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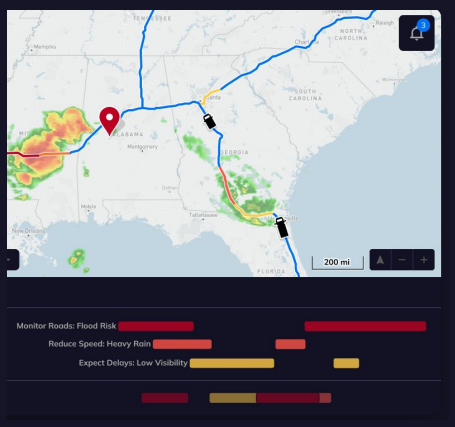
Transportation:
Improving Safety and Reducing Costs with Weather Intelligence



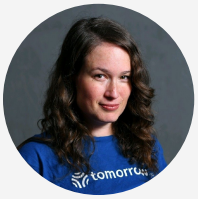
Traditional Weather Solutions vs. Tomorrow.io's Weather Intelligence

No driver would blindly go into the path of a hurricane as it is approaching — just as no dispatcher would knowingly send a driver there.

Transportation leaders are well aware of the safety risks severe weather poses, and most monitor the forecast on some level. While the threats of large-scale weather events are increasing alongside climate change, everyday weather also causes dangerous road conditions outside of tornadoes and major snowstorms. Common conditions like high winds, icy roads, dense fog, and local or pop-up storms make driving unsafe.

Many transportation companies have vague and disjointed safety processes in place for making weather-related decisions. Dispatchers or drivers still rely on traditional weather monitoring from sources that they might use in their personal lives (such as weather apps or alerts from the National Weather Service), which cover a wide area.

"When individuals are asked to track a network of moving drivers through ever-changing weather conditions without the right tools — on top of a million other daily tasks — things inevitably slip through the cracks," said Ayala Rudoy, general manager of transportation at Tomorrow.io, a weather and climate security company that is changing the game for transportation weather management.



Ayala Rudoy,
GM of Transportation at Tomorrow.io

Unlike traditional weather forecasting tools, Tomorrow.io provides hyperlocal and real-time insights that allow transportation companies to monitor road conditions and identify upcoming weather impacts along routes.

Without this advanced, scalable system, drivers are forced to make the decisions about whether road conditions are manageable or if they need to hunker down and wait it out. But often they're also using the same weather apps that dispatchers are using, which results in an incomplete picture of dangerous microevents. These outcomes are slowdowns, delivery delays and a significant increase in safety risks.

"The lack of automated tracking and decisioning tools around changing weather conditions mean that even companies attempting to put a solution in place are still missing critical events, resulting in major safety risks and, unfortunately, accidents," Rudoy said.

Not only does severe weather threaten driver safety, but it can also carry serious financial consequences. Penalties stack up for late loads, eating into operating budgets and damaging a company's reputation. When accidents do happen they place a costly burden on the transportation company: There's vehicle and cargo damage, increased insurance premiums and — in the worst-case financial scenario — a lawsuit that can result in devastating nuclear verdicts.

If you're caught off guard when severe weather strikes, it can have a devastating impact. But the weather is not completely unpredictable; in fact, greater weather visibility is possible now more than ever before.

How to Improve Weather Safety

Transportation weather safety starts with taking responsibility through consistent monitoring and clear procedures.

"First and foremost, carriers have the responsibility to put systems in place to alert drivers as well as dispatchers ahead of time about dangerous conditions and do their best to avoid them," Rudoy said.

What facilitates the ability for transportation companies to monitor weather is real-time, transparent data relevant for their industry, trucks and lanes. This allows companies to make decisions prior to departure and helps drivers make informed choices about changing conditions while over the road. But not all weather prediction systems are created equal.

"Weather is such a big pain for transportation companies that unsurprisingly, companies have tried to tackle it themselves in the past with homegrown solutions," Rudoy noted.

