

# Index

*Note:* Figures are shown in *italic* font, tables in **bold**.

- aa lava 220  
abyssal plain remnants 161  
accretion of nappes 109  
accretionary belt 161, 166, 172, 175  
accretionary wedge 42, 48, 49, 50, 73, 96  
Adria Plate 245  
Aegean Extensional Province 215, 217, 225  
Aegean–Anatolia collision tectonics 215–216, 221–228, 225–227  
Aeolian Island arc 195–196, 198, 200, 201  
  earthquakes and volcanicity 197, 205, 207  
African Plate 194, 196, 227, 243, 245  
  subduction 215  
Afyon–Bolkardağ zone 15–31, 41  
age constraints, North Anatolian Fault 138–143  
age data, Menderes massif 322–328  
  *see also* radiometric dates  
age, Anatolide and Tauride ophiolites 48  
age, exhumation of Cyclades archipelago 281–282  
age, melange 48  
Aghia Efthymia planation surface 298, 299  
Ağaçehir Formation 323, 325, 326, 327, 330  
  geomagnetism 332, 333, 334, 336, 337  
Ağaçehir graben 4, 324, 325  
  clastic sediments 323–328  
  geomagnetic pole 333  
  lithological logs 326, 329  
  magnetostratigraphy 330–334, 337, 338  
Alfeo Seamount 207  
Alihoca ophiolite 18–19  
alkaline magmatism 221, 222, 227, 228  
Alpine–Himalayan belt 213  
Altinekin platform and melange 22–24  
*Amphistegina* [foraminifera] 114  
*Amullinopsis* [gastropod] 113  
*Amussiopecten* [bivalve] 113, 117  
Anatolia, south–east, basin evolution 107–127  
Anatolia–Eurasia–Arabia triple junction 134–151  
Anatolian microplate 214–215, 217  
Anatolide carbonate platform and melange 28  
Anchise Seamount 200  
anhydrite 91  
Ankara Melange 40  
*Anodontia* [bivalve] 117  
Apennine orogenic system 3, 237–243  
  map 236  
  metamorphic map 238, 239  
  reconstruction 243–245, 246, 247–250  
Apennines rotation 161, 194  
Apulian carbonate platform 194, 195, 345  
Ar/Ar dating 218, 239, 276, 282  
  North Anatolian Fault 3, 138, 139, 140, 141  
  ophiolite emplacement 20, 33, 51  
Ar–Ar heating results **148–150**  
arc–continent collision 2, 73  
arc-type volcanic genesis 42–46  
Asartepe Formation 328  
asthenosphere slab 48  
asthenospheric flow 221–228  
asthenospheric upwelling 173–174  
Astronomically Tuned Neogene Time Scale, correlation  
  with polarity sequences 335–338  
backarc basin 44  
  and hinterland plateaux 179  
backarc extension 274, 285  
  Aegean 217  
  Liguro-Provençal Basin 244, 245, 247  
  Mediterranean 160, 163, 169, 171, 178  
back-arc spreading 159, 161, 165, 173  
Bademli melange 29  
Badiğın Formation 72, 76, 77, 78, 96, 99  
Balagne nappe 241  
Barrovian metamorphism 53, 54, 242, 247, 249, 250  
basement 218, 219  
  Hercynian 237, 243  
  Konya 20–22  
  Menderes Massif 38–39  
basin inversion 174–175  
bathymetry 200  
  Arabian–Eurasian collision zone 4  
  central Mediterranean 162, 163, 164, 166  
  Kythira–Antikythira strait 346, 352, 353  
bauxite 295  
Bayat Formation 72, 82–84, 85, 87, 88, 94, 97  
Bayat, platform and basement 29–30  
  melange 30–31  
Benioff–Wadati Zone 164, 165, 166  
Beyşehir nappes 48, 50  
Bingöl Basin 146, 151  
Bingöl half caldera 134, 140, 143  
biostratigraphy, Oligocene–Miocene 302–303  
  Elaziğ basin 116–117  
  Kahramanmaraş basin 119–120, 121–122  
  Muş basin 113–114  
Bitlis–Zagros suture 108, 110  
bivalve 113, 114, 117, 122  
black mudstone 37  
blueschist 19, 31, 33, 218, 224  
  Apennines 239, 240, 242, 247, 248  
  Cyclades 271, 273, 275  
  exhumation 46, 49, 51  
Bolkar Dağ, carbonate platform 15–20, 46  
  deformation of 52  
  lithological log 18  
Bornova ophiolite and melange 35–38, 50  
boundary velocity **260**, 280, 285–286, 287  
break-away fault 311–313, 314, 317, 318  
  Menderes massif 322  
breccias 298, 301  
  *see also* melange  
brittle detachment faulting, Kos 311–318  
  contact details 314, 315, 316  
Bürtü Group 73–76  
Büyük Menderes graben 4, 327–328, 329,  
  magnetostratigraphy 334–335, 336, 337  
buoyancy, continental crust 9–10

