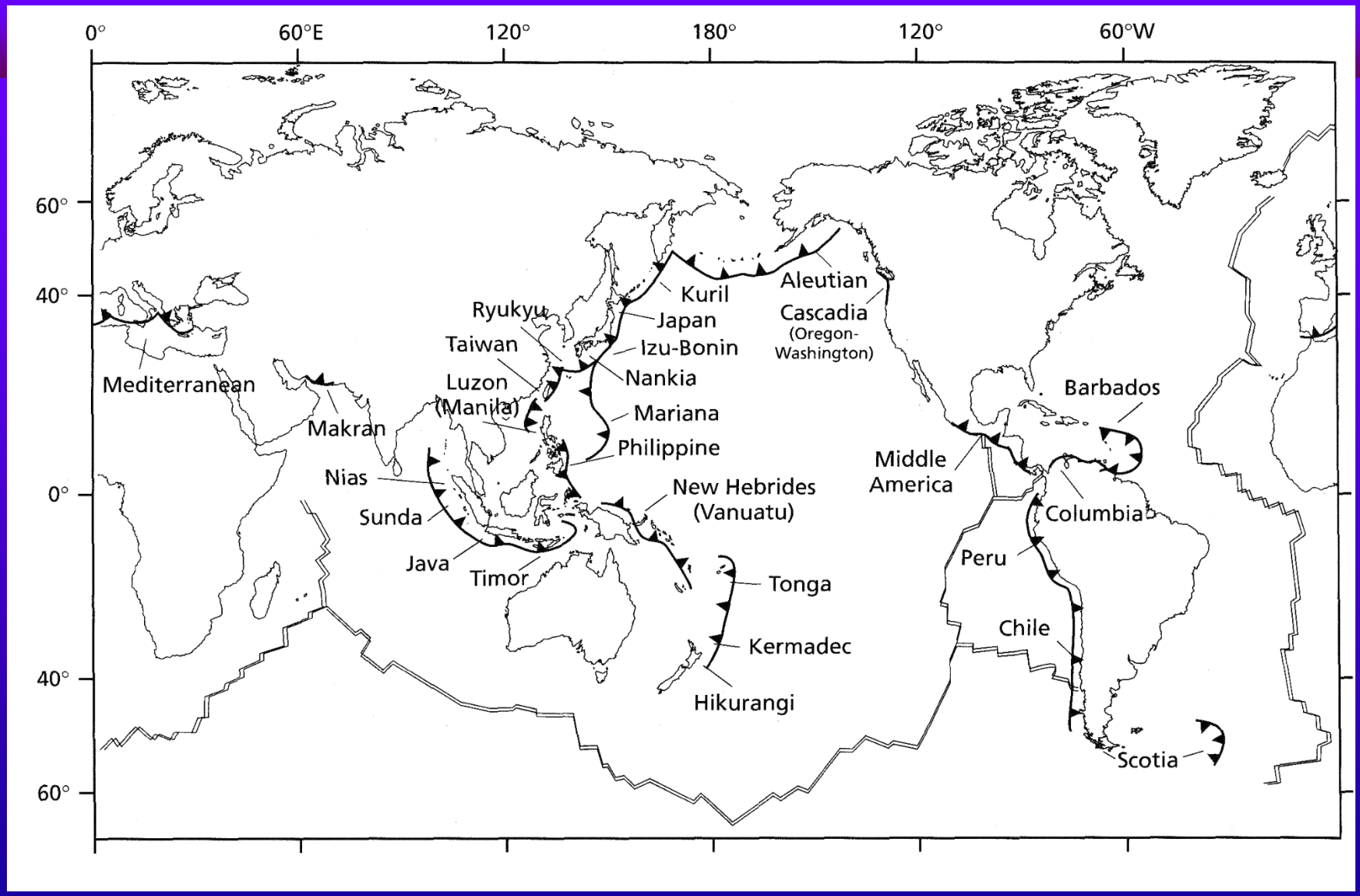
Pánve na konvergentních deskových rozhraních:

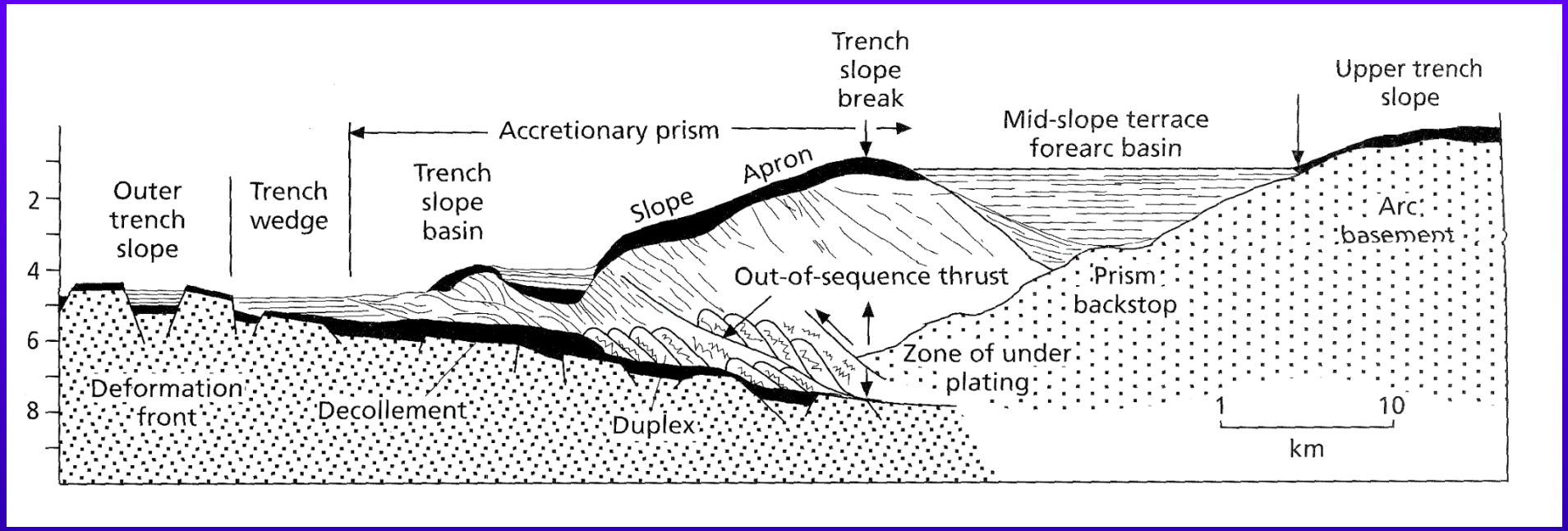
příkopové pánve

předobloukové pánve

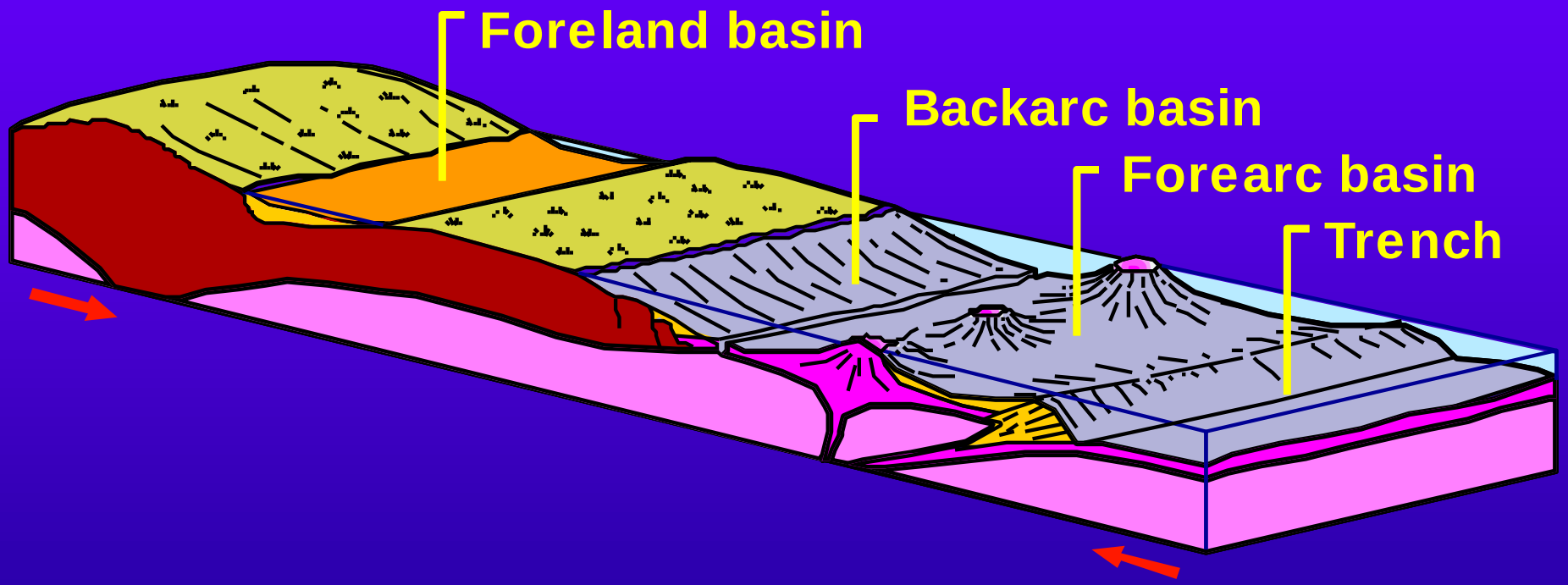
zaobloukové pánve

ARC-TRENCH SYSTEM

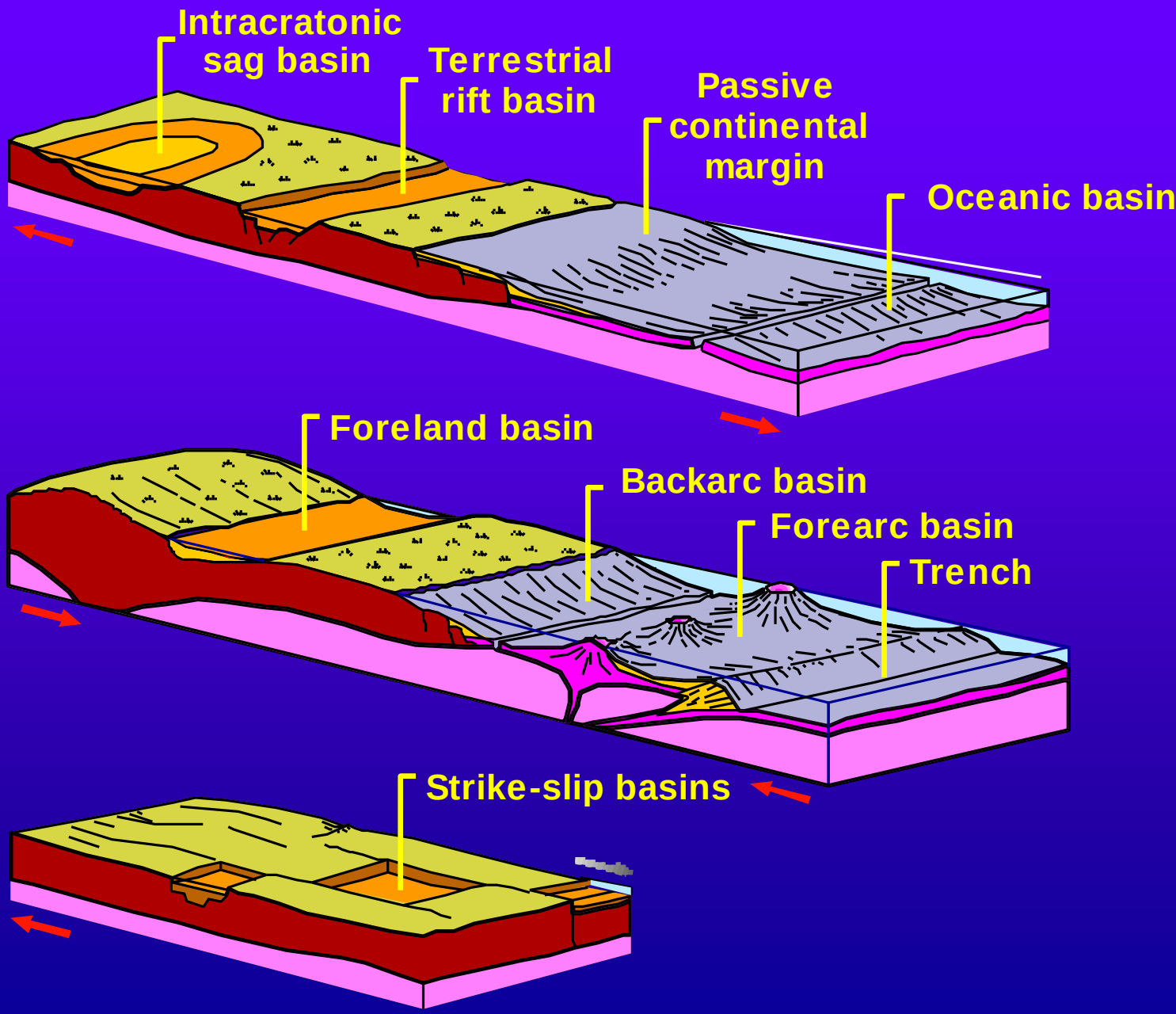

0°
60°E
120°
180°
120°
60°W
60°
40°
0°
40°
60°
Mediterranean
Makran
Nias
Sunda
Java
Timor
Luzon
(Manila)
Taiwan
Ryukyu
Japan
Kuril
Izu-Bonin
Nankia
Mariana
Philippine
New Hebrides
(Vanuatu)
Tonga
Kermadec
Hikurangi
Aleutian
Cascadia
(Oregon-
Washington)
Barbados
Middle
America
Columbia
Peru
Chile
Scotia


