

## INDEX TO VOLUME 135

This index provides coverage for both the *Initial Reports* and *Scientific Results* portions of Volume 135 of the *Proceedings of the Ocean Drilling Program*. References to page numbers in the *Initial Reports* are preceded by "A" with a colon (A:), and to those in the *Scientific Results* (this book), by "B" with a colon (B:).

The index was prepared by DBA, Inc., under subcontract to the Ocean Drilling Program. The index contains two hierarchies of entries: (1) a main entry, defined as a keyword or concept followed by a reference to the page on which that word or concept appears, and (2) a subentry, defined as an elaboration on the main entry followed by a page reference.

The index is presented in two parts: (1) a Subject Index and (2) a Taxonomic Index. Both parts cover text figures and tables but not core-description forms ("barrel sheets"), core photographs, smear-slide data, or thin-section descriptions; these are given in the *Initial Reports*. Also excluded from the index are bibliographic references, names of individuals, and routine front and back matter.

The Subject Index follows a standard format. Geographic, geologic, and other terms are referenced only if they are subjects of discussion. This index also includes broad fossil groups such as foraminifers and nannofossils. A site chapter in the *Initial Reports* is considered the principal reference for that site and is indicated on the first line of the site's listing in the index. Such a reference to Site 834, for example, is given as "Site 834, A:85-180."

The Taxonomic Index is an index relating to significant findings and/or substantive discussions, not of species names *per se*. This index covers three varieties of information: (1) individual genera and species that have been erected or emended formally, (2) biostratigraphic zones, and (3) fossils depicted in illustrations. A taxonomic entry consisting of both genus and species is listed alphabetically by genus and also by species. Biostratigraphic zones are listed alphabetically by genus; zones and subzones with letter prefixes are listed under "zones" and "subzones."

For further information, including available electronic formats, contact the Chief Production Editor, Ocean Drilling Program, 1000 Discovery Drive, College Station, Texas 77845-9547, U.S.A.

## SUBJECT INDEX

- accretion, crustal, A:95  
acetate  
  interstitial waters, B:710–711  
  vs. depth, B:712–713  
acoustic properties, sediments, B:787–795  
actinolite, alteration minerals, A:644  
advection  
  interstitial waters, B:685–688  
  mantle, B:505–517  
  sediments, B:794  
age, igneous rocks, A:33–34  
age vs. depth  
  Lau Basin, A:28–29  
  magnetic polarity, A:30  
  Site 834, A:116, 122  
  Site 835, A:207, 215  
  Site 836, A:262  
  Site 837, A:308, 316  
  Site 838, A:362, 367  
  Site 839, A:422, 428  
  Site 840, A:530, 534  
  Site 841, A:614, 622–625  
  subsidence curves, B:848–849  
Airy isostasy, subsidence, B:178  
albite, alteration minerals, A:644  
aliphatic acids, sediments, B:711–712  
alkali–iron–magnesium diagrams, glasses, B:38  
alkalinity  
  interstitial waters, B:680–688  
  vs. depth, A:220, 369, 539, 629  
alkalis, vs. age, B:34  
allochthonous beds, lithologic units, B:120–121  
alteration  
  basalts, A:147–148  
  geochemistry, A:282  
  glass shards, A:109, 200, 517–518, 596–597  
  igneous clasts, A:370  
  igneous rocks, A:271–272, 323, 444  
  mesostasis, A:644–645  
  petrography, A:222–223  
  photograph, A:653  
  volcanic rocks, A:37  
  *See also* secondary minerals; weathering,  
  low-temperature  
alteration, hydrothermal, volcanoclastics, A:593  
aluminum  
  depletion in vesicles, B:615  
  spinel, B:585–594  
  vs. depth, B:127  
  vs. iron, B:496–501  
  vs. scandium, B:702  
  vs. silicon, B:700  
aluminum/silicon ratio, sediments, B:706  
aluminum oxide  
  clinopyroxene, B:492–494  
  turbidite, B:155–158  
  vs. depth, B:114  
  vs. magnesium oxide, B:442–444  
  vs. silica, B:40, 59, 64  
  *See also* calcium oxide/aluminum oxide ratio  
amagmatic extension, seafloor spreading, B:482–485  
amino acids, deamination, B:712–713  
ammonia  
  interstitial waters, A:216, 266, 316–318  
  vs. depth, A:220, 320, 629  
ammonium  
  interstitial waters, B:683–688  
  vs. depth, B:714  
amorphous silica + clays, vs. silica, B:698  
analcime  
  hydrothermal alteration, A:596; B:694–697  
andesites, basaltic  
  analyses compared among Sites 834, 835, 836,  
  837, A:326  
  chemical composition, A:657  
  clasts, A:354–356  
  composition, A:199–200; B:433–455, 489–  
  503, 647–651  
  geochemistry, A:272–273, 323, 325–326;  
  B:43–44, 519–531, 533–542  
  lithostratigraphy, B:248–249  
  modal data, B:386–389  
  petrography, A:142–143, 319–323, 435–437,  
  439–440, 442–443  
  petrology, A:368–371, 630–631  
  phase equilibria, B:557–563  
  post–late Miocene, B:897  
  vesicularity, B:615–623  
  volcanic glass, B:28–30  
andesites, plagioclase, petrography, A:267–268  
anorthite, chemical composition, B:492, 545  
APWP. *See* polar wandering  
aragonite, alteration, A:444  
aragonite, acicular, vesicles, A:277, 282  
arc rifting, sedimentation, B:843–855  
arsenic, sulfides, B:660  
asthenosphere  
  geochemistry, B:509  
  replacement, B:399–406  
'Ata  
  basalts, B:510  
  geochemistry, B:392  
  lava, B:528–529  
  morphotectonics, A:184–185  
  structural provinces, A:11  
  volcanoclastics, A:512  
atolls, Lau Basin, A:91  
augite, modal data, B:386–389  
authigenic minerals, sediments, B:92  
azimuth of joints, vs. depth, A:112  
BABB. *See* backarc-basin basalts  
backarc-basin basalts, composition, B:433–455,  
559–560  
backarc basins  
  crust, B:55  
  depleted basalts, B:565–584  
  evolution, B:9–21, 429  
  geochemistry, B:385–425, 433–455, 595–602,  
  603–613, 689–707  
  geological setting, A:9–11; B:819–828  
  geophysical setting, A:7–9  
  hydrogeochemistry, B:677–688  
  Lau Basin, A:5–47; B:75–86  
  opening, B:505–517  
  petrology, B:879–905  
  reduction haloes, B:159–161  
  sedimentation, B:26, 367–371, 829–842  
  seismic reflection, B:909–917  
  site map, A:7  
  tectonic setting, A:11; B:287–299  
backarc extension, sonar imagery, B:373–374  
backarc opening, basalts, Site 834, B:471–485  
backarc spreading  
  Central Lau Spreading Center, A:185–186  
  geochemical signatures, B:402  
backscatter electron mode, microfabric, B:798  
bacteria, profiles, B:147–150  
bacterial cells, sediments, B:148–150  
barium  
  basalts, B:475–476  
  enrichment in vesicles, B:615  
  igneous rocks, A:149–151  
  interstitial waters, B:680–688  
  vs. barium/samarium ratio, B:46  
  vs. depth, B:116  
  vs. magnesium oxide, B:409, 477  
  vs. rubidium, B:477  
  vs. zirconium, A:372, 448, 656; B:61, 452  
  *See also* sulfur/barium ratio; zirconium/barium  
  ratio  
barium/lanthanum ratio  
  basalts, B:630  
  lava, B:410  
  vs. age, B:47  
  vs. oxygen fugacity, B:609  
  vs. sulfur, B:610  
barium/niobium ratio  
  vs. lanthanum/niobium ratio, B:47, 527  
barium/rubidium ratio  
  vs. lead-206/lead-204 ratio, B:480, 482  
  vs. magnesium oxide, B:477  
barium/samarium ratio, vs. barium, B:46  
barium/strontium ratio  
  volcanics, B:39–40  
  vs. age, B:46, 853  
barium/zirconium ratio  
  igneous rocks, A:149–151  
  volcanoclastics, B:63  
  vs. age, B:47, 853  
  vs. depth, B:66, 68, 70  
basalts  
  AF demagnetization, A:210  
  backarc basins, B:559–560  
  bulk density, A:159  
  contact with glassy margin, A:638  
  geochemistry, A:223–224, 272–273; B:385–  
  425, 471–485, 498–503, 505–517,  
  519–531, 533–542, 595–613, 837  
  index properties, A:152  
  magnetic polarity, A:263  
  magnetic properties, B:717–735  
  magnetic susceptibility, A:125–126, 212  
  magnetization, A:119  
  permeability, B:805–816  
  petrography, A:131–135, 138–147, 219–220,  
  222, 268  
  post–late Miocene, B:628–633  
  seismic profiles, B:346  
  spinel, B:585–594  
  vesicularity, B:615–623  
  volcanic glass, B:28–30  
  volume magnetic susceptibility, A:427–428  
basalts, aphyric  
  petrography, A:133–135, 138–145, 268–270  
  photograph, A:139–140  
basalts, clinopyroxene–olivine, petrography,  
  A:433–435  
basalts, clinopyroxene–olivine, phyrlic,  
  petrography, A:436–437, 439–440, 442  
basalts, depleted, chromian spinel, B:565–584  
basalts, iron–titanium, composition, B:433–455  
basalts, MORB-like, lava, B:3  
basalts, picritic, geochemistry, B:529–530  
basalts, plagioclase, phyrlic, petrography, A:140–  
141

## basalts

## SUBJECT INDEX

- basalts, plagioclase-clinopyroxene-olivine, petrography, A:270-271
- basalts, tholeiitic  
composition, B:39-40  
geochemistry, B:529-530  
post-late Miocene, B:897
- basalts, variolitic, petrology, A:644
- basalts, vesicular, photograph, A:139, 147
- basement  
blocks, A:93  
facies, B:5  
igneous rocks, A:203  
structure, A:110-112  
well logging, A:164-169  
youngest ages, B:827
- basement, basaltic, age, B:221, 223
- basement, rhyolitic, Eocene, B:313-329
- basement, silicic, pre-late Eocene, B:633-643
- bathymetric maps, B:374
- bathymetry  
cross-sections, B:58  
Lau Basin, B:71  
Site 834, A:90-91; B:103  
Site 835, A:183-184  
Site 836, A:249-251  
Site 837, A:292-293  
Site 838, A:340-341  
Site 839, A:401-403  
Site 840, A:496  
Site 841, A:577-579  
Sites 834 and 835, B:13  
Sites 836 and 837, B:16
- bedding  
dips, A:358  
photograph, A:302
- bedding orientations  
sediments, B:323-326  
stereographic projection, A:201, 418  
vs. depth, A:260, 419
- BHTV. *See* Borehole Televiwer
- biodegradation, oil seeps, B:673-675
- bioevents  
depths and ages, A:309, 363, 422, 529, 614  
magnetostratigraphy, B:860-865  
vs. depth, A:116
- biogeography, Paleogene, B:252-256
- biohorizons, calcareous nannofossils, B:193
- biomarkers, maturation, B:672-673
- bioprovince indexes, Paleogene, B:252-256
- biostratigraphy  
calcareous nannofossils, B:191-205, 267-284  
correlation, A:27  
larger foraminifers, B:231-243  
Lau Basin, A:23-26  
Neogene, B:857-877  
planktonic foraminifers, B:207-229, 245-266  
Site 834, A:112-116  
Site 835, A:203-207  
Site 836, A:260-261  
Site 837, A:306-308  
Site 838, A:360-361  
Site 839, A:419-422  
Site 840, A:523-527  
Site 841, A:602-614  
vs. depth, A:24-25
- bioturbation  
lithofacies, B:88  
lithologic units, A:257  
nannofossil ooze, B:832  
ooze, B:52-53  
photograph, A:506  
turbidite, B:105-106  
volcaniclastics, A:199
- blocking temperatures, magnetization, B:717-719
- Bonin Forearc, organic geochemistry, B:709
- boninite  
composition, B:386-390  
geochemistry, B:529-530  
magmatism, B:898  
noble metals, B:599, 601
- borehole elongation, breakouts, B:290-298
- borehole geometry tool, core reorientation, B:302
- Borehole Televiwer  
breakouts, B:287-299  
core reorientation, B:301-311
- boreholes  
orientation methods and tools, B:301-302  
stresses, B:287-299
- Bouma units, lithologic units, A:101
- breccia  
composition, B:897  
correlation, B:367-368  
fault zones, A:598-601
- breccia, dacitic, alteration, B:655
- breccia, pumice, rhyolitic, petrology, A:632-635  
geochemistry, B:625-646  
photograph, A:646
- breccia, rhyolite  
petrology, A:635, 638-639, 642  
photograph, A:647
- breccia, volcanic, lithologic units, A:590-591, 593
- breccia, volcanic, sheared, petrology, A:642-643
- breccia, volcanoclastic  
lithologic units, A:508-510  
lithostratigraphy, B:87-92
- Brunhes axial anomaly, traces, B:823
- Brunhes Chron  
biostratigraphic events, B:872, 875-876  
core orientation data, A:363  
magnetic polarity, A:117, 208-209, 263-264, 311, 423-424, 531-533, 615-619  
magnetostratigraphy, B:860-861
- bulk-density logs, vs. depth, B:129
- burrows  
environmental analysis, B:96-97  
infilling, B:166-167  
photograph, A:506  
siltstone, B:172
- bytownite, composition, B:386
- calc-alkaline rocks, geochemistry, B:839-841
- calcareneite, lithologic units, A:103-104
- calcite, biogenic, geochemistry, B:690-694  
alteration minerals, A:370, 517, 596-597, 644  
vs. calcium oxide, B:698
- calcium  
clinopyroxene, B:493-494  
depletion in vesicles, B:615  
geochemical profiles, A:31  
interstitial waters, A:365-367, 432; B:680-688  
sediments, B:140-141  
vs. depth, A:128, 220, 320, 369, 539, 629; B:794  
vs. magnesium, B:699  
vs. potassium, B:144  
vs. strontium, B:700
- calcium carbonate, turbidite, B:155-158
- calcium oxide  
igneous rocks, A:149-151  
olivine, B:495  
vs. calcite, B:698  
vs. nannofossil oxide, B:404, 442-444, 479  
vs. silica, B:59, 64, 97  
*See also* titanium oxide/calcium oxide ratio
- calcium oxide/aluminum oxide ratio  
vs. iron oxide/magnesium oxide ratio, B:643  
vs. magnesium oxide, B:445
- calcium oxide-magnesium oxide-aluminum oxide-silica, projections, B:489, 494-498
- caliper logs  
boreholes, B:296-298, 317  
diameter vs. depth, A:670  
Site 835, A:231  
Site 838, A:380-382  
Site 839, A:464, 468-469  
Site 840, A:551  
Site 841, A:657  
vs. depth, A:166
- camera multishot tools, core reorientation, B:301-302
- carbon  
geochemistry, A:129  
headsapce analyses, A:221, 318-319, 370, 433, 625-628, 631-632  
interstitial waters, A:267  
sediments, A:367-368, 540-541  
vs. depth, A:130-131
- carbon, organic  
burial, B:161  
ooze, B:107  
sediments, B:148-150  
turbidites, B:832  
vs. depth, B:111
- carbon, organic, total  
sediments, B:667-676  
vs. depth, A:542
- carbonate compensation depth  
foraminifers, B:168-169  
indicators, B:847-849  
subsidence, B:179-180
- carbonate content  
dissolution, B:97, 165-170  
geochemical logs, B:938, 941, 944-945, 948-949  
turbidite, B:105, 107  
vs. depth, A:237, 299, 348, 412, 451, 542; B:111
- carbonate rocks, lithofacies, B:175-178
- CCD. *See* carbonate compensation depth
- celadonite, alteration minerals, A:517-518, 596-597
- cementation, permeability, B:801
- Cenozoic  
correlation, A:12  
sedimentary bedding, B:323-326  
sedimentary succession, B:841  
tectonics, B:173-188  
unconformities, B:846  
volcanism, B:433-455
- Central Lau Spreading Center  
basalts, B:473-475, 505-507  
geochemistry, B:386-425, 689-707  
hydrothermal deposits, B:75-76, 84-85  
igneous rocks, B:887  
lava, B:529-530  
morphotectonics, A:184-186  
petrology, B:439-441  
propagation, B:9, 20, 511-512, 819-828  
seafloor spreading, B:288, 298  
sonar imagery, B:373-375
- cerium, vs. yttrium, A:658
- cerium/holmium ratio, vs. age, B:840
- cesium  
basalts, B:475-476  
*See also* rubidium/cesium ratio
- cesium/lead ratio  
basalts, B:475  
lava, B:410
- cesium/samarium ratio, lava, B:410
- chalcopyrite, alteration minerals, A:644; B:660

- chalk, nannofossil  
   correlation, B:367–368  
   lithofacies, B:175–178  
   lithologic units, A:197–198, 501–507  
   sedimentation, B:846  
 chloride, vs. depth, A:220  
 chlorine  
   interstitial waters, A:432  
   vs. depth, A:128, 369, 539, 629  
 chlorite  
   alteration minerals, A:644; B:658  
   hydrothermal alteration, B:316  
*Chondrites*, photograph, A:506, 508  
 chromium  
   depletion in vesicles, B:615  
   igneous rocks, A:370–372  
   spinel, B:585–594  
   vs. depth, A:449; B:116  
   vs. titanium, B:702  
   *See also* zinc + copper + nickel + cobalt + chromium  
 chromium/titanium ratio, sediments, B:706  
 chromium oxide, clinopyroxene, B:493–494  
 chrons  
   C15, Site 841, B:249  
   C15R, Site 841, B:249  
   C16N, Site 841, B:249  
   C16R, Site 841, B:249  
 clastic dikes  
   photograph, A:647  
   *See also* sandstone dikes  
 clasts, vitric  
   andesitic composition, A:259  
   photograph, A:515  
 clasts, volcanic  
   altered basalt, B:653  
   chemical composition, B:640–642  
 clay minerals  
   alteration minerals, A:596–597, 644–645  
   fault zones, B:315  
 clays  
   lithologic units, A:585, 589  
   Miocene, B:164  
   *See also* amorphous silica + clays  
 claystone, calcareous, lithostratigraphy, B:87–92  
 claystone, indurated, lithologic units, A:103–104  
 claystone, photograph, A:105  
 claystone, vitric, lithologic units, A:257  
 claystone, volcanic, lithologic units, A:594–595  
 clinoptilolite, alteration minerals, A:517  
 clinopyroxene  
   basalt, A:143, 145–146  
   basaltic andesites, A:630–631; B:559–562  
   chemical composition, B:92–94, 467–468, 474–475, 489–503, 521–522, 524, 534–536, 538, 541  
   modal data, B:430–455  
   oikocrysts, A:137  
   petrography, A:219–220, 222, 369–371, 433–448  
   phenocrysts, A:147, 267–268  
   photograph, A:142, 442  
   volcanic rocks, A:450  
 clinopyroxene, acicular, mesostasis, A:146  
 clinopyroxene, skeletal, groundmass, A:276  
 clinopyroxene–plagioclase–olivine, phase equilibria, B:561–563  
 clinzoisite, alteration minerals, A:644  
 CMA5. *See* calcium oxide–magnesium oxide–aluminum oxide–silica  
 cobalt  
   turbidite, B:155–158  
   vs. depth, B:116, 127  
   *See also* zinc + copper + nickel + cobalt + chromium  
   Cobb Mountain Subchron  
   core orientation data, A:363  
   magnetic polarity, A:423–424  
   magnetostratigraphy, B:737–762, 860–861  
   sediments, A:311  
   Site 834, A:119  
   coccoliths, lysocline, B:169–170  
   Cochiti Subchron  
   magnetic polarity, A:209, 615–619  
   magnetostratigraphy, B:857, 860–861  
   Site 834, A:118  
   collision zones, plate boundaries, B:313  
   color, nannofossil ooze, B:832  
   color bands, turbidite, B:105–106, 153–154, 157  
   compaction, sediments, B:719  
   compressional wave velocity  
   sediments, B:112–113, 128, 790–791  
   Site 834, A:152–153  
   Site 835, A:227–228  
   Site 836, A:275–276  
   Site 837, A:325–326  
   Site 838, A:373, 375  
   Site 839, A:451, 453  
   Site 840, A:543, 546  
   Site 841, A:653  
   vs. depth, A:159–161, 236, 287, 332–333, 377–379, 459, 664–665  
   vs. grain density, A:459  
   congener elements, turbidite, B:158–159  
 conglomerate  
   correlation, B:367–368  
   lithofacies, B:175–178  
   seismic profiles, B:346  
 conglomerate, basaltic, photograph, A:594  
 conglomerate, mud-clast  
   lithologic units, A:193–196  
   lithology, B:832–833  
 conglomerate, volcanic  
   lithologic units, A:351–352, 590–591, 593  
   lithostratigraphy, B:87–92  
 conglomerate, volcanoclastic, lithologic units, A:508–509  
 consolidation, sediments, B:794  
 convection, sediments, B:794  
 convergent margins, B:880  
 convolute bedding  
   lithologic units, A:510–512; B:88  
   turbidites, B:97, 846  
   vitric sandstone, A:590  
 cooling units  
   vs. depth, A:269, 321  
 copper  
   basalts, B:599  
   enrichment, B:623  
   interstitial waters, B:680–688  
   turbidite, B:155–158  
   volcanic rocks, B:533–542  
   vs. gold, B:600  
   vs. palladium + platinum, B:600  
   vs. palladium, B:600  
   vs. platinum, B:600  
   *See also* zinc + copper + nickel + cobalt + chromium  
 core orientation, magnetic, A:218  
   declination, A:533, 535  
   errors, A:358–359  
   magnetic polarity, A:212–213, 363  
   paleomagnetism, B:765  
   Site 834, A:126–127  
   Site 836, A:265–266  
   Site 837, A:313, 318  
   Site 839, A:428–429  
   Site 841, A:621, 623  
   core recovery  
   percentage, B:164  
   Site 840, A:503  
   core reorientation  
   fault orientation, B:318–329  
   tectonic studies, B:301–311  
   correlation  
   biostratigraphy, B:217–218  
   lithology, B:331–365  
   seismic profiles, B:368  
   unconformities, B:98–99  
   cross bedding, volcanoclastics, B:833–834  
   cross lamination  
   lithofacies, B:88  
   lithologic units, A:257  
   siltstone, A:590  
   cross stratification, lithologic units, A:509–512; B:88  
   crushing contamination, sample preparation, B:927–929  
 crust  
   accretion, magnetic anomalies, A:11  
   ages, B:3  
   attenuation, B:17, 20  
   domains, bathymetry, B:825  
   extension, A:5–47  
   modeling, B:429  
   spreading centers, B:819–820  
   crust, oceanic, evolution, A:579, 581–582  
   crystal fractionation, vesicles, B:619–623  
   crystal zoning, plagioclase, A:145  
   crystallites, plagioclase, A:271  
   Curie point, sediments and basalts, B:717–719  
   cyclic analysis, sediments, B:140–141  
 dacite  
   alteration, B:653–663  
   geochemistry, B:385–425, 640–642  
   turbidite, B:44  
 deamination, oxidation, B:712–713  
 debris-flow deposits  
   lithologic units, A:348–349  
   Pleistocene, B:841  
   sedimentation, B:116  
   sedimentation rates, B:144–145  
 debrite, lithologic units, B:121  
 deformation  
   bedding, A:593  
   mineralized white clay, A:605  
   rates, B:326–327  
 degassing, sulfur, B:610–611  
 demagnetization, sediment behavior, A:263  
 demagnetization, alternating-field  
   basalts, B:726–731, 751, 756  
   orthogonal plots, A:118–119, 209; B:768, 771  
   sediments, A:208, 310, 312–313, 364, 424  
   stereograms, A:531, 616  
   vs. magnetization intensity, A:118–119  
 demagnetization, thermal, basalts, B:720–725  
 density, bulk  
   GRAPE data vs. depth, A:663  
   lithodensity logging tool, A:542–543  
   sediments, B:789  
   vs. depth, A:235–236, 285–286, 327, 330, 373, 451, 543–546, 552–553, 660, 664  
 density, grain  
   sediments, B:789  
   vs. compressional wave velocity, A:459  
   vs. depth, A:158–160, 235, 285, 327, 373, 451, 546, 660, 664  
 density, GRAPE, vs. depth, A:376, 379, 454–455  
 density, wet-bulk, vs. depth, A:158  
 density logs  
   correlation, B:331–365