- Calabrian Arc uplift 197–198  
 Calabrian slab 3  
 Calabrian–Apennine accretion 161, 202  
 Calabria–Peloritani Arc 239, 242–244, 247  
 calc-alkaline magmatism 221, 224  
 calc-alkaline volcanism 165  
   Tyrrhenian Sea 195, 196, 197, 199, 235, 247  
 Çankiri Basin, Turkey  
   correlation 93, 94  
   depositional environment 96–97, 103–104  
   geodynamic development 97–103  
   stratigraphy 69, 73–92  
     Cretaceous (Upper) to Palaeogene logs 74, 75, 77, 78, 81  
     Palaeogene logs 80, 83–85, 87–89, 90, 92  
   structure 93, 98, 99  
   map 68, 70  
   tectonostratigraphy 71  
 carbonate conglomerate 300  
 carbonate platform  
   Hyblean 194, 195, 202, 207  
   Turkey 22, 24, 26, 29, 218  
   Permian 15–20  
 carbonates 39, 353, 358  
 Carpathian Accretionary belt 174  
 Carpathian Orogen system 170, 171–176  
 carpholite 241, 242  
 Central Hellenic Shear Zone 308  
 Çeşmisedil melange 24, 25, 46  
 chert 17, 18, 20, 26, 28, 30, 35, 37, 39  
*Cibicides* [foraminifera] 114, 117, 122  
 circulation, palaeoceanographic 126  
 clastic sediments  
   Alaşehir graben 323–328  
   Çankiri Basin 79–82, 84, 86, 89–92  
   Itea–Amfissa Basin 293–303  
 climate and tectonic closure 107–108, 126–127  
 closure, Inner Tauride Ocean 53, 54, 55  
*Clypeaster* [echinoderm] 114  
 coal 81, 86  
   Miocene 219  
 collapse, summary of processes 3–4  
 collapse, Tauride platform 38  
 collision 15, 33, 51–53, 56, 58  
   continent–continent 1–2, 3, 109  
   Eurasian–African plates 156, 157, 176  
   Indo–Asian plates 176–177  
   stalled 157–165  
   summary of processes 2–3  
 collision and mantle response 215, 221–228  
 collision products, Mediterranean 161  
 compression, south Tyrrhenian Sea 196  
 condensed succession in melange block 37  
 conglomerate 76, 103  
   Alaşehir graben 323, 325  
   Büyük Menderes graben 327, 328  
   İskikip Group 79, 81, 82, 85  
   Itea–Amfissa basin 298, 300, 301, 302  
   Kalinpelit Group 87, 90, 91  
 continental collision 1–2, 3, 109  
   age of 51, 52, 56, 58  
   stalled 157–165  
 continental extrusion 134  
 convergence velocity 157–158, 228  
   cooling age, Kos monzonite 314, 317  
   cooling event, mid Miocene 336  
   cooling history, metamorphic core complexes 282–283  
   *Cordiopsis* [bivalve] 113  
   Corinth rift 294, 307–308  
   correlation  
     Çankiri Basin 93, 94  
     foreland basin sequences 123  
     Kos and western Anatolia 317  
     polarity sequences 335–338, 339  
   *Crassostrea* [bivalve] 122  
   crocodile 324, 336  
   crust, western Anatolia 217–219  
   crustal extension 278  
   crustal thickness 179, 236  
     Aegean 217–218  
     numerical model 260, 261, 263–264, 267, 268, 284  
   crystalline basement 218, 237  
   *Crendactylidae* [rodent] 91  
 Cyclades 167–168  
   tectonic map 166  
 Cyclades archipelago 259  
   exhumation 281–284  
   extension 269–273, 284–286  
   geology 267–278  
   map 270  
*Cyclicargolithus* [nannofossil] 121  
 Cyprus Trench 227  
  
 dating *see* radiometric dates  
 Dead Sea Fault 145  
 debris flow 37, 39, 42, 48, 49, 51, 121  
   Late Cretaceous 38, 54  
 deformation fabric 168–169  
 deformation models, eastern Mediterranean 166, 169–171  
 delamination 225, 228, 250, 285, 286  
 density 260  
 depositional environment  
   Çankiri Basin 96, 97, 99, 103  
   Elaziğ basin 117  
   Kahramanmaraş basin 121, 122  
   Muş basin 114–115  
 detachment fault 358  
   Itea–Amfissa 4, 293–309  
   Kos 311–318  
 detachment zones 257, 265, 271, 273, 278  
 diabase dykes 46, 47, 58, 218  
*Dilatilabrum* [bivalve] 113, 114  
 Dizilitaşlar Formation 72, 74, 79, 80, 103  
 dolomite 30  
   dome 138, 140, 220, 270, 276  
   *see also* metamorphic core complexes  
 downwelling, mantle lithosphere (drip off ) 155, 159  
 ductile behaviour 261, 266, 267, 271, 280  
 dunite 35  
  
