Geophysical Research Abstracts, Vol. 7, 10367, 2005
SRef-ID: 1607-7962/gra/EGU05-A-10367

Modeling of the Indian Ocean tsunami: lessons for warning and hazard mitigation

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At present, numerical models of tsunami propagation dynamics are not part of the tsunami warning procedures. Although, results of such models were not available in “real time” for the Indian Ocean tsunami, several tsunami propagation simulations became available shortly after the event, demonstrating ones again the feasibility of "real-time" tsunami modeling for warning. Feasibility, however, does not mean easy implementation. Technical obstacles of achieving this capability are many. The presentation discusses requirements for the real-time forecast models and for the tsunami hazard mitigation applications. Three primary requirements are accuracy, speed, and robustness. Simulation of the Indian Ocean tsunami highlighted difficulties and, at the same time, illustrated the value of model estimates for both, warning and hazard mitigation. The lessons learned from the MOST model simulation of the Indian Ocean tsunami and from previous tsunami modeling efforts are discussed.