بخش 6
مرز واگرا – دور شونده – سازنده

Three types of boundaries

- Divergent مرز واگرا - دور شونده – سازنده
  - Plates move apart and new lithosphere is created
- Convergent مرز همگرا - نزدیک شونده – مخرب
  - Plates come together and one is recycled □
- Transform
  - Plates slide horizontally past each other

Divergent Boundaries

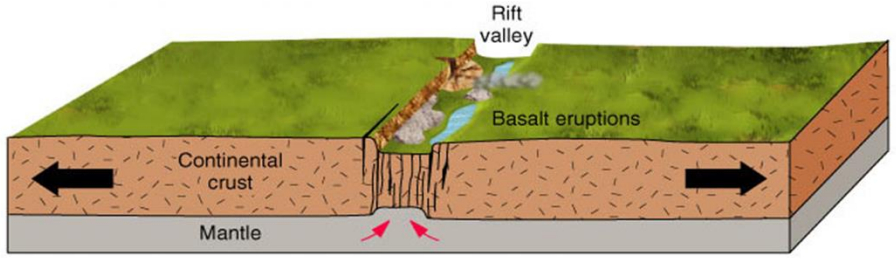
A plate boundary where two plates move away from each other.

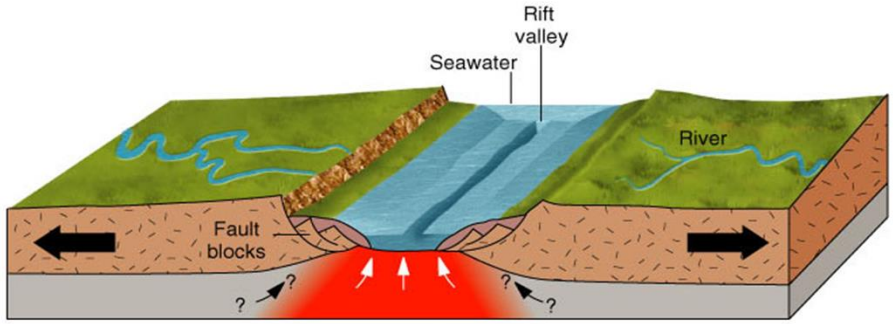
← →

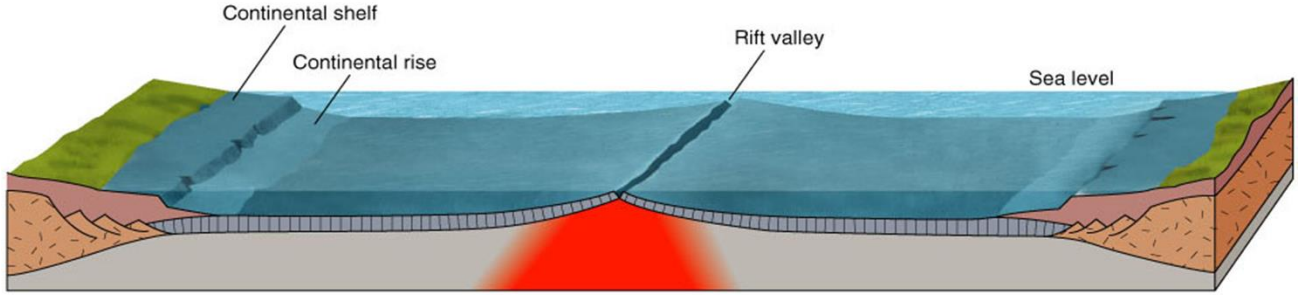
RIFTING

causes

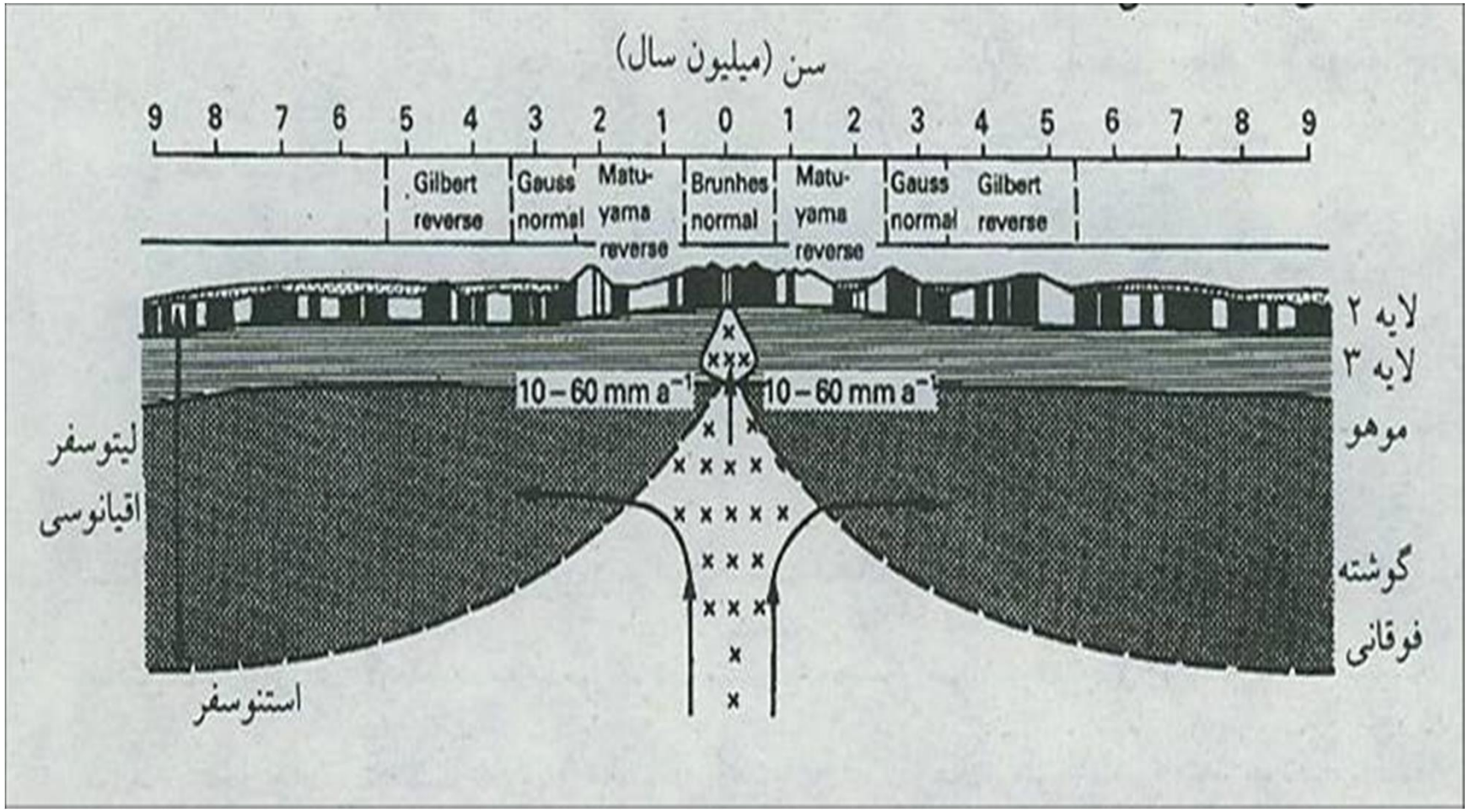
SEAFLOOR SPREADING







گسترش بستر اقيانوسها و ايجاد نوارهاي مغناطيسي



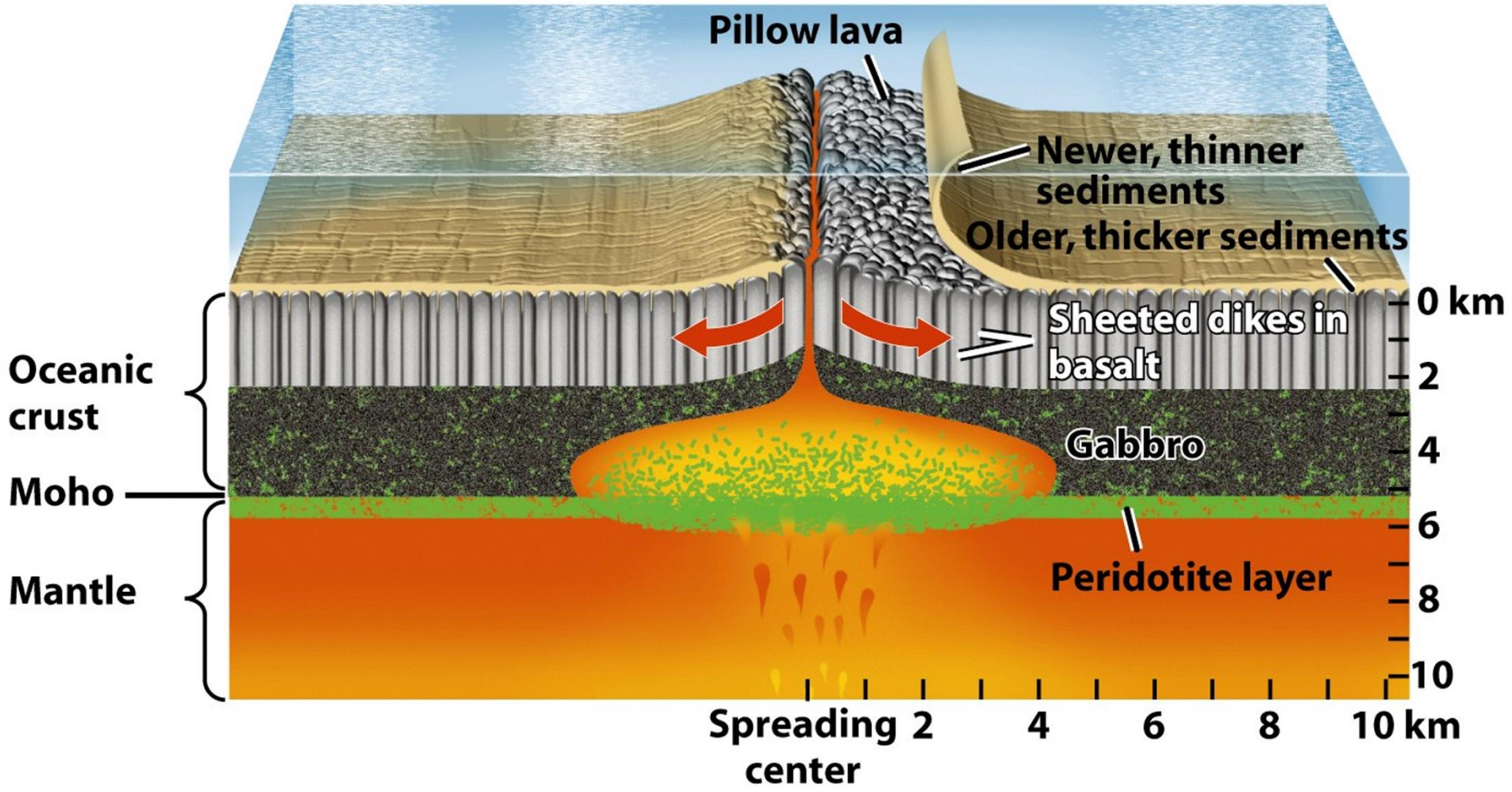


