2025 HURREVAC Training Webinar Series

Day 4 – Evacuation Timing Features

July 31, 2025

FEMA NATIONAL HURRICANE PROGRAM

HURREVAC
HURRICANE DECISION SUPPORT TOOL

Attendee information

Registration

- You are automatically signed in when you join

Audio

- All attendees are muted
- If having audio issues, restart webinar or try watching link on a different device (laptop/desktop strongly recommended)

Live Transcription

- Available in English and Spanish
- Opens in a separate browser window
- Links are in the chat window and reminder email from 1 hour ago

Downloadable handouts

- Today's slides
- HURREVAC Workspace Guide
- Also available from hurrevac.com in the **Learning Resources** section

NATIONAL HURRICANE PROGRAM

Attendee information

Questions

- Submit in the question box

Recording

- Will be posted by tomorrow morning on our YouTube channel and the **Learning Resources** tab of hurrevac.com
- Available if you miss a session, or as a year-round resource

Feedback

- Daily survey launches after webinar
- Link also in follow-up email

Certificate

- One for each day attended
- Emailed from GoToWebinar about one hour after conclusion
- If missing, check junk/spam first
- Certificates cannot be generated for groups, or makeup viewing on YouTube

NATIONAL HURRICANE PROGRAM

THIS WEEK'S AGENDA

MON. JULY 28: Introduction to HURREVAC

TUES. JULY 29: Wind Forecast Features

WED. JULY 30: Storm Surge and Flooding Hazards

Recordings from all previous sessions available on YouTube

THURS. JULY 31: Evacuation Timing Features

Today's Presenters

Frannie Bui, PE, PMP
National Hurricane Program Manager
U.S. Army Corps of Engineers, Baltimore District

