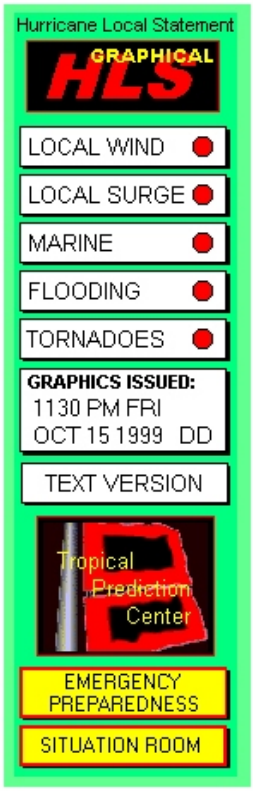
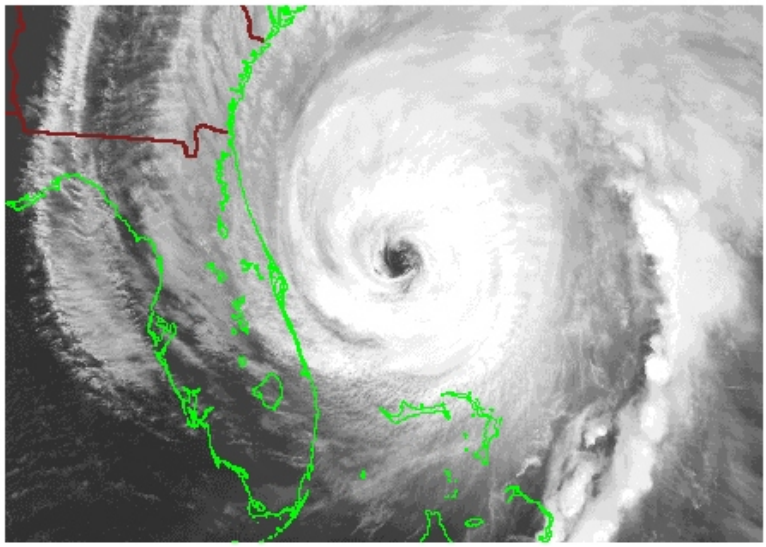
# The Graphical Hurricane Local Statement

www.srh.noaa.gov/mlb/hlsfiles/hlsmain.html




*Scott M. Spratt & David W. Sharp*



National Weather Service Melbourne, FL

FL Tropical WX Workshop - 16 April 2001

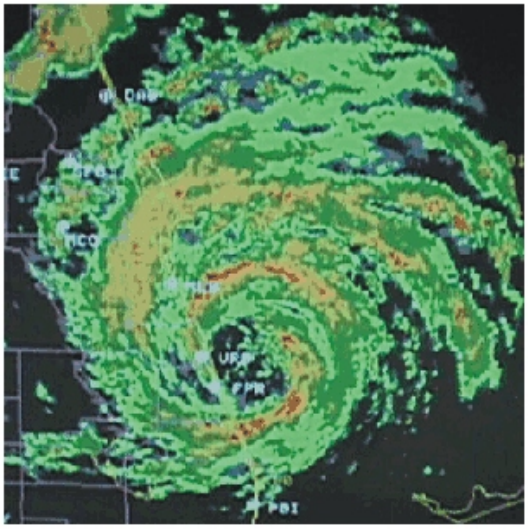
## HLS - The Official Text Version

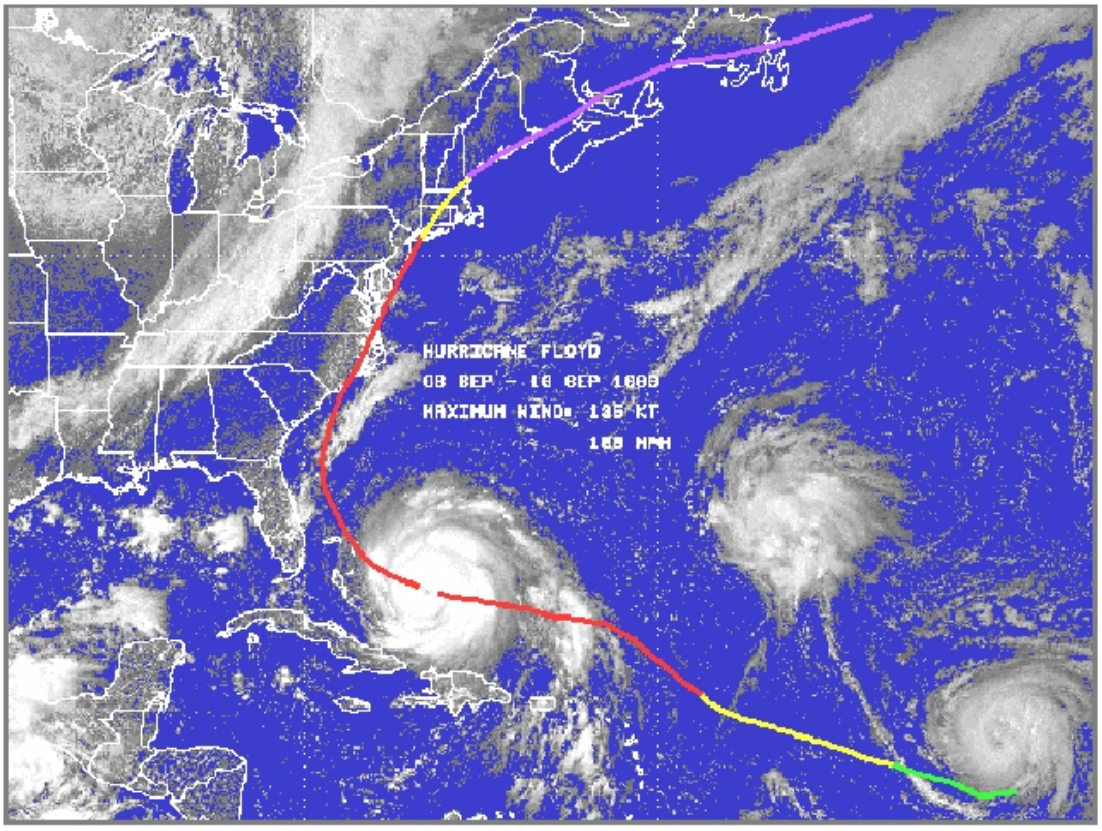
- **Issued by the local WFO whenever tropical cyclone Watch and/or Warning is in effect.**
- **Information based on latest TPC forecast.**
- **To address the threat of expected tropical cyclone hazards, locally.**
- **To include all related hazards:**
  - **Local Winds**
  - **Local Surge**
  - **Local Flooding (rain)**
  - **Local Tornadoes**
  - **Local Marine**

