Index

Page numbers in italic, e.g. *42*, refer to figures. Page numbers in bold, e.g. **53**, signify entries in tables.

Abadeh *42*, *44*
Abarkoh Basin fluvial megafan (Iran) 41–43, 58
  depositional model 57–58, *57*
  geological and tectonic setting *42*
  geomorphology and hydrology 44–46
    drainage nets *46*
    satelite images *44*
    simplified map *45*
  sedimentary facies and distribution **53**
    medial–distal-fan facies *48*, *49*, 52–57, *52*, *54*, *55*, *56*, *57*
    proximal-fan facies 46–52, *47*, *50*, *51*, *52*
  study methods 43–44
accommodation space 169–184
Agüero fan *188*
  description 189, *190*
  main depositional process **189**
  synsedimentary deformation *202*
Aix en Provence *218*
Al Rams *86*
Albarracín River 70, *75*, *76*, *80*
Alborz *42*
alluvial fans, overview 1–2
  dynamics of Quaternary fans 2–3
  future directions 4
  processes 2
  sedimentary sequences 3–4
Alluvial Fans conference, Sorbas, Spain 1
Andean Ranges (Argentina), Quaternary telescopic-like alluvial fans 69, 76–81
  alluvial segments, genesis 73–74, *79*
  general distribution 69
    Mendoza River area 70, *70*, *71*, *72*
    Quebrada del Toro area 71–73, *77*, *78*
    San Juan River area 70–71, *70*, *72*, *73*, *74*, *75*, *76*
  longitudinal profiles, variability 74–76, *80*
Aniés fan *188*
  description 190
  main depositional process **189**
Antofagasta 9, *97*, *98*, *99*, *101*
Apfelberg Formation
  sedimentology 209
    Apfelberg fan 211–212, *213*, *214*
    Rachau fan 209–211, *210*, *211*, *212*
  stratigraphic–structural setting 207–209, *208*
Aquitane Basin *188*
Arc Basin 217–218, *218*
Argentina, luminescence dating of alluvial fans in intramontane basins 153, 163–166
  see also telescopic-like alluvial fans of the Quaternary
  geological, geomorphic and climatic setting 154–156
    facies description 156
    field photographs *155*
    study area *154*
  OSL methodology 158
  sampling protocol 156–158, *157*
    dosimetry **159**
    study results 160–163
      dose recovery tests *160*
      equivalent dose data **162**
      equivalent dose distribution *164–165*
      luminescence data *161*
Ash Slough *175*
Atacama Desert 11–12, *13*, 96, *96*, *97*
  rainfall *14*
Atacama Fault Zone (AFZ) 97–99, *97*, *99*, 106, *111*
Aurelien, Mount *218*

Berenda Slough *175*
Bimont *222*
Bolea fan *188*
  description 191
  main depositional process **189**
British Columbia (Canada), forested fans 25, 38
  study area 25–27, *26*
  study methods 27–28
    adventitious roots 27, *30*, **35**
    boulders wedged between trees 27, *34*, **35**
    buried trees 27, *29*, **35**, *37*
    log retaining walls 27, *33*, **35**
    log steps 27, *33*, **35**
    recent sediment splays 27, *28*
    soil reinforcement 27, *31*, **35**
    tree holes 27, *30*, **35**
    tree scars 27, *32*, **35**
    woody dykes 27, *32*, **35**
  study results 28–38, **34**, **35**
    high-volume forest stand *36*
    low-volume forest stand *36*
    trees growing on sediment *37*
Budapest *62*
Buena Vista sub-basin *170*
Buena Vista Valley *118*
Buenos Aires *70*
Burns Lake fan *26*

