 293, 295, 297, 362, 406, 417–420, 456, 469, 619–620, 655, 671–672, 681, 694, 1045, 1229, 1432, 1488, 1494 *see also* baffles; barriers; reservoir connectivity
- compression 796, 798, 883, 899, 933, 1058, 1063, 1105  
 Cenozoic deformational history 993–1007, 1064–1065  
 domes 810–812, 847, 865, 1068  
 Miocene 845–859, 1063  
*see also* flexural warping; inversion
- constriction traps 166
- continent-ocean boundary 735, 747–748, 760–764, 769, 777, 786–788, 811, 913, 936–938, 943, 1005, 1057–1058
- continent-ocean transition 805, 893, 954
- Continued Professional Development 1486
- Continuous Time Random Walk method 546–550
- contour currents 953
- contourites 736, 1063, 1064–1065, 1068–1071, 1073
- core analysis  
 probe permeameter studies 540  
 visualization 1613–1620
- Cormorant Field, UK 172
- Corrib Field, Ireland 733, 736–737, 1035–1046, 1374
- crackle breccias 372, 384
- Crawford Field, UK 362
- creaming  
 analysis 57  
 curves 14, 26, 36–38, 67, 69, 71–74, 80–81, 89, 169, 254, 574, 587, 1200  
*see also* discovery curves
- Cretaceous-Tertiary Boundary 1175–1176
- crevasse splay sands 272, 289–293, 1127, 1569
- Cromarty Field, UK 187, 195, 200, 217–218, 220, 223, 224–225
- Cromer Knoll Group 177–178
- cross flow 692–694
- crustal lineaments 735, 787
- crustal thinning 735, 1025–1031
- Curlew cluster, UK 262–263, 454
- Cyrus Field, UK 172, 195, 362, 553–554
- Dagmar Field, Denmark 87–88, 90, 171
- Dalton Field, UK 569, 687–694
- Dan Field, Denmark 85–90, 146, 148, 154, 156, 160–163, 171, 172, 174, 184, 1331–1332, 1340–1343, 1402, 1405, 1410–1411
- Danish Continental Shelf  
 Cenozoic depositional history 1347–1358  
 hydrocarbon potential 85–97
- Danmarkshavn Basin 890, 891–901
- Danmarkshavn Ridge 890, 892–895, 900
- Darwin Seamount 883–884, 998, 1621
- data  
 shadows 527, 533  
 transmission, real-time 493
- dating *see* <sup>40</sup>Ar/<sup>39</sup>Ar dating;  
 biostratigraphy; K/Ar dating
- Dauntless Field, UK 262
- De Wijk Field, Netherlands 299–315
- deasphalting 1252
- debris flows (debrites) 105–107, 110, 128, 138, 142, 515, 518, 523, 597, 598, 600–601, 1068, 1115, 1137, 1150, 1186, 1190–1191, 1222, 1521, 1566
- decline analysis 14
- decompaction 816
- deepwater  
 clastic environments 130–131, 133–144, 1111–1120  
 facies 521–524, 916–917  
 plays and reservoirs 1111–1232
- delamination, lithospheric 810, 1058, 1072
- delta facies 433, 434–444
- deltas, Tertiary 569, 573–574, 578–580, 607–624
- depletion 11–19, 658–659, 671
- depositional models 1115  
 Britannia Field 517–525  
 Buzzard Field 250  
 Clair Group 963–966  
 Corrib Field 1041–1043  
 E Greenland 903–912  
 Early Cretaceous, North Sea 188–191  
 facies architecture 290–293  
 Goldeneye Field 201–202, 205–207  
 Heron Cluster 285–297  
 Jade Field 270–273, 275, 277, 279  
 Judy Field 655  
 Muschekalk Fields 303–314  
 Ninian Field 496–505  
 Ormen Lange Field 1176–1178  
 Rockall Basin 1087  
 Sele Formation 453  
 Shearwater Field 669  
 Southern North Sea 595–605  
 submarine fans 1123  
 Troll West 429–444  
 Varg Field 407–411
- depositional systems analysis 1565–1576
- depth conversion 211, 222, 224, 323–325, 503, 507, 516, 828, 1051, 1538
- intercept and gradient method 1429

- uncertainties in 530, 589–591, 679, 681  
 derivative logistic 14  
 detachment surfaces 554, 790–791, 809–811, 1035  
 determinism 3  
 development, field  
 Ardmore Field 387  
 consecutive 326  
 Dalton Field 692–694  
 Eider Field 481–493  
 Judy Field 657–660  
 Mittelplate Field 465–467  
 Nevis South Field 390–392  
 Varg Field 405  
 Deveron Field, UK 172, 362  
 dewatering 145, 1364, 1520, 1578  
 diagenesis 454, 994, 997, 1039  
 burial-related 671  
 calcite 423–424, 537, 669, 1361  
 cementation 290  
 inhibition 272  
 chlorite 265, 290, 1044, 1196  
 clay mineral 1113  
 dolomite 272, 312, 371, 1043–1044  
 evolution 1359–1366  
 feldspar leaching 669  
 illitization 265, 398, 537, 691, 1044, 1267  
 impact on fluid migration 1235  
 meteoric 256  
 pressure solution 1043–1044, 1240  
 seals 576  
 secondary porosity formation 265  
 shale 1267–1274  
 silica cement 247, 265, 290, 398, 537, 689, 1043–1044, 1312, 1359–1365  
 zeolites 1466, 1466  
*see also* thermo-chemical diagenesis models  
 differential compaction 126, 130, 204, 218–220, 226, 244, 247, 289, 1571  
 differential depletion 397, 659  
 differential stress 559  
 differential stretching models 735  
 differential subsidence 290, 736, 794, 1058, 1073, 1152, 1155, 1181  
 direct hydrocarbon indicators (DHI) 100, 104, 199, 210–213, 214, 579, 618, 685, 900, 1116–1118, 1169, 1374 *see also* seismic amplitude-versus-offset; bright spots; flat spots; gas chimneys; gas clouds; seismic amplitude anomalies; seismic spectral decomposition  
 discovery  
 curves, UKCS 41–45, 135  
 modelling 57  
 size distribution 64–65  
 discovery-process model 4–5, 57  
 discovery-production correlation 14  
 disequilibrium compaction 141, 269, 1235, 1243, 1311, 1587  
 Dnepr-Donets Basin, Libya 25–33  
 domino fault arrays 1545–1554  
 Don Field, UK 362  
 Dooish discovery, Ireland 733, 737  
 drainage  
 model, North Sea 194, 196  
 pathway complexities 259  
 process 1334  
 Drake Field, UK *see* Armada Complex  
 drape 204  
 over basement ridges 255, 451  
 Draupe Formation 1317–1329  
 Drekaeyga Intrusive Centre 876, 883–884  
 drilling  
 differential sticking 278  
 economies 317  
 efficiency 81–82  
 fluid design 580  
 hazards 142, 381, 726, 1380, 1382, 1591  
 infill 278, 528, 692–694  
 overbalance 275  
 overpressured wells 285  
 real time bit steering 1478  
 steerable assemblies 484–485, 508  
 technology 364, 474  
*see also* geosteering; horizontal wells; shallow-water flows; Through Tubing Rotary Drilling; wells  
 Drilling Formation Tester 493  
 Drol Igneous Centre 1087, 1093  
 Duncan Field, UK 259, 368, 370, 381, 383  
 Dunlin Field, UK 172, 361, 362  
 Durward Field, UK 262  
 E Greenland  
 Kap Dalton Group 923–932  
 sediment input point 913–921  
 source rocks 903–912  
 Volcanic Province 893  
 Eastern Trough Area project, UK 1301–1315  
 economics  
 drilling 317  
 impact on production 7  
 project 319  
 screening criteria 82–83  
 Edda Field, Norway 171  
 Egret Field, UK 262 *see also* Heron Cluster  
 Eider Field (previously Wendy Field), UK 477  
 Ekofisk field, Norway 160, 163, 166, 169–174, 184, 256, 554, 568, 644, 1406  
 El King Field, Egypt 621, 622  
 Eldfisk Field, Norway 171, 172, 174, 184  
 Elgin Field, UK 254, 255, 262–263, 264, 286, 672, 1301–1315, 1435–1448  
 Elly Field, Denmark 87–88, 90, 92  
 Emerald Field, UK 362  
 endorheic setting 963–966  
 energy efficiency 568  
 enhanced oil recovery 12, 406–420, 469–475, 527–535, 1488  
 environmental impact 711, 720–722  
 of coalbed methane 718  
 of gas 568, 572, 581  
 equivalent radius method 181  
 Erland Transfer Zone 972–973  
 Erris Basin 1010–1018, 1023, 1024, 1035, 1036, 1078, 1092  
 erosional truncation 43, 49  
 Erskine Field, UK 259, 262, 263–264, 286  
 Espirito Santo Basin, Brazil 1122–1124, 1140  
 Ettrick Field, UK 200–201, 203, 208–209, 242, 243, 344  
 Everest Field, UK 146, 152  
 exhumation 1095–1107  
 experimental design 515–516, 524, 1289–1299  
 exploration  
 concepts 5  
 constraints 5  
 efficiency 28, 32, 70–71, 73, 1271  
 history 5, 21–24, 63–68, 135–137  
 model, for estimating resources 6  
 perseverance 22  
 risk 1374, 1483  
*see also* risking; stratigraphic traps; uncertainties  
 EXPLOSIM exploration simulator 81–84  
 extension  
 basin 512  
 continental margin 768, 899, 1035–1046  
 faulting 294, 345, 774, 1543–1555, 1631–1648  
 gravity-derived 1202, 1226, 1227  
 with salt withdrawal 254, 256, 261, 265, 293–294  
 extrudites 1589, 1590  
 facies cube, 3D 516–519  
 facies uncertainties 516–517  
 fans 237–239, 361, 595–605, 611, 979–980, 1267–1274, 1318, 1586, 1614  
 abandonment events 123  
 apron 1111  
 facies 959  
 spillover 236  
 submarine 1121–1145  
 wedge 236  
 Faroe Bank Channel 873–885, 1005, 1058, 1070  
 Faroe Bank Channel Knoll 875, 876, 881, 883–884, 998  
 Faroe Conduit 1058, 1070–1071  
 Faroe Fracture Zone 935, 943  
 Faroe-Shetland Basin 913–921, 933, 969–975  
 Cenozoic deformational history 993–1007  
 effects of overpressure 1247–1264  
 Neogene evolution 1057–1076  
 tectonic history 1248–1249, 1251  
 Faroe-Shetland Channel, Palaeocene exploration 977–991  
 Faroes basalts, seismic and petrophysical properties 1461–1469  
 Faroes Margin 755–766  
 Farsund Formation, Late Jurassic, source rock 85, 92  
 fault  
 arrays, segmented 1635–1636  
 automated interpretation 1557–1563  
 characterization 1378, 1379  
 displacement analysis 1548, 1551  
 growth 1551–1553  
 imaging 1380, 1429, 1444–1445, 1471–1474, 1510  
 mapping 580  
 reactivation 337–348, 554–557, 847–850, 856, 880, 883, 1093, 1639  
 registration 1383

