Predictive Impacts & Pro-Active Planning

David Vanderbloemen, Principal Consultant at DV Consulting, LLC & Retired, Dominion Energy, Electric Sector, 30+ yrs

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Introduction

Predictive Impacts & Pro-Active Planning

Using Data From the Past to
Predict The Future

Background

Background

Are you maximizing available data to ensure your team is laser focused on preparing for the next event?

Learn how to use Innovative Technology to help Raise Credibility and Trust When it Matters Most to your Key Stakeholders

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Learn how to use Innovative Technology to help Raise Credibility and Trust When it Matters Most to your Key Stakeholders

Learning Objectives

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This training will show you how to:

1. Develop Proactive Storm Planning by Leveraging Data and Technology to
2. Provide a common picture (tools or tool kit) that
3. Align your team, builds confidence in the process, and
4. Improves overall messaging to all stakeholders involved

Overview

Overview

- No plan = No clue
- Build credibility and trust with internal and external stakeholders
- Ensuring senior leadership is in-sync

Understand Weather On Your Operations

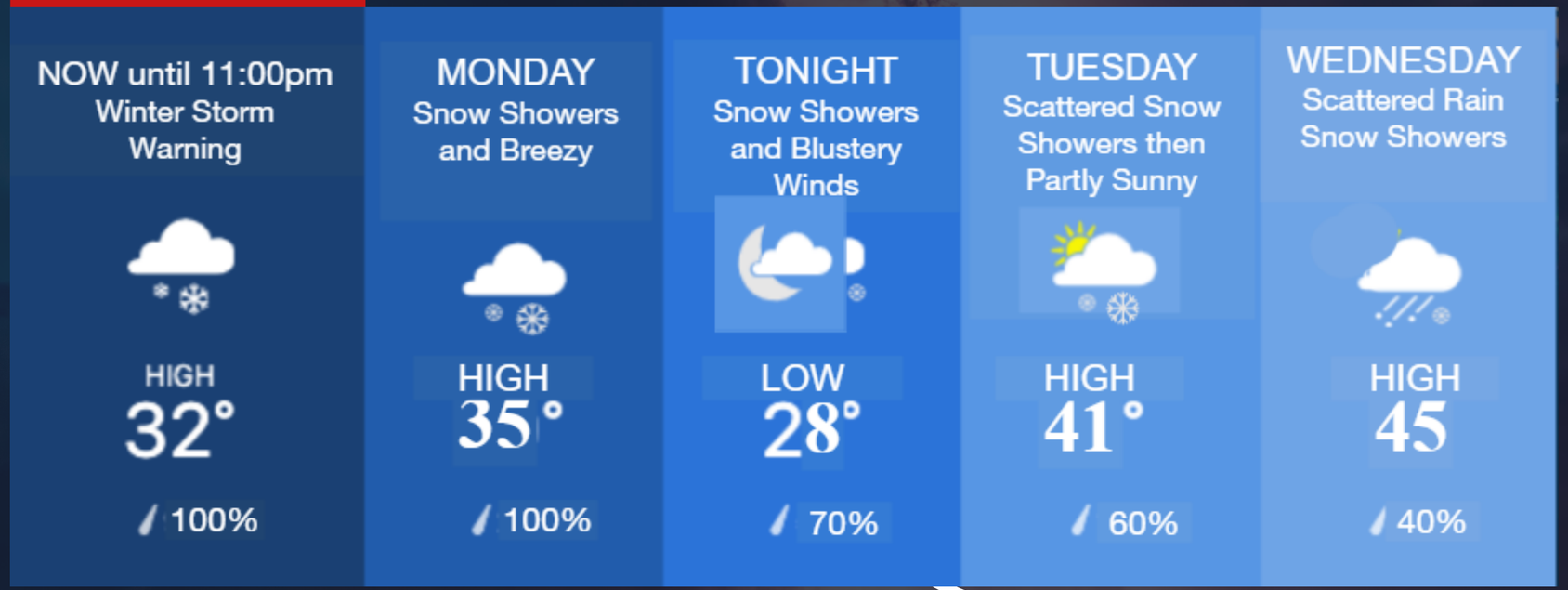
Understand the real connection between weather and your operations

What does it mean to your operation?
How much snow?
Dry or wet?

What is the wind duration?
Is this speed even impactful?

Do you need to worry about:
Snow showers? Blustery winds?
What is the potential threat?

Winter Warning



Northwest wind 22 to 29 mph with gusts as high as 46 mph

Do I need to mobilize for “some thunder”?
Even if wind speeds are low?