Trench slope break
Upper trench slope
Accretionary prism
Mid-slope terrace forearc basin
Outer trench slope
Trench wedge
Trench slope basin
Slope
Apron
Arc basement
Out-of-sequence thrust
Prism backstop
Zone of under plating
Deformation front
Decollement
Duplex
2
4
6
8
1
10
km

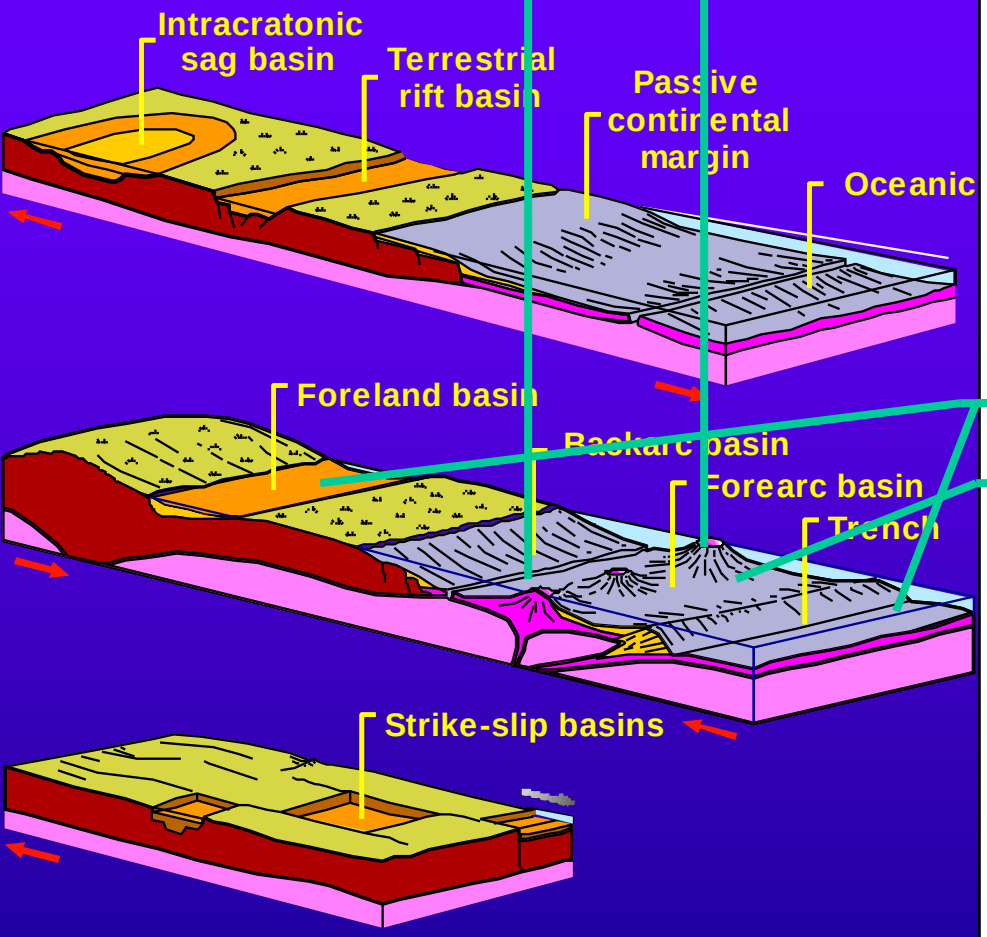
Tectonic setting of sedimentary basins

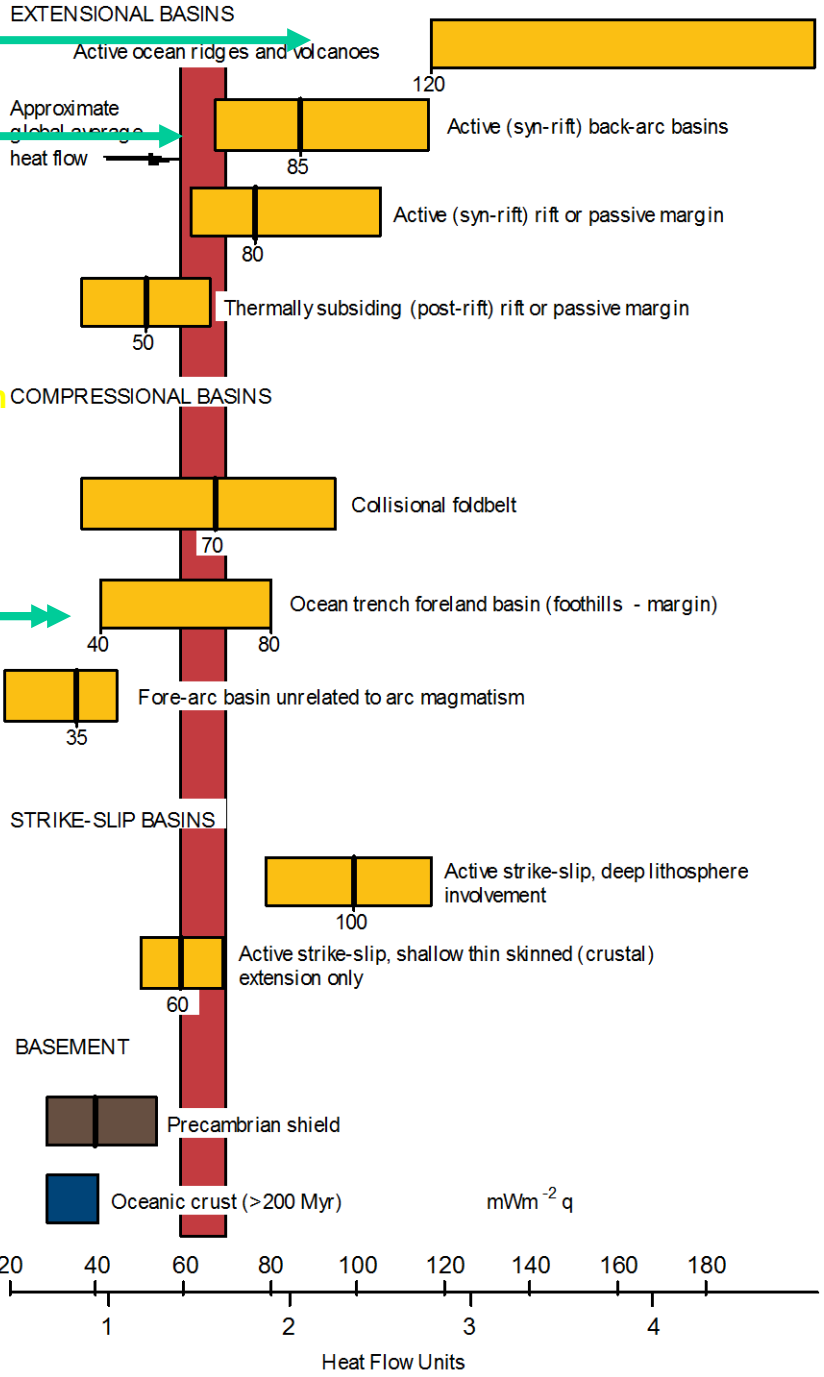


Tectonic setting of sedimentary basins

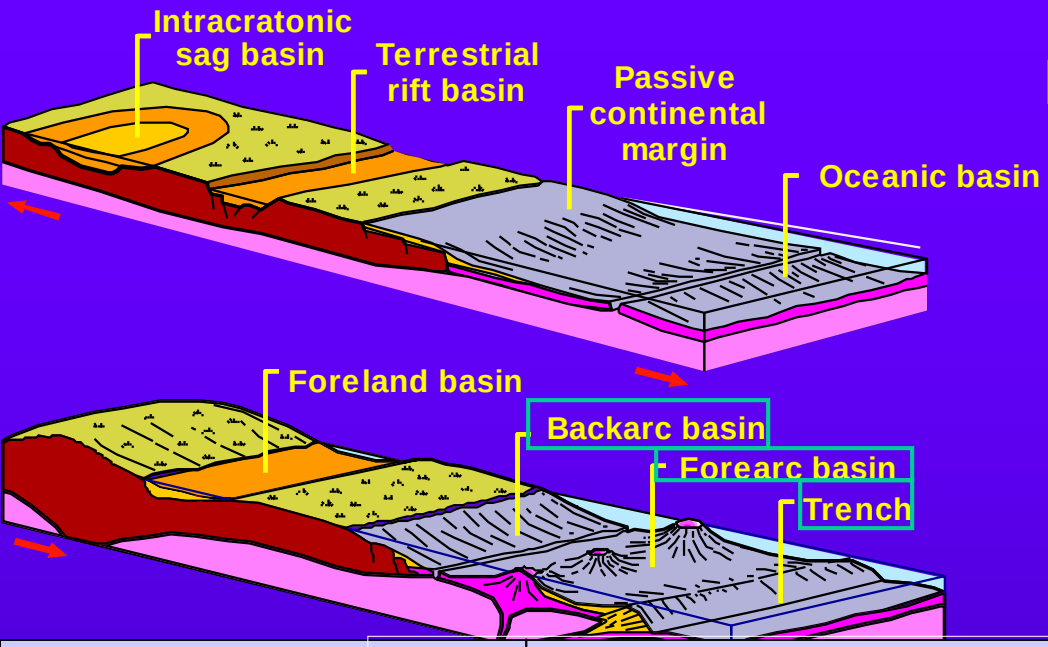


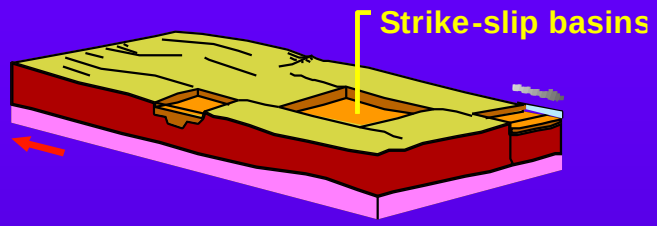
Basin Heat flow





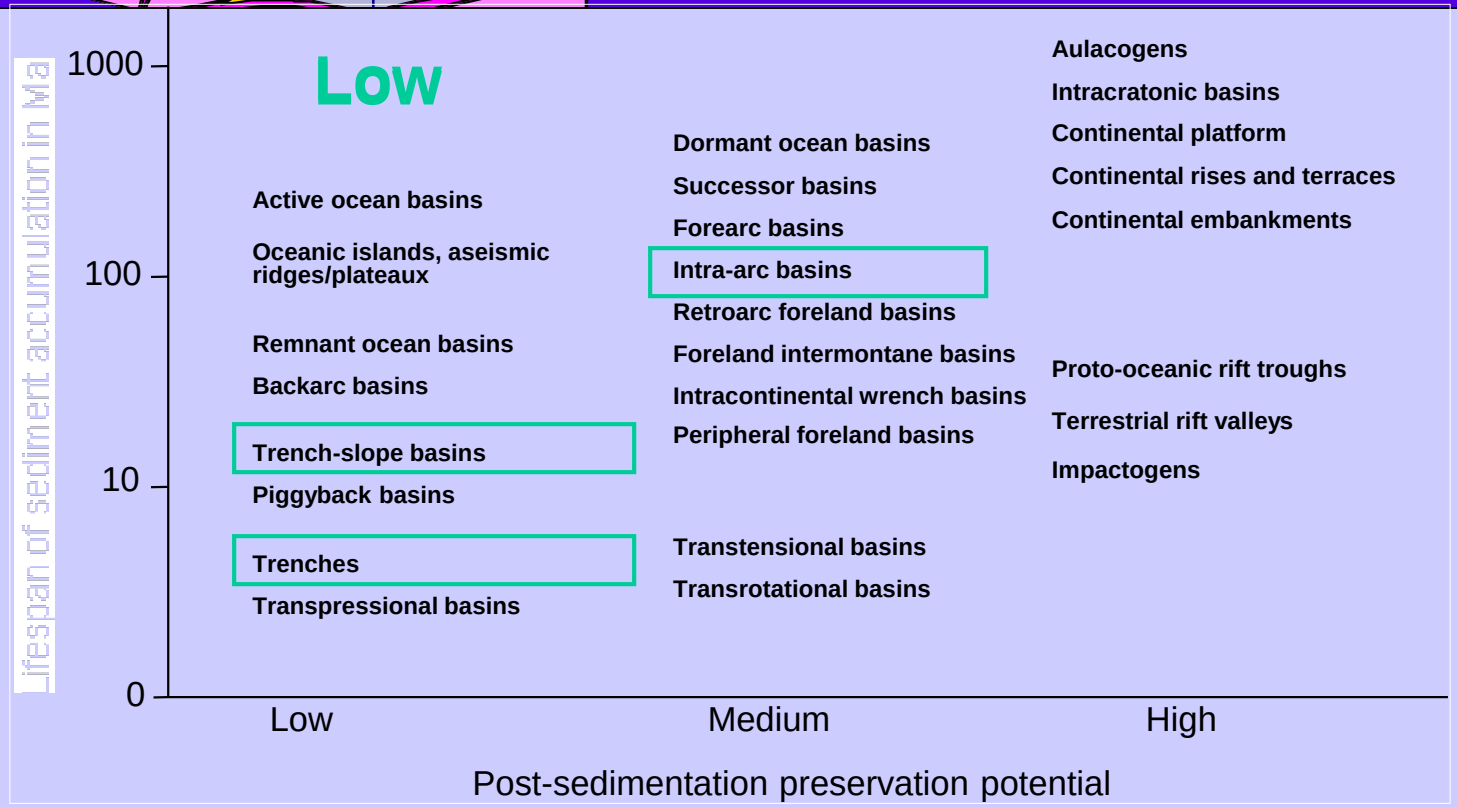
Basin preservation potential



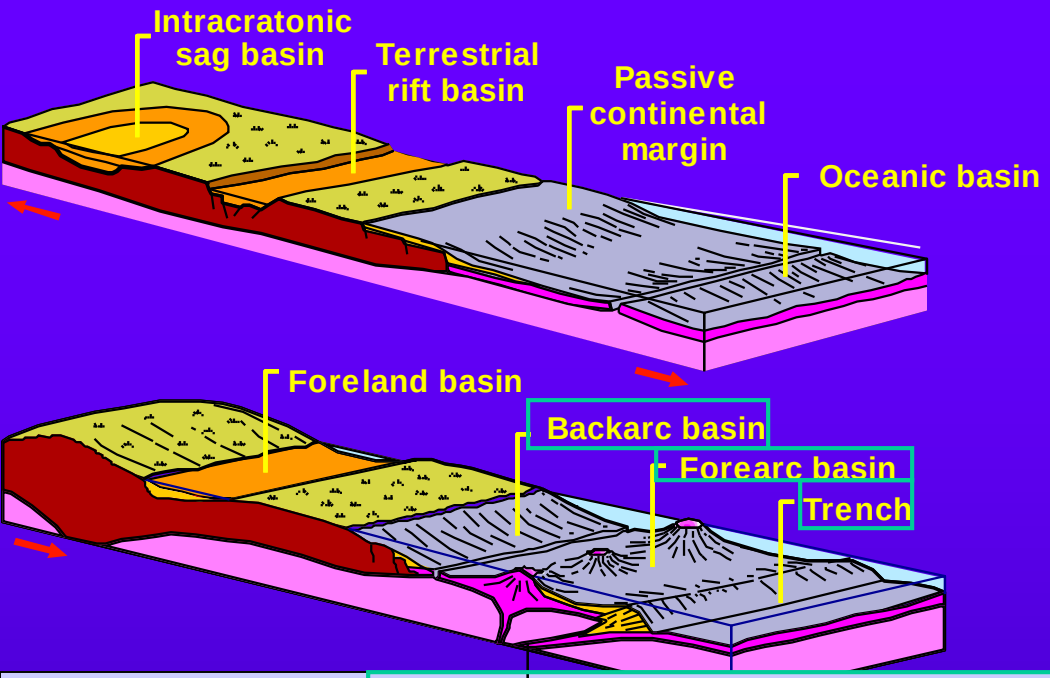


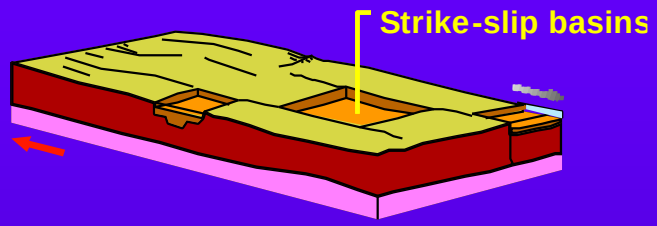
