



Supercontinents in Earth history - what story do they tell about?

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All the supercontinent reconstructions are based on a plate-tectonic model (Wilson cycle). Because orogenic belts had to form as a result of subductions and continental plate collisions, the natural consequence of such a view is that the collisions lead to the formation of supercontinents that subsequently break up to coalesce again during the next orogenic stage of the Earth's evolution. Thus, the Pangea history becomes a sequence of different consecutive Pangeas: Proto, Paleo and NeoPangea strikingly similar to one another. To explain this phenomenon, a process of self-organization of tectonic plates (Anderson, 2002) is invoked. Pentagonal plates self-organize the sphere's surface regardless of the effect of "deep-seated" factors such as mantle convection. On an expanding Earth, there was only one supercontinent - Pangea - composed of continental lithosphere surrounding the planet smaller than the present Earth. The break-up process of the supercontinent occurred only once during Earth's history. Earth expansion offers a reasonable solution to main plate-tectonic paradox that the continents could have been repeatedly separated and returned to the same unique configuration within successive supercontinents.