U. S. DEPARTMENT OF INTERIOR
U. S. GEOLOGICAL SURVEY

TO ACCOMPANY MAP CP-52

CIRCUM-PACIFIC COUNCIL FOR ENERGY AND MINERAL RESOURCES

Michel T. Halbouty, Founder

CIRCUM-PACIFIC MAP PROJECT

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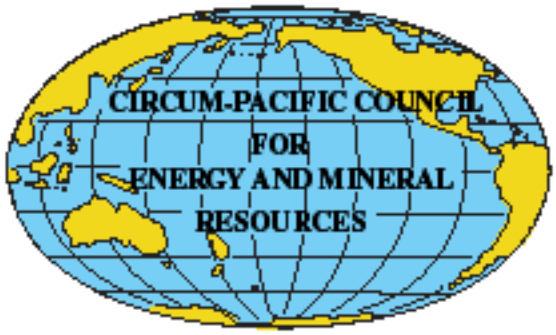
EXPLANATORY NOTES FOR THE TECTONIC MAP OF THE CIRCUM-PACIFIC REGION PACIFIC BASIN SHEET

1:17,000,000

Compiled from quadrant compilations



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Note: Land based paleomagnetic data could not be shown on the Basin Sheet, but paleomagnetic data were compiled for the Quadrants and published on the SW Quadrant Sheet

C O N T E N T:

INTRODUCTION by Warren O. Addicott

PRINCIPLES OF THE CIRCUM-PACIFIC TECTONIC MAP COMPILATION by H. Frederick Doutch, George W. Moore, Erwin Scheibner and Maurice J. Terman

OCEANIC TECTONIC UNITS by George W. Moore and Erwin Scheibner

INTRODUCTION TO THE TECTONIC DEVELOPMENT OF THE NORTHEAST QUADRANT by Kenneth J. Drummond

INTRODUCTION TO THE TECTONIC DEVELOPMENT OF THE SOUTHEAST QUADRANT by Jose Corvalan D.

INTRODUCTION TO THE TECTONIC DEVELOPMENT OF THE SOUTHWEST QUADRANT by Erwin Scheibner

INTRODUCTION TO THE TECTONIC DEVELOPMENT OF THE NORTHWEST QUADRANT by Tomoyuki Moritani, Takashi Yoshida, Masao Nakanishi and Yoji Teraoka

DESCRIPTION OF TECTONIC MAP UNITS FOR INDIVIDUAL PLATES BASED ON QUADRANT COMPILATIONS:

TECTONIC UNITS ON THE PACIFIC PLATE by George W. Moore and Erwin Scheibner

TECTONIC UNITS ON THE JUAN DE FUCA PLATE by George W. Moore and Erwin Scheibner

TECTONIC UNITS ON THE COCOS PLATE by George W. Moore and Erwin Scheibner

TECTONIC UNITS ON THE NAZCA PLATE by George W. Moore and Erwin Scheibner

TECTONIC UNITS ON THE NORTH AMERICA PLATE by Kenneth J. Drummond

TECTONIC UNITS ON THE NORTH AMERICAN PLATE / RUSSIAN CONTINENTAL / MARGIN REGION adopted from W. Nokleberg and others (1994)

TECTONIC UNITS ON THE CARIBBEAN PLATE by Kenneth J. Drummond

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TECTONIC UNITS ON THE SCOTIA PLATE by Jose Corvalan D

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TECTONIC UNITS ON THE AUSTRALIA PLATE by Erwin Scheibner

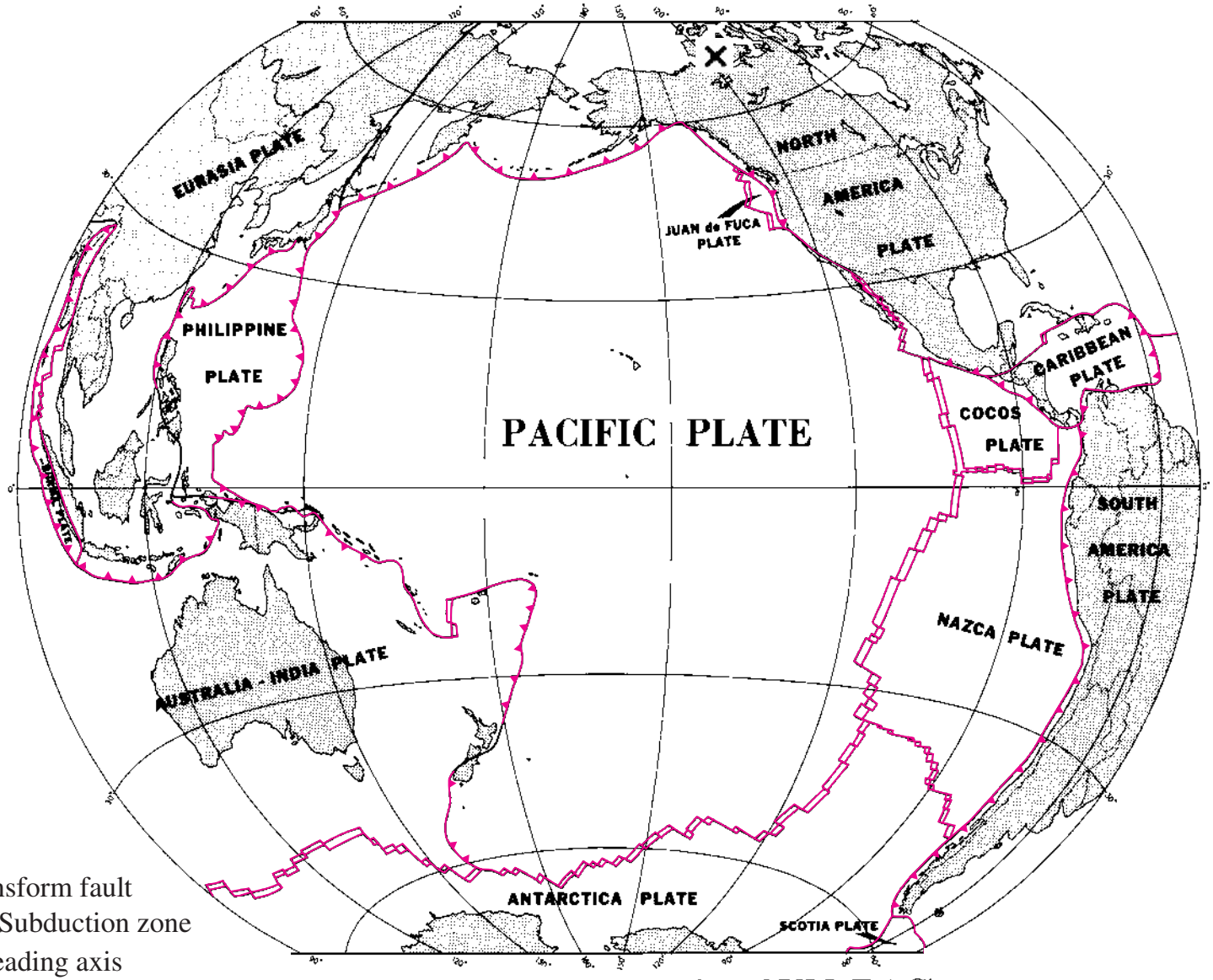
TECTONIC UNITS ON THE INDIA PLATE by Erwin Scheibner

TECTONIC UNITS ON THE PHILIPPINE PLATE by Tadashi Sato

TECTONIC UNITS ON THE EURASIA PLATE by Tomoyuki Moritani, Takashi Yoshida, Masao Nakanishi and Yoji Teraoka

REFERENCES

PRESENTLY ACTIVE TECTONIC PLATES



MAJOR PLATES OF THE CIRCUM PACIFIC

INTRODUCTION

Circum-Pacific Map Project

The Circum-Pacific Map Project is a cooperative international effort designed to show the relationship of known energy and mineral resources to the major geologic features of the Pacific basin and surrounding continental areas. Available geologic, mineral, and energy-resource data are being complemented by new, project-developed data sets such as magnetic lineations, seafloor mineral deposits, and seafloor sediment. Earth scientists representing some 180 organizations from more than 40 Pacific-region countries are involved in this work.

Six overlapping equal-area regional maps at a scale of 1:10,000,000 form the cartographic base for the project: the four Circum-Pacific Quadrants (Northwest, Southwest, Southeast, and Northeast), and the Antarctic and Arctic Sheets. There is also a Pacific Basin Sheet at a scale of 1:17,000,000. The Base Map Series and the Geographic Series (published from 1977 to 1990), the Plate-Tectonic Series (published in 1981 and 1982), the Geodynamic Series (published in 1984 and 1985), and the Geologic Series (published from 1984 to 1989) all include six map sheets. Other thematic map series in preparation include Mineral-Resources, Energy-Resources and Tectonic Maps. Altogether, more than 50 map sheets are planned. The maps are prepared cooperatively by the Circum-Pacific Council for Energy and Mineral Resources and the U.S. Geological Survey and are available from the Branch of Distribution, U.S.Geological Survey, Box 25286, Federal Center, Denver, Colorado 80225, U.S.A.

The Circum-Pacific Map Project is organized under six panels of geoscientists representing national earth-science organizations, universities, and natural-resource companies. The six panels correspond to the basic map areas. Current panel chairmen are Tomoyuki Moritani (Northwest Quadrant), R. Wally Johnson (Southwest Quadrant), Ian W.D. Dalziel (Antarctic Region), vacant. (Southeast Quadrant), Kenneth J. Drummond (Northeast Quadrant), and George W. Moore (Arctic Region).

Project coordination and final cartography are being carried out through the cooperation of the Office of theChief Geologist of the U.S. Geological Survey, under the direction of General Chairman George Gryc of Menlo Park, California. Project headquarters are located at 345 Middlefield Road, MS 952, Menlo Park, California 94025, U.S.A.

The framework for the Circum-Pacific Map Project was developed in 1973 by a specially convened group of 12 North American geoscientists meeting in California. The project was officially launched at the First Circum-Pacific Conference on Energy and Mineral Resources, which met in Honolulu, Hawaii, in August 1974. Sponsors of the conference were the AAPG, Pacific Science Association (PSA), and the Coordinating Committee for Offshore Prospecting for Mineral Resources in Offshore Asian Areas (CCOP).

The Circum-Pacific Map Project operates as an activity of the Circum-Pacific Council for Energy and Mineral Resources, a nonprofit organization that promotes cooperation among Circum-Pacific countries in the study of energy and mineral resources of the Pacific basin. Founded by Michel T. Halbouty in 1972, the Council also sponsors conferences, topical symposia, workshops and the Earth Science Series books.

Tectonic Map Series

The tectonic maps distinguish areas of oceanic and continental crust. Symbols in red mark active plate boundaries, and colored patterns show tectonic units (volcanic or magmatic arcs, arc-trench gaps, and interarc basins) associated with active plate margins. Well documented inactive plate boundaries are shown by symbols in black. The tectonic development of oceanic crust is shown by episodes of seafloor spreading. These correlate with the rift and drift sequences at passive continental margins and episodes of tectonic activity at active plate margins. The recognized episodes of seafloor spreading seem to reflect major changes in plate kinematics. Oceanic plateaus and other prominences of greater than normal oceanic crustal thickness such as hotspot traces are also shown. Colored areas on the continents show the ages of deformation and metamorphism of basement rocks and the emplacement of igneous rocks. Transitional tectonic (molassic) and reactivation basins are shown by a colored boundary, and if they are deformed, a colored horizontal line pattern indicates the age of deformation. Colored bands along basin boundaries indicate age of inception, and isopachs indicate thickness of platform strata on continental crust and cover on oceanic crust. Colored patterns at separated continental margins show the age of inception of rift and drift (breakup) sequences. Symbols mark folds and faults, and special symbols show volcanoes and other structural features.

PRINCIPLES OF THE CIRCUM-PACIFIC TECTONIC MAP COMPILATION

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The principles of the Circum-Pacific Tectonic Map compilation have been derived during lengthy discussions with the panel chair and technical advisers to the Circum-Pacific Map Project. The final guidelines were adopted in December 1982 (see U.S. Geological Survey Open-File Report 83–64).

The Tectonic Map Series has been designed with the intention of aiding the exploration for energy and mineral resources. The aim has been to produce maps as objective as possible. Each of the quadrant maps gives a complete synopsis of one-eighth of the Earth's surface. At the same time enough detail has been retained to illustrate the specific differences of individual regions. The data contained on these maps, combined with the data on other Circum-Pacific map series, can be used to test the existing conceptual that which we use to explain the origin and distribution of energy and mineral resources. It is expected that such studies may lead to improved conceptual models and help in practical exploration for nonrenewable resources.

The principal subdivisions on the Circum-Pacific Tectonic Map show the contrasting oceanic and continental crustal domains, and the active plate margins, which represent the transition between the two types and the location where the continental crust is formed. With the search for fluid and gas hydrocarbons in mind, a further subdivision of the oceanic and continental crustal domains was made into basement complexes (those generally deemed to be too deformed to contain fluid hydrocarbons) and cover rocks.

Oceanic Crustal Domain

Oceanic crustal rocks in present oceanic areas. The oceanic crust has been divided into successive episodes of seafloor spreading, and these are color coded. These episodes of seafloor spreading appear to correlate not only between distant oceanic regions, but also with the tectonic development of passive and active plate margins. The spreading episodes possibly reflect changes in the plate kinematics and plate interactions. Undifferentiated, or more precisely, oceanic crust of unknown age, is shown in gray.

Oceanic plateaus. Oceanic plateaus are characterised by anomalous crustal thicknesses in contrast to the surrounding oceanic crust. Some plateaus represent anomalous oceanic crust, others are epiliths formed by intraplate igneous activity, a few are microcontinents, and some are of unknown origin. Plateaus are shown by a black overprint pattern.

Oceanic island and seamount volcanics. Oceanic volcanic islands and seamounts represent traces of hotspots and other intraplate igneous activity. The rock type, which is mostly basic volcanic, is shown by overprint symbol, and the age by color, with gray for unknown age. These complexes represent cover of the oceanic crust.

Sedimentary cover on oceanic crust. Isopachs indicate the thickness of the cover strata.

Active Plate Margins

At the active plate margins the basement/cover classification is only locally applied, with the allochthonous microcontinents representing older basement complexes. The basement complexes are in the making here. Three main categories are differentiated.

Magmatic arcs or chains. Included here are volcanic-island arcs, continental-margin arcs or chains, volcanic rifts, and other forms of magmatic chains related to plate interactions at plate margins. The composition of the volcanic and plutonic rocks is shown by overprint symbols (patterns) and the color of these symbols indicates the age.

Forearc sediments. Areas of forearc sedimentation are shown by pattern, and the background color of pattern indicates the age of onset of sedimentation. Isopachs indicate thickness of strata.

Accretionary-prism rocks, including mélanges. Distribution of these rocks is shown by pattern, and the background color indicates the time of onset of subduction.

Continental Crustal Domain

Basement Rocks

Metamorphic rocks. Metamorphic rocks of orogenic belts and metamorphic belts formed from sedimentary or igneous protoliths are shown in the same way as in the Geologic Map Series. Solid color shows the age of major metamorphism, with black overprints.

Igneous rocks. Igneous rocks, mostly intrusive, of orogenic belts, igneous belts, and mobile belts are shown by solid colors that indicate the age of intrusion or emplacement. Ultramafic rocks are shown in black, and ophiolites in purple.

Deformed sedimentary and volcanic rocks (those generally deemed to be too deformed to contain hydrocarbons). Sedimentary and volcanic rocks of orogenic belts, mobile belts, and other fold belts are shown in solid colors, which indicate the age of major deformation, with black overprints for volcanic lithologies as in the Geologic Map Series.

Rocks of Transitional and Reactivation Basins

Transitional sequences. These sequences are defined as deposits immediately succeeding major deformation in orogenic regions and immediately preceding platform-strata deposition. These complexes are often referred to as "late orogenic." The igneous rocks in these sequences include mostly felsic volcanic rocks, bimodal volcanic rocks in rifts, and postkinematic granites (including some intermediate to basic intrusives) and associated volcanic rocks. Sedimentary rocks include molasse-like deposits, red beds, and other continental sedimentary rocks that commonly accumulated in foreland basins, fore-, back-, or intradeeps, and grabens. Colored dot-and-dash bands follow the boundaries, and if the complexes are deformed, horizontal colored lines indicate the age of deformation. Broken lines or colored dashes indicate concealed areas.

Reactivation sequences. These sequences comprise deposits that are unrelated to preceding tectonism, except for inherited structural control. These sequences seem to be related to plate collisions as exemplified by the China-type basins related to collision of the India with the Asian plate or to oblique plate convergence. Rocks include some foredeep, graben and molasse-like deposits, and rift-related volcanic rocks.

Covering Rocks

Continental-platform strata. This unit includes remains of sedimentary basins and also blanket deposits not related to tectonic downwarps and basins. Boundaries in black indicate limits of preservation, and parallel colored bands indicate the age range, usually the age of inception. Within boundaries, pastel tints show age of the basement where this is known. Thickness of strata is shown by isopachs, with gray for unknown age.

Continental-margin deposits. Rift sequences are shown in areas of thick deposition formed either in the rift valleys or grabens at continental margins preceding continental breakup and seafloor spreading. A colored pattern indicates the age of onset of sedimentation.

Drift or breakup sequences are comprised of sediment that accumulated over the rift sequences and the rest of the contemporaneous affected shelf after the breakup. A colored pattern indicates the age of the onset of sedimentation. Isopachs indicate thickness of strata.

Intraplate igneous rocks. Intraplate igneous rocks include plateau basalt and other anorogenic extrusive and intrusive rocks. Rock type is indicated by patterns as in the Geologic Map Series, and the color of the patterns indicates the age.

Structural Framework

As an additional set of data important for the description of the tectonics, the names of structural units (morphotectonic elements) are printed on the map. Only the major entities are shown due to limitations imposed by the scale of the map.

OCEANIC TECTONIC UNITS

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At the 1985 Annual Meeting of the Circum-Pacific Map Project, the Panel Chairs reaffirmed a proposal to use tectonic divisions for the color-tinted oceanic crustal age units on the Tectonic Map of the Circum-Pacific Region, rather than periods and epochs, the standard divisions of the geologic time scale. The proposed tectonic divisions better illustrate the relationship at passive continental margins between oceanic crustal age and rift and drift sequences on the one hand, and episodes of tectonic activity at converging plates on the other hand. They avoid boundaries based on biotic breaks, such as the Cretaceous-Tertiary boundary, which might not be related to tectonic events within the Earth. Continental collisions recorded by onshore geologic structures tend to extend over considerable intervals of time, whereas seafloor-spreading changes, although in places related to the collisions, tend to be abrupt turning points at least in local Earth history.

The geomagnetic-polarity and tectonic events that mark the boundaries of the oceanic tectonic units on the Tectonic Map of the Circum-Pacific Region are given in Table 1. Also included are other events that occur within the units.

The Pacific tectonic events are based mainly on breaks in magnetic lineations compiled by Xenia Golovchenko, Roger Larson, Walter Pitman, and Nobuhiro Isezaki, as printed on the Plate-Tectonic Map of the Circum-Pacific Region, Pacific Basin Sheet, 3rd printing, 1985. The events are identified by anomaly numbers and letters, and the ages come from the Geomagnetic Polarity Time Scale on the same map by Larson, Golovchenko, and Pitman (1985).

Events within the magnetic quiet zones (Cretaceous = KMQZ, Jurassic = JMQZ) are identified by their age in million years before present (Ma). Boundaries for the color-tinted units on the Circum-Pacific Tectonic Map within the magnetic quiet zones are intended to be plotted proportionately, interpolating within the local widths of the zones or extrapolating from adjacent lineations. The magnetic lineations between the color-tinted boundaries also are printed on the map. Because the oceanic tectonic units are bounded by specific magnetic lineations, their mapped positions have a measure of universality, but the ages of the boundaries will evolve as the polarity time scale is refined. Table 2 shows the ages of the boundaries of the oceanic tectonic units with respect to several other recently published time scales. Table 3 shows the variations in time scales.

Although important tectonic events included on the map occur within the Cretaceous magnetic quiet zone, their details in the middle of the ocean will be poorly known until seafloor imaging by systems such as Gloria has been completed. At this stage, therefore, tectonic-age subdivision in the quiet zone is tentative.

The 180 million years of tectonic events recorded on the seafloor of the Circum-Pacific Region, which is the tectonically most active half of the Earth, may be compared with the events of the same ages on the fringing continents. One of the earliest such seafloor events, during the time of the Jurassic magnetic quiet zone, was the continental breakup through the north-central Atlantic, which extended through the Gulf of Mexico and Caribbean Sea, grazed the edge of Gondwana at then attached New Zealand and Australia, and joined with the Tethys Sea to the west. This carried many fragments of Gondwana northward so that by the time the next major reorganization came, when Australia, New Zealand, and Antarctica began to disperse (95 Ma), the fragments at the north side of the Pacific Jurassic magnetic quiet zone were more than 8000 km north of their starting points. Some were destined to continue still farther northward to build northeastern Asia, but the field of fragments had been split by the north-trending forerunner of the East Pacific Rise that cut off the east end of the Phoenix lineations (118 Ma). This began the building of the 4,000–km-wide belt of Cretaceous and Tertiary seafloor (now about half subducted below the Americas) that dominates the present Pacific Ocean. It swept the eastern part of the dispersed fragments of Gondwana toward the west coast of North America and destroyed the last vestiges of Panthalassa, the great ocean that had shared the Earth with the supercontinent of Pangea at the beginning of the Mesozoic.

The Jurassic to present patterns of seafloor growth and destruction shown on the oceanic parts of the Tectonic Map of the Circum-Pacific Region provide clues to the processes that caused the pre-Jurassic tectonic patterns shown on the continental parts of the map. Plutonic arcs delineate former subduction zones, and ultramafic belts mark lines of continental and volcanic-arc collision. Each of these, however, may have moved after their formation during later episodes of dispersion and accretion. In sum, the seafloor and continental data on the Tectonic Map of the Circum-Pacific Region provide the resources for future investigations into the complex processes that have affected this half of the planet.

Table 1. Oceanic tectonic units and events within the units

QTpl

Anomaly 0 (0 Ma, Holocene) to Anomaly 3 (4 Ma, early Pliocene)

A 3, 4 Ma, early Pliocene: Gulf of California started opening; Lau Basin started opening; Drake Passage stopped opening

Tn

Anomaly 3 (4 Ma, early Pliocene) to Anomaly 5 (20 Ma, early Miocene)

A 4A, 8 Ma, late Miocene: Scotia Sea stopped opening
A 5B, 15 Ma, middle Miocene: Japan Sea stopped opening
A 5C, 17 Ma, middle Miocene: South China Sea stopped opening; West Mariana Basin stopped opening

TmTo—To

Anomaly 6 (20 Ma, early Miocene, close to Miocene-Oligocene boundary)
to Anomaly 13 (37 Ma, early Oligocene)

A 6, 20 Ma, close to Miocene-Oligocene boundary: South Fiji Basin stopped opening;
East Pacific Rise at Nazca plate jumped west
A 6C, 25 Ma, Miocene-Oligocene boundary: Galapagos Rift was established; Red Sea started opening
A 9, 29 Ma, middle Oligocene: Caroline Basin stopped opening

ToTe

Anomaly 13 (37 Ma, early Oligocene) to Anomaly 18 (43 Ma, late middle Eocene)

A 13, 37 Ma, early Oligocene: South Fiji Basin started opening; South China Sea started opening; Japan Sea probably started opening; Baffin Bay and Labrador Sea stopped opening
A 16, 40 Ma, late Eocene: Philippine Sea stopped opening

Te

Anomaly 18 (43 Ma, late Eocene) to Anomaly 24 (54 Ma, earliest Eocene)

A 18, 43 Ma, late Eocene: Emperor bend indicates that the local motion of the Pacific plate changed from north to northwest; Laramide Orogeny ended; Mendocino Fracture Zone changed trend; subduction began at New Caledonia and Tonga

Tpa

Anomaly 24 (54 Ma, earliest Eocene) to Anomaly 27 (62 Ma, early Paleocene)

A 24, 54 Ma, earliest Eocene: Tasman Sea stopped opening; major reorientation in Gulf of Alaska; Kula Plate believed to have expired; Aleutian subduction believed to have begun; Norwegian Sea started opening

TpaKu

Anomaly 27 (62 Ma, early Paleocene) to within Cretaceous magnetic quiet zone (about 95 Ma, Cenomanian)

A 27, 62 Ma, early Paleocene: Coral Sea began to open
A 29, 65 Ma, Tertiary-Cretaceous boundary: Chile Rift established
A 33, 80 Ma, Cenomanian: Sierra Nevada Batholith stopped forming

Ku

(abbreviated for convenience, includes part of Early Cretaceous)

Within KMQZ (about 95 Ma, Cenomanian) to Anomaly M0 (113 Ma, Aptian)
KMQZ, 95 Ma, Cenomanian: Australia began to separate from Antarctica; Tasman Sea began to open; seafloor spreading re-

aligned east of Ninetyeast Ridge; Canada Basin, Alaska, stopped opening approximately at this time; Greenland began to separate from North America

K

Anomaly M0 (113 Ma, Aptian) to Anomaly M10N (124 Ma, early Hauterivian)

A M0, 113 Ma, Aptian: Reorganization of seafloor spreading in the region of Manihiki and Ontong-Java Plateaus; emplacement of the Sierra Nevada batholith began
A M10N, 124 Ma, early Hauterivian:
change in velocity of seafloor spreading in western Pacific

KJ

Anomaly M10N (124 Ma, early Hauterivian) to within the Jurassic magnetic quiet zone (170 Ma, Bathonian)

A M10N, 124 Ma, Hauterivian: Cuvier Basin west of Australia began to open; Canada Basin north of Alaska began to open; South Atlantic began to open
A M26, 161 Ma, Oxfordian: Seafloor spreading north of Australia began
JMQZ, 170 Ma, Bathonian: North-central Atlantic began to open (the rifting is inferred to have passed west between North and South America, and originally to have extended through Tethys on the west side of the Cretaceous Pacific lineations); spreading may have begun on the north side of Chatham Rise

Table 2. Oceanic tectonic units and bounding magnetic anomalies on several time scales in Ma.

Letter symbol	Magnetic anomaly	Larson and others (1985)	Palmer (1983)	Harland and others (1982)
	0	0	0	0
QTpl				
	3	4	4	4
Tn				
	6	20	20	20
To				
	13	37	36	37
ToTe				
	18	43	42	42
Te				
	24	54	56	53
Tpa				
	27	62	63	62
TpaKu				
	KMQZ	95	95	95
Ku				
	M0	118	119	118
K				
	Ml0N	124	131	133
KJ				
	JMQZ	170	170	170

Table 3. Development of time scale (Ma) during the Circum-Pacific Map Project.

	Geologic Map SW Quadrant	Energy Map NE Quadrant	Plate-Tectonic Map SW Quadrant	Plate-Tectonic Map NW Quadrant	Range	Harland et al 1982	Tectonic Map SW Quadrant old scale 1983	Tectonic Map SW Quadrant new scale mapping in 1986
Quaternary	2	2	2	2	2	2	2	2
Pliocene	5	5	5	5	5	5.1	5	5
Miocene	24	24	24	24	24	24.6	23	24
Oligocene	38	38	38-39	38	38	38	43	38
Eocene	55	55	55-56	56	55-56	54.9	58	55
Paleocene	63	63	66	66	63-66	65	65	65
Late Cretaceous	96	96	100	100	96-100	97.5	82	96
Early Cretaceous	138	138	123-5	135	134-8	144	135	138
Jurassic	205	205	-	-	-	213	212	205
Triassic	240	240	-	-	-	248	250	240
Permian	290	290	-	-	-	286	300	290
Late Carboniferous	330	330	-	-	-	320?	-	330
Early Carboniferous	360	360	-	-	-	360	360	360
Devonian	410	410	-	-	-	408	410	410
Silurian	435	435	-	-	-	438	436	435
Ordovician	500	500	-	-	-	505	500	500
Cambrian	570	570	-	-	-	570	575	544
Precambrian 3	900	900	-	-	-	800	900	900
Precambrian 2	1600	1600	-	-	-	1650	1600	1600
Precambrian 1	2500	2500	-	-	-	2500	2500	2500
Archaean								

INTRODUCTION OF THE TECTONIC DEVELOPMENT OF THE NORTHEAST QUADRANT

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The Northeast Quadrant map sheet covers a very large area, and no attempt will be made to describe the tectonic development of this vast region in the limited space available in these explanatory notes. The necessary data are provided in the description of map units. The following discussion will review the major sources of data as an introduction to the map.

The first attempt at compilation of the tectonics of the Northeast Quadrant was done for display at the 1st Circum-Pacific Energy and Mineral Resources Conference in 1974 in Honolulu. Since that first compilation there has been considerable advancement in knowledge of tectonics and tectonic mapping, such that there is little comparison between the first map and this current compilation. During the years a considerable amount of informatinon and guidance has been received from numerous individuals. We wish to acknowledge the help of those credited on the introductory pages, as well as those who are not mentioned specifically.

Early in the history of the Circum-Pacific Map Project it was decided that the Geologic Map series, in contrast to classic geologic maps, would show boundaries of stratotectonic units, that is, major unconformities which reflect the tectonic development of continental crust. Thus it follows that onshore boundaries are generally identical on the Geologic and Tectonic Series maps, although some contacts have been revised with new information since the publication of the geologic map. Moreover, the tectonic maps, besides age, also show the tectonic interpretation of stratotectonic units and of course also more structural data. The oceanic crustal domain has been divided into tectonic units as discussed on p. 4.

For optimum interpretation and utilization of this map, it is necessary also to peruse the Geologic Map, and to supplement the data on the Tectonic and Geologic Maps with additional information drawn from the other series (especially Plate-Tectonic) of the earth-science maps of the Circum-Pacific Map Project. The Geologic Map Explanatory Notes quote the basic sources of information with respect to geologic maps, and the reader is referred to them (Drummond, 1983).

The compilation of the Northeast Tectonic Map was strongly influenced by the work of Erwin Scheibner, and in particular the Tectonic Map of the Circum-Pacific Region, Southwest Quadrant (Scheibner, 1991). The Northeast Panel also benefitted from the help and guidance of Erwin Scheibner throughout the preparation of this tectonic map. One of the most important works on the tectonics of North America was the Tectonic Map of North America, by P.B. King in 1969. This was still extremely valuable in the current compilation. The recent North America tectonic compilation by W. R. Muehlberger (1992) and discussions with the author during the compilation were also very important to the Northeast Tectonic Map.

The tectonic divisions of the oceanic crustal domain are based on published and unpublished magnetic lineation data. The reader is referred to the Plate-Tectonic Map series (Drummond, 1981) for which the magnetic lineations were compiled by X. Golovchenko, R. Larson, W. Pitman III, and N. Isezaki. Updating of these data is based on Atwater and Severinghaus (1989) and Lonsdale (1989).

The selected list of references provides most of the sources considered during this compilation, and in the brief description of map units, selected specific references are quoted.

There have been several recent treatises on the tectonics of North America, which provided much of the basis for the compilation of the Tectonic Map of the Circum-Pacific Region, Northeast Quadrant. These include: Howell, 1985, the various volumes in the decade of North American Geology (DNAG) series; Bally, and Palmer, 1989, Palmer, 1982, USGS maps MF 1874-A,B,C, and Scholl.

Specific volumes and references used for Alaska include; Grantz and others, Tailleur, and Weimer,

For the Canadian Cordillera, extensive use was made of the Tectonic Assemblage Map of the Canadian Cordillera and adjacent parts of the U.S.A.: Geological Survey of Canada Map 1505A; Tipper, and others, 1981, and its successor GSC Map 1712A; Wheeler, J.O., and McFeely, P., 1991, in Geology of the Cordilleran Orogen in Canada, H. Gabrielse and C.Y. Yorath (eds.); Geological Survey of Canada, Geology of Canada, no. 4; (also Geological Society of America, The Geology of North America, v. G-2). Other important references included Monger, J.W.H., and Berg, H.C., 1987, Lithotectonic Map of Western Canada and Southeastern Alaska, USGS Map 1874-B.

For the western United States, important references included; Vedder, J.G., 1974, Silberling, N.J., and others, 1987, Lithotectonic terranes of the western conterminous United States, USGS Map MF-1874-C, and various references in the DNAG volumes for the Cordillera of the conterminous USA and the Gulf of Mexico.

G.P. Salas provided the draft compilation of the geologic and tectonic maps of Mexico. Further relevant data are contained in Campa U., M.F., and Coney, P.J., 1983, Coney, P.J., and Campa, M.F., 1987, Lithotectonic terrane map of Mexico, USGS Map 1874-D, and the DNAG volume on Mexico.

The tectonics of the Caribbean region was already mapped in the published map, Geologic-tectonic map of the Caribbean region: USGS Misc. Investigations Map I-1100, at a scale of 1:2,500,000, by Case and Holcombe, 1980, and this provided most of the information for our compilation. Other important references include GSA Memoir 1623, and the DNAG volume H, 1990, edited by Dengo and Case.

INTRODUCTION TO THE TECTONIC DEVELOPMENT OF THE SOUTHEAST QUADRANT

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The Southeast Quadrant map sheet covers about one-eighth of the earth's surface, and obviously we cannot attempt to describe the tectonic development of this vast region in the limited space available in these explanatory notes; however, necessary data are provided in the description of map units. What we have done is to try to point out the main sources of information as a form of introduction.

The Southeast Quadrant Tectonic Map was in the making for over six years, and early compilations (mainly proofs) have been exhibited at various earth-science gatherings (Circum-Pacific Energy and Mineral Resources conferences; American Association of Petroleum Geologists meetings; American Geophysical Union and Geological Society of America yearly meetings; 3rd Circum-Pacific Terrane Conference; and at various Circum-Pacific regional meetings), and of course the compilation and proofs were discussed in great detail during the yearly meetings of the Circum-Pacific Map Project. A considerable amount of information shown on the map was received at these meetings as personal communications and also from personal exchange of information with many scientists during the compilation stage. We wish to acknowledge the help of all those credited on the introductory pages, as well as those who are not mentioned specifically. During the compilation of the map the compilers have tried to convey the prevailing concensus. However, the advancement in the knowledge of tectonics is so rapid that it was soon realized that a cutoff point had to be made and this was set at about mid 1985; very few amendments were made after the Singapore Circum-Pacific Energy and Mineral Resources Conference held in August 1986.

Early in the history of the Circum-Pacific Map Project it was decided that the Geologic Map series, in contrast to classic geologic maps, would show boundaries of stratotectonic units, that is, major unconformities which reflect the tectonic development of continental crust. Thus it follows that onshore boundaries are identical on the Geologic and Tectonic Series maps. Moreover, the tectonic maps, besides age, also show the tectonic interpretation of stratotectonic units and of course also more structural data. The oceanic crustal domain has been divided into tectonic units as discussed on p. 6).

For the successful interpretation and utilization of this map, it is necessary also to peruse the Geologic Map, and to supplement the data on the Tectonic and Geologic Maps with additional information drawn from the other series (especially Plate-Tectonic) of the earth-science maps of the Circum-Pacific Map Project. The Geologic Map Explanatory Notes quote the basic sources of information with respect to geologic maps, and the reader is referred to them (Corvalán, 1985).

INTRODUCTION TO THE TECTONIC DEVELOPMENT OF THE SOUTHWEST QUADRANT

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The quadrant maps each cover one-eight of the earth's surface and it is impossible to describe the tectonic development of this vast region in the limited space available; however, essential data are provided in the description of units. What is attempted is to point out the main sources of information as a form of introduction.

For successful interpretation and utilization of quandrant and basin sheet Tectonic Maps, it is necessary to peruse the Geologic Map, and to supplement the data on the Tectonic and Geologic Maps with additional information drawn from the other series (especially Plate-Tectonic) of the earth-science maps of the Circum-Pacific Map Project. The Geologic Map Explanatory Notes quote the basic sources of information with respect to geologic maps, and the reader is referred to them also (Palferyman, 1988).

This compilation was strongly influenced by the "Tectonic Map of Australia and New Guinea" (at a scale of 1:5,000,000 - Geological Society of Australia, 1971) and the "Tectonic Map of New South Wales" (at a scale of 1:1,000,000, Scheibner, 1974, 1976). Besides these two, the other State maps: "Tectonic Map of South Australia" (at a scale of 1:2,000,0000, Flint and Parker, 1982), the "Geologic Map of Western Australia" (Gee and others, 1979), and "Queensland Geology" (Day and others, 1975, 1983), both at a scale of 1:2,500,000, each of which contains tectonic and structural data. Tectonic and structural map data for Tasmania were published by Williams (1978) and for Victoria by VandenBerg (1978). A "Tectonic Map of the Tasman Fold Belt System" was compiled during late eighties and early nineties by the state geological surveys and the Australian Geological Survey Organization at a scale of 1:2,500,000 and made available (plotting on request) in 1995. The "Earth Science Atlas of Australia" (at a 1:10,000,000 scale - Australian Bureau of Mineral Resources, 1979-1981) contains several maps displaying tectonic and structural geologic data.

H.R. Katz provided the draft compilation of the geologic and tectonic maps for New Zealand, and further relevant data are contained in Suggate and others, (1978), Katz (1980a), Sporli (1978, 1980, 1987).

D.B. Dow (pers. comm. 1985) provided unpublished data, which were based on the results of the cooperative joint mapping between Geological Research and Development Centre and the Australian Bureau of Mineral Resources in Irian Jaya. These data are contained in standard 1:250,000-scale maps of this region and in the summary map "Geological Map of Irian-Jaya" (at 1:1,000,000 scale, Dow and others, 1986).

Practically one-forth of the Southwest Quadrant map has already been depicted in plate-tectonic terms on the classic "Tectonic Map of the Indonesian Region" (at 1:5,000,000 scale) by Hamilton (1978).

Data for the northern part of the quadrant map have been publ;ished at 1:5,000,000 scale by the Commission for the Geologic Map of the World, Subcommision for the Tectonic Map (Ray and others, 1982).

L.W. Kroenke compiled a tectonic map of the Southwest Pacific region, and the draft was made available to the compilers; this is gratefully acknowledged.

The tectonic divisions of the oceanic crustal domain are based on published and unpublished magnetic-lineation data. The reader is referred to the Plate-Tectonic Map series maps for which the magnetic lineations were compiled by X. Golovchenko, G.W. Moore, R. Larsen, W. Pitman and N. Isezaki. Updating of these data is based on Auzende and others, (1986a, b), Cande and Mutter (1982), F.J. Davey (pers. comm., 1986), Gaina and others, (1998), Hilde and Lee (1984), Johnson and Veeevrs (1984), Lee (1984), Malahoff and others, (1982), (new data in Muller and others, in Veevers 2000), Shaw (1978; pers. comm., 1984), Tamaki and Larson (1988), Tamaki (pers. comm., 1986), Brian Taylor (pers. comm., 1985), Taylor and Hayes (1980), Veevers (pers. comm., 1985, 1988), Veevers and Li (1991), Vogt and others, (1983), F.F.H. Wang (pers. comm., 1985).

The selected list of references provides most of the sources considered during this compilation, and in the brief description of map units, selected specific references are quoted.

For Australia, Papua-New Guinea, and Irian-Jaya the reader is referred to the monograph edited by Veevers (1984) and an up dated version by Veevers (2000), both contain further references. From regional synthesis, Branson (1978), Brown and others, (1979, 1980), Cas (1983), Chappell and others, (1988), Collins (1996), Collins and Williams (1986), Crook (1980), Davies (1971), Day and others, (1978, 1983), Doutch and Nicholas (1978), Dow (1977), Falvey and Mutter (1981), Fergusson and Glen (1992), Flottmann and others, (1994), Foden and others, (1990), Gee (1979), Geological Society of Australia (1971), Glen (1992), Gray (1997), Henderson and Stephenson (1980), Johnson (1989), Leitch (1974), Leitch and Scheibner (1987), Murray (1986), Myers (1993), Packham (1969, 1987), Plumb (1979a), Powell (1983, and in Veevers, 1984), Preiss (1987), Ramsay and VandenBerg (1986, 1999),

Sandiford and others, (1992), Scheibner (1987), Scheibner and Basden (1998), Stevens (1980), Sutherland (1978), VandenBerg (1978, 1999), VandenBerg and Stewart (1992), Williams (1978) and others are informative.

For New Zealand, the monograph edited by Suggate and others, (1978) is essential, and important tectonic data are contained in Bishop and others, (1976), Cole (1982), Cooper (1979), Cooper and Grindley (1982), Davey and Christofell (1978), Ewart and others, (1977), Kamp (1980), Katz (1980a, 1982) Norris and Carter (1980), Sporli (1980, 1987), Stern (1985), Walcott (1978), as well as references in the above papers.

A modern tectonic synthesis for the island arcs and intervening features in the Southwest Pacific was published by Kroenke (1984); this gives further extensive references. Subsequent papers that were considered during this compilation include Auzende and others, (1986a, b), Brocher (1985), Daniel and others, (1986), Favey and Pritchard (1984), Green and Wong (1988), Hawkins and others, (1984), Houza and Keene (1984), Katz (1984), Monzier and others, (1984), Scholl and Vallier (1985), and Vedder and others, (1986).

The Explanatory Notes to the SE Quadrant Tectonic Map was published in 1991 and here only few new references were added to the original ones.

INTRODUCTION TO THE TECTONIC DEVELOPMENT OF THE NORTHWEST QUADRANT

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Takashi Yoshida, *Geological Survey of Japan Yoji Teraoka,Geological Survey of Japan and Masao Nakanishi, Institute of Oceanography, University of Tokyo*

The Tectonic Map of the Northwest Quadrant was prepared under the direction of the present Panel chairman Tomoyuki Moritani, and the previous chairman Eiji Inoue, both formerly of the Geological Survey of Japan. Also, at the initial stage, the first chairman Chikao Nishiwaki (deceased) and the vice-chairman Tamotu Nozawa were responsible for organizing the map compilation working group, and establishment of the principls of the tectonic map compilation during the chairmen meetings of the Circum-Pacific Map Project.

The incentive to initiate the actual map compilation work in the Northwest Quadrant Panel was the publication of the Geologic Map of the Northwest Quadrant (Inoue and others, 1988), and the Tectonic Map of the Southwest Quadrant (Scheibner and others, 1991), especially the latter, as the standard completed for the entire Circum-Pacific region.

The compilation of the Tectonic Map of the Northwest Quadrant was carried out by two separate groups for the land and marine areas, respectively. This was adopted because the geology and tectonic regimes are very complicated and therefore it was thought reasonable for the two groups of experts for land and marine areas to conduct the compilation separately. The compilation was carried out for the land area by Yoji Teraoka, Takashi Yoshida, and Koji Wakita, all of the Geological Survey of Japan, and for the marine area by Kensaku Tamaki and Masao Nakanishi, of the Institute of Oceanography, University of Tokyo, and Manabu Tanahashi and Tomoyuki Moritani, of the Geological Survey of Japan (the latter retired). The final compilation was coordinated by Takashi Yoshida, Masao Nakanishi, and Tomoyuki Moritani. The two groups prepared the draft maps with each time/space plot, and the notes and descriptions in the Explanatory Notes separately, and then the necessary incorporation or adjustment of them into one sheet.

Our compilation, in principle, followed the criteria established and presented in the Southwest Quadrant Tectonic Map (Scheibner and others, 1991).

For the preparation of this tectonic map and its explanatory notes, we have been provided with and have referred to a large number of the source data in maps and reports or books, of which some are mentioned in the remarks in this introduction that follow, and others are indicated in the references section. We extend our gratitude to all contributors and authors concerned for their useful data, especially to Erwin Scheibner, Tadashi Sato, and N.A. Bogdanov.

Our compilation works were supported by the Geological Survey of Japan and the Ocean Research Institute, University of Tokyo in providing us the opportunity and also by the staffs of both organizations in various ways. We express our acknowledgment to both institutes and their staff with appreciation. Special thanks are due to Fran Mills, who did all cartographic and computer work on the map, and Anne Gartner, who prepared this text.

REMARKS ON THE COMPILATION OF THE TECTONIC MAP OF THE NORTHWEST QUADRANT (LAND AREA)

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The Northwest Quadrant covers a vast region extending from the Asian continent to the Pacific Ocean, and the geology is very complicated, as seen in the distribution of many cratons, orogenic belts of various ages, and island arcs, associated with a great amount of plutonic and volcanic rocks. These complexities have resulted in diverse opinions about the geotectonic development. The first draft of this tectonic map was prepared early in 1992, and a few years later some amendments were made.

Early in the history of the Circum-Pacific Map Project it was decided that boundaries of stratotectonic units are identical as a rule on the Geologic and Tectonic Series maps. However, after compilation of the Geologic map of the Northwest Quadrant (Inoue and others, 1988), available data have so increased for the region, especially China and Mongolia, that we revised extensively the geologic map of the quadrant for the tectonic map compilation, referring mainly to the publications on the regional geology of China with geologic and tectonic maps at a scale of 1: 500,000 or 1:1,000,000 (Bureaus of Geology and Mineral Resources of respective provinces, 1984-1990), and the geologic map of Mongolian People's Republic (Yanshin and others, 1989). N.A. Bogdanov, L.M. Parfenov, W.Y. Zhang, and Y.H. Li provided us with useful information on the tectonics of Russia and China.

Besides the above, this compilation was based on the following published maps, books, and papers: Audly-Charles (1978), Bain and others, (1972), Barber (1981), Bender (1983), Bogdanov and Tilman (1993), Brown and others, (1979-1980), Central Geological Survey of Taiwan (1986), Chinese Academy of Geological Sciences (1979, 1982a, b, 1984), Choi (1983), Commission for the Geological Map of the World (1982), Commission for the Compilation of the Metamorphic Map of China (1986), D' Addario and others, (1976), Davies (1971), Davies and Smith (1971), Direction Geographique Nationale du Vietnam (1971), Drummund and others, (in press), Earth Science Research Division of Burma (1977), Fontaine and Workman (1978), Gansser (1964, 1980), Geological Survey of Indonesia (1969), Geological Survey of Japan (1992), Geological Survey of Malaysia (1973), Gobbett and Hutchison (1973), Goosens (1978), Haile (1974), Hamilton (1978, 1979), Hashimoto and Saito (1989), Ho (1988), Huang (1978), Hutchison (1982), Institute of Geology, Chinese Academy of Sciences and Wuhan College of Geology (1985), Javanapet (1969), Juan (1975), Kadar (1979), Katili (1974), Katili and Reinemund (1984), Khain (1985), Kimura and others, (1991), Korea Institute of Energy and Resources (1981), Krasny and others, (1970), Lee, D.S. (1987), Lee, D.S. (1939), Leonov and Khain (1987), Markov and others, (1974), Markovsky and others, (1972), Minato and others, (1965), Ministry of Geology, USSR (1983), Monger and Francheteau (1987), Nalivkin (1973), Nanjing Institute of Geology and Paleonology (1982), Palfreyman and others, (1988), Parfenov and others, (1993), Peive and others, (1979), Philippine Bureau of Mines and Geosciences (1982), Renet and others, (1987), Salop (1977, 1983), Sato (1981), Scheibner and others, (1991), Suensilpong and others, (1978, 1982), Sukamto (1975), Sukamto and others, (1981), Taira and Tashiro (1988), Tan and Khoo (1978), Tan and others, (1978), Tanaka and Nozawa (1977), Teraoka and others, (1992), Terman (1973), Tilman and others, (1979), Tilman and Bogdanov (1992), Tjokrosapoetro and Budhitrisna (1982), United Nations Economic Commission for Asia and the Far East (1971), Van Bemmelen (1970), Verraburns and others, (1981), Yang and others, (1986), Yanshin and others, (1978), Zhang and others, (1990).