- transmissibility 294  
 trap analysis 327–335  
*see also* domino fault arrays
- Fault Analysis Seal Technology (FAST)  
 555, 557, 559
- fault seal 1272, 1370, 1381, 1488  
 analysis 270, 294, 296, 456, 479, 591,  
 659, 670, 678, 683, 689, 1210,  
 1275–1288 *see also* cataclastic rocks  
 cross-fault 318–335  
 failure 345, 1243–1244  
 reactivation 551–564
- Fiddich discovery, UK 261
- field-life extension 469–475
- field size distribution charts 56, 69, 71–74
- Fife Field, UK 92, 1332
- fill-spill 214, 330, 335, 395, 655, 658, 1267,  
 1272–1274, 1301–1316
- filling histories 625, 630–631, 667, 1229,  
 1254, 1331–1345, 1349–1353,  
 1364–1365, 1524
- financial performance and imagery of oil  
 companies 13
- Fyne Field, UK 137, **138**
- fingerprinting 670, 1307
- Finnmark Platform, Barents Sea  
 1125–1129, 1139, **1140**
- fjord incised valley systems 407
- flank trap 212–213
- flap development 1640–1644
- flat spots 100, 207, 215, 579, 617, 643, 644,  
 646, 685, 1116–1118, 1186, 1209,  
 1210, 1215, 1230, 1427, 1534, 1535
- Fleming Field, UK 413, 414 *see also*  
 Armada Complex
- flexural cantilever model 772
- flexural warping 868, 1068–1071
- flooding surfaces 123
- floodplain deposits 289, 959, 960
- fluid  
 chemistry variations 293, 656  
 dynamics 1331–1345  
 flow 86, 1363–1365, 1381, 1613  
 inclusion analysis 679, 1310, 1361, 1363,  
 1365  
 replacement modelling 210–211  
 substitution (Gassmann) methods 223,  
 224, 1406, 1491
- fluidization 133
- flume studies 615
- fluvial facies 272, 283–297, 917–918, 927,  
 929, 1567–1574, 1614  
 braided river 959, 960, 963, 1041–1043
- foam injection 417
- Foinaven Field, UK 913, 977, 979, 987,  
 1112, 1250, 1461  
 Foinaven Active Reservoir Management  
 (FARM) 1370–1371
- foreland fold/thrust belts, diagenetic  
 evolution of reservoirs in 1359–1366
- formation damage 576
- Forties Field, UK 172, 253, 255, 361, 362,  
 450–452, 458, 568, 1114
- forward modelling techniques 219,  
 416–417, 772, 862, 1240, 1290,  
 1421–1422
- fractal methodology 42, 80, 81  
 parabolic 14
- fractionation 633, 637
- fracture  
 characterization **1378**, 1379–1380  
 distribution 181  
 drilling-induced tensile 560–563  
 gradient 664  
 in Chalk 161  
 permeability 180  
 stimulation 174, 180, 562–563,  
 1037–1038  
 twisting 562  
 visualization 1614
- Fracture Aligned Sweep Technology  
 (FAST) 90
- Fracture Zone/Lineaments *see* Anton  
 Dohrn Lineament Complex; Bivrost  
 Fracture Zone/Lineament; Charlie  
 Gibbs Fracture Zone; Clair Lineament;  
 crustal lineaments; Faroe Fracture  
 Zone; Gleipne Fracture Zone; Green-  
 land fracture zone; Jan Mayen Fracture  
 Zone/Lineament; Judd Lineament;  
 Magnus Lineament; Marflo Lineament;  
 Møre-Trøndelag Lineament; Senja  
 Fracture Zone; South Hatton Linea-  
 ment; Surt Fracture Zone/Lineament;  
 Vesterålen Fracture Zone; Wyville-  
 Thompson Lineament Complex
- fractured reservoirs 545–550  
 naturally 559, 563, 576
- fracturing, artificial 708, 713
- Fram Field, UK 451, 454
- Franklin Field, UK 254, 255, 262, 263, 286,  
 672, 1301–1315, 1435–1448
- free water levels 146, 181, 1407–1411  
 tilted 162–163, 1331–1342
- Freja/Gert Field, Denmark 87–88, 90, 92
- Frigg Field, Norway 124, 641
- Fugløy Ridge 994, 996, 998, 1061, **1065**,  
 1435–1448
- Fulmar Field, UK 172, 254, 257, 258, 265,  
**362**, 1238, 1241–1243
- Fulmar Formation 675–686, 1301–1315
- fuzzy logic 496
- Gannet Field, UK 258, 451, 1112
- Garn Formation 537–543
- gas  
 basin-centred 576  
 biogenic 17  
 capillary trapping 625–631  
 charging 269, 329  
 chimneys 162–163, 166, 726, 1262,  
 1596  
 clouds 1357, **1378**, 1380, 1538  
 composition 591–592  
 coning 160  
 demand 568–569, 572, 584  
 destruction 633–639  
 environmental benefits of 568, 572, 581  
 field monitoring 641–650  
 flaring 583  
 hydrates 18, 225, 567, 569–570, 575,  
 578, 579, 584, 693, 723–730  
 infrastructure 592–593  
 liquids 18  
 market strategy for Europe 569, 581  
 miscible flooding 470–478  
 quality maps 77–84
- renaissance 567–730  
 reserves 572–573  
 resources 572–573  
 role in world energy 8  
 stranded 575  
 synthesis 575  
 turbines 572  
*see also* deltas, Tertiary; Nile Delta,  
 Egypt
- gas chromatography mass spectrometry  
 679, 1319
- gas-to-liquids technology 570, 572, 575,  
 581
- gas-to-solids technology 572, 575, 581
- Gassmann equations 1386, 1395, 1402,  
 1475 *see also* fluid substitution  
 (Gassmann) methods
- Gaussian curvature map 181, 182
- Gaza Marine discovery, Palestine 610,  
 611, 621
- gel-squeeze 417
- generation of hydrocarbons 1031, 1235,  
 1307  
 effects of pressure on 1255–1264  
*see also* geochemistry; maturation;  
 migration; source rocks
- geocellular model 364, 483, 493, 1510
- geochemistry 293, 670, 904–912, **1090**  
*see also* biodegradation; biomarker  
 analysis; charge modelling; fill-spill;  
 filling histories; fingerprinting; fluid  
 chemistry variations; fluid inclusion  
 analysis; fractionation; gas chromato-  
 graphy mass spectrometry; generation  
 of hydrocarbons; isotopes; maturation;  
 migration; mixing of oils; oil-to-source  
 correlation; source rocks; vitrinite  
 reflectance; water geochemistry
- geomechanics 551–564
- geoscience, role in new play identification  
 38
- geostatistics 224, 363–364, 515–525,  
 1373
- geosteering 112, 363–364, 483–485,  
 491, 507–510, 1487–1506
- geothermal gradient 398
- Ghadames Basin, Algeria and Tunisia 5
- ghosts 324, 1418–1420  
 notches 1371–1372, 1425
- Gippsland Basin, Australia 25–33
- Gleipne Fracture Zone 786–787, 788,  
 805, 808–810, 846
- Glenelg Field, UK 1435–1448
- Glenn Field, UK 195, 200, 204, 217–218,  
 220, 223
- Global Gas Flaring Reduction Public-  
 Private Partnership (GGFRP) 583
- global warming 577, 581
- Goban Spur Basin 1010, 1013–1015,  
 1018
- Goldeneye Field, UK 187, 195  
 discovery of 199–216
- Gorm Field, Denmark 85–86, 87–88, 90,  
 161, **171**, 172, 174
- gradient, petroleum 655, 664
- Grane Field, Norway 100, 124, 137, **138**,  
 1149, 1153–1154
- gravitational (Rayleigh-Taylor)  
 instabilities 1586