John Boyer
Sea Island Software

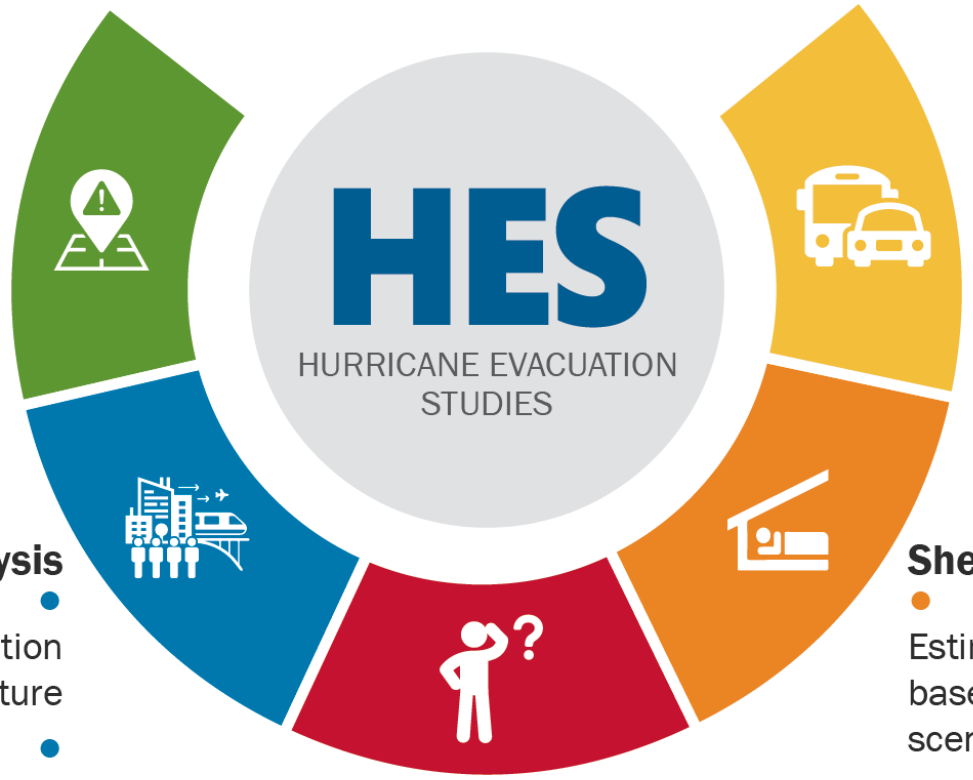
NATIONAL HURRICANE PROGRAM

OVERVIEW

HES & HURREVAC EVACUATION TIMING FEATURES

National Hurricane Program

Hurricane Evacuation Studies



1 Hazard Analysis

- Assess hazards, predominantly storm surge, from tropical cyclones

2 Vulnerability Analysis

- Identify at-risk population and infrastructure
- Develop evacuation zones

3 Behavioral Analysis

- Assess decision-making and behavior assumptions for at-risk populations

4 Shelter Analysis

- Estimate shelter needs based on evacuation scenarios

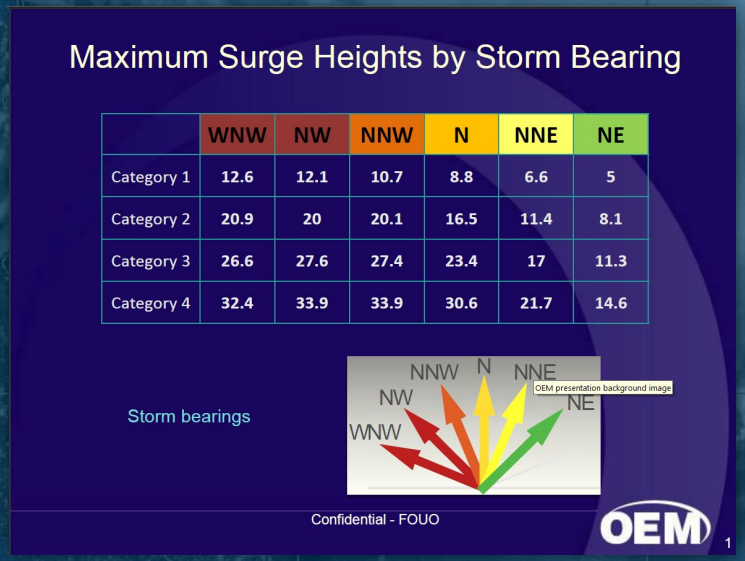
5 Transportation Analysis

- Model evacuee traffic patterns
- Calculate evacuation clearance times

HAZARDS ANALYSIS

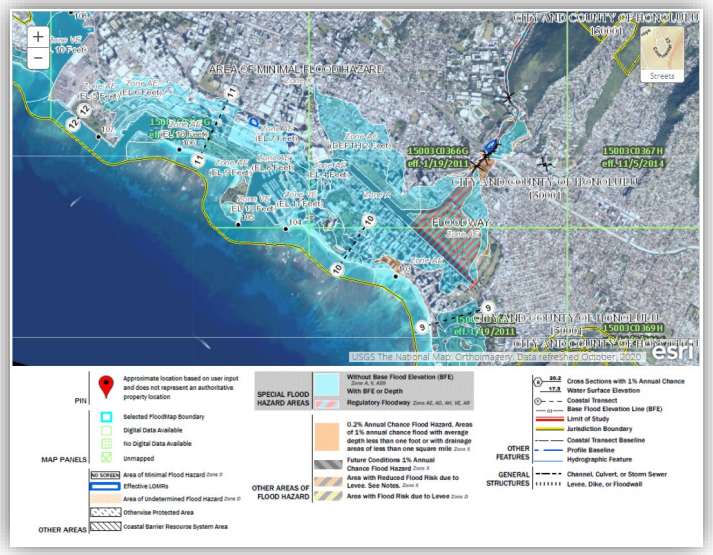
Outcomes

- Refined understanding of hurricane risks through:
  - **Grouping and mapping MOMs and MEOWs**
  - **Overlaying storm surge and FEMA maps**
  - **Mapping Maximum Envelopes of Wind**

