

# La tectónica de placas: Armando el rompecabezas de los continentes

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Instituto de Geología, UNAM





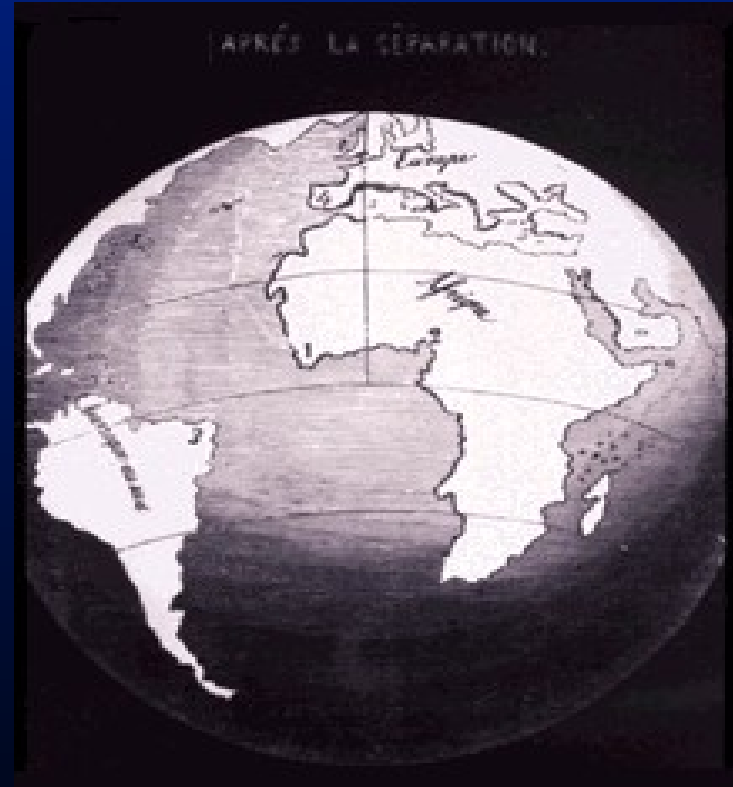
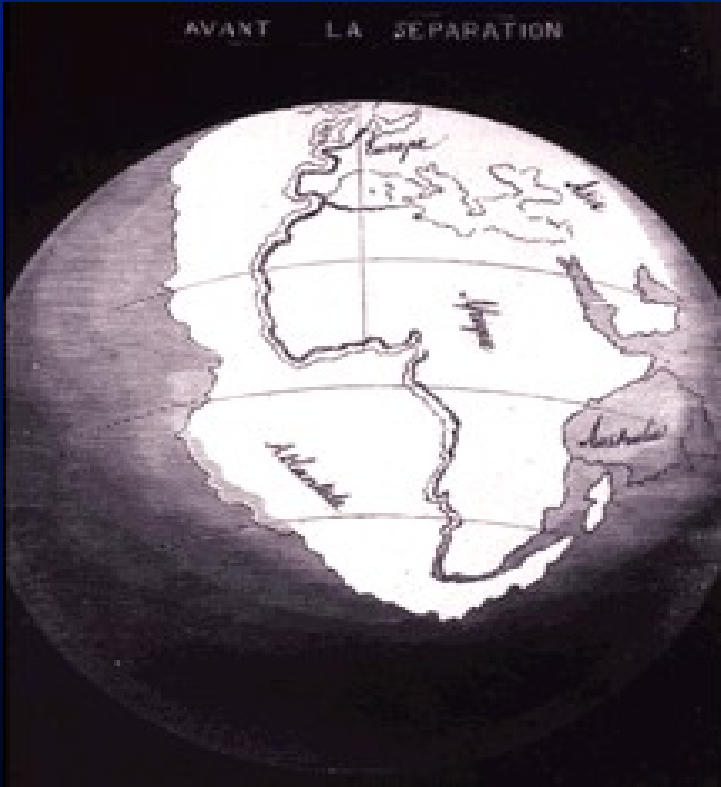








