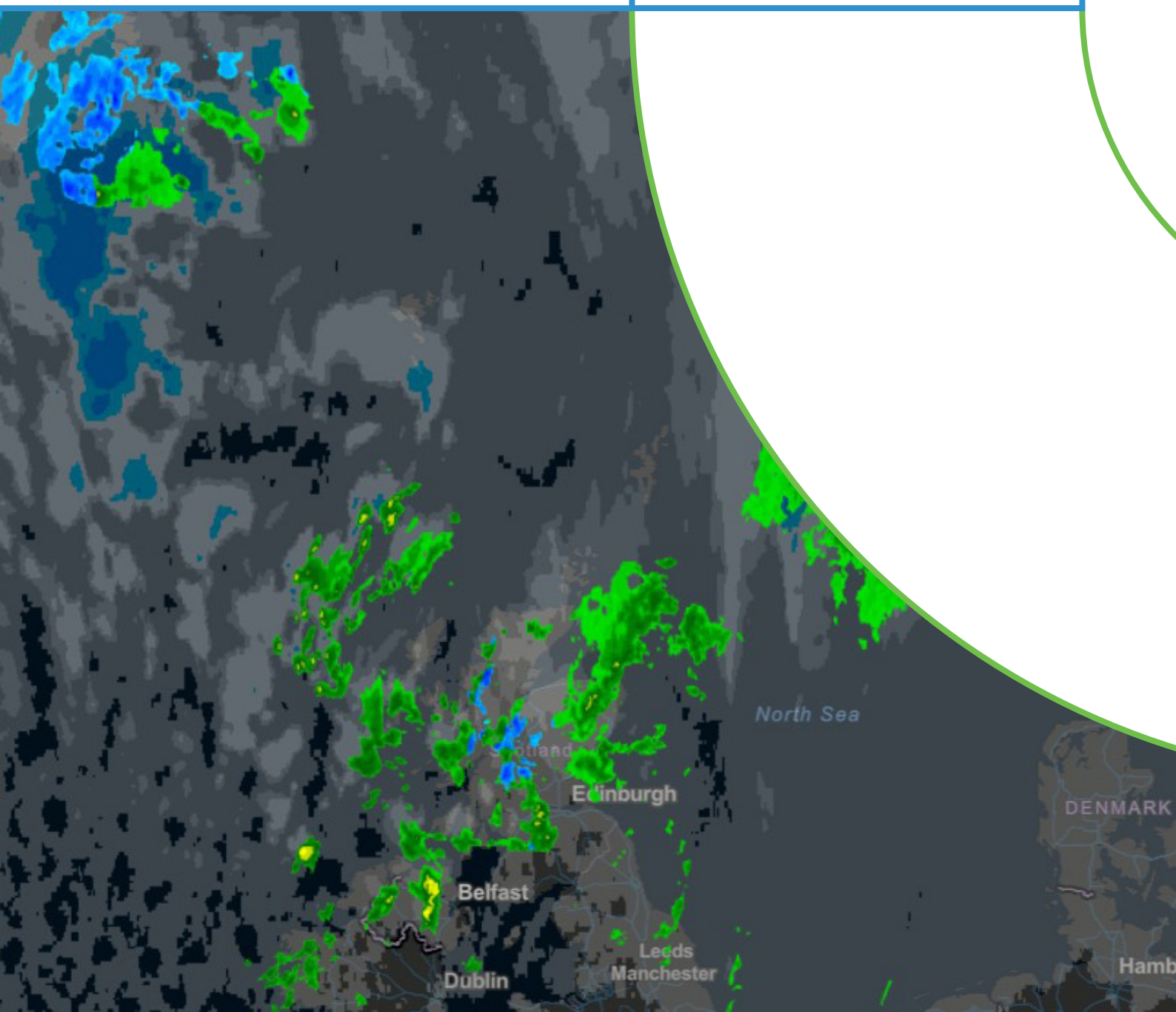
Geographic Information Systems

A holistic set of mapping information and data services from DTN



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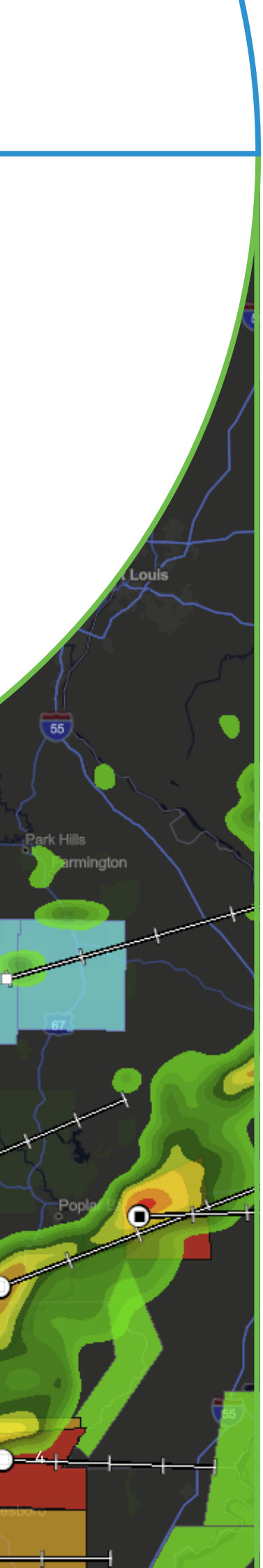
What is GIS Mapping Technology?

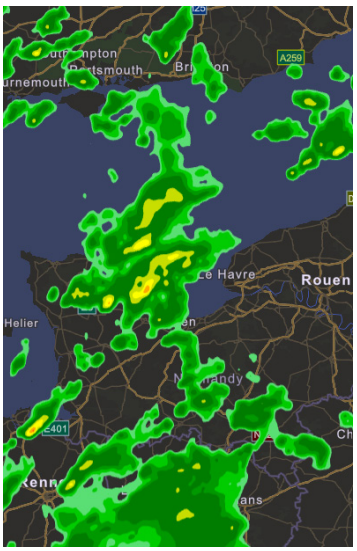
Geographic Information Systems (GIS) create, manage, analyze, and map all types of spatial data. GIS connects data to a map, integrating location data (where things are) with additional descriptive information to provide a foundation for mapping and analysis.

GIS helps users identify and understand complex patterns, relationships, and geographic context. The benefits of GIS include improved communication and efficiency, as well as better decision-making.

At DTN, our GIS solutions provide the largest selection of precision weather mapping in the market today. DTN Map Services are exposed through ArcGIS Server REST endpoints for quickly adding past, present, and future weather to any Esri maps or apps.



Radar Map Services

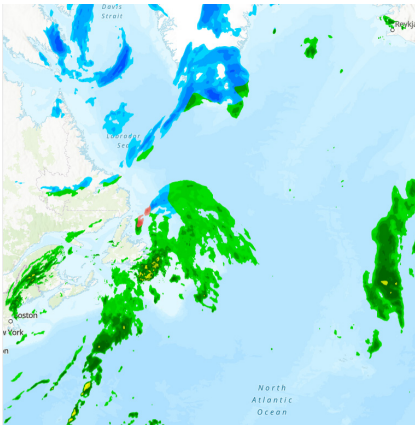


Radar and Radar Mosaics

Contoured composite reflectivity as observed by the radar. These mosaics have been quality controlled to remove non-weather artifacts from the data. The quality control procedures make the end product much easier for end users to identify precipitation and potentially hazardous weather.

Synthetic Radar Nowcast

Synthetic Radar Nowcast is a comprehensive precipitation dataset that provides worldwide coverage of precipitation events (rain, snow, rain + snow mix, freezing rain, and sleet) with high spatial and temporal resolution. This innovative product fills critical gaps in traditional radar coverage by synthesizing multiple data sources into a cohesive and coherent global precipitation nowcast, updated every 5 minutes.



Update frequency: Every 15 minutes
Loop: 3 hours
Coverage: EU, AU, JP, US

Radar Nowcast

See beyond current conditions with DTN Radar Nowcast. Forecast radar reflectivity is provided in 15-minute time-steps going out 3 hours. This forecast updates every 15 minutes and comes from an extrapolation of storm motion over time to indicate where storms and precipitation are going, and depicting the precipitation type and intensity. This is best utilized for short-term forecasts because it comes directly from observed radar data.