DESCRIPTION OF TECTONIC MAP UNITS FOR INDIVIDUAL PLATES BASED ON QUADRANT COMPILATIONS

TECTONIC UNITS ON THE PACIFIC PLATE

by

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Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
Pz_1	EARLY PALEOZOIC UNIT (Mid Cambrian to Silurian)			
Pz_1[1]		Tuhua Orogen	*Orogenic domain,* active plate margin, backarc basin, volcanic arc deformation and metamorphism, granite Early Devonian Tuhua Orogeny	Cooper, 1979; Cooper and Grindley, 1982; Sporli, 1987; Suggate and others, 1978
Pzm	MIDDLE PALEOZOIC UNITS (Silurian to Devonian, locally Carboniferous)			
Pzm[1]	South Island New Zealand and Campbell Plateau	Tuhau Orogen late part 410-395 Ma	*Orogenic domain,* terminal deformation and metamorphism, middle Devonian; granite Devonian and Carboniferous	Cooper, 1979; Cooper and Grindley, 1982; Sporli, 1987; Suggate and others, 1978
KPz, includes	PALEOZOIC TO CRETACEOUS UNIT			
Pz_2[1]	South Island New Zealand and Campbell Plateau	Rangitata Orogen Haast Schists	*Orogenic domain,* part of Rangitata Orogen (KPz_2)	Suggate and others, 1978
KPz_2[1]	New Zealand and Chatham Rise	Rangitata Orogen 300-135 Ma	*Orogenic domain,* active plate margin; deformation and metamorphism during Rangitata Orogeny (Late Jurassic to Early Cretaceous); from west to east: volcanic arc midslope basin, frontal-arc wedge; Dun Mountain ophiolites; trench-slope break, Pelorus Zone, Haast Schist and Torlesse Zone accretionary wedges; orogenic granite	Carter and others, 1977; Cawood, 1984; Suggate and others, 1978; Sporli, 1987
J	TRIASSIC AND JURASSIC UNIT			
J [1]	New Zealand Chatham Rise and Campbell Plateau	Rangitata Orogen	*Orogenic domain,* greywacke sequence	Carter and others, 1977; Suggate and others, 1978
KJ	JURASSIC AND CRETACEOUS UNIT			
KJ[1]	Campbell Plateau Chatham Rise	Passive margin	*Continental-margin rifting*; rift graben	Doutch and others, 1981
KJ[1]	West Pacific	Ocean crust older than anomaly M11	*Oceanic crustal domain*	Doutch and others, 1981; Hilde and others, 1977; Cande and others, 1978; Larson and others, 1976
J	JURASSIC			
J	West Pacific West Mariana Basim	Ocean crust older than anomally M20	*Oceanic crustal domain*	Doutch and others, 1981; Larson and others, 1976
K_1	EARLY CRETACEOUS UNIT			

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
K_1^1	West Pacific	Ocean crust anomaly M11-M0	*Oceanic crustal domain,*	Hilde and others, 1977; Cande and others, 1978; Larson, 1976; Tamaki and others, 1979
K_1^2	Ontong-Java (not on T/S plot)	Anomalous oceanic lithosphere	*Oceanic crustal domain,* includes anomalous oceanic crust of oceanic plateaus and intraplate mafic volcanics	Hilde and others, 1977; Cande and others, 1978 Kroenke 1972; Larson, 1976; Tamaki and others, 1979
K_1^3	Manihiki Plateau (not on T/S plot)	Anomalous oceanic lithosphere	*Oceanic domain,* anomalous oceanic crust formed apparently during the Barremian to early Albian	Winterer and others, 1974
?K_1	Campbell Plateau Chatham Rise (not on T/S plot)	Passive margin	*Continental-margin setting,* early rifting mainly around Bounty Trough	Katz, 1974, 1980a; Sporli, 1980; Suggate and others, 1978
K_2	LATE CRETACEOUS UNITS			
K_2^1	West Pacific	Ocean crust anomaly M0-34 (Cretaceous magnetic quiet zone)	*Oceanic crustal domain*	Hilde and others, 1977; Cande and others, 1978; Larson, 1976; Tamaki and others, 1979
K_2^2	Louisville Ridge	Hot spot trace (not on T/S plot)	*Intraplate volcanism,* oceanic-island volcanic rocks; possibly started in Early Cretaceous with formation of Ontong-Java Plateau	Kroenke, 1984; Mahoney and others, 1974
K_2^3	Pacific Ocean	Hot spot trace (not on T/S plot)	*Intraplate volcanism*, oceanic-island volcanic rocks	
$TpaK_2$	LATE CRETACEOUS TO PALEOCENE UNITS			
$TpaK_2$	Pacific Ocean	Oceanic crust magnetic anomalies 34-27	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980; Weissel and Hayes, 1972
TeK_2	LATE CRETACEOUS TO EOCENE UNIT			
TeK_2	Pacific Ocean	Hot spot traces (not on T/S plot)	*Intraplate volcanism,* oceanic-island volcanic rocks	
ToK_2	LATE CRETACEOUS TO OLIGOCENE UNIT			
ToK_2	Campbell Plateau Chatham Rise	Passive margin 120-25 Ma	*Continental-margin setting,* breakup or drift sequence associated with separation from west Antarctica	Katz, 1980a; Suggate and others, 1978
QK_2	LATE CRETACEOUS TO QUATERNARY UNIT			
QK_2	Campbell Plateau Chatham Rise and South Island of New Zealand	Passive margin	Passive-margin setting—cratonic cover, including intraplate igneous activity	Katz, 1980a; Suggate and others, 1978
Tpa	PALEOCENE UNIT			
Tpa[1]	Pacific Ocean	Oceanic crust anomalies 24-27	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980; Weissel and Hayes, 1972

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
Tpa²	Louisville Ridge (part of)	Hot spot trace (not on T/S plot)	*Intraplate volcanic rocks,* oceanic-island volcanism (basalt) - epiliths	L.W. Kroenke, pers. comm., 1985
Tpa³	Pacific Ocean	Hot spot traces (not on T/S plot)	*Intraplate volcanism,* oceanic-island volcanic rocks	L.W. Kroenke, pers. comm., 1985
Tp	PALEOGENE UNIT			
Tp	Campbell Island Campbell Plateau	Cover	*Cratonic cover and passive-margin setting,* onset of sedimentation in Paleocene instead of K_2 as in surrounding areas	Katz, 1980a; Suggate and others, 1978
Te	EOCENE UNIT			
Te¹	Pacific Ocean	Oceanic crust anomalies 18–24	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980; Weissel and Hayes, 1972
Te²	Louisville Ridge (part of)	Hot spot trace (not on T/S plot)	*Intraplate volcanic rocks,* oceanic-island volcanism (basalt) - epiliths	L.W. Kroenke, pers. comm., 1985
Te³	Pacific Ocean	Hot spot traces (not on T/S plot)	*Intraplate volcanism,* oceanic-island volcanic rocks	
Te⁴	Emerald Basin	Oceanic crust	*Oceanic crustal domain*	Weissel and others, 1977
ToTe	EOCENE TO OLIGOCENE UNIT			
ToTe¹	Pacific Ocean	Oceanic crust anomalies 13-18	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980; Weissel and Hayes, 1972
ToTe²	Emerald Basin	Oceanic crust	*Oceanic crustal domain,* uncertain	Weissel and others, 1977
ToTe³	Pacific Ocean	Hot spot traces (not on T/S plot)	*Intraplate volcanism,* oceanic-island volcanic rocks	Weissel and others, 1977
To	OLIGOCENE UNIT			
To¹	Caroline Basin	Oceanic crust magnetic anomalies 12-10 (not on T/S plot)	*Oceanic crustal domain*	Bracey and Andrews, 1974; Weissel and Anderson, 1982
To²	Pacific Ocean	Oceanic crust anomalies 13-6	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
To³	Pacific Ocean	Oceanic island and guyots (not on T/S plot)	*Intraplate igneous activity,* oceanic-island volcanic rocks	L.W. Kroenke, pers. comm., 1985
To⁴	Emerald Basin	Oceanic crust magnetic anomalies younger than 13	*Oceanic crustal domain*	Weissel and others, 1977
Tn	NEOGENE UNIT			
Tn¹	Pacific Ocean	Oceanic crust anomalies 6–3	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
Tn²	Pacific Ocean	Oceanic island and guyots (not on T/S plot)	*Intraplate igneous activity,* oceanic-island volcanic rocks	L.W. Kroenke, pers. comm., 1985

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
QTn	NEOGENE TO QUATERNARY UNIT			
QTn	New Zealand Chatham Rise, Campbell Plateau	Prograding shelf deposits 25-0 Ma	*Cratonic cover*, prograding continental shelf deposits	Katz, 1980; Sparli, 1980, 1987; Suggate and others, 1978
$Q^{9}Tn$		New Zealand prograding shelf deposits 25-0 Ma	*Cratonic cover*, prograding continental-shelf deposits	Katz, 1980a; Sporli, 1980, 1987; Suggate and others, 1978
Tm	MIOCENE UNIT			
Tm[1]	Pacific Ocean	Oceanic islands and guyots (not on T/S plot)	*Intraplate igneous activity*, oceanic-island volcanic rocks	L.W. Kroenke, pers. comm., 1985
Tpl	PLIOCENE UNIT			
Tpl[1]	Pacific Ocean	Oceanic islands and guyots (not on T/S plot)	*Intraplate igneous activity,* oceanic-island volcanic rocks	L.W. Kroenke, pers. comm., 1985
QTpl	PLIOCENE TO QUATERNARY UNIT			
QTpl[1]	Pacific Ocean	Oceanic crust anomalies 3-0	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
QTpl[2]	Pacific Ocean	Oceanic islands and guyots (not on T/S plot)	*Intraplate igneous activity*, oceanic-island volcanic rocks	L.W. Kroenke, pers. comm., 1985
Q	QUATERNARY UNIT			
Q[1]	Pacific Ocean	Cover rocks (not on T/S plot)	*Cover sequences*, sedimentary rocks, commonly coral reefs	Basin Sheet Geology Map, Circum-Pacific Map Project
Q[2]	Pacific Ocean	Oceanic island and guyots (not on T/S plot)	*Intraplate igneous acitivity*, oceanic-island volcanic rocks	

TECTONIC UNITS ON THE JUAN DE FUCA PLATE
(not on T/S plot)

by

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Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
Tn	NEOGENE UNIT			
Tn^{3}	Pacific Ocean	Oceanic crust anomalies 6-3	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
QTpl	PLIOCENE TO QUATERNARY UNIT			
QTpl^{3}	Pacific Ocean	Oceanic crust anomalies 3-0	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
Q	QUATERNARY UNIT			
Q^{1}	Pacific Ocean	Cover rocks	*Cover sequences*, sedimentary rocks,	Basin Sheet Geology Map Circum-Pacific Map Project
Q^{3}	Pacific Ocean	Oceanic island and guyots - minor	*Intraplate igneous activity*, oceanic-island volcanic rocks	

TECTONIC UNITS ON THE COCOS PLATE
(not on T/S plot)

by

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Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
ToTe	EOCENE TO OLIGOCENE UNIT			
ToTe[3]	Pacific Ocean	Oceanic crust anomalies 13-18	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
To	OLIGENE UNIT			
To[4]	Pacific Ocean	Oceanic crust anomalies 13-6	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
To[5]	Pacific Ocean	Oceanic islands and guyots	*Intraplate igneous activity*, oceanic-island volcanic rocks	
Tn	NEOGENE UNIT			
Tn[4]	Pacific Ocean	Oceanic crust anomalies 6-3	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
QTn	NEOGENE TO QUATERNARY UNIT			
QTn[1]	Cocos Ridge	Anomalous oceanic crust	*Oceanic crustal domain*	
QTpl	PLIOCENE TO QUATERNARY UNIT			
QTpl[4]	Pacific Ocean	Oceanic crust anomalies 3-0	*Oceanic crustal domain*	Cande and Mutter, 1982; Lasrson, 1976; Talwani and others, 1980
QTpl[5]	Pacific Ocean	Ocean islands and guyots - minor	*Intraplate igneous activity*, oceanic-island volcanic rocks	
Q	QUATERNARY UNIT			
Q[1]	Pacific Ocean	Cover rocks	*Cover sequences*, sedimentary rocks	Basin Sheet Geology Map, Circum-Pacific Map Project
Q[4]	Pacific Ocean	Oceanic islands and guyots - minor	*Intraplate igneous activity*, oceanic-island volcanic rocks	

TECTONIC UNITS ON THE NAZCA PLATE
(not on T/S plot)

by

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Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
Te	EOCENE UNIT			
Te[4]	Pacific Ocean	Oceanic crust anomalies 18-24	*Oceanic crustal domain*	Larson, 1976; Talwani and others, 1980
ToTe	EOCENE TO OLIGOCENE UNIT			
ToTe[3]	Pacific Ocean	Oceanic crust anomalies 13-18	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson 1976; Talwani and others, 1980
ToTe[4]	Nazca Ridge	Anomalous oceanic crust	*Oceanic crustal domain*	
To	OLIGOCENE UNIT			
To[6]	Pacific Ocean	Oceanic crust anomalies 13-6	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
To[7]	Pacific Ocean	Oceanic islands and guyots	*Intraplate igneous activity*, oceanic-island volcanic rocks	
Tn	NEOGENE UNIT			
Tn[5]	Pacific Ocean	Oceanic islands and guyots	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
QTn	NEOGENE TO QUATERNARY UNIT			
QTn[2]	Pacific Ocean	Oceanic islands and guyots	*Intraplate igneous activity*, oceanic-island volcanic rocks	
QTpl	PLIOCENE TO QUATERNARY UNIT			
QTpl[6]	Pacific Ocean	Oceanic crust anomalies 3-0	*Oceanic crustal domain*	Cande and Mutter, 1982; Larson, 1976; Talwani and others, 1980
QTpl[7]	Pacific Ocean	Oceanic islands and guyots - minor	*Intraplate igneous activity*, oceanic-island volcanic rocks	
Q	QUATERNARY UNIT			
Q[1]	Pacific Ocean	Cover rocks	*Cratonic cover sequences,* sedimentary rocks	Basin Sheet Geology Map, Circum-Pacific Map Project
Q[5]	Pacific Ocean	Oceanic islands and guyots - minor	*Intraplate igneous activity*, oceanic-island volcanic rocks	

TECTONIC UNITS ON THE NORTH AMERICA PLATE

NORTH AMERICAN CONTINENT AND ALEUTIAN ISLANDS

(these units are shown on the time/space plot and (or) the map)

by

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Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
A	ARCHEAN UNIT (3500-2500 Ma)	
A^1	Slave Province 2700-2500 Ma	*Gneissic terrane* Archean cratonic orogenic setting Granitic and metamorphosed supracrustal rocks
A^2	Wyoming Province	*Gneissic and metasedimentary terrane* Archean cratonic orogenic setting Granitic and metamorphic rocks
A^3	Superior Province 2700-2500 Ma	*Gneissic terrane* Archean cratonic orogenic setting Gneissic, granitoids, and metamorphosed supracrustal rocks
P	UNDIFFERENTIATED PROTEROZOIC UNIT	
$_1$	Chukotka	*Basement terrane* Metamorphic and igneous rocks
$_1$	PALEOPROTEROZOIC UNIT(2500-1700 Ma)	
$_1{}^1$	Canadian Shield Churchill Province 2400-1600 Ma (not on T/S plot)	*Collisional orogenic terrane* Tran-Hudsonian orogen Foliated granitic rocks and banded granitic gneisses and metasediments
$_1{}^2$	Canadian Shield Bear Province 2200-1700 Ma	*Accretionary and collisional arc* Granitic batholith, volcanics and metasediments
$_1{}^3$	Great Slave Lake East Arm Fold Belt Paleoproterozoic	*Rift (Aulacogen) terrane* Sediments and volcanics
$_1{}^4$	Omineca Belt Monashee complex Paleoproterozoic	*Basement complex* Paragneiss and metasediments
$_1{}^5$	U.S. Rocky Mountain Front Ranges, Black Hills Cheyenne Belt Paleoproterozoic	*Cratonic basement terrane* Metamorphic-plutonic terrane sialic crystalline basement
$_1{}^6$	Mojave Block 1800-1600 Ma (not on T/S plot)	*Cratonic basement terrane* Metamorphic-plutonic terrane sialic crystalline basement
$_1{}^7$	Southern Appalachian Paleoproterozoic (not on T/S plot)	*Orogenic terrane*, Metamorphic-plutonic terrane
$_1{}^8$	Circum-Ungava Fold Belt 2100-1600 Ma (not on T/S plot)	*Orogenic terrane* Foliated granitic rocks and banded granitic gneisses, folded metasediments and volcanics
$_1{}^9$	Lake Superior area Southern Province 2500-2150 Ma (not on T/S plot)	*Orogenic terrane* Metamorphosed sedimentary and volcanic rocks, mafic and felsic intrusions

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
2-1	PALEO AND MESOPROTEROZOIC UNIT (2500-1300 Ma)	
2-1[1]	Nain Province, Labrador 2500-1300 Ma (not on T/S plot)	*Cratonic basement terrane* Granitic gneisses, migmatites, metasedimentary rocks, and amphibolites
2 & 3	MESO AND NEOPROTEROZOIC UNIT (1600–575 Ma)	
2[1]	Victoria Island Minto Fold Belt (not on T/S plot)	*Continental fold belt* Folded clastic deposits
2[2]	NW Canadian Shield Coppermine (Wopmay Belt) (not on T/S plot)	*Continental margin fold belt* Sandstone, shale, minor carbonate and volcanics
2[3]	Canadian Shield Thelon Basin Athabasca Basin	*Continental sedimentary basin* Sandstone and shale
2[4]	Central Alaska Kilbuck terrane	*Basement terrane* Igneous and metasedimentary rocks
2[5]	Llanos Block West Texas	*Cratonic basement block* Metamorphic-plutonic terrane sialic crystalline basement
2-3[6]	Uinta-Wasatch area Late Proterozoic	*Continental margin setting, (rift)* Clastic wedge, terriginous shelf, slope, rise deposits
1 3	NEOPROTEROZOIC-EARLY PALEOZOIC UNIT	
1 3[1]	Chukotka Block Neoproterozoic to Early Paleozoic (not on T/S plot)	*Basement terrane* Metamorphic rocks
1 3[2]	Seward Block Neoproterozoic to Early Paleozoic	*Basement terrane* Metasedimentary and metavolcanics
1 3[3]	Porcupine (Neroukpuk) Alaska-Yukon	*Metamorphic terrane* Metamorphic and igneous rocks
1 3[4]	Yukon-Tanana Alaska, Yukon	*Metamorphic terrane* Metamorphic rocks, including gneiss, metasediments, granitic rocks, and ophiolite
1 3[5]	British Columbia Coast Range Nisling terrane Neoproterozoic to Early Paleozoic	*Metamorphic terrane* Metamorphosed continental margin deposits
1 3[6]	Eastern and Southern Mexico Oaxaca terrane Neoproterozoic to Early Paleozoic	*Basement terrane* Granulitic and anorthositic metamorphic basement
	PALEOZOIC UNIT(undivided)	
1	Nevada, Utah Eastern Basin and Range Paleozoic undivided	*Accretionary orogenic belt* Oceanic, volcanic arc, and shelf and slope deposits
2	Baja California and North- western Mexico Paleozoic undivided	*Accretionary orogenic belt* Oceanic, volcanic arc, and shelf and slope deposits
1	EARLY PALEOZOIC UNIT(Cambrian to Devonian)	

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
$_1^1$	Seward Peninsula, Alaska Early Paleozoic	*Orogenic belt* Platform cover Metasediments and metavolcanics
$_1^2$	Central Alaska Nixon Fork, Dillinger Early Paleozoic	*Orogenic belt* Platform cover Carbonate, clastics, and chert
$_1^3$	Cassiar terrane Neoproterozoic to Late Triassic (not on T/S plot)	*Orogenic belt* Continental margin sediments Carbonate, sandstone and shale
$_1^4$	Southeast Alaska and BC Insular belt Alexander terrane Neoproterozoic to Triassic	*Oceanic and continental margin accretionary complex* Marine and continental deposits, arc volcanics and oceanic basalt
$_1^5$	BC, Omineca Belt Kootenay terrane Proterozoic to Paleozoic	*Continental margin fold belt* Deformed, metamorphosed clastics, minor volcanics and carbonate, granitic intrusives
$_1^6$	North American Interior Early Paleozoic	*Cratonic cover* Carbonate and shale shelf deposits
$_1^7$	Ouachita-Marathon Early Paleozoic	*Orogenic belt* Deformed continental shelf and margin sediments
$_1^8$	Southern Mexico Oaxaca terrane Early Paleozoic	*Accretionary orogenic belt* Deformed collage of oceanic, island arc, shelf and slope deposits
$_2$	LATE PALEOZOIC UNIT(Mississippian to Permian)	
$_2^1$	Chukotka Peninsula, Russia Late Paleozoic (not on T/S plot)	*Orogenic belt* Platform cover, sediments and metasediments
$_2^2$	Central Alaska Ruby Terrane Middle-Late Paleozoic	*Metamorphic terrane* Metavolcanic and metasedimentary rocks
$_2^3$	Alaska North Slope Mississippian	*Platform cover* Platform sediments, carbonate, shale, minor sandstone
$_2^4$	British Columbia Omineca Belt, Slide Mountain terrane Late Devonian to Triassic	*Accretionary orogenic belt* Oceanic volcanics and sediments, chert, sandstone, conglomerate, carbonate, and ultramafics
$_2^5$	Western Canada Interior Late Paleozoic	*Platform cover*, Carbonate, shale, and minor sandstone
$_2^6$	British Columbia Intermontane Belt, Cache Creek terrane Late Paleozoic	*Oceanic volcanic arc* Oceanic volcanics and sediments, chert, argillite, basalt, carbonate, and ultramafics
$_2^7$	Golconda allochthon	*Oceanic volcanic arc* Overthrust oceanic strata and volcanic rocks
$_2^8$	US Interior Plains Interior craton Late Paleozoic	*Platform cover* Carbonates and clastics
$_2^9$	Ouachita-Marathon Late Paleozoic	*Orogenic domain* Deformed continental shelf and margin sediments

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
$_2^{10}$	Southern Mexico Oazaca terrane Late Paleozoic	*Orogenic domain* Continental crust, metamorphosed clastics and limestone
$_2^{11}$	Southern Mexico, Guatemala, and Honduras Chortis Block Late Paleozoic	*Orogenic domain* Continental crust, metamorphosed platform sediments, sandstone, shale and limestone
$_2$	TRIASSIC-LATE PALEOZOIC UNIT	
$_2^1$	Chukotka Late Paleozoic to Triassic (not on T/S plot)	*Orogenic bel*t Platform cover sediments
$_2^2$	Nothern Alaska Angayucham and Tozitna terranes	*Oceanic assemblage* Overthrust, pillow basalt, chert, greywacke and ultramafics
$_2^3$	Alaska North Slope Permian to Early Jurassic	*Platform cover* Platform sediments, Sandstone, shale and carbonate
$_2^4$	Alaska Peninsula Peninsular terrane Late Paleozoic to Early Jurassic	*Orogenic ar*c Arc volcanics, volcaniclastics, basalt, argillite, and carbonate
$_2^5$	British Columbia Coast Range Taku terrane Late Paleozoic to Triassic	*Orogenic arc* Metamorphosed volcanics, volcaniclastics, basalt, and carbonate
$_2^6$	Northwest California Eastern Klamath terrane Late Paleozoic to Early Jurassic	*Orogenic arc* Arc volcanics, clastics, argillite and carbonate
$_2^7$	Northwest California Western Sierra Nevada Late Paleozoic to Early Jurassic	*Orogenic arc* Arc volcanics, clastics, argillite and carbonate
	MESOZOIC (Undivided)	
^{1}	Southwest Cuba Escambray, Isla de Pinos Possible Mesozoic (?) or Paleozoic(?) (not on T/S plot)	*Orogenic domain* Highly deformed metasedimentary and metavolcanic terrane, schist, marble, mafics, ultramafics
J_2	JURASSIC-LATE PALEOZOIC UNIT	
J_2^1	British Columbia Intermontane Belt Stikinia terrane Devonian to Early Jurassic	*Accreted platform and volcanic arc* Platform carbonates overlain by arc volcanics, sandstone, conglomerate, carbonate, and chert
J_2^2	British Columbia Intermontane Belt Bridge River terrane Permian to Middle Jurassic	*Oceanic assemblage* Metamorphosed basalt, chert, argillite and minor carbonate
J_2^3	Southeast Alaska and Western British Columbia Wrangellia terrane Paleozoic to Jurassic	*Volcanic arc accretionary terrane* Clastics, chert, basalts, and volcanic
J_2^4	Southern British Columbia Coast belt Harrison terrane Late Paleozoic to Jurassic (not on T/S plot)	*Island arc terrane* Volcanics, metasediments, limestone

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)	References
J_2^5	Southern British Columbia Coast Range, Northern Cascades Chilliwack terrane Late Paleozoic to Triassic	*Orogenic volcanic arc* Arc volcanics, volcanic sandstone, argillite, and carbonate	
J_2^6	Nothern Cascades Olney Pass terrane Late Paleozoic to Jurassic	*Accretionary melange belt* Greenstone, metasediments, metagabbro, meta-andesite, chert and limestone	
J_2^7	Washington, Oregon Wallowa terrane Late Paleozoic to Jurassic	*Oceanic and island arc terrane* Mafic submarine volcanics, volcaniclastics, fine clastics and limestone	
J_2^8	Washington, Oregon Blue Mountains terrane Late Paleozoic to Jurassic	*Accretionary melange belt* Sandstone, conglomerate, argillite, ophiolite, limestone and chert	
J	JURASSIC-TRIASSIC		
J^1	West-Central Alaska Kuskokwim Jurassic to Triassic	*Orogenic arc* Arc volcanics and volcanoclastics	
J^2	British Columbia Omineca Belt, Qnesnellia terrane Late Triassic to Early Jurassic	*Arrretionary arc* Arc volcanics, volcanoclastics and intrusives, and arc-derived clastics	
J^3	British Columbia Intermontane Belt Cadwallader terrane Late Triassic to Jurassic (not on T/S plot)	*Accretionary arc* Island arc volcanics, and clastics	
J^4	Northern Cascades Shuksan terrane Late Triassic to Early Jurassic (not on T/S plot)	*Accreted oceanic terrane* Metamorphosed oceanic deposits and volcanics	
J^5	Northwest California Western Klamath terrane Late Triassic to Early Jurassic	*Accretionary orogenic domain* Melange, clastics, argillite, chert, andesite, rocks, ophiolite, and limestone	
J^6	Northwest California Western Sierra Nevada Late Triassic to Early Jurassic	*Accretionary orogenic domain*	
J^7	Northwest California Eastern Sierra Nevada Late Triassic to Early Jurassic	*Accretionary volcanic arc* Arc volcanics, melange, and ophiolite	
J^8	California, Nevada Western Basin and Range Late Triassic to Early Jurassic	*Orogenic domain* Igneous intrusives, granite	
J^9	Northwest Nevada Western Basin and Range Luning Allocthon Triassic and Jurassic	*Accretionary orogenic domain* Thrust and fold belt, shelf and slope deposits, shelf carbonates and terrigenous clastics	
J^{10}	United States Interior Plains Interior craton Triassic to Jurassic	*Platform cover* Carbonates and clastics	
KJ	JURASSIC-EARLY CRETACEOUS UNIT		
KJ^1	Alaska, Togiak Terrane Jurassic to Early Cretaceous	*Volcanic arc* Basaltic to andesitic flows, and metasediments	

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
KJ[2]	SE Alaska, Kahlitna terrane Late Jurassic to Cretaceous	*Accretionary complex* Metamorphosed marine, volcanoclastics, flyschoid greywacke and pelitic rocks, minor chert and carbonate
KJ[3]	Cook Inlet Basin Jurassic to Neogene	*Forearc sedimentary basin* Sandstone and shale
KJ[4]	Alaska Chugach terrane Jurassic to Early Cretaceous	*Accretionary complex* Flysch and melange, chert, gabbro, ultramafics and volcanics
KJ[5]	Western Alaska Jurassic to Early Cretaceous	*Transitional - Platform cover* Flysch basins, sandstone, shale and metasediments
KJ[6]	Alaska, Kandik Basin Jurassic to Early Cretaceous (not on T/S plot)	*Transitional - Platform cover* Sandstone, shale, and metasediments
KJ[7]	Eagle Plains Basin Jurassic to Late Cretaceous (not on T/S plot)	*Transitional sedimentary basin* Sandstone and shale
KJ[8]	British Columbia Intermontane Belt Bowser Basin Jurassic to Cretaceous	*Transitional sedimentary basin* Sedimentary basin deposits over intermontane orogenic belt
KJ[9]	North Slope Alaska Jurassic to Cretaceous	*Foreland - Platform cover* Clastic wedge and platform sediments
KJ[10]	Western Canada Interior Jurassic to Paleogene	*Foreland cratonic cover* Clastic wedge sediments and marine and continental platform carbonates and clastics
KJ[11]	British Columbia Coast Gambier, Late Jurassic to Early Cretaceous	*Post-accretion overlap assemblage* Melange, arc volcanics and arc-derived clastic
KJ[12]	Vancouver Island Pacific Rim assemblage Late Triassic to Jurassic	*Volcanic arc* Melange, arc volcanics, marine mudstone, sandstone chert and basalt
KJ[13]	Coast Belt Methow Trough Jurassic to Cretaceous	*Transitional Trough (rift)* Clastic wedge sediments, arc volcanics and clastics
KJ[14]	Northern Cascades Nooksak and Wells Creek Middle Jurassic to Early Cretaecous	*Accretionary complex* Volcaniclastic greywacke, mudstone and conglomerate, overlying andesitic volcanics
KJ[15]	Northern Cascades Lopez terrane Late Jurassic to mid-Cretaceous (not on T/S plot)	*Volcanic arc terrane* Flysch, volcaniclastics, mudstone, pillow lava, and chert
KJ[16]	Coastal California Franciscan terrane Jurassic to Early Cretaceous	*Accretionary prism* Tectonic melange, metasediments, deepwater sediments, pillow lava, pelagic limestone, and metavolcanics
KJ[17]	California Great Valley Jurassic to Early Cretaceous	*Arc volcanics and post-arc flysch* Amphibolitic greywacke

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
KJ[18]	Sierra Nevada Batholith Belt Jurassic to Early Cretaceous	*Magmatic arc* Composite batholith, gabbro to tonalite
KJ[19]	California Great Valley Jurassic to Early Cretaceous (not on T/S plot)	*Syn-orogenic deposits* Arc-derived clastics and melange
KJ[20]	Basin and Range Jurassic-Early Cretaceous (not on T/S plot)	*Volcanic arc* Volcanic and sedimentary rocks
KJ[21]	Wasatch, Western Utah Jurassic to Early Cretaceous (not on T/S plot)	*Foreland-synorogenic deposits* Sandstone and conglomerate
KJ[22]	Southern California Stanley Mountain terrane Jurassic to Early Cretaceous (not on T/S plot)	*Accretionary prism* Tectonic melange, metasediments, deepwater sediments, pillow lava, pelagic limestone and metavolcanics
KJ[23]	Southern California Nicolas terrane Jurassic to Early Cretaceous	*Plutonic basement complex* Diorite, gabbro, ultramafics, and flysch
KJ[24]	California Great Valley Sequence Jurassic to Early Cretaceous	*Forearc basin* Arc volcanics and flysch
KJ[25]	Gulf of Mexico Jurassic to Early Cretaceous	*Oceanic crust*
KJ[26]	Baja California Jurassic to Early Cretaceous	*Orogenic domain* Igneous intrusives
KJ[27]	Vizcaino Peninsula Baja California Vizcaino terrane Jurassic to Early Cretaceous	*Oceanic volcanic arc* Basalt, ultramafics, chert, limestone and volcaniclastics
KJ[28]	Western Mexico Guerrero terrane Upper Jurassic to Lower Cretaceous	*Orogenic domain* Volcanic arc, andesitic volcanics, marine and non-marine sediments
KJ[29]	Southern Mexico Mixteca and Juarez terranes Late Jurassic to Early Cretaceous	*Orogenic domain* Deformed marine sediments, flysch, sandstones, hale, limestone, and andesite
KJ[30]	Western Cuba Organos-Rosario block Upper Jurassic to Paleogene	*Orogenic domain* Deformed belt of oceanic crust, basalt, pelagic and turbiditic clastics, carbonate ultramafics
K	CRETACEOUS	
K[1]	Chukotka Cretaceous (not on T/S plot)	*Orogenic belt* Platform cover sediments
K[2]	Chukotka Cretaceous (not on T/S plot)	*Volcanic arc* Volcanics and intrusives
K[3]	Western Alaska Koyukuk terrane Cretaceous	*Magmatic arc* Andesitic volcanics, volcaniclastics and intrusives
K[4]	West Alaska Cretaceous	*Volcanic arc* Volcanics

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
K5	Yukon-Tanana British Columbia Inter- montane Belt Cretaceous	*Intraplate igneous activity* Intrusives
K6	Selwyn Fold Belt Cretaceous	*Intraplate igneous activity* Igneous intrusives
K7	Selwyn Fold Belt Purcell Belt Neoproterozoic to Early Paleozoic	*Transitional sequence* Marine and continental margin clastics and carbonate Jurassic to Cretaceous folding and thrusting
K8	South Alaska Peninsular terrane Cretaceous	*Accretionary terrane* Melange, sediment and volcanics
K9	Banks Basin Cretaceous (not on T/S plot)	*Platform cover* Sediments
K10	Western Canada Sedimentary Basin, Cretaceous (not on T/S plot)	*Platform cover* Sediments
K11	Kootenay-Belt Fold Belt Neo proterozoic to Early Paleozoic (not on T/S plot)	*Transitional sequence* Marine and continental margin clastics, carbonate, and metasediments, Jurassic to Cretaceous folding and thrusting
K12	British Columbia Omineca Belt Kootenary Fold Belt Cretaceous (not on T/S plot)	*Intraplate igneous activity* Igneous intrusives
K13	South British Columbia Coast belt and Northern Cascades Cretaceous	*Metamorphic terrane* Undivided metamorphic rocks
K14	Idaho Batholith Cretaceous (not on T/S plot)	*Intraplate igneous activity* Igneous intrusives
K15	Coastal California Salinian terrane Cretaceous	*Metamorphic basement terrane* Amphibolitic greywacke, feldspathic quartzite, and plutonic intrusives
K16	Offshore California Catalina terrane Cretaceous	*Metamorphic basement terrane* Amphibolitic greywacke, metavolcanics, and chert
K17	Great Valley, California Cretaceous	*Forearc sedimentary basin* Arc related clastics, and post-arc clastics
K18	Northwest California Klamath Mountains Cretaceous	*Overlap assemblage* Sedimentary deposits
K19	United States Rocky Mountain Fold and Thrust Belt Late Proterozoic to Upper Cretaceous	*Transitional sequence* Marine and continental margin clastics, carbonate, and metasediments, Jurassic to Cretaceous folding and thrusting
K20	Western United States Interior Plains Cretaceous	*Platform cover* Sediments

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
K^{21}	Gulf of Mexico Cretaceous to Quaternary	*Drift deposits* Sediments
K^{22}	Baja California Peninsular batholith Cretaceous	*Orogenic domain* Igneous intrusives
K^{23}	Guatemala, Honduras, Nicaragua, Chortis Block Cretaceous to Paleogene	*Orogenic domain* Deformed metasediments and metavolcanics
K^{24}	Costa Rica, Panama Nicoya Complex, Osa and Azuero peninsulas Cretaceous to Paleogene	*Accretionary domain* Tectonic melange, basalt, chert, deepwater metasediments, metavolcanics and ultramafics
K^{25}	Cuba, Hispaniola, and Puerto Rico Greater Antilles arc Jurassic to Paleogene	*Magmatic arc* Arc volcanics, basalt, metasediments, metavolcanics and ultramafics
K^{26}	Central Jamaica Cretaceous (not on T/S plot)	*Orogenic domain* Clastics, volcaniclastics, volcanic, carbonate, and metamorphics
K^{27}	Yucatan Basin	*Oceanic crust*
K^{28}	Columbian and Venezuelan basins (not on T/S plot)	*Oceanic crust*
K^{29}	Panama San Blas-Darien Cretaceous (not on T/S plot)	*Magmaic arc* Arc volcanics, basalts metasediments, possible oceanic crust
K^{30}	Netherland Antilles Cretaceous to Early Tertiary (not on T/S plot)	*Magmatic arc* Arc volcanics, oceanic basalt, metasediments and sedimentary deposits
K^{31}		*Oceanic crust*
K_1	EARLY CRETACEOUS UNIT	
K_1^1	Vancouver Island Early Cretaceous Longarm	*Clastic wedge* Marine sandstone, conglomerate, siltstone, andesite clasts
K_2	LATE CRETACEOUS UNIT	
K_2^1	Queen Charlotte Basin Late Cretaceous to Pliocene (not on T/S plot)	*Forearc clastics* Sandstone, shale, minor volcanics
K_2^2	British Columbia Intermontane Belt Cretaceous	*Transitional arc terrane* Overlap assemblage, arc volcanics andesite flow and pyroclastics
K_2^3	Nevada Central and Western Basin and Range Mid to Late Cretaceous	*Plutonic assemblage* Granitic plutons
K_2^4	Baja California Late Cretaceous	*Overlap assemblage* Shallow marine to marine sediments
K_2^5	Northeast Jamaica Blue Mountains Late Cretaceous (not on T/S plot)	*Orogenic domain* Island arc volcanics, volcaniclastics, and granitic plutons

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
K_2^6	Southwest Haiti Massif de la Hotte Late Cretaceous (not on T/S plot)	*Orogenic domain* Uplifted oceanic crust, mafic volcanics
K_2^7		*Oceanic crust*
TK_2	LATE CRETACEOUS-TERTIARY UNIT	
TK_2^1	Chukotka Peninsula Late Cretaceous to Paleogene (not on T/S plot)	*Volcanic cover (intraplate)* Basalt
TK_2^2	British Columbia Coast Plutonic complex Late Cretaceous to Paleogene	*Magmatic arc* Plutonic and metamorphic rocks migmatite and gneiss
TK_2^3	Gulf of Alaska Yakutat Terrane Late Cretaceous to Tertiary	*Accretionary prism* Turbidites and melange
TK_2^4	Bering Shelf Basin Late Cretaceous to Tertiary	*Platform cover* Marine and continental sedimentary basin deposits
TK_2^5	Wasatch Plateau Cretaceous and Early Tertiary (not on T/S plot)	*Rift* Syntectonic volcanic and sedimentary rocks
TK_2^6	Cretaceous to Early Tertiary Northwest Mexico	*Orogenic domain* Deformed clastics and carbonated
TK_2^7	Southeast Cuba Sierra Maestra Late Cretaceous to Paleogene (not on T/S plot)	*Orogenic domain* Volcanics, intruded by Paleogene grainitoids
TK_2^8	N. Dominican Republic Late Cretaceous to Paleogene	*Accretionary prism* Deformed melange belt, sedimentary and volcanic rocks serpentinite, marble and metamorphics
TK_2^9	Caribbean Sea Beata Ridge Late Cretaceous to Paleogene (not on T/S plot)	*Transitional terrane* Uplifted block faulted oceanic crust
TK_2^{10}	Caribbean Sea Aves Ridge Late Cretaceous to Paleogene	*Orogenic domain* Uplifted magmatic arc Basalt, intermediate volcanics, and pelagic sediments
Tp	PALEOGENE UNIT	
Tp^1	Banks Basin Paleogene to Neogene (not on T/S plot)	*Platform cover marginal basin*
Tp^2	Alaska North Slope Colville Basin	*Platform cover* Marine and continental clastics and carbonates
Tp^3 (Pz_1)	Alaska North Slope Brooks Range Neoproterozoic to Triassic= Pz_1	*Transitional Foreland* Marine and continental clastics and carbonates, Late Caretaceous to Paleogene folding and thrusting

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
Tp[4]	Mackenzie-Rocky Mountains Foreland Neoproterozoic to Late Pateozoic	*Transitional Foreland* Marine and continental clastics and carbonates, Late Cretaceous to Paleogene folding thrusting
Tp[5]	Central Alaska Paleogene	*Intraplate volcanics and intrusives*
Tp[6]	Alaska Peninsula Paleogene	*Magmatic arc* intrusives and volcanics
Tp[7]	Bering Sea Aleutian Basin Paleogene to Neogene	*Oceanic domain* Sedimentary cover on oceanic crust
Tp[8]	Shelikof Straits, Alaska (not on T/S plot)	*Forearc basin* Volcanoclastic sediments, flysch
Tp[9]	Gulf of Alaska Paleogene to Neogene	*Forearc sediments*
Tp[10]	Aleutian Arc Paleogene to early Neogene	*Accretionary terrane* Volcanoclastics, and other sediments
Tp[11]	Vancouver Island Wash./Oregon Coast Range Crescent/Siletz volcanics Eocene to Oligocene	*Rift volcanics* Pull apart basin, ridge volcanics, pillow basalt, breccia, tuff, and limestone
Tp[12]	Offshore Vancouver Island Washington and Oregon Paleogene to Quaternary	*Forearc basin* Marine and non-marine sediments, sandstone, conglomerate, and shale
Tp[13]	Olympic core complex Eocene to Miocene	*Accretionary oceanic terrane* Melange, imbricated abyssal-plain turbidites, volcanic and deep to shallow water sedimentary rocks
Tp[14]	Queen Charlotte I. Paleogene	*Plateau volcanic cover* Felsic volcanics
Tp[15]	Straits of Georgia and Juan de Fuca Paleogene to Neogene	*Back-arc basin* Sediments and volcaniclastics
Tp[16]	Western North America Paleogene	*Platform cover* Foreland basin sediments
Tp[17]	Interior British Columbia Intermontane Belt Paleogene	*Plateau volcanic cover* Felsic volcanics
Tp[18]	Intermontane belt Paleogene	*Intermontane basins* Volcaniclastics and sediments
Tp[19]	Washington Cascade Range Paleogene	*Orogenic domain* Volcanic arc
Tp[20]	Washington Cascade Range Paleogene (not on T/S plot)	*Orogenic domain* Magmatic arc, intrusives
Tp[21]	Washington Oregon Coast Range Paleogene (not on T/S plot)	*Intermontane basin* Continental sedimentary deposits, arc derived clastics

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
Tp^{22}	Idaho, Snake River Plateau Paleogene (not on T/S plot)	*Volcanic cover* Volcanic arc
Tp^{23}	Southern California Rodriguez terrane Paleogene	*Oceanic Seamount domain* Seamount Volcanics and pelagic strata
Tp^{24}	Southern California Salinia Paleogene	*Sedimentary cover* Sandstone, shale, volcaniclastics
Tp^{25}	Southern California Great Valley Paleogene	*Sedimentary cover* Shallow marine and terrestrial clastics
Tp^{26}	Basin and Range Pre & syn-Basin & Range Paleogene and Neogene	*Transitional sequence* Pre and syn-tectonic volcanics and sedimentary rocks
Tp^{27}	Nevada, Utah Basin and Range Paleogene	*Volcanic cover* Syn-tectonic volcanics
Tp^{28} (p_3)	Colorado Plateau, Rocky Mountain Foreland Upper Proterozoic to Paleogene= p_3	*Transitional domain* Rift associated clastics and volcanics, involving rocks as old as late Proterozoic
Tp^{29}	Eastern Colorado Plateau, Rio Grande Rift Paleogene	*Transitional rift volcanics* Rift related volcanics
Tp^{30}	Western US Interior Plains Paleogene	*Continental cover deposits* Sediments
Tp^{31}	Baja California Paleogene	*Orogenic domain* Deformed Sediments
Tp^{32} (J)	Mexican Fold Belt Triassic to Paleogene = J	*Transitional foreland* Marine and continental clastics and carbonates, folding and thrusting in Late Cretaceous to Paleogene
Tp^{33}	Western and Southern Mexico Paleogene	*Orogenic domain* Igneous intrusives
Tp^{34}	Gulf of Mexico Paleogene (not on T/S plot)	*Cover deposits* Marine and continental clastics
Tp^{35}	Southern Mexico, Guatemala Chiapas Fold Belt Jurassic to Paleogene	*Transitional foreland* Marine and continental clastics and carbonates, folding and thrusting in Late Cretaceous to Paleogene
Tp^{36}	Southern Mexico Paleogene	*Orogenic domain* Igneous intrusives
Tp^{37}	Southern Mexico Paleogene	*Cover deposits* Marine and continental clastics
Tn	NEOGENE UNIT	
Tn^{1}	NW Alaska offshore Chukchi Basin	*Continental Margin Basin* Clastic sediments
Tn^{2}	Bering Sea Shelf Alaska	*Platform cover basins* Sandstone,shale, and volcanoclastics

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
Tn^{3}	North Slope Brooks Range	*Platform cover* Marine and continental clastics
Tn^{4}	Mackenzie Delta Beaufort Sea (not on T/S plot)	*Platform cover* Marine and continental clastics
Tn^{5}	Central Alaska and Yukon	*Orogenic (transitional) basin* Continental sediments, sandstone and shale
Tn^{6}	Kodiak shelf Neogene	*Forearc sediments*
Tn^{7}	Aleutian trench Neogene to Quaternary	*Accretionary prism*
Tn^{8}	Interior British Columbia Intermontane belt Neogene	*Plateau volcanics*
Tn^{9}	Queen Charlotte Sound Offshore British Columbia	*Forearc sediments* Sandstone, conglomerate and shale
Tn^{10}	Vancouver Island Neogene (not on T/S plot)	*Forearc sediments* Sandstone, conglomerate and shale
Tn^{11}	Columbia Plateau Neogene	*Plateau volcanics*
Tn^{12}	Idaho, Snake River Plateau Neogene (not on T/S plot)	*Volcanic cover* Volcanic arc
Tn^{13}	Southern California, Baja California offshore and Coastal basins Neogene	*Transitional cover* Sandstone, conglomerate, shale, and volcaniclastics
Tn^{14}	Southern California Great Valley Neogene	*Sedimentary cover* Post-arc clastics, sandstone, conglomerate, and shale
Tn^{15}	Southern California Sierra Nevada Neogene	*Sedimentary cover* Sandstone, conglomerate, and shale
Tn^{16}	Nevada, California Modoc Plateau Neogene (not on T/S plot)	*Volcanic cover* Rift volcanics
Tn^{17}	Nevada, Utah Basin and Range Neogene	*Volcanic cover* Rift associated felsic volcanics
Tn^{18}	Nevada, Utah Colorado Plateau, Rocky Mountain Foreland, Neogene	*Volcanic cover* Rift associated volcanics
Tn^{19}	Western US Interior Plains Neogene	*Continental cover deposits* Sediments
Tn^{20}	Baja California Neogene	*Volcanic cover* Volcanics
Tn^{21}	Gulf of California and Western Mexico Neogene	*Transitional rift* Rift related clastics

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)
Tn^{22}	Central Mexico Sierra Madre Occidental Neogene	*Volcanic cover* Plateau volcanics
Tn^{23}	Gulf of Mexico Neogene (not on T/S plot)	*Cover deposits* Marine and continental clastics
Tn^{24}	Southern Mexico Neogene	*Cover deposits* Continental clastics
Q	QUATERNARY UNIT	
Q^{1}	Western Alaska Quaternary	*Plateau volcanics* Basalts
Q^{2}	Aleutian Arc Quaternary	*Volcanic arc* Volcanics
Q^{3}	South Alaska Copper R. Basin Quaternary (not on T/S plot)	*Plateau volcanics* Basalts
Q^{4}	South Alaska Copper R. Basin	*Platform cover* Continental sediments
Q^{5}	Cascade range volcanic centres Late Tertiary to Quaternary Quaternary (not on T/S Plot)	*Volcanic arc* Volcanics
Q^{6}	Washington, Oregon, Idaho Columbia Plateau Late Tertiary to Quaternary	*Plateau volcanics* Basalts
Q^{7}	Washington, Oregon, Idaho Columbia Plateau Late Tertiary to Quaternary (not on T/S plot)	*Sedimentary cover* Terrestrial clastics
Q^{8}	Southern California Great Valley Quaternary	*Sedimentary cover* Terrestrial sediments
Q^{9}	Idaho Snake River Plateau Late Tertiary to Quaternary (not on T/S plot)	*Volcanic cover* Basalts
Q^{10}	Central and Eastern Mexico Late Tertiary to Quaternary (not on T/S plot)	*Volcanic cover* Basalts
Q^{11}	Gulf of Mexico Quaternary (not on T/S plot)	*Cover deposits* Marine and continental clastics
Q^{12}	South Mexico Trans-Mexico volcanic belt Late Tertiary to Quaternary	*Volcanic cover* Basalts
Q^{13}	Honduras, Nicaragua, Equador	*Volcanic* Mafic extrusive
Q^{14}	Honduras, Nicaragua, Equador	*Cover deposits*
Q^{15}	Compeche Bamk	*Drift deposits* Sediments

TECTONIC UNITS ON THE NORTH AMERICA PLATE

ASIAN CONTINENT

Units adopted from **Warren J. Nokleberg and others** (1994); interpreted using Circum-Pacific Tectonic Map approach
(no Time/Space Plot available)

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
A	PROTEROZOIC-ARCHAEAN UNIT		
A^{1}* ($A^{4\ nwQ}$)	Olyutorka-Kamchatka terrane, Archaean and Proterozoic	*Orogenic domain*, Koryak Highlands and Kamchatka Peninsula, old basement overlain by Mesoproterozoic, Paleozoic, J-Pz basins	Nokleberg and others, 1994 (OK, PGR extended basement) (letter symbols used by Nokleberg and others, 1994)
A^{2}	Avekova terrane Archaean-Proterozoic	*Orogenic domain*, East Central part of Russian Northeast	Nokleberg and others, 1994 (AK)
A^{3}	Omolon terrane Archaean-Proterozoic	*Orogenic domain*, now craton, Southeastern part of Russian Northeast, includes Neoproterozoic and Paleozoic basins, mid-Paleozoic magmatic arc and backarc basin	Nokleberg and others, 1994 (KOO)
	PROTEROZOIC UNIT		
2	Prikolyma terrane Archaean-Proterozoic	*Orogenic domain*, passive margin, Central part of Russian Northeast, includes Neoproterozoic and Paleozoic basins, Pz_2 rift, J basin, Jurassic magmatic arc	Nokleberg and others, 1994 (KOP)
3	Omulevka terrane Archaean-Proterozoic	*Orogenic domain*, passive margin, Central part of of Russian Northeast, includes Pz_1 transitional sequence, Pz basin, Jurassic magmatic arc	Nokleberg and others, 1994 (KOV)
Pz	PROTEROZOIC-PALEOZOIC UNIT		
Pz 1	Seward terrane Proterozoic-Paleozoic	*Orogenic domain*, metamorphosed continental margin, Seaward Peninsula, Alaska and Chukotka Peninsula, Northeastern Russian Northeast, includes TpK volcanic arc	Nokleberg and others, 1994 (SD)
Pz 2	Prikolyma terrane	*Orogenic domain*, old pacific margin deformed	Nokleberg and others, 1994
Pz	PALEOZOIC UNIT		
Pz^{2}	Mun_{i}lkan Terrane	*Ophiolites*, NW part of Russian Northeast	Nokleberg and others, 1994
Pz^{3}	Rassokha terrane Early Paleozoic	*Oceanic crustal domain*, oceanic crust, Central part of Russian Northeast, includes Pz_2 basin, Triassic magmatic arc, Jurassic basin and Jurassic volcanic arc	Nokleberg and others, 1994 (KOR)
Pz^{4}	Henrietta terrane Paleozoic	*Orogenic domain*, passive continental margin, East Siberia Sea	Nokleberg and others, 1994 (HE)
Pz^{5}	Aluchin terrane Paleozoic	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Central part of Russian Northeast includes J transitional sequence and K_1J volcanic arc	Nokleberg and others, 1994 (KOAC)
Pz^{6} see also JPz^{3}	Main sub-terrane of the Penzhina-Anadyr terrane Paleozoic	*Orogenic domain*, accretionary prism, predominantly turbidites, Western part of the Koryak Highlands eastern Russian Northeast; included Late Paleozoic volcanic arc rocks, youngest Paleozoic to Jurassic sediments	Nokleberg and others, 1994 (PAM)

Numbering of units is consequive in the North America Plate

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)	
Pz^{7}	Nora-Sukhotin terrane Paleozoic	*Orogenic domain*, volcanic arc, includes Proterozoic-Paleozoic accretionary prism basement and Permian transitional sequence or epicratonic basin, Western part of Russian Southeast	Nokleberg and others, 1994 (NSV)
Pz^{8} Pz Pz_{3} Pz_{2} K;Tok	Omchong-Iruneisk collage, Okhotomorks collage, Pogranichny collage, Shelikovsk collage	*Extended basement* formed during formation of Sea of Okhotsk, originally orogenic domain overlain by Cretaceous, Tertiary to Recent sediments and volcanics	Nokleberg and others, 1994 (OIR, OKH, PGR, SHL); Gribidenko, 1985; Gribidenko and Svarochevsky, 1984
Pz^{9}	Zolotogorsky terrane	*Orogenic domain*, metamorphosed continental margin sequence	Nokleberg and others, 1994 (ZL)
Pz^{10}	Galam terrane	*Accretionary wedge and subductioin zone*, dominately oceanic rocks (Northern part of Russian Southeast)	Nokleberg and others, 1994 ()
MzPz	PALEOZOIC-MESOZOIC UNIT		
$MzPz^{1}$	Bering Sea collage Paleozoic-Mesozoic	*Extended basement* formed during formation of the Northern Pacific Ocean and Bering Sea, Mesozoic-Paleozoic rocks overlain by TK_2 rift and drift sequences	Nokleberg and others, 1994 (BSC)
$MzPz^{2}$	Alaxeya terrane Paleozoic-Mesozoic	*Orogenic domain*, volcanic arc and forearc, North-central part of Russian Northeast	Nokleberg and others, 1994 (KOAL)
$MzPz^{3}$	Chukhotka terrane Paleozoic-Mesozoic	*Passive margin sequence*, drift sequence, Northern part of Russian Northeast	Nokleberg and others, 1994 (CH)
JPz	PALEOZOIC-JURASSIC UNIT		
JPz^{1}	Beryozovka terrane Paleozoic-Jurassic	*Orogenic domain*, backarc basin turbidites, includes Jurassic magmatic arc rocks, North-central part of Russian Northeast	Nokleberg and others, 1994 (KOB)
JPz^{2}	Kular-Nera terrane Paleozoic-Jurassic	*Orogenic domain*, accretionary prism, predominantly turbidites, including K_1J volcanic arc rocks, Central part of Russian Northeast	Nokleberg and others, 1994 (KOKN)
KPz	PALEOZOIC-CRETACEOUS UNIT		
KPz^{1}	Penzhina terrane, Ust-Belaya subterrane Paleozoic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Western part of Koryak Highlands	Nokleberg and others, 1994 (PAB)
KPz^{2}	Penzhina terrane, Ganychalan subterrane Paleozoic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Western part of Koryak Highlands includes Cretaceous transitional sequences	Nokleberg and others, 1994 (PAG)
KPz^{3}	Penzhina terrane, Main subterrane Paleozoic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly turbidites, Western part of Koryak Highlands includes Late Paleozoic volcanic arc, Jurassic Permian epicratonic basin	Nokleberg and others, 1994 (PAM)
P	PERMIAN-TRIASSIC UNIT		
P^{1}	Argatas terrane Permian-Triassic	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Central part of Russian Northeast	Nokleberg and others, 1994 (KOAG)
P^{2}	South Amyul terrane Shalaurov subterrane	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Northern part of Russian Northeast	Nokleberg and others, 1994 (SAS)
JPz_2	LATE PALEOZOIC-JURASSIC UNIT		
JPz_2^{9}	Viliga terrane Late Paleozoic-Jurassic	*Passive margin sequence,* or epicratonic basin East-central part of Russian Northeast	Nokleberg and others, 1994 (VL)

