METHOD OF PREPARATION

Tsunami modeling was performed by the Tsunami Research Group at Texas A&M University at Galveston. Funded by the National Tsunami Hazard Mitigation Program. The tsunami modeling process utilized the 3D model TSUNAMI3D. The tsunami generation phase (TSUNAMI3D) used a 3 arc-second (∼10m) resolution grid generated using a 15 arc-second (∼450m) resolution bathymetric/topographic data. Tsunami inundation modeling (TSUNAMI3D) was performed using three different models: the probabilistic inundation modeling phases (NFLD/DAFNE) consisted of a series of nested grids with 1/3 arc-second (∼0.9m), 1/1 arc-second (∼3m), and 1/5 arc-second (∼15m) resolution. These grids were obtained from the National Geophysical Data Center (NGDC) Coastal Relief Model (CRM) with 3 arc-second (∼90m) resolution. Near-shore grids with a 3 arc-second (∼90m) resolution were also generated by the National Oceanic and Atmospheric Administration (NOAA) National Geophysical data Center (NGDC) Coastal Relief Model (CRM). The probabilistic inundation modeling (NFLD/DAFNE) was performed using a series of nested grids with 1/3 arc-second (∼0.9m), 1/1 arc-second (∼3m), and 1/5 arc-second (∼15m) resolution. These grids were obtained from the National Geophysical data Center (NGDC) Coastal Relief Model (CRM). The probabilistic inundation modeling (NFLD/DAFNE) was performed using a series of nested grids with 1/3 arc-second (∼0.9m), 1/1 arc-second (∼3m), and 1/5 arc-second (∼15m) resolution. These grids were obtained from the National Geophysical data Center (NGDC) Coastal Relief Model (CRM).

Local submarine landslides are considered to be the primary potential source of tsunami generation in the Gulf of Mexico (van der Beek et al., 2009). A suite of seven tsunami source events was used for tsunami modeling, including three identified ancient events (van der Beek et al., 2009) and four synthetic probabilistic submarine landslides (PSL-A, PSL-B1, PSL-B2, PSL-C) which represent the maximum credible events that could occur in specific regions in the Gulf of Mexico according to the local bathymetry, seafloor slope, and sediment information (Pampell-Manis et al., 2013). The location of these sources is indicated in the adjacent table.

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REFERENCES

van der Beek, J., de Vries, A., Kao, G., & S. van der Beek, 2013. A simplified 3-D numerical model for landslide-induced tsunami generation and propagation as representative of the landslide. This map represents the maximum credible tsunami inundation from all seven tsunami source events considered here and does not represent inundation from a single tsunami event.

DISCLAIMER

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