Microtremor Array Measurement Survey and Strong Ground Motion observation activities of The SATREPS, MarDiM project –Part 3-

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Since 1939, devastating earthquakes with magnitude greater than seven ruptured North Anatolian Fault (NAF) westward, starting from 1939 Erzincan (Ms=7.9) at the eastern Turkey and including the latest 1999 Izmit-Golcuk (Ms=7.4) and the Duzce (Ms=7.2) earthquakes in the eastern Marmara region, Turkey. On the other hand, the west of the Sea of Marmara an Mw7.4 earthquake ruptured the NAF' s Ganos segment in 1912. The only un-ruptured segments of the NAF in the last century are within the Sea of Marmara, and are identified as a "seismic gap" zone that its rupture may cause a devastating earthquake.

In order to unravel the seismic risks of the Marmara region a comprehensive multidisciplinary research project The MarDiM project "Earthquake And Tsunami Disaster Mitigation in The Marmara Region and Disaster Education in Turkey", has already been started since 2003. The project is conducted in the framework of "Science and Technology Research Partnership for Sustainable Development (SATREPS)" sponsored by Japan Science and Technology Agency (JST) and Japan International Cooperation Agency (JICA).

One of the main research field of the project is "Seismic characterization and damage prediction" which aims to improve the prediction accuracy of the estimation of the damages induced by strong ground motions and tsunamis based on reliable source parameters, detailed deep and shallow velocity structure and building data. As for detailed deep and shallow velocity structure microtremor array measurement surveys were conducted in Zeytinburnu district of Istanbul, Tekirdag, Canakkale and Edirne provinces at about 140 sites on October 2013, September 2014, 2015 and 2016. Also in September 2014, 11 accelerometer units were installed mainly in public buildings in both Zeytinburnu and Tekirdag area and are currently in operation. Each accelerometer unit compose of a Network Sensor (CV-374A) by Tokyo Sokushin, post processing PC for data storage and power supply unit. The Network Sensor (CV-374A) consist of three servo type accelerometers for two horizontal and one vertical component combined with 24 bit AD converter.

In the presentation current achievements and activities of research group, preliminary results of microtremor array measurement surveys and recorded data by the newly installed stations will be introduced.