- gravity  
flows 597, 601, 959–961, 1126,  
1133–1134, 1154–1155, 1574, 1578  
submarine 128–131, 241–252, 431  
*see also* debris flows
- segregation 273
- studies 1047–1056, 1373–1374  
anomaly 876, 883, 1027  
microgravity 1397, 1476  
modelling 804, 933–945, 1027–1029  
monitoring 642–647, 650  
sensors 1453–1459
- greenhouse gas emissions 572, 577, 581,  
718–722, 724, 726
- Greenland  
continental margin 785–801  
fracture zone 785  
sediments from 193
- Greenland-Faroe Ridge 745–746, 935,  
938, 942, 1003
- Greenland-Scotland Ridge 1057–1058,  
1070–1071
- Grieg Field, Norway 137, **138**, 1112
- Groningen Field, Netherlands 30, 69,  
72–73, 253, 568
- gross rock volume uncertainties  
1446–1447
- growth faults 1039
- Gryphon Field, UK 92, 112, 124, 135, 137,  
138, 142, 1112
- Guillemot Field, UK 258, 451
- Gulf of Mexico, USA 17, 173, 554,  
1262–1263, 1267–1272, 1373, 1383,  
1423, 1567–1571, 1574
- Gulf of Suez Basin, Egypt 25–33, 1553,  
1648
- Gulf of Thailand, offshore Thailand 25–33
- Gullfaks Field, Norway 27, 172, 363,  
527–535, 643
- Gyda Field, Norway 172
- Halfdan Field, Denmark 85–90, 156,  
161–166, 168, **171**, 174, 1331–1332,  
1340–1343, 1355–1356
- Halley Field, UK 259, 1238, 1241–1243
- Hannay Field, UK 195, 200, 220, **222**, 223
- Hanz Field, Norway 100
- Harald Field, Denmark 85, 87–88, 90, 92
- Harbort Field, UK 1112
- Harding Field, UK 92, 112, 124, 137, 138,  
142, 1112
- Harpoon inversion structures 999
- Hashin-Shtrikman model 1402–1403,  
1406–1407, 1412
- Hatton Basin 933, 935, 1013, 1023–1033  
Cenozoic deformational history  
993–1007  
structure 947–956
- Hawkins Field, UK *see* Armada Complex
- Hawksley Field, UK *see* Caister–Murdoch  
System
- Heather Field, UK 172, **362**
- Heather Formation 395, 903, 1317–1329
- heavy minerals 969, 1353  
analysis 289, 971–972
- Heidrun Field, Norway 641, 649
- Heimdal Field, Norway 99, 124, 641
- Heimdal Sandstone 123–131
- Helland-Hansen Arch, Norway 192–193
- Heron Cluster, UK 285–297, 1307–1309
- Heron Field, UK 255, 262
- Hewett Field, UK **362**
- Highlander Field, UK 172, 201, 213
- history matching 109, 364, 398, 504–505,  
515, 569, 647, 679, 695–706, 1492,  
1529–1530
- Hod Field, Norway **171**, 172, 174, 1332
- Horda Shale seal 113
- horizontal wells 160, 180, 226, 363–364,  
390, 403, 445, 477, 481, 486, 495–510,  
576, 580–581, 646, 713  
challenge to 424  
fractures 562
- hotspots 740, 741, 743–745, 749, 796, 805,  
809, 811, 864, 929, 1057
- HPHT reservoirs 93, 253–283, 663–673,  
1237, 1435–1448 *see also* plays,  
UKCS
- Hubbard, M King 7, 14
- Huldra Field, Norway 1252
- Hutton Field NW, UK **362**
- Hutton Field, UK 172, **362**, 362
- hydrate stability zone (HSZ) 724–727
- hydraulic  
connectivity 1333  
failure 142, 554, 1302, 1306–1307  
fracturing 159–160, 162, 552, 576–577,  
657, 1363 *see also* hydrofracturing  
jump conditions 431
- hydrocarbon flow pathway prediction  
1275–1288
- hydrodynamic  
flow, compaction-driven 1238  
gradient 162
- hydrofracturing 719, 727, 1267,  
1272–1274, 1361
- hydrogen exploration 349–358
- hydrothermal vent complexes 833,  
836–843
- ice loading and unloading 1243
- Iceland-Faroes Ridge 748, 757
- Iceland mantle plume 739–750, 755–756,  
793, 796, 805, 809, 820, 869, 929–930,  
933–934, 942, 1057–1058,  
1072–1073, 1095, 1103–1106, 1153
- ichnology 265, 926, 928  
analysis 409–411
- igneous rocks  
extrusive 351, 734–735, 742, 923, 929,  
1088, **1090**, 1461–1469, 1621–1630  
intrusive 324, 351–356, 734–735, 742,  
771, 803–812, 833–844, 914–920,  
996, 1017–1019, 1057, 1092,  
1621–1630  
rare-earth distribution in 755  
*see also* Anton Dohrn Igneous Complex;  
Barra Volcanic Ridge System;  
Brendan Igneous Centre; British  
Volcanic Province; Darwin Sea-  
mount; Drekaeyga Intrusive Centre;  
Drol Igneous Centre; E Greenland  
Volcanic Province; Faroe Bank  
Channel Knoll; North Atlantic  
Igneous Province; Porcupine Median  
Volcanic Ridge; Porcupine Volcanic  
Ridge System; Regin Smidur  
Volcanic Centre; Rosemary Bank  
igneous centre; Seabight Igneous  
Centre; seamount highs
- imaging of traps, improved 38 *see also*  
seismic imaging
- impedance 1116
- improved recovery 41 *see also* enhanced oil  
recovery; project for improved oil  
recovery and productivity
- Increased Oil Recovery (IOR) *see*  
enhanced oil recovery
- Indonesia 1566
- injectites, sand 92, 105–107, 110,  
133–144, 1153, 1173, 1192, 1194,  
1420, 1577–1594
- Innes Field, UK 259, 368, 370, 380
- integrated Seismic Imaging and Modelling  
of Margins (iSIMM) 735, 756,  
947–956
- inversion  
basement 1226  
Cenozoic 941, 987  
density 1586  
erosional channels 851–853  
Late Cimmerian 190  
mechanisms 861–871  
Neogene 1011  
Oligo-Miocene 1069–1071  
tectonics 86, 126, 166, 184, 218, 223,  
258, 370, 736–737, 797, 821,  
845–859, 865, 868, 1017–1019,  
1058, 1063, 1100, 1104, 1347, 1355,  
1438, 1581, 1633, 1637–1638,  
1642–1648  
Tertiary 329, 333, 340–341, 344–346,  
851, 899, 980, 999, 1003
- Irish Atlantic Margin  
Cenozoic history 1010–1011  
regional development 1023–1033  
structural framework 1009–1033  
*see also* Porcupine Basin; Rockall Basin
- Irish Sea basin, Mesozoic-Cenozoic  
exhumation history 1095–1107
- isotope analysis 723, 1235, 1307  
carbon 273, 637, 726, 1043, 1069–1071  
gas 1309–1310  
<sup>3</sup>He/<sup>4</sup>He 742  
hydrogen 708  
oxygen 856, 1069–1071, 1229, 1361,  
1365  
Sr-Nd 741  
*see also* <sup>87</sup>Sr/<sup>86</sup>Sr ratio
- Ivanhoe/Rob Roy Field, UK **362**
- Jacqui discovery, UK 262
- Jade Field, UK 263, 269–283
- Jameson Land Basin 891, 893–898,  
903–912
- Jan Mayen Fracture Zone/Lineament 785,  
787, 793, 805, 806, 810, 834, 838, 839,  
846, 851, 862, 864, 890, 897, 899,  
933–945, 1057, 1070, 1072,  
1149–1150, 1166, 1168–1169, 1178,  
1182–1183
- Jan Mayen Ridge 1069
- Joanne Field, UK 146, 148, 154, 155–156,  
162, 1238, 1239, 1241, 1332