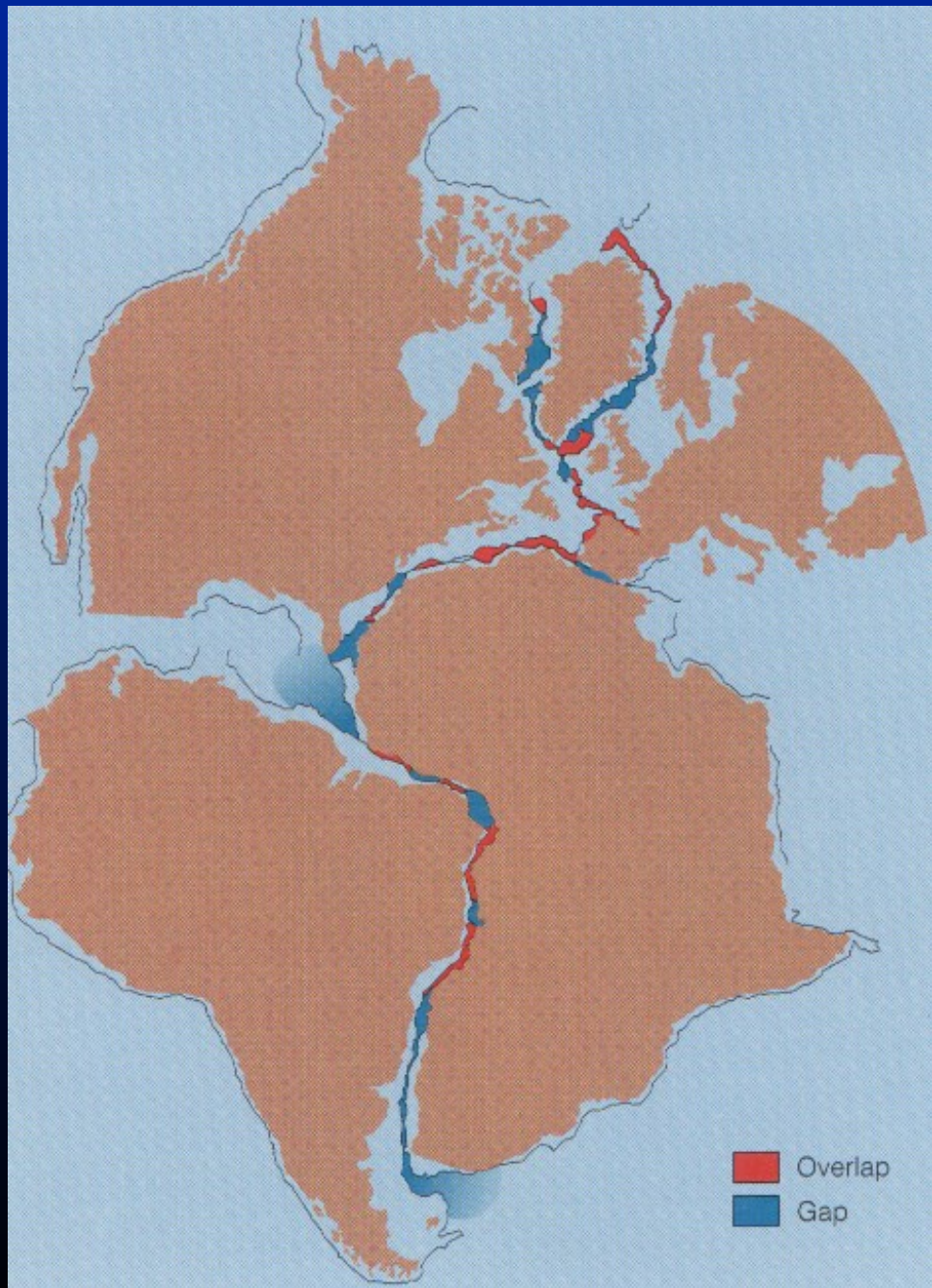
# Alejandro Snider-Pellegrini, 1858

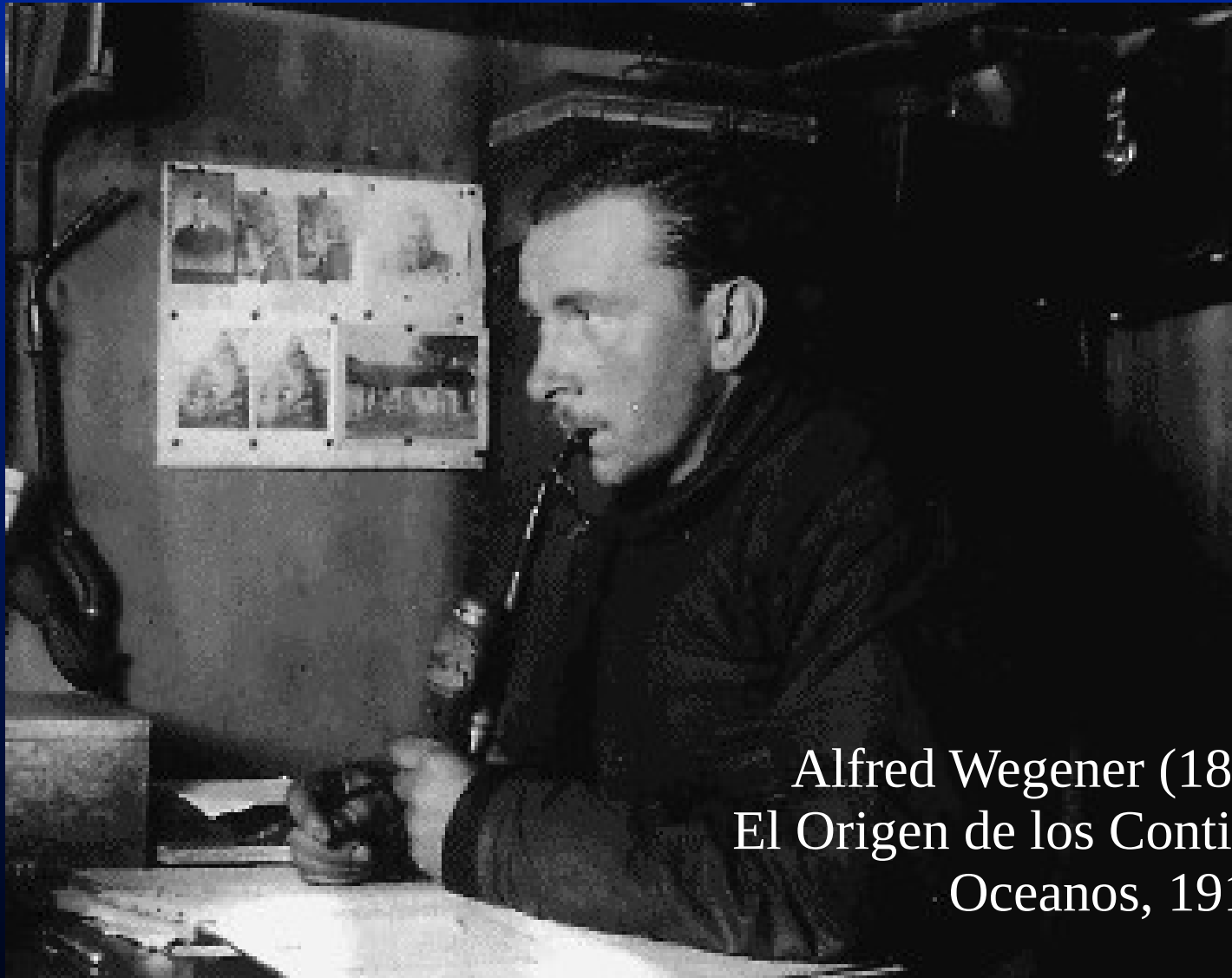








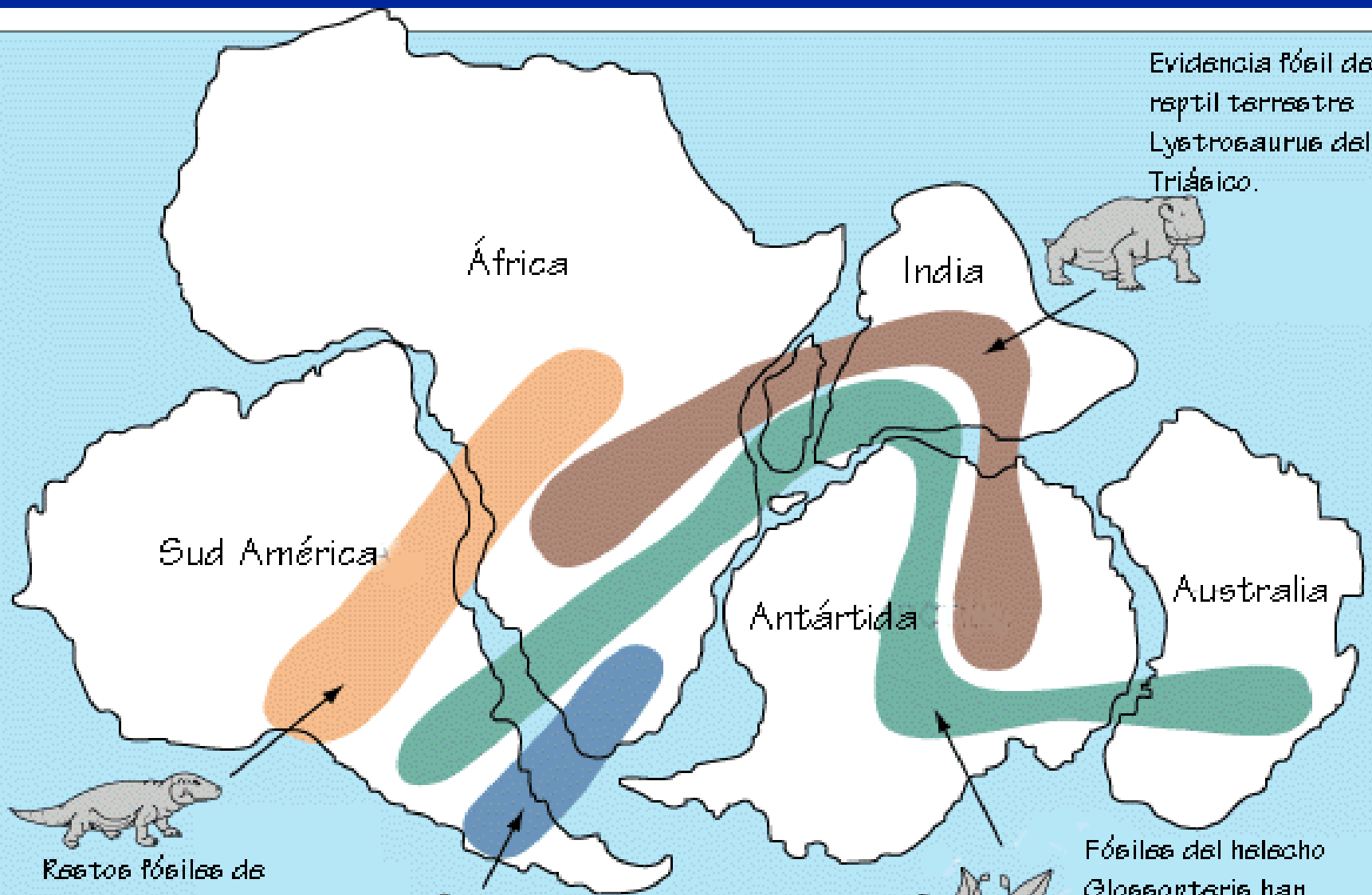




Alfred Wegener (1880-1930)  
El Origen de los Continentes y los  
Oceanos, 1915







Evidencia fósil del reptil terrestre Lytrosaurus del Triásico.



Sud América

África

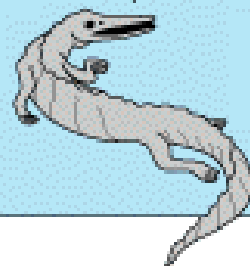
India

Antártida

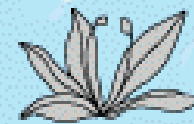
Australia



Restos fósiles de Cygnonathus, reptil terrestre triásico con longitud de 3 metros.



Restos fósiles del reptil de agua dulce Mesosaurus.



Fósiles del helecho Glossopteris han sido encontrados en todos los continentes del sur, mostrando que estuvieron unidos.

# ESTADOS UNIDOS DE AMERICA



## CARTA GEOLOGICA DE LA REPUBLICA MEXICANA

ESCALA 1:200,000  
 PUBLICADA EN 1992

ELABORADA POR:  
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 INSTITUTO DE GEOLOGIA Y MINERIA (IGM)

COMPAÑIA POR:  
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 INSTITUTO TECNOLÓGICO DE SURABRUJAS (ITSA)  
 INSTITUTO TECNOLÓGICO DE CALABAZAS DE LA RAMA (ITCRA)  
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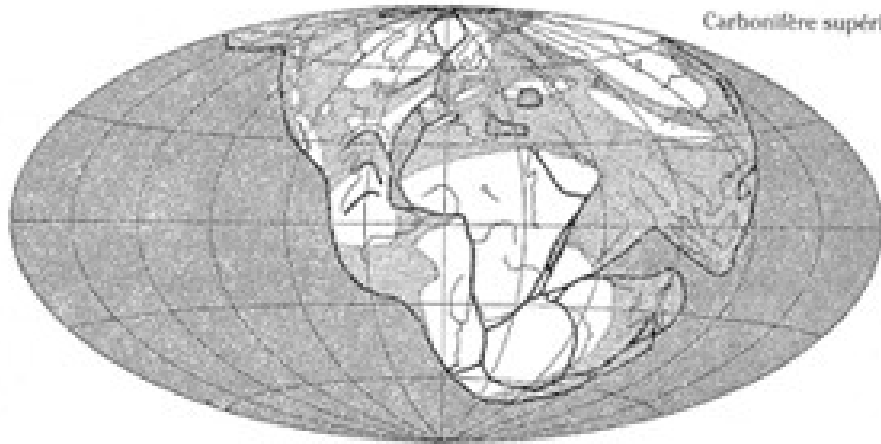
| UNIDAD GEOLOGICA | CRETACEO |          | TERCIARIO |          | CUATERNARIO |          | METAMORFISMO |          | MAGMATISMO |          |
|------------------|----------|----------|-----------|----------|-------------|----------|--------------|----------|------------|----------|
|                  | Superior | Inferior | Superior  | Inferior | Superior    | Inferior | Superior     | Inferior | Superior   | Inferior |
| CUATERNARIO      |          |          |           |          |             |          |              |          |            |          |
| TERTIARIO        |          |          |           |          |             |          |              |          |            |          |
| CRETACEO         |          |          |           |          |             |          |              |          |            |          |
| METAMORFISMO     |          |          |           |          |             |          |              |          |            |          |
| MAGMATISMO       |          |          |           |          |             |          |              |          |            |          |

Reservados todos los derechos. No se permite la explotación económica ni la transformación de esta obra. Queda permitida la impresión en su totalidad. Hecho en México. Distribuido por el Instituto de Geología y Minería. México, D.F. 1992. 1.ª edición.

