

**IBM Weather Business Solutions**

## **Weather Operations Center**

# **Leveraging Weather Insights for Asset Management and Planning**

*MX Wednesday Webinar – March 10, 2021*

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John Bosse

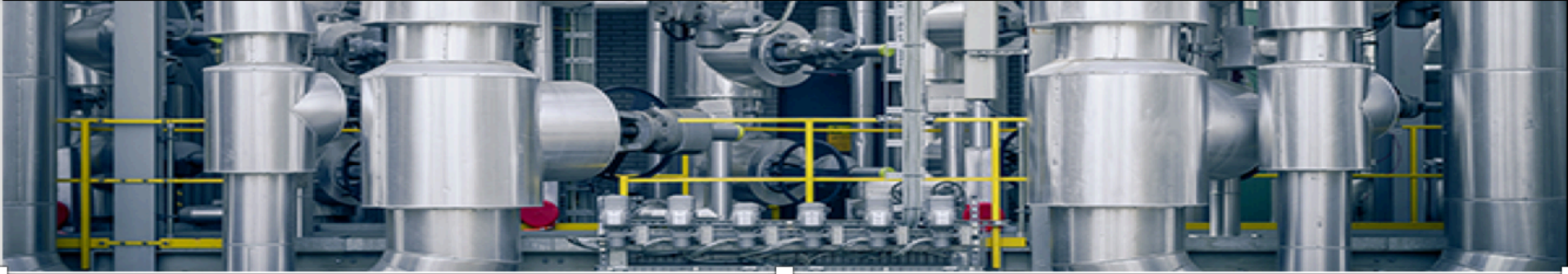
*Offering Manager, Weather Business Solutions*

Robbie Berglund

*Business Unit Executive – Americas Weather Group*



## Maximo Wednesday Webinar Series



### Upcoming Topics:

- Mining for Gold...hear from a large, international mining company on how they reduced cost and inventory spend with MRO Inventory Optimization- March 17
- Maximo Application Suite – Series Kick-off April tbd



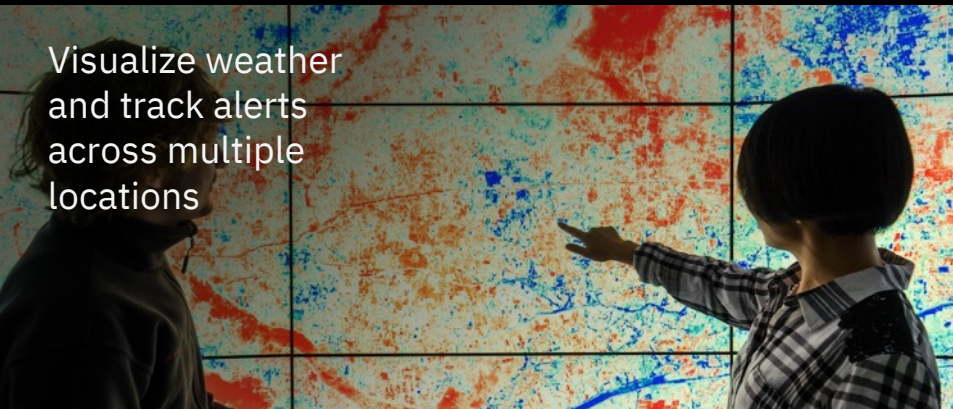
Weather impacts –  
from Assets to Supply Chains -  
are **missed** if weather is  
a stand-alone, manual service  
**not fully integrated** into the  
organization's business  
processes.



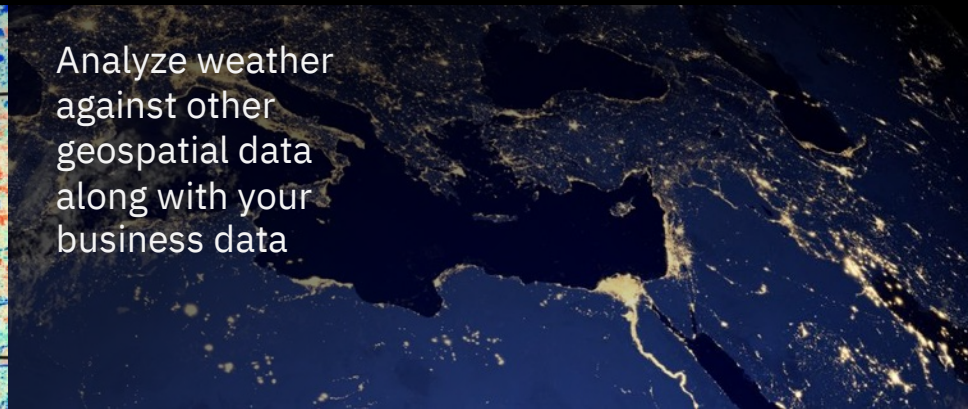


# Leading companies are now turning weather insights into a competitive advantage

Visualize weather and track alerts across multiple locations



Analyze weather against other geospatial data along with your business data



Communicate these real-time weather insights as actionable alerts to business leaders



Inform operational decisions to improve weather response



It all starts with  
data

The Weather Company,  
connecting people and  
businesses with the world's best  
weather forecasts for 40 years



Democratizing weather to tackle  
enterprise challenges

Security and scalability  
through cloud

Highest forecast  
accuracy

The widest global  
weather data coverage

# One-stop shop for weather data and imageries

## STANDARD

**INCLUDED - 1M API CALLS/MONTH**  
**ADD-ON - PER 1M API CALLS**

| CORE                                          | ENHANCED CURRENT CONDITIONS                                     | ENHANCED FORECAST                                                              | LIFESTYLE                                                                                                                                                                                        | HOD                               |
|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Site Based Current Conditions                 | Currents on Demand<br><br>Personal Weather Station Observations | Precipitation Forecast<br><br>15 Minute Forecast<br><br>15 Day Hourly Forecast | Indices: Air Quality, Pollen, Flu Outbreak, Tides, Aches & Pains, Breathing, Dry Skin, Frizz, Frost<br>Potential Golf Heating & Cooling, Leisure Travel Running Weather, Ski, Static Electricity | Historical Weather Data on Demand |
| 10-Day Daily Forecasts                        |                                                                 |                                                                                |                                                                                                                                                                                                  |                                   |
| 48-Hr Hourly Forecasts                        |                                                                 |                                                                                |                                                                                                                                                                                                  |                                   |
| Weather Alerts                                |                                                                 |                                                                                | Aviation                                                                                                                                                                                         |                                   |
| Almanac                                       |                                                                 |                                                                                |                                                                                                                                                                                                  |                                   |
| Weather Imagery including Radar and Satellite |                                                                 |                                                                                | Core                                                                                                                                                                                             |                                   |
| Snow Depths                                   |                                                                 |                                                                                |                                                                                                                                                                                                  |                                   |

## PREMIUM

**NONE INCLUDED**  
**ADD-ON - PER 1M API CALLS**

| AGRICULTURE                                                                                  | SEVERE WEATHER                                              | HDAT-EXT                                   |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------|
| Reference Evapo Crop specific, Reference Evapo, Model Evapo, Soil Moisture, Soil Temperature | 15 Day Cyclone Forecast<br><br>Shear, Hail, Rain, Snow, Ice | Solar Irradiance<br><br>Evapotranspiration |
| RENEWABLES                                                                                   | PROBABILISTIC                                               |                                            |
| Wind Speed & Direction<br>Air Density Irradiance                                             | Distribution out 10 days<br><br>QPF Hourly Accumulated      |                                            |
| SEASONAL                                                                                     | GEOSPATIAL                                                  |                                            |
| Seasonal & Sub-Seasonal                                                                      | Geospatial Currents & Forecast Polygon / Gridded            |                                            |
|                                                                                              |                                                             |                                            |

## DEVELOPMENT

**INCLUDED**  
**1,000 CALLS PER DAY**

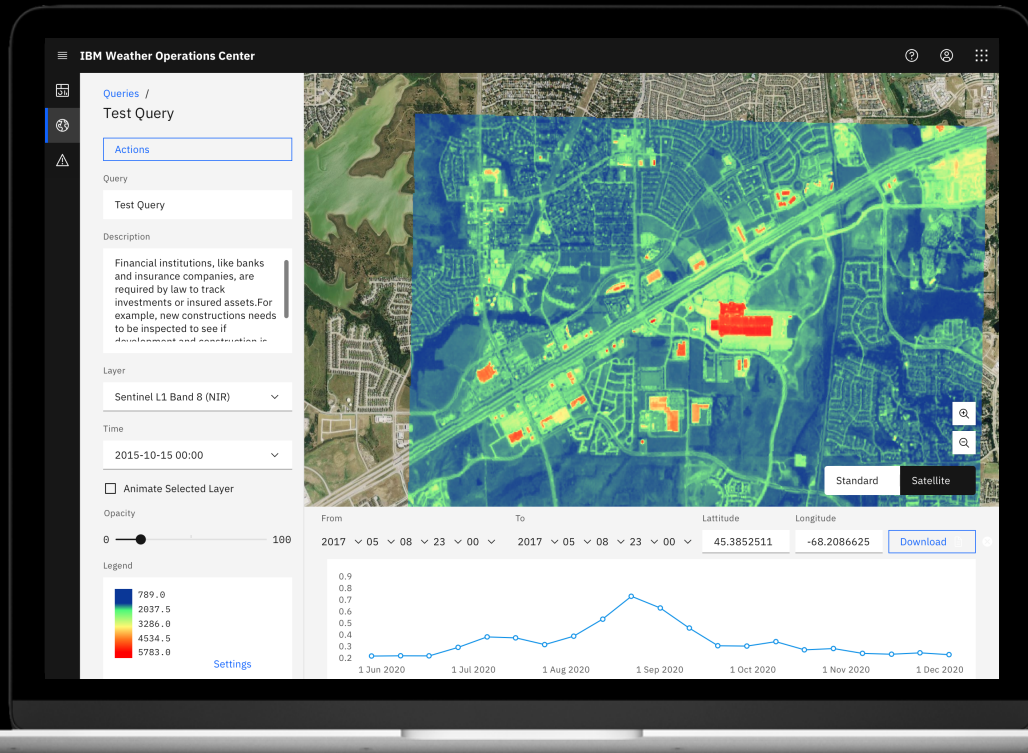
| ALL STANDARD PREMIUM |
|----------------------|
| Core                 |
| Enhanced Currents    |
| Enhanced Forecast    |
| Lifestyle            |
| HOD                  |
| Agriculture          |
| Renewables           |
| Severe Weather       |
| ...                  |

What do  
companies do with  
all the data?

# Analytics

## Weather Operations Center Geospatial Analytics

A curated repository of data  
optimized for large-scale  
geospatial-temporal analytics





# Geospatial- Temporal Data Requires Context

## Massive Geospatial temporal data

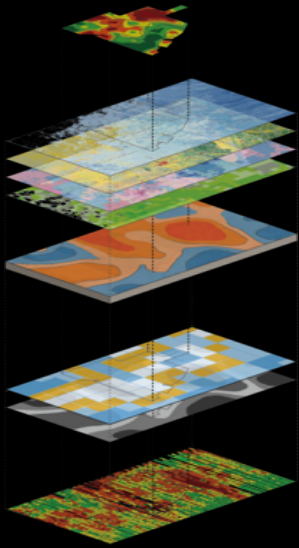
- Satellite and aerial imagery
- Weather
- Soil moisture
- Foliage



## Combined with customer data

- Asset inventory
- Condition and location
- Historical outage data

# Enhance analytic capabilities through fast, efficient workflow



## Streamlined data preparation

- Cataloged library of data layers stored in common formats & projections
- Extensible by ingesting, curating & aligning client data to a common grid
- Derive purpose-built layers by combining & correlating public & private data

## Optimized querying of multiple data sets

- Retrieve relevant information with flexible space & time resolution
- Use built-in data operations or extend with custom calculations
- Apply capabilities to built-in, customer-supplied & combined data sets

## At least 50% more time for data science

- Rapid time to value with more accurate, trustworthy analytic results
- Free data scientists to iterate, experiment & solve more organizational challenges



# Dashboards

Transform data to insights

## Customer-First Approach

Gain visibility into the times and areas during which weather-related activities may affect your service and alert your customers so they can take the appropriate actions.

## Operational Efficiency

From field workers to your dispatch crew, every moving part of the utilities support process needs to understand current road conditions to ensure worker safety, situational awareness, and operational efficiency.

