



Possible Future Enhancements to NHC Forecast Products

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2013 National Hurricane Conference



Potential NHC Product Enhancements



- Tropical Weather Outlook extension from 2 to 5 days (2013) – discussed by Eric this morning
- Storm surge product enhancements (2013-2015)- covered by Jamie/Rick
- 6- and 7-day forecasts
- Track and intensity forecasts for disturbances
- Watches/Warnings before formation
- Collaborative warning approach
- Timing and wind hazard graphics



Tropical Cyclone Position Estimate



HURRICANE IRENE TROPICAL CYCLONE POSITION ESTIMATE
NWS NATIONAL HURRICANE CENTER MIAMI FL AL092011
1000 PM EDT SAT AUG 27 2011

AT 1000 PM EDT...0200 UTC... THE CENTER OF HURRICANE IRENE WAS LOCATED BY AN AIR FORCE RESERVE
HURRICANE HUNTER AIRCRAFT AND NOAA DOPPLER WEATHER RADAR TO BE AT LATITUDE 37.1 NORTH...
LONGITUDE 75.5 WEST.

...SUMMARY OF 1000 PM EDT INFORMATION...
LOCATION...37.1 N 75.5 W
ABC...278 KI...35 KM... W OF NEW YORK CITY
MAXIMUM SUSTAINED WINDS...80 MPH.
PRESENT MOVEMENT...NNE OR 20 DEGREES AT 10 MPH
MINIMUM CENTRAL PRESSURE...977 HPA
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FORECASTER BRENNAN

DISCONTINUED
Information included in TCU

This product is issued between 2-hourly intermediate public advisories



Tropical Cyclone Update



This product is issued when:

- (1) the cyclone makes landfall
- (2) unexpected changes occur in the cyclone
- (3) to issue international watches and warnings
- (4) now used for 1-hourly position estimates instead of TCE

TROPICAL STORM CLAUDETTE TROPICAL CYCLONE UPDATE
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL042009
1215 PM EDT SUN AUG 16 2009

...DEPRESSION BECOMES TROPICAL STORM CLAUDETTE...

DATA FROM THE NOAA DOPPLER RADAR IN TALLAHASSEE FLORIDA INDICATE THAT SURFACE WINDS ASSOCIATED WITH THE DEPRESSION HAVE INCREASED TO 40 MPH...65 KM/HR...MAKING THE DEPRESSION TROPICAL STORM CLAUDETTE.

....SUMMARY OF 1215 PM AST INFORMATION...

LOCATION...28.7N 84.6W

MAXIMUM SUSTAINED WINDS...40 MPH

PRESENT MOVEMENT...NORTHWEST OR 320 DEGREES AT 14 MPH

MINIMUM CENTRAL PRESSURE...1011 MB

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FORECASTER ROBERTS/BRENNAN



Example of Hourly Update TCU



POST-TROPICAL CYCLONE SANDY TROPICAL CYCLONE UPDATE
NWS NATIONAL HURRICANE CENTER MIAMI FL AL182012
900 PM EDT MON OCT 29 2012

...HURRICANE FORCE WINDS GUSTS REPORTED OVER LONG ISLAND AND THE NEW YORK METROPOLITAN AREAS...

SUMMARY OF 900 PM EDT...0100 UTC...INFORMATION

LOCATION...39.6N 74.6W
ABOUT 15 MI...24 KM NW OF ATLANTIC CITY NEW JERSEY
MAXIMUM SUSTAINED WINDS...80 MPH...130 KM/H
PRESENT MOVEMENT...WNW OR 300 DEGREES AT 21 MPH...33 KM/H
MINIMUM CENTRAL PRESSURE...947 MB...27.96 INCHES

NATIONAL OCEAN SERVICE TIDE GAUGES HAVE RECENTLY REPORTED STORM TIDE HEIGHT...THE COMBINATION OF STORM SURGE AND TIDE RELATIVE TO MEAN LOWER LOW WATER...OF 13.3 FEET AT KINGS POINT NEW YORK...13.7 FEET AT THE BATTERY NEW YORK...AND 13.3 FEET AT SANDY HOOK NEW JERSEY.

