Global Weather CORPORATION | Connected WX

Weather Data Services

Global Weather Corporation™ provides the most accurate weather forecasts for people and businesses in the new connected world. Businesses rely on our accuracy for improving operations, enhancing decision-making, increasing profit margins, and serving their customers. Forecasts can be used as stand-alone information, delivered as part of our enhanced services, or embedded within decision support systems and connected devices. All of these can be delivered as white labeled, as if they are your company products. ConnectedWX™ services benefit from continued R&D investment, persistent focus on automation, and our ongoing commitment to provide the most accurate forecasts available anywhere.

Foundational Forecast Services

versatile services with global coverage, designed to serve most users with minimal customization

sensor WX

point WX

SensorWX™ provides tuned forecasts at weather station (sensor) locations. A tuned forecast represents the best match to both historic and current conditions as measured by that sensor. Forecasts for thousands of publicly-available sensors (such as METARS) are currently accessible within our datasets, and forecasts for customer-owned sensors can be provided.

PointWX™ provides forecasts at arbitrary locations - since weather stations are not always present where people need forecasts. To do this, we generate a gridded forecast that is intelligently interpolated to provide a forecast at any requested location.

> **GWC CONSISTENTLY PROVIDES THE WORLD'S MOST ACCURATE TEMPERATURE FORECAST, ACCORDING TO FORECASTWATCH.[1]**

Specialized Forecast Services

vertical-specific services built from the foundation of SensorWX and PointWX

road WX
wind WX
solar WX

RoadWX™ provides forecasts of road surface conditions and corresponding weather for any road location, worldwide. Forecasts are hourly out to 48 hours, with user-specified spatial resolution (such as every 1/2 km).

WindWX™ is a precision wind energy forecast service, updated every 15 minutes out to 168 hours, with farm-level optimization and aggregation to any level (such as by node or ISO to provide situational awareness of the entire portfolio).

SolarWX™ provides hourly forecasts of centralized or distributed solar power, whether observational data is available or not. Farm-level forecasts are aggregated to the regional level to provide higher-level situational awareness of the entire portfolio.

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1. ForecastWatch is an independent provider of forecast accuracy and skill information. Read the report at http://forecastwatch.com/static/Three_Region_High_Temperature_Study_2014.pdf

Global Weather CORPORATION

Weather for the Connected World

GWC's technology employs sophisticated algorithms to post-process numerical weather prediction models. These are the models (such as GFS and ECMWF) computed by national weather services. GWC's automated algorithms apply machine learning to fine-tune the accuracy. This replicates the role of the human meteorologist, aggregating all available models and data to present a more accurate forecast than is possible from any individual model.

The core technology starts by making improved forecasts at sensor locations. A significant strength of our approach is the ability to ingest data from customer-owned sensors and use that data to enhance the forecast at those locations. In real-world tests, our technology outperforms competing forecasts.

The technology includes three major steps:

1. a regression analysis to bias-adjust each model at the forecast location,

2. a weighting of each model based on how well it is expected to perform under current conditions followed by combining the weighted model outputs, and

3. a forward error correction that smoothly modifies the forecast over the next few hours to be consistent with current observations.

Recently, this engine has been extended from sensor-based forecasts to one capable of providing forecasts globally at non-sensor locations – in other words, at any chosen latitude and longitude. The technology is updated on an ongoing basis through GWC's R&D investments, including collaborative research with NCAR.[1]
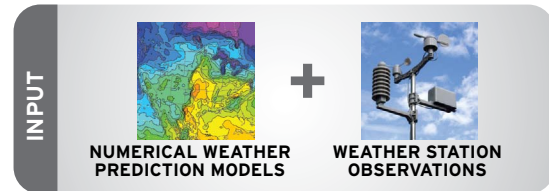
Data Delivery

GWC products are delivered through web services, and we provide a Software Development Kit (SDK) with a complete API set.
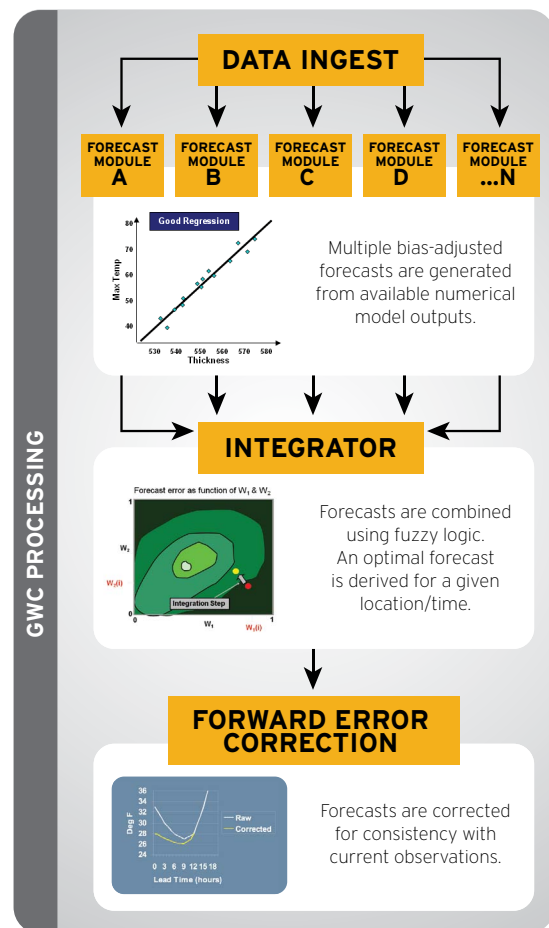
www.globalweathercorp.com

1. NCAR is the National Center for Atmospheric Research, a Federally Funded Research & Development Center (FFRDC) funded primarily through a grant from the National Science Foundation (NSF). It is operated by the University Corporation for National Research (UCAR), a consortium of universities. Intellectual property and commercialization of NCAR technology is accomplished through the UCAR Foundation (UCARF), a non-profit organization chartered by UCAR. For further information, visit www.ucar.edu.

POST-PROCESSING TECHNOLOGY

INPUT

NUMERICAL WEATHER PREDICTION MODELS + WEATHER STATION OBSERVATIONS

GWC FORECAST ENGINE

GWC PROCESSING

DATA INGEST

FORECAST MODULE A | FORECAST MODULE B | FORECAST MODULE C | FORECAST MODULE D | FORECAST MODULE ...N

Multiple bias-adjusted forecasts are generated from available numerical model outputs.

INTEGRATOR

Forecast error as function of W_1 & W_2

Forecasts are combined using fuzzy logic. An optimal forecast is derived for a given location/time.

FORWARD ERROR CORRECTION

Forecasts are corrected for consistency with current observations.

GWC FORECAST SERVICES

OUTPUT

sensor WX | point WX | road WX | wind WX | solar WX