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)	
Mz	MESOZOIC UNIT		
Mz^{2}	South Amyul terrane Mesozoic	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Northern part of Russian NE	Nokleberg and others, 1994 (SA)
Mz^{3}	Talovskiy terrane Mesozoic	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Koryak Highlands, eastern Russian Northeast	Nokleberg and others, 1994 (TL)
Mz^{4}	Sredinnyi-Kamchatka terrane Mesozoic	*Orogenic domain*, metamorphic rocks, Koryak Highlands, eastern Russian Northeast	Nokleberg and others, 1994 (SR)
K	TRIASSIC-CRETACEOUS UNIT		
K^{1}	Manley terrane Triassic-Cretaceous	*?Transitional tectonic sequence*, overlap sequence, East-Central Alaska	Drummond and others, 1994
Tp	TRIASSIC-PALEOGENE UNIT		
Tp^{1}	Akatvaam terrane Triassic to Paleogene	*Orogenic domain*, accretionary prism, predominantly turbidites, Northeastern Koryak Highlands, Russian Northeast, includes fragments of Pz and ophiolites	Nokleberg and others, 1994 (AV)
J	JURASSIC UNIT		
J^{1}	Vel may terrane Jurassic	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Northeastern part of Russian Northeast	Nokleberg and others, 1994 (VE)
KJ	JURASSIC-CRETACEOUS UNIT		
KJ^{31}	Kamchatskiy Mys terrane Jurassic-Cretaceous	*Oceanic crustal domain*, oceanic crust, Eastern Kamchatka Peninsula	Nokleberg and others, 1994 (KS)
KJ^{32}	Nabilsky terrane Jurassic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Sakhalin Island	Nokleberg and others, 1994 (NAB)
KJ^{33}	Pekul'ney terrane Jurassic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, includes TpK volcanic arc, Northeastern part of Russian Northeast	Nokleberg and others, 1994 (PK)
KJ^{34}	Uyamkanda terrane Jurassic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, includes TpK volcanic arc, Northern part of Russian Northeast	Nokleberg and others, 1994 (SAU)
KJ^{35}	Alnynskiy subterrane Jurassic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly turbidites, Koryak Highlands, eastern Russian Northeast, includes Cretaceous transitional sequneces TpK_2 volcanic arc	Nokleberg and others, 1994 (TLA)
KJ^{36}	Kuyul subterrane Jurassic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Koryak Highlands, eastern Russian Northeast, includes Cretaceous epicontinental basin	Nokleberg and others, 1994 (TLK)
KJ^{37}	West Kamchatka terrane Omgon sub-terrane Jurassic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly turbidites, Western Kamchatka Peninsula	Nokleberg and others, 1994 (WKO)
KJ^{38}	Yanranay terrane Jurassic-Cretaceous	*Orogenic domain*, accretionary prism, predominantly turbidites, Western Kamchatka Peninsula	Nokleberg and others, 1994 (YN)
KJ^{39}	Kamyzhovy terrane Jurassic-Cretaceous	*Orogenic domain*, volcanic arc, Sakhalin Island	Nokleberg and others, 1994 (KV)
KJ^{40}	Nutesyn terrane Cretaceous	*Orogenic domain*, volcanic arc, northern part of Russian Northeast	Nokleberg and others, 1994 (NU)

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)	
KJ[41]	Shmidt terrane Jurassic-Cretaceous	*Orogenic domain*, volcanic arc, Sakhalin Island	Nokleberg and others, 1994 (SHT)
KJ[42]	Raukcha sedimentary basin, Late Jurassic-mid Cretaceous	*Platform or transitional tectonic domain*, Northeastern part of Russian Northeast	Nokleberg and others, 1994 (rc)
KJ[43]	Sorachi-Yezo terrane	(*Correlated with* west Sakhalin terrane) turbidite basin (Hokkaido Island, Japan	Nokleberg and others, 1994 (SY)
K_1J	JURASSIC-EARLY CRETACEOUS UNIT		
K_1J^1	Mainitskiy terrane Jurassic-Early Cretaceous	*Orogenic domain*, volcanic arc, Northern part of Russian Northeast	Nokleberg and others, 1994 (MAI)
K_1J^2	Kony-Murgal terrane Jurassic-Early Cretaceous	*Orogenic domain*, volcanic arc, overlain by TpaK volcanic arc rocks, Southeastern part of Russian Northeast	Nokleberg and others, 1994 (KM)
K_1J^3	Indigirka-Oloy sedimentary volcanic-plutonic assemblage Middle Jurassic to Early Cretaceous	*Orogenic domain*, volcanic arc and backarc basin rocks, Southeastern to northwestern Russian Northeast	Nokleberg and others, 1994 (io)
K_1J^4	Khetachan terrane Oloy terrane Jurassic-Early Cretaceous	*Orogenic domain*, volcanic arc, North-central part and Oloy terrane in north- to east central part of Russian Northeast, some Jurassic-Triassic volcanic rocks	Nokleberg and others, 1994 (KOKT)
K_1J^5	Siverskiy sub-terrane of Oloy terrane Jurassic-Early Cretaceous	*Orogenic domain*, volcanic arc, North to east central part of Russian Northeast, includes some Paleozoic volcanic rocks	Nokleberg and others, 1994 (KOLS)
K_1J^6	Eropol sub-terrane of Oloy terrane Jurassic-Early Cretaceous	*Orogenic domain*, volcanic arc, North to east central part of Russian Northeast, includes some Paleozoic volcanic rocks	Nokleberg and others, 1994 (KOLE)
K_1J^7	Uda volcanic-plutonic belt Late Jurassic-Early Cretaceous	*Orogenic domain*, magmatic arc, Southern part of Russian Northeast	Nokleberg and others, 1994 (ud)
K_1J^8	Verkhoyansk collisional granite belt, Late Jurassic-Early Cretaceous	*Orogenic domain*, magmatic chain, Southern and western part of Russian Northeast	Nokleberg and others, 1994 (vk)
K	CRETACEOUS UNIT		
K^{28}	Tokoro-Nabilsky collage Sea of Okchotsk Cretaceous	*Orogenic domain*, accretionary prism and oceanic crustal rocks	Nokleberg and others, 1994 (TNB)
K^{29}	Tokoro terrane Cretaceous	*Orogenic domain*, accretionary prism and oceanic rocks predominate, Hokkaido Island, Japan	Nokleberg and others, 1994 (TO)
K^{30}	Penzhina basin mid- and Late Cretaceous	*Orogenic domain*, forearc basin, Central part of Russian Northeast	Nokleberg and others, 1994 (pn)
K^{31}	Institute of Oceanology collage, Sea of Okchotsk Cretaceous	*Orogenic domain*, volcanic arc, forearc basin, oceanic crustal rocks, overlain by QT rift and drift sequence	Nokleberg and others, 1994 (IOC)
K^{32}	Iruneiskiy terrane Cretaceous	*Orogenic domain*, volcanic arc, Kamchatka Peninsula	Nokleberg and others, 1994 (IK)
K^{33}	Terpeniya terrane Cretaceous	*Orogenic domain*, volcanic arc, Sakchalin Island Russian Southeast	Nokleberg and others, 1994 (TR)
K^{34}	Nemuro terrane Cretaceous	*Orogenic domain*, volcanic arc, Hokkaido Island, and lesser Kuril Islands, Russian Southeast	Nokleberg and others, 1994 (NE)

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)	
K^{35}	Omineca-Selwyn plutonic mid-Cretaceous	*Orogenic domain*, magmatic chain, northern Russian Northeast (continues from Eastern Canadian Cordillera and northern Alaska)	Nokleberg and others, 1994 (om)
K^{36}	Kotel'nyi terrane Cretaceous	*Passive continental margin sequence*, New Siberian Islands	Nokleberg and others, 1994 (KT)
K^{37}	Kuibiveem sedimentary assemblage	*?Platform*, sedimentary cover, Eastern Russian Northeast	Nokleberg and others, 1994 (kb)
K^{38}	Bering Sea Shelf	Transitional sequence	Cooper and others, 1992
K^{39}	Penzhina-Anadyr terrane	*Orogenic domain*, accretionary prism	Nokleberg and others, 1994 (PA)
K^{40}	Kamulkotan terrane	*Accretionary wedge and subduction zone*, predominately oceanic rocks, Hokkaido Is, Japam	Nokleberg and others, 1994 (KK)
TpK	CRETACEOUS TO PALEOGENE UNIT		
TpK^{1} Tpak	Ekonay terrane Cretaceous to Paleogene (Deryugin Basin)	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Eastern Koryak Highlands, Northeastern Russian Northeast, includes KJ basin and Cretaceous transitional sequences	Nokleberg and others, 1994 (EK); Gribidenko, 1985; Gribidenko and Svarochevsky, 1984
TpK^{2}	Ganal'skiy terrane Cretaceous to Paleogene	*Orogenic domain*, metamorphic rocks, included QTn volcanic arc rocks, Southeastern part of Kamchatka Peninsula	Nokleberg and others, 1994 (GZ)
TpK^{3}	Hikada terrane Cretaceous to Paleogene	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Hokkaido Island, Japan	Nokleberg and others, 1994 (HI)
TpK^{4}	Hidaka-Anive collage Sea of Okchotsk Cretaceous to Paleogene	*Orogenic domain*, accretionary prism, predominantly oceanic rocks-ophiolites, Sea of Okchotks	Nokleberg and others, 1994 (HIA)
TpK^{5}	Yarakvaam terrane Cretaceous to Paleogene	*Orogenic domain*, volcanic arc, includes older rocks Northeastern part of Russian Northeast	Nokleberg and others, 1994 (KOY)
TpK^{6}	Kronotskiy terrane Cretaceous to Paleogene	*Orogenic domain*, volcanic arc rocks, Southeastern Kamchatka Peninsula	Nokleberg and others, 1994 (KRO)
TpK^{7}	West Pekulney terrane	*Orogenic domain*, volcanic arc rocks, South-	Nokleberg and others, 1994 (WP)
TpK^{8}	Western Sakhalin terrane	*Correlated with*, Sorachi-Yezo terrane, turbidite basin, Salhalin Island	Nokleberg and others, 1994 (WSA)
TpaK	CRETACEOUS TO PALEOCENE UNIT		
$TpaK^{1}$	Okchotsk-Chukotka plutonic belt, Cretaceous and Paleocene	*Orogenic domain*, magmatic chain, Eastern Russian Northeast	Nokleberg and others, 1994 (oc)
$TpaK^{2}$	Aleutian terrane probable Cretaceous and Paleocene	*Oceanic crustal domain*, Northern Pacific Ocean Bering Sea	Nokleberg and others, 1994 (AA)
TK_1	EARLY CRETACEOUS TO TERTIARY UNIT		
$TK_1{}^{1}$	Bennett terrane Early Cretaceous to Tertiary	*Passive margin setting*, drift sequence, East Siberian Sea	Nokleberg and others, 1994 (BE)
$TK_1{}^{2}$	Northwind Ridge terrane late Early Cretaceous-Tertiary	*Passive margin setting,* drift sequence, Beaufort Sea, Chukchi Sea and adjacent areas	Nokleberg and others, 1994 (NR)
TpK_1	EARLY CRETACEOUS TO PALEOGENE UNIT		

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)	
TpK_1^1	Alpha-Mendeleev Ridge late Early Cretaceous-Paleogene	*Orogenic domain*, volcanic arc, Beaufort Sea, Chukchi Sea and adjacent areas	Nokleberg and others, 1994 (am)
QK_1	EARLY CRETACEOUS- QUATERNARY UNIT		
QK_1^1	Amerasia basin Early Cretaceous to Quaternary	*Platform to rift-drift basin,* Canadian Arctic Islands, Beaufort Sea, Chukchi Sea, East Siberia Sea and adjacent areas	Nokleberg and others, 1994 (as)
K_2	LATE CRETACEOUS UNIT		
K_2^5	Malokurilsk collage Late Cretaceous Sea of Okchotsk	*Passive continental margin sequence,* Late Cretaceous rift and QK_2 drift sequence overlying Pz basement	Nokleberg and others, 1994 (MKR)
K_2^6	East Sakhalin Basin, basement	*Orogenic domain,* sedimentary and volcanic rocks	Gribidenko, 1985; Gribidenko and Svarochevsky, 1984
TK_2	LATE CRETACEOUS TO TERTIARY UNIT		
TK_2^8	Tinro basin Sea of Okchotsk Late Cretaceous to Tertiary	*Platform*, sedimentary basin	Nokleberg and others, 1994 (tn)
JPz_2	Lisian sky Basin, Severing Basin West Kamchatka Basin	*Orogenic domain*, sedimentary rocks	Gribidenko, 1985; Gribidenko and Svarochevsky, 1984
TK_2^9	Bering Sea collage Late Cretaceous-Tertiary	*Passive continental margin sequence,* rift and drift sequnce overlying Paleozoic to Mesozoic basement	Nokleberg and others, 1994 (BSC)
TpK_2	LATE CRETACEOUS TO PALEOGENE UNIT		
TpK_2^1	Olyutorka sub-terrane of the Olyutorka-Kamchatka terrane	*Orogenic domain*, volcanic arc rocks, Koryak Highlands, northeastern Russia	Nokleberg and others, 1994 (OKO)
TpK_2^2	Valaginskiy sub-terrane Late Cretaceous-Tertiary	*Orogenic domain*, volcanic arc rocks, eastern Kamchatka Peninsula	Nokleberg and others, 1994 (OKV)
TpK_2^3	Stolbovskoy terrane Late Cretaceous-Tertiary	*Orogenic domain*, volcanic arc rocks, Northern Kamchatka Peninsula	Nokleberg and others, 1994 (SB)
TpK_2^4	Vetlovskiy terrane Late Cretaceous-Tertiary	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Eastern Kamchatka Peninsula	Nokleberg and others, 1994 (VT)
TpK_2^5	Ukelayat sub-terrane of the Kamchatka terrane	*Orogenic domain*, accretionary prism, predominantly turbidites, Koryak Highlands, Russian Northeast	Nokleberg and others, 1994 (WKU)
TnK_2	LATE CRETACEOUS TO NEOGENE UNIT		
TnK_2^1	Kamchatka-Koryak volcanic belt, Late Cretaceous-Neogene	Orogenic domain, volcanic arc rocks, Kamchatka Peninsula and eastern Russian Northeast	Nokleberg and others, 1994 (kk)
QK_2	LATE CRETACEOUS TO QUATERNARY UNIT		
QK_2^1	Kuril-Kamchatka terrane Late Cretaceous to Quaternary	*Orogenic domain, active plate margin*, accretionary prism, pre dominantly turbidites, East Kamchatka Peninsula and east Kuril Islands	Nokleberg and others, 1994 (KUK)
QK_2^2	Hope basin Chukchi Sea Late Cretaceous to Quaternary	*Passive continental margin sequence*, rift sequence	Nokleberg and others, 1994 (hp)
QK_2^3	Blagoveshchensk basin Late Cretaceous to Quaternary	*Platform*, sedimentary basin, East Siberia Sea and adjacent areas	Nokleberg and others, 1994 (bg)

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)	
QK_2^4	smaller basins, larger in Okchotsk Sea	Transirion tectonic and reactivation sequences, Sedimentary rocks	Nokleberg and others, 1994 (cvs)
QK_2^5	Norosibisky sedimentary basin	*Passive continental margin sequence*, rift/ drift sediments	Nokleberg and others, 1994 (nsb)
Cz	CENOZOIC UNIT		
Cz^1	Graben Zone Cenozoic	*Passive continental margin sequence*, rift sequence East Siberian Sea and adjacent areas	Nokleberg and others, 1994 (gz)
Cz^2	Lomonosov terrane Cenozoic	*Passive continental margin sequence*, drift sequence or platformal basin sedimentary basin over an extended Paleozoic basement, Arctic Ocean and Chukchi Sea	Nokleberg and others, 1994 (LO)
Cz^3	Aniva basin Cenozoic	*Platform*, sedimentary basin, Southern Sea of Okchotsk	Nokleberg and others, 1994 (an)
Cz^4	Eastern Sakhalin basin Cenozoic	*Platform*, sedimentary basin or reactivation basin over extended continental crust, Sea of Okchotsk	Nokleberg and others, 1994 (esa)
Cz^5	Lebed basin Cenozoic	*Passive continental margin sequence*, drift sequence or platformal basin sedimentary basin over an extended basement, Eastern Sea of Okchotsk	Nokleberg and others, 1994 (lb)
Cz^6	Aleutian-Bower basin Cenozoic	*Platform*, sedimentary basin or reactivation basin in active plate margin region, Northern Pacific Ocean and Bering Sea	Nokleberg and others, 1994 (atb)
Cz^7 TmTe	Central Okchotsk basin Cenozoic	*Platform*, sedimentary basin or reactivation basin Sea of Okchotsk	Nokleberg and others, 1994 (cok);Gribidenko 1985; Gribidenko and Svarichevsky, 1984
Cz^8	Charlie basin Cenozoic	*Platform*, sedimentary basin or reactivation basin Beaufort Sea, Chukchi Sea and adjacent areas	Nokleberg and others, 1994 (ch)
Cz^9	Deryugin basin Cenozoic	*Platform*, sedimentary basin or reactivation basin over extended continental crust, Sea of Okchotsk	Nokleberg and others, 1994 (dr)
Cz^{10}	De Long basin Cenozoic	*Passive continental margin sequence*, drift sequence or platformal basin sedimentary basin, Beaufort Sea, Chukchi Sea and adjacent areas	Nokleberg and others, 1994 (dl)
Cz^{11}	Makarov basin Cenozoic	*Passive continental margin sequence*, drift sequence or platformal basin sedimentary basin, Sea of Okchotsk	Nokleberg and others, 1994 (mak)
Cz^{12}	Northwind basin Cenozoic	*Passive continental margin sequence*, drift sequence or platformal basin sedimentary basin Beaufort Sea, Chukchi Sea and adjacent areas	Nokleberg and others, 1994 (nb)
Cz^{13}	North Okchotsk basin Cenozoic	*Passive Continental margin sequence*, drift sequence or platformal basin sedimentary basin on top of a suture, Sea of Okchotsk	Nokleberg and others, 1994 (no), Gribidenko, 1985; Gribidenko and Svarochevsky, 1984
Cz^{15}	South Okchotsk basin	*Platform*, sedimentary basin	Nokleberg and others, 1994
Cz^{16}	Hokkaids	*Orogenic donain*, forarc basin sediments	Nokleberg and others, 1994
Cz^{17}	Tartar basin	*Passive continental margin sequence*, drift sequence	Nokleberg and others, 1994

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)	
T	TERTIARY UNIT (UNDIFFERENTIATED)		
T[1]	Aniva terrane Tertiary	*Orogenic domain*, accretionary prism, predominantly oceanic rocks, Sakchalin Island, Russian Southeast; exotics scraped off the downgoing plate: K and Permian rocks	Nokleberg and others 1994 (ANV)
T[2]	West Kamchatka basin Tertiary	*Platform* or reactivation sedimentary basin, Western Kamchatka Peninsula and adjacent Sea of Okchotsk	Nokleberg and others, 1994 (wk)
QT	TERTIARY TO QUATERNARY UNIT		
QT[1]	North Chukchi basin Tertiary	*Passive continental margin sequence*, rift sequence Northern part of Chukchi Sea	Nokleberg and others, 1994 (nc)
Tp	PALEOGENE UNIT		
Tp[39]	Shirshov Ridge volcanic belt, Paleogene	*Orogenic domain*, volcanic arc?, Western Bering Sea	Nokleberg and others, 1994 (sh)
Tpa	PALEOCENE UNIT		
Tpa[1]	Bower Ridge volcanic belt, ?Paleocene	*Orogenic domain*, volcanic arc and accretionary prism complexes, Bering Sea area	Nokleberg and others, 1994 (bw)
QTpa	PALEOCENE TO QUATERNARY UNIT		
QTpa[1]	Aleutian volcanic arc Paleocene to Quaternary	*Orogenic domain, active plate margin* volcanic arc Alaska Peninsula, Aleutian Islands and Komandorsky Islands	Nokleberg and others, 1994 (al)
QTe	EOCENE TO QUATERNARY UNIT		
QTe[1]	Central Kamchatka volcanic belt, Eocene to Quaternary	*Orogenic domain, active plate margin* volcanic arc Central Kamchatka Peninsula	Nokleberg and others, 1994 (kc)
QTo	OLIGOCENE TO QUATERNARY UNIT		
QTo[1]	Central Kamchatka basin Oligocene to Holocene	*Orogenic domain, active plate margin*, volcanic arc and forearc basin, Kamchatka Peninsula	Nokleberg and others, 1994 (ck)
QT[2]	North Chukchi basin Tertiary	*passive continental margin sequence,* rift/drift sequence, Northern part of Chukchi Sea	Nokleberg and others, 1994 (nc)
Tn	NEOGENE UNIT		
Tn[1]	Kashevarou Trough, Okchotsk Basin	*Orogenic domain*, sedimentary rocks	Gribidenko, 1985; Gribidenko and Svarochevsky, 1984
Tn[2]	East Sakhalin Basin	*Orogenic domain*, sedimentary rocks	Gribidenko, 1985; Gribidenko and Svarochevsky, 1984
QTn	NEOGENE TO QUATERNARY UNIT		
QTn[1]	Kuril volcanic arc Neogene to Holocene	*Orogenic domain, active plate margin*, volcanic arc forearc basin complexes, Kamchatka Peninsula	Nokleberg and others, 1994 (ku)
QTn[2]	East Japan volcanic belt Neogene to Holocene	*Orogenic domain, active plate margin*, volcanic arc complexes, Hokkaido Island, Japan	Nokleberg and others, 1994 (ej)
QTn[3]	Sakchalin-Primorye volcanic belt	*Orogenic domain, active plate margin* or reactivation related volcanic activity, Sea of Japan and adjacent areas	Nokleberg and others, 1994 (sp)
QTn[4]	Pogramichny Basin	*Orogenic domain*, sedimentary rocks	Gribidenko, 1985; Gribidenko and Svarochevsky, 1984

Letter symbol	Age span and structural name	Tectonic setting (interpretation and brief description)	
QTn[5]	Kuril Forearc Basin	*Orogenic domain*, forearc basin sediments	Gribidenko, 1985; Gribidenko and Svarochevsky, 1984
QTn[6]	Kuril arc-trench gap	*Orogenic domain*, active plate margin, slope	Gribidenko, 1985 Gribidenko and Svarochevsky, 1984
QTm	MIOCENE TO QUATERNARY UNIT		
QTm[1]	Bering Sea volcanic belt Miocene to Quaternary	*Platform*, intraplate volcanics, Bering Sea, Seaward Peninsula, southwestern Alaska	Nokleberg and others, 1994 (bs)
QTp[l]	PLIOCENE TO HOLOCENE UNIT		
QTpl[1]	East Kamchatka volcanic belt Pliocene to Holocene	*Orogenic domain, active plate margin*, volcanic arc Eastern Kamchatka Peninsula	Nokleberg and others, 1994 (ek)
QTpl[4]	Ryuku Ridge	*Orogenic domain, active plate margin,* related volcanic arc	Gribidenko, 1985 Gribidenko and Svarochevsky, 1984

TECTONIC UNITS ON THE NORTH AMERICA PLATE

OCEANIC CRUSTAL REGIONS

Adopted from compilations by **Kenneth J. Drummond and George W. Moore**

Letter symbol	Structural name and age span		Tectonic setting (interpretation and brief description)	References
ALEUTIAN BASIN				
KJ	JURASSIC AND CRETACEOUS UNIT			
KJ[2]	Aleutian Basin	Ocean crust older than anomaly M10N	*Oceanic crustal domain*	
K_1	EARLY CRETACEOUS UNIT			
K$_1$[4]	Aleutian Basin	Ocean crust anomalies M11–M0	*Oceanic crustal domain*	
K_2	LATE CRETACEOUS UNIT			
K$_2$[4]	Aleutian Basin	Ocean crust anomalies M0–34	*Oceanic crustal domain*	
KOMANDORSKIYE BASIN- BERING SEA				
TmTo	OLIGOCENE TO MIOCENE UNIT			
TmTo[1]	Komadorskiye Basin	Oceanic crust anomalies older than 6	*Oceanic crustal domain*	Nokleberg and others, 1994 (KME, KMW)
Tn	NEOGENE UNIT			
Tn[6]	Komadorskiye Basin	Oceanic crust anomalies 6–5	*Oceanic crustal domain*	Nokleberg and others, 1994 (KME, KMW)
SEA OF OKCHOTKS				
TmTo	OLIGOCENE TO MIOCENE UNIT			
TmTo[2]		Kuril backarc basin Oligocene to Miocene	*Oceanic crustal domain*, minor backarc spreading in Southeastern Sea of Okchotsk	Nokleberg and others, 1994 (KR)
ARTCIC OCEAN-AMUNDSEN BASIN				
TK	CRETACEOUS-TERTIARY UNIT			
TK	Arctic Ocean	Oceanic crust	*Oceanic crustal domain*	
ATLANTIC OCEAN				
KJ	JURASSIC AND CRETACEOUS UNIT			
KJ[3]	Atlantic Ocean	Ocean crust older than anomaly M10N	*Oceanic crustal domain*	
K_1	EARLY CRETACEOUS UNIT			
K$_1$[5]	Atlantic Ocean	Ocean crust anomalies M11–M0	*Oceanic crustal domain*	
K_2	LATE CRETACEOUS UNIT			
K$_2$[1]	Atlantic Ocean	Ocean crust anomalies M0–34 (Cretaceous magnetic quiet zone)	*Oceanic crustal domain*	
$TpaK_2$	LATE CRETACEOUS TO PALEOCENE UNIT			
TpaK$_2$[2]	Atlantic Ocean	Oceanic crust magnetic anomalies 34–27	*Oceanic crustal domain*	

Letter symbol	Structural name and age span		Tectonic setting (interpretation and brief description)	References
Tpa	PALEOCENE UNIT			
Tpa[4]	Atlantic Ocean	Oceanic crust anomalies 24–27	*Oceanic crustal domain*	
Te	EOCENE UNIT			
Te[5]	Atlantic Ocean	Oceanic crust anomalies 18–24	*Oceanic crustal domain*	
ToTe	EOCENE TO OLIGOCENE UNIT			
ToTe[6]	Atlantic Ocean	Oceanic crust anomalies 13–18	*Oceanic crustal domain*	
BAY OF MEXICO				
KJ	JURASSIC AND CRETACEOUS UNIT			
KJ[3]	Atlantic Ocean	Ocean crust older than anomaly M10N	*Oceanic crustal domain*	
*CAYMAN TROUGH (*half in Caribbean Plate)				
To	OLIGOCENE UNIT			
?To[7]	Cayman Trough	Oceanic crust	*Oceanic crustal domain*	
Tn	NEOGENE UNIT			
Tn[7]	Cayman Trough	Oceanic crust anomalies 6–3	*Oceanic crustal domain*	
QTpl	PLIOCENE TO QUATERNARY UNIT			
QTpl[8]	Cayman Trough	Oceanic crust anomalies 3–0	*Oceanic crustal domain*	

TECTONIC UNITS ON THE CARIBBEAN PLATE

by

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[these units are shown on the time/space plot and (or) the map]

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)
Pz	PALEOZOIC (Undivided) UNIT	
Pz^{3}	Quajira Peninsula, Colombia Neoproterozoic to Early Paleozoic	*Orogenic domain* Undivided metamorphic and igneous rocks
Mz	MESOZOIC (Undivided) UNIT	
Mz^{2}	Quajira Peninsula, Colombia and Paraguana Peninsula, Venezuela Mesozoic to early Tertiary	*Orogenic domain* Metamorphics; greenschist and amphibolite, metasediments, metavolcanics, Tertiary plutons
Mz^{3}	Isla de Margarita, Mesozoic to early Tertiary	*Orogenic domain* Metamorphic and metasedimentary rocks
KJ	JURASSIC-EARLY CRETACEOUS UNIT	
KJ^{31}	Southwest Puerto Rico	*Orogenic domain*
	Bermeja complex Upper Jurassic to Cretaceous (not on T/S plot)	Uplifted oceanic crust, serpentinite, peridotite, pelagic and turbiditic clastics
K	CRETACEOUS UNIT	
K^{28}	Columbian and Venezuelan basins (not on T/S plot)	*Oceanic crust*
K^{29}	Panama San Blas-Darien Cretaceous	*Magmatic arc* Arc volcanics, basalts, metasediments, possible oceanic crust
K^{30}	Netherland Antilles Cretaceous to Early Tertiary	*Magmatic arc* Arc volcanics, oceanic basalt, metasediments and sedimentary deposits
K_2	LATE CRETACEOUS UNIT	
K_2^{5}	Northeast Jamaica Blue Mountains Late Cretaceous (not on T/S plot)	*Orogenic domain* Island arc volcanics, volcaniclastics, and granitic plutons
K_2^{6}	Southwest Haiti Massif de la Hotte Late Cretaceous (not on T/S plot)	*Orogenic domain* Uplifted oceanic crust, mafic volcanics
TK_2	LATE CRETACEOUS-TERTIARY UNIT	
TK_2^{8}	North Dominican Republic Late Cretaceous to Paleogene	*Accretionary prism* Deformed melange belt, sedimentary and volcanic rocks, serpentinite, marble and metamorphics
TK_2^{9}	Caribbean Sea Beata Ridge Late Cretaceous to Paleogene (not on T/S plot)	*Transitional terrane* Uplifted block faulted oceanic crust

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)
TK_2^{10}	Caribbean Sea Aves Ridge Late Cretaceous to Paleogene	*Orogenic domain* Uplifted magmatic arc Basalt, intermediate volcanics, and pelagic sediments
Tp	PALEOGENE UNIT	
Tp^{38}	Yucatan and North Cuba Borderland Jurassic to Paleogene	*Transitional foreland* Marine and continental clastics and carbonates, folding and thrusting in Late Cretaceous to Paleogene
Tp^{39}	Middle America Basin Borderland Late Cretaceous to Paleogene	*Forearc sedimentary basin* Marine sedimentary deposits, pelagic, slope, and volcanogenic
Tp^{40}	Costa Rica, Panama Paleogene	*Orogenic domain* Basement terrane, deformed metasediments, and metavolcanics
Tp^{41}	Nicaragua Paleogene	*Orogenic domain* Igneous intrusives
Tp^{42}	Explorer terrane Paleogene to Recent (not on T/S plot)	*Transitional terrane* Faulted terrane south of Cayman trough, pelagic sediments
Tp^{43}	Jamaica Paleogene and Neogene (not on T/S plot)	*Transitional terrane* Clastic, volcaniclastic, and carbonate deposits
Tp^{44}	Grenada Basin Paleogene and Neogene	*Backarc sedimentary basin* Marine sedimentary deposits, pelagic, slope, and volcanogenic
Tp^{45}	Margarita, Tobago basins Paleogene and Neogene	*Forearc sedimentary basin* Marine sedimentary deposits, pelagic, turbidites, and volcaniclastics
Tp^{46}	Saba, North Saba, Limestone Caribbees Paleogene to Neogene	*Transitional terrane*, Deformed pelagic, turbiditic and carbonate strata
Tp^{47}	Nicaraguan Rise Pedro Bank Paleogene to Neogene	*Platform cover*, Platform carbonates, basement possibly transitional, continental to oceanic
Tp^{48}	Chichibacoa-Gulf of Venezuela-Bonaire basin, Paleogene to Neogene, Late Cretaceous	*Transitional domain*, Marine and continental clastics
Tn	NEOGENE UNIT	
Tn^{25}	Guatemala, El Salvador, Nicaragua, and Costa Rica Middle America Volcanic Province, Neogene (not on T/S plot)	*Volcanic cover* Calc-alkalic and tholeittic volcanics
Tn^{26}	Costa Rica, Pacific Neogene	*Forearc sediments* Marine sediments and volcaniclastics

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)
Tn^{27}	Guatemala, Honduras, Nicaragua Paleogene to Neogene	*Volcanic cover* Volcanics
Tn^{28}	Panama Basin Neogene (not on T/S plot)	*Transitional domain* Sedimentary deposits and volcaniclastics
Tn^{29}	Nicaragua, Costa Rica Neogene	*Transitional domain* Rift-related sedimentary deposits and volcaniclastics
Tn^{30}	North Panama deformed belt Paleogene and Neogene	*Accretionary prism* Deformed pelagic, slope, and terrigenous sediments
Tn^{31}	S. Caribbean deformed belt Paleogene and Neogene	*Accretionary prism* Deformed pelagic, slope, and terrigenous sediments
Tn^{32}	Panama Paleogene to Neogene (not on T/S plot)	*Volcanic cover* Volcanics
Tn^{33}	Lesser Antilles Neogene	*Volcanic arc* Calc-alkiline volcanics and related volcaniclastics
Tn^{34}	Greater Antilles Neogene, in part Paleogene	*Transitional domain* Fault and rift related sedimentary deposits
Tn^{35}	Barbados basin Neogene	*Forearc sedimentary basin* Marine sedimentary deposits, pelagic, slope, and volcanogenic
Tn^{36}	Lesser Antilles Neogene	*Accretionary prism* Lesser Antilles deformed belt, folded and faulted sedimentary strata
Tn^{37}	Barbados Ridge Neogene (not on T/S plot)	*Accretionary prism* Deformed forearc ridge, turbidites, conglomerate, sandstone, shale, and volcaniclastics
Tn^{38}	Venezuela Falcon basin Neogene (not on T/S plot)	*Transitional domain* Marine and continental clastics
Tn^{39}	Southern Caribbean Sea, Los Roques basin Neogene and Paleogene	*Transitional domain* Pelagic and turbidite deposits
Tn^{40}	Southern Caribbean Sea Blanquilla Neogene	*Accretionary prism* Folded and faulted pelagic and terrigenous sedimentary strata
Tn^{41}	Cariaco and La Orchilla basins Neogene	*Transitional domain* Marine and continental clastics
Q	QUATERNARY UNIT	
Q^{13}	Central America Pacific Margin Late Tertiary to Quaternary (not on T/S plot)	*Volcanic cover* Basalts

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)
Q14	Panama Quaternary (not on T/S plot)	*Volcanic cover* Basalts
Q15	Guajira Peninsula, Colombia Baja Quajira basin Quaternary to Neogene	*Cover deposits* Marine and continental clastics

TECTONIC UNITS ON THE SOUTH AMERICA PLATE

[these units are shown on the time/space plot and (or) the map]

by

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Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)
	PROTEROZOIC UNIT	
1	Northern Andes, Neoproterozoic to Mesoproterozoic	*Orogenic domain*, metamorphic complexes
2	Guyana Shield, undifferentiated Neoproterozoic to Paleoproterozoic	*Orogenic domain*, metamorphic and igneous complexes
3	Central Andes, Neoproterozoic to Mesoproterozoic	*Orogenic domain*, metamorphic complexes and granitoids
4	Pampean Ranges, Neoproterozoic to Mesoproterozoic	*Orogenic domain*, metamorphic rocks
5	Brazilian Shield, Mostly Neoproterozoic to Paleoproterozoic	*Orogenic domain*, metamorphic and igneous complexes
6	Patagonian Massif, Neoproterozoic to Mesoproterozoic	*Orogenic domain*, metamorphic complexes
Pz_1	EARLY PALEOZOIC UNIT	
$Pz_1{}^1$	Northern Andes, Cambrian-Devonian	*Orogenic domain*, marine limestones and lutites of Ordovician-Silurian age, partly metamorphosed; metasediments of Cambrian to Devonian age
$Pz_1{}^2$	North Central Andes, Subandean foldbelt Cambrian-Permian	*Orogenic domain*, marine and continental sediments
$Pz_1{}^3$	South Central Andes, Cambrian-Permian	*Orogenic domain*, marine and continental sedimentary cover
$Pz_1{}^4$	Pampean Ranges, Paleozoic	*Orogenic domain*, magmatic arc, granitoids
$Pz_1{}^5$	South American Platform Narañon-Ucayali, Upper Amazon, Madre de Dios, Oran-Ovieda, Chaco-Paraná basins	*Platform*, cratonic basins, marine sediments
$Pz_1{}^6$	Brazilian Craton, intracratonic basins Cambrian-Permian	*Platform* marine sediments of the Amazon Basin
$Pz_1{}^7$	Southern Andes, Cochrane-O'Higgins Lakes, Darwin Cordillera	*Orogenic domain,* metasedimentary rocks
$Pz_1{}^8$	Patagonian and Deseado Massifs, Paleozoic	*Orogenic domain*, magmatic arc, granitoids
Pz_2	LATE PALEOZOIC UNIT	
$Pz_2{}^1$	Northern Andes, Colombia-Venezuela, Carboniferous-Permian	*Platform* marine sediments, limestones and lutites
$Pz_2{}^2$	Northern Andes, Late Paleozoic	*Orogenic domain*, magmatic arc, granitoids
$Pz_2{}^3$	South-Central Andes, Coastal Range of Chile, Devonian(?) to Permaina	*Orogenic domain* marine sediments, quartzites, slaty shales, limestone
$Pz_2{}^4$	South-Central Andes, Carboniferous?	*Platform*, marine sediments

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)
Pz_2^5	South-Central Andes, metamorphic basement of Chile, Late Paleozoic	*Orogenic domain*, accretionary terrane, slates, phyllites, schists, serpentinites and metabasalts; accreted in Late Carboniferous
Pz_2^6	South-Central Andes, granitic basement of Chile, Late Paleozoic	*Orogenic domain*, magmatic arc, predominantly felsic intrusives
Pz_2^7	South-Central Andes, Paleozoic	*Orogenic domain*, granitoids
Pz_2^8	Southern Andes, Carboniferous-	*Orogenic domain*, accretionary prism, limestones, radiolarian cherts, banded cherts and ultrabasic rocks. Oceanic assemblage accreted during Triassic(?) (Early Jurassic(?))
Pz_2^9	Brazilian Shield	*Platform cover*
Mz	MESOZOIC UNIT	
Mz	Caribbean Mountain System undifferentiated Mesozoic	*Orogenic domain*, accretionary terrane; metamorphic rocks basic extrusives, ultramafic and ophiolitic complexes
	TRIASSIC UNIT	
1	Northern Andes, reactivation basins	*Transitional sequences*, continental clastic-volcanic molasse deposits
2	Northern Andes, Triassic	*Orogenic domain*, volcanic arcs, felsic to intermediate volcanics
3	Central Andes, cratonic basins, Triassic	*Platform*, continental sediments and felsic to intermediate volcanics
4	Northern Andes, Triassic	*Orogenic domain*, felsic intrusives
J	JURASSIC-TRIASSIC UNIT	
J 1	Central Andes, Early Jurassic-Late Triassic	*Transitional sequences*, molassic terrestrial red-beds and felsic to intermediate volcanics
J 2	Central Andes, mostly Early Jurassic-Late Triassic	*Transitional sequences*, marine shelf deposits
J 3	South-Central Andes, fore-arc basins, Early Jurassic-Late Triassic	*Orogenic domain*, fore-arc basins, marine sediments with intercalations of continental, plant bearing sediments
J 4	Guyana Craton, Tokutu basin, Triassic-Jurassic	*Platform*, intracratonic, continental sediments
J	JURASSIC UNIT	
J1	Central and southern Andes	*Orogenic domain*, volcanic arc, felsic to intermediate volcanics
J2	Central Andes back-arc basins Liassic to Oxfordian	*Orogenic domain*, marine sediments, overlain by evaporites and terrestrial (molasse-type) red-beds
J3	Central Andes Jurassic	*Orogenic domain*, magmatic arc; felsic to intermediate intrusives
J4	Southern Andes Late Jurassic	*Orogenic domain*, volcanic arc, silicic to intermediate volcanics
J5	Patagonian Platform Jurassic	*Intraplate volcanics*, silicic to intermediate
KJ	JURASSIC-CRETACEOUS UNIT	
KJ1	Southern Central Andes, Late Jurassic-Early Cretaceous	*Orogenic domain*, magmatic arc, felsic to intermediate intrusives

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)
TK	LATE CRETACEOUS-EARLY TERTIARY UNIT	
TK[1]	Central Andes	*Orogenic domain*, magmatic arc; felsic to intermediate intrusives
TK[2]	South-Central Andes	*Orogenic domain*, volcanic arc; felsic to intermediate volcanics
TK[3]	Patagonian Batholith	*Orogenic domain*, magmatic arc; felsic to intermediate intrusives
K	CRETACEOUS UNIT	
K[1]	Western Colombia and Ecuador	*Orogenic domain*, accreted terrane, oceanic crust
K[2]	Northern Andes and North-Central Andes, back-arc basins	*Orogenic domain,* marine and terrestrial sediments of Early Cretaceous age and marine Late Cretaceous sediments with intercalated evaporites and phosphatic rocks
K[3]	South-Central Andes, mostly Late Cretaceous	*Orogenic domain*, magmatic arc; felsic to intermediate intrusives
K[4]	South-Central Andes, back-arc basins Early Cretaceous	*Orogenic domain* back-arc basins, marine sediments overlain by continental Late Cretaceous red-beds
K[5]	North-Central Andes, Cretaceous	*Orogenic domain,* volcanic arc
K[6]	North-Central Andes, Late Cretaceous	*?Transitional domain or platform* marine and terrestrial sediments
K[7]	South-Central Andes, Late Cretaceous	*Orogenic domain,* fore-arc basin marine sediments
K[8]	Neuquen Basin Cretaceous	*Orogenic domain,* back-arc basin marine sediments
K[9]	Sub-Andean basins Late Cretaceous	*?Transitional domain*, continental sediments
K[10]	South American Platform Cretaceous	*Platform*, marine and continental sediments
K[11]	Brazilian Craton, intracratonic basins Cretaceous	*Platform,* continental sediments
K[12]	Southern Andes, back-arc basins (Magallanes), Early Cretaceous	*Orogenic domain,* back-arc basin, marine sediments with ophiolitic associations
K[13]	Magallanes Basin, Early Cretaceous	*?Transitional domain*, marine shelf sediments with ophiolitic associations
K[14]	San Jorge Basin Cretaceous	*Transitional domain,* marine sediments
K[15]	Atlantic passive margin basins Cretaceous	*Passive margin*, marine sediments
T	TERTIARY UNIT	
T	Atlantic passive margin basins Tertiary, undifferentiated	*Passive margin domain*, terrestrial sediments
Tp	PALEOGENE UNIT	
Tp[1]	Northern Andes, fore-arc basins	*Orogenic domain, fore-arc basins*, deep-water marine sediments (turbidites)

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)
Tp^2	Cratonic basins	*Platform,* terrestrial and shallow-water marine sediments
Tp^3	Central Andes, fore-arc basins	*Orogenic domain, fore-arc basins*, marine sediments
Tp^4	North-Central Andes	*Orogenic domain, volcanic arc*, shallow water marine sediments
Tp^5	Magallanes basin	*Transitional domain*, marine shelf sediments
Tp^6	San Jorge basin	*Transitional domain*, volcaniclastic sequence
Tn	NEOGENE UNIT	
Tn^1	Northern Andes, fore-arc basins, late Eocene or Oligocene to Pliocene	*Orogenic domain, fore-arc basins* marine sediments, shales and sandstones, locally limestones and conglomerates
Tn^2	Northern Andes, cratonic basins Oriental-Barinas, Maracaibo Basins	*Platform*, terrestrial sediments, and deltaic and shallow-water marine sediments
Tn^3	North-Central Andes, fore-arc basins	*Orogenic domain*, fore-arc basins, marine sediments
Tn^4	South-Central Andes, fore-arc basins	*Orogenic domain*, fore-arc basins, shallow water marine sediments
Tn^5	Sub-Andean basins	*Platform to foreland basins*, terrestrial sediments
Tn^6	South American Platform	*Platform basins*, sedimentary cover; terrestrial sediments
Tn^7	Southern Andes fore-arc basins	*Orogenic domain, fore-arc basins,* marine sediments
Tn^8	Magallanes basin	*Transitional domain*, marine shelf sediments
Tn^9	Magallanes basin	*Orogenic domain*, marine/teresteral sediments
Tn^{10}	Andes	*Transitional domain*
Q	QUATERNARY UNIT	
Q^1	Fore-arc basins	*Orogenic domain*, active plate margin marine and terrestrial sediments
Q^2	Cratonic basins	*Platform,* terrestrial cover sediments
Q^3	Southern Colombia-Ecuador	*Platform, volcanic cover*, mafic and intermediate to mafic derived from the arc
Q^4	Central Andes, sub-Andean basins, Quaternary-Neogene	*Platform, strata* terrestrial cover sediments
Q^5	Patagonian Platform	*Platform, volcanic cover*, intraplate volcanics basalts
Q^6	Patagonian Platform Quaternary-Neogene	*Platform, volcanic cover*, intraplate volcanics andesites
Q^7	Central Andes, Quaternary-Neogene	*Orogenic domain, volcanic arc*, plateau volcanics and volcanic centers, felsic to intermediate, mafic
Q^8	Southern Andes	*Orogenic domain, volcanic arc*, volcanic centers, intermediate to mafic

TECTONIC UNITS ON THE SCOTIA PLATE

BASED ON THE COMPILATION OF THE SOUTHEAST QUADRANT

by

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Letter symbol	Structural name and age span		Tectonic setting (interpretation and brief description)
Pz_1	EARLY PALEOZOIC UNIT		
Pz_1^1	Patagonian and Deseado Massifs, Paleozoic		*Orogenic domain*, magmatic arc, granitoids
J	JURASSIC UNIT		
J^1	Southern Andes Late Jurassic		*Orogenic domain*, volcanic arc, silicic to intermediate volcanics
K	CRETACEOUS UNIT		
K^1	Southern Andes, back-arc basins (Magallanes), Early Cretaceous		*Orogenic domain* back-arc basin, marine sediments with ophiolitic associations
TK	CRETACEOUS-TERTIARY UNIT		
TK^1	Patagonian Batholith Cretaceous to Tertiary		*Orogenic domain*, magmatic arc; felsic to intermediate intrusives
QTp	PALEOGENE TO QUATERNARY UNIT		
QTp	Magellan accretionary prism including Diego Ramirez basin Paleogene to Quaternary		Orogenic domain, active plate margin, accretionary prism complexes
QTo	OLIGOCENE TO QUATERNARY UNIT		
QTo	Malvinas basin		*Passive continental margin domain*, drift sequence
SCOTIA SEA			
To	OLIGOCENE UNIT		
To^8	Scotia Sea	Oceanic crust	*Oceanic crustal domain*
Tn	NEOGENE UNIT		
Tn^8	Scotia Sea	Oceanic crust	*Oceanic crustal domain*

TECTONIC UNITS ON THE ANTARCTICA PLATE

adopted and modified from the Southwest Quadrant Explanatory Notes

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
A	PROTEROZOIC-ARCHAEAN		
A^1	East Antarctica	*Orogenic domain*, metamorphic rocks basement	Craddock, 1989
	UNDIFFERENTIATED PROTEROZOIC		
$_1$	East Antarctica, undifferentiated	*Orogenic domain*, metamorphic rocks basement	Craddock, 1989
$_1$	PALAEOPROTEROZOIC UNIT		
$P_1{}^1$	East Antarctica, basement rocks	*Orogenic domain*, metamorphic rocks	Craddock, 1989; Tingey, 1991
$_2$	MESOPROTEROZOIC UNIT		
$_2{}^1$	East Antarctica	*Orogenic domain*, basement rocks	Craddock, 1989
$_2{}^2$	West Antarctica	*Orogenic domain*, basement rocks, Nd model ages 1.4-1.2 Ga	Veevers, 2000
$_3$	NEOPROTEROZOIC UNIT		
$_3{}^1$	East Antarctica	*?Cratonic cover* (similar to the Adelaidean sequence in Australia)	Craddock, 1989
$Pz_{1\ 3}$	NEOPROTEROZOIC-PALEOZOIC UNIT		
$Pz_{1\ 3}{}^1$ ($\cdot A^4$)	East Antarctica Victoria Land	*?Orogenic domain,* metasedimentary rocks; $_1$A according to Tingey	R.J. Tingey, pers. comm., 1987; 1991
$Pz_1{}^2$ ($\cdot A^4$)	East Antarctica	*Granitoid and metamorphic terrane*; $\cdot A^4$ according to Tingey	R.J. Tingey, pers. comm., 1987; 1991
$Pz_{1\ 3}{}^3$	East Antarctica	*Cratonic cover*	R.J. Tingey, pers. comm., 1987;
$Pz_{1\ 3}{}^4$	Antarctica Ross Orogenic Belt	*Orogenic domain*, basement Nd model ages 1.5-1.3 Ga; Neoproterozoic-Early Paleozoic sediments deformed 510–490 Ma	R.J. Tingey, pers. comm., 1987; Veevers, 2000
Mz	MESOZOIC		
Mz	Ellsworth Land	*Orogenic domain*, undifferentiated extrusive rocks	Craddock, 1989
MzPz	MESOZOIC/PALEOZOIC		
MzPz	Marie Byrd Land	*Orogenic domain*, undifferentiated extrusive rocks	Craddock, 1989
Pz_1	EARLY PALEOZOIC UNIT		
$Pz_1{}^1$	Ross Orogenic Belt	*Orogenic domain*, active plate margin Early Paleozoic granite intruded 375–312 Ma	Craddock, 1989; Tingey, 1991; Dalziel, 1992; Veevers, 2000
$Pz_1{}^2$	Marie Byrd Land	*Orogenic domain*, metasediments intruded by 450–420 granite	Veevers, 2000
$Pz_1{}^3$	Ellsworth Montains	*Orogenic domain*, metasediments	Veevers, 2000
Pz_2	LATE PALEOZOIC UNIT		
$Pz_2{}^1$	Marie Byrd Land	*Orogenic domain*, undifferentiated intrusives	Craddock, 1989

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
Pz_2^2	Marie Byrd Land	*Orogenic domain*, felsic intrusives	Craddock, 1989
Pzm	MIDDLE PALEOZOIC UNIT		
Pzm[1]	West Antarctica	*Orogenic domain*, 400+/- Ma metamorphism, 426-410 Ma orogenic granite	Veevers, 2000
Pz_2	TRIASSIC TO LATE PALEOZOIC UNIT		
Pz_2^1	Antarctica	*Cratonic cover or transitional tectonic* continental sedimentary rocks (Beacon Group) intruded by intraplate basalt and dolerite (Ferrar Group)	R.J. Tingey, pers. comm., 1987
	TRIASSIC UNIT		
[1]	Antarctica	*Cratonic cover*, sedimentary rocks	Craddock, 1989; Tingey, 1991
J	JURASSIC UNIT		
J[1]	East Antarctica	*Cratonic (intraplate) igneous activity*, tabular intrusive dolerite, and siltstone (Ferrar Group)	R.J. Tingey, pers. comm.,1987, 1991
KJ	JURASSIC-CRETACEOUS UNIT		
KJ[1]	Antarctic shelf and slope	*Continental-margin rifting*. Rift grabens with thinned and "transitional" crust	Eittreim and Smith, 1987; Domack and others, 1980; Dalziel, in prep
KJ[2]	Wilkes Sub-ice Basin	*Cratonic cover*, basin formation related to passive-margin riftingof K^9J	Drewry, 1976; Steed and Drewry, 1982
KJ[3]	West Antarctica	*Orogenic domain*, magmatic arc granite 152–142, Ma, gabbro-granite magmatism 125–110 Ma	Veevers, 2000
QK_2	LATE CRETACEOUS TO QUATERNARY UNIT		
QK_2^1	Antarctica Shelf	*Continental-margin setting*, drift or post-breakup sequence, with Oligocene to recent glacial deposits	Eittreim and Smith, 1987
Cz	CENOZOIC UNIT		
Cz[1]	Victoria, Marie Byrd and Ellsworth Lands mostly West Antarctica	*Cratonic cover (intraplate) igneous activity* intraplate volcanics and sediments	Craddock, 1989
Cz[2]	Antarctica, Balleny Islands	*Intraplate volcanic rocks*, oceanic island	Craddock, 1989
Cz[4]	Victoria Land	*Orogenic domain ,* undifferentiated extrusives	Craddock, 1989
Q	QUATERNARY UNIT		
Q[1]	Antarctica	*Cratonic cover*, sediments	
Q[2]	Antarctica	*Orogenic domain*, active plate margin, volcanic arc rocks	