## density logs (cont.)

Site 838, A:384  
 Site 839, A:464  
 Site 841, A:657–658  
 density–natural gamma ray logs  
 Site 834, A:175–177  
 Site 835, A:245  
 Site 838, A:390–391  
 Site 839, A:482–484  
 Site 840, A:563–566  
 site 841, A:675–677  
 deposition  
 environment, B:846–847  
 history, B:109–112  
 volcanoclastics, B:94–98  
 devitrification, photograph, A:640  
 diabase, sills, B:630  
 diabase, aphyric, petrography, A:135–138  
 diagenesis  
 enrichment, B:159–161  
 geochemistry, B:685–688  
 indicators, A:597  
 diffusion, interstitial waters, B:687–688  
 digenite, altered basalt, B:653  
 dikes, basaltic andesite, lithostratigraphy, B:248–249  
 basaltic andesite, A:630–631  
 post–late Miocene, B:628–633, 897  
 diopside, composition, B:39  
 dip/age ratio, vs. age, Site 841, B:327  
 dipmeter logs  
 bedding, A:358  
 faulting, B:98  
 Site 834, A:165  
 Site 835, A:240–242  
 Site 840, A:521–523  
 dips  
 bedding, A:202, 260, 306, 418, 524–526;  
 B:325–326  
 cores, A:357–358  
 dipmeter logs, B:767  
 Formation Microscanner imagery, A:557  
 joints, A:110, 112  
 sediments, A:110, 520–521  
 vs. depth, A:242  
 discoasters, turbidite, B:105  
*Discocyclusa* sp., photograph, A:595  
 dissolution  
 calcite, B:179–180  
 microfossils, B:165–170  
 dividing cells, vs. depth, B:148  
 downhole measurements  
 Lau Basin, A:41–44; B:104  
 Site 834, A:159–169  
 Site 835, A:230–231, 234, 237–242  
 Site 838, A:379–388  
 Site 839, A:462–465  
 Site 840, A:549–557  
 Site 841, A:655–660  
 downhole packers, permeability, B:805–816  
 drilling data, effect of backarc evolution, B:826–827  
 dropstones  
 turbidite, B:105  
 weathered clasts, B:835  
 earthquakes, hypocenters, A:7; B:885  
 Eastern Lau Spreading Center  
 basaltic andesites, B:557  
 basalts, B:473–475, 505–507  
 geochemistry, B:386–425, 689–707  
 hydrothermal deposits, B:76, 84–86  
 igneous rocks, B:887  
 lava, B:529–530  
 morphotectonics, A:184–186

## SUBJECT INDEX

petrology, B:429, 439–441  
 propagation, B:9, 20, 511–512, 819–828  
 seafloor spreading, B:288, 298  
 sonar imagery, B:373–375  
 spreading, B:44  
 tectonics, A:251–252  
 volcanic glass, B:30  
 electron probe data  
 basaltic andesites, B:559–560  
 chromian spinel, B:565–584  
 plagioclase, B:544–549  
 spinel, B:585–594  
 vitric shards, B:54–55  
 volcanic glasses, B:603–613  
 volcanoclastics, B:92–94  
 electronic multishot orientation tools, core reorientation, B:302  
 elementary accumulation rates, hydrothermal alteration, B:698–699  
 energy-dispersive X-ray data, microfabric, B:798  
 enstatite, composition, B:39  
 environmental analysis, deposition, B:178, 846–847  
 Eocene  
 biostratigraphy, A:606–614; B:231–243, 245–266, 267–284  
 lithologic units, A:594–595  
 rhyolites, B:625–646, 923  
 epiclastics  
 composition, B:55–61, 834  
 lithologic units, A:348  
 reworking, A:105–109, 199–200, 258, 304  
 epidote  
 alteration minerals, A:597, 644  
 photograph, A:602, 654  
 erosion  
 evidence, B:98  
 forearc basins, B:325–328  
 relation to sedimentation, B:843–855  
 subaerial exposure, B:369  
 eruptions, volcanic, seamounts, B:52–53  
 'Eua  
 basalts, B:480–482, 510, 633  
 hydrocarbons, A:491  
 lava, B:528–529  
 morphotectonics, A:184–185  
 eustatism  
 forearcs, B:849  
 subsidence, B:185–186  
 extension, crustal, A:92  
 extensional tectonics, subduction zones, B:328  
 fabric, cataclastic, rhyolite, B:315  
 fabric, sediments, B:797–804  
 factor analysis, hydrothermal deposits, B:79–80  
 fallout deposits, composition, A:104–105, 107–109  
 fault planes  
 orientation, B:324  
 seismic reflection, A:93  
 fault scarps, topography, B:376  
 fault zones  
 breccia, A:598–601  
 extension, A:21–23  
 imagery, B:377  
 normal faults, B:315–318  
 faulting, Cenozoic, B:173, 175  
 faulting, extensional, sedimentation, Site 839, A:417–418  
 faults  
 cores, B:313–323  
 dips, Site 838, A:359–360  
 orientation, B:307  
 patterns, B:11  
 restored from core data, B:311  
 strike rose diagrams, B:323  
 feldspars, major elements, B:36  
 felsic rocks  
 hydrothermal alteration, B:653–663  
 See also silicic rocks  
 ferric iron/ferrous iron ratio, basalts, B:607–609  
 ferromanganese oxide, hydrothermal deposits, B:76–77  
 ferrosilite, composition, B:39  
 Fiji/Tonga/Lau proto-arc, evolution, B:824  
 Fiji Platform, evolution, A:92  
 filter pressing, volcanic rocks, B:620–623  
 flame structures, photographs, A:104, 593  
 flow deposits  
 thickness, A:354, 516  
 volcanoclastics, A:304–305  
 flow thickness, vs. depth, A:134  
 fluid circulation  
 permeability, B:814–816  
 stress, B:792, 794  
 See also fluid flow  
 fluid flow  
 faults, B:315–316  
 vs. sedimentation rates, B:787–795  
 fluid inclusions, microthermometry, B:658  
 FMS. See Formation Microscanner imagery  
 foliation  
 altered fault rocks, B:320  
 hydrothermal alteration, A:605  
 Fonualei  
 basaltic andesite, B:386  
 dacite, B:533  
 foraminifers  
 abundance vs. depth, B:170  
 lysocline, B:169–170  
 molds, B:167  
 Pliocene, B:367–368  
 preservation, B:97  
 sources, B:179–180  
 turbidite, B:105, 107  
 volcanoclastics, A:594–595  
 foraminifers, benthic, larger, biostratigraphy, A:614  
 foraminifers, larger, biostratigraphy, B:231–243  
 foraminifers, neritic, volcanoclastics, B:837  
 foraminifers, planktonic, A:115–116, 206–207, 260–261, 306–308, 360, 420–422, 525–526, 606–614; B:207–229, 861–877  
 foraminifers, planktonic, subtropical, biostratigraphy, B:245–266  
 forearc basins  
 deposition, B:99  
 evolution, B:178–188, 454  
 felsic rocks, B:653–663  
 genesis, B:853–855  
 seismic reflection, B:917  
 tectonics, B:287–299, 313–329  
 thaumasite, B:647–651  
 forearcs  
 geochemistry, B:625–646  
 geology, A:38–40  
 sedimentation, B:168–172  
 formate  
 interstitial waters, B:710–711  
 vs. depth, B:712–713  
 vs. propionate, B:711  
 Formation Microscanner imagery  
 bedding, B:377  
 boreholes, B:167, 169  
 breakouts, B:287–299  
 core reorientation, B:301–311  
 cores, B:313–329  
 dipmeter logs, A:240–241

- dips, B:767  
 lithofacies, B:175–178  
 planar features, A:359  
 Site 834, A:164  
 Site 839, A:465  
 Site 840, A:521–523  
 Site 841, A:658  
 turbidite, B:164–165  
 vs. depth, A:478, 551, 556–557
- Formation Microscanner logs  
 Site 838, A:384, 386–388  
 Site 840, A:553, 556–557  
 vs. depth, A:671
- forsterite, geochemistry, B:495, 546
- Fourier transforms, sediments, B:141, 144, 146
- fractional crystallization  
 basalts, B:474–477, 522–527, 839–840  
 phase equilibria, B:561–563  
 rhyolites, B:640–642  
 vesicles, B:619–623  
 volcanic rocks, B:448–452  
*See also* crystal fractionation
- fractional melting, models, B:394–399
- fractures  
 basalts, A:203  
 veins, B:322
- fractures, conchoidal, andesite, A:267–268
- fragmentograms, hydrocarbons, B:667–676
- frequency analysis, sediments, B:131–146
- gallium, volcanic rocks, B:533–542
- gamma-ray logs  
 processed data, B:936–937, 939, 942–943, 946–947  
 sediments, B:140  
 Site 835, A:231, 234  
 Site 838, A:381–383  
 Site 839, A:464  
 Site 840, A:552–553  
 Site 841, A:658  
 vs. depth, A:554; B:129  
 vs. time, B:144
- gases  
 hydrocarbons, A:266  
 sediments, A:218–219
- Gauss Chron  
 biostratigraphic events, B:873–874, 876–877  
 magnetic polarity, A:208–209, 531–533, 615–619  
 magnetostratigraphy, B:860–861  
 sediments, A:311  
 Site 834, A:117, 119
- genetic units, sediments, B:112–113, 123–124
- geochemical logs  
 Lau Basin, B:931–949  
 Site 834, A:178–180  
 Site 838, A:384, 394–395  
 Site 839, A:464–465, 485–487  
 Site 840, A:567–570  
 Tonga Ridge, B:931–949  
 vs. depth, A:168, 385
- geochemical profiles, sediments, B:108, 112–116, 127
- geochemical tool-string logs, vs. depth, A:474–475
- geochemical tool-string natural gamma-ray logs, vs. depth, A:383
- geochemical yield logs  
 Site 840, A:553  
 vs. depth, A:476–477, 555
- geochemistry, volcanic rocks, B:385–425
- geochemistry, inorganic  
 Lau Basin, A:31–32  
 Site 834, A:126–128
- Site 835, A:213, 216  
 Site 836, A:265–266  
 Site 837, A:316–318  
 Site 838, A:365–367  
 Site 839, A:428–431  
 Site 840, A:534–535, 537  
 Site 841, A:621–625
- geochemistry, organic  
 Lau Basin, A:32  
 Site 835, A:216, 218–219  
 Site 836, A:266–267  
 Site 837, A:318  
 Site 838, A:367–368  
 Site 839, A:431–433  
 Site 840, A:537–538  
 Site 841, A:625–628
- geochronology, Cenozoic, Lau Basin, B:191–192
- Geological Long Range Inclined ASDIC. *See* GLORIA sidescan sonar
- geomagnetic poles, virtual, transitional, field behavior, B:745–748
- geophysical logs, quad-tool-string logs vs. depth, A:239
- geotechnical properties, sediments, B:787–795, 797–804
- geothermal gradient, vs. depth, A:44
- Gilbert Chron  
 biostratigraphic events, B:874–877  
 magnetic polarity, A:209, 531–533, 615–619  
 magnetostratigraphy, B:857, 860–861  
 Site 834, A:118
- glass  
 chemical composition, A:301–304  
*See also* volcanic glass
- glass, andesitic, photograph, A:271
- glass shards  
 lithologic units, A:256  
 photograph, A:357, 515  
 silica content, A:304  
 vs. depth, A:353
- glomerocrysts  
 photograph, A:225  
 plagioclase, A:145
- GLORIA sidescan sonar, structural data, B:373–382
- gold  
 silicic rocks, B:656  
 vs. copper, B:600  
 vs. palladium, B:602
- gouge, fault zones, A:598–601; B:317
- grabens  
 evolution, B:509  
 seismic reflection profiles, B:17–20  
 terrains, B:819
- graded bedding, lithologic units, A:99, 101
- grain size  
 profiles, B:125–126  
 turbidite, B:105, 107  
 volcanoclastics, B:53  
 vs. depth, A:298, 301
- graphic texture, photograph, A:648
- gravel, andesitic, petrography, A:267–268
- gravel, polymict, lithologic units, A:349
- gravel, pumiceous  
 lithologic units, A:503, 507  
 petrography, Site 838, A:354–355
- gravel, volcanic, lithologic units, A:350–351, 414
- gravity-flow deposits  
 Cenozoic, B:841  
 composition, B:846  
 forearcs, B:168  
 units, B:111–113
- greenschist facies, variolitic basalt, A:644
- greenstone, altered basalt, B:653
- hafnium  
 andesite, B:451  
*See also* samarium/hafnium ratio
- haloes. *See* reduction haloes
- harzburgite, magmas, B:898–899
- heat flow  
 Lau Basin, A:44, 95–96  
 relation to seismic events, A:9  
 stress, B:792, 794  
 variations, A:41  
 vs. crustal age, B:794  
 vs. depth, A:237, 334  
 vs. temperature, A:381, 460  
 WSTP runs, A:163
- heavy-rare-earth elements, andesite, B:392–406
- hedenbergite, composition, B:39
- hemipelagic environment, deposition, A:259–260
- hemipelagites  
 composition, B:154–161, 832–833  
 lithologic units, B:120–121  
 properties, B:835
- hemipelagites, nannofossil, clayey, lithofacies, B:101–130
- heulandite, alteration minerals, A:517, 596
- HFSE. *See* high-field-strength elements
- hiatuses  
 Cenozoic, B:846  
 Paleogene, B:256, 258  
 Pliocene, B:267, 367–368
- high-field-strength elements  
 andesites, B:392–406  
 basalts, A:224; B:471–485, 523–526, 629–630  
 igneous rocks, B:890–894  
 magmas, B:446–454  
 volcanic glass, B:851–853  
 volcanoclastics, B:838
- holmium. *See* cerium/holmium ratio
- Holocene  
 biostratigraphy, B:191–229, 267–284  
 lithologic units, A:295–297, 500–501
- hopanes, sediments, B:672–673
- Horizon A  
 age, B:267  
 correlation, B:98–99  
 Pliocene, B:367–370  
 unconformities, B:168
- Horizon Deep Bight  
 extent, B:313  
 topography, B:376
- horsts  
 evolution, B:509  
 seismic reflection profiles, B:17–20  
 terrains, B:819
- HREE. *See* heavy-rare-earth elements
- Hunter Fracture Zone, tectonics, B:882
- hyaloclastite  
 composition, B:835  
 grain size, A:259  
 lithologic units, A:255–259, 350–351  
 petrography, A:267–268
- hydration, glass shards, A:200
- hydrocarbons  
 headspace analyses, A:127  
 oil seeps, B:673–675  
 potential, A:491  
 sediments, B:672–673
- hydrocarbons, volatile  
 headspace analyses, A:318, 537–538, 625–628, 630–631  
 sediments, A:218–219, 266, 367–368, 431–433
- hydrogeochemistry, interstitial waters, B:677–688
- hydrolysis, basalt, A:365
- hydrolysis, alkaline, sediments, B:712–713

## hydrothermal alteration

hydrothermal alteration  
 basaltic andesite, B:647–651  
 faults, B:315–316  
 felsic rocks, B:653–663  
 geochemistry, B:689–707  
 sediment geochemistry, B:838–841  
*See also* alteration  
 hydrothermal deposits, variability, B:75–86  
 hydrothermal ponding, sediments, B:700–707

ichnofacies  
 environmental analysis, B:96–97  
 lysocline, B:847–849  
 paleowater depths, B:179

ichnofossils. *See* trace fossils

iddingsite, alteration, A:222

igneous rocks  
 backarc sites, A:42–43  
 CIPW normative composition, A:36, 153  
 evolution, B:427–470  
 geochemistry, A:645–649; B:625–646  
 lithologic units, A:267–271, 630–643  
 lithology vs. depth, A:434–435  
 normative Di–Ol–Hy–Q plot, A:282  
 petrology, A:32–34, 219–220, 222, 266–273,  
 318–324, 368–371, 433–448, 628,  
 630–650; B:888–905  
 Site 834, A:129, 131–150  
 Unit 1, A:267–268  
 Unit 2, A:267–268  
 Unit 3, A:268  
 Unit 4, A:268–270  
 Unit 5, A:270–271  
 well logging, A:164–169  
 X-ray-fluorescence data, A:656

ignimbrite, fault zones, B:315, 317

illite, crystallinity, B:658

image analysis, microfabric, B:799–800

inclusions, pyrrhotite, A:655

incompatible elements  
 basalts, A:154  
 igneous rocks, A:33  
 normalized to N-MORB, A:450

index properties  
 Lau Basin, A:40–41  
 sediments, B:789–790  
 Site 834, A:151–152  
 Site 835, A:226–227  
 Site 836, A:274–275  
 Site 837, A:324–325  
 Site 838, A:371–373  
 Site 839, A:449–451  
 Site 840, A:541–543  
 Site 841, A:651–652

Indian mid-ocean-ridge basalt, geochemistry,  
 B:509–517, 528–530

Indo–Australian Plate  
 active margin, B:173  
 apparent polar wander path, B:771–775  
 subduction, B:288, 373  
 tectonic disruptions, B:182, 313

inductively coupled plasma analysis data,  
 sediments, B:108, 131–146, 155–161

Instantaneous Transform Zone, lineaments, B:821,  
 823

Intermediate Lau Spreading Center, geochemistry,  
 B:386–425

interstitial waters  
 geochemistry, A:126–127, 216–217, 219,  
 265–266, 316–319, 367, 534–535, 537,  
 621–625, 628–629  
 hydrogeochemistry, B:677–688  
 organic acids, B:709–714

ion probe data, volcanic glass, B:37

## SUBJECT INDEX

iron  
 chromian spinel, B:565–584  
 clinopyroxene, B:493  
 hydrothermal deposits, B:77–82  
 sediments, B:840–841  
 spinel, B:585–594  
 turbidite, B:154–161, 832  
 vs. aluminum, B:496–501  
 vs. sulfur, B:612  
*See also* alkali–iron–magnesium diagrams

iron/manganese ratio  
 hydrothermal alteration, B:697–698  
 sediments, B:706  
 vs. zinc + copper + nickel + cobalt +  
 chromium, B:703

iron hydroxide, alteration minerals, A:517, 596–  
 597

iron oxide  
 modal data, B:433–455  
 plagioclase, B:492  
 vs. depth, B:114  
 vs. magnesium oxide, B:442–444, 523  
 vs. silica, B:38, 59, 64, 97

iron oxide/magnesium oxide ratio  
 vs. calcium oxide/aluminum oxide ratio, B:643  
 vs. silica, B:97  
 vs. titanium oxide, B:643

iron oxyhydroxide, turbidite, B:154–161, 832

island arcs  
 evolution, B:514–516, 824  
 geology, A:38–40  
 igneous rocks, B:625–646  
 rifting, B:23–49  
 rotation, B:763–783  
 sedimentation, B:843–855  
 seismic reflection, B:917  
 subduction, B:173–188

isoprenoids, acyclic, sediments, B:672–673

isotopes  
 basalts, B:471–485, 519–531, 894–895  
 volcanic rocks, B:629, 635

Jaramillo Subchron  
 core orientation data, A:363  
 magnetic polarity, A:117, 119, 208–209, 311,  
 423–424, 615–619, 841  
 magnetostratigraphy, B:860–861  
 traces, B:821, 823–825

joints  
 dip, A:110  
 igneous rocks, A:260, 306  
 orientation, A:111  
 stereographic projection, A:203, 419

