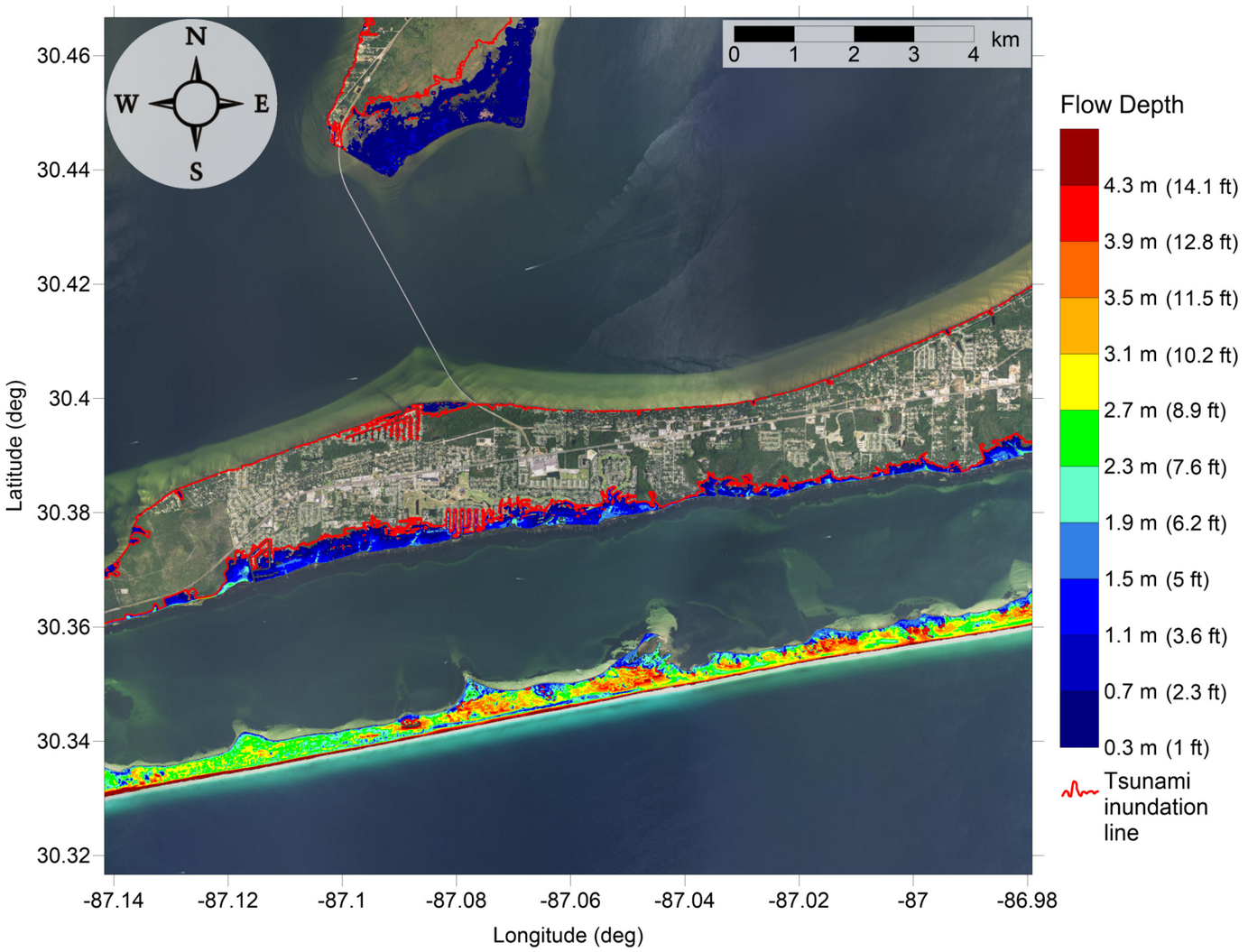
National Oceanic and Atmospheric Adminstration (NOAA)
National Tsunami Hazarad Mitigation Plan (NTHMP)
Texas A&M University at Galveston (TAMUG)