 earthquake 134, 135, 136  
   Hellenic Arc 343, 357, 358  
   Tyrrhenian slab 193, 198, 204, 207  
 earthquake hypocentres 175  
 East Anatolian Accretionary Complex 108, 109, 125, 127, 151

- East Anatolian Fault 134, 135, 139, 142–146  
 East Peloponnesus detachment 308, 309  
 echinoderm 114  
 echinoid 114  
*Echinolampus* [echinoid] 114  
 eclogite 237, 239, 248, 271, 273  
 eclogitic metamorphism 241  
 elastic behaviour 261  
 Elaziğ basin 115–117, 124  
 Elba, metamorphism 241, 242  
 Eratosthenes seamount 217, 227  
 erosion, Palaeogene 50  
 Erzincan Basin 134, 151  
 Eskişehir melange 31–33, 48  
 Etna 201, 202, 205, 207  
*Eucricetodon* [rodent] 91  
*Eulepidina* [foraminifera] 113  
 Eurasian greater orogenic belt 156, 157  
 evaporite 79, 90, 346, 351  
 exhumation  
   Apennines 239, 241–243, 246–249  
   Cyclades 275, 284, 285  
   Kırşehir Block 69  
   Menderes core complex 4, 321–322  
   metamorphic core complex 311–313, 318  
   Tauride–Anatolide continent 51–52, 56  
 extension  
   Anatolia, western 221, 224  
   Cyclades 167, 284–286  
   Itea–Amfissa 293–294  
   in metamorphic core complexes 257–258, 267,  
     270, 275, 276  
   numerical modelling 259–263, 265  
 extensional detachment fault 239  
   exhumation 311  
   Malta Escarpment 203  
  
 facies interpretation 41–42  
 faults, active 344  
 flysch 15, 111, 117, 122, 124, 295, 296  
 foraminifera 113, 114, 116, 117, 121, 122  
 forearc basin 97, 100  
   Jurassic–Cretaceous 39  
 foredeep basin, evolution of 109–222, 127  
 foundering oceanic lithosphere 157–165, 172,  
   176, 178, 250  
  
 gastropod 91, 113  
 geochemistry 73  
   Aegean–Anatolia 219–224  
   Anatolides 42–46, 47  
   Bornova melange 37  
   North Anatolian Fault 138–143, **146–147**  
   trace elements 142  
   volcanic arc 42, 43  
 geochronology, central Turkey 57  
 geomagnetic pole 333  
 geophysical constraints, slab retreat 175  
 geophysical review, Tyrrhenian–Aegean slabs 3, 158,  
   162, 166, 170  
 geophysics *see also* seismic  
 geotherm 262, 276, 284, 285  
 geothermal gradient, Apennine belt 248  
 geothermobarometry 51  
  
 Giglio 242  
 Giona Mountain thrust sheets 295–297  
 glaucophane 240, 241  
*Globigerina* [foraminifera] 113, 114, 116, 117  
*Globigerinoides* [foraminifera] 113, 121, 122  
*Globorotalia* [foraminifera] 121, 122  
 Gökkıranıtepe Formation 328, 329, 334, 336, 338  
*Gomphotherium* landbridge 126  
 granite pluton 39, 41, 55, 67, 73  
   age 53, 54  
 granitoid intrusions 237, 269, 277  
   Aegean–Anatolia 218, 219, 220, 224  
 granodiorite, western Naxos 282  
 gravitational collapse, Tethyan crust 215  
 gravity nappes 305  
 greenschist 15, 270, 273–276, 280  
   Apennines 239–244, 247  
 greigite 330  
 Güvendik Formation 72, 91, 97  
 gypsum 88, 89, 90, 91  
*Gyroidina* [foraminifera] 114, 117, 122  
  
