

# Analysis of One- to Five-Day-Out Global Temperature, Wind Speed, Precipitation, and Opacity Forecasts

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## Introduction

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Everyone is affected by the weather and virtually everyone has at least some degree of interest in knowing what the weather will be like in the coming days. Relying on weather forecasts helps people plan for severe and deadly weather events to stay safe and keep their property protected. Weather forecasts also help everyone make normal daily plans, such as for commutes, picnics, hikes, day trips, selection of appropriate clothing, environmental allergies or other health-related issues, and more. Substantial financial impacts can be at stake for businesses that depend highly on weather forecasts and need to plan for weather events, such as businesses that depend on energy, agriculture, and transportation. In the past three years (2020–2022), the United States alone saw a total of 60 individual billion-plus-dollar weather and climate disasters (22 in 2020, 20 in 2021, and 18 in 2022). Before 2020, the most for a single year was 18.

This causes people and businesses to look to weather forecasts—and their accuracy—more than ever to try to mitigate losses by preparing for what is coming. If weather forecasts are not accurate, damages and fatalities from severe weather increase and the perception of forecasting value decreases. It is important for businesses that rely on weather forecasts to evaluate the accuracy of past forecasts to help evaluate risks and opportunities. It is also imperative for weather forecast providers themselves to evaluate the accuracy of past forecasts to identify areas for which improvement is needed. Not only is this improvement important to sustain relationships and trust with customers and users of their forecasts, but it is also necessary to save lives and minimize damages from severe weather events.

This report provides a holistic analysis of weather forecast performance for five different metrics for global forecasts made one to five days in advance in January through June 2022. The five different metrics include high temperature, low temperature, wind speed, probability of precipitation (POP), and opacity (sky cover). This report examines forecasts from 25 different weather forecast providers. Eighteen providers forecasted globally and 15 forecasted for all five metrics. Two providers only provided forecast data up to four days out. Only 13 providers gave forecast data globally, for all metrics, and for up to at least five days out.

Each provider was given one point for each month the provider finished in first place for a given metric at a given location. For ties, a point was given to all providers involved in the tie. The total number of points was counted and used to rank forecast providers.

In this analysis, Microsoft was determined to be the overall most accurate provider globally and in the metrics of high temperature, low temperature, and wind speed. Foreca/Vaisala was the most accurate for probability of precipitation, and Wetter for sky cover.

## One- to Five-Day-Out Skill Summary

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A total count of the number of first-place finishes across all five metrics results in Microsoft with the most. Microsoft amassed a total of 16,677 first-place finishes globally across all five metrics for one to five days out. Second place was The Weather Channel with a total of 12,749 first-place finishes, followed by Foreca/Vaisala with 6,365. For the percentage of first-place finishes, Microsoft claimed 26.26%, The Weather Channel claimed 20.08%, and Foreca/Vaisala claimed 10.02%.

Microsoft finished with the most first-place finishes in the metrics of high temperature within three degrees Fahrenheit, low temperature within three degrees Fahrenheit, and wind speed mean absolute error. They finished second in opacity within one category, and third in POP Brier score. Foreca/Vaisala took first in POP Brier score and Wetter took first in opacity within one category.

Table 1 shows the number of first-place finishes by forecast provider and metric, along with the total number of first-place finishes by forecast provider – for the 13 providers that provided forecast data globally, for all five metrics, and for at least five days out. Table 2 shows the percentage of first-place finishes for these providers. In both tables, the yellow highlighting indicates the top provider in each metric and total. Table 3 shows the overall rank of each of these 13 providers, by metric and overall number/percentage of first-place finishes.

Table 4 indicates the reasons why each of the other 12 providers was not eligible to receive all possible first-place points – either because they did not provide forecast data globally, did not provide forecast data for all five of the metrics, did not provide forecast data at least five days out, or some combination of those impediments.

Table 5 and Table 6 indicate the total number and percentage, respectively, of first-place finishes for these other 12 providers. Table 7 indicates the overall rank of these other 12 providers that were inhibited in at least one way from receiving consideration for all the potential first-place finishes.