The problem with these solutions, though, is that publicly available data covers a wide area and is not designed for actionable decision-making within the transportation industry.

Rudoy identified these key functions of a scalable and predictive weather solution, which directly addresses these issues:

- **Hyperlocal data:** Information on how conditions are impacting a specific route vs. an entire region

- **Predictive and real-time monitoring:** The ability to monitor all lanes, dynamic routes and moving trucks and match them with the weather every few minutes to ensure nothing is slipping through.
- **Actionable and customized insights:** Recommendations on how to act based on hyperlocal conditions and the unique truck (e.g., empty vs. full, Texas snow vs. Boston snow)

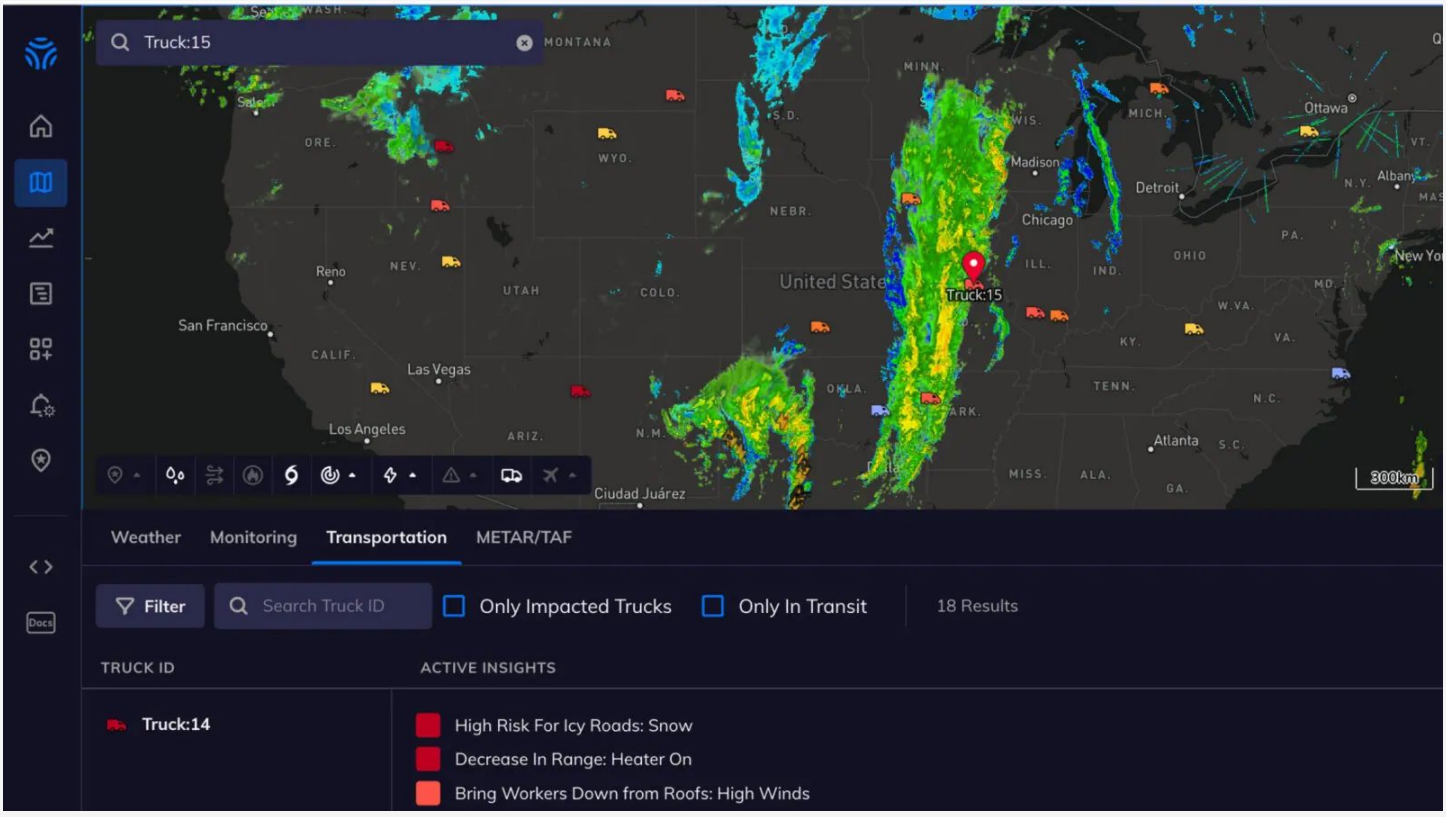
As the transportation industry continues to undergo a digital transformation and embrace more cloud technology, companies like Tomorrow.io are driving innovations to provide more actionable weather data specifically for transportation companies than ever before possible.