# Weather wisdom at your fingertips



## A True Dashboard

Intuitive, color-coded dashboard with weather and traffic data



## Data Triggers

Custom triggers for weather events that affect safety and your business



## Active Monitoring

24/7 alerting of potential weather to proactively keep your workers aware



## Decision Support

Understand the weather impact to make more confident decisions



# Additional Value-add

## Multi-Tenancy

Customization by client, and by role.

## Ease of Provisioning

Just with email addresses, making access codes easy and quick.

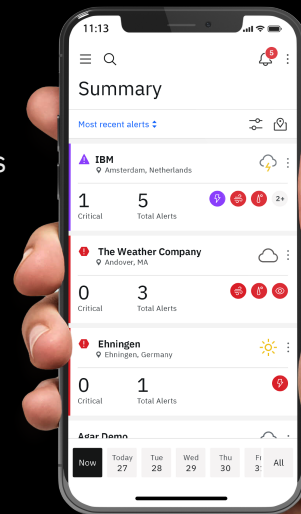
## Available in the App Store

Get our app where you get all your apps!

# Mobile version for Dashboard Visualizations

Seamlessly deliver weather monitoring and notification to your field-based workforce and other users on-the-go.

- Native Applications for Both iOS and Android
- Same experience, dashboard locations, and alerting panels available to web users
- Push notifications for user-defined threshold exceedance.



# Alerts

Mobilize resources at the  
right time, right place

Scalability. Efficiency. [Automation](#).



Track and manage thousands of  
assets automatically



Notify the right personnel of their  
action items



Timely action to mitigate operational  
risks



# Monitor weather-related perils and protect your employees and assets

## Prevent



Lost productivity from warning manually



Risk of injury from pulling workers out too late



Risk of damage and loss of property, plant and equipment (PPE)



# Introducing:

# Weather Operations Center



# All capabilities in a single integrated SaaS suite



APIs



Geospatial  
Analytics

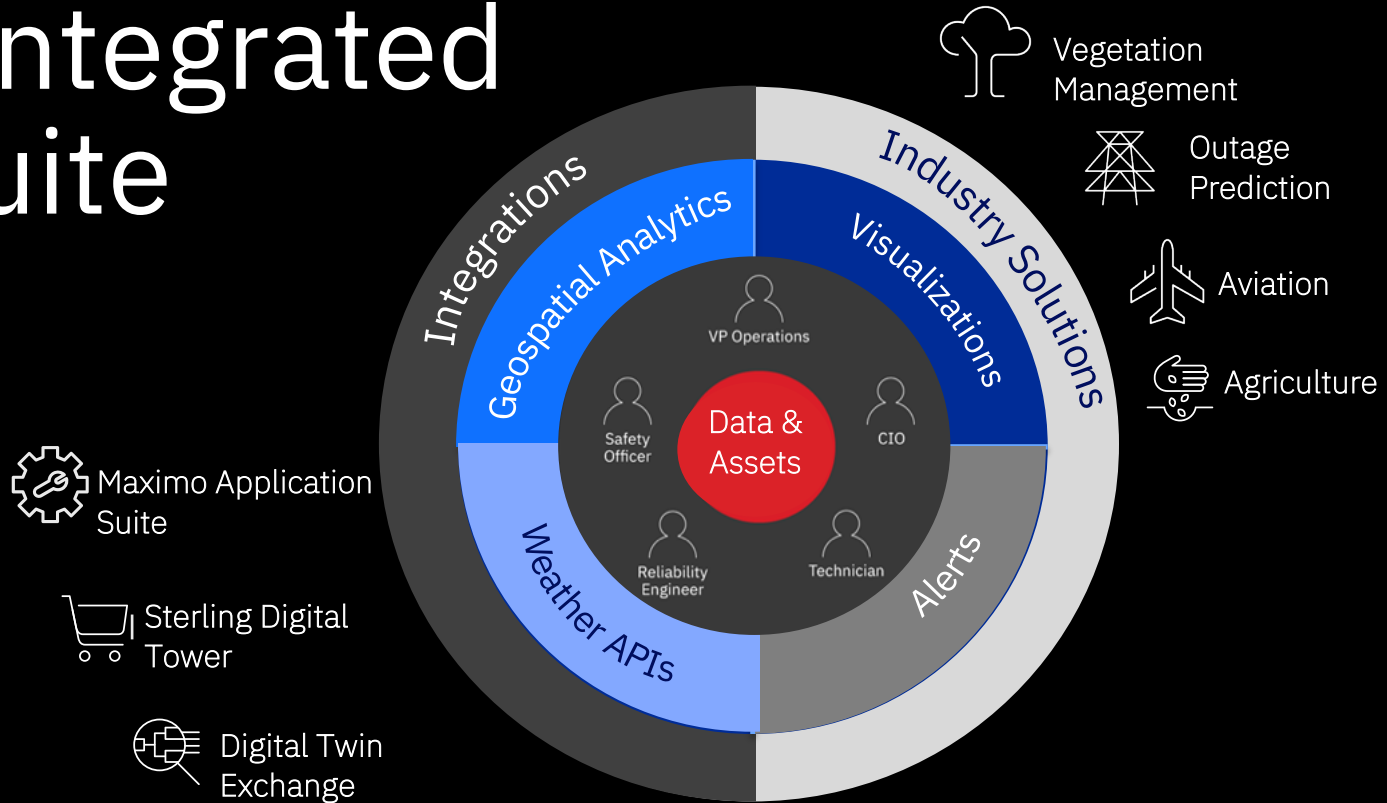


Dashboard  
Visualizations



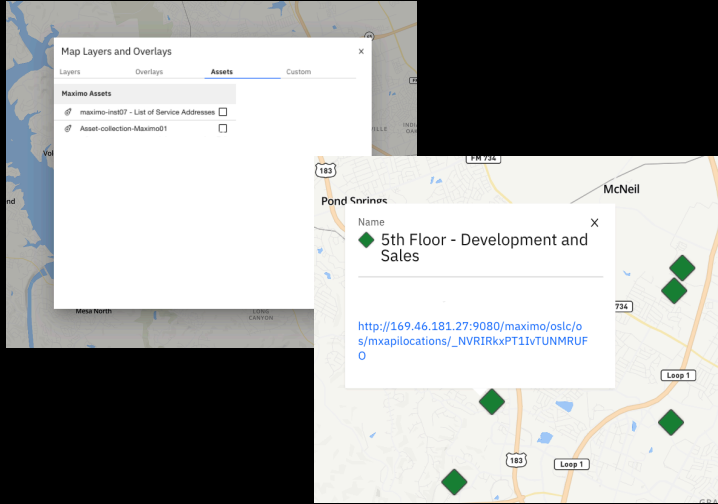
Alert Console

# All capabilities in a single integrated SaaS suite



# Maximo Integration

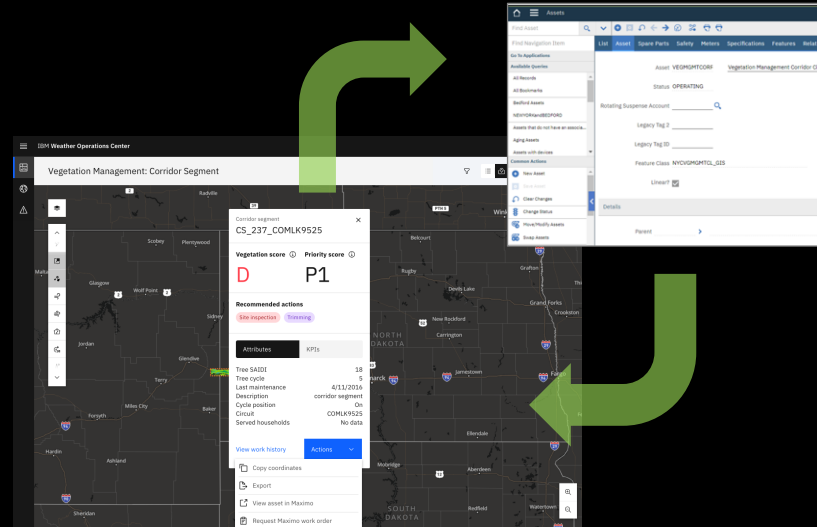
## Assets



Import group of Assets, Monitor Assets, in the context of weather, and link back directly to asset. Working towards customized alerts, and work order discovery.

## Work Orders

Seamlessly create and assign Work Orders from Maximo within WOC. Initial integration Use Case for Vegetation Management Add-on. Performed work provides feedback to update scores/model.



# Vegetation Management



# Full and integrated visibility on vegetation situation

The screenshot displays the IBM Maximo APM for Energy and Utilities - Vegetation Management interface. The main map shows a transmission corridor with various layers and filters applied. Callouts point to specific features:

- Multi-project management:** Points to the 'Naperville Transmission 2020-03-03' dropdown menu.
- Switchable background maps:** Points to the 'Map type' selector showing 'Street map' and 'Satellite' options.
- Corridor and corridor segments supporting multi-zone concept:** Points to the green highlighted corridor segments on the map.
- Electricity assets:** Points to the power line assets overlaid on the map.
- Recommended actions:** Points to a red dot on the map indicating a recommended action.
- Filter panel and layer selector:** Points to the left sidebar containing filters for Corridor, Corridor segment, Vegetation score, Vegetation type, Action type, Workorder type, and Asset classes.
- Vegetation information:** Points to the 'Tree crown height' legend showing categories: 0m-5m, 5m-10m, 10m-15m, and over-15m.
- Preview cards for detailed information:** Points to a popup card for asset C128745-92, showing details like Vegetation score (B), Priority score (P2), and a table of attributes.
- Scores and KPIs:** Points to the 'Vegetation score' and 'Priority score' displayed in the popup card.

**Vegetation score and Priority score details:**

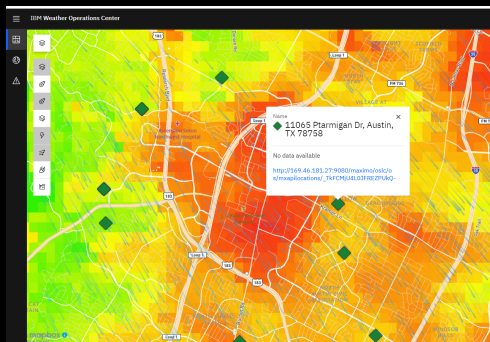
| Vegetation score | Priority score |
|------------------|----------------|
| B                | P2             |

**Attributes and KPIs for C128745-92:**

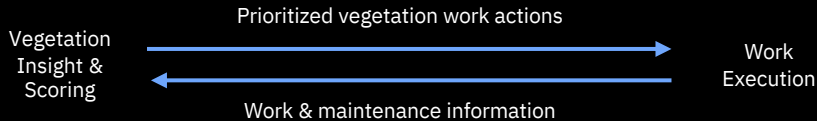
| Attributes       | KPIs                   |
|------------------|------------------------|
| Circuit          | Trans-Circuit-C128745  |
| Tree cycle       | 5                      |
| Last maintenance | 6/7/2019               |
| Cycle situation  | On                     |
| Tree SAIDI       | 29                     |
| Description      | 70 feet width corridor |