K/Ar. *See* potassium–argon age data

Kaena Subchron  
 magnetic polarity, A:117, 311, 615–619  
 magnetostratigraphy, B:860–861

Kao, geochemistry, B:392

kaolinite, alteration minerals, A:645

Kermadec Arc  
 element abundances, B:416  
 lava, B:529–530  
 olivine basalts, B:386

King's Triple Junction  
 geochemistry, B:386–425  
 lava, B:529

Koenigsberger ratio  
 modified vs. depth, A:318, 431  
 sediments, A:122–124, 425–428  
 vs. depth, A:125

komatiite, noble metals, B:599, 601

Korobasaga Volcanic Group  
 basalts, B:633

element abundances, B:417  
 geochemistry, A:657; B:393, 839–841

Kuster gauge pressure  
 packer experiments, A:458–461  
 permeability, B:810–812  
 pressure vs. time, A:463

l'Esperance, geochemistry, B:392–393

laminar bedding  
 lithologic units, A:509–511  
 vitric siltstone, A:592–593  
 volcanoclastics, B:833–834

lanthanum. *See* barium/lanthanum ratio

lanthanum/niobium ratio  
 lava, B:410  
 vs. barium/niobium ratio, B:47, 527

lanthanum/samarium ratio  
 vs. age, B:46, 853  
 vs. niobium/zirconium ratio, B:44  
 vs. rubidium, B:44

lanthanum/yttrium ratio, vs. rubidium/strontium  
 ratio, B:44

lapilli, composition, B:897

large-ion-lithophile elements  
 andesite, A:323–324; B:391–406  
 basalts, B:471–485, 523–526, 608–613, 629–  
 630  
 enrichment, A:273  
 igneous rocks, B:890–894  
 volcanic glass, B:851–853  
 volcanoclastics, B:838

Lau–Tonga forearc basin, Miocene, B:87–100

Lau–Tonga protoarc, rifting, B:288

Lau Basin  
 bacteria, B:147–150  
 basaltic andesites, B:557–563  
 basalts, B:595–613  
 bathymetric chart, B:10  
 bathymetry, A:292  
 biostratigraphy, A:23–26; B:191–205, 207–  
 229  
 Cenozoic evolution, B:900–902  
 convergent plate margins, B:3–5  
 depleted basalts, B:565–584  
 downhole measurements, A:41–44  
 element abundances, B:413  
 geochemical logs, B:931–949  
 geochemistry, B:385–425, 689–707  
 geologic setting, A:341; B:819–828, 885–886  
 geotechnical properties, B:787–795, 797–804  
 hydrogeochemistry, B:677–688  
 hydrothermal deposits, B:75–86  
 igneous petrology, A:32–34  
 inorganic geochemistry, A:31–32  
 lava, B:528–529  
 lithostratigraphy, A:14–21  
 magnetization, B:717–735  
 mineralogy, B:386–388  
 Miocene, B:87–100  
 morphotectonics, A:185–186, 341  
 ocean basins, A:5–47  
 opening, A:579; B:771–775  
 organic geochemistry, A:32  
 paleomagnetism, A:2–31; B:737–762  
 permeability, B:805–816  
 petrology, B:427–470, 487–503, 879–905  
 physical properties, A:40–41  
 plagioclase zoning, B:544–549  
 reduction haloes, B:151–162  
 sedimentation, B:829–842  
 sedimentation rates, A:26, 28–29  
 sediments, B:131–146, 667–676  
 seismic profiles, B:331–365  
 seismic reflection, B:909–921

- site description, A:85–170, 181–245  
 spinel, B:585–594  
 stratigraphy, B:857–877  
 tectonics, A:252; B:9–21, 173, 287–299, 306–307  
 timing of principal events, A:35  
 turbidites, B:101–130  
 volcanic glass, B:533–542  
 volcanoclastics, B:51–74  
 volcanic rocks, B:615–623  
 volcanism, B:23–49
- Lau Ridge  
 basalts, B:471–485  
 crust, A:579  
 geochemistry, B:631–632  
 geologic setting, B:883  
 lava, B:529  
 Miocene, B:87–100  
 morphotectonics, A:10  
 petrology, B:879–905  
 plate tectonics, B:763  
 stratigraphy, B:857–877  
 tectonics, A:252  
 volcanic arcs, A:92
- Lau Volcanic Group  
 basalts, B:471–485, 633  
 element abundances, B:417  
 geochemistry, A:657; B:393  
 middle Miocene, B:40
- lava  
 basaltic andesites, B:557–563  
 chemical composition, B:3, 499–503  
 dating, B:923  
 fractionation, B:474–475  
 geochemistry, B:526, 568, 635  
 petrography, A:146–147  
 plagioclase olivine quartz, B:402  
 plagioclase zoning, B:543–556  
 quartz olivine clinopyroxene, B:401  
 silicic rocks, B:653–663  
 vesicles, A:141
- lava, boninitic, modal data, B:386–387  
 lava, calc-alkaline, composition, B:39–40  
 lava flows  
 lithologic units, A:103–104  
 physical parameters, A:169  
 vesicularity, B:615–623
- leaching, microfaults, A:603; B:318
- lead  
 basalts, B:475–476  
 volcanic rocks, B:533–542  
 vs. depth, B:114  
*See also* cesium/lead ratio
- lead isotopes  
 basalts, B:471–485, 505–517  
 volcanic rocks, B:635  
 vs. depth, B:478
- lead-206/lead-204 ratio  
 basalts, B:477  
 vs. barium/rubidium ratio, B:480, 482  
 vs. depth, B:511  
 vs. lead-207/lead-204 ratio, B:478, 510, 527–528  
 vs. lead-208/lead-204 ratio, B:478, 510, 527–528
- lead-207/lead-204 ratio  
 basalts, B:477  
 vs. depth, B:511  
 vs. lead-206/lead-204 ratio, B:478, 510, 527–528
- lead-208/lead-204 ratio  
 basalts, B:477  
 vs. depth, B:511  
 vs. lead-206/lead-204 ratio, B:478, 510, 527–528
- 528  
 light-rare-earth elements, basalts, B:629–630  
 LILE. *See* large-ion-lithophile elements
- lineaments  
 backarc basins, B:820–825  
 structural interpretation, B:376–377
- lineations, frequency histograms, B:380
- liquid lines of descent  
 basaltic andesites, B:557–563  
 fractional crystallization, B:478–479  
 graphic plots, B:502–503
- lithic fragments, basaltic, photograph, A:371
- lithium, vs. depth, B:116
- lithodensity logs, A:551–552
- lithofacies  
 composition, B:88–92  
 sequences, B:25–27  
 transitions, B:94–98
- lithologic contacts, vs. depth, A:136
- lithologic summary  
 Site 834, A:86–88  
 Sites 834 and 835, A:15  
 Sites 836–839, A:18–19
- lithologic units  
 composition, B:367–368  
 igneous rocks, A:131–150, 433–448  
 sediments, B:164  
 Site 834, A:98–104  
 Site 835, A:191–201  
 Site 836, A:255–260  
 Site 837, A:295–305  
 Site 838, A:346–356  
 Site 839, A:410–414  
 Site 840, A:500–512  
 Site 841, A:585–595  
 Unit I, A:98–99, 101, 193–194, 196, 255–257, 295–297, 346, 410, 500–501, 585, 589  
 Unit II, A:196–201, 297–301, 348–351, 410, 412–414, 501, 503, 589–590  
 Unit III, A:351, 414, 503, 506–512, 590–591; B:87–92  
 Unit IV, A:591, 593  
 Unit V, A:594–595
- lithology, vs. depth, A:222
- lithoporosity tool-string logs  
 vs. depth, A:382, 472–473
- lithostratigraphy  
 Cenozoic, B:133, 829–832  
 Miocene, B:90  
 Neogene, B:739  
 Paleogene, B:245–249  
 Site 834, A:98–109  
 Site 835, A:190–201  
 Site 836, A:255–260  
 Site 837, A:295–305  
 Site 838, A:346–357  
 Site 839, A:410–418  
 Site 840, A:20–21, 500–520  
 Site 841, A:21, 585–598  
 Sites 834 and 835, A:14, 16  
 Sites 836–839, A:16–20
- load casts, photograph, A:593
- location map, A:6
- Lord Howe Rise, tectonics, A:13–14, 582; B:880
- Louisville Ridge  
 sedimentation, B:854–855  
 sidescan sonar, B:373–382  
 tectonics, B:313, 326–328
- Louisville Seamount Chain  
 structural provinces, A:11  
 subduction, B:178, 187  
 tectonics, B:170
- LREE. *See* light-rare-earth elements
- Lutetian, rhyolite, B:923
- lysocline  
 dissolution, B:169–170  
 indicators, B:847–849  
 subsidence, B:179–180
- Macauley, geochemistry, B:393
- magma chambers, petrogenesis, B:837–838
- magma sources, subduction zones, B:899
- magma systems, origin, A:5, 7
- magmas  
 affinities, B:388  
 composition, B:550  
 leakage, A:185–186  
 mixing, A:279, 281; B:474–485, 530  
 petrogenesis, B:393–394, 512–514, 888–905  
 supra-subduction zone, B:454
- magmas, boninitic, evolution, B:898–899
- magmas, hydrous, fractional crystallization, B:563
- magmas, rhyolitic, eruptions, B:72–73
- magmatic underplating, sedimentation, B:853–855
- magnesium  
 chromian spinel, B:565–584  
 depletion in vesicles, B:615  
 interstitial waters, A:365–367, 432; B:680–688  
 spinel, B:590–591  
 volcanic rocks, B:492–494  
 vs. calcium, B:699  
 vs. depth, A:128, 220, 368, 539, 629  
 vs. strontium/zirconium ratio, B:452  
 vs. zirconium, B:449  
*See also* alkali-iron-magnesium diagrams
- magnesium/calcium ratio, sediments, B:706
- magnesium oxide  
 igneous rocks, A:149–151  
 lava, B:403  
 nickel, B:412  
 plagioclase, B:492  
 vs. aluminum oxide, B:442–444  
 vs. barium/rubidium ratio, B:477  
 vs. barium, B:409, 477  
 vs. calcium, B:479  
 vs. calcium oxide/aluminum oxide ratio, B:445  
 vs. calcium oxide, B:404, 442–444  
 vs. depth, A:449; B:66, 68, 70  
 vs. iron oxide, B:442–444, 523  
 vs. major elements, B:440  
 vs. neodymium, B:478  
 vs. nickel, B:523  
 vs. niobium, B:478  
 vs. potassium oxide, B:60, 442–444  
 vs. silica, B:59, 64, 479  
 vs. sodium oxide, B:405, 442–444, 523  
 vs. strontium, B:523  
 vs. sulfur, B:609  
 vs. titanium oxide, B:406, 442–444, 479, 523  
 vs. zirconium, B:411, 478, 523  
*See also* iron oxide/magnesium oxide ratio
- magnetic anomalies  
 backarc basins, B:820–825  
 Lau Basin, A:11, 95–96  
 Site 835, A:186–187, 189  
 Site 836, A:252
- magnetic declination  
 oriented data, A:623  
 Pliocene, A:30  
 sediments, B:769  
 vs. depth, A:120–121, 211–213, 314–315, 366, 425–427; B:749, 753–754, 758–759
- magnetic fabric, backarc basins, B:820–825
- magnetic inclination  
 sediments, B:732–734, 769



## magnetic inclination (cont.)

- vs. depth, A:120–121, 211–213, 314–315, 366, 425–427, 620; B:749, 753–754, 758–759
- magnetic inclination flattening, sediments, B:719
- magnetic intensity, ooze, B:744
- magnetic polarity
- basalts, A:124–126
  - Neogene, B:737–762
  - vs. depth, A:123, 215, 429
- magnetic polarity zones
- Site 834, A:122
  - Site 835, A:214–216
  - Site 838, A:367
  - Site 839, A:428
- magnetic poles. *See* pole positions
- magnetic properties
- basement, A:111
  - sediments, A:117, 262–263, 309, 422–423, 615
  - sediments and basalts, B:717–735
- magnetic remanent intensity, sediments, B:732–733
- magnetic reversals
- Neogene, B:737–762
  - reverse polarity, B:769
- magnetic susceptibility
- Lau Basin, A:30–31
  - Site 834, A:122–126
  - Site 835, A:209, 212
  - Site 838, A:365
  - Site 840, A:533–534
  - Site 841, A:619, 621
  - vs. depth, A:123, 126, 317
  - See also* Koenigsberger ratio
- magnetic susceptibility, volume
- basalt, A:313
  - sediments, A:313, 425–428
  - sediments and basalts, B:719–735
  - Site 836, A:263, 265
  - vs. depth, A:217–218, 368, 430–431, 536–537, 626–627
  - vs. silica, A:353
- magnetite, interstitial, alteration minerals, A:370
- magnetite, titanian
- alteration minerals, A:644
  - andesite, A:142–143
  - chemical composition, B:522, 535–536, 539, 542
  - electron probe data, B:470
  - groundmass, A:147
  - petrography, A:220, 222
  - photograph, A:521, 639
  - rock magnetism, B:719
- magnetization intensity
- basalts, A:119
  - sediments, A:118
- magnetostratigraphy
- correlation, A:29
  - magnetic polarity, 314–315, 363, 365
  - Neogene, B:857–877
  - Pleistocene, B:737–762
  - polarity, A:117–119
  - Site 835, A:211
  - Site 836, A:263–264
  - Site 837, A:309–311
  - Site 838, A:366
  - Site 839, A:423–425
  - Site 840, A:531–533
  - Site 841, A:615–619
  - vs. depth, A:617
- Mago Volcanic Group, geochemistry, B:393
- major elements
- andesite, A:323, 325
  - backarc basins, B:441–447

## SUBJECT INDEX

- basalts, A:223–224, 230; B:471–485, 488, 490–503, 512–513, 519–531, 598, 606, 630–632
- igneous rocks, A:34–35, 150–152, 272–274, 370–372, 444–448
- interstitial waters, A:126–127
- lava, B:388–390
- sediments, B:691–694
- silicic rocks, B:656
- turbidite, B:108, 154–161
- volcanic glass, B:27–34
- vs. depth, B:546
- vs. magnesium oxide, B:440
- X-ray fluorescence, B:925–926
- major oxides, geochemical logs, B:938, 941, 944–945, 948–949
- Mammoth Subchron, magnetic polarity, A:117, 615–619
- manganese
- accumulation rate vs. distance to Central Lau Spreading Center, B:703
  - accumulation rate vs. distance to Eastern Lau Spreading Center, B:705
  - hydrothermal deposits, B:77–82
  - interstitial waters, A:127, 216, 316–318, 366, 429, 432; B:680–688
  - sediments, B:840–841
  - turbidite, B:154–161, 832
  - volcanic rocks, B:533–542
  - vs. depth, A:128, 220, 320, 369, 539; B:127
  - vs. zinc + copper + nickel + cobalt + chromium, B:702
- manganese/calcium ratio
- sediments, B:706
  - vs. strontium/calcium ratio, B:701
- manganese crusts, sediments, B:841
- manganese oxide
- lithologic units, A:197
  - vs. depth, B:114
- manganese oxyhydroxide
- color, B:832
  - turbidite, B:154–161
- Mangatolu Triple Junction
- morphotectonics, A:184–185
  - petrology, B:439–441
- mantle
- attenuation, A:9
  - geochemistry, B:631–632
  - replacement, B:399–406
  - supra-subduction zone, B:454
- mantle advection, backarc basins, B:505–517
- mantle dynamics
- island arc evolution, B:514–515
  - slab rollback, B:510–512
- marcasite, electron probe data, B:659
- Mariana–Bonin Forearc, geochemistry, B:632
- Mariana Forearc, organic geochemistry, B:709
- Mariana Trench, crust, A:579, 581
- marl, Miocene, B:164
- marlstone, Miocene, B:164
- mass-flow deposits
- Miocene, B:87–100
  - sedimentation, B:44
- materials balance, crystal melt equilibria, B:499–502
- maturation, thermal, sediments, B:712–713
- maturity, biomarkers, B:672–673
- Matuyama/Brunhes boundary, magnetostratigraphy, A:117
- Matuyama Chron
- biostratigraphic events, B:872–873, 876
  - core orientation data, A:363
  - magnetic polarity, A:117, 208–209, 311, 423–424, 615–619
- magnetostratigraphy, B:737–762
- median destructive field, sediments and basalts, B:717–719
- “Melanesian island arc,” evolution, A:92
- mesostasis
- basalts, A:145–147
  - minerals, A:644–645
  - petrography, A:220, 222
  - photograph, A:224
  - volcanic rocks, B:620–623
- mesostasis, cryptocrystalline, alteration, A:228
- mesostasis, variolitic, andesite, A:370
- metals, basalts, B:595–602
- metamorphism, greenschist facies, A:644
- methane, headspace analyses, A:127, 367–368, 431–433, 537–538, 625–628, 630–631
- methanogenesis, sediments, B:148
- Metis Shoal
- lava, B:387
  - rhyolitic glass, B:386
- microbial alteration, sediments, B:711–712
- microfabric, sediments, B:797–804
- microfaults
- bedding, A:593
  - dip frequency histograms, B:321
  - lithofacies, B:88
  - photograph, A:602
  - sediments, A:523, 526
- microfaults, normal, hydrothermal alteration, B:316–318
- microfossils
- preservation, B:165–170
  - turbidite, B:108
- microlite
- diabase, A:137
  - plagioclase, A:227; B:615
- microphenocrysts, photograph, A:143
- microthermometry, fluid inclusions, B:658
- microthrusts
- folds, B:323
  - sediments, A:606
- mid-ocean-ridge basalts
- composition, B:433–455, 888–894
  - See also* near-normal mid-ocean-ridge basalts
- middle-rare-earth elements, andesite, B:392–406
- Milankovitch cycles, Q values, A:318
- mineralization, hydrothermal alteration, B:658
- minor elements
- hydrothermal alteration, B:695–697
  - turbidite, B:108, 154–161
- Miocene
- biostratigraphy, A:116, 524–526, 603–613; B:191–229, 233–234, 267–284
  - lithologic units, A:500–512, 590–593
  - paleomagnetism, B:763–783
  - sedimentation, B:367–370
  - stratigraphy, B:857–877
- Miocene, middle, volcanics, B:40
- Miocene, upper
- mass flows, B:87–100
  - sedimentation, B:163–172
- modal analyses
- basaltic andesites, A:323, 638
  - basalts, A:226
  - igneous rocks, A:138, 270, 438–439
- molds, foraminifers, B:167
- moretanes, biomarkers, B:672–673
- morphotectonic domains, basins, B:819–821
- mottling, sediments, B:106
- MREE. *See* middle-rare-earth elements
- mud, hemipelagic, distinguishing from turbidite, B:106
- mud clasts, lithologic units, A:193–194
- mudslides, units, B:111–112