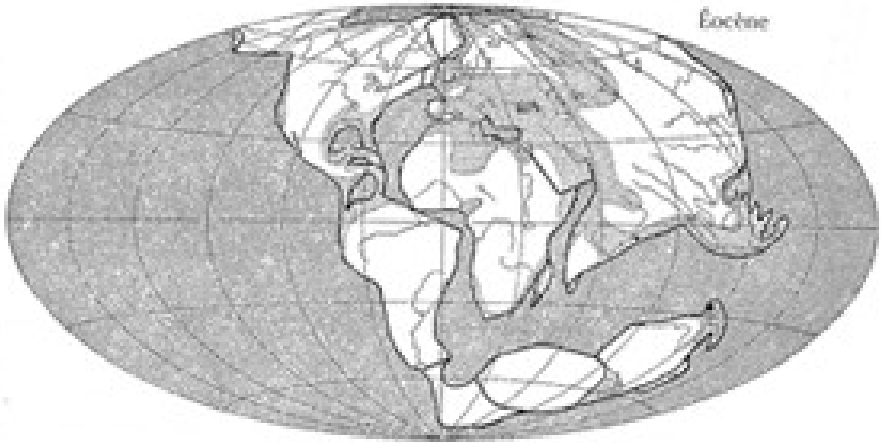


## Mapas del libro de Wegener

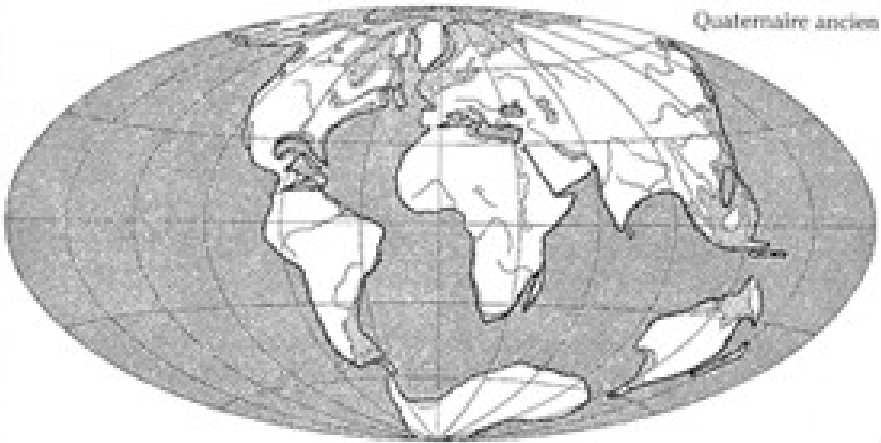
Carbonifère supérieur

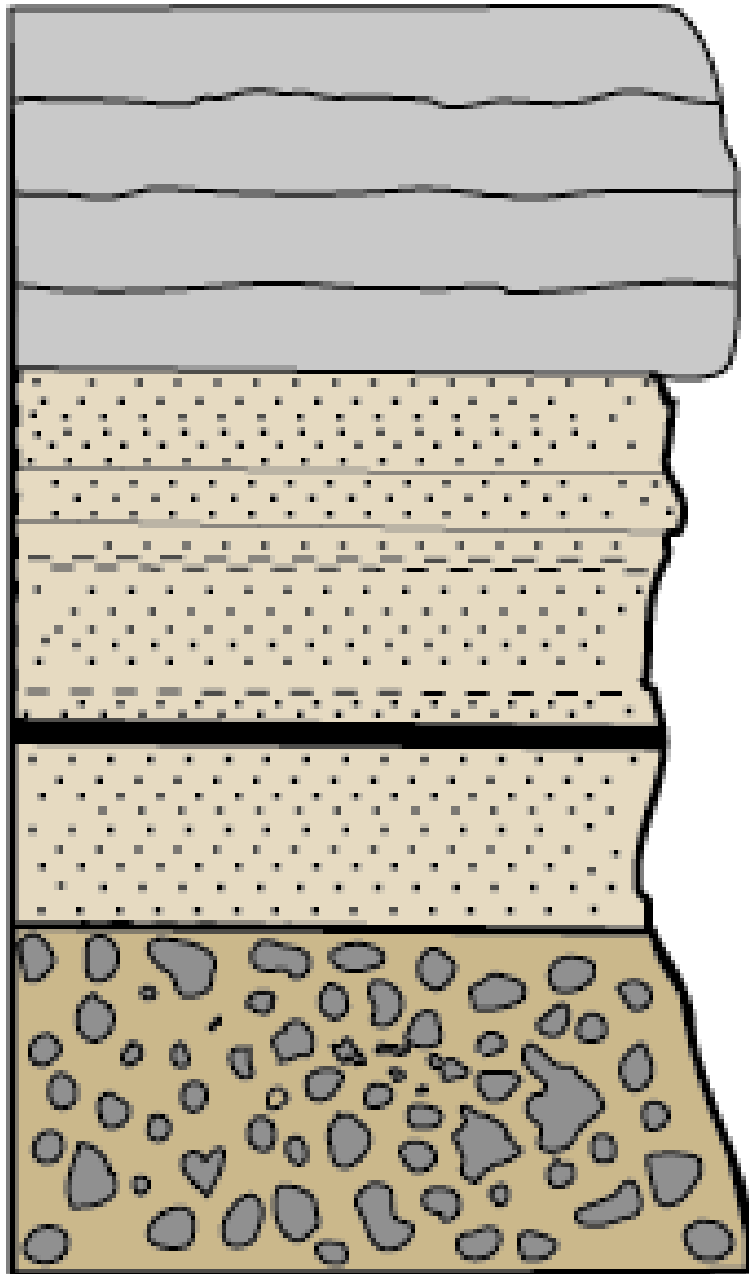


Éocène



Quaternaire ancien





**coladas  
basálticas**

**arenisca  
lutita**

**carbón**

**conglomerado  
glacial**

┌  
Fósiles de  
Glossopteris  
└

Alexandre Du Toit

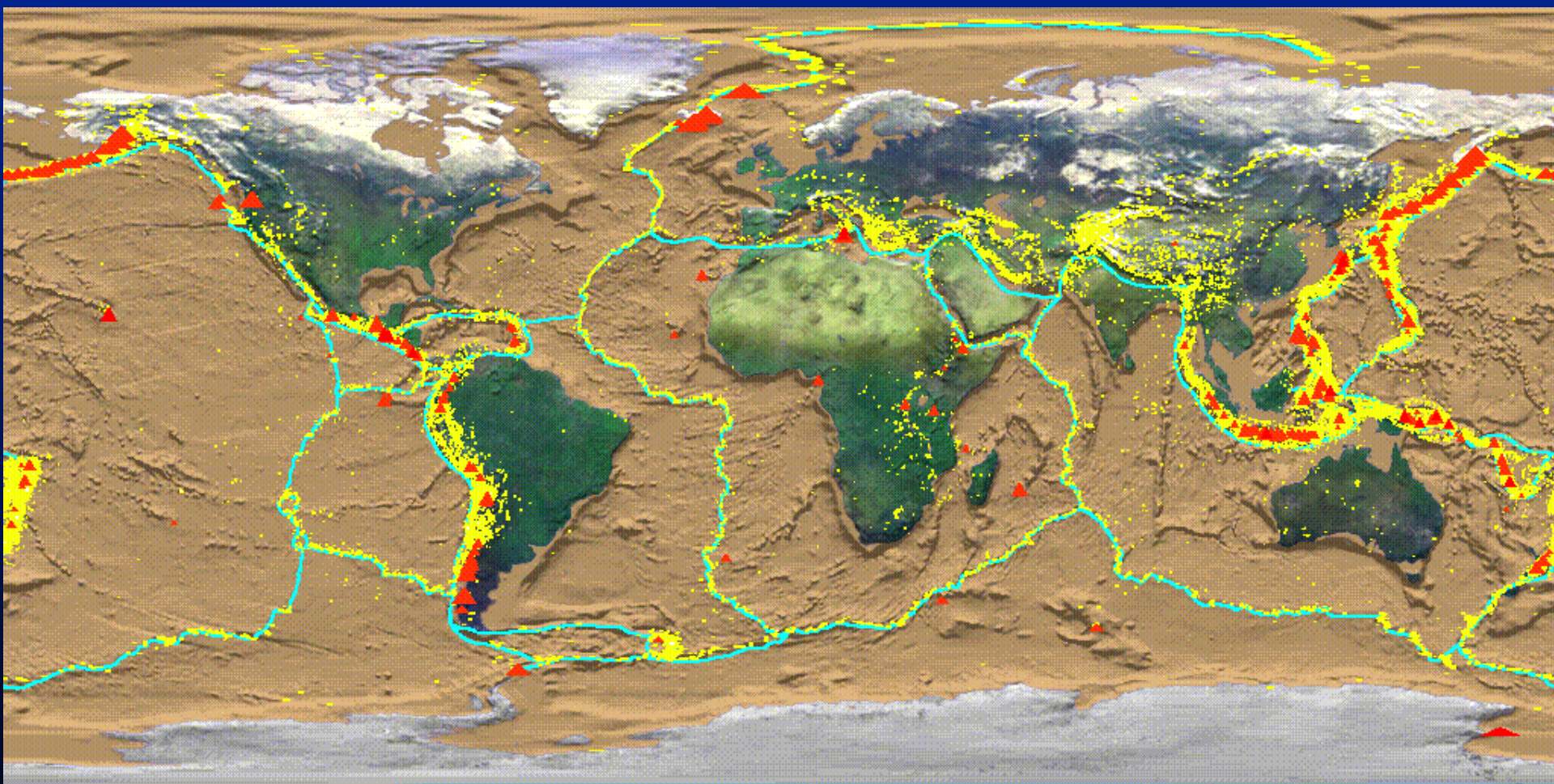
Our Wandering  
Continents, 1927



El mapa de  
Du Toit  
con  
Gondwana  
y  
Laurencia

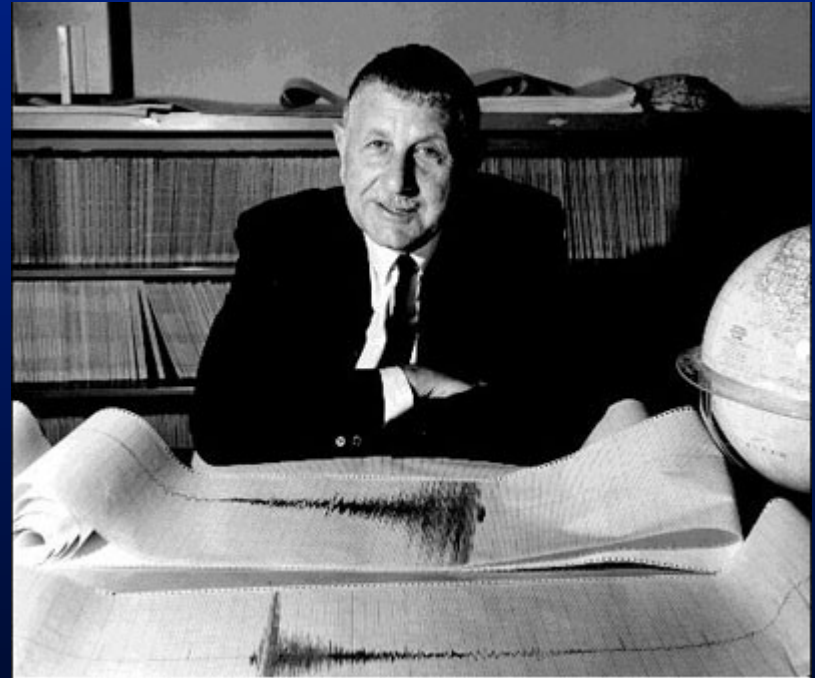


Pero esto todo quedó en veremos.

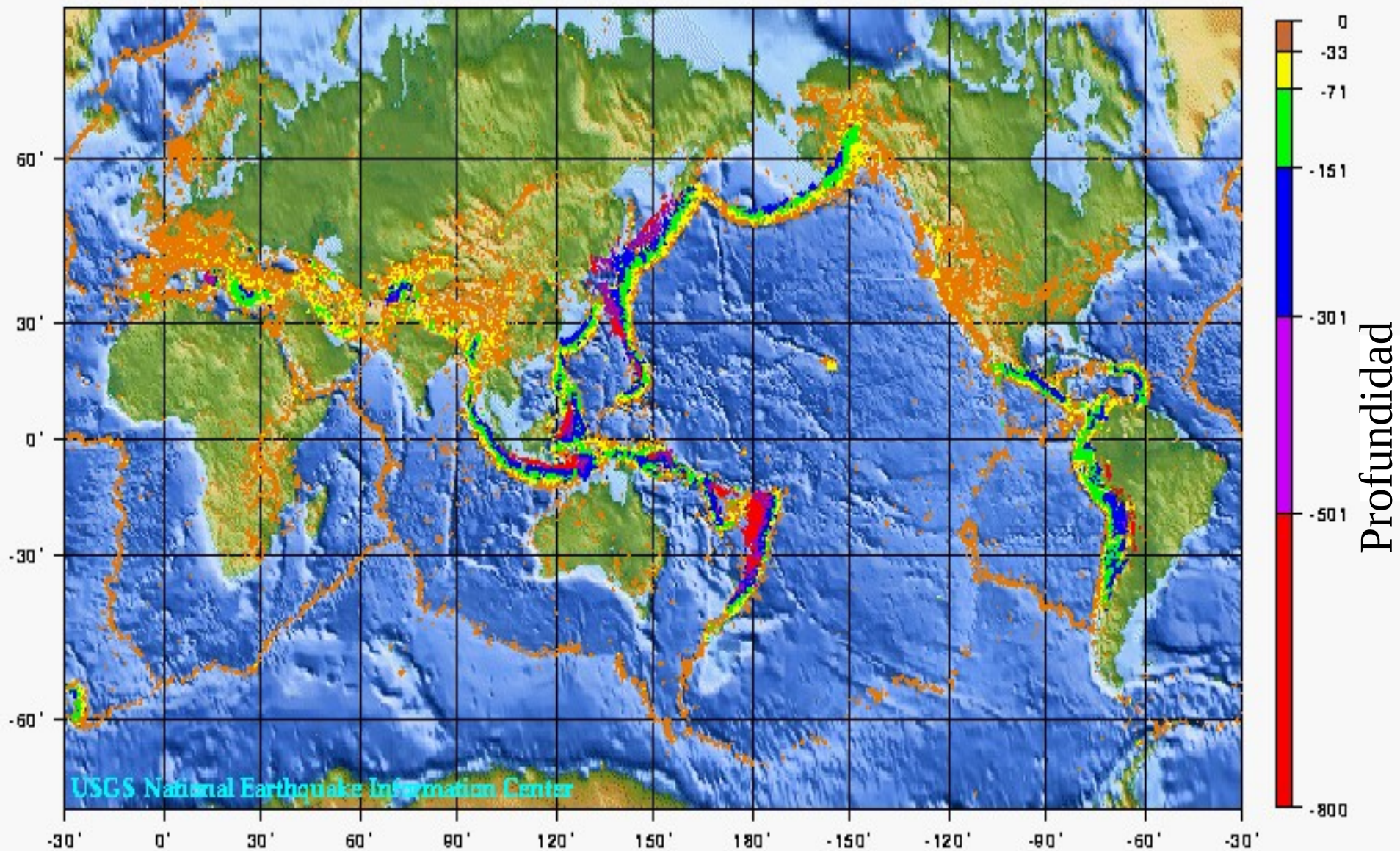


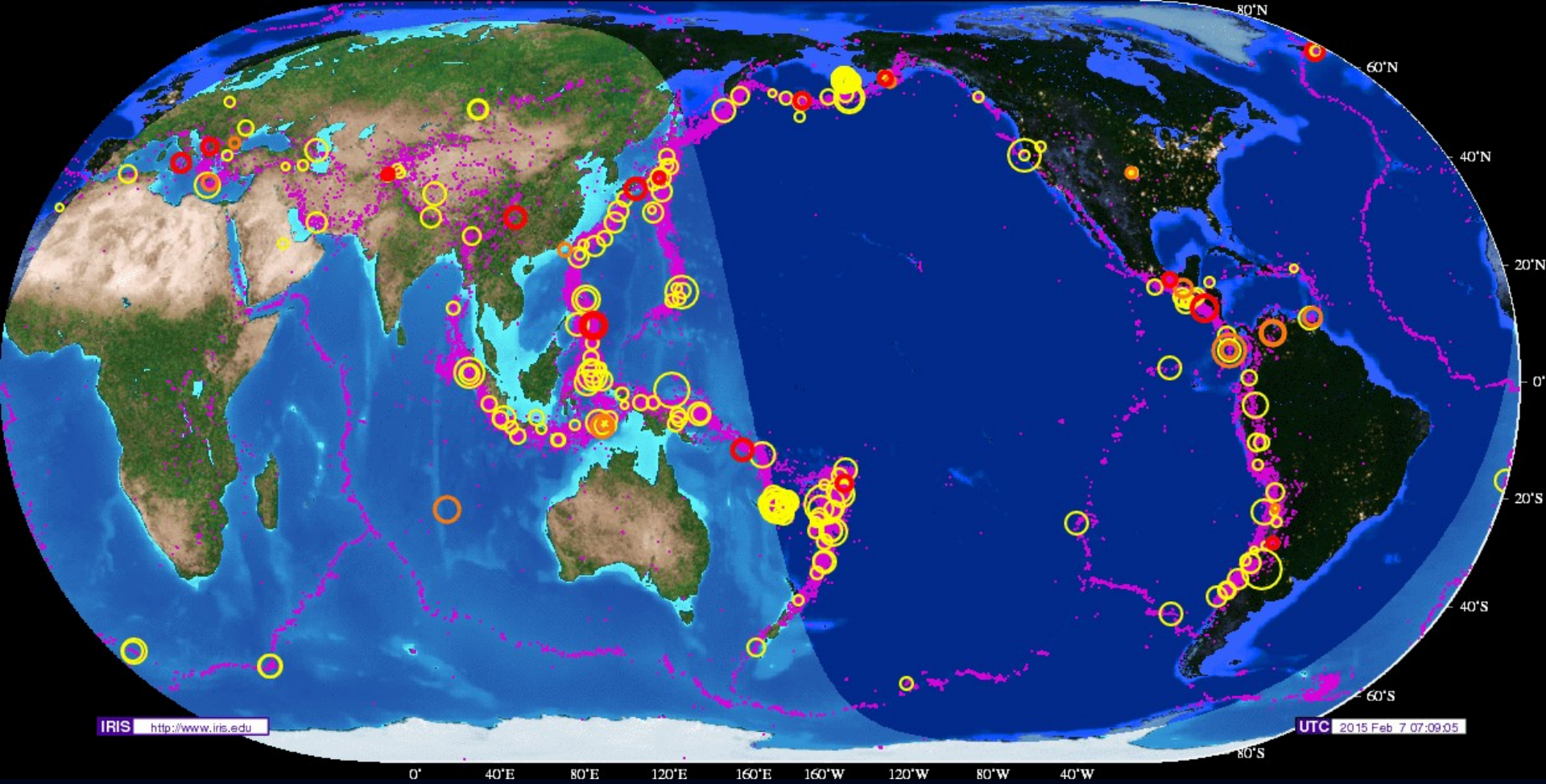
# *Cual es la distribución 3D de los sismos en la Tierra?*

