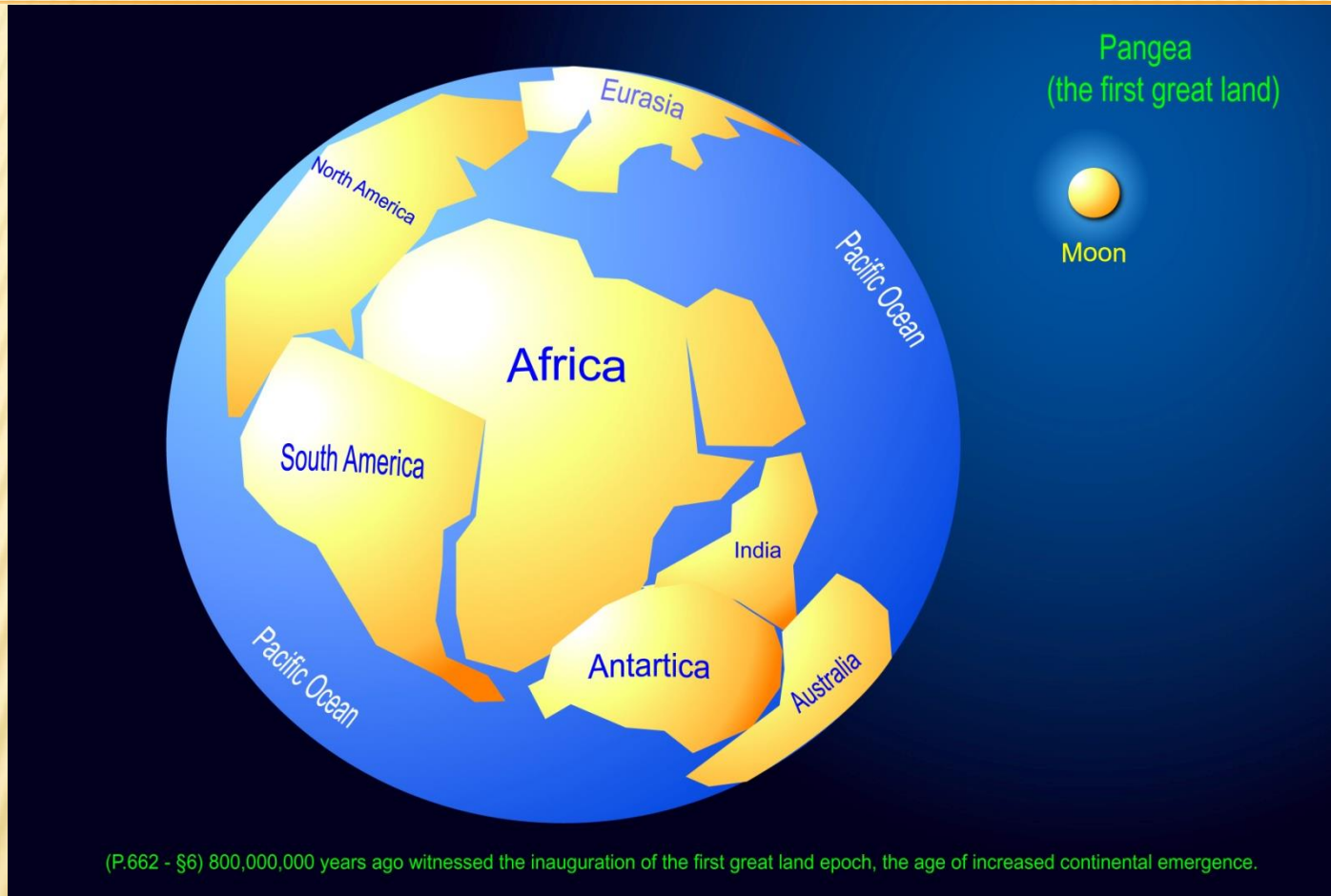


# INTRODUCTION TO CONTINENTAL DRIFT

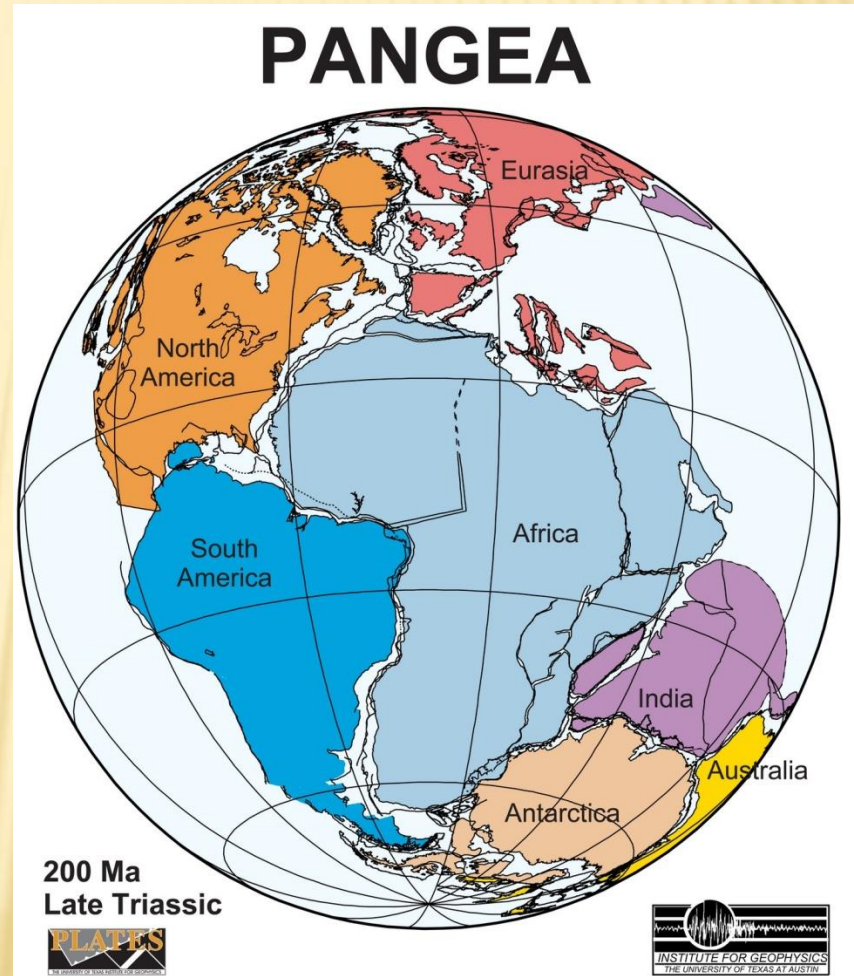


200 million years ago the continents were all joined together in one big massive super continent he called Pangaea



# **THE FORMATION OF PANGEA.**

- ✘ Alfred Wegner cited in 1912 geographical evidence of the continents being one giant jigsaw puzzle.
- ✘ As the molten rock beneath the seafloor spread, the continents drifted apart from each other.







