

Lightning Threat Zone for Wind Energy

Localized, real-time awareness of thunderstorm and lightning risks



Thunderstorms are dangerous, difficult weather factors for wind energy stakeholders to manage. Crews have traditionally had to deal with thunderstorms reactively and imprecisely — putting lives, valuable assets, and operational continuity at risk.

Particularly during wind farm construction and operation, crews and equipment are exposed to significant thunderstorm events. And while safety is always a priority, massive costs are also incurred with excessive or imprecise operational stoppages. Be too cautious and you might cause too much costly downtime. Miscalculate in the other direction and you could put people in harm's way.

Lightning Threat Zone lets you observe, anticipate, and mitigate passing thunderstorms with precision. Available with Vaisala's Thunderstorm Manager, or via an API for direct integration into your systems, it analyzes data from Vaisala's world-class Global Lightning Dataset (GLD360) and National Lightning Detection Network (NLDN). The result is localized, timely, actionable insights when safety and operational continuity matter most.

Key benefits

Enhanced situational awareness

Lightning Threat Zone lets users follow developing storm situations in real time and from farther away than before. It enables them to visualize and quickly assess storm trajectory and storm cell velocity vectors, determine if and when a storm will impact their site, and identify if storms are developing or decaying. Users can also create alerts for approaching weather that could pose a lightning threat or bring severe conditions.

Peace of mind from the world's best lightning data

Lightning Threat Zone uses data from the Vaisala-managed GLD360 and NLDN networks, which are used by the U.S. Armed Forces, National Weather Service, Federal Aviation Administration, and many large power utilities and commercial organizations. There are no better single-source lightning data networks anywhere.

Optimized planning and operational continuity

Without having to maintain a lightning detection system of their own, users receive immediate, actionable data to assess dangers up to 60 minutes in advance. They can confidently adjust strategies and take preventive actions.

Flexibility and integration

Lightning Threat Zone is available with Vaisala's Thunderstorm Manager — the industry's leading comprehensive lightning warning software system — and it can be integrated via an API into other severe weather forecasting systems and weather operations tools.

Lightning Threat Zone at a glance

Applications

- Detailed thunderstorm tracking for threat assessment, improved forecasting, and reliable, confident operational decisions
- Localized warnings built into broader weather and forecasting practices to provide the most relevant information to the right people
- Minimizing costly downtime, maximizing safety, and protecting key wind energy assets



Key features

Incremental forecasting capabilities on thunderstorm cells up to 60 minutes out in 10-minute increments.

Global coverage with 99.99%+ uptime, providing high-quality lightning data that does not depend on other weather inputs.

Additional lightning information layer that includes forecast polygons and velocity vector data for each identified storm so users can better predict their lightning risk.

Quality lightning data powered by superior detection networks that accurately identify the most lightning events in the world.

A single source for global coverage that captures lightning and storm data even for the most remote locations.

Simple API query that can easily integrate into third-party weather systems and platforms.

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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