



## **Simulation of earthquake tsunami inundation along the Tamil Nadu coastline, India**

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This study presents simulations of earthquake tsunami propagation and inundation towards the Indian coastlines, more specifically towards the town of Nagapattinam in the Tamil Nadu region. The MIKE 21 Flow model as well as a combination the dispersive GloBouss model and the ComMIT model are employed, and a model comparison is provided. The study includes modeling of the historical Mw9.3 2004 Indian Ocean tsunami as well as two smaller synthetic Mw8.5 scenarios that may serve as worst case future scenarios for hazard assessment. The Mw9.3 Indian Ocean tsunami serves as a good case for model validation against field data, and as a method to calibrate the inundation parameters such as the surface roughness based on Manning type friction terms. Maximum inundation for the two Mw8.5 scenarios are in the range of 2-4m. Model comparisons of the open ocean tsunami propagation and the inundation are performed, and differences in the modeling approaches are discussed. Overall, the current modeling results provide quite similar results without major differences in the maximum run-up height and inundation distance. On the other hand, discrepancies in the two modeling approaches are present, due to different treatment of effects such as frequency dispersion and drying-wetting. A discussion of such effects is presented.