Some thunder possible. South wind 5 to. 7 mph

Myths

Myths

1. “I can’t trust the data. too much of it”
2. "I can’t afford to do this”
3. “I don’t have time to invest in this”

Myth

“I can’t trust the data. too much of it”

Data Confidence Data Standard - ORL

- Operational Readiness Standard (ORL)

- https://www.ahcusa.org/orl-data-standard.html

Myth

"I can’t afford to do this”

Business Case for Cost Justification

- You are probable already spending/wasting the funds you need
- Financial
  - What does an event cost your company?
  - What does a 1 hr. delay cost?
  - Logistics costs?
  - Resources costs?
  - Liability with mutual assistance partners/suppliers?
- Safety
  - Accidents, Hospital bills, legal costs
- Brand Impact
  - Reputation, Social Media, Customer Satisfaction

Myth

“I don’t have time to invest in this”

AARs

- What’s a bad one?
  - No documents, did not prioritize
  - Can use going forward
- What’s a good one?
  - Documents
  - Prioritized tasks

Predictive Damage Impacts

Predictive Damage Impact

1. Data – Get it right!
    - Weather data – specific to each individual event
    - Historical Impact data
2. The tool should be scalable!
    - Avoid trying for the perfect forecast!
3. Leverage GIS

Predictive Damage Impact

Data – Get it right!

- Weather data – specific to each individual event
- Historical Impact data

Predictive Damage Impact

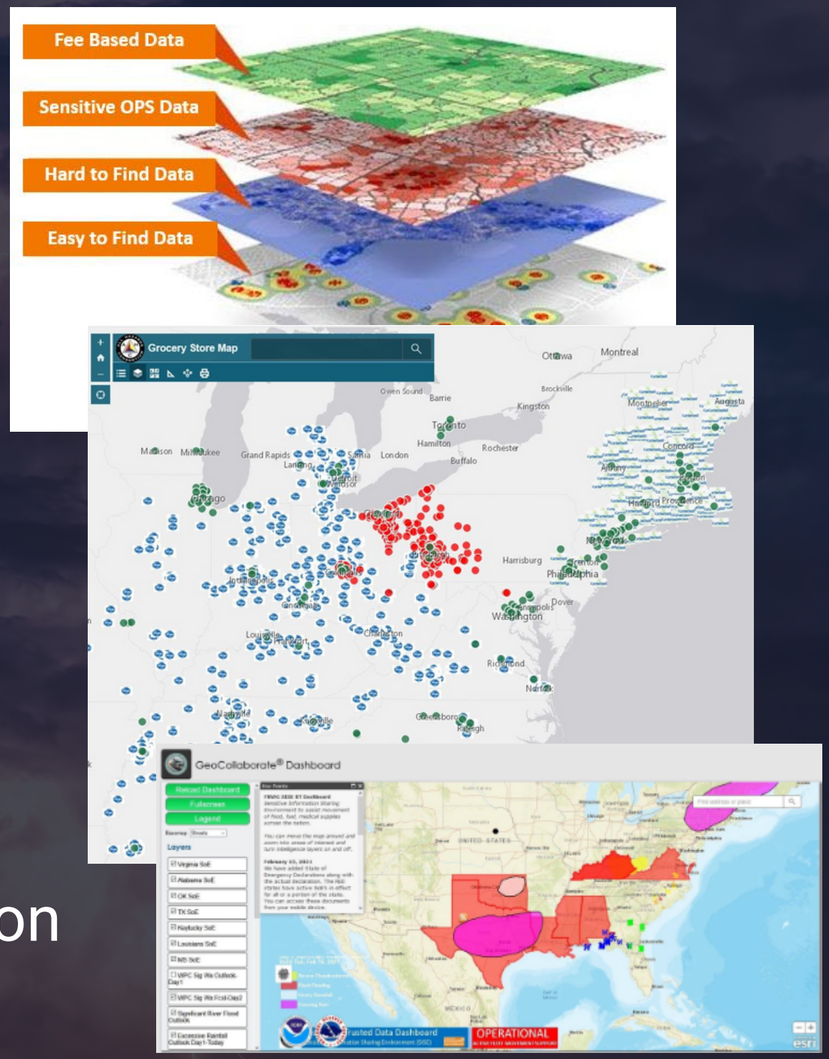
The tool should be scalable!

- Avoid trying for the perfect forecast!

Predictive Damage Impact

Leverage GIS Technology

- What is GIS (Geographic Information System)?
- A picture of data is worth a thousand words
- You can integrate data easily into the GIS picture
- Allows you to scale to larger audiences
- Increases security on certain information
- Build GIS dashboards for the specific audiences
- Build them once… enjoy them for years to come
- The support future training and exercises
- Executives love simple, understandable information