For high temperatures within three degrees Fahrenheit, five of the 25 providers captured over 86% of the first-place finishes: Microsoft (36%), The Weather Channel (24%), Global Weather Corp (10%), AccuWeather (9%), and Foreca/Vaisala (7%). The same five providers had over 81% of the first-place finishes for low temperatures within three degrees Fahrenheit: Microsoft (28%), The Weather Channel (21%), AccuWeather (11%), Global Weather Corp (11%), and Foreca/Vaisala (10%). Weather Trends added another 7% of the first-place finishes for low temperatures. These six providers obtained 88.9% of all first-place finishes for high and low temperatures combined. It is noted that Global Weather Corp did not provide forecast data for any of the other three metrics, only for high and low temperatures.

Provider	Total First-Place Finishes	High within 3 Degrees Fahrenheit	Low within 3 Degrees Fahrenheit	Precipitation (POP) Brier Score	Wind Speed Mean Absolute Error	Sky Cover Same or 1 Category Off
AccuWeather	3515	1117	1304	36	561	497
AerisWeather	1055	98	131	85	6	735
Dark Sky	2368	183	269	1009	304	603
Foreca/Vaisala	6365	861	1232	3378	183	711
Microsoft	16677	4329	3372	2372	4783	1821
OpenWeather	858	11	8	166	37	636
Pelmorex	691	37	26	92	133	403
The Weather Channel	12749	2932	2446	2697	4024	650
Weather Trends	2090	394	844	182	5	665
Weatherbit	674	49	11	124	99	391
Weerplaza	2284	34	45	318	117	1770
Wetter	3964	16	11	61	342	3534
World Weather Online	1802	6	19	15	24	1738

Table 1: Number of First-Place Finishes by Provider and Metric for Providers that Provided Forecast Data Globally, for All Five Metrics, and for All Five Days Out

Provider	Overall Percentage	High within 3 Degrees Fahrenheit	Low within 3 Degrees Fahrenheit	Precipitation (POP) Brier Score	Wind Speed Mean Absolute Error	Sky Cover Same or 1 Category Off
AccuWeather	5.54%	9.28%	10.97%	0.33%	5.15%	2.79%
AerisWeather	1.66%	0.81%	1.10%	0.78%	0.06%	4.13%
Dark Sky	3.73%	1.52%	2.26%	9.27%	2.79%	3.39%
Foreca/Vaisala	10.02%	7.15%	10.36%	31.03%	1.68%	3.99%
Microsoft	26.26%	35.97%	28.36%	21.79%	43.93%	10.23%
OpenWeather	1.35%	0.09%	0.07%	1.53%	0.34%	3.57%
Pelmorex	1.09%	0.31%	0.22%	0.85%	1.22%	2.26%
The Weather Channel	20.08%	24.36%	20.57%	24.78%	36.96%	3.65%
Weather Trends	3.29%	3.27%	7.10%	1.67%	0.05%	3.74%
Weatherbit	1.06%	0.41%	0.09%	1.14%	0.91%	2.20%
Weerplaza	3.60%	0.28%	0.38%	2.92%	1.07%	9.94%
Wetter	6.24%	0.13%	0.09%	0.56%	3.14%	19.85%
World Weather Online	2.84%	0.05%	0.16%	0.14%	0.22%	9.76%

Table 2: Percentage of First-Place Finishes by Provider and Metric for Providers that Provided Forecast Data Globally, for All Five Metrics, and for All Five Days Out

Provider	Overall Rank	High Temp Rank	Low Temp Rank	POP Rank	Wind Speed Rank	Sky Cover Rank
Microsoft	1	1	1	3	1	2
The Weather Channel	2	2	2	2	2	11
Foreca/Vaisala	3	5	5	1	6	8
Wetter	4	21	20	13	4	1
AccuWeather	5	4	3	15	3	14
Dark Sky	7	8	8	4	5	13
Weerplaza	8	18	15	5	9	3
Weather Trends	9	6	6	7	16	10
World Weather Online	11	23	18	17	13	4
AerisWeather	13	12	12	12	14	7
OpenWeather	15	22	22	8	12	12
Pelmorex	16	17	17	10	8	15
Weatherbit	17	14	20	9	11	16

Table 3: Rank of Number/Percentage of First-Place Finishes by Provider and Metric for Providers that Provided Forecast Data Globally, for All Five Metrics, and for All Five Days Out

Provider	Regions With Forecast Data If Not Global	Metrics For Which Forecast Data Not Provided	Other Reasons
Australian BOM	Australia Only	Wind Speed	
BBC	UK Only	POP and Wind Speed	
CFAN	US Only	POP, Wind Speed, and Sky Cover	
Global News		POP and Wind Speed	
Global Weather Corp		POP, Wind Speed, and Sky Cover	
MeteoFrance	France Only	POP	
NWS Digital Forecast	US Only	Wind Speed	
National Weather Service	US Only	Wind Speed	No 5-Day-Out Forecast
UK Met Office	UK Only		
Weather News		Wind Speed and Sky Cover	
WetterOnline			No 5-Day-Out Forecast
yr.no		POP	

