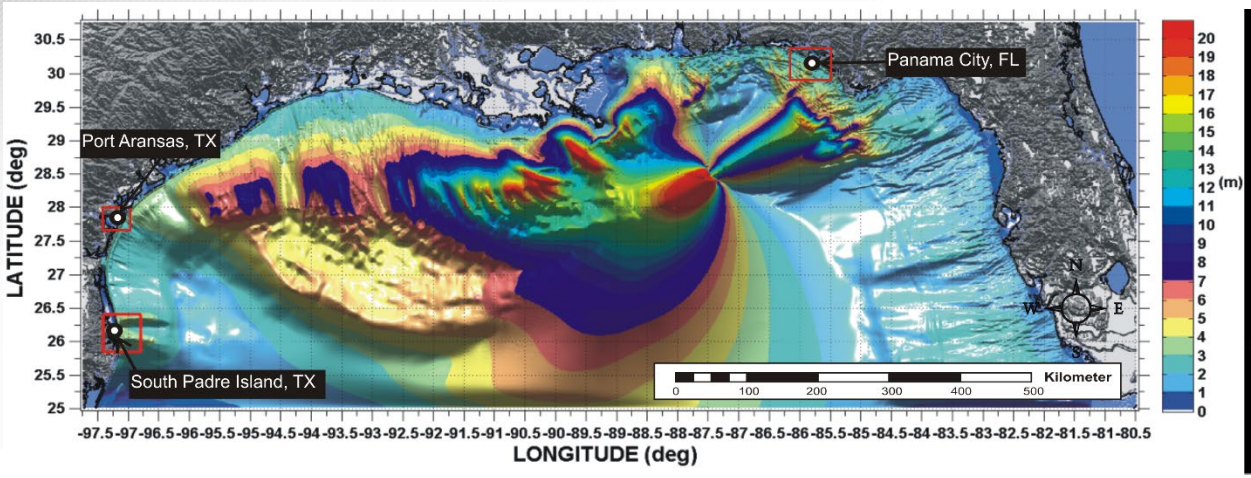
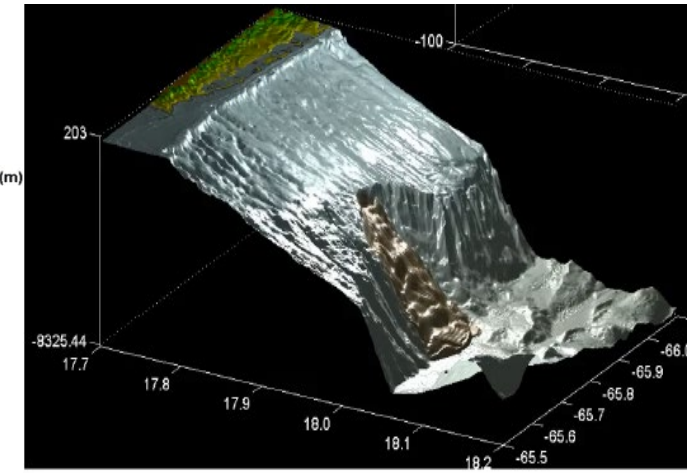
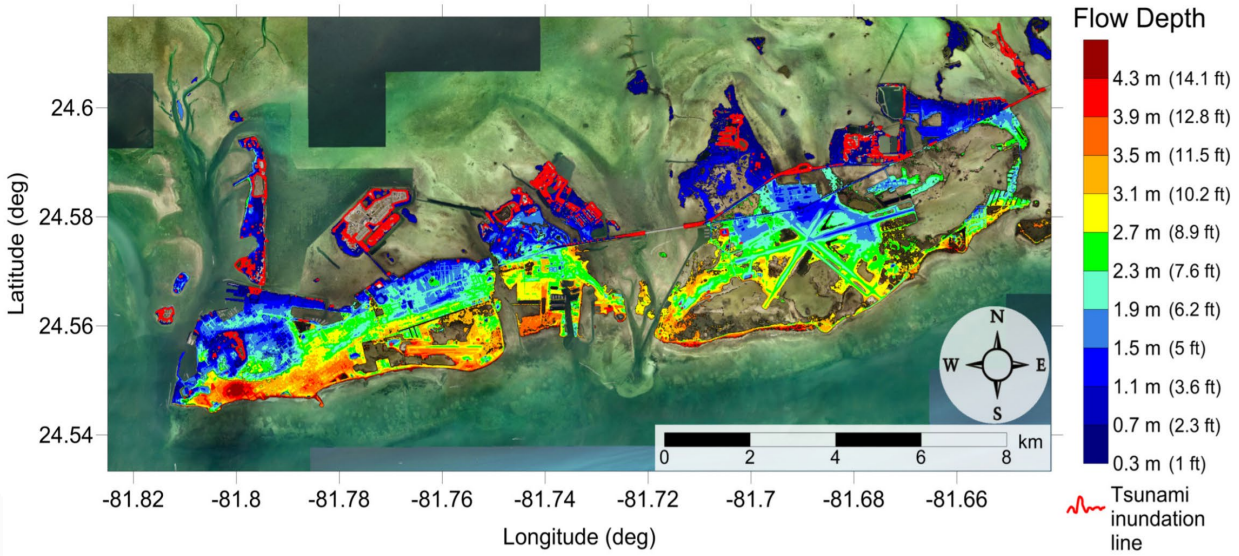
Dwight Look College of ENGINEERING
TEXAS A&M UNIVERSITY

Gulf Coast Partner Brief







Juan J Horrillo
Brad Baker
Dr. Wei Cheng

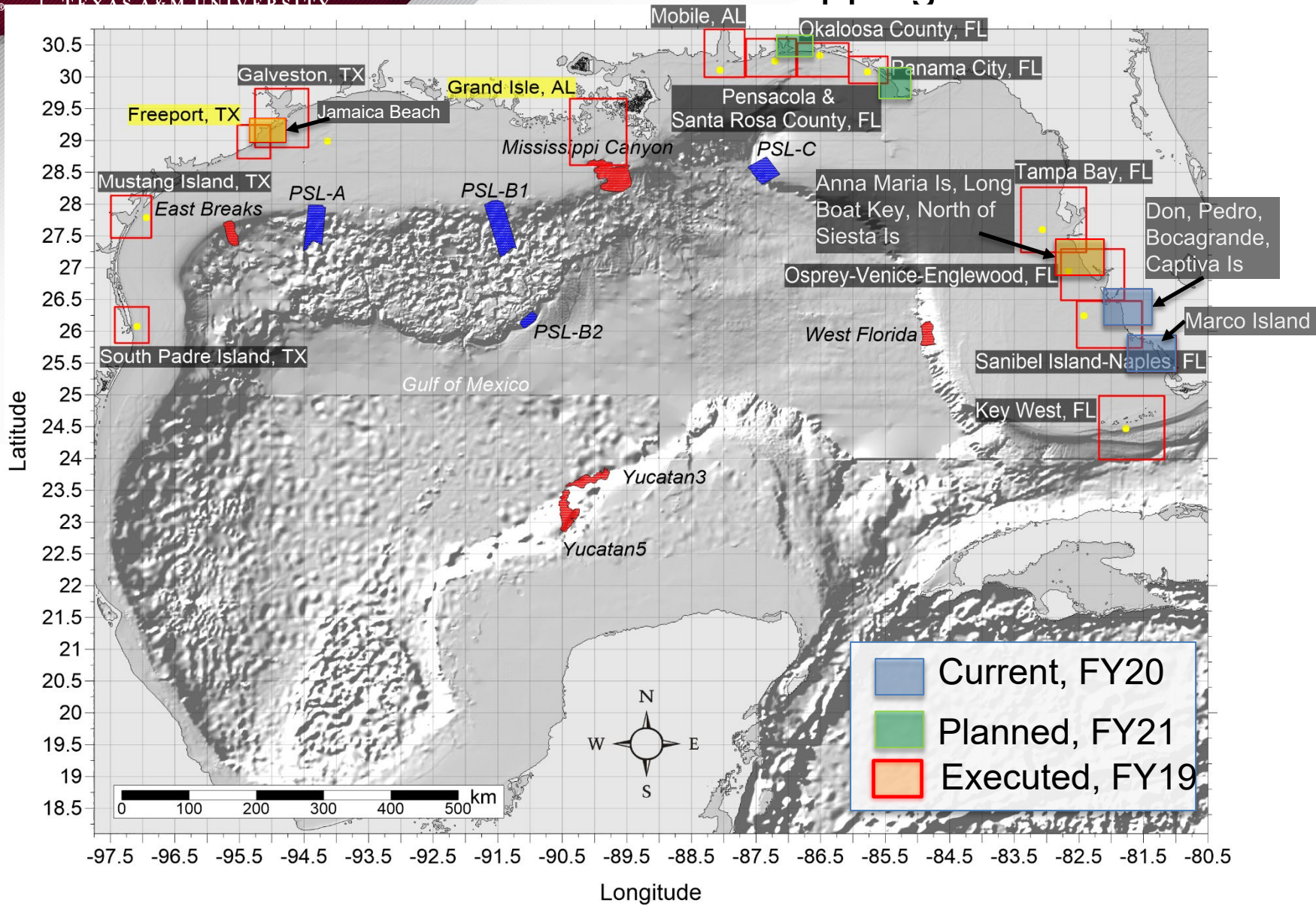
Students
Alwin Jose
Yuchen Shang

May 20 - 2021

Content

- Briefing on: FY19 work done, FY20 current progress & FY21 plan.
- Some examples of tsunami hazard mitigation products for the GoM
- Meteotsunami (MT) characterization for the GoM.
- GC Emergency manager (EM) Activities

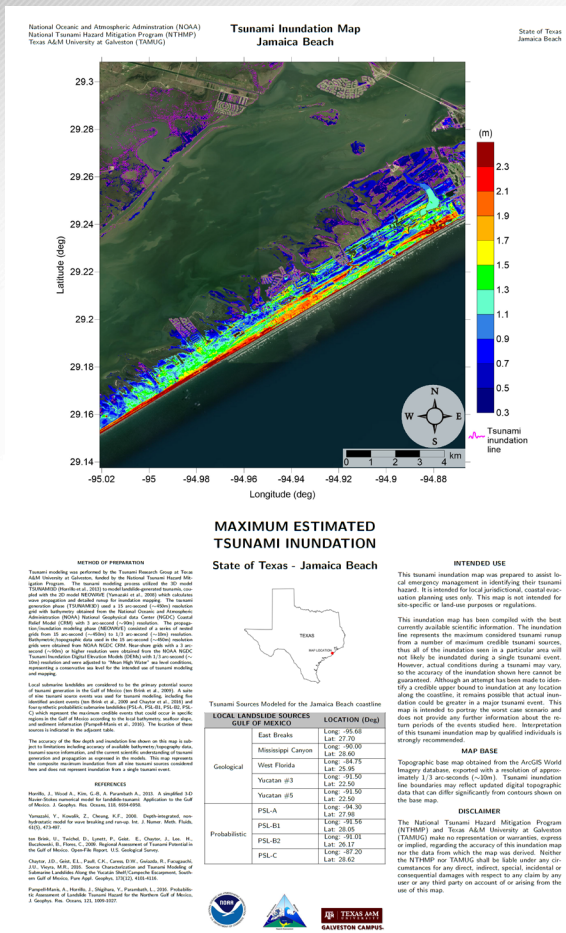
Tsunami Mapping Activities



http://tsunamimodel.cloud/tsunamimaps.html,

Dwight Look College of ENGINEERING
TEXAS A&M UNIVERSITY

FY19 Work Delivered



National Oceanic and Atmospheric Administration (NOAA)
National Tsunami Hazard Mitigation Program (NTHMP)
Texas A&M University at Galveston (TAMUG)

Tsunami Inundation Map
Jamaica Beach

State of Texas
Jamaica Beach

Latitude (deg)
Longitude (deg)
(m)
Tsunami inundation line

MAXIMUM ESTIMATED TSUNAMI INUNDATION

State of Texas - Jamaica Beach

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 NEOWAVE (Yamazaki et al., 2008) which calculates wave propagation and detailed runup for inundation mapping. The 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. Nine-three grids with a 1 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 nine tsunami scenarios were used for tsunami modeling, including five historical/paleo-events (ten Brink et al., 2009 and Chaytor et al., 2004) 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., 2016). 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 nine 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.