 Hacıhalil Formation 72, 79, 82, 94, 96, 103  
 hartzburgite 46  
   Afyon–Bolkardağ zone 20, 23, 24, 28  
   Çankiri Basin 69  
   Tavşanlı zone 33, 35, 37, 38  
 Hasköy Formation 327, 328, 329, 334, 336, 338  
 Hatay basin 124, 125, 127  
 heat flow 165, 236  
*Helicosphaera* [nannofossil] 121  
 Hellenic arc 308–309, 343, 344, 345, 358  
   profile 357  
 Hellenic convergent rate 217  
 Hellenic subduction zone 165–171  
 Hellenic Trench 214, 217, 221, 227, 228  
   surface displacement velocities 166  
 hematite 330, 334, 335  
 high field strength elements 44  
 Hyblean carbonate platform 194, 195, 202, 207  
 hydrodynamic suction 159, 160  
*Hyotissa* [bivalve] 113  
  
 ice-sheet, growth 108  
 igneous provinces, Aegean–Anatolia 216  
 imbricate thrust sheet 39  
 Incik Formation 72, 84, 86–91, 94  
 Indian Plate, velocity 177  
 Indian–Arabian gateway 108  
 Indo–Asian collision 157  
 interfering metamorphic core complexes *see*  
   metamorphic core complexes, interfering  
 Intra-collisional Landlocked Ocean (ICLO) subduction  
   159, 165, 177, 179  
 intra-oceanic subduction 38  
 inversion 101, 174–175  
 inward flow 258, 280–281  
 Ios Detachment Fault System 273  
 Iranian Plateau 177  
 İskik Group 79, 94, 96  
 isochemical age 138, 141  
 isotope data 322–323  
 isotopes, carbon 108, 127  
 isotopes, oxygen  $\delta\text{O}^{18}$  108, 126–127

- Isparta–Gölcük volcanic field 221, 224, 227, 228  
 İtea–Amfissa detachment fault 4, 293, 303–309  
     age 307  
     map 294  
     profiles 306  
     sedimentary basin 298–303  
 İzmir–Ankara suture zone (IASZ) 218, 219, 313  
 İzmir–Ankara–Erzincan Suture Zone (IAESZ) 67
- Kahramanmaraş basin 117–122, 125, 126, 127  
 Kalınpelit Group 86–91  
 Kandil köyü 24, 26  
 K–Ar dating 139, 140, 282  
 Karabalçık Formation 72, 75, 81–82, 97, 103  
     lithological logs 83, 85, 88,  
 Karagüney Formation 72, 89, 91, 92  
 Karakaya Complex 72  
 Karliova Triple Junction 134, 137, 145, 146, 147  
 Kavak Formation 72, 76, 77, 94, 96, 99  
 Kılçak Formation 72, 91  
 Kırşehir Block 69, 86, 96, 99, 100, 101, 103  
 Kocayay Formation 72, 86, 97, 103  
     lithological logs 85, 87, 88, 89  
 Konya, basement and melange 20–22, 46  
     map 21  
 Kos detachment 313  
 Kula volcanic field 221, 224  
 Kurşunlu Formation 323, 325, 326, 330  
     geomagnetism 333, 337  
 kyanite 242  
 Kythira–Antikythira structure 343–358  
     seismic interpretation 346, 350–353, 354–356  
     tectonic history 345–346  
     velocity models 346, 347–349, 351–353
- lacustrine deposits 97, 115, 327, 328  
     Miocene 219, 220  
 landbridge, *Gomphotherium* 126  
 landlocked (ocean lithosphere) 155, 157–165, 161, 179  
 lava flows 220  
 lawsonite 33  
 lherzolite 223, 237  
 Lice basin 124, 125, 127  
 lignite 327  
 Ligurian Alps, nappes 237–241, 245  
 limestone 76, 79, 86  
     Oligocene–Miocene 111, 113, 115, 116, 121  
 Lipari volcano 207  
 lithological logs  
     Anatolide–Tauride 14  
     Bolkar Dağ 18  
     Çankiri Basin  
         Cretaceous (Upper) to Palaeogene 74, 75, 77,  
         78, 81  
         Palaeogene 80, 83–85, 87–89, 90, 92  
     Elazığ basin 116  
     Kahramanmaraş basin 119–120  
     Menderes graben 326, 329  
     Muş basin 112  
 lithosphere 164, 175  
     stretching 173, 178–179  
 lithosphere, oceanic 158–159
- lithosphere–asthenosphere boundary 145, 146, 151  
 lithospheric delamination 225, 228, 250  
 lithospheric tearing 193, 200, 207, 213, 228  
 Lycian nappes 4, 39  
     brittle detachment 311, 313, 314, 317  
     deformation of 52  
     tectonic setting 38, 48, 50, 56, 216, 218  
 lydite 20
- magmatism, Cenozoic, Aegean–Anatolia 215–216  
     geochemistry 219–224  
     geochronology 225  
     products 220  
 magnetite 330  
 magnetostratigraphy, Miocene 328–339  
     Alaşehir graben 330–334, 337, 338  
     Büyük Menderes graben 334–335, 336, 337  
 Mahmatlar Formation 72, 91, 92  
 Maliboğazi Formation 72, 76, 78, 96, 99, 103  
 Malta Escarpment 196–197, 200, 201  
     deformation 202–203  
     seismic profile 203, 204  
 mammalian associations 323, 325, 326, 328  
 mantle 48, 146, 158  
     decompression 173, 174  
     delamination 285, 286  
     dynamics 158, 159–160, 178  
     flow 159, 176  
     upwelling 250  
     velocity 200  
     wedge 227  
     xenoliths 174  
 mantle and collision 215, 221–228  
 mantle and melt evolution 221–224  
 mantle lherzolitic 223  
 mantle peridotite 33  
 mantle-derived He 199  
 mantle-derived melts 39, 46  
 marble 15, 22, 30, 31  
 marine terraces, Messina 202–203, 205  
 Mediterranean accelerated slab retreat 155–179  
     Hellenic subduction zone 165–171  
     Pannonian–Carpathian system 171–176  
 Mediterranean subduction–collision 155–179  
 melange 16–18, 20, 22–24  
     emplacement 49  
     genesis 48–51  
     ophiolitic 69–73  
     sedimentary 16, 41, 50  
     unmetamorphosed 38–39  
 melange within melange 29  
 Menderes Margin Melange 39  
 Menderes Massif 36, 41  
     deformation 52  
 Menderes metamorphic core complex 218, 224,  
     311–314, 317  
     exhumation 321–322  
 Mersin Melange 48, 49, 50  
 Mersin ophiolite 53  
 Messina Straits, deformation 203–204  
     seismic profile 204, 205  
 Messinian Salinity Crisis 108  
 meta-carbonates 15