Available in: EU, AU, JP, US

Satellite and Tropical Map Services

Global Infrared

(Current and 6-Hr Loop)

The Global Infrared map service provides satellite data that includes cloud top temperatures. Because cloud top temperatures correlate with cloud height, the height of the cloud can be estimated. Colder temperatures indicate higher clouds which indicate stronger convection (i.e. stronger storms).

Global Tropical Forecasts

Issued by the National Hurricane Center and Joint Typhoon Warning Center

This data service aggregates forecasts from the National Hurricane Center (NHC) and the Joint Typhoon Warning Center (JTWC) to provide global tropical storm/hurricane forecasts.

This REST endpoint from DTN ArcGIS Server includes:

- Observed locations (starting point where the storm achieves tropical storm criteria)
- Observed track
- Current location
- Forecast locations
- Forecast track (line)
- Forecast error cone
- Forecast wind radii (34kt, 50kt, and 64kt)

Note: Data updates as new forecasts are issued from the NHC and JTWC.

DTN Storm Forecasts

Issued by DTN Forecasters

DTN has its own proprietary global forecasting system. It is unique in that the input models are statistically and mathematically blended using machine-learning techniques to constantly adjust and improve the forecast.

DTN Forecasters produce forecasts for tropical storms around the globe using the same parameters as those issued by the National Hurricane Center (forecast points, error fan, and wind swath out to 5 days).

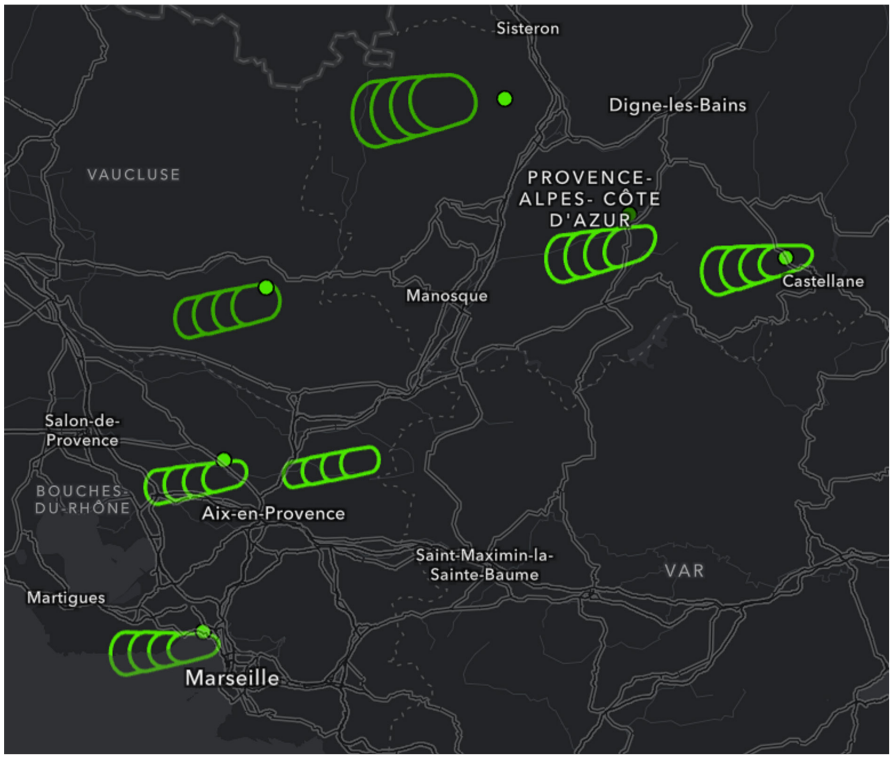
DTN Storm Forecasts may deviate from the NHC/JTWC forecasts. DTN Global Tropical Forecasts updates every 6 hours.

Storm Nowcast

Understand the characteristics of every storm and how it is forecast to evolve over the next hour. Fan-shaped polygons show the storm's speed and direction emanating from the center of the storm cell.

Attributes include:

- Speed and direction
- Cloud tops
- Freezing level
- Convective gust speed
- Lightning intensity
- Heavy rain threat
- Hail threat: size and probability



Global Storm Attributes

overall_threat

- Extreme
- High
- Moderate
- Low
- Minimal

Global Storm Corridors

overall_threat

- Extreme
- High
- Moderate
- Low
- Minimal

Global (Image Server)

Global Forecast Service

DTN provides global forecast data services through our ArcGIS Server infrastructure. These time-enabled services provide weather forecast data for up to ten days out and are available via REST endpoints.