Figure 4-13 part 1
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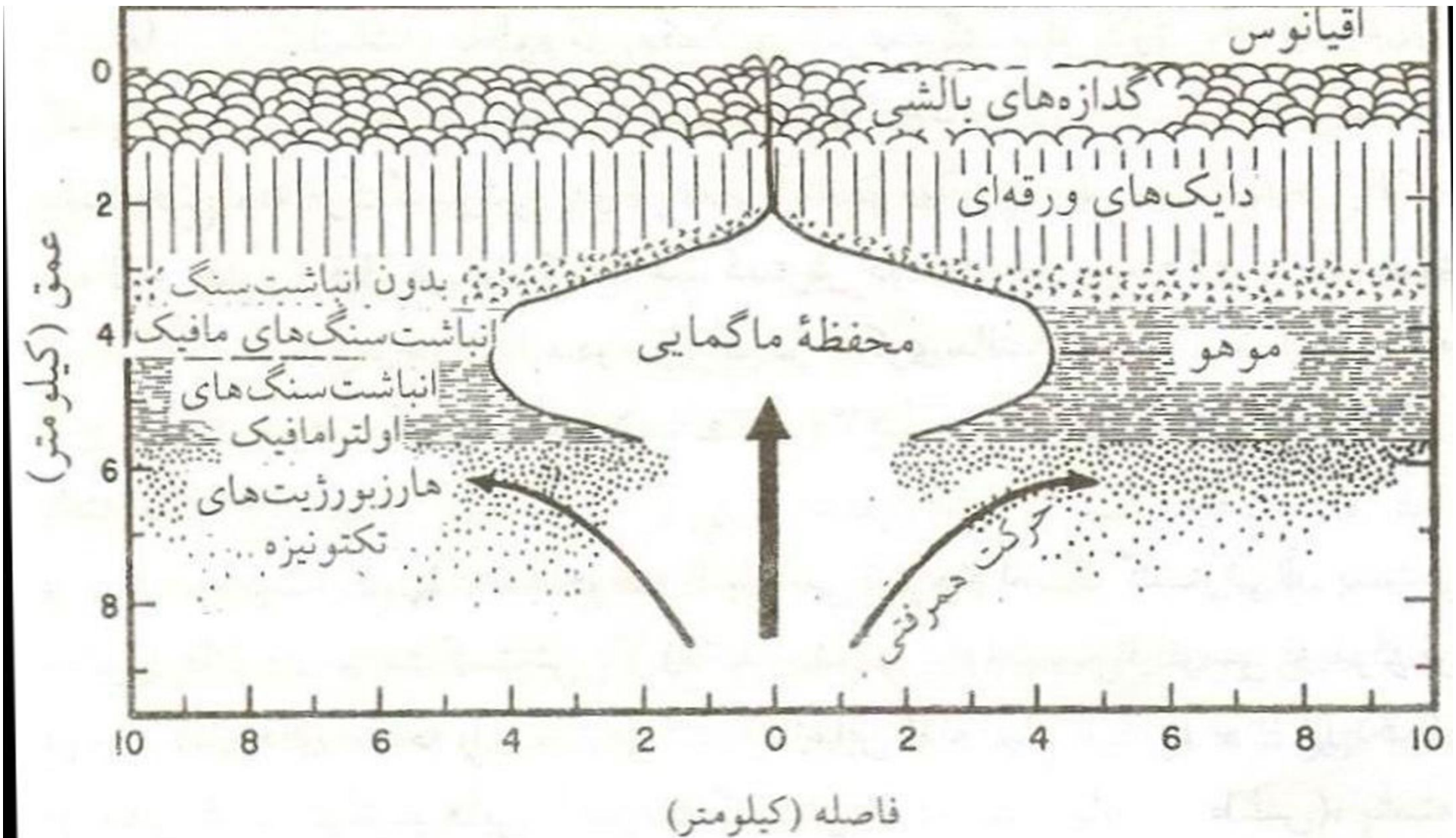
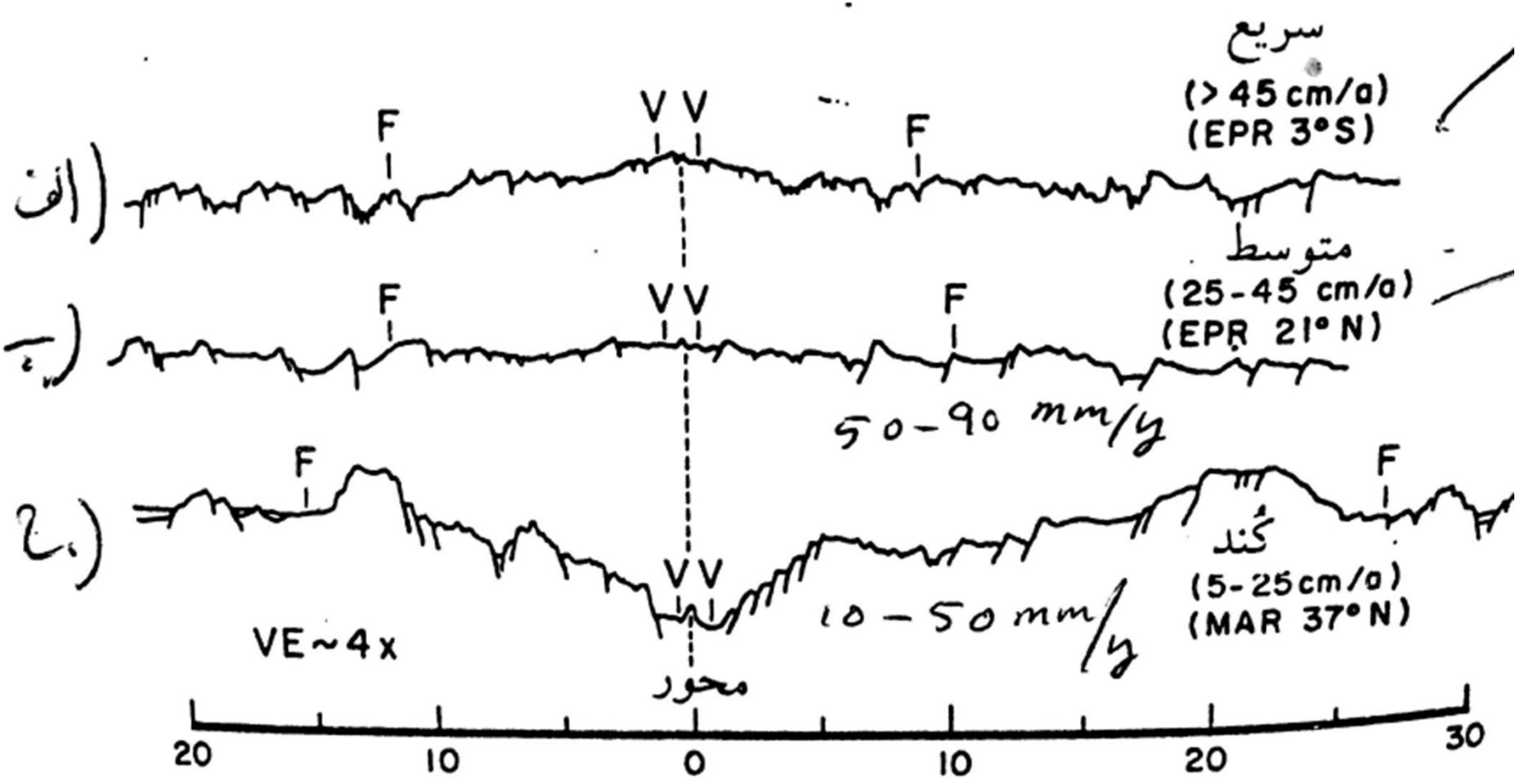


شکل ۴-۳۳. مدل تشکیل پوسته اقیانوسی از گس (۱۹۸۲).