Table 4: Forecast Providers Not Eligible for All First-Place Points and Reason(s)

Provider	Total First-Place Finishes	High within 3 Degrees Fahrenheit	Low within 3 Degrees Fahrenheit	Precipitation (POP) Brier Score	Wind Speed Mean Absolute Error	Sky Cover Same or 1 Category Off
Australian BOM	8	0	0	3		5
BBC	326	119	160			47
CFAN	492	218	274			
Global News	66	6	1			59
Global Weather Corp	2437	1157	1280			
MeteoFrance	542	89	79		0	374
NWS Digital Forecast	207	43	58	53		53
National Weather Service	1894	127	133	86		1548
UK Met Office	122	19	29	1	6	67
Weather News	53	27	6	20		
WetterOnline	1374	123	135	187	116	813
yr.no	887	40	16		147	684

Table 5: Number of First-Place Finishes by Provider and Metric for Providers that Did Not Provide Forecast Data Globally, for All Five Metrics, and/or for All Five Days Out

Provider	Overall Percentage	High within 3 Degrees Fahrenheit	Low within 3 Degrees Fahrenheit	Precipitation (POP) Brier Score	Wind Speed Mean Absolute Error	Sky Cover Same or 1 Category Off
Australian BOM	0.01%	0.00%	0.00%	0.03%		0.03%
BBC	0.51%	0.99%	1.35%			0.26%
CFAN	0.77%	1.81%	2.30%			
Global News	0.10%	0.05%	0.01%			0.33%
Global Weather Corp	3.84%	9.61%	10.77%			
MeteoFrance	0.85%	0.74%	0.66%		0.00%	2.10%
NWS Digital Forecast	0.33%	0.36%	0.49%	0.49%		0.30%
National Weather Service	2.98%	1.06%	1.12%	0.79%		8.69%
UK Met Office	0.19%	0.16%	0.24%	0.01%	0.06%	0.38%
Weather News	0.08%	0.22%	0.05%	0.18%		
WetterOnline	2.16%	1.02%	1.14%	1.72%	1.07%	4.57%
yr.no	1.40%	0.33%	0.13%		1.35%	3.84%

Table 6: Percentage of First-Place Finishes by Provider and Metric for Providers that Did Not Provide Forecast Data Globally, for All Five Metrics, and/or for All Five Days Out



Provider	Overall Rank	High Temp Rank	Low Temp Rank	POP Rank	Wind Speed Rank	Sky Cover Rank
Global Weather Corp	6	3	4			
National Weather Service	10	9	11	11		5
WetterOnline	12	10	10	6	10	6
yr.no	14	16	19		7	9
MeteoFrance	18	13	13		17	17
CFAN	19	7	7			
BBC	20	11	9			21
NWS Digital Forecast	21	15	14	14		20
UK MetOffice	22	20	16	19	14	18
Global News	23	23	24			19
Weather News	24	19	23	16		
Australian BOM	25	25	25	18		22

Table 7: Rank of Number/Percentage of First-Place Finishes by Provider and Metric for Providers that Did Not Provide Forecast Data Globally, for All Five Metrics, and/or for All Five Days Out

First-place finishes for POP Brier scores were similarly concentrated, with four of the 25 providers earning 87% of the total first-place finishes: Foreca/Vaisala (31%), The Weather Channel (25%), Microsoft (22%), and Dark Sky (9%); however, six providers did not provide forecast data for POP and thus could not receive any first-place finishes: BBC, CFAN, Global News, Global Weather Corp, MeteoFrance, and yr.no.

Only two providers dominated wind speed forecasts: Microsoft with 44% of first-place finishes, and The Weather Channel with 37% of first-place finishes. The remaining 19% was split among 15 other providers, led by AccuWeather with 5%, Wetter with 3%, and Dark Sky also with 3%. Eight providers did not provide forecast data for wind speed and thus were not able to receive first-place finishes: Australian Bureau of Meteorology, BBC, CFAN, Global News, Global Weather Corp, National Weather Service, NWS Digital Forecast, and Weather News.

