Tsunami Human Vulnerability Assessment of Silivri District, Istanbul

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Assessment of tsunami human vulnerability is essential for development of tsunami hazard mitigation strategies especially when the possible affected areas are within a metropolis. The Sea of Marmara has faced tsunami events that are both generated by earthquakes or landslides. Therefore, all the coastal districts of the megacity Istanbul are prone to suffer from tsunami events. Some of the coastal districts of Istanbul have been studied in detailed within the concept of tsunami human vulnerability assessment and the methodology of MeTHuVA (METU Metropolitan Tsunami Human Vulnerability Assessment) is applied and further developed through the application processes (Cankaya et al., 2016 and Tufekci et al., 2017). In this study MeTHuVA methodology is applied to Silivri district, the westernmost and the largest district of Istanbul. Silivri district is located in the northern coast of the Sea of Marmara from $27.98°E$ to $28.40°E$. Silivri district of Istanbul is not only a part of metropolitan city, it is also very common summer vacation spot with many beaches, camping areas and many waterfront residences, facilities and hotels. Therefore, tsunami human vulnerability assessment is an inevitable study for Silivri district of Istanbul. High resolution and detailed spatial dataset of Istanbul Metropolitan Municipality (IMM) is used during the procedure of MeTHuVA, which involves GIS-based MCDA applications. The results of MeTHuVA is analyzed with the deterministically defined worst-case scenario results of tsunami numerical tool NAMI DANCE-GPU, in order to calculate the risk level in every location of Silivri district. Results are presented and discussed.