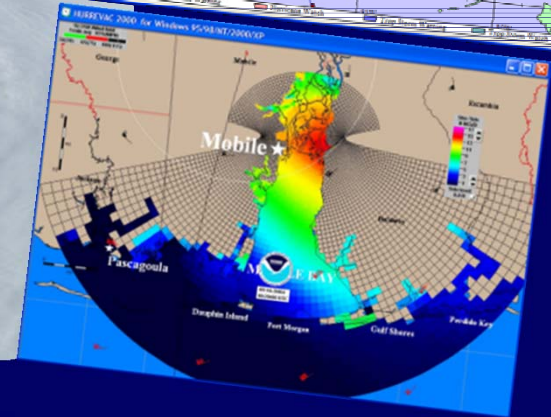
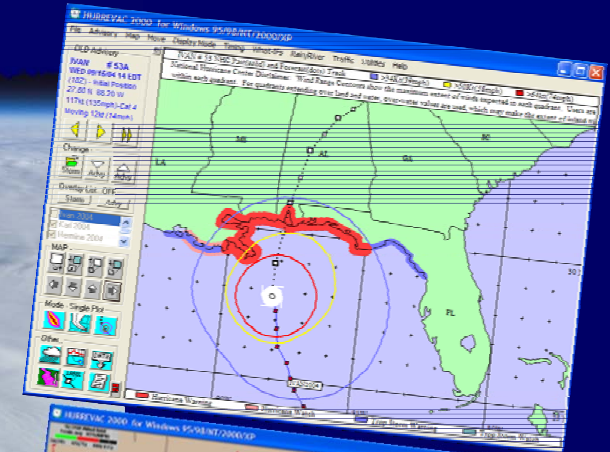
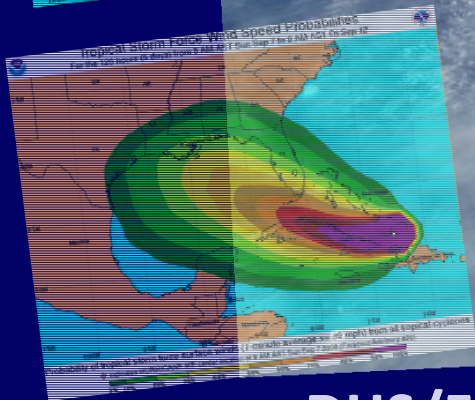
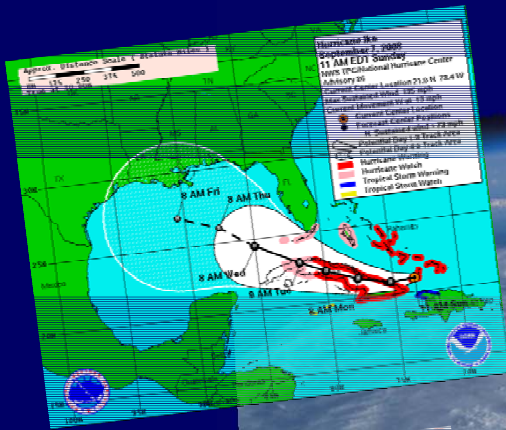


Unit 10: Hurricane Exercise: Putting the Pieces Together



DHS/Federal Emergency Management Agency
Emergency Management Institute
National Hurricane Center

Emergency
Management
Institute

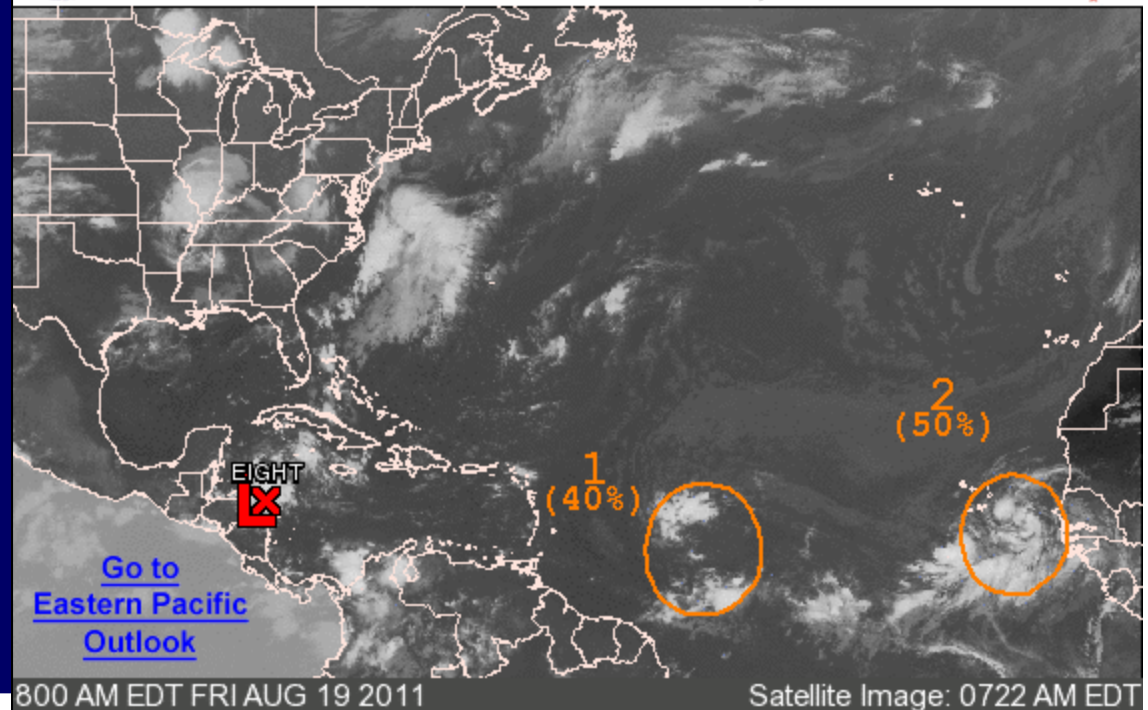


“Medium” Chance of Formation in the Tropical Atlantic



Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



Outlined areas denote current position of systems discussed in the Tropical Weather Outlook. Color indicates probability of tropical cyclone formation within 48 hours.

Low <30%	Medium 30-50%	High >50%
----------	---------------	-----------

TROPICAL WEATHER OUTLOOK
NWS NATIONAL HURRICANE CENTER MIAMI FL
800 AM EDT FRI AUG 19 2011

FOR THE NORTH ATLANTIC...CARIBBEAN SEA AND THE GULF OF MEXICO...

1. A LARGE TROPICAL WAVE LOCATED ABOUT 900 MILES EAST OF THE LESSER ANTILLES IS SHOWING SIGNS OF ORGANIZATION. ENVIRONMENTAL CONDITIONS ARE EXPECTED TO GRADUALLY BECOME MORE CONDUCTIVE FOR DEVELOPMENT AS THE DISTURBANCE APPROACHES THE LESSER ANTILLES ON SATURDAY. THIS SYSTEM HAS A MEDIUM CHANCE...40 PERCENT...OF BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS AS IT MOVES WESTWARD AT 20 MPH.

\$\$
FORECASTER STEWART/BEVEN

“High” Chance of Formation in the Tropical Atlantic

TROPICAL WEATHER OUTLOOK
NWS NATIONAL HURRICANE CENTER MIAMI FL
800 PM EDT FRI AUG 19 2011

FOR THE NORTH ATLANTIC...CARIBBEAN SEA AND

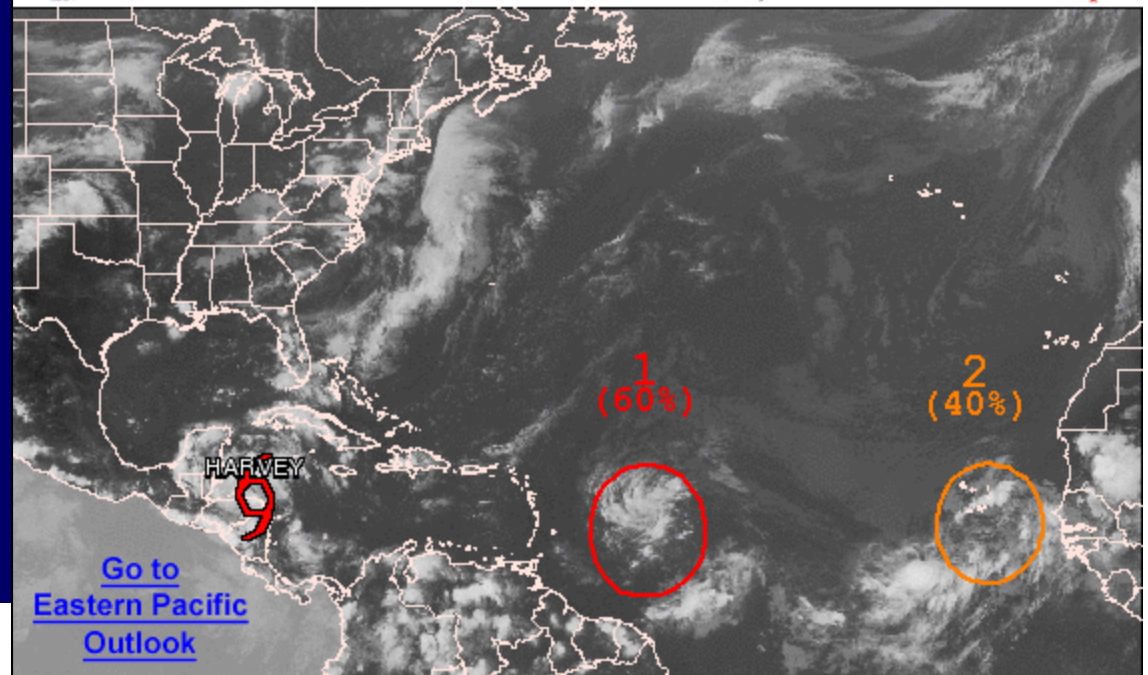
1. SHOWERS AND THUNDERSTORMS HAVE BECOME BETTER ORGANIZED IN ASSOCIATION WITH A LARGE TROPICAL WAVE LOCATED ABOUT 625 MILES EAST OF THE LESSER ANTILLES. ENVIRONMENTAL CONDITIONS ARE EXPECTED TO BE CONDUCTIVE FOR A TROPICAL DEPRESSION TO FORM OVER THE NEXT COUPLE OF DAYS. THIS SYSTEM HAS A HIGH CHANCE...60 PERCENT...OF BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS AS IT MOVES GENERALLY WESTWARD AT 20 MPH. INTERESTS IN THE LEEWARD ISLANDS SHOULD MONITOR THE PROGRESS OF THIS DISTURBANCE. LOCALLY HEAVY RAIN AND GUSTY WINDS ARE LIKELY OVER THE LEEWARD ISLANDS LATE SATURDAY INTO SUNDAY.

\$\$
FORECASTER BLAKE



Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



800 PM EDT FRI AUG 19 2011

Satellite Image: 0722 PM EDT

Outlined areas denote current position of systems discussed in the Tropical Weather Outlook. Color indicates probability of tropical cyclone formation within 48 hours.