# From robust vegetation insights to actionable work

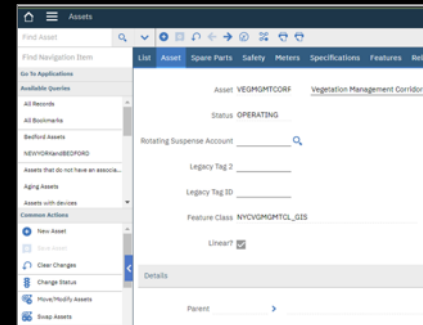
## Weather Operations Center



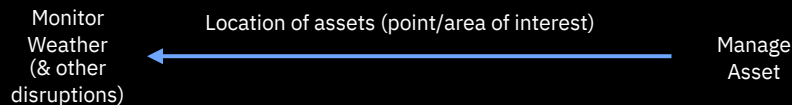
## Vegetation Management



## Maximo



## Environment, Health & Safety for Sites/Assets

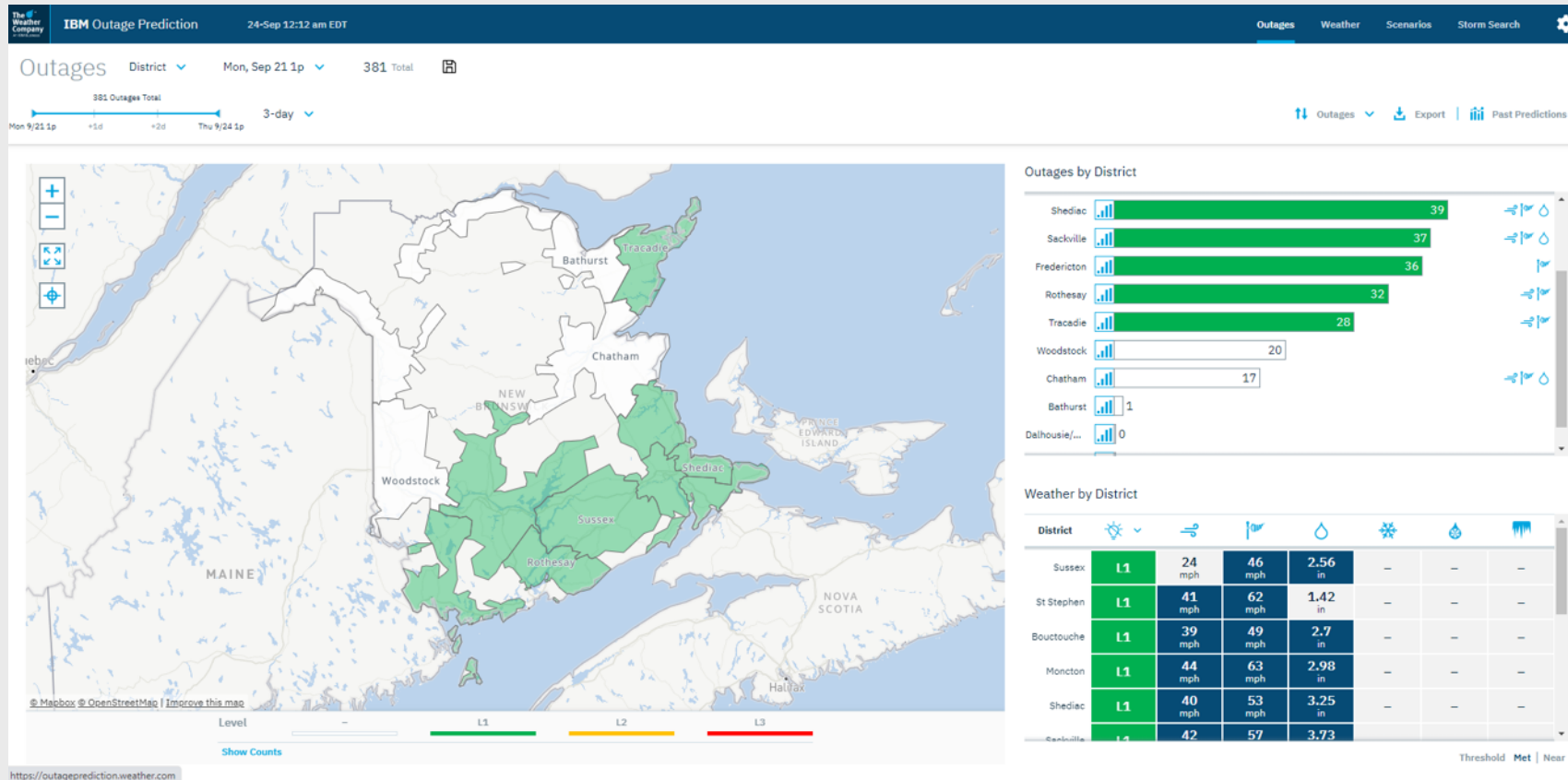


and many more ...

Weather impact on asset health, work schedules, etc.

# Outage Prediction

# IBM Outage Prediction



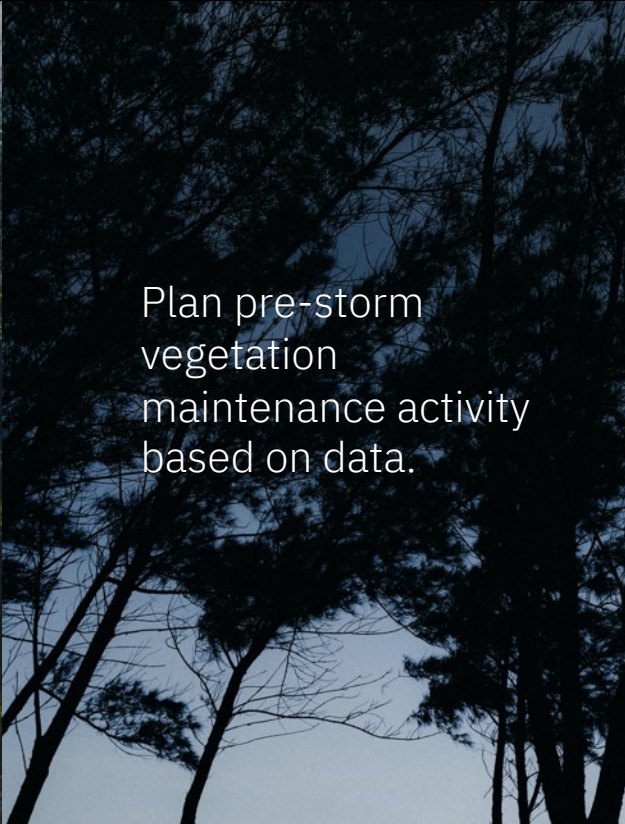


# Weather Operations Center

## E&U Example Use Case – Outage Prediction



Identify  
optimal post-  
storm routes  
for restoration



Plan pre-storm  
vegetation  
maintenance activity  
based on data.

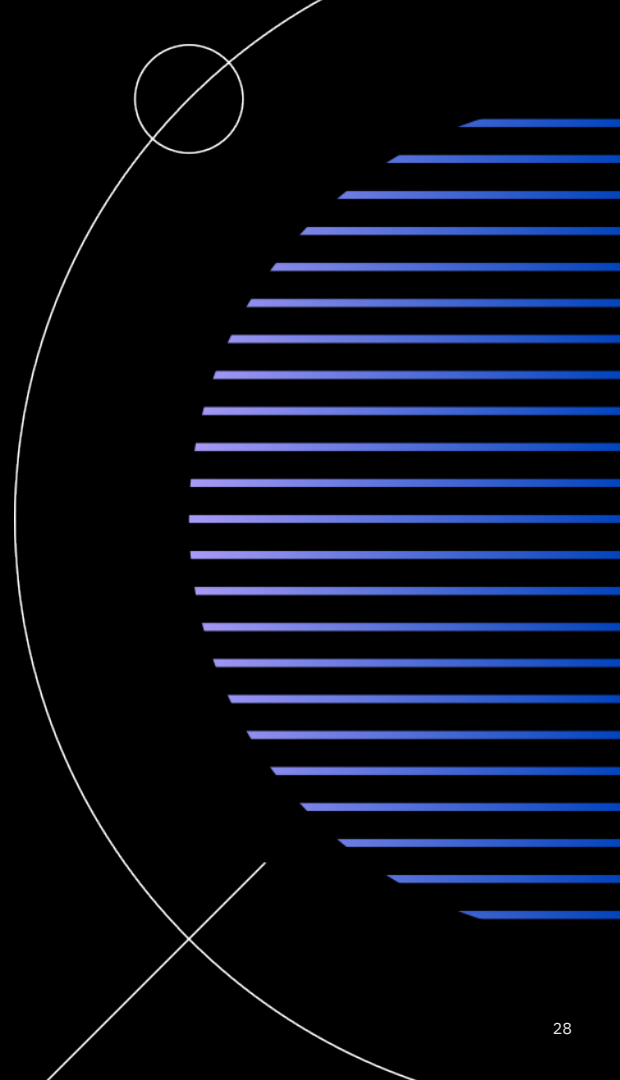


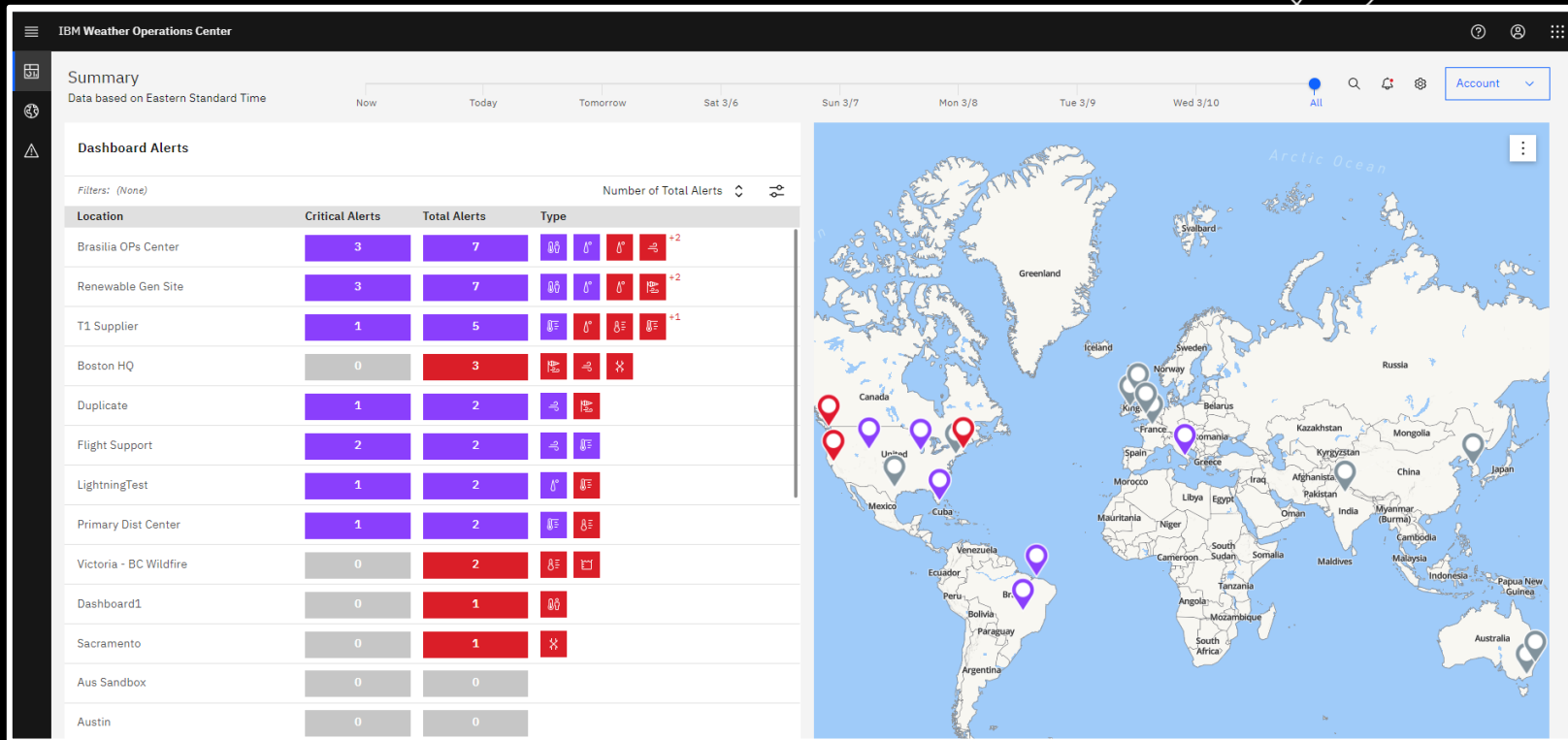
Monitor severe  
weather events  
and utility smart  
meter data