**PERMIAN**  
225 million years ago



**TRIASSIC**  
200 million years ago



**JURASSIC**  
135 million years ago

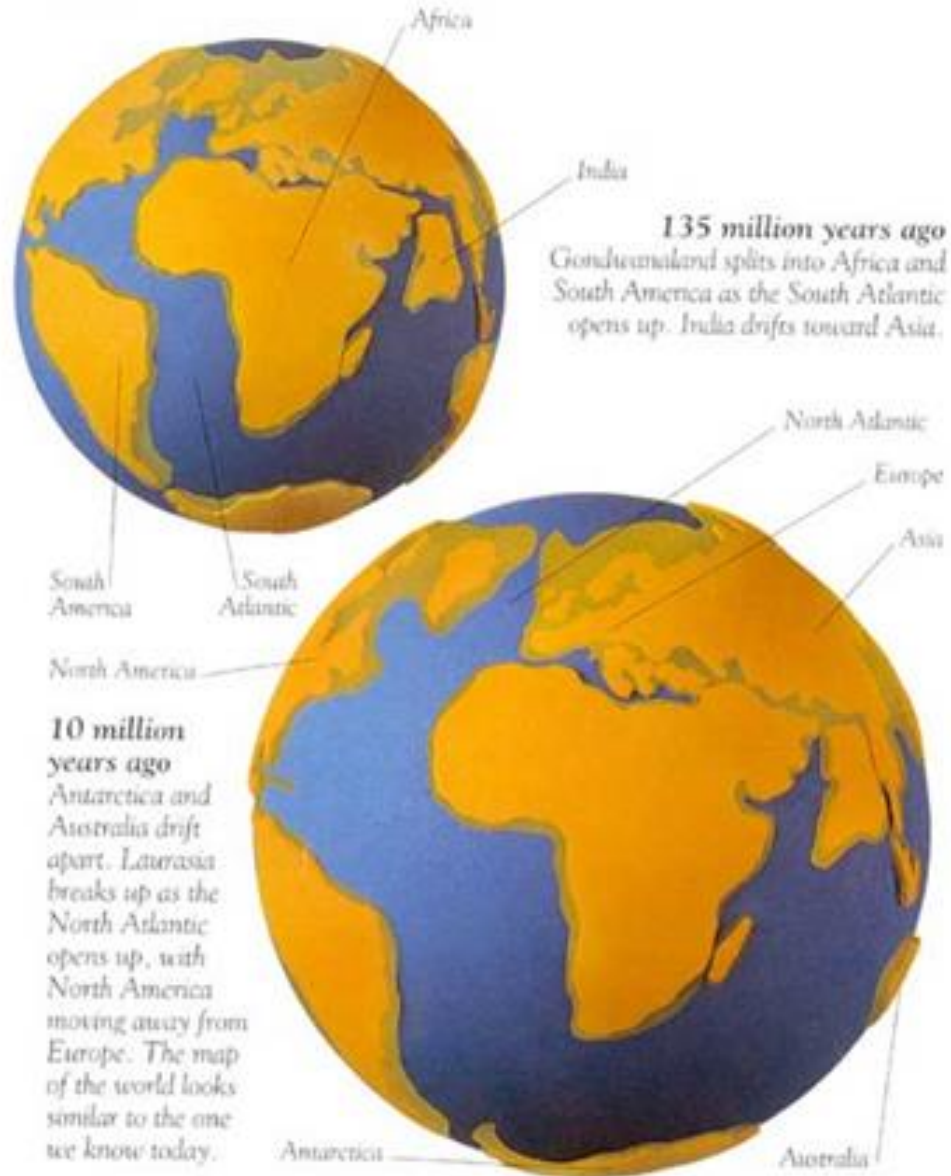
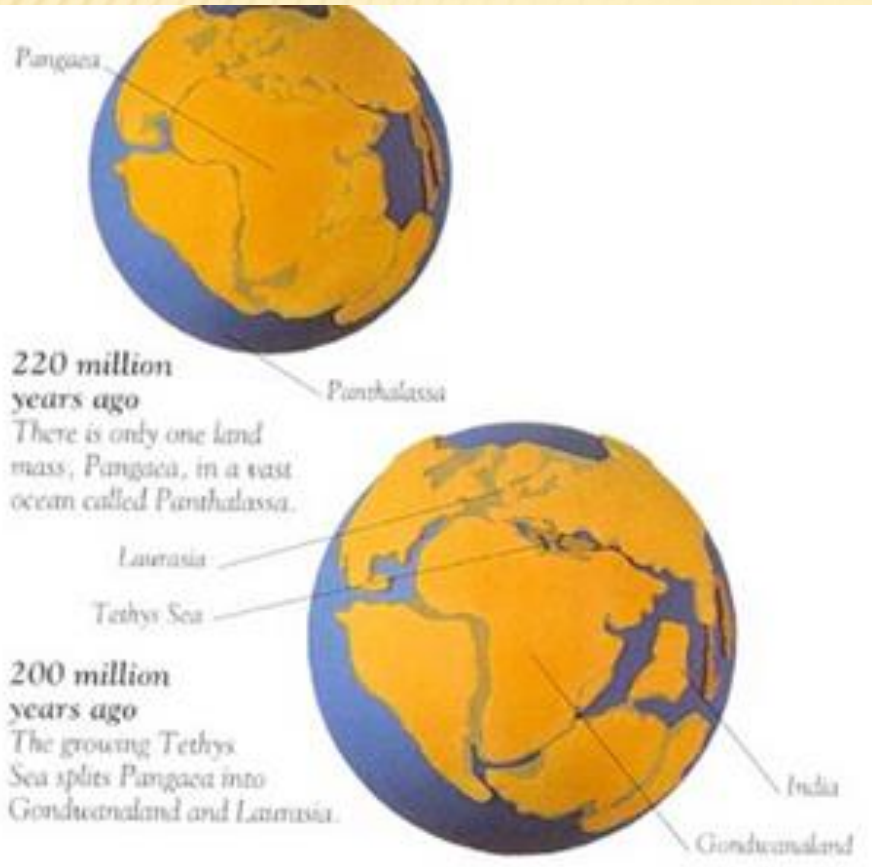


