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Recent stages of pull-apart basins along the North Anatolian fault zone through their structural evolutions

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The North Anatolian fault zone is a ∼1200 km long right-lateral active transform fault running through northern Turkey in an E-W direction with an arc shaped geometry. There are numerous basins with idealized shapes along this fault zone that formed in Plio-Quaternary period. All these basins isolated from their surroundings by major fault scarps that mapped as active faults in previous studies. Observations on surface rupturings during the great earthquakes in the last century were not in harmonies with those claimed active faults. Surface ruptures of the earthquakes are characterized by the faults that cut-across basin floors. One of the rupturings during the last great earthquake on this fault zone which known as the Kocaeli earthquake (17 August 1999) was not observed along the boundaries of the İzmit-Sapanca asymmetric pull-apart basin as previously pretended. The other mapped surface ruptures in the recent earthquakes are in consistent with the mentioned rupturing in the last event in the eastern Marmara region. The faults have migrated from the basin margins towards the center of the basins. In this point, the current status of pull-apart basins that faulted in those earthquakes would be interpreted once again. The traced faulting events would have a position during the evolution of strike-slip basins. They were the cross-basin faults in the extinction process of pull-apart basins and reflect the recent status of their structural evolution as mature stage.