# HLS - The Dilemma

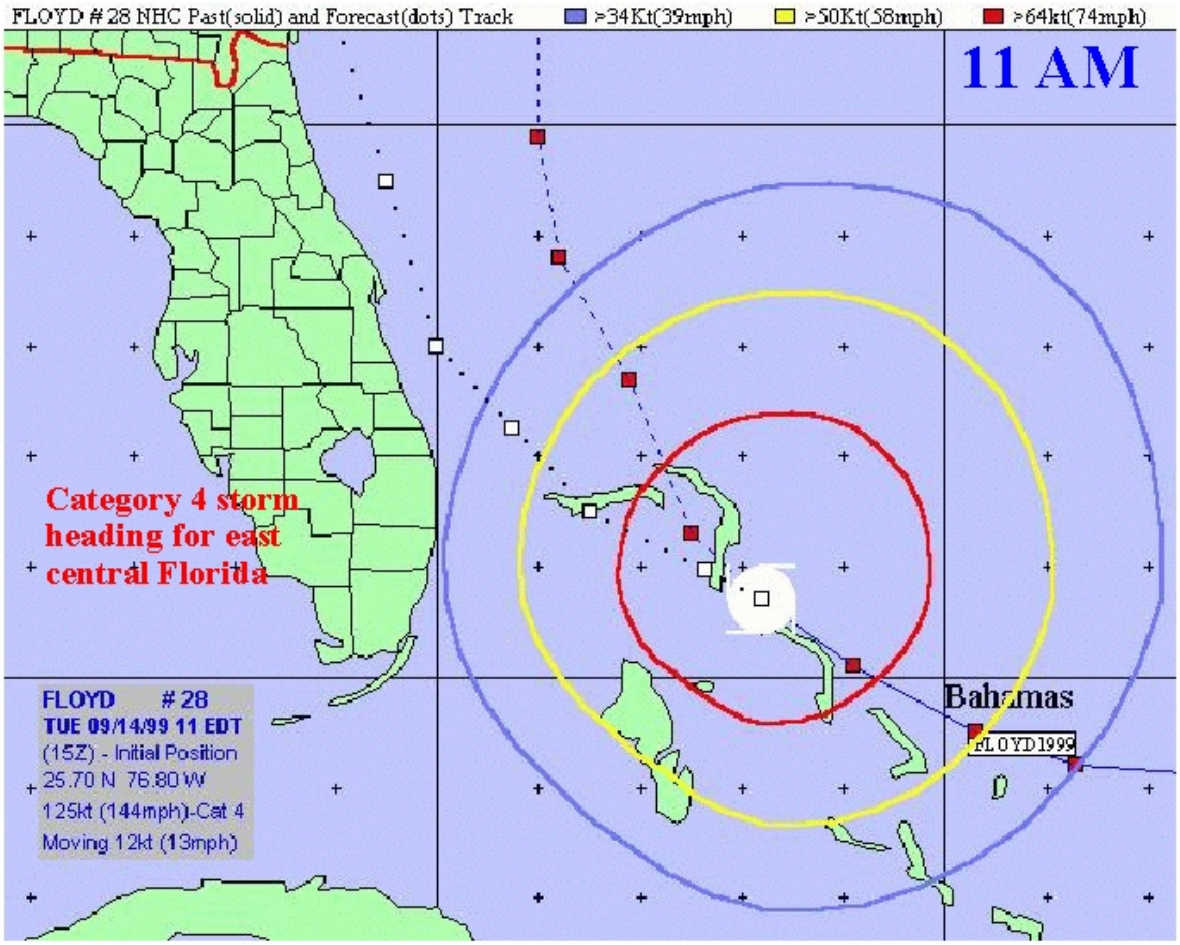
**Due to the diversity of threats, and the potential occurrence of multiple coincident threats, the text version (alone) is often insufficient to properly express all related weather concerns...**

- **The HLS (text) may become overwhelmingly large in order to accommodate detail.**
- **The HLS (text) may become overgeneralized in order to manage product length.**






The catalyst for the graphical HLS project was the changing of the ***local threat situation*** to east central Florida (local area) during Hurricane Floyd and our (in)ability to effectively communicate that information to the public.