**CRETACEOUS**  
65 million years ago

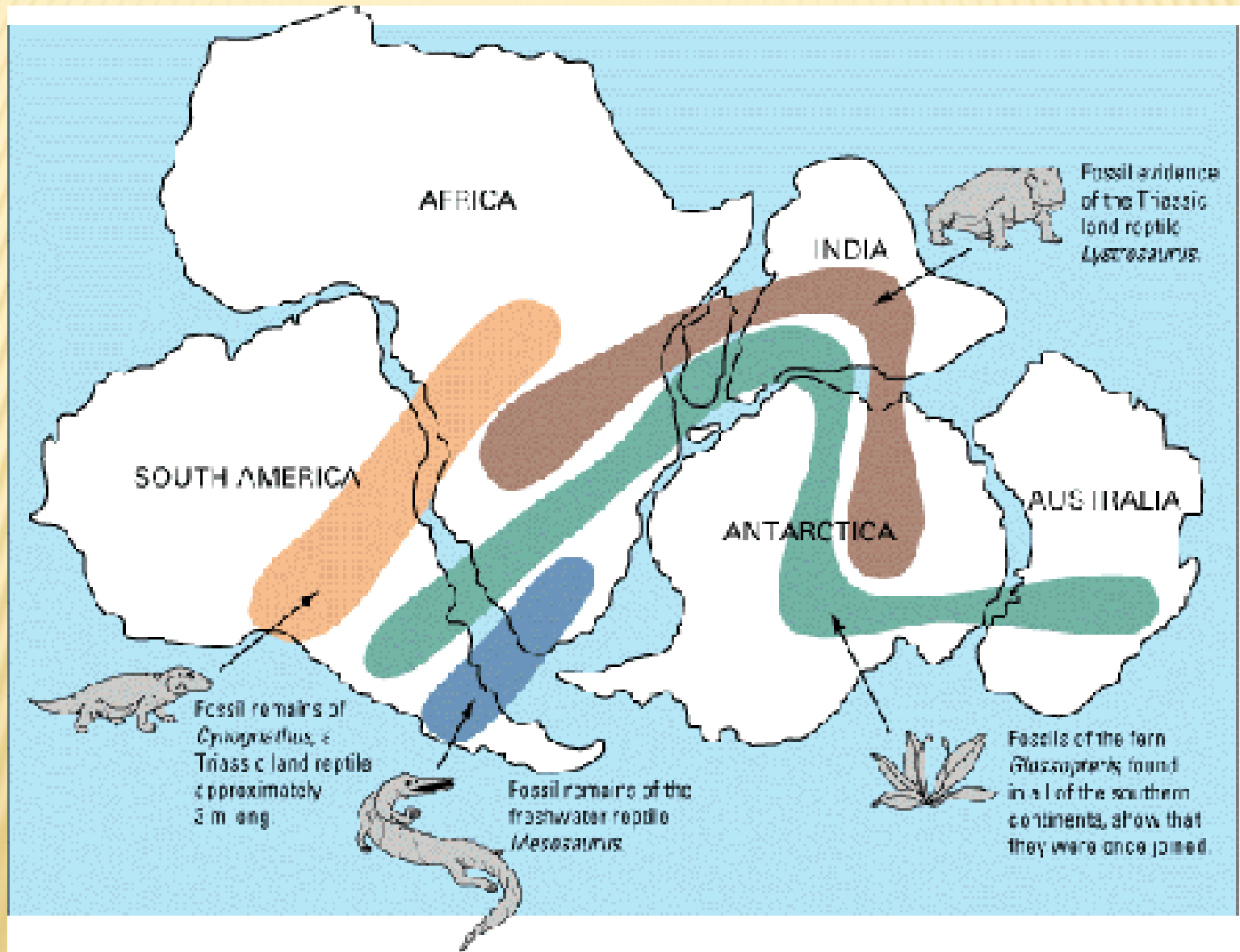


**PRESENT DAY**

The process of drifting continents was prolonged over 250-300 million years, completely separating about 130-100 million years ago.



Zoological Evidence: Old species fossils line up with the same species on what were once connected continents.