Medium

High



Basin lifespan





Long

Medium

Short

Lifespan of sedimentary accumulation in Ma

1000

100

10

0

Active ocean basins

Oceanic islands, aseismic ridges/plateaux

Remnant ocean basins

Backarc basins

Trench-slope basins

Piggyback basins

Trenches

Transpressional basins

Dormant ocean basins

Successor basins

Forearc basins

Intra-arc basins

Retroarc foreland basins

Foreland intermontane basins

Intracontinental wrench basins

Peripheral foreland basins

Transtensional basins

Transrotational basins

Aulacogens

Intracratonic basins

Continental platform

Continental rises and terraces

Continental embankments

Proto-oceanic rift troughs

Terrestrial rift valleys

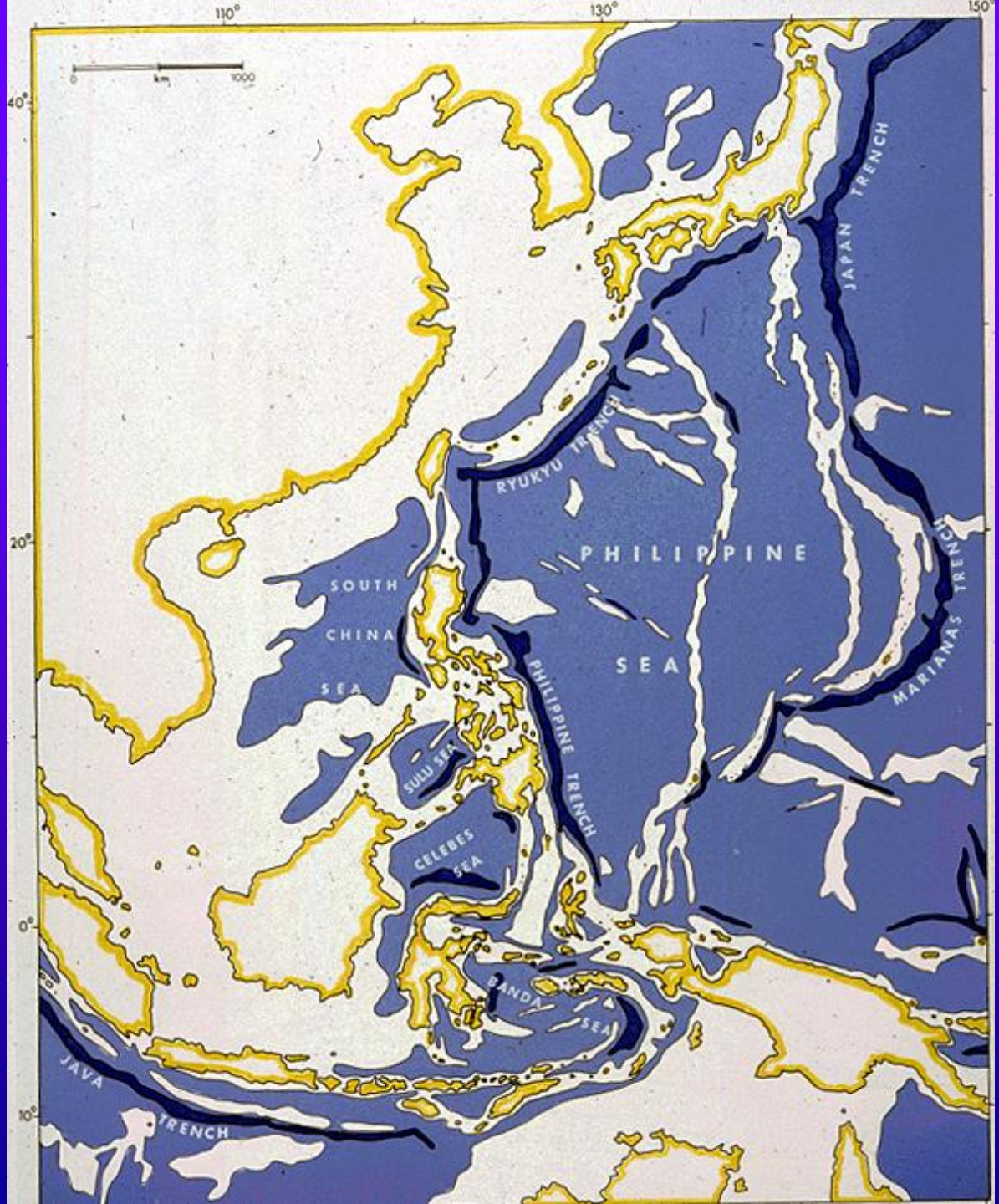
Impactogens

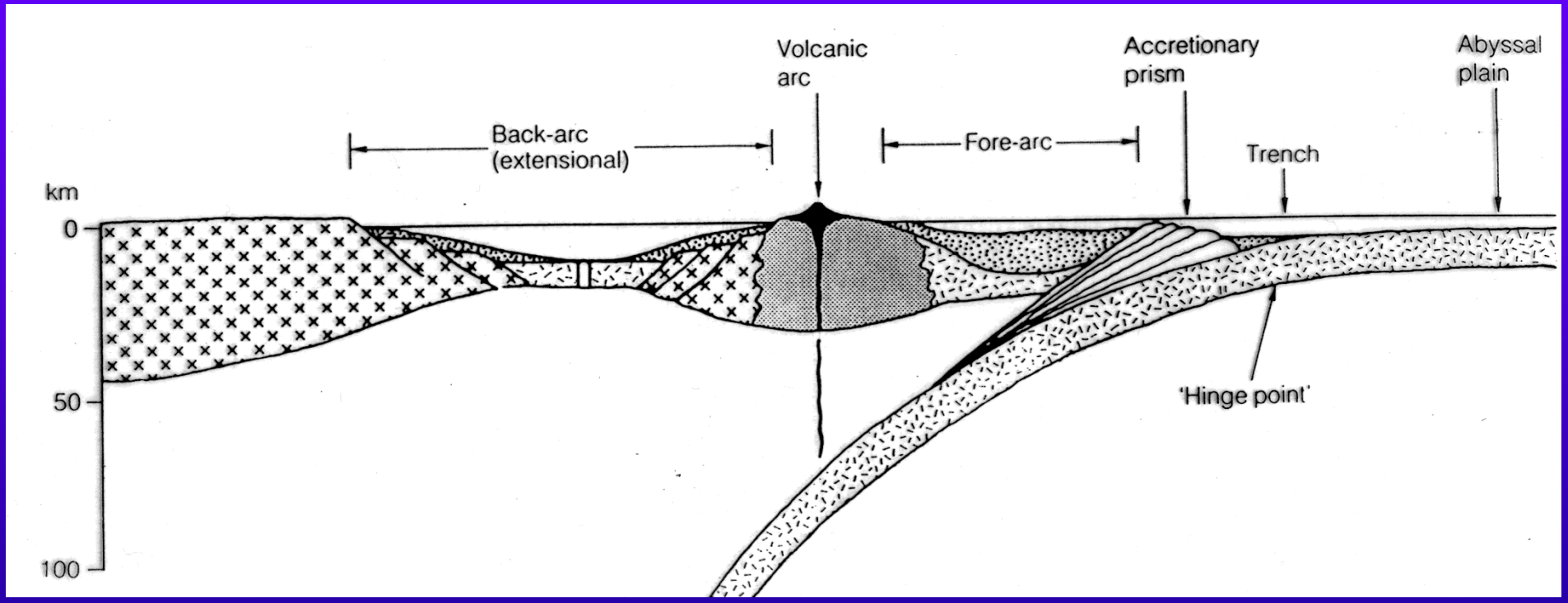
Low

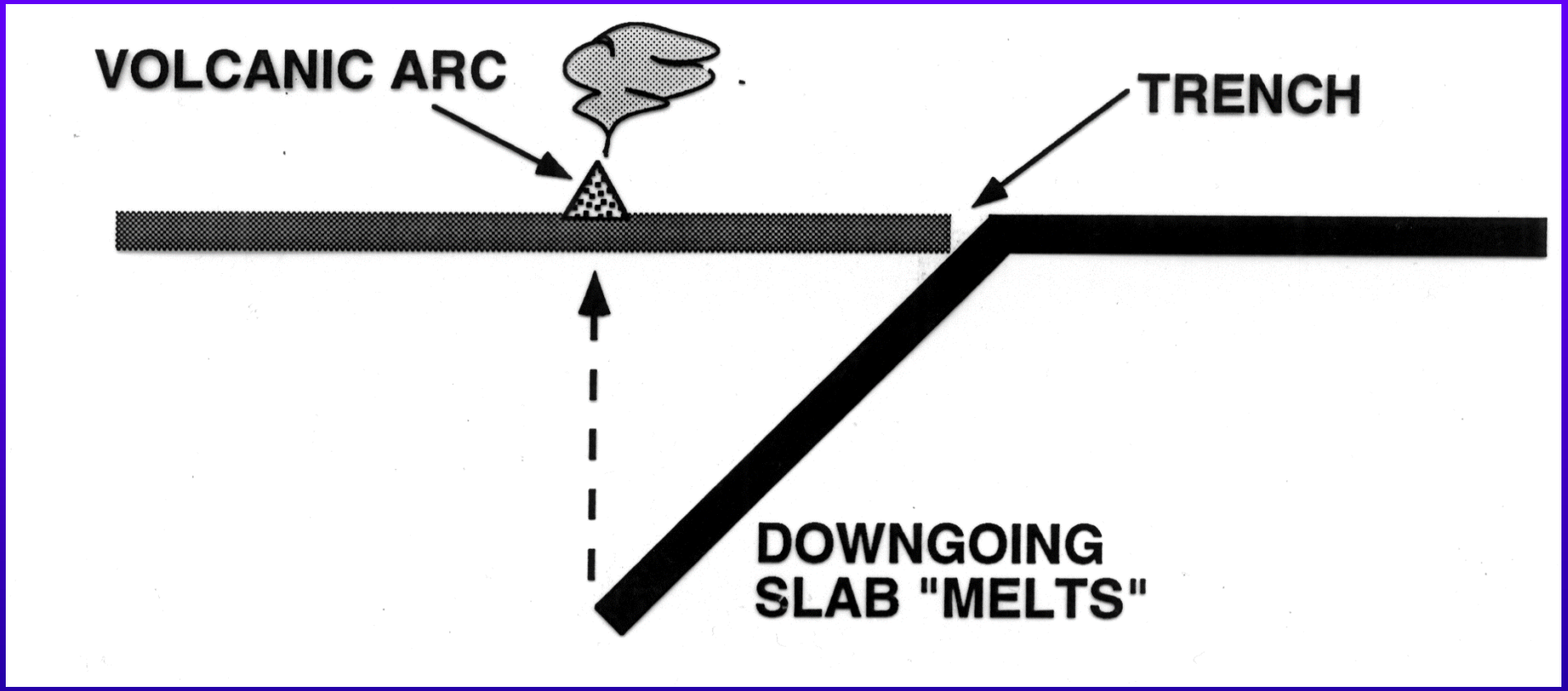
Medium

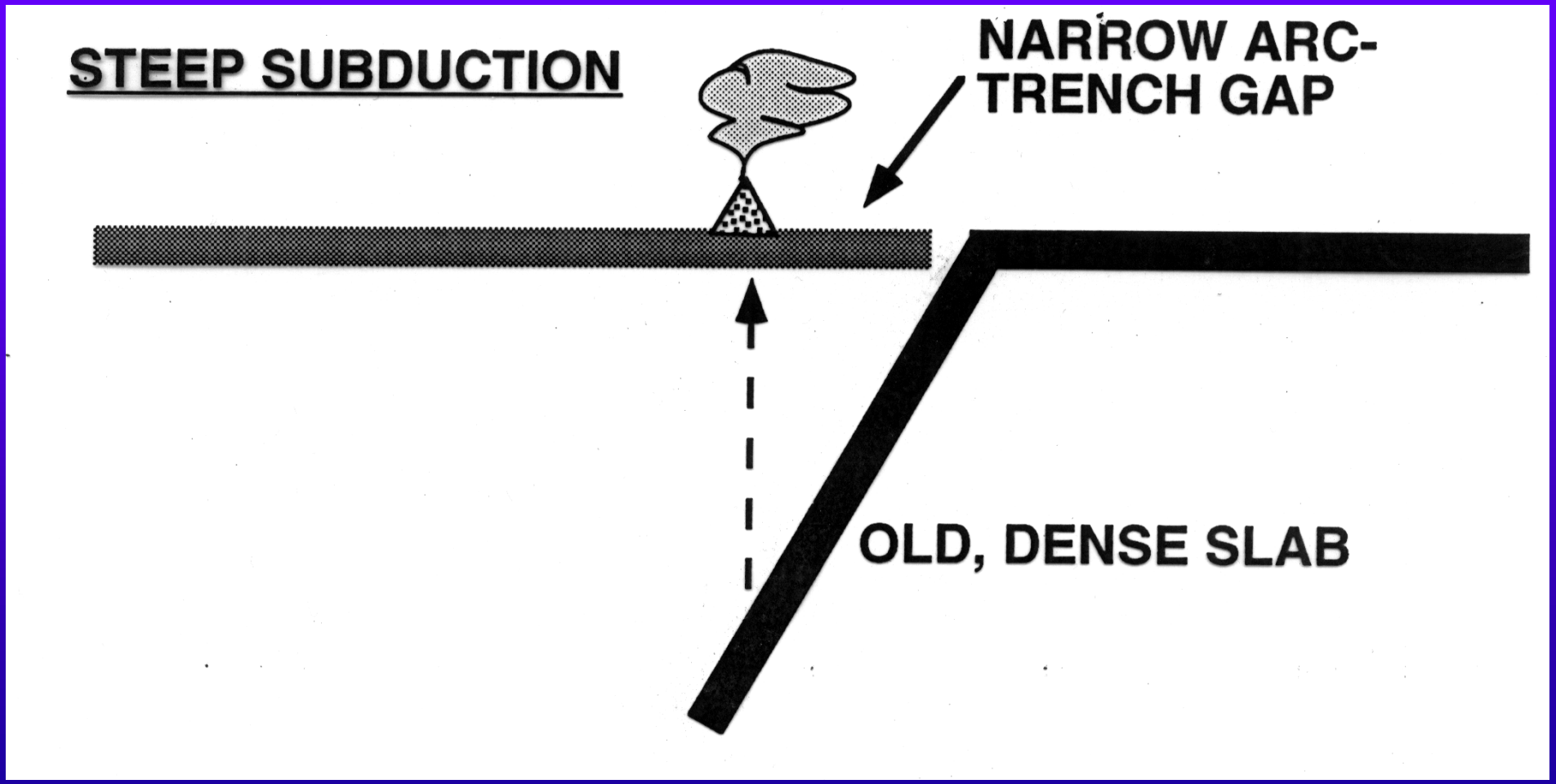
High

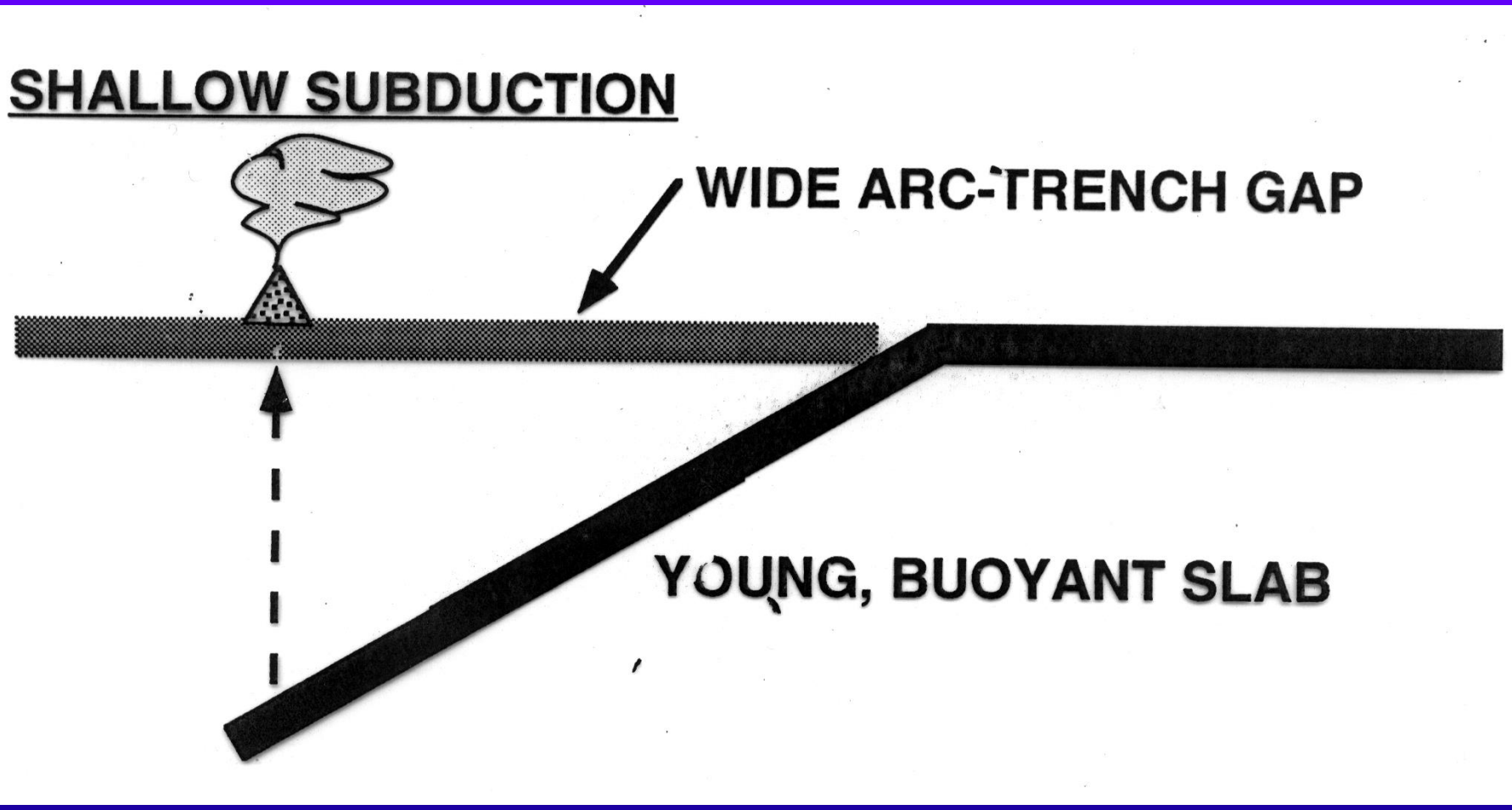
Post-sedimentation preservation potential

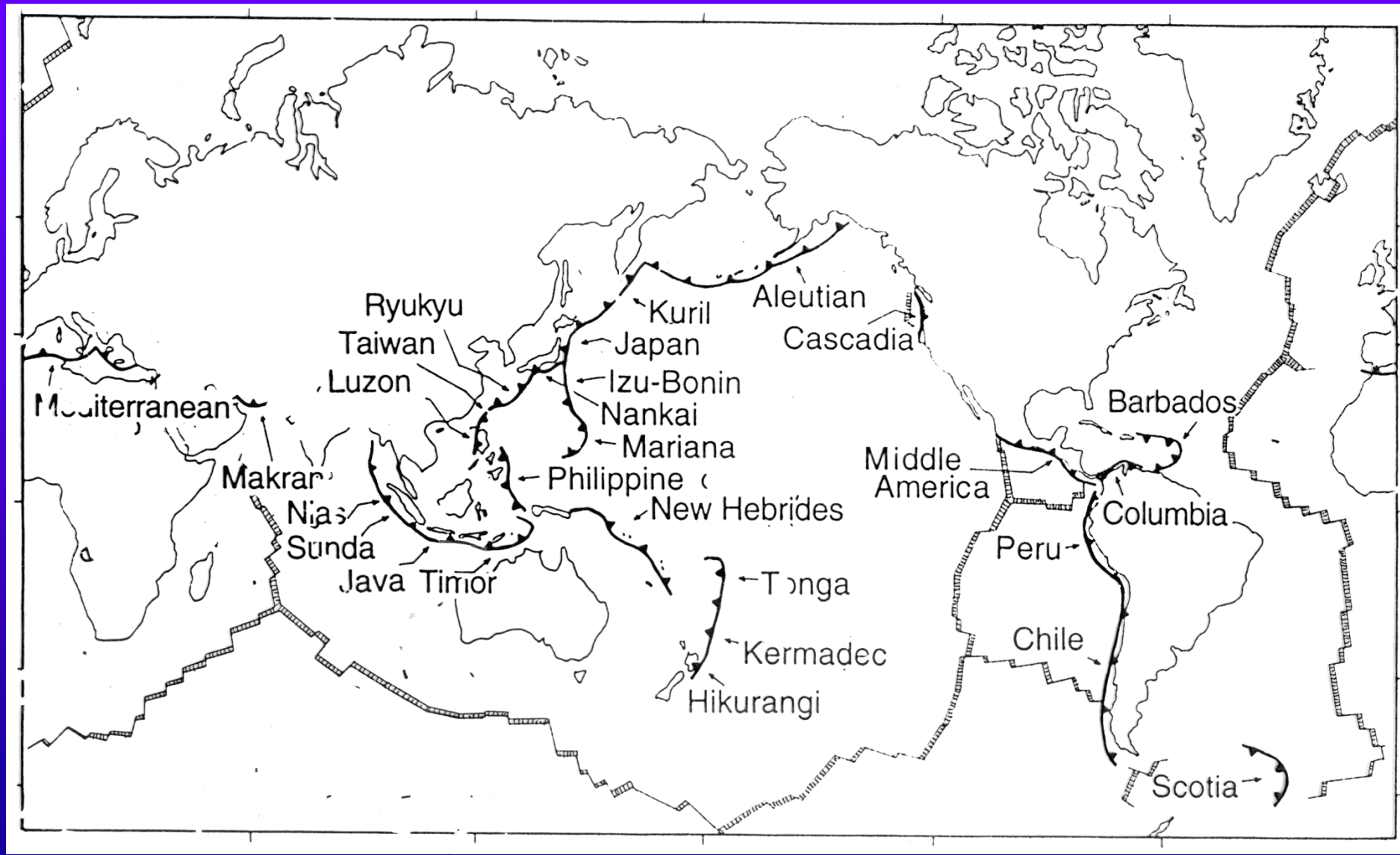

110°
130°
150°
0
km
1000
40°
20°
0°
10°
JAPAN TRENCH
RYUKYU TRENCH
PHILIPPINE
SEA
MARIANAS TRENCH
SOUTH
CHINA
SEA
PHILIPPINE TRENCH
SULU SEA
CELEBES
SEA
BANDA
SEA
JAVA
TRENCH

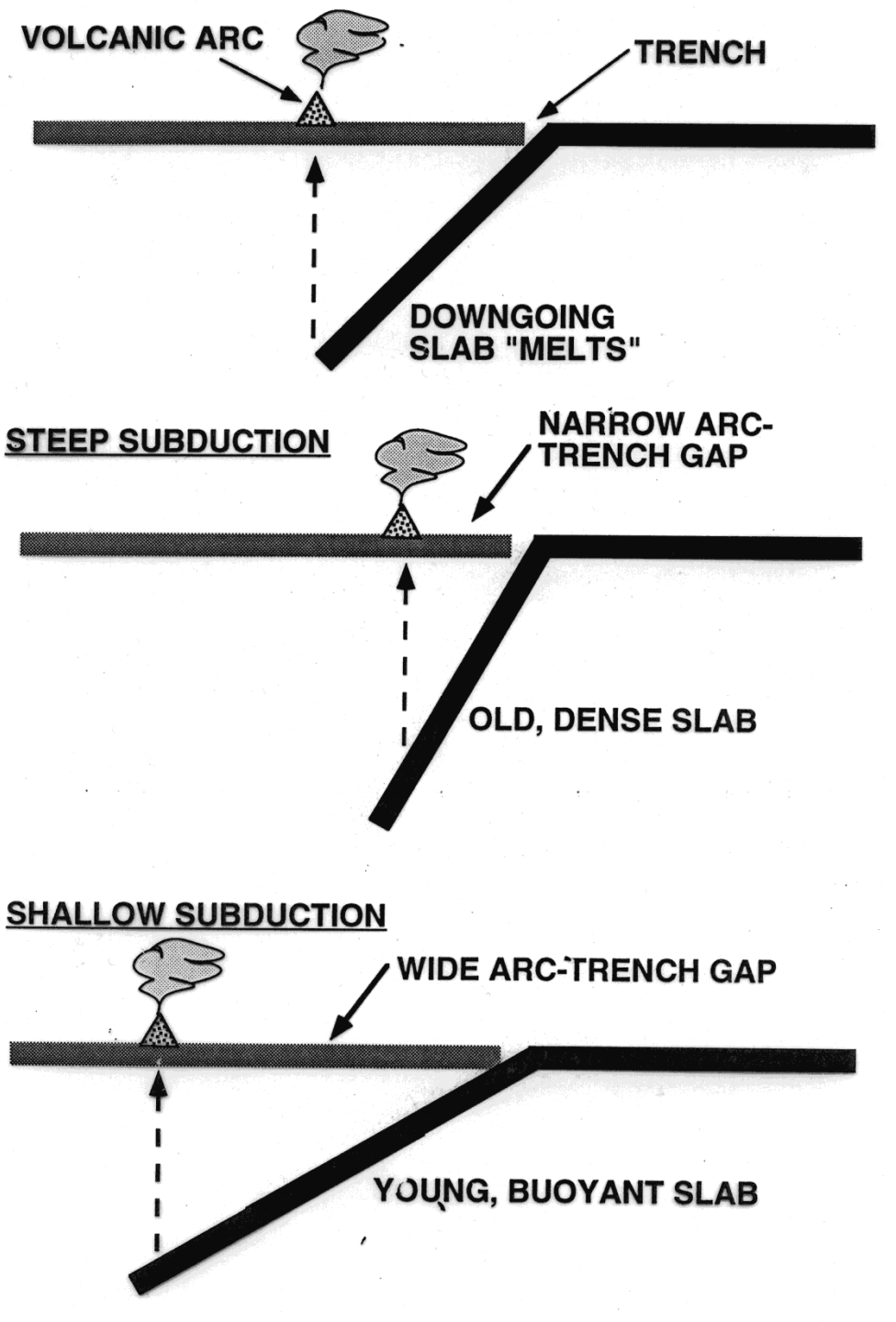

Volcanic arc
Accretionary prism
Abyssal plain
Back-arc (extensional)
Fore-arc
Trench
km
0
50
100
'Hinge point'