TECTONIC UNITS ON THE AUSTRALIA PLATE

[Adopted and modified from the Southwest Quadrant Explanatory Notes]

by

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Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
A	ARCHAEAN UNIT (3500–2500 Ma)		
A^1	Pilbara Block 3500-2900 Ma	*Granitoid-greenstone terrane* Archaean orogenic setting	Geol. Surv. West. Aust., 1974; Gee, 1979; Gee and others, 1979; Myers, 1990
A^2	Yilgarn Block 3700-2500 Ma	*Protocontinental high-grade gneiss terrane* (in the west 3700-3000 Ma) and *granitoid-greenstone terrane* (in the east, about 2700 Ma); $\cdot_1$dolerite dikes	Geol. Surv. West. Aust., 1974; Fletcher and others 1983; Gee, 1979; Gee and others, 1979; Myers, 1990
A	PROTEROZOIC-ARCHAEAN UNIT		
A^1	Rum Jungle Block (complex) 2500 Ma	*Granitoid and gneiss-dome terrane* (2500 Ma) younger metasedimentary rocks, metadolerite and banded iron formation	Geol. Soc. Aust., 1971; Plumb, 1979a
A^2	Nanambu Complex (not on T/S plot) 2500-1800 Ma	*Granitoid and gneiss-dome terrane* (2500-2400 Ma), gneisses mantled by leucogneisses and schists	Geol. Soc. Aust., 1971; Plumb, 1979a
A^3	Hamersley Basin 2700-2100 Ma 2800-2400 Ma	*Cratonic cover—platform basin* over Pilbara Block; cratonic flood basalt (2800-2700 Ma) overlain by sedimentary rocks, including banded iron formation	Geol. Surv. West. Aust., 1974; Gee, 1979; Gee and others, 1979; Myers, 1990
$_1$	PALEOPROTEROZOIC UNIT (2500-1700 Ma)		
$_1{}^1$	Litchfield Complex (not on T/S plot)	*Granitoid and gneiss terrane* (about 2500-2400 Ma) deformed and metamorphosed 1800 Ma	Geol. Soc. Aust., 1971; Plumb, 1979b
$_2{}^1$	Halls Creek Province (inlier) 2800-1960 Ma	*Orogenic domain* (mobile zone), sedimentation and igneous activity 2800 to 2200 Ma, deformation and metamorphism 1960 Ma	Geol. Surv. West. Aust., 1974; Plumb, 1979a
$_1{}^3$	Post-Halls Creek Province rocks 1900-1750 Ma	*Late orogenic domain* (transitional), felsic volcanic rocks, granite and sedimentary rocks about 1900 Ma; final deformation before 1750 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a
$_4{}^1$	Kimberley Basin 1815-1760 Ma	*Cratonic cover—platform basin* over Halls Creek Province (inlier) rocks; marine sedimentary rocks and cratonic extrusive and intrusive rocks; dolerite sills about 1760 Ma	Geol. Soc. Aust., 1971; Geol. Surv. West. Aust., 1974; Plumb, 1979a, b
$_5{}^1$	Pine Creek Inlier (Palmerston Province) 2400-1690 Ma	*Orogenic domain* sedimentation and igneous activity 2400-1940 Ma; metamorphism about 1870-1800 Ma; granite 1890 and 1760 Ma; dolerite lopolith 1690 Ma	Geol. Soc. Aust., 1971; Geol. Surv. West. Aust., 1974; Plumb, 1979a
$_6{}^1$	Arnhem Inlier (Block)	*Orogenic domain*, metamorphism 1945 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a, b
$_7{}^1$	Murphy Inlier	*Orogenic domain,* metamorphism 1945 Ma, late orogenic granite and volcanic rocks 1770 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a, b

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
$_{8}1$	Kalkadoon-Leichhardt Block	*Late orogenic domain* (transitional), felsic volcanic rocks and granite 1860 Ma; granite and metamorphism 1740-1700 Ma	Geol. Soc. Aust., 1971; Plumb, 1979b; Day and others, 1983, 1975
$_{9}1$	The Granites-Tanami Inlier (Block)	*Orogenic domain* (?mobile belt), metamorphism of sedimentary rocks and volcanic rocks 1910 Ma, overlain by sandstone and volcanic rocks of *late orogenic* character; granite 1770-1680 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a, b
$_{1}1^{10}$	Tennant Creek Inlier (Block)	*Orogenic domain*, marine sedimentary rocks, felsic and mafic volcanic rocks, metamorphosed 1920 and 1810 Ma; *late orogenic domain* represented by rocks 1790-1660	Geol. Soc. Aust., 1971; Plumb, 1979a, b
$_{1}1^{11}$	Arunta Block 1810-1770 Ma	*Orogenic domain* (mobile belt), some older orogenic rocks correlated with Halls Creek Inlier, followed by beds and volcanic rocks 1800 Ma; metamorphism and granite 1810–1770 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a, b; Rutland, 1976
$_{1}1^{12}$	Ashburton Fold Belt Gascoyne Province, Glengarry Subbasin (Capricorn Orogen) 2200-1600 Ma	*Orogenic domain*, sedimentary rocks and volcanic rocks metamorphosed and deformed before 1600 Ma; granitoids 1900-1600 Ma	Gee, 1979; Gee and others, 1979; Fletcher and others, 1983; Richards and Gee, 1985
$_{1}1^{13}$	Gawler Block (Craton) 2600-2300 Ma 2000-1555 Ma (also inliers in the Adelaide Fold Belt)	*Orogenic domain*; older complex of sedimentary rocks, including banded iron formation, basic volcanic rocks 2600 Ma; metamorphism and granite 2400-2300 Ma; sedimentary rocks, including banded iron formation, metamorphosed 1814 and 1700 Ma; granite 1650 Ma	Flint and Parker, 1982; Geol. Soc. Aust., 1971; Plumb, 1979b; Rutland and others, 1981; Rutland, 1976
$_{1}1^{14}$	Willyama Inlier (not on T/S plot) 1820-1700 Ma	*Orogenic domain*, sedimentary rocks, including banded iron formation, volcanic rocks 1690±5 Ma; metamorphism about 1600±8 Ma	Geol. Soc. Aust., 1971; Pogson, 1972; Scheibner, 1974; Stevens, 1980; Stevens and Stroud, 1983
$_{2}$	MESO PROTEROZOIC (1700–1000 Ma)		
$_{2}1$	McArthur Basin 1700-1400 Ma	*Cratonic cover—platformal basin*, marine and continental sedimentary rocks, basic and felsic volcanic rocks, dolerite 1370 and 1280 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a, b; Wilford and others, 1981
$_{2}2$	South Nicholson Basin 1480-1300 Ma Lawn Hill Platform 1700-1500 Ma	*Cratonic cover*, marine and continental sedimentary rocks, about 1480 Ma and 1700-1500 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a, b
$_{2}3$	Mount Isa Orogenic Belt	*Orogenic domain*, basement 1780 Ma, sedimentary rocks and volcanic rocks deformed 1670–1620 Ma, and syntectonic granites emplaced; sedimentation followed by final deformation 1490-1460 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a, b
$_{2}4$	Victoria River Basin 1125-820 Ma	*Cratonic cover* in part over Birrindudu Basin and within Halls Creek Inlier; marine and continental sedimentary rocks	Geol. Soc. Aust., 1971; Plumb, 1979 a, b; Wilford and others, 1981
$_{2}5$	Birrindudu Basin	*Cratonic cover* on the Granites-Tanami Inlier (Block), marine sedimentary rocks over 1560 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a, b

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
$_2^6$	Arunta Block 2000-1900 Ma 1800-1500 Ma 1185, 1050 Ma	*Orogenic domain*, high grade metamorphism and granite 1800-1750 Ma; granite about 1800, 1700 and 1500 Ma; mafic intrusives 1185 Ma; metamorphism 1050 Ma; *late orogenic* granite 1000-900 Ma; mafic volcanic rocks about 900 Ma	Geol. Soc. Aust., 1971; Plumb, 1979a,b Rutland, 1976
$_2^7$	Nabberu Basin (Earaheedy Subbasin) 1700(1610)-1550 Ma	*Cratonic cover*—over Capricorn Orogen and Yilgarn Block; marine sedimentary rocks include banded iron formation and basic volcanic rocks	Gee, 1979; Gee and others, 1979; Geol. Soc. Aust., 1971; Geol. Soc. West. Aust., 1974; Richards and Gee, 1985
$_2^8$	Paterson Province ?2400-1330 Ma and 1130 Ma	*Orogenic domain* was probably connected with the Musgrave Block; Archaean to Paleoproterozoic protolith metamorphism; 1330 Ma; unconformed marine to continental sedimentary rocks, metamorphism 1130 Ma, overlain by sedimentary rocks of $?P_3$ age; postkinematic granite 595 Ma	Chin and de Laeter, 1980; Myers, 1990
$_2^9$ incl. $_1$ basement	Albany-Fraser Province 1900-1250 Ma, 1076 Ma	*Metamorphic belt (mobile belt)* formed due to metamorphism and granite emplacement events about 1690-1560 and 1300-1250 Ma; *late orogenic* granite 1076 Ma.$\cdot_1$ metamorphic basement in the west	Fletcher and others, 1983; Gee, 1979; Gee and others, 1979; Geol. Surv. West. Aust., 1974
$_2^{10}$	Northampton Block 1040 Ma	*Orogenic domain*, granulites about 1040 Ma intruded by granite with migmatites; all cut by dolerite dykes	Geol. Soc. Aust., 1971; Geol. Surv. West. Aust., 1974; Gee and others, 1979
$_2^{11}$	Bangemall Basin 1075-1030 Ma	*Cratonic cover* over Nabberu Basin and Capricorn Orogen; marine sediments and basic volcanic rocks	Geol. Soc. Aust., 1971; Geol. Surv. West. Aust., 1974; Gee, 1979; Gee and others, 1979
$_2^{12}$	Musgrave Block 1608-1000 Ma	*Orogenic domain*, sedimentary rocks 1608 Ma, felsic and intermediate volcanic and plutonic rocks 1330 Ma, high grade metamorphism and granite 1327-1100 Ma; *late orogenic* felsic volcanic rocks, granite, basic-ultrabasic dykes 1100-1000 Ma	Flint and Parker, 1982; Geol. Soc. Aust., 1971
$_2^{13}$	Gawler Block 1820-1580 Ma, 1542-1457 Ma (also inliers in the Adelaide Fold Belt)	*Orogenic domain*; Paleoproterozoic metasedimentary and metavolcanic rocks; 1580 Ma granite; *late orogenic domain,* granite 154 Ma, felsic volcanic rocks and granite 1520–1457 Ma	Flint and Parker, 1982; Geol. Soc. Aust., 1971; Rutland and others, 1981; Rutland, 1976
$_2^{14}$	Broken Hill Block (Willyama Inlier)	*Late orogenic domain*, granite 1490$\pm$40 Ma (Mundi Mundi granite)	Pogson, 1972; Scheibner, 1974; Stevens and Stroud, 1983; Stevens and others, 1990
$_2^{15}$	Georgetown, Yambo, and Coen Inliers (Blocks) 1600-1400 Ma (970 Ma)	*Orogenic domain*, marine sedimentary rocks and mafic volcanic rocks, metamorphism and granites 1570 Ma; more sediments metamorphosed and granite 1470 Ma; felsic volcanic rocks and granite 1400-1300 Ma; (local metamorphism 970 Ma)	Day and others, 1983; Geol. Soc. Aust., 1971; Henderson and Stephenson, 1980

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
$_3$	NEOPROTEROZOIC (1000-?544 Ma)		
$_3^1$	Amadeus, Ngalia, Officer, and Georgina Basins; Stuart Shelf 900-544 Ma	*Cratonic cove*r, platform basins, some possible aulacogens; marine and continental sediments including tillites; basic volcanic rocks common during rifting event and basin formation	Geol. Soc. Aust., 1971; Plumb, 1979b, Rutland, 1976; Wilford and others, 1981; Veevers, 2000
$_3^2$	Naturaliste Block (Leeuwin Block) 900-640 Ma	*Orogenic domain*, granulite-grade metamorphism about 650 Ma	Geol. Soc. Aust., 1971; Geol. Surv. West. Aust., 1974; Gee and others, 1979, Veevers, 2000
$_3^3$	Rocky Cape and Tyenna Blocks 1100–700 Ma	*Orogenic domains*, inliers comprising the Penguin Fold Belt in the Early Paleozoic Kanmantoo Fold Belt; metasedimentary rocks intruded by granite 817 and 735 Ma; mafic volcanic rocks 700 Ma, younger sediments	Geol. Soc. Aust., 1971; Williams, 1978; Scheibner, 1989; Veevers, 2000
$_3^4$	Wonominta Block	*Cratonic cove*r *to orogenic domain*, Neoproterozoic sedimentary and mafic volcanic rocks	Scheibner, 1974, 1987; Cooper and Grindley, 1982; Leitch and Scheibner, 1987; Mills, 1992, Scheibner and Basen, 1998, Veevers, 2000
$_3^5$	Paterson Province (not on T/S plot) (Paterson Orogen)	*Orogenic* and ?Late *orogenic domain*, southwestwards thrusting around 750 Ma postkinematic granite (600-595 Ma) and continental sedimentary rocks	Chin and de Laeter, 1980; Myers, 1990; Veevers, 2000
$_3^6$	New Zealand, Constant Gneiss	*Orogenic domain,* data show that orthogenesis are of Cretaceous age, paragneisses are reactivated Pz, basement giving old inherited potassium ages ($_3$)	Suggate and others, 1978; Tulloch and Kimbrough, 1989
$Pz_{1\ 3}$	NEOPROTEROZOIC-PALEOZOIC UNIT		
$Pz_{1\ 3}^2$	Adelaide Fold Belt	*Paratectonic belt*, developed due to intracratonic rifting and continental-margin rifting and basin formation; sedimentation of platformal character, shallow marine to continental, including glacial; deformed during the early Paleozoic Delamerian Orogeny together with the early orthotectonic, orogenic Kanmantoo Fold Belt	Flint and Parker, 1982; Preiss and others, 1981; Scheibner, 1987 Veevers, 2000
Pz_1	EARLY PALEOZOIC UNIT (includes Cambrian to Ordovician, some earliest Silurian)		
Pz_1^1	Canning, Bonaparte Arafura, Daly River, Wiso, Georgina, Amadeus (Ngalia), Officer and other basins 544-300 Ma	*Cratonic cover*—platform basins (epicratonic), cratonic mafic volcanism during basin formation, marine and continental sedimentary rocks	Geol. Soc. Aust., 1971; Geol. Soc. West. Aust., 1974; Plumb, 1979b; Wilford and others, 1981; Veevers, 2000

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
Pz_1^2	Kanmantoo Fold Belt ? pre 544-?525 Ma	*Orogenic domain*, was active plate-margin setting, possible backarc Kanmantoo Trough, volcanic arc, forearc area (mafic to intermediate volcanic rocks, including boninites and MORB basalt), deformed and metamorphosed during Delamerian Orogeny (late Middle Cambrian to Ordovician); in Tasmania possible allochthonous ?ophiolites and late orogenic Mt. Read Volcanic Arc; (possible tectonostratigraphic terranes)	Cooper and Grindley, 1982; Flint and Parker, 1982; Foden and others, 1989; Geol. Soc. Aust., 1971; Jenkins, 1989; Leitch and Scheibner, 1987; Scheibner, 1974; VandenBerg, 1978; Berry and Crawford 1988; Crawford and Berry, 1992; Jenkins and Sandiford, 1992; Veevers, 2000
Pz_1^3	Kanmantoo Fold Belt ?525-435 Ma	*Orogenic or late orogenic domain* (transitional tectonic), marine and continental sedimentary rocks Late Cambrian to Ordovician	Cooper and Grindley, 1982; Cox and others, 1983; Scheibner, 1974, 1987; Wilson and others, 1992; Gibson, 1992; Veevers, 2000
Pz_1^4	Lachlan Fold Belt (early part)	*Orogenic domain*, active plate margin, backarc Wagga Marginal Basin, Molong Volcanic Arc, Monaro Slope and Basin forearc basin; Narooma accretionary-prism complex; deformed and metamorphosed during Late Ordovician to Early Silurian (Benambran Orogeny), granite mainly S-type (prolonged magmatism into subsequent tectonic episode) (possible tectonostratigraphic terranes)	Crook, 1980; Douglas and Ferguson, 1988; Glen, 1992; Glen and Ferguson, 1992; Leitch and Scheibner, 1987; Pogson, 1972; Powell, 1983; Scheibner, 1974, 1987, 1989; VandenBerg, 1978, Veevers, 2000
Pz_1^5	Thomson Fold Belt (early part) 544-436 Ma	*Orogenic domain*, (active plate margin), possible backarc basin and volcanic arc, deformed and metamorphosed in Middle to Late Ordovician (possible accreted tectonostratigraphic terranes)	Day and others, 1978, 1983; Murray, 1986; Leitch and Scheibner, 1987; Veevers, 2000
Pz_1^6	New England Fold Belt	*Orogenic domain*, slivers of Cambrian to Ordovician sediment and Cambrian oceanic crust along the Peel Fault System; possible accreted tectonostratigraphic terranes	Cawood, 1976; Day and others, 1978, 1983; Leitch, 1974; Leitch and Scheibner, 1987; Scheibner, 1987, 1989; Aitchison and others, 1992; Veevers, 2000
Pz_1^7	Tuhua Orogen	*Orogenic domain*, active plate margin, backarc basin, volcanic arc; deformation, metamorphism, granite during Early Devonian Tuhua Orogeny	Cooper, 1979; Cooper and Grindley, 1982; Sporli, 1987; Suggate and others, 1978; Veevers, 2000
Pzm	MIDDLE PALEOZOIC UNIT (Silurian to Devonian, locally Carboniferous)		
Pzm^1	Canning Basin (Fitzroy Graben) and Bonaparte Basin 410-300 Ma	*Cratonic cover*—platform basin which is related to plate-margin reorganization	Gee and others, 1979; Geol. Soc. Aust., 1971; Geol. Soc. West. Aust., 1974; Wilford and others, 1981; Veevers, 2000
Pzm^2	Georgina, Ngalia, Amadeus, and Officer Basins 410-300 Ma	*Cratonic cover*—platformal basin, molasse-like sedimentary rocks; Amadeus Basin a possible aulocogen	Geol. Soc. Aust., 1971; Veevers, 1984, 2000; Wilford and others, 1981

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
Pzm^3	Kanmantoo Fold Belt (superimposed graben and basins)	*Late orogenic (transitional) domain*, continental to shallow marine Late Silurian to Devonian sedimentary and volcanic rocks; superimposed are Devonian to early Carboniferous continental sedimentary rocks associated with the Lambian Transitional Tectonic Province of the Lachlan Fold Belt	Cooper and Grindley, l982; Geol. Soc. Aust., 1971; Pogson, 1972; Scheibner, 1974, 1989; VandenBerg, 1978; Veevers, 2000
Pzm^4	Lachlan Fold Belt (late part) 430-380 Ma	*Orogenic domain*, active plate margin; wide backarc region with some ensimatic (ophiolite) flysch troughs, widespread felsic volcanic rocks and granite (S-, I-, and A-type), bimodal volcanic rocks in volcanic rifts; the frontal volcanic arc incorporated into younger New England Fold Belt; Ordovician to Devonian foreland basin in Victoria (Melbourne Trough) and Mathinna Beds in Tasmania (possible tectono-stratigraphic terranes)	Berry and Crawford, 1988; Crawford and Keys, 1978; Glen and Ferguson, 1992; Douglas and Ferguson, 1989; Glen and others, 1992; Glen, 1992; Leitch and Scheibner, 1987; Pogson, 1972; Powell, 1983; Ramsay and VandenBerg, 1986; Scheibner, 1974, 1987, 1989; VandenBerg, 1978; Williams, 1978; Veevers, 2000
Pzm^5	Lachlan Fold Belt (Lambian Transitional Tectonic Province) (molasse) about 400-330 Ma 325-310 Ma granite	*Late orogenic (transitional) domain*, Devonian to Early Carboniferous marine and mainly continental sedimentary rocks and volcanic rocks (bimodal) and granite; middle Carboniferous terminal orogeny (Kanimblan); post-kinematic granite	Geol. Soc. Aust., 1971; Glen and Ferguson, 1992; Powell, 1983; Ramsay and VandenBerg, 1986; Scheibner, 1974, 1976; VandenBerg, 1978; Veevers, 2000
Pzm^6	Thomson Fold Belt (late part) 436-330 Ma	*Orogenic domain*, active plate margin; backarc region with widespread volcanism and granite	Day and others, 1978, 1983; Murray, 1986; Veevers, 2000
Pzm^7	Thomson Fold Belt (Adavale and Drummond Basins)	*Late orogenic (transitional) domain,* Devonian to early Carboniferous marine and continental sedimentary rocks and volcanic rocks and granite; middle Carboniferous terminal orogeny, post-kinematic granite	Day and others, 1983; Veevers, 2000
Pzm^8	Hodgkinson-Broken River Fold Belt 450-330 Ma (330-235 Ma) (including intrusives in Georgetown and Coen Inliers)	*Orogenic domain*, (active plate margin) volcani-clastic flysch and carbonates of shelf facies, granite, deformed and metamorphosed in Devonian time, including *late orogenic domain* felsic volcanic rocks and granite; these occur also in basement inliers; terminal deformation middle Carboniferous, postkinematic granite Pz_2 (330-235 Ma); (possible tectonostratigraphic terranes)	Day and others, 1978, 1983; Henderson and Stephenson, 1980; Murray, 1986; Veevers, 2000
Pzm^9	New England Fold Belt (New England and Yarrol Provinces)	*Orogenic domain*, active plate margin; volcanic-arc forearc area accretionary prism (including Cambrian and Devonian ophiolites); localised Devonian deformation; intensive deformation and granite emplacement late Carboniferous to earliest Permian, localised Ordovician to Early Carboniferous high-P metamorphism (possible tectonostrati-graphic terranes)	Aitchison and others, 1992; Blake and Murchey, 1988; Day and others, 1987, 1983; Flood, 1988; Flood and Aitchison, 1992; Leitch, 1974; Leitch and, Scheibner, 1987; Murray, 1986; Scheibner and Basden, 1998; Veever, 2000

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
Pzm^{10}	Irian-Jaya, Birds Head basement rocks	*Orogenic domain*, probably originally part of the Tasman Fold Belt System	Dow and Sukamto, 1984; Pigram and Panggabean, 1983
Pzm^{11}	Tuhua Orogen late part 410-395 Ma	*Orogenic domain*, cf. Pz_1^5 terminal deformation and metamorphism, Middle Devonian; granite Devonian and Carboniferous	Cooper, 1979; Cooper and Grindley, 1982; Sporli, 1987; Suggate and others, 1978
TP & TPz_2 Pz_2 & pP	PERMIAN TO TRIASSIC AND LATE PALEOZOIC AND TRIASSIC TO LATE PALEOZOIC UNIT		
pP	New Caledonia, basement	Orogenic pre-Permian basement rocks	Paris, 1981a, b
TPz^1_2& P^1	Canning, Bonaparte, and Officer Basins 360-185 Ma	*Continental margin* infrarift related sequences	Gee and others, 1979; Geol. Soc. Aust., 1971; Wilford and others, 1981; Veevers, 2000
P^2	Perth and Carnarvon Basins	*Infrarift sequences, passive continental margin*; Permian rift	Doutch and Nicholas, 1978; Gee and others, 1979; Geol. Soc. Aust., 1971; Geol. Soc. West. Aust., 1974; Wilford and others, 1981; Veevers, 2000
P^3	Pedirka, Arckaringa, Cooper, Leigh Creek, Collie Basins 300-195 Ma	*Cratonic cover*, platform basins, also small areas in the Adelaide Fold Belt	Day and others, 1983; Doutch and Nicholas, 1978; Geol. Soc. Aust., 1971; Wilford and others, 1981; Veevers, 2000
P^4	Cover basins on the Lachlan and Kanmantoo Fold Belts	*Cratonic cover*, mostly concealed sedimentary basins, marine and continental sediments, including some coal measures	Doutch and Nicholas, 1978; Geol. Soc. Aust., 1971; Scheibner, 1974, 1987; Veevers, 1984, 2000; Wilford and others, 1981
Pz_2^5& TP^5	Hodgkinson-Broken River Fold Belt and Georgetown Coen Inliers	*Postkinematic orogenic granite* and associated volcanic rocks in the fold belt and adjacent basement inliers	Day and others, 1978, 1983; Stephenson, 1980; Murray, 1986; Veevers, 2000
P^6 & Pz_2^6	Sydney-Bowen Basin 320-195 Ma (not on T/S plot)	*Cratonic cover* on the west and *late orogenic domain* (foredeep) on the east, where the New England Fold Belt was thrust over the foredeep; bimodal volcanism, marine and continental sedimentary rocks, including coal measures	Day and others, 1983; Geol. Soc. Aust., 1971; Murray, 1986; Murray and others, 1989; Pogson, 1972; Scheibner, 1974, 1987; Tadros, 1993; Wilford and others, 1981; Veevers, 2000
Pz_2^7& Pz_2^7	New England Fold Belt (New England and Yarrol Provinces)	*Orogenic domain*, active plate margin; Late Carboniferous to Early Permian pull-apart or marginal sea basins, magmatic arc and ?accretionary prism; deformation and metamorphosed in the Middle Permian (affected also the earlier part of the fold belt Pzm^9); postkinematic granite and felsic volcanic rocks represent a ?superimposed magmatic arc	Aitchison and Flood, 1992; Day and others, 1978, 1983; Flood, 1988; Flood and Aitchison, 1993; Leitch, 1974; Leitch and Scheibner, 1987; Murray, 1986; Scheibner, 1974, 1987, 1989; Veevers, 2000
P^8	Tasmania Basin (not on T/S plot)	*Cratonic cover*, continental and marine sedimentary rocks	Doutch and Nicholas, 1978; Geol. Soc. Aust., 1971; Veevers, 2000; Williams, 1978

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
P^{9}	Galilee Basin (not on T/S plot) 300-195 Ma	*Cratonic cover* to late orogenic basin	Day and others, 1983; Doutch and Nicholas, 1978; Geol. Soc. Aust., 1971; Wilford and others, 1981; Veevers, 2000
$P_2{}^{10}$	Lord Howe Rise (only on T/S plot)	*Transitional tectonic and orogenic domains* forming the basement of Lord Howe Rise (microcontinent)	Coleman and Packham, 1976; Jongsma and Mutter, 1978; Lister and others, 1991; Packham and Andrews, 1975; Symond, 1973; Symond and Wilcox, 1976; Veevers, 2000
P^{11}	Permo-Triassic eastern belt and central chain New Caledonia 270-205 Ma	*Orogenic or late-orogenic domain*, ?bimodal volcanic rocks, felsic volcanic rocks, marine and continental sedimentary rocks	Paris, 1981a, b
$Pz_2{}^{12}$ (could be Pz_2)	Kubor Anticline, Birds Head (New Guinea Mobile Belt) 300-247 Ma	*Orogenic to late-orogenic domain*, forming the local basement, originally part of Tasman Fold Belt System; granite, granodiorite intruding metamorphic rocks	Bain and others, 1972; Brown and others, 1979; D'Addario and others, 1976; Geol. Soc. Aust., 1971
P^{13}	Parapara Peak area New Zealand 295-235 Ma	*Cratonic cover*, nonvolcanic shelf sequence over western foreland	Suggate and others, 1978; Katz, 1980a
$P_2{}^{14}$	New Zealand, Haast Schist (Rangitata Orogen)	*Orogenic domain*, part of Rangitata Orogen (KPz_2)	Suggate and others, 1978
KPz_2 JPz_2	PALEOZOIC, JURASSIC TO CRETACEOUS UNIT		
$KPz_2{}^{1}$	Rangitata Orogen, New Zealand 300-135 Ma	*Orogenic domain*, active plate margin; deformation and metamorphism during Rangitata Orogeny (Late Jurassic to Early Cretaceous); from west to east: volcanic arc, midslope basin, frontal-arc wedge; Dun Mountain ophiolites, trench-slope break, Pelorus Zone, Haast Schist Zone ($Pz_2{}^{14}$), and Torlesse Zone accretionary wedges; some units are tectonostratigraphic terranes, including: orogenic granite which intruded also the western basement (Pzm and Pz_1) and Charleston metamorphic group thought to be $_3{}^{6}$, was Rangitata core complex of Cretaceous age	Carter and others, 1977; Cawood, 1984; Suggate and others, 1978; Sporli, 1987
TPz_2	TERTIARY (PALEOCENE) TO LATE PALEOZOIC UNIT		
$TPz_2{}^{1}$	Canning, Bonaparte, Carnarvon, Perth , Laura, Styx, and other basins (not on T/S plot)	*Cratonic cover* associated with *continental-margin* rifting; sedimentary and volcanic rocks forming infrarift sequences	Doutch and Nicholas, 1978; Geol. Soc. Aust., 1971; Palfreyman, 1988; Stagg, 1993; Veevers, 2000
$TPz_2{}^{2}$	Irian-Jaya New Guinea Mobile Belt	*Orogenic domain*, Carboniferous to Oligocene rocks involved in foreland fold and thrust belt deformation; in Papua New Guinea this unit is comprised of $Pz_2{}^{12}$, $_3$, $K^{3}J$, $Tm^{2}To$, Tpl^{1}, QTpl, and hence indludes some younger rocks	Palfreyman, 1988; Dow and Sukamto, 1984; Pigram and Panggabean, 1983

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
Mz	MESOZOIC UNIT		
Mz[1]	Canning Basin (not on T/S plot)	*Cratonic cover*, continental deposits of uncertain affinities and age on the eastern margin of the Canning Basin	Gee and others, 1979; Geol. Soc. Aust., 1971; Palfreyman, 1988; Stagg, 1993; Wilford and others, 1981; Veevers, 2000
ToMz	MESOZOIC TO OLIGOCENE UNIT		
To[1]Mz	New Caledonia (not on T/S plot)	*Orogenic domain*, active plate-margin setting; high-pressure metamorphism of Mesozoic complexes and sedimentary rocks	Paris, 1981a, b; Lillie and Brothers, 1970
To[2]Mz	New Guinea Mobile Belt Irian-Jaya and Papua New Guinea	*Orogenic domain*, active plate-margin setting; high-pressure metamorphism during middle Tertiary collisional orogeny	Brown and others, 1979; D'Addario and others, 1976; Davies, 1971; Davies and Smith, 1971; Geol. Soc. Aust., 1971
	TRIASSIC UNIT		
[1]	New England Fold Belt (Esk Rift [Trough], Gympie Block, and Abercorn Trough) 235-212 Ma (not on T/S plot)	*Late orogenic (transitional) domain*, continental and marine sedimentary rocks, felsic and intermediate to mafic volcanic rocks; postkinematic granite (shown by solid color)	Day and others, 1978, 1983; Murray, 1986; Veevers, 2000
[2]	Ipswich Basin, Tarong Basin 220-195 Ma (not on T/S plot)	*?Late orogenic (transitional) domain*, felsic volcanic and continental clastic rocks with coal in this and similar basins	Day and others, 1978, 1983; Murray, 1986; Veevers, 2000
[3]	Papuan Platform and Kubor Anticline	*Cratonic cover*, sedimentary and intermediate volcanic rocks	Brown and others, 1979; D'Addario and others, 1976; Geol. Soc. Aust., 1971
J	TRIASSIC and JURASSIC UNIT		
J[1]	Rangitata Orogen (Chatham Rise and eastern North Island, New Zealand)	*Orogenic domain*, greywacke sequence	Carter and others, 1977; Suggate and others, 1978
J[2]	New Caledonia 200-160 Ma	*?Cratonic cover*, volcano-sedimentary facies	Paris, 1981a, b
J[3]	Maryborough and Nambour Basins 210-150 Ma (not on T/S plot)	*?Late-orogenic domain or cratonic cover*, downwarps or intramontane depressions filled with continental sedimentary rocks	Day and others, 1983; Murray, 1986 Veevers, 2000
J	JURASSIC UNIT		
J[1]	Northwest Australian shelf rift-grabens	*Continental-margin rifting*	Falvey and Mutter, 1981; Symonds and others, 1984
J[2]	Tasmanian dolerite and other cratonic igneous rocks in East Australia (not on T/S plot)	*Cratonic (intraplate) igneous activity*, probably associated with the Gondwanaland breakup	Burrett and Martin, 1989; Sutherland, 1978

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
KJ	JURASSIC and CRETACEOUS UNIT		
K[1]J	East Indian Ocean crust M27-M11 magnetic anomalies	*Oceanic crustal domain*	Falvey, 1972; Fullerton and others, 1989; Powell, 1978; Johnson and, Veevers, 1984; McKenzie and Sclater, 1971; Mark, 1978
K[2]J	Australian shelf and Lord Howe Rise	*Continental-margin rifting*; rift grabens	Falvey and Mutter, 1981; Jongsma and Mutter, 1978; Doutch and others, 1981;
K[3]J	Canning, Browse, Bonaparte, Money Shoal, and other basins	Cratonic cover, epicontinental downwarps? related to passive margin development	Palfreyman, 1988; Doutch and Nicholas, 1978; Geol. Soc. Aust., 1971; Stagg, 1993; Veevers, 2000
K[4]J	Carpentaria, Eromanga, Surat, Clarence-Moreton, Nambour, and Maryborough Basins	*Cratonic cover*, epicontinental downwarps locally started in latest Triassic; continental and marine sedimentary rocks; some intermediate volcanic rocks in Maryborough Basin ?related to passive margin or active plate margin farther east	Day and others, 1983; Doutch and Nicholas, 1978; Geol. Soc. Aust., 1971; Wilford and others, 1981 Veevers, 2000
K[5]J	Granite (not on T/S plot)	*?Anorogenic or postorogenic granite* northeast Queensland and northeast New South Wales	Day and others, 1983; Murray, 1986; Veevers, 2000
K[6]J	Papuan Platform and Papuan Fold Belt (not on T/S plot)	*Cratonic cover* or *passive-margin deposits*, continental to marginal-marine sedimentary rocks on Australian continental margin	Brown and others, 1979; D'Addario and others, 1976; Geol. Soc. Aust., 1971
K[7]J	New Zealand Separation Point Batholith and other intrusives (not on T/S plot)	*Orogenic domain* of the Rangitata Orogen see KPz_2^1	Suggate and others, 1978
ToJ TeJ	JURASSIC TO EOCENE OR OLIGOCENE UNIT		
To[1]J	New Caledonia (not on T/S plot)	*Orogenic domain*, active plate margin; peridotite nappes emplaced during latest Eocene to early Oligocene, termination of subduction west of New Caledonia	Paris, 1981a, b; Lillie and Brothers, 1970
Te[2]J	New Guinea Mobile Belt 195-40 Ma	*Orogenic domain*, active plate-margin setting, which terminated in continent island-arc collision, emplacement (obduction) of the Papuan Ultramafic Belt and other ophiolites, high-P metamorphism during middle Tertiary orogeny	Brown and others, 1979; D'Addario and others, 1976; Davies, 1971; Davies and Smith, 1971; Geol. Soc. Aust., 1971
To[3]J	Northland Allochthon North Island of New Zealand	*Orogenic domain,* active plate margin setting; Mesozoic seafloor volcanics and Cretaceous to Oligocene exotic sedimentary rocks, obducted	Sporli, 1978, 1980, 1987; Suggate and others, 1978
QJ_2	JURASSIC TO QUATERNARY UNIT		
Q^1J_2	Northwest and west Australia shelf (including KJ, KuK, ToTpa, QTm)	*Continental-margin setting*, drift sequence subsequent to Early Jurassic rifting	Palfreyman, 1988; Falvey and Mutter, 1981; Veevers, 2000
Q^2J_2	Australian continent and shelf	*Cratonic cover* associated with formation of continental margin and Gondwanaland breakup including sedimentary and volcanic rocks associated with rifting and drifting	Palfreyman, 1988; Wilford and others, 1981; Veevers, 2000

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
K	EARLY CRETACEOUS UNIT		
K[1]	East Indian Ocean crust M11–M0 magnetic anomalies (includes Southern Ocean)	*Oceanic crustal domain*; including anomalous crust of oceanic plateaus	Larson, 1976; Falvey, 1972; Powell, 1978; Doutch and others, 1981; Johnson and Veevers, 1984; Veevers 2000
K[2]	Perth Basin (not on T/S plot) 135-70 Ma	*Continental-margin basins*, passive-margin sequence postbreakup or drift sequence; continental and marine sedimentary rocks	Palfreyman, 1988; Doutch and Nicholas, 1978; Falvey and Mutter, 1981; Gee and others, 1979; Wilford and others, 1981; Veevers, 2000
K[3]	Canning, Carnarvon, and Officer Basins and northern Australia 135-110 Ma	*Cratonic cover*, thin sequence of epicratonic clastic rocks	Palfreyman, 1988; Doutch and Nicholas, 1978; Gee and others, 1979; Geol. Soc. Aust., 1971; Wilford and others, 1981; Veevers, 2000
K[4]	Gippsland, Bass, Otway, and Great Australian Bight Basins (not on T/S plot)	*Continental-margin rift grabens*, marine, marginal-marine, to continental sedimentary rocks	Etheridge and others, 1984; Falvey and Mutter, 1981; Veevers, 2000
K[5]	Styx Basin (not on T/S plot)	*Continental-margin basin*, sedimentary rocks	Day and others, 1983; Palfreyman, 1988 Veevers, 2000
K[6]	Granite in eastern Queensland (not on T/S plot)	*?Anorogenic or postorogenic* (postkinematic) *granite*	Day and others, 1983; Palfreyman, 1988; Murray, 1986; Veevers, 2000
?K[7]	Lord Howe Rise and other similar microcontinents	*Continental-margin setting*, uncertain age of rifting adjacent to the future New Caledonia Basin	Coleman and Packham, 1976; Jongsma and Mutter, 1978
K[10]	?Early rift in Coral Sea area (not on T/S plot)	*Continental margin rift*	Symonds and others, 1984
K[11]	Cretaceous core complexes, New Zealand	*Orogenic domain*, core complexes of Cretaceous age and reactivated basement rocks; shown as $_3{}^6$ on Southwest Quadrant Tectonic map based on inherited Potassium age	Tulloch and Kimbrough, 1989
K_2	LATE (TO MIDDLE OR LATE EARLY) CRETACEOUS UNIT		
K_2[1]	East Indian Ocean crust M0–34 magnetic anomalies (Cretaceous magnetic quiet zone)	*Oceanic crustal domain*, including anomalous crust of oceanic plateaus	Doutch and others, 1981 Veevers, 2000
K_2[2]	Solomon Islands (Malaita Province) (not on T/S plot)	*Oceanic crustal domain*, (mostly Ku), thrust emplaced (obducted) during Neogene collision	Coleman 1970, 1973; Coleman and Kroenke, 1981; Kroenke, 1984
K_2[3]	New Guinea (not on T/S plot)	*Orogenic domain*, active plate margin, ?ophiolitic basalt	Brown and others, 1979; Davies, 1971; Davies and Smith, 1971; D'Addario and others, 1976

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
K_2^4 (TeK_2)	Solomon Islands basement	*Orogenic domain*, active plate margin, oceanic crustal basement 122.4±8 Ma, i..e., Early Cretaceous on Malaita, regionally metamorphosed 44 Ma on Choiseul	Coleman, 1970, 1973; Kroenke, 1984; Mahoney and others, 1993
$TpaK_2$	LATE CRETACEOUS TO PALEOCENE UNIT		
Tpa^1K_2	Indian Ocean crust 34-27 magnetic anomalies	*Oceanic crustal domain*	McKenzie and Sclater, 1971; Johnson and Veevers, 1984; Cande and Mutter, 1982
Tpa^2K_2	Southern Indian Ocean crust 34-27 magnetic anomalies	*Oceanic crustal domain*, condensed or slow spreading between Australia and Antarctica	Weissel and Hayes, 1972; Cande and Mutter, 1982
Tpa^3K_2	Tasman Sea crust 34-27 magnetic anomalies 85-64 Ma	*Oceanic crustal domain*	Hayes and Ringis, 1973; Shaw, 1978; Weissel and others, 1977
Tpa^4K_2	New Caledonia 140-55 Ma	*Orogenic domain*, active plate-margin setting; volcanic rift (?arc) and sedimentary rocks followed by emplacement during Eocene of ophiolitic nappes which run toward east, high-P metamorphism	Paris, 1981a,b; Kroenke, 1984
Tpa^5K_2	Rifts around Coral Sea (not on T/S plot)	*Continental margin rifting*, in some areas volcanic rocks present	Symonds and others, 1984
Tpa^6K_2	New Caledonia Basin ?34-27 magnetic anomalies ?inc. Reinga Basin ?Kingston and Norfolk Basins ?South Loyalty Basin	*Oceanic crustal domain*, alternatively only extended continental crust	Sporli, 1980; Weissel and Hayes, 1972; Kroenke, 1985; Malpas and others, 1992
	?Norfolk Basin, Kingston Basin; Kingston Plateau	*?Oceanic crustal domain*, uncertain data	Kroenke and Eade, 1982; Kroenke and Dupont, 1982
ToK_2TeK_2	LATE CRETACEOUS TO EOCENE OR OLIGOCENE UNIT		
Te^1K_2	Lord Howe and Mellish Rises, Bellona, and ?Louisiade Plateaus	*Continental-margin setting*, breakup or drift sequence on microcontinents; rhyolite 94 Ma on Lord Howe Rise; Te-Ku marine sedimentary rocks, To-Te erosion	Packham and Andrews, 1975; Lister and others, 1991
Te^2K_2	Aure Trough 86-40 Ma	*Orogenic domain*, continental-margin trough with spilitic volcanism and pelagic sedimentary rocks; Oligocene deformation	Brown and others, 1979; D'Addario and others, 1976; Geol. Soc. Aust., 1971
Te^3K_2	New Guinea and adjacent islands	*Orogenic domain*, active plate margin; volcanic-arc volcanic and sedimentary rocks, basement of ophiolitic character	D'Addario and others, 1976
To^5K_2	Three Kings Rise (not on T/S plot)	*Orogenic domain*, Oligocene to Cretaceous volcanic arc, possible basement formed in ?back-arc setting during Late Cretaceous to Paleocene	Kroenke and Eade, 1982; Kroenke and Dupont, 1982 Malpas and others, 1992
To^6K_2	Northland allochthon North Island of New Zealand (with To^3J)	*Orogenic domain*, active plate-margin setting; Cretaceous seafloor volcanic rocks and Cretaceous to Oligocene exotic sedimentary rocks, obducted from northeast, from the Norfolk Basin over continental margin	Sporli, 1978, 1980, 1987; Suggate and others, 1978 Malpas and others, 1992

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
TmK_2	LATE CRETACEOUS TO MIOCENE UNIT		
Tm^1K_2 (incl. K_2^3) (incl. TmJ) (possible J elements)	New Guinea-Irian Jaya	*Orogenic domain*, active plate margin, mafic volcanic rocks, partly ophiolites and associated sedimentary rocks	Brown and others, 1979; D'Addario and others, 1976
Tm^2K_2 (incl. into Tp_{22})	Papuan Platform and Central Orogenic Belt Papua New Guinea and Irian-Jaya	*Cratonic cover*, reefal and platform carbonate rocks, some involved in fore-land deformation in the Papuan Fold Belt	Brown and others, 1979; D'Addario and others, 1976; Palfreyman, 1988; Geol. Soc. Aust., 1971
QK_2	LATE CRETACEOUS TO QUATERNARY UNIT		
Q^1K_2 (incl. TeK_2)	Indian Ocean epiliths	*Intraplate igneous activity*, igneous accretions forming seamounts and plateaus; Christmas Island, intraplate igneous activity Maastrichtian Eocene	Johnson and Veevers, 1984 Exon and others, 1993
Q^2K_2 (incl. TeK_2 QTo)	Australian shelf 76-0 Ma	*Continental-margin setting*, postbreakup or drift sequence, with Eocene to Oligocene erosion	Etheridge and others, 1984; Falvey and Mutter, 1981; Palfreyman, 1988
Q^3K_2	Plateaus around the Coral Sea (including TpaKu, Te, TmTo, QTm) (not on T/S plot)	*Continental margin setting*, rift and drift sedimentary rocks on continental crustal basement; stratigraphic packets separated by erosion and other events	Symonds and others, 1984
Q^4To	East Coast Fold Belt North Island, New Zealand (not on T/S plot)	*Orogenic domain*, active plate margin, Cretaceous-and Miocene-Quaternary sedimentary rocks, started partly Oligocene, activity still continuing to form accretionary wedge and forearc-basin complexes	Katz, 1982; Sporli, 1980; Suggate and others, 1978
Q^5K_2	East Cape, New Zealand (not on T/S plot)	*?Oceanic domain or intraplate volcanic rocks*, Matakoa basalts	Suggate and others, 1978
Cz	CENOZOIC UNIT		
Cz^1	Cenozoic downwarps, Australia	*Cratonic cover*, epicratonic downwarps in the continental interior	Wilford and others, 1981
Cz^2	Cratonic igneous rocks, Australia (not on T/S plot) 65-0 Ma	*Cratonic (intraplate) volcanic and intrusive rocks*, plateau basalt, shield volcanoes, etc.	Geol. Soc. Aust., 1971; Sutherland, 1978
Cz^3	Tasman Sea seamounts	*Intraplate volcanic rocks*, oceanic-island volcanism (basalt)	Vogt and Conolly, 1971; L.W. Kroenke, pers. comm., 1984
Tpa	PALEOCENE UNIT		
Tpa^1	Indian Ocean crust 24-27 magnetic anomalies	*Oceanic crustal domain*	McKenzie and Sclater, 1971; Johnson and Veevers, 1984
Tpa^2	Southern Ocean crust 21-27 magnetic anomalies	*Oceanic crustal domain*; condensed, slow spreading between Australia and Antarctica	Doutch and others, 1981
Tpa^3	Tasman Sea crust 24-27 magnetic anomalies	*Oceanic crustal domain*	Hayes and Ringis, 1973; Shaw, 1978; Weissel and others, 1977
Tpa^4	Coral Sea crust 27-24 magnetic anomalies	*Oceanic crustal domain*	Weissel and Watts, 1975; Symonds and others, 1984

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
Tp	PALEOGENE UNIT		
Tp[1]	Island arc volcanic rocks Papua New Guinea and adjacent areas 65-25 Ma (not on T/S plot)	*Orogenic domain*, active plate margin, ?volcanic arcs	Brown and others, 1979; D'Addario and others, 1976
T	TERTIARY UNIT		
T[1]	Solomon Islands, Santa Isabel (Malaita Province) (not on T/S plot)	*Orogenic domain*, oceanic sedimentary rocks above oceanic crust emplaced by thrusting during ?Neogene	Coleman, 1970, 1973; Coleman and Kroenke, 1981; Kroenke, 1984
QTpa	PALEOCENE TO QUATERNARY UNIT		
Q[1]Tpa	Australian shelf and coastal areas	*Continental, passive-margin setting*, drift or postbreakup sequence	Palfreyman, 1988
ToTpa	OLIGOCENE TO PALEOGENE UNIT		
ToTpa	North d'Entrecasteaux Ridge	*Oceanic crustal domain*, back- or forearc region; or arc basement MORB basalts overlain by volcaniclastic sediment	Maillet and others, 1983; Collot and others, 1992
Te	EOCENE UNIT		
Te	Indian Ocean crust 18-24 magnetic anomalies	*Oceanic crustal domain*	McKenzie and Sclater, 1971; Larson, 1976; Johnson and Veevers, 1984; Sclater and Fisher, 1974
Te[1]	Southern Ocean 18-24 magnetic anomalies	*Oceanic crustal domain*	Weissel and Hayes, 1972; Molnar and others, 1975
Te[2]	New Caledonia	*Orogenic domain*, active plate margin, eastward subduction of New Caledonia basin; volcanic arc on the east; on East Coast olistostromes, sedimentary rocks and granite 25 Ma; including sedimentary rocks of accretionary wedge west of the island	Kroenke, 1984; Paris, 1981a, b
Te[3]	Loyalty Basin, Solomon Sea 18-24 magnetic anomalies in Loyalty Basin	*Oceanic crustal domain*; Solomon Sea crust could be older	Kroenke, 1984; Kroenke and Eade, 1982; Watts and others, 1977; Weissel and others, 1982
Te[5]	Fiji (Viti Levu, Yasawas, and Beqa) 45-37 Ma	*Orogenic domain*, active plate margin, volcanic-arc volcanic rocks, mafic to felsic, intruded by tonalite of the first orogenic phase	Rodda, 1974, 1976; Kroenke, 1984
Te[6] (Te[7])	Eua Ridge (Tonga Ridge)	*Orogenic domain*, active plate margin; volcanic-arc volcanic and sedimentary rocks	Kroenke, 1984
Te[8] (incl. To[6]Te Tm[3]To)	Aure, Moresby, and Pocklington troughs	*Orogenic domain*, active plate-margin rocks associated with the Papuan arc-trench gap	Brown and others, 1979; D'Addario and others, 1976; Kroenke, 1984
Te[9]	New Guinea and New Britain	*Orogenic domain*, active plate margin; Papua volcanic arc, an Eocene arc, arc-volcanic and intrusive, sedimentary, some metamorphic rocks	Brown and others, 1979; D'Addario and others, 1976; Davies, 1971; Davies and Smith, 1971; Jacques and Robinson, 1977; Johnson 1979; Johnson and Jacques, 1980

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
?Te^{10} (shows as Te^{1}Ku)	Louisiade Plateau	?*Oceanic crustal domain* or rifted continental crust, ?a microcontinent	Kroenke, 1984; Packham and Andrews, 1975
Te^{11}	Rennell Island and New Britain	*Orogenic domain*, active plate margin, uncertain data, ?volcanic arc, and accretionary prism	Kroenke, 1984
Te^{12}	Norfolk Ridge (not on T/S plot)	*Orogenic domain*, active plate margin, Norfolk volcanic arc and arc-trench-gap rocks	Kroenke, 1984; Sporli, 1980
Te^{13}	Louisville Ridge (part) (not on T/S plot)	*Intraplate volcanic rocks*, oceanic-island volcanism, basalt	L.W. Kroenke, pers. comm., 1985
Te^{14}	Bougainville Guyot, Sabine Bank (South d'Entrecasteaux Ridge) (not on T/S plot)	Volcanic arc; Eocene arc, capped with Oligocene-Eocene sediments including reef limestone	Collot and others, 1992
ToTe	EOCENE TO OLIGOCENE UNIT		
To^{1}Te	Southern Ocean, South Tasman Sea 18-13 magnetic anomalies	*Oceanic crustal domain*	Doutch and others, 1981; Molnar and others, 1975
To^{2}Te	Emerald Basin crust ?18-13 magnetic anomalies (not on T/S plot)	*Oceanic crustal domain*, uncertain	Weissel and others, 1977
To^{3}Te	New Guinea	*Orogenic domain*, active plate margin; rocks associated with subduction south and west of the Papuan arc	Johnson, 1979; Johnson and Jacques, 1980; Kroenke, 1984
To^{4}Te (?some older elements)	New Guinea, Papuan Arc	*Orogenic domain*, active plate margin; volcanic-arc volcanic rocks and related sedimentary rocks	Brown and others, 1979; D'Addario and others, 1976; Davies, 1971; Davies and Smith, 1971; Jacques and Robinson, 1977
To^{5}Te	Epicratonic basins in New Zealand 55-25 Ma	*Cratonic cover*, epicratonic sequences, coal measures to carbonate-platform sedimentary rocks	Katz, 1980a; Suggate and others, 1978
To^{6}Te	Vitaz Arc (early part)	*Orogenic domain*, active plate margin; volcanic-arc volcanic and sedimentary rocks	Kroenke, 1984
TplTe	EOCENE TO PLIOCENE UNIT		
Tpl^{1}Te	Solomon Islands	*Orogenic domain*, oceanic sedimentary rocks above oceanic crustal rocks	Coleman, 1970, 1973; Coleman and Kroenke, 1981; Kroenke, 1984
QTe	EOCENE TO QUATERNARY UNIT		
Q^{1}Te	Tonga-Kermadec arc-trench gap	*Orogenic domain*, active plate margin; combined Vitaz Trench prism (ToTe) and subsequent (QTm) prism and forearc basin	Cole, 1982; Coleman and Packham, 1976; Katz, 1982; Kroenke, 1984
To	OLIGOCENE UNIT		
To^{1}	Southern Ocean crust 13-6 magnetic anomalies	*Oceanic crustal domain*	Doutch and others, 1981; Vogt and others, 1983
To^{2}	Emerald Basin crust ?13--? magnetic anomalies (not on T/S plot)	*Oceanic crustal domain*, uncertain data	Weissel and others, 1977