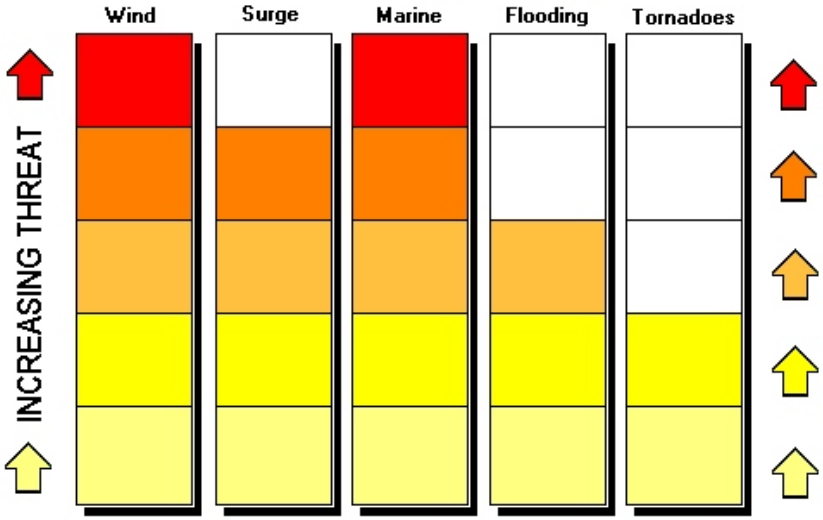

National Weather Service - Melbourne, Florida

Hurricane & Tropical Storm Hazards

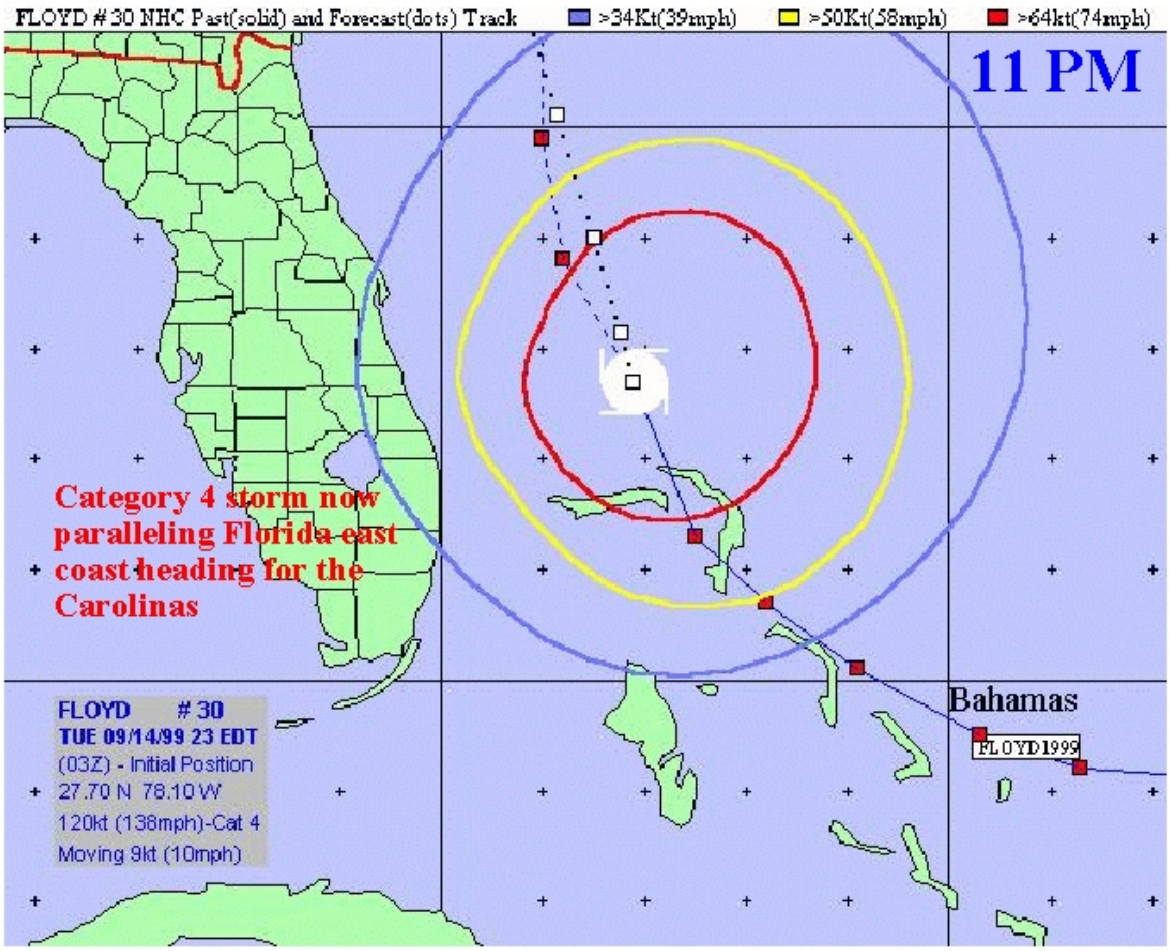
Degree of Threat (DOT)

Specific to East Central Florida

## Hurricane Floyd - 11 AM




***Local Threat Situation:*** **Glancing landfall of an (Atlantic) major hurricane whose west side will overspread the local forecast area but whose east side will generally stay over the local marine area. (The situation would, of course, be of varying difference for MIA, JAX, as well as other coastal offices.)**



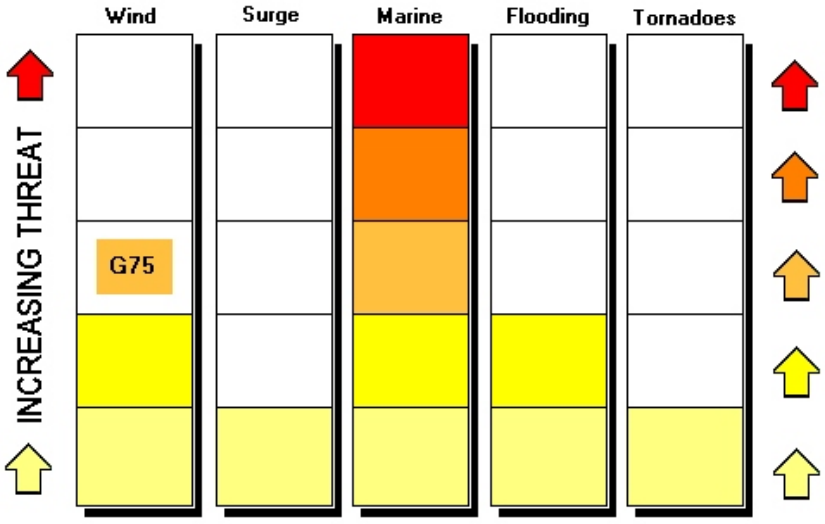

National Weather Service - Melbourne, Florida

Hurricane & Tropical Storm Hazards

Degree of Threat (DOT)

Specific to East Central Florida

## Hurricane Floyd - 11 PM

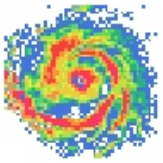



***Local Threat Situation*: (Atlantic) major hurricane whose west side will brush the local forecast area (gusts to hurricane strength near the coast) as its track parallels the Florida east coast.**

# Graphical HLS - The Premise

- **To provide a set of "experimental hazard graphics" to complement the official textual HLS.** (all related weather hazards)
- **To provide a suite of products that is desirable by the users.** (useful; easy to understand; customer feedback mechanism)
- **To exploit the display and communications capabilities of the Internet.** (usual disclaimers)
- **To support the NWS Strategic Plan.**

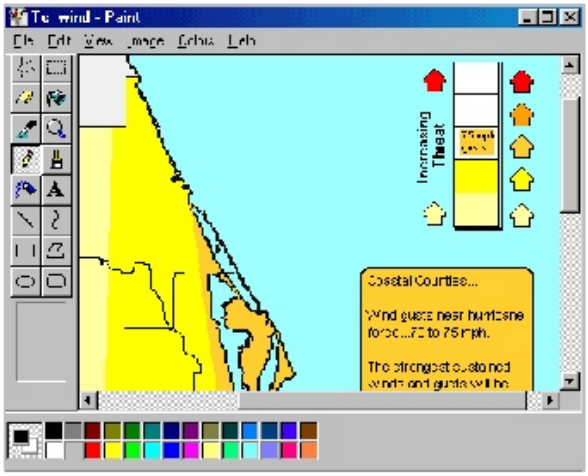
(deliver better products & services, graphic-oriented products)



## *Experimental*

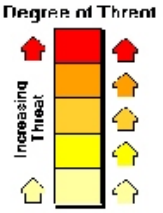
## *Graphical HLS - Layout & Design*

- "One-stop" web page concept.
- "Easy to use" & "interactive" graphics package.
- "Consistency" forecaster to forecaster and issuance to issuance.




## *Threat Graphic - DoT & TAM*

- **Degree of Threat (DoT)**
  - Depicts the greatest level of threat of a particular hazard within east central Florida.
  - Winds, Surge, Marine - Long-fused hazards.
  - Flooding Rain, Tornadoes - Short-fused hazards.




- **Threat Area Map (TAM)**
  - Depicts geographic areas at higher risk and /or delineates timing of particular hazard(s).