- multivariate analysis, hydrothermal deposits, B:75–76, 79  
 Munsell color values, sediments, B:832  
  
 n-alkanes, sediments, B:672–673  
 N-MORB. *See* near-normal mid-ocean-ridge basalts  
 nannofossils, turbidites, B:835  
 nannofossils, calcareous  
   abundance vs. depth, B:170  
   biostratigraphy, A:112, 115, 203–206, 260–261, 306, 360, 419–420, 524–525, 603–606; B:191–205, 267–284, 866–877  
   distribution, B:117–118  
   vs. depth, A:206  
 Nares Abyssal Plain, manganese profiles, B:158  
 natrolite, alteration minerals, A:596–597  
 natural gamma-ray logs, vs. depth, A:167, 474–475  
 near-normal mid-ocean-ridge basalts  
   composition, B:476–485, 639  
   geochemistry, B:509–517, 525, 839–840  
   trace elements, B:391–406  
 neodymium  
   vs. magnesium oxide, B:478  
   *See also* strontium/neodymium ratio  
 neodymium isotopes  
   basalts, B:471–485, 505–517  
   volcanic rocks, B:635  
 neodymium-143/neodymium-144 ratio  
   vs. strontium-87/strontium-86 ratio, B:478, 509, 528  
 Neogene, upper, biostratigraphy, B:857–877  
 Neptunian dikes. *See* sandstone dikes  
 neutron porosity logs  
   Site 838, A:384  
   Site 839, A:464  
   Site 840, A:551–552  
   Site 841, A:658  
 New Caledonia Basin, tectonics, A:14; B:880–882  
 New Hebrides–Vanuatu Ridge, evolution, A:92  
 new taxa, calcareous nannofossils, B:199, 203  
 nickel  
   depletion in vesicles, B:615  
   hydrothermal deposits, B:77–82  
   igneous rocks, A:370–372  
   turbidite, B:155–158  
   volcanic rocks, B:533–542  
   vs. depth, Site 835, B:114, 116  
   vs. magnesium oxide, B:412, 523  
   vs. zirconium, B:452  
   *See also* zinc + copper + nickel + cobalt + chromium  
 nickel oxide, olivine, B:495  
 niobium  
   andesite, A:323  
   depletion, B:39–40, 394–399, 839–841  
   vs. age, B:46  
   vs. magnesium oxide, B:478  
   vs. niobium/zirconium ratio, B:44  
   vs. zirconium, B:41, 852  
   *See also* lanthanum/niobium ratio; potassium/niobium ratio  
 niobium/niobium (MORB) ratio, lava, B:410  
 niobium/thorium ratio, lava, B:410  
 niobium/uranium ratio, basalts, B:475  
 niobium/yttrium ratio, vs. zirconium/titanium oxide ratio, B:655  
 niobium/zirconium ratio  
   tholeiitic basalt, B:36–39  
   vs. age, B:46–47, 853  
   vs. lanthanum/samarium ratio, B:44  
   vs. niobium, B:44  
  
 nitrogen  
   headspace analyses, A:318–319  
   sediments, A:540–541  
   vs. depth, A:130–131  
 Niuafo'ou  
   element abundances, B:414  
   lava, B:386, 529  
   morphotectonics, A:184–185  
 Niuaotupapu  
   basalts, B:509  
   lava, B:528  
 noble metals, basalts, B:595–602  
 Norfolk Ridge, tectonics, A:13–14, 582; B:880  
 normal faults, volcanoclastics, A:598–601  
 Normarski differential interference contrast, plagioclase zoning, B:543–556  
 North Fiji Basin, backarc basins, B:882  
 North Loyalty Basin, backarc basins, B:882  
 Nuku'alofa, oil seeps, B:673  
 Nunivak Subchron, magnetic polarity, A:118, 531–533, 615–619  
  
 ocean basins  
   Lau Basin, A:5–47  
   schematic cross section, A:34  
 Ocean Drilling Program, structural and paleomagnetic studies, B:301–311  
 oceanic circulation, patterns, B:258  
 oceanic crust, blocks, A:91–92  
 ODP. *See* Ocean Drilling Program  
 oikocrysts  
   clinopyroxene, A:137  
   photograph, A:142  
 oil seeps, geochemistry, B:667–676  
 Olduvai Subchron  
   magnetic polarity, A:209, 311, 423–424, 615–619  
   magnetostratigraphy, B:860  
   spreading rates, B:828  
 Oligocene  
   biostratigraphy, A:606–614; B:245–266, 273–274  
   lithologic units, A:594–595  
 olivine  
   basaltic andesites, B:559–562  
   basalts, A:131–134, 139–146; B:592–593  
   chemical composition, B:489–503, 520–521, 524, 535–536, 539, 541, 574–577  
   electron probe data, B:398, 469  
   modal data, B:386–389, 430–455  
   petrography, A:220, 222, 433–448  
   phenocrysts, A:319–323, 440  
 olivine, magnesian  
   modal data, B:387  
   volcanic rocks, A:450  
 olivine, modal, vs. depth, A:440–441  
 olivine, skeletal, phenocrysts, A:275  
 Ontong–Java Plateau, collision, B:173, 187  
 ooze, foraminiferal, graded, lithologic units, A:296–297  
 ooze, foraminiferal, lithologic units, A:99, 101  
 ooze, nannofossil, clayey  
 color, B:832  
   lithofacies, B:101–130  
   lithologic units, A:98–99, 101, 193, 197, 255–257, 295–301, 347–349, 410–412, 500–501  
   Miocene, B:164  
 ooze, nannofossil, vitric, lithologic units, A:501  
   lithofacies, B:25–27, 175–178  
   magnetostratigraphy, B:737–762  
   permeability, B:801  
 ophiolite  
   comparison in different areas, B:454  
  
 magmas, B:898–899  
 ophitic textures, photograph, A:280  
 ore-forming elements  
   accumulation rate vs. distance to Central Lau Spreading Center, B:703  
   accumulation rate vs. distance to Eastern Lau Spreading Center, B:705  
 ore minerals, hydrothermal alteration, B:657–658  
 organic acids, interstitial waters, Tonga arc–trench system, B:709–714  
 organic materials, sediments, B:148, 667–676  
 orthopyroxene  
   basaltic andesites, B:559–562  
   chemical composition, B:521–522, 524, 535–536, 538, 541  
   modal data, B:433–455  
   phenocrysts, A:267–268  
   photograph, A:443  
 orthopyroxene, euhedral, microphenocrysts, A:272–273  
 oxidation, basalts, B:603–613  
 oxide phase, hydrothermal deposits, B:75–76  
 oxygen fugacity  
   basalts, B:603–613  
   chlorite, B:660  
   vs. barium/lanthanum ratio, B:609  
   vs. rubidium, B:609  
   vs. strontium-87/strontium-86 ratio, B:609  
   vs. sulfur, B:611  
 Ozbourn Seamount, topography, B:375–376  
  
 Pacific mid-ocean-ridge basalt, composition, B:471–485, 509–517, 528–530  
 Pacific Ocean W, convergent plate margins, B:3–5  
 Pacific Plate, subduction, B:288  
 palagonite, alteration, A:223  
 paleomagnetism  
   core reorientation, B:301–311  
   Site 836, A:262–265  
   Site 837, A:309–315  
   Site 838, A:363–365  
   Site 839, A:422–428  
   Site 840, A:526, 530–534  
 paleontology  
   Site 835, A:204  
   Site 838, A:362  
   Site 839, A:421  
   Site 840, A:528–529  
   Site 841, A:610–612  
   vs. depth, A:114–115  
 paleopoles. *See* magnetic polarity; pole positions  
 paleowater depths  
   lithofacies, B:178–188  
   Tonga Forearc, B:847  
 palladium  
   vs. copper, B:600  
   vs. gold, B:602  
 palladium + platinum, vs. copper, B:600  
 paraconformities, Horizon A, B:369  
 partition coefficients  
   basalts, B:526–527, 533, 537–539  
   fractional melting, B:404  
 partition geochemistry, hydrothermal deposits, B:76–77  
 Pearce plots, crystal melt equilibria, B:498–499  
 Peggy Ridge  
   lava, B:529  
   morphotectonics, A:10  
   ridge propagation, B:399, 819  
   sonar imagery, B:373  
   spreading centers, A:185; B:9  
   subduction, B:454  
 pentoliths, preservation, B:276  
 permeability

## permeability (cont.)

- sediments, B:790, 800–801  
vs. effective stress, B:792
- permeability, bulk, backarc basalt, B:805–816
- petrography  
igneous rocks, A:131–150  
lithofacies, B:92  
rock units, A:137
- petrology  
graphic projections, B:487–503  
synthesis, B:879–905
- petrophysical logs, sediments, B:131–146
- PGE. *See* platinum group elements
- pH, interstitial waters, B:680–688
- phase chemistry, sediments, B:92–94
- phase equilibria  
basaltic andesites, B:557–563  
graphic projections, B:487–503  
quartz–albite–orthoclase, B:639  
quartz–olivine–clinopyroxene, B:523
- phenocrysts  
basaltic andesites, B:559–560  
chemical composition, B:637  
modal data, B:386–389  
photograph, A:223  
quartz, B:657  
spinel, B:592–593
- phillipsite  
hydrothermal alteration, B:694–697  
microfabric, B:800–801
- phosphate  
interstitial waters, A:216, 266, 316–318;  
B:683–688  
vs. depth, A:220, 320, 629
- phosphorus, hydrothermal alteration, B:695–697
- phosphorus oxide  
vs. depth, B:116  
vs. yttrium, B:701
- phosphorus oxide/yttrium ratio, sediments, B:706
- physical properties  
Lau Basin, A:40–41  
sediments, B:787–795, 798  
Site 834, A:150–159  
Site 835, A:224, 226–230, 232–234  
Site 836, A:274–277  
Site 837, A:324–329  
Site 838, A:371–379  
Site 839, A:448–455  
Site 840, A:538–539, 541–549  
Site 841, A:650–655  
turbidite, B:109
- phytane, sediments, B:672–673
- Pili, oil seeps, B:667–676
- pillow tubes, petrology, B:837
- pitchstone  
photograph, A:642  
plagioclase–quartz phyric rhyolite, B:636
- plagioclase  
basaltic andesites, B:559–562  
basalts, A:131–134, 139–146  
chemical composition, B:40, 92, 473–475,  
489–503, 520–521, 524, 534, 536–537,  
540  
crystallites, A:271  
electron probe data, B:395, 465–466  
geochemistry, B:36–37  
glomerocrysts, A:145  
microlite, A:227  
modal data, B:386–389, 430–455  
petrography, A:219–220, 222, 369–371, 433–  
448  
phenocrysts, A:267–268, 319–323  
photograph, A:144, 324, 443, 521, 639, 654  
zoning, B:543–556
- plagioclase, calcic, phenocrysts, A:147

## SUBJECT INDEX

- plagioclase, euhedral, photograph, A:600
- plagioclase, resorbed, rhyolitic clast, A:644
- plagioclase–olivine–clinopyroxene, phase equilibria, B:497
- planar features, measurement methods, B:303–305
- Planolites*, photographs, A:507–508
- plate collisions, rates, B:327–328
- plate margins  
active, B:173–188  
collisions, B:313  
convergence, B:3–5
- plate margins, convergent, ocean basins, A:5–47
- plate margins, convergent, intraoceanic, crustal generation, B:427
- plate tectonics  
history, B:509–510  
rotation, B:763–783
- platinum  
vs. copper, B:600  
*See also* palladium + platinum
- platinum group elements  
basalts, B:595–602  
magmas, B:892–894
- Pleistocene  
biostratigraphy, A:115, 203–206, 260–261,  
306–308, 360, 419–422, 524–526,  
603–613; B:191–229, 267–284  
lithologic units, A:193–194, 196, 255–257,  
295–301, 346–351, 410–414, 500–501  
lithostratigraphy, B:829–838  
stratigraphy, B:857–877  
turbidite, B:101–130  
volcaniclastic sedimentation, B:50–74
- Pliocene  
biostratigraphy, A:112–116, 306–308, 360,  
419–422, 524–526, 606–614; B:191–  
229, 267–284  
lithologic units, A:193–194, 196–201, 255–  
257, 297–301, 349–351, 410–414,  
500–501, 503, 589–590  
lithostratigraphy, B:829–838  
paleomagnetism, B:763–783  
stratigraphy, B:857–977  
turbidite, B:101–130  
unconformities, B:367–370  
volcaniclastics, B:51–74  
volcanism, B:48
- plume fallout, hydrothermal deposits, B:84–86
- polar wandering, apparent paths, B:771–775
- pole positions  
Cobb Mountain Event, B:760–762  
sediments, B:765–774
- porosity  
image analysis, B:800  
sediments, B:148, 789  
vs. depth, A:158, 235, 285, 327, 373, 451, 546,  
660, 664  
*See also* void ratio
- potassium  
basalts, B:475–476  
interstitial waters, A:365–367, 432; B:680–  
688  
sediments, B:140–141  
vs. calcium, B:144  
vs. depth, A:128, 220, 320, 369, 539, 629  
*See also* sulfur/potassium ratio
- potassium–argon age data, rhyolitic glass, B:923
- potassium/niobium ratio, lava, B:410
- potassium oxide  
vs. magnesium oxide, B:60, 442–444  
vs. silica, A:372; B:60, 65, 97, 836  
vs. water, B:62
- pre-Gilbert Chron, biostratigraphic events, Lau Basin, B:875–877
- prehnite  
alteration minerals, A:596–597  
photograph, A:601
- pressure increase, vs. time, A:463; B:813
- pressure tests, basalt, B:809
- pristane, sediments, B:672–673
- propionate  
interstitial waters, B:710–711  
vs. depth, B:712–713  
vs. formate, B:711
- proto-Tofua Arc, tectonic evolution, B:530
- protoliths, foliation, B:320
- proton probe data, volcanic glass, B:533–542
- provincialism, Paleogene, B:252–256
- pseudofaults, sedimentation, B:21
- pteropods, lysocline, B:169–170
- pumice  
breccia, B:643–644  
lithologic units, A:104–105  
photograph, A:645
- pumice, black, photograph, A:642
- pumice, rhyodacitic, chemical composition, A:517
- pumice, rhyolitic, petrology, A:632–635
- pumice, weathered, photograph, A:194
- pumice clasts, sediments, A:299, 350; B:69, 107
- pumice clasts, rhyolitic, composition, A:356
- pumice dropstones, composition, B:835
- pumpellyite, photograph, A:602
- pyrite, alteration minerals, A:644–645; B:658
- pyroclastics  
composition, B:72, 834–835  
fallout deposits, A:105–109  
petrology, A:631–643  
sediments, A:304
- pyroxene  
basaltic andesites, B:559–562  
chemical composition, B:521–522, 524  
electron probe data, B:399  
major elements, B:34–36  
modal data, B:386–389  
phenocrysts, A:319–323
- pyrrhotite  
geochemistry, B:660  
photograph, A:655
- Q ratio. *See* Koenigsberger ratio
- quad-tool-string logs, vs. depth, A:668–669
- quartz  
alteration minerals, A:370, 596–597; B:657  
hydrothermal alteration, B:316–318  
phenocrysts, A:643  
quartz–albite–orthoclase, phase equilibria, B:639  
quartz–olivine–clinopyroxene, phase equilibria,  
B:496, 523  
quartz–olivine–plagioclase, phase equilibria,  
B:621  
quartz, glomerophyric, photograph, A:356
- radiometric age, volcanic rocks, A:95
- rafted blocks, sedimentation, B:116, 832–833
- Raoul Group, geochemistry, B:393
- rare earths  
basaltic andesite, B:43, 392–406  
basaltic glass, B:47  
basalts, B:598  
igneous rocks, B:448–453, 890–894  
silicic rocks, B:656–657  
volcanic glass, B:34–39, 851–853  
volcaniclastics, B:838
- rare earths, chondrite-normalized  
basalts, B:523–526  
rhyolite, B:640
- Rayleigh fractionation  
basalts, B:623

- geochemistry, B:535  
 redeposition  
 nannofossil ooze, B:832–833  
 sedimentation, B:116  
 reduction, sediments, B:148  
 reduction haloes, turbidites, B:151–162, 832  
 REE. *See* rare earths  
 reefs, Lau Basin, A:91  
 refractive indices  
 glass shards, A:107, 597  
 sediment sources, B:26  
 silica, A:108, 199, 258, 304, 354, 416, 514, 596  
 remanent magnetization  
 acquisition curves, A:117  
 sediments, A:208, 262–264, 309, 363, 365, 422–425, 526, 530, 615; B:770  
 remanent magnetization, chemical, sediments, B:765–771  
 remanent magnetization, isothermal, saturation, ooze, B:745, 752, 757  
 remanent magnetization, natural, histograms, A:530  
 resistivity logs, vs. depth, A:234, 237–238, 384, 464, 551–552, 659; B:129  
 resistivity–natural gamma-ray logs, Site 839, A:479–481  
 resistivity–sonic–natural gamma-ray logs  
 Site 834, A:172–174  
 Site 835, A: 244  
 Site 838, A:392–393  
 Site 840, A:559–562  
 Site 841, A:672–674  
 Réunion Subchron, magnetic polarity, A:209, 423–424  
 reverse faults  
 clays, A:601–602  
 photograph, A:606  
 reworking  
 lithologic units, A:257–258  
 volcanoclastics, A:105–109, 199–200  
 rhyodacite, alteration, B:653–663  
 rhyolites  
 composition, B:433–455, 837  
 dating, B:923  
 geochemistry, B:625–646  
 subaerial vs. subaqueous origin, B:634  
 volcanic glass, B:62  
 rhyolites, low-potassium, composition, B:897  
 rhyolites, quartz–plagioclase, petrology, A:632–635  
 rhyolites, vitrophyric, geochemistry, B:533–542  
 ridge collision, sedimentation, B:843–855  
 ridge propagation  
 plates, B:399  
 sonar imagery, B:373  
 tectonics, B:897–899  
 two-stage, B:819–828  
 rifting  
 evolution, B:173, 175  
 geochemistry, B:839–841  
 island arcs, B:288–289  
 Lau Basin, B:23–49  
 sedimentation, B:367–371, 843–855  
 rifts, seismic reflection profiles, B:17–20  
 rock contacts, vs. depth, A:436  
 rock magnetism  
 sediments and basalts, B:717–735  
 vs. depth, Lau Basin, B:743, 750, 755  
 Rock-Eval analysis, total organic carbon, B:668–671  
 rubidium  
 basalts, B:475–476  
 volcanic rocks, B:533–542  
 vs. barium, B:477  
 vs. depth, A:449  
 vs. lanthanum/samarium ratio, B:44  
 vs. oxygen fugacity, B:609  
 vs. sulfur, B:610  
 rubidium/cesium ratio, lava, B:410  
 rubidium/strontium ratio, vs. lanthanum/yttrium ratio, B:44  
 rutile, hydrothermal alteration, B:657–658  
 samarium. *See* barium/samarium ratio; cesium/samarium ratio; lanthanum/samarium ratio; zirconium/samarium ratio  
 samarium/hafnium ratio, lava, B:410  
 sample preparation, X-ray fluorescence, B:927–929  
 sand  
 interbeds, A:194, 196  
 lithologic units, A:99, 101  
 sand, foraminiferal, graded, lithologic units, A:296–297  
 sand, vitric  
 electron micrographs, B:799  
 lithologic units, A:255–257, 348–351, 410–414, 501–503, 585, 589  
 photograph, A:255  
 sand, volcanic  
 lithologic units, A:297–301, 415–416  
 sandiness, turbidite, B:115–116  
 sandstone  
 correlation, B:367–368  
 lithofacies, B:175–178  
 sandstone, vitric, lithologic units, A:352, 503–508, 589–591, 593  
 sandstone, volcanic, lithologic units, A:591, 593–595  
 sandstone, volcanoclastic, lithostratigraphy, B:87–92  
 sandstone dikes  
 injection, B:321  
*See also* clastic dikes  
 scandium  
 depletion in vesicles, B:615  
 vs. aluminum, B:702  
 scour marks, erosional, photograph, A:195  
 seafloor spreading  
 backarc opening, B:471–485  
 igneous rocks, B:439–441  
 morphotectonics, A:252  
 propagation, B:819–828  
 rates, B:823–825  
 regional fabric, A:185  
 slab rollback, B:510–512  
 tectonics, A:21–23  
 sea-level changes, B:98, 180–182, 848–849  
 seamounts  
 collisions, B:325–328  
 volcanoclastics, B:72–73  
 volcanism, B:40–41  
 seawater circulation, interstitial waters, B:685–688  
 secondary minerals, vs. depth, A:598  
 sediment–igneous rock contacts, well logging, A:163–164  
 sedimentary basins, Lau Basin, A:91–92  
 sedimentary structures  
 backarc basins, B:53  
 lithologic units, A:509–512  
 orientation measurement methods, B:303–305  
 volcanoclastics, B:835–837  
*See also* bedding; burrows; convolute bedding; cross bedding; cross lamination; cross stratification; flame structures; load casts; soft sediment deformation;  
 stratification; trace fossils  
 sedimentation  
 arc rifting, B:843–855  
 backarc basins, B:896  
 controls, B:173–188  
 evolution, B:9–21  
 hemipelagic and pelagic environment, A:109  
 Lau Basin, B:23–49  
 processes, B:829–842  
 seafloor spreading, B:369–370  
 sources, A:200–201  
 tectonic controls, B:833–835  
 upper Miocene, B:163–172  
 volcanoclastics, A:14, 16, 20; B:94–98  
 sedimentation history  
 bedding, A:356–357  
 hemipelagic deposition, A:259–260  
 Site 837, A:305  
 Site 839, A:417–418  
 Site 841, A:597–598  
 volcanoclastics, A:518–520  
 sedimentation rates  
 cyclicity, B:140–146  
 history, B:109–112  
 Lau Basin, A:26, 28–29  
 ore-forming elements, B:702–706  
 Site 834, A:116  
 Site 835, A:207  
 Site 836, A:261–262  
 Site 837, A:308  
 Site 838, A:360, 362–363  
 Site 839, A:422  
 Site 840, A:526  
 Site 841, A:614  
 vs. depth, B:171  
 vs. fluid flow, B:787–795  
 vs. thickness of hemipelagic beds, B:122  
 sediments  
 bacterial profiles, B:147–150  
 composition, B:131–146  
 geochemistry, B:689–707  
 geotechnical properties, B:797–804  
 grain size vs. depth, A:298  
 hydrothermal deposits, B:75–86  
 lithologic units, A:161–164  
 magnetic polarity, B:737–762  
 magnetic properties, B:717–735  
 magnetic susceptibility, A:122–125, 211–212  
 magnetization, A:118  
 organic acids, B:710–714  
 organic geochemistry, B:667–676  
 paleomagnetism, B:763–783  
 seamount volcanism, B:40–41  
 sequence, B:103–105  
 underconsolidation, B:787–795  
 sediments, pyroclastic, lithologic units, A:501  
 segregations, volcanic rocks, B:615–623  
 seismic profiles  
 correlation, B:368  
 Lau Basin, A:94–95; B:909–921  
 lithology, B:808  
 multichannel reflection, B:166  
 Site 835, A:188–189  
 Site 836, A:254, 294–296  
 Site 838, A:344–345  
 Site 839, A:405–406  
 Site 840, A:499  
 Site 841, A:580–581  
 tectonics, B:9–21  
 Tonga Forearc, B:917  
 seismic profiles, migrated, reflection, B:331–365  
 seismic reflection  
 Lau Basin, B:909–921  
 tectonics, A:93–94

