

# **Tectonic Map of the Circum-Pacific Region, Pacific Basin Sheet**

U.S. Geological Survey Circum-Pacific Map CP-52

Chief Compiler and Tectonic Interpretations  
E. Scheibner

Contributing Authors, Based on Quadrant Compilations

Arctic: G.W. Moore NE Quadrant: K.J. Drummond

Antarctic: I.W. Dalziel SE Quadrant: Q.J. Corvalan

NW Quadrant: T. Moritani and Y. Teraoka

SW Quadrant: E. Scheibner, T. Sato, and C. Craddock

Compilation Coordinated by Warren O. Addicott and George Gryc

Cartography and compilation by Fran R. Mills, and Douglas S. Aitken

## **Circum-Pacific Map Project**

The Circum-Pacific Map Project was 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 were 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 was being carried out through the cooperation of the Office of the Chief Geologist of the U.S. Geological Survey, under the direction of General Chairman, George Gryc of Menlo Park, California. Project headquarters were 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.

Affiliations are as of compilation of the data. This map was created in quadrants and then compiled together. They are the Northwest land, Northwest Marine (different compilers), Northeast, Southwest and Southeast, and parts in plate-boundary sections.

### CP-52 TECTONIC MAP OF THE CIRCUM-PACIFIC REGION BASIN SHEET

The map digital database includes several Arc/Info coverages (individual vector datasets) The databases in this report were compiled in ArcInfo workstation (not ArcGIS Desktop), a commercial Geographic Information System (Environmental Systems Research Institute) ArcInfo workstation version 9.3 for Windows XP

All GIS data are in Lambert Azimuthal Equal-Area Projection  
Map center point: Equator, 160 degrees W.  
Map scale 1:17,000,000  
Pagesize-68 42 inches  
Map units-meters

Adobe Illustrator CS2/3 map final/map marginalia and type  
Adobe InDesign CS2/3 explanatory notes  
Affiliations are at time of compilation

#### CONTENT

**Symbolsets** - Arc workstation stores symbol definitions in a file by symbol type (area fill color or pattern, line style, or point symbol style).

#### Lookup tables -

LUT as file to be joined to data, providing cross-reference between Unit ID or Line ID and symbol ID#.

#### Polygon Shadeset

gwcolor9612.shd

gwcolor9612.lut

#### COVERAGES

listed here  
use the  
symbolset &  
LUT to the  
left for  
symbolization

ctp\_dc113

#### DESCRIPTIONS

pptype and ltype these as the field (attribute) names used to designate polygon IDs and line types.

polygon ptype labels & symbol numbers  
Together with the tectonic map, the database provides georeferenced information on the tectonic structure and stratigraphy of the area covered.

## LINWORK

map.lin  
tect\_lines.lut

redlines1	active faults;
geoworkf	ltype; contacts/non_active faults
sh31	Lithology/rock type patterns-Intrusive, extrusive, metamorphic, and alkali
lithof	pptype for lithology
lithoc	polygon shadeset for lithology
125and391	
basins	basin linework
cb_lines	color bands by age
handpats1	metamorphic lithology following fault
geohandpats1	accretionary prisms
gwshore 5	shoreline
tect_grid 14	grid longitude/latitude
bathy	seafloor bathymetry

cb020.lin

The color band is a line on the inside of the polygon which represents the age of onset of sedimentation (line on map around a polygon)

The color band indicates age or age range, but the cb\_bands.lut is a lookup table used to associate the correct line symbol with a color band in a coverage.

cb\_bands.lut

cb_solid	
band-	indicates age range
cbt_dashed	band-Onset of sedimentation color shows age

Cenozoic	CzCB
Jurassic	JCB
Jurassic	JCBT
Jurassic-Paliozoic_Late	JPz2CB
Jurassic-Triassic	JTRCB
Jurassic-Triassic	JTRCBT
Cretaceous-Cretaceous_Late	K-K2CB
Cretaceous_Early	K1CB
Cretaceous_Late	K2CB
Cretaceous	KCB
Cretaceous	KCBT
Cretaceous-Jurassic	KJCB
Cretaceous-Triassic	KTRCB
Mesozoic	MzCB
Mesozoic-Paliozoic_Early	MzPz1CB1
Permian	PCB

Proterozoic_Early	PL1CB
Proterozoic_Middle	PL2CB
Proterozoic_Middle	PL2CBT
Proterozoic_Late	PL3CB
Proterozoic_Archean	PLACB
Proterozoic	PLCB
Paleozoic_Early	Pz1CB
Paleozoic_Early	Pz1CBT
Paieozoic_Late	Pz2CB
Paleozoic	PzCB
Paleozoic_Middle	PzmCB
Paleozoic_Middle	PzmCBT
Quarternary	QCB
Quarternary	QCBT
Quarternary-Jurassic_Late	QJ2CB
Quarternary-Cretaceous_Late	QK2CB
Quarternary-Cretaceous	QKCB
Quarternary-Cretaceous	QKCBT
Quarternary-Tertiary	QTCB
Quarternary-Tertiary	QTCBT
Quarternary-Tertiary_Eocene	QTeCB
Quarternary-Tertiary_Neogene	QTnCB
Quarternary-Tertiary_Neogene	QTnCBT
Quarternary-Tertiary_Paleogene	QTPCB
Quarternary-Tertiary_Pliocene	QTplCB
Quarternary-Tertiary_Pliocene	QTplCBT
Tertiary	TCB
Tertiary	TCBT
Tertiary_Eocene	TeCB
Tertiary_Eocene-Cretaceous_Late	Tek2CB
Tertiary-Cretaceous	TKCB
Tertiary-Cretaceous	TKCBT
Tertiary-Cretaceous-Jurassic	TKJCBT
Tertiary_Miocene	TmCB
Tertiary_Miocene-	
Tertiary_Oligocene	TmToCB
Tertiary_Miocene-	
Tertiary_Oligocene	TmToCBT
Tertiary_Neogene	TnCB
Tertiary_Neogene	TNCBT
Tertiary_Neogene-Cretaceous	TnKCBT
Tertiary_Oligocene	ToCB
Tertiary_Oligocene-	
Cretaceous_Late	TOK2CB
Tertiary_Paleocene	TpaCB
Tertiary_Paleocene-	
Cretaceous_Late	TpaK2CB
Tertiary_Paleocene-Cretaceous	TpakCB
Tertiary_Paleogene	TpCB
Tertiary_Paleogene	TpCBT