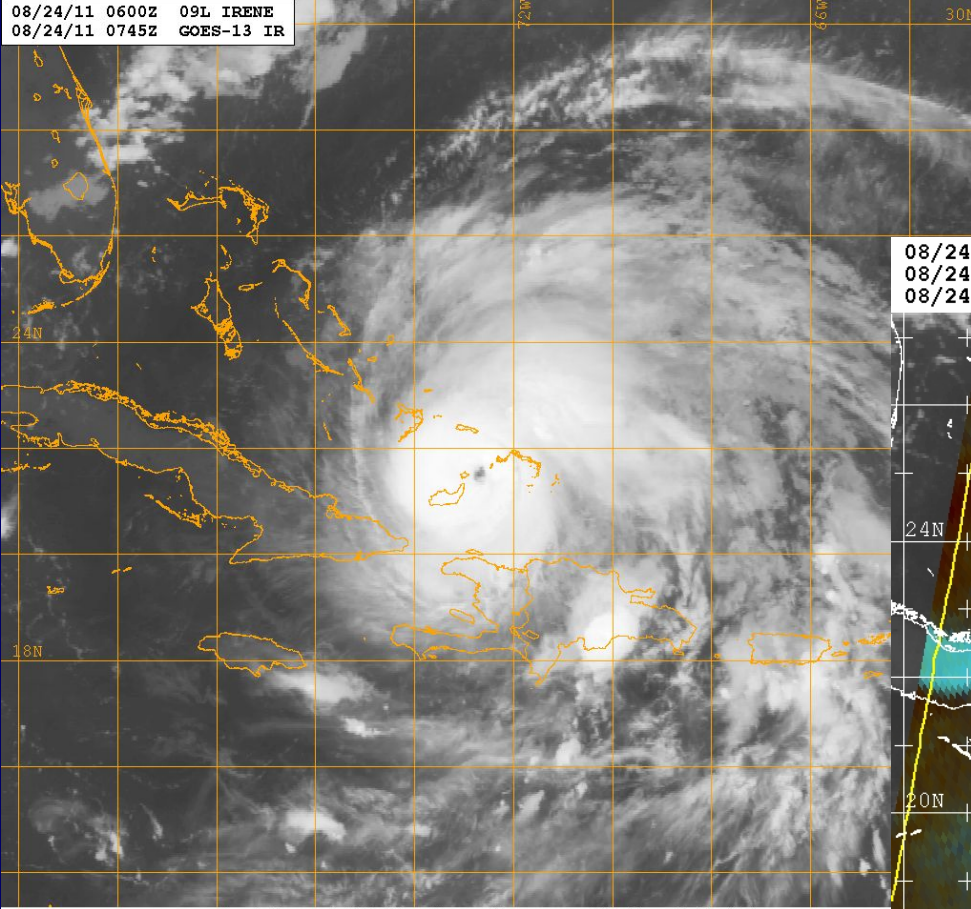
Low <30% Medium 30-50% High >50%



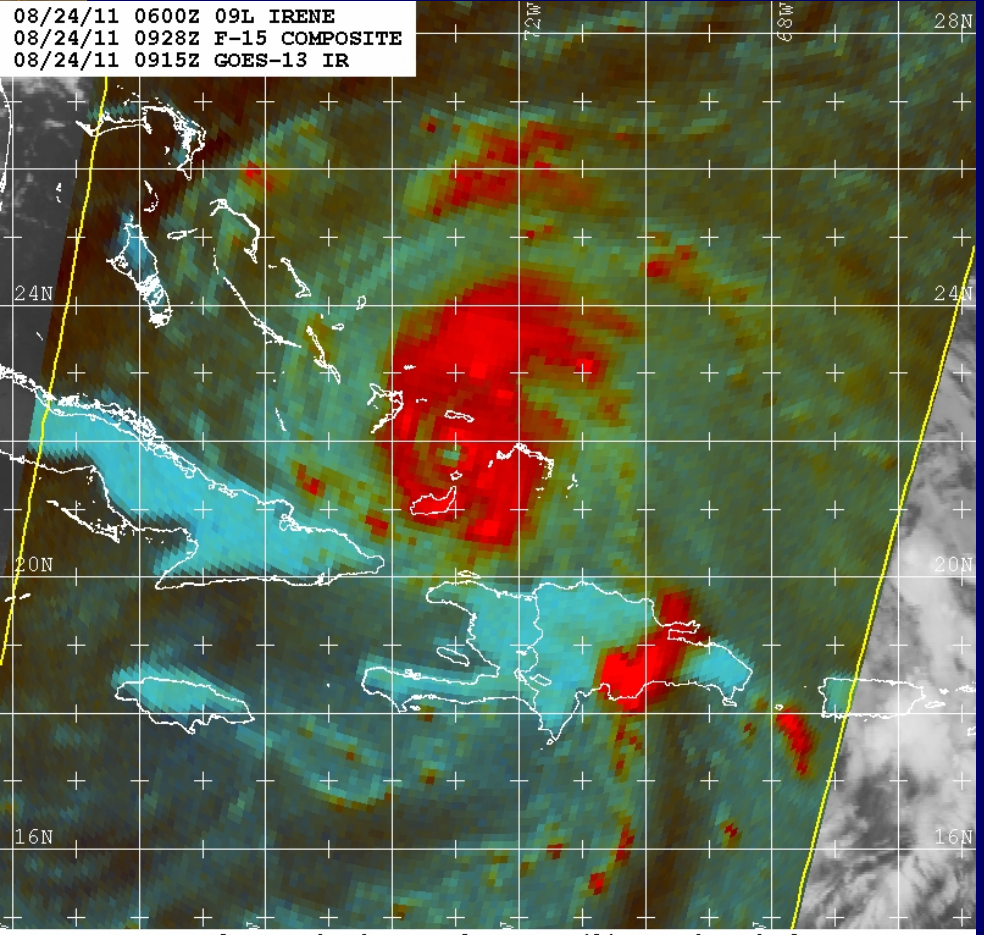
Irene Continues to Strengthen...Likely to Become a Major Hurricane Today



08/24/11 0600Z 09L IRENE
08/24/11 0745Z GOES-13 IR



08/24/11 0600Z 09L IRENE
08/24/11 0928Z F-15 COMPOSITE
08/24/11 0915Z GOES-13 IR



Naval Research Lab http://www.nrlmry.navy.mil/sat_products.html
<-- IR Temperature (Celsius) -->

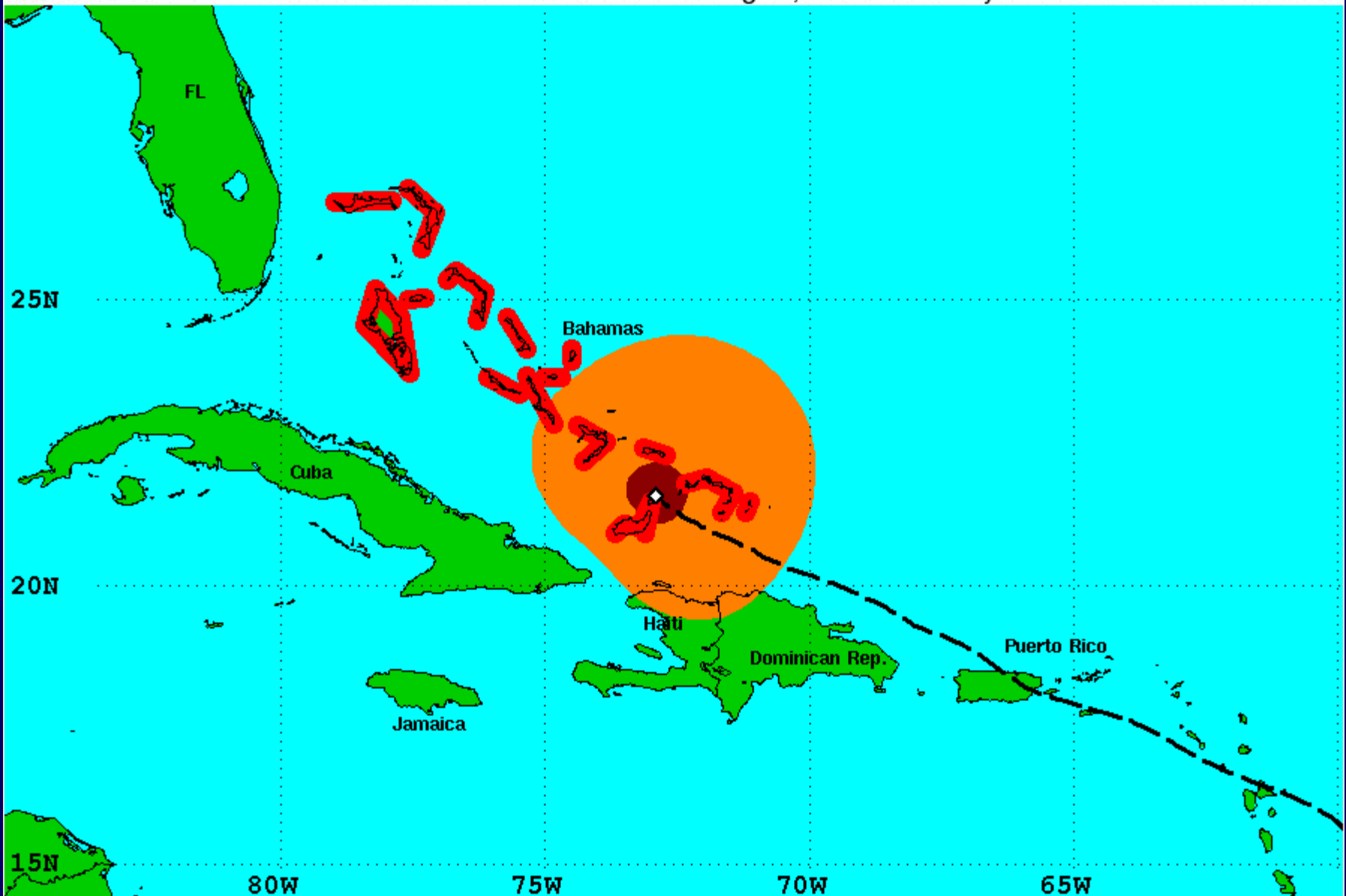
Naval Research Lab www.nrlmry.navy.mil/sat_products.html
Red=85PCT Green=85H Blue=85V

Advisory 16



Surface Wind Field of Hurricane Irene

Sustained Winds as of 500 AM EDT Wed Aug 24, 2011 Advisory Number 16



Watches:

- Hurricane Watch
- Tropical Storm Watch

Warnings:

- Hurricane Warning
- Tropical Storm Warning

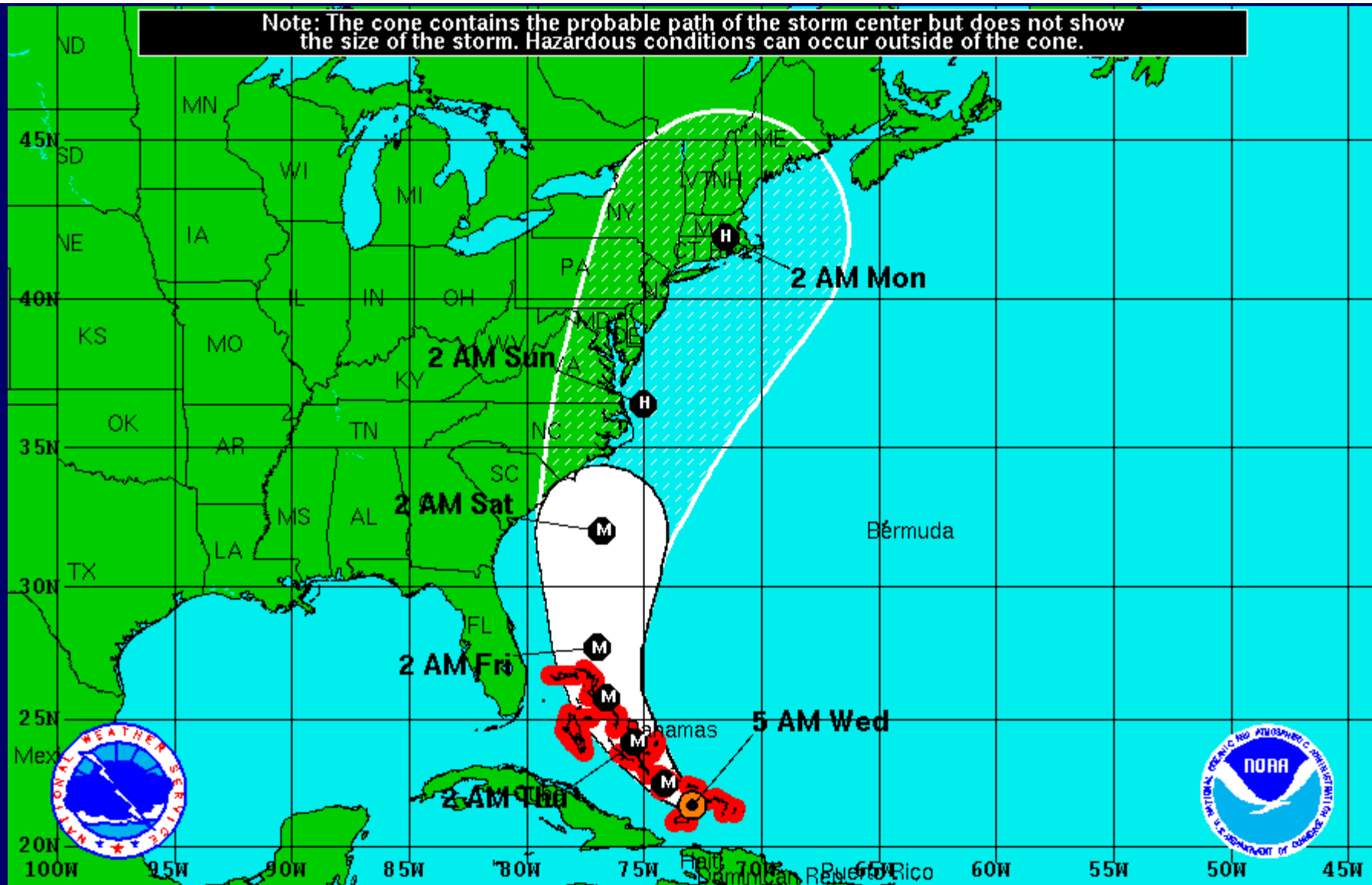
Sustained Winds:

- Hurricane Force
- Tropical Storm Force


Position:



- Center as of 500 AM EDT
- Past Track


Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



Hurricane Irene
 Wednesday August 24, 2011
 5 AM EDT Advisory 16
 NWS National Hurricane Center

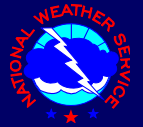
Current Information: 
 Center Location 21.6 N 72.9 W
 Max Sustained Wind 110 mph
 Movement WNW at 9 mph

Forecast Positions:
 Tropical Cyclone  Post-Tropical
 Sustained Winds: D < 39 mph
 S 39-73 mph H 74-110 mph M > 110mph

Potential Track Area:
 Day 1-3  Day 4-5

Watches:
 Hurricane  Trop.Storm

Warnings:
 Hurricane  Trop.Storm



Public Advisory

Summary & Watch/Warning Section

BULLETIN

HURRICANE IRENE ADVISORY NUMBER 16
NWS NATIONAL HURRICANE CENTER MIAMI FL AL092011
500 AM EDT WED AUG 24 2011

...IRENE CONTINUES TO STRENGTHEN AS IT POUNDS THE SOUTHEASTERN BAHAMAS...WILL LIKELY BECOME A MAJOR HURRICANE LATER TODAY...

SUMMARY OF 500 AM EDT...0900 UTC...INFORMATION

LOCATION...21.6N 72.9W
ABOUT 370 MI...595 KM SE OF NASSAU
ABOUT 955 MI...1535 KM S OF CAPE HATTERAS NORTH CAROLINA
MAXIMUM SUSTAINED WINDS...110 MPH...175 KM/H
PRESENT MOVEMENT...WNW OR 295 DEGREES AT 9 MPH...15 KM/H
MINIMUM CENTRAL PRESSURE...962 MB...28.41 INCHES

WATCHES AND WARNINGS

CHANGES IN WATCHES AND WARNINGS WITH THIS ADVISORY...
THE TROPICAL STORM WARNING FOR THE NORTH COAST OF HAITI IS DISCONTINUED.

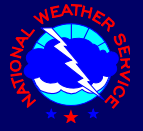
SUMMARY OF WATCHES AND WARNINGS IN EFFECT...

A HURRICANE WARNING IS IN EFFECT FOR...