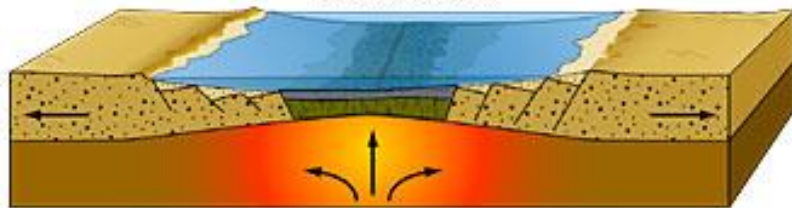
warping, stretching of continent



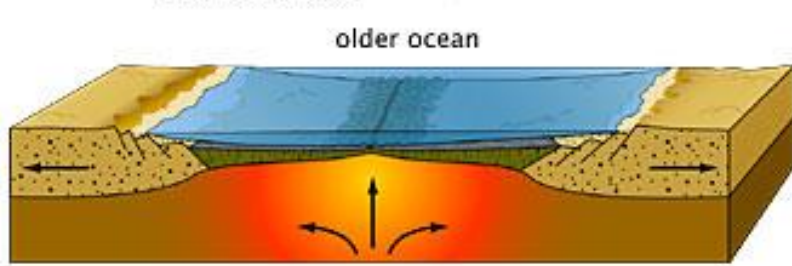
formation of rift valley



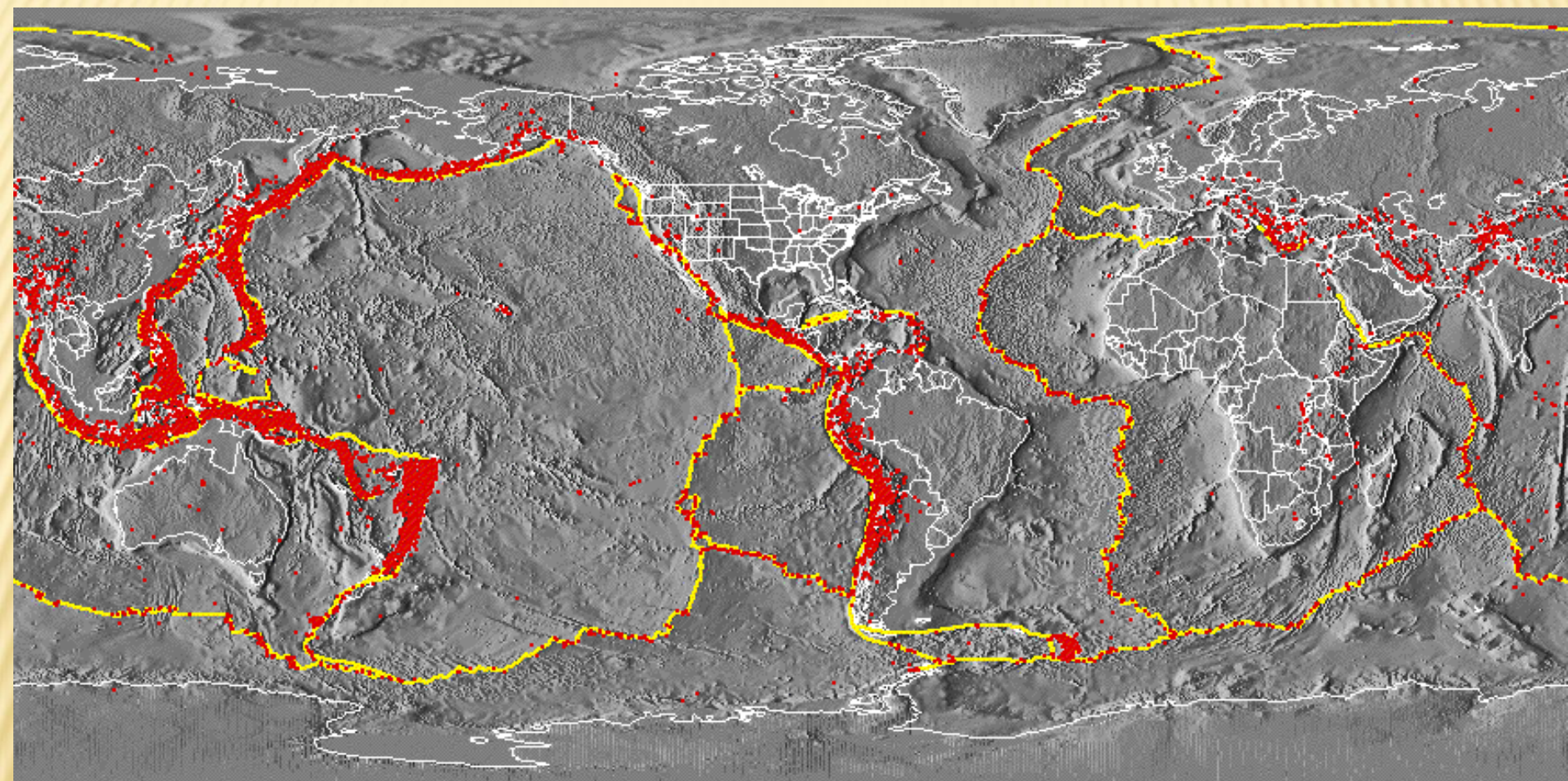
ancient ocean



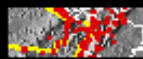
Mid-ocean ridge







Crustal Plate Boundaries



Earthquake Epicenters,  $M > 5$ , 1980-1990  
Coastlines, Political Boundaries

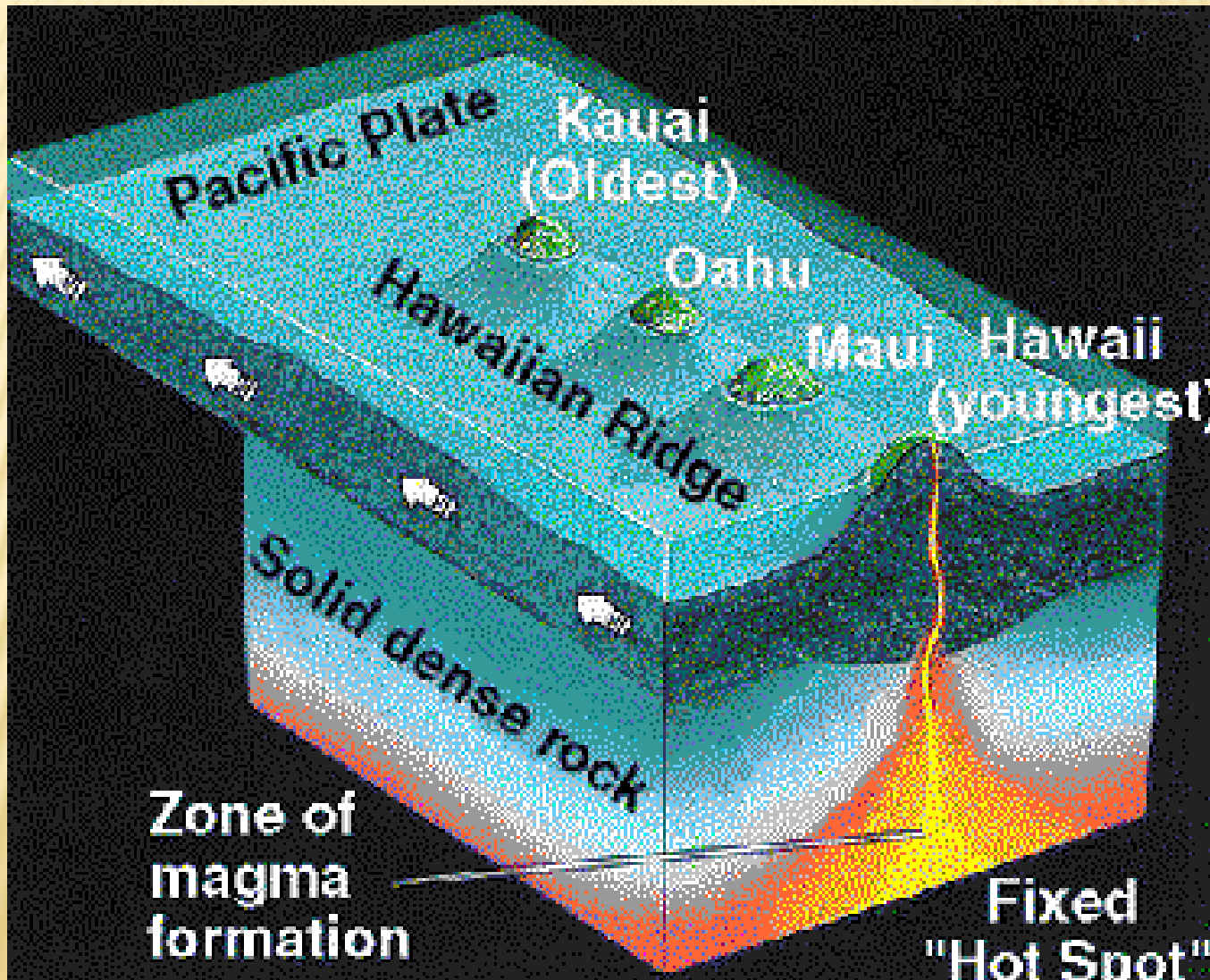
# Active Volcanoes, Plate Tectonics, and the "Ring of Fire"



