Tsunami inundation mapping for Alaska communities

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Abstract. Seismic events that occur within the Alaska-Aleutian subduction zone have a high potential for generating both local and Pacific-wide tsunamis. To help mitigate the large risk these earthquakes and tsunamis pose to Alaskan coastal communities, the Alaska tsunami modeling group participates in the National Tsunami Hazard Mitigation Program through evaluating and mapping the inundation of Alaska coastlines. We address the problem of predicting run-up of waves onto the coast with a numerical modeling technique that solves the nonlinear shallow-water equations with a finite-difference method. Embedded grids of different resolution are employed to increase spatial resolution in the shelf area. The simulation yields run-up heights, tsunami travel times and inundation patterns to evaluate the potential tsunami hazard for Alaskan communities and to provide GIS-based tsunami inundation maps for emergency planning of evacuation routes. Results will be presented for the three communities on Kodiak Island that were selected as the first communities in Alaska for inundation mapping, and for the next two communities from the priority list developed by the oversight committee.

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