- Josephine Field, UK 256  
 Jotun Field, Norway 99–110, 124, 137, 138, 142  
 Judd High 979, 987–989  
 Judd Lineament 935–936, 939, 941  
 Judd Transfer Zone 920, 972–973  
 Judy Field, UK 254, 257, 262, 291, 569, 651–661, 1238, 1239, 1241  
 jump correlation 1490–1491  
 Jupiter Field, UK 333
- K/Ar dating 1038  
 Kangerlussuaq region, E Greenland 913–921, 972–973  
 Kessogg discovery, UK 262, 271  
 Ketch Field, UK 319  
 Kimmeridge Clay Formation 113, 142, 249, 395, 469, 477, 903  
 Kittiwake Field, UK 259, 262  
 Kolbeinsey Ridge 747, 749, 935–936, 943, 998, 1070, 1104  
 Koldeway Platform 889–891, 894–900  
 Kopervik Formation 142  
 Kraka Field, Denmark 86, 87–88, 146, 148, 159, 161–162, 169, 171, 172, 174, 1331–1332, 1336–1340, 1354–1355, 1410  
 Kyle Field, UK 171  
 Kyoto Protocol 581–583
- lacustrine facies 272, 289–293, 654, 959–961, 1614  
 Large Igneous Province 739, 741  
 Late Paleocene Thermal Maximum 969, 974  
 Leadon Field, UK 137, 138, 361  
 leak-off tests 552, 664  
 leakage 235, 406, 625–631, 636–637, 665, 1304, 1306–1311  
 leakpoint 329–330  
 Leman Field, UK 350  
 ‘Life of Field’ seismic 1371  
 liquefied natural gas 570, 572, 575, 581–583  
 liquefied petroleum gas 570  
 lithospheric flexure 552–553  
 lithospheric stretching 767–783  
 Liverpool Land – Blossville Kyst Shelf 893, 900, 929  
 Lofoten margin 767–783, 785–799  
 Miocene compression 845–859  
 log analysis 278, 326, 363, 480, 483, 681, 727, 1116–1118, 1215  
 dipmeter 411  
 image logs 411, 486–487, 488  
*see also* sonic velocity studies  
 logging-while-drilling (LWD) 418, 419, 485, 507–509  
 pipe-conveyed 278  
 realtime 112  
 logistic curves 7, 14  
 Lomond Field, UK 146, 152, 451  
 Loppa High, Barents Sea 1595–1611  
 Loyal Field, UK 1250  
 Lulita Field, Denmark 85, 87–88, 90  
 Luva Field, Norway 193, 1534–1537  
 Lyonesse Fold Complex 999, 1001, 1003
- MacCulloch Field, UK 137, 138, 363, 1517–1531  
 Machar Field, UK 259, 262, 286  
 Maclure Field, UK 112  
 magnetic  
 polarity events 301  
 studies 1047–1056, 1374  
 anomaly modelling 838  
 Magnus Field, UK 172, 469–475, 643, 1116  
 Magnus Lineament 935–936, 939, 941, 943, 996  
 Mallard discovery, UK 262–263  
 Måløy slope 1149, 1150–1153, 1161, 1162  
 mantle  
 convection 1072–1073  
 flow models, divergent 777  
 plume 345, 735, 750, 768, 773, 775, 947  
 head collapse 743  
 sheets 744  
*see also* hotspots; Iceland mantle plume  
 velocity anomaly 743, 749–750, 942  
 Marflo Lineament 935–936, 939, 940, 943  
 Marginal High, NE Greenland 890, 893, 900  
 Marib-Al Jawf Basin, Yemen 25–33  
 Marjun discovery, Faroes 733, 1370  
 Marnock Field, UK 257, 259, 261, 285, 286, 288, 291  
 mass  
 failure 736, 1068, 1093, 1115, 1119  
*see also* debris flows; sediment slides; slumps; submarine landslides  
 flow deposits 50, 199, 202, 217, 1327  
 maturation 181, 635, 774–776, 861  
 effects of pressure on 1255–1264  
 history, North Sea 35  
 timing 1235  
 Maureen Field, UK 172, 362, 362  
 Maureen Formation 676–686  
 Mauritanian continental margin 1217–1232  
 McAdam Field, UK *see* Caister–Murdoch System  
 Merganser Field, UK 451, 454, 457  
 Messinian salinity crisis 611, 615–616  
 Messoyakha Field, Russia 726  
 methane hydrates *see* gas hydrates  
 methanogenesis 635, 637, 723  
 Michigan Basin, USA 4–6  
 micropalaeontology 1121–1222, 1223  
 microseismicity 1476, 1478, 1485  
 Mid-Hatton Bank Fold Complex 1001, 1003  
 mid-ocean ridge basalts (MORB) 741–742  
 Midgard Field, Norway 641, 648, 649  
 migration, hydrocarbon 103, 113, 163–168, 181, 205, 207–210, 237–238, 273, 341, 469, 656, 856, 987, 1113, 1235, 1252–1253, 1303, 1405, 1586, 1591  
 fairway 1196  
 impact of shale diagenesis on 1267–1274  
 lack of 1217  
 lateral 1334, 1579  
 long distance 395–396, 1196–1197, 1272, 1347–1358  
 modelling 625–631, 683, 1272  
 process 1235  
 secondary 1235  
 through faulted structures 1275–1288  
*see also* phase fractionation; re-migration  
 migration processes, transient 156  
 Mime Field, UK 362  
 Mirren Field, UK 451  
 Mittleplate Field, Germany 364, 461–468  
 mixing of oils 633  
 Moab Fault, Utah, USA 1279–1284  
 Moho discontinuity 764, 809, 952–954, 1052, 1053  
 geometry 1029  
 Monte Carlo approach 364, 1373, 1422  
 Montrose Field, UK 148, 154, 155, 172, 253, 255, 362, 451  
 Møre Basin, Norway 60, 910–913, 1149, 1154, 1157, 1159–1162, 1181  
 Cenozoic uplift 1166  
 hydrothermal vent complexes in 833–844  
 intrusions in 833–844  
 Miocene compression 845–859, 1070, 1072  
 Neogene evolution 1057–1076  
*see also* Ormen Lange Field  
 Møre-Trøndelag Lineament 935–936, 939, 940–943  
 Morocco 1566  
 mounded  
 deepwater geometries 130  
 seismic facies 202–203, 215  
 mud  
 diapir 1012, 1153  
 volcanoes 724, 842, 996, 1005  
 Multi-Point Statistics 517, 519–520  
 multicomponent (4C) seismic 1377–1384, 1577  
 multidisciplinary teams 107–109  
 multiples 242, 412, 1421–1423  
 elimination of 191, 243, 1371, 1444  
 Munkagrunnur Ridge 875–884, 941, 998, 999, 1003, 1005, 1066  
 Munkur Basin 875  
 Murchison Field, UK 172, 362, 362  
 Murdoch Field, UK *see* Caister–Murdoch System  
 Muschelkalk carbonates, Netherlands 299–315
- N Atlantic-Arctic link 746–750  
 N Atlantic Margins 733–1106  
 basin settings 734–735  
 sands 193, 194–197  
 N Atlantic opening 188, 1220–1221  
 Napoleonville salt dome, USA 1645–1646  
 NE Atlantic  
 break-up 739–754, 803, 877, 1104  
 petroleum systems, effects of overpressure 1247–1264  
 phytogeography 969–975  
 Neogene evolution 1057–1076  
 sediment dispersal patterns 969–975  
 structure and evolution 933–945, 1069  
 syn-rift architecture and basin fill 863–867

- tectonic setting 862  
*see also* Irish Atlantic Margin  
 NE German-Polish Basin 25–33  
 NE Greenland continental margin 785–801  
   geological development 887–902  
   tectonic elements 889–893  
 Nelson Field, UK 255, 362, 450–452, 454, 455, 458, 554  
 Neptune Field, UK 695–706  
 neural network, seismic facies analysis 1230, 1595–1596, 1603–1611  
 Ness Field, UK 390  
 Netherlands  
   exploration 69–75  
   future gas discoveries 77–84  
   *see also* Groningen Field  
 Nevis Central Field, UK 393  
 Nevis North Field, UK 390, 393  
 Nevis South Field, UK 389–403  
 Nile Delta, Egypt 607–624  
 Nini Field, Denmark 87–88, 92, 95, 1195, 1356–1357  
 Ninian Field, UK 172, 362, 363, 495–510  
 Njord Field, Norway 1487–1506  
 North Atlantic Deep Water 1071  
 North Atlantic Igneous Province (NAIP) 739, 741–744, 750, 873, 969, 974, 1629  
 North Carnarvon, offshore Australia 25–33  
 North Cormorant Field, UK 363  
 North Faroe Bank Channel Basin 875–876  
 North Hatton Bank Fold Complex 999, 1001–1005  
 North Morecambe Field, UK 691  
 North Sea  
   Central, structural elements 256–257, 1553, 1631–1632, 1645–1648  
   discovery patterns 25–33  
   drilling activity 36–37  
   exploration history and future potential 21–24, 35–54  
   plays 38  
   Southern *see also* Anglo-Dutch Basin  
 Northwest European Plate, sands of 193–105  
 Norwegian Continental Shelf  
   exploration history 63–68  
   structural and stratigraphic correlation with NE Greenland 785–801  
   tectonic elements 865  
   undiscovered resources 55–62  
   *see also* Lofoten margin; Møre Basin; NE Atlantic; Viking Graben; Vøring margin  
 Norwegian Sea Deep Water 1058, 1070–1071  
 nuclear magnetic resonance 729  
  