* TURKS AND CAICOS ISLANDS

- THE SOUTHEASTERN...CENTRAL...AND NORTHWESTERN BAHAMAS

FOR STORM INFORMATION SPECIFIC TO YOUR AREA...PLEASE MONITOR PRODUCTS ISSUED BY YOUR NATIONAL METEOROLOGICAL SERVICE.



Public Advisory (cont.)

Discussion and 48-Hour Outlook Section

DISCUSSION AND 48-HOUR OUTLOOK

AT 500 AM EDT...0900 UTC...THE EYE OF HURRICANE IRENE WAS LOCATED NEAR LATITUDE 21.6 NORTH...LONGITUDE 72.9 WEST. IRENE IS MOVING TOWARD THE WEST-NORTHWEST NEAR 9 MPH. A GRADUAL TURN TOWARD THE NORTHWEST IS EXPECTED ON WEDNESDAY. **ON THE FORECAST TRACK...THE CORE OF IRENE WILL MOVE ACROSS THE SOUTHEASTERN AND CENTRAL BAHAMAS TODAY AND OVER THE NORTHWESTERN BAHAMAS ON THURSDAY.**

MAXIMUM SUSTAINED WINDS ARE NEAR 110 MPH...175 KM/H...WITH HIGHER GUSTS. IRENE IS A CATEGORY TWO HURRICANE ON THE SAFFIR-SIMPSON SCALE. **STRENGTHENING IS FORECAST...AND IRENE WILL LIKELY BECOME A MAJOR HURRICANE LATER TODAY.**

HURRICANE FORCE WINDS EXTEND OUTWARD UP TO 40 MILES...65 KM...FROM THE CENTER...AND TROPICAL-STORM-FORCE WINDS EXTEND OUTWARD UP TO 205 MILES...335 KM.

THE ESTIMATED MINIMUM CENTRAL PRESSURE IS 962 MB...28.41 INCHES.



Public Advisory (cont.)

Hazard Section



HAZARDS AFFECTING LAND

WIND...HURRICANE CONDITIONS ARE OCCURRING OVER PORTIONS OF THE TURKS AND CAICOS ISLANDS AND THE SOUTHEASTERN BAHAMAS. TROPICAL STORM CONDITIONS ARE EXPECTED TO BEGIN OVER THE CENTRAL BAHAMAS TODAY...WITH HURRICANE CONDITIONS EXPECTED TONIGHT. TROPICAL STORM CONDITIONS ARE EXPECTED IN THE NORTHWESTERN BAHAMAS BY LATE TONIGHT...WITH HURRICANE CONDITIONS EXPECTED ON THURSDAY.

STORM SURGE...IN AREAS OF ONSHORE WINDS NEAR THE CENTER OF IRENE...AN EXTREMELY DANGEROUS STORM SURGE WILL RAISE WATER LEVELS BY AS MUCH AS 7 TO 11 FEET ABOVE NORMAL TIDE LEVELS OVER THE CENTRAL AND NORTHWESTERN BAHAMAS...AND BY AS MUCH AS 5 TO 8 FEET ABOVE NORMAL TIDE LEVELS OVER THE SOUTHEASTERN BAHAMAS AND THE TURKS AND CAICOS ISLANDS. NEAR THE COAST...THE SURGE WILL BE ACCOMPANIED BY LARGE AND DANGEROUS WAVES. A STORM SURGE WILL RAISE WATER LEVELS BY AS MUCH AS 2 TO 4 FEET ABOVE NORMAL TIDE LEVELS ALONG THE NORTH COAST OF HAITI.

RAINFALL...IRENE IS EXPECTED TO PRODUCE ADDITIONAL RAINFALL ACCUMULATIONS OF 1 TO 3 INCHES ACROSS PUERTO RICO AND HISPANIOLA. ISOLATED MAXIMUM STORM TOTAL AMOUNTS OF 15 INCHES ARE POSSIBLE IN ASSOCIATION WITH IRENE. THESE RAINS COULD CAUSE LIFE-THREATENING FLASH FLOODS AND MUD SLIDES IN AREAS OF STEEP TERRAIN. RAINFALL ACCUMULATIONS OF 6 TO 12 INCHES ARE EXPECTED IN THE BAHAMAS...AND THE TURKS AND CAICOS ISLANDS.

NEXT ADVISORY

NEXT INTERMEDIATE ADVISORY...800 AM EDT.
NEXT COMPLETE ADVISORY...1100 AM EDT.



Tropical Cyclone Discussion

Part I



HURRICANE IRENE
DISCUSSION NUMBER 16
NWS NATIONAL HURRICANE CENTER MIAMI FL AL092011
500 AM EDT WED AUG 24 2011

THE LAST PENETRATION OF THE EYE BY THE AIR FORCE HURRICANE HUNTERS WAS JUST AFTER 0500 UTC...AND **THEY FOUND THAT THE CENTRAL PRESSURE HAD DROPPED TO 966 MB.** THEY ALSO MEASURED 700 MB FLIGHT-LEVEL WINDS OF 92 KT OUTBOUND IN THE SOUTHEAST QUADRANT. IT IS LIKELY THAT HIGHER WINDS WERE OCCURRING OVER THE NORTHEAST QUADRANT OF THE HURRICANE. OVER THE PAST FEW HOURS..**THE SATELLITE PRESENTATION OF IRENE HAS BECOME QUITE IMPRESSIVE WITH THE EYE EMBEDDED WITHIN VERY COLD CLOUD TOPS.** DVORAK INTENSITY ESTIMATES FROM BOTH TAFB AND SAB ARE 100 KT. COMBINING THE ABOVE INFORMATION...THE **CURRENT INTENSITY IS SET CONSERVATIVELY AT 95 KT** FOR THIS ADVISORY. ANOTHER HURRICANE HUNTER MISSION IS SCHEDULED FOR 1200 UTC TO MEASURE THE INTENSITY OF THE HURRICANE. ALTHOUGH THE NUMERICAL GUIDANCE INDICATES SOME SOUTH-SOUTHWESTERLY SHEAR OVER THE AREA...THIS SHEAR IS NOT EXPECTED TO PREVENT FURTHER STRENGTHENING **AND IT SEEMS HIGHLY LIKELY THAT IRENE WILL INTENSIFY TO CATEGORY 3 STATUS LATER TODAY. SOME FLUCTUATIONS IN STRENGTH COULD OCCUR IN 1 TO 2 DAYS DUE TO EYEWALL REPLACEMENTS.** IN FACT...THE UW-CIMSS OBJECTIVE TECHNIQUE SHOWS A CONSIDERABLY HIGHER THAN CLIMATOLOGICAL PROBABILITY OF SECONDARY EYEWALL FORMATION WITHIN 24 TO 48 HOURS. THE OFFICIAL INTENSITY FORECAST IS CLOSE TO THE NUMERICAL CONSENSUS AND LIES BETWEEN THE GFDL/HWRF MODELS AND THE LGEM GUIDANCE.



Tropical Cyclone Discussion

Part II



SATELLITE ANIMATION AND CENTER FIXES SHOW THAT THE EYE OF IRENE HAS BEEN WOBBLING BETWEEN A WEST AND NORTHWEST HEADING OVER THE PAST SEVERAL HOURS. SMOOTHING THROUGH THESE WOBBLIES YIELDS A MORE REPRESENTATIVE MOTION OF ABOUT 295/8. **THERE HAS BEEN LITTLE CHANGE TO THE TRACK FORECAST REASONING FROM THE PAST FEW ADVISORIES.** OVER THE NEXT COUPLE OF DAYS...THE HURRICANE IS EXPECTED TO GRADUALLY TURN TOWARD THE NORTHWEST AND NORTH AS IT MOVES THROUGH A PRONOUNCED WEAKNESS IN THE SUBTROPICAL RIDGE. AROUND 72 HOURS...A SHORTWAVE TROUGH MOVING THROUGH THE GREAT LAKES SHOULD BEGIN TO INDUCE AT LEAST A SLIGHT TURN TOWARD THE NORTH-NORTHEAST WITH SOME ACCELERATION AFTERWARDS. **THE DYNAMICAL TRACK MODEL CONSENSUS HAS...AGAIN...SHIFTED A LITTLE TO THE EAST FROM THE PREVIOUS PACKAGE. THE OFFICIAL FORECAST IS NOT SUBSTANTIALLY DIFFERENT FROM THE PREVIOUS ONE AND LIES A LITTLE TO THE LEFT OF THE CONSENSUS. USERS ARE REMINDED THAT SIGNIFICANT ERRORS ARE POSSIBLE WITH FORECASTS AT LONGER LEAD TIMES...SO ONE SHOULD NOT FOCUS ON THE EXACT FORECAST POSITIONS AT 96 AND 120 HOURS.**

FORECAST POSITIONS AND MAX WINDS

INIT 24/0900Z 21.6N 72.9W 95 KT 110 MPH
12H 24/1800Z 22.5N 74.1W 105 KT 120 MPH
24H 25/0600Z 24.1N 75.4W 110 KT 125 MPH
36H 25/1800Z 25.8N 76.6W 110 KT 125 MPH
48H 26/0600Z 27.7N 77.0W 110 KT 125 MPH
72H 27/0600Z 32.0N 76.8W 105 KT 120 MPH
96H 28/0600Z 36.5N 75.0W 90 KT 105 MPH
120H 29/0600Z 42.0N 71.5W 70 KT 80 MPH...INLAND

\$\$

FORECASTER PASCH/KIMBERLAIN



Example of Wind Speed Probability Text Product

```

- - - - WIND SPEED PROBABILITIES FOR SELECTED LOCATIONS - - - -

      FROM      FROM      FROM      FROM      FROM      FROM      FROM
TIME    06Z WED 18Z WED 06Z THU 18Z THU 06Z FRI 06Z SAT 06Z SUN
PERIODS TO      TO      TO      TO      TO      TO      TO
        18Z WED 06Z THU 18Z THU 06Z FRI 06Z SAT 06Z SUN 06Z MON

FORECAST HOUR      (12)      (24)      (36)      (48)      (72)      (96)      (120)
-----

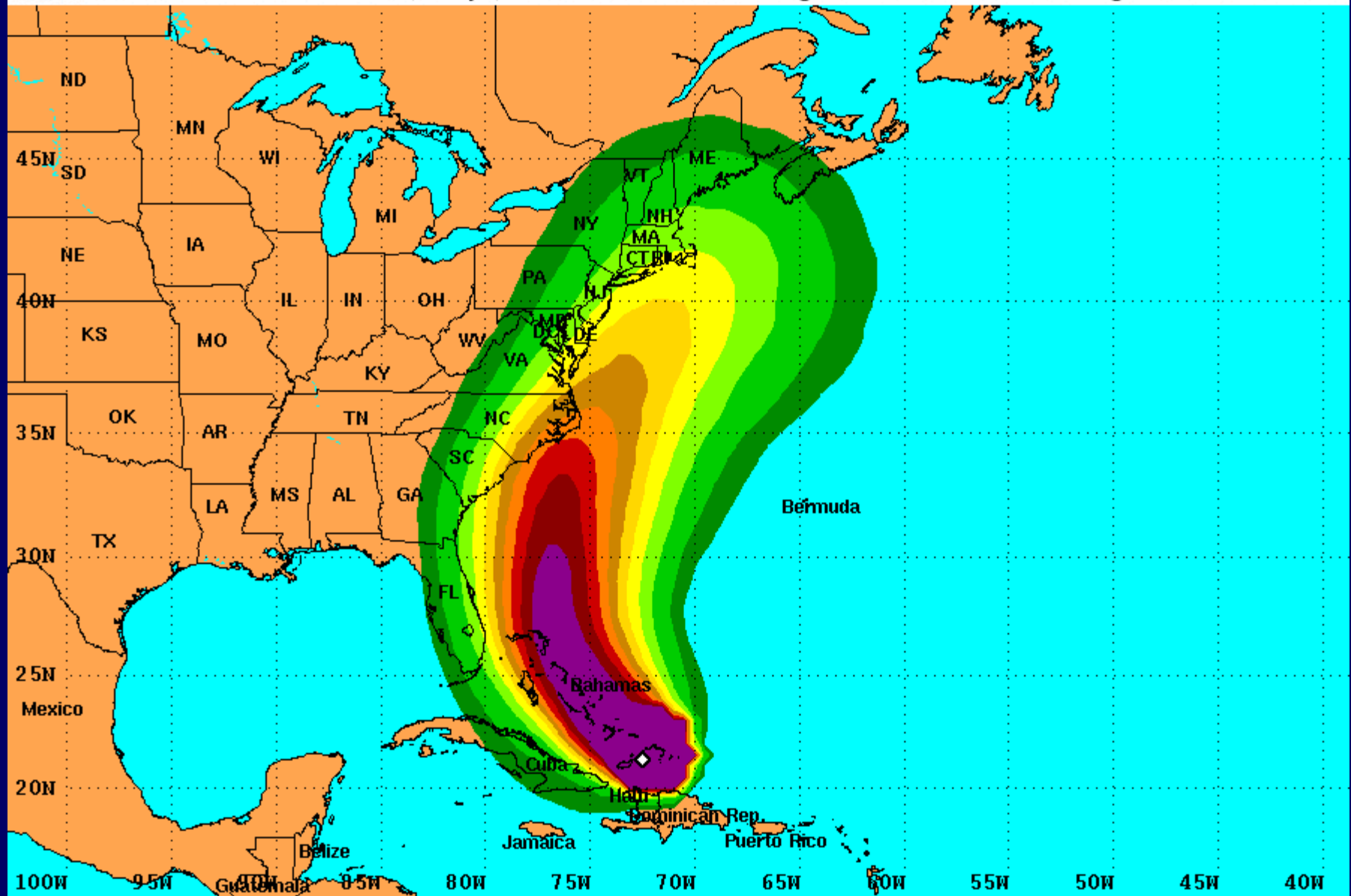
LOCATION            KT
CAPE HATTERAS    34 X   X( X)  X( X)  X( X)  25(25)  37(62)  3(65)
CAPE HATTERAS    50 X   X( X)  X( X)  X( X)  4( 4)  26(30)  2(32)
CAPE HATTERAS    64 X   X( X)  X( X)  X( X)  1( 1)  11(12)  1(13)