- meta-clastics 15, 17, 20, 22, 26, 28, 33, 37  
 metamorphic complexes, Apennines 237–243  
   age 243  
   Alpine–Corsica 241  
   Calabria 242–243  
   Ligurian Alps 237–241  
   map 238, 239  
   Peloritani Mountains 243  
   Tuscan archipelago 241–242  
 metamorphic core complex 3, 168, 215, 217  
   exhumation 311–313, 318, 321–322  
   Menderes 218, 224, 311–314, 317  
 metamorphic core complexes, interfering 257, 278–286  
   characteristics 258  
   development 266  
   numerical modelling 259–261, 279  
 metamorphic melange 24  
 metamorphic sole 25, 35, 46–48, 58  
 metamorphic zonation 35  
 metamorphism, Apennine belt 235, 238  
   age 244  
   geothermal gradient 248  
   pressure-temperature path 240  
 metamorphism, high pressure 272, 274  
 metamorphism, high-pressure/low-temperature 218  
   Apennines 235, 241–244, 247, 250  
   Tauride–Anatolide 19–20, 41, 46, 51, 56  
 metasomatism 35, 44  
 meta-volcanic 33, 37  
 microcontinent rotation 174  
*Microrhabdus* [nannofossil] 76  
 mid ocean ridge (MOR) 33  
   genesis 42–46  
 mid ocean ridge basalt (MORB) 42–47, 100, 219, 221, 222, 224  
   N-MORB 67, 73, 97  
 Mid-Cycladic Lineament 269  
 migmatite dome 276  
 Miocene Climate Optimum 108, 127  
*Miogypsinidae* [foraminifera] 111  
 Moho depth 236, 257, 259, 278  
 Moho temperature 179  
 Moho, flatness of 258, 263, 266–267  
 molasse 15  
 Montecristo pluton 242  
 monzonite, Kos 314, 316, 317  
 Muş basin 111–115, 124  
 Mykonos 269  
 mylonite 312  
 mylonite, high stain zone 168, 169
- Na-alkaline volcanism 196  
 $\epsilon_{\text{Nd}(t)}$  vs.  $^{87}\text{Sr}/^{86}\text{Sr}(t)$  221, 222  
 nannofossil analysis 121, 301–303  
 Naom Formation 72, 75, 78  
 nappe stack 243, 345  
   collapse 163  
   Giona 295  
 Naxos metamorphic core complex 249, 269, 270, 272  
 necking 262, 266  
 Neotethyan Suture Zone 67–104
- Neotethys 3  
   closure 67, 69, 96, 97  
   melange 48, 49  
   ophiolite 71  
   subduction 56  
 Niğde–Kırşehir massif 39, 56  
 Niğde–Kırşehir microcontinent 53, 54, 55  
 nomenclature, melange 12, 15  
 nomenclature, tectonic 10, 11–12  
 North Anatolian Fault 133–151  
   age constraint 138–143  
   evolution of 145  
   geochemistry 138–143, 146–147, 171, 308  
   rate of slip 133–134, 143  
   volcanism 134, 136–143  
 North Anatolian Ophiolitic Melange 69–73  
 Northern Neotethys Ocean 67  
 numerical experiments, metamorphic core complex 257, 259–261  
   comparison with Cyclades 278–286  
   exhumation 262, 263, 265, 267, 281–284  
   experiments 261–267  
   geometry 278–281  
   kinematic pattern 280–284  
   method 259–261
- Nummulites* [foraminifera] 91  
 nummulitic limestone 86
- obduction 38, 97  
 ocean island basalt (OIB) 33, 45, 221, 222, 223  
 oceanic lithosphere  
   landlocked 158–159  
   production of 161  
 oceanic subduction 1  
   Calabria 193, 194  
 olistholith 299, 300, 305  
 olistostrome 15, 32, 45, 74, 80, 81, 241  
 ophiolite 28–29, 237  
   emplacement 35–38, 45, 46, 48, 50, 53, 55, 56  
   melange 17, 18–19, 20, 22, 35, 69–73  
   obduction 38  
 ophiolite pseudostratigraphy 19  
*Orbitoides* [foraminifera] 76  
*Orbulina* [foraminifera] 121  
 Orhaneli, platform and melange 33–35, 48  
   ophiolite and metamorphic sole 35, 46  
*Oridorsalis* [foraminifera] 114, 117, 122  
 Osmankahya Formation 72, 84–86, 97, 103
- palaeobathymetry, eastern Tethys gateway 121, 122–125, 126, 127  
 palaeocurrents 97, 98  
 palaeoenvironment *see* depositional environment  
 palaeogeographic reconstruction  
   Aegean 269  
   Apennines 236, 243–247  
   Çankiri Basin 100, 101, 102  
   central Mediterranean 195  
   Tauride–Anatolide continent 52–57  
 palaeomagnetic data 169  
   Cyclades 269