Hurricane Local Statement

GRAPHICAL HLS

LOCAL WIND

LOCAL SURGE

MARINE

FLOODING

TORNADOES

**GRAPHICS ISSUED:**
1130 PM FRI
OCT 15 1999 DD

TEXT VERSION

Tropical Prediction Center

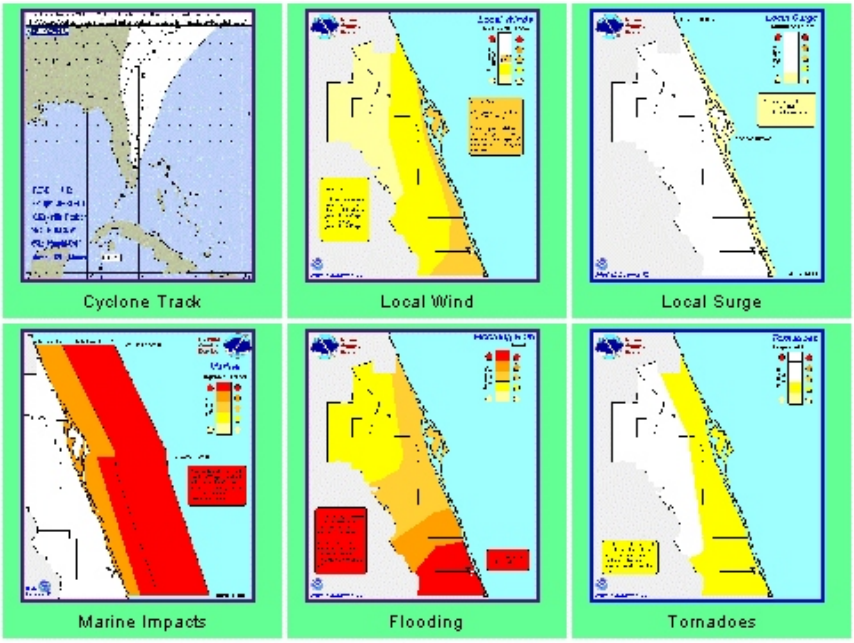
EMERGENCY PREPAREDNESS

SITUATION ROOM

**National Weather Service**
**Southern Region**
**Melbourne, Florida**

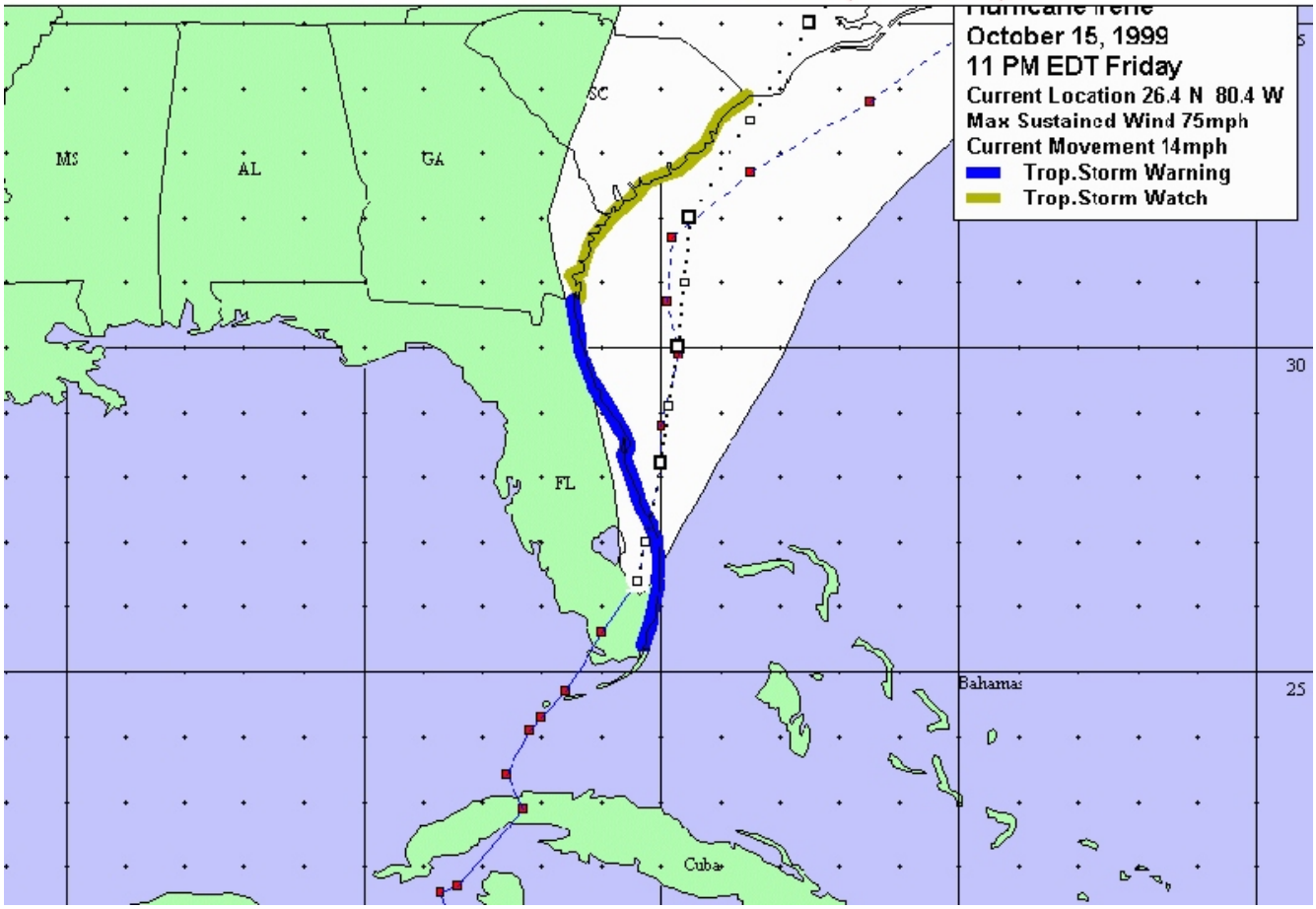
Graphical Hurricane Local Statement

*(test)* ***Hurricane Irene*** *(test)*




Click thumbnail images above for full-sized individual hazard graphic.