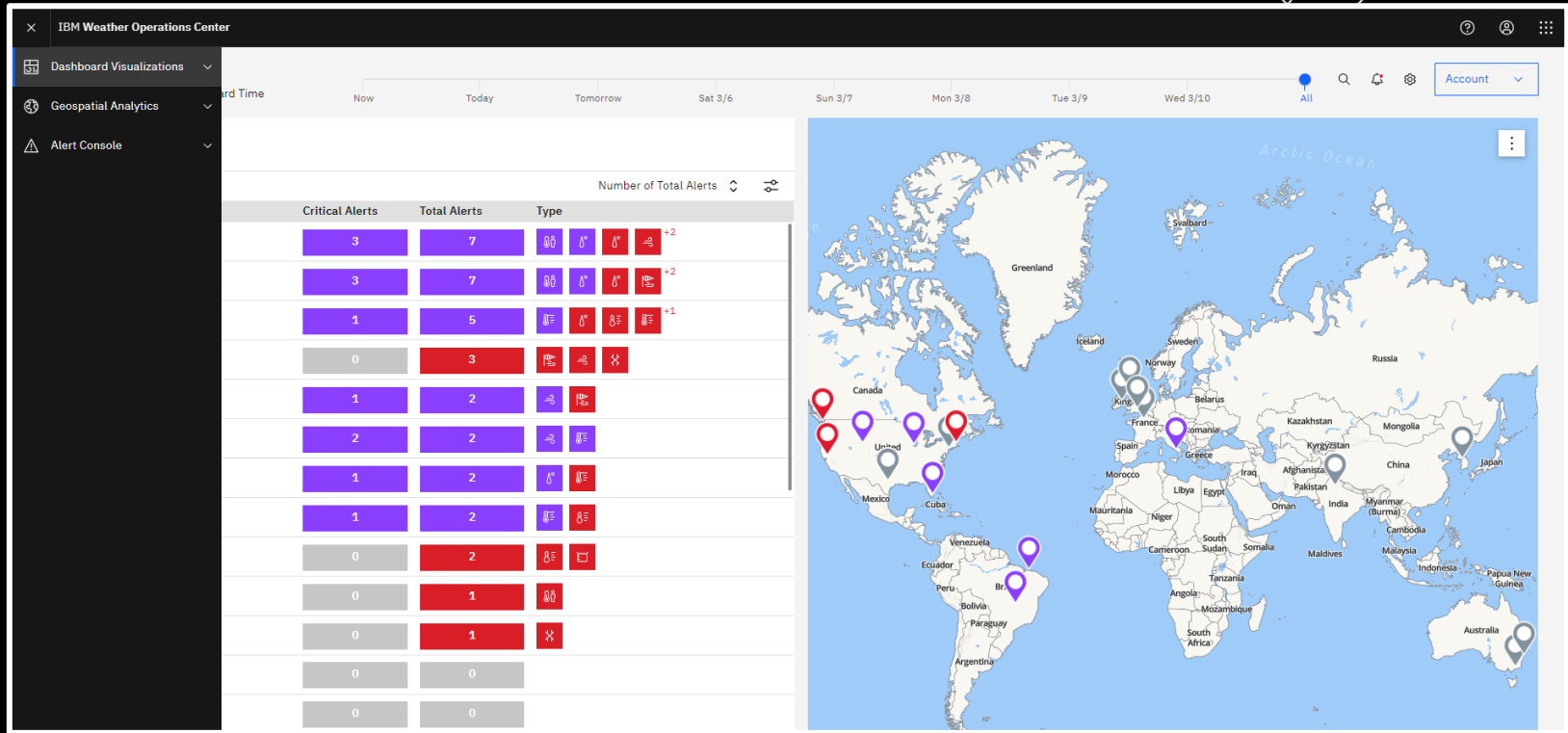


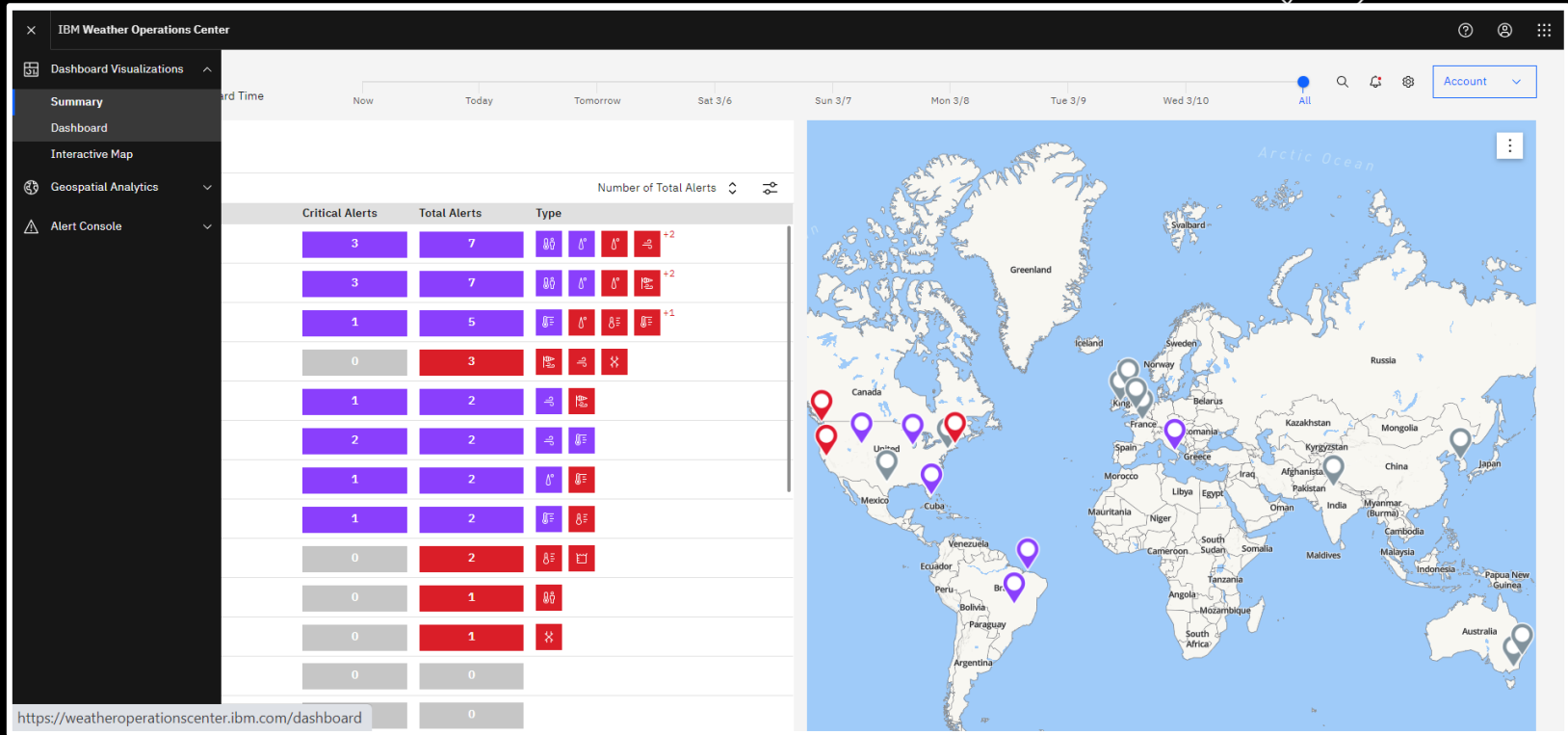
# DEMO

Weather Operations Center  
Lets have a look...