VOLCANIC ARC
TRENCH
DOWNGOING
SLAB "MELTS"

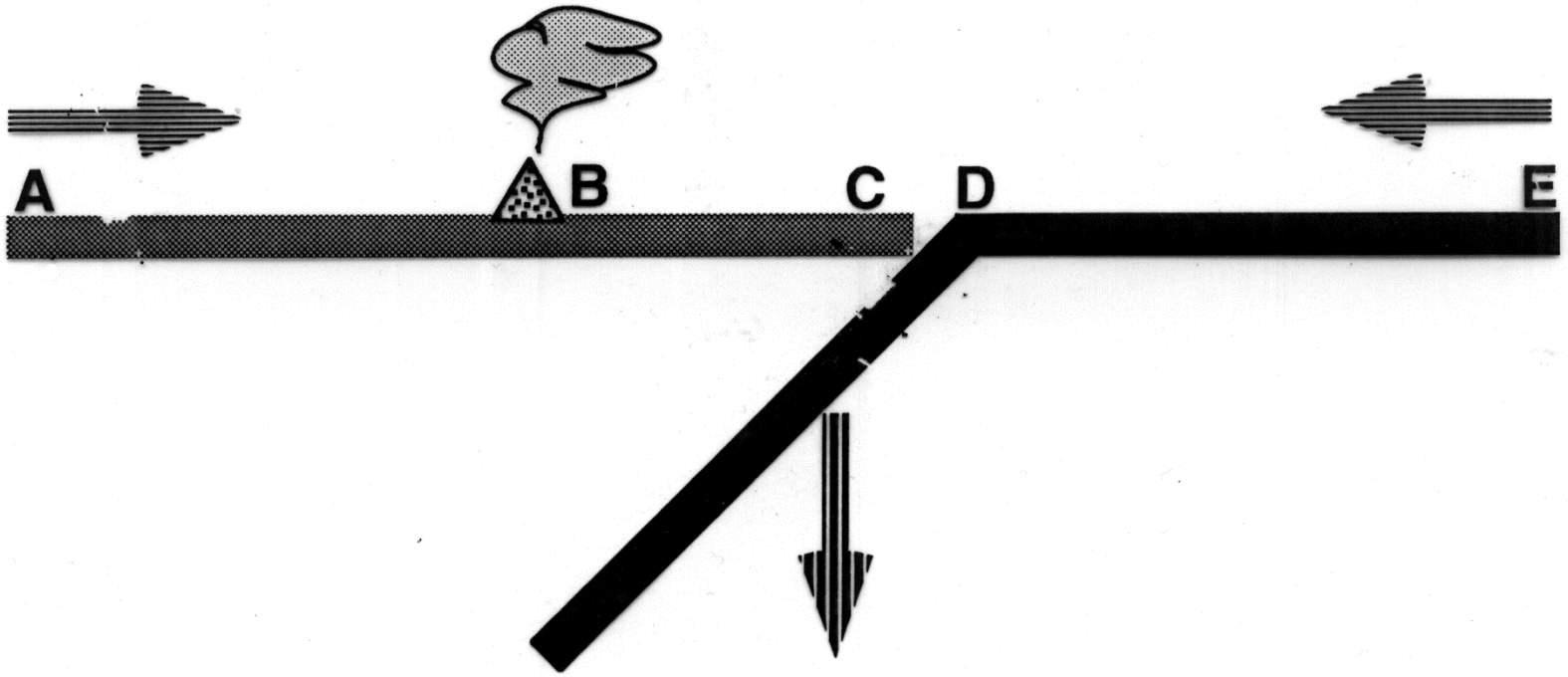

STEEP SUBDUCTION
NARROW ARC-
TRENCH GAP
OLD, DENSE SLAB


SHALLOW SUBDUCTION
WIDE ARC-TRENCH GAP
YOUNG, BUOYANT SLAB


Ryukyu
Taiwan
Luzon
Kuril
Japan
Izu-Bonin
Nankai
Mariana
Philippine
New Hebrides
Aleutian
Cascadia
Barbados
Middle America
Columbia
Peru
Chile
Scotia
Makran
Nias
Sunda
Java
Timor
Tonga
Kermadec
Hikurangi

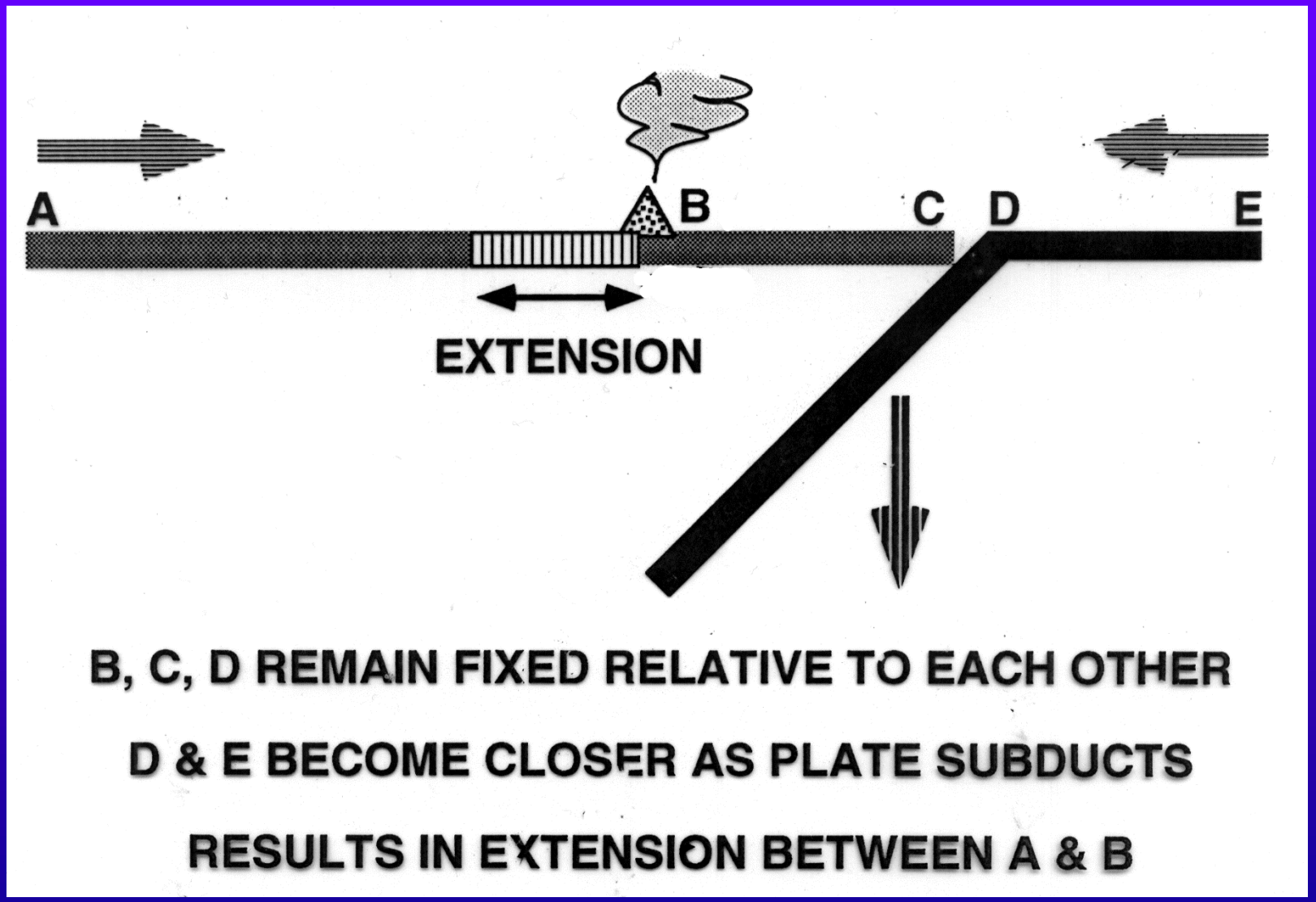

VOLCANIC ARC
TRENCH
DOWNGOING
SLAB "MELTS"
STEEP SUBDUCTION
NARROW ARC-
TRENCH GAP
OLD, DENSE SLAB
SHALLOW SUBDUCTION
WIDE ARC-TRENCH GAP
YOUNG, BUOYANT SLAB

Trench roll-back



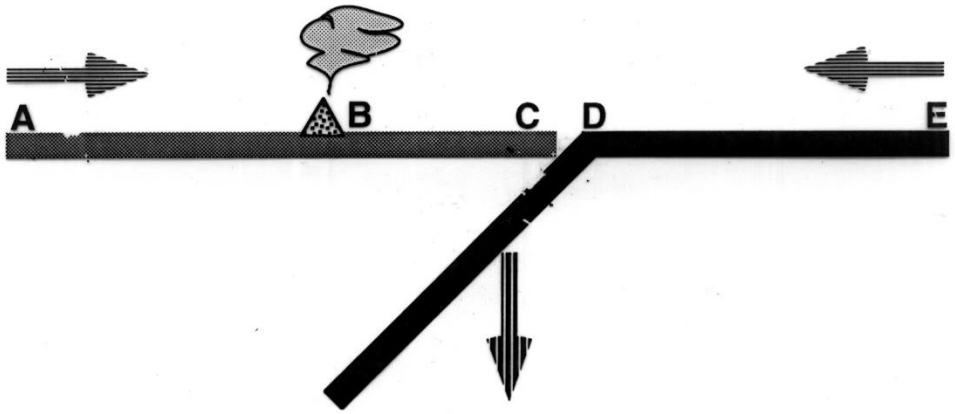
DOWNGOING SLAB IS SUBDUCTING FASTER THAN THE RATE OF CONVERGENCE OF TWO PLATES

Trench roll-back

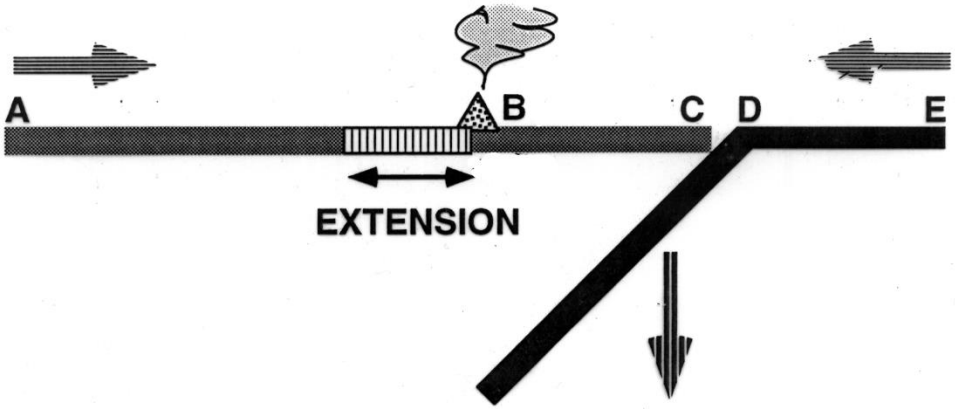


Trench roll-back

CONDITIONS FOR TRENCH ROLL-BACK



DOWNGOING SLAB IS SUBDUCTING FASTER THAN
THE RATE OF CONVERGENCE OF TWO PLATES

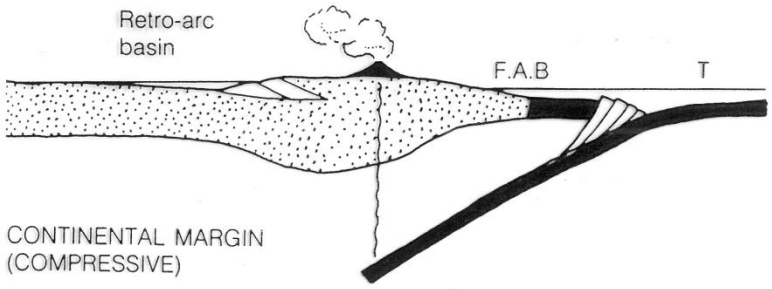


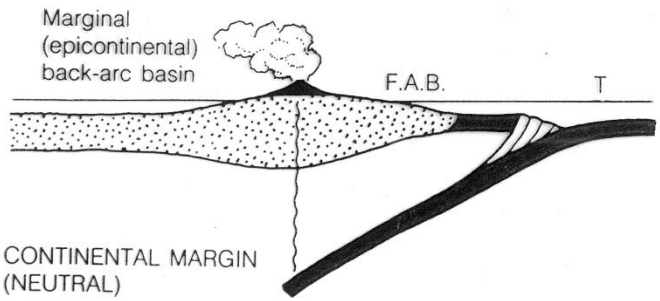
B, C, D REMAIN FIXED RELATIVE TO EACH OTHER

