



# Propagation of a strike slip plate boundary within a tensional environment : the westward propagation of the North Anatolian Fault

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*The Sea of Marmara marks a key point in the propagation of the North Anatolian Fault (NAF) toward the northern extremity of the Aegean subduction during the last 12-11 Myr. There is no indication that a localized plate boundary existed to the west of it, north of the Aegean portion of the Anatolia plate, before 2 Ma. Prior to 2 Ma, the shear produced by the motion of Anatolia-Aegea with respect to Eurasia was distributed over the whole width of the Aegean-West Anatolian western portion. I document the establishment of the Aegea-Anatolia/Eurasia plate boundary in Plio-Pleistocene time in this geodynamic context. I show that the beginning of the formation of a localized plate boundary occurred between 4.5 and 3.5 Ma at the location of the present Sea of Marmara by the initiation of a shear zone comparable to the Gulf of Corinth one in Central Greece. I show that the beginning of the development of the Main Marmara Fault is not earlier than 2.5 Ma. Shortly after, the plate boundary migrated west of the Sea of Marmara along the northern border of Aegea, completing the system of plate boundaries delimiting the Anatolia-Aegea plate. I relate this migration to the formation of a relatively rigid Aegean block induced by the northeastward progression of the cold oceanic Ionian slab.*

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