These are DTN proprietary forecasts created by combining the best weather modeling solutions from meteorology centers around the world with DTN proprietary weather models.

Below is a list of forecast data services:

Temperature

- Hourly
- Daily High (6- and 24-hr)
- Daily Low (6- and 24-hr)

Precipitation

- Hourly
- Daily

Marine – Hourly

- Swell direction, period and height
- Wave height
- Wind/wave direction and height

Precipitation Probability – Every three hours

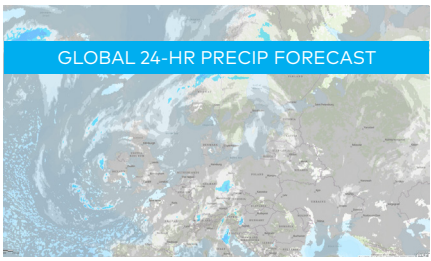
Thunderstorm Probability – Every three hours

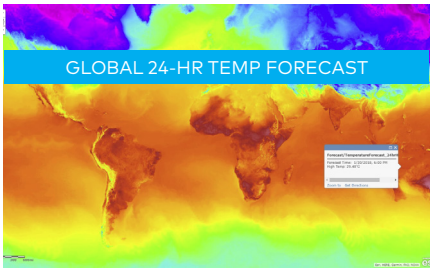
Snow – Hourly

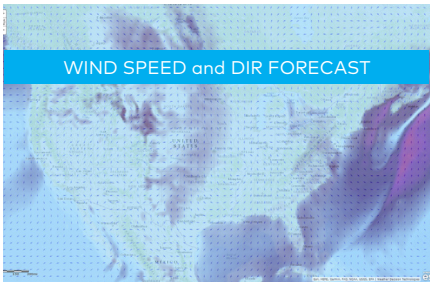
Relative Humidity – Hourly

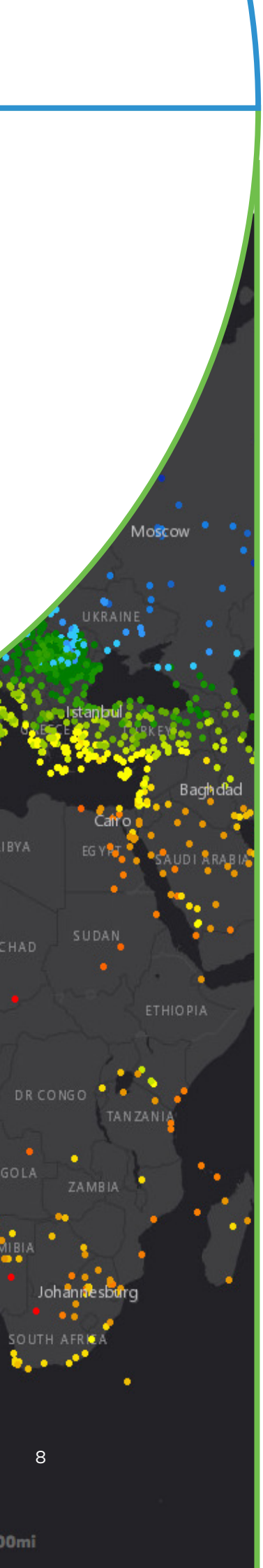
Cloud Cover – Hourly

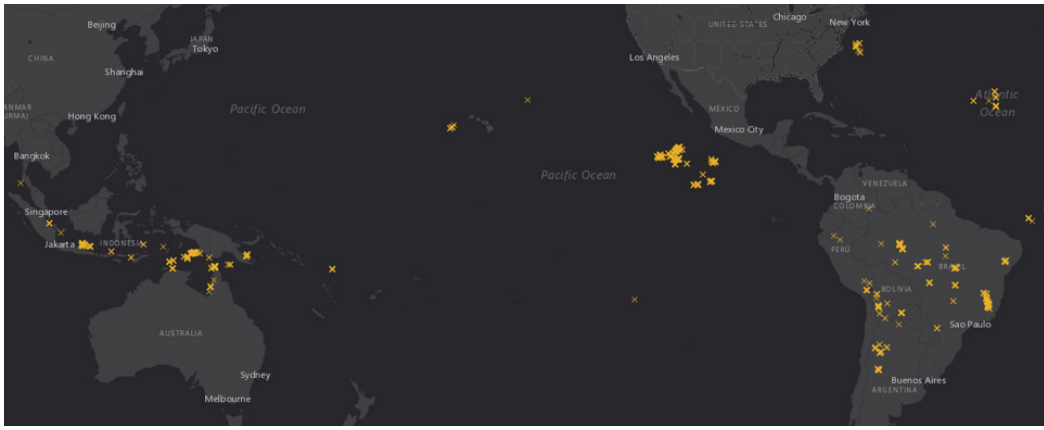
Wind (Direction, Speed, Gust) – Hourly











Global Analysis

Surface observations update every five minutes and show the current observations for the following weather variables: temperature, relative humidity, and wind speed and direction indicated by wind barbs.

- Temperature – 24-hr High and Low (Global)
- Dewpoint Temperature (Global)
- Evapotranspiration Short and Tall (Global)
- Precipitation – 1-hr and 24-hr
- Relative Humidity
- Solar Radiation – 1-hr and 24-hr (Note: only 1-hr for CONUS)
- Wind Direction and Speed

Real-time Global Lightning (+ Feature Server)

