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A change in stress regime along the Eskisehir Fault, central northwestern Turkey

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The Eskisehir Fault (EF) which is one of the active main faults in central northwestern Turkey elongated a 150 km long with the WNW-ENE to E-W trending between Bursa and SE Eskisehir. EF is representing a right lateral widespread intra-continental fault zone which has separated from central Anatolian block than Aegean extensional province. Kinematic evolution of this fault determined from inversion of both measured fault-slip vectors (by 209 fault-striae) and earthquake focal mechanism solutions (by 13 earthquakes). The inversion of slip vectors measured on fault planes indicate that a right lateral strike-slip stress regime is dominant having a consistent NW-trending $\sigma_{Hmax}(\sigma_1)$ and NE-trending $\sigma_{Hmin}(\sigma_3)$ axes. This stress regime changes old transpressional to young transtensional probably in Plio-Pleistocene time. Also, the earthquake focal mechanism inversions confirm that the regional transtensional stress regime continues into recent time. These stress states are characterized by NW and NE-trending σ_1 and σ_3 axes, respectively. However, local consistent NE-trending $\sigma_{Hmin}(\sigma_3)$ extension directed normal faulting regime shows in relation with the development of the Eskisehir basins. Kinematic evolution and/or change in the stress regime probably resulted from (1) coeval influence of the forces due to subduction processes along the Cyprus and Hellenic arc in the south, (2) continental collision Anatolia/Arabian plate in the east, (3) anti-clockwise rotation and (4) westward escape and/or extrusion of the Anatolian Block.