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
To^{3}	Loyalty Island Arc-Oligocene; ?late Miocene	*Orogenic domain*, active plate margin; possible volcanic-arc complex formed during subduction of ?South Fiji Basin; including some arc-trench-gap rocks	Kroenke and Eade, 1982; Kroenke and Dupont, 1982; Launey and others, 1982
To^{4}	Manus-Solomon-Vitaz arc (?Eua Ridge) (incl. Te^{3}, Te^{2}, To^{4}Te, Tm^{5}To, TeKu)	*Orogenic domain*, active plate margin	Coleman and Packham, 1976; Falvey and Pritchard, 1984; Kroenke, 1984
To^{6}	South Fiji Basin 13-8 magnetic anomalies	*Oceanic crustal domain*	Malahoff and others, 1982
To^{7}	Santa Cruz Basin crust (not on T/S plot)	*Oceanic crustal domain*, uncertain	Kroenke, 1984
To^{8}	Vitaz accretionary prism (not on T/S plot)	*Orogenic domain*, active plate margin; uncertain data	Kroenke, 1984
To^{9}	New Guinea (not on T/S plot)	*Orogenic domain*, active plate margin, island-arc volcanic and sedimentary rocks	Kroenke, 1984
To^{10}	Torres Rise (not on T/S plot)	*Oceanic plateau* after anomaly 8 ?late Oligocene	Kroenke, 1984
TmTo	MIOCENE TO OLIGOCENE UNIT		
Tm^{1}To	Vanuatu (western belt) 25-11 Ma	*Orogenic domain*, active plate margin; island-arc volcanic and sedimentary rocks, early Miocene faulting	Carney and Macfarlane, 1982; Katz, 1984; Kroenke, 1984; Macfarlane, 1984
Tm^{2}To	Fiji (Viti Levu, Yasawas, and Beqa) 24-10 Ma	*Orogenic domain*, active plate margin; volcanic-arc volcanic and sedimentary rocks	Rodda, 1974, 1976; Kroenke, 1984
Tm^{3}To	Papuan Platform and Papuan Fold Belt 40-15 Ma	*Cratonic cover*, marine sedimentary rocks, partly involved in deformation of the Papuan Fold Belt (foreland fold and thrust belt)	Brown and others, 1979; D'Addario and others, 1976; Geol. Soc. Aust., 1971
Tm^{4}To	Aure Trough (Papua New Guinea) 40-5 Ma (not on T/S plot)	*Late orogenic setting*, foreland (deep) basin, sedimentary rocks derived from the rising New Guinea Mobile Belt; the eastern part of the trough was involved in plate convergence (subduction)	Brown and others, 1979; D'Addario and others, 1976; Geol. Soc. Aust., 1971; Kroenke, 1984
Tm^{5}To	New Guinea and adjacent island arcs 40-5 Ma	*Orogenic domain*, active plate margin; island-arc volcanic rocks and marginal-sea sedimentary and volcanic rocks	Brown and others, 1979; D'Addario and others, 1976; Geol. Soc. Aust., 1971
Tm^{6}To	Solomon Islands 25-7 Ma (not on T/S plot)	*Orogenic domain*, active plate margin; volcanic-arc volcanic and sedimentary rocks related to ?terminal activity of the Oligocene-Eocene arc; late Oligocene diorite on Guadalcanal; Miocene sedimentary rocks	Coleman, 1970; Kroenke, 1984
Tm^{7}To	Western rift basins New Zealand (Solander, Balleny, Te Anau, Wanganui, Grey River, Taranaki, Northland)	*?Late orogenic (transitional) or reactivation setting*s associated with oblique subduction and formation of pull-apart basins; preceded by Late Cretaceous to Paleocene sedimentary rocks (coal measures); late Eocene reactivation by transtension	Katz, 1980a; Norris and Carter, 1980, 1982; Sporli, 1980; Suggate and others, 1978

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
QTo	OLIGOCENE TO QUATERNARY UNIT		
QTo	New Georgia Basin (not on T/S plot)	*Orogenic domain*, active plate margin; ?interarc basin, continuing extension	Katz, 1980b, 1984
Tm (Tm_1 and Tm_2)	MIOCENE UNIT (in some areas early and late Miocene are separated)		
Tm^1	New Caledonia (west coast) 22-10 Ma	*?Late orogenic setting*, sedimentary rocks	Paris, 1981a,b
Tm^2	New Caledonia, west coast	*?Cratonic cover*, sedimentary rocks unconformable on Eocene and older rocks	Paris, 1981a,b
Tm^3	Fiji (Yasawas) 10-7 Ma	*Orogenic domain*, active plate margin; island-arc volcanic rocks, tholeiitic mafic to felsic; volcaniclastic rocks from Oligocene uplift; gabbro and tonalite associated with orogenic phase	Rodda, 1974, 1976; Kroenke, 1984
Tm^4 $Tm_1{}^4$ and $Tm_2{}^4$	Colville-Lau Ridge	*Orogenic domain*, active plate margin; including early and late Miocene volcanic arcs and a large area of volcanic apron on the west	Kroenke, 1984
Tm^5	Tonga-Kermadec Ridge	*Orogenic domain*, active plate margin; volcanic-arc volcanic and sedimentary rocks, originally contiguous with the Colville-Lau Arc	Cole, 1982; Kroenke, 1984
Tm^6	New Guinea	*Late orogenic setting*, molassic sedimentary rocks	Brown and others, 1979; D'Addario and others, 1976; Geol. Soc. Aust., 1971
Tm^7	North New Guinea and adjacent island arcs 22-5 Ma	*Orogenic domain*, active plate margin; post-Papuan Arc collision; sedimentary and volcaniclastic rocks, ?part of Miocene magmatic arc; volcanic activity continued into Tpl and QTpl	Brown and others, 1979; D'Addario and others, 1976; Davies and others, 1984; Kroenke, 1984
Tm^9	North Island, New Zealand (not on T/S plot)	*Orogenic domain*, active plate margin volcanic rocks, Pliocene to Miocene age	H.R. Katz, pers. comm., 1982
Tn	NEOGENE UNIT		
Tn^1	Fiji (Viti Levu, Yasawas, Beqa, Vanua Levu, Lomaiviti, Horne Islands) 6-2 Ma	*Orogenic domain*, active plate margin; calc-alkaline to tholeiitic arc volcanic rocks, sedimentary rocks on Lomaiviti also shoshonites	Rodda, 1974, 1976, 1982; Sinton and others, 1983
Tn^{1a}	North Fiji Basin	*Oceanic crustal domain*	Auzende and others, 1988
Tn^2	Papuan Platform 25-3 Ma	*Cratonic cover*, thin terrigenous sedimentary rocks	Brown and others, 1979; D'Addario and others, 1976; Geol. Soc. Aust., 1971
Tn^3	Aure Trough 25-3 Ma	*Late orogenic setting*; thick sequence of marine deposits in a foreland basin	Dow, 1977
Tn^4	Maramuni Arc (New Guinea) 25-2.5 Ma	*?Orogenic domain*	Dow, 1977
Tn^5	Northern New Zealand 25-2 Ma	*Orogenic domain*, active plate margin; ?volcanic-arc andesite, ?volcanic rift and interarc basin	Katz, 1980a; Sporli, 1980; Suggate and others, 1978

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
Tn^{6}	Guadalcanal (not on T/S plot)	*Orogenic domain*, active plate margin; sedimentary rocks above ToTe volcanic arc	Arthurs, 1979; Coleman, 1970; Kroenke, 1984
Tn^{7}	Southern Ocean crust magnetic anomalies, 3-6 Ma includes Macquarie Ridge	*Oceanic crustal domain*	Weissel and Hayes, 1972; Vogt and others, 1983
QTn	NEOGENE TO QUATERNARY UNIT		
$Q^{1}Tn$	New Britain-South Solomon New Hebrides accretion wedge (not on T/S plot) late Miocene-Holocene	*Orogenic domain*, active plate margin	Kroenke, 1984
$Q^{2}Tn$	Median basins, Vanuatu (Santa Cruz-Torres-Banks Islands, North and South Aoba basins)	*Orogenic domain*, active plate margin; ?backarc or intra-arc basins, Miocene and Pliocene sedimentary rocks	Katz, 1984; Kroenke, 1984
$Q^{3}Tn$	Island arcs adjacent to to New Guinea (not on T/S plot)	*Orogenic domain*, active plate margin; volcanic, sedimentary, and thick volcani-clastic rocks in backarc-forearc basins, pelagic sedimentary rocks in marginal seas, intermediate intrusive rocks	Brown and others, 1979; D'Addario and others, 1976; Davies and others, 1984
$Q^{4}Tn$	Irian-Jaya (not on T/S plot) (?some To elements)	*Orogenic domain* or *?late orogenic setting,* intermediate to mafic intrusive and extrusive rocks, sedimentary rocks, includes Aru Basin, and accretionary prism south of New Guinea Trench	Palfreyman, 1988; Dow and Sukamto, 1984
$Q^{5}Tn$	Epicratonic basins South Island, New Zealand (not on T/S plot)	*Cratonic cover or reactivation* related fault-bounded basins	Katz, 1980a; Sporli, 1980, 1987; Suggate and others, 1978
$Q^{6}Tn$	Epicratonic basin North Island, New Zealand (not on T/S plot)	*Cratonic cover*, epicratonic basin sequence in west-central and northern North Island of New Zealand	Katz, 1980a; Sporli, 1980; Suggate and others, 1978
$Q^{7}Tn$	Taupo Rift and Ngatoro Basin (Rift), New Zealand	*Orogenic domain*, active plate margin volcanic rift or volcanotectonic depression (backarc basin) on active margin	New Zealand Geological Survey, 1972; Sporli, 1980; Suggate and others, 1978
$Q^{8}Tn$	Cratonic volcanic rocks North Island, New Zealand	*?Cratonic (intraplate)* volcanic rocks or associated with transtensional reactivation setting; mafic to intermediate volcanic rocks	Katz, 1980a; Sporli, 1980; Suggate and others, 1978
Tpl	PLIOCENE UNIT		
Tpl^{1}	Fiji 5-1.8 Ma	*Orogenic domain*, ?mature volcanic arc or rifting	Rodda, 1974, 1976; Kroenke, 1984
Tpl^{2}	Central Orogenic Belt New Guinea	*?Orogenic setting*, volcanic and sedimentary rocks represent continuation of the Miocene arc activity or associated with reactivation tectonics; sedimentary rocks involved in deformation of Papuan Fold Belt	Brown and others, 1979; D'Addario and others, 1976
Tpl^{3}	Wauraraoa-Hawke Bay Basin, New Zealand 5-1, 8 Ma (not on T/S plot)	*Orogenic to late orogenic setting*, continuous plate convergence	Katz, 1982; New Zealand Geological Survey, 1972; Suggate and others, 1978
Tpl^{4}	Melanesian arc rocks (not on T/S plot)	*Orogenic domain*, volcanic-arc rocks and sedimentary rocks, some postdate earlier arc	Kroenke, 1984

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
QTpl	PLIOCENE TO QUATERNARY UNIT		
$Q^{1}Tpl$	New Caledonia 5-1 Ma	*Cratonic cover, to ?late orogenic setting*	Paris, 1981a,b
$Q^{2}Tpl$	Vanuatu, central chain and marginal province	*Orogenic domain*, presently active plate-margin related volcanic arc, locally intra-arc rifting shown as forearc pattern	Carney and Macfarlane, 1982; Kroenke, 1984
$Q^{3}Tpl$	Lau-Havre Trough magnetic lineations 2-0 lineations	*Oceanic crustal domain*	Weissel, 1977
$Q^{4}Tpl$	Fiji 2-0 Ma (not on T/S plot)	*Orogenic domain?*, ?rifting in *late orogenic setting*, *intraplate* volcanism; shoshonitic volcanic rocks and alkali basalt	Rodda, 1974, 1976; Kroenke, 1984 Auzende and others, 1988
$Q^{5}Tpl$	Tofua Ridge (arc) Tonga-Kermadec Ridge	*Orogenic domain*, presently active plate-margin related volcanic arc; included is a large volcanic apron and interarc basin	Bryan and others, 1972; Cole, 1982; Ewart and others, 1977
$Q^{6}Tpl$	New Guinea 5-0 Ma	*Orogenic domain or reactivation* related sedimentary, volcanic, and intrusive rocks, associated with oblique plate convergence	Brown and others, 1979; D'Addario and others, 1976
$Q^{7}Tpl$	Papuan Platform 3-0 Ma	*Cratonic cover*, sedimentary rocks	Brown and others, 1979; D'Addario and others, 1976
$Q^{8}Tpl$	Papuan Fold Belt 5-1 Ma	*Orogenic to late orogenic setting*, foreland zone of thrusting, diapirism	Brown and others, 1979; D'Addario and others, 1976
$Q^{9}Tpl$	Aure Trough 5-1 Ma	*Late orogenic setting*, thick clastic rocks, mud volcanoes	Brown and others, 1979; D'Addario and others, 1976; Davies, 1971; Davies and Smith, 1971
*$Q^{10}Tp$*l	Woodlark Basin magnetic lineations 2-Present	*Oceanic crustal domain*	Brocher and others, 1983; Taylor and Karner, 1983 Weissel and others, 1982
$Q^{11}Tpl$	Tabar-Feni Ridge, South Solomon Islands	*Orogenic domain*, presently active plate margin related arc	Coleman, 1970; Kroenke, 1984
$Q^{12}Tpl$	Schouten-New Britain Arc	*Orogenic domain*, active plate margin; presently active volcanic arc	Davies and others, 1984; Kroenke, 1984
*$Q^{13}Tp$*l	Bismarck or Manus Basin, rifting in St. George Channel and adjacent areas 2-0 lineations	*Oceanic crustal domain* and rifted arc crust	Taylor, 1979
$Q^{14}Tpl$	Northland, Auckland, New Zealand 5-0 Ma	*Cratonic-intraplate volcanic rocks*, post-tectonic alkaline volcanic rocks	New Zealand Geological Survey, 1972; Sporli, 1980; Suggate and others, 1978
$Q^{15}Tpl$	Wanganui Basin, Hauraki Gulf-Thames Graben 5-0 Ma (not on T/S plot	*?Late orogenic setting*, downwarp and rift	Katz, 1980a; New Zealand Geological Survey, 1972; Sporli, 1980; Suggate and others, 1978
$Q^{16}Tpl$	Kadavu Arc and volcanic rocks in the Hunter Fracture Zone (not on T/S plot)	*Orogenic domain*, active plate margin; including shoshonite and high-K andesite	Kroenke, 1984
$Q^{17}Tpl$	Arc-trench gap related to Kadavu Arc and Hunter Fracture Zone (not on T/S plot)	*Orogenic domain*, active plate margin related sedimentary rocks	Coleman, 1970; Kroenke, 1984

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
$Q^{18}Tpl$	North Fiji basin magnetic anomalies 4 to present	*Oceanic crustal domain*, active backarc basin	Brocher and others, 1983; Chase, 1971; Kroenke, 1984; Taylor and Karner, 1983
$Q^{19}Tpl$	Southern Ocean crust 3 to 0 lineations	*Oceanic crustal domain*	Vogt and others, 1983
$Q^{21}Tpl$	Sorol Trough (not on T/S plot)	*Oceanic crustal domain*, ?leaking transform structure, limited spreading	Doutch and others, 1981
$Q^{22}Tpl$	Ayu Trough (not on T/S plot)	*Oceanic crustal domain*, ?young seafloor spreading	Kroenke, 1984
$Q^{23}Tpl$	New Ireland Basin and Feni Deep (not on T/S plot)	*Orogenic domain*, presently active interarc basins, volcanic and sedimentary rocks	Kroenke, 1984
Q	QUATERNARY		
Q	On the Australia Plate (not on T/S plot)	Mostly *cover rocks*, dominantly sedimentary rocks, commonly coral reefs in the Pacific	Palfreyman, 1988

TECTONIC UNITS ON THE INDIA PLATE

[Adopted from the Southwest Quadrant Explanatory Notes]

Indian Ocean crust

by

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Letter symbol		Structural name and age span	Tectonic setting (interpretation and brief description)	References
K_2	LATE CRETACEOUS UNIT			
K_2^1	Indian Ocean	Ocean crust anomaly M0-34 (Cretaceous magnetic quiet zone)	*Oceanic crustal domain*	Larson, 1976; Tamaki and others, 1979
$TpaK_2$	PALEOCENE TO LATE CRETACEOUS UNIT			
$TpaK_2$	Indian Ocean	Oceanic crust magnetic anomalies 34-27	*Oceanic crustal domain*	Larson, 1976

TECTONIC UNITS ON THE PHILIPPINE PLATE AND MARIANA PLATELET
Compiled for SW Quadrant

by

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Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
Mz	MESOZOIC UNIT		
Mz[1]	Halmahera surrounding ocean crust (not on T/S plot)	*?Oceanic crustal domain*, the ophiolites on the island may root into the oceanic crust toward east, and the same is possibly valid for area north of the Bird's Head	
Mz[2]	Halmahera	*Orogenic domain*, metamorphic rocks	Sukamto and others, 1981
Mz[3]	Mariana Ridge	*Orogenic domain*, prerifting arc	Ingle, 1975
J	JURASSIC-TRIASSIC UNIT		
J [1]	Philippines	*Orogenic domain*, upper Paleozoic and lower Mesozoic, partly metamorphosed	Philippine Bureau of Mines and Geosciences, 1982
J	JURASSIC UNIT		
J[1]	Philippines	*Transitional sequence*, sedimentary rocks	Philippine Bureau of Mines and Geosciences, 1982
TpK	CREATCEOUS TO PALEOCENE		
TpK[1]	Philippines	*Orogenic domain*, deformed sedimentary and effusive rocks, with intrusion of mafic to intermediate rocks	
ToK	CRETACEOUS TO OLIGOCENE UNIT		
ToK[1]	Philippines	*Orogenic domain*, metamorphic rocks	Philippine Bureau of Mines and Geosciences, 1982
Tpa	PALEOCENE UNIT		
Tpa[1]	Philippine Sea crust ?27-24 magnetic anomalies	*Oceanic crustal domain*	Hilde and Lee, 1984
Tp	PALEOCENE UNIT		
Tp[1]	Philippines	*Orogenic domain*, sedimentary and mafic-intermediate-felsic extrusive rocks, with felsic intrusive rocks	Philippine Bureau of Mines and Geosciences, 1982
Tp[2]	Kyushu-Palau Ridge	*Orogenic domain*, pre-rifting volcanic chain	Karig, 1971; Ingle, 1975
Tp[3]	Guam	*Orogenic domain*, volcanic rocks	Palfreyman, 1988
QTpa	PALEOCENE TO QUATERNARY UNIT		
QTpa[1]	Marian Ridge	*Orogenic domain, activie plate margin*, volcanic chain	Karig, 1971
Te	EOCENE UNIT		
Te[1]	West Philippine Sea crust magnetic anomalies 24-18	*Oceanic crustal domain*	Hilde and Lee, 1984
ToTe	EOCENE TO OLIGOCENE UNIT		
ToTe[1]	Philippine Sea crust, younger than anomaly 18	*Oceanic crustal domain*	Hilde and Lee, 1984

Letter symbol	Structural name and age span	Tectonic setting (interpretation and brief description)	References
QTe	EOCENE TO QUATERNARY UNIT		
QTe[1]	Mariana arc-trench gap	*Orogenic domain*, *active plate margin*, forearc basin deposits covering accretionary prism	Kroenke, 1984
TmTo	OLIGOCENE TO MIOCENE UNIT		
TmTo[1]	West Mariana Basin	*Oceanic crustal domain*	Hilde and Lee, 1984
Tn	NEOGENE UNIT		
Tn[1]	Halmahera	*Orogenic domain*, sedimentary and intermediate-mafic effusive rocks	Sukamto and others, 1981
Tn[2]	Philippines	*Orogenic domain*, sedimentary and intermediate-mafic effusive rocks	Philippine Bureau of Mines and Geosciences, 1982
Tn[3]	Mariana arc, Guam	*Orogenic domain*, Neogene volcanic rocks	Palfreyman, 1988
QTn	NEOGENE TO QUATERNARY UNIT		
QTn[1]	Halmahera	*Transitional sequence*, folded sedimentary and volcanic rocks	Sukamto and others, 1981
QTn[2]	Philippines	*Platform cover*, sedimentary and mostly intermediate effusive rocks with subordinate mafic and felsic volcanic rocks	Philippine Bureau of Mines and Geosciences, 1982
QTn[3]	Kyushu-Palau Ridge	*Orogenic domain*, postrifting sedimentary rocks of remnants	Karig, 1971; Ingle, 1975
QTn[4]	West Mariana Ridge	*Orogenic domain*, remnant arc and post-rifting volcanic and sedimentary rocks	Karig, 1971
QTn[5]	Talaud-Mayu Ridge and Philippine accretionary prism	*Orogenic domain,active plate margin,* accretionary prism complexes	Silver and others, 1983ac
QTn[6]	South of Mindanao	*Orogenic domain* basin between accretionary prism $Q^{25}Tn$ and volcanic arc $Q^{26}Tn$	E.A. Silver, pers. comm.,
QTpl	PLIOCENE TO QUATERNARY UNIT		
QTpl[1]	Mariana Basin	*Oceanic crustal domain*	Hussong and Uyeda, 1982
QTpl[2]	around Halmahera	Shelf sedimentary rocks around Halmahera, crustal cover	

TECTONIC UNITS ON THE EURASIA PLATE
NW QUADRANT COMPILATIONS
*(*2nd version 1998 emended December 2000*)*

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Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
A	ARCHAEAN UNIT (3500-2500 MA)			
A1	Anabar	Siberian Shield	*Orogenic domain*; now cratpm; Granitoid, crystalline schist terrane (3400 Ma), Archaean orogenic setting	Nalivkin, 1973; Salop, 1977
1A	PALEOPROT EROZOIC-ARCHAEAN UNIT			
1A	North China	North China Platform	*Orogenic domain*; now craton, consolidated by Paleoproterozoic Luliangian orogeny, metamorphic rocks, mostly amphibolite to granulite facies, bedded iron ore, granite, oldest rocks 3500 Ma	Huang, 1978; Yang and others, 1986; Ren and others, 1987
	PROTEROZOIC-LATE ARCHAEAN UNIT			
1	Anabar	Siberian Shield	*Platform cover*, marine sedimentary rocks in the lower and upper part with varying degrees of matamorphism (Vendian), unconformable over Archaean	Salop, 1977; Peive, 1979
2	Transbaykal and Aldan	Baykaliden	*Orogenic domain*; now craton, sedimentary and volcanic rocks, deformed and metamorphosed by Neoproterozic Baykalian orogeny, and granitic intrusion	Salop, 1977; Peive, 1979
3	Mongol-Breya		*Orogenic domain*; now craton, deformed and metamorphosed (greenschist to granulite facies) by Neoproterozoic Assyntian orogeny	Yanshin and others, 1989
4	Hinggan-Niemongol		*Orogenic domain*; now craton, microcontinent in Variscan orogenic belt; sedimentary and volcanic rocks, deformed and matamorphosed by Assyntian orogeny	Nalivkin, 1973
5	Dabie-Shandong		*Orogenic domain*; now craton, consolidated by Neoproterozoic Jinningian orogeny, metamorphic rocks of greenschist to granulite facies, plus granite, including ultra-high metamorphic rocks formed during the collison of North China and Yangtze terranes in the Triassic	Huang, 1978; Yang and others, 1986; Ren and others, 1987
6	Yangtze	Yangtze Platform	*Orogenic domain*; now craton, sedimentary and volcanic rocks deformed and metamorphosed by Jinningian orogeny	Huang, 1978; Yang and others, 1986; Ren and others, 1987

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
7	Qilian		*Orogenic domain*; microcontinent in Caledonian orogenic belt; sedimentary and volcanic rocks deformed and metamorphosed, greenschist of amphibolite facies	Huang, 1978; Yang and others, 1986; Ren and others, 1987
8	East Kunlun		*Orogenic domain*; cratonal fragment in Variscan orogenic belt, metamorphic rocks mostly of amphibolite facies and granite	Huang, 1978; Yang and others, 1986; Ren and others, 1987
9	Himalaya		*Orogenic domain*; now craton, consolidated by Neoproterozoic orogeny, metamorphic rocks of greenschist to amphibolite facies, plus granite; polymetamorphosed during Paleozoic and Tertiary time	Gansser, 1980
10	Indochina		*Orogenic domain*, now craton, consolidated by Neoproterozoic orogeny, metamorphic rocks of greenschist to amphibolite facies, plus granite	Fontain and Workman, 1978
11	East Burma-Malaya		*Orogenic domain*, cratonal fragment in Paleozoic and early Mesozoic orogenic belts; metamorphic rocks mostly of amphiolite facies, plus granite	Earth Science Research of Burma, 1977; Suensilobng and others, 1982, Bender, 1983
12	Central Burma		*Orogenic domain,* now craton, consolidated by Neoproterozoic orogeny, metamorphic rocks of greenschist to amphibolite facies, plus granite	Suensilobng and others, 1982, Bender 1983
13	Assam-Bengal		*Orogenic domain*, now craton, consolidated by Neoproterozoic orogeny, metamorphic rocks of amphibolite to granulite facies and granite	Gansser, 1980
16	Japan	Older basement ?microcontinent?	*Orogenic domain*, microcontinent, originally part of East Asian continental platform; metamorphic rocks of amphibolite to granulite facies, plus granite; polymetamorphosed in Paleozoic and early Mesozoic	Geological Survey of Japan, 1992
Pz	PALEOZOIC AND LATEST NEOPROTEROZIC UNIT			
Pz1	Hinggan-Niemongol		*Orogenic domain*, marine partly continental in Permian, sedimentary and felsic to intermediate volcanic rocks, some ophiolite, deformed and locally metamorphosed by Variscan orogeny	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz2	East Kulun		*Orogenic domain*, marine sedimentary rocks with felsic to mafic volcanic rocks, deformed by Variscan orogeny	Huang, 1978; Yang and others, 1986; Ren and others, 1987

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
Pz^3	Kaixinling		*Orogenic domain*, marine sedimentary rocks with felsic to mafic volcanic rocks, deformed by Variscan orogeny	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz^4	Sikhote-Alin		*Orogenic domain*, marine sedimentary rocks with felsic to mafic volcanic rocks deformed by Variscan orogeny	Nalivkin, 1973
Pz^5	Japan		*Orogenic domain*, marine sedimentary rocks with felsic to mafic volcanic rocks and ophiolite, including Permian accretionary prism complex, partly metamorphosed in mid-Carboniferous and early Mesozoic	Geological Survey of Japan, 1992
Pz_1	EARLY PALEOZOIC AND LATEST NEOPROTEROZOIC UNIT			
Pz_1^1	Anabar	Siberian Platform	*Platform cover*, marine sedimentary and volcanic rocks	Nalivkin, 1973
Pz_1^2	Transbaykal		*Platform cover,* marine sedimentary rocks	Nalivkin, 1973
Pz_1^3	Transbaykal and Mongol-Breya		*Orogenic domain orogenic intrusion;* granite and associated intrusive rocks in the caledonian "orogenic cycle"	Nalivkin, 1973; Yanshin and others, 1978, 1989
Pz_1^4	Mongol-Breya		*Platform cover,* marine sedimentary rocks with felsic to mafic volcanic rocks	Yanshin and others, 1978, 1989
Pz_1^5	Mongol-Breya		*Platform cover,* marine sedimentary rocks with ophiolite, deformed and partly metamorphosed by Caledonian orogeny	Yanshin and others, 1978, 1989
Pz_1^6	North China	North China Platform	*Platform cover,* marine sedimentary rocks	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz_1^7	Dabie-Shandong		*Platform cover*; marine sedimentary rocks	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz_1^8	Yangtze region	Yangtze Platform	*Platform cover*; sedimentary rocks including Neoproterozoic tillite	Huang, 1978; Lee, 1978; Yang and others, 1986, Ren and others, 1987
Pz_1^9	Southeast China		*Orogenic domain,* marine sedimentary rocks and granite, deformed by Caledonian orogeny	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz_1^{10}	Qilian		*Orogenic domain,* marine sedimentary and felsic to mafic volcanic rocks, ophiolite and granite, deformed and partly metamorphosed by Caledonian orogeny	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz_1^{11}	East Burma-Malaya		*Orogenic domain*; marine sedimentary and felsic to intermediate volcanic rocks with ophiolite, deformed by Caldonian orogeny	Earth Sciences Research of Burma, 1977; Suensilpong and others, 1982; Bender, 1983
Pz_1^{12}	Central Burma		*Orogenic domain*; marine sedimentary rocks with felsic volcanic rocks, deformed by Caledonian orogeny	Earth Sciences Research of Burma, 1977; Bender, 1983

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
Pzm	MIDDLE PALAEOZOIC UNIT			
Pzm^{12}	Microcontinents in the Banda Sea with Mz^{10} drift sequence		*Orogenic domain*; originally probably parts of the Australian continent	Silver and others, 1983; Pigram and Panggabean, 1983
Pz_2	LATE PALEOZOIC UNIT			
Pz_2^1	Transbaykal Higgan-Niemontgol and Sikhote-Alin		*Orogenic domain,* orogenic intrusions; granite and associated intrusive rocks in the Variscides	Nalivkin, 1973; Yanshin and others, 1978, 1989
Pz_2^2	Mongol-Bureya		*Platform cover,* marine to continental sediments with coal, and felsic to intermediate volcanic rocks	Yanshin and others, 1978, 1989
Pz_2^3	Mongol-Bureya		*Orogenic domain,* marine and continental sedimentary and felsic to intermediate volcanic rocks deformed by Variscan orogeny	Yanshin and others, 1978, 1989
Pz_2^4	Maritime Province	Maritime Fold Belt	*Orogenic domain,* metamorphic rocks formed by Variscan orogeny	Yang and others, 1986; Ren and others, 1987
Pz_2^5	Qilian		*Platform cover,* marine, partly continental, sedimentary rocks with intermediate volcanic rocks	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz_2^6	East Kunlun		*Orogenic domain*; orogenic granite in Varsicides	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz_2^7	Kiaxinling		*Orogenic domain*; orogenic granite, deformed by Variscan orogeny	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz_2^8	Indochina		*Orogenic domain*; Variscan orogenic granite	Direction geographique national du Vietnam, 1977; Fontaine and and Workman, 1978
Pz_2^{10}	Timor-Banda Arc	Banda Orogen	*Orogenic domain;* metamorphosed marine sedimentary rocks forming Banda orogen	Audley-Charles and others, 1979; Tijokosapoeiro and Budhitrisma, 1982
P	PERMIAN UNIT			
P^1	Transbaykal and Mongol-Bureya		*Platform cover,* felsic to mafic volcanic rocks with continental sedimentary rocks	Nalivkin, 1973; Yanshin and others, 1978, 1989
Pz	PALEOZOIC TO TRIASSIC UNIT			
Pz^1	Qilian	West Qinling Fold Belt	*Orogenic domain*; marine sedimentary rocks, with felsic to mafic volcanic rocks, deformed and partly metamorphosed by Indosinian orogeny, deformation earlier than in Songpan-Garze	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz^2	Songpan-Garze	Songpan-Garze Fold Belt	*Orogenic domain*; marine sedimentary rocks with intermediate to mafic volcanic rocks, deformed by Indosinian orogeny	Huang, 1978; Yang and others, 1986; Ren and others, 1987

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
Pz^3	Indochina		*Orogenic domain*; marine sedimentary rocks, deformed and metamorphosed by Variscan and Indosinian orogeny	Fontain and workman, 1978
Pz^4	East Burma-Malaya		*Orogenic domain*; marine sedimentary rocks with felsic to intermediate volcanic rocks, deformed and metamorphosed by Variscan and Indosinian orogeny	Earth Science Research of Burma, 1977; Suensilpong, 1982; Bender, 1983
Pz^5	Sumatra		*Orogenic domain*; marine sedimentary rocks, deformed by Indosinian orogeny	Kadar, 1979; Katili, 1974
Pz^6	Borneo		*Orogenic domain*; marine sedimentary and metamorphic rocks intruded by Permian-Triassic granite, deformed by Indosinian orogeny	Haiile, 1978; Tan and Khoo, 1978; Untnug and others, 1991
Pz_2	LATE PALEOZOIC TO TRIASSIC UNIT			
Pz_2^1	Anabar		*Platform cover*, nonmarine sedimentary rocks, intraplate plateau basalts and alkaline intrusive rocks	Nalivkin, 1973
Pz_2^2	North China-Korea	North China Platform	*Platform cover*, marine (lower part) and continental (upper part) sedimentary rocks with coal	Yang and others, 1986; Lee, 1987; Ren and others, 1987
Pz_2^3	Yangtze and South China	Yangtze Platform	*Platform cover*, shallow marine, partly continental sedimentary rocks, associated with Permian basalts in southwestern part of Yangtze Platform	Huang, 1978; Yang and others, 1986; Ren and others, 1987
Pz_2^4	Sulawesi and		*Orogenic domain*; metamorphic rocks	Haile, 1974; Tan and Khoo, 1978
Pz_2^5	Timor Banda Arc		*Orogenic domain*; metamorphic rocks	Audley-Charles and others, 1979; Kadar, 1979
MzPz	PALEOZOIC TO MESOZOIC UNIT			
$MzPz^1$	Lhasa-Naggu	Lhasa-Naggu Fold Belt	*Orogenic domain*, marine sedimentary rocks with felsic to mafic volcanic rocks, deformed and metamorphosed by Tertiry Himalayan orogeny	Huang, 1978; Yang and others, 1986; Ren and others, 1987
JPz_2	LATE PALEOZOIC TO JURASSIC UNIT			
JPz_2^1	Nadanhada-Verkhoyansk	Verkhoyansk Fold Belt (part on the North America Plate)	*Orogenic domain,* Jurassic accretionary terrane, marine sedimentary rocks with ophiolite	Nalivkin, 1973
JPz_2^2	Japan		*Orogenic domain*, Jurassic accretionary terrane, marine sedimentary rocks with ophiolite, locally metamorphosed in Cretaceous (high-P Sambagawa and low-P Ryoke matamorphic rocks)	Tanaka and Nozawa, 1977; Hashimote and Saido, 1989; Kimura and others, 1991
JPz_2^3	Taiwan		*Orogenic domain*, Jurassic accretionary terrane, high-P metamorphic rocks (Tananao Schist) with local gneiss and mignatitie, Cretaceous (?) metamorphism	Choi 1972; Ho, 1974

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
JPz_2^4	Borneo and Philippines (see Phil. plate)		*Orogenic domain*, Jurassic accretionary terrane, marine sedimentary rocks with ophiolite, martly matamorphosed	Haile, 1974; Audley-Charles, 1978; Tan and Khoo, 1978; Philippine Bureau of Mines and Geosciences, 1982
TpPz	PALEOZOIC TO PALEOGENE UNIT			
TpPz[1]	Himalaya		*Orogenic domain,* marine sedimentary rocks deformed by Tertiary Himalayan orogeny	Gansser, 1980; Ren Ren and others, 1987
	TRIASSIC UNIT			
[1]	Hinggan-	North China Platform Fold Belt	*Cratonic domain,* anorogenic (intra-) plate) intrusiona: granite, diorite and other intrusions	Yang and others, 1986; Ren and others, 1987
[2]	Qilian and East Kunlun	Qilian-Qinling Fold Belt	*Platform cover,* marine and continental sedimentary rocks	Yang and others, 1986; Ren and others, 1987
[3]	Dabie-Shandong, Qiling and Songpan-Garze		*Orogenic domain,* orogenic Indosinian granite	Yang and others, 1986; Ren and others, 1987
[4]	Kaixinling		*Platform sequence,* of marine sedimentary over Paleozoic formation	Yang and others, 1986; Ren and others, 1987
[5]	Indochina		*Orogenic domain*, Indosinian granite	Fontain and Workman, 1978
[6]	East Burma-Malaya		*Orogenic domain*, Indosinian granite	Fontain and Workman, 1978
[7]	Central Burma		*Orogenic domain*, marine sedimentary rocks with ophiolite	Suensilpong, 1982; Bender, 1983
[8]	Japan		*Platform sequence,* shallow marine and continental sedimentary rocks	Tanaka and Nozawa, 1977
[9]	Sumatra		*Orogenic domain*, intrusions, Indosinian granite	Katili, 1974
Tr[8]	Japanese Islands		*Transitional or reactivation sequence* succeed major tectonism locally showing molasse-type sedimentation	
J	TRIASSIC TO JURASSIC			
J [1]	Mongol-Breya		*Platform cover*, intraplate (anorogenic) intrusions, granite with diorite and other intrusions	Yanshin and others, 1978, 1989
J [3]	Shikhote-Alin		*Platform cover*, marine sedimentary rocks	Nalivkin, 1973
K	TRIASSIC TO CRETACEOUS			
K [1]	Anabar, Transbaykal, Mongol-Breya, Higgan-Neimongol		*Platform cover*, nonmarine sedimentary rocks, with intraplate felsic to mafic volcanic rocks	Nalivkin, 1973; Yang and others, 1986
K [2]	North China	North China Platform and Yangtze Platform	*Transitional tectonic-reactivation sequence*, continental basins Sichuan and Ordos, continental, partly shallow marine in Sichuan Basin	Yang and others, 1986

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
K 3	North and Southeast China	North China Platform, Yangtze Platform, Southeast China	*Platform cover*, continental sedimentary rocks in North China Platform, and shallow marine and continental sedimentary rocks in Yangtze Platform and Southeast China	Yang and others, 1986
K 4	Qiling	Northwesr China	*Platform cover*, continental sedimentary rocks	Yang and others, 1986
K 5	Indochina	China, Vietnam, Laos Thailand, Cambodia	*Platform cover*, marine and continental sedimentary rocks, including salt	Fontain and Workman, 1978; Direction geographique national du Vietnam, 1977
K 6	Borneo	Indonesia	*Platform cover*, marine sedimentary rocks, with intraplate intermediate to mafic volcanic rocks	Haile, 1974; Tan and others, 1983; Untung and others, 1991
J	JURASSIC			
J1	Higgan-Neimongol, North China, Dabie-Shandong, Yangtze, Southeast China Maritime	North China Platform Yangtze Platform Maritime Fold Belt	*Platform*, intraplate (anorogenic) intrusions, granite, diorite and others intrusive rocks	Yang and others, 1986
J2	Songpan-Garze and Kaixinling		*Platform cover*, marine and continental sedimentary rocks	Yang and others, 1986
KJ	JURASSIC TO CRETACEOUS			
KJ1	Mongol-Breya, Hainggan Neimongol, North china, Dabie-Shandong, Yangtze, Southeast China, Maritime	North China Platform Yangtze Platform	*Platform cover*, nonmarine sedimentary rocks and intraplate felsic and mafic volcanic rocks	Yang and others, 1986
KJ2	Kaixinling, East Burma-Malaya	China, Burma, Thailand Mongolia	*Orogenic domain*, orogenic intrusioins, Yanshanian granite	Yang and others, 1986
KJ3	Indochina and East Burma-Malaya	China, Vietnam, Laos, Thailand, Cambodia, Burma, Malaysia	*Platform,* intraplate (anorogenic) intrusions, granite	Direction geographique national du Vietnam, 1977, Earth Sciences Research of Burma 1977; Fontain and Workman, 1978; Suesilpong and others, 1983; Bender, 1982
KJ4	East Burma-Malaya	China, Burma, Thailand Malaysia	*Platform cover*, marine and continental sedimentary rocks	Earth Sciences Research of Burma, 1977; Suesilpong and others, 1983; Bender, 1982
KJ5	Japan		*Platform cover*, shallow marine and continental sedimentary rocks	Tanaka and Nozawa, 1977; Hashimoto and Saito, 1989; Kimura and others, 1991

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
KJ[6]	Japan		*Orogenic domain*, marine sedimentary rocks, with oceanic basalt, metamorphic rocks and ophiolite	Tanaka and Nozawa, 1977; Hashimoto and Saito, 1989; Kimura and others, 1991
KJ[7]	Indonesia	Borneo	*Platform cover*, shallow marine sedimentary and felsic to intermediate	Haile, 1974; Tan and Khoo, 1983; Choi, 1983; Untung and others, 1991
Mz	MESOZOIC UNIT			
Mz[1-4]	Sumatra Mz[1] Borneo Mz[2] Jawa Mz[3] Sulawesi Mz[4]		*Orogenic domain*, Cretaceous accretionary terrane, marine sedimentary and metamorphic rocks with ophiolite, unconformably covered by Paleogene rocks	Katili, 1974; Haile, 1974; Audley-Charles, 1978; Tan and Khoo, 1978; Barber, 1981; Hutchison, 1982; Untung and others, 1991
TpJ	JURASSIC TO PALEOGENE UNIT			
TpJ[1]	Sulawesi		*Platform cover*, marine sedimentary rocks	Audley-Charles and others, 1979; Barber, 1981
TpJ[2]	Timor-Banda Arc		*Platform cover*, marine sedimentary rocks	Audley-Charles and others, 1979; Barber, 1981
TpJ[3]	Indonesia	Halmahera Papera New Buinea-Soloman	*Orogenic domain*	
QJ	JURASIC TO QUATERNARY UNIT			
QJ[1]	North China Platform and Qilian		*Transitional tectonic-reactivation sequence;* continental sedimentary basins: Corridor-Chaoshui-Hetao	Yang and others, 1986
QJ[2]	East Kunlun		*Transitional tectonic-reactivation sequence;* reactivation sequence in Qaidam Basins, continental sedimentary rocks	Yang and others, 1986
K	CRETACEOUS UNIT			
K[1]	Fareast Russia Mongolia North China Korea North China, , South China Southeast China, Maritime Nadanhada-Verhoyansk, Sikhote-Alin	Anabar, Mongol-Breya, Hinngan-Neimongol, North China Platform Yangtze Platform Dabie-Shandong Fareast Russia Northwest China	*Platform cover*, and mostly intraplate (anorogenic) intrusions; continental sedimentary rocks including felsic to mafic volcanic rocks, and granite, diorite and other intrusive rocks	Nalivkin, 1973; Yang and others, 1986; Yanshin and others, 1978, 1989
K2	Mongolia, China Fareast Russia	Hinggan Neimongol (Also on the North America Plate)	*Transitional tectonic-reactivation sequence*; reactivation sequence in Songliao Basin, continental sedimentary rocks	Yang and others, 1986; Ren and others, 1987
K[3]	NW China	Songpan-Garze and Kaixinling	*Platform cover*, continental sedimentary rocks	Yang and others, 1986;
K[4]	Fareast Russia Northeast China	Sikhote-Alin	*Orogenic domain*; Cretaceous accretionary terrane, marine sedimentary rocks, with volcanic rocks	Nalivkin, 1973
K[5]	Japan		*Platform cover*, and mainly intraplate (anorogenic) intrusions, shallow marine and continental sedimentary rocks, and felsic to intermediate volcanic	Tanaka and Nozawa, 1977; Hashimoto and Saito, 1989; Kimura and others, 1991

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
K^6	Japan		*Orogenic domain,* Cretaceous accretionary terrane in Southwest Japan, marine sedimentary rocks with oceanic basalt, locally metamorphosed, mostly marine sedimentary rocks in Hokaido and Sakhalin	Tanaka and Nozawa, 1977; Hashimoto and Saito, 1989; Kimura and others, 1991
K^9	Taiwan		*Platform cove*r, shallow marine sedimentary rocks concealed by Tertiary rocks	Ho, 1988
K^{10}	Borneo		*Oceanic domain*, orogenic granite	Haile, 1974; Tan and Khoo, 1983; Untung and others, 1991
TpK	CRETACEOUS TO PALEOGENE			
TpK^1	Lhasa-Naggu, East Burma-Mayala, Central Burma		*Orogenic domain*, granitid intrustion in Yanshanian and Himalayan "orogenic cycles"	Earth Sciences Rsearch of Burma, 1977; Suensilpong and others, 1982; Bender, 1983; Yang and others, 1986
TpK^2	Central Burma		*Orogenic domain*, marine sedimentary rocks with volcanic rocks, unconformably overlying Triassic rocks, associated with ophiolite	Earth Sciences Rsearch of Burma, 1977; Bender, 1983
TpK^3	Japan		*Orogenic domain*, marine sedimentary rocks with oceanic basalt, locally metamorphosed and intruded by Tertiary granite	Tanaka and Nozawa, 1977; Hashimoto and Saito, 1989; Kimura, and others, 1991
TpK^4	Andaman-Nicobar		*Orogenic domain*, marine sedimentary rocks with ophiolite	Kadar, 1979; Katili, 1974; Huchison, 1982
TpK^5	Borneo	Borneo Fold Belt	*Orogenic domain*, Paleogene accretionary terrane, marine sedimentary rocks with ophiolite	Haile, 1974; Tan and others, 1983; Shoi, 1983; Untung and others, 1991
TK	OLIGOCENE CRETACEOUS TO TERTIARY UNIT			
TK^1	North China Dabie-Shandong Yangtze	North China Platform Yangtze Platform	*Transitional tectonic-reactivation sequence*, continental sedimentary rocks in North China, North Jiangsu, and other reactivation continental basins	Yang and others, 1986
TK^2	Qilian		*Transitional tectonic-reactivation sequence*, continental sedimentary rocks in Minhe and others, reactivation continental basins	Yang and others, 1986
TK^3	Assam-Bengal		*Transitional tectonic-reactivation sequence*, continental margin basin with marine sedimentary rocks	Gansser, 1980
T	TERTIARY UNIT			
T^1	Mongol-Breya		*Platform cover*, continental sedimentary rocks with intraplate basalts	Nalivkin, 1973; Yanshin and others, 1978, 1989
T^2	Hinggan-Neimongol, North China, Sikhote-Alin	North China Platform	*Platform cover*, continental sedimentary rocks	Nalivkin, 1973 Yange and others, 1986

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
T^3	Hinggan-Neimongol		*Transitional tectonic-reactivation sequence*, continental sedimentary rocks with intraplate basalts in Gobi and others reactivation continental basins	Yang and others, 1986
T^4	Yangtze, Southeast China	Yangtze Platform	*Platform cover*, continental sedimentary rocks	Yang and others, 1986
T^5	Songpan-Garze, Kaixinling, Lhasa-Nagqu		*Platform cover*, continental sedimentary rocks	Yang and others, 1986
T^6	Indochina, East Burma-Malaya		*Platform cover*, continental sedimentary rocks	Earth Sciences Research of Burma, 1977; Fontain and Workman, 1978; Suensilpong and others, 1982; Bender, 1983
T^7	Borneo		*Transitional tectonic sequence*, continental margin basin, marine and continental sedimentary rocks with felsic to intermediate volcanic rocks	Haile, 1974; Tan and Khoo, 1983; Untung and others, 1991
QT	TERTIARY TO QUATERNARY UNIT			
QT^1	Mongol-Breya, Hinggan-Neimongol		*Transitional tectonic-reactivation sequence*, continental sedimentary rocks in Hailar, Sanjiang and other reactivation continental basins	Yanshin and others, 1978, 1989; Yang and others, 1986
QT^2	North China	North China Platform	*Transitional tectonic-reactivation sequence*, continental sedimentary rocks in faulted basins in Taihang Mountains	Yang and others, 1986
QT^3	North China	North China Platform	*Platform cover*, continental sedimentary rocks	Yang and others, 1986
QT^4	Yangtze	Yangtze Platform	*Platform cover,* continental sedimentary rocks	Yang and others, 1986
QT^5	Qilian East Kunlun, Quinling		*Platform cover,* continental sedimentary rocks	Yang and others, 1986
QT^6	Ogasawara-Micronesia		*Orogenic domai*n, active plate margin island arc component in Pacfic Ocean; marine sedimentary and volcanic rocks, locally associated with matamorphic rocks	Palfreyman, 1988
Tp	PALEOGENE UNIT			
Tp^2	Nadanhada Verkoyansl		*Platform cover,* continental sedimentary rocks and felsic to mafic extrusive rocks	Nalivkin, 1973
Tp^3	Shikhote-Alin		*Platform cover*, intraplate (anorogenic) felsic to mafic extrusive rocks and granite	Nalivkin, 1973

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
Tp4	Japan		*Platform cover*, including intraplate (anorogenic) intrusion; shallow marine and continental sedimentary rocks felsic to intermediate volcanic rocks and granite	Tanaka and Nozawa, 1977; Hashimoto and Saito, 1989; Kimura and others, 1991
Tp5	Japan		*Orogenic domain,* Paleogene (earliest Neogene) accretionary terrane, marine sedimentary rocks with oceanic basalt	Tanaka and Nozawa, 1977; Hashimoto and Saito, 1989; Kimura and others, 1991
Tp7	Taiwan (not on map)		*Platform cover*, marine sedimentary rocks, concealed by Neogene rocks	Ho, 1988
Tp8	Taiwan		*Orogenic domain,* marine sedimentary rocks, partly metamorphosed and unconformably overlian by Neogene rocks	Ho, 1988
Tp9	Sumatra		*Platform cover*, marine sedimentary rocks	Katili and Reinemund, 1984
Tp10	Borneo		*Platform cover*, marine and continental sedimentary rocks	Haile, 1974; Tan and Khoo, 1978; Untung and others, 1991
Tp11	Jawa		*Platform cover*, marine sedimentary and extrusive rocks	Katili and Reinemund, 1984
Tp18	Philippine		*Orogenic domain*, sedimentary and mafic-intermediate-felsic extrusive rocks, with felsic intrusive	Philippine Bureau of Mines and Geosciences 1982
Tp19	Philippine		*Platform cover*,	Katili and Reinemund, 1984
Tn	NEOGENE UNIT			
Tn1	Anabar		*Platform cover*, nonmarine sedimentary rocks with felsic to intermediate intraplate volcanic rocks	Nalivkin, 1973
Tn2	Transbaykal		*Platform cover*, nonmarine sedimentary rocks	Nalivkin, 1973
Tn3	Himalaya		*Orogenic domain,* Himalayan orogenic granite	Gansser, 1980
Tn4	Central Burma		*Platform cover*, mostly continental sedimentary rocks	Earth Sciences Research of Burma, 1977; Bender, 1983
Tn5	Assam-Bengal		*Platform cover*, mostly continental sedimentary rocks	Gansser, 1980
Tn7	Japan		*Platform cover*, marine and continental sedimentary and volcanic rocks, locally mafic, intruded by Miocene granite and diorite	Tanaka and Nozawa, 1977; Hashimoto and Saito, 1989; Kimura and others, 1991
Tn9	Taiwan		*Platform cover*, mostly marine sedimentary rocks with basalts	Ho, 1988
Tn10	Taiwan		*Orogenic domain*, marine sedimentary rocks, including ophiolite blocks, and intermediate volcanic rocks,	Ho, 1988
Tn11	Andaman-Nicobar		*Platform cover*, marine sedimentary rocks	Katili, 1974; Kadar, 1979

