

# The State of HURREVAC

Past, Present, and Future

National Hurricane Conference – Orlando, FL

March 28, 2024



FEMA



NATIONAL HURRICANE PROGRAM



**HURREVAC**

HURRICANE DECISION SUPPORT TOOL

# Today's Presenters and Panelists



**Zane Heather**

**NHP, FEMA HQ**

**Michael Spagnolo**

**HLT, FEMA**

**Tom Laczko**

**NHP, USACE**

**Chris Moore**

**FEMA R2**

**Leah Blackwood**

**SCEMD**

**John Boyer**

**Sea Island  
Software**





## Today's Topics

1. National Hurricane Program Overview
2. HURREVAC Overview
3. 2023 HURREVAC Review and Demo
4. 2024 HURREVAC Preview
5. Panel & Audience Discussion





# National Hurricane Program Update





# NHP Program Partners



U.S. ARMY CORPS  
OF ENGINEERS (USACE)

- National Program Managers
- District Office Study Managers



## FEMA

- National Program Managers
- Regional Program Managers
- Hurricane Liaison Team



NATIONAL HURRICANE  
CENTER (NHC)

- Hurricane Specialist Unit
- Technology and Science Branch

### SERVICES



Operational Decision Support



Planning Support and Technical Assistance



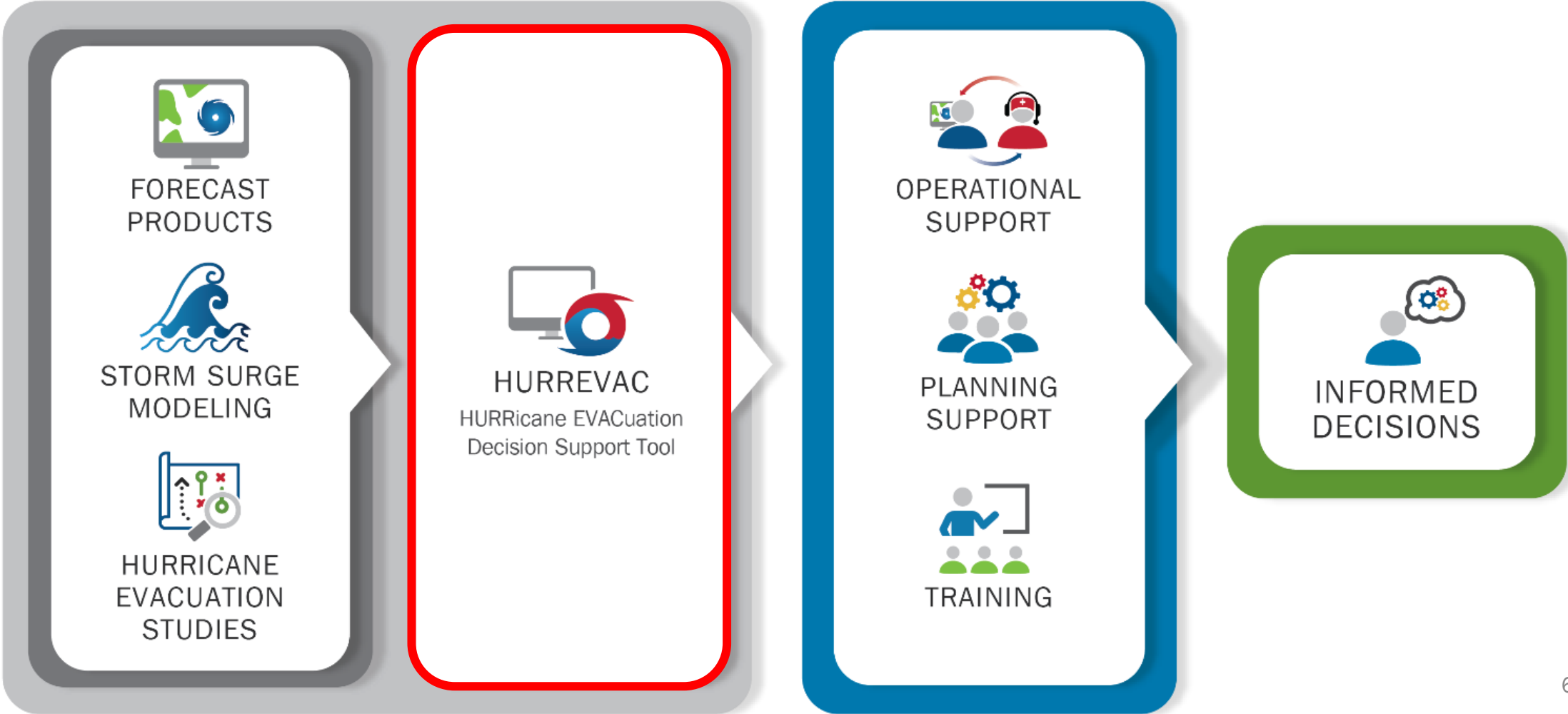
Hurricane Preparedness Training

# National Hurricane Program



*products*

*services*





# 2023 Snapshot – Annual Accomplishments



## HURREVAC

HURREVAC TRAINING



451

Participants

14

Sessions



HURREVAC WEBINAR SERIES

5

Days

2,090+

Participants



24,800+

Registered Users



4,000+

New Users



4,900+

Concurrent Users during Hurricane Ian



890+

Simulated Storms



YOUTUBE ACTIVITY

9

New Videos

84+

Subscribers

2,000+

Video Views



### HURREVAC UPDATES & NEW FUNCTIONALITY



Logo & Button Icon Replacements



SLOSH Explorer Revised



Track And Swath Options Updated



Reports Enhancements



Self-Guided Training Modules

390+ Completed



In-App User Guide

## TRAINING

HURRICANE READINESS COURSES

416

Participants

LO311: HURRICANE READINESS FOR COASTAL COMMUNITIES

158

Participants

LO310: HURRICANE READINESS FOR INLAND COMMUNITIES PILOT DELIVERY

36

Participants



## HURRICANE SEASON OPERATIONAL SUPPORT

### ATLANTIC BASIN



72 days

HLT AT LEVEL 3 OR HIGHER



26 weekly

TAG-UPS

14

NAMED STORMS

Average 14

8

HURRICANES

Average 7

2

MAJOR HURRICANES

Average 3

CENTRAL PACIFIC

1

Named Storms

0

Hurricanes

0

Major Hurricanes

0

HLT Activations

WEST PACIFIC

25

Tropical Cyclones

3

Tropical Storm Threats

0

Typhoon Threats

20 days

HLT Support

SOUTH PACIFIC

Ongoing

No Direct Tropical Storm Threats to American Samoa

## HURRICANE EVACUATION STUDIES

NEW JERSEY Transportation Analysis



GEORGIA Hazard Analysis

HES MODERNIZATION

PILOT STUDY Using Cell Phone Data To Understand Population Movement



ALABAMA MISSISSIPPI Behavioral and Shelter Analyses



HAWAII Hazard Analysis



STAKEHOLDER AUDIT 20 Participants

2022 NHP ANNUAL SNAPSHOT 2

## STORM SURGE RISK PRODUCTS

CHARLESTON Superbasin



NATIONAL MAXIMUM OF MAXIMUMS

Version 3

New regions: S. California, Guam, American Samoa



STORM SURGE HINDCAST

