

# Index

**Note:** Page Numbers *in italics* refer to figures; **bold** numbers indicate tables.

- abandoned meanders 93, 110–12, *111*
- Aberystwyth Grits 217–18, *218*, *219*
- acoustic data, Zaire valley 95–6, 100–1, *100*
- Acquerino turbidite system 126
- Adana Basin fans, Southern Turkey 4–5, 241–60
  - Eastern and Western Fans *242*, 243–4
  - facies and stratigraphy *242*
  - feeder system channels 246–55
  - lithofacies 244–6, **244**, *245*
  - multisource feeder system *243*
  - sedimentary logs *248–9*, *254*
  - see also* Cingöz Fan
- aggradation 81, 168–9, *224*
- amalgamated surfaces 10
- Apennines *see* Northern Apennine foredeep basin
- architecture 4, 23, 37–9
  - basin-floor fans, Spitsbergen *200*, *201*
  - Caban-Ystrad Meurig System *216*
  - down-channel changes 246–60
  - Golo turbidite system 66–77
  - ‘Macigno costiero’ 265–78, *266–71*, *273*
  - Pab Sandstone, Pakistan *165*, *167*, 169–71, 181–3
  - sand-bodies 45–58
  - slope-fans 178–9
- avulsion, channel–levee complexes 75, 83
  
- backfill 141
- backstepping sequential evolution 171–2, 182
- base-of-slope 15
- basin subsidence models 153–6
- basin-fill sediments, New Zealand 230–6
- basin-floor fans
  - ‘Macigno costiero’ evolution 278, 279, 281
  - Pab Sandstone 159–60, 169–71, *170*
    - evolution 171–2, 181–3
  - Spitsbergen 187–208, *192*
    - clinoforms 12 and 14 *194*, *195*, *198*
    - construction stages *205*, *206*
    - early formation 191–3, *192*
    - facies 196–201, *197*
    - Hyrnestabben *199*, *200*, *202–3*
    - large-scale architecture *200*, *201*
    - relationship to host clinoforms 191–3
    - tectonic control *205*, *206*
    - vertical and lateral facies trends 201–5
- basins
  - Adana Basin, Southern Turkey 241–60
  - Central Tertiary Basin, Spitsbergen 187–208
  - New Zealand Tertiary 229–40
  - Northern Apennines foredeep 115–34, 261–83
  - subsidence models 153–6
  - Tabernas-Sorbas Basin, SE Spain 135–58
  - Tertiary Piedmont Basin, NW Italy 285–305
  - Thrace Basin, Turkey 307–20
  - Welsh Basin 209–28
- bathymetry
  - deposition control 135
  - Zaire deep-sea fan *94*, *95*, *96*, 97–8, *99–100*
- bedforms in channels 257
- biofacies, Telychian *210*, 213–14, **213**
- biostratigraphy
  - calcareous nannofossils 118–19, *119*, *123*, 125
  - Ordovician–Silurian graptolites 210, *211*, *212*
- bioturbation 139, 310
- bi-partite beds 146, 147, 153, 155
- Blackmount Formation 235–6, *235*, *236*
- Bouma Sequences 10, 17, 236, *237*
- bounding slope processes 37–9
- braided deltas *163*, *179*
- braided stream network 257–8
- Brazilian slope 27
- breccia 235
- Burdigalian–Seravallian 241
- bypass, Lower Pab turbidite system 168, 171, 172
  
- Caban-Ystrad Meurig System 215–17, *216*
- calcareous nannofossils 118–19, *119*, *123*, 125
- canyons
  - Golo turbidite system *63–4*, *64*, 70–1, 70, 76, 77, *87*
  - infill 15
  - Pab Sandstone, Pakistan 166, 181–2
  - Tabernas-Sorbas Basin 141
  - terraces 91–2
  - Zaire deep-sea fan *94*, *97*
- cascade of silled sub-basins 30–4, *31*, 39
- Castagnola Formation, NW Italy 5, 285–305, 288, *289*
  - bed thickness distribution 293
  - geological model 287–91
  - geostatistical analysis 297–304
  - grain size distribution 294
  - Hurst *H* values 295–7
  - Hurst statistic methodology 285–7
  - sand-body 288–91, *290*, *291*, 303
  - stacking patterns 289, *295*, 298, 302
  - stratigraphical logs 292
- Castiglione dei Pepoli turbidite system 127
- Central Tertiary Basin, Spitsbergen 187–208, *188*
  - clinoforms 12, 14 and 15 187–90, *189*
  - stratigraphy 190–1, *190*
  - tectonic setting 187–90, *188*
  - turbidite facies 196–201
- channel margin 263, **264**, 266, 276–7, 278
- channel overbank flow 263, **264**
- channel sands 15–16
- channel-fill 263, **264**, 276–7
  - feeder system 246–55
  - Welsh Basin *216*, *217*
- channel–levee complexes *11*, *14*, 278