Letter symbol	Region	Age span and structural name	Tectonic setting (interpretation and brief description)	References
Tn12	Indonesia	Sumatra	*Platform cover*, mainly marine sedimentary rocks	Katili, 1974; Kadar, 1979
Tn13	Borneo		*Platform cover*, mainly marine sedimentary rocks	Haile, 1974; Tan and Khoo, 1978; Untung and others, 1991
Tn14	Jawa		*Platform cover*, mainly marine sedimentary rocks	Katili, 1974; Kadar, 1979
Tn15	Sulawesi		*Platform cover*, marine sedimentary rocks and volcanic rocks accociated with diorite	Sukamto and Simandjuntak, 1983
Tn17	Timor-Banda arc		*Platform cover,* marine sedimentary rocks and felsic volcanic rocks associated with granite	Kadar, 1979
QTn	NEOGENE TO QUATERNARY UNIT			
QTn1	Fareast Russia Mongolia North China	Transbaykal, Mongol-Breya, Higgan-Neimongol	*Platform cover*, intraplate mafic volcanic rocks	Nalivkin, 1973; Yanshin and others, 1978, 1989; Yang and others, 1986
QTn2	North China, South China	North China Platform Dabie-Shandong, Yangtze Platform	*Platfrom cover*, continental sedimentary rocks and intraplate mafic and alkali volanic rocks	Yang and others, 1986
QTn3	South China	Southeast China Maritime	*Platform cover*, intraplate mafic volcanic rocks	Yang and others, 1986
QTn4	Indochina	Southwest China Vietnam, Laos, Thailand, Cambodia	*Platform cover*, intraplate mafic volcanic rocks	Fontain and Workman, 1978
QTn5	Shikhote-Alin		*Platform cover*, intraplate felsic to tmafic volcanic rocks	Nalivkin, 1973
QTn6	Japan		*Platform cover*, marine and continental sediments,	Tanaka and Nozawa, 1977
QTn7	Adnaman-Nicobar		*Platform cover*, marine sedimentary rocks	Katili, 1974
QTn9	Timor-Banda Arc		*Platform cover*, marine sedimentary rocks	Andley-Charles and others, 1979; Barber, 1981
Q	QUATERNARY UNIT			
Q	All regions		Mostly cover rocks, consisting of sedimentary rocks and mafic-intermediate-felsic volcanic rocks including active volcanoes. Partly loess in northern China and coral reefs in epitropical sea	
Q1	Sunda-Banda arc		*Orogenic domain*, active plate margin, volcanic arc related complexes	Hamilton, 1979
Q2	Sunda-Banda	Fore- and back-arc basin	*Orogenic domain*, active plate margin, arc related basins	Hamilton, 1979

TECTONIC MAP UNITS FOR THE NORTHWEST QUADRANT TECTONIC MAP OF THE CIRCUM-PACIFIC MAP PROJECT-DESCRIPTION (MARINE AREA)

(these units are shown on the time/space plot and some on the map as noted)

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Letter symbol	Region	Structural name Age span and	Tectonic setting (interpretation and brief description)	References
	MESOZOIC UNIT			
5	Mariana Platelet	Mariana Ridge	*Orogenic domain*, prerifting arc	Ingle, 1975; Scheibner and others, 1991
6	Indoesia	Gorontalo Basin	*Oceanic crustal domainc*	
7	Indoesia	Halwhera Basin	*Oceanic crustal domain*	
KJ	JURASSIC TO CRETACEOUS UNIT			
KJ	Indoesia	Banda Sea	*Oceanic crustal domain*	
KJ	JURASSIC CRETACEOUS UNIT			
KJ8	Banda Sea	Banda Sea	*Oceanic domain*, Oceanic crust	Scheibner and others, 1991
ToJ	JURASSIC TO OLIGOCENE UNIT			
ToJ	Burma Plate	Andaman-Nicobar Ridge	*Orogenic domain*, ophiolite and sedimentary rocks	Curray and others, 1979; Brunschweiler, 1974; Scheibner and others, 1991
QJ	JURASSIC TO QUATERNARY UNIT			
QJ3	Yellow Sea	Yellow Sea Basins	*Continental margin*, rift and drift sequence	Letouzey and others, 1988
QJ4	East China Sea	East China Sea Basins	*Continental margin*, rift and drift sequence	Scheibner and others, 1991
QJ5	Bay of Bengal	East China Sea Basins	*Continental margin*, rift and drift sequence	Scheibner and others, 1991
QK	CRETACEOUS TO QUATERNARY			
QK (see Cz17 North America Plate)	Okhotsk Sea	+Tartary Trough rifting margin basin	*Orogenic domain*, sedimentary rocks	Gnibidenko, 1985; Gnibidenko and Svarochevsky, 1984
K_2	LATE CRETACEOUS UNIT			
K_2	Okhotsk Sea	+East Sakhalin Basin, basement	*Orogenic domain*, sedimentary, volcanic rocks	Gnibidenko, 1985; Gnibidenko and Svarochevsky, 1984
K_2	Indian Ocean	Indian Ocean crust	*Orogenic domain*	
TK_2	LATE CRETACEOUS TO TERTIARY UNIT			
TK_2	Indian Ocean	Mergui Ridge	*Orogenic domain*, ?extinct volcanic arc or older basement covered by QTpa	Scheibner and others, 1991

*Only on T/S plot; on map Pz8 from Nokleberg and others, 1994
+Only on T/S plot

Letter symbol	Region	Structural name Age span and	Tectonic setting (interpretation and brief description)	References
$TpaK_2$	LATE CRETACEOUS TO PALEOCENE UNIT			
$TpaK_2^3$	Okhotsk Sea	St. lona Block (not on T/S plot and map)	*Orogenic domain*, sedimentary rocks, granitic intrusives	Gnibidenko, 1985; Gnibidenko and Svarochevsky, 1984
$TpaK_2^2$	North Philippine Sea, Philippine Plate	Amami Plateau	*Orogenic domain*, remnant arc	Kato, 1993; Yuasa, 1994
$TpaK_2^1$	Southern Philippine Sea	(West) Philippine Basin Kikai Basin	*Oceanic crustal domain*	Scheibner and others, 1991
$TpaK_2$	Indian Ocean	Indain Oceanic crust	*Oceanic crustal domain*	
QK_2	LATE CRETACEOUS TO QUATERNARY UNIT			
QK_2^2	Northwest Pacific Ocean	Nankai accretionary prism	*Orogenic domain*, active plate margin, accretionary prism	Okamura, 1994
QK_2^3	Chukehi Sea		*rift sequence*	
Tp	PALEOGENE UNIT			
Tp^{12}	Northwest Pacific Ocean	Northeast Japan Arc Trench Gap basement of forearc basin	*Orogenic domain,* pre-rifting sedimentary rocks	Okamura, 1994
Tp^{13}	Philippine Plate	Ogasawara Ridge	*Orogenic domain*, pre-rifting volcanic volcanic and sedimentary rocks	Yuasa, 1994
Tp^{14}	Philippine Plate	Izu-Ogasawara (Bonin) Arc Trench Gap	*Orogenic domain*, active plate margin, slope sedimentary complex	Yuasa, 1994
Tp^{15}	Philippine Plate	Kyushu-Palau Ridge	*Orogenic domain*, pre-rifting volcanic chain	Scheibner and others, 1991; Yuasa, 1994
Tp^{16}	Mariana Platelet	West Mariana Ridge	*Orogenic domain*, pre-rifting volcanic and sedimentary rocks	Scheibner and others, 1991; Yuasa, 1994
Tp^{17}	Mariana Platelet	Guam	*Orogenic domain*, volcanic rocks	Palfreyman, 1988
TeTpa	PALEOCENE TO EOCENE UNIT			
$TeTpa^1$	Philippine Plate	(West) Philippine Basin	*Oceanic domain*, active plate-margin-related	Scheibner and others, 1991; Yuasa, 1994
$TeTpa^2$	Philippine Plate	South China Sea	Passive margin, rift sequence	
QTpa	PALEOCENE TO QUATERNARY UNIT			
$QTpa^1$	Mariana Platelet	Mariana Ridge(Guam)	*Orogenic domain*, active plate-margin-related volcanic chain	Scheibner and others, 1991; Yuasa, 1994
$QTpa^2$	Mariana Platelet	South China Sea	Passive margin sequence, differentiated; small areas rift/drift	
Te	EOCENE UNIT			
Te	Indonesia	Celebes Sea	*Oceanic crustal domain*	
ToTe	EOCENE TO OLIGOCENE UNIT			
ToTe	Philippine Sea	(West) Philippine Basin	*Oceanic crustal domain*	Scheibner and others, 1991; Yuasa, 1994
QTe	EOCENE TO QUATERNARY UNIT			
QTe^1	Northwest Pacific Ocean	Northeast Japan Arc Trench Gap	*Orogenic domain*, active plate margin, slope sedimentary complex	Okamura, 1994
QTe^2	Northwest Pacific Ocean	Ryukyu forearc basin	*Orogenic domain*, forearc basin sediments	Okamura, 1994

Letter symbol	Region	Structural name Age span and	Tectonic setting (interpretation and brief description)	References
QTe[3]	Northwest Pacific Ocean	Ryukyu Arc Trench Gap	*Orogenic domain*, slope sedimentary complex	Okamura, 1994
QTe[4]	North Philippine Sea	Daito-Okidaito-Minamidaito Ridges	*Orogenic domain*, ?remnant arc rocks	Okamura, 1994
QTe[5]	Philippine Sea	Izu-Ogasawara (Bonin) Arc Trench Gap	*Orogenic domain*, forearc basin sediments over accretionary prism	Scheibner and others, 1991; Okamura, 1994
QTe[6]	Philippine Sea	Mariana Arc Trench Gap	*Orogenic domain*, forearc basin sediments over accretionary prism mostly subducted	Scheibner and others, 1991; Yuasa, 1994
QTe[7]	Philippine Sea	Oceanic plateau Philippine Sea (not on T/S plot)	*Intraplate volcanic*, (?)	
QTe[8]	Sunda Arc Trenxh Gap	Forearc basin	*Orogenic crustal domain*, forearc basin, sedimentary rocks	Okamura, 1994
QTe[9]	Southeast Palawan Basin	West Sulu Basin	*Continental margin setting*, drift sequence	Okamura, 1994
QTe[10]	Yellow Sea	Huabei Bottai Basin	*Platform cover*	Okamura, 1994
To	OLIGOCENE UNIT			
To	Philippine Sea	South China Sea	*Oceanic domain*, oceanic crust	
QTo	OLIGOCENE TO QUATERNARY UNIT			
QTo	Malaysia	Malaysia Basin	*Continental margin setting*, drift sequence	Scheibner and others, 1991; Taylor and Hayes, 1983
TmTo	OLIGOCENE TO MIOCENE UNIT			
TmTo[1]	Philippine Plate	Ryukyu Ridge	*Orogenic domain*, basement of island arc	Letouzey and others, 1988; Yuasa, 1994
TmTo[2]	Philippine Plate	Shikoku Basin	*Oceanic crustal domain*	Scheibner and others, 1991; Yuasa, 1994
TmTo[3]	Philippine Plate	Parece Vella (West Mariana) Basin	*Oceanic crustal domain*	Scheibner and others, 1991; Yuasa, 1994
TmTo[4]	China Sea	South China Sea Basin	*Oceanic crustal domain*	Letouzey and others, 1988; Scheibner and others, 1991; Briais and others, 1993
TmTo[5]	Japan Sea	Japan Basin	*Oceanic crustal domain*	Tamaki, 1988; Tamaki and others, 1992
TmTo[6]	Japan Sea	Sado Ridge	*Continental margin setting*, drift sequence	Tamaki, 1988; Tamaki and others, 1992
TmTo[7]	Japan Sea	Yamato Basin	*Continental margin*, rift and drift sequence	Tamaki, 1988; Tamaki and others,1992
Tma	Japan Sea	Korea Rise	*Continental margin setting*, drift sequence over Paleozoic to Archean basement	Tamaki, 1988; Tamaki and others, 1992
TmPz	Japan Sea	Yamato Rise	*Continental margin setting*, drift sequence over Paleozoic basement	Tamaki, 1988; Tamaki and others, 1992
Tn	NEOGENE UNIT			
Tn[22]	Northwest Pacific Ocean	Northeast Japan Forearc Basins	*Orogenic domain*, basement of forearc basin, sedimentary rocks	Okamura, 1994

Letter symbol	Region	Structural name Age span and	Tectonic setting (interpretation and brief description)	References
Tn[23]	Northwest Pacific Ocean	Southwest Japan Forearc Basins	*Orogenic domain*, basement of forearc basin, sedimentary rocks	Okamura, 1994
Tn[24]	Northwest Pacific Ocean	Taiwan-Shinzi Fold Zone	*Transitional sequence*, sedimentary rocks	Letouzey and others, 1988
Tn[25]	Philippine Plate	Izu-Ogasawara (Bonn) Ridge	*Orogenic domain*, active plate margin-related volcanic chain	Yuasa, 1994
Tn[26]	Philippine Plate	Mariana Ridge	*Orogenic domain*, active plate margin-related volcanic chain	Scheibner and others, 1991; Yuasa, 1994
Tn[27]	Philippine Plate	Philippine Arc Trench Gap (not on T/S plot)	*Orogenic domain*, accretionary prism	Scheibner and others, 1991
Tn[28]	Indonesia	Sulu Sea Basin	*Orogenic crustal domain*	
QTn	NEOGENE TO QUATERNARY UNIT			
QTn[14]	Japan	Northeast Japan Forearc Basins	*Orogenic domain*, forearc basin	Okamura, 1994
QTn[15]	Japan	Southwest Japan Forearc Basins	*Orogenic domain*, forearc basin	Okamura, 1994
QTn[16]	Japan	Okinawa Trough Basin	*Orogenic domain*, backarc rifting basin	Letouzey and others, 1988; Yuasa, 1994
QTn[17]	Philippine Sea	Ogasawara Forearc Basin	*Orogenic domain*, forearc basin	Yuasa, 1994
QTn[18]	South China Sea	South China Sea Basin (not on T/S plot)	*Oceanic crustal domain,* seamounts	Letouzey and others, 1988; Scheibner and others, 1991; Briais and others, 1993
QTn[19]	Philippine	Manila Arc Trench Gap	*Orogenic domain*, active plate margin, accretionary prism	Letouzey and others, 1988; Scheibner and others, 1991
QTn[20]	Philippine	Manila Trench Forearc Basin	*Orogenic domain*, forearc basin	Letouzey and others, 1988; Scheibner and others, 1991
QTn[21]	Indian Ocean	Andaman-Nicobar Ridge	*Orogenic domain*, volcanic and sedimentary rocks	Scheibner and others, 1991
QTn[22]	Indian Ocean	Andaman Sea Basin	*Oceanic crustal domain*, ocean crust	Scheibner and others, 1991
QTn[23]	Indian Ocean	Kyushu-Palau Ridge	*Oceaniuc domain*, active plate margin volcanic chain	
QTn[24]		West Mariana Ridge	*Orogenic domain*, active plate margin-related volcanic arc	Yuasa, 1994
Tm	MIOCENE UNIT			
Tm		South China Sea	*Oceanic domain*, oceanic crust	
QTpl	PLIOCENE TO QUATERNARY UNIT			
QTpl[1]	Okhotsh Sea	Deryugin Basin	*Platform cover*, sedimentary rocks	Gnibidenko, 1985; Gnibidenko and Svarochevsky, 1984

Letter symbol	Region	Structural name Age span and	Tectonic setting (interpretation and brief description)	References
QTpl[4]	Japan	Ryukyu Ridge	*Orogenic domain*, active plate margin-related volcanic chain	Letouzey and others, 1988; Yuasa, 1994
QTpl[7]	Philippine Sea	Izu-Ogasawara (Bonin) Ridge	*Orogenic domain*, active plate margin-related volcanic chain	Yuasa, 1994
QTpl[8]	Philippine Sea	Mariana Trough (Basin)	*Oceanic crustal domain*	Scheibner and others, 1991; Yamazaki and others, 1991; Yuasa, 1994
QTpl[9]	Indian Ocean	Andaman Sea Basin	*Oceanic crustal domain,* oceanic crust	Scheibner and others, 1991
QTpl[10]		Philippine Trench complex	*Oceanic domain*, volcanic arc overlying accretionary margin	

References Cited and Additional Sources of Data

Abrams, L.J., Larson, R.L., Shipley, T.H., and Lancelot, Y., 1993, Cretaceous volcanic sequences and Jurassic oceanic crust in the East Mariana and Pigafetta Basin of the western Pacific, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., The Mesozoic Pacific; Geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p. 77-101.

Academy of Geological Sciences of China, 1975, Geological map of Asia: Beijing, scale 1:5,000,000.

Aitchison, J.C., 1988, Late Paleozoic radiolarian ages from the Gwydir terrane, New England orogen, eastern Australia: Geology 16, p. 793-795.

Aitchison, J.C., Clarke, G.L., Meffre, S., and Cluzel, D., 1995, Eocene arc-continent collision in New Caledonia and implications for regional southwest Pacific tectonic evolution: Geology, v. 23, no. 2, p. 161-164.

Aitchison, J.C., and Flood, P.G., 1992, Early Permian transform margin development of the southern New England orogen, eastern Australia (eastern Gondwana): Tectonics 11, p. 1385-1391.

Aitchison, J.C., Ireland, T.R., Blake, M.C., Jr., and Flood, P.G., 1992, 530 Mazircon age for ophiolite from the New England orogen; oldest known rocks from eastern Australia: Geology 20, p. 125-128.

Albers, J.P., 1983, Distribution of mineral deposits in accreted terranes and cratonal rocks of western United States: Canadian Journal of Earth Science, v. 20, p. 1019-1029

Alvarex-Marron, J., McClay, K.R., Harambour, S., Rojas, L., and Skarmeta, J., 1993, Geometry and evolution of the frontal part of the Magallanes foreland thrust and fold belt (Vicuna Area), Tierra del Fuego Southern Chile: American Association of Petroleum Geologists Bulletin, v. 77, no. 11, p. 1904-1921.

Anderson, T.H., and Schmidt, V.A., 1983, The evolution of Middle America and the Gulf of Mexico - Caribbean Sea Region during Mesozoic time: Geological Society of America Bulletin, v. 94, p. 941-966.

Arthurs, J.W., 1979, Mineral occurrences in the Solomon Islands: Solomon Islands Geological Survey Bulletin 13, 55 p.

Association of Southeast Asian Nations Council on Petroleum (ASCOPE), 1981, Tertiary sedimentary basins of the Gulf of Thailand and South China Sea; stratigraphy, structure and hydrocarbon occurrences: Jakarta, Indonesia,72 p.

Atwater, T., and Severinghaus, J., 1989, Tectonic maps of the northeast Pacific, *in* Winterer, E.L., Hussong, D.M., and Decker, R.W., eds., The Eastern Pacific Ocean and Hawaii: Boulder, Colorado, Geological Society of America, The Geology of North America, v. N.

Audley-Charles, M.G., 1968, The geology of Portuguese Timor: Geological Society of London Memoir 4, p. 1-76.

Audley-Charles, M.G., 1974, Banda arcs, *in* Spencer, A.M., ed., Mesozoic-Cenozoic orogenic belts: Geological Society of London Special Publication 4, p. 349-363.

Audley-Charles, M.G., 1978, The Indonesian and Philippine archipelagos, *in* Moullade, M. and Nairn, A.E.M., eds., The Phanerozoic geology of the world, v. II, The Mesozoic, A: Amsterdam, Elsevier Publishing Company, p. 165-207.

Audley-Charles, M.G., 1983, Comment on analogous tectonic evolution of the OrdovicIan foredeeps, southern and central Appalachians: Geology, v. 11, p. 490-493.

Audley-Charles, M.G., and others, 1979, Reinterpretation of the geology of Seram; implications for the Banda arcs and northern Australia: Journal of the Geological Society of London, v. 136, p. 547-568.

Australia Bureau of Mineral Resources, Geology, and Geophysics, 1979-1981, Earth Sciences Atlas: Canberra, scale 1:10,000,000

Austria, B.S., and Reyes, Jr., R.A, 1992, Possibilities of W. Batangas basin in Philippines South China Sea: Oil and Gas Journal, June 8, 1992, p. 74-80..

Auzende, J.-M., Lavoy, T., and Marsset, B., 1988, Recent geodynamic evolution of the north Fiji Basin (southwest Pacific): Geology, v. 16, p. 925-929.

Auzende, J.-M., and others, 1986a, Accretion oceanique et deformation dans la partie meridionale du bassin Nord Fidjien; resultats preliminaires de la campagne oceanographique SEAPSO III du N.O.: Paris, Comptes Rendus de la Academie des Sciences, ser. 2, 1, v. 303, p. 93-98.

Auzende, J.-M., and others, 1986b, Tectonique intraoceanique decrochante a l'oueste des iles Fidji (Bassin Nord Fidjien), campagne SEAPSO III du N.O.: Paris, Comptes Rendus de l'Academie des Sciences, ser. 2, 3, v. 303, p. 241-246.

Auzende, Jean-Marie, Pelletier, Bernard, and Lafoy, Yves, 1994, Twin active spreading ridges in the North Fiji Basin (southwest Pacific): Geology, v. 22, p. 63-66.

Bain, J.H.C., and others, 1972, Geology of Papua New Guinea: Australia Bureau of Mineral Resources, Geology, and Geophysics, scale 1:1,000,000.
Ballance, P.F., and Reading, H.G., eds., 1980, Sedimentation in oblique-slip mobile zones: International Association of Sedimentologists Special Publication 4, 264 p.
Barber, A.J., 1981, Structural interpretations of the island of Timor, eastern Indonesia, *in* Barber, A.J., and Wiryosujono, S., eds., The geology and tectonics of eastern Indonesia: Indonesia Geological Research and Development Centre Special Publication 2, p. 183-197.
Barber, A.J., Audley-Charles, M.G., and Carter, D.J., 1977, Thrust tectonics in Timor: Journal of the Geological Society of Australia, v. 24, p. 51-62.
Barber, A.J., and others, 1981, The geology and tectonics of eastern Indonesia: review of the studies on East Asia tectonics and resources (SEATAR) workshop, 9-14 July, 1979, Bandung, Indonesia, *in* Barber, A.J., and Wityosujuno, S., eds., The geology and tectonics of eastern Indonesia: Indonesia Geological Research and Development Centre Special Publication 2, p. 7-28.
Beady, D., and Moore, G.P., 1981, Seismic-stratigraphic framework of the forearc basin off central Sumatra, Sunda arc: Earth and Planetary Science Letters, v. 54, p. 17-28.
Beck, M.E. Jr., 1976, Discordant paleomagnetic pole positions as evidence of regional shear in the western Cordillera of North America: American Journal of Science, v. 276, p. 694-712.
Beck, M.E. Jr., 1992, Tectonic significance of Paleomagnetic results for the Western Conterminous United States, *in* Burchfiel, B.C., Lipman, P.W., Zoback, M.L., eds., The Cordilleran Orogen; Conterminous U.S.: Boulder, Colorado, Geological Society of America, The Geology of North America, v. G-3.
Bally A.W., and Palmer, A.R., 1989, eds., The geology of North America-An overview: Geological Society of America, The Geology of North America, v. A.
Belasky, Paul, and Runnegar, Bruce, 1994, Permian longitudes of Wrangellia, Stikinia, and Eastern Klamath terranes based on coral biogeography: Geology, v. 22, p. 1095-1098.
Ben-Avraham, Z., and Emery, K.O., 1973, Structural framework of Sunda Shelf: American Association of Petroleum Geologists Bulletin, v. 57, p. 2323-2366.
Ben-Avraham, Z., Nur, Z., Jones, D., and Cox, A., 1981, Continental accretion; from oceanic plateaus to allochthonous terranes: Science, v. 213, p. 46-54.
Bender, F., 1983, Geology of Burma: Berlin, Gebruder Borntrager, 293 p.
Bentz, F.P., 1974, Marine geology of the southern Lord Howe Rise, southwest Pacific, *in* Burk, C.A., and Drake, C.L., eds., The geology of continental margins: New York, Springer-Verlag, p. 537-547.
Bergersen, D.D., 1993, Geology and geomorphology of Wodejebato (Sylvania) Guyot, MarshaIl Islands, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p. 367-385.
Bering Strait Geologic Field Party, 1997, Koolen metamorphic complex, NE Russia; implications for the tectonic evolution of the Bering Strait region: Tectonics, v. 16, no. 5, p. 713-729.
Berry, R.F., and Crawford, A.J., 1988, The tectonic significance of Cambrian allochthonous mafic-ultramafic complexes in Tasmania: Australian Journal of Earth Sciences 35, p. 523-533.
Bickford, M.E., 1988, The formation of continental crust: Part 1: A review of some principles; Part 2. An application to the Proterozoic evolution of southern North America, Geological Society of America Bulletin, v. 100, p. 1375-1391.
Bishop, D.G., Bradshaw, J.D., and Landis, C.A., 1985, Provisional terrane map of the South Island, New Zealand *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Sciences Series, v. 1, p. 515-521.
Bishop, D.G., and others, 1976, Lithostratigraphy and structure of the Caples Terrane of the Humboldt Mountains, New Zealand: New Zealand Journal of Geology and Geophysics, v. 19, p. 827-848.
Blake, M.C., Jr., and others, 1985, Tectonostratigraphic terranes in southwest Oregon, *in* Howell, D.G., ed., Tectonostratigraphic Terranes of the Circum-Pacific Region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1**,** p. 147-157.
Blake, M.C., Jr., and others, 1985, Tectonostratigraphic terranes of the northern Coast Ranges, California, *in* Howell, D.G., ed., Tectonostratigraphic Terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1**,** p. 159-171.
Blake, M.R, Jr., and Murchey, B.L., 1988, A California model for the New England Fold Belt: New South Wales Geological Survey Quarterly Notes, no. 72, p. 1-9.

Bloomer, S.H., Stern, R.J., Fisk, E., and Geshwind, C.H., 1989, Shoshonitic volcanism in the northern Mariana Arc, 1. Mineralogic and major and trace element charcteristics: Journal of Geophysical Research 94, p. 4469-3396.

Bogdanov, N.A., and Tilman, S.M., 1993, Tectonic map of Northeastern Asia: Russian Academy of Sciences and Circum-Pacific Council for Energy and Mineral Resources, 1:5,000,000.

Bollinger, W., and de Ruiter, P.A.C., 1975, Geology of the south central Java offshore area: Indonesian Petroleum Association, Proceedings of the 4th Annual Convention, p. 67-82.

Bowin, C.O., and others, 1980, Arc-continent collision in Banda Sea region; American Association of Petroleum Geologists BuIletin, v. 64, p. 868-915.

Bracey, D.R,, and Andrews, J.E., 1974, Western Caroline Ridge; relic island arc?: Marine Geophysical Research, v. 2, p. 111-125.

Branson, J.C., 1978, Evolution of sedimentary basins from Mesozoic times in Australia's continental slope and shelf: Tectonophysics, v. 48, p. 389-412.

Breen, N.A., and Silver, E., 1989, The Wetar backarc thrust belt, eastern Indonesia; the effect of accretion against an irregular shaped arc: Tectonics 8, p. 85-98.

Briais, A., Patriat, P., and Tapponnier, P., 1993, Updated interpretation of magnetic anomalies and seafloor spreading stages in the South China Sea; implications for Tertiary tectonics of southeast Asia: Journal of Geophysical Research 98, p.

Brocher, T.M., ed., 1985, Investigations of the northern Melanesian borderland: Circum-Pacific Council for Energy and Mineral Resources Earth Sciences Series, v. 3, 199 p.

Brocher, T.M., Taylor, B., and Kroenke, L.W., 1983, Mineral resource studies in the southwest Pacific, 1982: University of Hawaii, Hawaii Institute of Geophysics, 52 p.

Brown, C.M., 1980, Arafura and Money Shoal basins; stratigraphic correlation between sedimentary basins of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) region: ESCAP Atlas of Stratigraphy II**,** Mineral Resources Development Series, v. 7, no. 46, p. 52-57.

Brown, C.M., Pigram, C.J., and Skwarko, S.K., 1979-1980, Mesozoic stratigraphy and geological history of Papua New Guinea: Paleogeography, Paleoclimatology, Paleoecology, v. 29, p. 301-322.

BrunschweiIer, R.O., 1974, Indoburman Ranges, *in* A.M., Spencer, ed., Mesozoic-Cenozoic orogenic belts: Geological Society of London Special Publication 4, p. 279-299.

Bryan, W.B., Stice, G.D., and Ewart, A., 1972, Geology, petrography, and geochemistry of the volcanic islands of Tonga: Journal of Geophysical Research, v. 77, p. 1566-1585.

Bryan, P.C., Shoberg, T., Gordon, R.G., Petronotis, K.E., and Bergersen, D.D., 1993, A paleomagnetic pole and estimated age for Lo-En Guyot, Republic of the MarshaII Islands, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., 1993, The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p. 387-400.

Burchfiel, B.C., Lipman, P.W., Zoback, M.L., eds., The Cordilleran Orogen; Conterminous U.S.: Boulder, Colorado, Geological Society of America, The Geology of North America, v. G-3.

Bureau of Geology and Mineral Resources of Anhui Province, 1987, Regional geology of Anhui Province: Geol. Memoirs, ser. l, no. 5, Beijing, Geol. Pub. House, 721 p.

Bureau of Geology and Mineral Resources of Fujian Province, 1985, Regional geology of Fujian Province: Geol. Memoirs, ser. 1, no. 4, Beijing, Geol. Pub. House, 671 p.

Bureau of Geology and Mineral Resources of Gansu Province, 1989, Regional geology of Gansu Province: Geol. Memoirs, ser. 1, no. 19, Beijing, Geol. Pub. House, 690 p.

Bureau of Geology and Mineral Resources of Guangdong Province, 1988, Regional geology of Guangdong Province: Geol. Memoirs, ser. 1, no. 9, Beijing, Geol. Pub. House, 941 p.

Bureau of Geology and Mineral Resources of Guizhou Province, 1987, Regional geology of Guizhou Province: Geol. Memoirs, ser. l, no. 7, Beijing, Geol. Pub. House, 698 p.

Bureau of Geology and Mineral Resources of Hebei Province, 1989, Regional geology of Hebei Province: Beijing Municipality and Tianjing Municipality, Geol. Memoirs, ser. 1, no. 15, Beijing, Geol. Pub. House, 741 p.

Bureau of Geology and Mineral Resources of Henan Province, 1989, Regional geology of Henan Province: Geol. Memoirs, ser. 1, no. 17, Beijing, Geol. Pub. House, 772 p.

Bureau of Geology and Mineral Resources of Hubei Province, 1990, Regional geology of Hubei Province: Geol. Memoirs, ser. 1, no. 20, Beijing, Geol. Pub. House, 705 p.

Bureau of Geology and Mineral Resources of Jiangxi, Hunan, Fijian, Guangdong and Guangxi Provinces, 1984, Geological map of Nanling and neighbouring area, China, scale 1:1,000,000. Beijing, Geo1. Pub. House, scale 1:1,000,000.

Bureau of Geology and Mineral Resources of Jiangxi Province, 1984, Regional geology of Jiangxi Province: Geol. Memoirs, ser. 1, no. 2, Beijing, Geol. Pub. House, 921 p.

Bureau of Geology and Mineral Resources of Jilin Province, 1988, Regional geology of Jilin Province: Geol. Memoirs, ser. 1, no. 10, Beijing, Geol. Pub. House, 698 p.

Bureau of Geology and Mineral Resources of Liaoning Province, 1989, Regional geology of Liaoning Province: Geol. Memoirs, ser. 1, no. 14, Beijing, Geol. Pub. House, 856 p.

Bureau of Geology and Mineral Resources of Shaanxi Province, 1989, Regional geology of Shanxi Province: Geol. Memoirs, ser. 1, no. 18, Beijing, Geol. Pub. House, 780 p.

Bureau of Geology and Mineral Resources of Shaanxi Province, 1989, Regional geology of Shaanxi Province: Geol. Memoirs, ser. l, no. 13, Beijing, Geo1. Pub. House, 698 p.

Bureau of Geology and Mineral Resources of Yunnan Province, 1990, Regional geology of Yunnan Province: Geol. Memoirs, ser. l, no. 21, Beijing, Geo1. Pub. House, 728 p.

Bureau of Geology and Mineral Resources of Zhejiang Province, 1989, Regional geology of Zhejiang Province: Geol. Memoirs. ser. 1, no. 11, Beijing, Geol. Pub. House, 688 p.

Burk, C.A., 1965, Geology of Alaska Peninsula--Island arc and continental margin: Geological Society of America Memoir, v. 99, 250 p.

Burrett, C.F., and Martin, E.L., 1989, Geology and mineral resources of Tasmania: Geological Society of Australia Special Publication 15,574 p.

Burton, C.K., 1973, Mesozoic, *in* Gobbett, D.J., and Hutchison, C.S., eds., Geology of the Malay Peninsula: New York, Wiley Interscience, p. 97-141.

Burton, C.K., 1974, Peninsular Thailand, *in* Spencer, A.M., ed., Mesozoic-Cenozoic orogenic belts: Geological Society of London Special Publication 4, p. 301-315.

Cameron, N.R., and others, 1980, The geological evolution of northern Sumatra: Indonesian Petroleum Association, Proceedings of the 9th Annual Convention, p. 149-187.

Campa U., M.F., and Coney, P.l., 1983, Tectono-stratigraphic terranes and mineral resource distribution in Mexico: Canadian Journal of Earth Science, v. 20, p. 1040-1051.

Campa U., M.F., 1985, The Mexican thrust belt, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v.1, p. 299-313.

Cande, S.C., and Haxby, 1991, Eocene propagating rifts in the southwest Pacific: Journal of Geophysical Research v. 96, no. B12, p. 19, 611.

Cande, S.C., and Mutter, J.C., 1982, A revised identification of the oldest sea-floor spreading anomalies between Australia and Antarctica: Earth and Planetary Science Letters, v. 58, p. 151-160.

Cande, S.C., Stock, J., Raymond, C., and Muller, R.D., 1998, New constraints on plate tectonic puzzle of the SW Pacific: EOS, v. 79, no. 7, p. 81.

Carney, J. N., and Macfarlane, A., 1982, Geological evidence bearing on the Miocene to recent evolution of the New Hebrides arc: Tectonophysics, v. 87, p. 147-175.

Carter, R.M., Carter, L., and Davy, B., 1994, Seismic stratigraphy of the Bounty Trough, south-west Pacific Ocean: Marine and Petroleum Geology, v. 11, no. 1, p. 79-93.

Carter, R.M., Hicks, M.D., Norris, R.J., and Turnbull, L.M., 1977, Sedimentation pattern in an ancient arc-trenchocean basin complex; Carboniferous to Jurassic Rangitata orogen, New Zealand, *in* Stanley, D.J., and Kelling, G., eds., Sedimentation in submarine canyons, fans, and trenches: Stroudsburg, Pennsylvania, Dowden, Hutchinson and Ross, p. 340-361.

Carter, L., Eade, J.V., Mitchell, J.S., and Rees, B.J., 1977, A morphologic guide to the continental-oceanic crustal boundary around New Zealand: Wellington, New Zealand Oceanographic Institute Oceanographic Summary, no. 13, 18 p.

Cas, R., 1983, Paleogeographic and tectonic development of the Lachlan Fold Belt, southeastern Australia: Geological Society of Australia Special Publication, no. 10, 104 p.

Case, J.E., and Dengo, G., 1982, The Caribbean Region, *in* Palmer, A.R, Perspectives in Regional Geological Synthesis, Geological Society of America: DNAG Special Publication v. 1, p.163-170.

Case, J.E., and Holcombe, T.L., 1980, Geologic-tectonic map of the Caribbean region: U.S. Geol. Survey Miscellaneous Investigations Map 1-1100, scale 1:2,500,000.
Case, J.E., Holcombe, T.L., and Martin, R.G., 1984, Map of geologic provinces in the Caribbean region: Geological Society of America Memoir v. 162, p. 1-30.
Cawood, P.A., 1976, Cambro-Ordovician stratam northern New South Wales: Search 7, p. 317-318.
Cawood, P.A., 1984, The development of the southwest Pacific margin of Gondwana; Correlations between the Rangitata and New England Orogens: Tectonics 3, 539-553.
Committe for Coordination of Joint Prospecting, 1991, Total sedimentary isopach maps offshore East Asia: Technical Bulletin, v. 23, 116 p.
Central Geological Survey of Taiwan, 1986, General geological map of Taiwan: Central Geological Survey of Taiwan, scale 1:1,000,000.
Chase, C.G., 1971, Tectonic history of the Fiji Plateau: Geological Society of America Bulletin, v. 82, p. 3087-3110.
Chase, RL., Tiffin, D.L., and Murray, J.W., 1975, The western Canada continental margin, *in* Yorath, C.J., Parker, E.R., and Glass, D.J., eds., Canada's continental margins: Canadian Society of Petroleum Geologists, Memoir v. 4, p. 701-721.
Chen, G., 1989, Tectonics of China: Pergamon Press, 258p. Commission for the compilation of the metamorphic map of China. 1986, Metamorphic map of China, Beijing, Geol. Pub. House, scale 1:4,000,000.
Chin, R.J., and de Laeter, J.R., 1980, The relationship of new Rb-Sr isotopic dates from the Rudall metamorphic complex to the geology of the Paterson province: Geological Survey of Western Australia Annual Report for 1980, p. 80-86.
Chinese Academy of Geological Sciences, 1979, Tectonic map of China: Beijing, Cartographic Pub. House, scale 1:4,000,000.
Chinese Academy of Geological Sciences, 1982a, An outline of the stratigraphy of China: Beijing, Geol. Pub. House, 445 p.
Chinese Academy of Geological Sciences, 1982b, Tectonic map of Asia: Beijing, Cartographic Pub. House, scale 1:8,000,000.
Chinese Academy of Geological Sciences, 1984, Tectonic systems map of the People's Republic of China and adjoining sea area: Beijing, Cartographic Pub. House, scale 1:2,500,000.
Choi, D.L.T., 1983, Sabah: Annual Report of the Geological Survey of Malaysia for 1981, p. 119-128.
Christoffel, D.A., and Falconer, R.K.H., 1972, Marine magnetic measurements in the southwest Pacific Ocean and identification of new tectonic features, *in* Hayes, D.E., ed., Antarctic oceanology II; the Australian-New Zealand sector: American Geophysical Union, Antarctic Research Series, v. 19, p. 197-209.
Chung, W.Y., and Kanamori, H., 1978, Tectonic anomalies in ridge subduction in the New Hebrides Arc: Tectonophysics, v. 50, p. 29-40.
Churkin, M., Jr., and Eberlein, G.D., 1977, Ancient borderland terranes of the North American Cordillera: Correlation and microplate tectonics: Geological Society of America Bulletin, v. 88, p. 769-786.
Churkin, M., Jr., Carter, C., and Trexler, J.H., Jr., 1980, Collision-deformed Paleozoic continental margin of Alaska - Foundation for microplate accretion: Geological Society of America Bulletin, Part 1, v. 91, p. 648-654.
Clague, D.A., 1981, Linear island and seamount chains, aseismic ridges, and intraplate volcanism; results from DSDP: SEPM Special Public, v. 32, p. 7-22.
Clague, D.A., Dalrymple, G.B., Wright, T.L., Klein, F.W., Koyanagi, R.Y., Decker, R.W., and Thomas, D.M., 1989, The Hawaiian-Emperor Chain, *in* Winterer, E.L., Hussong, D.M., and Decker, R.W., eds., The Eastern Pacific Ocean and Hawaii: Boulder, Colorado, Geological Society of America, The Geology of North America, v. N.
Clague, D.A., and Jarrard, R.D., 1973, Tertiary Pacific plate motion deduced from the Hawaiian-Emperor chain: Geological Society of America Bulletin, v. 84, p. 1135-1154.
Coe, R., Globerman, B., Plumley, P., and Thrupp, G., 1985, Paleomagnetic results from Alaska and their tectonic implications, *in* Howell, D.G., ed., tectonostratigraphic Terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series v. 1, p. 85
Cole, J.W., 1982, Tonga-Kermadec-New Zealand, *in* Thorpe, R.S., ed., Andesites, orogenic andesites, and related rocks: New York, John Wiley and Sons, p. 245-258.
Coleman, P.J., 1970, Geology of the Solomon and New Hebrides Islands, as part of the Melanesian re-entrant, southwest Pacific: Pacific Science, v. 24, p. 289-314.
Coleman, P.J., ed., 1973, The western Pacific island arcs, marginal seas, geochemistry: New York, Crane, Russak, and Co., Inc., and University of Western Australia Press, 675 p.

Coleman, P.J., and Kroenke, L.W., 1981, Subduction without volcanism in the Solomon Island arc: Geo-Marine Letters, v. 1, p. 129-134.
Coleman, P.J., and Packham, G.H., 1976, The Melanesian borderlands and India-Pacific Plates boundary: Earth Science Reviews, v. 12, p. 197-233.
Collins, P.L.F., and Williams, E., 1986, Metallogeny and tectonic development of the Tasman Fold Belt System in Tasmania: Ore Geology Reviews, v. 1, p. 155-201.
Collot, J.Y., Daniel, J., and Burne, R.V., 1985, Recent tectonics associated with the subduction/collision of the D'Entrecasteaux zone in the central New Hebrides: Tectonophysics, v. 112, p. 325-356.
Collot, J.Y., Lallemand, S., Pelletier, B., Eissen, J.P., Glacon, G., Fisher, M.A., Greene, H.G., Bouilin, J., Daniel, J., and Moznier, M., 1992, Geology of the D'Entrecasteaux-New Hebrides Arc collison zone; results from a deep submersible survey: Tectonophysics 212, p. 213-241.
Commission for the Compilation of the Metamorphic Map of China, 1986, Metamorphic map of China, scale 1:4,000,000. Geol. Pub. House, Beijing. Compilation Group of the Geological Map of Asia, 1982, The geology of Asia. Geol. Pub. House, Beijing, 314 p.
Commission for the Geological Map of the World, 1982, Tectonic map of south and east Asia (with explanatory brochure); scale 1:5,000,000.
Committee for Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas, Committee for Coordination of Joint Prospecting Project Office, 2d ed., 1981, Studies in East Asia tectonics and resources (SEATAR): Bangkok, 250 p.
Condie, K.C., 1982, Plate-tectonics model for Proterozoic continental accretion in the southwestern United States: Geology, v. 10, p. 37-42.
Coney, P.J., 1972, Cordilleran tectonics and North America plate motion: American Journal of Science, v. 272, p. 603-628.
Coney, P.J., Jones, D.L., and Monger, J.W.H., 1980, Cordilleran suspect terranes: Nature, v. 288, p. 329-333.
Coney, P.J., and Campa, M.F., 1987, Lithotectonic terrane map of Mexico, U.S. Geological Survey Map 1874-D.
Cooper, R.A., 1979, Lower Paleozoic rocks of New Zealand: Royal Society of New Zealand Journal, v. 9, p. 29-84.
Cooper, R.A., and Grindley, G.W., 1982, Late Proterozoic to Devonian sequences of southeastern Australia, Antarctica and New Zealand and their correlation: Geological Society of Australia Special Publication no. 8, 103 p.
Couch, R., and Woodcock, S., 1981, Gravity and structure of the continental margins of southwestern Mexico and northwestern Guatemala: Journal Geophysical Research, v. 86, p. 1829-1840.
Cowan, D.S., 198x, Continent-Ocean Transect B3; Juan de Fuca spreading ridge to Montana Thrust Belt: Geological Society of America.
Cox, S.P., and others, 1983, Lower Ordovician Bendigo trough sequence, Castlemain area, Victoria-deformation style and implications for the tectonic evolution of the Lachlan Fold Belt: Geological Society of Australia Abstract 9, p. 41-42.
Craddock, C., 1989, Geologic map of the Circum-Pacific region, Antarctic sheet: Houston, Circum-Pacific Council for Energy and Mineral Resources, scale 1:10,000,000.
Craddock, C., and others, 1970, Geologic maps of Antarctica: New York, American Geographical Society, Antarctic Folio Series.
Crawford, A.J., and Berry, R.F., 1992, Tectonic implications of Late Proterozoic-Early Paleozoic igneous rock associations in western Tasmania, *in* Fergusson, C.L., and Glen, R.A., eds., The Paleozoic eastern margin of Gondwanaland; Tectonics of the Lachlan Fold Belt, southeastern Australia and related orogens: Tectonophysics 214, p. 37-56.
Crawford, A.J., and Keys, R.R., 1978, Cambrian greenstone belts in Victoria; marginal sea-crust slices in the Tasman Fold Belt of southeastern Australia: Earth and Planetary Science Letters, v. 41, p. 197-208.
Crook, K.A.W., 1980, Forearc evolution in the Tasman geosyncline; the origin of the southeast Australian continental crust: Geological Society of Australia Journal, v. 27, p. 215-232.
Crowell, J.C., 1985, The recognition of transform terrane dispersion within mobile belts, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series 1.
Csejtey, B., and others, 1982, The Cenozoic Denali fault system and the Cretaceous accretionary development of southern Alaska: Journal Geophysical Research, v. 87, p. 3741-3754.

Curray, J.R., and others, 1979, Tectonics of the Andaman Sea and Burma, *in* Watkins, J.S., Montadert, L., and Dickerson, P.W., eds., Geological and geophysical investigation of continental margins: American Association of Petroleum Geologists Memoir 29, p. 189-198.
D'Addario, G.W., Dow, D.B., and Swoboda, R., 1976, Geology of Papua New Guinea: Australia Bureau of Mineral Resources, Geology, and Geophysics, scale 1:2,500,000.
Dalrymple, G.B., and Clague, D.A., 1976, Age of the Hawaiian-Emperor bend: Earth and Planetary Science Letters, v. 31, p. 313-329.
Dalziel, I.W.D., 1991, Pacific margins of Laurentia and East Antarctica-Australia as a conjugate rift pair; evidence and implications for an Eocambrian supercontinent: Geology 19, p. 598-601.
Dalziel, I.W.D., 1992a, Antarctica; a tale of two supercontinents?: Annual Reviews Earth and Planetary Sciences 20, p. 501-526.
Dalziel, I.W.D., 1992b, On the organization of American plates in the Neoproterozoic and breakout of Laurentia: GSA Today 2, no. 11, p. 237, p. 240-241.
Daniel, J., 1978, Morphology and structure of the southern part of the New Hebrides island arc system: Journal of Physics of the Earth, v. 26 Supplement, p. SI81-S190.
Daniel, J., and Katz, H.R., 1981, D'Entrecasteaux zone, trench and western chain of the central New Hebrides island arc; their significance and tectonic relationship: Geo-Marine Letters, v. 1, p. 213-219.
Daniel, J., and others, 1986, Subduction et collisions Ie long de 1'arc des Nouvelles-Hebrides (Vanuatu); resultats preliminaires des campagnes SEAPSO (Leg 1): Comptes Rendus de 1'Academie des Sciences Paris, ser. 2, v. 303, p. 805-810.
Davey, F.J., 1982, The structure of the South Fiji Basin: Tectonophysics, v. 87, p. 185-241.
Davey, F.J., and Christoffel, D.A., 1978, Magnetic anomalies across Campbell Plateau, New Zealand: Earth and Planetary Science Letters, v. 41, p. 14-20.
Davis, A.S., Pringle, M.S., Pickthorn, L.G., Clague, D.Z., and Schwab, W.C., 1989, Petrology and age of alkalic lava from the Ratak Chain of the Marshall Islands: Geophysical Research, 94, p. 5757-5774.
Davis, E.E., and Riddihough, R.P., 1982, TheWinona Basin; structure and tectonics: Canadian Journal of Earth Science, v. 19, p. 767-788.
Davies, H.L., 1971, Peridotite-gabbro-basalt complex in eastern Papua; an overthrust plate of oceanic mantle and crust: Australia Bureau of Mineral Resources, Geology, and Geophysics Bulletin 128, 48 p.
Davies, H.L., and Smith, I.E., 1971, Geology of eastern Papua: Geological Society of America Bulletin, v. 82, p. 3299-3312.
Davies, H.L., Symonds, P.A., and Ripper, I.D., 1984, Structure and evolution of the southern Solomon Sea region: Australia Bureau of Mineral Resources, Journal of Geology and Geophysics, v. 9, p. 49-69.
Davis, D., Suppe, J., and Dahlen, F.A., 1983, Mechanics of fold-and-thrust belts and accretionary wedges: Journal of Geophysical Research, v. 88, p. 1153-1172
Davy, B.W., 1993, The influence of subducting plate buoyancy on subduction of the Hikurangi-Chatham Plateau beneath the North Island, New Zealand: American Association of Petroleum Geologists Memoir 53, p. 75-91..
Day, R.W., Murray, C.G., and Whitaker, W.G., 1978, The eastern part of the Tasman orogenic zone: Tectonophysics, v. 48, p. 327-364.
Day, R.W., and others, 1983, Queensland geology; a companion volume to the 1:2,500,000-scale geological map (1975): Geological Survey of Queensland Publication 383, 194 p.
De Alteriis, Giovanni, Ruellan, E., Auzende, J.-M., and others, 1993, Propagating rifts in the North Fiji basin (southwest Pacific): Geology, v. 21, p, 583-586.
De Boer, J., and others, 1980, The Bataan orogen; eastward subduction, tectonic rotation, and volcanism in the western Pacific: Tectonophysics, v. 67, p. 251-282.
de Cserna, Z., 1989, An outline of the geology of Mexico, *in* Bally, A.W., and Palmer, A.R., eds., The geology of North America-an overview: Boulder, Colorado, Geological Society of America, The Geology of North America, v. A.
Dick, Henry, 1994, ODP looks through tectonic windows: Joint Oceanographic Institutions/U.S. Science Support Program Associated with the Ocean Drilling Program Newsletter, v. 7, no. 2, 12 p.
Direction Geographique Nationale du Vietnam, 1971, Carte geologique Vietnam-Kampuchia-Lao (3rd ed.), scale 1:2,000,000.
Direktorat Geologi (Geological Survey of Indonesia), 1970, Peta Geologi, Kalimantan Barat dan Barat-Daja: scale 1:500,000.

