



## **Earthquake and Tsunami Disaster Mitigation in the Marmara Region and Disaster Education in Turkey Part [U+FF14]**

Yoshiyuki Kaneda (1,2,3), Haluk Ozener (4), Nurcan Meral Ozel (4,5), Dogan Kalafat (4), Seckin Ozgur Citak (2), Narumi Takahashi (2,3), Takane Hori (2), Muneo Hori (6), Mayumi Sakamoto (7), Ali Pinar (4), Asim Oguz Ozel (8), Ahmet Cevdet Yalciner (9), Gulum Tanircan (4), and Ahmet Demirtas (10)

(1) Kagawa University, Institute of Education , Research and Regional Cooperation for Crisis Management Shikoku (IECMS), Takamatsu, Japan (kanedaykg@cc.kagawa-u.ac.jp), (2) Japan Agency for Marine-Earth Science and Technology(JAMSTEC), Tokyo, Japan , (3) National Research Institute for Earth Science and Disaster Resilience (NIED), Tsukuba, Japan, (4) Bogazici University, Kandilli Observatory and Earthquake Researches Institute (KOERI), Istanbul, Turkey, (5) International Monitoring System Division, Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Vienna, Austria, (6) Earthquake Research Institute, University of Tokyo, Tokyo, Japan., (7) Disaster Mitigation Research Center, Nagoya University, Nagoya, Japan, , (8) Department of Geophysical Engineering, Istanbul University, Istanbul, Turkey, (9) Department of Civil Engineering, Ocean Engineering Research Center, Middle East Technical University, Ankara, Turkey, (10) Disaster and Emergency Training Center (AFADEM), Disaster and Emergency Management Presidency (AFAD), Ankara, Turkey

There have been many destructive earthquakes and tsunamis in the world. The recent events are, 2004 Sumatra Earthquake/Tsunami, 2011 East Japan Earthquake/Tsunami in Japan, 2015 Nepal Earthquake and 2016 Kumamoto Earthquake in Japan, and so on. And very recently a destructive earthquake occurred in Central Italy. In Turkey, the 1999 Izmit Earthquake as the destructive earthquake occurred along the North Anatolian Fault (NAF). The NAF crosses the Sea of Marmara and the only “seismic gap” remains beneath the Sea of Marmara. Istanbul with high population similar to Tokyo in Japan, is located around the Sea of Marmara where fatal damages expected to be generated as compound damages including Tsunami and liquefaction, when the next destructive Marmara Earthquake occurs. The seismic risk of Istanbul seems to be under the similar risk condition as Tokyo in case of Nankai Trough earthquake and metropolitan earthquake.

It was considered that Japanese and Turkish researchers can share their own experiences during past damaging earthquakes and can prepare for the future large earthquakes in cooperation with each other. Therefore, in 2013 the two countries, Japan and Turkey made an agreement to start a multidisciplinary research project, MarDiM SATREPS.

The Project runs researches to aim to raise the preparedness for possible large-scale earthquake and Tsunami disasters in Marmara Region and it has four research groups with the following goals.

- 1) The first one is Marmara Earthquake Source region observational research group. This group has 4 sub-groups such as Seismicity, Geodesy, Electromagnetics and Trench analyses. Preliminary results such as seismicity and crustal deformation on the sea floor in Sea of Marmara have already achieved.
- 2) The second group focuses on scenario researches of earthquake occurrence along the North Anatolia Fault and precise tsunami simulation in the Marmara region. Research results from this group are to be the model of earthquake occurrence scenario in Sea of Marmara and the case studies with advanced tsunami simulation for measure cities.
- 3) Aims of the third group are improvements and constructions of seismic characterizations and damage predictions based on observation researches and precise simulations. Research results from this group will be very important for disaster measures.
- 4) The fourth group is promoting disaster educations using research result visuals. The mission of this group is very important for information dissemination and practical and effective disaster education in Turkey.

The research results from all components are integrated and utilized for disaster mitigation in Marmara region and disaster education in Turkey. The final research results of the MarDiM SATREPS Project will be officially presented.