

2023 HURREVAC Training Webinar Series

Day 5 – Exercise Tools and Applying HURREVAC

June 16, 2023



FEMA



NATIONAL HURRICANE PROGRAM



HURREVAC

HURRICANE DECISION SUPPORT TOOL

Administrative Details

Downloadable handouts

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

Live Transcription

- English / Español
- Links in the chat window

Questions

- Submit in the question box
- All attendees are muted

Feedback

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

Certificate

- One for each day attended
- Emailed about **one hour** after conclusion

Recording

- Will be on HURREVAC's YouTube channel
- Available as a year-round resource



THIS WEEK'S AGENDA

JUNE 12: Introduction to HURREVAC and General Overview of the Program

JUNE 13: Wind Forecast Features

JUNE 14: Evacuation Timing Features

JUNE 15: Storm Surge and Other Water Hazards

JUNE 16: Exercise Tools and Applying HURREVAC

Today's Presenters



Christina Finch

National Hurricane Program Manager, FEMA

Christina.Finch@fema.dhs.gov

Karen Townsend

Sea Island Software

karentownsend@seaislandsoftware.biz



NATIONAL HURRICANE PROGRAM

Day 5 – Exercise Tools and Applying HURREVAC

HURREVAC Webinar Series

◆ 100 Kilometers

992

986



HURREVAC Use Cases

A resource for emergency managers during **planning and response**.

Operational Support:

- ❑ View Tropical Weather Outlook
- ❑ Monitor storms and track forecasts
- ❑ Assess wind speed probabilities
- ❑ Estimate arrival and departure of tropical storm force winds
- ❑ Understand storm surge risk
- ❑ Support evacuation decision making
- ❑ Develop decision timelines

HURREVAC Use Cases

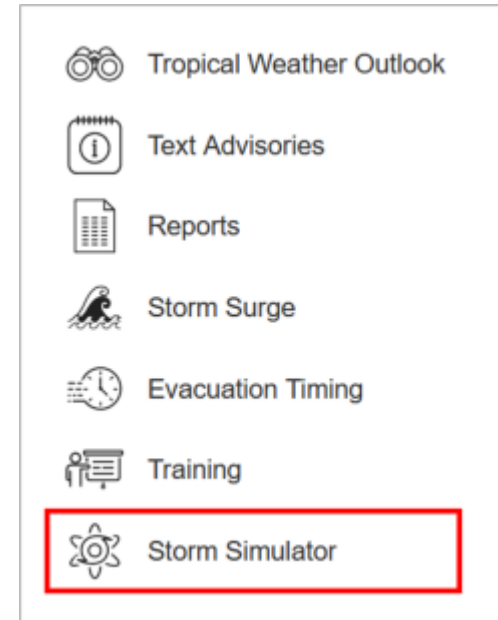
A resource for emergency managers during **planning and response**.

Planning Support:

- ❑ Develop simulated storms
- ❑ Understand storm surge risk
- ❑ Evaluate decision timelines
- ❑ Access Hurricane Evacuation Studies
- ❑ Consider scenarios to support planning, training, and exercises

Storm Simulator

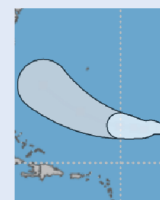
- Create tailored storm simulations that can be used for training classes; table-top and field exercises; and can be embedded into training modules.
- Generate simulated storms from scratch; by importing and editing existing storms; or by editing existing example storms.
- Over 1000 storm created!



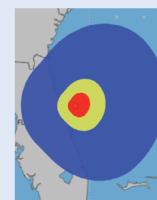
Products generated by Storm Simulator



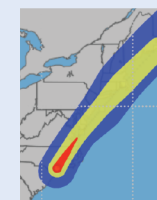
Storm tracks, actual and forecast



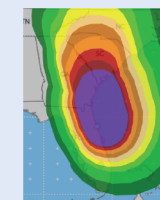
Potential track area (error cone)



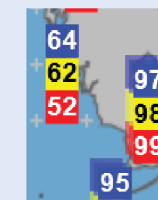
Wind field (rings)



