Synoptic.

2025 Weather in Review

Observations Supporting Action: A Synoptic Data Report

Key observations of air temperature, wind, and precipitation from Synoptic's Weather API

Synoptic.

Review Report 2025

Observation Highlights 2025

1 Interesting Air Temperature Observations

- 123.1°F at Death Valley station DEVC1 on July 14, 2025
- -50.98°F at Fort Yukon Airport station PFYU on December 30, 2025

2 Warmest State | Florida

- Average Maximum Temperature of 83.46°F

3 Coldest State | Alaska

- Lowest Average Minimum Temperature of 28.43°F

4 Extreme Wind Gusts

- 147.4 mph at Mount Washington station KWMN on February 17, 2025
- 124.41 mph at Breckenridge Ski Area station CABP6 on December 18, 2025
- 119.99 at Hidden Peak Utah station HDP on December 17th, 2025
- 98.2 mph at Mt. Lukens Truck Trail station 149SE on January 8, 2025

5 Windiest State | Nebraska

- Average Maximum Daily Wind Gust of 24.46 mph

Volume of Data

170,000+ Stations

320+ Data Networks

42,000+ New Stations

47 New Networks Added

2.5+ Billion API Calls Annually

160+ Weather & Environmental Variables

Real-Time Weather & Environmental Data

Imagine you're trying to respond to a rapidly developing storm. You are evaluating data from multiple weather networks, radar feeds, and your own dashboards, and the information is scattered across different platforms, formats, and update schedules. By the time you've analyzed it all, critical minutes are lost. The Synoptic Data platform unifies all these networks in one place, changing everything! With Synoptic, you get a single source for data, standardized and updated in real time, so you can see the full picture immediately, make faster, more confident decisions, and focus on action instead of hunting for data.

Synoptic Data

When critical decisions depend on accurate weather and environmental conditions, having reliable data is essential. The Synoptic platform delivers:

1. **Comprehensive, real-time observations** from 170,000+ stations and 320+ networks worldwide.
2. **Integrated public and private data** in a single, accessible source for easier analysis and visualization.
3. **Actionable insights** that meteorologists, forecasters, scientists, and analysts rely on to protect people and property and advance research.

We're proud to be a Public Benefit Corporation (PBC) and B Corp certified company. Our mission is to expand access to weather and environmental data for all, serving as a trusted partner for communities and industries affected by weather, water, and environmental conditions.

In this Report

We've pulled a selection of notable observation data from our platform to illustrate what becomes possible when diverse, real-time weather and environmental inputs come together in one place. In the pages that follow, you'll find highlights and key insights observed across 2025. The data presented in this report are drawn from weather and environmental stations available within the Synoptic platform at the time of analysis. Observations are provided directly by participating data providers and reflect real-time and historical measurements as reported by their networks. This report is not an official climatological summary, but rather a collection of notable observations and patterns observed during 2025 from the Synoptic platform.

Air Temperature: Key temperature metrics and insights from our platform.

Wind: Key wind metrics from our platform, highlighting strong winds and notable gust events.

U.S. Precipitation: Top Rainfall Totals in the top 25 metropolitan cities in the US.

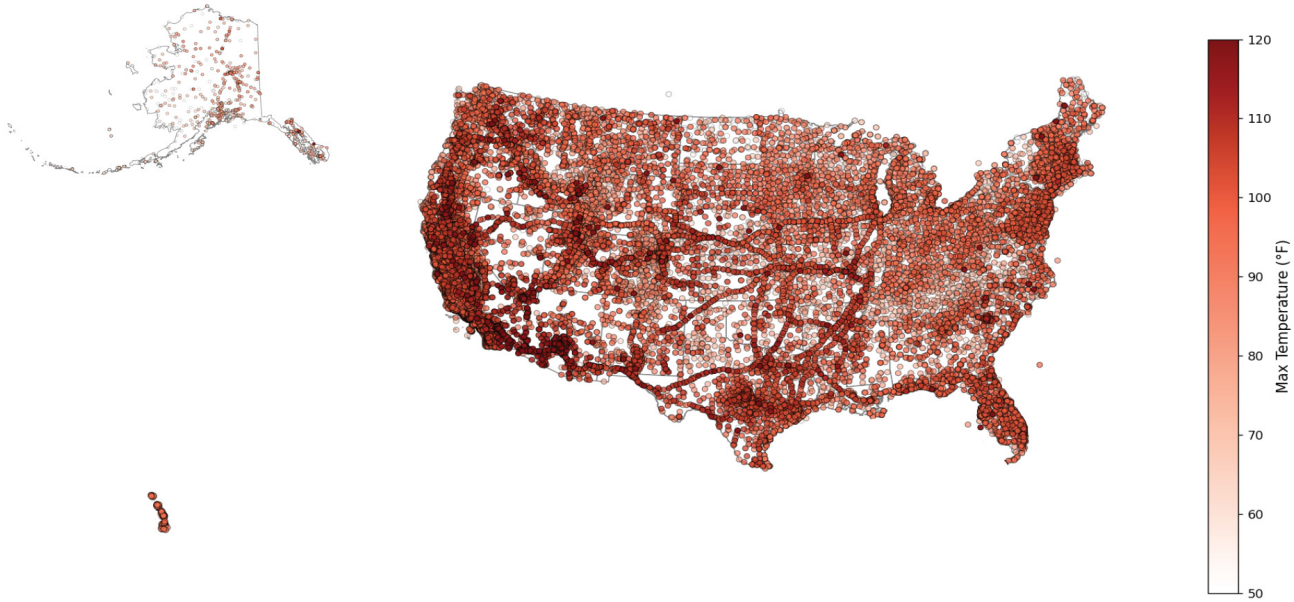
Weather Data Highlights from 2025 in the United States

