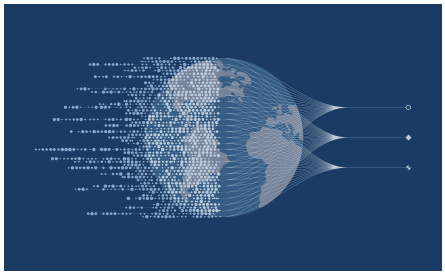

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Verification and Modelling of Tsunami Arrival Time and Wave Height Along Thailand's Andaman Sea Coast Using an Enhanced TOAST

Tuesday 9 September 2025 13:45 (15 minutes)

After the Sumatra-Andaman earthquake, leading to a tsunami devastating Thailand's west coast, concerns were raised about the effects on infrastructure and human life. This study aims to model Tsunami Arrival Times and Wave Heights along the Andaman Sea Coast of Thailand using the TOAST (Tsunami Observation and Simulation Terminal) module integrated into the SeisComP software. The default bathymetry resolution was modified from 3.7 km to 0.46 km, and the impacted area was set to more detail at the subdistrict level to improve the accuracy of hazard assessments. The 2004 Indian Ocean Tsunami simulations and actual tidal gauge data were compared to evaluate the accuracy of the improved TOAST model. There was no significant difference in the first tsunami wave arrival. However, the maximum wave arrival time was close to the actual data at the Kuraburi tide gauge station, which was 9 minutes early, and 28 minutes late at Taphao Noi tide gauge station. Simulations along the Sumatra-Andaman subduction zone identified Lam Kaen Subdistrict as the first impacted area and Thung Maphrao Subdistrict as having the highest wave height. Thus, the adjusted TOAST can inform the public about tsunami arrival times on Thailand's west coast.

E-mail

cp.chutimonpr@gmail.com

In-person or online preference

Primary author: Ms PROMSUK, Chutimon (Thai Meteorological Department)

Co-author: Dr PORNSOPIN, Patinya (Thai Meteorological Department)

Presenter: Ms PROMSUK, Chutimon (Thai Meteorological Department)

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