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.

ten Brink, U., Twichell, 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.

Chaytor, J.D., Geist, E.L., Paull, C.K., Caress, D.W., Gwiazda, R., Parsegian, J.U., Vieira, M.R., 2016. Source Characterization and Tsunami Modeling of Submarine Landslides Along the Yucatan Shelf/Campeche Escarpment, Southern Gulf of Mexico, Pure Appl. Geophys, 173(12), 4101-4118.

Pampell-Manis, A., Horrillo, J., Shigihara, Y., Parambath, L., 2016. Probabilistic Assessment of Landslide Tsunami Hazard for the Northern Gulf of Mexico, J. Geophys. Res. Oceans, 121, 1009-1027.

Tsunami Sources Modeled for the Jamaica Beach coastline

LOCAL LANDSLIDE SOURCES GULF OF MEXICO		LOCATION (Deg)
Geological	East Breaks	Long: -95.68 Lat. 27.70
	Mississippi Canyon	Long: -90.00 Lat. 28.60
	West Florida	Long: -84.75 Lat. 25.95
	Yucatan #3	Long: -91.50 Lat. 22.50
	Yucatan #5	Long: -91.50 Lat. 22.50
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.

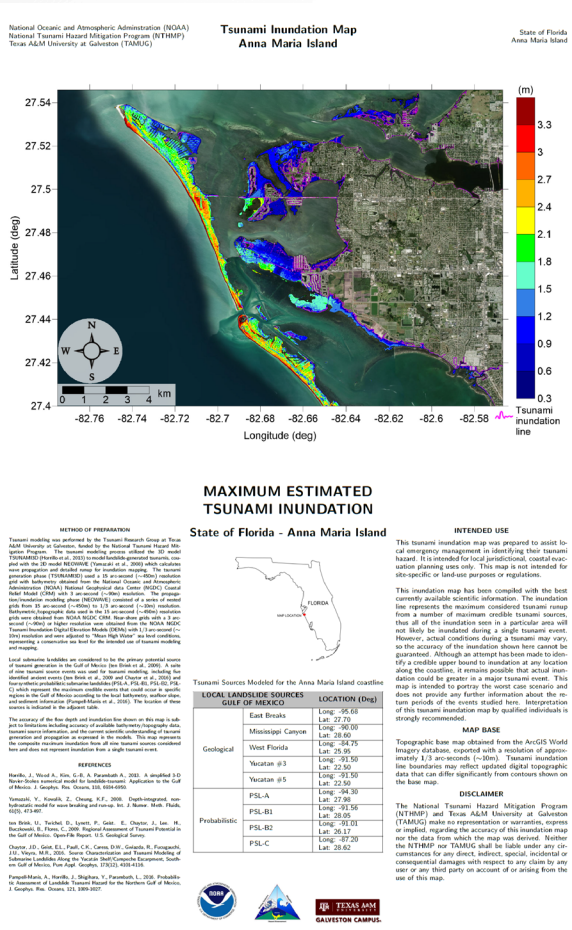
This inundation map has been compiled with the best currently available scientific information. The inundation line represents the maximum considered tsunami runup from a number of maximum credible tsunami sources, thus all of the inundation seen in a particular area will not likely be inundated during 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

The National Tsunami Hazard Mitigation Program (NTHMP) and Texas A&M University at Galveston (TAMUG) make no representation or warranties, express or implied, regarding the accuracy of this inundation map nor the data from which the map was derived. Neither the NTHMP nor TAMUG shall be liable under any circumstances for any direct, indirect, special, incidental or consequential damages with respect to any claim by any user or any third party on account of or arising from the use of this map.



National Oceanic and Atmospheric Administration (NOAA)
National Tsunami Hazard Mitigation Program (NTHMP)
Texas A&M University at Galveston (TAMUG)

Tsunami Inundation Map
Anna Maria Island

State of Florida
Anna Maria Island

Latitude (deg)
Longitude (deg)
(m)
Tsunami inundation line

MAXIMUM ESTIMATED TSUNAMI INUNDATION

State of Florida - Anna Maria Island

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 NEOWAVE (Yamazaki et al., 2008) which calculates wave propagation and detailed runup for inundation mapping. The 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. Nine-three grids with a 1 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 nine tsunami scenarios were used for tsunami modeling, including five historical/paleo-events (ten Brink et al., 2009 and Chaytor et al., 2004) 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., 2016). 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 nine 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.

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.

ten Brink, U., Twichell, 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.

Chaytor, J.D., Geist, E.L., Paull, C.K., Caress, D.W., Gwiazda, R., Parsegian, J.U., Vieira, M.R., 2016. Source Characterization and Tsunami Modeling of Submarine Landslides Along the Yucatan Shelf/Campeche Escarpment, Southern Gulf of Mexico, Pure Appl. Geophys, 173(12), 4101-4118.

Pampell-Manis, A., Horrillo, J., Shigihara, Y., Parambath, L., 2016. Probabilistic Assessment of Landslide Tsunami Hazard for the Northern Gulf of Mexico, J. Geophys. Res. Oceans, 121, 1009-1027.

Tsunami Sources Modeled for the Anna Maria Island coastline

LOCAL LANDSLIDE SOURCES GULF OF MEXICO		LOCATION (Deg)
Geological	East Breaks	Long: -95.68 Lat. 27.70
	Mississippi Canyon	Long: -90.00 Lat. 28.60
	West Florida	Long: -84.75 Lat. 25.95
	Yucatan #3	Long: -91.50 Lat. 22.50
	Yucatan #5	Long: -91.50 Lat. 22.50
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.

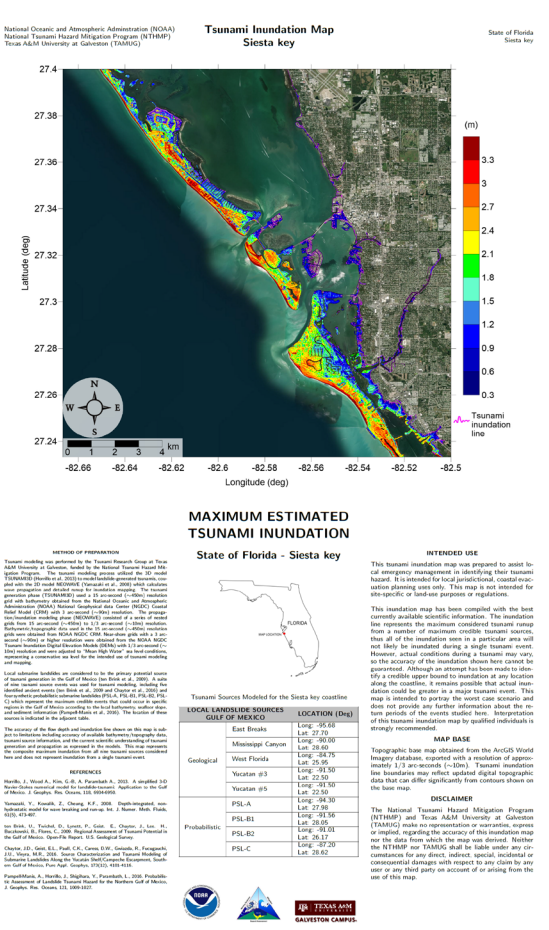
This inundation map has been compiled with the best currently available scientific information. The inundation line represents the maximum considered tsunami runup from a number of maximum credible tsunami sources, thus all of the inundation seen in a particular area will not likely be inundated during 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

The National Tsunami Hazard Mitigation Program (NTHMP) and Texas A&M University at Galveston (TAMUG) make no representation or warranties, express or implied, regarding the accuracy of this inundation map nor the data from which the map was derived. Neither the NTHMP nor TAMUG shall be liable under any circumstances for any direct, indirect, special, incidental or consequential damages with respect to any claim by any user or any third party on account of or arising from the use of this map.



National Oceanic and Atmospheric Administration (NOAA)
National Tsunami Hazard Mitigation Program (NTHMP)
Texas A&M University at Galveston (TAMUG)

Tsunami Inundation Map
Siesta key

State of Florida
Siesta key

Latitude (deg)
Longitude (deg)
(m)
Tsunami inundation line

MAXIMUM ESTIMATED TSUNAMI INUNDATION

State of Florida - Siesta key

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 NEOWAVE (Yamazaki et al., 2008) which calculates wave propagation and detailed runup for inundation mapping. The 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. Nine-three grids with a 1 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 nine tsunami scenarios were used for tsunami modeling, including five historical/paleo-events (ten Brink et al., 2009 and Chaytor et al., 2004) 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., 2016). 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 nine 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.

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.

ten Brink, U., Twichell, 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.

Chaytor, J.D., Geist, E.L., Paull, C.K., Caress, D.W., Gwiazda, R., Parsegian, J.U., Vieira, M.R., 2016. Source Characterization and Tsunami Modeling of Submarine Landslides Along the Yucatan Shelf/Campeche Escarpment, Southern Gulf of Mexico, Pure Appl. Geophys, 173(12), 4101-4118.

Pampell-Manis, A., Horrillo, J., Shigihara, Y., Parambath, L., 2016. Probabilistic Assessment of Landslide Tsunami Hazard for the Northern Gulf of Mexico, J. Geophys. Res. Oceans, 121, 1009-1027.