2025

Air Temperature

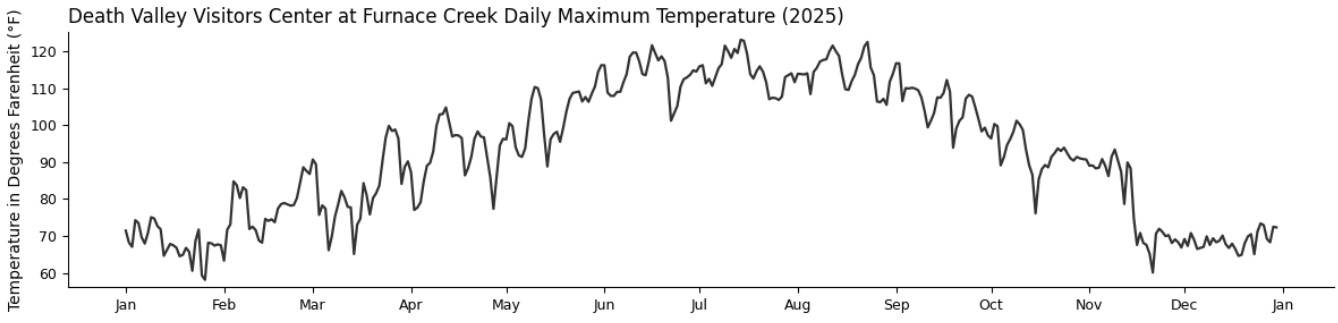
Air temperature is one of the most widely measured and influential weather variables, affecting public health and safety, energy demand, and transportation. Temperature observations provide insights for situational awareness, forecasting, and weather models, and demonstrate the importance of having data in localized areas and varying elevations. The maps and data in this section highlight the warmest and coldest air temperatures observed across the Synoptic platform in the U.S. during 2025.

Maximum Temperatures Across the U.S.

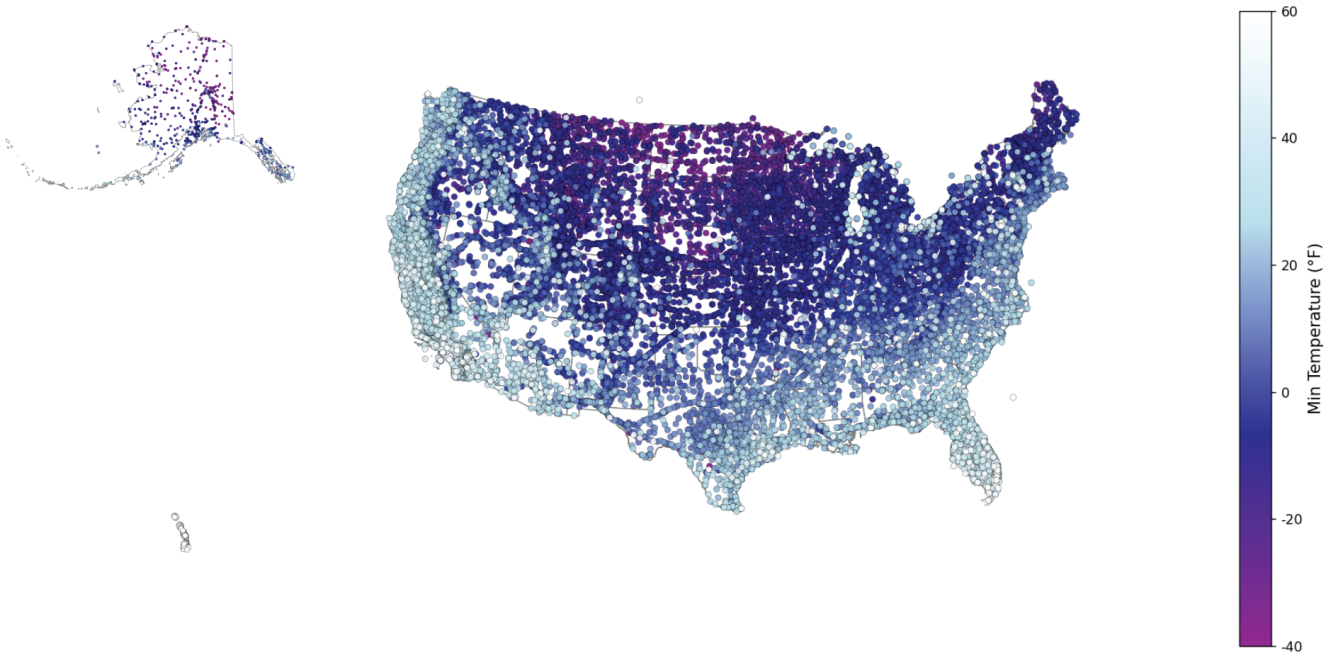


Interesting Observation — High Temperature

Death Valley can produce some of the hottest temperatures in the U.S. Below is a graph displaying the daily maximum temperatures at the Death Valley Visitors Center in 2025.