- channel–levee complexes (*cont.*)  
 avulsion 75  
 controls on deposition 81  
 Golo turbidites 63, 64–6, 71–6, 72, 73, 77  
 lateral migration 72, 75, 82–3, 82  
 longitudinal migration 75, 75, 82–3  
 Lower Pab turbidites 166, 168–75, 169–71, 173  
 progressive migration 74–5  
 supply shut-off 174–5  
 Zaire valley 96, 105–7, 107, 111–12
- channel-lobe complex, Niger Delta slope 32, 33–4
- channel-lobe transition  
 Golo turbidite system 71, 74  
 ‘Macigno costiero’ 264, 265, 266–7, 276–7  
 Pysgotwr Formation 220
- channel-termination lobes 66
- channels  
 destabilization of walls 110  
 feeder system 243–4, 243, 246–55  
 migration 110–11, 111
- chaotic deposits 274–5, 276, 277, 701
- chronostratigraphy 123
- Cingöz Fan, Adana Basin 242, 243–4  
 channel sedimentation logs 249  
 feeder system channels 246–55, 248, 250, 251  
 physiography model 255  
 source 246
- clast-type ratios 246, 246, 253, 255
- clastic wedge 263, 309
- clays 102–5
- climate 12, 19
- climatic–eustatic variation 84
- clinoforms, Spitsbergen 187–208  
 12, 14 and 15 189, 194, 195, 198  
 five main components 191–3, 192  
 relationship to basin-floor fans 191–3  
 sand-prone 191, 193  
 scale and dimensions 193  
 tectonic setting 187–90
- clustering 302–3, 304  
*see also* Hurst statistics
- coarse-grained turbidite systems 11, 13–16  
*see also* sand-rich turbidite systems
- collisional phases 263, 281
- confinement 1–2, 53–6  
 ‘Macigno costiero’ basin 261, 280, 287  
 Welsh Basin 217–18, 219
- conglomerates  
 Cingöz Fan 247, 248, 250–1, 252–3  
 cross-bedding 247, 252  
 fanglomerates 137–9  
 Turret Peaks Formation 233, 234–5
- conglomeratic deepwater fan feeder system 241–60
- connected tortuous corridor 25, 29, 34–7, 35, 39
- containment 1, 150, 151, 155  
*see also* confinement
- continental shelf, Golo system 63–4, 63, 66, 68
- continental slope 9
- controls of deposition 2, 9–22, 115–34  
 bathymetry 135  
 climate 12, 19  
 sea-level variations 12–13, 19, 80–1, 115, 131–2  
 sediment character and processes 13  
 tectonics 10–12, 19, 60–2, 82, 129–31, 130, 141  
 topography 81–2, 159
- convergent baselap 25
- convergent thinning 25
- convolute bedding 196–9
- Corsican east coast 59–89  
*see also* Golo turbidite system
- couplets 146, 236
- cross-bedding 178, 178, 247, 252
- currents *see* palaeocurrent directions; turbidity currents
- debris flow deposits 10
- deepwater fan feeder system 241–60
- deepwater mass flow system 233
- deformation 135, 143, 144, 156  
*see also* faulting
- Delaware Basin turbidite complex 18–19
- deltas *see* fans
- depocentres 129–31, 233, 303, 304
- deposition  
 adjacent to fault zone 146–53  
 diachronous 289, 303, 304  
 rates of 129–30, 129  
 syndepositional faulting 135–58  
 third-order sequences 179–81
- depositional architecture *see* architecture
- depositional factors *see* controls of deposition
- depositional geometry  
 Golo turbidite system 45–58  
 Hamitabat Formation 313–14, 316, 317
- depositional models, lobe deposits 77–80, 78
- diachronous deposition, Castagnola Formation 289, 303, 304
- diapiric interslope basins 18, 18
- dinocysts 191
- distal lobes 71, 74, 77, 264, 265, 266–7, 277
- distal slope fan 170, 171, 175
- tributary channel patterns 13, 25
- down-channel changes, feeder channel fill 246–60
- downlap surfaces 37–8, 70, 71
- Eastern Fan *see* Cingöz Fan
- El Cautivo fault zone 4, 135, 137, 140, 141–6  
 adjacent turbidite deposition 146–53  
 deformation 143, 144  
 impact on flow containment 155–6  
 kinematics 143–6, 145  
 origin 146  
 syndepositional movement 151–5, 154  
 wet argillaceous sediments 156
- end member types 2, 11, 14, 19
- entry point processes 37

