



2011 Hurricane Season Quick Reference Guide

National Weather Service Tampa Bay Area

The following guide contains information on the products and information that will be provided during the 2011 Hurricane Season from the National Hurricane Center and the National Weather Service (NWS) office in Ruskin, FL. Be sure to visit our webpage for the latest hurricane information...<http://www.weather.gov/tampabay>.

General Quick-Reference Information

Basic Tropical Definitions

Tropical Depression: A tropical cyclone with maximum sustained winds between 25 mph and 38 mph.

Tropical Storm: A tropical cyclone with maximum sustained winds between 39 mph and 73 mph. A cyclone with sustained winds reaching 39 mph will be named.

Hurricane: A tropical cyclone with maximum sustained winds of 74 mph or greater.

Post Tropical Cyclone: A former tropical cyclone. This generic term describes a cyclone that no longer possesses sufficient tropical characteristics. Two types of Post Tropical Cyclones are extratropical cyclones and remnant lows.

Extratropical Cyclone: A cyclone of any intensity that possesses frontal characteristics.

Remnant Low: An area of low pressure that no longer possesses convection near the center of circulation, as would be expected of a tropical cyclone. This low must also have sustained winds less than 39 mph.

Hurricane Watch: A hurricane watch means that hurricane conditions are possible within the watch area, generally within the next 48 hours.

Hurricane Warning: A hurricane warning means that hurricane conditions are expected within the warning area, generally within the next 36 hours.

Tropical Storm Watch: A tropical storm watch means that tropical storm conditions are possible within the watch area, generally within the next 48 hours.

Tropical Storm Warning: A tropical storm warning means that tropical storm conditions are expected within the warning area, generally within the next 36 hours.

Saffir-Simpson Hurricane Wind Scale: A rating scale with five categories that is based on the maximum sustained wind speed of a tropical cyclone. The scale no longer is related to any predicted storm surge height.

Funnel Cloud: A rotating, funnel shaped cloud extending downward from a shower and thunderstorm base. A funnel cloud does not come in contact with the ground.

Tornado: A violently rotating column of air extending from the shower and thunderstorm base to the ground.

Storm Surge: The onshore rush of sea or lake water caused by the high winds associated with a landfalling cyclone and to a lesser extent by the low pressure of the storm.

Coastal Areas: Areas along the coast susceptible to the affects of storm surge.

Saffir Simpson Hurricane Wind Scale

Category	Wind Speed (mph)
1	74-95
2	96-110
3	111-130
4	131-155
5	>156

National Hurricane Center Products

➤ Tropical Weather Outlook

Beginning on June 1 and continuing through November 30, the National Hurricane Center produces a tropical weather outlook that discusses the potential for the development of tropical systems in the Atlantic out to 48 hours. These outlooks are issued four times throughout the day. Probability of tropical cyclone formation is listed within this product in increments of 10 percent.

An example of this outlook appears below:

ABNT20 KNHC 011140
TWOAT
TROPICAL WEATHER OUTLOOK
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
800 AM EDT WED JAN 1 2009

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

THE AREA OF LOW PRESSURE ASSOCIATED WITH A TROPICAL WAVE LOCATED JUST EAST OF THE WINDWARD ISLANDS HAS BECOME A LITTLE BETTER ORGANIZED THIS MORNING...AND AN AIR FORCE RECONNAISSANCE AIRCRAFT IS SCHEDULED TO INVESTIGATE THIS AREA THIS AFTERNOON. ENVIRONMENTAL CONDITIONS APPEAR FAVORABLE FOR DEVELOPMENT DURING THE NEXT DAY OR TWO AS THE TROPICAL WAVE MOVES WESTWARD NEAR 15 TO 20 MPH. REGARDLESS OF WHETHER DEVELOPMENT OCCURS...THIS SYSTEM WILL LIKELY BRING SQUALLS TO THE WINDWARD ISLANDS DURING THE NEXT DAY OR SO. THERE IS A HIGH CHANCE...GREATER THAN 50 PERCENT...OF THIS SYSTEM BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS.

THE LARGE AREA OF CLOUDINESS BETWEEN BERMUDA AND NOVA SCOTIA IS ASSOCIATED WITH AN EXTRATROPICAL LOW. THERE IS A LOW CHANCE...LESS THAN 30 PERCENT...OF THIS SYSTEM BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS.

