

**Simulation of MOST model for
2004 Sumathra tsunami event and
deterministic worst case tsunami scenarios**

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Two-third of the coastal belt of Sri Lanka suffered massive loss of life and damage to property due to the tsunami generated by the great earthquake of 26 December 2004 in the Andaman–Sumatran subduction zone. The extension of tsunami inundation and consequent damage were not uniform over the tsunami affected coastal areas. Therefore, a detailed assessment of the onshore distance within which significant inundation can be caused by potential tsunami may provide useful information to identify low-hazard site areas to locate evacuation centers and to prepare evacuation routes.

The MOST (Method of Splitting Tsunami) model, developed by National Oceanic and Atmospheric Administration (NOAA) is one of only two fully validated hydrodynamic models for operational tsunami propagation and inundation. Inundation Phase modeling performs on three distinct, nested, but overlapping DEM (Digital Elevation Model) finite difference data sets and model outputs are Tsunami arrival time, Maximum wave height and inundation level.

MOST model is simulated for Sumatra 2004 Tsunami with 8.8 magnitude to see the impact on different coastal areas. Inundation studies are conducted taking a probabilistic approach in which multiple tsunami scenarios are considered. For this study two tsunamigenic fault rupture scenarios are investigated for Makran subduction zone located in the north of the Arabian Sea and Arakan subduction zone located in the north east of the Bay of Bengal.