Calaveras River fan *171*, *172*
Canada *see* British Columbia (Canada), forested fans
Carpathian Mountains 61
Carson River *118*
Catalan Range *188*
Cerro Blanco *77*, *78*
Cerros de Purilactis *10*
Chile *see* climatic controls on aluvial-fan activity; flow events on hyper-arid alluvial fans
Chorrillos *78*
Chowchilla *175*
Chowchilla River fan *171*, *172*, *175*
  gradients *176*
  schematic cross-section *177*
  sediment supply and stream discharge 180–182
Clan Alpine Mountains *118*
climatic controls on alluvial-fan activity (Coastal Cordillera, northern Chile) 95–96, 114–115

climatic controls on alluvial-fan activity (Coastal Cordillera, northern Chile) (*cont.*)
climate, geology and geomorphology 96–99
climate zone distribution *96*
geological map *97*
principal watersheds, topography and drainage patterns *98*
satellite image *100*
topographic cross-sections *99*
coastal alluvial fans
age 103
depositional processes 101–103
distribution 99
drainage basin characteristics 99, *102*, **104–105**, *106*, *107*
field photographs *108*
study area *101*
surface morphology 99, *108*
comparison between coastal and western Central Depression alluvial fans 113
controls on alluvial-fan systems 113–114
Western Central Depression alluvial fans
age 108–113
depositional processes 108
distribution 103
drainage basin characteristics 103–106, *111*
field photographs *113*
surface morphology 106
climatic environments 1, 3
aridity
Abarkoh megafan 45–46
Argentina 154–155
Great Basin, Nevada, USA 117
Provence, France 219
Sparta Basin 134–135
Wadi Al-Bih 86
climatic change 2, 3, 169
palaeoclimates 201–202
paraglacial conditions 29
climatic reconstruction 65–66
Cobija *98*
Cold Springs fans *118*, **119**
morphology 120–121, *121*, *122*
Conchola *98*
controlling factors
base level control 2, 3, 125–126
fan aggradation 196–197
Tuolumne River fluvial fan 178–179
climatic control 2, 3, 117
Coastal Cordillera (Chile) 95–96, 114–115
Ebro Basin 201–202
Spartan piedmont (Greece) 133–134, 145–147
tectonic control 2, 217–219, 232–236
Fohnsdorf intramontane basin (Austria) 207, 212–215
Great Basin (Nevada, USA) 117
Sajó–Hernád alluvial fan (Hungary) 61, 62, 67
Spartan piedmont (Greece) 133–134, 142–143, 145–149
Costes Chaudes, Les *222*
coupling/buffering role of fans 1

Danube River *62*
dating of fan sediments and surfaces 3
cosmogenic dating 3, 108
luminescence dating (TL/OSL) **143**, 153, 156–158, 163–166
OSL methodology 158
OSL results for Argentina 160–163, *164–165*
radiocarbon dating 3, 64–66
relative dating 3
by correlation 119–120
soil development 118–119, 136–138, *174*
soils as sequence bounding sufaces 4, 182–184
U/Th dating 3
debris cones 1, 2, *88*
debris-flow deposits 101
deformed sediments (synsedimentary deformation) 202–203, 230–231
depositional processes 9, 101–103, 108, 189, 199–201
debris flows 101, 197, 211
forested fans 27–29
Quebrada Tambores 18–19, 22
flash floods and flood sediments 9–10, 14, 16, 19–23, 41–43, 58
hyperconcentrated floods 103
sheetfloods 2, 14–17, 73–77, 103
depositional/sedimentary models 57–58, 67, 204–205, 214, 235
coarsening-up sequences 3
correlation of fan deposits 192–193
fluvial evolution 62–64
formation of External Sierras thrust in Ebro Basin 194–196
river style changes 64–66
Dehshir *42*, 43
Desatoya Mountains *118*
discharge to sediment load ratio (Q:Q_s) 134
Dixie Hot Springs fans *118*
Dixie South fans *118*
Dixie Valley fans *118*, **119**
morphology 121–124, *123*
Dixie, Lake **119**
Domeyko Thrust *10*
drainage basin characteristics
Abarkoh Megafan, Iran 46
British Columbia 29
Coastal Cordillera, Chile 95–99, 99–102, 103–106
Quebrada Tambores, Chile 12
drainage reorganization 4, 103