- ✓ Hugo Benioff
- ✓ Kiyoo Wadati



# Sismicidad mundial 1975-1995



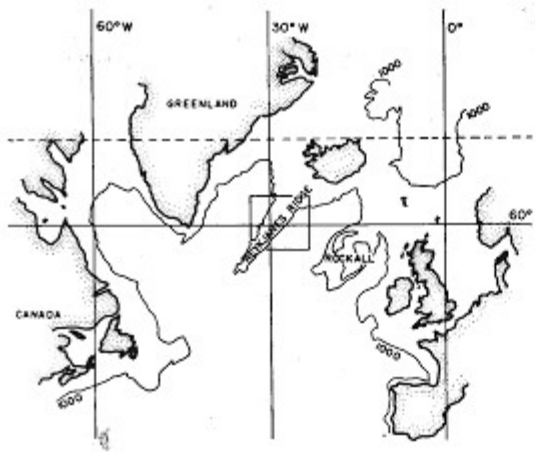




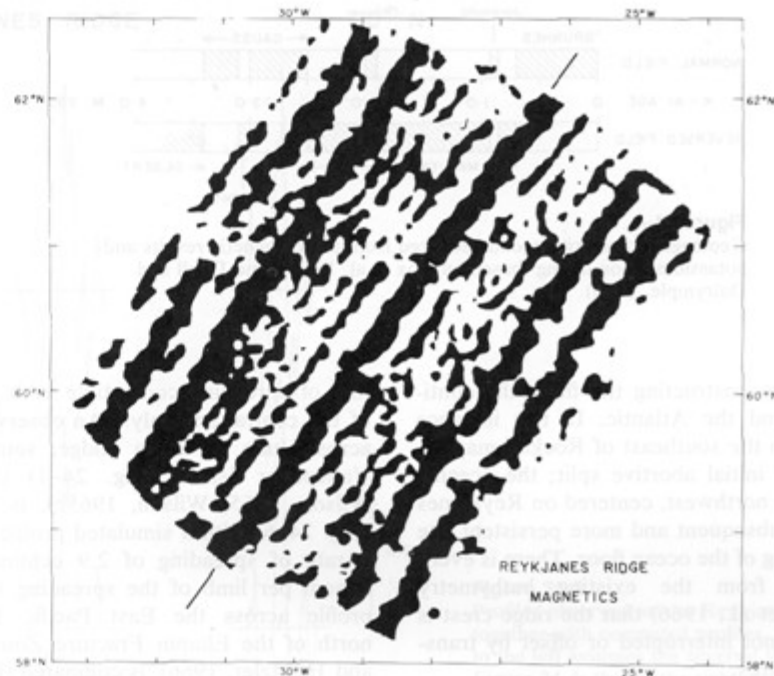


Harry Hess, 1950

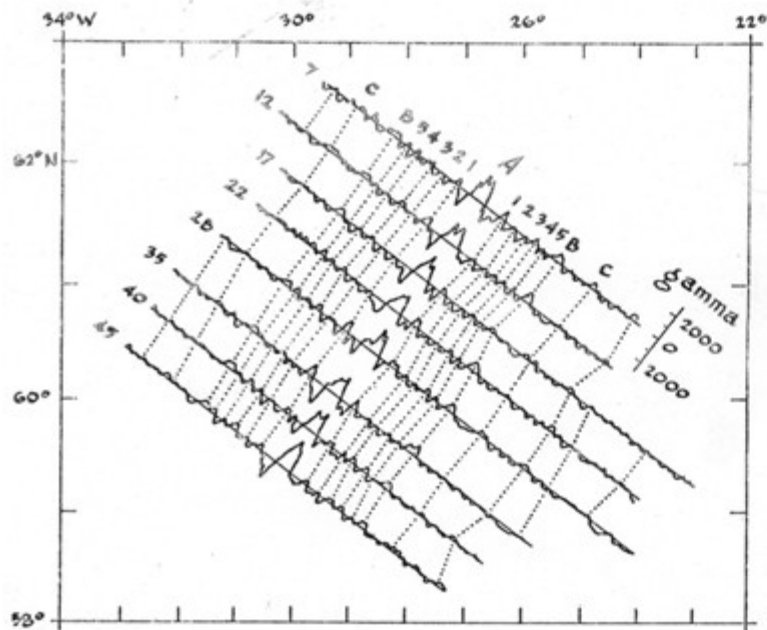




**Fig. 6** Location of the Reykjanes Ridge, SW of Iceland. The area of Fig. 7 is indicated by the box.



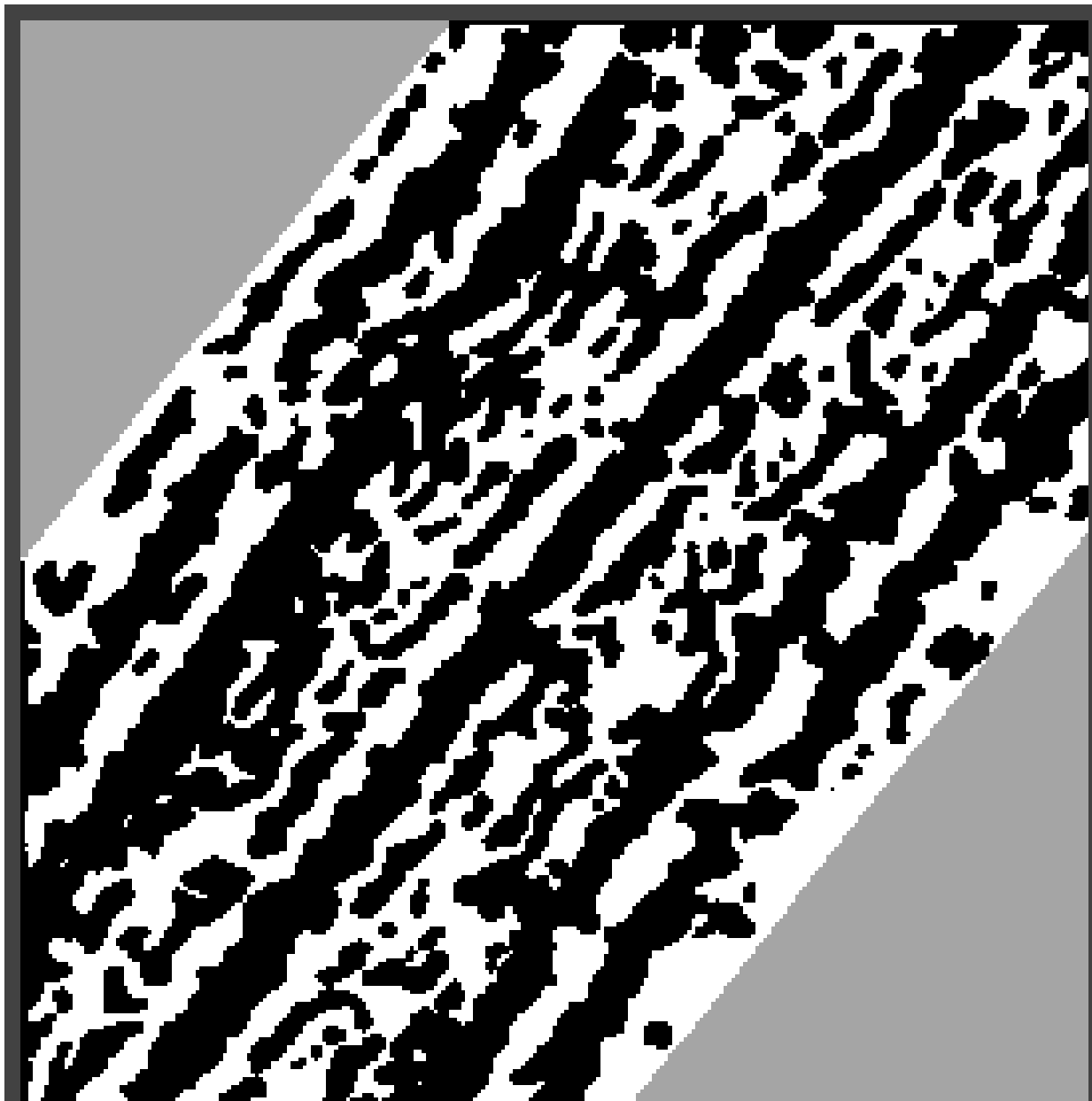
**Fig. 7** Magnetic anomalies near the crest of the Reykjanes Ridge. Grey areas represent positive anomalies, white areas negative anomalies.



**Fig. 8** Profiles of geomagnetic anomaly across the Reykjanes Ridge projected on lines at right angles to the ridge. A indicates the axis of the ridge.