Predict and monitor outages with higher confidence

Most accurate weather

Numerous weather forecasts with a granularity down to 500 m²

Vegetation insights

State of the vegetation across the grid and proximity to power assets

Damage forecasts

Asset health, failure prediction, and the type of restoration required

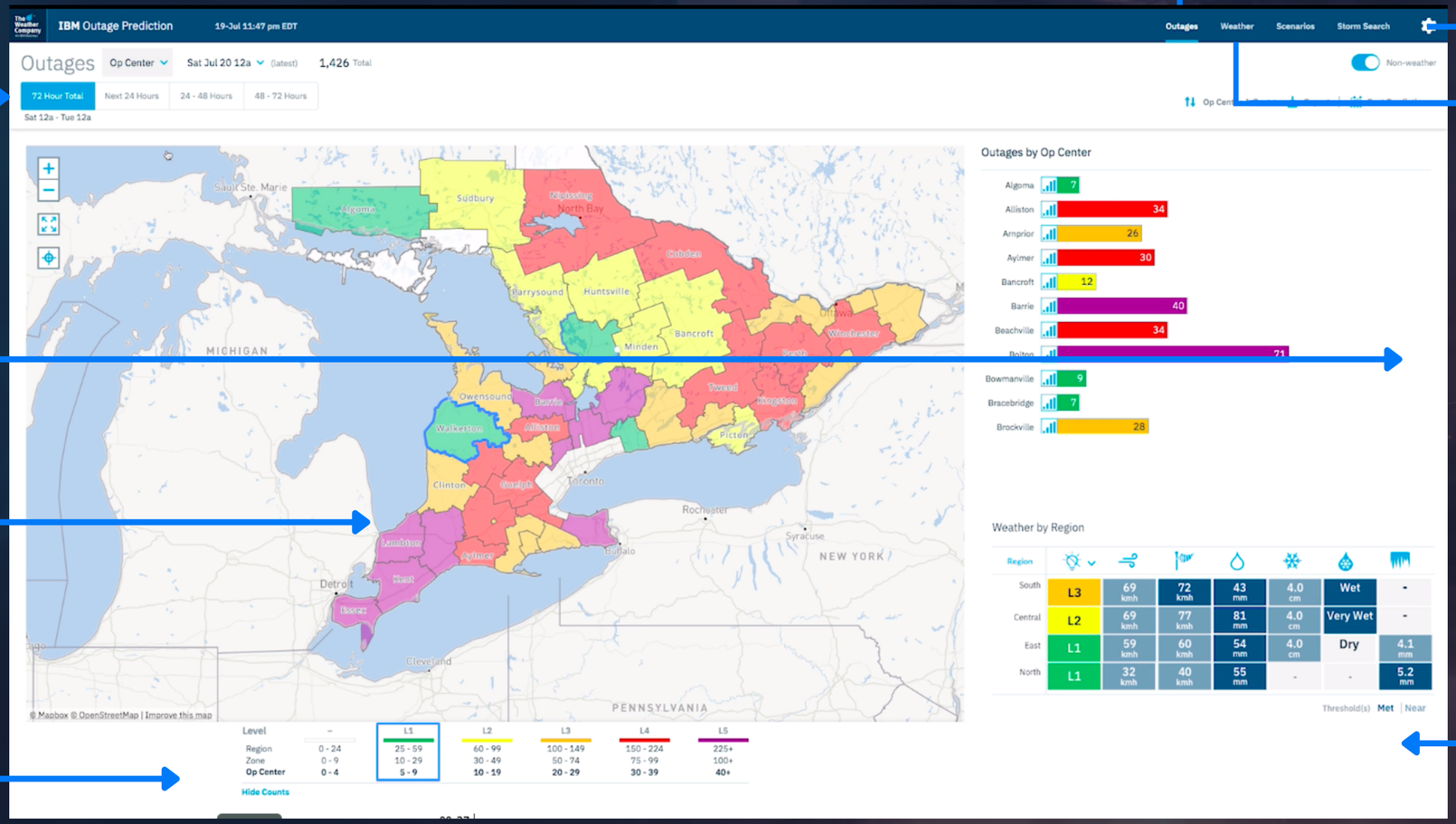
Translate weather information into actionable intelligence

Predictions over the next 7 days, updating hourly as weather models update in real-time

Predicted outages across your service territory

Outages by regions, zones, and operation centers

Outage counts and mobilization levels



Access both ‘Forecast’ and ‘Observed’ weather

Scenario Planning prepares you for best and worst-case scenarios by looking at variable factors .

Scenario Planning prepares you for best and worst-case scenarios by looking at variable factors .