- Eocene  
 shelf-slope clinoforms 187–208  
 successions 4  
 turbidites 287
- equilibrium profiles, flow character 28–30
- eustatic curve 210, 212
- experimental work 2–3, 45–58  
 flow efficiency 46–7  
 partially blocked flows 53–4  
 unobstructed flows 47–53
- external controls *see* controls of deposition
- facies 118, 129–32  
 basin-floor fans 196–201, 197  
 Central Tertiary Basin, Spitsbergen 196–21,  
 196–201  
 Golo turbidite system 78–9  
 Hamitabat Formation 311  
 ‘Macigno costiero’ 263–5, 264, 265  
 New Zealand small basins 230–1, 232, 238  
 Pab Sandstone, Pakistan 167  
 proximal to distal changes 255–60  
 Tabernas-Sorbas Basin 138  
 trends in sandstone-bodies 201–5  
 Upper Pab slope fan 180  
 vertical changes 257, 265
- facies architecture 37–9
- facies associations, ‘Macigno costiero’ 263–5, 264,  
 266–8
- facies model, Hamitabat Formation 315–16, 319
- Falterona turbidite system 120–6
- fan valley 14, 15  
*see also* upper-fan valley
- fanglomerates, Tabernas-Sorbas Basin 137–9
- fans 76, 77  
 depositional architecture 159–85  
 depositional elements 265, 266–8  
 fine-grained 15–16  
 gravel-rich 13  
 growth factors 80–2  
 growth patterns 82–5, 87  
 late-stage 191–3  
 lobes 193–4  
 multiple-sourced 243–4, 243  
 pre-existing morphology control 81–2  
 sea-level variations 80–1  
 tectonic control 82  
 variations in characteristics 75–7  
 Zaire deep-sea fan 93–8, 94, 96, 99–100  
*see also* basin-floor fans; lobe deposits; slope fans;  
 submarine fans
- fault gouge fabric 143, 144, 146
- faulting  
 control of basins 11, 12  
 normal 307  
 seabed 155  
 syndepositional 135–58  
*see also* El Cautivo fault zone
- feeder system channels, Cingöz Fan 243–4, 243  
 Channel 1 246–53, 248, 250, 251, 257  
 channel fill architecture 250  
 Channels 2–4 253–5, 254  
 down-channel changes 255–60
- fill-and-spill model 23, 30–2, 31, 209
- filled incised valleys 66, 68
- fine-grained (mud-rich) turbidite systems 11, 13–16,  
 19
- fine-grained sediment fraction 47, 48, 52
- finest-rich flows 52
- flame structures 152
- flow character, equilibrium profiles 28–30
- flow containment *see* containment
- flow deflections 1, 38
- flow efficiency 2, 45–6, 56, 56  
 experimental methods 46–7, 48  
 partial blocking effect 53–4  
 unobstructed flows 47–53
- flow types, ‘Macigno costiero’ 264
- flow volumes 27–8, 56
- flute casts 236
- flysch facies 233, 234, 235, 235, 236, 237
- foredeep basins, Northern Apennines 115–34, 261–83
- geometries  
 depositional  
 Golo turbidite system 45–58  
 Hamitabat Formation 313–14, 316, 317  
 internal, Golo turbidite system 66–71  
 single flow deposit 49–51, 50  
 geostatistical analysis 286, 297–303  
 Gerig Gwynion Grits System 214–15, 215  
 Golo river, Corsica 60, 62  
 Golo turbidite system 3, 59–89, 60, 76, 77  
 ancient systems comparison 86–7  
 conceptual model 83–5, 84  
 continental shelf morphology 63–4, 63, 66, 68  
 data and methods 63  
 facies distribution 78–9  
 fan characteristics 75–7  
 hydrologic/hydrodynamic context 62  
 internal geometry 66–71  
 lateral and longitudinal evolution 71–5  
 modern studies 85–6  
 morphology 60, 61  
 seismic-reflection facies 66, 67  
 stratigraphic and palaeogeographic evolution 77–80  
 tectonic control 60–2  
 graded deposits 246, 247  
 grain-size distribution 45, 56, 109, 294  
 graptolite biostratigraphy 210, 211, 212  
 gravel-rich fans 13  
 gravelly sandstones 252  
 gravels 247  
 gravity flows 182  
 growth patterns of fans 82–5  
 Gulf of Mexico slope 24, 26, 32