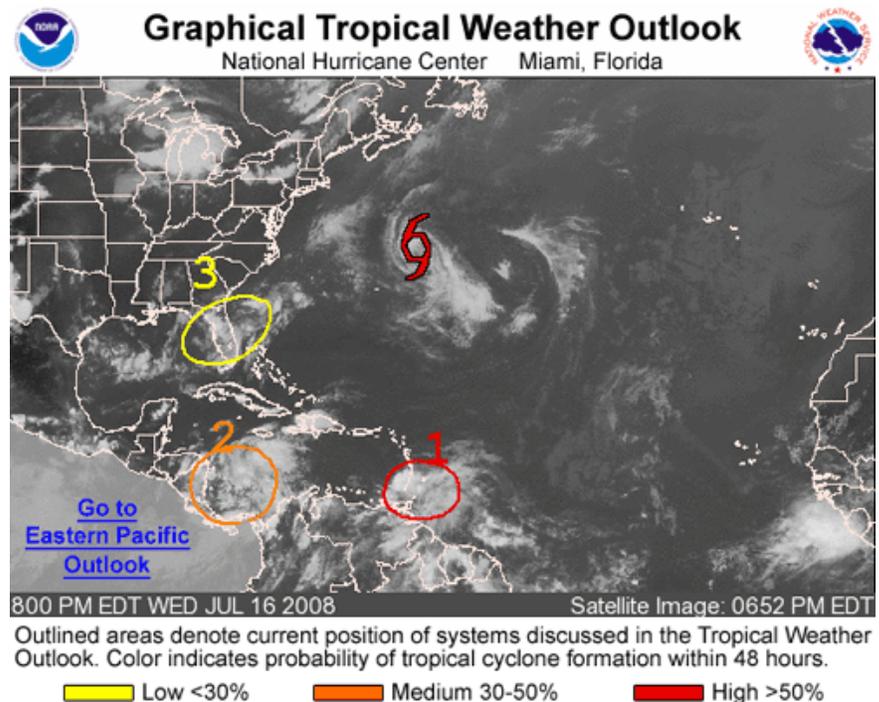
A LARGE AREA OF CLOUDINESS AND SHOWERS HAS DEVELOPED OVER THE NORTHEASTERN GULF OF MEXICO IN ASSOCIATION WITH AN OLD FRONTAL ZONE. SOME SLOW DEVELOPMENT OF THIS SYSTEM IS POSSIBLE DURING THE NEXT DAY OR TWO AS IT REMAINS NEARLY STATIONARY. THERE IS A MEDIUM CHANCE...30 TO 50 PERCENT...OF THIS SYSTEM BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS.

ELSEWHERE...TROPICAL CYCLONE FORMATION IS NOT EXPECTED DURING THE NEXT 48 HOURS.

This product references the probability of development of an area of disturbed weather within the next 48 hours. These probability statements correspond to the graphical tropical weather outlook. This product is issued at 8 pm EDT, 2 am EDT, 8 am EDT, 2 pm EDT.

➤ Graphical Tropical Weather Outlook

This product complements the text version of the tropical weather outlook by showing graphically where areas of interest are located across the Atlantic. Moreover, this graphic also indicates, by the color of the circle around the disturbance, the likelihood it develops into a tropical depression or tropical storm. Finally, placing your mouse over a circle on the map will display important forecast information on the disturbance or active tropical system.



➤ Special Tropical Weather Outlook

Special Tropical Weather Outlooks will be issued when significant changes require an update to a previously issued tropical weather outlook. In the past, these significant updates were issued as a Special Tropical Disturbance Statement. When a Special Tropical Weather Outlook is issued, it will also be accompanied by an update to the Graphical Tropical Weather Outlook.

The remaining products in this guide are only issued when there is an active tropical system in the Atlantic. When a tropical depression, tropical storm, or hurricane forms in the Atlantic, the National Hurricane Center issues numerous products on the current position and future movement of the tropical system.

These advisories on active tropical systems are issued routinely at 5 am EDT, 11 am EDT, 5 pm EDT, and 11 pm EDT. When systems are closer to land, intermediate advisories are issued half way between the routine advisory times.