```



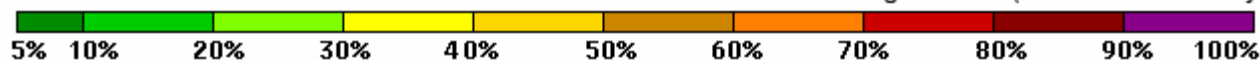
Tropical Storm Force Wind Speed Probabilities

For the 120 hours (5 days) from 2 AM EDT Wed Aug 24 to 2 AM EDT Mon Aug 29



Probability of tropical storm force surface winds (1-minute average ≥ 39 mph) from all tropical cyclones

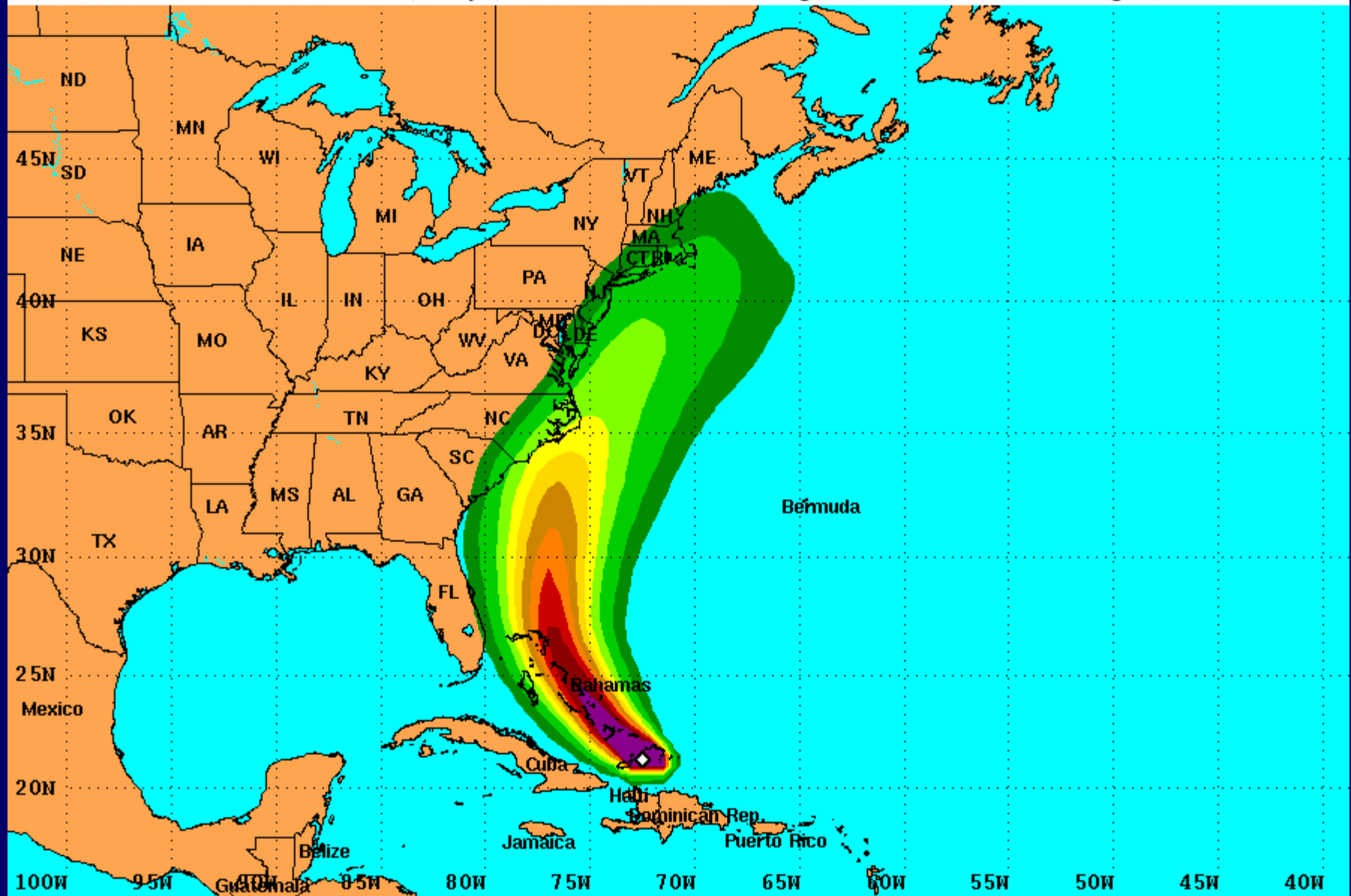
◇ indicates HURRICANE IRENE center location at 2 AM EDT Wed Aug 24 2011 (Forecast/Advisory #16)





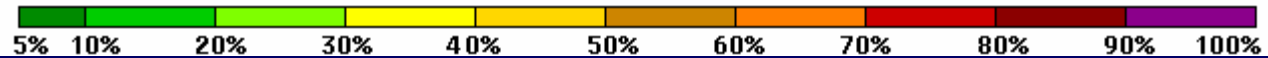
50-knot Wind Speed Probabilities

For the 120 hours (5 days) from 2 AM EDT Wed Aug 24 to 2 AM EDT Mon Aug 29



Probability of 1-minute average 50-knot (58 mph) or greater surface winds from all tropical cyclones

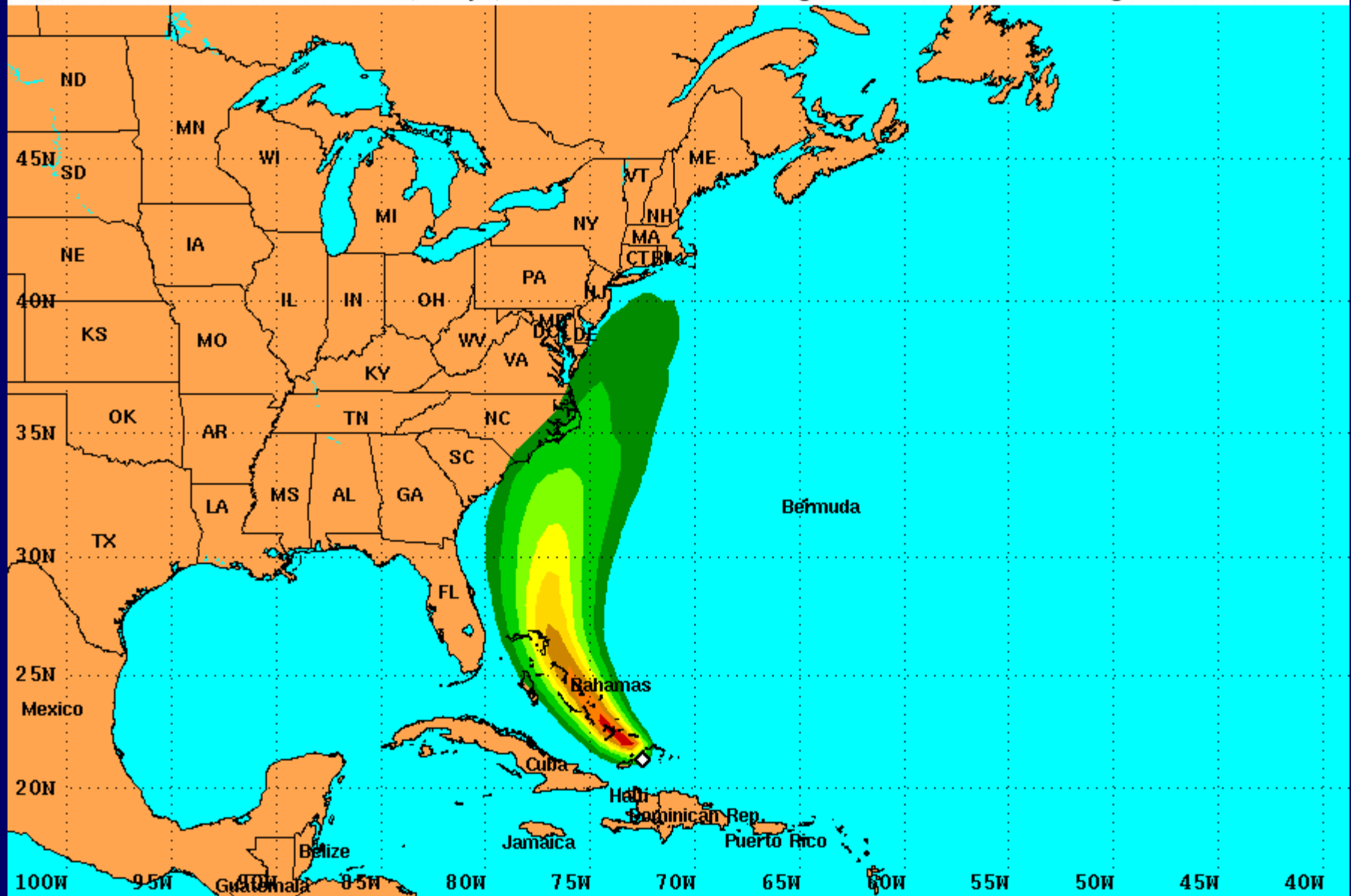
◇ indicates HURRICANE IRENE center location at 2 AM EDT Wed Aug 24 2011 (Forecast/Advisory #16)





Hurricane Force Wind Speed Probabilities

For the 120 hours (5 days) from 2 AM EDT Wed Aug 24 to 2 AM EDT Mon Aug 29



Probability of hurricane force surface winds (1-minute average ≥ 74 mph) from all tropical cyclones

◇ indicates HURRICANE IRENE center location at 2 AM EDT Wed Aug 24 2011 (Forecast/Advisory #16)





Intensity (Maximum Wind Speed) Probability Table
 Hurricane Irene Advisory Number 16
 5:00 AM EDT Aug 24 2011

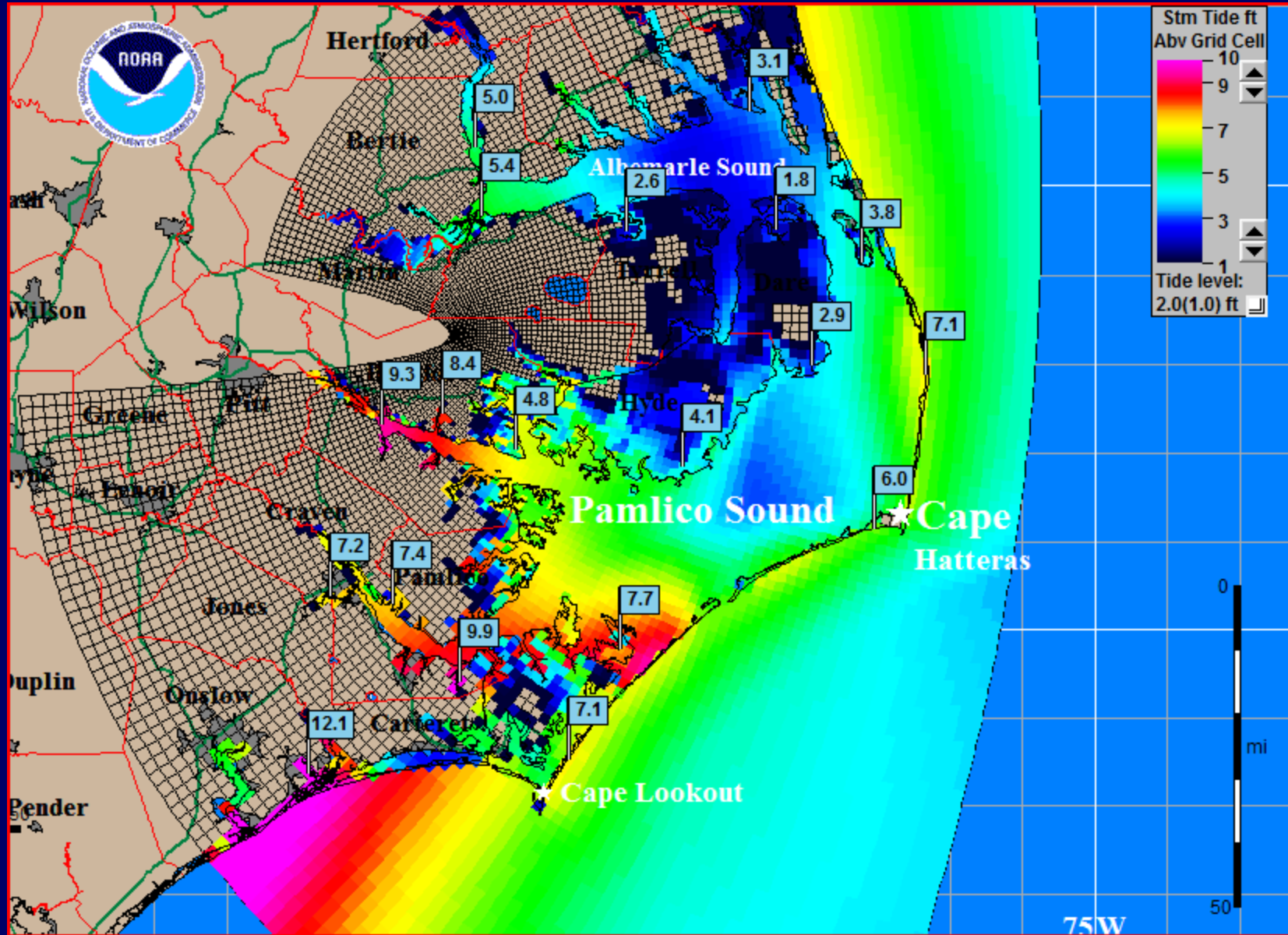


Wind Range (mph)	Forecast Time						
	12 hour for 2 PM Wed	24 hour for 2 AM Thu	36 hour for 2 PM Thu	48 hour for 2 AM Fri	72 hour for 2 AM Sat	96 hour for 2 AM Sun	120 hour for 2 AM Mon
Dissipated	<1%	<1%	<1%	<1%	1%	14%	25%
Tropical Depression (<39)	<1%	<1%	<1%	<1%	2%	15%	7%
Tropical Storm (39-73)	<1%	1%	2%	4%	15%	32%	37%
Hurricane (all categories)	99%	99%	98%	96%	82%	39%	31%
-- Category 1 (74-95)	3%	6%	11%	19%	33%	26%	22%
-- Category 2 (96-110)	26%	23%	28%	30%	26%	9%	6%
-- Category 3 (111-130)	64%	55%	44%	33%	19%	3%	3%
-- Category 4 (131-155)	6%	14%	14%	12%	4%	1%	1%
-- Category 5 (>155)	1%	2%	2%	2%	1%	<1%	<1%
Forecast Maximum Wind	120 mph	125 mph	125 mph	125 mph	120 mph	105 mph	80 mph