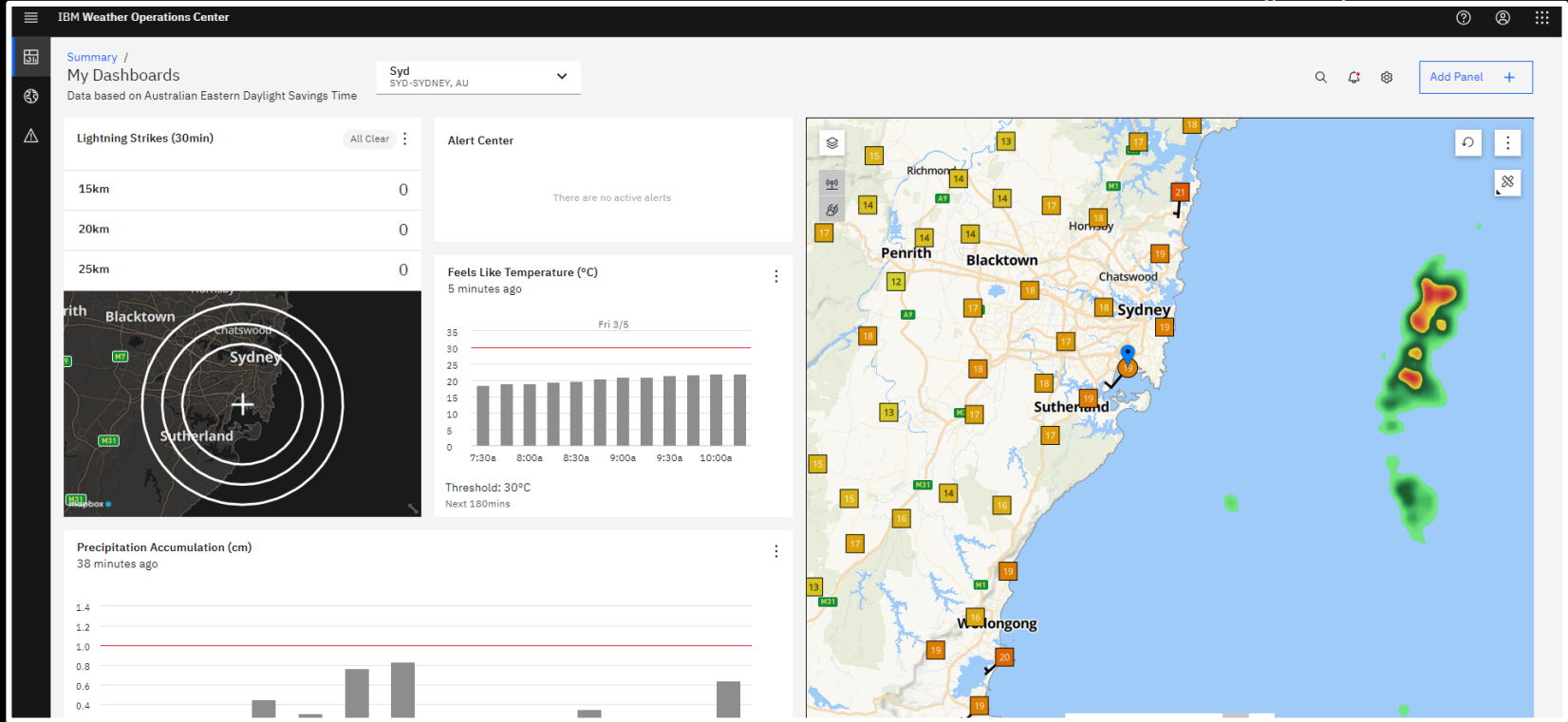


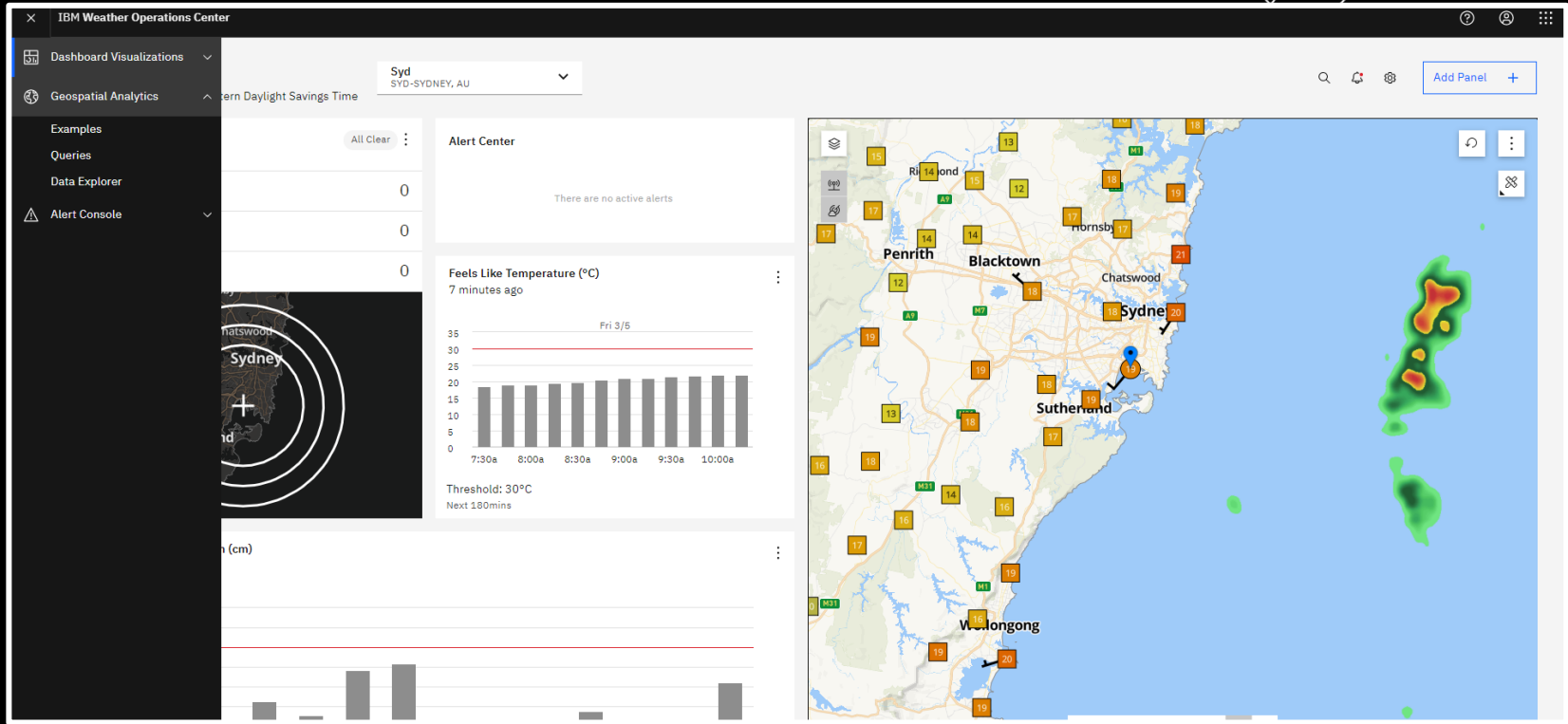


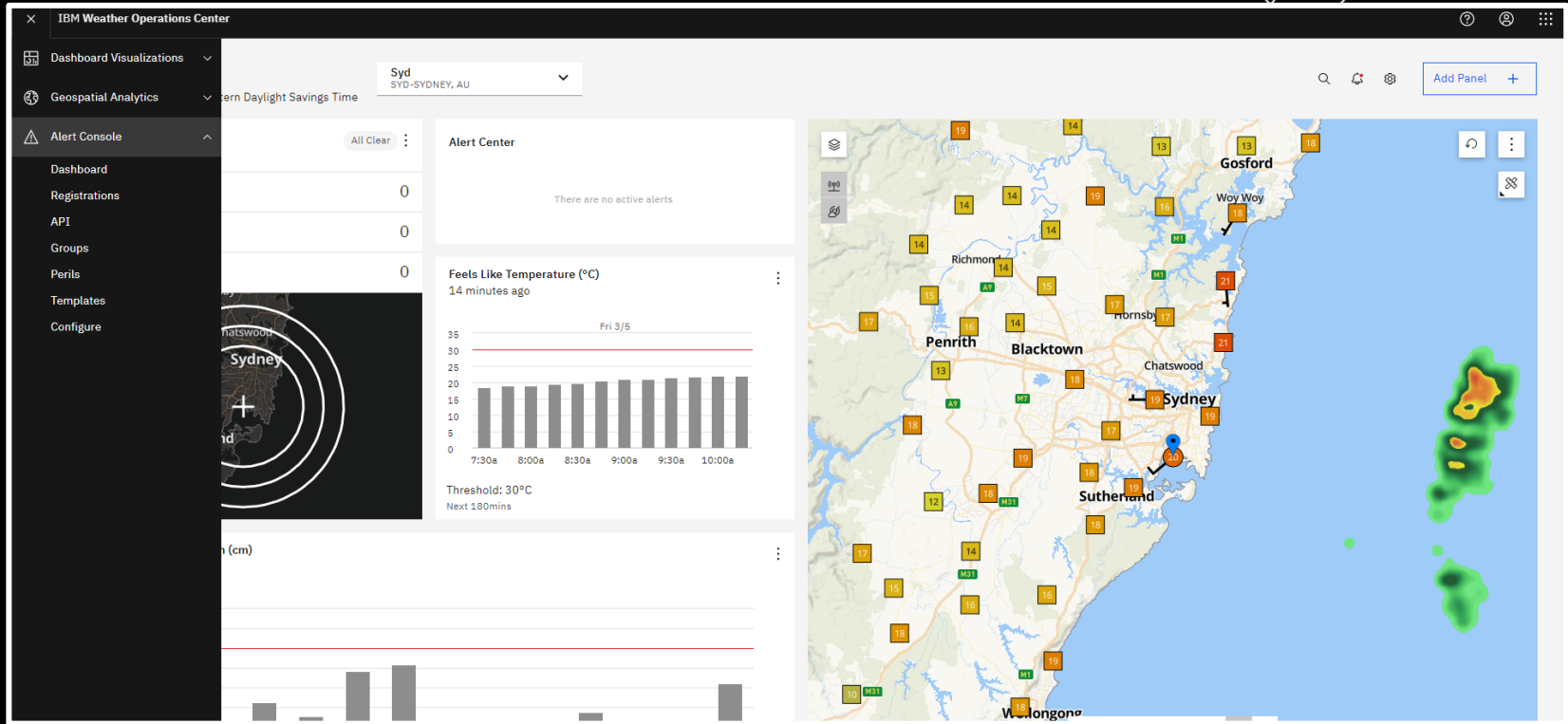


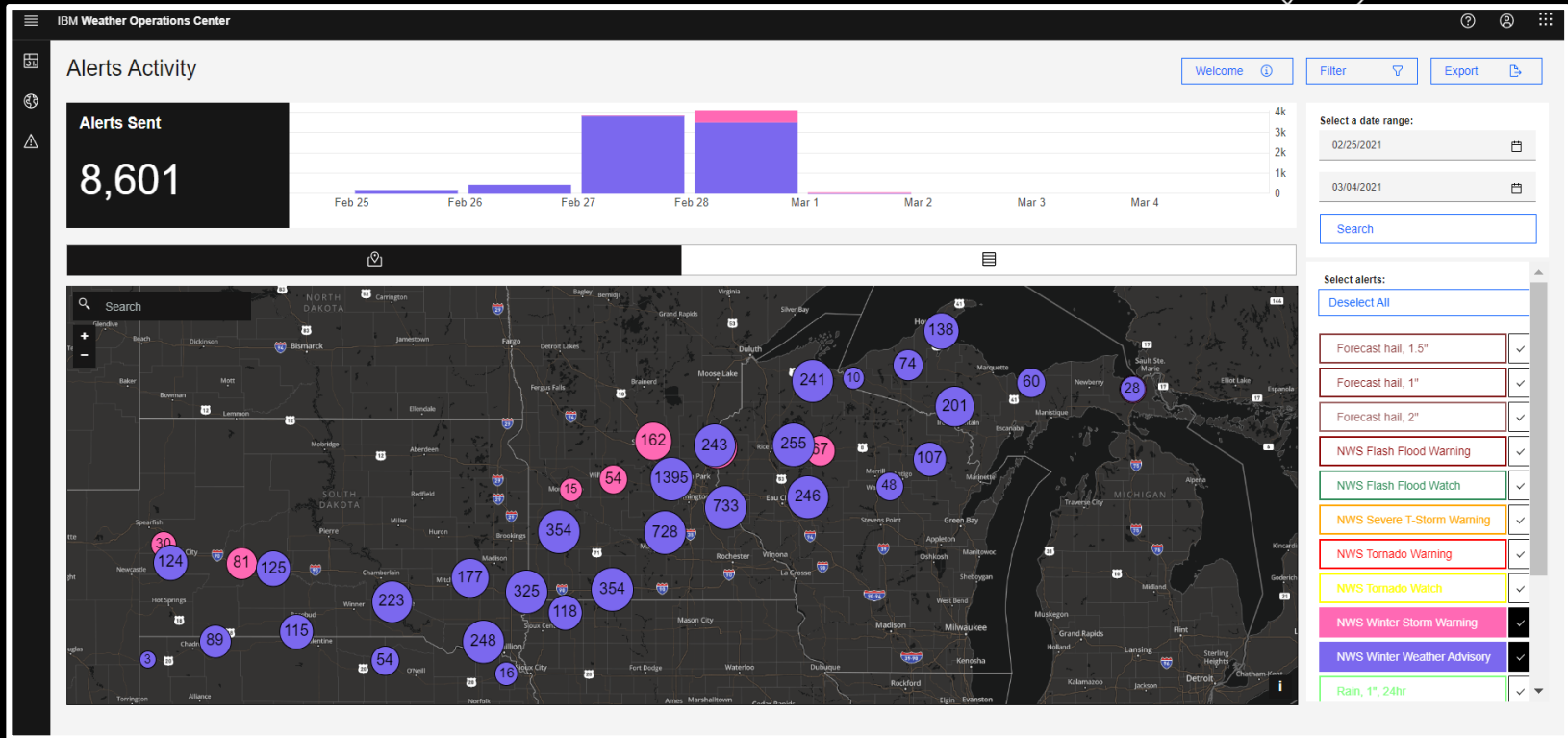


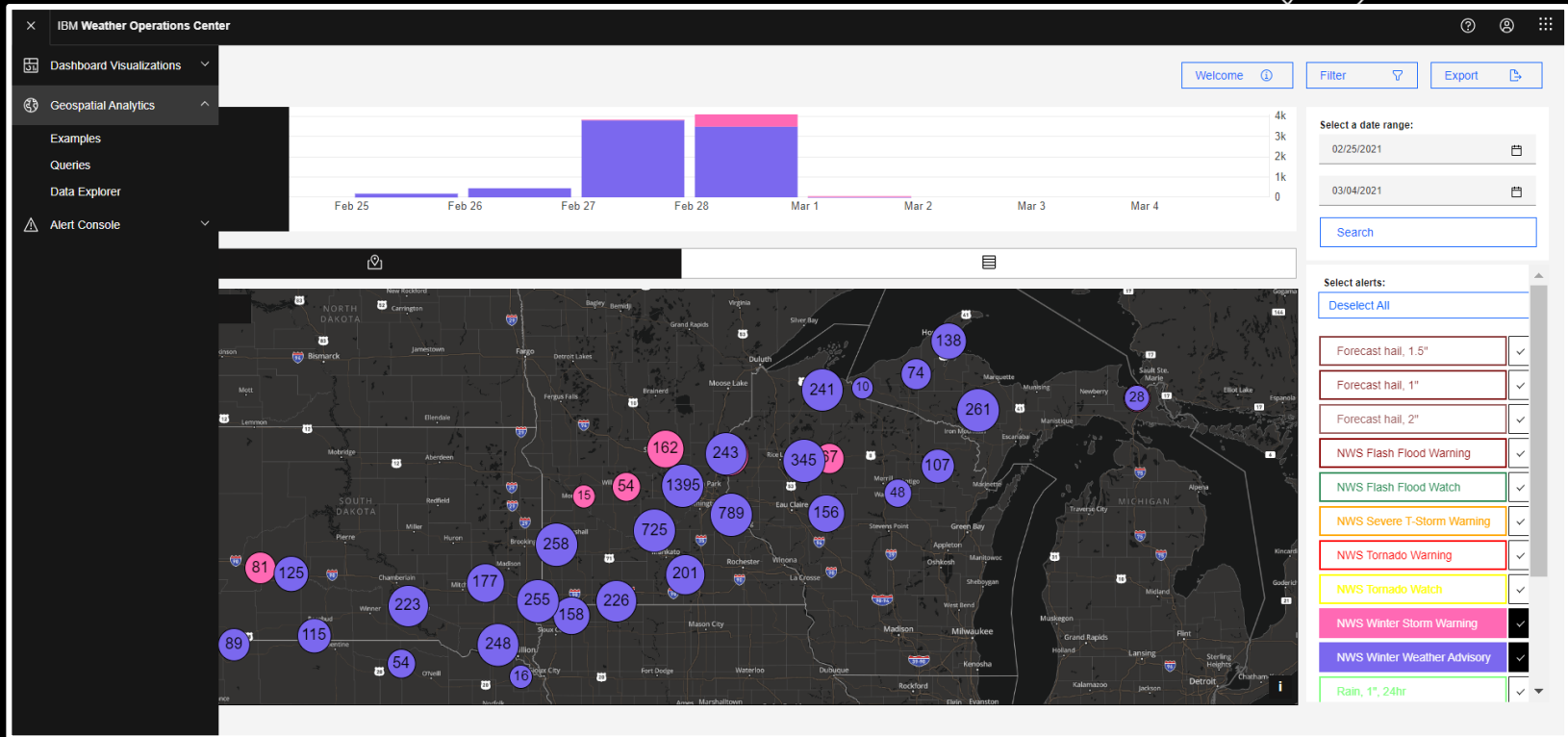














IBM Weather Operations Center

Population Density

2021-03-03 21:53

Population Density

2021-03-03 21:49

Population Density

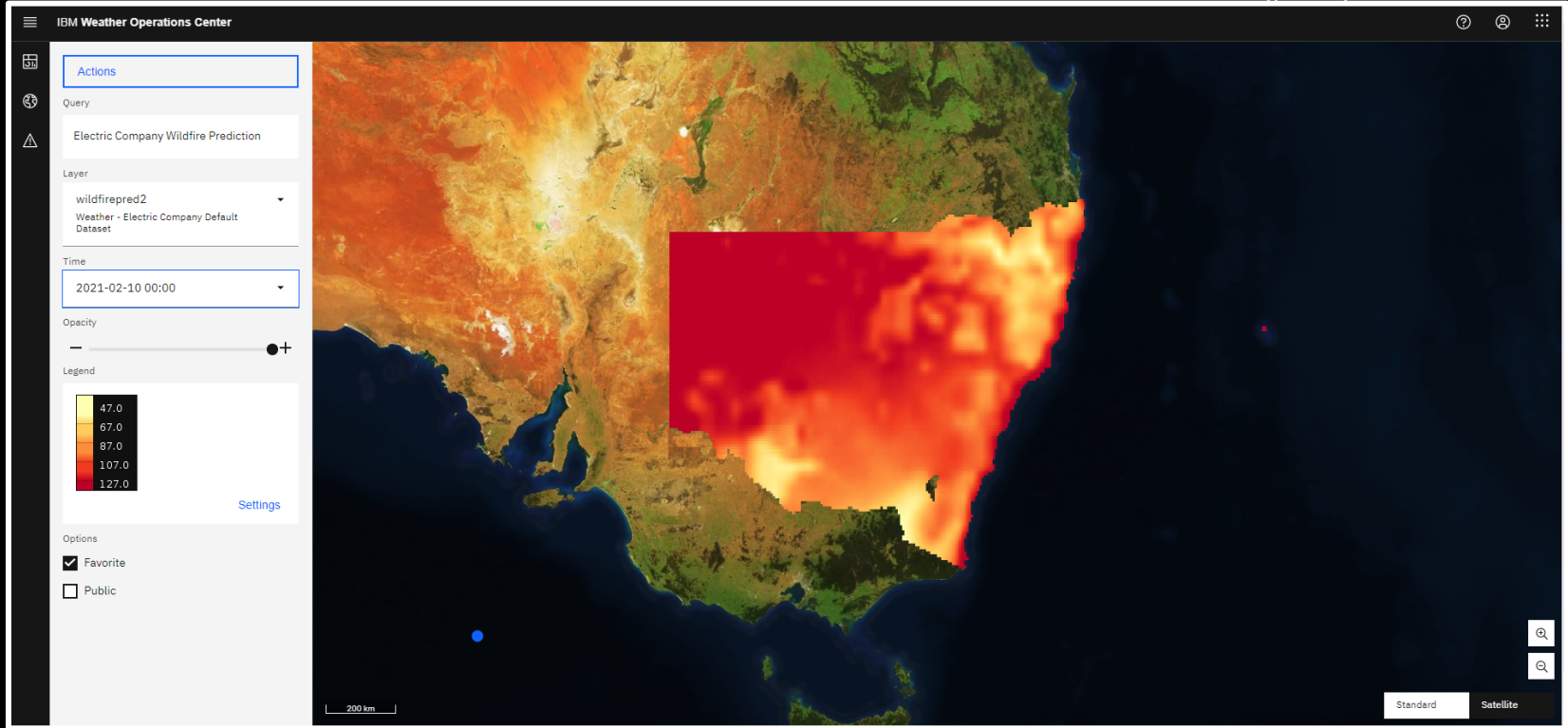
2021-03-03 21:44

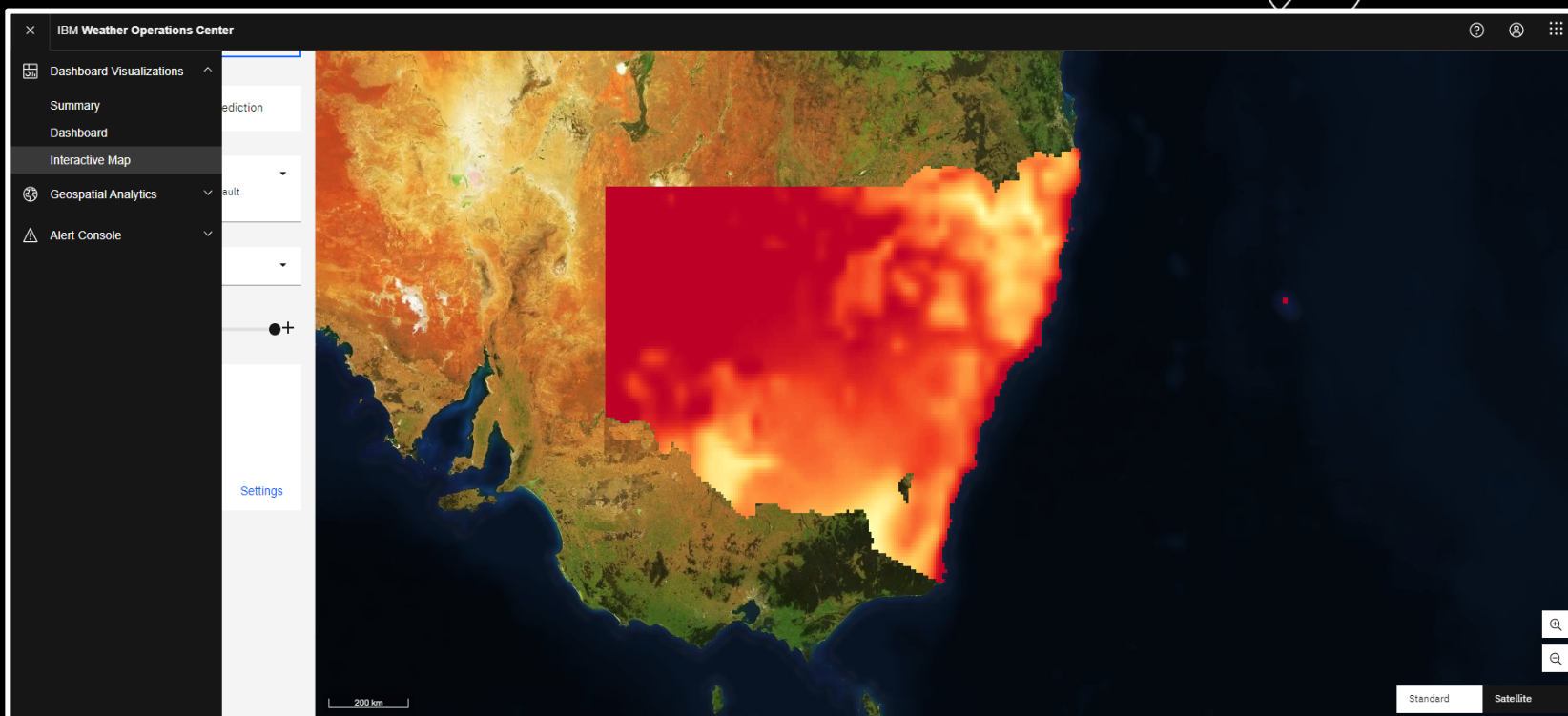
All queries

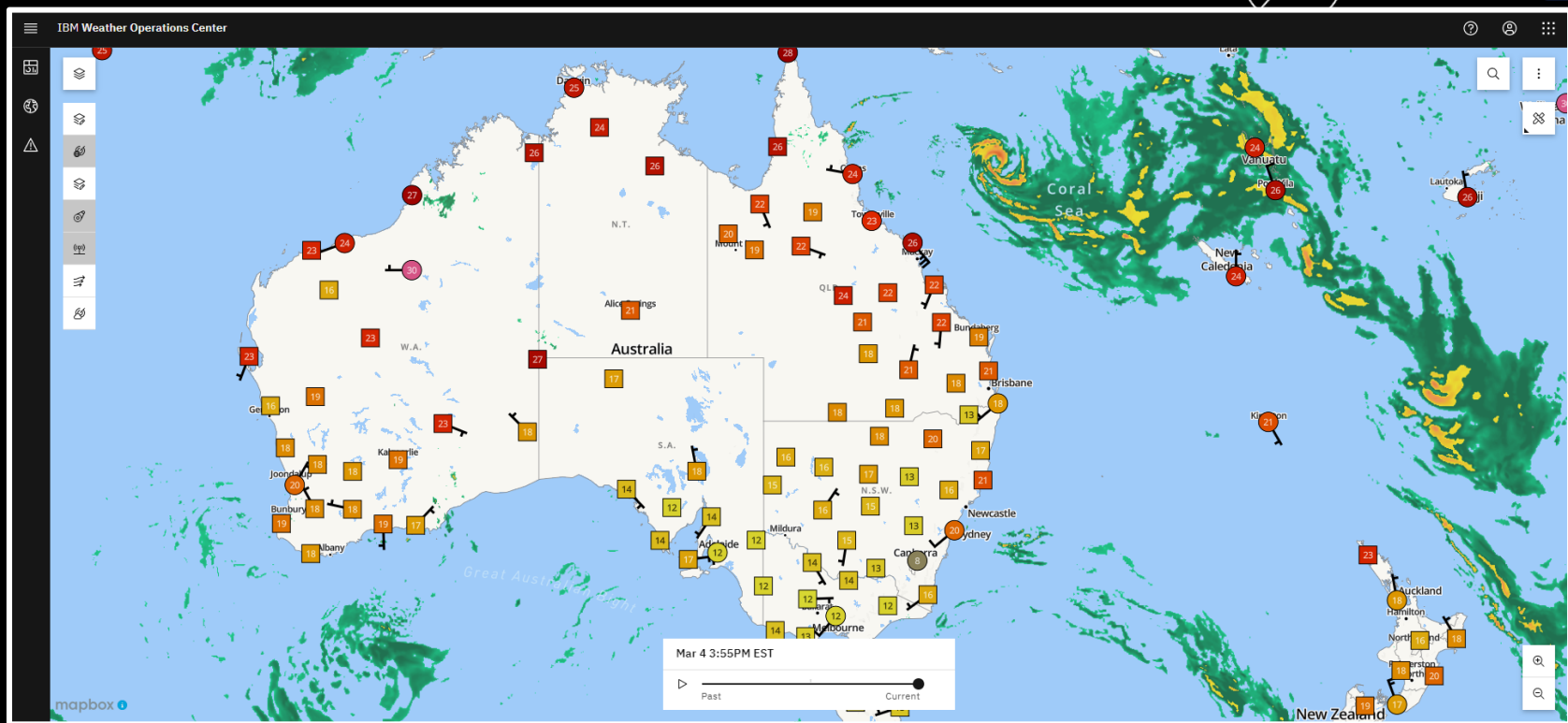
Search query