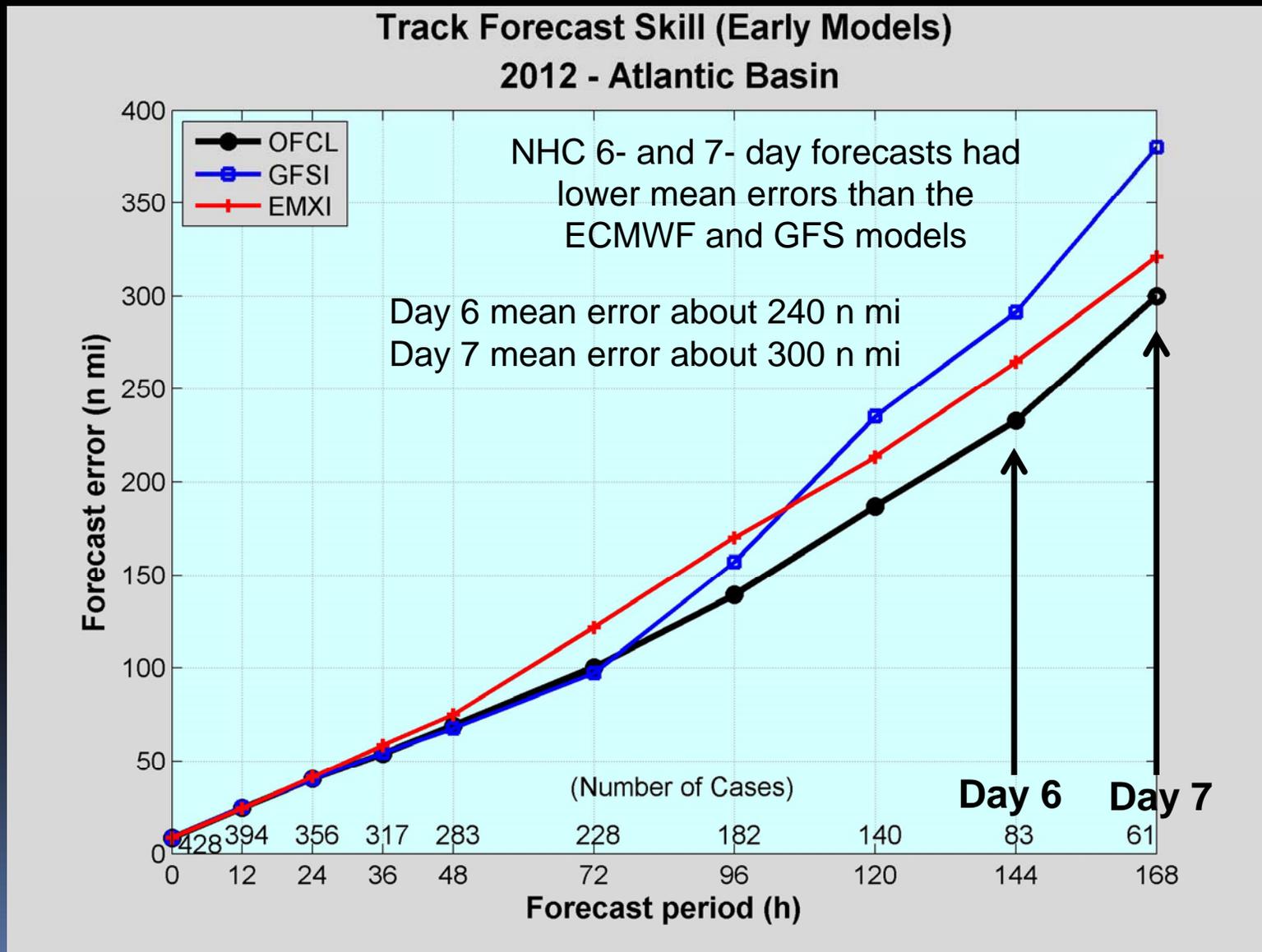
A WIND GUST TO 79 MPH WAS REPORTED AT JFK INTERNATIONAL AIRPORT IN NEW YORK. A WIND GUST TO 90 MPH WAS REPORTED EARLIER THIS EVENING AT ISLIP NEW YORK.

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FORECASTER BROWN/ROBERTS

NNNN



Preliminary Verification of 2012 NHC 6- and 7-day track forecasts

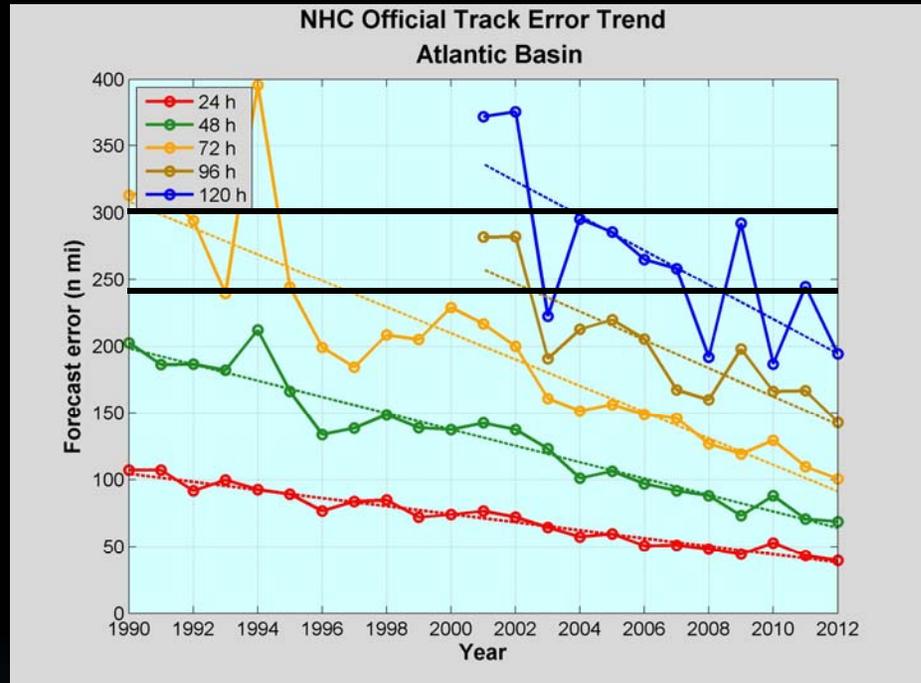




6- and 7-day Forecasts



- Preliminary results indicate 6- and 7-day forecasts were about as good as NHC 4- and 5-day forecasts were when introduced a decade ago.
- In-house experiment expected to continue in 2013.
- NHC beginning to discuss how best to display and communicate the 6- and 7-day forecasts