- palaeomagnetism 194  
   Apennines 161  
   Corsica–Sardinia 164  
 palaeontological data 324, 325, 328  
 palaeosol 330  
 palynological analyses 323, 324, 327, 328  
 Panarea, seismic profile 205, 206  
 Pannonian Basin 170, 172–176  
   inversion 174–175  
   sedimentation and subsidence 173  
 Papa Lakkos synsedimentary graben 300  
*Paragloborotalia* [foraminifera] 113, 114, 116,  
   117, 121, 122  
*Pararotalia* [foraminifera] 114  
 Paras dome 270, 276  
*Parascutella* [echinoid] 114  
 Parnassos carbonate platform 295, 296  
 Parnassos nappe 295, 299  
 passive margin–subduction 55  
 passive margin subsidence, Jurassic–Cretaceous 41  
 patch reef 99  
*Pecten* [bivalve] 117  
 pelecypoda 91  
 Peloritani Mountains, metamorphism 239, 242,  
   243, 244, 247  
 Penteoria nappe 295, 305  
 phacoids 30  
 phengites 33, 276  
 piggy-back basins 101, 103  
 pillow lava 38, 39  
 Pindos nappe 295  
 planation surface 293, 298, 299, 304  
 plane strain deformation, Cyclades 277–278  
 plastic failure 261  
 plate boundaries  
   active 158  
   eastern Mediterranean 214–215  
 plate model 147  
 plate tectonics 11  
   and mantle 224–228  
   Tauride–Anatolide 54–57  
   Wilson's stages 1–2  
 platform collapse 38  
 plug, trachytic 220  
 plumes, asthenospheric upwelling 173–174  
 pluton 242  
 polarity sequences, correlation 335–338, **339**  
 polymict conglomerate 19  
 post-collision magmatism 3  
 pressure–temperature path 275, 279–280  
 pyroxenite dykes 48  
 pyrrhotite 330
- Quadran* [nannofossil] 76
- radiolarite 24, 35, 37, 69  
 radiometric dates 217, 244  
   Ar/Ar 218, 239, 276, 282  
   North Anatolian Fault 3, 138, 139, 140, 141  
   ophiolite emplacement 20, 33, 51  
   K–Ar 139, 140, 282  
   Pb–Pb 73  
   Rb–Sr 73, 143, 169, 276, 282, 283  
   Sr/Sr 223  
   U–Pb 169, 239, 276, 282, 337  
 rare earth elements (REE)  
   Çankiri Basin 35, 42, 43, 44, 46, 47  
   Cenozoic magmatism 219, 221, 222, 223  
 rate of convergence 157–158, 217, 228  
 rate of roll-back 171  
 rate of sedimentation 115, 122, 337  
 rate of slab retreat 165, 217  
 rate of slip, North Anatolian Fault 133–134, 143, 144  
 rate of trench migration 160  
 rate of uplift, Messina Straits 198  
 Rb–Sr age 73, 143, 169, 276, 282, 283  
 resurgent dome 220  
 retreat velocity 286  
 retreating slab, Mediterranean 158, 160  
 rhyolitic plug 220  
 ridge subduction 48  
 rift, Corinth 294, 307–308  
 rifted margin 49, 58  
 rifting, Strait of Sicily 199–200  
 rifting, Triassic 41, 42, 54  
*Ringicardium* [bivalve] 113, 114  
 rock salt 91  
 roll-back 1, 2, 171, 235, 250  
 rotation 147, 169, 172  
   Alaçehir graben 338–339  
   Anatolia 165, 339  
   Apennines 161  
   Arabian plate 108  
   Carpathians 173, 174, 175  
   central Mediterranean 194, 198, 201, 207  
   Corsica–Sardinia 164  
   Greece 358
- Sakarya Continent 103, 221  
 Sakarya, basin margin 39  
 Salina 205  
 Sart Formation 325  
 Schistes Lustrés 241, 247  
 sea-floor spreading 262  
 seamount 39, 40, 42–46, 48  
   Tyrrhenian 200, 207, 217  
 seismic facies 202  
 seismic interpretation, Kythira–Antikythira 4, 346,  
   350–353, 354–356, 358  
 seismic lines, Hellenic Arc 344, 345  
 seismic profiles  
   Kythira–Antikythira 350–352, 354–356  
   Tyrrhenian slab 201, 203–206  
 seismic tomography 228, 286  
   central Mediterranean 162, 164, 166, 170, 175  
   Tyrrhenian slab 193, 198, 201  
 seismicity 151, 175  
   Cretan crust 358  
   Mediterranean 158, 164, 165  
   see also earthquake  
 Sestri–Votaggio metamorphic zone 239–241  
 shear strain 264  
 shear zone 265, 266–267, 271, 272, 281  
 sheeted dyke complexes 69  
 shoshonitic volcanism 224