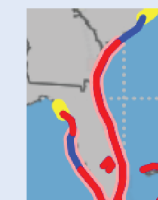
Wind swaths



Graphical wind probabilities



Location-based wind probabilities



Wind watches and warnings

HURRICANE CENTER :
POSITION ACCURATE

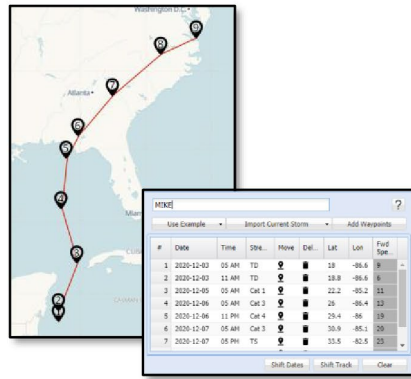
PRESENT MOVEMENT :

ESTIMATED MINIMUM
MAX SUSTAINED WIND
34 KT.....195NE
50 KT..... 65NE
64 KT..... 30NE
WINDS AND SEAS VAL
MILES ARE THE LAR

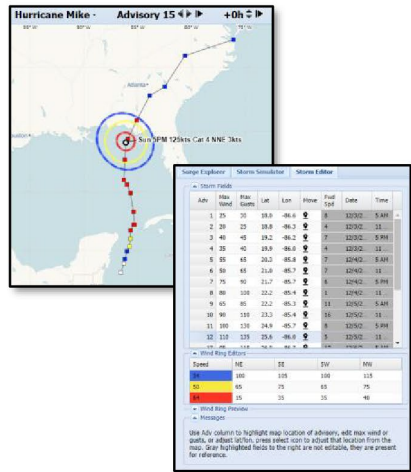
Text advisories

Storm Simulator Panel in HURREVAC

1. Characterize the storm



2. Build and edit the track



Side Panel

Surge Explorer **Storm Simulator** Storm Editor

NAME OF SIMULATED STORM ?

Use Example **1** Import Storm Add Waypoints

#	Date	Time	Stren...	Move	Del...	Lat	Lon	Fwd Spe...

Shift Dates Shift Track Clear

Storm Track Go Back **2** Edit Track

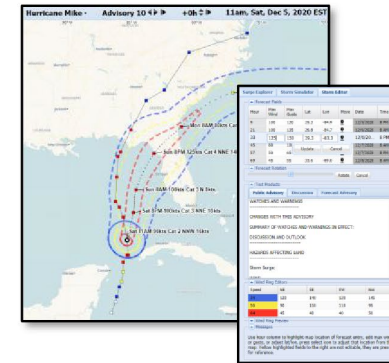
Forecasts Forecast Bias (relative to error cone) Left Edge Right Edge **3** Go Back Build Forecasts Edit Forecasts

Downstream Products Start Adv: **4** Adv: **4** Go Back Generate Wind Products

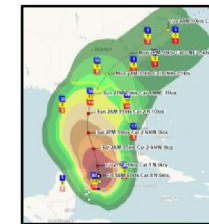
Saving Save Storm **5** Start Over

Messages No Messages Currently

3. Build and edit the forecasts



4. Generate wind products



5. Save, edit and share

Storms Conditions Resources

Filter Storms Basin

- Active Storms
- Current Year Storms
- Archived Storms
- Exercise Storms
- Simulated Storms

Remove from profile Share by Storm ID

Map Layers

Storms Conditions Resources

Filter Storms Basin

- Active Storms
- Current Year Storms
- Archived Storms
- Exercise Storms
- Simulated Storms

Add a shared simulation by Storm ID

Step 1: Characterize the storm

Name and start to build your storm

Enter waypoints

- Use Example
- Import Current Storm
- Add Waypoints
 - Location
 - Date
 - Time
 - Strength (TD, TS, Cat 1, Cat 2, Cat 3, etc.)