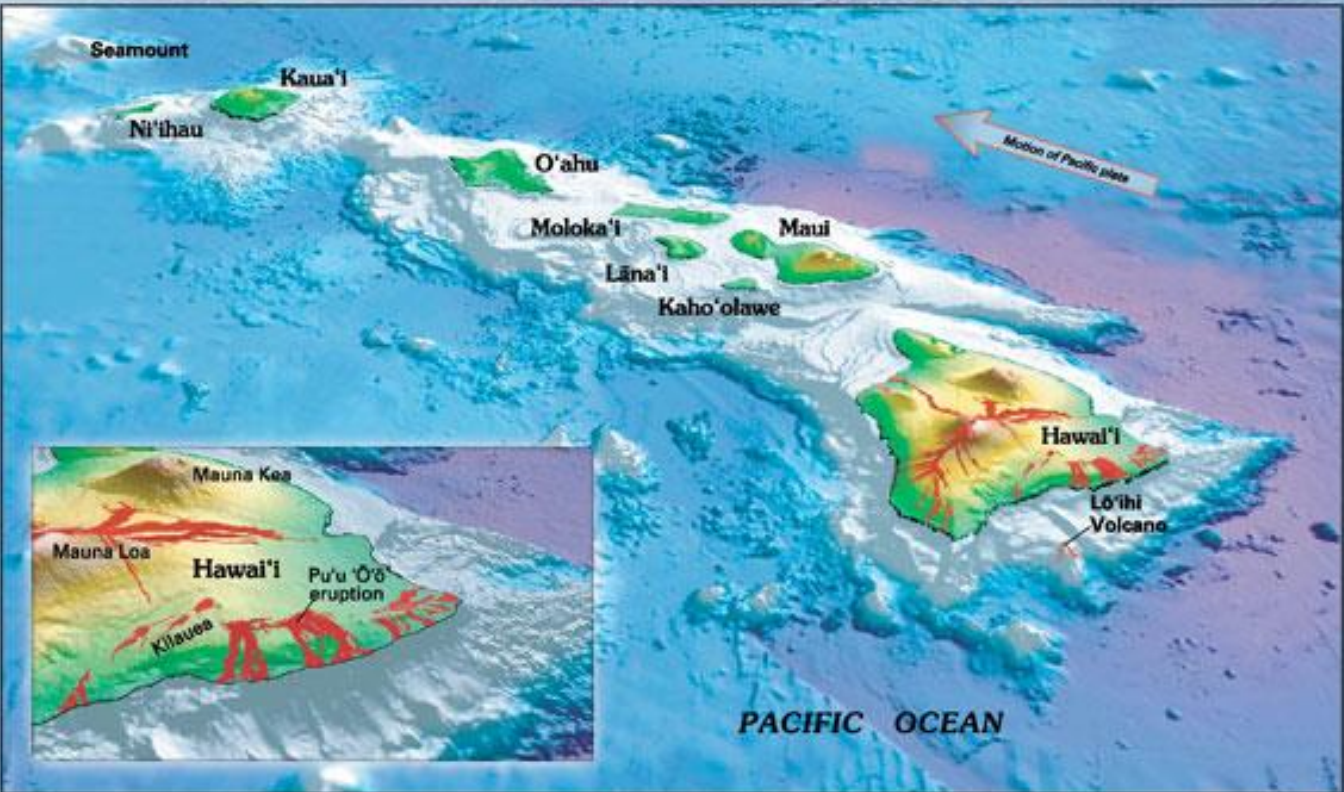
Mt St Helens eruption



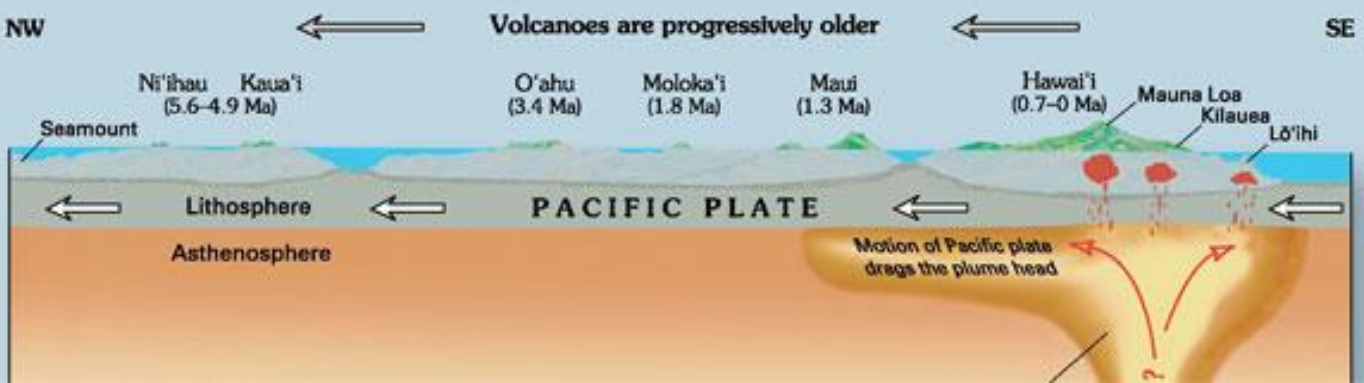
Continental Drift Evidence in the formation of the Hawaiian Islands: New Islands formed in a line in the direction (Northwest) that the Pacific Plate is drifting. They are formed by hardening lava as it emanates from a stationary hot plume deep beneath the ocean. [Lava hits ocean](#)



