



The Dead Sea Transform Tsunami of the 1995 Nuweiba Mw 7.2 Earthquake in the Gulf of Elat-Aqaba

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The tsunami generated by the 1995 Nuweiba Mw 7.2 earthquake in the Gulf of Elat-Aqaba (GOE) surprised the local people who were not aware of seismogenic sea waves in their neighborhood, far away from the open sea. Furthermore, the tsunami was triggered by strike slip rupture along the main segment of the Dead Sea Transform system. Eyewitness reports and field observations that were collected after the event, as well as recorded mareogram, showed unequivocally that there was a tsunami and that tsunami hazard in the GOE needs focused examination. In order to investigate the event we adopted the GeoClaw package (LeVeque, 2006, Clawpack software) and simulated selected models of the 1995 Nuweiba earthquake. We then compared the calculated tsunami scenarios with the actual evidences and discuss the outcomes.

The results demonstrate waves with amplitudes slightly higher than the recorded mareogram and eyewitness descriptions. The difference is attributed to the shoaling along the coast in respect to the wave heights recorded by the artificial tide gauges that were placed a few tens of meters off coast. If this was a landslide tsunami, one would expect higher waves with shorter periods, and decrease of wave heights away from the source. But the field evidences do not accord with this assumption. If at all, there could have been minor seismogenic submarine landslide to explain the higher waves reported from the Nuweiba harbor area.

We conclude that the descriptions of wave height, minimal inundation and limited damage, are consistent with the modelled scenarios. This pattern is also expected from a tsunami induced by a strike slip earthquake. We thus validate the GeoClaw platform as an essential tool for tsunami hazard evaluation in the GOE.

There are four countries who share the coasts around the GOE: Israel, Jordan, Saudi Arabia and Egypt, and they all conduct intensive development of marine infrastructure, growth of population and increase of international tourism. It is hoped that this study will promote the understandings of tsunami hazard in the GOE among the authorities who share this area.