



Weather Source Capabilities

Data Products

OnPoint Weather Product Suite

The OnPoint Weather Product Suite provides a curated continuum of historical, present, and forecast weather data. Our database reaches from the year 2000 to present with a 15-day forecast and an extended view out to 46 days.

OnPoint Forecast Data

The standard OnPoint Forecast data is based on the National Centers for Environmental Prediction (NCEP) Global Forecast System (GFS).

- **ECMWF Forecast**

We offer European Centre for Medium-Range Weather Forecasts (ECMWF) data. This includes the ECMWF forecast of up to 240 hours in hourly format and up to a 15-day forecast in daily format. In addition, we also have a sub-seasonal forecast that is delivered in daily views going out up to 46 days. Additionally, the ECMWF Seasonal Forecast provides a monthly view forecast for the next seven months.

- **HRRR Forecast**

With a native spatial resolution of 3km and a temporal resolution of 15 minutes, the HRRR Forecast weather model is built on the GFS forecast. The HRRR Forecast includes an 18 hour forward forecast view that is refreshed hourly. Although HRRR is only available in North America, we are actively working to bring the same spatial and temporal resolution on a global scale.

- **GFS Forecast**

The GFS Forecast is processed by Weather Source then staged on our OnPoint Grid for statistical consistency with our other datasets. The GFS-based OnPoint Forecast currently provides a forecast of 384 hours or up to 15 days in daily format. This data is fully refreshed every six hours.

- **ECMWF Short/Mid Range Forecast**

This currently provides a forecast of up to 240 hours in hourly format and up to 10 days in daily format. Seasonal forecasts in monthly views for over six months are also available.



- **ECMWF Extended Forecast**
This currently provides a forecast of daily views going out to 46 days. This forecast is updated daily and includes expected future atmospheric and oceanic conditions, averaged over periods of one to three months.
- **ECMWF Seasonal Forecast**
ECMWF provides a monthly view forecast for the next seven months. This forecast is updated once per month and includes the mean and anomalies for temperature, humidity, precipitation and snowfall.
- **GFS and ECMWF Ensembles**
For each forecast run, Weather Source processes all of the forecast ensemble members (31 for GFS and 51 for ECMWF) in real-time and users have the ability to create business intelligence around the spread of the distributions of the ensembles to better understand the potential variances of each forecast which can be very useful for scenario planning but also understand the confidence level in the forecast skill score.
- **Extreme Weather Forecast Service**
The Extreme Weather Forecast Service offers a proactive, forward-looking view of potential extreme weather events and natural disasters, such as hurricanes, tornadoes, cyclones, severe convective weather, wildfires, floods, and more. This service provides a forecast spanning up to 10-14 days, with detailed probability and confidence levels associated with each type of weather event.

OnPoint Historical Data

- **OnPoint Weather Historical**
OnPoint Weather's historical data provides hourly and daily weather values spanning from the year 2000 to the present. This database is a stable source of historical information because once the data is archived no changes or edits are made.

NOAA CFSR

NOAA historical reanalysis data, augmented with Weather Source's satellite and radar information, provides a comprehensive view of historical weather events. Weather Source has designed this product to generate near-real-time historical actuals data, delivering accurate and detailed insights into past weather conditions.

ECMWF ERA5

Weather Source's historical reanalysis data is driven by the ECMWF model,



providing valuable insights into past weather conditions. While there is currently a 5-day lag with this data, we are actively working on a solution to reduce this lag. Our solution includes a provisional dataset that can be used to shorten the lag, giving users the option to either overwrite the provisional data when the actual data becomes available or maintain the provisional data.

OnPoint Historical Forecast

- **Historical GFS Forecast**
Access GFS historical forecast data in pristine format back to January 2015.
- **Historical ECMWF Forecast**
Access ECMWF Short / Mid historical forecast data in pristine format back to July 1, 2017 and ECMWF Long-Range forecast back to January 1, 2014. Historical seasonal forecasts are also available back to September 2022.