# Hurricane Irene (1999)



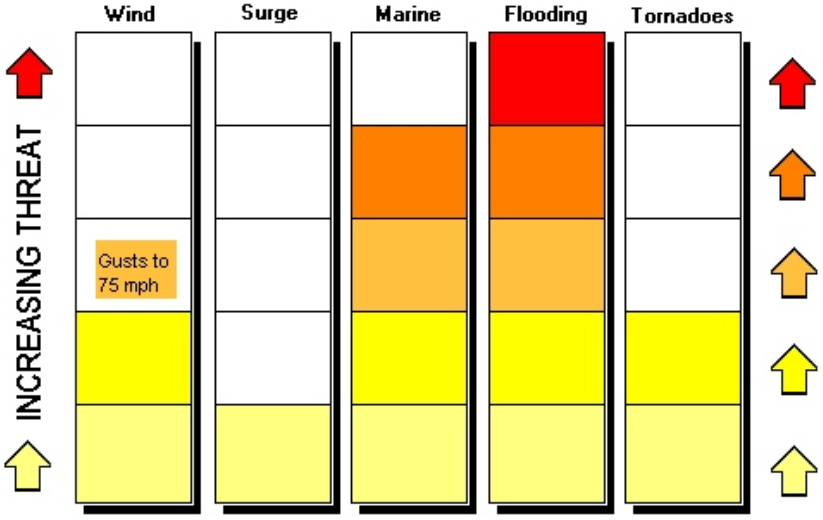
National Weather Service - Melbourne, Florida

Hurricane & Tropical Storm Hazards

**Maximum Degree of Threat (DoT)**

Specific to East Central Florida

*TEST* Hurricane Irene *TEST*




**While TPC speaks to the specifics of the cyclone (storm-centered), the field office speaks to the "*local threat situation*" based on the official track/intensity forecast (location-centered).**

Hurricane Local Statement

GRAPHICAL HLS

LOCAL WIND

LOCAL SURGE

MARINE

FLOODING

TORNADOES

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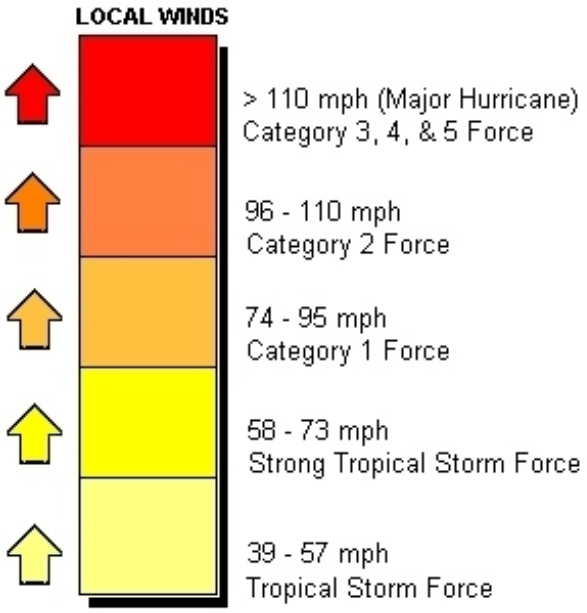
EMERGENCY PREPAREDNESS

SITUATION ROOM

## Degree of Threat & Threat Area Map

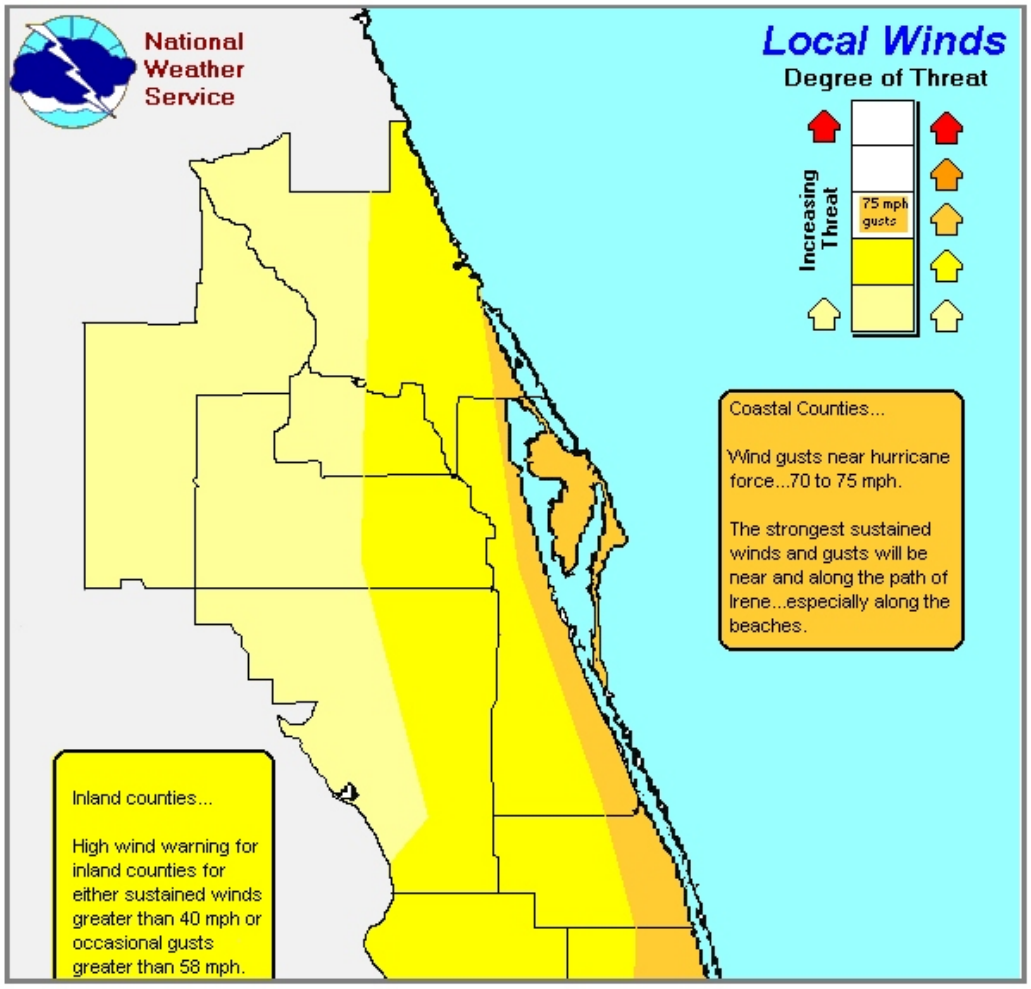
### Tropical Cyclone Hazards - Local Winds

Click thumbnail image or scroll down for full-sized graphic.




