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Evolution of pull-apart basins in the south Marmara region, NW Turkey

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The North Anatolian Fault (NAF) is divided into two branches as north and south branch in northwest Anatolia. The southern branch consists of Yenice-Gonen, Manyas-Mustafakemalpasa, Uluabat and Bursa faults. In the region earthquakes are controlled by southern branch of the NAF. Yenice-Gonen fault is a right lateral strike-slip, Manyas-Mustafakemalpasa fault is right lateral strike-slip fault with a normal component, Uluabat fault is a right lateral strike-slip fault with a normal component and Bursa fault is a normal fault. The South Marmara Region has two uplift areas located at southern and northern margins and a depression between these uplifts. In the region morphological structure is controlled by active faulting. Depression area, basins and uplifts formed in neotectonic period. Gonen, Manyas-Karacabey, Uluabat and Bursa basins located in the depression area formed as NE-SW trending pull-apart style. According to analog modelling of pull-apart basins, Gonen basin is of symmetrical type. In Gonen basin, the southern branch of the NAF rotated counter- clockwise, narrowed down in southwest. South and north of Gonen basin bounded by strike-slip faults. Manyas-Karacabey, Uluabat and Bursa basins formed as pull-apart style. They are asymmetrical according to analog modelling of pull-aparts. After the opening of the depression area during in Early Pliocene, the depression has been covered by Quaternary alluvium since. Consequently basins of the South Marmara Region formed during the Pliocene-Quaternary period.