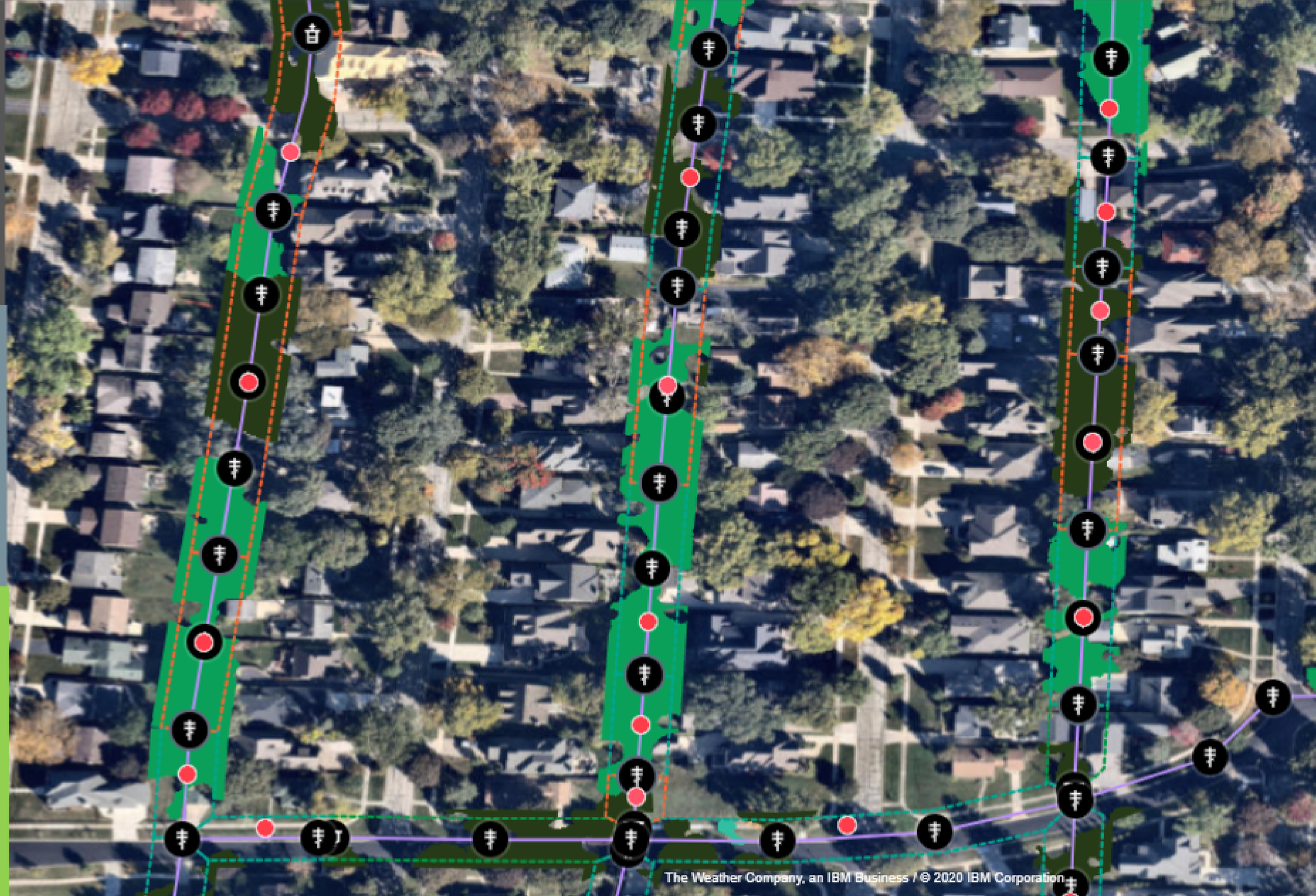
Weather conditions causing the outages

The Weather Company, an IBM Business / © 2020 IBM Corporation

Customer assets and population density

500m Weather Observations and Forecasts

Vegetation and soil moisture data



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Proactive Planning

Proactive Planning

1. Build Checklists to ensure consistency
2. Build Actionable Dashboards
    - Avoiding miscommunication
    - Provide a Common Operating Picture
    - Save time and money
3. Ensure Unity of Messaging

Proactive Planning

Build Checklists to ensure consistency

Sample Checklists

CODE BLUE Weather Threat Cl

LOCAL OFFICE / RESTORATION MANAGER

- ☐ Ensure adequate staffing for initial respons
  Increase of manning levels should be discu
- ☐ Notify restoration team of possible storm ac
- ☐ Communicate to ROC any Restoration Man
  response for Supervisor (Duty, Back-up, an
- ☐ Do not expect "Code Blue Warning" page, u

DESIGN

- ☐ Notify patrol/scout team of possible storm a

ROC

- ☐ Ensure adequate staffing for dispatching ar
- ☐ Notify team of possible storm activity and b
- ☐ Communicate to System Storm Center any
- ☐ Do not send "Code Blue Warning" page, un

REGIONAL STORM CENTER

- ☐ Be prepared for Storm Center opening, if re

CODE YELLOW Weather Threat C

LOCAL OFFICE / RESTORATION MANAGER

- ☐ Ensure ALL shifts are filled. Discuss witl
  resources as needed to after-hour comp
  anticipated impact of storm at each offic
- ☐ Be prepared to open local office *(after ho*
  hours.
- ☐ Identify all key roles and populate RoD w
- ☐ Notify restoration team of possible storm
  callouts, as required.
- ☐ Communicate to ROC any local office ke
  tiered response for Supervisor (Duty, Ba

DESIGN

- ☐ Notify Design leadership team (by regior
- ☐ Affected offices should alert Designers f
- ☐ Be prepared for various storm roles, inclu
- ☐ Identify Patrol Manager and populate Ro

ROC

- ☐ Send "Code Yellow Warning" to appropri
  affected offices.
- ☐ Ensure all shifts are filled; add additional
  period. EOC/Priority phone lines appropr
- ☐ Communicate with System Storm Center
- ☐ Notify team of possible storm activity and

REGIONAL STORM CENTER

- ☐ Duty Team will plan to open Storm Cente
- ☐ Communicate with ROC Manager any up

CODE RED Weather Threat Checklist

LOCAL OFFICE / RESTORATION MANAGER

- ☐ Ensure all shifts are filled. Discuss with ROC or Regional Storm Center adding additional resources as needed to after-hour complement. Start time should coincide with anticipated impact of storm at each office.
- ☐ Be prepared to open local office *(after hours)*, with all key storm personnel identified and contacted by local Restoration Manager.
- ☐ Identify all key roles and populate RoD with hourly and salaried teams.
- ☐ Communicate to Regional Storm Center any local office change of assignment. Prepare for conference call(s) for final planning and discussion. *(This may involve preparations to travel to other affected areas.)*
- ☐ If your office is identified as one of the affected offices, prepare for 24-Hour coverage *(Rolling Storm Mode)*.

