Geophysical Research Abstracts,
Vol. 11, EGU2009-1470-1, 2009
EGU General Assembly 2009

Dissimmetry in system of Northern and Southern hemispheres of the Earth during supercontinental cyclicity on the geohistorical and geochronological data

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The empirical data testifying about dissymmetry of the Earth in cyclic (400 million years) process of assembly and breakup of supercontinents [1, 2] are stated. A given dissimmetry it is shown: in contrasts of tectonic activity of Northern and Southern hemispheres during a supercontinental cycle (SC), that in particular, is expressed in a degree of their fragmentation at breakup of supercontinent, and therefore in quantity of formation of collision orogenic belts at association new; in a prevailing development in one of the named hemispheres in comparison with another of the certain tectonic elements and displays of magmatism. The specified dissimmetry has a sign-variable character from a cycle to a cycle [1, 2].

The main geological maintenance of first two supercontinental cycles (SC) consists in formation of the early sialic crust in the form of TTG orthogneisses. Process this not up to the end is clear and by way of the specified distinctions is not shown. Breeds of identical structure with the most ancient datings are distributed rather in regular intervals in northern and southern hemisphere. Only it is possible to note occurrence in the first SC (3.92-3.52 billion years) the first on the Earth supracrustal rocks of the Isua complex in Greenland. In the second SC (3.52-3.12) the Southern hemisphere is more active. It is realized a base formation of the first generation of greenstone belts in Pilbara and Kaapvaal cratons, a becoming of the first stratified complex Messina (3.3 billion years) accumulation of stromatolite sediments on Pilbara craton to age 3.43 billion years. The third SC (3.12-2.72) is characterized by more significant scale of displays of tectonic processes of Laurasia: a formation of extended Upper Archean greenstone belts (Abitibi etc.), a origin of granite - greenstone areas with the ordered structural figure in the plan (craton Superior) which development on cycle Wilson is convincingly proved. In structure of greenstone belts of Gondwanean continents still prevail bimodal volcanics. It is possible to tell, that the mechanism of tectonics of plates for the first time started to develop in Laurasia. The next SC (2.72-2.32 billion years) except for oceanic openings in northern China, is characterized by a breakup of supercontinent Kenoria in the Southern hemisphere: India, Australia, Antarctica and by formation of orogenic belts during Sleafordian orogeny. The display of disimmetry of the Earth in SC 2.32-1.92 billion years was precisely showed in Eburnean orogeny of southern continents at a level 2.2-2.1 billion years and creation of a supercontinent Atlantica. In the Northern hemisphere orogeny several orogenic belts were formed during the more widespread Transhudson orogeny about 1850 million years ago. SC 1.92-1.52 it was more considerably showed in a southern hemisphere: in Australia. India, Antarctica, Southern Africa as though repeating events SC 2.72-2.32 billion years. As a result of a collage of continental blocks the Eastern Gondwana was created. In SC 1.52-1.12 billion years the basic crust-forming events occur in Northern America, Europe, Southern China, finished by Grenvillian orogeny and Tsinling orogenies whereas in southern to events of such scale it is possible to attribute only development of Namaqua-Natal belt in Southern Africa. As a result of a collage of continental blocks East Gondwana was created. The full dissymmetry of the Earth was showed in SC 1.12 - 0.72 billion years. Considering that Cadomian crustal elements of Europe have perigondwanian origin, numerous Pan-African orogenic belts of Gondwana are rare in the Laurasia, except of the Timan belt and Enysey Ridge and South China belts which yet formed rather 200-250 million years earlier. During SC 0.72-0.32 billion years as a result of which the Pangea has arisen, active crust-forming processes are marked in Laurasia where are formed – Caledonide, Hercynide and Cimmeride sequences, while Gondwanaland remained stable. The breakup of Pangea has resulted in openings of the greater number of young oceans in the

Southern hemisphere, corresponding to the antipodality, inversing from a cycle to a cycle and progressing in the time.
The phenomenon described above of cyclic changes of the Earth dissymmetry (with period about 400 million years) in the process of assembly and disintegration of supercontinents has been obtained a natural explanation on the basis of the mechanism of the forced relative polar translational displacements (and turns) of the core and mantle of the Earth due to external gravitational influences and the forced internal interactions and thermodynamic inversion changes in system of shells of the Earth [3]. In the report we give a preliminary schematic explanation to cyclic formation of supercontinents.

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