➤ Public Advisory

The format of the public advisory changed in 2010 and now contains five distinct sections. These sections include: Summary (with Storm Information), Watches and Warnings, Discussion and 48-hour Outlook, Hazards Affecting Land, and Next Update Time.

An example of the new public advisory can be found at this website:

http://www.nhc.noaa.gov/tcp_example.shtml

➤ **Tropical Cyclone Forecast and Advisory**

The Tropical Cyclone Forecast/Advisory contains a list of all current watches and warnings on a tropical or subtropical cyclone, as well as the current latitude and longitude coordinates, intensity, and system motion. The advisory contains forecasts of the cyclone positions, intensities, and wind radii for 12, 24, 36, 48, and 72 hours from the current synoptic time. The advisory may also include information on any pertinent storm tides associated with the cyclone.

For an example of this product, visit the following website:

<http://www.nhc.noaa.gov/help/tcm.shtml>

➤ **Tropical Cyclone Discussion**

The Tropical Cyclone Discussion explains the reasoning behind the forecast for a tropical or subtropical cyclone. It includes a table of the forecast track and intensity. These products are very similar to area forecast discussions issued by local weather offices. They may include meteorological terminology or discussion of available model data.

You can find an example of this product at the following website:

http://www.nhc.noaa.gov/tcd_example.shtml

➤ **Tropical Cyclone Wind Speed Probabilities**

The Tropical Cyclone Surface Wind Speed Probabilities text product provides probabilities, in percent, of sustained wind speeds equal to or exceeding 34-, 50-, and 64-knot wind speed thresholds. These wind speed probabilities are based on the track, intensity, and wind structure forecasts and uncertainties from the National Hurricane Center and are computed for coastal and inland cities as well as offshore locations (e.g., buoys). Two types of probability values are produced in this text product: cumulative probabilities of occurrence, and individual period probabilities of onset.

Cumulative probabilities are provided in the text product for the following time periods: 0-12 hours, 0-24 hours, 0-36 hours, 0-48 hours, 0-72 hours, 0-96 hours, and 0-120 hours (0-5 days). These cumulative probabilities indicate the overall chances that the stated wind speed will **occur** at each location during the period between hour 0 (the beginning of the forecast) and each listed forecast hour.

Individual period probabilities are provided for each of the following time intervals: 0-12 hours, 12-24 hours, 24-36 hours, 36-48 hours, 48-72 hours, 72-96 hours, and 96-120 hours. These individual period probabilities indicate the chances that the stated wind speed will **start** during each individual period at each location. Cumulative probabilities through each forecast time period are also just the sum of the individual period probabilities up to that time.

In other words, cumulative probabilities tell decision-makers the chances that the event will happen at all. The individual period probabilities tell decision-makers when the event is most likely to start.

You can see an example of this product at the following link:

http://www.nhc.noaa.gov/pws_example.shtml

➤ **Special Tropical Cyclone Update**

Tropical Cyclone Updates are brief statements issued instead of or preceding special advisories to inform of significant changes in a tropical cyclone or to post or cancel watches or warnings. This product is issued on an as needed basis.

You can see an example of this product at the following link:

http://www.nhc.noaa.gov/tcu_example.shtml

➤ **Tropical Cyclone Position Estimate**

Tropical Cyclone Position Estimates are issued between intermediate advisories whenever a tropical cyclone with a well-defined center is within 200 nautical miles of land-based radar in the United States. These estimates give the center location in map coordinates and distance and direction from a well-known point.

You can see an example of this product at the following link:

http://www.nhc.noaa.gov/tce_example.shtml

➤ **Tropical Cyclone Valid Time Event Code**

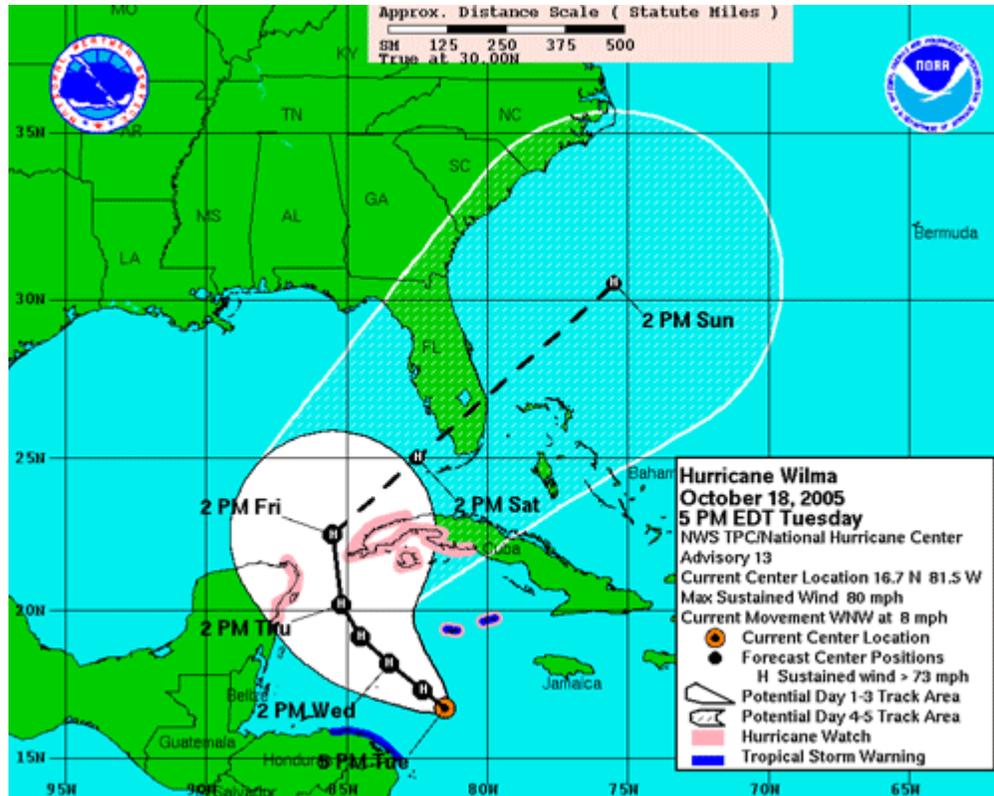
The Tropical Cyclone Watch/Warning text product (TCV) is based upon the Valid Time Event Code (VTEC). It summarizes all new, continued, and canceled tropical cyclone watches and warnings issued by the National Hurricane Center (NHC) for the U.S. Atlantic and Gulf coasts, Puerto Rico, and U.S. Virgin Islands.

You can see an example of this product at the following link:

http://www.nhc.noaa.gov/tcv_example.shtml

The following graphical products are found on the home page of the National Hurricane Center whenever advisories are being issued on a tropical cyclone.

➤ Tropical Cyclone Track Forecast Cone and Watches/Warnings



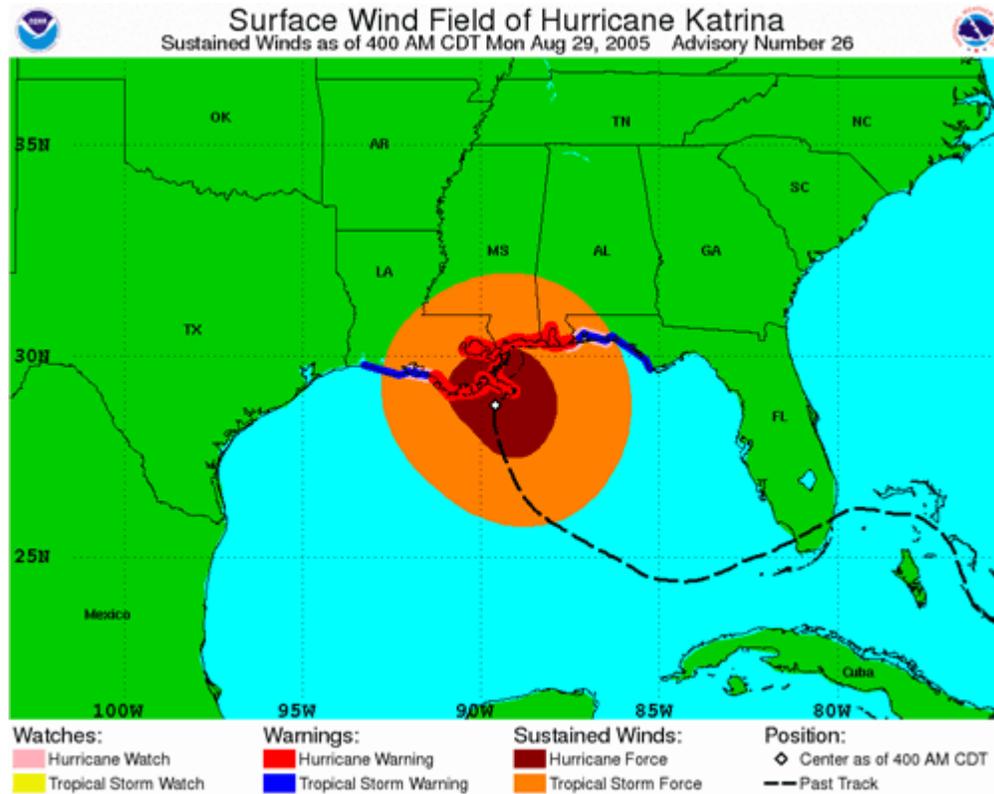
This graphic is created with each advisory issued by the National Hurricane Center. It includes the three day forecast cone (solid white area) and the four to five day forecast cone (dashed white area). Any watches or warnings that are in effect for a landmass are also included on this map. Remember, do not focus on the black line in the center of the cone. A tropical cyclone is not a point. Rather, the effects of a tropical cyclone can spread hundreds of miles from the center.

