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Database Development by Modeling for Tsunami Mitigation Strategies for Fethiye Town Turkey

A. C. Yalciner (1), A. Zaytsev (2), A. Chernov (2), C. Ozer (1), D. I. Dilmen (1),

I. Insel (1), E. Pelinovsky (3), A. Kurkin (2) , H. Karakus (1), U. Kanoglu (4)

(1) Middle East Technical University, Civil Engineering Department, Ocean Engineering Research Center, Ankara, Turkey (yalciner@metu.edu.tr, cozer@metu.edu.tr, isilinsel@gmail.com, didilmen@yahoo.co.uk, khulya@metu.edu.tr / Fax: +90 312-2101800) (2) Department of Applied Mathematics, Nizhny, Novgorod State Technical University, Russia (aizaytsev@mail.ru) (3) Department of Nonlinear Geophysical Processes, Institute of Applied Physics, 46 Uljanov Street, 603950 Nizhny Novgorod,Russia, (pelinovsky@hydro.appl.sci-nnov.ru / Fax +7 831-4365976) (4) Middle East Technical University, Department of Engineering Sciences, Ankara, Turkey (kanoglu@metu.edu.tr / Fax: +90 312-2101800)

There are numerous earthquakes and tsunamis that occurred in Eastern Mediterranean and are documented in historical records. Hellenic Arc is one of the important tsunami source regions in Eastern Mediterranean. In order to assess and visualize the tsunami propagation in the Eastern Mediterranean, a new tsunami simulation/visualization software NAMI DANCE is developed and used. In order to evaluate the coastal amplifications of tsunamis in the region, the normalized maximum amplitudes of the water surface near the Southwestern coastline of Turkey are computed.

Fethiye town located at south western coast of Turkey is one of the nearest region to some of the important sources. As a detailed modeling study for Fethiye town and bay is applied using several ruptures of possible tsunami sources in the region. In the simulations the tsunami propagation and coastal amplifications are computed for each case. In order to understand the effects of tsunamis and develop proper and applicable mitigation strategies, simulation results are coupled with GIS database of Fethiye town.

The results show that the amplification of tsunami waves near coastal areas of Fethiye exceeds the amplitude of the initial wave. In one of the case studies, the case of rupture between Rhodes and Fethiye town, tsunami waves will arrive to Fethiye bay within 20 minutes. It is also determined that there is additional oscillations generated by tsunami entering Fethiye bay which can guide the authorities to consider excess inundation and long term agitation at Fethiye town. Method and results are presented and discussed.

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