Finally, sky cover was the metric that was least dominated by individual providers. Seventeen of the 22 providers that provided forecast data for sky cover claimed at least 2% of first-place finishes, with only one provider claiming significantly more than others—Wetter with 20%. Microsoft, Weerplaza, and World Weather Online all claimed about 10%, with the National Weather Service (which did not provide forecast data globally, only for the US) fifth with 9%. Twelve other providers earned between 2% and 5% of the first-place finishes. Three providers—CFAN, Global Weather Corp, and Weather News—did not provide forecast data for sky cover.

Overall, five providers earned 68% of the total first-place finishes. This included Microsoft at 26%, The Weather Channel at 20%, Foreca/Vaisala at 10%, Wetter at 6%, and AccuWeather at 6%. Twelve other providers earned between 1% and 4% of first-place finishes.

It is noted, however, that only 15 of the 25 other providers provided forecast data for all five metrics. Furthermore, of the 15 providers that provided forecast data for all five metrics, 14 of them also were global forecasters (the UK Met Office was the exception, providing forecast data for the UK only). One of those 14 also did not provide forecast data for all five days out (WetterOnline only provided forecast data for four days out; the National Weather Service, which isn't global, also had forecast data for only four days out). Thus, 12 providers did not have the same potential for first-place votes as those other 13 providers, either because they did not provide forecast data for all metrics, did not provide global forecast data, did not provide forecast data for all five days out, or a combination of these factors. Providers that gave global forecast data, but not for all five metrics, include Global News, Global Weather Corp, Weather News, and yr.no. Providers that did not provide global forecast data include the Australian BOM, BBC, CFAN, MeteoFrance, National Weather Service, the NWS Digital Forecast, and the UK Met Office.

## Weather Metrics Analyzed

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### Temperature Metrics

ForecastWatch analyzed Model Output Statistics (MOS) high and low temperature forecasts. The metrics analyzed for these temperatures were the percent of forecasts within three degrees Fahrenheit.

#### Forecast Period Definitions

The daypart forecast and observation (used for all but MOS low) is defined as the “daytime” in the local standard time of the observation location. This was defined as 7 a.m. to 7 p.m. local standard time. The night-part forecast and observation (used for MOS low) were similar but used the period of 7 p.m. to 8 a.m. local standard time.

For all but low temperature forecasts, the forecasted days out was determined by subtracting the forecast day from the day the forecast was collected. For example, a MOS high temperature forecast for January 10, 2022, collected on January 1, 2022, would be a nine-day-out forecast. For the MOS low, the end day of the MOS low period is used. Thus, if the MOS low period was 7 p.m. January 9, 2022, through 8 a.m. January 10, 2022, the January 10 date would be used for days-out calculations.



## Observed High and Low Temperature

The maximum temperature from the 7 a.m. to 7 p.m. local standard time hourly observations was used to construct the high temperature observation. The minimum temperature from the 7 p.m. to 8 a.m. local standard time hourly observations was used to construct the low temperature observation. No attempt to determine high and low temperatures outside these periods, curve fit, or otherwise determine an intra-hour temperature estimate was performed.

## Percentage of Forecasts Within Three Degrees Fahrenheit

This metric refers to the percentage of forecasts that were within three degrees Fahrenheit, either too high or too low, of the observation. The winner in this metric would be the provider with the highest percentage of forecasts within three degrees Fahrenheit.

## Wind Metric

ForecastWatch analyzed 24-hour wind forecasts using one metric: wind speed mean absolute error.

### Wind Speed Mean Absolute Error

Average wind speed bias is the positive or negative difference between forecast wind speed and observed wind speed. The mean absolute error takes the absolute value of the error (bias) of each forecast so that all errors are positive, and then averages all errors. This measures how far off the set of forecasts is on average without regard for whether they were too high or too low. The provider with the lowest mean absolute error wins this metric.

## Precipitation Metric

ForecastWatch analyzed the 24-hour probability of precipitation using the metric of Brier score.

### Observed Precipitation

Precipitation measurements were taken from 24-hour local standard time precipitation observations. In the United States and Canada, if 0.01 inches or more of liquid-equivalent precipitation fell during any hour of that day, it was classified as a precipitation day. Internationally, if the observation report of weather noted precipitation, it was considered a precipitation day. Otherwise, it was considered a non-precipitation day.