Winds = Winds associated with a tropical cyclone (highest expected anywhere within east central Florida...coastal or inland)

*Threat Graphic*




**Ability to more clearly depict the inland wind threat.**

Hurricane Local Statement

GRAPHICAL HLS

- LOCAL WIND
- LOCAL SURGE
- MARINE
- FLOODING
- TORNADOES

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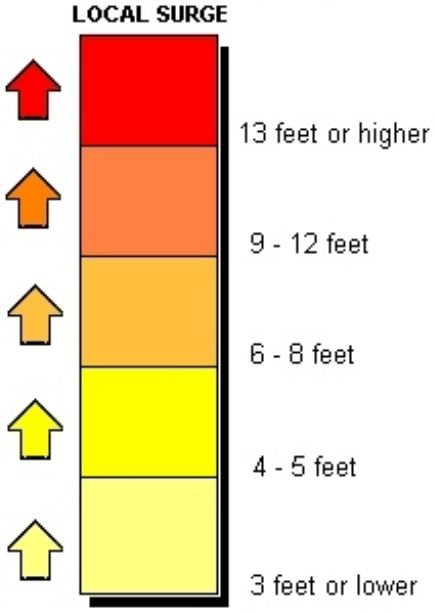
EMERGENCY PREPAREDNESS

SITUATION ROOM

# Degree of Threat & Threat Area Map

## Tropical Cyclone Hazards - Local Surge

Click thumbnail image or scroll down for full-sized graphic.




Local Surge = Storm Surge + Astronomical Tide (highest expected anywhere along the east central Florida coast)

Hurricane Local Statement

GRAPHICAL HLS

LOCAL WIND

LOCAL SURGE

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TORNADOES

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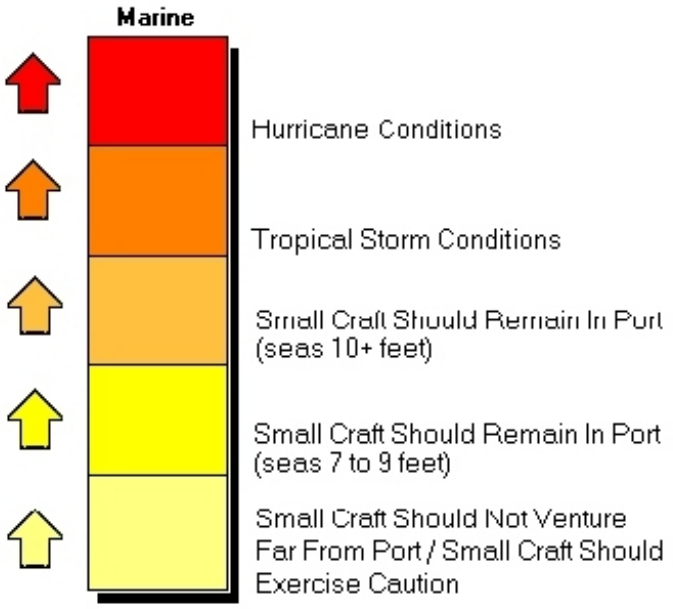
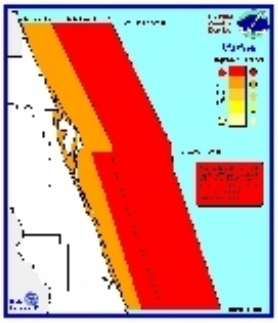
SITUATION ROOM

# Degree of Threat & Threat Area Map

## Tropical Cyclone Hazards - Marine Impacts

Click thumbnail image or scroll down for full-sized graphic.



Hurricane Local Statement

GRAPHICAL HLS

LOCAL WIND

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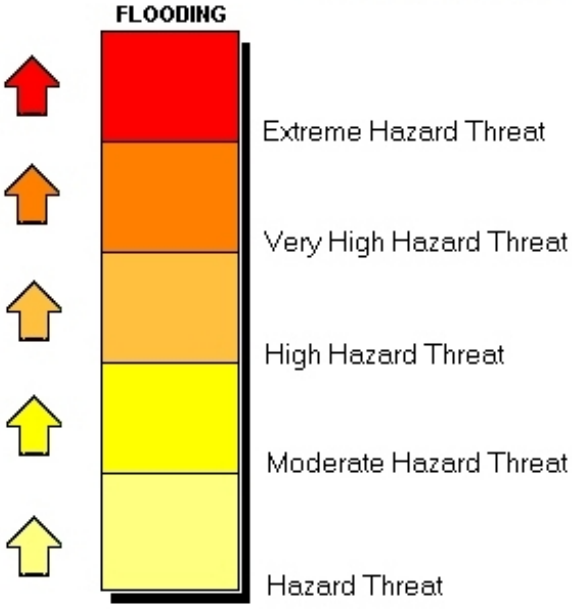
EMERGENCY PREPAREDNESS

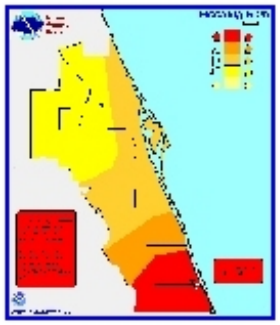
SITUATION ROOM

# Degree of Threat & Threat Area Map

## Tropical Cyclone Hazards - Flooding Rain

Click thumbnail image or scroll down for full-sized graphic.