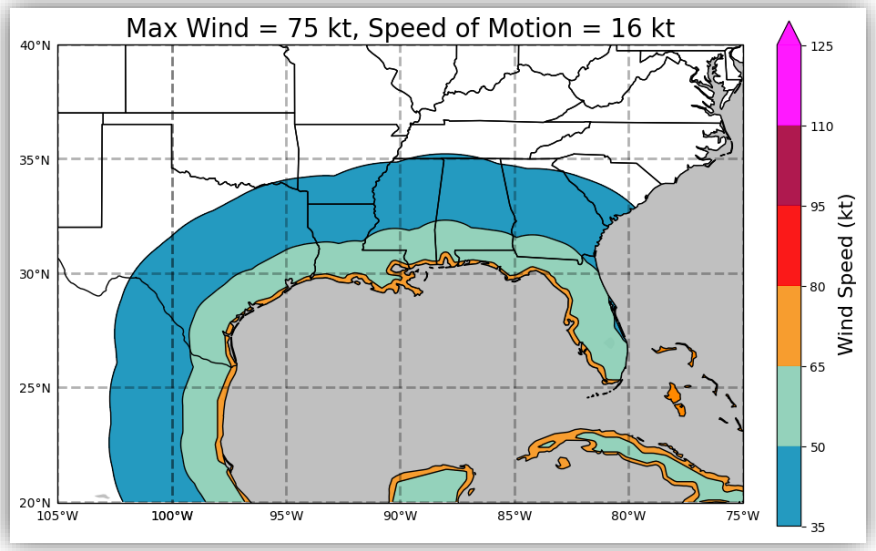


	WNW	NW	NNW	N	NNE	NE
Category 1	12.6	12.1	10.7	8.8	6.6	5
Category 2	20.9	20	20.1	16.5	11.4	8.1
Category 3	26.6	27.6	27.4	23.4	17	11.3
Category 4	32.4	33.9	33.9	30.6	21.7	14.6