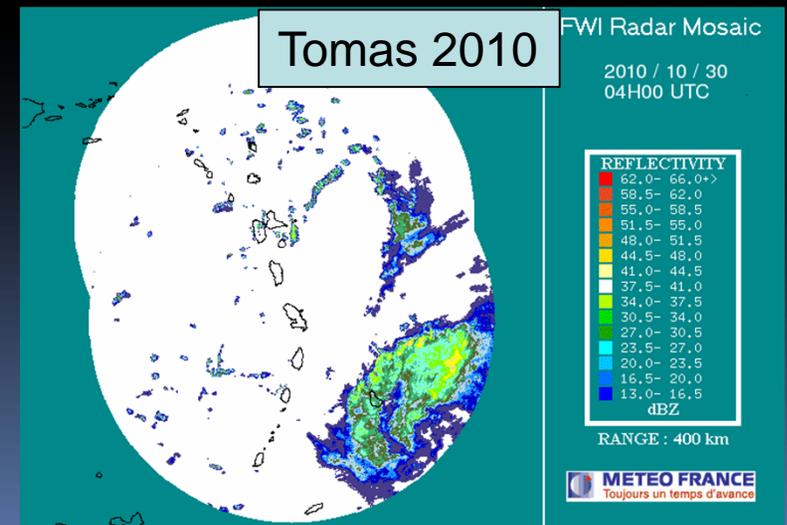
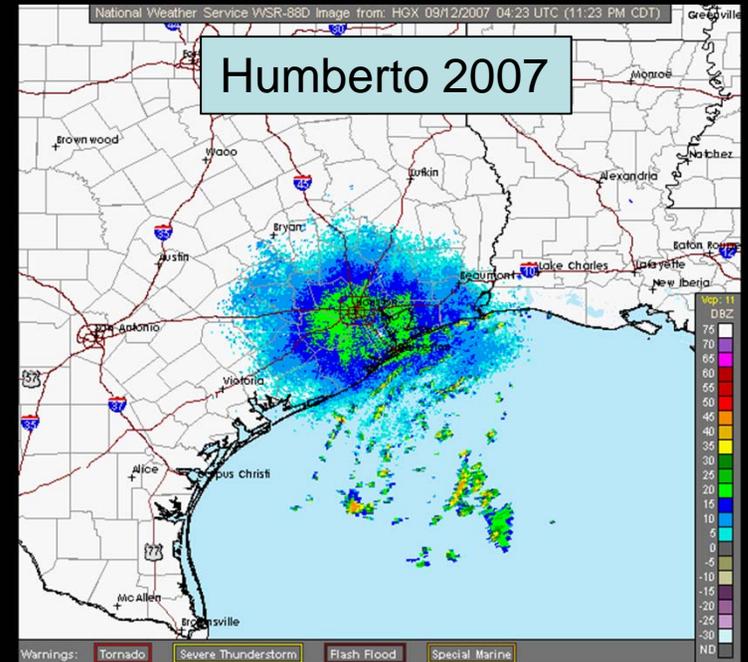




Watches/Warnings Before Formation?



- Currently watches and warnings are tied administratively to tropical cyclone advisories
- Difficult to determine placement of watch and warning areas when system is poorly defined and track & intensity prognosis is highly uncertain



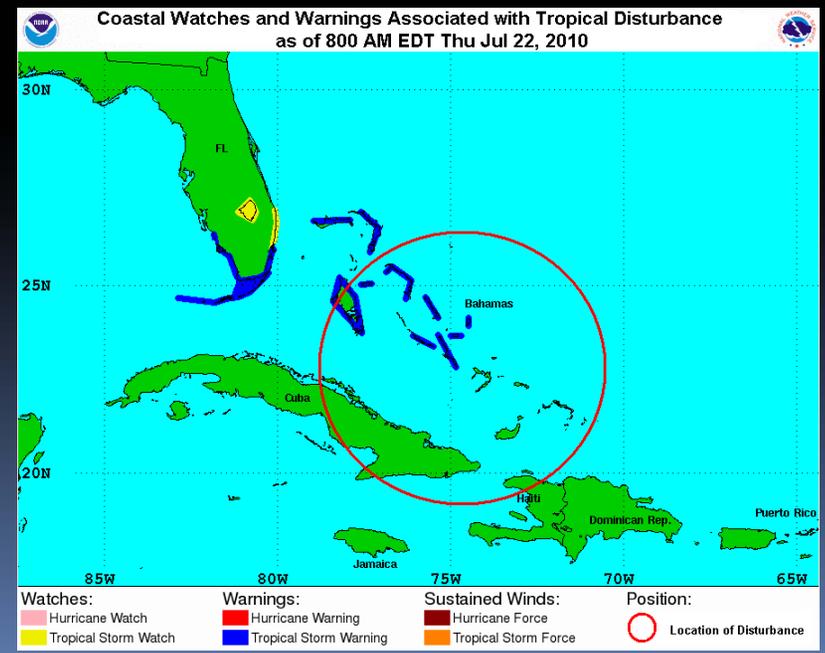
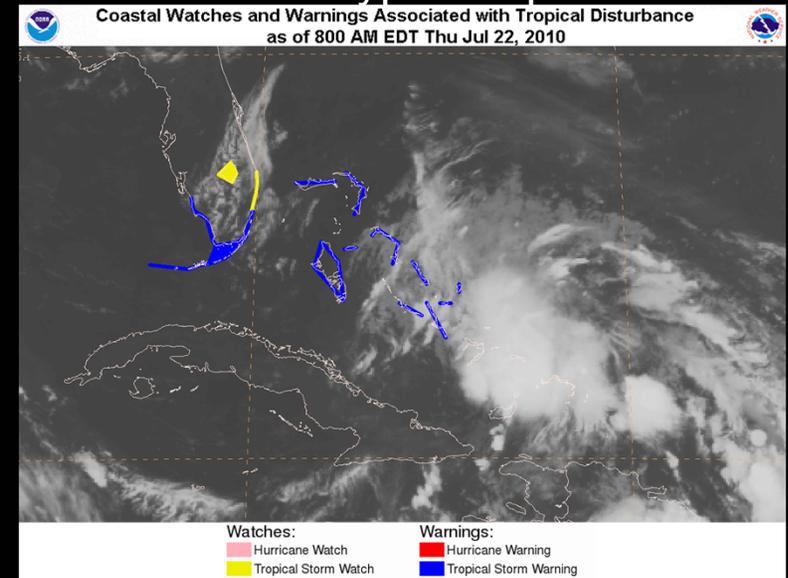


