

Polyphase Alpine Deformation Southwest of the Inner Tauride Suture, North of Konya

Yaşar Eren

*Selçuk University, Eng. And Archt. Fac. Dept. of Geology, Kampus, Konya, Turkey
e-mail: yeren@karatay1.cc.selcuk.edu.tr*

Paleozoic-Mesozoic aged low grade metamorphic rocks, in the north of Konya, consist of two different groups. Silurian-Lower Permian Sızma group is composed of reefal complex metacarbonates at the bottom, and flyschoid metaclastics at the top. Metaigneous rocks which are various compositions can be observed as dykes, sills and lava flows in this group. Upper Permian-Mesozoic aged Ardıçlı group, unconformably overlying the Sızma group is composed of, from bottom to top, coarse metaclastic, metaclastic-metacarbonate alternation, thick sequence of metacarbonate and alternating units of metachert, metacarbonate and metaclastic. Although pre-Alpine overthrusts can be recognized in the Sızma group, the intense Alpine deformation overprinted and obliterated the other tectonic structures and made impossible to recognize them. Both the Sızma and Ardıçlı group were deformed, folded and metamorphosed together during the Alpine orogeny. Evidence for four phases of deformation and folding is found within the study area. The first phase of deformation resulted in overturned tight to isoclinal folding and penetrative cleavage development during the Alpine crustal shortening. The cleavage is axial planar to the F_1 - folds. Thin section observations show that the metamorphic peak accompanied the formation of penetrative cleavage development. Syntectonic crystallisation, rotation and flattening of grains and pressure solution were main deformation mechanisms depending on the rock types. Continued crustal shortening during the F_2 -phase produced coaxial Type 3 refolded folds which generally can be observed in outcrop scale and crenulation cleavage (S_2). Refolding of earlier folds by the noncoaxial F_3 -folding event generated Type 2 interference pattern and Meydanköy synformal anticline which is the largest map scale structure of the study area. Phase 3 structures also include crenulation cleavage (S_3) and conjugate kink folds. Further shortening during the phase 4 deformation resulted in another sets of crenulation cleavage and conjugate kink folds. According to the thin section observations, the phase 2, 3 and 4 crenulation cleavages are mainly result of microfolding with the pressure solution and mineral migration.