



## Structural geology and sedimentology of the Sermat Quartzites, Strandja Massif, NW Turkey

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The Strandja Massif, NW Turkey, is the eastern continuation of the Rhodope Massif in Bulgaria. The massif is generally correlated with the Hercynian orogenic belt that was later modified by the Cimmerian orogeny. The basement of the massif is composed by various kinds of gneisses and schists, which are intruded by the metagranites. In the studied area, the Cambrian K-feldspar metagranites are unconformably overlain by metaclastics, where both units have fault contacts with volcano-sedimentary rocks. The metagranite intrusions yield Carboniferous U-Pb zircon ages (Natal'in et al., 2012a). All of them constitute the basement of the Strandja Massif. Cambrian age of metagranites and their subduction related nature as well as the subduction related nature of the Carboniferous igneous rocks suggest a prolong evolution of the Strandja Massif (Natal'in et al., 2012a). The Cambrian metagranites are unconformably overlain by a metasedimentary cover unit, which is known in the literature as the Şermat Quartzite of presumably Permo-Triassic age (Çağlayan and Yurtsever, 1998). In the studied region, detrital zircons extracted from quartzites show that their depositional age is not younger than the Ordovician (Natal'in et al., 2012a). The basement of the Strandja Massif is subjected to the epidote-amphibolite-greenschist facies of metamorphism and high strain deformation in the late Jurassic – early Cretaceous times.

The Şermat Quartzite forms a transgressive sequence, which starts with metaconglomerates, metasandstones and grades up to quartz-sericite schists. The thickness of bedding changes from thin to medium with parallel bedding planes, containing lens-shaped bodies of massive quartzites. The late Jurassic – early Cretaceous foliation (S1) is generally parallel to the primary bedding plane. Foliations and lineations consistently dip to the northeast and kinematic indicators suggest a tectonic transport in the same direction. High strain in the Şermat Quartzite prevented the preservation of sedimentary structures such as flute casts and cross-beddings, which can be used to determine the sedimentary environments of the Şermat Basin. Nevertheless, all available relicts indicate the transportation of sediments from a source area in the south. If the Şermat Quartzites is Ordovician age, they can be correlated with the Ordovician rocks of the Istanbul Zone, which is interpreted as a south-facing passive continental margin. Sedimentological framework of the Şermat Quartzites contradicts this correlation. Further studies of the region are necessary in order to determine the connection between the Strandja Massif and the Istanbul Zone.

Keywords: Hercynian orogeny, Cimmerides, Strandja Massif, İstanbul Zone, Sedimentary Basin, Turkey

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