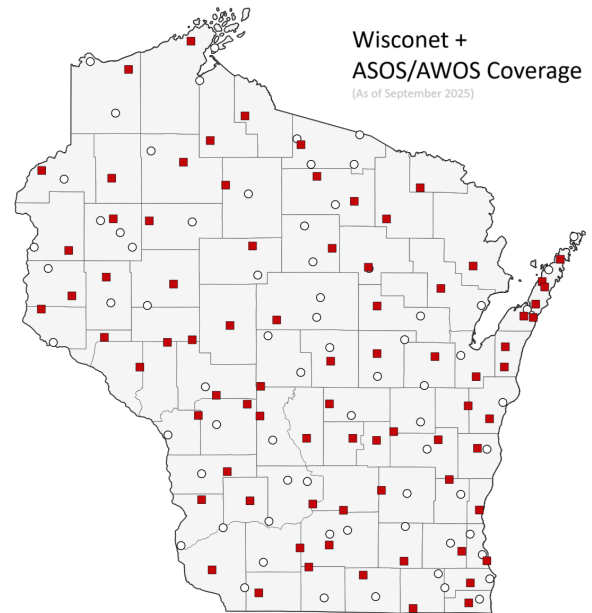


## What is a mesonet?

Wisconet, Wisconsin's mesonet, is a growing network of weather and soil monitoring stations across Wisconsin. A mesonet is a network of monitoring stations that are designed and situated to provide research-quality data at high spatial and temporal resolutions. Each Wisconet station provides **more than a dozen measurements every five minutes**. Data collected at these stations include:

- Air temperature
- Dew point & humidity
- Barometric pressure
- Wind speed & direction
- Solar radiation
- Rainfall
- Leaf & canopy wetness
- Soil moisture & temperature (2, 4, 8, 20, & 40 inch depths)
- Calculated variables → cattle comfort index, evapotranspiration, growing degree days



Map showing the combined Wisconet (squares) and ASOS/AWOS (circles) coverage in the state, as of September 2025.

## Why is a mesonet important?

The detailed, real time information gathered by mesonets like Wisconet make them valuable for several reasons:

- **Geography:** Wisconet reduces meteorological "blind spots." Local variations in Wisconsin's geography, such as land cover, proximity to the Great Lakes, and topography lead to variations in local weather and climate. Highly-localized monitoring networks like Wisconet allow this variability to be captured.
- **Rural Communities:** Localized weather events (e.g., at the county or city level) can have significant impacts on farms, homes, and communities. The Automated Surface/Weather Observing Systems, or [ASOS/AWOS network](#), at airports, tends to be more focused towards population centers and are less broadly distributed and thus has a smaller chance of capturing events in rural areas.
- **Forecasting:** Frequent and localized measurements provide forecasters with the ability to track the small-scale impacts of weather events in real time, enabling more timely forecasting for specific locations.
- **Decision-Making:** During emergency or hazardous situations, such as severe weather events, knowing the current conditions at a given location allows stakeholders to make crucial decisions based on accurate, up-to-date environmental information.

## How does Wisconet differ from other weather stations and networks?

You might be asking yourself how does Wisconet compare to other sources of real-time meteorological measurements, such as airports, home weather stations, and/or smartphone apps. Here are a few key points to consider with Wisconet:

- The instruments on Wisconet monitoring stations are **of the highest quality**, and the measured data is **quality-controlled** by Wisconet staff at UW-Madison.
- Wisconet stations **provide important information for plant growth** by measuring variables and calculating quantities that other networks do not, such as soil conditions, solar radiation, evapotranspiration, and growing degree days.

- Wisconet helps **fill in the gaps between airport stations** that provide high-quality real time weather information, but are more geographically spread out and report data less frequently (every 20 minutes versus every 5 minutes). The current conditions at the ASOS/AWOS airport station nearest to you can be accessed by navigating to the National Weather Service website (<https://www.weather.gov/>) and looking up your local forecast.

## How can farmers use Wisconet data?

Mesonets, like Wisconet, can have great value to farmers and farm advisors in making agronomic decisions for a farm, particularly since the data updates so rapidly. Wisconet data can be used in the following ways in agricultural operations:

- Irrigation scheduling with soil moisture, precipitation, and/or evapotranspiration data.
- Determining when to plant in the spring based on soil temperature and moisture at seeding depth.
- Mitigate soil compaction from field operations.
- Insect and disease forecasting [applications](#).
- Conditions for spraying based on wind speed and direction.
- Fall manure spreading or Nitrogen application (i.e., Are soil temperatures at or below 50°F?)
- Tracking GDD accumulation to predict crop maturity.
- Comparison of current conditions to previous years.

## How can you use Wisconet data in your daily life?

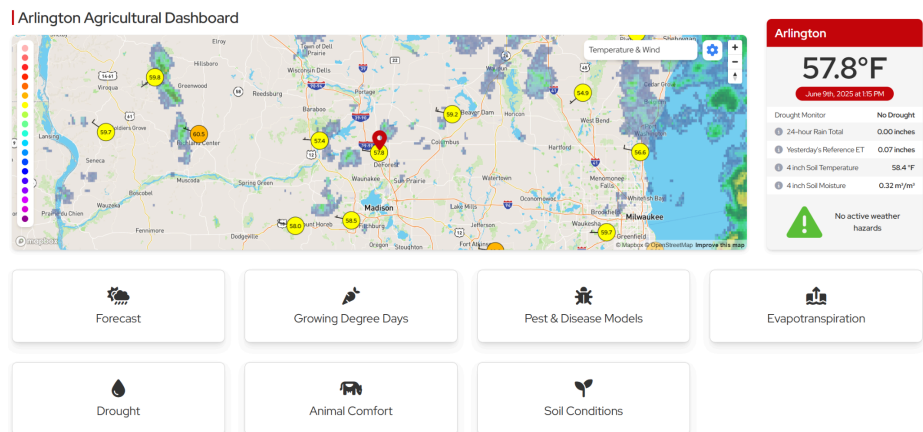
Along with having use to agricultural operations, Wisconet can have great value in planning daily activities since the data updates so frequently. As you make outdoor plans for the day, you can use Wisconet data to answer questions such as:

- What is the current temperature in my area?
- What is the risk of severe/hazardous weather today? Are there storms around?
- How much rain has fallen in the last several hours?
- How windy is it outside today?
- Are we currently in a drought? Things seem a bit dry in my garden.
- Are the soils in my area warm enough to start planting my garden?

## Not sure how to find the Wisconet information relevant to your farm/location?

Wisconet now offers an [Agricultural Dashboard](#), featuring location-specific ag weather variables based on data from your closest Wisconet station. Once you set your location, soil conditions, drought monitor, animal comfort indices, some pest and disease models, and other variables will all be in one place on your location-specific dashboard.

Wisconet also offers an [Outdoor Activities Dashboard](#), featuring



An example of the location-specific Wisconet Agricultural Dashboard.

current conditions, recent rainfall totals, severe weather outlooks, heat risk, and other variables for your location.

Wondering what the next few days look like weather-wise? These dashboards can help with that! The “Forecast” tile (available on both dashboards) links to the **latest 3-day National Weather Service forecast for your location**.

## Sources

- Campbell Scientific: <https://www.campbellsci.com/mesonets>
- Kentucky Mesonet: <https://www.kymesonet.org/about.html>
- Maryland Mesonet: <https://mesonet.umd.edu/fa-gs-all.html>
- National Mesonet Program: <https://nationalmesonet.us/protecting-lives-and-property/>
- Oklahoma Mesonet: <https://www.mesonet.org/about/benefits>