Hurricane Ian: Florida and Southeast landfalls

Hurricane Nicole



## STAKEHOLDER ENGAGEMENT

INTERAGENCY COORDINATING COMMITTEE ON HURRICANES (ICCOH) ANNUAL MEETING

MARCH



168

Virtual Participants

22

States and Territories Represented



VIRTUAL-360 MEETING ROOM

937

Views



FEDERAL PROGRAM PARTNER MEETINGS

IN-PERSON

PRE-SEASON MEETING

35

Participants

END OF YEAR MEETING

33

Participants



RESOURCES

4

FEMA Weekly Articles

1,219 Views

3

FEMA Bulletin Articles

1,833 Views



4

NHP Newsletters

1,150 Views



2

FEMA Before During and After Podcast Episodes

NATIONAL HURRICANE CONFERENCE

APRIL

PROVIDED 4 TRAININGS

HOSTED 2 WORKSHOP SESSIONS

RECEIVED OUTSTANDING ACHIEVEMENT AWARD

DISPLAYED NHP BOOTH IN EXHIBIT HALL



FLORIDA GOVERNOR'S HURRICANE CONFERENCE

MAY

PROVIDED 3 TRAININGS

HOSTED 1 WORKSHOP SESSION



HURRICANE AWARENESS TOUR

MAY

DISPLAYED NHP BOOTH IN EXHIBIT HALL

AT 2 LOCATIONS: REGION 2 JFK AIRPORT, REGION 3 DCA AIRPORT

6 NEW INTERNAL FEMA ENGAGEMENTS

PLANNER'S WORKSHOP  
NATIONAL INTEGRATION CENTER (NIC)  
MCVCS ANNUAL MEETING  
FEMA EXERCISE AND EVALUATION PROGRAM  
PLANNING CADRE MONTHLY CALL  
INTERNATIONAL AFFAIRS ADVISOR CADRE



# 2024 Program Priorities

## Hurricane Evacuation Study Modernization

The program will review and improve the current HES methodology and outputs and create a more useful range of products that support our stakeholders in making informed hurricane evacuation and response decisions.

## Enhance Stakeholder Engagement

Beyond NHP-specific coordination and events, the NHP has created a strategic communications plan to proactively identify and create opportunities to better understand and support our partners and ensure a unified message and voice throughout program activities.

## Training Curriculum Strategy

Through collaborative partner coordination and the development of a training curriculum strategy, the NHP is ensuring that we continue to meet the needs of our stakeholders and support the development of new and improved training capabilities in the emergency management workforce.

## Strategic Program Planning

To chart the vision of the future of the NHP, the program will assess strengths, weaknesses, opportunities, and threats, establish baseline program governance, and develop a unified innovative vision of the future that aligns with agency goals.





# HURREVAC Overview



◆ 100 Kilometers

Individual Assistance Group Specialist  
121

Mass Care / Emergency Assistance Specialist - II  
122

986

992

# What is HURREVAC?



**HURREVAC** (short for **Hurricane Evacuation**) is the NHP's free storm tracking and decision support tool for government emergency managers.



Real-time forecast information from NHC/WPC/CPHC/JTWC



Storm surge modeling



Data from Hurricane Evacuation Studies (HES)

The main goal is to help emergency managers make **informed evacuation and response decisions** based on the *timing* and *potential severity* of storm hazards.

And more...



