

on Tsunami Inundation Simulation in the Northwestern Coast of Sabah, Malaysia

Tsunami simulations and inundation analyses are conducted on the northwestern coast of Sabah by assuming earthquake along the Manila Trench (MT) proposed by Salcedo (2010). TUNAMI (Tohoku University's Numerical Analysis Model for Investigation) code is used. To calculate tsunami propagation and inundation we perform numerical simulations of linear and nonlinear shallow water wave equations in a spherical coordinate system with four different spatial grid sizes of 60, 20, 6.6667 and 2.2222 arc-sec. As output points, 24 tide gauge stations are assumed along Kudat coastal areas. Seven scenarios with different moment magnitudes are considered to perform tsunami simulations. Earthquake source regions are divided into four segments, MT1, MT2, MT3, and MT4. Single and multi segmentation are used to assess the scenario earthquakes for all three target areas, Kudat Peninsula, Balambangan Island and Banggi Island. Computation results show that the tsunami heights are larger with large slip on the fault. We found that the slip on the segment MT1 is not sensitive for the tsunami height to the coastal area of northwest Sabah. We also found that the most significant tsunami is expected from MT4, as well as MT3 and MT2 cause large tsunamis.

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