➤ Tropical Cyclone Surface Wind Speed Probabilities



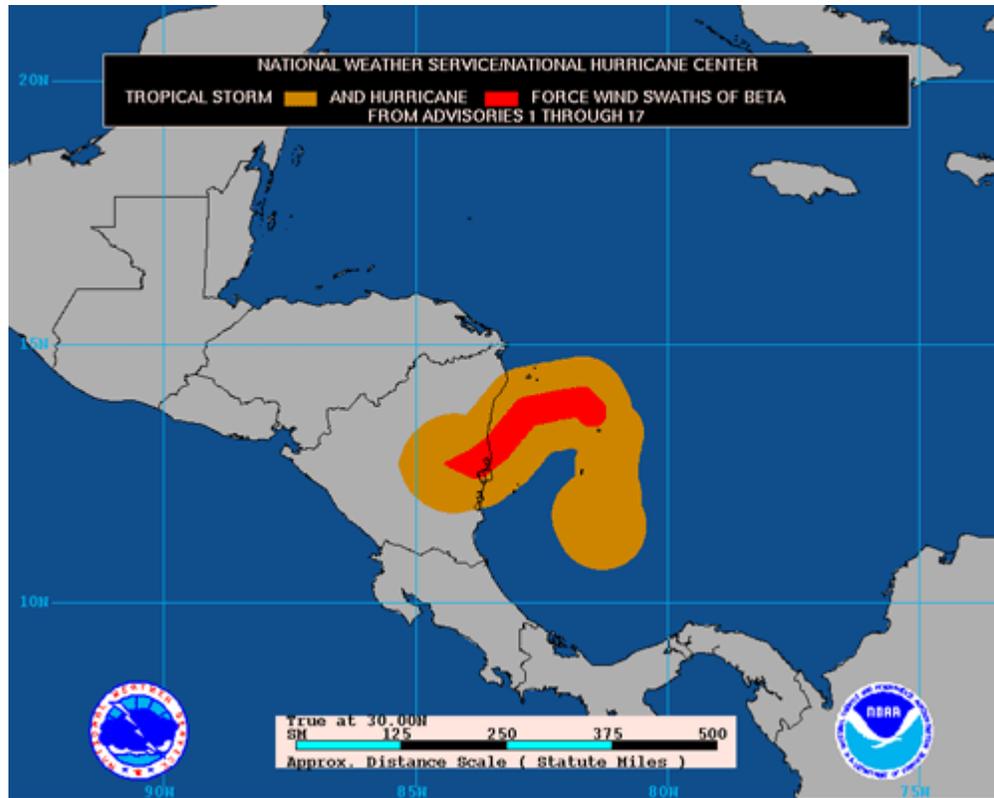
This image is the graphical counterpart to the Tropical Cyclone Wind Speed Probabilities Table. This example graphic above displays the probability that a point will receive tropical storm force winds. Three different graphics are created. This image, for tropical storm force winds, a second image for winds in excess of 50 knots (58 mph), and a third image for hurricane force winds in excess of 64 knots (74 mph).