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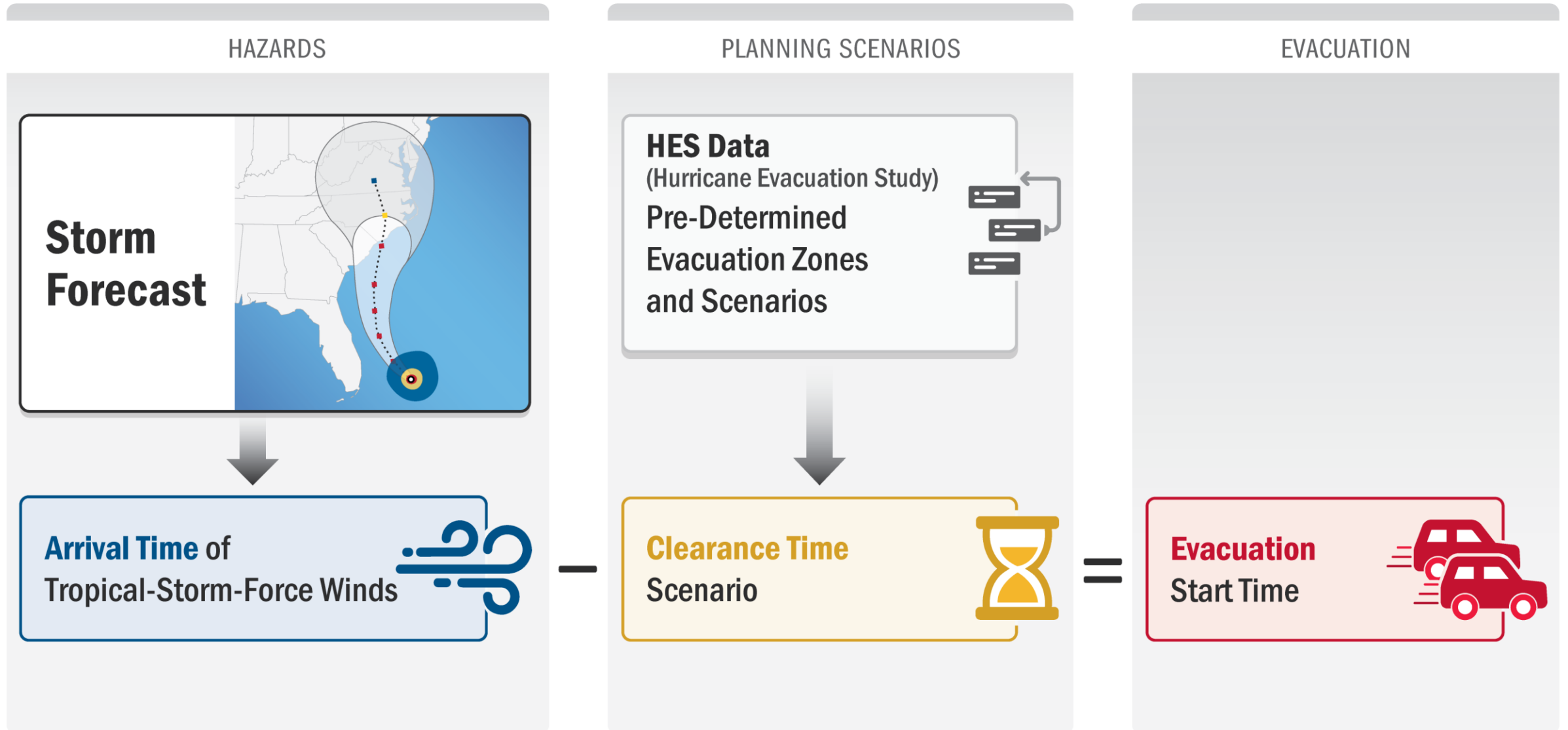
# Who uses HURREVAC?



- Restricted to government emergency management use
- Thousands of registered users in federal, state, tribal, territorial and local governments
- During major hurricanes, HURREVAC scales up to let thousands of users track the storm simultaneously