DESIGN

- ☐ Notify Design leadership team (by region) of predicted storm activity. Be prepared for various storm roles, including but not limited to Patrol and Scout.
- ☐ Affected offices should identify patrol teams for restoration support.
- ☐ Plan for deployment of any unaffected offices to affected areas.
- ☐ Identify all key roles and populate RoD.
- ☐ Communicate to Regional Storm Center any local office change of assignment. Prepare for conference call(s) for final planning and discussion. *(This may involve preparations to travel to other affected areas.)*

ROC

- ☐ Send "Code RED Warning" to appropriate paging group, with e-mail. Specify affected offices.
- ☐ Ensure all shifts are filled. Add additional resources as needed for anticipated time period.
- ☐ Notify team of possible storm activity and be ready for additional callout or be prepared to move into "Rolling Storm Mode" or to support other Regions.
- ☐ Communicate with System Storm Center any changes or staffing assignments.
- ☐ Communicate to Regional Storm Center any local office change of assignment. Prepare for conference call(s) for final planning and discussion. *(This may involve preparations to travel to other affected areas)*

REGIONAL STORM CENTER

- ☐ Duty Team will plan to open Storm Center at identified time.
- ☐ Communicate with ROC Manager any assignment changes.
- ☐ Initiate conference call with Restoration Managers to finalize plan, as necessary.
- ☐ Plan to join Operational or Systemwide conference calls with System Storm Center.

SYSTEM STORM CENTER

- ☐ Review line & tree resource coverage and availability by region. Determine if off-system contractors or mutual aid resources will be needed.
- ☐ Host Operational or Systemwide conference calls with System Storm Center and Restoration Managers to finalize plan, as necessary.
- ☐ Create event in RoD.

Proactive Planning

Build Actionable Dashboards

- Helps to avoid Avoiding miscommunication
- Provide a Common Operating Picture
- Save time and money

Hurricane Dashboard

Laura

Tropical Storm impacts on facilities

Tropical Storm Warnings
2

Hurricane Warnings
1

Flood Warnings
8

Office: KLZK
Issued: 2020-08-29T12:00:00+00:00
Expires:

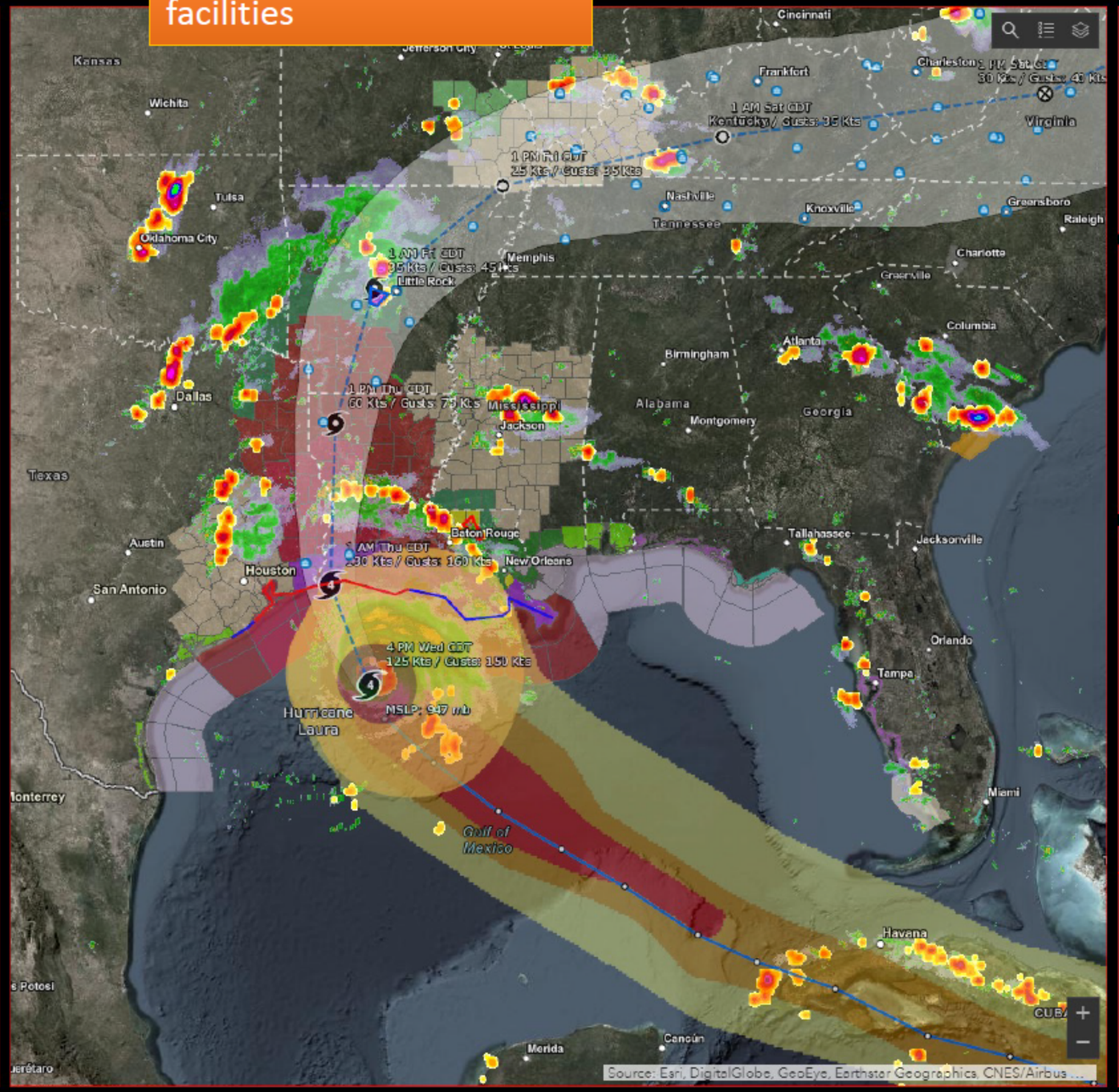
Office: KLZK
Issued: 2020-08-29T08:15:00+00:00
Expires:

Office: KLZK
Issued: 2020-08-28T13:34:00+00:00
Expires: 2020-08-31T06:42:00+00:00

Court Facilities within
172
Forecast error cone

Potentially Impacted Court Facilities

- U.S. Post Office and Courthouse
  101 South Jackson Avenue
  El Dorado
  Operational Status: Open
- Richard Sheppard Arnold U.S. Courthouse
  600 West Capitol Avenue
  Little Rock
  Operational Status: Open
- Old U.S. Post Office and Courthouse
  300 West Second Street
  Little Rock
  Operational Status: Open
- U.S. Courthouse and Post Office
  500 North State Line Avenue, TX
  Texarkana
  Operational Status: Open
- U.S. Post Office and Courthouse
  100 Reserve Street
  Hot Springs
  Operational Status: Open
- Federal Building
  700 West Capitol Avenue
  Little Rock
  Operational Status: Open
- George Howard, Jr. Federal Building and U.S. Courthouse
  100 East Eighth Avenue
  Pine Bluff
  Operational Status: Open
- Parking Facility
  622 West Fourth Street
  Little Rock
  Operational Status: Open
- U.S. Courthouse Annex
  500 West Capitol Avenue
  Little Rock
  Operational Status: Open
- E. C. Gathings Federal Building and U.S. Courthouse
  615 South Main Street