Ebro Basin (Spain), Tertiary alluvial fans at northern margin 187, 204–205
correlation of fan deposits 192–193
deformation features
deformation timing and controls 204
post-depositional deformation 203–204, *203*
synsedimentary deformation 202–203, *202*
depositional facies 197
controls on deposition processes 199–201
debris-flow deposits 197, *199*
rock falls 197
summary **198**
waterlain deposits 198–199, *200*
description of fan bodies 189
Agüero fan 189, *190*

Aniés fan 190
Bolea fan 191
Ebro Basin between Linás and Aniés 190
Linás fan 190
Murillo fan 189–190, *191*
Nueno fan 191–192, *193*
Riglos fan 190, *191*
Roldán fan 192, *194*
San Julián fan 191, *193*
exhumation 204
fan aggradation and base level 196–197
fan spacing and basin-margin structure 197
palaeoclimate 201–202
relationship to other facies 201
tectonostratigraphic setting *188*
regional tectonics 187–188
stratigraphy 188–189, *189*
thrust front formation and basin-margin topography 194–195, *195*
basin-margin relief 195–196
Edwards Valley *118*, **119**
Eger *62*
Eghlid *42*
Esfahan *42*
Etoile Range *218*

Falla del Carmen 103–106, *111*
Fallon *118*
fan dynamics 10, 18, 62–64, 145–149
fan morphology 13, 62–64, 69, 86, 125–126
fan gradients 2, 90, 104–105, 127, 136, 176
fan profiles 16, 74–76, 80, 137
fan segments 73–74, 79, 133
fan sediments
facies 46–57, 137, 156, 197–200, 223–230
sedimentary sequences 13–14, *108, 109, 139–140, 144, 157, 230*
Fohnsdorf Basin 209–215, *210, 211, 213*
fan settings 85
mountain-front fans 2, 86–88, 117, 133, 153
tributary junction fans 69–78, 86–88
fan styles *88*, 125–126
backfilled fans 2
confined/unconfined fans 2, *88*
prograding/telescopic fans *88*
stacked fans *88*
flash-flood sedimentation in arid lands (Abarkoh Basin fluvial megafan, Iran) 41–43, 58
depositional model 57–58, *57*
geological and tectonic setting *42*
geomorphology and hydrology 44–46
drainage nets *46*
satelite images *44*
simplified map *45*
sedimentary facies and distribution **53**
medial–distal-fan facies *48, 49*, 52–57, *52, 54, 55, 56, 57*
proximal-fan facies 46–52, *47, 50, 51, 52*
study methods 43–44
flow events on hyper-arid alluvial fans (Quebrada Tambores, Chile) 9–10, 19–23, *23*
climate 11–12, *13*
rainfall *14*
geology and structure *10, 11, 12*
geomorphology of fan catchment and depositional areas 12–13
Late Pleistocene–Holocene flow conditions 14–16
Late Pleistocene–Holocene sedimentology 13
bedded sheetform gravel with couplets 13–14, *17*
channelform gravels 14, *17*
sheetform massive gravel 14, *17*
Quaternary sediment provenance and calibre 13, *15, 16, 17*
recent deposits from 2001 flood 16–18
stage 1 – fluvial channel cutting 18
stage 2 – mudflow 18, *22*
stage 3 – fluvial channel flushing 18
reconstruction of 2001 flood 18–19, *19, 20, 21, 22*
fluvial megafans 41
fluvially dominated fans 2, 14, 17, 61–67, 169
Fohnsdorf Miocene intramontane basin (Austria), source area and tectonic control on alluvial-fan development 207, 212–215
clast composition data **215**
geological and palaogeographical overview 207, *208*
heavy mineral composition **215**
sedimentology 209
Apfelberg fan 211–212, *213, 214*
Rachau fan 209–211, *210, 211, 212*
stratigraphic–structural setting of Apfelberg Formation 207–209, *208*
forested fans, hydrogeomorphic processes (British Columbia, Canada) 25, 38
study area 25–27, *26*
adventitious roots 27, *30*, **35**
boulders wedged between trees 27, *34*, **35**
buried trees 27, *29*, **35**, *37*
log retaining walls 27, *33*, **35**
log steps 27, *33*, **35**
recent sediment splays 27, *28*
soil reinforcement 27, *31*, **35**
tree holes 27, *30*, **35**
tree scars 27, *32*, **35**
woody dykes 27, *32*, **35**
study results 28–38, **34**, **35**
high-volume forest stand *36*
low-volume forest stand *36*
trees growing on sediment *37*
France *see* tectonic and environmetal processes in Upper Cretaceous–Palaeocene alluvial fans
Fresno *174*
Fresno River fan *171, 172*

