

**THE ROLE OF PARTIAL MELTING IN GENESIS OF DIAMONDIFEROUS  
KYANITE-BEARING ASSEMBLAGES FROM THE KOKCHETAV MASSIF  
(NORTHERN KAZAKHSTAN)**

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Recently a new microdiamonds area was discovered within the Kokchetav massif (SHATSKY et al., this volume). Contrary to Kumdy-Kol and Barchi-Kol type localities this block has a lot of similarities with Erzgebirge diamond-bearing locality (MASSONNE, 2003). Kyanite-bearing rocks (diamondiferous and diamond-free) are predominant. Diamondiferous kyanite-bearing rocks consist of large porphyroblasts of garnet and kyanite (up to 2 cm in length) in the quartzofeldspathic matrix. Diamond inclusions occur in garnet, zircon and kyanite, but a zonal distribution of carbon polymorphs was only observed in kyanite. Sometimes the core zones of kyanite contain abundant graphite and quartz inclusions. No diamonds was identified within the core zone. This zone is surrounded by clean overgrowth with abundant microdiamond inclusions. Diamonds included in garnet porphyroblasts occur side by side with low pressure (LP) quartz, paragonite, albite and biotite. Similar graphite- and diamond-bearing silicate pockets were described by HWANG et al. (2001). Most likely the diamond crystals were captured with some H<sub>2</sub>O bearing melt. The crystallization of this melt during the retrograde stage caused formation of LP minerals. The geochemical characteristics of kyanite-bearing diamondiferous rocks also support this conclusion. Diamond-free rocks look like Kulet micaschists where only coesite was found as indicator of UHPM conditions (SHATSKY et al., 1998). No evidence of partial melting have been found so far in this lithology. The prograde zoning pattern is preserved in the garnets from these rocks (MnO decrease from core to rim). It is unlikely that diamondiferous and diamond-free rocks belong to one coherent unit as proposed by MARUYAMA & PARKINSON (2000). Probably these two blocks have tectonic boundary and partial melting plays an important role in diamond genesis and exhumation of the diamond-bearing UHPM rocks.

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