## seismic stratigraphic tool-string logs

seismic stratigraphic tool-string logs  
 Site 840, A:550  
 vs. depth, A:384, 470–471

seismic stratigraphy  
 reflection, A:186  
 Site 834, A:93–95  
 Site 836, A:252, 291, 293  
 Site 838, A:341–342  
 Site 839, A:401, 403  
 Site 840, A:497–498  
 Site 841, A:579

sequency analysis, sediments, B:131–146

serpentine, alteration, B:709

shear strands, schistose, mineralized white clay, A:604

shear strength, geotechnical units, B:111–112

shear strength, undrained, vs. depth, A:236–237, 287

shear strength, vane, undrained  
 Site 834, A:153  
 Site 835, A:228  
 Site 836, A:276  
 Site 837, A:326–327  
 Site 838, A:375, 377  
 Site 839, A:453–454  
 Site 840, A:547  
 Site 841, A:653–654  
 vs. depth, A:162, 334, 380, 460, 666

shear wave velocity, sediments, B:789–791

shear zones, schistose, mineralization, B:319

sheet lava, petrology, B:837

Sidufjall Subchron, magnetic polarity, A:531–533, 615–619

silica  
 frequency distribution, Site 840, A:514  
 igneous rocks, A:149–151  
 interstitial waters, A:127, 216, 432  
 refractive indices, A:199, 258  
 volcanic glass, A:17; B:27  
 volcanoclastics, A:596–597  
 vs. age, B:32, 834–839, 850  
 vs. aluminum oxide, B:40, 59, 64  
 vs. amorphous silica + clays, B:698  
 vs. calcium oxide, B:59, 64, 97  
 vs. depth, A:108, 128, 200, 304, 320, 369, 417, 449, 516, 539, 598, 629; B:66, 68, 70, 96  
 vs. iron oxide, B:38, 59, 64, 97  
 vs. iron oxide/magnesium oxide ratio, B:97  
 vs. magnesium oxide, B:59, 64, 479  
 vs. potassium oxide, A:372; B:33, 60, 65, 97, 836  
 vs. sodium oxide, B:27  
 vs. titanium oxide, B:38, 59, 64, 97  
 vs. volume magnetic susceptibility, A:353  
 vs. zirconium, B:67

silica, dissolved, interstitial waters, A:366

silicic rocks  
 alteration, B:653–663  
*See also felsic rocks*

silicon  
 interstitial waters, B:680–688  
 vs. aluminum, B:700

sills  
 basaltic andesite, A:630–631  
 post-late Miocene, B:628–633, 897  
 vesicularity, B:615–623

sills, basaltic andesite, lithostratigraphy, B:248–249

silt, sandy, vitric, lithologic units, A:295–301

silt, vitric  
 lithologic units, A:256, 350–351, 410–413, 501–503, 585, 589  
 Miocene, B:164

## SUBJECT INDEX

silt, volcanic, lithologic units, A:196–197, 415–416

siltstone  
 correlation, B:367–368  
 lithofacies, B:175–178  
 lithologic units, A:197–198

siltstone, vitric, lithologic units, A:255, 352, 501–503, 507, 589–590

siltstone, volcanic, lithologic units, A:591, 593–595

siltstone, volcanic, calcareous, fault zones, B:315, 317

siltstone, volcanoclastic, lithostratigraphy, B:87–92

Site 781, geochemistry, B:635

Site 793, geochemistry, B:635

Site 834, A:85–180  
 background and objectives, A:89–96  
 bacteria, B:147–150  
 basalts, B:471–485  
 bathymetry, A:90–91  
 biostratigraphy, A:112–116; B:193–194, 209–210  
 chromian spinel, B:569  
 comparison of geochemical logs to core, B:935  
 coring summary, A:100–101  
 downhole measurements, A:159–170  
 drilling and logging summary, A:97–98  
 geological setting, A:91–93  
 heat flow, A:95–96  
 hydrogeochemistry, B:678–679  
 igneous petrology, A:129, 131–150  
 inorganic geochemistry, A:126–128  
 lithostratigraphy, A:98–99, 101–109  
 magnetic data, A:95  
 morphotectonics, A:92–93  
 operations, A:97–98  
 organic geochemistry, A:128–129  
 paleomagnetism, A:116–126  
 petrology, B:430–433, 487–503  
 physical properties, A:150–159  
 plagioclase zoning, B:543–556  
 regional structural synthesis, A:93  
 scientific objectives, A:96–97  
 sediment accumulation rates, A:116  
 seismic profiles, A:94–95; B:333–334  
 seismic reflection, B:912  
 seismic stratigraphy, A:93–95  
 site approach and site survey, A:97  
 site description, A:85–180  
 spinel, B:585–594  
 structural geology, A:109–112  
 summary, A:86–88  
 tectonics, B:11–12  
 track charts, A:92  
 turbidites, B:101–130

Site 835, A:181–245  
 background and objectives, A:183–187  
 bathymetry, A:184  
 biostratigraphy, A:203–207; B:194–195, 210  
 depositional history, A:200–201  
 downhole measurements, A:230–242  
 drilling and logging summary, A:189–190  
 geologic setting, A:185–186  
 hydrogeochemistry, B:679, 681  
 igneous petrology, A:219–224  
 inorganic geochemistry, A:213–216  
 lithostratigraphy, A:190–201  
 magnetic data, A:186–187  
 morphotectonics, A:185  
 operations, A:187–189  
 organic geochemistry, A:216, 218–219  
 paleomagnetism, A:207–213

petrology, B:433–435  
 physical properties, A:224–230  
 scientific objectives, A:187  
 sediment accumulation rates, A:207  
 seismic data, A:188–189  
 seismic profiles, B:335  
 seismic reflection, B:912–913  
 seismic stratigraphy, A:186  
 site approach and site survey, A:187, 189  
 site description, A:181–245  
 site summary, A:182–183  
 structural geology, A:201–203  
 tectonics, B:12–14  
 track chart, A:186  
 turbidites, B:101–130

Site 836, A:247–287  
 background and objectives, A:249–252  
 biostratigraphy, A:260–261; B:195, 210–211  
 chromian spinel, B:569–570  
 coring summary, A:254  
 drilling and logging summary, A:253–255  
 geologic setting, A:251–252  
 hydrogeochemistry, B:682  
 igneous petrology, A:266–274  
 inorganic geochemistry, A:265–266  
 lithostratigraphy, A:255–260  
 location and bathymetry, A:249–251  
 operations, A:252–253  
 organic geochemistry, A:266  
 paleomagnetism, A:262–265  
 petrology, B:435–436, 487–503  
 physical properties, A:274–276  
 regional structural synthesis, A:251  
 sediment accumulation rates, A:261–262  
 seismic profiles, B:335–336  
 seismic reflection, B:913  
 seismic stratigraphy, A:252  
 site description, A:247–287  
 site summary, A:248  
 structural geology, A:260  
 tectonics, B:15  
 track charts, A:253

Site 837, A:289–335  
 background and objectives, A:291, 293  
 bathymetry, A:292–293  
 biostratigraphy, A:306–308; B:195–196, 211  
 coring summary, A:297  
 drilling and logging, A:293–295  
 hydrogeochemistry, B:682  
 igneous petrology, A:318–324  
 inorganic geochemistry, A:316–318  
 lithostratigraphy, A:295–305  
 operations, A:293–295  
 organic geochemistry, A:318  
 paleomagnetism, A:309–316  
 petrology, B:436–441  
 physical properties, A:324–329  
 sediment accumulation rates, A:308  
 seismic profiles, B:336  
 seismic reflection, B:913  
 site description, A:289–335  
 site summary, A:290  
 structural geology, A:305–306  
 tectonics, B:15  
 track chart, A:293

Site 838, A:337–395  
 background and objectives, A:339–342  
 bathymetry, A:340–341  
 biostratigraphy, A:360–361; B:196–197, 211–212  
 comparison of geochemical logs to core, B:935  
 coring summary, A:343  
 downhole measurements, A:379–388

- geologic setting, A:341  
 hydrogeochemistry, B:682  
 igneous petrology, A:368–371  
 inorganic geochemistry, A:365–367  
 lithostratigraphy, A:346–357  
 operations, A:342–343, 346  
 organic geochemistry, A:367–368  
 paleomagnetism, A:363–365  
 petrology, B:436–441  
 physical properties, A:371–378  
 sediment accumulation rates, A:360, 362–363  
 seismic profiles, B:339  
 seismic reflection, B:915–916  
 seismic stratigraphy, A:341–342  
 site description, A:337–395  
 site summary, A:338–339  
 structural geology, A:357–360  
 tectonics, B:15–16  
 track charts, A:342
- Site 839, A:397–487  
 background and objectives, A:401–403  
 basaltic andesites, B:557–563  
 biostratigraphy, A:419–422; B:197–199, 212  
 chromian spinel, B:570–573  
 comparison of geochemical logs to core,  
 B:935, 937  
 coring summary, A:408–409  
 downhole measurements, A:462–465  
 geochemistry, B:519–539  
 geologic setting, A:401  
 hydrogeochemistry, B:682, 685  
 igneous petrology, A:433–448  
 inorganic geochemistry, A:428–431  
 lithostratigraphy, A:410–418  
 location and bathymetry, A:401–403  
 operations, A:403, 407–410  
 organic geochemistry, A:431–433  
 paleomagnetism, A:422–428  
 petrology, B:436–441, 487–503  
 physical properties, A:448–455  
 physical properties packer experiment, A:455–  
 462  
 plagioclase zoning, B:543–556  
 regional structural synthesis, A:401  
 sediment accumulation rates, A:422  
 seismic profiles, B:339, 341  
 seismic reflection, B:916–917  
 seismic stratigraphy, A:401, 403  
 site description, A:397–487  
 site summary, A:398–400  
 spinel, B:585–594  
 structural geology, A:418–419  
 tectonics, B:16–17  
 track charts, A:404
- Site 840, A:489–570  
 background and objectives, A:490–491, 495–  
 498  
 bathymetry, A:496  
 biostratigraphy, A:523–526; B:212–213, 267–  
 284  
 comparison of geochemical logs to core,  
 B:937  
 coring summary, A:502–503  
 downhole measurements, A:549–557  
 geologic setting, A:495, 497  
 hydrocarbon potential, A:491  
 inorganic geochemistry, A:534–537  
 lithostratigraphy, A:20–21, 500–520  
 Miocene, B:87–100  
 operations, A:499–500  
 organic geochemistry, A:537–538  
 paleomagnetism, A:526, 530–534; B:763–783  
 physical properties, A:538–549  
 rifting, B:367–371
- sediment accumulation rates, A:526  
 sedimentation, B:163–172, 843–855  
 seismic profiles, B:341, 343  
 seismic reflection, B:917  
 seismic stratigraphy, A:497–498  
 site description, A:489–570  
 site summary, A:492–495  
 structural geology, A:520–523  
 tectonics, B:175  
 track charts, A:498
- Site 841, A:571–677  
 background and objectives, A:577–583  
 bathymetry, A:577–579  
 biostratigraphy, A:602–614; B:213, 215, 231–  
 243, 245–284  
 coring summary, A:584–585  
 downhole measurements, A:655–660  
 felsic rocks, B:653–663  
 geologic setting, A:579, 581–582  
 igneous petrology, A:628, 630–650; 625–646  
 inorganic geochemistry, A:621–625  
 lithostratigraphy, A:21, 585–598  
 operations, A:583, 585  
 organic geochemistry, A:625–628  
 paleomagnetism, A:615–621; B:763–783  
 physical properties, A:650–655  
 plagioclase zoning, B:543–556  
 rhyolite, B:923  
 sediment accumulation rates, A:614  
 sedimentation, B:843–855  
 seismic profiles, B:343, 345–346  
 seismic reflection, B:917  
 seismic stratigraphy, A:579  
 sidescan sonar, B:373–382  
 site description, A:571–677  
 site summary, A:572–577  
 structural geology, A:598–602  
 tectonics, B:175–178, 313–329  
 thaumasite, B:647–651  
 track charts, A:579
- slab-derived flux, plate movement, B:510–512,  
 515–517
- slide complexes, lithology, B:112–114, 833–834
- slope failures  
 lithology, B:833–834  
 sedimentation, B:116
- slump facies, lithologic units, A:355
- slump folds, isoclinal, photograph, A:104
- slumping, evidence, A:201
- smectite  
 alteration minerals, A:517, 596–597  
 vesicles, A:229
- sodium  
 interstitial waters, A:432; B:680–688  
 vs. depth, A:128, 220, 320, 369, 539, 629  
 sodium oxide, vs. magnesium oxide, B:405, 442–  
 444, 523
- soft sediment deformation  
 lithologic units, A:510–512  
 volcanoclastics, A:593
- solubility, sulfur, B:610–611
- sonar imagery, tectonics, B:373–382
- sonic velocity logs  
 Site 835, A:234, 237–238  
 Site 838, A:384  
 Site 839, A:464  
 Site 840, A:551–552  
 Site 841, A:658  
 vs. depth, A:166, 552–553  
*See also* velocity logs
- sorting, sediments, B:110
- source rocks, oil seeps, B:675
- South Fiji Basin  
 backarc spreading, B:824
- crustal fabric, B:882
- South Loyalty Basin, backarc basins, B:882
- spalling, boreholes, B:287
- sphenoliths, preservation, B:276
- spider diagrams, basaltic glass, B:839–840
- spinel  
 basaltic andesites, B:559–562  
 chemical composition, B:490–491  
 comparison of experimentally crystallized and  
 natural specimens, B:585–594
- spinel, chromian  
 basaltic andesite, A:450  
 chemical composition, B:522, 535–536, 539,  
 542  
 depleted basalts, B:565–584  
 electron probe data, B:470  
 magmas, B:893  
 modal data, B:433–455
- spreading centers  
 Cenozoic evolution, B:48  
 chemical accumulation rates, B:689–707  
 regional fabric, A:185
- spreading rates, variations, B:84–86
- SSZ. *See* supra-subduction zones
- steranes, sediments, B:672–673
- steranes, triaromatic, oil seeps, B:674–676
- stratification  
 lithologic units, A:509–512  
*See also* cross stratification
- stratigraphy, vs. depth, A:133–134
- stresses, in situ, B:287–299
- strontium  
 basalts, B:475–476  
 interstitial waters, A:127, 216, 432; B:680–  
 688  
 volcanic rocks, B:533–542  
 vs. calcium, B:700  
 vs. depth, A:128, 220, 320, 369, 539  
 vs. magnesium oxide, B:523  
 vs. titanium oxide, B:643  
 vs. zirconium, B:452  
*See also* barium/strontium ratio; rubidium/  
 strontium ratio
- strontium/calcium ratio  
 sediments, B:706  
 vs. manganese/calcium ratio, B:701
- strontium/neodymium ratio  
 lava, B:410  
 vs. strontium-87/strontium-86 ratio, B:529  
 vs. titanium oxide/calcium oxide, B:422
- strontium/zirconium ratio, vs. magnesium, B:452
- strontium isotopes  
 basalts, B:471–485, 505–517  
 interstitial waters, B:679  
 volcanic rocks, B:635  
 vs. depth, B:478
- strontium-87/strontium-86 ratio  
 basalts, B:476–477  
 vs. neodymium-143/neodymium-144 ratio,  
 B:478, 509, 528  
 vs. oxygen fugacity, B:609  
 vs. strontium/neodymium ratio, B:529  
 vs. zirconium/barium ratio, B:529
- structural analysis  
 fault orientation, B:318–323  
 orientation measurement methods, B:303–305  
 Site 834, A:109–112  
 Site 835, A:201–203  
 Site 836, A:260  
 Site 837, A:305–306  
 Site 838, A:357–360  
 Site 839, A:418–419  
 Site 840, A:520–523  
 Site 841, A:598–602

## subduction zones

sonar imagery, B:373–382  
 subduction zones  
   earthquakes, B:886  
   enrichment, B:41  
   geochemical signatures, B:406, 631–632, 838  
   island arcs, B:173–188  
   magmas, B:530  
   mechanisms, B:425  
   rates of movement, B:3–5, 327–328  
   sedimentation, B:843–855  
   sinking lithosphere, B:643  
   spreading centers, B:298  
 subsidence  
   history, B:173–188, 847–849  
   sedimentary evidence, B:326–328  
 subsidence curves, sedimentary section, B:183–185  
 sulfate  
   interstitial waters, A:266, 432; B:680–688  
   vs. depth, A:128, 220, 320, 369, 539, 629  
 sulfate reduction, sediments, B:148  
 sulfides  
   hydrothermal alteration, B:75–76, 658, 840–841  
   noble metals, B:599, 601  
   photographs, A:651–652  
   *See also* chalcopyrite; pyrite; pyrrhotite  
 sulfur  
   basalts, B:603–613  
   headspace analyses, A:221, 370  
   interstitial waters, A:267  
   sediments, A:540–541  
   vs. barium/lanthanum ratio, B:610  
   vs. depth, A:130–131  
   vs. iron, B:612  
   vs. magnesium oxide, B:609  
   vs. oxygen fugacity, B:611  
   vs. rubidium, B:610  
   vs. sulfur/barium ratio, B:610  
   vs. sulfur/potassium ratio, B:610  
 sulfur/barium ratio, vs. sulfur, B:610  
 sulfur/potassium ratio, vs. sulfur, B:610  
 sulfur fugacity, chlorite, B:660  
 sulfur isotopes  
   pyrite, B:658  
   thaumasite, B:648–650  
 supra-subduction zones  
   magmas, B:897–899  
   tectonics, B:446–452  
 synthetic seismograms, lithologic correlation, B:331–365

Tafahi  
   basalts, B:509  
   geochemistry, B:392  
   lava, B:528  
 talc, alteration minerals, A:444  
 tantalum  
   andesite, B:451  
   depletion, B:394–399  
 Tasman Sea, opening, B:880  
 Taupo Volcanic Zone, source rocks, B:834  
 Tauranga Arc, volcanic sources, B:55  
 Tavua Caldera, volcanic sources, B:55  
 tectonic controls, sedimentation, B:9–21, 130, 833–835  
 tectonic erosion, subduction zones, B:328  
 tectonic provinces  
   Site 840, A:22–23  
   Site 841, A:23  
   Sites 834–839, A:21–22  
 tectonics  
   basins, A:33–34  
   core reorientation, B:301–311