Watches/Warnings Before Formation?



- NHC conducted an in-house experiment during the 2012 season by issuing Pre-TC watches/warnings
- Could take a few years to have enough cases to evaluate
- NHC exploring ways to issue and communicate pre-TC watches & warnings
 - Through graphical and text TWO?
 - Through advisory-like products?
 - New products?

Prototype Graphics

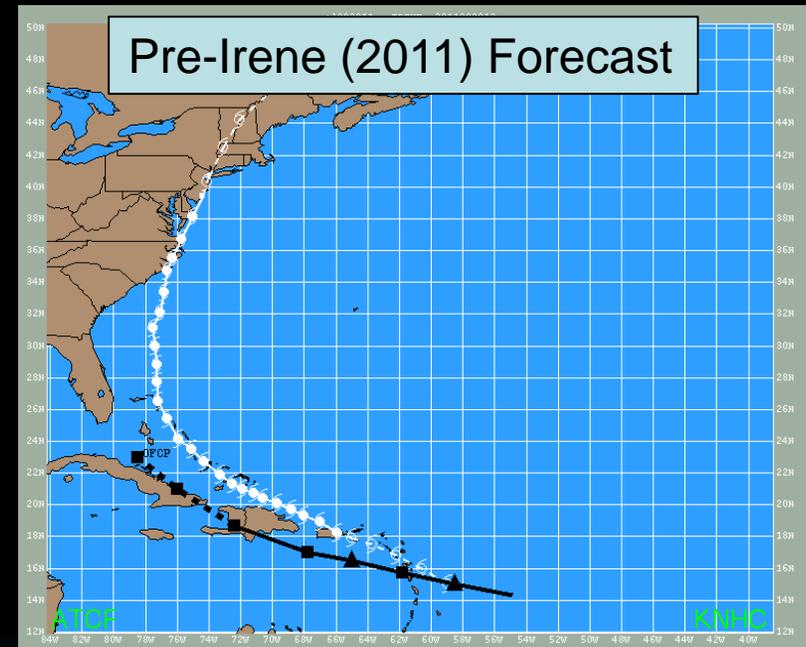




Pre-Tropical Cyclone Track & Intensity Forecasts



- **Motivation:** Issued for systems prior to genesis in support of the watch/warning process
- In 2011, the NHC began making forecasts only for tropical disturbances with a high chance of formation in the Tropical Weather Outlook
- Forecasts include predictions of track, intensity, wind radii, and system status (e.g. “TD/TS/HU”, or “DB”) out to 5 days