 ocean bottom  
   cables 50, 363, 785, 1116, 1371, 1374, 1378, 1380, 1382, 1418, 1578  
   seismometers 735, 756, 803–813, 849, 951, 1371, 1382  
   sensors, permanent 1476–1478, 1485  
   survey 528–534  
   uncertainties 532, 534  
 oceanic structure 942–943  
  
 oil  
   conventional 11–12  
   deepwater 12, 14, 17  
   non-conventional 12  
   polar 12, 14, 17  
   regular 12, 15–16  
   seeps 339  
   synthetic 12, 16  
 oil depletion, meaning of 11–19  
 oil-to-source correlation 1235  
 oil-water contact *see* OWC  
 opacity rendering 1618–1619, 1622, 1624–1627  
 OPEC 6–7, 15  
   reporting of reserves 13–14  
 Ormen Lange Field, Norway 193, 733, 817, 821, 826, 828, 913, 1147, 1165–1184, 1536–1539  
 Oseberg Field, Norway 27, 172  
 Otter Field, UK 363, 477–494  
 overlooked areas in exploration 38  
 over/under streamer operations 1419  
 overpressure 141–142, 145, 148, 168, 174, 257, 269, 273, 285, 330, 554, 557, 560, 611, 616, 620–621, 664, 669, 672, 683, 842, 1195, 1267, 1302–1315, 1363, 1401–1413, 1587  
   effects on petroleum systems 1247–1264  
   in the C North Sea 1237–1245  
   prediction 261–262, 265–266, 1237  
   *see also* disequilibrium compaction; thermo-chemical diagenesis models  
 OWCs  
   dynamic 107  
   tilted, hydrodynamic 145–158  
  
 palaeo-hydrocarbon column 162, 260, 672  
 palaeobathymetry 512, 736, 770, 815–831, 1030, 1342, 1348–1353  
 palaeodrainage 613–614  
 palaeoflow 294, 409  
 palaeofluid 351  
 palaeogeography 258, 302, 339, 443, 463, 600, 961–963, 1178–1183  
 palaeogeomorphic traps 51, 341  
 palaeokarst 1595–1611  
 palaeolatitudes 744  
 palaeopressures 1310–1311  
 palaeorelief 50, 209  
 palaeosols 288, 290–291  
 palaeotemperature data 1096, 1098–1102, 1310–1311  
 palaeotopography 49, 245, 454, 523, 928–929, 1122, 1136  
 palynology 429, 430, 441, 445–447, 450, 496, 500, 507–510, 513, 920, 923–925, 928, 969–975, 1174, 1178–1181, 1222  
 Pangea break-up 746–750, 1015  
 passive margin hinge zone 746  
 pedogenesis 272  
 perched basins 1016, 1017–1019, 1092–1093  
 percolation theory 539  
 permanent downhole gauges 697  
 permeability  
   prediction 1378  
   ratios 537–543  
  
 scale dependence 537–538  
 Transient Pulse Decay measurement 1240  
 petroleum system 188–191, 1230, 1235–1366, 1247–1264  
   analysis 1267–1274  
   concept 25  
   mixing 181  
   modelling 6, 1289–1299  
   *see also* play fairway  
 petrophysical analysis 414, 515–516, 1461–1469  
   modelling 540–543, 700–702  
   mud invasion 1491  
   visualization 1613–1620  
   *see also* log analysis  
 phyllosilicate framework fault rocks 689–690  
 physical models  
   sandbox 146 *see also* analogue scaled models  
 phylogeography of the NE Atlantic 969–975  
 Pierce Field, UK 146, 148, 153–155, 451, 454, 457, 458  
 Pilot Field, UK 137, 138, 1112  
 PILOT Taskforce 41  
 Pilot Whale Anticline 994, 996, 998, 1005  
 pinchout trap 218, 226, 736, 1509  
   Buzzard Field 249–252  
   Tor Field 166  
 pipeline blockages 723  
 Piper Field, UK 172, 257  
 plate separation 793–799  
 plate tectonics  
   far-field stress 1165  
   forces 1072  
   model 787  
   re-organization 747, 792, 856, 1072, 1106  
   thin-skinned 744–750  
 play  
   analysis 55  
   concepts, development of 217–222, 1112–1116  
   fairway  
     assessments 191  
     delineation 203–214, 815–831, 1200–1204, 1217–1232  
   knowledge 99–110  
   mapping 199–216  
   uncertainties 218  
 play-based integration of disciplines 39  
 plays  
   Angola deepwater 1199–1216  
   Barents Sea, Norway  
     Carboniferous and Permian 60, 60–61, 1595–1611  
     Jurassic and Cretaceous 60–61, 231–240  
     Tertiary 60, 60–61  
     Triassic 60, 60, 61  
   complexity of 21–22  
   Danish Continental Shelf  
     Cretaceous Chalk 85–90, 177–186  
     Jurassic 85, 90–96  
     Palaeogene 85, 93, 1185–1198  
   Mauritania deepwater 1217–1232

