



## **Distribution of Deformation on Cyprus, Inferences from Morphotectonic Analysis**

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Cyprus is located on the subduction zone between African and Anatolian Plates. The topography of the island is a result of distributed deformation associated with the subduction related processes in the south of the Central Anatolian Plateau. Trodos and Kyrenia mountains are major morphotectonic units that integrally tied to plate boundary deformations. To elucidate the mode and pattern of active deformation and possible effects of subduction related processes on topography, we integrated morphometric and topographical analysis across the island. Our regional morphometric analysis rely on topographical swath profiles and topographic residuals to identify regional topographic anomalies, as well as steepness and concavity values of longitudinal river profiles that may reflect ongoing uplift. Accordingly, our swath profiles indicate an asymmetric topography across the Troodos Massif and Kyrenia Range. South of Trodos Massif indicates relatively less dissected surfaces that partly associated with marine terraces of Quaternary. Our topographical residual analysis indicate also strong relief asymmetry on the Troodos Massif that might be related to the Arakapas Fault and lithological contact between Neogene and Pre-Neogene rocks. In the north of the island the Kyrenia Range is characterized by a narrow, steep and long range that is delimited by the Ovgos Fault in the south. Our swath profiles across the range display also strong southward asymmetry. The southern flank is steeper in comparison to northern flank. The steepness index value of the rivers on the southern flank of the Kyrenia Range do not give strong signal along the Ovgos Fault. Nevertheless, longitudinal profiles of rivers reveal evident deviations from degraded river profiles in the northern flank. Together with the presence of uplifted marine terraces along the northern flank that might indicate the presence of onshore structure(s) responsible for coastal uplift or regional uplift of the island because of distributed deformation associated with subduction related processes. Here we will present results of morphometric and topographic analysis and their tectonic implications. This study is supported by Istanbul Technical University Research Found Grant Number: 37548