Additional Data Products and Features

- **Airport Reporting Station Data**
Weather Source has “cleaned” data for all global airport reporting stations dating back to 1973 or when the station came online. All Weather Source airport station data has been ‘cleaned’ to remove all gaps and null values and the data is available in both hourly and daily format.
- **Dynamic Elevation Adjustment**
The concept of elevation adjustment is unique to Weather Source. Weather Source’s Dynamic Elevation Adjustment applies true meteorological modeling to accurately adjust for terrain variations. With the addition of Dynamic Elevation Adjustment Weather Source is now able to dynamically resolve differences in elevation between the elevation of a location of interest and the elevation of the interpolating weather inputs.

OnPoint Climatology

Climatology provides the mean, standard deviation and other statistics that collectively describe the typical or normal weather for a location and time of the year. OnPoint Climatology can be used to quantify what to expect for weather at locations of interest and specific times of the year. It can also be used to understand how recent conditions or forecasted conditions may be departing from normal (i.e., weather anomalies) and statistically how rare or unusual the weather anomalies are.



- **Extreme Weather Climatology**

In addition to OnPoint Climatology, Weather Source has also developed Extreme Weather Climatology products for a number of extreme weather phenomena such as hurricanes, severe thunderstorms, tornados, storm surge, river flooding, hail, floods, and wildfires which provide a foundation for understanding and quantifying the probability of various weather phenomena under our planet's current climate conditions and act as (i) a reference for current climate means and variance for any location; (ii) current climate trends for any location; (iii) support scenario planning with respect to current climate trends; and more.

Data Solutions

OnPoint Weather Solutions Suite

The OnPoint Weather Solutions Suite is built on Weather Source's patent pending data and all solutions are built to be modular, highly configurable, and scalable to any business size or use case.

The Weather Insights Platform™ (WIP™)

WIP is a dynamic, web-based application designed to provide a competitive edge for retailers, restaurants, and e-commerce organizations. Using historical business data correlated with historical weather data, WIP generates historical impacts and positive and negative correlations related to weather. WIP automatically uses the output of this historical analysis to generate sales prediction and weather insights for Product Demand and Promotion. Users can easily generate sales demand forecasts up to 46 days down to SKU and store level, manage staffing and inventory, trigger weather-based advertising, and more.

Condition-Based Ad Triggering (C-BAT™)

Automatically trigger marketing based on preset weather conditions. Apply hyper-local targeting to connect customers with your brand where and when it matters most. CBAT fully integrates with all major ad platforms including DV360 and Facebook ads. Easily integrated with any ad platform or loyalty program that has an API.

OnPoint Risk Analytics

OnPoint Risk Analytics is a service that provides climate & peril risk scores and probability of return by dynamically calculating the peril frequency rate and probability of each risk on a global scale. The climate and peril risk modeling is at a spatial resolution of 10 meters to 90 meters which is especially important for flood modeling where slight changes in ground



elevation can make big differences in flood potential for locations near rivers and coastlines. Each climate and peril risk model provides relative risk rankings for any requested location(s). The relative risk rankings are provided as a percentage of the sorted distribution of event frequencies from a group of locations, where the group can be defined as the entire globe, a region, or a country.

In addition to providing relative risk rankings for many perils, the service will also provide return period event levels for common return period ranges, such as 20, 50, 100, 200, and 500 years (e.g., a 50-year return period for flooding for a location may be 1.5 meters of flood water and what this means is that on average for any 50-year period, the maximum expected flood level would be 1.5 meters).

Focusing still on the site selection use cases, you could also use our OnPoint Risk Analytics product to not only understand present risk (i.e., will this location be hit with a flood in the next 6-12 months) but also evolution of risk (i.e., what is the return period frequency for an event that impacted a location). Lastly, our Climate Intelligence Platform (CIP) can be used to generate longer term climate scenarios (i.e., what are the possible variations in wind speed in the next 10, 20, 30 years).