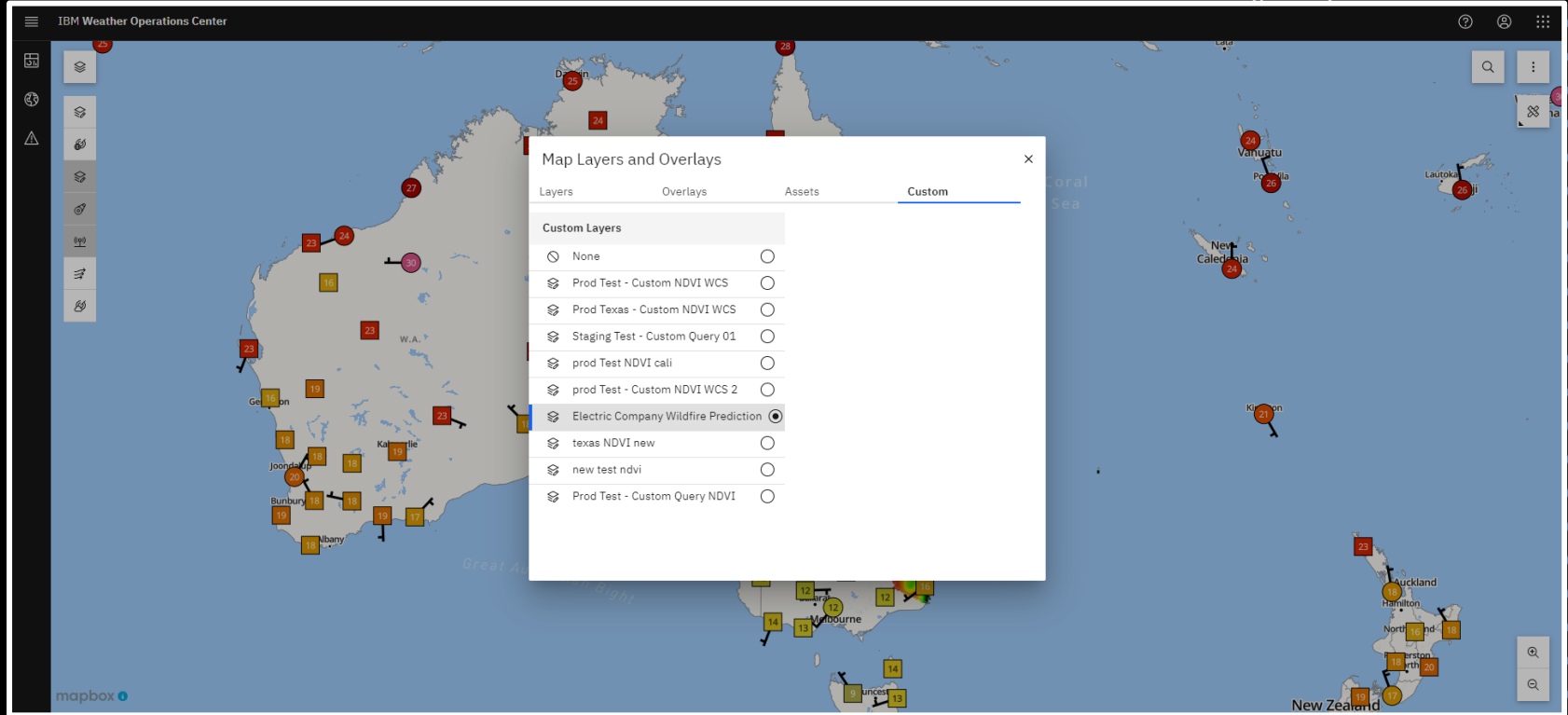
| Name                                                  | Creation Date    | Status  |  |  |
|-------------------------------------------------------|------------------|---------|--|--|
| Population Density                                    | 2021-03-03 21:53 | Success |  |  |
| Population Density                                    | 2021-03-03 21:49 | Success |  |  |
| Population Density                                    | 2021-03-03 21:44 | Success |  |  |
| Population Density                                    | 2021-03-03 21:42 | Success |  |  |
| Electric Company Wildfire Prediction with both layers | 2021-03-03 19:41 | Success |  |  |
| <a href="#">Electric Company Wildfire Prediction</a>  | 2021-02-26 12:16 | Success |  |  |
| <a href="#">bobpoint</a>                              | 2021-02-25 17:42 | Success |  |  |
| <a href="#">bobq</a>                                  | 2021-02-25 17:41 | Success |  |  |
| <a href="#">Electric Company Wildfire Prediction</a>  | 2021-02-24 11:42 | Success |  |  |

