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Causatives for extensional tectonics in SW Turkey as revealed by deformations within the Cameli Basin

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SW Anatolia is located just at the junction of the Hellenic and Cyprus arcs, which are formed boundary between Anatolia and African plate. The Fethiye-Burdur Fault zone, major accident in SW Anatolia, is interprated as on-land continuation of Pliny-Strabo fault system (e.g., eastern boundary of Hellenic Arc). Numerous fault-bounded intramountain basins (e.g., Cameli, Burdur and Dinar basins) are particularly arranged along the NE-SW striking Fethiye-Burdur Fault zone, in SW Anatolia. Inversion of fault slip vectors affecting Mio-Pliocene to Quaternary formations in Cameli Basin, located on the southwestern segment of the transtensional Fethiye-Burdur Fault Zone, yields two different normal faulting stress regimes characterized by a roughly orthogonal set of extensional axes, a NW-SE (N129$\pm$19°E) and a NE-SW (N50$\pm$16°E) sigma 3 axes. The orientation of fault sets is predominantly around NE-SW direction of major Fethiye-Burdur Fault Zone, giving the NW-SE extension. The NW-SE extension is probably responsible for the formation of the Cameli Basin during Mio-Pliocene time. The focal mechanisms for earthquakes of magnitude 3.8 to 5.3 are analyzed in this study for a period between 26.10.2007 and 03.10.2008. The inversion of focal mechanism solutions of shallow earthquakes occurring within Cameli basin yields a present-day predominantly extensional stress regime characterized by an approximately N-S (N184ºE) sigma 3 axis. These stress regimes acting from Mio-Pliocene onwards in SW Anatolia are attributed to combined forces in relation to the geodynamic context due to west-southwestward motion of Anatolia and the subduction of African plate beneath Anatolia, diffused along Hellenic and Cyprus arcs.