



## **Investigation of the Bimaterial Interface Velocity Contrast along the North Anatolian Fault Zone**

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Recent field studies revealed that the main fault is surrounded by micro-fractures under stress and shear fault branches. The main fault and the damaged area around it are characterized by this micro-fractures and cracks. Recently, new attitudes on fault rupture modeling studies are started to use in order to eliminate these errors and residuals. Asymmetrical distribution of micro-fractures across the fault is the result of repeated occurrence of earthquakes on active fault zones. These earthquake sequences generate bi-material interfaces that separate elastically different materials from each other. It is known that geological fault with long slip history is likely to locate on bi-material interfaces. Bi-material interface causes existence and evaluation of strike slip fault zones and effects fault plane mechanism solutions directly. Velocity contrast across the fault causes error and residuals on earthquake location and focal mechanism solutions. Cracks on bi-material interface rupture have preferential propagation direction. North Anatolian Fault Zone (NAFZ) is fairly continuous between Karlıova in the east and Bolu in the west and has been active with its right lateral strike slip characteristic. It splits into two major branches as northern strand and southern strand. Previous field studies on NAFZ refer bi-material interface along the entire fault zone. In the frame of this study, bi-material interface was investigated through Sakarya and Sapanca segments of North Anatolian Fault and velocity contrast across these faults were imaged. Telesismic waveforms analyzed from 71 broadband seismic stations which are located in Sakarya - Sapanca region during the FaultLab project. Waveform correlation technique which is successfully used and tested in previous studies was used for these calculations.