Tsunami Sources Modeled for the Siesta key coastline

LOCAL LANDSLIDE SOURCES GULF OF MEXICO		LOCATION (Deg)
Geological	East Breaks	Long: -95.68 Lat. 27.70
	Mississippi Canyon	Long: -90.00 Lat. 28.60
	West Florida	Long: -84.75 Lat. 25.95
	Yucatan #3	Long: -91.50 Lat. 22.50
	Yucatan #5	Long: -91.50 Lat. 22.50
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

The National Tsunami Hazard Mitigation Program (NTHMP) and Texas A&M University at Galveston (TAMUG) make no representation or warranties, express or implied, regarding the accuracy of this inundation map nor the data from which the map was derived. Neither the NTHMP nor TAMUG shall be liable under any circumstances for any direct, indirect, special, incidental or consequential damages with respect to any claim by any user or any third party on account of or arising from the use of this map.

https://www.tamug.edu/tsunami/NTHMP.html

SUMMARY
Plan FY21

- The main objective of this project is to continue the development of tsunami inundation maps for the Gulf of Mexico (GOM) and advance in our current development/products for Tsunami/Meteotsunami hazard mitigation .
- **TASK 1-** It is expected to develop two new sets of inundation maps (inundation depth, momentum flux, vorticity and damaging current) along the West of Pensacola FL (Gulf Shore, Orange Beach, and Perdido Key) and Mexico Beach, FL. using 1/3 arc-second resolution. Maps include momentum flux for engineering structural design and maritime products (damaging current magnitude and vorticity). Also maps include tsunami flood in term of hurricane cat. for temporal-low-order inundation estimation
- **TASK 2-** Continuation of the MT analysis on US GOM regions that have the potential to enhance the wave signal. A Web-based tool (able to run thousands of simulations in a relative short duration) will be used to determine the MT hazard (maximum credible MT) along the US GOM coastline.
- **TASK 3-** MMS-supported FY21 task: Development and evaluation of a methodology for landslide probabilistic tsunami hazard assessment in the US. (Partners: EAST COAST (Stephan Grilli) & California (Pat Lynett)
- **TASK 4-** NTHMP Travel Meetings for SR and EM

GOM METEOTSUNAMI ACTIVITIES

- Meteotsunamis are ubiquitous in the north-eastern-western Gulf of Mexico and can be triggered by winter and summer extra-tropical storms and by tropical cyclones. (Ex: Harvey, 2017)

- A total of 15 to 25 meteotsunamis per year are observed in the western side of Florida, and on average, 1 to 3 meteotsunamis per year are >0.5m (~1.64 feet).

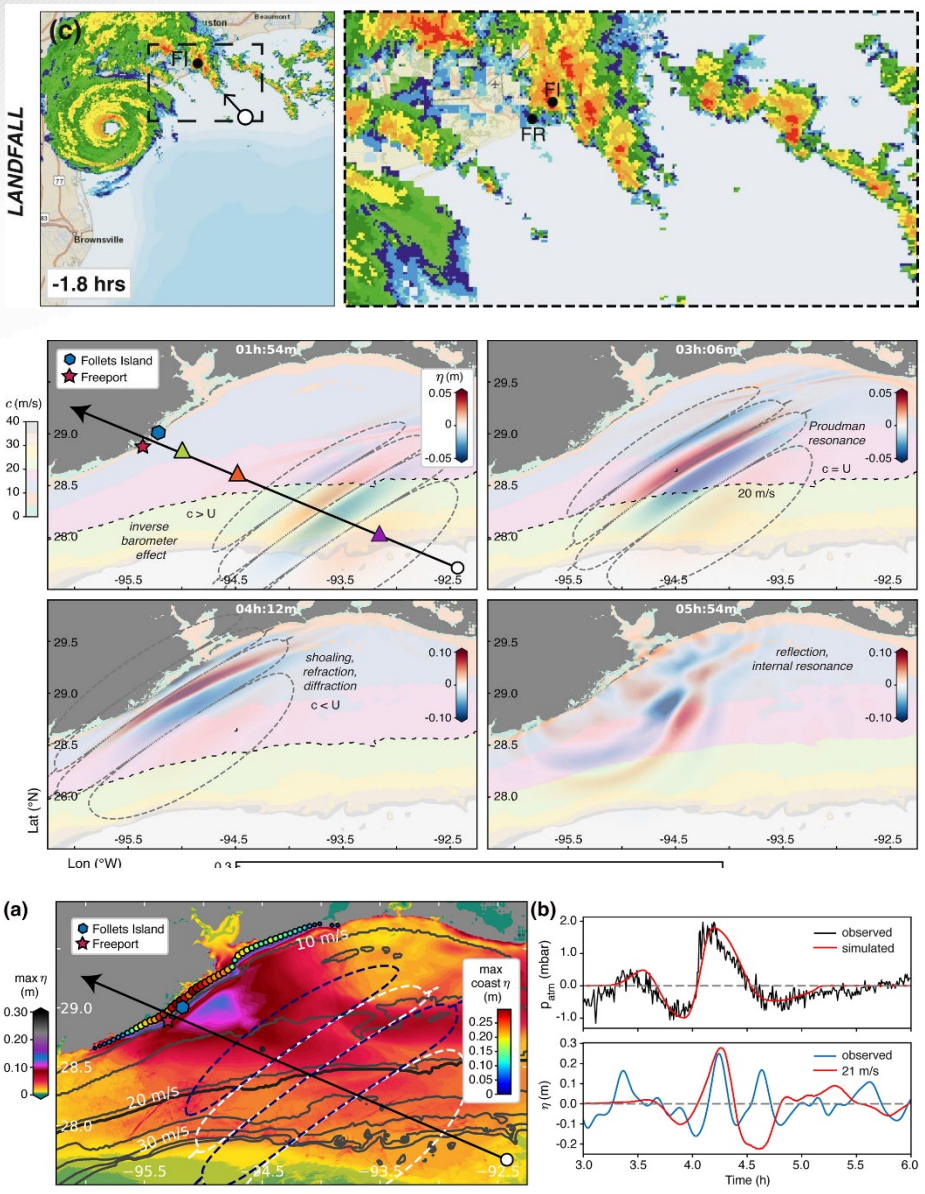
GOM METEOTSUNAMI ACTIVITIES

	DATE	Δη (m)	ΔP (hPa)	ΔU (m/s)	ΔP/ ΔT (hPa/s)	ΔU/ ΔT (m/s^2)
New Canal Station, LA	04/03/2017	0.5	0.85	11.6	1.18E-3	2.68E-2
Freshwater Canal Locks, LA	12/13/2015	0.82	2.0	5.8	1.85E-3	1.61E-2
Shell Beach, LA	03/19/2016	0.29	3.2	13.1	2.96E-3	1.22E-2
Bay Waveland Yacht Club, MS	02/15/2016	0.18	*	*	*	*
Dauphin Island, AL	04/03/2017	0.26	2.9	12.9	2.59E-3	8.65E-3
Pensacola, FL	04/03/2013	0.23	4.8	4.0	6.67E-3	4.44E-3
Panama City Beach, FL	03/28/2014	0.86	3.5	16.3	3.24E-3	1.64E-2
Panama City, FL	03/28/2014	0.34	3.5	11.5	3.24E-3	1.32E-2
Apalachicola, FL	04/14/2013	0.18	4.4	6.3	2.18E-3	5.57E-3
Cedar Key, FL	03/04/2012	0.25	1.6	5.7	4.44E-3	3.96E-3

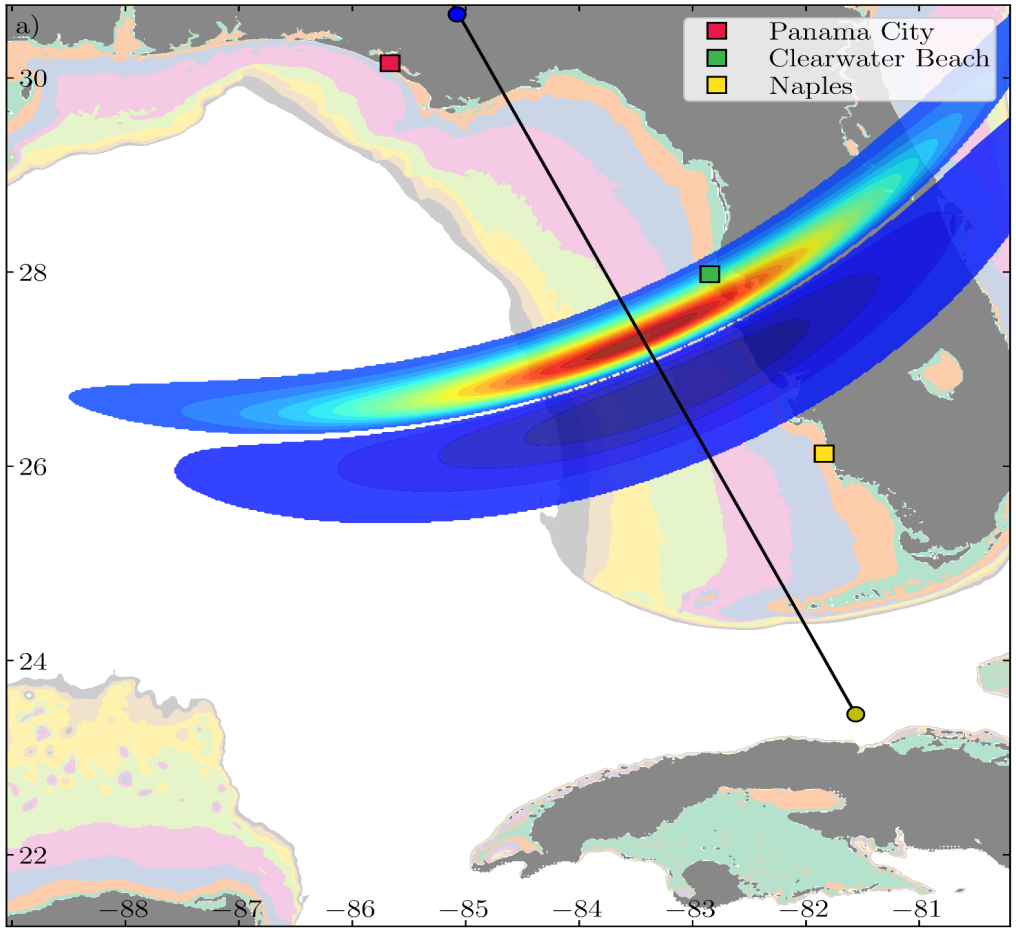
Luming Shi, et al., 2019

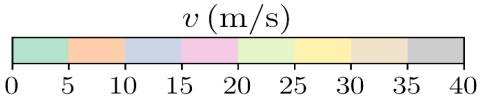
Dwight Look College of ENGINEERING
TEXAS A&M UNIVERSITY