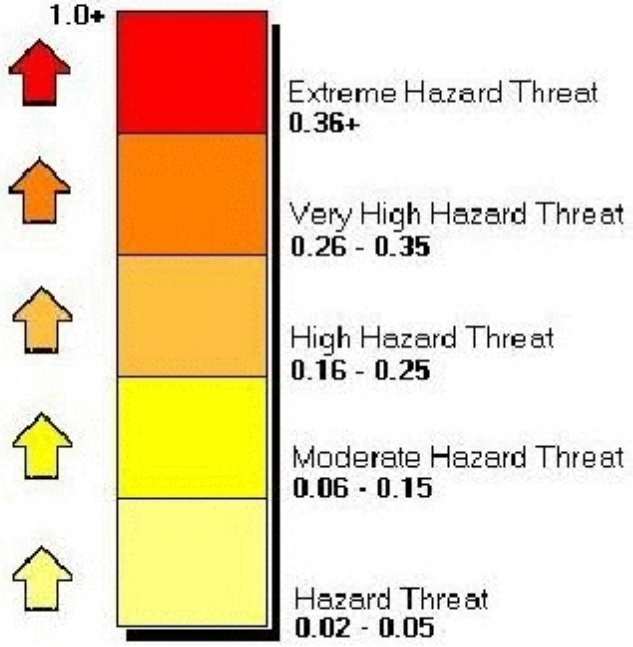


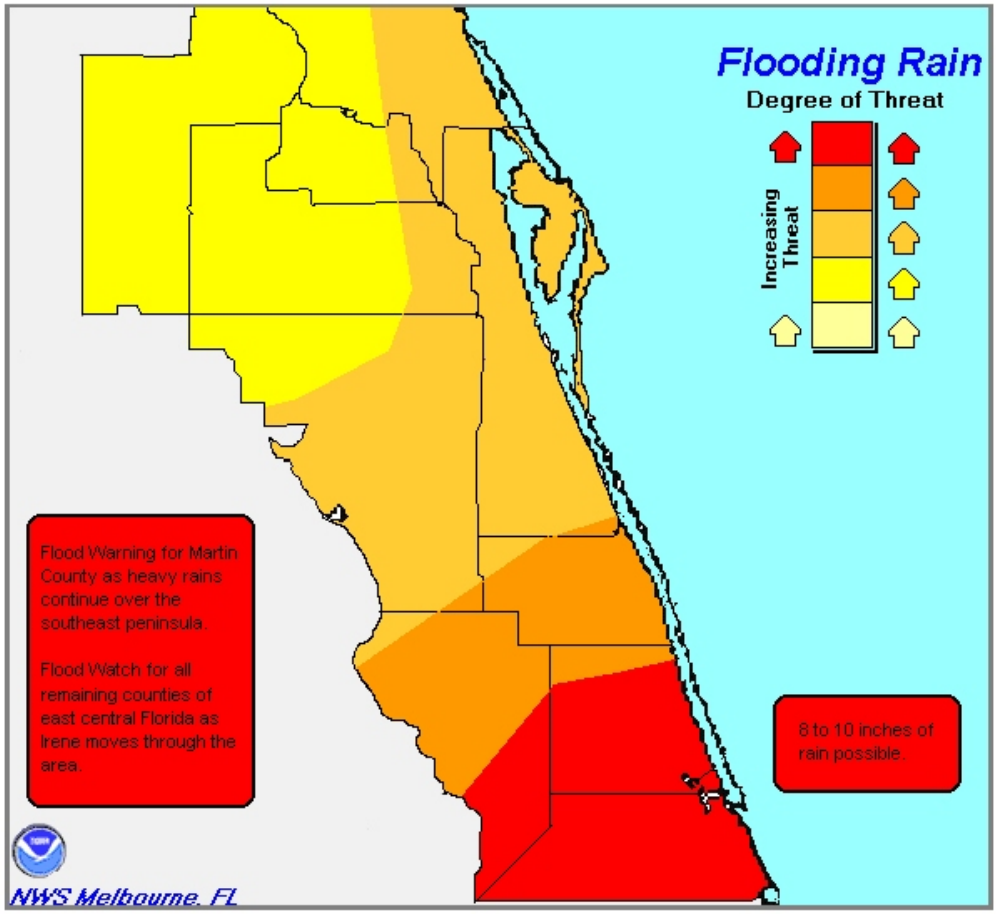
# Forecaster computation of short-fused threat levels... "flooding"

**(Flash) Flooding DoT = C ( A x B )**

| Confidence Factor | Event Occurrence | A-Value |
|---|---|---|
| Minimal Chance | 10% confidence | .1 |
| Slight Chance | 20% confidence | .2 |
| Chance | 30-50% confidence | .3, or .4, or .5 |
| Likely | 60-70% confidence | .6, or .7 |
| Categorical | 80-100% confidence | .8, or .9, or 1.0 |
| **Coverage Factor** | **ECFL Counties** | **B-Value** |
| 1 County (isolated) | 10% county coverage | .1 |
| 2 - 5 Counties (scattered) | 20-50% county coverage | .2, or .3, or.4, or .5 |
| 6 - 10 Counties (numerous) | 60 -100% county coverage | .6, or .7, or .8, or .9, or 1.0 |
| **Impact Coefficient** | **Event Thresholds** | **C-Value** |
| Some Threat to Life & Property | around Flash Flood Guidance | 1 |
| Greater Threat to Life & Property | roughly 2x Flash Flood Guidance | 1.25 |
| Greatest Threat to Life & Property | roughly 3x Flash Flood Guidance | 1.5 |