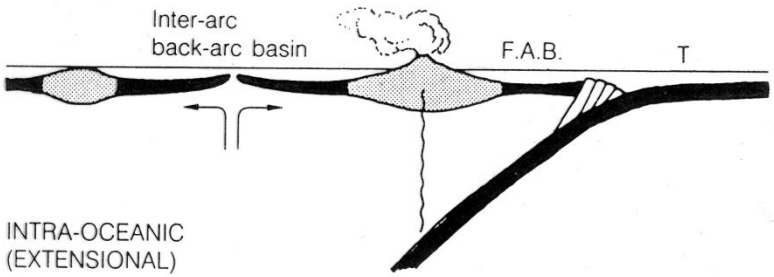
D & E BECOME CLOSER AS PLATE SUBDUCTS

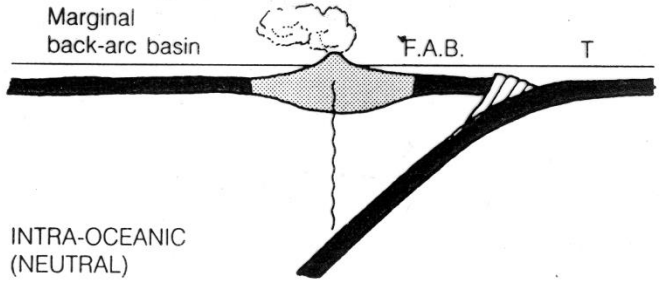
RESULTS IN EXTENSION BETWEEN A & B

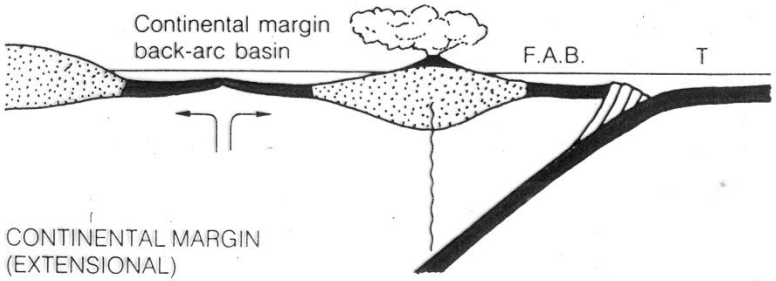
Types of arc-trench system











KEY

T = Trench

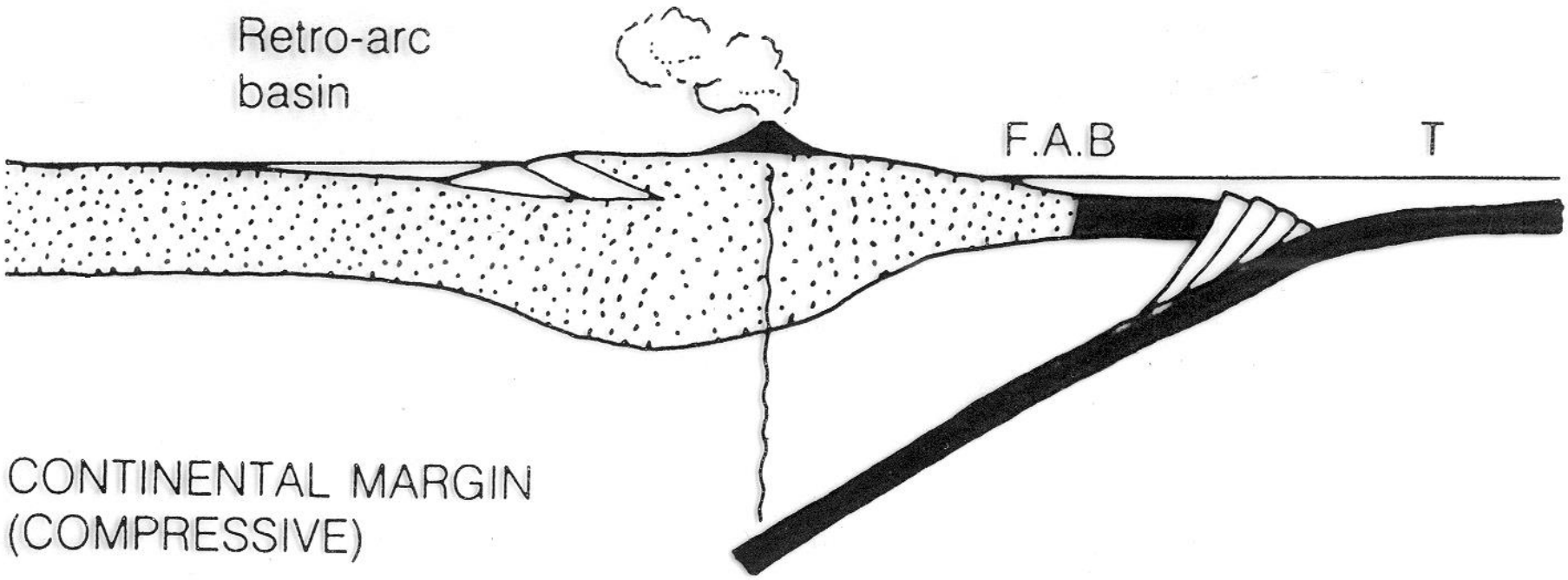
F.A.B. = Fore-arc basin

Oceanic lithosphere

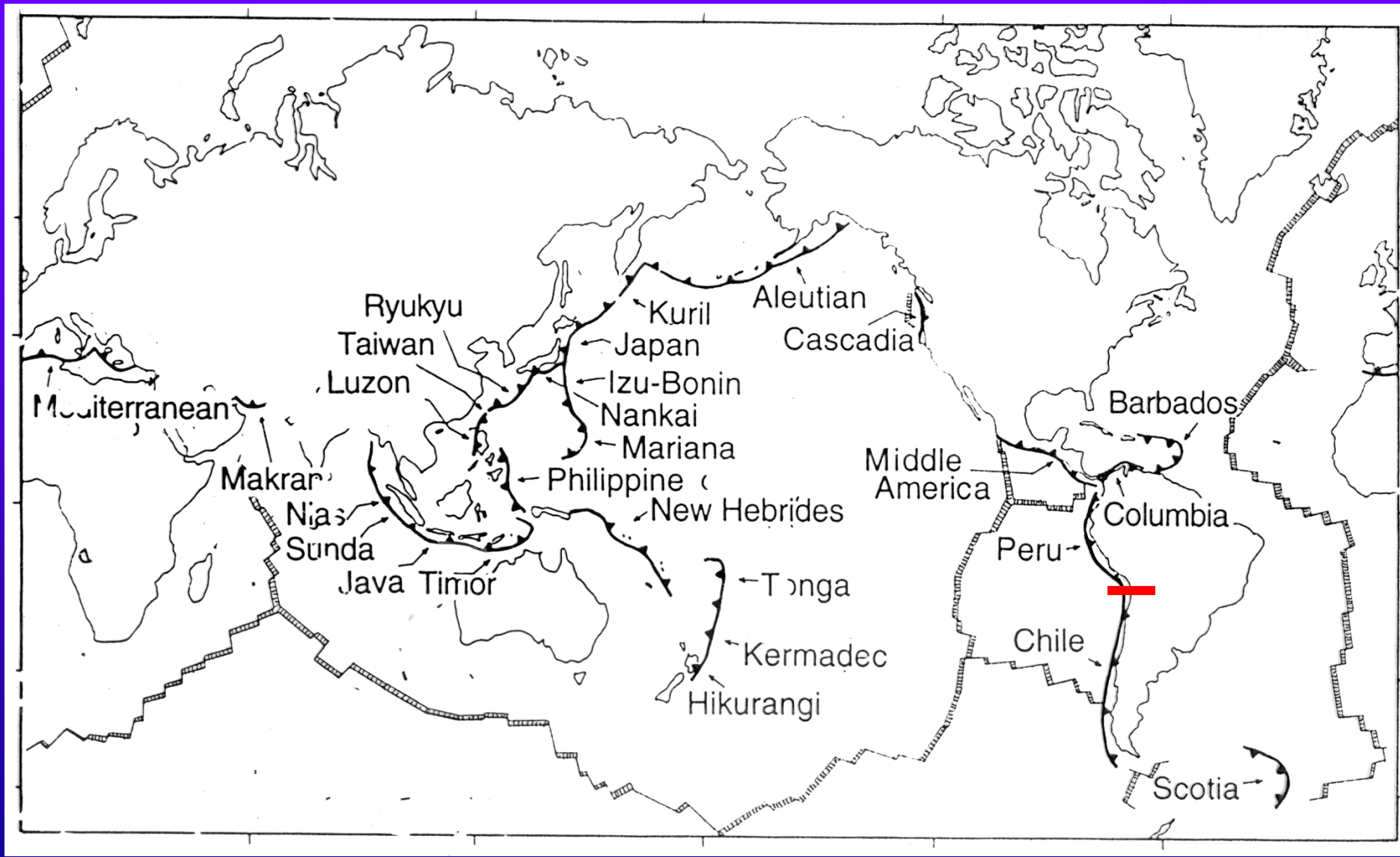
Continental lithosphere

Volcanic arc

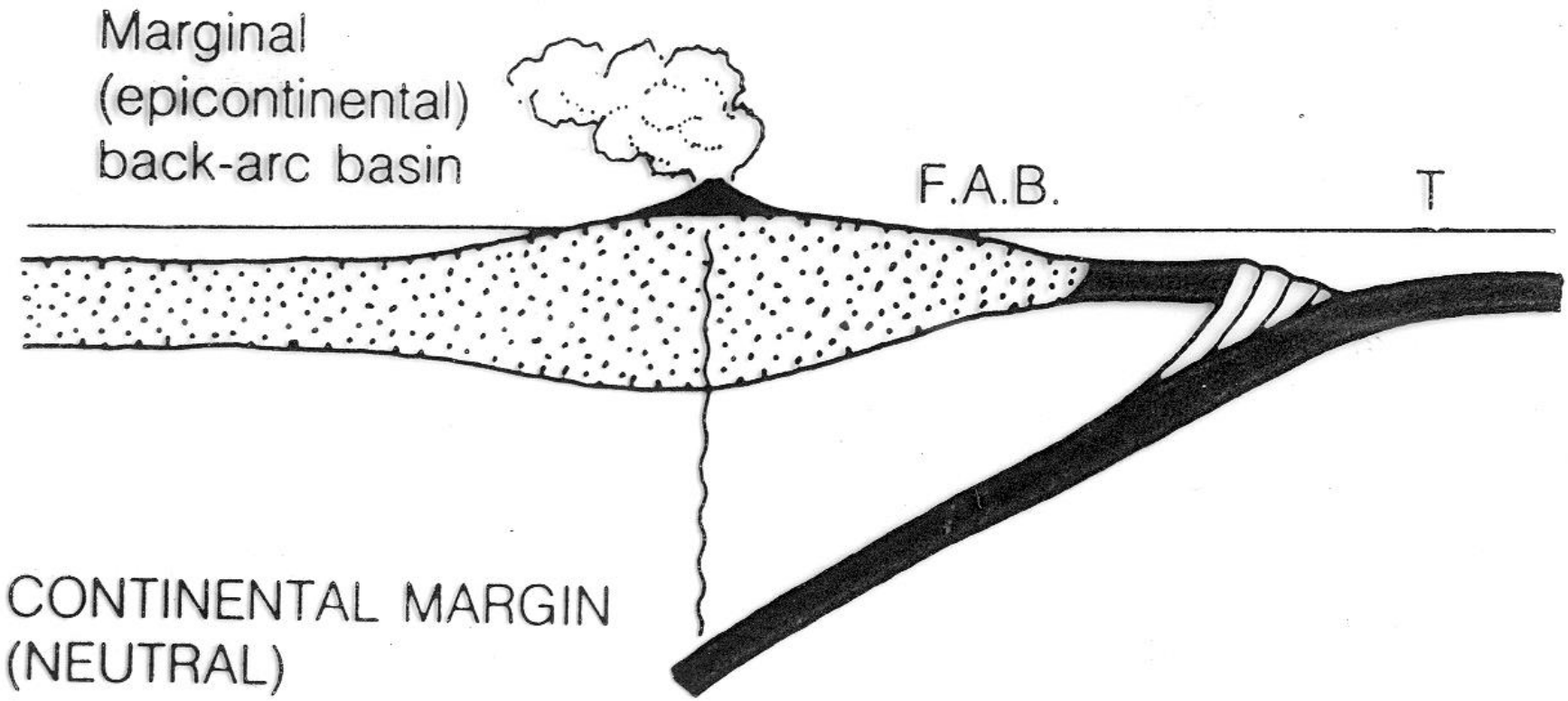
Types of arc-trench system: continental, compressive