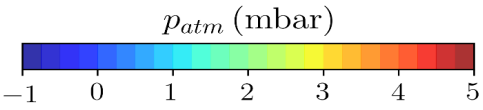
Harvey 2017 MT and MT simulation

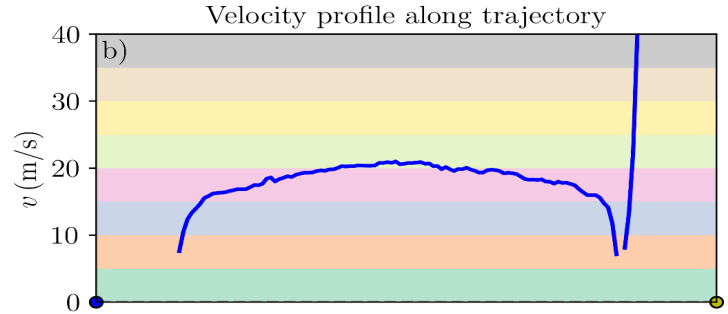


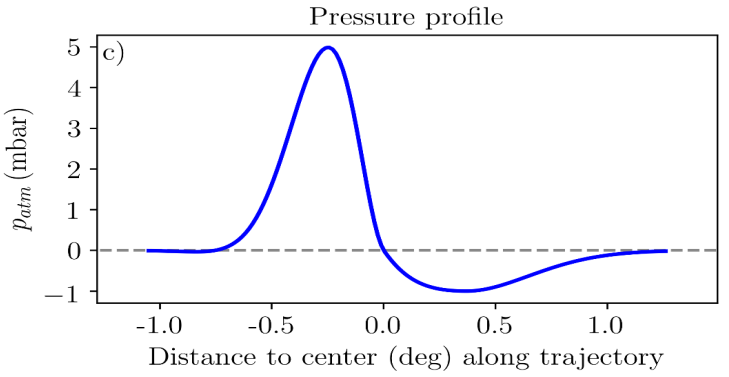
Clearwater Beach, FL
Feb 2010 MT

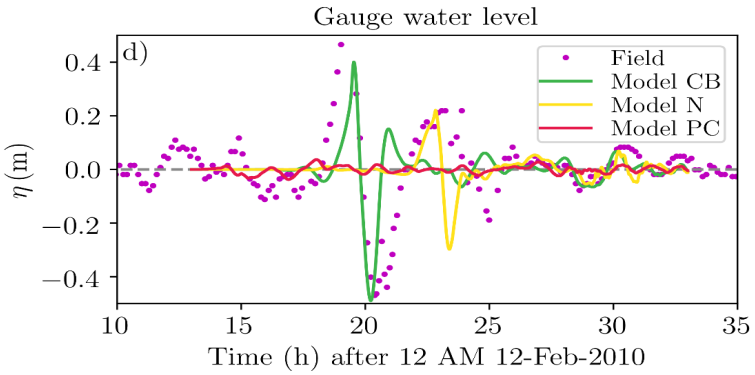






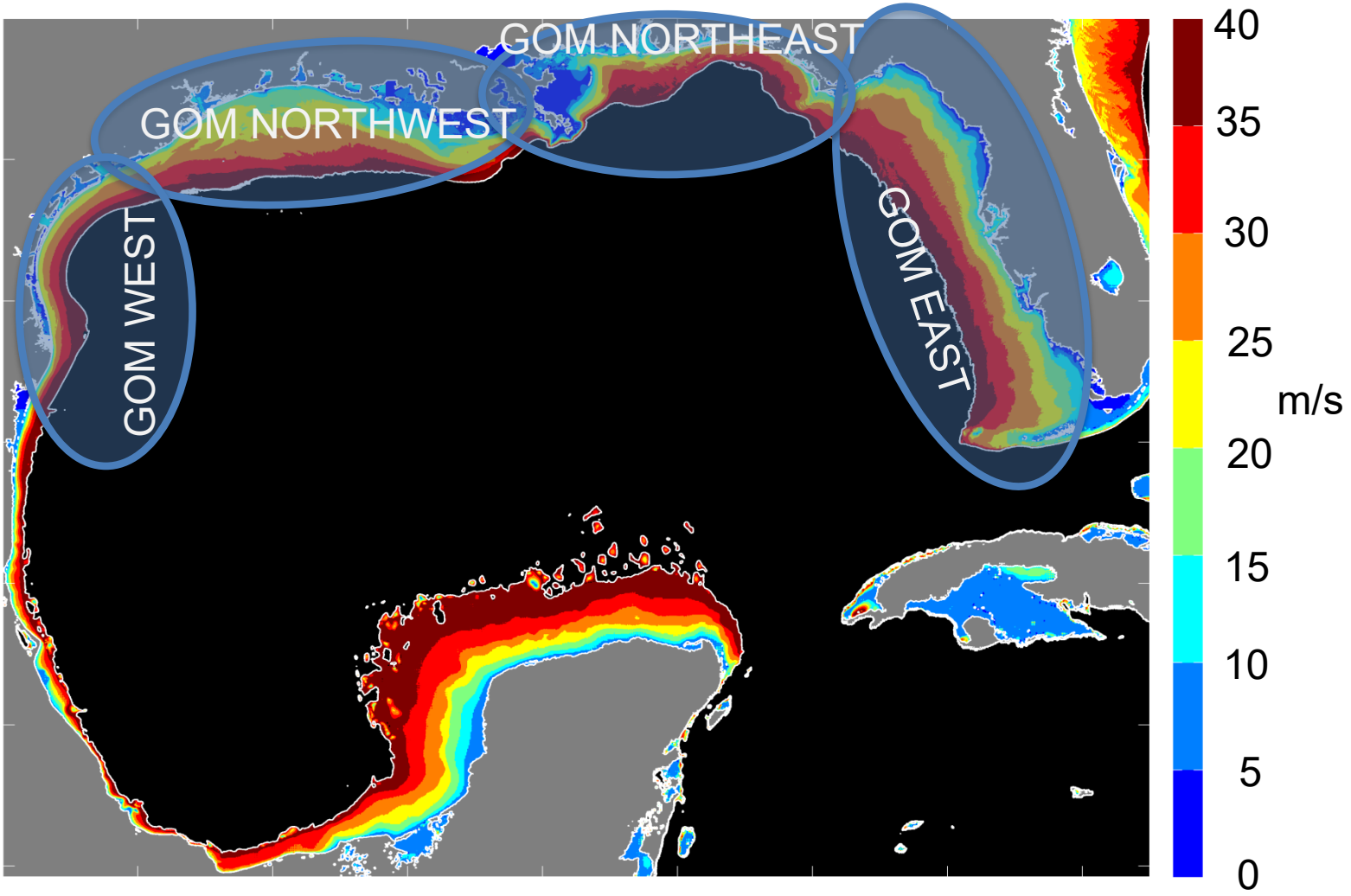






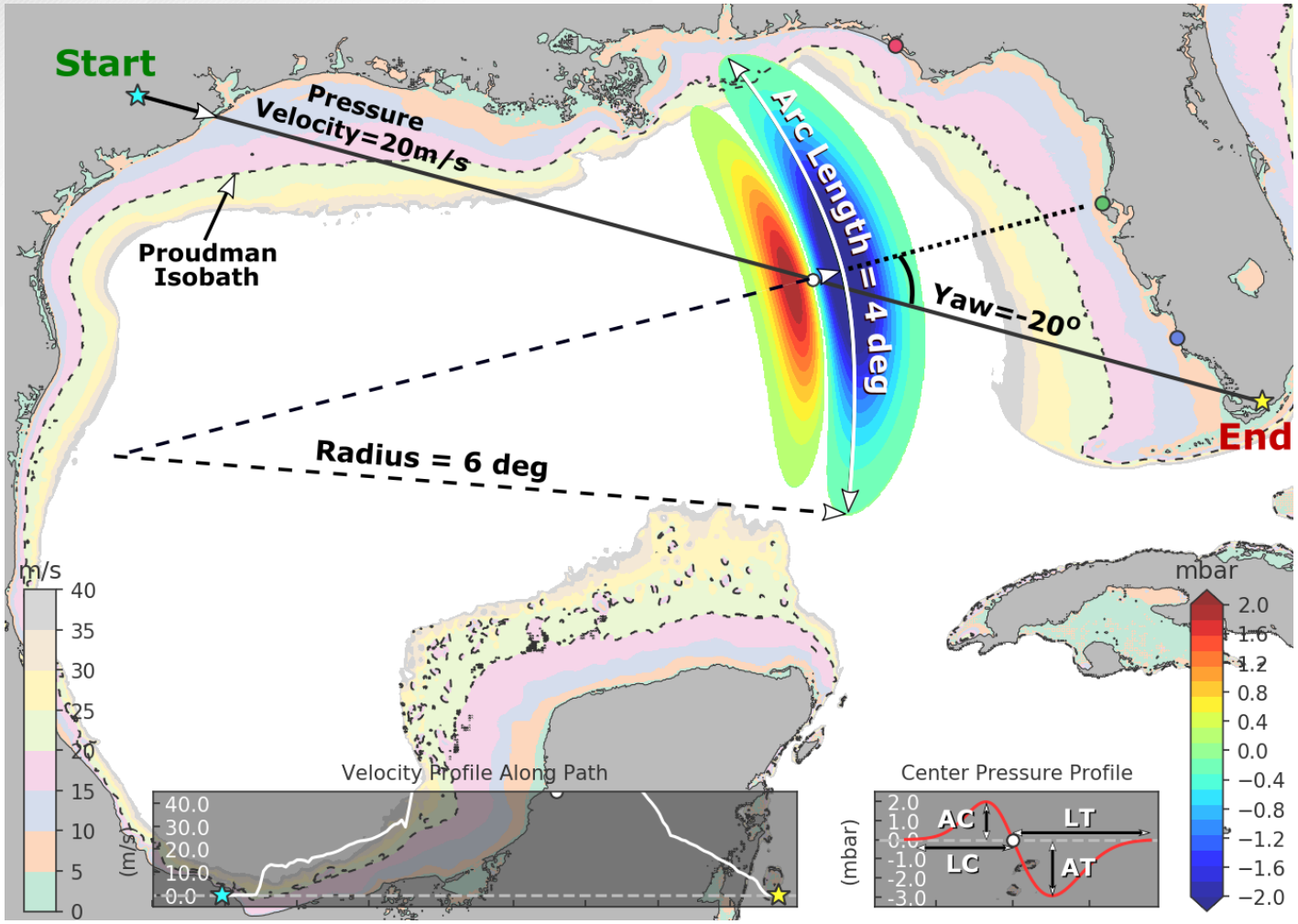