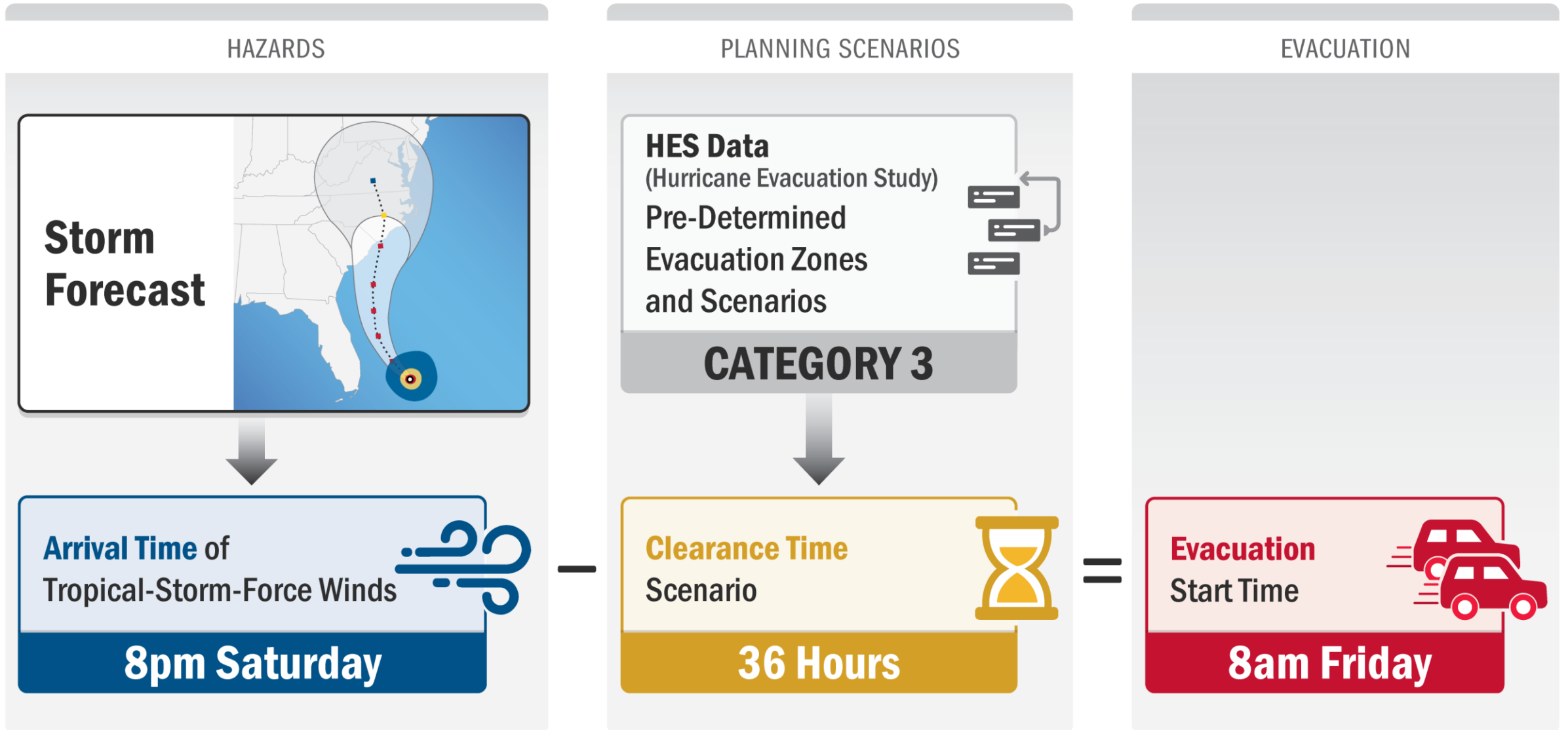


# How is Evacuation Start Time Calculated?





# How is Evacuation Start Time Calculated?



# A look back at 2023







# Our busiest day of the year was **Aug. 29**



Peak usage in 2023 occurred on the afternoon prior to Hurricane Idalia's landfall:

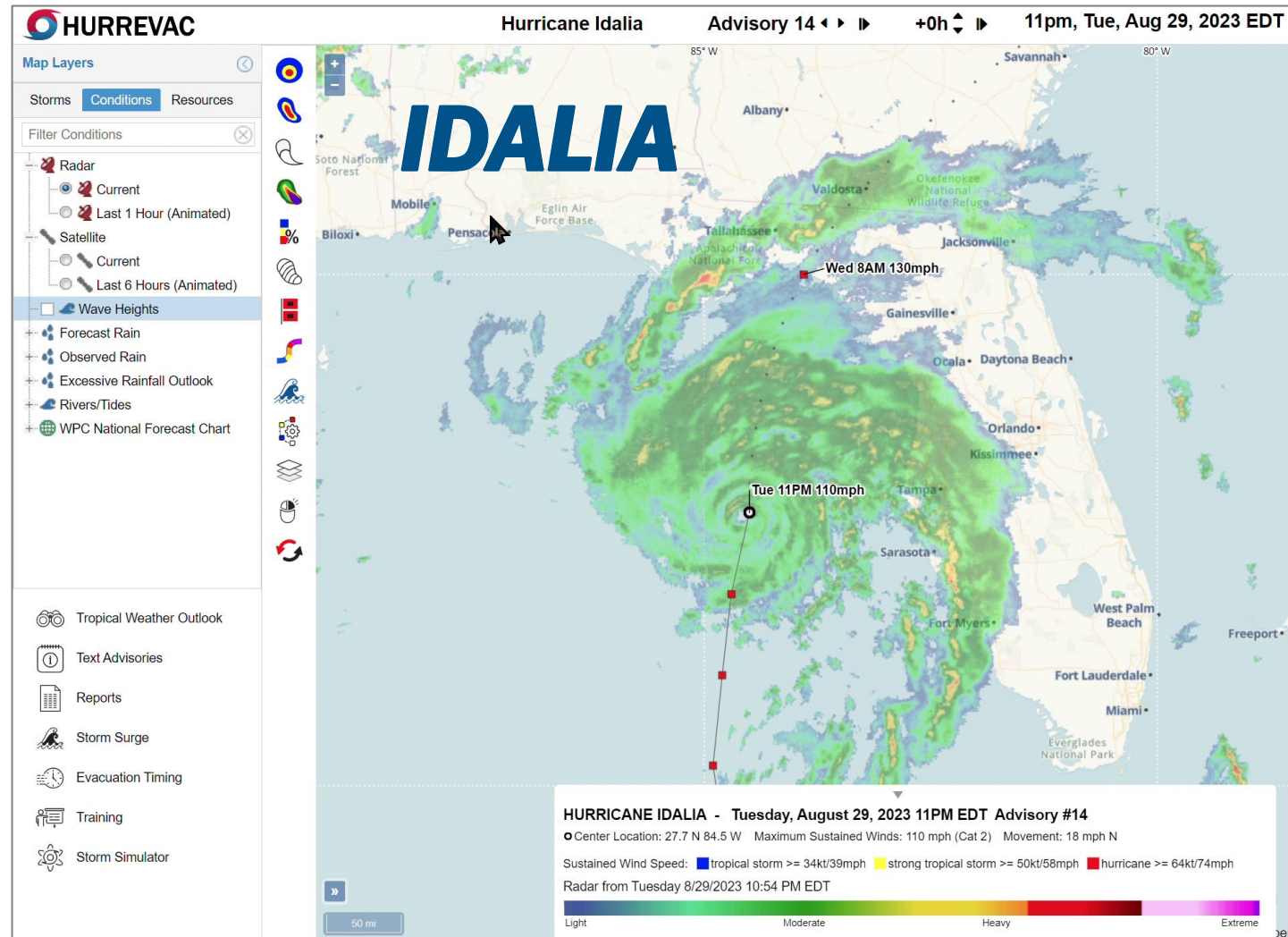
**~4,200 concurrent users**

Hurricane Lee drove the second-largest usage peak in 2023:

**~1,000 concurrent users.**

The system's record usage occurred during Hurricane Ian in 2022:

**~5,000 concurrent users**



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# HURREVAC Notifications in action

Notification Center

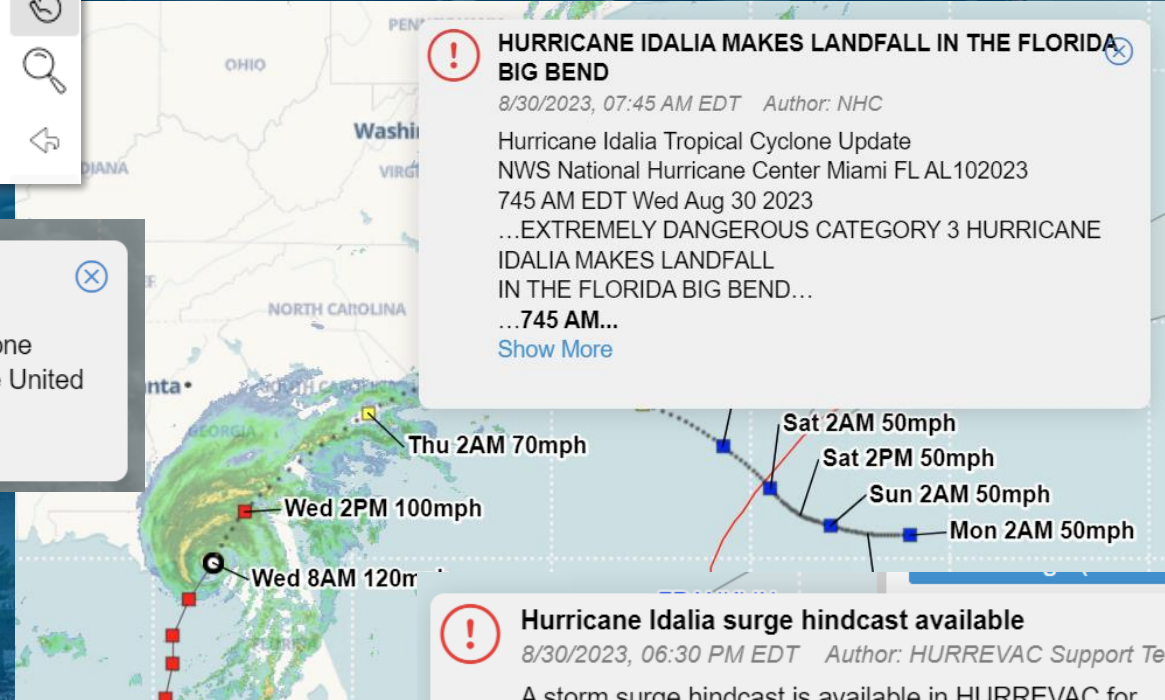
**Tropical Storm Watch for portions of Southern California**  
8/18/2023, 11:00 AM EDT Author: HURREVAC Support

A Tropical Storm Watch is now in effect for portions of southern California as of Hurricane Hilary Advisory #9. Look for details in the Text Advisories tool.

Side Panel

**Special Message from NHC**  
9/21/2023, 10:37 AM EDT Author:

NHC will initiate advisories on Potential Tropical Cyclone Sixteen, located offshore of the southeast coast of the United States, at 1100 AM EDT (1500 UTC).