➤ Tropical Cyclone Surface Wind Field



This graphical product is a summary of the current conditions associated with a tropical cyclone. In this example, the current location of Hurricane Katrina is indicated with the white diamond. Winds of tropical storm and hurricane force are indicated by the shaded areas. Additionally, areas under tropical storm or hurricane watches and warnings are displayed.

➤ Cumulative Wind History



This graphic shows how the size of the storm has changed, and the areas potentially affected so far by sustained winds of tropical storm force (in orange) and hurricane force (in red). Because the wind radii shown are based on the maximum extent of tropical storm or hurricane force winds, not all areas may have experienced these winds.

➤ **Maximum 1-minute Wind Speed Probability Table**



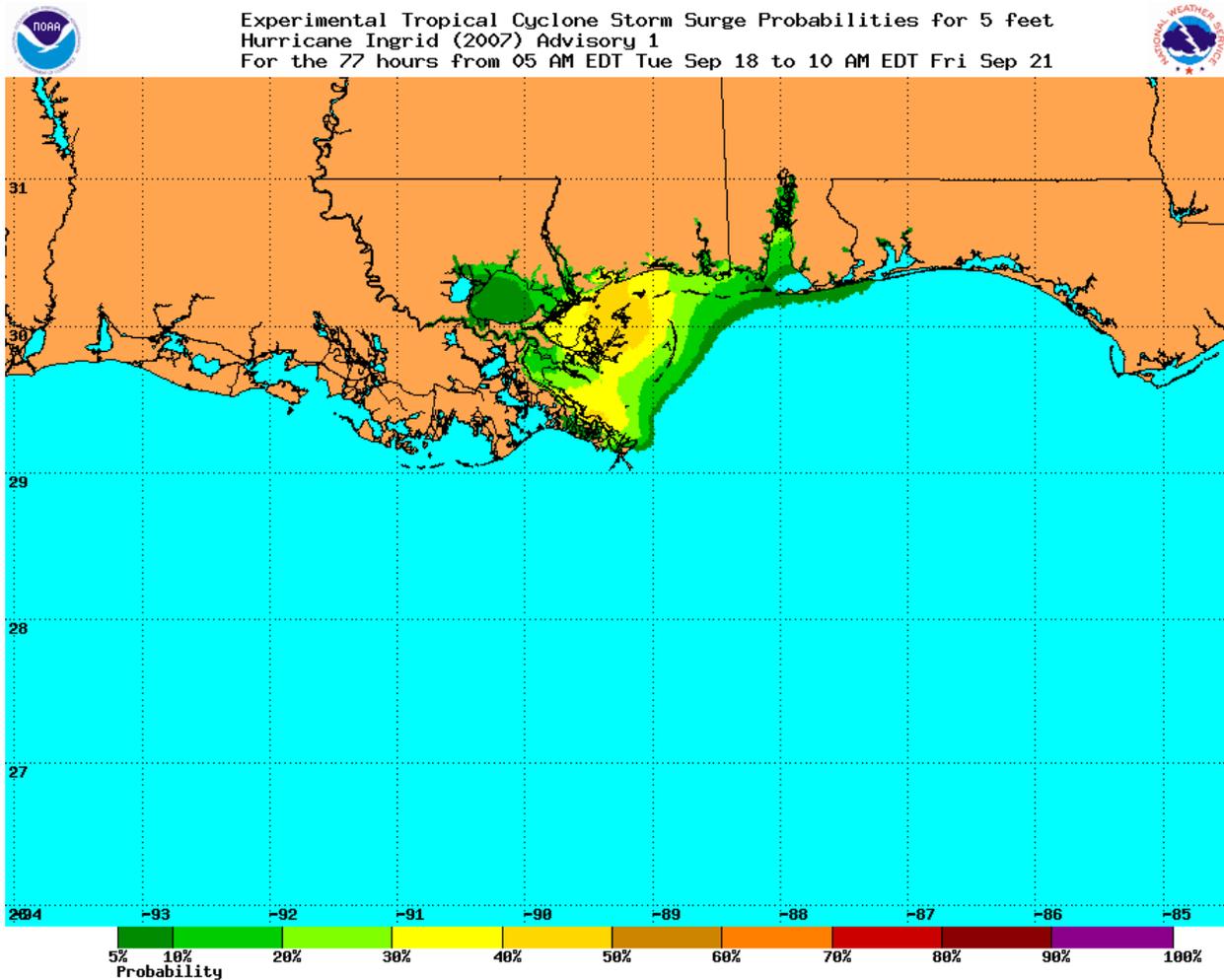
Intensity (Maximum Wind Speed) Probability Table
 Tropical Storm Test Advisory Number 1
 4:00 PM CDT Apr 16 2008