MOM and MEOWS Groupings



FEMA Flood Maps

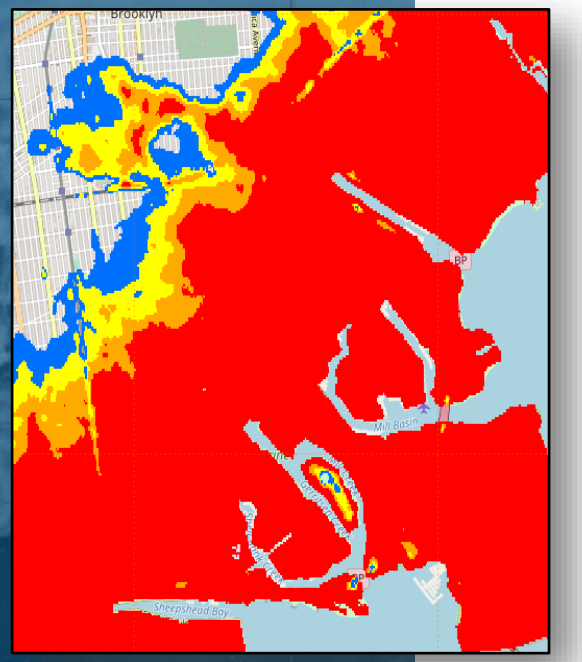


Maximum Envelopes of Wind

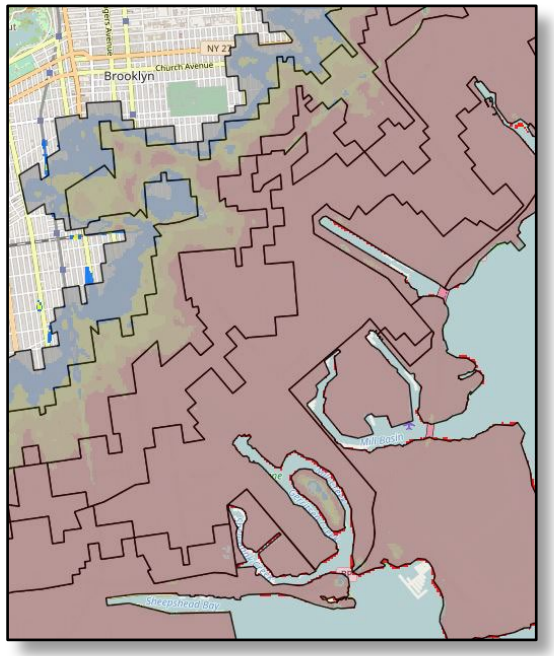
VULNERABILITY ANALYSIS

Outcomes

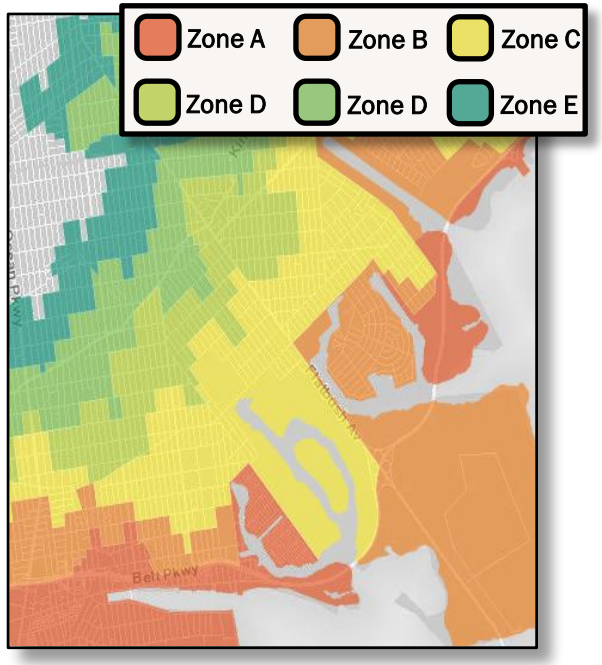
- **Identify Vulnerable Population and Critical Infrastructure**
- **Develop (or refine) Evacuation Zones** by combining hazard maps, vulnerability data, transportation network, and state & local input.



Hazard Maps



State + Local Input

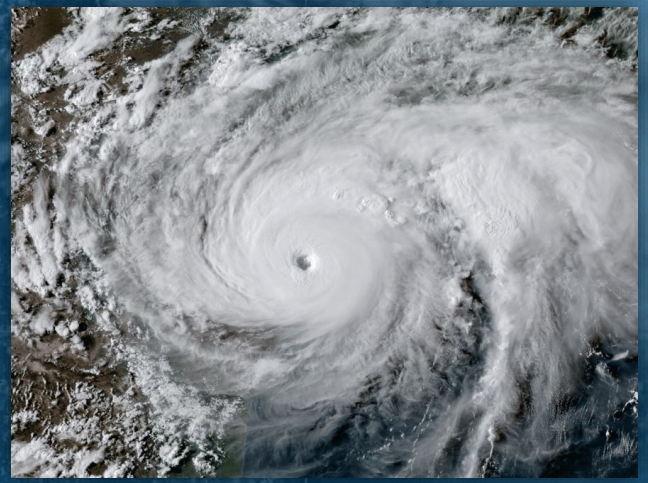


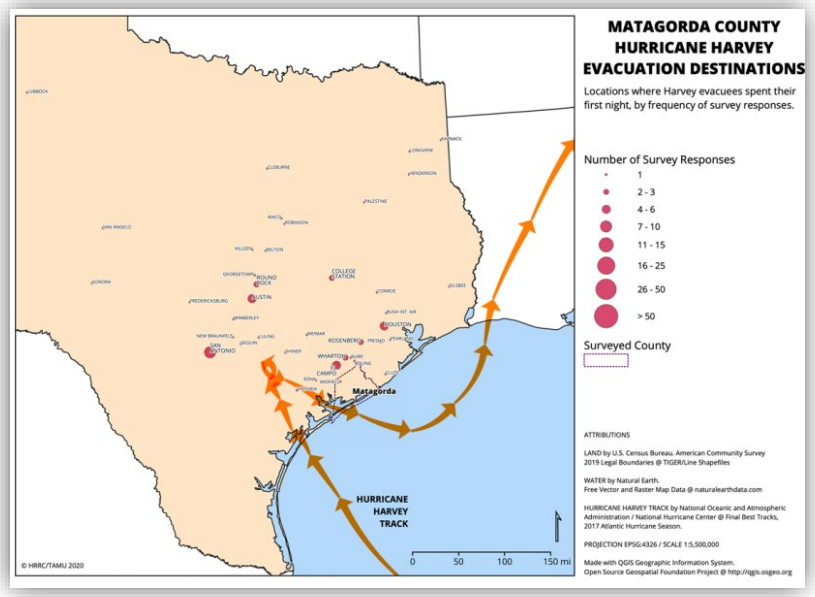
Evacuation Zones

BEHAVIORAL ANALYSIS

Outcomes

- Conduct surveys to develop understanding of how populations respond to hurricane threats
  - **Evacuation participation rates**
  - **Response time**
  - **Destination weights**
  - **Public shelter usage rates**
  - **Vehicle usage**





SHELTER ANALYSIS

Outcomes

Conduct a detailed geospatial analysis and use shelter rates (from the behavioral analysis) to:

- **Identify shelter locations**
- **Identify shelter vulnerability**
- **Perform and a demand vs capacity analysis**