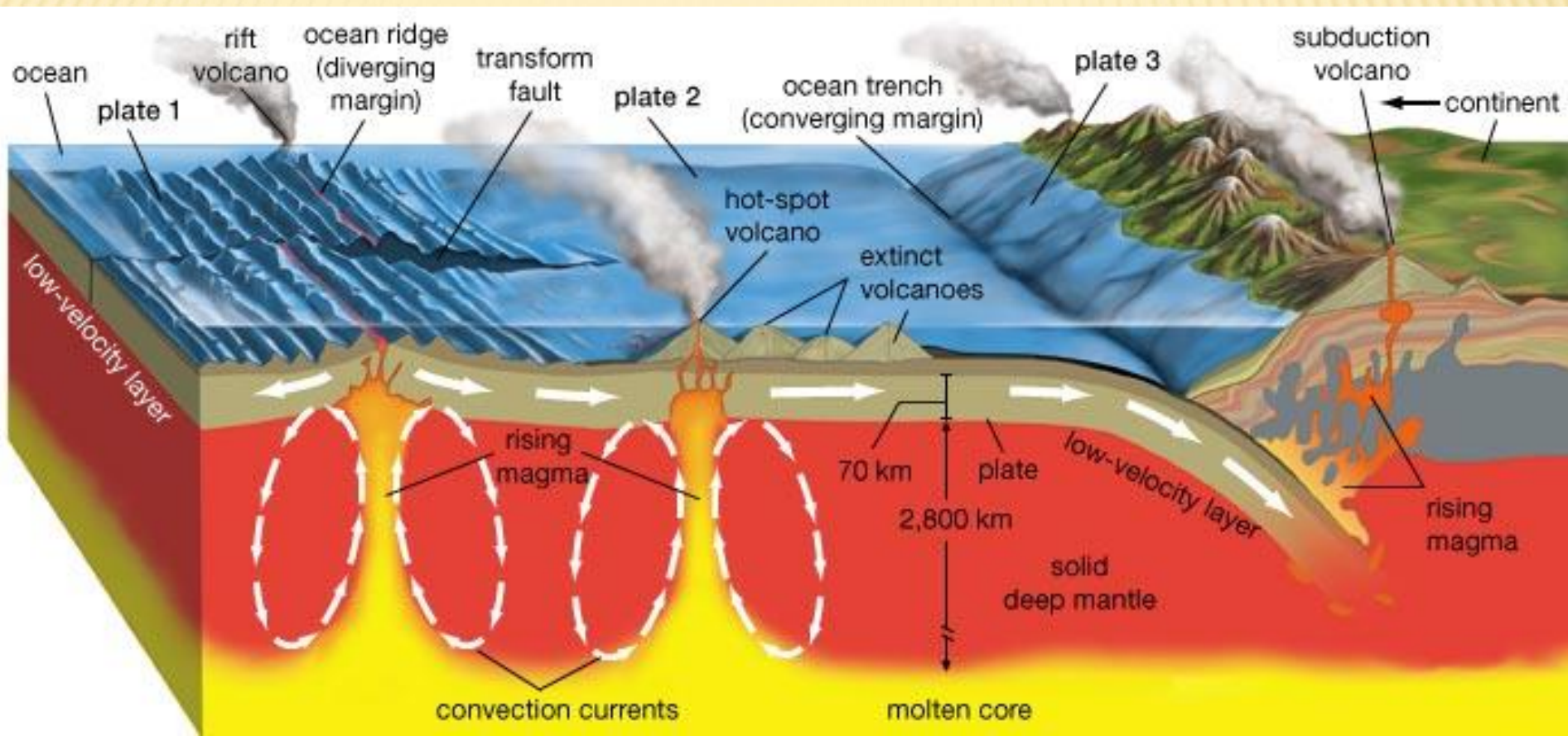
**Hawaiian  
lava  
fissures**



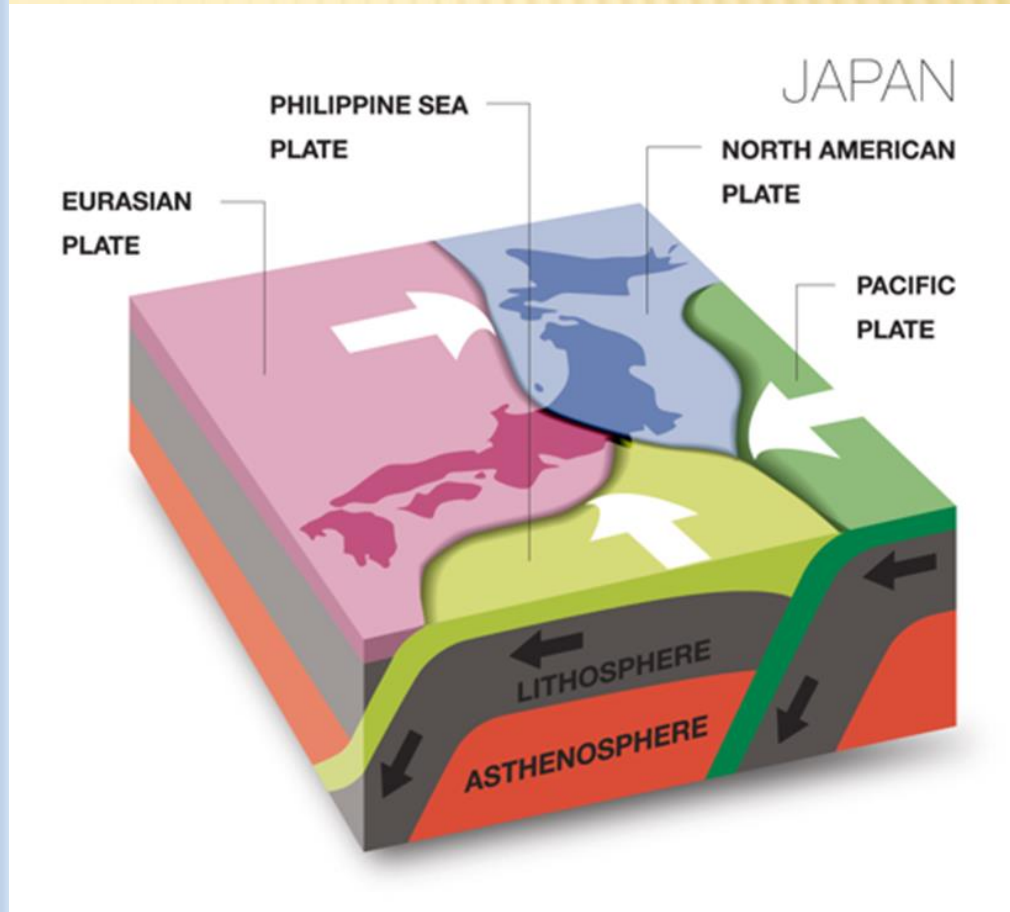
**Figure 2.**—Oblique view of the principal Hawaiian Islands and (the still submarine) Lō'ihi Volcano. Inset gives a closer view of three of the five volcanoes that form the Island of Hawai'i (historical lava flows are shown in red). The longest duration historical eruption on Kilauea's east-rift zone at Pu'u 'Ō'ō (inset), which began in January 1983, continues unabated (as of spring 2006). View prepared by Joel E. Robinson (USGS).







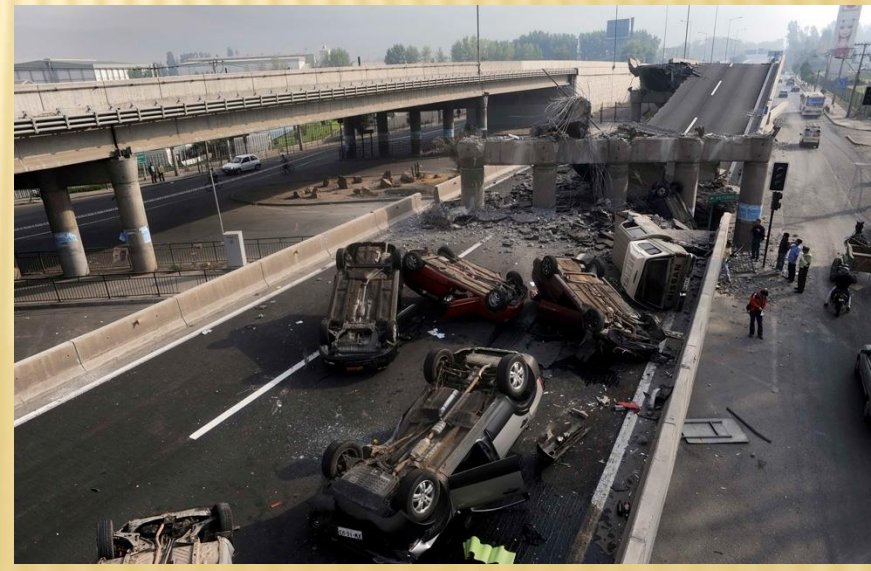
The recent Japanese earthquake, 10 on the Richter Scale, was caused by the Pacific Plate crashing into and slipping under the Eurasian Plate







