

Where are the Tectonic Plates Moving To?



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INTRODUCTION:

When we talk about tectonic or lithospheric plates, we mean the sections into which the lithosphere is cracked. The surface of the Earth is divided into 7 major and 8 minor plates. The largest plates are the Antarctic, Eurasian, and North American plates. Plates are on average 125km thick, reaching maximum thickness below mountain ranges. Oceanic plates are thinner than the continental plates and even thinner at the ocean ridges where the temperatures are higher. Some plates are large enough to consist of both continental and oceanic crustal portions (e.g. the African or South American plates) whilst the Pacific Plate is almost entirely oceanic.

OBJECTIVES

To compare past positioning of the tectonic plates from a few decades ago to current locations. This is to help predict and hypothesize on the future movement, the implications on communities around the world, and how it may effect the environment today.

METHODS

- Observe geological fit between continents and observe how shift of the plates have moved so far from their original state. (“GLOSSARY)
- Research fossil evidence found on continents to trace which has similarities. (“GLOSSARY.”)
- Research case studies such as the San Andreas fault and the origin of the Hawaiian islands.
- Observe glaciation and its implications on landmarks in different areas of the globe. (“GLOSSARY.”)
- Observe Jigsaw fit and tectonic fit. (“GLOSSARY.)
- Watch animations on how the plates have moved in the past and observe the shift live (“Geology”)

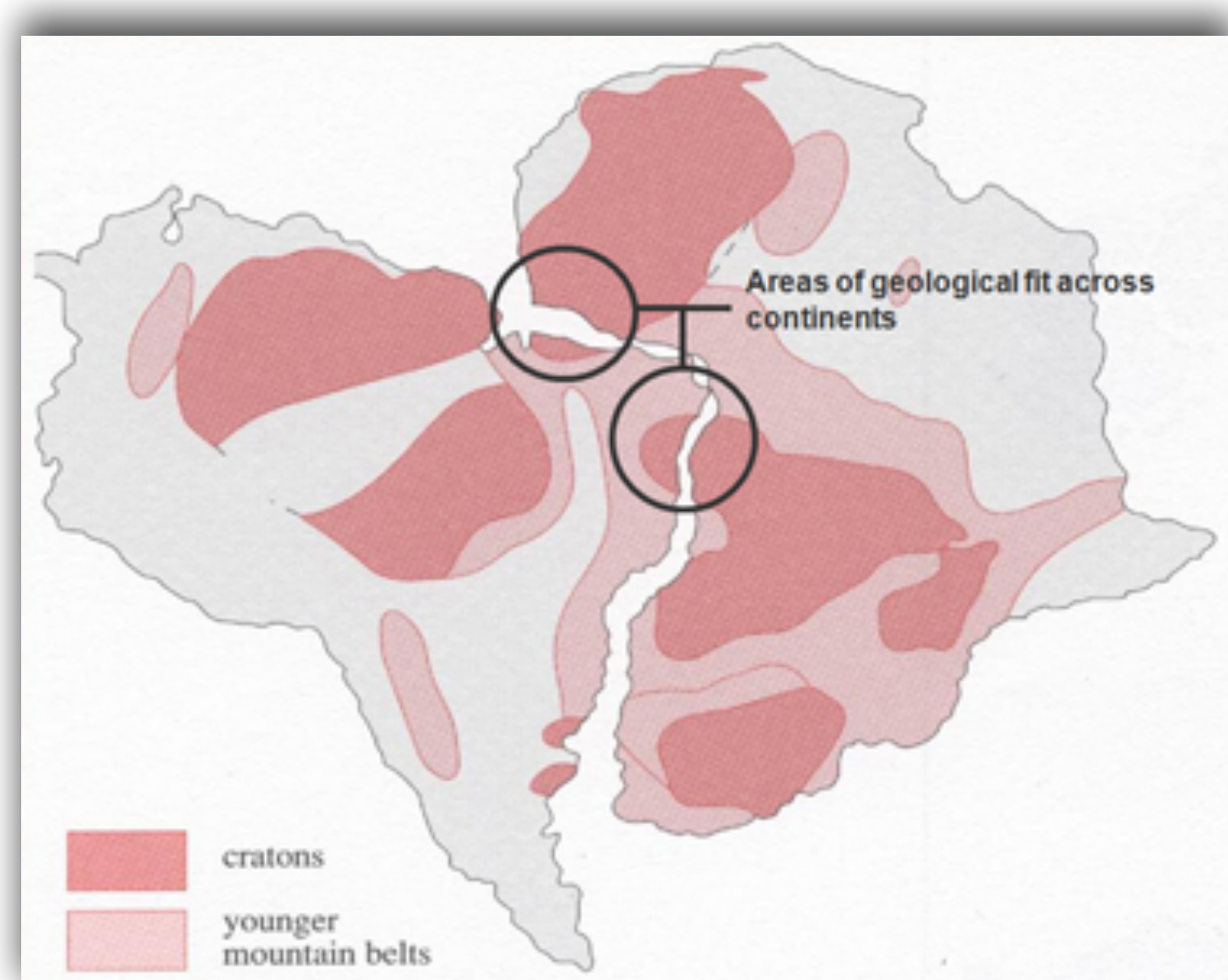


Image of the geological fit between South America and West Africa



Image of the major and minor tectonic plates that makes up the Earth's lithosphere.