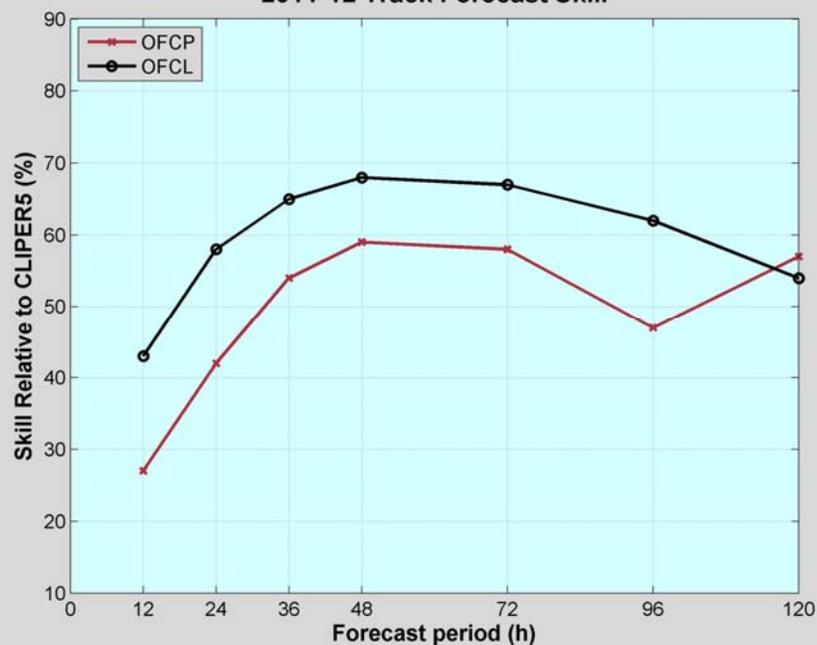




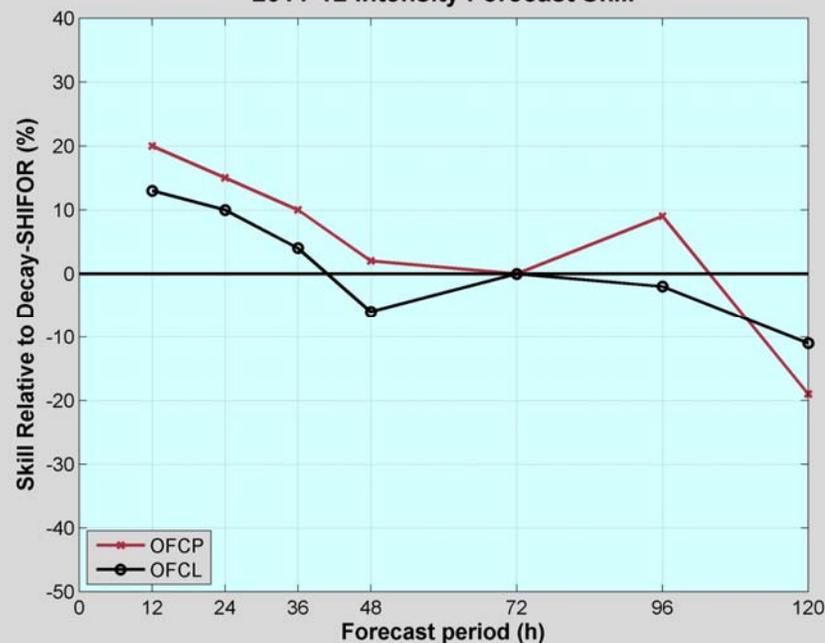
Verification of NHC Disturbance Track Forecasts



2011-12 Track Forecast Skill



2011-12 Intensity Forecast Skill



Disturbance track forecasts are generally 10-20% less skillful than the forecasts for tropical cyclones.

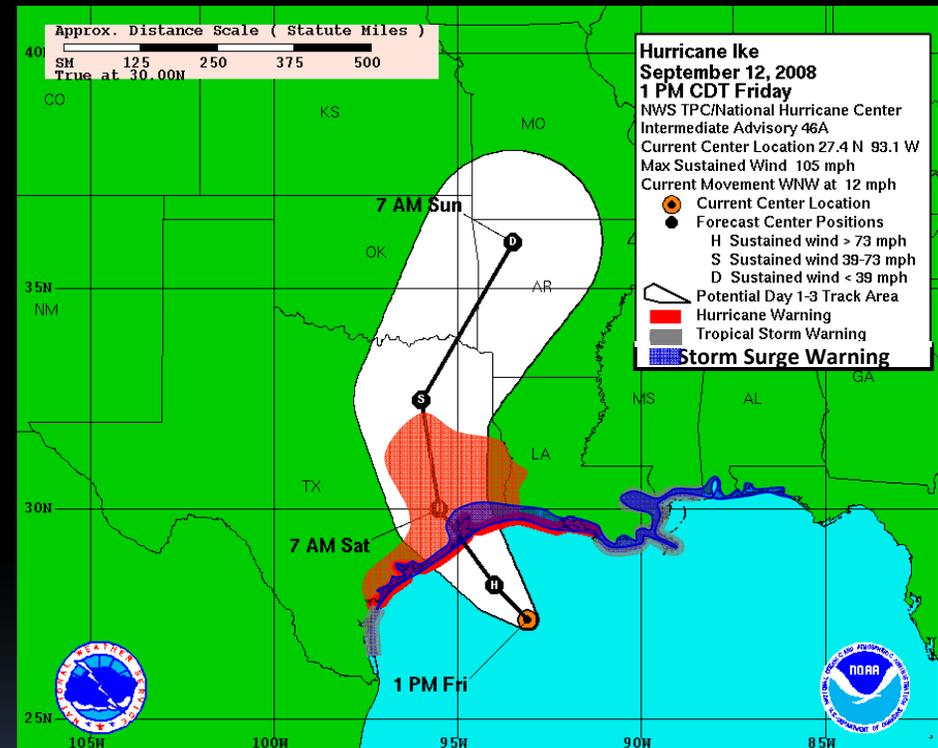
Intensity skill is minimal for both provisional and operational forecasts.



