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Aksu-Dinar Fault System: Its bearing on the evolution of the Isparta Angle (SW Turkey)

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The Isparta Angle is a triangular structure in SW Turkey with NE-SW trending western and NW-SE trending eastern flanks. Aksu Fault is located within the core of this structure and have been taken-up large E-W shortening and sinistral translation since the Late Miocene. It is an inherited structure which emplaced Antalya nappes over the Beydağları Platform during the late Eocene to Late Miocene and was reactivated by the Pliocene as a high angle reverse fault to accommodate the counter-clockwise rotation of Beydağları and SW Anatolia. On the other hand, the Dinar Fault is a normal fault with slight sinistral component has been active since Pliocene. These two structures are collinear and delimit areas with clockwise and counter-clockwise rotations. The areas to the north and east of these structures rotated clockwise while southern and western areas are rotated counter-clockwise. We claim that the Dinar-Aksu Fault System facilitate rotational deformation in the region as a scissor like mechanism about a pivot point north of Burdur. This mechanism resulted in the normal motion along the Dinar and reverse motion along the Aksu faults with combined sinistral translation component on both structures.
We claim that the driving force for the motion of these faults and counter-clockwise rotation of the SW Anatolia seems to be slab-pull forces exerted by the east dipping Antalya Slab, a relic of Tethys oceanic lithosphere. The research for this paper is supported by TUBITAK - Grant Number 111Y239.

Key words: Dinar Fault, Aksu Fault, Isparta Angle, SW Turkey, Burdur Pivot, Normal Fault, Reverse Fault