- Sicilian Maghrebides 194  
 siliclastic deposits 111, 113, 115  
   Çankiri Basin 79–82, 84, 86, 89–92  
 siliclastic mass-flow deposits 117, 121, 122  
 Sivrihisar, melange and limestone 31, 32  
 Sivritepe Group 91  
 slab break-off 1, 3, 48, 109, 200, 201  
   definition 198  
   and granites 54  
   mantle dynamics 41, 224, 228, 286  
   timing 197  
 slab decoupling 198, 200  
 slab detachment 101, 146, 198  
 slab retreat 160, 162, 165, 174, 175–176  
 slab roll-back 51, 217, 226, 228  
   backarc extension 178  
   mantle dynamics 159–160, 161, 164  
   velocity 171, 179  
 slab tear 172  
   Tyrrhenian 193, 194, 198, 199, 207  
 soft collision 193, 194  
 South Hellenic subduction zone 285, 287  
 Southern Tyrrhenian Basin 194  
 sporomorph association 323, 324, 327, 336  
 Sr/Sr age 223  
 stalled continental collision (landlocked) 155, 157–165  
 STEP fault *see* Subduction-Transform Edge Propagator  
 strain rate 264  
 Strait of Sicily 196  
 stretching lineation 33, 241  
   Anatolides 51, 56  
   Cyclades 168, 169, 269, 272, 277  
 Stromboli canyon, seismic profile 206  
 subduction 159–160, 176, 343  
   Apennine Trench 245, 245–247  
   central Mediterranean 193–208  
   oceanic lithosphere 58  
   Tauride–Anatolide continent 50, 51–52  
   Tyrrhenian Sea 194–198  
 subduction and buoyancy 9–10  
 subduction models 175–176  
 subduction polarity 1, 200  
 subduction trench 54, 56  
 subduction-collision, Mediterranean 155–179  
 subduction-exhumation, Apennine belt 235, 236, 243, 247, 249, 250  
 Subduction-Transform Edge Propagator (STEP) fault 193, 198, 201, 207, 227, 228  
 Sulakyurt granitoid 69, 72, 73, 89  
   exhumation 91, 93, 100, 101  
 supra-detachment basin 4  
 supra-subduction zone, ophiolites 45, 46, 56, 97, 103  
 suture 56, 108, 109, 110, 218, 219, 313  
   Neotethyan 67–104  
 S-wave receiver function 151  
 synconvergence model 178  
 synsedimentary graben 300, 302
- Taormina Fault, seismic evidence 207  
*Tataronyinen* [rodent] 91  
 Tauride–Anatolide continent  
   Afyon–Bolkardağ zone 15–31  
   geochronology 57  
   map 16  
   palaeogeographic reconstruction 52–57  
   plate tectonics 54–57  
   Tavşanlı zone 31–38  
   Taurides melange 38–39  
   tectonic units 10, 12  
   tectonic processes 41–52  
 Tavşanlı zone 31–38, 41, 48  
 tectonic closure and climate change 107–108, 126–127  
 tectonic map  
   Alps–Apennines 238  
   Anatolia 68  
   Bornova zone 36  
   Corinth Gulf 294  
   Elaziğ basin 115  
   Kahramanmaraş basin 118  
   Mediterranean 162, 194, 196, 214–215, 236  
   Middle East 109, 110  
   Muş basin 111  
   Turkey 10, 11, 16  
   Yunak 27  
 tectonic melange 17, 32  
 tectonic nomenclature 10, 11–12  
 tectonic processes, Tauride–Anatolide 41–52  
 tectonic profile, İtea–Amfissa detachment 297  
 tectonic shear 169  
 tectonite 220, 241  
 temperature field 259  
 Tethyan thermal event 163  
 Tethys (eastern) gateway 108, 109  
   basin development 109–122  
   biostratigraphy  
     Elaziğ basin 116–117  
     Kahramanmaraş basin 119–120, 121–122  
     Muş basin 113–114  
   closure 125–127  
 Tethys, closure 177  
 thermal conductivity 260  
 thermal demagnetisation 330, 332, 335  
 thermal lithosphere 260, 264  
 thermobarometric estimates 242  
 tholeiite 44, 58, 82  
 thrust sheets 295–297, 304, 345  
 thrust stack 56  
 time constraints and collision 2  
 Tinos, palaeomagnetism 269  
 trace elements 142, 219, 221  
 transfer fault zone, Strait of Sicily 196, 197  
 transpressional deformation, Aeolian islands 207  
 trench 214, 217  
 trench retreat 247, 249  
 trench-parallel tear, Sicily 198–200  
 trench-perpendicular tear 198  
 triple junction 111, 117, 134–151  
 turbidites 26, 30, 39, 40, 41, 42  
   Oligocene–Miocene 117, 121, 122  
*Turborotalia* [foraminifera] 113, 114, 116, 117  
 Tyrrhenian Sea Basin, heat flow 164  
 Tyrrhenian slab tear 193–208  
   definitions and process 198–201  
   deformation 201–205  
   development of 200–201  
   subduction dynamics 194–198  
 Tyrrhenian–Apennine metamorphic complexes 237–243