The screenshot displays the Storm Surge (SLOSH) Explorer interface. On the left, a map shows a storm track with five waypoints labeled 1 through 5. On the right, the 'Side Panel' contains a 'Storm Simulator' tab with a table of simulated storm data. The table has columns for #, Date, Time (UTC), Stren..., Move, Del..., Lat, Lon, and Fwd Spd. The data rows are:

#	Date	Time (UTC)	Stren...	Move	Del...	Lat	Lon	Fwd Spd
1	9/1/2022	03				26.1	-71.3	9
2	9/2/2022	03				29.1	-73.9	10
3	9/3/2022	03	Cat			32.9	-75.3	12
4	9/4/2022	03	Cat 1			37.8	-74.3	13
5	9/5/2022	03	STS			42.4	-70.9	11
6	9/6/2022	03	TD			44.2	-65.5	0

Below the table are buttons for 'Shift Dates', 'Shift Track', and 'Clear'. Further down, there are sections for 'Storm Track' (Go Back, Build Track, Edit Track), 'Forecasts' (Forecast Bias relative to error cone, Go Back, Build Forecasts, Edit Forecasts), 'Downstream Products' (Start Adv: 1, End Adv: 1, Go Back, Generate Wind Products), 'Saving' (Save Storm, Start Over), and 'Messages' (Choose a new location on the map for the selected (red) waypoint).



Step 2: Build and edit the track

After clicking “Build Track”, you can view

- Track
- Advisory labels and Storm Info Box
- Wind Fields
- Past Wind Swath

Storm Editor

- Edit storm fields & Wind Rings

Tropical Depression Zeus - Advisory 25 | +0h | 11pm, Tue, Sep 6, 2022 EDT

Hurricane Zeus - Advisory 15

Review storm track and characteristics

TROPICAL DEPRESSION ZEUS (al00ACCS) - Tuesday, September 6, 2022 11PM EDT Advisory #25
 Center Location: 46.8 N 64.5 W | Maximum Sustained Winds: 35 mph | Movement: 30 mph NE
 Wind Field: @ at current location | along 3-day forecast track
 Sustained Wind Speed: tropical storm => 34k/39mph | strong tropical storm => 50k/58mph | hurricane => 64k/74mph

#	Date	Time (UTC)	Storm	Move	Dir	Lat	Lon	Wind Spd
1	9/1/2022	03	TD			23.5	-66.4	11
2	9/2/2022	03	TS			25.7	-70.8	10
3	9/3/2022	03	Cat 1			23.9	-74.4	10
4	9/4/2022	03	Cat 3			31.1	-77.3	10
5	9/5/2022	03	Cat 1			35.2	-76.8	15
6	9/6/2022	03	TS			40.5	-73.3	22
7	9/7/2022	03	TD			46.8	-64.5	0

Storm Fields	Adv	Max Wind	Max Gust	Lat	Lon	Move	Wind Spd	Date	Time
	14	100	120	32.1	-77.6		10	9/4/2022	09
	15	90	110	33.1	-77.7		11	9/4/2022	15
	16	85	110	34.2	-77.4		11	9/4/2022	21
	17	75	95	35.2	-76.8		13	9/5/2022	03
	18	70	90	36.4	-76.1		13	9/5/2022	09

Storm Editor

Wind Ring Editors	Speed	NE	SE	SW	NW
96	115	100	105	90	
90	80	55	55	45	
84	30	30	25	15	

Storm Surge (SLOSH) Explorer | Storm Simulator | Storm Editor

Storm generated successfully

4, 2022 11AM EDT Advisory #15
 mph (Cat 2) | Movement: 13 mph NNE
 tropical storm => 50k/58mph | hurricane => 64k/74mph