Vine & Matthews,  
1963

Morley

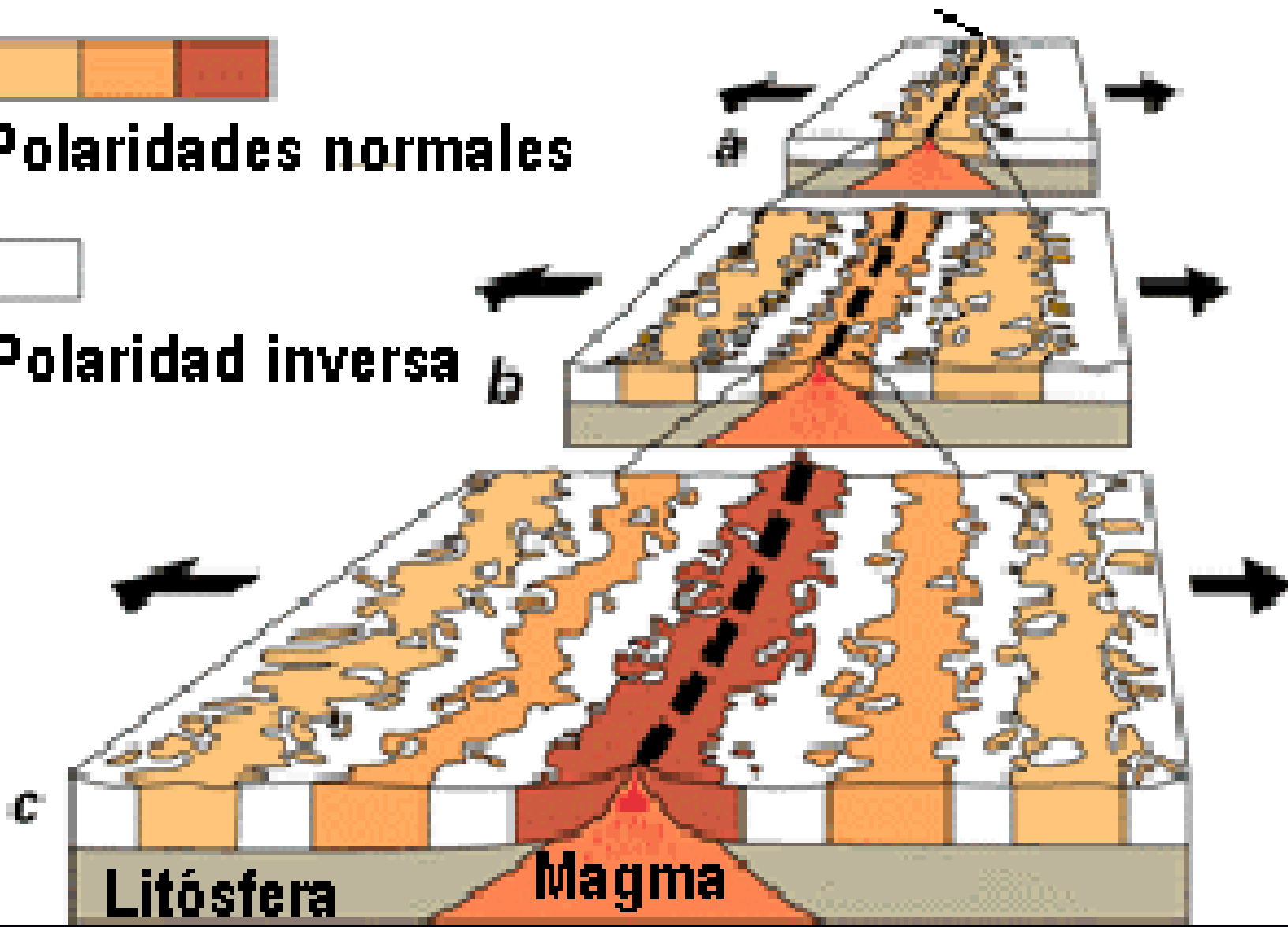




**Polaridades normales**



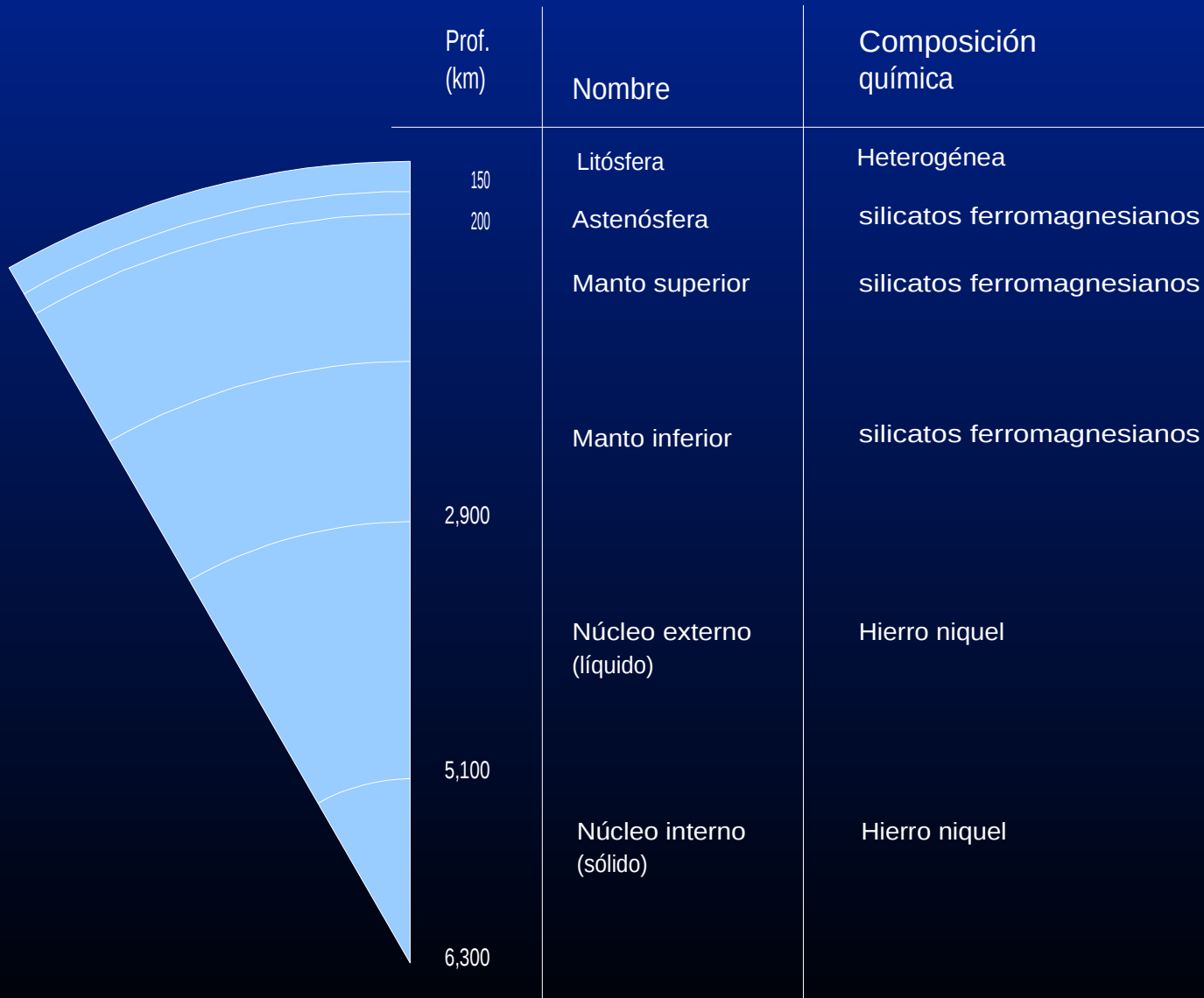
**Polaridad inversa**

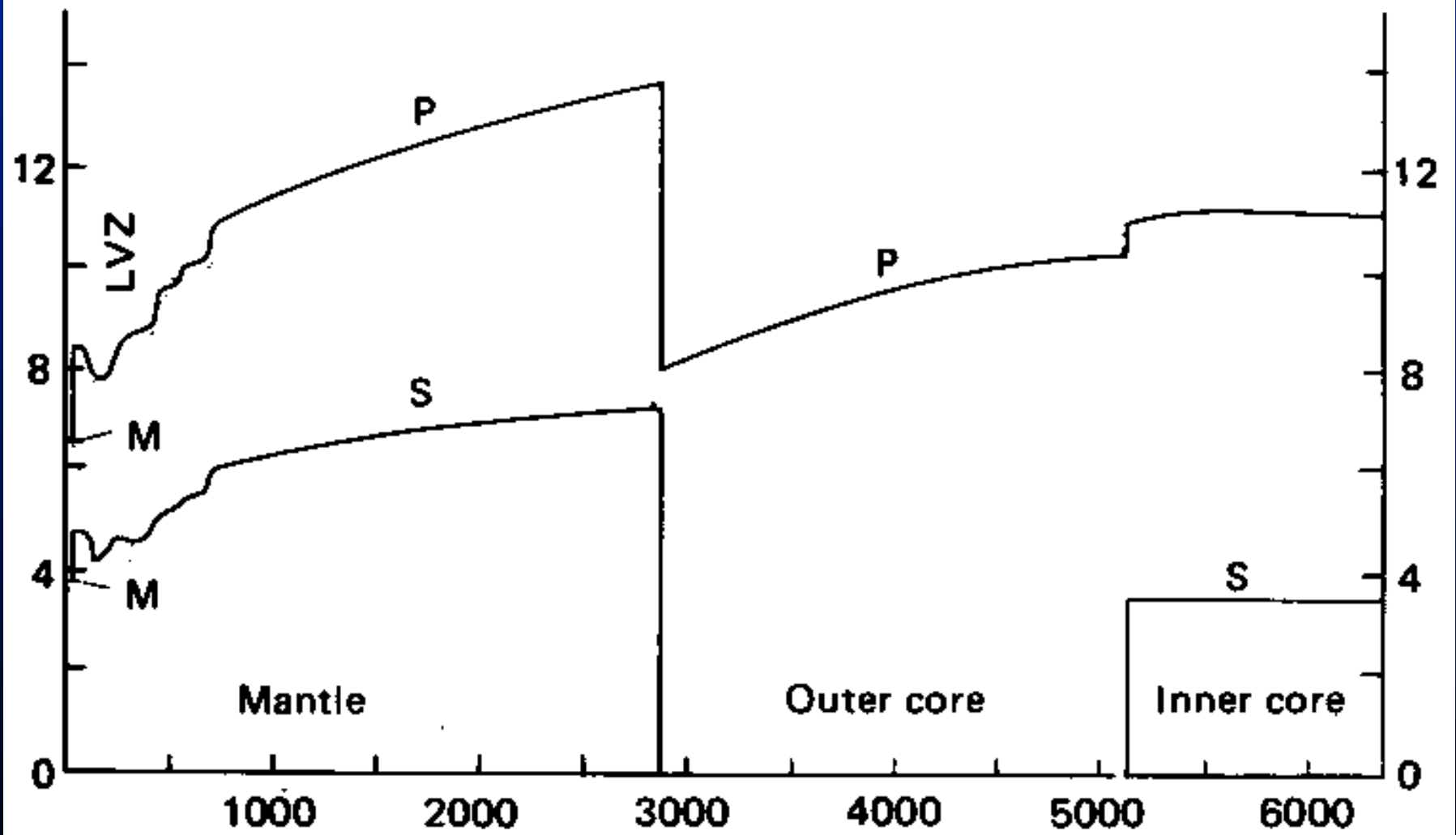