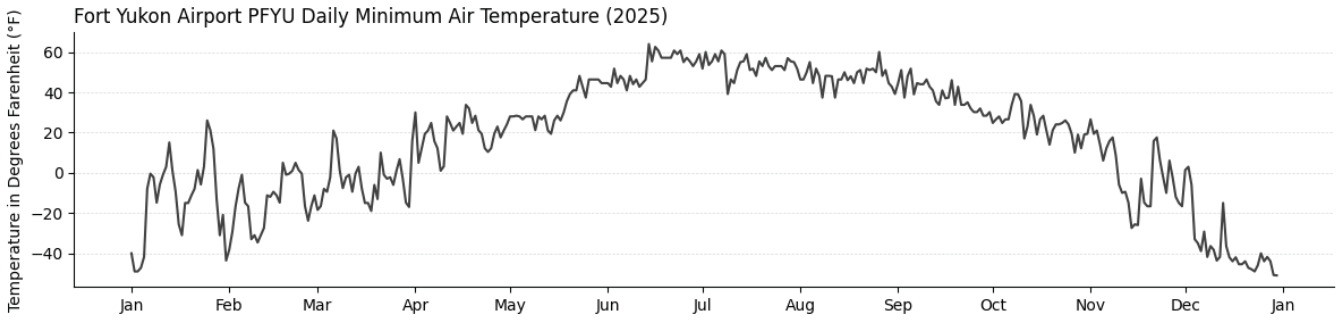


Minimum Temperatures Across the U.S.



Interesting Observation — Low Temperature

North and South Dakota experienced an extreme cold outbreak in 2025 — with temperatures dipping to -32°F in Minot, North Dakota, and -27°F in Mobridge, South Dakota on February 17. Fort Yukon, Alaska recorded even more extreme temperatures of below -40°F in January and December. Below is a graph displaying the Daily Minimum Temperatures at the Fort Yukon Airport in 2025.