سریع
(> 45 cm/a)
(EPR 3°S)
F
V V
F
الف)
متوسط
(25-45 cm/a)
(EPR 21° N)
F
V V
F
ب)
50-90 mm/y
F
F
کُند
(5-25 cm/a)
(MAR 37° N)
V V
ج)
10-50 mm/y
VE~4x
محور
20
10
0
10
20
30

نظریه صفحه سرد شونده
Cooling Plate theory

رابطه میزان فرونشست بستر اقیانوس ضمن دور شدن وسرد شدن از پشته میان اقیانوسی و سن پوسته اقیانوسی از زمان تشکیل

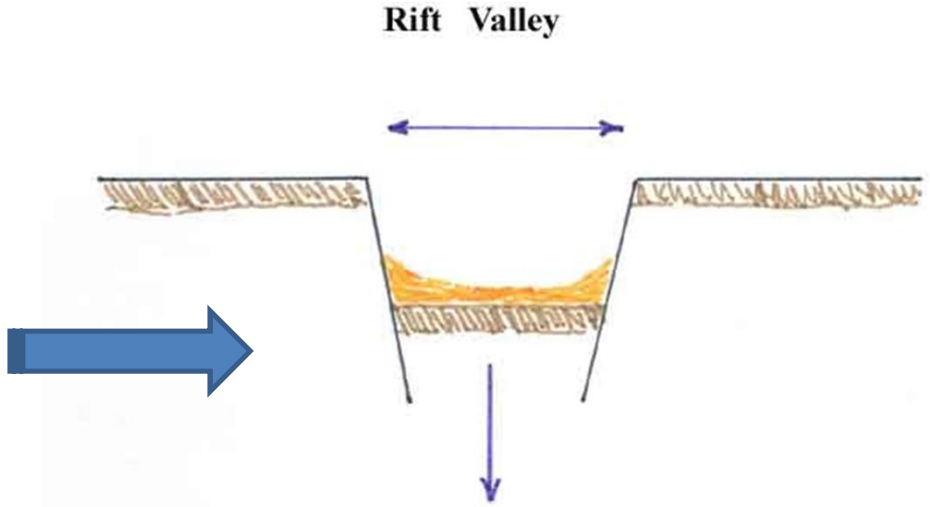
$$Z=cv\sqrt{T}$$

میزان فرونشست برحسب متر (Z)
سن پوسته برحسب میلیون سال (T)
عدد ثابت (300)

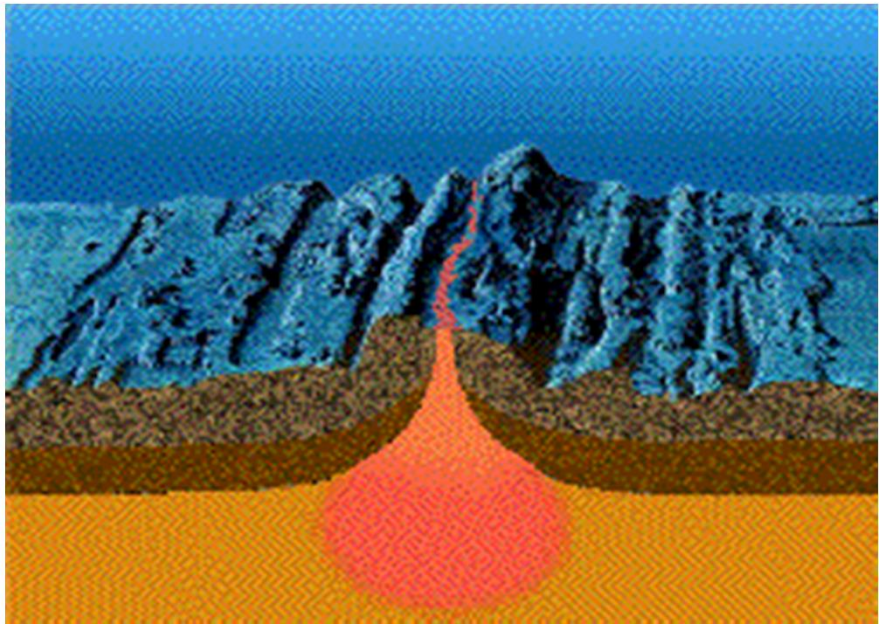
What happens next at Divergent Boundaries?

