



Geological, mineralogical and petrographical features of the Karabiga metamorphic rocks (Biga Peninsula), NW Turkey

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The NE-SW oriented Karabiga metamorphic rocks located on the northern part of the Biga Peninsula form one of prominent metamorphic rocks of this region. This region shows homogeneous metamorphic rock association with petrographical, mineralogical and field occurrences. Although Karabiga metamorphic rocks has been regarded as the northern extension of the Çamlıca metamorphic rocks that crop out west of the Biga Peninsula, the Karabiga metamorphic rocks contain metamorphic and lithological differences. The metaclastic sequence consists mainly of schist, phyllite, calc-schist and marble intercalations. Marbles with 250 to 300 m in thickness occur as lenses within schist. Serpentine slices ranging from 30-40 m to 2-3 km, parallel to the main foliation, are observed in the metamorphic rocks. The Karabiga metamorphic rocks are tectonically overlain by the Late Cretaceous-Paleocene Çetmi mélangé, and both are intruded the Middle Eocene Karabiga granitoid. Eocene volcanic rocks cover unconformably all the rock units.

Evaluated macroscopical, petrographical properties, mineralogical compositions together, the medium-grade Karabiga metamorphic rock association is made up of muscovite-quartz schist, chlorite-muscovite-schist, albite-epidote-chlorite schist, garnet-albite schist, and calc-schist. The common mineral assemblages of the Karabiga metamorphic rocks consist essentially of quartz + muscovite + biotite + albite + garnet + epidote + chlorite ± zircon based on the petrographical investigation. Albite + biotite + garnet + epidote + chlorite mineral paragenesis display that the Karabiga metamorphic rocks experienced the greenschist facies metamorphism. Syn-tectonic

albite porphyroblasts indicate ductile deformation and are rotated during metamorphism. Additionally, muscovite-chlorite minerals wrap these porphyroblasts. Muscovite and biotite minerals are replaced by chlorite during the retrograde metamorphism.