Potential Communication of All NWS TC watches/warnings



- Currently, NHC issues coastal tropical cyclone watches and warnings and WFOs issue watches/warnings for inland areas
- NWS team developing a prototype tool that could assist NHC and WFOs in issuing wind and storm surge watches/warning in a more collaborative approach
- NHC and WFO watches and warnings could be issued at the same time, making it easier for NHC and software vendors to display both coastal and inland tropical cyclone watches and warnings

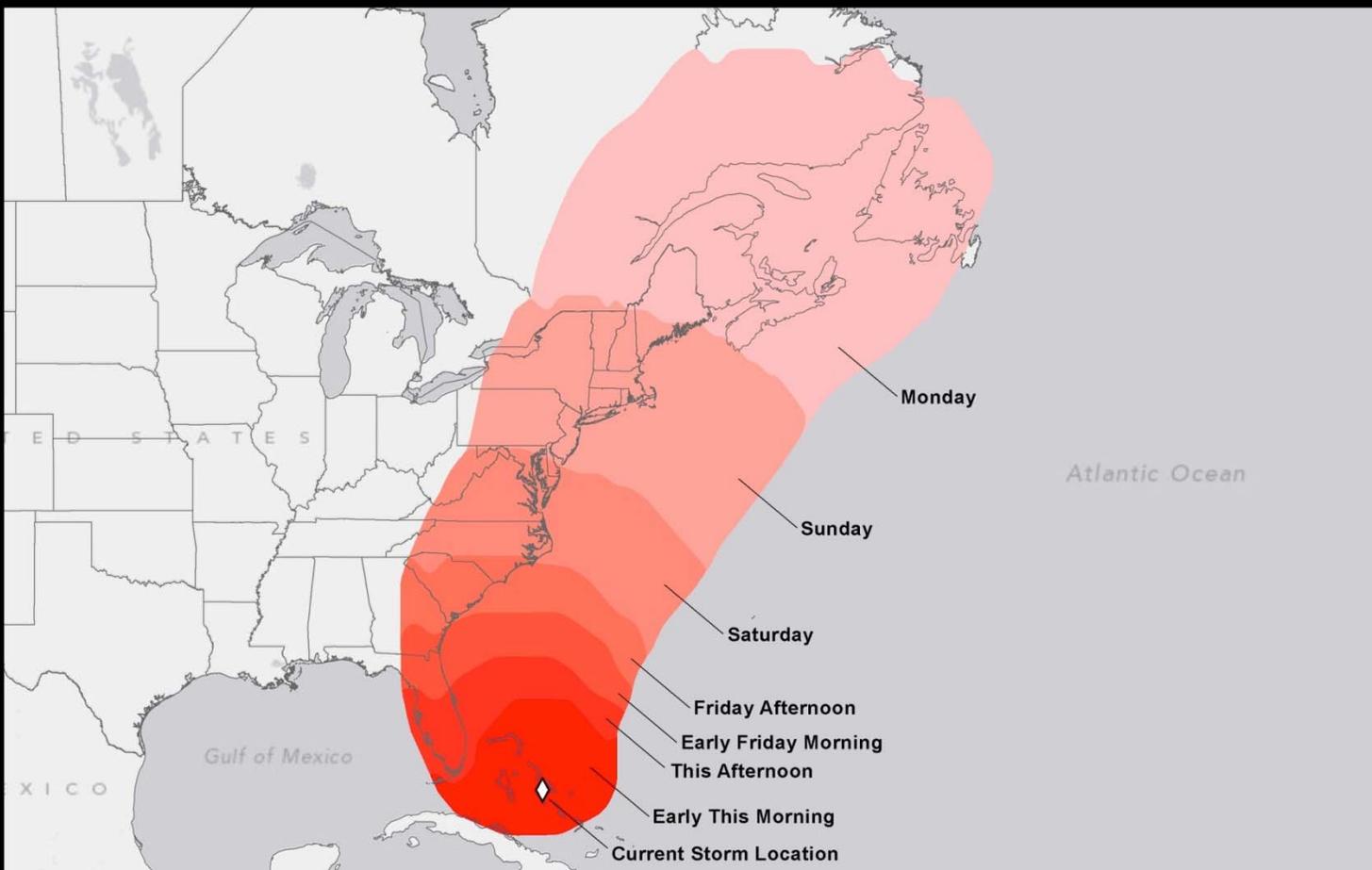




Prototype of Graphic Showing Potential Arrival Time of TS Force Winds

0 120 240 480 720 960 Miles

Hurricane Irene, Advisory #20



Preparation Completion Times
(Expected Arrival of 34 kt Winds)

