Index

accelerated mass spectroscopy (AMS), carbon
dating, 258, 340–2
airgun profiles
Barra Fan, 242
Campos Basin, 292
Feni Ridge, 234
Rockall plateau, 245
NW flank, 250
Wyville-Thompson Ridge, 241
Alaska, Gulf of, 43–66
Fairweather-Queen Charlotte Fault and transfer
margin, 45–57
location map, 44
physiography
tectonic setting and stratigraphy
discussion, 59–64
interpretation, 45–58
Albacora Terrace, 289
Auleton Trough, 45, 58
Alika landslide, tsunami, 154
Allerød-Bölling interstadial, meltwater pulses, 284
alongslope processes, 3–4
Alsek River and Trench, 58, 60
Amazon Fan, 133–44
area, 13
levee systems
compaction, 133–44
stability analysis, 141–2
location maps, 133, 134
soil mechanics: gravitational compaction, 135–7
Anatolian Rise, Cyprus–Eratosthenes seamount,
seeds supply to Herodotus Basin, 19
Andean Uplift, 134
Antarctic
Weddell Sea, abyssal plain, hemipelagites, 327
Western Antarctic Peninsula, Central Bransfield
Basin, acoustic character, 206–7
gelological setting, 207–13
glacial significance, 213–15
Antarctic Bottom Water (AABW) flow, 236
Anton Dohrn Seamount, 70–2, 235, 270
Atlantic Intermediate Water, foraminifera, 263
Atlantic Ocean, Northeast, sediment-drift
development, 229–54
Atlantic Ocean, Southeast, Walvis Ridge,
hemipelagites, 327
Australia, Burdekin River, 159
Barra Fan, Hebrides Slope
area, 81, 97
debris, 67–80
fan geometry and regional stratigraphy, 68–70
large-scale slide events, 73
seabed physiography, 70–3
slide transfer pathways, timing and volumes, 73–6
dinoflagellates, 279–80
earthquakes, 78
features, 272
location map, 68
morphology and sedimentation, 81–104
bathymetry, 83, 85–9
canyons, 89–90
debris-flow deposits and lobes, 90
echo character, 90–4
elagant bedforms, 90
ice scour marks, 89
methods, 83–5
seabed photography, 94–101
slides and slumps, 89
sedimentology, 277–8
Biscay, Bay of, slope failure, 13
bottleneck slides, debris flows, 12
Bransfield Basin see Antarctic
Brazil
Amazon Fan, 133–44
Campos Basin, 4, 287–316
location maps, 289, 290
Brazil Counter-Current, 291
Britain, NW, continental margin
bathymetric setting, 230
Cenozoic sediments, 229–54
present bottom-water circulation, 235–6
tectono-stratigraphic framework, 246
Burdekin River, Australia, 159
California Borderland Basins, hemipelagites, 326
Campos Basin, SE Brazil
alongslope and downslope currents, 4, 287–316
depositional model, 307–11
industry applications, 311–13
expansion zone, 304, 306, 309–11
hydrography, 290–6
location maps, 289, 290
physiography, 288–90
Pleistocene–Holocene boundary, 301
Sao Toméddy, 293, 295
sea-surface temperature (SST) satellite image, 294
sedimentology, 296–306
Canadian Polar Continental margin, hemipelagites, 325
canyons, shelfbreak, 89
carbon dating, AMS, 258, 341–2
Cassidulina teretis, 263, 264
Charlie Gibbs Fracture Zone, 229
Chondrites, 304, 329
Coccolithus pelagicus, 279
continental margin, model, 2
continental rise and shelf
sediment transit zone, 287
seismic character, Southeast Greenland glaciated
margin, 178–85
countourites
diagnostic criteria for recognition and
differentiation, 330–2
drifts, Central Bransfield Basin, 213
Eocene, Faeroe–Rockall Plateau, 5–17, 9–15
Faeroe Drift, cyclic sedimentation, 255–67
crag-and-tail structures, current scour, 96
current-induced features, scour, 95–6
cyclic sedimentation, Faeroe Drift, 255–67