RESULTS

- The plates have moved previously and still will
- North America and South America seem to be moving West, while Africa, Australia, and Eurasia is moving North East (Kious)
- Implications like land separating from the mainland or uprising of new volcanoes and islands.
- Jigsaw fit, tectonic fit, geological fit all shows evidence that the plates were previously connecting all of the continents together
- Fossil Evidence shows there are correlations of similar ancient species amongst continents

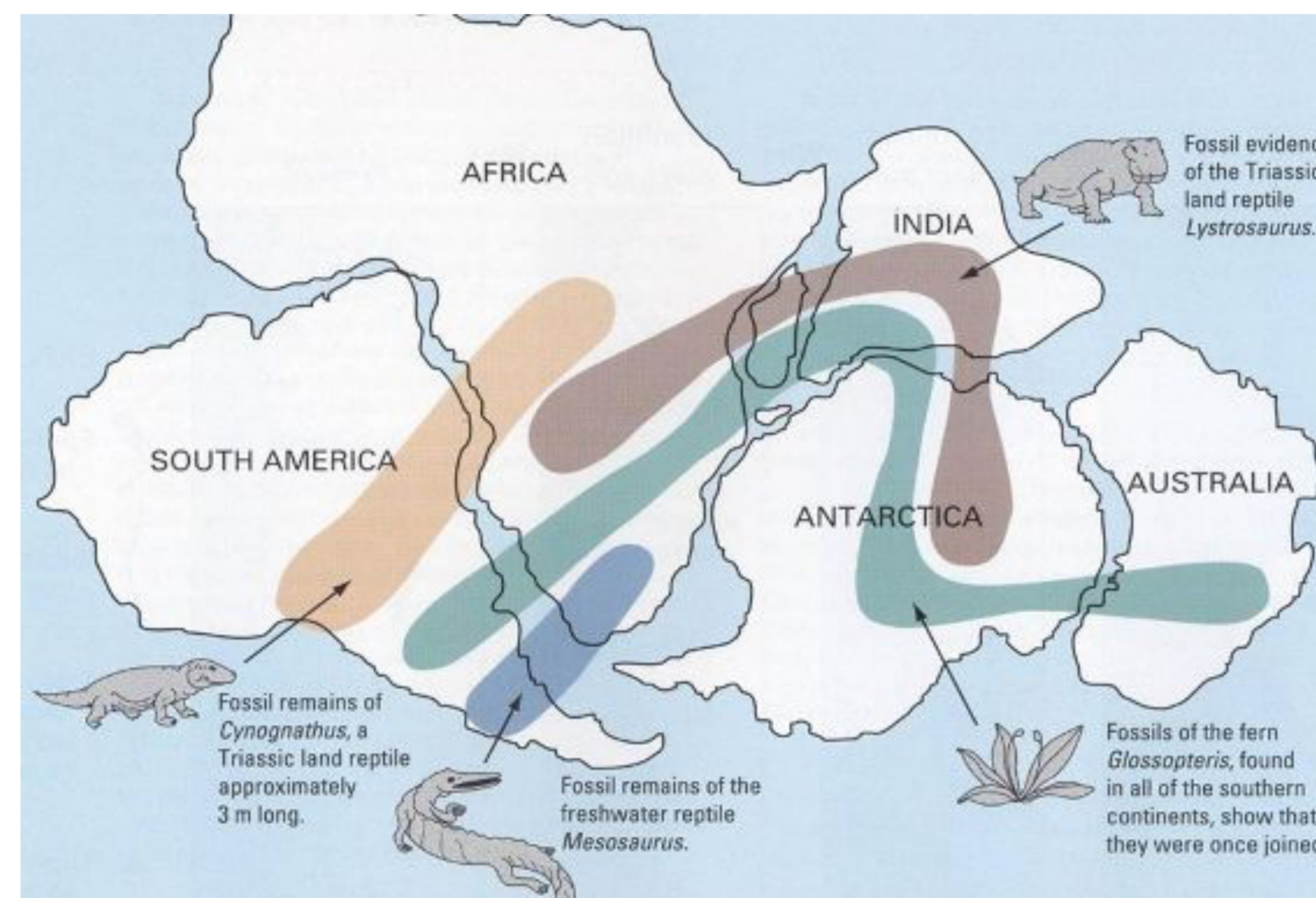


Image of fossil evidence between the continents that supports Pangea and its movement between plates.