Wind Range (mph)	Forecast Time						
	12 hour for 1 AM Thu	24 hour for 1 PM Thu	36 hour for 1 AM Fri	48 hour for 1 PM Fri	72 hour for 1 PM Sat	96 hour for 1 PM Sun	120 hour for 1 PM Mon
Dissipated	<1%	<1%	1%	3%	25%	54%	58%
Tropical Depression (<39)	1%	2%	9%	12%	33%	26%	18%
Tropical Storm (39-73)	86%	49%	53%	59%	34%	15%	15%
Hurricane (all categories)	13%	50%	37%	27%	8%	5%	10%
-- Category 1 (74-95)	12%	44%	31%	21%	6%	3%	7%
-- Category 2 (96-110)	1%	5%	3%	4%	1%	1%	2%
-- Category 3 (111-130)	<1%	1%	2%	2%	<1%	<1%	1%
-- Category 4 (131-155)	<1%	<1%	<1%	<1%	<1%	<1%	<1%
-- Category 5 (>155)	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Forecast Maximum Wind	65 mph	75 mph	75 mph	65 mph	40 mph	15 mph	5 mph

The table shows the probability that the maximum sustained surface wind speed of the tropical cyclone will be within various intensity ranges as well as the five categories on the Saffir-Simpson Hurricane Scale during the next 120 hours. These probabilities apply to the maximum sustained surface wind associated with the cyclone, and not winds that could occur at specific locations.

➤ Tropical Cyclone Storm Surge Probabilities



The Tropical Cyclone Storm Surge Probabilities product consists of a graphic that shows probabilities, in percentage, of a storm surge from a tropical storm or hurricane that will exceed a particular value. For example, in the image shown above, the probability of a storm surge exceeding 5 feet is shown. The areas in yellow indicate the probability of exceeding 5 feet is between 40 to 50 percent. This product produces probability of storm surge at one foot intervals from two feet to 25 feet.

This product is produced by using an ensemble of SLOSH runs created by the National Hurricane Center, and is available whenever a hurricane watch or hurricane warning is in effect for the continental U.S.

Local Products from your National Weather Service office in Ruskin, FL

➤ Hurricane Local Statement

When a tropical storm or hurricane watch has been issued by the National Hurricane Center, NWS Tampa Bay will begin issuing Tropical Storm or Hurricane Local Statements. This particular product is designed to inform local decision makers, the media, and public on the expected impacts from the approaching storm. This product is issued in a segmented format. This means that only portions of the product apply to certain counties. Within each segment are a series of section headers which explain preparedness actions that should be taken along with a detailed description of the impacts from the storm in your area.

Starting with the 2011 Atlantic Hurricane Season, tropical storm and hurricane watches and warnings will be issued for all counties in the Tampa Bay forecast area. This is a change from previous seasons, when tropical storm or hurricane **wind** watches or warnings would be issued for non-coastal counties.

An example of the HLS appears below:

```
URGENT - IMMEDIATE BROADCAST REQUESTED
TROPICAL STORM BONNIE LOCAL STATEMENT
NATIONAL WEATHER SERVICE TAMPA BAY RUSKIN FL
545 PM EDT FRI JUL 23 2010
```

```
.NEW INFORMATION...
```

```
.AREAS AFFECTED...
```

```
.WATCHES/WARNINGS...
```

```
.STORM INFORMATION...
```

```
.SITUATION OVERVIEW...
```

```
.PRECAUTIONARY/PREPAREDNESS ACTIONS...
```

```
PRECAUTIONARY/PREPAREDNESS ACTIONS...
```

```
&&
```

```
.NEXT UPDATE...
```

```
FLZ061-062-065-240000-
/O.CON.KTBW.TR.W.1003.000000T0000Z-000000T0000Z/
DE SOTO-CHARLOTTE-LEE-
545 PM EDT FRI JUL 23 2010
```

```
...TROPICAL STORM WARNING REMAINS IN EFFECT...
```

```
...PRECAUTIONARY/PREPAREDNESS ACTIONS...
```

```
PRECAUTIONARY/PREPAREDNESS ACTIONS...
```

```
&&
```

This is the main overview segment that is applicable to any portion of the Tampa Bay forecast area.

