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post-miocene paleo-stress distribution in nw of central anatolia (turkey)

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The studied terrain situated on the southeastern margin of the Galatean Volcanic Province within the Neogene-Quaternary sequences on top of the Mesozoic accreted mass (NW of Central Anatolia, Turkey) is bounded by ENE-WSW striking dextral strike-slip fault -North Anatolian Fault- from north and NW-SE striking dextral strike slip fault with normal component -“SE Central Anatolian Fault”- from south. Firstly, fold analysis done on Miocene units and Plio-Quaternary clastics manifests a similar fold axes trending in N430E and N400E trends, respectively. However, there is a clear time gap between Late Miocene and Plio-Quaternary sequences in the terrain. Secondly, stress analysis was performed by processing slip lineation data using Angelier Inversion Method (Angelier 1991). In the analysis, no reliable results are obtained for the post-Miocene - pre-Pliocene deformational phase. But the results of the post-Plio-Quaternary extensional regime are strongly manifested an extension in NW-SE direction. To conclude, stress analysis together with the field observations show that the area has been structurally evolved in several phases of deformation since Late Miocene. The NW-SE-directed post-Miocene compressional event is followed by a regional NW-SE to N-S directed extension operated since Plio-Quaternary.

Keywords: paleo-stress analysis, neotectonics, Late Miocene-Plio-Quaternary, NW Central Anatolia.