Tertiary_Pliocene-	TPL-TNCB
Tertiary_Neogene	TplCB
Tertiary-Pliocene	TPz2CB
Tertiary-Paleozoic_Late	TRCB
Triassic	TRPCB
Triassic-Paleozoic	TrPCBT
Triassic-Paleozoic_Late	TrPz2CB
Triassic-Paleozoic_Late	TrPz2CBT
Triassic-Paleozoic	TrPzCB
Unknown age	unkCB

**Marker set**

**tect\_marks.lut**

symbols on active faults

Resdlines1

**Correlation of Map Units (CMU) or Time Space Plots**

This sheet shows the time scale for the tectonic episodes on land and on the seafloor. This sheet is done by quadrant, Northwest land and Northwest Marine (different set of compilers), Northeast, Southwest and Southeast. Shows the various plates by color.

Sheet size- 42 58 inches

**CONTENT**

**COVERAGES**

**DESCRIPTION**

**Symbolsets** - Arc workstation stores symbol definitions in a file by symbol type (area fill color or pattern, line style, or point symbol style). Xxx.shd

**Lookup tables -**

LUT as file to be joined to data, providing cross-reference between Unit ID or Line ID and symbol ID#. xxx.lut

listed here use the symbolset & LUT to the left for symbolization

ptype and ltype these as the field (attribute) names used to designate polygon IDs and line types.

**gwcolor9612.shd**  
**gwcolor9612.lut**

btcmufixc

polygon color fills

**Lineset**  
**color.lin**

The color band is a line on the inside of the polygon which represents the age of onset of sedimentation (line on map around a polygon)

The color band indicates age or age range, but the cb\_bands.lut is a lookup table used to associate the correct line symbol with a color band in a coverage.

**cb020.lin****cb\_bands.lut**

	cb_solid	
	band-	indicates age range
	cbt_dashed	Onset of sedimentation color shows age
	band-	
Cenozoic	CzCB	
Jurassic	JCB1	
Jurassic-Triassic	JTRCB1	
Jurassic-Triassic	JTRCBT	
Cretaceous_Early	K1CB	
Cretaceous_Late	K2CBT	
Cretaceous	KCB1	
Cretaceous	KCBT	
Cretaceous-Jurassic	KJCB1	
Cretaceous-Jurassic	KJCBT	
Cretaceous-Triassic	KTRCB	
Mesozoic	MzCB	
Permian	PCB	
Proterozoic_Early	PL1CB	
Proterozoic_Early	PL1CBT	
Proterozoic_Middle	PL2CB1	
Proterozoic_Late	PL3CB	
Proterozoic_Archean	PLACB	
Proterozoic	PLCB	
Paleozoic_Early	Pz1CB1	
Paleozoic_Early-Proterozoic_Late	Pz1PL3CB	
Paleozoic_Late	Pz2CB	
Paleozoic	PzCB	
Paleozoic_Middle	PzmCB	
Paleozoic_Middle	PzmCBT	
Quaternary	QCB	
Quaternary-Jurassic_Late	QJ2CB	
Quaternary-Jurassic	QJCBT	
Quaternary-Tertiary	QTCB	
Quaternary-Tertiary	QTCBT	
Quaternary-Tertiary_Neogene	QTnCB	
Quaternary-Tertiary_Neogene	QTnCBT	
Quaternary-Tertiary_Pliocene	QTplCBT	
Tertiary	TCB1	
Tertiary	TCBT	
Tertiary_Eocene-Cretaceous_Late	TeK2CB	
Tertiary-Cretaceous	TKCB	
Tertiary-Cretaceous	TKCBT	
Tertiary_Miocene-		
Tertiary_Eocene	TmTeCB	
Tertiary_Miocene-		
Tertiary_Oligocene	TmToCB	
Tertiary_Neogene	TnCB	
Tertiary_Neogene	TNCBT	

Tertiary_Ologocene- Cretaceous_Late	Tok2CB
Tertiary_Paleogene	TpCB1
Tertiary_Paleogene	TpCBT
Tertiary_Paleogene-Jurassic	TpJCB
Triassic	TRCB2
Triassic	TrCBT
Triassic-Paleozoic	TrPCB
Triassic-Paleozoic	TrPCBT
Triassic-Paleozoic_Late	TrPz2CB1
Tertiary-Paleozoic_Late	TTPz2CB