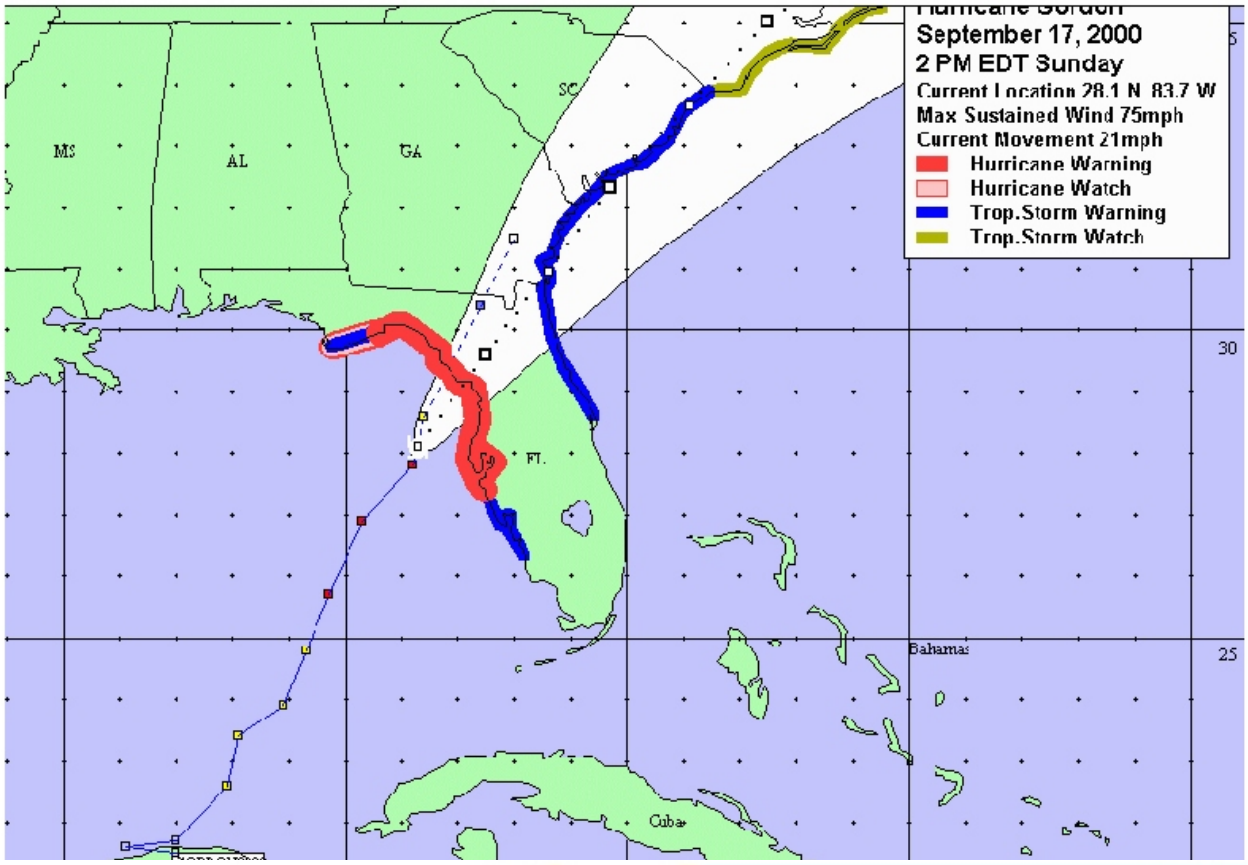

*Threat Graphic*




**Not a direct "QPF"**

**Not necessary to change to Saffir-Simpson Scale to include flooding rain.**

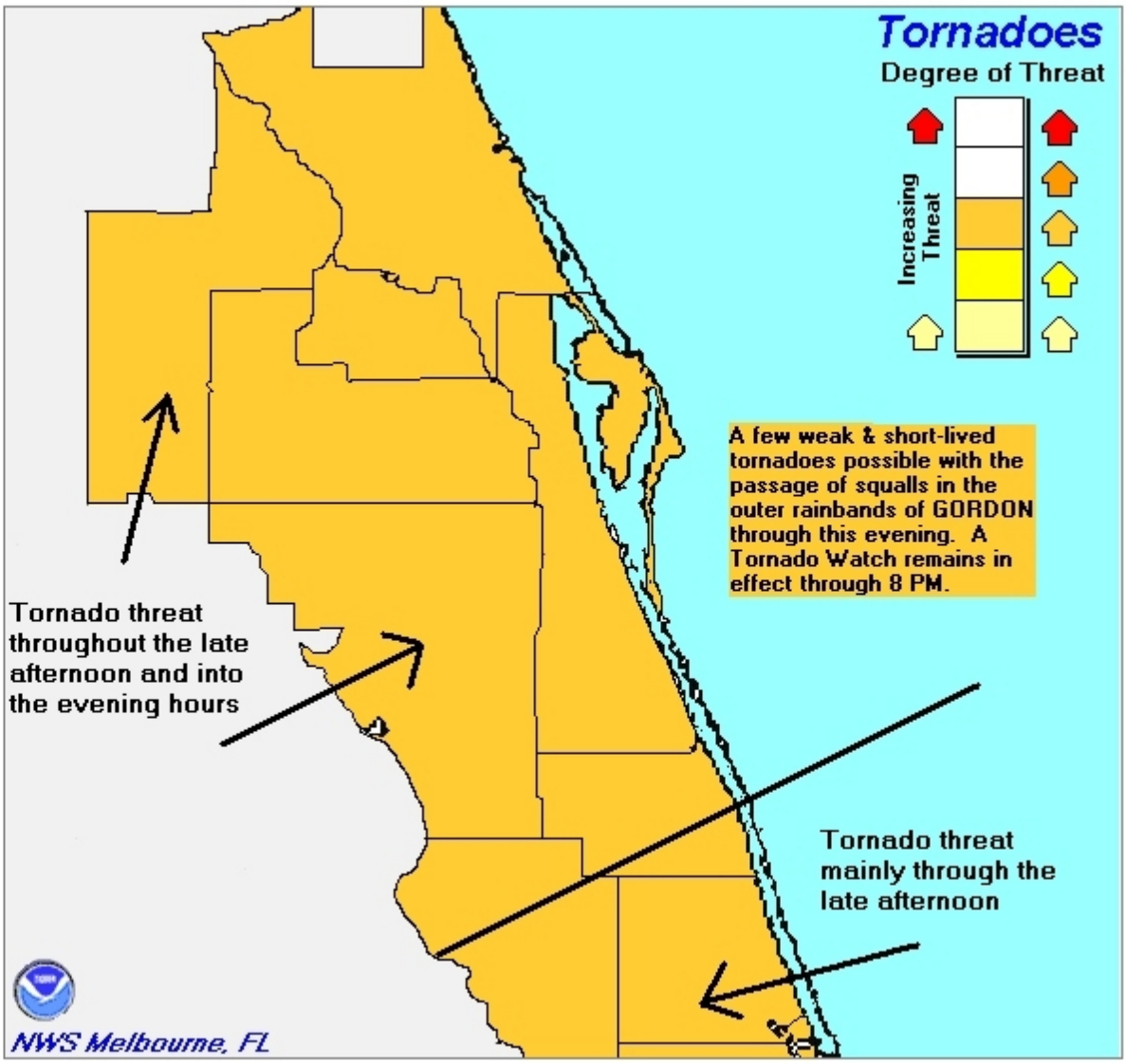
# Hurricane Gordon (2000)




**Tornado Watch for all ECFL.**

**Equal threat for the entire forecast area as rainbands rotate from south to north through ECFL.**

**Timing of the threat...for south area during the late afternoon but continuing into the evening for the north area.**



# Forecaster computation of short-fused threat levels... "tornadoes"

**Tornadoes DoT = C ( A x B )**

| Confidence Factor | Event Occurrence | A-Value |
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| Slight Chance | 20% confidence | .2 |
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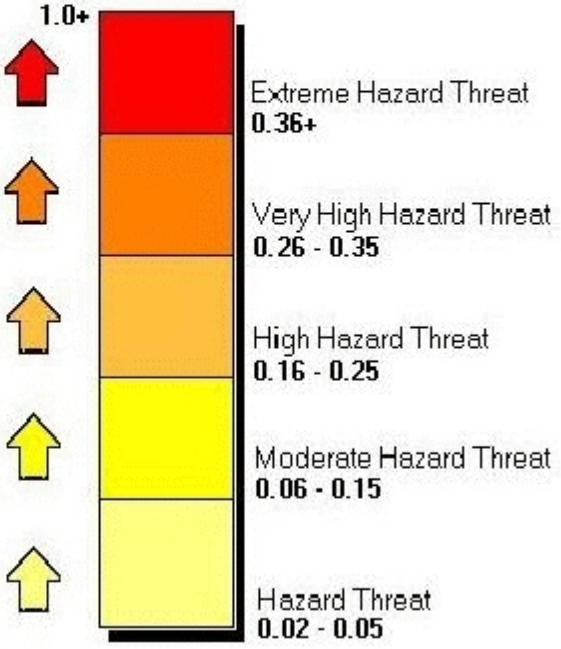
| 6 - 10 Counties (numerous) | 60 -100% county coverage | .6, or .7, or .8, or .9, or 1.0 |
| **Impact Coefficient** | **Event Thresholds** | **C-Value** |
| Some Threat to Life & Property | one or more F0/ F1 tornado | 1.25 |
| Greater Threat to Life & Property | one or more F2+ tornado or an outbreak F0/F1 | 1.5 |




## ...The Future of the Graphical HLS...

- **Product Standardization**
  **WFO MLB (SR) & WFO AKQ (ER) "test bed"**
- **Transition to AWIPS Platform**
  **simplify production & dissemination**
- **Forecaster Training**
  **methodology & mechanics**