



Structures along the contact zone between the Lycian nappes and the Menderes Massif, SW Turkey: Implications for tectonic transport directions of the Lycian nappes

Arzu Arslan (1), Talip Güngör (2), Burhan Erdoğan (2), and Cees W. Passchier (3)

(1) Fault Analysis Group, School of Geological Sciences, University College Dublin, Ireland (arzu@fag.ucd.ie), (2) Department of Geology Engineering, Dokuz Eylül University - İzmir, TR-35160 Turkey, (3) Tektonophysik, Institut für Geowissenschaften, Johannes Gutenberg Universitaet - Mainz, D-55099 Germany

Structural data recorded along the contact zone between the Menderes Massif and the overlying Lycian nappes provide information about tectonic transport directions of the Lycian nappes in southwestern Turkey. Key units were investigated in the Milas region. Flysch-type sedimentary rocks form the uppermost unit of the Menderes Massif. Metapelites and metapsammities form the basal unit of the Lycian nappes. The metasediments of the Lycian nappes overlie the Menderes Massif along a south-dipping, low-angle tectonic contact, along which thin slices of sheared serpentinite are found. The kinematic data suggest the presence of three deformation phases in the Milas region. The first deformation phase (D1) is characterised by a ductile deformation with top-to-the-NE sense of shear suggesting that the lowermost unit of the Lycian nappes was emplaced initially from southwest to northeast onto the Menderes Massif during the Early Eocene. The second deformation phase (D2) is also ductile in nature. It is characterised by an E–W-trending stretching lineation with a bivergent sense of shear, which is probably related to the load of the overlying nappes. A third deformation phase (D3) is characterised by south-dipping normal faults with top-to-the-S sense of movement and can be related to southward movement of the Lycian nappes along a low-angle décollement zone.