



Seismic profiles across the North Anatolian Fault in the Aegean Sea

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The North Anatolian Fault (NAF) is a >1200 km-long continental strike-slip fault system, acting as the plate boundary between Eurasia and Anatolia. West of the Yeniçağa fork in Turkey, the NAF divides in two main strands: the Main Marmara Fault crossing the Marmara Sea to the North, and a southern branch of the NAF crossing the Biga Peninsula. Both strands end in the Aegean Sea, connecting conspicuous horsetail terminations offshore eastern Greece at the North Aegean Trough and off Skyros Island. The northern Aegean Sea is therefore a key area to understand the structural evolution of the North Anatolian strike-slip fault system since its formation in the Late Miocene. Stratigraphic markers in the Aegean Sea provide optimal conditions for the study of the fault system evolution at the time scale of 105-106 years. Here we present a new set of shallow seismic reflection data crossing the NAF in the northern Aegean Sea, acquired in July 2017 onboard the R/V Tethys II (INSU-CNRS/IFREMER). The penetration of the seismic signal reaches the Messinian unconformity. This new dataset allows us to investigate the sub-surface structure of the fault system and to identify key unconformities related to the formation of the horsetail terminations in the Late Pliocene-Early Pleistocene. These new elements will help to better understand the structural evolution of the NAF in the framework of back arc extension in the Aegean Sea since the Late Miocene.