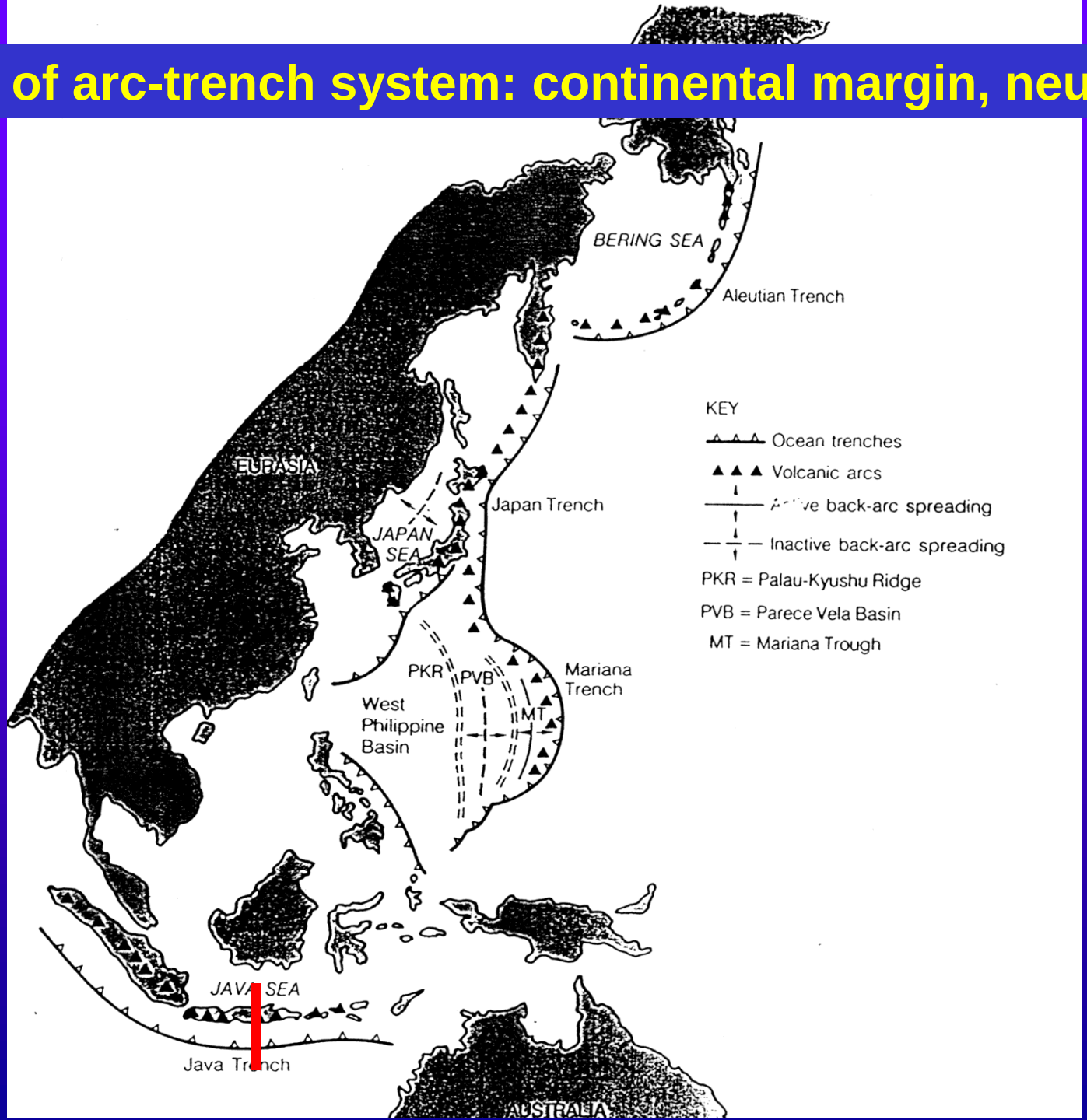
Types of arc-trench system: continental, compressive



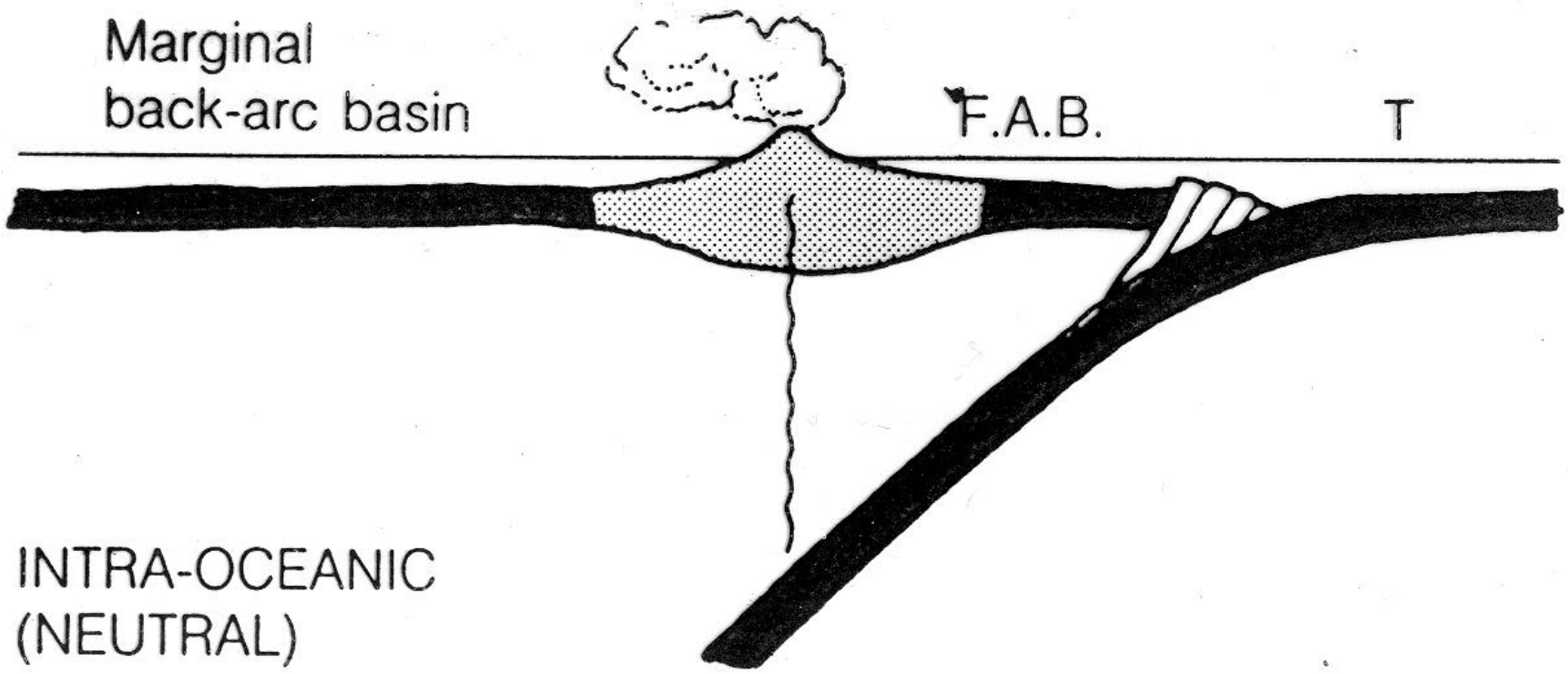
Types of arc-trench system: continental margin, neutral



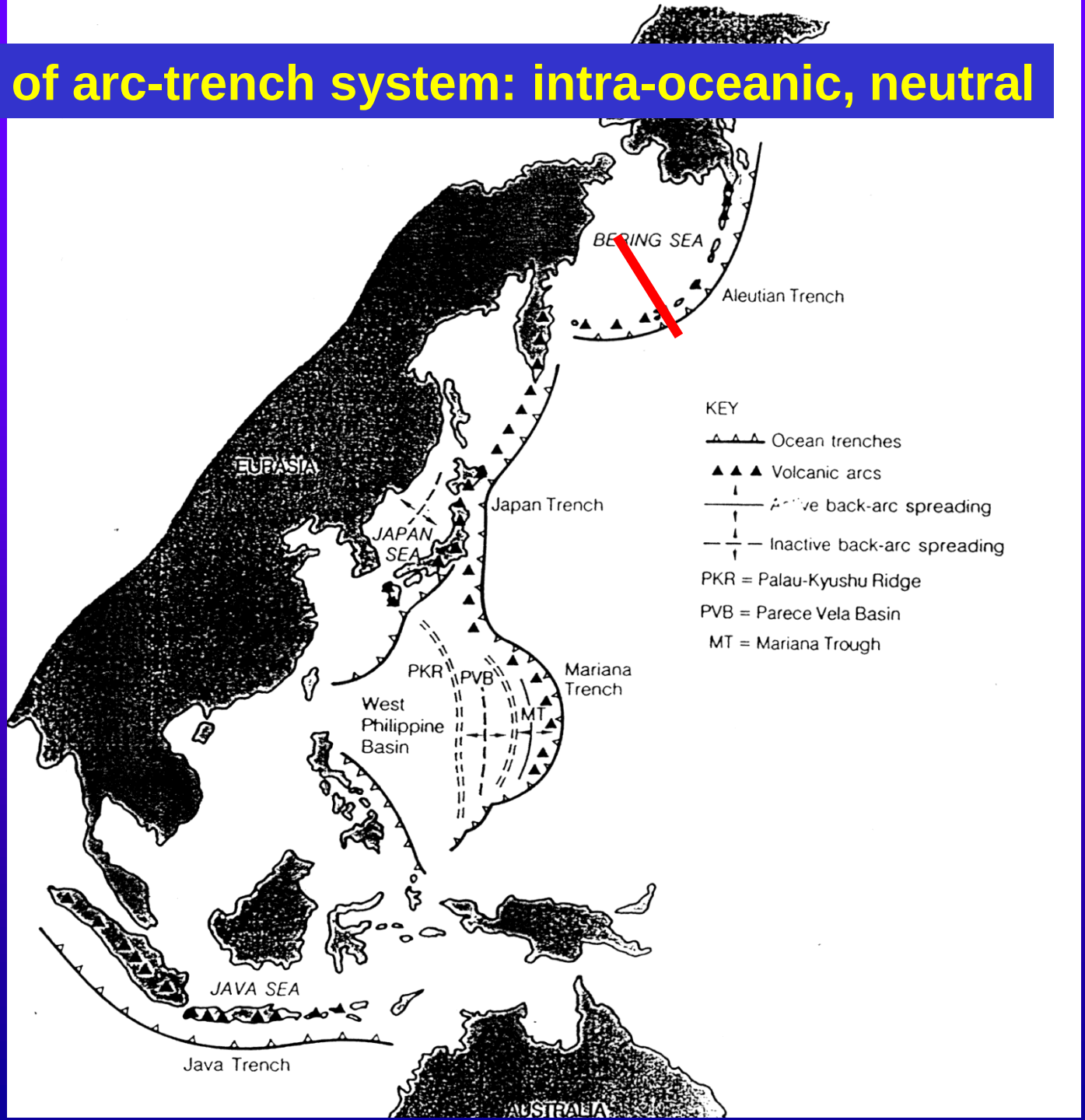
Types of arc-trench system: continental margin, neutral



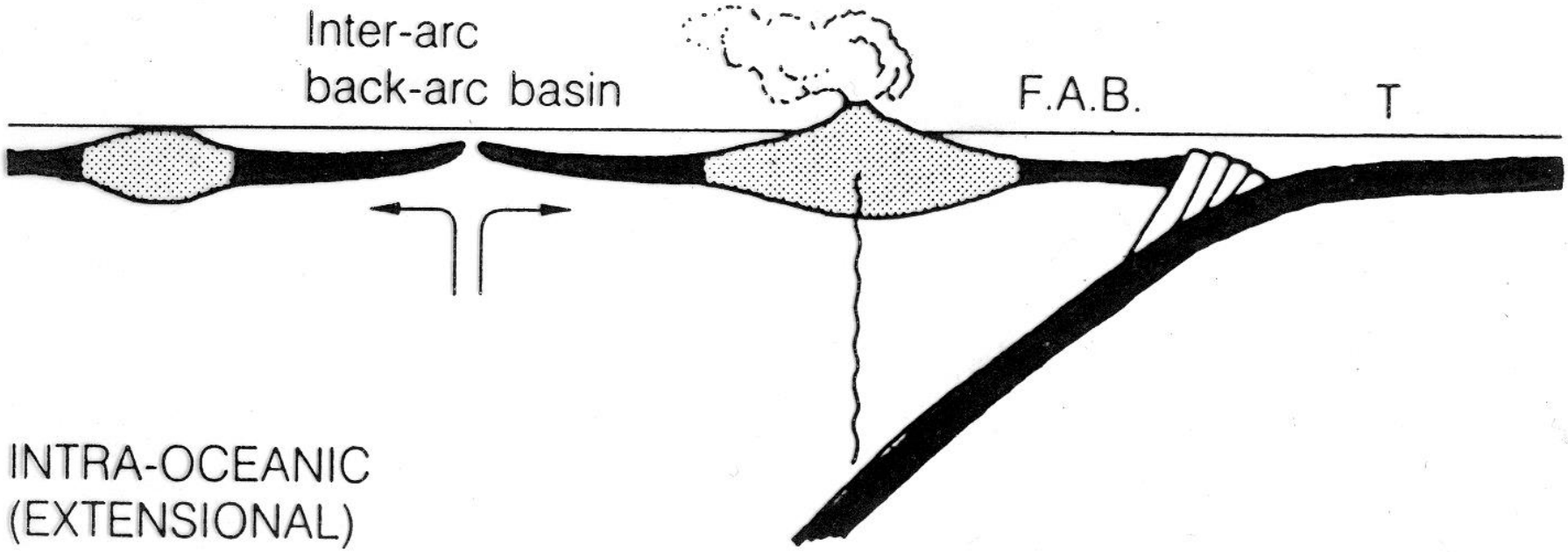
Types of arc-trench system: intra-oceanic, neutral