Gatico *97, 98, 99, 101*
Gerlach *118*
Gerlach fans **119**
morphology 124–125, *124*
Ghavkhoni *42*
Ghavkhoni–Abarkoh–Sirjan depression *42*, 43
Great Basin (Nevada, USA), differential effects of base-level, tectonic setting and climatic change in Quaternary alluvial fans 117, 128–130
fan morphology and relation to base level 125–126
fan morphology
Cold Springs fans 120–121, *121, 122*
Dixie Valley fans 121–124, *123*
Gerlach fans 124–125, *124*
schematic classification *125*

Great Basin (Nevada, USA) (*cont.*)
fan morphology (*cont.*)
Stillwater fans 120, *121*, *122*
fan morphometry 126–128, *127*, **127**, *129*
study area 117–119, *118*, **119**
study methods 119–120
Great Hungarian Plain *62*
Greece *see* Spartan piedmont (Greece), role of climate and tectonics in Quaternary fan development
Guara Formation 196, *196*
Guarga Thrust 194–195

Hajduszoboszló *62*
Hambast Mountains *42*, 43, *44*
Hanford *174*
Hernád River 61
Hornitos *97*, *98*, *99*, *107*
Huesca *188*
Humboldt Current 96, *96*
Hungary *see* river style changes controlled by climate and tectonics
hyper-arid regions 9
climate 11–12, *13*
rainfall *14*
hyperconcentrated flow deposits 103
sedimentary log *109*

Iberian Cordillera *188*
ignimbrite thrust *10*
Ingeniero Maury (IM) *77*

Jáchal River 70–71, *76*

Kamares fan *135*
average fan gradient **136**
average redness rating and iron concentration **141**
axial-surface and trench profile *138*
lithostratigraphy *139*
mineral magnetic data **142–143**
Kaweah River *170*
Kaweah River fan *171*, *172*
Kazincbarcika *62*
Kern Lake sub-basin *170*
Kings River *170*
Kings River fluvial fan 169, *171*, *172*
geomorphology and sequence development 173–178
gradients *176*
interpreted soil surveys *174*
schematic cross-section *177*
Knittelfeld *208*
Kopeh Gagh *42*

Lahontan, Lake *118*, **119**
lake sediments 79–81
Linás fan *188*
description 190
main depositional process **189**
Llano de la Paciencia *10*
lobe deposits 101–103
luminescence dating of alluvial fans in intramontane basins (NW Argentina) 153, 163–166
geological, geomorphic and climatic setting 154–156
facies description 156
field photographs *155*
study area *154*
OSL methodology 158
sampling protocol 156–158, *157*
dosimetry **159**
study results 160–163
dose recovery tests *160*
equivalent dose data **162**
equivalent dose distribution *164–165*
luminescence data *161*