MT Characterization

MT Generation Regions

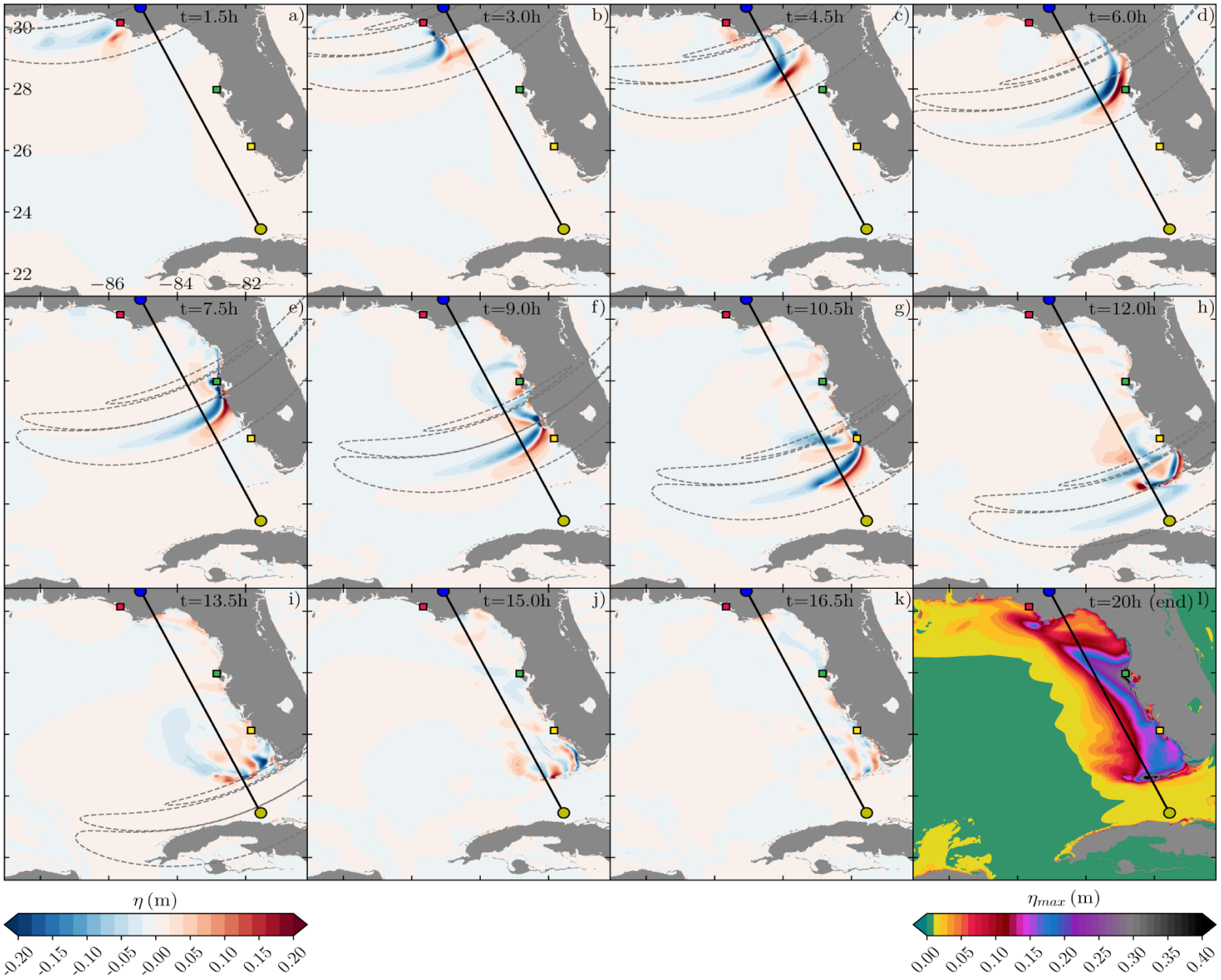


Dwight Look College of ENGINEERING
TEXAS A&M UNIVERSITY

MT Characterization
Pressure Disturbance Definition
Web-Based Program



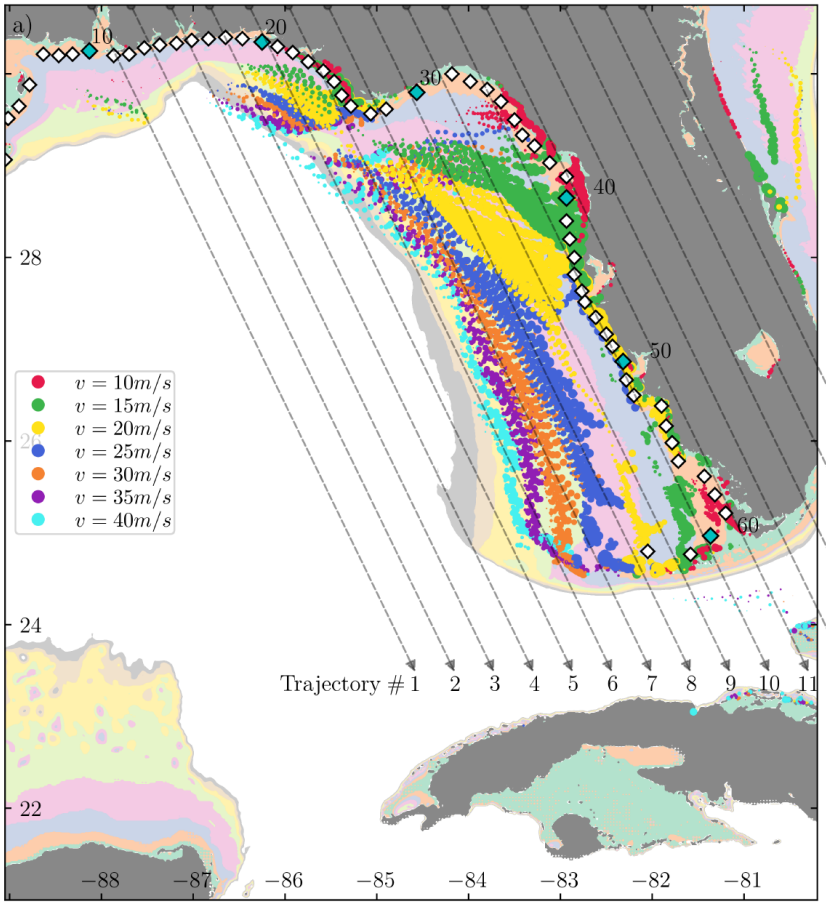
MT Characterization
Wave Propagation and Maximum