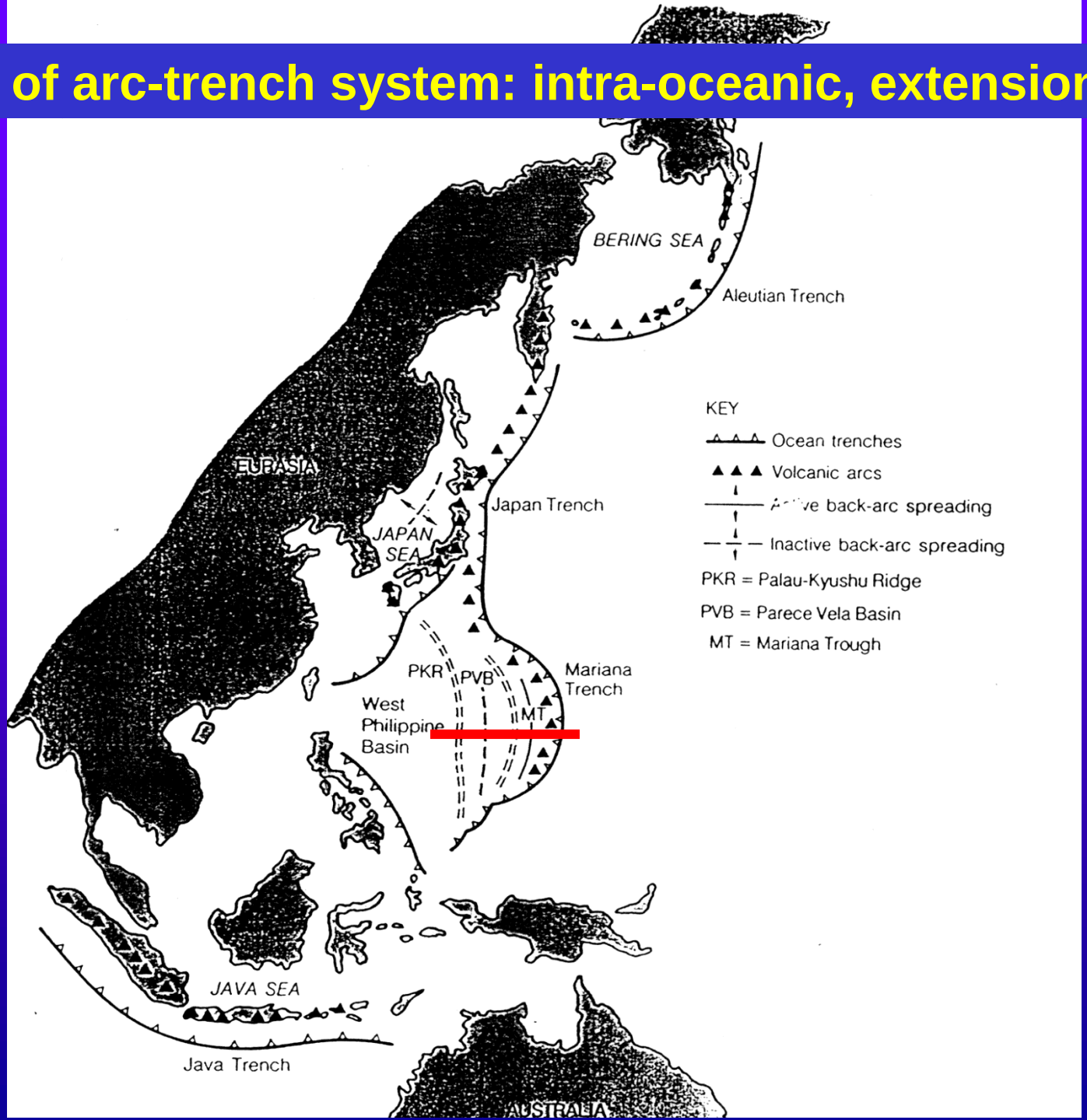
Types of arc-trench system: intra-oceanic, neutral



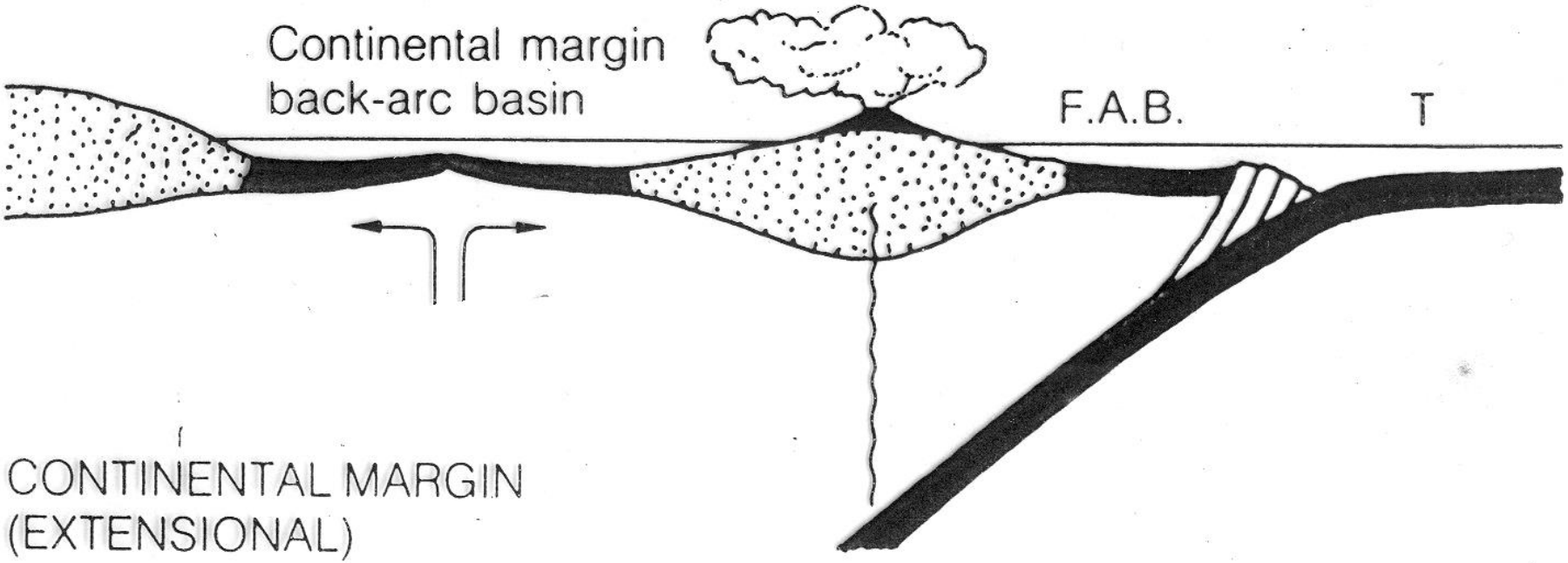
Types of arc-trench system: intra-oceanic, extensional



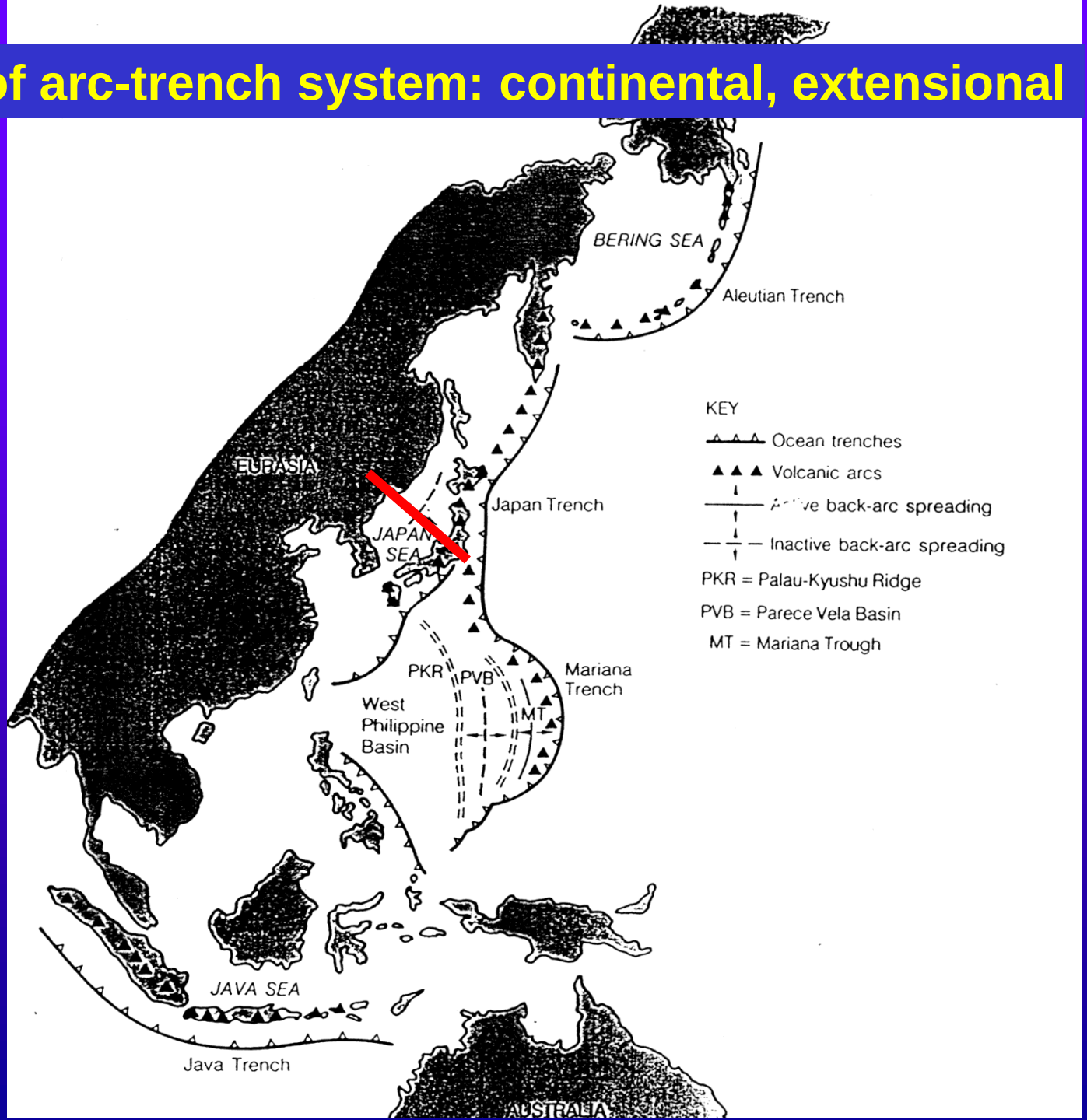
Types of arc-trench system: intra-oceanic, extensional

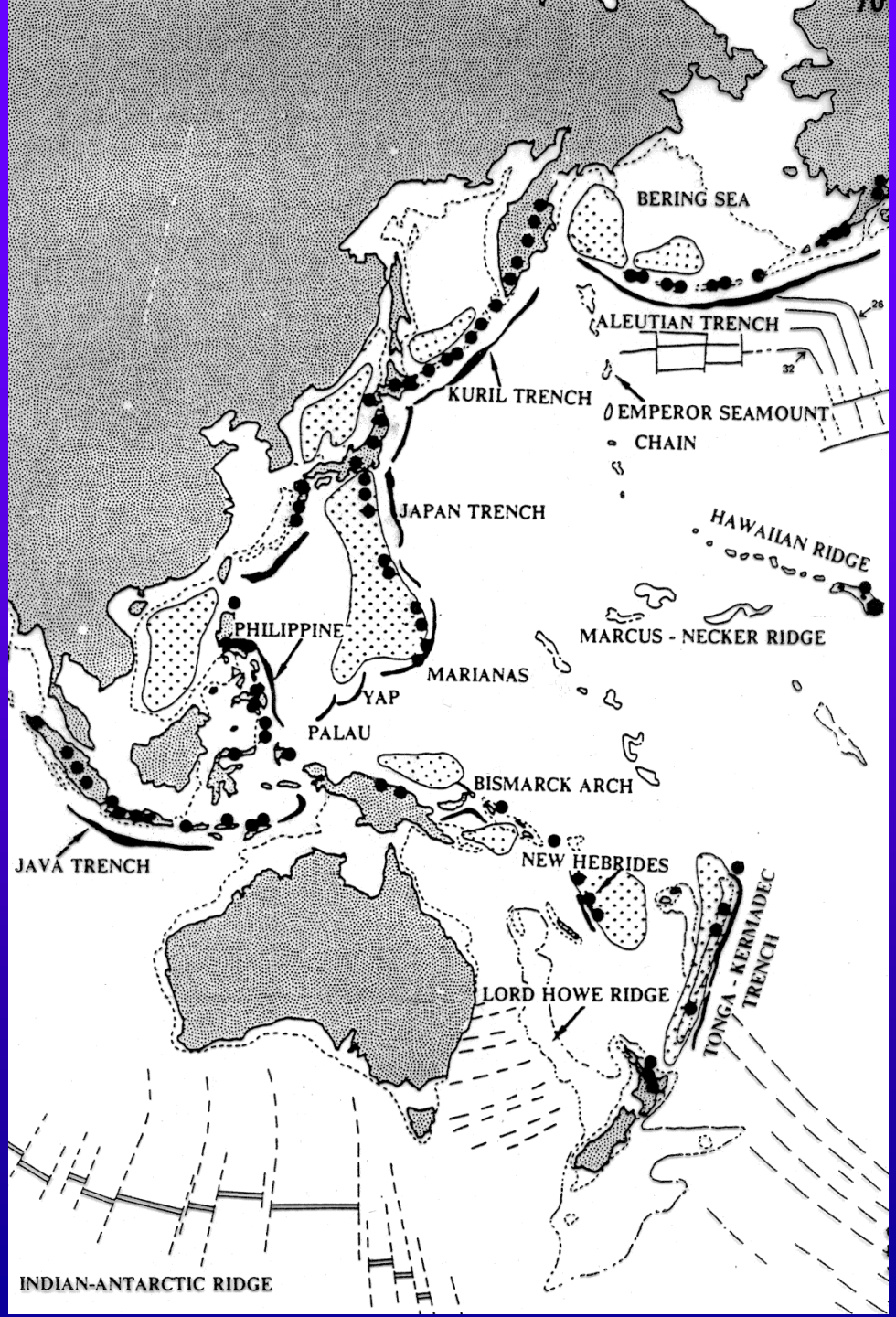


Types of arc-trench system: continental, extensional



Types of arc-trench system: continental, extensional




BERING SEA
ALEUTIAN TRENCH
KURIL TRENCH
EMPEROR SEAMOUNT
CHAIN
JAPAN TRENCH
HAWAIIAN RIDGE
MARCUS - NECKER RIDGE
PHILIPPINE
MARIANAS
YAP
PALAU
BISMARCK ARCH
JAVA TRENCH
NEW HEBRIDES
TONGA - KERMADEC TRENCH
LORD HOWE RIDGE
INDIAN-ANTARCTIC RIDGE