**HURRICANE IDALIA MAKES LANDFALL IN THE FLORIDA BIG BEND**  
8/30/2023, 07:45 AM EDT Author: NHC

Hurricane Idalia Tropical Cyclone Update  
NWS National Hurricane Center Miami FL AL102023  
745 AM EDT Wed Aug 30 2023  
...EXTREMELY DANGEROUS CATEGORY 3 HURRICANE IDALIA MAKES LANDFALL IN THE FLORIDA BIG BEND...  
...745 AM...  
[Show More](#)

Notification Center

**Satellite and wave heights not available**  
8/30/2023, 10:13 AM EDT Author: HURREVAC Support

Two layers in HURREVAC's Conditions tab - Satellite and Wave Heights - are currently affected by an outage of certain NOAA map services. All other conditions layers are operational, including radar. The HURREVAC team is monitoring the status. There is not an estimated time of restoration.  
[Show Less](#)

**Hurricane Idalia 1000 AM POSITION UPDATE**  
8/30/2023, 10:00 AM EDT Author: NHC

**Hurricane Idalia surge hindcast available**  
8/30/2023, 06:30 PM EDT Author: HURREVAC Support Team

A storm surge hindcast is available in HURREVAC for Hurricane Idalia. The NHC's Storm Surge Unit generated the hindcast for the storm surge warning area of Florida's Gulf Coast by calibrating a SLOSH model run...  
[Show Less](#)