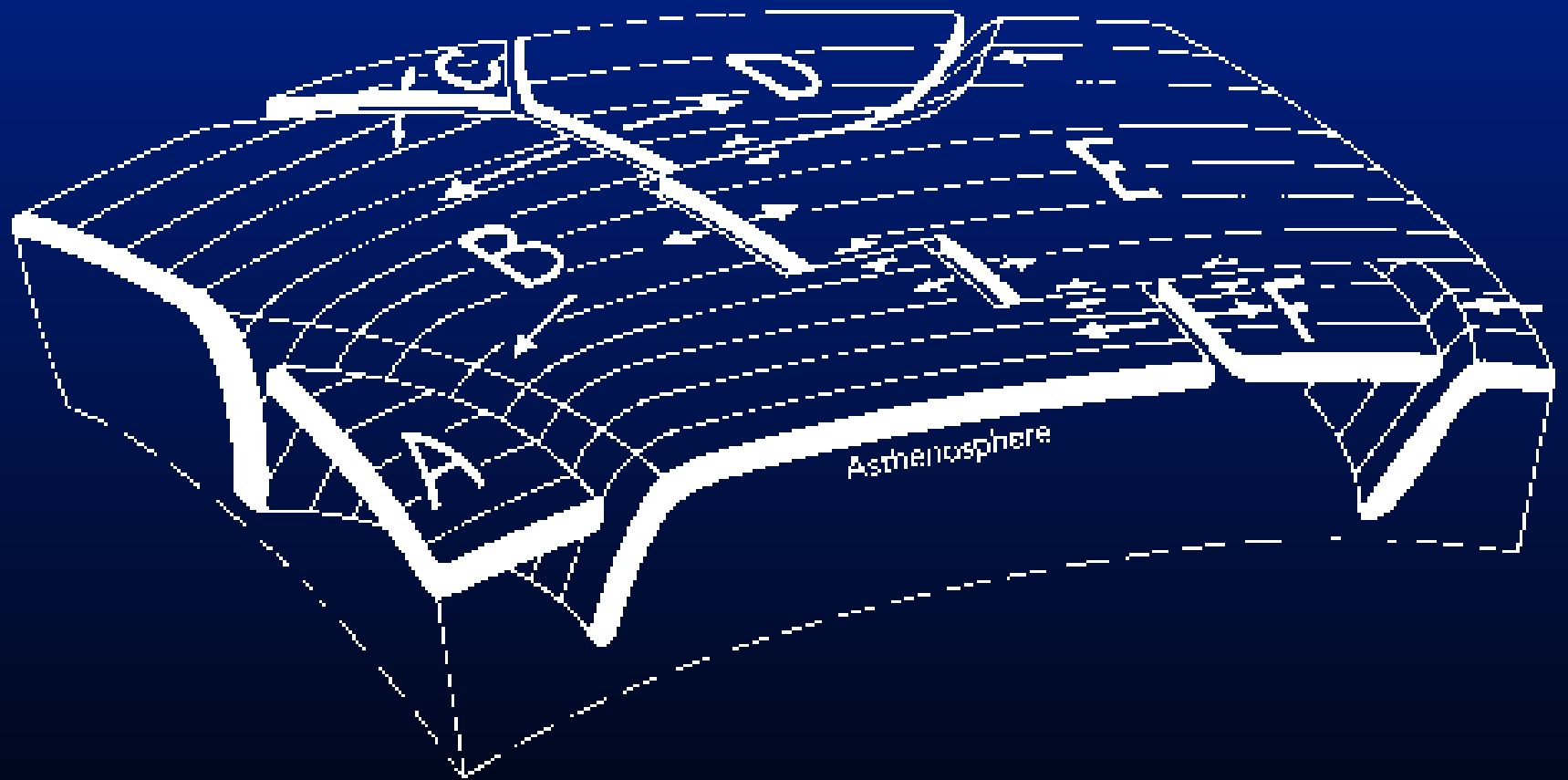
**Litósfera**

**Magma**

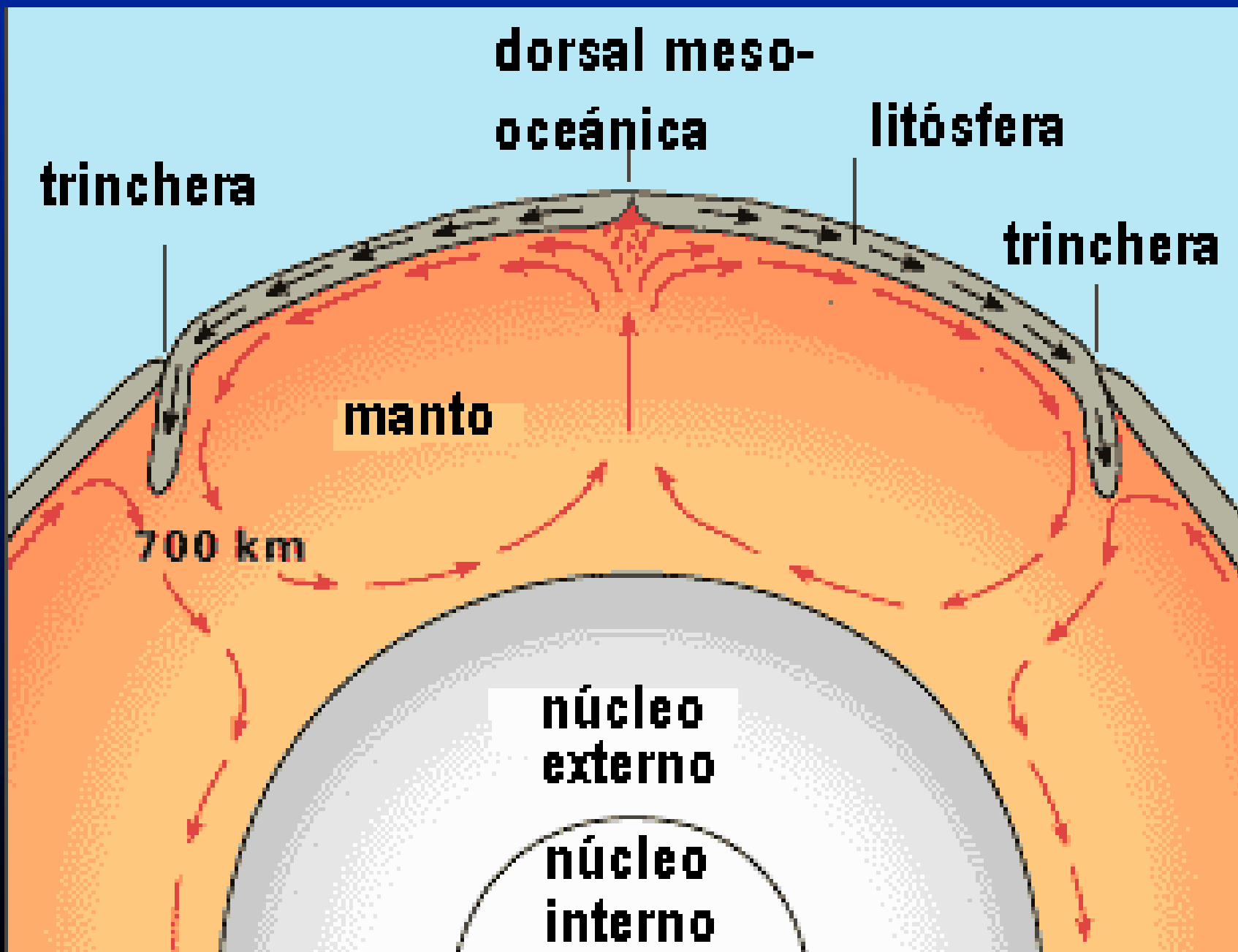
# Estructura esquemática del interior de La Tierra

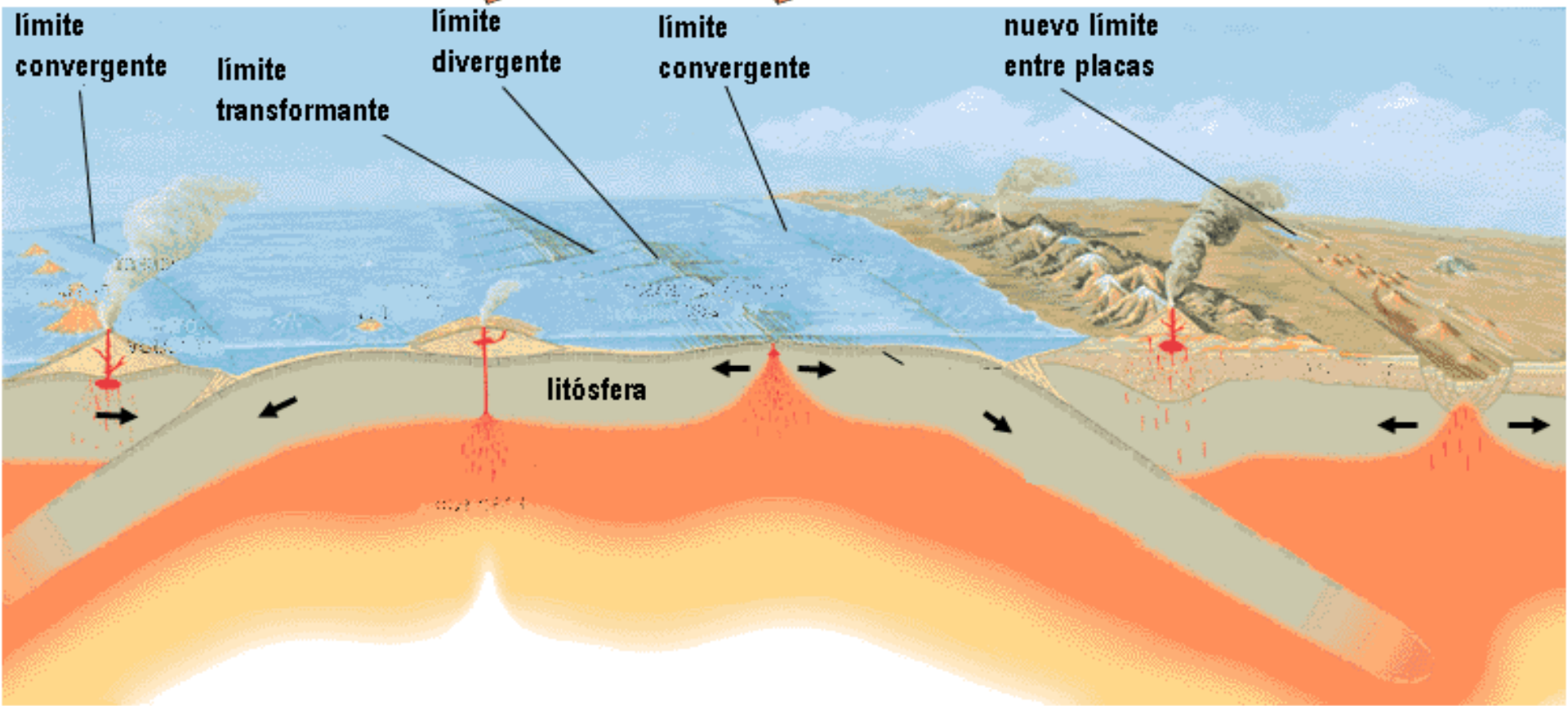
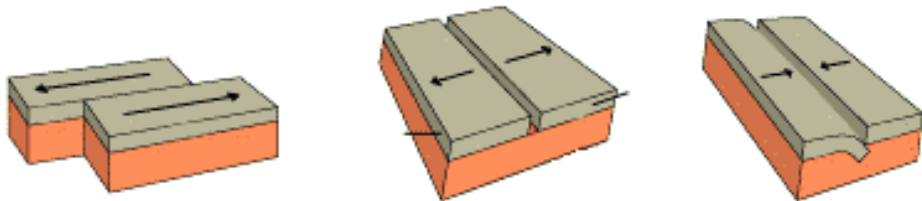