## SUBJECT INDEX

evolution, B:3–5, 9–21, 84–86, 170, 173, 175, 186, 313–329, 429  
 extension model, B:399–406  
 sedimentation, B:849–850  
 Site 834, A:109–112  
 Site 835, A:201–203  
 sonar imagery, B:373–382  
 tectonostratigraphic columns, Sites 834–839, B:12  
 temperature  
   Site 834, A:154  
   Site 835, A:229  
   Site 837, A:327  
   Site 838, A:377  
   Site 839, A:454  
   Site 840, A:547–548  
   Site 841, A:654  
   vs. depth, A:163, 238, 548, 667  
   vs. oxygen fugacity, B:661  
   vs. thermal resistance, A:548, 667  
   vs. time, A:548, 666  
 temperature gradients, vs. depth, A:335, 381, 461  
 tephra  
   composition, A:104–105, 107–109; B:834  
   fallout, B:52–53  
   lithologic units, A:257–258, 416–417  
   textures, A:198–200  
 tephra, submarine, composition, B:55–61  
 tephrochronology  
   fallout tephra, A:104  
   volcanic debris, A:109  
 terpanes  
   oil seeps, B:674–676  
   sediments, B:672–673  
 textures, turbidite, B:105  
*Thalassinoides*  
   lysocline, B:847–849  
   photographs, A:506, 508  
 thaumasite  
   alteration minerals, A:644  
   basaltic andesite, B:647–651  
   X-ray-diffraction pattern, A:650  
 thermal conductivity  
   Site 834, A:153–154  
   Site 835, A:228–229  
   Site 836, A:276  
   Site 837, A:327  
   Site 838, A:377  
   Site 839, A:454  
   Site 840, A:547  
   Site 841, A:654  
   vs. depth, A:162, 237, 287, 334, 380, 460, 548, 666  
   vs. stress, B:792, 794  
 thermal gradient, A:41  
 thermal resistance, vs. temperature, A:238, 335, 461–462, 548, 667  
 thermal stability, thaumasite, B:650  
 thermal upwelling, uplifts, B:170  
 tholeiite, noble metals, B:599  
 thomsonite, alteration minerals, A:517, 596–597  
 Three Kings Rise, tectonics, B:883  
 Thvera Subchron, magnetic polarity, A:531–533, 615–619  
 tilting, regional, orientation, B:325–327  
 tilting rates, Cenozoic, B:326–328  
 tin, volcanic rocks, B:533–542  
 titanium  
   depletion, B:394–399  
   enrichment in vesicles, B:615  
   vs. chromium, B:702  
   vs. depth, B:127  
   vs. vanadium, B:599  
   vs. zirconium, B:450  
 titanium oxide

clinopyroxene, B:493–494  
 igneous rocks, A:149–151  
 vs. depth, B:66, 68, 70, 114, 116  
 vs. iron oxide/magnesium oxide ratio, B:643  
 vs. magnesium oxide, B:406, 442–444, 479, 523  
 vs. silica, B:38, 59, 64, 97  
 vs. strontium, B:643  
 vs. vanadium, B:643  
*See also* zirconium/titanium oxide ratio  
 titanium oxide/calcium oxide ratio  
   vs. strontium/neodymium ratio, B:422  
   vs. zirconium/barium ratio, B:422  
 titanomagnetite. *See* magnetite, titanian  
 todorokite, crusts, B:841  
 Tofua Arc  
   arc rifting, B:24–49  
   basaltic andesites, B:386  
   basalts, B:510, 522, 633  
   element abundances, B:415  
   geochemistry, B:392  
   lava, B:528–529  
   Miocene, B:87–100  
   petrology, B:879–905  
   sedimentation, B:48, 52–53  
   tectonics, A:11; B:530  
   volcanic arcs, B:3  
   volcaniclastic, B:367, 838  
   volcanic shoals, A:579  
   volcanism, A:12; B:20  
   volcanoes, B:72  
 tonalite, cobble, A:644  
 Tonga, oil seeps, B:667–676  
 Tonga–Kermadec subduction zone, Wadati–Benioff zone, B:886  
 Tongatapu  
   drilling, A:12  
   hydrocarbons, A:491  
   morphotectonics, A:184–185  
   oil seeps, B:667–676  
   structural provinces, A:11  
 Tonga Arc  
   geochemistry, B:533–542  
   lava, B:529–530  
   paleomagnetism, B:763–783  
   sedimentation, B:173–188  
   sediments, B:131–146  
   seismic profiles, B:331–365  
 Tonga arc–trench system, organic geochemistry, B:709–714  
 Tonga Forearc  
   felsic rocks, B:653–663  
   igneous rocks, B:625–646  
   lithostratigraphy, A:14–21  
   organic geochemistry, B:709  
   plagioclase zoning, B:543–544  
   rhyolite, B:923  
   sedimentation, B:163–172, 843–855  
   seismic profiles, B:917  
   tectonics, B:287–299  
   thaumasite, B:647–651  
 Tonga Forearc, outer, tectonics, B:313–329  
 Tonga Platform  
   biostratigraphy, B:207–229, 231–243, 245–266  
   geology, A:581  
   Miocene, B:87–100  
   petrology, B:897–898  
   sedimentation, B:163–172  
   sediments, B:131–146  
   stratigraphy, B:857–877  
   subsidence, B:173–188  
   tectonics, A:22–23  
   volcanism, B:23–49, 850–851

- Tonga Ridge  
 biostratigraphy, B:267–284  
 convergent plate margins, B:3–5  
 evolution, A:92, 495, 497  
 geochemical logs, B:931–949  
 geochemistry, B:385–425  
 geologic setting, B:884  
 hydrocarbons, A:491  
 lava, B:529  
 lithostratigraphy, A:14–21  
 mineralogy, B:386–388  
 Miocene, B:87–100  
 petrology, B:429, 879–905  
 rifting, B:367–371  
 seafloor spreading, B:288  
 sedimentation, B:52–53, 163–172  
 tectonics, A:11–13, 252  
 well logging, A:42–44
- Tonga Trench  
 bathymetry, A:7  
 biostratigraphy, B:267–284  
 convergent plate margins, B:3–5  
 geologic setting, B:884  
 Miocene, B:87–100  
 morphotectonics, A:184–186  
 petrology, B:879–905  
 sidescan sonar, B:373–382  
 site description, A:577–583  
 tectonics, A:13, 582; B:313–329
- trace elements  
 backarc basins, B:447–453  
 basaltic andesites, A:323, 325, 645–649  
 basalts, A:223–224, 230; B:471–485, 488, 512–513, 519–531, 598, 630–632, 889–894  
 hydrothermal deposits, B:77–82  
 igneous rocks, A:35–36, 150–152, 272–274, 370–372, 444–448  
 lava, B:390–393  
 sediments, B:141–146  
 silicic rocks, B:656  
 volcanic glass, B:34–39, 533–542  
 volcanoclastics, B:838  
 X-ray fluorescence, B:926–927
- trace elements, N-MORB normalized, basalt, A:231, 283–284, 656
- trace fossils  
 lithofacies, B:179–180  
 lithologic units, A:506–509  
*See also Chondrites; ichnofacies; Planolites; Thalassinoides; Zoophycos*
- transform structures, active ridges, B:9  
 transition times, magnetic polarity, B:748–749  
 transmission electron microscope data, microfabric, B:797–804  
 traveltime, vs. depth, A:547  
 trenches, structure, B:375–381  
 troctolite, geochemistry, B:448–452
- tuff  
 composition, B:625–646, 897  
 petrology, A:635, 638–639, 642  
 tuff, airfall, deposition, B:846  
 tuff, lapilli, rhyolitic, welded, petrology, A:642, 643  
 tuff, rhyolitic  
 fault zones, B:315, 317  
 geochemistry, B:625–646  
 tuff, vitric, lithologic units, A:103–104  
 tuff, welded  
 petrology, A:635, 638–639, 642  
 photograph, A:649  
 tungsten carbide, sample preparation, B:927–929  
 turbidite  
 composition, B:44
- correlation, B:367–368  
 epiclastics, photograph, A:103  
 lithologic units, A:348  
 properties, B:835  
 sedimentation, B:21, 847–848  
 thickness vs. age, A:107  
 thickness vs. depth, B:89, 168  
 thin-bedded, photograph, A:303  
 volcanic ash, A:200  
 volcanoclastics, A:518–520
- turbidite, calcareous, color bands, B:151–162  
 turbidite, epiclastic, lithologic units, A:101  
 turbidite, nannofossil, clayey, lithofacies, B:101–130  
 turbidite, vitric  
 lithologic units, A:352–354  
 photograph, A:414
- turbidite, volcanoclastic  
 lithologic units, A:297–300  
 lithostratigraphy, B:87–92  
 Miocene, B:164  
 reduction haloes, B:151–162  
 thickness, B:164–165  
 thickness vs. age, A:198
- unconformities  
 correlation, B:98–99  
 orientation, B:325–326  
 Pliocene, B:367–370  
 seismic profiles, B:346  
 turbidite, B:168  
*See also hiatuses; paraconformities*
- underconsolidation, sediments, B:787–795  
 underway geophysics, Lau Basin, B:909–921
- uplifts  
 indicators, B:847–849  
 thermal upwelling, B:170  
 unconformities, B:369
- Upolu, morphotectonics, A:184–185
- uranium. *See niobium/uranium ratio*
- Valu Fa Ridge  
 backarc magmas, B:516–517  
 basalts, B:529  
 geochemistry, B:386–425  
 hydrothermal deposits, B:75  
 igneous rocks, B:887  
 morphotectonics, A:184–185  
 seafloor spreading, B:288  
 sonar imagery, B:373  
 trace elements, B:397
- vanadium  
 turbidite, B:155–158  
 vs. depth, B:114  
 vs. titanium, B:599  
 vs. titanium oxide, B:643
- Vanuatu, lava, B:561
- Vanuatu–Fiji–Lau–Tonga area, magmatic chronology, B:883–886
- Vanuatu–New Hebrides Arc, tectonics, B:882–883
- Vavau, morphotectonics, A:184–185
- veins  
 basaltic andesites, B:616  
 hydrothermal alteration, B:317–318  
 zeolites, A:604
- velocity  
 sonic logging tool, A:546–547  
 vs. depth, A:543–546
- velocity logs, correlation, B:331–365
- vesicles, segregation, origin in volcanic rocks, B:615–623
- vesicularity  
 basalt, B:809
- geochemistry, B:535–536  
 volcanic rocks, B:454
- vesicular texture  
 andesite, A:267–268, 369–371  
 basaltic andesite, A:630–631  
 basalts, A:140–146  
 distribution in volcanic rocks, A:41  
 glass shards, A:516–523  
 igneous rocks, A:36  
 melts, A:442–443  
 petrography, A:220, 222  
 photograph, A:148, 322, 601  
 vitric clasts, A:258–259
- Vitiaz Arc, island arcs, B:173
- void ratio  
 vs. depth, A:158, 235, 285, 327, 373, 451, 546, 660, 664  
*See also porosity*
- volatiles  
 andesite, B:449–453  
 magmas, B:897
- volcanic-enriched base, composition, A:199–200
- volcanic arcs  
 Lau Ridge, A:92  
 Tofua Arc, B:3
- volcanic ash  
 composition, A:198–200  
 discrete layers, A:257, 300  
 fallout, B:52–53  
 lithologic units, A:512, 514–516, 585, 589–590  
 photograph, A:105  
 properties, A:106–107
- volcanic ash, airfall, composition, B:43–44
- volcanic ash, vitric, lithologic units, A:101
- volcanic glass  
 chemical composition, A:416–417; B:41–42, 55–61, 92–94, 431, 500–503  
 diagenesis, A:596–597  
 electron microprobe data, B:54–55  
 geochemistry, B:529–530, 533–542, 568, 603–613, 839–840, 851–853  
 lithologic units, A:101, 416–417, 589–590  
 major elements, B:27–32, 475  
 petrology, B:888–905  
 photograph, A:640–641  
 quartz + clinopyroxene + olivine, B:445  
 refractive indices, A:107  
 reworking, A:199  
 rhyolite, B:923  
 silica variation, A:17  
 spinel, B:586–587  
 vs. depth, A:102, 192
- volcanic glass, detrital, AFM ternary diagram, B:98
- volcanic glass, felsic, composition, B:833–838
- volcanoclastics  
 bed thickness vs. depth, A:416  
 composition, A:301–304; B:833–838  
 evolution, B:850–853  
 geochemistry, B:690–694  
 lithofacies, B:26  
 lithologic units, A:198–200, 255–258, 296–297, 346, 414–417, 508–518  
 origin, B:51–74  
 sedimentation, A:14, 16, 20; B:20–21, 43–44, 846–847  
 sedimentology, A:595–596  
 thickness vs. depth, A:595  
 vitric ashes, A:101–104  
 vs. depth, A:259
- volcanoclastics, rhyolitic, petrology, A:631–643
- volcanic rocks  
 age, B:221, 223



## volcanic rocks (cont.)

## SUBJECT INDEX

- alteration history, B:662  
 CIPW normative mineralogy, A:447  
 geochemistry, B:385–425, 625–646  
 Harker diagrams, A:38–39  
 hydrothermal alteration, B:653–663  
 incompatible elements, A:40  
 lithostratigraphy, B:248–249  
 petrology, A:643–644; B:888–905  
 regional comparisons, A:36–37  
 vesicularity, B:615–623
- volcanism  
 backarc basins, B:565–584  
 chemical evolution, B:837–838  
 forearcs, B:625–646  
 geochemistry, B:386–425  
 indicators, A:518–520  
 island arcs, B:23–49, 824  
 Miocene, A:92  
 petrology, B:433–455  
 radiometric ages, A:10  
 rhyolites, A:649–650  
 sedimentation controls, B:20  
 source areas, B:99
- volcanism, acidic, sources, B:369
- volcanism, arc  
 geochemistry, B:519–531  
 history, B:42–43
- volcanism, high-potassium, composition, B:39–40
- volcanism, subaerial, sedimentation, B:847
- volcanoes, subaerial, B:72
- Wadati–Benioff zone  
 subduction zones, B:886  
 Tonga Trench, A:7  
 upper surface, A:8
- Walsh transforms, sediments, B:141, 144, 146
- water-escape structures  
 lithofacies, B:90  
 pillars, A:194, 196  
 turbidites, B:835
- water content  
 sediments, B:789  
 vs. depth, A:158, 235, 285, 327, 373, 451, 546, 660, 664  
 vs. potassium oxide, B:62
- weathered phase, hydrothermal deposits, B:75–76
- weathering, low-temperature  
 alteration, A:147–148  
*See also* alteration
- wehrlite, geochemistry, B:448–452
- well logging  
 integration with core information, B:305–306  
 Lau Basin, A:41–44  
 porosity, B:815  
 Site 834, A:159–169  
 Site 835, A:230–231, 234, 237–242  
 Site 840, A:549–557  
 Site 841, A:655–660
- wireline logs  
 comparison with borehole orientation, B:302–306  
 sediments, B:140, 143–146
- wollastonite, composition, B:39
- X-ray fluorescence, precision of shipboard analysis, B:925–929
- xenocrysts, basaltic andesites, B:559–560
- yttrium  
 enrichment in vesicles, B:615  
 igneous rocks, A:371–372  
 volcanic rocks, B:533–542  
 vs. cerium, A:658  
 vs. depth, B:116  
 vs. phosphorus oxide, B:701  
 vs. zirconium, A:372, 448; B:450  
*See also* lanthanum/yttrium ratio; niobium/yttrium ratio; zirconium/yttrium ratio
- zeolites  
 alteration minerals, A:223, 444, 517, 596–597, 644  
 basaltic andesite, B:647–651  
 hydrothermal alteration, B:317–318, 694–697  
 photograph, A:599  
 sediments, B:92  
 vesicles, A:229
- Zephyr Shoal, morphotectonics, A:184–185
- zinc  
 volcanic rocks, B:533–542  
 vs. depth, B:114
- zinc + copper + nickel + cobalt + chromium  
 vs. iron/manganese ratio, B:703  
 vs. manganese, B:702
- zirconium  
 basalts, A:224  
 depletion, B:73  
 enrichment in vesicles, B:615  
 grain size vs. depth, B:705  
 igneous rocks, A:149–151, 371–372  
 volcanic rocks, B:533–542  
 vs. age, B:46  
 vs. barium, A:372, 448, 656; B:61, 452  
 vs. magnesium, B:449  
 vs. magnesium oxide, B:411, 478, 523  
 vs. nickel, B:452  
 vs. niobium, B:41, 852  
 vs. silica, B:67  
 vs. strontium, B:452  
 vs. titanium, B:450  
 vs. yttrium, A:372, 448; B:450  
 vs. zirconium/yttrium ratio, B:451  
*See also* barium/zirconium ratio; niobium/zirconium ratio; strontium/zirconium ratio
- zirconium/barium ratio  
 lava, B:410, 424  
 vs. strontium-87/strontium-86 ratio, B:529  
 vs. titanium oxide/calcium oxide ratio, B:422  
 vs. zirconium/samarium ratio, B:423
- zirconium/niobium ratio, vs. age, B:840
- zirconium/samarium ratio  
 lava, B:410  
 vs. zirconium/barium ratio, B:423
- zirconium/titanium oxide ratio, vs. niobium/yttrium ratio, B:655
- zirconium/yttrium ratio  
 igneous rocks, A:149–151  
 vs. depth, B:66, 68, 70  
 vs. zirconium, B:451
- zirconium/zirconium (MORB) ratio, lava, B:410
- zonation. *See individual subzones and zones in Taxonomic Index*
- Zoophycos*  
 environmental analysis, B:96–97  
 lithofacies, B:179  
 lysocline, B:847–849  
 photograph, A:506, 511

## TAXONOMIC INDEX

- abies*, *Sphenolithus*  
Site 834, A:115  
Site 841, A:604
- Acarinina*, Site 841, B:233
- Acarinina densa*, Site 841, B:249, 256, 262
- Acarinina spinuloinflata*, Site 841, B:249, 256
- acostaensis*, *Neogloboquadrina*  
Lau Basin, B:867, 874  
Site 841, A:613
- acutus*, *Ceratolithus*  
Lau Basin, B:867, 877  
Site 834, A:115
- africanus*, *Catapsydrax*, Site 841, B:249, 264
- altispira*, *Dentoglobigerina*, Lau Basin, B:867
- altispira altispira*, *Dentoglobigerina*  
Lau Basin, B:874  
Site 834, A:115; B:209  
Site 840, B:213
- Amaurolithus*, Site 840, B:269
- Amaurolithus amplificus*  
Site 834, A:115  
Site 840, B:269
- Amaurolithus delicatus*, Site 840, A:524
- Amaurolithus primus*, Lau Basin, B:867, 876–877
- Amaurolithus* sp. aff. *Amaurolithus amplificus*,  
Site 841, B:273
- Amaurolithus tricorniculatus*, Lau Basin, B:867,  
876
- Amphistegina*, Site 841, A:26; B:237, 254
- Amphistegina radiata*, Site 841, B:233, 237
- Amphistegina waiareka*, Site 841, A:614; B:233,  
241, 249
- ampliapertura*, *Globigerina*, Site 841, B:250–251,  
255, 265
- ampliapertura*, *Turborotalia*, Site 841, A:613
- amplificus*, *Amaurolithus*  
Site 834, A:115  
Site 840, B:269
- angiporoides*, *Subbotina*, Site 841, B:251
- aperta*, *Gephyrocapsa*  
Lau Basin, B:191, 194, 866–867, 876  
Site 835, B:118
- Asterigerina tectoria*, Site 841, A:614; B:249
- Asterigerina tentoria*, Site 841, B:233
- Asterocyclina*, Site 841, A:26, 614; B:254
- Asterocyclina matanzensis*, Site 841, A:614;  
B:233, 242, 249
- asymmetricus*, *Discoaster*  
Site 834, A:115  
Site 840, A:524; B:269
- barbadiensis*, *Discoaster*, Site 841, A:606; B:273
- barbadoensis*, *Pseudohastigerina*, Site 841,  
A:613; B:250
- basquense crassum*, *Pemma*, Site 841, B:284
- berggrenii*, *Discoaster*, Site 841, A:604; B:273
- bermudezi*, *Globorotalia* (*Obandyella*)  
Site 835, A:206  
Site 836, A:260
- bigelowii*, *Braarudosphaera*, Site 841, B:273
- bijugatus*, *Zygrhablithus*, Site 841, A:606
- bisectus*, *Dictyococcites*, Site 834, A:115, 606;  
B:273
- blackstockae*, *Discoaster*, Site 834, A:112
- Bolliella calida calida*  
Lau Basin, B:867, 872  
Site 836, A:260–261; B:211, 226
- Bolliella calida calida* Subzone, Lau Basin,  
B:219, 861
- Bolliella calida praecalida*, Site 834, A:115
- Bolliella praeadamsi*  
Lau Basin, B:867, 872  
Site 834, B:209  
Site 836, A:260–261; B:211, 226  
Site 839, A:420
- Bolliella praeadamsi* Subzone  
Lau Basin, B:219, 861  
Site 835, A:206  
Site 839, A:420  
Tonga Ridge, B:221
- Braarudosphaera*, Tonga Ridge, B:267–284
- Braarudosphaera bigelowii*, Site 841, B:273
- brouweri*, *Discoaster*  
Lau Basin, B:867, 876  
Site 834, A:112  
Site 835, A:203, 205  
Site 837, B:196  
Site 838, A:360; B:197  
Site 840, A:524; B:268–269  
Site 841, A:604
- Calcarina spengleri*, Site 834, A:115; B:105
- Calcidiscus leptoporus*, Site 835, B:118
- Calcidiscus macintyreii*  
Lau Basin, B:867, 876  
Site 834, A:112  
Site 835, A:203, 205  
Site 837, B:196  
Site 838, A:360; B:197  
Site 839, A:420; B:199  
Site 840, A:524; B:268  
Site 841, A:605
- Calcidiscus* spp., Lau Basin, B:275
- calida calida*, *Bolliella*  
Lau Basin, B:867, 872  
Site 836, A:260–261; B:211, 226
- calida praecalida*, *Bolliella*, Site 834, A:115
- Candeina nitida nitida*, Site 840, B:213
- caribbeanica*, *Gephyrocapsa*  
Lau Basin, B:191, 194, 866–867, 876  
Site 834, A:112  
Site 835, A:203  
Site 836, A:260  
Site 837, A:306  
Site 839, A:419–420; B:199  
Site 840, B:269  
Site 841, A:603
- carinatus*, *Triquetrorhabdulus*, Site 834, A:115
- carteri*, *Sherbornia*, Site 841, A:614; B:233
- Cassigerinella chipolensis*, Site 841, B:250
- Catapsydrax*, Site 841, B:251, 254, 256, 258
- Catapsydrax africanus*, Site 841, B:249, 264
- Catapsydrax howei*, Site 841, B:249, 264
- Ceratolithus acutus*  
Lau Basin, B:867, 877  
Site 834, A:115
- Ceratolithus cristatus*, Site 835, B:118
- Ceratolithus primus*, Site 840, A:524
- Ceratolithus rugosus*  
Lau Basin, B:867, 877  
Site 834, A:112  
Site 840, A:524; B:268
- Ceratolithus tolesmus*, Site 837, B:205
- cerroazulensis*, *Turborotalia*, Site 841, A:613;  
B:251–252, 256
- cerroazulensis cerroazulensis*, *Turborotalia*, Site  
841, B:249, 255
- challengerii*, *Discoaster*  
Site 834, A:115  
Site 841, A:606
- Chiloguembelina cubensis*, Site 841, B:250, 252
- Chiloguembelina martini*, Site 841, B:249
- chipolensis*, *Cassigerinella*, Site 841, B:250
- Chondrites* sp., Site 840, B:179
- claviger*, *Rhabdosphaera*, Site 835, B:118
- Coccolithus pataecus*, Site 838, B:204
- Coccolithus pelagicus*  
Lau Basin, B:275  
Site 838, B:204  
Site 841, B:274, 284
- conglobatus*, *Globigerinoides*  
Lau Basin, B:867, 875  
Site 835, A:206; B:210  
Site 838, A:360
- convallis*, *Minylitha*, Site 841, A:604
- corpulenta*, *Subbotina*, Site 841, B:251
- crassaformis*, *Globorotalia* (*Truncorotalia*)  
Lau Basin, B:215, 867  
Site 836, B:211  
Site 838, B:212
- crassaformis crassaformis*, *Globorotalia* (*Trun-*  
*corotalia*), Lau Basin, B:874
- crassaformis hessi*, *Globorotalia* (*Truncorotalia*)  
Lau Basin, B:209, 223, 861, 866, 871–872  
Site 836, A:261  
Site 837, A:307  
Site 839, A:420
- crassaformis ronda*, *Globorotalia* (*Truncorotalia*)  
Site 835, A:206  
Site 836, B:228
- crassula*, *Globorotalia* (*Truncorotalia*), Site 836,  
A:261
- Criboecentrum reticulatum*, Site 841, B:273
- Cribohantkenina inflata*, Site 841, A:613
- cristatus*, *Ceratolithus*, Site 835, B:118
- Crystallolithus hyalinus*, Site 841, B:274
- cubensis*, *Chiloguembelina*, Site 841, B:250, 252
- cultrata*, *Globorotalia* (*Globorotalia*), Lau Basin,  
B:873
- cultrata cultrata*, *Globorotalia* (*Globorotalia*),  
Site 838, B:227
- cultrata limbata*, *Globorotalia* (*Globorotalia*)  
Lau Basin, B:867, 873  
Site 835, A:207  
Site 840, A:525  
Tonga Ridge, B:220
- cultrata menardii*, *Globorotalia* (*Globorotalia*)  
Site 835, A:206  
Site 838, A:360
- cultrata neoflexuosa*, *Globorotalia* (*Globorotalia*)  
Site 834, A:115  
Site 835, A:206  
Site 836, A:260  
Site 838, A:360
- Cyclicargolithus floridanus*, Site 841, A:605;  
B:273
- Cyclicargolithus* spp.  
Site 834, A:115  
Site 841, A:604
- Cycloclypeus* sp., Site 841, B:233, 236–237, 242
- Cyclolithus* spp., Site 835, B:118
- danvillensis*, *Pulleniatina*, Site 841, B:249
- decoraperta*, *Globigerina* (*Globoturborotalia*)  
Lau Basin, B:867, 872  
Site 834, B:209  
Site 837, B:211