# Points of Interest Demo





# Enhancements in 2024

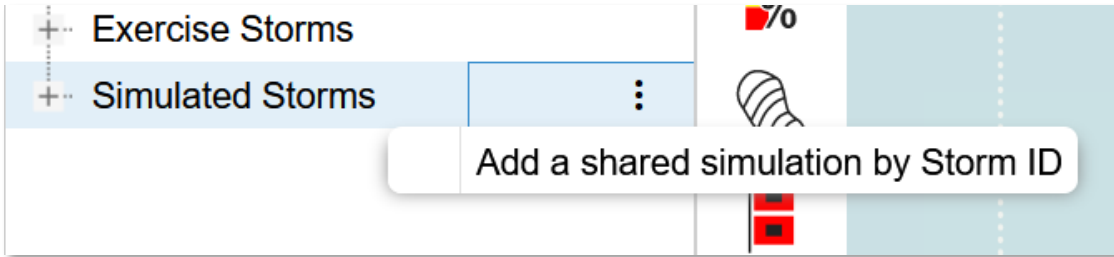
◆ 100 Kilometers

986

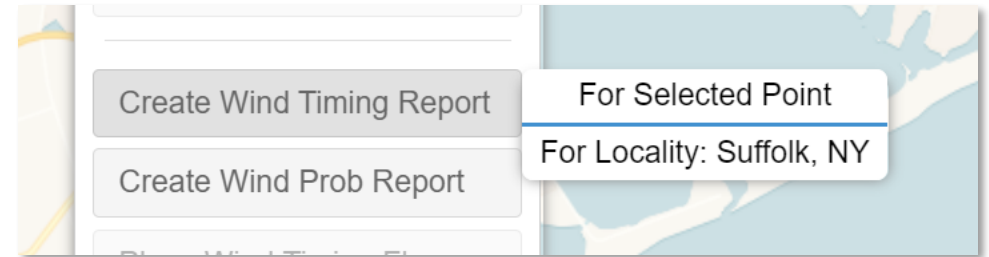
992



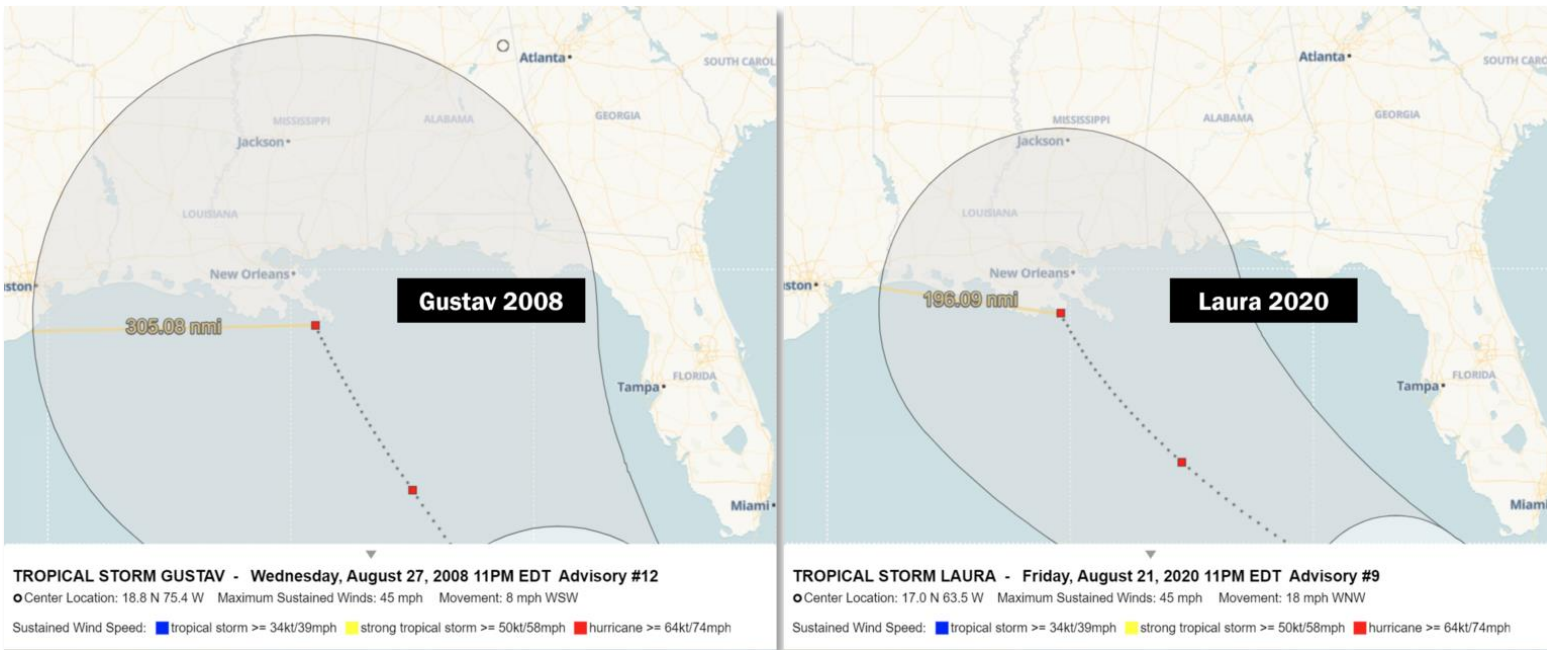
# Updates over the winter



^^^ Right-click workaround



^^^ Easier to access county-based reports



<<< Historically-accurate cone definition for archived storms



## Updates in recent weeks



- Unified geographic databases for U.S. territories and NWS Guam AOR in western Pacific
  - Not affecting data availability, just display and filtering
- Exercise and simulated storms load from ***first*** advisory
- Active storms ***cannot*** be imported to Storm Simulator
- NWS office reference layer in Resources tab
- Updating the training modules

Side Panel

Storm Surge (SLOSH) Explorer Storm Simulator **Reports**

Create Report ▾

**Scope ▾**

Include ▾

Export to Excel

Export

Update

Reports Overview ×

Probabilistic Wind Timing  
BOLA VEN #7 ×

10/09/2023, 1am ChST

The probabilistic wind timing report shows the expected onset of a storm's sustained winds. The Earliest and Most Likely times are from probabilistic products that take uncertainty into account. Click the name of a county or point of interest to generate a detailed wind timing report for that location.

- n/a means probabilities of strong tropical-storm-force winds are too low to have valid timing data.
- TBD means the value is to be determined. This appears when the latest advisory products are coming out, but not yet completely available. Rerun the report in approximately 10 minutes.

Displaying data over all areas for: Counties

Location			Tropical Storm (34kt/39mph)			Strong TS (50kt/58mph)		
Type ↓	Title	State ↑	5 day WSP	Earliest(hrs)	Most Likely(hrs)	5 day WSP	Earliest(hrs)	Most Likely(hrs)
County	<a href="#">Guam</a>	GU	61%	10/10 9AM(32)	10/10 3PM(38)	26%	10/10 12PM(35)	10/10 6PM(41)
County	<a href="#">Agrihan</a>	MP	48%	10/11 2AM(49)	10/11 12PM(59)	19%	10/11 6AM(53)	10/11 4PM(63)
County	<a href="#">Alamagan</a>	MP	43%	10/10 10PM(45)	10/11 5AM(52)	15%	10/10 11PM(46)	10/11 10AM(57)
County	<a href="#">Anatahan</a>	MP	73%	10/10 2PM(37)	10/10 9PM(44)	37%	10/10 6PM(41)	10/11 1AM(48)
County	<a href="#">Pagan</a>	MP	50%	10/11 12AM(47)	10/11 9AM(56)	21%	10/11 3AM(50)	10/11 2PM(61)
County	<a href="#">Rota</a>	MP	80%	10/10 8AM(31)	10/10 2PM(37)	45%	10/10 11AM(34)	10/10 5PM(40)
County	<a href="#">Saipan</a>	MP	83%	10/10 10AM(33)	10/10 4PM(39)	46%	10/10 2PM(37)	10/10 7PM(42)
County	<a href="#">Tinian</a>	MP	83%	10/10 11AM(34)	10/10 5PM(40)	46%	10/10 3PM(38)	10/10 9PM(44)



- Set Base Location
- Create Point of Interest
- Show Range Marks
- Storm Info Box Here
- Show Surge Viewer
- Place Surge Flags
- Remove Surge Flags
- Create Wind Timing Report
- Create Wind Prob Report
- Place Wind Timing Flags
- Remove Wind Timing Flags