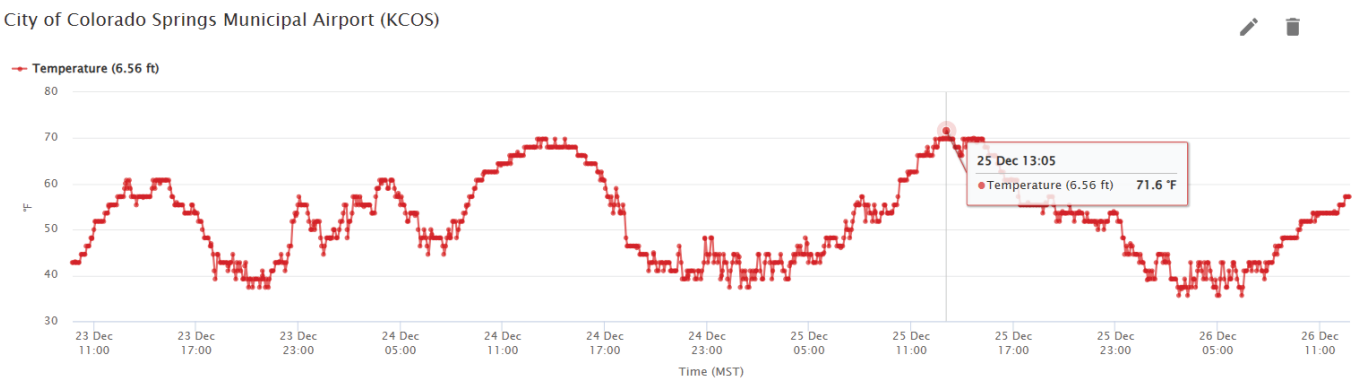


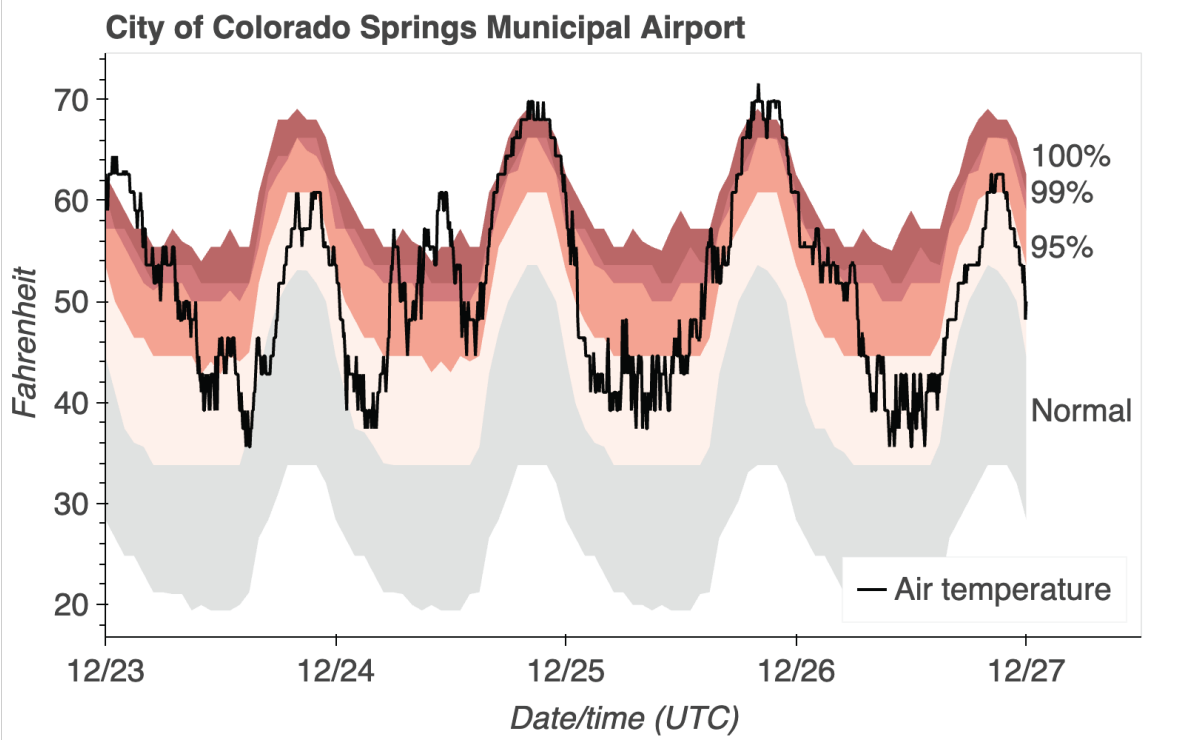
Air Temperature Case Study

Record Temperatures on Christmas Day

Widespread, unseasonable warmth made Christmas Day 2025 the warmest Christmas on record for the contiguous U.S., and cities such as Salt Lake City, Utah, Mountain Home, Arkansas, and Charlotte, North Carolina, broke their daily high temperature records. The Colorado Springs airport in Colorado also saw peak temperatures exceeding the 100th percentile on Christmas Day. The warm weather was concentrated across the Plains and south-central U.S., with many cities experiencing temperatures 15 to 35 degrees above average.

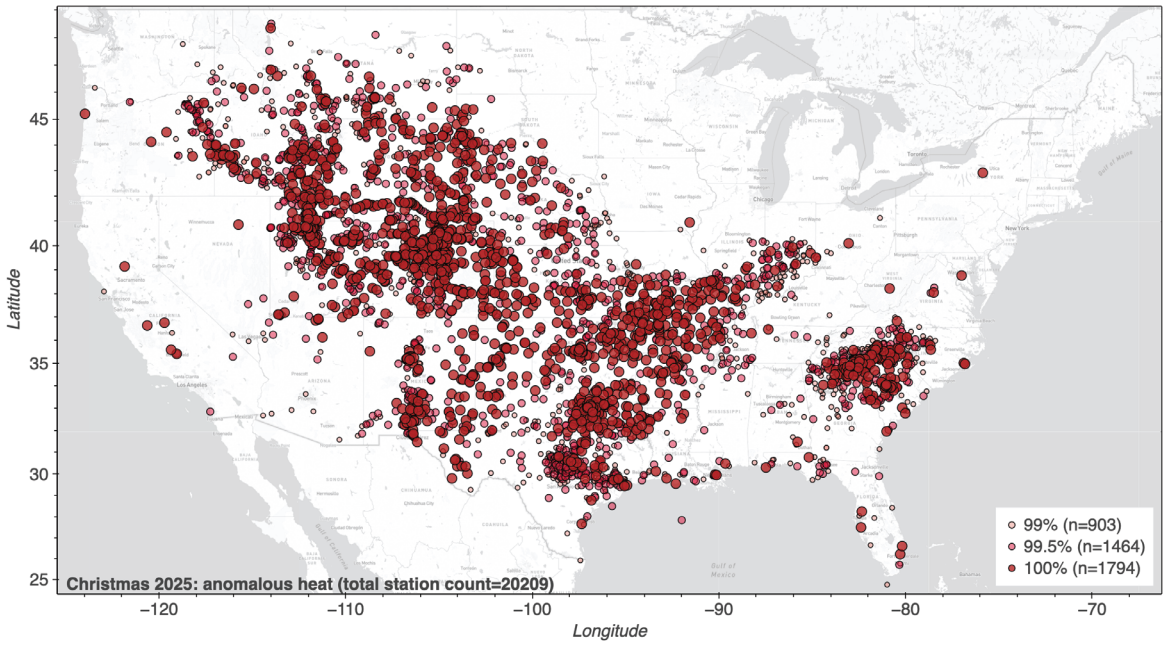
- **Salt Lake City, Utah (KSLC)** - recorded >60 °F on Christmas Eve, breaking their previous record of 59 °F set in 1955. Average high temperatures at this time are typically in the mid-30s to low 40s °F.
- **Mountain Home, Arkansas (Baxter County Airport KBPK)** - recorded 78.8 °F, more than 3 degrees warmer than the 1922 record in the area and 25 degrees above average temperatures.
- **Charlotte, North Carolina (KCLT)** - recorded 78.8 °F, breaking their previous record of 77°F set in 1955. Temperatures were over 25 degrees warmer than average.
- **Colorado Springs Airport, Colorado (KCOS)** - see the graph and chart below, showing the peak temperature at 71.6 °F, which is over the 100th percentile for the station.