Storm Surge Guidance

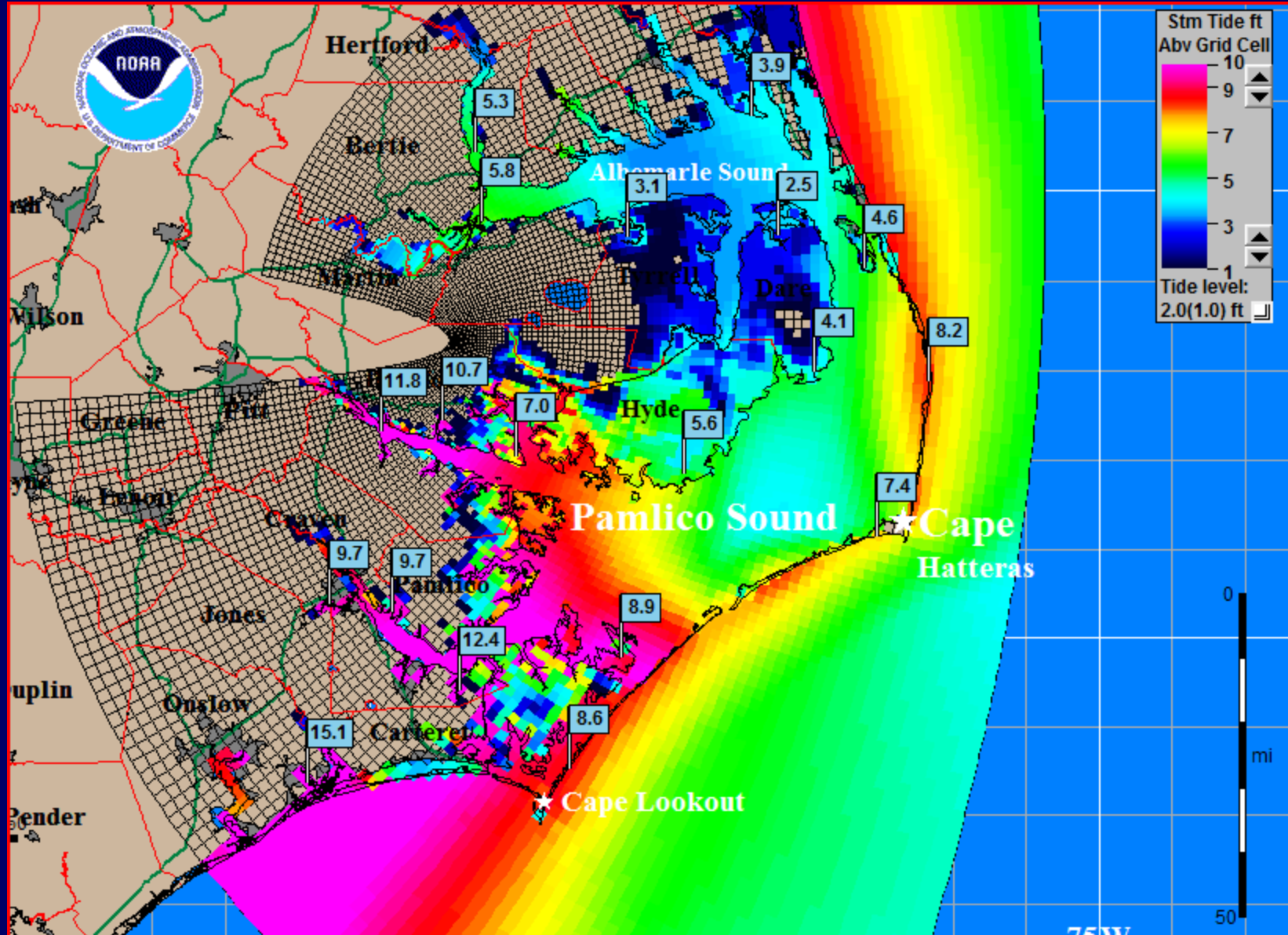
Category 3 MEOW, NNE 15 mph, High Tide





Storm Surge Guidance

Category 4 MEOW, NNE 15 mph, High Tide



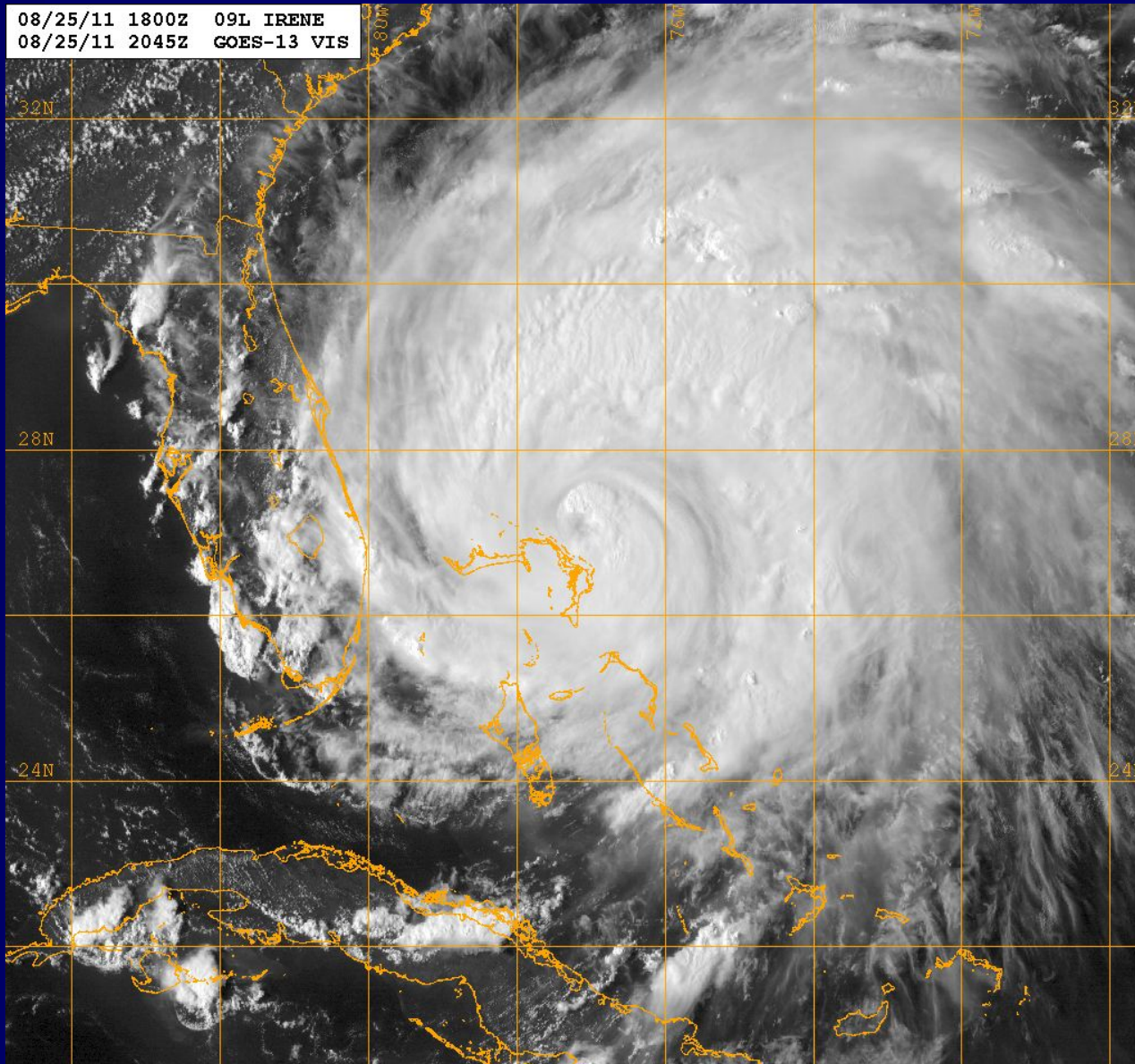


Rainfall Guidance





Irene Still Battering Abaco...New Watches and Warnings Issued for the East Coast of the United States

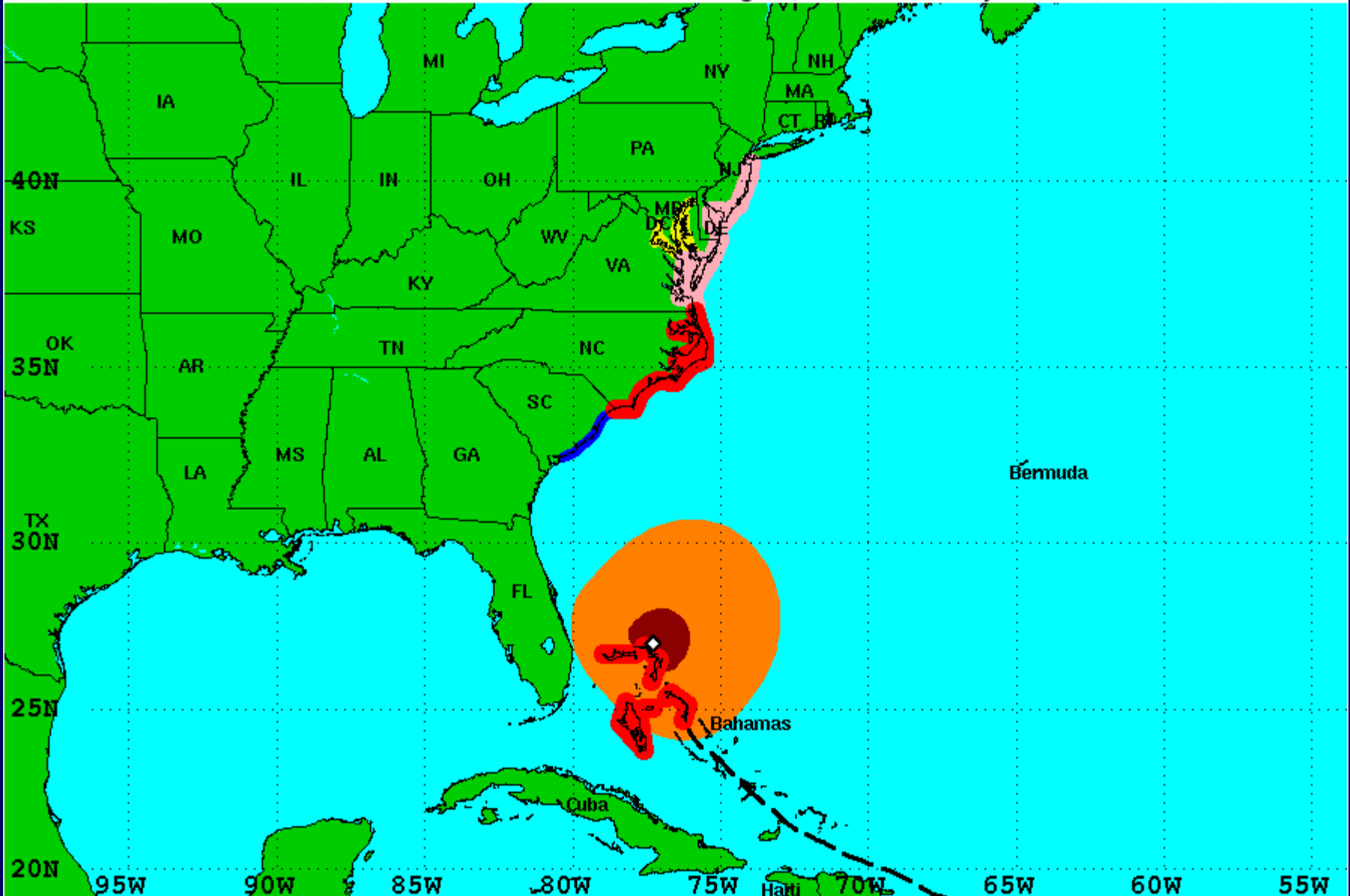


Advisory 22



Surface Wind Field of Hurricane Irene

Sustained Winds as of 500 PM EDT Thu Aug 25, 2011 Advisory Number 22



Watches:

- Hurricane Watch
- Tropical Storm Watch

Warnings:

- Hurricane Warning
- Tropical Storm Warning

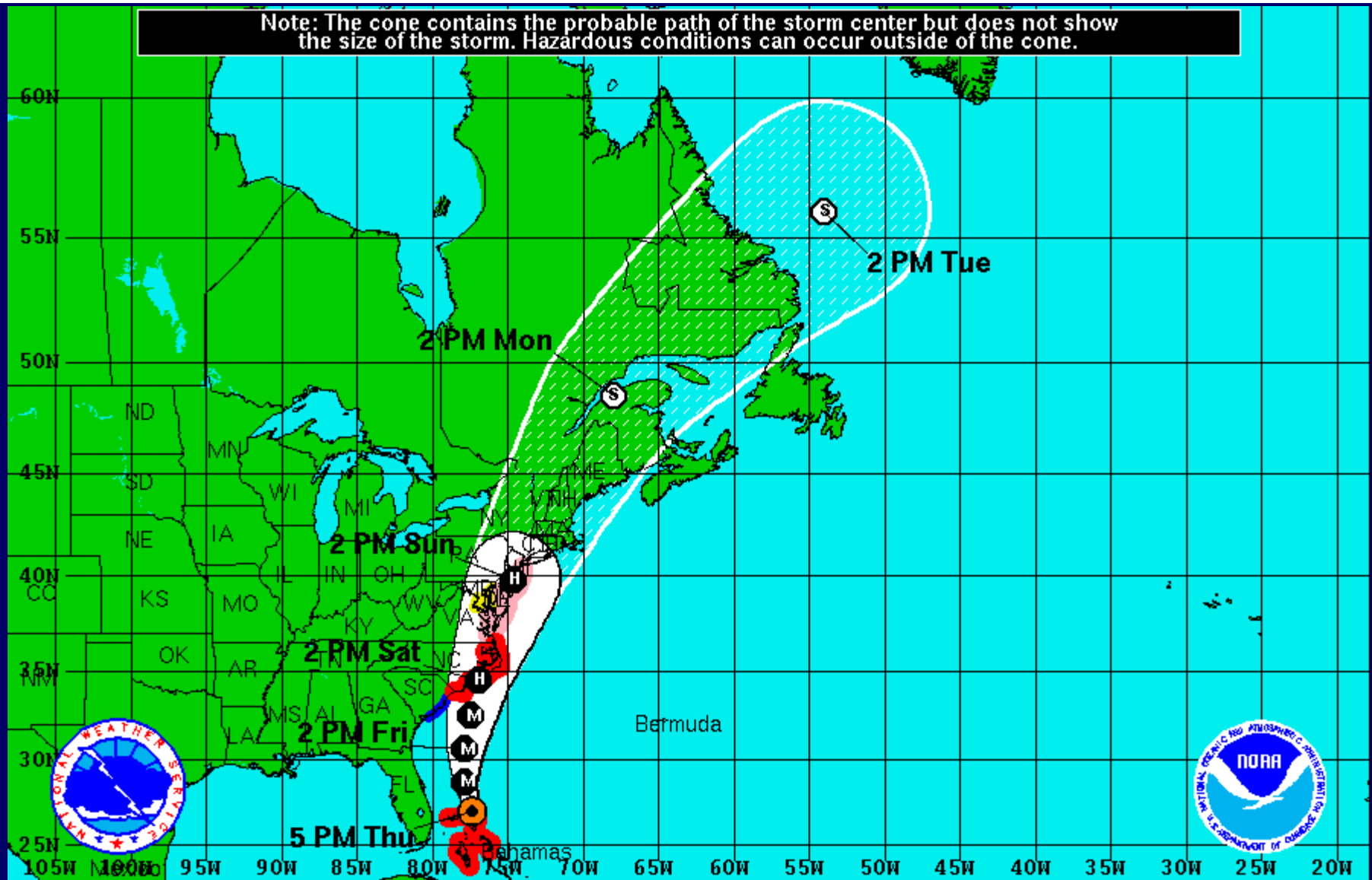
Sustained Winds:

- Hurricane Force
- Tropical Storm Force


Position:



- Center as of 500 PM EDT
- Past Track

Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



Hurricane Irene
 Thursday August 25, 2011
 5 PM EDT Advisory 22
 NWS National Hurricane Center

Current Information: 
 Center Location 27.0 N 77.3 W
 Max Sustained Wind 115 mph
 Movement NNW at 14 mph

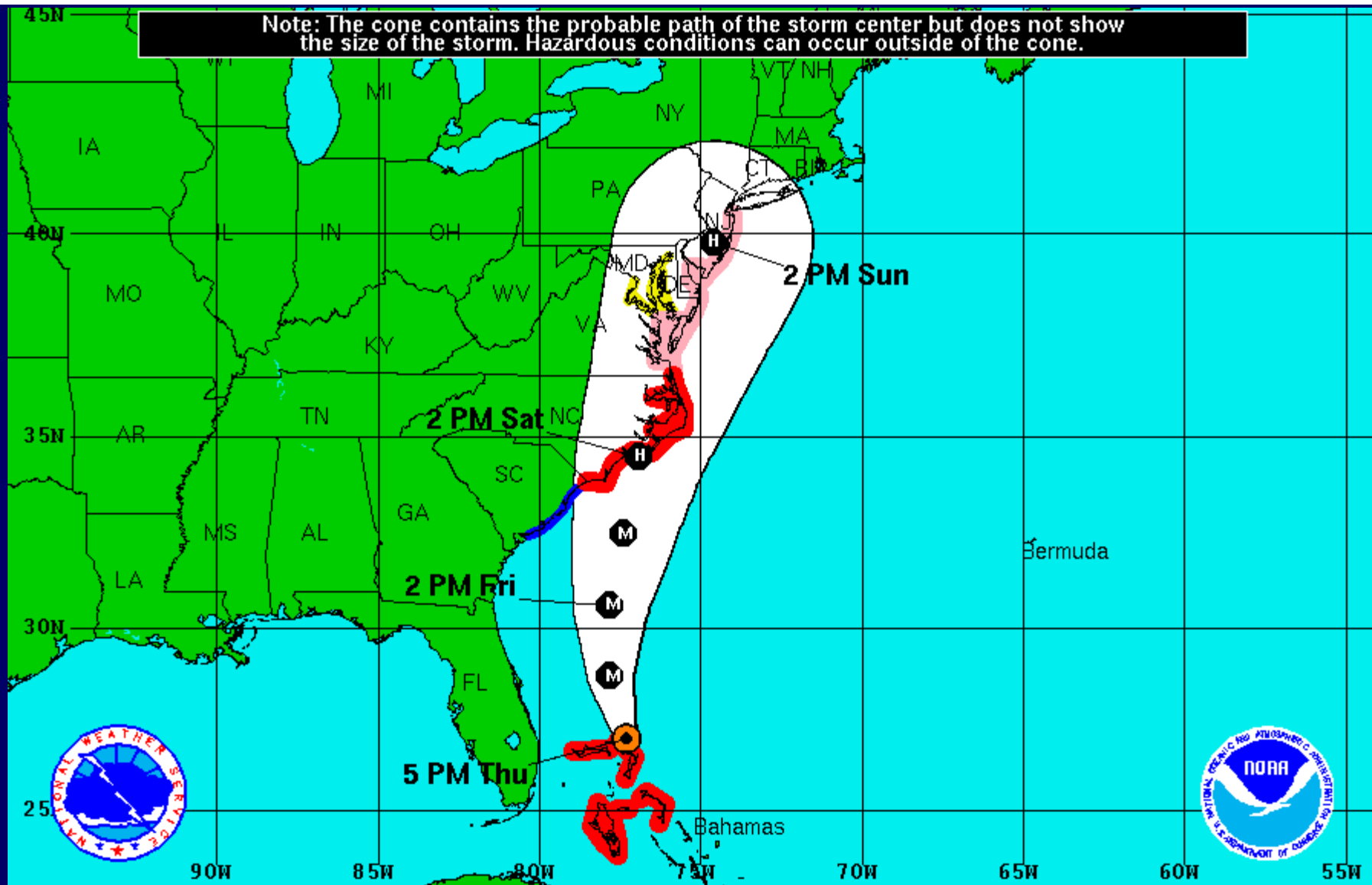
Forecast Positions:
 Tropical Cyclone  Post-Tropical
 Sustained Winds: D < 39 mph
 S 39-73 mph H 74-110 mph M > 110mph

Potential Track Area:
 Day 1-3  Day 4-5


Watches:
 Hurricane  Trop.Storm



Warnings:
 Hurricane  Trop.Storm

Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



Hurricane Irene
Thursday August 25, 2011
 5 PM EDT Advisory 22
 NWS National Hurricane Center

Current Information: 
 Center Location 27.0 N 77.3 W
 Max Sustained Wind 115 mph
 Movement NNW at 14 mph

Forecast Positions:
 Tropical Cyclone  Post-Tropical
 Sustained Winds: D < 39 mph
 S 39-73 mph H 74-110 mph M > 110mph

Potential Track Area:

 Day 1-3

Watches:

 Hurricane  Trop.Storm

Warnings:

 Hurricane  Trop.Storm



Public Advisory

Summary & Watch/Warning Section

BULLETIN

HURRICANE IRENE ADVISORY NUMBER 22

NWS NATIONAL HURRICANE CENTER MIAMI FL AL092011

500 PM EDT THU AUG 25 2011

...IRENE STILL BATTERING ABACO ISLAND...NEW WATCHES AND WARNINGS ISSUED FOR THE EAST COAST OF THE UNITED STATES...

SUMMARY OF 500 PM EDT...2100 UTC...INFORMATION

LOCATION...27.0N 77.3W

ABOUT 575 MI...930 KM S OF CAPE HATTERAS NORTH CAROLINA

MAXIMUM SUSTAINED WINDS...115 MPH...185 KM/H

PRESENT MOVEMENT...NNW OR 335 DEGREES AT 14 MPH...22 KM/H MINIMUM CENTRAL PRESSURE...950 MB...28.05 INCHES

WATCHES AND WARNINGS

CHANGES IN WATCHES AND WARNINGS WITH THIS ADVISORY...

THE GOVERNMENT OF THE BAHAMAS HAS DISCONTINUED THE HURRICANE WARNING FOR THE CENTRAL BAHAMAS.

A TROPICAL STORM WARNING HAS BEEN ISSUED FOR THE COAST OF SOUTH CAROLINA FROM EDISTO BEACH NORTHWARD TO LITTLE RIVER INLET.

A HURRICANE WARNING HAS BEEN ISSUED FOR THE COAST OF NORTH CAROLINA FROM LITTLE RIVER INLET NORTHWARD TO THE VIRGINIA BORDER... INCLUDING THE PAMLICO...ALBEMARLE...AND CURRITUCK SOUNDS

A HURRICANE WATCH HAS BEEN ISSUED FOR THE EAST COAST OF THE UNITED STATES FROM THE VIRGINIA/NORTH CAROLINA BORDER NORTHWARD TO SANDY HOOK NEW JERSEY INCLUDING DELAWARE BAY AND THE CHESAPEAKE BAY SOUTH OF SMITH POINT



Public Advisory (cont.)

Discussion and 48-Hour Outlook Section

DISCUSSION AND 48-HOUR OUTLOOK

AT 500 PM EDT...2100 UTC...THE CENTER OF HURRICANE IRENE WAS LOCATED NEAR LATITUDE 27.0 NORTH...LONGITUDE 77.3 WEST. IRENE IS MOVING TOWARD THE NORTH-NORTHWEST NEAR 14 MPH...22 KM/H. THIS MOTION IS EXPECTED TO CONTINUE THROUGH TONIGHT WITH A TURN TOWARD THE NORTH BY EARLY FRIDAY. **ON THE FORECAST TRACK...THE CORE OF THE HURRICANE WILL MOVE NORTH OF THE NORTHWESTERN BAHAMAS TONIGHT...AND PASS WELL OFFSHORE OF THE EAST COAST OF CENTRAL AND NORTH FLORIDA TONIGHT AND EARLY FRIDAY. THE HURRICANE IS FORECAST TO APPROACH THE COAST OF NORTH CAROLINA ON SATURDAY.**

MAXIMUM SUSTAINED WINDS ARE NEAR 115 MPH...185 KM/H...WITH HIGHER GUSTS. IRENE IS A CATEGORY THREE HURRICANE ON THE SAFFIR-SIMPSON HURRICANE WIND SCALE. **SOME STRENGTHENING IS POSSIBLE TONIGHT AND FRIDAY.**

IRENE IS A LARGE TROPICAL CYCLONE. HURRICANE FORCE WINDS EXTEND OUTWARD UP TO 80 MILES...130 KM...FROM THE CENTER...AND TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 290 MILES...465 KM.

THE LATEST MINIMUM CENTRAL PRESSURE REPORTED BY RECONNAISSANCE AIRCRAFT IS 950 MB...28.05 INCHES.



Public Advisory (cont.)

Hazard Section



HAZARDS AFFECTING LAND

WIND...HURRICANE AND TROPICAL STORM CONDITIONS ARE OCCURRING OVER PORTIONS OF THE NORTHWESTERN BAHAMAS...BUT SHOULD BEGIN TO DIMINISH OVERNIGHT. TROPICAL STORM FORCE WINDS ARE EXPECTED WITHIN THE SOUTHERN PORTION OF THE WARNING AREA ALONG THE UNITED STATES EAST COAST BY LATE FRIDAY. HURRICANE FORCE WINDS ARE EXPECTED TO FIRST REACH THE HURRICANE WARNING AREA BY SATURDAY.

STORM SURGE...IN THE NORTHWESTERN BAHAMAS IN AREAS OF ONSHORE WINDS NEAR THE CENTER OF IRENE...AN EXTREMELY DANGEROUS STORM SURGE WILL RAISE WATER LEVELS BY AS MUCH AS 7 TO 11 FEET ABOVE NORMAL TIDE LEVELS OVER THE NORTHWESTERN BAHAMAS. WATER LEVELS WILL GRADUALLY SUBSIDE OVER THE CENTRAL BAHAMAS TONIGHT. NEAR THE COAST...THE SURGE WILL BE ACCOMPANIED BY LARGE AND DANGEROUS WAVES. STORM SURGE...ALONG THE EASTERN COAST OF THE UNITED STATES...AN EXTREMELY DANGEROUS STORM SURGE WILL RAISE WATER LEVELS BY AS MUCH AS 5 TO 10 FEET ABOVE GROUND LEVEL WITHIN THE HURRICANE WARNING AREA INCLUDING THE ABLEMARLE AND PAMLICO SOUNDS. NEAR THE COAST...THE SURGE WILL BE ACCOMPANIED BY LARGE...DESTRUCTIVE... AND LIFE-THREATENING WAVES. IRENE ALSO HAS THE POTENTIAL TO PRODUCE SIGNIFICANT STORM SURGE FLOODING WITHIN THE HURRICANE WATCH AREA INCLUDING PORTIONS OF THE CHESAPEAKE BAY...TRIBUTARIES...AND THE EASTERN SHORE.

