

## Thunderstorm Manager for Wind Energy

Modern software for real-time storm awareness and improved safety



### Key benefits

#### The best lightning data, at your fingertips

Thunderstorm Manager gets its data from the Vaisala-managed Global Lightning Dataset (GLD360) and National Lightning Detection Network (NLDN), which are used by many of the world's leading meteorological, aviation, military and large commercial organizations. They provide 99.99% uptime and unrivaled accuracy around the globe.

#### Maximum safety and operational continuity

Without having to maintain a lightning detection system or a database of their own, users receive immediate, actionable data to assess dangers in advance. They can confidently adjust strategies, take preventive actions, and make "all clear" decisions to keep operations going.

#### Anytime, all-terrain awareness

The application provides fast lightning alerts for any place in the world, including oceans, the highest mountain peaks, and other geographic locations not covered by radar or meteorological instruments.

#### Easy access and automated alerts from any location

A cloud-based application, Thunderstorm Manager can be accessed with a web browser from any location with internet access. Automated alerts can be sent by email, SMS, and HTTPS to multiple email addresses, phones, and on-site warning systems.

Personnel safety and operational efficiency are critical priorities in wind energy. Vaisala Thunderstorm Manager allows users to track approaching storms, enhance real-time decision-making, and minimize costly operational downtime.

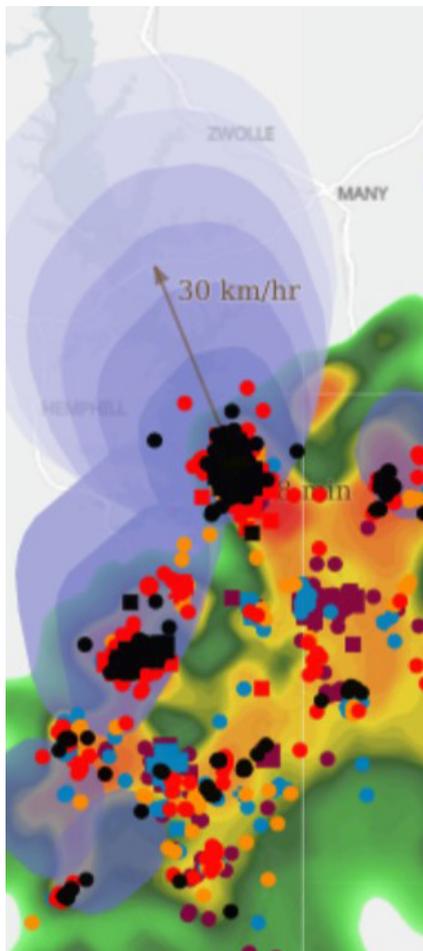
Particularly during wind farm construction and operation, crews and equipment are exposed to significant storm risks. With up-to-the-minute storm and lightning data, they can protect people and key wind energy assets, improve operational continuity, and avoid costly delays.

Thunderstorm Manager is the ideal comprehensive lightning detection system. A modern, cloud-based software tool, it requires no sensor or infrastructure investment and gives crews the best storm data in the world, in near real-time. Situational awareness is dramatically enhanced, decision-making is improved, and all stakeholders stay ready for anything.

## Thunderstorm Manager at a glance

### Applications

- Reliable, accurate lightning awareness during critical wind farm construction, commissioning, and operation phases
- Enhanced, automated safety stoppages and quick, decisive returns to work when the threat is clear
- Improved, simplified compliance and adherence to energy industry safety standards



### Key features

**Versatile display options** allow both cloud-to-ground and in-cloud lightning representation on a map. Display includes lightning polarity, magnitude of each strike, and a color-scaled time stamp to visualize storm path. Users can toggle between day and night modes, view global radar and infrared satellite layers, and create videos to replay storm and lightning data.

**Includes Vaisala Lightning Threat Zone**, which provides a one-hour forecast of potential lightning and severe weather, plus storm trajectory and storm cell velocity, to determine if and when a storm will impact a user's site.

**Multiple alert options**, including levels of alerts (Information, Warning, and Alarm) depending on the distance to the site, optional custom alert-area shape, multiple alert sites, choice of alert-triggering criteria, up to a 30-day alert history, and all-clear alert notifications.

**On-site warning system integration option** for outdoor flashing lights and sirens to warn outdoor personnel of threat, plus on-screen warning system connection status.

**Flexibility and integration** with an API available for feeding data into existing weather operations software. Thunderstorm Manager integrates seamlessly with Vaisala's other digital services and sensing systems, depending on user needs.

## Why Vaisala for renewable energy?

We are innovators, scientists, and discoverers who are helping fundamentally change how the world is powered. Vaisala elevates wind and solar customers around the globe so they can meet the greatest energy challenges of our time.

Our weather and environmental monitoring solutions for renewable energy are guided by several key priorities:

- Thoughtful evolution in a time of change
- Making renewable energy smarter at every stage
- Extending our legacy of leadership

Vaisala is the only company to offer 360-degree renewable energy solutions — from sensors and systems to digital services and actionable intelligence — nearly anywhere on the planet (and even on Mars). Every Vaisala solution benefits from our 85+ years of experience, pioneering deployments in 170+ countries, and unrivaled thought leadership.

**Our innovation story, like the renewable energy story, continues.**

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