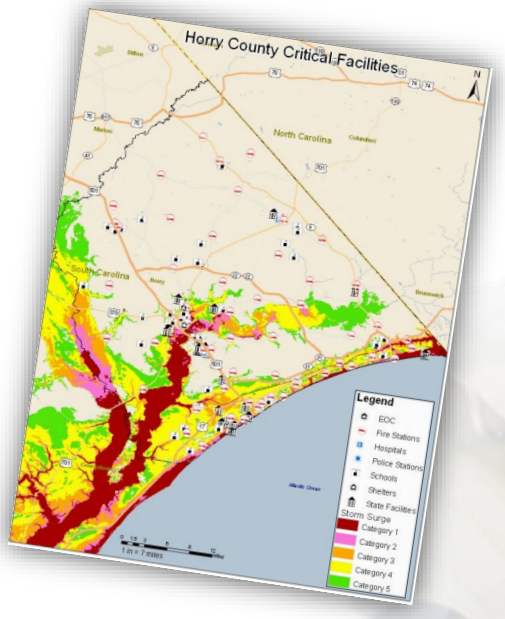


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Table 5-1: Horry County Shelters

Name	Address	City	State	Zip	Surge Area	Evacuation Zone	FEMA 100 Year Floodplain	Capacity
Aynor Elementary School	516 Jordanville Rd.	Aynor	SC	29511	NA	NA	N	413
Aynor High School	201 Highway 24	Aynor	SC	29511	NA	NA	N	627
Conway Elementary School	1101 Snowhill Dr.	Conway	SC	29526	4	NA	N	683
Conway High School	2301 Church St.	Conway	SC	29527	NA	NA	N	1,280
Green Sea Floyds Elementary School	5000 Tulip Grove Rd.	Green Sea	SC	29545	NA	NA	N	533
Green Sea Floyds Middle & High School	4990 Tulip Grove Rd.	Green Sea	SC	29545	NA	NA	N	1,115
Loris Elementary School	901 Highway 9 Bus. East	Loris	SC	29569	NA	NA	N	464
Loris High School	301 Loris Lions Rd.	Loris	SC	29569	NA	NA	N	1,090
Pee Dee Elementary School	6555 Hwy 134	Conway	SC	29527	NA	NA	N	533
South Conway Elementary School	3001 Fourth Ave.	Conway	SC	29526	4	NA	Y	495
Whittemore Park Middle School	1808 Rhue St.	Conway	SC	29527	NA	NA	N	845
Total								8,078

Table 5-14: Public Sheltering Deficit/Surplus Analysis for the Northern Conglomerate

County	Shelter	Scenario A				Scenario B				Scenario C			
		Low Occ	Med Occ	High Occ	Extreme Occ	Low Occ	Med Occ	High Occ	Extreme Occ	Low Occ	Med Occ	High Occ	Extreme Occ
Horry	Shelter Demand	9,590	9,914	10,568	10,894	13,972	14,335	15,068	15,434	24,276	24,645	25,395	25,769
	Shelter Capacity	8,078	8,078	8,078	8,078	8,078	8,078	8,078	8,078	6,900	6,900	6,900	6,900
	Deficit / Surplus	-1,512	-1,836	-2,490	-2,816	-5,894	-6,257	-6,990	-7,356	-17,376	-17,745	-18,495	-18,869
Georgetown	Shelter Demand	2,722	2,762	2,845	2,885	3,996	4,039	4,131	4,177	4,387	4,432	4,523	4,570
	Shelter Capacity	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560
	Deficit / Surplus	-162	-202	-285	-325	-1,436	-1,479	-1,571	-1,617	-1,827	-1,872	-1,963	-2,010