No Storm Surge Watches

Storm Surge Warning
18

Tornado Warnings
1

Office: KLIX
Issued: 8/26/2020, 5:41 PM
Expires: 8/26/2020, 6:15 PM

JDART Hurricane Dashboard

Tropical Storm impacts on facilities

Tropical Storm Warnings

20

Court Facilities within

30

Forecast error cone

No Hurricane Warnings

Flood Warnings

5

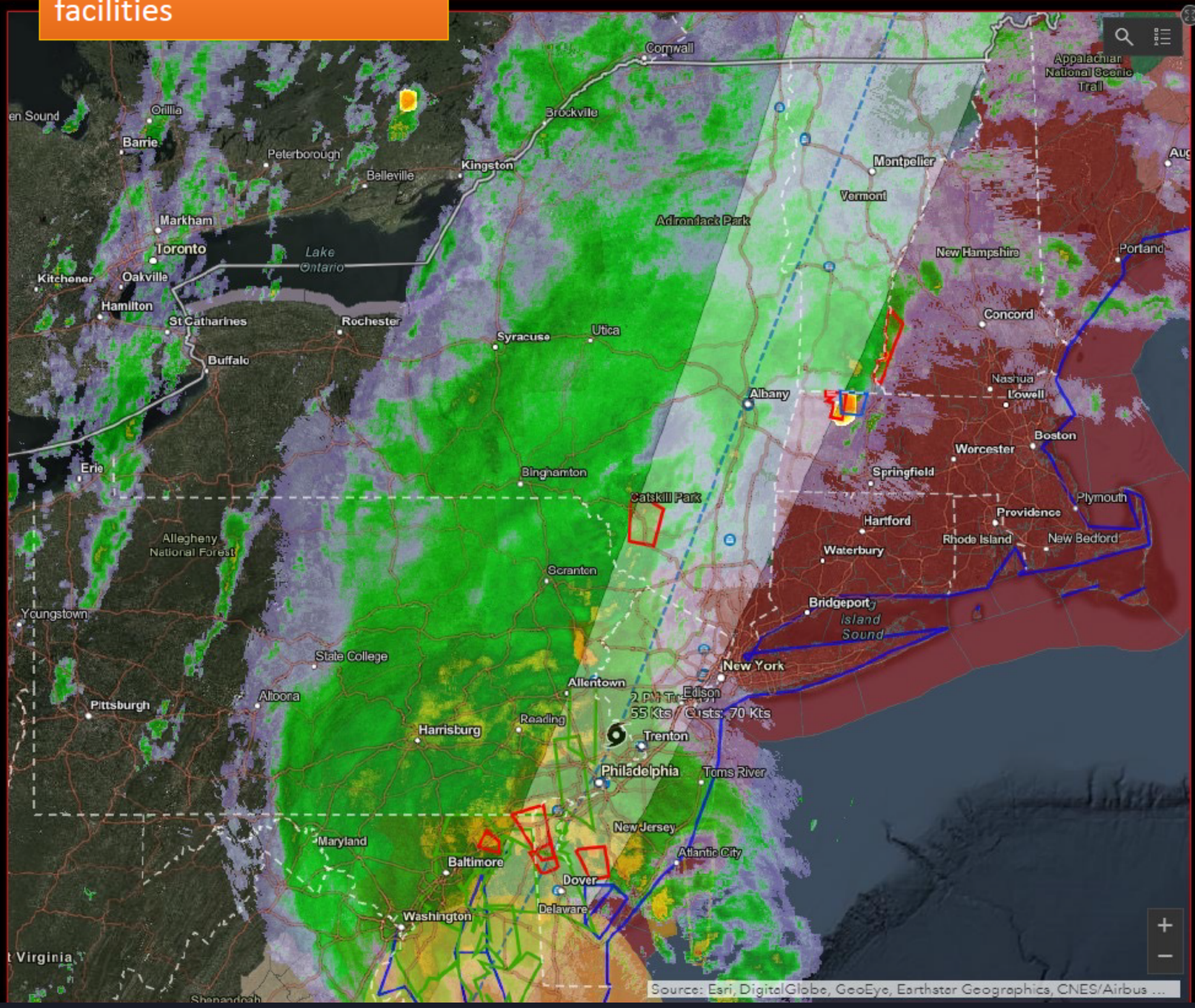
Office: KCTP
Issued: 2020-08-04T22:00:00+00:00
Expires: 2020-08-05T17:37:00+00:00

Office: KPHI
Issued: 2020-08-04T13:25:00+00:00
Expires: 2020-08-04T20:31:00+00:00

Office: KLWX
Issued: 2020-08-

Potentially Impacted Court Facilities

- J. Caleb Boggs U.S. Courthouse and Federal Building
  844 North King Street
  Wilmington
  Operational Status: Open
- Marine Midland Building
  824 North Market Street
  Wilmington
  Operational Status: Open
- 800 North King Street
  800 North King Street
  Wilmington
  Operational Status: Open
- CATO Building
  1218 Forrest Avenue
  Dover
  Operational Status: Open
- U.S. Post Office and Courthouse
  401 Market Street
  Camden
  Operational Status: Open
- Clarkson S. Fisher Federal Building and U.S. Courthouse
  402 East State Street
  Trenton
  Operational Status: Open
- Peter Rodino Federal Building
  970 Broad Street
  Newark
  Operational Status: Open
- Martin Luther King Jr. Federal Building and U.S. Courthouse
  50 Walnut Street
  Newark