- Site 838, B:212  
*decorus*, *Discoaster*, Site 834, A:115  
*deflandrei*, *Discoaster*  
 Site 834, B:194  
 Site 841, A:606  
*dehiscens*, *Sphaeroidinella*  
 Lau Basin, B:215, 861, 867, 871  
 Site 834, B:209  
 Site 835, A:207; B:210  
 Site 840, A:526  
*dehiscens dehiscens*, *Sphaeroidinella*, Lau Basin,  
 B:875  
*delicatus*, *Amaurolithus*, Site 840, A:524  
*densa*, *Acarinina*, Site 841, B:249, 256, 262  
*Dentoglobigerina*, Site 841, B:251  
*Dentoglobigerina altispira*, Lau Basin, B:867  
*Dentoglobigerina altispira altispira*  
 Lau Basin, B:874  
 Site 834, A:115; B:209  
 Site 840, B:213  
*Dentoglobigerina galavisi*, Site 841, B:251  
*Dentoglobigerina sellii*, Site 841, B:250, 266  
*Dentoglobigerina tapuriensis*, Site 841, B:250,  
 266  
*Dentoglobigerina tripartita*, Site 841, B:251, 266  
*Dictyococcites bisectus*, Site 834, A:115, 606;  
 B:273  
*Dictyococcites perplexa*, Site 834, B:194  
*Dictyococcites productus*, Site 834, B:194  
*Dictyococcites scrippsae*, Site 841, A:606  
*digitata digitata*, *Globigerina* (*Beella*), Site 836,  
 B:226  
*Discoaster*, Site 835, B:118  
*Discoaster asymmetricus*  
 Site 834, A:115  
 Site 840, A:524; B:269  
*Discoaster barbadiensis*, Site 841, A:606; B:273  
*Discoaster berggrenii*, Site 841, A:604; B:273  
*Discoaster blackstockae*, Site 834, A:112  
*Discoaster brouweri*  
 Lau Basin, B:867, 876  
 Site 834, A:112  
 Site 835, A:203, 205  
 Site 837, B:196  
 Site 838, A:360; B:197  
 Site 839, A:420; B:199  
 Site 840, A:524; B:268–269  
 Site 841, A:604  
*Discoaster challengerii*  
 Site 834, A:115  
 Site 841, A:604  
*Discoaster decorus*, Site 834, A:115  
*Discoaster deflandrei*  
 Site 834, B:194  
 Site 841, A:606  
*Discoaster hamatus*, Site 841, B:273  
*Discoaster neorectus*, Site 841, A:604  
*Discoaster ono* n. sp.  
 Lau Basin, B:199  
 Site 838, B:203  
*Discoaster pentaradiatus*  
 Lau Basin, B:867, 876  
 Site 834, A:115  
 Site 835, A:206  
 Site 838, B:197  
 Site 840, A:524; B:269  
 Site 841, A:604  
*Discoaster quinquerramus*  
 Lau Basin, B:867, 877  
 Site 840, A:525  
 Site 841, B:273  
*Discoaster saipanensis*, Site 841, A:606; B:273  
*Discoaster* sp., Site 838, B:203  
*Discoaster* sp. aff. *Discoaster pentaradiatus*, Lau  
 Basin, B:275  
*Discoaster surculus*  
 Lau Basin, B:867, 876  
 Site 834, A:115; B:194  
 Site 835, A:203  
 Site 840, A:524  
 Site 841, A:604  
*Discoaster tamalis*  
 Lau Basin, B:876  
 Site 834, A:115; B:194  
 Site 835, A:203  
 Site 836, A:260  
 Site 838, A:360  
 Site 840, A:524; B:269  
*Discoaster tani nodifer*, Site 841, A:606  
*Discoaster triradiatus*  
 Site 834, A:112  
 Site 835, A:205  
*Discoaster variabilis*  
 Site 834, A:115  
 Site 841, A:604  
*Discocyclina*, Site 841, A:26, 614; B:180, 234,  
 254  
*Discocyclina omphala*, Site 841, A:614; B:233,  
 235, 239–240, 242, 249  
*discus*, *Gypsina*, Site 841, A:614; B:254  
*duertrei*, *Neogloboquadrina*  
 Site 835, A:206  
 Site 838, A:360  
*elongatus*, *Globigerinoides*, Site 835, A:207  
*Emiliania*, Site 837, A:306  
*Emiliania huxleyi*  
 Lau Basin, B:867, 871, 875  
 Site 834, B:193  
 Site 835, B:195  
 Site 836, A:260; B:195  
 Site 838, B:197  
 Site 839, A:420; B:198  
 Site 840, B:268  
*Emiliania ovata*  
 Lau Basin, B:199, 867, 876  
 Site 834, A:112; B:193  
 Site 835, A:203, 205–207  
 Site 836, A:260; B:195  
 Site 837, A:306; B:196  
 Site 838, B:197, 203  
 Site 839, A:419–420; B:198  
 Site 840, B:268  
*eocaena*, *Subbotina*, Site 841, B:251  
*Ericsonia formosa*, Site 841, A:606; B:273  
*Ericsonia subdisticha*, Site 841, A:606  
*euapertura*, *Globigerina*, Site 841, B:251, 258  
*farnsworthii*, *Triquetrorhabdulus*, Site 834,  
 A:115; B:273  
*finalis*, *Pulleniatina*  
 Lau Basin, B:223, 861, 871–872  
 Site 836, A:260  
 Site 838, B:212  
*floridanus*, *Cyclicargolithus*, Site 841, A:605;  
 B:273  
*flos*, *Micrantholithus*, Site 841, B:273  
*formosa*, *Ericsonia*, Site 841, A:606; B:273  
*galavisi*, *Dentoglobigerina*, Site 841, B:251  
*Gephyrocapsa aperta*, Site 835, B:118  
*Gephyrocapsa caribbeanica*  
 Lau Basin, B:191, 194, 866–867, 876  
 Site 834, A:112  
 Site 835, A:203  
 Site 836, A:260  
 Site 837, A:306  
 Site 839, A:419–420; B:199  
 Site 840, B:268  
 Site 841, A:603  
*Gephyrocapsa oceanica*  
 Lau Basin, B:191, 194, 866–867, 876  
 Site 834, A:112  
 Site 835, A:203  
 Site 836, A:260  
 Site 837, A:306; B:196  
 Site 838, A:360  
 Site 839, A:419; B:199  
 Site 840, A:524; B:268  
 Site 841, A:603  
*Gephyrocapsa oceanica* Subzone, Site 834, B:193  
*Globigerina*, Site 841, B:236  
 “*Globigerina*” *ampliapertura*, Site 841, B:250–  
 251, 255, 265  
*Globigerina* (*Beella*) *digitata digitata*, Site 836,  
 B:226  
 “*Globigerina*” *euapertura*, Site 841, B:251, 258  
*Globigerina* (*Globoturborotalita*) *decoraperta*  
 Lau Basin, B:867, 872  
 Site 834, B:209  
 Site 837, B:211  
 Site 838, B:212  
*Globigerina* (*Globoturborotalita*) *nepenthes*  
 Lau Basin, B:867, 874  
 Site 834, A:116  
 Site 841, A:613; B:215  
 Tonga Ridge, B:219  
*Globigerina* (*Globoturborotalita*) *rubescens*, Site  
 835, A:206  
*Globigerina* (*Globoturborotalita*) *rubescens*  
*rubescens*  
 Lau Basin, B:872  
 Site 836, B:229  
*Globigerina* (*Globoturborotalita*) *rubescens tenel-*  
*lus*  
 Lau Basin, B:872  
 Site 836, A:260; B:229  
 “*Globigerina*” *pseudovenuelana*, Site 841,  
 B:251  
*Globigerinatheka*, Site 841, B:233, 249, 252, 256,  
 258  
*Globigerinatheka* cf. *semiinvoluta*, Site 841,  
 B:255  
*Globigerinatheka index index*, Site 841, B:254  
*Globigerinatheka index tropicalis*, Site 841,  
 B:251, 254–255, 263  
*Globigerinatheka mexicana*, Site 841, B:263  
*Globigerinatheka mexicana mexicana*, Site 841,  
 B:249  
*Globigerinatheka semiinvoluta*, Site 841, B:255  
*Globigerinatheka* sp., Site 841, B:241  
*Globigerinatheka subconglobata luterbacheri*,  
 Site 841, B:263  
*Globigerinita glutinata*  
 Site 834, A:116  
 Site 835, A:206  
*Globigerinoides conglobatus*  
 Lau Basin, B:867, 875  
 Site 835, A:206; B:210  
 Site 838, A:360  
 Site 840, A:526; B:185  
*Globigerinoides elongatus*, Site 835, A:207  
*Globigerinoides fistulosus* Subzone, Lau Basin,  
 B:223  
*Globigerinoides kennetti*, Site 841, B:215  
*Globigerinoides obliquus*, Site 834, A:116  
*Globigerinoides obliquus extremus*  
 Lau Basin, B:866, 873  
 Site 834, A:116  
 Site 835, A:207  
 Site 836, B:211  
 Site 839, A:422

- Site 841, A:613; B:215  
*Globigerinoides obliquus* s.l., Site 840, A:525  
*Globigerinoides quadrilobatus fistulosus*  
 Lau Basin, B:221, 223, 861, 871, 873–874  
 Site 834, A:115  
 Site 836, B:211  
 Site 837, A:308  
 Site 839, B:212  
 Site 840, A:525  
*Globigerinoides quadrilobatus fistulosus* Subzone  
 Lau Basin, A:26; B:219, 866  
 Site 835, A:206  
 Site 836, B:862  
 Site 837, A:308; B:223  
 Site 838, A:360  
*Globigerinoides quadrilobatus sacculifer*, Site 835, B:210  
*Globigerinoides ruber*  
 Lau Basin, B:867, 872  
 Site 835, A:207; B:210  
 Site 836, B:211  
 Site 839, A:420; B:212  
 Site 840, B:213  
*Globoquadrina tripartita*, Site 841, B:254  
*Globorotalia*, Site 841, B:236  
*Globorotalia (Globoconella) inflata*  
 Site 836, B:228  
 Site 838, A:360  
*Globorotalia (Globorotalia) cultrata*, Lau Basin, B:873  
*Globorotalia (Globorotalia) cultrata cultrata*, Site 838, B:227  
*Globorotalia (Globorotalia) cultrata limbata*  
 Lau Basin, B:867, 873  
 Site 835, A:207  
 Site 840, A:525  
 Tonga Ridge, B:220  
*Globorotalia (Globorotalia) cultrata menardii*  
 Site 835, A:206  
 Site 838, A:360  
*Globorotalia (Globorotalia) cultrata neoflexuosa*  
 Site 834, A:115  
 Site 835, A:206  
 Site 836, A:260  
 Site 838, A:360  
*Globorotalia (Globorotalia) linguaensis*  
 Lau Basin, B:867, 875  
 Site 840, B:213  
 Site 841, A:613  
*Globorotalia (Globorotalia) merotumida*  
 Lau Basin, B:875  
 Site 840, B:213  
 Site 841, A:613  
*Globorotalia (Globorotalia) multicamerata*  
 Lau Basin, B:867, 871, 873  
 Site 835, A:207  
 Site 838, B:227  
 Site 840, A:525  
 Tonga Ridge, B:220  
*Globorotalia (Globorotalia) paralenguaensis*  
 Lau Basin, B:875  
 Site 840, B:213  
*Globorotalia (Globorotalia) tumida flexuosa*  
 Lau Basin, B:219  
 Site 836, A:260  
*Globorotalia (Globorotalia) tumida plesiotumida*  
 Lau Basin, B:215, 867, 874–875  
 Site 834, B:209  
 Site 836, B:229  
 Site 840, B:213  
 Site 841, A:613  
 Tonga Ridge, B:219  
*Globorotalia (Globorotalia) tumida ?plesiotumida*, Site 841, B:231, 233, 243  
*Globorotalia (Globorotalia) tumida tumida*  
 Lau Basin, B:215, 875  
 Site 835, A:206; B:210  
 Site 838, A:360  
 Site 840, A:526  
*Globorotalia (Globorotalia) ungulata*, Site 838, B:227  
*Globorotalia (Obandyella) bermudezi*  
 Site 835, A:206  
 Site 836, A:260  
*Globorotalia (Obandyella) margaritae*  
 Lau Basin, B:215, 867, 874–875  
 Site 834, A:116; B:209  
 Site 840, A:526  
*Globorotalia truncatulinoidea* Zone, Lau Basin, B:873  
*Globorotalia (Truncorotalia) crassaformis*  
 Lau Basin, B:215, 867  
 Site 836, B:211  
 Site 838, B:212  
*Globorotalia (Truncorotalia) crassaformis crassaformis*, Lau Basin, B:874  
*Globorotalia (Truncorotalia) crassaformis hessi*  
 Lau Basin, B:209, 223, 861, 866, 871–872  
 Site 836, A:261  
 Site 837, A:307  
 Site 839, A:420  
*Globorotalia (Truncorotalia) crassaformis hessi* Subzone  
 Lau Basin, A:26; B:207, 219, 223  
 Site 836, A:261; B:862  
 Site 837, A:307; B:223  
 Site 838, A:360  
 Site 839, A:420  
 Site 840, A:525  
 Tonga Ridge, B:220  
*Globorotalia (Truncorotalia) crassaformis ronda*  
 Site 835, A:206  
 Site 836, B:228  
*Globorotalia (Truncorotalia) crassaformis viola* Subzone  
 Lau Basin, A:26; B:219, 221  
 Site 834, A:115  
 Site 835, A:206  
 Site 837, A:307  
 Site 839, A:420  
 Site 840, A:525  
 Tonga Ridge, B:220  
*Globorotalia (Truncorotalia) crassula*, Site 836, A:261  
*Globorotalia (Truncorotalia) fistulosus* Subzone, Tonga Ridge, B:220  
*Globorotalia (Truncorotalia) tosaensis*  
 Lau Basin, B:215, 219, 866, 871–872, 874  
 Site 834, A:115–116  
 Site 835, A:207  
 Site 836, B:211  
 Site 837, A:307  
 Site 838, B:212  
 Site 839, A:420  
 Site 840, A:525  
 Site 841, A:29  
 Tonga Ridge, B:220  
*Globorotalia (Truncorotalia) truncatulinoidea*  
 Lau Basin, B:209, 219, 221, 861, 871, 874  
 Site 834, A:116  
 Site 835, A:206  
 Site 836, A:260  
 Site 837, A:307; B:211  
 Site 838, A:360  
 Site 839, A:420; B:212  
 Site 840, A:524–526  
*Globorotalia viola* Subzone, Site 838, A:360  
*Globorotaloides*, Site 841, B:254, 258  
*Globorotaloides suteri*, Site 841, B:256  
*Globoturborotalia*, Site 841, B:236  
*globula, Sphaerogypsina*, Site 841, B:242  
*glutinata, Globigerinita*  
 Site 834, A:116  
 Site 835, A:206  
*gortanii, Subbotina*, Site 841, B:251  
*Gypsina ?discus*, Site 841, A:614; B:254  
*Halimeda*  
 Site 834, A:115; B:105  
 Site 841, A:26, 614; B:235, 237  
*Halkyardia ?minima*, Site 841, B:233, 241  
*hamatus, Discoaster*, Site 841, B:273  
*Hantkenina*, Site 841, B:249, 256  
*Hastigerina pelagica*, Site 835, A:206  
*Helicosphaera inversa*  
 Lau Basin, B:199, 876  
 Site 834, B:193  
 Site 836, A:260  
 Site 837, B:196  
 Site 838, B:197, 204  
 Site 839, A:419; B:198  
*Helicosphaera sellii*  
 Lau Basin, B:191, 194, 867, 876  
 Site 834, A:112  
 Site 835, A:205  
 Site 836, A:260  
 Site 837, A:306; B:196  
 Site 839, B:198  
 Site 840, B:268  
*Helicosphaera* spp., Lau Basin, B:275  
*heteromorphus, Sphenolithus*, Site 841, A:605–606; B:273  
*Heterostegina*, Site 841, B:254  
*Heterostegina saipanensis*, Site 841, A:614; B:233, 235, 241  
*hillae, Reticulofenestra*, Site 841, A:604  
*Holodiscolithus* sp., Site 837, B:205  
*howchini, Lepidocyclina (Nephrolepidina)*, Site 841, B:233, 237, 242  
*howei, Catapsydrax*, Site 841, B:249, 264  
*humerosa, Neogloboquadrina*, Tonga Ridge, B:220  
*humilis, Turborotalia*, Site 834, A:116  
*huxleyi, Emiliana*  
 Lau Basin, B:867, 871, 875  
 Site 834, B:193  
 Site 835, B:195  
 Site 836, A:260; B:195  
 Site 838, B:197  
 Site 839, A:420; B:198  
 Site 840, B:268  
*hyalinus, Crystallolithus*, Site 841, B:274  
*increbescens, Turborotalia*, Site 841, B:250–251, 265  
*index index, Globigerinatheka*, Site 841, B:254  
*index tropicalis, Globigerinatheka*, Site 841, B:251, 254–255, 263  
*indoceanica, Pontosphaera*  
 Site 836, A:260  
 Site 838, A:360  
 Site 840, A:524  
*inflata, Cribrohantkenina*, Site 841, A:613  
*inflata, Globorotalia (Globoconella)*  
 Site 836, B:228  
 Site 838, A:360  
*inversa, Helicosphaera*  
 Lau Basin, B:199, 876  
 Site 834, B:193  
 Site 836, A:260  
 Site 837, B:196  
 Site 838, B:197, 204

