WMO Workshop

Partnership and Coordination With Emergency Management
Miami-Dade County Overview

- 2,000 square miles
- World’s busiest cruise port
- 2.6 million residents
- Second busiest US airport for international travelers
- Gateway to the Caribbean and Latin America
### Natural Hazards Risks

<table>
<thead>
<tr>
<th>Probability</th>
<th>Consequence</th>
<th>Impact Analysis</th>
<th>Capabilities &amp; Capacity</th>
<th>Mitigation</th>
<th>Hazard Consequence &amp; Impact Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Droughts</td>
<td>38%</td>
<td>38%</td>
<td>15%</td>
<td>29%</td>
<td>82%</td>
</tr>
<tr>
<td>Extreme Cold</td>
<td>17%</td>
<td>11%</td>
<td>15%</td>
<td>29%</td>
<td>82%</td>
</tr>
<tr>
<td>Extreme Heat</td>
<td>75%</td>
<td>16%</td>
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<td>29%</td>
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<tr>
<td>Flooding</td>
<td>50%</td>
<td>27%</td>
<td>38%</td>
<td>53%</td>
<td>93%</td>
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<tr>
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<td>9%</td>
<td>38%</td>
<td>51%</td>
<td>82%</td>
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<tr>
<td>Hurricanes &amp; Tropical Storms</td>
<td>89%</td>
<td>64%</td>
<td>58%</td>
<td>68%</td>
<td>84%</td>
</tr>
<tr>
<td>Lightning</td>
<td>75%</td>
<td>18%</td>
<td>15%</td>
<td>29%</td>
<td>82%</td>
</tr>
<tr>
<td>Winter Weather / Ice</td>
<td>5%</td>
<td>16%</td>
<td>15%</td>
<td>29%</td>
<td>82%</td>
</tr>
<tr>
<td>Sinkholes / Erosion</td>
<td>1%</td>
<td>13%</td>
<td>15%</td>
<td>29%</td>
<td>82%</td>
</tr>
<tr>
<td>Space</td>
<td>1%</td>
<td>7%</td>
<td>23%</td>
<td>29%</td>
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</tr>
<tr>
<td>Tornadoes</td>
<td>20%</td>
<td>20%</td>
<td>38%</td>
<td>53%</td>
<td>82%</td>
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<tr>
<td>Tsunami</td>
<td>13%</td>
<td>24%</td>
<td>24%</td>
<td>53%</td>
<td>N/A</td>
</tr>
<tr>
<td>Volcano (Ash)</td>
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<td>4%</td>
<td>15%</td>
<td>37%</td>
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<tr>
<td>Windstorm</td>
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<tr>
<td>Wildfires</td>
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<td>24%</td>
<td>57%</td>
<td>82%</td>
</tr>
<tr>
<td>Earthquakes</td>
<td>5%</td>
<td>4%</td>
<td>24%</td>
<td>57%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Natural Hazards

