



Replacement of monazite by apatite-allanite coronas in metapelites from Wedel Jarlsberg Land (Svalbard)

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Well stratified volcanosedimentary polimetamorphic complex is distinguished in SW part of Wedel Jarlsberg Land (Svalbard Archipelago). This complex comprises metasedimentary sequence called Isbjørnhamma Group which is overlain by metavolcanic rocks of Eimfjellet Group. The Isbjørnhamma Group rocks are represented by mica schists, paragneisses, calc-silicate rocks and marbles. These rocks were metamorphosed twice: (1) under amphibolite facies conditions during Neoproterozoic (Cadomian orogeny); (2) under greenschist facies conditions during Caledonian orogeny.

Mica schists and paragneisses were investigated with use of LM and SEM-EDS and EPMA methods. These rocks contain the following mineral association: quartz + biotite ± muscovite ± garnet ± chlorite ± plagioclase. Tourmaline, zircon, sphene, monazite, xenotime, apatite, allanite, ilmenite, hematite, magnetite, kyanite, staurolite and chloritoid are present as accessory phases.

Monazite breakdown was observed in most samples. Usually monazite grains (up to ca. 50 μm in length) are partially replaced by apatite-allanite coronas. However, complete replacement by allanite is also observed. Allanite-forming reaction might occur in a “gel-form”, with apatite nucleating on monazite rims (Broska and Siman 1998; Finger *et al.* 1998). Supply of Ca^{2+} via fluid transport was probably necessary. These alterations of Neoproterozoic monazites are related to Caledonian metamorphic event (unpublished data).

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