- unconformity, Çankiri Basin 93–96  
 unconformity, Miocene 298, 299  
 underthrusting 276–277  
     Arabian Plate 126  
 U–Pb age 169, 239, 276, 282, 337  
*Uvigerina* [foraminifera] 114, 117, 122
- Vardoussia nappe 295, 296, 304, 305  
 Varto Fault 134, 135, 136, 143, 144, 151  
 Varto horsetail 136, 137  
 velocity analyses, Kythira–Antikythira 346, 347–349, 351, 352, 353  
 volcanic arc, Jurassic–Cretaceous 39  
 volcanic dome 138, 140  
 volcanic palaeotopography 138, 139  
 volcanic rocks, Palaeogene 51  
 volcanic sedimentary sequence 108, 111, 113  
     Çankiri Basin 73–76, 78, 82–84, 94, 96  
 volcanic-sedimentary melange 17, 18, 35  
 volcanism 3, 162  
     arc-related 164, 165, 172  
     bimodal 224  
     fissure 136, 140, 143  
     geochemistry 43, 44, 45  
 volcanism, North Anatolian Fault 134, 136–143  
 volcanism, Tyrrhenian 195, 196, 199, 205–207, 219  
 Voltri Massif, metamorphism 237, 239, 249
- Vrancea zone, downgoing slab 175  
 Vulcano 205, 207  
     seismic profile 206
- Wadati–Benioff zone 343  
 well, Sağpazar 90  
 white mica 240  
 Wilson cycle 1–2, 156  
 within plate basalt (WPB) lavas 39, 44, 45, 46  
 within plate volcanism 195, 199, 200
- Yapraklı Formation 72, 74, 76, 94  
     depositional environment 96, 97, 99, 103  
     lithological logs 77, 78  
 Yaylaçayı Formation 72, 73–76, 94  
     depositional environment 96, 97, 103  
     lithological logs 77, 78, 84  
 Yoncalı Formation 72, 75, 80, 82, 103  
     lithological logs 83, 84, 85, 87, 88  
 Yunak, platform and melange 26–28  
     ophiolite 28–29
- Zagros belt 177  
 Zagros suture 109