What the Data Revealed:

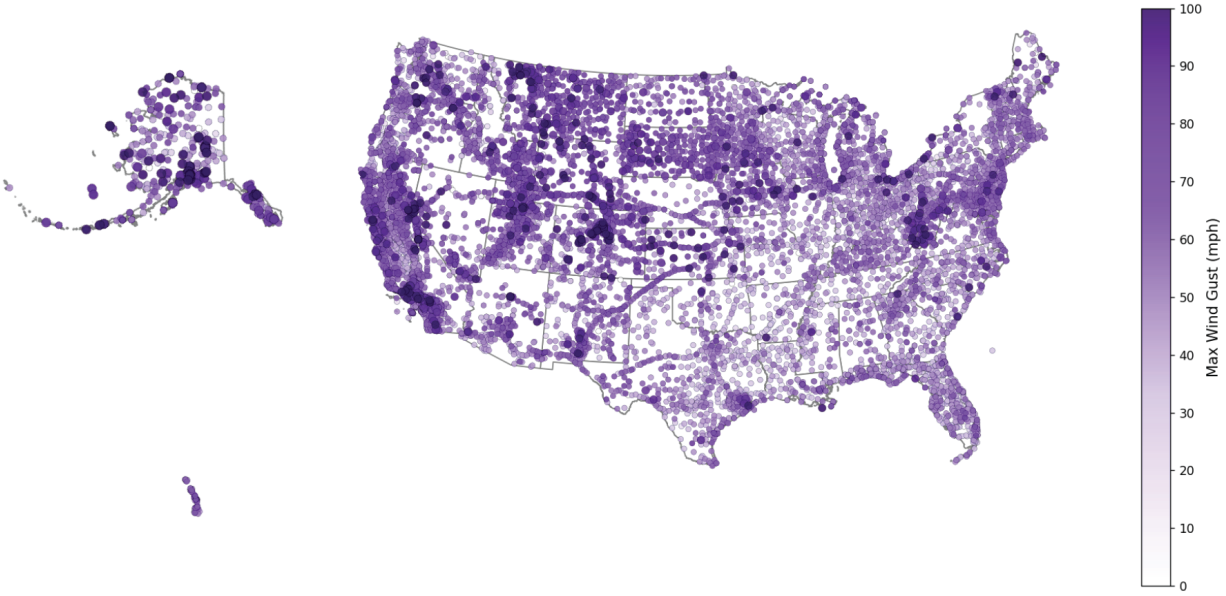
Below is a map of the stations across the U.S. where maximum temperatures from December 25 - 26, 2025, exceeded the 99th, 99.5th, and 100th percentile. Of the more than 20,000 stations in the analysis, over 4,000 reported a maximum temperature that exceeded the 99th percentile. Additionally, almost 2,000 stations recorded the highest Christmas Day temperature in their recorded history. This was truly a widespread Christmas heat event!



Wind Gust

Wind gusts represent short-duration peaks in wind speed that can pose significant risks to infrastructure, transportation, public safety, as well as cause power outages. Real-time wind measurements are extremely important for forecasting for public safety, providing watches and warnings, fire weather, and for utilities when considering power shut offs. This section highlights extreme wind gusts recorded across the Synoptic platform in the U.S. during 2025. Mapping these observations reveals where high-impact wind events occurred.

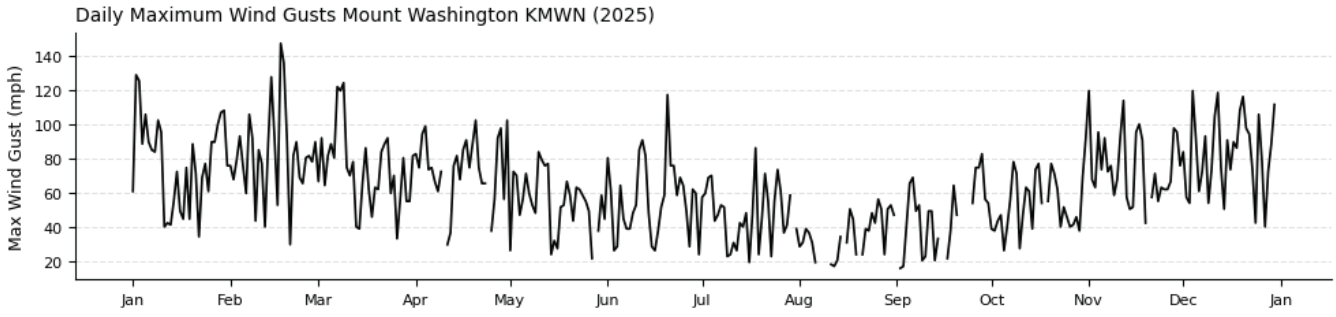
Maximum Reported Wind Gusts Across the U.S.