Cyprus–Eratosthenes seamount (Anatolian Rise), sediments supply to Herodotus Basin, 19
Dansgaard–Oeschger cycles, 6, 257–63
correlation with ENAM cores, 266
Darcy’s Law, overpressured sediments, 136
debris flow deposits, 90
Amazon Fan, 134–5
Hebrides Slope
Barra Fan, 67–80
Sula Sgeir Fan, 105–16
lobes, 10–12
bottleneck slides, 12–13
debrites defined, 67
Herodotus Basin, 31
Deep Northern boundary current (DNBC), 273
dinoflagellates
chronstratigraphy, 279–80
cyst analysis, 279
Donegal Fan, Hebrides Slope, seabed physiography, 70–3, 81
downslope processes, 1–3
Edoras Bank, and Rockall Trough, comparisons, 227, 233
Eggerella bradyi, 263
Emiliana huxleyi, 279
Eocene
basalts, Faeroe–Rockall Plateau, 5
countours, 5–17
Epistomella decorata, 263
European North Atlantic Margin (ENAM) cores, correlation with Dansgaard–Oeschger cycles, 266
sediment accumulation fluxes, 339–50
European Union, Ocean Margin Exchange (OMEX) project, 339–50
evaporites, Campos Basin, 288
Faeroe Drift, cyclic sedimentation, 255–67
origins, 265
stratigraphy and age control, 257–63
Faeroe–Shetland channel, 118
geotechnical profile, 124–6
location map, 256
Rona Wedge, 119, 125
Faeroes continental margin
Cenozoic changes, 167–71
location maps, 6, 167
seismic recording, 5–17
seismic stratigraphy, 167–70
submarine slides, 2, 5–17
turbidites, extension into Norwegian Sea, 13–16
Fairweather–Queen Charlotte Fault and transfer margin, 45–51
with localized transpression, 52–7
Feni Drift, and Faeroe Drift, cyclic sedimentation, 265
Feni Ridge
age, 233
airgun profile, 234
seismic expression, 236–8
foraminifera
accelerated mass spectroscopy (AMS), 340–2
Atlantic Intermediate Water, 263
Globigerina ooe, void ratio, 136
Herodotus Basin, Levantine Sea, 32–3
NAC species, 281
Neogloboquinq pachyderma, carbon dating, 258, 340
Geike Bulge and Escarpment, 105, 270, 272
slope, 117
stability analysis, 111–13
Geological Long-Rang Inclined Asdic (GLORIA) side-scan sonar, 24, 44–5
glaciers, sourcing of terrigenous sediments, 59–64
glacigenic debris flows, Sula Sgeir Fan, Hebrides Slope, 105–16
Goban Spur, OMEX programme, 339, 342, 344–5
gravitational compaction, soil mechanics, 135–7
Greenland, Southeast, glaciated margin, 173–203
bathymetric maps, 176
correlations and interpretations, 188–97
location map, 174
morphology, 174–5
oceanographic currents of Irminger Basin, 175–8
seismic character of continental rise, 185–8
seismic character of shelf, 178–85
seismic data, 174
Greenland–Scotland Ridge, 229
halokinesis, 288
Hatton–Rockall see Rockall Trough
Hebridean continental margin
extensional basins, 217–19
hemipelagites, 327
Hebridean Escarpment, 69
Hebrides Slope
Barra Fan, debrites, 67–80
morphology and sedimentation, 81–104
gross depositional environment maps, Cenozoic, 249
Late Quaternary stratigraphy and change, 269–86
Sula Sgeir Fan, 105–16
Hebrides Terrace Seamount, 87–9, 270
earthquakes, 110
Hebrides–West Shetland margin, 117–32
location map, 118
Hellenic Trench, sediment trapping, 24
Helmintopsis, 304
hemipelagites, 4, 317–38
composition, 334
definition and differentiation from related facies, 328–34
depositional processes, 334–6
diagnostic criteria for recognition and differentiation, 330–2
examples
ancient, 328
modern, 325–8
model for deposition, 335
occurrence and sedimentation rate, 334
INDEX  