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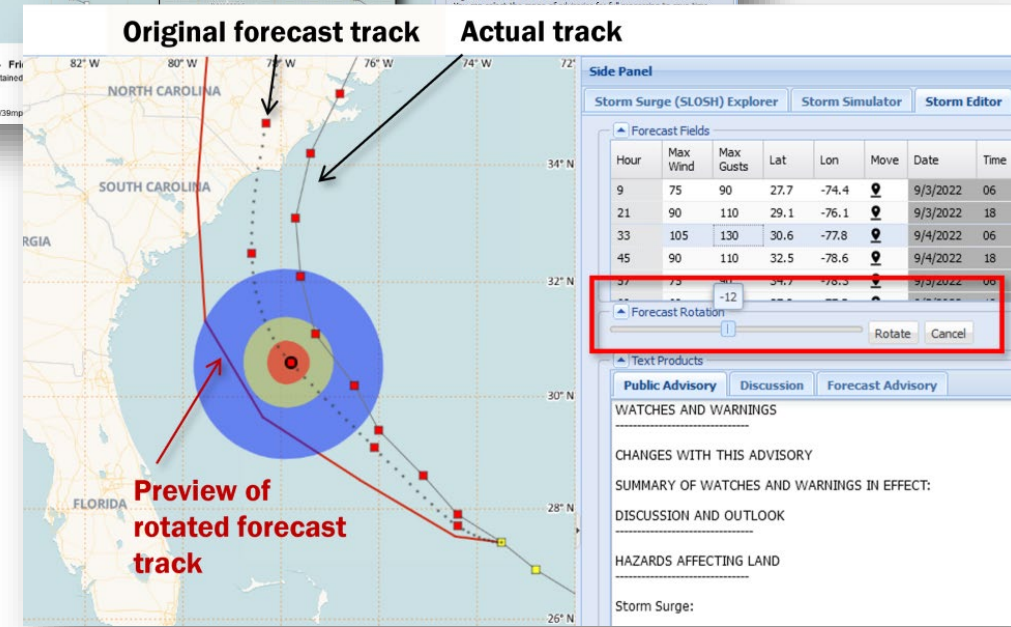
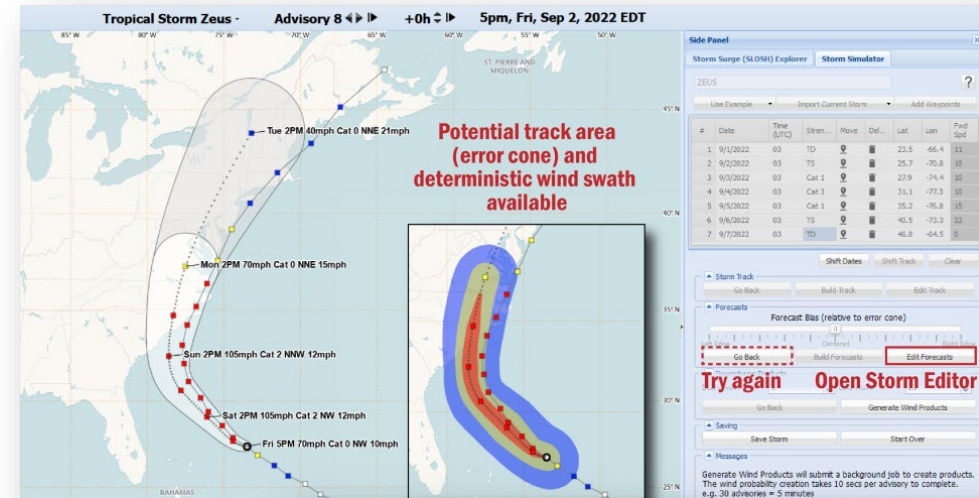
Step 3: Build and edit the forecasts

After clicking “Build Track”, you can view

- Potential Track Area (Error Cone)
- Deterministic Wind Swath
- Text Advisory products
- Storm Summary & Deterministic Wind Timing reports

Use Storm Editor to:

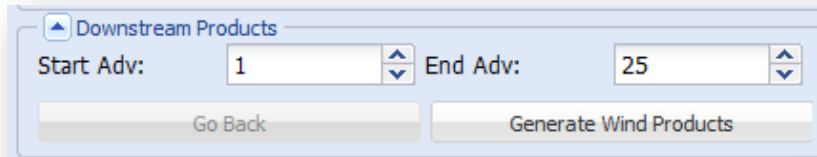
- Edit storm fields
- Rotate forecast
- Edit Text Products



