



Blueschist-facies metamorphic rocks in the Central Pontides, Northern Turkey

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The Central Pontides is a region with a major southward frontal continental growth of the Laurasian margin during the Mesozoic due to the subduction-accretion of the Tethyan oceans. It is limited by the Black Sea to the north. To the south, the main Neo-Tethyan İzmir-Ankara-Erzincan Suture (IAES) separates the Central Pontides from the Central Anatolian Crystalline Complex, a Gondwana-derived continental fragment.

The blueschist facies rocks crop out widely in the southern part of the Central Pontides between the towns of Kastamonu and Tosya. They mainly comprise of interlayered micaschist and metabasite with serpentinite slices. The micaschists are usually graphite-rich and dark grey, and consist of white mica, quartz, calcite, albite, chlorite, \pm epidote and \pm chloritoid. The metabasites exhibit blueschist facies mineral assemblages with sodic amphibole, epidote, albite, chlorite, quartz \pm white mica and \pm lawsonite. Some metabasites contain relicts of garnet and clinopyroxene probably indicating previous eclogite facies metamorphism. In the south near Tosya the metamorphism is largely in greenschist facies, indicating either a strong retrogression or a southward decrease in the pressure of metamorphism.

To the north, the blueschist facies rocks are tectonically overlain by a slightly metamorphosed flysch. Upper Cretaceous arc-related volcanic and volcano-clastic rocks unconformably cover the metamorphic rocks in the south. Ophiolitic mélanges form tectonic slices within the high-pressure/low-temperature rocks.

The Kastamonu-Tosya region represents a part of a wide accretionary prism in the Central Pontides. The blueschist facies rocks represent relatively deeply buried and exhumed accreted oceanic material. Furthermore, eclogites near the Elekdağ, 50 km northeast of the study area, give an Early Cretaceous (ca.105 Ma) isotopic age. This suggests that the subduction-accretion in the Kastamonu-Tosya region probably also occurred during the final stages of the Early Cretaceous.