hemiturbidites, diagnostic criteria for recognition and differentiation, 330–2
Herodotus Abyssal Plain, deformations, 24
Herodotus Basin, Levantine Sea, 19–41
correlation and dating, 31–4
geological setting and previous work, 21–4
isopach map, 38
location map, 20
morphology and acoustic facies–physiography, 24
map, 22
sediment types, 24–31
seismic profiles, 22–3
turbidites, dimensions, 38
Holocene Climatic Optimum, 339
hyperpycnal events, 149–50
rapid sediment transfer in geological record, 157–61
and tsunami, 154, 157
Iberian (West) continental margin, hemipelagites, 327
Iceland–Faeroe Ridge, location map, 256
Indian Ocean
Makran and Oman margins, 317–25
Mozambique Basin, hemipelagites, 326
industry applications, depositional model of Campos Basin, SE Brazil, 311–13
Irminger Basin, Greenland
bathymetric maps, 177
location map, 174
oceanographic currents, 175–8
Japan Arc, Okushiri Ridge, hemipelagites, 326
Japan Sea, hemipelagites, 326
King, Arthur Canyon, 340
sedimentation rates, 343
Labrador Sea, Eirik Ridge, correlation with Greenland SE glaciated margin, 200–1
Labrador Sea Water (LSW) flow, 236, 273
Late Glacial period, subdivision, 281–4
Levantine Sea, Herodotus Basin, 19–41
Levantine Sea–Nile Cone, hemipelagites, 326
levee systems, Amazon Fan, 133–44
Lewis, West Lewis Basin, seismic characterization of Palaeogene sequences, 217–28
Libyan–Egyptian Shelf, megaturbidite, 19
Makran continental margin
bathymetry and setting, 318
composition of hemipelagites, 320–1
sediment facies and structures, 318–20
mass-wasting events, 1–4
Var river, 148–9
MAST II PALAEOFLUX program, turbidite fluxes in Mediterranean Sea, 19–41
mechanical stability of levee systems, 133–44
Mediterranean Deep Water (MDW) flow, 236
Mediterranean Ridge, 24, 38
Mediterranean Sea
Herodotus Basin, Levantine Sea, 19–41
Var Submarine Sedimentary System, 3, 145–66
Western, hemipelagites, 325
megaturbidite, Libyan–Egyptian Shelf, 19
modelling
age, Ocean Margin Exchange (OMEX) project, 340–2
deposition, Campos Basin Brazil, 287–316
deposition of hemipelagites in deep-water environments, 335
soil mechanics: gravitational compaction, 135–7
Mozambique Basin, hemipelagites, 326
nanofossils
dinoflagellates, 279–80
Rockall Trough, 278–9
see also foraminifera
Neogloboquadrina pachyderma, carbon dating, 258, 263, 340
Neogloboquadrina pachyderma, 281
Nice
Baie des Anges, mass-wasting events, 154, 157
see also Var Submarine Sedimentary System
Nice Airport, Var River mass-wasting events, 148–57
anthropogenic action, 155
location map, 148–57
Nile Cone
isopach map, 38
turbidites, 19
Nonion zaandamae, 263, 264
North Atlantic Deep Water (NADW) flow, 235–6, 273
Northwest European Margin see European Northwest Margin
Norway, Storegga Slide region, 13–16
Norwegian Basin, 170
Norwegian Sea
stadial/interstadial cycling, 263
turbidites from Faeroes continental margin, 13
Norwegian Sea Deep Water (NSDW) flow, 5, 236, 273
Nova Scotia, hemipelagites, 325
Ocean Margin Exchange (OMEX) project, 339–50
age model, 340–2
Kasten core sampling data, 341
methods and sampling, 340
results and discussion, 340–8
sedimentation rates, 343
Oman continental margin
bathymetry and setting, 321–3
composition of hemipelagites, 324
microfabric, SEM, 324
sediment facies and structures, 323
oxygen isotopes, Dansgaard–Oeschger cycles, 6, 257–63
Pacific Plate
translation during Plio–Pleistocene, 43–66
see also Alaska, Gulf of Palaeogene seismic characterization, Rockall Trough, 217–28
Peach Slide, Hebrides Slope, 70–8, 85, 102
pelagites, diagnostic criteria for recognition and differentiation, 330–2
Peru margin, hemipelagites, 327
Phycosiphon, 329
piedmont glacier sediments, 64
INDEX

