EVOLUTION OF PLATE TECTONIC STYLE IN THE EARLY PRECAMBRIAN

MINTS, M.V. Geological Institute, Moscow, Russia

Mafic and sialic segments of the crust existed already ca.4.0Ga ago. After 3.8Ga some of the most ancient continental cores became large enough to be never involved in the mantle recycling and were saved at the Earth's surface. Growth of granite-greenstone areas of the Archean continents at least from 3.5Ga resulted from accretion of juvenile terraines of oceanic and island arc types to the active margins of the primary continents. Processes of agglutination of continents were accompanied by obduction of those terraines over active and passive continental margins. Initially the Archean continents were less than 0.5x106km^2 but they grew gradually due to processes of plate tectonic type. The most ancient microcontinents were involved in suprasubduction and collision processes practically in full. 3.3-3.0Ga ago continental lithosphere reached 150-200km thickness. The Archean evolution (miniplate tectonics) accomplished by successive mutual accretion and collision of the continental masses and by an origin of the first supercontinent which was in fact an analogue of modern continents. The Paleoproterozoic evolution started from globally appeared rifting ca.2.5Ga ago and accomplished by the general compression: formation of the collisional orogens in the interior areas and accretionary orogens along margins of renewed supercontinent ca.1.7Ga ago. Within this megacycle three successive extension-compression cycles of global significance although various intensity in different regions is established. Each individual cycle may be considered as lame attempt of the supercontinent disruption. An evolution of interior areas characterized by limited development of spreading and subduction processes. There are no signs of subduction along supercontinent margins from ca.2.5 to 1.9Ga. The Paleoproterozoic evolution (and possibly Proterozoic as a whole, Vendian excluding) characterized by partial destruction of supercontinent and formation of intracontinental microoceans may be called microocean or supercontinent tectonics.Plate tectonics of modern style exists from Vendian only.