RAINFALL...IRENE IS EXPECTED TO PRODUCE RAINFALL ACCUMULATIONS OF 6 TO 12 INCHES OVER THE NORTHERN BAHAMAS. STORM TOTAL RAINFALL AMOUNTS OF 6 TO 10 INCHES WITH ISOLATED MAXIMUM AMOUNTS OF 15 INCHES IS EXPECTED OVER PORTIONS OF EASTERN NORTH CAROLINA AND IN THE MID-ATLANTIC STATES ALONG THE PATH OF IRENE. SURF...SWELLS GENERATED BY IRENE ARE AFFECTING PORTIONS OF THE COAST OF THE SOUTHEASTERN UNITED STATES. THESE SWELLS WILL CAUSE LIFE-THREATENING SURF AND RIP CURRENT CONDITIONS.



Tropical Cyclone Discussion

Part I



HURRICANE IRENE
DISCUSSION NUMBER 22
NWS NATIONAL HURRICANE CENTER MIAMI FL AL092011
500 PM EDT THU AUG 25 2011

THE EYE OF IRENE MOVED OVER ABACO ISLAND EARLIER THIS AFTERNOON. AN AUTOMATED WEATHER STATION ON THE ISLAND MEASURED A MINIMUM PRESSURE OF 950.4 MB AROUND 1700 UTC. THE AIR FORCE RESERVE HURRICANE HUNTER AIRCRAFT INVESTIGATING IRENE THIS AFTERNOON HAS REPORTED A 700 MB PEAK-FLIGHT WIND OF 99 KT. **ALTHOUGH RECENT AIRCRAFT DATA DO NOT QUITE SUPPORT THE 100-KT ADVISORY INTENSITY...WE WILL HOLD THE INTENSITY FOR A LITTLE LONGER TO SEE IF THE AIRCRAFT FINDS HIGHER WINDS.**

IRENE CONTINUES MOVING NORTH-NORTHWESTWARD AT ABOUT 12 KT. THERE HAS BEEN NO CHANGE TO THE TRACK FORECAST REASONING. IRENE IS FORECAST TO TURN NORTHWARD BY EARLY FRIDAY AS IT MOVES THROUGH A BREAK IN THE SUBTROPICAL RIDGE. AFTER 24 HOURS...THE HURRICANE IS EXPECTED TO MOVE ON A HEADING BETWEEN NORTH AND NORTH-NORTHEAST AS A TROUGH BYPASSES THE CYCLONE TO THE NORTH. THIS WILL LEAVE THE IRENE IN A STEERING PATTERN THAT SHOULD KEEP THE HURRICANE ON THAT GENERAL HEADING AS IT MOVES VERY NEAR OR OVER MID-ATLANTIC COAST. **THE TRACK GUIDANCE HAS COME INTO BETTER AGREEMENT ON THIS SOLUTION...AND THE CONFIDENCE IN THE TRACK FORECAST IS INCREASING.** THE NEW TRACK HAS BEEN NUDGED WESTWARD AND IS CLOSE TO THE CENTER OF THE GUIDANCE ENVELOPE. IT IS ALSO IN GOOD AGREEMENT WITH THE 1200 UTC GFS. **SINCE IRENE IS A LARGE TROPICAL CYCLONE...ONE SHOULD NOT FOCUS ON THE EXACT TRACK OF IRENE...AS SIGNIFICANT IMPACTS WILL BE FELT WELL AWAY FROM THE CENTER.**



Tropical Cyclone Discussion

Part II



THERE IS STILL SOME TIME FOR IRENE TO STRENGTHEN AS IT WILL BE MOVING OVER WARM WATER AND THE SHEAR REMAINS LOW. HOWEVER...THE UPDATED FORECAST CALLS FOR A LITTLE LOWER INTENSITY OVER THE FIRST 24-36 HOURS. IN ABOUT 48 HOURS...SOUTHWESTERLY SHEAR IS FORECAST TO INCREASE...WHICH SHOULD START A WEAKENING PROCESS. HOWEVER...SINCE IRENE HAS SUCH A LARGE AND INTENSE CIRCULATION... IT WILL PROBABLY BE SLOW TO WEAKEN.

FORECAST POSITIONS AND MAX WINDS

INIT 25/2100Z 27.0N 77.3W 100 KT 115 MPH
12H 26/0600Z 28.7N 77.8W 100 KT 115 MPH
24H 26/1800Z 30.6N 77.8W 105 KT 120 MPH
36H 27/0600Z 32.5N 77.4W 100 KT 115 MPH
48H 27/1800Z 34.5N 76.9W 95 KT 110 MPH
72H 28/1800Z 39.8N 74.6W 75 KT 85 MPH...INLAND
96H 29/1800Z 48.5N 68.0W 50 KT 60 MPH...POST-TROP/EXTRATROP
120H 30/1800Z 56.0N 54.0W 45 KT 50 MPH...POST-TROP/EXTRATROP

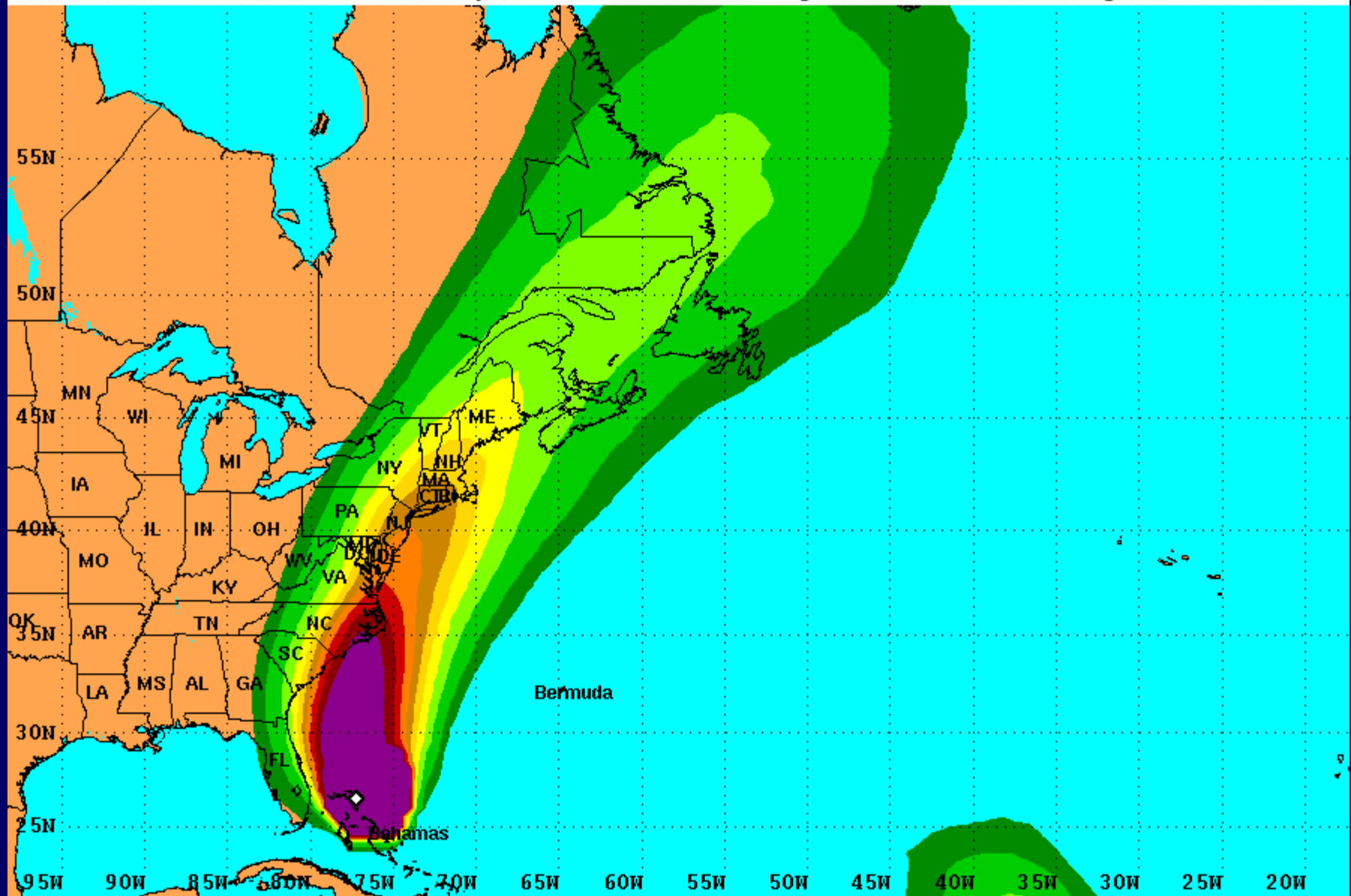
\$\$

FORECASTER BROWN



Tropical Storm Force Wind Speed Probabilities

For the 120 hours (5 days) from 2 PM EDT Thu Aug 25 to 2 PM EDT Tue Aug 30



Probability of tropical storm force surface winds (1-minute average ≥ 39 mph) from all tropical cyclones

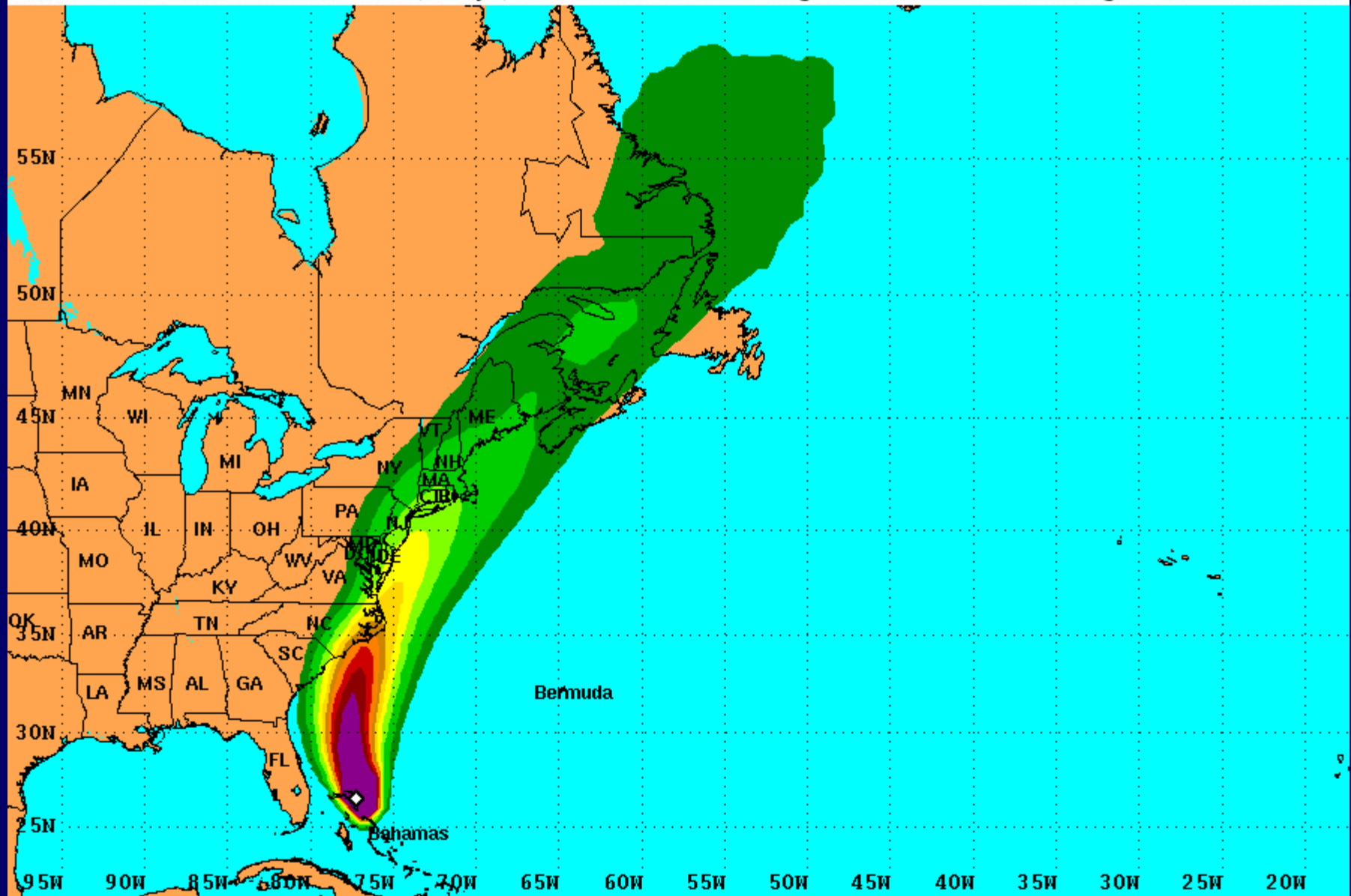
◇ indicates HURRICANE IRENE center location at 2 PM EDT Thu Aug 25 2011 (Forecast/Advisory #22)





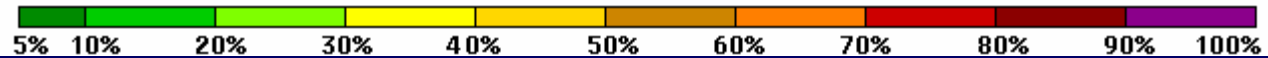
50-knot Wind Speed Probabilities

For the 120 hours (5 days) from 2 PM EDT Thu Aug 25 to 2 PM EDT Tue Aug 30



Probability of 1-minute average 50-knot (58 mph) or greater surface winds from all tropical cyclones

