



Archean and Paleoproterozoic eclogites from the Belomorian Mobile Belt, Fennoscandian Shield

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In the Belomorian Mobile Belt, known for polychronous manifestation of high pressure metamorphism, two age and probably genetic groups of eclogites were identified (Volodichev et al., 2004 and references therein).

Archean eclogites (P=14.0-17.5 kbar, T=740-865° C) from the Gridino area that have an age of 2720±8 Ma are part of the clastic mixtitic complex of a highly migmatized tectonic melange (Slabunov et al., 2006 and references therein). By 2.7 Ga, they had passed through a complete cycle of retrograde transformations from symplectitic eclogites to garnet-clinopyroxene amphibolites. The formation of eclogites is attributed to subduction processes that occurred during the Neoproterozoic period.

Another type of eclogites was identified in three age generations of Paleoproterozoic coronitic metagabbro dykes that are close in time and exhibit intrusive contacts with less intensely metamorphosed host rocks represented by a highly transformed Archean eclogite-bearing complex. The age of kyanitic eclogites, formed after Mg-gabbro of generation II, was estimated at 2416.3±1 Ma. The detailed study of a relationship between eclogitic metamorphic conditions in the dykes: P=16.5-17.5 kbar, T=880-930° C - I; P=13-20 kbar, T=700-930° C - II; P=13.5-14.0 kbar, T=730-750° C - of generation III and metamorphic events that occurred in host rocks during that period: P=6.5-7.5 kbar, T=650-700° C, suggests that eclogitization processes were evolving under autonomous, autoclave conditions.

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