Madera *175*
Makran unit *42*
Marseille *218*
megafans 1, 2, 41, 61–62
Mejillones *97*, *101*
Melton ratio 28, **35**
Mendoza *71*
Mendoza River 69
tributary alluvial fan 70, *70*, *71*, *72*
Merced River *170*
Merced River fan *171*, *172*
Mezöcsát *62*
Michilla *97*, *98*
Miskolc *62*
Modesto *175*
Mokelumne River *170*
Mokelumne River fan *171*, *172*
morphometry and depositional style of Late Pleistocene alluvial fans (Wadi Al-Bih, northern UAE and Oman) 85–86, *87*, 93
fan morphometry 88
drainage basin area–fan area relationship 88–89, *89*
drainage basin area–fan gradient relationship 89–90, *90*
fan area–fan gradient relationships 90–91, **90**, *91*
residuals from regressions 91–93, *92*
role of drainage basin slope 90
fan styles *88*
location map *86*
sample fans *88*
study aims and methods 87–88
morphometry and morphometric analysis 2, 4, 172
drainage basin area–fan area relationship 88–89
drainage basin area–fan gradient relationship 89–90
drainage basin slope 90
fan area–fan gradient relationship 90–91
fans with forests 28–35
Quaternary alluvial fans 126–130
Wadi Al-Bih 85–87, 93
mountain front fan *88*
Murillo fan *188*
description 189–190, *191*
main depositional process **189**
post-depositional deformation *203*
Musandam Mountains *86*
Mystras fan *135*
lithostratigraphy *144*
sediment ages **143**

North Hungarian Mountains *62*
North Menelaion fan *135*
North Xilocambion fan *135*

average fan gradient **136**
average redness rating and iron concentration **141**
axial-surface and trench profile *138*
lithostratigraphy *140*, *144*
mineral magnetic data **142–143**
sediment ages **143**
Nueno fan *188*
debris-flow deposits *199*
description 191–192, *193*
main depositional process **189**

Oman *see* morphometry and depositional style of Late Pleistocene alluvial fans

pluvial lakes 118–119
Polgar *62*
pollen analysis 65–66
preservation potential 1, 4
Prince George *26*
Prince Rupert *26*
Puna *77*
Punta de Vacas *71*
Punta del Tastil (PT) *77*
Punta Tames *97*, *98*
Pyrenean Axial Zone *188*

Quaternary alluvial fans, differential effects of base-level, tectonic setting and climatic change (Great Basin, Nevada, USA) 117, 128–130
fan morphology and relation to base level 125–126
fan morphology
Cold Springs fans 120–121, *121*, *122*
Dixie Valley fans 121–124, *123*
Gerlach fans 124–125, *124*
schematic classification *125*
Stillwater fans 120, *121*, *122*
fan morphometry 126–128, *127*, **127**, *129*
study area 117–119, *118*, **119**
study methods 119–120
Quaternary alluvial fans, roles of climate and tectonics (Spartan piedmont, Greece) 133, 149
climate and tectonics as triggers of fan sedimentation and incision
development phases, initial 145
development phases, mid- 148
development phases, late *147*, 148
development phases, later 148–149
climate 145
initial development phases *146*
relationship between faulting and location *145*
tectonic activity 142–143
fan evolution
average redness ratings and iron concentrations **141**
axial-surface and trench profiles *138*
geochronologies 140–142
lithostratigraphies *139–140*, *144*
mineral magnetic data **142–143**
morphology and longitudinal profiles 137
sediment ages **143**
sediments and facies types 137–140
surface soils 137
Sparta Basin 134–136, *135*
morphological maps *136*
study methods 136–137
average fan gradients **136**
tectonic and climatic contexts of fan evolution 133–134
Quaternary fluvial fans, factors controlling sequence development (San Joaquin Basin, California, USA) 169–170, 184
basin sequences 182–183
summary of subsidence rate and sediment supply effects **183**
comparison with fan sequences in other areas 183–184
influence of controls on accommodation space 178
basin subsidence and local base level 178–179
geomorphology and stratigraphy 179–180
sediment supply and stream discharge 180–182
sequence stratigraphy
accommodation space 172–173
geomorphology and sequence development 173–178, *174*, *175*, *176*, *177*
study area 170–172
age relationships of exposed surfaces *171*
areas covered by fluvial fans *172*
physiographical map *170*
Quebrada de Humahuaca *154*, *155*
Quebrada de Purmamarca *154*, *155*
Quebrada del Toro *154*, *155*
tributary alluvial fan 71–73, *77*, *78*
Quebrada Mejillones *98*, *101*
Quebrada Tambores alluvial fan system (Chile) 9–10, 19–23, *23*
climate 11–12, *13*
rainfall *14*
geology and structure *10*, *11*, *12*
geomorphology of fan catchment and depositional areas 12–13
Late Pleistocene–Holocene flow conditions 14–16
Late Pleistocene–Holocene sedimentology 13
bedded sheetform gravel with couplets 13–14, *17*
channelform gravels 14, *17*
sheetform massive gravel 14, *17*
Quaternary sediment provenance and calibre 13, *15*, *16*, *17*
recent deposits from 2001 flood 16–18
stage 1 – fluvial channel cutting 18
stage 2 – mudflow 18, *22*
stage 3 – fluvial channel flushing 18
reconstruction of 2001 flood 18–19, *19*, *20*, *21*, *22*

