

# **THE BELOMORIAN-LAPLANDIAN METAMORPHIC BELT: PTT EVOLUTION AND GEODYNAMIC INTERPRETATION**

Viktor A. Glebovitsky

Institute of Precambrian Geology and Geochronology RAS,  
St.Petersburg, Russia, E-mail: vg@vg1404.spb.edu

The most ancient event related to development of the arc system near Late Archaean continental margin (ca 2.85 Ga) and accresional prism in connection with subduction of oceanic crust under continent and metamorphism, particularly, on high-temperature and low or moderate pressure. Following Archaean event in the lower part of the late Archaean Belomorian allochthone is identified as moderate-pressure granulite metamorphism which was coeval with plutonic activity led to formation of calc-alkaline assemblages of the igneous rocks (2.72 Ga) geochemically similar to those of the active continental margin of the Andian type. High-grade metamorphic rocks involved in the nappes and was cooled at the pressure increasing from 6 up to 12 kbars in connection with thickening of the crust within the collision zone (2.70 Ga). After that retrograded granulite rocks were subjected by decompression to 5–6 kbars during exhumation. The last event of the evolution had the ca 2.6 Ga age. Thus, anticlock-wise of evolution may be inferred.

High-pressure and high-temperature metamorphic processes which are correlated with early Proterozoic (2.45 Ga) extensional tectonic and connected with mafic and felsic plutonic activity. During retrograde evolution metamorphic rocks of the shear zone were subjected by isobaric cooling and then decompression.

Development of the Early Proterozoic (Laplandian) nappe system was accompanied by high-grade (up to granulite facies) metamorphism. In the lower parts of the thick nappes inverted zonality and anticlock-wise P-T paths of evolution were established that reflects doubling the crust and followed it exhumation of the lower crust complexes because of thrusting.