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Initial Palaeotsunami and Historical Tsunami in the Makran Subduction Zone of the Northwest Indian Ocean

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Abstract : history of tsunami generating earthquakes along the Makran Subduction Zone provides evidence of the potential tsunami hazard for the whole coastal area. In comparison with other subduction zone in the world, the Makran region of southern Pakistan and southeastern Iran remains low seismicity. Also, it is one of the least studied area in the northwest of the Indian Ocean regarding tsunami studies. We present a review of studies dealing with the historical /and ongoing palaeotsunamis supported by IGCP of UNESCO in the Makran Subduction Zone. The historical tsunami presented here includes about nine tsunamis in the Makran Subduction Zone, of which over 7 tsunamis occur in the eastern Makran. Tsunami is not as common in the western Makran as in the eastern Makran, where a database of historical events exists. The historically well-documented event is related to the 1945 earthquake with a magnitude of 8.1moment magnitude and tsunami in the western and eastern Makran. There are no details as to whether a tsunami was generated by a seismic event before 1945 off western Makran. But several potentially large tsunamigenic events in the MSZ before 1945 occurred in 325 B.C., 1008, 1483, 1524, 1765, 1851, 1864, and 1897. Here we will present new findings from a historical point of view, immediately, we would like to emphasize that the area needs to be considered with higher research investigation. As mentioned above, a palaeotsunami (geological evidence) is now being planned, and here we will present the first phase result. From a risk point of view, the study shows as preliminary achievement within 20 minutes the wave reaches to Iranian as well Pakistan and Oman coastal zone with very much destructive tsunami waves capable of inundating destructive effect. It is important to note that all the coastal areas of all states surrounding the MSZ are being developed very rapidly, so any event would have a devastating effect on this region. Although several papers published about modelling, seismology, tsunami deposits in the last decades; as Makran is a forgotten subduction zone, more data such as the main crustal structure, fault location, and its related parameter are required.

Keywords : historical tsunami, Indian ocean, makran subduction zone, palaeotsunami
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