Rachau fan 209–211, *210*, *211*, *212*
clast composition data **215**
heavy mineral composition **215**
Ras Al Khaimah *86*
Reno *118*
Riglos fan *188*
debris-flow deposits *199*
description 190, *191*
depositional process **189**
river channel styles 61–67
river style changes controlled by climate and tectonics (Sajó–Hernád alluvial fan, Hungary) 61–62, *62*, 67
chronology and fluvial evolution 62–64, *63*
geomorphological map *63*
river style changes, phase description 64–66, *64*
Énekes-ér meander *65*
Nemesbikk meander *66*

Roldán fan *188*
description 192, *194*, *200*
main depositional process **189**
Roques Hautes *222*
Rosario River *77*

Sacramento Basin *170*
Sainte Baume Range *218*
Sainte Victoire Range *218*, *221*
Sajó River 61, *62*
Sajó–Hernád alluvial fan (Hungary) 61–62, *62*, 67
chronology and fluvial evolution 62–64, *63*
geomorphological map *63*
river style changes, phase description 64–66, *64*
Énekes-ér meander *65*
Nemesbikk meander *66*
Salta *77*
San Antonio de Los Cobres *77*
San Joaquin Basin (California, USA), factors controlling sequence development on Quaternary fluvial fans 169–170, 184
basin sequences 182–183
summary of subsidence rate and sediment supply effects **183**
comparison with fan sequences in other areas 183–184
influence of controls on accommodation space 178
basin subsidence and local base level 178–179
geomorphology and stratigraphy 179–180
sediment supply and stream discharge 180–182
sequence stratigraphy
accommodation space 172–173
geomorphology and sequence development 173–178, *174*, *175*, *176*, *177*
study area 170–172
age relationships of exposed surfaces *171*
areas covered by fluvial fans *172*
physiographical map *170*
San Joaquin River *170*, *175*
San Joaquin River fan *171*, *172*
San Juan River 69
tributary alluvial fan 70–71, *70*, *72*, *73*, *74*, *75*, *76*
San Julián fan *188*
description 191, *193*
main depositional process **189**
Sanadaj–Sirjan belt *42*
Sanger *174*
Sassito River 70
Sasso River 70, *74*
satellite imaging/remote sensing *11*, *44*, *99*
Seckau Basin *208*
sediment provenance 13–17, 215
clast composition 215
clast size 9, 16
heavy mineral composition 215
sedimentary basins 4
Ebro Basin 197
Fohnsdorf Basin 207–209
Provence 217–218, 232–237
San Joaquin 178–179, 182–183
sequence stratigraphy 4, 169–178
accommodation space 169–184
sheetflood deposits 103
Shiraz *42*
Siearras Subandinas *77*
Sierras Pampeanas *77*
Sirjan *42*
slope gap 2
Smithers fan *26*
South Parorion fan *135*
average fan gradient **136**
average redness rating and iron concentration **141**
axial-surface and trench profile *138*
lithostratigraphy *139*
mineral magnetic data **142–143**
South Pyreneal Thrust Zone *188*
Spain *see* Ebro Basin (Spain), Tertiary alluvial fans at northern margin
Spartan piedmont (Greece), role of climate and tectonics in Quaternary fan development 133, 149
climate and tectonics as triggers of fan sedimentation and incision
development phases, initial 145
development phases, mid- 148
development phases, late *147*, 148
development phases, later 148–149
climate 145
initial development phases *146*
relationship between faulting and location *145*
tectonic activity 142–143
fan evolution
average redness ratings and iron concentrations **141**
axial-surface and trench profiles *138*
geochronologies 140–142
lithostratigraphies *139–140*, *144*
mineral magnetic data **142–143**
morphology and longitudinal profiles 137
sediment ages **143**
sediments and facies types 137–140
surface soils 137
Sparta Basin 134–136, *135*
morphological maps *136*
study methods 136–137
average fan gradients **136**
tectonic and climatic contexts of fan evolution 133–134
St Johns fan *135*
average fan gradient **136**
average redness rating and iron concentration **141**
axial-surface and trench profile *138*
lithostratigraphy *139*, *144*
mineral magnetic data **142–143**
sediment ages **143**
St Saviours fan *135*
average fan gradient **136**
average redness rating and iron concentration **141**
axial-surface and trench profile *138*
lithostratigraphy *140*, *144*
mineral magnetic data **142–143**
sediment ages **143**
stacked fan *88*
Stanislaus River *170*
Stanislaus River fan *171*, *172*
Stillwater fans **119**
morphology 120, *121*, *122*
Stockton Arch *170*
synsedimentary deformation 202–203, 230–231