With Tomorrow.io's weather prediction and tracking platform, transportation companies can choose alternative routes prior to departure, avoiding severe weather altogether and proactively preparing for everyday conditions like wind gusts, slippery road conditions and snow.

"Real weather preparedness doesn't stop at the forecast. We provide the tools needed to monitor all trucks in the fleet in real time, easily and quickly identify which ones are in severe weather conditions so you can prioritize them according to projected severity and keep drivers safe," Rudoy said.

Reduce Costs With Real-Time Weather Monitoring of All Moving Assets

Weather is one of the most dangerous roadway variables. Hazardous conditions account for 25% of all accidents, and one single accident can cost up +$100k—not including injuries/fatalities.

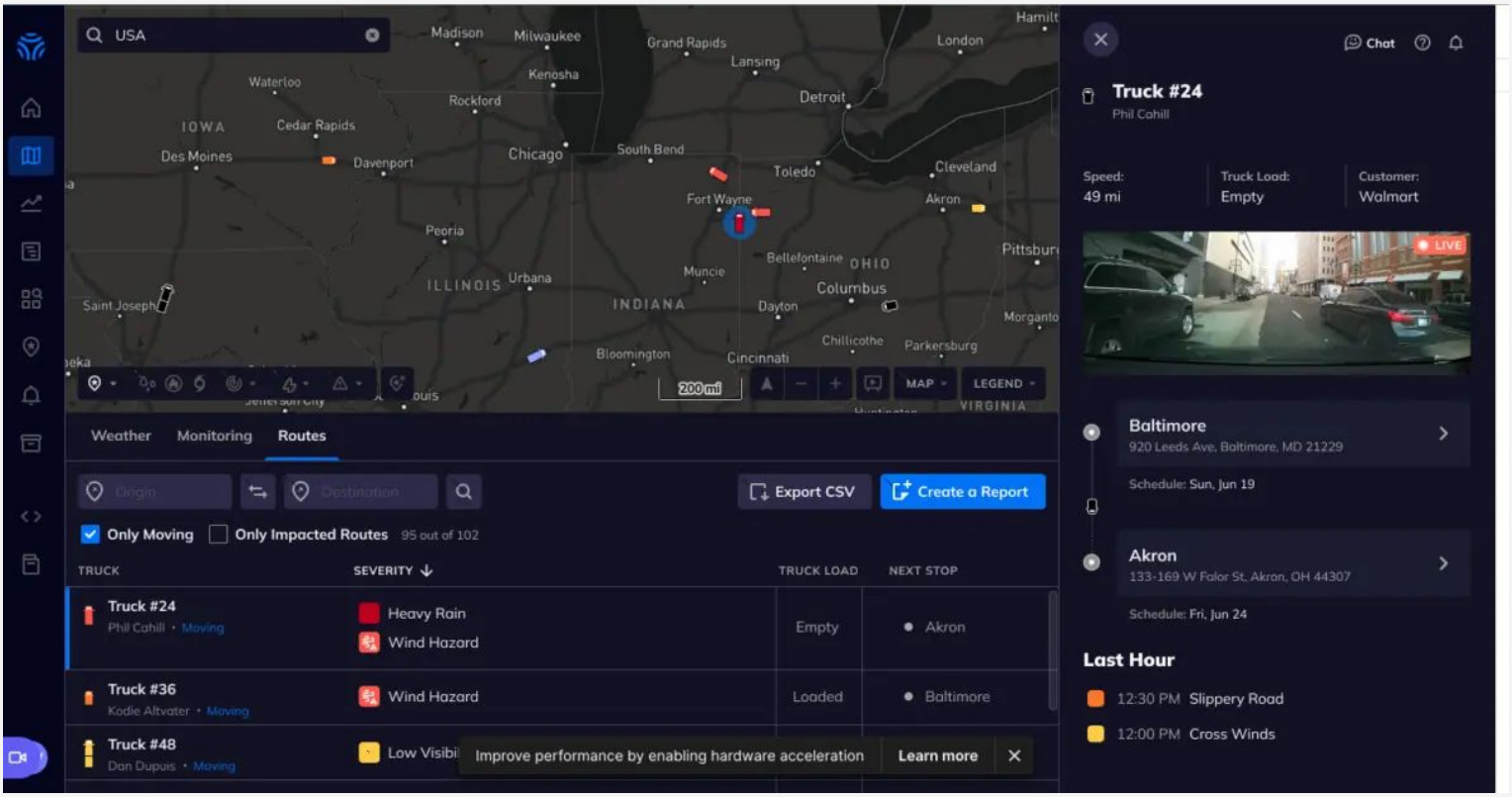


Tomorrow.io allows operators to real-time track and automatically identify which trucks are in danger from one central location and ingest any ELD or camera data feed.

For logistics organizations like trucking companies, accident prevention requires an advanced approach to weather, especially as winter looms.

While most organizations reactively monitor changing conditions along routes, this doesn't account for the majority of drivers who don't take specific routes. As a result, it's nearly impossible to proactively alert and protect these vehicles...until now.

Meet Tomorrow.io's Real-Time Weather Monitoring! This transformative feature allows logistics leaders to automatically identify which vehicles face dangerous conditions and and confidently contact drivers at the right time to prevent accidents.



How Weather Impacts Moving Assets

Whether they're driving box trucks, tractor trailers, or lighter weight delivery vehicles, everyday weather conditions pose serious threats to drivers.