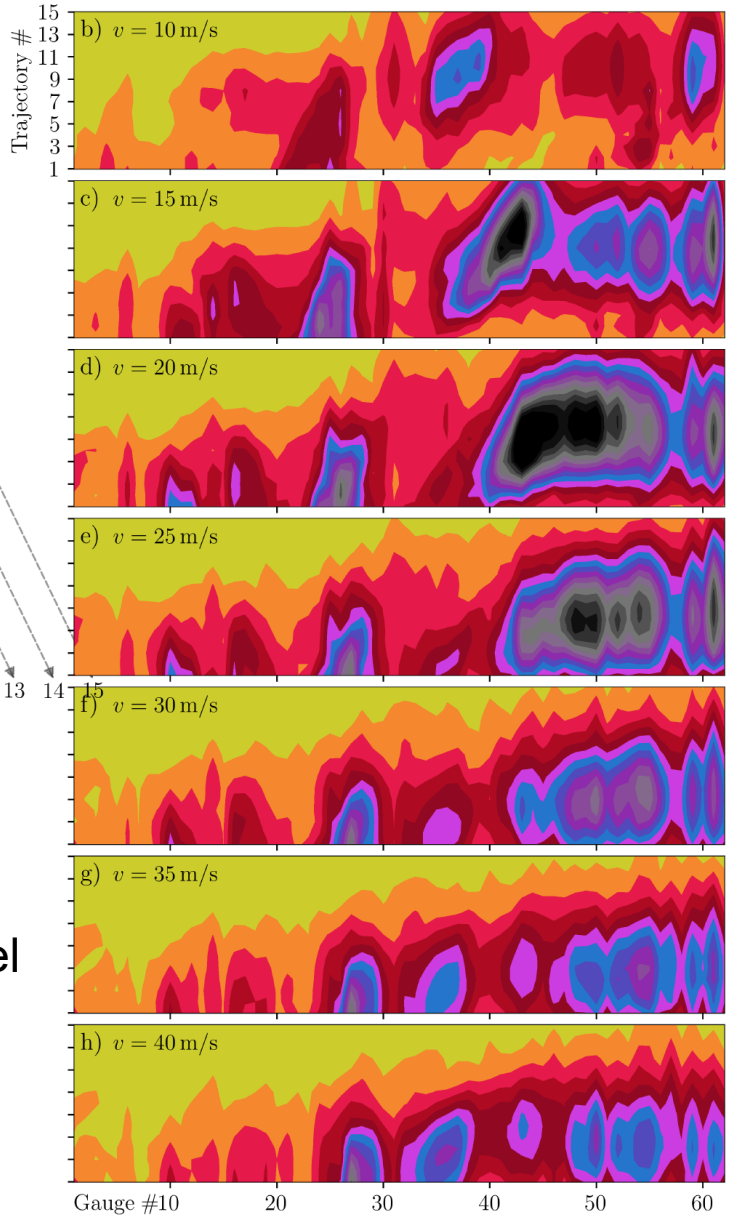


Dwight Look College of ENGINEERING
TEXAS A&M UNIVERSITY

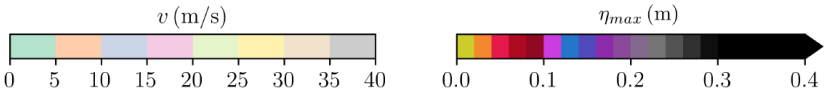
MT Characterization

Contour plots of max water level at 62 gauges



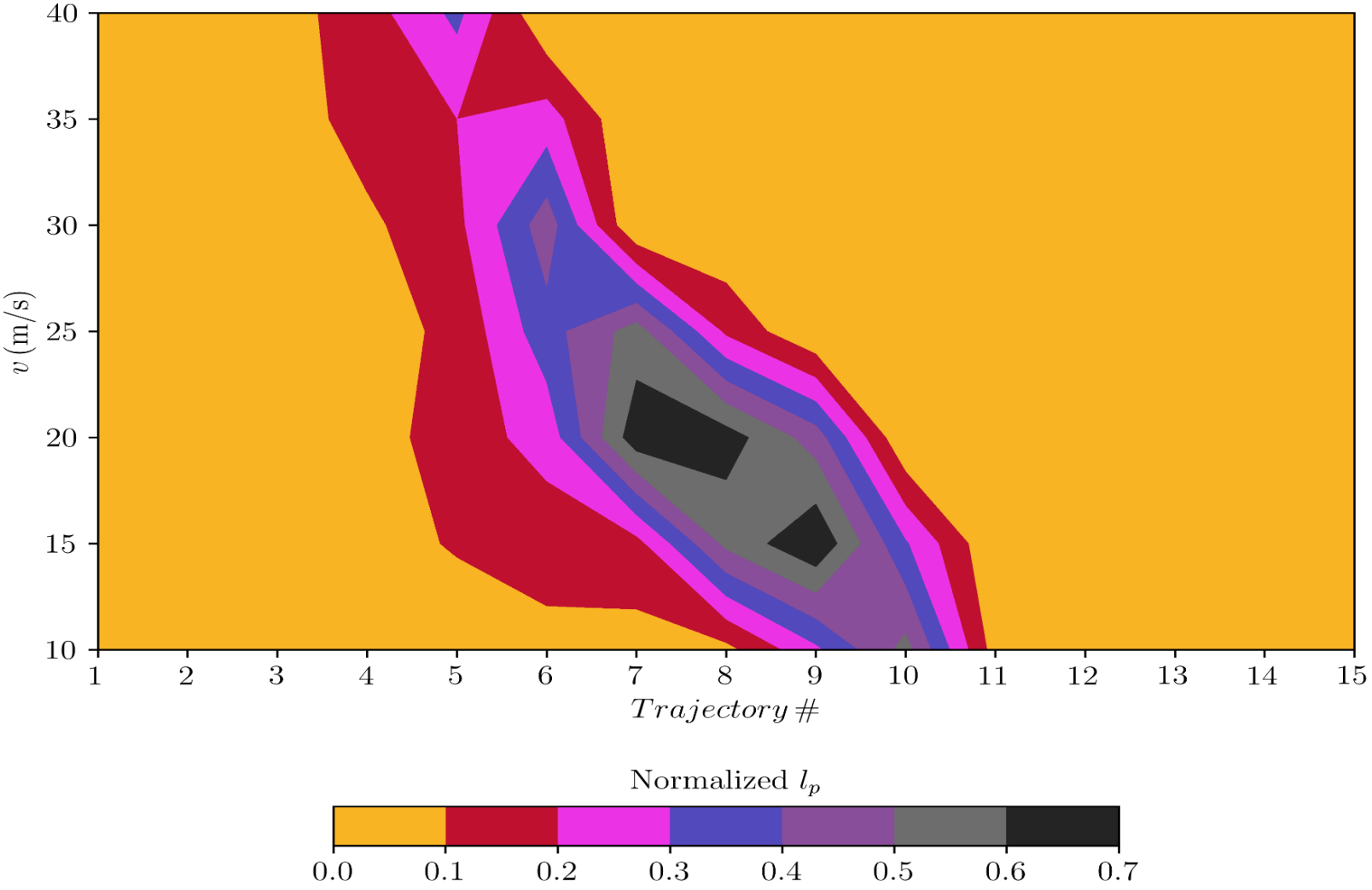


Color dots are tracking of max. water level for each velocity (10-40 m/s)



MT Characterization

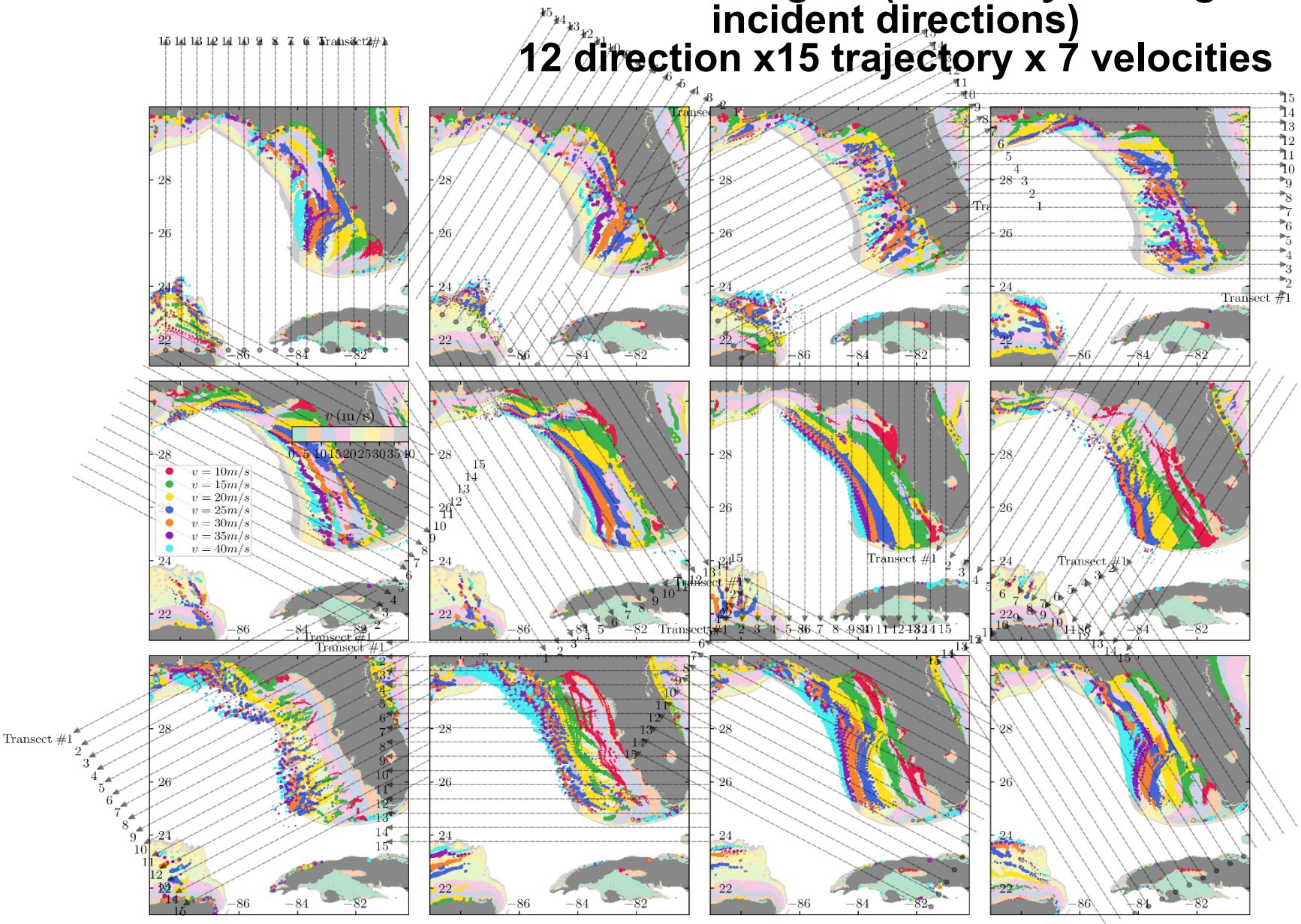
Norther-Eastern Region (Anomaly coming at 150º)
Proudman length Analysis
Trajectory and Velocity



Dwight Look College of ENGINEERING
TEXAS A&M UNIVERSITY

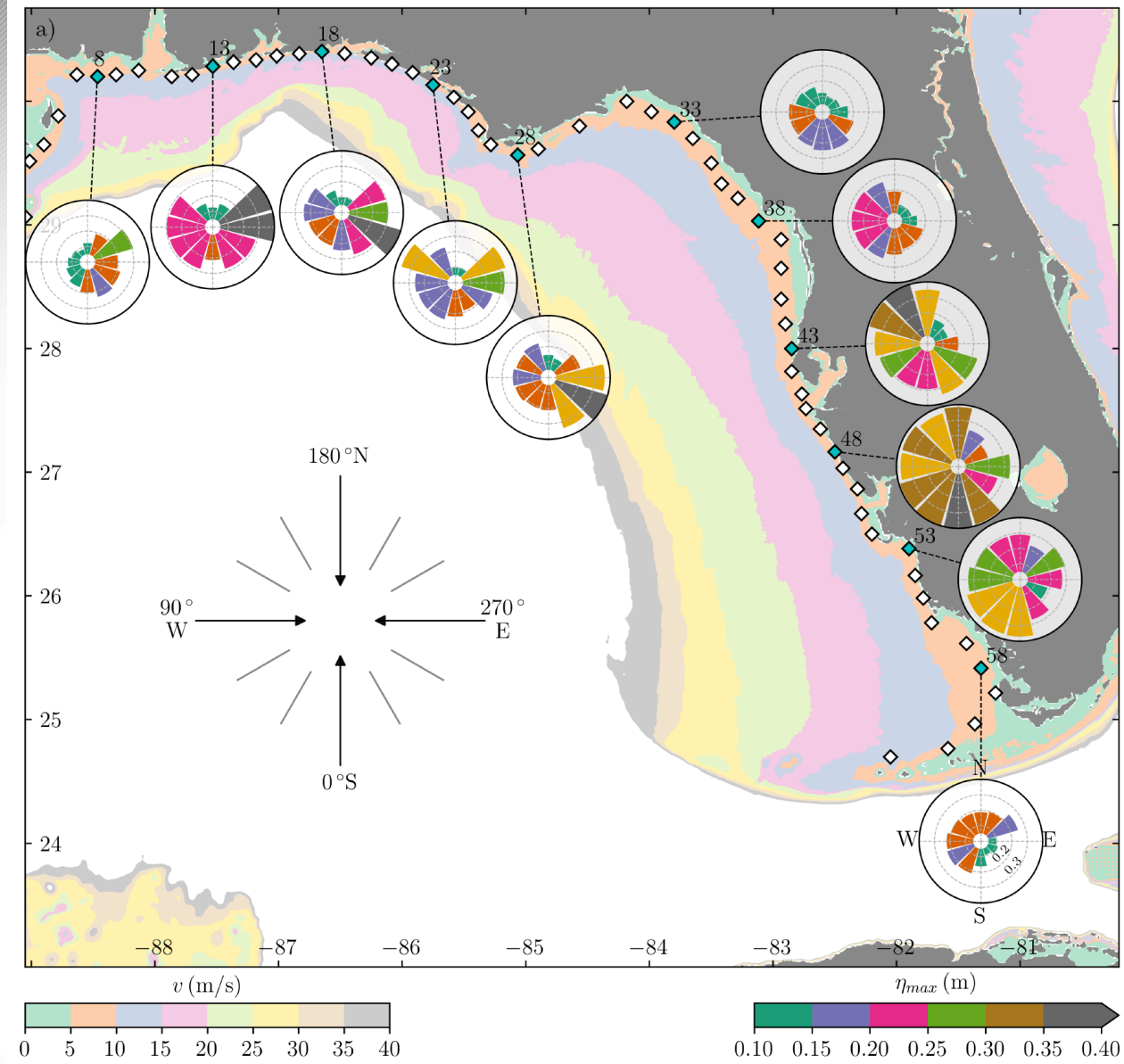
MT Characterization

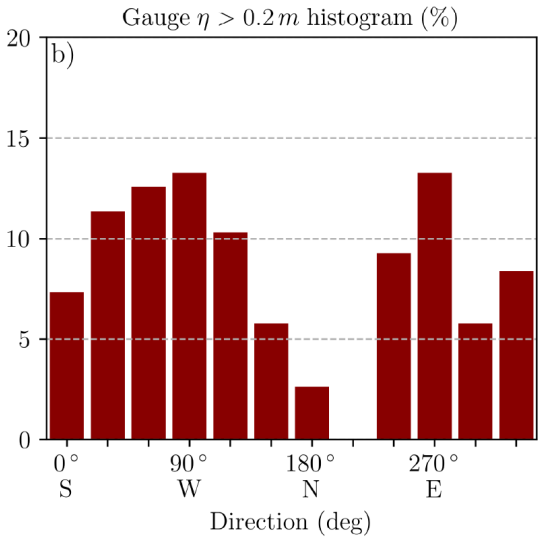
Norther-Eastern Region (Anomaly coming from 12 incident directions)
12 direction x15 trajectory x 7 velocities