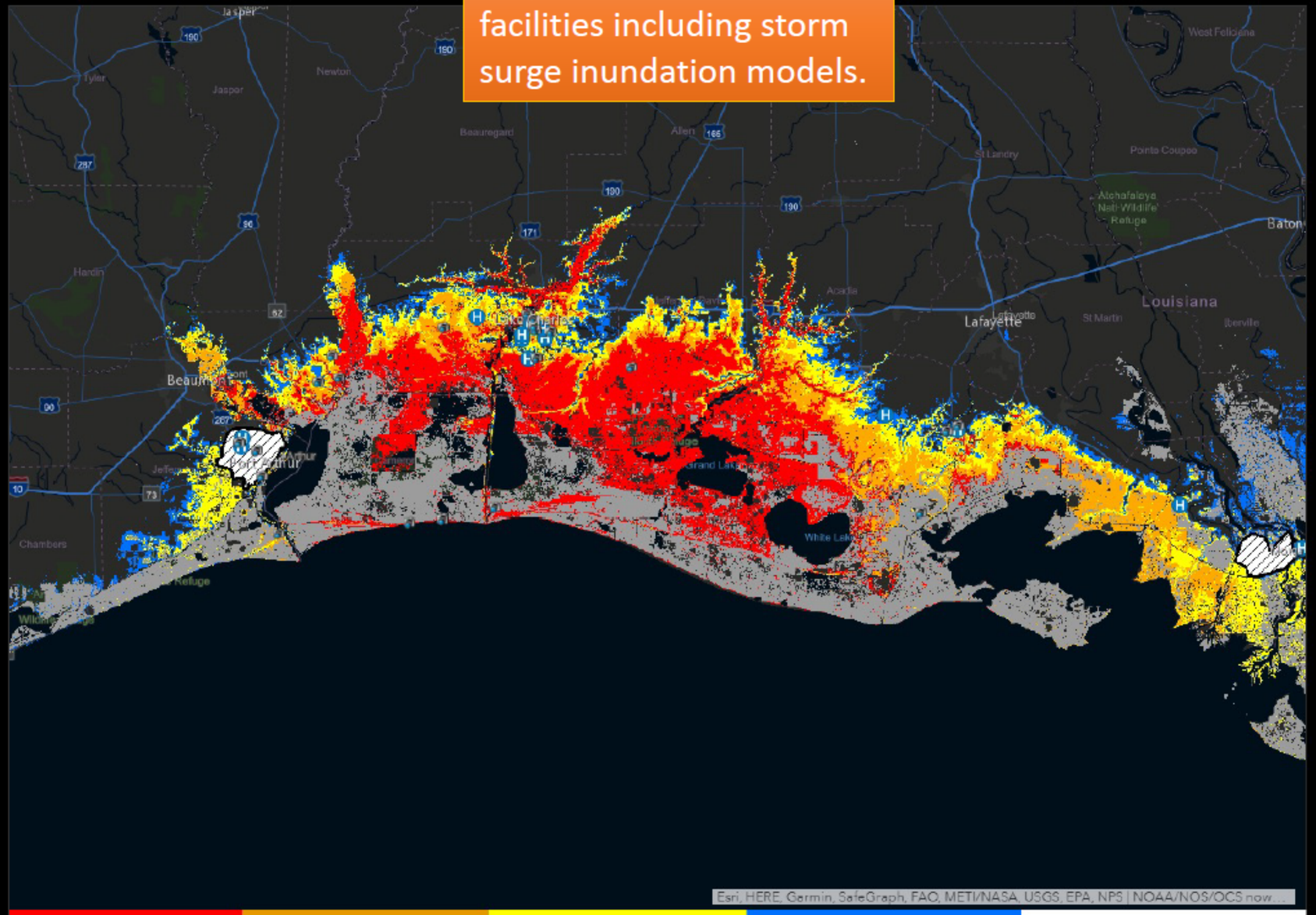


Tropical Storm impacts on facilities including storm surge inundation models.

Laura

Hospitals in Surge

- Cornerstone Specialty Hospitals Southwest Louisiana
- Archer Institute of Lake Charles Memorial Health System
- Franklin Foundation Hospital
- Oceans Behavioral Hospital Lake Charles
- Avail Health Lake Charles Hospital
- Lake Charles Memorial Hospital
- CHRISTUS Ochsner St Patrick Hospital
- West Calcasieu Cameron Hospital
- CHRISTUS Ochsner Lake Area Hospital
- Abrom Kaplan Memorial Hospital
- Abbeville General Hospital
- East Jefferson General Hospital
- Ochsner Medical Center - Kenner
- West Jefferson Medical Center
- Ochsner Medical Center - Main Campus
- Lady of the Sea General Hospital
- University Medical Center New Orleans (FKA Medical Center of Louisiana at New Orleans and Interim LSU Public Hospital)
- Touro Infirmary
- Tulane Medical Center
- Ochsner St Mary (FKA Teche Regional Medical Center)
- CHI St Lukes Health - Brazosport Hospital
- The Medical Center of Southeast Texas
- CuraHealth Hospital - New Orleans (FKA Kindred Hospital New Orleans)
- BridgePoint Continuing Care



2	3	4	2	3

2020 Disasters Damage Photo

Hospitals

Inundation Area

Potential Storm Surge Flooding

Image

- Less than 1 foot above ground
- Greater than 1 foot above ground
- Greater than 3 feet above ground
- Greater than 6 feet above ground
- Greater than 9 feet above ground
- Levee Area - Contact local officials for flood risk
- Intertidal Zone/Estuarine Wetland

Proactive Planning

Ensure Unity of Messaging

Maintenance

Maintenance

1. Developing Standard Operating Procedures
2. Perform Meaningful After-Action Reviews
3. Create and adhere to a Governance Process

Maintenance

Developing Standard Operating Procedures

Maintenance

Perform Meaningful After-Action Reviews

Maintenance

Create and adhere to a Governance Process

FAQs

FAQs

1. Where do I start?
2. How can I utilize my team productively?
3. Whats in it for me?

FAQs

Where do I start?

FAQs

How can I utilize my team productively?

FAQs

Whats in it for me?

Course Modules

Future Course Modules To Include…..

- How to Access pertinent, trusted, and detailed weather forecast data
- How to Leverage historical impact data including duration, damages, resources used in restoration
- How to Segregate data by geographic or area of responsibilities, customers impacted, material and costs
- How to Create Meaningful Dashboards
- How to organize Resources, both back office and field response
- How to better organize and manage Logistics
- How to organize Materials
- How to streamline Communications INTERNALLY
- How to streamline Communications EXTERNALLY
- How to create a governance structure so that…
- How to Measure your performance (SAIDI, Costs,etc.)
- Perform AAR’s and prioritize to ensure continuous improvement
- Continue to fine tune by Incorporating system improvements into your predictive model