Domack, E.W., Fairchild, W.W., and Anderson, J.B., 1980, Lower Cretaceous sediment from the east Antarctic continental shelf: Nature, v. 287, p. 625-626.
Douglas, J.G., and Ferguson, J.A. eds., 1988, Geology of Victoria: Geological Society of Victoria, Victorian Melbourne Division, 663 p.
Douglas, R.J.W., and others, 1970, Geotectonic correlation chart for Western Canada, Chart III, *in* Douglas, R.J.W., ed., Geology and economic minerals of Canada, 5th ed.: Geological Survey of Canada, Economic Geology Report no.1.
Doutch, H.F., and Nicholas, E., 1978, The Phanerozoic sedimentary basins of Australia and their tectonic implications: Tectonophysics, v. 48, p. 365-388.
Doutch, H.F., and others, 1981, Plate-tectonic map of the Circum-Pacific region, southwest quadrant: Tulsa, Circum-Pacific Council for Energy and Mineral Resources, scale 1:10,000,000.
Dow, D.B., 1977, A geological synthesis of Papua New Guinea: Australia Bureau of Mineral Resources, Geology, and Geophysics Bulletin 201, 41 p.
Dow, D.B., and Hartono, U., 1982, The nature of the crust underlying Cenderwasih (Geelvink) Bay, Irian Jaya: Bandung, Geological Research and Development Centre Bulletin, v. 6, p. 30-36.
Dow, D.B., Robinson, G.P., Hartono, U., and Ratman, N., 1986, Geological map of Irian Jaya: Bandung, Geological Research and Development Centre, scale 1: 1 ,000,000.
Dow, D.B., and Sukamto, R., 1984, Western Irian Jaya; the end-product of oblique plate convergence in late Tertiary: Tectonophysics, v. 106, p. 109-139.
Drewry, D.J., 1976, Sedimentary basins of the East Antarctic Craton from geophysical evidence: Tectonophysics, v. 36, p. 301-314.
Drummond, K.J., 1981, Plate tectonic map of the Circum-Pacific Region, Northeast Quadrant: American Association of Petroleum Geologists, scale 1:10,000,000.
Drummond, K.J., 1983, Geologic Map of the Circum-Pacific region, northeast quadrant: American Association of Petroleum Geologists, scale 1:10,000,000.
Drummond, K.J., 1984, Geodynamic map of the Circum-Pacific region, northeast quadrant: American Association of Petroleum Geologists, scale 1:10,000,000.
Drummond, K.J., 1986, Energy-resources map of the Circum-Pacific region, northeast quadrant: American Association of Petroleum Geologists, scale 1:10,000,000.
Dubois, J., Dugas, F., Laponille, A, and Louat, R., 1978, The troughs at the rear of the New Hebrides island arc; possible mechanism of formation: Canadian Journal of Earth Sciences, v. 15, p. 351-360.
Dubois, J., and others, 1974, Continental margins near New Caledonia, *in* Burk, C.A., and Drake, C., eds., The geology of continental margins: New York, Springer-Verlag, p. 521-535.
Earth Sciences Research Division of Burma, 1977, Geological map of the Socialist Republic of the Union of Burma, scale 1:1,000,000.
Eguchi, T., Uyeda, S., and Maki, T., 1979, Seismotectonics and tectonic history of the Andaman Sea: Tectonophysics, v. 57, p. 35-51.
Eissler, H.K., and McNally, K.C., 1984, Seismicity and tectonics of the Rivera plate and implications for the 1932 Jalisco, Mexico earthquake: Journal Geophysical Research, v. 89, p. 4520-4530.
Eittreim, S.L., and Smith, G.L., 1987, Seismic sequences and their distribution on the Wilkes Land margin, *in* Eittreim, S.L., and Hampton, M.A., eds., The Antarctic continental margin; geology and geophysics of offshore Wilkes Land: Circum-Pacific Council for Energy and Mineral Resources Earth Sciences Series, v. 5A, p. 15-44.
EOS 1992 Arctic Summer West Scientific Party, 1992, Cruise to the Chukchi Borderland, Arctic Ocean: EOS, Transactions, American Geophysical Union, v. 74, no. 22, p. 249-254.
Erdlac, R.J., and Anderson, T.H., 1982, The Chixey-Polochic fault and its associated fractures in western Guatemala, Geological Society of America Bulletin, v. 93, p. 57-67.
Etheridge, M.A., Symonds, P.A., and Lister, G.S., 1989, Application of detachment model to reconstruction of conjugate passive margins, *in* Tankard, A.J., and Balkwill, H.R., eds., Extension tectonics and stratigraphy of the north Atlantic margins: American Association of Petroleum Geologists Memoir 46, p. 23-40.
Etheridge, and others, 1984, Basin-forming structures and their relevance to hydrocarbon exploration in Bass Basin, southeastern Australia: Australian Bureau of Mineral Resources Journal of Australian Geology and Geophysics, v. 9, p. 197-206.

Ewart, A. R.N., Brothers, and A., Mateen, 1977, An outline of the geology and geochemistry, and the possible petrogenetic evolution of the volcanic rocks of the Tonga-Kermadec-New Zealand island arc: Journal of Volcanology and Geothermal Research, v. 2, p. 205-250.

Exon, N.F., 1993, Christmas Island research cruise defines offshore resource potential: Australian Geological Survey Organisation (AGSO) Research Newsletter 18, May 1993, p. 12.

Exon, N.F., Graham, T.L., Williams, S.M., Chaproniere, G.C.H., Chudyk, E., Coleman, P.J., Kalinisan, L., Moss, G., Shafik, S., and Technical Support Group, 1993, BMR Cruise 107: seabed morphology and offshore resources around Christmas Island, Indian Ocean: Australian Geological Survey Organisation, Record no 1993/6.

Exon, N.F., Hill, P.J., and Royer, J.-Y., 1995, New maps of crust off Tasmania expand research possibilities: EOS, v. 76, no. 20, p. 205-207.

Exon, N.F., and Willcox, J.B., 1980, The Exmouth Plateau; stratigraphy, structure, and petroleum potential: Australia Bureau of Mineral Resources, Geology, and Geophysics Bulletin 199, 52 p.

Falvey, D.A, 1972, Seafloor spreading in the Wharton basin (northeast Indian Ocean) and the breakup of eastern Gondwanaland: Australian Petroleum Exploration Association (APEA) Journal, v. 12, p. 86-88.

Falvey, D.A, 1978, Analysis of paleomagnetic data from New Hebrides: Australia Society of Exploration Geophysicists Bulletin, v. 9, p. 117-123.

Falvey, D.A, and Mutter, J.C., 1981, Regional plate tectonics and the evolution of Australia's passive continental margins: Australian Bureau of Mineral Resources Journal of Australian Geology and Geophysics, v. 6, p. 1-29.

Falvey, D.A, and Pritchard, T., 1984, Preliminary paleomagnetic results from northern Papua New Guinea; evidence for large microplate rotations, *in* Watson, S.T., ed., Transactions of the Third Circum-Pacific Energy and Mineral Resources Conference Proceedings, August 22-28, 1982, Honolulu: Circum-Pacific Council for Energy and Mineral Resources, p. 593-599.

Fergusson, C.L., and Glen, R.A., eds., The Paleozoic eastern margin of Gondwanaland; tectonics of the Lachlan Fold Belt, southeastern Australia and related orogens: Tectonophysics 214, p. 1-461.

Finlayson, D.M., compiler and editor, 1990, Eromanga-Brisbane geoscience transect; basin development across Phanerozoic Australia in southern Queensland: Australian Bureau of Mineral Resources, Geology and Geophysics Bulletin 232, 261 p., maps

Fisher, D.M., Gardner, T. W., Marshall, J.S., and Montero P., W., 1994, Kinematics associated with late Cenozoic deformation in central Costa Rica; western boundary of the Panama microplate: Geology, v. 22, p. 263-266..

Fisher, M.A., 1979, Structure and tectonic setting of continental shelf southwest of Kodiak Island, Alaska: American Association of Petroleum Geologists Bulletin, v. 63, p. 301-310.

Fletcher, L.R., Williams, S.J., Gee, R.D., and Rosman, K.J.R., 1983a, Sm-Nd model ages across the margins of the Archaean Yilgarn Block, Western Australia; northwest transect into the Proterozoic Gascoyne Province: Journal of the Geological Society of Australia, v. 30, p. 167-174.

Fletcher, L.R., Wild, S.A., Libby, W.G., and Rosman, K.J.R., 1983b, Sm-Nd model ages across the margins of the Archaean Yilgarn Block, Western Australia-II; southwest transect into the Proterozoic Albany-Fraser Province: Journal of the Geological Society of Australia, v. 30, p. 333-340.

Flint, R.B., and Parker, A.J., 1982, Tectonic map, South Australia: Geological Survey of South Australia, Department of Mines and Energy, scale 1:2,000,000.

Flood, P.G., 1988, New England orogen; geosyncline, mobile belt and terranes, *in* Kleeman, J.D., ed., New England orogen, tectonics and metallogenesis: Department of Geology and Geophysics, University of New England, Armidale, p. 1-6.

Flood, P.G., and Aitchison, J.C., 1988, Tectonostratigraphic terranes of the southern part of the New England orogen, eastern Australia, *in* Kleeman, J.D., ed., New England orogen, tectonics and metallogenesis: Department of Geology and Geophysics, University of New England, Armidale, p. 7-10.

Flood, P.G., and Aitchison, J.C., 1992, Late Devonian accretion of the Gamilaroi Terrane to eastern Gondwana; provenance linkage suggested by the first appearance of Lachlan Fold Belt derived quartzarenite: Australian Journal of Earth Sciences 39, p. 539-541.

Foden, J.D., Turner, S., and Morrison, R.S., 1989, Tectonic implications of Delamerian magmatism in South Australia and western Victoria: Geological Society of Australia, South Australian Division, Brian Daily Memorial Volume, p. 465-482.

Fontaine, H., and Workman, D.R., 1978, Review of the geology and mineral resources of Kampuchea, Laos and Vietnam, 3rd Regional Conference on Geology and Mineral Resources of Southeast Asia (GEOSEA) Proceedings: Bangkok, Geological Society of Thailand, p. 539-603.

Fornari, D.J., Weissel, J.K., Perfit, M.R., and Anderson, R.N., 1974, Petrochemistry of the Sorol and Ayu troughs; implications for crustal accretion at the northern and western boundaries of the Caroline plate: Earth and Planetary Science Letters, v. 45, p. 1-15.

Foster, D.A., and Gladow, A.J.W., 1992, Reactivated tectonic boundaries and implications for the reconstruction of southeastern Australia and northern Victoria Land, Antarctica: Geology, v. 20, p. 267-270.

Fullerton, L.G., Sager, W.W., and Handschumacher, D.W., 1989, Late Jurassic-Early Cretaceous evolution of the eastern Indian Ocean adjacent to northwest Australia: Journal of Geophysical Research, v. 94, p. 2937-2953.

Gabrielse, H., 1985, Major dextral transcurrent displacements along the Northern Rocky Mountain Trench and related lineaments in north-central British Columbia: Geological Society of America Bulletin, v. 96, p. 1-14.

Gabrielse, H., and Yorath, C.Y., eds.; Geological Survey of Canada, Geology of Canada, no. 4; (also Geological Society of America, The Geology of North America, v. G-2).

Gabrielse, H., and Yorath, C.J., 1982, The Cordilleran orogen; Canadian sector, *in* Palmer, A.R., Perspectives in regional geological synthesis: Geological Society of America DNAG Special Publication, v. 1, p. 81-89.

Gansser, A., 1964, Geology of the Himalayas: London, Wiley and Sons Co., 289 p.

Gansser, A., 1980, The significance of the Himalayan suture zone: Tectonophysics, v. 62, p. 37-52.

Gardner, M. C., and others, 1988, Pennsylvanian pluton stiching of Wrangellia and the Alexander terrane, Wrangell Mountains, Alaska: Geology, v. 16, p. 967-971.

Gastil, G., Krummenacher, D., and Minch, J., 1979, The record of Cenozoic volcanism around the Gulf of California: Geological Society of America, v. 90, p. 839-857.

Gastil, R.G., Phillips, R.P., and Allison, E.C., 1975, Reconnaissance geology of the State of Baja California: Geological Society of America Memoir 140, p. 170

Gastil, G., 1985, Terranes of peninsular California and ajacent Sonora, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1, p. 273-283.

Gee, R.D., 1979, Structure and tectonic style of the Western Australian Shield: Tectonophysics, v. 58, p. 327-369.

Gee, R.D., and others, 1979, Geological map of Western Australia: Western Australia Department of Mines, scale 1:2,500,000.

Geller, C.A., Weissel, J.K., and Anderson, R.N., 1983, Heat transfer and intraplate deformation in the central Indian Ocean: Journal of Geophysical Research, v. 88, p. 1018-1032.

Geological Society of Australia, 1971, Tectonic map of Australia and New Guinea, scale 1:5,000,000.

Geological Survey of Indonesia, 1969, Geological map of southeast Kalimantan: Geological Survey of Indonesia, scale 1:500,000.

Geological Survey of Indonesia, 1970, Geological map of southeast Kalimantan: Departemen Pertambangan Indonesia, scale 1:500,000.

Geological Survey of Japan, 1992, Geological map of Japan: Geol. Surv. Japan, scale 1:1,000,000.

Geological Survey of Malaysia, 1973, Geological map of west Malaysia (7th ed.,) Geol. Surv. Malaysia, scale 1:500.000.

Geological Survey of New South Wales, 1972, Geologic map of New Zealand: unpublished compilation.

Geological Survey of Western Australia, 1974, The geology of Western Australia: Perth, Western Australia Geological Survey Memoir, v. 2, p. 541.

Gibson, G.M., 1992, Glenelg River Complex; western margin of the Lachlan Fold Belt or extension of the Delamerian Orogen into western Victoria? *in* Fergusson, C.L., and Glen, R.A., eds., The Paleozoic eastern margin of Gondwanaland; tectonics of the Lachlan Fold Belt, southeastern Australia and related orogens: Tectonophysics v. 214, p. 69-91.

Gibson, J.D., Howell, D.G., Fuis, G.S., and Vedder, J.G., 198x, North American Continent-Ocean Transect C-3; Pacific abyssal plain to the Rio Grande Rift: Geological Society of America.

Gill, J.B., 1976, Composition and age of Lau Basin and Ridge volcanic rocks; implications for evolution of an interarc basin and remnant arc: Geological Society of America Bulletin, v. 87, p. 1384-1395.

Glen, R.A., 1992, Thrust, extensional and strike-slip tectonics in an evolving Paleozoic orogen-structural synthesis of the Lachlan Orogen of southeastern Australia, *in* Fergusson, C.L., and Glen, R.A., eds., The Paleozoic eastern margin of Gondwanaland; tectonics of the Lachlan Fold Belt, southeastern Australia and related orogens: Tectonophysics 214, p. 341-380.

Gobbett, D.J., and Hutchison, C.S., eds., 1973, Geology of Malaya Peninsula: London, Wiley and Sons, p. 438

Gobbett, D.J., and Tjia, H.D., 1973, Tectonic history, *in* Gobbett, D.J., and Hutchison, C.S., eds., Geology of Malaya Peninsula: New York, Wiley Interscience, p. 305-334.
Goff, J.A., Fornari, D.J., Cochran, J.R., Keeley, C., and Malinverno, A., 1993, Wilkes transform system and "nannoplate": Geology, v. 21, p. 623-626.
Golovchenko, X., Larson, R.L., Pitman III, W.C., and Isezaki, N., 1985, Magnetic lineations, *in* Plate-tectonic map of the Circum-Pacific region, pacific basin sheet, (ed., 3), scale 1:17,000,000: Tulsa, Oklahoma, American Association of Petroleum Geologists.
Goosens, P.J., 1978, The metallogenic provinces of Burma, their definitions, geologic relationships and extensions in China, India, and Thailand: Proc. 3rd Regional Conf. on Geology and Mineral Resources of southeast Asia, p. 431-536.
Gose, W.A., 1983, Late Cretaceous-Early Tertiary tectonic history of southern Central America: Journal of Geophysical Research, v. 88, p. 10,585-10,592.
Grantz, A., 1966, Strike-slip faults of Alaska: U.S. Geological Survey Open File Report 66-267, 82 p.
Grantz, A., Johnson, L., and Sweeney, J.F., eds., The Artic Ocean region: Boulder Colorado, Geological Society of America, The Geology of North America, v. L.
Grantz, A., and May, S.D., 1983, Rifting history and structural development of the continental margin north of Alaska: American Association of Petroleum Geologists Memoir v. 34, p. 77-100.
Grantz, A., Moore, T.E., and Roeske, S.M., 1991, Continent-Ocean Transect A-3; Gulf of Alaska to Arctic Ocean: Geological Society of America.
Greene, H.G., and Wong, F.L., 1983, Hydrocarbon resource studies in the southwest Pacific: U.S. Geological Survey Open-File Report 83-293, 24 p.
Greene, H.G., and Wong, F.L., eds., 1988, Geology and offshore resources of Pacific island arcs-Vanuatu region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 8, 442 p
Grunow, A.M., 1993, Creation and destruction of Weddell Sea floor in the Jurassic: Geology, v. 21, p. 647-650..
Gryc, George, ed., Geology and exploration of the National Petroleum Reserve in Alaska, 1974 to 1982: U.S. Geological Survey Professional Paper 1399.
Hackman, B.D., 1980, The geology of Guadalcanal, Solomon Islands: London Institute of Geological Sciences, Natural Environment Research Council, Overseas Memoir 6, 115 p.
Haile, N.S., 1974, Borneo, *in* Spencer, A.M., ed., Mesozoic-Cenozoic orogenic belts: Geological Society of London Special Publication 4, p. 333-347.
Haile, N.S., McElhinny, M.W., and McDougall, I., 1977, Paleomagnetic data and radiometric ages from the Cretaceous of West Kalimantan (Borneo), and their significance in interpreting regional structure: Journal of the Geological Society of London, v. 133, part 2, p. 133-144.
Hamilton, W., 1978, Mesozoic tectonics of the western United States, *in* Howell, D.G., and McDougall, K.A., eds., Mesozoic paleogeography of the western United States: Pac. Sec., SEPM, p. 33-70.
Hamilton, W., 1978, Tectonic map of the Indonesian region: U.S. Geological Survey Miscellaneous Investigations Series Map 1-875-D, scale 1:5,000,000.
Hamilton, W., 1979, Tectonics of the Indonesian region: U.S. Geological Survey Professional Paper 1078, 345 p.
Hammond, P.E., 19xx, A tectonic model for evolution of the Cascade Range, p. 219
Handschumacher, D.W., 1976, Post-Eocene plate tectonics of the eastern Pacific, *in* The geophysics of the Pacific Ocean basin and its margin: AGU Geophysical Monogr. Series, v. 19, p. 177-202.
Harland, W.B., and others, 1982, A geologic time scale: Cambridge, Cambridge University Press, 131 p.
Harris, L.B., and Delor, C.P., 1991, Tectonic evolution of the Fraser mobile belt, western Australia: GSA-SGTSG Margaret River Conference 1991, p. 24-25.
Hashimoto, M., and Sai, Y., 1989, Geology of Japan: Tokyo, Terra House. 250 p.
Hawkins, Jr., J.W., 1974, Geology of the Lau basin, a marginal sea behind the Tonga arc, in Burke, C.A., and Drake, C.C., eds., The geology of continental margins: New York, Springer-Verlag, p. 505-520.
Hawkins, Jr., J.W., Bloomer, S.H., Evans, C.A., and Melchior, J.T., 1984, Evolution of intra-oceanic arc-trench systems: Tectonophysics, v. 102, p. 175-205.
Hayes, D.E., 1983, Margins of the southwest sub-basin of the South China Sea; a frontier exploration target?: Energy, v. 10, p. 373-382.
Hayes, D.E., and Lewis, S.D., 1983, Structure and tectonics of the Manila Trench system, western Luzon, Philippines: Energy, v. 10, p. 263-279.

Hayes, D.E., and Pitman, W.C., 1970, Magnetic lineations in the north Pacific, *in* Hays, J.D., ed., Geological investigations of the North Pacific: Geological Society of America Memoir v. 126, p. 291-314.
Hayes, D. E., and Ringis, J., 1973, Seafloor spreading in the Tasman Sea: Nature, v. 243, p. 454-458.
Hegarty, K.A., Weissel, J.K., and Hayes, D.E., 1983, Convergence at the Caroline-Pacific plate boundary; collision and subduction, *in* Hayes, D.E., ed., The tectonic and geologic evolution of southeast Asian seas and islands, part II: American Geophysical Union, Geophysical Monograph 27, p. 326-348.
Henderson, R.A., and Stephenson, P.J., eds., 1980, The geology and geophysics of northeastern Australia: Brisbane, Geological Society of Australia, Queensland Division, 468 p.
Hey, R.N., 1977, Tectonic evolution of the Cocos-Nazca spreading center: Geological Society of America Bulletin, v. 88, p. 1404-1420.
Hey, R.N., Johnson, G.L., and Lowrie, A., 1977, Recent plate motions in the Galapogos area: Geological Society of America Bulletin, v. 88, p. 1385-1403.
Hilde, T.W.C., and Lee, C.S., 1984, Origin and evolution of the west Philippine Basin; a new interpretation: Tectonophysics, v. 102, p. 85-104.
Hilde, T.W.C., and Uyeda, S., eds., 1983, Geodynamics of the western Pacific-Indonesia region: American Geophysical Union Geodynamics Series, v. 11, 460 p.
Hilde, T.W.C., Uyeda, S., and Kroenke, L.W., 1977, Evolution of the western Pacific and its margin: Tectonophysics, v. 38, p. 145-165.
Hillhouse, J.W., Gromme, C.S., and Vallier, T.L., 1982, Paleomagnetism and Mesozoic tectonics of the Seven Devils volcanic arc in northeastern Oregon: Journal Geophysical Research, v. 87, p. 3777-3794.
Hinz, K., and Schluter, H.U., 1985, Geology of the Dangerous Grounds, South China Sea, and the continental margin off southwest Palawan; Results of Sonne cruises SO-23 and SO-27: Energy, v. 10, p. 297-315.
Ho, C.S., 1988, An introduction of the geology of Taiwan, explanatory text of the geologic map of Taiwan, 2d ed.: Taiwan, Central Geol. Surv., Ministry of Economic Affairs, 192 p.
Hodder, A.P.W., 1984, Late Cenozoic rift development and interplate volcanism in northern New Zealand inferred from geochemical discrimination diagrams: Tectonophysics, v. 101, p. 293-318.
Hoffman, P.F., 1991, Did the breakout of Laurentia turn Gondwanaland inside-out?: Science, 252, p. 1409-1412.
Holloway, N.H., 1981, The north Palawan Block, Philippines; its relation to the Asian mainland and its role in the evolution of the South China Sea: Geological Society of Malaysia Bulletin, v. 14, p. 19-58.
Honza, E., 1991, The Tertiary arc chain in the western Pacific, *in* Hilde, T.W.C., and Carlson, R.L., eds., Silver anniversary of plate tectonics: Tectonphysics, 187, p. 285-303.
Hornafius, J.S., Luyendyk, B.P., Terres, R.R., and Kamerling, M.J., 1986, Timing and extent of Neogene tectonic rotation in the western Transverse Ranges, California: Geological Society of America, v. 97, p. 1476-1487.
Houza, E., and Keene, J.B., 1984, Geological and geophysical investigations of the western Solomon Sea and adjacent areas: Papua New Guinea Geological Survey Report 81, 34 p.
Honza, Eiichi, 1995, Spreading mode of backarc basins in the western Pacific: Tectonophysics, v. 251, p. 139-152.
Howell, D.G., 1985, Tectonostratographic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series v. 1.
Howell, D.G., Jones, D.L., and Schermer, E.R., 1985, Tectonostratigraphic terranes of the Circum-Pacific region, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1, p. 3-30.
Howell, D.G., and others, 1985, Preliminary tectonostratigraphic terrane map of the Circum-Pacific region: Tulsa, Okla., American Association of Petroleum Geologists, scale 1:17,000,000.
Howell, D.G., Moore, G.W., and Wiley, T.S., 1985, Tectonic and basin evolution of western North America—an overview, *in* Scholl, D.W., Grantz, A., and Vedder, J.G., eds., Geology and resource potential of the continental margin of western North America and adjacent ocean basins; Beaufort Sea to Baja California: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources, Earth Sciences Series no. 6, p. 1-15
. Hsu, K.J., 1994,Tectonic facies in an archipelago model of intra-plate orogenesis: GSA Today, v. 4, no. 12, p. 290-295.
Huchon, P., and Bourgois, J., 1990, Subduction-induced fragmentation of the Nazca Plate off Peru; Mendana fracture zone and Trujillo trough revisited: Journal of Geophysical Research, v. 95, no. B6, p. 8419-8436
Huchon, P., Le Pichon, X., and Rnagin, C., 1994, Indochina peninsula and the collision of India and Eurasia: Geology, v. 22, p. 27-30.

Huang, T.K., 1978, An outline of the tectonic characteristics of China: Eclogae geol. Helvet., v. 71, p. 611-635.
Hunan Bureau of Geology and Mineral Resources, 1988, Regiona1 geology of Hunan Province: Geol. Memoirs. series l, no. 8, Beijing, Geol. Pub. House. 719 p.
Hussong, D.M., Wipperman, L.K., and Kroenke, L.W., 1979, The crustal structure of the Ontong Java and Manihiki oceanic plateaus: Journal of Geophysical Research, v. 84, p. 6003-6010.
Hussong, D.M., and Uyeda, S., 1982, Tectonic process and the history of the Mariana Arc; a synthesis of the results of Deep Sea Drilling Project Leg 60: Initial reports of the Deep Sea Drilling Project, v. 60, p. 909-929.
Hutchison, C.S., 1981, Review of the Indonesian volcanic arc; the geology and tectonics of east Indonesia: Indonesia Geological Research and Development Centre Special Publication 2, p. 65-80.
Hutchison, C.S., 1982, Southwest Asia, *in* Nairn, A.E.M., and Stehli, F.G., eds., The ocean basins and margins, v. 6; The Indian Ocean: New York, Plenum Press, p. 451-512.
Ingle, Jr., J.C., 1975, Summary of Late Paleogene-Neogene insular stratigraphy, paleobathymetry, and correlations, Philippine Sea and Sea of Japan region: Initial Report of the Deep Sea Drilling Project, v. 31, p. 837-855.
Inoue, E., and others, 1988, Geologic map of Circum-Pacific region, northwest quadrant, scale 1:10,000,000. Circum-Pacific Council for Energy and Mineral Resources.
Institute of Geology, Chinese Academy of Sciences and Wuhan College of Geology, 1985, Atlas of the paleogeography of China: Beijing, Cartographic Pub. House, 253p.
Irving, E., Monger, J.W.H., and Yole, R.W., 19, New paleomagnetic evidence for displaced terranes in British Columbia, *in* Strangway, D.W., ed., The continental crust and its mineral deposits: Geological Association Canada, Special Paper v. 20, p. 441-456.
Irwin, W.P., 1985, Age and tectonics of plutonic belts in accreted terranes of the Klamath Mountains, California and Oregon, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1, p. 187-199.
Jacobson, R.S., Shor, G.G., Kiechkheffer, R.M., and Purdy, G.M., 1980, Seismic refraction and reflection studies in the Timor-Aru trough system and Australian continental shelf: American Association of Petroleum Geologists Memoir 29, p. 209-222.
Jackson, E.V., 1976, Generalized geological map of the Canadian Cordillera, map A, *in* Sutherland-Brown, A., ed., Porphry deposits of the Canadian Cordillera: Canadian Institute of Mining and Metallurgy, Special v. 15, scale 1:2,500,000.
Jacques, A.L., and Robinson, G.P., 1977, The continent/island-arc collision in northern Papua New Guinea: Australia Bureau of Mineral Resources Journal of Australian Geology and Geophysics, v. 2, p. 289-303.
James, A., and Falvey, D.A., 1978, Analysis of paleomagnetic data from Viti Levu, Fiji: Bulletin of the Australian Society of Exploration Geophysicists, v. 9, p. 115-117.
Jarrard, R.D., and Clague, D.A., 1977, Implications of Pacific island and seamount ages for the origin of volcanic chains: Review of Geophysics and Space Physics, v. 15, p. 57-76.
Jarrard, R.D., and Sasajima, S., 1980, Paleomagnetic synthesis for southeast Asia; constraints on plate motions, *in* D. E., Hayes, ed., The tectonic and geologic evolution of southeast Asian seas and islands: American Geophysical Union Geophysical Monograph, v. 23, p. 293-316.
Javanapet, V.C., 1969, Geological map of Thailand: Thailand Department of Mineral Resources, scale 1:1,000,000.
Jenkins, R.J.F., 1989, The Adelaide Fold Belt; tectonic reappraisal: Geological Society of Australia, South Australia Division, Brian Daily Memorial Volume, p. 396-420.
Jenskins, J.F., and Sandiford, M., 1992, Observations on the tectonic evolution of the southern Adelaide Fold Belt, *in* Fergusson, C.L., and Glen, R.A., eds., The Paleozoic eastern margin of Gondwanaland; tectonics of the Lachlan Fold Belt, southeastern Australia and related orogens: Tectonophysics 214, p. 27-36.
Jiangsu Bureau of Geology and Mineral Resources, 1984, Regional geology of Jiangsu Province and Shanghai Municipality: Geol. Memoirs, ser. 1, no. 1, Beijing, Geol. Pub. House, 857 p.
Johnson, B.D., Powell, C.McA., and Veevers, J.J., 1980, Early spreading history of the Indian Ocean between India and Australia: Earth and Planetary Science Letters, v. 47, p. 131-143.
Johnson, B.D., and Veevers, J.J., 1984, Oceanic paleomagnetism, *in* Veevers, J.J., ed., Phanerozoic earth history of Australia: New York, Oxford University Press, p. 17-38.
Johnson, H.P., and Holmes, M.L., 1989, Evolution in plate tectonics; The Juan de Fuca Ridge, *in* Winterer, E.L., Hussong, D.M., and Decker, R.W., eds., The eastern Pacific Ocean and Hawaii: Boulder, Colorado, Geological Society of America, The Geology of North America, v. N.

Johnson, R.W., 1979, Geotectonics and volcanism in Papua New Guinea; a review of the late Cainozoic: Australia Bureau of Mineral Resources Journal of Australian Geology and Geophysics, v. 4, p. 181-207.
Johnson, R.W., and Jacques, A.L., 1980, Continent-arc collision and reversal of arc polarity; new interpretations from a critical area: Tectonophysics, v. 63, p. 111-124.
Johnston, C.R., 1981, A review of Timor tectonics, with implications for the development of the Banda arc: the geology and tectonics of eastern Indonesia: Indonesia Geological Research and Development Centre Special Publication 2, p. 199-216.
Johnston, C.R., and Bowin, C.O., 1981, Crustal reactions resulting from the mid-Pliocene to recent continental-island arc collision in the Timor region: Australia Bureau of Mineral Resources Journal of Australian Geology and Geophysics, v. 6, p. 223-243.
Jones, D.L., Silbering, N.J., and Hillhouse, J., 1977, Wrangellia— A displaced terrane in northwestern North America: Canadian Journal of Earth Science, v. 14, p. 2565-2577.
Jones, D.L., Silbering, N.J., Coney, P.J., and Plafker, G., 1987, Lithotectonic terrane map of Alaska: U.S. Geological Survey, Map MF-1874-A.
Jongsma, D., and Mutter, J.C., 1978, Non-axial breaching of a rift valley; evidence from the Lord Howe Rise and the southeastern Australian margin: Earth and Planetary Science Letters, v. 39, p. 226-234.
Joseph, D., Taylor, B., Shor, A.N., and Yamazaki, T., 1993, The Nova-Canton Trough and the Late Cretaceus evolution of the central Pacific, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., 1993, The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p. 171-185.
Juan, V.C., 1975, Tectonic evolution of Taiwan: Tectonophysics, v. 26, p. 197-212.
Kadar, D., 1979, Indonesia; mapping by the Geological Survey, and stratigraphic correlation, *in* Stratigraphic correlation between sedimentary basins of the Economic and Social Commission for Asia and the Pacific (ESCAP) region, v. 6: United Nations, Proceedings of the 3rd Working Group Meeting, 1978, p. 25-38.
Kamp, P.J.J., 1980, Pacifica and New Zealand; proposed eastern elements in Gondwanaland's history: Nature, v. 288, p. 659-664.
Kanter, L.R., and Debiche, M., 1985, Modeling the motion histories of the Point Arena and central Salinia terranes, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1, p. 227-238.
Karig, D.E., 1971, Structural history of the Mariana arc system: Geological Society of America Bulletin, v. 82, p. 323-344.
Karig, D.E., 1983, Accreted terranes in the northern part of the Philippine archipelago: Tectonics, v. 2, p. 211-236.
Karig, D.E., Suparka, S., Moore, G.F., and Hehanussa, P.E., 1980, Structure and Cenozoic evolution of the Sunda Arc in the central Sumatra region: American Association of Petroleum Geologists Memoir, v. 29, p. 223-237.
Katili, J.A., 1974, Sumatra, *in* Spencer, A.M., ed., Mesozoic-Cenozoic orogenic belts: Geological Society of London Special Publication, p. 317-331.
Katili, J.A., 1975, Volcanism and plate tectonics in the Indonesian island arcs: Tectonophysics, v. 26, p. 165-188.
Katili, J.A, 1978, Past and present geotectonic position of Sulawesi, Indonesia: Tectonophysics, v. 45, p. 289-322.
Katili, J.A., and Reinemund, J.A., 1984, Southeast Asia, *in* Tectonic Framework, Earth Resources and Regional Geological Programs. Int. Union of Geological Sciences Pub., no. 13, 68 p.
Katz, H.R., 1974, Margins of the southwest Pacific, *in* Burk, C.A., and Drake, C.C., eds., The geology of continental margins: New York, Springer-Verlag, p. 549-565.
Katz, H.R., 1980a, Cretaceous-Cenozoic sedimentary basins of New Zealand: Wellington, Prospectus for Petroleum Exploration of New Zealand, Ministry of Energy, scale 1:5,000,000.
Katz, H.R., 1980b, Basin development in the Solomon Islands and their petroleum potential: United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Committee for Coordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (CCOP/SOPAC) Technical Bulletin 3, p. 59-75.
Katz, H.R., 1982, Plate margin transition from oceanic arc-trench to continental system; the Kermadec-New Zealand example: Tectonophysics, v. 87, p. 49-64.
Katz, H.R., 1984, Southwest Pacific island arcs; sedimentary basins and petroleum prospects in the New Hebrides and Solomon Islands, *in* Watson, S.T., ed., Transactions of the Third Circum-Pacific Energy and Mineral Resources Conference, August 22-28, 1982, Honolulu: Circum-Pacific Council for Energy and Mineral Resources, p. 181-189.

Katz, H.R., 1988, Offshore geology of Vanuatu-previous work, *in* Greene, H.G., and Wong, D.L., eds., Geology and offshore resources of Pacific island arcs-Vanuatu region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 8, p. 93-122.

Katz, H.R., and Wood, R.A., 1980, Submerged margin east of the North Island, New Zealand, and its petroleum potential: United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Committee for Coordination of Joint Prospecting for Mineral Resources in the South Pacific Offshore Areas (CCOP/SOPAC) Technical Bulletin 3, p. 221-235.

Keppie, J.D., 1981, Principles of tectonic mapping based upon plate tectonic theory: Nova Scotia Dept. of Mines and Energy Paper 81-4.

Kellog, J.N., and Wedgeworth, B.S., 1984, Three-dimensional gravity and isostatic study of western Pacific seamounts [abs.]: EOS, American Geophysical Union Transactions, v. 65, p. 1076.

Keating, B.H., 1987, Summary of radiometric ages from the Pacific: UNESCO, Intergovernmental Oceanographic Commission Technical Series 32, 67p.

Khain, V.V., 1985, Geology of the USSR: part 1, Old cratons and Paleozoic fold belts. Berlin, Gebruder Borntrager, 272 p.

Kimbrough, D.L., 1985, Tectonostratigraphic terranes of the Vizcaino Peninsula and Cedros and San Benito Islands, Baja California, Mexico, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1, p. 285-298.

Kimnura, T., Hayami, I., and Yoshida, S., 1991, Geology of Japan: Univ. Tokyo Press, 287 p.

King, P.B., 1969, Tectonic map of North America: U.S. Geological Survey, scale 1:5,000,000.

King, P.B., and Beikman, H.M., 1974, Geologic map of the United States: U.S. Geological Survey, scale 1:2,500,000

Kirschner, C.E., 1988, Map showing sedimentary basins of on shore and continental shelf areas, Alaska: U.S. Geological Survey Miscellaneous Investigations Series Map 1-1873, scale 1:2,500,000.

Kirschner, C.E., 1989, Interior basins of Alaska, *in* Plafker, G., Jones, D.L., and Berg, H.C., eds., The Cordilleran orogen; Alaska: Boulder, Colorado, Geological Society of America, The Geology of North America, v. G-l (in press).

Klitgord, K.D., 1982, Northern Pacific rise; Magnetic anomaly and bathymetric framework: Journal Geophysical Research, v. 87, p. 6725-6750.

Khanna, S.N., and Helu, S.P., 1992, Mesozoic possibilities seen on Tonga Islands in southwest Pacific: Oil and Gas Journal, Nov. 1992, p. 62-69.

Korea Institute of Energy and Resources, 1981, Geological map of Korea: Korea Inst. Energy and Resources, scale 1:1,000,000.

Krasny, L.I., and others, 1970, Geological map of Pacific mobil belt and Pacific Ocean: USSR Ministry and Academy of Sciences, scale 1:1,000,000.

Kroenke, L.W., 1972, Geology of the Ontong Java Plateau: Hawaii Institute of Geophysics Report HIG-72-5, 119 p.

Kroenke, L.W., 1984, Cenozoic tectonic development of the southwest Pacific: United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Committee for Joint Prospecting for Mineral Resources in the South Pacific Offshore Areas (CCOP/SOPAC) Technical Bulletin 6, 122 p.

Kroenke, L.W., 1985, Tectonic evolution of the southwest Pacific (in preparation).

Kroenke, L.W., and J. Dupont, 1982, Subduction-obduction; a possible north-south transition along the west flank of Three Kings Ridge: Geo-Marine Letters, v. 2, p. 11-46.

Kroenke, L.W., and Eade, J.V., 1982, Three Kings Ridge; a west-facing arc: Geo-Marine Letters, v. 2, p. 5-10.

Kulm, L.D., and others, 1984, Western North American continental margin and adjacent ocean floor off Oregon and Washington: Ocean Margin Drilling Program, Regional Atlas Series Atlas 1**,** Marine Science International, Woods Hole, Mass.,, 32 sheets.

Ladd, J.W., and Buffler, R.T., eds., 1985, Middle America Trench off western Central America: Ocean Margin Drilling Program, Regional Atlas Series Atlas 7, Marine Science International, Woods Hole, Mass., 21 sheets.

Langseth, M.G., and Marnmarickx, J., and others, eds., 1985, Ocean Margin Drilling Program, Regional Atlas Series Atlas 8: Marine Science International, Woods Hole, Mass., 19 sheets.

Lamarche, Geoffroy; Collot, Jean-Yves; Wood, R.A.; Sosson, Marc; Sutherland, Rupert; and Delteil, Jean, 1997, The Oligocene-Miocene Pacific-Australia plate boundary, south of New Zealand; evolution from oceanic spreading to strike-slip faulting: Earth and Planetary Science Letters 148, p. 129-139.

Larsem, R.L., 1976, Late Jurassic and Early Cretaceous evolution of the western central Pacific Ocean: Journal for Geomagnetism and Geoelectricity, v. 28, p. 219-236.

Larson, RL., 1975, Late Jurassic seafloor spreading in the eastern Indian Ocean: Geology, v. 3, p. 69-71.
Larson, R.L., Golovchenko, X., and Pitman, W.C., III, 1985, Geomagnetic polarity time scale *in* Plate-tectonic map of the Circum-Pacific region, Pacific basin sheet, (ed., 3), scale 1:17,000,000.
Larson, R.L., and Hilde, T.W.C., 1975, A revised time scale of magnetic reversals for the Early Cretaceous and Late Jurassic: Journal of Geophysical Research, v. 80, p. 2586-2594.
Larson, R.L., and others, 1979, Cuvier Basin; a product of ocean crust formation by Early Cretaceous rifting off western Australia: Earth and Planetary Science Letters, v. 45, p. 105-114.
Larson, R.L., and others, 1985, The bedrock geology of the world: New York, W.H., Freeman and Company, scale 1:23,230,300.
Larter, R.D., and Barker, P.F., 1991, Effects of ridge crest-trench interaction on Antarctic-Phoenix spreading; forces on a young subduction plate: Journal of Geophysical Research 96, p. 19,583-19,607.
Launay, J., Dupont, J., and Larpouille, A., 1982, The Three Kings Ridge and the Norfolk Basin (southwest Pacific); an attempt at structural interpretation: South Pacific Marine Geological Notes, v. 2, p. 121-130.
Lawrence, Steve, and Johnson, Mike, 1995, Shelf north of Falklands may be new S. Atlantic pretoleum province: Oil and Gas Journal, March 6, 1995, p. 52-55.
Lawver, L.A., Dalziel, I. W. D., and Sandwell, D.T., 1993, Antarctic plate; tectonics from a gravity anomaly and infrared satellite image: Geological Society of America GSA Today, v. 3, no. 5, p. 117-119.
Lee, D.S., ed., 1987, Geology of Korea: Geological Society of Korea, Kyohaksa, Seoul, 514 p.
Lee, J.S., 1939, The Geology of China: London, Thomas Murby, 528 p.
Lee, R.A., 1982, Petroleum geology of Malacca Strait contract area (central Sumatra Basin): Proceedings of the 8th Annual Convention, Indonesian Petroleum Association, p. 243-263.
Lee, Tung-Yi, and Lawver, L.A., 1995, Cenozoic plate reconstruction of Southeast Asia; Tectonophysics, v. 251, p. 85-138.
Leitch, E.C., 1974, The geological development of the southern part of the New England Fold Belt: Geological Society of Australia Journal, v. 21, p. 133-156.
Leitch, E.C., 1982, Marginal basins of the southwest Pacific and the preservation and recognition of their ancient analogues; a review: Geological Society of London Special Publication 17, p. 97-108.
Leitch, E.C., 1988, The Barnard Basin and the Early Permian development of the New England Fold Belt, *in* Kleeman, J.D., ed., New England orogen, tectonics and metallogenesis: Department of Geology and Geophysics University of New England, Armidale, p. 61-67.
Leitch, E.C., and Scheibner, E., 1987, Stratotectonic terranes of the eastern Australian Tasmanides, *in* Leitch, E.C., and Scheibner, E., eds., Terrane accretion and orogenic belts: American Geophysical Union Geodynamics Series, v. 19, p. 1-19
Leloup, P.H., Harrison, Mark T., Ryerson, F.J., Wenji, Chen, Qi, Li, Tapponnier, P. and Lacassin, R., 1993, Structural, petrological and thermal evolution of a Tertiary ductile strike-slip shear zone, Diancang Shan, Yunnan: Journal of Geophysical Research, v. 98, no. B4, p. 6715-6743.
Leonov, Y.G., and Khain, V.E., eds., 1987, Global correlation of tectonic movements: John Wiley and Sons Co., 286 p.
Lewis, S.D., and Hayes, D.E., 1983, Forearc basin development along western Luzon, Philippines: Energy, v. 10, p. 281-296.
Lillie, A.R., and Brothers, R.N., 1970, The geology of New Caledonia: New Zealand Journal of Geology and Geophysics, v. 13, p. 145-183.
Lincoln, J.M., Pringle, M.S., and Premoli Silva, I., 1993, Early and Late Cretaceous volcanism and reef-building in the Marshall Islands, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p. 279-305.
Lister, G.S., Etheridge, M.A., and Symonds, P.A., 1991, Detachment models for the formation of passive continental margins: Tectonics 10, p. 1038-1064.
Liu, C.S., McDonald, J.M., and Curray, J.R., 1982, A fossil spreading ridge in the northwestern Wharton Basin [abs.]: EOS, American Geophysical Union Transactions, v. 63, p. 448.
Lonsdale, P., and Klitgord, K.D., 1978, Structure and tectonic history of the eastern Panama Basin: Geological Society of America Bulletin, v. 89, p. 981-999
Lonsdale, P., 1989, Rise flank trails of migrating offsets: Journal of Geophysical Research v. 94, p. 715..

Lonsdale, P., 1989, Geology and tectonic history of the Gulf of California, *in* Winterer, E.L., Hussong, D.M., and Decker, R.W., eds., The eastern Pacific Ocean and Hawaii: Boulder, Colorado, Geological Society of America, The Geology of North America, v. N.

Lopez, R.E., 1976, Carta Geologica de la Republica Mexicana: Universidad Autonama de Mexico, Instituto de Geologia, scale 1:2,000,000.

Lowrie, A., 1978, Buried trench south of the Gulf of Panama: Geology, v. 6, p. 434-436.

Lowrie, A., Aitken, T., Grim, P., and McRaney, L., 1979, Fossil spreading center and faults within the Panama fracture zone: Marine Geophysical Research, v. 4, p. 153-166.

Lowrie, A., Stewart, J., Stewart, R.H., van Andel, T.J., and McRaney, L., 1982, Location of the eastern boundary of the Cocos plate during the Miocene: Marine Geology, v. 45, p. 261-279.

Ludwig, W.J., and Houtz, R.E., 1979, Isopach map of sediments in the Pacific Ocean basin and marginal sea basins: Tulsa, Okla., American Association of Petroleum Geologists, scale 1:13,999,369.

Ludwig, W.J., Kumar, N., and Houtz, R.E., 1979, Profiler-sonobuoy measurements in the South China Sea basin: Journal of Geophysical Research, v. 84, p. 3505-3518.

Luyendyk, B.P., MacDonald, K.C., and Bryan, W.B., 1973, Rifting history of the Woodlark Basin in the southwest Pacific: Geological Society of America Bulletin, v. 84, p. 1125-1133.

Luyendyk, B.P., 1995, Hypothesis for Cretaceous rifting of east Gondwana caused by subducted slab capture: Geology, v. 23, no. 4, p. 373-376.

Luhr, J.F., Nelson, S.A., Allan, J.F., and Carmichael, I.S.E.,1985, Active rifting in southwestern Mexico; Manifestations of an incipient eastward spreading-ridge jump: Geology, v. 13, p. 54-57

Macdonald, K.C., and Holcombe, T.L., 1978, Inversion of magnetic anomalies and sea-floor spreading in the Cayman Trough: Earth and Planetary Science Letters, v. 40, p. 407-414.

Macfarlane, A., 1984, Mineral and energy prospects in the small island nations of the south Pacific-Vanuatu; a typical example, *in* S. T., Watson, ed., Transactions of the Third Circum-Pacific Energy and Mineral Resources Conference, August 22-28, 1982, Honolulu: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources, p. 45-53.

Mahoney, J.J., Storey, M., Duncan, R.A., Spencer, K.J., and Pringle, M.S., 1993, Geochemistry and age of the Ontong Java Plateau, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p. 233-261.

Maillet, P., Monzier, M., Selo, M., and Storzer, D., 1982, La zone d'Entrecasteau (sud-ouest Pacifique); nouvelle approche petrologique et geochronologique, *in* Contribution a I'etude geodynamique du Sud-Ouest Pacifique: Paris, Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM), Travaux et Documents de l' ORSTOM, p. 447-458.

Maillet, P., Monzier, M., Selo, M., and Storzer, D., 1983, The d'Entrecasteaux zone (southwest Pacific) a petrological and geochronological reappraisal: Marine Geology 53, p. 179-197.

Malahoff, A., Feden, R.H., and Fleming, H.S., 1982, Magnetic anomalies and tectonic fabric of marginal basins north of New Zealand: Journal of Geophysical Research, v. 87, p. 4109-4125.

Malahoff, A., and others, 1982, Geophysical evidence for post-Miocene rotation of the island of Viti Levu, Fiji, and its relationship to the tectonic development of the North Fiji Basin: Earth and Planetary Science Letters, v. 57, p. 398-414.

Malpas, J., Sporli, K.B., Black, P.M., and Smith, I.E.M., 1922, Northland ophiolite, New Zealand, and implications for plate-tectonic evolution of the southwest Pacific: Geology, v. 20, p. 149-152.

Mammerickx, J., and Klitgord, K.D., 1982, Northern East Pacific Rise; evolution from 25 m.y. to the present: Journal of Geophysical Research, v. 87, p. 6751-6759.

Mammerickx, J., and Sandwell, D., 1986, Rifting of old oceanic lithosphere: Journal of Geophysical Research, v. 91, p. 1975-1988.

Markl, R.G., 1978, Further evidence for the Early Cretaceous breakup of Gondwanaland off southwestern Australia: Marine Geology, v. 26, p. 41-48.

Markov, M.S., and others, 1979, Tectonics of the east Asia and Far-East seas: Geotectonics, no. 1, p. 3-21.

Markovsky, A.P., and others, 1972, Geological map of Eurasia: Ministry of Geology. USSR, scale 1:5,000,000.

Marks, P., 1957, Stratigraphic lexicon of Indonesia: Indonesia, Djawatan Geologi, Publikasi Keilmuan, no. 31, ser. Geologi, 233 p.

Marlow, M.S., Exon, N.F., and Tiffin, D.L., 1988, Widespread lava flows and sediment deformation in a forearc setting north of Manus Island, northern Papua New Guibea, *in* Marlow, M.S., Dadisman, S.V., and Exon, N.F., eds., Geology and offshore resources of Pacific island arcs-New Ireland and Manus region, Papua New Guinea: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series volume 9, p. 221-237.

Marlow, M.S., Johnson, L.E., Pearce, J.A., Fryer, P.B., Pickthorn, L.B.G., and Murton, B.J., 1992, Upper Cenozoic volcanic rocks in the Mariana Forearc recovered from drilling at Ocean Drilling Program Site 781; implications for forearc magmatism: Journal of Geophysical Research 97, p. 15,085-15,097.

Mascle, A., and Biscarrat, P.A., 1979, The Sulu Sea; a marginal basin in southeast Asia: American Association of Petroleum Geologists Memoir 29, p. 373-381.

Mason, R.G., and Raff, A.D., 1961, A magnetic survey of the west coast of North America: Geological Society of America, v. 72, p. 1259-1265.

Matsuda, J., and others, 1984, Geochemical implications from Sr isotopes and K-Ar age determinations for the Cook-Austral island chains: Tectonophysics, v. 104, p. 145-154.

Mattinson, J.M., James, E.W., 1985, Salinian block U/Pb and isotopic variations; implications for origin and emplacement of the Salinian terrane, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1, p. 215-226.

McCabe, R., 1984, Implications of paleomagnetic data on the collision related bending of island arcs: Tectonics, v. 3, p. 409-428.

McCabe, R., Almosco, J.N., and Diegor, W., 1982, Geologic and paleomagnetic evidence for a possible Miocene collision in western Panay, central Philippines: Geology, v. 10, p. 325-329.

McCabe, R., Almasco, J.N., and Yumul, 1985, G., Terranes of central Philippines, *in* Howell, D.H., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. I, p. 421-435.

McCabe, R, and Uyeda, S., 1983, Hypothetical model for the bending of the Mariana arc: American Geophysical Union Geophysical Monograph Series, v. 27, p. 281-293.

McCabe, R., and others, 1987, Paleomagnetic results from Luzon and the central Philippines: Journal of Geophysical Research, v. 92, B7, p. 555-580.

McDougall, I., and Duncan, R.A., 1980, Linear volcanic chains-recording plate motions?: Tectonophysics, v. 63, p. 275-295.

McKenzie, D.P., and Sclater, J.G., 1971, The evolution of the Indian Ocean since the Late Cretaceous: Royal Astronomical Society Geophysical Journal, v. 25, p. 437-528.

McLaughlin, R.J., and others, 1982, Post-middle Miocene accretion of Franciscan rocks, northwestern California: Geological Society of America Bulletin, v. 93, p. 595-605.

Menard, H.W., 1978, Fragmentation of the Farallon plate by pivoting subduction: Geology, v. 66, p. 99-110.

Mills, K.J., 1992, Geological evolution of the Wonominta Block, *in* Fergusson, C.L., and Glen, R.A., eds., The Paleozoic eastern margin of Gondwanaland; tectonics of the Lachlan Fold Belt, southeastern Australia and related orogens: Tectonophysics, v. 214, p. 57-68.

Minato, M.M., Funahashi, J., and Gorai, M., 1965, The geologic development of the Japanese Islands: Tokyo, Tsukiji-shokan, 442 p.