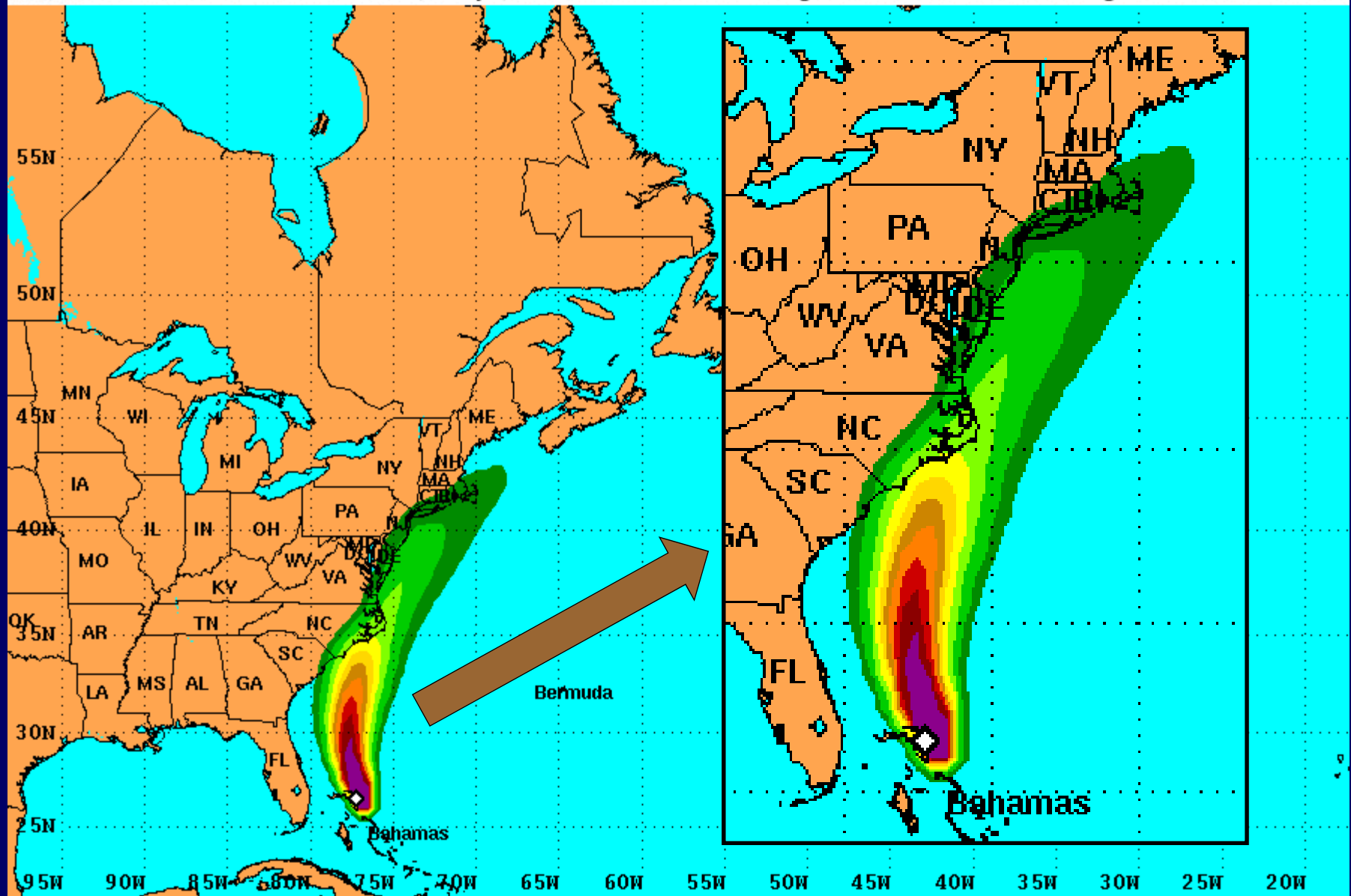
◇ indicates HURRICANE IRENE center location at 2 PM EDT Thu Aug 25 2011 (Forecast/Advisory #22)





Hurricane Force Wind Speed Probabilities

For the 120 hours (5 days) from 2 PM EDT Thu Aug 25 to 2 PM EDT Tue Aug 30



Probability of hurricane force surface winds (1-minute average ≥ 74 mph) from all tropical cyclones

◇ indicates HURRICANE IRENE center location at 2 PM EDT Thu Aug 25 2011 (Forecast/Advisory #22)





Intensity (Maximum Wind Speed) Probability Table
 Hurricane Irene Advisory Number 22
 5:00 PM EDT Aug 25 2011

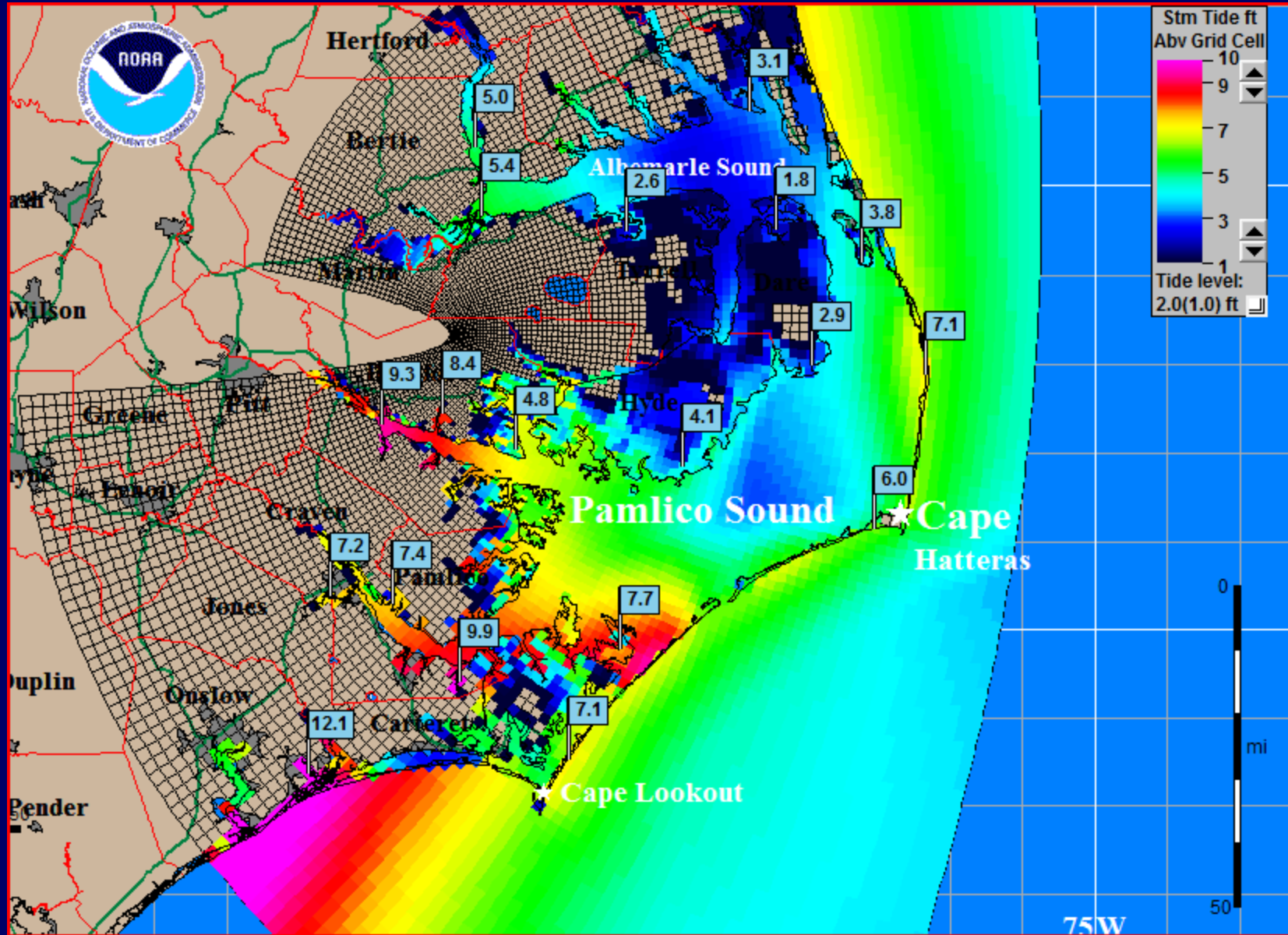


Wind Range (mph)	Forecast Time						
	12 hour for 2 AM Fri	24 hour for 2 PM Fri	36 hour for 2 AM Sat	48 hour for 2 PM Sat	72 hour for 2 PM Sun	96 hour for 2 PM Mon	120 hour for 2 PM Tue
Dissipated	<1%	<1%	<1%	1%	14%	24%	39%
Tropical Depression (<39)	<1%	<1%	<1%	6%	3%	25%	30%
Tropical Storm (39-73)	<1%	1%	5%	26%	38%	35%	30%
Hurricane (all categories)	99%	99%	95%	67%	45%	17%	2%
-- Category 1 (74-95)	5%	11%	25%	35%	28%	9%	2%
-- Category 2 (96-110)	47%	33%	36%	19%	11%	5%	<1%
-- Category 3 (111-130)	44%	46%	28%	10%	5%	3%	<1%
-- Category 4 (131-155)	4%	9%	5%	2%	1%	1%	<1%
-- Category 5 (>155)	1%	1%	1%	<1%	<1%	<1%	<1%
Forecast Maximum Wind	115 mph	120 mph	115 mph	110 mph	85 mph	60 mph	50 mph



Storm Surge Guidance

Category 3 MEOW, NNE 15 mph, High Tide



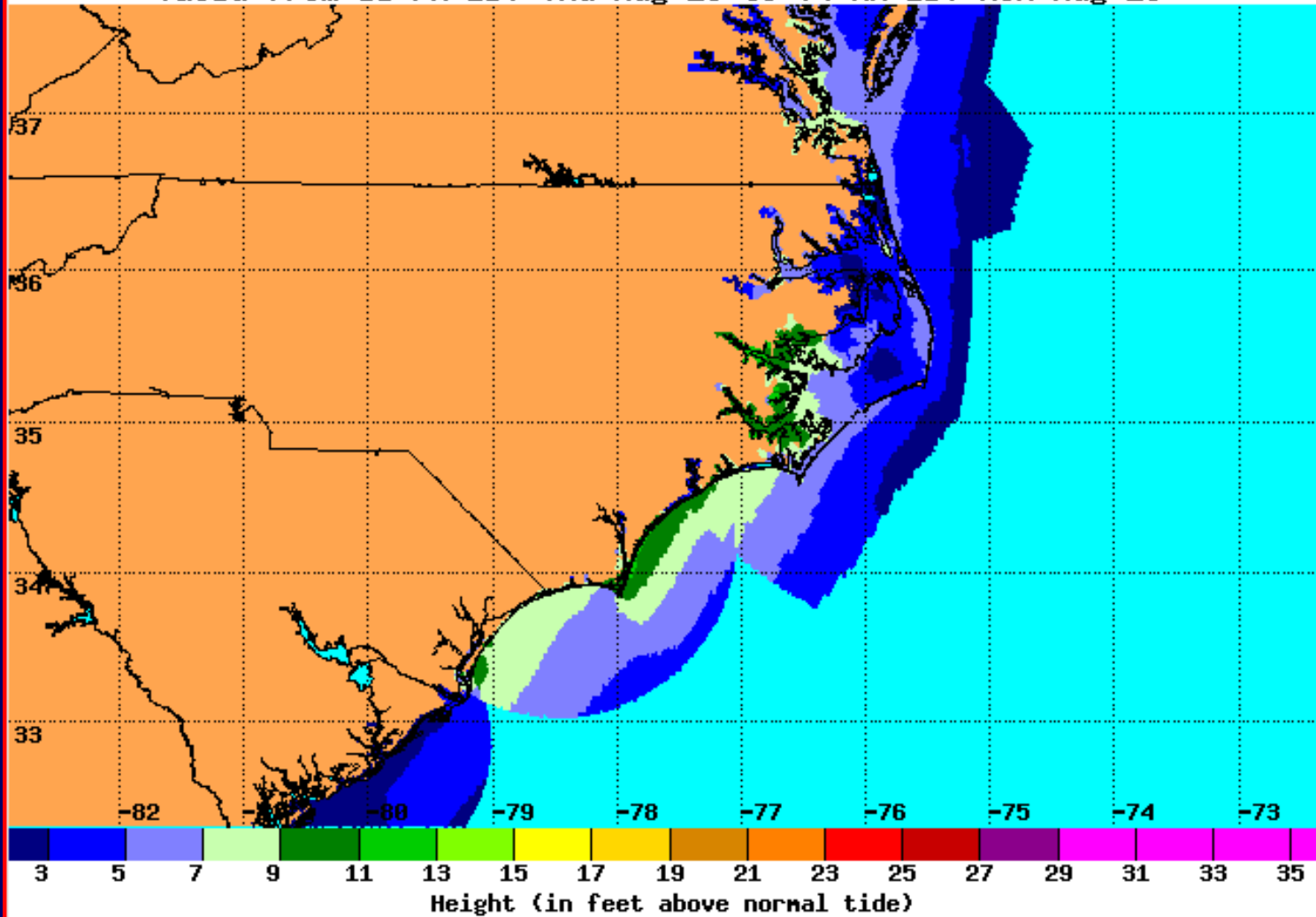


Storm Surge Guidance

10% Exceedance Storm Surge Probabilities



Tropical Cyclone Storm Surge Exceedance
Heights Which Have a 10% Chance of Being Exceeded
Hurricane Irene (2011) Advisory 23
Valid from 11 PM EDT Thu Aug 25 to 04 AM EDT Mon Aug 29





Rainfall Guidance



HPC 5-Day Rainfall Forecast
8 a.m. EDT Thu., Aug. 25 - 8 a.m. EDT Tue., Aug. 30