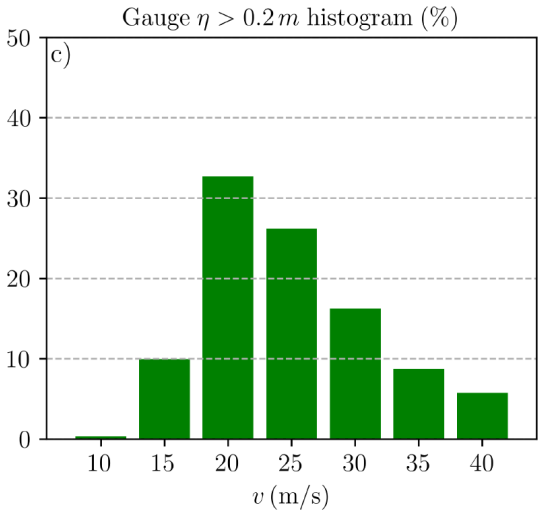


Dwight Look College of ENGINEERING
TEXAS A&M UNIVERSITY

MT Characterization
Rose Diagrams & Distributions



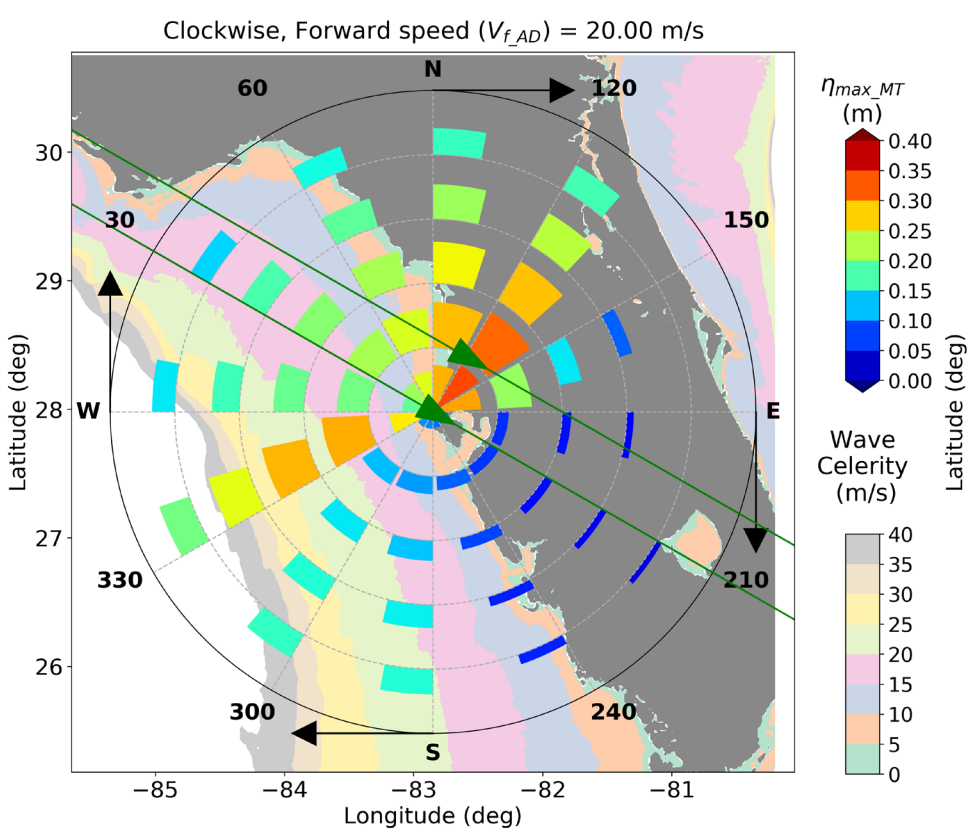


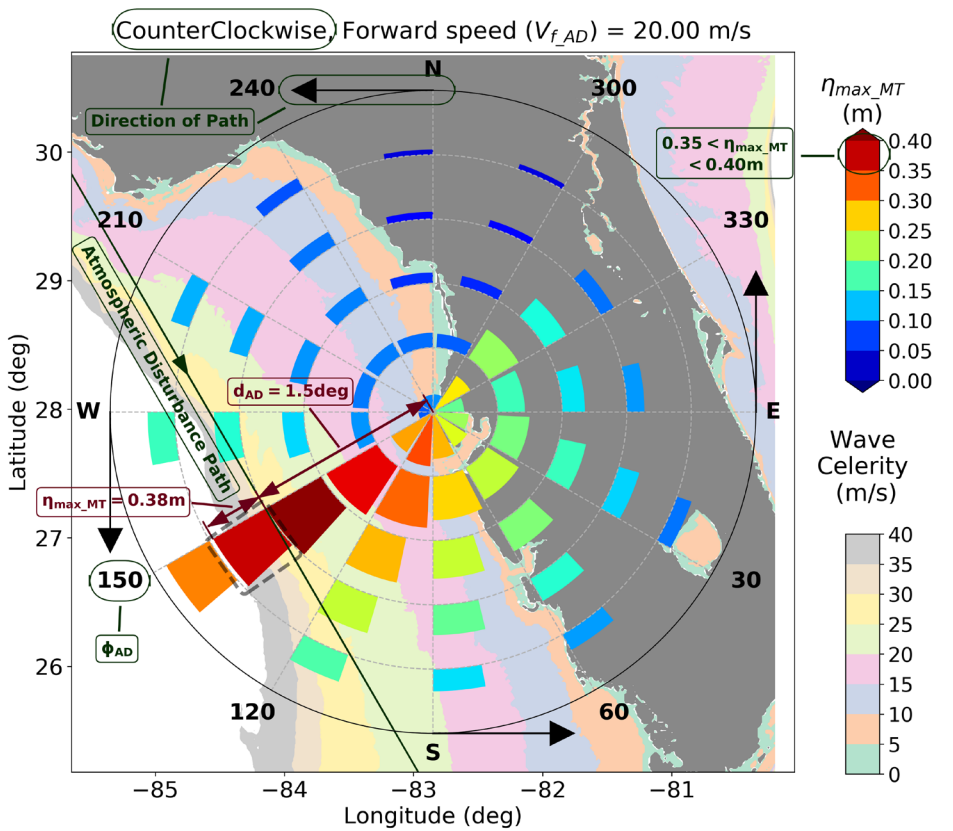


Dwight Look College of ENGINEERING
TEXAS A&M UNIVERSITY

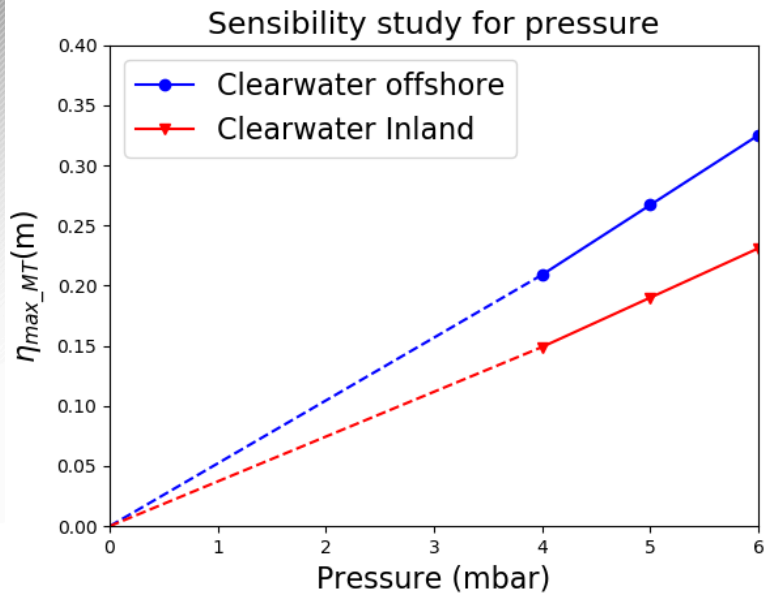
MT Characterization At Clearwater Beach FL.