## Japan Earthquake and Tsunami video







**Japan Tsunami video**



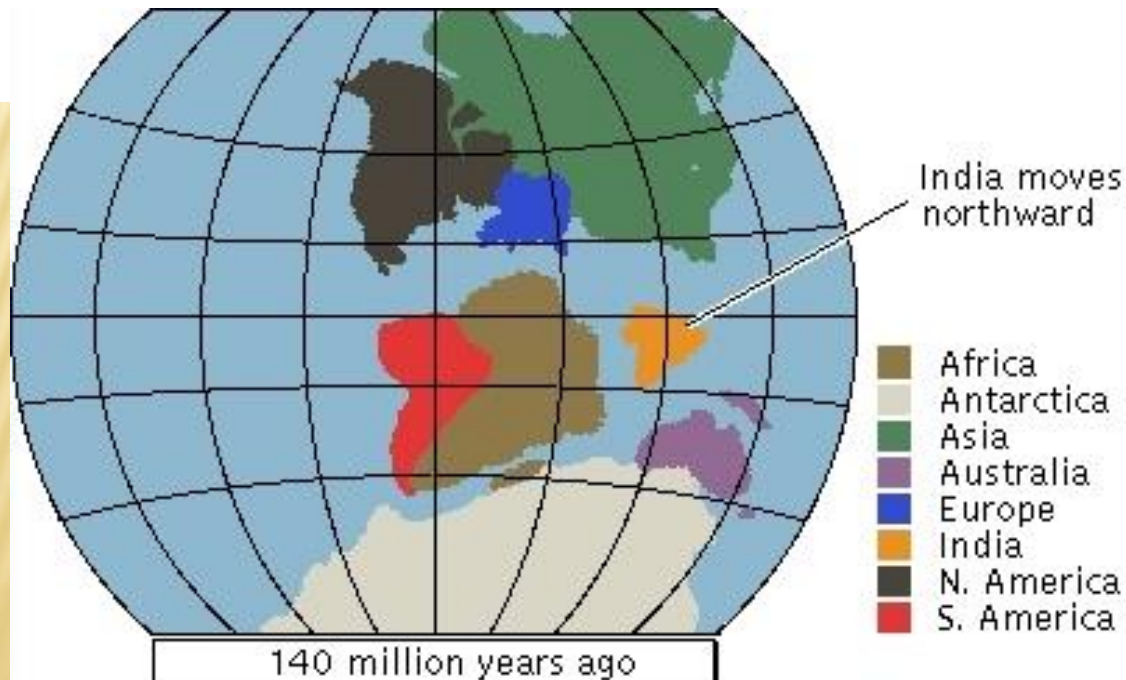


**Japan earthquake**  
**tsunami video**



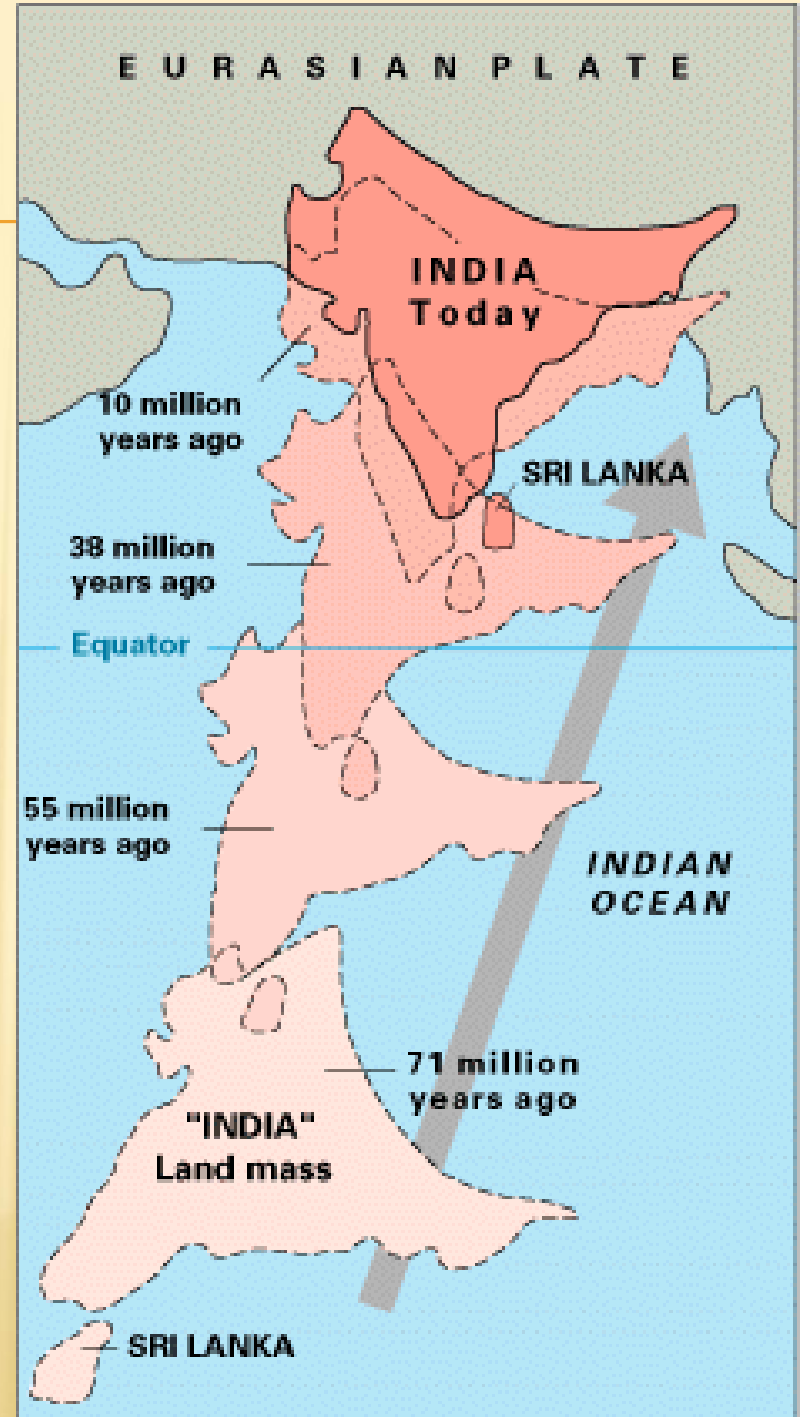


More evidence: India drifted North east from Madagascar to Asia over the last 100 million years.