- gullies, Golo system 63, 64, 66
- half-graben 62, 229–30
- Hamitabat Field, Turkey 307–20  
 exploration 309  
 reservoir modelling 307–20, 308  
 seismic interpretation 309
- Hamitabat Formation 5  
 facies classification 311–12, **311**  
 facies model 315–16, 319  
 geological grid 314–15  
 petrophysical model 316–18  
 post-depositional features 310  
 reservoir properties 310–11  
 reservoir simulation 318  
 sedimentology 309–10  
 stacking patterns and depositional geometry  
 313–14, 316, 317  
 stratigraphy **308**  
 structural model 317  
 turbidite facies model 315–16, 319  
 well correlation 312–13
- healed slope 25, 29
- hemipelagic deposits  
 Castagnola Formation 290  
 Cingöz Fan 247, 250  
 Pab Sandstone 171, 172, 173  
 Zaire valley 103, 109
- Hurst statistics 285–305  
 coarse-division thickness percentage 299–300  
 database compilation 291–5  
 geostatistical analysis 297–303  
 grain-size score 301  
 Hurst *H* test 295–7, 296–8
- hydraulic jumps 181, 257, 258, 258, 259, 276
- hydrocarbon prospectivity 238
- Hyrnestabben, Spitsbergen  
 basin-floor fan deposits 199, 200, 202–3  
 clinoforms 195
- ichnofossils 213–14, **213**
- imbricated clasts 247, 252, 253
- incised valleys 66, 68, 181
- initial flow density 47
- initial sediment volume 47–9, 48
- inner levees 93, 106, 108, 111, 111
- interchannel deposit 263, **264**, 278
- intermediate-distal lobes **264**, 265, 266–7, 277  
*see also* distal lobes
- Italy  
 Castagnola Formation 285–305  
 ‘Macigno costiero’ turbidite system 261–83  
 Northern Apennine foredeep basin 3, 5, 115–34,  
 116
- Kaplankaya Formation 246, 247
- Karasali Formation 246, 247
- kinematics, El Cautivo fault zone 143–6, 145
- Kirthar fold belt, Pakistan 161–7, 161
- Kota Fan, southern Iceland 29–30, 30
- kriging 287, 299–301, 302
- Laki Range, Pakistan 160, 161, 163
- laminated sandstones 196
- lateral basin slope 221–3
- lateral migration, channel–levee complexes 72, 75,  
 82–3, 82
- levees  
 inner or confined 93, 106, 108, 111, 111  
 Pab Sandstone 173, 174  
 sandstones 16  
*see also* channel–levee complexes
- Ligurian units 116–17, 125
- liquefaction 199
- lithofacies, Adana Basin 244–6, 244, 245
- lithostratigraphy, turbidite systems 124
- lobe deposits  
 depositional models 77–80, 78  
 Golo turbidite system 71, 74, 76, 82  
 sand-bodies 168, 172–4
- lobe–fan fringe, ‘Macigno costiero’ **264**, 265, 266,  
 277
- lobes 35, 193–4, 221, 249, 252  
 channel-termination 66  
 distal 71, 74, 77, **264**, 265, 266–7, 277  
 Lower Pab 170, 171, 172  
 Niger Delta slope 32, 33–4  
 progradation 267, 277, 278, 281  
 proximal 71, 74, 77, **264**, 265, 266–7, 277  
 sand-rich 168  
 sandstone 215, 221, 224  
 tabular 216, 217, 218  
 Upper Pab 175  
*see also* channel–lobe transition
- Loma de los Baños Formation 139, 140, 146–52  
 Alfaro sub-basin 146–7, 151  
 cliff section 148  
 lateral variations 147–9  
 lithology 146, 147  
 origin and fault control 151–3  
 palaeoflow 149–50, 153  
 provenance 149  
 transition to Verdelecho Formation 150–1
- longitudinal migration, channel–levee complexes 75,  
 82–3
- Lower Pab turbidite systems  
 depositional architecture 165, 169–71, 181–3  
 mud-rich 172–5, 174, 183  
 sand-rich 168–71, 169, 170, 183
- Maastrichtian, Pab Sandstone, Pakistan 4, 159–85  
 ‘Macigno costiero’ turbidite system 5, 261–83, 262  
 architecture stages 265–78, 266–8  
 correlation and architecture pattern 269–71, 273  
 depositional system 278–81  
 evolution 278, 279, 281