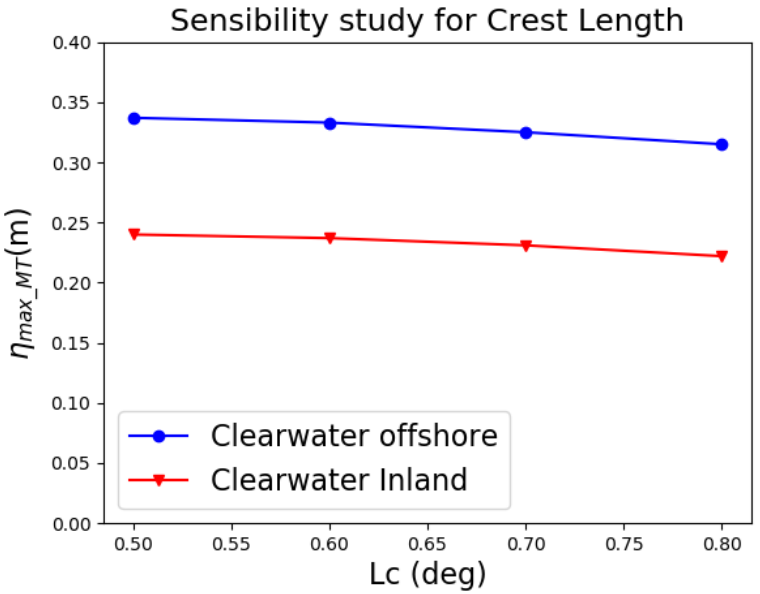
-- MT Rose for EM --

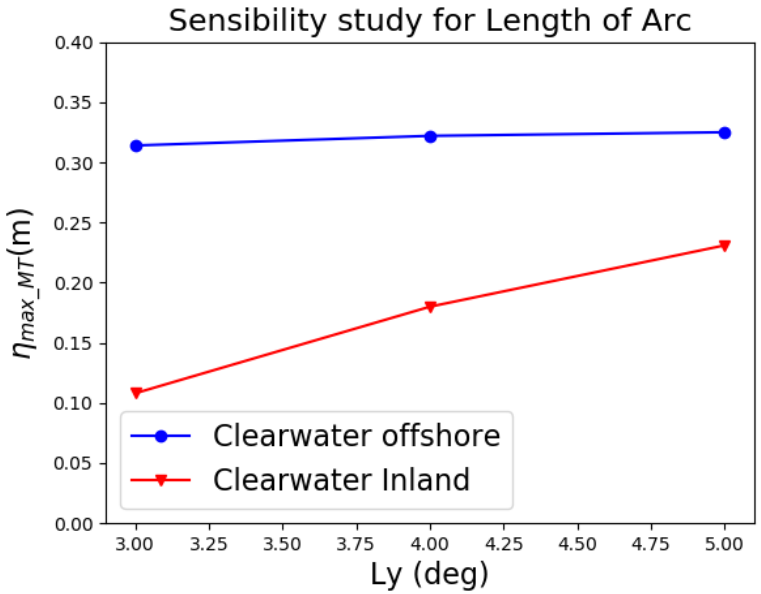


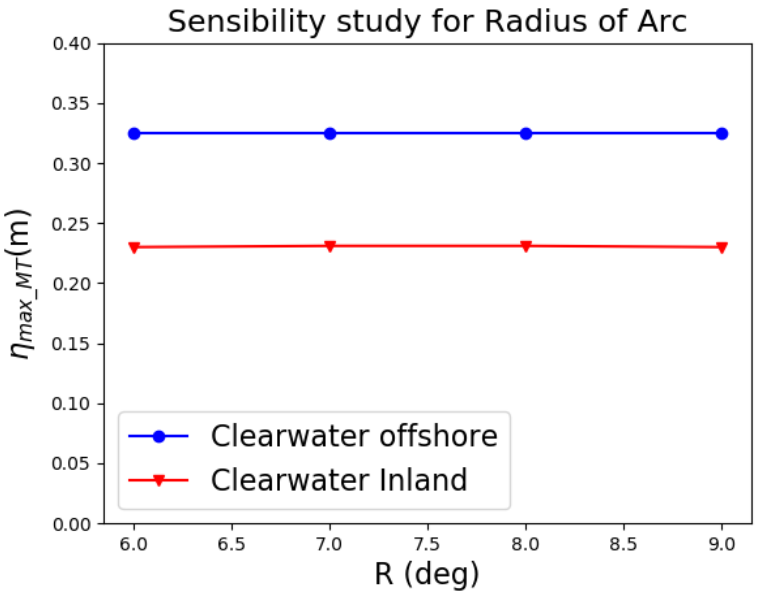


MT Characterization Sensitivity Analysis







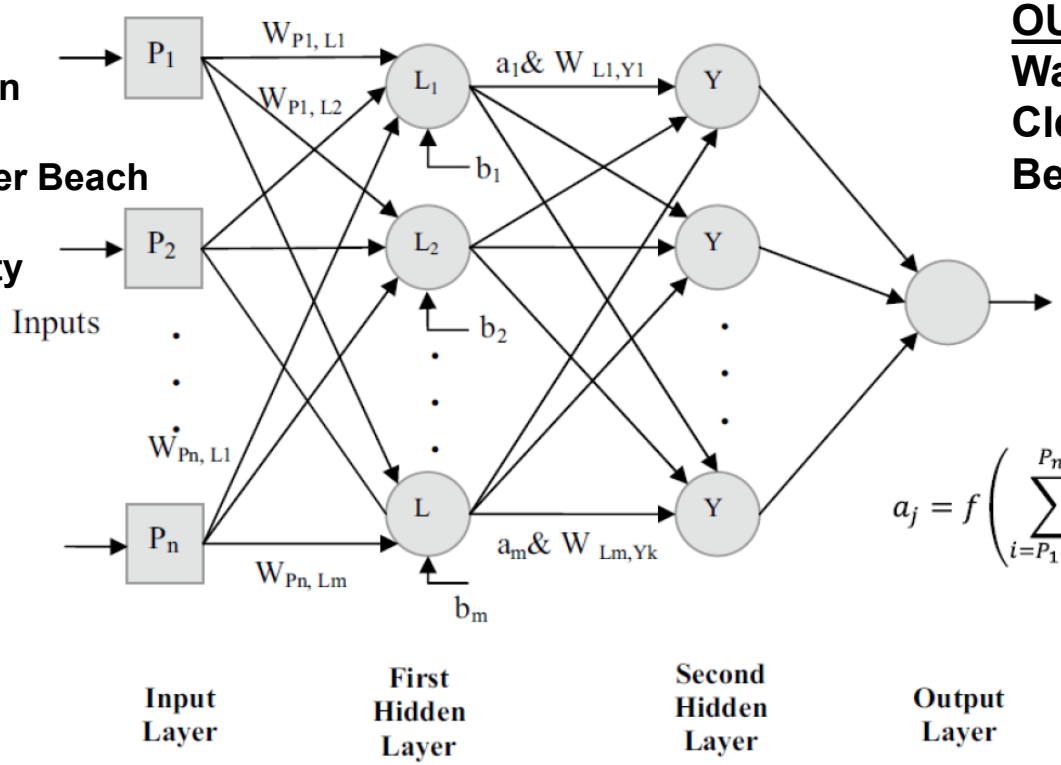


Artificial Neural Network (ANN) Approach for MT prediction

INPUT
Path:
1- Pressure Anomaly Angle
2- " " Direction

3- Path distance from Clearwater Beach

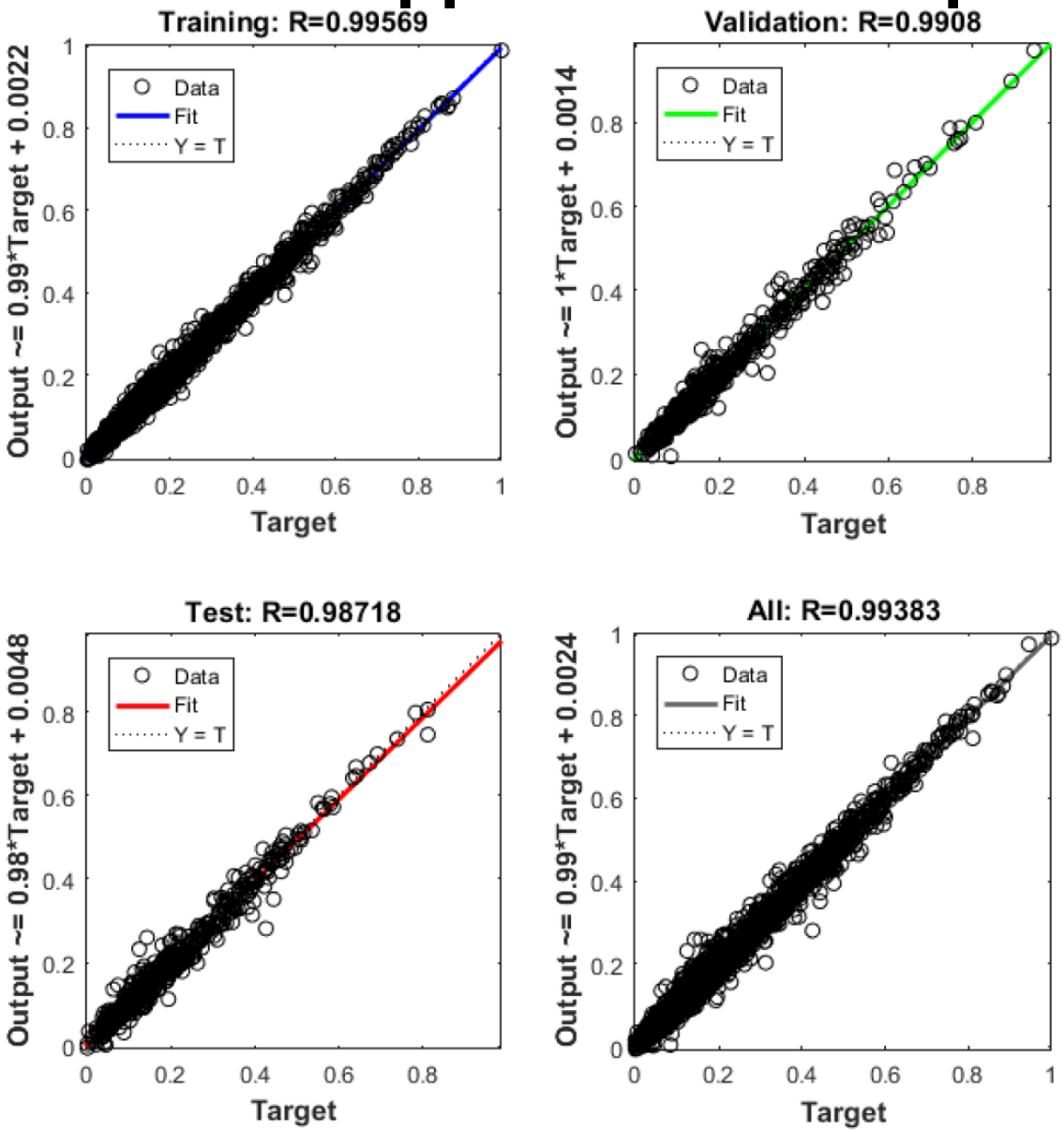
4- Disturbance Anomaly Velocity



$$a_j = f\left(\sum_{i=P_1 \& j}^{P_n} W_{i,j} \times P_i + b_j\right)$$

OUTPUT
Water Level At Clearwater Beach FL

Artificial Neural Network (ANN) Approach for MT prediction



END

Conclusion

FY19 Pending Activities

- 2020 National Hurricane Conference

  April 6 - April 9, 2020 Orlando FL.

- NTHMP TRAVELS

Current FY20 Activities

- NTHMP TRAVELS (TASK-4)?

USGS Powell Center TASK

- In May 2019, a meeting was convened at the USGS Powell Center devoted to the US east coast and Caribbean (Puerto Rico) region, as part of a series of meetings organized under the theme: “Towards consistency in development of tsunami sources”. The goal was, during these meetings, for multidisciplinary working groups to “develop and apply scientifically based methodologies to construct hypothetical but realistic sets of tsunami sources for four broadly chosen U.S. regions. Teams of geologists, geophysicists, oceanographers, modelers, and emergency managers will together define the parameters used to characterize deterministic as well as probabilistic tsunami sources. The process is envisioned to adopt existing probabilistic methods [and the best scientific wisdom or expert-guess to estimate landslide-tsunami source parameters as: landslide type and size, trigger mechanism and recurrence] to estimate tsunami source return periods that will then be used to select individual and combination sources as modeling scenarios to provide estimates of tsunami inundation.