### Brier Score

The probability of precipitation (POP) can be assessed in two ways: reliability and resolution. A POP forecast is reliable when precipitation occurs the same percentage of time it is predicted. For example,

if it rained 10% of the time, and the POP forecast called for a 10% chance of rain, the POP forecast would be considered reliable. But reliability is only half of the equation. Consider a scenario in which a forecaster always predicts a 30% chance of rain for a given location and, on average, there is precipitation in that location three out of every ten days. The POP forecast would be reliable, but not necessarily useful because it does not define with absolute certainty whether rain will take place or not; it is not resolved.

The other measure of a forecast is resolution. A resolved POP forecast would always predict either no chance of precipitation or a 100% chance of precipitation since precipitation either occurs or it does not. There is no place for POP in a resolved forecast. Now consider a forecast that predicts a 100% chance of precipitation on dry days and a 0% chance of precipitation on rainy or snowy days. It is resolved because it predicted either precipitation or completely dry conditions, but this example shows that a resolved forecast may not necessarily be reliable.

Therefore, to fully evaluate a POP forecast, both reliability and resolution must be considered. A Brier score, which considers both reliability and resolution, is one measure used to evaluate POP forecasts. A Brier score ranges from zero to one, with zero being perfectly reliable and resolved. The winner in this metric would be the provider with the lowest Brier score.

## Opacity Metric

ForecastWatch analyzed daytime (7 a.m. to 7 p.m.) MOS opacity forecasts using one metric for this report. This metric was the percentage of text forecasts with the same sky or one category off.

### **Percentage of Text Forecasts with Same Sky or One Category Off**

This is defined as the percentage of forecasts when the observed sky cover was the same as the text forecast provided, or one category off. Sky cover observations and text forecasts were converted to canonical Meteorological Terminal Air Report (METAR) reported sky covers: clear (sunny), few (mostly sunny), scattered (partly sunny/partly cloudy), broken (mostly cloudy), and overcast (cloudy). For example, a forecast of “scattered clouds” would be categorized as scattered. If the observation was scattered, few, or broken, the forecast would be considered the same or one category off. The provider with the highest percentage of text forecasts with the same sky cover, or one category off, would win this metric.

## Weather Forecast Providers

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- **AccuWeather:** Forecasts were collected using the AccuWeather API at <http://api.accuweather.com> using a specific location code
- **AerisWeather:** Forecasts were collected using the AerisWeather API at <https://www.aerisweather.com/develop/api/>
- **Australian BOM** (Australia only): Forecasts were collected from <http://reg.bom.gov.au/>
- **BBC** (UK Only): Forecasts were collected from the BBC website at <https://www.bbc.co.uk/weather/>
- **CFAN** (US only): Forecasts were collected from feed provided by CFAN
- **Dark Sky:** Forecasts were collected using the Dark Sky API at <http://api.forecast.io>; the latitude and longitude of the observation station were used to retrieve specific forecasts
- **Foreca/Vaisala:** Forecasts were collected from the ten-day forecast page at <http://www.foreca.com>, which used the API that populates the page; the location parameter used was a location code (either ICAO or WMO)
- **Global News:** Forecasts were collected from the Global News website at <https://globalnews.ca/>
- **Global Weather Corporation:** Forecasts were collected via a private commercial API provided by Global Weather Corporation
- **MeteoFrance** (France only): Forecasts were collected using the unofficial MeteoFrance Python client library (<https://github.com/hacf-fr/meteofrance-api>)
- **Microsoft:** Forecasts were collected from an API provided by Microsoft
- **NWS Digital Forecast** (US only): Forecasts were collected using the NWS Digital Forecast API at <https://graphical.weather.gov/xml/>
- **NWS Website** (US only): Forecasts were collected from the NWS website at <https://www.weather.gov>
- **Open Weather:** Forecasts were collected using the Open Weather API at <https://api.openweathermap.org/>
- **Pelmorex:** Forecasts were collected via a private commercial API provided by Pelmorex

- **The Weather Channel:** Forecasts were provided by a private commercial API from <https://api.weather.com>; the latitude and longitude of the observation station were used to retrieve specific forecasts
- **UK MetOffice (UK only):** Forecasts were collected using the UK MetOffice Datapoint API (<http://datapoint.metoffice.gov.uk/>)
- **Weather News:** Forecasts were collected from the <http://weathernews.jp/onebox/> website
- **Weather Trends:** Forecasts were collected from feed provided by Weather Trends
- **Weatherbit:** Forecasts were collected using the Weatherbit API from <https://api.weatherbit.io/>
- **Weerplaza:** Forecasts were collected from the Weerplaza website at <https://www.weerplaza.nl/>
- **Wetter:** Forecasts were collected from the <https://www.wetter.com> website
- **WetterOnline:** Forecasts were collected from the WetterOnline public API (<https://api.wetteronline.de>)
- **World Weather Online:** Forecasts were collected using the World Weather Online API at <http://api2.worldweatheronline.com/>
- **yr.no:** Forecasts were collected from the [yr.no](http://yr.no) website