- A geologic feature or event…

May form <u>RIFT VALLEYS</u> on continents



<u>SEA-FLOOR SPREADING</u> in the ocean




ATLANTIC OCEAN FLOOR
GREENLAND
EUROPE
NORTH
AMERICA
AFRICA
SOUTH AMERICA


NORTH AMERICA
SOUTH AMERICA
AFRICA
GREENLAND
ICELAND
HUDSON BAY
MONTREAL
ST. LAWRENCE
CHICAGO
BOSTON
NEW YORK
WASHINGTON
MISSISSIPPI
HOUSTON
NEW ORLEANS
MIAMI
GULF OF MEXICO
CARIBBEAN SEA
CARACAS
AMAZON
AMAZON CONE
FORTALEZA
BELEM
DAKAR
CAPE VERDE ISLANDS
CANARY ISLANDS
MADEIRA
AZORES
LISBON
MADRID
CASABLANCA
DUBLIN
HATTERAS ABYSSAL PLAIN
DEMERARA ABYSSAL PLAIN
GAMBIA ABYSSAL PLAIN
ROMANCHE FRACTURE ZONE
MID-ATLANTIC RIDGE
MID-ATLANTIC CANYON
LAURENTIAN CONE
FLEMISH CAP
ISLAND OF NEWFOUNDLAND
BERMUDA
BAHAMA ISLANDS
PUERTO RICO TRENCH