- facies and facies associations 263–5, **264**, 265, 266–8
- flow types **264**
- sedimentation logs 266–8
- syncollisional clastic wedge 263
- MacIvor Formation 236, 237
- main channel complex 268
- marls 139, 141
- Marnoso Arenacea turbidite systems 127–8
- massive sandstones 233, 274–5
- meander development 110–12, *111*, *112*
- mid-slope fan *170*, *171*, 175–8, *178*
- migration of channels 72, 74–5, 82–3, 82, 110–11, *111*
- minibasins *see* sub-basins
- Miocene
  - Adana Basin, Southern Turkey 241–60
  - turbidite systems 3, 120–8, 287
- Mississippi Fan 15
- mobile salt structures 34–6, *34*
- modelling facies, Hamitabat Formation 311–12
- modern turbidite systems, Golo system 3, 59–89
- Molinos Formation 137–9
- morphology
  - continental shelf 63–4, *63*, *66*, *68*
  - fan growth control 81–2
  - slopes 159
  - terraces in submarine valleys 97–105
- mud-rich slope fans *174*
- mud-rich turbidite systems *11*, 13–16, 19
  - Lower Pab 172–5, *174*, 183
- mudstones 10, 201, 233
- multiple terraces *see* terraces
- multiple-sourced fan 243–4, *243*
  
- Neogene intramontane basins 3, 136, *136*
- New Zealand small basins 4, 229–40
  - basin size 237–8
  - basin-fill sediments 230–6
  - Blackmount Formation 235–6, *235*, *236*
  - facies 230–1, *232*
  - hydrocarbon prospectivity 238
  - MacIvor Formation 236, 237
  - stratigraphy *232*
  - tectonic setting *230*
  - tectonics and facies diversity 238
  - Turret Peaks Formation 231–5, *233*, *234*
- normal block faulting 307
- North Golo canyon 64, 65, 66, 70
- Northern Apennine foredeep basin 3, 5, 115–34, *116*, 261–83, *262*
  - geological setting 116–17
  - structure *122*
  - tectonic map *121*
  - turbidite systems 120–8, 265–81
  - see also* ‘Macigno costiero’ turbidite system
- northwest Borneo slope *26*
  
- oblique-dextral strike-slip fault 151, 153–5, *154*, 156
  
- Oligocene
  - foredeep turbidite systems 3, 120–8
  - sand-rich turbidite systems 261–93
- olistostromes 278
- onlap *38*
  - Castagnola Formation, NW Italy 289, 302, 304
  - Golo turbidite system *68*, *69*, *70*, *71*
  - lateral basin slope 223
  - Loma de los Baños Formation *148*, *149*
  - Peira Cava Sandstone *17*
  - Upper Pab sand-rich fan *177*
- Ordovician–Silurian Welsh Basin fill 4, 209–28
  
- Pab Range, Pakistan *160*, *161*, *164*
- Pab Sandstone, Pakistan 4, 159–85
  - braided deltas *163*, *179*
  - depositional system architecture *165*, 169–71, 181–3
  - evolution 181–3
  - Lower Pab mud-rich turbidite system 172–5, *174*, 183
  - Lower Pab sand-rich turbidite system 168–71, *169*, *170*, 183
  - palaeogeography 166–7
  - reconstruction 167–8
  - sequence architecture and facies *167*
  - sequence stratigraphical analysis 179–81, *180*
  - stratigraphy *176*, *178*
  - turbidite systems *162–4*
  - Upper Pab sand-rich turbidite system 175–9, *177*, *179*, 183
- Pakistan *see* Pab Sandstone
- palaeocurrent directions
  - Cingöz Fan *242*
  - ‘Macigno costiero’ *279*, 280, 288
  - Peira Cava Sandstone *16*, *17*
  - Tabernas-Sorbas Basin *150*, 151, 153
  - Telychian *222*
- palaeoflow directions, Welsh Basin 215, *215*, 217–18
- palaeogeography
  - Golo turbidites evolution 77–80
  - Northern Apennine foredeep basin *117*
  - Pab Sandstone 166–7
  - Telychian *219*, *222*
- palaeotopography 209
- passive margins 13, 159, 161, 166
- pebbly sandstones 265, 270
- Peira Cava Sandstone 16–18
- Permian 15
- petrophysical model, Hamitabat Formation 316–18
- Pianosa slope *61*, 66, *69*, 70
- Piedmont Basin, NW Italy 285–305, 288, 289
- piggyback thrust sequence 120, 131
- ponding 1, 25, 29
  - see also* containment
- progradation
  - lobes, ‘Macigno costiero’ *267*, 278, 281
  - sand-rich slope fan 179, 181
  - wedges 66–70, *68*