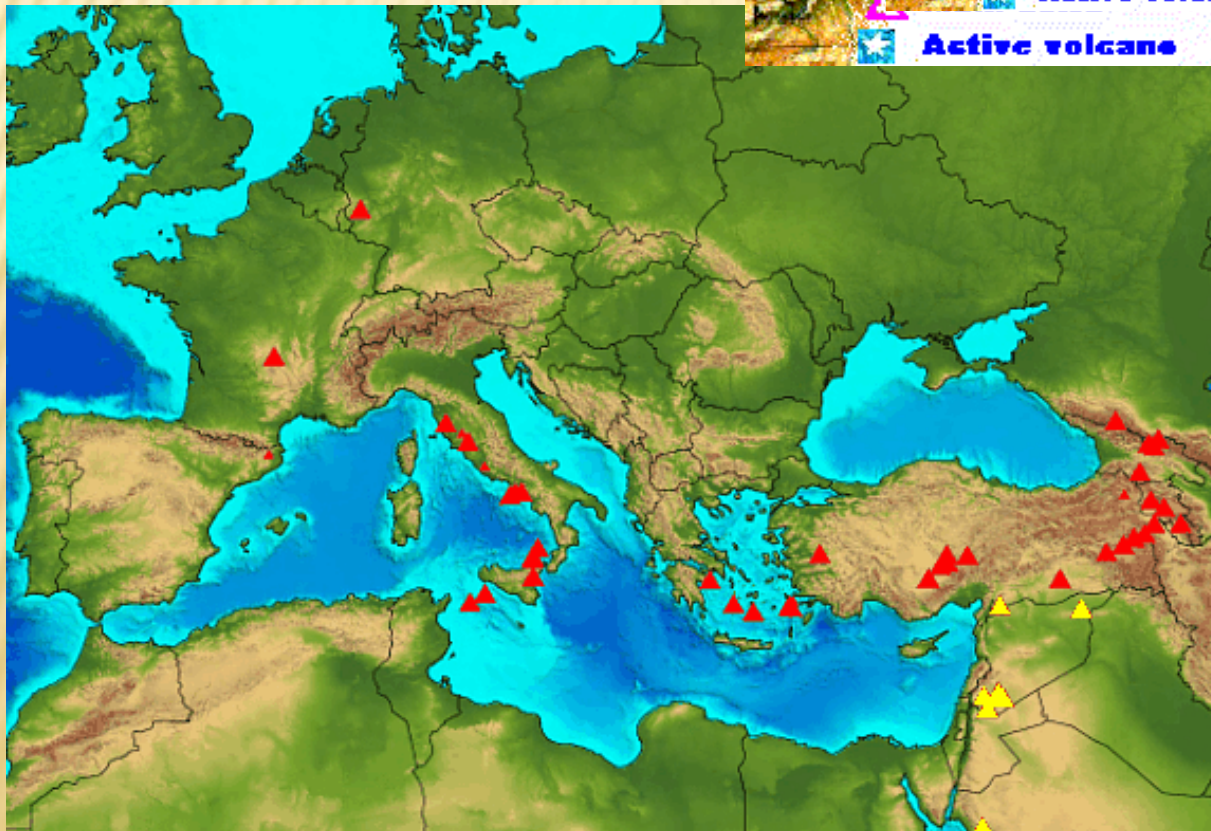
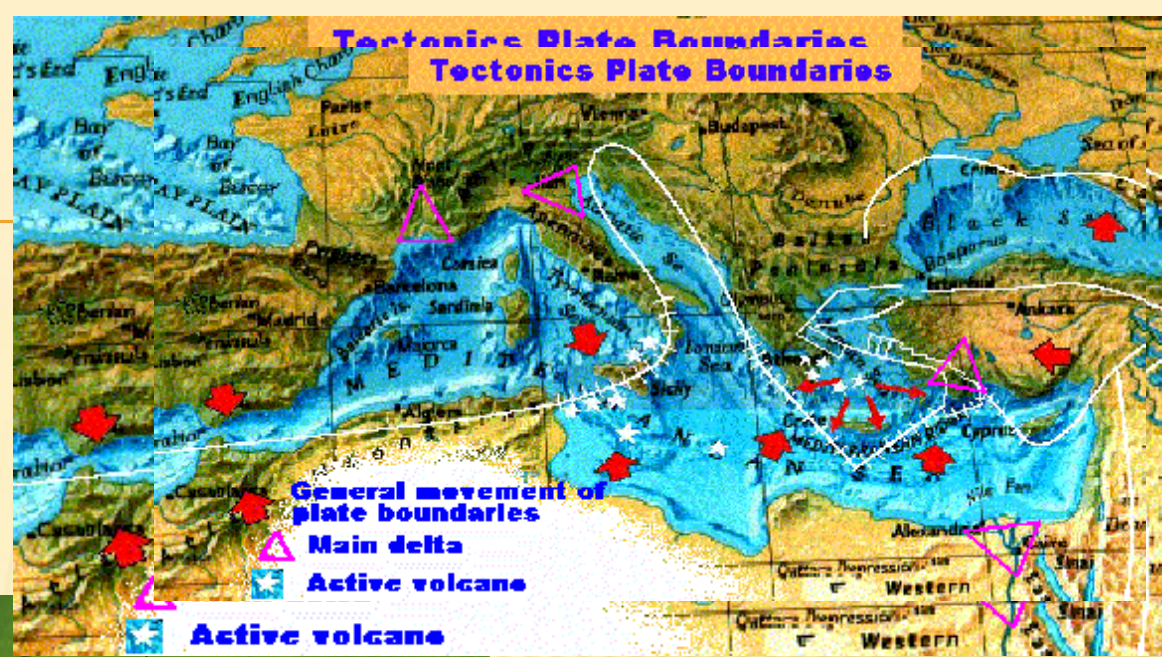




The collision created the tallest mountains on earth: the Himalayas



Ancient European History, especially Italy and Greece was effected by Volcanoes and Earthquakes





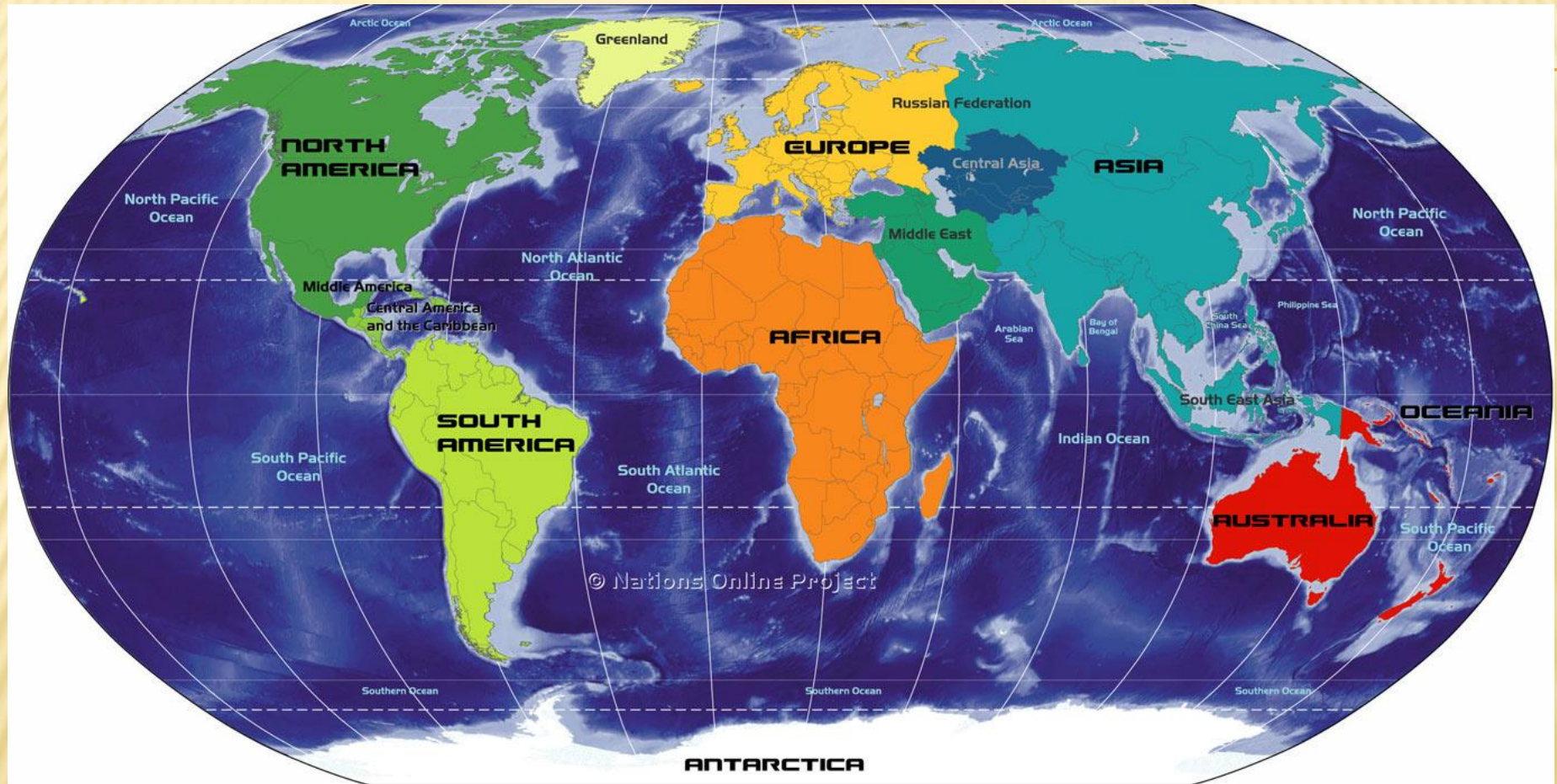
Santorini in Greece in 1450BC



Pompeii in Italy 79 AD







## WHAT WILL THE "NEW" PANGAEA LOOK LIKE?