Tsunami Inundation Map
East Gulf Breeze

State of Florida
East Gulf Breeze



MAXIMUM ESTIMATED TSUNAMI INUNDATION

State of Florida - East Gulf Breeze

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 (Horrillo et al., 2013) to model landslide-generated tsunamis, coupled with the 2D model NEOWAVE (Yamazaki et al., 2008) which calculates wave propagation and detailed runup for inundation mapping. T tsunami generation phase (TSUNAMI3D) used a 15 arc-second (∼450m) resolution grid with bathymetry obtained from the National Oceanic and Atmospheric Administration (NOAA) National Geophysical data Center (NGDC) Coastal Relief Model (CRM) with 3 arc-second (∼90m) resolution. The propagation/inundation modeling phase (NEOWAVE) consisted of a series of nested grids from 15 arc-second (∼450m) to 1/3 arc-second (∼10m) resolution. Bathymetric/topographic data used in the 15 arc-second (∼ 450m) resolution grids were obtained from NOAA NGDC CRM. Near-shore grids with a 3 arc-second (∼90m) or higher resolution were obtained from the NOAA NGDC Tsunami Inundation Digital Elevation Models (DEMs) with 1/3 arc-second (∼ 10m) resolution and were adjusted to Mean High Water sea level conditions, representing a conservative sea level for the intended use of tsunami modeling and mapping.

Local submarine landslides are considered to be the primary potential source of tsunami generation in the Gulf of Mexico (ten Brink et al., 2009). A suite of seven tsunami source events was used for tsunami modeling, including three identified ancient events (ten Brink 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., *J. Geophys. Res. Oceans*, under review). The location of these sources is indicated in the adjacent table.

The accuracy of the flow depth and inundation line shown on this map is subject to limitations including accuracy of available bathymetry/topography data, tsunami source information, and the current scientific understanding of tsunami generation and propagation as expressed in the models. This map represents the composite maximum inundation from all seven tsunami sources considered here and does not represent inundation from a single tsunami event.

REFERENCES

Horrillo, J., Wood A., Kim, G.-B, A. Parambath A., 2013. A simplified 3-D Navier-Stokes numerical model for landslide-tsunami: Application to the Gulf of Mexico. J. Geophys. Res. Oceans, 118, 6934-6950.

ten Brink, U., Twichel, D., Lynett, P., Geist. E., Chaytor, J., Lee. H., Buczkowski, B., Flores, C., 2009. Regional Assessment of Tsunami Potential in the Gulf of Mexico. Open-File Report. U.S. Geological Survey.

Yamazaki, Y., Kowalik, Z., Cheung, K.F., 2008. Depth-integrated, non-hydrostatic model for wave breaking and run-up. Int. J. Numer. Meth. Fluids, 61(5), 473-497.

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Tsunami Sources Modeled for the East Gulf Breeze coastline

LOCAL LANDSLIDE SOURCES GULF OF MEXICO		LOCATION (Deg)
Historical	East Breaks	Long: -95.68 Lat: 27.70
	Mississippi Canyon	Long: -90.00 Lat: 28.60
	West Florida	Long: -84.75 Lat: 25.95
Probabilistic	PSL-A	Long: -94.30 Lat: 27.98
	PSL-B1	Long: -91.56 Lat: 28.05
	PSL-B2	Long: -91.01 Lat: 26.17
	PSL-C	Long: -87.20 Lat: 28.62

INTENDED USE

This tsunami inundation map was prepared to assist local emergency management in identifying their tsunami hazard. It is intended for local jurisdictional, coastal evacuation planning uses only. This map is not intended for site-specific or land-use purposes or regulations.

This inundation map has been compiled with the best currently available scientific information. The inundation line represents the maximum considered tsunami runup from a number of maximum credible tsunami sources, thus all of the inundation seen in a particular area will not likely be inundated during a single tsunami event. However, actual conditions during a tsunami may vary, so the accuracy of the inundation shown here cannot be guaranteed. Although an attempt has been made to identify a credible upper bound to inundation at any location along the coastline, it remains possible that actual inundation could be greater in a major tsunami event. This map is intended to portray the worst case scenario and does not provide any further information about the return periods of the events studied here. Interpretation of this tsunami inundation map by qualified individuals is strongly recommended.

MAP BASE

Topographic base map obtained from the ArcGIS World Imagery database, exported with a resolution of approximately 1/3 arc-seconds (∼10m). Tsunami inundation line boundaries may reflect updated digital topographic data that can differ significantly from contours shown on the base map.

DISCLAIMER

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