- **Droughts**: 38% probability, 38% potential magnitude, 15% frequency, 29% impact rating, 82% impact score, overall risk score 40%.
- **Extreme Cold**: 17% probability, 11% potential magnitude, 15% frequency, 29% impact rating, 82% impact score, overall risk score 23%.
- **Extreme Heat**: 75% probability, 16% potential magnitude, 15% frequency, 29% impact rating, 82% impact score, overall risk score 52%.
- **Flooding**: 50% probability, 27% potential magnitude, 38% frequency, 53% impact rating, 93% impact score, overall risk score 53%.
- **Hailstorms**: 69% probability, 19% potential magnitude, 24% frequency, 51% impact rating, 82% impact score, overall risk score 53%.
- **Heavy Rain**: 50% probability, 9% potential magnitude, 38% frequency, 51% impact rating, 82% impact score, overall risk score 42%.
- **Hurricanes & Tropical Storms**: 89% probability, 64% potential magnitude, 58% frequency, 68% impact rating, 84% impact score, overall risk score 75%.
- **Lightning**: 75% probability, 18% potential magnitude, 15% frequency, 29% impact rating, 82% impact score, overall risk score 45%.
- **Winter Weather / Ice**: 5% probability, 16% potential magnitude, 15% frequency, 29% impact rating, 82% impact score, overall risk score 13%.
- **Sinkholes / Erosion**: 1% probability, 13% potential magnitude, 15% frequency, 29% impact rating, 82% impact score, overall risk score 45%.
- **Space**: 1% probability, 7% potential magnitude, 38% frequency, 37% impact rating, 50% impact score, overall risk score 5%.
- **Tornadoes**: 20% probability, 20% potential magnitude, 38% frequency, 53% impact rating, 82% impact score, overall risk score 53%.
- **Tsunami**: 13% probability, 24% potential magnitude, 15% frequency, 37% impact rating, 57% impact score, overall risk score 24%.
- **Volcano (Ash)**: 1% probability, 4% potential magnitude, 15% frequency, 37% impact rating, 85% impact score, overall risk score 5%.
- **Windstorm**: 50% probability, 18% potential magnitude, 38% frequency, 57% impact rating, 82% impact score, overall risk score 48%.
- **Wildfires**: 38% probability, 13% potential magnitude, 24% frequency, 57% impact rating, 82% impact score, overall risk score 53%.
- **Earthquakes**: 5% probability, 4% potential magnitude, 24% frequency, 57% impact rating, 82% impact score, overall risk score 12%.
Storm Surge Planning VS. Evacuation Planning
Map Report

Storm Surge Planning Zone:

- Zone: C
- Color: Yellow
- Grid: C35
Storm Surge Simulator

Which hurricane category?
- Category 5

What type of structure?
- Person
- House
- Villa

Projected storm surge depth:

Projected Storm Surge Inundation: 6 ft

Legend:
- 1 foot
- 2 feet
- 3 feet
- 4 feet
- 5 feet
- 6 feet
- > 7 feet

Additional Information:
The color-coded zones on the map illustrate a worst case snapshot for a hurricane category under "perfect" storm conditions.

The Storm Surge Simulator is a public service provided by Florida International University.
“The quintessential purpose of conducting a risk assessment is to ensure decision-making is not done in a vacuum”
PROTECTIVE ACTION DECISIONS

THE CHALLENGE

- Consistently
- Interpret data correctly
- Reach defensible conclusions
- Communicate the data effectively
SALT is a planning tool to provide emergency managers a schedule of key activities that must be accomplished to prepare for the storm and their decision time. The schedule is based on an objective analysis of when an activity must commence in order to fully accomplish the task prior to arrival of tropical storm winds. The official National Hurricane Center and National Weather Service forecasts are the exclusive storm forecasts data entered into the application.
STORM ACTION LEAD TIME

- SALT assists in this decision making process by organizing and identifying planning milestones and decision times.
- The lead times determined by SALT should be considered tentative and subject to change.
## Clearance Times

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lead Time</th>
<th>Zone</th>
<th>Lead Time</th>
<th>Zone</th>
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<td>37</td>
<td>D</td>
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<td>Out-of-County</td>
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<td>28</td>
<td>37</td>
<td>56</td>
<td>73</td>
<td></td>
<td></td>
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</tbody>
</table>
NWS Graphics and Forecast Products

- With tropical storms and hurricanes, it’s all about impacts.
- Utilized to execute our plans
- Potential Impact Graphics depict the worst of all plausible impacts and scenarios.
Storm Intensity

At least Cat 3 Threat?

FORECAST VALID XX/XX00Z 31.4N 77.5W
MAX WIND XXX KT...GUSTS XXX KT.

OR

Storm Intensity

At least Cat 3 Threat?

FORECAST VALID XX/XX00Z 31.4N 77.5W
MAX WIND XXX KT...GUSTS XXX KT.