## Collection Methodology

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### Observation Data

Observation data were collected from the primary Automated Surface Observing System (ASOS) network in the United States as well as international equivalents. United States and International data were collected from the Integrated Surface Database (ISD) product. Canadian data were collected from Environment Canada. All products consisted of hourly and daily observation parameters.

### Observed High and Low Temperature

The maximum and minimum temperature observations are from the 24-hour local standard time temperature observations and were used to construct the high and low temperature observations. These observations are generally either FM-12 (SYNOP), FM-15 (METAR), or FM-16 (SPECI) records.

United States 24-hour high and low temperature observations were collected from the Summary of the Day (SOD) records, which use five-minute sampling. All 24-hour high and low international observations were derived from hourly and special report observations. No attempt to curve fit or otherwise determine an intra-hour temperature estimate was performed.

## Observed Wind

Wind conditions were taken from hourly observations over the course of a 24-hour period from local midnight-to-midnight standard time. These observations were then averaged to construct the daily wind observation.

## Observed Precipitation

Precipitation measurements were taken from 24-hour local standard time precipitation observations. For United States and Canada locations, if 0.01 inches or more of liquid-equivalent precipitation fell during any hour of that day, it was considered to be a day with precipitation. Internationally, precipitation reports were used to determine precipitation observations. The occurrence or non-occurrence of precipitation was then compared to the POP forecast.

## Observed Opacity

Sky cover conditions were taken from hourly METAR observations over the course of a 24-hour period from local midnight-to-midnight standard time. These observations were then averaged to construct the daily opacity observation.

## Forecast Collection

Data were collected from each of eight regions at specific times during the day. Table 8 shows collection times and location counts for each region. For example, daily temperature forecasts were collected beginning at 22:00 UTC in the United States and continued until all forecasts were collected. For each location, forecasts from all providers were collected at the same time.

## Validity

Forecasts were considered valid if they were complete (i.e., they contained a high and low temperature forecast, a POP forecast, and a wind forecast), and if they passed both manual and automated audits. These audits checked for out-of-bounds values and other indicators that suggested the forecast should be marked as invalid. Forecasts that were simply bad (inaccurate or wrong) were



not considered invalid; however, forecast issues caused by system errors or delivery problems (such as a -32768 degree high temperature, a 120% chance of rain, or a 270 kph wind speed) were declared invalid.

Region	Collection Time	Number of Locations
United States	22:00 UTC	988
Canada	21:40 UTC	128
Europe	16:00 UTC	673
Asia Pacific	08:00 UTC	245
Africa	15:30 UTC	40
Middle East	13:00 UTC	108
Central America	23:00 UTC	18
South America	21:00 UTC	78

Table 8: Regions, Collection Times, and Location Counts

## About ForecastWatch.com

ForecastWatch, a service of Intellovations, LLC, has been the world’s premier weather forecast monitoring and analytics company since 2003. Our passion for data drives us every day. We collect weather forecast data from several thousand locations throughout the US and around the world. This information is added to an ever-growing and unparalleled historical database of more than one billion weather forecasts gathered from dozens of weather forecast providers and systems.

We use this vast collection of data to evaluate and compare weather forecast providers, improve decision-making by governments and business entities affected by weather, improve weather forecasting by meteorologists around the world, and educate customers with unbiased reporting. We strive to improve and expand our offerings to meet the needs of our current and future clients, finding ways to partner with them to help them evaluate their deliverables, keep their customers safe, or help make business-critical decisions by analyzing weather forecasts to positively affect revenue, operating costs, and risk mitigation costs.

Meteorologists, utilities, and energy companies depend on ForecastWatch's accurate data and analysis. Agriculture, futures traders, and other companies whose business depends on being right about the weather put their trust in us to help them achieve success. Even consumers benefit from our ForecastAdvisor product. Our data meets the highest standard of scientific inquiry and has been used in several peer-reviewed studies.

## Disclosure and Grant of License

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