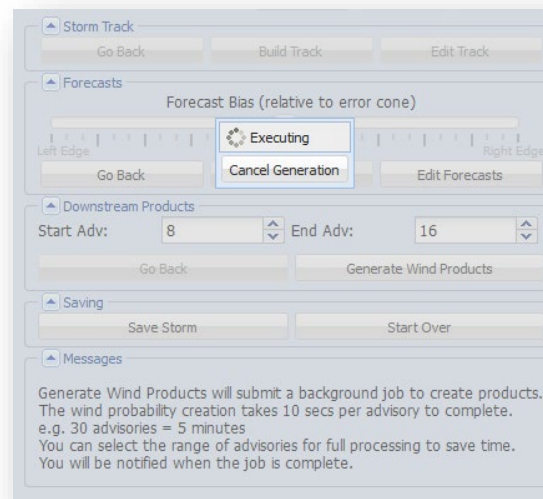
Step 4: Generate wind products

After clicking “Generate Wind Products”, you can view:

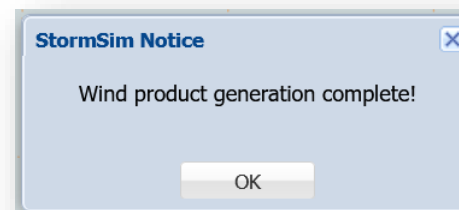
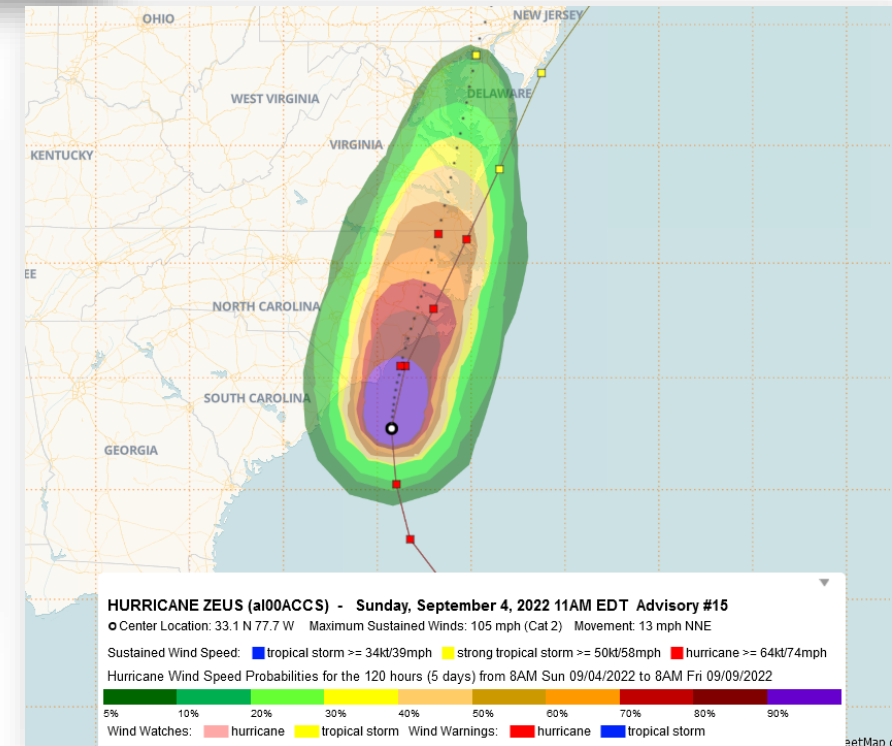
- Graphical Wind Probabilities
- Probabilistic Wind Swath
- Wind Watches a& Warnings
- Location-Based Wind Probabilities graphic
- Wind Probabilities reports



Downstream Products
Start Adv: 1 End Adv: 25
Go Back Generate Wind Products



Storm Track: Go Back Build Track Edit Track
Forecasts: Forecast Bias (relative to error cone) [Slider] Left Edge Right Edge
Executing Cancel Generation Edit Forecasts
Downstream Products: Start Adv: 8 End Adv: 16
Go Back Generate Wind Products
Saving: Save Storm Start Over
Messages: Generate Wind Products will submit a background job to create products. The wind probability creation takes 10 secs per advisory to complete. e.g. 30 advisories = 5 minutes. You can select the range of advisories for full processing to save time. You will be notified when the job is complete.