This segment applies to the counties listed above. This segment will detail specific impacts expected in the listed counties.

...WINDS...

...STORM SURGE AND STORM TIDE...

...INLAND FLOODING...

...TORNADOES...

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Hurricane local statements include headlines for any tropical watches or warnings that may be in effect. These headlines are found right below the listing of counties as indicated in the above example.

Hurricane Local Statements are an excellent resource to gain information specific to your area. Hurricane Local Statements are issued at least every six hours when a tropical storm or hurricane watch or warning is in effect for the Tampa Bay County Warning Area. These statements may be updated more frequently when the tropical system gets closer to land.

➤ **Graphical Hurricane Local Statement**

Continuing into 2011, NWS Tampa Bay will issue a graphical version of the Hurricane Local Statement. This graphical version visually depicts the impact level from four specific threats. These are: Winds, Tornadoes, Inland Flood, and Coastal Flood. Impacts from each of these threats are ranked on the following scale: None, Low, Moderate, High, and Extreme. Each of these rankings has a specific description available that has been tailored to our local area.

The graphical hurricane local statement for Tampa Bay can be found by going to:

http://www.nws.noaa.gov/ghls/php/ghls_index.php?sid=tbw&threat=wind

From this main page, you can select an individual hazard map to see a larger version complete with the associated impact description. By clicking on the risk level bar across the top of the map, you will then see the associated impact description for each risk category.

➤ **Extreme Wind Warning**

To alert the population to the onset of extremely dangerous winds associated with the core of a landfalling major hurricane, the National Weather Service will issue an extreme wind warning. This product is relatively new. It initially started as a strongly worded tornado warning as a way of alerting residents of Central Florida about the approach of the dangerous winds associated with the core of Hurricane Charley in 2004. Since that time, the National Weather Service has created the extreme wind warning product to serve exclusively for the notification of these destructive winds.

This warning is only issued under the following conditions:

1. The tropical cyclone is a category 3 or greater on the Saffir Simpson hurricane scale as designated by the National Hurricane Center.
2. Sustained tropical cyclone surface winds of 100 knots (115 mph) or greater are occurring or are expected to occur within one hour.

This product will generally be issued up to one hour before the onset of these winds, and may be valid for up to three hours. This product has priority dissemination on NOAA Weather Radio and across the EAS network.

➤ **Terms of Uncertainty – Forecasts**

To provide enhanced visibility of potential hazards from tropical systems, NWS forecasts will continue to include probabilistic terminology related to tropical storm or hurricane effects in a region. Forecasts from NWS Tampa Bay utilize wind speed products from the National Hurricane Center to provide users with an assessment of the likelihood of tropical storm or hurricane impacts, even at long ranges.

Depending on the confidence in the overall forecast and likelihood of effects from a tropical system, forecasts from NWS will contain the following phrases as tropical systems near the region:

- For longer range or low probability forecasts:
 - Hurricane Conditions Possible
 - Tropical Storm Conditions Possible
- For shorter range or higher probability forecasts:
 - Hurricane Conditions Expected
 - Tropical Conditions Expected
- For immediate term ongoing tropical events:
 - Hurricane Conditions
 - Tropical Storm Conditions

Forecasts containing the word “possible” may appear more frequently in forecasts, especially at longer time ranges. “Expected” wording is primarily confined to forecasts issued for the

next 36 hours. Categorical wording, or terminology like, "Hurricane Conditions," will only appear during the first 12 hours of the forecast.

It should be noted that these terms will also appear on the point and click forecast pages many people use to access forecast data from NWS Tampa Bay.

Many thanks to NWS Tallahassee for the design and information contained within this book.