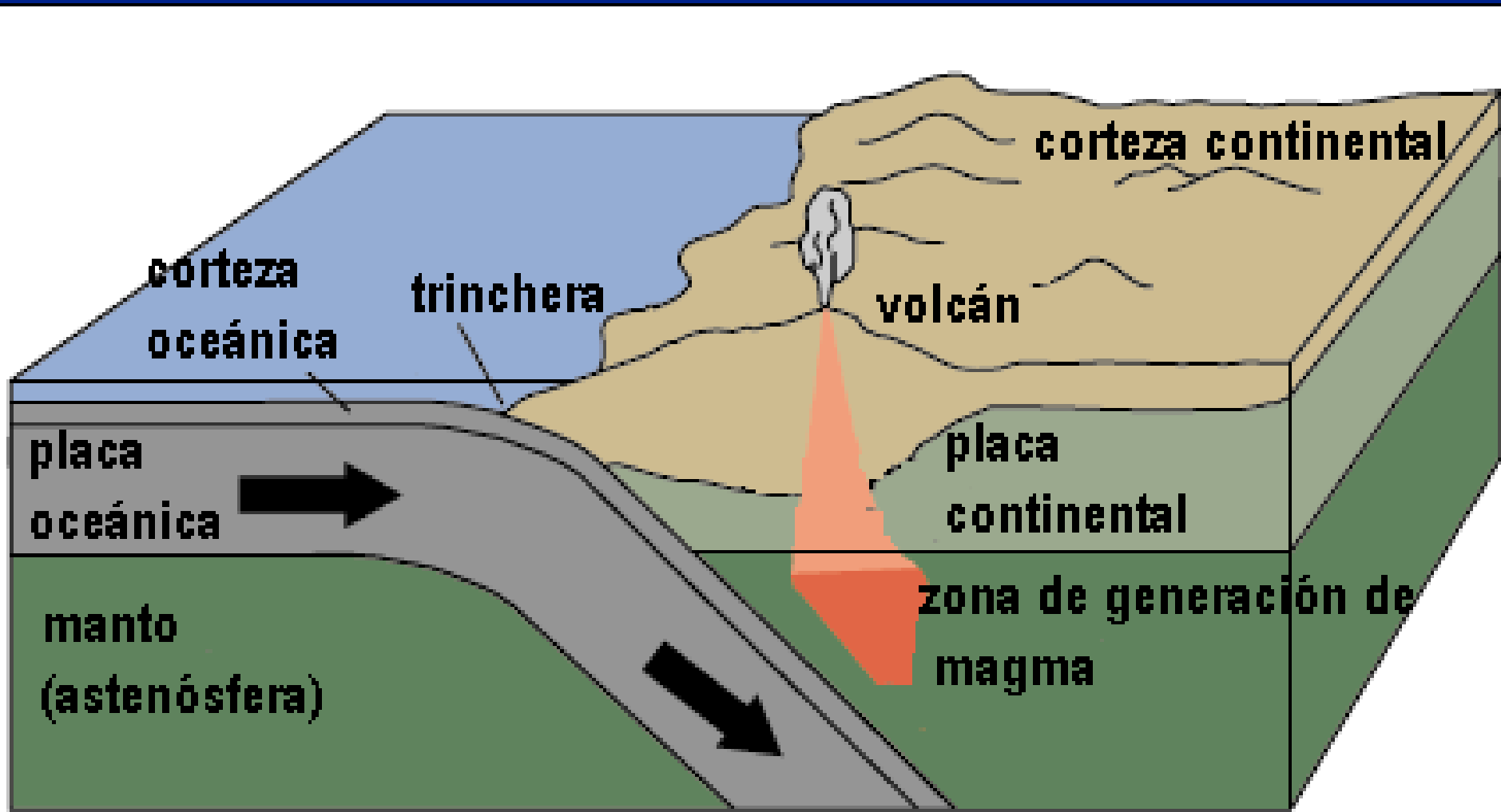


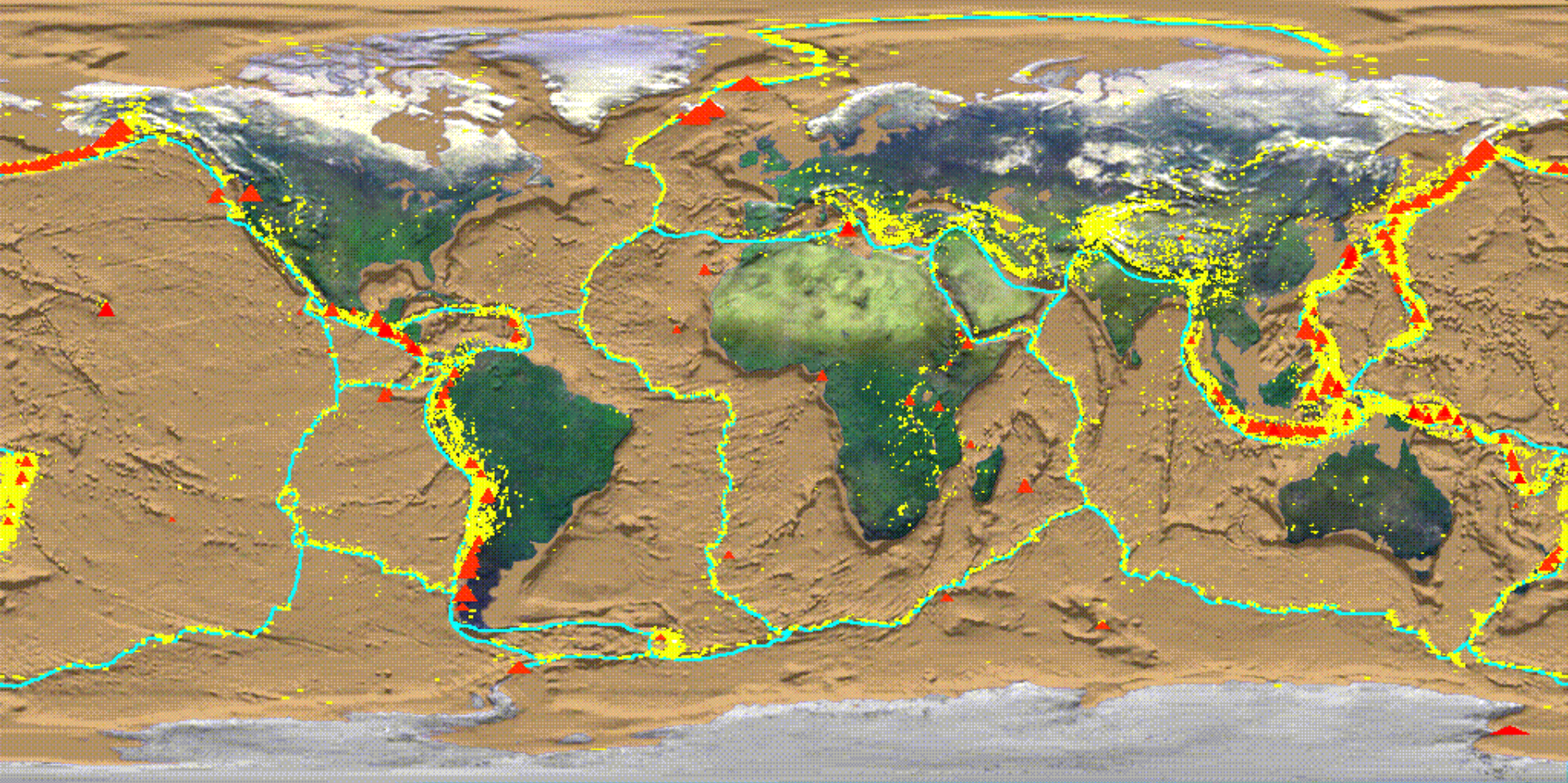


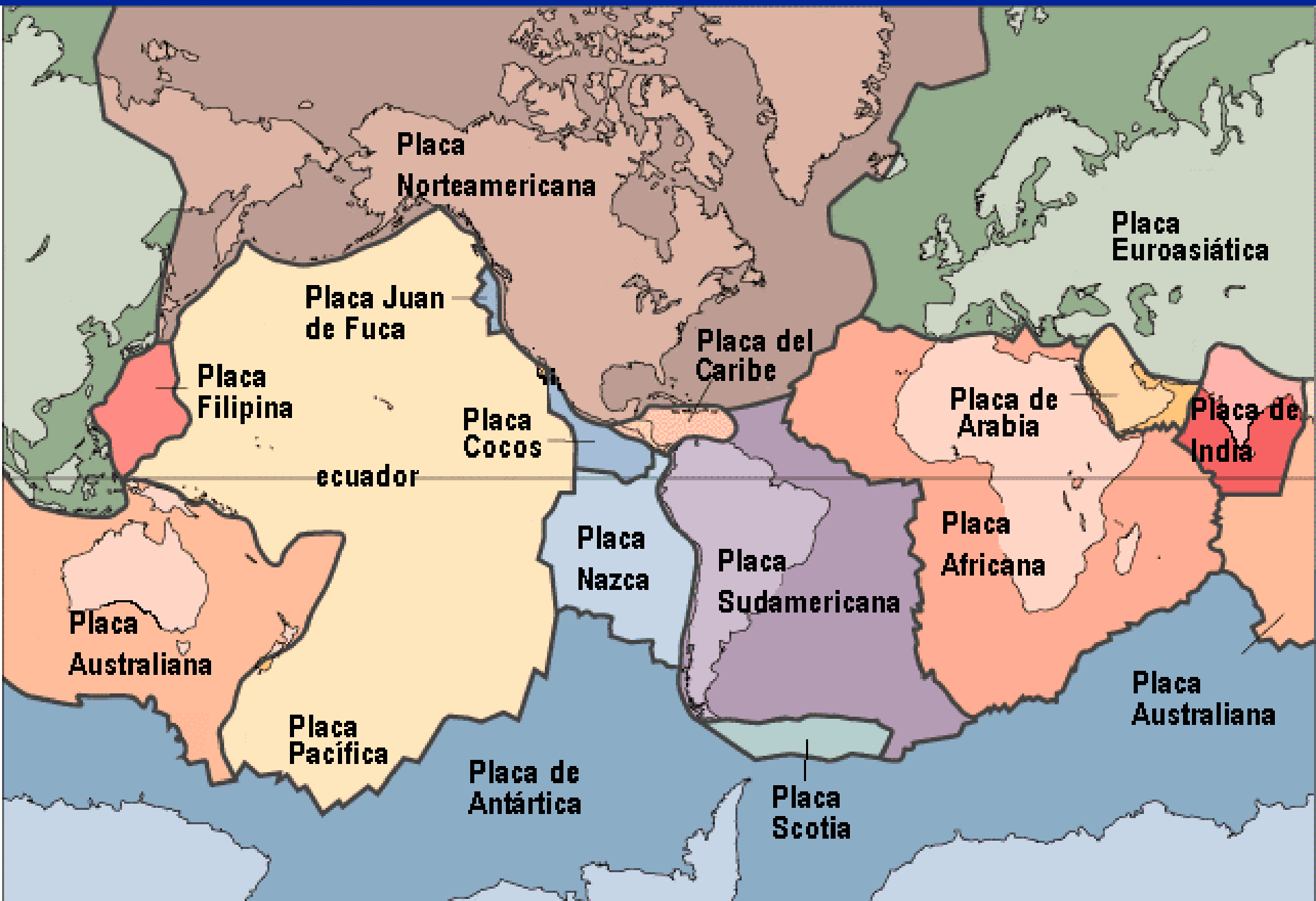


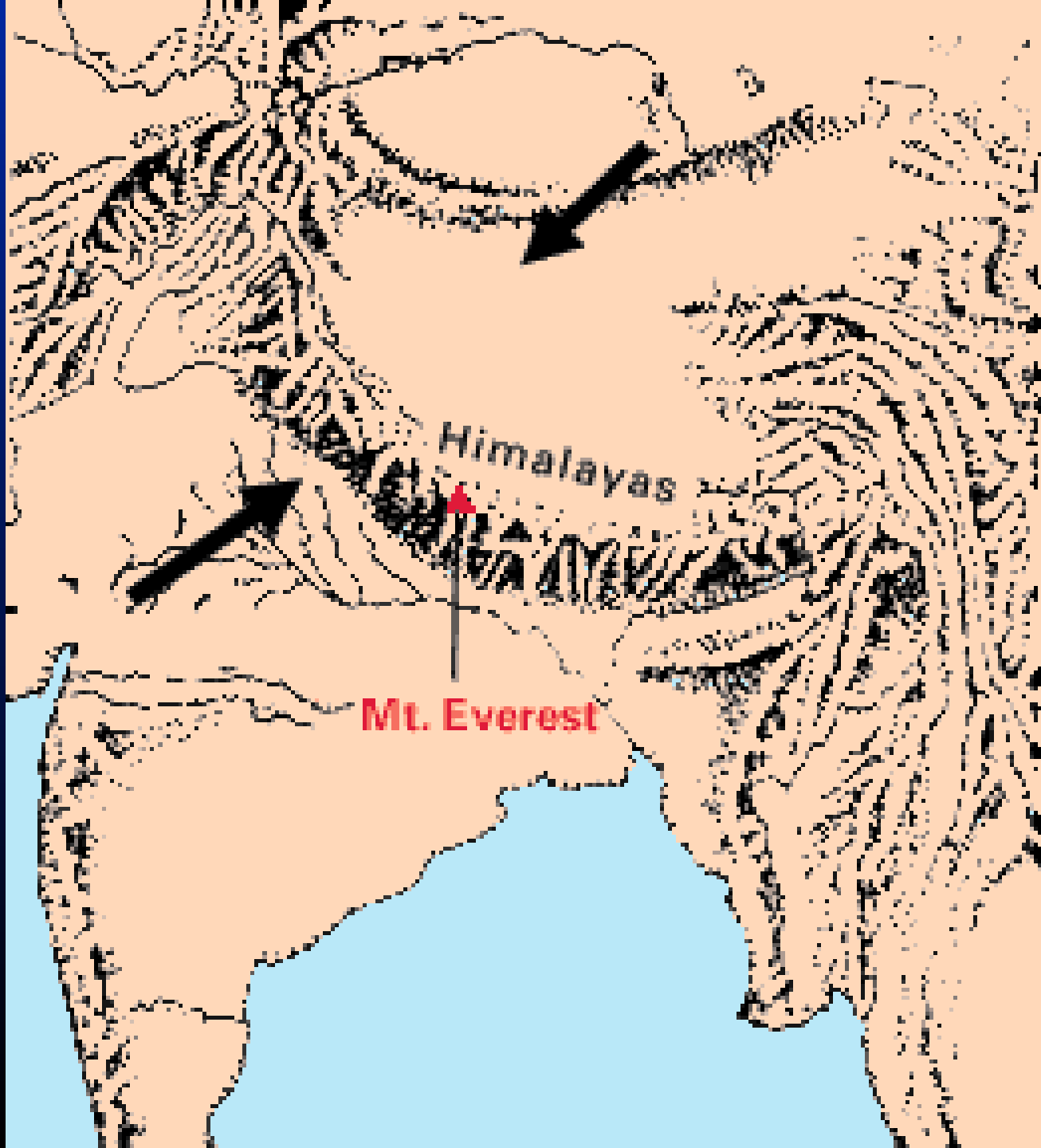


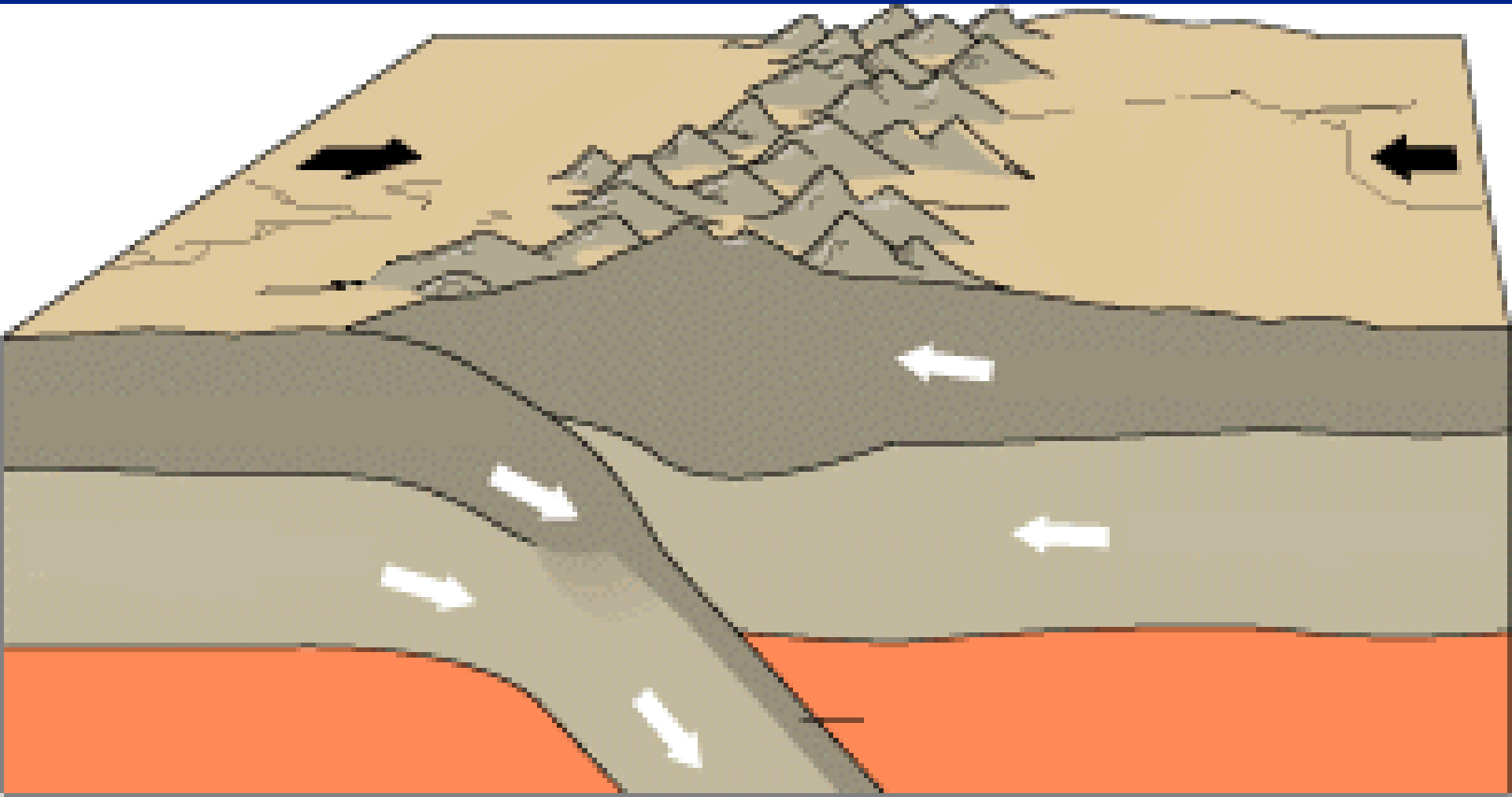


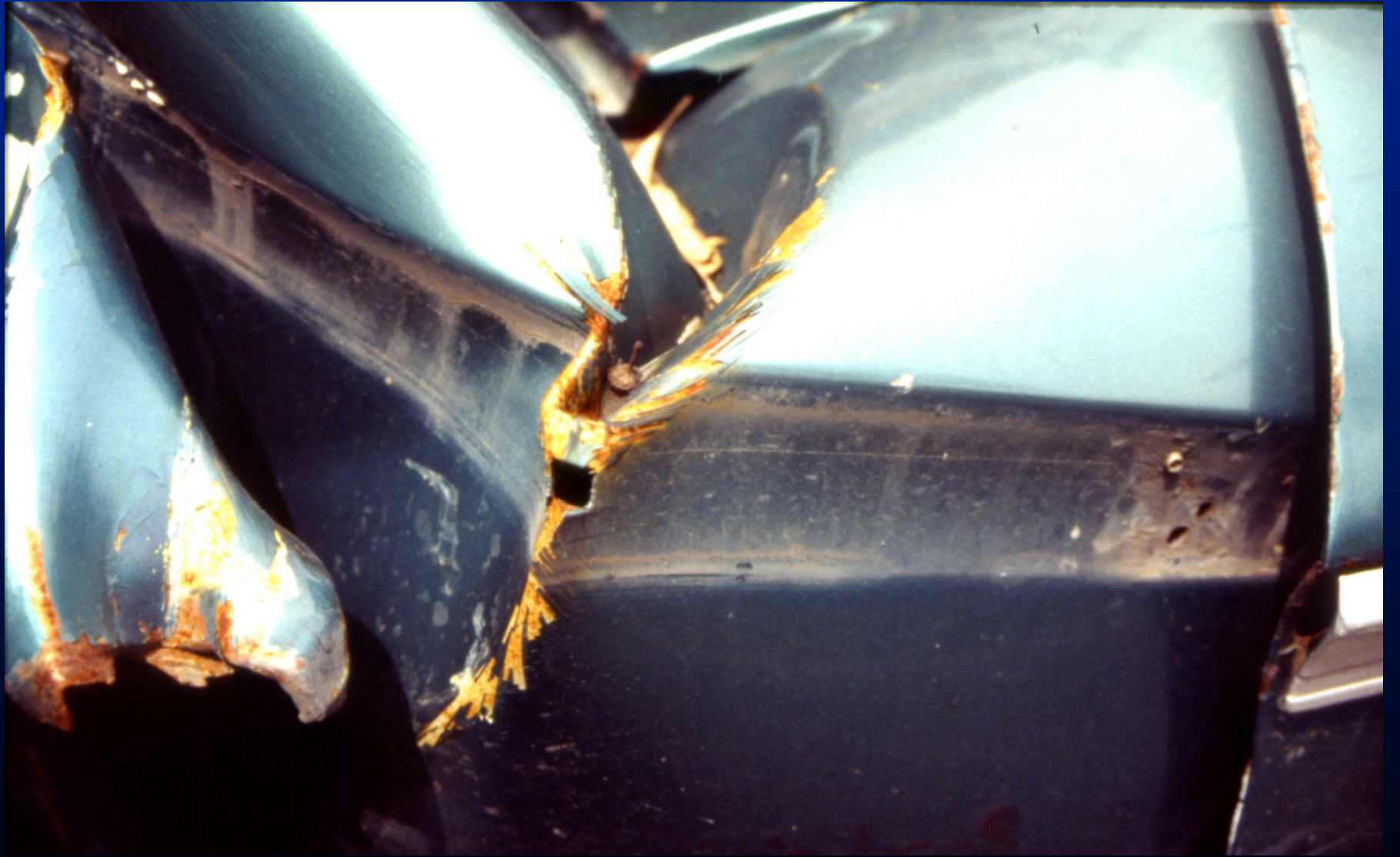
















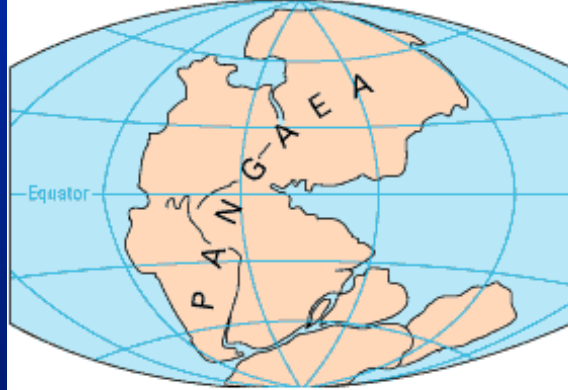




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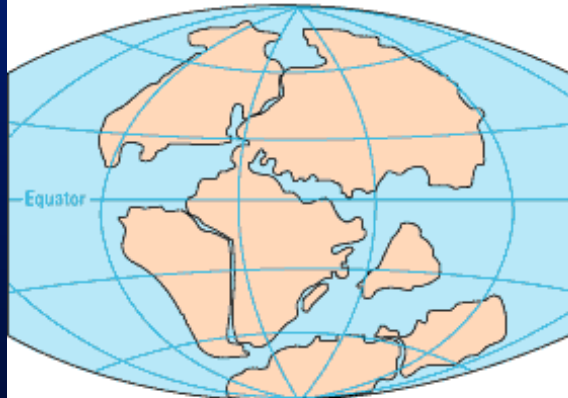