- NE Atlantic Eocene post-rift 929–931
- Netherlands
- Permian Rotliegend 71, 73, 81, 327–335
  - Permian Zechstein and Carboniferous 71, 73
  - post-Triassic 71, 73
  - Triassic 71, 73, 299–315
- Norwegian North Sea
- Agat play, Cretaceous 188
  - Early Cretaceous **56**, 57, 58, 192
  - Late Cretaceous **56**, 57, 58
  - Late Jurassic **56**, 57, 58, 1111
  - pre-Jurassic **56**, 57, 58
  - Tertiary **56**, 57–58, 99–110, 123–131
  - Triassic–Early/Mid–Jurassic **56**, 57, 57–58
  - Utsira High 99–101
- Norwegian Sea
- Cretaceous **58**, 58, 59
  - Jurassic 57, **58**, 58–59
  - pre-Jurassic **58**, 58–59
  - Tertiary **58**, 58–59, 913–921
- stratigraphic 736
- UKCS **46**, 47–48, 52–53, 345–346
- Alba play 42, 1577–1594
  - Apto-Aptian play 187–198
  - Britannia fairway 200
  - Captain-Glenn fairway 200
  - Carboniferous 43, 45, 47, 49, 317–326, 569, 587–594
  - Central North Sea HPHT 45, 253–283, 663–673, 1301–1315, 1435–1448
  - Devonian 367–388
  - Eocene deepwater *1114*
  - fringing shoreface 259
  - Fulmar 257–266
  - Jurassic/Triassic, Central North Sea 42, 44, 47, 253–267
  - Kopervik fairway 187, 191–192, 196, 199–228
  - Lower Cretaceous deepwater 42, 44, 45–47, 49, 51, 1111, *1112*
  - Middle Jurassic shallow marine/deltaic 42–43, 44, 47, 253, 477–494
  - Palaeogene deepwater 42–47, 50–52, 913–921, 1111, *1113*, 1517–1531
  - Permian aeolian 43, 44, 47, 49, 253, 256, 375–380, 595–605, 695–706, 1613–1615
  - Tay fan 51
  - Tertiary 111–121, 258, 1111, *1113–1114*
  - Upper Cretaceous carbonates 47, 49–50, 187
  - Upper Jurassic deepwater 42–47, 1111, *1112*
  - Upper Jurassic shallow marine/deltaic 42–47, 258, 651–661
  - West of Shetlands 42, 44, 977–991, 1111
  - Zechstein 256, 337–348, 367–388
- Po Valley, Italy 17
- pockmarks 1586
- pod-interpod salt withdrawal synclines 254, 260, 262–263, 265, 293 *see also* turtle structures
- polar regions 12, 14, 17
- politics, impact on production 6–7
- polygonal faults 1114, 1183, *1520*, 1537, 1577–1583, 1589–1594
- ponding of intra-slope sediments 1225
- pop-up structures 1003
- Porcupine Basin *1010*, 1011–1018, 1023–1033, 1042, 1077–1078, **1126**, 1129–1131, 1139, **1140**
- deep structure 1047–1056
  - Neogene evolution 1057–1076
  - structure *1013*
- Porcupine Median Volcanic Ridge 1012, 1017–1019, 1048, *1052*, 1053, 1055
- Porcupine Volcanic Ridge System 1048, *1052*, 1053, 1055
- Port Fouad Field, Egypt *610*, 611, *612*, 622
- post-stack depth migration 1037
- potential field
- data 785, 834
  - imaging 933–945, 1453–1459
  - see also* gravity modelling; magnetic anomaly modelling
- potentiometric gradients 145–147, 155–156
- pre-stack depth migration 213, *214*, 270, 287, 327, 411, 589, 759, *1038*, 1372–1375, 1383, 1435–1452, *1456*, 1457–1459, 1490, 1596, *1598*
- Kirchhoff formulation 1423
- pressure 212, 280, 364, *514*
- barriers 1431–1432
  - communication 420
  - depletion 671
  - depressurization 1243, 1304, 1306
  - differential 331
  - history of the C. North Sea 1237–1245
  - impact of shale diagenesis on 1267–1274
  - pore, monitoring 643, 647
  - prediction 262–263, **1378**
- price of oil, role 15
- probabilistic modelling 515–525, 1289–1299
- probe permeameter studies *540*
- production
- history 4
  - optimization 449, 452–453
- productivity indices 467
- project for improved oil recovery and productivity (PRIORITY) 177
- prospect
- database, Netherlands 77–84
  - evaluation 504
  - mapping 199–216
  - modelling 191
  - ranking 81
  - risk *see* risking prospects
  - sizing *see* sizing of prospects
  - success ratio 64
- provenance
- indicators 294
  - studies 238, 737, 920
- Puffin Field, UK 259, 263, 291
- pumps
- electrical downhole 466
  - electrical submersible 465, 477, 482, 505, 507, 509
- PVT 636
- simulation 1310
- Qantara Field, Egypt *610*, 611, 621
- quadrant 35, North Sea **1149**, 1153–1156, 1161, *1162*
- radar interferometry 1476
- rafts 1202 *see also* rift-rafts
- ramp anticlines 1003, 1005
- ramp-flat-ramp 1487
- Rannoch Formation 495–510
- ravinement surface 436
- recovery efficiency 449
- recovery factors 174, 386–387, 515
- improvement in 452–458, 1370
  - maximization 477–494, 580–581
  - optimization 278
  - sand injectites 140
  - through time 361–362
  - uncertainties in 160–161
- redeposited Chalk 161
- Regin Smidur Volcanic Centre 875, 876, 883–884
- Regnar Field, Denmark 86–90, **171**, *172*, *174*
- relay-ramp system 392, 393, 1182, 1543–1555 *see also* breached relay system
- re-migration 17, 162, 346, 1073, 1269–1271, 1331
- renewable energy 18
- reperforation 278, 293, 295, 299, 314
- reserve growth 6–9, 13, 41, 574–575
- in Chalk fields 169–175
- reserve-to-production ratio 13
- reserves
- added 1429
  - gas 77–84
  - proved, concept of 12–13
  - replacement 13
  - reporting practices 12
  - revisions 14
  - US Securities and Exchange Commission (SEC) definition 6, 573
- reservoir
- architecture 105, 424, 458, 513, 600
  - de-risking 622, 1119
  - characterization 361–564, 667, 669, 687–688, 1373, 1471, 1478–1479
  - improvements in 453–458
  - connectivity 283–287, 669–671
  - continuity 285
  - facies 304–315
  - management 469–475, 527–535, 1425
  - mapping 203–214
  - modelling 225, 278–281, 285, 515–515, 538–543, 679, 696–706, 1483, 1526–1527
  - monitoring **1378**, 1476–1479
  - performance 161, 281, 296–297
  - quality 105–107, 138–139, 262, 265, 290, 304, *307*, 308, 311, *362*, 397–398, *400–401*, 500–501, 667, 669, 678, 1044–1045, 1169
  - controlled by depositional facies 272, 290
  - uncertainties 1045



- subsidence 644–647  
 uncertainties 511–525, 699  
 Residual Salt Analysis 669, 670  
 resource  
   assessment 8  
   demand 4  
   discovery patterns 25–33  
 resources, undiscovered 3–6, 35–39  
   Norwegian Continental Shelf 55–62  
   UKCS 41–54  
 response surface modelling 1289–1299  
 retention capacity 555, 559  
 ridge jumps 943, 1003, 1072, 1354  
 ridge push 553, 856, 865, 869, 899, 1011, 1018, 1105  
 ridge-trough topography 1585, 1586, 1589  
 rift, asymmetric 1543–1555  
 rift-raft tectonic model 254, 265  
 rifted margin, model 776–781  
 rifting 770–774, 790–793, 809–810, 828, 864, 874, 915, 933, 1015–1018, 1098, 1438  
 Ringhorne Field, Norway 100, 124, 137, 138  
 risk  
   reduction 1235  
   sharing 317  
 risking 1119  
   biodegradation 1267  
   drilling 277–278, 678, 1269–1271  
   fields 420  
   geophysical programmes 649–650  
   migration 1267  
   overpressure 1267  
   plays 600  
   production 456, 669  
   prospects 55, 202–203, 210–211, 218, 226, 236, 244, 253, 334–335, 557–559, 1211, 1289  
   reservoir 1267  
   seal integrity 554–557, 1267  
   well 417  
   *see also* reservoir architecture; seal  
 Roar Field, Denmark 86, 87–88, 1331–1332  
 rock physics 1491  
   models 1371, 1401–1413  
   properties of basalts 1466–1467  
   *see also* saturation modelling  
 Rockall Basin 1011, 1017, 1023–1033, 1054–1055, 1077–1094, 1098, 1104, 1621–1630  
   Neogene evolution 1057–1076  
 Rockall Plateau 948  
 Rolf Field, Denmark 86, 87–88, 90, 171, 172, 174  
 rollover 244, 247, 257, 341, 687  
 Rosemary Bank igneous centre 1621  
 Rough Field, UK 603  
  
<sup>87</sup>Sr/<sup>86</sup>Sr ratio 669, 670, 672  
 sag 1068–1071  
   morphology 736–737  
   *see also* differential subsidence  
 salt  
   breach 299  
   diapirism 451–456, 790, 1331, 1634, 1637, 1640–1644  
   doming 407, 461–463  
   impact of 153–155, 188, 234–235, 285, 289  
   pillow and turtle structures 1199–1216  
   precipitation in faults 333  
   rafts in 323  
   tectonics 290, 339–348, 407, 412, 413–414, 664, 672, 724, 749, 892, 899, 1195, 1225–1228, 1631–1648  
   withdrawal 254, 256, 261, 265, 269–271, 293–294, 589, 590, 1039, 1438  
 SAMBA database 63  
 sand remobilization 130, 133  
 Santos Basin, Brazil 1124–1125, 1126, 1140  
 saturation modelling 1405–1411  
 scale 109, 417  
   inhibitors 470  
   management 285  
 Scapa Field, UK 172, 187, 191, 201  
 Schiehallion Field, UK 643, 913, 977, 981, 982, 987, 989, 1112, 1250  
 Schooner Field, UK 319  
 Scoter Field, UK 451, 454, 456, 458  
 Scott Field, UK 553  
 sea-floor spreading 742, 774, 777–780, 791–793, 803, 1005, 1104, 1165  
 sea-level curves 189  
 Seabird Igneous Centre 1010, 1017  
 Seagull discovery, UK 262, 286, 291  
 seal 141, 236, 239, 249, 299, 322, 342, 368, 372, 389, 469, 513, 514, 656, 665, 977, 989, 1113, 1217  
   bottom 150  
   capacity 330, 657, 665  
   capillary 576, 625–631  
   diagenetic 576  
   effectiveness 394–395  
   failure 141, 163, 236, 259–260, 263, 345, 551–564, 672, 1195, 1302–1315  
   fracture gradient 664  
   hydraulic 551  
   hydrodynamic 331  
   integrity 261, 266, 554–557, 656–657, 1113–1114  
   juxtaposition 331–334  
   lateral 1225  
   membrane 554  
   pinchout 576  
   potential 625  
   pressure 620  
   risk 244, 554–557  
   vent 664–665  
   *see also* cataclasis; fault seal analysis; fracture; leakage  
 sealing  
   capacity 181, 580  
   efficiency 181  
 seamount highs 190, 1065, 1092, 1228  
 seaward-dipping faults 791  
 seaward-dipping reflectors 739, 746, 748, 761–764, 793, 795, 803, 810, 893, 936–938, 947  
 sediment  
   bypass 249, 250, 259, 822, 1115, 1122–1123, 1161, 1178, 1182, 1202, 1215  
   controls on 963–966  
   dispersal patterns of the NE Atlantic 969–975  
   slides 1059 *see also* Siri Canyon; Storegga Slide; submarine landslides  
   transport direction 412, 450–451, 521, 913–921  
   *see also* wedges  
 sedimentology 245–252, 288–290, 326, 454, 480, 496–503, 516, 663, 698–700  
 seep survey 339, 342, 346  
 seeps, hydrogen 355  
 seismic  
   3D 174, 225, 242, 262, 270, 323, 390, 465, 1116, 1425–1433, 1577–1594  
   4D 174, 363–365, 411, 474, 527–535, 641–650, 1385–1399, 1488–1501  
   acoustic impedance 86, 218, 392, 394, 397, 479, 490, 491, 492, 503, 579, 641, 685, 1116, 1121–1145, 1408, 1512–1514, 1622  
   amplitude anomalies 977–991, 1112, 1222, 1229, 1372–1373, 1577–1594  
   amplitude-extraction maps 51, 205, 580, 1171, 1211  
   amplitude-versus-offset (AVO) 45, 47, 50–51, 53, 192, 220–224, 450, 579, 737, 759, 977, 982, 983–986, 1116–1118, 1169, 1199–1200, 1215, 1230, 1370–1375, 1381–1382, 1407, 1425–1432, 1471  
   calibration 1474–1475  
   arrays 1420–1421  
   attribute analysis 50, 104, 211, 245, 426, 452, 506, 677, 685, 1122, 1171  
   texture 1595–1611  
   bandwidth 1371–1372, 1415–1424  
   coherency 181, 1211, 1557–1563, 1574  
   facies analysis 191, 437–438, 439, 836, 894, 1217–1232, 1600–1611  
   fluid identification 1425–1433  
   forward modelling 416–417  
   geomorphology 1122–1145, 1565–1576, 1601  
   imaging 47, 191–193, 218, 224, 363, 1037, 1372–1373, 1378, 1471, 1533–1542  
   degradation in sub-Chalk 203  
   of gas 578–580  
   of hydrothermal vent complexes in 833–844  
   of/under igneous intrusions 734, 755–766, 833–844, 876–880, 979–991, 1461–1469, 1621–1630  
   of/under salt 411, 1423  
   resolution 838  
   through dunes 5  
   *see also* integrated Seismic Imaging and Modelling of Margins (iSIMM)  
   interpretation 124, 126, 219–221, 244–252, 412–413, 438–446, 479–481, 489, 503–506, 529–534, 589–591, 617–618, 880, 1038–1039, 1199–1232, 1372–1373, 1383, 1490, 1509–1515, 1557–1563