- Site 839, A:419; B:198
- japonica*, *Pontosphaera*, Site 837, B:205
- kennetti*, *Globigerinoides*, Site 841, B:215
- lacunosa*, *Pseudoemiliana*  
Lau Basin, B:191, 199, 867, 876  
Site 834, A:112; B:193  
Site 835, A:203; B:118  
Site 837, A:306; B:196  
Site 838, A:360; B:197, 203  
Site 839, A:419; B:198
- linguaensis*, *Globorotalia* (*Globorotalia*)  
Lau Basin, B:867, 875  
Site 840, B:213  
Site 841, A:613
- Lepidocyclina* (*Nephrolepidina*) *?howchini*, Site 841, B:233, 237, 242
- leptoporus*, *Calcidiscus*, Site 835, B:118
- linaperta*, *Subbotina*, Site 841, B:249, 256
- macintyreii*, *Calcidiscus*  
Lau Basin, B:867, 876  
Site 834, A:112  
Site 835, A:203, 205  
Site 837, B:196  
Site 838, A:360; B:197  
Site 840, A:524; B:268  
Site 841, A:605
- margaritae*, *Globorotalia* (*Obandyella*)  
Lau Basin, B:215, 867, 874–875  
Site 834, A:116; B:209  
Site 840, A:526
- marginalis*, *Sorites*, Site 834, A:115; B:105
- Marginopora vertebralis*, Site 841, B:235
- martini*, *Chiloguembelina*, Site 841, B:249
- matanzensis*, *Asterocyclina*, Site 841, A:614; B:233, 242, 249
- merotumida*, *Globorotalia* (*Globorotalia*)  
Lau Basin, B:875  
Site 840, B:213  
Site 841, A:613
- mexicana*, *Globigerinatheka*, Site 841, B:263
- mexicana mexicana*, *Globigerinatheka*, Site 841, B:249
- micra*, *Pseudohastigerina*, Site 841, B:250, 255
- Micrantholithus*, Tonga Ridge, B:267–284
- Micrantholithus* sp. aff. *Micrantholithus flos*, Site 841, B:273
- minima*, *Halkyardia*, Site 841, B:233, 241
- Minylitha convallis*, Site 841, A:604
- moriformis*, *Sphenolithus*, Site 834, B:194
- Morozovella*, Site 841, B:233
- Morozovella spinulosa*, Site 841, B:249, 262
- multicamerata*, *Globorotalia* (*Globorotalia*)  
Lau Basin, B:867, 871, 873  
Site 835, A:207  
Site 838, B:227  
Site 840, A:525  
Tonga Ridge, B:220
- munda*, *Tenuitella*, Site 841, B:250
- nana*, *Paragloborotalia*, Site 841, B:252
- neoabies*, *Sphenolithus*  
Lau Basin, B:876  
Site 834, A:115; B:194  
Site 840, A:524  
Site 841, A:604
- Neogloboquadrina acostaensis*  
Lau Basin, B:867, 874  
Site 841, A:613
- Neogloboquadrina dutertrei*  
Site 835, A:206
- Site 838, A:360
- Neogloboquadrina humerosa*, Tonga Ridge, B:220
- neorectus*, *Discoaster*, Site 841, A:604
- nepenthes*, *Globigerina* (*Globoturborotalita*)  
Lau Basin, B:867, 874  
Site 834, B:209  
Site 841, A:613; B:215  
Tonga Ridge, B:219
- new taxa, Lau Basin, B:199
- nitida nitida*, *Candeina*, Site 840, B:213
- Nummulites pengaronensis*, Site 841, B:233, 235, 241
- obliquiloculata*, *Pulleniatina*  
Site 834, A:115  
Site 835, A:206  
Site 836, A:260  
Site 837, A:307  
Site 838, A:360
- obliquus*, *Globigerinoides*, Site 834, A:116
- obliquus extremus*, *Globigerinoides*  
Lau Basin, B:866, 873  
Site 834, A:116  
Site 835, A:207  
Site 836, B:211  
Site 839, A:422  
Site 841, A:613; B:215
- obliquus* s.l., *Globigerinoides*, Site 840, A:525
- oceanica*, *Gephyrocapsa*  
Lau Basin, B:191, 194, 866–867, 876  
Site 834, A:112  
Site 835, A:203  
Site 836, A:260  
Site 837, A:306; B:196  
Site 838, A:360  
Site 839, A:419; B:199  
Site 840, A:524; B:268  
Site 841, A:603
- omphala*, *Discoacyclina*, Site 841, A:614; B:233, 235, 239–240, 242, 249
- ono* n. sp., *Discoaster*  
Lau Basin, B:199  
Site 838, B:203
- Operculina*, Site 841, A:26, 614; B:254
- Operculina pacifica*, Site 841, A:614; B:233, 249
- Orbulina* spp., Site 841, A:613
- Orbulina suturalis*, Tonga Ridge, B:219
- ovata*, *Emiliana*  
Lau Basin, B:199, 867, 876  
Site 834, A:112; B:193  
Site 835, A:203, 205–207  
Site 836, A:260; B:195  
Site 837, A:306; B:196  
Site 838, B:197, 203  
Site 839, A:419–420; B:198  
Site 840, B:268
- pacifica*, *Operculina*, Site 841, A:614; B:233, 249
- paenedehiscens*, *Sphaeroidinellopsis*  
Site 834, A:116  
Site 836, B:211  
Site 840, A:526
- papillatum*, *Pemma*, Site 841, B:284
- Paragloborotalia nana*, Site 841, B:252
- paralanguaensis*, *Globorotalia* (*Globorotalia*)  
Lau Basin, B:875  
Site 840, B:213
- pataecus*, *Coccolithus*, Site 838, B:204
- pelagica*, *Hastigerina*, Site 835, A:206
- pelagicus*, *Coccolithus*  
Lau Basin, B:275  
Site 838, B:204  
Site 841, B:274, 284
- Pellatispira*, Site 841, A:26, 614; B:234, 237
- Pemma*, Tonga Ridge, B:267–284
- Pemma basquense crassum*, Site 841, B:273
- Pemma papillatum*, Site 841, B:284
- Pemma* spp., Site 841, A:606
- pengaronensis*, *Nummulites*, Site 841, B:233, 235, 241
- pentaradiatus*, *Discoaster*  
Lau Basin, B:867, 876  
Site 834, A:115  
Site 835, A:206  
Site 838, B:197  
Site 840, A:524; B:269  
Site 841, A:604
- perplexa*, *Dictyococcites*, Site 834, B:194
- Planolites* sp., Site 840, B:179
- Planorotalites renzi*, Site 841, B:249, 262
- Planorotalites* sp., Site 841, B:249
- Pontosphaera indoceanica*  
Site 836, A:260  
Site 838, A:360  
Site 840, A:524
- Pontosphaera japonica*, Site 837, B:205
- praeadamsi*, *Bolliella*  
Site 834, B:209  
Site 836, A:260–261; B:211, 226  
Site 839, A:420  
Site 841, B:867, 872
- Praeorbulina* spp.  
Site 841, A:613  
Tonga Ridge, B:219
- primalis*, *Pulleniatina*  
Lau Basin, B:223, 861, 867, 871, 874–875  
Site 834, A:116; B:209  
Site 840, A:526
- primus*, *Ceratolithus*, Site 840, A:524
- productus*, *Dictyococcites*, Site 834, B:194
- Pseudoemiliana lacunosa*  
Lau Basin, B:191, 199, 867, 876  
Site 834, A:112; B:193  
Site 835, A:203; B:118  
Site 837, A:306; B:196  
Site 838, A:360; B:197, 203  
Site 839, A:419; B:198
- Pseudohastigerina*, Site 841, B:252
- Pseudohastigerina barbadoensis*, Site 841, A:613; B:250
- Pseudohastigerina micra*, Site 841, B:250, 255
- Pseudohastigerina wilcoxensis*, Site 841, B:249, 262
- pseudumbilica*, *Reticulofenestra*  
Lau Basin, B:876  
Site 834, A:115; B:194  
Site 840, B:269  
Site 841, A:604
- pseudovenezuelana*, *Globigerina*, Site 841, B:251
- pulcherrima*, *Scyphosphaera*  
Lau Basin, B:191, 194, 867, 876  
Site 838, B:197, 203
- pulcherrima*, *Sphenolithus*  
Lau Basin, B:199  
Site 835, B:195  
Site 839, B:198
- Pulleniatina*  
Lau Basin, B:875  
Site 834, A:115  
Site 841, B:234
- Pulleniatina danvillensis*, Site 841, B:249
- Pulleniatina finalis*  
Lau Basin, B:223, 861, 871–872  
Site 836, A:260  
Site 838, B:212
- Pulleniatina finalis* Subzone, Site 836, A:260
- Pulleniatina obliquiloculata*

- Site 834, A:115  
 Site 835, A:206  
 Site 836, A:260  
 Site 837, A:307  
 Site 838, A:360  
*Pulleniatina primalis*  
 Lau Basin, B:223, 861, 867, 871, 874–875  
 Site 834, A:116; B:209  
 Site 840, A:526  
*Pulleniatina* sp.  
 Site 841, B:231, 243  
 Tonga Ridge, B:220  
*Pulleniatina* spp., Site 836, B:211
- quadrilobatus fistulosus, Globigerinoides*  
 Lau Basin, B:221, 223, 861, 871, 873–874  
 Site 834, A:115  
 Site 836, B:211  
 Site 837, A:308  
 Site 839, B:212  
 Site 840, A:525  
*quadrilobatus sacculifer, Globigerinoides*, Site 835, B:210  
*quinqueramus, Discoaster*  
 Lau Basin, B:867, 877  
 Site 840, A:525  
 Site 841, B:273
- radiata, Amphistegina*, Site 841, B:233, 237  
*renzi, Planorotalites*, Site 841, B:249, 262  
*reticulatum, Cribrocentrum*, Site 841, B:273  
*Reticulofenestra*, Site 835, B:118  
*Reticulofenestra hillae*, Site 841, A:604  
*Reticulofenestra pseudoumbilica*  
 Lau Basin, B:876  
 Site 834, A:115; B:194  
 Site 840, B:269  
 Site 841, A:604  
*Reticulofenestra umbilica*, Site 841, A:606  
*Rhabdosphaera claviger*, Site 835, B:118  
*ruber, Globigerinoides*  
 Lau Basin, B:867, 872  
 Site 835, A:207; B:210  
 Site 836, B:211  
 Site 839, A:420; B:212  
 Site 840, B:213  
*rubescens, Globigerina (Globoturborotalita)*, Site 835, A:206  
*rubescens rubescens, Globigerina (Globoturborotalita)*  
 Lau Basin, B:872  
 Site 836, B:229  
*rubescens tenellus, Globigerina (Globoturborotalita)*  
 Lau Basin, B:872  
 Site 836, A:260; B:229  
*rugosus, Ceratolithus*  
 Site 834, A:112  
 Site 840, A:524; B:268  
*rugosus, Triquetrorhabdulus*  
 Lau Basin, B:867, 877  
 Site 834, A:115; B:194  
 Site 840, A:524; B:269
- saipanensis, Discoaster*, Site 841, A:606; B:273  
*saipanensis, Heterostegina*, Site 841, A:614; B:233, 235, 241  
*scrippsae, Dictyococcites*, Site 841, A:606  
*Scyphosphaera pulcherrima*  
 Lau Basin, B:191, 194, 867, 876  
 Site 838, B:197, 203  
*Scyphosphaera* spp., Site 835, B:118  
*sellii, Dentoglobigerina*, Site 841, B:250, 266  
*sellii, Helicosphaera*  
 Lau Basin, B:191, 194, 867, 876  
 Site 834, A:112  
 Site 835, A:205  
 Site 836, A:260  
 Site 837, A:306; B:196  
 Site 839, B:198  
 Site 840, B:268  
*semiinvoluta, Globigerinatheka*, Site 841, B:255  
*seminulina, Sphaeroidinellopsis*, Site 834, A:116  
*Sherbornina carteri*, Site 841, A:614; B:233  
*Sorites marginalis*, Site 834, A:115; B:105  
*spengleri, Calcarina*, Site 834, A:115; B:105  
*Sphaerogypsina globula*, Site 841, B:242  
*Sphaeroidinella dehiscentis*  
 Lau Basin, B:215, 861, 867, 871  
 Site 834, B:209  
 Site 835, A:207; B:210  
 Site 840, A:526  
*Sphaeroidinella dehiscentis dehiscentis*, Lau Basin, B:875  
*Sphaeroidinellopsis paenedehiscentis*  
 Site 834, A:116  
 Site 836, B:211  
 Site 840, A:526  
*Sphaeroidinellopsis seminulina*, Site 834, A:116  
*Sphaeroidinellopsis* spp., Lau Basin, B:867, 874  
*Sphenolithus abies*  
 Lau Basin, B:876  
 Site 834, A:115  
 Site 841, A:604  
*Sphenolithus heteromorphus*, Site 841, A:605–606; B:273  
*Sphenolithus moriformis*, Site 834, B:194  
*Sphenolithus neoabies*  
 Lau Basin, B:876  
 Site 834, A:115; B:194  
 Site 840, A:524  
 Site 841, A:604  
*Sphenolithus pulcherrima*  
 Lau Basin, B:199  
 Site 835, B:195  
 Site 839, B:198  
*Sphenolithus* spp.  
 Site 838, B:197  
 Site 840, B:269  
*spinuloinflata, Acarinina*, Site 841, B:249, 256  
*spinulosa, Morozovella*, Site 841, B:249, 262  
*Spiroclypeus*, Site 841, A:26; B:254  
*Spiroclypeus vermicularis*, Site 841, A:614; B:233–234, 237, 241  
*Subbotina*, Site 841, B:252  
*Subbotina angiporoides*, Site 841, B:251  
*Subbotina corpulenta*, Site 841, B:251  
*Subbotina eocaena*, Site 841, B:251  
*Subbotina gortanii*, Site 841, B:251  
*Subbotina linaperta*, Site 841, B:249, 256  
*subconglobata luterbacheri, Globigerinatheka*, Site 841, B:263  
*subdisticha, Ericsonia*, Site 841, A:606  
 subzones (with letter prefixes). *See also* zones  
 CN3a, Site 841, A:603  
 CN8a, Site 841, A:604  
 CN8b, Site 841, A:604  
 CN9b, A:524, 604; B:269  
 CN9b–Zone CN10 interval, Site 840, A:524  
 CN10a, A:26, 115, 524; B:185, 269  
 CN10b, A:26, 115, 524; B:269  
 CN11a, A:26, 115  
 CN11b, A:115, 524; B:269  
 CN12a, A:26, 115, 203, 205, 360, 524; B:194, 196, 269, 866  
 CN12a–CN13b interval, A:26, 203  
 CN12b, A:205; B:194, 197  
 CN12c, A:205, 360; B:197
- CN12d, A:26, 115, 205, 306, 360, 420; B:199, 866  
 CN13a, A:203, 306, 360, 524; B:194  
 CN13b, A:26, 115, 203, 205–207, 306, 420, 524; B:194, 197, 233, 268  
 CN14a, A:26, 112, 203, 260, 360, 419; B:193, 195–196, 198–199, 866  
 CN14b, A:260, 306, 360, 419, 524, 603; B:267–284  
 CP14a–CP15b interval, Tonga Ridge, B:267–284  
 CP15b, Site 841, B:273  
 CP16b–Zone CP15 interval, Site 841, A:26  
 N4a, Lau Basin, B:209  
 N17a, A:526, 613; B:219, 234, 866  
 N17a–Zone N19/N20 interval, Lau Basin, B:221  
 N17a–Zone N22 interval, Lau Basin, B:207  
 N17b, A:26, 116, 526; B:185, 215, 220, 223, 231, 234, 862, 866, 871  
 N21b, Lau Basin, B:874  
*surculus, Discoaster*  
 Lau Basin, B:867, 876  
 Site 834, A:115; B:194  
 Site 835, A:203  
 Site 840, A:524  
 Site 841, A:604  
*suteri, Globorotaloides*, Site 841, B:256  
*suturalis, Orbulina*, Tonga Ridge, B:219
- tamalis, Discoaster*  
 Lau Basin, B:876  
 Site 834, A:115; B:194  
 Site 835, A:203  
 Site 836, A:260  
 Site 838, A:360  
 Site 840, A:524; B:269  
*tanii nodifer, Discoaster*, Site 841, A:606  
*tapuriensis, Dentoglobigerina*, Site 841, B:250, 266  
*tectoria, Asterigerina*, Site 841, A:614; B:249  
*telesmus, Ceratolithus*, Site 837, B:205  
*tentoria, Asterigerina*, Site 841, B:233  
*Tenuitella*, Site 841, B:252, 254, 256  
*Tenuitella munda*, Site 841, B:250  
*Thalassinoides* sp., Site 840, B:179  
*topilensis, Truncorotaloides*, Site 841, B:249, 256, 262  
*tosaensis, Globorotalia (Truncorotalia)*  
 Lau Basin, B:215, 219, 866, 871–872, 874  
 Site 834, A:115–116  
 Site 835, A:207  
 Site 836, B:211  
 Site 837, A:307  
 Site 838, B:212  
 Site 839, A:420  
 Site 840, A:525  
 Site 841, A:29  
 Tonga Ridge, B:220  
*tricorniculatus, Amaurolithus*, Lau Basin, B:867, 876  
*tripartita, Dentoglobigerina*, Site 841, B:251, 266  
*tripartita, Globoquadrina*, Site 841, B:254  
*Triquetrorhabdulus carinatus*, Site 834, A:115  
*Triquetrorhabdulus farnsworthii*, Site 834, A:115  
*Triquetrorhabdulus rugosus*  
 Lau Basin, B:867, 877  
 Site 834, A:115; B:194  
 Site 840, A:524; B:269  
*Triquetrorhabdulus* sp. aff. *Triquetrorhabdulus farnsworthii*, Site 841, B:273  
*triradiatus, Discoaster*  
 Site 834, A:112  
 Site 835, A:205

- truncatulinoidea, Globorotalia* (*Truncorotalia*)  
 Lau Basin, B:209, 219, 221, 861, 871, 874  
 Site 834, A:116  
 Site 835, A:206  
 Site 836, A:260  
 Site 837, A:307; B:211  
 Site 838, A:360  
 Site 839, A:420; B:212  
 Site 840, A:524–526
- Truncorotaloides topilensis*, Site 841, B:249, 256, 262
- tumida flexuosa, Globorotalia* (*Globorotalia*)  
 Lau Basin, B:219  
 Site 836, A:260
- tumida plesiotumida, Globorotalia* (*Globorotalia*)  
 Lau Basin, B:867, 874–875  
 Site 834, B:209  
 Site 836, B:229  
 Site 840, B:213  
 Site 841, A:613  
 Tonga Ridge, B:219
- tumida ?plesiotumida, Globorotalia* (*Globorotalia*)  
 Site 841, B:231, 233, 243
- tumida tumida, Globorotalia* (*Globorotalia*)  
 Lau Basin, B:215  
 Site 835, A:206; B:210  
 Site 838, A:360  
 Site 840, A:526
- Turborotalia ampliapertura*, Site 841, A:613
- Turborotalia cerroazulensis*, Site 841, A:613;  
 B:251–252, 256
- Turborotalia cerroazulensis cerroazulensis*, Site 841, B:249, 255
- Turborotalia increbescens*, Site 841, B:250–251, 265
- Turborotalia humilis*, Site 834, A:116
- umbilica, Reticulofenestra*, Site 835, B:118
- Umbilicosphaera* spp., Site 835, B:118
- ungulata, Globorotalia* (*Globorotalia*), Site 838,  
 B:227
- variabilis, Discoaster*  
 Site 834, A:115  
 Site 841, A:604
- vermicularis, Spiroclypeus*, Site 841, A:614;  
 B:233–234, 237, 241
- vertebralis, Marginopora*, Site 841, B:235
- waiareka, Amphistegina*, Site 841, A:614; B:233,  
 241, 249
- wilcoxensis, Pseudohastigerina*, Site 841, B:249,  
 262
- zones (with letter prefixes). *See also* subzones  
 CN3–CN8 interval, Site 841, A:605  
 CN4, Site 841, A:606  
 CN7, Site 840, B:185  
 CN8, Site 841, A:605; B:269, 273  
 CN9, A:26, 525, 604; B:267–284, 866  
 CN10, Site 840, A:524  
 CN11, B:194, 269, 866  
 CN12, A:360, 524; B:195, 199  
 CN13, A:306, 420; B:199  
 CN13–CN14 boundary, Lau Basin, B:191, 194  
 CN14, A:112, 420; B:195, 197  
 CN15, A:260; B:195, 197–199, 267–284, 866  
 CP15, Site 841, A:606  
 CP16, Tonga Ridge, B:267–284  
 N4, Tonga Ridge, B:267–284  
 N8, A:613; B:219, 233  
 N8–N9 interval, Site 841, B:234, 256  
 N9, A:613; B:219  
 N14, Site 841, A:613  
 N14–Subzone N17a interval, Tonga Ridge,  
 B:219  
 N16, Site 841, A:613; B:231  
 N16–Subzone N17a interval, Site 841, A:613  
 N16–N19/N20 interval, Site 841, A:613  
 N17, A:26; B:209, 873  
 N17–N23 interval, Tonga Platform, B:866  
 N18, B:185, 215, 220, 223  
 N19, B:207, 209, 212, 215, 220, 862, 866, 874  
 N19–N20 interval, A:26, 116, 206; B:207,  
 212, 215, 220–221, 223, 861, 866,  
 873–974  
 N20, Lau Basin, B:207  
 N21, A:115, 207, 525; B:212, 219–220, 873  
 N21–N22 interval, Lau Basin, B:207, 209, 221  
 N22, A:26, 115, 260, 307, 420; B:219–220,  
 223, 861–862, 866–867  
 N23, A:261; B:219, 221, 861  
 NN19, Site 834, B:193  
 P14, Site 841, B:256  
 P15–P16 interval, Site 841, B:256  
 P16, Site 841, A:613  
 P16–P17 interval, Site 841, A:613  
 P16–P18 interval, Site 841, A:26  
 P17, A:613; B:235, 249, 256  
 P18, A:613; B:249, 256  
 P19, Site 841; B:250  
*Zoophycos* sp., Site 840, B:179  
*Zygrhablithus bijugatus*, Site 841, A:606