Interesting Observation — Wind Gusts

There were several significant wind events during 2025 in the U.S. In January, southern California saw wind gusts of 80 to 100 mph, fanning large wildfires and causing devastating damage. And in December, the Mountain West saw extreme wind gusts of up to 140 mph (see case study below for more details).

One of our favorite stations to monitor is Mount Washington, as it sees some of the most extreme weather, especially during winter months. Below is the daily maximum wind gusts for the Mount Washington station, reaching over 140 mph in February!



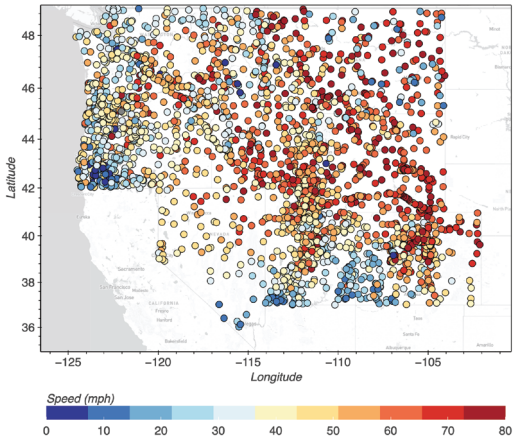
Wind Case Study

High Wind Event in the Intermountain West - December 17-18, 2025

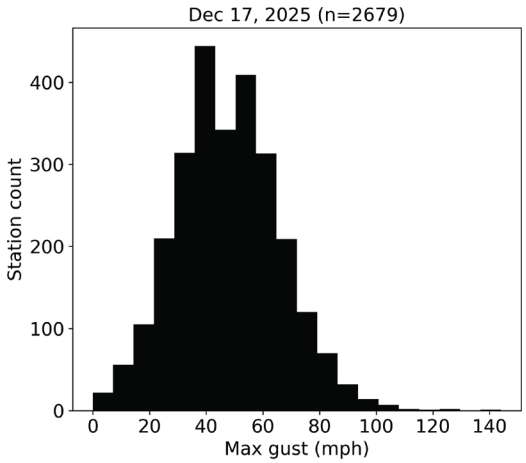
A widespread high-wind event impacted the Intermountain West on December 17-18, 2025, producing some of the highest recorded wind gusts in station history across Colorado, Montana, Oregon, Washington, Idaho, Utah, Nevada, and Wyoming.

Data Insights:

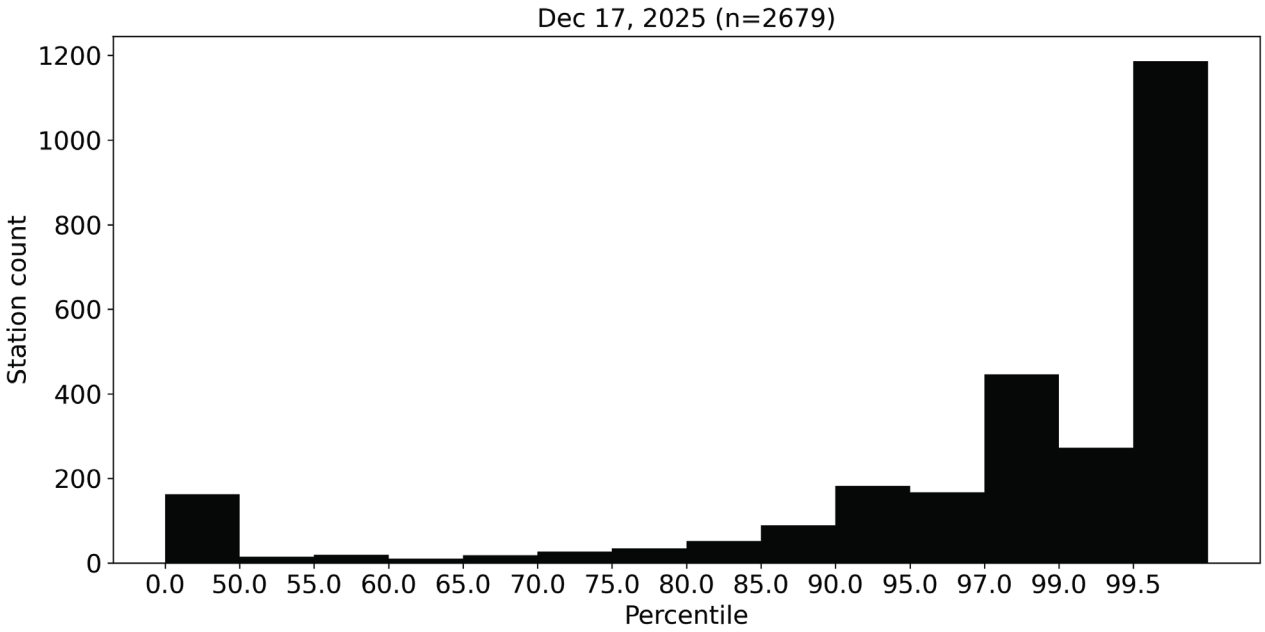
- Hundreds of stations recorded daily maximum wind gusts >60 mph, with numerous observations exceeding 90 mph and even 100 mph during the period of strongest winds.
- More than 1,000 stations reported gusts above the 99.5th percentile of their historical daily max distributions, indicating highly anomalous conditions relative to long-term records.
- Spatial analyses revealed widespread extreme gust activity across complex terrain, demonstrating the broad geographic reach of the event.