- inversion 86, 161, 363, 364, 413–416, 479–481, 524, 579–580, 679, 685, 804, 1025, 1116, 1374, 1449  
 far offset 1212  
 pre-stack full waveform 1422–1423  
 lithology  
 identification 1425–1433  
 prediction 523, 804, 1112, 1137–1139, 1371, **1378**, 1381  
 mapping 323–326, 503–504  
 multicomponent (4C) 1377–1384, 1577  
 processing 191–192, 392, 411–412, 528–529, **531**, 804, 950–951, 1382, 1471  
 pull-up 325, 530  
 push-down 163, 224, 1388, 1391–1396  
 resolution, clarity of 191, 1116, **1378**  
 seep anomalies 840, 842 *see also* gas chimneys  
 signal-to-noise ratio 1421  
 spectral decomposition 450, 576, 1533–1542  
 stratigraphy 438–445, 1092, 1121–1145, 1565–1576, 1600–1611  
 volcanostratigraphy 1621  
 technology, recent advances in 1367–1479  
 tomography 742–743, 942  
 tuning 1622  
 velocity  
 anisotropy analysis 1437–1447  
 modelling 951–952, 1372–1374, 1435–1452  
 visualization, 3D 225, 323–325, 1483–1648  
 wide-angle 785, 947, 1025–1031, 1047–1056, 1374–1375, 1461–1469  
*see also* borehole seismic; bright spots; flat spots; 'Life of Field' seismic; vertical seismic profile  
 seismic-while-drilling 1375  
 Sele Formation 449–459  
 Selkirk discovery, UK 262–263  
 Senja Fracture Zone 787, 793, 846, 862  
 sensitivity modelling 515–516  
 sequence stratigraphy 179, 200, 211, 265, 409–411, 424, 428, 438–445, 450, 608–622, 977, 1122, 1222–1225, 1521, 1523  
 megasequences 1063–1069  
 Sequential Indicator Simulation 5156–517, 520, 695–706  
 serpentization 353–354  
 Seven Heads Field, Ireland 363  
 Seymour Field, UK 675–686  
 shale gouge 670  
 fault seal studies 678, 683  
 ratio analysis 456, 457, 1277  
*see also* phyllosilicate framework fault rocks  
 shales  
 diagenesis 1267–1274  
 fractured 567, 569, 577  
 resources 707–714  
 shallow-water flows **1378**, 1382  
 Shannon High 891  
 shape factors 545–550  
 shear acoustic anisotropy 553  
 shear wave information 220, 223, 226, 364, 803, 811, 977, 1116, 1371, 1374, **1378**, 1380–1383  
 Shearwater Field, UK 254, 255, 262–263, 264, 286, 296, 569, 663–673, 1301–1315, 1435, 1435, 1438, 1631, 1634, 1645  
 shelf facies 429, 431, 432, 436–444, 495–510, 537, 663–673, 916–917, 926–929  
 Sherwood Sandstone Group 1036–1046  
 Sigyn Field, Norway 99  
 sill complexes 833–843  
 Silverpit Meteorite Impact Crater 1485  
 simulation, dynamic reservoir 146, 154, 157, 392, 398, 467, 469, 483, 496, 504, 507, 511–525, 538–543, 647, 658, 695–706, 1043, 1334–1345, 1371, 1492, 1524–1530  
 object-modelled approach 402  
*see also* history matching; static modelling  
 Siri Channel 93, 96, 1185–1198  
 Siri Field, Denmark 85, 87–88, 93, 95, 141, 1272, 1356–1357  
 Sirte Basin, Libya 25–33  
 sizing of prospects 334–335  
 Skaggerak Formation 259–261, 269–297, 651–661, 1301–1315  
 Skene Field, UK 389, 398  
 Skjold Field, Denmark 85–86, 87–88, **171**, 172, 174, 1341  
 Skua Field, UK 262 *see also* Heron Cluster  
 Sleipner Field, Norway 99–101, 109, 641, 645–646, 647, 648, 1385–1399  
 slope facies 1115  
 slug model 1112  
 slumps 516, 523, 1115, 1187, 1509, 1586  
 slurry flows 521–524, 1111  
 Slyne Basin 1010–1018, 1023, 1024, 1035–1046, 1078  
 Snadd Field, Norway 1111, 1112  
 Snøhvit Field, Norway 231, 232, 641, 649  
 Snorre Field, Norway 27, 172  
 Sognefjord Formation 423–448  
 Solan Field, UK 1250  
 Sole Pit Field, UK 595  
 sonic  
 transform Unconfined Cohesive Strength 488  
 velocity studies 344, 1102  
 source rocks 113–114, 231, 238, 249–250, 273, 339–340, 345–346, 381, 383, 592, 610, 736–737, 900, 903–912, 1225–1226  
 hydrocarbon potential 1317–1329  
 kerogen 1317–1321  
 uncertainties 929  
*see also* Alun Shale; Draupe Formation; Heather Formation; Kimmeridge Clay Formation  
 source-to-earth coupling 1416–1418  
 South Arne Field, Denmark 85, 87–88, 159, 161–163, 164, 168, **171**, 1332, 1402, 1405, 1407, 1411  
 South Hatton Lineament 935–936, 939, 941, 1003  
 South Morecambe Field, UK 688, 691  
 Spekk Formation 903, 911  
 spit and strand plain system 423, 431, 433, 434, 435, 438–444  
 stacking patterns 105, 123, 293  
 Staffa Field, UK 362  
 Starling Field, UK 451, 454, 456  
 Statfjord Field, UK and Norway 172, 361, 568  
 static modelling 457, 469, 515–525, 539, 658, 671, 689–691, 697–698, 1035–1046, 1492  
 object modelling 700–701  
*see also* reservoir modelling  
 statistical assumptions for modelling 467  
 statistical extrapolation 3–7  
 statistics 1235 *see also* geostatistics; probabilistic modelling; stochastic analysis  
 Stavropol Field, Russia 350  
 stochastic analysis 363  
 fault modelling 681  
 reservoir model 130–131, 538, 695–706  
 synthetic seismograms 221  
 trend curves 228  
 STOIP 383–387  
 uncertainties in 159–160  
 Storegga Slide 724, 736, 1536  
 Strathmore Field, UK 1250  
 stratigraphic traps  
 discoveries in UKCS 45, 48, 50, 50–51, 191  
 exploration for 22, 191, 595  
 stream-function corner flow solutions 777, 779–780  
 stress  
 effective, change in 1408–1409  
 in the North Sea 551–564  
 prediction **1378**  
 stretching factors 736, 767–783, 805, 809, 955, 1023, 1028–1031, 1055  
 structural  
 complexity, high-order 265  
 fabric evolution 254–256  
 history 294–296, 392–393, 406–407  
 interpretation 327–335, 479–480, 622  
 traps, UKCS 48  
 uncertainties 483, 516  
 reducing 1435–1448  
 submarine  
 landslides 726  
 fan systems 58, 60 *see also* fans  
 subsea facilities 317–318, 391, 477, 481–482, 1045  
 subsidence 793, 821, 868, 874, 1027, 1058  
 effects of lithospheric stretching on 774–779  
 modelling 768–773  
 passive margin 899, 1072  
*see also* differential subsidence  
 subsurface mapping 327  
 Subthrust Reservoir Appraisal (SUBTRAP) consortium 1359–1366  
 subtle traps 36, 42  
 Suga Sgeir fan 1067  
 Suilven Field, UK 1250  
 Surt Fracture Zone/Lineament 805–811, 864, 1156