Wind: High winds can decrease visibility distance and cause lane obstructions due to debris, wind-blown snow, etc. For larger trucks, wind gusts can significantly impact vehicle performance, leading to a full loss of control and the potential for the vehicle to blow over.

Precipitation: The majority of weather-related accidents are a result of precipitation from wet pavement (70%) and active rainfall (46%). Unexpected precipitation impacts vehicle traction, driver capabilities, speed limit control, and more.

Fog: Depending on the region, fog can be a common obstacle for logistics drivers. This low-lying cloud formation significantly decreases visibility distance, and as a result, affects driver behavior.

Without the right tools in place, logistics organizations are forced to monitor these conditions manually using disjointed systems, resulting in accidents from:

- Drivers never being contacted about hazardous conditions or not adhere to warnings
- Systems not catching short-lived, pop-up events like storms

Why Real-Time Monitoring is a Game Changer

With Tomorrow.io's new Real-Time Monitoring, logistics providers can protect drivers from inclement weather in real time and reduce weather related delays by 25% by:

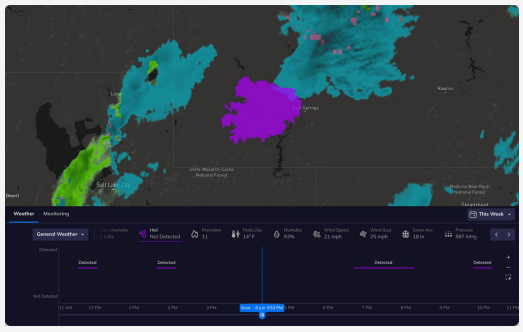
- Identifying at-risk vehicles: Easily applying weather insights and severe weather alerts to access automated list of priority drivers across full network of trucks
- Alerting drivers when it matters most: Confidently contacting drivers at the right time to ensure safety, minimize accidents and prevent blowevers
- Staying ahead of quick-changing conditions: Gaining complete situational awareness of granular weather incidents including those with sudden changes in intensity, are extreme or short-lived
- Integrating with existing systems: Seamlessly connecting telematics API & dash cam feeds for hyperlocal weather monitoring combined with real-time driver, truck and load information

