TSUNAMI HAZARD SIMULATION MAPPING OF NORTHEAST JAPAN USING SRTM30 DATA

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ABSTRACT: The 2011 Tōhoku earthquake, also known as the "Great East Japan Earthquake", (Japanese: Higashi Nihon Daishinsai) was a magnitude 9.0 (Mw) undersea megathrust earthquake off the coast of Japan that occurred at 14:46 JST (05:46 UTC) on Friday, 11 March 2011. Simulations of the inundated and devastated areas of the tsunami were conducted using data from Shuttle Radar Topography Mission (SRTM30 ~ 1-arc second resolution). Digital elevation models (DEM) draped with Landsat TM (pre-disaster) images were produced, onto which tsunami/sea-level heights were simulated at scenarios of 1-meter, 3-meters, 5-meters, 7-meters, 10-meters, 12-meters, 15-meters, 17-meters and 20-meters, along three coastal towns of northeastern Japan. Validation and accuracy assessment of resulting (simulated) coastal inundations were done and were visually compared with the post-disaster images of the actual tsunami-devastated areas. The simulated inundation scenarios show considerable accuracies. The technique may have promising applications on tsunami/coastal hazard zoning, as well as, forecasting sea-level rise scenarios.