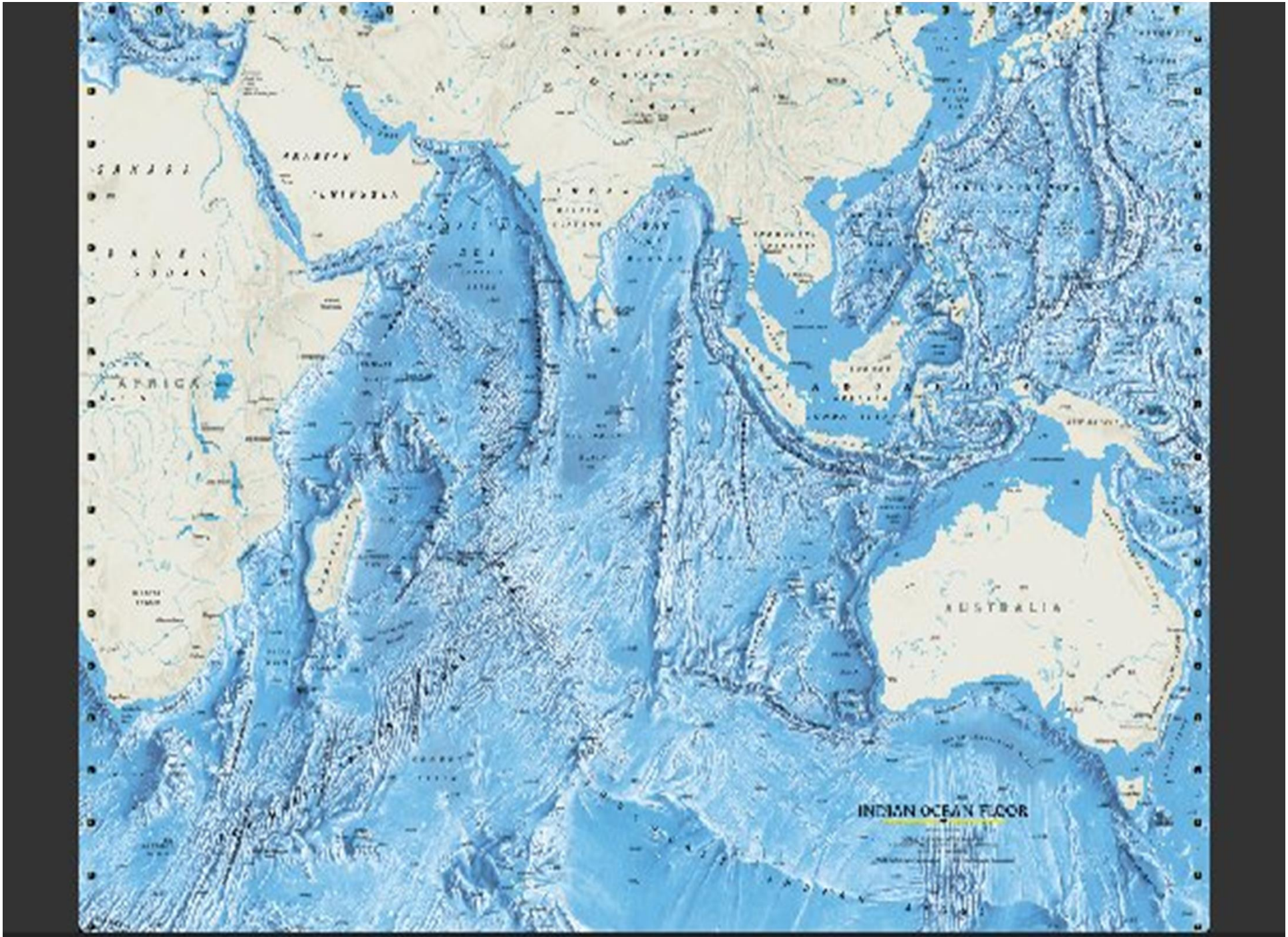
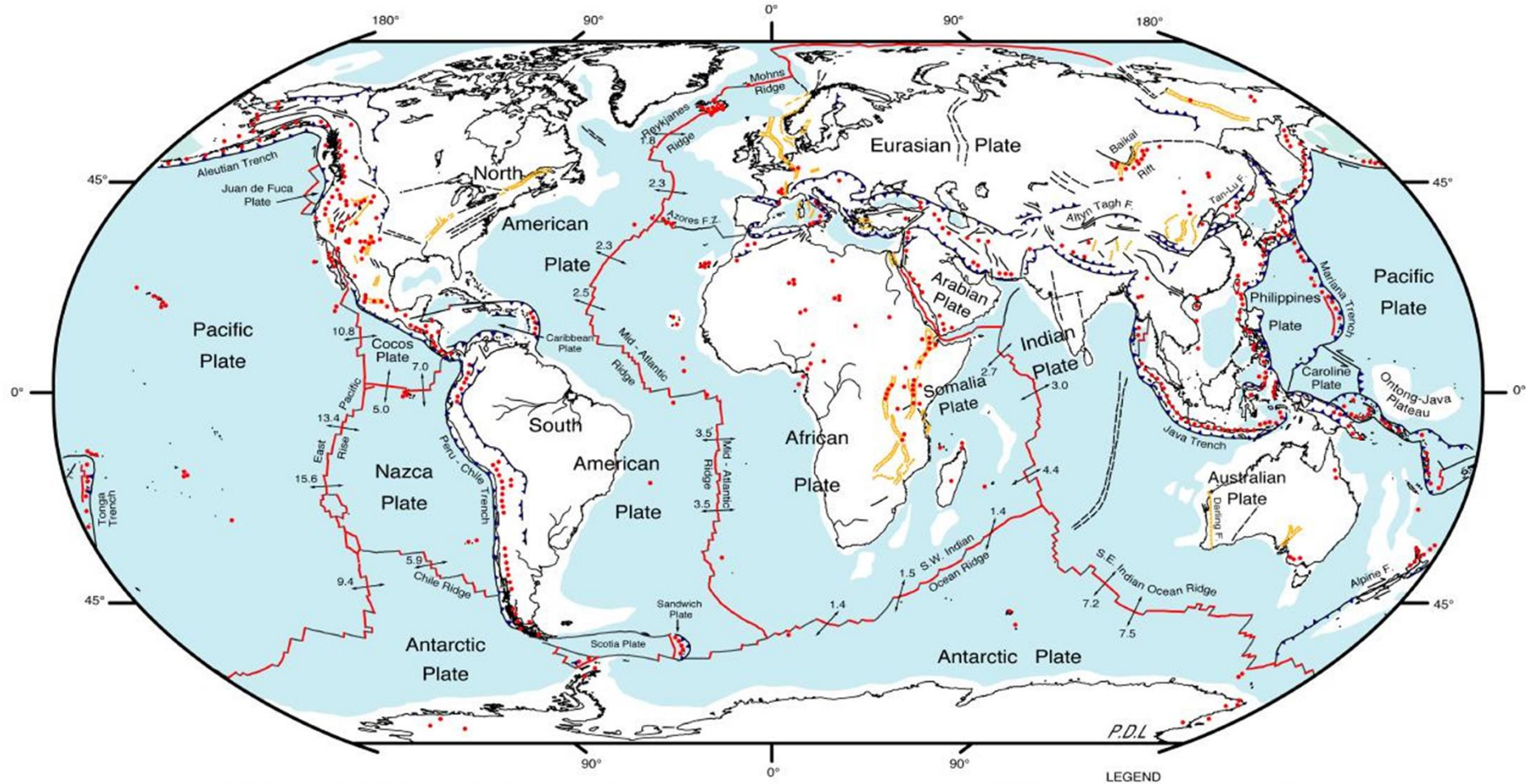