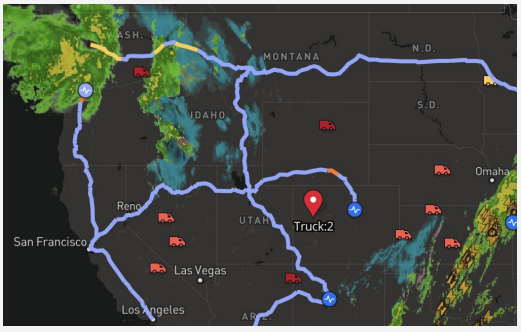
LEARN MORE ABOUT TOMORROW.IO

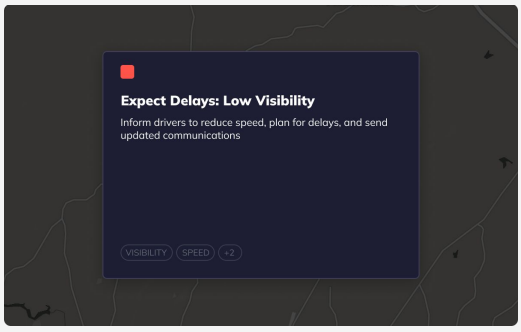
Powered by Weather Intelligence

You need the world's most cutting-edge technology to predict and prepare for the impact of weather on a daily basis.

With automated predictive insights and alerts, teams use Tomorrow.io to improve operational efficiency, minimize business disruptions, and proactively avoid safety risks.







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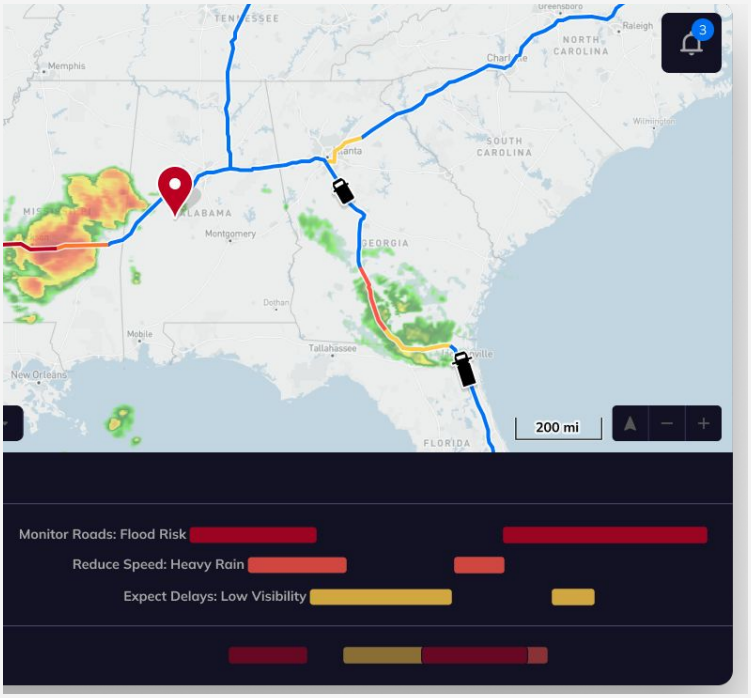
The Tomorrow.io Advantage

Monitor the conditions impacting your operations with predictive insights and actionable alerts.



Data: Hyperlocal

Proprietary forecasting technology allows for street-level granularity of fixed assets and dynamic routes vs. broad forecasts.