CONCLUSIONS

The plates are constantly moving very slowly, over thousands of years, you may see a minor shift over time. The continents have been shifting East and West, slowly farther away from their previous positions. This will result in pieces of land separating or volcanoes and islands popping up at fault lines. Plate shifts are also what causes extreme earthquakes, especially at the San Andreas fault.

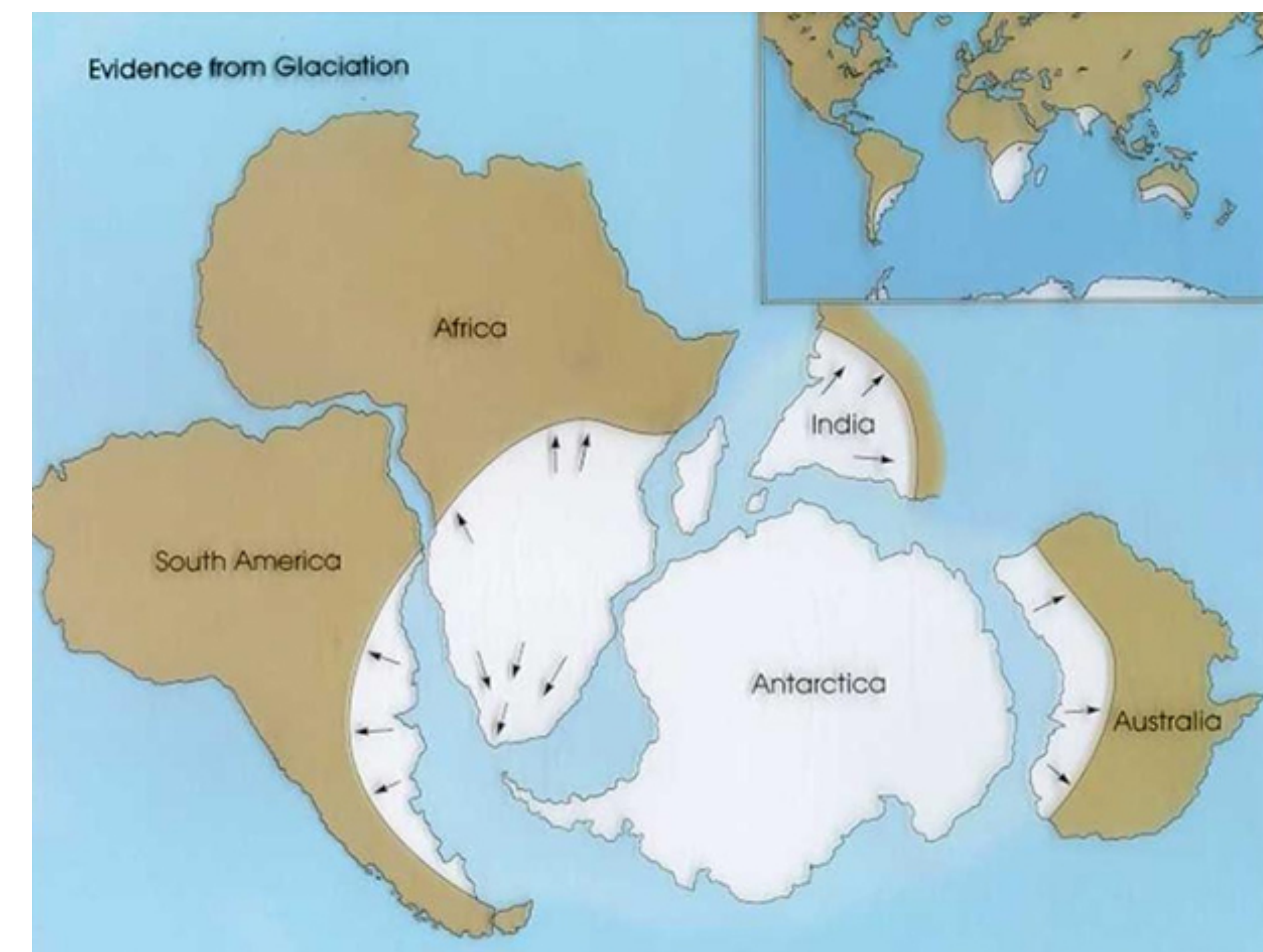


Image of the evidence of glaciation from the Permo-Carboniferous period

FUTURE WORK

Future research should be done to explore the present data on human mass creating gravity effecting the structure of the Earth's lithosphere. The further increasing mass may have significant consequences on the Earth's future.

References (Calibri, 40 points, bold)

“Geology.” *Plate Tectonics*, www.ucmp.berkeley.edu/geology/tectonics.html.

“GLOSSARY.” *The Geological Society*, www.geolsoc.org.uk/Plate-Tectonics/Chap1-Pioneers-of-Plate-Tectonics/Alfred-Wegener/Jigsaw-Fit.

Kious, Jacquelyne, and Robert I Tilling. *This Dynamic Earth--Contents*, USGS, Feb. 1996, pubs.usgs.gov/gip/dynamic/dynamic.html.