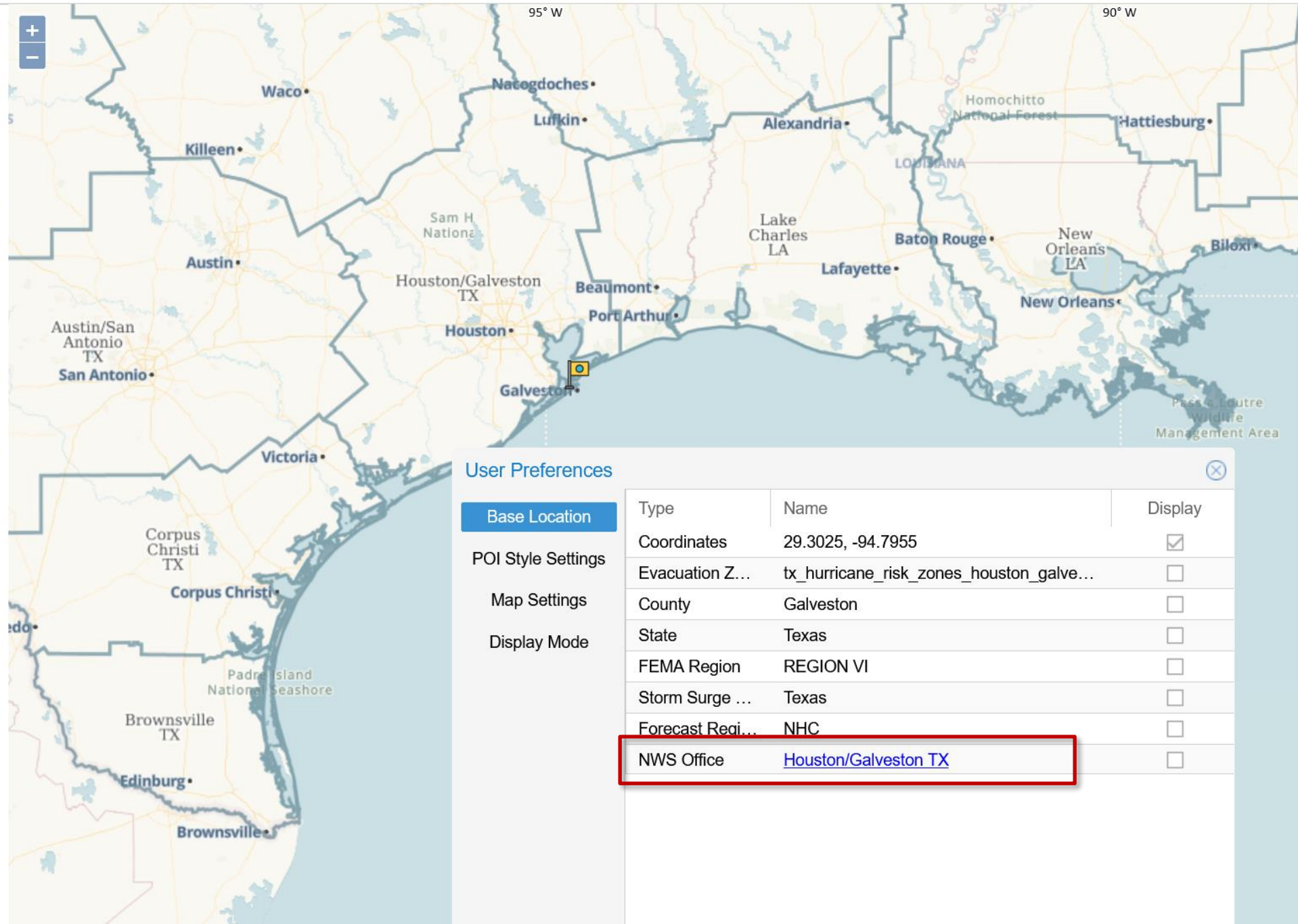
For Selected Point  
For Locality: Tinian, MP

## Map Layers

Storms Conditions **Resources**

Filter Resources

- State / County Boundaries
- FEMA Regions
- USACE Districts
- Hurricane Forecast Centers
- NWS County Warning Areas
- NWS West/South Pacific AOR
- Evacuation Zones
- National Storm Surge Hazard Maps
- Operational Slosh Basins
- Hindcast Data
- Watch/Warning Breakpoints
- Library



## User Preferences

### Base Location

Type	Name	Display
Coordinates	29.3025, -94.7955	<input checked="" type="checkbox"/>
Evacuation Z...	tx_hurricane_risk_zones_houston_galve...	<input type="checkbox"/>
Map Settings	County Galveston	<input type="checkbox"/>
Display Mode	State Texas	<input type="checkbox"/>
	FEMA Region REGION VI	<input type="checkbox"/>
	Storm Surge ... Texas	<input type="checkbox"/>
	Forecast Regi... NHC	<input type="checkbox"/>
	NWS Office <a href="#">Houston/Galveston TX</a>	<input type="checkbox"/>

Tropical Weather Outlook

Text Advisories

Reports

Storm Surge

Evacuation Timing



## Coming this spring



- **Conditions tab:** adding current NowCOAST wind
- **User preferences:** new 24-hour time display option
- **Training modules:** adding more topics
- **SLOSH MOMs and MEOWs:** control opacity
- **Default behavior at log-in:**
  - Tropical Weather Outlook turned on by default
  - Improved logic for automatic zoom to storms



# Implementing NHC product changes



- Day 4 and 5 wind radii
- (Experimental) Cone with inland watches/warnings

# Where can I get more training?



Register for the  
webinars here!

## Annual webinar series: June 10 to June 14

- 5 sessions in 5 days
- Live 60–90-minute programs at 2PM EDT
- Recordings on YouTube



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# Future of HURREVAC



◆ 100 Kilometers

Individual Assistance  
Group Specialist  
121

Mass Care / Emergency  
Assistance Specialist - II  
122

FEMA



How can HURREVAC help you in a rapidly-evolving forecast?

EVACUATION  
ROUTE





# How do you use HURREVAC for Inland Threats?



EVACUATION  
ROUTE





# How do you Train/Refresh on HURREVAC?



EVACUATION  
ROUTE





# How do you use Evacuation Timing Features in HURREVAC?

EVACUATION  
ROUTE





# Additional Discussion:

Gaps in HURREVAC?

Best Practices?

Areas of Improvement?

Future Development Efforts?

EVACUATION  
ROUTE





Contact Us: [NHP@fema.dhs.gov](mailto:NHP@fema.dhs.gov)

EVACUATION  
ROUTE