Insights: Predictive

See the business impact of weather in advance vs. looking at weather data. Update operations before it's too late.

Action: Automated

Our predictive platform tracks 40+ parameters 24/7 for all assets/routes and proactively alerts users allowing for monitoring at scale.

The Leader in Weather Intelligence

What differentiates Tomorrow.io as the leading weather intelligence platform?

Single Source of Truth for Fixed and Moving Assets: Monitor all fixed locations with hyperlocal predictive forecasts and business impact. Tomorrow.io's weather intelligence seamlessly mitigates weather impact for warehouses, runways, transition lines, stadiums, or fields.For moving assets, visualize where your vehicles, trucks, trains, ships, planes are at risk and make updates in advance of impact and while in-transit with dynamic route optimization.

Proprietary Data and Models: Outdated weather companies mostly use and repackage public weather data. You can get the same data yourself! Our proprietary observing, sensing, and modeling uses public and private sources allowing for hyperlocal forecasting.

Platform Monitoring vs. Humans: Most big weather companies use humans to manually track the weather and have meteorologists acting as account managers. Humans can't track millions of weather details happening every second. You need an automated platform built for scale.

Insights and Recommendations: You need predictive insights showing how weather will impact your business and recommendations about what to do and when.Key stakeholders can then be automatically alerted in advance for fixed assets, multiple locations, and moving assets.

Can your weather provider do all of this for you today? With Tomorrow.io, you can!

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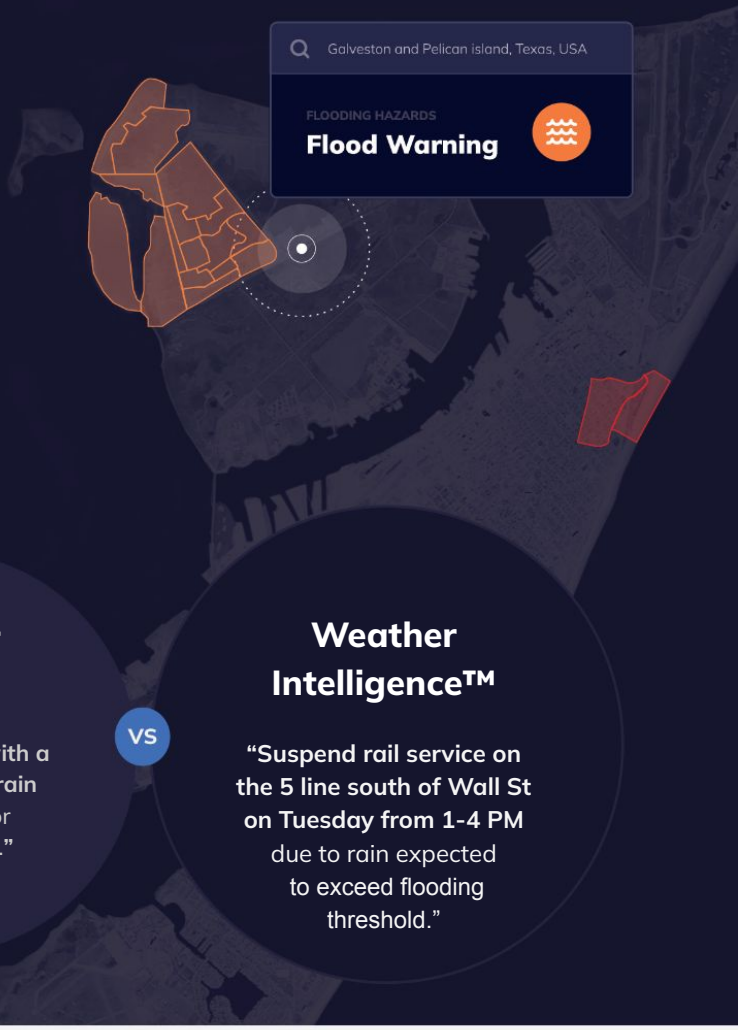
The World's Leading Weather and Climate Security Platform

Powered by proprietary weather intelligence



What's the difference between a weather forecast and Weather Intelligence™?

