



Broad Band Data and Noise Observed with Surface Station and Borehole Station

Suleyman Tunc (1), Oguz Ozel (2), Mehmet Safa Arslan (2), Bengi Behiye Akşahin (2), Mustafa Hatipoglu (3), Ragip Cagin Yalcintepe (3), Samim Ada (3), and Nurcan Meral Ozel (4)

(1) Bogazici University, KOERI, Kandilli Obs., UDIM, Turkey (suleyman.tunc@boun.edu.tr), (2) Department of Geophysical Engineering, Istanbul University, Istanbul, Turkey,, (3) Sentez Earth and Structure Engineering Limited, Istanbul, Turkey,, (4) International Monitoring Systems, CTBTO, Vienna, Austria,

Marmara region tectonically is very active and many destructive earthquakes happened in the past. North Anatolian Fault Zone crosses the Marmara region and it has three branches. The northern branch passes through Marmara Sea and expected future large earthquake will happen along this fault zone. There is a gap in seismic network in the Marmara region at offshore and onshore areas.

We have started broadband borehole seismographic observations to obtain the detailed information about fault geometry and its stick-slip behavior beneath the western Marmara Sea, as a part of the MARSite collaborative Project, namely “New Directions in Seismic Hazard Assessment through Focused Earth Observation in the Marmara Supersite-MARSite”. The target area western Marmara of Turkey. In the beginning of the project, we installed eight Broadband surface station around Marmara Sea in April 2014. Then, we added broadband sensor and broadband surface sensor at the same location in November 2014.

In this study, we developed a Matlab application to calculate Power Spectral Density against the New Low Noise Model (NLNM) and New High Noise Model (NHNM) determined for one-hour segments of the data. Also we compared ambient noise of broadband borehole sensor and surface broadband sensor.