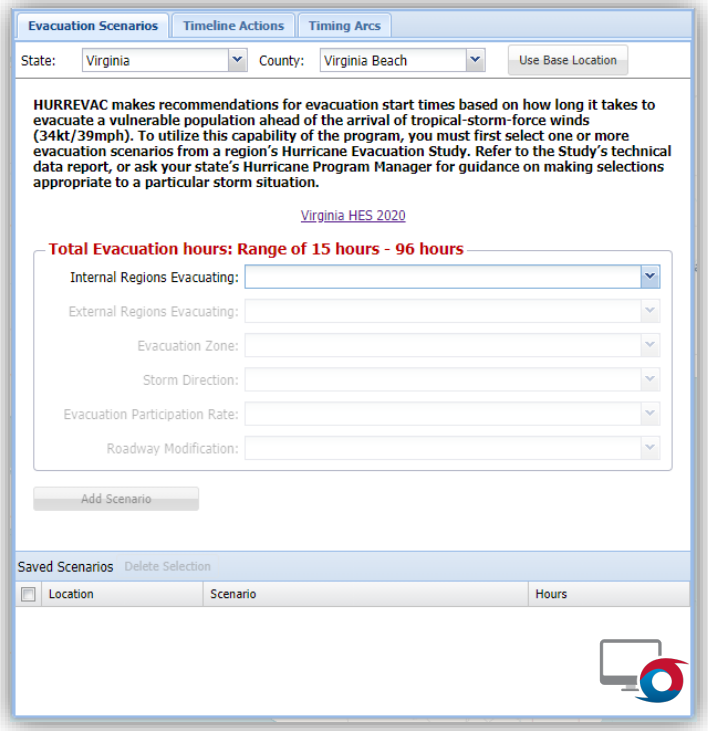
Note: Shelter capacity estimates are intended to provide a general overview of potential space surpluses or deficits when projected demand is reviewed in light of available identified spaces. Capacity figures are subject to change. Any specific shelter data or list is subject to change and may not reflect actual shelters employed.

TRANSPORTATION ANALYSIS

Outcomes

- **Develop Evacuation Scenarios** through close coordination with local & state emergency managers
- **Transportation modeling to get Clearance Times** using the Real Time Evacuation Planning Model (RtePM)
- **HURREVAC Integration**

Scenario	Subregion					Dir		Cat			Zones				Part Rate			LR		NC		Likely		
	SS	P	MP	NN	ES	NW	NE	1/2	3	4	A	B	C	D	L	M	H	W	WO	W	WO	ML	CAT	REGIONAL CLEARANCE TIME
ES-1																								28
ES-2																								28
ES-3																								45
ES-4																								38
ES-5																								58
ES-6																								50
ES-7																								34
ES-8																								45
ES-9																								38
ES-10																								58
ES-11																								58
ES-12																								50
ES-13																								67
ES-14																								67
ES-15																								58

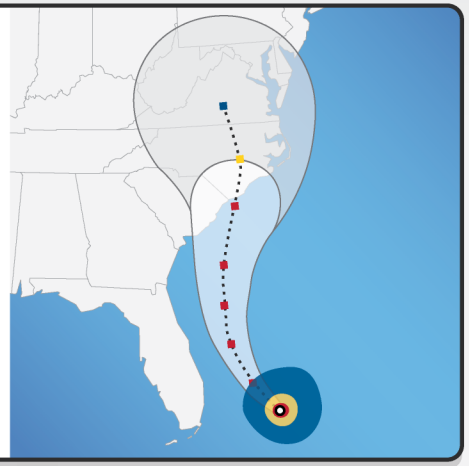


Evacuation Timing Features in HURREVAC

Calculating Evacuation Start Time

HAZARDS

Storm Forecast



Arrival Time of Tropical-Storm-Force Winds

PLANNING SCENARIOS

HES Data
(Hurricane Evacuation Study)
Pre-Determined Evacuation Zones and Scenarios

Clearance Time Scenario

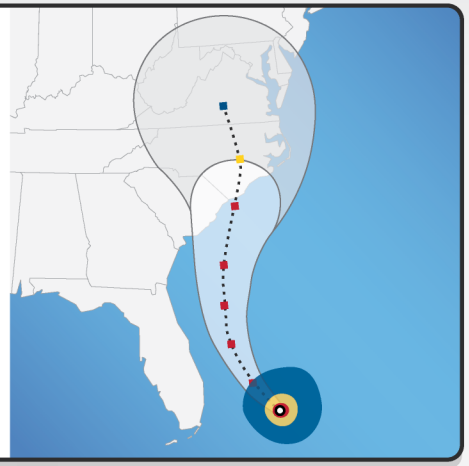
EVACUATION

Evacuation Start Time

Calculating Evacuation Start Time

HAZARDS

Storm Forecast



Arrival Time of
Tropical-Storm-Force Winds

8pm Saturday

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PLANNING SCENARIOS

HES Data
(Hurricane Evacuation Study)
Pre-Determined
Evacuation Zones
and Scenarios