OR
Clearance Times

**FORECAST VALID XX/XX00Z 31.4N 77.5W**

**MAX WIND XXX KT...GUSTS XXX KT.**
Wind Probabilities

64Kts Incremental WSP >= 15%

<table>
<thead>
<tr>
<th>Period</th>
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<tr>
<td>00-12 hr</td>
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<td>30%</td>
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<td>36-48 hr</td>
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<td>48-60 hr</td>
<td>10%</td>
<td>22.5%</td>
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<tr>
<td>61-72 hr</td>
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<td>73-84 hr</td>
<td>7%</td>
<td>17.5%</td>
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<td>85-96 hr</td>
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<tr>
<td>97-108 hr</td>
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<td>12.5%</td>
</tr>
<tr>
<td>109-120 hr</td>
<td>4%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Coastal Flooding (i.e., Inundation) Impact

Elevated – an elevated threat to life and property; reasonable chance of combined storm surge and tide resulting in sea water inundation of 1 – 3 ft.

PSurge2.0 in 10% Exceedance Cumulative Form

Inundation Impact in zone A, B, or C >= “Elevated”?
Implementing Protective Actions
Community Services
Find government facilities & services near you

6220 sw 144 street
Search

Map Tools  Base Maps

Storm Surge Planning Zones  Potential Nuclear Radiation Hazard  Evacuation Centers  Evacuation Bus Pick-Up Sites

Government  Emergency Management  Garbage & Recycling  Education  Libraries  Parks & Culture  Public Safety  Water & Sewer  Demographics  Show All

Government

Evacuation Centers
See News for details on Evacuation Center
Jorge Mas Canosa Middle (2.5 miles)
15793 sw 144 st
Robert Morgan Sr High (2.8 miles)
18180 sw 122nd avenue
Calusa Elementary (2.9 miles)
9580 w calusa club dr

Storm Surge Planning Zones
You are in mandatory evacuation zone.
Zone: D
Color: Green
Grid: E25

Mobile home residents and people on electrically dependent life sustaining medical equipment should evacuate when any hurricane evacuation order is issued, regardless of their storm surge planning zone.

Potential Nuclear Radiation Hazard
The location entered is not within a Potential Nuclear Radiation Hazard boundary.
Radius: 15 miles
Sector: N/A Direction: N/A
Hurricane Irma
Hurricane Irma

- On Monday, September 4, Miami-Dade County is within the 5-day forecast cone of Major Hurricane Irma
- The Miami-Dade Office of Emergency Management initiated preparatory actions
- Governor Scott issues Executive Order #17-235 declaring a state of emergency for all 67 Florida counties
Hurricane Irma

- On Wednesday September 6, the Miami-Dade EOC is activated to Level 1 (Full-Scale)
- Transportation of special needs clients has commenced
- 3 General population & 1 Pet Friendly Evacuation Center are opened
- That evening an evacuation order is issued for portions of Zone A and the Barrier Islands
Hurricane Irma

- On Thursday September 7, Hurricane Irma is a category 5 hurricane with maximum sustained winds of 185 mph. It continues on a WNW track towards Miami-Dade County.
- A total of 1,717 evacuees and 14 pets are in 8 evacuation centers.
- The County Mayor expands the mandatory evacuation to include all of Zone A, all of Zone B and portions of Zone C.
Hurricane Irma

- 31,000 evacuees
- 43 Evacuation Centers opened
- 38 General Population
- 4 Pet Friendly Evacuation Centers
- 1 Medical Evacuation Center
- 270 electrically dependent evacuees in 22 county hospitals
United Way
- Delivered food to 32 Miami-Dade County evacuation centers
- Distributed 31,214 MREs to evacuation centers, assisted living facilities and other community organizations
- Provided volunteers to distribute 340,780 lbs. of ice across 13 districts in Miami-Dade County
- Distributed 3,320 nonperishable food items

Salvation Army
- 14,648 meals
- 14,648 drinks
- 12,293 snacks
- 1,620 MREs
Hurricane Irma Recovery

- The Small Business Administration has approved 5,482 disaster loans worth $195 million for Miami-Dade County residents & businesses
- 599,000 residents have applied for FEMA Individual Assistance
- 102 applicants for FEMA Public Assistance within Miami-Dade County worth $750,860,756
- four million cubic yards of hurricane debris from the 320 square miles of county roads.
- $168 million in mitigation funding
Contact Information

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• cyrille@miamidade.gov