Planolites, 304, 329
Pleistocene–Holocene alongslope and downslope currents, SE Brazil, Campos Basin, 4, 287–316
Porcupine Seabight, 343
Proudman camera, 94

Queen Charlotte Terrace margin, 46

rivers
hydrology data and interpretation, 149–57
hyperpycnal events, 149–50
mass-wasting events, 148–9

Rockall Trough
Barra Fan, debrites, 67–80
bathymetric setting, 270
biostratigraphy, 278–81
Cenozoic sediments, 229–54
Eastern, 240–3
North central, 238–40
Northwest, 238
Western, Feni Ridge, 233–4, 236–8
Feni Ridge, 233–4, 236–8
and Hatton–Rockall Basin, 243–7
regional setting, 233–6
ice-rafted debris (IRD), 278
Late Quaternary stratigraphy and change, 269–86
nano fossils, 278–9
northern, stratigraphy and principal sedimentary units, 282
oceanographic setting, 273–4
palaeoceanographic maps, last deglaciation, 283
Palaeogene seismic characterization, 217–28
Middle–Upper Palaeocene, 219–22
Lower–Middle Eocene, 222–3
Middle–Upper Eocene, 223
Upper Eocene–Lower Oligocene, 224–5
Middle–Upper Oligocene, 225
present-day deep water circulation, 274
regional setting, 271–3
sediment-drift development, 229–54
sedimentology, 274–7
stratigraphical-range chart, 231
Sula Sgeir Fan, Hebrides Slope, 240–3
Rockall–Faeroes Plateau, 5–17, 9–15
Rona Wedge see Faeroes–Shetland Channel
Rosemary Bank, 270

sand–silt ripples, 96
sands, industry applications, depositional model of Campos Basin, SE Brazil, 311–13
São Paulo Plateau, 288
São Tomé eddy, Campos Basin, SE Brazil, 293, 295
São Tomé submarine canyon, 289
scour crescents, current-induced features, 95–6
sediment transport
depositional model of Campos Basin, SE Brazil, 311–13
plate motion, 61–2
rapid transfer events, 157–64
rise and slope, 60–1
sediment-drift development
regional seismic expression, 236
Rockall Trough, 229–54
Var system, 145–66

sediments
bulk density, formula, 135
Cenozoic, preservation, 229
compaction curve, theoretical, 137
compressibility, 136
compression curves, SCL and ICL, 126–9
cylic sedimentation, Faeroe Drift, 255–67
industry applications, depositional model of Campos Basin, SE Brazil, 311–13
Late Glacial to Recent fluxes, 339–50
mass spectroscopy (AMS) age dating, 16, 340–2
mechanical stability of levee systems, 133–44
overpressured, Darcy’s Law, 136
porosity and burial depth, 137
sedimentation, 1–4
soil mechanics: gravitational compaction, 135–7
terrigenous, glaciers, 59–64
void index, 126–9
void ratio, 136

seismic recording
Baie des Anges, Nice, and mass-wasting events, 157
Faeroes
continental margin, 167–70
European North Atlantic Margin project, 5–17
Greenland SE
continental rise, 185–8
continental shelf, 178–85
Herodotus Basin, Levantine Sea, 22–3
profiles, 8–9
Rockall Trough, 217–28
TOBI, 7–9
seismic stratigraphy, Faeroes continental margin, 167–70
Shetland, West Shetland Slope, 117
shingling cycles, 64
Sierra Leone Rise, hemipelagites, 326
Sigmoidotis schlumbergeri, 263
slide processes, 76–8
slide transfer pathways, timing and volumes, 73–6
soil mechanics: gravitational compaction, 135–7
South Atlantic Central Water (SACW), 291
South Shetland Isles, location map, 206
South Shetland Trench, 205
stability, 1–4
Storegga Slide region, w Norway, 13–16
stripe–slip faulting, Gulf of Alaska, 43
strontium dating, 68–9
submarine canyons, sediment delivery systems, 43–66
submarine landslide, defined, 67
Sula Sgeir Fan, Hebrides Slope, 105–16
geotechnical profile, 120–2
location map, 106
Rockall Trough, 240–3

Terzaghi, principle of effective stress, 136
Thalassinoides, 304
thermal subsidence basins, 170
TOBI deep-tow side-scan sonar mosaic, 5–17, 89
blow-up of debris flow, 12
TOPAS system, 205
tsunamis, Alika landslide, 154
turbidites
chemical analysis, 19–21, 22
INDEX

Cyprus–Eratosthenes seamount, 19
diagnostic criteria for recognition and differentiation, 330–2
Herodotus Basin, Levantine Sea, types, 24–31
Libyan–Egyptian Shelf, 19
Nile Cone, 19

unifites, diagnostic criteria for recognition and differentiation, 330–2

Var Submarine Sedimentary System, 3, 145–66
geological and geographical setting, 146–9
hydrology, 149–57
mass-wasting events, 148–64
features summarized, 162
interpretation, 151–2, 154

sedimentary impact, 152–7
sedimentation processes (seaward) during flood periods, 160
Vedde Ash, 281, 342
void index, 126–9
void ratio, 136

Weddell Sea, abyssal plain, hemipelagites, 327
Wyville–Thompson Ridge, 119, 217–27, 270
airgun profiles, 241
Upper Eocene–Lower Oligocene fan geometry, 226–7

Yakutat Terane margin, 57–9

Zoophycos, 329