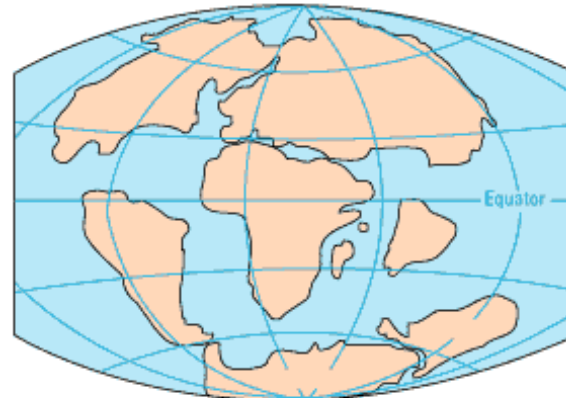
**Pérmico**  
(hace 225 millones de años)



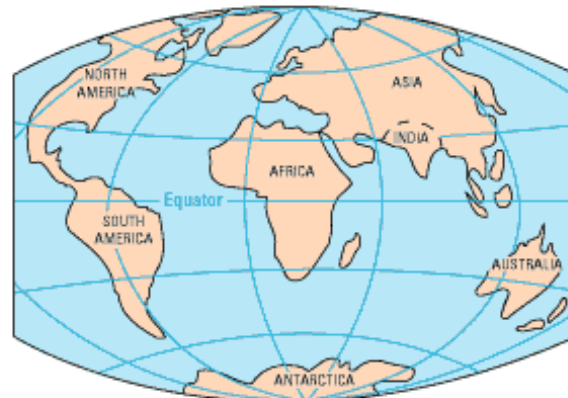
**Triásico**  
(hace 200 millones de años)



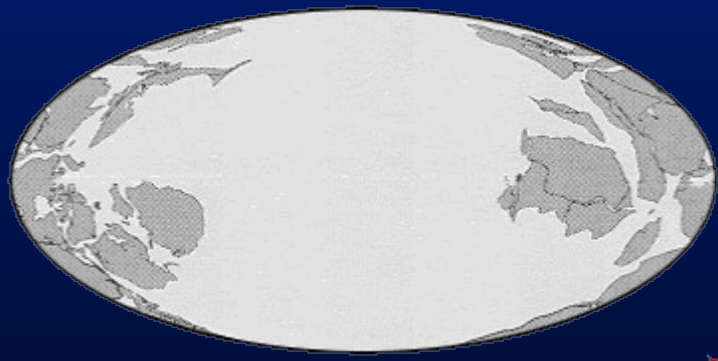
**Jurásico**  
(hace 135 millones de años)



**Cretácico**  
(hace 65 millones de años)



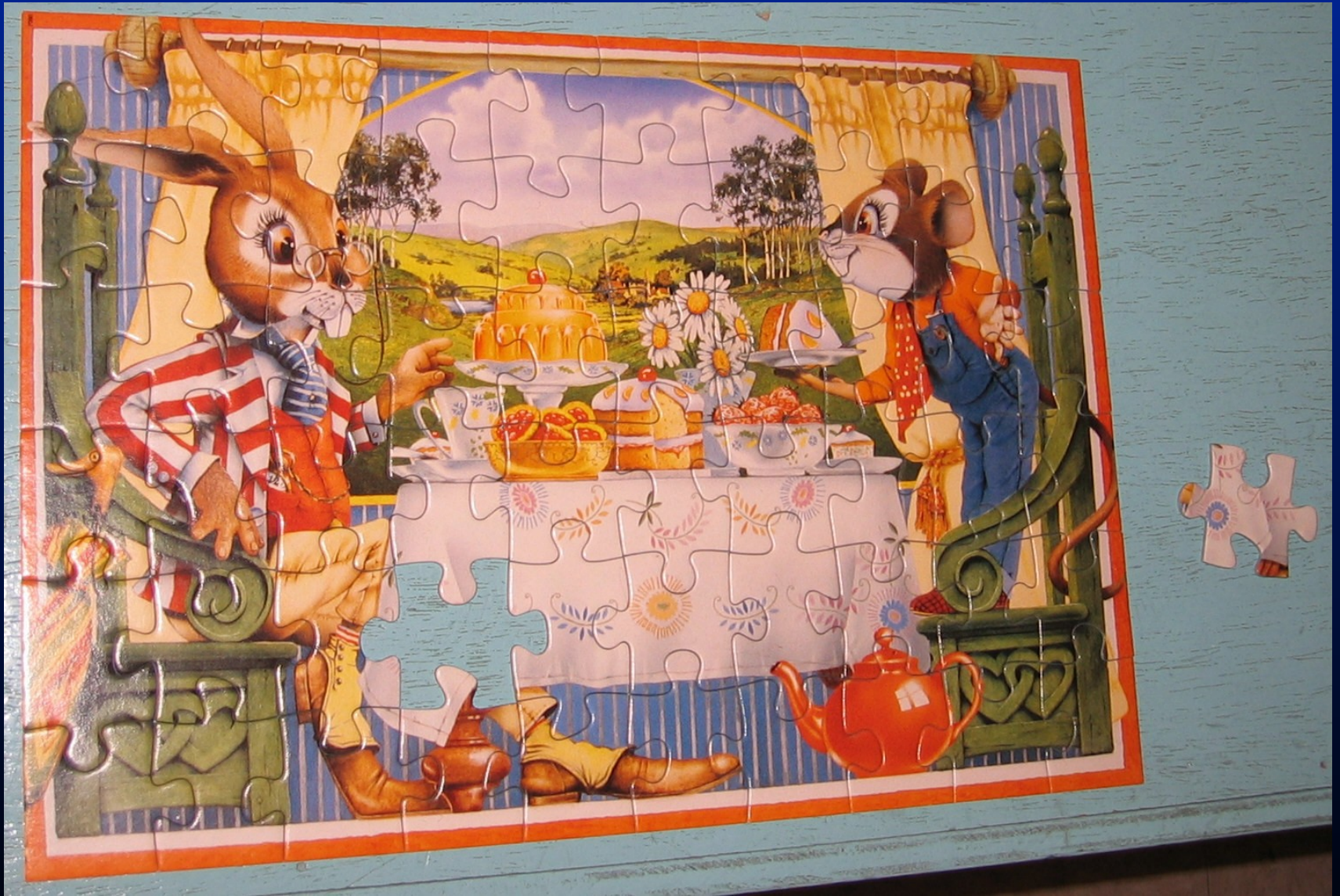
**presente**



Películas Atwater







Gracias!