CATEGORY 3

Clearance Time
Scenario

36 Hours

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EVACUATION

Evacuation
Start Time

8am Friday

HURREVAC Demo

Goals for Today

1. Map evacuation zones and compare to storm surge layers
2. Access HES documents
3. Combine clearance times with forecast data to calculate evacuation start time
4. Input custom timeline actions
5. Compare evacuation timing report with timing arcs method

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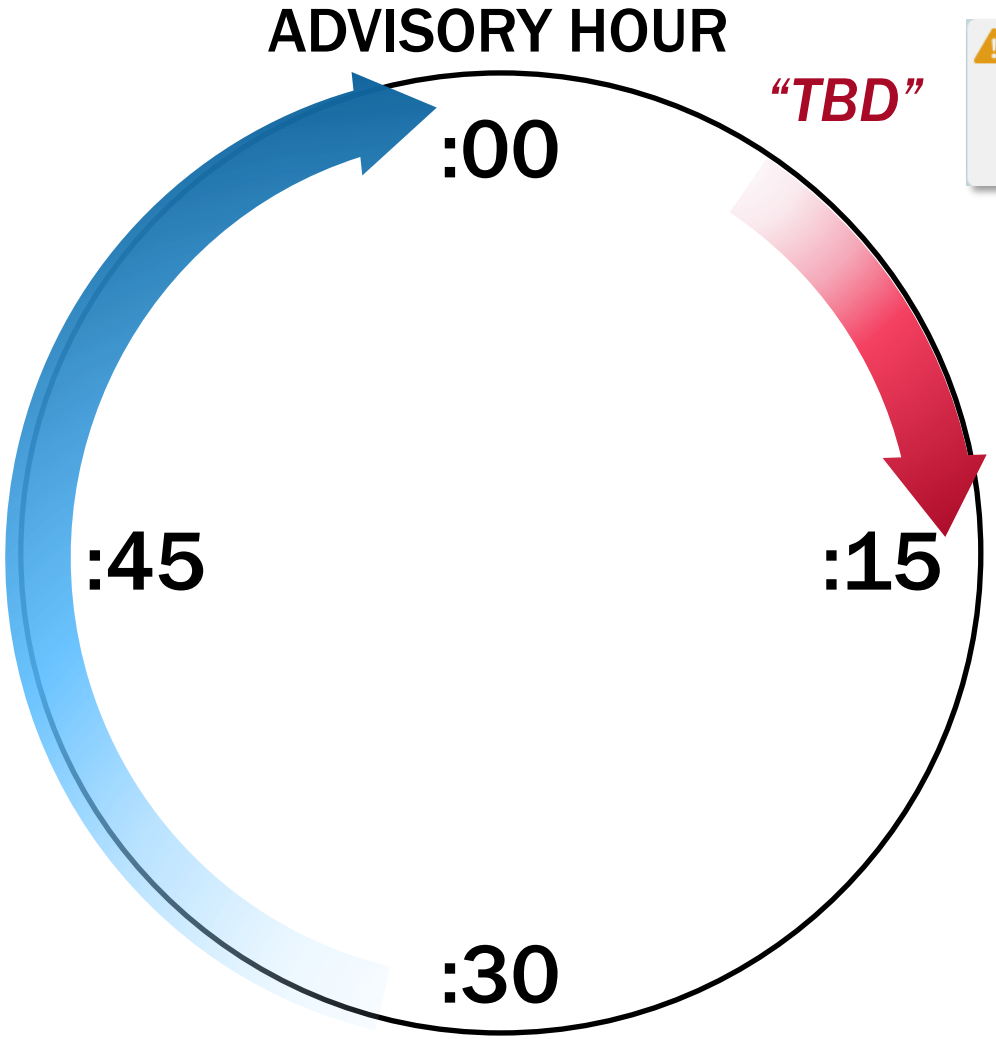
When are advisory products usually available in HURREVAC?