Taygetos Range *135*
tectonic and environmetal processes in Upper Cretaceous–Palaeocene alluvial fans (Provence, France) 217
  alluvial-fan development and implications for basin-margin evolution 232, *232*
    forcing factors 236–237
    tectono-sedimentary evolution 232–236, *234*, *235*
  architecture of northern basin margin 220–223, *221*, *222*, *223*, *224*, *225*
  facies distribution and growth structures
    distribution of alluvial-fan deposits 229–230, *230*
    evidence for growth structures 230–232, *231*
    lithofacies associations 223–229, **226–227**, *228*
  geological overview
    stratigraphic record 219–220, *219*
    tectonic setting 217–219, *218*
tectonics, control of river style changes (Sajó–Hernád alluvial fan, Hungary) 61–62, *62*, 67
  chronology and fluvial evolution 62–64, *63*
  geomorphological map *63*
  river style changes, phase description 64–66, *64*
    Énekes-ér meander *65*
    Nemesbikk meander *66*
tectonics, influence on alluvial fan development
  Fohnsdorf Miocene intramontane basin (Austria) 207, 212–215
    clast composition data **215**
    geological and palaogeographical overview 207, *208*
    heavy mineral composition **215**
    sedimentology 209–212, *210*, *211*, *212*, *213*, *214*
    stratigraphic–structural setting of Apfelberg Formation 207–209, *208*
  Great Basin (Nevada, USA) 117, 128–130
    fan morphology and relation to base level 125–126
    fan morphology 120–125, *121*, *122*, *123*, *124*, *125*
    fan morphometry 126–128, *127*, **127**, *129*
    study area 117–119, *118*, **119**
    study methods 119–120
  Spartan piedmont (Greece) 133, 149
    climate and tectonics as triggers of fan sedimentation and incision 142–148
    fan evolution 137–142, *138*, *139–140*, **141**, **142–143**, *144*
    Sparta Basin 134–136, *135*, *136*
    study methods 136–137, **136**
    tectonic and climatic contexts of fan evolution 133–134
tectonic settings
  Abarkoh Megafan *42*
  basin margins 197, 220, 232–236
  Ebro Basin 187–189, 194–196
  Fohnsdorf Basin 207–209
telescopic fan *88*
telescopic-like alluvial fans of the Quaternary (Andean Ranges, Argentina) 69, 76–81
  alluvial segments, genesis 73–74, *79*
  general distribution 69
    Mendoza River area 70, *70*, *71*, *72*
    Quebrada del Toro area 71–73, *77*, *78*
    San Juan River area 70–71, *70*, *72*, *73*, *74*, *75*, *76*
  longitudinal profiles, variability 74–76, *80*
Terrace fan *26*
Tertiary alluvial fans (Erbo Basin, Spain) 187, 204–205
  correlation of fan deposits 192–193
  deformation features
    deformation timing and controls 204
