



## **Numerical simulation of tsunami danger at eastern coast of Mediterranean sea for potential catastrophic underwater earthquakes**

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Numerical modeling of potential strong earthquakes in the Mediterranean Sea with magnitudes of 7.5 and 8 is carried out, with localization close to the localization of the historical catastrophic earthquakes of 365 and 1948. In the work, the tsunami waves on the eastern coast of the Mediterranean Sea were analyzed in detail: Turkey, Egypt, Israel, Lebanon, Cyprus Island. The calculation was carried out within the framework of nonlinear shallow water equations for earthquake sources of various geodynamics. Numerical simulation of the propagation of tsunami waves was carried out up to 5 m isobath. It was obtained that the maximum wave heights on the coast of Turkey reach up to 5 m. So, in the resort town of Belek, the maximum wave heights vary from 0.5 to 1.5 meters. The maximum wave heights on the eastern coast of the Mediterranean reach 5m. On the coast of Israel and Lebanon, for example in the cities of Tel Aviv and Beirut, the maximum wave heights vary from 3.5 to 5 meters. Closer to the north of Lebanon and on the coast of Syria near the city of Tartu, the maximum wave heights vary from 1 to 3.5 meters. In the north of Syria off the coast of Latakia, the maximum wave heights vary from 0.2 to 1.5 meters. Calculations have shown that, given the magnitude of the earthquake for the coast of Cyprus Island, the heights of the waves in some points can reach 5 m, namely in the area of the village of Liver, the heights vary from 2 to 5 meters, and in the city of Paphos from 0.2 to 2.5 meters. One-dimensional and two-dimensional histograms of distributions of maximum wave heights along the entire eastern coast of the Mediterranean Sea, as well as along the whole coast of the island of Cyprus, have been constructed.

Keywords: earthquake and tsunami, earthquake sources, tsunami source, tsunami modeling

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