Maximum wind gusts across the region.



Histogram of the maximum daily wind gusts.



Daily maximum percentiles.

What the Data Revealed:

- High-frequency station observations captured the intensity and historical rarity of the gusts, showing how gust severity varied across the region and frequently exceeded typical thresholds for hazard conditions.
- Percentile analyses provided valuable context, revealing that many of the observed gusts were not just high in absolute speed but extreme relative to each station's climatology, helping explain the widespread impact on infrastructure and operations.
- Mapping the distribution of gusts confirmed the broad spatial footprint of the event, illustrating how synoptic conditions translated into locally intense wind phenomena across mountainous and plateau regions alike.

Precipitation

Precipitation plays a critical role in water resources, flood risk, agriculture, and urban planning, with impacts that vary widely across regions and seasons. The data in this section summarizes precipitation observations within the 25 largest U.S. metropolitan areas in 2025. These data highlight the importance of dense observational networks for understanding precipitation patterns in complex urban environments.

Top Stations with Precipitation in 25 Major Metropolitan Areas

City	Station ID	Station Name	Total Precip
Miami, FL	0323W	U of Miami Hecht Athletic Center	64.78
Jacksonville, FL	1325W	121 Financial Ballpark	56.03
Charlotte, NC	1470W	UNC Charlotte	50.66
Houston, TX	WOBT2	560 Little White Oak Bayou at Trimble Street	50.52
Washington, DC	1855W	GWU Mount Vernon Campus	48.78
Columbus, OH	0731W	The Ohio State University	44.50
Philadelphia, PA	E4529	EW4529 Bala Cynwyd	44.45
Boston, MA	0258W	Boston College	44.14
New York, NY	KNYC	New York City, Central Park	40.61
Dallas, TX	KDAL	Dallas Love Field	39.45
Portland, OR	G1777	GW1777 PORTLAND	39.05
Seattle, WA	C3683	CW3683 Seattle	38.92
Minneapolis, MN	HPN42	Minneapolis-Camden (HE32B)	38.23
San Diego, CA	E9873	EW9873 San Diego University Heights	36.99
Austin, TX	2098W	University of Texas at Austin	35.22
Chicago, IL	F4219	FW4219 Oak Park	31.86
San Antonio, TX	TW107	EAA Field Research Park	30.85
Phoenix, AZ	AZM15	Phoenix Encanto	23.54
San Francisco, CA	SFOC1	SAN FRANCISCO DOWNTOWN	21.38
Los Angeles, CA	AV668	K6LOT-13 Hollywood	15.22
San Jose, CA	F2287	FW2287 San Jose	15.12
Salt Lake, City, UT	NHMU	Natural History Museum Utah	15.09
Denver, CO	DCPC2	Denver Central Park	12.25