    post-depositional deformation 203–204, *203*
    synsedimentary deformation 202–203, *202*
  depositional facies 197
    controls on deposition processes 199–201
    debris-flow deposits 197, *199*
    rock falls 197
    summary **198**
    waterlain deposits 198–199, *200*
  description of fan bodies 189
    Agüero fan 189, *190*
    Aniés fan 190
    Bolea fan 191
    Ebro Basin between Linás and Aniés 190
    Linás fan 190
    Murillo fan 189–190, *191*
    Nueno fan 191–192, *193*
    Riglos fan 190, *191*
    Roldán fan 192, *194*
    San Julián fan 191, *193*
  exhumation 204
  fan aggradation and base level 196–197
  fan spacing and basin-margin structure 197
  palaeoclimate 201–202
  relationship to other facies 201
  tectonostratigraphic setting *188*
    regional tectonics 187–188
    stratigraphy 188–189, *189*
  thrust front formation and basin-margin topography 194–195, *195*
    basin-margin relief 195–196
Tholonet, Le *222*
thresholds 4, 153, 163–166
  critical power 2, 134, 154, 180–182
timescales 4
  modern processes 16–19, 28–38, 57–58
  Quaternary fans 62–67, 76–81, 93, 163–166, 172–178
  sediments 188–189, 192–193, 204–205, 207–215, 219–220
Tisza River 61, *62*
Tiszaujáros 62, *62*
Tocopilla *97*, *98*, *99*, *100*
Tokaj *62*
tributary alluvial fans 69
  Mendoza River area 70, *70*, *71*, *72*
  Quebrada del Toro area 71–73, *77*, *78*
  San Juan area 70–71, *70*, *72*, *73*, *74*, *75*, *76*
tributary junction fan *88*
Truckee River *118*
truncated 'toe trimmed' fan *88*
Tulare Lake sub-basin *170*, *174*
Tuolumne River *170*
Tuolumne River fan *171*, *172*, *175*
  basin subsidence and local base level 178–179
  geomorphology and stratigraphy 179–180
  gradients *176*
  schematic cross-section *177*
Turlock *175*

USA *see* Great Basin (Nevada, USA), differential effects of base-level, tectonic setting and climatic change in Quaternary alluvial fans; Quaternary fluvial fans, factors controlling sequence development (San Joaquin Basin, California, USA)
Uspallata *71*

Wadi Al-Bih (northern UAE and Oman), morphometry and depositional style of Late Pleistocene alluvial fans 85–86, *87*, 93
  fan morphometry 88
    drainage basin area–fan area relationship 88–89, *89*
    drainage basin area–fan gradient relationship 89–90, *90*
    fan area–fan gradient relationships 90–91, **90**, *91*
    residuals from regressions 91–93, *92*
    role of drainage basin slope 90
  fan styles *88*
  location map *86*
    sample fans *88*
  study aims and methods 87–88
wet/dry fans 2

Yazd *42*

Zabol-Baluch *42*
Zagros belt *42*, 43