- progressive migration, channel–levee complexes 74–5,  
     75  
 provenance, Loma de los Baños Formation 149  
 proximal lobes  
     Golo turbidite system 71, 74, 77  
     ‘Macigno costiero’ 264, 265, 266–7, 277  
 proximal slope fan 170–1, 170, 178  
 proximal to distal facies changes 255–60  
 pseudo-hummocky cross-stratification 178, 178  
 Pysgotwr Formation and lateral basin slope 220–3  
  
 ramp evolution 181  
 reservoir architecture 37–9  
 reservoir modelling, Hamitabat Field 307–20  
 Reynolds numbers 47  
 Rhuddnant Grits 218  
  
 salt highs, sediment distribution paths 34–7, 36  
 sand delivery systems 191  
 sand-bodies  
     architecture 45–58  
     Castagnola Formation 288–91, 290, 291, 303  
     Hyrnestabben, Spitsbergen 203, 204  
     lobe deposits 168, 172–3  
     sheet-like 175–8, 204, 214, 313  
     Tabernas-Sorbas Basin 139  
 sand-prone clinoforms 191  
 sand-rich feeder channels 236  
 sand-rich lobes 168  
 sand-rich ramps model 233–4  
 sand-rich turbidite systems 11, 13–16, 19  
     Hamitabat Formation, Turkey 307–20  
     Lower Pab 168–71, 169, 170, 183  
     ‘Macigno costiero’, Italy 261–83  
     Upper Pab 175–9, 177, 179, 183  
 sandstones  
     convolute bedded 196–9  
     facies trends 201–4  
     levees 16  
     lobes 215, 221, 224  
     massive 233, 274–5  
     petrography 119  
     petrology 125, 125, 126  
     thick-bedded 196  
     thin-bedded 196  
 sandy channel complexes 168  
 sandy debrites 10  
 sandy overflow deposits 171  
 Sartanella Formation 139, 140, 149  
 scaling, experimental work 47  
 scours 218, 275–6, 275, 277  
 sea-level curves 212, 212  
 sea-level variations 12–13, 19, 115, 131–2  
     fan growth 80–1, 83–5  
     Ordovician–Silurian Welsh Basin 212–13  
 seabed faulting 135–58  
 sediment analogues 46, 47, 48  
 sediment character 13, 19  
 sediment gravity flows 29  
 sediment transport 13, 182  
 sedimentary bodies  
     distribution and fan characteristics 75–7  
     internal geometry 66–71  
     lateral and longitudinal evolution 71–5  
 sedimentary processes 13  
 sedimentary structures 265, 270–8  
 sedimentation 80, 155–6  
 seismic interpretation, Hamitabat Field 309  
 seismic profiles  
     Pianosa slope 69  
     sedimentary bodies 73, 74  
     Zaire valley 98–100, 101, 103, 106–7  
 seismic-reflection facies, Golo system 66, 67  
 sequence architecture, Pab Sandstone 167  
 sequence stratigraphical analysis, Pab Sandstone  
     179–81, 180  
 Shah Noorani, Pab Range 164, 165, 173  
 shale 10  
 shallow canyons 62  
 sheet conglomerates 257  
 sheet turbidites 146  
 sheet-like sand-bodies 175–8, 204, 214, 313  
 shelf, sand-delivery system 191  
 shelf break 66, 68, 181  
 shelf width 159  
 shelf-slope clinoforms *see* clinoforms  
 shelfal limestones 246  
 silled sub-basins 24–5, 26–7  
     areal extent 29  
     cascade model 30–4, 31, 39  
     end-member scenarios 32–3  
     sand-rich and mud-rich stages 31  
 siltstones 201, 250, 252, 253  
 Silurian *see* Ordovician–Silurian Welsh Basin fill  
 single flow deposit geometries 49–51, 50  
 slides *see* slumps/slides  
 slope fans 160, 166  
     architecture 178–9  
     evolution 182–3  
     mud-rich 174  
     prograding sand-rich 179  
     reconstruction 179  
     Upper Pab sand-rich 175–9, 177, 179, 183  
 slopes 9  
     base-of-slope 15  
     bounding slope processes 37–9  
     Brazilian slope 27  
     continental slope 9  
     Gulf of Mexico slope 24, 26, 32  
     healed slope 25, 29  
     lateral basin slope 220–3  
     morphology 159  
     Niger Delta slope 26, 26, 32, 33–4  
     northwest Borneo slope 26  
     Pianosa slope 61, 66, 69, 70  
     *see also* topographically complex slopes