<https://ibmpairs.mybluemix.net/queries/6278a68b-24e7-46dc-adec-748e53486557>

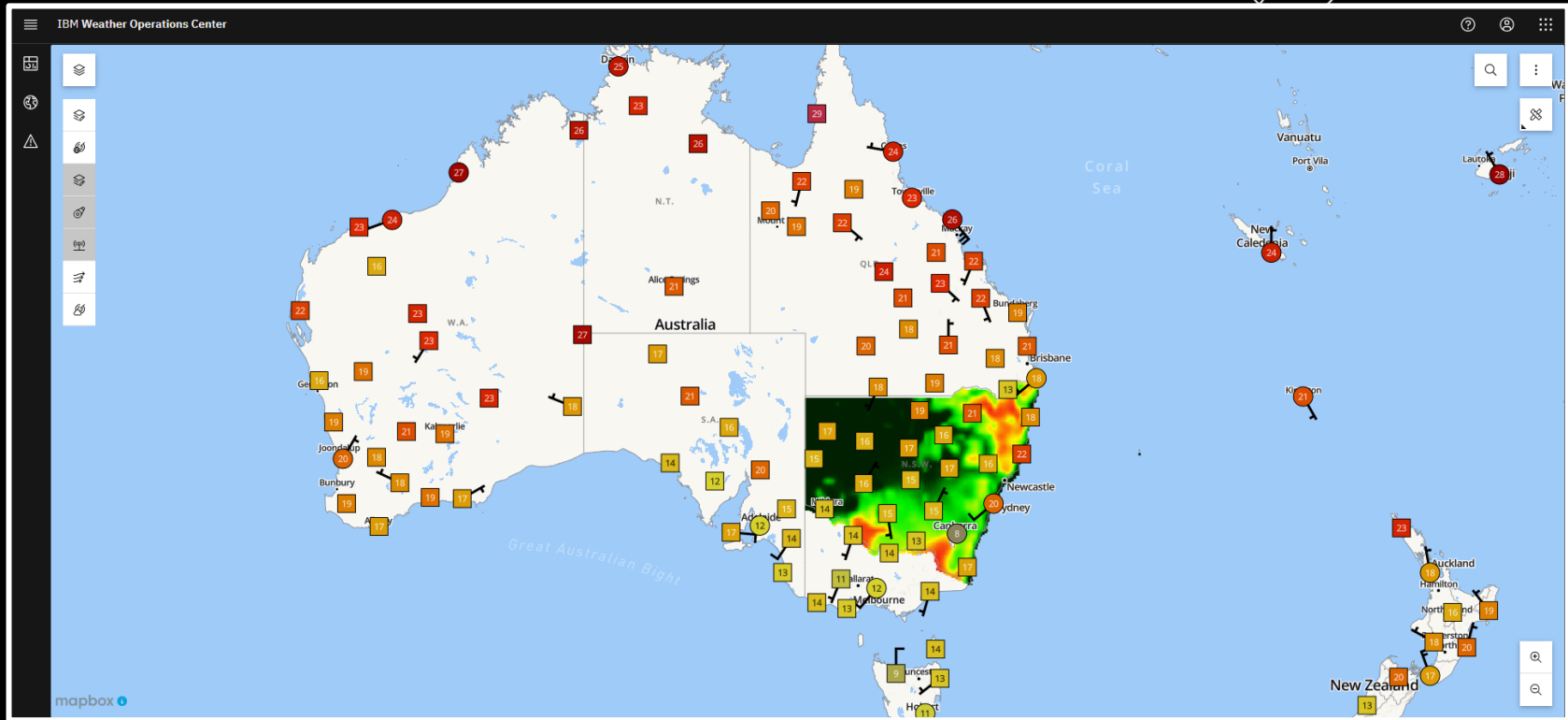


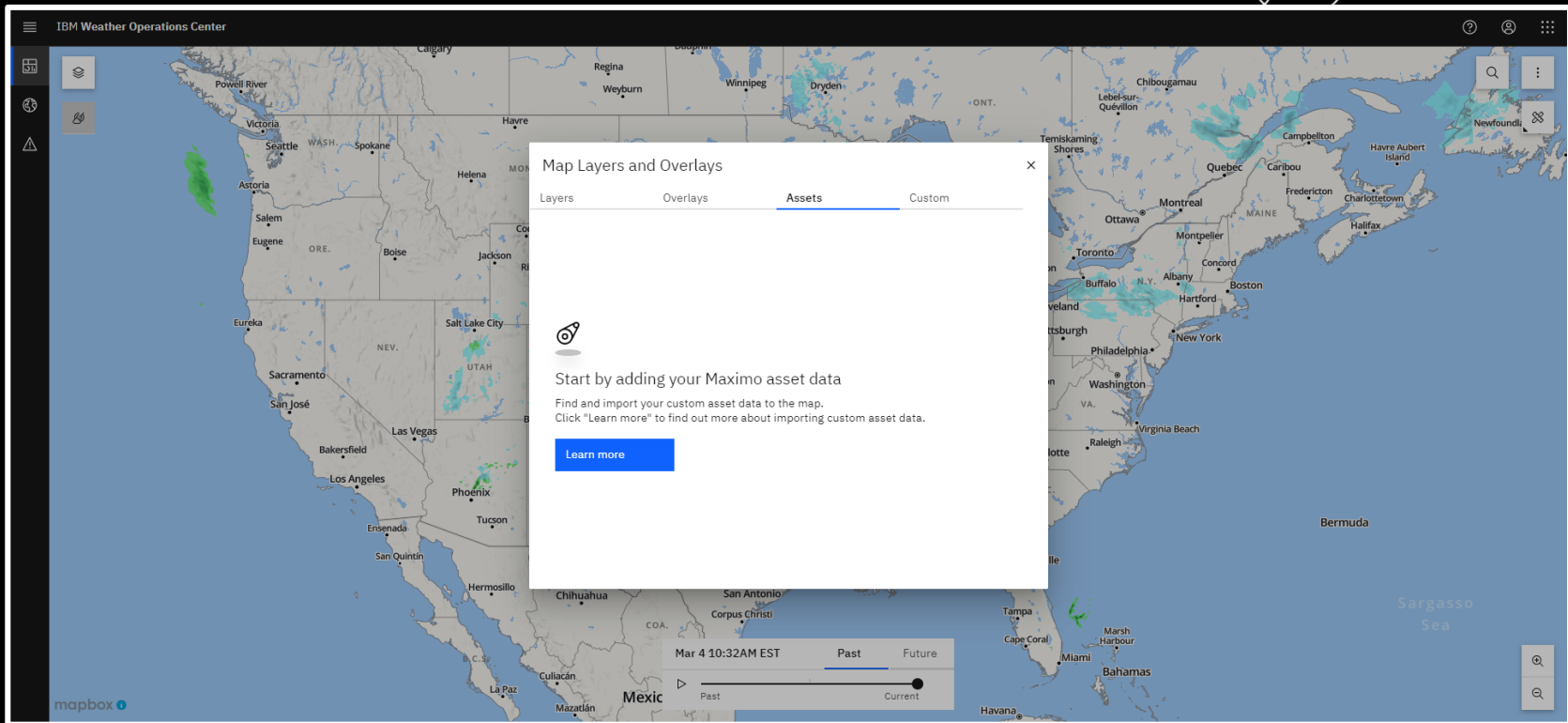


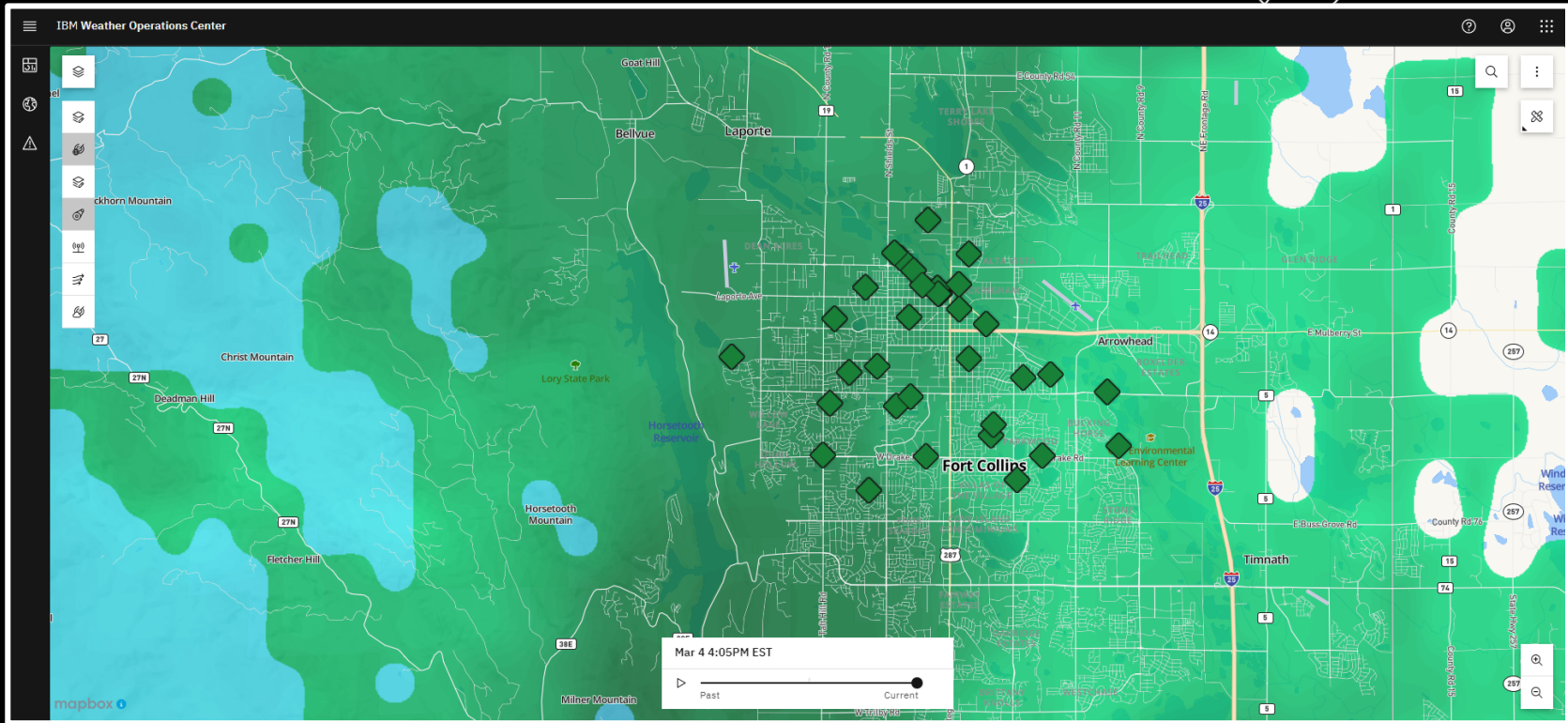


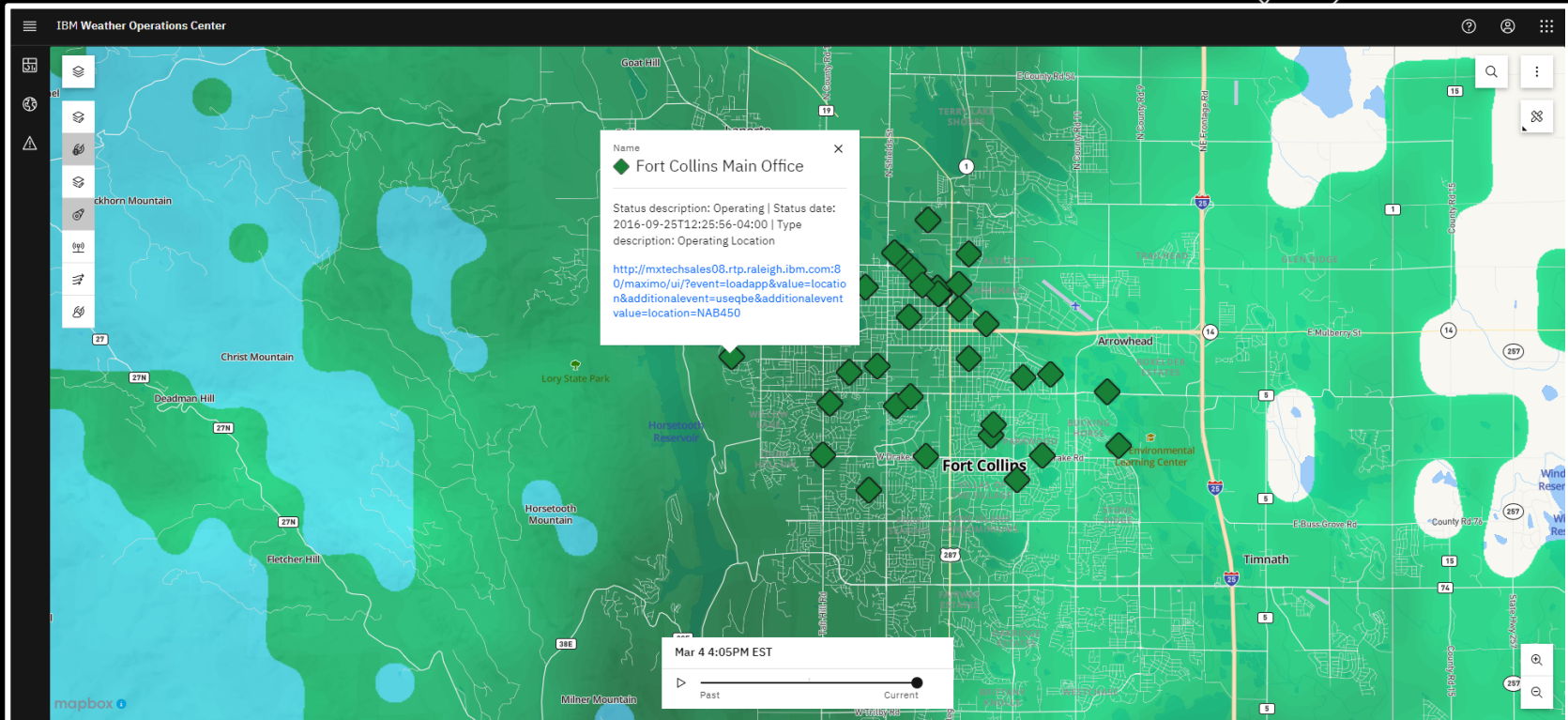






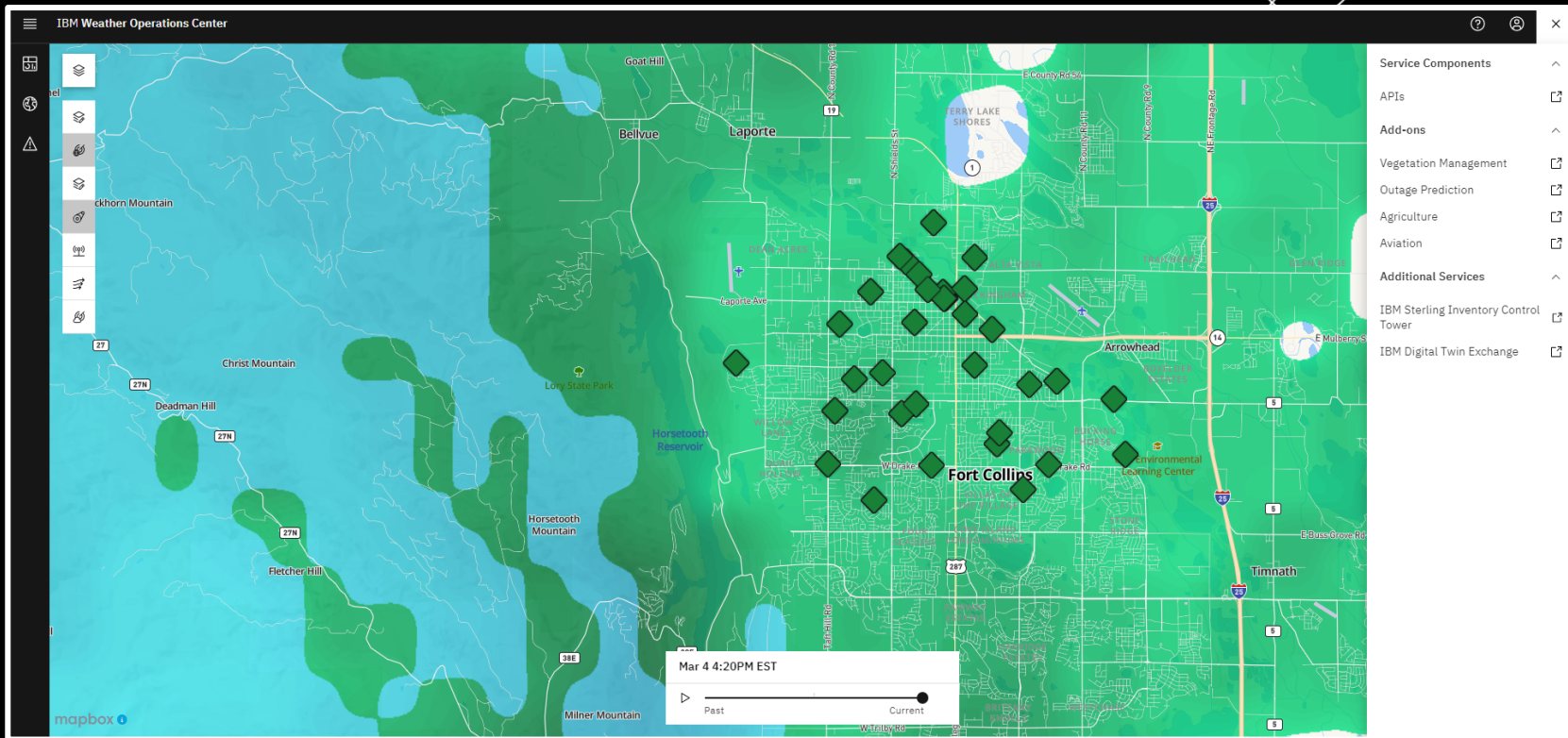












# From Data to Analytics to Notifications, and Ultimately Decisions It is easy to get started

Understand Weather  
touch points in your  
business



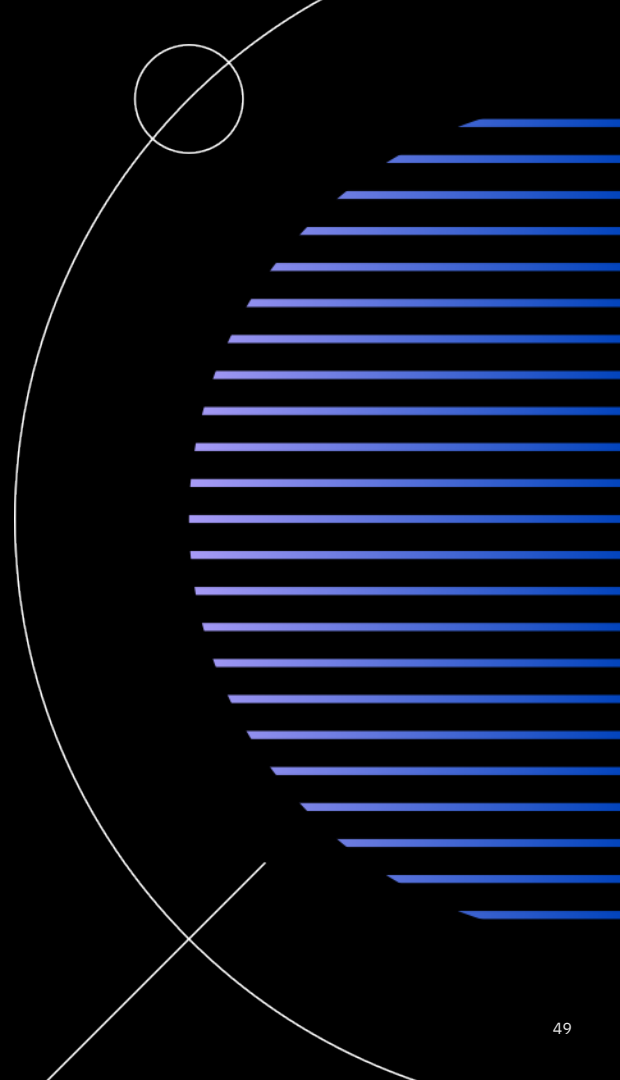
Gather and  
analyze data



Operationalize weather-based  
decisions across your  
organization



Where  
do you see  
opportunities?



# Thank you

**John Bosse**

Offering Manager, Weather Business Solutions

—

[John.Bosse@ibm.com](mailto:John.Bosse@ibm.com)

1+508-380-8626

[ibm.com](http://ibm.com)

**Robbie Berglund**

Business Unit Executive – Americas Weather Group

—

[Rob.Berglund@us.ibm.com](mailto:Rob.Berglund@us.ibm.com)

1+512-422-7310

[Ibm.com](http://Ibm.com)