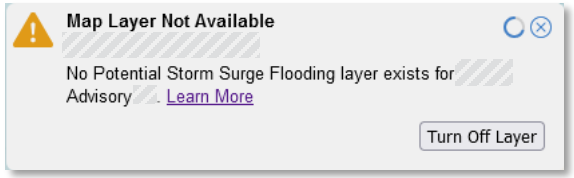
FIRST

- Track
- Text advisories
- Deterministic reports

- Times vary, especially when multiple storms are active
- Forecast layers not updated for intermediate advisories



"TBD"



NEXT

- Probabilistic report data (%, TOA, TOD)
- Evac. timing report

LAST

About 60-90 min. after advisory hour

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Additional Resources: Self-Paced HURREVAC Training

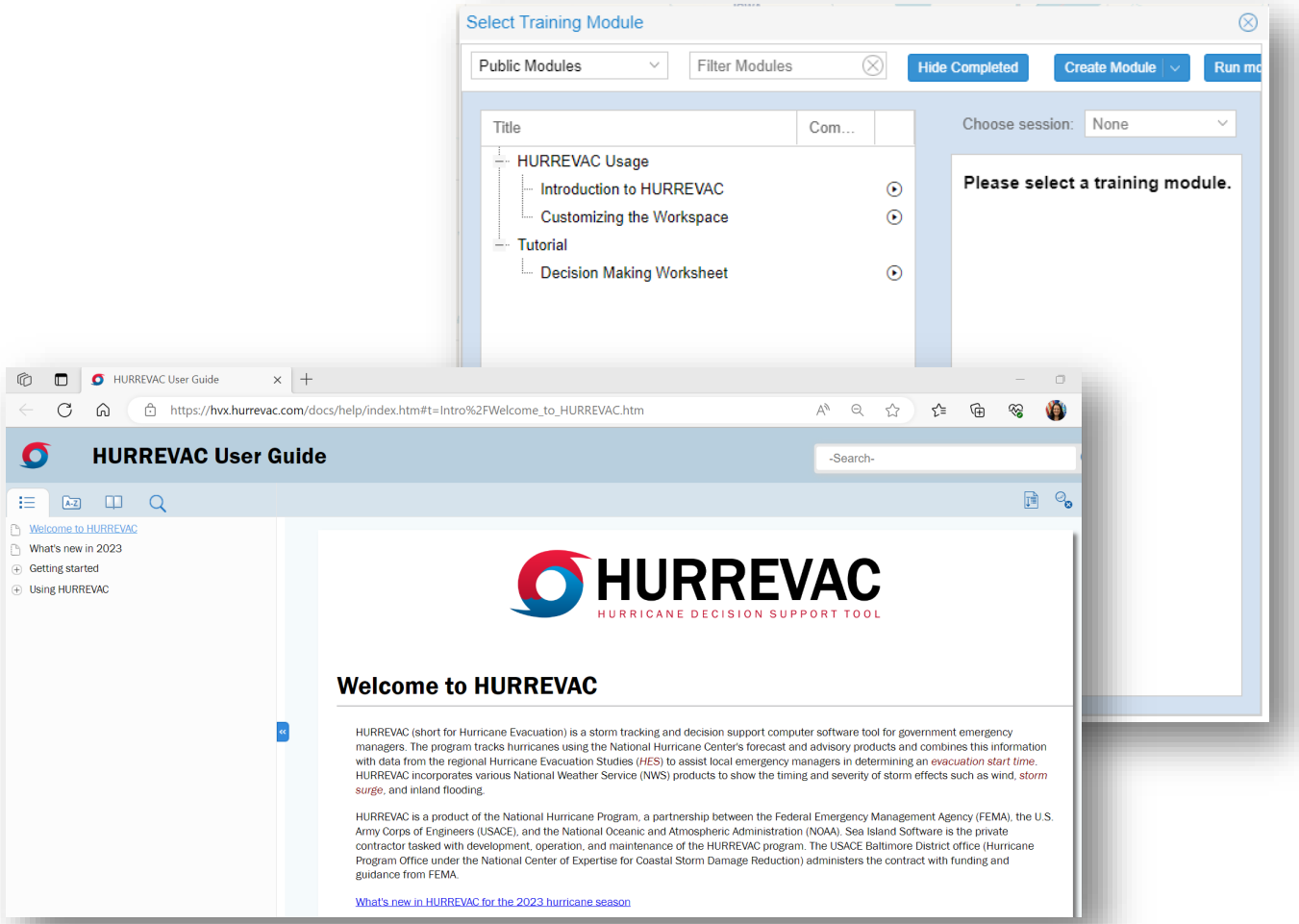
On hurrevac.com

- Webinar recordings & slides
- Announcements
- Printable reference guides

Inside the program

- User Guide
- Training Modules

[HURREVAC – YouTube](#) channel



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Thank you!

HURREVAC Support Team

support@hurrevac.com

FEMA

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