Marmara Sea Bottom Observatory (MSBO) Project and Preliminary Results From First Observations

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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 Marma Sea and expected future large earthquke will happen along this fault zone. There is a gap in seismic network in the Marmara region at offshore and onshore areas. This created a weakness in earthquake location. Installation of 10 new land seismic stations and 5 sea bottom observatories were aimed to fill this gap around and within the Sea of Marmara. Four of the stations were located on top of the fault line. Installation of sea bottom observatories was completed 31st of December 2010. Each sea bottom observatory was connected to a site on land by a fiber optic cable. A continuous data flow will be transmitted to the Kandilli Central Recording site by a sattelite from the land transmision station.

Sea Bottom Observatories consist of three component broadband veolocity sensor with a natural period of 360 sec. and digitizers, three component accelerometer , differetial pressure meter, hydrophone, temperature meter, three D current meter, camera , Flux Gate Compass and tiltmeter sensor. This system will be used also for early warning for earthquake related tsunami in the Marmara Sea.

Data obtained from the sea bottom observatories are qood quality and the number of earthquakes recorded per day is nor comparible with the recordings of land stations around the Marmara Sea. Location Marmara Sea earthquakes improved and magnituude treshold level reduced from 2.5 to 1.0.