Alerting

Dynamic Weather Alerting Service™ (DWAS™)

DWAS allows users the ability to easily plot asset locations, configure rules and alerts, and receive notifications for any user defined weather parameter or severe weather alerts issued by various government agencies such as the U.S. National Weather Service and Canadian Ready Alerts.

Visualization

OnPoint Geospatial

All weather source data is available in tabular format or as Geospatial files. In addition, we also have Geospatial products for all significant perils such as flooding, hurricanes, tornadoes, storm surge, hail, severe convective weather and more. These Geospatial peril products incorporate metadata and a deep, historical context down to the meter-scale to provide powerful insights that integrate seamlessly into any GIS application or other visualization tool.



These Geospatial files are available in a variety of formats including GeoJSON, raster and vector files.

Additional Products and Solutions

Climate Insights Platform

Whereas our OnPoint Weather Product Suite delivers a wealth of accurate and actionable global weather data down to hyper-local points of interest, Weather Source also offers its Climate Insights Platform (i.e., CIP) which provides critical climate risk intelligence to help businesses and organizations navigate evolving climate risks and opportunities going forward years and decades into the future. The forward projections of climate are based on the IPCC, CMIP5, and CMIP6 climate modeling runs which have been analyzed by a team of climate scientists to show the most plausible climate change probabilities.

Weather Impact Indices

Weather Impact Indices provide valuable insights into the correlation between weather and various consumer and business activities. Weather can significantly impact consumer behavior and purchasing decisions, as well as business performance across different industries. However, it can be challenging to establish a statistically performant relationship between weather values and these activities.

To address this issue, Weather Source has developed the Weather Impact Indices by aggregating weather and climate data that are engineered to correlate with numerous consumer and business activities. The datasets used for these indices are homogeneous across space and time, sharing a common schema, headers, and definitions. This ensures the availability of high-quality data, regardless of business location, with a continuum of global data from the past to the present and future.

The Weather Impact Indices offer detailed, accurate, and concise data for both consumers and businesses, featuring indices such as outdoor activities, winter sports, summer fun, and commuting for consumers, and construction and building supply, retail and restaurants, insurance, and energy and utilities for businesses. Furthermore, these indices factor in compounding weather conditions, OnPoint Climatology, and business/activity-specific activities, providing a more precise impact signal for businesses and consumers alike. By utilizing the Weather Impact Indices, businesses and individuals can make informed decisions and take appropriate actions in response to weather events that affect their activities.



Rolling Anomaly Reports

Seasonal reports that look ahead or back 1, 3, 7, or 30 days - or across an entire season - that show departures from normal, year-over-year comparisons, and seasonal anomalies.

The OnPoint Advantage

Unlike other providers that rely solely on singular inputs (airport observation stations) and then use simple interpolation methods to extend the data to your location of interest, Weather Source approaches weather in a markedly different way. Weather Source starts with a high-resolution grid that covers all land masses in the world and up to 200 miles offshore and at each grid point we ingest all of the best weather sensing technologies, including satellite, radar, and airport observation stations and unify all of these inputs into a temporally and spatially globally uniform grid that acts as a “single source of truth.”

Delivery

Weather Source will work with you to select and tailor the delivery method that best suits your needs and business infrastructure. There are multiple ways to connect with Weather Source data.

- **OnPoint API**
This is the link to our OnPoint API: <https://developer.weathersourceapis.com/>.
- **CSV File Formats**
Email, SFTP, AWS S3 & ADX.
- **Business Intelligence Platforms**
Snowflake, GCP, Microsoft Azure and Domo, AWS - ADX.



Support

Weather Source provides complimentary implementation assistance, consulting and support. Our support contact information is as follows; our team is available 24/7/365.

- **Technical Support**

Toll free: (844) 813-2617. Select option 2, then option 1.

Email: support@weathersource.com

- **Meteorological Support**

Toll free: (844) 813-2617. Select option 2, then option 3.

Email: support@weathersource.com