Plate map of the world



DIGITAL TECTONIC ACTIVITY MAP OF THE EARTH
Tectonism and Volcanism of the Last One Million Years

DTAM

NASA/Goddard Space Flight Center
Greenbelt, Maryland 20771

Robinson Projection
Mainly oceanic crust
October 1998

LEGEND

- Actively-spreading ridges and transform faults
- Total spreading rate, cm/year, NUVEL-1 model (DeMets et al., Geophys. J. International, 101, 425, 1990)
- Major active fault or fault zone; dashed where nature, location, or activity uncertain
- Normal fault or rift; hachures on downthrown side
- Reverse fault (overthrust, subduction zones); generalized; barbs on upthrown side
- Volcanic centers active within the last one million years; generalized. Minor basaltic centers and seamounts omitted.

G221.001

Age of the ocean crust

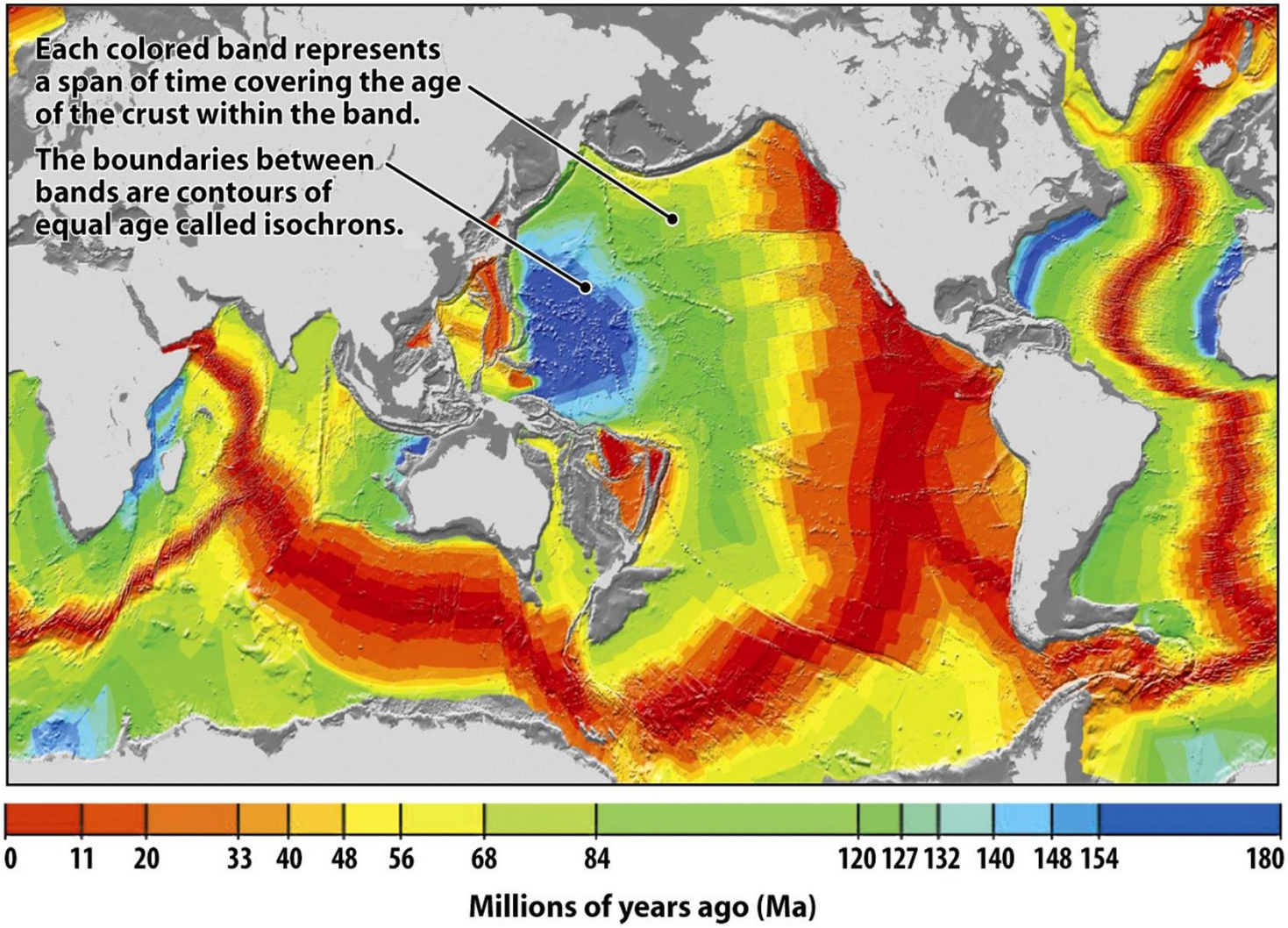


Figure 2-12
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