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Tsunami at Sicilian coast from numerical simulation of two historical Mediterranean earthquakes

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As known, the Mediterranean Sea is characterized by high seismicity. The Hellenic arc is one of most known geological features of Mediterranean. It possesses characteristics of island arc such as deep-sea trench in its convex part and sediment arc in its concave part. Its seismic activity at low and middle depths is high enough, reaching M $\sim$ 8. Since Mediterranean coast is one of highly populated regions of the Earth, and has well developed coastal, including tourist infrastructure, the study of possible tsunami danger at Mediterranean coast remains to be actual problem. Taking into account high seismicity of eastern segment of Hellenic arc and trench in Eastern Mediterranean region, in given work it was stated the problem of estimation of potential danger of appearance of catastrophic tsunami at Sicilian coast and adjacent regions. In present work, the numerical simulation of two historical earthquakes 21 July 365 (M=8,5) and 09 February 1948 (M=7,5). Former one is usually considered as most catastrophic event in the Mediterranean Sea. Appeared tsunami was described as propagation of waves in Eastern Mediterranean basin with large destructive power. For chosen catastrophic earthquakes various scenarios of seismic sources are considered. The computation was performed in frames of multi- block model of seismic source. For both scenarios there were obtained detailed wave characteristics for Sicilian coast, including distribution of maximum wave heights of potential tsunami. Along all coast, at 5m isobate there are constructed histograms for possible maximum wave height. In work, it is demonstrated that keyboard block model of seismic source of earthquake permits choose those scenarios of kinematics in source which permit model adequately wave processes, corresponding to really fixed historical data on earthquakes and tsunami at Sicilian coast. The results are compared with available computable data and historical ones.

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