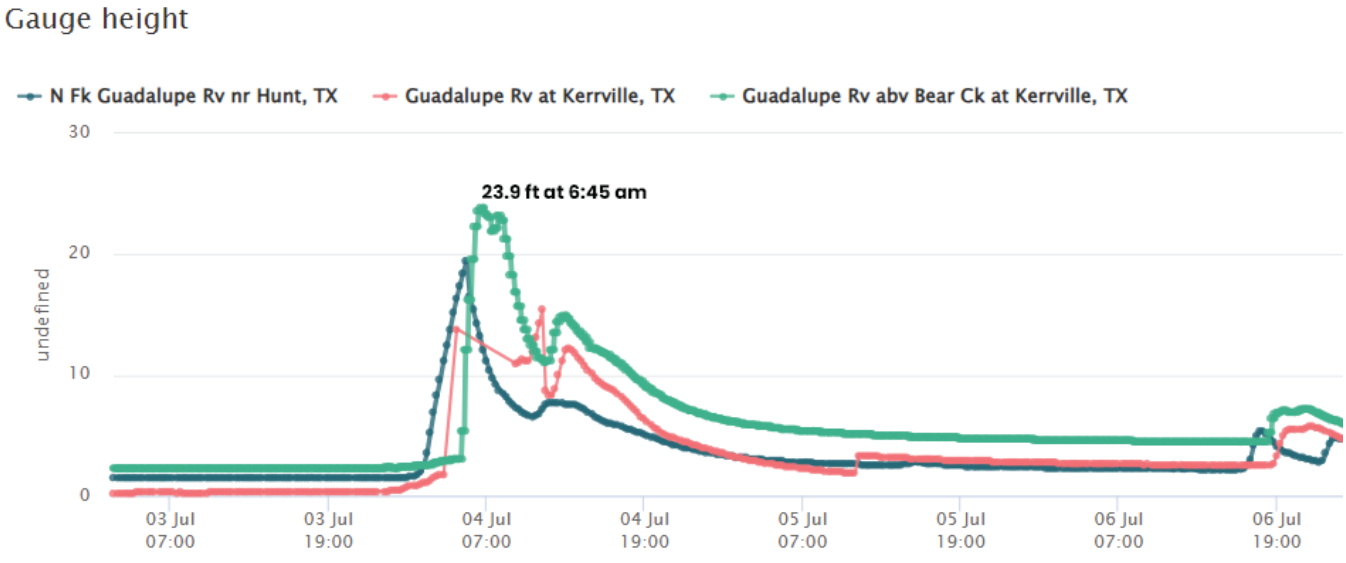
Precipitation Case Study

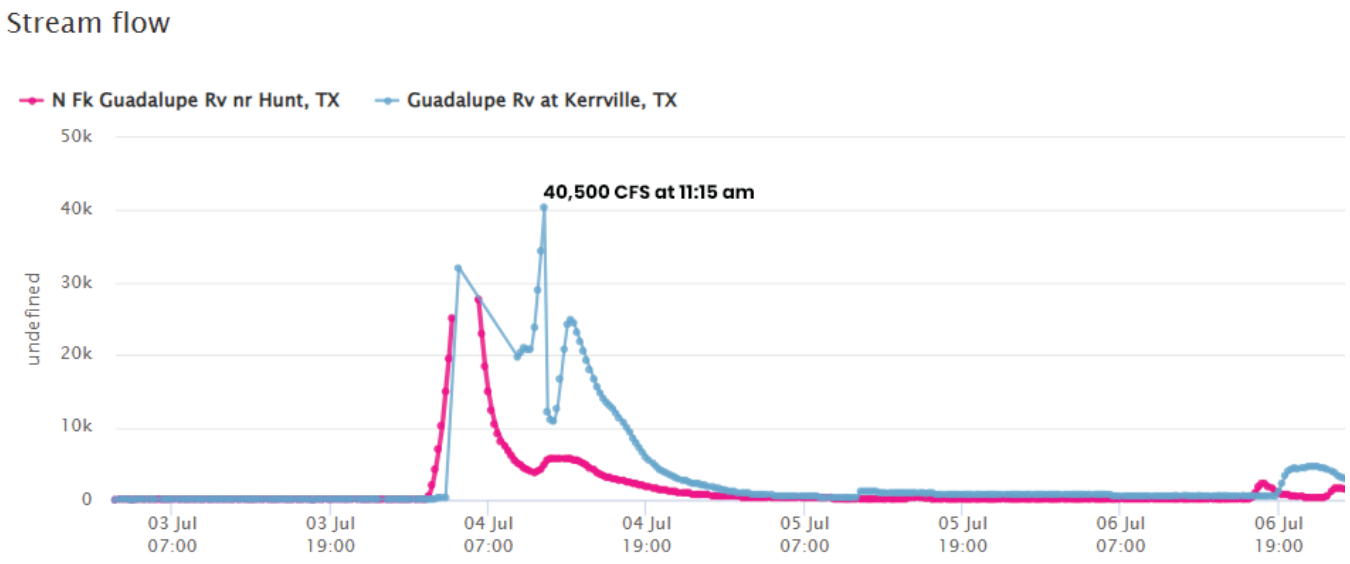
Texas Hill Country Flooding — July 4, 2025

Rapid flash flooding along the Guadalupe River devastated Central Texas during the July 4 holiday weekend, with rainfall totals exceeding 10 inches in 12 hours in some locations.

Data Insights:

- Stream flow at key USGS gauges jumped from ~17 CFS(Cubic Feet per Second) to over 25,000 CFS within ~3 hours.
- Gauge height rose from ~2 feet to over 19 feet in a 4-hour period, with some locations increasing >4 feet in under an hour.
- Rainfall accumulation surged from <0.5 in/hr to nearly 3 in/hr in 60–90 minutes.





Graph of gauge height and stream flow between July 3 and July 5, 2025 from USGS stations in the area along the river from Synoptic's Weather API.

What the Data Revealed:

- High-frequency rain and stream gauge data captured the rapid escalation of flooding, showing how quickly conditions shifted from manageable to dangerous.
- Observations confirmed extreme rainfall rates and sharp river rises that exceeded typical thresholds within hours, explaining the severity of impacts across the region.
- Combined station data illustrated how localized rainfall led to disproportionate downstream impacts, highlighting vulnerabilities in river basins and low-lying communities.
- The event demonstrated the importance of real-time, quality-controlled observations for understanding flash flood dynamics that radar or forecasts alone may not fully capture.

Conclusion

Synoptic Weather API

Behind every statistic, extreme value, and case study in this report is the ability to reliably access and work with high-quality weather data at scale. Synoptic's Weather API makes this possible by delivering real-time observations from hundreds of weather and environmental networks through a single, standardized interface. Rather than stitching together data from multiple sources, users can query temperature, wind, precipitation data, and more, consistently across regions and time periods—enabling faster analysis, clearer comparisons, and more confident conclusions.

As demonstrated throughout this report, the Weather API is transforming how organizations consume and use environmental data. Researchers, forecasters, utilities, and weather-driven platforms use the API in their operations to monitor conditions as they evolve and improve forecasts, watches and warnings. Using real-time, quality controlled data enables these organizations to make informed decisions based on reliable and timely information.

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