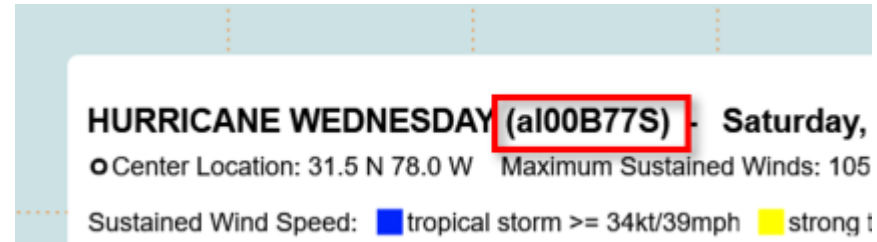


StormSim Notice
Wind product generation complete!
OK

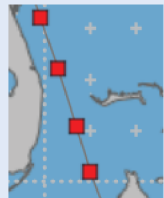
Step 5: Save, edit, and share

Save storms in your HURREVAC profile
Share storms with others to support:

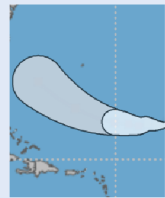
- Training
- Exercises
- Planning



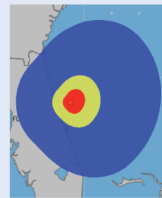
Products generated by Storm Simulator



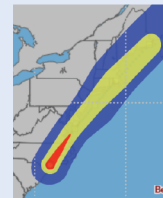
Storm tracks, actual and forecast



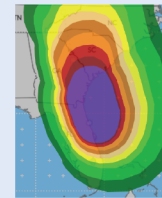
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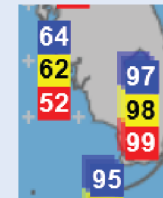
Wind field (rings)



Wind swaths



Graphical wind probabilities



Location-based wind probabilities



Wind watches and warnings

HURRICANE CENTER :
POSITION ACCURATE
PRESENT MOVEMENT :
ESTIMATED MINIMUM
MAX SUSTAINED WIND
34 KT.....195NE
50 KT..... 65NE
64 KT..... 30NE
WINDS AND SEAS VALUES ARE THE LARGEST

Text advisories





Demo

Exercise Tools and Applying HURREVAC

Closing Remarks

EVACUATION
ROUTE



Additional Resources: National Hurricane Program



Available Now

- <https://fema.gov/nhp>
- [Fact Sheets](#)
- [Subscribe](#) to Quarterly Newsletter
- Episode 95 on [FEMA Podcast](#)
- USACE [Inside the Castle Podcast](#)

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- [The NHP Supports Emergency Managers During Hurricane Ian](#)
- [Now Live: National Water Center Operational Products](#)
- [HURREVAC Tip and Trick: New Training and Storm Tracking Capabilities](#)
- [Hurricane Evacuation Study Modernization Project Update](#)
- [Hurricane Training at the NHC in 2023](#)
- [FEMA Podcast Before, During and After Features the NHP](#)
- [USACE Community Water Resource Technical Assistance Program](#)
- [Team Spotlight: Dr. Cody Fritz, NHC](#)
- [Important Upcoming Dates](#)

NHP Mid-Season Updates

Through the statistical peak of the Atlantic hurricane season, the National Hurricane Program (NHP) and the Hurricane Liaison Team (HLT) remains positioned to support state and local emergency managers when tropical cyclones threaten. The program spent the pre-season engaging with stakeholders at