- slumped thin-bedded turbidites 276  
 slumps/slides 92–3, 107, 151–3, 152, **264**, 277  
 small-scale basins, New Zealand 229–40  
 sole structures 168, 215, 215, 219  
 source tectonics 131  
 South Golo canyon 63, 64, 65, 70, 75–6, 77  
 South Golo channel 63, 64–6, 65  
 Spitsbergen, basin-floor fans 4, 187–208  
 square flume tank 46  
 stacking patterns 4, 32, 129, 178  
   Castagnola Formation 289, 295, 298, 302  
   Hamitabat Formation 313–14, 316  
   ‘Macigno costiero’ 270, 270  
 Stagno turbidite system 126–7  
 statistical methods 285–305  
 Storvola, Spitsbergen, clinofolds 189, 195, 198  
 stratal architecture *see* architecture  
 stratigraphical logs 292  
 structural confinement, Rhuddnant Grits 218  
 structure, Northern Apennines 2, 122, 262  
 Stuart Mountains, New Zealand 233, 234  
 sub-basins 9–10, 11–12, 12  
   *see also* silled sub-basins  
 submarine fans  
   Adana Basin, Turkey 241–4  
   clustering 285  
   New Zealand 230–1  
   Turret Peaks Formation 233–5  
 submarine intrabasinal high 299–301, 302, 304  
 submarine valleys 64  
   terraces 91–114  
 subsidence 153–5  
 supply shut-off, channel-levee complexes 174–5  
 suspension density 47, 48, 50  
 suspension volume 48, 51–2, 55  
 syn-tectonic deepwater sedimentation 155–6  
 synclinal clastic wedge 263  
 syndepositional structures  
   faulting, Tabernas-Sorbas Basin 135–58, 154  
   tilting 289  
   Welsh Basin 210  
 Tabernas-Sorbas Basin, SE Spain 3–4, 135–58  
   basin fill 136–7  
   depositional evolution 141, 142  
   Gordo megbed 149, 151, 152  
   stratigraphy 137–41, 138  
   subsidence and syn-tectonic deposition 153–6  
 tabular depositional lobes 216, 217, 218  
 Tanqua Karoo 15–16  
 Te Anau Basin, New Zealand 229–30, 231  
 tectonic control 10–12, 60–2, 141  
   basin-floor fans 205, 206  
   facies diversity 238  
   fans 82  
   foredeep basins 121, 129–31  
   Golo turbidite system 60–2  
   New Zealand small basins 237–8  
 Telychian  
   lateral basin slope 221–3  
   palaeogeography 219, 222  
   sea-level change 212–13  
   trace fossils 213–14, **213**  
 terminology 9–10, 24–5  
 terraces in submarine valleys 91–114  
   abandoned meanders 93, 110–12, 111  
   creation of available space 110–11  
   detailed morphology 97–105  
   dying 110  
   filling and incision interpretation 92, 107–8  
   inner levees 93, 106, 108, 111, 111  
   interpretation models 91–3, 92  
   slump/slide interpretation 92–3, 92, 107  
   turbidity currents overflow 108, 109, 109  
   valley incision 92, 107–8  
 Tertiary  
   New Zealand fans 229–40  
   Piedmont Basin, NW Italy 285–305, 288, 289  
   Thrace Basin, Turkey 307–20  
   *see also* Eocene; Miocene; Oligocene  
 thalweg, submarine valleys 100, 105–6, 105, 110, 112  
 thickening–coarsening upward sequence 271, 274, 276, 277, 281  
 thin-bedded turbidites  
   Castagnola Formation 302–3, 304  
   ‘Macigno costiero’ 271–3, 272, 274, 276, 278  
   Welsh Basin 221, 224  
 third-order depositional sequences 179–81  
 Thrace Basin, Turkey 307–20  
   *see also* Hamitabat Field; Hamitabat Formation  
 thrust system, piggyback progradation 120, 131  
 thrust-top basin 280  
 toolmarks 120  
 toplap surfaces 68, 70, 71  
 topographically complex slopes 24–43  
   cascade of silled basins model 30–4, 31, 39  
   connected tortuous corridor model 25, 29, 34–7, 39  
   recognition criteria 39  
   structure growth rates 30  
   types 25–7  
 topography  
   confining effects 53–6  
   control 81–2, 159  
   syndepositional fault 151–3  
 Torrente Carigiola turbidite system 126, 131  
 Tortonian to Lower Messinian fill 138, 141, 153  
 trace fossils 213–14, **213**  
 traction carpets 247, 270, 275  
 transgression 181  
 transport 13, 182  
 tributary channel patterns 25  
 tripartite beds 149  
 turbidite classification 118  
 turbidite complexes 10, 118