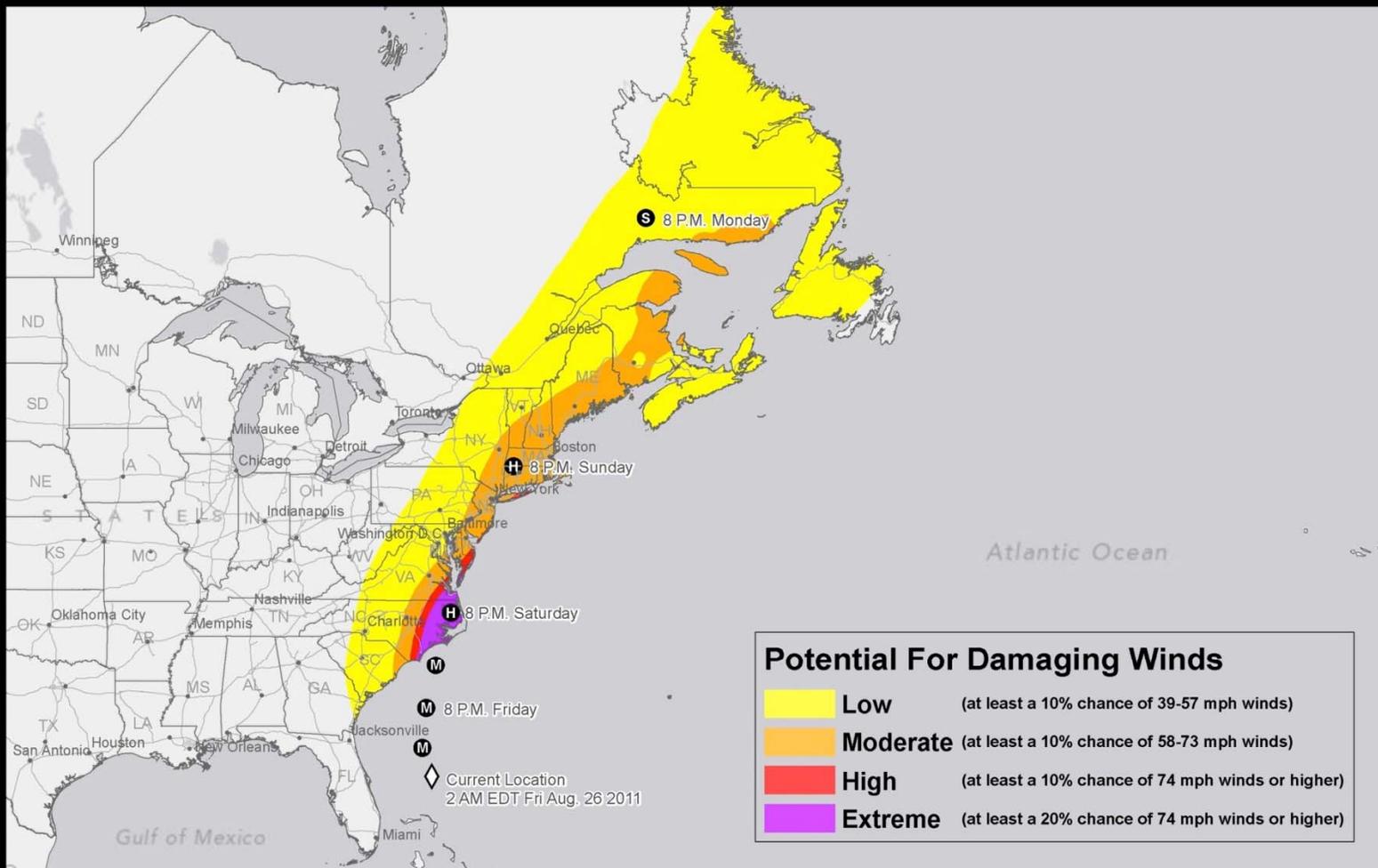




Prototype of Wind Hazard Graphic



Hurricane Irene, Advisory #24



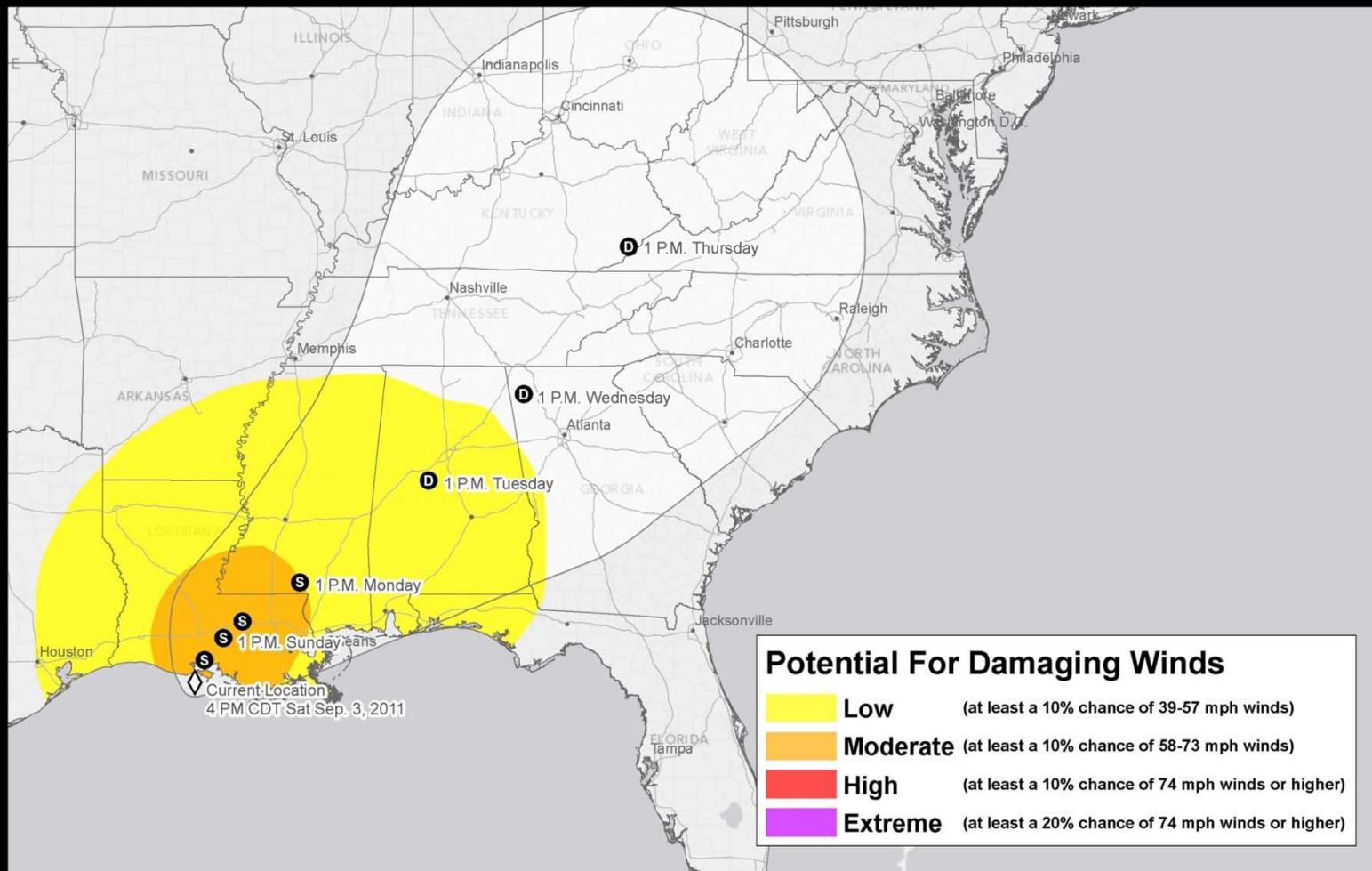
S = Tropical Storm **H** = Hurricane **M** = Major Hurricane ● = Forecast Points