Minster, J.B., and Jordan, T.H., 1978, Present-day plate motions: Journal of Geophysical Research, v. 83, p. 533-545.

Ministry of Geology of the USSR, 1983, Geological map of the USSR and adjoining water-covered areas: Ministry of Geology, USSR, scale 1:2,500,000.

Mitre-S., L.M., and Roldan-Q., J., 198x, North American Continent-Ocean Transect Program, Transect H-1, La Paz to Saltillo, Northwestern and Northern Mexico: Geological Society of America.

Molnar, P., Atwater, T., Mammerickx, J., and Smith, S.M., 1975, Magnetic anomalies, bathymetry, and the tectonic evolution of the south Pacific since the Late Cretaceous: Royal Astronomical Society Geophysical Journal, v. 40, p. 383-420.

Monger, J.W.H., 1977, Upper Paleozoic rocks of the western Canadian Cordillera and their bearing on Cordilleran evolution: Canadian Journal of Earth Science, v. 14, p. 1832-1859.

Monger, J.W.H., and Berg, H.C., 1987, Lithotectonic map of western Canada and southeastern Alaska: U.S.Geological Survey Map 1874-B.

Monger, J.W.H., and Francheteau, J., 1987, Circum-Pacific orogenic belts and evolution of the Pacific Ocean basin: Amer. Geophys. Union and Geol. Soc. America, 165 p.
Monger, J.W.H., and Irving, E., 1980, Northward displacement of north-central British Columbia: Nature, v. 285, p. 289-293.
Monger, J.W.H., and Price, R.A., 1979, Geodynamic evolution of the Canadian Cordillera-progress and problems: Canadian Journal of Earth Science, v. 16, p. 770-791.
Monger, J.W.H., Price, R.A., and Tempelman-Kluit, D.J., 1982, Tectonic accretion and the origin of two metamorphic and plutonic welts in the Canadian Cordillera: Geology, v. 10, p. 70-75.
Monger, J.W.H., Souther, J.G., and Gabrielse, H., 1972, Evolution of the Canadian Cordillera; a plate-tectonic model: American Journal of Science, v. 272, p. 577-602
Monger, J.W.H., Clowes, R.M., and Riddihough, R.P., 198x, Continent-Ocean Transect B-2: Juan de Fuca Plate to Alberta Plains: Geological Society of America.
Monzier, M., Callot, J.Y., and Daniel, J., 1984, Carte bathymetrique des parties centrales et meridionale de l'arc insulairedes Nouvelles Hebrides: Paris, Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM).
Monzier, Michel; Robin, Claude; Eissen, Jean-Philippe; and Cotton, Jo, 1997, Geochemistry vs. seismo-tectonics along the volcanic New Hebrides central chain (Southwest Pacific): Journal of Volcanology and Geothermal Research 78, p. 1-29.
Moore, G.W., 1984, Tertiary dismembennent of western North America, *in* Watson, S.T., ed., Transactions of the Third Circum-Pacific Energy and Mineral Resources Conference, p. 607-612.
Moore, T.E., 1985, Stratigraphy and tectonic significance of the Mesozoic tectonostratigraphic terranes of the Vizcaino Peninsula, Baja California Sur, Mexico, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1**,** p. 315-329
Moore, G.W., 1994, Geologic catastrophes in the Pacific northwest: Oregon Geology, v. 56, no. 1, p. 3-6.
Mortimer, N., 1985, Structural and metamorphic aspects of Middle Jurassic terrane juxtaposition, northeastern Klamath Mountains *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1**,** p. 201-214.
Mortimer, N., 1986, Late Triassic, arc-related, potassic igneous rocks in the North American Cordillera: Geology, v. 14**,** p. 1035-1038.
Muehlberger, W.R., 1980, Texas lineament revisited: New Mexico Geol. Soc. Guidebook, 31st Field Conference, Trans-Pecos Region, p. 113-121.
Muehlberger, W.R., 1992, Tectonic map of North America, southwest sheet: AmericanAssociation of Petroleum Geologists, scale 1:5,000.000.
Murray, C.G., 1986, Metallogeny and tectonic development of the Tasman Fold Belt System in Queensland, *in* E. Scheibner, ed., Metallogeny and tectonic development in Eastern Australia: Ore Geology Review, v. 1, p. 315-400.
Mutter, J.C., and Jongsma, D., 1978, The pattern of the pre-Tasman Sea rift system and geometry of breakup: Australian Society of Exploration Geophysicists Bulletin 9, p. 70-75.
Myers, J.S., 1990, Precambrian tectonic evolution of part of Gondwana, southwestern Australia: Geology 18, p. 537-540.
Nakanishi, Masao; Tamaki, Kensaku; and Kobayashi, Kazuo, 1989, Mesozoic magnetic anomaly lineations and seafloor spreading history of the northwestern Pacific: Journal of Geophysical Research, v. 94, p. 15,437-15,462.
Nakanishi, M., 1993, Topographic expression of five fracture zones in the northwest Pacific Ocean, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p. 121-136.
Nakanishi, M., Tamaki, K., and Kobayashi, K., 1992, Magnetic anomaly lineations from Late Jurassic to Early Cretaceous in the west-central Pacific Ocean: Geophysical Journal International.
Nakanishi, Masao; Tamaki, Kensaku; and Kobayashi, Kazuo, 1992, A new Mesozoic isochron chart of the whole western Pacific Ocean; paleomagnetic and tectonic implications: Geophysical Research Letters, v. 19, p. 693-696.
Nalivkin, D.V., ed., 1973, Geology of USSR: Oliver and Boyd, 855 p.
Nanjing Institute of Geology and Paleontology, Chinese Academy of Sciences, 1982, Stratigraphic correlation chart in China: Beijing, Science Press, 318 p.

Natland, J., 1980, The progression of volcanism in the Samoan linear volcanic chain: American Journal of Science, v. 280A, p. 709-735.
Ness, G.E., Samchez, O.Z., Couch, R.W., and Yeats, R.S., 1981, Bathymetry and oceanic crustal ages in the vicinity of the mouth of the Gulf of California: Initial Reports Deep Sea Drilling Project, v. 63, p. 919-923.
New Zealand Geological Survey, 1972, Geological map of New Zealand: New Zealand Department of Science and Industrial Research, scale 1:1,000,000.
Norris, J.J., and Carter, R.M., 1980, Offshore sedimentary basins at the southern end of the Alpine fault, New Zealand: International Association of Sedimentologists Special Publication 4, p. 237-265.
Norris, R.J., and Carter, R.M., 1982, Fault bounded blocks and their role in localising sedimentation and deformation adjacent to the Alpine Fault, southern New Zealand: Tectonophysics 87, p. 11-23.
Nur, A., and Ben-Avraham, Z., 1982, Oceanic plateaus, the fragmentation of continents, and mountain building: Journal of Geophysical Research, v. 87, p. 3644-3661.
Oldow, J.S., Bally, A.W., Ave Lallement, H.G., and Leeman, W.P., 1989, Phanerozoic evolution of the North American Cordillera; United States and Canada, *in* Bally, A.W., and Palmer, A.R., eds., The geology of North America-an overview: Geological Society of America, The Geology of North America, v. A.
Ortega-G., F., 198x, North American Continent-Ocean Transects program, Transect H-3, Acupulco Trench to the Gulf of Mexico across southern Mexico: Geological Society of America.
Orwig, T.L., and Kroenke, L.W., 1980, Tectonics of the eastern central Pacific basin: Marine Geology, v. 34, p. 29-34.
Otofuji, Y., and others, 1981, Paleomagnetic evidence for clockwise rotation of the northern arm of Sulawesi, Indonesia: Earth and Planetary Science Letters, v. 54, p. 272-280.
Ozima, M., Kaneoka, I., and Aramaki, S., 1970, K-Ar ages of submarine basalts dredged from seamounts in the western Pacific area and discussion of oceanic crust: Earth and Planetary Science Letters 8, p.237-249
Osozawa, Soichi, 1994, Plate reconstruction based upon age data of Japanese accretionary complexes: Geology, v. 22, p. 1135-1138.
Packham, G.H., ed., 1969, The geology of New South Wales: Journal of the Geological Society of Australia, v. 16, 654p.
Packham, G.H., ed., 1982, The evolution of the India-Pacific plate boundaries: Tectonophysics, v. 87, 397 p.
Packham, G.H., and Andrews, J.E., 1975, Results of Leg 30 and the geologic history of the southwest Pacific arc and marginal sea complex: Initial Reports of the Deep Sea Drilling Project, v. 30, p. 691-705.
Page, B.G.N., and others, 1979, A review of the main structural and magnetic features of northern Sumatra: Journal of the Geological Society of London, v. 136, p. 569-609.
Page, R.W., 1976, Geochronology of igneous and metamorphic rocks in the New Guinea highlands: Australia Bureau of Mineral Resources Bulletin 162, 117 p.
Palfreyman, W.D., 1988, Geologic map of the Circum-Pacific region, southwest quadrant: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources, scale 1:10,000,000.
Palfreyman, W.D., and others, 1976, Geology of Australia: Australia Bureau of Mineral Resources, Geology, and Geophysics, scale 1:2,500,000.
Palfreyman, W.D., and others, 1988, Geologic map of the Circum-Pacific region, southwest quadrant, Circum-Pacific Council for Energy and Mineral Resources, scale 1:10.000.000.
Palmer, A.R., 1983, The Decade of North American Geology, 1983 geologic time scale: Geology, v. 11, p. 503-504.
Palmer, A.R., 1982, Perspectives in regional geological synthesis: Geological Society of America, DNAG Special Publication v. 1.
Panuska, B.C., and Stone, D.B., 1985, Latitudinal motion of Wrangellia and Alexander terranes and Southern Alaska superterrane, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1, p. 109-120.
Parfenov, L.M., and others, 1993, Terrane analysis and accretion in northeast Asia: Island Arc, v. 2, p. 35-54.
Paris, J.P., 1981a, Geologie, *in* Atlas de la Nouvelle Caledonie et dependances: Paris, Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM), sheet 9, scale 1:1,000,000.
Paris, J.P., 1981b, Geologie de la Nouvelle Caledonie: un essai de synthesis: Paris, Bureau de Recherche Geologiques et Minieres Memoir 113,279 p.
Paris, J.P., and Lille, R., 1977, New Caledonia; evolution from Permian to Miocene, mapping data and hypotheses about geotectonics, *in* International Symposium on Geodynamics in southwest Pacific: Paris, Edition Technip, p. 195-208.

Parke, Jr., M.L., Emery, K.O., Szymakiewicz, R., and Reynolds, L.M., 1971, Structural framework of continental margin in South China Sea: American Association of Petroleum Geologists Bulletin, v. 55, p. 723-751.
Parrot, J.F., and Dugas, F., 1980, The disrupted ophiolitic belt of the southwest Pacific; evidence of an Eocene subduction zone: Tectonophysics, v. 66, p. 349-372.
Pautot, G., and others, 1986, Spreading direction in the central South China Sea: Nature, v. 321, p. 150-154.
Pavlis, T.L., 1982, Origin and age of the Border Ranges fault of southern Alaska, and its bearing on the late Mesozoic tectonic evolution of Alaska: Tectonics, v. l, p. 343-368.
Peive, A.V., and others, 1979, Tectonic map of northern Eurasia: USSR Academy of Sciences, scale 1:5.000,000.
Perez, O.J., and Jacobs, K.H., 1980, Tectonic model and seismic potential of the eastern Gulf of Alaska and Yakataga seismic gap: Journal of Geophysical Research, v. 85, p. 7132-7150.
Philippine Bureau of Mines and Geosciences, 1982, Geology and mineral resources of the Philippines: v. 1,406 p.
Pigram, C.G., and Panggabean, H., 1983, Age of the Banda Sea, eastern Indonesia: Nature, v. 301, p. 231-234.
Pigram, C.G., and Panggabean, H., 1984, Rifting of the northern margin of the Australian continent and the origin of some microcontinents in eastern Indonesia: Tectonophysics, v. 107, p. 331-353.
Plumb, K.A., 1979a, Structure and tectonic style of the Precambrian shields and platforms of northern Australia: Tectonophysics, v. 58, p. 291-325.
Plumb, K.A., 1979b, The tectonic evolution of Australia: Earth-Science Reviews, v. 14, p. 205-249.
Plumb, K.A., and James, H.L., 1986, Subdivision of the Precambrian time; recommendations and suggestions by the Subcommission on Precambrian Stratigraphy: Precambrian Research, v. 32, p, 65-92.
Pogson, D.J., 1972, The geology of New South Wales: Sydney, Geological Survey of New South Wales, scale 1:1,000,000.
Powell, C.McA., 1983, Geology of New South Wales South Coast: Geological Society of Australia Specialist Group in Tectonics and Structural Geology Field Guide 1, 118 p.
Powell, T.S., 1978, The seafloor spreading history of the eastern Indian Ocean: University of California at Santa Barbara Master's thesis, 71 p.
Preiss, W.V., 1987, The Adelaide geosyncline: Geological Survey of South Australia Bulletin 53, 438 p.
Preiss, W.V., Rutland, R.W.R., and Murrell, B., 1981, The Precambrian of south Australia, *in* Hunter, E.R., ed., Precambrian of the southern hemisphere: Amsterdam, Elsevier, p. 309-360.
Price, N.J., and Audley-Charles, M.G., 1983, Plate rupture by hydraulic fracture resulting in overthrusting: Nature, v. 306, p. 572-575.
Pringle, M.S., 1993, Age progressive volcanism in the Musicians Seamounts; a test of the hot spot hypothesis for the Late Cretaceous Pacific, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p. l87-215.
Pringle, M.S., and Dalrymple, G.B., 1993, Geochronological constraints on a possible hot spot origin for Hess Rise and the Wentworth Seamount Chain, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p. 263-277.
Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., 1993, The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, 435 p.
Pringle, M.S., Staudigel, H., Duncan, R.A., Christie, D.M., and ODP Leg 143 and 144 Scientific Staff, 1993, 40Ar/39Ar ages of basement lavas at Resolution, MIT, and Wodejebato Guyots compared with magneto- and biostratigraphic results from ODP Legs 143/144: American Geophysical Union EOS Transactions 74, p. 353.
Pulunggono, A., 1974, Recent knowledge on hydrocarbon potentials in sedimentary basins of Indonesia, *in* Halbouty, M.T., Mayer, J.C., and Lian, H.M., eds., Circum-Pacific Energy and Mineral Resources Conference Proceedings: American Association of Petroleum Geologists Memoir 25, p. 239-249.
Ramsay, W.R.H., and VandenBerg, A.H.W., 1986, Metallogeny and tectonic development of the Tasman Fold Belt System in Victoria, *in* Scheibner, E., ed., Metallogeny and tectonic development of eastern Australia: Ore Geology Review 1, p. 213-257.
Ravenne, C., Pascal, G., Dubois, J., Dugas, F., and Montadert, L., 1977, Model of a young intra-oceanic arc; the New Hebrides island arc: International Symposium on the Geodynamics of the Southwest Pacific, New Caledonia, p. 63-78.
Ray, D.K., and others, 1982, The tectonic map of south and east Asia: Commission for the Geological Map of the World, Subcommission for the Tectonic Maps, scale 1:5,000,000.
Raymond, L.A., and Swanson, S.E., 1980, Accretion and episodic plutonism: Nature, v. 285, p. 317-318.

Ren, J., and others, 1987, Geotectonic evolution of China: Beijing, Science Press, 203 p.
Reyners, M., 1983, Lateral segmentation of the subducted plate at the Hikurangi margin, New Zealand: seismological evidence: Tectonophysics, v. 96, p. 203-223.
Richards, J.R., and Gee, R.D., 1985, Galena lead isotopes from the eastern part of the Nabberu Basin, Western Australia: Australian Journal of Earth Sciences, v. 32, p. 47-54.
Riddihough, R.P., 1984, Recent movements of the Juan de Fuca plate system: Journal of Geophysical Research, v. 89, p. 6980-6994.
Robinson, G.P., 1976, Geology of the Huon Peninsula: Papua New Guinea Geological Survey Memoir 2, 46 p.
Robinson, G.P., and Ratman, N., 1978, The stratigraphic and tectonic development of the Manokwari area, Irian Jaya: Australia Bureau of Mineral Resources Journal of Australian Geology and Geophysics, v. 3, p. 19-24.
Robinson, K., 1984, International Union of Geological Sciences (IUGS)/Circum-Pacific Map Project (CPMP)/Committee for Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP) "Pilot project" sediment thickness map, circum-Borneo: scale 1:2,000,000.
Rodda, P., 1974, Fiji, *in* Spencer, A.M., ed., Mesozoic-Cenozoic orogenic belts: Geological Society of London Special Publication 4, p. 425-432.
Rodda, P., 1976, Geology of northern and central Viti Levu: Fiji Mineral Resources Division Bulletin 3, 154 p.
Rodda, P., 1982, Fiji, *in* Stratigraphic correlation between sedimentary basins of the ESCAP region, v. 8: "ESCAP atlas of stratigraphy", United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) Mineral Resources Development Series, v. 48, p. 13-21.
Roddick, J.A., and Hutchison, W.W., 1974, Setting of the Coast plutonic province, British Columbia: Pacific Geology, v. 8, p. 91-108.
Rodolfo, K.S., 1969, Bathymetry and marine geology of the Andaman Basin and tectonic implications for southeast Asia: Geological Society of America Bulletin, v. 80, p. 1203-1230.
Ruellan, Etienne; Lagabrielle, Yves; Tanahashi, Manabu; and the Shipboard Party, 1996, Study yields surprises about seafloor spreading in back-arc basins: EOS, v. 77, no. 38, p.365-369.
Rusby, R.I., and Searle, R.C., 1993, Intraplate thrusting near the Easter microplate: Geology, v. 21, p. 311-314.
Rutland, R.W.R., 1976, Orogenic evolution of Australia: Earth Science Review, v. 12, p. 161-196.
Rutland, R.W.R., and others, 1981, The Precambrian of South Australia, *in* Hunter, D.R., ed., Precambrian of the southern hemisphere: Developments in Precambrian Geology Series: Amsterdam, Elsevier, v. 2, p. 309-360.
Sager, W.W., Duncan, R.A., and Handschumacher, D.W., 1993, Paleomagnetism of the Japanese and Marcus-Wake Seamounts, western Pacific Ocean, in Pringle, M.S., Sager, W.W., Sliter, W.V., and Stein, S. eds., The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p.401-435.
Sager, W.W., and Han, Hyun-Chul, 1993, Rapid formation of the Shatsky Rise oceanic plateau inferred from its magnetic anomaly: Nature, v. 364, p. 610-613.
Saleeby, J.B., Continent-Ocean Transect: Corridor C-2, Central California offshore to the Colorado Plateau: Geological Society of America.
Salop, L.J., 1977, Precambrian of the northern hemisphere and general features of early geological evolution: Elsevier Sci. Pub., 382 p.
Salop, L.J., 1983, Geological evolution of the Earth during the Precambrian: Springer Verlag, 498 p.
Sato, T., 1981, Geology of southeast Asia, a review: Report of the Geological Survey of Japan, no. 261, p. 7-19.
Sato, T., Westermann, G.E.C., Skwarko, S.K., and Hasibuan, F., 1978, Jurassic biostratigraphy of the Sula Island, Indonesia: Geological Survey of Indonesia Bulletin, v. 4, p. 10-28.
Sawlan, M.G., and Smith, J.G., 1984, Petrologic characteristics, age and tectonic setting of Neogene volcanic rocks in northern Baja California Sur, Mexico, *in* Frizzell, V.A. Jr., ed., Geology of Baja California Peninsula: Pacific Section SEPM,
Scheibner, E., 1972, Tectonic concepts and tectonic mapping: Records Geological Survey N.S.W., v. 14 (1), p. 37-83.
Scheibner, E., 1974, Tectonic map of New South Wales: Sydney, Geological Survey of New South Wales, scale 1:1,000,000.
Scheibner, E., 1976, Explanatory notes on the tectonic map of New South Wales: Geological Survey of New South Wales, 283 p.

Scheibner, E., 1985, Suspect terranes in the Tasman Fold Belt System (eastern Australia), *in* Howell, D.H., ed., Tectono-stratigraphic terranes in the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources, Earth Science Series, v. 1, p. 493-514.

Scheibner, E., ed., 1986, Metallogeny and tectonic development of Eastern Australia: Ore Geology Reviews, v. 1, p. 147-412.

Scheibner, E., 1987, Paleozoic tectonic development of Eastern Australia in relation to the Pacific region, *in* Monger, J.W.H., and Francheteau, J., eds., Circum-Pacific orogenic belts and the evolution of the Pacific Ocean Basin: American Geophysical Union Geodynamics Series, v. 18, p. 133-165.

Scheibner, E., 1990, The tectonics of New South Wales in the second decade of application of the plate-tectonics paradigm: Journal of the Royal Society of New South Wales, v. 122, p 35-74.

Scheibner, E., 1991, Tectonic map of the Circum-Pacific region, southwest quadrant: U.S. Geological Survey, Circum-Pacific Map Series, Map CP-37, scale: 1:10,000,000.

Scholl, D.W., Grantz, A., and Vedder, J.G., eds.,? Geology and resource potential of the continental margin of western North America and adjacent ocean basins; Beaufort Sea to Baja California: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources, Earth Sciences Series no. 6.

Scholl, D.W., and Vallier, T.L., eds., 1985, Geology and offshore resources of Pacific island arcs-Tonga region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 2, 488 p.

Sclater, J.G., and Fisher, R.L., 1974, Evolution of the east central Indian Ocean, with emphasis on the tectonic setting of the Ninetyeast Ridge: Geological Society of America Bulletin, v. 85, p. 683-702.

Seno, T., 1977, The instantaneous rotation vector of the Philippine Sea plate relative to the Eurasian plate: Tectonophysics, v. 42, p. 209-226.

Shaw, R.D., 1978, Seafloor spreading in the Tasman Sea; a Lord Howe Rise-eastern Australian reconstruction: Australian Society of Exploration Geophysicists Bulletin, v. 9, p. 75-81

Shaw, R.D., and Packham, G.H., 1992, The tectonic setting of sedimentary basins of eastern Indonesia; implications for hydrocarbon prospectivity: The APEA Journal, 1992, p. 195-213..

Shipley, T.H., Abrams, L.J., Lancelot, Y., and Larson, R.L., 1993, Late Jurassic-Early Cretaceous oceanic crust and Early Cretaceous volcanic sequences of the Nauru Basin, western Pacific, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, p.103-119.

Shurbet, D.H., and Cebull, S.E., 1984, Tectonic interpretation ofthe Trans-Mexican volcanic belt: Tectonophysics, v. 101, p. 159-165.

Silberling, N.J., and others, 1987, Lithotectonic terranes of the western conterminous United States: U.S. Geolgical Survey Map MF-1874-C.

Silver, E.A., 1981, A new tectonic map of the Molucca Sea and east Sulawesi, Indonesia, with implications for hydrocarbon potential and metallogenesis; the geology and tectonics of eastern Indonesia: Indonesia Geological Research and Development Centre Special Publication 2, p. 343-347.

Silver, E.A., McCaffrey, R., and Smith, R.B., 1983, Collision, rotation, and the initiation of subduction in the evolution of Sulawesi, Indonesia: Journal of Geophysical Research, v. 88, p. 9407-9418.

Silver, E.A., and Moore, J.C., 1978, The Molucca Sea collision zone, Indonesia: Journal of Geophysical Research, v. 83, p. 1681-1691.

Silver, E.A., Reed, D., and McCaffrey, R., 1983, Backarc thrusting in the eastern Sunda arc, Indonesia: a consequence of arc-continent collision: Journal of Geophysical Research, v. 88, p. 7429-7448.

Silver, E.A., and Smith, R.B., 1983, A comparison of terrane accretion in modern southeast Asia and the Mesozoic North American Cordillera: Geology, v. 11, p. 198-202.

Silver, E.A., and others, 1989, Origin of marginal basins; Leg 124, Shipboard Scientific Party, Ocean Drilling Program (ODP): Nature, v. 338, p. 380-381.

Simkin, T., and others, 1981, Volcanoes of the world: a regional directory, gazetteer, and chronology of volcanism during the last 10,000 years: Stroudsburg, Pennsylvania, Hutchinson Ross, 236 p.

Sinton, C.W., Duncan, R.A., Storey, M., Lewis, J., and Estrada, J.J., 1998, An oceanic flood basalt province within the Caribbean plate: Earth and Planetary Science Letters 155, p. 221-235.

Smith, D.K., Jordan, T.H., and Menard, H.W., 1984, Pacific seamounts; control of regional distribution by geologic variables [abs.]: EOS, American Geophysical Union Transactions, v. 65, p. 1075.

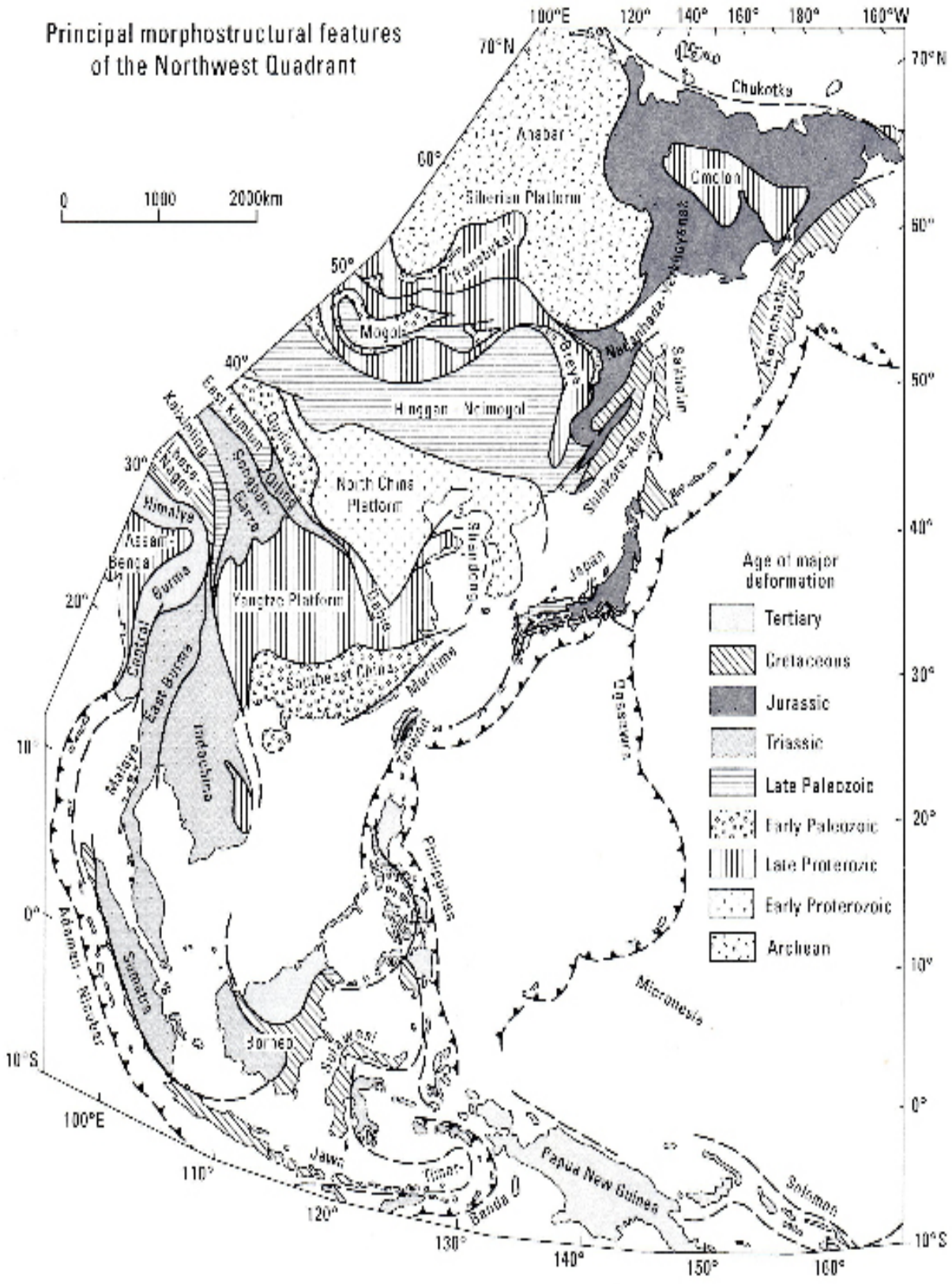
Souther, J.G., 1977, Volcanism and tectonic environments in the Canadian Cordillera-A second look, *in* Barager, W.R.A., Coleman, L.C., and Hall, J.M., eds., Volcanic regimes in Canada: Geological Association of Canada Special Paper 16, p. 3-24.
Speed R.C., and others, 1984, eds., Lesser Antilles arc and adjacent terranes, Regional Atlas Series: Marine Science International, Woods Hole, Mass., sheets.
Sporli, K.B., 1978, Mesozoic tectonics, North Island, New Zealand: Geological Society of America Bulletin, v. 89, p. 415-425.
Sporli, K.B., 1980, New Zealand and oblique-slip margins; tectonic development up to and during the Cainozoic: International Association of Sedimentologists Special Publication 4, p. 147-170.
Sporli, K.B., 1987, Development of the New Zealand microcontinent, *in* Monger, W.H., and Francheteau, T., eds., Circum-Pacific orogenic belts and evolution of the Pacific Ocean basin: American Geophysical Union Geodynamics Series, v. 18, p. 115-132.
Sporli, K.B., 1989, Tectonic framework of Northland, New Zealand: New Zealand Royal Society, Bulletin 26, p. 3-14.
Stacey, R.A., 1975, Structure of the Queen Charlotte basin, *in* Yorath, C.J., Parker, E.R, and Glass, D.J., eds., Canada's continental margins: Canadian Society of Petroleum Geologists, Memoir 4, p.723-741.
Stagg, H.M.J., 1993, Explanatory notes to accompany tectonic elements map and data base of the North West Shelf, Australia: Australian Geological Survey Organisation, Record No 1993/3, 44 p.
Steed, R.H.N., and Drewry, D.J., 1982, Radio echo sounding investigations of Wilkes Land, Antarctica, *in* Craddock, C., ed., Antarctica geoscience: Madison, Wisconsin, University of Wisconsin Press, p. 969-976.
Stern, T.A., 1985, A backarc basin formed within continental lithosphere; the central volcanic region of New Zealand: Tectonophysics, v. 112, p. 385-409.
Stevens, B.P.J., ed., 1980, A guide to the stratigraphy and mineralization of the Broken Hill Block, New South Wales: Geological Survey of New South Wales Records, v. 20,153 p.
Stevens, B.P.J., and Stroud, W.J., eds., 1983, Rocks of the Broken Hill Block; their classification, nature, stratigraphic distribution, and origin: Geological Survey of New South Wales Records, v. 21, 323 p.
Stevens, B.P.J., 1986, Post-depositional history of the Willyama Supergroup in the Broken Hill Block, New South Wales: Australian Journal of Earth Sciences 33, p. 73-98.
Stevens, B.P.J., Page, R.W., and Sun, S.S., 1990, Excursion guide C-2, Broken Hill Block, International Conference on Geochronology, Cosmochronology and Isotope Geology, 7th: Australian Bureau of Mineral Resources, Record 1990/53.
Stone, D.B., and Packer, D.R, 1979, Paleomagnetic data from the Alaska Peninsula: Geological Society of America Bulletin, v. 90, p. 545-560.
Stone, D.B., and Panuska, B.C., 1982, Paleolatitudes versus time for southern Alaska: Journal of Geophysical Research, v. 87, p. 3697-3707.
Suensilpong, S., Burton, C.K., Mantajit, N., and Workman, D.R., 1978, Geological evolution and igneous activity of Thailand and adjacent areas: Episodes, v. 1978, no. 3, p. 12-17.
Suensilpong, S., and others, 1982, Geological map of Thailand: Thailand Department of Mineral Resources, Geological Survey of Division, scale 1:1,000,000.
Suggate, R.P., Stevens, G.R., and Te Punga, M.T., eds., 1978, The geology of New Zealand: Wellington, Government Printer, New Zealand Geological Survey, 2 v., 820 p.
Sukamto, R., 1975, Geological map of Indonesia: Geol. Surv. Indonesia, scale 1:1,000,000.
Sukamto, R., 1975, Geologi daerah Kepulauan Banggai dan Sula: Geologi Indonesia (Journal of the Indonesian Geological Association), v. 2, no. 3, p. 23-28.
Sukamto, R., 1978, The structure of Sulawesi in the light of plate tectonics: Regional Conference on the Geology and Mineral Resources of Southeast Asia (GEOSEA) Proceedings, 1975, Jakarta, p. 121-141.
Sukamto, R., Apandi, T., Supriatna, S., and Yasin, A., 1981, The geology and tectonics of Halmahera Island and surrounding areas; geology and tectonics of eastern Indonesia: Indonesia Geological Research and Development Centre Special Publication 2, p. 349-362.
Sukamto, R., and Simandjuntak, T.O., 1983, Tectonic relationship between geologic provinces of western Sulawesi, eastern Sulawesi, and Banggai-Sula in the light of sedimentological aspects: Indonesia Geological Research and Development Centre Bulletin, no. 7, p. 1-12.
Sutherland, F.L., 1978, Mesozoic-Cainozoic volcanism of Australia: Tectonophysics, v. 48, p. 413-427.

Sutherland, Rupert, 1995, The Australia-Pacific boundary and Cenozoic plate motions in the SW Pacific; some constraints from Geosat data: Tectonics, v. 14, no. 4, p. 819-831. Symonds, P.A., 1983, Relation between continental shelf and margin development, central and northern Great Barrier Reef: Proceedings of the First Great Barrier Reef Conference, James Cook University, Townsville, p. 1-3.
Symonds, P.A., 1973, The structure of the North Tasman Sea: Australian Bureau of Mineral Resources, Geology and Geophysics Record 1973/167 (unpubl.), 8 p.
Symonds, P.A., Fritsch, J., and Schluter, H.U., 1984, Continental margin around the western Coral Sea Basin; structural elements, seismic sequences, and petroleum geological aspects, *in* Watson, S.T., ed., Transactions of the Third Circum-Pacific Energy and Mineral Resources Conference, August 22-28, 1982, Honolulu, p. 243-252.
Symonds, P.A., and Wilcox, J.B., 1976, The gravity field of offshore Australia: Australian Bureau of Mineral Resources, Journal of Australian Geology and Geophysics 1, p. 303-314.
Symonds, P.A., and Wilcox, J.B., 1981, Structural map of the Australian shelf: Australia Bureau of Mineral Resources, Geology, and Geophysics, scale 1:10,000,000.
Tailleur, I., and Weimer, P., eds., Alaskan North Slope geology: California, Society of Economic Paleontologists and Mineralogists and Alaska Geological Society.
Talwani, M., Mutter, J.C., Houtz, R., and Konig, M., 1980, The crustal structure and evolution of the area underlying the magnetic quiet zone on the margin south of Australia: American Association of Petroleum Geologists Memoir 29, p. 151-175.
Tamaki, K., 1984, Seismic reflection survey in the central Pacific Basin during GH80-5 cruise: Geological Survey of Japan Cruise Report 20, p. 43-52.
Tamaki, K., Joshima, M., and Larson, R.L., 1979, Remnant Early Cretaceous spreading center in the central Pacific Basin: Journal of Geophysical Research, v. 84, p. 4501-4510.
Taira, A., and Tashiro, M., eds., 1988, Historical biogeography and plate tectonic evolution of Japan and Eastern Asia: Tokyo, Terra Sci. Pub., 221 p.
Tamaki, K., and Larson, R.L., 1988, The Mesozoic tectonic history of the Magellan Microplate in the western central Pacific: Journal of Geophysical Research, Menard volume, v. 93, p. 2857-2874.
Tan, B.K., and Khoo, T.T., 1978, Review of the development in the geology and mineral resources of Malaysia and Singapore: 3rd Regional Conference of the Geology and Mineral Resources of Southeast Asia (GEOSEA) Proceedings, Bangkok, p. 655-671.
Tan, D.N.K., Kho, C.H., and Hon, V., 1983, Sarawak: Annual Report of the Geological Survey of Malaysia, 1981, p.98-119.
Tanaka, K., and Nozawa, T., eds., 1977, Geology and mineral resources of Japan; (3d ed.),: Geol. Surv. Japan, 430 p.
Taylor, B., 1979, Bismarck Sea: evolution of a backarc basin: Geology, v. 7, p. 171-174.
Taylor, Brian; Goodliffe, Andrew; Martinez, Fernando; and Hey, Richard, 1995, Continental rifting and initial seafloor spreading in the Woodlark basin: Nature, v. 374, p. 534-537.
Taylor, B., and Hayes, D.E., 1980, The tectonic evolution of the South China basin, *in* Hayes, D.E., ed., The tectonic and geologic evolution of southeast Asian seas and islands: American Geophysical Union Geophysical Monograph 23, p. 89-104.
Taylor, B., and Hayes, D.E., 1983, Origin and history of the South China Sea basin, *in* Hayes, D.E., ed., The tectonic and geologic evolution of southeast Asian seas and islands, part 2: American Geophysical Union Geophysical Monograph 27, p. 23-56.
Taylor, B., and Karner, G.D., 1983, On the evolution of marginal basins: Review of Geophysics and Space Physics, v. 21, p. 1727-1741.
Taylor, Brian, Klaus, A., Brown, G.R., and Moore, G.F., 1991, Structural development of Sumisu rift, Izu-Bonin arc: Journal of Geophysical Research, v. 96, no. B10, p. 16,113-16,129.
Teraoka, Y., and others, 1992, Geological map of Japan and adjoining areas: Geol. Surv. Japan, scale 1:4,000,000.
Tempelman-Kluit, D.J., 1976, The Yukon crystalline terrane; Enigma in the Canadian Cordillera: Geological Society of America Bulletin, v. 87, p. 1343-1357.
Terman, M.J., 1973, Tectonic map of China and Mongolia: Geol. Soc. America, scale 1:5,000,000.
Tilman, S.M., and others, 1979, Tectonic map of the eastern USSR and adjacent regions: Ministry of Geology, USSR, scale 1:2,500,000.
Tilman, S.M., and Bogdanov, N.A., 1992, Tectonic map of Northeast Asia: Inst. Lithosphere, Acad. Sci. Russia.

Tingey, R.J., 1991, Commentary on schematic geological map of Antarctica: Australian Bureau of Mineral Resources, Bulletin 238, scale 1:10,000,000, 30 p.
Tipper, H.W., Woodsworth, G.J., and Gabrielse, H., 1981, Tectonic assemblage map of the Canadian Cordillera and adjacent parts of the U.S.A.: Geological Survey of Canada, Map 1505A, scale 1:2,000,000.
Tjokrosapoetro, S., and Budhitrisna, T., 1982, Geology and tectonics of the northern Banda Arc: Indonesia Geological Research and Development Centre Bulletin 6, p. 1-17.
Tulloch, A.J., and Kimbrough, D.L., 1989, The Paparoa metamorphic core complex New Zealand; Cretaceous extension associated with fragmentation of the Pacific margin of Gondwana: Tectonics 8, p. 1214-1234.
Turner, D.L., Jarrard, R.D., and Forbes, R.B., 1980, Geochronology of the Pratt-Welker seamount chain, Gulf of Alaska; A new pole of rotation for the Pacific plate: Journal of Geophysical Research, v. 85, p. 6547-6556.
United Nations Economic Commission for Asia and the Far East (ECAFE), 1971, Geological Map of Asia and the Far East (2d ed.): United Nations, scale 1:5,000,000.
United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), 1978, Atlas of stratigraphy; map of sedimentary basins of the ESCAP region: International Geological Correlation Project project no. 32, (1st ed), scale 1:10,000,000.
Untung, M., 1985, Subsidence of the Aru Trough and the Aru Island, Irian Jaya, Indonesia: Tectonics, v. 112, p.411-422.
Untung, M., and others, 1991, Studies in East Asian tectonic and resources: Crustal Transect VII: Committee for Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas and Intergovernmental Oceanographic Commission, 66 p
Ussami, Naomi, Cogo de Sa, Nelsi, and Molina, E.C., 1993, Gravity map of Brazil 2. Regional and residual isostatic anomalies and their correlation with major tectonic provinces: Journal of Geophysical Research, v. 98, no. B2, p. 2199-2208..
Uyeda, S., and McCabe, R., 1983, A possible mechanism of episodic spreading of the Philippine Sea, *in* M. Hashimoto, and S. Uyeda, eds., Accretion tectonics in the circum-Pacific regions: Tokyo, Terra Scientific Publishing Company, p. 291-306.
Van Bemmelen. R.W., 1970, The geology of Indonesia (2d ed.): Martinus Nijhoff, the Hague, 732p.
VandenBerg, A.H.M., 1978, The Tasman Fold Belt System in Victoria: Tectonophysics, v. 48, p. 267-297.
Vedder, J.G., and others, 1974, Preliminary report on the geology of the continental borderland of southern California: U.S. Geological Survey Miscellaneous Field Studies MF-624, 34 p.
Vedder, J.G., Pound, KS., and Boundy, S.Q., eds., 1986, Geology and offshore resources of Pacific island arcs-central and western Solomon Islands: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Sciences Series, v. 4, 306 p.
Verraburus, M., Mantajit, N., and Suensilpong, S., 1981, Outline of geology and ore deposits of Thailand. Rep.: Geol. Surv. Japan, no. 261, p. 81-92.
Veevers, J.J., 1982, Australian-Antarctic depression from the mid-ocean ridge to adjacent continents: Nature, v. 295, p.315-317.
Veevers, J.J., 1986, Breakup of Australia and Antarctica estimated as mid-Cretaceous (95±5 Ma) from magnetic and seismic data at the continental margin: Earth and Planetary Science Letters, v. 77, p. 91-99.
Veevers, J.J., 1987, The conjugate continental margins of Antarctica and Australia, *in* Eittreim, S.L., and Hampton, M.A., eds., The Antarctic continental margin; geology and geophysics of offshore Wilkes Land: Houston,Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 5A, p. 45-73.
Veevers, J.J., 1988, Seafloor magnetic lineations of the Ottway/West Tasmania Basins; Ridge jumps and the subsidence history of the Southeast Australian margins: Australian Journal of Earth Sciences, v. 35, p. 451-462.
Veevers, J.J., ed., 1984, Phanerozoic earth history of Australia: New York, Oxford University Press, 418 p.
Vogt, P.R., Cherkis, N.Z., and Morgan, G.A., 1983, Evolution of the Australian-Antarctic discordance deduced from detailed aeromagnetic study, *in* Oliver, R.C., James, P.R., and Jago, J.B., eds., Antarctic earth science: Canberra, Australian Academy of Sciences, p. 608-613.
Vogt, P.R., and Conolly, J.R., 1971, Tasmantid guyots, the age of the Tasman Basin, and motion between the Australia plate and the mantle: Geological Society of America Bulletin, v. 82, p. 2577-2583.
Vogt, P.R., Lowrie, A., Bracey, D.R., and Hey, R.N., 1976, Subduction of seismic ocean ridges; effects on shape, seismicity, and other characteristics of consuming plate boundaries: Geological Society of America Special Paper 172, 59 p.

Von der Borch, C.C., 1980, Evolution of Late Proterozoic to early Paleozoic Adelaide Fold Belt, Australia; comparison with post-Permian rifts and passive margins: Tectonophysics, v. 70, p. 115-134.
von Huene, R.E., and Auboin, J., 1980, Leg 67; The Deep Sea Drilling Project Mid-America Trench transect of Guatemala: Geological Society of America Bulletin, v. 91, p. 421-432.
von Huene, R.E., and others, 1985, Cenozoic migration of Alaskan terranes indicated by paleontologic study, *in* Howell, D.G., ed., Tectonostratigraphic terranes of the Circum-Pacific region: Houston, Tex., Circum-Pacific Council for Energy and Mineral Resources Earth Science Series, v. 1**,** p. 121-136.
von Huene, R.E., and others, 198x, North American Continent-Ocean Transects Program, Transect A-2, Kodiak to Kuskokwim, Alaska: Geological Society of America.
von Huene, R.E., 1989, Continental margins around the Gulf of Alaska, *in* Winterer, E.L., Hussong, D.M., and Decker, R.W., eds., The Eastern Pacific Ocean and Hawaii: Boulder, Colorado, Geological Society of America, The Geology of North America, v. N.
Walcott, R.I., 1978, Present tectonics and late Cenozoic evolution of New Zealand: Royal Astronomical Society Geophysical Journal, v. 52, p. 137-164.
Wang, F.F.H., 1985, Sedimentary basins at eastern Asian continental margins and oceanic regions: U.S. Geological Survey Open-File Report 85-265, scale 1:5,000,000.
Wang, J, Newton, C.R., and Dunne, L., 1988, Late Triassic transition from biogenic to arc sedimentation on the Peninsular terrane; Puale Bay, Alaska Peninsula: Geological Society of America, v. 100, p. 1466-1478.
Watts, A.B., Weissel, J.K., and Larson, R.L., 1977, Seafloor spreading in marginal basins of the western Pacific: Tectonophysics, v. 37, p. 167-182.
Weber, C.R., and Scheibner, E., 1977, The origin of some Permo-Triassic metal zones in the New England region, New South Wales: New South Wales Geological Survey, Quarterly Notes 26, p. 1-14.
Weissel, J.K., 1977, Evolution of the Lau Basin by the growth of small plates, *in* Talwani, M., and Pitman, W.C., III, eds., Island arcs, deep-sea trenches, and backarc basins: American Geophysical Union, Maurice Ewing Series 1, p. 429-936.
Weissel, J.K., 1980, Evidence for Eocene oceanic crust in the Celebes Basin: American Geophysical Union Geophysical Monograph 23, p. 37-47.
Weissel, J.K., and Anderson, R.N., 1978, Is there a Caroline plate?: Earth and Planetary Science Letters, v. 41, p. 143-158.
Weissel, J.K., Anderson, R.N., and Geller, C.A., 1980, Deformation of the Indo-Australian plate: Nature, v. 287, p. 284-291.
Weissel, J.K., and Hayes, D.E., 1972, Magnetic anomalies in the southeast Indian Ocean: American Geophysical Union, Antarctica Research Series 19, p. 165-196.
Weissel, J.K., Hayes, D.E., and Herron, E.M., 1977, Plate tectonics synthesis; the displacement between Australia, New Zealand, and Antarctica since Late Cretaceous: Marine Geology, v. 25, p. 231-277.
Weissel, J.K., Taylor, B., and Kamer, G.D., 1982, The opening of the Woodlark Basin, subduction of the Woodlark spreading system, and the evolution of northern Melanesia since mid-Pliocene time: Tectonophysics, v. 87, p. 253-277.
Weissel, J.K., and Watts, A.B., 1975, Tectonic complexities in the south Fiji marginal basin: Earth and Planetary Science Letters, v. 28, p. 121-126.
Weissel, J.K., and Watts, A.B., 1979, Tectonic evolution of the Coral Sea basin: Journal of Geophysical Research, v. 84, p. 4572-4582.
Wellman, P., and McCracken, H.M., 1979, Australian region plate tectonics: Australia Bureau of Mineral Resources Earth Science Atlas, scale 1:20,000,000.
Wheeler, J.O., and Gabrielse, H., and others, 1972, The Cordilleran structural province, *in* Price, R.A., and Douglas, R.J.W., Variations in tectonic styles in Canada: Geological Association of Canada, Special Paper 11**,** p. 1-81.
Wheeler, J.O., Brookfield, A.J., Gabrielse, H., Monger, J.W.H., Tipper, H.W., and Woodsworth, G.J., (comp), 1991, Terrane map of the Canadian Cordilleran: Geological Survey of Canada, Map 1713A, scale 1:2,000,000.
Wheeler, J.O., and McFeely, P., (comp), 1991, Tectonic assemblage map of the Canadian Cordilleran and adjacent parts of the United States of America: Geological Survey of Canada, Map 1712A, scale 1:2,000,000.
Wilcox, J.B., Symonds, P.A., Hinz, K.F., and Bennett, D., 1980, Lord Howe Rise, Tasman Sea-preliminary geophysical results and petroleum prospects: Australia Bureau of Mineral Resources Journal of Australian Geology and Geophysics, v. 5, p. 225-236.

Wilford, G.E., Brown, C.M., and Bultitude, J., 1981, Sedimentary sequences: Australia Bureau of Mineral Resources Earth Science Atlas, scale 1:10,000,000.
Williams, E., 1978, Tasman Fold Belt System in Tasmania: Tectonophysics, v. 48, p. 159-205.
Wilson, D.S., 1989, Deformation of the so-called Gorda Plate: Journal of Geophysical Research 94, p. 3065-3075.
Winterer, E.L., Lonsdale, P.F., Mathews, J.L., and Rosendale, B.R., 1974, Structure and acoustic stratigraphy of the Manihiki Plateau: Deep-Sea Research, v. 21, p. 793-814.
Winterer, E.L., Natland, J.H., Van Waasbergen, R.J., Duncan, R.A., McNutt, M.K., Wolfe, C.J., Premoli Silva, I., Sager, W.W., and Sliter, W.V., 1993, Cretaceous guyots in the Northwest Pacific; an overview of the geology and geophysics, *in* Pringle, M.S., Sager, W.W., Sliter, W., and Stein, S., eds., The Mesozoic Pacific; geology, tectonics, and volcanism: American Geophysical Union, Geophysical Monograph 77, 307-334.
Wood, Ray, and Davy, Bryan, 1994, The Hikurangi Plateau: Marine Geology, v. 118, p. 153-173.
Workman, D.R., 1977, Geology of Laos, Cambodia, South Vietnam, and the eastern part of Thailand: Overseas Geology and Mineral Resources, no. 50, 33 p.
Yang, Z., Cheng, Y., and Wang, H., 1986, The geology of China: Oxford, Clarendon Press, 303 p.
Yanshin, A.L., and others, 1978, Tectonic map of Mongolian People's Republic: Academy of Science of Mongolian People's Republic and USSR, scale 1:1,500,000.
Yanshin, A.L., and others, 1989, Geological map of Mongolian People's Republic: Academy of Science of Mongolian People's Republic and USSR, scale 1:1,500,000.
Yole, R.W., and Irving, E., 1980, Displacement of Vancouver Island; Paleomagnetic evidence from the Karmusen Formation: Canadian Journal of Earth Science, v. 17, p. 1210-1228.
Yorath, C.J., and Chase, R.L., 1981, Tectonic history of the Queen Charlotte Islands and adjacent areas — a model: Canadian Journal of Earth Science, v. 18, p. 1717-1739.
Yorath, C.J., and others, 198x, Continent-Ocean Transect B-2, Intermontane Belt (Skeena Mountains) to Insular Belt (Queen Charlotte Islands), Geological Society of America.
Young, G.M., 1992, Late Proterozoic stratigraphy and the Canada-Australia connection: Geology 20, p. 215-218.
Zhang, C., and others, 1990, Tectonic systems, formation and evolution of the Qingai-Xizang (Tibet) Plateau and its neighboring regions: Geol. Memoirs., ser. 5, no. 8, Geol. Pub. House, Beijing, 161 p.


Principal morphostructural features
of the Northwest Quadrant
0 1000 2000km
Age of major deformation
Tertiary
Cretaceous
Jurassic
Triassic
Late Paleozoic
Early Paleozoic
Late Proterozoic
Early Proterozoic
Archean
Chukotka
Anabar
Siberian Platform
Omolon
Mongol
Hinggan
North China Platform
Yangtze Platform
Southeast China
Japan
Indochina
Malaya
Sumatra
Borneo
Philippines
Micronesia
Papua New Guinea
Java
Timor
Banda
Solomon
Himalaya
Assam
Bengal
Burma
Tibet
Taiwan
100°E
120°
140°
160°
180°
160°W
70°N
60°
50°
40°
30°
20°
10
0°
10°S
150°
130°