- turbidite flows (recent) 109–10  
 turbidite sequences *see* Bouma Sequences  
 turbidite stages 118, 120, 126–7  
 turbidite substages 118  
 turbidite systems 10, 118  
   Acquerino 126  
   biostratigraphy 118–19, 119, 123  
   Castagnola Formation 285–305  
   Castiglione dei Pepoli 127  
   chronostratigraphical distribution 123  
   coarse- and fine-grained 11, 13–16  
   confined 1–7  
   deposition adjacent to active fault 146–53  
   depositional rates 129–30, 129  
   Falterona 120–6  
   Hamitabat Formation 307–20  
   lithostratigraphy 124  
   Lower Pab mud-rich 172–5, 174, 183  
   Lower Pab sand-rich 168–71, 169, 170, 183  
   'Macigno costiero', Italy 261–83  
   Marnoso Arenacea 127–8  
   petrography and petrology 119, 125, 125, 126  
   stacking patterns 129  
   Stagno 126–7  
   study methods 117–20  
   syndepositional faulting 135–58  
   Tabernas-Sorbas Basin 137–41  
   tectonic arrangement 122  
   Torrente Carigiola 126, 131  
   Upper Pab sand-rich 175–9, 177, 179, 183  
   Welsh Basin 210, 214–30, 214–16, 219
- turbidity currents 233, **264**  
   containment 150, 151  
   deposits 10  
   entry point and bounding slope processes 37–9  
   flow efficiency 47–56  
   overflow terraces 108, 109, 109  
   overloading 28
- Turkey  
   Adana Basin 241–60  
   Hamitabat Formation turbidite system 307–20  
 Turret Peaks Formation 231–5, 233, 234  
 Tuscan and Umbria-Marche units 116–17
- unconfined flows 55–6  
 unobstructed flows 47–53  
 Upper Pab sand-rich turbidite system 175–9, 177, 179, 183
- upper-fan valley 97–105, 98, 99, 103, 107–10
- valleys  
   fan valley 14, 15  
   incision and filling 66, 68, 92, 107–8, 181  
   submarine 64  
   upper-fan valley 97–105, 98, 99, 103, 107–10  
   *see also* terraces in submarine valleys; Zaire valley  
 variogram analysis 286–7, 298–303, 299–301  
 Verdelecho Formation 139–41, 140, 149, 150–1, 152  
 vertical facies changes 257, 265  
 vertical stacking 32, 74, 76  
 Vicchio Marl 125
- Waiiau Basin, New Zealand 230, 231  
 wedges 66–70, 68, 115–16, 263, 309  
 well correlation 312–13  
 Welsh Basin fill 4, 209–28  
   analogues application 223–5  
   biofacies 210, 213–14  
   lateral basin slope 221–3  
   stratigraphy 210–13  
   turbidite systems 214–23, 214  
     Aberystwyth-Rhuddnant systems 217–19, 219  
     Caban-Ystrad Meurig System 215–17, 216  
     Gerig Gwynion Grits System 214–15, 215  
     Pysgotwr Formation and lateral basin slope 220–3
- Western Fan, Adana Basin 243  
 western Niger Delta slope 26, 26, 32, 33–4  
 wet argillaceous sediments, deformation 156
- Zaire Canyon 94, 95, 97  
 Zaire deep-sea fan  
   cores 96  
   location and bathymetry 93–5, 94, 96, 97–8, 99–100  
   survey data 95–6, 101  
 Zaire valley 3, 91–114  
   acoustic profiles 100–1, 104  
   channel–levee systems 96, 105–7, 107, 111–12  
   core results 101–4, 103–4  
   morphology 96–7  
   recent evolution 112–13, 112  
   recent turbidite flows 109–10  
   seismic profiles 98–9, 99, 101, 103, 106–7  
   upper-fan valley 97–105, 98, 99, 103, 107–10  
   *see also* terraces in submarine valleys