- Svend Field, Denmark **171**, 172, 174  
 swash bar and inter-bar deposits 431–434  
 swing production 15–16  
 synthetic seismograms, stochastic 221
- tar mat formation 1252, 1356–1357
- Tartan Field, UK 172, **362**
- Teal discovery, UK 262–263
- teamwork 39, 282, 420, 453–454, 495–510, 1484
- technology  
 change produced by 4, 13, 42  
 impact on production 7
- tectonics  
 basement 265  
 Cimmerian, North Sea 188–191  
 Northwest Europe, early Cretaceous 194, 196
- tempestites 312, 431
- Temsah Field, Egypt 610, 611, 612, 618, 619–620, 622
- Tern Field, UK 172, 363
- Tethyan Outflow Water 1069, 1070
- Texas Railroad Commission 15
- Thames Field, UK **362**
- thermal  
 collapse 975  
 uplift 793, 1027  
 doming 407, 796
- thermo-chemical diagenesis models 1235
- thermohaline circulation 1071
- Thetis Basin 890, 892–893, 895, 899–900
- Thistle Field, UK 172, 361, 362
- Through Tubing Rotary Drilling (TTRD) 474–475
- tidal facies 434–444
- tight gas sands 567, 569, 576
- tilting 1068, 1069, 1071
- time-lapse seismic 99, 102–107, 527–535, 569, 1116, 1370–1373, 1485, 1517–1531 *see also* 'Life of Field' seismic; seismic, 4D
- Timor Seas 861–863, 866–869  
 syn-rift architecture and basin fill 863–867
- Tineh Field, Egypt 610, 611
- toe pilots 109
- tomography, computerized 1613–1620  
*see also* seismic tomography
- Tor Field, Norway 166, **171**, 172, 174
- Tornquist Zone 93, 1347
- transfer zones 370, 613, 1035, 1049–1055, 1059, 1553  
 NW-SE trend 745  
 Wegener 747  
*see also* Bivrost transfer system; Clair Transfer Zone; Erland Transfer Zone; Fracture Zone/Lineament; Judd Transfer Zone; Victory Transfer Zone; Westray Transfer Zone; Wyville-Thompson Transfer Zone
- Transient Pulse Decay permeability measurement 1240
- transpression reactivation 943
- trap  
 fill 330  
 integrity 218, 262–263, 265  
*see also* combination traps; constriction traps; flank trap; gas, capillary trapping; palaeogeomorphic traps; pinchout traps; stratigraphic traps; structural traps; subtle traps
- trend-curve analysis 219, 221, 223, 226
- triple junction 934–935
- Troll Field, Norway 27, 56, 172, 363–364, 641–647, 1254
- Troll North Field, Norway 1252, 1252
- Troll West Field, Norway 423–448, 1252
- Trøndelag Platform **1149**, 1155–1161, 1162, 1168
- tuffs 1353 *see also* Balder Formation
- Tullich Field, UK 111–121
- turbidites 92, 105–110, 133, 204, 238, 246, 431, 449–459, 511–525, 611, 676, 821, 953, 1115, 1121–1145, 1171–1178, 1199–1232, 1238, 1475, 1509, 1573  
 Cretaceous and Palaeogene 1147–1164  
 seismic response 1523–1529
- turtle structures 259–260, 1202
- Tyne Field, UK 319, 319
- Tyra Field, Denmark 85–86, 87–88, 160, 1332, 1340
- Tyrihans Field, Norway 537–543
- UK Continental Shelf (UKCS), remaining potential 41–54
- Ula Field, Norway 146, 148, 154, 157, 157, 172, 289
- uncertainties 1116  
 in field performance 1528  
 in petroleum systems modelling 1289–1299  
 managing 364, 516–517, 569, 663–673  
 seismic 589, 678, 1373, 1490  
 subsurface 681, 687, 1453–1459  
*see also* aquifer performance; depth conversion; facies uncertainties; gross rock volume uncertainties; play; ocean bottom survey; recovery factors; reservoir; reservoir quality; source rocks; STOIP; structural uncertainties; vertical seismic profiles; wells
- unconventional gas resources 567
- underplating, magmatic 345, 735, 737, 755, 771, 773, 805–808, 820, 929, 942, 1029–1031, 1058, 1072, 1103, 1621
- unitized agreement 317, 326
- Uppsala Protocol 18
- upscaling 364, 457–458, 541–543, 546, 549, 696, 702
- US Securities and Exchange Commission (SEC)  
 reporting requirements 12  
 reserves definition 6, 573
- Valdemar Field, Denmark **171**, 177–186
- Valhall Field, Norway 163, 166, **171**, 172, 174, 184, 554, 1332, 1371
- valley  
 fill mounds 50  
 incised 407, 409, 442, 445, 851–853, 1159, 1566, 1580–1581, 1600
- Varg Field, Norway 363, 405–421
- Venezuela 1359–1366
- vertical seismic profile (VSP) 989, 1375, 1462, 1471–1479  
 uncertainties 1472
- Veslefrikk Field, Norway 172, 1252
- Vesterålen Fracture Zone 793, 796
- Victory Transfer Zone 972–973
- Viking Graben 1133–1136, 1139, **1140**  
 effects of overpressure 1247–1264  
 tectonic history 1249, 1251
- visualization, 3D 109, 675–686  
 Collaborative Visualization Environment (CVE) 1484–1486  
 immersive 1118, 1485, 1619–1620  
*see also* seismic visualization
- vitrinite reflectance  
 kinetic model of 1259  
 studies 344, 1095–1107, 1258, 1307
- voidage replacing ration 472
- volcanoes 1011
- Völkersen Field, Germany 1614
- Vøring margin 60, 767–799, 892–893, 910–913, 993, **1149**, 1156–1161, 1162  
 crustal structure 803–813  
 hydrothermal vent complexes in 833–844  
 intrusions in 833–844  
 Miocene compression 845–859, 865–867, 899, 1070–1071  
 Neogene evolution 1057–1076  
 palaeobathymetry 815–831  
 sedimentation in 815–831  
 syn-rift architecture and basin fill 864
- V-shaped ridges 743, 756, 935, 943
- Warren & Root model 546–550
- washwater injection 285
- water-alternating-gas (WAG) scheme 471–474, 527
- water-escape structures 1114, 1173
- water geochemistry 669, 672
- water injection 390, 397, 417, 469, 496, 560–561, 563, 641–650
- water-table fluctuation 288
- Watt Field, UK *see* Caister–Murdoch System
- wedges, Plio-Pleistocene prograding 1059, 1060, **1064–1065**, 1066–1067, 1068, 1071 *see also* Sula Sgeir fan
- well production index 400, 401  
 wells  
 completions 482, 580  
 deliverability 281  
 designer 477–494, 507–510, 580  
 dual-lateral 475  
 extended reach 465–466  
 geometries 1488  
 infill 417  
 intervention 417–418, 469  
 multi-zone completions 470  
 multilateral 363, 1119, 1488  
 placement 364, 1483, 1487–1506  
 planning 482–483, 560, 1432, 1512–1514

- pre-drill, batch 420
- production rates, uncertainties in 161
- trajectories 482–483, 560, 1432, 1492, 1494–1505
- see also* drilling; foam injection; gel-squeeze; horizontal wells; scaling
- Welton Field, UK 595
- West Abu Qir Field, Egypt 621, 622
- West Hod Field, Norway 163, 166
- West of Shetland 957–967
- West Siberian Basin, Russia 25–33
- West Sole Field, UK 575
- Westray Fault 979
- Westray Transfer Zone 920, 972–973
- Wilmington Field, USA 449
- wrench-fault systems 1449–1452
- Wytch Fram Field, UK 363
- Wyville-Thompson Lineament Complex 935–936, 939, 941, 1059
- Wyville-Thompson Ridge 875, 876, 878, 883–884, 933, 1058, 1063, 1069–1070, 1073
- Cenozoic deformational history 993–1007
- Wyville-Thompson Transfer Zone 8760
- yet to find oil and gas
  - North Sea 35–39
  - Norwegian Continental Shelf 63–68
  - UKCS 43–54
- Yme Field 64
- Ymir Ridge 994, 996–999, 1000, 1003, 1005
- Zechstein
  - carbonate reservoirs 256, 337–348, 367–388
  - salt 1039–1040, 1239, 1301–1315, 1631, 1645
  - seal 30