Weather Intelligence™ isn't focused on the weather, it's focused on the predictive impact of the weather, automated decisioning, and operational optimization.

Weather forecast

"Mostly cloudy with a 40% chance of rain on Tuesday for New York City."

VS

Weather Intelligence™

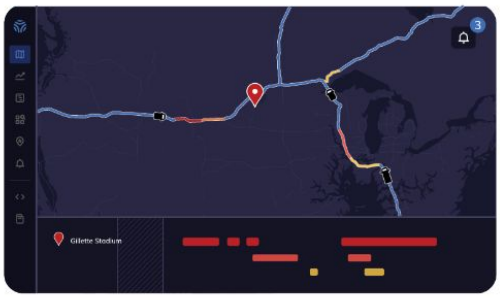
"Suspend rail service on the 5 line south of Wall St on Tuesday from 1-4 PM due to rain expected to exceed flooding threshold."

A Totally Different Weather Experience

Monitor the conditions that impact your operations with predictive insights and actionable alerts.

One Forecast

- Seamlessly merging proprietary and public data and models into one forecast
- Powered by a proprietary machine learning engine



- Web-based, single source of truth
- Actionable Insights and Alerts
- Automated decision making at scale

User Workflows

- The weather conditions and related actions that matter most to your daily operations
- User-specific datasets

Safety Protocols

Slow Down: Blow Over Risk
Use Fog Lights: Low Visibility
Update Shift: Lightning
Now 3:53 PM

Logistics Operations

Consider Rerouting: Heavy Rain
Alert Drivers: Extreme Heat
Reduce Speed: Icy Roads Likely
Now 4:25 PM

Emergency Management

Implement Extreme Safety Protocol
Snow Plan A: 4 inches or more
Issue Alert: High Flood Risk
Now 4:25 PM

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Built to help you make the right decision, at the right time, for your operations

Interactive map provides real-time situational awareness of approaching weather.

Monitors track incoming weather impact for point locations, polygons and polylines.

Clusters help quickly identify the operational zones expecting the most significant weather impact.

Timeline displays hourly forecast trend, for up to two parameters at a time, up to 14 days out.

Insights based on your weather criteria transform the forecast into recommended actions.

Alerts for expected weather impacts can be sent to staff by email, text or mobile app.

All data, forecasts, insights, and alerts available via Tomorrow.io's Weather API

Create Insights for Any Industry Using More than 50 Weather Parameters

General Weather
Temperature
Feels Like
Precip. Intensity
Wind Speed
Wind Gust
Wind Direction
Humidity
Dew Point
Pressure
Visibility
Cloud Cover
Cloud Base
Cloud Ceiling
Rain Accum.
Snow Accum.
Ice Accum.
Lightning
Hail

Air Quality
Air Quality-EPA
Air Quality-China
Ozone
Carbon Monoxide
Nitrogen Dioxide
Sulfur Dioxide
PM2.5
PM10

Marine
Sea Surface Temp.
Sea Current Speed
Sea Current Dir.
Tides
Wave Height
Wind Wave Height
Swell Height
Wave Direction
Wind Wave Dir.
Swell Direction
Wave Period
Wind Wave Period
Swell Period

Land
Soil Moisture
Soil Temp.

Flood
Flood Index
Stream Flow

Solar
Solar GHI
Solar DHI
Solar DNI

Fire
Fire Index
Smoke Index

What is a Weather Insight?

Weather insights transform the forecast into recommended actions based on the weather conditions that impact your operations.

IF Temperature ≤ 4°F
Suspend Roofing Work

Map Layers: Dynamic Wind, Fires, Tropical Cyclones, Radar, Clouds, Lightning, Severe Advisories, Aviation

Uber Ford IndiGrid evergy PATRIOTS

Take Control of Tomorrow, Today | Contact us at sales@tomorrow.io