Additional Resources: Self-Paced HURREVAC Training



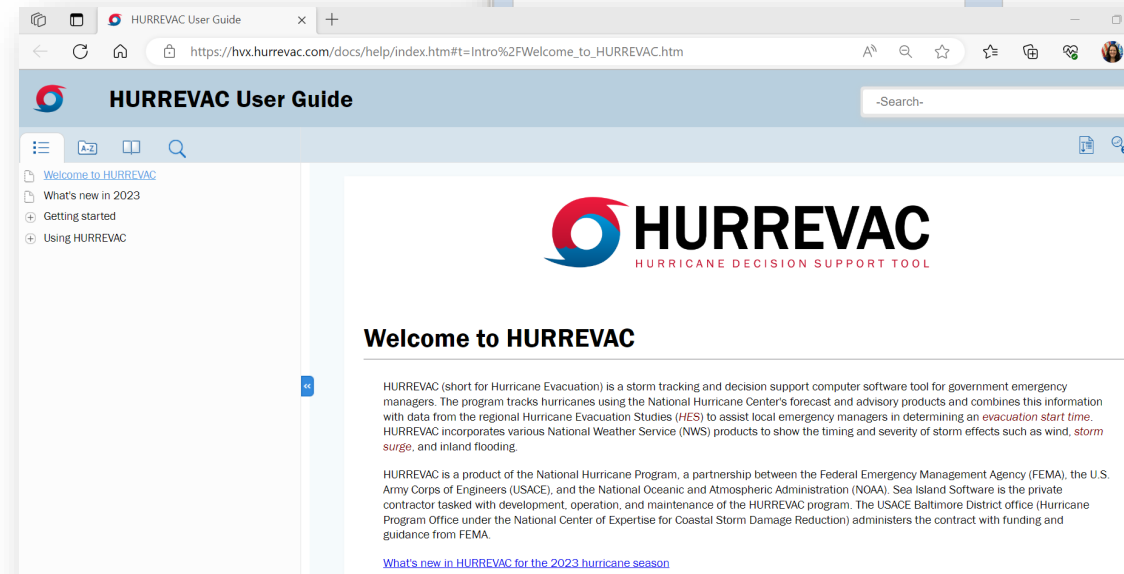
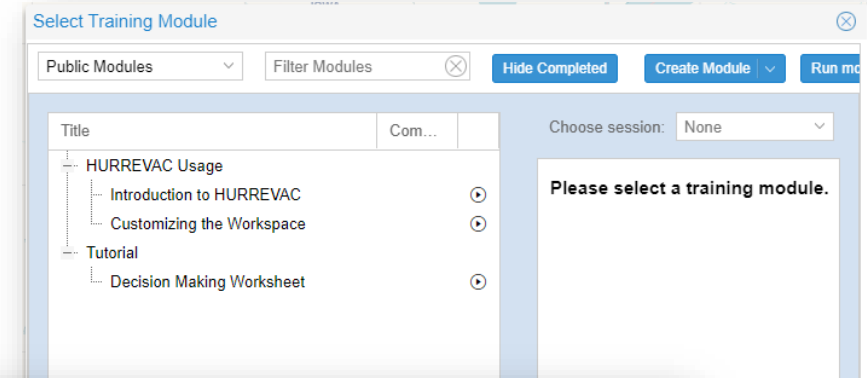
On hurrevac.com

- Webinar recordings & slides
- Announcements
- Printable reference guides

Inside the program

- User Guide 
- Training Modules 

[HURREVAC – YouTube channel](#)



Additional Resources: HURREVAC



For other questions

- support@hurrevac.com
- NHP program partners (see Resources Tab in HURREVAC)

A screenshot of the HURREVAC website homepage. The page features a dark blue header with the text "A HURRICANE DECISION SUPPORT TOOL FOR GOVERNMENT EMERGENCY MANAGERS." Below the header is a large satellite image of a hurricane with a blue button labeled "Launch HURREVAC Application". On the left side, there is a navigation menu with the HURREVAC logo and the following links: HOME, ANNOUNCEMENTS, APPLICATION INFORMATION, SUPPORT SERVICES, LEARNING RESOURCES, and OUTSIDE LINKS. The main content area is divided into two columns. The left column is titled "ABOUT HURREVAC" and contains text stating that HURREVAC is the decision support tool of the National Hurricane Program, administered by FEMA, the USACE, and the NOAA National Hurricane Center. It also mentions that the website provides program access and technical support for eligible users in government emergency management, maintained by Sea Island Software. The right column is titled "RECENT UPDATES" and features a reminder to join a webinar series starting on June 12, 2023, posted by John Boyer on June 7, 2023.

Thank you!

HURREVAC Support Team
support@hurrevac.com



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HURRICANE DECISION SUPPORT TOOL