Prototype of Wind Hazard Graphic



Tropical Storm Lee, Advisory #9



D = Tropical Depression **S** = Tropical Storm **H** = Hurricane **M** = Major Hurricane **●** Forecast Points **□** Forecast Error Cone

Questions/Comments

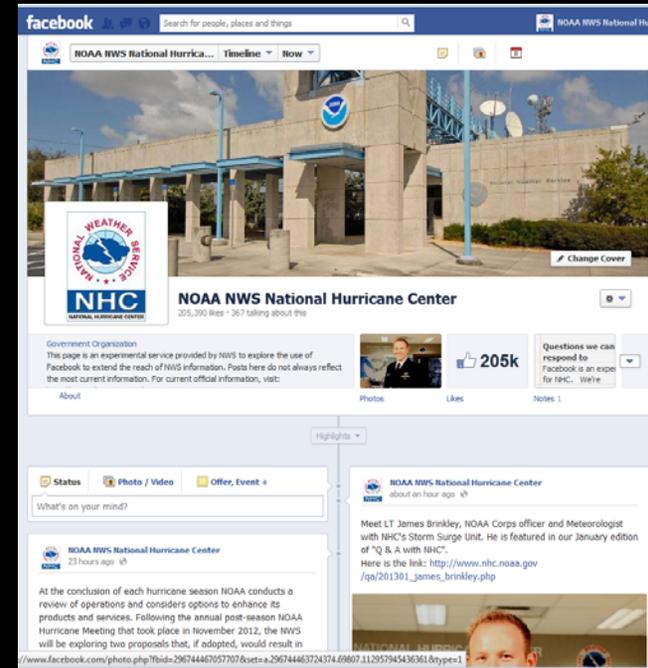




Other Outreach and Education Activities



- NHC Facebook page & Twitter feed to continue in 2013
- New National Hurricane Preparedness Week (May 26 – June 1) public service announcements will be available on YouTube
- Working with URI to offer Hurricane Awareness Webinars for Schools—
 - About 15,000 5th grade students registered
- Planning some webinars for media and emergency managers (May)

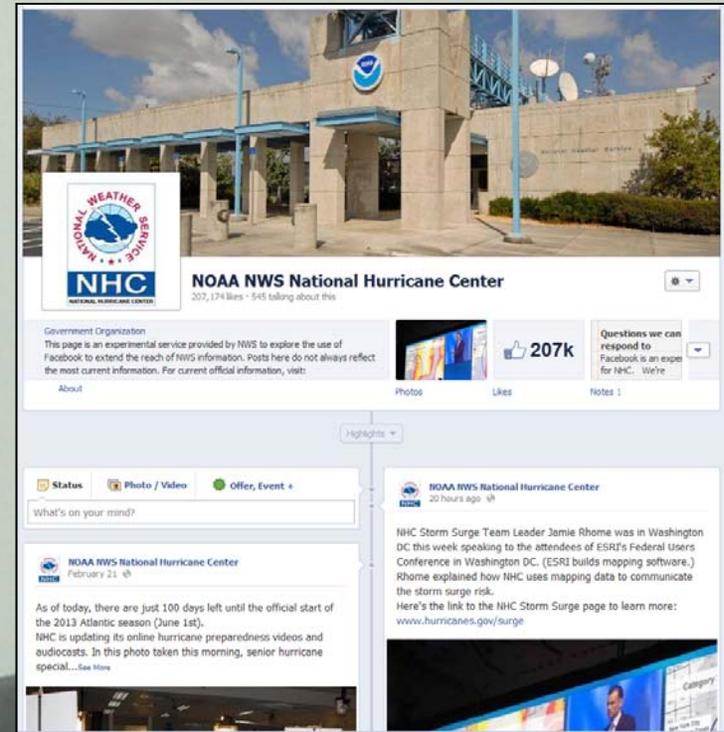




Social Media and NHC



- NHC Facebook & Twitter feed began in 2011
- Hurricane Awareness Week- Public Service Announcements





Social Media and NHC

- **Over 207,000 Facebook followers**
 - One of the most followed government Facebook pages
- **Currently over 108,000 Twitter followers**
- **Significantly increase of followers during hurricane threats**