DTN provides lightning data from the Earth Networks Total Lightning Network (ENTLN), a high precision, extremely reliable lightning detection network with global coverage.

DTN receives a real-time feed of lightning data and makes it available as an ArcGIS map and feature service.

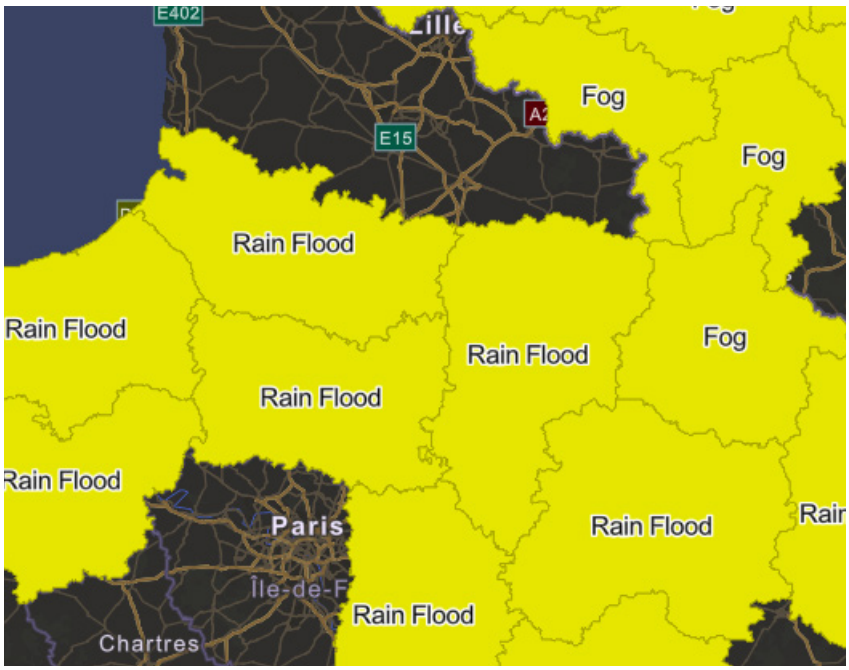
The lightning data service updates every minute and contains the last five minutes of global cloud-to-ground lightning which includes latitude, longitude, amplitude, polarity, and strike time to the millisecond.

Alerting (Map + Feature Server)

DTN Forecasters issue Alerts for a variety of weather threats. These alerts come from polygons drawn by DTN forecasters with attributes that describe the weather threat and timing.

EUMETNET MeteoAlarms

This REST endpoint from DTN ArcGIS Server is updated as products are issued by official bulletins issued by government meteorological agencies for severe or safety-impacting weather conditions or events.



As demonstrated, DTN is committed to GIS and Esri map services. These provide a powerful way to share geographic information from ArcGIS to the web and native applications.

DTN plays a critical role in creating interactive weather maps and GIS applications to provide decision-making insights for the utilities, maritime transportation, and aviation industries.

If you're interested in finding new solutions for your weather-based needs, visit our website.

www.dtn.com